

RW 3-1-18

SITE MAP

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE. VERTICAL DATUM NAVD88.



SCALE 1" = 120'

DIRECTIONS TO LOCATION

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BEGINNING AT THE JUNCTION OF US 285 AND CR 720, GO EAST ON CR 720 0.8
OF A MILE TO HARROUN ROAD ON THE LEFT. GO NORTH-NORTHEAST ON HARROUN
ROAD FOR 3.1 MILES TO A FORK IN THE ROAD. CONTINUE NORTH, LEFT ON SAID
HARROUN ROAD 230' TO A LEASE ROAD TO THE TO THE LEFT, GO NORTH 0.5 OF
A MILE. GO EAST 0.48 OF A MILE, THEN NORTH-NORTHWEST-WEST 543' TO THE
NORTHEAST PAD CORNER FOR THIS LOCATION.

LOCATED 475 FT. FROM THE SOUTH LINE
AND 2075 FT. FROM THE EAST LINE OF
SECTION 31, TOWNSHIP 23 SOUTH,
RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JANUARY 19, 2018

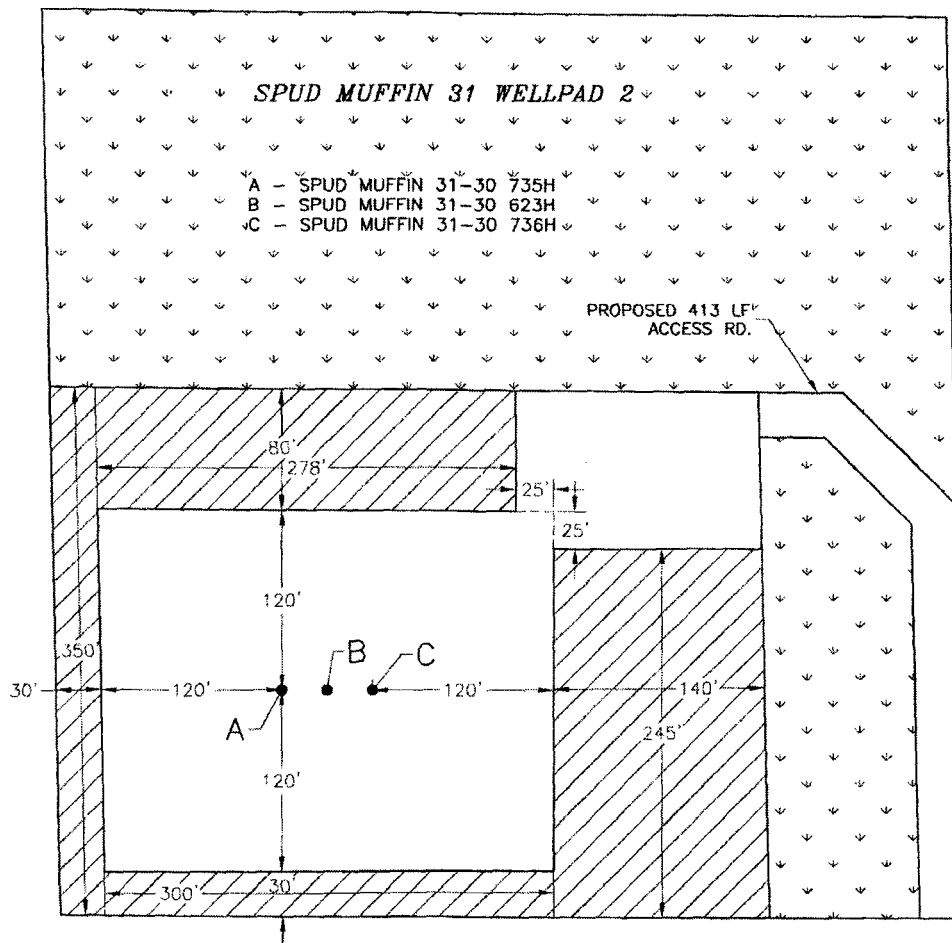
SURVEY NO. 5950

MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3341

CARLSBAD, NEW MEXICO

SECTION 31, TOWNSHIP 23 SOUTH, RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
INTERIM SITE BUILD PLAN



 DENOTES INTERIM PAD RECLAMATION AREA

 DENOTES GRADING SITE RECLAMATION AREA

0 12 60 120 240
SCALE 1" = 120'

1.746± ACRES INTERIM PAD RECLAMATION AREA
4.198± ACRES GRADING SITE RECLAMATION AREA
2.323± ACRES NON-RECLAIMED AREA
8.267± ACRES SPUD MUFFIN 31 WELLPAD 2

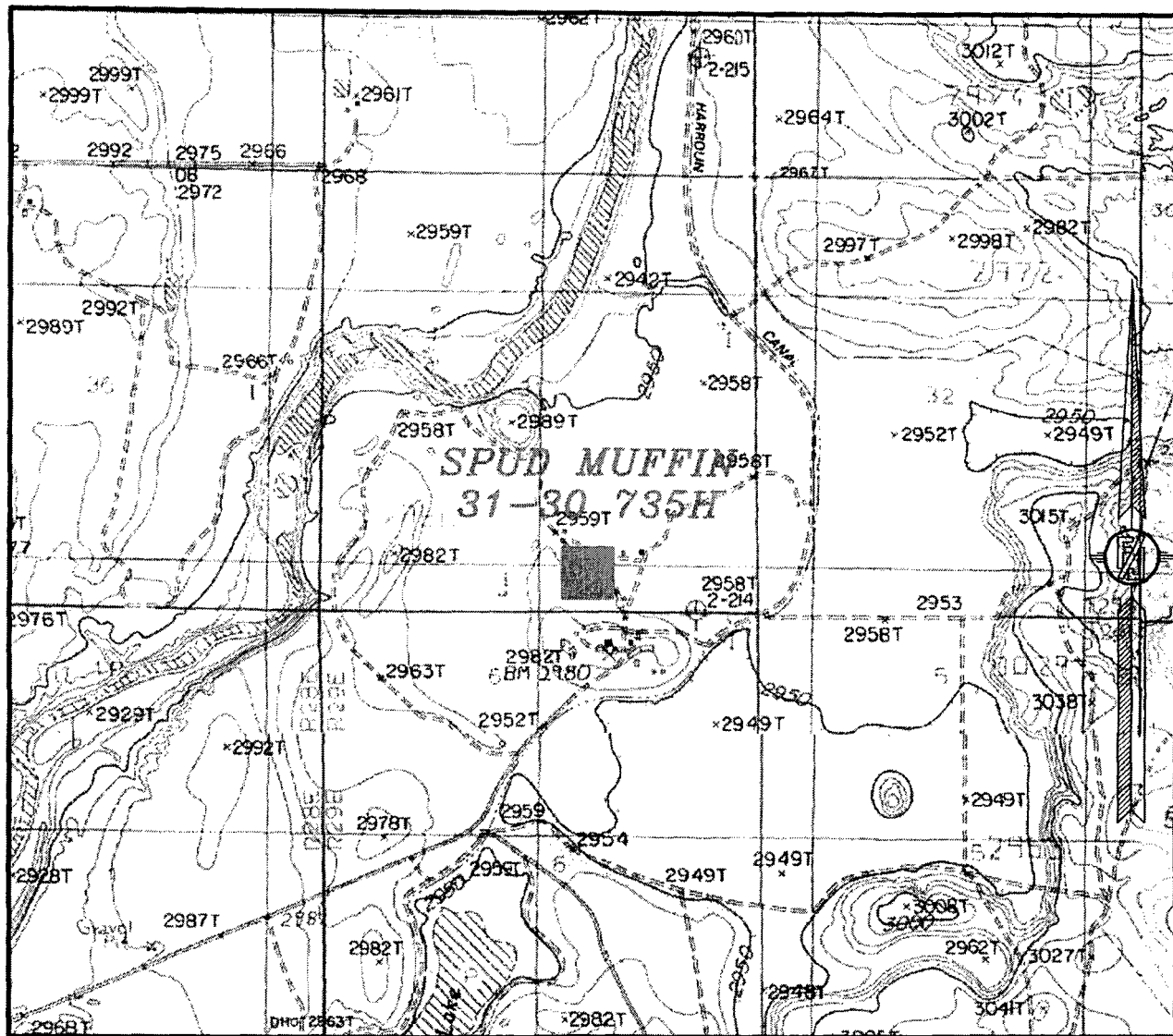
DEVON ENERGY PRODUCTION COMPANY, L.P.
SPUD MUFFIN 31-30 735H
LOCATED 475 FT. FROM THE SOUTH LINE
AND 2075 FT. FROM THE EAST LINE OF
SECTION 31, TOWNSHIP 23 SOUTH,
RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JANUARY 19, 2018

SURVEY NO. 5950

MADRON SURVEYING, INC. 30' SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 31, TOWNSHIP 23 SOUTH, RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LOCATION VERIFICATION MAP



USGS QUAD MAP:
LOVING

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.

SPUD MUFFIN 31-30 735H

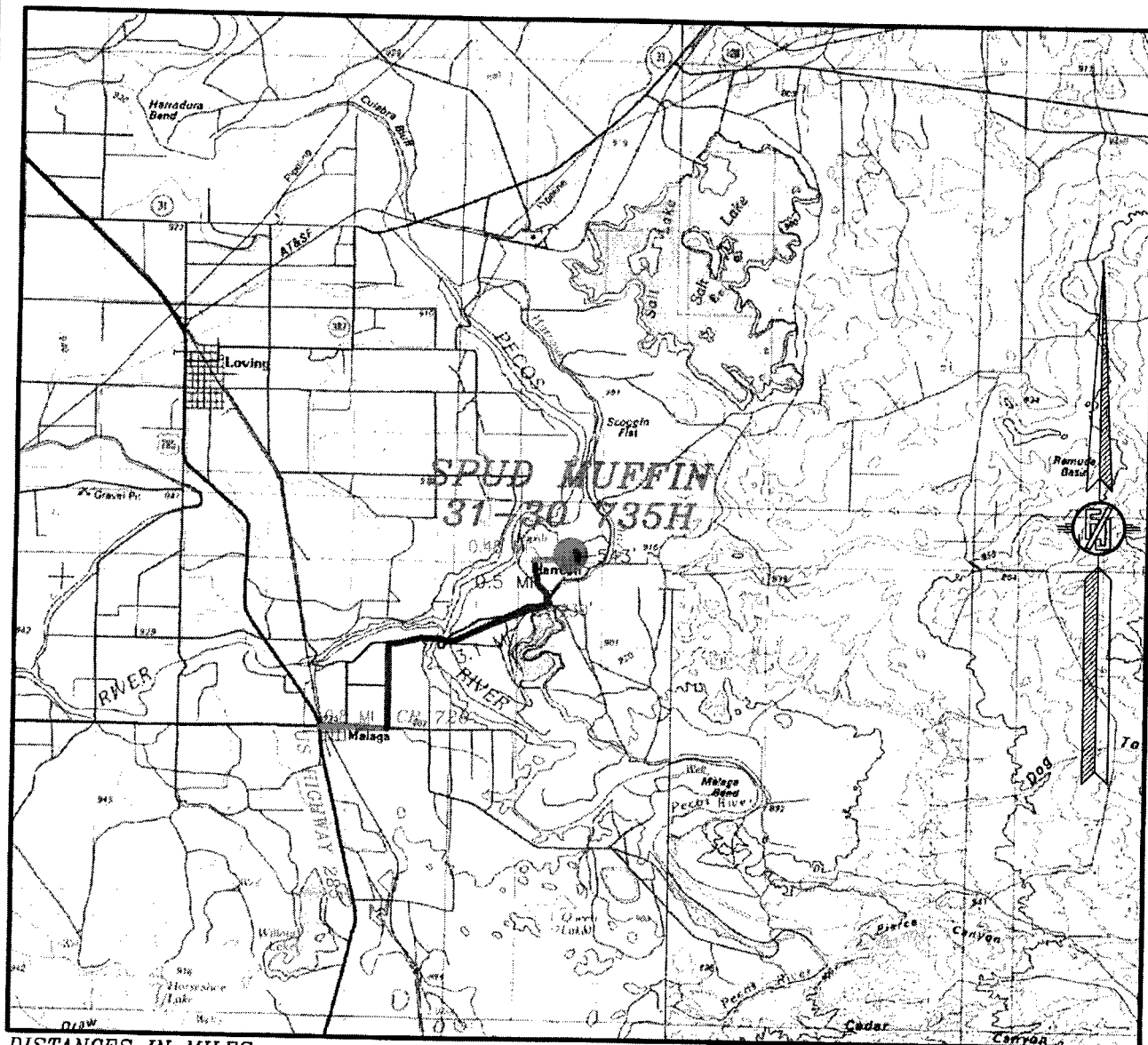
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EDDY COUNTY, STATE OF NEW MEXICO

JANUARY 19, 2018

SURVEY NO. 5950

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 31, TOWNSHIP 23 SOUTH, RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.

SPUD MUFFIN 31-30 735H

LOCATED 475 FT. FROM THE SOUTH LINE
AND 2075 FT. FROM THE EAST LINE OF
SECTION 31, TOWNSHIP 23 SOUTH,
RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

DIRECTIONS TO LOCATION

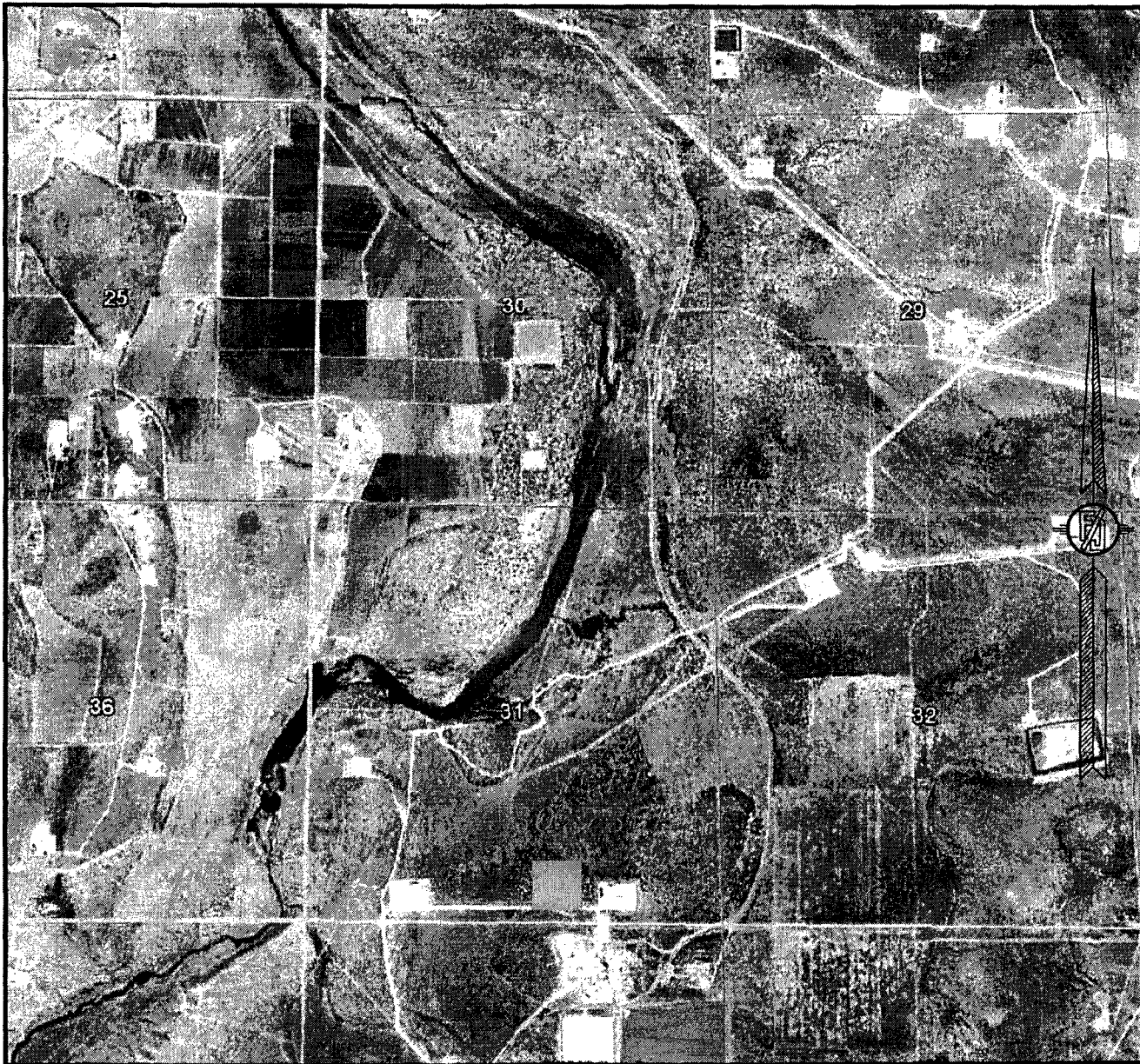
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JANUARY 19, 2018

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3241 CARLSBAD, NEW MEXICO

SURVEY NO. 5950

SECTION 31, TOWNSHIP 23 SOUTH, RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
NOVEMBER 2017

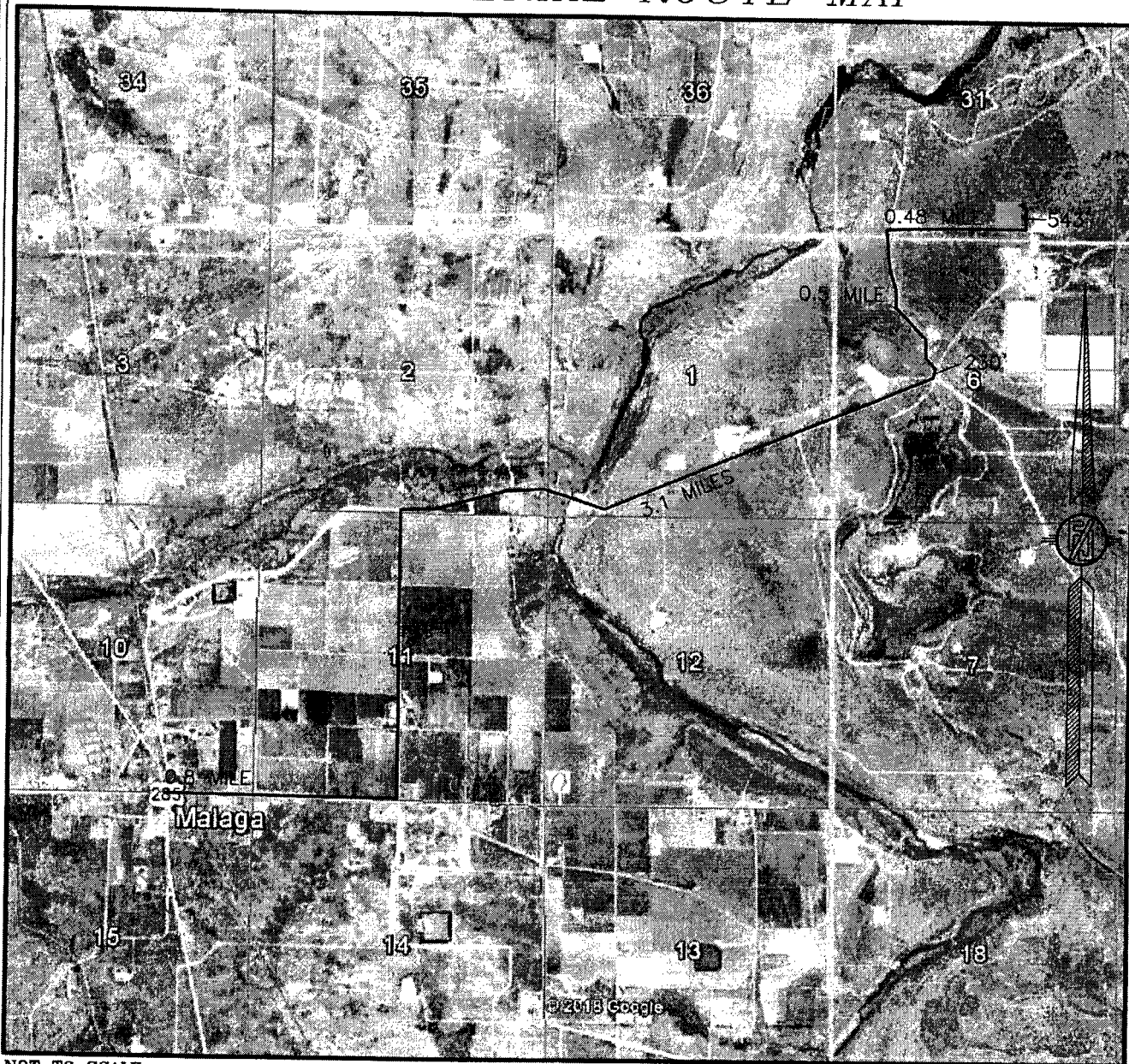
DEVON ENERGY PRODUCTION COMPANY, L.P.
SPUD MUFFIN 31-30 735H
LOCATED 475 FT. FROM THE SOUTH LINE
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SECTION 31, TOWNSHIP 23 SOUTH,
RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JANUARY 19, 2018

SURVEY NO. 5950

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 31, TOWNSHIP 23 SOUTH, RANGE 29 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 ACCESS AERIAL ROUTE MAP



NOT TO SCALE
 AERIAL PHOTO:
 GOOGLE EARTH
 NOVEMBER 2017

DEVON ENERGY PRODUCTION COMPANY, L.P.
 SPUD MUFFIN 31-30 735H
 LOCATED 475 FT. FROM THE SOUTH LINE
 AND 2075 FT. FROM THE EAST LINE OF
 SECTION 31, TOWNSHIP 23 SOUTH,
 RANGE 29 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

JANUARY 19, 2018

MADRON SURVEYING, INC. 361 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SURVEY NO. 5950

PLAN VIEW

SPUD MUFFIN 31-30 735H
B - SPUD MUFFIN 31-30 623H
C - SPUD MUFFIN 31-30 735H

LIMITS OF EARTHWORK 3:1 SLOPE (TYP.)

CONCRETE FOUNDATION OF OLD HOUSE

PAD CENTER POINT

PROPOSED 413 LF ACCESS RD.

SPUD MUFFIN 31 WELL PAD 2 PROPOSED PAD EL. 2958.0

DRILLING PAD

BERM

PROPOSED 130 LF ACCESS ROAD

SCALE 1" = 120'

1012 60 120 240

DEVON ENERGY PRODUCTION COMPANY, L.P.
GRADING PLAN AND CROSS SECTIONS
SPUD MUFFIN 31-30 735H
SECTION 31, TOWNSHIP 23 SOUTH,
RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JANUARY 19, 2018

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

101 SOUTH CANAL
(975) 234-3341

CUT	FILL	NET
38642 CU. YD	19 CU. YD	38623 CU. YD (CUT)

EARTHWORK QUANTITIES ARE ESTIMATED

SHEET 1-2
SURVEY NO. 5950

DEVON ENERGY PRODUCTION COMPANY, L.P.
GRADING PLAN AND CROSS SECTIONS
SPUD MUFFIN 31-30 735H
SECTION 31, TOWNSHIP 23 SOUTH,
RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

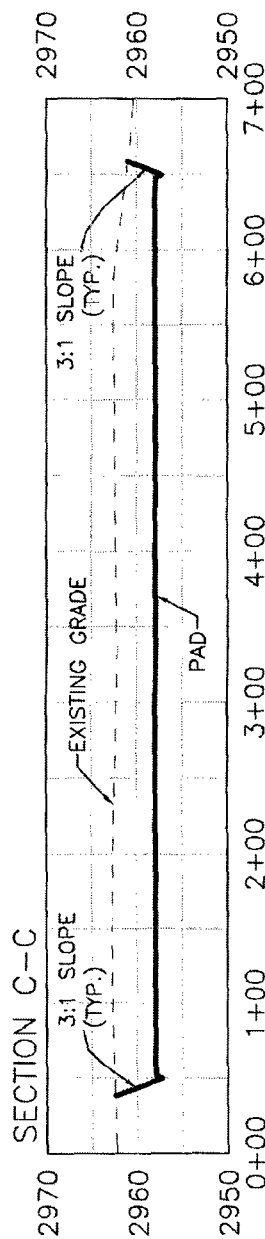
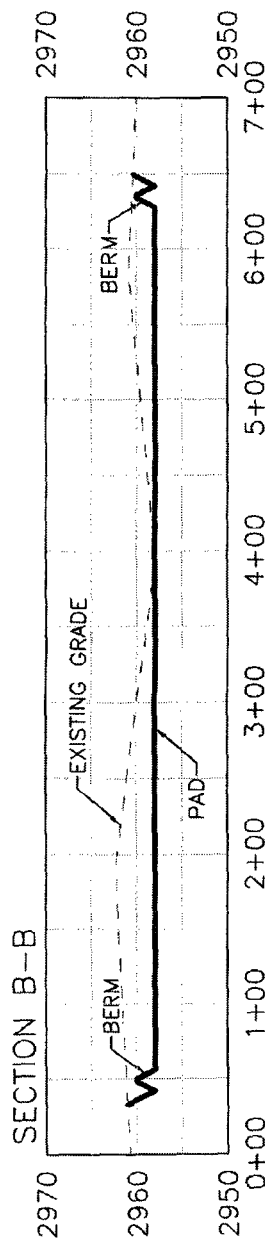
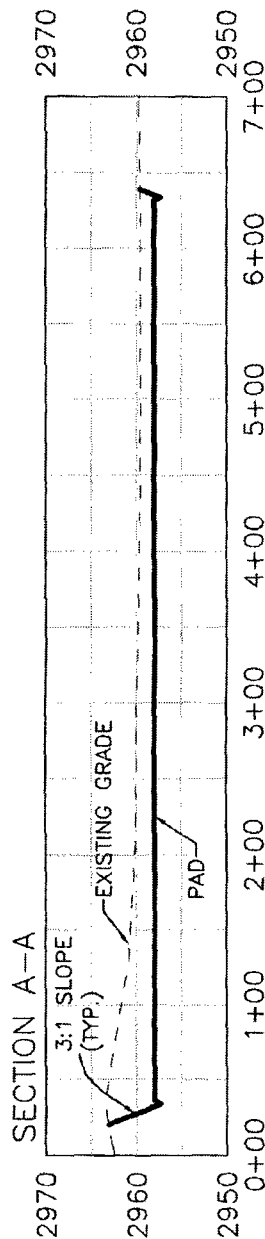
JANUARY 19, 2018

301 SOUTH CANAL
(575) 234-3341

SHEET 1 -
SURVEY NO. 5950

CUT	FILL	NET
38642 CU YD	19 CU YD	38623 CU YD (GUT)

CROSS SECTIONS



DEVON ENERGY PRODUCTION COMPANY, L.P.
 GRADING PLAN AND CROSS SECTIONS
SPUD MUFFIN 31-30 795H
 SECTION 31, TOWNSHIP 23 SOUTH,
 RANGE 29 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

012 60 120 240
 SCALE 1" = 120' - 1" = 20' VER

CUT	FILL	NET
38642 CU. YD	19 CU. YD	38623 CU. YD (CUT)

EARTHWORK QUANTITIES ARE ESTIMATED

JANUARY 19, 2018

301 SOUTH CANAL
 (S15) 234-5341

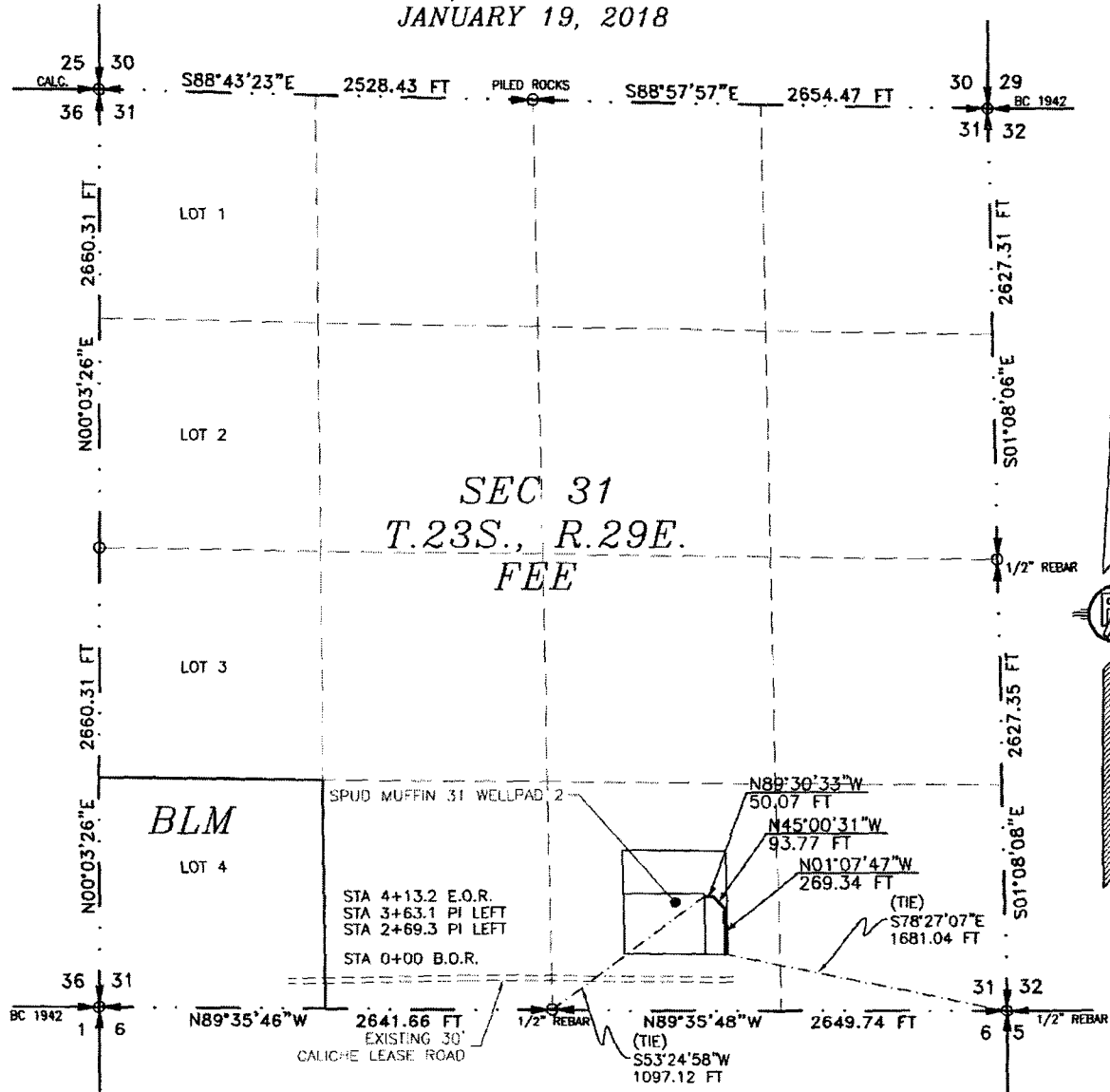
MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

SHEET 2-2
 SURVEY NO. 5950

ACCESS ROAD PLAT

ACCESS ROAD TO THE SPUD MUFFIN 31 WELLPAD 2
(SPUD MUFFIN 31-30 735H, 623H, 736H)

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 31, TOWNSHIP 23 SOUTH, RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JANUARY 19, 2018



SEE NEXT SHEET (2-2) FOR DESCRIPTION



SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD,

NEW MEXICO, THIS 27 DAY OF JANUARY 2018

Filimon F. Jaramillo
FILIMON F. JARAMILLO PLS. 12797

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SURVEY NO. 5950

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SHEET: 1-2

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO (575) 234-3341

ACCESS ROAD PLAT
ACCESS ROAD TO THE SPUD MUFFIN 31 WELLPAD 2
(SPUD MUFFIN 31-30 735H, 623H, 736H)

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 31, TOWNSHIP 23 SOUTH, RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JANUARY 19, 2018

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING FEE LAND IN SECTION 31, TOWNSHIP 23 SOUTH, RANGE 29 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 SE/4 OF SAID SECTION 31, TOWNSHIP 23 SOUTH, RANGE 29 EAST, N.M.P.M., WHENCE THE SOUTHEAST CORNER OF SAID SECTION 31, TOWNSHIP 23 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS S78°27'07"E. A DISTANCE OF 1681.04 FEET;
THENCE N01°07'47"W A DISTANCE OF 269.34 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N45°00'31"W A DISTANCE OF 93.77 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N89°30'33"W A DISTANCE OF 50.07 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE SOUTH QUARTER CORNER OF SAID SECTION 31, TOWNSHIP 23 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS S53°24'58"W, A DISTANCE OF 1097.12 FEET;

SAID STRIP OF LAND BEING 413.18 FEET OR 25.04 RODS IN LENGTH, CONTAINING 0.285 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SE/4 413.18 L.F. 25.04 RODS 0.285 ACRES

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD,

NEW MEXICO, THIS 27 DAY OF JANUARY 2018.

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
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SHEET: 2-2

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
(575) 234-3341

SURVEY NO. 5950

Devon Energy Prod. Co., L.P./Spud Muffin 31-30 735H

1. Geologic Formations

TVD of target	10761	Pilot hole depth	
MD at TD:	18364	Deepest expected fresh water:	400'

Basin

Formation	Depth (ft)	Formation	Depth (ft)
Rustler			
Top of Salt	22		
Delaware	2774		
1st BSPG Lime	6470		
1st BSPG Sand	7489		
2nd BSPG Lime	7744		
2nd BSPG Sand	8271		
3rd BSPG Lime	8716		
3rd BSPG Sand	9401		
Wolfcamp	9760		
Wolfcamp 300 Upper Top	10739		
Wolfcamp 300 Upper Base	10784		
Wolfcamp 400	10905		

**NM OIL CONSERVATION
ARTESIA DISTRICT**

FEB 27 2018

RECEIVED

*H2S, water flows, loss of circulation, abnormal pressures, etc.

Devon Energy Prod. Co., L.P./Spud Muffin 31-30 735H

2. Casing Program

Casing Size	Weight	Length	API Spec	Grade	Material	Weight	API Spec	Grade	Material
17.5"	0	400'	13.375"	48	H-40	STC	1.125	1.25	1.6
12.25"	0	2,970'	9.625"	40	J-55	LTC	1.19	1.42	3.98
8.75"	0	10,700'	7.625"	29.7	P110	Flushmax III	1.125	1.25	1.6
6.75"	0	18,364'	5.5"	20	P110	SF/Flush	1.125	1.25	1.6

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.

A variance is requested to wave the centralizer requirement for the 7-5/8" flush casing in the 8-3/4" hole and the 5-1/2" SF/Flush casing in the 6-3/4" hole.

Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Devon Energy Prod. Co., L.P./Spud Muffin 31-30 735H

2. Cementing Program

Cementing Program					
Casing Size	Volume (cu ft)	Weight (lb)	Volume (cu ft)	Weight (lb)	Cementing Program
13-3/8" Surface	315	14.8	6.34	1.34	Tail: Class C Cement + 1% Calcium Chloride
9-5/8" Int I	545	12.9	9.81	1.85	Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	155	14.8	6.32	1.33	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
7-5/8" Int II	323	9	13.5	3.27	Lead: Tuned Light® Cement
	163	14.5	5.31	1.2	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
7-5/8" Intermediate II Squeeze	640	14.8	6.32	1.32	Class C Cement + 0.125 lbs/sack Poly-E-Flake
	323	9	13.5	3.27	Class H Cement: Poz (Fly Ash) + 6% BWOC Bentonite + 0.25% BWOC HR-601 + 0.125 lbs/sack Poly-E-Flake
	163	13.2	5.31	1.6	(50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
5-1/2" Prod	675	14.8	6.32	1.33	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake

Casing Size	Depth (ft)	% Cemented
13-3/8" Surface	0'	50%
9-5/8" Intermediate I	0'	30%
7-5/8" Intermediate II	0'	30%
5-1/2" Production Casing	10500'	25%

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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Pressure Control Equipment					
Wellbore Diameter	Surface Casing Diameter	Surface Casing Weight	Equipment	Pressure Rating	Notes
12-1/4"	13-5/8"	5M	Annular	X	50% of rated working pressure
			Pipe Ram	X	5M
			Blind Ram	X	
			Pipe Ram	X	
			Other*		
8-3/4"	13-5/8"	5M	Annular	X	50% of rated working pressure
			Pipe Ram	X	5M
			Blind Ram	X	
			Pipe Ram	X	
			Other*		
6-3/4"	13-5/8"	5M	Annular	X	50% of rated working pressure
			Pipe Ram	X	5M
			Blind Ram	X	
			Pipe Ram	X	
			Other*		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Devon Energy Prod. Co., L.P./Spud Muffin 31-30 735H

Y	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
Y	Are anchors required by manufacturer?
Y	<p>A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.</p> <p>Devon proposes using a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 5000 psi.</p> <ul style="list-style-type: none"> • Wellhead will be installed by wellhead representatives. • If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal. • Wellhead representative will install the test plug for the initial BOP test. • Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time. • If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted. • Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating. • Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2. <p>After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 5,000 psi high pressure test. The 5,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2.</p> <p>After running the 9-5/8" intermediate I casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 5M will already be installed on the wellhead.</p>

Devon Energy Prod. Co., L.P./Spud Muffin 31-30 735H

After running the 7-5/8' intermediate II casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 5M will already be installed on the wellhead.

The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 5,000 psi WP.

Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns

5. Mud Program

Depth (ft)	Depth (ft)	Mud Type	Weight (ppg)	Viscosity (cP)	Other
0	400'	FW Gel	8.4-8.8	28-34	N/C
400'	2,970'	Saturated Brine	9.8 -10.0	29-34	N/C
2,970'	10,700'	OBM/Cut Brine	8.6-9.8	34-65	N/C – 6
10,700'	18,364'	OBM	9.5-12.0	45-65	N/C – 6

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
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6. Logging and Testing Procedures

Logging	Logging and Testing
x	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Logging		Logging and Testing
	Resistivity	Int. shoe to KOP
	Density	Int. shoe to KOP
X	CBL	Production casing
X	Mud log	Int shoe to TD
	PEX	

7. Drilling Conditions

Drilling Conditions	
BH Pressure at deepest TVD	6715 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

Hydrogen Sulfide (H ₂ S) monitors will be installed prior to drilling out the surface shoe. If H ₂ S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H ₂ S is present
Y	H ₂ S Plan attached

8. Other facets of operation

Is this a walking operation? Yes

1. In the event the spudder rig is unable to drill the surface holes the drilling rig will batch drill the surface holes and run/cement surface casing; walking the rig to next wells on the pad.
2. The drilling rig will then batch drill the intermediate sections with either OBM or cut brine and run/cement intermediate casing; the wellbore will be isolated with a blind flange and pressure gauge installed for monitoring the well before walking to the next well.
3. The drilling rig will then batch drill the production hole sections on the wells with OBM, run/cement production casing, and install TA caps or tubing heads for completions.

NOTE: During batch operations the drilling rig will be moved from well to well however, it will not be removed from the pad until all wells have production casing run/cemented.

Will be pre-setting casing? Yes

1. Spudder rig will move in and drill surface hole.
 - a. Rig will utilize fresh water based mud to drill 17½" surface hole to TD. Solids control will be handled entirely on a closed loop basis.
2. After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
3. The wellhead will be installed and tested once the 13-3/8" surface casing is cut off and the WOC time has been reached.
4. A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with a pressure gauge installed on the wellhead.
5. Spudder rig operations is expected to take 4-5 days per well on a multi well pad.
6. The NMOCD will be contacted and notified 24 hours prior to commencing spudder rig operations.

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7. Drilling operations will be performed with the drilling rig. At that time an approved BOP stack will be nipped up and tested on the wellhead before drilling operations commences on each well.
 - a. The NMOCD will be contacted / notified 24 hours before the drilling rig moves back on to the pad with the pre-set surface casing.

Attachments

 X Directional Plan

 Other, describe