

API NUMBER: 105 41270

OKLAHOMA CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION  
P.O. BOX 52000  
OKLAHOMA CITY, OK 73152-2000  
(Rule 165:10-3-1)

Approval Date: 12/15/2021  
Expiration Date: 06/15/2023

Straight Hole Oil & Gas

## PERMIT TO DRILL

WELL LOCATION: Section: 31 Township: 28N Range: 17E County: NOWATA

SPOT LOCATION: ☐ NW ☐ NE ☐ NW ☐ SW FEET FROM QUARTER: FROM SOUTH FROM WEST  
SECTION LINES: 2569 670

Lease Name: BUCHAN Well No: 31-2 Well will be 71 feet from nearest unit or lease boundary.  
Operator Name: RIVER ROCK OPERATING LLC Telephone: 4056067481 OTC/OCC Number: 23862 0

RIVER ROCK OPERATING LLC  
211 N ROBINSON AVE STE 200  
OKLAHOMA CITY, OK 73102-7109

VERNADEAN BUCHAN  
11512 MULBERRY CT  
JENKS OK 74037

Formation(s) (Permit Valid for Listed Formations Only):

	Name	Code	Depth
1	MULKY COAL	404MLKCL	390
2	IRON POST COAL	404IRPCL	404
3	ROWE COAL	404ROWCL	835
4	RIVERTON COAL	404RVTCL	905

Spacing Orders: 438276

Location Exception Orders: 722128

Increased Density Orders: 722154

Pending CD Numbers: No Pending

Working interest owners' notified: \*\*\*

Special Orders: No Special

Total Depth: 1100

Ground Elevation: 767

Surface Casing: 0

Depth to base of Treatable Water-Bearing FM: 60

Alternate Casing Program

**Cement will be circulated from Total Depth to the Ground Surface on the Production Casing String.**

Under Federal Jurisdiction: No  
Fresh Water Supply Well Drilled: No  
Surface Water used to Drill: No

Approved Method for disposal of Drilling Fluids:

A. Evaporation/dewater and backfilling of reserve pit.

H. (Other)

CBL REQUIRED

### PIT 1 INFORMATION

Type of Pit System: ON SITE

Type of Mud System: AIR

Is depth to top of ground water greater than 10ft below base of pit? Y

Within 1 mile of municipal water well? N

Wellhead Protection Area? N

Pit **is not** located in a Hydrologically Sensitive Area.

Category of Pit: 4

Liner not required for Category: 4

Pit Location is: NON HSA

Pit Location Formation: OOLAGAH

Mud System Change to Water-Based or Oil-Based Mud Requires an Amended Intent (Form 1000).

### NOTES:

This permit does not address the right of entry or settlement of surface damages. The duration of this permit is 18 MONTHS, except as otherwise provided by Rule 165: 10-3-1. Rule 165: 10-3-4 (c) (7) (e) - The Operator shall give 24 Hours notice by telephone to the appropriate District Office of the Conservation Division as to when Surface Casing will be run.

Category	Description
ALTERNATE CASING	[12/14/2021 - GC2] - APPROVED; COPY OF CBL NEEDS TO BE SUBMITTED TO THE TECHNICAL STAFF IMMEDIATELY. A COMPLETION ATTEMPT, IN CASES WHERE THE PROTECTION OF THE TREATABLE WATER IS QUESTIONABLE, IS STRICTLY PROHIBITED. RULE 165: 10-3-4 (D)(4)(C)
HYDRAULIC FRACTURING	<p>[12/14/2021 - GC2] - OCC 165:10-3-10 REQUIRES:</p> <p>1) NOTICE SHALL BE GIVEN AT LEAST 5 BUSINESS DAYS PRIOR TO COMMENCEMENT OF HYDRAULIC FRACTURING OPERATIONS ON A HORIZONTAL WELL TO OPERATORS PRODUCING WELLS WITHIN 1 MILE OF THE COMPLETION INTERVAL OF THE SUBJECT WELL. THE NOTICE TO SUCH OPERATORS SHALL CONTAIN THE INFORMATION IN FORM 6000NOO. IF THE HYDRAULIC FRACTURING OPERATIONS SCHEDULE CHANGES AFTER NOTICE HAS BEEN PROVIDED, RESULTING IN A DELAY OF OPERATIONS OF MORE THAN 5 DAYS FROM THE INITIAL NOTICE, NEW NOTICE IS REQUIRED TO BE GIVEN;</p> <p>2) NOTICE WILL BE GIVEN TO THE OCC CENTRAL OFFICE AND LOCAL DISTRICT OFFICES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF HYDRAULIC FRACTURING OPERATIONS. FORM 6000NHF SHALL BE USED AND IS FOUND AT THIS LINK: <a href="http://OCCEWEB.COM/OG/OGFORMS.HTML">OCCEWEB.COM/OG/OGFORMS.HTML</a>; AND,</p> <p>3) THE CHEMICAL DISCLOSURE OF HYDRAULIC FRACTURING INGREDIENTS FOR ALL WELLS IS TO BE REPORTED TO FRACFOCUS WITHIN 60 DAYS AFTER THE CONCLUSION OF HYDRAULIC FRACTURING OPERATIONS, FOUND AT <a href="http://FRACFOCUS.ORG">FRACFOCUS.ORG</a></p>
INCREASED DENSITY - 722154	<p>[12/14/2021 - G56] - W2 31-28N-17E X438276 ROWCL, RVTCL, OTHERS 1 WELL RIVER ROCK OP, LLC 12/13/2021</p>
LOCATION EXCEPTION - 722128	<p>[12/14/2021 - G56] - (F.O.)W2 31-28N-17E X438276 MLKCL, IRPCL, ROWCL, RVTCL SHL 2569' FSL, 670' FWL RIVER ROCK OP, LLC 12/10/2021</p>
SPACING - 438276	<p>[12/14/2021 - G56] - (320) 31-28N-17E SU NE/SW EST MLKCL, IRPCL, ROWCL, RVTCL, OTHERS</p>

# LEMKE LAND SURVEYING

7060 SOUTH YALE AVENUE, TULSA, OKLAHOMA. 74136 (918-895-9383)

CERTIFICATE OF AUTHORIZATION NO. 6975 EXPIRATION 06-30-2023

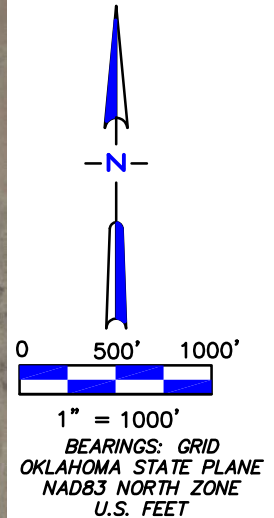
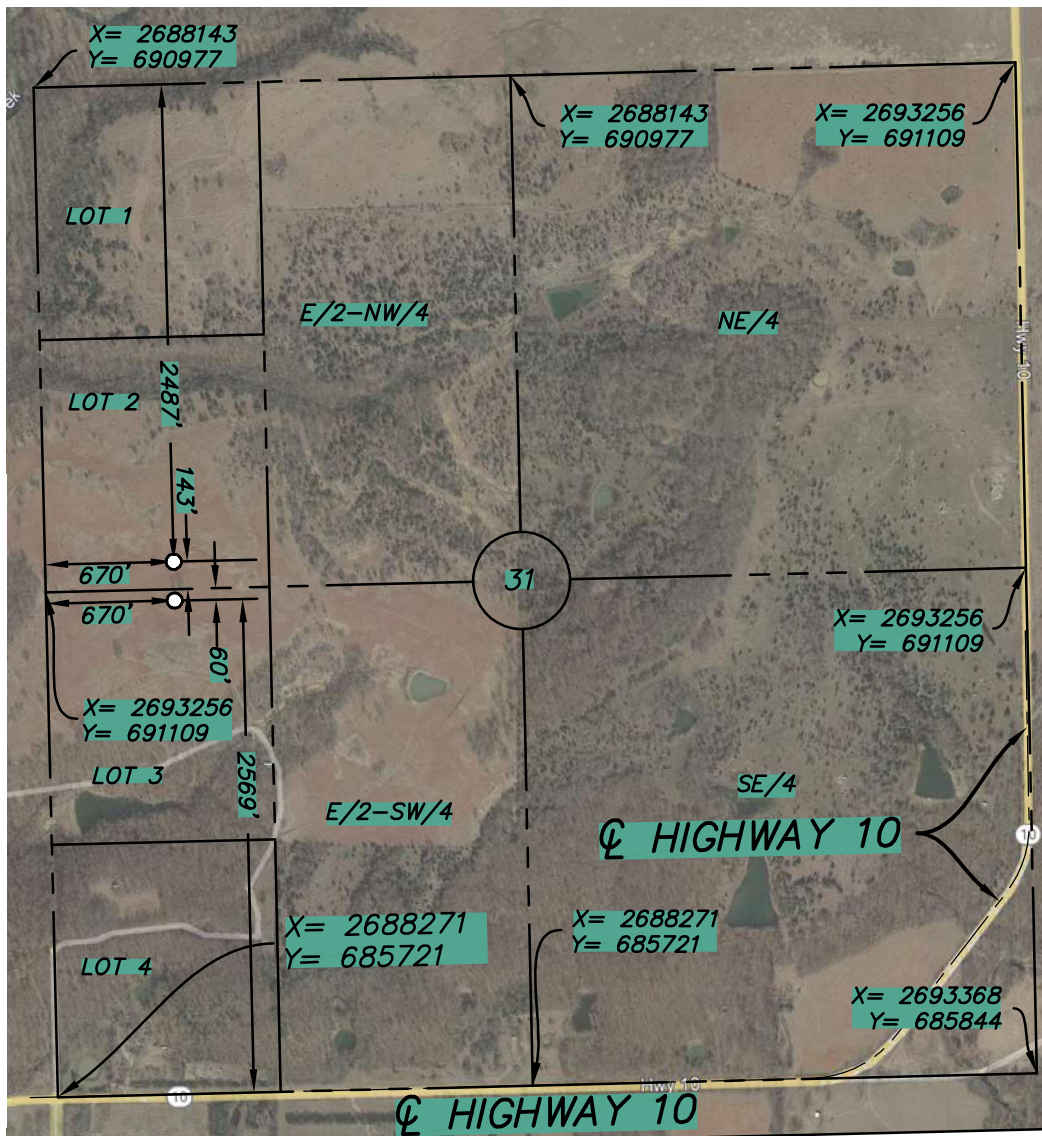
NOWATA COUNTY, OKLAHOMA

2.487' FNL NW/4, 670' FWL NW/4, & 143' FSL NW/4 SECTION 31

TOWNSHIP 28 NORTH RANGE 17 EAST I.M.

NOTE:  
THE INFORMATION SHOWN HEREON IS  
FOR CONSTRUCTION PURPOSES ONLY.

DATUM: NAD83 (2011)  
LAT: 36°51'58.44"  
LONG: 95°32'14.40"  
LAT: 36.86623333  
LONG: 95.537333  
STATE PLANE  
COORDINATES  
(US FEET):  
ZONE: OK NORTH 3501  
X= 2688874  
Y= 688507



ALTERNATE LOCATION  
2.569' FSL SW/4, 670'  
FWL SW/4, & 60' FNL  
SW/4  
ELEVATION: 767'  
DATUM: NAD83 (2011)  
LAT: 36°51'56.43"  
LONG: 95°32'14.40"  
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LONG: 95.5373333  
STATE PLANE  
COORDINATES (US FEET)  
OKLAHOMA  
ZONE: OK NORTH 3501  
X= 2688879  
Y= 688305

ELEVATION:  
758 GRADE AT STAKE

OPERATOR: River Rock Operating, LLC 211 N. Robinson, Suite 200, Oklahoma City, OK 73102

LEASE NAME: BUCHAN

WELL NO.: 31-2

TOPOGRAPHY & VEGATATION: MAINTAINED HAY MEADOW

BEST ACCESSIBILITY TO LOCATION: NORTH FROM INTERSECTION OF HIGHWAY 10 AND N/S 415 ROAD.

DISTANCE & DIRECTION FROM HWY JCT OR TOWN: FROM THE JUNCTION OF HIGHWAY 10 AND COUNTY ROAD N/S 419. FOLLOW THE GRAVEL ROAD TO THE NORTH FOR 0.60 MILES. THEN TURN NORTH INTO THE FIELD AND DRIVE 0.20 MILES TO THE PRIMARY. THE SECONDARY POSITION IS 200' SOUTH.

GOOD DRILL SITE: YES, ALT. SITE YES

REFERENCE STAKES OR ALTERNATE LOCATION STAKES SET: 670' FSL, 2569 FSL, AND 60' FNL (SW/4) ELEVATION= 767' GRADE

DATE OF DRAWING: 10-18-2021

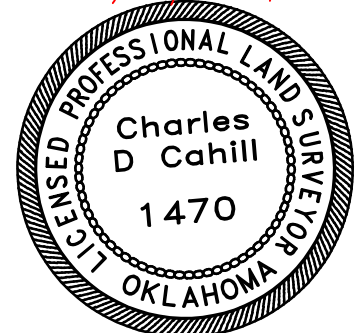
INVOICE NO.: 01763721.00 DATE STAKED: 10-11-2021

## CERTIFICATE:

I CHARLES D. CAHILL AN OKLAHOMA  
LICENSED LAND SURVEYOR AND AN  
AUTHORIZED AGENT OF LEMKE LAND  
SURVEYING OF OKLAHOMA, DO HEREBY  
CERTIFY TO THE INFORMATION SHOWN  
HEREON

OKLAHOMA LIC. NO. 1470

10/22/2021



THE INFORMATION WAS GATHERED WITH GPS  
RECEIVER WITH A ±1' HORIZONTAL/VERTICAL  
ACCURACY.

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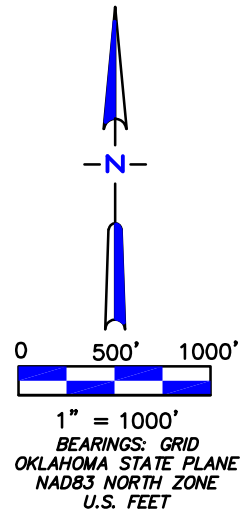
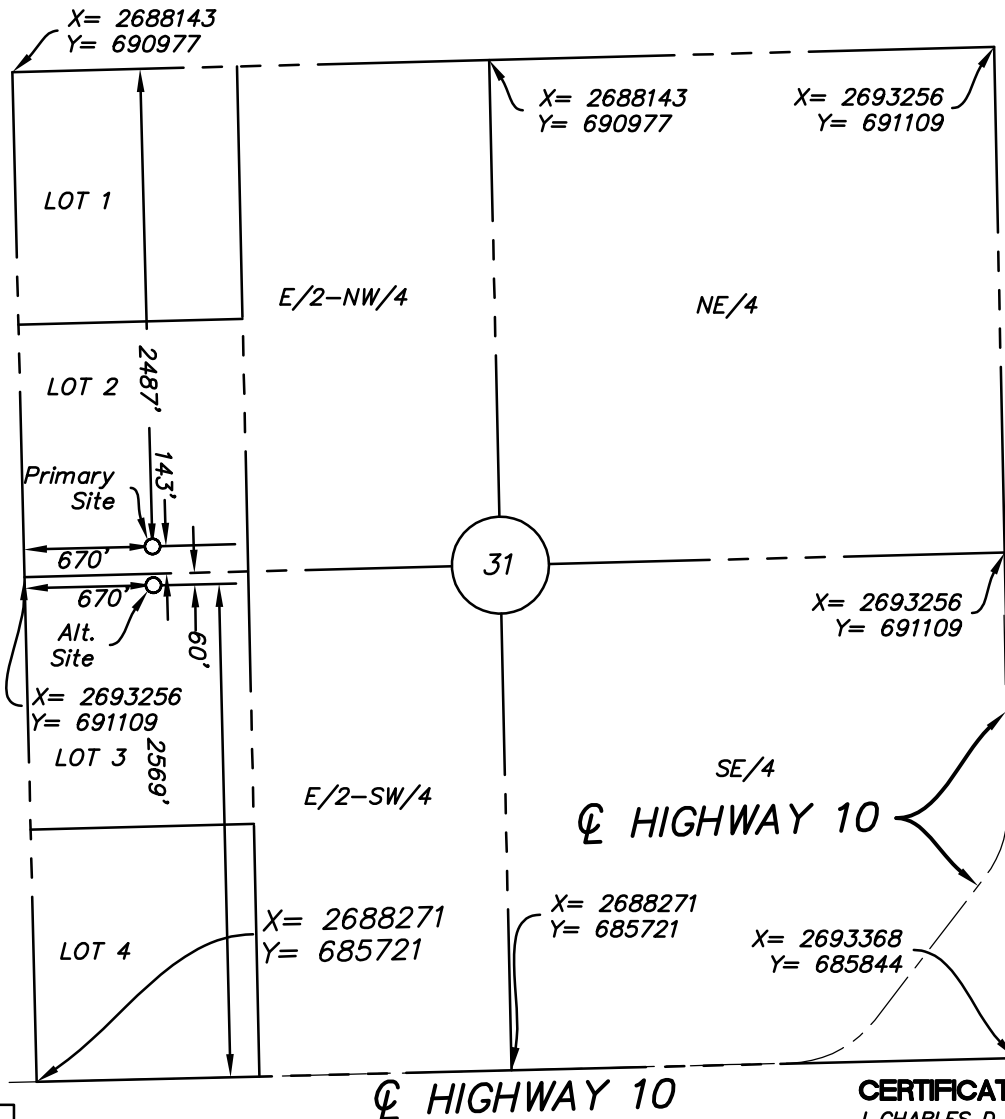
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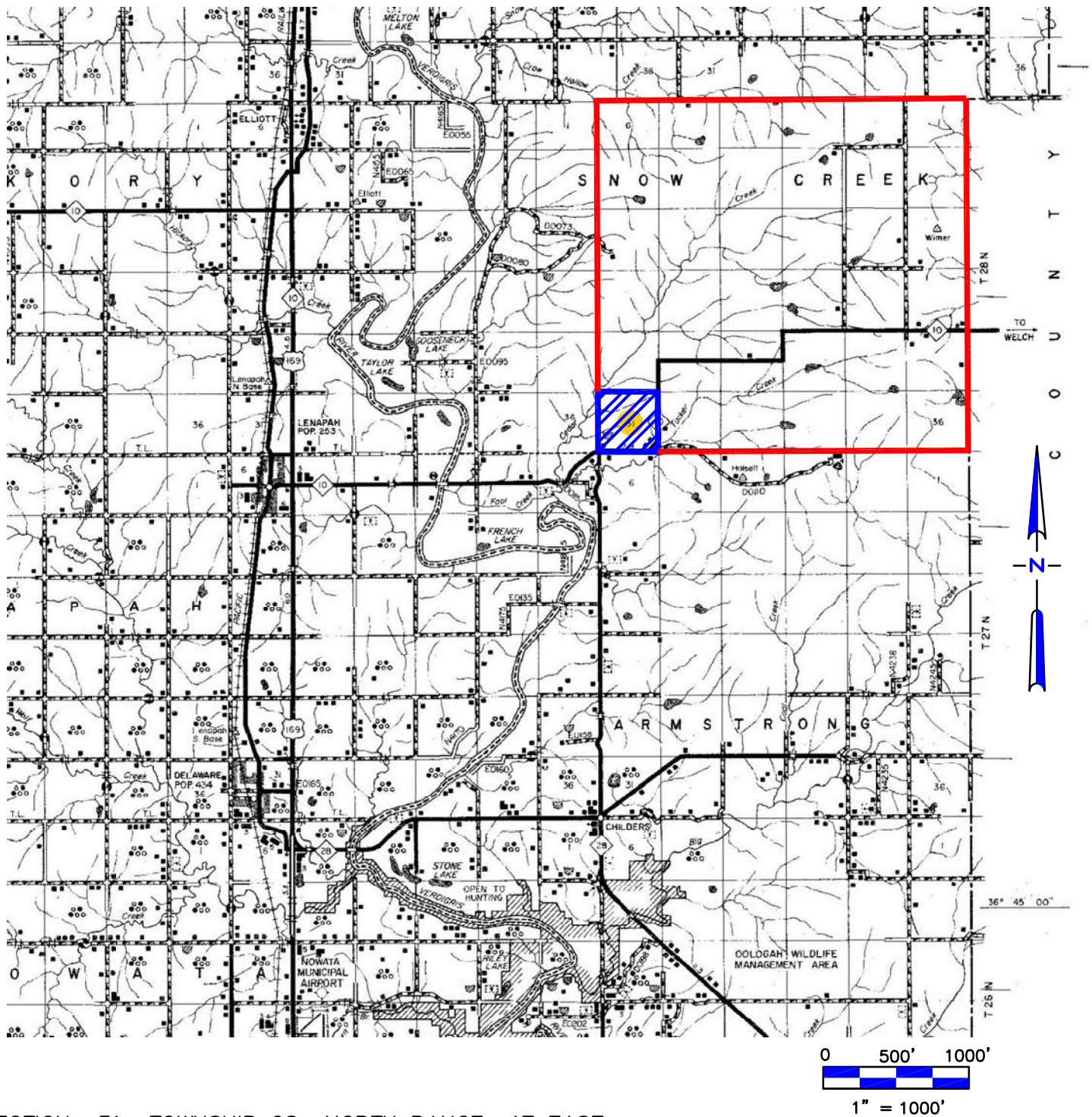


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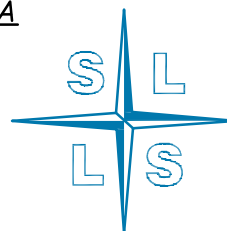
## VICINITY MAP



SECTION 31 TOWNSHIP 28 NORTH RANGE 17 EAST

COUNTY NOWATA STATE OKLAHOMA

OPERATOR River Rock Operating, LLC



**LEMKE**  
LAND SURVEYING

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## LOCATION AND ELEVATION VERIFICATION MAP



0 500' 1000'  
1" = 1000'

ABOVE BACKGROUND DATA FROM  
U.S.G.S. TOPOGRAPHIC MAP  
CONTOUR INTERVAL 10'

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COUNTY NOWATA STATE OKLAHOMA

OPERATOR River Rock Operating, LLC

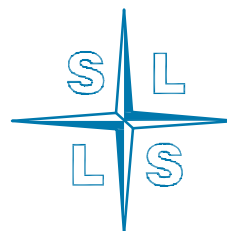
DESCRIPTION 2,487' FNL, 670' FWL, & 143' FSL

LEASE BUCHAN WELL NO. 31-2

ELEVATION 758 GRADE AT STAKE

WHEN ELEVATION IS SHOWN HEREON  
IT IS THE GROUND ELEVATION OF  
THE LOCATION STAKE.

REVIEW THIS PLAT AND INFORM US  
IMMEDIATELY OF ANY POSSIBLE  
DISCREPANCY.



**LEMKE**  
**LAND SURVEYING**