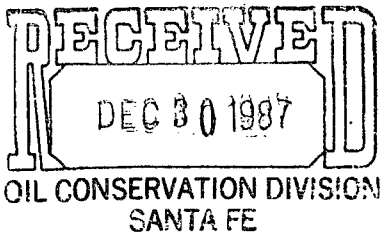
Release Date
December 30, 1987

By DLC



December 28, 1987
Bettis, Boyle, & Stovall
P.O. Box 1193
Hobbs, NM 88240

NSL-2458
RULE-104 F(2)

320 Acre ded.
S/2 Section 10
Wildcat Morrow Pool

N.M. Oil Conservation Division
Attention: Mr. David Catanach
P.O. Box 2088
Santa Fe, NM 87504-2088

Re: Bettis, Boyle & Stovall
Pickett Draw Federal Well #2
1235' FSL & 1515' FWL
Section 10, T25S, R29E
Eddy County, New Mexico

Dear Sirs:

Due to terrain and archeological reasons, Bettis, Boyle, & Stovall request administrative approval for an unorthodox location for the above named well. Enclosed are the archeologist's report, application to drill, well location and acreage dedication plat, and signed waivers from the offset operators. If you have any questions or need additional information, please call Tom Griffin collect at 505-392-8232. Thank you.

Sincerely,

Tom Griffin
Supt.

Form 3160–3
(November 1983)
(formerly 9–331C)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 1004–0136
Expires August 31, 1985

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK
DRILL [XX] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL
OIL WELL [ ] GAS WELL [X] OTHER SINGLE ZONE [X] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR
Bettis, Boyle, & Stovall

3. ADDRESS OF OPERATOR
P.O. Box 1240 Graham, Texas 76046

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface
1235' FSL & 1515' FWL- Section 10, T25S, R29E
At proposed prod. zone
Straight hole

5. LEASE DESIGNATION AND SERIAL NO.
USA NM-15303

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME
Pickett Draw Federal

9. WELL NO.
2

10. FIELD AND POOL, OR WILDCAT
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Section 10,T25S,R29E

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
7 miles SE from Malaga, New Mexico

12. COUNTY OR PARISH: Eddy
13. STATE: NM

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
1235'	640	320
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
5886'	14,200'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
3021.2 GR

22. APPROX. DATE WORK WILL START*
January 1, 1988

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT

See Attached

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.
SIGNED [signature] TITLE Supt. DATE 12/29/87

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

***See Instructions On Reverse Side**

Title 18 U.S.C. Section 1001, makes 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.

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Bettis, Boyle & Stoval	Pickett Draw Federal	2

Unit Letter	Section	Township	Range	County
N	10	25 South	29 East	Eddy

Actual Footage Location of Well:
1235 feet from the South line and 1515 feet from the West line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3021.2	MORROW	Undesignated	320 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

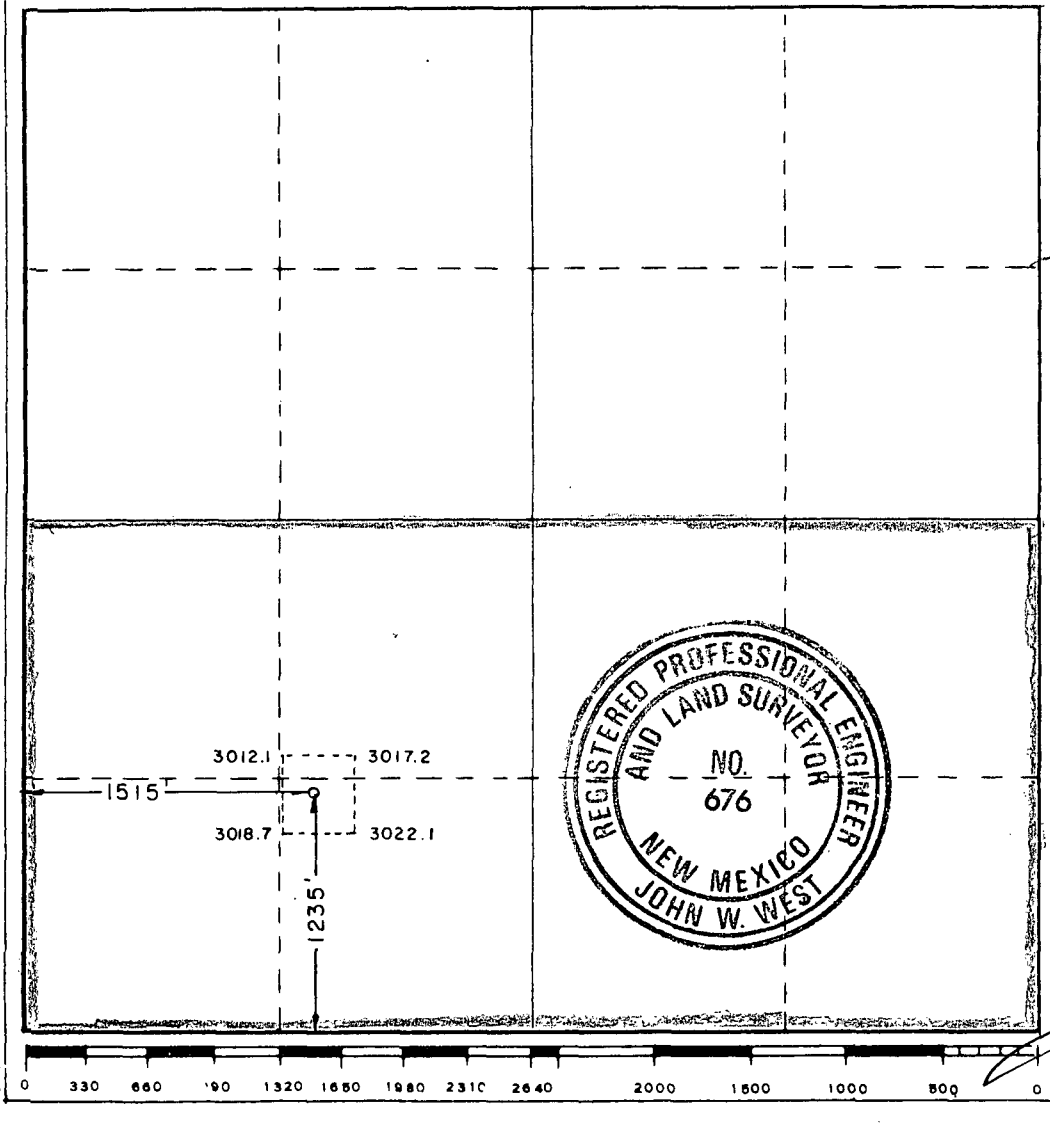
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name: Thomas H. Griffin

Position: Supt.

Company: Bettis, Boyle & Stovall

Date: 12-18-87

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 knowledge and belief.

Date Surveyed: December 1, 1987

Registered Professional Engineer and/or Land Surveyor

Certificate No. JOHN W. WEST, 676
RONALD J. EIDSON, 3239

96560

OFFSET OPERATORS AND MINERAL INTERESTS

SURROUNDING

UNORTHODOX LOCATION

BETTIS, BOYLE & STOVALL #2 PICKETT DRAW FED

1235' FSL & 1515'FWL

SECTION 10, T-25-S, R-29-E

EDDY COUNTY, NEW MEXICO

		Offset Operators	Mineral Interest
Section 9	T-25-S, R-29-E	Meridian	U. S. A.
16		Enron & Bettis Bros., Inc.	State of New Mexico
15		Bettis, Boyle & Stovall	U. S. A.
14		Meridian	U. S. A.
11		Enron	State of New Mexico

BETTIS BROTHERS, INC.
500 W. Wall, Suite 312
Midland, Texas 79701
915/685-4128

December 7, 1987

Meridian Oil Production, Inc.
21 Desta Drive
Midland, Texas 79705

Attention: Phil M. Whitsitt

Enron Oil & Gas Company
P. O. Box 2267
Midland, Texas 79702

Attention: Terry Cherryholmes

Re: Bettis, Boyle & Stovall
Pickett Draw Fed. Well #2
1235' FSL & 1515' FWL
Section 10, T-25-S, R-29-E,
Eddy County, New Mexico

Gentlemen:

Due to terrain and archeological reasons, Bettis, Boyle & Stovall has applied for an unorthodox location to drill the above named well as shown on the attached Application to Drill and plat.

If you, as an offset operator to this lease, have no objection to the granting of this special permit, we would appreciate you signing in the space provided below and returning one copy of this letter to us at your earliest convenience.

Yours very truly,

Bettis, Boyle & Stovall

Harry M. Bettis, Jr.

COMPANY: Enron Oil & Gas 12-10-87

BY: Terry L. Cherryholmes

DATE: 12-10-87

Enclosures

Return

BETTIS BROTHERS, INC.
500 W. Wall, Suite 312
Midland, Texas 79701
915/685-4128

RECEIVED
DEC 0 8 1987
MIDLAND
LAND DEPT.

December 7, 1987

Meridian Oil Production, Inc.
21 Desta Drive
Midland, Texas 79705

Attention: Phil M. Whitsitt

Enron Oil & Gas Company
P. O. Box 2267
Midland, Texas 79702

Attention: Terry Cherryholmes

Re: Bettis, Boyle & Stovall
Pickett Draw Fed. Well #2
1235' FSL & 1515' FWL
Section 10, T-25-S, R-29-E,
Eddy County, New Mexico

Gentlemen:

Due to terrain and archeological reasons, Bettis, Boyle & Stovall has applied for an unorthodox location to drill the above named well as shown on the attached Application to Drill and plat.

If you, as an offset operator to this lease, have no objection to the granting of this special permit, we would appreciate you signing in the space provided below and returning one copy of this letter to us at your earliest convenience.

Yours very truly,

Bettis, Boyle & Stovall

Harry M. Bettis, Jr.

COMPANY: Meridian Oil Inc

BY: [signature]

DATE: 12/10/87

Enclosures

PICKETT DRAW FEDERAL #2

The following information is furnished with the Application to Drill (Re-enter), Form 9-331-C, in compliance with NTL-6, effective July 1, 1976.

1. The geologic surface formation is Permian.
2. The estimated tops of important geologic markers are as follows:

Bell Canyon	2,930'
Wolfcamp	9,800'
Strawn Lime	12,250'
Atoka "A-3" Sand	12,400'
Atoka "A-5" Sand	12,450'
Atoka Bank	12,500'
Morrow	13,250'

3. The depths at which anticipated water, oil, gas or other mineral bearing formations are expected to be encountered are as follows:

   Water: Less than 500'
   Gas: Atoka at 12,400' - 12,600'
   Morrow at 13,250' - 14,117'

4. For proposed casing program, please see Exhibit "A".
5. For proposed specifications for pressure control equipment, please see Exhibit "B".
6. For proposed drilling fluids outline, please see Exhibit "C".
7. Auxiliary equipment is listed in Exhibit "D" (Rig specifications).
8. No coring will be done on this well.

   The following logs will be run on well:
   A) Dual Induction
   B) Laterolog
   C) Micro-laterolog

   Drill Stem test possibilities exist in the following formations:
   A) Bell Canyon
   B) Cherry Canyon
   C) Wolfcamp
   D) Atoka

9. Abnormal pressures are anticipated in the Atoka formation at 12,400' - 12,600'; no abnormal temperatures or potential hazards are expected.
10. The anticipated starting date for this well is January 15, 1988.

MULTI-POINT SURFACE USE AND OPERATIONS PLAN
BETTIS, BOYLE, & STOVALL

PICKETT DRAW FEDERAL #2
1235' FSL & 1515' FWL
S10, T25S, R29E
Eddy County, New Mexico

This plan is submitted with Form 9-331C, Application for Permit to Drill, covering the above described well. The purpose of this plan is to describe the location of the proposed construction activities and operations plan, the magnitude of necessary surface disturbance involved, and the procedures to be followed in rehabilitating the surface after completion of the operations, so that a complete appraisal can be made of the environmental effects associated with the operation.

1. EXISTING ROADS.

   A. The proposed well to be located as stated above.

   B. Exhibit "E" is a portion of a General Highway Map of Eddy County, New Mexico. Directions to the location are as follows:

      Travel south from Malaga, New Mexico toward Orla, Texas along U.S. highway 285 for 12.0 miles. Turn left (east) on Eddy County road 725 for 4.1 miles. Turn left (north) for 1.7 miles. Turn left (northwest) and proceed north and northwest on existing ranch road for 3.3 miles to 'Y' in road. Turn right in 'Y' for 1.0 mile along existing road to location.

   C. See Exhibits attached

   D. See Exhibit "F".

   E. Road to be maintained by grader when required.

2. PLANNED ACCESS ROADS

   Exhibits "E" and "F" are maps showing access roads in the area.

   1. The width of access road will be 12 feet.

   2. The maximum grade will be nominal.

3. Turnouts will be constructed where needed, not over two in number.

4. The road will be covered with caliche and crowned, with drainage on both sides.

5. No culverts or major fills are necessary.

6. The access road and location pad will be surfaced with 6" of caliche.

7. Cattleguards will be installed where necessary.

8. The access roads have been center-lined flagged.

3. LOCATION OF EXISTING WELLS.

1. There are no water wells.

2. There are no dry holes.

3. No temporarily abandoned wells.

4. No disposal wells.

5. No drilling wells.

6. No producing wells.

7. No shut-in wells.

8. No injection wells.

9. No monitoring, observation, or resource wells known.

4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES.

A. No facilities owned at present.

B. If productive, facilities will be as follows:

1) On the well pad.

2) Locking devices to be placed on all production equipment. No unattended open pits or reservoirs to be left at the well site.

C. The land will be restored as much as possible to the original condition.

5. LOCATION AND TYPE OF WATER SUPPLY.

A. Drilling water is to be purchased and hauled to the proposed drilling site.

B. Water to be hauled by trucks.

C. No well is to be drilled.

6. SOURCE OF CONSTRUCTION MATERIALS.

A. Caliche is to be excavated and hauled from an existing pit located in SE/4, NE/4, Section 3, T25S, R29E, NMPM, Eddy County, New Mexico.

B. On Federal land.

C. The pit to be used is shown on Exhibit "H" and is in Section 3, Township 25 south, Range 29 east. The materials taken from this pit are to be used to build the access road and the drilling location pad.

7. METHODS OF HANDLING WASTE DISPOSAL.

1. Drill cuttings will be disposed of in the drilling pits.

2. Drilling fluids will be allowed to evaporate in the drilling pits until pits are dry.

3. Water produced during tests will be disposed of in the drilling pits. Oil produced during tests will be stored in test tanks until sold.

4. Current laws and regulations pertaining to the disposal of human waste will be complied with.

5. Trash, waste paper, garbage, and junk will be buried in a separate trash pit and covered with a minimum of 24 inches of dirt. All waste material will be contained to prevent scattering by the wind. Location of trash pits is shown on EXhibit "G". (Alternate - all trash, junk, and other waste material will be contained to prevent scattering and will be removed and deposited in an approved sanitary landfill.)

6. All trash and debris will be buried or removed from the well site within 30 days after finishing drilling and/or completion operations.

8. ANCILLARY FACILITIES. None required.

9. WELL SITE LAYOUT.

   A. Exhibit "G" shows the following:

      1. The drilling pad and where caliche will be infilled.

      2. The reserve pit will be lined.

10. PLAN FOR RESTORATION OF THE SURFACE.

   1. All pits will be back filled and all waste material removed or buried in pits. Land adjacent to drilling pad will be levelled.

   2. Re-vegetation and rehabilitation to be completed as per BLM recommendations.

   3. Prior to rig release, pits will be fenced so maintained until clean up.

   4. Any oil in pit will be transferred to steel stock tank and separated and sold.

   5. All clean up should be completed within 6 months of well completion.

11. OTHER INFORMATION.

   1. The well location and access road is situated entirely in Section 10, which is Federally owned. The portion of the proposed access road that exists shall be reconstructed. (See Exhibit "F").

   2. No ponds, lakes, streams, water wells, or occupied dwellings exist in the area.

12. LEASEE'S OR OPERATOR'S REPRESENTATIVE:

Thomas H. Griffin, P.O. Box 1193, Hobbs, New Mexico 88240
Phone 505 392-8232

13. CERTIFICATION.

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Successful Bidder and its contractors in conformity with this plan and the terms and conditions under which it is approved.

12/29/87
Date

Thomas H. Griffin
Superintendant

PICKETT DRAW FEDERAL #2

Exhibit "A"

CASING PROGRAM

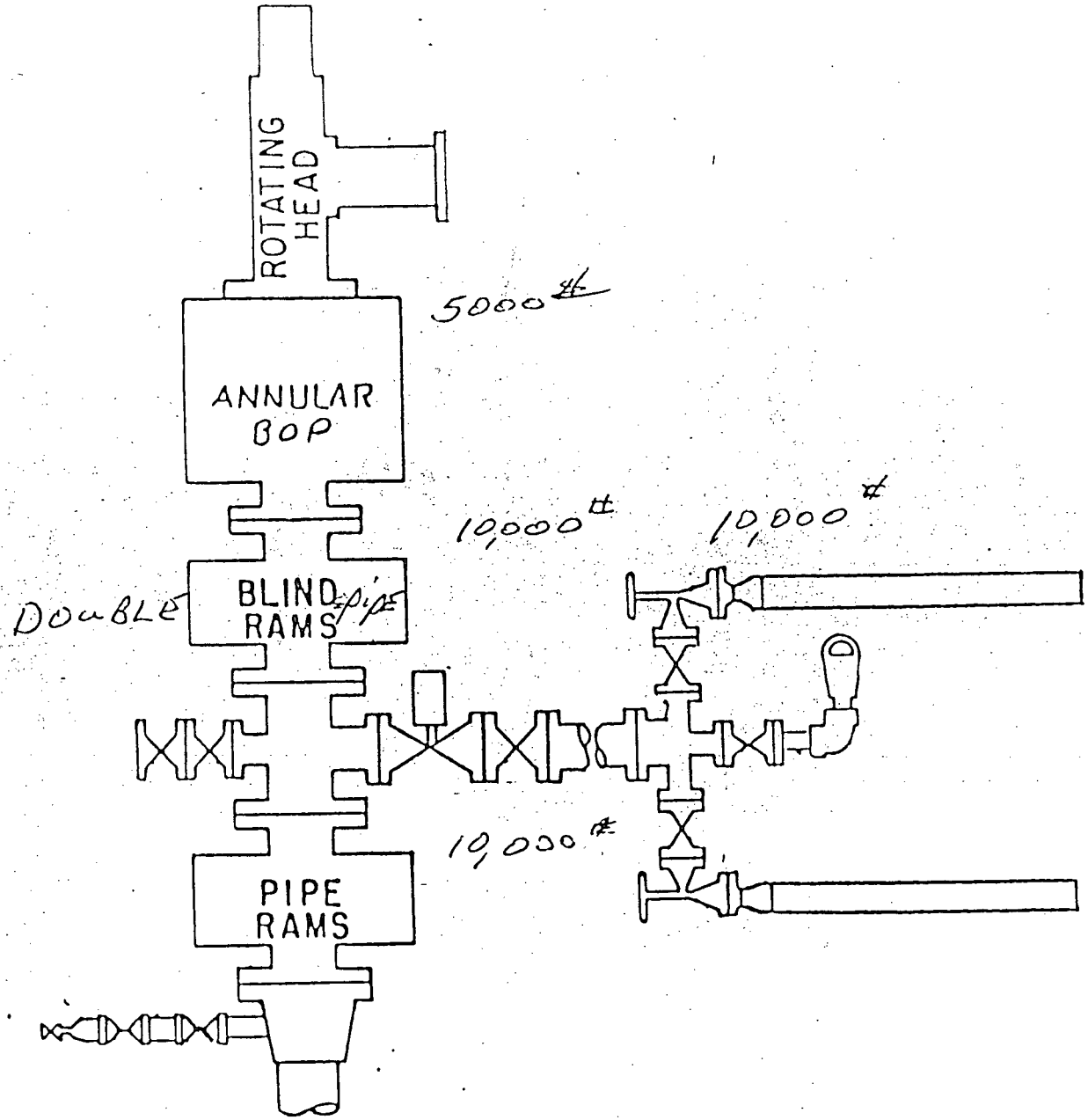
Designation	Depth	Length	Size	Weight	Grade	Hole Size	Cement
Conductor	625'	625'	20"	94#	J-55	26"	1200 Sx. (circ)
Surface	3,100'	3,100'	13 3/8"	72#	J-55	16"	2350 Sx. (circ)
Intermediate	10,100'	10,100'	10 3/4"	60#	P-110	12¼"	400 Sx.
Drilling Liner	12,350'	2,550'	7"	26#	P-110	8½"	350 Sx. (TOL:9,800')
Production	14,200'	2,200'	5½"	20#	P-110	6½"	215 Sx. (TOL:12,000'

WILLBROS DRILLING, INC.

BOP STACK

RIG #11

EXHIBIT "B"



WEST TEXAS DRILLING FLUIDS, INC.

P. O. Box 50727
Midland, Texas 79710

915-682-8382

EXHIBIT "C"

BETTIS, BOYLE & STOVALL
Pickett Draw Federal #2
Section 9, T-25-S, R-29-E
Eddy County, New Mexico 14,200'

INTERVAL DISCUSSION OF PROPOSED DRILLING FLUIDS PROGRAM

SURFACE

DEPTH:	0 - 600'	Spud Mud
MUD WEIGHT:	8.6 - 9.2 ppg	
VISCOSITY:	35 - 45 sec/qt	
FLUID LOSS:	No Control	

Spud with Freshwater Gel/Lime Slurry using the above listed properties. This type of fluid should be adequate to drill the poorly consolidated surface formations. Use Ground Paper for seepage and/or loss circulation. Recommend horseshoe type reserve pit.

DEPTH:	600' - 3,000'	Brinewater
MUD WEIGHT:	9.8 - 10.0 ppg	
VISCOSITY:	29 - 33 sec/qt	
FLUID LOSS:	No Control	
OIL:	3% by volume, if needed	

Drill out with 10.0 ppg Brinewater circulating a controlled section of the reserve pit prior to drilling the Salt formations. The use of 10.0 ppg Brinewater should minimize hole enlargement while drilling the Salt formations. Maintaining 3% Oil, if needed, should help wellbore stability and increase lubricity. Additions of Ground Paper/Magma Fiber pills should be utilized for hole cleaning, seepage and/or loss circulation. Sweep hole with Ground Paper/Magma Fiber pill prior to running the intermediate casing. Use Lime for pH control of 9.5 - 10.0.

DEPTH:	3,000' - 10,100'	Cut Brine
MUD WEIGHT:	9.2 - 9.4 ppg	
VISCOSITY:	29 - 32 sec/qt	
FLUID LOSS:	No Control	

Drill out with 9.2 ppg Cut Brine circulating a controlled section of the reserve pit. The use of Cut Brine should help stabilize the shale sections of the wellbore. Use Lime for pH control of 10.0 - 11.0. Use Ground Paper/Magma Fiber sweeps for hole cleaning, seepage and/or loss circulation. Sweep hole with Ground Paper/Magma Fiber prior to running the 9 5/8" casing.

WEST TEXAS DRILLING FLUIDS, INC.

P. O. Box 50727
Midland, Texas 79710

915-682-8382

EXHIBIT "C"

BETTIS, BOYLE & STOVALL
Pickett Draw Federal # 2
Section 9, T-25-S, R-29-E
Eddy County, New Mexico 14,200'

INTERMEDIATE

DEPTH:	10,100' - 12,500'	Saltwater Gel/Starch
MUD WEIGHT:	9.2 - 9.8 ppg	
VISCOSITY:	30 - 34 sec/qt	
FLUID LOSS:	No Control to 15 cc	

Drill out with 9.2 ppg Cut Brine circulating a controlled section of the reserve pit. Sweep hole with Ground Paper/Magma Fiber for hole cleaning, seepage and loss ciculation, as needed. At 11,000'± return to working pits. Mix Saltwater Gel for 32-34 sec/qt viscosity. Mix White Starch for filtrate of 15 - 20 cc. Use Caustic Soda for pH control of 9.5 - 10.0. Use fibrous material for seepage and/or loss circulation.

DEPTH:	12,500' - 14,200'	XC Polymer/Drispac
MUD WEIGHT:	10.0 - 13.0 ppg	
VISCOSITY:	34 - 38 sec/qt	
FLUID LOSS:	10 - 15 cc	

Continue circulating steel pits. Maintain viscosity 34-38 sec/qt with XC Polymer. Maintain filtrate with Drispac as needed for 10 - 15 cc. Use Caustic Soda for pH control of 9.5 - 10.0. Use Barite for mud weight as needed to control formation pressures. Use fibrous material for seepage and/or loss circulation.

The use of XC Polymer and Drispac will allow you to weight up as needed with Barite and also give you maximum formation protection for the producing Morrow section. The use of XC Polymer will also optimize drilling rate due to minimizing low gravity solids and lubricity.

EXHIBIT "D"

WILLBROS DRILLING, INC.

Description of Major Rig Components: Rig Number 11

Drawworks: Make Mid-Continent Model U-712-A H.P. 1200

Drilling Line: Size 1-1/4 in. Type Drive Compound

Auxiliary Brake: Type Water Make Parmac Model 342

Crown Block Protector: Make Tillery Parks - Crown-O-Matic

Sand Reel: Line Size None Line Length

Engines: (1) Number 1 Make Caterpillar Model D-379 H.P. 715

(2) Number 2 Make Caterpillar Model D-379 H.P. 715

(3) Number 3 Caterpillar D-379 715

Mud Pumps: (1) Number 1 Make Gardner Denver Model PZ-9

Rated H.P. 1000 Deliverable H.P. 1000

Max. deliverable operating pressure 2000 psi with

5-1/2 in. liners. Max. SPM 120

(2) Number 2 Make Gardner Denver Model PZ-8

Rated H.P. 750 Deliverable H.P. 750

Max. deliverable operating pressure 2000 psi with

5-1/2 in. liners. Max. SPM 120

Pumps driven by #1 from Compound & D-398 Caterpillar Engine drives #2

Derrick: Type Cantilever Make Pyramid Size 142' Capacity 765,000 lbs.

Substructure: Make Pyramid Size 25' Capacity 765,000 lbs.

Crown Block: Make Pyramid Capacity 765,000 lbs. No. of Sheaves 6

Block: Make Emsco Capacity 700,000 lbs. No.of Sheaves 5

Hook: Make B. J. Capacity 700,000 lbs.

Swivel: Make Gardner Denver Capacity 700,000 lbs.

Kelly: Size and type 5-1/4 Hex Length 46 feet

Connection 4-1/2 IF

Upper Kelly Cock: Make Emco Working Pressure 10,000 psi

Lower Kelly Cock: Make Emco Working Pressure 10,000 psi

Inside BOP: Make Emco Working Pressure 10,000 psi

Safety Valve: Make Emco Working Pressure 10,000 psi

Rotary Table Make Oilwell Model 27.5 Size 27-1/2 in.

H.P. 500 Max. Speed 200 rpm

Capacity 700,000 lbs.

Mud Pits: Number 4 Total Capacity 1150 bbl

Type of Agitation: Low pressure & lightning mixers

EXHIBIT "D"

Trip Tank: Size None

Hydration (Mix) Tank: Size 80 bbls.

Mud Mixing Pumps: (1) Number 1 Size 6 X 8 H.P. 75 HP Electric

(2) Number 2 Size 6 X 8 H.P. 75 HP Electric

Shaker: Make Derrick Model Single Screen

Atmospheric Degasser: None

Degasser: Make None Model

Desander: Number 1 Make Harrisburg Model 2 cone Capacity 800 gal. gpm

Desilter: Number 1 Make Harrisburg Model 6 cone Capacity 800 gal. gpm

Other Solids Removal Equipment: None

Drill Pipe: (1) Amount 8,029' Size 4-1/2 Weight 16.60 Grade E

Conn. 4-1/2 XH Range 2 API Class. Double White

(2) Amount 6,293' Size 4-1/2 Weight 16.60 Grade X-135

Conn. 4-1/2 Range 2 API Class. Double White

Drill Collars: (1) Number 18 Size 8" O.D. 8" I.D. 2-3/4

Range 2 Conn. 6-5/8 Type Reg.

(2) Number 24 Size 6-1/4 O.D. 6-1/4 I.D. 2-1/4

Range 2 Conn. 4-1/2 Type XH

(3) Number Size O.D. I.D.

Range Conn. Type

Pipe Racks: 7 Sets

Blowout Preventers:

Number	Make	Model	Size	Bore	Working Pressure
Double	Hydril	V	13-5/8	13-5/8	5,000
Single	Hydril	V	13-5/8	13-5/8	5,000
Single	Cameron	D-Bag.	13-5/8	13-5/8	5,000

Accumulator and Closing Unit:

Make Valcon Model D-700 Capacity 160 gal.

Choke and Kill Lines: Number 3 W.P. 5000 Size 4-1/2

Choke Manifold: Working Pressure 5000 psi

Choke (1) Type Barton Adjustable

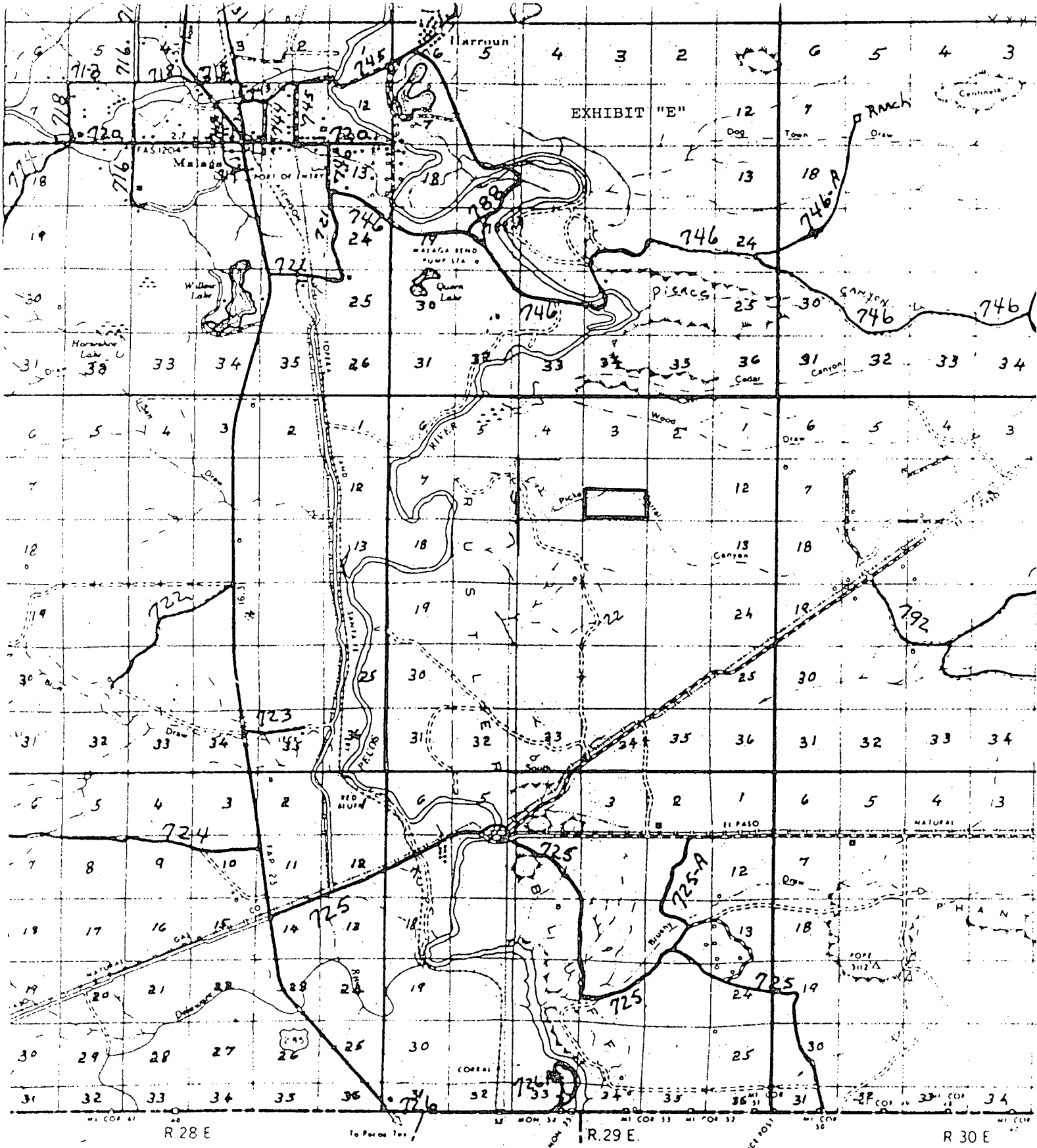
Choke (2) Type Barton Positive

Choke (3) Type

Diverter Lines and Valves: If Applicable, Number 2 Size 4-1/2

Drilling Instrumentation (Weight, RPM, Pit Level, etc.):

Martin Decker - Wt. R.P.M. Pump Strokes 7-Pen



REEVES CO. L O V I N G

Exhibit "E"

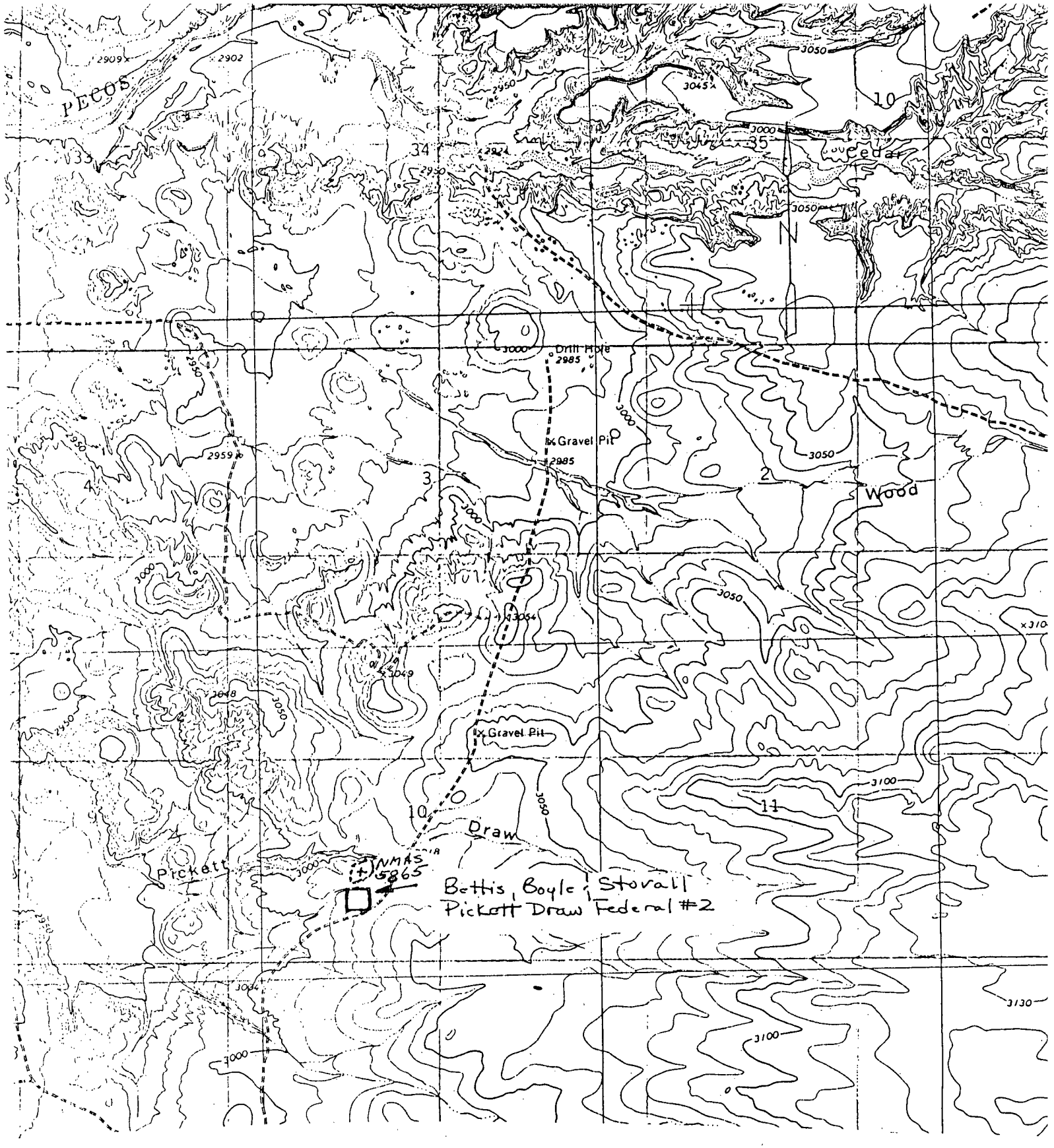
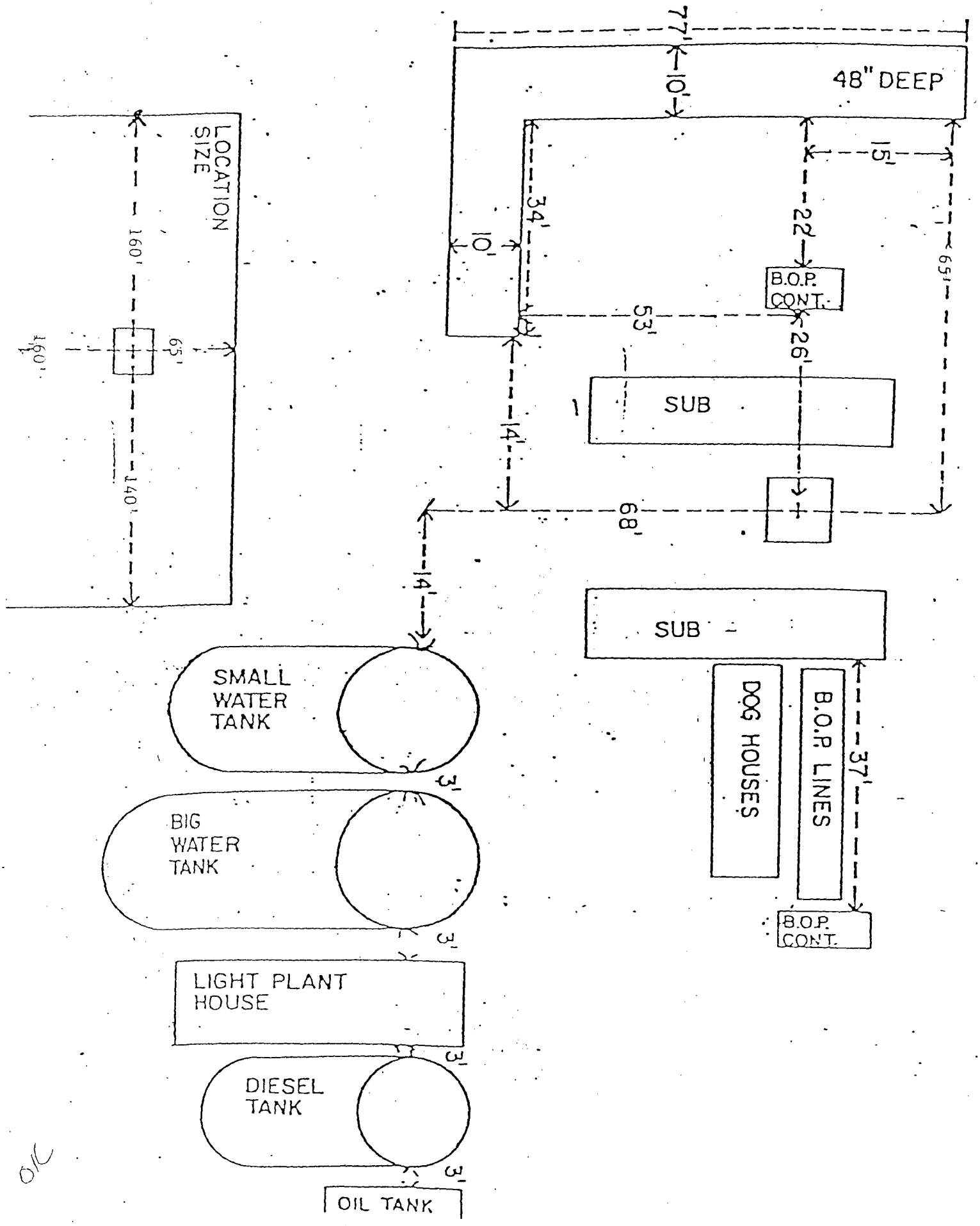


Fig. 2. USGS PIERCE CANYON QUADRANGLE, 7.5 Minute Series, 1;24,000, 1968, showing BETTIS, BOYLE AND STOVALL's proposed Pickett Draw Federal Well No. 2, 1235 FSL, 1515 FWL, Section 10, T25S, R29E, NMPM, Eddy County, New Mexico., vis à vis NMAS 5865.

EXHIBIT "G"


77'
10'
48" DEEP
15'
22'
34'
10'
65'
B.O.P. CONT.
53'
26'
SUB
14'
68'
LOCATION SIZE
160'
160'
65'
140'
14'
SUB
SMALL WATER TANK
3'
BIG WATER TANK
3'
LIGHT PLANT HOUSE
3'
DIESEL TANK
3'
OIL TANK
DOG HOUSES
B.O.P. LINES
37'
B.O.P. CONT.

O/C

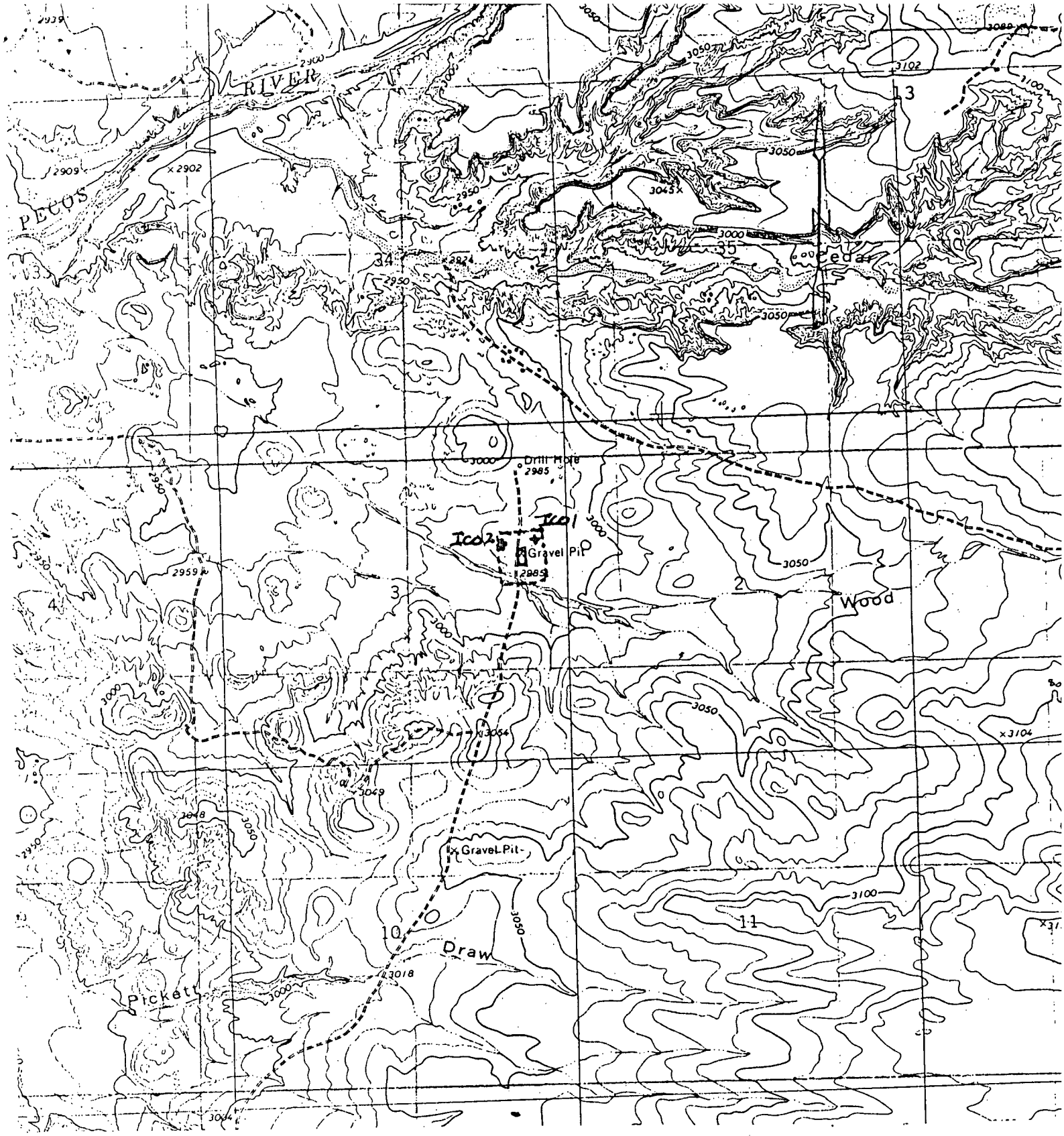


Fig. 4. USGS PIERCE CANYON QUADRANGLE, 7.5 Minute Series, 1;24,000, 1968, showing quarry, Section 3, T25S, R29E, NMPM, Eddy County, New Mexico, to be utilized by BETTIS, BOYLE AND STOVALL for pad and road construction.

NMAS
New Mexico Archaeological Services, Inc.

P.O. Box 1341
Carlsbad, New Mexico 88221-1341
(505) 887-7646

Reconnaissance
Excavation
Analysis
Explanation
Curation

15 December 1987

Mr. Tom Griffin
BETTIS, BOYLE AND STOVALL
P.O. Box 1193
Hobbs, New Mexico 88240

Dear Mr. Griffin:

Enclosed please find NMAS' Archaeological Clearance Report for BETTIS, BOYLE AND STOVALL's proposed Exxon Pickett Federal Well No. 1, Pickett Federal Well No. 2, and an associated access road and quarry in Eddy County, New Mexico. A very light scatter of burned caliche (BC) was noted on the Exxon Pickett Federal Well No. 1 location. One archaeological site (NMAS 5865) was recorded north of the Pickett Federal Well No. 2 location. Two isolated cultural occurrences were recorded during the survey of the quarry. NMAS is suggesting clearance for all proposed work.

If you have any questions pertaining to this report, please call my office. Thank you for asking NMAS to do these surveys.

Yours sincerely,

J. Loring Haskell

Dr. J. Loring Haskell
Principal Investigator

Enclosure

cc: Mr. Dave Kayser, BLM, Carlsbad

as

Archaeological Clearance Report

for

BETTIS, BOYLE AND STOVALL

Exxon Pickett Federal Well No. 1
Pickett Federal Well No. 2
Quarry,
Section 3, T25S, R29E, NMPM, Eddy County, NM

Prepared

By

Dr. J. Loring Haskell

Submitted

By

Dr. J. Loring Haskell
Principal Investigator
New Mexico Archaeological Services, Inc.
Carlsbad, New Mexico

9 December 1987

Permit No. 14-2920-87-G

Report Number: NMAS-1987-12-D

ABSTRACT

New Mexico Archaeological Services, Inc., representing BETTIS, BOYLE AND STOVALL, Midland, undertook a Class III survey of Bureau of Land Management lands scheduled to be impacted by the construction of two drill locations, an associated access road, and the expansion of an existing quarry. Field work was conducted under clear, sunny and calm conditions during the afternoon on 1 December and during the afternoon under similar conditions on 7 December. The proposed locations will measure 400 X 400 ft (actual area surveyed 8.88 acres). The Exxon Pickett Federal Well No. 1 access road will measure 100 X 900 ft (actual area surveyed 2.07 acres). The Pickett Federal Well No. 2 location is situated next to an existing lease road. The existing quarry measures 175 X 250 ft (actual area surveyed 14.12 acres). Total acreage 25.07 acres. They will be situated in SEctions 3, 8, 9, and 10, T25S, R29E, NMPM, Eddy County, New Mexico. A very light- and amorphous-scatter of burned caliche (BC) was noted on the Exxon Pickett Federal Well No. 1 location. NMAS 5865 was recorded north of the Pickett Federal Well No. 2 location. Two isolated cultural occurrence (ICO) were recorded during the survey of the quarry. Clearance is suggested for all proposed work as presently envisioned.

Introduction

On 1 and 7 December 1987, New Mexico Archaeoloical Services, Inc., (NMAS), Carlsbad, (Permit Number: 14-2920-87-G), undertook for BETTIS, BOYLE AND STOVALL, Midland, an archaeological survey of federal lands administered by the Bureau of Land Management in Eddy County, New Mexico. Reconnoitered areas will be impacted by the construction of two drill locations, an associated access road, and the expansion of an existing quarry. These projects were advanced by Mr. Tom Griffin, BETTIS, BOYLE AND STOVALL. These surveys were undertaken by Dr. Haskell.

Survey Technique

For these investigations, BETTIS, BOYLE AND STOVALL's proposed locations were reconnoitered for evidence of man's past activities by walking them in a series of 8.0 m wide, close interval (15° or less), zigzag transects. In addition, an added zone extending 20 feet on each side of the staked 400 X 400 foot locations, and lying outside the bounds of the proposed work areas, were reconnoitered by a similar means. The access road was walked in two, 15 m wide transects. At its juncture with the existing lease road, the surveyed area was broadened to embrace an area measuring 100 X 150 feet. Lath is considered to be the center of the proposed road. Similarly, the quarry was reconnoitered by walking its perimeter in a series of 20 feet, close interval (15° or less), zigzag transects. The investigated zone extends back from the edge of the quarry for a distance of 300 feet. Methodologically, these procedures served to promote

optimal conditions for the visual examination of the area to be impacted by construction-related activities. Field work was conducted under clear, sunny and calm conditions during the afternoon on 1 December and similar conditions during the afternoon on 7 December. Ground visibility ranges between 75 and 85%. Field time six hours.

Exxon Pickett Federal Well No. 1

Location

The proposed location will measure 400 X 400 feet (actual area surveyed 4.44 acres) on federal land and will be situated 660 feet from the north line and 860 feet from the east line.

Section 8, T25S, R29E, NMPM, Eddy County, NM

Thus it will be situated in the:

NE¼NE¼, Section 8, T25S, R29E, NMPM, Eddy County, NM

The associated access road will measure approximately 100 X 900 ft (actual area surveyed 2.07 acres) and is situated in the:

NW¼NW¼, Section 9, T25S, R29E, NMPM, Eddy County, NM
NE¼NE¼, Section 8, T25S, R29E, NMPM, Eddy County, NM

Map Reference: USGS PIERCE CANYON QUADRANGLE, 7.5 Minute Series, 1968.
USGS MALAGA QUADRANGLE, 7.5 Minute Series, 1985, Prov. Ed.

The eastern half of the location has been previously impacted by a dry hole.

Environmental Setting

BETTIS, BOYLE AND STOVALL's proposed location will be situated on the southeastern-facing slope of a rolling system of low hills lying due east of the Pecos River. Locally, the coeval surface is hummocky in character with interconnecting, interdunal

areas which are gullied and subject to the effects of ephemeral sheetwash. Drainage is tributary to a tertiary drainage which discharges into a collapse structure lying to the southwest. Elevation is approximately 2940 ft. Slope averages 0.50°. Aspect is east, northeast and southeast. Nearest permanent water is the Pecos River which lies two miles to the west. In the near vicinity, surface water is limited to runoff collecting in subsidence basins for short periods following seasonally heavy rainfall. Soil individuals are composed of sandy loams which commonly harbor caliche inclusions. Taxonomically, pedons fall within the Typic Torripsamment subgroup. Depositionally, aeolian processes, along with colluvial movement, have been the dominant forces working on the landform during Holocene times. Local soils are supportive of a Chihuahuan Desert scrub, floral community. Principal plants are creosote bush, mesquite, fourwing saltbush, plains yucca, broom snakeweed, mountain pepper plant, bladder pod, mesa dropseed, poverty three awn and bush muhly.

Cultural Resources

Prefield: 30 November 1987, Arita K. Slate, Section 8, one archaeological site; Section 9, one archaeological site.

Section 8

ENM 10687, an extensive lithic scatter, is situated within 4000 ft of the location.

Section 9

NMAS 5809, consisting of at least 12 caliche-type, fire hearths, chert and quartzite primary- secondary- and tertiary- decortication flakes, chert and quartzite cores, six Jornada Brownware potsherds, a chert side scraper and a broken, chert, dart point of the Tortugas Type, is situated within 3200 ft of the proposed access road.

During the course of this survey, a very light- and amorphous-scatter of burned caliche (BC) was noted over the entire location.

Burned Caliche (BC)

The burned caliche (BC) scatter, lacking concentration and wholly amorphous in character, has been subject to the effects of ephemeral sheetwash with occasional pieces occurring in the numerous gullies which braid the surface. There is no evidence of buried remains. Associated plants include mesquite, creosote bush, broom snakeweed, bush muhly and poverty three awn.

In the past, this area was visited on a regular basis by social units engaged in hunting and gathering pursuits. Occupancy was locally intense with quarrying and stone tool production being a primary concern. Temporally, most utilization appears to have occurred during Late Archaic and Eastern Jornada Mogollon times.

Recommendations

NMAS recommends clearance for BETTIS, BOYLE AND STOVALL's proposed Exxon Pickett Federal Well No. 1 and its access road and suggests that work-related activities proceed in accordance with company plans (Fig. 1). Clearance, of course, is granted by the Bureau of Land Management. If cultural resources are encountered during construction, the BLM and NMAS should be notified immediately. Duned settings are notorious for covering and uncovering cultural properties..

Pickett Draw Federal Well No. 2

Location

The proposed location will measure 400 X 400 ft (actual area

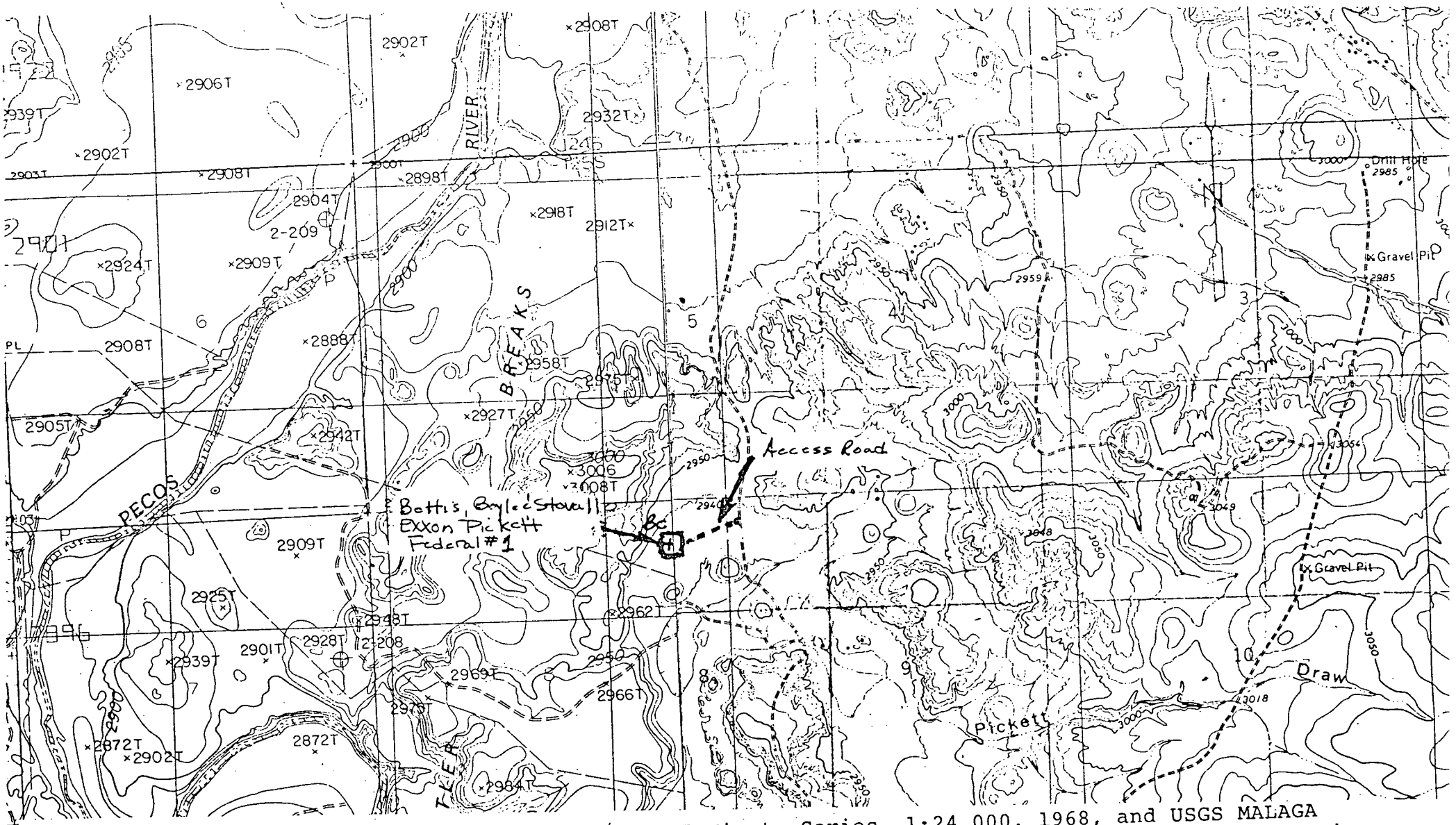


Fig. 1. USGS PIERCE CANYON QUADRANGLE, 7.5 Minute Series, 1;24,000, 1968, and USGS MALAGA QUADRANGLE, 7.5 Minute Series, 1;24,000, 1985, Prov. Ed., showing BETTIS, BOYLE AND STOVALL's proposed Exxon Pickett Federal Well No. 1, 660 FNL, 860 FEL, and access road, Sections 8 and 9, T25S, R29E, NMPM, Eddy County, New Mexico.

surveyed 4.44 acres) on federal land and will be situated 1235 ft from the south line and 1515 ft from the west line.

Section 10, T25S, R29E, NMPM, Eddy County, NM

Thus it will be situated in the:

SE¼SW¼, Section 10, T25S, R29E, NMPM, Eddy County, NM

The proposed location will be situated next to an existing lease road.

Map Reference: USGS PIERCE CANYON QUADRANGLE, 7.5 Minute Series, 1968.

The proposed location is flanked on the south and southeast by an existing lease road. A Llano Inc. natural gas pipeline easement lies at a point approximately 140 ft north of the location.

Environmental Setting

BETTIS, BOYLE AND STOVALL's location will be situated on the west-facing shoulder of a locally prominent ridge system lying due east of the Pecos River. Locally the contemporary surface is distinguished by low coppice dunes with interconnecting, partially denuded, interdunal areas. Microrelief ranges between 0.30 and 0.60 m. Dune development increases toward the north. Elevation is approximately 3020 ft. Slope averages 0.50°. Aspect is multiple. As a whole, the surface is subject to sheetwash with runoff being to the northwest. A well-developed arroyo courses through the area on the north and discharges into Pickett Draw northwest of the location. Nearest water occurs in the form of runoff collecting in an extensive subsidence basin lying to the northwest. Permanent water is obtainable at the Pecos River which lies three miles to the west. Soil individuals are made up of sandy clay loams and loamy sands. Caliche gravels and cobbles, often constituting a

light- to moderate- scree, occur in associated soils. Aeolian processes and colluvial movement are the primary forces shaping the landform. Soils are supportive of a desert scrub community. Major components are mesquite, fourwing salt bush, broom snakeweed, poverty three awn and fluff grass.

Cultural Resources

Prefield: 30 November 1987, Arita K. Slate, Section 10, no archaeological sites.

During the course of this survey, one archaeological site (NMAS 5865) was recorded.

NMAS 5865

Location: SW¼NE¼SW¼, Section 10, T25S, R29E, NMPM, Eddy County, NM

UTM: Zone 13, N3,556,450; E596,630

Map Reference: USGS PIERCE CANYON QUADRANGLE, 7.5 Minute Series, 1968.

Ownership: Bureau of Land Management Administration

Dimension of Resources: 120 X 150 m

Typological Designation: Special Activities Zone

Authorship/Temporality: Late Archaic

Nature of Cultural Resources: NMAS 5865, a special activities zone, is situated on the north-facing slope of a locally prominent ridge which overlooks a minor draw which discharges toward the west-northwest. As a whole, the surface is distinguished by a continuous system of coppice dunes and an interconnecting web of interdunal areas which are subject to ephemeral sheetwash as well as gullying. Surficial deposits are composed of sandy loams which commonly harbor caliche

inclusions as well as some cherts and quartzites. Microrelief ranges between 0.50 and 2.0 m in height. Associated plants include mesquite, fourwing salt bush, broom snakeweed, poverty three awn and fluff grass.

Observed cultural properties include four eroded, caliche-type, fire hearths, broken scatters of burned caliche, chert and quartzite primary- and secondary- decortication flakes, an exhausted quartzite core, several quartzite hammerstones, angular quartzite and chert debris, a basin- type, metate fragment and ground stone fragments. Resources occur in the form of two concentrations with one occurring at the northern end of the site, and the other, at the extreme south. Occasional pieces of burned caliche and chipped stone occur in the intervening area. The site has been termed a special activities zone owing to the presence of both chipped- and ground- stone. Excepting the basin- type, metate fragment, no diagnostic artifacts were noted. This artifact, of Archaic age, is associated with the concentration occurring at the south end of the site. Temporally, as well as culturally, it may not be related to the remains occurring 400 ft or so to the north. The site, therefore, may have two components. Task performance focused on chipped stone production and milling tasks. Occupancy was relatively brief, lasting a day or so. Density of remains ranges from 10 to 12 pieces per square meter in concentrations to 1 to 2 pieces per 20 square meters elsewhere. Owing to the aeolian nature of the landform, as well as degradation

of the surface by downcutting, artifacts are not in situ. Additionally, there is a high probability of some burial of cultural remains.

The site has been impacted by a pipeline right-of-way on the south. Occasional pieces of burned caliche were noted in that easement. NMAS 5865 is previously unrecorded; no collection was made.

NMAS 5865 is important for several reasons. Firstly, loci hosting concentrations are basically intact and hence offer the prospect of gleaning carbonized remains for radiometric dating purposes from at least two of the hearths on the north as well as possible buried artifacts there and on the south. Secondly, the site is important as it relates to areal settlement pattern and hence prehistoric land usage. Land usage was locally intense in the vicinity of Pickett Draw.

Recommendations

NMAS suggests clearance for BETTIS, BOYLE AND STOVALL's proposed Pickett Federal Well No. 2 provided NMAS 5865 is avoided (Fig. 2). Its presence should not pose a problem as the nearest archaeology lies 100 ft north of the flagged corners of the location (Fig. 3). (These corners are indicated in the field by orange-glow flags placed by NMAS.) These flags, marking the northwest- and northeast- corners of the location are situated on a line lying 180 ft or so north of center. Clearance, of course, is granted by the Bureau of Land Management. Men and materiel are to avoid

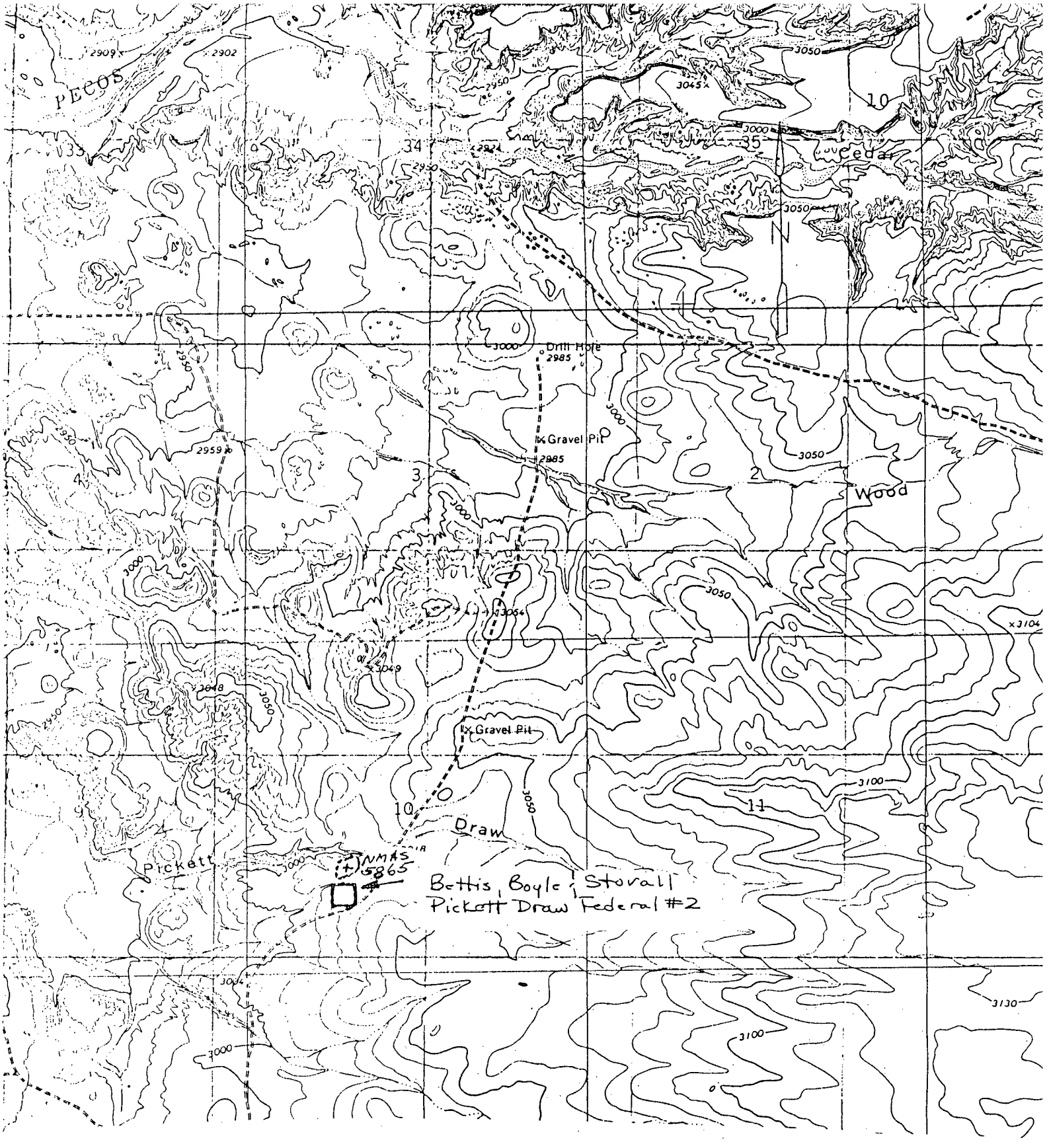


Fig. 2. USGS PIERCE CANYON QUADRANGLE, 7.5 Minute Series, 1;24,000, 1968, showing BETTIS, BOYLE AND STOVALL's proposed Pickett Draw Federal Well No. 2, 1235 FSL, 1515 FWL, Section 10, T25S, R29E, NMPM, Eddy County, New Mexico., vis à vis NMAS 5865.

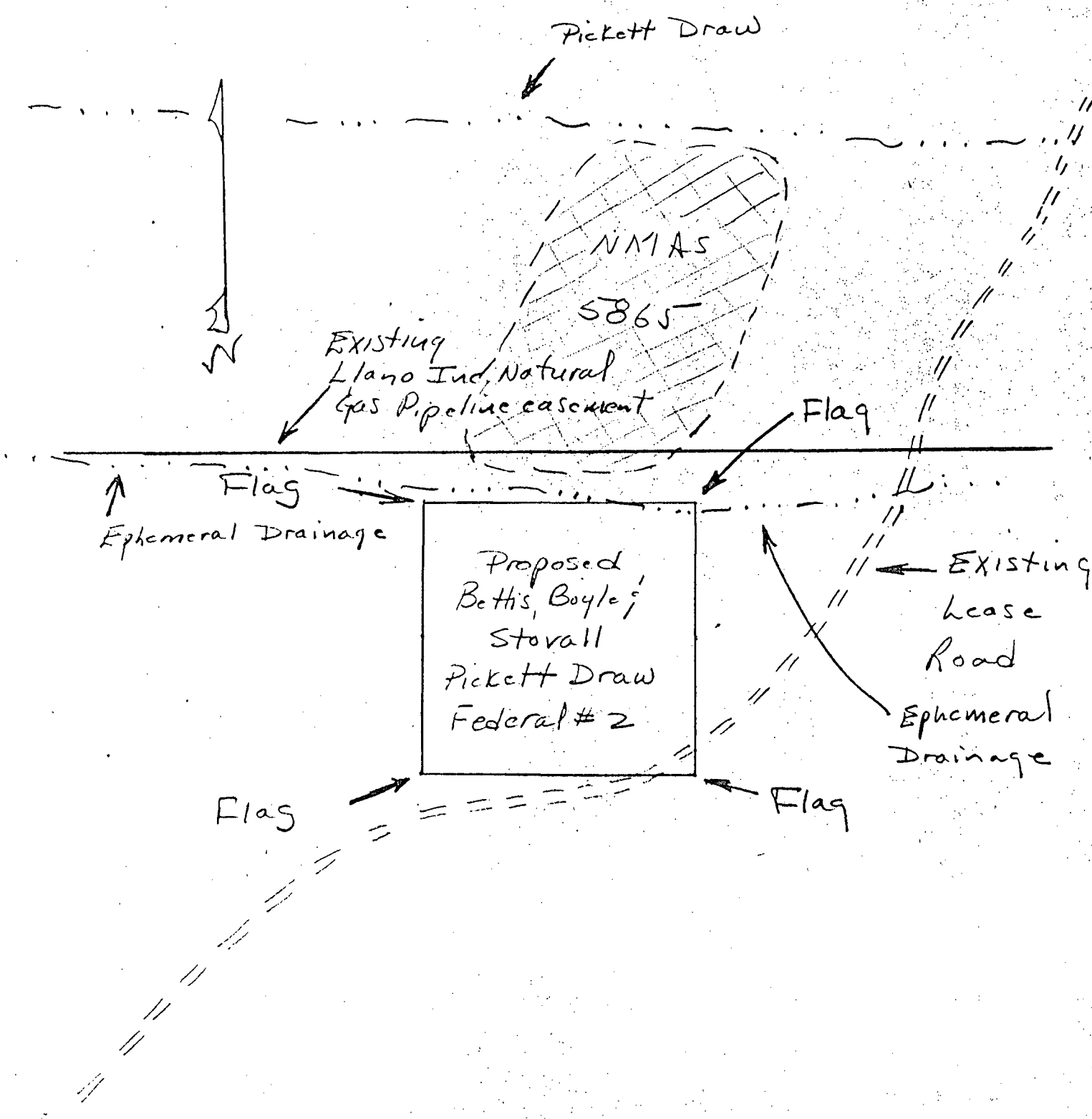


Fig. 3. Schematic representation showing BETTIS, BOYLE AND STOVALL's Pickett Draw Federal Well No. 2, 1235 FSL, 1515 FWL, Section 10, T25S, R29E, vis à vis NMAS 5865. *A 100 ft wide buffer separates the site from the edge of the location. Orange-glow flags, placed by NMAS, indicate corners of the location.*

the archaeologically sensitive area altogether during all phases of work. If additional cultural properties are encountered during construction, the BLM and NMAS are to be notified immediately. Duned settings are notorious for covering and uncovering cultural properties.

Quarry

Location

The existing quarry measures 175 X 250 ft on federal land. The actual surveyed area embraces 14.12 acres more or less. It is situated in the:

SE¼NE¼, Section 3, T25S, R29E, NMPM, Eddy County, NM

This quarry is situated next to an existing lease road (Fig. 4).

Map Reference: USGS PIERCE CANYON QUADRANGLE, 7.5 Minute Series, 1968.

The investigated quarry is flanked on the west by a lease road.

Environmental Setting

The investigated quarry is situated on the north-facing shoulder of a rolling ridge system which overlooks Cedar Canyon to the north and a meander of the Pecos River to the northwest. Overall, the coeval surface is characterized by thin, sandy clay loams and associated, highly weathered, caliche screes and outcroppings. On the north and northwest, the surface is gullied. Ephemeral sheetwash is characteristic of the landform in general. Elevation is 2995 ft. Slope is 0.50° on the crest. Aspect is multiple. Neareast permanent water is the Pecos River which lies 1½ miles to the northwest. Soil individuals are dominated by the

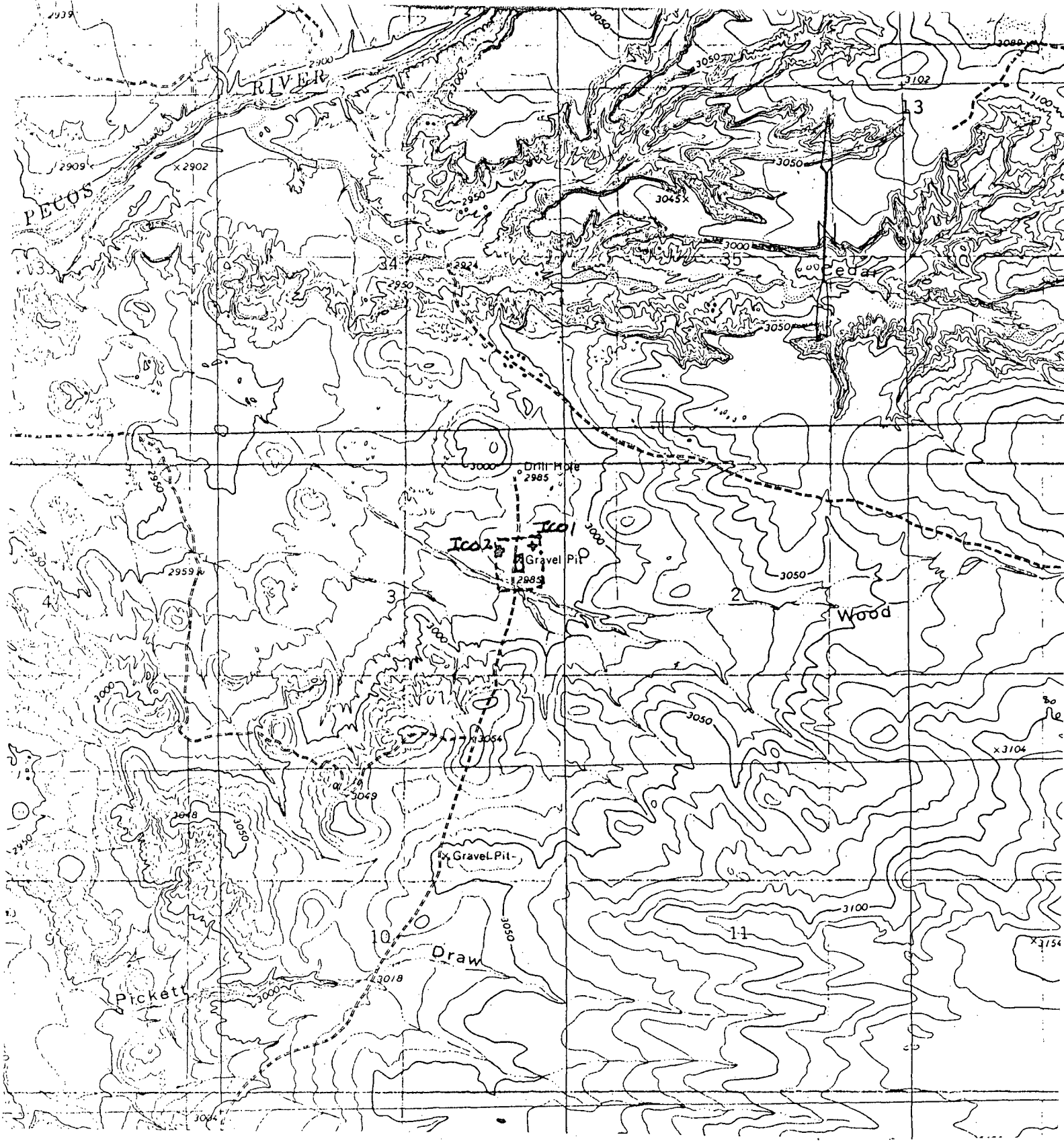


Fig. 4. USGS PIERCE CANYON QUADRANGLE, 7.5 Minute Series, 1;24,000, 1968, showing quarry, Section 3, T25S, R29E, NMPM, Eddy County, New Mexico, to be utilized by BETTIS, BOYLE AND STOVALL for pad and road construction.

sand and clay separates and fall within the Typic Paleorthid subgroup and an intergrade of the Typic Torripsamment subgroup. Depositionally, aeolian processes and colluvial movement are dominant forces working on the landform. Areal soils are supportive of a desert scrub, floral community. Principal components of it are creosote bush, whitethorn acacia, javelina bush, mesquite, all thorn, broom snakeweed, spinyleaf zinnia, mesa dropseeds, poverty three awn, fluff grass, bush muhly and plains brittlgrass.

Cultural Resources

Prefield: 30 November 1987, Arita K. Slate, Section 3, T25S, R29E, no archaeological sites.

During the course of this survey, two isolated cultural occurrences (ICO) were recorded.

Isolated Cultural Occurrences (ICO)

ICO 1, consisting of one, very dark red, granular quartzite primary decortication flake, 55 X 43 X 16 mm, is situated at a point 275 ft northeast of the northeast corner of the quarry. There is no evidence of buried remains. Associated plants include whitethorn acacia, javelina bush, broom snakeweed, poverty three awn and fluff grass. It is located in the:

SW¼ NE¼ SE¼ NE¼, Section 3, T25S, R29E, NMPM, Eddy County, NM

UTM: Zone 13, N3,558,620; E597,620

Map Reference: USGS PIERCE CANYON QUADRANGLE, 7.5 Minute Series, 1968.

ICO 2, composed of six pieces, consists of: (a) one, very dark red, granular, quartzite primary decortication flake, 60 X 54 X 27 mm; (b) one very dark red, granular, quartzite, secondary decortication flake, 47 X 40 X 13 mm, with bulb, 30% cortex

and lacking retouch; (c) one, large piece of very dark red, granular, quartzite, angular debris; (d) one, very dark red, granular, quartzite secondary decortication flake, 72 X 55 X 15 mm, with 50% cortex, and retouch; (e) one very dark red, granular, primary decortication flake, 60 X 34 X 14 mm; and (f) one very dark red, granular unidirectional core, 60 X 55 X 44 mm with 55% cortex. It is situated on an eroding surface at a point approximately 100 ft south of the northwest corner of the surveyed tract. There is no evidence of buried remains. Associated plants consist of javelina bush, whitethorn acacia, broom snakeweed, poverty three awn and fluff grass. It is situated in the:

SE¼NW¼SE¼NE¼, Section 3, T25S, R29E, NMPM, Eddy County, NM

UTM: Zone 13, N3,558,600; E597,605

Map Reference: USGS PIERCE CANYON QUADRANGLE, 7.5 Minute Series, 1968.

Prehistorically, land usage was intense in the vicinity of Cedar Canyon and Pierce Canyon to the north. Areal land usage centered on hunting and gathering. The varied nature of the landform, the availability of siliceous- and sandstone- lithic resources, along with potable water and shelter, combined to make the area highly attractive to the authochthonous peoples. Although land usage undoubtedly dates back to Paleoindian times, most utilization appears to have occurred during the Late Archaic and the following Eastern Jornada Mogollon period.

Recommendations

NMAS recommends clearance for BETTIS, BOYLE AND STOVALL's quarry expansion (Fig. 5). Clearance, is granted by the Bureau

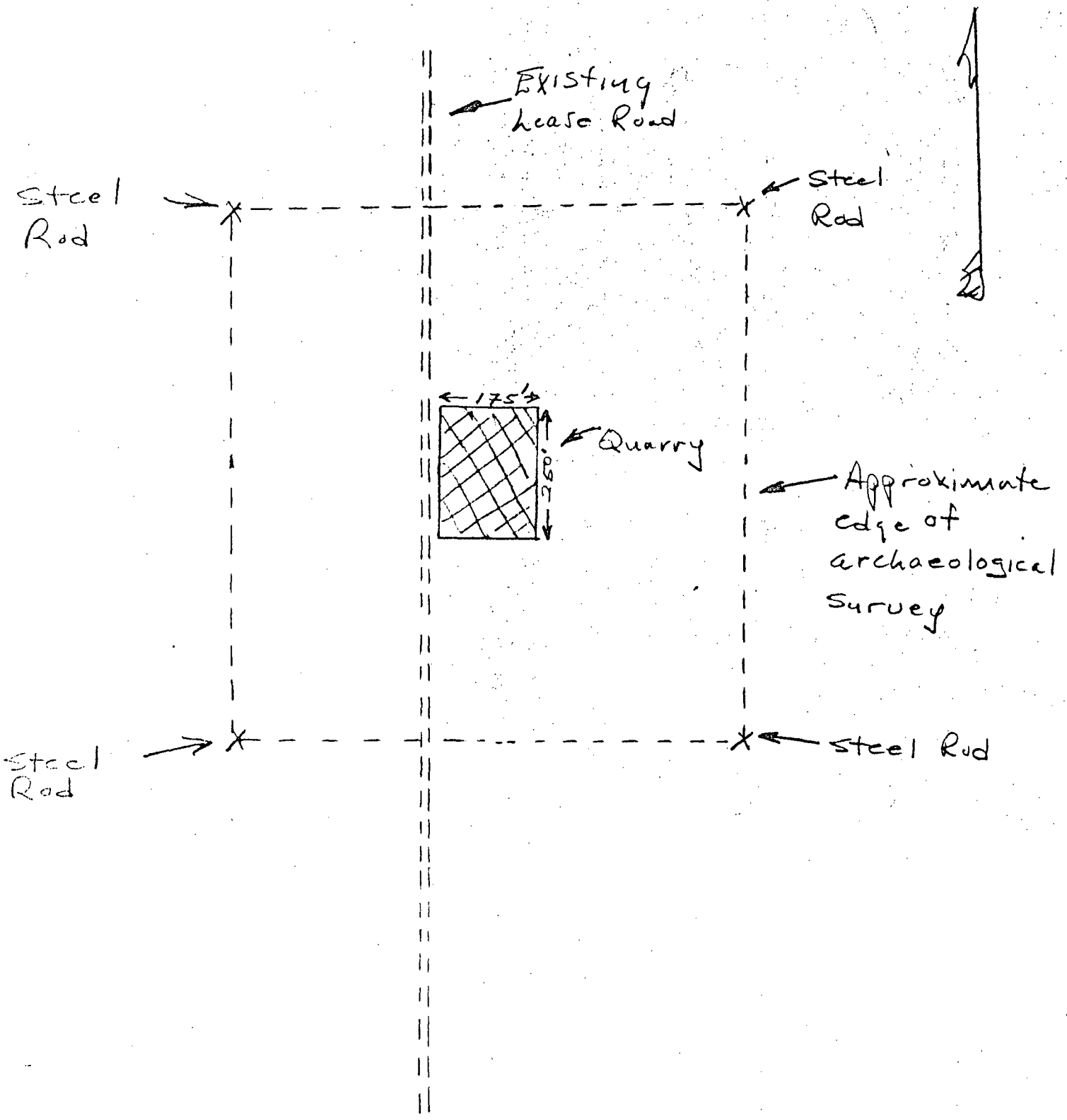


Fig. 5. Schematic representation showing QUARRY, Section 3, T25S, R29E, NMPM, Eddy County, New Mexico, to be utilized by BETTIS, BOYLE AND STOVALL for pad and road construction.

of Land Management. *Caliche removal is strictly controlled by the BLM and is to be removed only from that area of the quarry designated by them.*