AFMSS

U.S. Department of the Interior
Bureau of Land Management

Application for Permit to Drill

## APD Package Report

Date Printed:

| | |
|---|---|
| APD ID: | Well Status: |
| APD Received Date: | Well Name: |
| Operator: | Well Number: |

APD Package Report Contents

- Form 3160-3

- Operator Certification Report

- Application Report
- Application Attachments
  -- Operator Letter of Designation: 1 file(s)
  -- Well Plat: 1 file(s)

- Drilling Plan Report
- Drilling Plan Attachments
  -- Blowout Prevention Choke Diagram Attachment: 1 file(s)
  -- Blowout Prevention BOP Diagram Attachment: 1 file(s)
  -- Casing Design Assumptions and Worksheet(s): 3 file(s)
  -- Proposed horizontal/directional/multi-lateral plan submission: 1 file(s)
  -- Other Facets: 1 file(s)

- SUPO Report
- SUPO Attachments
  -- Existing Road Map: 1 file(s)
  -- Attach Well map: 1 file(s)
  -- Production Facilities map: 4 file(s)
  -- Water source and transportation map: 1 file(s)
  -- Construction Materials source location attachment: 1 file(s)
  -- Well Site Layout Diagram: 2 file(s)
  -- Recontouring attachment: 1 file(s)
  -- Other SUPO Attachment: 4 file(s)

- PWD Report
- PWD Attachments
  -- None

- Bond Report

- Bond Attachments
  -- None

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.

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.

2. Name of Operator

9. API Well No. 30-039-31447

3a. Address

3b. Phone No. *(include area code)*

10. Field and Pool, or Exploratory

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface

At proposed prod. zone

11. Sec., T. R. M. or Blk. and Survey or Area

14. Distance in miles and direction from nearest town or post office*

12. County or Parish

13. State

| 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 |
|---|---|---|
| 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 |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc.) | 22. Approximate date work will start* | 23. Estimated duration |

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 |
|---|---|---|
| Title | | |
| Approved by *(Signature)* | Name *(Printed/Typed)* | Date |
| Title | Office | |

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

(Continued on page 2)

*(Instructions on page 2)

**Approval Date: 12/05/2023**

## 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.





**Approval Date: 12/05/2023**

## Additional Operator Remarks

### Location of Well

0. SHL: SWSW / 916 FSL / 390 FWL / TWSP: 23N / RANGE: 6W / SECTION: 3 / LAT: 36.248698 / LONG: -107.464489 ( TVD: 0 feet, MD: 0 feet )

PPP: SESE / 188 FSL / 312 FEL / TWSP: 23N / RANGE: 6W / SECTION: 4 / LAT: 36.246676 / LONG: -107.466893 ( TVD: 5501 feet, MD: 6056 feet )

BHL: LOT 4 / 453 FNL / 232 FWL / TWSP: 23N / RANGE: 6W / SECTION: 4 / LAT: 36.259361 / LONG: -107.482957 ( TVD: 5521 feet, MD: 12673 feet )

## BLM Point of Contact

Name: CHRISTOPHER P WENMAN
Title: Natural Resource Specialist
Phone: (505) 564-7727
Email: cwenman@blm.gov

**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.

# Conditions of Approval

| | |
|---|---|
| Operator: | Enduring Resources IV, LLC |
| Well Names: | Haynes Canyon Unit 428H Pad: HCU 428H, 430H, 440H, 442H<br>Haynes Canyon Unit 432H Pad: HCU 432H, 434H, 436H, 438H,<br>Northeast Lybrook COM 176H Pad: NELCA 262H and 263H |
| Legal Location: | Sec 3 & Sec 6 Township 23N, Range 6W, Rio Arriba County |
| NEPA Log Number: | DOI-BLM-NM-F010-2023-0067-EA |
| Inspection Date: | June 27, 2023 |
| Lease Number: | NMNM-028733, NMNM-142111X, NMSF-078362, NMNM-132829 |

The following conditions of approval will apply to Haynes Canyon Unit 428H, 432H, and NE Lybrook Com 176H Reoccupation (NELCA 262H) Oil and Gas Wells Project, and other associated facilities, unless a particular Surface Managing Agency or private surface owner has supplied to Bureau of Land Management and the operator a contradictory environmental stipulation. The failure of the operator to comply with these requirements may result in an assessment or civil penalties pursuant to 43 CFR 3163.1 or 3163.2.

**Disclaimers:** BLM's approval of the APD does not relieve the lessee and operator from obtaining any other authorizations that may be required by the BIA, Navajo Tribe, State, or other jurisdictional entities.

**Copy of Plans:** A complete copy of the APD package, including Surface Use Plan of Operations, Bare Soil Reclamation Plan, Plan of Development (if required), Conditions of Approval, Cultural Resource Record of Review, Cultural Resources Compliance Form (if required), and Project Stipulations (if required) shall be at the project area at all times and available to all persons.

**Review of NEPA documents:** It is the responsibility of the operator to follow all the design features, best management practices, and mitigation measures as contained in the Environmental Assessment DOI-BLM-NM-F010-2023-0067-EA, which contains additional design features and best management practices that must be followed. Copies of the EA, Decision Record, and Finding of No Significant Impact may be obtained from the BLM FFO public room, or online at: EplanningUi (blm.gov).

**Best Management Practices (BMPs)**: Farmington Field Office established environmental Best Management Practices (BMP's) will be followed during construction and reclamation of well site pads, access roads, pipeline ties, facility placement or any other surface disturbing activity associated with this project. Bureau wide standard BMP's are found in the Gold Book, Fourth Edition-Revised 2007 and at http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices.html. Farmington Field Office BMPs are integrated into the Environmental Assessment, Surface Use Plan of Operations, Bare Soil Reclamation Plan, and COAs.

**Construction, Production, Facilities, Reclamation & Maintenance**

**Construction & Reclamation Notification:** The operator or their contractor will contact the Bureau of Land Management, Farmington Field Office Environmental Protection Staff (505) 564-7600 or by email, at least 48 hours prior to any construction or reclamation on this project.

**Production Facilities:** design and layout of facilities will be deferred until an onsite with BLM-FFO surface protection staff is conducted to determine the best location. Enduring Resources or their contractor will contact the Bureau of Land Management, Farmington Field Office, Surface, and Environmental Protection Staff (505) 564-7600 to schedule a facility layout onsite.

**Staking:** The holder shall place slope stakes, culvert location and grade stakes, and other construction control stakes as deemed necessary by the authorized officer to ensure construction in accordance with the plan of development. If stakes are disturbed, they shall be replaced before proceeding with construction.

**Weather:** No construction or routine maintenance activities shall be performed during periods when the soil is too wet to adequately support construction equipment. If such equipment creates ruts more than 6 inches deep, the soil shall be deemed too wet.

**Stockpile of Soil:** The top 6 inches of soil material will be stripped and stockpiled in the construction zones around the pad [construction zones may be restricted or deleted to provide resource avoidance]. The stockpiled soil will be free of brush and tree limbs, trunks, and roots. The stockpiled soil material will be spread on the reclaimed portions of the pad [including the reserve pit, cut and fill slopes] prior to re-seeding. Spreading shall not be done when the ground or topsoil is frozen or wet.

**Painting of Equipment:** Within 90 days of installation, all above ground structures not subject to safety requirements shall be painted by the Holder to blend with the natural color of the landscape. A reflective material may be used to reduce hazards that may occur when such structures are near roads. Otherwise, the paint use shall be a non-glare, non-reflective, non-chalking color of: Federal 595a-34127 (Juniper Green).

**Storage Tanks:** All open top permanent production or storage tanks regardless of diameter made of fiberglass, steel, or other material used for the containment of oil, condensate, produced water and or other production waste shall be screened, netted, or otherwise covered to protect migratory birds and other wildlife from access.

**Compressors:** Compressor units on this well location not equipped with a drip pan for containment of fluids shall be lined with an impervious material at least 8 mils thick and a 12-inch berm. The compressor will be painted to match the well facilities. Any variance to this will be approved by the Authorized Officer (AO). Noise mitigation may be required at the time of compressor installation.

**Culverts:** Silt Traps/Bell Holes will be built upstream of all culvert locations.

**Driving Surface Area:** All activities associated within the construction, operation, maintenance, and abandonment of the well location is limited to areas approved in the APD or ROW permit. During the production of the well, vehicular traffic is limited to the daily driving surface area established during interim reclamation construction operations. This area typically forms a keyhole or teardrop driving surface from which all production facilities may be serviced or inspected. A v-type ditch will be constructed on the outside of the driving surface to further define the driving surface and to deter vehicular traffic from entering onto the interim reclamation areas.

**Contouring of Cut and Fill Slopes:** The interim cut and fill slope grade shall be as close to the original contour as possible. To obtain this ratio, pits and slopes shall be back sloped into the pad during interim reclamation. Only subsurface soil and material shall be utilized in the contouring of the cut and fill slopes. Under no circumstances shall topsoil be utilized as substrate material for contouring of cut and fill slopes.

**Maintenance:** In order to perform subsequent well operations, right-of-way (ROW) operations, or install new/additional equipment, it may be necessary to drive, park, and operate on restored, interim vegetation within the previously disturbed area. This is generally acceptable provided damage is promptly repaired and reclaimed following use. Where vehicular travel has occurred as a "convenience" and interim reclamation/vegetation has been compromised, immediate remediation of the affected areas is required. Additionally, where erosion has occurred and compromised the reclamation of the well location, the affected area must be promptly remediated so that future erosion is prevented, and the landform is stabilized.

**Layflat Lines:** Layflat lines used for development of the wells may be on the ground for a maximum of 6 months and shall be retrieved immediately following completion operations. If the layflat lines are needed for longer than 6 months a Sundry NOI shall be submitted to the BLM FFO for review and decision that includes a rationale for the time extension.

The holder or its contractors will notify the BLM of any fires and comply with all rules and regulations administered by the BLM concerning the use, prevention and suppression of fires on federal lands, including any fire prevention orders that may be in effect at the time of the permitted activity. The holder or its contractors may be held liable for the cost of fire suppression, stabilization and rehabilitation. In the event of a fire, personal safety will be the first priority of the holder or its contractors.

**"Hotwork" and Construction Affecting Fire Safety:** The holder or its contractors shall:

1. Operate all internal and external combustion engines (including off-highway vehicles, chainsaws, generators, heavy equipment, etc.) with a qualified spark arrester. Qualified spark arresters are maintained and not modified, and meet the Society of Automotive Engineers (SAE) Recommended Practices J335 or J350. Refer to 43 CFR §8343.1.
    a. *Refueling of any combustible engine equipment must be minimum of 3 meters away from any ignition source (open flame, smoking, etc.).*
2. Maintain and clean all equipment regularly to remove flammable debris buildup and prevent fluid leaks that can lead to ignitions.

3. Carry at least one shovel or wildland fire hand tool (combi, Pulaski, McLeod) per person working, minimum 5 gallons of water, and a fire extinguisher rated at a minimum as ABC - 10 pound on each piece of equipment and each vehicle.
4. When conducting "hotwork" such as, but not limited to welding, grinding, cutting, spark-producing work with metal, work that creates hot material or slag; choose an area large enough to contain all hot material that is naturally free of all flammable vegetation or remove the flammable vegetation in a manner compliant with the permitted activity. If adequate clearance cannot be made, wet an area large enough to contain all hot material prior to the activity and periodically throughout the activity to reduce the risk of wildfire ignition. Regardless of clearance, maintain readiness to respond to an ignition at all times. In addition, keep one hand tool per person and at least one fire extinguisher ready, minimum, as specified earlier (#3) during this activity.
5. Keep apprised of current and forecasted weather at https://www.weather.gov/abq/forecasts-fireweather-links and fire conditions at www.wfas.net and take additional fire precautions when fire danger is rated High or greater. Red Flag Warnings are issued by the National Weather Service when fire conditions are most dangerous, and ignitions escape control quickly. Extra precautions are required during these warnings such as additional water, designate a fire watch/patrol and tools. If work is being conducted in an area that is not clear of vegetation within 50 feet of work area; then, when fire danger is rated High or greater and 1. There is a predicted Red Flag warning for your area or 2. If winds are predicted to be greater than 10 mph, stop all hotwork activities for the day at 10 am.
6. In the event of an ignition, initiate fire suppression actions in the work area to prevent fire spread to or on federally administered lands. If a fire spreads beyond the capability of workers with the stipulated tools, all will cease fire suppression action and leave the area immediately via pre-identified escape routes.
7. Call **911** or the **Taos Interagency Fire Dispatch Center (575-758-6208)** immediately of the location and status of any fire.

   **AND**

   Notify the respective BLM field office for which the permit or contract was issued immediately of the incident.

   **Farmington Field Office at 505-564-7600**

   **Taos Field Office at 575-758-8851**

## Noxious Weeds

Inventory the proposed site for the presence of noxious and invasive weeds. Noxious weeds are those listed on the New Mexico Noxious Weed List and USDA's Federal Noxious Weed List. The New Mexico Noxious Weed List or USDA's Noxious Weed List can be updated at any time and should be regularly check for any changes. Invasive species may or may not be listed as a noxious weed but have been identified to likely cause economic or environmental harm or harm to human health. The following noxious weeds have been identified as occurring

on lands within the boundaries of the Farmington Field Office (FFO). There are numerous invasive species on the FFO such as Russian thistle (*Salsola spp.)* and field bindweed (*Convolvulus arvensis*).

| | |
|---|---|
| Russian Knapweed (*Centaurea repens*) | Musk Thistle (*Carduss nutans*) |
| Bull Thistle (*Cirsium vulgare*) | Canada Thistle (*Cirsium arvense*) |
| Scotch Thistle (*Onopordum acanthium)* | Hoary Cress (*Cardaria draba*) |
| Perennial Pepperweed (*Lepdium latiofolfium*) | Halogeton (*Halogeton glomeratus*) |
| Spotted Knapweed (*Centaurea maculosa*) | Dalmation Toadflax (*Linaria genistifolia*) |
| Yellow Toadflax (*Linaria vulgaris*) | Camelthorn (*Alhagi pseudalhagi*) |
| African Rue (*Penganum harmala*) | Salt Cedar (*Tamarix spp*.) |
| Diffuse Knapweed (*Centaurea diffusa*) | Leafy Spurge (*Euphorbia esula*) |

a. Identified weeds will be treated prior to new surface disturbance if determined by the FFO Noxious Weed Coordinator. A Pesticide Use Proposal (PUP) must be submitted to and approved by the FFO Noxious Weed Coordinator prior to application of pesticide. The FFO Noxious Weeds Coordinator (505-564-7600) can provide assistance in the development of the PUP.
b. Construction equipment should be inspected and cleaned prior to coming onto the work site. This is especially important on vehicles from out of state or if coming from a weed-infested site.
c. Fill dirt or gravel may be needed for excavation, road construction/repair, or for spill remediation. If fill dirt or gravel will be required, the source shall be noxious weed free and approved by the FFO Noxious Weed Coordinator.
d. The site shall be monitored for the life of the project for the presence of noxious weeds (includes maintenance and construction activities). If weeds are found the FFO Coordinator shall be notified at (505) 564-7600 and provided with a Weed Management Plan and if necessary, a Pesticide Use Proposal (PUP) . The FFO Coordinator can provide assistance developing the Weed Management Plan and/or the Pesticide Use Proposal.
e. Only pesticides authorized for use on BLM lands would be used and applied by a licensed pesticide applicator. The use of pesticides would comply with federal and state laws and used only in accordance with their registered use and limitations. (Company Name)'s weed-control contractor would contact the BLM-FFO prior to using these chemicals.
f. Noxious/invasive weed treatments must be reported to the FFO Noxious Weed Coordinator. A Pesticide Application Record (PAR) is required to report any mechanical, chemical, biological or cultural treatments used to eradicate, and/or control noxious or invasive species. Reporting will be required quarterly and annually or per request from the FFO Noxious Weed Coordinator.

**Bare ground vegetation trim-out:** If bare ground vegetation treatment (trim-out) is desired around facility structures, the operator will submit a bare ground/trim-out design included in their Surface Use Plan of Operations (SUPO). The design will address vegetation safety concerns of the operator and BLM while minimizing impacts to interim reclamation efforts. The design must include what structures to be treated and buffer distances of trim-out. Pesticide use

for vegetation control around anchor structures is not approved. If pesticides are used for bare ground trim-out, the trim-out will not exceed three feet from the edge of any eligible permanent structure (i.e., well heads, fences, tanks). Additional distance/areas may be requested and must be approved by the FFO authorized officer. The additional information below must also be provided to the FFO:

a. Pesticide use for trim out will require a Pesticide Use Proposal (PUP). A PUP is required ***prior*** to any treatment and must be approved by the FFO Noxious Weed Coordinator. Only pesticides authorized for use on BLM lands would be used and applied by a licensed pesticide applicator. The use of pesticides would comply with federal and state laws and used only in accordance with their registered use and limitations. Enduring Resources' weed-control contractor would contact the BLM-FFO prior to using these chemicals and provide Pesticide Use Reports (PURs) post treatment.
b. A Pesticide Use Report (PUR) or a Biological Use Report (BUR) is required to report any chemical, or biological treatments used to eradicate, or control vegetation on site. Reporting will be required quarterly and annually or per request from the FFO Noxious Weed Coordinator.

**Paleontology**

Any paleontological resource discovered by the Operator, 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 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.

**Visual Resources**

Dark Sky COAs need to be applied to existing lighting, which is not dark sky friendly and to any additional lights added as part of pad expansion. All permanent lighting will use full cutoff luminaires, which are fully shielded (i.e., not emitting direct or indirect light above an imaginary horizontal plane passing through the lowest part of the light source). All permanent lighting will be pointed straight down at the ground in order to prevent light spill to the sides. All permanent lighting will be 4000° Kelvin or less with 3000° Kelvin preferred. Warmer light colors are less noticeable by humans and cause less impact to wildlife. All permanent lighting will be controlled by a switch and/or timer which allows the lights to be turned on when workers are on location during dark periods but will keep the lights off the majority of the time.

**Wildlife Resources**

**Wildlife:** The proposed project intersects a known mule deer migration route. Big game habitat areas and hunting activities are valuable land uses which support BLM's multiple-use land management objectives. To maintain reasonable concurrence with surface use closure

requirements in other recognized mule deer migration areas in the BLM FFO, no surface use will take place December 1 – March 1.

**Hazards:** Wildlife hazards associated with the proposed project would be fenced, covered, and/or contained in storage tanks, as necessary.

**Migratory Bird:** Migratory nest survey stipulations. Once drilling and completion activities are complete, any open water that could be harmful to birds and wildlife. must be covered, screened, or netted to prevent entry.

**Threatened, Endangered or Sensitive Species:** If, in operations the operator/holder discovers any Threatened, Endangered, or Sensitive species, work in the vicinity of the discovery will be suspended and the discovery promptly reported to the BLM-FFO T&E specialist at (505) 564-7600. The BLM-FFO will then specify what action is to be taken. Failure to notify the BLM-FFO about a discovery may result in civil or criminal penalties in accordance with The Endangered Species Act (as amended).

**Noise:** This well is located within a designated Noise Sensitive Area (NSA). Once proposed project activities are complete, noise from pumpjack, compressor or other facilities cannot exceed 48.6 db at edge of Bald eagle ACEC core area. Any compressor that emits noise > 48.6db may require a 'noise wall' to deflect sound away from ACEC…

**Nesting:** If a bird nest containing eggs or young is encountered in the path of construction the operator will cease construction and consult with BLM to determine appropriate actions.

**Livestock Grazing:** Cattle are in allotment between 5/1 and 10/31. Industry may need to coordinate with permittee if concerns of livestock in area during construction.

**Soil, Air, Water**

**Land Farming:** No excavation, remediation or closure activities will be authorized without prior approval, on any federal or Indian mineral estate, federal surface, or federal ROW. A Sundry Notice (DOI, BLM Form 3160-5) must be submitted with an explanation of the remediation or closure plan for on-lease actions.

**Emission Control Standard:** Compressor engines 300 horsepower or less used during well production must be rated by the manufacturer as emitting NOx at 2 grams per horsepower hour or less to comply with the New Mexico Environmental Department, Air Quality Bureau's guidance.

**Waste Disposal:** All fluids (i.e., scrubber cleaners) used during washing of production equipment, including compressors, will be properly disposed of to avoid ground contamination, or hazard to livestock or wildlife.

**Cultural Resources**

**Non-Permitted Disturbance:** Construction, construction maintenance or any other activity outside the areas permitted by the APD will require additional approval and may require a new cultural survey and clearance.

**Employee Education:** All employees of the project, including the Project Sponsor and its contractors and sub-contractors will be informed that cultural sites are to be avoided by all personnel, personal vehicles, and company equipment. They will also be notified that it is illegal to collect, damage, or disturb cultural resources, and that such activities are punishable by criminal and or administrative penalties under the provisions of the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm) when on federal land and the New Mexico Cultural Properties Act NMSA 1978 when on state land.

**Discovery of Cultural Resources in the Absence of Monitoring:** Discovery of Cultural Resources in the Absence of Monitoring: If, in its operations, operator/holder discovers any previously unidentified historic or prehistoric cultural resources, then work in the vicinity of the discovery will be suspended and the discovery promptly reported to BLM Field Manager. BLM will then specify what action is to be taken. If there is an approved "discovery plan" in place for the project, then the plan will be executed. In the absence of an approved plan, the BLM will evaluate the significance of the discovery in accordance with 36 CFR Section 800.13, in consultation with the appropriate State or Tribal Historic Preservation Officer(s) and Indian tribe(s) that might attach religious and cultural significance to the affected property, **or in accordance with an approved program alternative.** Minor recordation, stabilization, or data recovery may be performed by BLM or a third party acting on its behalf, such as a permitted cultural resources consultant. If warranted, more extensive **archaeological or alternative mitigation,** likely implemented by a permitted cultural resources consultant, may be required of the operator/holder prior to allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any **mitigations determined appropriate through the agency's Section 106 consultation are completed**. Failure to notify the BLM about a discovery may result in civil or criminal penalties in accordance with the Archeological Resources Protection Act (ARPA) of 1979, as amended, **the Native American Graves Protection and Repatriation Act (NAGRPA) of 1990, as amended, and other applicable laws**.

**Discovery of Cultural Resources during Monitoring:** If monitoring confirms the presence of previously unidentified historic or prehistoric cultural resources, then work in the vicinity of the discovery will be suspended and the monitor will promptly report the discovery to the BLM Field Manager. BLM will then specify what action is to be taken. **If there is an approved "discovery plan" in place for the project, then the plan will be executed. In the absence of an approved plan, the BLM will evaluate the significance of the discovery in accordance with 36 CFR Section 800.13, in consultation with the appropriate State or Tribal Historic Preservation Officer(s) and Indian tribe(s) that might attach religious and cultural significance to the affected property, or in accordance with an approved program alternative. Minor recordation, stabilization, or data recovery may be performed by BLM or a third party acting on its behalf, such as a permitted cultural resources consultant. If warranted, more extensive archaeological or alternative mitigation, likely implemented by a permitted cultural resources consultant, may be required of the operator/holder prior to**

**allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any mitigations determined appropriate through the agency's Section 106 consultation are completed.**

**Damage to Sites:** If, in its operations, operator/holder damages, or is found to have damaged any previously documented or undocumented historic or prehistoric cultural resources, excluding "discoveries" as noted above, the operator/holder agrees at his/her expense to have a permitted cultural resources consultant prepare a BLM approved damage assessment and/or data recovery plan. The operator/holder agrees at his/her expense to implement a **mitigation** that the agency finds appropriate given the significance of the site, which the agency determines in consultation with the appropriate State or Tribal Historic Preservation Officer(s) and Indian tribe(s) that might attach religious and cultural significance to the affected property. **This mitigation may entail execution of the data recovery plan by a permitted cultural resources consultant and/or alternative mitigations.** Damage to cultural resources may result in **civil or criminal penalties in accordance with the Archeological Resources Protection Act (ARPA) of 1979, as amended, the Native American Graves Protection and Repatriation Act (NAGRPA) of 1990, as amended, and other applicable laws.**

**See below additional cultural stipulations.**

IN-HOUSE ARCHEOLOGICAL SURVEY DETERMINATION NM-210-2024-003
FARMINGTON FIELD OFFICE

Case No./Name: Haynes Canyon 428H Well Pad Date Submitted: 10/17/2023.
Company: Enduring
Type of Case: Well Pad

***IS A CULTURAL RESOURCE INVENTORY REQUIRED?***

☐ Proposal involves non-Federal lands.
☐ Proposal is within an existing right-of-way.
☒ Proposal is along an existing road.
☐ Proposal is within an existing disturbed area.
☐ The well pad is to be expanded feet to the .
☐ Other: This new well pad will be re-permitted and drilled on an existing location.
Please see the attached base map.

Submitted by: Kim A. on behalf of Chris W.

***CULTURAL RESOURCE SPECIALIST RECOMMENDATIONS***

☐ Inventory for cultural resources **is** required.

☒ Inventory for cultural resources **is not** required for the reason(s) indicated below.

☐ Previous natural ground disturbance has modified the surface so extensively that the likelihood of finding cultural properties is negligible (e.g., within a floodplain), or

☒ Human activity has created a new land surface to such an extent as to eradicate traces of cultural properties, or

☐ Existing Class II or equivalent inventory or environmental data are sufficient to indicate that there is no likelihood of finding a National Register or eligible property, or

☒ Inventory at the Class III level of intensity has previously been performed and records adequately documenting the location, methods, and results of the inventory are available in report no. NMCRIS No 130650
or

☐ Natural environmental characteristics are unfavorable to the presence of cultural properties (such as recent landslide or rock falls), or

☐ The nature of the proposed action is such that no impact can be expected on significant cultural resources (e.g. land use will not require any surface disturbing action, e.g., aerial spraying, hand application of chemicals, travel on existing roads, etc.), or

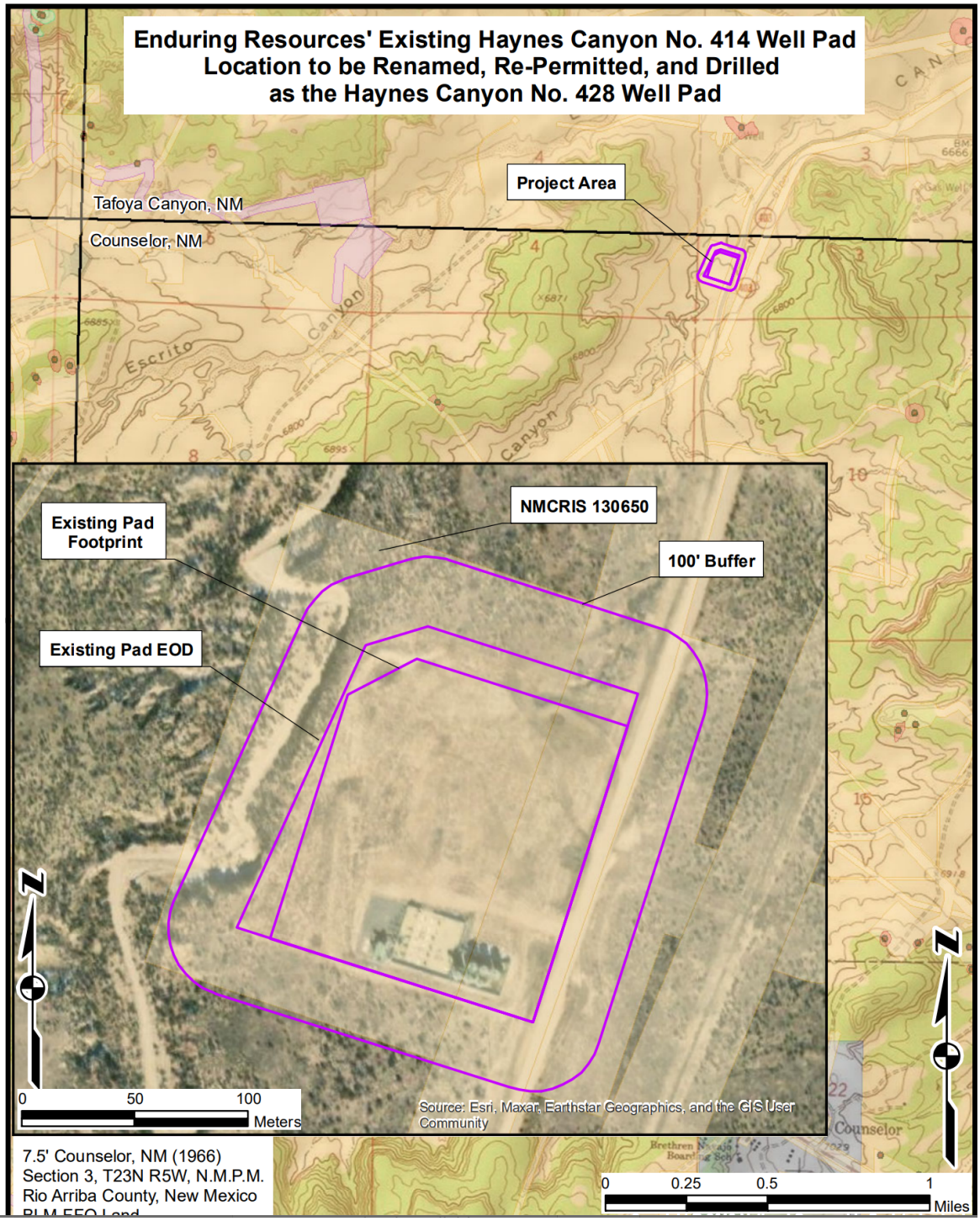
☐ Other:

Recommended by: Kim Adams Date: 10/17/2023
Archaeologist
Cultural Notes (if any, e.g., conditions, stipulations, etc.):


**Approval Date: 12/05/2023**

For Official Use Only
Disclosure of Site Locations is Prohibited (36CFR 296.18)

## VICINITY MAP






**Approval Date: 12/05/2023**

BLM Report Number: 2024(I)002F
USGS Map: Counselor & Tafoya Canyon, NM
Activity Code: 1310
NMCRIS No: 153816

# CULTURAL RESOURCE RECORD OF REVIEW

BUREAU OF LAND MANAGEMENT
FARMINGTON FIELD OFFICE

## 1. Description of Report/Project:

Project Name: Haynes Canyon Unit 432H Reoccupation Well Pad, Access Road Upgrade, Pipeline, Layflat, and Temporary Use Areas.
Project Sponsor: Enduring Resources.
Arch. Firm & Report No.: Division of Conservation Archaeology; DCA Report No. 23-DCA-027.
Location: T23N R6W Section 3.

Well Footages: 1,773' FNL, 303' FWL.

Split Estate: No.
Project Dimensions: 400 ft x 400 ft – well pad (500 ft x 500 ft w/ a 50 ft construction zone).
1,571 ft x 30 ft - access road upgrade.
3,384 ft x 40 ft – pipeline/layflat.
248 ft x 25 ft – TUA.
323 ft x 25 ft – TUA.
Sites Located: LA39919/NM-01-31536 (NRHP- Eligible; Avoided).

Determination: No Effect to Historic Properties.

2. **Field Check:** No
3. **Cultural ACEC:** No.
4. **Sensitive Cultural Area:** No.
5. **Recommendation:** *PROCEED WITH ACTION:* _X_ *STIPULATIONS ATTACHED*: X
6. **Reviewer /Archaeologist:** Kim Adams **Date**: 10/23/2023

**Note: Part of this project was previously inventoried.**

| Report Summary | BLM | Other | Total |
|---|---|---|---|
| Acres Inventoried | 14.93 | 0.00 | 14.93 |
| Sites Recorded | 0 | 0 | 0 |
| Prev. Recorded Sites | 1 | 0 | 1 |
| Sites Avoided | 1 | 0 | 1 |
| Sites Treated | 0 | 0 | 0 |

**Discovery of Cultural Resources in the Presence or Absence of Monitoring: If any previously unidentified historic or prehistoric cultural resources are discovered during construction or project operations, work in the vicinity of the discovery will be suspended and the discovery will promptly be reported to the BLM Field Manager.**

**Note:** If there are questions about these stipulations, contact Kim Adams (BLM) at 505.564.7683 or kadams@blm.gov. Or Geoffrey Haymes (BLM) at 505.564.7684 or ghaymes@blm.gov

CULTURAL RESOURCE STIPULATIONS
Farmington Field Office
BLM Report Number: 2024(I)002F

Project Name: Haynes Canyon Unit 432H Reoccupation Well Pad, Access Road Upgrade, Pipeline, Layflat, and Temporary Use Area.
Project Sponsor: Enduring Resources.

**1. SITE PROTECTION AND EMPLOYEE EDUCATION:**
All employees of the project, including the Project Sponsor and its contractors and sub-contractors will be informed that cultural sites are to be avoided by all personnel, personal vehicles and company equipment. They will also be notified that it is illegal to collect, damage, or disturb cultural resources, and that such activities are punishable by criminal and or administrative penalties under the provisions of the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm) when on federal land and the New Mexico Cultural Properties Act NMSA 1978 when on state land.

**2. ARCHAEOLOGICAL MONITORING IS REQUIRED:**
A copy of these stipulations will be supplied to the archeological monitor at least two working days prior to the start of construction activities. No construction activities, including vegetation removal, may begin before the arrival of the archaeological monitor.
The monitor will:

- Ensure that the site protection barrier is located as indicated on the attached map in the vicinity of LA39919.
- Inform BLM-FFO archaeologists that monitoring will be occurring within 24 hours of the scheduled monitoring.
- Observe all construction activities within 100'of LA39919.
- Submit a report of the monitoring activities within 30 days of completion of monitoring unless other arrangements are made with the BLM. These stipulations must be attached to the report.

**3. SITE PROTECTION BARRIER:**

- The temporary site protection barrier will be erected prior to the start of construction. The barrier will consist of upright wooden survey lath spaced no more than 10 feet apart and marked with blue flagging or blue paint. The barrier will remain in place through reclamation and reseeding and shall be promptly removed after reclamation.
- The barrier will be placed as indicated on the attached map.
- There will be no surface-disturbing activities or vehicle traffic past the barrier.

**Note:** If there are questions about these stipulations, contact Kim Adams (BLM) at 505.564.7683 or kadams@blm.gov.

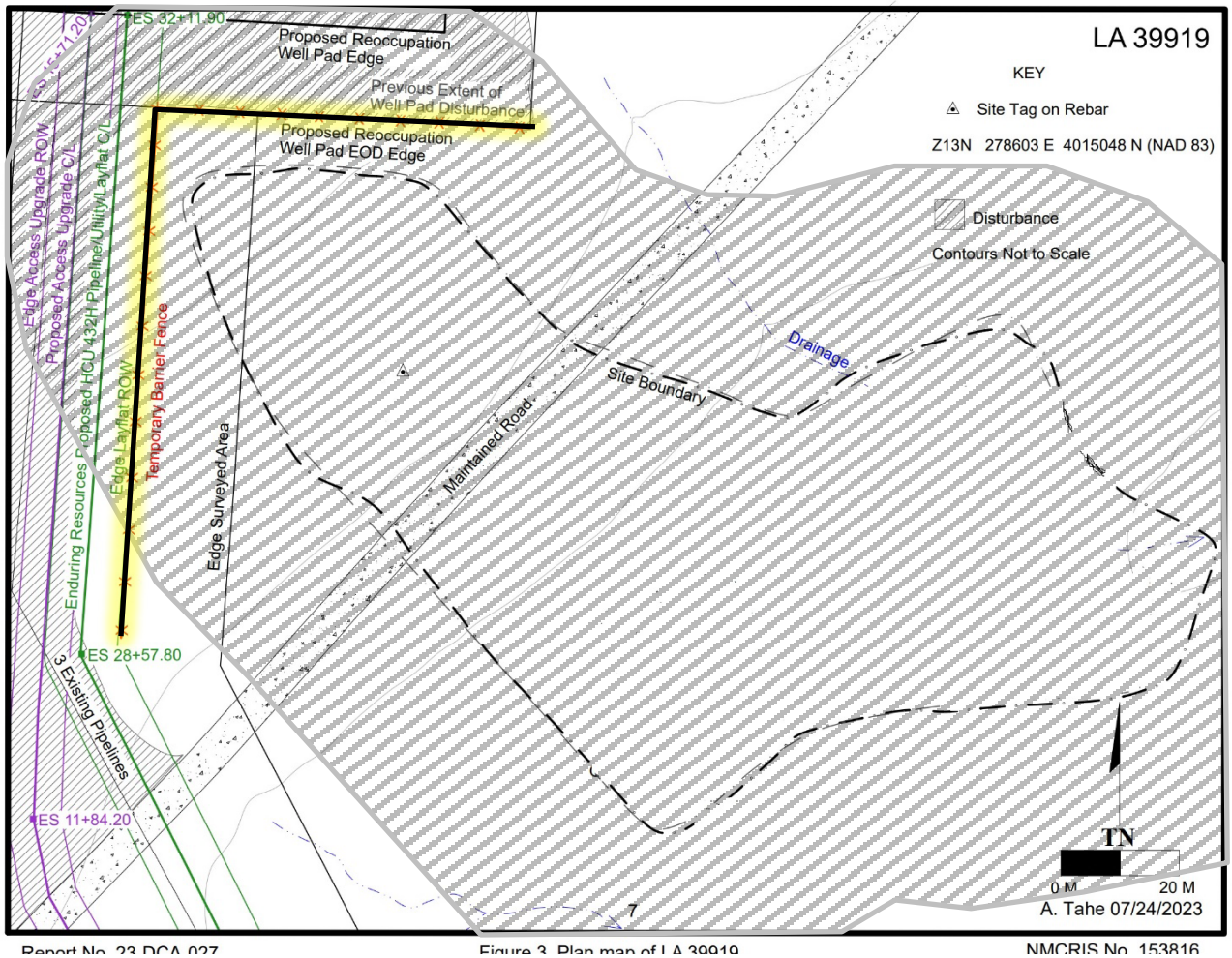



**Approval Date: 12/05/2023**

**For Official Use Only: Disclosure of site locations prohibited (43 CFR 7.18)**
CULTURAL RESOURCE STIPULATIONS
Farmington Field Office
BLM Report Number: 2024(I)002F

Project Name: Haynes Canyon Unit 432H Reoccupation Well Pad, Access Road Upgrade, Pipeline, Layflat, and Temporary Use Area.
Project Sponsor: Enduring Resources.

MONITOR CONSTRUCTION = TEMPORARY FENCING =




Report No. 23 DCA 027 Figure 3. Plan map of LA 39919 NMCRIS No. 153816




**Approval Date: 12/05/2023**

BLM Report Number: 2024(I)005F
USGS Map: Crow Mesa West, NM
Activity Code: 1310
NMCRIS No: 154100

# CULTURAL RESOURCE RECORD OF REVIEW

BUREAU OF LAND MANAGEMENT
FARMINGTON FIELD OFFICE

## 1. Description of Report/Project:

Project Name: Northeast Lybrook Com No 262H **Reoccupation Well**.
Project Sponsor: Enduring Resources.
Arch. Firm & Report No.: Division of Conservation Archaeology; DCA Report No. 22-DCA-060.
Location: T23N R6W Section 6.

Well Footages: See plats

Split Estate: No.
Project Dimensions: 300 ft x 500 ft – well pad (400 ft x 600 ft w/ a 50 ft construction zone).

Sites Located: LA64876/NM-01-34748 (NRHP- Eligible; Update; Avoided; No Further Work).
LA175265/NM-210-47840 (NRHP- Eligible; Update; Avoided).
LA178266/NM-210-48243 (NRHP- Eligible; Update; Avoided).
Determination: No Effect to Historic Properties.

**2. Field Check:** No
**3. Cultural ACEC:** No.
**4. Sensitive Cultural Area:** No.
**5. Recommendation:** *PROCEED WITH ACTION:* _X_ *STIPULATIONS ATTACHED*: X
**6. Reviewer /Archaeologist:** Kim Adams **Date**: 11/6/2023

**Note: The majority of this project was previously inventoried (see NMCRIS No 129798).**

| Report Summary | BLM | Other | Total |
|---|---|---|---|
| Acres Inventoried | 0.74 | 0.00 | 0.74 |
| Sites Recorded | 0 | 0 | 0 |
| Prev. Recorded Sites | 3 | 0 | 3 |
| Sites Avoided | 3 | 0 | 3 |
| Sites Treated | 0 | 0 | 0 |

**Discovery of Cultural Resources in the Presence or Absence of Monitoring: If any previously unidentified historic or prehistoric cultural resources are discovered during construction or project operations, work in the vicinity of the discovery will be suspended and the discovery will promptly be reported to the BLM Field Manager.**

**Note:** If there are questions about these stipulations, contact Kim Adams (BLM) at 505.564.7683 or kadams@blm.gov.

CULTURAL RESOURCE STIPULATIONS
Farmington Field Office
BLM Report Number: 2024(I)005F

Project Name: Northeast Lybrook Com No 262H **Reoccupation Well**.
Project Sponsor: Enduring Resources.

**1. SITE PROTECTION AND EMPLOYEE EDUCATION:**
All employees of the project, including the Project Sponsor and its contractors and sub-contractors will be informed that cultural sites are to be avoided by all personnel, personal vehicles and company equipment. They will also be notified that it is illegal to collect, damage, or disturb cultural resources, and that such activities are punishable by criminal and or administrative penalties under the provisions of the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm) when on federal land and the New Mexico Cultural Properties Act NMSA 1978 when on state land.

**2. ARCHAEOLOGICAL MONITORING IS REQUIRED:**
A copy of these stipulations will be supplied to the archeological monitor at least two working days prior to the start of construction activities. No construction activities, including vegetation removal, may begin before the arrival of the archaeological monitor.
The monitor will:

- Ensure that the site protection barriers are located as indicated on the attached maps in the vicinity of LA175265, & LA178266.
- Inform BLM-FFO archaeologists that monitoring will be occurring within 24 hours of the scheduled monitoring.
- Observe all construction activities within 100'of LA175265, & LA178266.
- Submit a report of the monitoring activities within 30 days of completion of monitoring unless other arrangements are made with the BLM. These stipulations must be attached to the report.

**3. SITE PROTECTION BARRIER:**

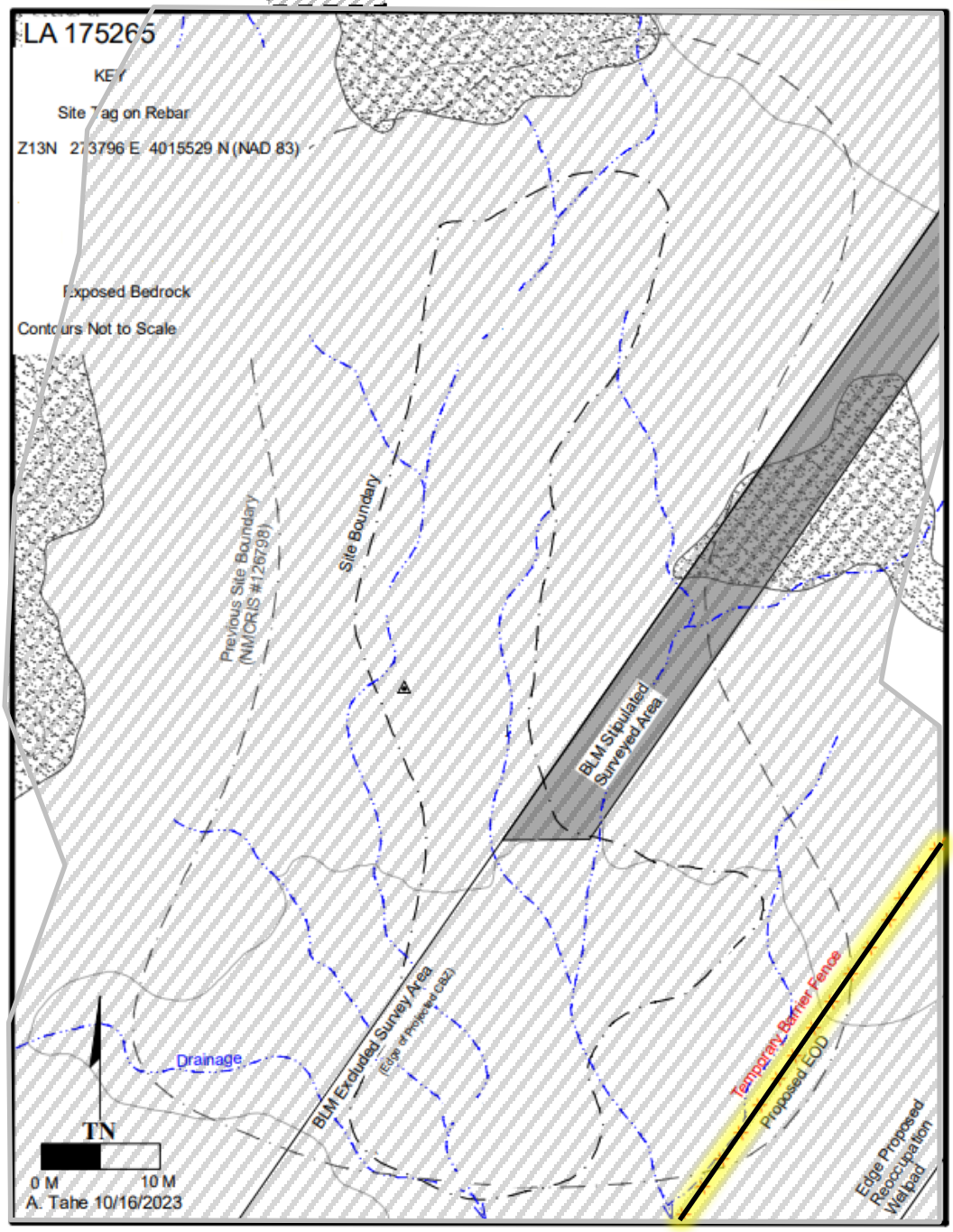
- The temporary site protection barriers will be erected prior to the start of construction. The barriers will consist of upright wooden survey lath spaced no more than 10 feet apart and marked with blue flagging or blue paint. The barriers will remain in place through reclamation and reseeding and shall be promptly removed after reclamation.
- The barriers will be placed as indicated on the attached map.
- There will be no surface-disturbing activities or vehicle traffic past the barriers.

**Note:** If there are questions about these stipulations, contact Kim Adams (BLM) at 505.564.7683 or kadams@blm.gov.

**For Official Use Only: Disclosure of site locations prohibited (43 CFR 7.18)**
CULTURAL RESOURCE STIPULATIONS
Farmington Field Office
BLM Report Number: 2024(I)005F

Project Name: Northeast Lybrook Com No 262H **Reoccupation Well**.
Project Sponsor: Enduring Resources.

MONITOR CONSTRUCTION = TEMPORARY FENCING =




Report No. 22-DCA-060 NMCRIS No. 154100

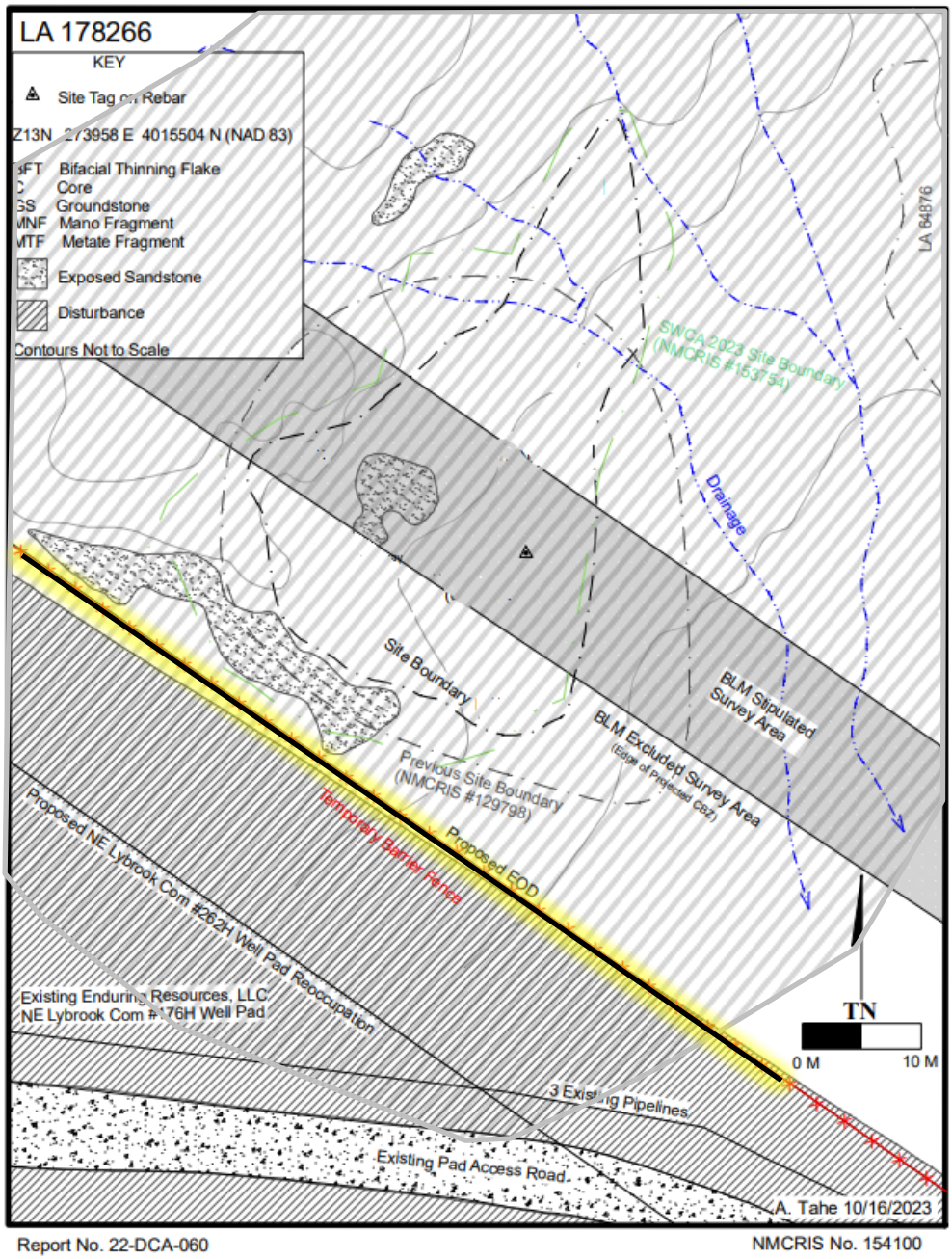
3


**Approval Date: 12/05/2023**

**For Official Use Only: Disclosure of site locations prohibited (43 CFR 7.18)**
CULTURAL RESOURCE STIPULATIONS
Farmington Field Office
BLM Report Number: 2024(I)005F

Project Name: Northeast Lybrook Com No 262H **Reoccupation Well**.
Project Sponsor: Enduring Resources.

MONITOR CONSTRUCTION = TEMPORARY FENCING =




4

# United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Farmington District Office
6251 College Blvd, Suite A
Farmington, New Mexico 87402

In Reply Refer To:
3162.3-1(NMF0110)

* ENDURING RESOURCES LLC

#440H HAYNES CANYON UNIT

Lease: NMNM130875 Agreement: NMNM105770949

SH: SW¼SW¼ Section 3, T. 23N., R. 6W.
Rio Arriba County, New Mexico
BH: Lot 4 Section 11, T. 23N., R. 6W.
Rio Arriba County, New Mexico
***Above Data Required on Well Sign**

## GENERAL REQUIREMENTS FOR OIL AND GAS OPERATIONS ON FEDERAL AND INDIAN LEASES

The following special requirements apply and are effective when **checked**:

A. ☒ Note all surface/drilling conditions of approval attached.

B. ☒ The required wait on cement (WOC) time will be a minimum of 500 psi compressive strength at 60 degrees. Blowout preventor (BOP) nipple-up operations may then be initiated

C. ☒ Test all casing strings below the conductor casing to .22 psi/ft. of casing string length or 1500 psi, whichever is greater, but not to exceed 70% of the minimum internal yield (burst) for a minimum of 30 minutes. If pressure declines more than 10 percent in 30 minutes, corrective action shall be taken.

D. ☐ Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the Bureau of Land Management, New Mexico State Office, Reservoir Management Group, 301 Dinosaur Trail, Santa Fe, New Mexico 87508.
The effective date of the agreement must be **prior** to any sales.

E. ☐ The use of co-flex hose is authorized contingent upon the following:
**1.** From the BOP to the choke manifold: the co-flex hose must be hobbled on both ends and saddle to prevent whip.
**2.** From the choke manifold to the discharge tank: the co-flex hoses must be as straight as practical, hobbled on both ends and anchored to prevent whip.
**3**. The co-flex hose pressure rating must be at least commensurate with approved BOPE.

## I. GENERAL

A. Full compliance with all applicable laws and regulations, with the approved Permit to drill, and with the approved Surface Use and Operations Plan is required. Lessees and/or operators are fully accountable for the actions of their contractors and subcontractors. Failure to comply with these requirements and the filing of required reports will result in strict enforcement pursuant to 43 CFR 3163.1 or 3163.2.

B. Each well shall have a well sign in legible condition from spud date to final abandonment. The sign should show the operator's name, lease serial number, or unit name, well number, location of the well, and whether lease is Tribal or Allotted, (See 43 CFR 3162.6(b)).

C. A complete copy of the approved Application for Permit to Drill, along with any conditions of approval, shall be available to authorized personnel at the drill site whenever active drilling operations are under way.

D. For Wildcat wells only, a drilling operations progress report is to be submitted, to the BLM-Field Office, weekly from the spud date until the well is completed and the Well Completion Report is filed. The report should be on 8-1/2 x 11 inch paper, and each page should identify the well by; operator's name, well number, location and lease number.

E. As soon as practical, notice is required of all blowouts, fires and accidents involving life-threatening injuries or loss of life. (See NTL-3A).

F. BOP equipment (except the annular preventer) shall be tested utilizing a test plug to full working pressure for 10 minutes. No bleed-off of pressure is acceptable. (See 43 CFR 3172.6(b)(9)(ii)).

G. The operator shall have sufficient weighting materials and lost circulation materials on location in the event of a pressure kick or in the event of lost circulation. (See 43 CFR 3172.8(a)).

H. The flare line(s) discharge shall be located not less than 100 feet from the well head, having straight lines unless turns are targeted with running tees, and shall be positioned downwind of the prevailing wind direction and shall be anchored. The flare system shall have an effective method for ignition. Where noncombustible gas is likely or expected to be vented, the system shall be provided supplemental fuel for ignition and to maintain a continuous flare. (See 43 CFR 3172.8(b)(7)).

I. Prior approval by the BLM-Authorized Office (Drilling and Production Section) is required for variance from the approved drilling program and before commencing plugging operations, plug back work, casing repair work, corrective cementing operations, or suspending drilling operations indefinitely. Emergency approval may be obtained orally, but such approval is contingent upon filing of a Notice of Intent sundry within three business days. **Any changes to the approved plan or any questions regarding drilling operations should be directed to BLM during regular business hours at 505-564-7600. Emergency program changes after hours should be directed to Virgil Lucero at 505-793-1836.**

**J. The Inspection and Enforcement Section (I&E), phone number (505-564-7750) is to be notified at least 24 hours in advance of BOP test, spudding, cementing, or plugging operations so that a BLM representative may witness the operations.**

K. Unless drilling operations are commenced within two years, approval of the Application for Permit to Drill will expire. A written request for a two-year extension may be granted if submitted prior to expiration.

L. From the time drilling operations are initiated and until drilling operations are completed, a member of the drilling crew or the tool pusher shall maintain rig surveillance at all times, unless the well is secured with blowout preventers or cement plugs.

M. If for any reason, drilling operations are suspended for more than 90 days, a written notice must be provided to this office outlining your plans for this well.

N. **Commingling**: No production (oil, gas, and water) from the subject well should start until Sundry Notices (if necessary) granting variances from applicable regulations as related to commingling and off-lease measurement are approved by this office.

## II. REPORTING REQUIREMENTS

A. For reporting purposes, all well Sundry notices, well completion and other well actions shall be referenced by the appropriate lease, communitization agreement and/or unit agreement numbers.

B. The following reports shall be filed with the BLM-Authorized Officer online through AFMSS 2 within 30 days after the work is completed.

1. Provide complete information concerning.

   a. Setting of each string of casing. Show size and depth of hole, grade and weight of casing, depth set, depth of all cementing tools that are used, amount (in cubic feet) and types of cement used, whether cement circulated to surface and all cement tops in the casing annulus, casing test method and results, and the date work was done. Show spud date on first report submitted.

   b. Intervals tested, perforated (include size, number and location of perforations), acidized, or fractured; and results obtained. Provide date work was done on well completion report and completion sundry notice.

   c. Subsequent Report of Abandonment, show the way the well was plugged, including depths where casing was cut and pulled, intervals (by depths) where cement plugs were replaced, and dates of the operations.

2. Well Completion Report will be submitted with 30 days after well has been completed.

   a. Initial Bottom Hole Pressure (BHP) for the producing formations. Show the BHP on the completion report. The pressure may be: 1) measured with a bottom hole bomb, or; 2) calculated based on shut in surface pressures (minimum seven day buildup) and fluid level shot.

3. Submit a cement evaluation log if cement is not circulated to surface.

C. Production Startup Notification is required no later than the 5$^{th}$ business day after any well begins production on which royalty is due anywhere on a lease site or allocated to a lease site or resumes production in the case of a well which has been off production for more than 90 days. The operator shall notify the Authorized Officer by letter or Sundry Notice, Form 3160-5, or orally to be followed

by a letter or Sundry Notice, of the date on which such production has begun or resumed. CFR 43 3162.4-1(c).

## III. DRILLER'S LOG

The following shall be entered in the daily driller's log: 1) Blowout preventer pressures tests, including test pressures and results, 2) Blowout preventer tests for proper functioning, 3) Blowout prevention drills conducted, 4) Casing run, including size, grade, weight, and depth set, 5) How pipe was cemented, including amount of cement, type, whether cement circulated to surface, location of cementing tools, etc., 6) Waiting on cement time for each casing string, 7) Casing pressure tests after cementing, including test pressure and results, and 8) Estimated amounts of oil and gas recovered and/or produced during drill stem test.

## IV. GAS FLARING

Gas produced from this well may not be vented or flared beyond an initial, authorized test period of * Days or 50 MMCF following its (completion)(recompletion), whichever first occurs, without the prior, written approval of the authorized officer. Should gas be vented or flared without approval beyond the test period authorized above, you may be directed to shut-in the well until the gas can be captured or approval to continue venting or flaring as uneconomic is granted. You shall be required to compensate the lessor for the portion of the gas vented or flared without approval which is determined to have been avoidably lost.

*30 days, unless a longer test period is specifically approved by the authorized officer. The 30-day period will commence upon the first gas to surface.

## V. SAFETY

A. All rig heating stoves are to be of the explosion-proof type.

B. Rig safety lines are to be installed.

C. Hard hats and other Personal Protective Equipment (PPE) must be utilized.

## VI. CHANGE OF PLANS OR ABANDONMENT

A. Any changes of plans required to mitigate unanticipated conditions encountered during drilling operations, will require approval as set forth in Section 1.F.

B. If the well is dry, it is to be plugged in accordance with 43 CFR 3162.3-4, approval of the proposed plugging program is required as set forth in Section 1.F. The report should show the total depth reached, the reason for plugging, and the proposed intervals, by depths, where cement plugs are to be placed, type of plugging mud, etc. A Subsequent Report of Abandonment is required as set forth in Section II.B.1c.

C. Unless a well has been properly cased and cemented, or properly plugged, the drilling rig must not be moved from the drill site without prior approval from the BLM-Authorized Officer.

AFMSS
U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

# Operator Certification Data Report

12/05/2023

## Operator

*I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.*

**NAME:** DANIELLE GAVITO **Signed on:** 09/28/2023

**Title:** Permit Agent

**Street Address:** 9446 CLEARMONT STREET

**City:** THORNTON **State:** CO **Zip:** 80229

**Phone:** (303)524-4651

**Email address:** DGAVITO@CDHCONSULT.COM

## Field

**Representative Name:**

**Street Address:**

**City:** **State:** **Zip:**

**Phone:**

**Email address:**

AFMSS
U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

# Application Data
12/05/2023

**APD ID:** 10400093966
**Submission Date:** 09/29/2023
**Operator Name:** ENDURING RESOURCES LLC
**Well Name:** HAYNES CANYON UNIT
**Well Number:** 440H
**Well Type:** OIL WELL
**Well Work Type:** Drill

Highlighted data reflects the most recent changes
Show Final Text

## Section 1 - General

**APD ID:** 10400093966
**Tie to previous NOS?**
**Submission Date:** 09/29/2023
**BLM Office:** Farmington
**User:** DANIELLE GAVITO
**Title:** Permit Agent
**Federal/Indian APD:** FED
**Is the first lease penetrated for production Federal or Indian?** FED
**Lease number:** NMNM130875
**Lease Acres:**
**Surface access agreement in place?**
**Allotted?**
**Reservation:**
**Agreement in place?** YES
**Federal or Indian agreement:** FEDERAL
**Agreement number:** NMNM105770949
**Agreement name:** Haynes Canyon Unit
**Keep application confidential?** Y
**Permitting Agent?** YES
**APD Operator:** ENDURING RESOURCES LLC
**Operator letter of**
Operator_Certification_09062023_20230906163846.pdf

## Operator Info

**Operator Organization Name:** ENDURING RESOURCES LLC
**Operator Address:** 200 ENERGY COURT
**Zip:** 87401
**Operator PO Box:**
**Operator City:** FARMINGTON
**State:** NM
**Operator Phone:** (505)497-8574
**Operator Internet Address:**

## Section 2 - Well Information

**Well in Master Development Plan?** NO
**Master Development Plan name:**
**Well in Master SUPO?** NO
**Master SUPO name:**
**Well in Master Drilling Plan?** NO
**Master Drilling Plan name:**
**Well Name:** HAYNES CANYON UNIT
**Well Number:** 440H
**Well API Number:**
**Field/Pool or Exploratory?** Exploratory
**Field Name:**
**Pool Name:**

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

**Is the proposed well in an area containing other mineral resources?** USEABLE WATER,NATURAL GAS,OIL

**Is the proposed well in a Helium production area?** N **Use Existing Well Pad?** Y **New surface disturbance?** N

**Type of Well Pad:** MULTIPLE WELL **Multiple Well Pad Name:** Haynes Canyon Unit **Number:** 414H

**Well Class:** HORIZONTAL **Number of Legs:** 1

**Well Work Type:** Drill

**Well Type:** OIL WELL

**Describe Well Type:**

**Well sub-Type:** EXPLORATORY (WILDCAT)

**Describe sub-type:**

**Distance to town:** 57 Miles **Distance to nearest well:** 20 FT **Distance to lease line:** 390 FT

**Reservoir well spacing assigned acres Measurement:** 439.54 Acres

**Well plat:** Haynes_Canyon_Unit__440H_Revised_Well_Plats___SIGNED_20230928131612.pdf

**Well work start Date:** 01/01/2024 **Duration:** 30 DAYS

## Section 3 - Well Location Table

**Survey Type:** RECTANGULAR

**Describe Survey Type:**

**Datum:** NAD83 **Vertical Datum:** NAVD88

**Survey number:** 15269 **Reference Datum:** GROUND LEVEL

| Wellbore | NS-Foot | NS Indicator | EW-Foot | EW Indicator | Twsp | Range | Section | Aliquot/Lot/Tract | Latitude | Longitude | County | State | Meridian | Lease Type | Lease Number | Elevation | MD | TVD | Will this well produce from this |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHL Leg #1 | 916 | FSL | 390 | FWL | 23N | 6W | 3 | Aliquot SWSW | 36.248698 | -107.464489 | RIO ARRIBA | NEW MEXICO | NEW MEXICO | F | NMNM 28733 | 6703 | 0 | 0 | N |
| KOP Leg #1 | 916 | FSL | 390 | FWL | 23N | 6W | 3 | Aliquot SWSW | 36.248698 | -107.464489 | RIO ARRIBA | NEW MEXICO | NEW MEXICO | F | NMNM 28733 | 1803 | 5100 | 4900 | N |
| PPP Leg #1-1 | 188 | FSL | 312 | FEL | 23N | 6W | 4 | Aliquot SESE | 36.246676 | -107.466893 | RIO ARRIBA | NEW MEXICO | NEW MEXICO | F | NMNM 130875 | 1202 | 6056 | 5501 | Y |

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

| Wellbore | NS-Foot | NS Indicator | EW-Foot | EW Indicator | Twsp | Range | Section | Aliquot/Lot/Tract | Latitude | Longitude | County | State | Meridian | Lease Type | Lease Number | Elevation | MD | TVD | Will this well produce from this |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EXIT Leg #1 | 453 | FNL | 232 | FWL | 23N | 6W | 4 | Lot 4 | 36.259361 | -107.482957 | RIO ARRIBA | NEW MEXICO | NEW MEXICO | F | NMNM 130875 | 1182 | 12673 | 5521 | Y |
| BHL Leg #1 | 453 | FNL | 232 | FWL | 23N | 6W | 4 | Lot 4 | 36.259361 | -107.482957 | RIO ARRIBA | NEW MEXICO | NEW MEXICO | F | NMNM 130875 | 1182 | 12673 | 5521 | Y |

Operator Certification:

I hereby certify that I, or someone under my direct supervision, has inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package, to the best of my knowledge, are true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 6th day of September ,2023.

Name: Heather Huntington

Position Title Permitting Technician

Address: 200 Energy Court, Farmington, NM 87401

Telephone: 505-636-9751

Field representative (if not above signatory) _____

Email: hhuntington@enduringresources.com

Date: 9/6/2023

Heather Huntington
Permitting Technician
Enduring Resources, LLC

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

**State of New Mexico**
**Energy, Minerals & Natural Resources Department**

# OIL CONSERVATION DIVISION
1220 South St. Francis Drive
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

☐ AMENDED REPORT

## WELL LOCATION AND ACREAGE DEDICATION PLAT

| [1] API Number | [2] Pool Code | [3] Pool Name |
|---|---|---|
| | 13379 | COUNSELOR GALLUP-DAKOTA OIL POOL |

| [4] Property Code | [5] Property Name | [6] Well Number |
|---|---|---|
| | HAYNES CANYON UNIT | 440H |

| [7] OGRID No. | [8] Operator Name | [9] Elevation |
|---|---|---|
| 372286 | ENDURING RESOURCES, LLC | 6703' |

### [10] Surface Location

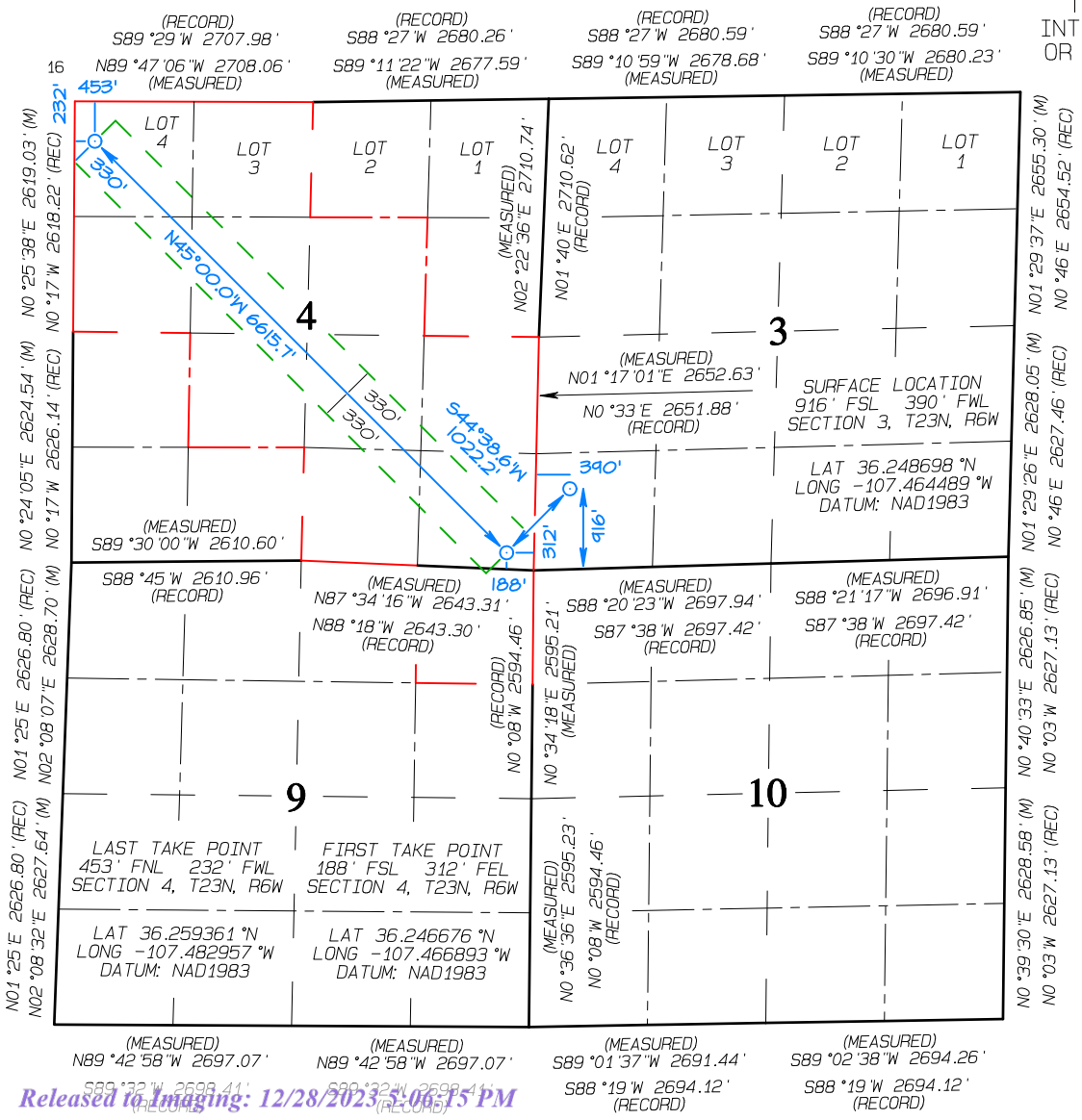
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| M | 3 | 23N | 6W | | 916 | SOUTH | 390 | WEST | RIO ARRIBA |

### [11] Bottom Hole Location If Different From Surface

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| D | 4 | 23N | 6W | 4 | 453 | NORTH | 232 | WEST | RIO ARRIBA |

| [12] Dedicated Acres | | [13] Joint or Infill | [14] Consolidation Code | [15] Order No. |
|---|---|---|---|---|
| 439.54 | SW/4 NE/4, NE/4 SW/4 NW/4, SE/4 - Section 4 NE/4 NE/4 - Section 9 | | | |

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION




### [17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom-hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature — Date: 8/31/23

Heather Huntington
Printed Name

hhuntington@enduringresources.com
E-mail Address

### [18] SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

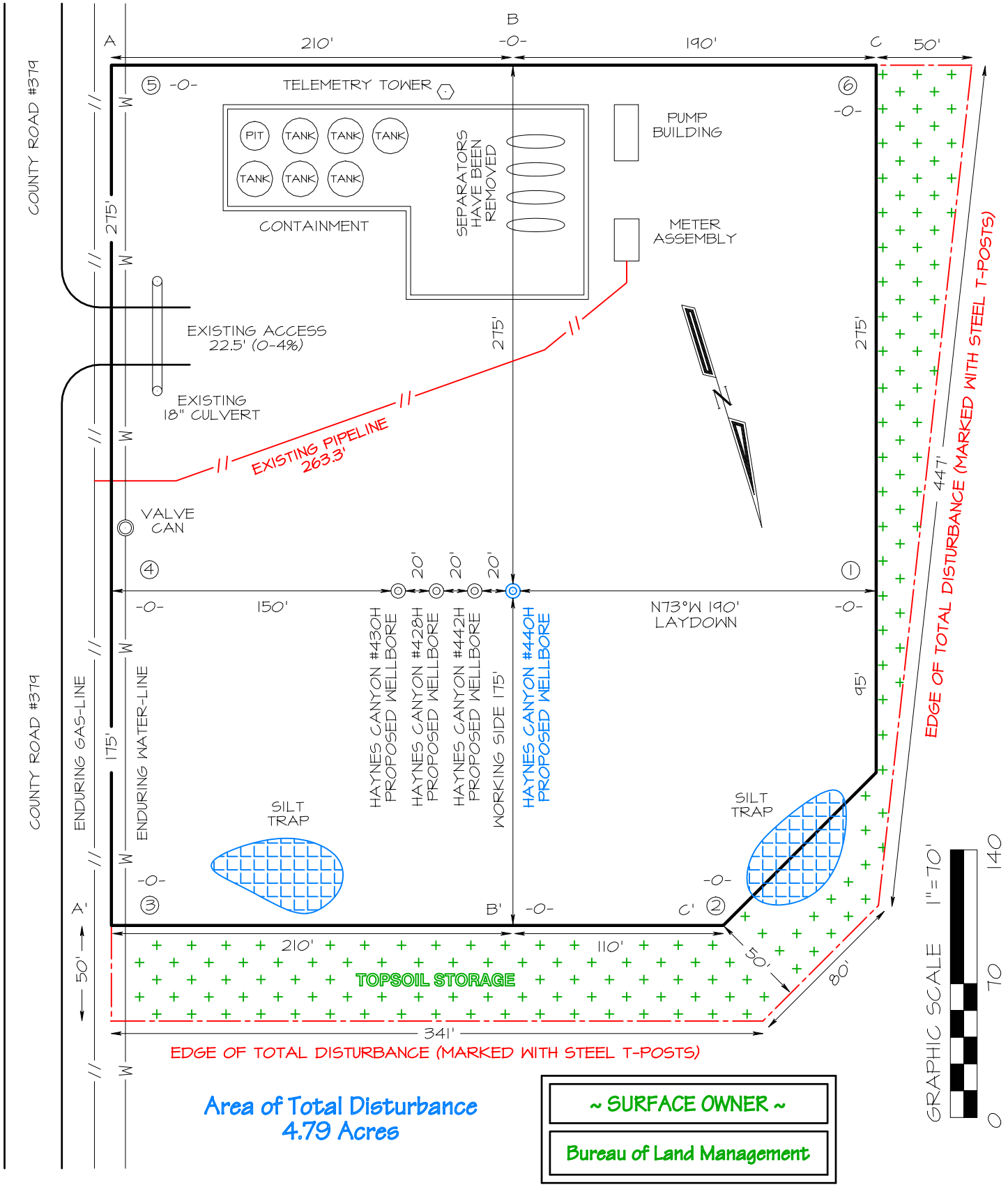
Date Revised: AUGUST 10, 2023
Survey Date: JANUARY 12, 2023

Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS
Certificate Number 15269

# ENDURING RESOURCES, LLC HAYNES CANYON UNIT #440H
# 916' FSL & 390' FWL, SECTION 3, T23N, R6W, NMPM
# RIO ARRIBA COUNTY, NEW MEXICO ELEVATION: 6703'
# LAT 36.248698°N LONG -107.464489°W DATUM: NAD1983




**Area of Total Disturbance**
**4.79 Acres**

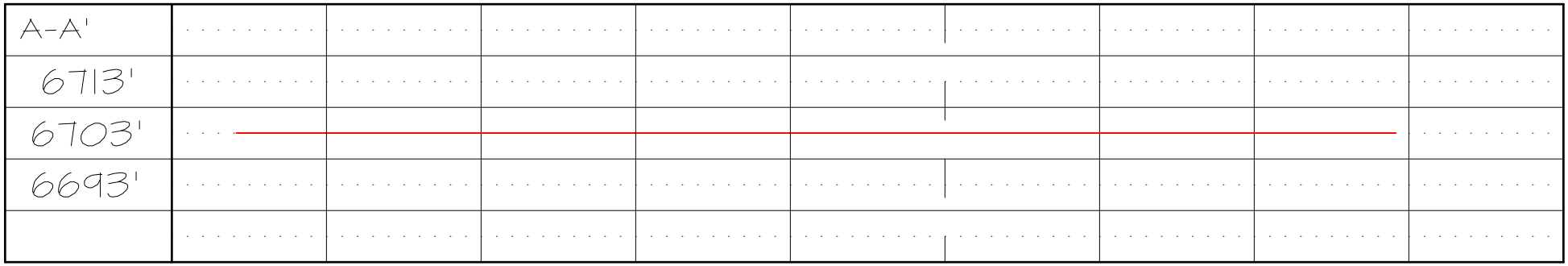
~ SURFACE OWNER ~

Bureau of Land Management

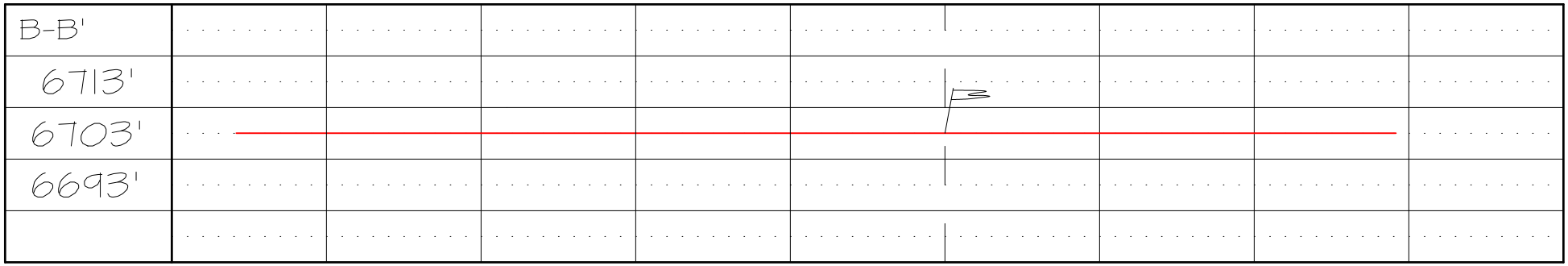
Steel T-Posts have been set to define Edge of Disturbance limits which are 50' offset from edge of wellpad, unless otherwise noted. Some areas have been restricted or omitted as shown hereon.

# ENDURING RESOURCES, LLC HAYNES CANYON UNIT #440H
# 916' FSL & 390' FWL, SECTION 3, T23N, R6W, NMPM
# RIO ARRIBA COUNTY, NEW MEXICO ELEVATION: 6703'

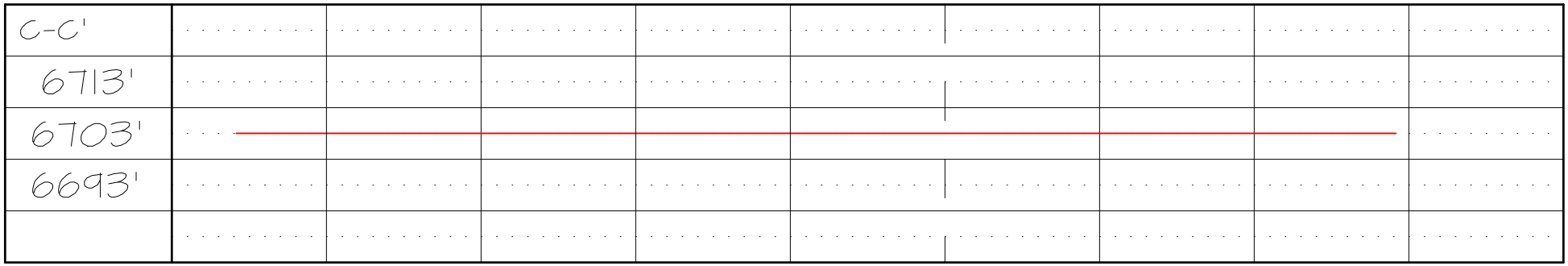
HORIZONTAL SCALE 1"=60' C/L VERTICAL SCALE 1"=30'




C/L



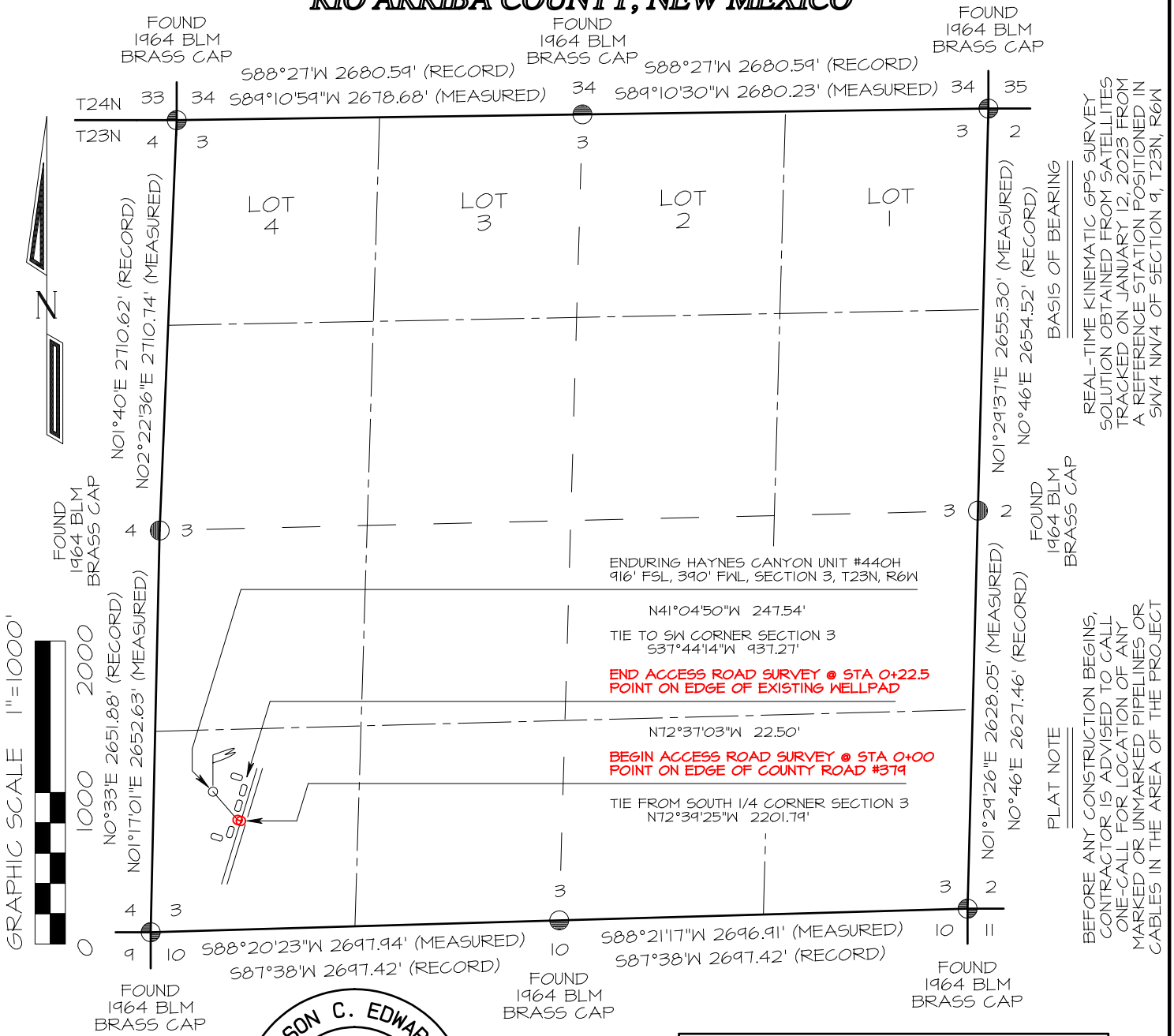

C/L




EDWARDS SURVEYING, INC. IS NOT LIABLE FOR LOCATION OF UNDERGROUND UTILITIES OR PIPELINES.

CONTRACTOR SHOULD CONTACT ONE-CALL FOR LOCATION OF ANY MARKED OR UNMARKED UNDERGROUND UTILITIES OR PIPELINES ON WELLPAD AND/OR ACCESS ROAD AT LEAST TWO WORKING DAYS PRIOR TO CONSTRUCTION.

# ENDURING RESOURCES, LLC HAYNES CANYON UNIT #440H
# EXISTING ACCESS ROAD SURVEY LOCATED IN
# SW/4 SW/4 OF SECTION 3, T23N, R6W, NMPM
# RIO ARRIBA COUNTY, NEW MEXICO




| ~ SURFACE OWNERSHIP ~ Bureau of Land Management | |
|---|---|
| 0+00 TO 0+22.5 | 22.5 FT / 1.4 RODS |

JASON C. EDWARDS NEW MEXICO 15269 REGISTERED PROFESSIONAL SURVEYOR

I, Jason C. Edwards, a registered Professional Surveyor under the laws of the State of New Mexico, hereby certify that this plat was prepared from field notes of an actual survey meeting the minimum requirements of the standards for easement surveys and is true and correct to the best of my knowledge and belief.

JASON C. EDWARDS Date: August 10, 2023

Jason C. Edwards, P.L.S.
New Mexico L.S. #15269

Prepared for:
ENDURING RESOURCES
200 ENERGY COURT
FARMINGTON, NM 87401

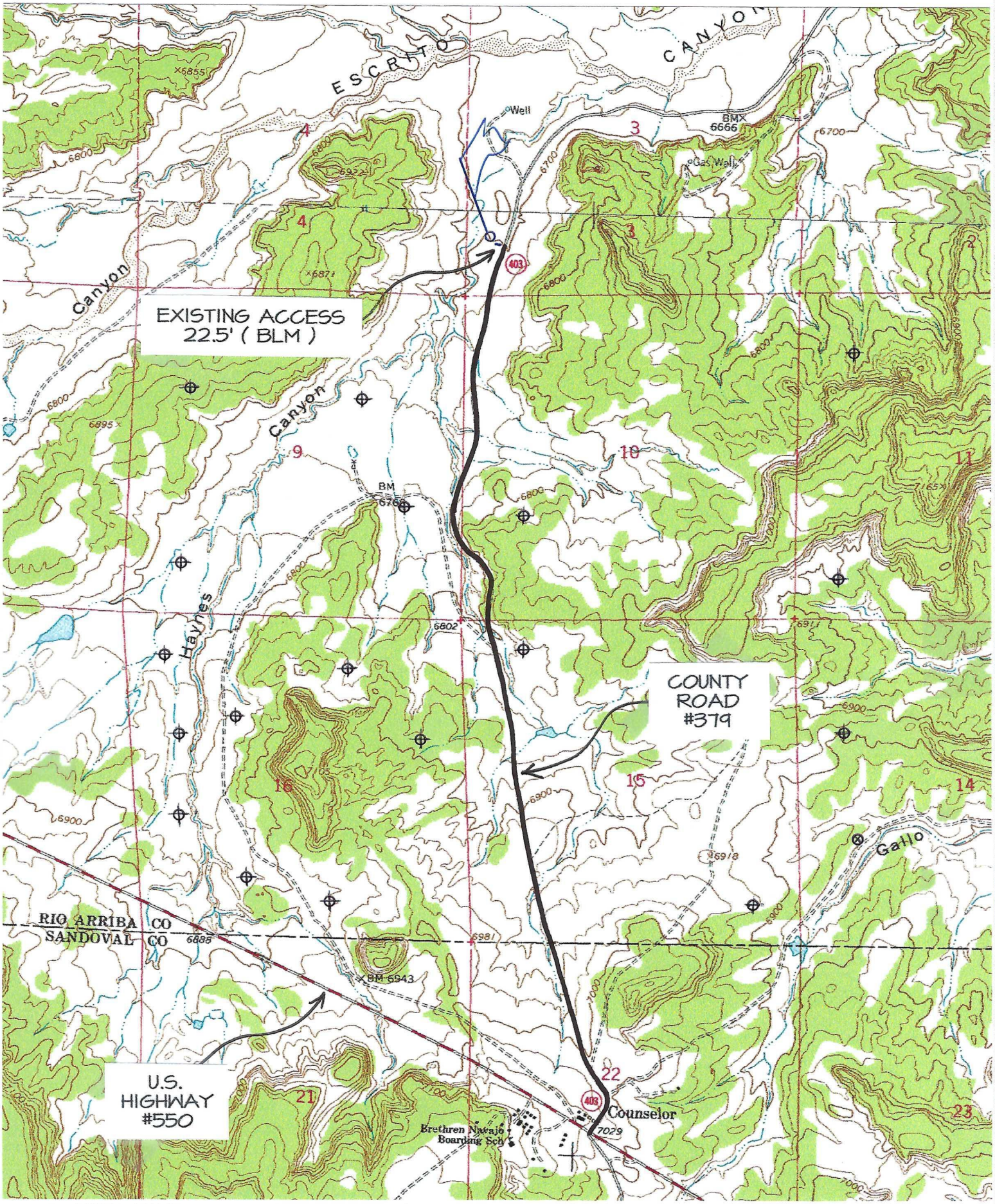
Land Surveyor:
Jason C. Edwards
Mailing Address:
Post Office Box 6612
Farmington, NM 87499
Business Address:
111 East Pinon Street
Farmington, NM 87402
(505) 486-1695 (Office)
ncesurveys@comcast.net
SURVEYS, INC.

CHECKED BY: JCE
DRAWN BY: EDO
SHEET 4 OF 6
FILENAME: 2363MAP1

# ENDURING RESOURCES HAYNES CANYON UNIT #440H

916' FSL & 390' FWL, SECTION 3, T23N, R6W N.M.P.M.
RIO ARRIBA COUNTY, NEW MEXICO






TOPO NAME : COUNSELOR ⊕ PRODUCING WELL ⊗ PLUGGED & ABANDONED WELL

**Directions from the Intersection of US Hwy 550 & US Hwy 64**

**in Bloomfield, NM to Enduring Resources, LLC Haynes Canyon Unit #440H**

**916' FSL & 390' FWL, Section 3, T23N, R6W, N.M.P.M., Rio Arriba County, NM**

**Latitude 36.248698°N Longitude -107.464489°W Datum: NAD1983**

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 53.8 miles to Mile Marker 97.6

Go Left (Northerly) on County Road #379 (aka State Highway #403) for 1.5 miles to fork in roadway;

Go Right (Northerly) which is straight remaining on County Road #379 (aka State Highway #403) for 1.4 miles to existing access road on left-hand side which continues for 22.5' to Enduring Haynes Canyon Unit #440H staked location.

AFMSS
U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

# Drilling Plan Data Report
12/05/2023

**APD ID:** 10400093966
**Submission Date:** 09/29/2023
**Operator Name:** ENDURING RESOURCES LLC
**Well Name:** HAYNES CANYON UNIT
**Well Number:** 440H
**Well Type:** OIL WELL
**Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

## Section 1 - Geologic Formations

| Formation ID | Formation Name | Elevation | True Vertical | Measured Depth | Lithologies | Mineral Resources | Producing Formatio |
|---|---|---|---|---|---|---|---|
| 12560934 | NACIMIENTO | 6728 | 0 | 0 | SANDSTONE, SHALE | USEABLE WATER | N |
| 12560938 | OJO ALAMO | 5325 | 1403 | 1406 | SANDSTONE, SHALE | USEABLE WATER | N |
| 12560939 | KIRTLAND | 5225 | 1503 | 1509 | COAL, SHALE | COAL, NATURAL GAS | N |
| 12560942 | FRUITLAND | 5000 | 1728 | 1746 | COAL | COAL | N |
| 12560944 | PICTURED CLIFFS | 4765 | 1963 | 1998 | SANDSTONE | NATURAL GAS | N |
| 12560946 | LEWIS | 4615 | 2113 | 2159 | SHALE | NATURAL GAS | N |
| 12560948 | CHACRA | 4320 | 2408 | 2475 | SANDSTONE, SHALE | NATURAL GAS | N |
| 12560950 | CLIFFHOUSE | 3210 | 3518 | 3665 | SANDSTONE | NATURAL GAS | N |
| 12560951 | MENEFEE | 3205 | 3523 | 3670 | COAL, SANDSTONE, SHALE | NATURAL GAS | N |
| 12560952 | POINT LOOKOUT | 2505 | 4223 | 4416 | SANDSTONE, SHALE | NATURAL GAS | N |
| 12560953 | MANCOS | 2230 | 4498 | 4696 | SHALE | NATURAL GAS, OIL | Y |
| 12560954 | GALLUP | 1890 | 4838 | 5036 | SHALE | NATURAL GAS, OIL | Y |
| 12560955 | MANCOS | 1800 | 4928 | 5126 | SHALE | NATURAL GAS, OIL | Y |
| 12560956 | MANCOS | 1665 | 5063 | 5263 | SHALE | NATURAL GAS, OIL | Y |
| 12560957 | MANCOS | 1600 | 5128 | 5333 | SHALE | NATURAL GAS, OIL | Y |
| 12560958 | MANCOS | 1525 | 5203 | 5418 | SHALE | NATURAL GAS, OIL | Y |
| 12560959 | MANCOS | 1440 | 5288 | 5525 | SHALE | NATURAL GAS, OIL | Y |

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

| Formation ID | Formation Name | Elevation | True Vertical | Measured Depth | Lithologies | Mineral Resources | Producing Formatio |
|---|---|---|---|---|---|---|---|
| 12560960 | MANCOS | 1395 | 5333 | 5590 | SHALE | NATURAL GAS, OIL | Y |
| 12560961 | MANCOS | 1310 | 5418 | 5744 | SHALE | NATURAL GAS, OIL | Y |
| 12560962 | MANCOS | 1270 | 5458 | 5833 | SHALE | NATURAL GAS, OIL | Y |
| 12560964 | MANCOS | 1262 | 5466 | 5858 | SHALE | NATURAL GAS, OIL | Y |
| 12560963 | MANCOS | 1207 | 5521 | 12673 | SHALE | NATURAL GAS, OIL | Y |

## Section 2 - Blowout Prevention

**Pressure Rating (PSI):** 5M **Rating Depth:** 5521

**Equipment:** See attached diagram for details regarding BOPE specifications and configuration.

**Requesting Variance?** NO

**Variance request:**

**Testing Procedure:** BOP testing shall be conducted (a) when initially installed, (b) whenever any seal is broken or repaired, (c) if the time since the previous test exceeds 30 days. Tests will be conducted using a test plug. BOP ram preventers will be tested to 3,000 psig for 10 minutes, and the annular preventer will be tested to 1,500 psi for 10 minutes. Ram and annular preventers will be tested to 250 psi for 5 minutes. Additionally, BOP and casing strings will be tested to .22 psi/ft or 1,500 psi, whichever is greater but not exceeding 70% of yield strength of the casing, for 30 minutes, prior to drilling out 13-3/8" and 9-5/8" casing. Rams and hydraulically operated remote choke line valve will be function tested daily at a minimum.

**Choke Diagram Attachment:**

Enduring_Resources_8.31.23_Choke_BOPE_20230904204733.pdf

**BOP Diagram Attachment:**

Enduring_Resources_8.31.23_Choke_BOPE_20230904204738.pdf

## Section 3 - Casing

| Casing ID | String Type | Hole Size | Csg Size | Condition | Standard | Tapered String | Top Set MD | Bottom Set MD | Top Set TVD | Bottom Set TVD | Top Set MSL | Bottom Set MSL | Calculated casing length MD | Grade | Weight | Joint Type | Collapse SF | Burst SF | Joint SF Type | Joint SF | Body SF Type | Body SF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SURFACE | 17.5 | 13.375 | NEW | API | N | 0 | 350 | 0 | 350 | 0 | -350 | 350 | J-55 | 54.5 | BUTT | 7.39 | 3.45 | BUOY | 7.79 | BUOY | 7.31 |

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

| Casing ID | String Type | Hole Size | Csg Size | Condition | Standard | Tapered String | Top Set MD | Bottom Set MD | Top Set TVD | Bottom Set TVD | Top Set MSL | Bottom Set MSL | Calculated casing length MD | Grade | Weight | Joint Type | Collapse SF | Burst SF | Joint SF Type | Joint SF | Body SF Type | Body SF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | INTERMEDIATE | 12.5 | 9.625 | NEW | API | N | 0 | 3833 | 0 | 3673 | 0 | -3673 | 3833 | J-55 | 36 | LT&C | 1.26 | 2.55 | BUOY | 2.1 | BUOY | 2.62 |
| 3 | PRODUCTION | 8.5 | 5.5 | NEW | API | N | 0 | 12673 | 0 | 5521 | 0 | -5521 | 12673 | P-110 | 17 | LT&C | 2.74 | 1.18 | BUOY | 1.56 | BUOY | 1.91 |

**Casing Attachments**

**Casing ID:** 1 **String** SURFACE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Haynes_Canyon_Unit_440H_DrillingPlan_20230913194400.pdf

**Casing ID:** 2 **String** INTERMEDIATE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Haynes_Canyon_Unit_440H_DrillingPlan_20230913194410.pdf

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

**Casing Attachments**

**Casing ID:** 3 **String** PRODUCTION

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Haynes_Canyon_Unit_440H_DrillingPlan_20230913194427.pdf

## Section 4 - Cement

| String Type | Lead/Tail | Stage Tool Depth | Top MD | Bottom MD | Quantity(sx) | Yield | Density | Cu Ft | Excess% | Cement type | Additives |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SURFACE | Lead | | 0 | 350 | 364 | 1.39 | 14.6 | 505.3 | 100 | Type III | ASTM Type III Blend, Calcium Chloride 2% BWOC Accelerator, D-CD2 .3% BWOC Dispersant/Friction reducer .25 lbs/sx Cello Flake - seepage |
| INTERMEDIATE | Lead | | 0 | 3833 | 802 | 2.14 | 12.5 | 1715 | 70 | 90:10 Type III:POZ | ASTM Type III 90/10 Poz D-CSE 1 5.0% BWOC Strength Enhancer D-MPA-1 .4% BWOC Fluid Loss & Gas Migration Control D-SA 1 1.4% BWOC Na Metasilicate D-CD 2 .4% BWOC Dispersant Cello Flace LCM .25 lb/sx D-FP1 0.5% BWOC Defoamer D-R1 .5% Retarder |
| INTERMEDIATE | Tail | | 3333 | 3833 | 150 | 1.38 | 14.6 | 207 | 20 | Type III | ASTM Type III Blend, D-MPA-1 .4% BWOC Fluid Loss & Gas Migration Control, D-CD 2 .5% BWOC Dispersant Cello |

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

| String Type | Lead/Tail | Stage Tool Depth | Top MD | Bottom MD | Quantity(sx) | Yield | Density | Cu Ft | Excess% | Cement type | Additives |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Flace LCM .25 lb/sx, D-R1 .2% Retarder |
| PRODUCTION | Lead | | 0 | 12673 | 560 | 2.37 | 12.4 | 1328 | 50 | ASTM type I/II | ASTM Type I/II BA90 Bonding Agent 5.0 lb/sx Bentonite Viscosifier 8% BWOB FL24 Fluid Loss .5% BWOB IntegraGuard GW86 Viscosifier .1% BWOB R7C Retarder .2% BWOB FP24 Defoamer 0.3% BWOB, Anti-Static .01 lb/sx |
| PRODUCTION | Tail | | 4696 | 12673 | 1280 | 1.57 | 13.3 | 2010 | 10 | G:POZ blend | Type G 50% Pozzolan Fly Ash Extender 50% BA90 Bonding Agent 3.0 lb/sx Bentonite Viscosifier 4% BWOB FL24 Fluid Loss .4% BWOB IntegraGuard GW86 Viscosifier .1% BWOB R3 Retarder .5% BWOB FP24 Defoamer .3% BWOB, IntegraSeal 0.25 lb/sx |

## Section 5 - Circulating Medium

**Mud System Type:** Closed

**Will an air or gas system be Used?** NO

**Description of the equipment for the circulating system in accordance with Onshore Order #2:**

**Diagram of the equipment for the circulating system in accordance with Onshore Order #2:**

**Describe what will be on location to control well or mitigate other conditions:** See "Detailed Drilling Plan" section for additional details. Sufficient barite will be on location to weight up mud system to balance maximum anticipated pressure gradient.

**Describe the mud monitoring system utilized:** A fully, closed-loop system will be utilized. The system will consist of above-ground piping and above-ground storage tanks and bins. The system will not entail any earthen pits, below-grade storage, or drying pads. All equipment will be disassembled and removed from the site when drilling operations cease. The system will be capable of storing all fluids and generated cuttings and of preventing uncontrolled releases of the same. The system will be operated in an efficient manner to allow the recycling and reuse of as much fluid as possible and to minimalize the amount of fluids and solids that require disposal.

## Circulating Medium Table

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

| Top Depth | Bottom Depth | Mud Type | Min Weight (lbs/gal) | Max Weight (lbs/gal) | Density (lbs/cu ft) | Gel Strength (lbs/100 sqft) | PH | Viscosity (CP) | Salinity (ppm) | Filtration (cc) | Additional Characteristics |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 350 | SPUD MUD | 8.4 | 8.4 | | | 9 | 2 | | | spud mud |
| 0 | 3833 | LOW SOLIDS NON-DISPERSED (LSND) | 8.8 | 9.5 | | | 9 | 8 | | 20 | no OBM |
| 0 | 12673 | OIL-BASED MUD | 8 | 9 | | | | | 120000 | | OWR 80:20; WBM as contingency |

## Section 6 - Test, Logging, Coring

**List of production tests including testing procedures, equipment and safety measures:**

REFERENCE OPS PLAN

**List of open and cased hole logs run in the well:**

GAMMA RAY LOG,DIRECTIONAL SURVEY,MEASUREMENT WHILE DRILLING,

**Coring operation description for the well:**

REFERENCE OPS PLAN

## Section 7 - Pressure

**Anticipated Bottom Hole Pressure:** 2380 **Anticipated Surface Pressure:** 1165

**Anticipated Bottom Hole Temperature(F):** 125

**Anticipated abnormal pressures, temperatures, or potential geologic hazards?** NO

**Describe:**

**Contingency Plans geoharzards description:**

**Contingency Plans geohazards**

**Hydrogen Sulfide drilling operations plan required?** NO

**Hydrogen sulfide drilling operations**

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

## Section 8 - Other Information

**Proposed horizontal/directional/multi-lateral plan submission:**

Enduring_Haynes_Canyon_Unit_440H_rev0_20230904210308.pdf

**Other proposed operations facets description:**

**Other proposed operations facets attachment:**

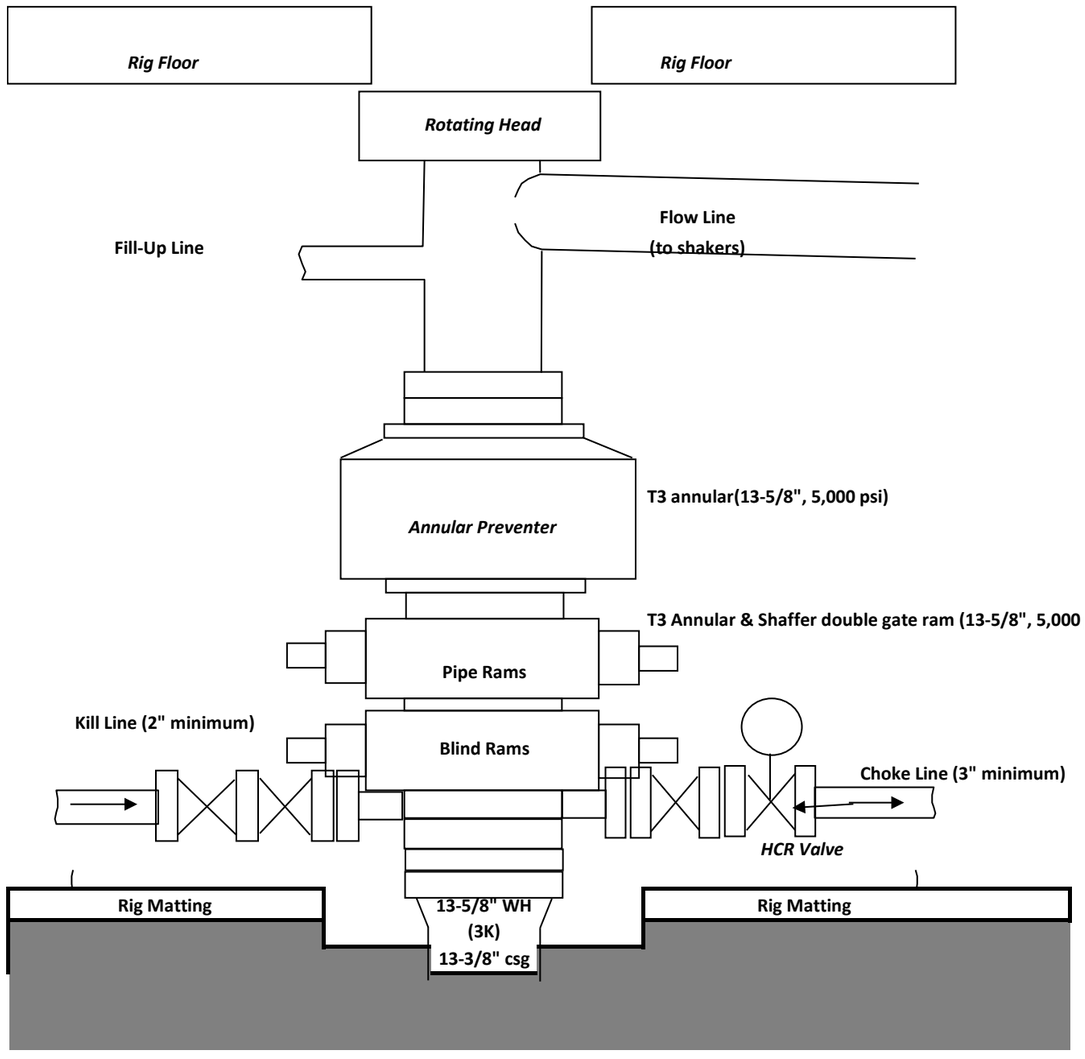
Haynes_Canyon_Unit_440H_WBD_20230913194343.pdf

**Other Variance attachment:**

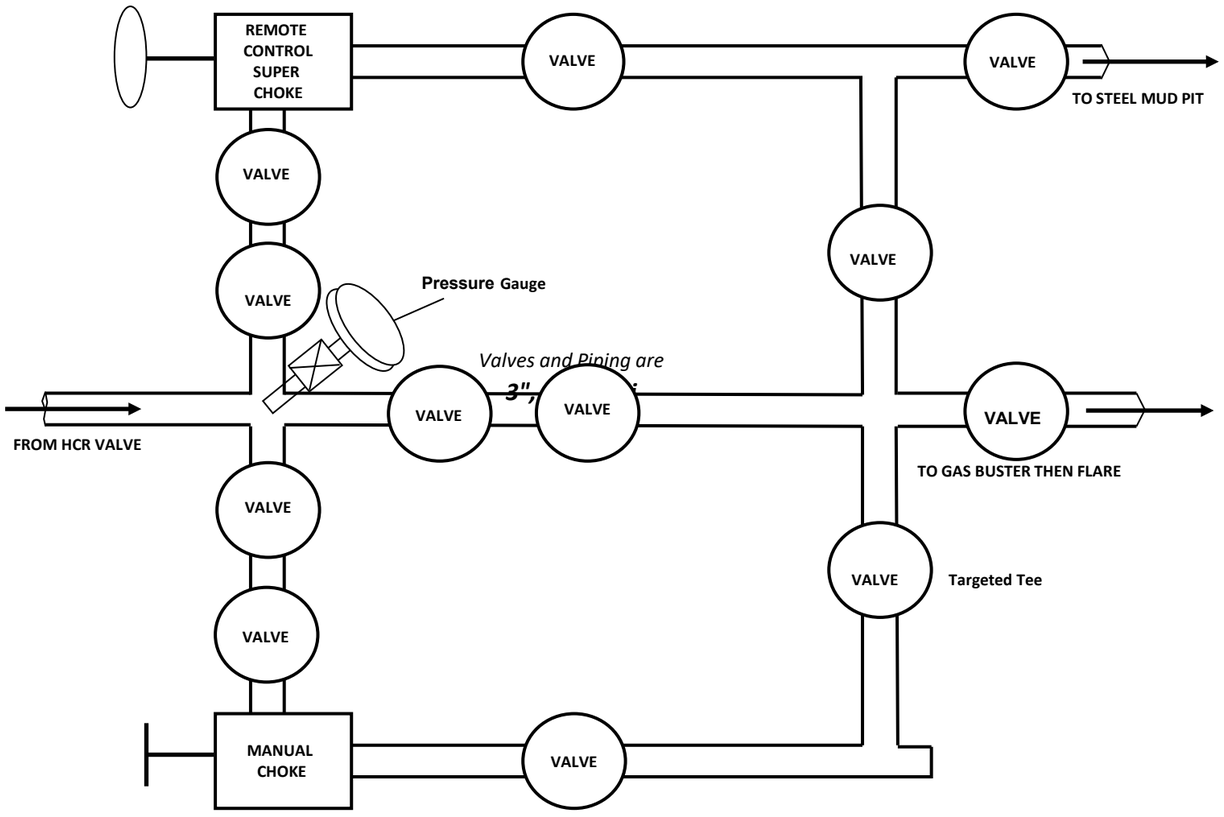
## BOPE & CHOKE MANIFOLD DIAGRAMS

**NOTE: EXACT BOPE AND CHOKE CONFIRGURATION AND COMPONENTS MAY DIFFER FROM WHAT IS DEPICTED IN THE DIGRAMS BELOW DEPENDING ON THE RIG AND ITS ASSOCIATED EQUIPMENT. RAM PREVENTERS, ANNULAR PREVENTERS, AND CHOKE MANIFOLD AND COMPONENTS WILL BE RATED TO 3,000 PSI MINIMUM.**

### BOPE



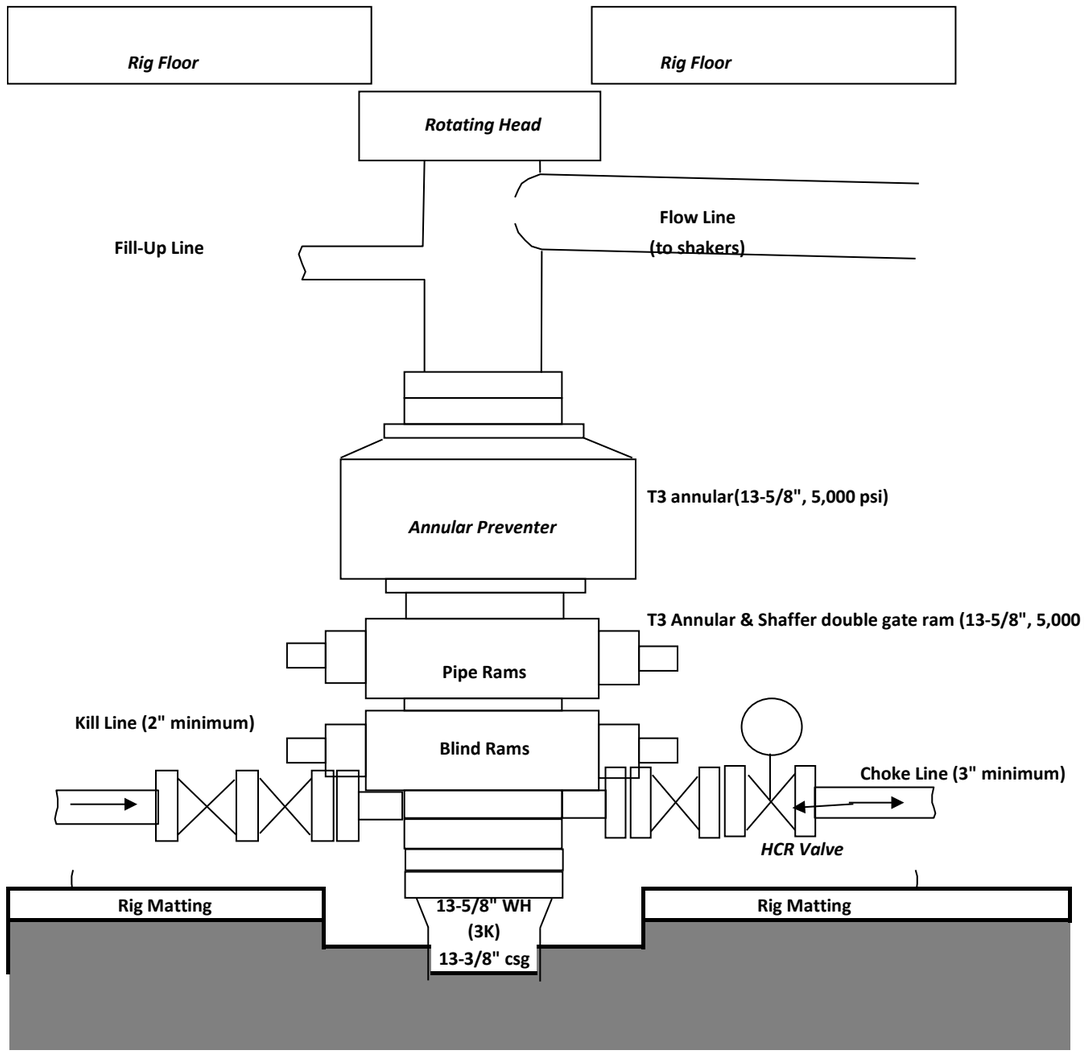

### CHOKE MANIFOLD



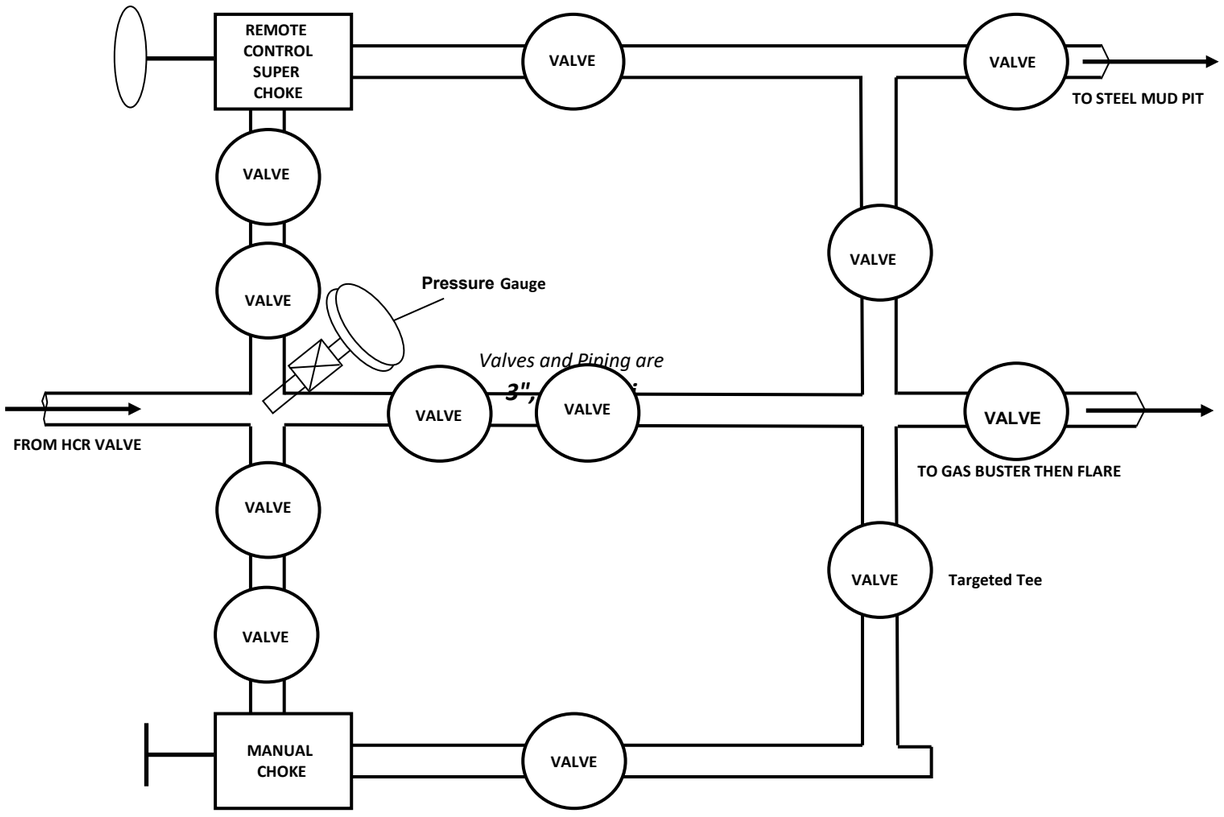
## BOPE & CHOKE MANIFOLD DIAGRAMS

**NOTE: EXACT BOPE AND CHOKE CONFIRGURATION AND COMPONENTS MAY DIFFER FROM WHAT IS DEPICTED IN THE DIGRAMS BELOW DEPENDING ON THE RIG AND ITS ASSOCIATED EQUIPMENT. RAM PREVENTERS, ANNULAR PREVENTERS, AND CHOKE MANIFOLD AND COMPONENTS WILL BE RATED TO 3,000 PSI MINIMUM.**

### BOPE




### CHOKE MANIFOLD



**ENDURING RESOURCES IV, LLC**
**6300 S SYRACUSE WAY, SUITE 525**
**CENTENNIAL, COLORADO 80211**

**DRILLING PLAN:** ***Drill, complete, and equip single lateral in the Mancos-H formation***

**WELL INFORMATION:**

***Name:*** **Haynes Canyon Unit 440H**
***API Number:*** Not yet assigned
***AFE Number:*** *Not yet assigned*
***ER Well Number:*** *Not yet assigned*
***State:*** New Mexico
***County:*** Rio Arriba
***Surface Elevation:*** 6,703 ft ASL (GL) 6,728 ft ASL (KB)
***Surface Location:*** 3-23-6 Sec-Twn-Rng 916 ft FSL 390 ft FWL
36.248698 °N latitude 107.464489 °W longitude (NAD 83)
***BH Location:*** 4-23-6 Sec-Twn-Rng 453 ft FNL 232 ft FWL
36.259361 °N latitude 107.482957 °W longitude (NAD 83)
***Driving Directions:*** **FROM THE INTERSECTION OF US HWY 550 & US HWY 64 IN BLOOMFIELD, NM:**
South on US Hwy 550 for 53.8 miles to MM 97.6; Left (North) on CR #379 (State Hwy 403) for 1.3 miles to fork; Right (North) remaining on CR #379 for 1.5 miles to location access on left; Haynes Canyon Unit 428H Pad. From East to West 430H, 428H, 442H, 440H).

**GEOLOGIC AND RESERVOIR INFORMATION:**

***Prognosis:***

| Formation Tops | TVD (ft ASL) | TVD (ft KB) | MD (ft KB) | O / G / W | Pressure |
|---|---|---|---|---|---|
| Ojo Alamo | 5,325 | 1,403 | 1,406 | W | normal |
| Kirtland | 5,225 | 1,503 | 1,509 | W | normal |
| Fruitland | 5,000 | 1,728 | 1,746 | G, W | sub |
| Pictured Cliffs | 4,765 | 1,963 | 1,998 | G, W | sub |
| Lewis | 4,615 | 2,113 | 2,159 | G, W | normal |
| Chacra | 4,320 | 2,408 | 2,475 | G, W | normal |
| Cliff House | 3,210 | 3,518 | 3,665 | G, W | sub |
| Menefee | 3,205 | 3,523 | 3,670 | G, W | normal |
| Point Lookout | 2,505 | 4,223 | 4,416 | G, W | normal |
| Mancos | 2,230 | 4,498 | 4,696 | O,G | sub (~0.38) |
| Gallup (MNCS_A) | 1,890 | 4,838 | 5,036 | O,G | sub (~0.38) |
| MNCS_B | 1,800 | 4,928 | 5,126 | O,G | sub (~0.38) |
| MNCS_C | 1,665 | 5,063 | 5,263 | O,G | sub (~0.38) |
| MNCS_Cms | 1,600 | 5,128 | 5,333 | O,G | sub (~0.38) |
| MNCS_D | 1,525 | 5,203 | 5,418 | O,G | sub (~0.38) |
| MNCS_E | 1,440 | 5,288 | 5,525 | O,G | sub (~0.38) |
| MNCS_F | 1,395 | 5,333 | 5,590 | O,G | sub (~0.38) |
| MNCS_G | 1,310 | 5,418 | 5,744 | O,G | sub (~0.38) |
| MNCS_H | 1,270 | 5,458 | 5,833 | O,G | sub (~0.38) |
| MNCS_I | 0 | 0 | 0 | O,G | sub (~0.38) |
| **FTP TARGET** | **1,262** | **5,466** | **5,858** | **O,G** | **sub (~0.38)** |
| **PROJECTED LTP** | **1,207** | **5,521** | **12,673** | **O,G** | **sub (~0.38)** |

***Surface:*** Nacimiento
***Oil & Gas Zones:*** Several gas bearing zones will be encountered; target formation is the Gallup
***Pressure:*** Normal (0.43 psi/ft) or sub-normal pressure gradients anticipated in all formations
Max. pressure gradient: 0.43 psi/ft Evacuated hole gradient: 0.22 psi/ft
**Maximum anticipated BH pressure, assuming maximum pressure gradient: 2,380 psi**
**Maximum anticipated surface pressure, assuming partially evacuated hole: 1,170 psi**
***Temperature:*** **Maximum anticipated BHT is 125° F or less**

**$H_2S$ INFORMATION:**

***$H_2S$ Zones:*** Encountering hydrogen-sulfide bearing zones is **NOT** anticipated.
***Safety:*** Sensors and alarms will be placed in the substructure, on the rig floor, above the pits, and at the shakers.

**LOGGING, CORING, AND TESTING:**

***Mud Logs:***
None planned; remote geo-steering from drill out of 9-5/8" casing to TD; gas detection from drillout of 13-3/8" casing to TD.
***MWD / LWD:*** Gamma Ray from drillout of 13-3/8" casing to TD
***Open Hole Logs:*** None planned
***Testing:*** None planned
***Coring:*** None planned
***Cased Hole Logs:*** CBL on 5-1/2" casing from deepest free-fall depth to surface

**DRILLING RIG INFORMATION:**

***Contractor:*** Aztec

| | |
|---|---|
| ***Rig No.:*** | 1000 |
| ***Draw Works:*** | E80 AC 1,500 hp |
| ***Mast:*** | Hyduke Triple (136 ft, 600,000 lbs, 10 lines) |
| ***Top Drive:*** | NOV IDS-350PE (350 ton) |
| ***Prime Movers:*** | 4 - GE Jenbacher Natural Gas Generator |
| ***Pumps:*** | 2 - RS F-1600 (7,500 psi) |
| ***BOPE 1:*** | Cameron single & double gate rams (13-5/8", 3,000 psi) |
| ***BOPE 2:*** | Cameron annular (13-5/8", 5,000 psi) |
| ***Choke*** | Cameron (4", 10,000 psi) |
| ***KB-GL (ft):*** | 25 |
| ***Note:*** | Actual drilling rig may vary depending on availability at time the well is scheduled to be drilled. |

| **STATE AND FEDERAL NOTIFICATIONS** | | BLM | State |
|---|---|---|---|
| ***Construction and Reclamation:*** | BLM is to be notified minimum of 48 hours prior to start of construction or reclamation. Grazing permittee is to be notified 10 days in advance. | (505) 564-7600 | |
| ***Spud*** | BLM and state are to be notified minimum of 24 hours prior to spud. | (505) 564-7750 | (505) 334-6178 |
| ***BOP*** | BLM is to be notified minimum of 24 hours prior to BOPE testing. | (505) 564-7750 | see note |
| ***Casing / cementing*** | BLM and state are to be notified minimum of 24 hours prior to running casing and cementing. | (505) 564-7750 | (505) 334-6178 |
| ***Plugging*** | BLM and state are to be notified minimum of 24 hours prior to plugging ops. | (505) 564-7750 | see note |
| | **All notifications are to be recorded in the WellView report with time, date, name or number that notifications were made to.** | | |
| | **Note**: Monica Keuhling with the OCD requests state notifications 24 hrs in advance for spud, BOP tests, casing & cementing and any plugging be given to her in both phone message and email: (505) 320-0243, monica.keuhling@emnrd.nm.gov | | |

**BOPE REQUIREMENTS:**

*See attached diagram for details regarding BOPE specifications and configuration.*

1) Rig will be equipped with upper and lower kelly cocks with handles available.
2) Inside BOP and TIW valves will be available to use on all sizes and threads of drill pipe used while drilling the well.
2) BOP accumulator will have enough capacity to open the HCR valve, close all rams and annular preventer, and retain minimum of 200 psi above precharge on the closing manifold without the use of closing pumps. The fluid reservoir capacity shall be at least double the usable fluid volume of the accumulator system capacity, and the fluid level shall be maintained at manufacturer's recommendation. There will be two additional sources of power for the closing pumps (electric and air). Sufficient nitrogen bottles will be available and will be recharged when pressure falls below manufacturer's recommended minimum.
3) BOP testing shall be conducted (a) when initially installed, (b) whenever any seal is broken or repaired, (c) if the time since the previous test exceeds 30 days. Tests will be conducted using a test plug. BOP ram preventers will be tested to 3,000 psig for 10 minutes, and the annular preventer will be tested to 1,500 psi for 10 minutes. Ram and annular preventers will be tested to 250 psi for 5 minutes. Additionally, BOP and casing strings will be tested to .22 psi/ft or 1,500 psi, whichever is greater but not exceeding 70% of yield strength of the casing, for 30 minutes, prior to drilling out 13-3/8" and 9-5/8" casing. Rams and hydraulically operated remote choke line valve will be function tested daily at a minimum.
4) Remote valve for BOP rams, HCR, and choke shall be placed in a location that is readily available to the driller. The remote BOP valve shall be capable of closing and opening the rams.
5) Manual locking devices (hand wheels) shall be intalled on rams. A valve will be installed on the annular preventer's closing line as close as possible to the preventer to act as a locking device.The valve will be maintained in the open position and shall only be closed when the there is no power to the accumulator.

**FLUIDS AND SOLIDS CONTROL PROGRAM:**

***Fluid Measurement:*** Pumps shall be equipped with stroke counters with displays in the dog-house. Slow pump speed shall be recorded daily and after mudding up, at a minimum, on the drilling report. A Pit Volume Totalizer will be installed and the readout will be displayed in the dog-house. Gas-detecting equipment will be installed at the shakers, and readouts will be available in the dog-house and the in the geologist's work-station (if geologist or mud-logger is on-site).

***Closed-Loop System:*** A fully, closed-loop system will be utilized. The system will consist of above-ground piping and above-ground storage tanks and bins. The system will not entail any earthen pits, below-grade storage, or drying pads. All equipment will be disassembled and removed from the site when drilling operations cease. The system will be capable of storing all fluids and generated cuttings and of preventing uncontrolled releases of the same. The system will be operated in an efficient manner to allow the recycling and reuse of as much fluid as possible and to minimimize the amount of fluids and solids that require disposal.

***Fluid Disposal*** : Fluids that cannot be reused, recycled, or returned to the supplier will be hauled to and disposed of at an approved disposal site (Industrial Ecosystem, Inc. or Envirotech, Inc.).

***Solids Disposal*** : Drilling solids will be stored (until haul-off) on-site in separate containers with no other waste, debris, or garbage products. Waste solids will be hauled to and disposed of at an approved disposal site (Industrial Ecosystem, Inc. or Envirotech, Inc.).

***Fluid Program:*** See "Detailed Drilling Plan" section for additional details. Sufficient barite will be on location to weight up mud system to balance maximum anticipated pressure gradient.

**DETAILED DRILLING PLAN:**

***SURFACE:*** ***Drill vertically to casing setting depth (plus necessary rathole), run casing, cement casing to surface.***

| | | | | | |
|---|---|---|---|---|---|
| 0 ft (MD) | to | 350 ft (MD) | Hole Section Length: | 350 ft |
| 0 ft (TVD) | to | 350 ft (TVD) | Casing Required: | 350 ft |

***Note: Surface hole may be drilled, cased, and cemented with a smaller rig in advance of the drilling rig.***

| Fluid: | Type | MW (ppg) | FL (mL/30 min) | PV (cp) | YP (lb/100 sqft) | pH | Comments |
|---|---|---|---|---|---|---|---|
| | Fresh Water | 8.4 | N/C | 2 - 8 | 2 - 12 | 9.0 | Spud mud |

***Hole Size:*** 17-1/2"
***Bit / Motor:*** Mill Tooth or PDC, no motor
***MWD / Survey:*** No MWD, deviation survey
***Logging:*** None
***Procedure:*** Drill to TD. Use 12-/4" bit and open to 17-1/2" if unable to drill with 17-1/2" bit. Run inclination survey in 100' stations from TD to surface. Condition hole and fluid for casing running as required. TOOH. Run casing. Pump cement as detailed below. Monitor returns during cement job and note cement volume to surface. Install cellar and wellhead.

| Casing Specs: | | Wt (lb/ft) | Grade | Conn. | Collapse (psi) | Burst (psi) | Tens. Body (lbs) | Tens. Conn (lbs) |
|---|---|---|---|---|---|---|---|---|
| *Specs* | 13.375 | 54.5 | J-55 | BTC | 1,130 | 2,730 | 853,000 | 909,000 |
| *Loading* | | | | | 153 | 791 | 116,634 | 116,634 |
| *Min. S.F.* | | | | | **7.39** | **3.45** | **7.31** | **7.79** |

*Assumptions: Collapse: fully evacuated casing with 8.4 ppg equivalent external pressure gradient*
*Burst: maximum anticipated surface pressure with 9.5 ppg fluid inside casing while drilling intermediate hole and 8.4 ppg equivalent external pressure gradient*
*Tension: buoyed weight in 8.4 ppg fluid with 100,000 lbs over-pull*

***MU Torque (ft lbs):*** *Minumum: N/A Optimum: N/A Maximum: N/A*
*Make-up as per API Buttress Connection running procedure.*
***Casing Summary:*** Float shoe, 1 jt casing, float collar, casing to surface
***Centralizers:*** 2 centralizers per jt stop-banded 10' from each collar on bottom 3 jts, 1 centralizer per 2 jts to surface

| Cement: | Type | Weight (ppg) | Yield (cuft/sk) | Water (gal/sk) | Hole Cap. (cuft/ft) | % Excess | Planned TOC (ft MD) | Total Cmt (sx) |
|---|---|---|---|---|---|---|---|---|
| | TYPE III | 14.6 | 1.39 | 6.686 | 0.6946 | 100% | 0 | 364 |
| *Annular Capacity* | 0.6946 | cuft/ft | *13-3/8" casing x 17-1/2" hole annulus* | | | Csg capacity | 0.8680 | ft3/ft |
| *Drake Energy Services:* | *Calculated cement volumes assume gauge hole and the excess noted in table* | | | | | | | Cu Ft Slurry |
| | | | | | | | | 505.3 |
| ***Tail*** | *ASTM Type III Blend* | Calcium Chloride 2% BWOC Accelerator | D-CD2 .3% BWOC Dispersant/Friction reducer | .25 lbs/sx Cello Flake - seepage | | | | |

**Notify COGCC & BLM if cement is not circulated to surface. Cement must achieve 500 psi compressive strength before drilling out.**

***INTERMEDIATE:*** ***Drill as per directional plan to casing setting depth, run casing, cement casing to surface.***

| | | | | |
|---|---|---|---|---|
| 350 ft (MD) | to | 3,833 ft (MD) | Hole Section Length: | 3,483 ft |
| 350 ft (TVD) | to | 3,673 ft (TVD) | Casing Required: | 3,833 ft |

| Fluid: | Type | MW (ppg) | FL (mL/30 min) | PV (cp) | YP (lb/100 sqft) | pH | Comments |
|---|---|---|---|---|---|---|---|
| | LSND (5% KCl) | 8.8 - 9.5 | 20 | 8 - 14 | 8 - 14 | 9.0 - 9.5 | No OBM |

***Hole Size:*** 12-1/4"
***Bit / Motor:*** 12-1/4" PDC bit w/mud motor
***Bit / Motor:*** MOTOR: NOV 087840 - 7/8, 4.0, stage, 0.16 rev/gal, 1.83 DEG, 900 GPM, 950 DIFF PSIG
BIT: 6-BLADE PDC w/16 mm or 19 mm cutters, TFA = 0.67 sq-in (range 0.65 - 0.90 max), **jet with 6 - 12s**
***MWD / Survey:*** MWD Survey with inclination and azimuth survey (every 100' at a minimum), GR optional
***Logging:*** None
***Pressure Test:*** NU BOPE and test (as noted above); pressure test 13-3/8" casing to **1,500** psi for 30 minutes.
***Procedure:*** Drill to TD following directional plan **(20' rat-hole past casing setting depth)**. Steer as needed to keep well on plan. Keep DLS < 3 deg/100' and keep slide length < 10', when possible. Take surveys every stand, at a minimum. Target flow-rates of 750 GPM (higher if able to control return rates). Minimum desired flow-rate is 650 GPM. At TD, condition hole and fluid for casing running. TOOH. Run casing using a CRT and washing / circulating as required. Land casing. ND BOPE. Walk rig to next well. Perform off-line cement job. Pump cement as detailed below. Monitor returns during cement job and note cement volume to surface.

| Casing Specs: | | Wt (lb/ft) | Grade | Conn. | Collapse (psi) | Burst (psi) | Tens. Body (lbs) | Tens. Conn (lbs) |
|---|---|---|---|---|---|---|---|---|
| *Specs* | 9.625 | 36.0 | J-55 | LTC | 2,020 | 3,520 | 564,000 | 453,000 |
| *Loading* | | | | | 1,604 | 1,380 | 215,309 | 215,309 |
| *Min. S.F.* | | | | | **1.26** | **2.55** | **2.62** | **2.10** |

*Assumptions: Collapse: fully evacuated casing with 8.4 ppg equivalent external pressure gradient*
*Burst: maximum anticipated surface pressure with 9.5 ppg fluid inside casing while drilling production hole and 8.4 ppg equivalent external pressure gradient*
*Tension: buoyed weight in 8.4 ppg fluid with 100,000 lbs over-pull*

***MU Torque (ft lbs):*** *Minumum: 3,400 Optimum: 4,530 Maximum: 5,660*
***Casing Summary:*** Float shoe, 1 jt casing, float collar, casing to surface (FLOAT EQUIPMENT FROM WEATHERFORD)
***Centralizers:*** 1 per joint in non-vertical hole; 1 per 2-joints in vertical hole

**Centralizers:** 1 centralizers jt stop-banded 10' from float shoe on bottom 1 jt & 1 centralizer floating on bottom joint, 1 centralizer per jt (floating) to KOP ; 1 centralizer per 3 jts (floating) to surface **(Centralizers from Scepter Supply - SLIP'N'SLIDE 9-5/8" x 11.75" SOLID BODY POLYMER)**

| | Type | Weight (ppg) | Yield (cuft/sk) | Water (gal/sk) | % Excess | Planned TOC (ft MD) | Total Cmt (sx) | Total Cmt (cu ft) |
|---|---|---|---|---|---|---|---|---|
| **Cement:** | | | | | | | | |
| **Stage 1** *Spacer* | D-Mud Breaker | 8.5 | | | | 0 | 10 bbls | |
| *Lead* | 90:10 Type III:POZ | 12.5 | 2.140 | 12.05 | 70% | 0 | 802 | 1,715 |
| *Tail* | Type III | 14.6 | 1.380 | 6.64 | 20% | 3,333 | 150 | 207 |
| *Displacement* | *293* | *est bbls* | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| *Annular Capacity* | 0.3627 | cuft/ft | *9-5/8" casing x 13-3/8" casing annulus* | | |
| | 0.3132 | cuft/ft | *9-5/8" casing x 12-1/4" hole annulus* | 9-5/8" 36# ID | 8.921 |
| | 0.4341 | cuft/ft | *9-5/8" casing vol* | *est shoe jt ft* | 44 |

*Calculated cement volumes assume gauge hole and the excess (open hole only) noted in table*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Spacer** | *D-Mud Breaker* | SAPP | | | | | | |
| **Lead** | *ASTM Type III 90/10 Poz* | D-CSE 1 5.0% BWOC Strength Enhancer | D-MPA-1 .4% BWOC Fluid Loss & Gas Migration Control | D-SA 1 1.4% BWOC Na Metasilicate | D-CD 2 .4% BWOC Dispersant | Cello Flace LCM .25 lb/sx | D-FP1 0.5% BWOC Defoamer | D-R1 .5% Retarder |
| **Tail** | *ASTM Type III Blend* | | D-MPA-1 .4% BWOC Fluid Loss & Gas Migration Control | | D-CD 2 .5% BWOC Dispersant | Cello Flace LCM .25 lb/sx | | D-R1 .2% Retarder |

*Drake Intermediate Cementing Program*

**Cement must achieve 500 psi compressive strength before drilling out.**
**Notify NMOCD & BLM if cement is not circulated to surface. Cement must achieve 500 psi compressive strength before drilling out.**

**PRODUCTION:** ***Drill to TD following directional plan, run casing, cement casing to surface.***

| | | | | | |
|---|---|---|---|---|---|
| 3,833 | ft (MD) | to | 12,673 | ft (MD) | Hole Section Length: 8,840 ft |
| 3,673 | ft (TVD) | to | 5,521 | ft (TVD) | Casing Required: 12,673 ft |

| | | | | |
|---|---|---|---|---|
| *Estimated KOP:* | 5,100 | ft (MD) | 4,900 | ft (TVD) |
| *Estimated Landing Point (FTP):* | 5,858 | ft (MD) | 5,466 | ft (TVD) |
| *Estimated Lateral Length:* | 6,815 | ft (MD) | | |

| **Fluid:** | Type | MW (ppg) | WPS ppm | HTHP | YP (lb/100 sqft) | ES | OWR | Comment |
|---|---|---|---|---|---|---|---|---|
| | OBM | 8.0 - 9.0 | 120,000 CaCl | NC | ±6 | +300 | 80:20 | WBM as contingency |

**Fluids / Solids Notes:** OptiDrill OBM system will be built from previous well. Ensure that drying shakers are rigged up after the rig (2nd set) of shakers. Solids control will burn retorts on cuttings samples one per tour to check % ROC. Add diesel and products as required to maintain mud in program specs. Reference Newpark's mud program for additional details.

**Hole Size:** 8-1/2"

**Bit / Motor:** 8-1/2" PDC bit w/mud motor

**Bit / Motor:** **MOTOR:** NOV 077857 - 6.5" 7/8, 5.0 stage, 0.23 rev/gal, 1.83 deg, 750 GPM, 1,580 DIFF PSIG (or similar); on demand friction breaking device(s) as required, bottom tool spaced ~3,000' behind the bit.
**BIT:** 5-BLADE PDC w/16 mm - 19 mm cutters, matrix body, target TFA = 1.0 - 1.5 sq-in

**MWD / Survey:** MWD with GR, inclination, and azimuth (survey every joint from KOP to Landing Point and survey every 100' minimum before KOP and after Landing Point)

**Logging:** GR MWD for entire section, no mud-log or cuttings sampling, no OH WL logs

**Pressure Test:** NU BOPE and test (as noted above); pressure test 9-5/8" casing to **1,500** psi for 30 minutes.

**Procedure:** Drill to KOP following directional plan. Target flow-rate is 650 - 700 GPM. Target differential is pressure is 700 - 1,000 psig. Target ROP 500 - 600 ft/hr. Steer as needed to keep well on plan. Keep DLS < 3 deg/100' and keep slide length < 10' until KOP, when feasible. Take surveys every stand, at a minimum. Confirm landing target, planned BUR for curve, and KOP with Geology and Engineering. Drill curve following directional plan and updated landing target. Take survey every joint during curve. Land curve. Continue drilling in lateral section, steering as needed to keep well on plan and in the target window. Keep DLS < 2 deg/100' and keep slide length < 20', when feasible. Take surveys every stand, at a minimum. **Target rotating parameters / performance: flow-rate is 650 - 700 GPM, differential is pressure is 700 - 1,000 psig, ROP 500 - 600 ft/hr, torque 38K ft-lbs (MAX drill pipe MUT).** After reaching TD, perform no more than one clean-up cycle to condition hole for casing running unless shakers indicate additional cleaning needed. TOOH & LD drill pipe (ROOH, if required; should NOT be required with OBM system). When pumping hole cleaning sweeps, fine LCM product is to be used -**Do not use barite for sweeps**. Run casing as described below. Use CRT for casing running only if necessary (should NOT be required with OBM). Verify make up torque when running casing. Space out casing getting the toe sleeve as close to LTP as possible. Land casing and test pack-off. Open floatation sub, fill casing, and circulate as required. Pump cement as detailed below. Note cement volume circulated to surface. Nipple down BOPE. Clean pits. RDMO to next pad.

| **Casing Specs:** | Size (in) | Wt (lb/ft) | Grade | Conn. | Collapse (psi) | Burst (psi) | Tens. Body (lbs) | Tens. Conn (lbs) |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Specs* | 5.500 | 17.0 | P-110 | LTC | 7,460 | 10,640 | 546,000 | 445,000 |
| *Loading* | | | | | 2,727 | 9,017 | 285,906 | 285,906 |
| *Min. S.F.* | | | | | **2.74** | **1.18** | **1.91** | **1.56** |

*Assumptions:* *Collapse: fully evacuated casing with 9.5 ppg fluid in the annulus (floating casing during running)*
*Burst: 8,500 psi maximum surface treating pressure with 10.2 ppg equivalent mud weight sand laden fluid with 8.4 ppg equivalent external pressure gradient*
*Tension: buoyed weight in 9.0 ppg fluid with 100,000 lbs over-pull*

***MU Torque (ft lbs):*** *Minumum: 3,470 Optimum: 4,620 Maximum: 5,780*

***Casing Summary:*** Float shoe, float collar, 1 jt casing, float collar, 20' marker joint, toe-intitiation sleeve, casing to KOP with 20' marker joints spaced evenly in lateral every 2,000', floatation sub at KOP, casing to surface. The toe-initiation sleeve (last-take-point) cannot be placed closer than 330' to the unit boundary when measured perpendicular to the well path.

***Casing Summary:*** Float shoe, float collar w/debris catcher, 1 jt casing, float collar **(Weatherford (WFT) float equipment)**, 20' marker joint, toe-intitiation sleeve **(WFT RD 8,500 psi)**, casing to KOP with 20' marker joints spaced evenly in lateral every ~2,000', floatation sub **(NCS Air-Lock 2,500 psi from WFT)**, casing to surface. The toe-initiation sleeve shall be placed no closer to the unit boundary than 300' measured perpendicular to the East or West lease lines for a East-West azimuth drilled wellbore. Wellbore path must be no closer than 600' from the parallel lease lines. ***Note: the LTP is the maximum depth of the toe sleeve and is noted on the Well Plan. Drill past the LTP as required for necessary rat-hole and shoe-track length to place the toe sleeve as close to (but not past) the planned LTP as possible.***

***Centralizers:*** *Centralizer count and placement may be adjusted based on well conditions and as-drilled surveys.*
**Lateral:** 1 centralizer per 3 joints (purchase centralizers from either Scepter Supply or Arsenal)
**Top of curve to 9-5/8" shoe:** 1 centralizer per 5 joints
**9-5/8" shoe to surface:** 1 centralizer per 5 joints

| ***Cement:*** | **Type** | **Weight (ppg)** | **Yield (cuft/sk)** | **Water (gal/sk)** | **% Excess** | **Planned TOC (ft MD)** | **Total Cmt (sx)** | **Total Cmt (cu ft)** |
|---|---|---|---|---|---|---|---|---|
| *Spacer* | IntegraGuard Star | 11 | | 31.6 | | 0 | 60 bbls | |
| *Lead* | ASTM type I/II | 12.4 | 2.370 | 13.40 | 50% | 0 | 560 | 1,328 |
| *Tail* | G:POZ blend | 13.3 | 1.570 | 7.70 | 10% | 4,696 | 1,280 | 2,010 |

*Displacement* *120* *est bbls*

*Annular Capacity*
0.2691 cuft/ft *5-1/2" casing x 9-5/8" casing annulus*
0.2291 cuft/ft *5-1/2" casing x 8-1/2" hole annulus*
0.1245 cuft/ft *5-1/2" casing vol* *est shoe jt ft* 100

*Calculated cement volumes assume gauge hole and the excess noted in table*
*American Cementing Liner & Production Blend*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ***Spacer*** | *S-8 Silica Flour 163.7 lbs/bbl* | Avis 616 viscosifier 11.6 lb/bbl | FP24 Defoamer .5 lb/bbl | IntegraGuard Star Plus 3K LCM 15 lb/bbl | SS201 Surfactant 1 gal/bbl | | | |
| ***Lead*** | *ASTM Type I/II* | BA90 Bonding Agent 5.0 lb/sx | Bentonite Viscosifier 8% BWOB | FL24 Fluid Loss .5% BWOB | IntegraGuard GW86 Viscosifier .1% BWOB | R7C Retarder .2% BWOB | FP24 Defoamer 0.3% BWOB, Anti-Static .01 lb/sx | |
| ***Tail*** | *Type G 50%* | Pozzolan Fly Ash Extender 50% | BA90 Bonding Agent 3.0 lb/sx | Bentonite Viscosifier 4% BWOB | FL24 Fluid Loss .4% BWOB | IntegraGuard GW86 Viscosifier .1% BWOB | R3 Retarder .5% BWOB | FP24 Defoamer .3% BWOB, IntegraSeal 0.25 lb/sx |

*Calculated cement volumes assume gauge hole and the excess noted in table*
**Notify NMOCD & BLM if cement is not circulated to surface.**

***Note:*** This well will not be considered an unorthodox well location as definted by NMAC19.15.16.15.C.5. As defined in NMAC 19.15.16.15.C.1.a and 19.15.16.15.C.1.b, no point in the completed interval shall be closer to the unit boundary than 100' measured along the azimuth of the well or 330' measured perpendicular to the azimuth well. The boundaries of the completed interval, as defined by NMAC 19.15.16.7.B, are the last take point and first take point, as defined by NMAC 19.15.16.7.E and NMAC 19.15.16.7.J, respectively. In the case of this well, the last take point will be the bottom toe-initiation sleeve, and the first take point will be the top perforation. **Neither the toe-initiation sleeve nor the top perforation shall be closer to the unit boundary than 100' measured along the azimuth of the well or 330' measured perpendicular to the azimuth of the well.**

***FINISH WELL:*** ***ND BOP, cap well, RDMO.***
***Procedure:*** After off-line cement job, cap and cover well. Continue drilling operations on subsequent wells on pad.

**COMPLETION AND PRODUCTION PLAN:**

***Est Lateral Length:*** 6,715
***Est Frac Inform:*** *28 Frac Stages 108,000 bbls slick water 8,730,000 lbs proppant*
***Flowback:*** Flow back through production tubing as pressures allow
***Production:*** Produce through production tubing via gas-lift into permanent production and storage facilities

**ESTIMATED START DATES:**

***Drilling:*** 11/1/23
***Completion:*** 12/31/23
***Production:*** 2/14/24

***Prepared by:*** **Alec Bridge** **12/20/21**
***Updated:*** Greg Olson 2/20/23
Greg Olson 3/27/23

**ENDURING RESOURCES IV, LLC**
**6300 S SYRACUSE WAY, SUITE 525**
**CENTENNIAL, COLORADO 80211**

**DRILLING PLAN:** ***Drill, complete, and equip single lateral in the Mancos-H formation***

**WELL INFORMATION:**

***Name:*** **Haynes Canyon Unit 440H**
***API Number:*** Not yet assigned
***AFE Number:*** *Not yet assigned*
***ER Well Number:*** *Not yet assigned*
***State:*** New Mexico
***County:*** Rio Arriba
***Surface Elevation:*** 6,703 ft ASL (GL) 6,728 ft ASL (KB)
***Surface Location:*** 3-23-6 Sec-Twn-Rng 916 ft FSL 390 ft FWL
36.248698 °N latitude 107.464489 °W longitude (NAD 83)
***BH Location:*** 4-23-6 Sec-Twn-Rng 453 ft FNL 232 ft FWL
36.259361 °N latitude 107.482957 °W longitude (NAD 83)
***Driving Directions:*** **FROM THE INTERSECTION OF US HWY 550 & US HWY 64 IN BLOOMFIELD, NM:**
South on US Hwy 550 for 53.8 miles to MM 97.6; Left (North) on CR #379 (State Hwy 403) for 1.3 miles to fork; Right (North) remaining on CR #379 for 1.5 miles to location access on left; Haynes Canyon Unit 428H Pad. From East to West 430H, 428H, 442H, 440H).

**GEOLOGIC AND RESERVOIR INFORMATION:**

***Prognosis:***

| Formation Tops | TVD (ft ASL) | TVD (ft KB) | MD (ft KB) | O / G / W | Pressure |
|---|---|---|---|---|---|
| Ojo Alamo | 5,325 | 1,403 | 1,406 | W | normal |
| Kirtland | 5,225 | 1,503 | 1,509 | W | normal |
| Fruitland | 5,000 | 1,728 | 1,746 | G, W | sub |
| Pictured Cliffs | 4,765 | 1,963 | 1,998 | G, W | sub |
| Lewis | 4,615 | 2,113 | 2,159 | G, W | normal |
| Chacra | 4,320 | 2,408 | 2,475 | G, W | normal |
| Cliff House | 3,210 | 3,518 | 3,665 | G, W | sub |
| Menefee | 3,205 | 3,523 | 3,670 | G, W | normal |
| Point Lookout | 2,505 | 4,223 | 4,416 | G, W | normal |
| Mancos | 2,230 | 4,498 | 4,696 | O,G | sub (~0.38) |
| Gallup (MNCS_A) | 1,890 | 4,838 | 5,036 | O,G | sub (~0.38) |
| MNCS_B | 1,800 | 4,928 | 5,126 | O,G | sub (~0.38) |
| MNCS_C | 1,665 | 5,063 | 5,263 | O,G | sub (~0.38) |
| MNCS_Cms | 1,600 | 5,128 | 5,333 | O,G | sub (~0.38) |
| MNCS_D | 1,525 | 5,203 | 5,418 | O,G | sub (~0.38) |
| MNCS_E | 1,440 | 5,288 | 5,525 | O,G | sub (~0.38) |
| MNCS_F | 1,395 | 5,333 | 5,590 | O,G | sub (~0.38) |
| MNCS_G | 1,310 | 5,418 | 5,744 | O,G | sub (~0.38) |
| MNCS_H | 1,270 | 5,458 | 5,833 | O,G | sub (~0.38) |
| MNCS_I | 0 | 0 | 0 | O,G | sub (~0.38) |
| **FTP TARGET** | **1,262** | **5,466** | **5,858** | **O,G** | **sub (~0.38)** |
| **PROJECTED LTP** | **1,207** | **5,521** | **12,673** | **O,G** | **sub (~0.38)** |

***Surface:*** Nacimiento
***Oil & Gas Zones:*** Several gas bearing zones will be encountered; target formation is the Gallup
***Pressure:*** Normal (0.43 psi/ft) or sub-normal pressure gradients anticipated in all formations
Max. pressure gradient: 0.43 psi/ft Evacuated hole gradient: 0.22 psi/ft
**Maximum anticipated BH pressure, assuming maximum pressure gradient: 2,380 psi**
**Maximum anticipated surface pressure, assuming partially evacuated hole: 1,170 psi**
***Temperature:*** **Maximum anticipated BHT is 125° F or less**

**$H_2S$ INFORMATION:**

***$H_2S$ Zones:*** Encountering hydrogen-sulfide bearing zones is **NOT** anticipated.
***Safety:*** Sensors and alarms will be placed in the substructure, on the rig floor, above the pits, and at the shakers.

**LOGGING, CORING, AND TESTING:**

***Mud Logs:***
None planned; remote geo-steering from drill out of 9-5/8" casing to TD; gas detection from drillout of 13-3/8" casing to TD.
***MWD / LWD:*** Gamma Ray from drillout of 13-3/8" casing to TD
***Open Hole Logs:*** None planned
***Testing:*** None planned
***Coring:*** None planned
***Cased Hole Logs:*** CBL on 5-1/2" casing from deepest free-fall depth to surface

**DRILLING RIG INFORMATION:**

***Contractor:*** Aztec

| | |
|---|---|
| ***Rig No.:*** | 1000 |
| ***Draw Works:*** | E80 AC 1,500 hp |
| ***Mast:*** | Hyduke Triple (136 ft, 600,000 lbs, 10 lines) |
| ***Top Drive:*** | NOV IDS-350PE (350 ton) |
| ***Prime Movers:*** | 4 - GE Jenbacher Natural Gas Generator |
| ***Pumps:*** | 2 - RS F-1600 (7,500 psi) |
| ***BOPE 1:*** | Cameron single & double gate rams (13-5/8", 3,000 psi) |
| ***BOPE 2:*** | Cameron annular (13-5/8", 5,000 psi) |
| ***Choke*** | Cameron (4", 10,000 psi) |
| ***KB-GL (ft):*** | 25 |
| ***Note:*** | Actual drilling rig may vary depending on availability at time the well is scheduled to be drilled. |

| **STATE AND FEDERAL NOTIFICATIONS** | | BLM | State |
|---|---|---|---|
| ***Construction and Reclamation:*** | BLM is to be notified minimum of 48 hours prior to start of construction or reclamation. Grazing permittee is to be notified 10 days in advance. | (505) 564-7600 | |
| ***Spud*** | BLM and state are to be notified minimum of 24 hours prior to spud. | (505) 564-7750 | (505) 334-6178 |
| ***BOP*** | BLM is to be notified minimum of 24 hours prior to BOPE testing. | (505) 564-7750 | see note |
| ***Casing / cementing*** | BLM and state are to be notified minimum of 24 hours prior to running casing and cementing. | (505) 564-7750 | (505) 334-6178 |
| ***Plugging*** | BLM and state are to be notified minimum of 24 hours prior to plugging ops. | (505) 564-7750 | see note |
| | **All notifications are to be recorded in the WellView report with time, date, name or number that notifications were made to.** | | |
| | **Note**: Monica Keuhling with the OCD requests state notifications 24 hrs in advance for spud, BOP tests, casing & cementing and any plugging be given to her in both phone message and email: (505) 320-0243, monica.keuhling@emnrd.nm.gov | | |

**BOPE REQUIREMENTS:**

*See attached diagram for details regarding BOPE specifications and configuration.*

1) Rig will be equipped with upper and lower kelly cocks with handles available.
2) Inside BOP and TIW valves will be available to use on all sizes and threads of drill pipe used while drilling the well.
2) BOP accumulator will have enough capacity to open the HCR valve, close all rams and annular preventer, and retain minimum of 200 psi above precharge on the closing manifold without the use of closing pumps. The fluid reservoir capacity shall be at least double the usable fluid volume of the accumulator system capacity, and the fluid level shall be maintained at manufacturer's recommendation. There will be two additional sources of power for the closing pumps (electric and air). Sufficient nitrogen bottles will be available and will be recharged when pressure falls below manufacturer's recommended minimum.
3) BOP testing shall be conducted (a) when initially installed, (b) whenever any seal is broken or repaired, (c) if the time since the previous test exceeds 30 days. Tests will be conducted using a test plug. BOP ram preventers will be tested to 3,000 psig for 10 minutes, and the annular preventer will be tested to 1,500 psi for 10 minutes. Ram and annular preventers will be tested to 250 psi for 5 minutes. Additionally, BOP and casing strings will be tested to .22 psi/ft or 1,500 psi, whichever is greater but not exceeding 70% of yield strength of the casing, for 30 minutes, prior to drilling out 13-3/8" and 9-5/8" casing. Rams and hydraulically operated remote choke line valve will be function tested daily at a minimum.
4) Remote valve for BOP rams, HCR, and choke shall be placed in a location that is readily available to the driller. The remote BOP valve shall be capable of closing and opening the rams.
5) Manual locking devices (hand wheels) shall be intalled on rams. A valve will be installed on the annular preventer's closing line as close as possible to the preventer to act as a locking device.The valve will be maintained in the open position and shall only be closed when the there is no power to the accumulator.

**FLUIDS AND SOLIDS CONTROL PROGRAM:**

***Fluid Measurement:*** Pumps shall be equipped with stroke counters with displays in the dog-house. Slow pump speed shall be recorded daily and after mudding up, at a minimum, on the drilling report. A Pit Volume Totalizer will be installed and the readout will be displayed in the dog-house. Gas-detecting equipment will be installed at the shakers, and readouts will be available in the dog-house and the in the geologist's work-station (if geologist or mud-logger is on-site).

***Closed-Loop System:*** A fully, closed-loop system will be utilized. The system will consist of above-ground piping and above-ground storage tanks and bins. The system will not entail any earthen pits, below-grade storage, or drying pads. All equipment will be disassembled and removed from the site when drilling operations cease. The system will be capable of storing all fluids and generated cuttings and of preventing uncontrolled releases of the same. The system will be operated in an efficient manner to allow the recycling and reuse of as much fluid as possible and to minimimize the amount of fluids and solids that require disposal.

***Fluid Disposal*** : Fluids that cannot be reused, recycled, or returned to the supplier will be hauled to and disposed of at an approved disposal site (Industrial Ecosystem, Inc. or Envirotech, Inc.).

***Solids Disposal*** : Drilling solids will be stored (until haul-off) on-site in separate containers with no other waste, debris, or garbage products. Waste solids will be hauled to and disposed of at an approved disposal site (Industrial Ecosystem, Inc. or Envirotech, Inc.).

***Fluid Program:*** See "Detailed Drilling Plan" section for additional details. Sufficient barite will be on location to weight up mud system to balance maximum anticipated pressure gradient.

**DETAILED DRILLING PLAN:**

***SURFACE:*** ***Drill vertically to casing setting depth (plus necessary rathole), run casing, cement casing to surface.***

| | | | | | |
|---|---|---|---|---|---|
| 0 ft (MD) | to | 350 ft (MD) | Hole Section Length: | 350 ft |
| 0 ft (TVD) | to | 350 ft (TVD) | Casing Required: | 350 ft |

***Note: Surface hole may be drilled, cased, and cemented with a smaller rig in advance of the drilling rig.***

| Fluid: | Type | MW (ppg) | FL (mL/30 min) | PV (cp) | YP (lb/100 sqft) | pH | Comments |
|---|---|---|---|---|---|---|---|
| | Fresh Water | 8.4 | N/C | 2 - 8 | 2 - 12 | 9.0 | Spud mud |

***Hole Size:*** 17-1/2"
***Bit / Motor:*** Mill Tooth or PDC, no motor
***MWD / Survey:*** No MWD, deviation survey
***Logging:*** None
***Procedure:*** Drill to TD. Use 12-/4" bit and open to 17-1/2" if unable to drill with 17-1/2" bit. Run inclination survey in 100' stations from TD to surface. Condition hole and fluid for casing running as required. TOOH. Run casing. Pump cement as detailed below. Monitor returns during cement job and note cement volume to surface. Install cellar and wellhead.

| Casing Specs: | | Wt (lb/ft) | Grade | Conn. | Collapse (psi) | Burst (psi) | Tens. Body (lbs) | Tens. Conn (lbs) |
|---|---|---|---|---|---|---|---|---|
| *Specs* | 13.375 | 54.5 | J-55 | BTC | 1,130 | 2,730 | 853,000 | 909,000 |
| *Loading* | | | | | 153 | 791 | 116,634 | 116,634 |
| *Min. S.F.* | | | | | **7.39** | **3.45** | **7.31** | **7.79** |

*Assumptions: Collapse: fully evacuated casing with 8.4 ppg equivalent external pressure gradient*
*Burst: maximum anticipated surface pressure with 9.5 ppg fluid inside casing while drilling intermediate hole and 8.4 ppg equivalent external pressure gradient*
*Tension: buoyed weight in 8.4 ppg fluid with 100,000 lbs over-pull*

***MU Torque (ft lbs):*** *Minumum: N/A Optimum: N/A Maximum: N/A*
*Make-up as per API Buttress Connection running procedure.*
***Casing Summary:*** Float shoe, 1 jt casing, float collar, casing to surface
***Centralizers:*** 2 centralizers per jt stop-banded 10' from each collar on bottom 3 jts, 1 centralizer per 2 jts to surface

| Cement: | Type | Weight (ppg) | Yield (cuft/sk) | Water (gal/sk) | Hole Cap. (cuft/ft) | % Excess | Planned TOC (ft MD) | Total Cmt (sx) |
|---|---|---|---|---|---|---|---|---|
| | TYPE III | 14.6 | 1.39 | 6.686 | 0.6946 | 100% | 0 | 364 |
| *Annular Capacity* | 0.6946 | cuft/ft | *13-3/8" casing x 17-1/2" hole annulus* | | | Csg capacity | 0.8680 | ft3/ft |
| *Drake Energy Services:* | *Calculated cement volumes assume gauge hole and the excess noted in table* | | | | | | | Cu Ft Slurry |
| | | | | | | | | 505.3 |
| ***Tail*** | *ASTM Type III Blend* | Calcium Chloride 2% BWOC Accelerator | D-CD2 .3% BWOC Dispersant/Friction reducer | .25 lbs/sx Cello Flake - seepage | | | | |

**Notify COGCC & BLM if cement is not circulated to surface. Cement must achieve 500 psi compressive strength before drilling out.**

***INTERMEDIATE:*** ***Drill as per directional plan to casing setting depth, run casing, cement casing to surface.***

| | | | | |
|---|---|---|---|---|
| 350 ft (MD) | to | 3,833 ft (MD) | Hole Section Length: | 3,483 ft |
| 350 ft (TVD) | to | 3,673 ft (TVD) | Casing Required: | 3,833 ft |

| Fluid: | Type | MW (ppg) | FL (mL/30 min) | PV (cp) | YP (lb/100 sqft) | pH | Comments |
|---|---|---|---|---|---|---|---|
| | LSND (5% KCl) | 8.8 - 9.5 | 20 | 8 - 14 | 8 - 14 | 9.0 - 9.5 | No OBM |

***Hole Size:*** 12-1/4"
***Bit / Motor:*** 12-1/4" PDC bit w/mud motor
***Bit / Motor:*** MOTOR: NOV 087840 - 7/8, 4.0, stage, 0.16 rev/gal, 1.83 DEG, 900 GPM, 950 DIFF PSIG
BIT: 6-BLADE PDC w/16 mm or 19 mm cutters, TFA = 0.67 sq-in (range 0.65 - 0.90 max), **jet with 6 - 12s**
***MWD / Survey:*** MWD Survey with inclination and azimuth survey (every 100' at a minimum), GR optional
***Logging:*** None
***Pressure Test:*** NU BOPE and test (as noted above); pressure test 13-3/8" casing to **1,500** psi for 30 minutes.
***Procedure:*** Drill to TD following directional plan **(20' rat-hole past casing setting depth)**. Steer as needed to keep well on plan. Keep DLS < 3 deg/100' and keep slide length < 10', when possible. Take surveys every stand, at a minimum. Target flow-rates of 750 GPM (higher if able to control return rates). Minimum desired flow-rate is 650 GPM. At TD, condition hole and fluid for casing running. TOOH. Run casing using a CRT and washing / circulating as required. Land casing. ND BOPE. Walk rig to next well. Perform off-line cement job. Pump cement as detailed below. Monitor returns during cement job and note cement volume to surface.

| Casing Specs: | | Wt (lb/ft) | Grade | Conn. | Collapse (psi) | Burst (psi) | Tens. Body (lbs) | Tens. Conn (lbs) |
|---|---|---|---|---|---|---|---|---|
| *Specs* | 9.625 | 36.0 | J-55 | LTC | 2,020 | 3,520 | 564,000 | 453,000 |
| *Loading* | | | | | 1,604 | 1,380 | 215,309 | 215,309 |
| *Min. S.F.* | | | | | **1.26** | **2.55** | **2.62** | **2.10** |

*Assumptions: Collapse: fully evacuated casing with 8.4 ppg equivalent external pressure gradient*
*Burst: maximum anticipated surface pressure with 9.5 ppg fluid inside casing while drilling production hole and 8.4 ppg equivalent external pressure gradient*
*Tension: buoyed weight in 8.4 ppg fluid with 100,000 lbs over-pull*

***MU Torque (ft lbs):*** *Minumum: 3,400 Optimum: 4,530 Maximum: 5,660*
***Casing Summary:*** Float shoe, 1 jt casing, float collar, casing to surface (FLOAT EQUIPMENT FROM WEATHERFORD)
***Centralizers:*** 1 per joint in non-vertical hole; 1 per 2-joints in vertical hole

**Centralizers:** 1 centralizers jt stop-banded 10' from float shoe on bottom 1 jt & 1 centralizer floating on bottom joint, 1 centralizer per jt (floating) to KOP ; 1 centralizer per 3 jts (floating) to surface **(Centralizers from Scepter Supply - SLIP'N'SLIDE 9-5/8" x 11.75" SOLID BODY POLYMER)**

| | Type | Weight (ppg) | Yield (cuft/sk) | Water (gal/sk) | % Excess | Planned TOC (ft MD) | Total Cmt (sx) | Total Cmt (cu ft) |
|---|---|---|---|---|---|---|---|---|
| **Cement:** | | | | | | | | |
| **Stage 1** *Spacer* | D-Mud Breaker | 8.5 | | | | 0 | 10 bbls | |
| *Lead* | 90:10 Type III:POZ | 12.5 | 2.140 | 12.05 | 70% | 0 | 802 | 1,715 |
| *Tail* | Type III | 14.6 | 1.380 | 6.64 | 20% | 3,333 | 150 | 207 |
| *Displacement* | *293* | *est bbls* | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| *Annular Capacity* | 0.3627 | cuft/ft | *9-5/8" casing x 13-3/8" casing annulus* | | |
| | 0.3132 | cuft/ft | *9-5/8" casing x 12-1/4" hole annulus* | 9-5/8" 36# ID | 8.921 |
| | 0.4341 | cuft/ft | *9-5/8" casing vol* | *est shoe jt ft* | 44 |

*Calculated cement volumes assume gauge hole and the excess (open hole only) noted in table*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Spacer** | *D-Mud Breaker* | SAPP | | | | | | |
| **Lead** | *ASTM Type III 90/10 Poz* | D-CSE 1 5.0% BWOC Strength Enhancer | D-MPA-1 .4% BWOC Fluid Loss & Gas Migration Control | D-SA 1 1.4% BWOC Na Metasilicate | D-CD 2 .4% BWOC Dispersant | Cello Flace LCM .25 lb/sx | D-FP1 0.5% BWOC Defoamer | D-R1 .5% Retarder |
| **Tail** | *ASTM Type III Blend* | | D-MPA-1 .4% BWOC Fluid Loss & Gas Migration Control | | D-CD 2 .5% BWOC Dispersant | Cello Flace LCM .25 lb/sx | | D-R1 .2% Retarder |

*Drake Intermediate Cementing Program*

**Cement must achieve 500 psi compressive strength before drilling out.**
**Notify NMOCD & BLM if cement is not circulated to surface. Cement must achieve 500 psi compressive strength before drilling out.**

**PRODUCTION:** ***Drill to TD following directional plan, run casing, cement casing to surface.***

| | | | | | |
|---|---|---|---|---|---|
| 3,833 | ft (MD) | to | 12,673 | ft (MD) | Hole Section Length: 8,840 ft |
| 3,673 | ft (TVD) | to | 5,521 | ft (TVD) | Casing Required: 12,673 ft |

| | | | | |
|---|---|---|---|---|
| *Estimated KOP:* | 5,100 | ft (MD) | 4,900 | ft (TVD) |
| *Estimated Landing Point (FTP):* | 5,858 | ft (MD) | 5,466 | ft (TVD) |
| *Estimated Lateral Length:* | 6,815 | ft (MD) | | |

| **Fluid:** | Type | MW (ppg) | WPS ppm | HTHP | YP (lb/100 sqft) | ES | OWR | Comment |
|---|---|---|---|---|---|---|---|---|
| | OBM | 8.0 - 9.0 | 120,000 CaCl | NC | ±6 | +300 | 80:20 | WBM as contingency |

**Fluids / Solids Notes:** OptiDrill OBM system will be built from previous well. Ensure that drying shakers are rigged up after the rig (2nd set) of shakers. Solids control will burn retorts on cuttings samples one per tour to check % ROC. Add diesel and products as required to maintain mud in program specs. Reference Newpark's mud program for additional details.

**Hole Size:** 8-1/2"

**Bit / Motor:** 8-1/2" PDC bit w/mud motor

**Bit / Motor:** **MOTOR:** NOV 077857 - 6.5" 7/8, 5.0 stage, 0.23 rev/gal, 1.83 deg, 750 GPM, 1,580 DIFF PSIG (or similar); on demand friction breaking device(s) as required, bottom tool spaced ~3,000' behind the bit.
**BIT:** 5-BLADE PDC w/16 mm - 19 mm cutters, matrix body, target TFA = 1.0 - 1.5 sq-in

**MWD / Survey:** MWD with GR, inclination, and azimuth (survey every joint from KOP to Landing Point and survey every 100' minimum before KOP and after Landing Point)

**Logging:** GR MWD for entire section, no mud-log or cuttings sampling, no OH WL logs

**Pressure Test:** NU BOPE and test (as noted above); pressure test 9-5/8" casing to **1,500** psi for 30 minutes.

**Procedure:** Drill to KOP following directional plan. Target flow-rate is 650 - 700 GPM. Target differential is pressure is 700 - 1,000 psig. Target ROP 500 - 600 ft/hr. Steer as needed to keep well on plan. Keep DLS < 3 deg/100' and keep slide length < 10' until KOP, when feasible. Take surveys every stand, at a minimum. Confirm landing target, planned BUR for curve, and KOP with Geology and Engineering. Drill curve following directional plan and updated landing target. Take survey every joint during curve. Land curve. Continue drilling in lateral section, steering as needed to keep well on plan and in the target window. Keep DLS < 2 deg/100' and keep slide length < 20', when feasible. Take surveys every stand, at a minimum. **Target rotating parameters / performance: flow-rate is 650 - 700 GPM, differential is pressure is 700 - 1,000 psig, ROP 500 - 600 ft/hr, torque 38K ft-lbs (MAX drill pipe MUT).** After reaching TD, perform no more than one clean-up cycle to condition hole for casing running unless shakers indicate additional cleaning needed. TOOH & LD drill pipe (ROOH, if required; should NOT be required with OBM system). When pumping hole cleaning sweeps, fine LCM product is to be used -**Do not use barite for sweeps**. Run casing as described below. Use CRT for casing running only if necessary (should NOT be required with OBM). Verify make up torque when running casing. Space out casing getting the toe sleeve as close to LTP as possible. Land casing and test pack-off. Open floatation sub, fill casing, and circulate as required. Pump cement as detailed below. Note cement volume circulated to surface. Nipple down BOPE. Clean pits. RDMO to next pad.

| **Casing Specs:** | Size (in) | Wt (lb/ft) | Grade | Conn. | Collapse (psi) | Burst (psi) | Tens. Body (lbs) | Tens. Conn (lbs) |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Specs* | 5.500 | 17.0 | P-110 | LTC | 7,460 | 10,640 | 546,000 | 445,000 |
| *Loading* | | | | | 2,727 | 9,017 | 285,906 | 285,906 |
| *Min. S.F.* | | | | | **2.74** | **1.18** | **1.91** | **1.56** |

*Assumptions:* *Collapse: fully evacuated casing with 9.5 ppg fluid in the annulus (floating casing during running)*
*Burst: 8,500 psi maximum surface treating pressure with 10.2 ppg equivalent mud weight sand laden fluid with 8.4 ppg equivalent external pressure gradient*
*Tension: buoyed weight in 9.0 ppg fluid with 100,000 lbs over-pull*

***MU Torque (ft lbs):*** *Minumum:* *3,470* *Optimum:* *4,620* *Maximum:* *5,780*

***Casing Summary:*** Float shoe, float collar, 1 jt casing, float collar, 20' marker joint, toe-intitiation sleeve, casing to KOP with 20' marker joints spaced evenly in lateral every 2,000', floatation sub at KOP, casing to surface. The toe-initiation sleeve (last-take-point) cannot be placed closer than 330' to the unit boundary when measured perpendicular to the well path.

***Casing Summary:*** Float shoe, float collar w/debris catcher, 1 jt casing, float collar **(Weatherford (WFT) float equipment)**, 20' marker joint, toe-intitiation sleeve **(WFT RD 8,500 psi)**, casing to KOP with 20' marker joints spaced evenly in lateral every ~2,000', floatation sub **(NCS Air-Lock 2,500 psi from WFT)**, casing to surface. The toe-initiation sleeve shall be placed no closer to the unit boundary than 300' measured perpendicular to the East or West lease lines for a East-West azimuth drilled wellbore. Wellbore path must be no closer than 600' from the parallel lease lines. ***Note: the LTP is the maximum depth of the toe sleeve and is noted on the Well Plan. Drill past the LTP as required for necessary rat-hole and shoe-track length to place the toe sleeve as close to (but not past) the planned LTP as possible.***

***Centralizers:*** *Centralizer count and placement may be adjusted based on well conditions and as-drilled surveys.*
**Lateral:** 1 centralizer per 3 joints (purchase centralizers from either Scepter Supply or Arsenal)
**Top of curve to 9-5/8" shoe:** 1 centralizer per 5 joints
**9-5/8" shoe to surface:** 1 centralizer per 5 joints

| ***Cement:*** | **Type** | **Weight (ppg)** | **Yield (cuft/sk)** | **Water (gal/sk)** | **% Excess** | **Planned TOC (ft MD)** | **Total Cmt (sx)** | **Total Cmt (cu ft)** |
|---|---|---|---|---|---|---|---|---|
| *Spacer* | IntegraGuard Star | 11 | | 31.6 | | 0 | 60 bbls | |
| *Lead* | ASTM type I/II | 12.4 | 2.370 | 13.40 | 50% | 0 | 560 | 1,328 |
| *Tail* | G:POZ blend | 13.3 | 1.570 | 7.70 | 10% | 4,696 | 1,280 | 2,010 |

*Displacement* *120* *est bbls*

| | | | | | |
|---|---|---|---|---|---|
| *Annular Capacity* | 0.2691 | cuft/ft | *5-1/2" casing x 9-5/8" casing annulus* | | |
| | 0.2291 | cuft/ft | *5-1/2" casing x 8-1/2" hole annulus* | | |
| | 0.1245 | cuft/ft | *5-1/2" casing vol* | *est shoe jt ft* | 100 |

*Calculated cement volumes assume gauge hole and the excess noted in table*
*American Cementing Liner & Production Blend*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ***Spacer*** | *S-8 Silica Flour 163.7 lbs/bbl* | Avis 616 viscosifier 11.6 lb/bbl | FP24 Defoamer .5 lb/bbl | IntegraGuard Star Plus 3K LCM 15 lb/bbl | SS201 Surfactant 1 gal/bbl | | | |
| ***Lead*** | *ASTM Type I/II* | BA90 Bonding Agent 5.0 lb/sx | Bentonite Viscosifier 8% BWOB | FL24 Fluid Loss .5% BWOB | IntegraGuard GW86 Viscosifier .1% BWOB | R7C Retarder .2% BWOB | FP24 Defoamer 0.3% BWOB, Anti-Static .01 lb/sx | |
| ***Tail*** | *Type G 50%* | Pozzolan Fly Ash Extender 50% | BA90 Bonding Agent 3.0 lb/sx | Bentonite Viscosifier 4% BWOB | FL24 Fluid Loss .4% BWOB | IntegraGuard GW86 Viscosifier .1% BWOB | R3 Retarder .5% BWOB | FP24 Defoamer .3% BWOB, IntegraSeal 0.25 lb/sx |

*Calculated cement volumes assume gauge hole and the excess noted in table*
**Notify NMOCD & BLM if cement is not circulated to surface.**

***Note:*** This well will not be considered an unorthodox well location as defintied by NMAC19.15.16.15.C.5. As defined in NMAC 19.15.16.15.C.1.a and 19.15.16.15.C.1.b, no point in the completed interval shall be closer to the unit boundary than 100' measured along the azimuth of the well or 330' measured perpendicular to the azimuth well. The boundaries of the completed interval, as defined by NMAC 19.15.16.7.B, are the last take point and first take point, as defined by NMAC 19.15.16.7.E and NMAC 19.15.16.7.J, respectively. In the case of this well, the last take point will be the bottom toe-initiation sleeve, and the first take point will be the top perforation. **Neither the toe-initiation sleeve nor the top perforation shall be closer to the unit boundary than 100' measured along the azimuth of the well or 330' measured perpendicular to the azimuth of the well.**

***FINISH WELL:*** ***ND BOP, cap well, RDMO.***
***Procedure:*** After off-line cement job, cap and cover well. Continue drilling operations on subsequent wells on pad.

**COMPLETION AND PRODUCTION PLAN:**

***Est Lateral Length:*** 6,715
***Est Frac Inform:*** *28 Frac Stages* *108,000 bbls slick water* *8,730,000 lbs proppant*
***Flowback:*** Flow back through production tubing as pressures allow
***Production:*** Produce through production tubing via gas-lift into permanent production and storage facilities

**ESTIMATED START DATES:**

***Drilling:*** 11/1/23
***Completion:*** 12/31/23
***Production:*** 2/14/24

***Prepared by:*** **Alec Bridge** **12/20/21**
***Updated:*** Greg Olson 2/20/23
Greg Olson 3/27/23

**ENDURING RESOURCES IV, LLC**
**6300 S SYRACUSE WAY, SUITE 525**
**CENTENNIAL, COLORADO 80211**

**DRILLING PLAN:** ***Drill, complete, and equip single lateral in the Mancos-H formation***

**WELL INFORMATION:**

***Name:*** **Haynes Canyon Unit 440H**
***API Number:*** Not yet assigned
***AFE Number:*** *Not yet assigned*
***ER Well Number:*** *Not yet assigned*
***State:*** New Mexico
***County:*** Rio Arriba
***Surface Elevation:*** 6,703 ft ASL (GL) 6,728 ft ASL (KB)
***Surface Location:*** 3-23-6 Sec-Twn-Rng 916 ft FSL 390 ft FWL
36.248698 °N latitude 107.464489 °W longitude (NAD 83)
***BH Location:*** 4-23-6 Sec-Twn-Rng 453 ft FNL 232 ft FWL
36.259361 °N latitude 107.482957 °W longitude (NAD 83)
***Driving Directions:*** **FROM THE INTERSECTION OF US HWY 550 & US HWY 64 IN BLOOMFIELD, NM:**
South on US Hwy 550 for 53.8 miles to MM 97.6; Left (North) on CR #379 (State Hwy 403) for 1.3 miles to fork; Right (North) remaining on CR #379 for 1.5 miles to location access on left; Haynes Canyon Unit 428H Pad. From East to West 430H, 428H, 442H, 440H).

**GEOLOGIC AND RESERVOIR INFORMATION:**

***Prognosis:***

| Formation Tops | TVD (ft ASL) | TVD (ft KB) | MD (ft KB) | O / G / W | Pressure |
|---|---|---|---|---|---|
| Ojo Alamo | 5,325 | 1,403 | 1,406 | W | normal |
| Kirtland | 5,225 | 1,503 | 1,509 | W | normal |
| Fruitland | 5,000 | 1,728 | 1,746 | G, W | sub |
| Pictured Cliffs | 4,765 | 1,963 | 1,998 | G, W | sub |
| Lewis | 4,615 | 2,113 | 2,159 | G, W | normal |
| Chacra | 4,320 | 2,408 | 2,475 | G, W | normal |
| Cliff House | 3,210 | 3,518 | 3,665 | G, W | sub |
| Menefee | 3,205 | 3,523 | 3,670 | G, W | normal |
| Point Lookout | 2,505 | 4,223 | 4,416 | G, W | normal |
| Mancos | 2,230 | 4,498 | 4,696 | O,G | sub (~0.38) |
| Gallup (MNCS_A) | 1,890 | 4,838 | 5,036 | O,G | sub (~0.38) |
| MNCS_B | 1,800 | 4,928 | 5,126 | O,G | sub (~0.38) |
| MNCS_C | 1,665 | 5,063 | 5,263 | O,G | sub (~0.38) |
| MNCS_Cms | 1,600 | 5,128 | 5,333 | O,G | sub (~0.38) |
| MNCS_D | 1,525 | 5,203 | 5,418 | O,G | sub (~0.38) |
| MNCS_E | 1,440 | 5,288 | 5,525 | O,G | sub (~0.38) |
| MNCS_F | 1,395 | 5,333 | 5,590 | O,G | sub (~0.38) |
| MNCS_G | 1,310 | 5,418 | 5,744 | O,G | sub (~0.38) |
| MNCS_H | 1,270 | 5,458 | 5,833 | O,G | sub (~0.38) |
| MNCS_I | 0 | 0 | 0 | O,G | sub (~0.38) |
| **FTP TARGET** | **1,262** | **5,466** | **5,858** | **O,G** | **sub (~0.38)** |
| **PROJECTED LTP** | **1,207** | **5,521** | **12,673** | **O,G** | **sub (~0.38)** |

***Surface:*** Nacimiento
***Oil & Gas Zones:*** Several gas bearing zones will be encountered; target formation is the Gallup
***Pressure:*** Normal (0.43 psi/ft) or sub-normal pressure gradients anticipated in all formations
Max. pressure gradient: 0.43 psi/ft Evacuated hole gradient: 0.22 psi/ft
**Maximum anticipated BH pressure, assuming maximum pressure gradient: 2,380 psi**
**Maximum anticipated surface pressure, assuming partially evacuated hole: 1,170 psi**
***Temperature:*** **Maximum anticipated BHT is 125° F or less**

**$H_2S$ INFORMATION:**

***$H_2S$ Zones:*** Encountering hydrogen-sulfide bearing zones is **NOT** anticipated.
***Safety:*** Sensors and alarms will be placed in the substructure, on the rig floor, above the pits, and at the shakers.

**LOGGING, CORING, AND TESTING:**

***Mud Logs:***
None planned; remote geo-steering from drill out of 9-5/8" casing to TD; gas detection from drillout of 13-3/8" casing to TD.
***MWD / LWD:*** Gamma Ray from drillout of 13-3/8" casing to TD
***Open Hole Logs:*** None planned
***Testing:*** None planned
***Coring:*** None planned
***Cased Hole Logs:*** CBL on 5-1/2" casing from deepest free-fall depth to surface

**DRILLING RIG INFORMATION:**

***Contractor:*** Aztec

| | |
|---|---|
| ***Rig No.:*** | 1000 |
| ***Draw Works:*** | E80 AC 1,500 hp |
| ***Mast:*** | Hyduke Triple (136 ft, 600,000 lbs, 10 lines) |
| ***Top Drive:*** | NOV IDS-350PE (350 ton) |
| ***Prime Movers:*** | 4 - GE Jenbacher Natural Gas Generator |
| ***Pumps:*** | 2 - RS F-1600 (7,500 psi) |
| ***BOPE 1:*** | Cameron single & double gate rams (13-5/8", 3,000 psi) |
| ***BOPE 2:*** | Cameron annular (13-5/8", 5,000 psi) |
| ***Choke*** | Cameron (4", 10,000 psi) |
| ***KB-GL (ft):*** | 25 |
| ***Note:*** | Actual drilling rig may vary depending on availability at time the well is scheduled to be drilled. |

| **STATE AND FEDERAL NOTIFICATIONS** | | BLM | State |
|---|---|---|---|
| ***Construction and Reclamation:*** | BLM is to be notified minimum of 48 hours prior to start of construction or reclamation. Grazing permittee is to be notified 10 days in advance. | (505) 564-7600 | |
| ***Spud*** | BLM and state are to be notified minimum of 24 hours prior to spud. | (505) 564-7750 | (505) 334-6178 |
| ***BOP*** | BLM is to be notified minimum of 24 hours prior to BOPE testing. | (505) 564-7750 | see note |
| ***Casing / cementing*** | BLM and state are to be notified minimum of 24 hours prior to running casing and cementing. | (505) 564-7750 | (505) 334-6178 |
| ***Plugging*** | BLM and state are to be notified minimum of 24 hours prior to plugging ops. | (505) 564-7750 | see note |
| | **All notifications are to be recorded in the WellView report with time, date, name or number that notifications were made to.** | | |
| | **Note**: Monica Keuhling with the OCD requests state notifications 24 hrs in advance for spud, BOP tests, casing & cementing and any plugging be given to her in both phone message and email: (505) 320-0243, monica.keuhling@emnrd.nm.gov | | |

**BOPE REQUIREMENTS:**

*See attached diagram for details regarding BOPE specifications and configuration.*

1) Rig will be equipped with upper and lower kelly cocks with handles available.
2) Inside BOP and TIW valves will be available to use on all sizes and threads of drill pipe used while drilling the well.
2) BOP accumulator will have enough capacity to open the HCR valve, close all rams and annular preventer, and retain minimum of 200 psi above precharge on the closing manifold without the use of closing pumps. The fluid reservoir capacity shall be at least double the usable fluid volume of the accumulator system capacity, and the fluid level shall be maintained at manufacturer's recommendation. There will be two additional sources of power for the closing pumps (electric and air). Sufficient nitrogen bottles will be available and will be recharged when pressure falls below manufacturer's recommended minimum.
3) BOP testing shall be conducted (a) when initially installed, (b) whenever any seal is broken or repaired, (c) if the time since the previous test exceeds 30 days. Tests will be conducted using a test plug. BOP ram preventers will be tested to 3,000 psig for 10 minutes, and the annular preventer will be tested to 1,500 psi for 10 minutes. Ram and annular preventers will be tested to 250 psi for 5 minutes. Additionally, BOP and casing strings will be tested to .22 psi/ft or 1,500 psi, whichever is greater but not exceeding 70% of yield strength of the casing, for 30 minutes, prior to drilling out 13-3/8" and 9-5/8" casing. Rams and hydraulically operated remote choke line valve will be function tested daily at a minimum.
4) Remote valve for BOP rams, HCR, and choke shall be placed in a location that is readily available to the driller. The remote BOP valve shall be capable of closing and opening the rams.
5) Manual locking devices (hand wheels) shall be intalled on rams. A valve will be installed on the annular preventer's closing line as close as possible to the preventer to act as a locking device.The valve will be maintained in the open position and shall only be closed when the there is no power to the accumulator.

**FLUIDS AND SOLIDS CONTROL PROGRAM:**

***Fluid Measurement:*** Pumps shall be equipped with stroke counters with displays in the dog-house. Slow pump speed shall be recorded daily and after mudding up, at a minimum, on the drilling report. A Pit Volume Totalizer will be installed and the readout will be displayed in the dog-house. Gas-detecting equipment will be installed at the shakers, and readouts will be available in the dog-house and the in the geologist's work-station (if geologist or mud-logger is on-site).

***Closed-Loop System:*** A fully, closed-loop system will be utilized. The system will consist of above-ground piping and above-ground storage tanks and bins. The system will not entail any earthen pits, below-grade storage, or drying pads. All equipment will be disassembled and removed from the site when drilling operations cease. The system will be capable of storing all fluids and generated cuttings and of preventing uncontrolled releases of the same. The system will be operated in an efficient manner to allow the recycling and reuse of as much fluid as possible and to minimimize the amount of fluids and solids that require disposal.

***Fluid Disposal*** : Fluids that cannot be reused, recycled, or returned to the supplier will be hauled to and disposed of at an approved disposal site (Industrial Ecosystem, Inc. or Envirotech, Inc.).

***Solids Disposal*** : Drilling solids will be stored (until haul-off) on-site in separate containers with no other waste, debris, or garbage products. Waste solids will be hauled to and disposed of at an approved disposal site (Industrial Ecosystem, Inc. or Envirotech, Inc.).

***Fluid Program:*** See "Detailed Drilling Plan" section for additional details. Sufficient barite will be on location to weight up mud system to balance maximum anticipated pressure gradient.

**DETAILED DRILLING PLAN:**

***SURFACE:*** ***Drill vertically to casing setting depth (plus necessary rathole), run casing, cement casing to surface.***

| | | | | | |
|---|---|---|---|---|---|
| 0 ft (MD) | to | 350 ft (MD) | Hole Section Length: | 350 ft |
| 0 ft (TVD) | to | 350 ft (TVD) | Casing Required: | 350 ft |

***Note: Surface hole may be drilled, cased, and cemented with a smaller rig in advance of the drilling rig.***

| Fluid: | Type | MW (ppg) | FL (mL/30 min) | PV (cp) | YP (lb/100 sqft) | pH | Comments |
|---|---|---|---|---|---|---|---|
| | Fresh Water | 8.4 | N/C | 2 - 8 | 2 - 12 | 9.0 | Spud mud |

***Hole Size:*** 17-1/2"
***Bit / Motor:*** Mill Tooth or PDC, no motor
***MWD / Survey:*** No MWD, deviation survey
***Logging:*** None
***Procedure:*** Drill to TD. Use 12-/4" bit and open to 17-1/2" if unable to drill with 17-1/2" bit. Run inclination survey in 100' stations from TD to surface. Condition hole and fluid for casing running as required. TOOH. Run casing. Pump cement as detailed below. Monitor returns during cement job and note cement volume to surface. Install cellar and wellhead.

| Casing Specs: | | Wt (lb/ft) | Grade | Conn. | Collapse (psi) | Burst (psi) | Tens. Body (lbs) | Tens. Conn (lbs) |
|---|---|---|---|---|---|---|---|---|
| *Specs* | 13.375 | 54.5 | J-55 | BTC | 1,130 | 2,730 | 853,000 | 909,000 |
| *Loading* | | | | | 153 | 791 | 116,634 | 116,634 |
| *Min. S.F.* | | | | | **7.39** | **3.45** | **7.31** | **7.79** |

*Assumptions: Collapse: fully evacuated casing with 8.4 ppg equivalent external pressure gradient*
*Burst: maximum anticipated surface pressure with 9.5 ppg fluid inside casing while drilling intermediate hole and 8.4 ppg equivalent external pressure gradient*
*Tension: buoyed weight in 8.4 ppg fluid with 100,000 lbs over-pull*

***MU Torque (ft lbs):*** *Minumum: N/A Optimum: N/A Maximum: N/A*
*Make-up as per API Buttress Connection running procedure.*
***Casing Summary:*** Float shoe, 1 jt casing, float collar, casing to surface
***Centralizers:*** 2 centralizers per jt stop-banded 10' from each collar on bottom 3 jts, 1 centralizer per 2 jts to surface

| Cement: | Type | Weight (ppg) | Yield (cuft/sk) | Water (gal/sk) | Hole Cap. (cuft/ft) | % Excess | Planned TOC (ft MD) | Total Cmt (sx) |
|---|---|---|---|---|---|---|---|---|
| | TYPE III | 14.6 | 1.39 | 6.686 | 0.6946 | 100% | 0 | 364 |
| *Annular Capacity* | 0.6946 | cuft/ft | *13-3/8" casing x 17-1/2" hole annulus* | | | Csg capacity | 0.8680 | ft3/ft |
| *Drake Energy Services:* | *Calculated cement volumes assume gauge hole and the excess noted in table* | | | | | | | Cu Ft Slurry |
| | | | | | | | | 505.3 |
| ***Tail*** | *ASTM Type III Blend* | Calcium Chloride 2% BWOC Accelerator | D-CD2 .3% BWOC Dispersant/Friction reducer | .25 lbs/sx Cello Flake - seepage | | | | |

**Notify COGCC & BLM if cement is not circulated to surface. Cement must achieve 500 psi compressive strength before drilling out.**

***INTERMEDIATE:*** ***Drill as per directional plan to casing setting depth, run casing, cement casing to surface.***

| | | | | |
|---|---|---|---|---|
| 350 ft (MD) | to | 3,833 ft (MD) | Hole Section Length: | 3,483 ft |
| 350 ft (TVD) | to | 3,673 ft (TVD) | Casing Required: | 3,833 ft |

| Fluid: | Type | MW (ppg) | FL (mL/30 min) | PV (cp) | YP (lb/100 sqft) | pH | Comments |
|---|---|---|---|---|---|---|---|
| | LSND (5% KCl) | 8.8 - 9.5 | 20 | 8 - 14 | 8 - 14 | 9.0 - 9.5 | No OBM |

***Hole Size:*** 12-1/4"
***Bit / Motor:*** 12-1/4" PDC bit w/mud motor
***Bit / Motor:*** MOTOR: NOV 087840 - 7/8, 4.0, stage, 0.16 rev/gal, 1.83 DEG, 900 GPM, 950 DIFF PSIG
BIT: 6-BLADE PDC w/16 mm or 19 mm cutters, TFA = 0.67 sq-in (range 0.65 - 0.90 max), **jet with 6 - 12s**
***MWD / Survey:*** MWD Survey with inclination and azimuth survey (every 100' at a minimum), GR optional
***Logging:*** None
***Pressure Test:*** NU BOPE and test (as noted above); pressure test 13-3/8" casing to **1,500** psi for 30 minutes.
***Procedure:*** Drill to TD following directional plan **(20' rat-hole past casing setting depth)**. Steer as needed to keep well on plan. Keep DLS < 3 deg/100' and keep slide length < 10', when possible. Take surveys every stand, at a minimum. Target flow-rates of 750 GPM (higher if able to control return rates). Minimum desired flow-rate is 650 GPM. At TD, condition hole and fluid for casing running. TOOH. Run casing using a CRT and washing / circulating as required. Land casing. ND BOPE. Walk rig to next well. Perform off-line cement job. Pump cement as detailed below. Monitor returns during cement job and note cement volume to surface.

| Casing Specs: | | Wt (lb/ft) | Grade | Conn. | Collapse (psi) | Burst (psi) | Tens. Body (lbs) | Tens. Conn (lbs) |
|---|---|---|---|---|---|---|---|---|
| *Specs* | 9.625 | 36.0 | J-55 | LTC | 2,020 | 3,520 | 564,000 | 453,000 |
| *Loading* | | | | | 1,604 | 1,380 | 215,309 | 215,309 |
| *Min. S.F.* | | | | | **1.26** | **2.55** | **2.62** | **2.10** |

*Assumptions: Collapse: fully evacuated casing with 8.4 ppg equivalent external pressure gradient*
*Burst: maximum anticipated surface pressure with 9.5 ppg fluid inside casing while drilling production hole and 8.4 ppg equivalent external pressure gradient*
*Tension: buoyed weight in 8.4 ppg fluid with 100,000 lbs over-pull*

***MU Torque (ft lbs):*** *Minumum: 3,400 Optimum: 4,530 Maximum: 5,660*
***Casing Summary:*** Float shoe, 1 jt casing, float collar, casing to surface (FLOAT EQUIPMENT FROM WEATHERFORD)
***Centralizers:*** 1 per joint in non-vertical hole; 1 per 2-joints in vertical hole

**Centralizers:** 1 centralizers jt stop-banded 10' from float shoe on bottom 1 jt & 1 centralizer floating on bottom joint, 1 centralizer per jt (floating) to KOP ; 1 centralizer per 3 jts (floating) to surface **(Centralizers from Scepter Supply - SLIP'N'SLIDE 9-5/8" x 11.75" SOLID BODY POLYMER)**

| | Type | Weight (ppg) | Yield (cuft/sk) | Water (gal/sk) | % Excess | Planned TOC (ft MD) | Total Cmt (sx) | Total Cmt (cu ft) |
|---|---|---|---|---|---|---|---|---|
| **Cement:** | | | | | | | | |
| **Stage 1** *Spacer* | D-Mud Breaker | 8.5 | | | | 0 | 10 bbls | |
| *Lead* | 90:10 Type III:POZ | 12.5 | 2.140 | 12.05 | 70% | 0 | 802 | 1,715 |
| *Tail* | Type III | 14.6 | 1.380 | 6.64 | 20% | 3,333 | 150 | 207 |
| *Displacement* | *293* | *est bbls* | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| *Annular Capacity* | 0.3627 | cuft/ft | *9-5/8" casing x 13-3/8" casing annulus* | | |
| | 0.3132 | cuft/ft | *9-5/8" casing x 12-1/4" hole annulus* | 9-5/8" 36# ID | 8.921 |
| | 0.4341 | cuft/ft | *9-5/8" casing vol* | *est shoe jt ft* | 44 |

*Calculated cement volumes assume gauge hole and the excess (open hole only) noted in table*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Spacer** | *D-Mud Breaker* | SAPP | | | | | | |
| **Lead** | *ASTM Type III 90/10 Poz* | D-CSE 1 5.0% BWOC Strength Enhancer | D-MPA-1 .4% BWOC Fluid Loss & Gas Migration Control | D-SA 1 1.4% BWOC Na Metasilicate | D-CD 2 .4% BWOC Dispersant | Cello Flace LCM .25 lb/sx | D-FP1 0.5% BWOC Defoamer | D-R1 .5% Retarder |
| **Tail** | *ASTM Type III Blend* | | D-MPA-1 .4% BWOC Fluid Loss & Gas Migration Control | | D-CD 2 .5% BWOC Dispersant | Cello Flace LCM .25 lb/sx | | D-R1 .2% Retarder |

*Drake Intermediate Cementing Program*

**Cement must achieve 500 psi compressive strength before drilling out.**
**Notify NMOCD & BLM if cement is not circulated to surface. Cement must achieve 500 psi compressive strength before drilling out.**

***PRODUCTION:*** *Drill to TD following directional plan, run casing, cement casing to surface.*

| | | | | | |
|---|---|---|---|---|---|
| 3,833 | ft (MD) | to | 12,673 | ft (MD) | Hole Section Length: 8,840 ft |
| 3,673 | ft (TVD) | to | 5,521 | ft (TVD) | Casing Required: 12,673 ft |

| | | | | |
|---|---|---|---|---|
| *Estimated KOP:* | 5,100 | ft (MD) | 4,900 | ft (TVD) |
| *Estimated Landing Point (FTP):* | 5,858 | ft (MD) | 5,466 | ft (TVD) |
| *Estimated Lateral Length:* | 6,815 | ft (MD) | | |

| **Fluid:** | Type | MW (ppg) | WPS ppm | HTHP | YP (lb/100 sqft) | ES | OWR | Comment |
|---|---|---|---|---|---|---|---|---|
| | OBM | 8.0 - 9.0 | 120,000 CaCl | NC | ±6 | +300 | 80:20 | WBM as contingency |

**Fluids / Solids Notes:** OptiDrill OBM system will be built from previous well. Ensure that drying shakers are rigged up after the rig (2nd set) of shakers. Solids control will burn retorts on cuttings samples one per tour to check % ROC. Add diesel and products as required to maintain mud in program specs. Reference Newpark's mud program for additional details.

**Hole Size:** 8-1/2"
**Bit / Motor:** 8-1/2" PDC bit w/mud motor
**Bit / Motor:** **MOTOR:** NOV 077857 - 6.5" 7/8, 5.0 stage, 0.23 rev/gal, 1.83 deg, 750 GPM, 1,580 DIFF PSIG (or similar); on demand friction breaking device(s) as required, bottom tool spaced ~3,000' behind the bit.
**BIT:** 5-BLADE PDC w/16 mm - 19 mm cutters, matrix body, target TFA = 1.0 - 1.5 sq-in
**MWD / Survey:** MWD with GR, inclination, and azimuth (survey every joint from KOP to Landing Point and survey every 100' minimum before KOP and after Landing Point)
**Logging:** GR MWD for entire section, no mud-log or cuttings sampling, no OH WL logs
**Pressure Test:** NU BOPE and test (as noted above); pressure test 9-5/8" casing to **1,500** psi for 30 minutes.
**Procedure:** Drill to KOP following directional plan. Target flow-rate is 650 - 700 GPM. Target differential is pressure is 700 - 1,000 psig. Target ROP 500 - 600 ft/hr. Steer as needed to keep well on plan. Keep DLS < 3 deg/100' and keep slide length < 10' until KOP, when feasible. Take surveys every stand, at a minimum. Confirm landing target, planned BUR for curve, and KOP with Geology and Engineering. Drill curve following directional plan and updated landing target. Take survey every joint during curve. Land curve. Continue drilling in lateral section, steering as needed to keep well on plan and in the target window. Keep DLS < 2 deg/100' and keep slide length < 20', when feasible. Take surveys every stand, at a minimum. **Target rotating parameters / performance: flow-rate is 650 - 700 GPM, differential is pressure is 700 - 1,000 psig, ROP 500 - 600 ft/hr, torque 38K ft-lbs (MAX drill pipe MUT).** After reaching TD, perform no more than one clean-up cycle to condition hole for casing running unless shakers indicate additional cleaning needed. TOOH & LD drill pipe (ROOH, if required; should NOT be required with OBM system). When pumping hole cleaning sweeps, fine LCM product is to be used -**Do not use barite for sweeps**. Run casing as described below. Use CRT for casing running only if necessary (should NOT be required with OBM). Verify make up torque when running casing. Space out casing getting the toe sleeve as close to LTP as possible. Land casing and test pack-off. Open floatation sub, fill casing, and circulate as required. Pump cement as detailed below. Note cement volume circulated to surface. Nipple down BOPE. Clean pits. RDMO to next pad.

| **Casing Specs:** | Size (in) | Wt (lb/ft) | Grade | Conn. | Collapse (psi) | Burst (psi) | Tens. Body (lbs) | Tens. Conn (lbs) |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Specs* | 5.500 | 17.0 | P-110 | LTC | 7,460 | 10,640 | 546,000 | 445,000 |
| *Loading* | | | | | 2,727 | 9,017 | 285,906 | 285,906 |
| *Min. S.F.* | | | | | **2.74** | **1.18** | **1.91** | **1.56** |

*Assumptions:* *Collapse: fully evacuated casing with 9.5 ppg fluid in the annulus (floating casing during running)*
*Burst: 8,500 psi maximum surface treating pressure with 10.2 ppg equivalent mud weight sand laden fluid with 8.4 ppg equivalent external pressure gradient*
*Tension: buoyed weight in 9.0 ppg fluid with 100,000 lbs over-pull*

***MU Torque (ft lbs):*** *Minumum: 3,470 Optimum: 4,620 Maximum: 5,780*

***Casing Summary:*** Float shoe, float collar, 1 jt casing, float collar, 20' marker joint, toe-intitiation sleeve, casing to KOP with 20' marker joints spaced evenly in lateral every 2,000', floatation sub at KOP, casing to surface. The toe-initiation sleeve (last-take-point) cannot be placed closer than 330' to the unit boundary when measured perpendicular to the well path.

***Casing Summary:*** Float shoe, float collar w/debris catcher, 1 jt casing, float collar **(Weatherford (WFT) float equipment)**, 20' marker joint, toe-intitiation sleeve **(WFT RD 8,500 psi)**, casing to KOP with 20' marker joints spaced evenly in lateral every ~2,000', floatation sub **(NCS Air-Lock 2,500 psi from WFT)**, casing to surface. The toe-initiation sleeve shall be placed no closer to the unit boundary than 300' measured perpendicular to the East or West lease lines for a East-West azimuth drilled wellbore. Wellbore path must be no closer than 600' from the parallel lease lines. ***Note: the LTP is the maximum depth of the toe sleeve and is noted on the Well Plan. Drill past the LTP as required for necessary rat-hole and shoe-track length to place the toe sleeve as close to (but not past) the planned LTP as possible.***

***Centralizers:*** *Centralizer count and placement may be adjusted based on well conditions and as-drilled surveys.*
**Lateral:** 1 centralizer per 3 joints (purchase centralizers from either Scepter Supply or Arsenal)
**Top of curve to 9-5/8" shoe:** 1 centralizer per 5 joints
**9-5/8" shoe to surface:** 1 centralizer per 5 joints

| ***Cement:*** | **Type** | **Weight (ppg)** | **Yield (cuft/sk)** | **Water (gal/sk)** | **% Excess** | **Planned TOC (ft MD)** | **Total Cmt (sx)** | **Total Cmt (cu ft)** |
|---|---|---|---|---|---|---|---|---|
| *Spacer* | IntegraGuard Star | 11 | | 31.6 | | 0 | 60 bbls | |
| *Lead* | ASTM type I/II | 12.4 | 2.370 | 13.40 | 50% | 0 | 560 | 1,328 |
| *Tail* | G:POZ blend | 13.3 | 1.570 | 7.70 | 10% | 4,696 | 1,280 | 2,010 |

*Displacement* *120* *est bbls*

*Annular Capacity*
0.2691 cuft/ft *5-1/2" casing x 9-5/8" casing annulus*
0.2291 cuft/ft *5-1/2" casing x 8-1/2" hole annulus*
0.1245 cuft/ft *5-1/2" casing vol* *est shoe jt ft* 100

*Calculated cement volumes assume gauge hole and the excess noted in table*
*American Cementing Liner & Production Blend*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ***Spacer*** | *S-8 Silica Flour 163.7 lbs/bbl* | Avis 616 viscosifier 11.6 lb/bbl | FP24 Defoamer .5 lb/bbl | IntegraGuard Star Plus 3K LCM 15 lb/bbl | SS201 Surfactant 1 gal/bbl | | | |
| ***Lead*** | *ASTM Type I/II* | BA90 Bonding Agent 5.0 lb/sx | Bentonite Viscosifier 8% BWOB | FL24 Fluid Loss .5% BWOB | IntegraGuard GW86 Viscosifier .1% BWOB | R7C Retarder .2% BWOB | FP24 Defoamer 0.3% BWOB, Anti-Static .01 lb/sx | |
| ***Tail*** | *Type G 50%* | Pozzolan Fly Ash Extender 50% | BA90 Bonding Agent 3.0 lb/sx | Bentonite Viscosifier 4% BWOB | FL24 Fluid Loss .4% BWOB | IntegraGuard GW86 Viscosifier .1% BWOB | R3 Retarder .5% BWOB | FP24 Defoamer .3% BWOB, IntegraSeal 0.25 lb/sx |

*Calculated cement volumes assume gauge hole and the excess noted in table*
**Notify NMOCD & BLM if cement is not circulated to surface.**

***Note:*** This well will not be considered an unorthodox well location as definted by NMAC19.15.16.15.C.5. As defined in NMAC 19.15.16.15.C.1.a and 19.15.16.15.C.1.b, no point in the completed interval shall be closer to the unit boundary than 100' measured along the azimuth of the well or 330' measured perpendicular to the azimuth well. The boundaries of the completed interval, as defined by NMAC 19.15.16.7.B, are the last take point and first take point, as defined by NMAC 19.15.16.7.E and NMAC 19.15.16.7.J, respectively. In the case of this well, the last take point will be the bottom toe-initiation sleeve, and the first take point will be the top perforation. **Neither the toe-initiation sleeve nor the top perforation shall be closer to the unit boundary than 100' measured along the azimuth of the well or 330' measured perpendicular to the azimuth of the well.**

***FINISH WELL:*** ***ND BOP, cap well, RDMO.***
***Procedure:*** After off-line cement job, cap and cover well. Continue drilling operations on subsequent wells on pad.

**COMPLETION AND PRODUCTION PLAN:**

***Est Lateral Length:*** 6,715
***Est Frac Inform:*** *28 Frac Stages 108,000 bbls slick water 8,730,000 lbs proppant*
***Flowback:*** Flow back through production tubing as pressures allow
***Production:*** Produce through production tubing via gas-lift into permanent production and storage facilities

**ESTIMATED START DATES:**

***Drilling:*** 11/1/23
***Completion:*** 12/31/23
***Production:*** 2/14/24

***Prepared by:*** **Alec Bridge** **12/20/21**
***Updated:*** Greg Olson 2/20/23
Greg Olson 3/27/23

**Well:** Haynes Canyon Unit 440H
**Site:** Haynes Canyon Unit (428,430,440 & 442)
**Project:** Rio Arriba County, New Mexico NAD83 NM C
**Design:** rev0
**Rig:**

DESIGN TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|---|---|---|---|---|---|---|---|
| Haynes 440 FTP 188 FSL 312 FEL | 5501.00 | -727.20 | -718.12 | 1911309.852 | 1281597.153 | 36.246676000 | -107.466893000 |
| Haynes 440 LTP 453 FNL 232 FWL | 5521.00 | 3950.58 | -5396.29 | 1915987.619 | 1276918.990 | 36.259361000 | -107.482957000 |
| Haynes 440 vert | 4898.04 | -1167.84 | -277.44 | 1910869.212 | 1282037.829 | 36.245480970 | -107.465380063 |

Section Details

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | VSect | Annotation |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.00 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2 | 1000.00 | 0.00 | 0.000 | 1000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | KOP Begin 3°/100' build |
| 3 | 1705.61 | 21.17 | 192.029 | 1689.66 | -126.04 | -26.86 | 3.00 | 192.03 | -70.13 | Begin 21.17° tangent |
| 4 | 4194.21 | 21.17 | 192.029 | 4010.35 | -1004.96 | -214.14 | 0.00 | 0.00 | -559.16 | Begin 3°/100' drop |
| 5 | 4899.82 | 0.00 | 0.000 | 4700.01 | -1131.00 | -241.00 | 3.00 | 180.00 | -629.29 | Begin vertical hold |
| 6 | 5097.85 | 0.00 | 0.000 | 4898.04 | -1131.00 | -241.00 | 0.00 | 0.00 | -629.29 | Begin 10°/100' build |
| 7 | 5697.85 | 60.00 | 310.715 | 5394.24 | -944.13 | -458.14 | 10.00 | 310.71 | -343.61 | Begin 60.00° tangent |
| 8 | 5757.85 | 60.00 | 310.715 | 5424.24 | -910.24 | -497.53 | 0.00 | 0.00 | -291.80 | Begin 10°/100' build |
| 9 | 6056.15 | 89.83 | 310.715 | 5501.00 | -724.48 | -713.38 | 10.00 | 0.00 | -7.81 | Begin 3°/100' turn |
| 10 | 6198.92 | 89.83 | 314.998 | 5501.42 | -627.39 | -818.01 | 3.00 | 90.05 | 134.82 | Begin 89.83° lateral |
| 11 | 12673.39 | 89.83 | 314.998 | 5521.00 | 3950.58 | -5396.29 | 0.00 | 0.00 | 6609.27 | PBHL/TD |

Azimuths to Grid North
True North: 0.72°
Magnetic North: 9.18°

Magnetic Field
Strength: 49138.3nT
Dip Angle: 62.77°
Date: 8/1/2023
Model: IGRF2020

CASING DETAILS

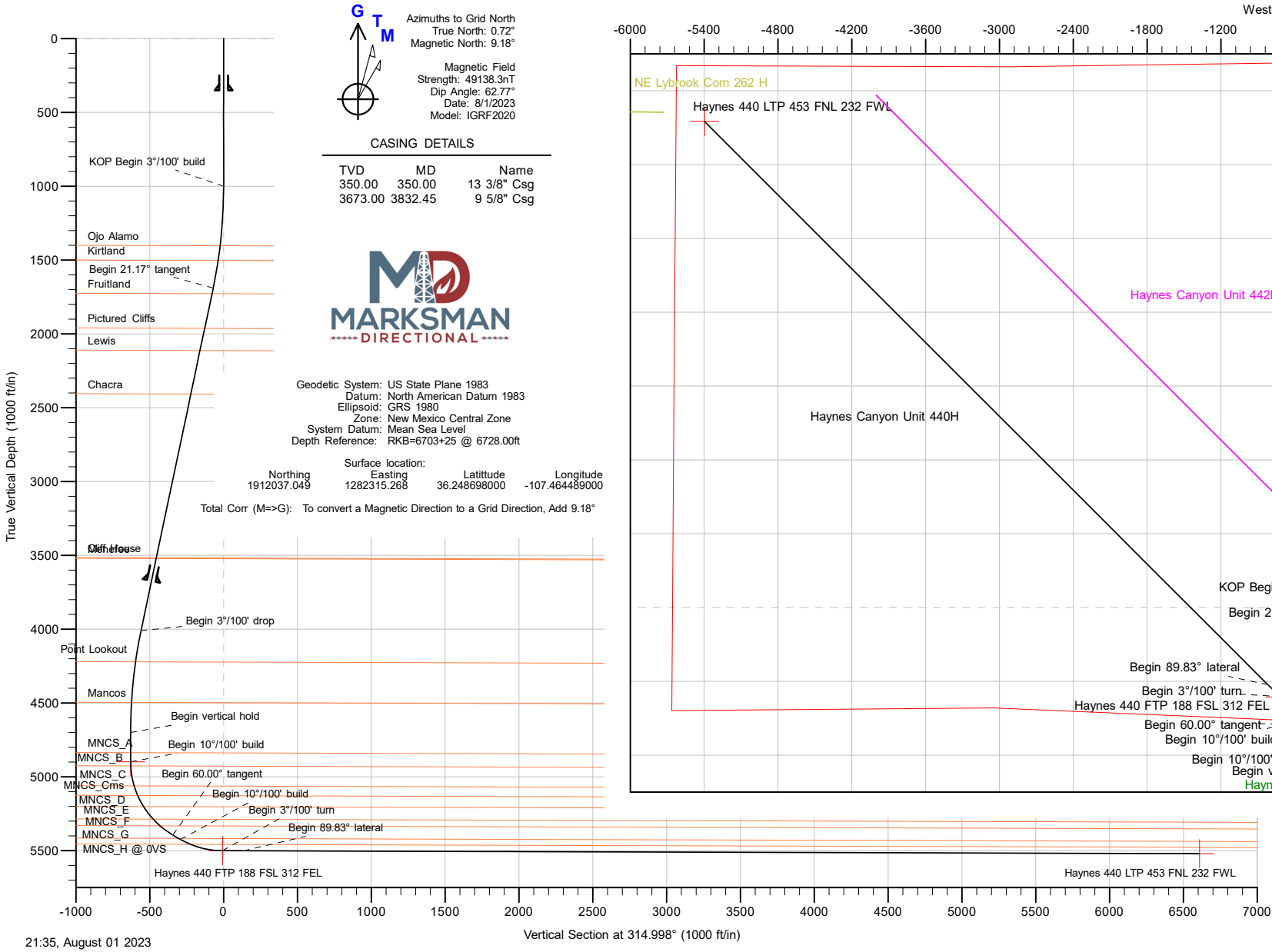
| TVD | MD | Name |
|---|---|---|
| 350.00 | 350.00 | 13 3/8" Csg |
| 3673.00 | 3832.45 | 9 5/8" Csg |

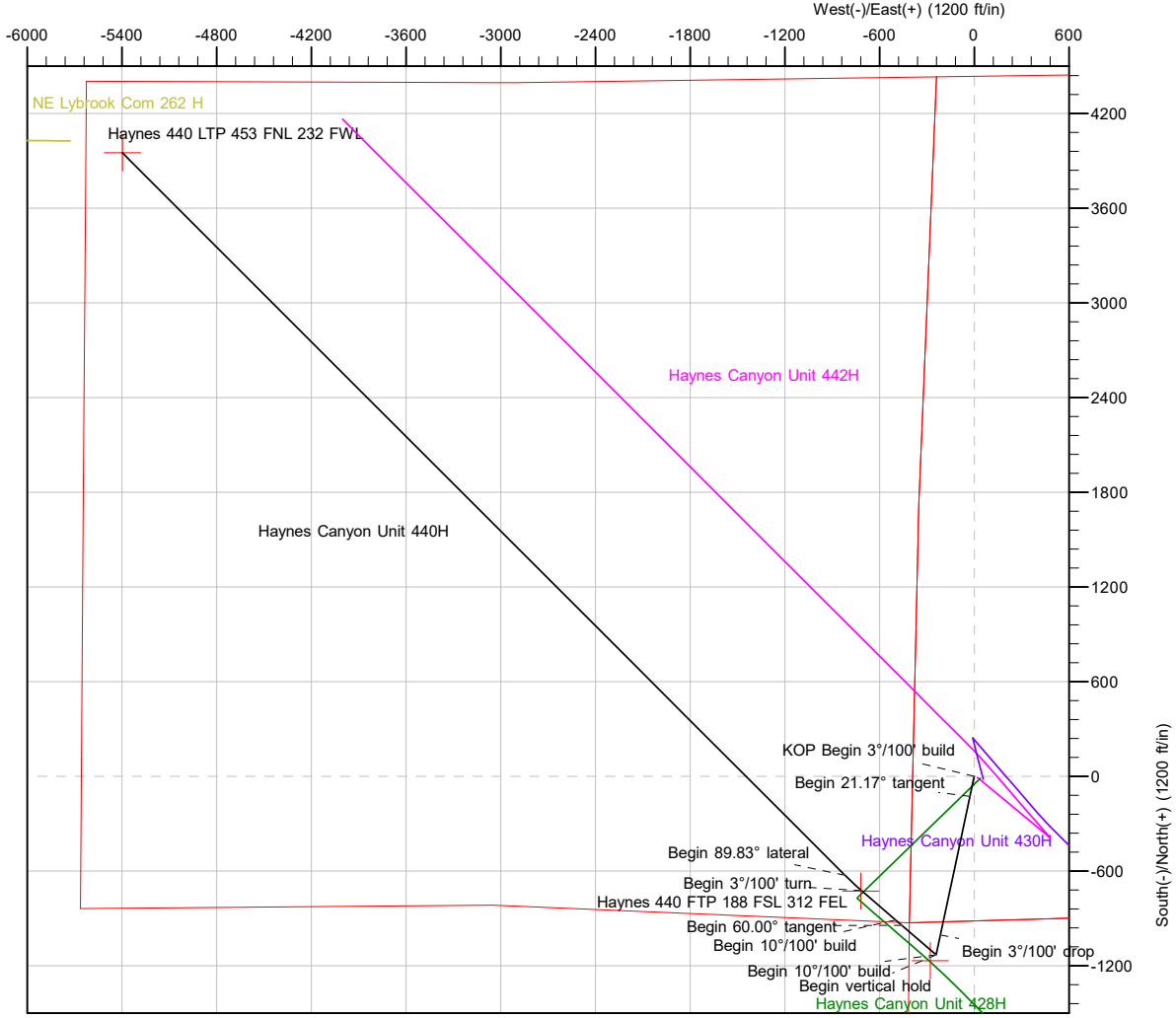
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Central Zone
System Datum: Mean Sea Level
Depth Reference: RKB=6703+25 @ 6728.00ft

Surface location:

| Northing | Easting | Latitude | Longitude |
|---|---|---|---|
| 1912037.049 | 1282315.268 | 36.248698000 | -107.464489000 |

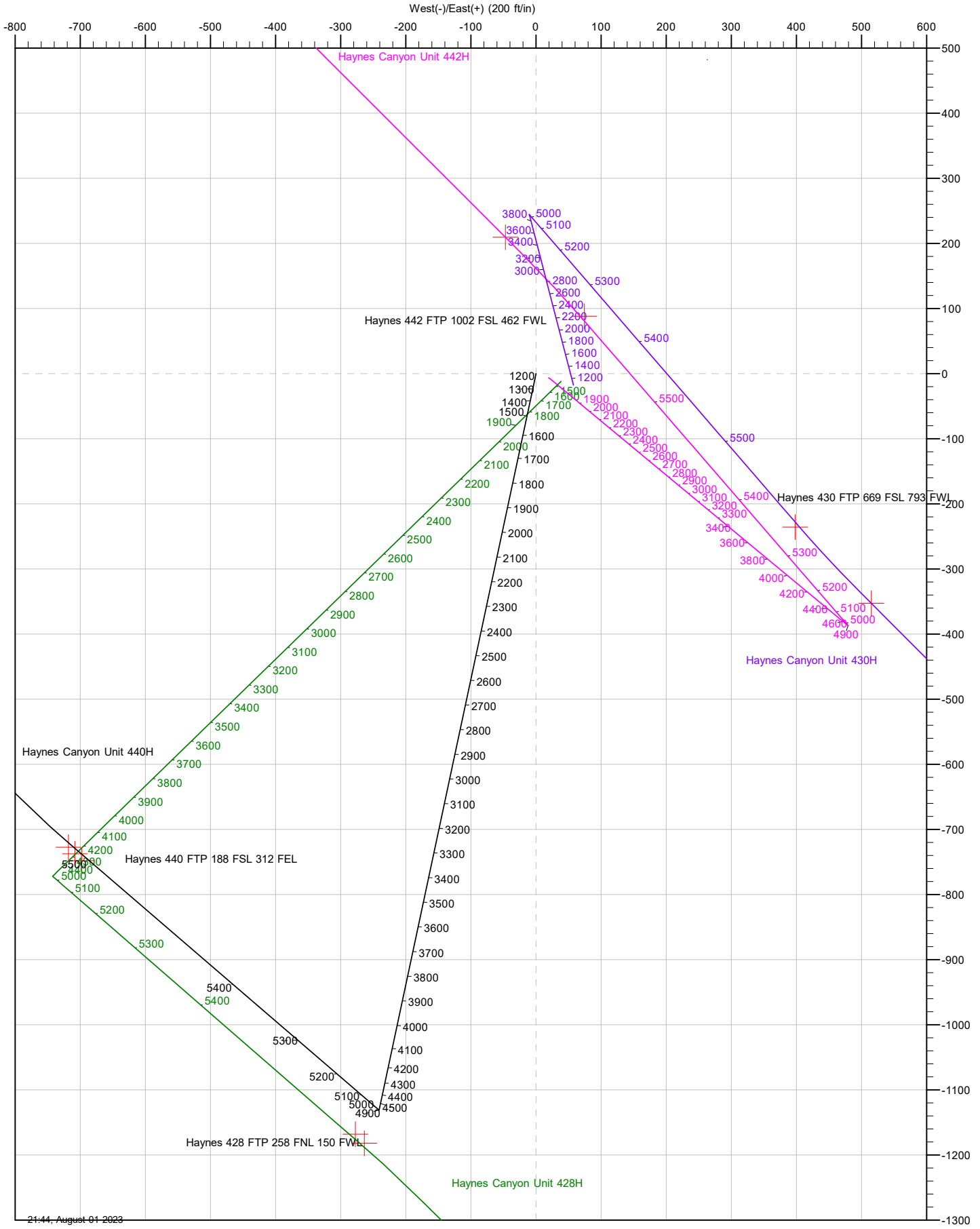
Total Corr (M=>G): To convert a Magnetic Direction to a Grid Direction, Add 9.18°




21:35, August 01 2023

**Well:** Haynes Canyon Unit 440H
**Site:** Haynes Canyon Unit (428,430,440 & 442)
**Project:** Rio Arriba County, New Mexico NAD83 NM C
**Design:** rev0
**Rig:**



# Planning Report

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Project** Rio Arriba County, New Mexico NAD83 NM C

| | | | |
|---|---|---|---|
| **Map System:** | US State Plane 1983 | **System Datum:** | Mean Sea Level |
| **Geo Datum:** | North American Datum 1983 | | |
| **Map Zone:** | New Mexico Central Zone | | |

**Site** Haynes Canyon Unit (428,430,440 & 442)

| | | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 1,912,025.280 usft | **Latitude:** | 36.248667000 |
| **From:** | Lat/Long | **Easting:** | 1,282,353.755 usft | **Longitude:** | -107.464358000 |
| **Position Uncertainty:** | 0.00 ft | **Slot Radius:** | 13-3/16 " | | |

**Well** Haynes Canyon Unit 440H, Surf loc: 916 FSL 390 FWL Section 03-T23N-R06W

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 0.00 ft | **Northing:** | 1,912,037.050 usft | **Latitude:** | 36.248698000 |
| | **+E/-W** | 0.00 ft | **Easting:** | 1,282,315.268 usft | **Longitude:** | -107.464489000 |
| **Position Uncertainty** | | 0.00 ft | **Wellhead Elevation:** | ft | **Ground Level:** | 6,703.00 ft |
| **Grid Convergence:** | | -0.72 ° | | | | |

**Wellbore** Oriignal Hole

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|---|---|---|---|---|---|
| | IGRF2020 | 8/1/2023 | 8.46 | 62.77 | 49,138.30816237 |

**Design** rev0

**Audit Notes:**

| | | | | | |
|---|---|---|---|---|---|
| **Version:** | | **Phase:** | PLAN | **Tie On Depth:** | 0.00 |

| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |
|---|---|---|---|---|
| | 0.00 | 0.00 | 0.00 | 314.998 |

**Plan Survey Tool Program** **Date** 8/1/2023

| | Depth From (ft) | Depth To (ft) | Survey (Wellbore) | Tool Name | Remarks |
|---|---|---|---|---|---|
| 1 | 0.00 | 12,673.14 | rev0 (Oriignal Hole) | MWD | |
| | | | | OWSG MWD - Standard | |

Planning Report

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Plan Sections**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,000.00 | 0.00 | 0.000 | 1,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,705.61 | 21.17 | 192.029 | 1,689.66 | -126.04 | -26.86 | 3.00 | 3.00 | 0.00 | 192.03 | |
| 4,194.21 | 21.17 | 192.029 | 4,010.35 | -1,004.96 | -214.14 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 4,899.82 | 0.00 | 0.000 | 4,700.01 | -1,131.00 | -241.00 | 3.00 | -3.00 | 0.00 | 180.00 | |
| 5,097.85 | 0.00 | 0.000 | 4,898.04 | -1,131.00 | -241.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5,697.85 | 60.00 | 310.715 | 5,394.24 | -944.13 | -458.14 | 10.00 | 10.00 | 0.00 | 310.72 | |
| 5,757.85 | 60.00 | 310.715 | 5,424.24 | -910.24 | -497.53 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 6,056.15 | 89.83 | 310.715 | 5,501.00 | -724.48 | -713.38 | 10.00 | 10.00 | 0.00 | 0.00 | |
| 6,198.92 | 89.83 | 314.998 | 5,501.42 | -627.39 | -818.01 | 3.00 | 0.00 | 3.00 | 90.05 | |
| 12,673.39 | 89.83 | 314.998 | 5,521.00 | 3,950.58 | -5,396.29 | 0.00 | 0.00 | 0.00 | 0.00 | Haynes 440 LTP 453 |

# Planning Report

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100.00 | 0.00 | 0.000 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 200.00 | 0.00 | 0.000 | 200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 300.00 | 0.00 | 0.000 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 350.00 | 0.00 | 0.000 | 350.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **13 3/8" Csg** | | | | | | | | | |
| 400.00 | 0.00 | 0.000 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 500.00 | 0.00 | 0.000 | 500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 600.00 | 0.00 | 0.000 | 600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 700.00 | 0.00 | 0.000 | 700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 800.00 | 0.00 | 0.000 | 800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 900.00 | 0.00 | 0.000 | 900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,000.00 | 0.00 | 0.000 | 1,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **KOP Begin 3°/100' build** | | | | | | | | | |
| 1,100.00 | 3.00 | 192.029 | 1,099.95 | -2.56 | -0.55 | -1.42 | 3.00 | 3.00 | 0.00 |
| 1,200.00 | 6.00 | 192.029 | 1,199.63 | -10.23 | -2.18 | -5.69 | 3.00 | 3.00 | 0.00 |
| 1,300.00 | 9.00 | 192.029 | 1,298.77 | -23.00 | -4.90 | -12.80 | 3.00 | 3.00 | 0.00 |
| 1,400.00 | 12.00 | 192.029 | 1,397.08 | -40.82 | -8.70 | -22.71 | 3.00 | 3.00 | 0.00 |
| 1,405.98 | 12.18 | 192.029 | 1,402.93 | -42.04 | -8.96 | -23.39 | 3.00 | 3.00 | 0.00 |
| **Ojo Alamo** | | | | | | | | | |
| 1,500.00 | 15.00 | 192.029 | 1,494.31 | -63.65 | -13.56 | -35.41 | 3.00 | 3.00 | 0.00 |
| 1,508.89 | 15.27 | 192.029 | 1,502.89 | -65.92 | -14.05 | -36.68 | 3.00 | 3.00 | 0.00 |
| **Kirtland** | | | | | | | | | |
| 1,600.00 | 18.00 | 192.029 | 1,590.18 | -91.42 | -19.48 | -50.87 | 3.00 | 3.00 | 0.00 |
| 1,705.61 | 21.17 | 192.029 | 1,689.66 | -126.04 | -26.86 | -70.13 | 3.00 | 3.00 | 0.00 |
| **Begin 21.17° tangent** | | | | | | | | | |
| 1,746.47 | 21.17 | 192.029 | 1,727.77 | -140.47 | -29.93 | -78.16 | 0.00 | 0.00 | 0.00 |
| **Fruitland** | | | | | | | | | |
| 1,800.00 | 21.17 | 192.029 | 1,777.69 | -159.38 | -33.96 | -88.68 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 21.17 | 192.029 | 1,870.94 | -194.69 | -41.49 | -108.33 | 0.00 | 0.00 | 0.00 |
| 1,998.32 | 21.17 | 192.029 | 1,962.62 | -229.42 | -48.89 | -127.65 | 0.00 | 0.00 | 0.00 |
| **Pictured Cliffs** | | | | | | | | | |
| 2,000.00 | 21.17 | 192.029 | 1,964.19 | -230.01 | -49.01 | -127.98 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 21.17 | 192.029 | 2,057.45 | -265.33 | -56.54 | -147.63 | 0.00 | 0.00 | 0.00 |
| 2,159.07 | 21.17 | 192.029 | 2,112.53 | -286.19 | -60.98 | -159.24 | 0.00 | 0.00 | 0.00 |
| **Lewis** | | | | | | | | | |
| 2,200.00 | 21.17 | 192.029 | 2,150.70 | -300.65 | -64.06 | -167.28 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 21.17 | 192.029 | 2,243.95 | -335.97 | -71.59 | -186.93 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 21.17 | 192.029 | 2,337.20 | -371.28 | -79.12 | -206.58 | 0.00 | 0.00 | 0.00 |
| 2,475.22 | 21.17 | 192.029 | 2,407.34 | -397.85 | -84.78 | -221.36 | 0.00 | 0.00 | 0.00 |
| **Chacra** | | | | | | | | | |
| 2,500.00 | 21.17 | 192.029 | 2,430.45 | -406.60 | -86.64 | -226.23 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 21.17 | 192.029 | 2,523.71 | -441.92 | -94.17 | -245.89 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 21.17 | 192.029 | 2,616.96 | -477.24 | -101.69 | -265.54 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 21.17 | 192.029 | 2,710.21 | -512.56 | -109.22 | -285.19 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 21.17 | 192.029 | 2,803.46 | -547.87 | -116.74 | -304.84 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 21.17 | 192.029 | 2,896.72 | -583.19 | -124.27 | -324.49 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 21.17 | 192.029 | 2,989.97 | -618.51 | -131.80 | -344.14 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 21.17 | 192.029 | 3,083.22 | -653.83 | -139.32 | -363.79 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 21.17 | 192.029 | 3,176.47 | -689.14 | -146.85 | -383.44 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 21.17 | 192.029 | 3,269.73 | -724.46 | -154.37 | -403.09 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 21.17 | 192.029 | 3,362.98 | -759.78 | -161.90 | -422.74 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 21.17 | 192.029 | 3,456.23 | -795.10 | -169.42 | -442.39 | 0.00 | 0.00 | 0.00 |

# Planning Report

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 3,664.79 | 21.17 | 192.029 | 3,516.65 | -817.98 | -174.30 | -455.13 | 0.00 | 0.00 | 0.00 |
| **Cliff House** | | | | | | | | | |
| 3,670.15 | 21.17 | 192.029 | 3,521.65 | -819.87 | -174.70 | -456.18 | 0.00 | 0.00 | 0.00 |
| **Menefee** | | | | | | | | | |
| 3,700.00 | 21.17 | 192.029 | 3,549.48 | -830.42 | -176.95 | -462.05 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 21.17 | 192.029 | 3,642.74 | -865.73 | -184.48 | -481.70 | 0.00 | 0.00 | 0.00 |
| 3,832.45 | 21.17 | 192.029 | 3,673.00 | -877.20 | -186.92 | -488.07 | 0.00 | 0.00 | 0.00 |
| **9 5/8" Csg** | | | | | | | | | |
| 3,900.00 | 21.17 | 192.029 | 3,735.99 | -901.05 | -192.00 | -501.35 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 21.17 | 192.029 | 3,829.24 | -936.37 | -199.53 | -521.00 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 21.17 | 192.029 | 3,922.49 | -971.69 | -207.05 | -540.65 | 0.00 | 0.00 | 0.00 |
| 4,194.21 | 21.17 | 192.029 | 4,010.35 | -1,004.96 | -214.14 | -559.16 | 0.00 | 0.00 | 0.00 |
| **Begin 3°/100' drop** | | | | | | | | | |
| 4,200.00 | 20.99 | 192.029 | 4,015.75 | -1,007.00 | -214.58 | -560.30 | 3.00 | -3.00 | 0.00 |
| 4,300.00 | 17.99 | 192.029 | 4,110.01 | -1,039.63 | -221.53 | -578.45 | 3.00 | -3.00 | 0.00 |
| 4,400.00 | 14.99 | 192.029 | 4,205.88 | -1,067.40 | -227.45 | -593.90 | 3.00 | -3.00 | 0.00 |
| 4,415.88 | 14.52 | 192.029 | 4,221.23 | -1,071.35 | -228.29 | -596.10 | 3.00 | -3.00 | 0.00 |
| **Point Lookout** | | | | | | | | | |
| 4,500.00 | 11.99 | 192.029 | 4,303.11 | -1,090.22 | -232.31 | -606.60 | 3.00 | -3.00 | 0.00 |
| 4,600.00 | 8.99 | 192.029 | 4,401.42 | -1,108.03 | -236.11 | -616.51 | 3.00 | -3.00 | 0.00 |
| 4,695.57 | 6.13 | 192.029 | 4,496.15 | -1,120.33 | -238.73 | -623.35 | 3.00 | -3.00 | 0.00 |
| **Mancos** | | | | | | | | | |
| 4,700.00 | 5.99 | 192.029 | 4,500.56 | -1,120.79 | -238.82 | -623.61 | 3.00 | -3.00 | 0.00 |
| 4,800.00 | 2.99 | 192.029 | 4,600.24 | -1,128.45 | -240.46 | -627.87 | 3.00 | -3.00 | 0.00 |
| 4,899.82 | 0.00 | 0.000 | 4,700.01 | -1,131.00 | -241.00 | -629.29 | 3.00 | -3.00 | 0.00 |
| **Begin vertical hold** | | | | | | | | | |
| 5,000.00 | 0.00 | 0.000 | 4,800.19 | -1,131.00 | -241.00 | -629.29 | 0.00 | 0.00 | 0.00 |
| 5,035.94 | 0.00 | 0.000 | 4,836.13 | -1,131.00 | -241.00 | -629.29 | 0.00 | 0.00 | 0.00 |
| **MNCS_A** | | | | | | | | | |
| 5,097.85 | 0.00 | 0.000 | 4,898.04 | -1,131.00 | -241.00 | -629.29 | 0.00 | 0.00 | 0.00 |
| **Begin 10°/100' build** | | | | | | | | | |
| 5,100.00 | 0.22 | 310.715 | 4,900.19 | -1,131.00 | -241.00 | -629.29 | 10.00 | 10.00 | 0.00 |
| 5,125.95 | 2.81 | 310.715 | 4,926.13 | -1,130.55 | -241.52 | -628.60 | 10.00 | 10.00 | 0.00 |
| **MNCS_B** | | | | | | | | | |
| 5,150.00 | 5.22 | 310.715 | 4,950.12 | -1,129.45 | -242.80 | -626.93 | 10.00 | 10.00 | 0.00 |
| 5,200.00 | 10.22 | 310.715 | 4,999.65 | -1,125.08 | -247.88 | -620.23 | 10.00 | 10.00 | 0.00 |
| 5,250.00 | 15.22 | 310.715 | 5,048.41 | -1,117.90 | -256.22 | -609.26 | 10.00 | 10.00 | 0.00 |
| 5,263.30 | 16.55 | 310.715 | 5,061.20 | -1,115.53 | -258.98 | -605.63 | 10.00 | 10.00 | 0.00 |
| **MNCS_C** | | | | | | | | | |
| 5,300.00 | 20.22 | 310.715 | 5,096.03 | -1,107.98 | -267.75 | -594.10 | 10.00 | 10.00 | 0.00 |
| 5,332.59 | 23.47 | 310.715 | 5,126.27 | -1,100.07 | -276.94 | -582.00 | 10.00 | 10.00 | 0.00 |
| **MNCS_Cms** | | | | | | | | | |
| 5,350.00 | 25.22 | 310.715 | 5,142.13 | -1,095.39 | -282.38 | -574.85 | 10.00 | 10.00 | 0.00 |
| 5,400.00 | 30.22 | 310.715 | 5,186.38 | -1,080.22 | -300.00 | -551.67 | 10.00 | 10.00 | 0.00 |
| 5,417.53 | 31.97 | 310.715 | 5,201.39 | -1,074.32 | -306.86 | -542.64 | 10.00 | 10.00 | 0.00 |
| **MNCS_D** | | | | | | | | | |
| 5,450.00 | 35.22 | 310.715 | 5,228.44 | -1,062.60 | -320.48 | -524.73 | 10.00 | 10.00 | 0.00 |
| 5,500.00 | 40.22 | 310.715 | 5,267.98 | -1,042.66 | -343.65 | -494.24 | 10.00 | 10.00 | 0.00 |
| 5,524.83 | 42.70 | 310.715 | 5,286.58 | -1,031.94 | -356.11 | -477.85 | 10.00 | 10.00 | 0.00 |
| **MNCS_E** | | | | | | | | | |
| 5,550.00 | 45.22 | 310.715 | 5,304.70 | -1,020.54 | -369.35 | -460.42 | 10.00 | 10.00 | 0.00 |
| 5,589.78 | 49.19 | 310.715 | 5,331.72 | -1,001.50 | -391.47 | -431.32 | 10.00 | 10.00 | 0.00 |

# Planning Report

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| **MNCS_F** | | | | | | | | | |
| 5,600.00 | 50.22 | 310.715 | 5,338.33 | -996.42 | -397.38 | -423.55 | 10.00 | 10.00 | 0.00 |
| 5,650.00 | 55.22 | 310.715 | 5,368.61 | -970.48 | -427.53 | -383.89 | 10.00 | 10.00 | 0.00 |
| 5,697.85 | 60.00 | 310.715 | 5,394.24 | -944.13 | -458.14 | -343.61 | 10.00 | 10.00 | 0.00 |
| **Begin 60.00° tangent** | | | | | | | | | |
| 5,700.00 | 60.00 | 310.715 | 5,395.31 | -942.91 | -459.55 | -341.75 | 0.00 | 0.00 | 0.00 |
| 5,743.57 | 60.00 | 310.715 | 5,417.10 | -918.30 | -488.15 | -304.13 | 0.00 | 0.00 | 0.00 |
| **MNCS_G** | | | | | | | | | |
| 5,757.85 | 60.00 | 310.715 | 5,424.24 | -910.24 | -497.53 | -291.80 | 0.00 | 0.00 | 0.00 |
| **Begin 10°/100' build** | | | | | | | | | |
| 5,800.00 | 64.22 | 310.715 | 5,443.95 | -885.94 | -525.76 | -254.65 | 10.00 | 10.00 | 0.00 |
| 5,832.71 | 67.49 | 310.715 | 5,457.33 | -866.47 | -548.38 | -224.89 | 10.00 | 10.00 | 0.00 |
| **MNCS_H @ 0VS** | | | | | | | | | |
| 5,850.00 | 69.22 | 310.715 | 5,463.71 | -855.99 | -560.56 | -208.87 | 10.00 | 10.00 | 0.00 |
| 5,900.00 | 74.22 | 310.715 | 5,479.39 | -825.03 | -596.53 | -161.54 | 10.00 | 10.00 | 0.00 |
| 5,950.00 | 79.22 | 310.715 | 5,490.88 | -793.30 | -633.40 | -113.03 | 10.00 | 10.00 | 0.00 |
| 6,000.00 | 84.22 | 310.715 | 5,498.08 | -761.04 | -670.89 | -63.70 | 10.00 | 10.00 | 0.00 |
| 6,050.00 | 89.22 | 310.715 | 5,500.94 | -728.49 | -708.72 | -13.94 | 10.00 | 10.00 | 0.00 |
| 6,056.15 | 89.83 | 310.715 | 5,501.00 | -724.48 | -713.38 | -7.81 | 10.00 | 10.00 | 0.00 |
| **Begin 3°/100' turn** | | | | | | | | | |
| 6,100.00 | 89.83 | 312.031 | 5,501.13 | -695.49 | -746.29 | 35.95 | 3.00 | 0.00 | 3.00 |
| 6,198.92 | 89.83 | 314.998 | 5,501.42 | -627.39 | -818.01 | 134.82 | 3.00 | 0.00 | 3.00 |
| **Begin 89.83° lateral** | | | | | | | | | |
| 6,200.00 | 89.83 | 314.998 | 5,501.43 | -626.63 | -818.78 | 135.91 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 89.83 | 314.998 | 5,501.73 | -555.92 | -889.49 | 235.91 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 89.83 | 314.998 | 5,502.03 | -485.21 | -960.20 | 335.91 | 0.00 | 0.00 | 0.00 |
| 6,500.00 | 89.83 | 314.998 | 5,502.33 | -414.50 | -1,030.92 | 435.91 | 0.00 | 0.00 | 0.00 |
| 6,600.00 | 89.83 | 314.998 | 5,502.64 | -343.79 | -1,101.63 | 535.91 | 0.00 | 0.00 | 0.00 |
| 6,700.00 | 89.83 | 314.998 | 5,502.94 | -273.09 | -1,172.34 | 635.91 | 0.00 | 0.00 | 0.00 |
| 6,800.00 | 89.83 | 314.998 | 5,503.24 | -202.38 | -1,243.05 | 735.90 | 0.00 | 0.00 | 0.00 |
| 6,900.00 | 89.83 | 314.998 | 5,503.54 | -131.67 | -1,313.77 | 835.90 | 0.00 | 0.00 | 0.00 |
| 7,000.00 | 89.83 | 314.998 | 5,503.85 | -60.96 | -1,384.48 | 935.90 | 0.00 | 0.00 | 0.00 |
| 7,100.00 | 89.83 | 314.998 | 5,504.15 | 9.75 | -1,455.19 | 1,035.90 | 0.00 | 0.00 | 0.00 |
| 7,200.00 | 89.83 | 314.998 | 5,504.45 | 80.45 | -1,525.90 | 1,135.90 | 0.00 | 0.00 | 0.00 |
| 7,300.00 | 89.83 | 314.998 | 5,504.75 | 151.16 | -1,596.62 | 1,235.90 | 0.00 | 0.00 | 0.00 |
| 7,400.00 | 89.83 | 314.998 | 5,505.05 | 221.87 | -1,667.33 | 1,335.90 | 0.00 | 0.00 | 0.00 |
| 7,500.00 | 89.83 | 314.998 | 5,505.36 | 292.58 | -1,738.04 | 1,435.90 | 0.00 | 0.00 | 0.00 |
| 7,600.00 | 89.83 | 314.998 | 5,505.66 | 363.29 | -1,808.76 | 1,535.90 | 0.00 | 0.00 | 0.00 |
| 7,700.00 | 89.83 | 314.998 | 5,505.96 | 433.99 | -1,879.47 | 1,635.90 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 89.83 | 314.998 | 5,506.26 | 504.70 | -1,950.18 | 1,735.90 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 89.83 | 314.998 | 5,506.57 | 575.41 | -2,020.89 | 1,835.90 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 89.83 | 314.998 | 5,506.87 | 646.12 | -2,091.61 | 1,935.90 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 89.83 | 314.998 | 5,507.17 | 716.83 | -2,162.32 | 2,035.90 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 89.83 | 314.998 | 5,507.47 | 787.53 | -2,233.03 | 2,135.90 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 89.83 | 314.998 | 5,507.78 | 858.24 | -2,303.75 | 2,235.90 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 89.83 | 314.998 | 5,508.08 | 928.95 | -2,374.46 | 2,335.90 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 89.83 | 314.998 | 5,508.38 | 999.66 | -2,445.17 | 2,435.90 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 89.83 | 314.998 | 5,508.68 | 1,070.37 | -2,515.88 | 2,535.90 | 0.00 | 0.00 | 0.00 |
| 8,700.00 | 89.83 | 314.998 | 5,508.99 | 1,141.07 | -2,586.60 | 2,635.90 | 0.00 | 0.00 | 0.00 |
| 8,800.00 | 89.83 | 314.998 | 5,509.29 | 1,211.78 | -2,657.31 | 2,735.90 | 0.00 | 0.00 | 0.00 |
| 8,900.00 | 89.83 | 314.998 | 5,509.59 | 1,282.49 | -2,728.02 | 2,835.90 | 0.00 | 0.00 | 0.00 |
| 9,000.00 | 89.83 | 314.998 | 5,509.89 | 1,353.20 | -2,798.73 | 2,935.89 | 0.00 | 0.00 | 0.00 |
| 9,100.00 | 89.83 | 314.998 | 5,510.20 | 1,423.91 | -2,869.45 | 3,035.89 | 0.00 | 0.00 | 0.00 |

Planning Report

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 9,200.00 | 89.83 | 314.998 | 5,510.50 | 1,494.61 | -2,940.16 | 3,135.89 | 0.00 | 0.00 | 0.00 |
| 9,300.00 | 89.83 | 314.998 | 5,510.80 | 1,565.32 | -3,010.87 | 3,235.89 | 0.00 | 0.00 | 0.00 |
| 9,400.00 | 89.83 | 314.998 | 5,511.10 | 1,636.03 | -3,081.59 | 3,335.89 | 0.00 | 0.00 | 0.00 |
| 9,500.00 | 89.83 | 314.998 | 5,511.40 | 1,706.74 | -3,152.30 | 3,435.89 | 0.00 | 0.00 | 0.00 |
| 9,600.00 | 89.83 | 314.998 | 5,511.71 | 1,777.45 | -3,223.01 | 3,535.89 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 89.83 | 314.998 | 5,512.01 | 1,848.15 | -3,293.72 | 3,635.89 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 89.83 | 314.998 | 5,512.31 | 1,918.86 | -3,364.44 | 3,735.89 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 89.83 | 314.998 | 5,512.61 | 1,989.57 | -3,435.15 | 3,835.89 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 89.83 | 314.998 | 5,512.92 | 2,060.28 | -3,505.86 | 3,935.89 | 0.00 | 0.00 | 0.00 |
| 10,100.00 | 89.83 | 314.998 | 5,513.22 | 2,130.99 | -3,576.57 | 4,035.89 | 0.00 | 0.00 | 0.00 |
| 10,200.00 | 89.83 | 314.998 | 5,513.52 | 2,201.69 | -3,647.29 | 4,135.89 | 0.00 | 0.00 | 0.00 |
| 10,300.00 | 89.83 | 314.998 | 5,513.82 | 2,272.40 | -3,718.00 | 4,235.89 | 0.00 | 0.00 | 0.00 |
| 10,400.00 | 89.83 | 314.998 | 5,514.13 | 2,343.11 | -3,788.71 | 4,335.89 | 0.00 | 0.00 | 0.00 |
| 10,500.00 | 89.83 | 314.998 | 5,514.43 | 2,413.82 | -3,859.43 | 4,435.89 | 0.00 | 0.00 | 0.00 |
| 10,600.00 | 89.83 | 314.998 | 5,514.73 | 2,484.52 | -3,930.14 | 4,535.89 | 0.00 | 0.00 | 0.00 |
| 10,700.00 | 89.83 | 314.998 | 5,515.03 | 2,555.23 | -4,000.85 | 4,635.89 | 0.00 | 0.00 | 0.00 |
| 10,800.00 | 89.83 | 314.998 | 5,515.34 | 2,625.94 | -4,071.56 | 4,735.89 | 0.00 | 0.00 | 0.00 |
| 10,900.00 | 89.83 | 314.998 | 5,515.64 | 2,696.65 | -4,142.28 | 4,835.89 | 0.00 | 0.00 | 0.00 |
| 11,000.00 | 89.83 | 314.998 | 5,515.94 | 2,767.36 | -4,212.99 | 4,935.89 | 0.00 | 0.00 | 0.00 |
| 11,100.00 | 89.83 | 314.998 | 5,516.24 | 2,838.06 | -4,283.70 | 5,035.89 | 0.00 | 0.00 | 0.00 |
| 11,200.00 | 89.83 | 314.998 | 5,516.55 | 2,908.77 | -4,354.41 | 5,135.88 | 0.00 | 0.00 | 0.00 |
| 11,300.00 | 89.83 | 314.998 | 5,516.85 | 2,979.48 | -4,425.13 | 5,235.88 | 0.00 | 0.00 | 0.00 |
| 11,400.00 | 89.83 | 314.998 | 5,517.15 | 3,050.19 | -4,495.84 | 5,335.88 | 0.00 | 0.00 | 0.00 |
| 11,500.00 | 89.83 | 314.998 | 5,517.45 | 3,120.90 | -4,566.55 | 5,435.88 | 0.00 | 0.00 | 0.00 |
| 11,600.00 | 89.83 | 314.998 | 5,517.75 | 3,191.60 | -4,637.27 | 5,535.88 | 0.00 | 0.00 | 0.00 |
| 11,700.00 | 89.83 | 314.998 | 5,518.06 | 3,262.31 | -4,707.98 | 5,635.88 | 0.00 | 0.00 | 0.00 |
| 11,800.00 | 89.83 | 314.998 | 5,518.36 | 3,333.02 | -4,778.69 | 5,735.88 | 0.00 | 0.00 | 0.00 |
| 11,900.00 | 89.83 | 314.998 | 5,518.66 | 3,403.73 | -4,849.40 | 5,835.88 | 0.00 | 0.00 | 0.00 |
| 12,000.00 | 89.83 | 314.998 | 5,518.96 | 3,474.44 | -4,920.12 | 5,935.88 | 0.00 | 0.00 | 0.00 |
| 12,100.00 | 89.83 | 314.998 | 5,519.27 | 3,545.14 | -4,990.83 | 6,035.88 | 0.00 | 0.00 | 0.00 |
| 12,200.00 | 89.83 | 314.998 | 5,519.57 | 3,615.85 | -5,061.54 | 6,135.88 | 0.00 | 0.00 | 0.00 |
| 12,300.00 | 89.83 | 314.998 | 5,519.87 | 3,686.56 | -5,132.25 | 6,235.88 | 0.00 | 0.00 | 0.00 |
| 12,400.00 | 89.83 | 314.998 | 5,520.17 | 3,757.27 | -5,202.97 | 6,335.88 | 0.00 | 0.00 | 0.00 |
| 12,500.00 | 89.83 | 314.998 | 5,520.48 | 3,827.98 | -5,273.68 | 6,435.88 | 0.00 | 0.00 | 0.00 |
| 12,600.00 | 89.83 | 314.998 | 5,520.78 | 3,898.68 | -5,344.39 | 6,535.88 | 0.00 | 0.00 | 0.00 |
| 12,673.39 | 89.83 | 314.998 | 5,521.00 | 3,950.58 | -5,396.29 | 6,609.27 | 0.00 | 0.00 | 0.00 |

**PBHL/TD @ 12673.39 MD 5521.00 TVD**

# Planning Report

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Design Targets**

| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| Haynes 440 vert | 0.00 | 0.000 | 4,898.04 | -1,167.84 | -277.44 | 1,910,869.212 | 1,282,037.829 | 36.245480970 | -107.465380063 |
| - plan misses target center by 51.82ft at 5097.85ft MD (4898.05 TVD, -1131.00 N, -241.00 E) | | | | | | | | | |
| - Point | | | | | | | | | |
| Haynes 440 FTP 188 FS | 0.00 | 0.000 | 5,501.00 | -727.20 | -718.12 | 1,911,309.852 | 1,281,597.153 | 36.246676000 | -107.466893000 |
| - plan misses target center by 5.16ft at 6057.90ft MD (5501.00 TVD, -723.33 N, -714.71 E) | | | | | | | | | |
| - Point | | | | | | | | | |
| Haynes 440 LTP 453 FN | 0.00 | 0.000 | 5,521.00 | 3,950.58 | -5,396.29 | 1,915,987.619 | 1,276,918.990 | 36.259361000 | -107.482957000 |
| - plan hits target center | | | | | | | | | |
| - Point | | | | | | | | | |

**Casing Points**

| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (") | Hole Diameter (") |
|---|---|---|---|---|
| 350.00 | 350.00 | 13 3/8" Csg | 13-3/8 | 17-1/2 |
| 3,832.45 | 3,673.00 | 9 5/8" Csg | 9-5/8 | 12-1/4 |

**Formations**

| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|---|---|---|---|---|---|
| 1,405.98 | 1,402.93 | Ojo Alamo | | 0.17 | 314.998 |
| 1,508.89 | 1,502.89 | Kirtland | | 0.17 | 314.998 |
| 1,746.47 | 1,727.77 | Fruitland | | 0.17 | 314.998 |
| 1,998.32 | 1,962.62 | Pictured Cliffs | | 0.17 | 314.998 |
| 2,159.07 | 2,112.53 | Lewis | | 0.17 | 314.998 |
| 2,475.22 | 2,407.34 | Chacra | | 0.17 | 314.998 |
| 3,664.79 | 3,516.65 | Cliff House | | 0.17 | 314.998 |
| 3,670.15 | 3,521.65 | Menefee | | 0.17 | 314.998 |
| 4,415.88 | 4,221.23 | Point Lookout | | 0.17 | 314.998 |
| 4,695.57 | 4,496.15 | Mancos | | 0.17 | 314.998 |
| 5,035.94 | 4,836.13 | MNCS_A | | 0.17 | 314.998 |
| 5,125.95 | 4,926.13 | MNCS_B | | 0.17 | 314.998 |
| 5,263.30 | 5,061.20 | MNCS_C | | 0.17 | 314.998 |
| 5,332.59 | 5,126.27 | MNCS_Cms | | 0.17 | 314.998 |
| 5,417.53 | 5,201.39 | MNCS_D | | 0.17 | 314.998 |
| 5,524.83 | 5,286.58 | MNCS_E | | 0.17 | 314.998 |
| 5,589.78 | 5,331.72 | MNCS_F | | 0.17 | 314.998 |
| 5,743.57 | 5,417.10 | MNCS_G | | 0.17 | 314.998 |
| 5,832.71 | 5,457.33 | MNCS_H @ 0VS | | 0.17 | 314.998 |

Planning Report

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Plan Annotations**

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates +N/-S (ft) | Local Coordinates +E/-W (ft) | Comment |
|---|---|---|---|---|
| 1,000.00 | 1,000.00 | 0.00 | 0.00 | KOP Begin 3°/100' build |
| 1,705.61 | 1,689.66 | -126.04 | -26.86 | Begin 21.17° tangent |
| 4,194.21 | 4,010.35 | -1,004.96 | -214.14 | Begin 3°/100' drop |
| 4,899.82 | 4,700.01 | -1,131.00 | -241.00 | Begin vertical hold |
| 5,097.85 | 4,898.04 | -1,131.00 | -241.00 | Begin 10°/100' build |
| 5,697.85 | 5,394.24 | -944.13 | -458.14 | Begin 60.00° tangent |
| 5,757.85 | 5,424.24 | -910.24 | -497.53 | Begin 10°/100' build |
| 6,056.15 | 5,501.00 | -724.48 | -713.38 | Begin 3°/100' turn |
| 6,198.92 | 5,501.42 | -627.39 | -818.01 | Begin 89.83° lateral |
| 12,673.39 | 5,521.00 | 3,950.58 | -5,396.29 | PBHL/TD @ 12673.39 MD 5521.00 TVD |

# Planning Report - Geographic

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Project** Rio Arriba County, New Mexico NAD83 NM C

| | | | |
|---|---|---|---|
| **Map System:** | US State Plane 1983 | **System Datum:** | Mean Sea Level |
| **Geo Datum:** | North American Datum 1983 | | |
| **Map Zone:** | New Mexico Central Zone | | |

**Site** Haynes Canyon Unit (428,430,440 & 442)

| | | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 1,912,025.280 usft | **Latitude:** | 36.248667000 |
| **From:** | Lat/Long | **Easting:** | 1,282,353.755 usft | **Longitude:** | -107.464358000 |
| **Position Uncertainty:** | 0.00 ft | **Slot Radius:** | 13-3/16 " | | |

**Well** Haynes Canyon Unit 440H, Surf loc: 916 FSL 390 FWL Section 03-T23N-R06W

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 0.00 ft | **Northing:** | 1,912,037.050 usft | **Latitude:** | 36.248698000 |
| | **+E/-W** | 0.00 ft | **Easting:** | 1,282,315.268 usft | **Longitude:** | -107.464489000 |
| **Position Uncertainty** | | 0.00 ft | **Wellhead Elevation:** | ft | **Ground Level:** | 6,703.00 ft |
| **Grid Convergence:** | | -0.72 ° | | | | |

**Wellbore** Oriignal Hole

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|---|---|---|---|---|---|
| | IGRF2020 | 8/1/2023 | 8.46 | 62.77 | 49,138.30816237 |

**Design** rev0

**Audit Notes:**

| | | | | | |
|---|---|---|---|---|---|
| **Version:** | | **Phase:** | PLAN | **Tie On Depth:** | 0.00 |

| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |
|---|---|---|---|---|
| | 0.00 | 0.00 | 0.00 | 314.998 |

**Plan Survey Tool Program** **Date** 8/1/2023

| | Depth From (ft) | Depth To (ft) | Survey (Wellbore) | Tool Name | Remarks |
|---|---|---|---|---|---|
| 1 | 0.00 | 12,673.14 | rev0 (Oriignal Hole) | MWD<br>OWSG MWD - Standard | |

# Planning Report - Geographic

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Plan Sections**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,000.00 | 0.00 | 0.000 | 1,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,705.61 | 21.17 | 192.029 | 1,689.66 | -126.04 | -26.86 | 3.00 | 3.00 | 0.00 | 192.03 | |
| 4,194.21 | 21.17 | 192.029 | 4,010.35 | -1,004.96 | -214.14 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 4,899.82 | 0.00 | 0.000 | 4,700.01 | -1,131.00 | -241.00 | 3.00 | -3.00 | 0.00 | 180.00 | |
| 5,097.85 | 0.00 | 0.000 | 4,898.04 | -1,131.00 | -241.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5,697.85 | 60.00 | 310.715 | 5,394.24 | -944.13 | -458.14 | 10.00 | 10.00 | 0.00 | 310.72 | |
| 5,757.85 | 60.00 | 310.715 | 5,424.24 | -910.24 | -497.53 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 6,056.15 | 89.83 | 310.715 | 5,501.00 | -724.48 | -713.38 | 10.00 | 10.00 | 0.00 | 0.00 | |
| 6,198.92 | 89.83 | 314.998 | 5,501.42 | -627.39 | -818.01 | 3.00 | 0.00 | 3.00 | 90.05 | |
| 12,673.39 | 89.83 | 314.998 | 5,521.00 | 3,950.58 | -5,396.29 | 0.00 | 0.00 | 0.00 | 0.00 | Haynes 440 LTP 453 |

# Planning Report - Geographic

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 100.00 | 0.00 | 0.000 | 100.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 200.00 | 0.00 | 0.000 | 200.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 300.00 | 0.00 | 0.000 | 300.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 350.00 | 0.00 | 0.000 | 350.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| **13 3/8" Csg** | | | | | | | | | |
| 400.00 | 0.00 | 0.000 | 400.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 500.00 | 0.00 | 0.000 | 500.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 600.00 | 0.00 | 0.000 | 600.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 700.00 | 0.00 | 0.000 | 700.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 800.00 | 0.00 | 0.000 | 800.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 900.00 | 0.00 | 0.000 | 900.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 1,000.00 | 0.00 | 0.000 | 1,000.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| **KOP Begin 3°/100' build** | | | | | | | | | |
| 1,100.00 | 3.00 | 192.029 | 1,099.95 | -2.56 | -0.55 | 1,912,034.490 | 1,282,314.723 | 36.248690951 | -107.464490741 |
| 1,200.00 | 6.00 | 192.029 | 1,199.63 | -10.23 | -2.18 | 1,912,026.817 | 1,282,313.088 | 36.248669821 | -107.464495959 |
| 1,300.00 | 9.00 | 192.029 | 1,298.77 | -23.00 | -4.90 | 1,912,014.052 | 1,282,310.368 | 36.248634670 | -107.464504639 |
| 1,400.00 | 12.00 | 192.029 | 1,397.08 | -40.82 | -8.70 | 1,911,996.231 | 1,282,306.571 | 36.248585592 | -107.464516758 |
| 1,405.98 | 12.18 | 192.029 | 1,402.93 | -42.04 | -8.96 | 1,911,995.006 | 1,282,306.310 | 36.248582218 | -107.464517591 |
| **Ojo Alamo** | | | | | | | | | |
| 1,500.00 | 15.00 | 192.029 | 1,494.31 | -63.65 | -13.56 | 1,911,973.402 | 1,282,301.706 | 36.248522724 | -107.464532282 |
| 1,508.89 | 15.27 | 192.029 | 1,502.89 | -65.92 | -14.05 | 1,911,971.131 | 1,282,301.222 | 36.248516472 | -107.464533826 |
| **Kirtland** | | | | | | | | | |
| 1,600.00 | 18.00 | 192.029 | 1,590.18 | -91.42 | -19.48 | 1,911,945.627 | 1,282,295.788 | 36.248446237 | -107.464551169 |
| 1,705.61 | 21.17 | 192.029 | 1,689.66 | -126.04 | -26.86 | 1,911,911.010 | 1,282,288.411 | 36.248350907 | -107.464574710 |
| **Begin 21.17° tangent** | | | | | | | | | |
| 1,746.47 | 21.17 | 192.029 | 1,727.77 | -140.47 | -29.93 | 1,911,896.579 | 1,282,285.336 | 36.248311166 | -107.464584523 |
| **Fruitland** | | | | | | | | | |
| 1,800.00 | 21.17 | 192.029 | 1,777.69 | -159.38 | -33.96 | 1,911,877.673 | 1,282,281.308 | 36.248259102 | -107.464597379 |
| 1,900.00 | 21.17 | 192.029 | 1,870.94 | -194.69 | -41.49 | 1,911,842.355 | 1,282,273.782 | 36.248161842 | -107.464621396 |
| 1,998.32 | 21.17 | 192.029 | 1,962.62 | -229.42 | -48.89 | 1,911,807.632 | 1,282,266.383 | 36.248066221 | -107.464645008 |
| **Pictured Cliffs** | | | | | | | | | |
| 2,000.00 | 21.17 | 192.029 | 1,964.19 | -230.01 | -49.01 | 1,911,807.037 | 1,282,266.256 | 36.248064582 | -107.464645413 |
| 2,100.00 | 21.17 | 192.029 | 2,057.45 | -265.33 | -56.54 | 1,911,771.719 | 1,282,258.730 | 36.247967323 | -107.464669429 |
| 2,159.07 | 21.17 | 192.029 | 2,112.53 | -286.19 | -60.98 | 1,911,750.858 | 1,282,254.285 | 36.247909873 | -107.464683615 |
| **Lewis** | | | | | | | | | |
| 2,200.00 | 21.17 | 192.029 | 2,150.70 | -300.65 | -64.06 | 1,911,736.402 | 1,282,251.205 | 36.247870063 | -107.464693445 |
| 2,300.00 | 21.17 | 192.029 | 2,243.95 | -335.97 | -71.59 | 1,911,701.084 | 1,282,243.679 | 36.247772803 | -107.464717462 |
| 2,400.00 | 21.17 | 192.029 | 2,337.20 | -371.28 | -79.12 | 1,911,665.766 | 1,282,236.153 | 36.247675543 | -107.464741478 |
| 2,475.22 | 21.17 | 192.029 | 2,407.34 | -397.85 | -84.78 | 1,911,639.201 | 1,282,230.493 | 36.247602388 | -107.464759542 |
| **Chacra** | | | | | | | | | |
| 2,500.00 | 21.17 | 192.029 | 2,430.45 | -406.60 | -86.64 | 1,911,630.448 | 1,282,228.628 | 36.247578284 | -107.464765494 |
| 2,600.00 | 21.17 | 192.029 | 2,523.71 | -441.92 | -94.17 | 1,911,595.131 | 1,282,221.102 | 36.247481024 | -107.464789511 |
| 2,700.00 | 21.17 | 192.029 | 2,616.96 | -477.24 | -101.69 | 1,911,559.813 | 1,282,213.576 | 36.247383764 | -107.464813527 |
| 2,800.00 | 21.17 | 192.029 | 2,710.21 | -512.56 | -109.22 | 1,911,524.495 | 1,282,206.050 | 36.247286504 | -107.464837543 |
| 2,900.00 | 21.17 | 192.029 | 2,803.46 | -547.87 | -116.74 | 1,911,489.177 | 1,282,198.525 | 36.247189245 | -107.464861559 |
| 3,000.00 | 21.17 | 192.029 | 2,896.72 | -583.19 | -124.27 | 1,911,453.859 | 1,282,190.999 | 36.247091985 | -107.464885575 |
| 3,100.00 | 21.17 | 192.029 | 2,989.97 | -618.51 | -131.80 | 1,911,418.542 | 1,282,183.473 | 36.246994725 | -107.464909591 |
| 3,200.00 | 21.17 | 192.029 | 3,083.22 | -653.83 | -139.32 | 1,911,383.224 | 1,282,175.947 | 36.246897465 | -107.464933607 |
| 3,300.00 | 21.17 | 192.029 | 3,176.47 | -689.14 | -146.85 | 1,911,347.906 | 1,282,168.422 | 36.246800206 | -107.464957622 |
| 3,400.00 | 21.17 | 192.029 | 3,269.73 | -724.46 | -154.37 | 1,911,312.588 | 1,282,160.896 | 36.246702946 | -107.464981638 |
| 3,500.00 | 21.17 | 192.029 | 3,362.98 | -759.78 | -161.90 | 1,911,277.270 | 1,282,153.370 | 36.246605686 | -107.465005654 |
| 3,600.00 | 21.17 | 192.029 | 3,456.23 | -795.10 | -169.42 | 1,911,241.953 | 1,282,145.845 | 36.246508426 | -107.465029670 |

# Planning Report - Geographic

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| 3,664.79 | 21.17 | 192.029 | 3,516.65 | -817.98 | -174.30 | 1,911,219.070 | 1,282,140.969 | 36.246445411 | -107.465045229 |
| **Cliff House** | | | | | | | | | |
| 3,670.15 | 21.17 | 192.029 | 3,521.65 | -819.87 | -174.70 | 1,911,217.178 | 1,282,140.565 | 36.246440200 | -107.465046516 |
| **Menefee** | | | | | | | | | |
| 3,700.00 | 21.17 | 192.029 | 3,549.48 | -830.42 | -176.95 | 1,911,206.635 | 1,282,138.319 | 36.246411166 | -107.465053685 |
| 3,800.00 | 21.17 | 192.029 | 3,642.74 | -865.73 | -184.48 | 1,911,171.317 | 1,282,130.793 | 36.246313907 | -107.465077701 |
| 3,832.45 | 21.17 | 192.029 | 3,673.00 | -877.20 | -186.92 | 1,911,159.855 | 1,282,128.351 | 36.246282342 | -107.465085495 |
| **9 5/8" Csg** | | | | | | | | | |
| 3,900.00 | 21.17 | 192.029 | 3,735.99 | -901.05 | -192.00 | 1,911,135.999 | 1,282,123.267 | 36.246216647 | -107.465101716 |
| 4,000.00 | 21.17 | 192.029 | 3,829.24 | -936.37 | -199.53 | 1,911,100.682 | 1,282,115.742 | 36.246119387 | -107.465125732 |
| 4,100.00 | 21.17 | 192.029 | 3,922.49 | -971.69 | -207.05 | 1,911,065.364 | 1,282,108.216 | 36.246022127 | -107.465149747 |
| 4,194.21 | 21.17 | 192.029 | 4,010.35 | -1,004.96 | -214.14 | 1,911,032.091 | 1,282,101.126 | 36.245930500 | -107.465172371 |
| **Begin 3°/100' drop** | | | | | | | | | |
| 4,200.00 | 20.99 | 192.029 | 4,015.75 | -1,007.00 | -214.58 | 1,911,030.054 | 1,282,100.692 | 36.245924889 | -107.465173757 |
| 4,300.00 | 17.99 | 192.029 | 4,110.01 | -1,039.63 | -221.53 | 1,910,997.419 | 1,282,093.738 | 36.245835017 | -107.465195948 |
| 4,400.00 | 14.99 | 192.029 | 4,205.88 | -1,067.40 | -227.45 | 1,910,969.653 | 1,282,087.821 | 36.245758555 | -107.465214828 |
| 4,415.88 | 14.52 | 192.029 | 4,221.23 | -1,071.35 | -228.29 | 1,910,965.698 | 1,282,086.979 | 36.245747664 | -107.465217517 |
| **Point Lookout** | | | | | | | | | |
| 4,500.00 | 11.99 | 192.029 | 4,303.11 | -1,090.22 | -232.31 | 1,910,946.833 | 1,282,082.959 | 36.245695712 | -107.465230345 |
| 4,600.00 | 8.99 | 192.029 | 4,401.42 | -1,108.03 | -236.11 | 1,910,929.021 | 1,282,079.163 | 36.245646660 | -107.465242457 |
| 4,695.57 | 6.13 | 192.029 | 4,496.15 | -1,120.33 | -238.73 | 1,910,916.723 | 1,282,076.543 | 36.245612794 | -107.465250819 |
| **Mancos** | | | | | | | | | |
| 4,700.00 | 5.99 | 192.029 | 4,500.56 | -1,120.79 | -238.82 | 1,910,916.266 | 1,282,076.445 | 36.245611534 | -107.465251130 |
| 4,800.00 | 2.99 | 192.029 | 4,600.24 | -1,128.45 | -240.46 | 1,910,908.602 | 1,282,074.812 | 36.245590430 | -107.465256341 |
| 4,899.82 | 0.00 | 0.000 | 4,700.01 | -1,131.00 | -241.00 | 1,910,906.052 | 1,282,074.269 | 36.245583406 | -107.465258075 |
| **Begin vertical hold** | | | | | | | | | |
| 5,000.00 | 0.00 | 0.000 | 4,800.19 | -1,131.00 | -241.00 | 1,910,906.052 | 1,282,074.269 | 36.245583406 | -107.465258075 |
| 5,035.94 | 0.00 | 0.000 | 4,836.13 | -1,131.00 | -241.00 | 1,910,906.052 | 1,282,074.269 | 36.245583406 | -107.465258075 |
| **MNCS_A** | | | | | | | | | |
| 5,097.85 | 0.00 | 0.000 | 4,898.04 | -1,131.00 | -241.00 | 1,910,906.052 | 1,282,074.269 | 36.245583406 | -107.465258075 |
| **Begin 10°/100' build** | | | | | | | | | |
| 5,100.00 | 0.22 | 310.715 | 4,900.19 | -1,131.00 | -241.00 | 1,910,906.054 | 1,282,074.266 | 36.245583413 | -107.465258086 |
| 5,125.95 | 2.81 | 310.715 | 4,926.13 | -1,130.55 | -241.52 | 1,910,906.501 | 1,282,073.747 | 36.245584623 | -107.465259865 |
| **MNCS_B** | | | | | | | | | |
| 5,150.00 | 5.22 | 310.715 | 4,950.12 | -1,129.45 | -242.80 | 1,910,907.599 | 1,282,072.471 | 36.245587594 | -107.465264237 |
| 5,200.00 | 10.22 | 310.715 | 4,999.65 | -1,125.08 | -247.88 | 1,910,911.976 | 1,282,067.385 | 36.245599441 | -107.465281669 |
| 5,250.00 | 15.22 | 310.715 | 5,048.41 | -1,117.90 | -256.22 | 1,910,919.153 | 1,282,059.046 | 36.245618864 | -107.465310248 |
| 5,263.30 | 16.55 | 310.715 | 5,061.20 | -1,115.53 | -258.98 | 1,910,921.526 | 1,282,056.288 | 36.245625288 | -107.465319702 |
| **MNCS_C** | | | | | | | | | |
| 5,300.00 | 20.22 | 310.715 | 5,096.03 | -1,107.98 | -267.75 | 1,910,929.074 | 1,282,047.518 | 36.245645715 | -107.465349759 |
| 5,332.59 | 23.47 | 310.715 | 5,126.27 | -1,100.07 | -276.94 | 1,910,936.984 | 1,282,038.327 | 36.245667122 | -107.465381258 |
| **MNCS_Cms** | | | | | | | | | |
| 5,350.00 | 25.22 | 310.715 | 5,142.13 | -1,095.39 | -282.38 | 1,910,941.664 | 1,282,032.888 | 36.245679790 | -107.465399899 |
| 5,400.00 | 30.22 | 310.715 | 5,186.38 | -1,080.22 | -300.00 | 1,910,956.828 | 1,282,015.268 | 36.245720830 | -107.465460287 |
| 5,417.53 | 31.97 | 310.715 | 5,201.39 | -1,074.32 | -306.86 | 1,910,962.731 | 1,282,008.408 | 36.245736808 | -107.465483798 |
| **MNCS_D** | | | | | | | | | |
| 5,450.00 | 35.22 | 310.715 | 5,228.44 | -1,062.60 | -320.48 | 1,910,974.449 | 1,281,994.792 | 36.245768522 | -107.465530464 |
| 5,500.00 | 40.22 | 310.715 | 5,267.98 | -1,042.66 | -343.65 | 1,910,994.395 | 1,281,971.615 | 36.245822504 | -107.465609895 |
| 5,524.83 | 42.70 | 310.715 | 5,286.58 | -1,031.94 | -356.11 | 1,911,005.115 | 1,281,959.158 | 36.245851519 | -107.465652590 |
| **MNCS_E** | | | | | | | | | |
| 5,550.00 | 45.22 | 310.715 | 5,304.70 | -1,020.54 | -369.35 | 1,911,016.512 | 1,281,945.915 | 36.245882364 | -107.465697977 |
| 5,589.78 | 49.19 | 310.715 | 5,331.72 | -1,001.50 | -391.47 | 1,911,035.547 | 1,281,923.797 | 36.245933881 | -107.465773782 |
| **MNCS_F** | | | | | | | | | |

Planning Report - Geographic

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| 5,600.00 | 50.22 | 310.715 | 5,338.33 | -996.42 | -397.38 | 1,911,040.633 | 1,281,917.886 | 36.245947647 | -107.465794038 |
| 5,650.00 | 55.22 | 310.715 | 5,368.61 | -970.48 | -427.53 | 1,911,066.575 | 1,281,887.743 | 36.246017856 | -107.465897349 |
| 5,697.85 | 60.00 | 310.715 | 5,394.24 | -944.13 | -458.14 | 1,911,092.921 | 1,281,857.129 | 36.246089161 | -107.466002272 |
| **Begin 60.00° tangent** | | | | | | | | | |
| 5,700.00 | 60.00 | 310.715 | 5,395.31 | -942.91 | -459.55 | 1,911,094.137 | 1,281,855.715 | 36.246092453 | -107.466007116 |
| 5,743.57 | 60.00 | 310.715 | 5,417.10 | -918.30 | -488.15 | 1,911,118.750 | 1,281,827.115 | 36.246159067 | -107.466105136 |
| **MNCS_G** | | | | | | | | | |
| 5,757.85 | 60.00 | 310.715 | 5,424.24 | -910.24 | -497.53 | 1,911,126.815 | 1,281,817.744 | 36.246180894 | -107.466137255 |
| **Begin 10°/100' build** | | | | | | | | | |
| 5,800.00 | 64.22 | 310.715 | 5,443.95 | -885.94 | -525.76 | 1,911,151.112 | 1,281,789.511 | 36.246246652 | -107.466234016 |
| 5,832.71 | 67.49 | 310.715 | 5,457.33 | -866.47 | -548.38 | 1,911,170.580 | 1,281,766.889 | 36.246299342 | -107.466311549 |
| **MNCS_H @ 0VS** | | | | | | | | | |
| 5,850.00 | 69.22 | 310.715 | 5,463.71 | -855.99 | -560.56 | 1,911,181.060 | 1,281,754.711 | 36.246327707 | -107.466353288 |
| 5,900.00 | 74.22 | 310.715 | 5,479.39 | -825.03 | -596.53 | 1,911,212.019 | 1,281,718.738 | 36.246411493 | -107.466476579 |
| 5,950.00 | 79.22 | 310.715 | 5,490.88 | -793.30 | -633.40 | 1,911,243.751 | 1,281,681.866 | 36.246497374 | -107.466602952 |
| 6,000.00 | 84.22 | 310.715 | 5,498.08 | -761.04 | -670.89 | 1,911,276.015 | 1,281,644.375 | 36.246584694 | -107.466731445 |
| 6,050.00 | 89.22 | 310.715 | 5,500.94 | -728.49 | -708.72 | 1,911,308.566 | 1,281,606.551 | 36.246672791 | -107.466861080 |
| 6,056.15 | 89.83 | 310.715 | 5,501.00 | -724.48 | -713.38 | 1,911,312.575 | 1,281,601.892 | 36.246683642 | -107.466877047 |
| **Begin 3°/100' turn** | | | | | | | | | |
| 6,100.00 | 89.83 | 312.031 | 5,501.13 | -695.49 | -746.29 | 1,911,341.559 | 1,281,568.985 | 36.246762112 | -107.466989861 |
| 6,198.92 | 89.83 | 314.998 | 5,501.42 | -627.39 | -818.01 | 1,911,409.658 | 1,281,497.260 | 36.246946670 | -107.467235959 |
| **Begin 89.83° lateral** | | | | | | | | | |
| 6,200.00 | 89.83 | 314.998 | 5,501.43 | -626.63 | -818.78 | 1,911,410.425 | 1,281,496.493 | 36.246948751 | -107.467238593 |
| 6,300.00 | 89.83 | 314.998 | 5,501.73 | -555.92 | -889.49 | 1,911,481.133 | 1,281,425.780 | 36.247140510 | -107.467481371 |
| 6,400.00 | 89.83 | 314.998 | 5,502.03 | -485.21 | -960.20 | 1,911,551.841 | 1,281,355.067 | 36.247332269 | -107.467724150 |
| 6,500.00 | 89.83 | 314.998 | 5,502.33 | -414.50 | -1,030.92 | 1,911,622.548 | 1,281,284.355 | 36.247524027 | -107.467966930 |
| 6,600.00 | 89.83 | 314.998 | 5,502.64 | -343.79 | -1,101.63 | 1,911,693.256 | 1,281,213.642 | 36.247715785 | -107.468209712 |
| 6,700.00 | 89.83 | 314.998 | 5,502.94 | -273.09 | -1,172.34 | 1,911,763.964 | 1,281,142.930 | 36.247907542 | -107.468452494 |
| 6,800.00 | 89.83 | 314.998 | 5,503.24 | -202.38 | -1,243.05 | 1,911,834.672 | 1,281,072.217 | 36.248099299 | -107.468695278 |
| 6,900.00 | 89.83 | 314.998 | 5,503.54 | -131.67 | -1,313.77 | 1,911,905.380 | 1,281,001.504 | 36.248291055 | -107.468938063 |
| 7,000.00 | 89.83 | 314.998 | 5,503.85 | -60.96 | -1,384.48 | 1,911,976.088 | 1,280,930.792 | 36.248482810 | -107.469180849 |
| 7,100.00 | 89.83 | 314.998 | 5,504.15 | 9.75 | -1,455.19 | 1,912,046.795 | 1,280,860.079 | 36.248674565 | -107.469423637 |
| 7,200.00 | 89.83 | 314.998 | 5,504.45 | 80.45 | -1,525.90 | 1,912,117.503 | 1,280,789.367 | 36.248866320 | -107.469666425 |
| 7,300.00 | 89.83 | 314.998 | 5,504.75 | 151.16 | -1,596.62 | 1,912,188.211 | 1,280,718.654 | 36.249058074 | -107.469909215 |
| 7,400.00 | 89.83 | 314.998 | 5,505.05 | 221.87 | -1,667.33 | 1,912,258.919 | 1,280,647.941 | 36.249249828 | -107.470152006 |
| 7,500.00 | 89.83 | 314.998 | 5,505.36 | 292.58 | -1,738.04 | 1,912,329.627 | 1,280,577.229 | 36.249441581 | -107.470394798 |
| 7,600.00 | 89.83 | 314.998 | 5,505.66 | 363.29 | -1,808.76 | 1,912,400.335 | 1,280,506.516 | 36.249633333 | -107.470637591 |
| 7,700.00 | 89.83 | 314.998 | 5,505.96 | 433.99 | -1,879.47 | 1,912,471.042 | 1,280,435.804 | 36.249825085 | -107.470880386 |
| 7,800.00 | 89.83 | 314.998 | 5,506.26 | 504.70 | -1,950.18 | 1,912,541.750 | 1,280,365.091 | 36.250016836 | -107.471123182 |
| 7,900.00 | 89.83 | 314.998 | 5,506.57 | 575.41 | -2,020.89 | 1,912,612.458 | 1,280,294.378 | 36.250208587 | -107.471365978 |
| 8,000.00 | 89.83 | 314.998 | 5,506.87 | 646.12 | -2,091.61 | 1,912,683.166 | 1,280,223.666 | 36.250400338 | -107.471608775 |
| 8,100.00 | 89.83 | 314.998 | 5,507.17 | 716.83 | -2,162.32 | 1,912,753.874 | 1,280,152.953 | 36.250592088 | -107.471851575 |
| 8,200.00 | 89.83 | 314.998 | 5,507.47 | 787.53 | -2,233.03 | 1,912,824.581 | 1,280,082.241 | 36.250783837 | -107.472094375 |
| 8,300.00 | 89.83 | 314.998 | 5,507.78 | 858.24 | -2,303.75 | 1,912,895.289 | 1,280,011.528 | 36.250975586 | -107.472337177 |
| 8,400.00 | 89.83 | 314.998 | 5,508.08 | 928.95 | -2,374.46 | 1,912,965.997 | 1,279,940.816 | 36.251167334 | -107.472579979 |
| 8,500.00 | 89.83 | 314.998 | 5,508.38 | 999.66 | -2,445.17 | 1,913,036.705 | 1,279,870.103 | 36.251359082 | -107.472822783 |
| 8,600.00 | 89.83 | 314.998 | 5,508.68 | 1,070.37 | -2,515.88 | 1,913,107.413 | 1,279,799.390 | 36.251550829 | -107.473065589 |
| 8,700.00 | 89.83 | 314.998 | 5,508.99 | 1,141.07 | -2,586.60 | 1,913,178.121 | 1,279,728.678 | 36.251742576 | -107.473308395 |
| 8,800.00 | 89.83 | 314.998 | 5,509.29 | 1,211.78 | -2,657.31 | 1,913,248.828 | 1,279,657.965 | 36.251934322 | -107.473551203 |
| 8,900.00 | 89.83 | 314.998 | 5,509.59 | 1,282.49 | -2,728.02 | 1,913,319.536 | 1,279,587.253 | 36.252126068 | -107.473794011 |
| 9,000.00 | 89.83 | 314.998 | 5,509.89 | 1,353.20 | -2,798.73 | 1,913,390.244 | 1,279,516.540 | 36.252317813 | -107.474036821 |
| 9,100.00 | 89.83 | 314.998 | 5,510.20 | 1,423.91 | -2,869.45 | 1,913,460.952 | 1,279,445.827 | 36.252509558 | -107.474279632 |
| 9,200.00 | 89.83 | 314.998 | 5,510.50 | 1,494.61 | -2,940.16 | 1,913,531.660 | 1,279,375.115 | 36.252701302 | -107.474522445 |
| 9,300.00 | 89.83 | 314.998 | 5,510.80 | 1,565.32 | -3,010.87 | 1,913,602.368 | 1,279,304.402 | 36.252893045 | -107.474765258 |

# Planning Report - Geographic

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| 9,400.00 | 89.83 | 314.998 | 5,511.10 | 1,636.03 | -3,081.59 | 1,913,673.075 | 1,279,233.690 | 36.253084788 | -107.475008073 |
| 9,500.00 | 89.83 | 314.998 | 5,511.40 | 1,706.74 | -3,152.30 | 1,913,743.783 | 1,279,162.977 | 36.253276531 | -107.475250888 |
| 9,600.00 | 89.83 | 314.998 | 5,511.71 | 1,777.45 | -3,223.01 | 1,913,814.491 | 1,279,092.264 | 36.253468273 | -107.475493706 |
| 9,700.00 | 89.83 | 314.998 | 5,512.01 | 1,848.15 | -3,293.72 | 1,913,885.199 | 1,279,021.552 | 36.253660014 | -107.475736524 |
| 9,800.00 | 89.83 | 314.998 | 5,512.31 | 1,918.86 | -3,364.44 | 1,913,955.907 | 1,278,950.839 | 36.253851755 | -107.475979343 |
| 9,900.00 | 89.83 | 314.998 | 5,512.61 | 1,989.57 | -3,435.15 | 1,914,026.615 | 1,278,880.127 | 36.254043496 | -107.476222164 |
| 10,000.00 | 89.83 | 314.998 | 5,512.92 | 2,060.28 | -3,505.86 | 1,914,097.322 | 1,278,809.414 | 36.254235236 | -107.476464985 |
| 10,100.00 | 89.83 | 314.998 | 5,513.22 | 2,130.99 | -3,576.57 | 1,914,168.030 | 1,278,738.701 | 36.254426975 | -107.476707808 |
| 10,200.00 | 89.83 | 314.998 | 5,513.52 | 2,201.69 | -3,647.29 | 1,914,238.738 | 1,278,667.989 | 36.254618714 | -107.476950633 |
| 10,300.00 | 89.83 | 314.998 | 5,513.82 | 2,272.40 | -3,718.00 | 1,914,309.446 | 1,278,597.276 | 36.254810453 | -107.477193458 |
| 10,400.00 | 89.83 | 314.998 | 5,514.13 | 2,343.11 | -3,788.71 | 1,914,380.154 | 1,278,526.564 | 36.255002191 | -107.477436284 |
| 10,500.00 | 89.83 | 314.998 | 5,514.43 | 2,413.82 | -3,859.43 | 1,914,450.862 | 1,278,455.851 | 36.255193928 | -107.477679112 |
| 10,600.00 | 89.83 | 314.998 | 5,514.73 | 2,484.52 | -3,930.14 | 1,914,521.569 | 1,278,385.138 | 36.255385665 | -107.477921941 |
| 10,700.00 | 89.83 | 314.998 | 5,515.03 | 2,555.23 | -4,000.85 | 1,914,592.277 | 1,278,314.426 | 36.255577401 | -107.478164771 |
| 10,800.00 | 89.83 | 314.998 | 5,515.34 | 2,625.94 | -4,071.56 | 1,914,662.985 | 1,278,243.713 | 36.255769137 | -107.478407602 |
| 10,900.00 | 89.83 | 314.998 | 5,515.64 | 2,696.65 | -4,142.28 | 1,914,733.693 | 1,278,173.001 | 36.255960872 | -107.478650435 |
| 11,000.00 | 89.83 | 314.998 | 5,515.94 | 2,767.36 | -4,212.99 | 1,914,804.401 | 1,278,102.288 | 36.256152607 | -107.478893268 |
| 11,100.00 | 89.83 | 314.998 | 5,516.24 | 2,838.06 | -4,283.70 | 1,914,875.108 | 1,278,031.576 | 36.256344341 | -107.479136103 |
| 11,200.00 | 89.83 | 314.998 | 5,516.55 | 2,908.77 | -4,354.41 | 1,914,945.816 | 1,277,960.863 | 36.256536075 | -107.479378939 |
| 11,300.00 | 89.83 | 314.998 | 5,516.85 | 2,979.48 | -4,425.13 | 1,915,016.524 | 1,277,890.150 | 36.256727808 | -107.479621776 |
| 11,400.00 | 89.83 | 314.998 | 5,517.15 | 3,050.19 | -4,495.84 | 1,915,087.232 | 1,277,819.438 | 36.256919540 | -107.479864615 |
| 11,500.00 | 89.83 | 314.998 | 5,517.45 | 3,120.90 | -4,566.55 | 1,915,157.940 | 1,277,748.725 | 36.257111273 | -107.480107454 |
| 11,600.00 | 89.83 | 314.998 | 5,517.75 | 3,191.60 | -4,637.27 | 1,915,228.648 | 1,277,678.013 | 36.257303004 | -107.480350295 |
| 11,700.00 | 89.83 | 314.998 | 5,518.06 | 3,262.31 | -4,707.98 | 1,915,299.355 | 1,277,607.300 | 36.257494735 | -107.480593137 |
| 11,800.00 | 89.83 | 314.998 | 5,518.36 | 3,333.02 | -4,778.69 | 1,915,370.063 | 1,277,536.587 | 36.257686466 | -107.480835980 |
| 11,900.00 | 89.83 | 314.998 | 5,518.66 | 3,403.73 | -4,849.40 | 1,915,440.771 | 1,277,465.875 | 36.257878196 | -107.481078825 |
| 12,000.00 | 89.83 | 314.998 | 5,518.96 | 3,474.44 | -4,920.12 | 1,915,511.479 | 1,277,395.162 | 36.258069925 | -107.481321670 |
| 12,100.00 | 89.83 | 314.998 | 5,519.27 | 3,545.14 | -4,990.83 | 1,915,582.187 | 1,277,324.450 | 36.258261654 | -107.481564517 |
| 12,200.00 | 89.83 | 314.998 | 5,519.57 | 3,615.85 | -5,061.54 | 1,915,652.895 | 1,277,253.737 | 36.258453383 | -107.481807365 |
| 12,300.00 | 89.83 | 314.998 | 5,519.87 | 3,686.56 | -5,132.25 | 1,915,723.602 | 1,277,183.024 | 36.258645111 | -107.482050214 |
| 12,400.00 | 89.83 | 314.998 | 5,520.17 | 3,757.27 | -5,202.97 | 1,915,794.310 | 1,277,112.312 | 36.258836838 | -107.482293064 |
| 12,500.00 | 89.83 | 314.998 | 5,520.48 | 3,827.98 | -5,273.68 | 1,915,865.018 | 1,277,041.599 | 36.259028565 | -107.482535915 |
| 12,600.00 | 89.83 | 314.998 | 5,520.78 | 3,898.68 | -5,344.39 | 1,915,935.726 | 1,276,970.887 | 36.259220292 | -107.482778768 |
| 12,673.39 | 89.83 | 314.998 | 5,521.00 | 3,950.58 | -5,396.29 | 1,915,987.619 | 1,276,918.990 | 36.259361000 | -107.482957000 |
| **PBHL/TD @ 12673.39 MD 5521.00 TVD** | | | | | | | | | |

**Design Targets**

| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| Haynes 440 vert | 0.00 | 0.000 | 4,898.04 | -1,167.84 | -277.44 | 1,910,869.212 | 1,282,037.829 | 36.245480970 | -107.465380063 |
| - plan misses target center by 51.82ft at 5097.85ft MD (4898.05 TVD, -1131.00 N, -241.00 E) | | | | | | | | | |
| - Point | | | | | | | | | |
| Haynes 440 FTP 188 FS | 0.00 | 0.000 | 5,501.00 | -727.20 | -718.12 | 1,911,309.852 | 1,281,597.153 | 36.246676000 | -107.466893000 |
| - plan misses target center by 5.16ft at 6057.90ft MD (5501.00 TVD, -723.33 N, -714.71 E) | | | | | | | | | |
| - Point | | | | | | | | | |
| Haynes 440 LTP 453 FN | 0.00 | 0.000 | 5,521.00 | 3,950.58 | -5,396.29 | 1,915,987.619 | 1,276,918.990 | 36.259361000 | -107.482957000 |
| - plan hits target center | | | | | | | | | |
| - Point | | | | | | | | | |

# Planning Report - Geographic

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Casing Points**

| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (") | Hole Diameter (") |
|---|---|---|---|---|
| 350.00 | 350.00 | 13 3/8" Csg | 13-3/8 | 17-1/2 |
| 3,832.45 | 3,673.00 | 9 5/8" Csg | 9-5/8 | 12-1/4 |

**Formations**

| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|---|---|---|---|---|---|
| 1,405.98 | 1,402.93 | Ojo Alamo | | 0.17 | 314.998 |
| 1,508.89 | 1,502.89 | Kirtland | | 0.17 | 314.998 |
| 1,746.47 | 1,727.77 | Fruitland | | 0.17 | 314.998 |
| 1,998.32 | 1,962.62 | Pictured Cliffs | | 0.17 | 314.998 |
| 2,159.07 | 2,112.53 | Lewis | | 0.17 | 314.998 |
| 2,475.22 | 2,407.34 | Chacra | | 0.17 | 314.998 |
| 3,664.79 | 3,516.65 | Cliff House | | 0.17 | 314.998 |
| 3,670.15 | 3,521.65 | Menefee | | 0.17 | 314.998 |
| 4,415.88 | 4,221.23 | Point Lookout | | 0.17 | 314.998 |
| 4,695.57 | 4,496.15 | Mancos | | 0.17 | 314.998 |
| 5,035.94 | 4,836.13 | MNCS_A | | 0.17 | 314.998 |
| 5,125.95 | 4,926.13 | MNCS_B | | 0.17 | 314.998 |
| 5,263.30 | 5,061.20 | MNCS_C | | 0.17 | 314.998 |
| 5,332.59 | 5,126.27 | MNCS_Cms | | 0.17 | 314.998 |
| 5,417.53 | 5,201.39 | MNCS_D | | 0.17 | 314.998 |
| 5,524.83 | 5,286.58 | MNCS_E | | 0.17 | 314.998 |
| 5,589.78 | 5,331.72 | MNCS_F | | 0.17 | 314.998 |
| 5,743.57 | 5,417.10 | MNCS_G | | 0.17 | 314.998 |
| 5,832.71 | 5,457.33 | MNCS_H @ 0VS | | 0.17 | 314.998 |

**Plan Annotations**

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates +N/-S (ft) | Local Coordinates +E/-W (ft) | Comment |
|---|---|---|---|---|
| 1,000.00 | 1,000.00 | 0.00 | 0.00 | KOP Begin 3°/100' build |
| 1,705.61 | 1,689.66 | -126.04 | -26.86 | Begin 21.17° tangent |
| 4,194.21 | 4,010.35 | -1,004.96 | -214.14 | Begin 3°/100' drop |
| 4,899.82 | 4,700.01 | -1,131.00 | -241.00 | Begin vertical hold |
| 5,097.85 | 4,898.04 | -1,131.00 | -241.00 | Begin 10°/100' build |
| 5,697.85 | 5,394.24 | -944.13 | -458.14 | Begin 60.00° tangent |
| 5,757.85 | 5,424.24 | -910.24 | -497.53 | Begin 10°/100' build |
| 6,056.15 | 5,501.00 | -724.48 | -713.38 | Begin 3°/100' turn |
| 6,198.92 | 5,501.42 | -627.39 | -818.01 | Begin 89.83° lateral |
| 12,673.39 | 5,521.00 | 3,950.58 | -5,396.29 | PBHL/TD @ 12673.39 MD 5521.00 TVD |

**WELL NAME:** Haynes Canyon Unit 440H

**OBJECTIVE:** Drill, complete, and equip single lateral in the Mancos-H formation

**API Number:** *Not yet assigned*

**AFE Number:** *Not yet assigned*

**ER Well Number:** *Not yet assigned*

**State:** New Mexico

**County:** Rio Arriba

| | | | | | | |
|---|---|---|---|---|---|---|
| **Surface Elev.:** | 6,703 | ft ASL (GL) | 6,728 | ft ASL (KB) | | |
| **Surface Location:** | 3-23-6 | Sec-Twn- Rng | 916 | ft FSL | 390 | ft FWL |
| **BH Location:** | 4-23-6 | Sec-Twn- Rng | 453 | ft FNL | 232 | ft FWL |

**Driving Directions:** ***FROM THE INTERSECTION OF US HWY 550 & US HWY 64 IN BLOOMFIELD, NM:***

South on US Hwy 550 for 53.8 miles to MM 97.6; Left (North) on CR #379 (State Hwy 403) for 1.3 miles to fork; Right (North) remaining on CR #379 for 1.5 miles to location access on left; Haynes Canyon Unit 428H Pad. From East to West 430H, 428H, 442H, 440H).

| QUICK REFERENCE | | |
|---|---|---|
| Sur TD (MD) | 350 | ft |
| Int TD (MD) | 3,833 | ft |
| KOP (MD) | 5,100 | ft |
| KOP (TVD) | 4,900 | ft |
| Target (TVD) | 5,466 | ft |
| Curve BUR | 10 | °/100 ft |
| POE (MD) | 5,858 | ft |
| TD (MD) | 12,673 | ft |
| Lat Len (ft) | 6,815 | ft |

**WELL CONSTRUCTION SUMMARY:**

| | Hole (in) | TD MD (ft) | Csg (in) | Csg (lb/ft) | Csg (grade) | Csg (conn) | Csg Top (ft) | Csg Bot (ft) |
|---|---|---|---|---|---|---|---|---|
| *Surface* | 17.500 | 350 | 13.375 | 54.5 | J-55 | BTC | 0 | 350 |
| *Intermediate* | 12.250 | 3,833 | 9.625 | 36.0 | J-55 | LTC | 0 | 3,833 |
| *Production* | 8.500 | 12,673 | 5.500 | 17.0 | P-110 | LTC | 0 | 12,673 |

**CEMENT PROPERTIES SUMMARY:**

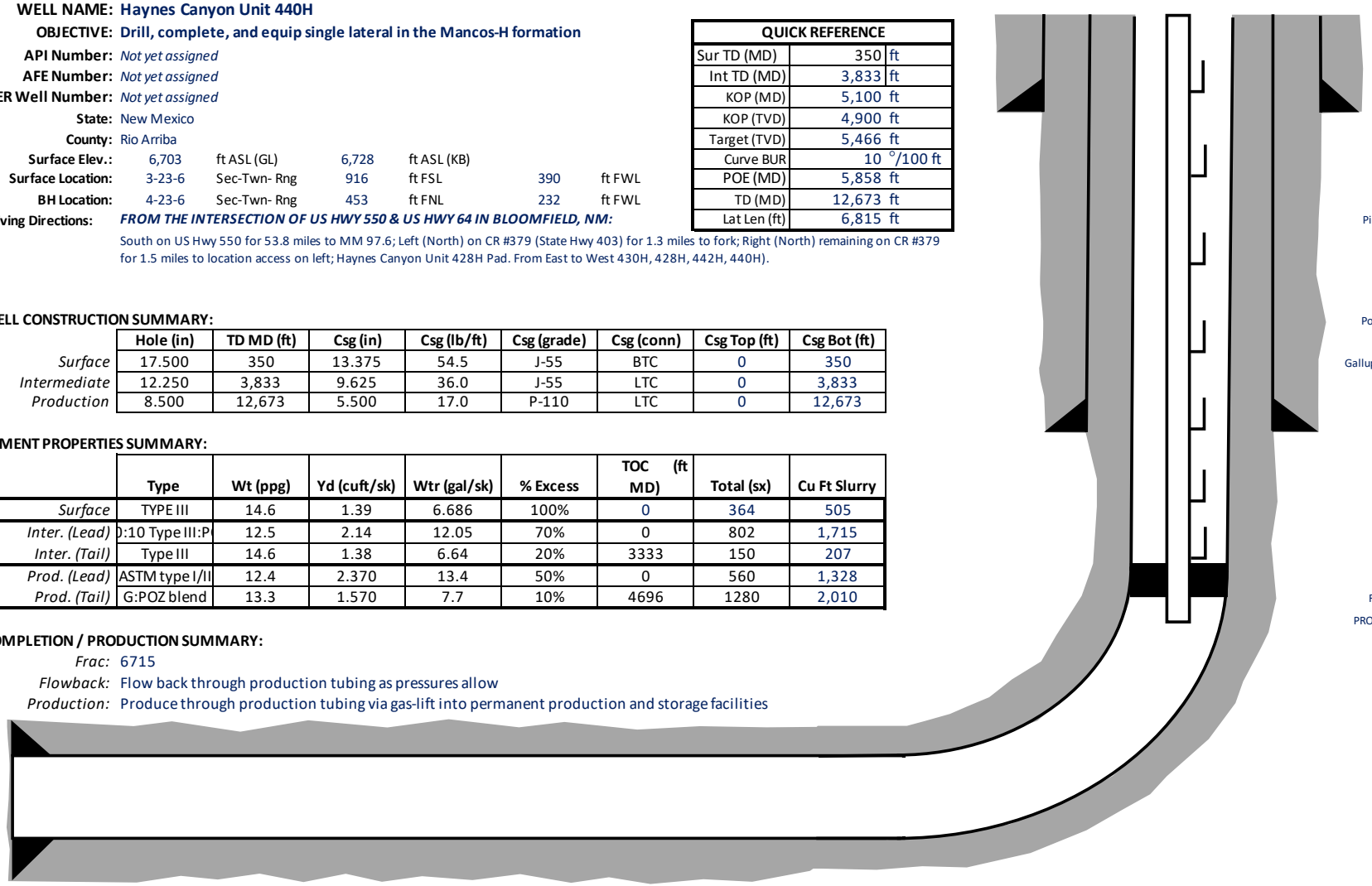
| | Type | Wt (ppg) | Yd (cuft/sk) | Wtr (gal/sk) | % Excess | TOC (ft MD) | Total (sx) | Cu Ft Slurry |
|---|---|---|---|---|---|---|---|---|
| *Surface* | TYPE III | 14.6 | 1.39 | 6.686 | 100% | 0 | 364 | 505 |
| *Inter. (Lead)* | 0:10 Type III:P | 12.5 | 2.14 | 12.05 | 70% | 0 | 802 | 1,715 |
| *Inter. (Tail)* | Type III | 14.6 | 1.38 | 6.64 | 20% | 3333 | 150 | 207 |
| *Prod. (Lead)* | ASTM type I/II | 12.4 | 2.370 | 13.4 | 50% | 0 | 560 | 1,328 |
| *Prod. (Tail)* | G:POZ blend | 13.3 | 1.570 | 7.7 | 10% | 4696 | 1280 | 2,010 |

**COMPLETION / PRODUCTION SUMMARY:**

*Frac:* 6715

*Flowback:* Flow back through production tubing as pressures allow

*Production:* Produce through production tubing via gas-lift into permanent production and storage facilities



| Tops | TVD (ft KB) | MD (ft KB) |
|---|---|---|
| Ojo Alamo | 1,403 | 1,406 |
| Kirtland | 1,503 | 1,509 |
| Fruitland | 1,728 | 1,746 |
| Pictured Cliffs | 1,963 | 1,998 |
| Lewis | 2,113 | 2,159 |
| Chacra | 2,408 | 2,475 |
| Cliff House | 3,518 | 3,665 |
| Menefee | 3,523 | 3,670 |
| Point Lookout | 4,223 | 4,416 |
| Mancos | 4,498 | 4,696 |
| Gallup (MNCS_A) | 4,838 | 5,036 |
| MNCS_B | 4,928 | 5,126 |
| MNCS_C | 5,063 | 5,263 |
| MNCS_Cms | 5,128 | 5,333 |
| MNCS_D | 5,203 | 5,418 |
| MNCS_E | 5,288 | 5,525 |
| MNCS_F | 5,333 | 5,590 |
| MNCS_G | 5,418 | 5,744 |
| MNCS_H | 5,458 | 5,833 |
| MNCS_I | 0 | 0 |
| FTP TARGET | 5,466 | 5,858 |
| PROJECTED LTP | 5,521 | 12,673 |

AFMSS
U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

# SUPO Data Report
12/05/2023

**APD ID:** 10400093966
**Submission Date:** 09/29/2023
**Operator Name:** ENDURING RESOURCES LLC
**Well Name:** HAYNES CANYON UNIT
**Well Number:** 440H
**Well Type:** OIL WELL
**Well Work Type:** Drill

Highlighted data reflects the most recent changes
Show Final Text

## Section 1 - Existing Roads

**Will existing roads be used?** YES

**Existing Road Map:**

HCU_440_Existing_Roads_09282023_20230928134905.pdf

**Existing Road Purpose:** ACCESS

**Row(s) Exist?** NO

### ROW ID(s)

**ID:**

**Do the existing roads need to be improved?** NO

**Existing Road Improvement Description:**

**Existing Road Improvement Attachment:**

## Section 2 - New or Reconstructed Access Roads

**Will new roads be needed?** NO

## Section 3 - Location of Existing Wells

**Existing Wells Map?** YES

**Attach Well map:**

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

HCU_440_Wells_Within_1Mile_08222023_20230917203417.pdf

## Section 4 - Location of Existing and/or Proposed Production Facilities

**Submit or defer a Proposed Production Facilities plan?** SUBMIT

**Production Facilities description:**

**Production Facilities map:**

Haynes_Canyon_Unit_440_Facility_and_Rig_Layout_Rev_A_20230917203511.pdf
Haynes_Canyon_Unit_440_Facility_Completions_Layout_Rev_A_20230917203511.pdf
Haynes_Canyon_Unit_440_Facility_Layout_Rev_A_20230917203511.pdf
Haynes_Canyon_Unit_440_Proposed_Reclamation_Rev_A_20230924193850.pdf

## Section 5 - Location and Types of Water Supply

### Water Source Table

**Water source type:** GW WELL

**Water source use type:** DUST CONTROL
SURFACE CASING
INTERMEDIATE/PRODUCTION CASING

**Source latitude:** 36.069826 **Source longitude:** -107.04718

**Source datum:** NAD83

**Water source permit type:** WATER WELL

**Water source transport method:** TRUCKING

**Source land ownership:** PRIVATE

**Source transportation land ownership:** PRIVATE

**Water source volume (barrels):** 17558 **Source volume (acre-feet):** 2.26310499

**Source volume (gal):** 737436

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

**Water source type:** GW WELL

**Water source use type:** SURFACE CASING
INTERMEDIATE/PRODUCTION CASING
ICE ROAD CONSTRUCTION & MAINTENANCE

**Source latitude:** 36.359802 **Source longitude:** -107.81031

**Source datum:** NAD83

**Water source permit type:** WATER WELL

**Water source transport method:** TRUCKING

**Source land ownership:** STATE

**Source transportation land ownership:** STATE

**Water source volume (barrels):** 17558 **Source volume (acre-feet):** 2.26310499

**Source volume (gal):** 737436

---

**Water source type:** RECYCLED

**Water source use type:** STIMULATION

**Source latitude:** 36.143567 **Source longitude:** -107.576013

**Source datum:** NAD83

**Water source permit type:** WATER WELL

**Water source transport method:** TRUCKING

**Source land ownership:** STATE

**Source transportation land ownership:** STATE

**Water source volume (barrels):** 447760 **Source volume (acre-feet):** 57.71317281

**Source volume (gal):** 18805920

---

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

**Water source type:** RECYCLED

**Water source use type:** STIMULATION

**Source latitude:** 36.205932 **Source longitude:** -107.741568

**Source datum:** NAD83

**Water source permit type:** WATER WELL

**Water source transport method:** TRUCKING

**Source land ownership:** FEDERAL

**Source transportation land ownership:** FEDERAL

**Water source volume (barrels):** 447760 **Source volume (acre-feet):** 57.71317281

**Source volume (gal):** 18805920

---

**Water source type:** RECYCLED

**Water source use type:** STIMULATION

**Source latitude:** 36.210181 **Source longitude:** -107.488712

**Source datum:** NAD83

**Water source permit type:** WATER WELL

**Water source transport method:** TRUCKING

**Source land ownership:** FEDERAL

**Source transportation land ownership:** FEDERAL

**Water source volume (barrels):** 447760 **Source volume (acre-feet):** 57.71317281

**Source volume (gal):** 18805920

---

**Water source type:** RECYCLED

**Water source use type:** STIMULATION

**Source latitude:** 36.117342 **Source longitude:** -107.488712

**Source datum:** NAD83

**Water source permit type:** WATER WELL

**Water source transport method:** TRUCKING

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

**Source land ownership:** FEDERAL

**Source transportation land ownership:** FEDERAL

**Water source volume (barrels):** 447760 **Source volume (acre-feet):** 57.71317281

**Source volume (gal):** 18805920

---

**Water source type:** RECYCLED

**Water source use type:** STIMULATION

**Source latitude:** 36.310147 **Source longitude:** -107.651626

**Source datum:** NAD83

**Water source permit type:** WATER WELL

**Water source transport method:** TRUCKING

**Source land ownership:** FEDERAL

**Source transportation land ownership:** FEDERAL

**Water source volume (barrels):** 447760 **Source volume (acre-feet):** 57.71317281

**Source volume (gal):** 18805920

---

**Water source and transportation**

HCU_440_Water_Transportation_08222023_20230917203559.pdf

**Water source comments:**

**New water well?** N

## New Water Well Info

**Well latitude:** **Well Longitude:** **Well datum:**

**Well target aquifer:**

**Est. depth to top of aquifer(ft):** **Est thickness of aquifer:**

**Aquifer comments:**

**Aquifer documentation:**

**Well depth (ft):** **Well casing type:**

**Well casing outside diameter (in.):** **Well casing inside diameter (in.):**

**New water well casing?** **Used casing source:**

**Drilling method:** **Drill material:**

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

**Grout material:**

**Grout depth:**

**Casing length (ft.):**

**Casing top depth (ft.):**

**Well Production type:**

**Completion Method:**

**Water well additional information:**

**State appropriation permit:**

**Additional information attachment:**

## Section 6 - Construction Materials

**Using any construction materials:** YES

**Construction Materials description:** Reference attached SUPO chapter 8 (construction materials)

**Construction Materials source location**

MaterialSourceLocationMap_191022_20230917203628.pdf

## Section 7 - Methods for Handling

**Waste type:** DRILLING

**Waste content description:** Reference attached Enduring Resources Surface Use Plan of Operations Chapter 9 (Methods for Handling Waste).
**Amount of waste:** 12000 barrels

**Waste disposal frequency :** Weekly

**Safe containment description:** Drilling fluids would be stored onsite in above-ground storage tanks. Upon termination of drilling operations, the drilling fluids would be recycled and transferred to other permitted closed-loop systems or disposed of at one of the locations specified in the SUPO section 9.
**Safe containmant attachment:**

**Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE
**Disposal type description:**

**Disposal location description:** Approved commercial disposal facility or land farm

**Waste type:** FLOWBACK

**Waste content description:** Reference attached Enduring Resources Surface Use Plan of Operations Chapter 9 (Methods for Handling Waste). Section 9 (Flowback). Flowback transported off location will consist of approximately 1000 bbls of produced water per day for approximately 14 days.
**Amount of waste:** 1000 barrels

**Waste disposal frequency :** Daily

**Safe containment description:** Reference attached Enduring Resources Surface Use Plan of Operations Chapter 9 (Methods for Handling Waste). Section 9 (Flowback). Flowback transported off location will consist of approximately 1000 bbls of produced water per day for approximately 14 days.
**Safe containmant attachment:**

**Waste disposal type:** RECYCLE **Disposal location ownership:** OTHER

**Disposal type description:**

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

**Disposal location description:** Produced water from flowback will be stored, treated, and recycled at any of Enduring's approved water recycling facilities. Containments are constructed, lined, and monitored per regulatory requirements. Flowback would be disposed of at one of the disposal wells listed in Section 9 of the SUPO.

**Waste type:** SEWAGE

**Waste content description:** Reference attached Enduring Resources Surface Use Plan of Operations Chapter 9 (Methods for Handling Waste).
**Amount of waste:** 500 gallons

**Waste disposal frequency :** Weekly

**Safe containment description:** Toilets would be provided and maintained as needed. See SUPO chapter 9 for reference

**Safe containmant attachment:**

**Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE
**Disposal type description:**

**Disposal location description:** Commercial facilities disposal

**Waste type:** GARBAGE

**Waste content description:** Reference attached Enduring Resources Surface Use Plan of Operations Chapter 9 (Methods for Handling Waste).
**Amount of waste:** 1500 pounds

**Waste disposal frequency :** Weekly

**Safe containment description:** All garbage and trash would be placed in enclosed metal trash containers. The trash and garbage would be hauled off site and dumped in an approved landfill, as needed. See SUPO, Section 9.

**Safe containmant attachment:**

**Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE
**Disposal type description:**

**Disposal location description:** Approved landfill

**Waste type:** PRODUCED WATER

**Waste content description:** Reference attached Enduring Resources Surface Use Plan of Operations Chapter 9 (Methods for Handling Waste).
**Amount of waste:** 11000 barrels

**Waste disposal frequency :** Weekly

**Safe containment description:** Drilling fluids would be stored onsite in above-ground storage tanks. See SUPO section 9, Drilling Fluids
**Safe containmant attachment:**

**Waste disposal type:** OFF-LEASE INJECTION **Disposal location ownership:** PRIVATE

**Disposal type description:**

**Disposal location description:** Commercial UIC, See SUPO Chapter 9 disposal locations

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

## Reserve Pit

**Reserve Pit being used?** NO

**Temporary disposal of produced water into reserve pit?** NO

**Reserve pit length (ft.)** **Reserve pit width (ft.)**

**Reserve pit depth (ft.)** **Reserve pit volume (cu. yd.)**

**Is at least 50% of the reserve pit in cut?**

**Reserve pit liner**

**Reserve pit liner specifications and installation description**

## Cuttings Area

**Cuttings Area being used?** NO

**Are you storing cuttings on location?** N

**Description of cuttings location**

**Cuttings area length (ft.)** **Cuttings area width (ft.)**

**Cuttings area depth (ft.)** **Cuttings area volume (cu. yd.)**

**Is at least 50% of the cuttings area in cut?**

**WCuttings area liner**

**Cuttings area liner specifications and installation description**

## Section 8 - Ancillary

**Are you requesting any Ancillary Facilities?:** N

**Ancillary Facilities**

**Comments:**

## Section 9 - Well Site

**Well Site Layout Diagram:**

Haynes_Canyon_Unit_440_Facility_Layout_Rev_A_20230917203707.pdf
HCU_440H_Topsoil_and_Cut_20230924195701.pdf

**Comments:**

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

## Section 10 - Plans for Surface

**Type of disturbance:** No New Surface Disturbance **Multiple Well Pad Name:** Haynes Canyon Unit

**Multiple Well Pad Number:** 414H

**Recontouring**

Haynes_Canyon_Unit_440H_Proposed_Reclamation_Rev_A_20230917203727.pdf

**Drainage/Erosion control construction:** REFERENCE ATTACHED ENDURING RESOURCES SURFACE RECLAMATION PLAN CHAPTER 10 AND THE CONSTRUCTION PLATS.
**Drainage/Erosion control reclamation:** REFERENCE ATTACHED ENDURING RESOURCES SURFACE RECLAMATION PLAN CHAPTER 10 AND THE CONSTRUCTION PLATS.

| | | |
|---|---|---|
| **Well pad proposed disturbance (acres):** | **Well pad interim reclamation (acres):** 0 | **Well pad long term disturbance (acres):** 0 |
| **Road proposed disturbance (acres):** | **Road interim reclamation (acres):** 0 | **Road long term disturbance (acres):** 0 |
| **Powerline proposed disturbance (acres):** | **Powerline interim reclamation (acres):** 0 | **Powerline long term disturbance (acres):** 0 |
| **Pipeline proposed disturbance (acres):** | **Pipeline interim reclamation (acres):** 0 | **Pipeline long term disturbance (acres):** 0 |
| **Other proposed disturbance (acres):** | **Other interim reclamation (acres):** 0 | **Other long term disturbance (acres):** 0 |
| **Total proposed disturbance:** 0 | **Total interim reclamation:** 0 | **Total long term disturbance:** 0 |

**Disturbance Comments:**

**Reconstruction method:** REFERENCE ATTACHED ENDURING RESOURCES SURFACE RECLAMATION PLAN CHAPTER 4 (TECHNIQUES FOR SUCCESSFUL REVEGETATION), 4.4.
**Topsoil redistribution:** REFERENCE ATTACHED ENDURING RESOURCES SURFACE RECLAMATION PLAN CHAPTER 3 (TECHNIQUES FOR SUCCESSFUL REVEGETATION), 4.3.
**Soil treatment:** REFERENCE ATTACHED ENDURING RESOURCES SURFACE RECLAMATION PLAN CHAPTER 3 (TECHNIQUES FOR SUCCESSFUL REVEGETATION), 4.7.
**Existing Vegetation at the well pad:** The existing well is void of vegetation.

**Existing Vegetation at the well pad**

**Existing Vegetation Community at the road:** N/A

**Existing Vegetation Community at the road**

**Existing Vegetation Community at the pipeline:** N/A

**Existing Vegetation Community at the pipeline**

**Existing Vegetation Community at other disturbances:** N/A

**Existing Vegetation Community at other disturbances**

**Non native seed used?** N

**Non native seed description:**

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

**Seedling transplant description:**

**Will seedlings be transplanted for this project?** N

**Seedling transplant description**

**Will seed be harvested for use in site reclamation?** N

**Seed harvest description:**

**Seed harvest description attachment:**

## Seed

### Seed Table

**Seed type:** PERENNIAL GRASS **Seed source:** COMMERCIAL

**Seed name:** Blue grama

**Source name:** Southwest Seed, Inc. **Source address:** 13514 Rd. 29, Dolores, CO 81323

**Source phone:** (970)565-8722

**Seed cultivar:** VNS

**Seed use location:** WELL PAD

**PLS pounds per acre:** 2 **Proposed seeding season:** AUTUMN

**Seed type:** FORB **Seed source:** COMMERCIAL

**Seed name:** Blue flax

**Source name:** Southwest Seed, Inc. **Source address:** 13514 Rd. 29, Dolores, CO 81323

**Source phone:** (970)565-8722

**Seed cultivar:** VNS

**Seed use location:** WELL PAD

**PLS pounds per acre:** 0 **Proposed seeding season:** AUTUMN

**Seed type:** PERENNIAL GRASS **Seed source:** COMMERCIAL

**Seed name:** Sand dropseed

**Source name:** Southwest Seed, Inc. **Source address:** 13514 Rd. 29, Dolores, CO 81323

**Source phone:** (970)565-8722

**Seed cultivar:** VNS

**Seed use location:** WELL PAD

**PLS pounds per acre:** 0 **Proposed seeding season:** AUTUMN

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

**Seed type:** SHRUB **Seed source:** COMMERCIAL

**Seed name:** Fourwing saltbrush

**Source name:** Southwest Seed, Inc. **Source address:** 13514 Rd. 29, Dolores, CO 81323

**Source phone:** (970)565-8722

**Seed cultivar:** VNS

**Seed use location:** WELL PAD

**PLS pounds per acre:** 2 **Proposed seeding season:** AUTUMN

**Seed type:** PERENNIAL GRASS **Seed source:** COMMERCIAL

**Seed name:** Bottle brush squirreltail

**Source name:** Southwest Seed, Inc. **Source address:** 13514 Rd. 29, Dolores, CO 81323

**Source phone:** (970)565-8722

**Seed cultivar:** VNS

**Seed use location:** WELL PAD

**PLS pounds per acre:** 3 **Proposed seeding season:** AUTUMN

**Seed type:** SHRUB **Seed source:** COMMERCIAL

**Seed name:** Winterfat

**Source name:** Southwest Seed, Inc. **Source address:** 13514 Rd. 29, Dolores, CO 81323

**Source phone:** (970)565-8722

**Seed cultivar:** VNS

**Seed use location:** WELL PAD

**PLS pounds per acre:** 2 **Proposed seeding season:** AUTUMN

**Seed type:** PERENNIAL GRASS **Seed source:** COMMERCIAL

**Seed name:** Indian ricegrass

**Source name:** Southwest Seed, Inc. **Source address:** 13514 Rd. 29, Dolores, CO 81323

**Source phone:** (970)565-8722

**Seed cultivar:** VNS

**Seed use location:** WELL PAD

**PLS pounds per acre:** 4 **Proposed seeding season:** AUTUMN

**Seed type:** PERENNIAL GRASS **Seed source:** COMMERCIAL

**Seed name:** Western wheatgrass

**Source name:** Southwest Seed, Inc. **Source address:** 13514 Rd. 29, Dolores, CO 81323

**Source phone:** (970)565-8722

**Seed cultivar:** VNS

**Seed use location:** WELL PAD

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

**PLS pounds per acre:** 4 **Proposed seeding season:** AUTUMN

**Seed type:** FORB **Seed source:** COMMERCIAL

**Seed name:** Rocky Mountain bee plant

**Source name:** Southwest Seed, Inc. **Source address:** 13514 Rd. 29, Dolores, CO 81323

**Source phone:** (970)565-8722

**Seed cultivar:** VNS

**Seed use location:** WELL PAD

**PLS pounds per acre:** 0 **Proposed seeding season:** AUTUMN

## Seed Summary

**Total pounds/Acre:** 17

| Seed Type | Pounds/Acre |
|---|---|
| SHRUB | 4 |
| FORB | 0 |
| PERENNIAL GRASS | 13 |

**Seed reclamation**

## Operator Contact/Responsible Official

**First Name:** Theresa **Last Name:** Ancell

**Phone:** (970)749-0124 **Email:** tancell@enduringresources.com

**Seedbed prep:** REFERENCE ATTACHED ENDURING RESOURCES SURFACE RECLAMATION PLAN CHAPTER 4 (TECHNIQUES FOR SUCCESSFUL REVEGETATION), 4.6.
**Seed BMP:** REFERENCE ATTACHED ENDURING RESOURCES SURFACE RECLAMATION PLAN CHAPTER 3 (TECHNIQUES FOR SUCCESSFUL REVEGETATION), 4.7.
**Seed method:** REFERENCE ATTACHED ENDURING RESOURCES SURFACE RECLAMATION PLAN CHAPTER 3 (TECHNIQUES FOR SUCCESSFUL REVEGETATION), 4.8.
**Existing invasive species?** N

**Existing invasive species treatment description:**

**Existing invasive species treatment**

**Weed treatment plan description:** N/A

**Weed treatment plan**

**Monitoring plan description:** N/A

**Monitoring plan**

**Success standards:** N/A

**Pit closure description:** N/A

**Pit closure attachment:**

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

## Section 11 - Surface

**Disturbance type:** WELL PAD

**Describe:**

**Surface Owner:** BUREAU OF LAND MANAGEMENT

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:** **USFS Ranger District:**

## Section 12 - Other

**Right of Way needed?** N **Use APD as ROW?**

**ROW Type(s):**

## ROW

**SUPO Additional Information:**

**Use a previously conducted onsite?** Y

**Previous Onsite information:** Onsite held June 27, 2023.

## Other SUPO

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

HCU_440_RD.Maint.Pln_Final_20230912_20230917210015.pdf

HCU_440_Onsite_Notes_20230924195138.pdf

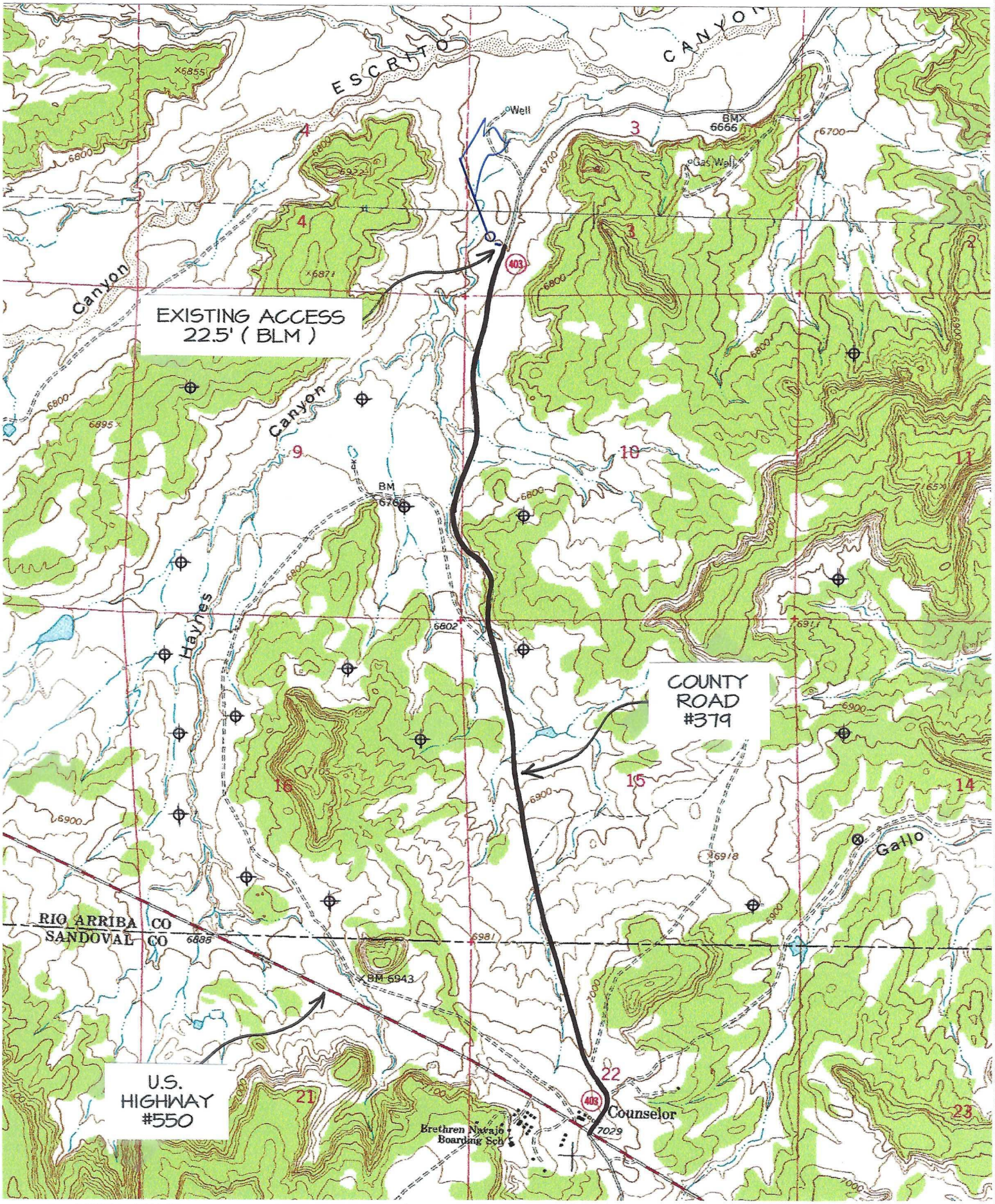
HCU_440_RecPlan_Final_20230912_20230924195147.pdf

HCU_440H_SUPO_Final_20230928_20230928134441.pdf

# ENDURING RESOURCES HAYNES CANYON UNIT #440H

916' FSL & 390' FWL, SECTION 3, T23N, R6W N.M.P.M.
RIO ARRIBA COUNTY, NEW MEXICO






TOPO NAME : COUNSELOR ⊕ PRODUCING WELL ⊗ PLUGGED & ABANDONED WELL

**Directions from the Intersection of US Hwy 550 & US Hwy 64**

**in Bloomfield, NM to Enduring Resources, LLC Haynes Canyon Unit #440H**

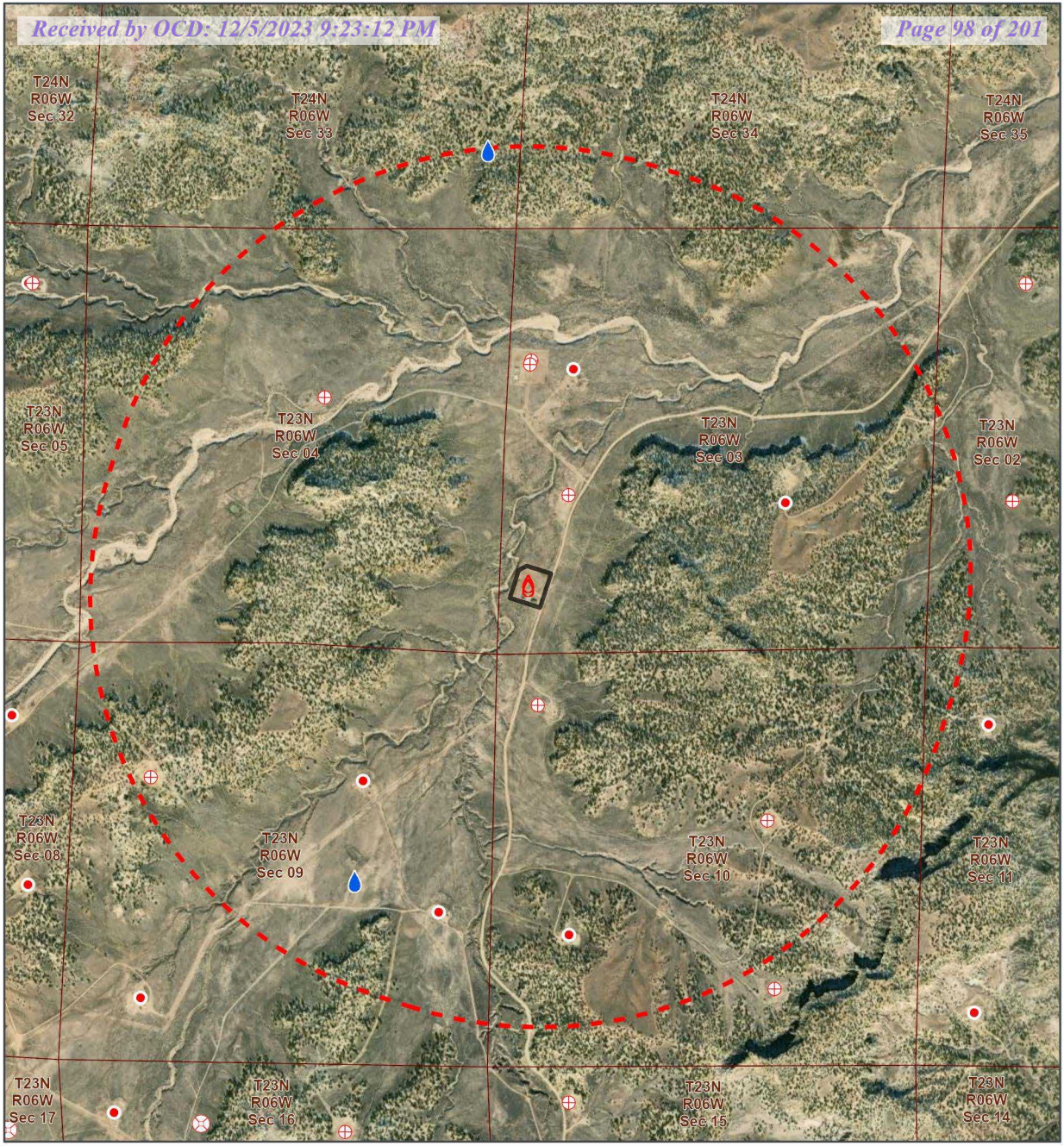
**916' FSL & 390' FWL, Section 3, T23N, R6W, N.M.P.M., Rio Arriba County, NM**

**Latitude 36.248698°N Longitude -107.464489°W Datum: NAD1983**

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 53.8 miles to Mile Marker 97.6

Go Left (Northerly) on County Road #379 (aka State Highway #403) for 1.5 miles to fork in roadway;

Go Right (Northerly) which is straight remaining on County Road #379 (aka State Highway #403) for 1.4 miles to existing access road on left-hand side which continues for 22.5' to Enduring Haynes Canyon Unit #440H staked location.




## HCU 428H Project | Wells Within 1 Mile

- OSE Points of Diverson
- Wellpad
- 1 Mile Buffer

**Oil and Gas Well Status**

- Active
- Cancelled
- New
- Plugged (site released)

| Wells | Within 1 Mile | Within Map Extent |
|---|---|---|
| OSE Points of Diversion | 2 | 2 |
| Active O&G | 5 | 12 |
| Cancelled O&G | 0 | 2 |
| New O&G | 0 | 2 |
| Plugged (site released) O&G | 7 | 13 |

Rio Arriba County, NM
NAD 1983 UTM Zone 13N
36.249°N 107.4644°W

0 1,000 2,000 Feet
0 250 500 Meters

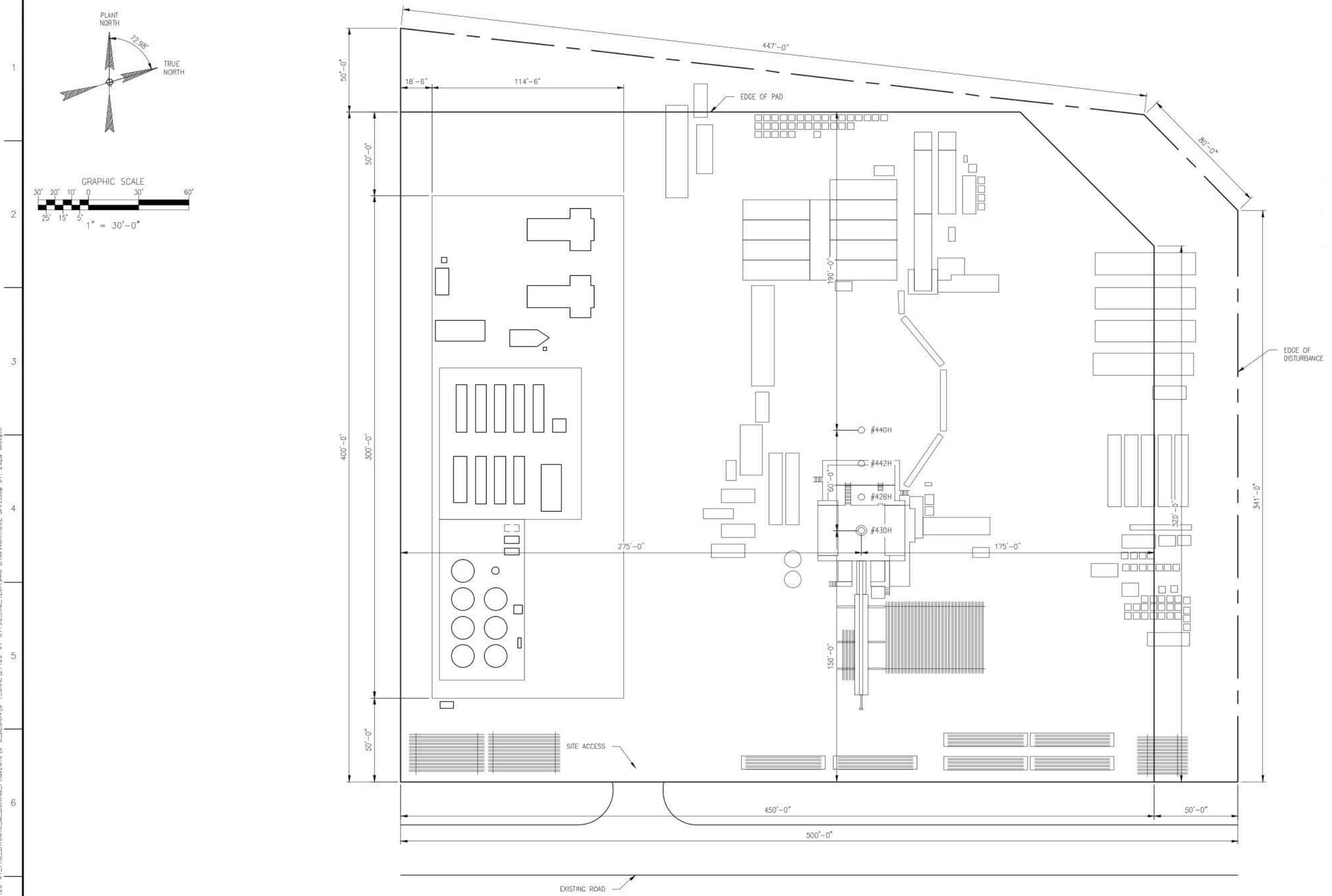
N

1:25,000

*Base Map: ESRI ArcGIS Online, accessed August 2023*
Updated: 8/14/2023
Project No. 75253p13
Layout: 75253p13_HCU_SUPO_Well_Map
Aprx: 75253p13_HaynesCanyon

SWCA ENVIRONMENTAL CONSULTANTS

ENDURING RESOURCES, LLC




NOTES:

| REFERENCE DRAWINGS | |
|---|---|
| DWG NO. | TITLE |

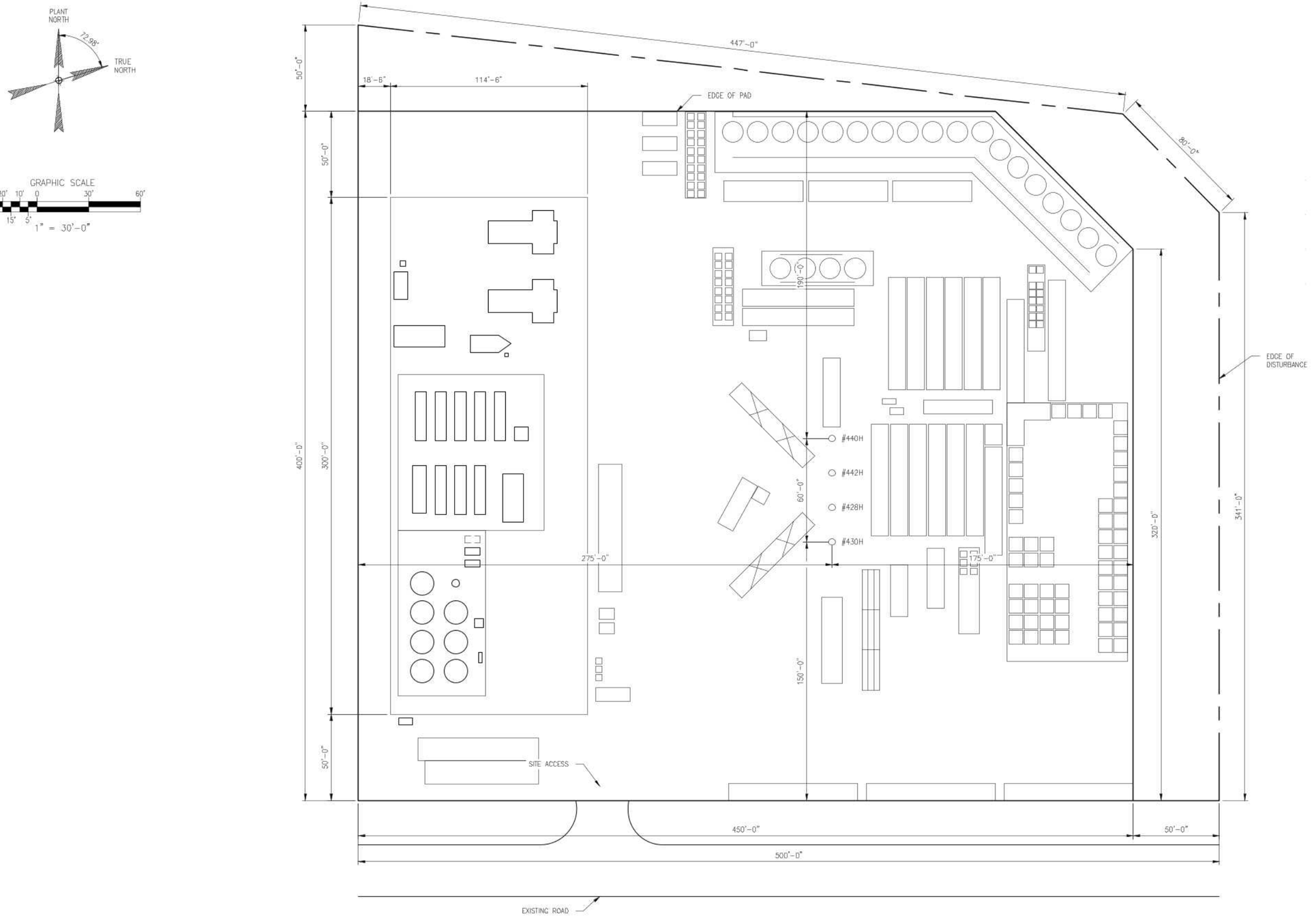
| REVISIONS | | | | | | |
|---|---|---|---|---|---|---|
| REV | DESCRIPTION | DATE | BY | CHK | ENG | APR |
| A | ISSUED FOR INFORMATION | 09/07/23 | DTS | SCK | – | BBS |

HALKER
ENGINEERED SOLUTIONS

ENDURING RESOURCES
HAYNES CANYON UNIT 428H
FACILITY AND RIG LAYOUT

SCALE: (FORMATTED 22X34) 1"=30'-0" | DRAWING NO. 21129-01-31190 | A

FILE PATH: P:\ENDURING RESOURCES\21129-01_PAD_LAYOUTS_&_BORING_PROJECTS\3-0_DESIGN\3-1_CIVIL\21129-01-31190_RIG_428H.DWG BY:DANS:RR:DSE DATE:Sep 07, 2023 3:30pm




NOTES:

| REFERENCE DRAWINGS | | REVISIONS | | | | | | |
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| | | A | ISSUED FOR INFORMATION | 09/07/23 | DTS | SCK | – | BBS |
| DWG NO. | TITLE | REV | DESCRIPTION | DATE | BY | CHK | ENG | APR |

HALKER
ENGINEERED SOLUTIONS

ENDURING RESOURCES
HAYNES CANYON UNIT 428H
FACILITY AND COMPLETIONS LAYOUT

SCALE: (FORMATTED 22X34) 1"=30'-0" | DRAWING NO. 21129-01-31191 | A

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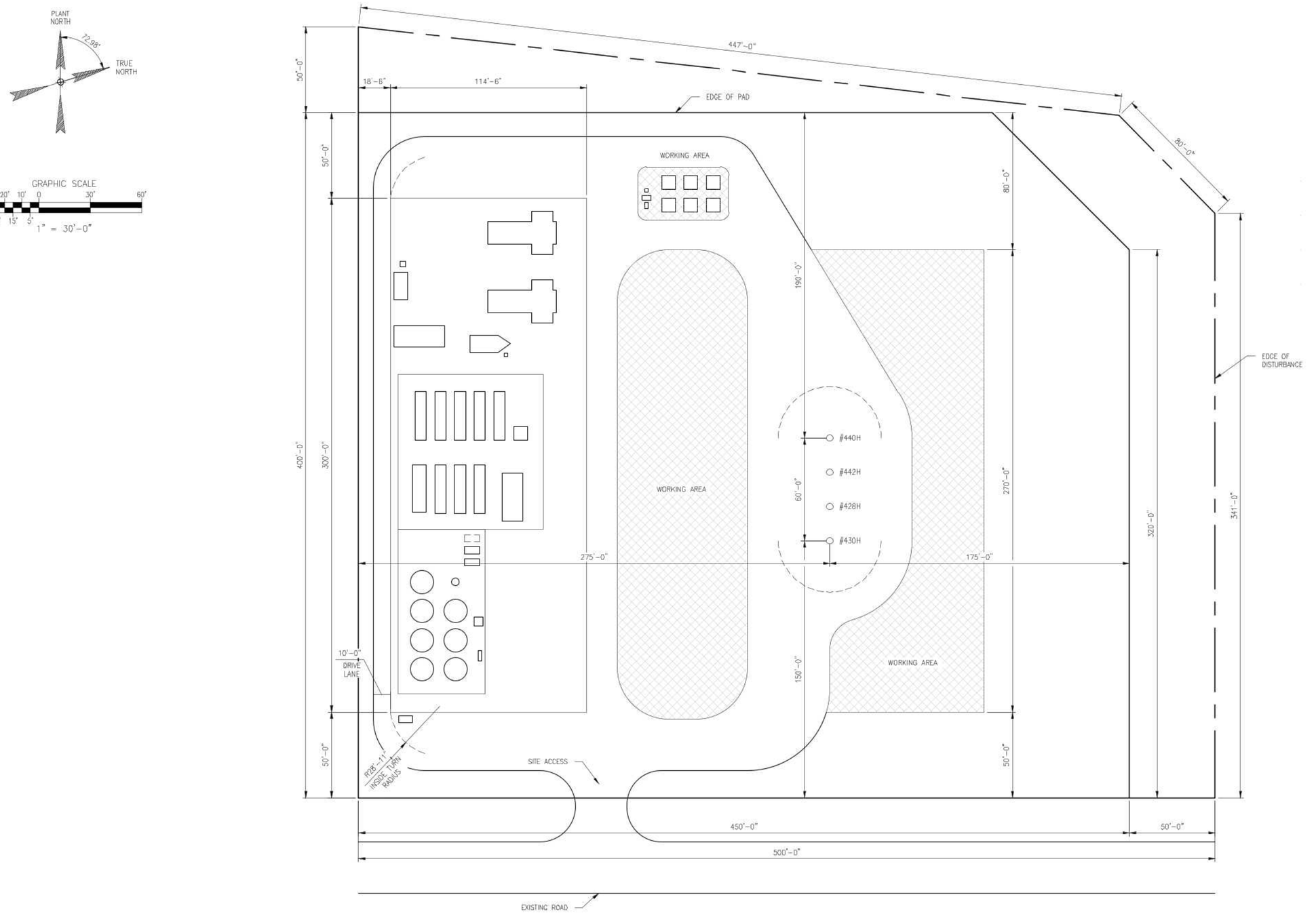


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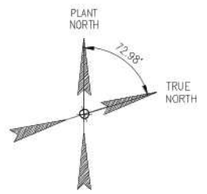
|---|---|---|---|---|---|---|---|
| REV | DESCRIPTION | DATE | BY | CHK | ENG | APR | |
| A | ISSUED FOR INFORMATION | 08/31/23 | SCK | DTS | – | BBS | |

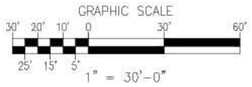
HALKER
ENGINEERED SOLUTIONS

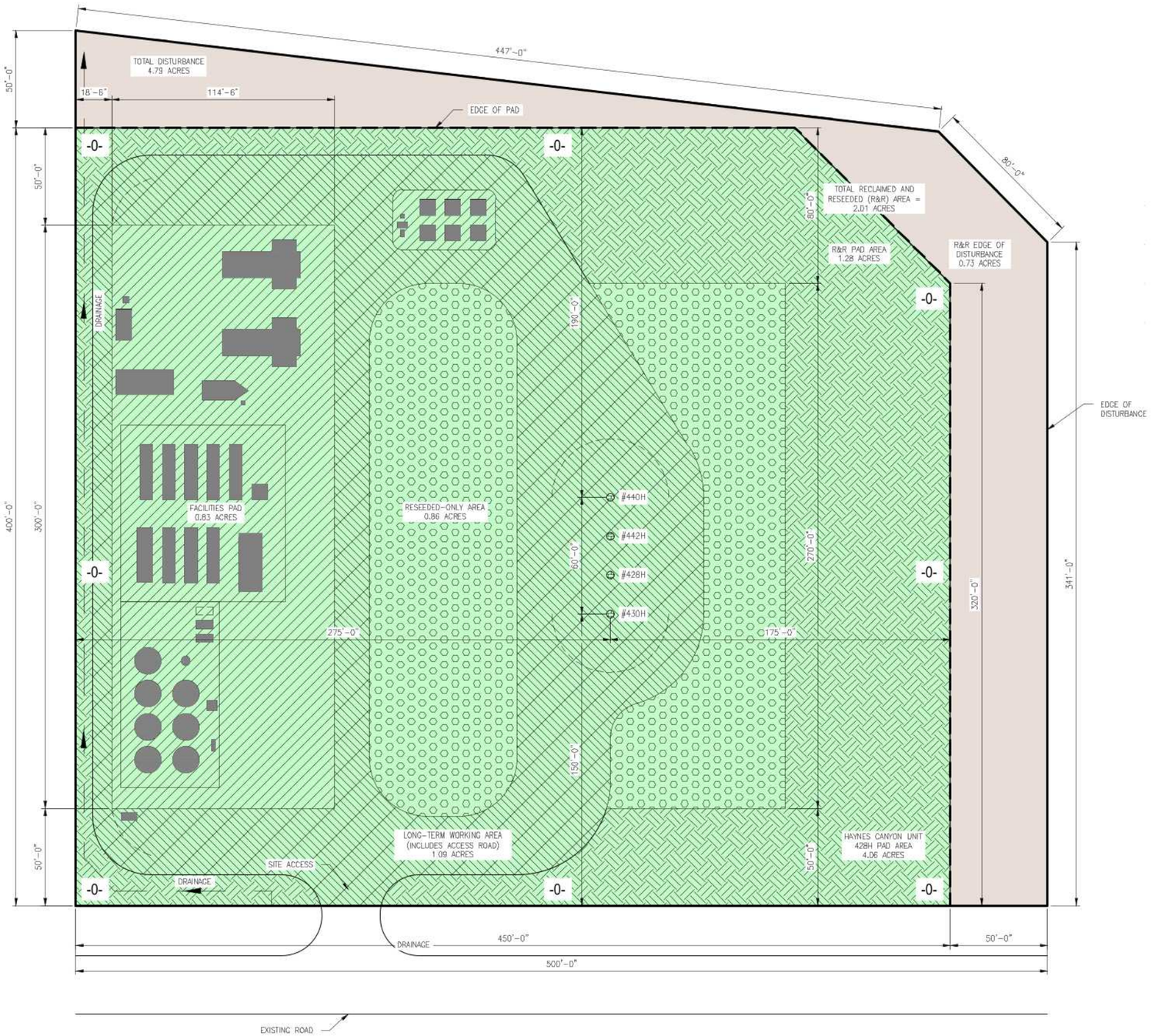
ENDURING RESOURCES
HAYNES CANYON UNIT 428H
FACILITY LAYOUT

SCALE: (FORMATTED 22X34) 1"=30'-0"
DRAWING NO. 21129-01-31192
A

FILE PATH: P:\ENDURING RESOURCES\21129-01_PAD_LAYOUTS_&_BORING_PROJECTS\3-0_DESIGN\3-1_CIVIL\21129-01-31192_FACILITY.DWG BY:SCOTTKLANCIC DATE:Aug 31, 2023 7:58am




LEGEND:

- WELLHEAD
- EQUIPMENT
- FACILITIES PAD 0.83 ACRES
- LONG-TERM WORKING AREA (INCLUDES ACCESS ROAD) 1.09 ACRES
- RESEEDED-ONLY AREA 0.86 ACRES
- HAYNES CANYON UNIT 428H PAD AREA 4.06 ACRES
- TOTAL DISTURBANCE 4.79 ACRES

RECLAIMED AND RESEEDED (R&R) AREA = 2.01 ACRES

- R&R PAD AREA = 1.28 ACRES
- R&R EDGE OF DISTURBANCE 0.73 ACRES

NOTES:

REFERENCE DRAWINGS

| DWG NO. | TITLE |
|---|---|

REVISIONS

| REV | DESCRIPTION | DATE | BY | CHK | ENG | APR |
|---|---|---|---|---|---|---|
| A | ISSUED FOR INFORMATION | 08/31/23 | SCK | DTS | – | BBS |

HALKER ENGINEERED SOLUTIONS

ENDURING RESOURCES
HAYNES CANYON UNIT 428H
PROPOSED RECLAMATION

SCALE: (FORMATTED 22X34) 1"=30'-0"
DRAWING NO. 21129-01-31193
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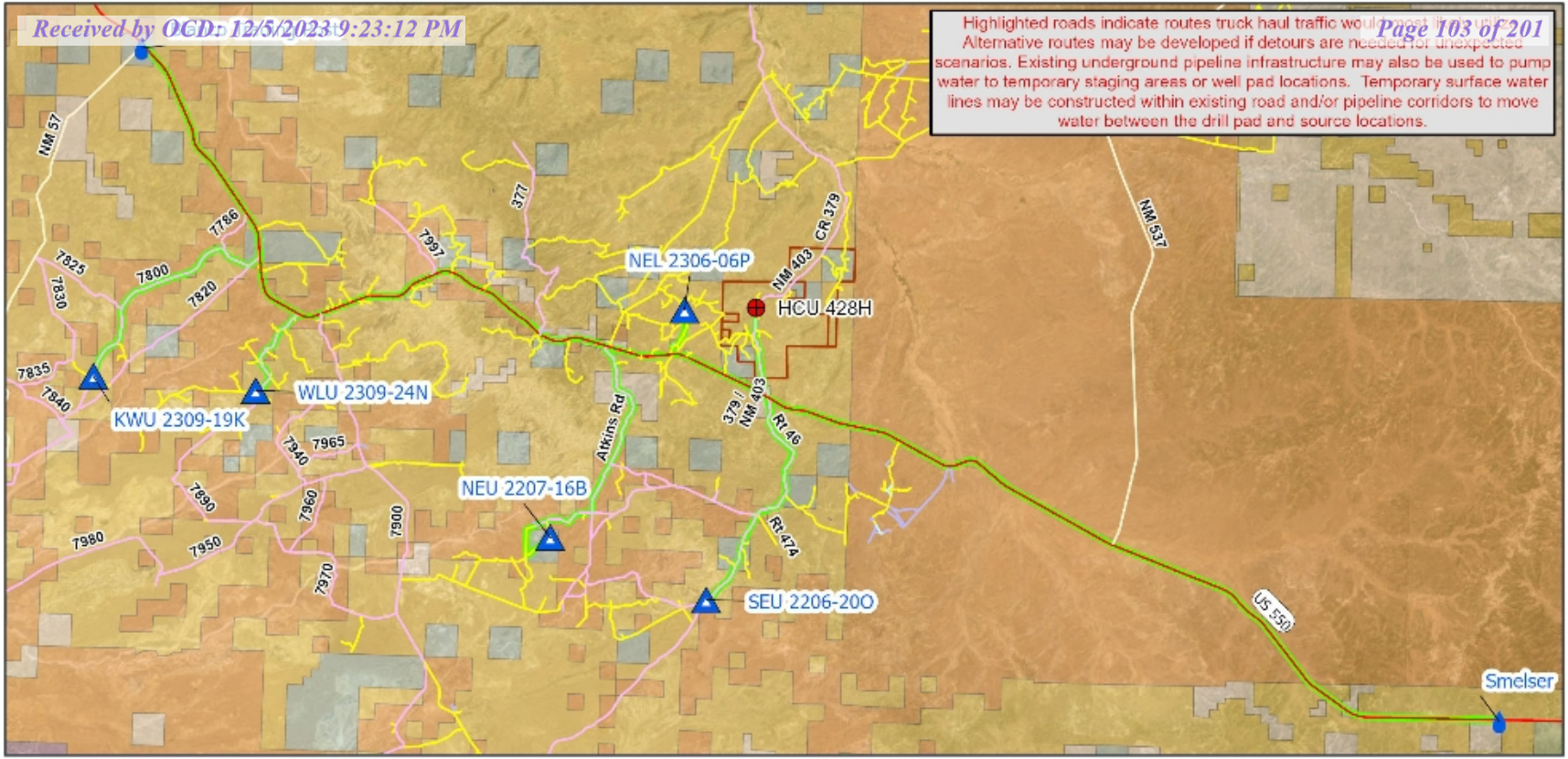
FILE PATH: P:\ENDURING RESOURCES\21129-01_PAD_LAYOUTS_&_BORING_PROJECTS\3-0_DESIGN\3-1_CIVIL\21129-01-31193_RECLAMATION.DWG BY:SCOTT.KLANCIC DATE:Aug 31, 2023 8:32am

Highlighted roads indicate routes truck haul traffic would utilize. Alternative routes may be developed if detours are needed for unexpected scenarios. Existing underground pipeline infrastructure may also be used to pump water to temporary staging areas or well pad locations. Temporary surface water lines may be constructed within existing road and/or pipeline corridors to move water between the drill pad and source locations.




## HCU 428H Project | Water Transportation

- HCU 428H
- Potable Water Source
- Non-Potable Water Source
- Potential Truck Route
- Access, Dirt
- County
- Highway
- Private
- Reclaim
- State

**Land Ownership**

- BLM
- USFS
- Tribal
- NPS
- Private
- State

- Unit Boundary

San Juan, Rio Arriba, and Sandoval County, NM
NAD 1983 UTM Zone 13N
36.2173°N 107.4485°W

0 10,000 20,000 Feet
0 3,000 6,000 Meters

N

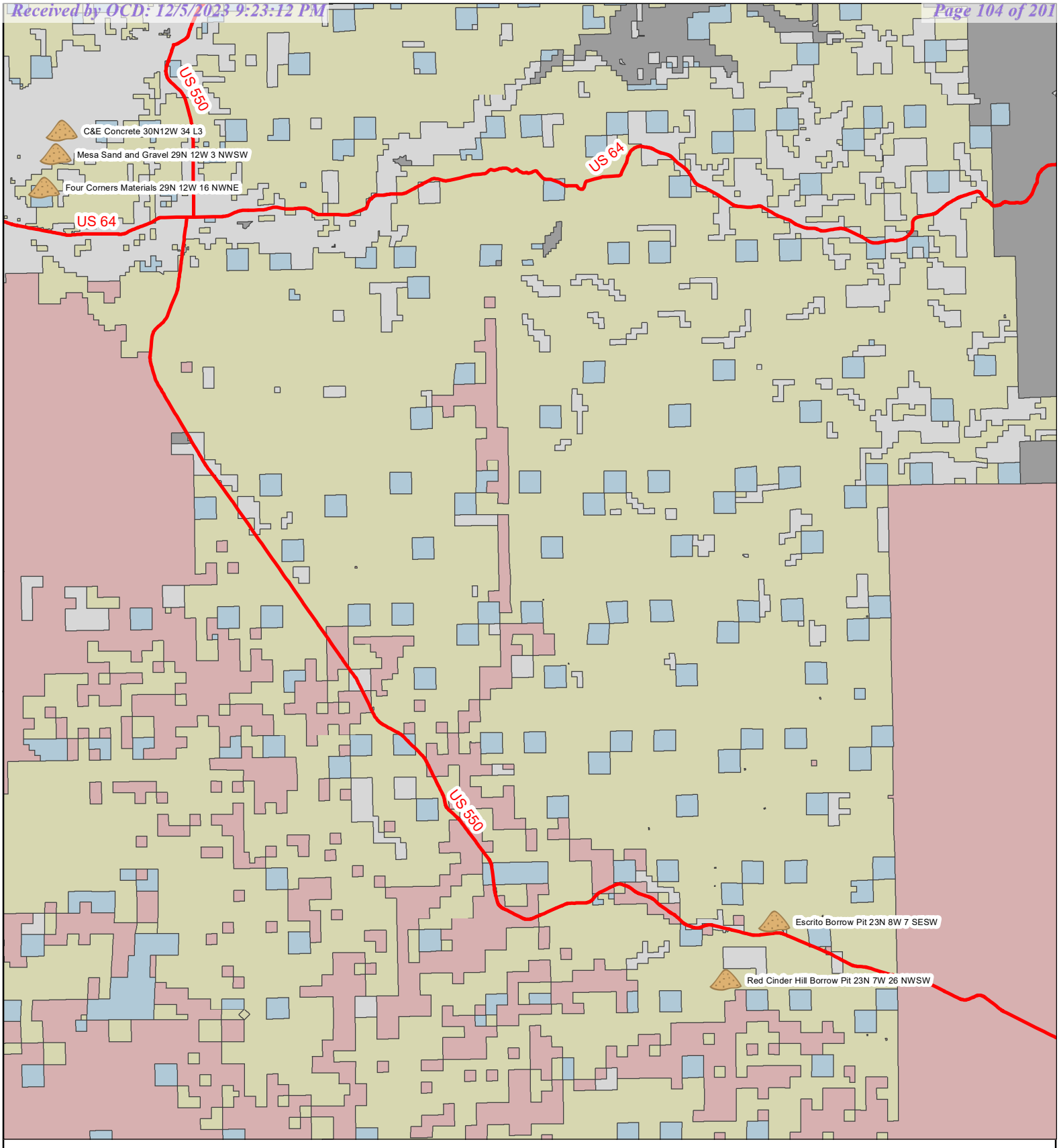
1:345,000

New Mexico

Base Map: ESRI ArcGIS Online, accessed August 2022
Updated: 8/10/2023
Project No. 75253p13
Layout: 3p13_HCU_428_Water_Transportation
Aprx: 75253p13_HaynesCanyon

SWCA ENVIRONMENTAL CONSULTANTS

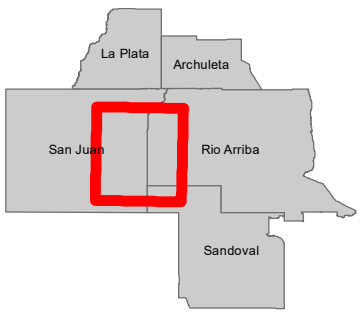
ENDURING RESOURCES, LLC




# Material Source Location Map

Material Source
Highway, Paved
BLM Surface
Indian Surface
Private Surface
State Surface

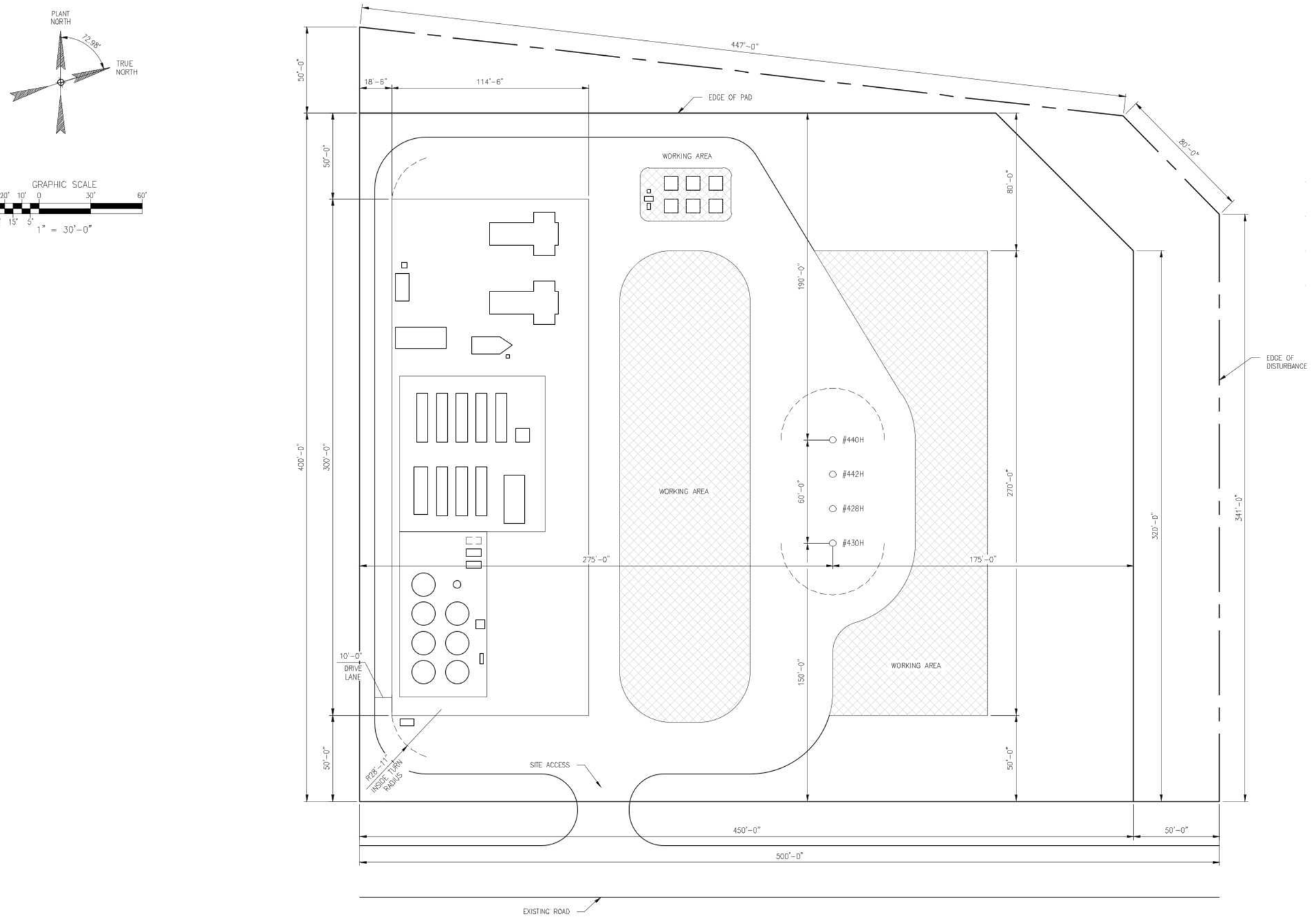
Miles
0 5 10 20




ENDURING RESOURCES, LLC

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

| | |
|---|---|
| | Author: drogers |
| | Date: 10/23/2019 |

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| DWG NO. | TITLE |

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|---|---|---|---|---|---|---|---|
| REV | DESCRIPTION | DATE | BY | CHK | ENG | APR | |
| A | ISSUED FOR INFORMATION | 08/31/23 | SCK | DTS | – | BBS | |

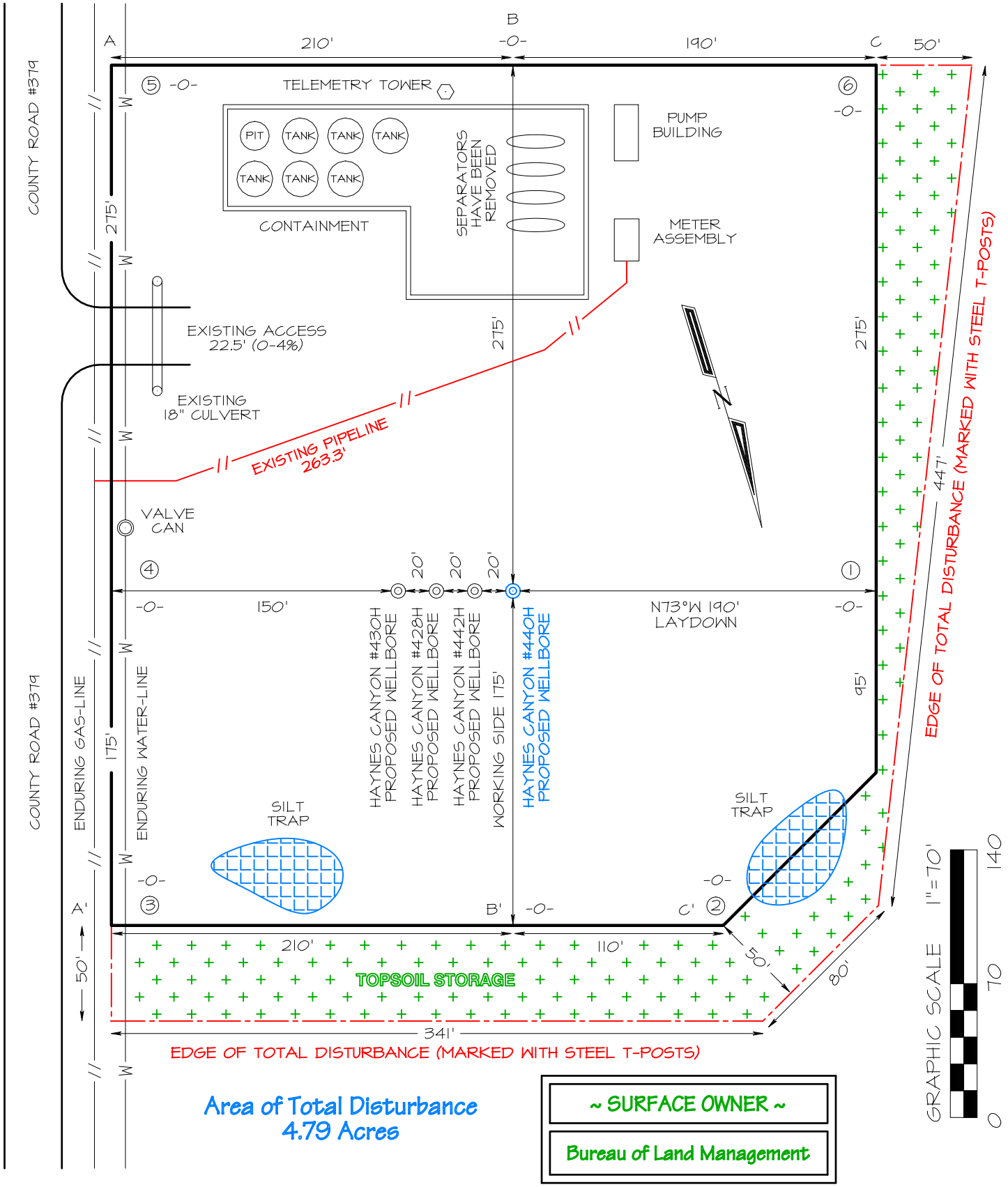
HALKER
ENGINEERED SOLUTIONS

ENDURING RESOURCES
HAYNES CANYON UNIT 428H
FACILITY LAYOUT

SCALE: (FORMATTED 22X34) 1"=30'-0"
DRAWING NO. 21129-01-31192
A

FILE PATH: P:\ENDURING RESOURCES\21129-01_PAD_LAYOUTS_&_BORING_PROJECTS\3-0_DESIGN\3-1_CIVIL\21129-01-31192_FACILITY.DWG BY:SCOTTKLANCIC DATE:Aug 31, 2023 7:58am

# ENDURING RESOURCES, LLC HAYNES CANYON UNIT #440H
## 916' FSL & 390' FWL, SECTION 3, T23N, R6W, NMPM
## RIO ARRIBA COUNTY, NEW MEXICO ELEVATION: 6703'
## LAT 36.248698°N LONG -107.464489°W DATUM: NAD1983




**Area of Total Disturbance**
**4.79 Acres**

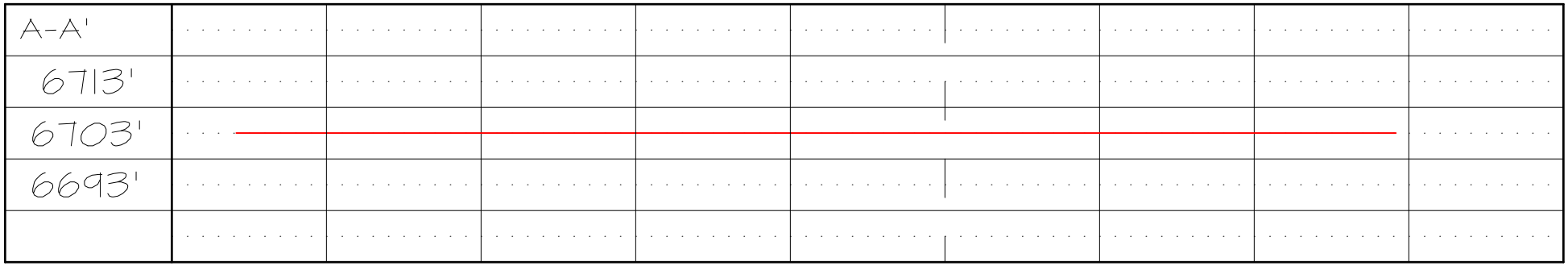
~ SURFACE OWNER ~

Bureau of Land Management

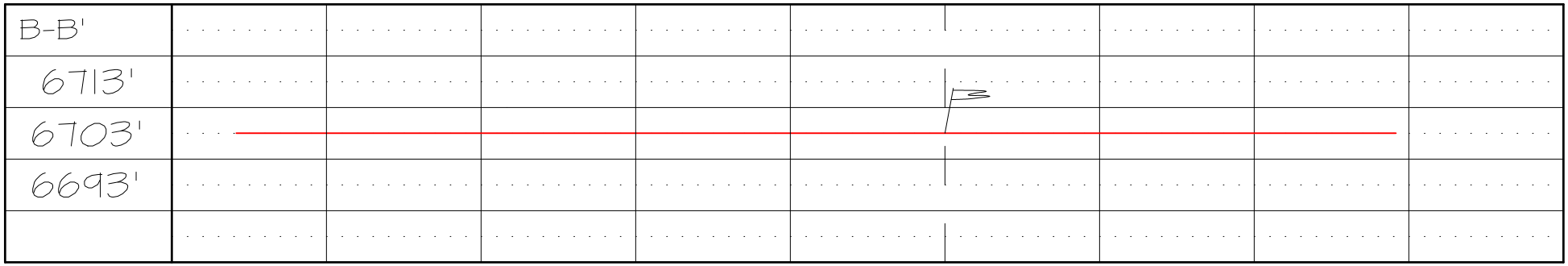
Steel T-Posts have been set to define Edge of Disturbance limits which are 50' offset from edge of wellpad, unless otherwise noted. Some areas have been restricted or omitted as shown hereon.

# ENDURING RESOURCES, LLC HAYNES CANYON UNIT #440H
# 916' FSL & 390' FWL, SECTION 3, T23N, R6W, NMPM
# RIO ARRIBA COUNTY, NEW MEXICO ELEVATION: 6703'

HORIZONTAL SCALE 1"=60' C/L VERTICAL SCALE 1"=30'




C/L

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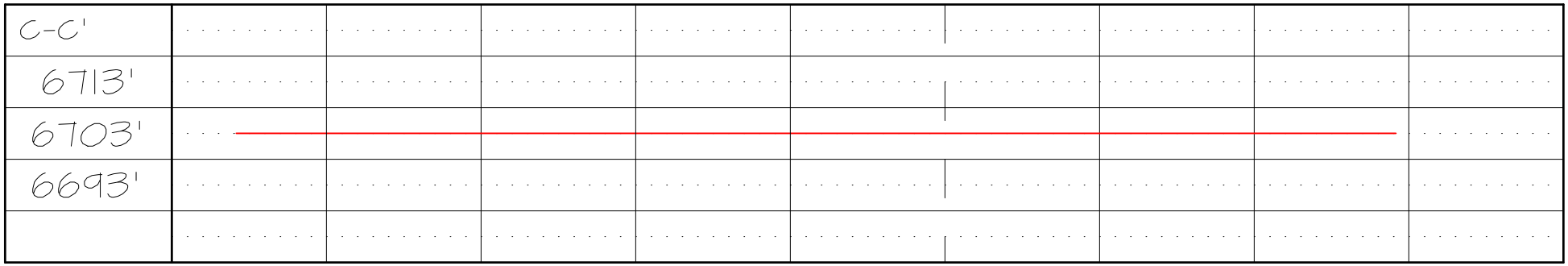
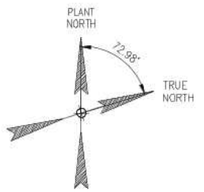
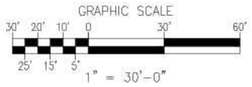
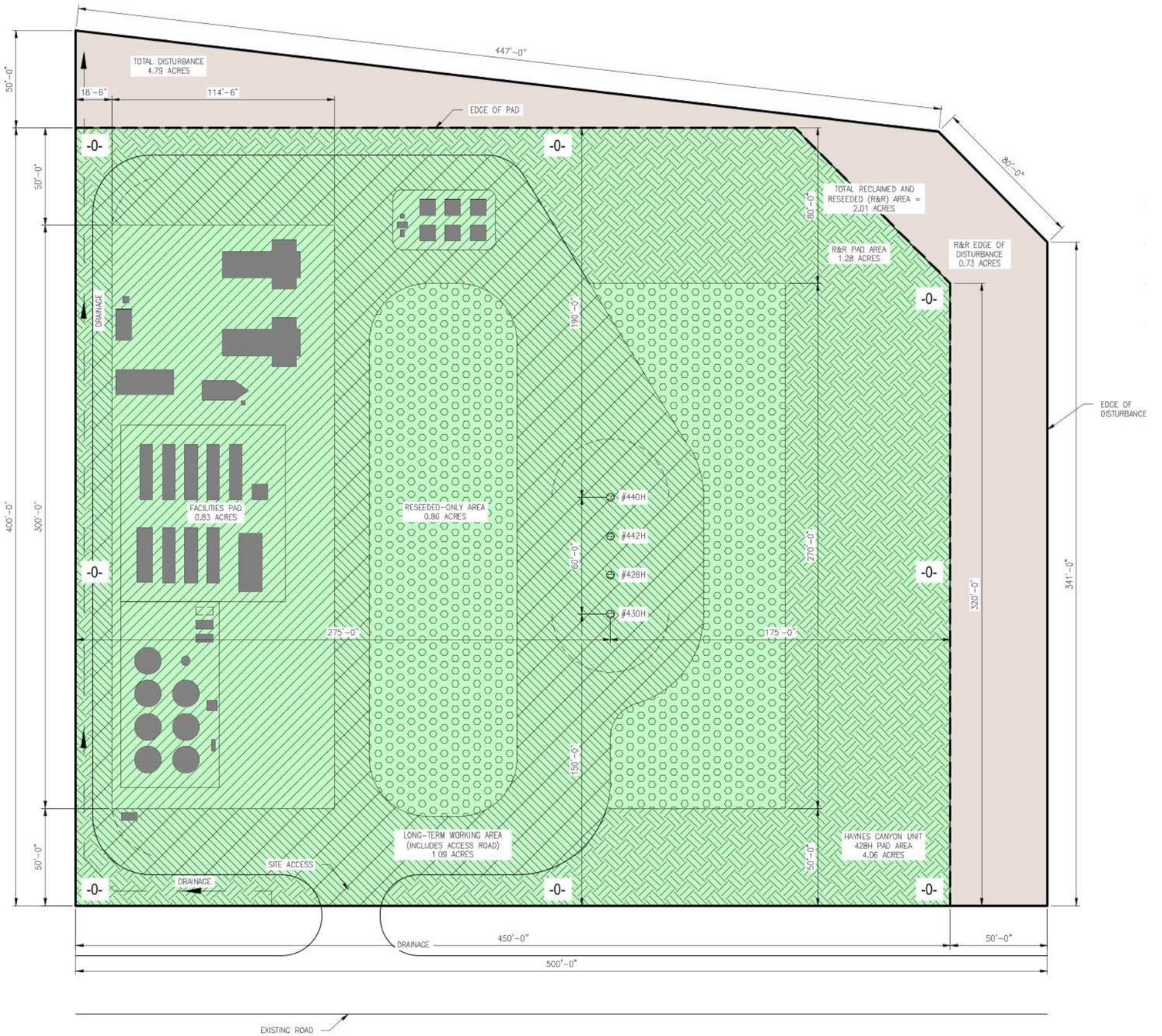



EDWARDS SURVEYING, INC. IS NOT LIABLE FOR LOCATION OF UNDERGROUND UTILITIES OR PIPELINES.

CONTRACTOR SHOULD CONTACT ONE-CALL FOR LOCATION OF ANY MARKED OR UNMARKED UNDERGROUND UTILITIES OR PIPELINES ON WELLPAD AND/OR ACCESS ROAD AT LEAST TWO WORKING DAYS PRIOR TO CONSTRUCTION.




LEGEND:

- WELLHEAD
- EQUIPMENT
- FACILITIES PAD 0.83 ACRES
- LONG-TERM WORKING AREA (INCLUDES ACCESS ROAD) 1.09 ACRES
- RESEEDED-ONLY AREA 0.86 ACRES
- HAYNES CANYON UNIT 428H PAD AREA 4.06 ACRES
- TOTAL DISTURBANCE 4.79 ACRES

RECLAIMED AND RESEEDED (R&R) AREA = 2.01 ACRES

- R&R PAD AREA = 1.28 ACRES
- R&R EDGE OF DISTURBANCE 0.73 ACRES

NOTES:

REFERENCE DRAWINGS

| DWG NO. | TITLE |
|---|---|

REVISIONS

| REV | DESCRIPTION | DATE | BY | CHK | ENG | APR |
|---|---|---|---|---|---|---|
| A | ISSUED FOR INFORMATION | 08/31/23 | SCK | DTS | – | BBS |

HALKER ENGINEERED SOLUTIONS

ENDURING RESOURCES
HAYNES CANYON UNIT 428H
PROPOSED RECLAMATION

SCALE: (FORMATTED 22X34) 1"=30'-0" | DRAWING NO. 21129-01-31193 | A

FILE PATH: P:\ENDURING RESOURCES\21129-01_PAD_LAYOUTS_&_BORING_PROJECTS\3-0_DESIGN\3-1_CIVIL\21129-01-31193_RECLAMATION.DWG BY:SCOTT.KLANCIC DATE:Aug 31, 2023 8:32am

# ROAD MAINTENANCE PLAN

***Haynes Canyon Unit (HCU) 428H-Four Well Site Reoccupation Project***
***HCU 428H, 430H, HCU440H, HCU442H HCU***

**September 2023**

## ENDURING RESOURCES IV, LLC

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

# 1. INTRODUCTION

Enduring Resources IV, LLC (Enduring) is providing this Road Maintenance Plan (Plan) to the Bureau of Land Management Farmington Field Office (BLM-FFO) as part of the Surface Use Plan of Operations (SUPO) for the Haynes Canyon Unit (HCU) Four Well (428H, 430H, 440H, 442H) Oil and Natural Gas Project (HCU 428H Project). The existing 22.5-foot road addressed in this Plan was previously permitted and constructed under the Applications for Permit to Drill (APD) for the HCU 414H. The coordinates for the access road is as follows:

- Start: N $72^0$ 39'25W
- End: N $72^0$ 37'03W

The road maintenance procedures provided in this Plan meet the standards established in The Gold Book: Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development and BLM Manual 9113. Per the HCU 428H Project APD's, Enduring will be responsible for road maintenance associated with the aforementioned wells. This responsibility will continue until Enduring transfers the permit or abandons the project and obtains a Final Abandonment Notice or relinquishment from the BLM-FFO. Refer to the SUPO or Conditions of Approval (COAs) attached to the approved APDs for any upgrades to existing roads.

# 2. ROAD INSPECTIONS

Enduring Representatives will formally inspect the road biannually, in the spring and fall, to assess the condition of the road. The formal road inspection will be recorded on a Road Inspection Form (blank form attached to this Plan). Completed Road Inspection Forms will be kept on file at Enduring and can be provided to the BLM-FFO, if requested.

Additionally, outside of the formal inspection period, Enduring Representatives driving to/from the project area will assess the condition of the road and notify the Enduring Construction Supervisor if maintenance is needed.

Road maintenance activities will be documented at Enduring and can be provided to the BLM-FFO, if requested.

# 3. ROAD MAINTENANCE

The following maintenance may be performed on an as needed basis:

- Water control structures (such as culverts, ditches, and silt traps) and/or cattle guards may be cleaned. If this occurs, the soil/sediment material will be spread on area roads or locations.
- Bar ditches may be pulled.
- Low water crossings and drainage dips may be cleared and/or repaired.
- Crowning may be repaired.
- Litter may be collected.
- Noxious weeds may be treated or controlled following the BLM-FFO noxious weed guidelines.
- The access road may be bladed.

# ROAD INSPECTION FORM

| | |
|---|---|
| **Road Name:** | **County:** |
| **Date:** | **Time:** |
| **Weather:** | |
| **Inspector(s):** | |
| **Road Surface Type:** | |

| Road Condition Inspection Items | Road Condition | | |
|---|---|---|---|
| | Good | Poor | Comment |
| Water Control Structure(s) | | | |
| Low Water Crossing(s) | | | |
| Road Crowning/Ruts/Potholes | | | |
| Road Surfacing | | | |
| Cattle Guard(s) | | | |
| Litter | | | |
| Noxious Weeds Within/Adjacent to Roadway | | | |
| Vegetation Within Roadway | | | |

Additional Site Specific Inspection Notes:

# Onsite Notes for Enduring Resources IV, LLC's Proposed Haynes Canyon Unit 428H Pad

Will be located on an **existing** location. The APD's on said location have expired.

## Onsite Date: June 27, 2023

**Attendees**

| NAME | ORGANIZATION |
|---|---|
| Harley Davis | BLM NRS |
| Gary Smith | BLM-FFO NRS |
| Jason Meininger | Division of Conservation Archaeology (DCA) |
| Jason Edwards | NCE Surveys |
| Johnny Stinson | Enduring Resources |
| Lena Wilson | Enduring Resources |
| Casey Haga | Enduring Resources |

***Notes that require change in plats are identified in Red.***

***Notes that Enduring needs to answer and consider are in Blue.***

**Please review all onsite notes and reply to the entire group if there are changes, mistakes, or additional notes I may have missed. If there are replies with changes, I will update these notes with them accordingly. If you have questions or concerns, please contact me at:**

**(970)-769-8814 or at chaga@enduringresources.com**

**ENDURING RESOURCES IV, LLC**

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

Project Name: **Haynes Canyon Unit 428H, 430H, 440H, and 442H**

On/Off lease: **On Lease**

Surface: **BLM** Mineral: **Federal**

## Onsite Notes

***Project Scope and Region***

- These wells are being proposed on an existing location that has two expired APDs. The wells were never drilled however the pad, road, and pipe were all constructed. The facilities were also constructed and then partially reallocated to another location (some facilities remain). The SUPO needs to reflect that this "disturbance" exists but written in a level of detail as a new project since we currently hold no active APD to the location.
- Region dominated by sagebrush shrublands. Ephemeral wash adjacent to the western edge of the existing well pad. Location sits within a canyon surrounded by small mesas with sandstone outcrops.

***Access Road***

- Well pad is located adjacent to county road 379 with existing access onto location. Reestablish/improve.

***Well Pad***

- Well pad is existing but we don't hold active APD. The well pad was interim reclaimed but never fully reclaimed. We will permit the original footprint as seen in the plats.

***Well Connect Pipeline***

- Whiptail has existing pipe to location and the GL Trunk Line B Survey is to this location if needed.
- Need to plan layflat route.
- Need to survey layflat route.

***Topsoil Storage***

- Mulch vegetation into topsoil then strip and windrow along perimeter of location within the EOD.

***Production Facilities***

- Facilities are/will be located on the southwestern end of location.
- This location will serve as a remote facility to the HCU 432H location as well.

***Facilities Color***

- Juniper Green

***Seed Mix***

- Sagebrush seed mix

***Other Notes***

- None

# SURFACE RECLAMATION PLAN

## *Haynes Canyon Unit (HCU) 428H-Four Well-Site Reoccupation Project*

## *HCU 428H, HCU 430H, HCU 440H, HCU 442H*

**SEPTEMBER 2023**

**ENDURING RESOURCES IV, LLC**

**200 Energy Court**

**Farmington, New Mexico 87401**

**Phone: (505) 636-9720**

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# 1. INTRODUCTION

This Surface Reclamation Plan (Plan) has been prepared for the Bureau of Land Management (BLM) Farmington Field Office (FFO) to support the Surface Use Plan of Operations (SUPO) for the Haynes Canyon Unit (HCU) 428H-Four Well-Site Reoccupation Project HCU 428H, HCU 430H, HCU 440H, HCU 442H (HCU 482H Project). Following the guidance provided in Appendix A (SUPO Procedure) of the *Farmington Field Office Bare Soil Reclamation Procedures* (Procedures) (BLM 2013), this Plan will be used to re-establish vegetation and control New Mexico Department of Agriculture (NMDA)–listed Class A and Class B noxious weeds (NMDA 2020) within the project area. Information associated with the project is provided in Table 1.

**Table 1. Project Information**

| | |
|---|---|
| **Applicant:** | Enduring Resources IV, LLC |
| **Project Name:** | Haynes Canyon Unit (HCU) 428H-Four Well-Site Reoccupation Project |
| **Project Features:** | • Reoccupation of existing HCU 414H well pad and facilities<br>• Four proposed oil and gas wells (HCU 428H, HCU 430H, HCU 440H, HCU 442H) |
| **Lease Number(s):** | NMNM-028733 |
| **Unit Number:** | NMNM-142111X |
| **Land Manager(s):** | BLM-FFO |
| **Mineral Manager(s):** | BLM-FFO |
| **Associated Authorization Applications, Pending:** | 4 APDs |

Enduring may submit a request to the BLM-FFO to revise this reclamation plan at any time during the life of the project in accordance with page The Gold Book: Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (BLM and U.S. Forest Service 2007). Enduring would include justification for the revision request.

The Enduring contact person for this reclamation plan is:

Theresa Ancell
Regulatory Manager
Enduring Resources IV, LLC
200 Energy Court
Farmington, New Mexico 87401
505-636-9720

# 2. PROJECT DESCRIPTION

## 2.1. Location

The project area is in Rio Arriba County, New Mexico, approximately 60 miles south-southeast of Bloomfield, New Mexico. The project area can be accessed as follows:

- From Bloomfield (intersection of U.S. Highway 550 and U.S. Highway 64), travel south on U.S. Highway 550 for approximately 53.8 miles.
- Turn left on County Road 379 (State Highway 403) and continue for 1.5 miles.
- Turn right, remaining on County Road 379 for 1.4 miles.
- The access road is on the left side of the road and continues for 22.5 feet to the well pad.

The project area is located on lands managed by the BLM FFO. The legal location is provided below.

### 2.1.1. Well Pad

***BLM-managed surface***

Enduring would utilize the existing 4.79-acre HCU 414H well pad located in the SW¼SW¼ of Section 3, Township (T) 23 North (N), Range 6 West (W), New Mexico Principal Meridian (NMPM).

### 2.1.2. Access Road

Enduring will utilize an existing 22.5-foot-long access road. No new surface disturbance is anticipated.

## 2.2. Surface Disturbance

Enduring proposes to utilize the existing HCU 414H well pad, existing access road and existing pipeline/utilities corridor for the proposed HCU 428H four well project; no new surface disturbances are anticipated. During construction, the project working area would be lightly "skimmed" and cleared of vegetation and topsoil would be stored in designated areas. During interim reclamation, approximately 3.71 acres will be reclaimed. The remaining 1.09 acres of the project area will remain disturbed throughout the life of the project and will be reclaimed during final reclamation, when the project is abandoned.

Based on the amount of surface disturbance, Vegetation Reclamation Procedure B applies to this project (BLM 2013). Vegetation Reclamation Procedure B is described further in the Procedures (BLM 2013). Surface disturbance is summarized in Table 2 below.

**Table 2. Surface Disturbance Associated with the Project**

| Project Feature | Summarized Description | Landowner/ Land Manager | Existing Surface Disturbance (acres) | Interim Reclamation (acres) | Final Reclamation (acres) |
|---|---|---|---|---|---|
| Access Road | Existing, preauthorized | BLM | 0.01 | NA | 0.01 |

| Project Feature | Summarized Description | Landowner/ Land Manager | Existing Surface Disturbance (acres) | Interim Reclamation (acres) | Final Reclamation (acres) |
|---|---|---|---|---|---|
| Well pad | Existing, Preauthorized The well pad measures approximately 500' × 450' | BLM | 4.79 | 3.71 | 1.08 |
| **Total**† | | **BLM** | **4.80** | **3.71** | **1.09** |

† Totals may vary due to rounding discrepancies.

## 2.3. Pre-Disturbance On-Site/ Site Visit Meeting

A pre-disturbance on-site meeting for the project was held with representatives from the BLM-FFO, Enduring, and SWCA Environmental Consultants (SWCA) on June 27, 2023. The BLM-FFO invited stakeholders and interested parties to the meeting. Aside from those listed, no private citizens or other groups attended.

# 3. SITE CONDITIONS

The project area topography is fairly level. The elevation of the project area ranges from approximately 6,690 to 6,710 feet above mean sea level. Two soil types are mapped within the project area: Blancot-Notal association and Gypsiorthids-Badland-Stumble complex (Natural Resources Conservation Service 2023). Based on the climatic records for Lybrook, New Mexico (Station No. 295290), this area has an average annual maximum temperature of 61.1 degrees Fahrenheit and an average annual minimum temperature of 34.9 degrees Fahrenheit. The average annual rainfall is 10.8 inches, with the majority occurring between July and September. The average annual total snowfall is 25.3 inches, which largely occurs between October and April (Western Regional Climate Center 2023). Soil testing may be conducted prior to reclamation activities, if requested by the BLM.

## 3.1. Vegetation Community

Reclamation standards are based on eight BLM FFO–designated vegetation communities that are outlined in the Farmington Field Office Bare Soil Reclamation Procedures (BLM 2013). During the on-site meeting on June 27, 2023, the BLM determined that the sagebrush community would best describe the project area prior to previous disturbances. Dominate species in the surrounding area include sagebrush (*Artemisia tridentata),* blue grama (*Bouteloua gracilis*), and fourwing saltbush (*Atriplex canescens*). Existing disturbances within the project area include the NELCA 176H well pad, an access road, and livestock grazing. There was no indication of current recreational activity.

During the pre-disturbance on-site meeting, SWCA and Enduring personnel conducted a noxious weed survey for New Mexico Department of Agriculture (NMDA)–listed Class A and Class B noxious weeds in the project area. No NMDA-listed noxious weed species were identified within the project area.

Please refer to the onsite noxious weed form in Appendix A for details.

## 3.2. Project Area Photographs

Photographs of the project area to be reclaimed are provided in Table 3.

**Table 3. Project Area Photographs**

| Photograph Description | Photograph |
|---|---|
| **Photograph taken from the center of the well pad; view facing north.** |  |
| **Photograph taken from the center of the well pad; view facing south.** |  |

| Photograph Description | Photograph |
|---|---|
| **Photograph taken from the center of the well pad; view facing east.** |  |
| **Photograph taken from the center of the well pad; view facing west.** |  |

# 4. RECLAMATION TECHNIQUES FOR SUCCESSFUL REVEGETATION

The BLM FFO will be notified at least 48 hours prior to the start of reclamation activities. Final facility layouts and placement were determined at the formal BLM facility on-site meeting with the BLM FFO.

## 4.1. Interim Reclamation

Interim reclamation will take place within 120 days of final construction. This phase will occur following the construction, drilling, and completion phases of the project. Areas that will be reclaimed during interim reclamation are described in Section 2.2.

## 4.2. Vegetation and Site Clearing

If present, trees and brush 3 inches in diameter or greater at ground level will be cut and stacked for wood gatherers. All other trees and brush will be mowed or mulched at ground level. Stumps and root balls will be hauled to an approved disposal site or stockpiled at the edge of the well pad and buried in the cut slopes of the well pad during interim reclamation. Any slash and brush will be chipped, shredded, or mulched, and incorporated into the topsoil for later use in interim reclamation. Vegetation that has re-established within the interim reclaimed portions of the disturbance area will be mulched and incorporated into the topsoil as additional organic matter.

## 4.3. Topsoil Stripping, Storage, and Replacement

The upper 6 inches of topsoil (if available) will be stripped following vegetation mulching. Topsoil would not be mixed with the underlying subsoil horizons and would be stockpiled as a berm/windrow along the interior perimeter of the construction buffer zone. Topsoil and sub-surface soils will be replaced in the proper order, prior to final seedbed preparation. Topsoil will be spread evenly over sub-soils upon completion of recontouring operations and prior to final seedbed preparation. Redistribution of topsoil shall not be done when the ground or topsoil is wet. Vehicle/equipment traffic will not be allowed to cross topsoil stockpiles. If topsoil is stored for a length of time such that nutrients are depleted from the topsoil, amendments would be added to the topsoil as advised by the Enduring environmental scientist or appropriate agent/contractor.

## 4.4. Recontouring

All disturbed areas related to the project area will be recontoured to blend with the surrounding landscape, emphasizing restoration of the existing drainage patterns and landforms to pre-construction condition to the extent practicable. Within areas that require recontouring, the surface will be recontoured to match pre-disturbance conditions (particularly drainage patterns) or to blend with the surrounding landform as closely as possible.

The well pad will be contoured to blend with the surrounding landforms, removing signs of cut/fill slopes. The fill slope on the northern sides of the location and stockpiled berm just northeast of the fill slope will be pushed (dozer)/excavated (excavator)/or carried (belly scraper) and placed within the cut slope on the southern sides of the location. Natural rolling contours will be implemented to break up the surface and aid in removing signs of the well pad once vegetation establishes.

## 4.5. Water Management/Erosion Control Features

The BLM-FFO and the Enduring would work in collaboration to develop site-specific erosion control or water management features and to identify installation locations. Potential erosion control or water management features that may be used include (but are not limited to) water bars or rolling dips for roads, sediment basins or sediment traps, check dams, silt fencing, bellholes upstream of culverts, outlet protection for culverts, erosion control blankets, straw bales, and straw wattles.

As determined during the on-site visit on June 27, 2023, the following water management/erosion control features would be implemented during construction of the project:

- Diversions will be constructed as needed.

During interim reclamation, areas of the project that are not needed for long-term operations and maintenance will be recontoured to reestablish disturbed terrain and blend into the surrounding landscape. The natural drainage network would be reestablished as practicable with necessary diversions around the long-term project footprint.

## 4.6. Seedbed Preparation

For cut-and-fill slopes, initial seedbed preparation would consist of pushing (dozer)/excavating (excavator)/hauling (belly scraper) the unneeded fill slope material and placing it within the cut slopes. Natural rolling contours would be implemented to break up the surface and aid in removing signs of the sharp well pad corners once vegetation establishes. Emphasis would be placed on restoration of the existing drainage patterns and landforms to pre-construction conditions, to the extent practicable.

Within areas that would be reseeded, stockpiled topsoil would be evenly redistributed prior to final seedbed preparation. Seedbed preparation within compacted areas would include ripping to a minimum depth of 18 inches and spacing furrows 2 feet apart. Ripping would be conducted perpendicularly in two phases, where practicable. If large clumps/clods result from the ripping process, disking would be conducted perpendicular to slopes in order to provide terracing and minimize runoff and erosion. Final seedbed preparation would consist of raking or harrowing the spread topsoil prior to seeding to promote a firm (but not compacted) seedbed without surface crusting. Seedbed preparation may not be necessary for topsoil storage piles or other areas of temporary seeding.

## 4.7. Soil Amendments

Soil amendments would be added to the topsoil, if needed, as advised by the Enduring environmental scientist or appropriate surface management agency. During the onsite meeting, no soil amendments were identified for use during reclamation.

## 4.8. Seeding

Table 4 lists BLM FFO's sagebrush seed pick list was identified as suitable for the project area. The seed pick list components are listed in Table 5.

**Table 4. BLM Farmington Field Office Sagebrush Community Seed Mix**

| Common Name | Scientific Name | Pure live Seed lbs/acre[1] |
|---|---|---|
| Fourwing saltbush | *Atriplex canescens* | 2.0 |
| Winterfat | *Krascheninnikovia lanata* | 2.0 |
| Sand dropseed | *Sporobolus cryptandrus* | 0.5 |
| Western wheatgrass | *Pascopyrum smithii* | 4.0 |
| Indian ricegrass | *Achnatherum hymenoides* | 4.0 |
| Blue grama | *Bouteloua gracilis* | 2.5 |
| Bottle brush squirreltail | *Elymus elymoides* | 3.0 |
| Blue flax | *Linum lewisii* | 0.25 |
| Rocky Mountain bee plant | *Cleome Serrulata* | 0.25 |

[1]Based on 60 PLS per square foot, drill seeded; double this rate (120 PLS per square foot) if broadcast or hydro-seeded.

Seeding will occur immediately following recontouring and seedbed preparation. A disc-type seed drill with two boxes for various seed sizes will be utilized for seeding the disturbed areas of the site. Enduring or its reclamation subcontractor will ensure that perennial grasses and shrubs are planted at the appropriate depth. Intermediate-size seeds (such as wheatgrasses and shrubs) will be planted at a depth of 0.5-inch, larger seeds (such as Indian ricegrass) will be planted at a depth of 1 to 2 inches, and small seeds (such as sand dropseed) will be planted at a depth of 0.25 inch. In situations where differing planting depths are not practicable with the equipment being used, the entire mix will be planted no deeper than 0.25 inch. A drag, packer, or roller will follow the seeder to ensure uniform seed coverage and adequate compaction. Seeding will be run perpendicular to slopes in order to minimize runoff and erosion.

Drill seeding may be used on well-packed and stable soils on gentler slopes and where tractors and drills can safely operate. Where drill seeding is not practical, the contractor will hand broadcast seed using a "*cyclone*" hand seeder or similar broadcast seeder. Galleta seed may also be broadcast; due to the light fluffy nature of this seed, it does not seed well through a drill seeder. Broadcast application of seed requires a doubling of the drill-seeding rate. The seed will then be raked into the ground so that the seed is planted no deeper than 0.25 inch below the surface.

Upon completion of seeding, straw mulch will be spread across the reclaimed area and crimped into the soil. This will promote site stabilization and slightly increase moisture retention.

## 4.9. Noxious and Invasive Weed Control

Should any noxious or invasive weeds be documented within the project area following the completion of reclamation activities, Enduring will follow the guidance outlined in their Pesticide Use Proposal approved by the BLM FFO. Enduring will submit all required documentation for weed treatments associated with the proposed project; this includes chemical and manual weed removal. Enduring will submit a Pesticide Use Report quarterly and annually or when requested by the BLM-FFO Authorized Officer or the BLM-FFO Noxious Weed Specialist.

# 5. MONITORING REQUIREMENTS

Reclamation monitoring is required to document attainment of the vegetation percent cover standard and reclamation success. The monitoring and reporting methods described below will apply to both interim and final reclamation. Monitoring and reporting requirements remain in effect as long as the permit, grant, or authorization is in force, and until all associated facilities and infrastructure are abandoned by BLM procedure and a FAN and/or relinquishment is issued. The vegetation percent cover referenced below is described in detail in Section 5.4 (Reclamation Attainment).

## 5.1. Initial Monitoring and Reporting

Monitoring sites will be established by the BLM FFO, in collaboration with Enduring, during the required earthwork and/or seeding inspections. Initial monitoring tasks will be conducted by the BLM FFO. The BLM FFO will submit the initial monitoring reports to Enduring within 60 days of conducting the initial monitoring tasks.

## 5.2. Annual Monitoring and Reporting

Enduring will perform annual monitoring starting 2 calendar years after BLM FFO's approval of earthwork and/or seeding. Annual monitoring will continue until the vegetation percent cover standard has been attained. Annual monitoring reports will be submitted to the BLM FFO by December 31 of the year monitored.

## 5.3. Long-Term Monitoring

After the required percent revegetation standard has been attained, Enduring will begin long-term monitoring. This includes, every fifth year after attainment as determined by the BLM FFO, Enduring will monitor the site at all established photo points to ensure the site remains productive and stable. Enduring will submit the monitoring report to the BLM by December 31 of the year monitored.

## 5.4. Reclamation Attainment

Per the Procedures (BLM 2013), the following foliar percent cover standards listed in Table 5 must be attained for reclamation to be considered successful.

**Table 5. Reclamation Goal for Sagebrush Community**

| Functional Group | Percent (%) Foliar Cover | Common Species |
|---|---|---|
| Trees/Shrubs/ Grasses/ Forbs | ≥ 35 | Utah juniper, Piñon pine; big sagebrush, four-wing saltbush, antelope bitterbrush, alkali sacaton, Western wheatgrass, Indian ricegrass, galleta, sand dropseed, scarlet globemallow, wooly Indian wheat, fleabane, Penstemon spp., buckwheat, threadleaf groundsel. |
| Invasive/undesirables 10% allowed toward meeting standard of 35% | ≤ 10 | Plants that have the potential to become a dominant species on a site where its presence is a detriment to revegetation efforts or the native plant community. Examples of invasive species include cheatgrass, Russian thistle, halogeton. |

When vegetation meets the attainment standards listed in Table 4 and as required by the BLM-FFO Bare Soil Reclamation Procedure, Enduring may request BLM-FFO concurrence that vegetation percent cover standards have been attained any time after 2 calendar years of completion of earthwork and seeding. Enduring will submit a final abandonment notice (FAN), identifying that revegetation standards have been attained. The BLM-FFO will reply to the operator to confirm concurrence (or not) with a rationale for the determination within 60 days of receiving the

request. If the revegetation standards are not being attained, Enduring and the BLM-FFO will analyze the issues that may have contributed to vegetation reclamation failure or lack of meaningful progress. Remedial actions will be developed collaboratively if vegetation percent cover standards are not being attained. Details regarding this process can be found in the Procedures (BLM 2013).

# 6. REFERENCES

Bureau of Land Management (BLM). 2013. Farmington Field Office Bare Soil Reclamation Procedures. Available at: http://www.emnrd.state.nm.us/MMD/AML/documents/FFOBareSoilReclamationProcedures2-1-13.pdf. Accessed July 2023.

Bureau of Land Management (BLM) and U.S. Forest Service. 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. BLM/WO/ST-06/021+307/REV 07. Bureau of Land Management. Denver, Colorado. 84 pp.

Natural Resources Conservation Service. 2023. Web Soil Survey. Available at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed July 2023.

New Mexico Department of Agriculture (NMDA). 2020. Memo: New Mexico Noxious Weed List Update. Available at: https://nmdeptag.nmsu.edu/apr/noxious-weeds.html. Accessed July 2023.

Western Regional Climate Center. 2023. New Mexico Climate Summaries: Lybrook, New Mexico (295290). Available at: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?nm5290. Accessed July 2023.

# APPENDIX A. ONSITE NOXIOUS WEED FORM

## Onsite Noxious Weed Form

If noxious weeds are found during the onsite, fill out form and submit to FFO weed coordinator
Operator Enduring Surveyor(s) _____
Well Name and Number Haynes Canyon 428H Date 6/27/2023
Location: Township, Range, Section _____
Location of Project NAD 83 Decimal Degrees 36.2296°N 107.4635°W

**Class A Noxious Weed – Check Box if Found**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Alfombrilla | | Diffuse knapweed | | Hydrilla | | Purple starthistle | | Yellow toadflax |
| | Black henbane | | Dyer's woad | | Leafy spurge | | Ravenna grass | | |
| | Camelthorm | | Eurasian watermilfoil | | Oxeye daise | | Scotch thistle | | |
| | Canada thistle | | Giant salvinia | | Parrotfeather | | Spotted knapweed | | |
| | Dalmation toadflax | | Hoary cress | | Purple loosestrife | | Yellow starthistle | | |

**Class B Noxious Weed – Check Box if Found**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | African rue | | Perennial pepperweed | | Russian knapweed | | Tree of heaven |
| | Chicory | | Musk thistle | | Poison hemlock | | |
| | Halogeton | | Malta starthistle | | Teasel | | |

**Comments:**

**FFO Representative:** HCP 6/27/23
sign and date
**Operator Representative** 6/27/23
sign and date

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# SURFACE USE PLAN OF OPERATIONS

## *Haynes Canyon Unit (HCU) 428H-Four Well-Site Reoccupation Project*

## *HCU 428H, HCU 430H, HCU 440H, HCU 442H*

**SEPTEMBER 2023**

## ENDURING RESOURCES IV, LLC

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

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# 1. INTRODUCTION

## 1.1. Purpose and Intent

The purpose of the Proposed Project is to allow Enduring Resources IV, LLC's (Enduring) reasonable access to public lands to develop federal minerals administered by the Bureau of Land Management's (BLM's) Farmington Field Office (FFO) and New Mexico Oil Conservation Division (NMOCD) for Enduring's valid mineral lease (NMNM-028733) within the Haynes Canyon Unit (NMNM-142111).

The need for the Proposed Project is BLM's requirement to respond to Enduring's Application for Permit to Drill (APD). Per Onshore Oil and Gas Operating Regulations (43 Code of Federal Regulations [CFR] 3160); the Mineral Leasing Act (MLA) of 1920, as amended (30 United States Code [USC] 181 et seq); and the Federal Land Policy and Management Act of 1976 (43 USC 1701 et seq.).

In accordance with Onshore Oil and Gas Order No. 1 (43 CFR 3160), this Surface Use Plan of Operations (SUPO) has been prepared for Enduring's proposed Haynes Canyon Unit (HCU) 428H-Four Well-Site Reoccupation Project HCU 428H, HCU 430H, HCU 440H, HCU 442H (HCU 428H Project). The project as proposed would provide for the drilling, development, transportation, operation, and maintenance of the HCU 428H Project.

The proposed action is not known to cross or impact any U.S. Army Corps of Engineers (USACE) jurisdictional Waters of the U.S. (WOUS).

The information is provided to the surface management agency to give an accurate account of the proposed action for National Environmental Policy Act (NEPA) disclosure. This SUPO details only the proposed action, any alternatives considered in detail are described in the associated Environmental Analysis (EA) document.

Enduring will comply with all applicable laws, regulations, Onshore Orders, Conditions of Approval (COA) attached to the approved APDs, and this SUPO. No additional surface disturbance beyond that authorized by the approved APDs will be initiated without prior approval by the Authorized Officer (AO).

Enduring Resource IV, LLC (Enduring) may submit a request to the BLM-FFO to revise this SUPO at any time during the life of the project in accordance with The Gold Book: Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (BLM and U.S. Forest Service 2007). Enduring would include justification for the revision request.

The Enduring representative for this reclamation plan is:
Theresa Ancell
Regulatory Manager
Enduring Resources IV, LLC
200 Energy Court
Farmington, New Mexico 87401
505-636-9720

# 2. PROJECT DESCRIPTION

**Table 2.1. Project Information**

| | |
|---|---|
| **Applicant:** | Enduring Resources IV, LLC |
| **Project Name:** | Haynes Canyon Unit (HCU) 428H-Four Well-Site Reoccupation Project<br>HCU 428H, HCU 430H, HCU 440H, HCU 442H (HCU 428H Project) |
| **Project Features:** | One well pad with four wells and (production facilities if present), access road corridor, co-located well tie pipeline, and utility corridor. |
| **Lease Number(s):** | NMNM-028733, New BLM System MLRS # NMNM105770949 |
| **Land Manager(s):** | BLM-FFO |
| **Mineral Manager(s):** | BLM-FFO |

Infrastructure proposed to be constructed, operated, subsequently interim reclaimed, and eventually fully reclaimed as part of the HCU 428H Project would be located on lease, located on BLM-FFO administered lands with Federal minerals. The project would be permitted, built, and operated per lease authority for the term of the proposed wells served in Enduring's surface lease (NMNM-028733, New BLM System MLRS # NMNM105770949) within the HCU (NMNM-142111).

The HCU 428H Project would be constructed within existing disturbance associated with previously permitted but un-drilled and developed HCU 414H well. The existing well pad, access road, and pipeline/utility corridor for the HCU 414H were permitted and constructed by a previous operator, WPX, however, the well was subsequently never drilled.

**Existing on-lease infrastructure includes:**

The 4.79-acre existing well pad proposed to be utilized for the HCU 428H Project well pad is irregularly shaped measuring approximately 500-foot by 450-foot at its longest sides which includes an irregular construction buffer zone/edge of disturbance (EOD) of 50 feet.

One existing 22.5-foot-long by 30-foot-wide access road corridor would be utilized to accommodate access for construction, drilling, completion, and long-term operation of the wells mentioned above; no new access road or upgrades are proposed.

The proposed wells would connect to the existing pipeline/utilities infrastructure on the existing HCU 414H well pad; no new pipeline/utility infrastructure corridors are proposed.

Separate permitting not associated with the HCU 428H proposed action, the HCU 432H proposed project located north of the proposed HCU 428H would include a 3383.8 pipeline/utilities corridor connecting HCU 432H to HCU 428H facilities and infrastructure.

**Proposed HCU 428H Project infrastructure includes:**

- The well pad would accommodate the development of four wells to produce Federal minerals within Enduring's HCU (NMNM-142111).

## 2.1. Location

The HCU 428H Project is in the Southwest ¼ of Southwest ¼ of Section 3, Township 23 North, Range 6 West, New Mexico Principal Meridian (NMPM), 903 Feet from the south and 429 feet from the west line in Rio Arriba County, New Mexico.

See the existing road map and written directions in the survey plat package in Appendix A. Directions are from the intersection of US Hwy 550 and US Hwy 64 in Bloomfield, New Mexico.

# 3. WELL SITE CONSTRUCTION AND LAYOUT

Drilling of the proposed HCU 428H Project would require utilizing a 4.79-acre existing well pad. This entire area would be utilized during construction, setting of production equipment, drilling, and completion phases. The Surface Hole Locations for the four wells associated with the HCU 428H Project are located below in Table 3.1.

### Table 3.1. Surface Hole Locations

| Well flag | Footages | Latitude (NAD 83) | Longitude (NAD 83) |
|---|---|---|---|
| HCU 428H | 903’ FSL, 429’ FWL | 36.248667°N | -107.464358°W |
| HCU 430H | 897’ FSL, 448’ FWL | 36.248652°N | -107.464293°W |
| HCU 440H | 916’ FSL, 390’ FWL | 36.248698°N | -107.464489°W |
| HCU 442H | 910’ FSL, 409’ FWL | 36.248682°N | -107.464423°W |

During construction, the existing well pad would be leveled to provide adequate space and a level working surface for vehicles and equipment. Excavated materials from cuts are used to fill portions of the well pad to level the surface. The approximate cuts, fills, and well pad orientation are shown on the cut/fill worksheet and cross-section diagrams in the survey plats found in Appendix A.

See Appendix E for the proposed Well Pad Facility Diagram showing the long-term well pad layout, areas to be reclaimed, and anticipated utilization of existing disturbance acreage; Well Pad Drilling Diagrams showing the location and orientation of the drill rig; and the Well Pad Completion Diagram, showing the location and orientation of the completion equipment.

## 3.1. 3.1 Production Facilities

Current plans include collocating facilities for the proposed HCU 428H and HCU 432H projects. Due to existing infrastructure present at the HCU 428H project location, current plans are for collocated production facilities to exist only at the HCU 428H project location. Existing production facilities for the HCU 428H Project are currently located on the north end of the well pad. However, due to the changing nature of projects, each project is being proposed with separate facilities to account for the potential changes in drilling sequence and schedule. Potential facilities on location may include but are not limited to (including facilities that may occur through the life of the four wells) and Temporary equipment during drilling, completion, and flowback operations may be placed anywhere within the permitted location. During road construction, production-associated equipment would be delivered and left within the permitted area until construction is complete.

## 3.2. Best Practices and Mitigation Measures

Topsoil removal, storage, and protection are described in detail in the associated Surface Reclamation Plan.

# 4. PROPOSED NEW OR RECONSTRUCTED ACCESS ROAD(S)

During the June 27, 2023, onsite visit, it was determined by the operator and surface managing agency that County Road 379 (CR 379) and 22.5 feet of existing access road corridor would be utilized to access the proposed project location.

Upon approval, CR 379 and the project access road will be maintained, upgraded, or reconstructed to meet anticipated traffic volumes and all-weather access needs.

Any site-specific stipulations, design features, and Best /Management Practices (BMPs) discussed to be implemented on this section of the existing roadway are listed below (4.2 Best Practices and Mitigation Measures) and in Enduring's Road Maintenance Plan. See the construction plats in Appendix A for the access road length and location from existing established roads.

## 4.1. 4.2 Best Practices and Mitigation Measures

A. Enduring will construct, improve, and maintain roads in accordance with The Gold Book: Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. Enduring will defer to the county or the Roads Committee, when formed, for maintenance determinations for any existing County Roads or roads that are considered collector roads, utilized for the project. See Enduring's associated Road Maintenance Plan for more details.

B. Any pre-existing water management and erosion control structures will be inspected and maintained to accommodate long-term stormwater control.

C. If found to be necessary, additional water management features such as water bars, rolling dips, or culverts will be installed within the existing roadway if found to be necessary for maintaining a safe stable roadway allowing all-weather access.

D. No construction or routine maintenance activities will be performed during periods when the soil is too wet to adequately support construction equipment. If equipment creates ruts deeper than six inches, the soil will be deemed too wet for construction or maintenance.

E. Before any soil disturbing road or well pad construction-related activities, if present and warranted, the project area including the proposed access road and pipeline/utility corridor would be cleared of trees and vegetation. A compact track loader with a mulching attachment will mulch and incorporate all trees that measure less than 3 inches in diameter at ground level (if present) and slash/brush into the topsoil. A woodcutting crew will clear all trees three inches or greater at ground level (if present) with chainsaws. The mean height of any stump will not exceed one-half its diameter and in no case exceed six inches on the uphill side. Tree trunks (left whole) and large limbs will be stacked and made available to the public unless stipulated otherwise by the AO.

F. Material will be imported only if necessary to establish a safe all-weather roadway. Once the roadway has been established, the driving surface may be capped if needed and deemed economically viable. Sandstone from a nearby permitted location would be the preferred surfacing material and would be laid approximately 8-12 inches thick.

G. Maintenance of existing roads will be restricted to the existing disturbed footprint; no new surface disturbance will be created. Maintenance will continue until wells accessed by the existing roadway have been Plugged and Abandoned (P&A) and a Final Abandonment Notice (FAN) has been approved.

H. During interim reclamation, once drilling and completion phases are complete for all wells on location, the roadway will be reduced in size to a 14-foot-wide running surface with 0 pullouts, and appropriate water/erosion control on each side of the roadway. The roadway will measure approximately 22 feet wide from the bottom of the borrow ditch to the bottom of the barrow ditch assuming a 24-inch lift on the road with 2:1 shoulder to the bottom of the ditch (silt traps, culvert bell holes, and turnout ditches will extend beyond this). All remaining disturbed areas within the 30-foot access road corridor and exterior to borrow ditches and back slopes anticipated to be needed for long-term maintenance will be reseeded in efforts to reduce erosion. Any established cut and fill slopes (including any Temporary Use Areas (TUAS) used for cut and fill) will be reseeded only to preserve safe and stable slopes.

I. There are no steep slopes, side slopes, or large wash crossings requiring the need for additional TUAs beyond the 30-foot access road corridor.

J. Due to the short nature of the proposed roadway and lack of foreseen drainage concerns, no new culverts are anticipated to be needed. If culverts exist or are found to be needed to maintain a safe and stable roadway, they would be installed during construction and/or interim reclamation. There are no pullouts necessary for the proposed access road due to its short nature and full sight distance from the new access road takeoff to the well pad.

K. There are no Army Corps of Engineers designated Waters of the United States impacted by the proposed access road. No low water crossings would be required associated with the proposed action.

L. The existing access road does not cross any existing fence lines.

M. Enduring would maximize the use of native material within the project area to reduce or eliminate the need to haul in foreign material. This includes the use of sandstone surfacing material as opposed to foreign rock in this area. However, foreign materials such as pit run, gravel, road base, rip-rap cobblestone, and large boulders may be imported and used for reasons such as but not limited to elevating roadways, low water crossings, road surfacing, erosion control, culvert and cattle guard installations, natural barricade, surface replacement, and spot repairs. A map of potential borrowing sites where Enduring may obtain material can be found in Appendix D. The material sources have been labeled with the operator's name (if applicable) and legal location to the quarter-quarter. Material excavated during the establishment of silt traps and erosion control may also be used in construction project features.

N. BMPs for dust abatement will be utilized along the roads to reduce fugitive dust during construction, drilling, completion, and any other heavy traffic activities during the life of the project. Water application using a rear-spraying truck or other suitable means will be the primary method of dust suppression. If it is found to be necessary to apply commercial dust mitigation materials such as magnesium chloride, organic-based compounds, or polymer compounds; Enduring will seek approval from the appropriate surface managing agency. These dust mitigation measures may also be included as COAs attached to the approved APDs.

O. The final reclamation of the proposed access road is discussed in the associated Surface Reclamation Plan.

P. Topsoil removal, storage, and protection are described in detail in the associated Surface Reclamation Plan.

# 5. Location of Existing Wells

Water wells and oil and gas wells (plugged and abandoned, active, and proposed) within a one-mile radius of the HCU 428H Project are depicted in Appendix B. There are 2 water wells, 14 oil and gas wells (plugged and abandoned, active, or proposed) within a one-mile radius of the proposed well pad location.

# 6. Water Use and Applications

Please see Appendix C for the water transportation map identifying the locations of the supply wells.

During construction, freshwater sources would be used for the drill point and concrete casing. Fresh water would be used to dampen native soils as fill material is placed in lifts. This would promote adequate compaction on the fill slopes of the access road and well pad, as well as control fugitive dust.

During initial drilling, and post completion drill out operations, construction activities, dust abatement, pad and road improvements; Enduring estimates using a consolidated 17,558 bbls of fresh water. This is inclusive for the four proposed wells for HCU 428H project.

The estimates are general and predicted using average past water volume usage for similar activities. Variables that can significantly affect these volumes include but are not limited to, soil type, grain size, grain shape, recent weather events, relative humidity, time of year, and soil moisture holding capacity.

Fresh water is additionally used on an as-needed basis for dampening native soils to maximum dry density using American Society for Testing and Materials (ASTM) standards to achieve acceptable engineered compaction, dust

suppression along dirt roadways during drilling, completion, and any other operations where heavy traffic may be anticipated. The total amount applied during these activities is all dependent upon, but not limited to, the length of the dirt road, weather conditions, relative humidity, density of traffic, and duration of traffic.

During completion operations, Enduring predicts using a consolidated 447,760 bbls of non-potable brine water from a non-potable formation, produced water, and recycled water. This is inclusive for the four HCU 428H project wells. Sources of these fluids and the process of recycling are discussed further below.

During completion operations, Enduring would use non-potable water from a non-potable water-bearing formation. Enduring may also utilize produced water gathered from their existing wells within the Mancos Gallup area. Produced water may be gathered and delivered to the HCU 482H Project via existing underground pipeline infrastructure and trucks. Produced water gathered at Shiprock San Juan, LLC's 4-1 CDP may also be tracked and used during completion operations. Flowback water from completion operations will be recycled for reuse. These non-potable sources will be gathered, stored, treated, and recycled at any of Enduring's Water Recycling Facilities.

Enduring filters and separates water contained within their recycling facilities in three phases. Phase one includes the retention of water within a 750 bbl water leg that separates 100-micron oil droplets and sediment/particles. Phase two, downstream of the water leg, water passes through a large coalesquer filter with estimated 30-micron oil droplet removal capabilities. The final phase of filtration before entering the containment includes passing through two filter pots in parallel containing bag or cartridge filters. These filters can vary in micron filtration sizing dictated by the solids recovered, likely, a range between 10-50 microns. Enduring will size bag or cartridge filters as necessary during operations. The average Entrada water supply well total dissolved solids (TDS) are 10,000+.

Flowback water from completion activities will be recycled and returned to an Enduring water recycling facility for reuse. Flowback water may contain solids, oil, and produced water when immediately returned from the wellbore. Before the water leaves the completion location, it will pass through the permanent facilities on location if built and commissioned or pass through a temporary treatment facility on location. Treatment will remove oil and solids before leaving the location. Flowback water may additionally pass through the permanent water treatment facility at the containment location before entering the containment if necessary. Flowback water within containment after treatment and filtration may contain a mixture of produced water and supply water from the Entrada Formation used for the stimulation process.

Enduring will fill and store water in all their water recycling containments and Above-Ground Storage Tanks (ASTs) for anticipated use during drilling and completion activities. Filling containments and ASTs via Entrada supply wells will begin no later than four to five working weeks before drilling and completion activities commence unless supplementary sources are used in addition thereto. Enduring provides all stimulation fluid properties and additives through the Frac Focus site established for reporting to State and Federal Agencies. See Frac Focus for stimulation fluid components.

# 7. Locations and Types of Water Supply

Fresh water would be obtained from the following location(s):

### 5.3. Smelser (POD No. RG06855)

- The Smelser Well is located in the northeast ¼ of the northeast ¼ of Section 9, Township 21, North Range 2 West, NMPM. The well is located at Latitude 36.069826° North and Longitude -107.04718° West. This source is located on private lands. Transportation from source will be via truck.

### 5.4. Blanco Trading Post (POD No. SJ02105)

- The Blanco Trading Post Well is located in the southwest ¼ of the northeast ¼ of Section 32, Township 25 North, Range 9 West, NMPM. The well is located at Latitude 36.359802° North and Longitude -107.810310° West. This source is located on State of New Mexico lands managed by the New Mexico State Lands Office (NMSLO). Transportation from source will be via truck.

Non-Potable water would be obtained from the following location(s):

**Enduring Resources NEU 2207-16B Water Recycling Facility**

The NEU 2207-16B Water Recycling Facility is located in the Northwest ¼ of the Northeast ¼ of Section 16, Township 22 North, Range 9 West, NMPM. The supply well is located at Latitude 36.143567° North and Longitude -107.576013° West. This water recycling Facility is located on State of New Mexico lands managed by the NMSLO. Transportation from the source would be via truck unless alternate methods are otherwise permitted.

**Enduring Resources WLU 2309-24N Water Recycling Facility**

The WLU 2309-24N Water Recycling Facility is located in the Southeast ¼ of the Southwest ¼ and Southwest ¼ of the Southeast ¼ of Section 24, Township 23 North, Range 9 West, NMPM. The supply well is located at Latitude 36.205932° North and Longitude -107.741568° West. This water recycling Facility is located on public lands managed by the BLM-FFO. Transportation from the source would be via truck unless alternate methods are otherwise permitted.

**Enduring Resources KWU 2309-19K Water Recycling Facility**

The KWU 2309-19K Water Recycling Facility is located in the Northeast ¼ of the Southwest ¼ of Section 19, Township 23 North, Range 9 West, NMPM. The supply well is located at Latitude 36.210181° North and Longitude -107.831776° West. This water recycling Facility is located on public lands managed by the BLM-FFO. Transportation from the source would be via truck unless alternate methods are otherwise permitted.

**Enduring Resources SEU 2206-20O Water Recycling Facility**

The SEU 2206-20O Water Recycling Facility is located in the Southwest ¼ of the Southeast ¼ of Section 20, Township 22 North, Range 6 West, NMPM. The supply well is located at Latitude 36.117342° North and Longitude -107.488712° West. This water supply well is located on public lands managed by the BLM-FFO. Transportation from the source would be via truck unless alternate methods are otherwise permitted.

**Enduring Resources NEL 2306-06P Water Recycling Facility**

The NELC 2306-06P Water Recycling Facility is located in the South ½ of Section 14, Township 22 North, Range 8 West, NMPM. The supply well is located at Latitude 36.310147° North and Longitude -107.651626° West. This water supply well is located on public lands managed by the BLM-FFO. Transportation from the source would be via truck unless alternate methods are otherwise permitted.

# 8. CONSTRUCTION MATERIALS

A. Enduring will maximize the use of native material within the proposed project area to reduce or eliminate the need to haul in foreign material.

B. All surface infrastructure would be constructed utilizing native borrow within the permitted area to create a balanced working surface. Surfacing material or fill material, such as sandstone, gravel, pit run, or road base would be used if needed and economically viable and obtained from an approved location.

C. Material may be imported and used for any of the following reasons; low water crossings (pit run and road base), road surfacing (road base, gravel, or sandstone), erosion control (riprap cobblestone), barricades (boulders), under and surrounding equipment (gravel), and filling soft or muddy areas (sandstone, pit run, road base, or gravel).

D. A map of borrow pit locations where Enduring may obtain material can be found in Appendix D. The borrow pits are labeled with the operating company name if applicable and the legal location of the quarter-quarter.

E. Range ponds are not currently proposed to be constructed for the construction of the HCU 428H Project.

# 9. METHODS FOR HANDLING WASTE

A. Cuttings:

- Drilling operations will utilize a closed-loop system. Drilling of the horizontal laterals will be accomplished with water-based mud. Oil-based mud could be used contingent on the formation properties encountered.
- All cuttings will be placed in roll-off bins and hauled to a commercial disposal facility or land farm. Enduring will follow Onshore Oil and Gas Order No. 1 regarding the placement, operation, and removal of closed-loop systems. No blow pit will be used.
- Closed-loop tanks will be adequately sized for the containment of all fluids.

B. Drilling Fluids:

- Drilling fluids will be stored onsite in above-ground storage tanks. Upon termination of drilling operations, the drilling fluids will be recycled and transferred to other permitted closed-loop systems or disposed of at a designated facility.

C. Spills:

- Any spills of non-freshwater fluids will be immediately cleaned up and removed to an approved disposal site.

D. Sewage

- Portable toilets will be provided and maintained as needed during construction.

E. Garbage and other waste material

- All garbage and trash will be placed in enclosed metal trash containers. The trash and garbage will be hauled off-site and dumped in an approved landfill, as needed.

F. Hazardous Waste

- No chemicals subject to reporting under Superfund Amendments and Reauthorization Act Title III in an amount equal to or greater than 10,000 pounds will be used, produced, stored, transported, or disposed of annually in association with the drilling, testing, or completion of these wells.
- No extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities will be used, produced, stored, transported, or disposed of annually in association with the drilling, testing, or completing of these wells.
- All fluids (i.e., scrubber cleaners) used during the washing of production equipment will be properly disposed of to avoid ground contamination or hazards to livestock or wildlife.

G. Flowback:

- Flowback transported off location/through temporary flowback equipment will consist of approximately 1,000 bbls of produced water per day per well for approximately 14 days. After this flow-back period, production will be sent to the permanent facility for processing.
- Flowback fluid will be gathered, recycled, and reused as described in Section 5. If there are no foreseeable drilling and completion operations, flow back will be disposed of at one of the disposal wells listed below.

H. Produced water will be hauled by truck and/or if permitted, transported through below-grade or surface pipeline infrastructure to any of Enduring's water recycling facilities. Produced water may be gathered and used in future drilling and completion operations as an alternative disposal method.

I. Enduring will dispose of produced water at the following facilities:

- Disposal 001, API 30-045-26862, operated by Basin Disposal Inc., located in the Southeast ¼ of the Northwest ¼, Section 3, Township 29 North, Range 11 West.
- Sunco Disposal 001, API 30-045-28653, operated by Agua Moss, LLC, located in the Southwest ¼ of the Northwest ¼, Section 2, Township 29 North, Range 12 West.

- Pretty Lady 30 11 34 001, API 30-045-30922, operated by Agua Moss, LLC, located in the Northwest ¼ of the Southeast ¼, Section 34, Township 30 North, Range 11 West.
- NE Lybrook SWD 001, API 30-039-31378, operated by Enduring Resources IV, LLC, located in the Northwest ¼ of the Southeast ¼ of Section 13, Township 23 North, Range 7 West.
- W Lybrook 2309 24N SWD 001, API 30-045-38292, operated by Enduring Resources IV, LLC, located in the Southeast ¼ of the Southwest ¼ of Section 24, Township 23 North, Range 9 West.

# 10. PLANS FOR SURFACE RECLAMATION

A Surface Reclamation Plan for the HCU 428H Project has been provided as a separate document. The project-associated Surface Reclamation Plan was prepared in accordance with Onshore Oil and Gas Order No. 1 and the BLM Bare Soil Reclamation Procedures.

The Surface Reclamation plan addresses:

- Configuration of the reshaped topography;
- Drainage systems;
- Segregation of spoil material;
- Surface disturbances;
- Backfill requirements;
- Redistribution of topsoil;
- Soil treatments;
- Seeding or other steps to reestablish vegetation;
- Weed control;
- and practices necessary to reclaim all disturbed areas.

# 11. SURFACE OWNERSHIP

The project is located on public lands managed by the BLM-FFO

Bureau of Land Management Farmington Field Office
6251 College Boulevard, Suite A
Farmington, New Mexico 87402
(505) 564-7600

# 12. OTHER INFORMATION

A. Enduring's appointed construction contractors will call New Mexico One-Call (or equivalent) to identify the location of any marked or unmarked pipelines or cables located in proximity to the proposed HCU 428H Project or any other areas proposed to have ground disturbances at least two working days before ground disturbance.

B. The construction phase of the project will commence upon receipt of an approved APD. The BLM-FFO will be notified via phone or email at least 48 hours before the start of construction activities associated with the project.

C. All activities associated with the construction, use/operation, maintenance, and abandonment or termination of the HCU 428H Project will be limited to areas approved in the APDs.

D. The project area has been surveyed by the Division of Conservation Archeology (DCA). The cultural survey report has been submitted directly to the surface managing agencies. Cultural mitigation, monitoring, and implementation of site protection barriers will occur if stipulated in the COAs attached to the approved APDs.

E. Per BLM at the June 27, 2023 onsite, a biological survey would not be required as no new surface is permitted or anticipated disturbance resultant of project approval and implementation.. Any necessary protection of flora and fauna, Special Status Species (SSS), wildlife, migratory birds, water resources, and air resources will occur if stipulated in the COAs attached to the approved APDs or stipulations in the Right-of-Way (ROW) grants.

F. Construction and maintenance activities will cease if soil or road surfaces become saturated to the extent that construction equipment is unable to stay within the project area and/or when activities cause irreparable harm to roads, soils, or streams.

G. All BLM-FFO general COAs will apply to this proposed action.

# Appendix A. SURVEY PLATS

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

**State of New Mexico**
**Energy, Minerals & Natural Resources Department**

**OIL CONSERVATION DIVISION**
**1220 South St. Francis Drive**
**Santa Fe, NM 87505**

Revised August 1, 2011

Submit one copy to Appropriate District Office

☐ AMENDED REPORT

# WELL LOCATION AND ACREAGE DEDICATION PLAT

| [1] API Number | [2] Pool Code | [3] Pool Name |
|---|---|---|
| | 13379 | COUNSELOR GALLUP-DAKOTA OIL POOL |

| [4] Property Code | [5] Property Name | [6] Well Number |
|---|---|---|
| | HAYNES CANYON UNIT | 440H |

| [7] OGRID No. | [8] Operator Name | [9] Elevation |
|---|---|---|
| 372286 | ENDURING RESOURCES, LLC | 6703' |

## [10] Surface Location

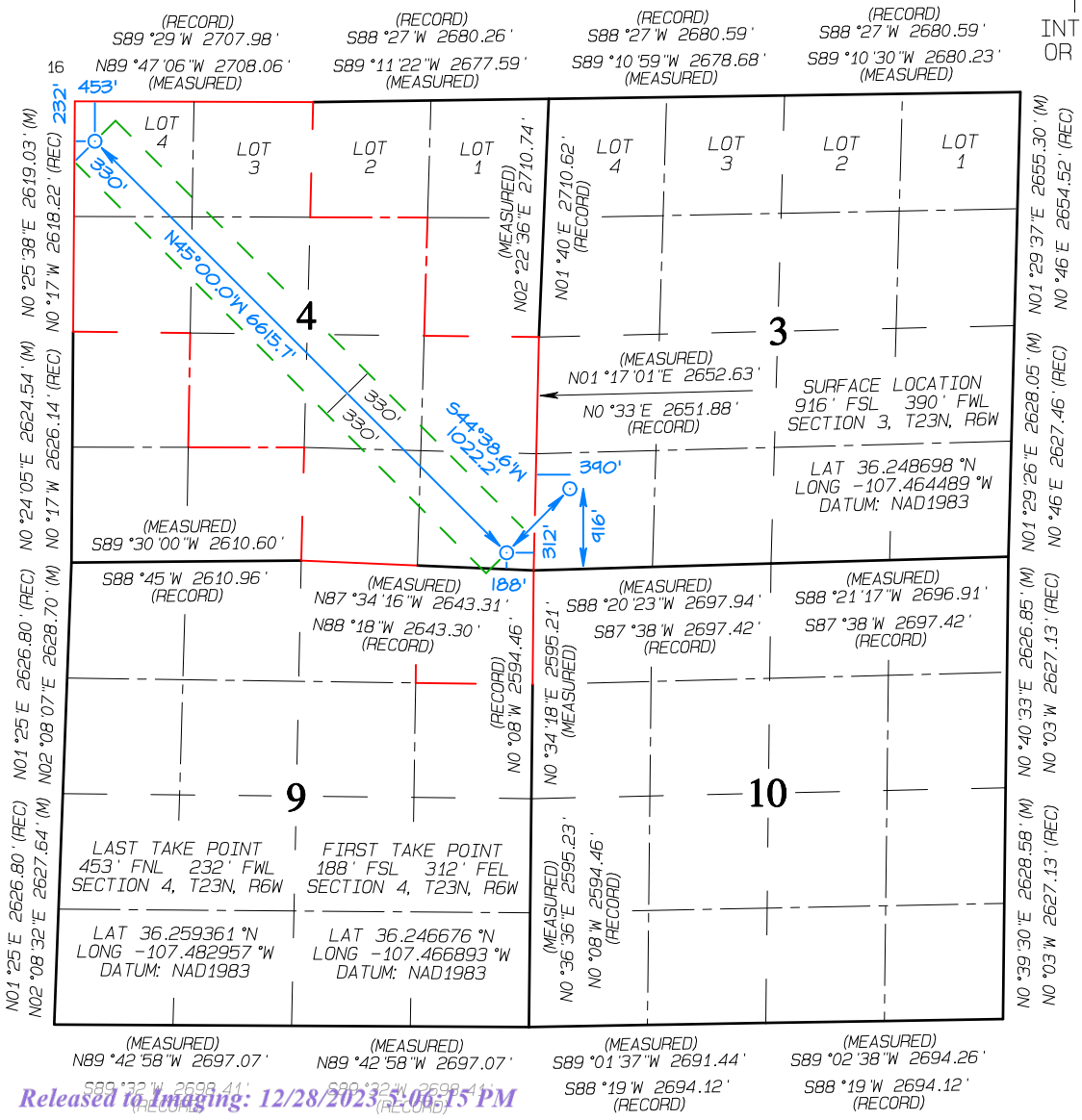
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| M | 3 | 23N | 6W | | 916 | SOUTH | 390 | WEST | RIO ARRIBA |

## [11] Bottom Hole Location If Different From Surface

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| D | 4 | 23N | 6W | 4 | 453 | NORTH | 232 | WEST | RIO ARRIBA |

| [12] Dedicated Acres | | [13] Joint or Infill | [14] Consolidation Code | [15] Order No. |
|---|---|---|---|---|
| 439.54 | SW/4 NE/4, NE/4 SW/4 NW/4, SE/4 - Section 4 NE/4 NE/4 - Section 9 | | | |

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION




## [17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom-hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature — Date: 8/31/23

Heather Huntington
Printed Name

hhuntington@enduringresources.com
E-mail Address

## [18] SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

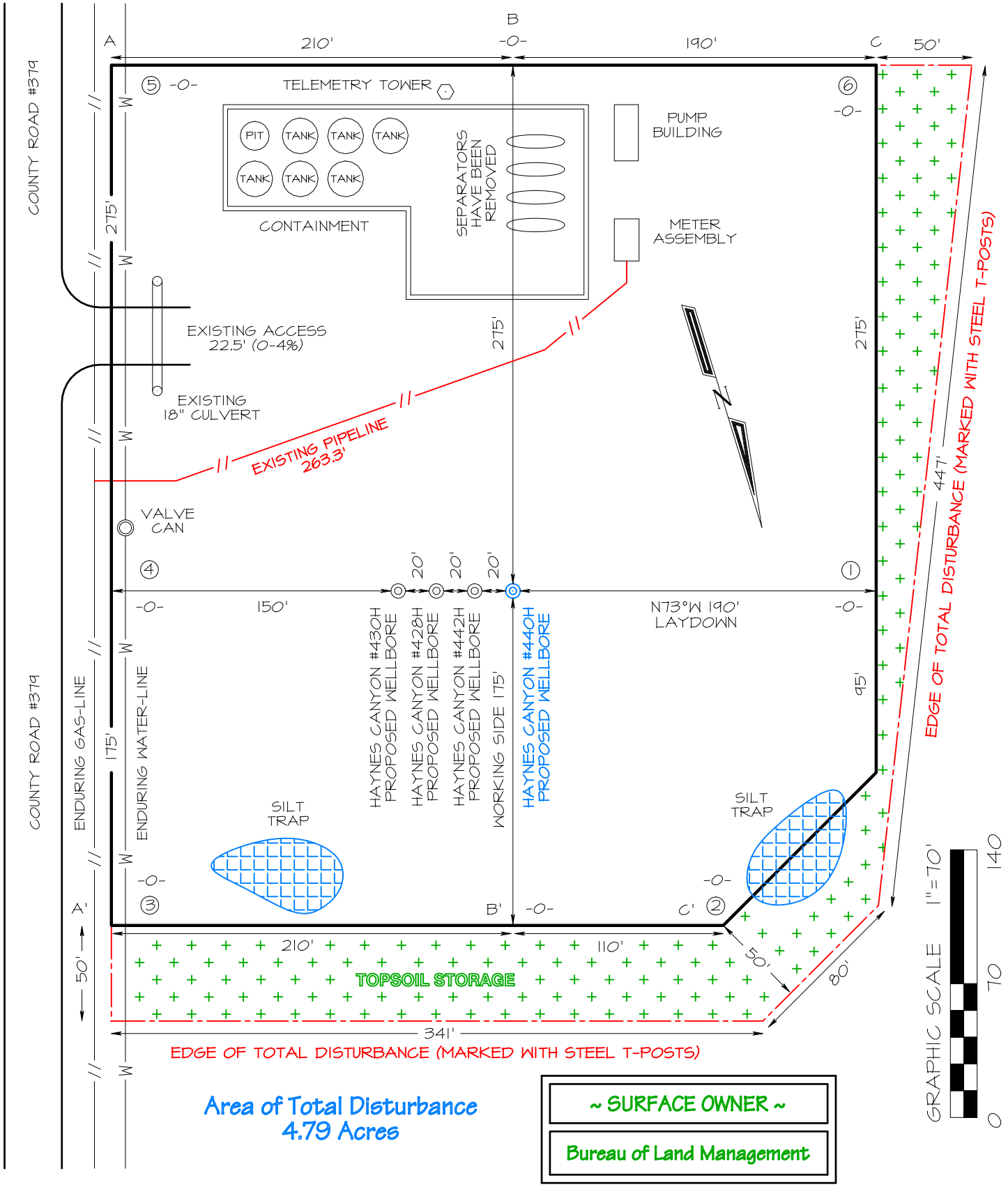
Date Revised: AUGUST 10, 2023
Survey Date: JANUARY 12, 2023

Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS
Certificate Number 15269

# ENDURING RESOURCES, LLC HAYNES CANYON UNIT #440H
# 916' FSL & 390' FWL, SECTION 3, T23N, R6W, NMPM
# RIO ARRIBA COUNTY, NEW MEXICO ELEVATION: 6703'
# LAT 36.248698°N LONG -107.464489°W DATUM: NAD1983




**Area of Total Disturbance**
**4.79 Acres**

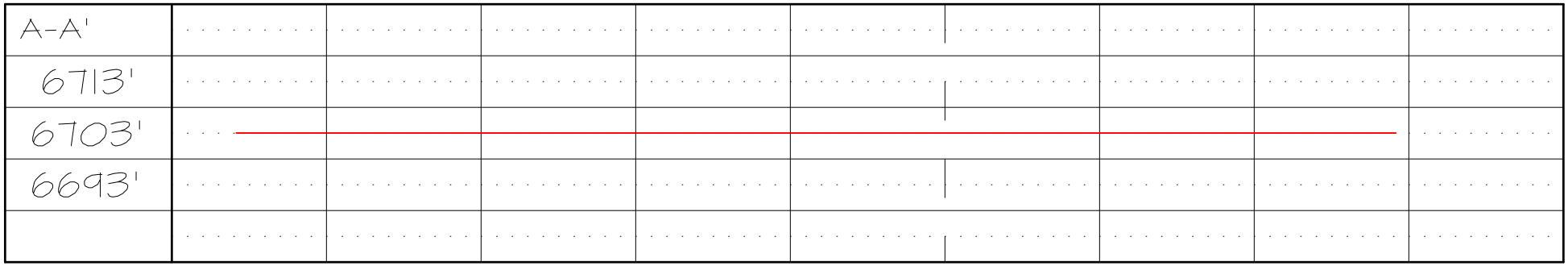
~ SURFACE OWNER ~

Bureau of Land Management

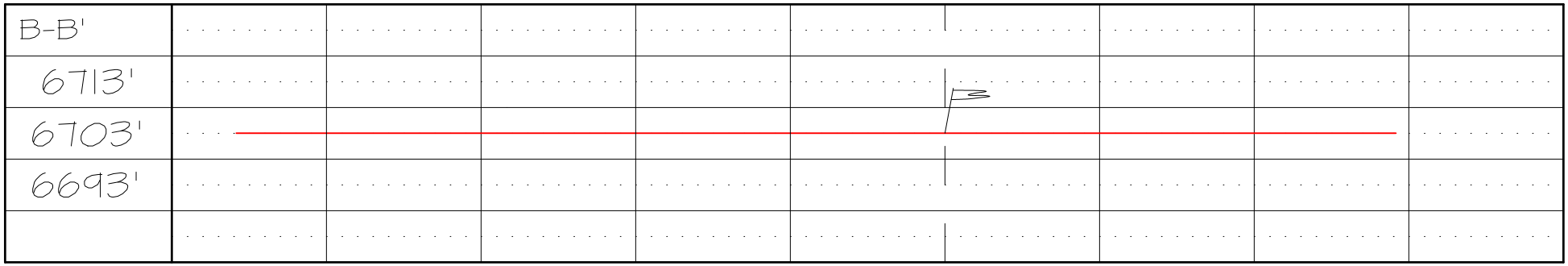
Steel T-Posts have been set to define Edge of Disturbance limits which are 50' offset from edge of wellpad, unless otherwise noted. Some areas have been restricted or omitted as shown hereon.

# ENDURING RESOURCES, LLC HAYNES CANYON UNIT #440H
# 916' FSL & 390' FWL, SECTION 3, T23N, R6W, NMPM
# RIO ARRIBA COUNTY, NEW MEXICO ELEVATION: 6703'

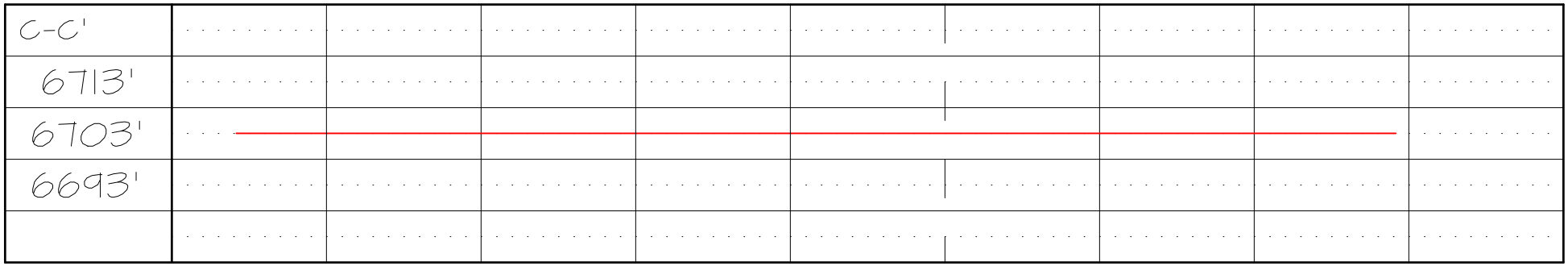
HORIZONTAL SCALE 1"=60' C/L VERTICAL SCALE 1"=30'




C/L



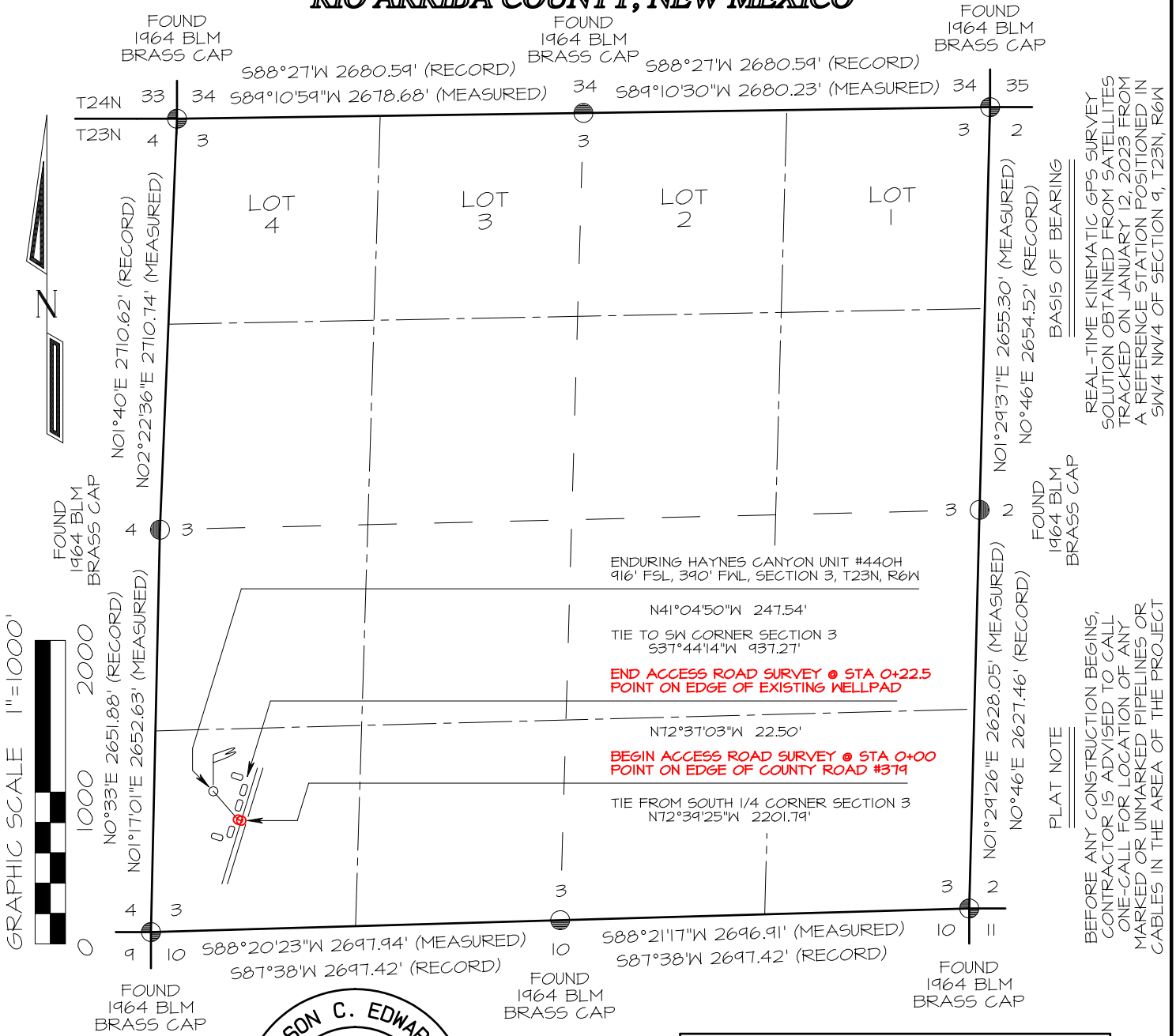

C/L




EDWARDS SURVEYING, INC. IS NOT LIABLE FOR LOCATION OF UNDERGROUND UTILITIES OR PIPELINES.

CONTRACTOR SHOULD CONTACT ONE-CALL FOR LOCATION OF ANY MARKED OR UNMARKED UNDERGROUND UTILITIES OR PIPELINES ON WELLPAD AND/OR ACCESS ROAD AT LEAST TWO WORKING DAYS PRIOR TO CONSTRUCTION.

# ENDURING RESOURCES, LLC HAYNES CANYON UNIT #440H
# EXISTING ACCESS ROAD SURVEY LOCATED IN
# SW/4 SW/4 OF SECTION 3, T23N, R6W, NMPM
# RIO ARRIBA COUNTY, NEW MEXICO




JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED PROFESSIONAL SURVEYOR

| ~ SURFACE OWNERSHIP ~ Bureau of Land Management | |
|---|---|
| 0+00 TO 0+22.5 | 22.5 FT / 1.4 RODS |

I, Jason C. Edwards, a registered Professional Surveyor under the laws of the State of New Mexico, hereby certify that this plat was prepared from field notes of an actual survey meeting the minimum requirements of the standards for easement surveys and is true and correct to the best of my knowledge and belief.

JASON C. EDWARDS Date: August 10, 2023

Jason C. Edwards, P.L.S.
New Mexico L.S. #15269

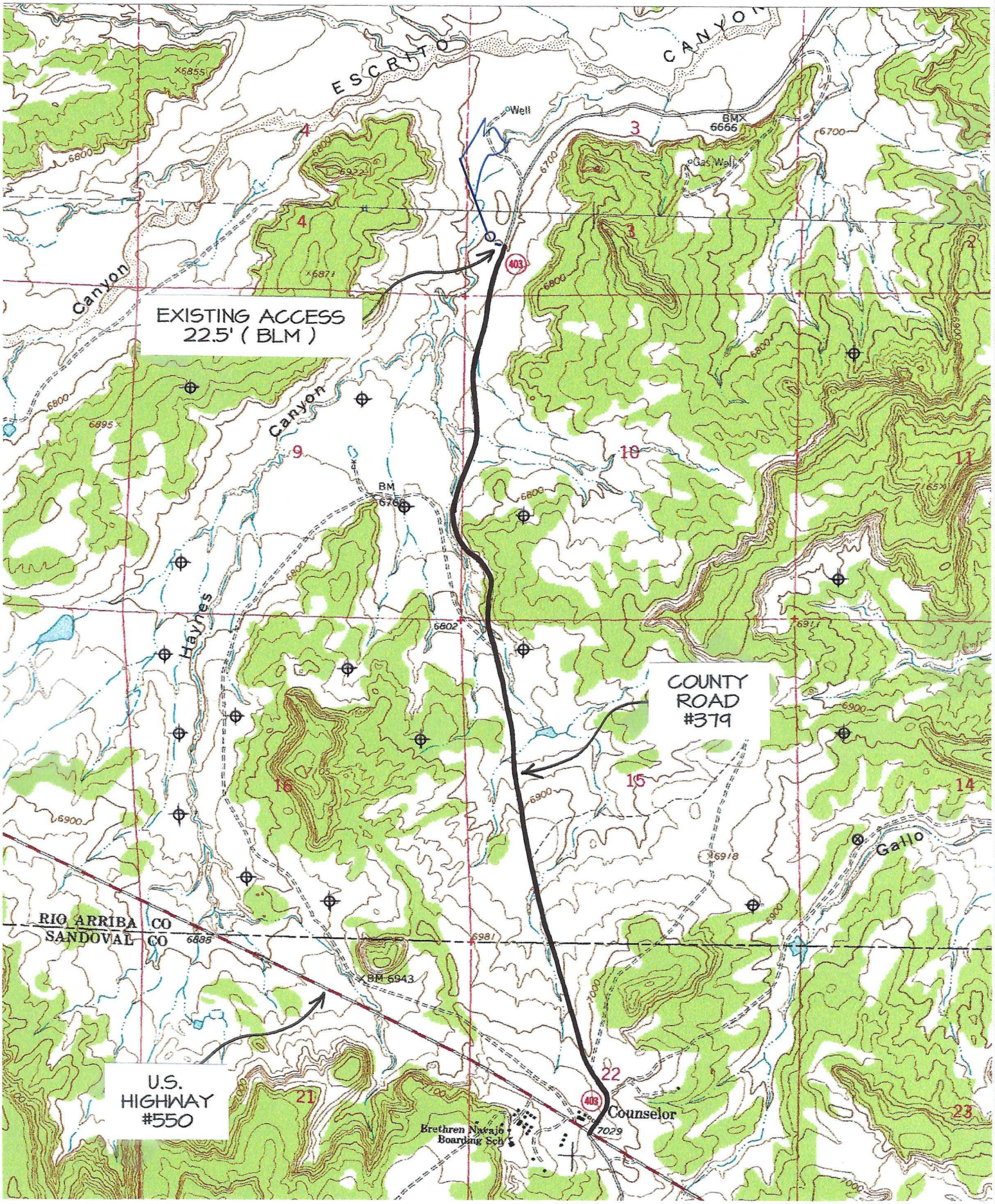
Prepared for:
ENDURING RESOURCES
200 ENERGY COURT
FARMINGTON, NM 87401

Land Surveyor:
Jason C. Edwards
Mailing Address:
Post Office Box 6612
Farmington, NM 87499
Business Address:
111 East Pinon Street
Farmington, NM 87402
(505) 486-1695 (Office)
ncesurveys@comcast.net
SURVEYS, INC.

CHECKED BY: JCE
DRAWN BY: EDO
SHEET 4 OF 6
FILENAME: 2363MAP1

# ENDURING RESOURCES HAYNES CANYON UNIT #440H

916' FSL & 390' FWL, SECTION 3, T23N, R6W N.M.P.M.
RIO ARRIBA COUNTY, NEW MEXICO




TOPO NAME : COUNSELOR ⊕ PRODUCING WELL ⊗ PLUGGED & ABANDONED WELL

**Directions from the Intersection of US Hwy 550 & US Hwy 64**

**in Bloomfield, NM to Enduring Resources, LLC Haynes Canyon Unit #440H**

**916' FSL & 390' FWL, Section 3, T23N, R6W, N.M.P.M., Rio Arriba County, NM**

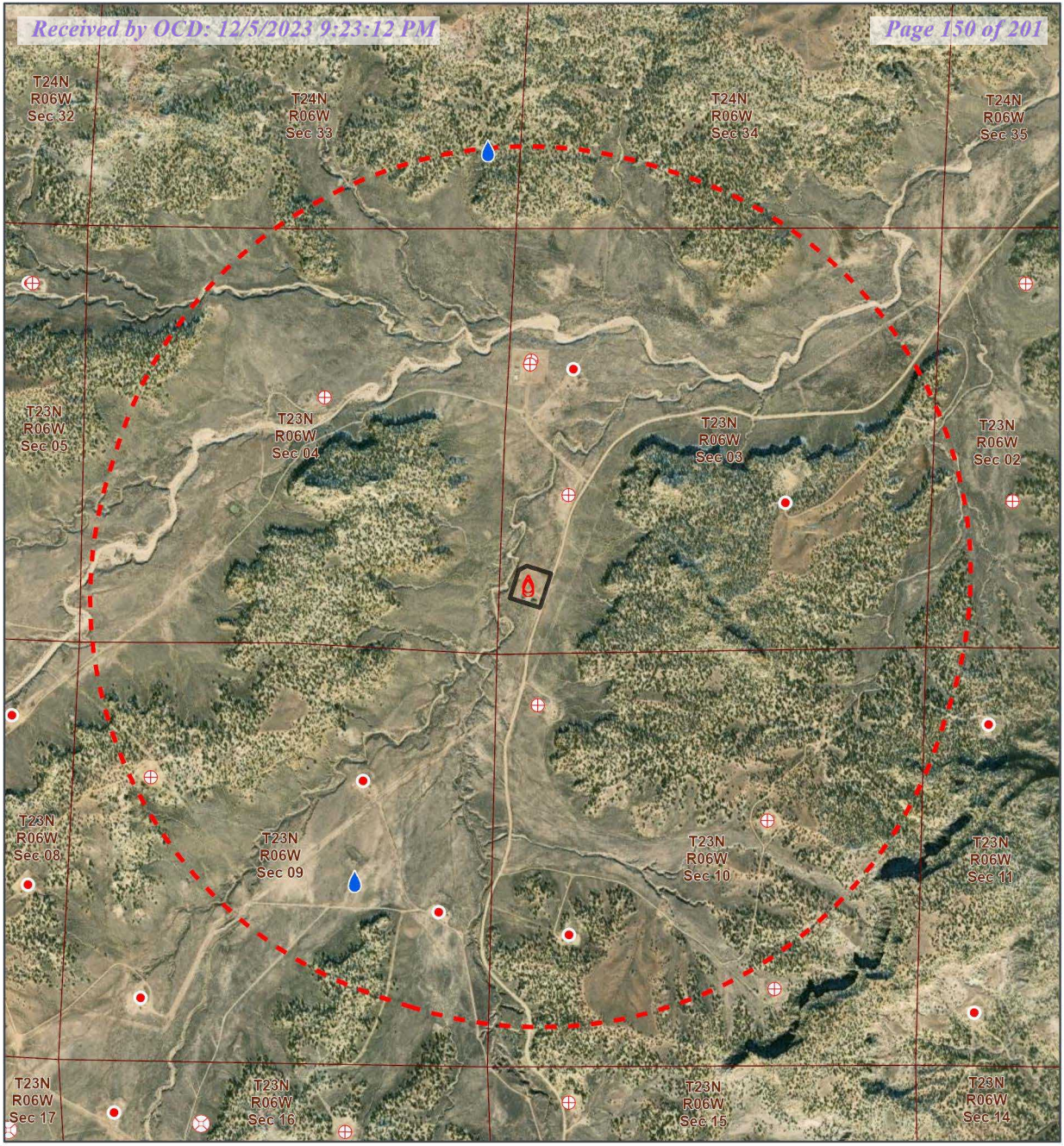
**Latitude 36.248698°N Longitude -107.464489°W Datum: NAD1983**

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 53.8 miles to Mile Marker 97.6

Go Left (Northerly) on County Road #379 (aka State Highway #403) for 1.5 miles to fork in roadway;

Go Right (Northerly) which is straight remaining on County Road #379 (aka State Highway #403) for 1.4 miles to existing access road on left-hand side which continues for 22.5' to Enduring Haynes Canyon Unit #440H staked location.

# Appendix B. EXISTING WELLS WITHIN 1 MILE




## HCU 428H Project | Wells Within 1 Mile

- OSE Points of Diverson
- Wellpad
- 1 Mile Buffer

**Oil and Gas Well Status**

- Active
- Cancelled
- New
- Plugged (site released)

| Wells | Within 1 Mile | Within Map Extent |
|---|---|---|
| OSE Points of Diversion | 2 | 2 |
| Active O&G | 5 | 12 |
| Cancelled O&G | 0 | 2 |
| New O&G | 0 | 2 |
| Plugged (site released) O&G | 7 | 13 |

Rio Arriba County, NM
NAD 1983 UTM Zone 13N
36.249°N 107.4644°W

0 1,000 2,000 Feet
0 250 500 Meters

N

1:25,000

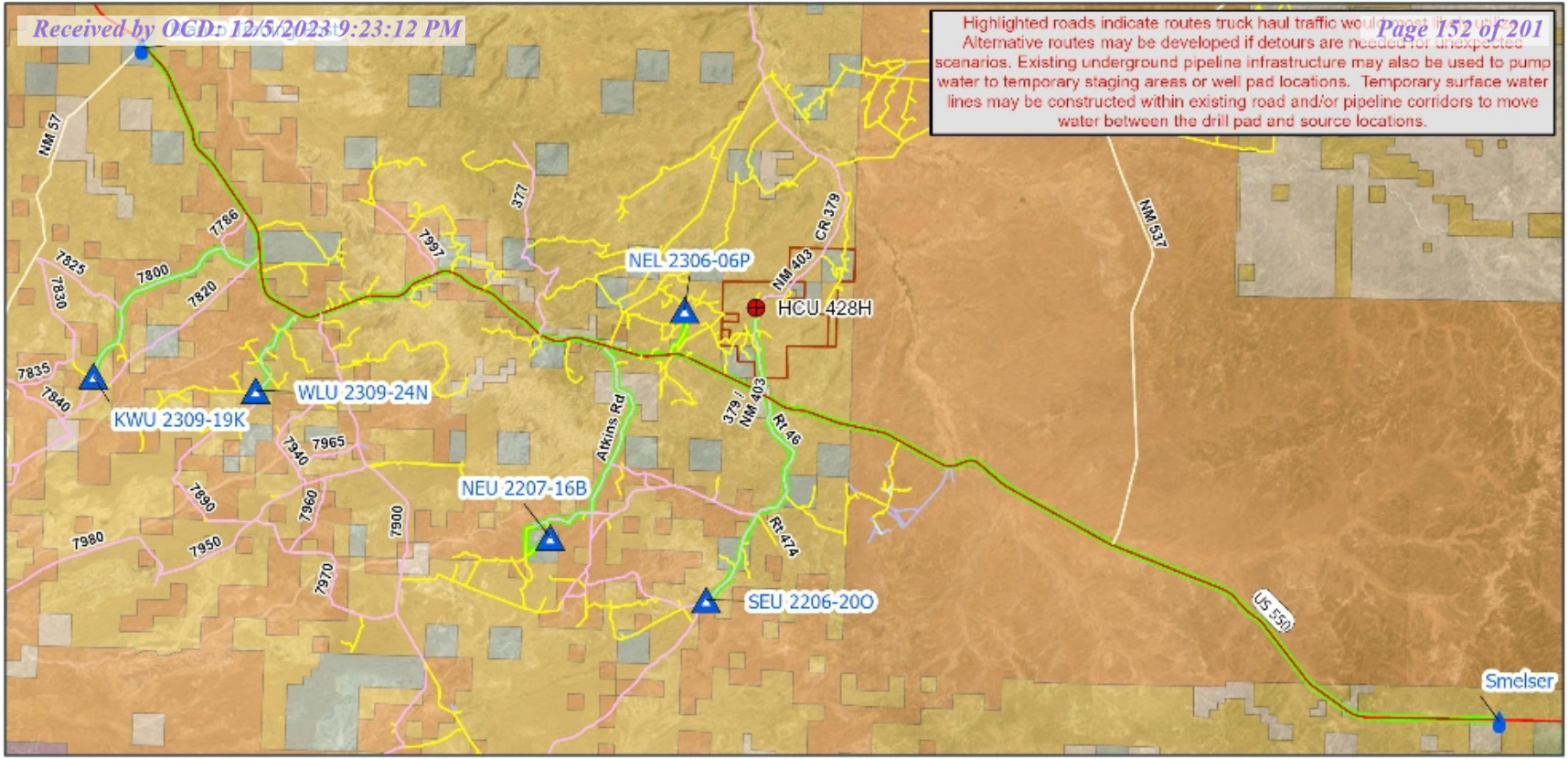
*Base Map: ESRI ArcGIS Online, accessed August 2023*
Updated: 8/14/2023
Project No. 75253p13
Layout: 75253p13_HCU_SUPO_Well_Map
Aprx: 75253p13_HaynesCanyon

SWCA ENVIRONMENTAL CONSULTANTS

ENDURING RESOURCES, LLC

# Appendix C. WATER TRANSPORTATION MAP

Highlighted roads indicate routes truck haul traffic would [illegible]. Alternative routes may be developed if detours are needed for unexpected scenarios. Existing underground pipeline infrastructure may also be used to pump water to temporary staging areas or well pad locations. Temporary surface water lines may be constructed within existing road and/or pipeline corridors to move water between the drill pad and source locations.




## HCU 428H Project | Water Transportation

- HCU 428H
- Potable Water Source
- Non-Potable Water Source
- Potential Truck Route
- Access, Dirt
- County
- Highway
- Private
- Reclaim
- State

**Land Ownership**

- BLM
- USFS
- Tribal
- NPS
- Private
- State

- Unit Boundary

San Juan, Rio Arriba, and Sandoval County, NM
NAD 1983 UTM Zone 13N
36.2173°N 107.4485°W

0 10,000 20,000 Feet
0 3,000 6,000 Meters

N

1:345,000

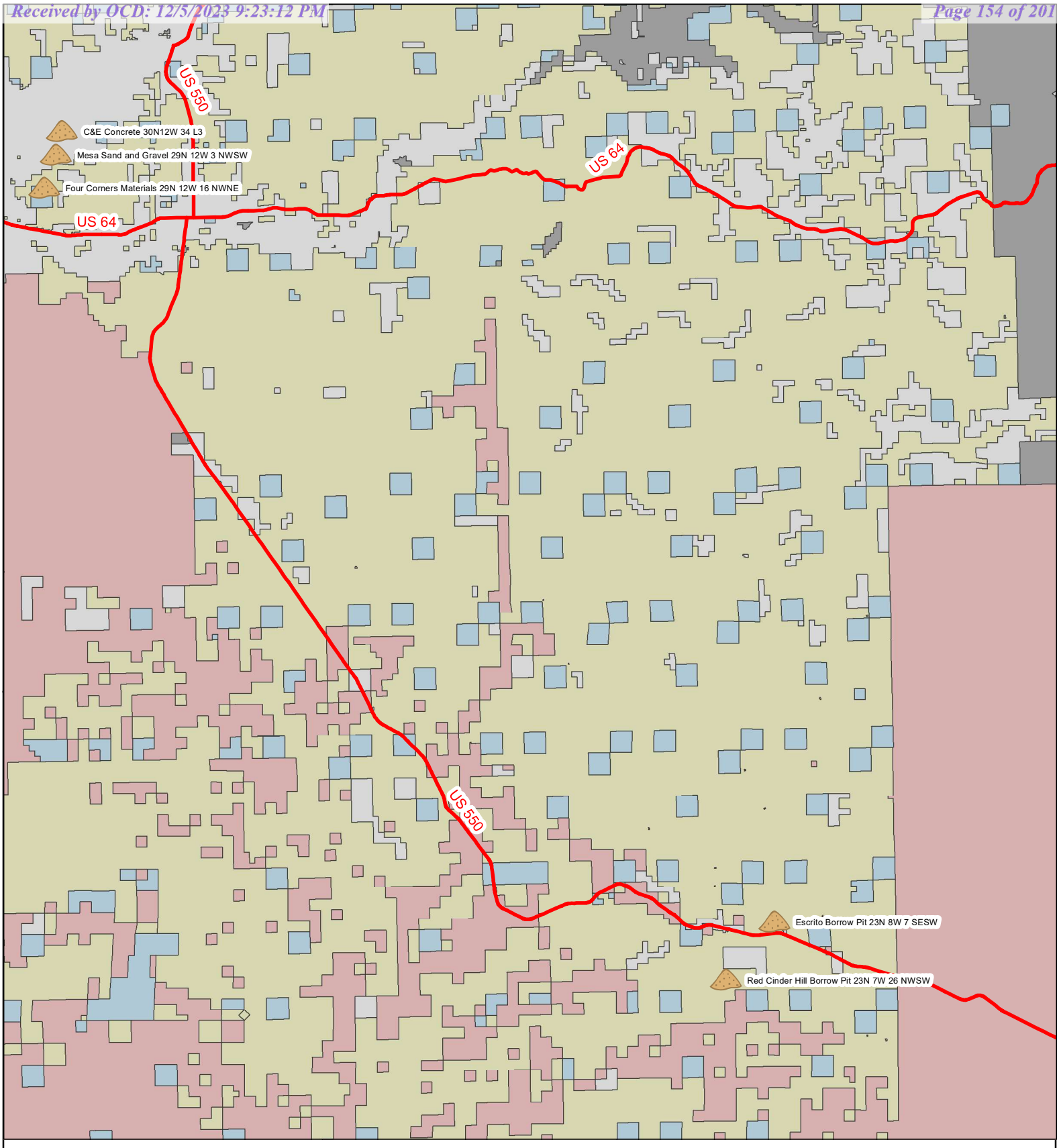
New Mexico

Base Map: ESRI ArcGIS Online, accessed August 2022
Updated: 8/10/2023
Project No: 75253p13
Layout: 3p13_HCU_428_Water_Transportation
Aprx: 75253p13_HaynesCanyon

SWCA ENVIRONMENTAL CONSULTANTS

ENDURING RESOURCES, LLC

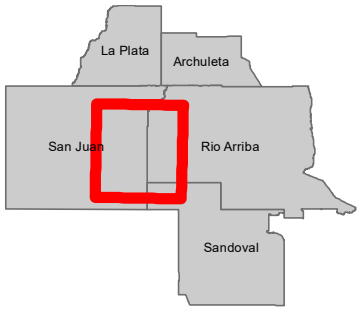
# Appendix D. CONSTRUCTION MATERIALS MAP




# Material Source Location Map

Material Source
Highway, Paved
BLM Surface
Indian Surface
Private Surface
State Surface

Miles
0 5 10 20

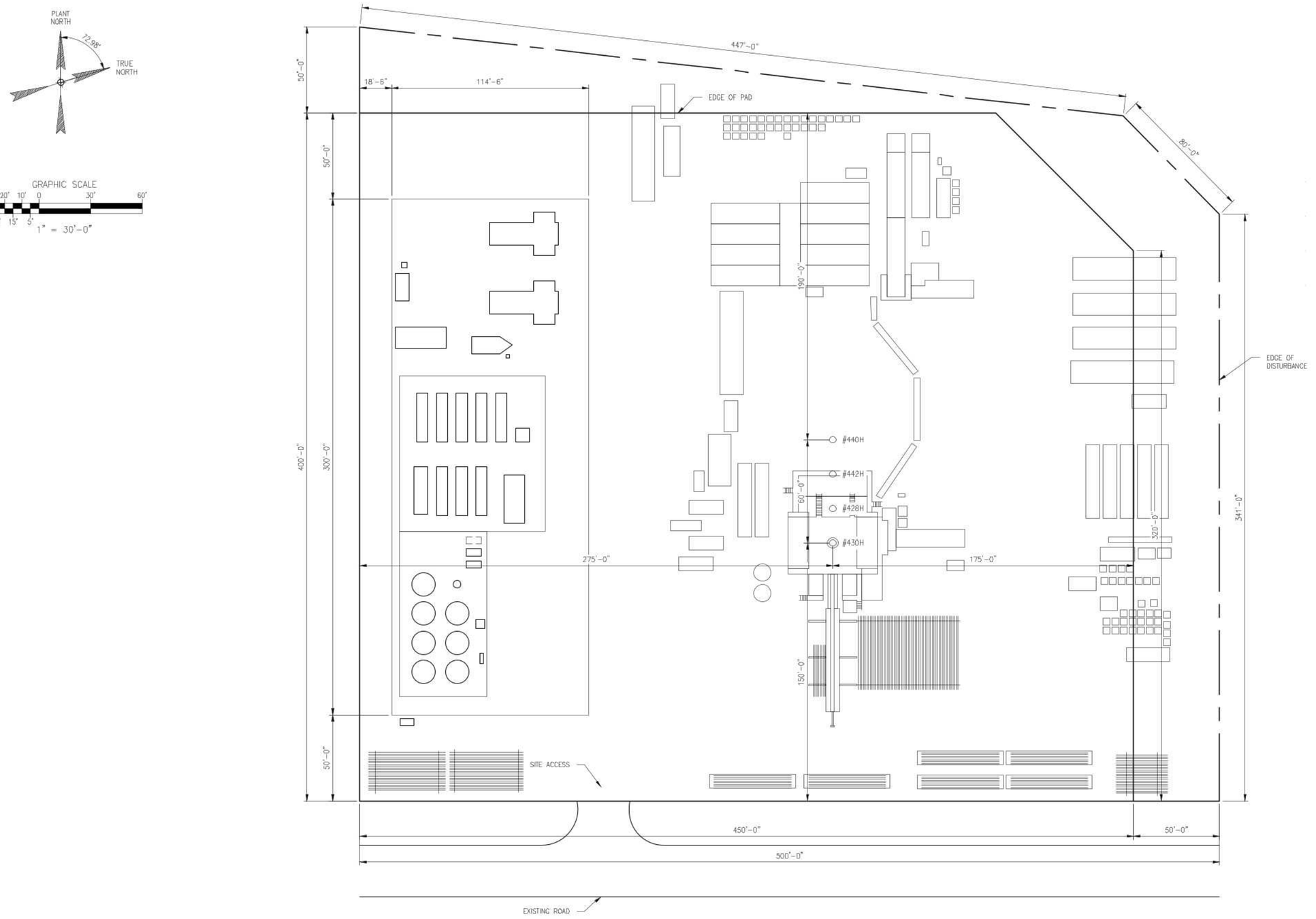



ENDURING RESOURCES, LLC

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

Author: drogers | Date: 10/23/2019

# Appendix E. WELL PAD LAYOUT DIAGRAMS




NOTES:

| REFERENCE DRAWINGS | |
|---|---|
| DWG NO. | TITLE |

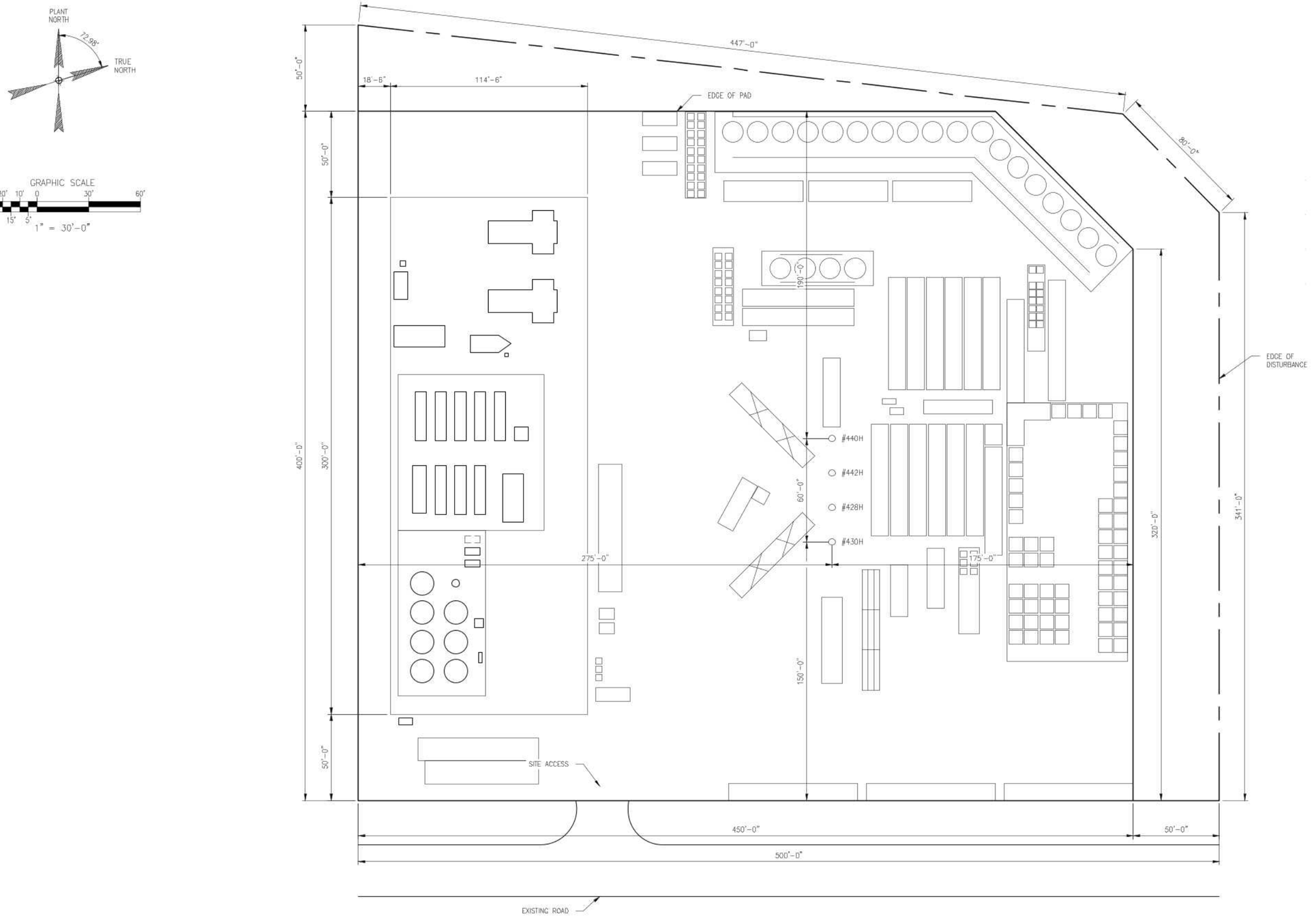
| REVISIONS | | | | | | |
|---|---|---|---|---|---|---|
| REV | DESCRIPTION | DATE | BY | CHK | ENG | APR |
| A | ISSUED FOR INFORMATION | 09/07/23 | DTS | SCK | – | BBS |

HALKER
ENGINEERED SOLUTIONS

ENDURING RESOURCES
HAYNES CANYON UNIT 428H
FACILITY AND RIG LAYOUT

SCALE: (FORMATTED 22X34) 1"=30'-0" | DRAWING NO. 21129-01-31190 | A

FILE PATH: P:\ENDURING RESOURCES\21129-01_PAD_LAYOUTS_&_BORING_PROJECTS\3-0_DESIGN\3-1_CIVIL\21129-01-31190_RIG_428H.DWG BYDANSIRRIDGE DATE:Sep 07, 2023 3:30pm




NOTES:

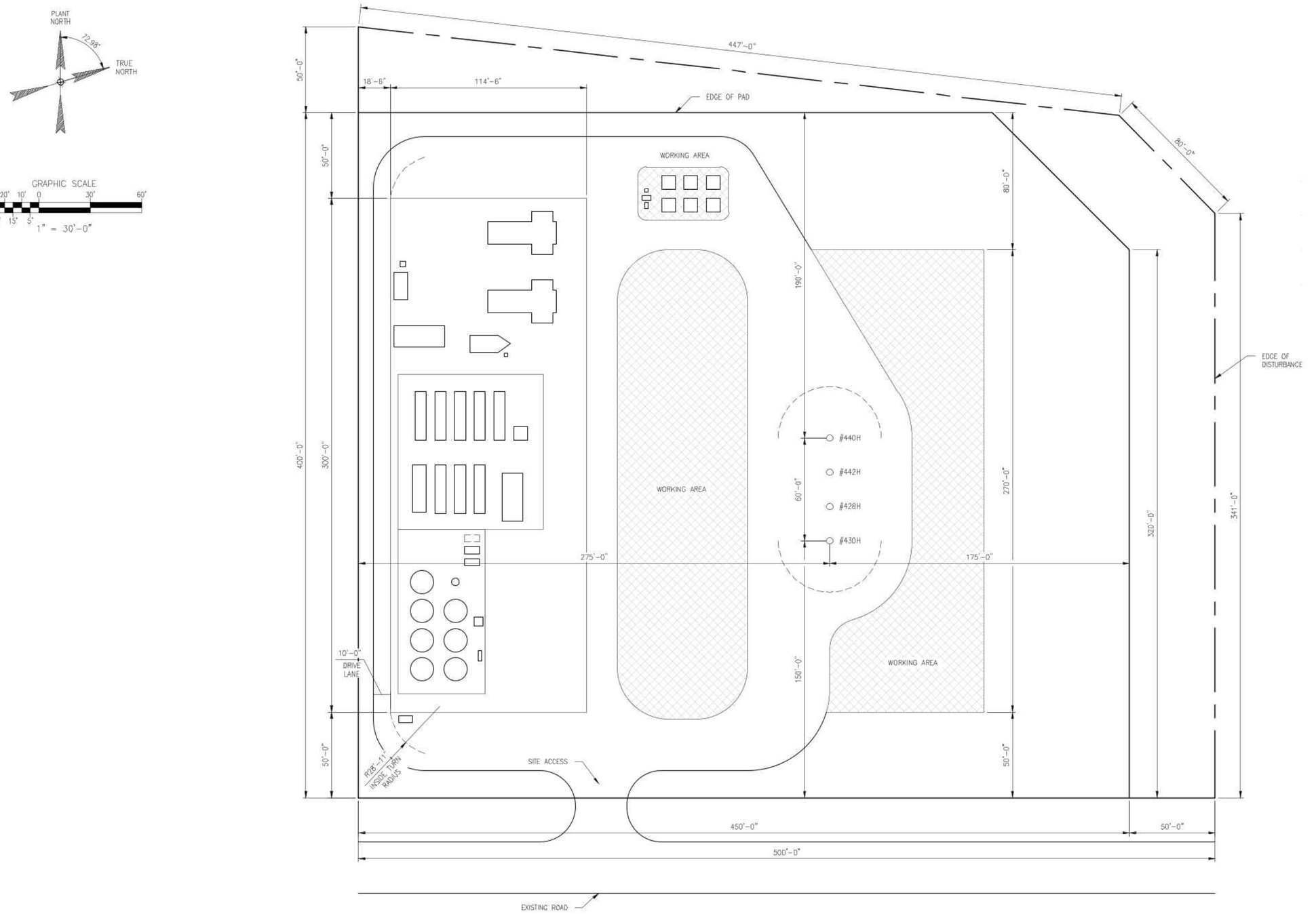
| REFERENCE DRAWINGS | | REVISIONS | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | A | ISSUED FOR INFORMATION | 09/07/23 | DTS | SCK | – | BBS |
| DWG NO. | TITLE | REV | DESCRIPTION | DATE | BY | CHK | ENG | APR |

HALKER
ENGINEERED SOLUTIONS

ENDURING RESOURCES
HAYNES CANYON UNIT 428H
FACILITY AND COMPLETIONS LAYOUT

SCALE: (FORMATTED 22X34) 1"=30'-0" | DRAWING NO. 21129-01-31191 | A

FILE PATH: P:\ENDURING RESOURCES\21129-01_PAD_LAYOUTS_&_BORING_PROJECTS\3-0_DESIGN\3-1_CIVIL\21129-01-31191_COMPLETIONS_428H.DWG BY:DAN.BRIDGE DATE:Sep 07, 2023 8:39am




NOTES:

| REFERENCE DRAWINGS | |
|---|---|
| DWG NO. | TITLE |

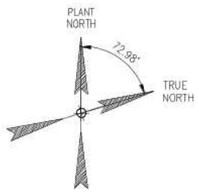
| REVISIONS | | | | | | | |
|---|---|---|---|---|---|---|---|
| REV | DESCRIPTION | DATE | BY | CHK | ENG | APR | |
| A | ISSUED FOR INFORMATION | 08/31/23 | SCK | DTS | – | BBS | |

HALKER
ENGINEERED SOLUTIONS

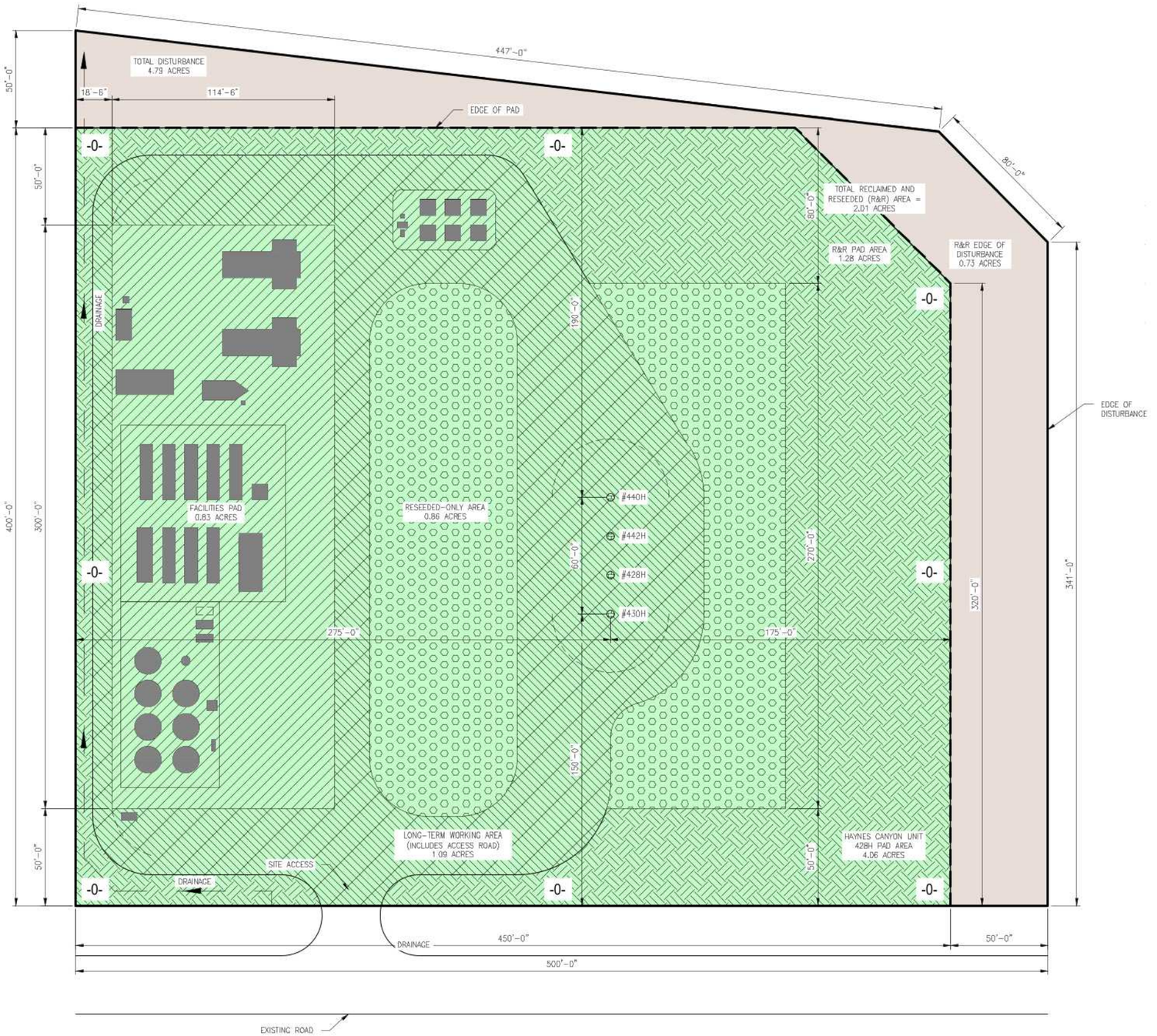
ENDURING RESOURCES
HAYNES CANYON UNIT 428H
FACILITY LAYOUT

SCALE: (FORMATTED 22X34) 1"=30'-0"
DRAWING NO. 21129-01-31192
A

FILE PATH: P:\ENDURING RESOURCES\21129-01_PAD_LAYOUTS_&_BORING_PROJECTS\3-0_DESIGN\3-1_CIVIL\21129-01-31192_FACILITY.DWG BY:SCOTTKLANCIC DATE:Aug 31, 2023 7:58am




GRAPHIC SCALE
30' 20' 10' 0 30' 60'
25' 15' 5'
1" = 30'-0"




LEGEND:

- WELLHEAD
- EQUIPMENT
- FACILITIES PAD 0.83 ACRES
- LONG-TERM WORKING AREA (INCLUDES ACCESS ROAD) 1.09 ACRES
- RESEEDED-ONLY AREA 0.86 ACRES
- HAYNES CANYON UNIT 428H PAD AREA 4.06 ACRES
- TOTAL DISTURBANCE 4.79 ACRES

RECLAIMED AND RESEEDED (R&R) AREA = 2.01 ACRES

- R&R PAD AREA = 1.28 ACRES
- R&R EDGE OF DISTURBANCE 0.73 ACRES

NOTES:

REFERENCE DRAWINGS

| DWG NO. | TITLE |
|---|---|

REVISIONS

| REV | DESCRIPTION | DATE | BY | CHK | ENG | APR |
|---|---|---|---|---|---|---|
| A | ISSUED FOR INFORMATION | 08/31/23 | SCK | DTS | – | BBS |

HALKER ENGINEERED SOLUTIONS

ENDURING RESOURCES
HAYNES CANYON UNIT 428H
PROPOSED RECLAMATION

SCALE: (FORMATTED 22X34) 1"=30'-0" | DRAWING NO. 21129-01-31193 | A

FILE PATH: P:\ENDURING RESOURCES\21129-01_PAD_LAYOUTS_&_BORING_PROJECTS\3-0_DESIGN\3-1_CIVIL\21129-01-31193_RECLAMATION.DWG BY:SCOTT.KLANCIC DATE:Aug 31, 2023 8:32am

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

# PWD Data Report

12/05/2023

**APD ID:** 10400093966 **Submission Date:** 09/29/2023

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

**Well Type:** OIL WELL **Well Work Type:** Drill

## Section 1 - General

**Would you like to address long-term produced water disposal?** NO

## Section 2 - Lined

**Would you like to utilize Lined Pit PWD options?** N

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:** **PWD disturbance (acres):**

**Lined pit PWD on or off channel:**

**Lined pit PWD discharge volume (bbl/day):**

**Lined pit**

**Pit liner description:**

**Pit liner manufacturers**

**Precipitated solids disposal:**

**Decribe precipitated solids disposal:**

**Precipitated solids disposal**

**Lined pit precipitated solids disposal schedule:**

**Lined pit precipitated solids disposal schedule**

**Lined pit reclamation description:**

**Lined pit reclamation**

**Leak detection system description:**

**Leak detection system**

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

**Lined pit Monitor description:**

**Lined pit Monitor**

**Lined pit: do you have a reclamation bond for the pit?**

**Is the reclamation bond a rider under the BLM bond?**

**Lined pit bond number:**

**Lined pit bond amount:**

**Additional bond information**

## Section 3 - Unlined

**Would you like to utilize Unlined Pit PWD options?** N

**Produced Water Disposal (PWD) Location:**

**PWD disturbance (acres):** **PWD surface owner:**

**Unlined pit PWD on or off channel:**

**Unlined pit PWD discharge volume (bbl/day):**

**Unlined pit**

**Precipitated solids disposal:**

**Decribe precipitated solids disposal:**

**Precipitated solids disposal**

**Unlined pit precipitated solids disposal schedule:**

**Unlined pit precipitated solids disposal schedule**

**Unlined pit reclamation description:**

**Unlined pit reclamation**

**Unlined pit Monitor description:**

**Unlined pit Monitor**

**Do you propose to put the produced water to beneficial use?**

**Beneficial use user**

**Estimated depth of the shallowest aquifer (feet):**

**Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?**

**TDS lab results:**

**Geologic and hydrologic**

**State**

**Unlined Produced Water Pit Estimated**

**Unlined pit: do you have a reclamation bond for the pit?**

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

**Is the reclamation bond a rider under the BLM bond?**

**Unlined pit bond number:**

**Unlined pit bond amount:**

**Additional bond information**

## Section 4 -

**Would you like to utilize Injection PWD options?** N

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:** **PWD disturbance (acres):**

**Injection PWD discharge volume (bbl/day):**

**Injection well mineral owner:**

**Injection well type:**

**Injection well number:** **Injection well name:**

**Assigned injection well API number?** **Injection well API number:**

**Injection well new surface disturbance (acres):**

**Minerals protection information:**

**Mineral protection**

**Underground Injection Control (UIC) Permit?**

**UIC Permit**

## Section 5 - Surface

**Would you like to utilize Surface Discharge PWD options?** N

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:** **PWD disturbance (acres):**

**Surface discharge PWD discharge volume (bbl/day):**

**Surface Discharge NPDES Permit?**

**Surface Discharge NPDES Permit attachment:**

**Surface Discharge site facilities information:**

**Surface discharge site facilities map:**

## Section 6 -

**Would you like to utilize Other PWD options?** N

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:** **PWD disturbance (acres):**

**Other PWD discharge volume (bbl/day):**

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

**Other PWD type description:**

**Other PWD type**

**Have other regulatory requirements been met?**

**Other regulatory requirements**

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

# Bond Info Data

12/05/2023

**APD ID:** 10400093966 **Submission Date:** 09/29/2023

**Operator Name:** ENDURING RESOURCES LLC

**Well Name:** HAYNES CANYON UNIT **Well Number:** 440H

**Well Type:** OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

## Bond

**Federal/Indian APD:** FED

**BLM Bond number:**

**BIA Bond number:**

**Do you have a reclamation bond?** NO

**Is the reclamation bond a rider under the BLM bond?**

**Is the reclamation bond BLM or Forest Service?**

**BLM reclamation bond number:**

**Forest Service reclamation bond number:**

**Forest Service reclamation bond**

**Reclamation bond number:**

**Reclamation bond amount:**

**Reclamation bond rider amount:**

**Additional reclamation bond information**

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Drive
Santa Fe, NM 87505

Revised August 1, 2011

Submit one copy to
Appropriate District Office

☐ AMENDED REPORT

# WELL LOCATION AND ACREAGE DEDICATION PLAT

| [1] API Number | [2] Pool Code | [3] Pool Name |
|---|---|---|
| 30-039-31447 | 13379 | COUNSELOR GALLUP-DAKOTA OIL POOL |

| [4] Property Code | [5] Property Name | [6] Well Number |
|---|---|---|
| 335063 | HAYNES CANYON UNIT | 440H |

| [7] OGRID No. | [8] Operator Name | [9] Elevation |
|---|---|---|
| 372286 | ENDURING RESOURCES, LLC | 6703' |

## [10] Surface Location

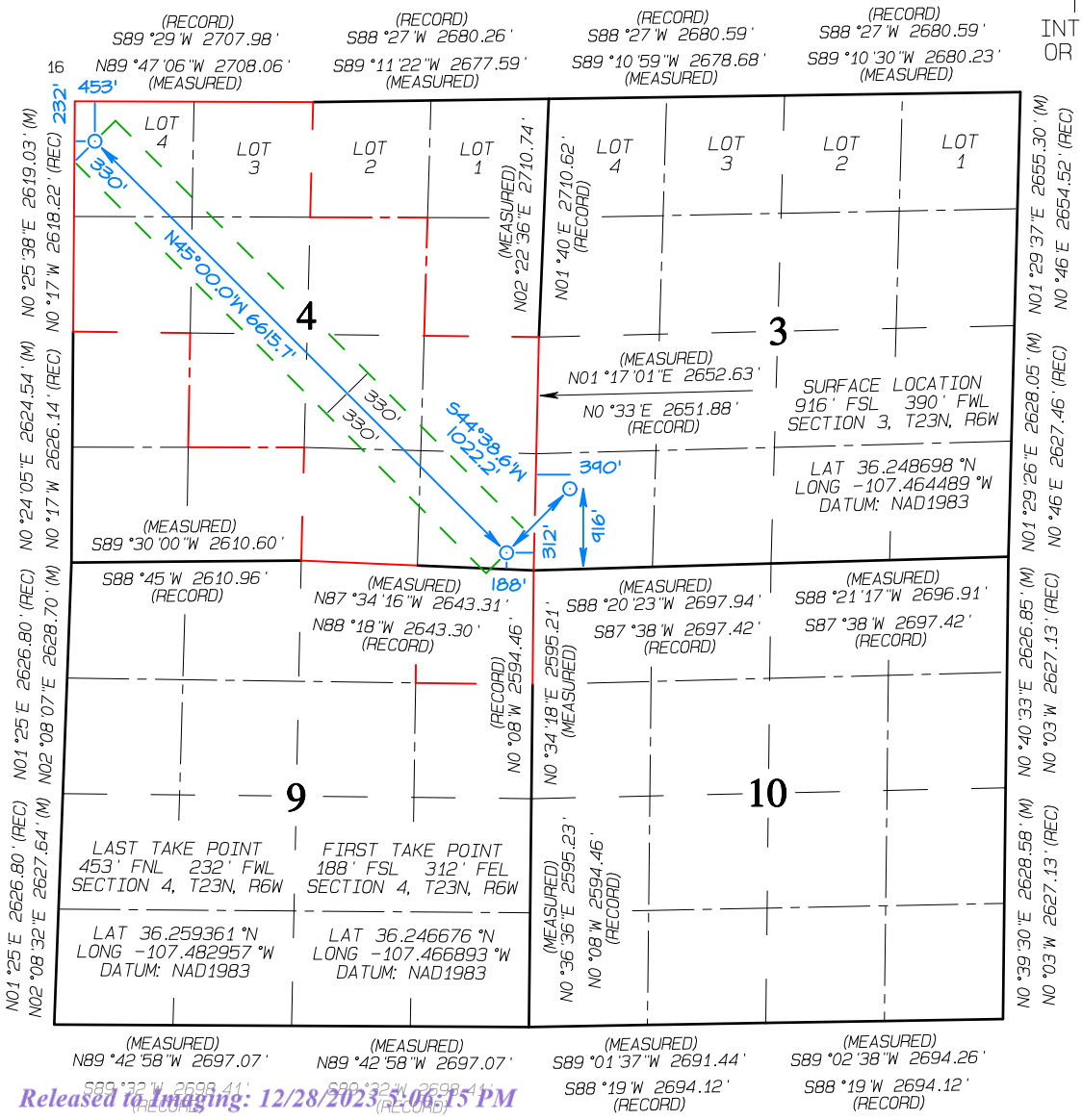
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| M | 3 | 23N | 6W | | 916 | SOUTH | 390 | WEST | RIO ARRIBA |

## [11] Bottom Hole Location If Different From Surface

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| D | 4 | 23N | 6W | 4 | 453 | NORTH | 232 | WEST | RIO ARRIBA |

| [12] Dedicated Acres | | [13] Joint or Infill | [14] Consolidation Code | [15] Order No. |
|---|---|---|---|---|
| 439.54 | SW/4 NE/4, NE/4 SW/4 NW/4, SE/4 - Section 4 NE/4 NE/4 - Section 9 | | | |

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION




## [17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom-hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature — Date: 8/31/23

Heather Huntington
Printed Name

hhuntington@enduringresources.com
E-mail Address

## [18] SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

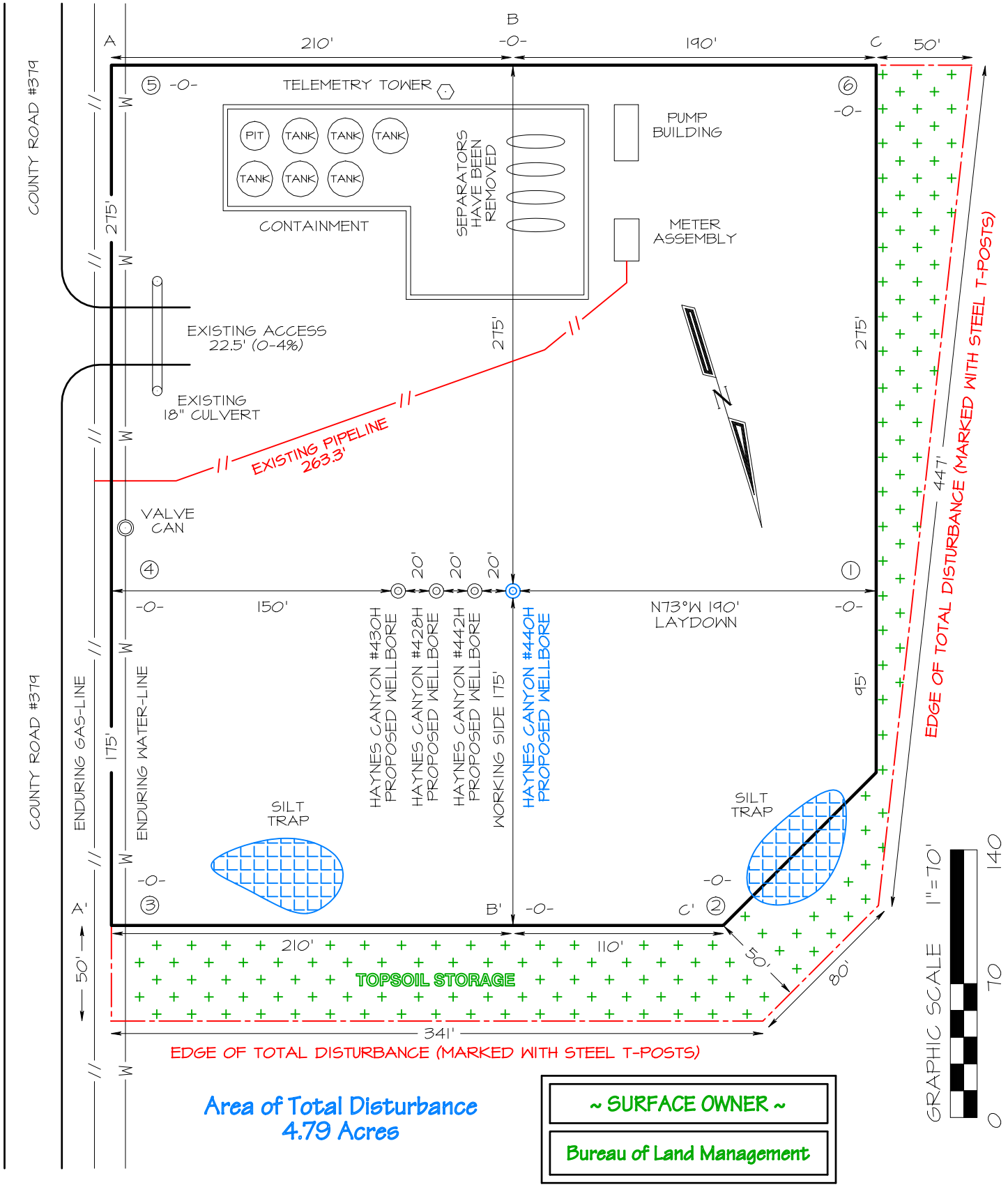
Date Revised: AUGUST 10, 2023
Survey Date: JANUARY 12, 2023

Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS
Certificate Number 15269

# ENDURING RESOURCES, LLC HAYNES CANYON UNIT #440H
# 916' FSL & 390' FWL, SECTION 3, T23N, R6W, NMPM
# RIO ARRIBA COUNTY, NEW MEXICO ELEVATION: 6703'
# LAT 36.248698°N LONG -107.464489°W DATUM: NAD1983




**Area of Total Disturbance**
**4.79 Acres**

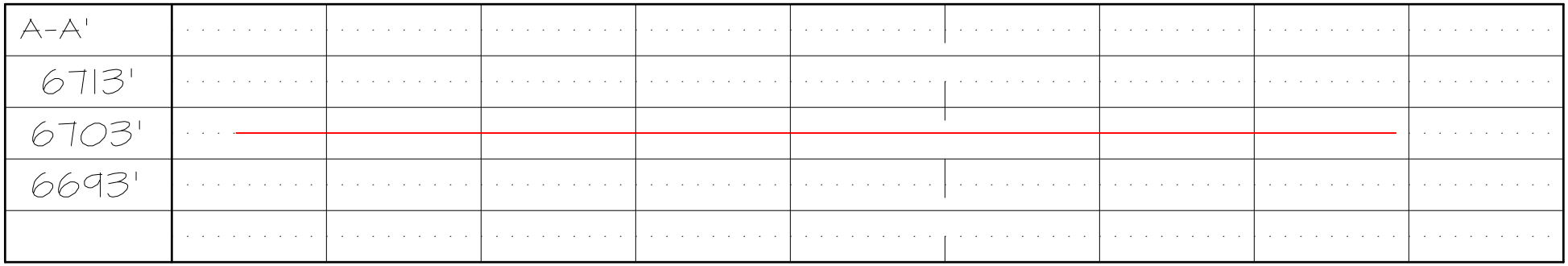
~ SURFACE OWNER ~

Bureau of Land Management

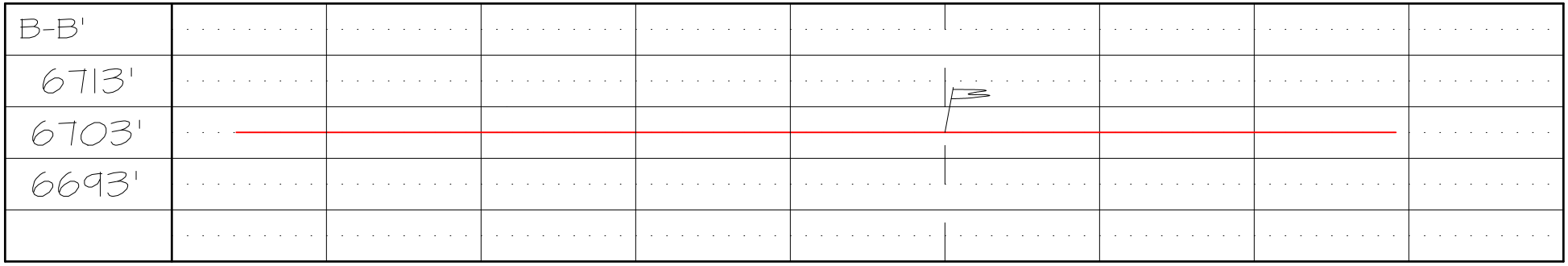
Steel T-Posts have been set to define Edge of Disturbance limits which are 50' offset from edge of wellpad, unless otherwise noted. Some areas have been restricted or omitted as shown hereon.

# ENDURING RESOURCES, LLC HAYNES CANYON UNIT #440H
# 916' FSL & 390' FWL, SECTION 3, T23N, R6W, NMPM
# RIO ARRIBA COUNTY, NEW MEXICO ELEVATION: 6703'

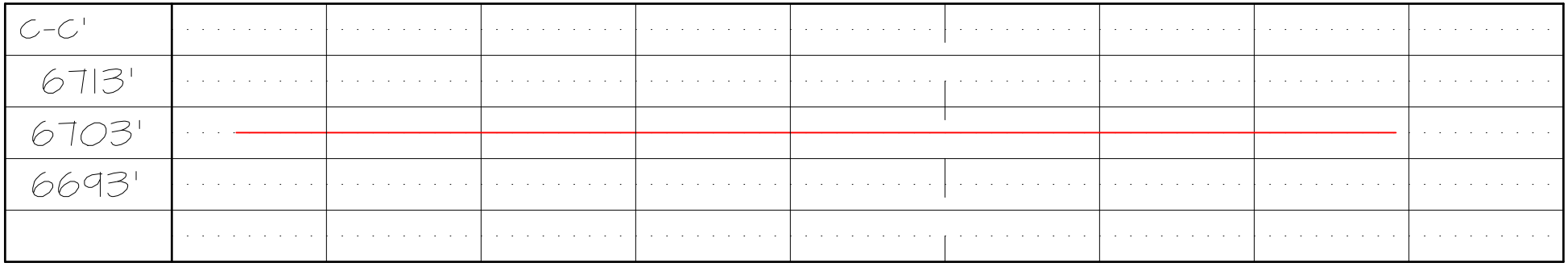
HORIZONTAL SCALE 1"=60' C/L VERTICAL SCALE 1"=30'




C/L



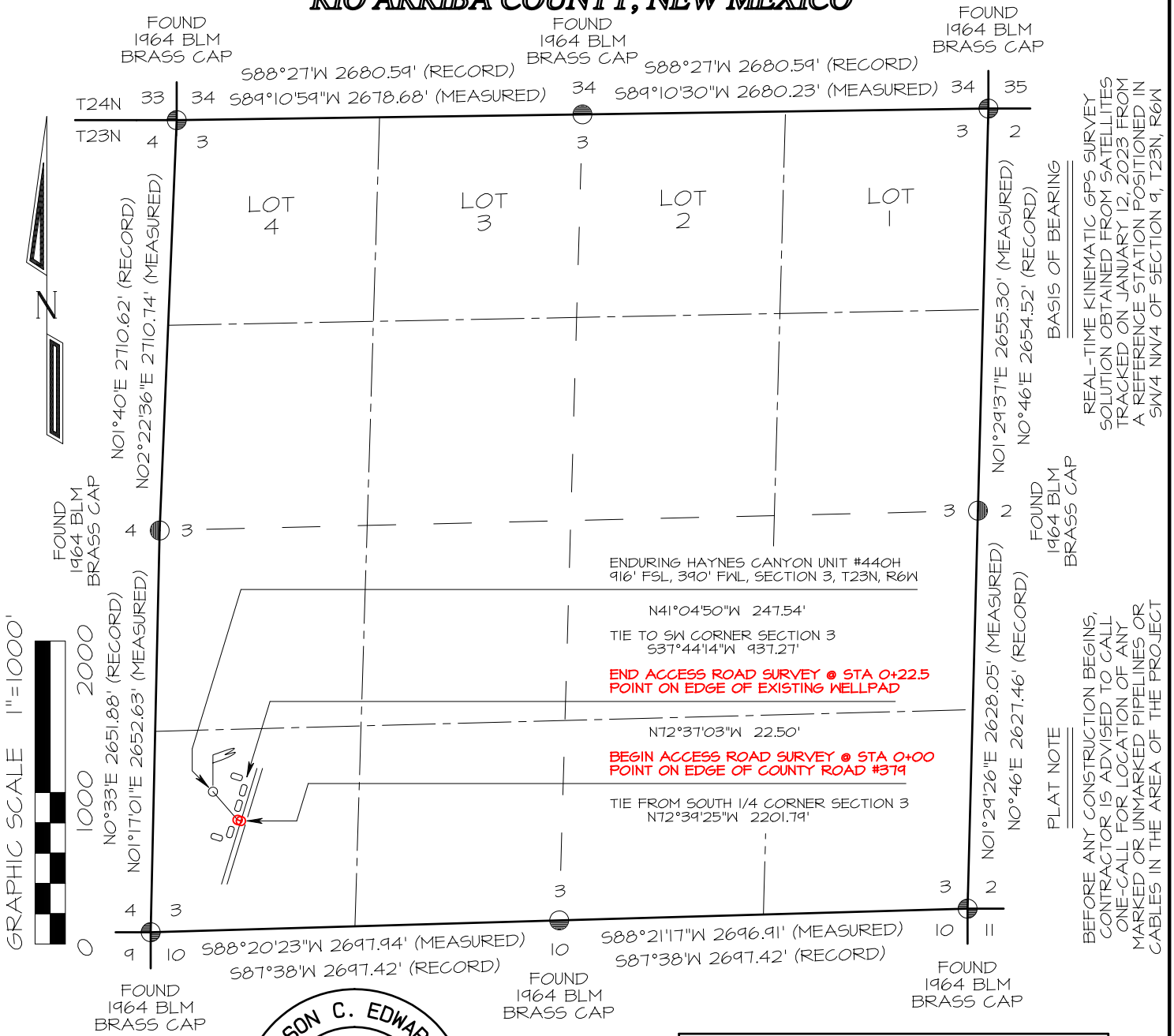

C/L




EDWARDS SURVEYING, INC. IS NOT LIABLE FOR LOCATION OF UNDERGROUND UTILITIES OR PIPELINES.

CONTRACTOR SHOULD CONTACT ONE-CALL FOR LOCATION OF ANY MARKED OR UNMARKED UNDERGROUND UTILITIES OR PIPELINES ON WELLPAD AND/OR ACCESS ROAD AT LEAST TWO WORKING DAYS PRIOR TO CONSTRUCTION.

# ENDURING RESOURCES, LLC HAYNES CANYON UNIT #440H
# EXISTING ACCESS ROAD SURVEY LOCATED IN
# SW/4 SW/4 OF SECTION 3, T23N, R6W, NMPM
# RIO ARRIBA COUNTY, NEW MEXICO




| ~ SURFACE OWNERSHIP ~ Bureau of Land Management | |
|---|---|
| 0+00 TO 0+22.5 | 22.5 FT / 1.4 RODS |

JASON C. EDWARDS NEW MEXICO 15269 REGISTERED PROFESSIONAL SURVEYOR

I, Jason C. Edwards, a registered Professional Surveyor under the laws of the State of New Mexico, hereby certify that this plat was prepared from field notes of an actual survey meeting the minimum requirements of the standards for easement surveys and is true and correct to the best of my knowledge and belief.

JASON C. EDWARDS Date: August 10, 2023

Jason C. Edwards, P.L.S.
New Mexico L.S. #15269

Prepared for:
ENDURING RESOURCES
200 ENERGY COURT
FARMINGTON, NM 87401

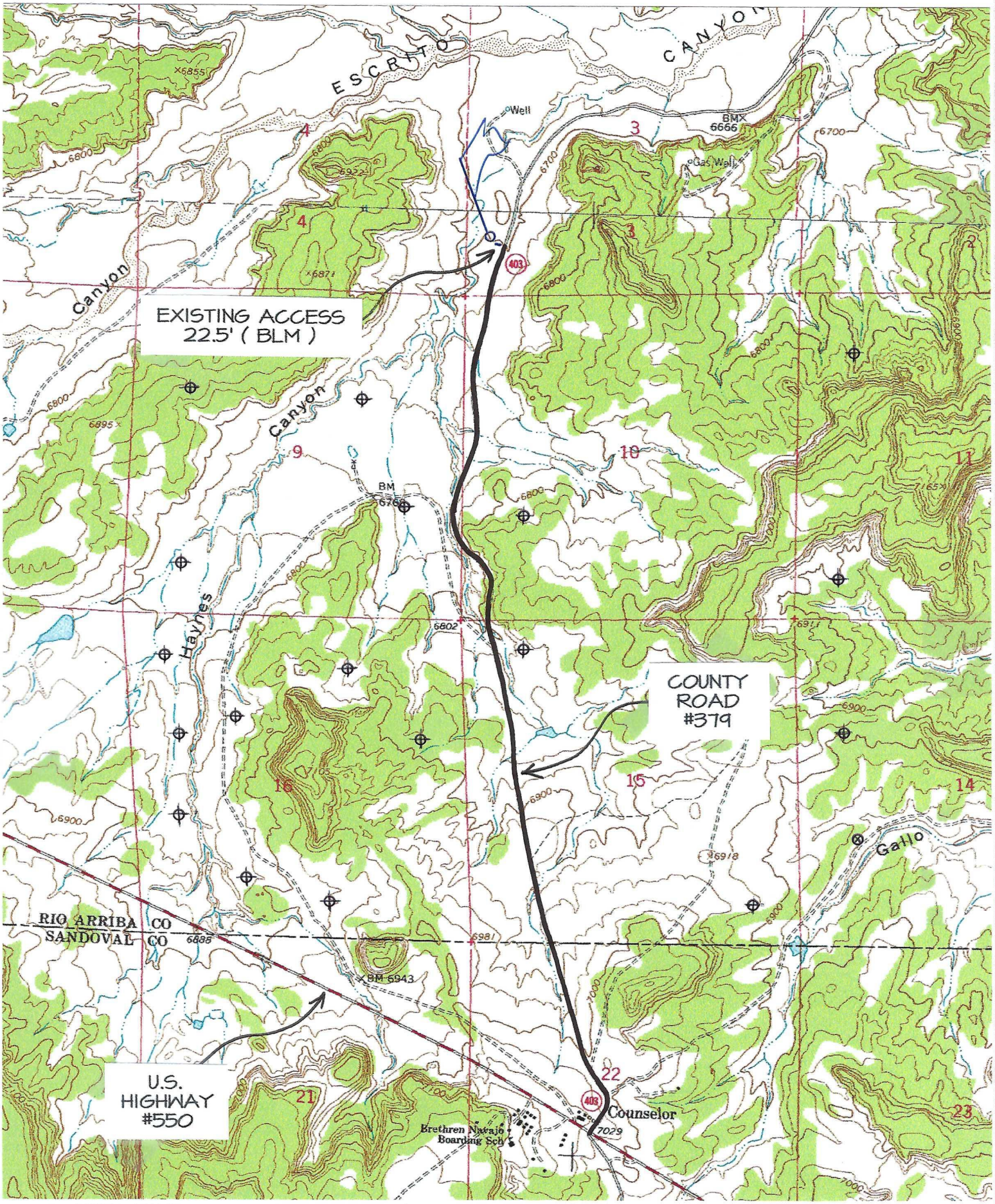
N C E SURVEYS, INC.
Land Surveyor: Jason C. Edwards
Mailing Address: Post Office Box 6612 Farmington, NM 87499
Business Address: 111 East Pinon Street Farmington, NM 87402
(505) 486-1695 (Office)
ncesurveys@comcast.net

CHECKED BY: JCE
DRAWN BY: EDO
SHEET 4 OF 6
FILENAME: 2363MAP1

# ENDURING RESOURCES HAYNES CANYON UNIT #440H



916' FSL & 390' FWL, SECTION 3, T23N, R6W N.M.P.M.
RIO ARRIBA COUNTY, NEW MEXICO



**Directions from the Intersection of US Hwy 550 & US Hwy 64**

**in Bloomfield, NM to Enduring Resources, LLC Haynes Canyon Unit #440H**

**916' FSL & 390' FWL, Section 3, T23N, R6W, N.M.P.M., Rio Arriba County, NM**

**Latitude 36.248698°N Longitude -107.464489°W Datum: NAD1983**

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 53.8 miles to Mile Marker 97.6

Go Left (Northerly) on County Road #379 (aka State Highway #403) for 1.5 miles to fork in roadway;

Go Right (Northerly) which is straight remaining on County Road #379 (aka State Highway #403) for 1.4 miles to existing access road on left-hand side which continues for 22.5' to Enduring Haynes Canyon Unit #440H staked location.

State of New Mexico
Energy, Minerals and Natural Resources Department

Submit Electronically
Via E-permitting

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

# NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

## Section 1 – Plan Description
**Effective May 25, 2021**

**I. Operator:** Enduring Resources IV, LLC **OGRID:** 372286 **Date:** 12/5/2023

**II. Type:** ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: _____

**III. Well(s):** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

| Well Name | API | ULSTR | Footages | Anticipated Oil BBL/D | Anticipated Gas MCF/D | Anticipated Produced Water |
|---|---|---|---|---|---|---|
| Haynes Canyon Unit 428H | pending | Sec. 3, T23N, R6W | UL:M SHL: 903' FSL & 429' FWL | 279 | 1304 | 373 |
| Haynes Canyon Unit 430H | pending | Sec. 3, T23N, R6W | UL:M SHL: 897' FSL & 448' FWL | 279 | 1304 | 373 |
| Haynes Canyon Unit 440H | pending | Sec. 3, T23N, R6W | UL:M SHL: 916' FSL & 390' FWL | 279 | 1304 | 373 |
| Haynes Canyon Unit 442H | pending | Sec. 3, T23N, R6W | UL:M SHL: 910' FSL & 409' FWL | 279 | 1304 | 373 |

**IV. Central Delivery Point Name:** Haynes Canyon 428 CDP [See 19.15.27.9(D)(1) NMAC]

**V. Anticipated Schedule:** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

| Well Name | API | Spud Date | TD Reached Date | Completion Commencement Date | Initial Flow Back Date | First Production Date |
|---|---|---|---|---|---|---|
| Haynes Canyon Unit 428H | pending | 5/1/2024 | 5/20/2024 | 6/10/2024 | 7/8/2024 | 7/10/2024 |
| Haynes Canyon Unit 430H | pending | 5/13/2024 | 5/25/2024 | 6/10/2024 | 7/8/2024 | 7/10/2024 |
| Haynes Canyon Unit 440H | pending | 5/24/2024 | 6/4/2024 | 6/10/2024 | 7/9/2024 | 7/11/2024 |
| Haynes Canyon Unit 442H | pending | 6/1/2024 | 6/8/2024 | 6/10/2024 | 7/9/2024 | 7/11/2024 |

**VI. Separation Equipment:** ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

**VII. Operational Practices:** ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

**VIII. Best Management Practices:** ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

# Section 2 – Enhanced Plan

**EFFECTIVE APRIL 1, 2022**

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☒ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

**IX. Anticipated Natural Gas Production:**

| Well | API | Anticipated Average Natural Gas Rate MCF/D | Anticipated Volume of Natural Gas for the First Year MCF |
|---|---|---|---|
| | | | |
| | | | |

**X. Natural Gas Gathering System (NGGS):**

| Operator | System | ULSTR of Tie-in | Anticipated Gathering Start Date | Available Maximum Daily Capacity of System Segment Tie-in |
|---|---|---|---|---|
| | | | | |
| | | | | |

**XI. Map.** ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

**XII. Line Capacity.** The natural gas gathering system ☒ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

**XIII. Line Pressure.** Operator ☒ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

**XIV. Confidentiality:** ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

# Section 3 - Certifications

**Effective May 25, 2021**

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system. ***If Operator checks this box, Operator will select one of the following:***

**Well Shut-In.** ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

**Venting and Flaring Plan.** ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- **(a)** power generation on lease;
- **(b)** power generation for grid;
- **(c)** compression on lease;
- **(d)** liquids removal on lease;
- **(e)** reinjection for underground storage;
- **(f)** reinjection for temporary storage;
- **(g)** reinjection for enhanced oil recovery;
- **(h)** fuel cell production; and
- **(i)** other alternative beneficial uses approved by the division.

# Section 4 - Notices

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

**(a)** Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

**(b)** Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

**I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.**

| |
|---|
| Signature:  |
| Printed Name: Heather Huntington |
| Title: Regulatory Agent |
| E-mail Address: hhuntington@enduringresources.com |
| Date: 12/5/2023 |
| Phone: 505-636-9751 |

| **OIL CONSERVATION DIVISION**<br>**(Only applicable when submitted as a standalone form)** |
|---|
| Approved By: |
| Title: |
| Approval Date: |
| Conditions of Approval: |

# Attachments:

**Separation Equipment: Below is a complete description of how Operator will size separation equipment to optimize gas capture.**

Description of how separation equipment will be sized to optimize gas capture:
Well separation equipment is sized to have appropriate residence time and vapor space to remove gas particles on the micron scale per typical engineering calculations and/or operational experience. Furthermore, a sales scrubber downstream of the well separators is planned in order to capture any additional liquids if present. All gas is routed to end users or the sales pipeline under normal operating conditions.

**Operational & Best Management Practices: Below is a complete description of the actions the Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC. Additionally, below is a complete description of Operator's best management practices to minimize venting during active and planned maintenance.**

**Drilling Operations:**
Enduring Resources will minimize venting by:

- Gas will only be vented to the atmosphere to avoid risk of immediate or substantial adverse impact to employee safety, public health, and the environment.
- If utilized, flare stacks shall be located at a minimum of 100 feet from the nearest surface hole location

**Completion Operations:**
Enduring Resources will minimize venting by:

- Separator operation will commence as soon as technically feasible.
- Gas will route immediately to a collection system or applied to other beneficial use, such as a fuel source for onsite equipment.
- During initial flowback and if technically feasible, flaring shall occur rather than venting.
- If natural gas does not meet pipeline standards, gas will be vented or flared. A gas analysis will be performed twice weekly until standards are met (for up to 60 days). This is not anticipated to occur.
- If required, all venting and flaring of natural gas during flowback operations shall be performed in compliance with Subsections B, C and D of 19.15.27.8 NMAC.

**Production Operations:**
Enduring Resources will minimize venting by:

- Shutting in the wells if the pipeline is not available. No flaring of high pressure gas will occur.
- Utilizing gas for equipment fuel, heater fuel, and artificial lift when allowable.
- Capturing low pressure gas via a gas capture system when allowable.

**In General:**

- All venting and flaring from drilling, flowback and operation phases shall be reported in compliance with Subsection G of 19.15.27.8 NMAC.
- If utilized, flare stacks shall be located at a minimum of 100 feet from the nearest surface hole location and 100 ft from the permanent facility storage tanks.

**Flowback Strategy**
After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Gas Transporter system at that time. Based on current information, it is Operator's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

**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
  - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines
- Power generation for grid;
- Liquids removal on lease;
- Reinjection for underground storage;
- Reinjection for temporary storage;
- Reinjection for enhanced oil recovery;
- Fuel cell production; and
- Other alternative beneficial uses approved by the division.

**ENDURING RESOURCES IV, LLC**
**6300 S SYRACUSE WAY, SUITE 525**
**CENTENNIAL, COLORADO 80211**

**DRILLING PLAN:** ***Drill, complete, and equip single lateral in the Mancos-H formation***

**WELL INFORMATION:**

***Name:*** **Haynes Canyon Unit 440H**
***API Number:*** Not yet assigned
***AFE Number:*** *Not yet assigned*
***ER Well Number:*** *Not yet assigned*
***State:*** New Mexico
***County:*** Rio Arriba
***Surface Elevation:*** 6,703 ft ASL (GL) 6,728 ft ASL (KB)
***Surface Location:*** 3-23-6 Sec-Twn-Rng 916 ft FSL 390 ft FWL
36.248698 °N latitude 107.464489 °W longitude (NAD 83)
***BH Location:*** 4-23-6 Sec-Twn-Rng 453 ft FNL 232 ft FWL
36.259361 °N latitude 107.482957 °W longitude (NAD 83)
***Driving Directions:*** **FROM THE INTERSECTION OF US HWY 550 & US HWY 64 IN BLOOMFIELD, NM:**
South on US Hwy 550 for 53.8 miles to MM 97.6; Left (North) on CR #379 (State Hwy 403) for 1.3 miles to fork; Right (North) remaining on CR #379 for 1.5 miles to location access on left; Haynes Canyon Unit 428H Pad. From East to West 430H, 428H, 442H, 440H).

**GEOLOGIC AND RESERVOIR INFORMATION:**

***Prognosis:***

| Formation Tops | TVD (ft ASL) | TVD (ft KB) | MD (ft KB) | O / G / W | Pressure |
|---|---|---|---|---|---|
| Ojo Alamo | 5,325 | 1,403 | 1,406 | W | normal |
| Kirtland | 5,225 | 1,503 | 1,509 | W | normal |
| Fruitland | 5,000 | 1,728 | 1,746 | G, W | sub |
| Pictured Cliffs | 4,765 | 1,963 | 1,998 | G, W | sub |
| Lewis | 4,615 | 2,113 | 2,159 | G, W | normal |
| Chacra | 4,320 | 2,408 | 2,475 | G, W | normal |
| Cliff House | 3,210 | 3,518 | 3,665 | G, W | sub |
| Menefee | 3,205 | 3,523 | 3,670 | G, W | normal |
| Point Lookout | 2,505 | 4,223 | 4,416 | G, W | normal |
| Mancos | 2,230 | 4,498 | 4,696 | O,G | sub (~0.38) |
| Gallup (MNCS_A) | 1,890 | 4,838 | 5,036 | O,G | sub (~0.38) |
| MNCS_B | 1,800 | 4,928 | 5,126 | O,G | sub (~0.38) |
| MNCS_C | 1,665 | 5,063 | 5,263 | O,G | sub (~0.38) |
| MNCS_Cms | 1,600 | 5,128 | 5,333 | O,G | sub (~0.38) |
| MNCS_D | 1,525 | 5,203 | 5,418 | O,G | sub (~0.38) |
| MNCS_E | 1,440 | 5,288 | 5,525 | O,G | sub (~0.38) |
| MNCS_F | 1,395 | 5,333 | 5,590 | O,G | sub (~0.38) |
| MNCS_G | 1,310 | 5,418 | 5,744 | O,G | sub (~0.38) |
| MNCS_H | 1,270 | 5,458 | 5,833 | O,G | sub (~0.38) |
| MNCS_I | 0 | 0 | 0 | O,G | sub (~0.38) |
| **FTP TARGET** | **1,262** | **5,466** | **5,858** | **O,G** | **sub (~0.38)** |
| **PROJECTED LTP** | **1,207** | **5,521** | **12,673** | **O,G** | **sub (~0.38)** |

***Surface:*** Nacimiento
***Oil & Gas Zones:*** Several gas bearing zones will be encountered; target formation is the Gallup
***Pressure:*** Normal (0.43 psi/ft) or sub-normal pressure gradients anticipated in all formations
Max. pressure gradient: 0.43 psi/ft Evacuated hole gradient: 0.22 psi/ft
**Maximum anticipated BH pressure, assuming maximum pressure gradient: 2,380 psi**
**Maximum anticipated surface pressure, assuming partially evacuated hole: 1,170 psi**
***Temperature:*** **Maximum anticipated BHT is 125° F or less**

**$H_2S$ INFORMATION:**

***$H_2S$ Zones:*** Encountering hydrogen-sulfide bearing zones is **NOT** anticipated.
***Safety:*** Sensors and alarms will be placed in the substructure, on the rig floor, above the pits, and at the shakers.

**LOGGING, CORING, AND TESTING:**

***Mud Logs:***
None planned; remote geo-steering from drill out of 9-5/8" casing to TD; gas detection from drillout of 13-3/8" casing to TD.
***MWD / LWD:*** Gamma Ray from drillout of 13-3/8" casing to TD
***Open Hole Logs:*** None planned
***Testing:*** None planned
***Coring:*** None planned
***Cased Hole Logs:*** CBL on 5-1/2" casing from deepest free-fall depth to surface

**DRILLING RIG INFORMATION:**

***Contractor:*** Aztec

| | |
|---|---|
| ***Rig No.:*** | 1000 |
| ***Draw Works:*** | E80 AC 1,500 hp |
| ***Mast:*** | Hyduke Triple (136 ft, 600,000 lbs, 10 lines) |
| ***Top Drive:*** | NOV IDS-350PE (350 ton) |
| ***Prime Movers:*** | 4 - GE Jenbacher Natural Gas Generator |
| ***Pumps:*** | 2 - RS F-1600 (7,500 psi) |
| ***BOPE 1:*** | Cameron single & double gate rams (13-5/8", 3,000 psi) |
| ***BOPE 2:*** | Cameron annular (13-5/8", 5,000 psi) |
| ***Choke*** | Cameron (4", 10,000 psi) |
| ***KB-GL (ft):*** | 25 |
| ***Note:*** | Actual drilling rig may vary depending on availability at time the well is scheduled to be drilled. |

| **STATE AND FEDERAL NOTIFICATIONS** | | BLM | State |
|---|---|---|---|
| ***Construction and Reclamation:*** | BLM is to be notified minimum of 48 hours prior to start of construction or reclamation. Grazing permittee is to be notified 10 days in advance. | (505) 564-7600 | |
| ***Spud*** | BLM and state are to be notified minimum of 24 hours prior to spud. | (505) 564-7750 | (505) 334-6178 |
| ***BOP*** | BLM is to be notified minimum of 24 hours prior to BOPE testing. | (505) 564-7750 | see note |
| ***Casing / cementing*** | BLM and state are to be notified minimum of 24 hours prior to running casing and cementing. | (505) 564-7750 | (505) 334-6178 |
| ***Plugging*** | BLM and state are to be notified minimum of 24 hours prior to plugging ops. | (505) 564-7750 | see note |
| | **All notifications are to be recorded in the WellView report with time, date, name or number that notifications were made to.** | | |
| | **Note**: Monica Keuhling with the OCD requests state notifications 24 hrs in advance for spud, BOP tests, casing & cementing and any plugging be given to her in both phone message and email: (505) 320-0243, monica.keuhling@emnrd.nm.gov | | |

**BOPE REQUIREMENTS:**

*See attached diagram for details regarding BOPE specifications and configuration.*

1) Rig will be equipped with upper and lower kelly cocks with handles available.
2) Inside BOP and TIW valves will be available to use on all sizes and threads of drill pipe used while drilling the well.
2) BOP accumulator will have enough capacity to open the HCR valve, close all rams and annular preventer, and retain minimum of 200 psi above precharge on the closing manifold without the use of closing pumps. The fluid reservoir capacity shall be at least double the usable fluid volume of the accumulator system capacity, and the fluid level shall be maintained at manufacturer's recommendation. There will be two additional sources of power for the closing pumps (electric and air). Sufficient nitrogen bottles will be available and will be recharged when pressure falls below manufacturer's recommended minimum.
3) BOP testing shall be conducted (a) when initially installed, (b) whenever any seal is broken or repaired, (c) if the time since the previous test exceeds 30 days. Tests will be conducted using a test plug. BOP ram preventers will be tested to 3,000 psig for 10 minutes, and the annular preventer will be tested to 1,500 psi for 10 minutes. Ram and annular preventers will be tested to 250 psi for 5 minutes. Additionally, BOP and casing strings will be tested to .22 psi/ft or 1,500 psi, whichever is greater but not exceeding 70% of yield strength of the casing, for 30 minutes, prior to drilling out 13-3/8" and 9-5/8" casing. Rams and hydraulically operated remote choke line valve will be function tested daily at a minimum.
4) Remote valve for BOP rams, HCR, and choke shall be placed in a location that is readily available to the driller. The remote BOP valve shall be capable of closing and opening the rams.
5) Manual locking devices (hand wheels) shall be intalled on rams. A valve will be installed on the annular preventer's closing line as close as possible to the preventer to act as a locking device.The valve will be maintained in the open position and shall only be closed when the there is no power to the accumulator.

**FLUIDS AND SOLIDS CONTROL PROGRAM:**

***Fluid Measurement:*** Pumps shall be equipped with stroke counters with displays in the dog-house. Slow pump speed shall be recorded daily and after mudding up, at a minimum, on the drilling report. A Pit Volume Totalizer will be installed and the readout will be displayed in the dog-house. Gas-detecting equipment will be installed at the shakers, and readouts will be available in the dog-house and the in the geologist's work-station (if geologist or mud-logger is on-site).

***Closed-Loop System:*** A fully, closed-loop system will be utilized. The system will consist of above-ground piping and above-ground storage tanks and bins. The system will not entail any earthen pits, below-grade storage, or drying pads. All equipment will be disassembled and removed from the site when drilling operations cease. The system will be capable of storing all fluids and generated cuttings and of preventing uncontrolled releases of the same. The system will be operated in an efficient manner to allow the recycling and reuse of as much fluid as possible and to minimimize the amount of fluids and solids that require disposal.

***Fluid Disposal*** : Fluids that cannot be reused, recycled, or returned to the supplier will be hauled to and disposed of at an approved disposal site (Industrial Ecosystem, Inc. or Envirotech, Inc.).

***Solids Disposal*** : Drilling solids will be stored (until haul-off) on-site in separate containers with no other waste, debris, or garbage products. Waste solids will be hauled to and disposed of at an approved disposal site (Industrial Ecosystem, Inc. or Envirotech, Inc.).

***Fluid Program:*** See "Detailed Drilling Plan" section for additional details. Sufficient barite will be on location to weight up mud system to balance maximum anticipated pressure gradient.

**DETAILED DRILLING PLAN:**

***SURFACE:*** ***Drill vertically to casing setting depth (plus necessary rathole), run casing, cement casing to surface.***

| | | | | | |
|---|---|---|---|---|---|
| 0 ft (MD) | to | 350 ft (MD) | Hole Section Length: | 350 ft |
| 0 ft (TVD) | to | 350 ft (TVD) | Casing Required: | 350 ft |

***Note: Surface hole may be drilled, cased, and cemented with a smaller rig in advance of the drilling rig.***

| Fluid: | Type | MW (ppg) | FL (mL/30 min) | PV (cp) | YP (lb/100 sqft) | pH | Comments |
|---|---|---|---|---|---|---|---|
| | Fresh Water | 8.4 | N/C | 2 - 8 | 2 - 12 | 9.0 | Spud mud |

***Hole Size:*** 17-1/2"
***Bit / Motor:*** Mill Tooth or PDC, no motor
***MWD / Survey:*** No MWD, deviation survey
***Logging:*** None
***Procedure:*** Drill to TD. Use 12-/4" bit and open to 17-1/2" if unable to drill with 17-1/2" bit. Run inclination survey in 100' stations from TD to surface. Condition hole and fluid for casing running as required. TOOH. Run casing. Pump cement as detailed below. Monitor returns during cement job and note cement volume to surface. Install cellar and wellhead.

| Casing Specs: | | Wt (lb/ft) | Grade | Conn. | Collapse (psi) | Burst (psi) | Tens. Body (lbs) | Tens. Conn (lbs) |
|---|---|---|---|---|---|---|---|---|
| *Specs* | 13.375 | 54.5 | J-55 | BTC | 1,130 | 2,730 | 853,000 | 909,000 |
| *Loading* | | | | | 153 | 791 | 116,634 | 116,634 |
| *Min. S.F.* | | | | | **7.39** | **3.45** | **7.31** | **7.79** |

*Assumptions: Collapse: fully evacuated casing with 8.4 ppg equivalent external pressure gradient*
*Burst: maximum anticipated surface pressure with 9.5 ppg fluid inside casing while drilling intermediate hole and 8.4 ppg equivalent external pressure gradient*
*Tension: buoyed weight in 8.4 ppg fluid with 100,000 lbs over-pull*

***MU Torque (ft lbs):*** *Minumum: N/A Optimum: N/A Maximum: N/A*
*Make-up as per API Buttress Connection running procedure.*
***Casing Summary:*** Float shoe, 1 jt casing, float collar, casing to surface
***Centralizers:*** 2 centralizers per jt stop-banded 10' from each collar on bottom 3 jts, 1 centralizer per 2 jts to surface

| Cement: | Type | Weight (ppg) | Yield (cuft/sk) | Water (gal/sk) | Hole Cap. (cuft/ft) | % Excess | Planned TOC (ft MD) | Total Cmt (sx) |
|---|---|---|---|---|---|---|---|---|
| | TYPE III | 14.6 | 1.39 | 6.686 | 0.6946 | 100% | 0 | 364 |
| *Annular Capacity* | 0.6946 | cuft/ft | *13-3/8" casing x 17-1/2" hole annulus* | | | Csg capacity | 0.8680 | ft3/ft |
| *Drake Energy Services:* | *Calculated cement volumes assume gauge hole and the excess noted in table* | | | | | | | Cu Ft Slurry |
| | | | | | | | | 505.3 |
| ***Tail*** | *ASTM Type III Blend* | Calcium Chloride 2% BWOC Accelerator | D-CD2 .3% BWOC Dispersant/Friction reducer | .25 lbs/sx Cello Flake - seepage | | | | |

**Notify COGCC & BLM if cement is not circulated to surface. Cement must achieve 500 psi compressive strength before drilling out.**

***INTERMEDIATE:*** ***Drill as per directional plan to casing setting depth, run casing, cement casing to surface.***

| | | | | |
|---|---|---|---|---|
| 350 ft (MD) | to | 3,833 ft (MD) | Hole Section Length: | 3,483 ft |
| 350 ft (TVD) | to | 3,673 ft (TVD) | Casing Required: | 3,833 ft |

| Fluid: | Type | MW (ppg) | FL (mL/30 min) | PV (cp) | YP (lb/100 sqft) | pH | Comments |
|---|---|---|---|---|---|---|---|
| | LSND (5% KCl) | 8.8 - 9.5 | 20 | 8 - 14 | 8 - 14 | 9.0 - 9.5 | No OBM |

***Hole Size:*** 12-1/4"
***Bit / Motor:*** 12-1/4" PDC bit w/mud motor
***Bit / Motor:*** MOTOR: NOV 087840 - 7/8, 4.0, stage, 0.16 rev/gal, 1.83 DEG, 900 GPM, 950 DIFF PSIG
BIT: 6-BLADE PDC w/16 mm or 19 mm cutters, TFA = 0.67 sq-in (range 0.65 - 0.90 max), **jet with 6 - 12s**
***MWD / Survey:*** MWD Survey with inclination and azimuth survey (every 100' at a minimum), GR optional
***Logging:*** None
***Pressure Test:*** NU BOPE and test (as noted above); pressure test 13-3/8" casing to **1,500** psi for 30 minutes.
***Procedure:*** Drill to TD following directional plan **(20' rat-hole past casing setting depth)**. Steer as needed to keep well on plan. Keep DLS < 3 deg/100' and keep slide length < 10', when possible. Take surveys every stand, at a minimum. Target flow-rates of 750 GPM (higher if able to control return rates). Minimum desired flow-rate is 650 GPM. At TD, condition hole and fluid for casing running. TOOH. Run casing using a CRT and washing / circulating as required. Land casing. ND BOPE. Walk rig to next well. Perform off-line cement job. Pump cement as detailed below. Monitor returns during cement job and note cement volume to surface.

| Casing Specs: | | Wt (lb/ft) | Grade | Conn. | Collapse (psi) | Burst (psi) | Tens. Body (lbs) | Tens. Conn (lbs) |
|---|---|---|---|---|---|---|---|---|
| *Specs* | 9.625 | 36.0 | J-55 | LTC | 2,020 | 3,520 | 564,000 | 453,000 |
| *Loading* | | | | | 1,604 | 1,380 | 215,309 | 215,309 |
| *Min. S.F.* | | | | | **1.26** | **2.55** | **2.62** | **2.10** |

*Assumptions: Collapse: fully evacuated casing with 8.4 ppg equivalent external pressure gradient*
*Burst: maximum anticipated surface pressure with 9.5 ppg fluid inside casing while drilling production hole and 8.4 ppg equivalent external pressure gradient*
*Tension: buoyed weight in 8.4 ppg fluid with 100,000 lbs over-pull*

***MU Torque (ft lbs):*** *Minumum: 3,400 Optimum: 4,530 Maximum: 5,660*
***Casing Summary:*** Float shoe, 1 jt casing, float collar, casing to surface (FLOAT EQUIPMENT FROM WEATHERFORD)
***Centralizers:*** 1 per joint in non-vertical hole; 1 per 2-joints in vertical hole

**Centralizers:** 1 centralizers jt stop-banded 10' from float shoe on bottom 1 jt & 1 centralizer floating on bottom joint, 1 centralizer per jt (floating) to KOP ; 1 centralizer per 3 jts (floating) to surface **(Centralizers from Scepter Supply - SLIP'N'SLIDE 9-5/8" x 11.75" SOLID BODY POLYMER)**

| | Cement: | Type | Weight (ppg) | Yield (cuft/sk) | Water (gal/sk) | % Excess | Planned TOC (ft MD) | Total Cmt (sx) | Total Cmt (cu ft) |
|---|---|---|---|---|---|---|---|---|---|
| Stage 1 | Spacer | D-Mud Breaker | 8.5 | | | | 0 | 10 bbls | |
| | Lead | 90:10 Type III:POZ | 12.5 | 2.140 | 12.05 | 70% | 0 | 802 | 1,715 |
| | Tail | Type III | 14.6 | 1.380 | 6.64 | 20% | 3,333 | 150 | 207 |
| | Displacement | 293 | est bbls | | | | | | |
| | Annular Capacity | 0.3627 | cuft/ft | 9-5/8" casing x 13-3/8" casing annulus | | | | | |
| | | 0.3132 | cuft/ft | 9-5/8" casing x 12-1/4" hole annulus | | | 9-5/8" 36# ID | 8.921 | |
| | | 0.4341 | cuft/ft | 9-5/8" casing vol | | est shoe jt ft | 44 | | |

*Calculated cement volumes assume gauge hole and the excess (open hole only) noted in table*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Spacer** | D-Mud Breaker | SAPP | | | | | | |
| **Lead** | ASTM Type III 90/10 Poz | D-CSE 1 5.0% BWOC Strength Enhancer | D-MPA-1 .4% BWOC Fluid Loss & Gas Migration Control | D-SA 1 1.4% BWOC Na Metasilicate | D-CD 2 .4% BWOC Dispersant | Cello Flace LCM .25 lb/sx | D-FP1 0.5% BWOC Defoamer | D-R1 .5% Retarder |
| **Tail** | ASTM Type III Blend | | D-MPA-1 .4% BWOC Fluid Loss & Gas Migration Control | | D-CD 2 .5% BWOC Dispersant | Cello Flace LCM .25 lb/sx | | D-R1 .2% Retarder |

*Drake Intermediate Cementing Program*

**Cement must achieve 500 psi compressive strength before drilling out.**
**Notify NMOCD & BLM if cement is not circulated to surface. Cement must achieve 500 psi compressive strength before drilling out.**

**PRODUCTION:** ***Drill to TD following directional plan, run casing, cement casing to surface.***

| | | | | | |
|---|---|---|---|---|---|
| 3,833 | ft (MD) | to | 12,673 | ft (MD) | Hole Section Length: 8,840 ft |
| 3,673 | ft (TVD) | to | 5,521 | ft (TVD) | Casing Required: 12,673 ft |

| | | | | |
|---|---|---|---|---|
| Estimated KOP: | 5,100 | ft (MD) | 4,900 | ft (TVD) |
| Estimated Landing Point (FTP): | 5,858 | ft (MD) | 5,466 | ft (TVD) |
| Estimated Lateral Length: | 6,815 | ft (MD) | | |

| Fluid: | Type | MW (ppg) | WPS ppm | HTHP | YP (lb/100 sqft) | ES | OWR | Comment |
|---|---|---|---|---|---|---|---|---|
| | OBM | 8.0 - 9.0 | 120,000 CaCl | NC | ±6 | +300 | 80:20 | WBM as contingency |

**Fluids / Solids Notes:** OptiDrill OBM system will be built from previous well. Ensure that drying shakers are rigged up after the rig (2nd set) of shakers. Solids control will burn retorts on cuttings samples one per tour to check % ROC. Add diesel and products as required to maintain mud in program specs. Reference Newpark's mud program for additional details.

**Hole Size:** 8-1/2"
**Bit / Motor:** 8-1/2" PDC bit w/mud motor
**Bit / Motor:** **MOTOR:** NOV 077857 - 6.5" 7/8, 5.0 stage, 0.23 rev/gal, 1.83 deg, 750 GPM, 1,580 DIFF PSIG (or similar); on demand friction breaking device(s) as required, bottom tool spaced ~3,000' behind the bit.
**BIT:** 5-BLADE PDC w/16 mm - 19 mm cutters, matrix body, target TFA = 1.0 - 1.5 sq-in
**MWD / Survey:** MWD with GR, inclination, and azimuth (survey every joint from KOP to Landing Point and survey every 100' minimum before KOP and after Landing Point)
**Logging:** GR MWD for entire section, no mud-log or cuttings sampling, no OH WL logs
**Pressure Test:** NU BOPE and test (as noted above); pressure test 9-5/8" casing to **1,500** psi for 30 minutes.
**Procedure:** Drill to KOP following directional plan. Target flow-rate is 650 - 700 GPM. Target differential is pressure is 700 - 1,000 psig. Target ROP 500 - 600 ft/hr. Steer as needed to keep well on plan. Keep DLS < 3 deg/100' and keep slide length < 10' until KOP, when feasible. Take surveys every stand, at a minimum. Confirm landing target, planned BUR for curve, and KOP with Geology and Engineering. Drill curve following directional plan and updated landing target. Take survey every joint during curve. Land curve. Continue drilling in lateral section, steering as needed to keep well on plan and in the target window. Keep DLS < 2 deg/100' and keep slide length < 20', when feasible. Take surveys every stand, at a minimum. **Target rotating parameters / performance: flow-rate is 650 - 700 GPM, differential is pressure is 700 - 1,000 psig, ROP 500 - 600 ft/hr, torque 38K ft-lbs (MAX drill pipe MUT).** After reaching TD, perform no more than one clean-up cycle to condition hole for casing running unless shakers indicate additional cleaning needed. TOOH & LD drill pipe (ROOH, if required; should NOT be required with OBM system). When pumping hole cleaning sweeps, fine LCM product is to be used -**Do not use barite for sweeps**. Run casing as described below. Use CRT for casing running only if necessary (should NOT be required with OBM). Verify make up torque when running casing. Space out casing getting the toe sleeve as close to LTP as possible. Land casing and test pack-off. Open floatation sub, fill casing, and circulate as required. Pump cement as detailed below. Note cement volume circulated to surface. Nipple down BOPE. Clean pits. RDMO to next pad.

| Casing Specs: | Size (in) | Wt (lb/ft) | Grade | Conn. | Collapse (psi) | Burst (psi) | Tens. Body (lbs) | Tens. Conn (lbs) |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Specs* | 5.500 | 17.0 | P-110 | LTC | 7,460 | 10,640 | 546,000 | 445,000 |
| *Loading* | | | | | 2,727 | 9,017 | 285,906 | 285,906 |
| *Min. S.F.* | | | | | **2.74** | **1.18** | **1.91** | **1.56** |

*Assumptions:* *Collapse: fully evacuated casing with 9.5 ppg fluid in the annulus (floating casing during running)*
*Burst: 8,500 psi maximum surface treating pressure with 10.2 ppg equivalent mud weight sand laden fluid with 8.4 ppg equivalent external pressure gradient*
*Tension: buoyed weight in 9.0 ppg fluid with 100,000 lbs over-pull*

***MU Torque (ft lbs):*** *Minumum: 3,470 Optimum: 4,620 Maximum: 5,780*

***Casing Summary:*** Float shoe, float collar, 1 jt casing, float collar, 20' marker joint, toe-intitiation sleeve, casing to KOP with 20' marker joints spaced evenly in lateral every 2,000', floatation sub at KOP, casing to surface. The toe-initiation sleeve (last-take-point) cannot be placed closer than 330' to the unit boundary when measured perpendicular to the well path.

***Casing Summary:*** Float shoe, float collar w/debris catcher, 1 jt casing, float collar **(Weatherford (WFT) float equipment)**, 20' marker joint, toe-intitiation sleeve **(WFT RD 8,500 psi)**, casing to KOP with 20' marker joints spaced evenly in lateral every ~2,000', floatation sub **(NCS Air-Lock 2,500 psi from WFT)**, casing to surface. The toe-initiation sleeve shall be placed no closer to the unit boundary than 300' measured perpendicular to the East or West lease lines for a East-West azimuth drilled wellbore. Wellbore path must be no closer than 600' from the parallel lease lines. ***Note: the LTP is the maximum depth of the toe sleeve and is noted on the Well Plan. Drill past the LTP as required for necessary rat-hole and shoe-track length to place the toe sleeve as close to (but not past) the planned LTP as possible.***

***Centralizers:*** *Centralizer count and placement may be adjusted based on well conditions and as-drilled surveys.*
**Lateral:** 1 centralizer per 3 joints (purchase centralizers from either Scepter Supply or Arsenal)
**Top of curve to 9-5/8" shoe:** 1 centralizer per 5 joints
**9-5/8" shoe to surface:** 1 centralizer per 5 joints

| ***Cement:*** | **Type** | **Weight (ppg)** | **Yield (cuft/sk)** | **Water (gal/sk)** | **% Excess** | **Planned TOC (ft MD)** | **Total Cmt (sx)** | **Total Cmt (cu ft)** |
|---|---|---|---|---|---|---|---|---|
| *Spacer* | IntegraGuard Star | 11 | | 31.6 | | 0 | 60 bbls | |
| *Lead* | ASTM type I/II | 12.4 | 2.370 | 13.40 | 50% | 0 | 560 | 1,328 |
| *Tail* | G:POZ blend | 13.3 | 1.570 | 7.70 | 10% | 4,696 | 1,280 | 2,010 |

*Displacement* *120* *est bbls*

*Annular Capacity*
0.2691 cuft/ft *5-1/2" casing x 9-5/8" casing annulus*
0.2291 cuft/ft *5-1/2" casing x 8-1/2" hole annulus*
0.1245 cuft/ft *5-1/2" casing vol* *est shoe jt ft* 100

*Calculated cement volumes assume gauge hole and the excess noted in table*
*American Cementing Liner & Production Blend*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ***Spacer*** | *S-8 Silica Flour 163.7 lbs/bbl* | Avis 616 viscosifier 11.6 lb/bbl | FP24 Defoamer .5 lb/bbl | IntegraGuard Star Plus 3K LCM 15 lb/bbl | SS201 Surfactant 1 gal/bbl | | | |
| ***Lead*** | *ASTM Type I/II* | BA90 Bonding Agent 5.0 lb/sx | Bentonite Viscosifier 8% BWOB | FL24 Fluid Loss .5% BWOB | IntegraGuard GW86 Viscosifier .1% BWOB | R7C Retarder .2% BWOB | FP24 Defoamer 0.3% BWOB, Anti-Static .01 lb/sx | |
| ***Tail*** | *Type G 50%* | Pozzolan Fly Ash Extender 50% | BA90 Bonding Agent 3.0 lb/sx | Bentonite Viscosifier 4% BWOB | FL24 Fluid Loss .4% BWOB | IntegraGuard GW86 Viscosifier .1% BWOB | R3 Retarder .5% BWOB | FP24 Defoamer .3% BWOB, IntegraSeal 0.25 lb/sx |

*Calculated cement volumes assume gauge hole and the excess noted in table*
**Notify NMOCD & BLM if cement is not circulated to surface.**

***Note:*** This well will not be considered an unorthodox well location as definted by NMAC19.15.16.15.C.5. As defined in NMAC 19.15.16.15.C.1.a and 19.15.16.15.C.1.b, no point in the completed interval shall be closer to the unit boundary than 100' measured along the azimuth of the well or 330' measured perpendicular to the azimuth well. The boundaries of the completed interval, as defined by NMAC 19.15.16.7.B, are the last take point and first take point, as defined by NMAC 19.15.16.7.E and NMAC 19.15.16.7.J, respectively. In the case of this well, the last take point will be the bottom toe-initiation sleeve, and the first take point will be the top perforation. **Neither the toe-initiation sleeve nor the top perforation shall be closer to the unit boundary than 100' measured along the azimuth of the well or 330' measured perpendicular to the azimuth of the well.**

***FINISH WELL:*** ***ND BOP, cap well, RDMO.***
***Procedure:*** After off-line cement job, cap and cover well. Continue drilling operations on subsequent wells on pad.

**COMPLETION AND PRODUCTION PLAN:**

***Est Lateral Length:*** 6,715
***Est Frac Inform:*** *28 Frac Stages 108,000 bbls slick water 8,730,000 lbs proppant*
***Flowback:*** Flow back through production tubing as pressures allow
***Production:*** Produce through production tubing via gas-lift into permanent production and storage facilities

**ESTIMATED START DATES:**

***Drilling:*** 11/1/23
***Completion:*** 12/31/23
***Production:*** 2/14/24

***Prepared by:*** **Alec Bridge** **12/20/21**
***Updated:*** Greg Olson 2/20/23
Greg Olson 3/27/23

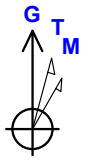
**Well:** Haynes Canyon Unit 440H
**Site:** Haynes Canyon Unit (428,430,440 & 442)
**Project:** Rio Arriba County, New Mexico NAD83 NM C
**Design:** rev0
**Rig:**

DESIGN TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|---|---|---|---|---|---|---|---|
| Haynes 440 FTP 188 FSL 312 FEL | 5501.00 | -727.20 | -718.12 | 1911309.852 | 1281597.153 | 36.246676000 | -107.466893000 |
| Haynes 440 LTP 453 FNL 232 FWL | 5521.00 | 3950.58 | -5396.29 | 1915987.619 | 1276918.990 | 36.259361000 | -107.482957000 |
| Haynes 440 vert | 4898.04 | -1167.84 | -277.44 | 1910869.212 | 1282037.829 | 36.245480970 | -107.465380063 |

Section Details

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | VSect | Annotation |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.00 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2 | 1000.00 | 0.00 | 0.000 | 1000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | KOP Begin 3°/100' build |
| 3 | 1705.61 | 21.17 | 192.029 | 1689.66 | -126.04 | -26.86 | 3.00 | 192.03 | -70.13 | Begin 21.17° tangent |
| 4 | 4194.21 | 21.17 | 192.029 | 4010.35 | -1004.96 | -214.14 | 0.00 | 0.00 | -559.16 | Begin 3°/100' drop |
| 5 | 4899.82 | 0.00 | 0.000 | 4700.01 | -1131.00 | -241.00 | 3.00 | 180.00 | -629.29 | Begin vertical hold |
| 6 | 5097.85 | 0.00 | 0.000 | 4898.04 | -1131.00 | -241.00 | 0.00 | 0.00 | -629.29 | Begin 10°/100' build |
| 7 | 5697.85 | 60.00 | 310.715 | 5394.24 | -944.13 | -458.14 | 10.00 | 310.71 | -343.61 | Begin 60.00° tangent |
| 8 | 5757.85 | 60.00 | 310.715 | 5424.24 | -910.24 | -497.53 | 0.00 | 0.00 | -291.80 | Begin 10°/100' build |
| 9 | 6056.15 | 89.83 | 310.715 | 5501.00 | -724.48 | -713.38 | 10.00 | 0.00 | -7.81 | Begin 3°/100' turn |
| 10 | 6198.92 | 89.83 | 314.998 | 5501.42 | -627.39 | -818.01 | 3.00 | 90.05 | 134.82 | Begin 89.83° lateral |
| 11 | 12673.39 | 89.83 | 314.998 | 5521.00 | 3950.58 | -5396.29 | 0.00 | 0.00 | 6609.27 | PBHL/TD |




Azimuths to Grid North
True North: 0.72°
Magnetic North: 9.18°

Magnetic Field
Strength: 49138.3nT
Dip Angle: 62.77°
Date: 8/1/2023
Model: IGRF2020

CASING DETAILS

| TVD | MD | Name |
|---|---|---|
| 350.00 | 350.00 | 13 3/8" Csg |
| 3673.00 | 3832.45 | 9 5/8" Csg |

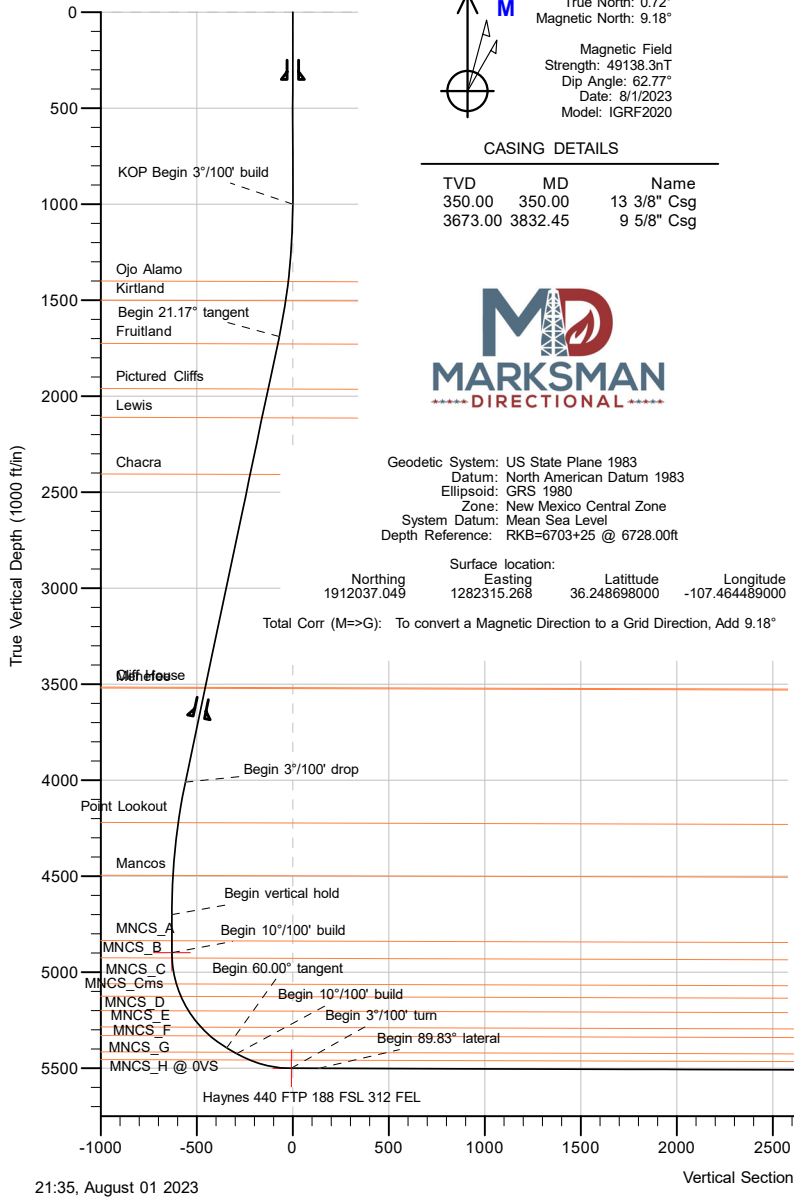
MARKSMAN DIRECTIONAL

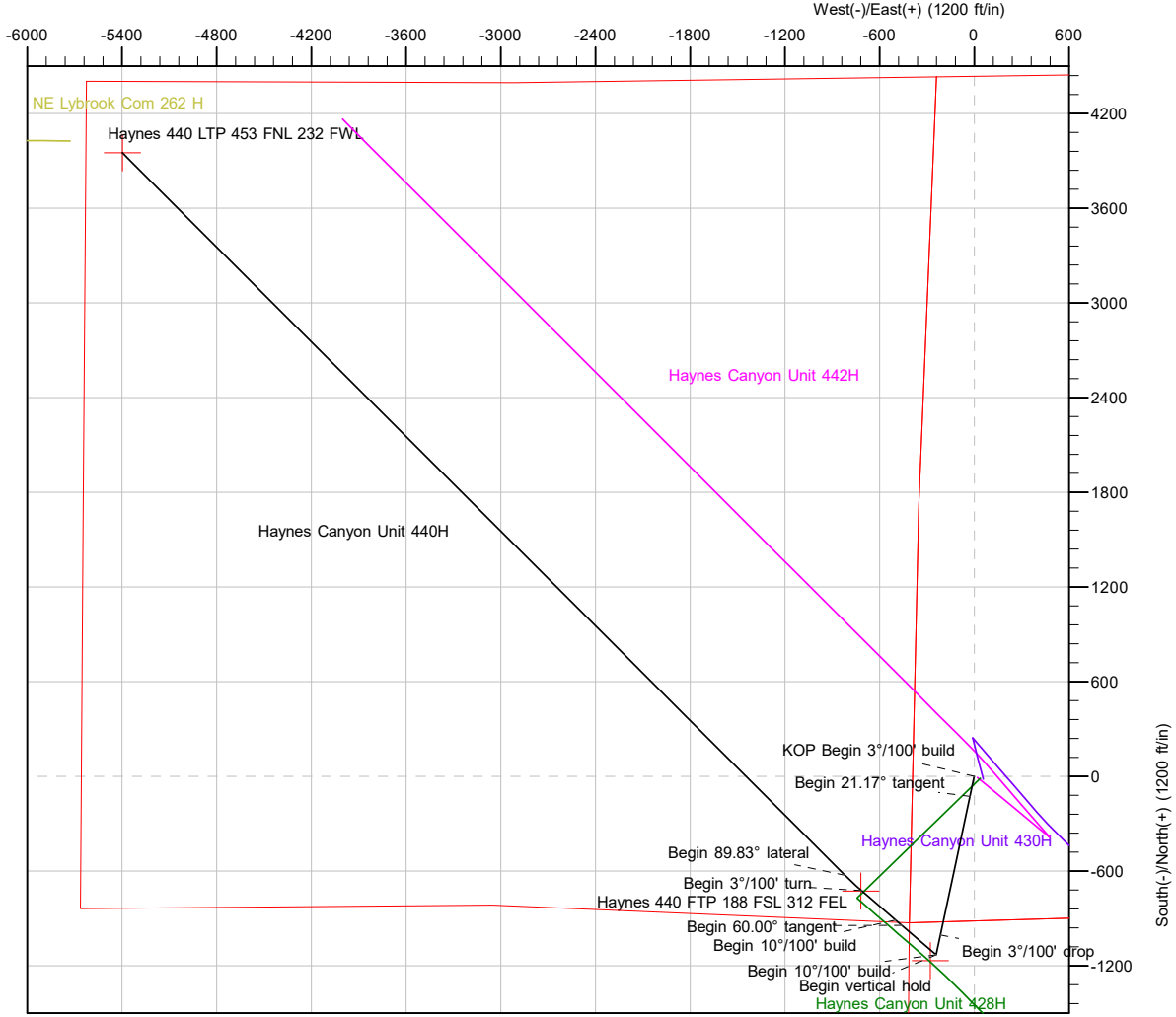
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Central Zone
System Datum: Mean Sea Level
Depth Reference: RKB=6703+25 @ 6728.00ft

Surface location:

| Northing | Easting | Latittude | Longitude |
|---|---|---|---|
| 1912037.049 | 1282315.268 | 36.248698000 | -107.464489000 |

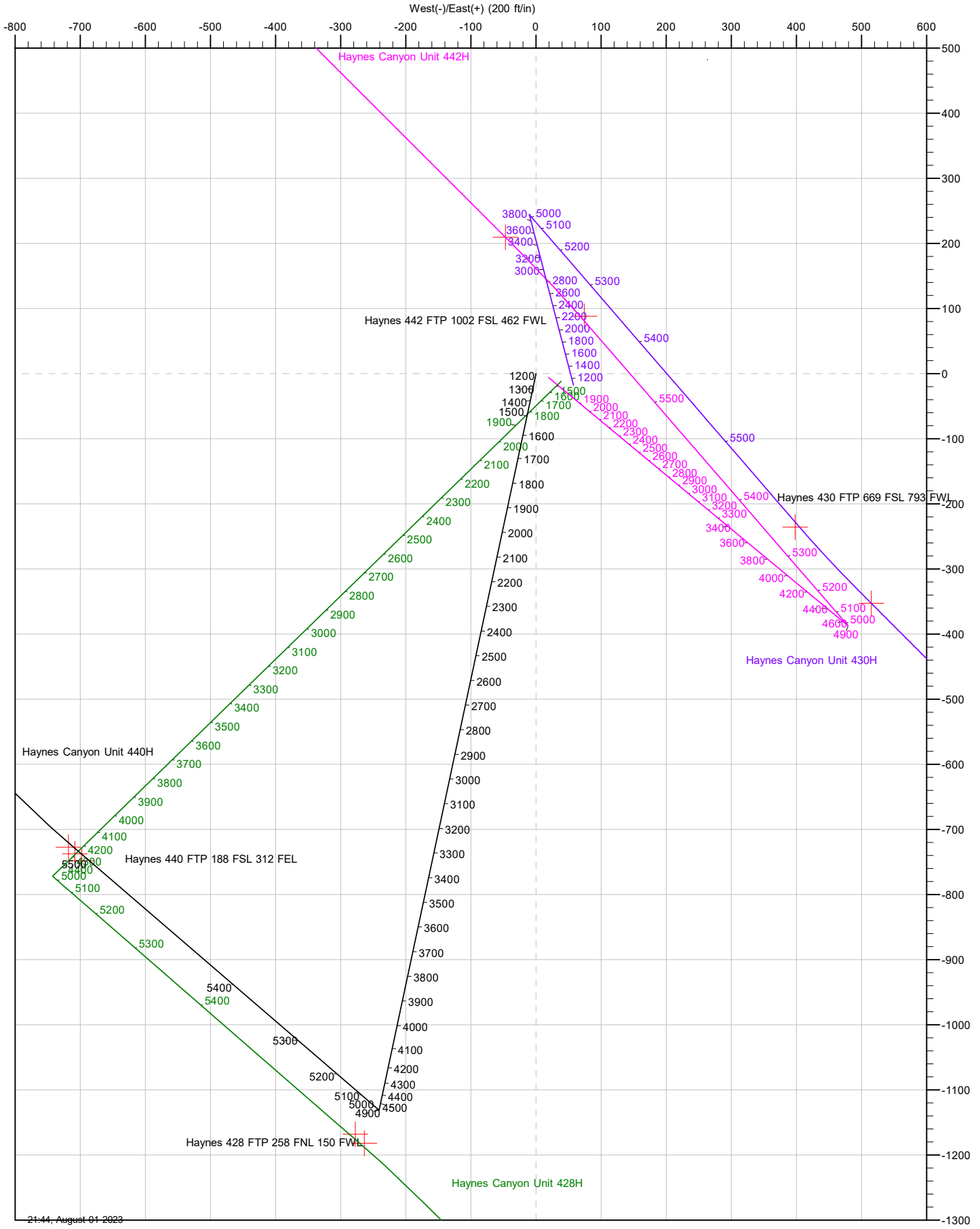
Total Corr (M=>G): To convert a Magnetic Direction to a Grid Direction, Add 9.18°




21:35, August 01 2023

**Well:** Haynes Canyon Unit 440H
**Site:** Haynes Canyon Unit (428,430,440 & 442)
**Project:** Rio Arriba County, New Mexico NAD83 NM C
**Design:** rev0
**Rig:**



# Planning Report

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Project** Rio Arriba County, New Mexico NAD83 NM C

| | | | |
|---|---|---|---|
| **Map System:** | US State Plane 1983 | **System Datum:** | Mean Sea Level |
| **Geo Datum:** | North American Datum 1983 | | |
| **Map Zone:** | New Mexico Central Zone | | |

**Site** Haynes Canyon Unit (428,430,440 & 442)

| | | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 1,912,025.280 usft | **Latitude:** | 36.248667000 |
| **From:** | Lat/Long | **Easting:** | 1,282,353.755 usft | **Longitude:** | -107.464358000 |
| **Position Uncertainty:** | 0.00 ft | **Slot Radius:** | 13-3/16 " | | |

**Well** Haynes Canyon Unit 440H, Surf loc: 916 FSL 390 FWL Section 03-T23N-R06W

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 0.00 ft | **Northing:** | 1,912,037.050 usft | **Latitude:** | 36.248698000 |
| | **+E/-W** | 0.00 ft | **Easting:** | 1,282,315.268 usft | **Longitude:** | -107.464489000 |
| **Position Uncertainty** | | 0.00 ft | **Wellhead Elevation:** | ft | **Ground Level:** | 6,703.00 ft |
| **Grid Convergence:** | | -0.72 ° | | | | |

**Wellbore** Oriignal Hole

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|---|---|---|---|---|---|
| | IGRF2020 | 8/1/2023 | 8.46 | 62.77 | 49,138.30816237 |

**Design** rev0

**Audit Notes:**

| | | | | | |
|---|---|---|---|---|---|
| **Version:** | | **Phase:** | PLAN | **Tie On Depth:** | 0.00 |

| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |
|---|---|---|---|---|
| | 0.00 | 0.00 | 0.00 | 314.998 |

**Plan Survey Tool Program** **Date** 8/1/2023

| | Depth From (ft) | Depth To (ft) | Survey (Wellbore) | Tool Name | Remarks |
|---|---|---|---|---|---|
| 1 | 0.00 | 12,673.14 | rev0 (Oriignal Hole) | MWD | |
| | | | | OWSG MWD - Standard | |

Planning Report

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Plan Sections**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,000.00 | 0.00 | 0.000 | 1,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,705.61 | 21.17 | 192.029 | 1,689.66 | -126.04 | -26.86 | 3.00 | 3.00 | 0.00 | 192.03 | |
| 4,194.21 | 21.17 | 192.029 | 4,010.35 | -1,004.96 | -214.14 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 4,899.82 | 0.00 | 0.000 | 4,700.01 | -1,131.00 | -241.00 | 3.00 | -3.00 | 0.00 | 180.00 | |
| 5,097.85 | 0.00 | 0.000 | 4,898.04 | -1,131.00 | -241.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5,697.85 | 60.00 | 310.715 | 5,394.24 | -944.13 | -458.14 | 10.00 | 10.00 | 0.00 | 310.72 | |
| 5,757.85 | 60.00 | 310.715 | 5,424.24 | -910.24 | -497.53 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 6,056.15 | 89.83 | 310.715 | 5,501.00 | -724.48 | -713.38 | 10.00 | 10.00 | 0.00 | 0.00 | |
| 6,198.92 | 89.83 | 314.998 | 5,501.42 | -627.39 | -818.01 | 3.00 | 0.00 | 3.00 | 90.05 | |
| 12,673.39 | 89.83 | 314.998 | 5,521.00 | 3,950.58 | -5,396.29 | 0.00 | 0.00 | 0.00 | 0.00 | Haynes 440 LTP 453 |

# Planning Report

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100.00 | 0.00 | 0.000 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 200.00 | 0.00 | 0.000 | 200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 300.00 | 0.00 | 0.000 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 350.00 | 0.00 | 0.000 | 350.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **13 3/8" Csg** | | | | | | | | | |
| 400.00 | 0.00 | 0.000 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 500.00 | 0.00 | 0.000 | 500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 600.00 | 0.00 | 0.000 | 600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 700.00 | 0.00 | 0.000 | 700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 800.00 | 0.00 | 0.000 | 800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 900.00 | 0.00 | 0.000 | 900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,000.00 | 0.00 | 0.000 | 1,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **KOP Begin 3°/100' build** | | | | | | | | | |
| 1,100.00 | 3.00 | 192.029 | 1,099.95 | -2.56 | -0.55 | -1.42 | 3.00 | 3.00 | 0.00 |
| 1,200.00 | 6.00 | 192.029 | 1,199.63 | -10.23 | -2.18 | -5.69 | 3.00 | 3.00 | 0.00 |
| 1,300.00 | 9.00 | 192.029 | 1,298.77 | -23.00 | -4.90 | -12.80 | 3.00 | 3.00 | 0.00 |
| 1,400.00 | 12.00 | 192.029 | 1,397.08 | -40.82 | -8.70 | -22.71 | 3.00 | 3.00 | 0.00 |
| 1,405.98 | 12.18 | 192.029 | 1,402.93 | -42.04 | -8.96 | -23.39 | 3.00 | 3.00 | 0.00 |
| **Ojo Alamo** | | | | | | | | | |
| 1,500.00 | 15.00 | 192.029 | 1,494.31 | -63.65 | -13.56 | -35.41 | 3.00 | 3.00 | 0.00 |
| 1,508.89 | 15.27 | 192.029 | 1,502.89 | -65.92 | -14.05 | -36.68 | 3.00 | 3.00 | 0.00 |
| **Kirtland** | | | | | | | | | |
| 1,600.00 | 18.00 | 192.029 | 1,590.18 | -91.42 | -19.48 | -50.87 | 3.00 | 3.00 | 0.00 |
| 1,705.61 | 21.17 | 192.029 | 1,689.66 | -126.04 | -26.86 | -70.13 | 3.00 | 3.00 | 0.00 |
| **Begin 21.17° tangent** | | | | | | | | | |
| 1,746.47 | 21.17 | 192.029 | 1,727.77 | -140.47 | -29.93 | -78.16 | 0.00 | 0.00 | 0.00 |
| **Fruitland** | | | | | | | | | |
| 1,800.00 | 21.17 | 192.029 | 1,777.69 | -159.38 | -33.96 | -88.68 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 21.17 | 192.029 | 1,870.94 | -194.69 | -41.49 | -108.33 | 0.00 | 0.00 | 0.00 |
| 1,998.32 | 21.17 | 192.029 | 1,962.62 | -229.42 | -48.89 | -127.65 | 0.00 | 0.00 | 0.00 |
| **Pictured Cliffs** | | | | | | | | | |
| 2,000.00 | 21.17 | 192.029 | 1,964.19 | -230.01 | -49.01 | -127.98 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 21.17 | 192.029 | 2,057.45 | -265.33 | -56.54 | -147.63 | 0.00 | 0.00 | 0.00 |
| 2,159.07 | 21.17 | 192.029 | 2,112.53 | -286.19 | -60.98 | -159.24 | 0.00 | 0.00 | 0.00 |
| **Lewis** | | | | | | | | | |
| 2,200.00 | 21.17 | 192.029 | 2,150.70 | -300.65 | -64.06 | -167.28 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 21.17 | 192.029 | 2,243.95 | -335.97 | -71.59 | -186.93 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 21.17 | 192.029 | 2,337.20 | -371.28 | -79.12 | -206.58 | 0.00 | 0.00 | 0.00 |
| 2,475.22 | 21.17 | 192.029 | 2,407.34 | -397.85 | -84.78 | -221.36 | 0.00 | 0.00 | 0.00 |
| **Chacra** | | | | | | | | | |
| 2,500.00 | 21.17 | 192.029 | 2,430.45 | -406.60 | -86.64 | -226.23 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 21.17 | 192.029 | 2,523.71 | -441.92 | -94.17 | -245.89 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 21.17 | 192.029 | 2,616.96 | -477.24 | -101.69 | -265.54 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 21.17 | 192.029 | 2,710.21 | -512.56 | -109.22 | -285.19 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 21.17 | 192.029 | 2,803.46 | -547.87 | -116.74 | -304.84 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 21.17 | 192.029 | 2,896.72 | -583.19 | -124.27 | -324.49 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 21.17 | 192.029 | 2,989.97 | -618.51 | -131.80 | -344.14 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 21.17 | 192.029 | 3,083.22 | -653.83 | -139.32 | -363.79 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 21.17 | 192.029 | 3,176.47 | -689.14 | -146.85 | -383.44 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 21.17 | 192.029 | 3,269.73 | -724.46 | -154.37 | -403.09 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 21.17 | 192.029 | 3,362.98 | -759.78 | -161.90 | -422.74 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 21.17 | 192.029 | 3,456.23 | -795.10 | -169.42 | -442.39 | 0.00 | 0.00 | 0.00 |

# Planning Report

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 3,664.79 | 21.17 | 192.029 | 3,516.65 | -817.98 | -174.30 | -455.13 | 0.00 | 0.00 | 0.00 |
| **Cliff House** | | | | | | | | | |
| 3,670.15 | 21.17 | 192.029 | 3,521.65 | -819.87 | -174.70 | -456.18 | 0.00 | 0.00 | 0.00 |
| **Menefee** | | | | | | | | | |
| 3,700.00 | 21.17 | 192.029 | 3,549.48 | -830.42 | -176.95 | -462.05 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 21.17 | 192.029 | 3,642.74 | -865.73 | -184.48 | -481.70 | 0.00 | 0.00 | 0.00 |
| 3,832.45 | 21.17 | 192.029 | 3,673.00 | -877.20 | -186.92 | -488.07 | 0.00 | 0.00 | 0.00 |
| **9 5/8" Csg** | | | | | | | | | |
| 3,900.00 | 21.17 | 192.029 | 3,735.99 | -901.05 | -192.00 | -501.35 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 21.17 | 192.029 | 3,829.24 | -936.37 | -199.53 | -521.00 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 21.17 | 192.029 | 3,922.49 | -971.69 | -207.05 | -540.65 | 0.00 | 0.00 | 0.00 |
| 4,194.21 | 21.17 | 192.029 | 4,010.35 | -1,004.96 | -214.14 | -559.16 | 0.00 | 0.00 | 0.00 |
| **Begin 3°/100' drop** | | | | | | | | | |
| 4,200.00 | 20.99 | 192.029 | 4,015.75 | -1,007.00 | -214.58 | -560.30 | 3.00 | -3.00 | 0.00 |
| 4,300.00 | 17.99 | 192.029 | 4,110.01 | -1,039.63 | -221.53 | -578.45 | 3.00 | -3.00 | 0.00 |
| 4,400.00 | 14.99 | 192.029 | 4,205.88 | -1,067.40 | -227.45 | -593.90 | 3.00 | -3.00 | 0.00 |
| 4,415.88 | 14.52 | 192.029 | 4,221.23 | -1,071.35 | -228.29 | -596.10 | 3.00 | -3.00 | 0.00 |
| **Point Lookout** | | | | | | | | | |
| 4,500.00 | 11.99 | 192.029 | 4,303.11 | -1,090.22 | -232.31 | -606.60 | 3.00 | -3.00 | 0.00 |
| 4,600.00 | 8.99 | 192.029 | 4,401.42 | -1,108.03 | -236.11 | -616.51 | 3.00 | -3.00 | 0.00 |
| 4,695.57 | 6.13 | 192.029 | 4,496.15 | -1,120.33 | -238.73 | -623.35 | 3.00 | -3.00 | 0.00 |
| **Mancos** | | | | | | | | | |
| 4,700.00 | 5.99 | 192.029 | 4,500.56 | -1,120.79 | -238.82 | -623.61 | 3.00 | -3.00 | 0.00 |
| 4,800.00 | 2.99 | 192.029 | 4,600.24 | -1,128.45 | -240.46 | -627.87 | 3.00 | -3.00 | 0.00 |
| 4,899.82 | 0.00 | 0.000 | 4,700.01 | -1,131.00 | -241.00 | -629.29 | 3.00 | -3.00 | 0.00 |
| **Begin vertical hold** | | | | | | | | | |
| 5,000.00 | 0.00 | 0.000 | 4,800.19 | -1,131.00 | -241.00 | -629.29 | 0.00 | 0.00 | 0.00 |
| 5,035.94 | 0.00 | 0.000 | 4,836.13 | -1,131.00 | -241.00 | -629.29 | 0.00 | 0.00 | 0.00 |
| **MNCS_A** | | | | | | | | | |
| 5,097.85 | 0.00 | 0.000 | 4,898.04 | -1,131.00 | -241.00 | -629.29 | 0.00 | 0.00 | 0.00 |
| **Begin 10°/100' build** | | | | | | | | | |
| 5,100.00 | 0.22 | 310.715 | 4,900.19 | -1,131.00 | -241.00 | -629.29 | 10.00 | 10.00 | 0.00 |
| 5,125.95 | 2.81 | 310.715 | 4,926.13 | -1,130.55 | -241.52 | -628.60 | 10.00 | 10.00 | 0.00 |
| **MNCS_B** | | | | | | | | | |
| 5,150.00 | 5.22 | 310.715 | 4,950.12 | -1,129.45 | -242.80 | -626.93 | 10.00 | 10.00 | 0.00 |
| 5,200.00 | 10.22 | 310.715 | 4,999.65 | -1,125.08 | -247.88 | -620.23 | 10.00 | 10.00 | 0.00 |
| 5,250.00 | 15.22 | 310.715 | 5,048.41 | -1,117.90 | -256.22 | -609.26 | 10.00 | 10.00 | 0.00 |
| 5,263.30 | 16.55 | 310.715 | 5,061.20 | -1,115.53 | -258.98 | -605.63 | 10.00 | 10.00 | 0.00 |
| **MNCS_C** | | | | | | | | | |
| 5,300.00 | 20.22 | 310.715 | 5,096.03 | -1,107.98 | -267.75 | -594.10 | 10.00 | 10.00 | 0.00 |
| 5,332.59 | 23.47 | 310.715 | 5,126.27 | -1,100.07 | -276.94 | -582.00 | 10.00 | 10.00 | 0.00 |
| **MNCS_Cms** | | | | | | | | | |
| 5,350.00 | 25.22 | 310.715 | 5,142.13 | -1,095.39 | -282.38 | -574.85 | 10.00 | 10.00 | 0.00 |
| 5,400.00 | 30.22 | 310.715 | 5,186.38 | -1,080.22 | -300.00 | -551.67 | 10.00 | 10.00 | 0.00 |
| 5,417.53 | 31.97 | 310.715 | 5,201.39 | -1,074.32 | -306.86 | -542.64 | 10.00 | 10.00 | 0.00 |
| **MNCS_D** | | | | | | | | | |
| 5,450.00 | 35.22 | 310.715 | 5,228.44 | -1,062.60 | -320.48 | -524.73 | 10.00 | 10.00 | 0.00 |
| 5,500.00 | 40.22 | 310.715 | 5,267.98 | -1,042.66 | -343.65 | -494.24 | 10.00 | 10.00 | 0.00 |
| 5,524.83 | 42.70 | 310.715 | 5,286.58 | -1,031.94 | -356.11 | -477.85 | 10.00 | 10.00 | 0.00 |
| **MNCS_E** | | | | | | | | | |
| 5,550.00 | 45.22 | 310.715 | 5,304.70 | -1,020.54 | -369.35 | -460.42 | 10.00 | 10.00 | 0.00 |
| 5,589.78 | 49.19 | 310.715 | 5,331.72 | -1,001.50 | -391.47 | -431.32 | 10.00 | 10.00 | 0.00 |

# Planning Report

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| **MNCS_F** | | | | | | | | | |
| 5,600.00 | 50.22 | 310.715 | 5,338.33 | -996.42 | -397.38 | -423.55 | 10.00 | 10.00 | 0.00 |
| 5,650.00 | 55.22 | 310.715 | 5,368.61 | -970.48 | -427.53 | -383.89 | 10.00 | 10.00 | 0.00 |
| 5,697.85 | 60.00 | 310.715 | 5,394.24 | -944.13 | -458.14 | -343.61 | 10.00 | 10.00 | 0.00 |
| **Begin 60.00° tangent** | | | | | | | | | |
| 5,700.00 | 60.00 | 310.715 | 5,395.31 | -942.91 | -459.55 | -341.75 | 0.00 | 0.00 | 0.00 |
| 5,743.57 | 60.00 | 310.715 | 5,417.10 | -918.30 | -488.15 | -304.13 | 0.00 | 0.00 | 0.00 |
| **MNCS_G** | | | | | | | | | |
| 5,757.85 | 60.00 | 310.715 | 5,424.24 | -910.24 | -497.53 | -291.80 | 0.00 | 0.00 | 0.00 |
| **Begin 10°/100' build** | | | | | | | | | |
| 5,800.00 | 64.22 | 310.715 | 5,443.95 | -885.94 | -525.76 | -254.65 | 10.00 | 10.00 | 0.00 |
| 5,832.71 | 67.49 | 310.715 | 5,457.33 | -866.47 | -548.38 | -224.89 | 10.00 | 10.00 | 0.00 |
| **MNCS_H @ 0VS** | | | | | | | | | |
| 5,850.00 | 69.22 | 310.715 | 5,463.71 | -855.99 | -560.56 | -208.87 | 10.00 | 10.00 | 0.00 |
| 5,900.00 | 74.22 | 310.715 | 5,479.39 | -825.03 | -596.53 | -161.54 | 10.00 | 10.00 | 0.00 |
| 5,950.00 | 79.22 | 310.715 | 5,490.88 | -793.30 | -633.40 | -113.03 | 10.00 | 10.00 | 0.00 |
| 6,000.00 | 84.22 | 310.715 | 5,498.08 | -761.04 | -670.89 | -63.70 | 10.00 | 10.00 | 0.00 |
| 6,050.00 | 89.22 | 310.715 | 5,500.94 | -728.49 | -708.72 | -13.94 | 10.00 | 10.00 | 0.00 |
| 6,056.15 | 89.83 | 310.715 | 5,501.00 | -724.48 | -713.38 | -7.81 | 10.00 | 10.00 | 0.00 |
| **Begin 3°/100' turn** | | | | | | | | | |
| 6,100.00 | 89.83 | 312.031 | 5,501.13 | -695.49 | -746.29 | 35.95 | 3.00 | 0.00 | 3.00 |
| 6,198.92 | 89.83 | 314.998 | 5,501.42 | -627.39 | -818.01 | 134.82 | 3.00 | 0.00 | 3.00 |
| **Begin 89.83° lateral** | | | | | | | | | |
| 6,200.00 | 89.83 | 314.998 | 5,501.43 | -626.63 | -818.78 | 135.91 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 89.83 | 314.998 | 5,501.73 | -555.92 | -889.49 | 235.91 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 89.83 | 314.998 | 5,502.03 | -485.21 | -960.20 | 335.91 | 0.00 | 0.00 | 0.00 |
| 6,500.00 | 89.83 | 314.998 | 5,502.33 | -414.50 | -1,030.92 | 435.91 | 0.00 | 0.00 | 0.00 |
| 6,600.00 | 89.83 | 314.998 | 5,502.64 | -343.79 | -1,101.63 | 535.91 | 0.00 | 0.00 | 0.00 |
| 6,700.00 | 89.83 | 314.998 | 5,502.94 | -273.09 | -1,172.34 | 635.91 | 0.00 | 0.00 | 0.00 |
| 6,800.00 | 89.83 | 314.998 | 5,503.24 | -202.38 | -1,243.05 | 735.90 | 0.00 | 0.00 | 0.00 |
| 6,900.00 | 89.83 | 314.998 | 5,503.54 | -131.67 | -1,313.77 | 835.90 | 0.00 | 0.00 | 0.00 |
| 7,000.00 | 89.83 | 314.998 | 5,503.85 | -60.96 | -1,384.48 | 935.90 | 0.00 | 0.00 | 0.00 |
| 7,100.00 | 89.83 | 314.998 | 5,504.15 | 9.75 | -1,455.19 | 1,035.90 | 0.00 | 0.00 | 0.00 |
| 7,200.00 | 89.83 | 314.998 | 5,504.45 | 80.45 | -1,525.90 | 1,135.90 | 0.00 | 0.00 | 0.00 |
| 7,300.00 | 89.83 | 314.998 | 5,504.75 | 151.16 | -1,596.62 | 1,235.90 | 0.00 | 0.00 | 0.00 |
| 7,400.00 | 89.83 | 314.998 | 5,505.05 | 221.87 | -1,667.33 | 1,335.90 | 0.00 | 0.00 | 0.00 |
| 7,500.00 | 89.83 | 314.998 | 5,505.36 | 292.58 | -1,738.04 | 1,435.90 | 0.00 | 0.00 | 0.00 |
| 7,600.00 | 89.83 | 314.998 | 5,505.66 | 363.29 | -1,808.76 | 1,535.90 | 0.00 | 0.00 | 0.00 |
| 7,700.00 | 89.83 | 314.998 | 5,505.96 | 433.99 | -1,879.47 | 1,635.90 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 89.83 | 314.998 | 5,506.26 | 504.70 | -1,950.18 | 1,735.90 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 89.83 | 314.998 | 5,506.57 | 575.41 | -2,020.89 | 1,835.90 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 89.83 | 314.998 | 5,506.87 | 646.12 | -2,091.61 | 1,935.90 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 89.83 | 314.998 | 5,507.17 | 716.83 | -2,162.32 | 2,035.90 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 89.83 | 314.998 | 5,507.47 | 787.53 | -2,233.03 | 2,135.90 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 89.83 | 314.998 | 5,507.78 | 858.24 | -2,303.75 | 2,235.90 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 89.83 | 314.998 | 5,508.08 | 928.95 | -2,374.46 | 2,335.90 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 89.83 | 314.998 | 5,508.38 | 999.66 | -2,445.17 | 2,435.90 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 89.83 | 314.998 | 5,508.68 | 1,070.37 | -2,515.88 | 2,535.90 | 0.00 | 0.00 | 0.00 |
| 8,700.00 | 89.83 | 314.998 | 5,508.99 | 1,141.07 | -2,586.60 | 2,635.90 | 0.00 | 0.00 | 0.00 |
| 8,800.00 | 89.83 | 314.998 | 5,509.29 | 1,211.78 | -2,657.31 | 2,735.90 | 0.00 | 0.00 | 0.00 |
| 8,900.00 | 89.83 | 314.998 | 5,509.59 | 1,282.49 | -2,728.02 | 2,835.90 | 0.00 | 0.00 | 0.00 |
| 9,000.00 | 89.83 | 314.998 | 5,509.89 | 1,353.20 | -2,798.73 | 2,935.89 | 0.00 | 0.00 | 0.00 |
| 9,100.00 | 89.83 | 314.998 | 5,510.20 | 1,423.91 | -2,869.45 | 3,035.89 | 0.00 | 0.00 | 0.00 |

# Planning Report

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 9,200.00 | 89.83 | 314.998 | 5,510.50 | 1,494.61 | -2,940.16 | 3,135.89 | 0.00 | 0.00 | 0.00 |
| 9,300.00 | 89.83 | 314.998 | 5,510.80 | 1,565.32 | -3,010.87 | 3,235.89 | 0.00 | 0.00 | 0.00 |
| 9,400.00 | 89.83 | 314.998 | 5,511.10 | 1,636.03 | -3,081.59 | 3,335.89 | 0.00 | 0.00 | 0.00 |
| 9,500.00 | 89.83 | 314.998 | 5,511.40 | 1,706.74 | -3,152.30 | 3,435.89 | 0.00 | 0.00 | 0.00 |
| 9,600.00 | 89.83 | 314.998 | 5,511.71 | 1,777.45 | -3,223.01 | 3,535.89 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 89.83 | 314.998 | 5,512.01 | 1,848.15 | -3,293.72 | 3,635.89 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 89.83 | 314.998 | 5,512.31 | 1,918.86 | -3,364.44 | 3,735.89 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 89.83 | 314.998 | 5,512.61 | 1,989.57 | -3,435.15 | 3,835.89 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 89.83 | 314.998 | 5,512.92 | 2,060.28 | -3,505.86 | 3,935.89 | 0.00 | 0.00 | 0.00 |
| 10,100.00 | 89.83 | 314.998 | 5,513.22 | 2,130.99 | -3,576.57 | 4,035.89 | 0.00 | 0.00 | 0.00 |
| 10,200.00 | 89.83 | 314.998 | 5,513.52 | 2,201.69 | -3,647.29 | 4,135.89 | 0.00 | 0.00 | 0.00 |
| 10,300.00 | 89.83 | 314.998 | 5,513.82 | 2,272.40 | -3,718.00 | 4,235.89 | 0.00 | 0.00 | 0.00 |
| 10,400.00 | 89.83 | 314.998 | 5,514.13 | 2,343.11 | -3,788.71 | 4,335.89 | 0.00 | 0.00 | 0.00 |
| 10,500.00 | 89.83 | 314.998 | 5,514.43 | 2,413.82 | -3,859.43 | 4,435.89 | 0.00 | 0.00 | 0.00 |
| 10,600.00 | 89.83 | 314.998 | 5,514.73 | 2,484.52 | -3,930.14 | 4,535.89 | 0.00 | 0.00 | 0.00 |
| 10,700.00 | 89.83 | 314.998 | 5,515.03 | 2,555.23 | -4,000.85 | 4,635.89 | 0.00 | 0.00 | 0.00 |
| 10,800.00 | 89.83 | 314.998 | 5,515.34 | 2,625.94 | -4,071.56 | 4,735.89 | 0.00 | 0.00 | 0.00 |
| 10,900.00 | 89.83 | 314.998 | 5,515.64 | 2,696.65 | -4,142.28 | 4,835.89 | 0.00 | 0.00 | 0.00 |
| 11,000.00 | 89.83 | 314.998 | 5,515.94 | 2,767.36 | -4,212.99 | 4,935.89 | 0.00 | 0.00 | 0.00 |
| 11,100.00 | 89.83 | 314.998 | 5,516.24 | 2,838.06 | -4,283.70 | 5,035.89 | 0.00 | 0.00 | 0.00 |
| 11,200.00 | 89.83 | 314.998 | 5,516.55 | 2,908.77 | -4,354.41 | 5,135.88 | 0.00 | 0.00 | 0.00 |
| 11,300.00 | 89.83 | 314.998 | 5,516.85 | 2,979.48 | -4,425.13 | 5,235.88 | 0.00 | 0.00 | 0.00 |
| 11,400.00 | 89.83 | 314.998 | 5,517.15 | 3,050.19 | -4,495.84 | 5,335.88 | 0.00 | 0.00 | 0.00 |
| 11,500.00 | 89.83 | 314.998 | 5,517.45 | 3,120.90 | -4,566.55 | 5,435.88 | 0.00 | 0.00 | 0.00 |
| 11,600.00 | 89.83 | 314.998 | 5,517.75 | 3,191.60 | -4,637.27 | 5,535.88 | 0.00 | 0.00 | 0.00 |
| 11,700.00 | 89.83 | 314.998 | 5,518.06 | 3,262.31 | -4,707.98 | 5,635.88 | 0.00 | 0.00 | 0.00 |
| 11,800.00 | 89.83 | 314.998 | 5,518.36 | 3,333.02 | -4,778.69 | 5,735.88 | 0.00 | 0.00 | 0.00 |
| 11,900.00 | 89.83 | 314.998 | 5,518.66 | 3,403.73 | -4,849.40 | 5,835.88 | 0.00 | 0.00 | 0.00 |
| 12,000.00 | 89.83 | 314.998 | 5,518.96 | 3,474.44 | -4,920.12 | 5,935.88 | 0.00 | 0.00 | 0.00 |
| 12,100.00 | 89.83 | 314.998 | 5,519.27 | 3,545.14 | -4,990.83 | 6,035.88 | 0.00 | 0.00 | 0.00 |
| 12,200.00 | 89.83 | 314.998 | 5,519.57 | 3,615.85 | -5,061.54 | 6,135.88 | 0.00 | 0.00 | 0.00 |
| 12,300.00 | 89.83 | 314.998 | 5,519.87 | 3,686.56 | -5,132.25 | 6,235.88 | 0.00 | 0.00 | 0.00 |
| 12,400.00 | 89.83 | 314.998 | 5,520.17 | 3,757.27 | -5,202.97 | 6,335.88 | 0.00 | 0.00 | 0.00 |
| 12,500.00 | 89.83 | 314.998 | 5,520.48 | 3,827.98 | -5,273.68 | 6,435.88 | 0.00 | 0.00 | 0.00 |
| 12,600.00 | 89.83 | 314.998 | 5,520.78 | 3,898.68 | -5,344.39 | 6,535.88 | 0.00 | 0.00 | 0.00 |
| 12,673.39 | 89.83 | 314.998 | 5,521.00 | 3,950.58 | -5,396.29 | 6,609.27 | 0.00 | 0.00 | 0.00 |

**PBHL/TD @ 12673.39 MD 5521.00 TVD**

# Planning Report

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Design Targets**

| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| Haynes 440 vert | 0.00 | 0.000 | 4,898.04 | -1,167.84 | -277.44 | 1,910,869.212 | 1,282,037.829 | 36.245480970 | -107.465380063 |
| - plan misses target center by 51.82ft at 5097.85ft MD (4898.05 TVD, -1131.00 N, -241.00 E) | | | | | | | | | |
| - Point | | | | | | | | | |
| Haynes 440 FTP 188 FS | 0.00 | 0.000 | 5,501.00 | -727.20 | -718.12 | 1,911,309.852 | 1,281,597.153 | 36.246676000 | -107.466893000 |
| - plan misses target center by 5.16ft at 6057.90ft MD (5501.00 TVD, -723.33 N, -714.71 E) | | | | | | | | | |
| - Point | | | | | | | | | |
| Haynes 440 LTP 453 FN | 0.00 | 0.000 | 5,521.00 | 3,950.58 | -5,396.29 | 1,915,987.619 | 1,276,918.990 | 36.259361000 | -107.482957000 |
| - plan hits target center | | | | | | | | | |
| - Point | | | | | | | | | |

**Casing Points**

| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (") | Hole Diameter (") |
|---|---|---|---|---|
| 350.00 | 350.00 | 13 3/8" Csg | 13-3/8 | 17-1/2 |
| 3,832.45 | 3,673.00 | 9 5/8" Csg | 9-5/8 | 12-1/4 |

**Formations**

| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|---|---|---|---|---|---|
| 1,405.98 | 1,402.93 | Ojo Alamo | | 0.17 | 314.998 |
| 1,508.89 | 1,502.89 | Kirtland | | 0.17 | 314.998 |
| 1,746.47 | 1,727.77 | Fruitland | | 0.17 | 314.998 |
| 1,998.32 | 1,962.62 | Pictured Cliffs | | 0.17 | 314.998 |
| 2,159.07 | 2,112.53 | Lewis | | 0.17 | 314.998 |
| 2,475.22 | 2,407.34 | Chacra | | 0.17 | 314.998 |
| 3,664.79 | 3,516.65 | Cliff House | | 0.17 | 314.998 |
| 3,670.15 | 3,521.65 | Menefee | | 0.17 | 314.998 |
| 4,415.88 | 4,221.23 | Point Lookout | | 0.17 | 314.998 |
| 4,695.57 | 4,496.15 | Mancos | | 0.17 | 314.998 |
| 5,035.94 | 4,836.13 | MNCS_A | | 0.17 | 314.998 |
| 5,125.95 | 4,926.13 | MNCS_B | | 0.17 | 314.998 |
| 5,263.30 | 5,061.20 | MNCS_C | | 0.17 | 314.998 |
| 5,332.59 | 5,126.27 | MNCS_Cms | | 0.17 | 314.998 |
| 5,417.53 | 5,201.39 | MNCS_D | | 0.17 | 314.998 |
| 5,524.83 | 5,286.58 | MNCS_E | | 0.17 | 314.998 |
| 5,589.78 | 5,331.72 | MNCS_F | | 0.17 | 314.998 |
| 5,743.57 | 5,417.10 | MNCS_G | | 0.17 | 314.998 |
| 5,832.71 | 5,457.33 | MNCS_H @ 0VS | | 0.17 | 314.998 |

Planning Report

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Plan Annotations**

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates +N/-S (ft) | Local Coordinates +E/-W (ft) | Comment |
|---|---|---|---|---|
| 1,000.00 | 1,000.00 | 0.00 | 0.00 | KOP Begin 3°/100' build |
| 1,705.61 | 1,689.66 | -126.04 | -26.86 | Begin 21.17° tangent |
| 4,194.21 | 4,010.35 | -1,004.96 | -214.14 | Begin 3°/100' drop |
| 4,899.82 | 4,700.01 | -1,131.00 | -241.00 | Begin vertical hold |
| 5,097.85 | 4,898.04 | -1,131.00 | -241.00 | Begin 10°/100' build |
| 5,697.85 | 5,394.24 | -944.13 | -458.14 | Begin 60.00° tangent |
| 5,757.85 | 5,424.24 | -910.24 | -497.53 | Begin 10°/100' build |
| 6,056.15 | 5,501.00 | -724.48 | -713.38 | Begin 3°/100' turn |
| 6,198.92 | 5,501.42 | -627.39 | -818.01 | Begin 89.83° lateral |
| 12,673.39 | 5,521.00 | 3,950.58 | -5,396.29 | PBHL/TD @ 12673.39 MD 5521.00 TVD |

# Planning Report - Geographic

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Project** Rio Arriba County, New Mexico NAD83 NM C

| | | | |
|---|---|---|---|
| **Map System:** | US State Plane 1983 | **System Datum:** | Mean Sea Level |
| **Geo Datum:** | North American Datum 1983 | | |
| **Map Zone:** | New Mexico Central Zone | | |

**Site** Haynes Canyon Unit (428,430,440 & 442)

| | | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 1,912,025.280 usft | **Latitude:** | 36.248667000 |
| **From:** | Lat/Long | **Easting:** | 1,282,353.755 usft | **Longitude:** | -107.464358000 |
| **Position Uncertainty:** | 0.00 ft | **Slot Radius:** | 13-3/16 " | | |

**Well** Haynes Canyon Unit 440H, Surf loc: 916 FSL 390 FWL Section 03-T23N-R06W

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 0.00 ft | **Northing:** | 1,912,037.050 usft | **Latitude:** | 36.248698000 |
| | **+E/-W** | 0.00 ft | **Easting:** | 1,282,315.268 usft | **Longitude:** | -107.464489000 |
| **Position Uncertainty** | | 0.00 ft | **Wellhead Elevation:** | ft | **Ground Level:** | 6,703.00 ft |
| **Grid Convergence:** | | -0.72 ° | | | | |

**Wellbore** Oriignal Hole

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|---|---|---|---|---|---|
| | IGRF2020 | 8/1/2023 | 8.46 | 62.77 | 49,138.30816237 |

**Design** rev0

**Audit Notes:**

| | | | | | |
|---|---|---|---|---|---|
| **Version:** | | **Phase:** | PLAN | **Tie On Depth:** | 0.00 |

| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |
|---|---|---|---|---|
| | 0.00 | 0.00 | 0.00 | 314.998 |

**Plan Survey Tool Program** **Date** 8/1/2023

| | Depth From (ft) | Depth To (ft) | Survey (Wellbore) | Tool Name | Remarks |
|---|---|---|---|---|---|
| 1 | 0.00 | 12,673.14 | rev0 (Oriignal Hole) | MWD<br>OWSG MWD - Standard | |

# Planning Report - Geographic

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Plan Sections**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,000.00 | 0.00 | 0.000 | 1,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,705.61 | 21.17 | 192.029 | 1,689.66 | -126.04 | -26.86 | 3.00 | 3.00 | 0.00 | 192.03 | |
| 4,194.21 | 21.17 | 192.029 | 4,010.35 | -1,004.96 | -214.14 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 4,899.82 | 0.00 | 0.000 | 4,700.01 | -1,131.00 | -241.00 | 3.00 | -3.00 | 0.00 | 180.00 | |
| 5,097.85 | 0.00 | 0.000 | 4,898.04 | -1,131.00 | -241.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5,697.85 | 60.00 | 310.715 | 5,394.24 | -944.13 | -458.14 | 10.00 | 10.00 | 0.00 | 310.72 | |
| 5,757.85 | 60.00 | 310.715 | 5,424.24 | -910.24 | -497.53 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 6,056.15 | 89.83 | 310.715 | 5,501.00 | -724.48 | -713.38 | 10.00 | 10.00 | 0.00 | 0.00 | |
| 6,198.92 | 89.83 | 314.998 | 5,501.42 | -627.39 | -818.01 | 3.00 | 0.00 | 3.00 | 90.05 | |
| 12,673.39 | 89.83 | 314.998 | 5,521.00 | 3,950.58 | -5,396.29 | 0.00 | 0.00 | 0.00 | 0.00 | Haynes 440 LTP 453 |

# Planning Report - Geographic

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 100.00 | 0.00 | 0.000 | 100.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 200.00 | 0.00 | 0.000 | 200.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 300.00 | 0.00 | 0.000 | 300.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 350.00 | 0.00 | 0.000 | 350.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| **13 3/8" Csg** | | | | | | | | | |
| 400.00 | 0.00 | 0.000 | 400.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 500.00 | 0.00 | 0.000 | 500.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 600.00 | 0.00 | 0.000 | 600.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 700.00 | 0.00 | 0.000 | 700.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 800.00 | 0.00 | 0.000 | 800.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 900.00 | 0.00 | 0.000 | 900.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| 1,000.00 | 0.00 | 0.000 | 1,000.00 | 0.00 | 0.00 | 1,912,037.050 | 1,282,315.268 | 36.248698000 | -107.464489000 |
| **KOP Begin 3°/100' build** | | | | | | | | | |
| 1,100.00 | 3.00 | 192.029 | 1,099.95 | -2.56 | -0.55 | 1,912,034.490 | 1,282,314.723 | 36.248690951 | -107.464490741 |
| 1,200.00 | 6.00 | 192.029 | 1,199.63 | -10.23 | -2.18 | 1,912,026.817 | 1,282,313.088 | 36.248669821 | -107.464495959 |
| 1,300.00 | 9.00 | 192.029 | 1,298.77 | -23.00 | -4.90 | 1,912,014.052 | 1,282,310.368 | 36.248634670 | -107.464504639 |
| 1,400.00 | 12.00 | 192.029 | 1,397.08 | -40.82 | -8.70 | 1,911,996.231 | 1,282,306.571 | 36.248585592 | -107.464516758 |
| 1,405.98 | 12.18 | 192.029 | 1,402.93 | -42.04 | -8.96 | 1,911,995.006 | 1,282,306.310 | 36.248582218 | -107.464517591 |
| **Ojo Alamo** | | | | | | | | | |
| 1,500.00 | 15.00 | 192.029 | 1,494.31 | -63.65 | -13.56 | 1,911,973.402 | 1,282,301.706 | 36.248522724 | -107.464532282 |
| 1,508.89 | 15.27 | 192.029 | 1,502.89 | -65.92 | -14.05 | 1,911,971.131 | 1,282,301.222 | 36.248516472 | -107.464533826 |
| **Kirtland** | | | | | | | | | |
| 1,600.00 | 18.00 | 192.029 | 1,590.18 | -91.42 | -19.48 | 1,911,945.627 | 1,282,295.788 | 36.248446237 | -107.464551169 |
| 1,705.61 | 21.17 | 192.029 | 1,689.66 | -126.04 | -26.86 | 1,911,911.010 | 1,282,288.411 | 36.248350907 | -107.464574710 |
| **Begin 21.17° tangent** | | | | | | | | | |
| 1,746.47 | 21.17 | 192.029 | 1,727.77 | -140.47 | -29.93 | 1,911,896.579 | 1,282,285.336 | 36.248311166 | -107.464584523 |
| **Fruitland** | | | | | | | | | |
| 1,800.00 | 21.17 | 192.029 | 1,777.69 | -159.38 | -33.96 | 1,911,877.673 | 1,282,281.308 | 36.248259102 | -107.464597379 |
| 1,900.00 | 21.17 | 192.029 | 1,870.94 | -194.69 | -41.49 | 1,911,842.355 | 1,282,273.782 | 36.248161842 | -107.464621396 |
| 1,998.32 | 21.17 | 192.029 | 1,962.62 | -229.42 | -48.89 | 1,911,807.632 | 1,282,266.383 | 36.248066221 | -107.464645008 |
| **Pictured Cliffs** | | | | | | | | | |
| 2,000.00 | 21.17 | 192.029 | 1,964.19 | -230.01 | -49.01 | 1,911,807.037 | 1,282,266.256 | 36.248064582 | -107.464645413 |
| 2,100.00 | 21.17 | 192.029 | 2,057.45 | -265.33 | -56.54 | 1,911,771.719 | 1,282,258.730 | 36.247967323 | -107.464669429 |
| 2,159.07 | 21.17 | 192.029 | 2,112.53 | -286.19 | -60.98 | 1,911,750.858 | 1,282,254.285 | 36.247909873 | -107.464683615 |
| **Lewis** | | | | | | | | | |
| 2,200.00 | 21.17 | 192.029 | 2,150.70 | -300.65 | -64.06 | 1,911,736.402 | 1,282,251.205 | 36.247870063 | -107.464693445 |
| 2,300.00 | 21.17 | 192.029 | 2,243.95 | -335.97 | -71.59 | 1,911,701.084 | 1,282,243.679 | 36.247772803 | -107.464717462 |
| 2,400.00 | 21.17 | 192.029 | 2,337.20 | -371.28 | -79.12 | 1,911,665.766 | 1,282,236.153 | 36.247675543 | -107.464741478 |
| 2,475.22 | 21.17 | 192.029 | 2,407.34 | -397.85 | -84.78 | 1,911,639.201 | 1,282,230.493 | 36.247602388 | -107.464759542 |
| **Chacra** | | | | | | | | | |
| 2,500.00 | 21.17 | 192.029 | 2,430.45 | -406.60 | -86.64 | 1,911,630.448 | 1,282,228.628 | 36.247578284 | -107.464765494 |
| 2,600.00 | 21.17 | 192.029 | 2,523.71 | -441.92 | -94.17 | 1,911,595.131 | 1,282,221.102 | 36.247481024 | -107.464789511 |
| 2,700.00 | 21.17 | 192.029 | 2,616.96 | -477.24 | -101.69 | 1,911,559.813 | 1,282,213.576 | 36.247383764 | -107.464813527 |
| 2,800.00 | 21.17 | 192.029 | 2,710.21 | -512.56 | -109.22 | 1,911,524.495 | 1,282,206.050 | 36.247286504 | -107.464837543 |
| 2,900.00 | 21.17 | 192.029 | 2,803.46 | -547.87 | -116.74 | 1,911,489.177 | 1,282,198.525 | 36.247189245 | -107.464861559 |
| 3,000.00 | 21.17 | 192.029 | 2,896.72 | -583.19 | -124.27 | 1,911,453.859 | 1,282,190.999 | 36.247091985 | -107.464885575 |
| 3,100.00 | 21.17 | 192.029 | 2,989.97 | -618.51 | -131.80 | 1,911,418.542 | 1,282,183.473 | 36.246994725 | -107.464909591 |
| 3,200.00 | 21.17 | 192.029 | 3,083.22 | -653.83 | -139.32 | 1,911,383.224 | 1,282,175.947 | 36.246897465 | -107.464933607 |
| 3,300.00 | 21.17 | 192.029 | 3,176.47 | -689.14 | -146.85 | 1,911,347.906 | 1,282,168.422 | 36.246800206 | -107.464957622 |
| 3,400.00 | 21.17 | 192.029 | 3,269.73 | -724.46 | -154.37 | 1,911,312.588 | 1,282,160.896 | 36.246702946 | -107.464981638 |
| 3,500.00 | 21.17 | 192.029 | 3,362.98 | -759.78 | -161.90 | 1,911,277.270 | 1,282,153.370 | 36.246605686 | -107.465005654 |
| 3,600.00 | 21.17 | 192.029 | 3,456.23 | -795.10 | -169.42 | 1,911,241.953 | 1,282,145.845 | 36.246508426 | -107.465029670 |

# Planning Report - Geographic

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| 3,664.79 | 21.17 | 192.029 | 3,516.65 | -817.98 | -174.30 | 1,911,219.070 | 1,282,140.969 | 36.246445411 | -107.465045229 |
| **Cliff House** | | | | | | | | | |
| 3,670.15 | 21.17 | 192.029 | 3,521.65 | -819.87 | -174.70 | 1,911,217.178 | 1,282,140.565 | 36.246440200 | -107.465046516 |
| **Menefee** | | | | | | | | | |
| 3,700.00 | 21.17 | 192.029 | 3,549.48 | -830.42 | -176.95 | 1,911,206.635 | 1,282,138.319 | 36.246411166 | -107.465053685 |
| 3,800.00 | 21.17 | 192.029 | 3,642.74 | -865.73 | -184.48 | 1,911,171.317 | 1,282,130.793 | 36.246313907 | -107.465077701 |
| 3,832.45 | 21.17 | 192.029 | 3,673.00 | -877.20 | -186.92 | 1,911,159.855 | 1,282,128.351 | 36.246282342 | -107.465085495 |
| **9 5/8" Csg** | | | | | | | | | |
| 3,900.00 | 21.17 | 192.029 | 3,735.99 | -901.05 | -192.00 | 1,911,135.999 | 1,282,123.267 | 36.246216647 | -107.465101716 |
| 4,000.00 | 21.17 | 192.029 | 3,829.24 | -936.37 | -199.53 | 1,911,100.682 | 1,282,115.742 | 36.246119387 | -107.465125732 |
| 4,100.00 | 21.17 | 192.029 | 3,922.49 | -971.69 | -207.05 | 1,911,065.364 | 1,282,108.216 | 36.246022127 | -107.465149747 |
| 4,194.21 | 21.17 | 192.029 | 4,010.35 | -1,004.96 | -214.14 | 1,911,032.091 | 1,282,101.126 | 36.245930500 | -107.465172371 |
| **Begin 3°/100' drop** | | | | | | | | | |
| 4,200.00 | 20.99 | 192.029 | 4,015.75 | -1,007.00 | -214.58 | 1,911,030.054 | 1,282,100.692 | 36.245924889 | -107.465173757 |
| 4,300.00 | 17.99 | 192.029 | 4,110.01 | -1,039.63 | -221.53 | 1,910,997.419 | 1,282,093.738 | 36.245835017 | -107.465195948 |
| 4,400.00 | 14.99 | 192.029 | 4,205.88 | -1,067.40 | -227.45 | 1,910,969.653 | 1,282,087.821 | 36.245758555 | -107.465214828 |
| 4,415.88 | 14.52 | 192.029 | 4,221.23 | -1,071.35 | -228.29 | 1,910,965.698 | 1,282,086.979 | 36.245747664 | -107.465217517 |
| **Point Lookout** | | | | | | | | | |
| 4,500.00 | 11.99 | 192.029 | 4,303.11 | -1,090.22 | -232.31 | 1,910,946.833 | 1,282,082.959 | 36.245695712 | -107.465230345 |
| 4,600.00 | 8.99 | 192.029 | 4,401.42 | -1,108.03 | -236.11 | 1,910,929.021 | 1,282,079.163 | 36.245646660 | -107.465242457 |
| 4,695.57 | 6.13 | 192.029 | 4,496.15 | -1,120.33 | -238.73 | 1,910,916.723 | 1,282,076.543 | 36.245612794 | -107.465250819 |
| **Mancos** | | | | | | | | | |
| 4,700.00 | 5.99 | 192.029 | 4,500.56 | -1,120.79 | -238.82 | 1,910,916.266 | 1,282,076.445 | 36.245611534 | -107.465251130 |
| 4,800.00 | 2.99 | 192.029 | 4,600.24 | -1,128.45 | -240.46 | 1,910,908.602 | 1,282,074.812 | 36.245590430 | -107.465256341 |
| 4,899.82 | 0.00 | 0.000 | 4,700.01 | -1,131.00 | -241.00 | 1,910,906.052 | 1,282,074.269 | 36.245583406 | -107.465258075 |
| **Begin vertical hold** | | | | | | | | | |
| 5,000.00 | 0.00 | 0.000 | 4,800.19 | -1,131.00 | -241.00 | 1,910,906.052 | 1,282,074.269 | 36.245583406 | -107.465258075 |
| 5,035.94 | 0.00 | 0.000 | 4,836.13 | -1,131.00 | -241.00 | 1,910,906.052 | 1,282,074.269 | 36.245583406 | -107.465258075 |
| **MNCS_A** | | | | | | | | | |
| 5,097.85 | 0.00 | 0.000 | 4,898.04 | -1,131.00 | -241.00 | 1,910,906.052 | 1,282,074.269 | 36.245583406 | -107.465258075 |
| **Begin 10°/100' build** | | | | | | | | | |
| 5,100.00 | 0.22 | 310.715 | 4,900.19 | -1,131.00 | -241.00 | 1,910,906.054 | 1,282,074.266 | 36.245583413 | -107.465258086 |
| 5,125.95 | 2.81 | 310.715 | 4,926.13 | -1,130.55 | -241.52 | 1,910,906.501 | 1,282,073.747 | 36.245584623 | -107.465259865 |
| **MNCS_B** | | | | | | | | | |
| 5,150.00 | 5.22 | 310.715 | 4,950.12 | -1,129.45 | -242.80 | 1,910,907.599 | 1,282,072.471 | 36.245587594 | -107.465264237 |
| 5,200.00 | 10.22 | 310.715 | 4,999.65 | -1,125.08 | -247.88 | 1,910,911.976 | 1,282,067.385 | 36.245599441 | -107.465281669 |
| 5,250.00 | 15.22 | 310.715 | 5,048.41 | -1,117.90 | -256.22 | 1,910,919.153 | 1,282,059.046 | 36.245618864 | -107.465310248 |
| 5,263.30 | 16.55 | 310.715 | 5,061.20 | -1,115.53 | -258.98 | 1,910,921.526 | 1,282,056.288 | 36.245625288 | -107.465319702 |
| **MNCS_C** | | | | | | | | | |
| 5,300.00 | 20.22 | 310.715 | 5,096.03 | -1,107.98 | -267.75 | 1,910,929.074 | 1,282,047.518 | 36.245645715 | -107.465349759 |
| 5,332.59 | 23.47 | 310.715 | 5,126.27 | -1,100.07 | -276.94 | 1,910,936.984 | 1,282,038.327 | 36.245667122 | -107.465381258 |
| **MNCS_Cms** | | | | | | | | | |
| 5,350.00 | 25.22 | 310.715 | 5,142.13 | -1,095.39 | -282.38 | 1,910,941.664 | 1,282,032.888 | 36.245679790 | -107.465399899 |
| 5,400.00 | 30.22 | 310.715 | 5,186.38 | -1,080.22 | -300.00 | 1,910,956.828 | 1,282,015.268 | 36.245720830 | -107.465460287 |
| 5,417.53 | 31.97 | 310.715 | 5,201.39 | -1,074.32 | -306.86 | 1,910,962.731 | 1,282,008.408 | 36.245736808 | -107.465483798 |
| **MNCS_D** | | | | | | | | | |
| 5,450.00 | 35.22 | 310.715 | 5,228.44 | -1,062.60 | -320.48 | 1,910,974.449 | 1,281,994.792 | 36.245768522 | -107.465530464 |
| 5,500.00 | 40.22 | 310.715 | 5,267.98 | -1,042.66 | -343.65 | 1,910,994.395 | 1,281,971.615 | 36.245822504 | -107.465609895 |
| 5,524.83 | 42.70 | 310.715 | 5,286.58 | -1,031.94 | -356.11 | 1,911,005.115 | 1,281,959.158 | 36.245851519 | -107.465652590 |
| **MNCS_E** | | | | | | | | | |
| 5,550.00 | 45.22 | 310.715 | 5,304.70 | -1,020.54 | -369.35 | 1,911,016.512 | 1,281,945.915 | 36.245882364 | -107.465697977 |
| 5,589.78 | 49.19 | 310.715 | 5,331.72 | -1,001.50 | -391.47 | 1,911,035.547 | 1,281,923.797 | 36.245933881 | -107.465773782 |
| **MNCS_F** | | | | | | | | | |

# Planning Report - Geographic

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| 5,600.00 | 50.22 | 310.715 | 5,338.33 | -996.42 | -397.38 | 1,911,040.633 | 1,281,917.886 | 36.245947647 | -107.465794038 |
| 5,650.00 | 55.22 | 310.715 | 5,368.61 | -970.48 | -427.53 | 1,911,066.575 | 1,281,887.743 | 36.246017856 | -107.465897349 |
| 5,697.85 | 60.00 | 310.715 | 5,394.24 | -944.13 | -458.14 | 1,911,092.921 | 1,281,857.129 | 36.246089161 | -107.466002272 |
| **Begin 60.00° tangent** | | | | | | | | | |
| 5,700.00 | 60.00 | 310.715 | 5,395.31 | -942.91 | -459.55 | 1,911,094.137 | 1,281,855.715 | 36.246092453 | -107.466007116 |
| 5,743.57 | 60.00 | 310.715 | 5,417.10 | -918.30 | -488.15 | 1,911,118.750 | 1,281,827.115 | 36.246159067 | -107.466105136 |
| **MNCS_G** | | | | | | | | | |
| 5,757.85 | 60.00 | 310.715 | 5,424.24 | -910.24 | -497.53 | 1,911,126.815 | 1,281,817.744 | 36.246180894 | -107.466137255 |
| **Begin 10°/100' build** | | | | | | | | | |
| 5,800.00 | 64.22 | 310.715 | 5,443.95 | -885.94 | -525.76 | 1,911,151.112 | 1,281,789.511 | 36.246246652 | -107.466234016 |
| 5,832.71 | 67.49 | 310.715 | 5,457.33 | -866.47 | -548.38 | 1,911,170.580 | 1,281,766.889 | 36.246299342 | -107.466311549 |
| **MNCS_H @ 0VS** | | | | | | | | | |
| 5,850.00 | 69.22 | 310.715 | 5,463.71 | -855.99 | -560.56 | 1,911,181.060 | 1,281,754.711 | 36.246327707 | -107.466353288 |
| 5,900.00 | 74.22 | 310.715 | 5,479.39 | -825.03 | -596.53 | 1,911,212.019 | 1,281,718.738 | 36.246411493 | -107.466476579 |
| 5,950.00 | 79.22 | 310.715 | 5,490.88 | -793.30 | -633.40 | 1,911,243.751 | 1,281,681.866 | 36.246497374 | -107.466602952 |
| 6,000.00 | 84.22 | 310.715 | 5,498.08 | -761.04 | -670.89 | 1,911,276.015 | 1,281,644.375 | 36.246584694 | -107.466731445 |
| 6,050.00 | 89.22 | 310.715 | 5,500.94 | -728.49 | -708.72 | 1,911,308.566 | 1,281,606.551 | 36.246672791 | -107.466861080 |
| 6,056.15 | 89.83 | 310.715 | 5,501.00 | -724.48 | -713.38 | 1,911,312.575 | 1,281,601.892 | 36.246683642 | -107.466877047 |
| **Begin 3°/100' turn** | | | | | | | | | |
| 6,100.00 | 89.83 | 312.031 | 5,501.13 | -695.49 | -746.29 | 1,911,341.559 | 1,281,568.985 | 36.246762112 | -107.466989861 |
| 6,198.92 | 89.83 | 314.998 | 5,501.42 | -627.39 | -818.01 | 1,911,409.658 | 1,281,497.260 | 36.246946670 | -107.467235959 |
| **Begin 89.83° lateral** | | | | | | | | | |
| 6,200.00 | 89.83 | 314.998 | 5,501.43 | -626.63 | -818.78 | 1,911,410.425 | 1,281,496.493 | 36.246948751 | -107.467238593 |
| 6,300.00 | 89.83 | 314.998 | 5,501.73 | -555.92 | -889.49 | 1,911,481.133 | 1,281,425.780 | 36.247140510 | -107.467481371 |
| 6,400.00 | 89.83 | 314.998 | 5,502.03 | -485.21 | -960.20 | 1,911,551.841 | 1,281,355.067 | 36.247332269 | -107.467724150 |
| 6,500.00 | 89.83 | 314.998 | 5,502.33 | -414.50 | -1,030.92 | 1,911,622.548 | 1,281,284.355 | 36.247524027 | -107.467966930 |
| 6,600.00 | 89.83 | 314.998 | 5,502.64 | -343.79 | -1,101.63 | 1,911,693.256 | 1,281,213.642 | 36.247715785 | -107.468209712 |
| 6,700.00 | 89.83 | 314.998 | 5,502.94 | -273.09 | -1,172.34 | 1,911,763.964 | 1,281,142.930 | 36.247907542 | -107.468452494 |
| 6,800.00 | 89.83 | 314.998 | 5,503.24 | -202.38 | -1,243.05 | 1,911,834.672 | 1,281,072.217 | 36.248099299 | -107.468695278 |
| 6,900.00 | 89.83 | 314.998 | 5,503.54 | -131.67 | -1,313.77 | 1,911,905.380 | 1,281,001.504 | 36.248291055 | -107.468938063 |
| 7,000.00 | 89.83 | 314.998 | 5,503.85 | -60.96 | -1,384.48 | 1,911,976.088 | 1,280,930.792 | 36.248482810 | -107.469180849 |
| 7,100.00 | 89.83 | 314.998 | 5,504.15 | 9.75 | -1,455.19 | 1,912,046.795 | 1,280,860.079 | 36.248674565 | -107.469423637 |
| 7,200.00 | 89.83 | 314.998 | 5,504.45 | 80.45 | -1,525.90 | 1,912,117.503 | 1,280,789.367 | 36.248866320 | -107.469666425 |
| 7,300.00 | 89.83 | 314.998 | 5,504.75 | 151.16 | -1,596.62 | 1,912,188.211 | 1,280,718.654 | 36.249058074 | -107.469909215 |
| 7,400.00 | 89.83 | 314.998 | 5,505.05 | 221.87 | -1,667.33 | 1,912,258.919 | 1,280,647.941 | 36.249249828 | -107.470152006 |
| 7,500.00 | 89.83 | 314.998 | 5,505.36 | 292.58 | -1,738.04 | 1,912,329.627 | 1,280,577.229 | 36.249441581 | -107.470394798 |
| 7,600.00 | 89.83 | 314.998 | 5,505.66 | 363.29 | -1,808.76 | 1,912,400.335 | 1,280,506.516 | 36.249633333 | -107.470637591 |
| 7,700.00 | 89.83 | 314.998 | 5,505.96 | 433.99 | -1,879.47 | 1,912,471.042 | 1,280,435.804 | 36.249825085 | -107.470880386 |
| 7,800.00 | 89.83 | 314.998 | 5,506.26 | 504.70 | -1,950.18 | 1,912,541.750 | 1,280,365.091 | 36.250016836 | -107.471123182 |
| 7,900.00 | 89.83 | 314.998 | 5,506.57 | 575.41 | -2,020.89 | 1,912,612.458 | 1,280,294.378 | 36.250208587 | -107.471365978 |
| 8,000.00 | 89.83 | 314.998 | 5,506.87 | 646.12 | -2,091.61 | 1,912,683.166 | 1,280,223.666 | 36.250400338 | -107.471608775 |
| 8,100.00 | 89.83 | 314.998 | 5,507.17 | 716.83 | -2,162.32 | 1,912,753.874 | 1,280,152.953 | 36.250592088 | -107.471851575 |
| 8,200.00 | 89.83 | 314.998 | 5,507.47 | 787.53 | -2,233.03 | 1,912,824.581 | 1,280,082.241 | 36.250783837 | -107.472094375 |
| 8,300.00 | 89.83 | 314.998 | 5,507.78 | 858.24 | -2,303.75 | 1,912,895.289 | 1,280,011.528 | 36.250975586 | -107.472337177 |
| 8,400.00 | 89.83 | 314.998 | 5,508.08 | 928.95 | -2,374.46 | 1,912,965.997 | 1,279,940.816 | 36.251167334 | -107.472579979 |
| 8,500.00 | 89.83 | 314.998 | 5,508.38 | 999.66 | -2,445.17 | 1,913,036.705 | 1,279,870.103 | 36.251359082 | -107.472822783 |
| 8,600.00 | 89.83 | 314.998 | 5,508.68 | 1,070.37 | -2,515.88 | 1,913,107.413 | 1,279,799.390 | 36.251550829 | -107.473065589 |
| 8,700.00 | 89.83 | 314.998 | 5,508.99 | 1,141.07 | -2,586.60 | 1,913,178.121 | 1,279,728.678 | 36.251742576 | -107.473308395 |
| 8,800.00 | 89.83 | 314.998 | 5,509.29 | 1,211.78 | -2,657.31 | 1,913,248.828 | 1,279,657.965 | 36.251934322 | -107.473551203 |
| 8,900.00 | 89.83 | 314.998 | 5,509.59 | 1,282.49 | -2,728.02 | 1,913,319.536 | 1,279,587.253 | 36.252126068 | -107.473794011 |
| 9,000.00 | 89.83 | 314.998 | 5,509.89 | 1,353.20 | -2,798.73 | 1,913,390.244 | 1,279,516.540 | 36.252317813 | -107.474036821 |
| 9,100.00 | 89.83 | 314.998 | 5,510.20 | 1,423.91 | -2,869.45 | 1,913,460.952 | 1,279,445.827 | 36.252509558 | -107.474279632 |
| 9,200.00 | 89.83 | 314.998 | 5,510.50 | 1,494.61 | -2,940.16 | 1,913,531.660 | 1,279,375.115 | 36.252701302 | -107.474522445 |
| 9,300.00 | 89.83 | 314.998 | 5,510.80 | 1,565.32 | -3,010.87 | 1,913,602.368 | 1,279,304.402 | 36.252893045 | -107.474765258 |

# Planning Report - Geographic

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| 9,400.00 | 89.83 | 314.998 | 5,511.10 | 1,636.03 | -3,081.59 | 1,913,673.075 | 1,279,233.690 | 36.253084788 | -107.475008073 |
| 9,500.00 | 89.83 | 314.998 | 5,511.40 | 1,706.74 | -3,152.30 | 1,913,743.783 | 1,279,162.977 | 36.253276531 | -107.475250888 |
| 9,600.00 | 89.83 | 314.998 | 5,511.71 | 1,777.45 | -3,223.01 | 1,913,814.491 | 1,279,092.264 | 36.253468273 | -107.475493706 |
| 9,700.00 | 89.83 | 314.998 | 5,512.01 | 1,848.15 | -3,293.72 | 1,913,885.199 | 1,279,021.552 | 36.253660014 | -107.475736524 |
| 9,800.00 | 89.83 | 314.998 | 5,512.31 | 1,918.86 | -3,364.44 | 1,913,955.907 | 1,278,950.839 | 36.253851755 | -107.475979343 |
| 9,900.00 | 89.83 | 314.998 | 5,512.61 | 1,989.57 | -3,435.15 | 1,914,026.615 | 1,278,880.127 | 36.254043496 | -107.476222164 |
| 10,000.00 | 89.83 | 314.998 | 5,512.92 | 2,060.28 | -3,505.86 | 1,914,097.322 | 1,278,809.414 | 36.254235236 | -107.476464985 |
| 10,100.00 | 89.83 | 314.998 | 5,513.22 | 2,130.99 | -3,576.57 | 1,914,168.030 | 1,278,738.701 | 36.254426975 | -107.476707808 |
| 10,200.00 | 89.83 | 314.998 | 5,513.52 | 2,201.69 | -3,647.29 | 1,914,238.738 | 1,278,667.989 | 36.254618714 | -107.476950633 |
| 10,300.00 | 89.83 | 314.998 | 5,513.82 | 2,272.40 | -3,718.00 | 1,914,309.446 | 1,278,597.276 | 36.254810453 | -107.477193458 |
| 10,400.00 | 89.83 | 314.998 | 5,514.13 | 2,343.11 | -3,788.71 | 1,914,380.154 | 1,278,526.564 | 36.255002191 | -107.477436284 |
| 10,500.00 | 89.83 | 314.998 | 5,514.43 | 2,413.82 | -3,859.43 | 1,914,450.862 | 1,278,455.851 | 36.255193928 | -107.477679112 |
| 10,600.00 | 89.83 | 314.998 | 5,514.73 | 2,484.52 | -3,930.14 | 1,914,521.569 | 1,278,385.138 | 36.255385665 | -107.477921941 |
| 10,700.00 | 89.83 | 314.998 | 5,515.03 | 2,555.23 | -4,000.85 | 1,914,592.277 | 1,278,314.426 | 36.255577401 | -107.478164771 |
| 10,800.00 | 89.83 | 314.998 | 5,515.34 | 2,625.94 | -4,071.56 | 1,914,662.985 | 1,278,243.713 | 36.255769137 | -107.478407602 |
| 10,900.00 | 89.83 | 314.998 | 5,515.64 | 2,696.65 | -4,142.28 | 1,914,733.693 | 1,278,173.001 | 36.255960872 | -107.478650435 |
| 11,000.00 | 89.83 | 314.998 | 5,515.94 | 2,767.36 | -4,212.99 | 1,914,804.401 | 1,278,102.288 | 36.256152607 | -107.478893268 |
| 11,100.00 | 89.83 | 314.998 | 5,516.24 | 2,838.06 | -4,283.70 | 1,914,875.108 | 1,278,031.576 | 36.256344341 | -107.479136103 |
| 11,200.00 | 89.83 | 314.998 | 5,516.55 | 2,908.77 | -4,354.41 | 1,914,945.816 | 1,277,960.863 | 36.256536075 | -107.479378939 |
| 11,300.00 | 89.83 | 314.998 | 5,516.85 | 2,979.48 | -4,425.13 | 1,915,016.524 | 1,277,890.150 | 36.256727808 | -107.479621776 |
| 11,400.00 | 89.83 | 314.998 | 5,517.15 | 3,050.19 | -4,495.84 | 1,915,087.232 | 1,277,819.438 | 36.256919540 | -107.479864615 |
| 11,500.00 | 89.83 | 314.998 | 5,517.45 | 3,120.90 | -4,566.55 | 1,915,157.940 | 1,277,748.725 | 36.257111273 | -107.480107454 |
| 11,600.00 | 89.83 | 314.998 | 5,517.75 | 3,191.60 | -4,637.27 | 1,915,228.648 | 1,277,678.013 | 36.257303004 | -107.480350295 |
| 11,700.00 | 89.83 | 314.998 | 5,518.06 | 3,262.31 | -4,707.98 | 1,915,299.355 | 1,277,607.300 | 36.257494735 | -107.480593137 |
| 11,800.00 | 89.83 | 314.998 | 5,518.36 | 3,333.02 | -4,778.69 | 1,915,370.063 | 1,277,536.587 | 36.257686466 | -107.480835980 |
| 11,900.00 | 89.83 | 314.998 | 5,518.66 | 3,403.73 | -4,849.40 | 1,915,440.771 | 1,277,465.875 | 36.257878196 | -107.481078825 |
| 12,000.00 | 89.83 | 314.998 | 5,518.96 | 3,474.44 | -4,920.12 | 1,915,511.479 | 1,277,395.162 | 36.258069925 | -107.481321670 |
| 12,100.00 | 89.83 | 314.998 | 5,519.27 | 3,545.14 | -4,990.83 | 1,915,582.187 | 1,277,324.450 | 36.258261654 | -107.481564517 |
| 12,200.00 | 89.83 | 314.998 | 5,519.57 | 3,615.85 | -5,061.54 | 1,915,652.895 | 1,277,253.737 | 36.258453383 | -107.481807365 |
| 12,300.00 | 89.83 | 314.998 | 5,519.87 | 3,686.56 | -5,132.25 | 1,915,723.602 | 1,277,183.024 | 36.258645111 | -107.482050214 |
| 12,400.00 | 89.83 | 314.998 | 5,520.17 | 3,757.27 | -5,202.97 | 1,915,794.310 | 1,277,112.312 | 36.258836838 | -107.482293064 |
| 12,500.00 | 89.83 | 314.998 | 5,520.48 | 3,827.98 | -5,273.68 | 1,915,865.018 | 1,277,041.599 | 36.259028565 | -107.482535915 |
| 12,600.00 | 89.83 | 314.998 | 5,520.78 | 3,898.68 | -5,344.39 | 1,915,935.726 | 1,276,970.887 | 36.259220292 | -107.482778768 |
| 12,673.39 | 89.83 | 314.998 | 5,521.00 | 3,950.58 | -5,396.29 | 1,915,987.619 | 1,276,918.990 | 36.259361000 | -107.482957000 |
| **PBHL/TD @ 12673.39 MD 5521.00 TVD** | | | | | | | | | |

**Design Targets**

| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| Haynes 440 vert | 0.00 | 0.000 | 4,898.04 | -1,167.84 | -277.44 | 1,910,869.212 | 1,282,037.829 | 36.245480970 | -107.465380063 |
| - plan misses target center by 51.82ft at 5097.85ft MD (4898.05 TVD, -1131.00 N, -241.00 E) | | | | | | | | | |
| - Point | | | | | | | | | |
| Haynes 440 FTP 188 FS | 0.00 | 0.000 | 5,501.00 | -727.20 | -718.12 | 1,911,309.852 | 1,281,597.153 | 36.246676000 | -107.466893000 |
| - plan misses target center by 5.16ft at 6057.90ft MD (5501.00 TVD, -723.33 N, -714.71 E) | | | | | | | | | |
| - Point | | | | | | | | | |
| Haynes 440 LTP 453 FN | 0.00 | 0.000 | 5,521.00 | 3,950.58 | -5,396.29 | 1,915,987.619 | 1,276,918.990 | 36.259361000 | -107.482957000 |
| - plan hits target center | | | | | | | | | |
| - Point | | | | | | | | | |

# Planning Report - Geographic

| | | | |
|---|---|---|---|
| **Database:** | DB_Decv0422v16 | **Local Co-ordinate Reference:** | Well Haynes Canyon Unit 440H |
| **Company:** | Enduring Resources LLC | **TVD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Project:** | Rio Arriba County, New Mexico NAD83 NM C | **MD Reference:** | RKB=6703+25 @ 6728.00ft |
| **Site:** | Haynes Canyon Unit (428,430,440 & 442) | **North Reference:** | Grid |
| **Well:** | Haynes Canyon Unit 440H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Oriignal Hole | | |
| **Design:** | rev0 | | |

**Casing Points**

| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (") | Hole Diameter (") |
|---|---|---|---|---|
| 350.00 | 350.00 | 13 3/8" Csg | 13-3/8 | 17-1/2 |
| 3,832.45 | 3,673.00 | 9 5/8" Csg | 9-5/8 | 12-1/4 |

**Formations**

| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|---|---|---|---|---|---|
| 1,405.98 | 1,402.93 | Ojo Alamo | | 0.17 | 314.998 |
| 1,508.89 | 1,502.89 | Kirtland | | 0.17 | 314.998 |
| 1,746.47 | 1,727.77 | Fruitland | | 0.17 | 314.998 |
| 1,998.32 | 1,962.62 | Pictured Cliffs | | 0.17 | 314.998 |
| 2,159.07 | 2,112.53 | Lewis | | 0.17 | 314.998 |
| 2,475.22 | 2,407.34 | Chacra | | 0.17 | 314.998 |
| 3,664.79 | 3,516.65 | Cliff House | | 0.17 | 314.998 |
| 3,670.15 | 3,521.65 | Menefee | | 0.17 | 314.998 |
| 4,415.88 | 4,221.23 | Point Lookout | | 0.17 | 314.998 |
| 4,695.57 | 4,496.15 | Mancos | | 0.17 | 314.998 |
| 5,035.94 | 4,836.13 | MNCS_A | | 0.17 | 314.998 |
| 5,125.95 | 4,926.13 | MNCS_B | | 0.17 | 314.998 |
| 5,263.30 | 5,061.20 | MNCS_C | | 0.17 | 314.998 |
| 5,332.59 | 5,126.27 | MNCS_Cms | | 0.17 | 314.998 |
| 5,417.53 | 5,201.39 | MNCS_D | | 0.17 | 314.998 |
| 5,524.83 | 5,286.58 | MNCS_E | | 0.17 | 314.998 |
| 5,589.78 | 5,331.72 | MNCS_F | | 0.17 | 314.998 |
| 5,743.57 | 5,417.10 | MNCS_G | | 0.17 | 314.998 |
| 5,832.71 | 5,457.33 | MNCS_H @ 0VS | | 0.17 | 314.998 |

**Plan Annotations**

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates +N/-S (ft) | Local Coordinates +E/-W (ft) | Comment |
|---|---|---|---|---|
| 1,000.00 | 1,000.00 | 0.00 | 0.00 | KOP Begin 3°/100' build |
| 1,705.61 | 1,689.66 | -126.04 | -26.86 | Begin 21.17° tangent |
| 4,194.21 | 4,010.35 | -1,004.96 | -214.14 | Begin 3°/100' drop |
| 4,899.82 | 4,700.01 | -1,131.00 | -241.00 | Begin vertical hold |
| 5,097.85 | 4,898.04 | -1,131.00 | -241.00 | Begin 10°/100' build |
| 5,697.85 | 5,394.24 | -944.13 | -458.14 | Begin 60.00° tangent |
| 5,757.85 | 5,424.24 | -910.24 | -497.53 | Begin 10°/100' build |
| 6,056.15 | 5,501.00 | -724.48 | -713.38 | Begin 3°/100' turn |
| 6,198.92 | 5,501.42 | -627.39 | -818.01 | Begin 89.83° lateral |
| 12,673.39 | 5,521.00 | 3,950.58 | -5,396.29 | PBHL/TD @ 12673.39 MD 5521.00 TVD |

**VELL NAME:** **Haynes Canyon Unit 440H**

**OBJECTIVE:** **Drill, complete, and equip single lateral in the Mancos-H formation**

**API Number:** *Not yet assigned*

**AFE Number:** *Not yet assigned*

**/ell Number:** *Not yet assigned*

**State:** New Mexico

**County:** Rio Arriba

| | | | | | | |
|---|---|---|---|---|---|---|
| **Surface Elev.:** | 6,703 | ft ASL (GL) | 6,728 | ft ASL (KB) | | |
| **rface Location:** | 3-23-6 | Sec-Twn- Rng | 916 | ft FSL | 390 | ft FWL |
| **BH Location:** | 4-23-6 | Sec-Twn- Rng | 453 | ft FNL | 232 | ft FWL |

**Directions:** ***FROM THE INTERSECTION OF US HWY 550 & US HWY 64 IN BLOOMFIELD, NM:***

South on US Hwy 550 for 53.8 miles to MM 97.6; Left (North) on CR #379 (State Hwy 403) for 1.3 miles to fork; Right (North) remaining on CR #379 for 1.5 miles to location access on left; Haynes Canyon Unit 428H Pad. From East to West 430H, 428H, 442H, 440H).

| QUICK REFERENCE | | |
|---|---|---|
| Sur TD (MD) | 350 | ft |
| Int TD (MD) | 3,833 | ft |
| KOP (MD) | 5,100 | ft |
| KOP (TVD) | 4,900 | ft |
| Target (TVD) | 5,466 | ft |
| Curve BUR | 10 | °/100 ft |
| POE (MD) | 5,858 | ft |
| TD (MD) | 12,673 | ft |
| Lat Len (ft) | 6,815 | ft |

**CONSTRUCTION SUMMARY:**

| | Hole (in) | TD MD (ft) | Csg (in) | Csg (lb/ft) | Csg (grade) | Csg (conn) | Csg Top (ft) | Csg Bot (ft) |
|---|---|---|---|---|---|---|---|---|
| *Surface* | 17.500 | 350 | 13.375 | 54.5 | J-55 | BTC | 0 | 350 |
| *ntermediate* | 12.250 | 3,833 | 9.625 | 36.0 | J-55 | LTC | 0 | 3,833 |
| *Production* | 8.500 | 12,673 | 5.500 | 17.0 | P-110 | LTC | 0 | 12,673 |

**NT PROPERTIES SUMMARY:**

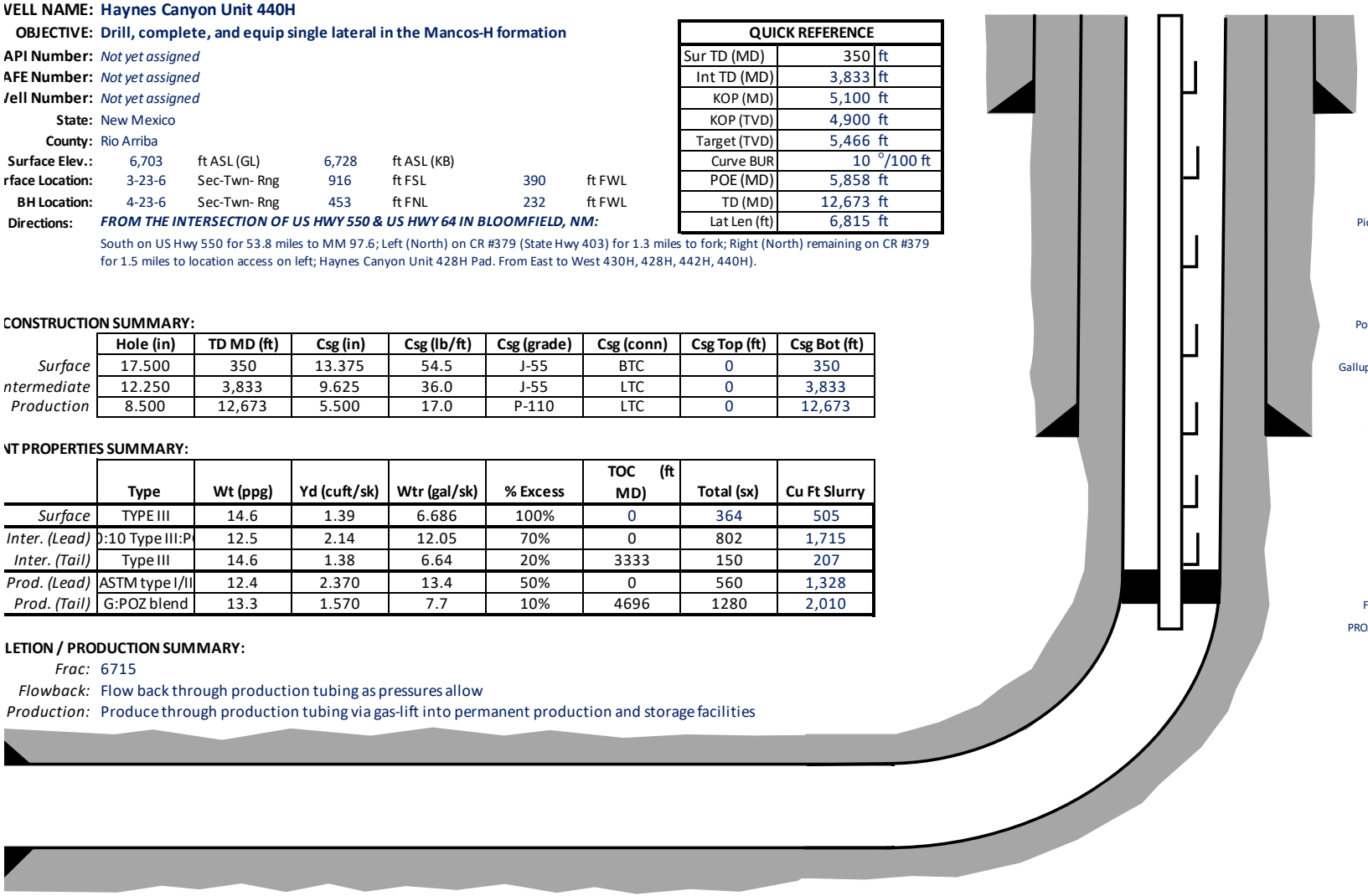
| | Type | Wt (ppg) | Yd (cuft/sk) | Wtr (gal/sk) | % Excess | TOC (ft MD) | Total (sx) | Cu Ft Slurry |
|---|---|---|---|---|---|---|---|---|
| *Surface* | TYPE III | 14.6 | 1.39 | 6.686 | 100% | 0 | 364 | 505 |
| *Inter. (Lead)* | 0:10 Type III:P | 12.5 | 2.14 | 12.05 | 70% | 0 | 802 | 1,715 |
| *Inter. (Tail)* | Type III | 14.6 | 1.38 | 6.64 | 20% | 3333 | 150 | 207 |
| *Prod. (Lead)* | ASTM type I/II | 12.4 | 2.370 | 13.4 | 50% | 0 | 560 | 1,328 |
| *Prod. (Tail)* | G:POZ blend | 13.3 | 1.570 | 7.7 | 10% | 4696 | 1280 | 2,010 |

**LETION / PRODUCTION SUMMARY:**

*Frac:* 6715

*Flowback:* Flow back through production tubing as pressures allow

*Production:* Produce through production tubing via gas-lift into permanent production and storage facilities

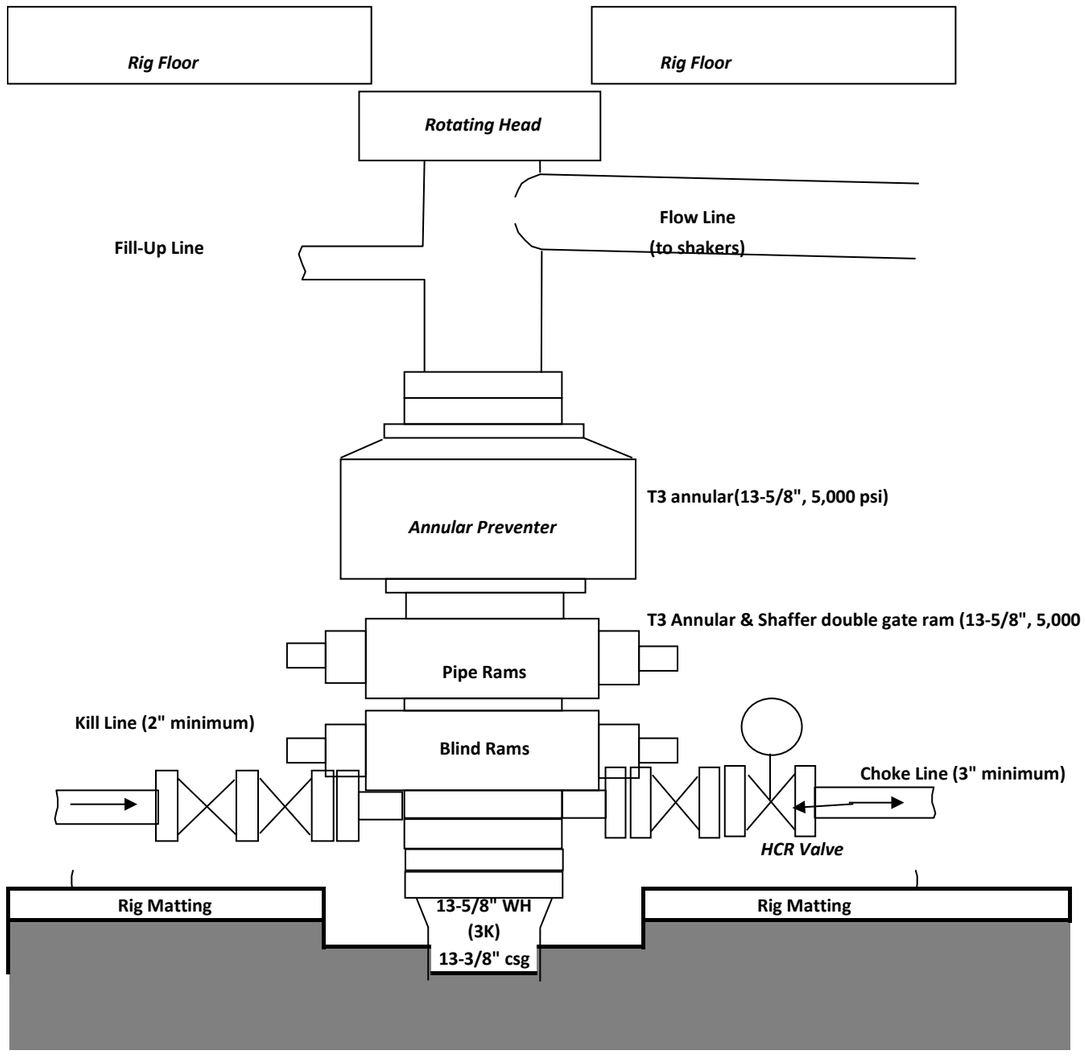


| Tops | TVD (ft KB) | MD (ft KB) |
|---|---|---|
| Ojo Alamo | 1,403 | 1,406 |
| Kirtland | 1,503 | 1,509 |
| Fruitland | 1,728 | 1,746 |
| Pictured Cliffs | 1,963 | 1,998 |
| Lewis | 2,113 | 2,159 |
| Chacra | 2,408 | 2,475 |
| Cliff House | 3,518 | 3,665 |
| Menefee | 3,523 | 3,670 |
| Point Lookout | 4,223 | 4,416 |
| Mancos | 4,498 | 4,696 |
| Gallup (MNCS_A) | 4,838 | 5,036 |
| MNCS_B | 4,928 | 5,126 |
| MNCS_C | 5,063 | 5,263 |
| MNCS_Cms | 5,128 | 5,333 |
| MNCS_D | 5,203 | 5,418 |
| MNCS_E | 5,288 | 5,525 |
| MNCS_F | 5,333 | 5,590 |
| MNCS_G | 5,418 | 5,744 |
| MNCS_H | 5,458 | 5,833 |
| MNCS_I | 0 | 0 |
| FTP TARGET | 5,466 | 5,858 |
| PROJECTED LTP | 5,521 | 12,673 |

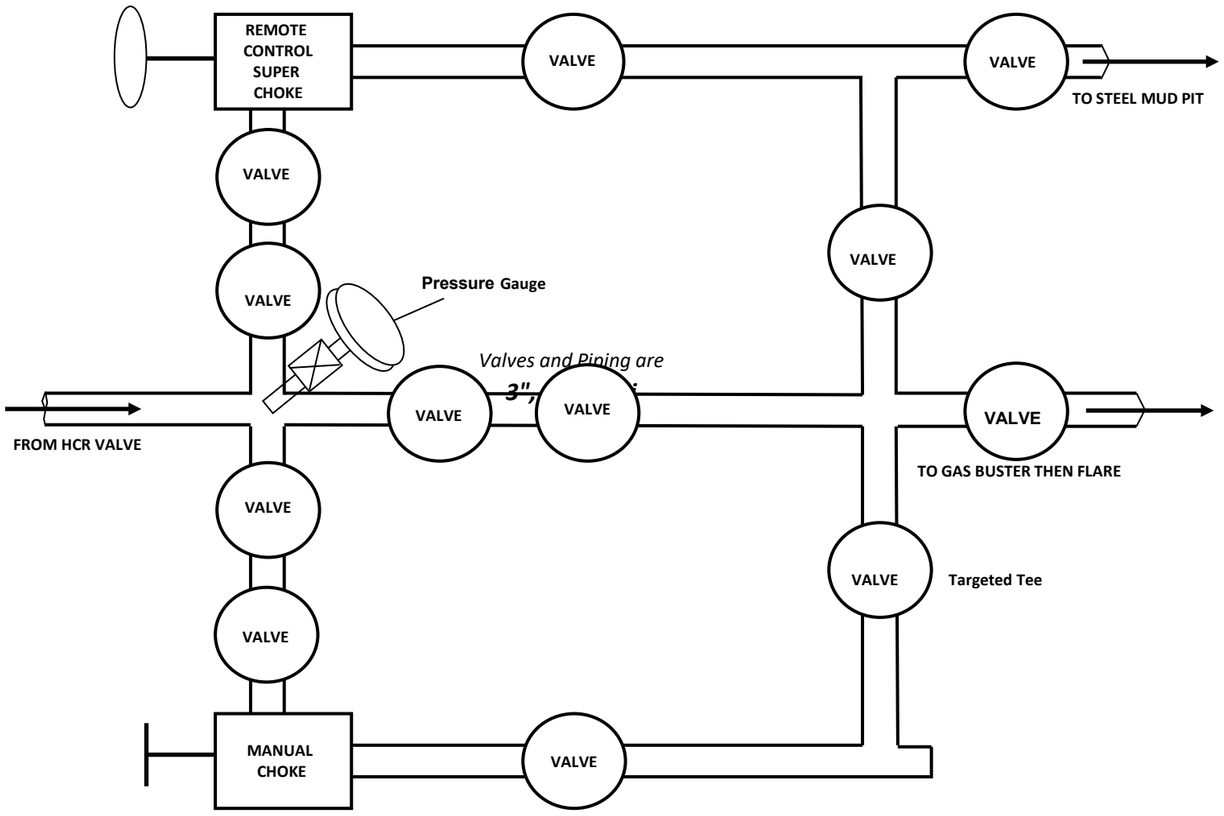
## BOPE & CHOKE MANIFOLD DIAGRAMS

**NOTE: EXACT BOPE AND CHOKE CONFIRGURATION AND COMPONENTS MAY DIFFER FROM WHAT IS DEPICTED IN THE DIGRAMS BELOW DEPENDING ON THE RIG AND ITS ASSOCIATED EQUIPMENT. RAM PREVENTERS, ANNULAR PREVENTERS, AND CHOKE MANIFOLD AND COMPONENTS WILL BE RATED TO 3,000 PSI MINIMUM.**

### BOPE




### CHOKE MANIFOLD



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

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

CONDITIONS

Action 291553

## CONDITIONS

| | |
|---|---|
| Operator:<br>ENDURING RESOURCES, LLC<br>6300 S Syracuse Way, Suite 525<br>Centennial, CO 80111 | OGRID:<br>372286 |
| | Action Number:<br>291553 |
| | Action Type:<br>[C-101] BLM - Federal/Indian Land Lease (Form 3160-3) |

**CONDITIONS**

| Created By | Condition | Condition Date |
|---|---|---|
| ward.rikala | Notify OCD 24 hours prior to casing & cement | 12/28/2023 |
| ward.rikala | Will require a File As Drilled C-102 and a Directional Survey with the C-104 | 12/28/2023 |
| ward.rikala | Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string | 12/28/2023 |
| ward.rikala | Cement is required to circulate on both surface and intermediate1 strings of casing | 12/28/2023 |
| ward.rikala | If cement does not circulate on any string, a CBL is required for that string of casing | 12/28/2023 |
| ward.rikala | Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system | 12/28/2023 |