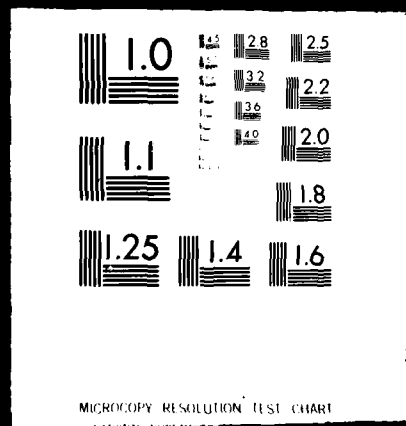


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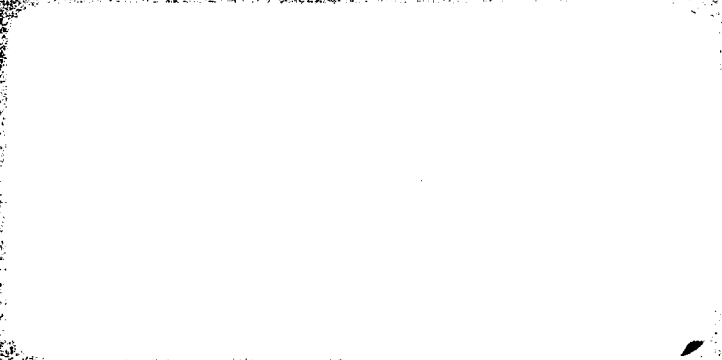
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DTN/OBTS FIELD SURVEYS
DATA COMPILATION
VOLUME I
PROGRAM OVERVIEW
GEOTECHNICAL SUMMARY

Prepared for:

U.S. Department of the Air Force
Ballistic Missile Office
Norton Air Force Base, California 92409

Prepared by:

Ertec Western, Inc.
3777 Long Beach Boulevard
Long Beach, California 90807

30 November 1981

FOREWORD

The field surveys were performed under Change Order P00026 to Contract No. F04704-80-C-0006. The three volumes represent a compilation of data, rather than a formal report, and reflect the status of the surveys as of 2 October 1981. The request for this format is contained in the Stop Work Order, dated 15 October 1981, Item F.

This volume, Volume I, presents a brief program overview and a geotechnical summary. The environmental field surveys data are contained in Volumes II and III.

TABLE OF CONTENTS

VOLUME I

	<u>Page</u>
FOREWORD	i
1.0 <u>INTRODUCTION</u>	1
1.1 Objectives and Scope	1
1.2 Schedule	3
2.0 <u>OBTS STUDIES</u>	4
2.1 Selection of OBTS Localities	4
2.2 Survey Locations	4
2.3 Environmental Surveys	5
2.4 Geotechnical Inspections	5
2.5 Results of Geotechnical Inspections	5
2.5.1 Coyote Spring OBTS	5
2.5.2 Milford Preferred OBTS	6
2.5.3 Milford Alternate OBTS	7
2.5.4 Beryl Preferred OBTS	8
2.5.5 Beryl Alternate OBTS	8
3.0 <u>DTN STUDIES</u>	10
3.1 Selection of DTN Route	10
3.2 Digitizing DTN	10
3.3 Location Surveying	11
3.4 Environmental Surveys	11
3.5 Geotechnical Inspections	12
3.6 Results of Geotechnical Inspections	12
3.6.1 Nevada DTN	12
3.6.2 Utah DTN	14

E-TR-59-I

LIST OF MAPS

(7.5 Minute Topographic Map Quadrangles)

Nevada DTN Route

Wildcat Wash SW
Wildcat Wash NW
Delamar 3 SW
Lower Pahranaagat Lake
Delamar 3 NW
Delamar Lake
Delamar NW
Delamar
Pahroc Spring SE

Utah DTN Route

Burns Knoll
Blue Mountain
Lund
The Tetons
Observation Knoll
Bible Spring
Beryl
Bannion Spring
Steamboat Mountain

1.0 INTRODUCTION

1.1 OBJECTIVES AND SCOPE

The field surveys consisted of preliminary geotechnical inspections and environmental surveys at proposed Operational Base Test Site (OBTS) locations, along road corridors between Designated Assembly Areas (DAAs) and OBTSs, and segments of Designated Transportation Network (DTN) corridors from Operational Base (OB) sites toward Initial Operational Capability (IOC) valleys. The purpose of the study was to determine if any significant geotechnical or environmental concerns or impacts exist which would preclude the use of the proposed sites or road corridors. The data were to be used to determine the preferred OBTS location, road locations, and DTN route and to make recommendations for relocations or route refinements.

The field surveys were to be performed at a preferred and alternate OBTS for each Main Operational Base (MOB) option at Beryl and Milford, Utah, and Clovis, New Mexico. Restrictions at the Coyote Spring, Nevada, MOB precluded the identification of an alternate OBTS location; the location studied contained two alternate layouts. Field surveys were also to be performed along the roads connecting the OBTS with either the DAA or DTN, and along DTN segments from the DAA toward the IOC valleys; these valleys are Dry Lake Valley, Nevada, and Pine and Wah Wah valleys, Utah. An alternate OBTS at the Beryl MOB, Utah, two OBTSs at the Cannon MOB, New Mexico, and major portions of the OBTS roads in Utah and New Mexico were not surveyed because

permission to enter onto the private land at the sites was not obtained prior to the end of the FY 81 field season. The following table summarizes the areas and road segments studied.

OBTS

<u>MOB</u>	<u>OBTS</u>	<u>AREA</u> (Acres/Mi ²)
Coyote		7360/11.5
Beryl	Preferred	6720/10.5
Milford	Preferred	6080/ 9.5
Central	Alternate	4162/ 6.5
Milford	Preferred	(same as Milford
South	Alternate	Central)
	TOTAL	24,322/38.0

<u>DTN/OBTS ROADS</u> (Segment)	<u>Miles (km)</u>	
OBTS - DAA Road-Coyote Spring MOB (A-CP)	4	(6.4)
DTN - Coyote Spring MOB to Dry Lake Valley (A-B)	55	(88.5)
DTN - Milford Central MOB to Pine Valley (I-D)	25	(40.2)
DTN - Beryl MOB to Pine Valley (F-D)	20	(32.2)
DTN - Milford South MOB to Jockey Road (G-Y)	10	(16.1)
OBTS - DAA Road-Beryl MOB (F-BP)	<u>9</u>	<u>(14.5)</u>
Total	123	(197.9)

All of the listed OBTSs in Nevada and Utah were surveyed for cultural and biological resources and geotechnical conditions. The entire DTN route in Nevada was biologically surveyed; only 6.6 miles (10.6 km) were surveyed for cultural resources.

The OBTS road and DTN routes in Utah were surveyed for biological resources and geotechnical conditions only; cultural resources assessments were not made of these areas.

1.2 SCHEDULE

The field surveys began 9 July 1981 with location surveying of the DTN in Nevada. Location surveying of the DTN in Utah began 24 August 1981. Environmental surveys were conducted from 13 July through September 1981. Geotechnical inspections were conducted in the last half of September 1981.

2.0 OBTS STUDIES

2.1 SELECTION OF OBTS LOCALITIES

A detailed discussion of the methodology and criteria used for selection of the OBTS locations is presented in the OBTS/DTA Siting Report (E-TR-58). The locations of the OBTSs are on the maps presented as part of the Land Acquisition Package.

Operational, geotechnical, geographical, and environmental criteria for the OBTS were applied to establish "siteable" areas in the vicinity of the MOBs. The OBTSs were sited in windows that were not excluded from consideration. With the exception of Coyote Spring MOB, two OBTS locations were identified for each MOB site to provide alternate choices to satisfy Tier IIA requirements.

2.2 SURVEY LOCATIONS

The OBTS area to be surveyed consisted of an envelope that encompassed all site locations and a 1/4-mile- (0.4-km) wide buffer zone. The OBTS polygons were plotted on 1:62,500 scale maps and the land status of the site locations determined. Pursuant to the Cooperative Agreement between the Air Force and the BLM, Letters of Authorization were obtained prior to the field surveys. Permission to enter private land was being obtained by the Corps of Engineers. At the time the field surveys were terminated, permission to enter private land had not been obtained for Utah or New Mexico. The alternate OBTS at Beryl and all sites in New Mexico were not surveyed for this reason.

2.3 ENVIRONMENTAL SURVEYS

A more complete description of the methodology used for the environmental surveys is presented with the environmental data, contained Volumes II and III of this report.

2.4 GEOTECHNICAL INSPECTIONS

The geotechnical inspections consisted of visual surveys of the general area of the OBTS. The map scale used to site the OBTS precluded locating any specific facility in the field and assessing site-specific conditions. Observations were made of soil type, erosion and flooding potential, excavatability, slope, and depth to rock at several different locations along a transect through the site.

2.5 RESULTS OF GEOTECHNICAL INSPECTIONS

2.5.1 Coyote Spring OBTS

The Coyote Spring OBTS is located on a highly dissected bench between two major washes and a mountain range. Although the surface slope is essentially flat (one to two percent), large washes up to 20 feet (6 m) deep cut across the proposed site. However, the OBTS facilities can be sited in areas with washes having an average depth of 8 feet (2 m). The surface material is predominantly older alluvial fan deposits which consist of very sandy gravel. The density of the surficial soils is generally in the medium-dense to dense range. Lenses and layers of caliche cementation frequently exist in the fan deposits. The cementation might present difficulties in excavating and grading. Cobbles and boulders make up approximately 10 percent

of the unit. The two easternmost shelters are sited close to potential flooding areas.

More detailed data of the site can be found in the Coyote Spring MOB report (E-TR-43). The site is acceptable for the planned facilities.

2.5.2 Milford Preferred OBTS

The Milford preferred OBTS is located on a flat to gently rolling bench area at the base of a series of hills and mountains. The OBTS polygon is characterized by alluvial fan deposits, predominantly young in age, although some areas of intermediate alluvial fans, to the east, are present. The site generally slopes approximately three percent, although the middle portion of the site is almost flat, with a slope of less than one percent. Some sheet flow may be expected, especially in the middle portion of the site, although flow should be concentrated in the well-defined channels that range from less than 1 foot (0.3 m) deep in the north to 3 feet (1 m) deep in the east. A 5- to 6-foot (1.5- to 2-m) deep wash with vertical walls trends NE-SW across the eastern portion of the polygon and will require drainage structures if the roads cross it.

The surface is characterized by poor to moderate surface lag gravel development. The surface gravels range from having moderate caliche coatings in the north to none in the southeast. The soils are composed mostly of medium-dense, fine to medium sand. The silt content gradually increases from the north to the southeast, ranging up to approximately 15 percent.

The northern portion of the polygon contains approximately three percent cobbles and has boulders near the drainage channels. The rest of the site does not contain any surface cobbles or boulders.

Based on geotechnical factors, the preferred layout is within the southern and eastern part of the OBTS polygon.

2.5.3 Milford Alternate OBTS

The Milford alternate OBTS is located in a basin formed by rock outcrops forming low-lying hills. Although the bedding of the rock is away from the basin, the potential for shallow rock under the site is high. The surface slopes less than three percent and is gently rolling. The OBTS polygon is characterized by young sandy alluvial fan deposits, with some lag gravels at the surface. The surface gravels have caliche coatings, which may indicate moderate to slight caliche cementation at depth. Cobbles comprise approximately three to five percent of the soils. Some sheet flow may be possible, but surface flow will mainly be confined in well-defined washes, 2 to 3 feet (0.6 to 1 m) deep. The channels contain heavy concentrations of gravels at the bottom and are perpendicular to the conceptual roads network of the preferred layout. Some drainage diversion or channelization will be required if any facilities or roads cross the drainages. The Milford alternate OBTS is acceptable as sited. Additional subsurface work to define the depth to rock will be necessary prior to design studies.

2.5.4 Beryl Preferred OBTS

The northern part of the Beryl preferred OBTS is located in a mixed area of rugged terrain, with washes up to 5 feet (1.5 m) deep, while the southern end is characterized by gently rolling terrain with small washes cutting through the site. Both conceptual layouts within the OBTS polygon are within both topography types; major construction considerations will be drainage crossings and considerable grading work. The surface slopes up to three percent and consists of sandy silts and silty sands characteristic of intermediate alluvial fan deposits. Erosion of silty deposits in the road beds resulted in deep ruts. These silty deposits should be taken into account in the design studies. Drainage is concentrated along well defined channels; sheet flow should not be a problem.

The OBTS facilities can be sited in this area, although determination of the preferred layout will require additional field studies.

2.5.5 Beryl Alternate OBTS

Geotechnical inspections of the Beryl alternate OBTS were made from existing roads; access to private land was not required for the surveys. The topography at the Beryl alternate OBTS is essentially flat, with a slope of one to two percent. The surface is characterized by minor development of surface lag gravels. The medium-dense sandy soils are deposits of young alluvial fans. In minor areas, the sands are mixed with old lake bed deposits composed of silts. The western edge of the

OBTS polygon is sandier, with defined washes 1 to 2 feet (0.3 to 0.6 m) deep. The rest of the study area will be subject to sheet flow across the surface. The site is suitable for the OBTS.

3.0 DTN STUDIES

3.1 SELECTION OF DTN ROUTE

The DTN routes for the system were studied and selected by the DTN Working Group, consisting of technical personnel from Ertec Western, TRW, Martin Marietta, R. M. Parsons, HDR, COE, and AFRCE. The areas to be studied for the field surveys included those segments that would connect the MOB or DAA with the IOC valleys; the main purpose of this plan was to provide a complete and feasible package for construction of the first phase of the system and to support Tier IIA requirements.

A more detailed discussion of the proposed DTN route is included in the DTN Siting Report (E-TR-58).

3.2 DIGITIZING DTN

The selected DTN route was transferred from 1:62,500 conceptual alignments to the most detailed map scale available. Most of the area is covered by 7-1/2 minute topographic maps (1:24,000). The alignment through Delamar Valley was transferred to 1:9600 scale maps. The transferred alignments were submitted to the DTN Working Group for approval and refinements to the alignment. From these maps, the intersection points between straightline segments, Points of Intersection (PI) were digitized. The latitude and longitude of the PIs were translated into the appropriate State Plane coordinate system. Segments of the DTN that coexist with existing roads were not digitized since the existing alignment was followed for the route.

3.3 LOCATION SURVEYING

The DTN PIs were location-surveyed to third order accuracy (1 foot in 5000 feet) from known, existing control points. The PIs were numbered and marked with an aluminum cap on a rebar driven flush with the ground, a metal fence post, and access flagging. Additional markers, located by vehicle odometer, were set at 1/4-mile (0.4-km) and 1-mile (1.6-km) intervals along the DTN route that did not coexist with an existing road. These additional stations were necessary to locate environmental survey and transect locations and for reference purposes.

The DTN had several different degrees of flexibility along its route. Where no limitations are present, 2-mile (3-km)-wide corridors, 1 mile (1.6 km) to either side of the staked centerline, were considered the study area. This entire width was studied, with the idea that during the design phase, the actual DTN route could be located anywhere within the 2-mile (3-km)-wide corridor. In some areas, the route was fully restricted due to clustering in the valley, wilderness areas, wilderness study areas, mining claims, etc. These restrictions dictated that the DTN route could not be moved a great deal within the study corridor. The actual corridor width was determined by the nature of the restriction and the standoff distance specified by AFRCE.

3.4 ENVIRONMENTAL SURVEYS

A discussion of the environmental surveys is included in Volumes II and II of this report.

3.5 GEOTECHNICAL INSPECTIONS

Geotechnical inspections consisted of visual surveys along the DTN centerline to identify any features that would impact the proposed routing, such as major washes, playas, fine-grained soils with low-bearing capacity, fault traces, etc. Identification of any of these features would be used to make recommendations for relocations. The geotechnical inspections, however, were not for the purpose of collecting design data but to refine the DTN alignment and to identify any "fatal flaws" along the route.

3.6 RESULTS OF GEOTECHNICAL INSPECTIONS

3.6.1 Nevada DTN

The DTN between the Coyote Spring MOB and Dry Lake Valley (segment A-B) was visually surveyed along the portions that coexist with roads. The portions of the route which are not along existing roads were evaluated at several points by transects perpendicular to the alignment. The actual staked centerline for off-road segments was not continuously surveyed.

The findings of the geotechnical inspections are presented on the attached maps. In general, the DTN is feasible along the proposed route. More detailed design studies will be necessary to determine the best routing based on requirements such as balance of cut-and-fill and drainages for the segments from Highway 93 at Maynard Lake to the bottom of Delamar Valley at Delamar Pass. The terrain through this area is extremely rugged, and grades up to seven percent are present. Another problem occurs where the DTN crosses Delamar Lake, which is

composed of very fine silts and clays. The soils erode easily both from mechanical and fluvial processes. They are also characterized by a moderate to high shrink-swell potential and low-bearing value when flooded. An elevated roadway is necessary to provide adequate base course material, to reduce the bearing pressure on the in-situ soils, and to avoid flooding. The northern segment of the DTN, from the power substation, marked on the map to Dry Lake Valley cuts across the alluvial fan surface and many well-established drainage channels. These channels tend to produce a "roller-coaster" effect along the road, with 3- to 4-foot (0.9- to 1.2-m) deep washes occurring approximately every 0.3 to 0.4 mile (0.5 to 0.6 km). Sheet flow across the road surface is common. Ponding in small localized areas is also evident. Numerous drainage diversions along this segment of the route will be necessary.

For most of the route, with the exceptions noted above and marked on the maps, the soil in Delamar Valley is composed of sandy silt or silty sand with varying amounts of gravel and cobbles. The soils in Coyote Spring Valley are composed of silty sand and sandy gravel. Boulders are common in the mountain pass where the soil cover is very thin and rock is close to the surface.

The route as surveyed is feasible; however, more detailed design studies, using large-scale topographic maps, will be required to maximize balance of cut-and-fill and minimize drainage works.

3.6.2 Utah DTN

Several segments of the DTN in Utah, identified as I-D, G-Y, and F-D on the maps, were visually surveyed. The portions that are not along existing roads were evaluated at several points by transects perpendicular to the alignment, but was not continuously surveyed.

The DTN routes surveyed are topographically restricted in many locations by mountains and rock hills, limiting the flexibility for optimizing the route. Generally, the route is feasible and constructible along its entire length. The route is crossed many times by an active stream within Miller Meadows. In many places, the road and stream banks are heavily eroded and undercut. This area will require rechannelization of the stream or many drainage culverts along the route. The same problem exists near the north end of Blue Mountain along Segments I-D and G-Y and at other areas identified on the maps.

Minor areas, especially by Red Hill, will require extensive cut-and-fill to reduce the grade.

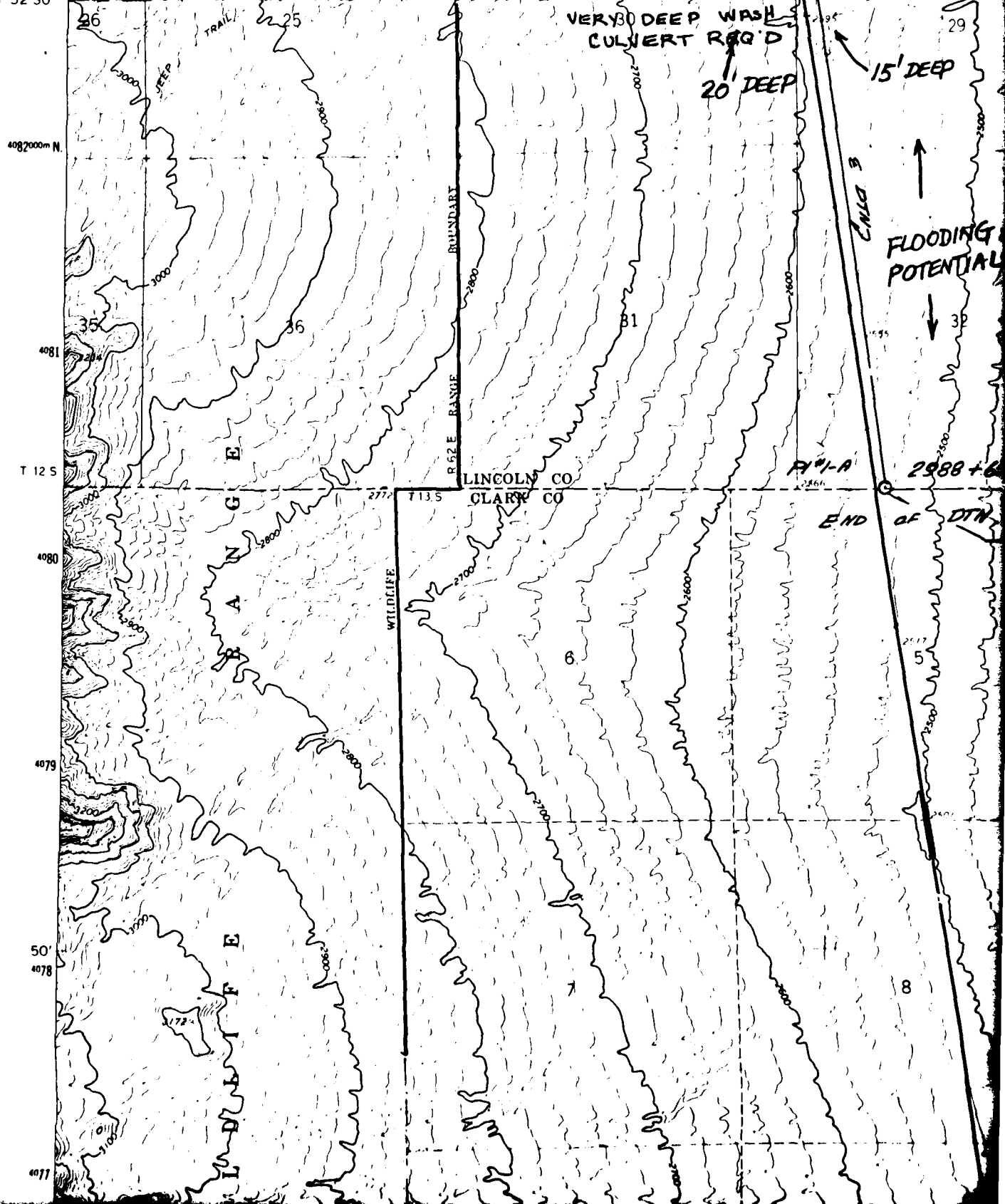
A major crossing structure at Meadow Spring (along Segment F-D) will be required where the DTN crosses Mountain Spring Wash. The wash at this location is more than 50 feet (15 m) wide with vertical walls approximately 30 feet (9 m) deep at the maximum.

Detailed design studies, utilizing large-scale topographic maps, will be required prior to construction to minimize drainage works, maximize balance of cut-and-fill, and optimize the route.

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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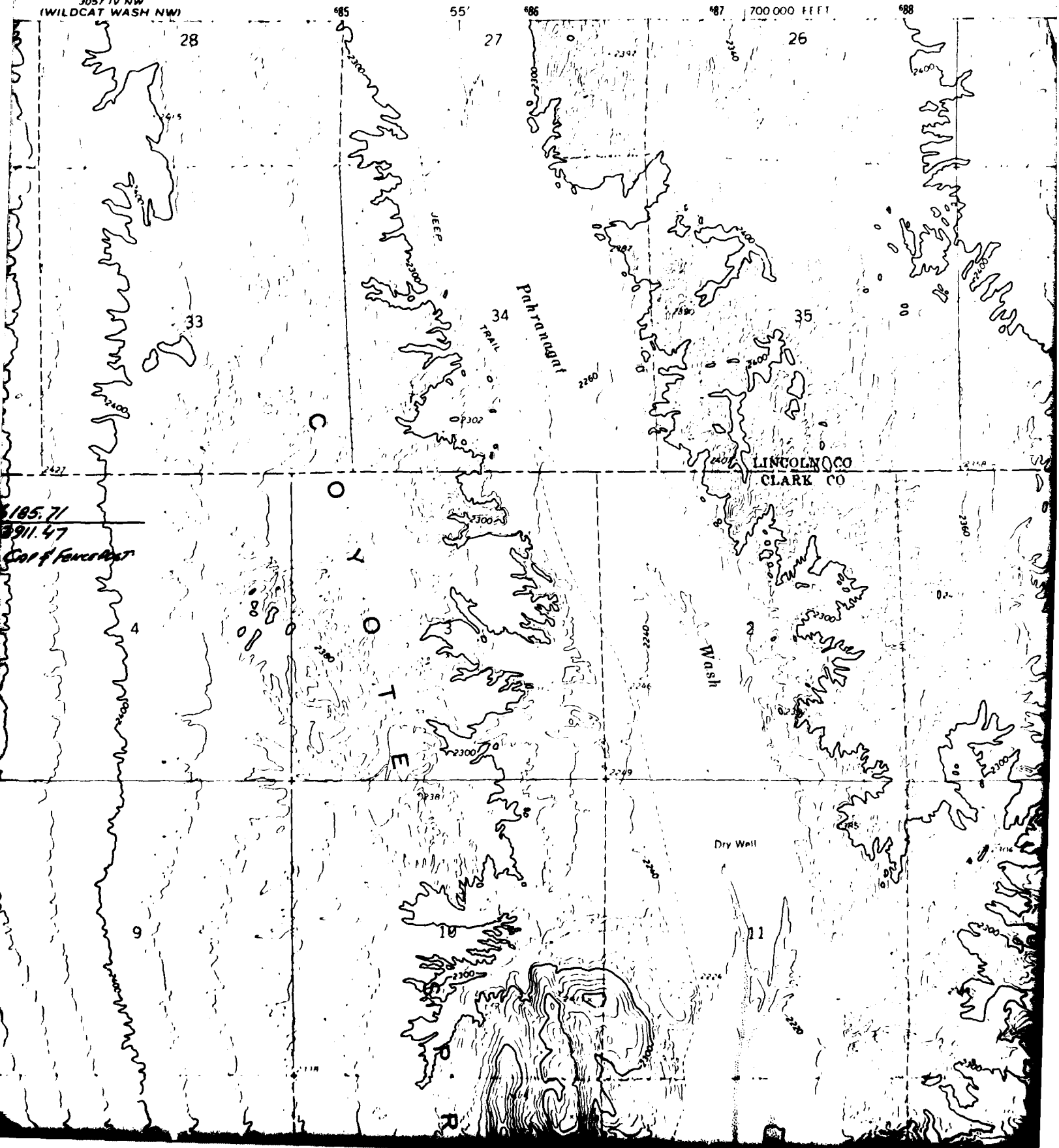
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**BTS FIELD SURVEYS
NEVADA DTN
SEGMENT A-B**

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NEVADA
7.5 MINUTE SERIES (TOPO**

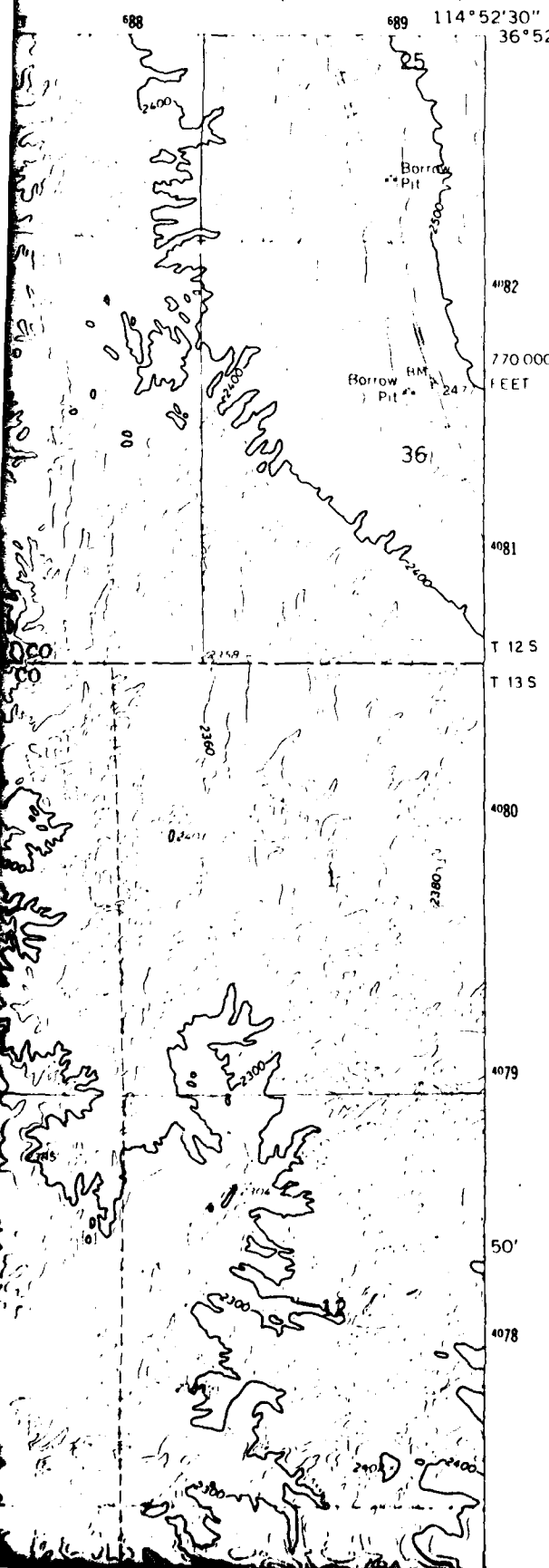
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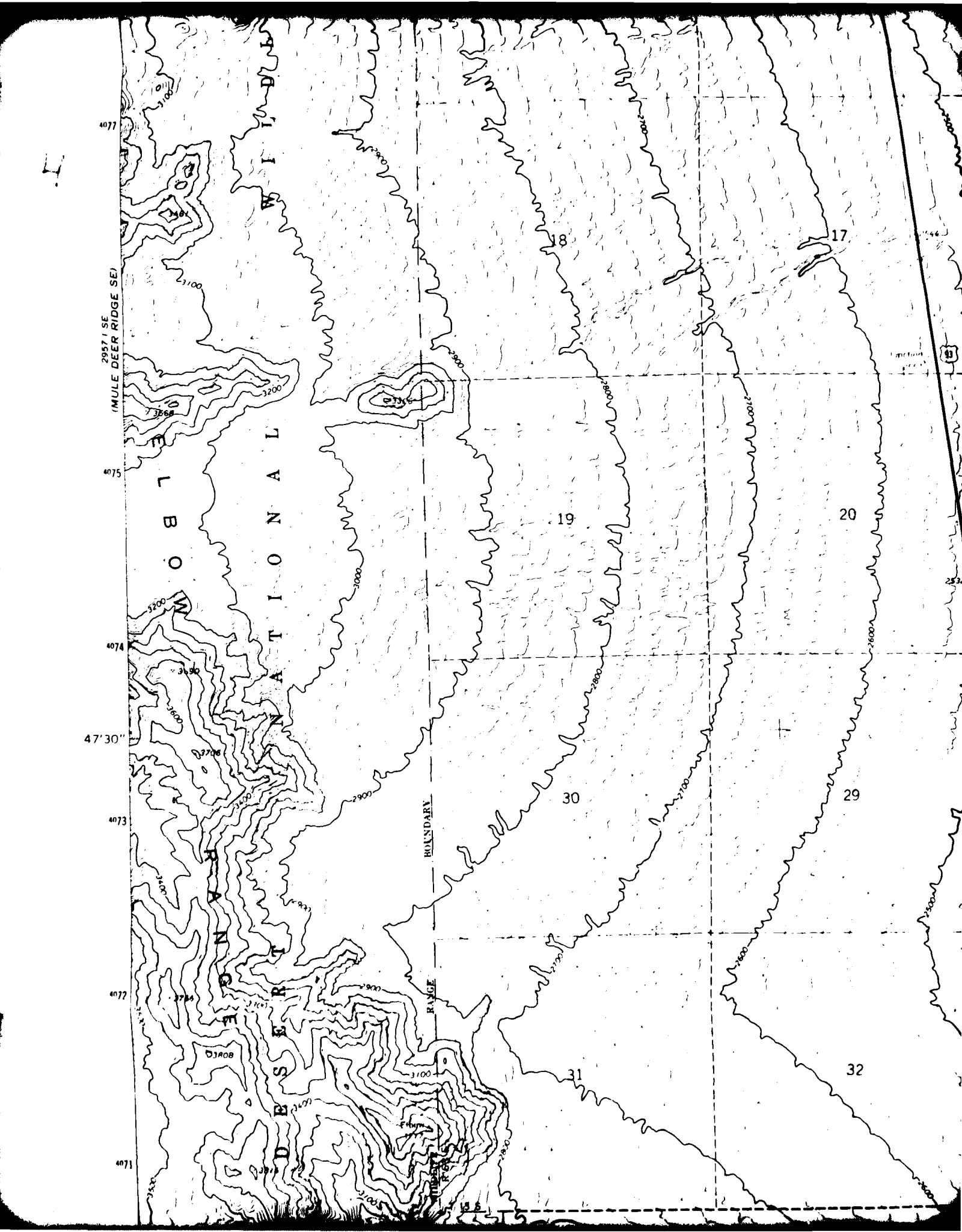
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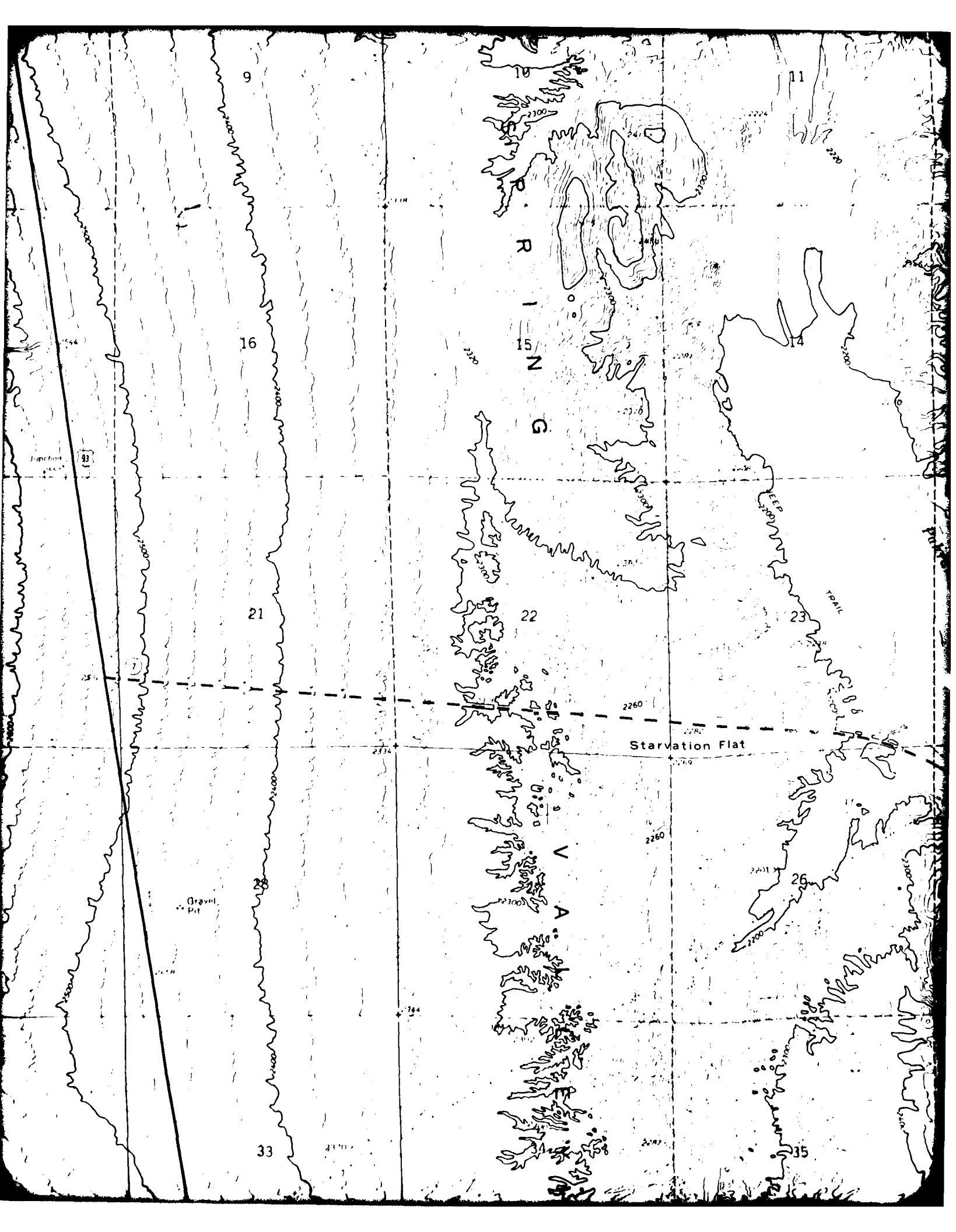


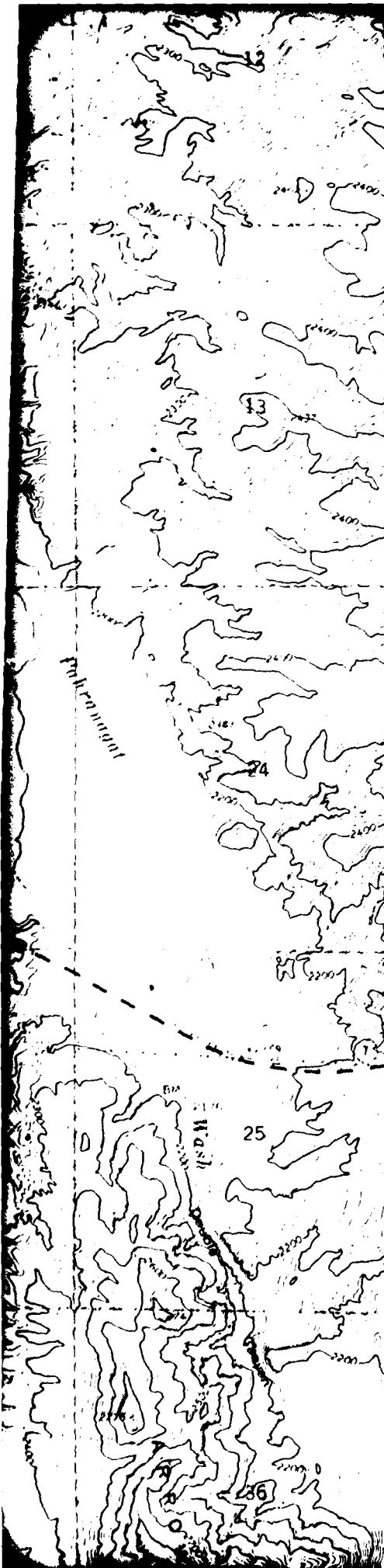
WILDCAT WASH SW QUADRANGLE
NEVADA
7.5 MINUTE SERIES (TOPOGRAPHIC)

3057 IV NE
(WILDCAT WASH NE)









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4077

WILDCAT WASH SE
JUST IV SE

4075

4074

47° 30''

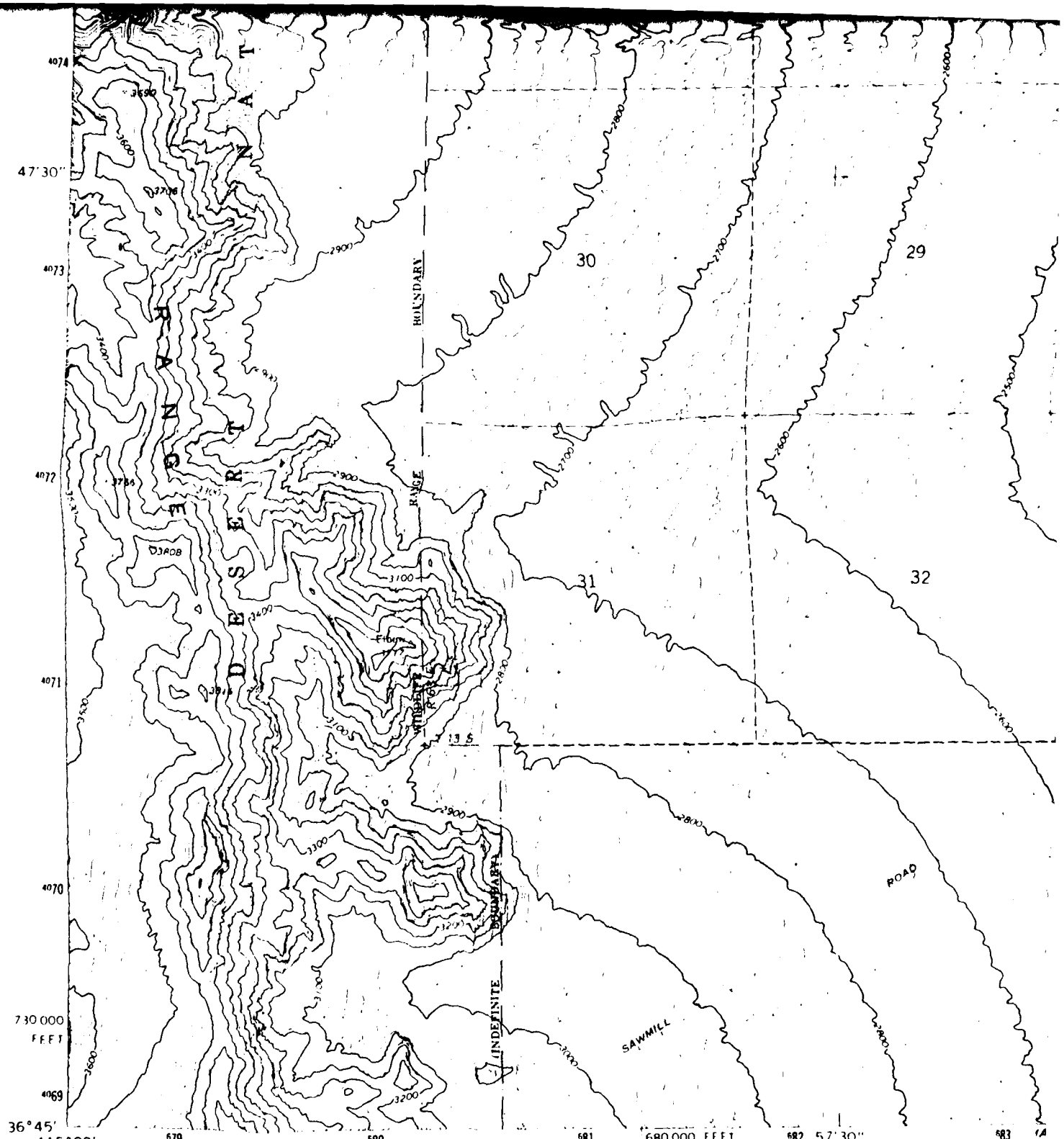
MOAPA 30 MI
23 MI TO INTERSTATE 75

4072

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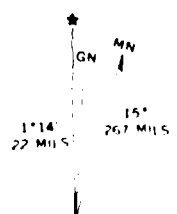
25

26



2957 II
 HAYFORD PEAK
 1:62,500

Mapped, edited, and published by the Geological Survey
 Control by USGS and USC&GS
 Topography by photogrammetric methods from aerial
 photographs taken 1967. Field checked 1969
 Polyconic projection 1927 North American datum
 10,000 foot grid based on Nevada coordinate system, east zone
 1000 meter Universal Transverse Mercator grid ticks,
 zone 11, shown in blue
 Where omitted, land lines have not been established



UTM GRID AND 1969 MAGNETIC NORTH
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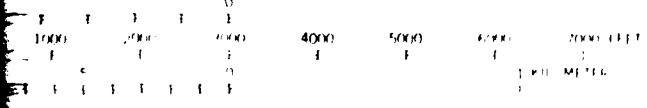
THIS
 FOR SALE BY U.S. GEOL.
 A FOLDER OF SC.

7



LOW CANYON (62 500) 28 MI TO INTERSTATE 15
3057 III NORTH LAS VEGAS 47 MI

SCALE 1:24,000



CONTOUR INTERVAL 20 FEET
(EATHIM IS MEAN SEA LEVEL)

ROAD CLASSIFICATION

Primary highway hard surface	Light improvement
Secondary highway hard surface	Unimproved
() Interstate Route	() U.S. Route

NEVADA
QUADRANGLE LOCATION

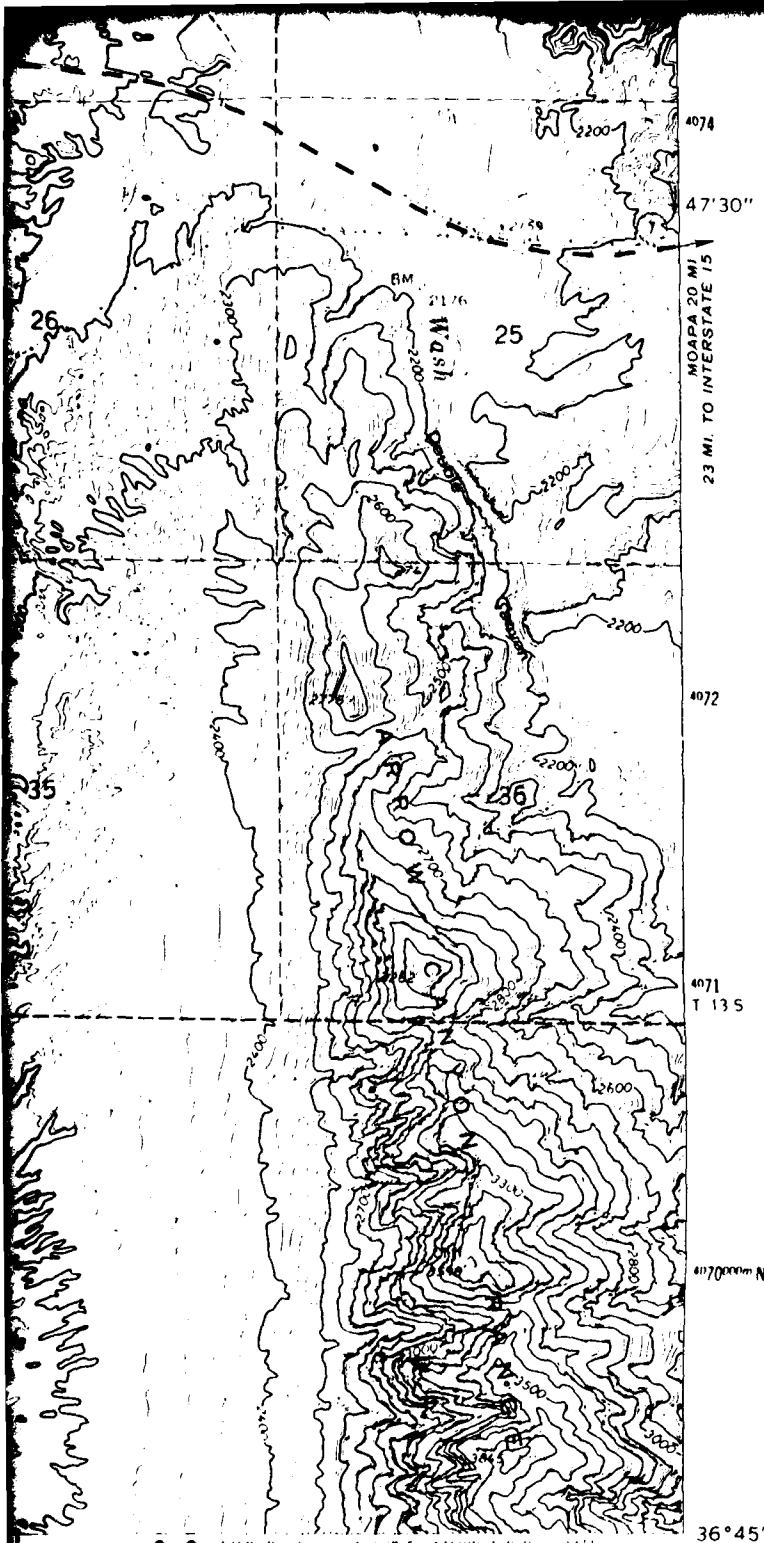
COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
CAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D.C. 20242
NO TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Ertec
The Earth Technology Corporation

WILDCAT
N364

AMS 305

8



ROAD CLASSIFICATION

- Primary highway, hard surface
- Secondary highway, hard surface
- Light duty road, hard or improved surface
- Unimproved road
- () Interstate Route
- () U S Route
- () State Route

3057 (1162500)
 (ARROW CANYON)

WILDCAT WASH SW, NEV.

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1969

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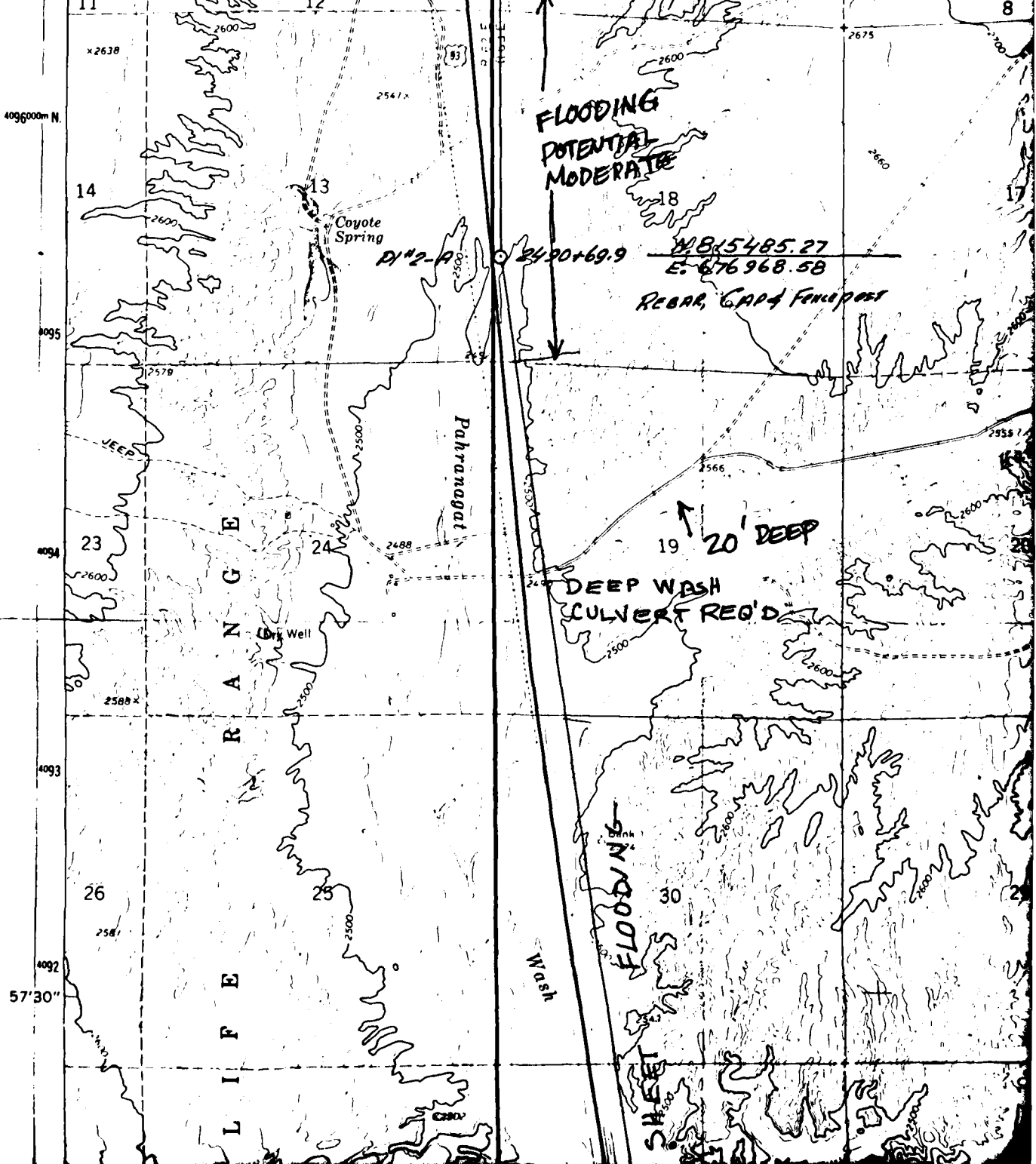


9

2838 11 SE
(LOWER PAHRANAGAT LAKE SE)

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115°00' 37°00' 679000m E. CALIENTE 82 MI. ALAMO 28 MI. 981 57'30" 982



FLOODING
POTENTIAL
MODERATE

N.B. 5485.27
E. 676968.58
REBAR CAP & FENCE POST

20' DEEP
DEEP WASH
CULVERT REQ'D

FLOODING
SHEET

P A H R A N A G A T
L I F E

Coyote Spring

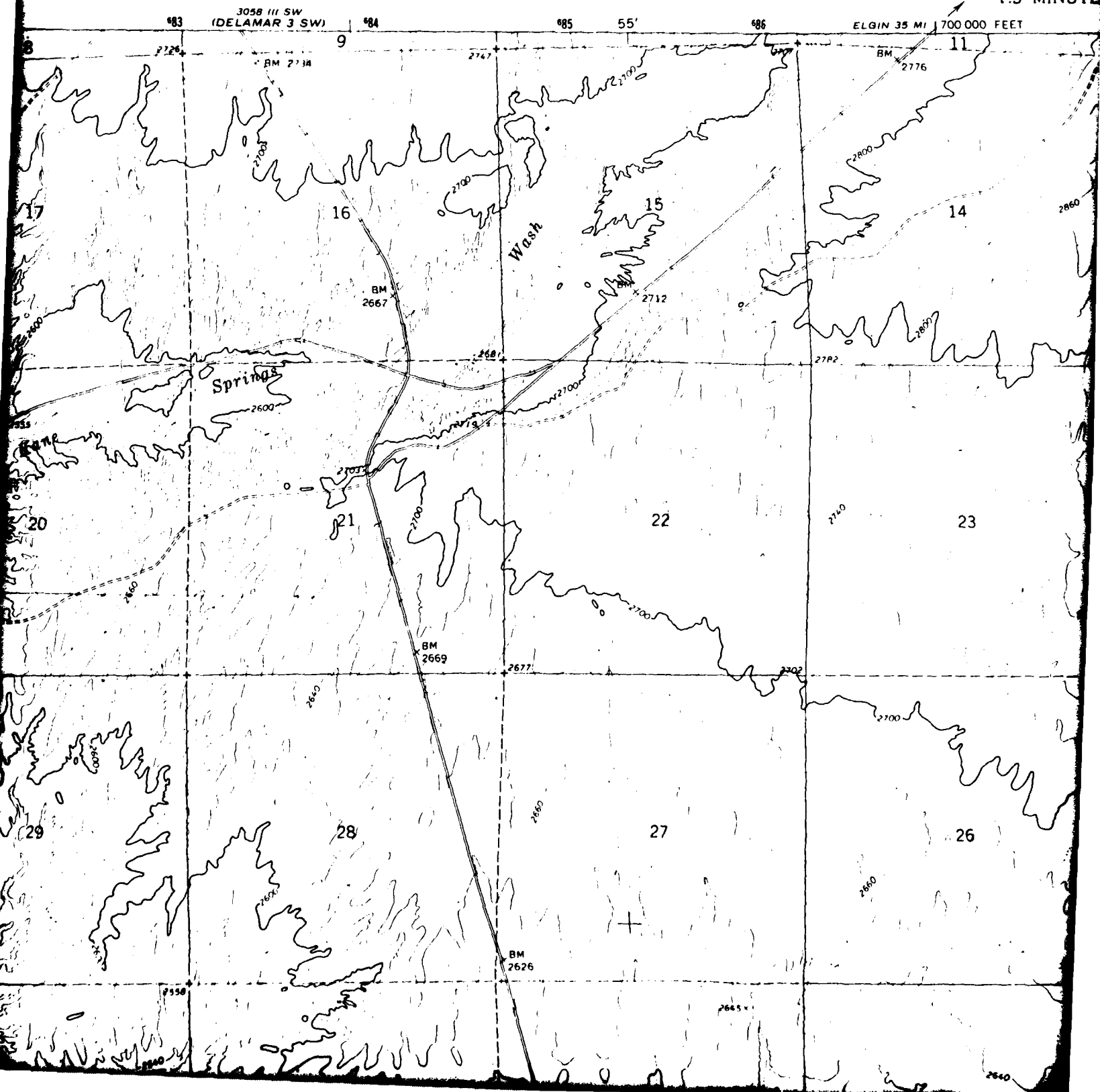
Dry Well

Wash

2

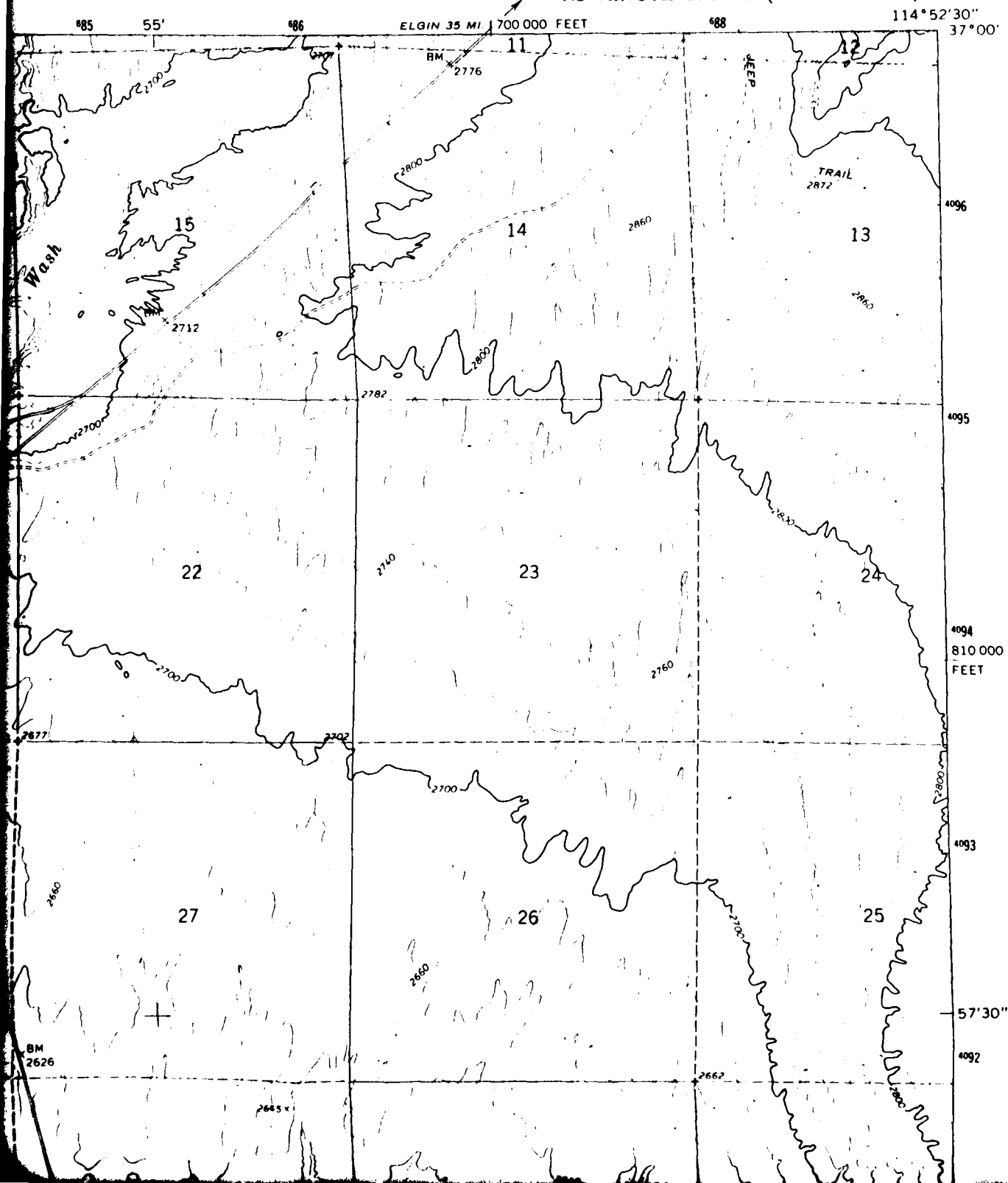
DTN/OBTS FIELD SURVEYS NEVADA DTN SEGMENT A-B

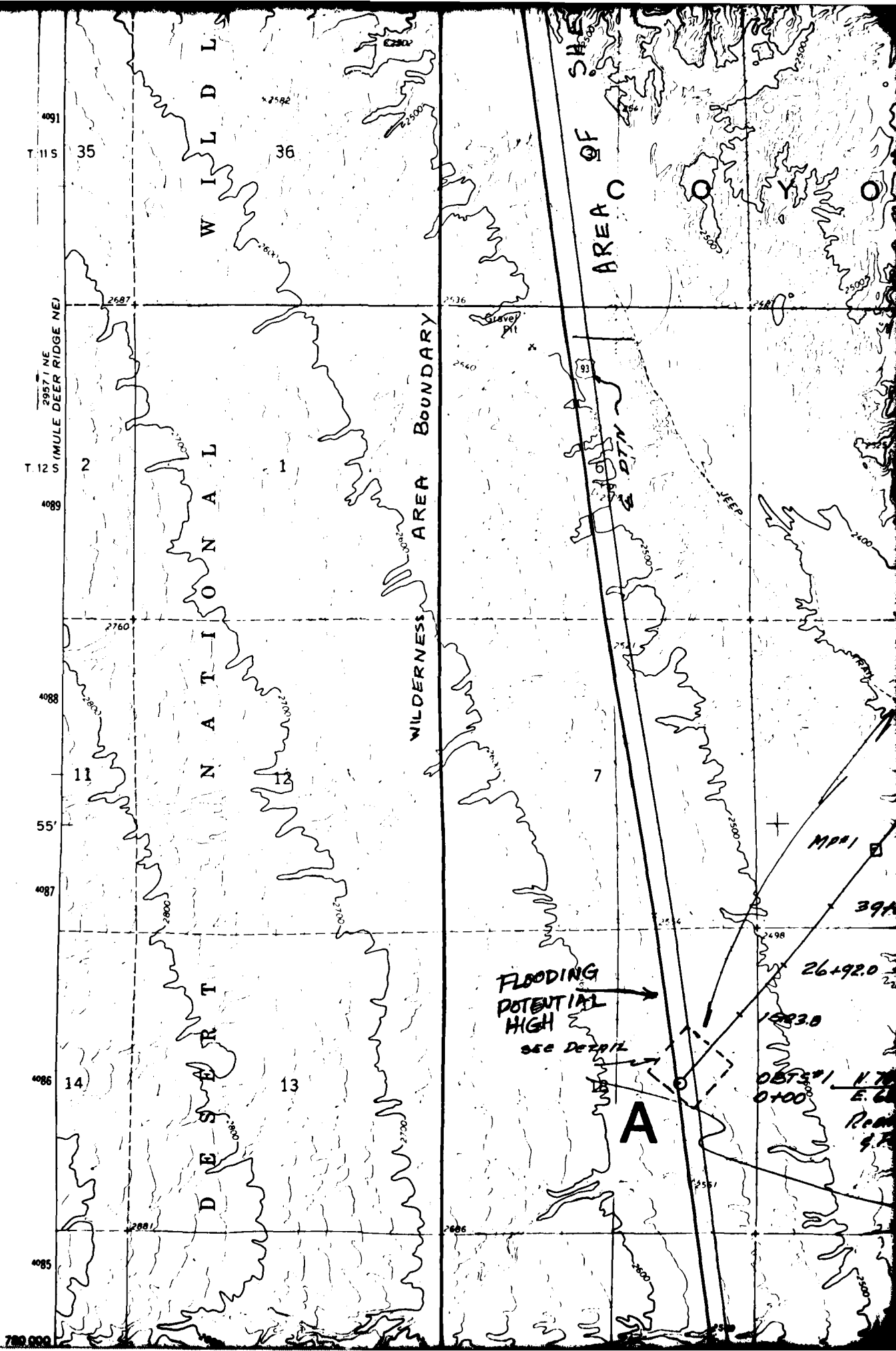
WILDCAT W
NEV
7.5 MINUTE



WILDCAT WASH NW QUADRANGLE
NEVADA-LINCOLN CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

3028 11 SE
(DELMAR 3 SE)





W I L D L A N D

N A T I O N A L

D E S E R T

WILDERNESS AREA BOUNDARY

AREA OF SHE

T 11 S

T 12 S

55'

4085

4085

35

2

11

14

36

1

13

7

2687

2760

4087

2881

2536

2760

4087

2886

FLOODING
POTENTIAL
HIGH

SEC DETAIL

A

MPII

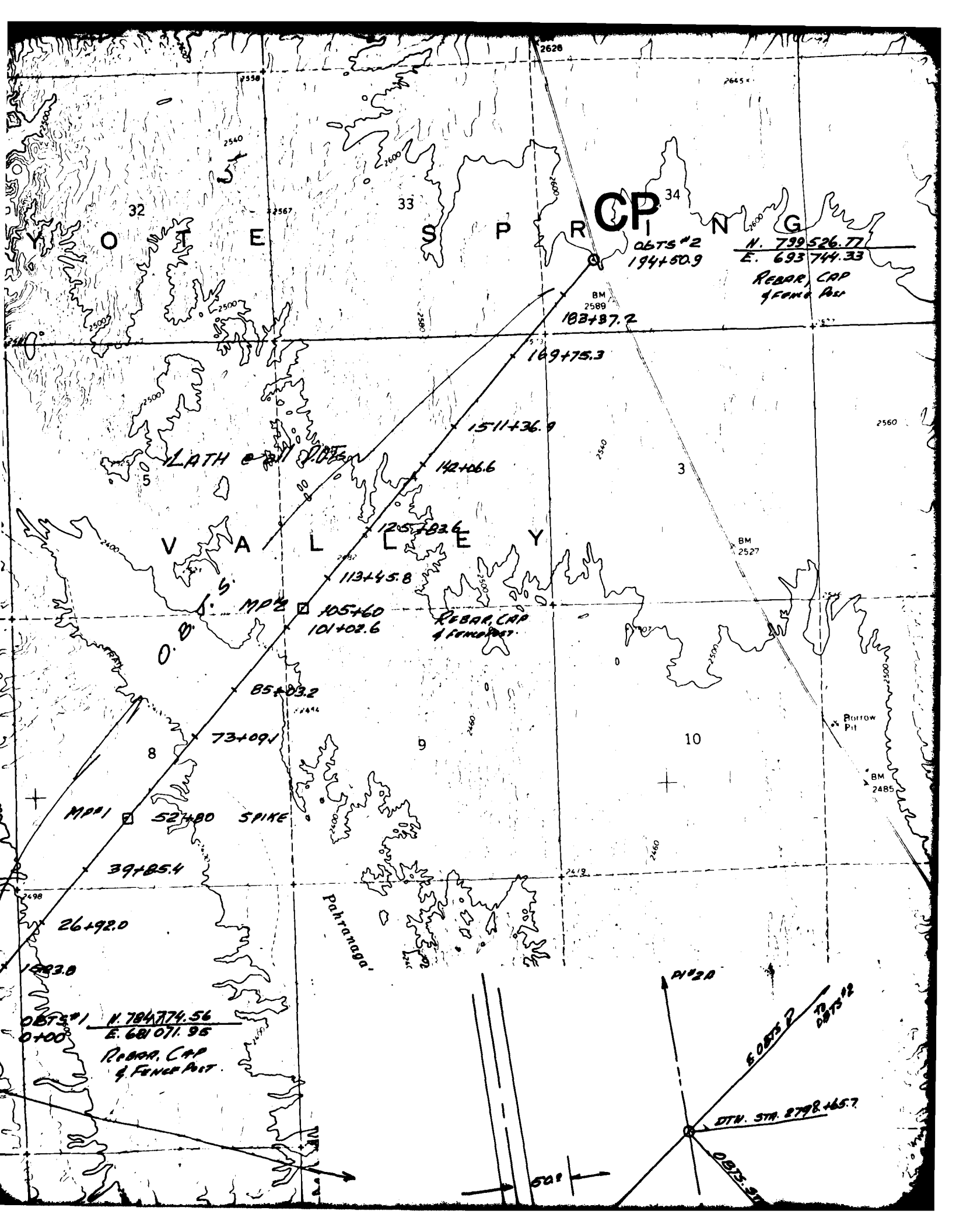
39A

26+92.0

1223.0

0575' 1.70
0+100' E. 60
Road
G.T.

780 030



CP
OBT'S #2
194+50.9
N. 799 526.77
E. 693 744.33
REBAR, CAP
& FENCE POST

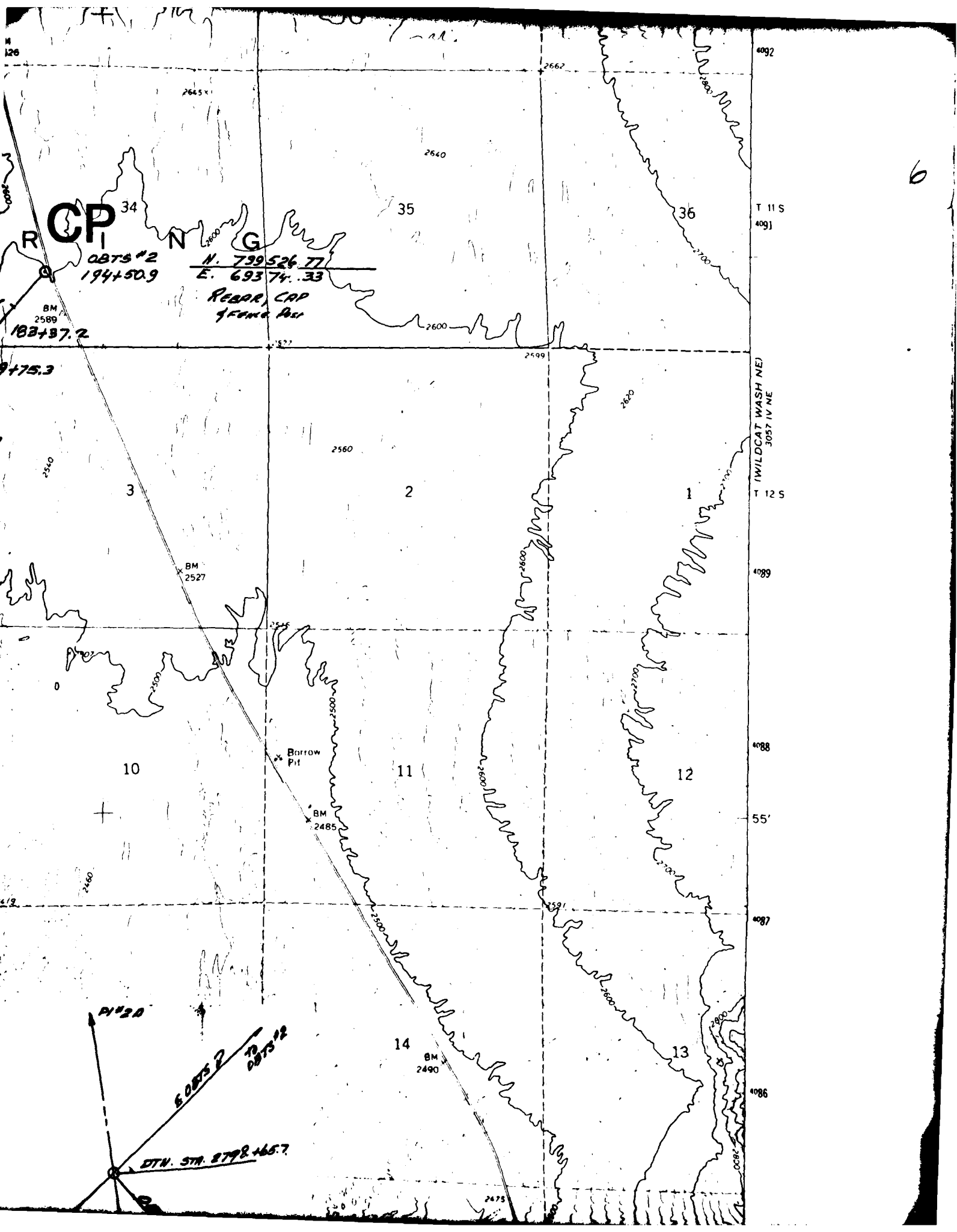
LATH
V A L L E Y
MP#2
105+60
101+02.6
REBAR, CAP
& FENCE POST

MP#1
52+80 SPIKE
39+85.4

OBT'S #1
0+00
N. 784 774.56
E. 681 071.95
REBAR, CAP
& FENCE POST

DTM. STA. 8798 +65.7

500



6

RCP

OBTS #2
194+50.9

N. 799 526.77
E. 693 74.33

REBAR, CAP
FENCE RUN

BM 2589
182+87.2

9+75.3

BM 2527

Borrow Pit

BM 2485

BM 2490

PI #20

OBTS #2
TO
OBTS #2

DTH. STA. 8798.165.7

WILDCAT WASH NE
3057 IV NE

4089

4088

55'

4087

4086

4092

T 11 S
4091

T 12 S

N 126

2645

2640

2662

2680

34

35

36

3

2

1

10

11

12

14

13

2612

2460

2545

2560

2599

2620

2600

2600

2591

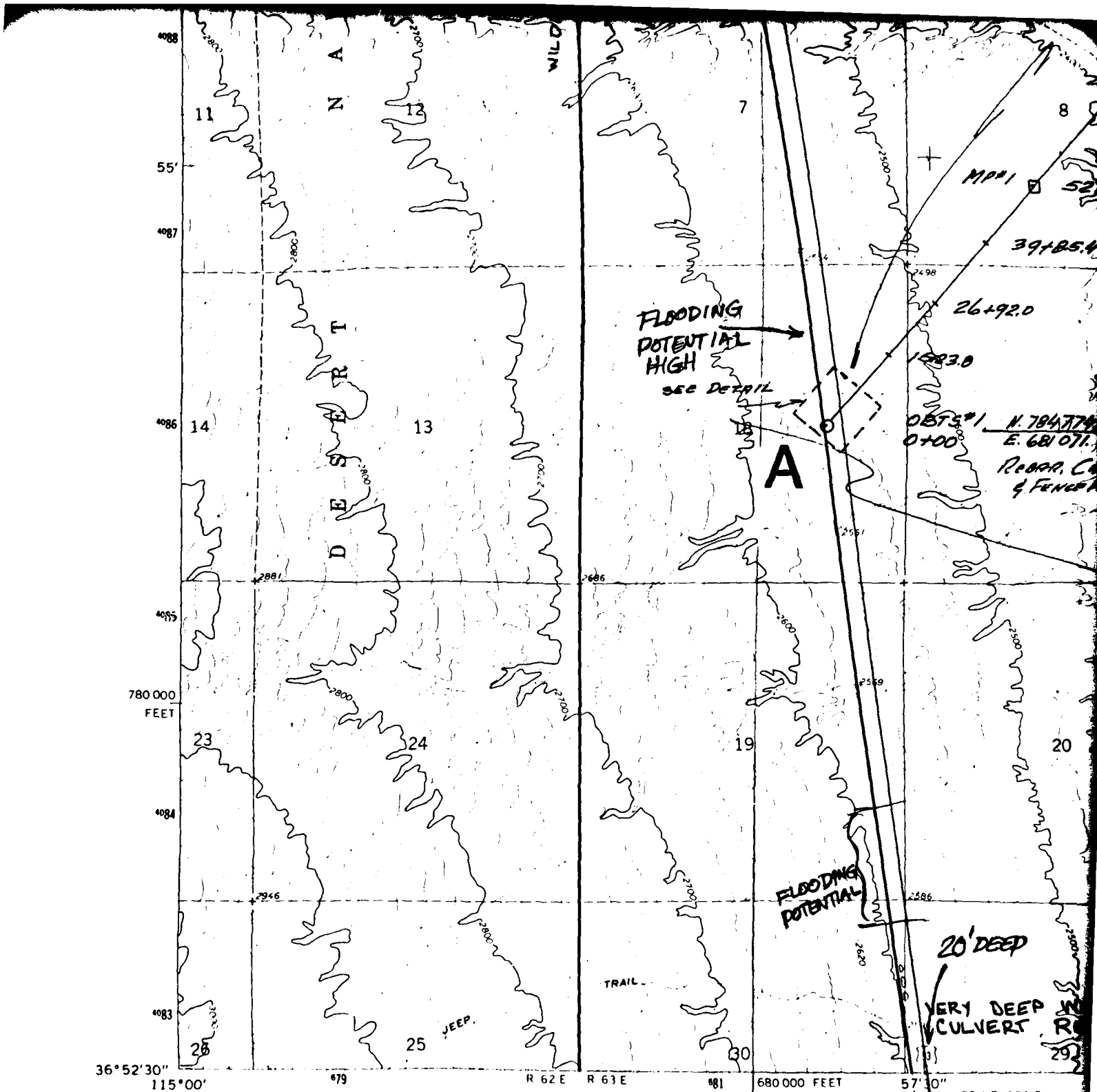
2500

2600

2600

2600

2475



MULE DEER RIDGE SE
2957 1 SE

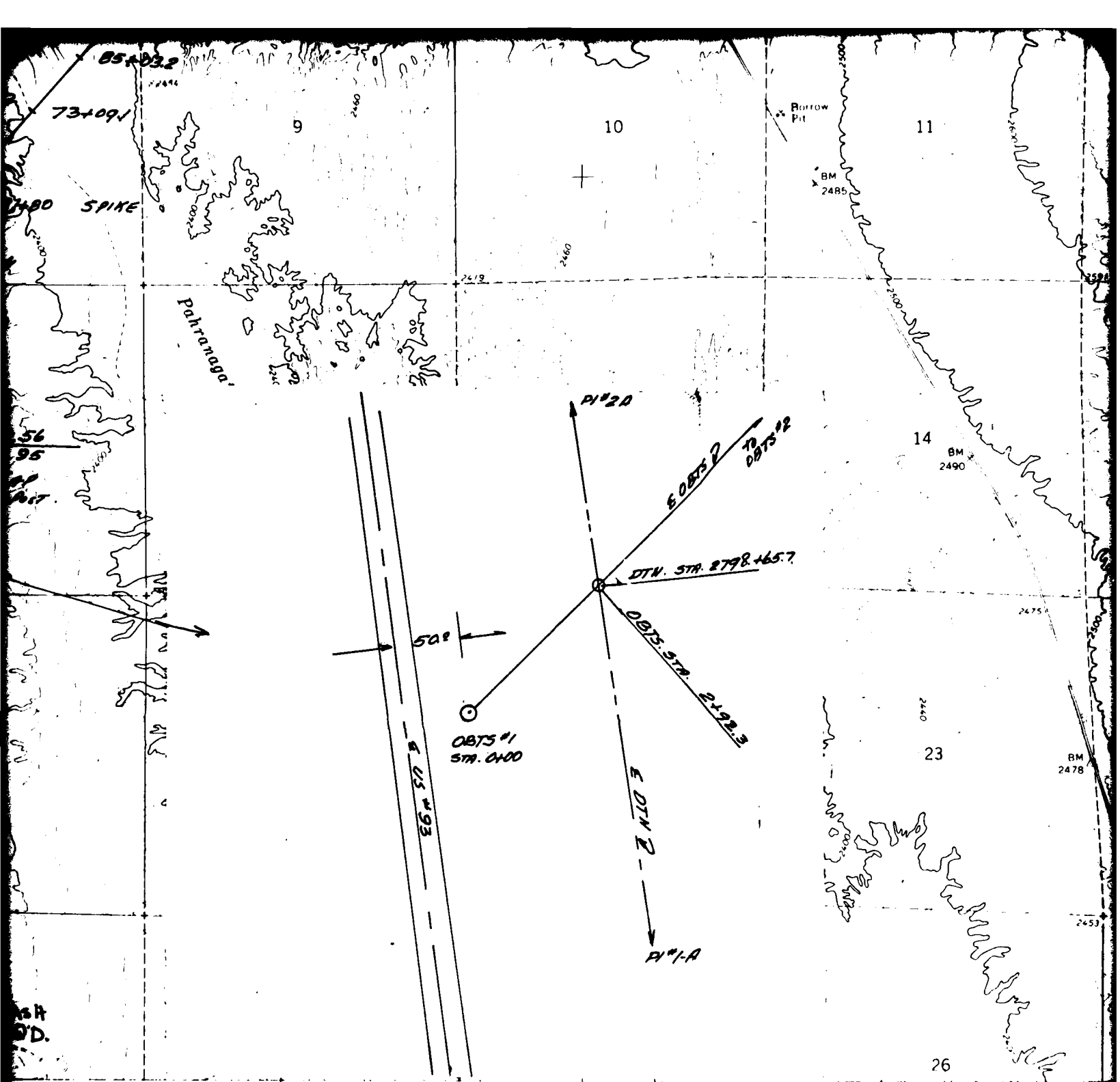
Mapped, edited, and published by the Geological Survey
 Control by USGS and USC&GS
 Topography by photogrammetric methods from aerial
 photographs taken 1967. Field checked 1969
 Polyconic projection. 1927 North American datum
 10,000-foot grid based on Nevada coordinate system, east zone
 1000-meter Universal Transverse Mercator grid ticks,
 zone 11, shown in blue

1" = 14' 22 MILS
 15 1/2" = 276 MILS

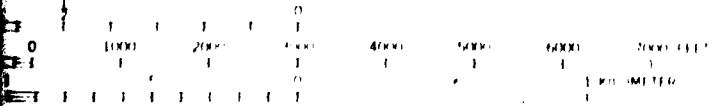
UTM GRID AND 1969 MAGNETIC NORTH
 DECLINATION AT CENTER OF SHEET

FOR SALE BY U.S.
 A FOLDER

7



(WILDCAT WASH SW)
3057 IV SW
SCALE 1:24,000



CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASS
 Primary highway, hard surface ———
 Secondary highway, hard surface - - -
 Interstate Route () U

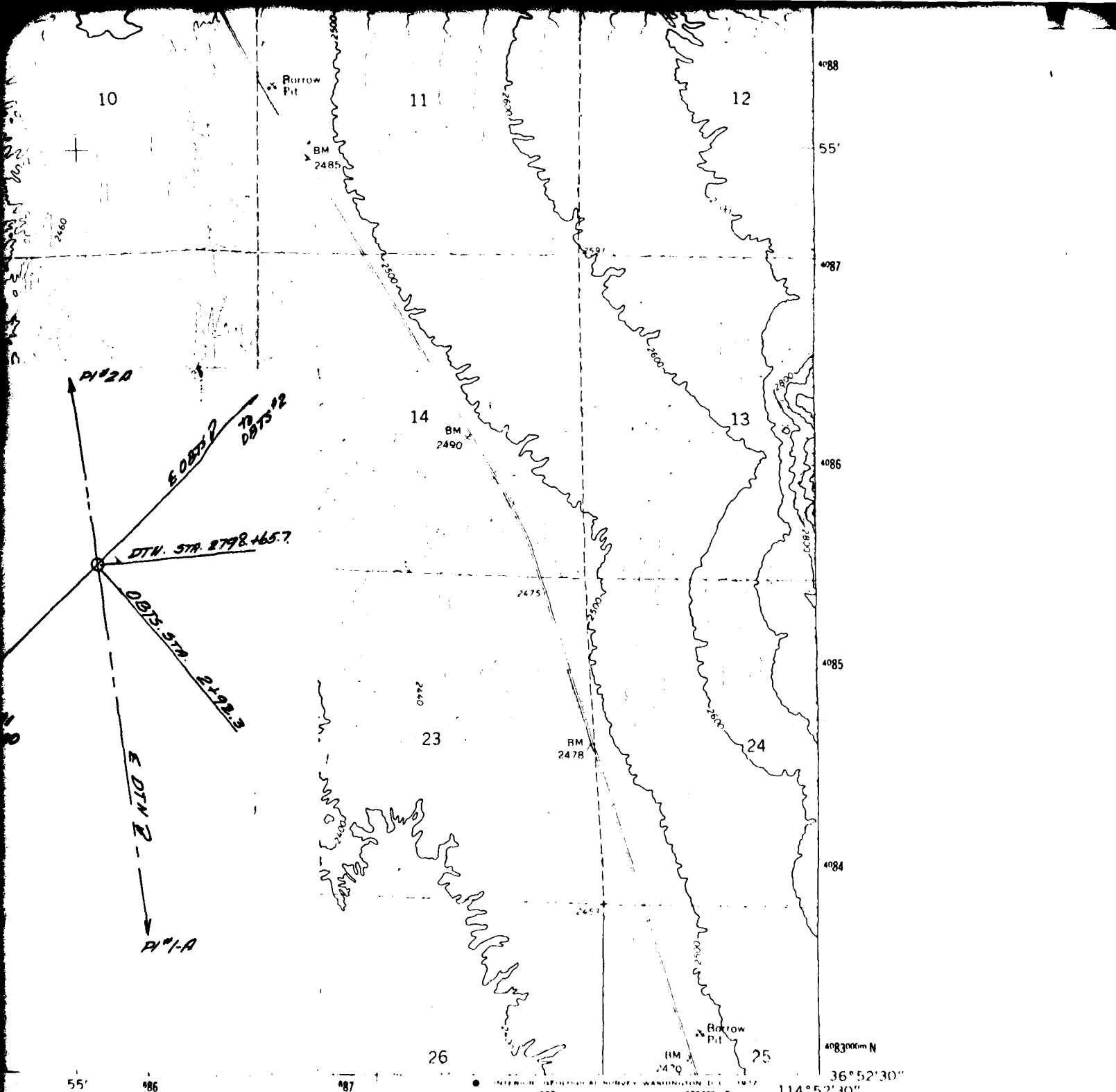


QUADRANGLE LOCATION



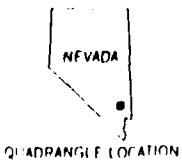
WILDCAT

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
 GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
 DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



ROAD CLASSIFICATION

- Primary highway, hard surface
- Secondary highway, hard surface
- Light duty road, hard or improved surface
- Unimproved road
- () Interstate Route
- () U S Route
- () State Route



C. 20242



WILDCAT WASH NW, NEV.
N3652 5--W11452 5/7 5

1969

AMS 3057 IV NW--SERIES V896

9

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

2088 U. NE
PAHRANAGAT LAKE

D

ALAMO 20 MI
115°00' 678000m E 679 R 62 E 580 581 57'30" 582
37°07'30"

4110000m N

T 9 S
T 10 S

T 9 S
T 10 S

4109

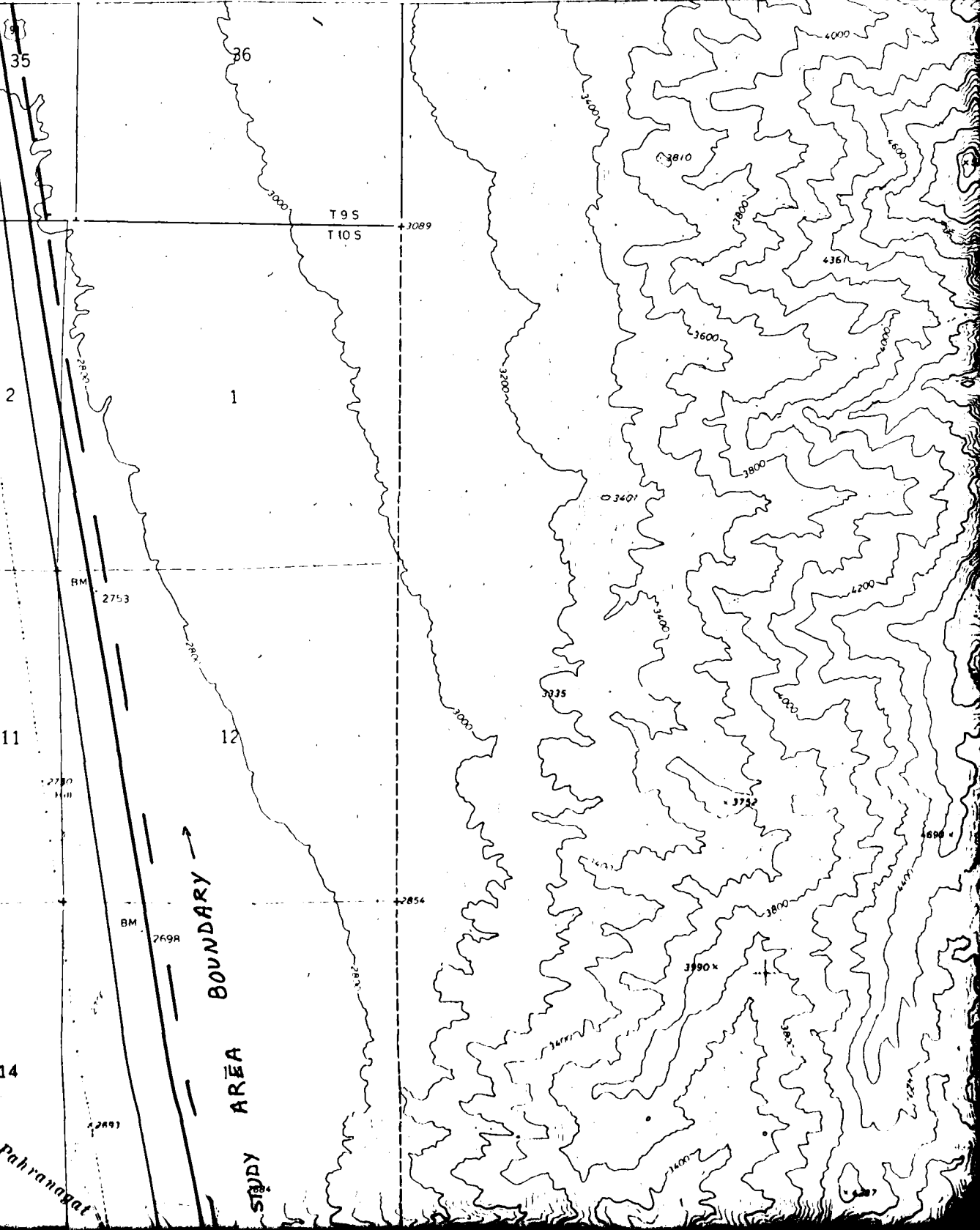
4108

4107

4106

5'

4105



PAHRANAGAT

BOUNDARY
AREA
STUDY

DTN/OBTS FIELD SURVEYS
NEVADA DTN
SEGMENT A-B

DELAMAR 3
NEVADA
7.5 MINUTE SE

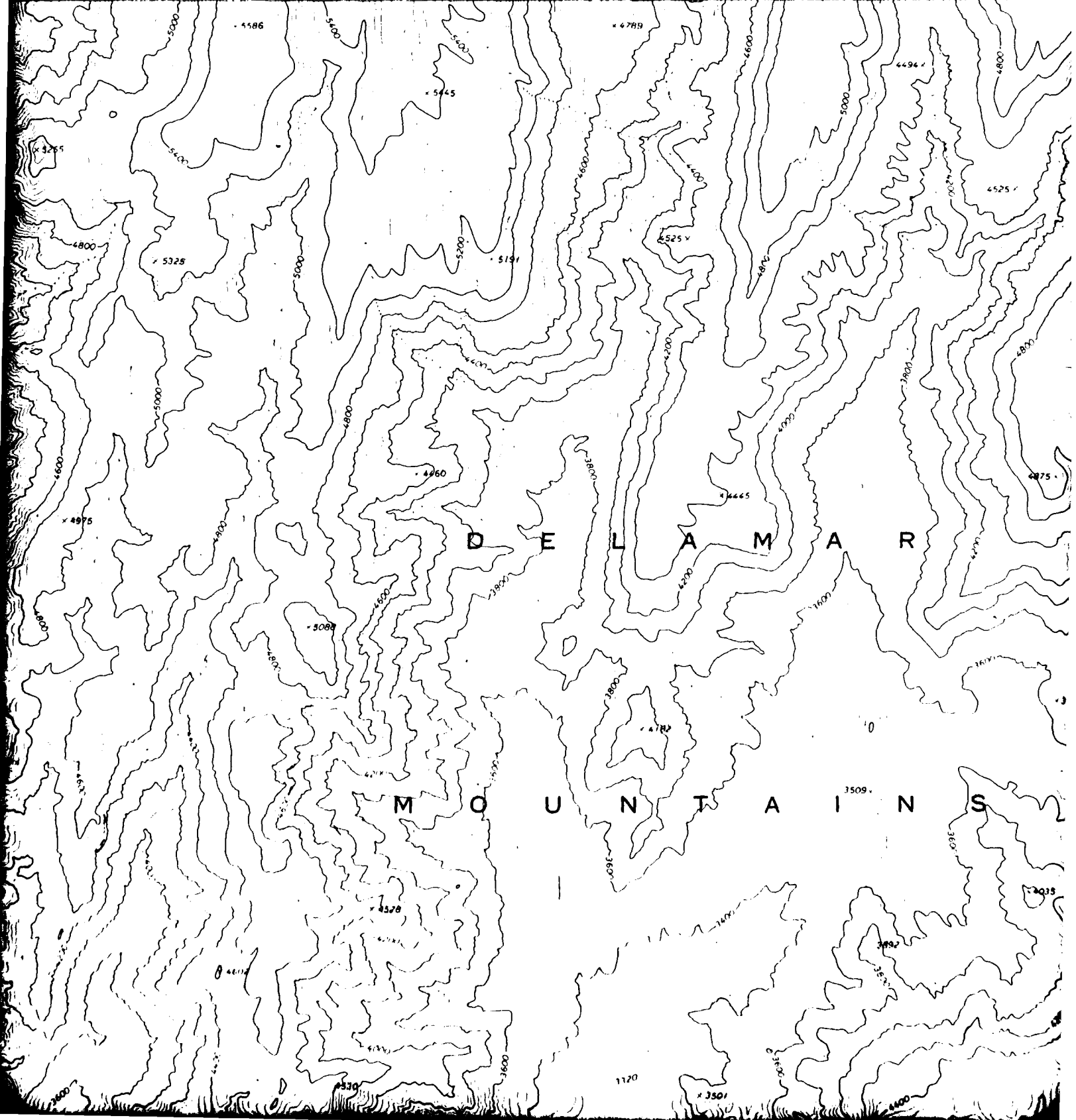
3058 III NW
(DELAMAR 3 NW)

684

685 55'

686

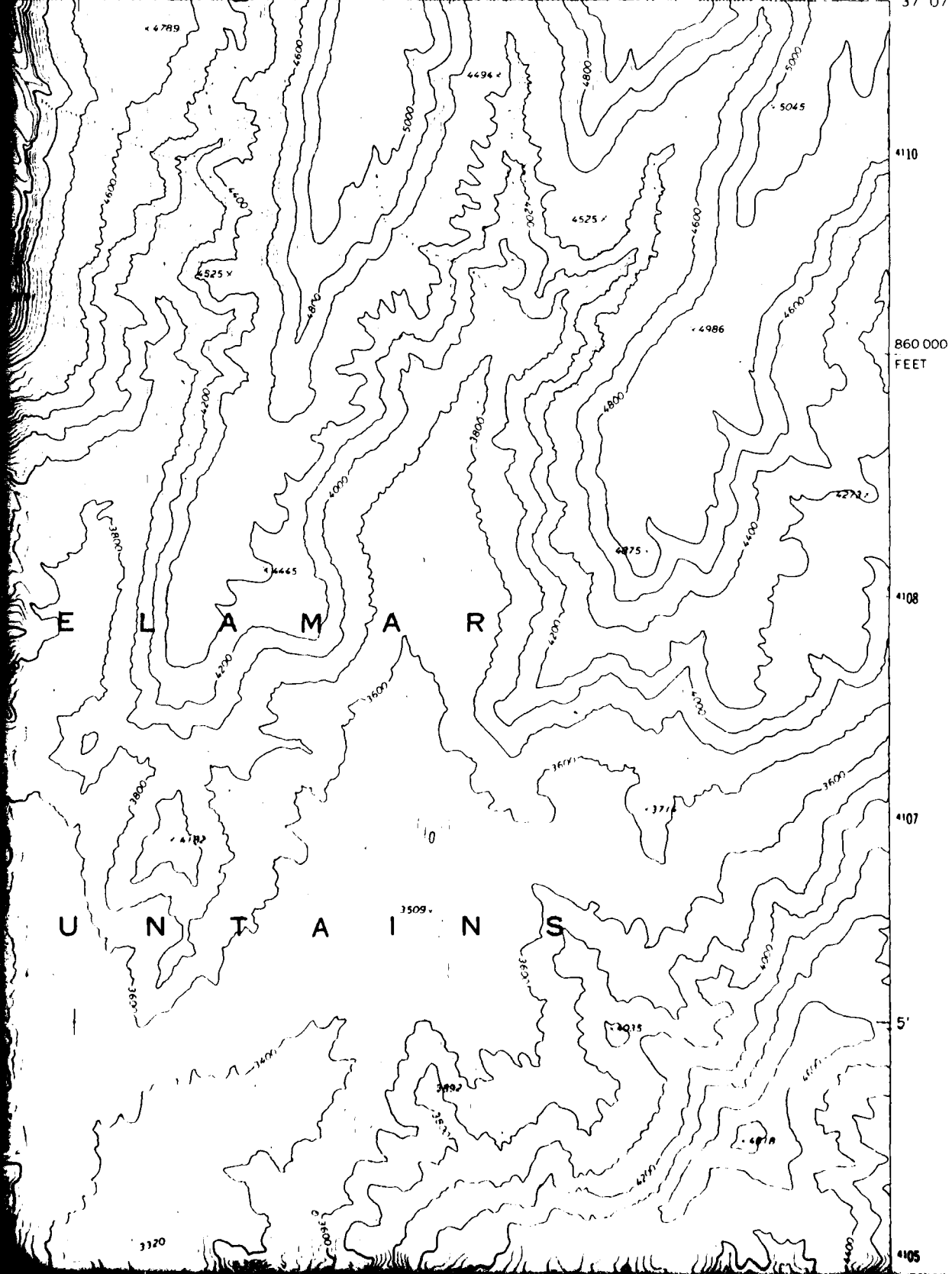
700 000 FEET

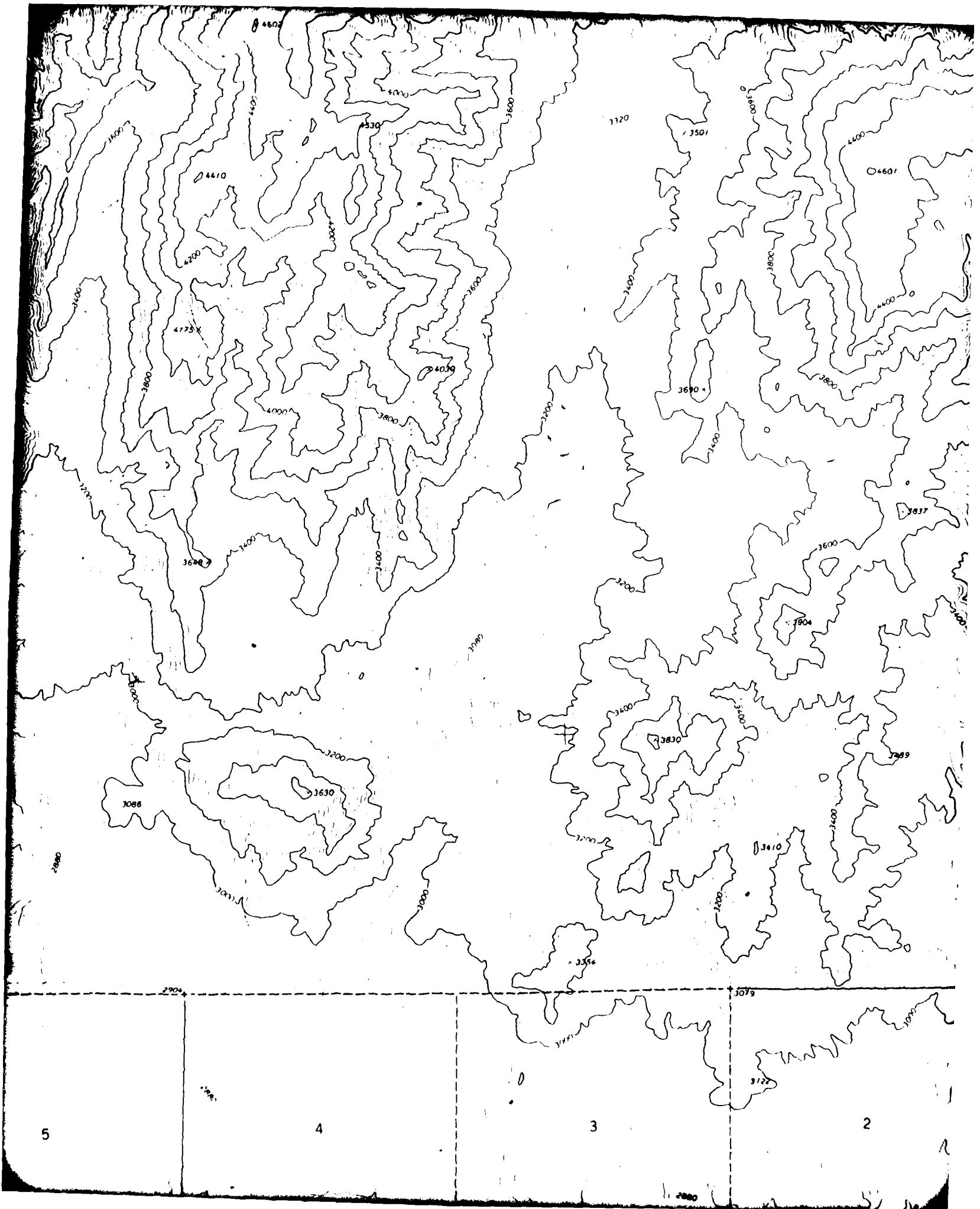


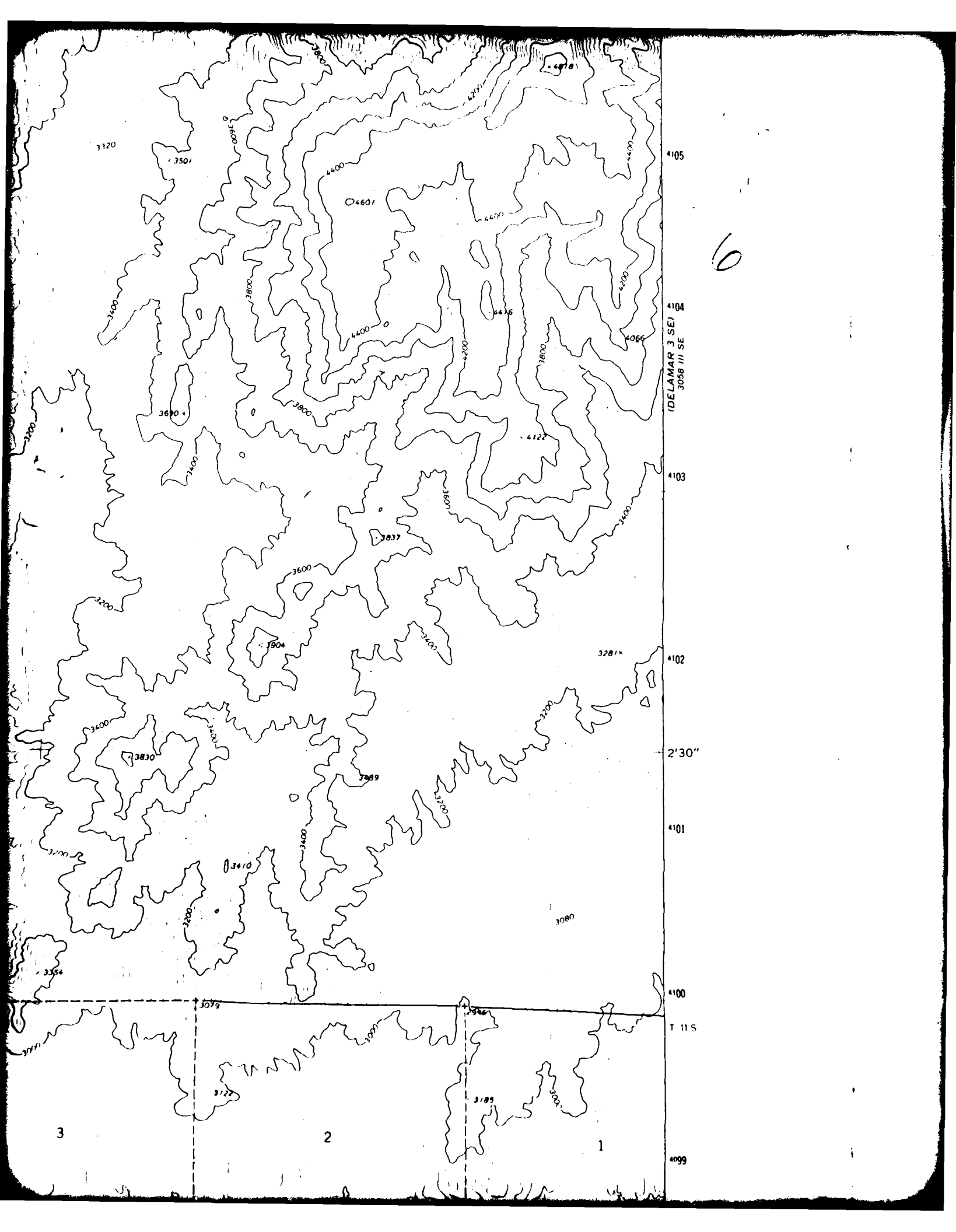
DELAMAR 3 SW QUADRANGLE
NEVADA - LINCOLN CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

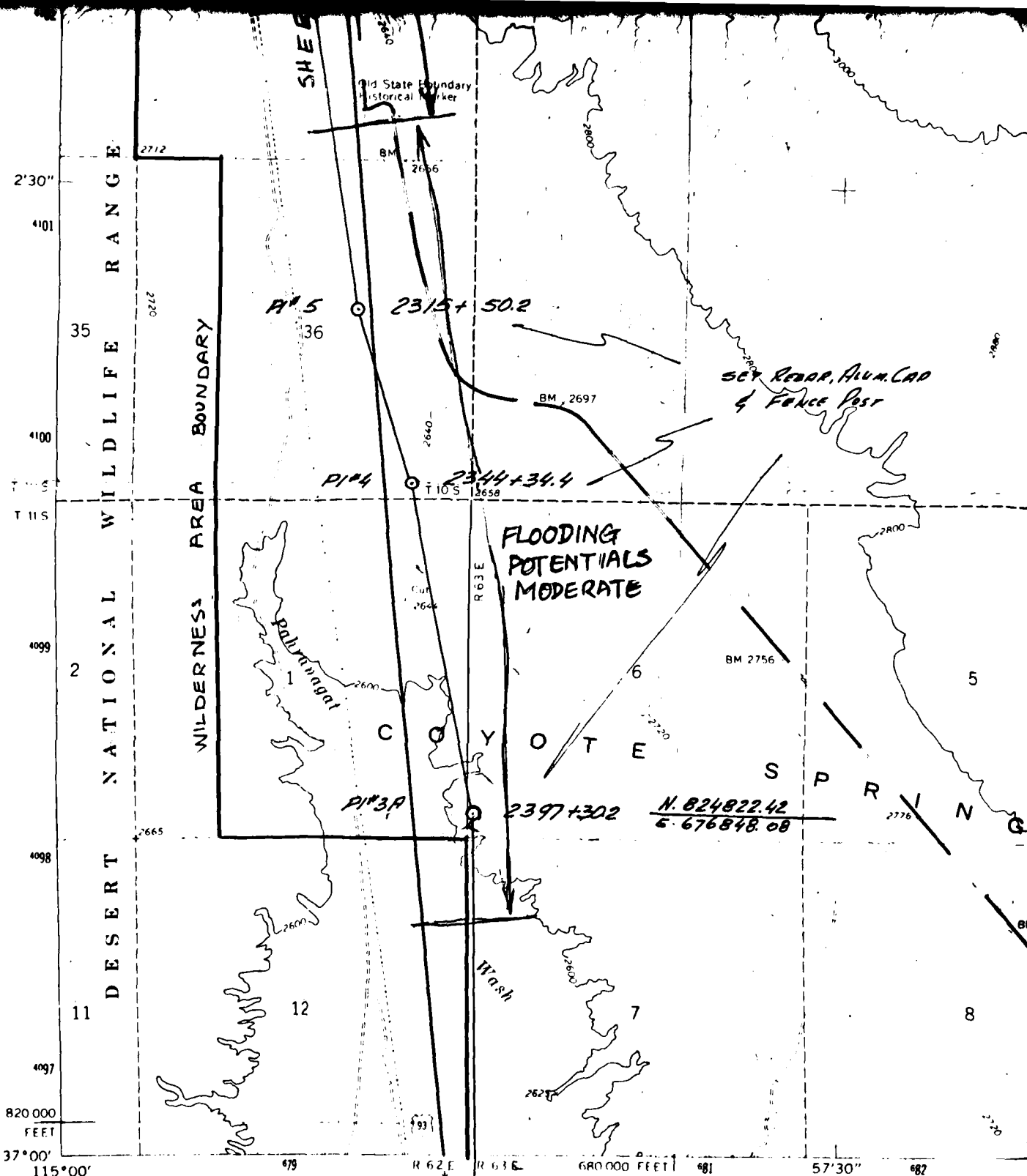
3058 III NF
(DELAMAR 3 NF)

685 55' 686 700 000 FEET 688 114°52'30" 37°07'30"









Mapped, edited, and published by the Geological Survey
 Control by USGS and USC&GS
 Topography by photogrammetric methods from aerial
 photographs taken 1967. Field checked 1969
 Polyconic projection. 1927 North American datum
 10,000-foot grid based on Nevada coordinate system, east zone
 1000-meter Universal Transverse Mercator grid ticks,
 zone 11, shown in blue
 Where omitted, land lines have not been established

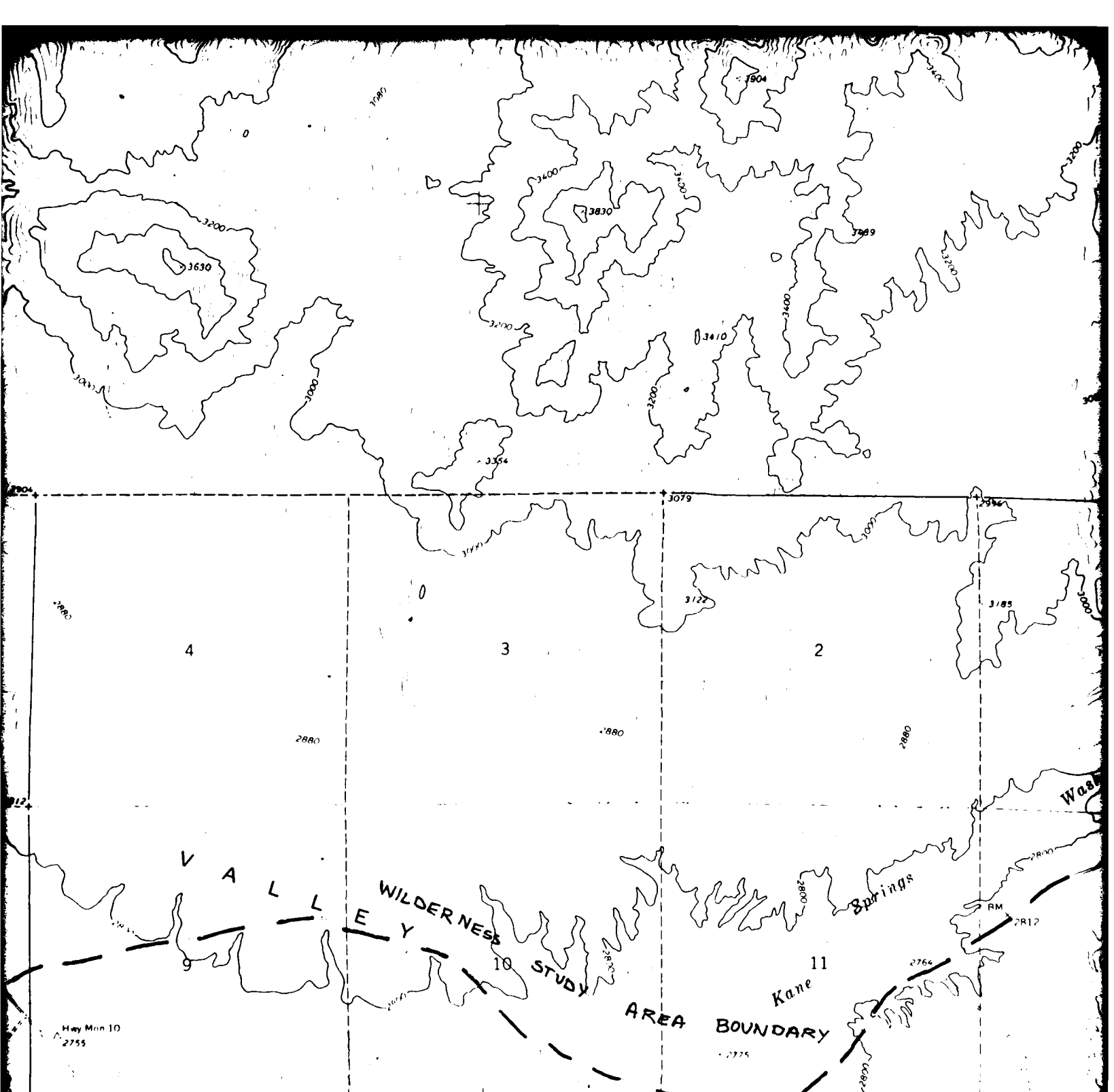
1" = 14" = 22 MILS
 15 1/2" = 276 MILS

UTM GRID AND 1969 MAGNETIC NORTH
 DECLINATION AT CENTER OF SHEET

FOR SALE BY U.S.
 A FOLDER

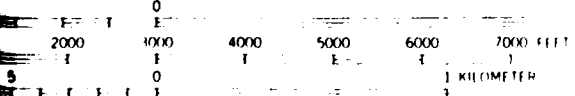
JLE DEER RIDGE NE1
 2957 NE

7



83 1 WILDCAT WASH NW 1 NW
3057 1V NW 84

SCALE 1:24,000



CONTOUR INTERVAL 40 FEET
DASHED LINES REPRESENT 20 FOOT CONTOURS
DATUM IS MEAN SEA LEVEL



QUADRANGLE LOCATION

U.S. GOVERNMENT PRINTING OFFICE 1973
688000E

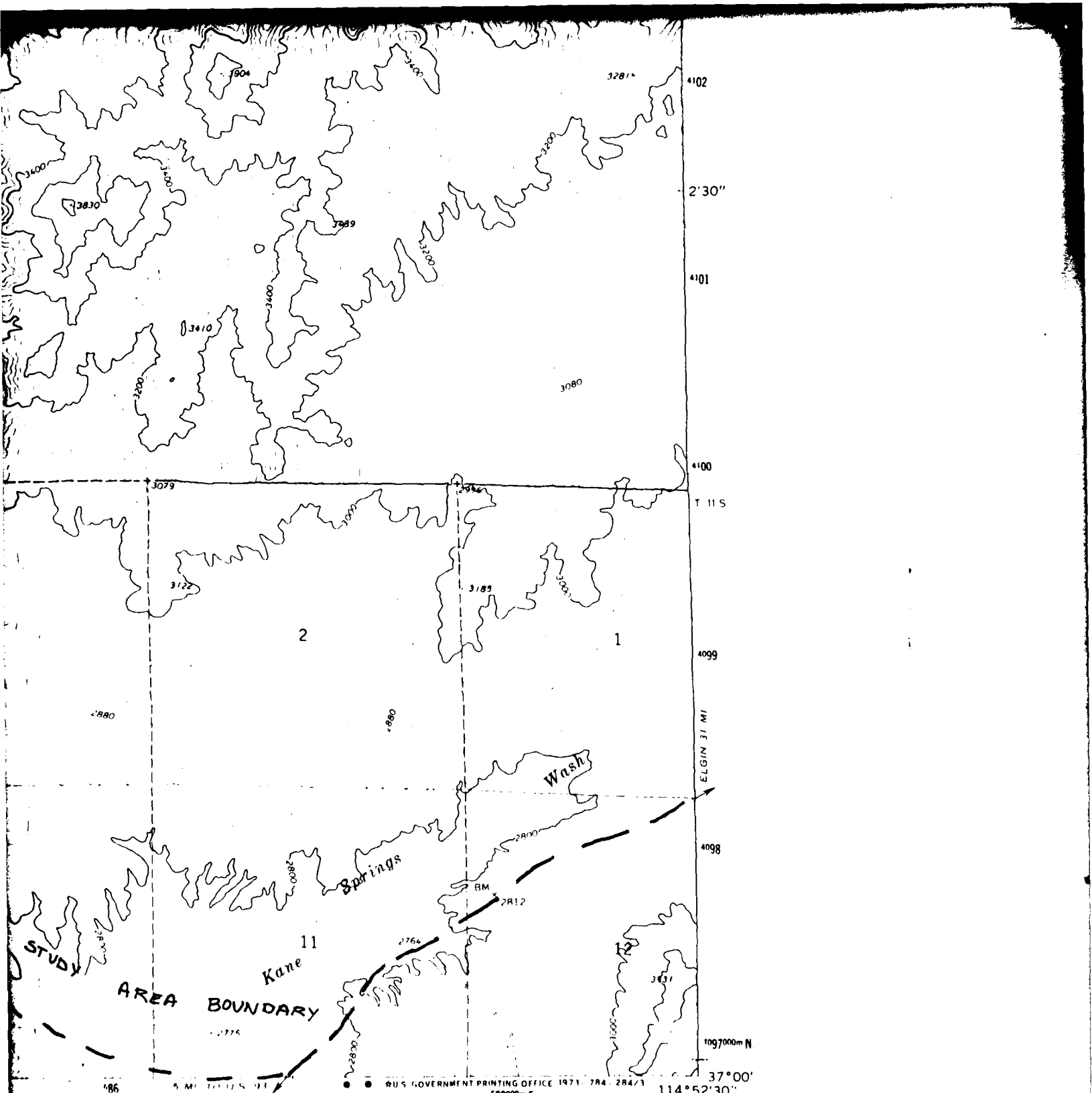
ROAD CLASSIFICATION

- Primary highway, hard surface
- Secondary highway, hard surface
- Light duty road, improved surface
- Unimproved
- Interstate Route
- U.S. Route

CONFORMS WITH NATIONAL MAP ACCURACY STANDARDS
SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
SYMBOLS AND ABBREVIATIONS IS AVAILABLE ON REQUEST

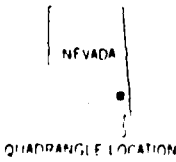


DELAMAR
N 3700 - W



ROAD CLASSIFICATION

- Primary highway, hard surface ——— Light duty road, hard or improved surface
- Secondary highway, hard surface - - - - - Unimproved road
- () Interstate Route () U S Route () State Route



DELAMAR 3 SW, NEV.
N3700 W11452 5/7 5

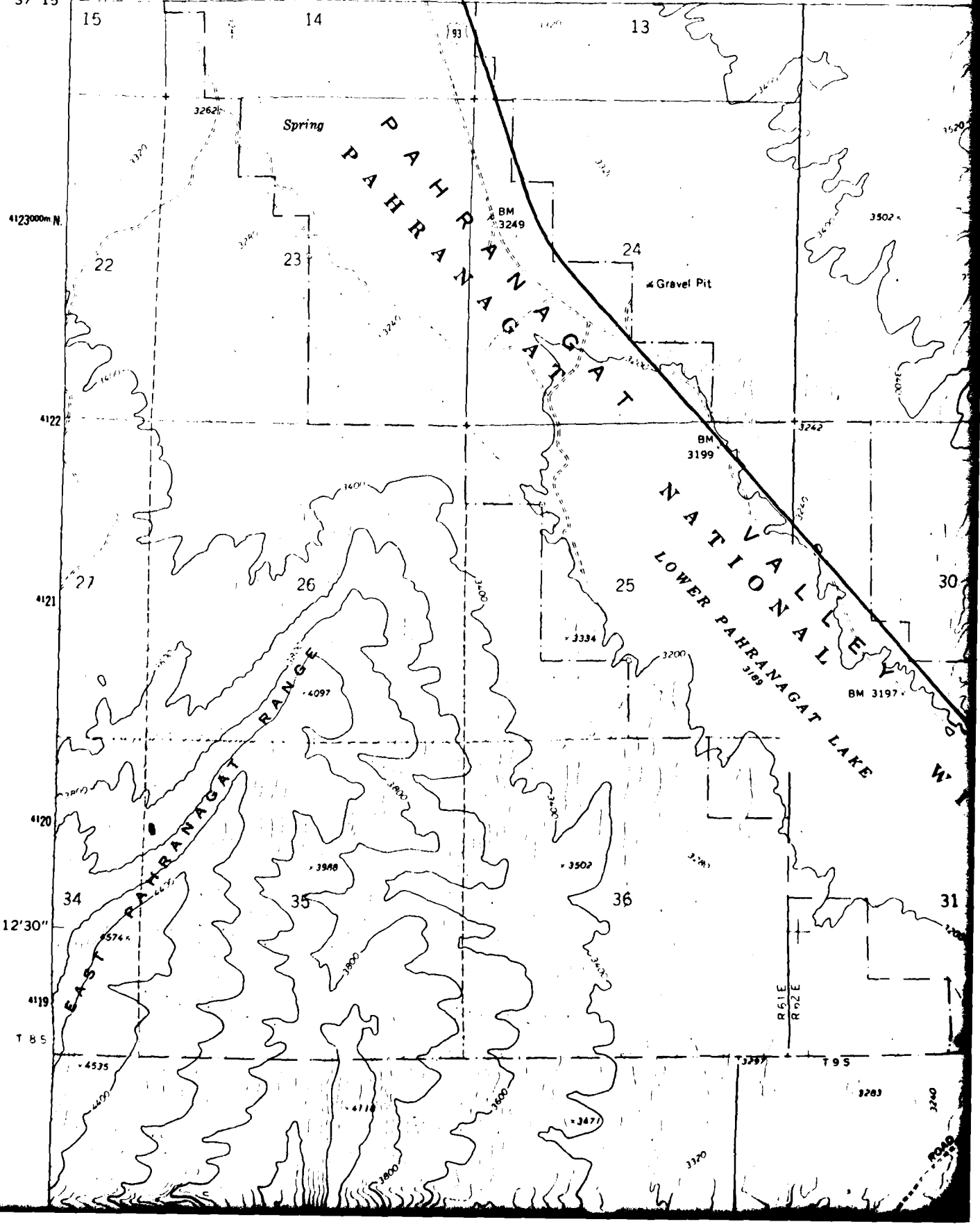
1969

WILDCAT WASH NE
305.71 N.E.

23281 SW
(ALAMO)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

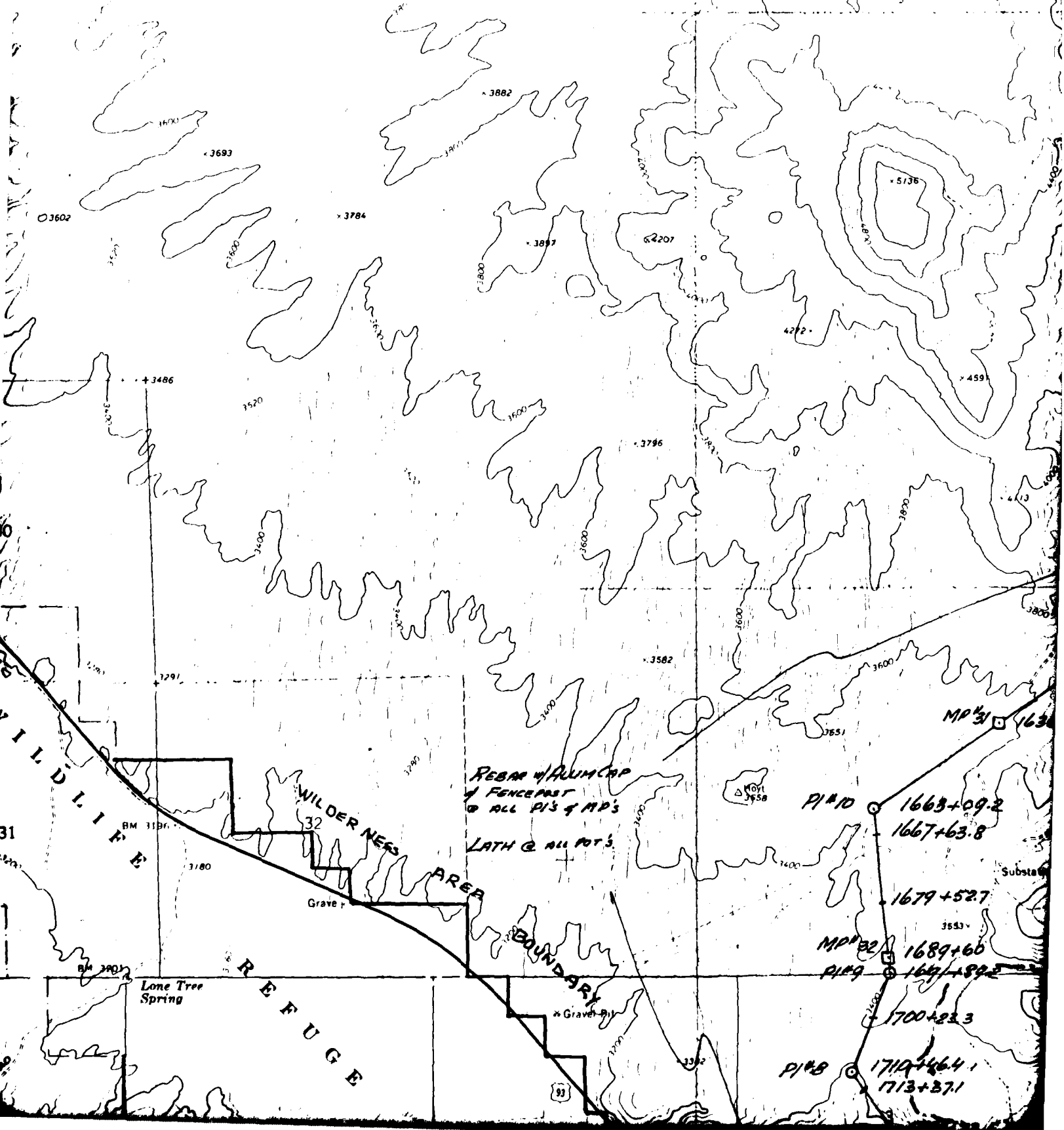
115°07'30" 667000m E 668 CALIENTE 63 MI ALAMO 9 MI 669 R 61E 5'R 62E



**DTN/OBTS FIELD SURVEYS
NEVADA DTN
SEGMENT A-B**

**LOWER PAHRANAGAT I
NEVADA-LINC
7.5 MINUTE SERIES**

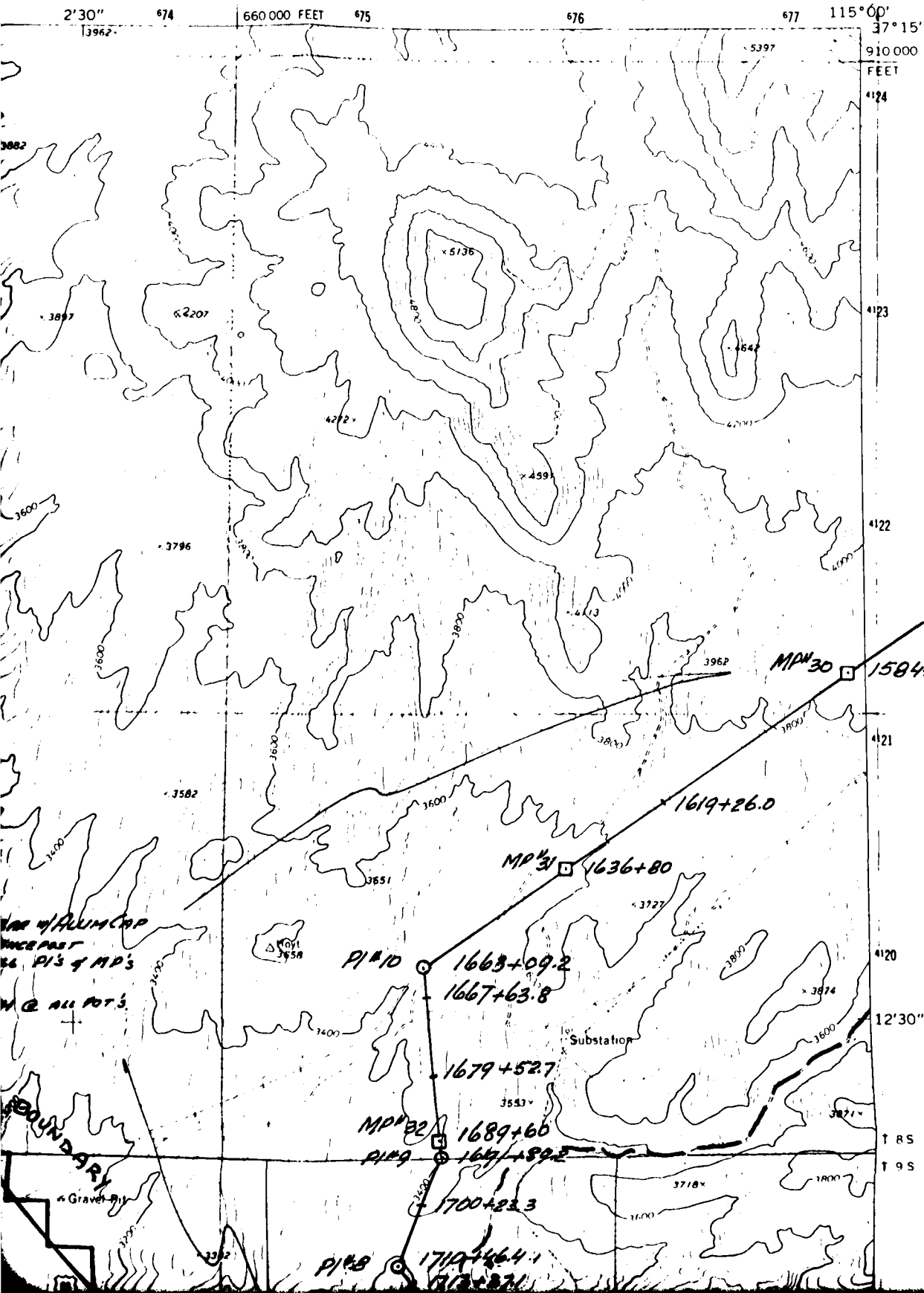
971 2958 I SE (ALAMO SE) 973 2'30" 674 660 000 FEET 675 976

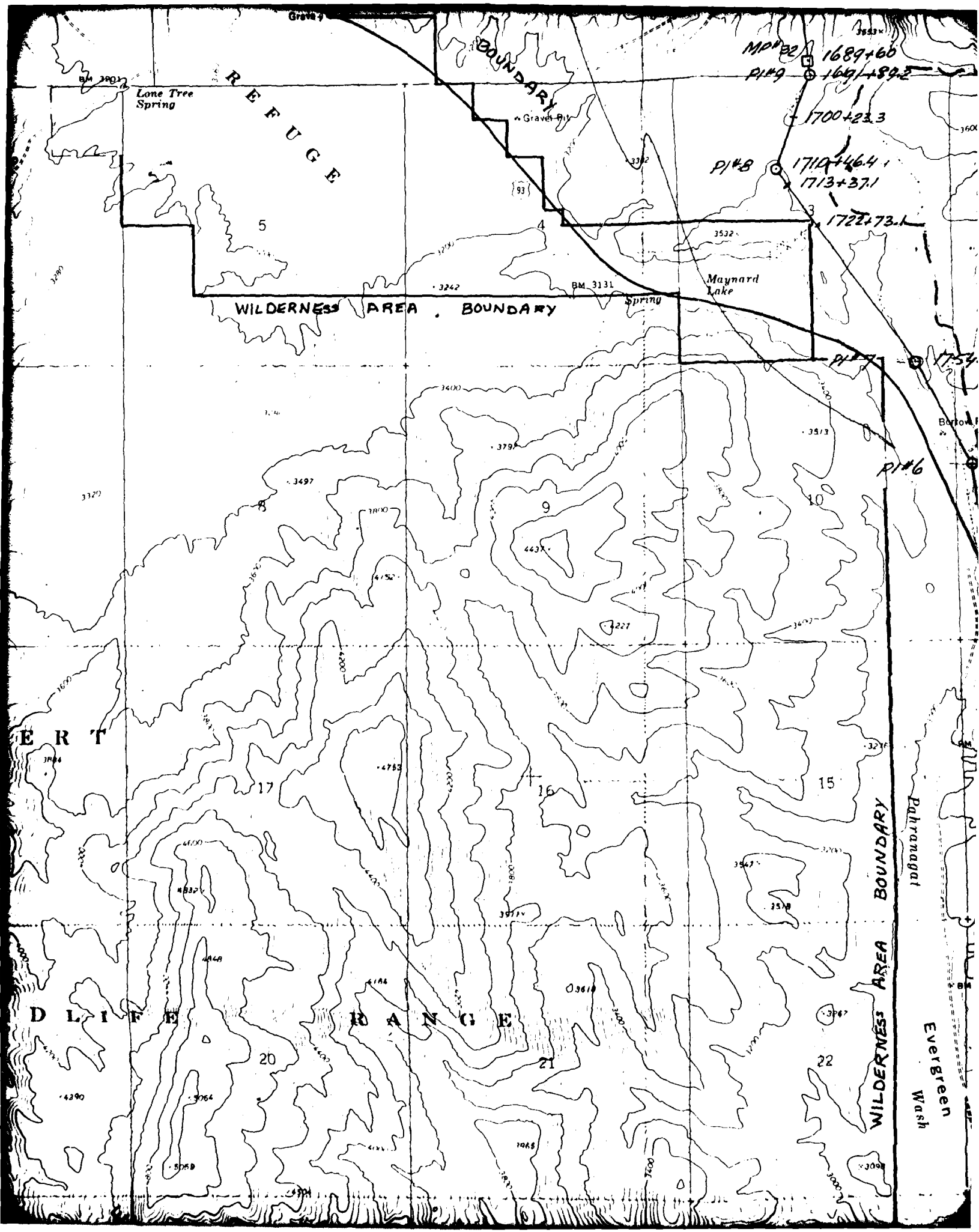


LOWER PAHRANAGAT LAKE QUADRANGLE
NEVADA - LINCOLN CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

3038 IV SW
(DELMAR LAKE)

2





Gravel Pit

MP#2 1689+66
PI#9 1691+89.2

Lone Tree Spring

REFUGE

BOUNDARY

PI#8 1710+46.4
1713+37.1

1700+23.3

PI#7 1722+73.1

WILDERNESS AREA BOUNDARY

Maynard Lake

BM 3131

Spring

PI#6

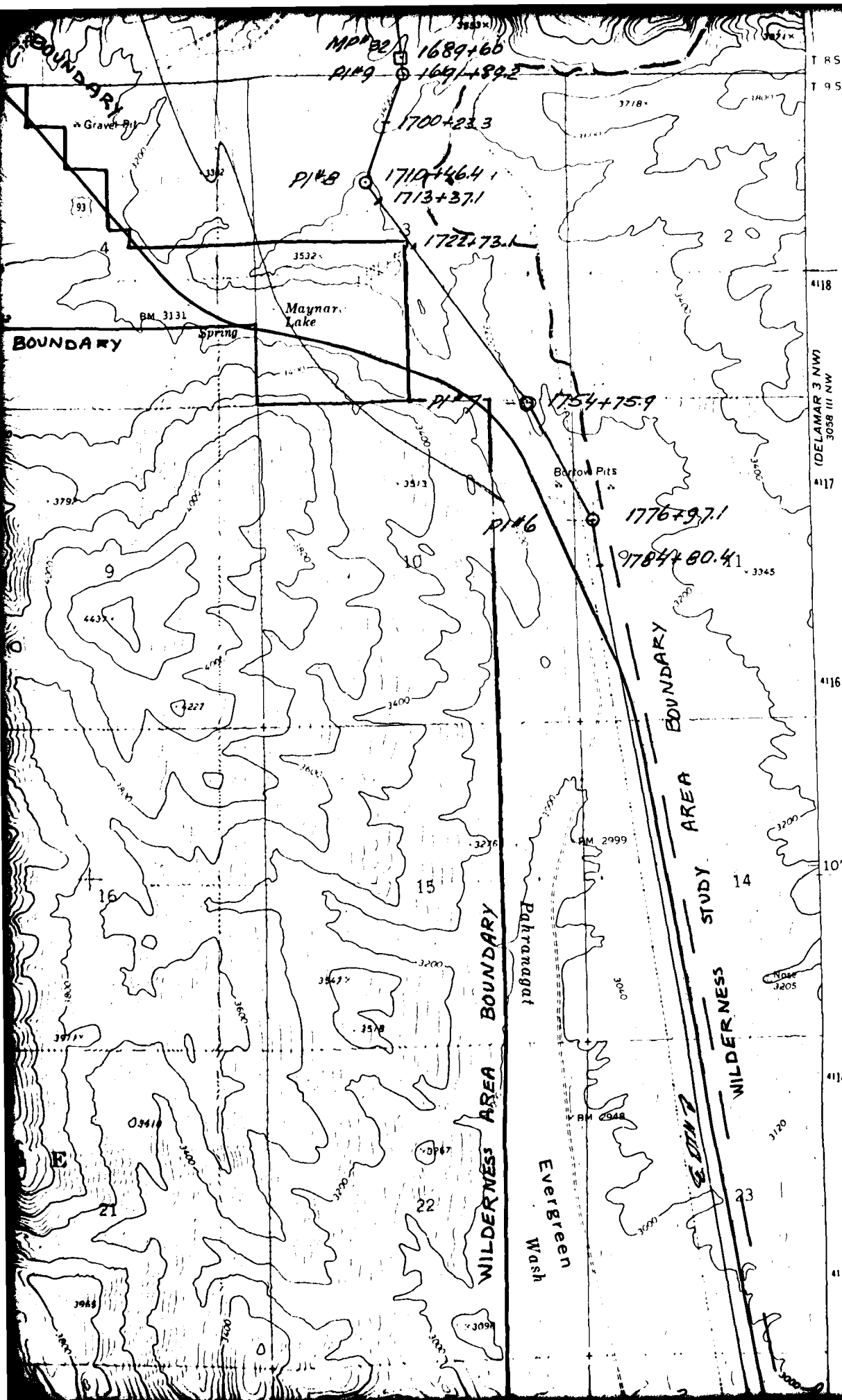
ERT

WILDERNESS AREA BOUNDARY

Pahranagat

D L I F E R A N G E

Evergreen Wash



T 8 S
T 9 S
R 18
R 17
R 16
R 14
R 13

(DELAMAR 3 NW)
3058 III NW

6

D E S E

015
10

N A T I O N A L

W I L D

014

013

012

011

010

009

S H E L A

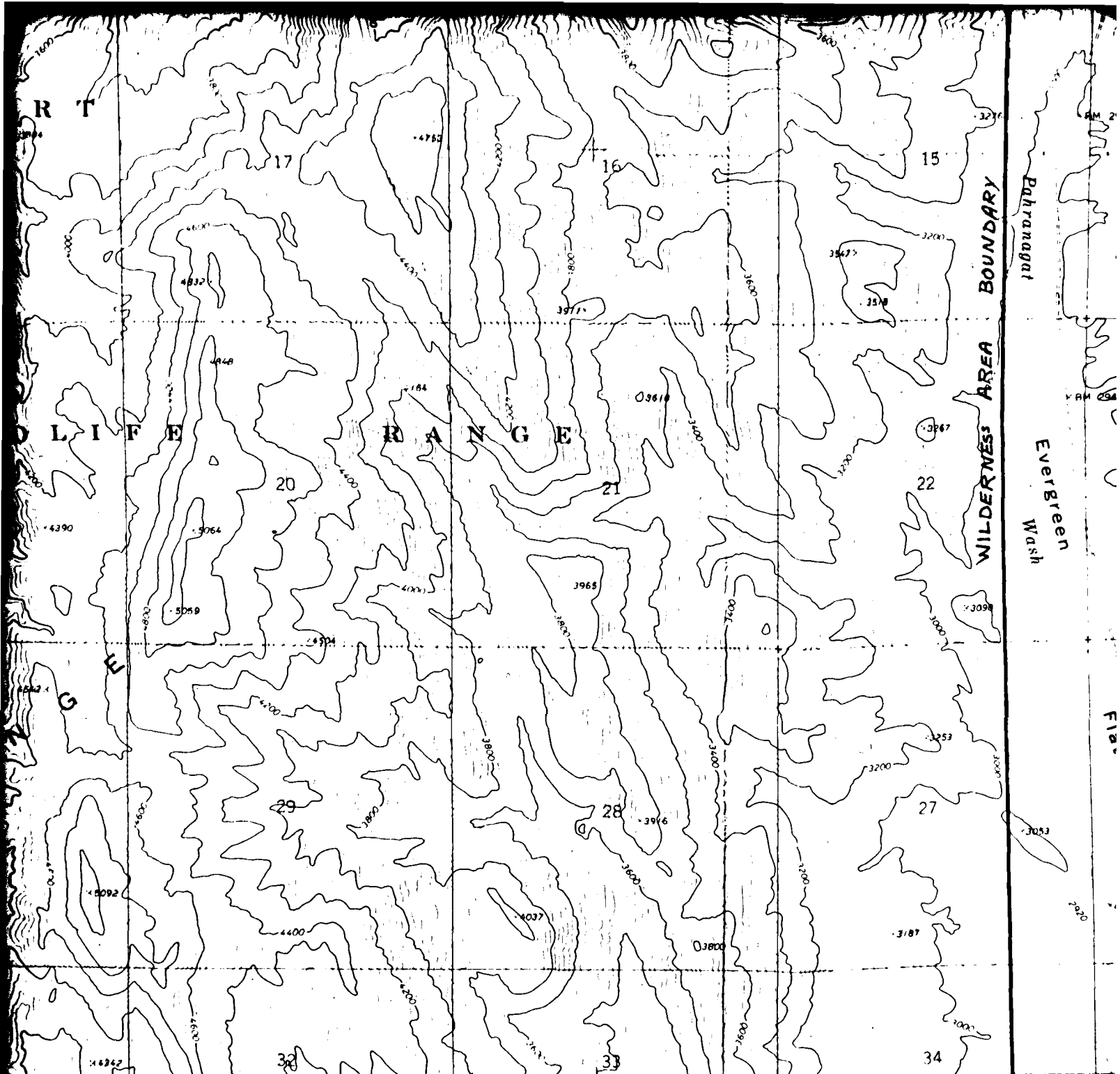
R A

Map of the National Wildlife Refuge System

This map shows the location of the National Wildlife Refuge System. The system consists of 111 refuges and 10,000,000 acres of land. The refuges are located in all 48 contiguous states and the District of Columbia. The map shows the location of each refuge and its size in acres. The refuges are grouped into 11 regions: Alaska, Arctic, California, Florida, Great Basin, Great Lakes, Great Plains, Midwest, Northeast, Pacific Northwest, and Southeast. The map also shows the location of the National Wildlife Refuge System's headquarters in Washington, D.C.

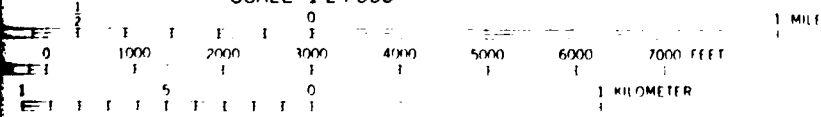
111 REFUGES
10,000,000 ACRES

111 REFUGES
10,000,000 ACRES



(LOWER PAHRANAGAT LAKE SE)
2958 II SE

SCALE 1:24,000



CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL



QUADRANGLE LOCATION

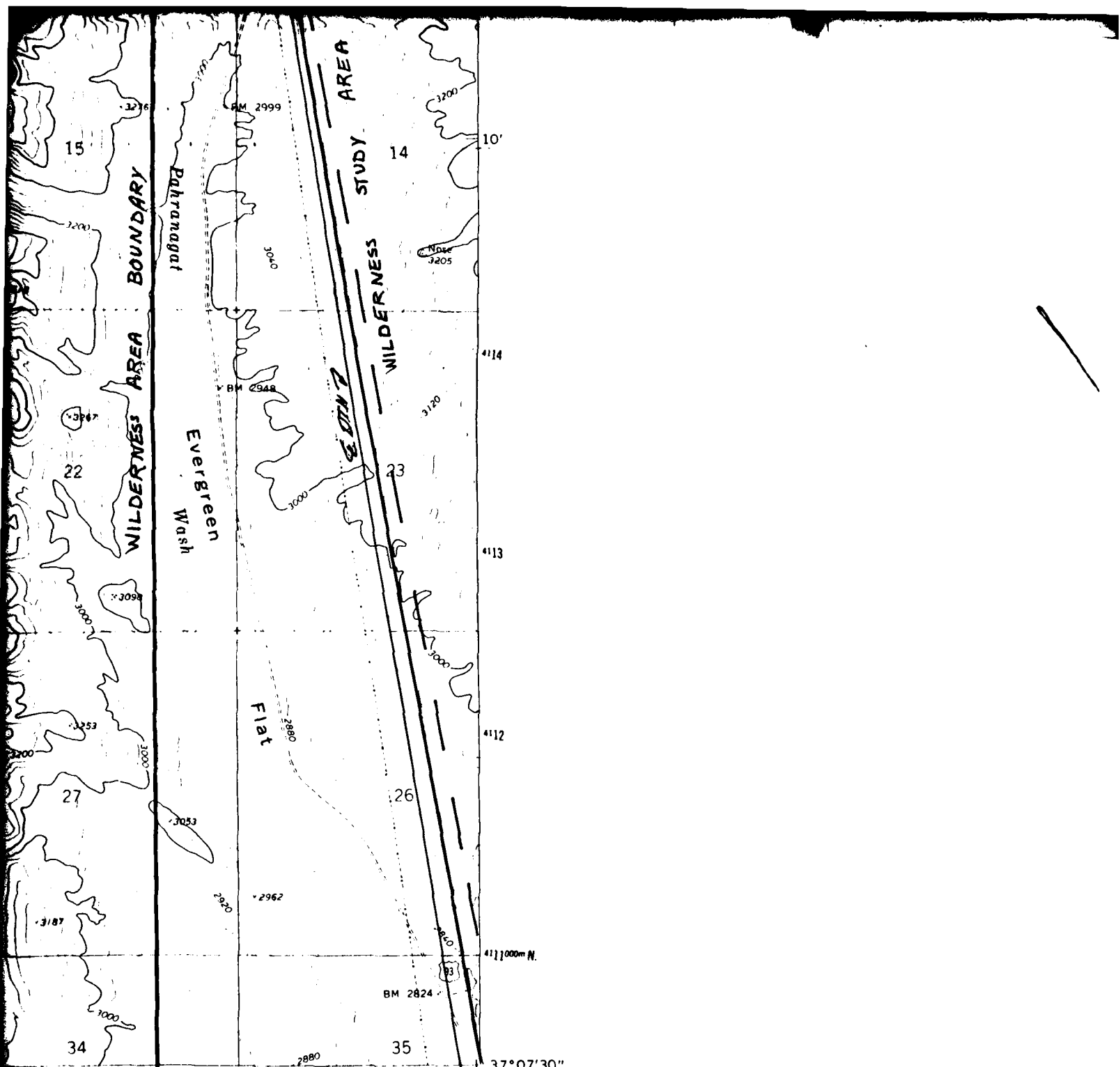
- ROAD CL
- Primary highway, hard surface
- Secondary highway, hard surface
- Interstate Route

LOWER PAHRANAGAT
N370

THIS MAP COMPLEIES WITH NATIONAL MAP ACCURACY STANDARDS
GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D C 20242
DESCRIPTION, TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



AMS 291



ROAD CLASSIFICATION

- Primary highway, hard surface Light-duty road, hard or improved surface
- Secondary highway, hard surface Unimproved road
- Interstate Route
- U S Route
- State Route

LOWER PAHRANAGAT LAKE, NEV.
 N3707.5—W11500/7.5

1969

AMS 2958 II NE - SERIES V896



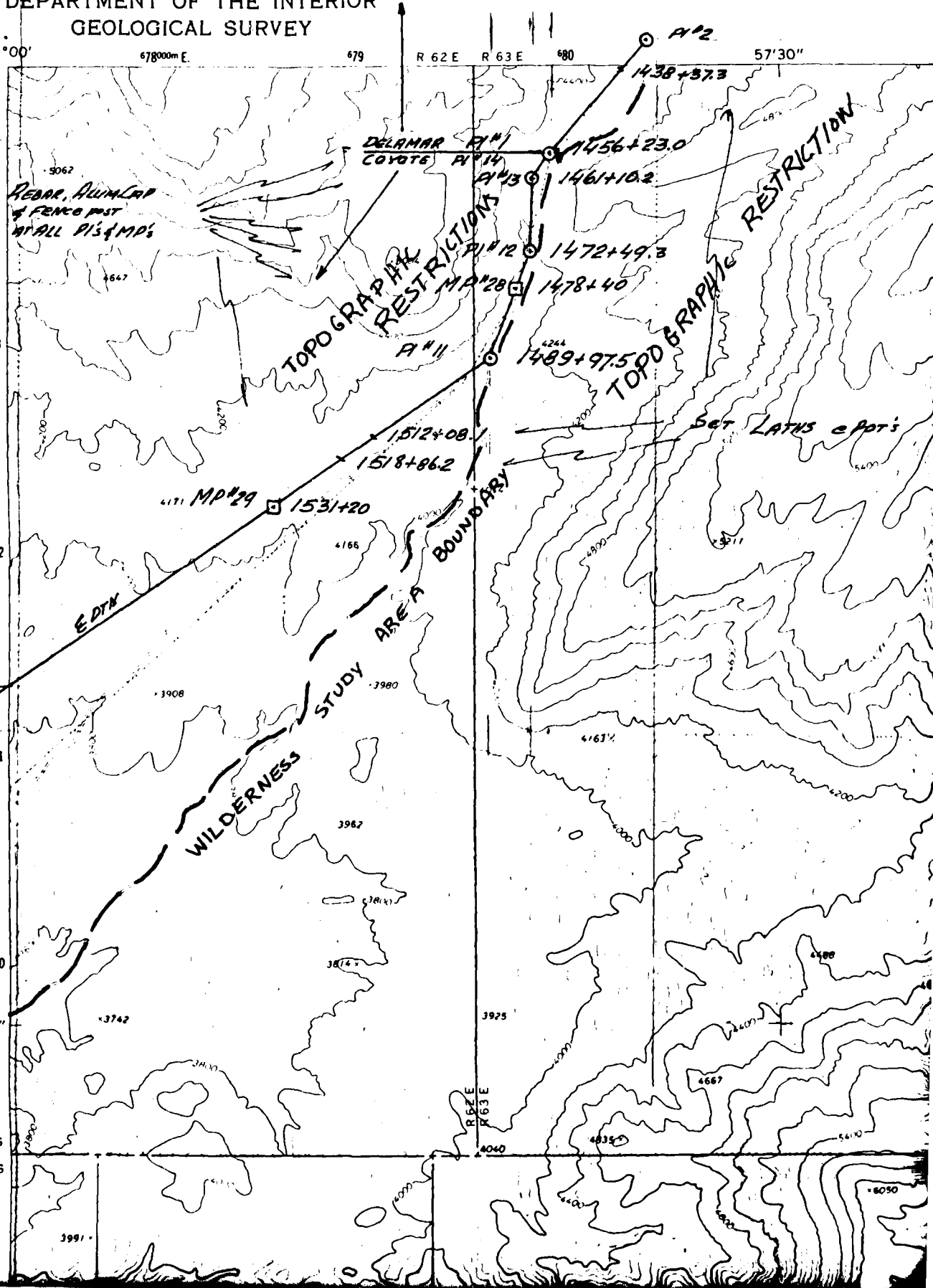
9

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

2928 1 SE
1 ALAMO SE

115°00' 37°15' 678000m E 679 R 62 E R 63 E 680 57'30"

4124000m N



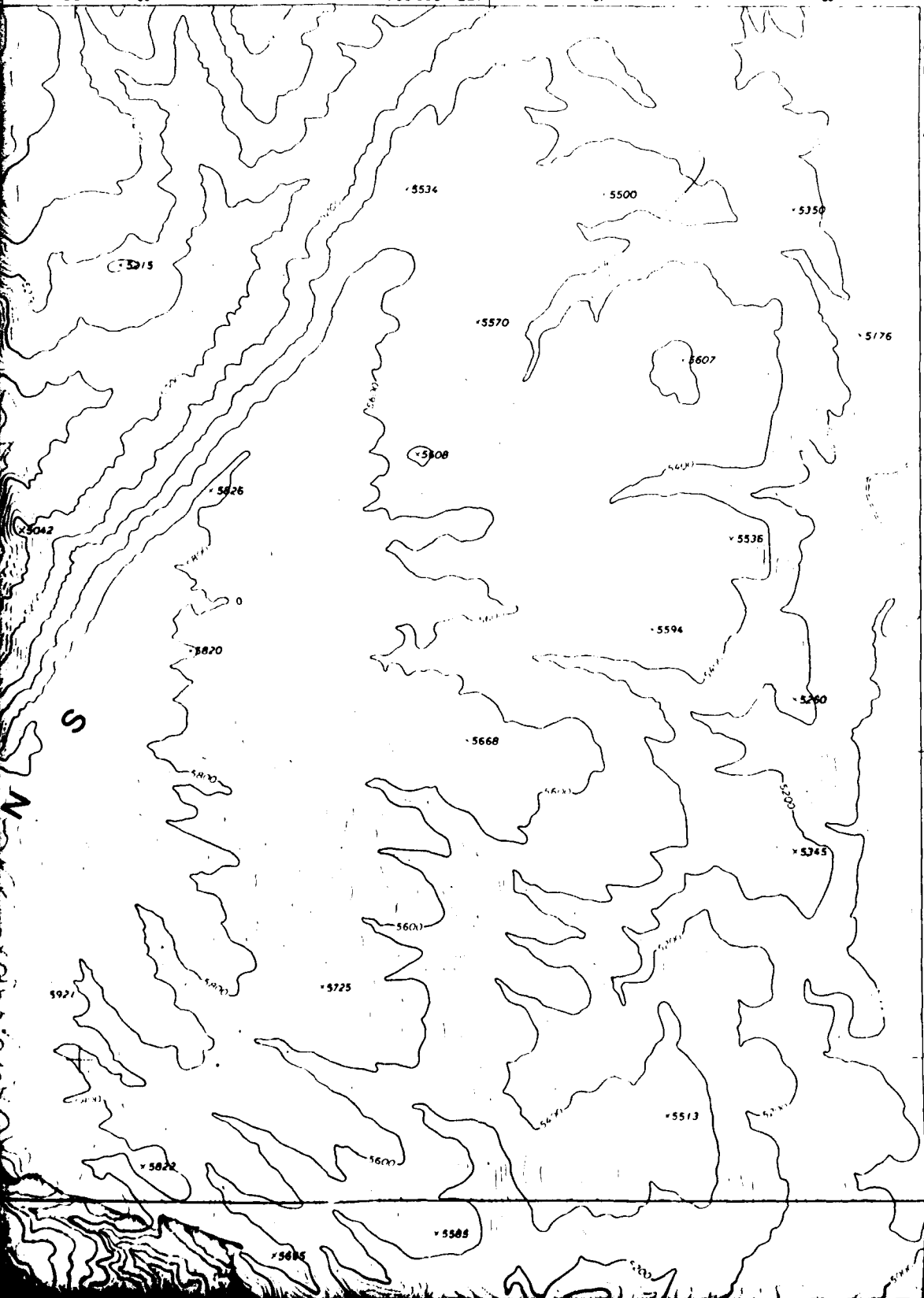
SHEET 5 OF 9

DELAMAR 3 NW QUADRANGLE
NEVADA-LINCOLN CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

3058 IV S
(GREGGSON BASE)

55' 685 686 700 000 FEET 687 688 114° 52' 30" 37° 15'

910 000
FEET



4124

4123

4122

4121

4120

12' 30"

T 8 S

T 9 S

4119

1

T 8 S
T 9 S

2958 11 NE
(LOWER PAHRANAGAT LAKE)

R 62 E
R 63 E

4040

118

116

107

114

113

2

11

14

23

1

12

13

24

3991

3923

3467

2921

4068

3816

3600

3400

3864

3849

3600

3400

4667

4835

4675

4677

4363

4422

4764

4200

4000

3600

5400

6050

4600

5330

4800

4600

4800

4200

4984

4362

4500

4000

04809

4656

4984

4362

4500

4000

02909

6000

4800

4600

4200

4400

4400

4400

3600

3600

3600

3600

3800

3800

4000

3800

3600

3600

3600

3600

3600

5000

4800

4600

4400

4200

4000

3600

3600

3600

4600

4400

4200

4000

3800

3600

3600

3600

3600

5000

4800

4600

4400

4200

4000

3600

3600

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5400

6050

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5800

5600

5400

5200

5000

4800

5800

6050

6000

5800

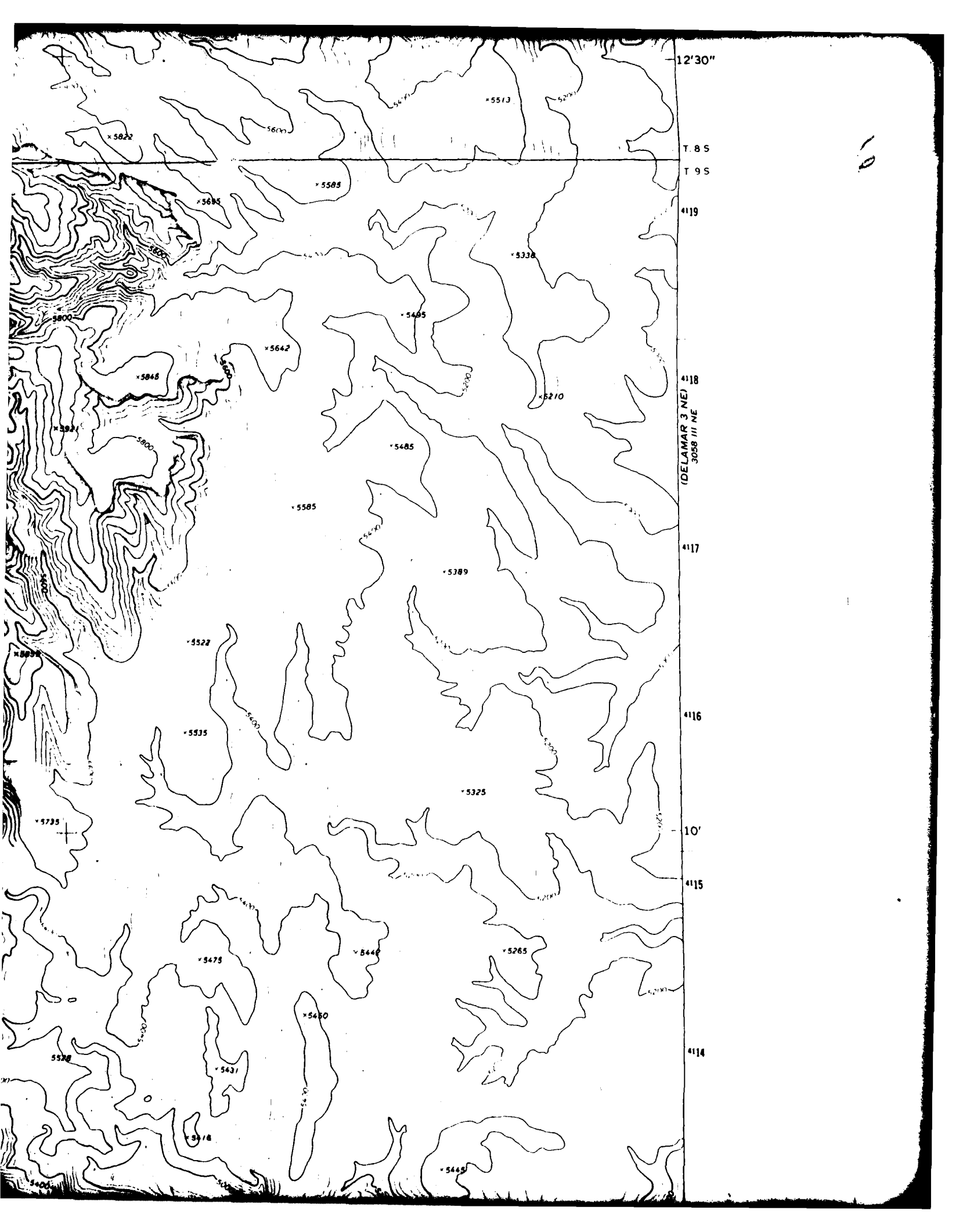
5600

5400

5200

5000

4800



12'30"

T 8 5
T 9 5

4119

4118
(DELMAR 3 NE)
3058 III NE

4117

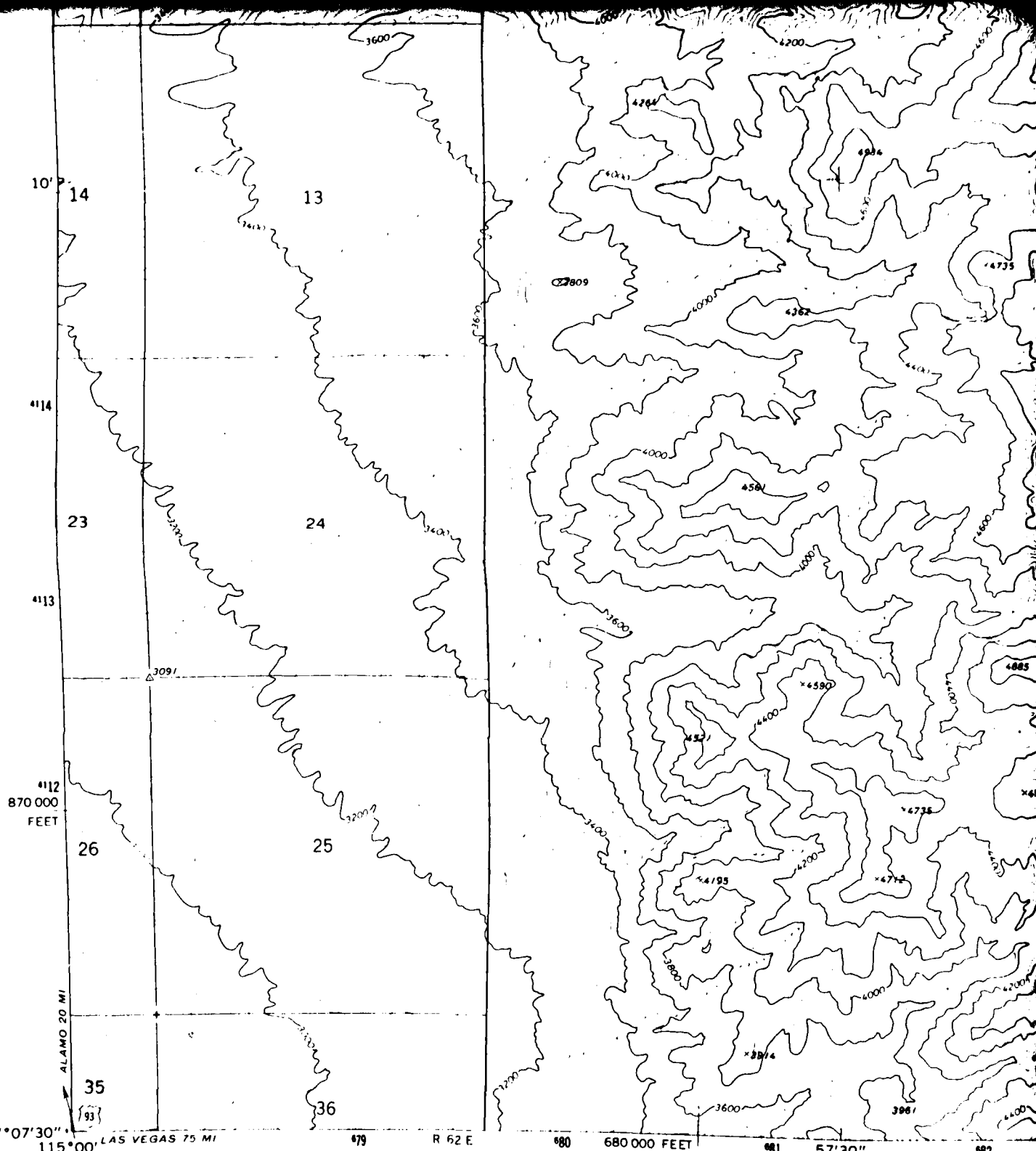
4116

10'

4115

4114

01



(LOWER PAHRANIGAT LAKE SE)
2958 11 SE

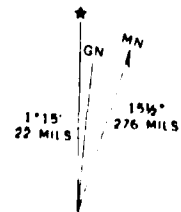
Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

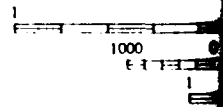
Topography by photogrammetric methods from aerial photographs taken 1967. Field checked 1969

Polyconic projection. 1927 North American datum
10,000-foot grid based on Nevada coordinate system, east zone
1000-meter Universal Transverse Mercator grid ticks, zone 11, shown in blue

Where omitted, land lines have not been established

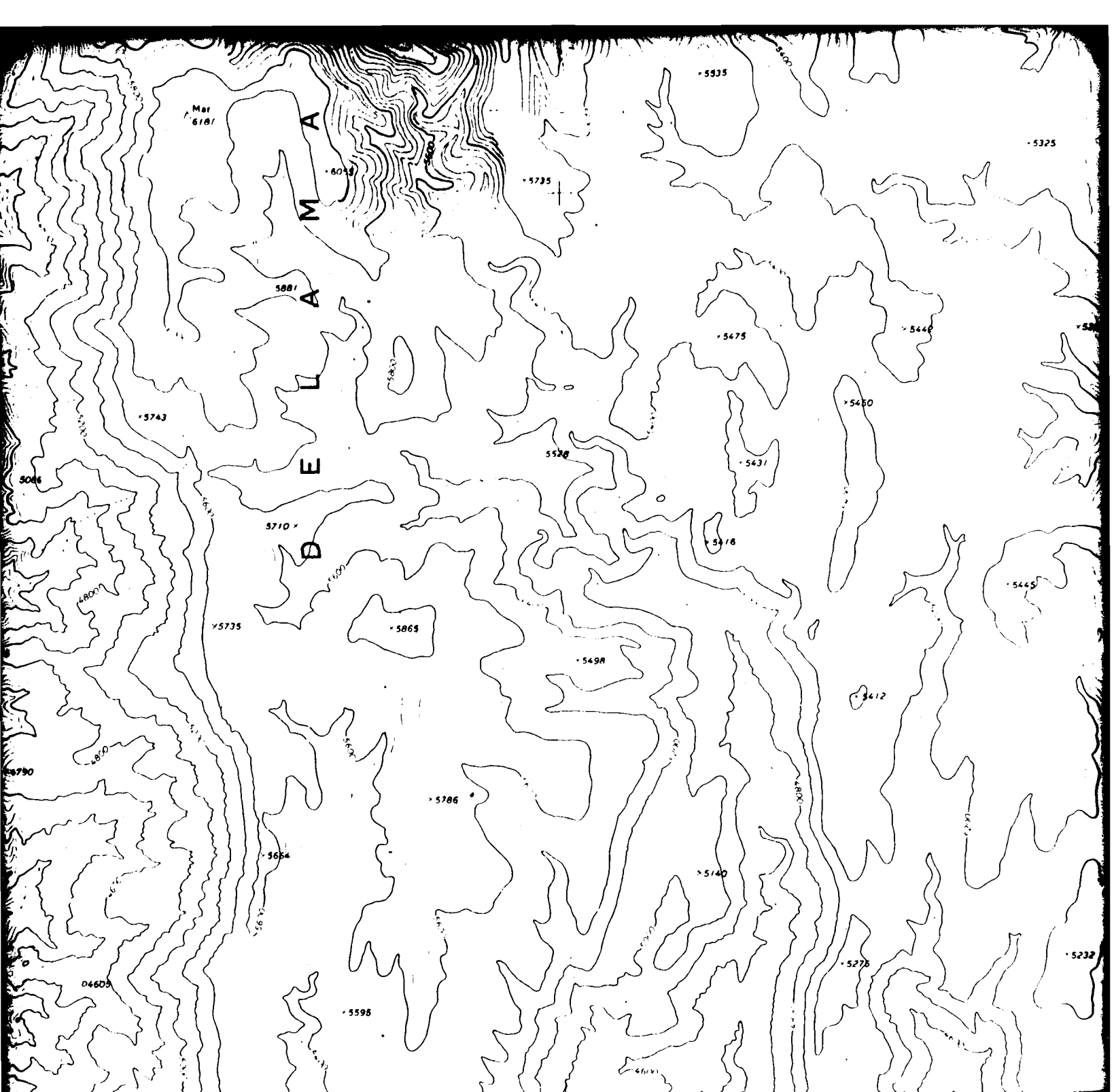


UTM GRID AND 1969 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET



THIS
FOR SALE BY U. S. GEO.
A FOLDER DES.

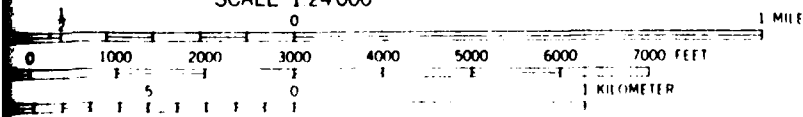
7



DELAMAR 3 SW)
3058 III SW
SCALE 1:24000

84 85 55 86 87

INTERIOR GEOLOGICAL SURVEY



CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL

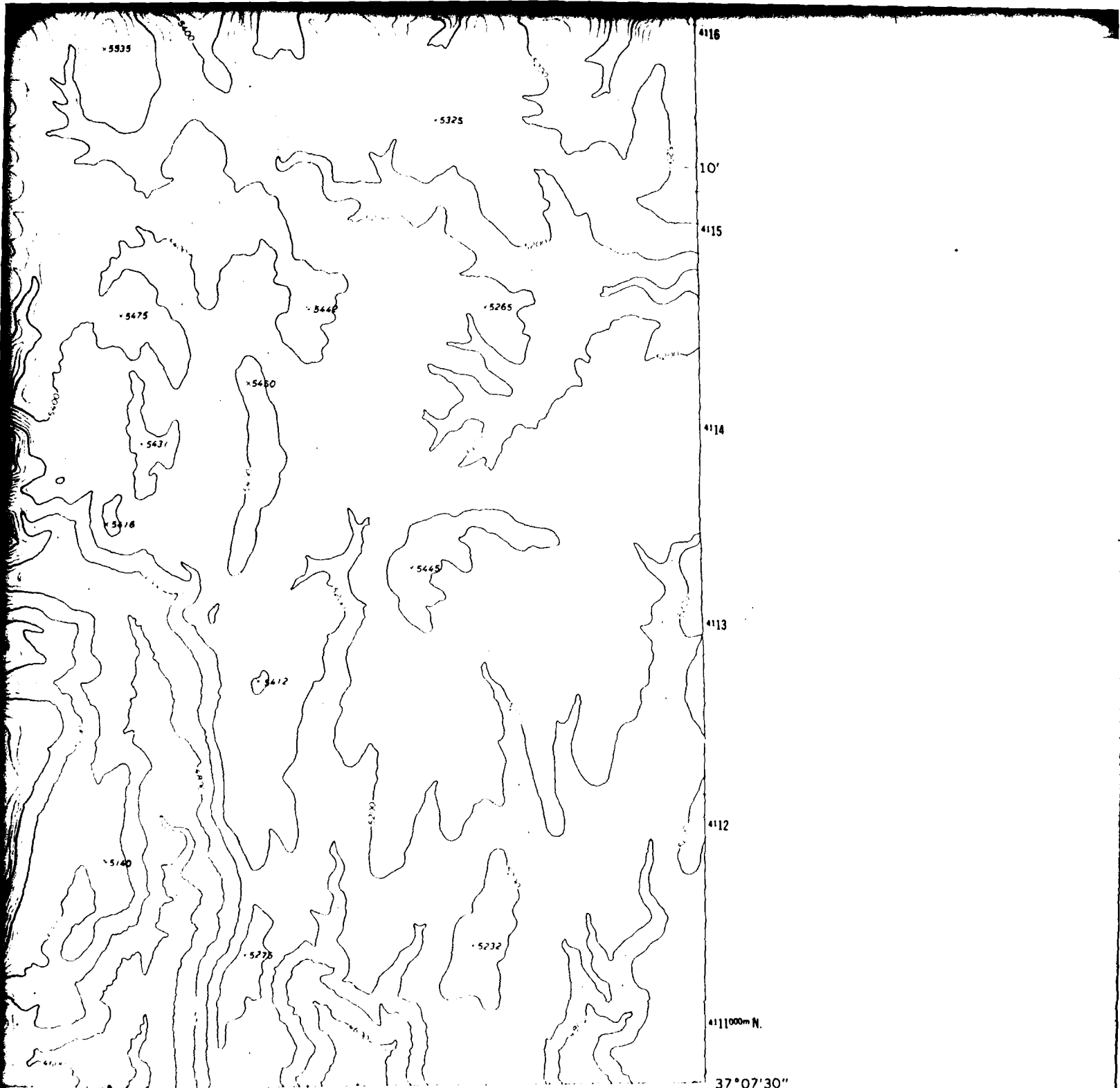
ROAD CLASS
 Primary highway, hard surface ———
 Secondary highway, hard surface - - -
 Interstate Route (U)



QUADRANGLE LOCATION

MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
 LOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
 DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST





INTERIOR GEOLOGICAL SURVEY WASHINGTON D.C. 20515
688000m E

37°07'30"
114°52'30"

ROAD CLASSIFICATION

- | | | |
|------------------------------------|---------------|--|
| Primary highway,
hard surface | ————— | Light-duty road, hard or
improved surface |
| Secondary highway,
hard surface | - - - - - | Unimproved road |
| () Interstate Route | () U S Route | () State Route |



QUADRANGLE LOCATION



DELAMAR 3 NW, NEV.
N3707.5—W11452.5/7.5

1969

AMS 3058 III NW—SERIES V896

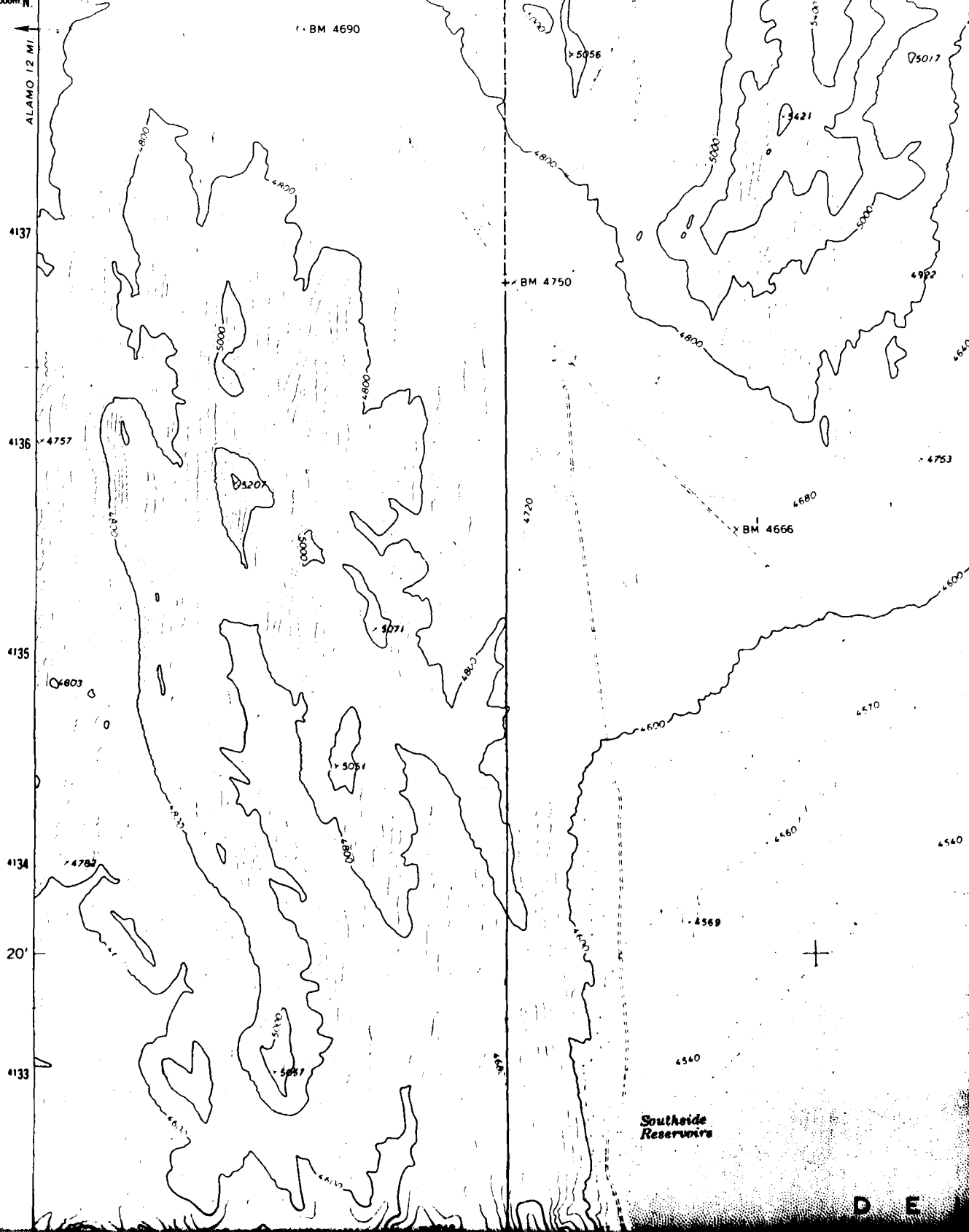
DELAMAR 3 SE1
3058 III SE

9

2958 / NE
(ALAMO NE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

115°00' 678000m E 679 R 62 E R 63 E 680 57°30" 681
37°22'30" 4138000m N



Southside
Reservoirs

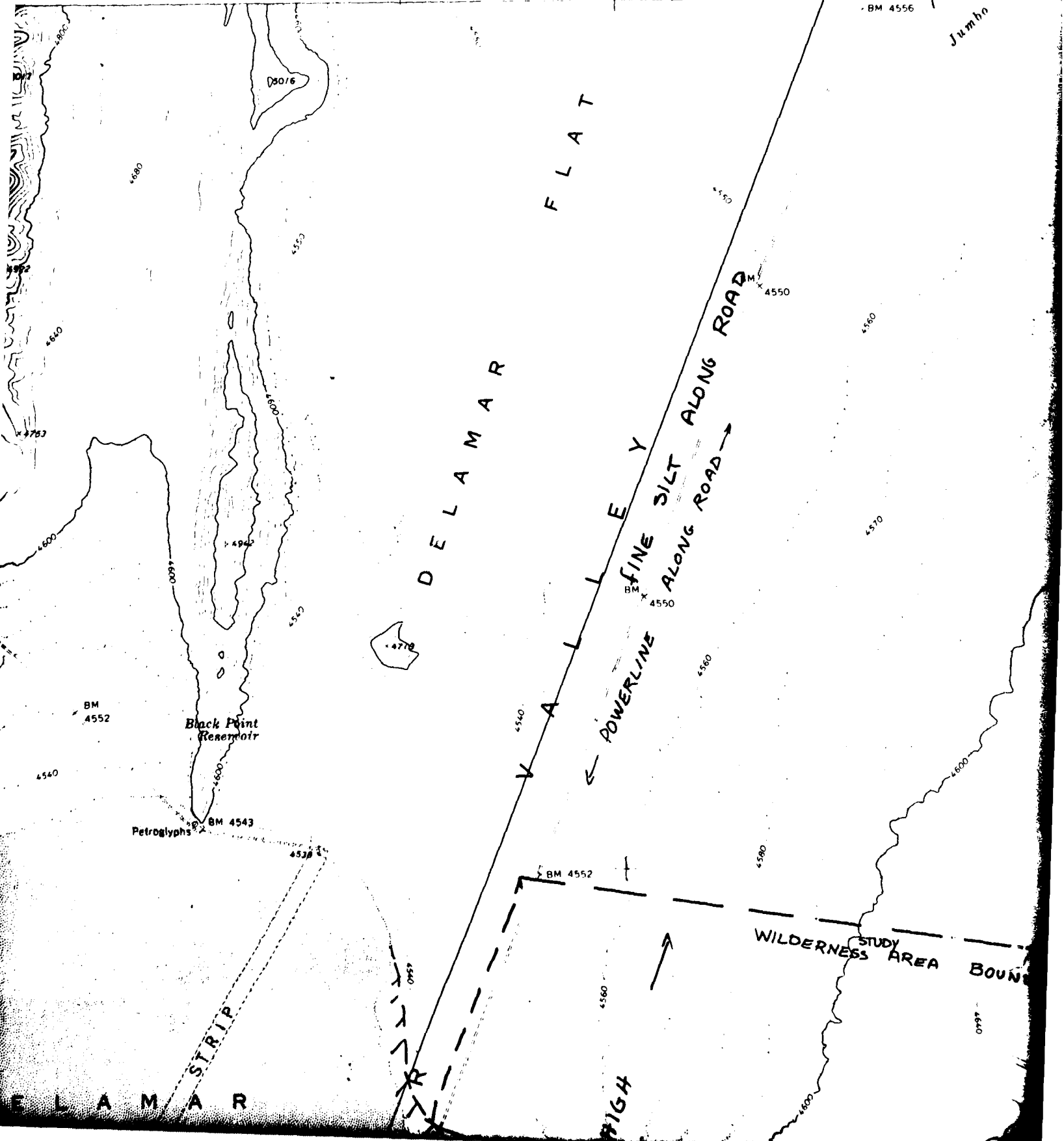
D E

2

DTN/OBTS FIELD SURVEYS NEVADA DTN SEGMENT A-B

DELAMAR
7.5 MIN

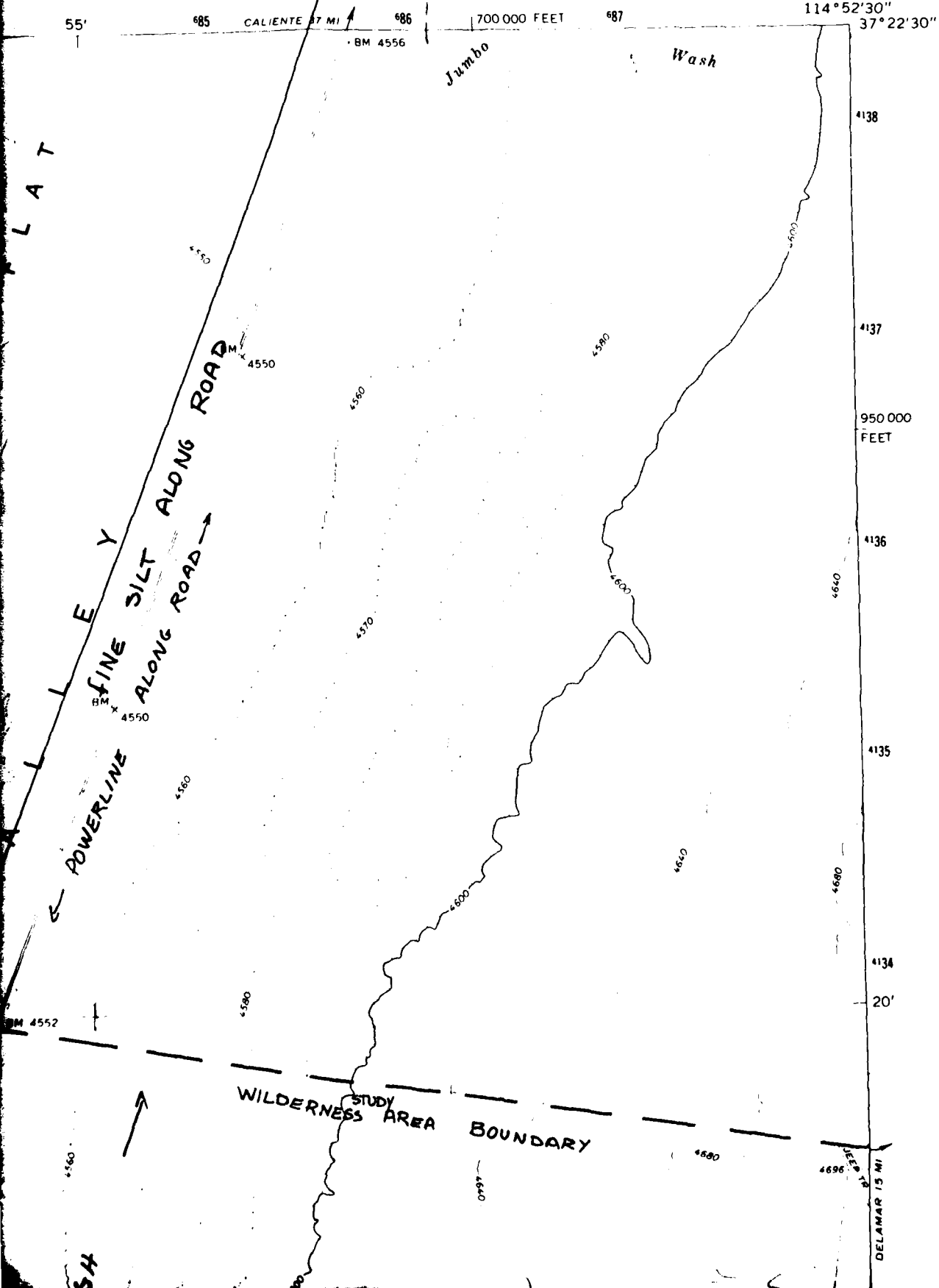
3058 IV NW (DELAMAR NW) 700 000 FEET



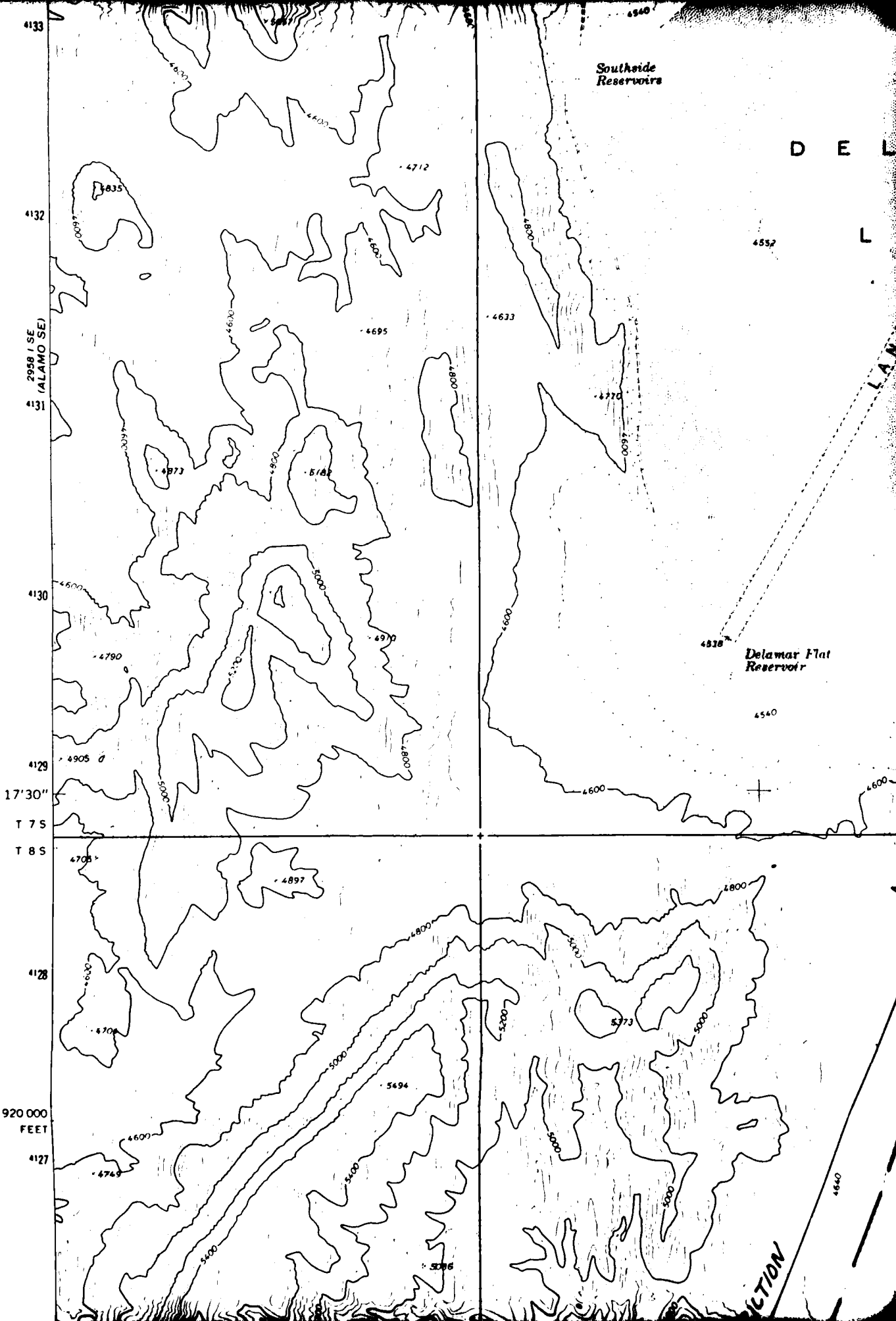
DELAMAR LAKE QUADRANGLE
NEVADA - LINCOLN CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

3058 IV ME
(DELAMAR)

3



4



4133
4132
4131
4130
4129
17'30"
T 7 5
T 8 5
4128
920 000
FEET
4127

Southside Reservoir

DEL

Delamar Flat Reservoir

SECTION

WILDERNESS STUDY AREA BO

DE L A M A R
L A K E

LANDING STRIP
PLAYA
CLAY & FINE SILTS
HIGH FLOOD
POTENTIAL

Southeast Reservoir

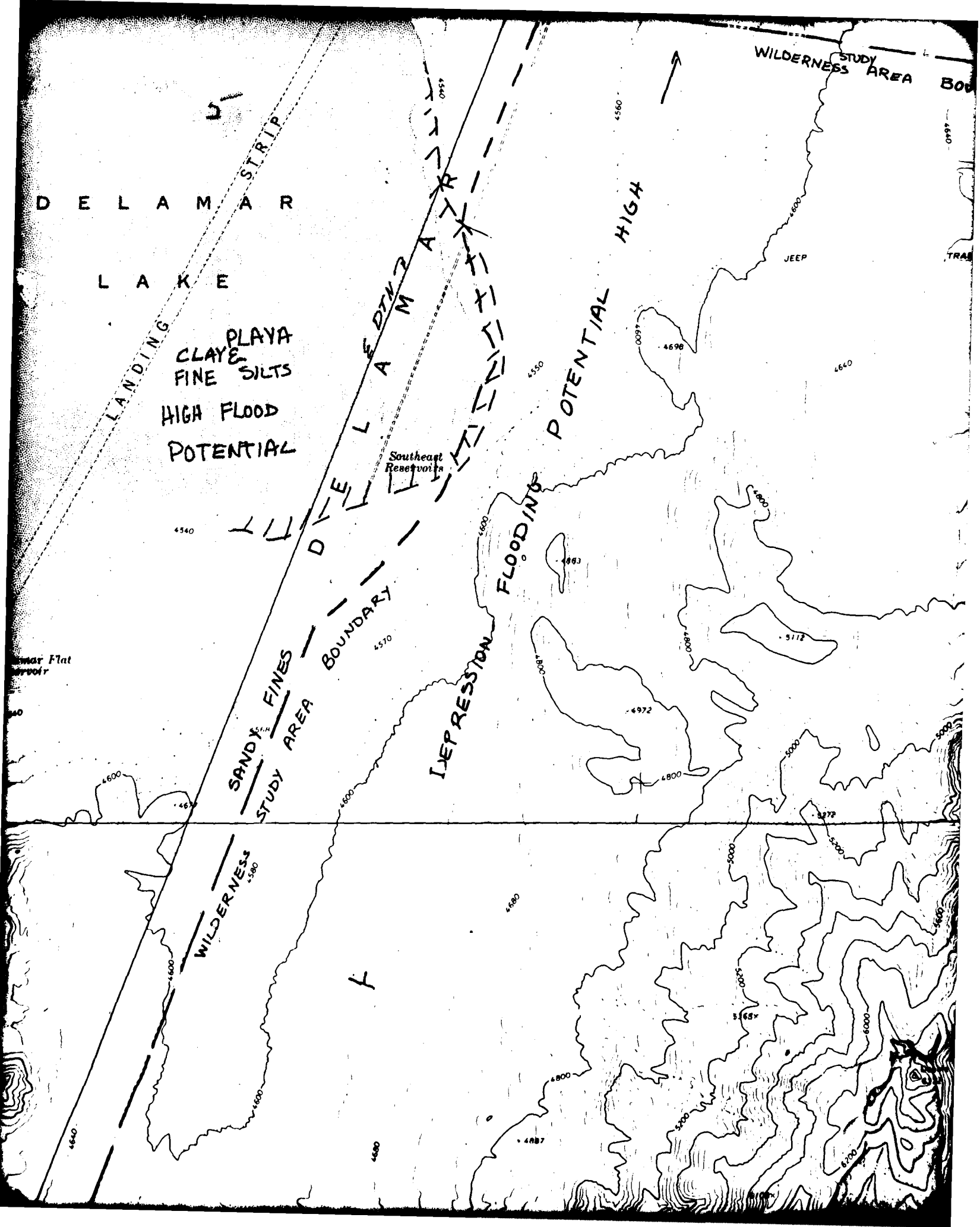
SANDY FINES STUDY AREA

BOUNDARY

DEPRESSION FLOODING POTENTIAL HIGH

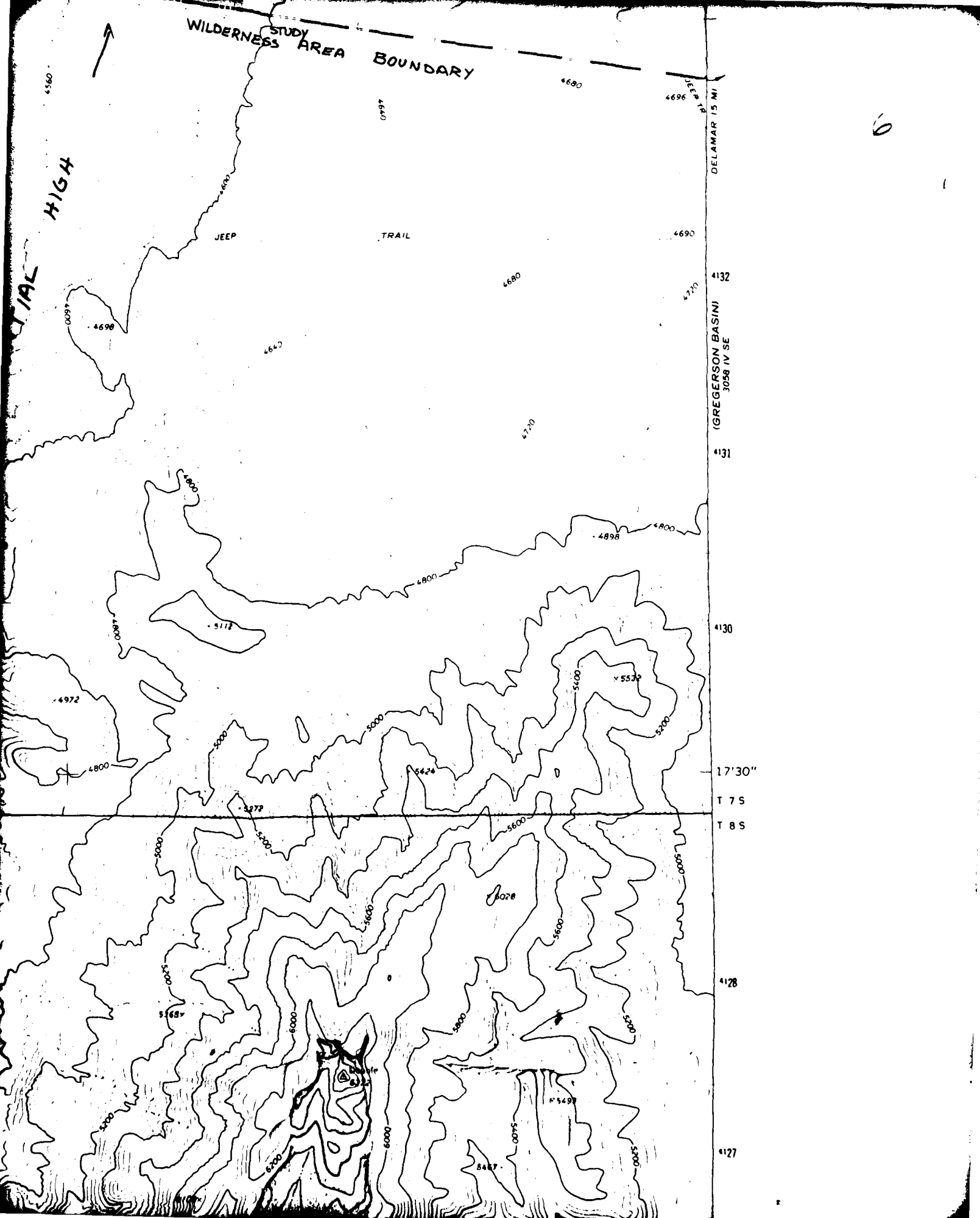
WILDERNESS

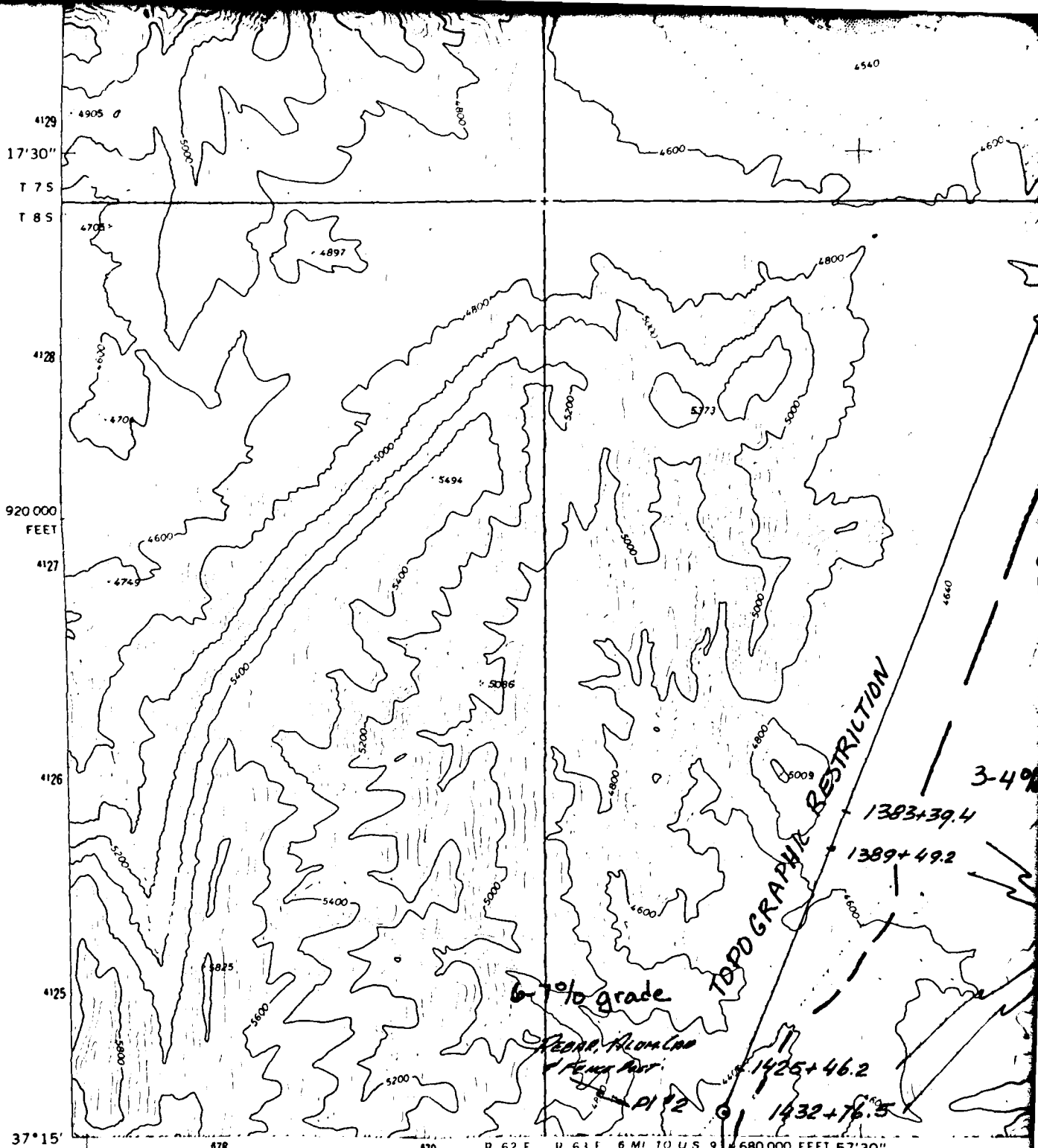
Delamar Flat Reservoir



STUDY
WILDERNESS AREA BOUNDARY

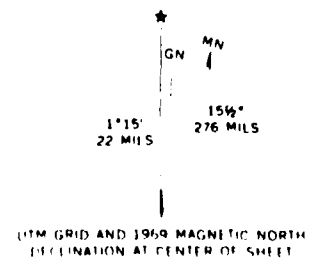
PATIAL
HIGH



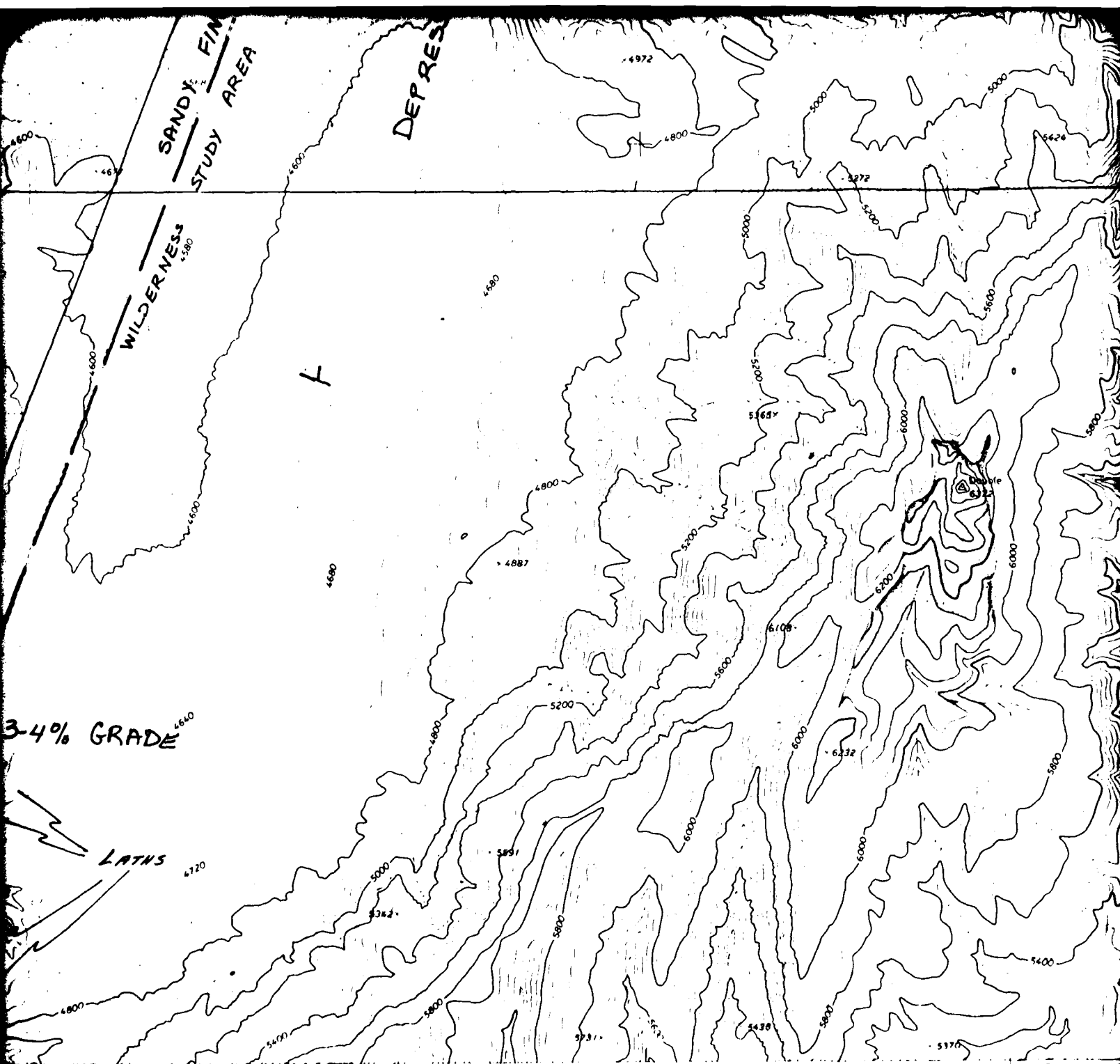


LOWER PAHRANAGAT LAKE)
2000 FT. NE

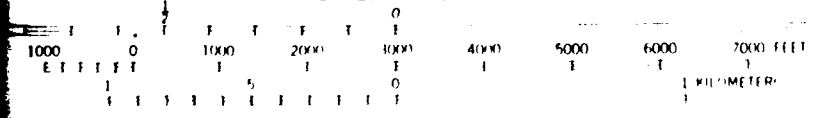
Mapped, edited, and published by the Geological Survey
 Control by USGS and USC&GS
 Topography by photogrammetric methods from aerial
 photographs taken 1967. Field checked 1969
 Polyconic projection. 1927 North American datum
 10,000-foot grid based on Nevada coordinate system, east zone
 1000-meter Universal Transverse Mercator grid ticks,
 zone 11, shown in blue
 Fine red dashed lines indicate selected fence lines
 Where omitted, land lines have not been established



FOR SALE BY U.S.
A FOLDER



DELAMAR 3 NW
3058 III NW
SCALE 1:24,000



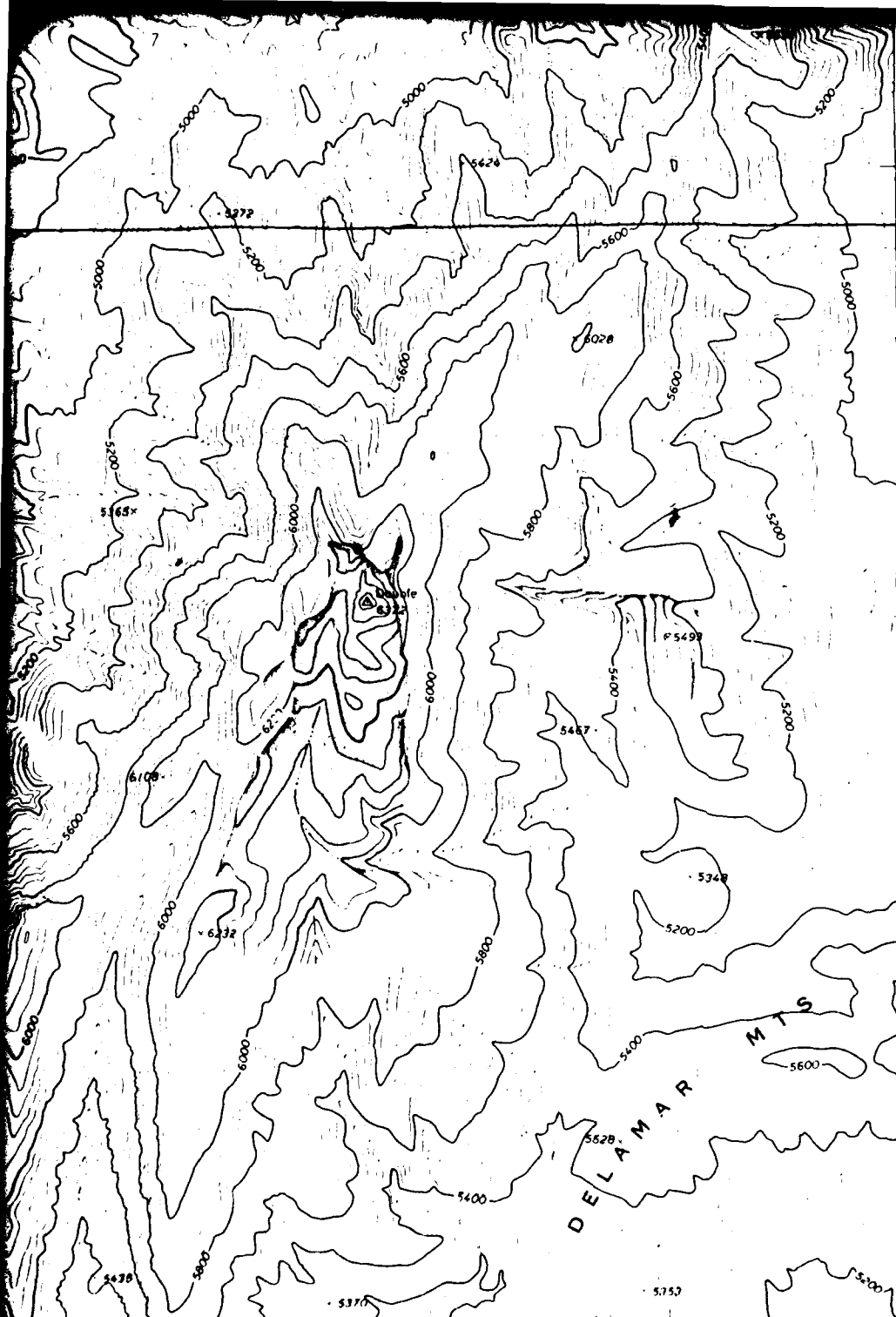
CONTOUR INTERVAL 40 FEET
DOTTED LINES REPRESENT 10 FOOT CONTOURS
DATUM IS MEAN SEA LEVEL



- Primary highway, hard surface
- Secondary highway, hard surface
- Interstate Route

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D C 20242
OLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST





17'30"
 T 7 S
 T 8 S
 4128
 4127
 4126
 4125000m N
 37°15'

685 686 687 688000m E 114°52'30"

ROAD CLASSIFICATION

- Primary highway, hard surface
- Secondary highway, hard surface
- Light duty road, hard or improved surface
- Unimproved road
- Interstate Route
- U S Route
- State Route



QUADRANGLE LOCATION



DELAMAR LAKE, NEV.
 N3715 - W11452.5/7.5

1969

AMS 3058 IV SW - SERIES V896

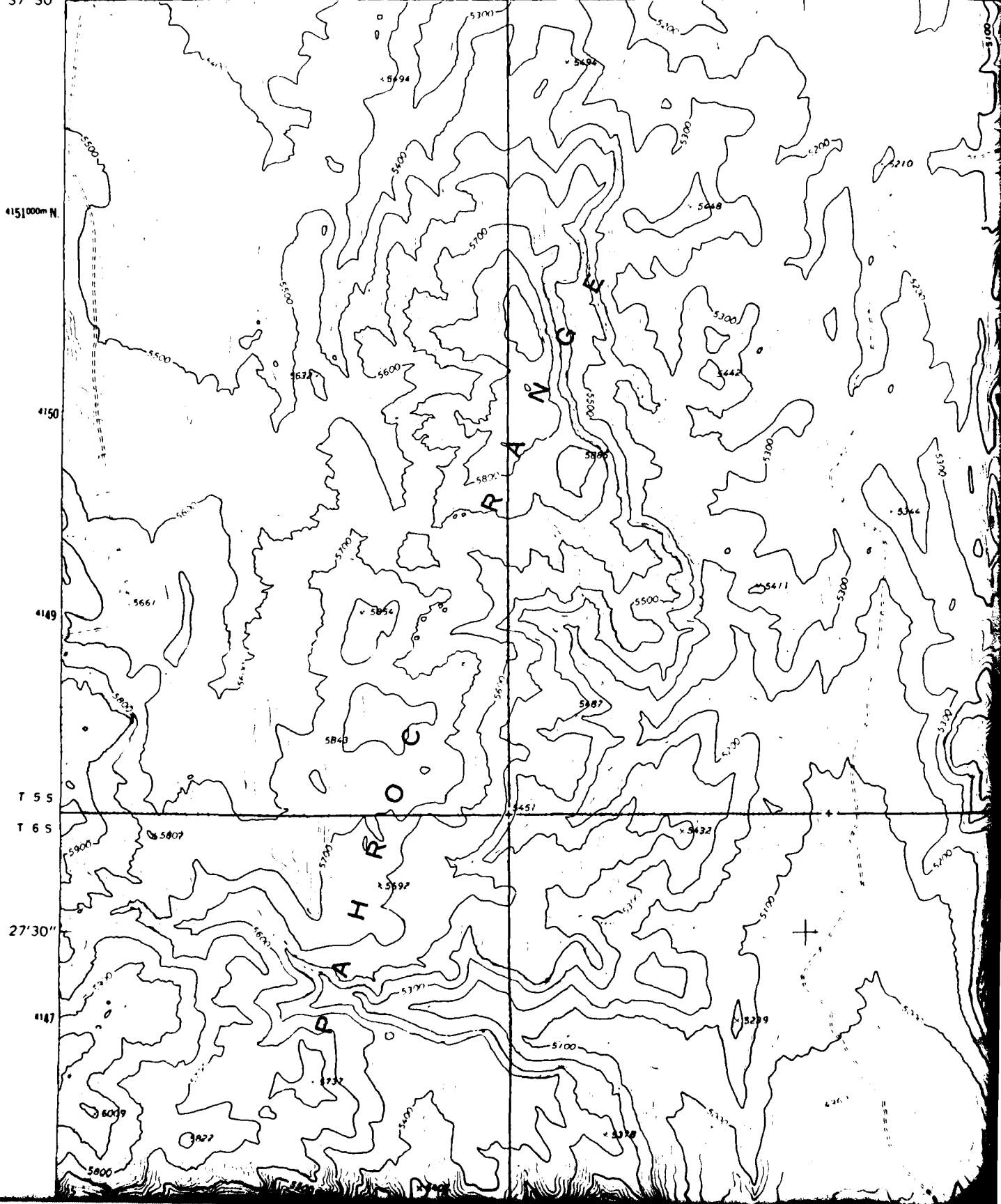
(DELAMAR 3 NE)
 3058 (1) NE

9

1

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

115°00' 37°30' 678000m E R 62 E R 63 E 680 57'30" 681



**DTN/OBTS FIELD SURVEYS
NEVADA DTN
SEGMENT A-B**

DELANI
NEV
7.5 MINUT

682

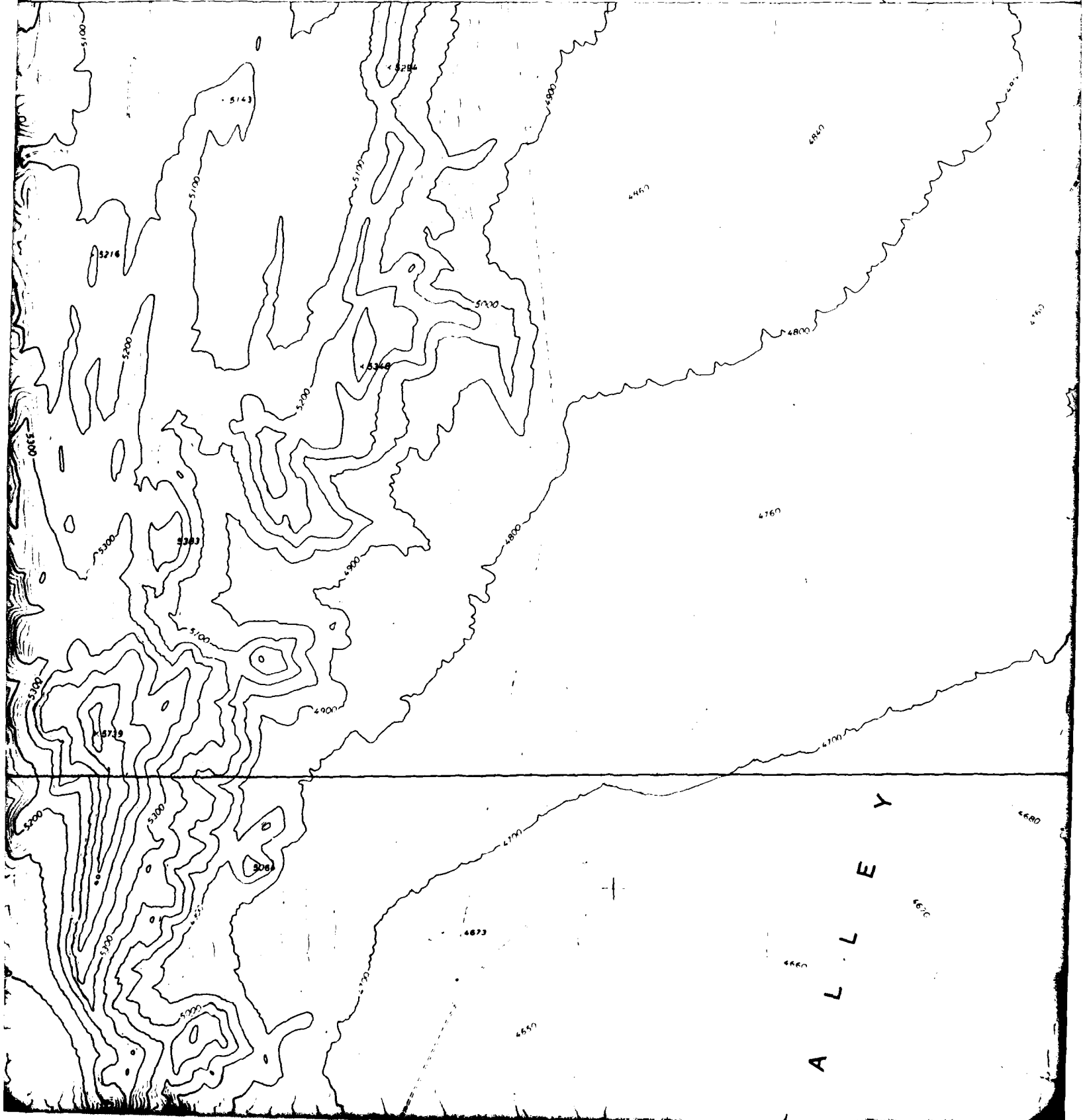
683

684

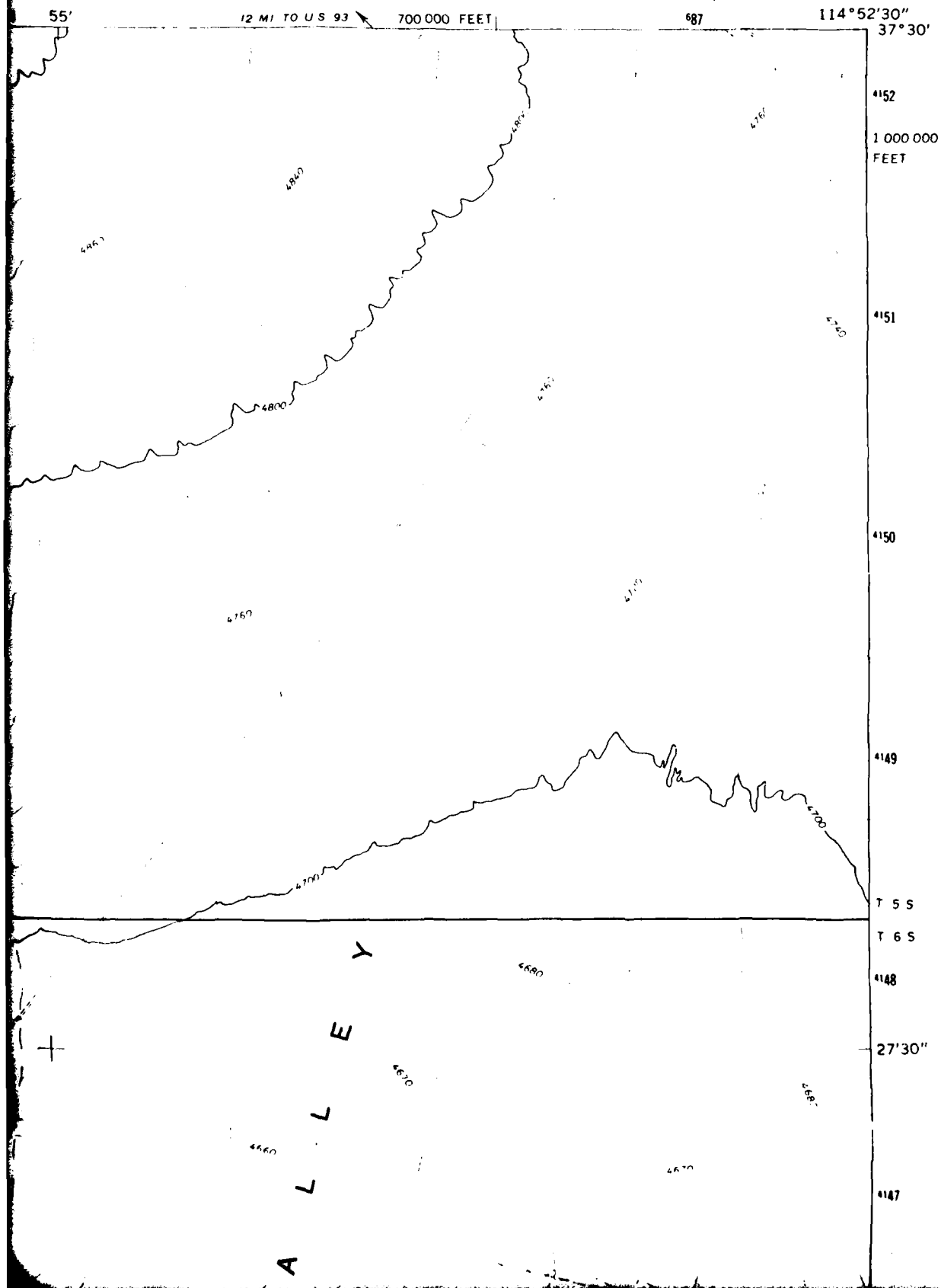
55'

12 MI TO US 93

700,000 FEET



DELAMAR NW QUADRANGLE
NEVADA-LINCOLN CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



27'30"

1147

1146

1144

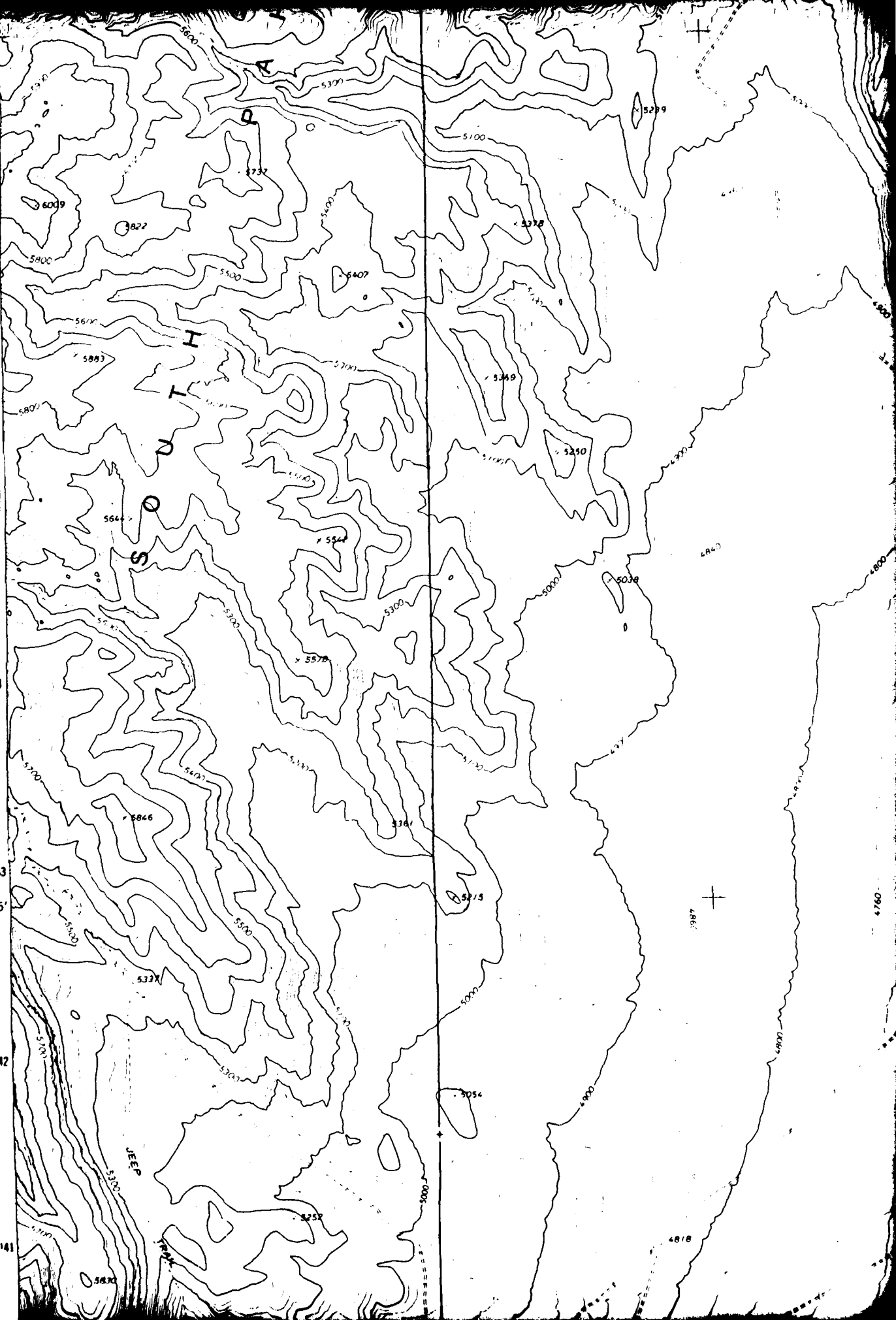
1143

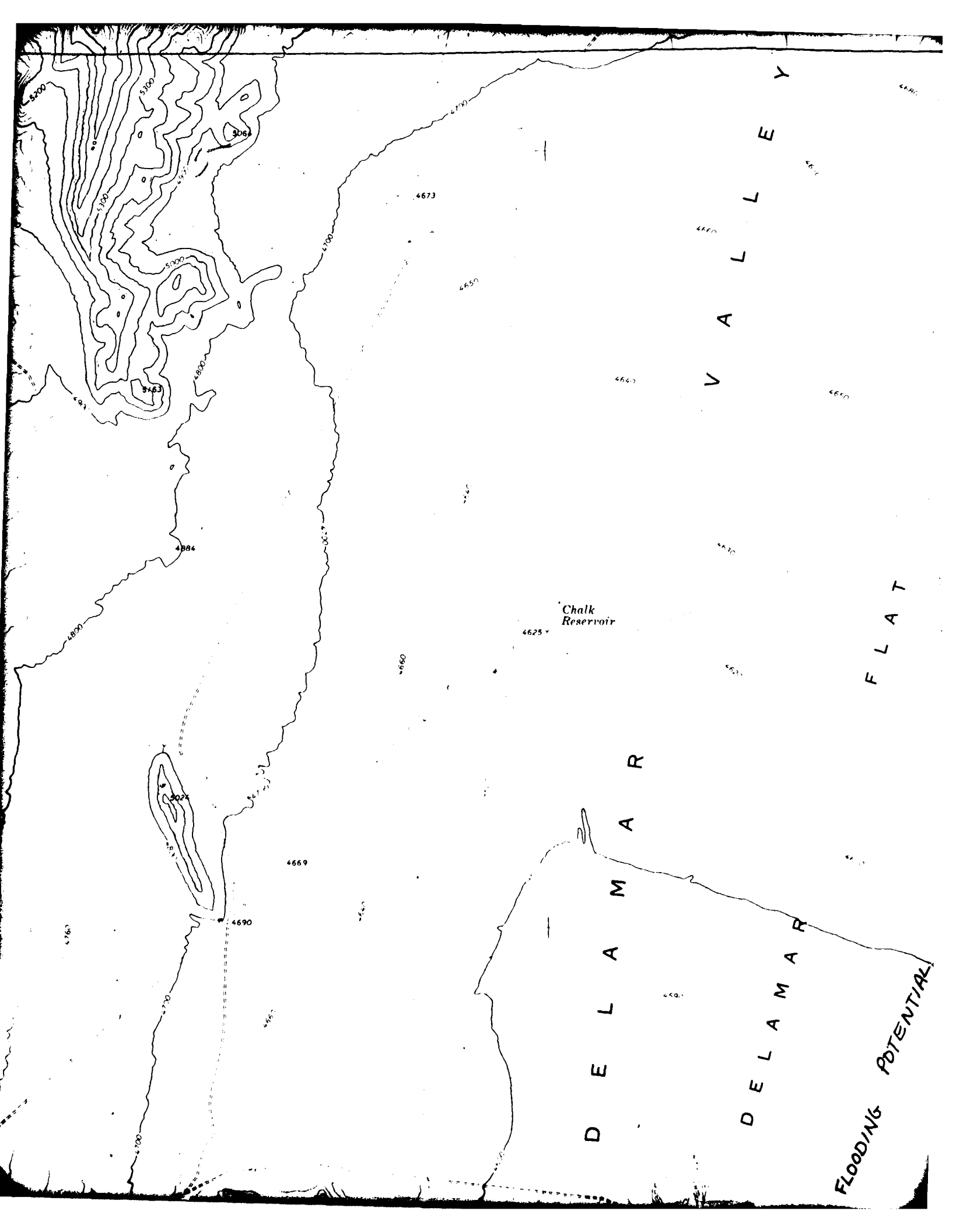
25'

1142

1141

2958 1 NE
(ALAMO NE)





Chalk Reservoir

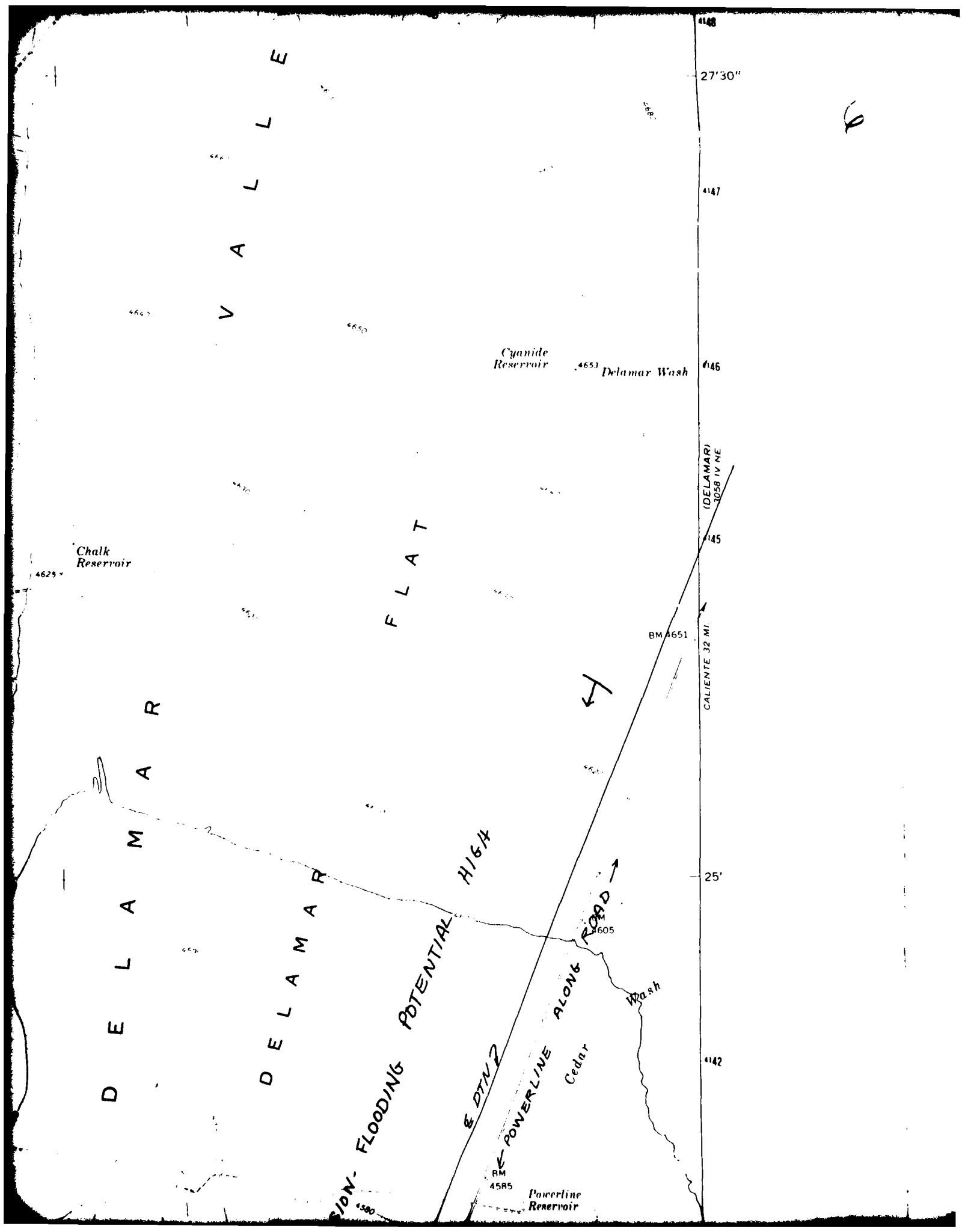
V A L L E Y

F L A T

D E L A M A R

D E L A M A R

FLOODING POTENTIAL



Chalk Reservoir

Cyanide Reservoir

Delamar Wash

DELA MAR

VALLEY

FLAT

DELA MAR
HIGH
ROAD
POWERLINE ALONG CEDAR

(DELA MAR)
3058 IV NE

BM 4651

CALIENTE 32 MI.

25'

4142

4146

4147

27'30"

4148

4585

Powerline Reservoir

4625

4660

4650

4630

4610

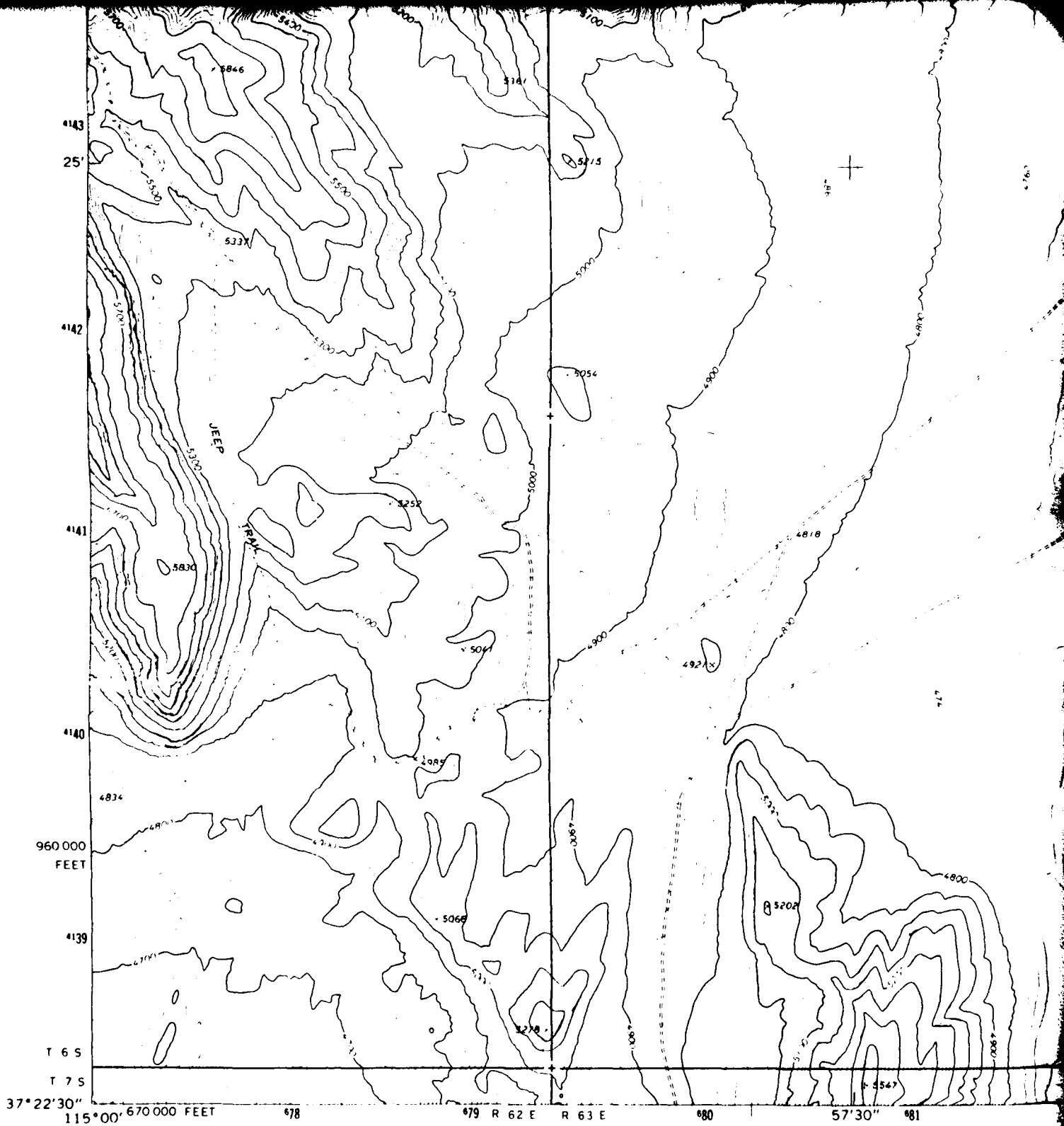
4590

4580

4605

38'

D



ALAMO SE
1948 1 SE

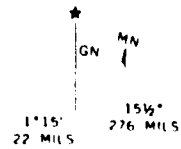
Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1967. Field checked 1969

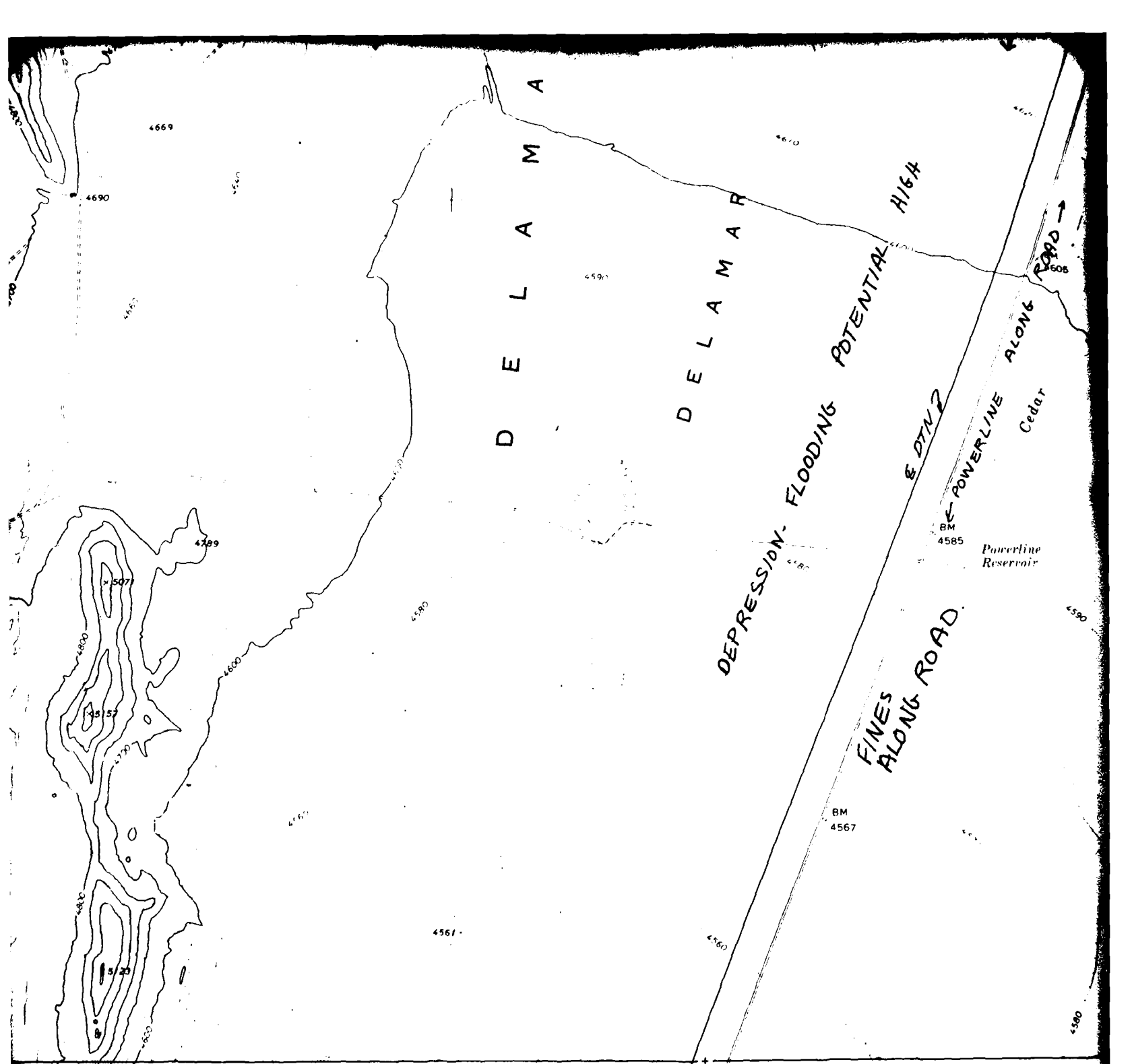
Polyconic projection. 1927 North American datum
10 000 foot grid based on Nevada coordinate system, east zone
1000 meter Universal Transverse Mercator grid ticks,
zone 11 shown in blue

Red dashed lines indicate selected fence lines
Unsettled land lines have not been established



UTM GRID AND 1964 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

FOR SALE BY U.S. GEOLOGICAL SURVEY
A FOLDER DESCRIPTION



(DELAMAR LAKE) 3058 IV SW 83 84 55' 85 16 MI TO U.S. 31 86 U.S. GOVERNMENT PRINTING OFFICE 1973-518 887000m E

SCALE 1:24 000
 0 1000 2000 3000 4000 5000 6000 7000 FEET
 0 1 2 3 4 5 KILOMETER
 1 MILE

FOUR INTERVAL 20 FEET
 LINES REPRESENT 10 FOOT CONTOURS
 DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION
 Primary highway, hard surface
 Secondary highway, hard surface
 Light-duty road, hard surface
 Unimproved road
 () Interstate Route () U.S. Route () State Route

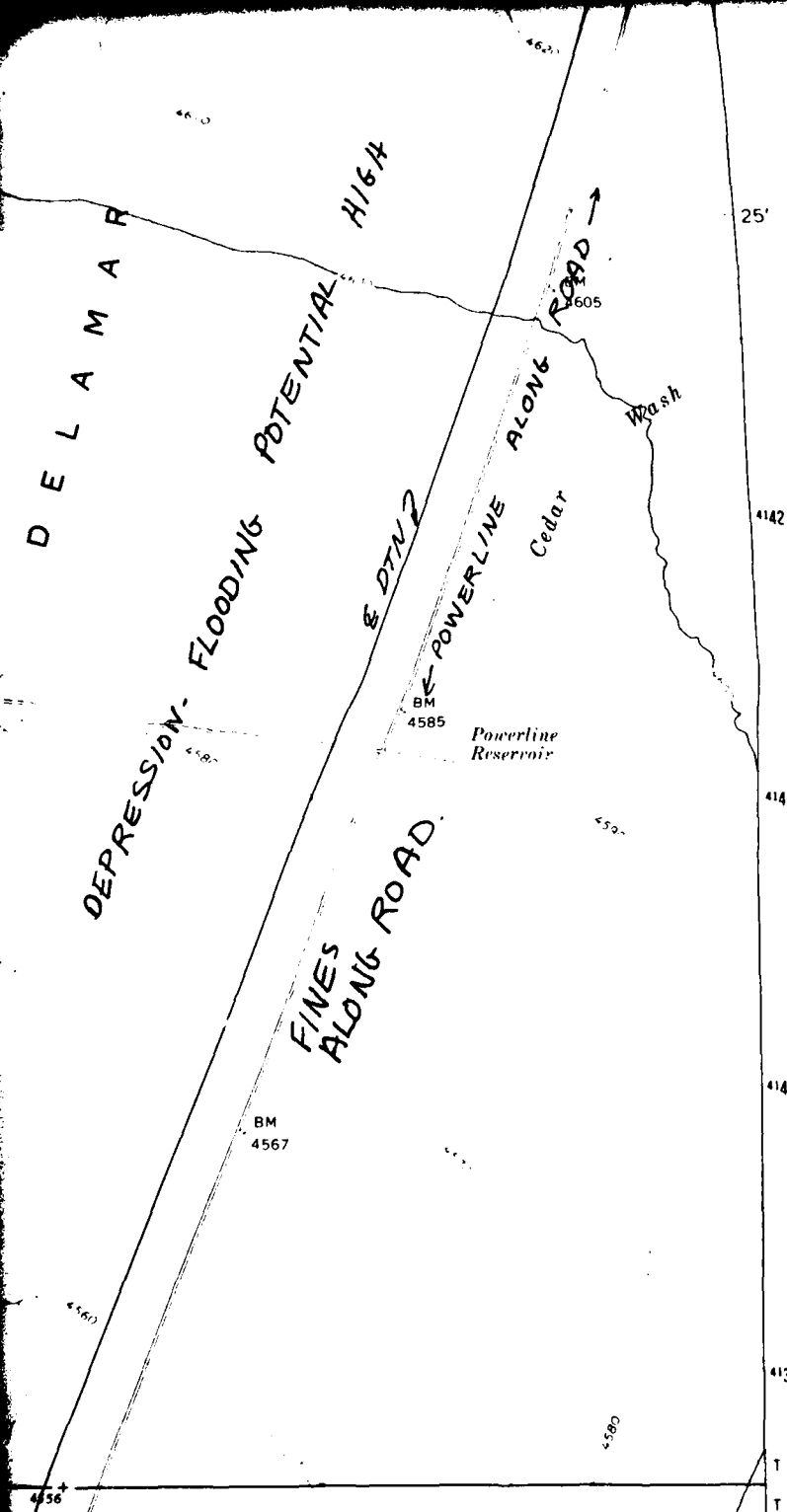


QUADRANGLE LOCATION

WITH NATIONAL MAP ACCURACY STANDARDS
 BUY IN DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
 A PPLICATION MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



DELAMAR
 N3722.5-W1



U.S. GOVERNMENT PRINTING OFFICE 1973-516-077/1
 887000m E 114°52'30" 37°22'30"

ROAD CLASSIFICATION

- Primary highway, hard surface Light duty road, hard or improved surface
- Secondary highway, hard surface Unimproved road
- () Interstate Route { } U S Route ○ State Route

(GREGGERSON BASIN)
 3058 IV SE



DELAMAR NW, NEV.
 N3722.5 - W11452.5/7.5
 1969
 AMS 3058 IV NW - SERIES V898

388 H SW
(PAIROC SUMMIT PASS)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



D1

114° 52' 30" R 63 E R 64 E 689000m E 690 CALIENTE 27 M 691 50' 692

4152000m N

4151

4150

4149

T 5 S

T 6 S

4148

27' 30"

4147

V
A
L
L
E
Y

19
Monkey

Wrench

Wash

30

29

LATH

532+02.6 Voltage

BM 4871

31

32

BM 4808

774+01.5 LATH

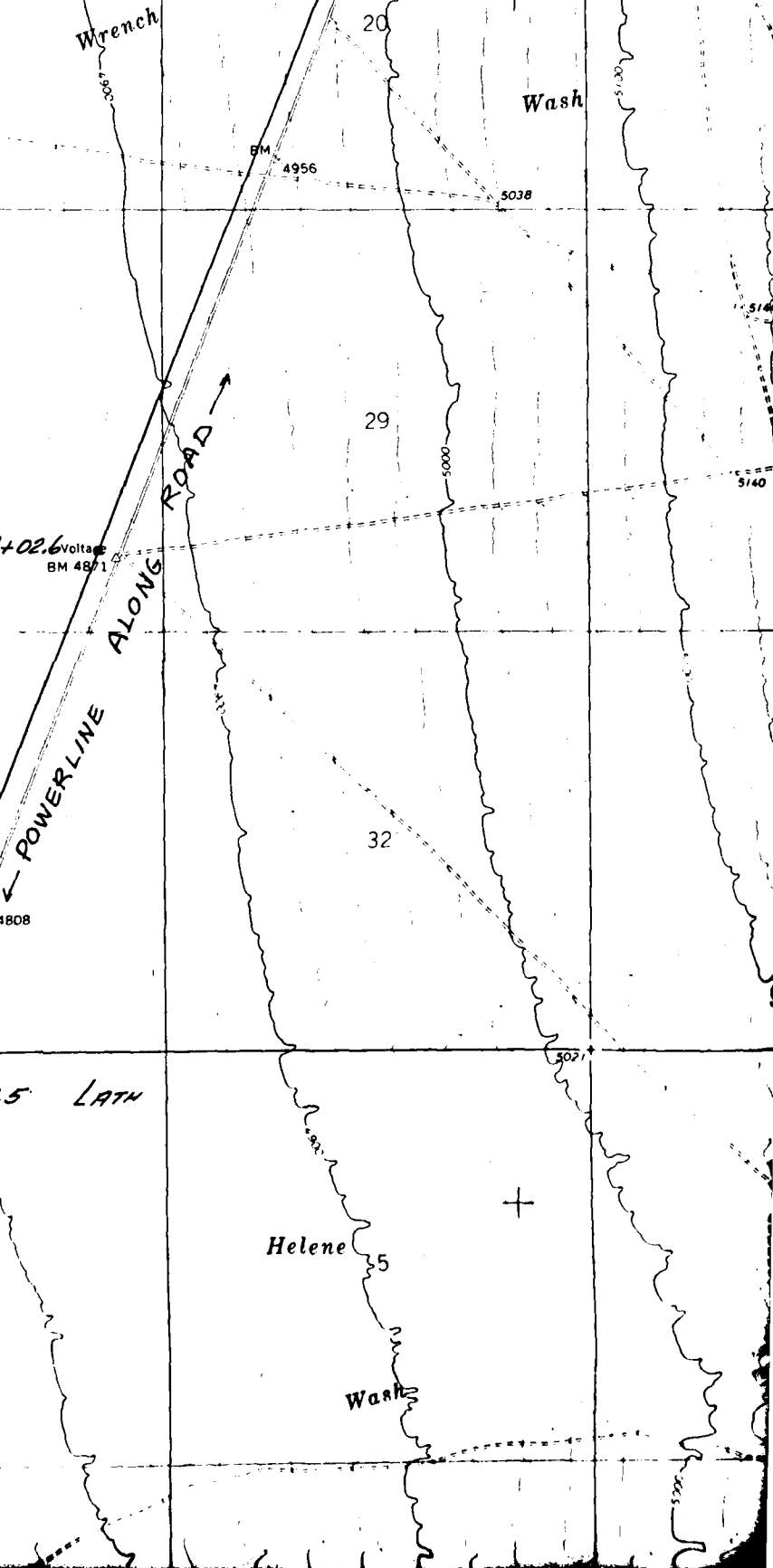
6

Helene

5

Wash

Delamar



DTN/OBTS FIELD SURVEYS
NEVADA DTN
SEGMENT A-B

DELAMAR
NEVADA-
7.5 MINUTE SECTION

3069 III SE
(PAHROC SPRING SE)

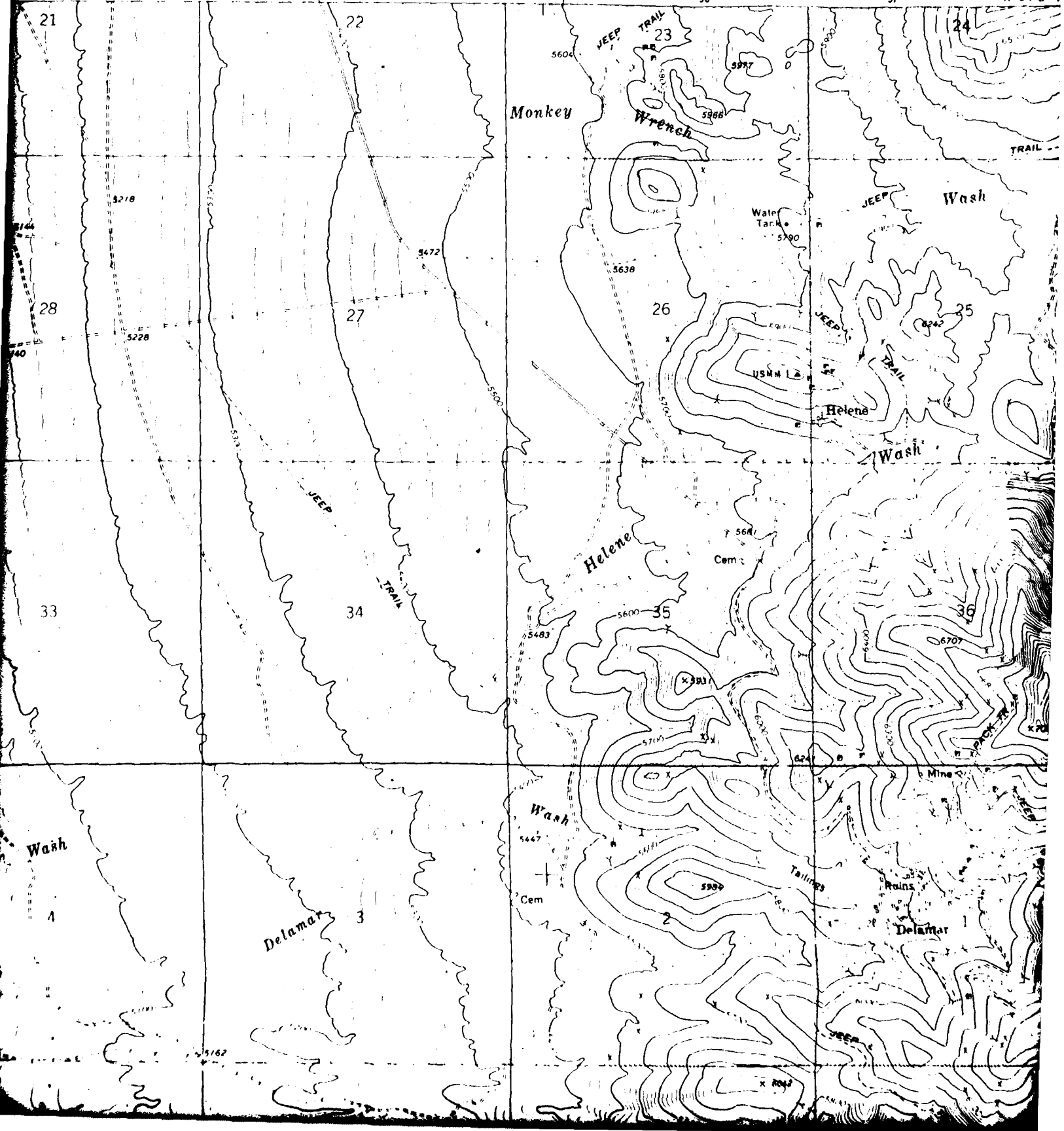
694 9 MI TO US 91

695 47'30"

696

697

H 64 E 7



DELAMAR QUADRANGLE
NEVADA LINCOLN CO
7.5 MINUTE SERIES (TOPOGRAPHIC)

36° 14'
(CHOKECHERRY MTN)

47°30'

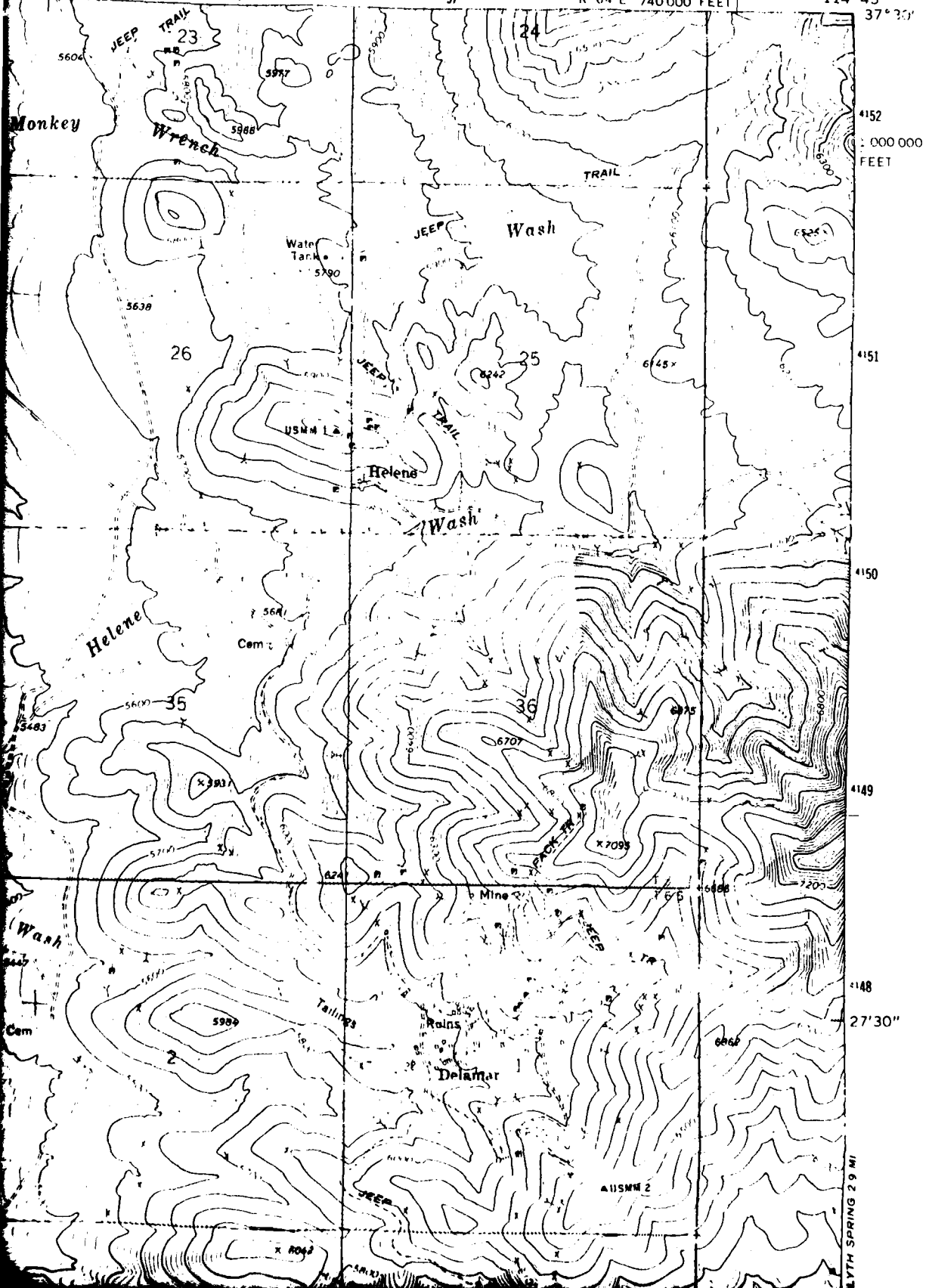
996

997

R 64 E 740 000 FEET

114°45'

37°35'



LYTH SPRING 29 MI

f

4146
4145
25'
4142
4141
4140

3058 N. NW
(DELAMAR NW)
20 MI. TO U.S. 93

D
E
L
A
M
A
R

Delamar

Wash

Cedar

Big

Lime

7

8

9

18

17

16

19

20

21

30

29

28

BM 4703

4873

4857

4844

4878

4892

4711

4672

4887

4887

4700

4700

4887

4887

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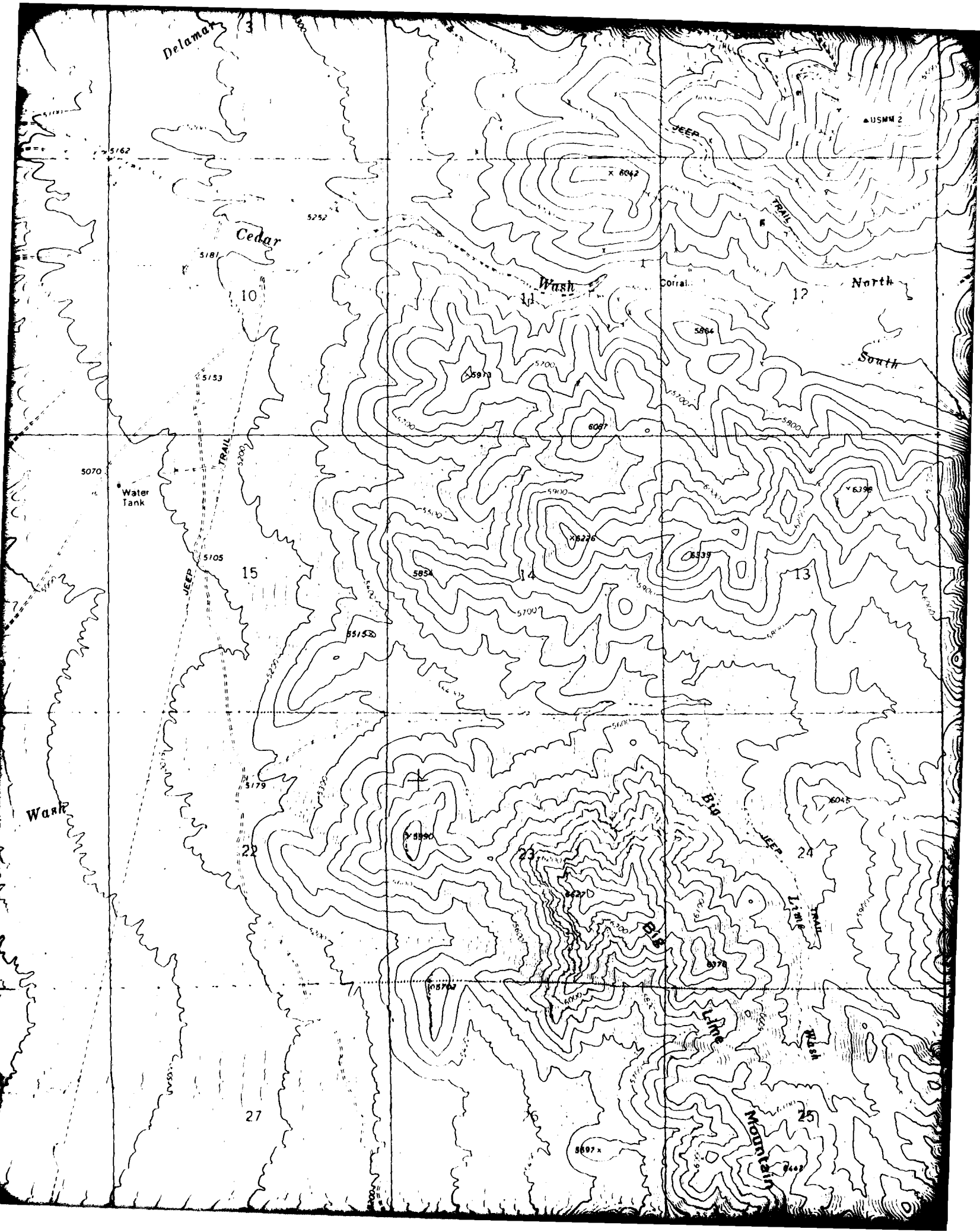
4561

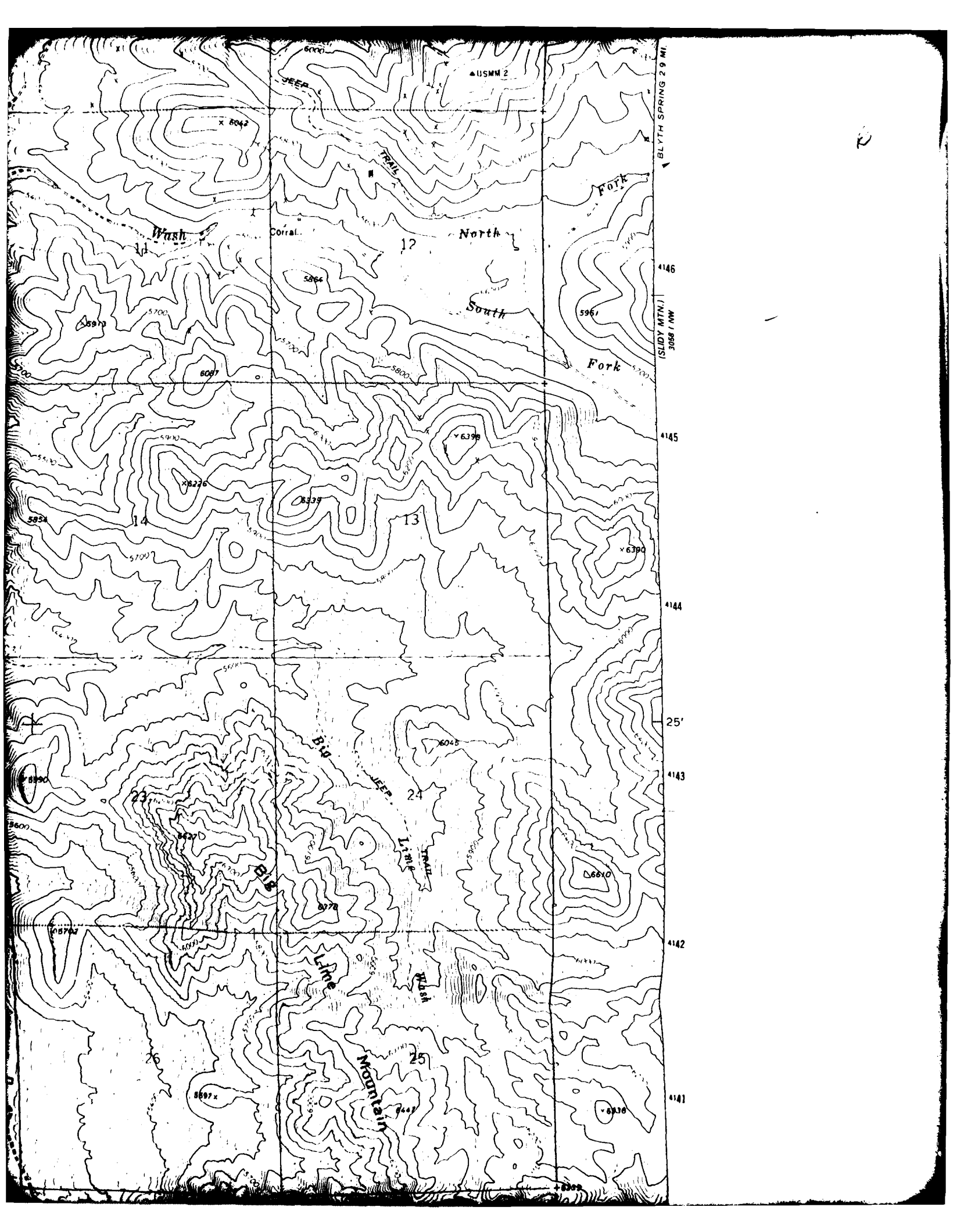
4941

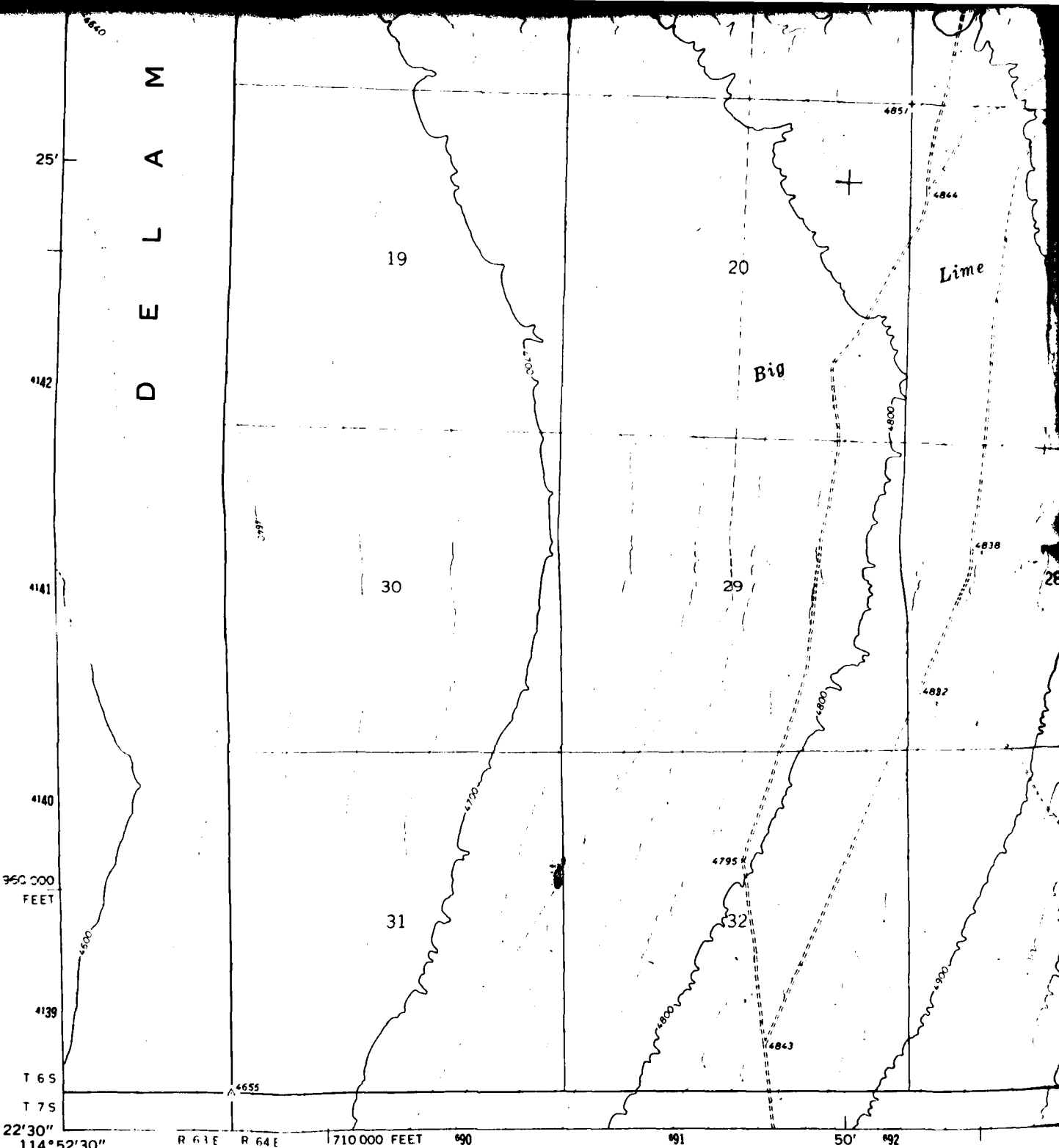
4797

+

4857

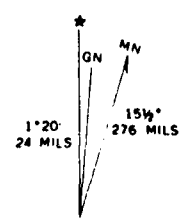




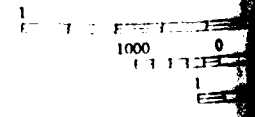


37° 22' 30"
114° 52' 30"

Mapped, edited, and published by the Geological Survey
 Control by USGS and USC&GS
 Topography by photogrammetric methods from aerial
 photographs taken 1967. Field checked 1969
 Polyconic projection. 1927 North American datum
 10,000-foot grid based on Nevada coordinate system, east zone
 1000-meter Universal Transverse Mercator grid ticks,
 zone 11, shown in blue
 Fine red dashed lines indicate selected fence lines
 Where omitted, land lines have not been established



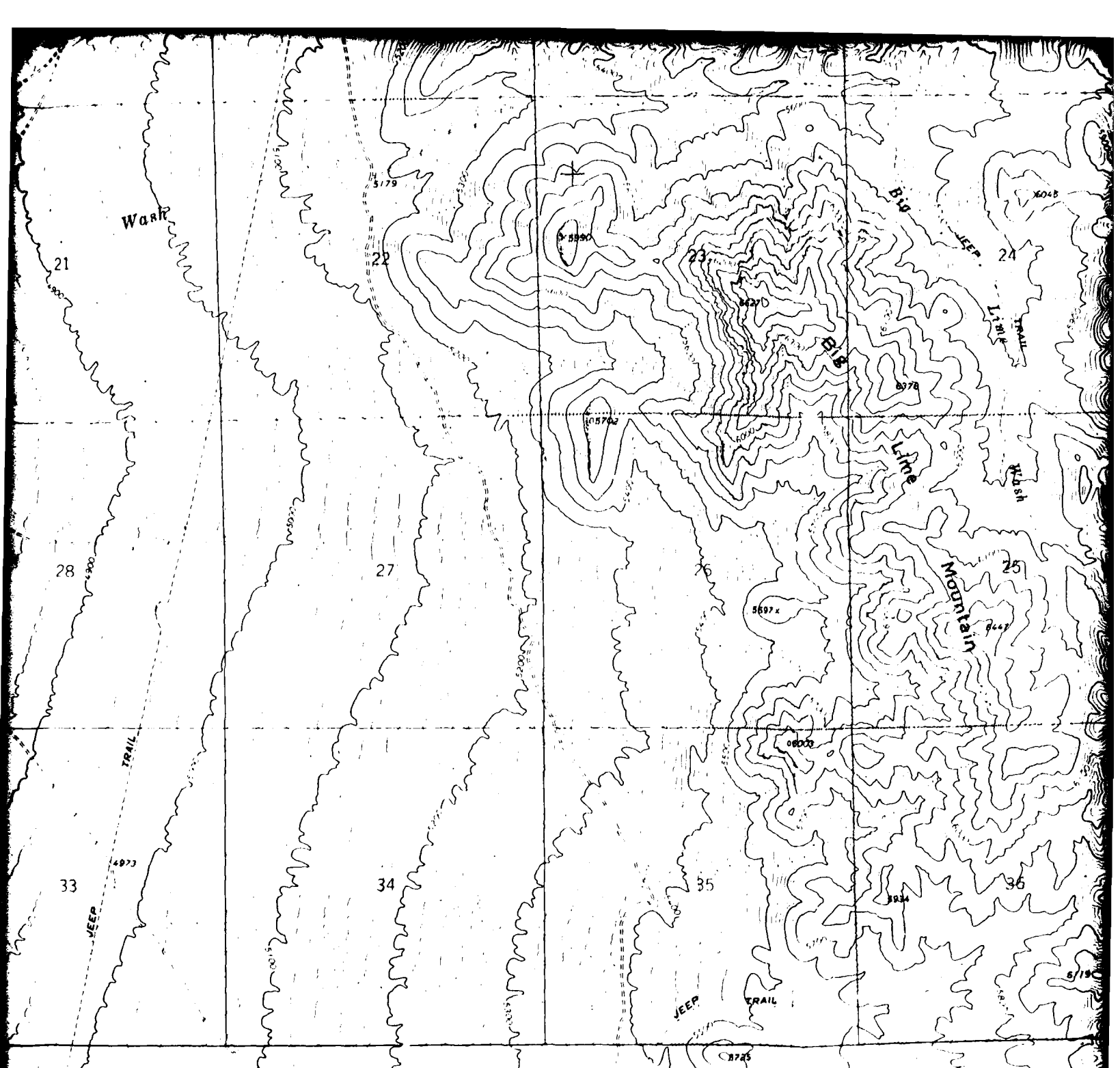
UTM GRID AND 1969 MAGNETIC NORTH
 DECLINATION AT CENTER OF SHEET



FOR SALE BY U. S. GE
 A FOLDER OF

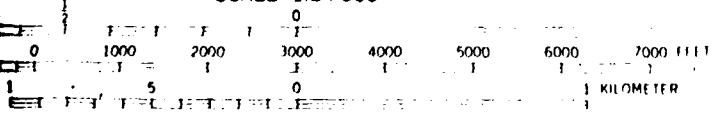
DE L A M LAKE
 3000 IV SW

7



GREGERSON BASIN
3058 IV SE

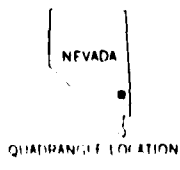
SCALE 1:24 000



CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

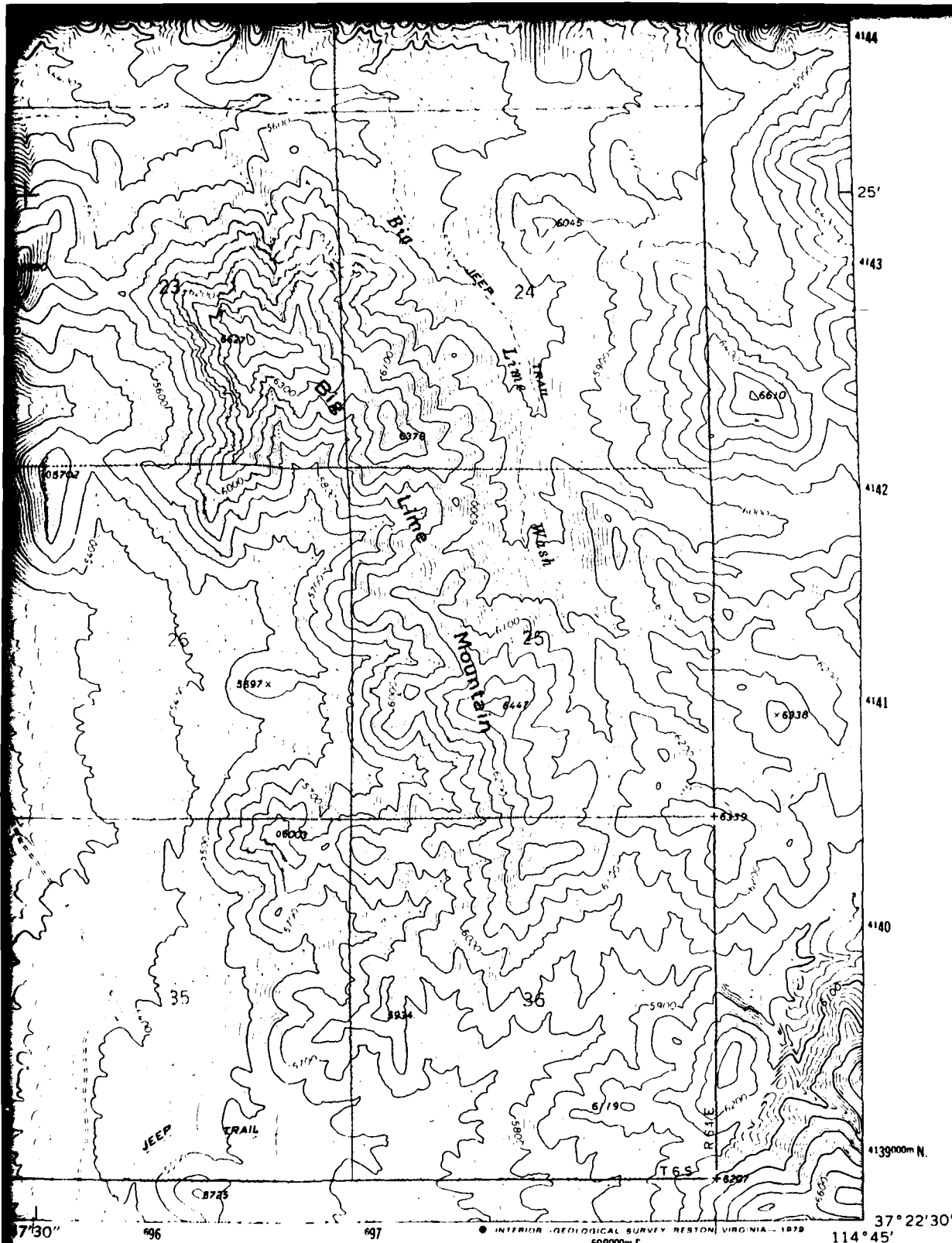
ROAD CLASS

- Primary highway, hard surface
- Secondary highway, hard surface
- Interstate Route



THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

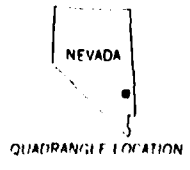




ROAD CLASSIFICATION

- Primary highway, hard surface Light duty road, hard or improved surface
- Secondary highway, hard surface Unimproved road

() Interstate Route U S Route () State Route



DELAMAR, NEV.
N 3722 5 - W 11445 / 7.5

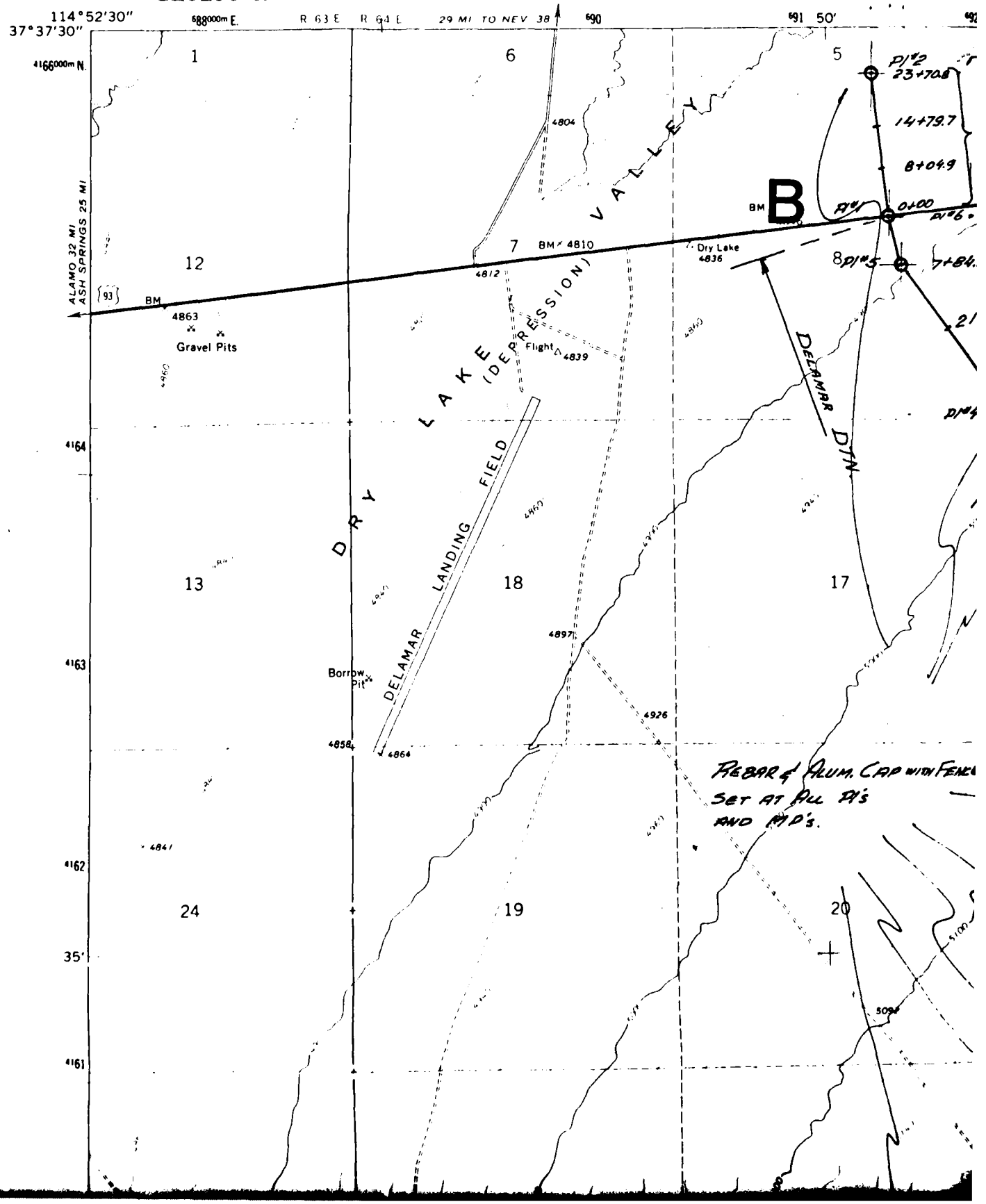
1969

AMS 3058 IV NE-SERIES V896

37° 22' 30"
114° 45'
4139000m N.
E LGN SW
3000' SW

3059 (11 NW
(PAHROC SPRING)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

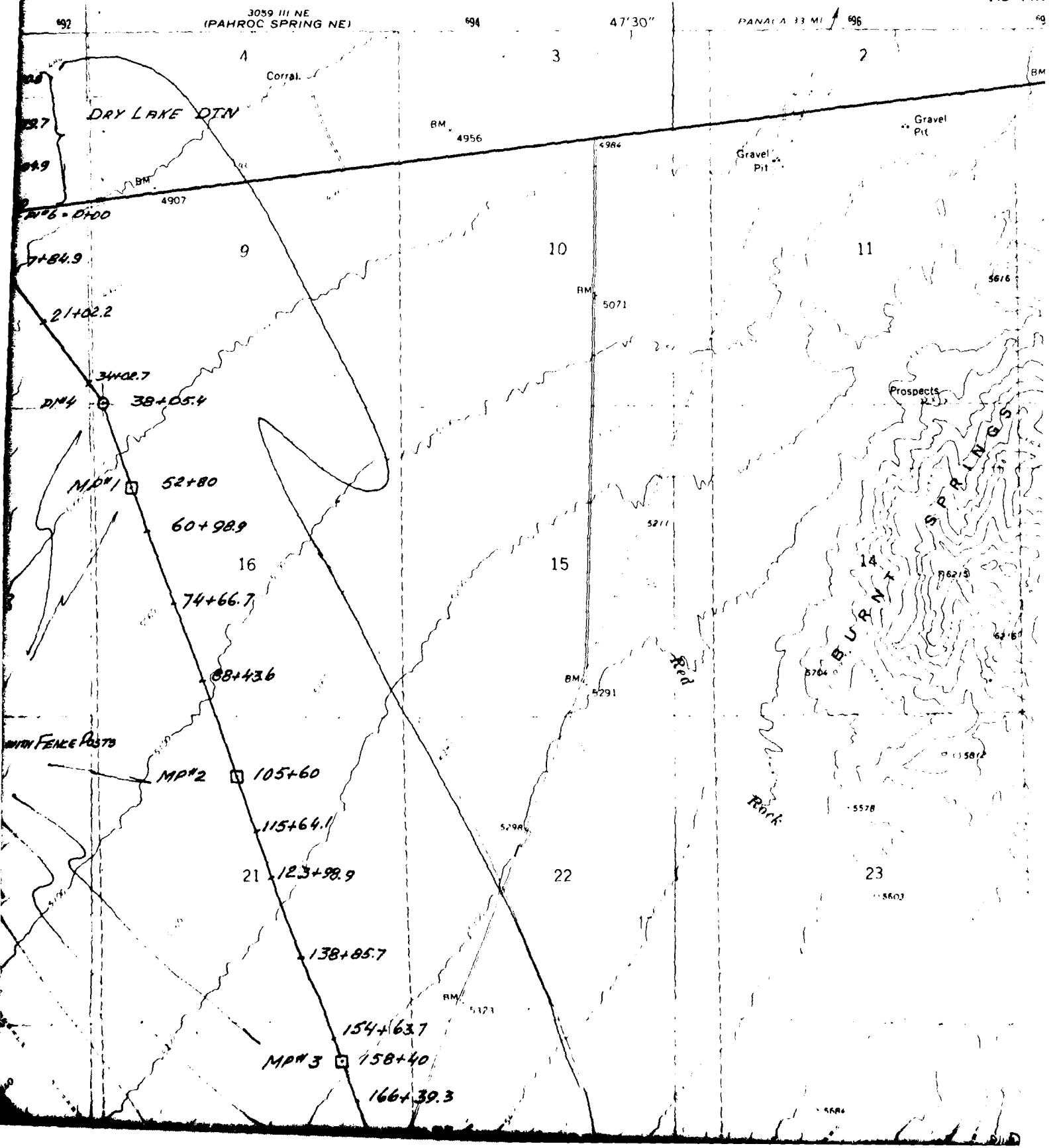


2

DTN/OBTS FIELD SURVEYS NEVADA DTN SEGMENT A-B

PAHROC

7.5 MI



AD-A112 763

ERTEC WESTERN INC LONG BEACH CA F/8 8/6
MX SITING INVESTIGATION. DTN/OBTS FIELD SURVEYS. DATA COMPILATI--ETC(U)
NOV 81 F04704-80-C-0006
E-TR-59-1 NL

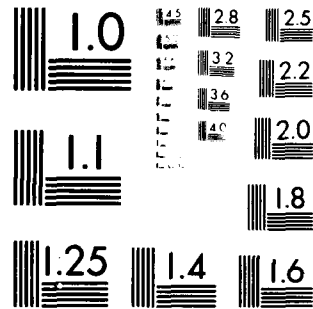
UNCLASSIFIED

2 + 2

44



END
DATE
FILMED
4 -82
DTIC



MICROCOPY RESOLUTION TEST CHART

NATIONAL BUREAU OF STANDARDS-1963-A

PAHROC SPRING SE QUADRANGLE
NEVADA-LINCOLN CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

3089 11 NW
(CALIENTE NW)

47°30"

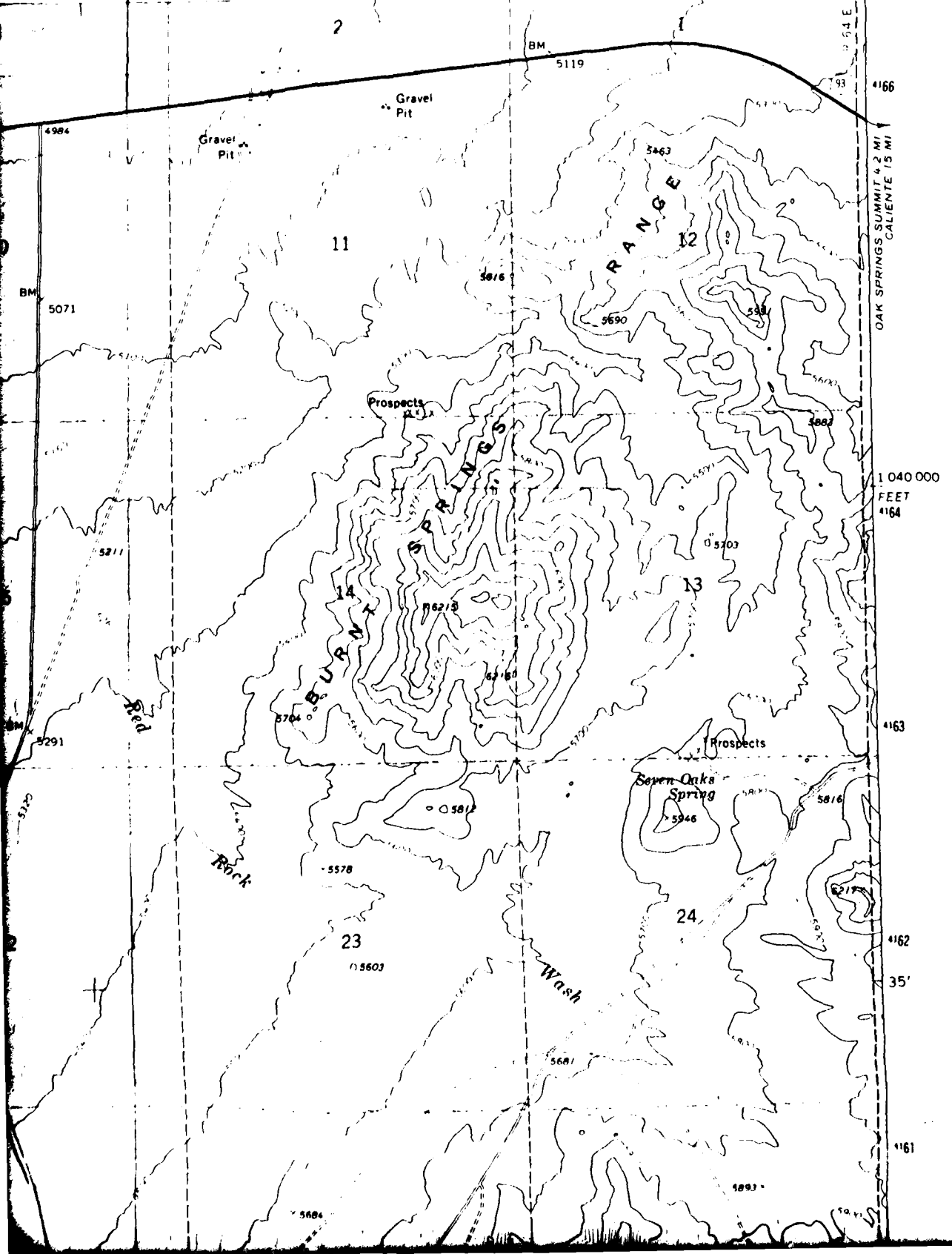
PANAMA 11 MI

697

740 000 FEET

114° 45'

37° 37' 30"



OAK SPRINGS SUMMIT 4.2 MI
CALIENTE 15 MI

1 040 000
FEET

4163

4162

35'

4161

STANDARD CLASS

V
A
I
F
Y

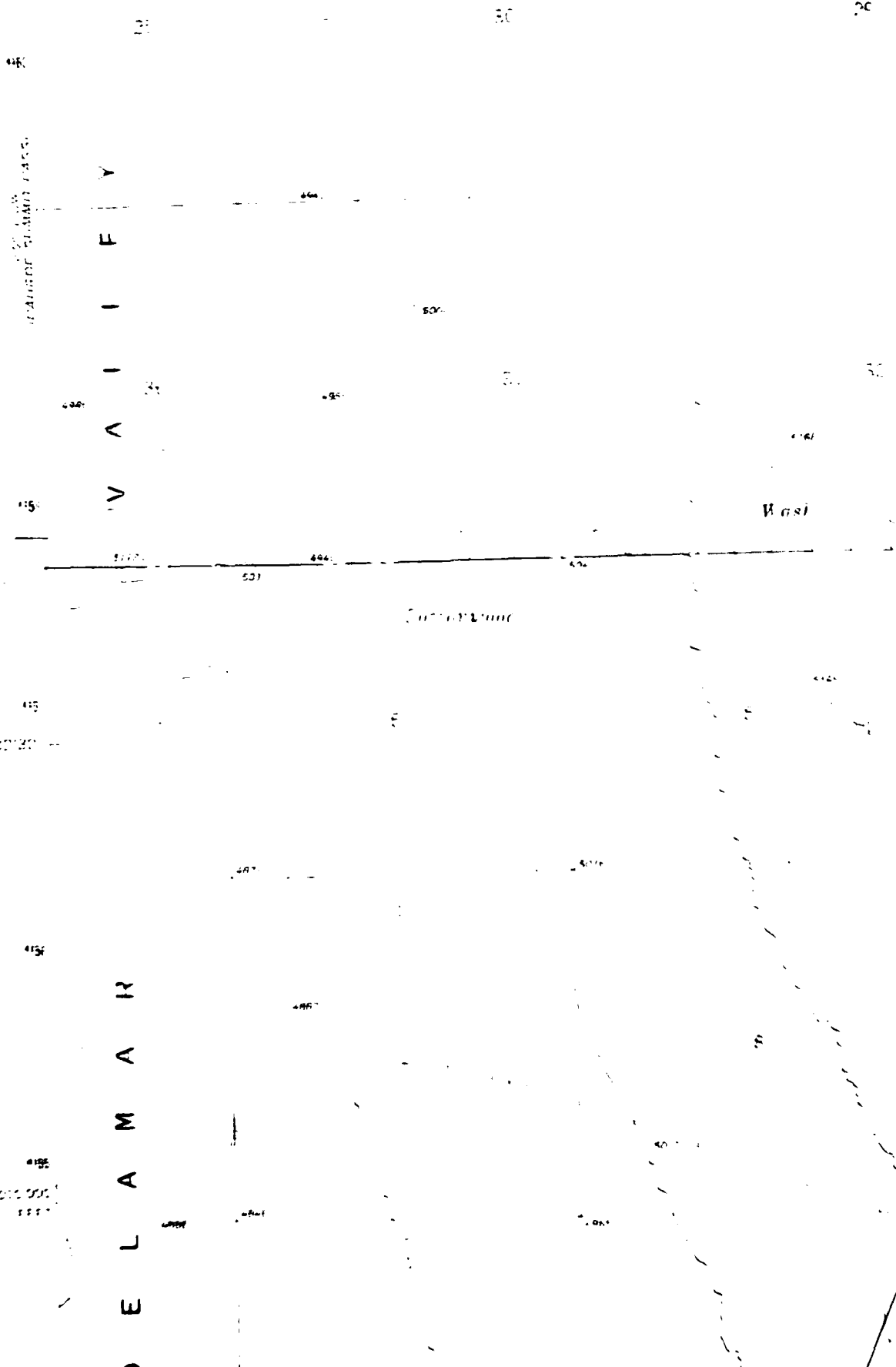
D
E
L
A
M
A
R

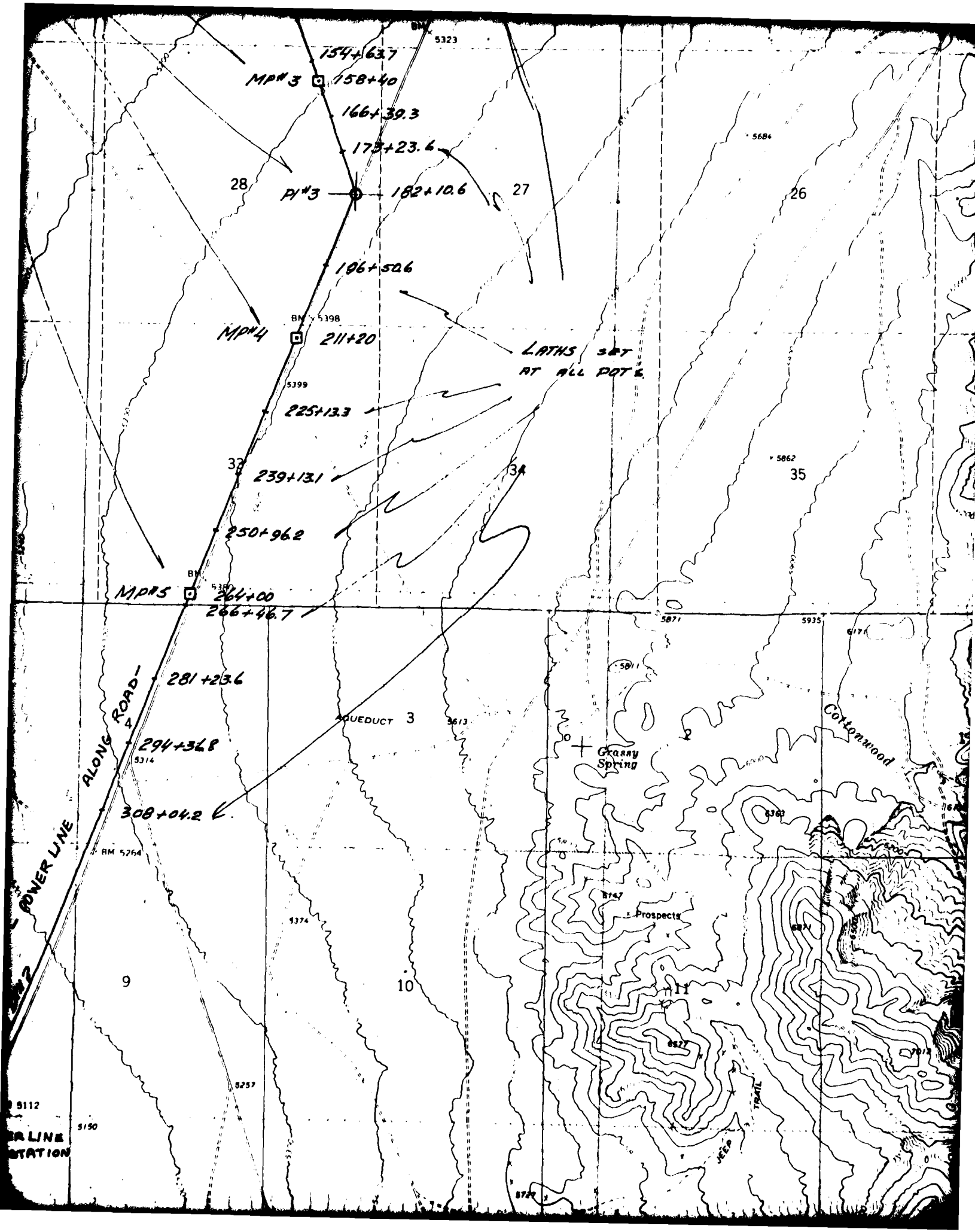
ROUTE FROM HERE NORTH IS CHARACTER

West

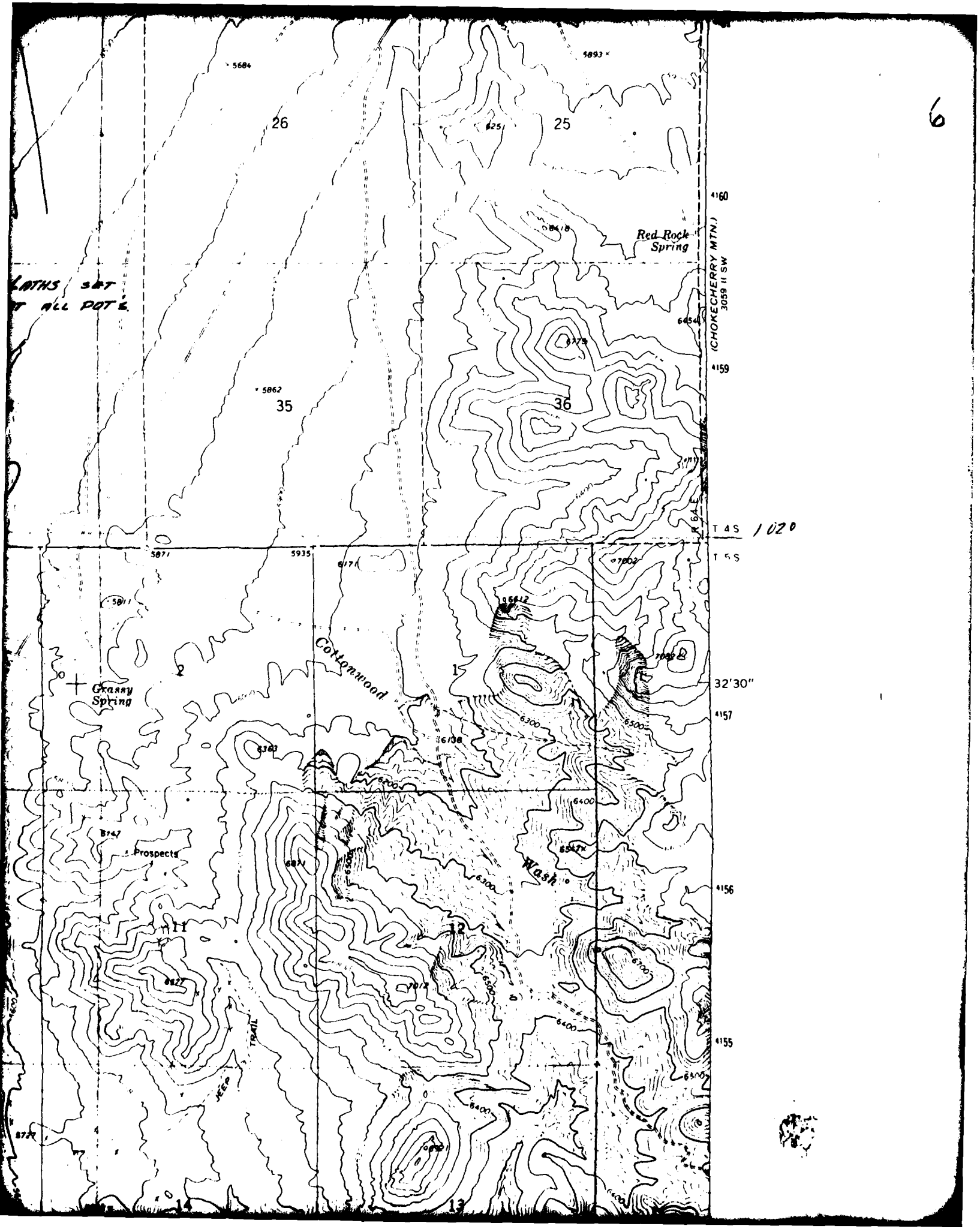
POWER LINE

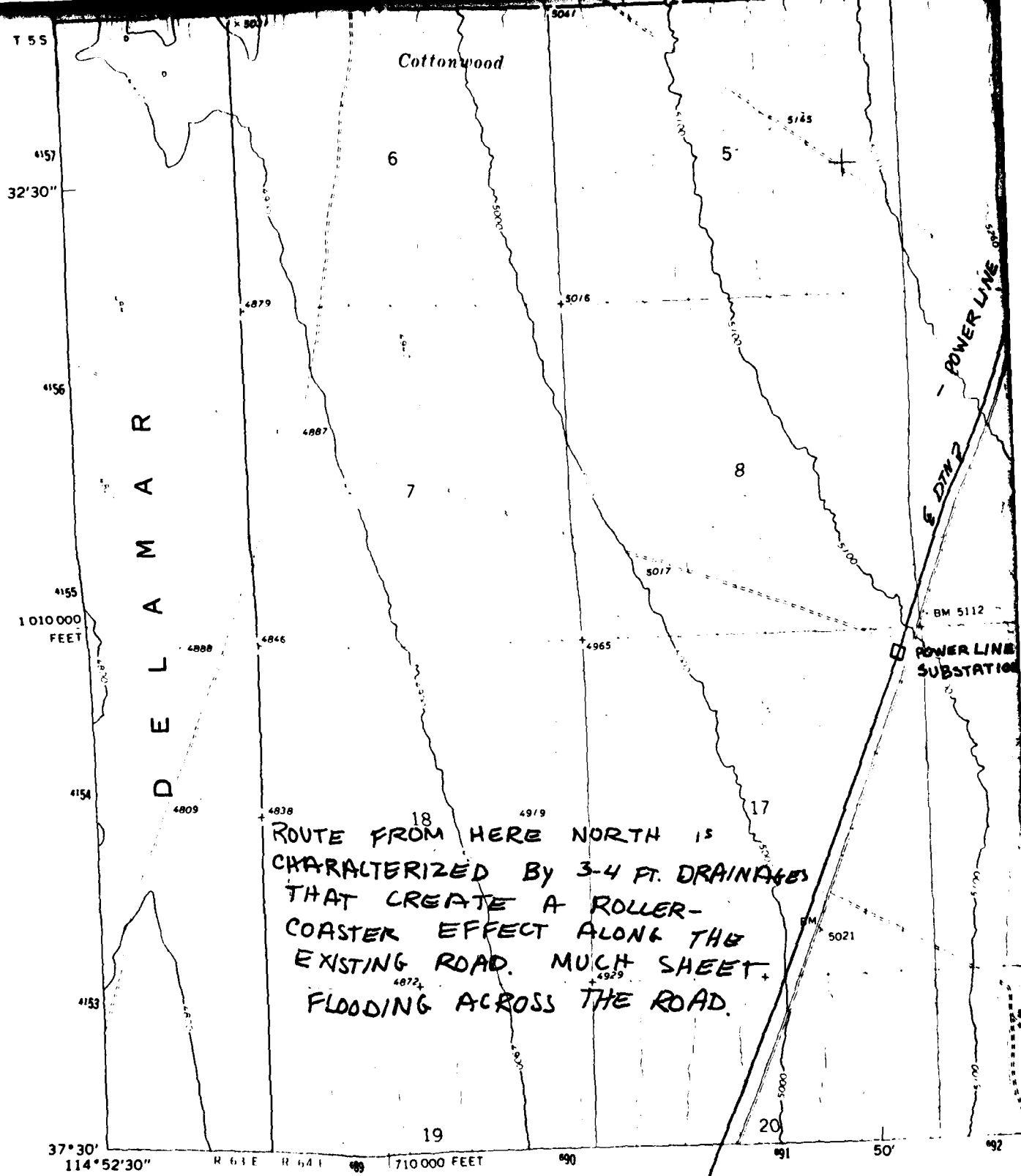
POWER LINE SUBSTATION





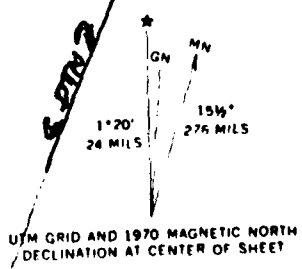
LATHS SET
AT ALL POTS



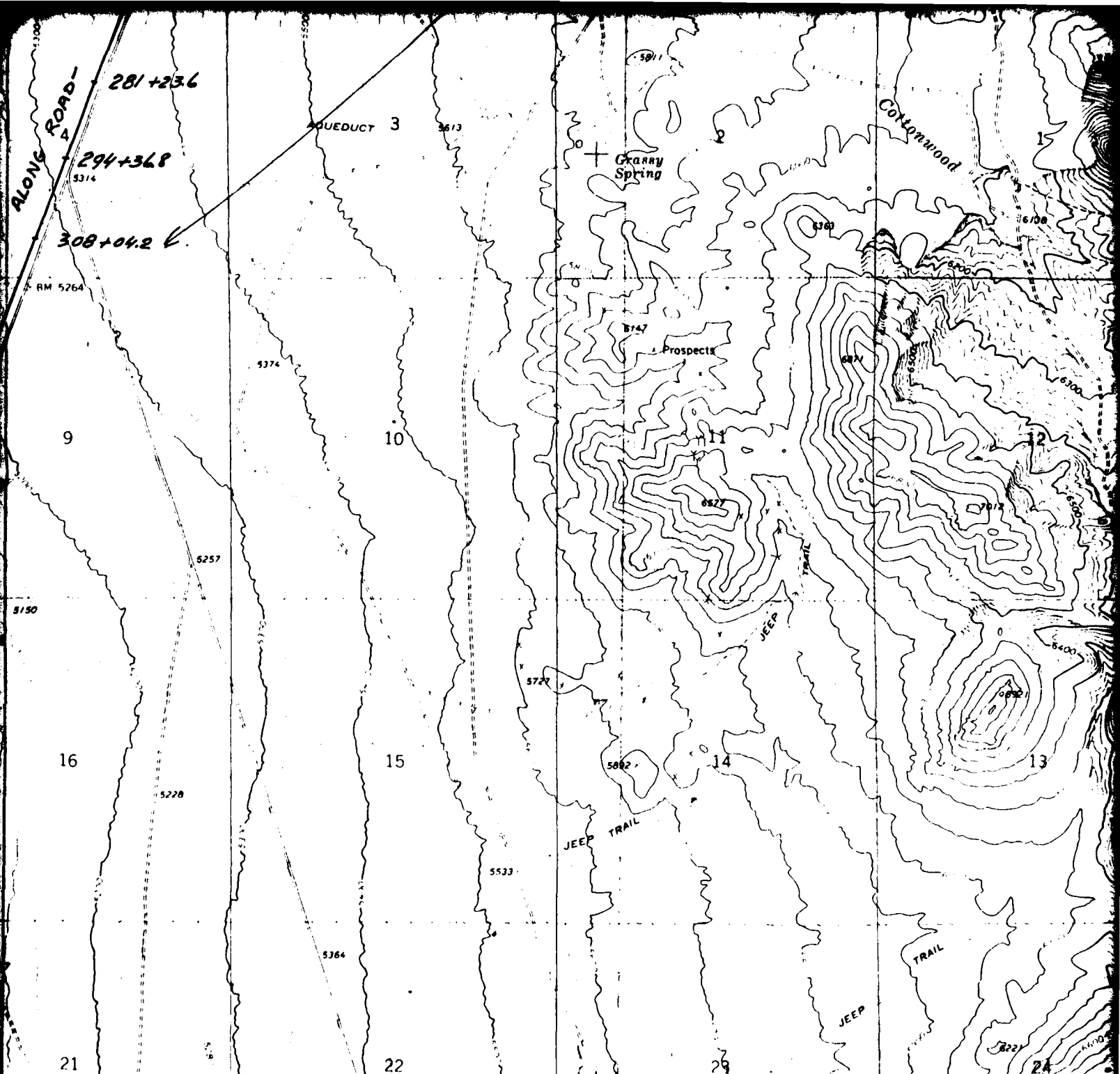


DELAMAR NW
3088 1/4 NW

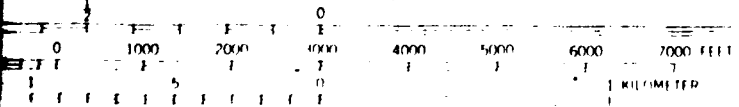
Mapped, edited, and published by the Geological Survey
 Control by USGS and USC&GS
 Topography by photogrammetric methods from aerial
 photographs taken 1969. Field checked 1970
 Polyconic projection. 1927 North American datum
 10,000-foot grid based on Nevada coordinate system, east zone
 1000-meter Universal Transverse Mercator grid ticks,
 zone 11, shown in blue
 Fine red dashed lines indicate selected fence lines
 Where omitted, land lines have not been established



FOR SALE BY



93 (DELAMAR) 3058 IV NE
 SCALE 1:24,000



CONTOUR INTERVAL 20 FEET
 DATUM IS MEAN SEA LEVEL



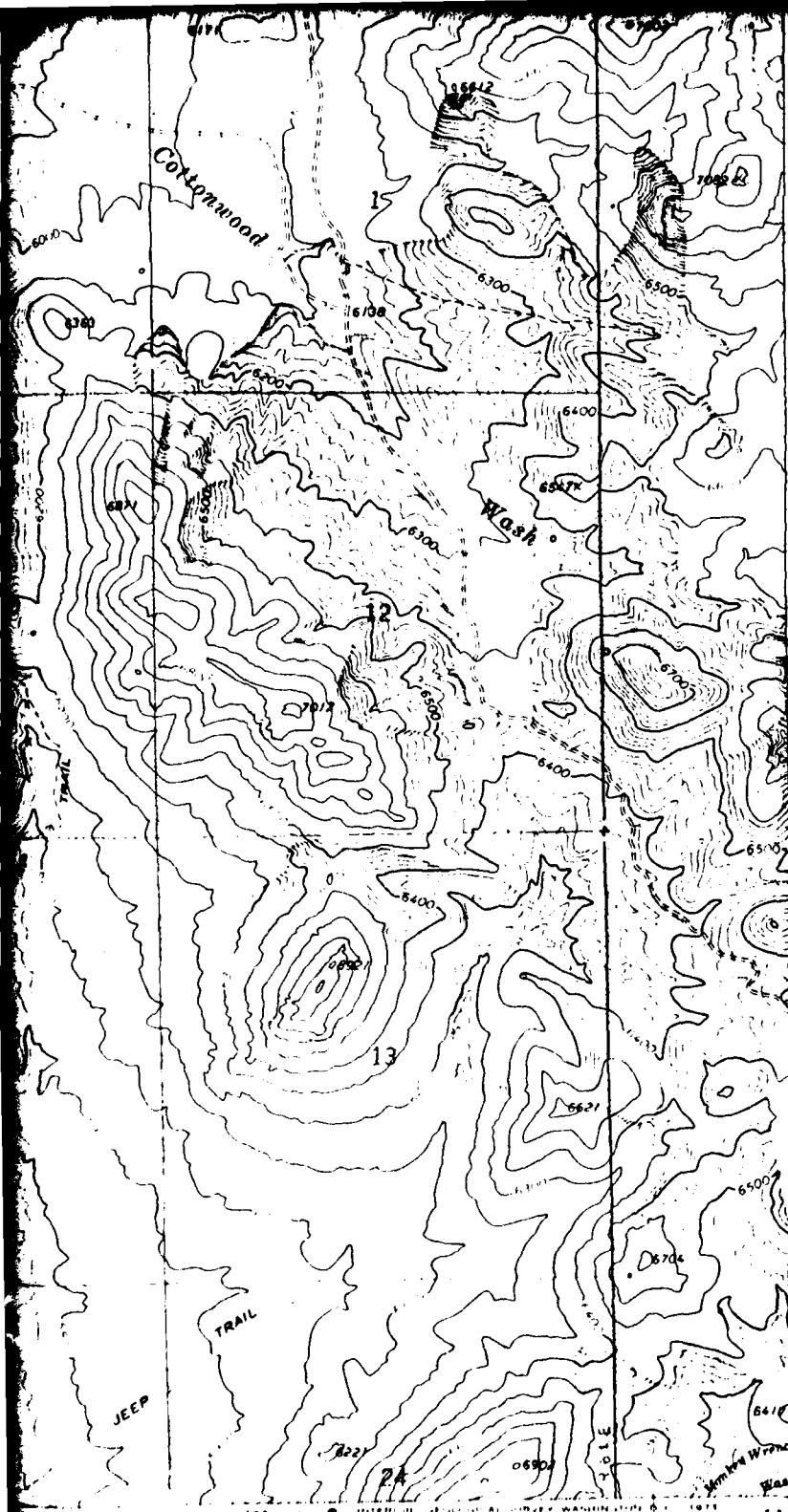
QUADRANGLE LOCATION

- ROAD CLASSIFICATION
- Primary highway, hard surface
 - Secondary highway, hard surface
 - Interstate Route




THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
 U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D.C. 20242
 FOR DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



PAH



ROAD CLASSIFICATION

- | | | |
|------------------------------------|---|--|
| Primary highway,
hard surface |  | Light-duty road, hard or
improved surface |
| Secondary highway,
hard surface |  | Unimproved road |
| Interstate Route |  | U S Route |
| | | State Route |

(SLIDY MOUNTAIN)
3028' IN W

PAHROC SPRING SE, NEV.

N 3730—W 11445/7.5

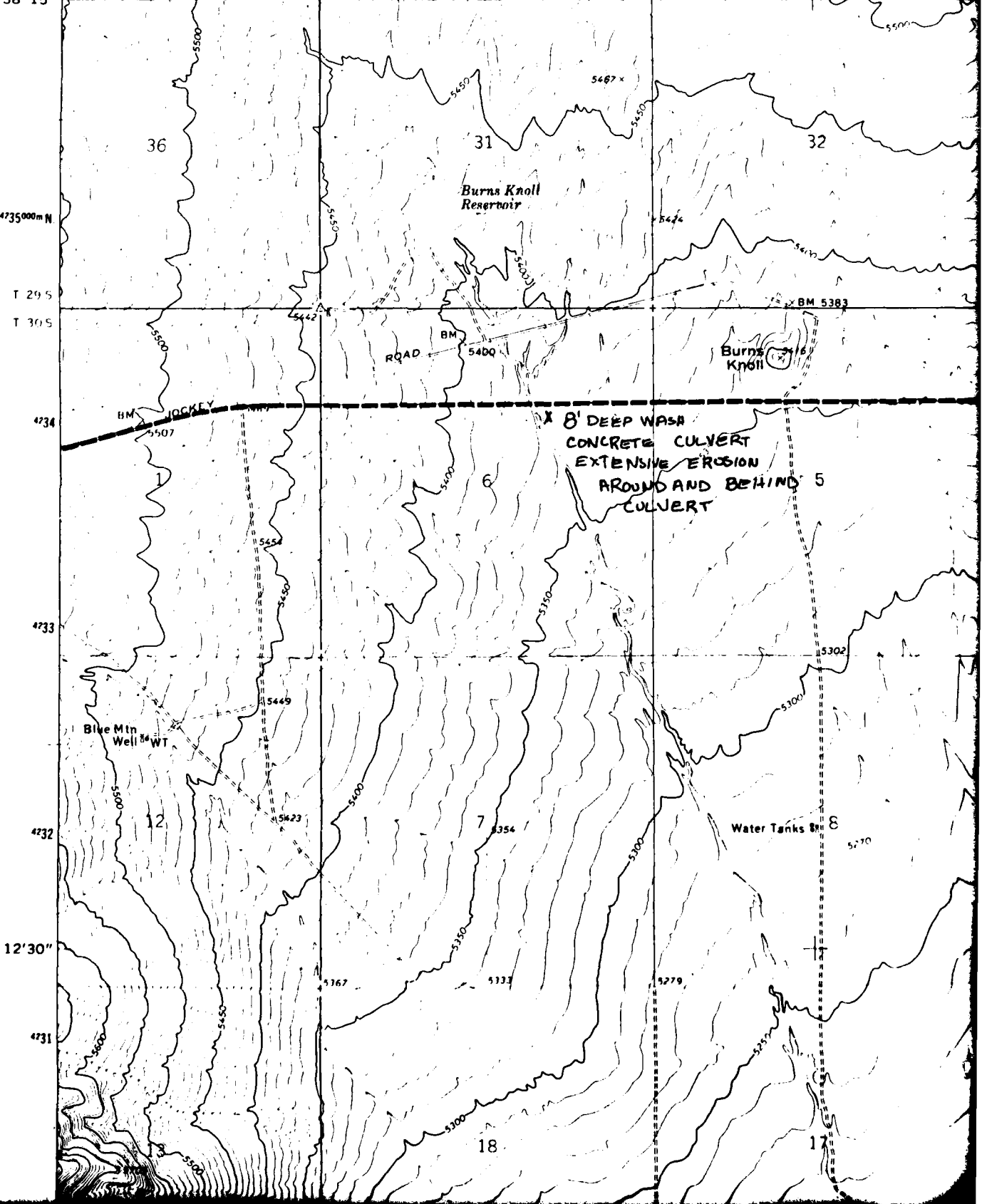
1970



9

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

113°22'30" 293000m E R 14 W R 13 W 294 295 20' 296
38°15' 4735000m N



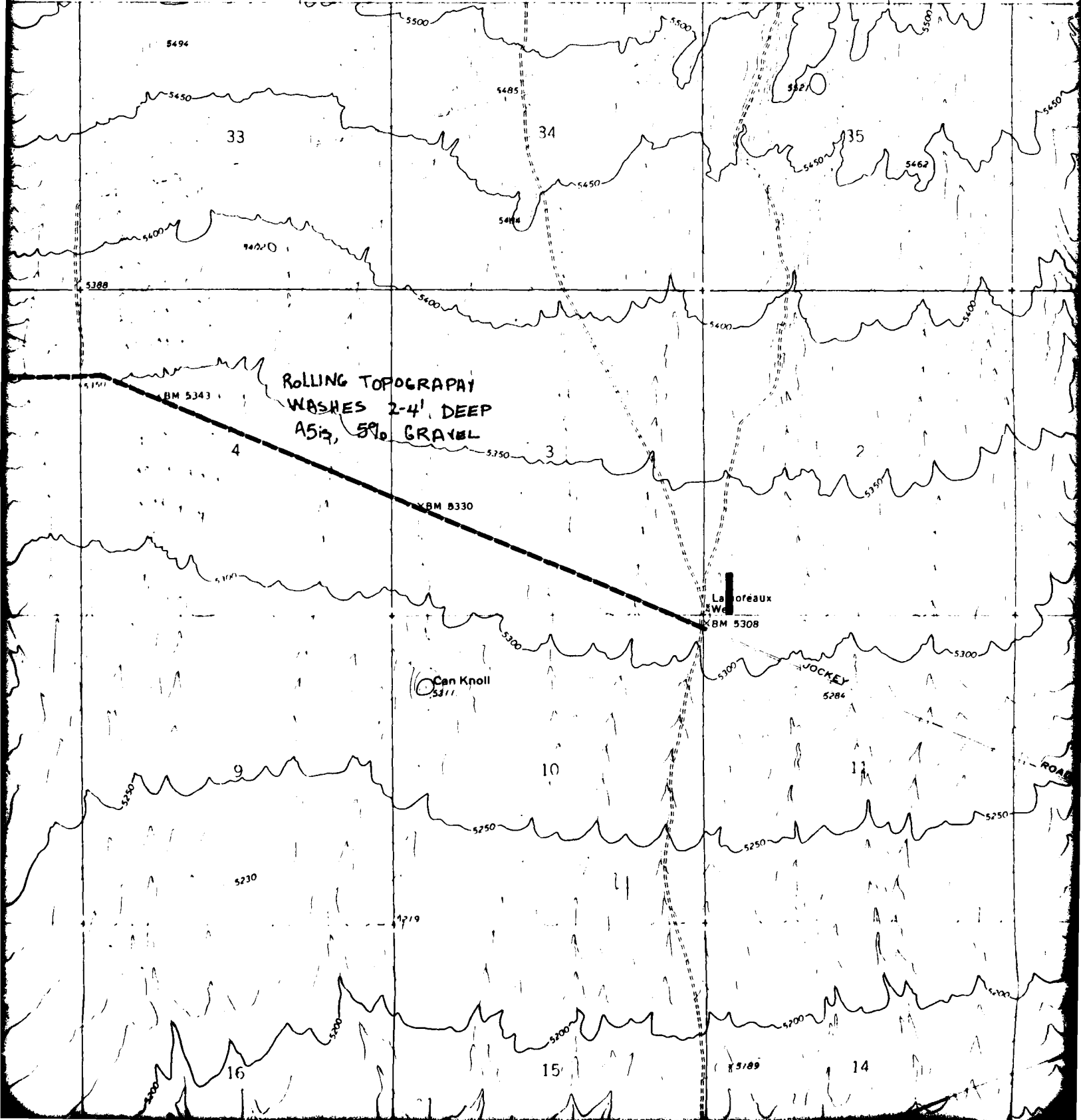
3260 (V 300)
11 P1550 1.62 300

DTN/OBTS FIELD SURVEYS
UTAH DTN
SEGMENT I-D, F-D, G-Y

BURN

7.5 MIN

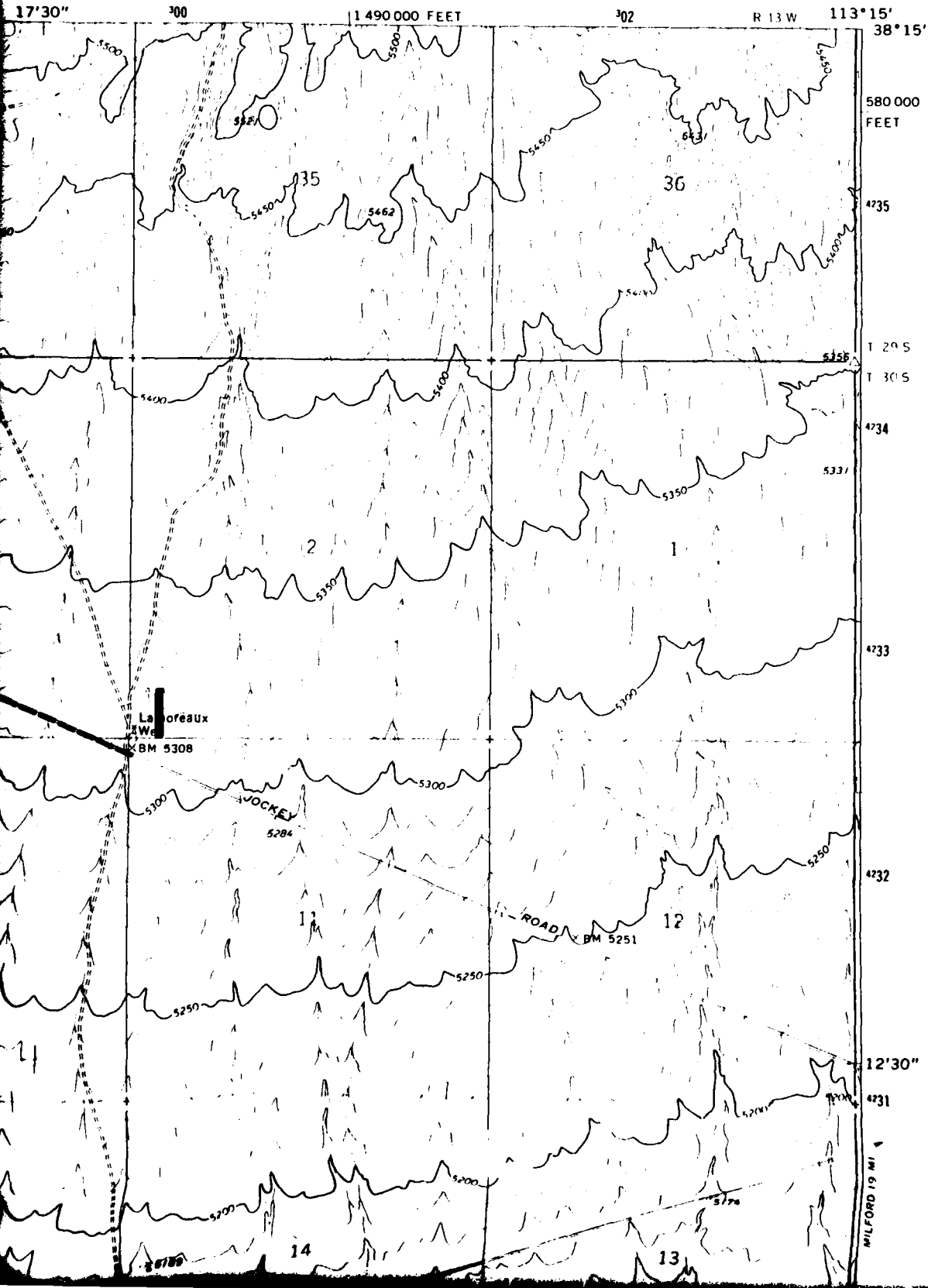
297 3360 IV (FRISCO 1 62 500) 298 299 17'30" 300 1 490 000 FEET



3

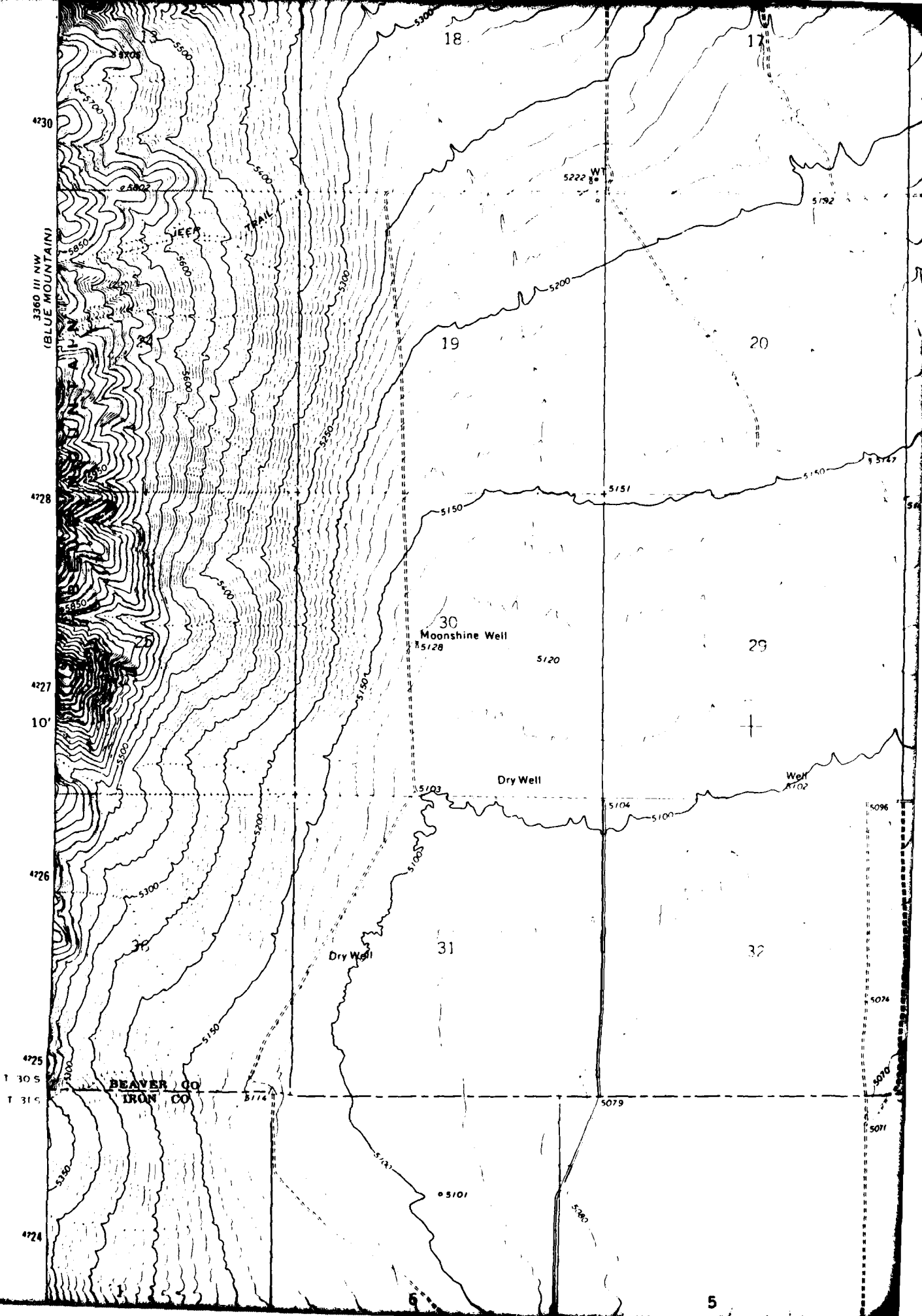
BURNS KNOLL QUADRANGLE
UTAH
7.5 MINUTE SERIES (TOPOGRAPHIC)

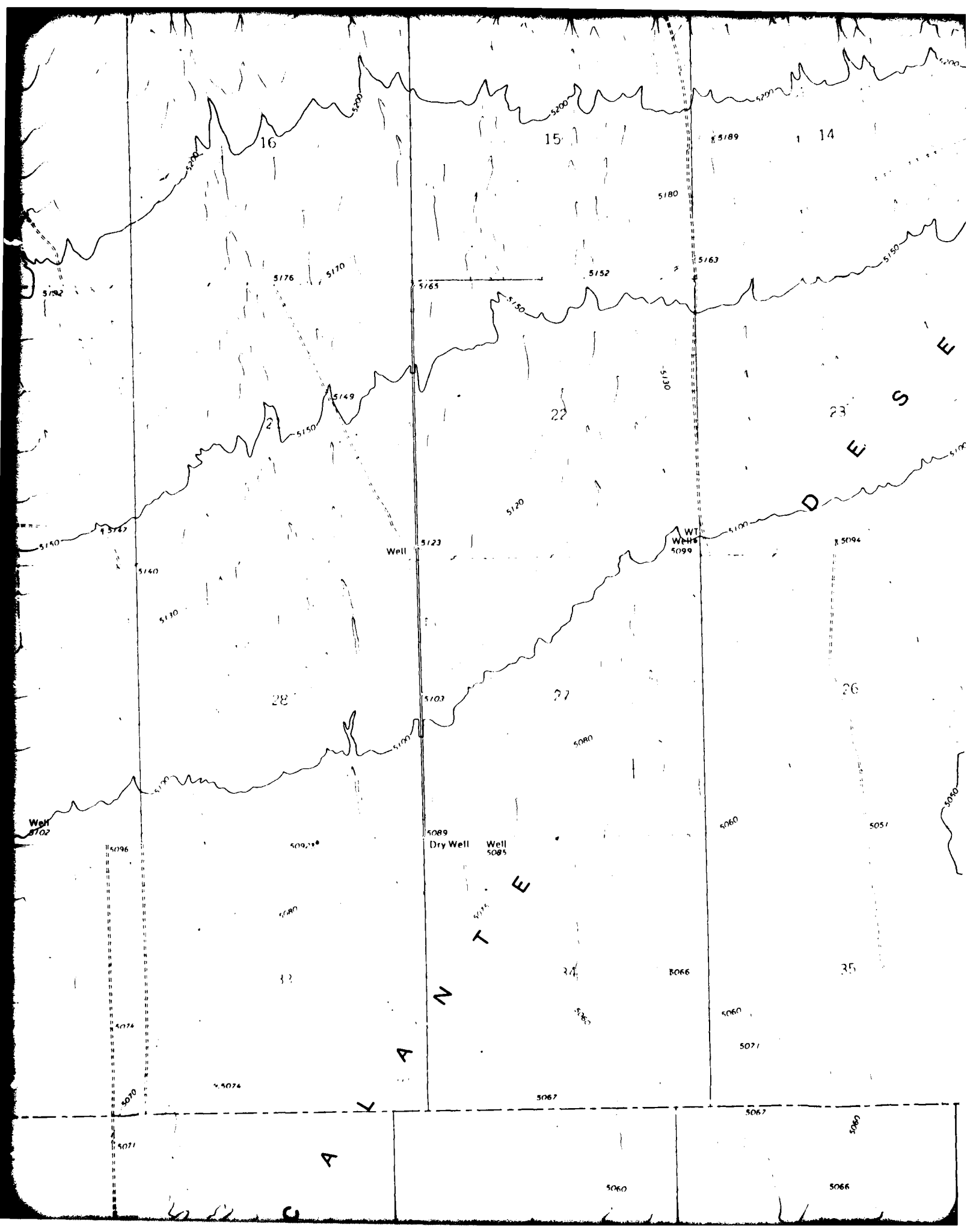
3380 / 1.62 5000
(MILFORD 1:62 5000)

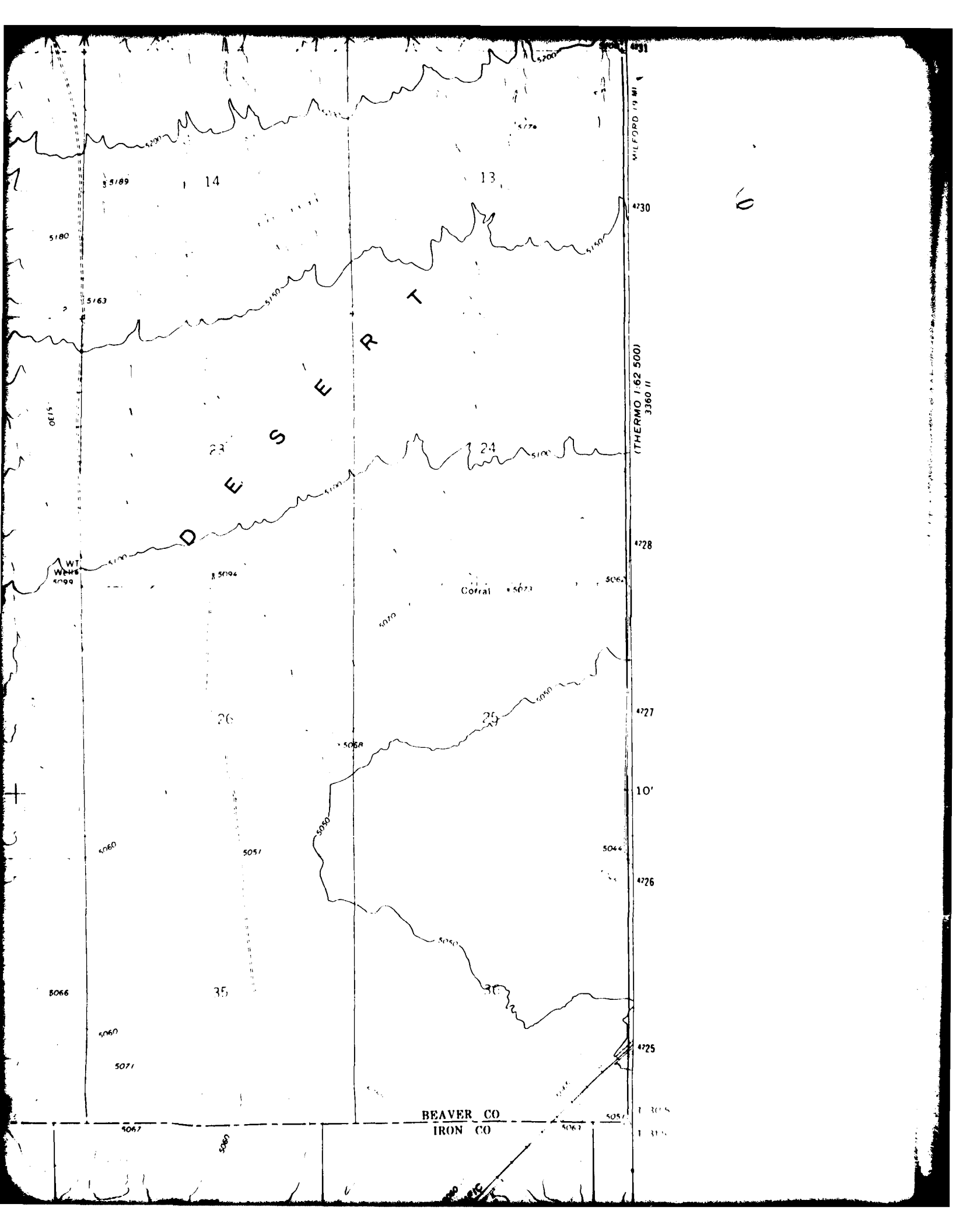


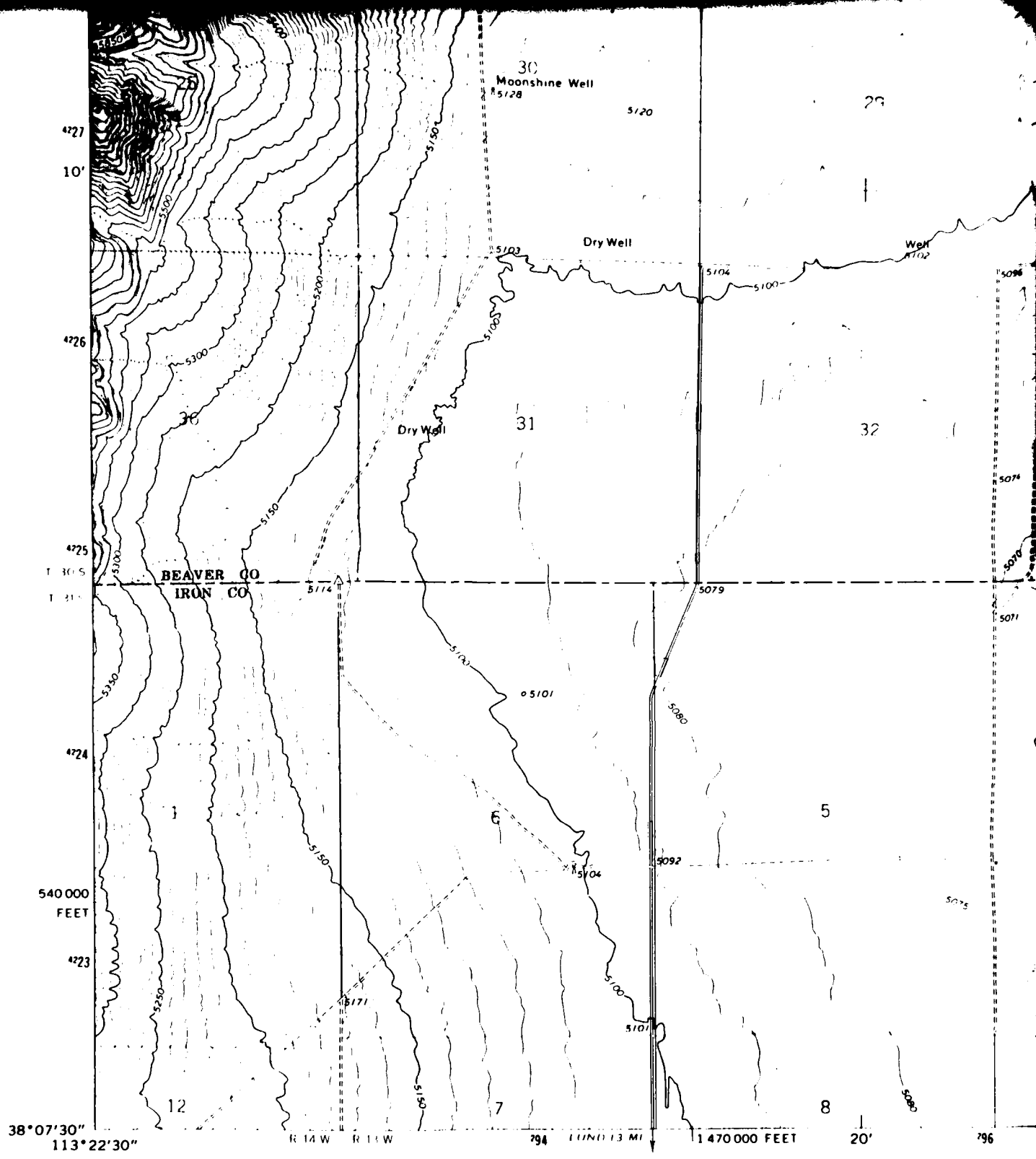
MILFORD 19 MI

4

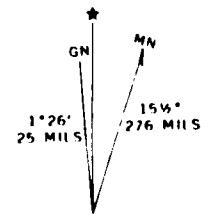








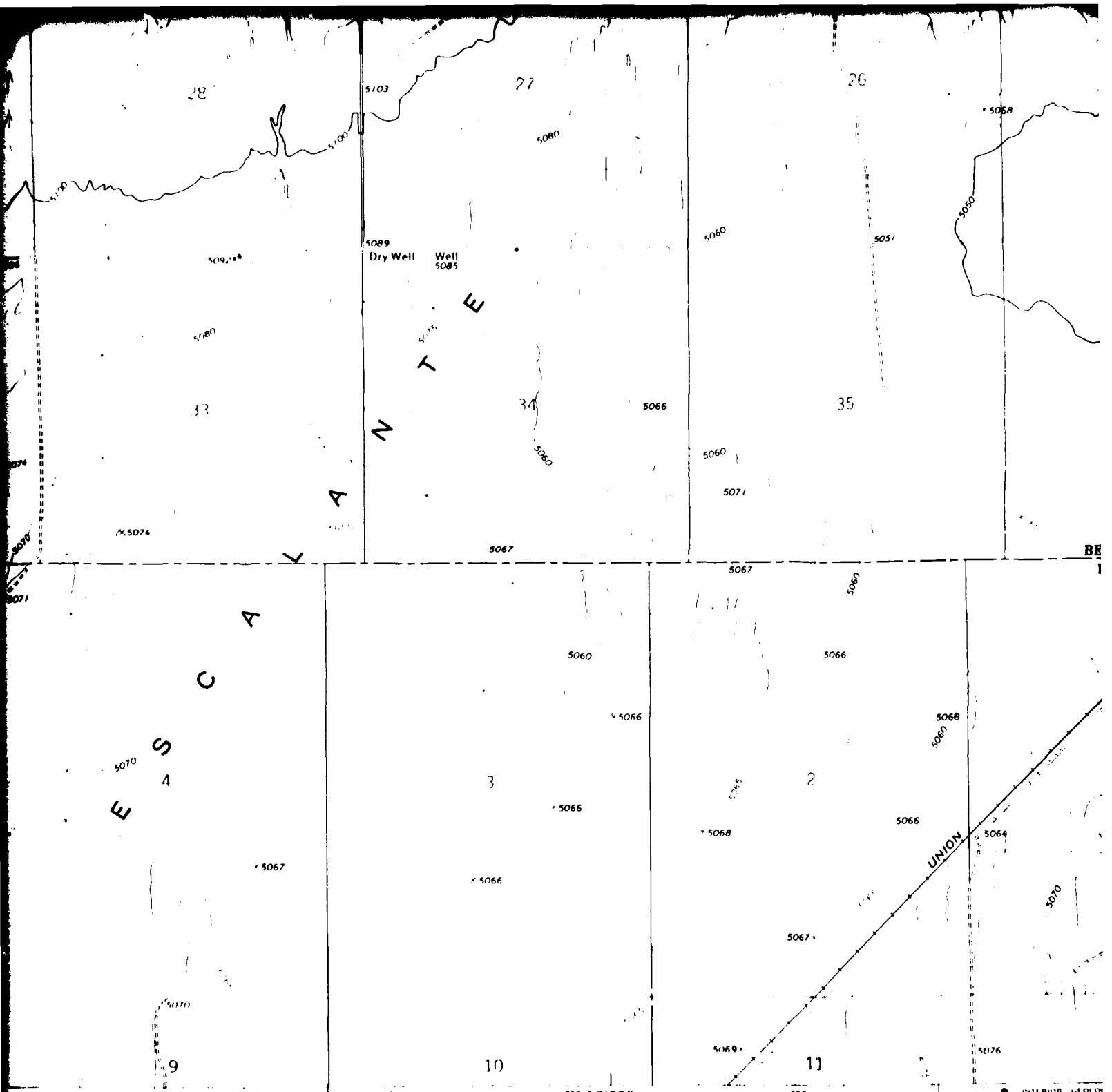
Mapped, edited, and published by the Geological Survey
 Control by USGS and USC&GS
 Topography by photogrammetric methods from aerial
 photographs taken 1970. Field checked 1971
 Projection and 10,000-foot grid ticks: Utah coordinate
 system, south zone (Lambert conformal conic)
 1000-meter Universal Transverse Mercator grid ticks,
 zone 12, shown in blue. 1927 North American datum
 Fine red dashed lines indicate selected fence lines



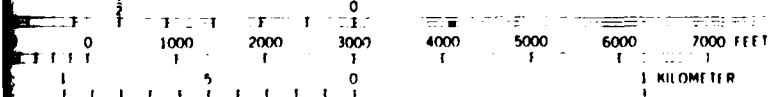
UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

FOR SALE BY U.S.
 A FOLDER

7



(LATIMER)
3380 III SE
SCALE 1:24 000



CONTOUR INTERVAL 10 FEET
DOTTED LINES REPRESENT 5 FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD 1

- Primary highway, hard surface
- Secondary highway, hard surface
- Interstate Route

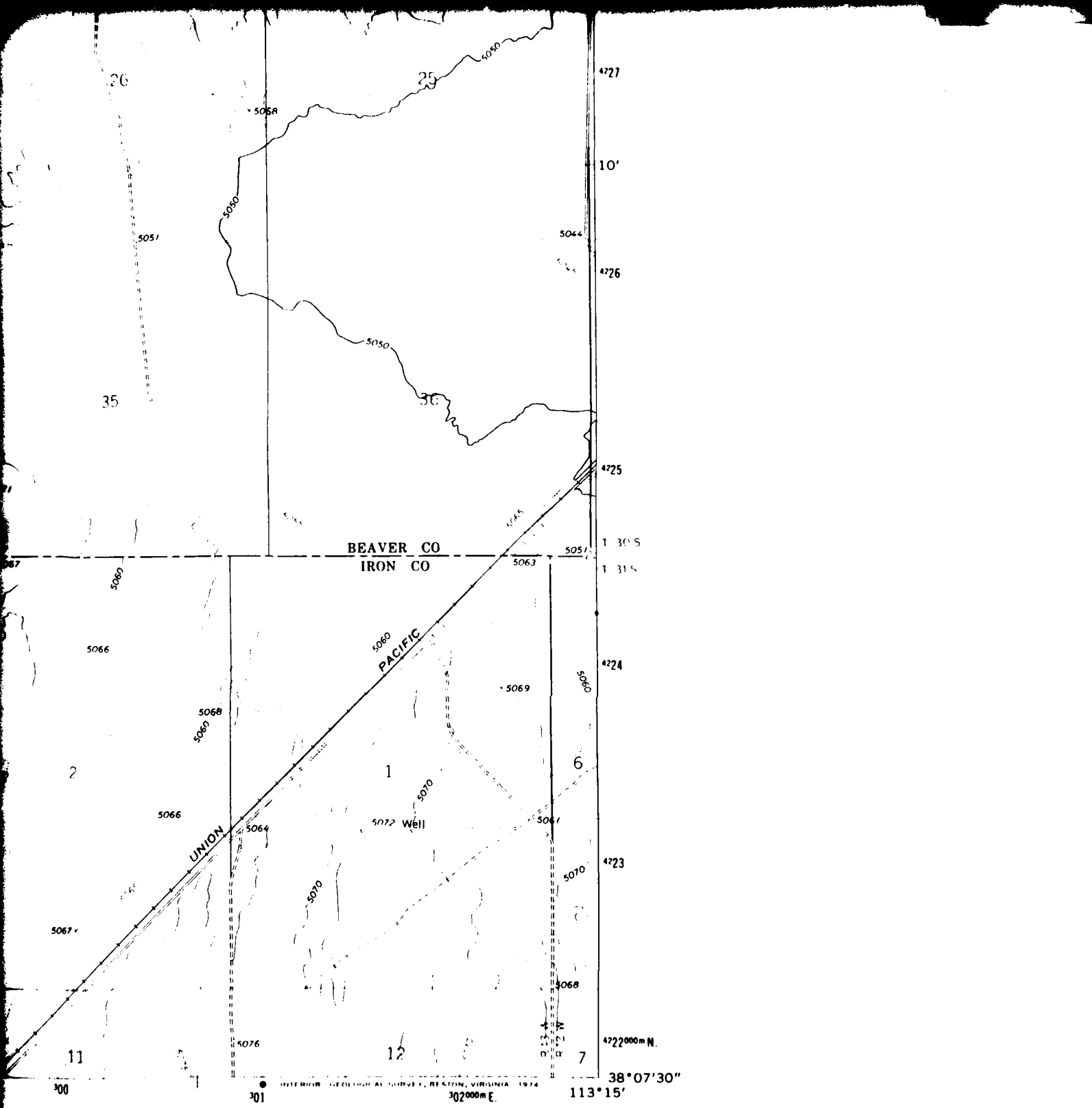
UTAH

QUADRANGLE LOCATION

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A PUBLICATION DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



8



ROAD CLASSIFICATION

- Primary highway, hard surface Light-duty road, hard or improved surface
- Secondary highway, hard surface Unimproved road
- Interstate Route U S Route State Route

(THERMO 1162-500)
3360 11



BURNS KNOLL, UTAH
N3807.5-W11315/7.5

1971

AMB 3300 III NR-SERIES V007

9

380 (SE PEAK)
(LAMERDORF PEAK)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

113° 30' 38° 15' 782000m E 783 R 15 W R 14 W 27' 30" 785

4236000m N

4735 T 29 S
4730 T 30 S

4734

4733

4732

12' 30"

4731



35

2

11

14

JEEP TRAIL

36

1

12

13

31

6

7

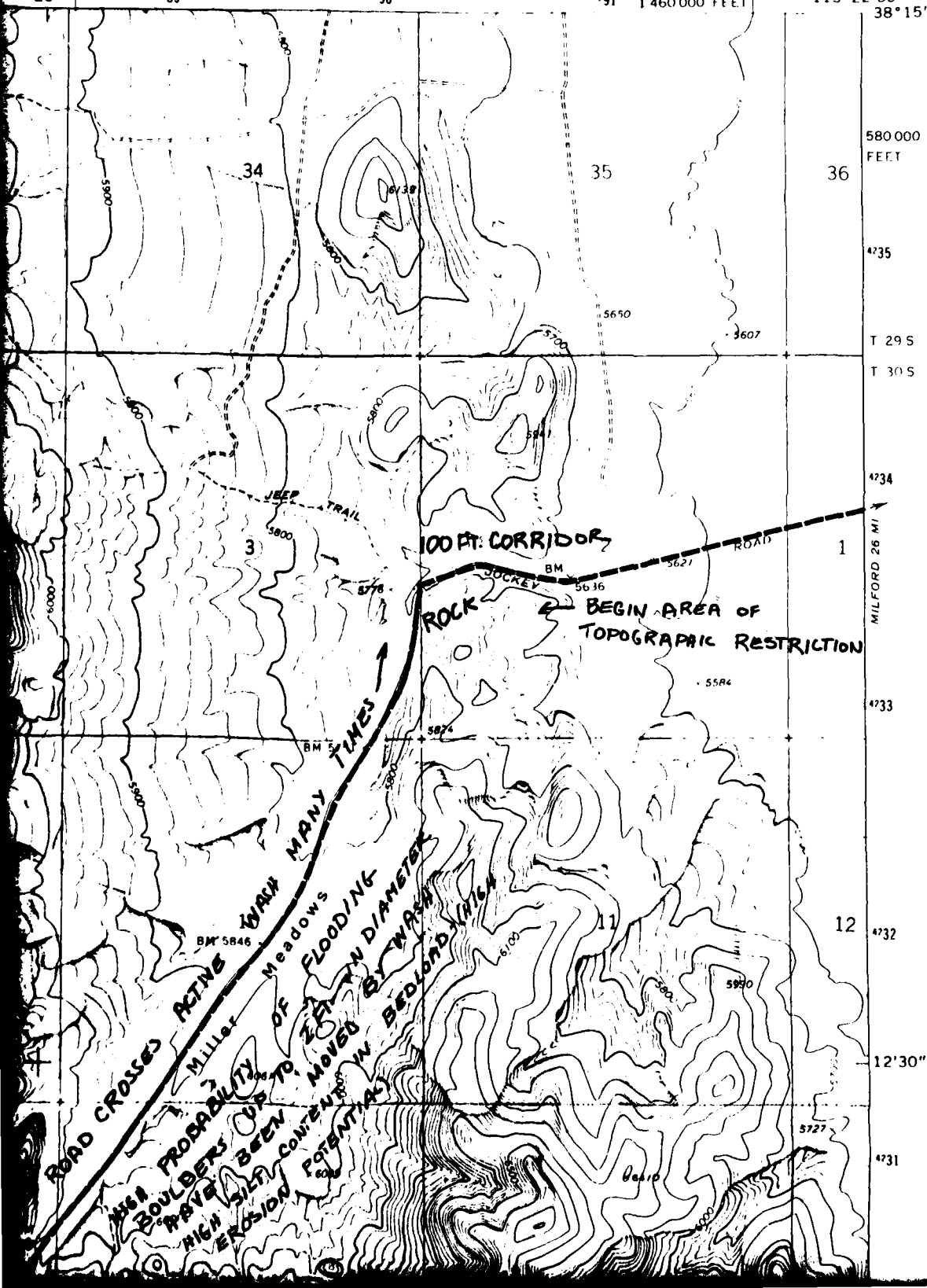
18

Blaine
Wash
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T

BLUE MOUNTAIN QUADRANGLE
UTAH
7.5 MINUTE SERIES (TOPOGRAPHIC)

3560 IV
(FRISCO 1,62 500)

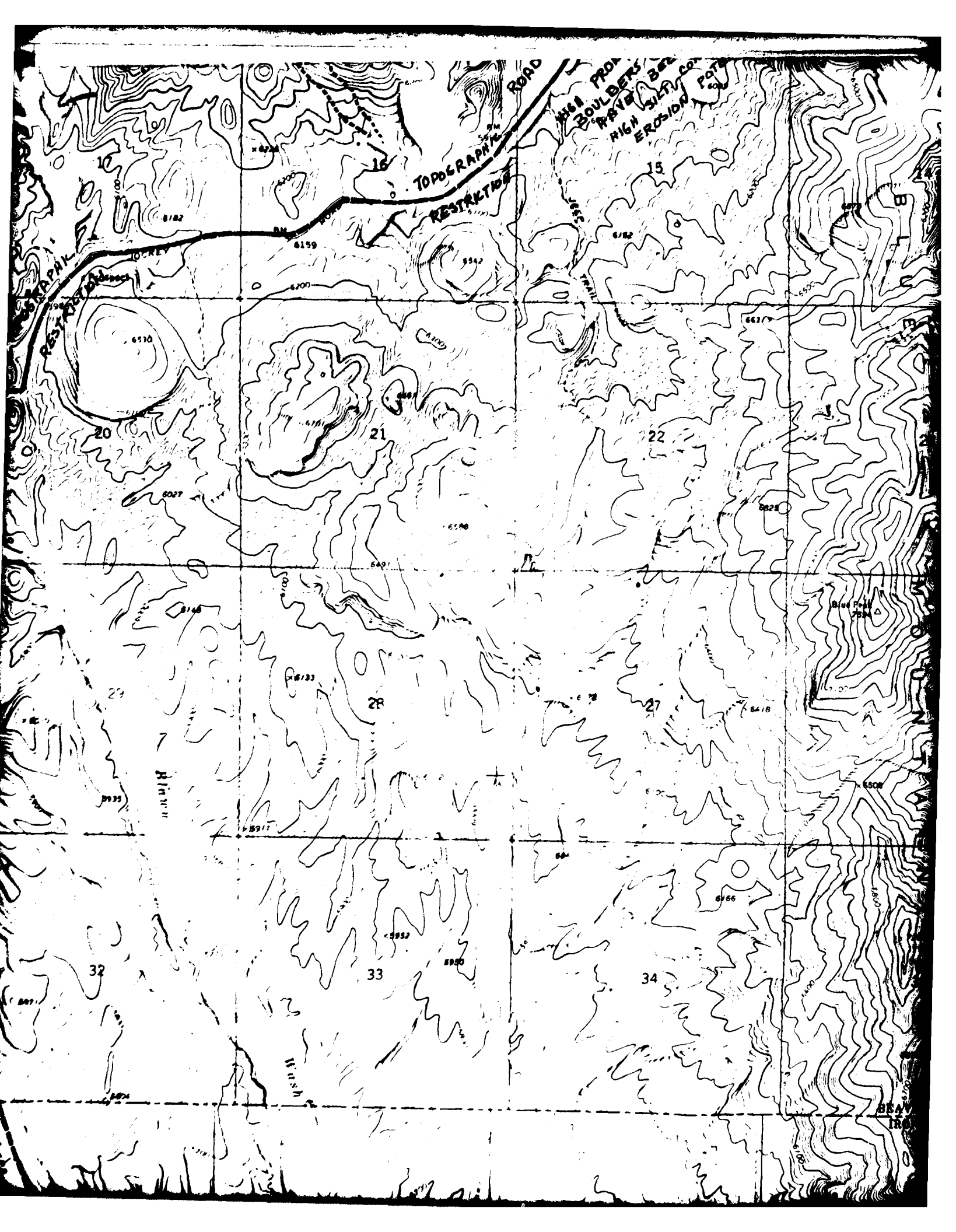
25' 789 790 791 1 460 000 FEET 113° 22' 30" 38° 15'

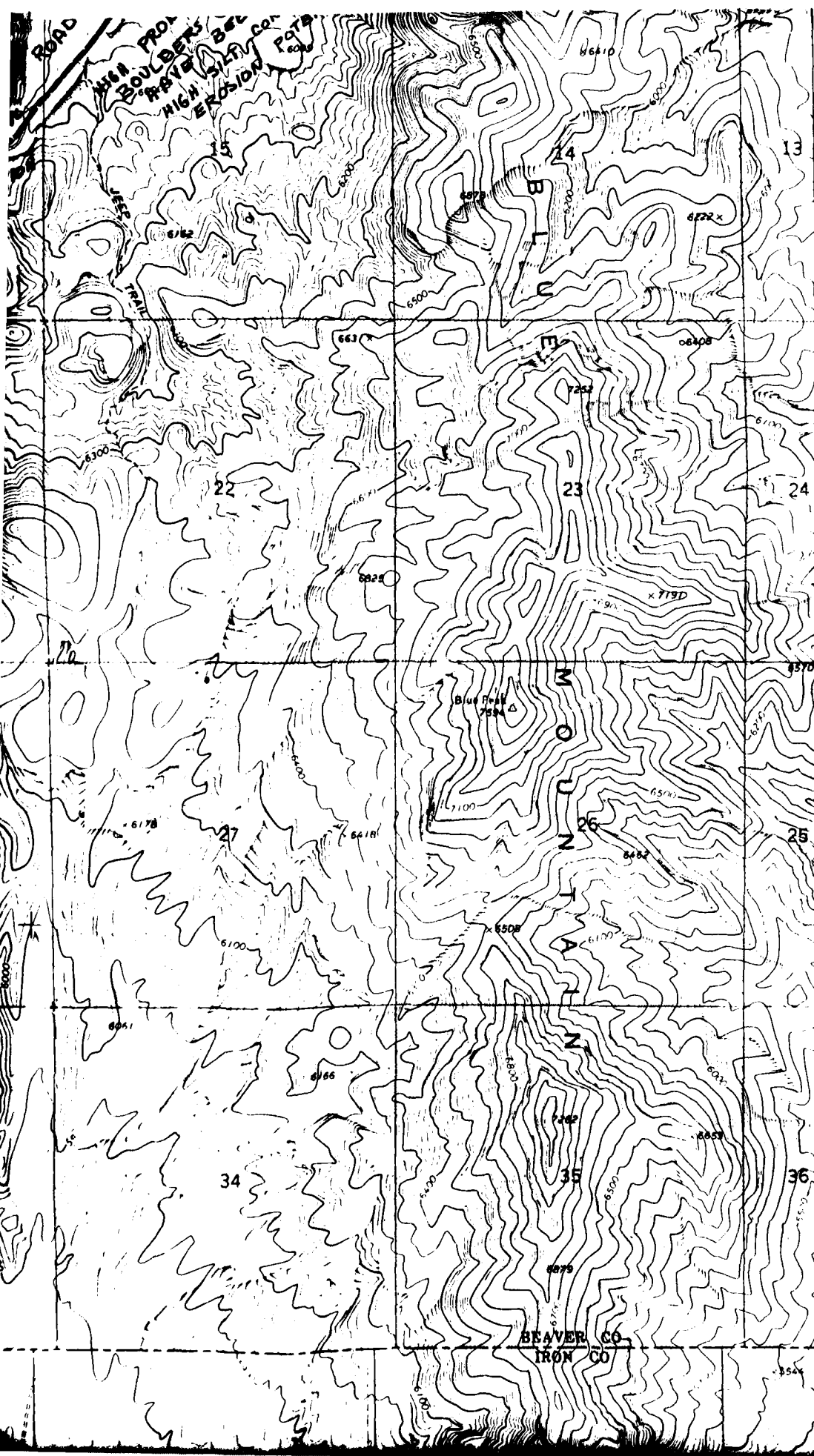


580 000
FEET
4735
T 29 S
T 30 S
4734
MILFORD 26 MI.
1
4733
4732
12' 30"
4731

100 FT. CORRIDOR
ROAD
BEGIN AREA OF
TOPOGRAPHIC RESTRICTION

ROAD CROSSES ACTING WAY MANY TIMES
MILLER MEADOWS OF FLOODING 20 FT. IN DIAMETER MOVED BY WASH HIGH SILT CONTENT W/ BEDLOAD WHEN EROSION POTENTIAL
Boulders have been moved by high erosion potential

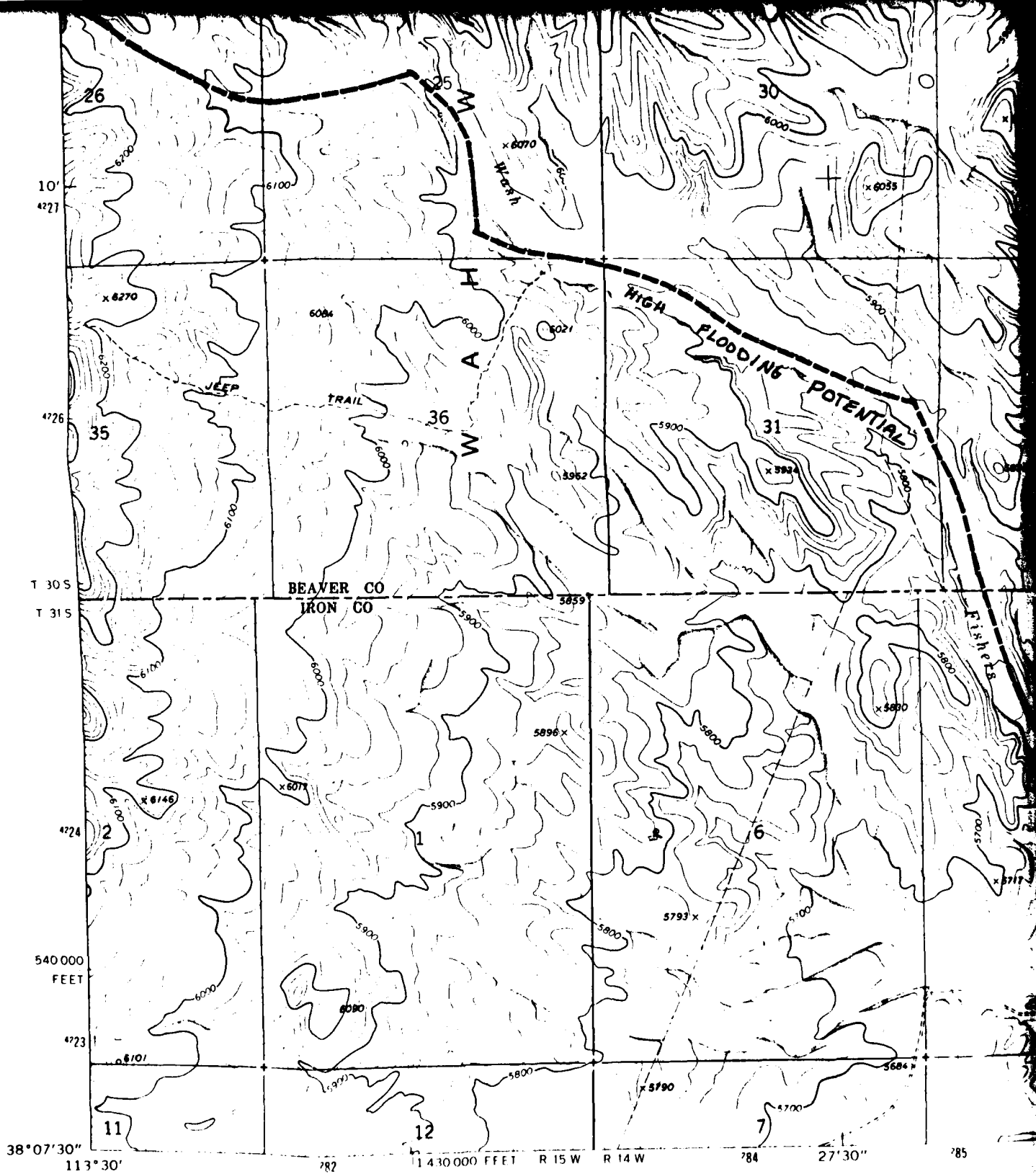




4731
4730
4728
4727
10'
4726
4725
T 30 S
T 31 S

(BURNS KNOLL)
3360 II NE

BEAVER CO
IRON CO



Mapped, edited, and published by the Geological Survey

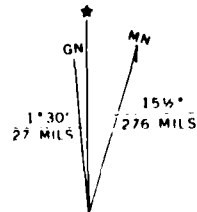
Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1970. Field checked 1971

Projection and 10,000-foot grid ticks: Utah coordinate system, south zone (Lambert conformal conic)
 1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue. 1927 North American datum

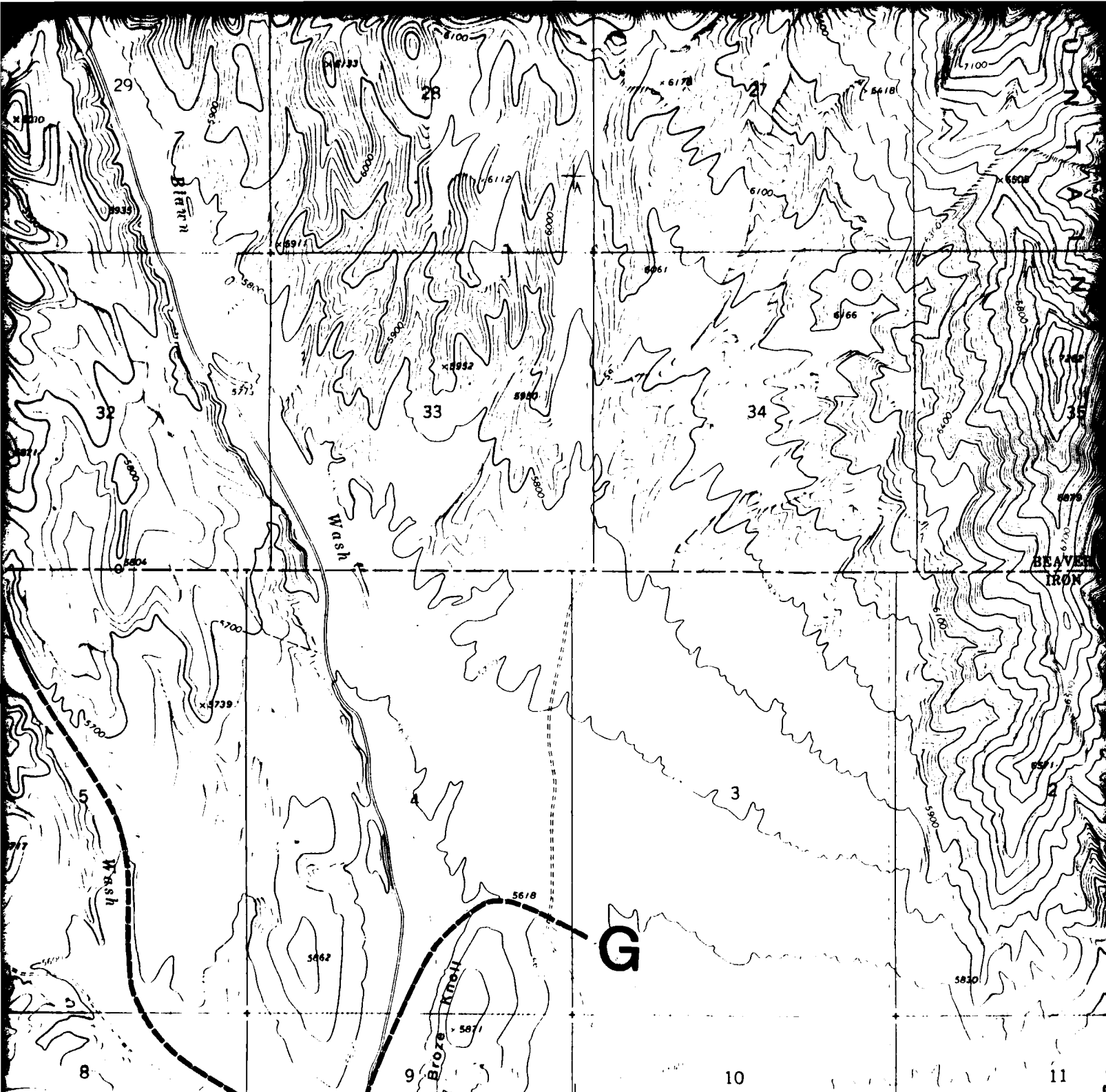
Fine red dashed lines indicate selected fence lines

MOUNTAIN SPRING PEAK
 2260' ± SE

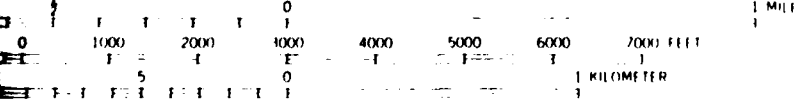


UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

THIS
 FOR SALE BY U.S.G.
 A FOLDER



786 (LUND)
3160 III SW
SCALE 1:24,000



CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

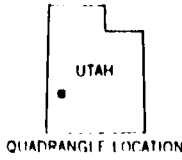
G

ROAD CLASS

Primary highway, hard surface

Secondary highway, hard surface

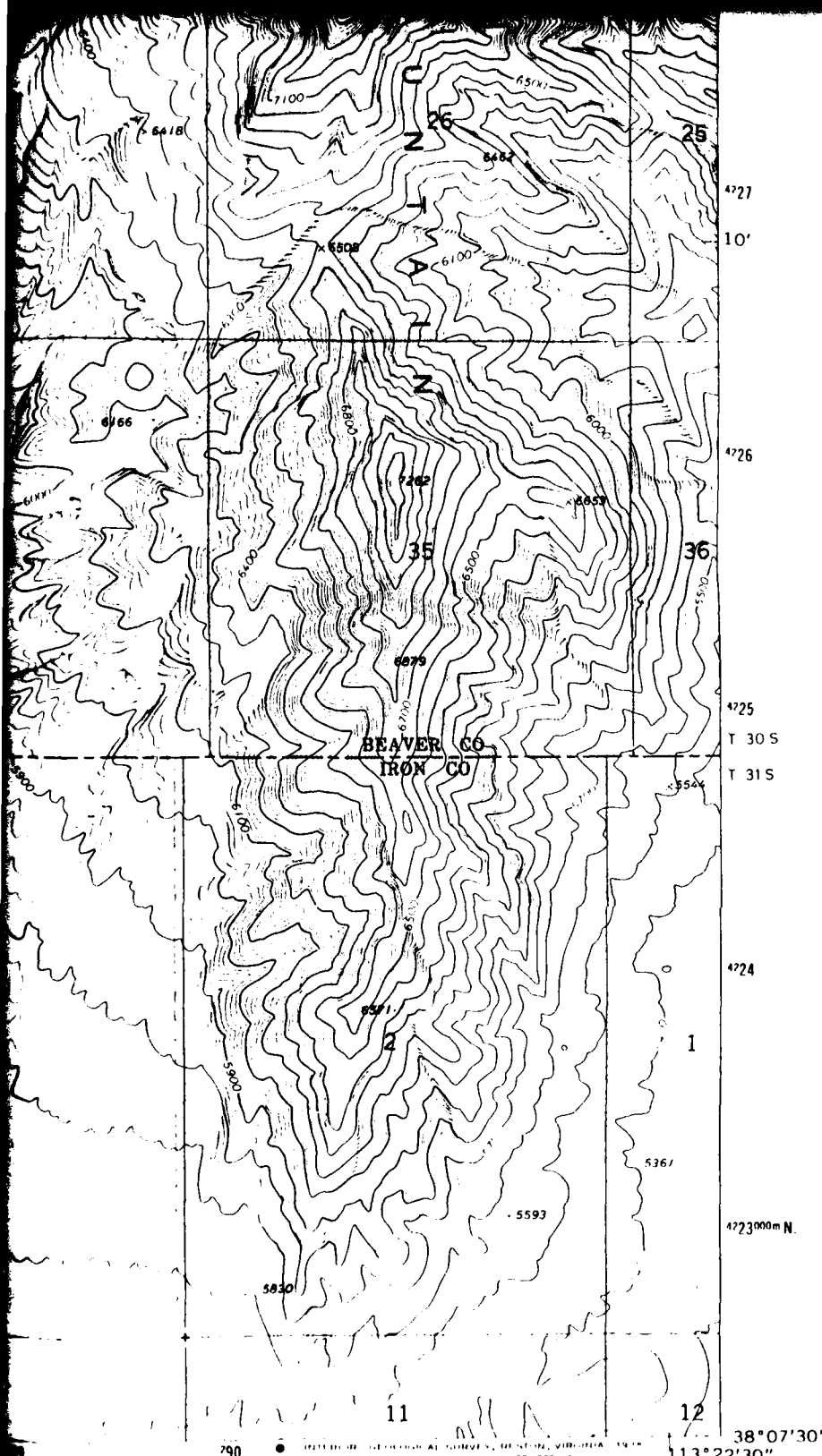
() Interstate Route



Ertec
The Earth Technology Corporation

BLUE

MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



- ROAD CLASSIFICATION**
- Primary highway, hard surface
 - Secondary highway, hard surface
 - Light duty road, hard or improved surface
 - Unimproved road
 - () Interstate Route
 - { } U S Route
 - State Route

Property of U.S. Air Force

CLATIMER
3/25/71 SE



BLUE MOUNTAIN, UTAH
N 3807.5 - W 11322.5 / 7.5

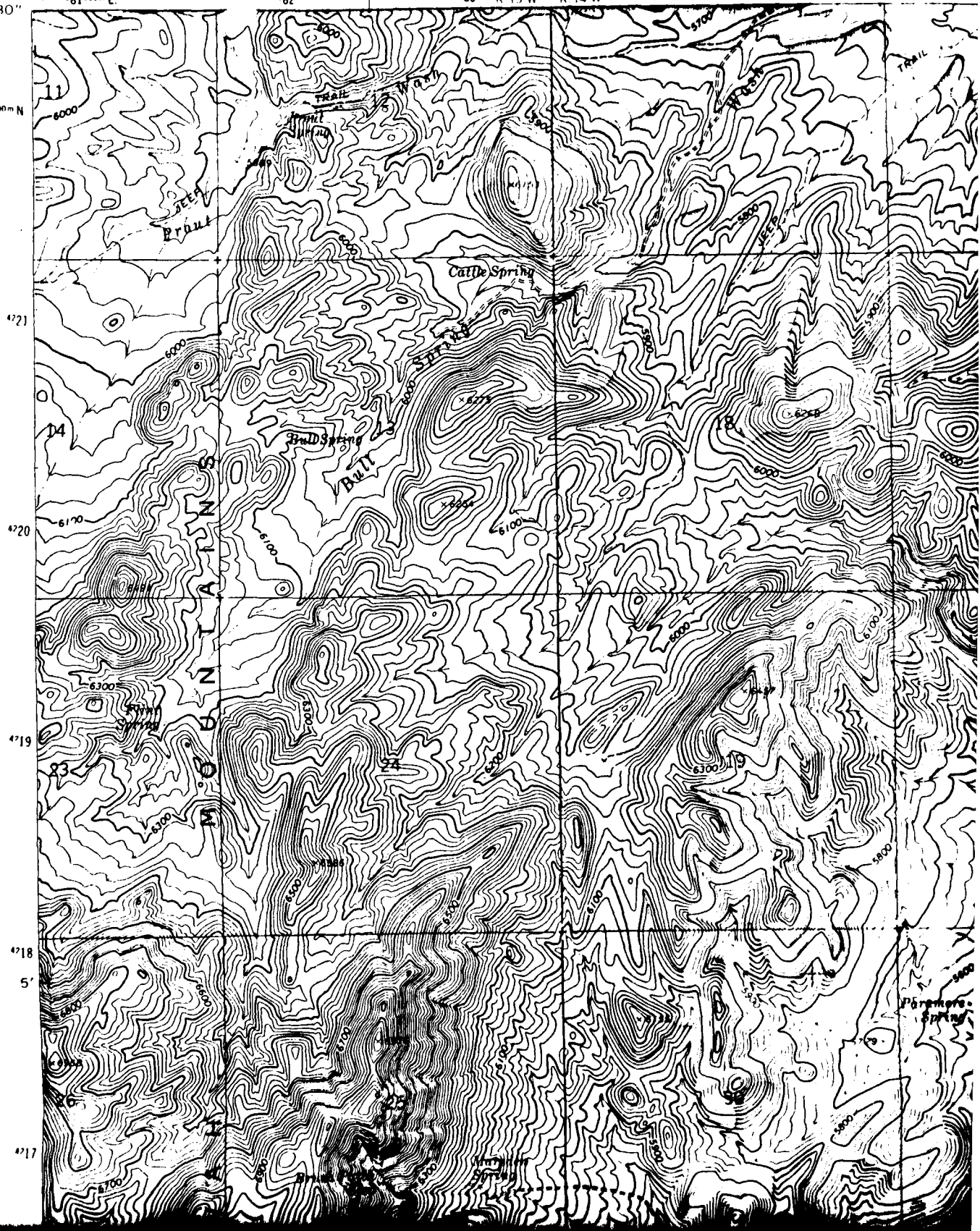
1971

9

3280 ft. NE
(THE TETONS)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

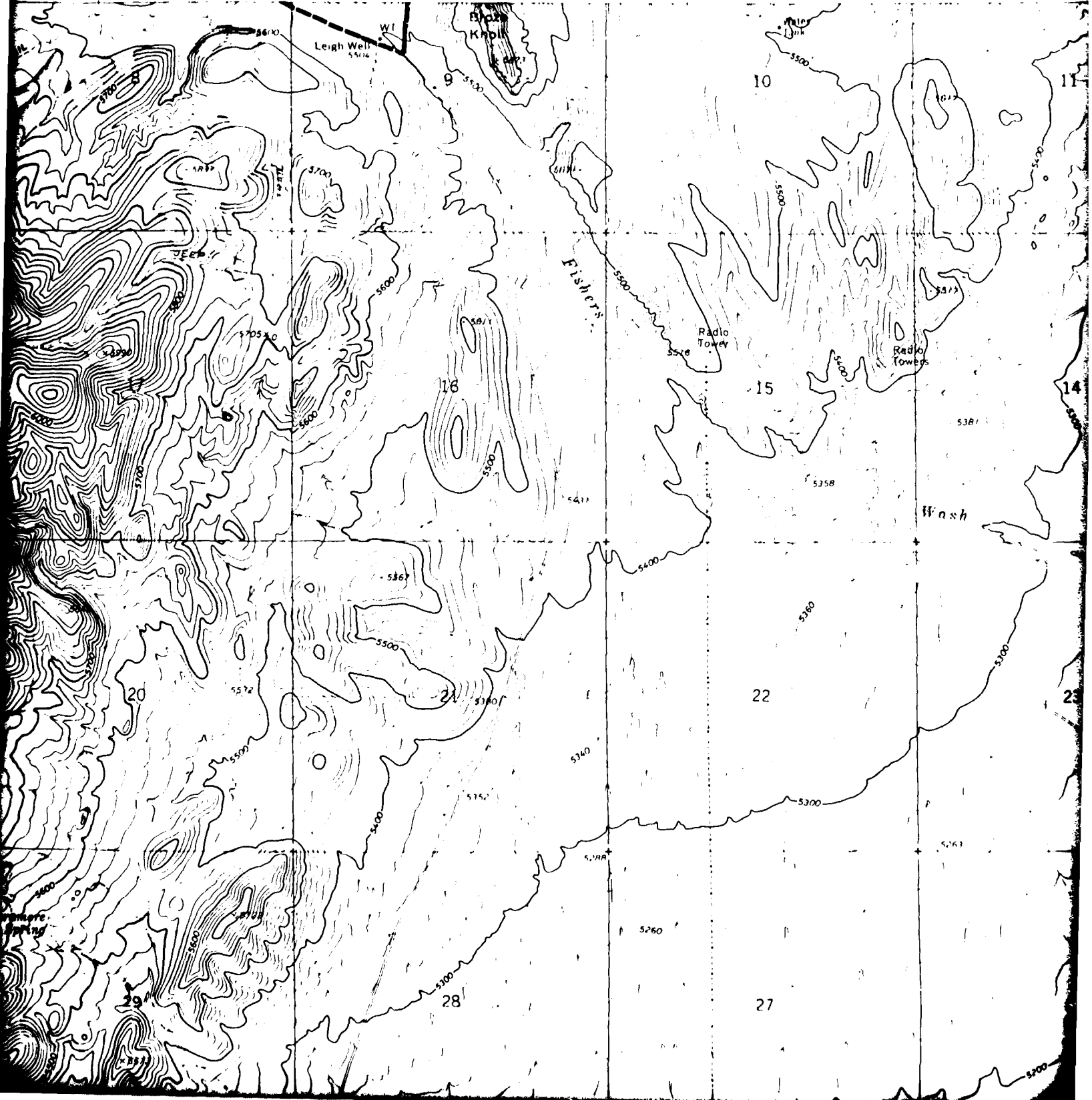
113° 30' 281 000m E 782 783 R 15 W R 14 W 784 27' 30" 785
38° 07' 30" 422 000m N



DTN/OBTS FIELD SURVEYS
UTAH DTN
SEGMENTS I-D, F-D, G-Y

LUN
U
7.5 MINUTE

3160 III NW
'86 (BLUE MOUNTAIN)



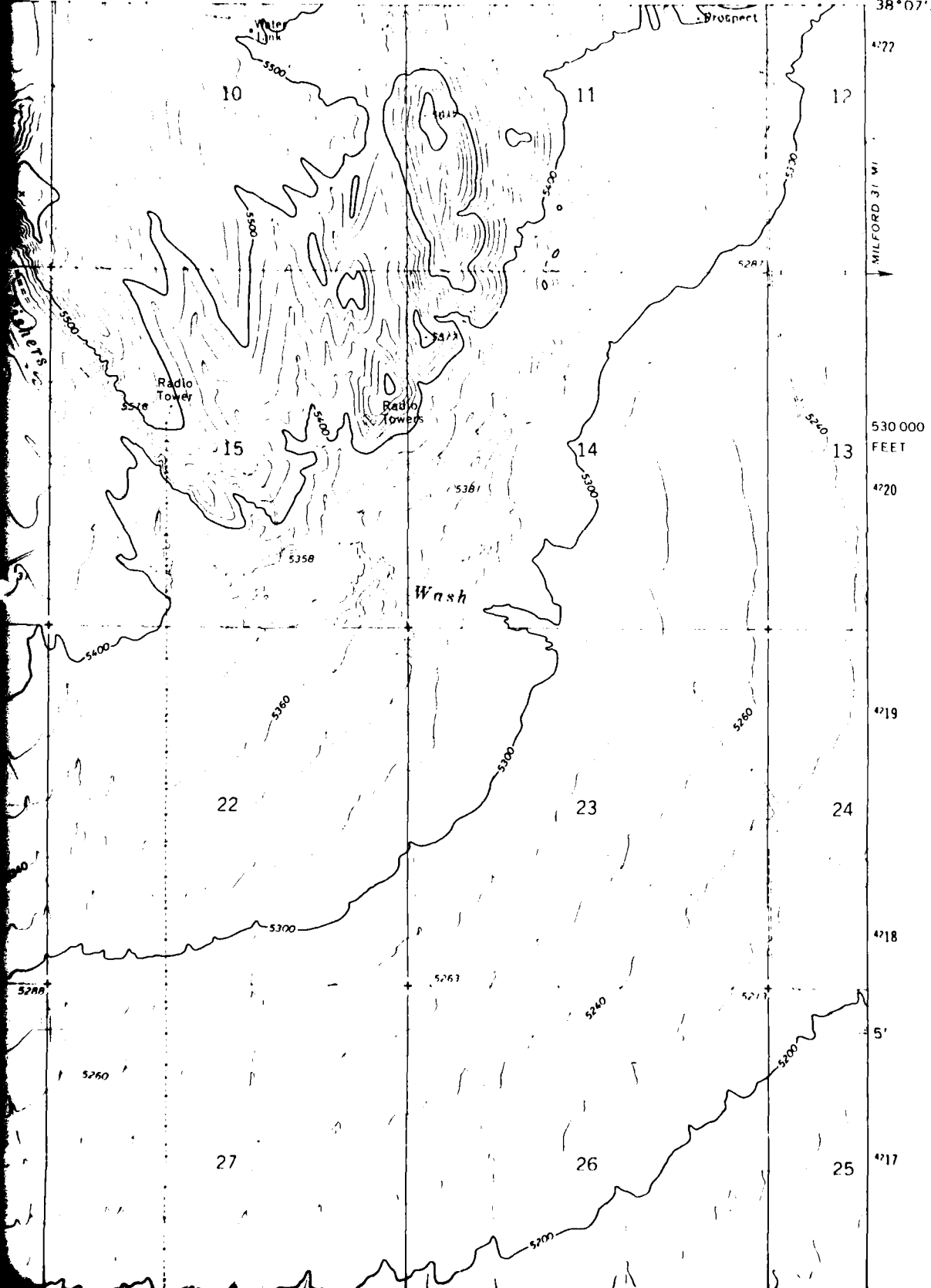
3

LUND QUADRANGLE
UTAH-IRON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

SHEET 3 OF 9

3 160 71 1/2
(BURNS KNOLLY)

25' 789 790 791 1 460 000 FEET 113° 22' 30" 38° 07' 30"





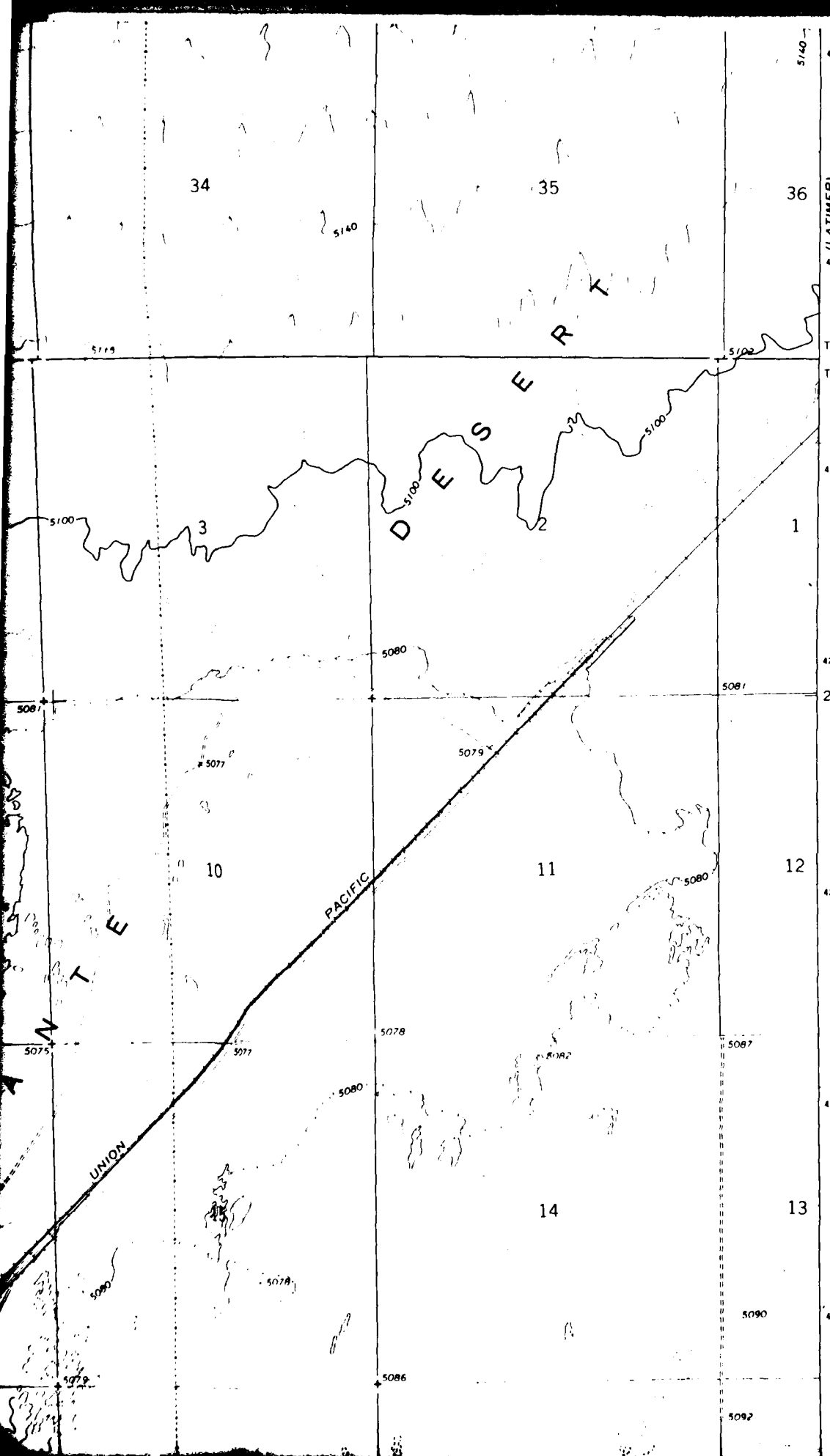
500 000
FEET

14

4710

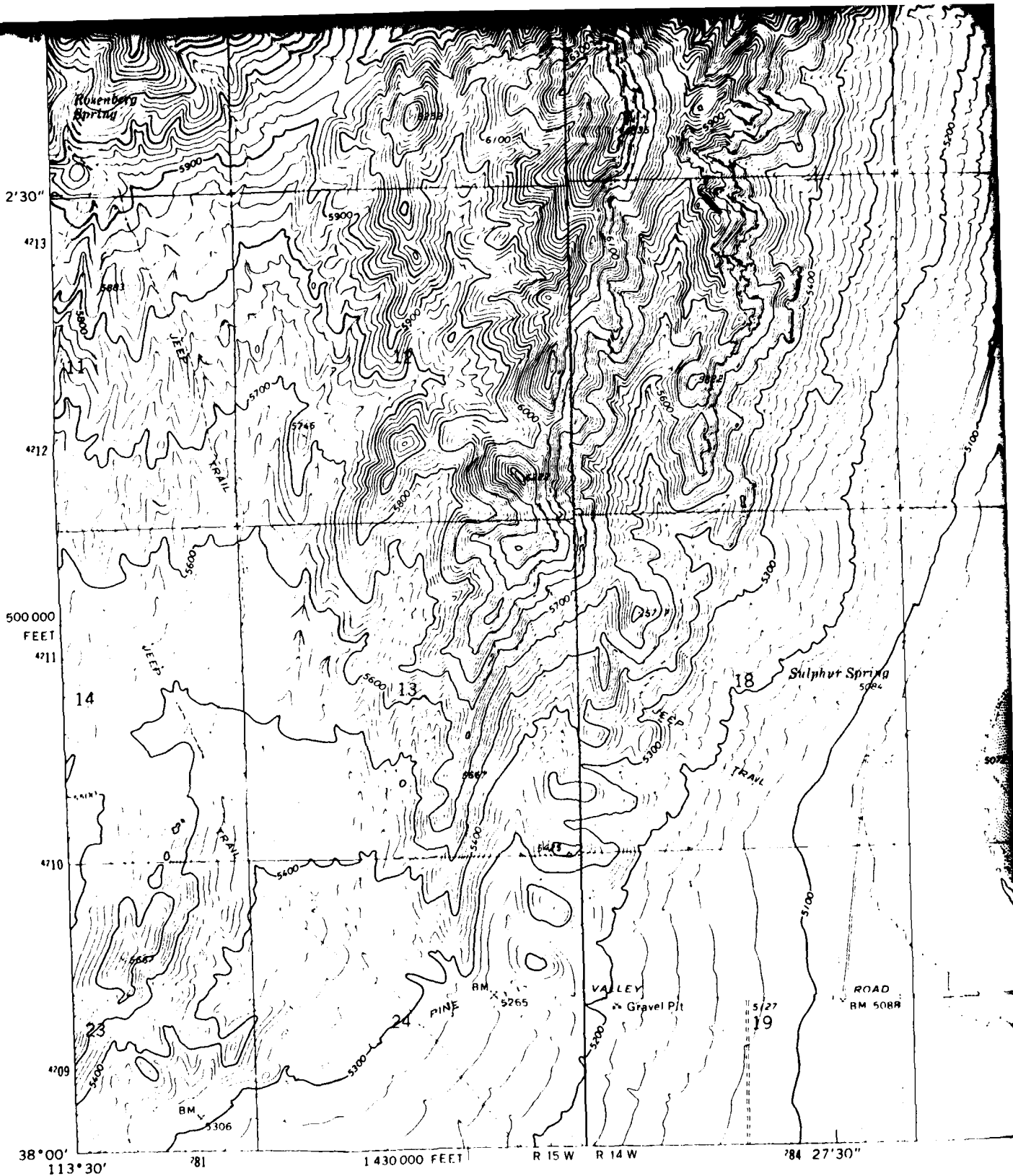
North Arrow

6



5140
4216
36
(LATIMER)
3360 III SE
4215
T 31 S
T 32 S
4214
1
4213
2'30"
4212
12
4211
13
4210
5090
5092

LIBRARY COPY DO NOT REMOVE



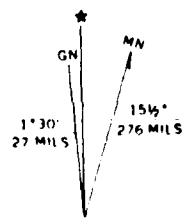
Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1970. Field checked 1971

Projection and 10,000-foot grid ticks: Utah coordinate system, south zone (Lambert conformal conic)
 1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue.
 1927 North American datum

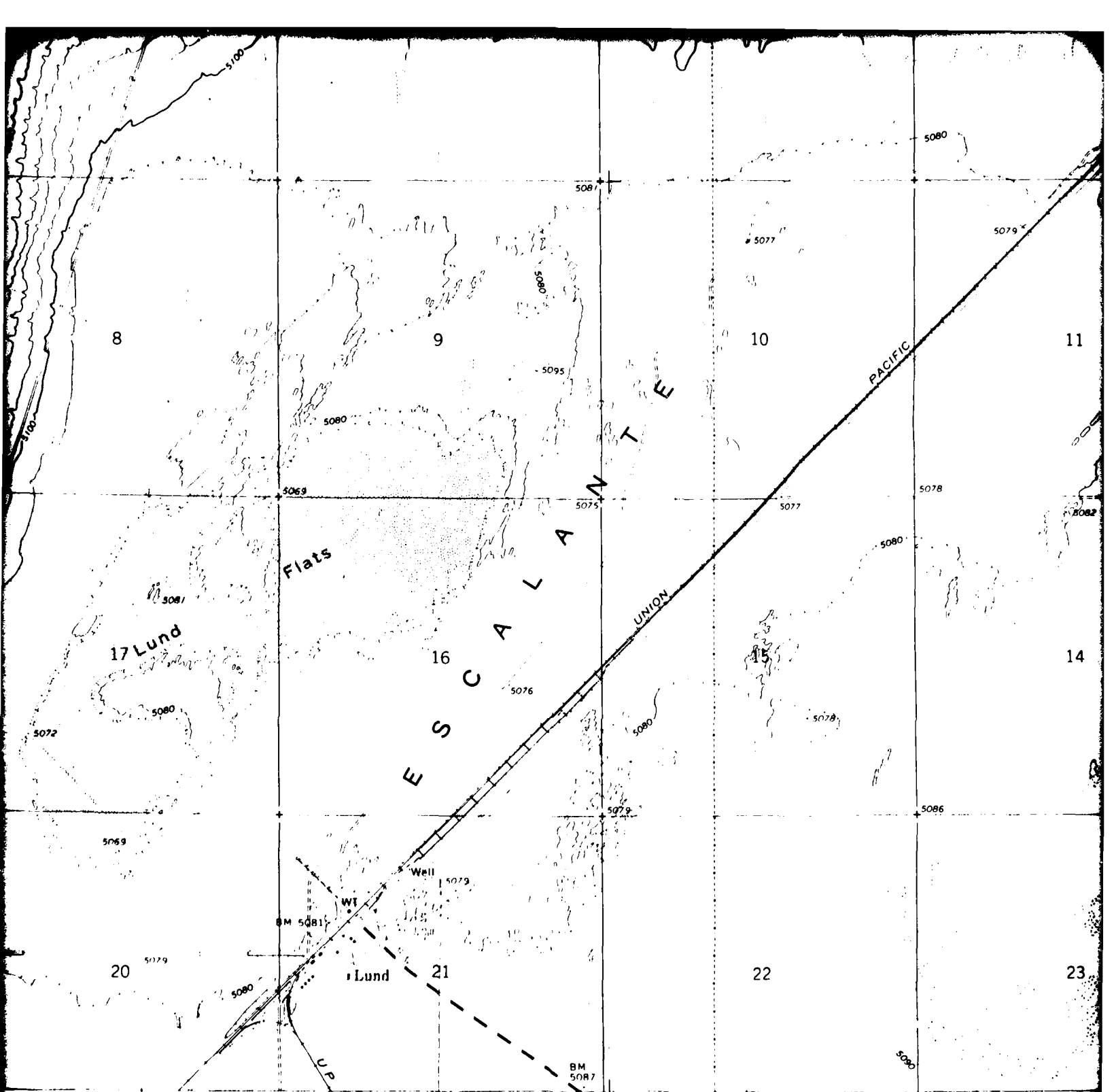
Fine red dashed lines indicate selected fence lines



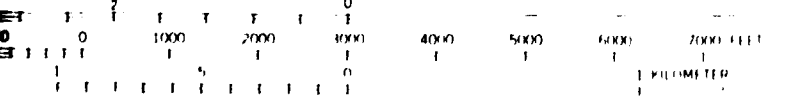
UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

FOR SALE BY U. S. GEOLOGICAL SURVEY
 A FOLDER

7

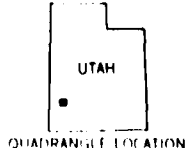


(AVON NW)
3359 IV NW
SCALE 1:24,000



CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 10 FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD
 Primary highway, hard surface
 Secondary highway, hard surface
 Interstate Route



THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
 U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

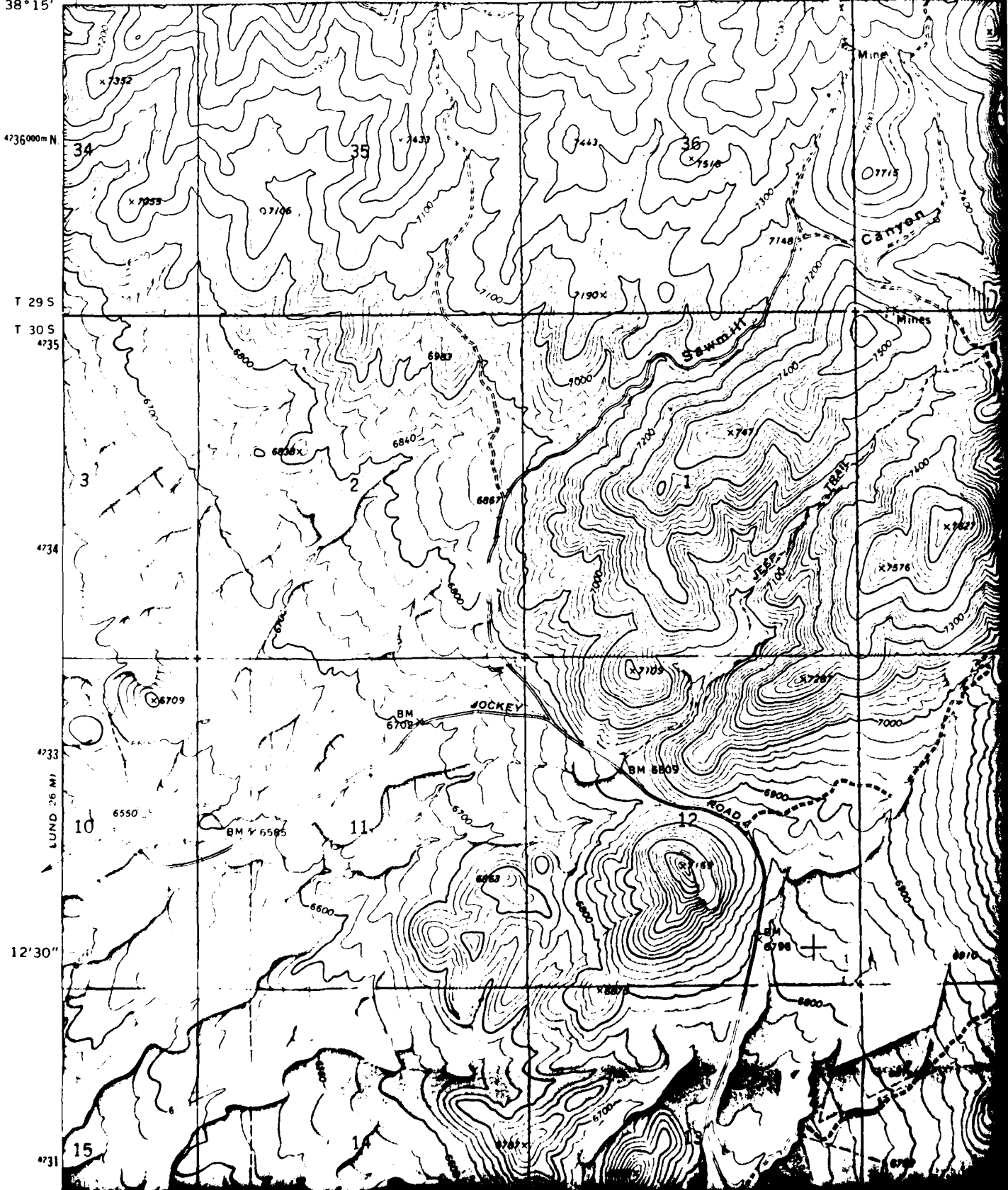
Ertec
The Earth Technology Corporation

2200' SW RESERVOIR

DT

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

113° 37' 30" 271000m E 272 273 R 16 W 35' 774 R 15 W
38° 15' 4236000m N



**DTN/OBTS FIELD SURVEYS
UTAH DTN
SEGMENTS I-D, F-D, G-Y**

THE TET

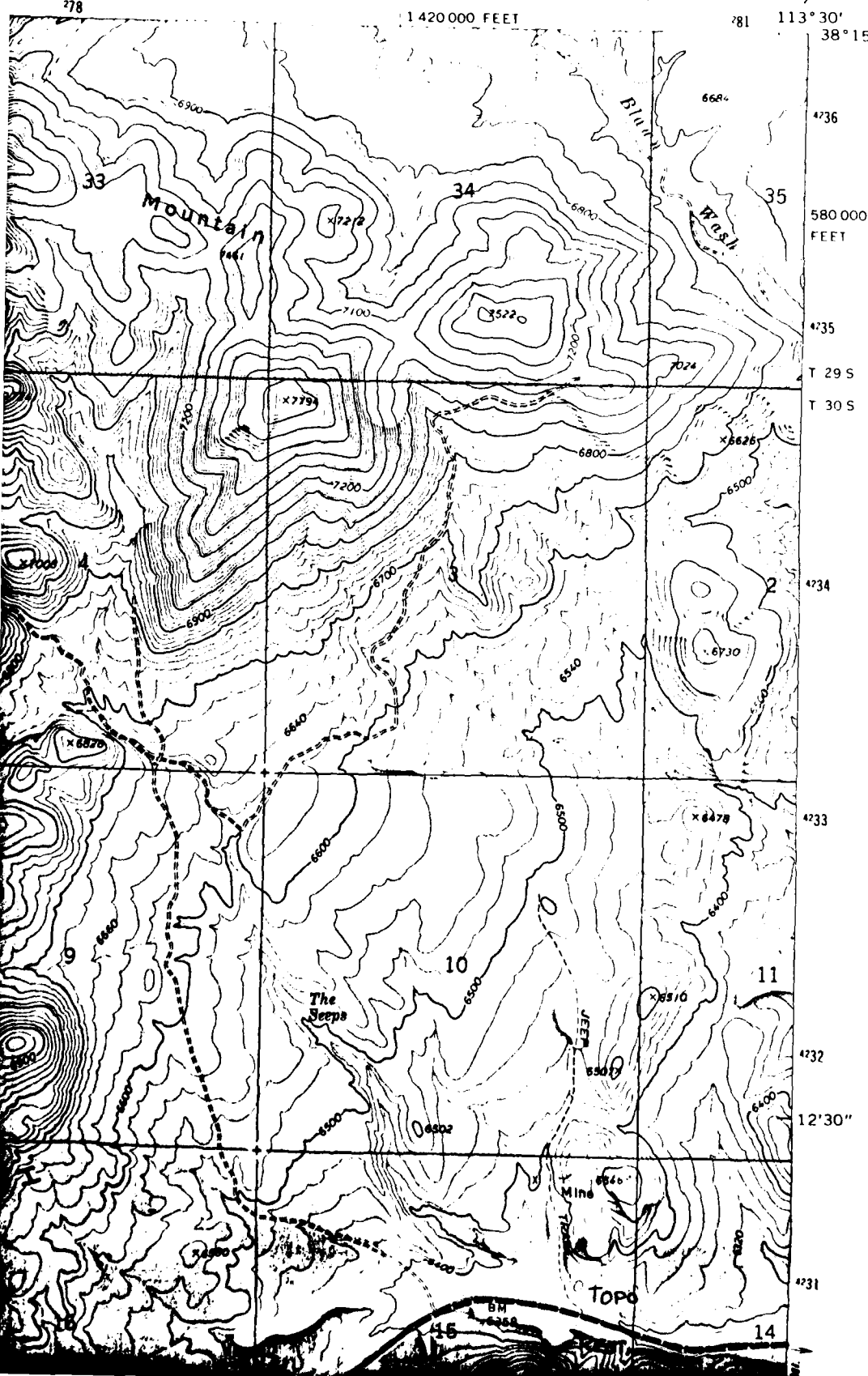
7.5 MINUTE

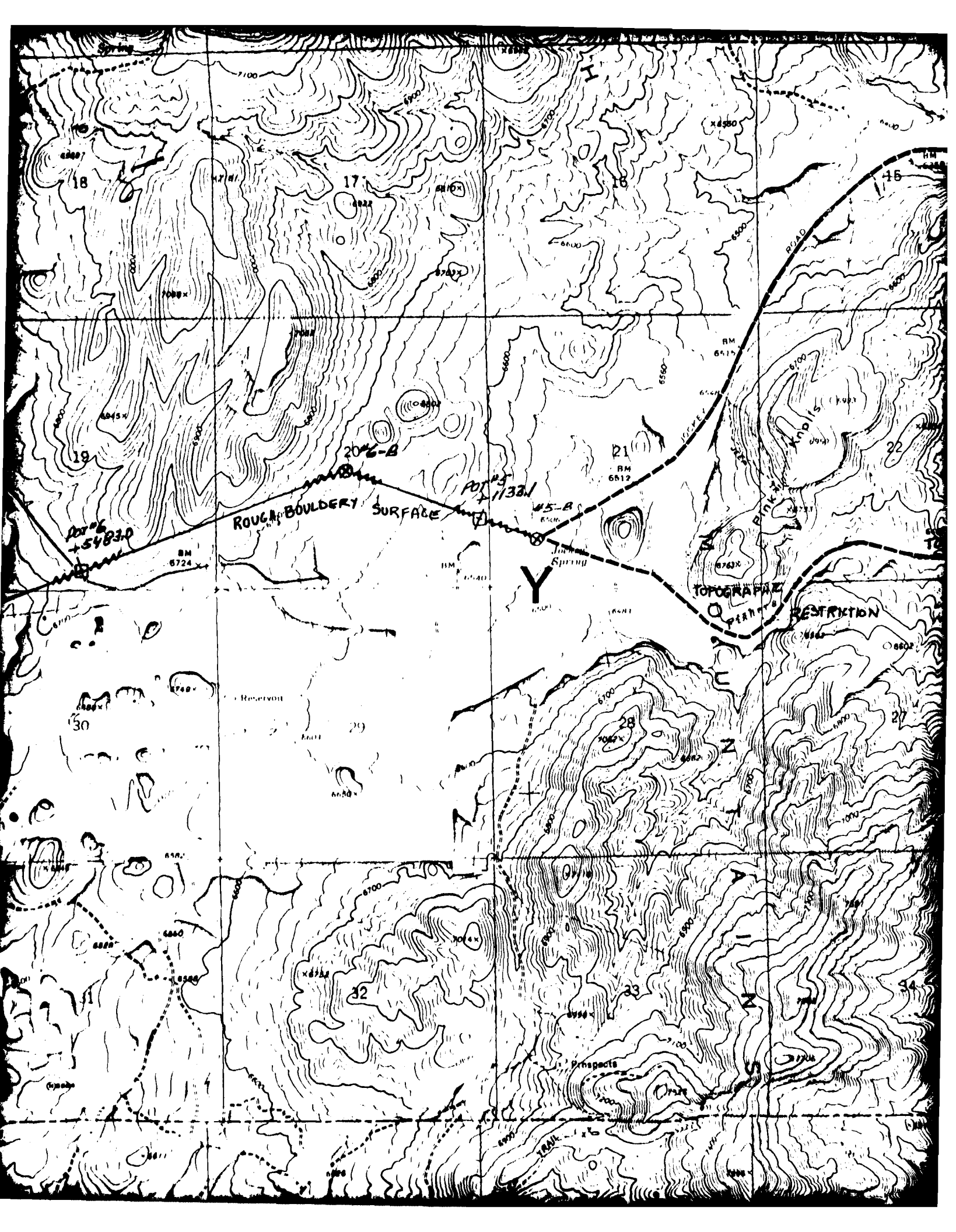
1:420,000 FEET



THE TETONS QUADRANGLE
UTAH
7.5 MINUTE SERIES (TOPOGRAPHIC)

3760 IV
(FRISCO 1 62 500)



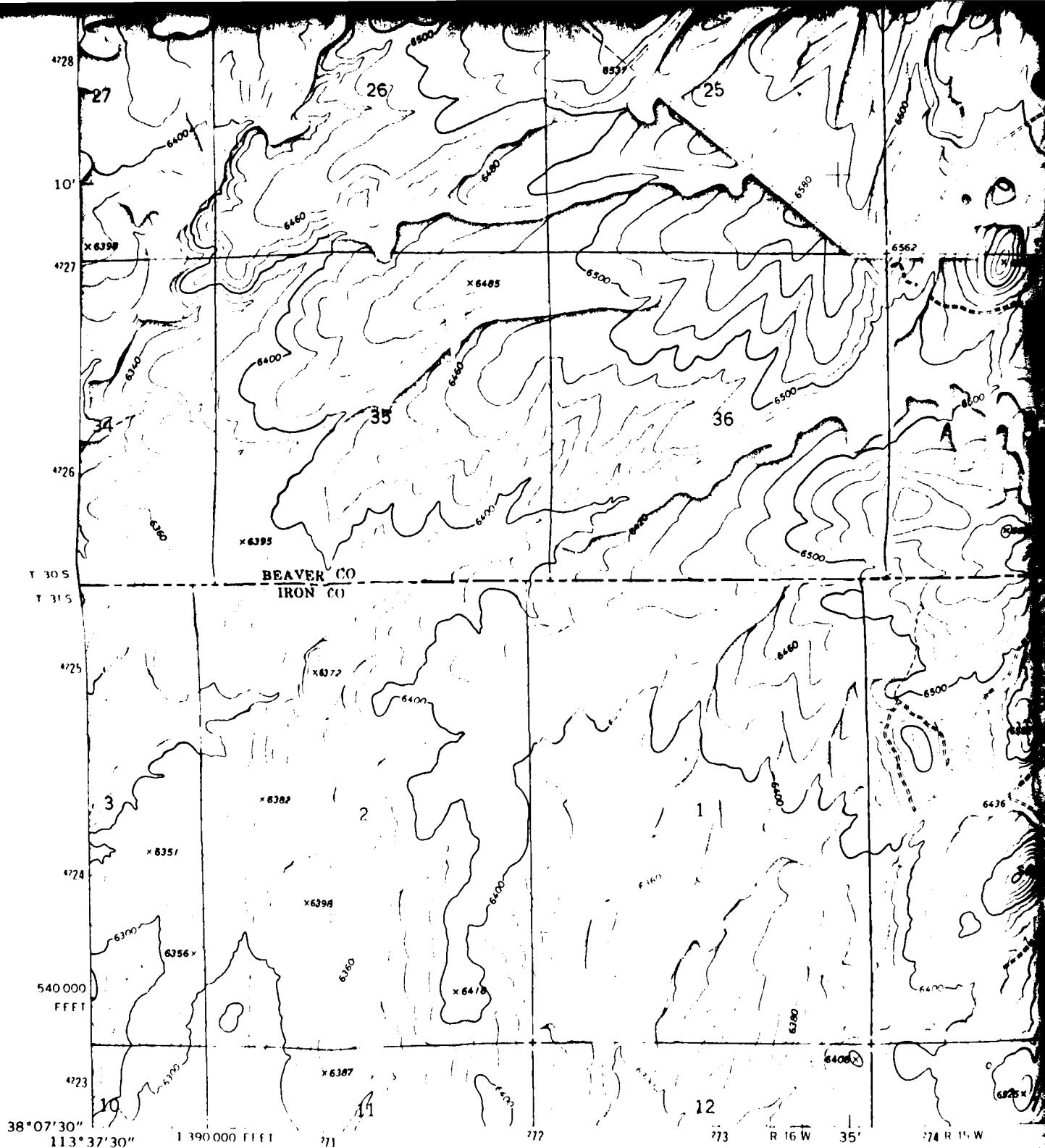




1238
4731
THERMO 22 MI
4730
(BLUE MOUNTAIN)
3360 III NW
4729
4728
10'
4727
4726
T 30 S
T 31 S

6

BEAVER CO
IRON CO



Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

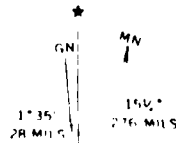
Topography by photogrammetric methods from aerial photographs taken 1970. Field checked 1971

Projection and 10,000-foot grid ticks: Utah coordinate system, south zone (Lambert conformal conic)

1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue. 1927 North American datum

Fine red dashed lines indicate selected fence lines

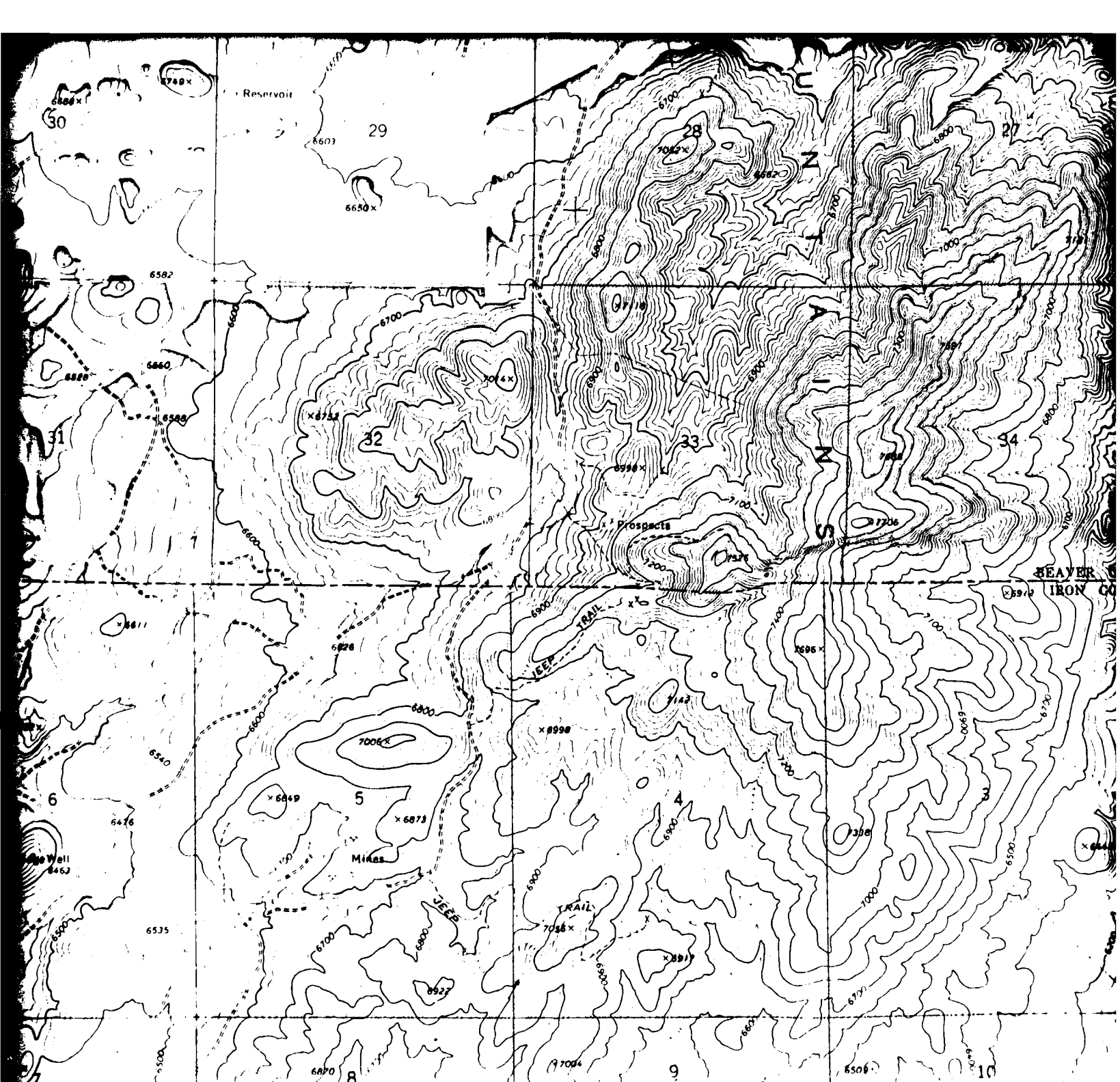
IBIBLE SPRING)
3260 II SW



UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

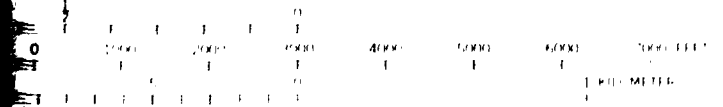
THIS
FOR SALE BY U.S.G.
A FOLDER

7

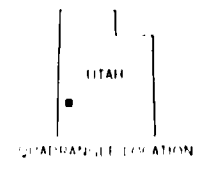


(MOUNTAIN SPRING PEAK)

SCALE 1:24,000



CONTOUR INTERVAL 20 FEET
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

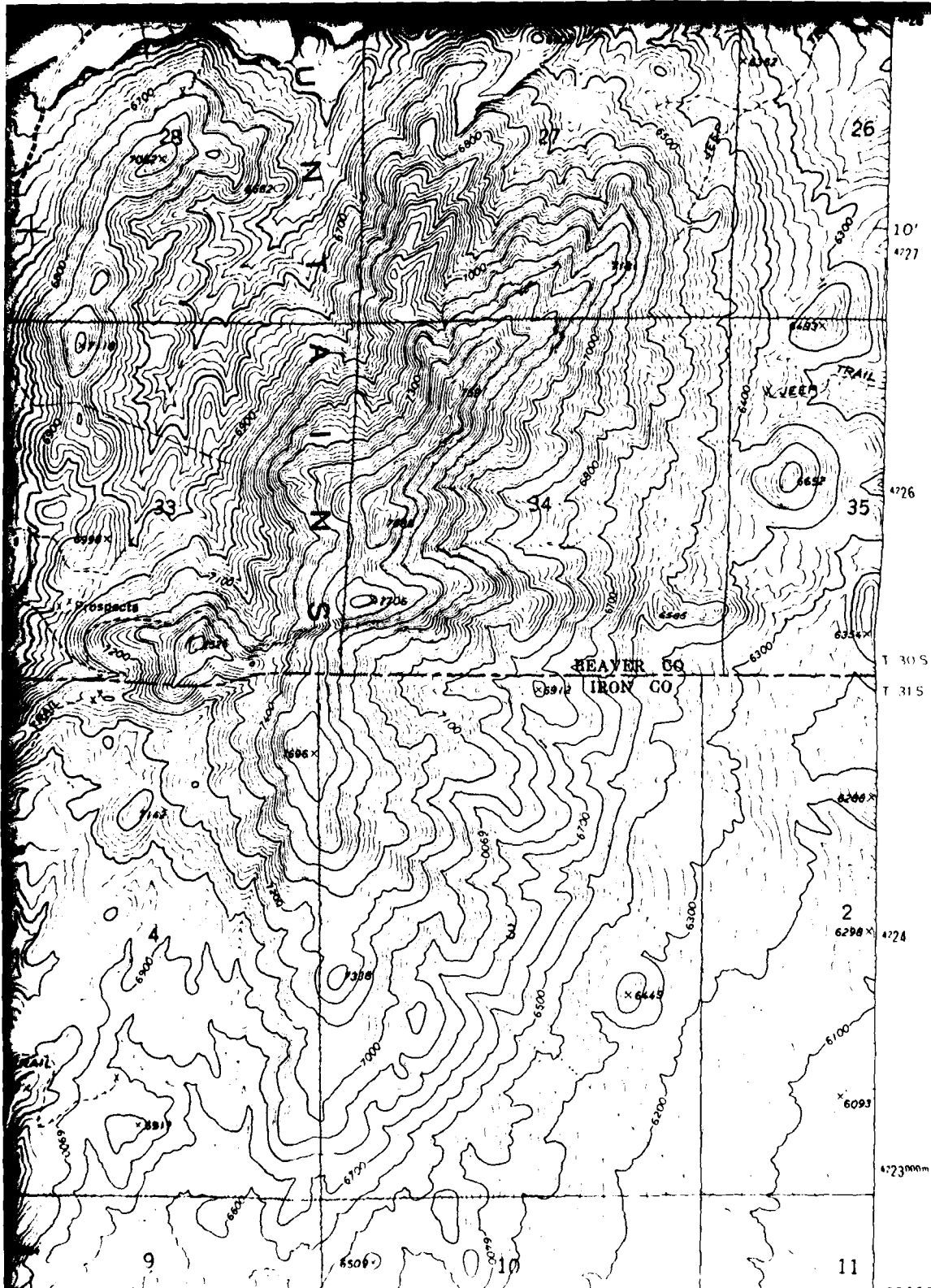


ROAD CLASSIFI	
Primary highway hard surface	Light Imp
Secondary highway hard surface	Uni
Interstate Route	U.S.

MAP COMPILED WITH NATIONAL MAP ACCURACY STANDARDS
 GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
 DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



Property
 Title



ROAD CLASSIFICATION

- | | | |
|-----------------------------------|------------------|--|
| Primary highway
hard surface | | Light duty road, hard or
improved surface |
| Secondary highway
hard surface | | Unimproved road |
| | Inter-Lite Route | |
| | U.S. Route | |
| | State Route | |



Ertec
the Earth Technology Corporation

Property of U.S. Air Force
THE TETONS, UTAH
N 38075 - W 1133075

1971

(LUND)
3160 111 SW
 Set @ predetermined coordinate
 Set a different coordinate
 Set PLOT

Down Line flagged

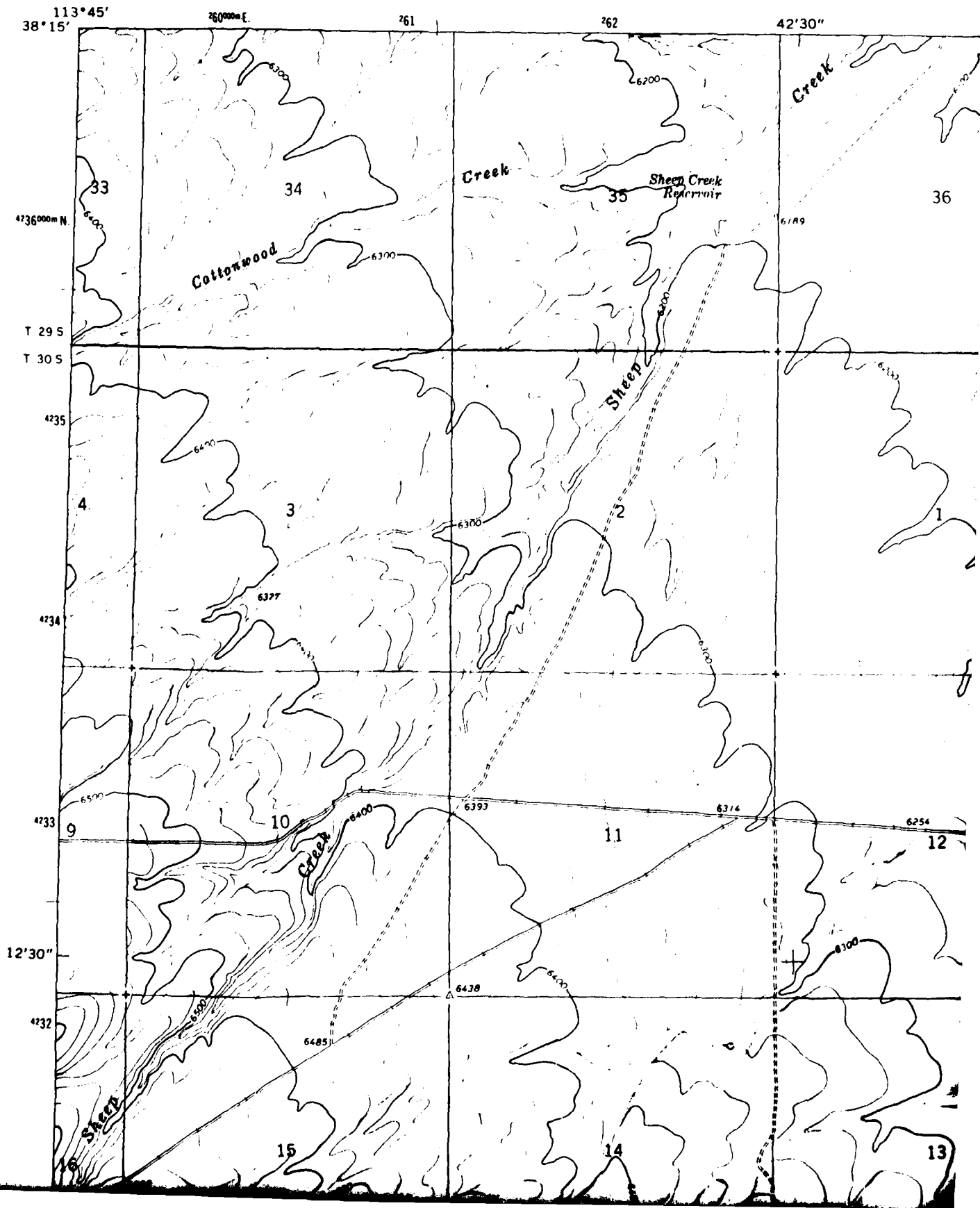
DENISE PIERATI

9

1200 N SE SPRING
(BUCKHORN SPRING)

DT
S

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



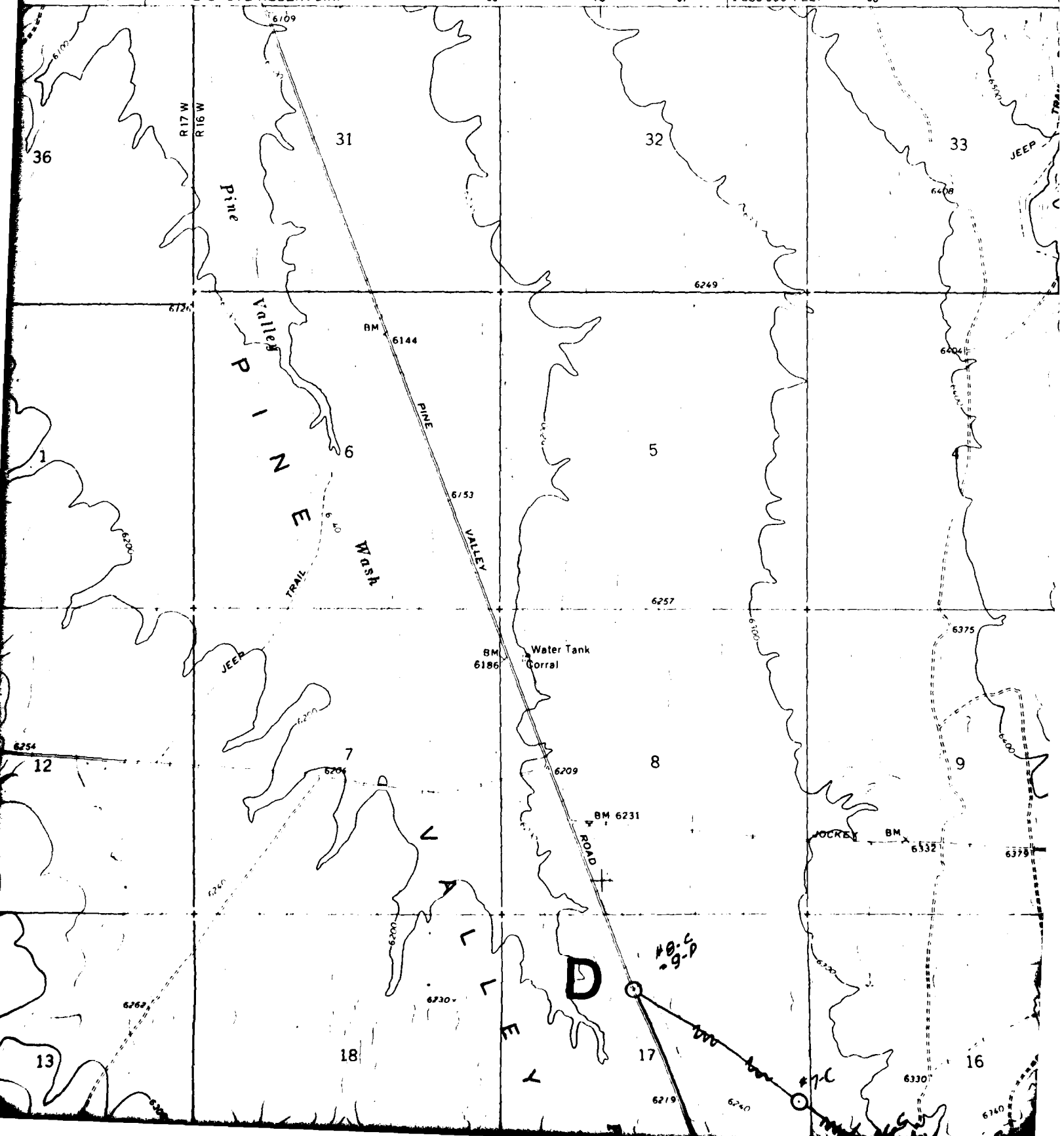
DTN/OBTS FIELD SURVEYS
UTAH DTN
SEGMENTS I-D, F-D, G-Y

OBSERVATION

7.5 MINUTE

21 MI TO UTAH 21
3260 1 SW
(PINE GROVE RESERVOIR)

1 380 000 FEET

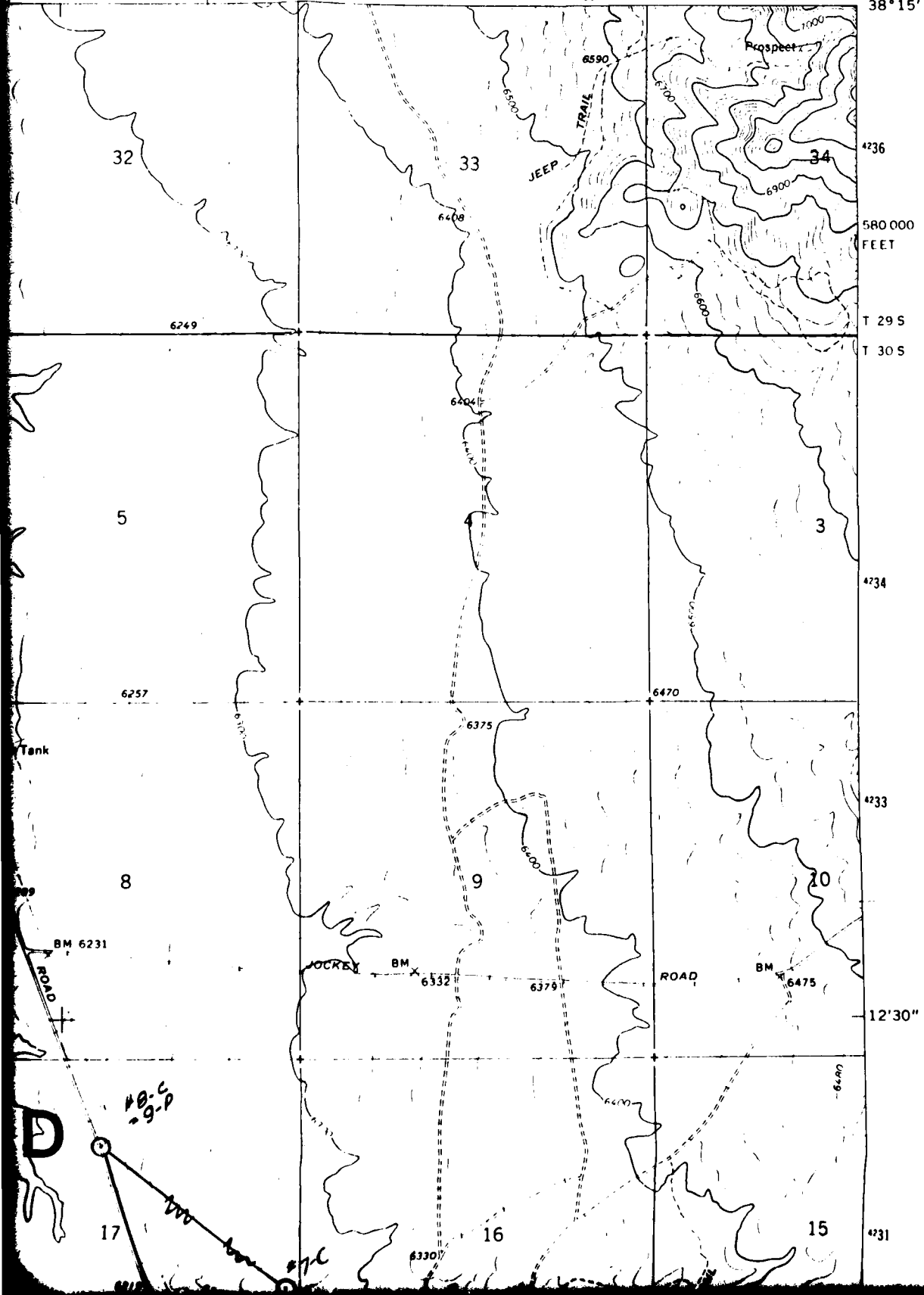


3260 1 SE
LAMERDORF PEAK

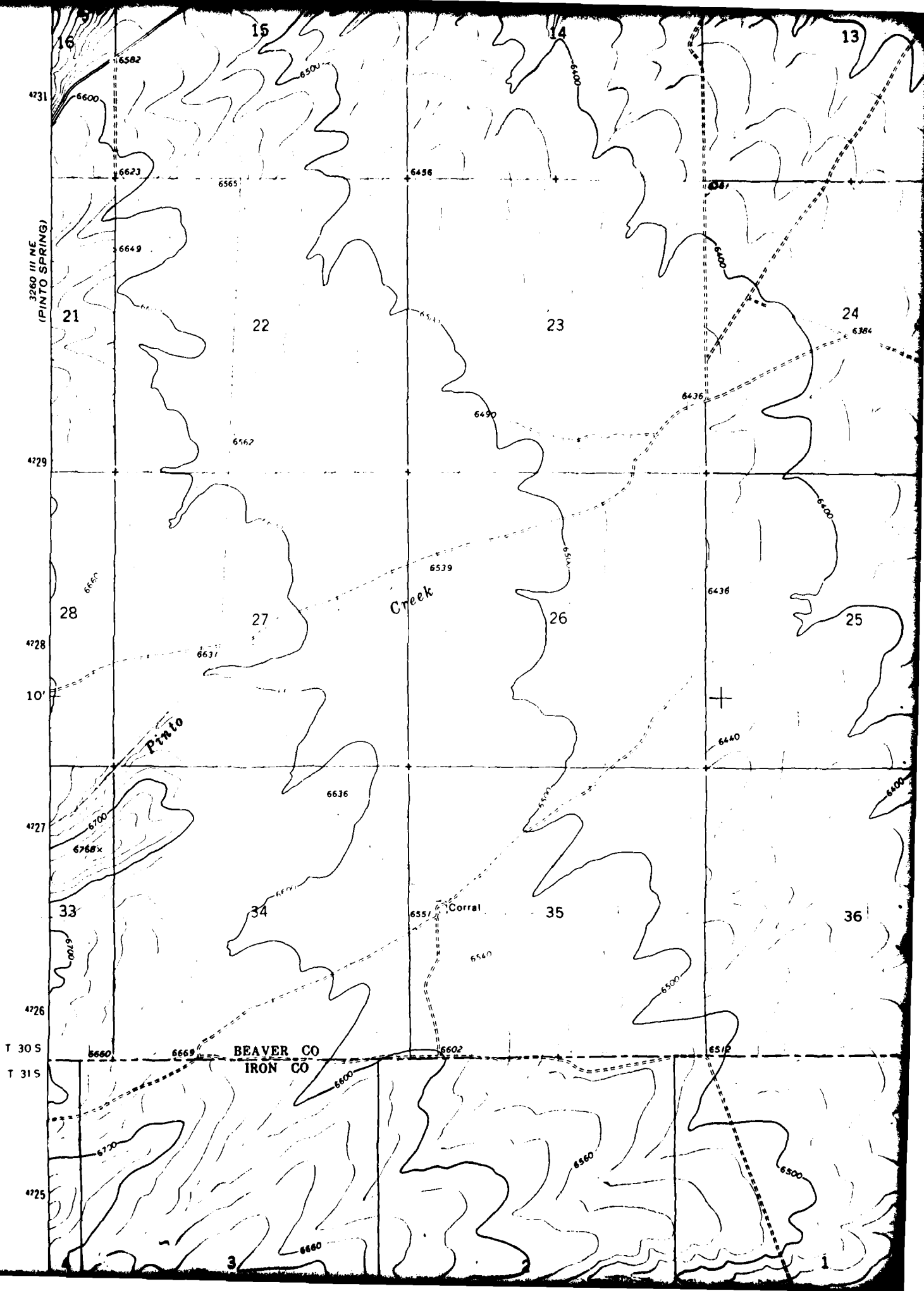
3

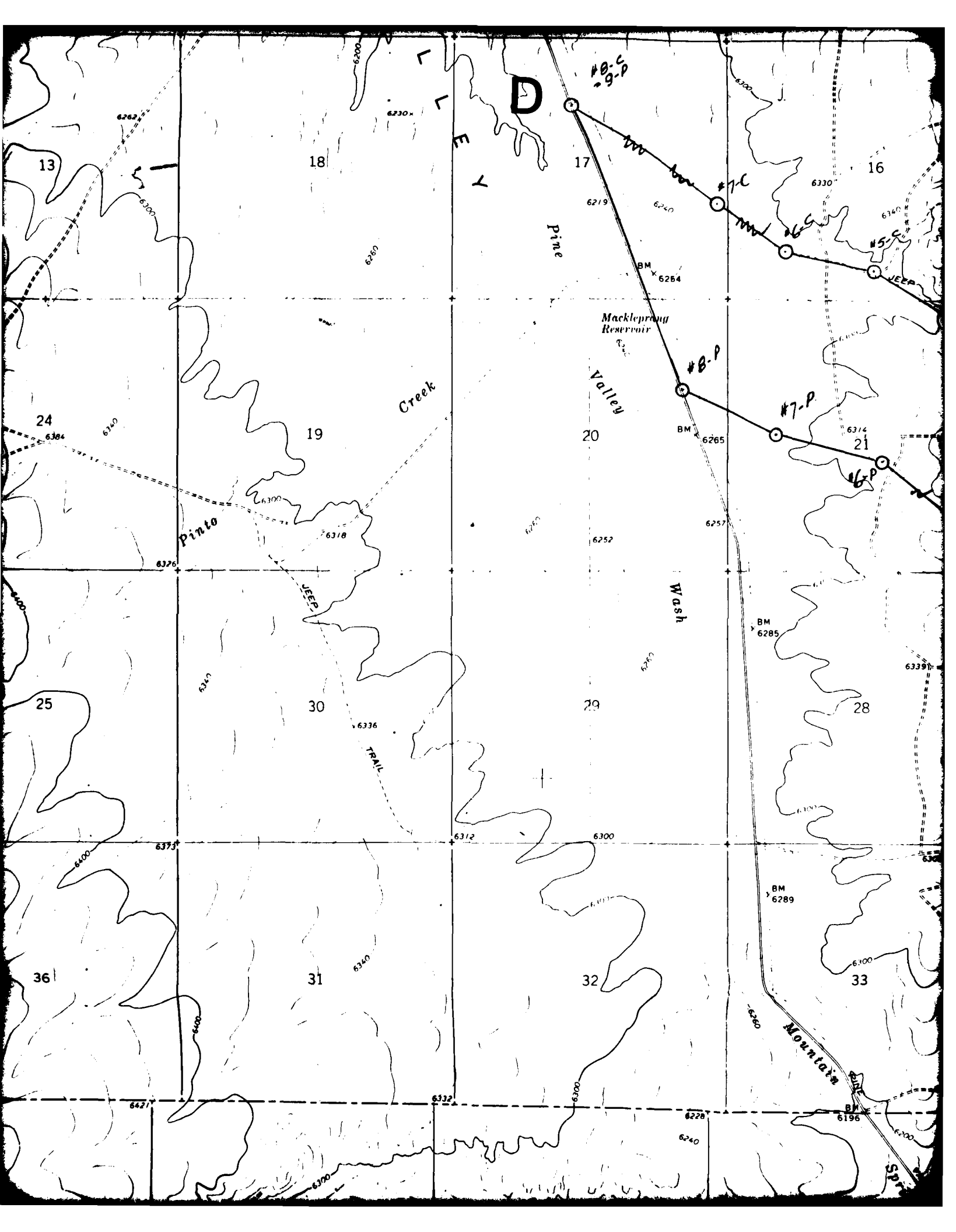
OBSERVATION KNOLL QUADRANGLE
UTAH
7.5 MINUTE SERIES (TOPOGRAPHIC)

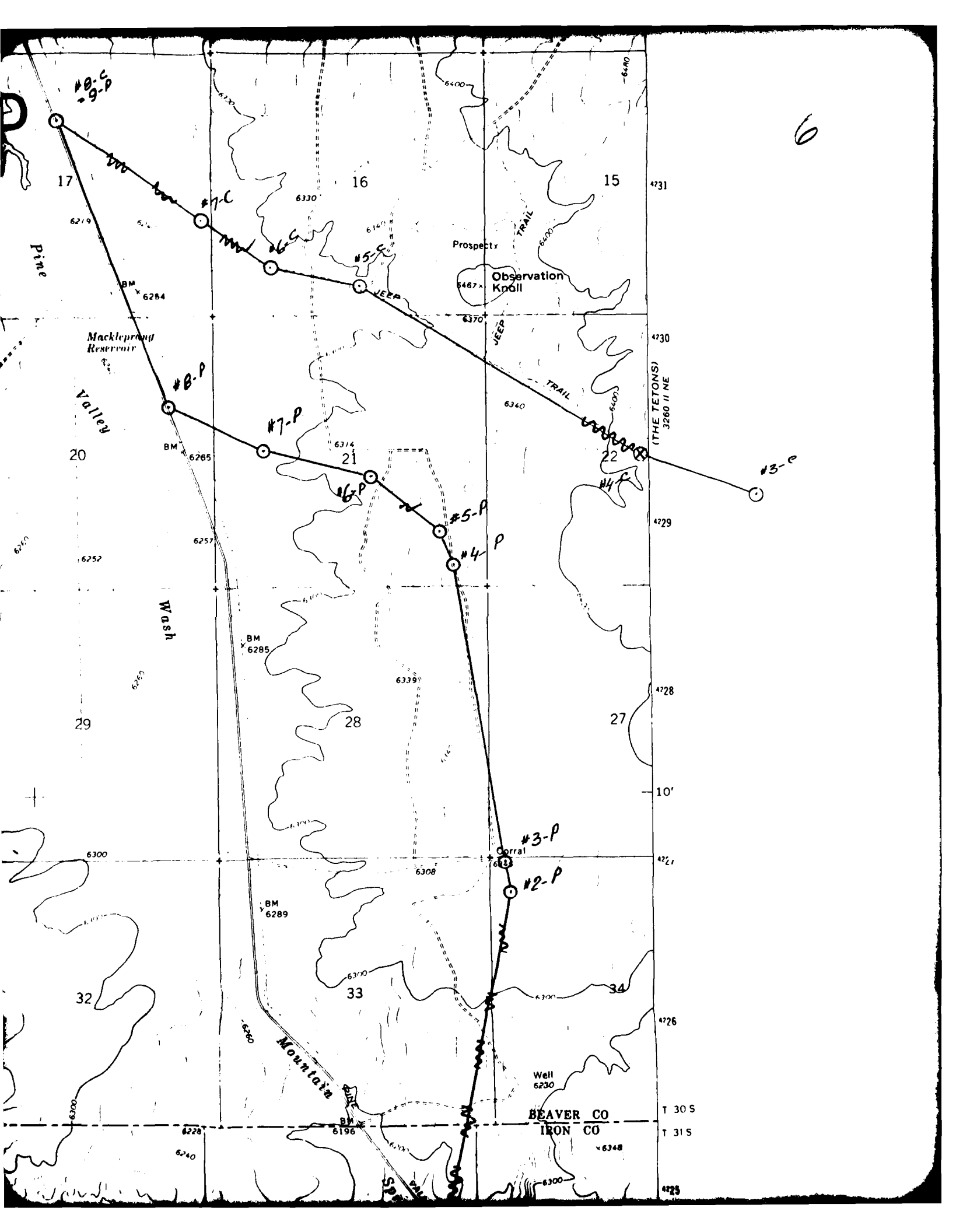
40' 767 1 380 000 FEET 768 769 270 113° 37' 30" 38° 15'



4







6

#10-C
#9-P

17

16

15

4231

Pine

BM
6264

Prospect

Observation
Knoll

5467

JEER

JEER

4230

Mackleprong
Reservoir

TRAIL

Valley

#7-P

21

22

(THE TETONS)
3260 II NE

20

BM
6265

#6-P

#5-P

#3-P

4229

6252

6257

Wash

BM
6285

#4-P

4228

29

6253

28

27

10'

6300

BM
6289

#3-P

#2-P

4221

Corral

613

32

33

34

4226

Mountain

Well
6230

BEAVER CO
IRON CO

T 30 S

T 31 S

6300

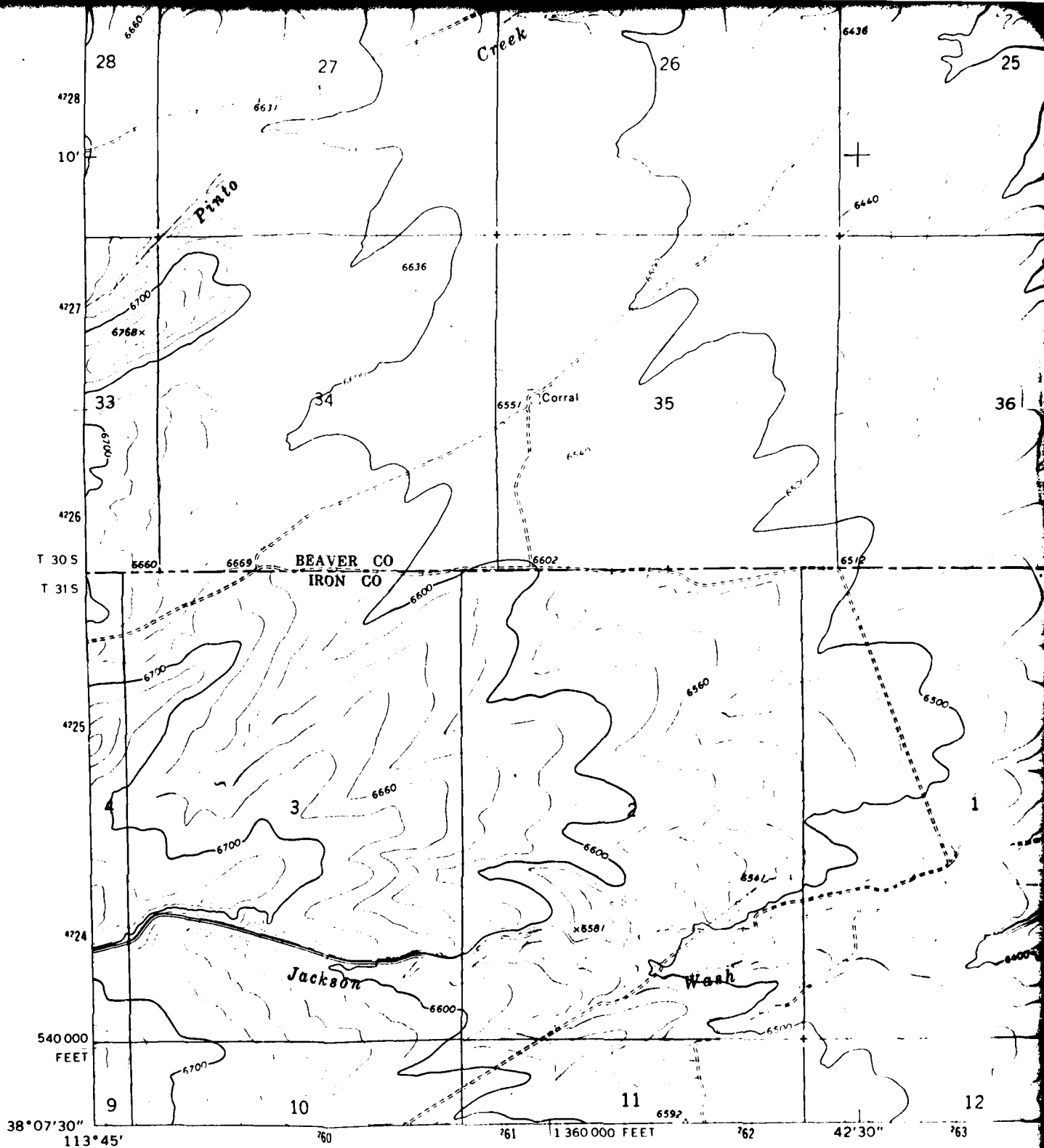
6228

6196

6348

6240

4225



(STEAMBOAT MTN.)
3280 III SE

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Control by USGS and USC&GS

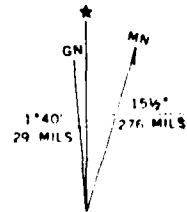
Topography by photogrammetric methods from aerial photographs taken 1970. Field checked 1971

Projection and 10,000-foot grid ticks: Utah coordinate system, south zone (Lambert conformal conic)

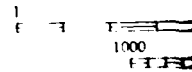
1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue.

1927 North American datum

Fine red dashed lines indicate selected fence lines

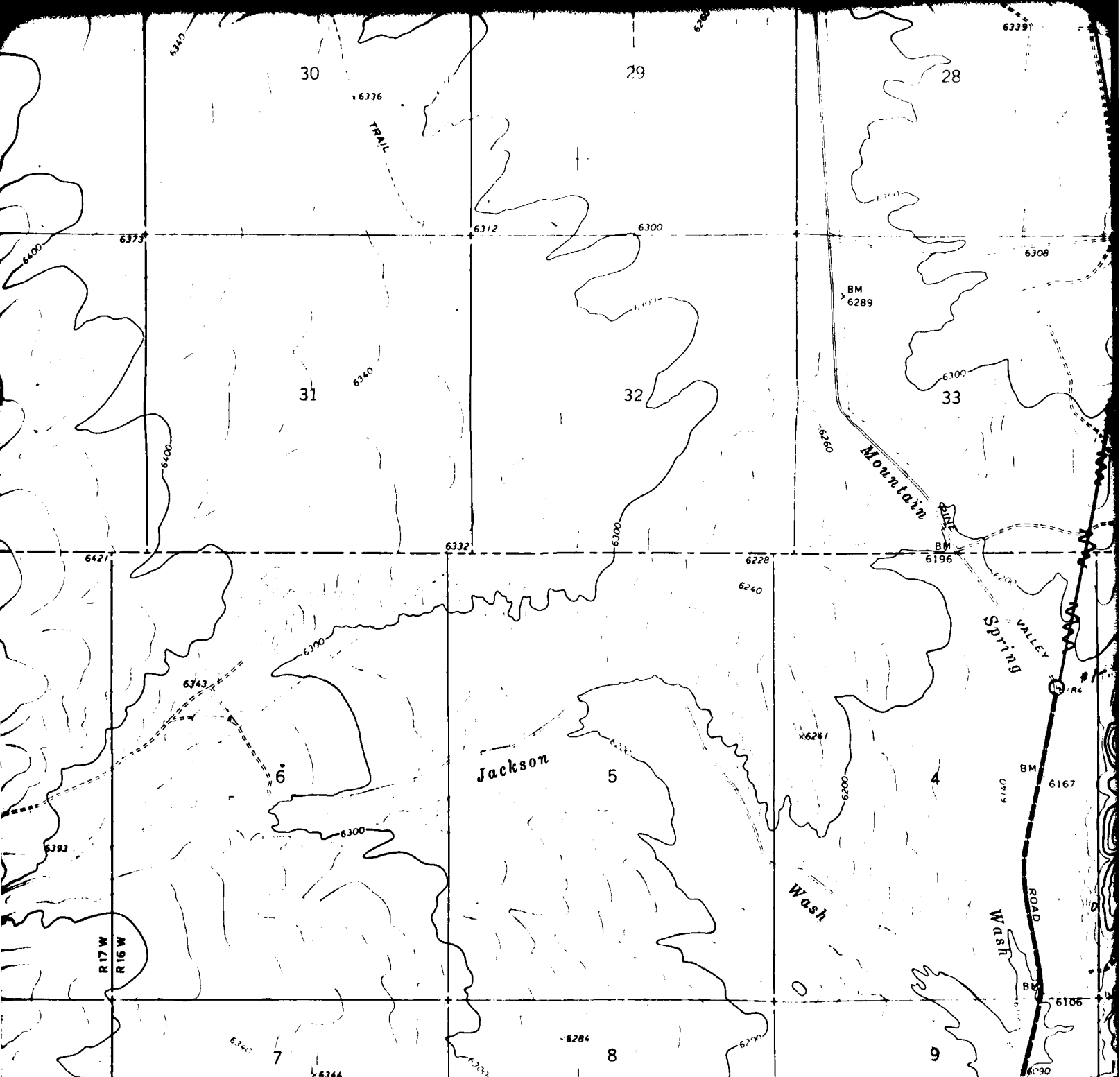


UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

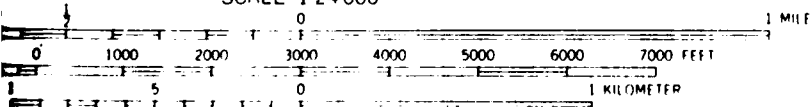


TM
FOR SALE BY U.S.
A FOLDER

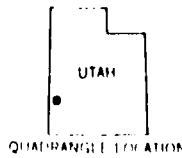
7



(BIBLE SPRING)
3260 II SW
SCALE 1:24,000



CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929



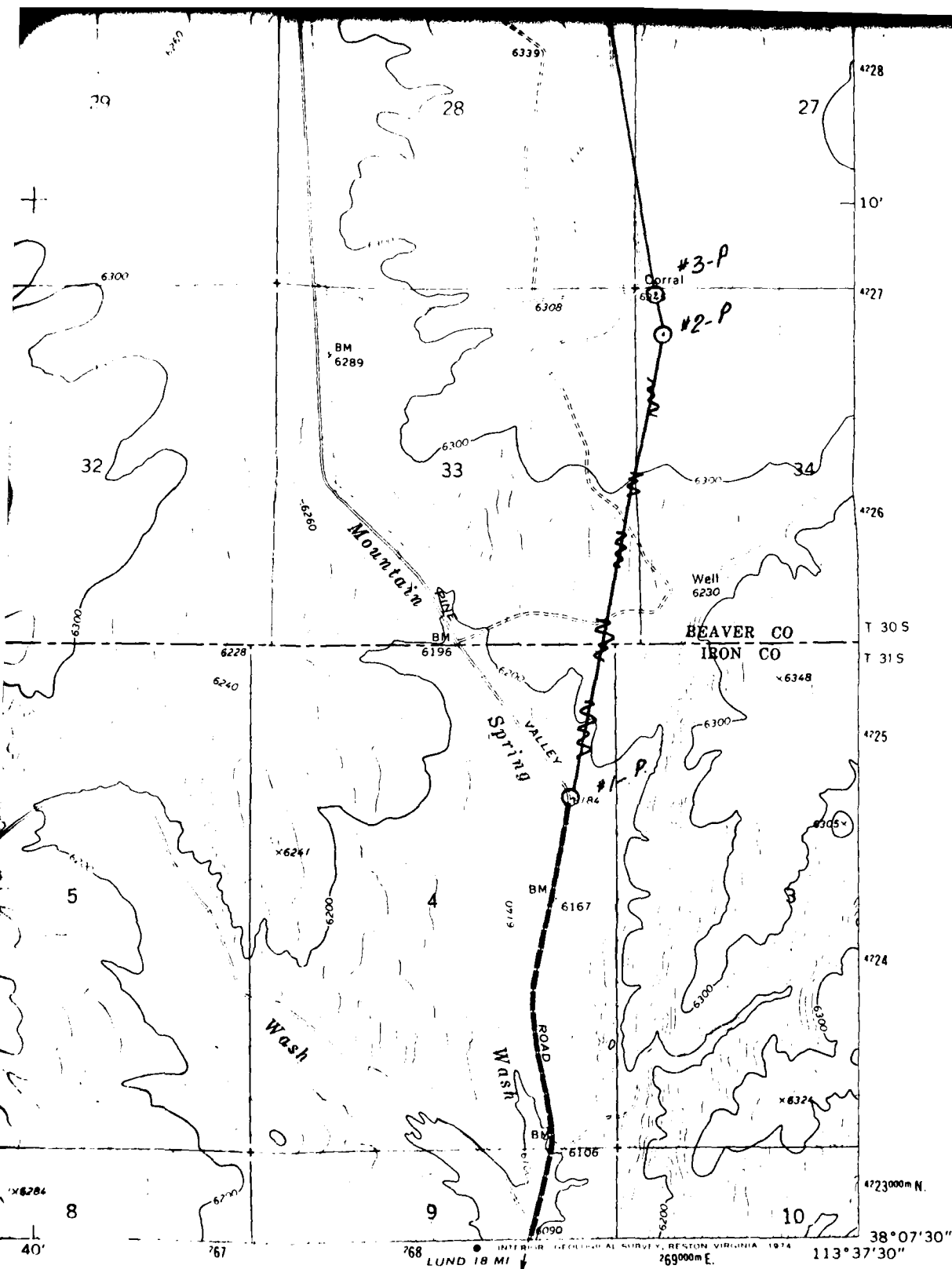
ROAD CLASS
 Primary highway hard surface ———
 Secondary highway hard surface - - - - -
 Interstate Route () U.

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
 GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
 DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Ertec
 The Earth Technology Corporation

OBSERVATION
 N3801

AMS



ROAD CLASSIFICATION

- Primary highway, hard surface ——— Light-duty road, hard or improved surface
- Secondary highway, hard surface - - - Unimproved road

() Interstate Route { } U.S. Route () State Route

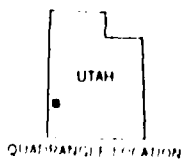
DENISE PIERATTI

OBSERVATION KNOLL, UTAH

N3807.5 - W11337.5 / 7.5

1971

AMS 3260 II NW-SERIES V807



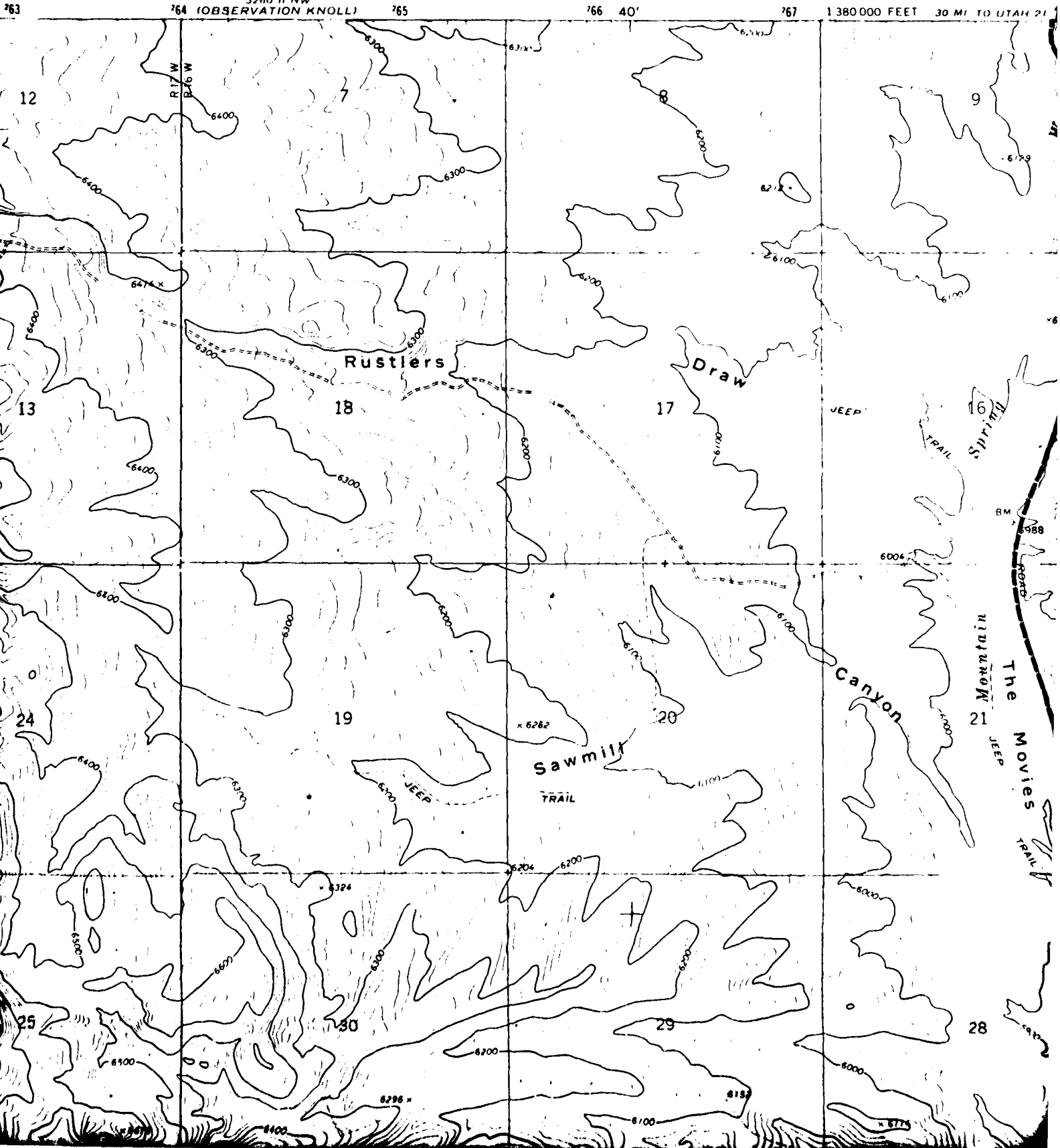
(MOUNTAIN SPRING PEAK)
3260 11.52

9

DTN/OBTS FIELD SURVEYS
UTAH DTN
SEGMENTS I-D, F-D, G-Y

BIE

7.5

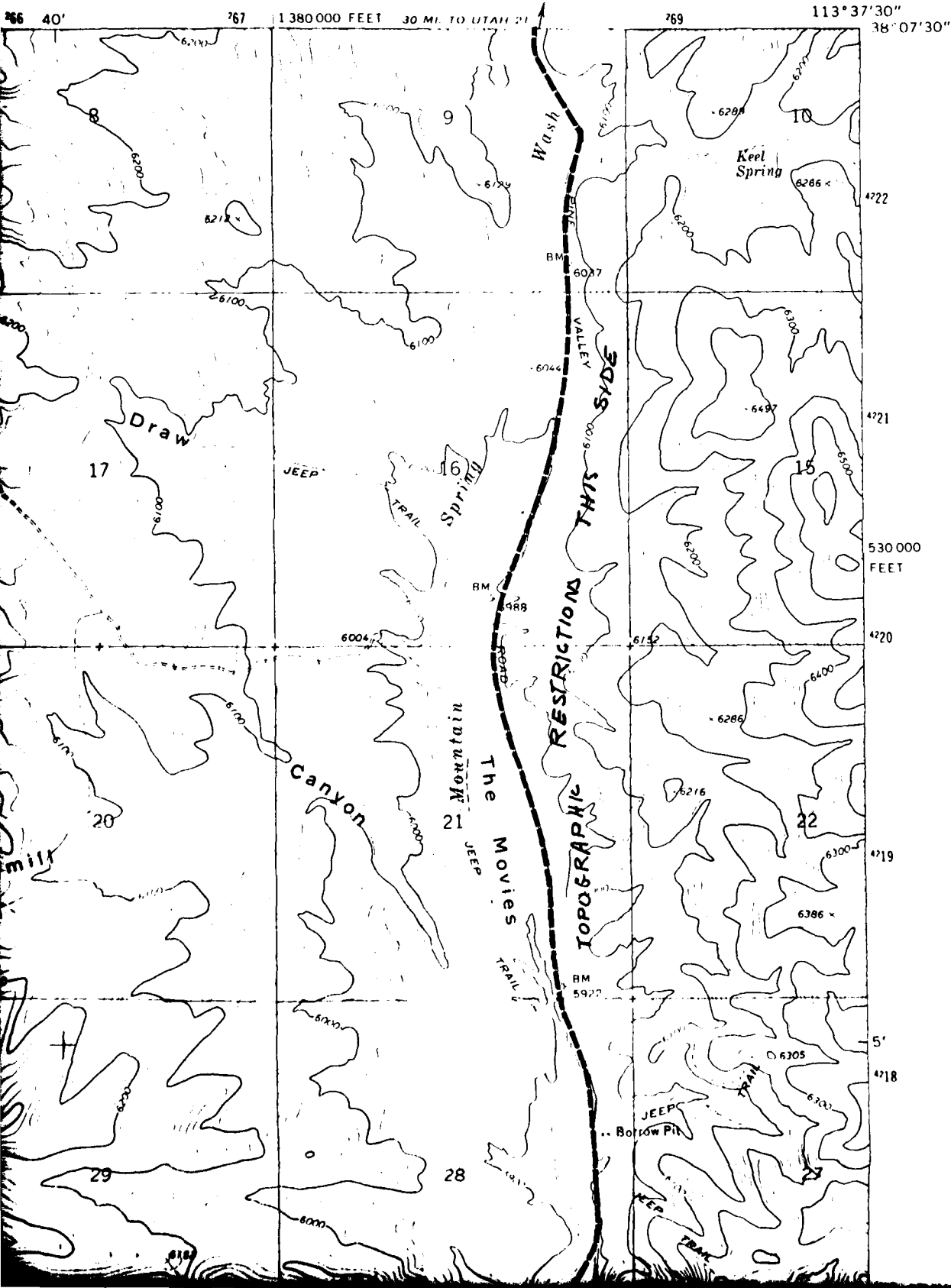


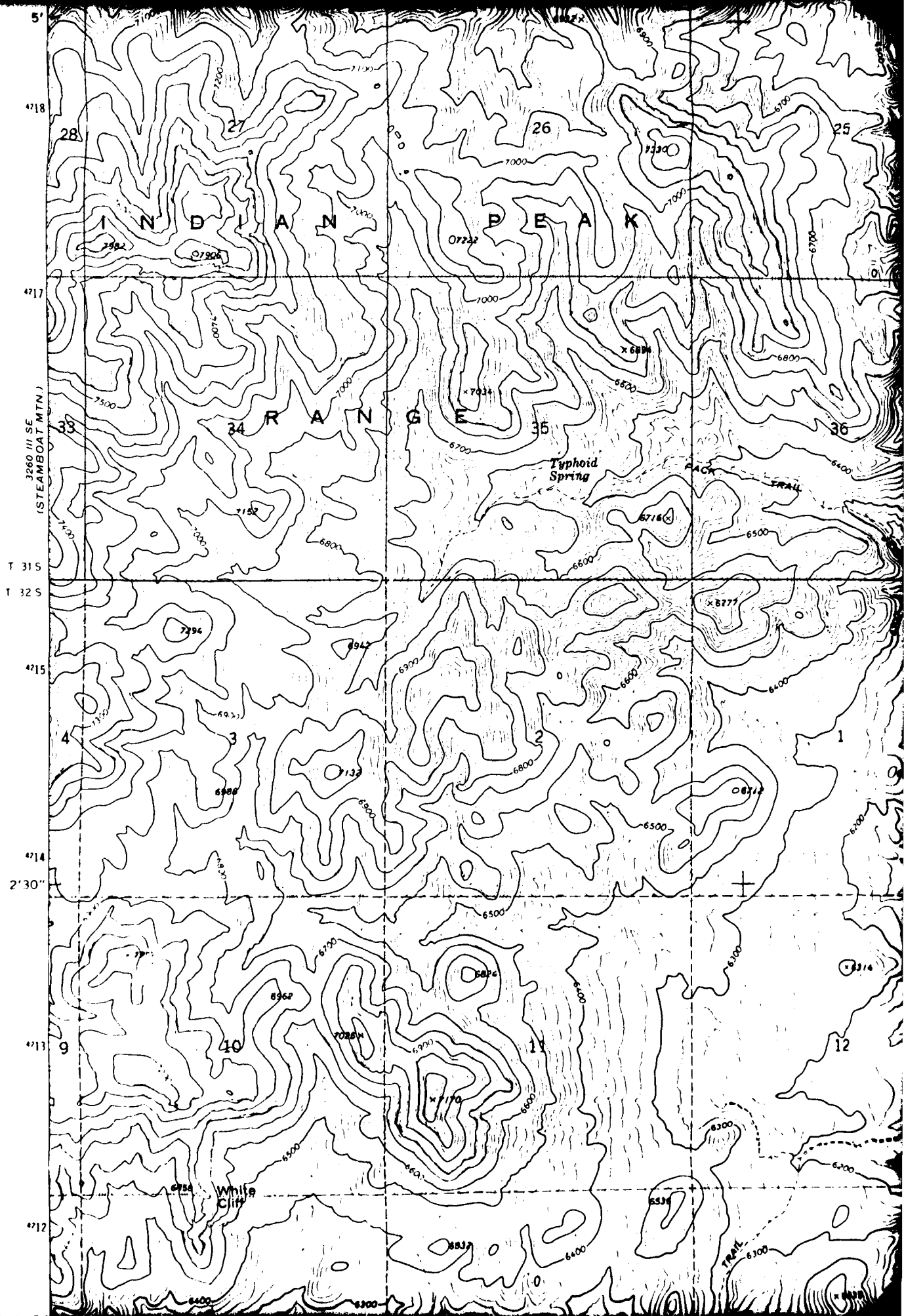
3

SHEET 6 OF 9

BIBLE SPRING QUADRANGLE UTAH-IRON CO. 7.5 MINUTE SERIES (TOPOGRAPHIC)

3750 FT. M.
(THE TETONIAN)





5'

4218

4217

T 315

T 325

4215

4214

2' 30"

4213

4212

3260 III SE
(STEAMBOAT MTN.)

I N D I A N P E A K

R A N G E

Typhoid Spring

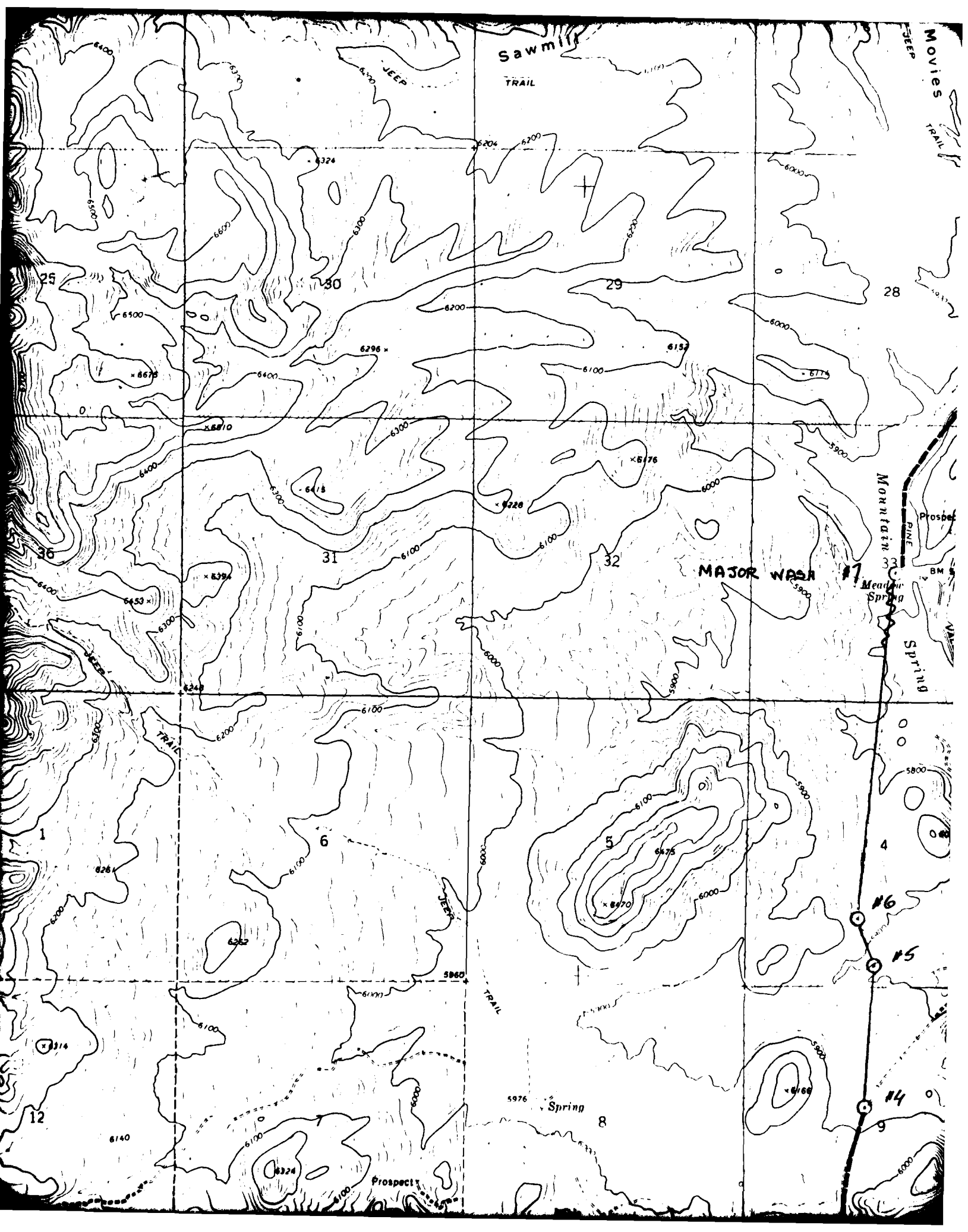
White Cliff

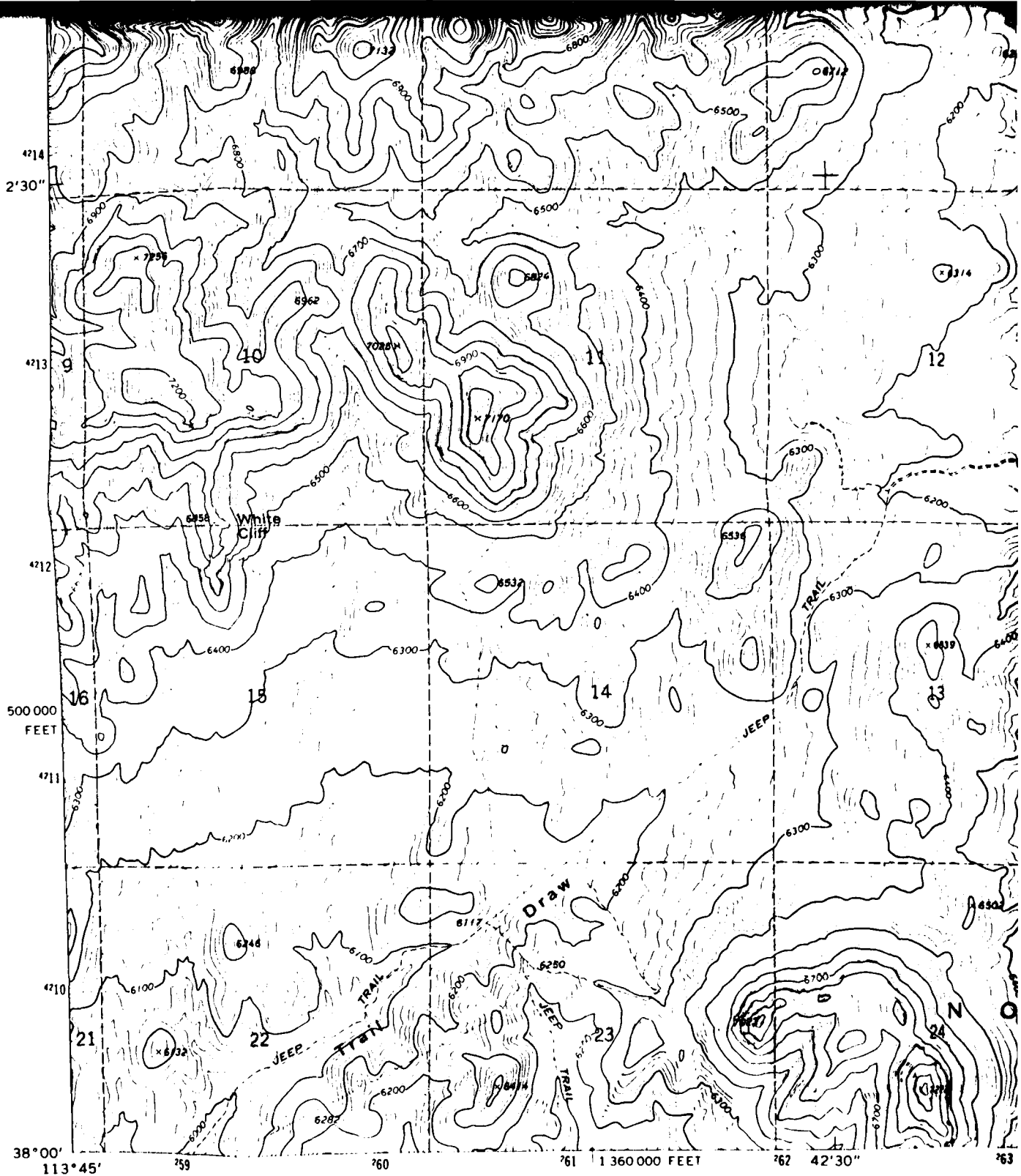
28 27 26 25

33 34 35 36

4 3 2 1

9 40 11 12



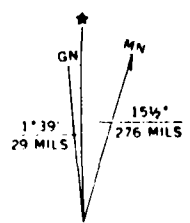


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 Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1970. Field checked 1971

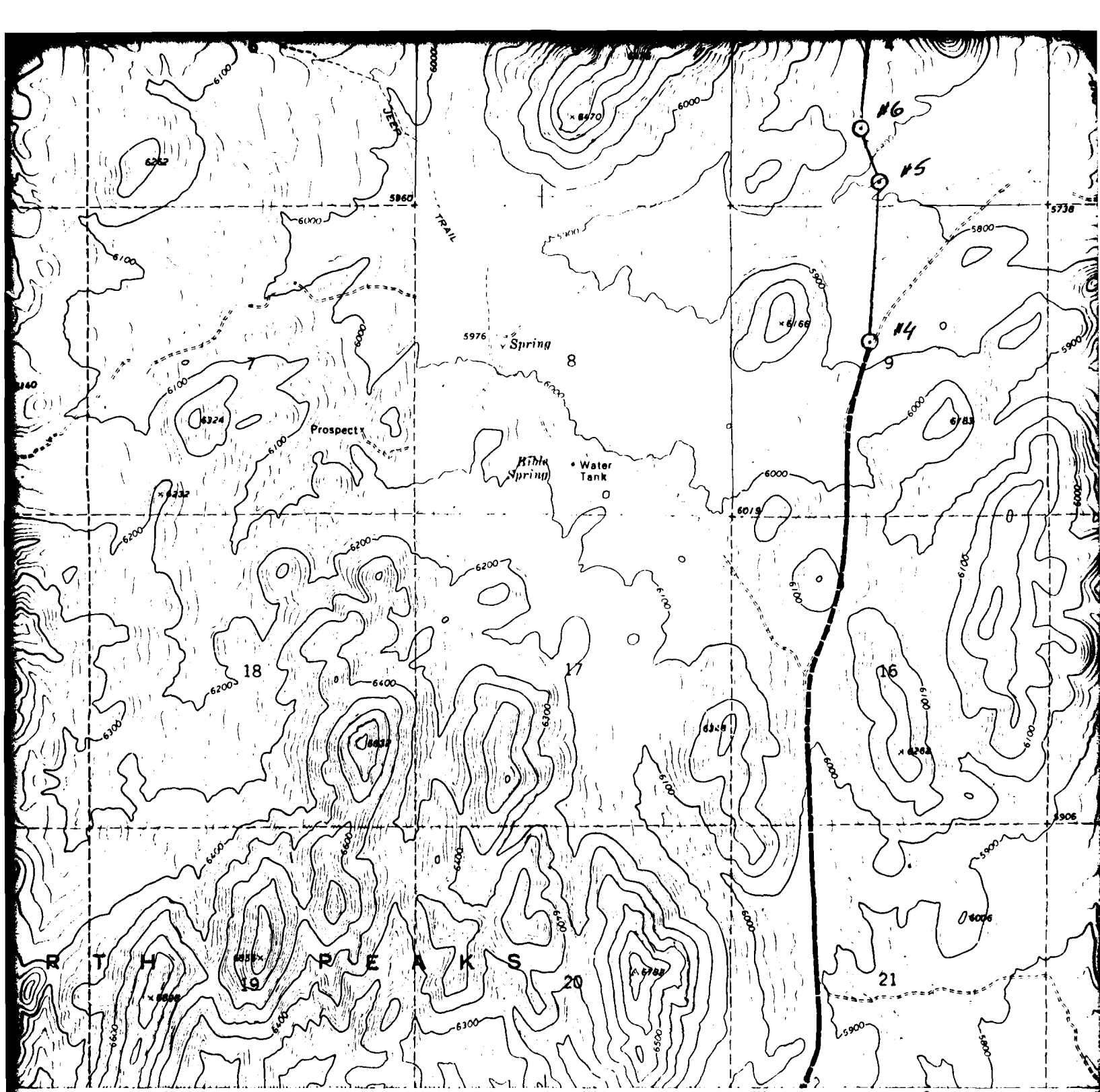
Projection and 10,000-foot grid ticks: Utah coordinate system, south zone (Lambert conformal conic)
 1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue.
 1927 North American datum

Fine red dashed lines indicate selected fence lines



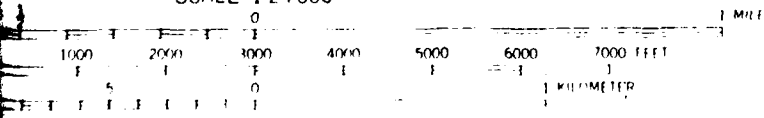
UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

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 FOR SALE BY U S GE
 A FOLDER DES

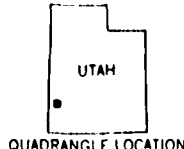


R 17 W R 16 W 764 765 40' 766 767 768 INTERIOR-GEODETICAL SURVEY

SCALE 1:24,000



CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929



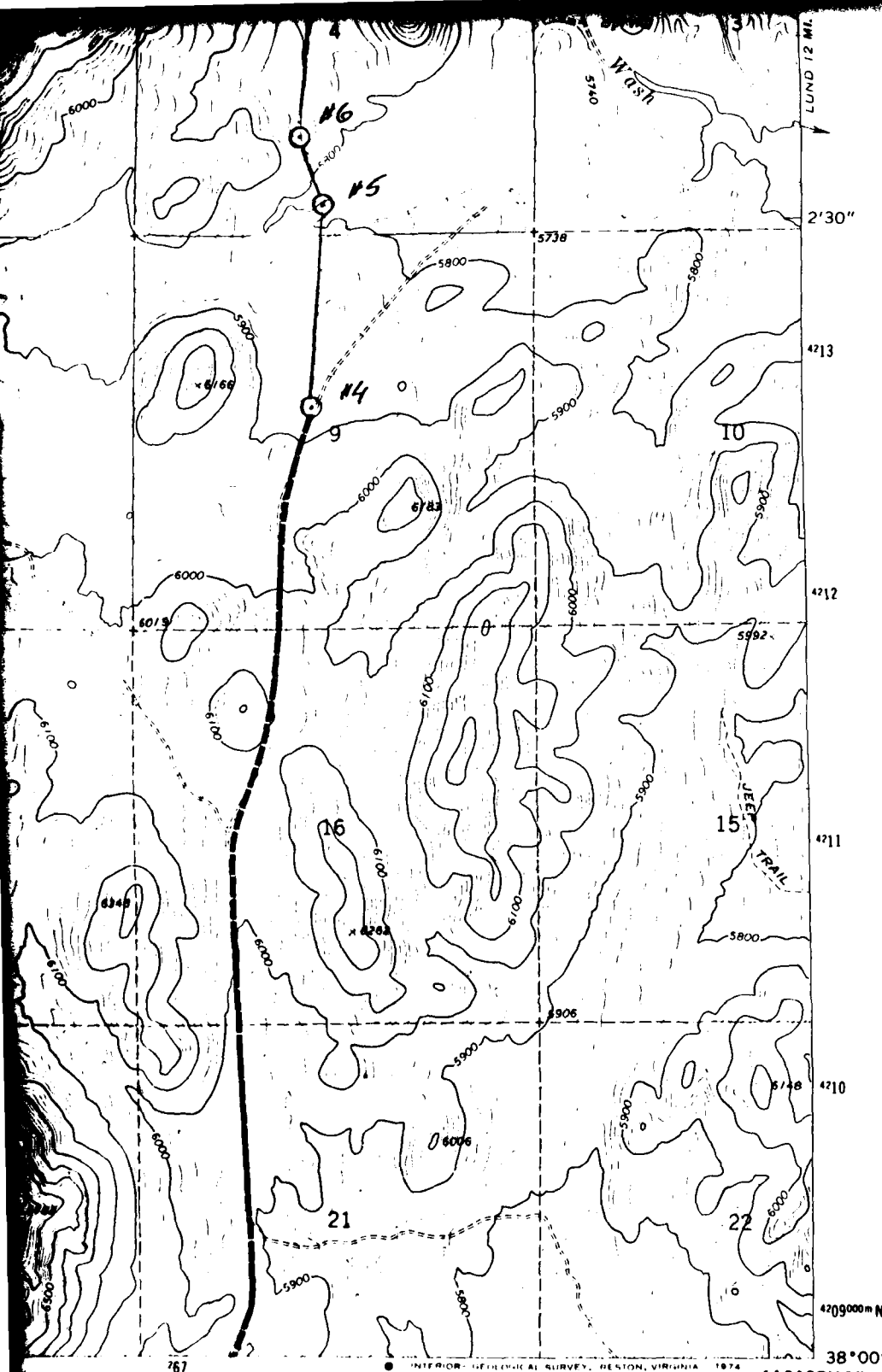
QUADRANGLE LOCATION

- ROAD CLASSIFICATION**
- Primary highway, hard surface Light improvement
 - Secondary highway, hard surface Unimproved
 - () Interstate Route () U.S. Route



MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
LOGICAL SURVEY, DENVER, COLORADO 80225 OR RESTON, VIRGINIA 22092
PRINTING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Property
BIBL
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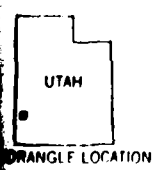


ROAD CLASSIFICATION

- Primary highway, hard surface
- Secondary highway, hard surface
- Light-duty road, hard or improved surface
- Unimproved road

- () Interstate Route
- { } U S Route
- State Route

Property of U.S. Air Force



BIBLE SPRING, UTAH
N3800-W11337.5/7.5

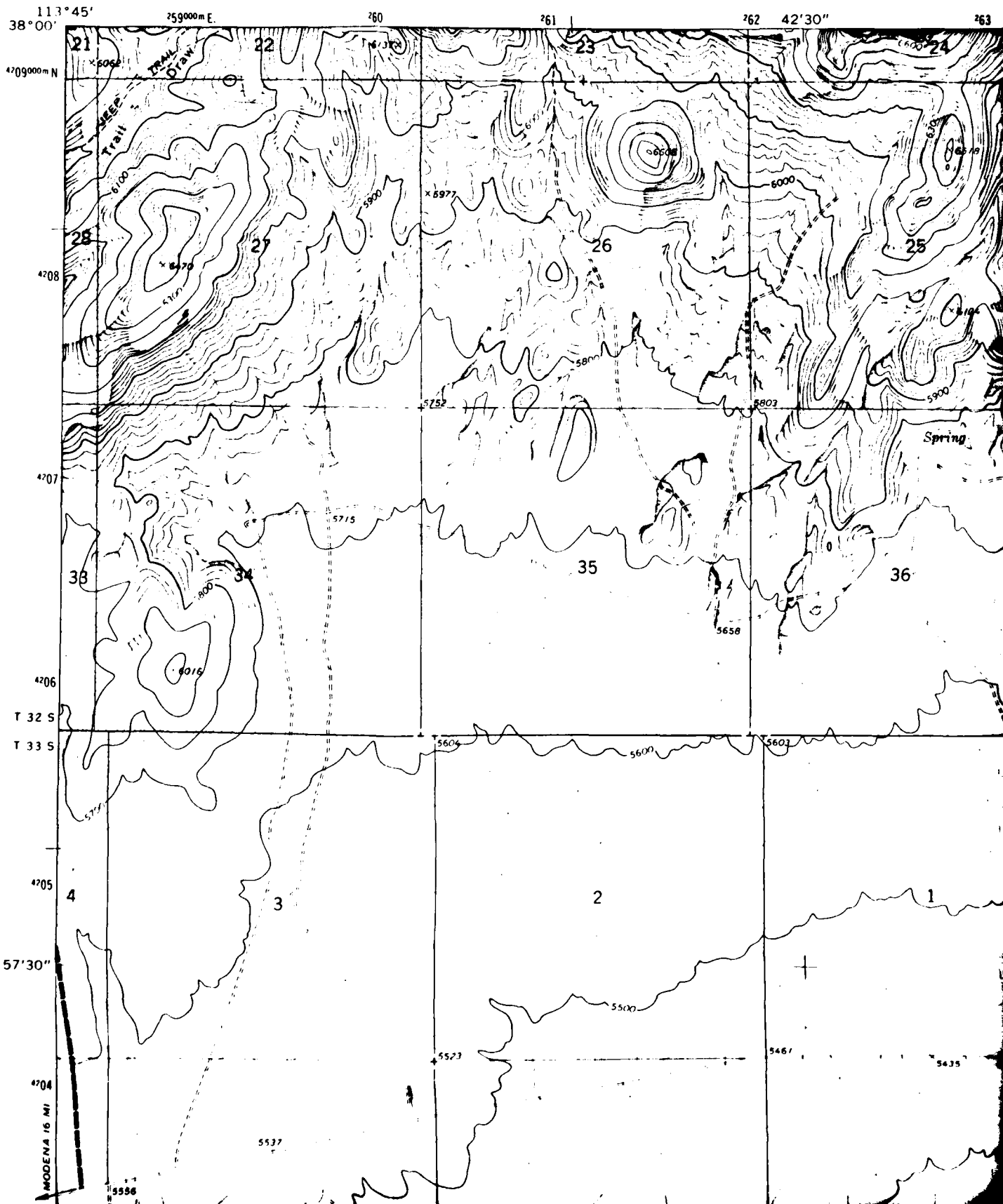
1971

DENISE PIERATTI

9

2200 1/4 SE
15-TAMBOAT
MOUNTAIN

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

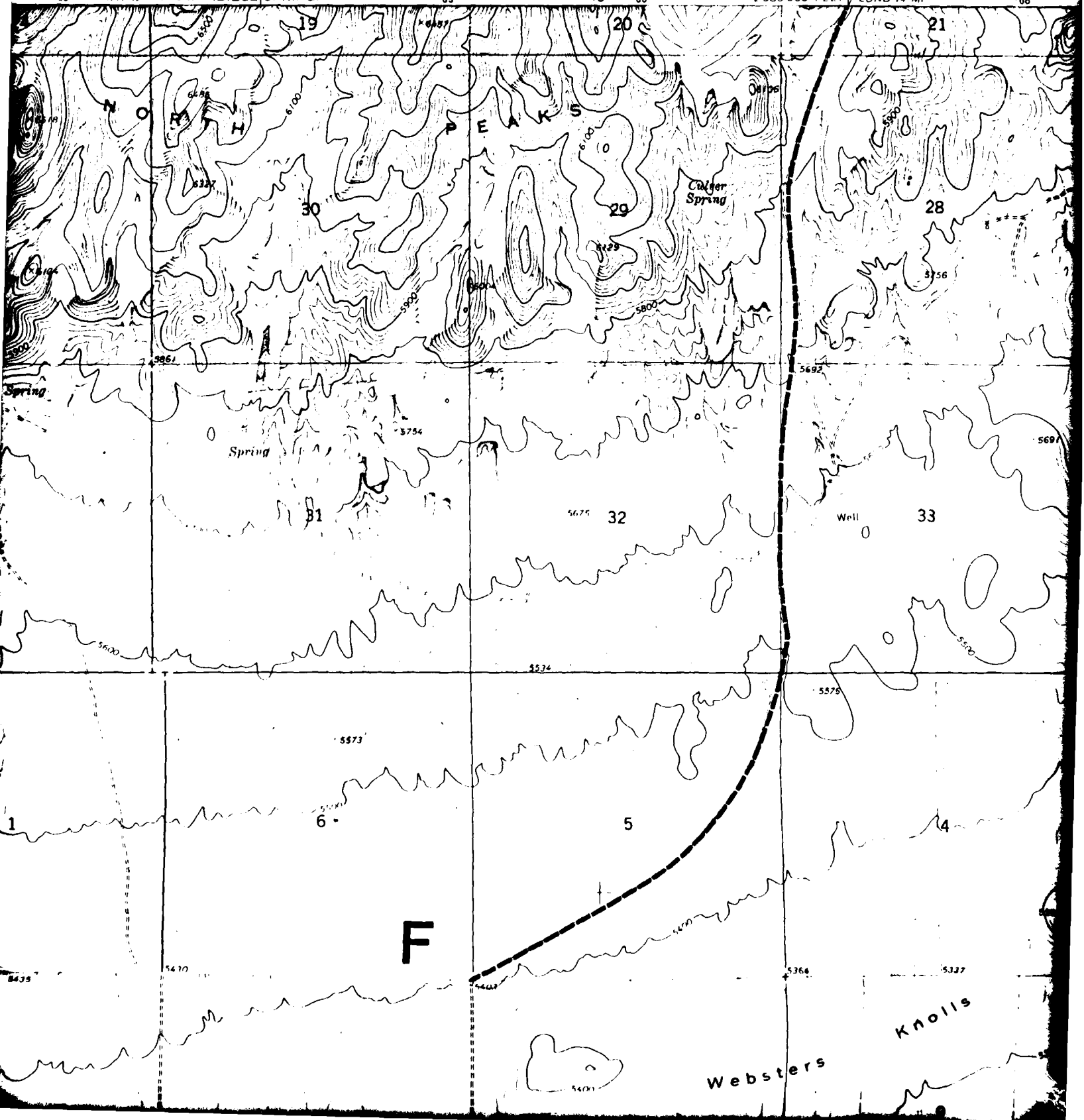


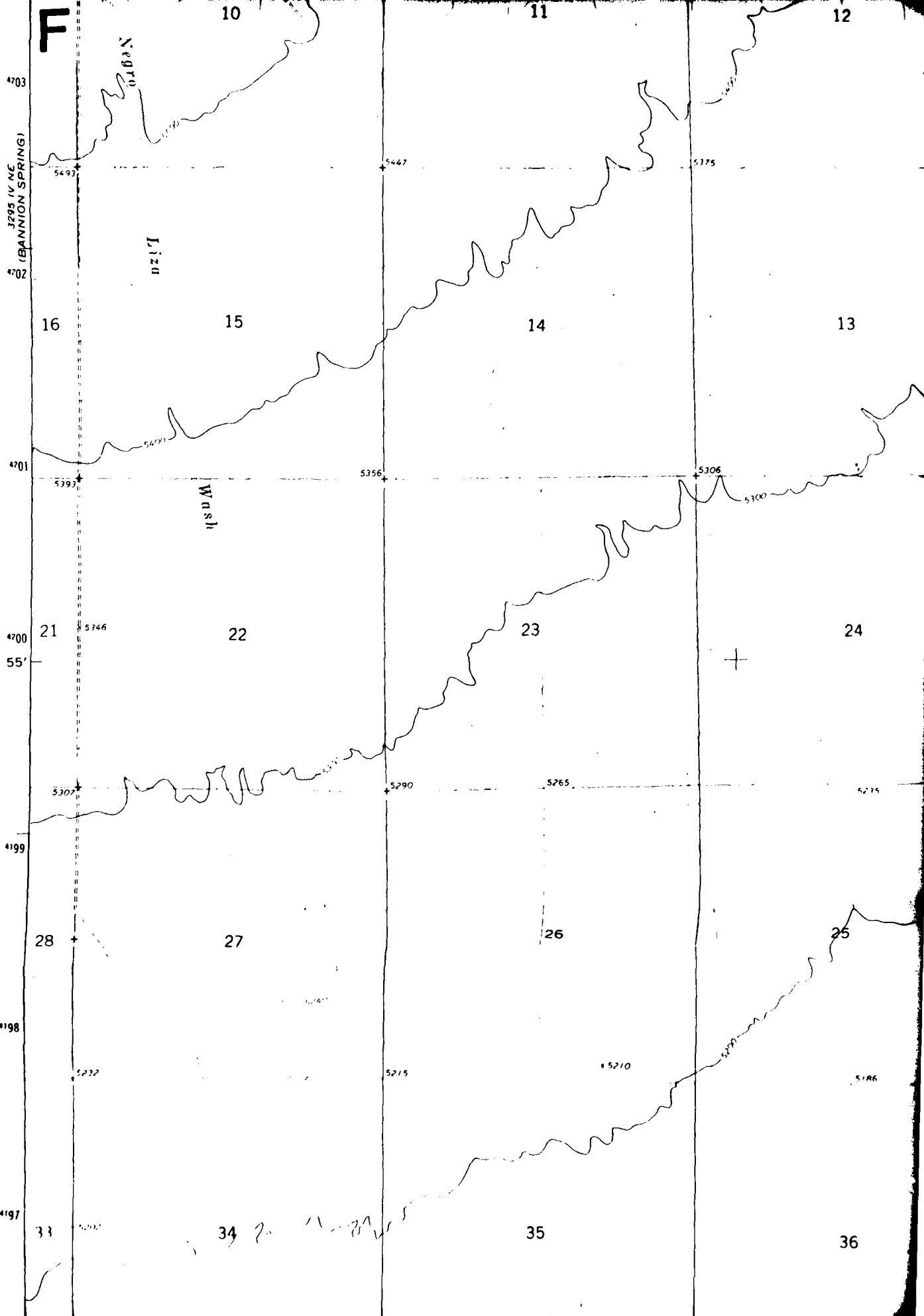
DTN/OBTS FIELD SURVEYS
UTAH DTN
SEGMENTS I-D, F-D, G-Y

BER

7.5 MINUT

763 R17 W R16 W (BIBLE) SPRING 3260 II SW 40' 766 1 380 000 FEET LUND 14 MI 768





F

4203
4202
4201
4200
55'
4199
4198
4197

3295 (V NE
(BANNION SPRING)

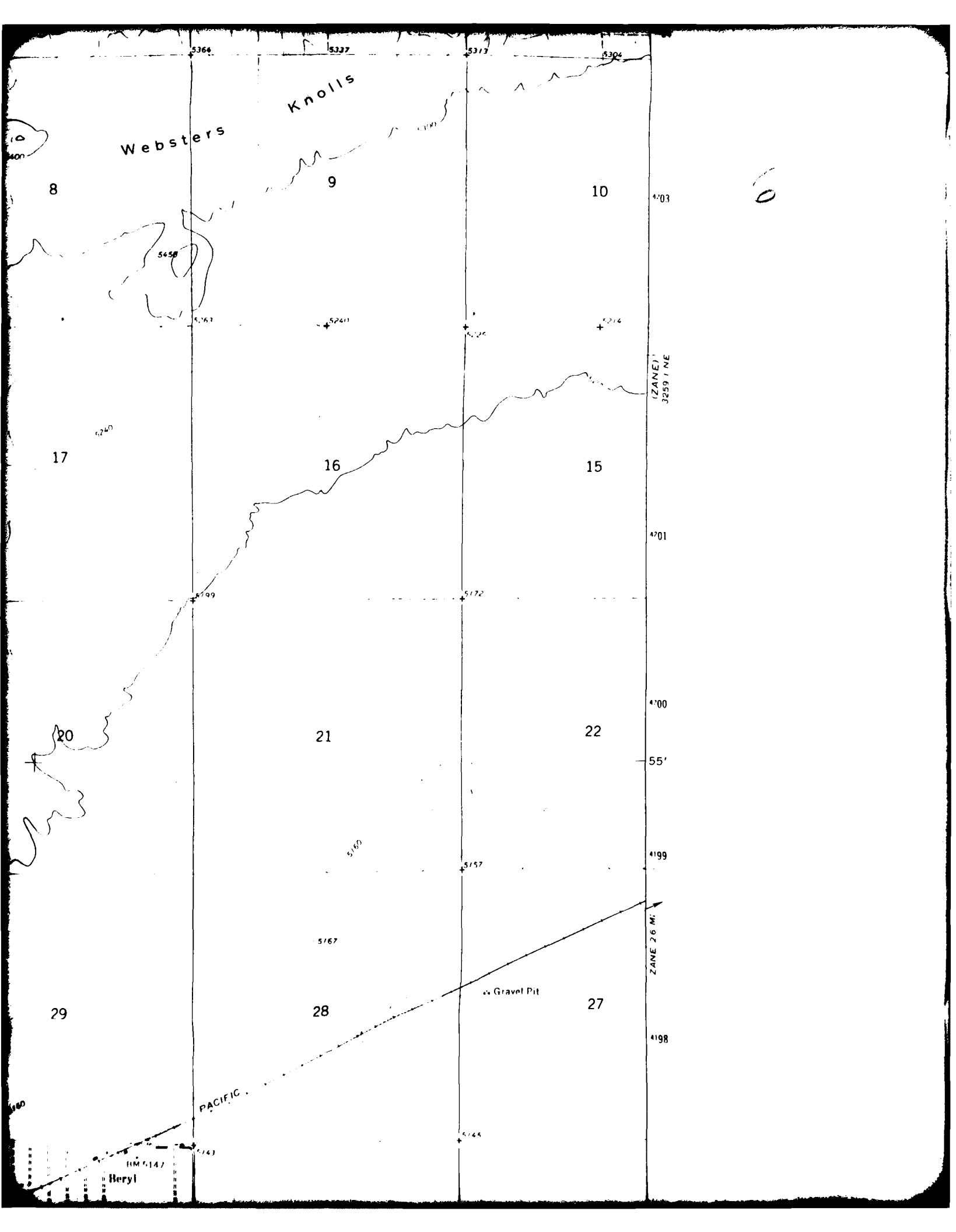
N 89° 10'

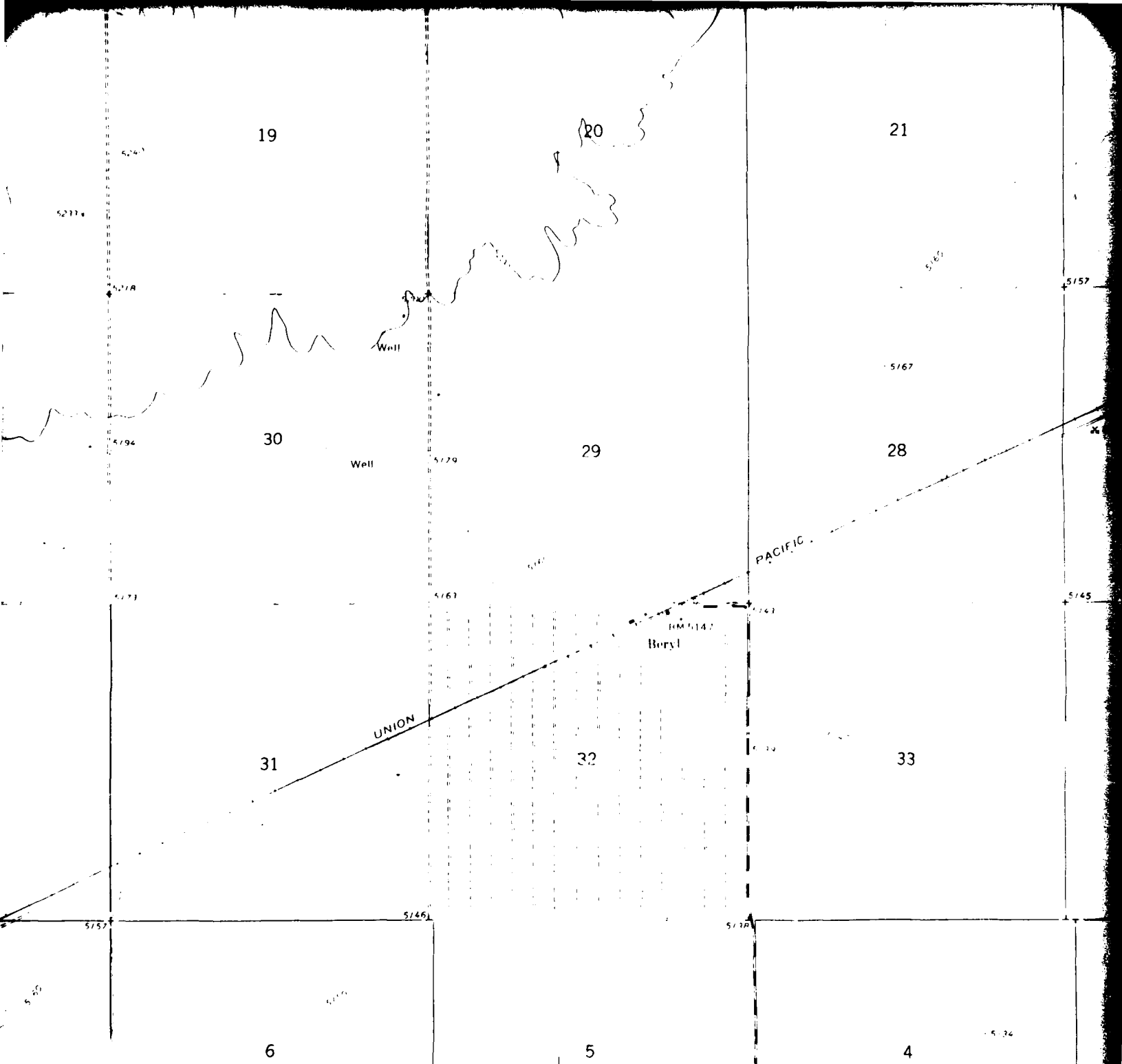
Lizo

Wash

10 11 12
16 15 14 13
21 22 23 24
28 27 26 25
31 34 35 36

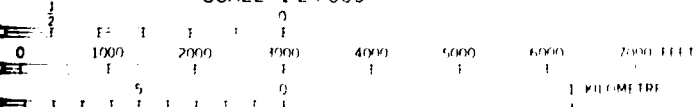
5493 5447 5375
5393 5356 5306
5346 5300
5302 5290 5265 5275
5222 5275 5210 5186



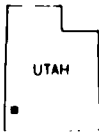


R 17 W R 16 W (YALE CROSSING)
3259 1 SW

SCALE 1:24,000



CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 10 FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929



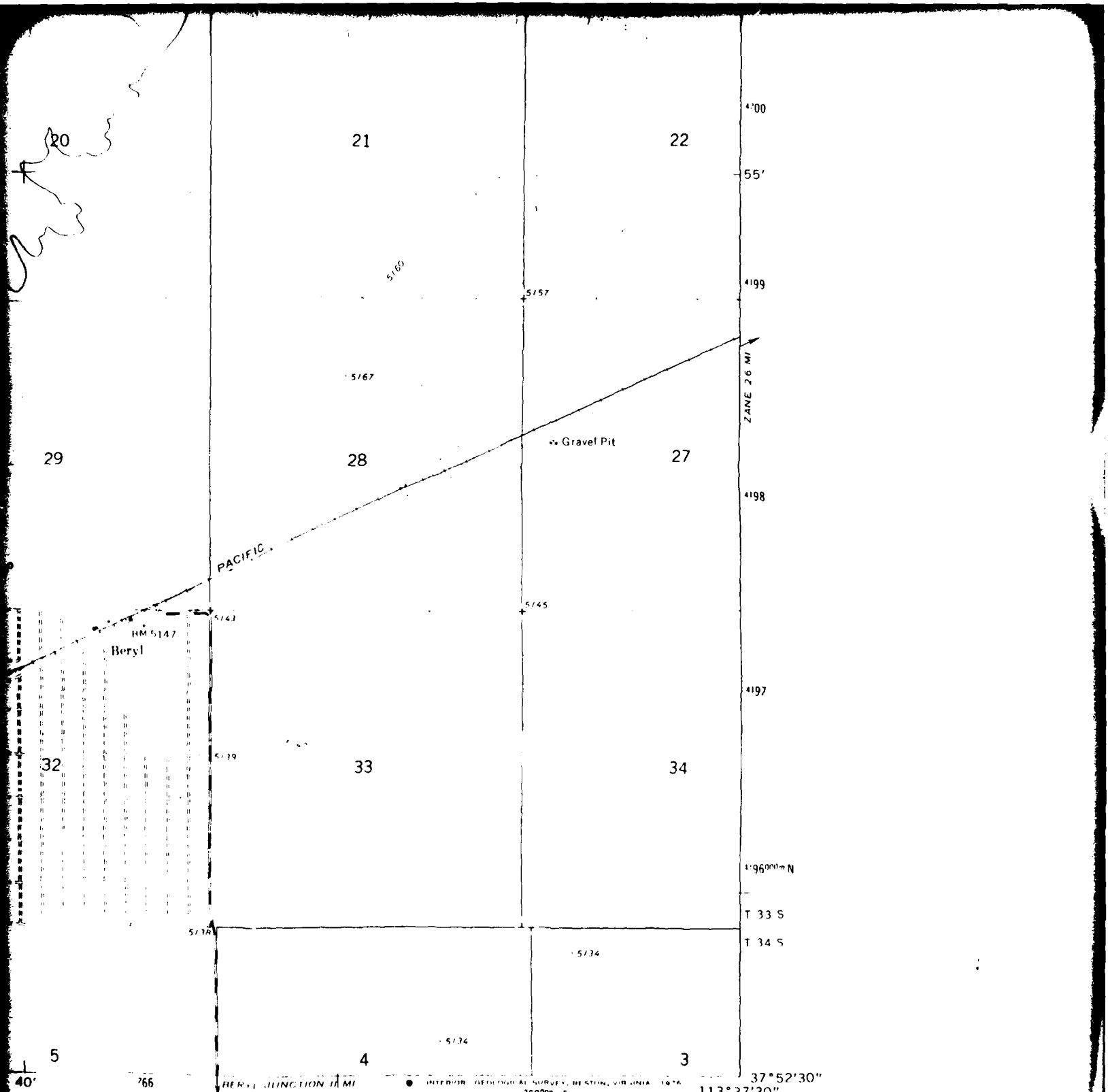
QUADRANGLE LOCATION

ROAD CLASSIFICATION

Primary highway, hard surface	———	U.S.
Secondary highway, hard surface	- - - - -	U.S.
Interstate Route	—————	U.S.

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225 OR RESTON, VIRGINIA 22092
A DESCRIPTION OF TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

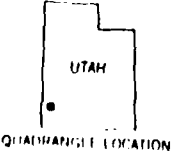




ROAD CLASSIFICATION

- Primary highway, hard surface Light duty road, hard or improved surface
- Secondary highway, hard surface Unimproved road
- Interstate Route U. S. Route State Route

(CLARK FARM)
3259 I SE

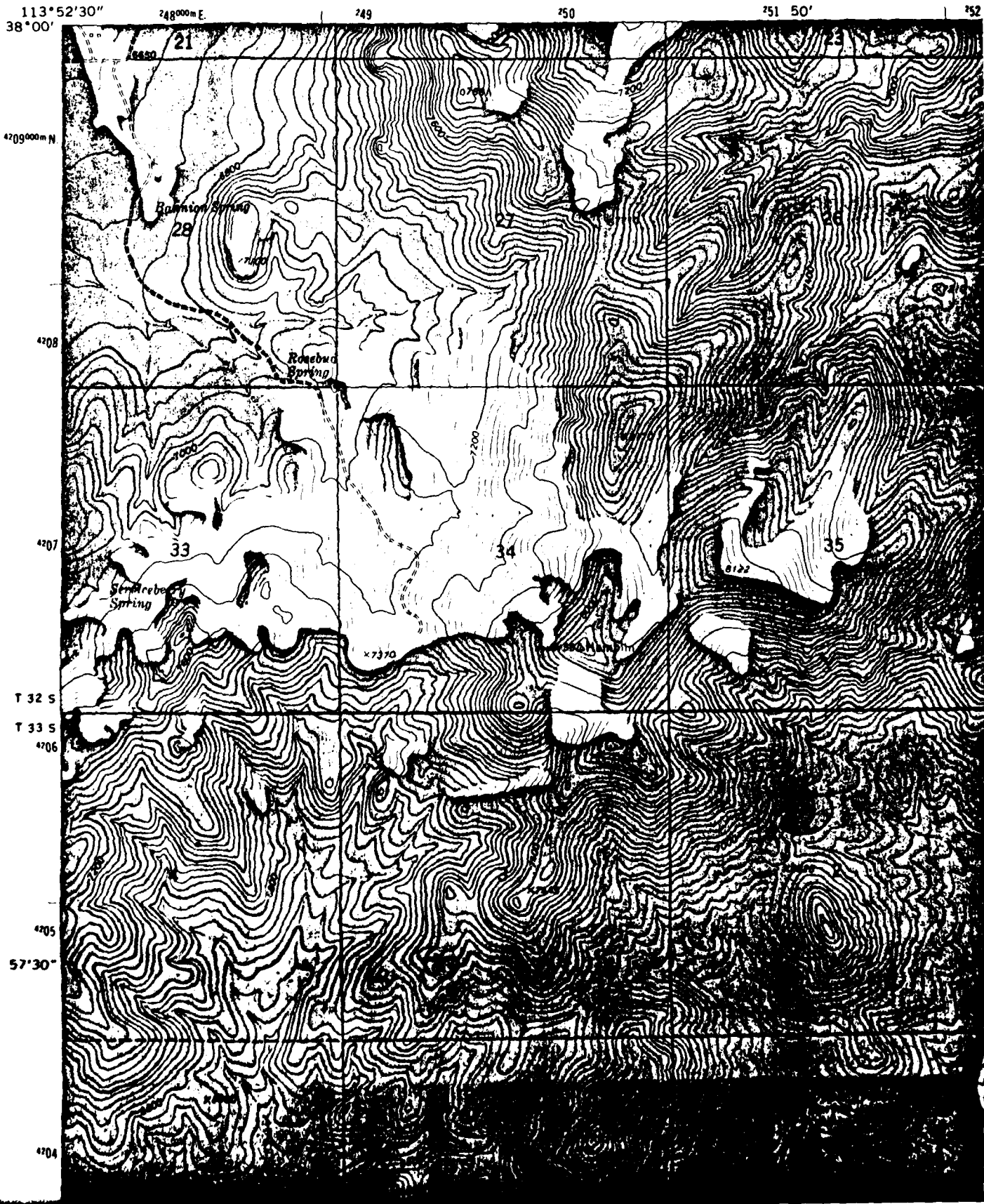


BERYL, UTAH
N 1752.5 W 11337.5 / 7.5
1972

9

3250 11 SW
(STEAMBOAT
MOUNTAIN SW)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



113° 52' 30" W
38° 00' N

248000m E

249

250

251 50'

252

4208000m N

4208

4207

T 32 S

T 33 S

4206

4205

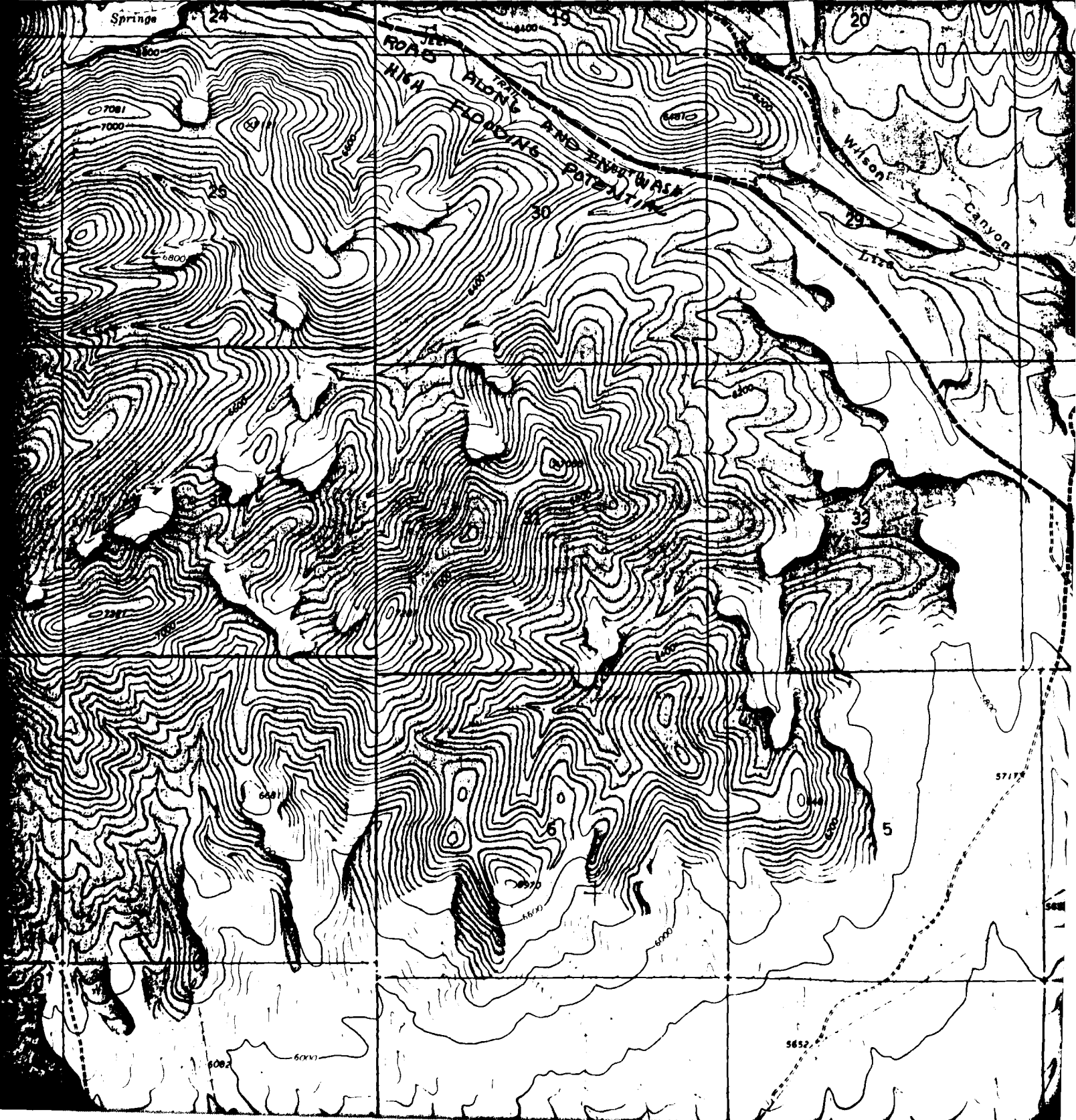
57° 30' W

4204

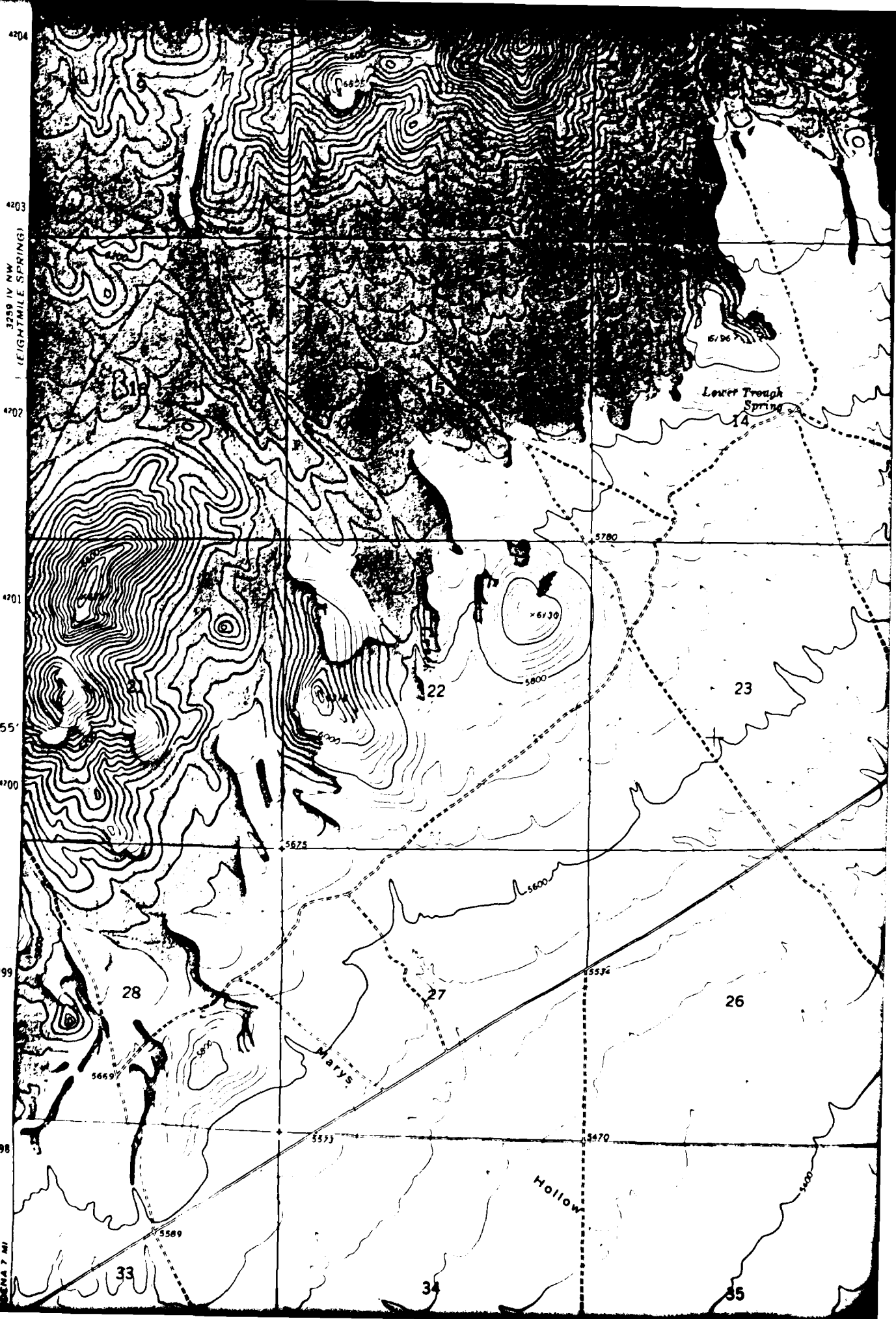
DTN/OBTS FIELD SURVEYS
UTAH DTN
SEGMENTS I-D, F-D, G-Y

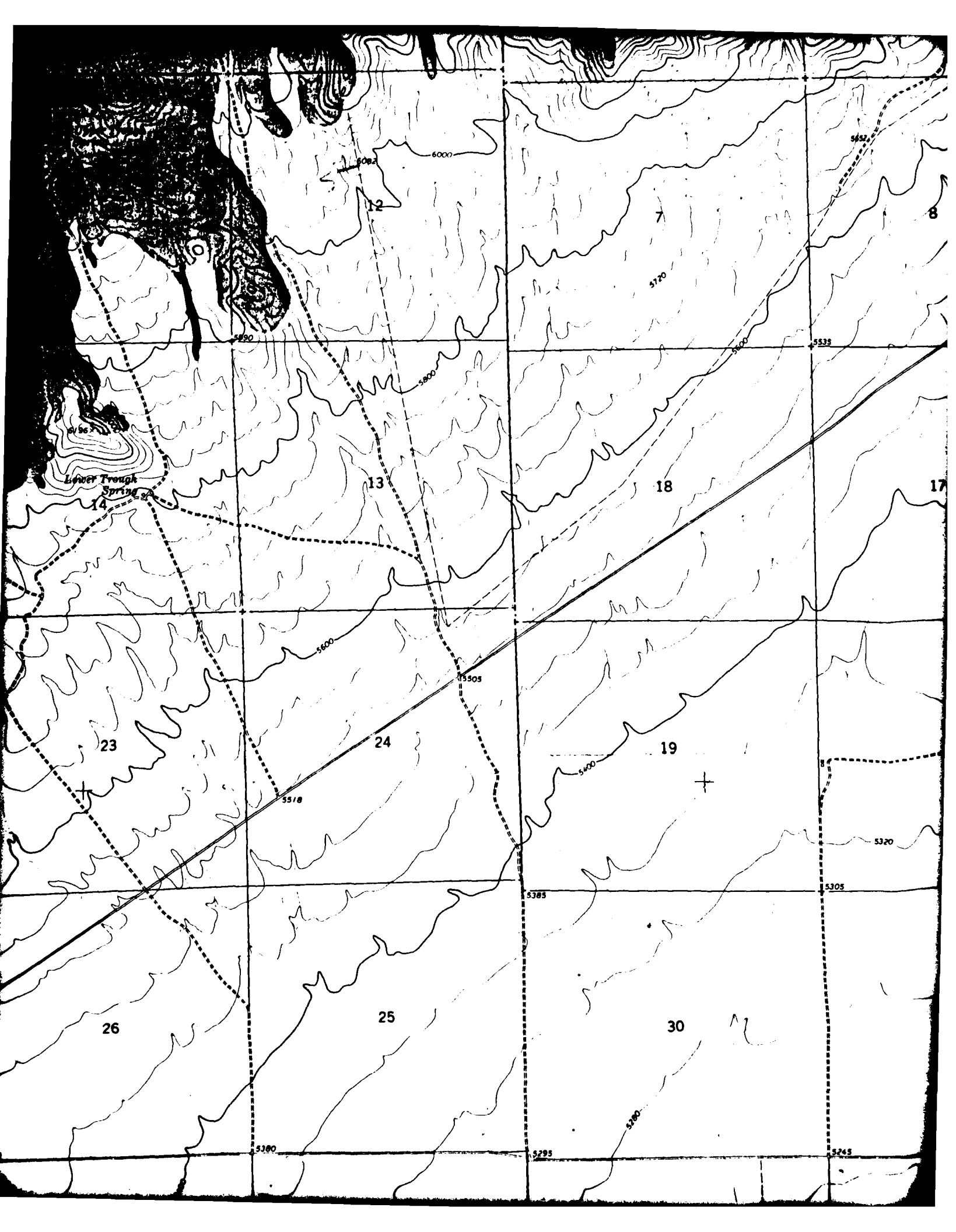
BANNION S
UT
7.5 MINUTE

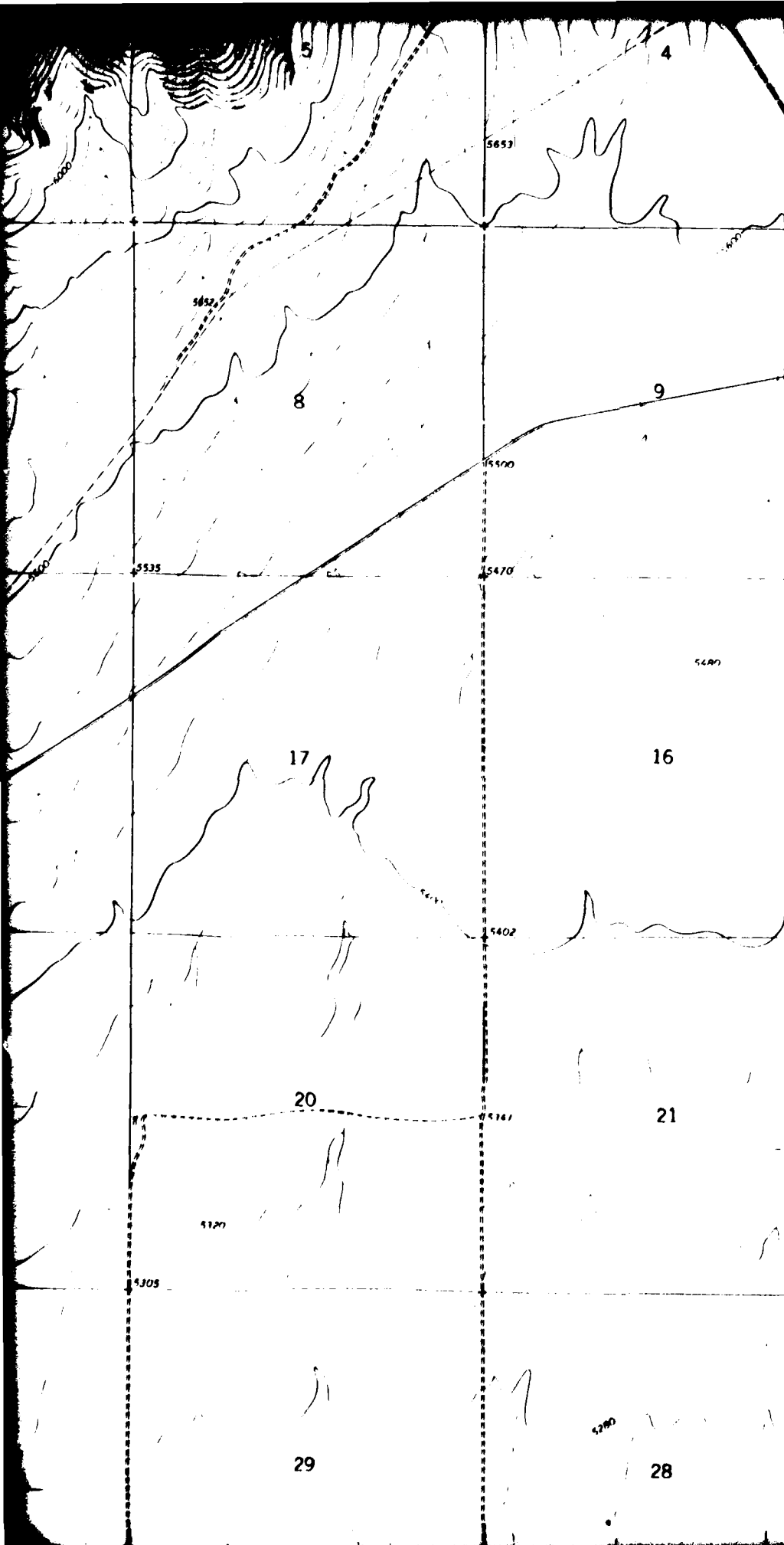
252 3260 III SE (STEAMBOAT MOUNTAIN) R 18 W R 17 W 47'30" 255 256 257



4204
4203
4202
4201
55
4200
4199
4198
SECTION 7 MI





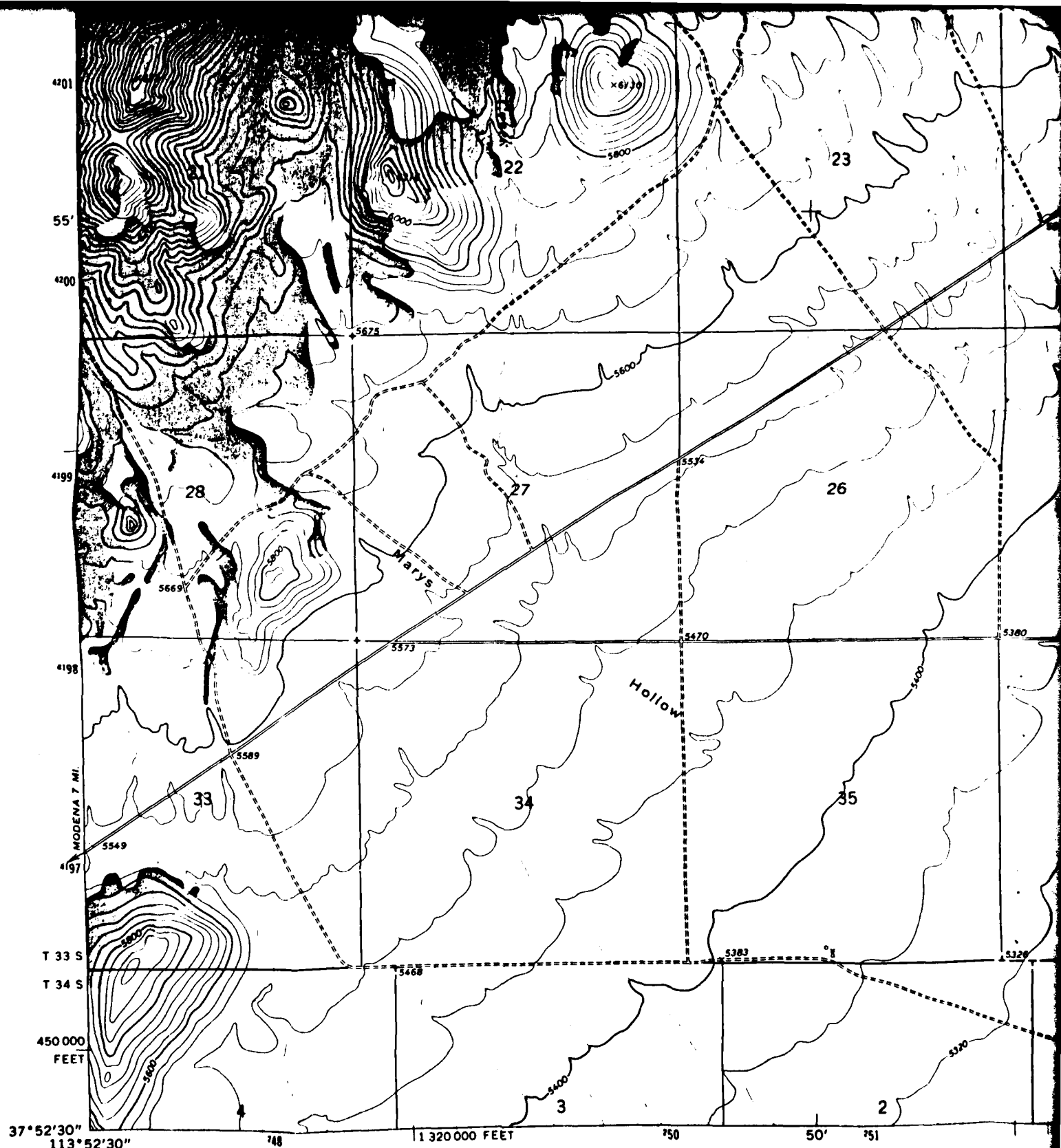


4705
57' 30"
4704
LUND 22 NW
4703
4702
4701
4700
55'
4199

6

29

28



(MODENA)
3259 IV SW

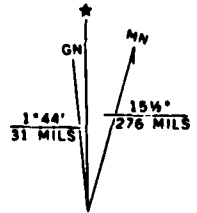
Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

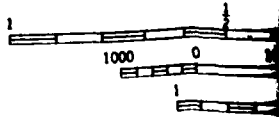
Topography by photogrammetric methods from aerial photographs taken 1972. Field checked 1972

Projection and 10,000-foot grid ticks: Utah coordinate system, south zone (Lambert conformal conic) 1000-metre Universal Transverse Mercator grid ticks, zone 12, shown in blue. 1927 North American datum

Fine red dashed lines indicate selected fence lines

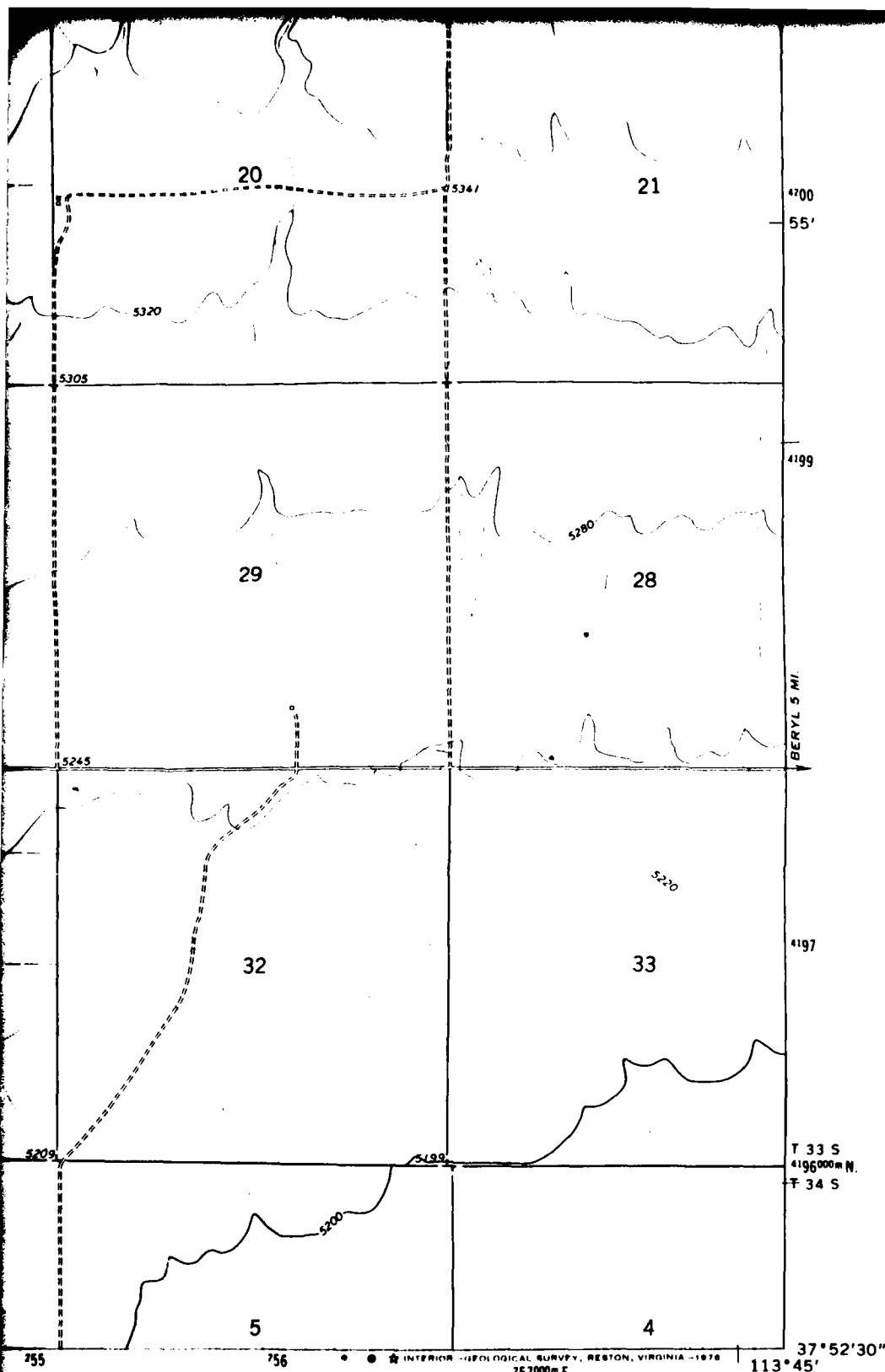


UTM GRID AND 1972 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET



DOT
NAT

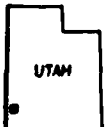
THIS MAP



ROAD CLASSIFICATION

- Primary highway, hard surface ————— Light-duty road, hard or improved surface - - - - -
- Secondary highway, hard surface - - - - - Unimproved road - - - - -
- () Interstate Route { } U. S. Route () State Route

(YALE CROSSING)
3229 / SW



ORANGLE LOCATION



Property of U.S. Air Force
BANNION SPRING, UTAH
 N3752.5—W11345/7.5

1972

9

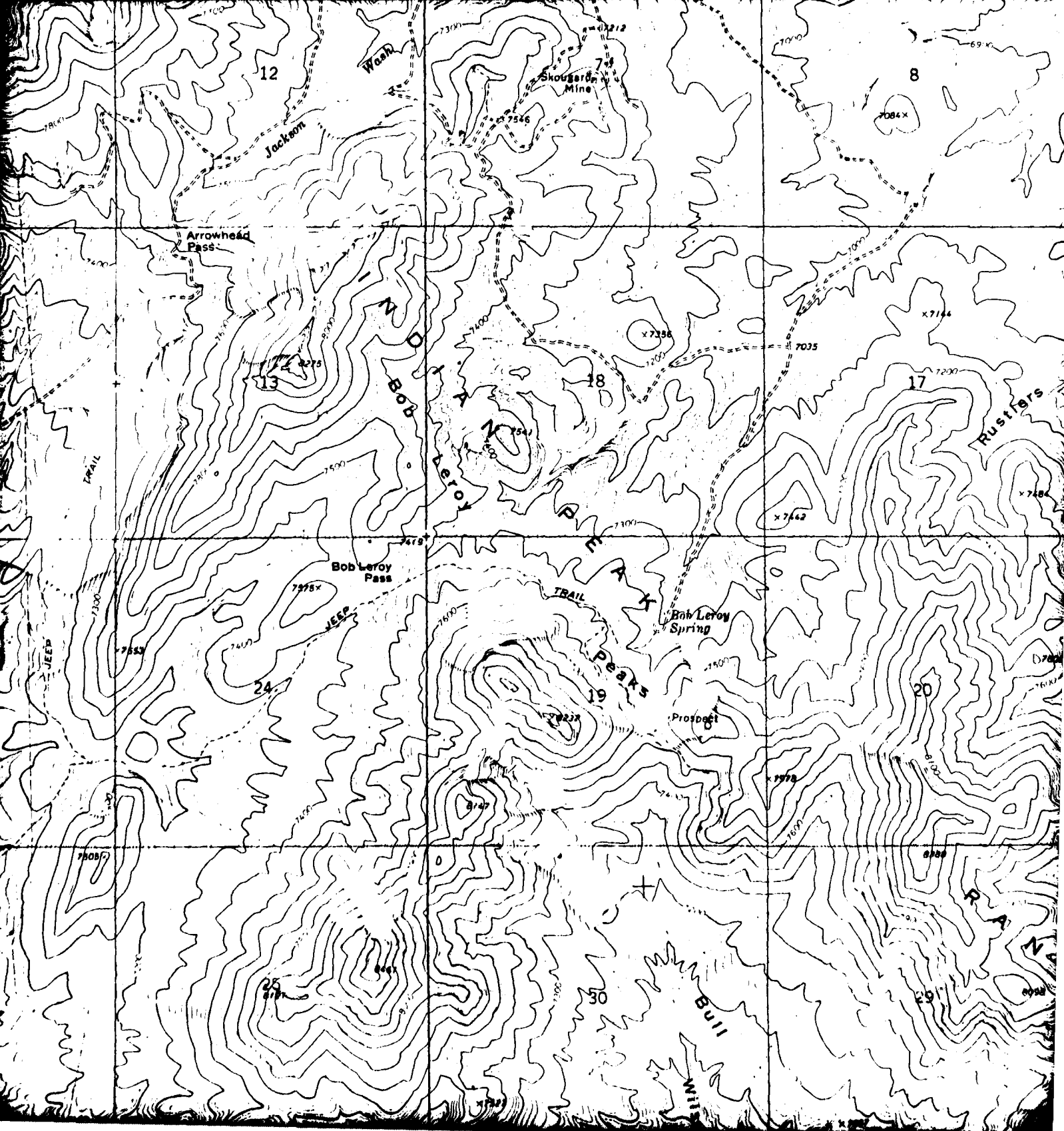
2

DTN/OBTS FIELD SURVEYS UTAH DTN SEGMENTS I-D, F-D, G-Y

STEAM

7.5 MI

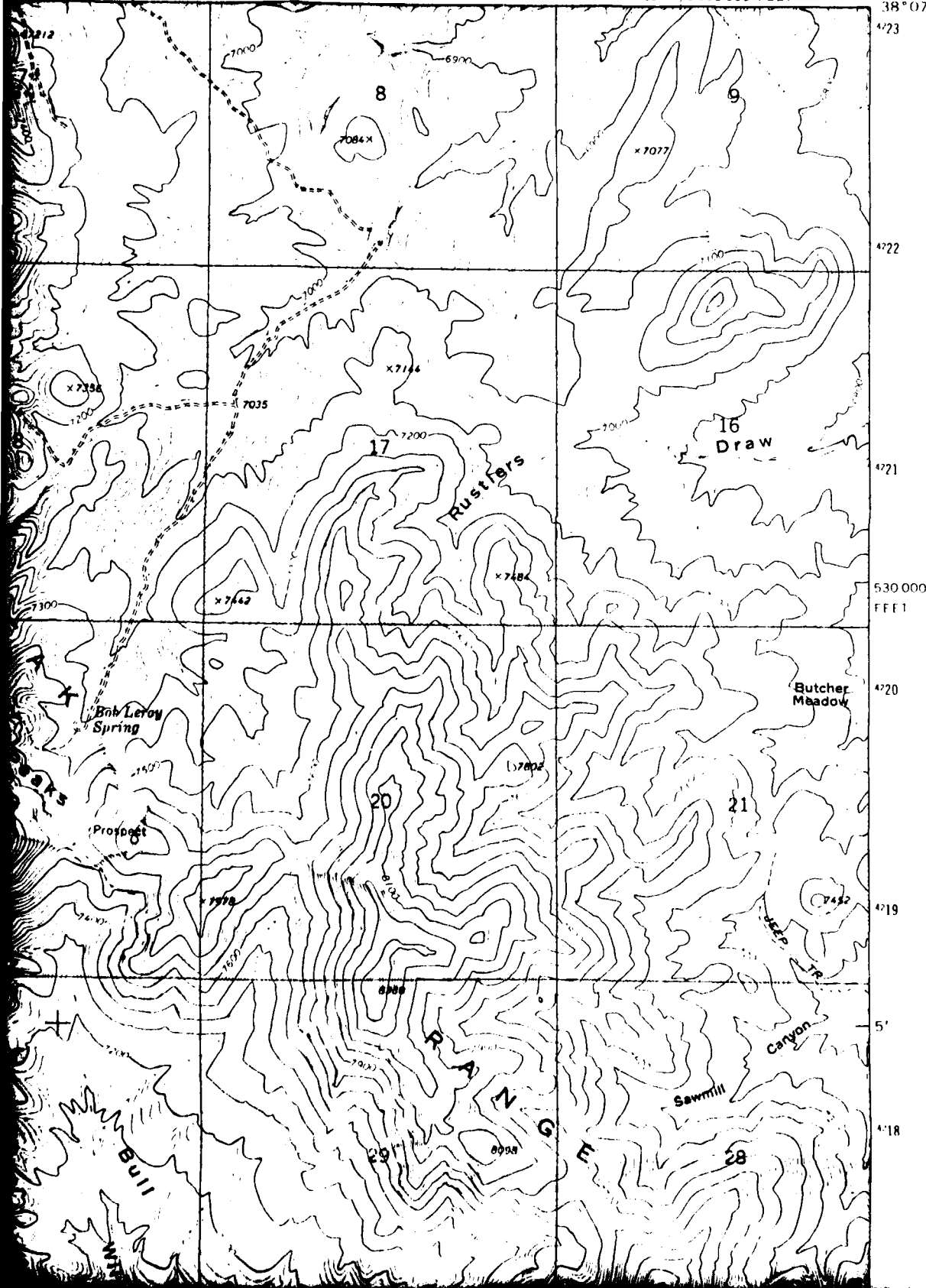
752 3280 III NE 753 (PINTO SPRING) R 18 W R 17 W 755 47'30" LUND 21 MI 757



STEAMBOAT MTN. QUADRANGLE
UTAH—IRON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

1000 FT. INTERVAL
1000 FT. NW

47°30" 1350000 FEET 113°45' 38°07'30"



4219

Pipeline Spring Trough

5'

4218

4217

4216

4215

2'30"

4214

3260 III SW (STEAMBOAT MTN. SW)

1 41 5

1 42 5

V
A
L
L
E
Y

H
A
M
L
I
N

28

27

26

33

34

4

3

BP

10

N. 506441.8
E. 1323522.4

98

329

11

7015x

7014

6914

6714

JEEP

6656

6800

07218

65

07213

2

7300

7216

6602

6700

6800

7000

24

A

7000

7000

6800

6900

7000

7100

7200

7300

7400

7500

7600

7700

7800

7900

8000

8100

8200

8300

8400

8500

8600

8700

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8900

9000

9100

9200

9300

9400

9500

9600

9700

9800

9900

10000

10100

10200

10300

10400

10500

10600

10700

10800

10900

11000

11100

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13700

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13900

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14700

14800

14900

15000

15100

15200

15300

15400

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15700

15800

15900

16000

16100

16200

16300

16400

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16700

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16900

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19200

19300

19400

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19600

19700

19800

19900

20000

20100

20200

20300

20400

20500

20600

20700

20800

20900

21000

21100

21200

21300

21400

21500

21600

21700

21800

21900

22000

22100

22200

22300

22400

22500

22600

22700

22800

22900

23000

23100

23200

23300

23400

23500

23600

23700

23800

23900

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24200

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25700

25800

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26000

26100

26200

26300

26400

26500

26600

26700

26800

26900

27000

27100

27200

27300

27400

27500

27600

27700

27800

27900

28000

28100

28200

28300

28400

28500

28600

28700

28800

28900

29000

29100

29200

29300

29400

29500

29600

29700

29800

29900

30000

30100

30200

30300

30400

30500

30600

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31300

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31600

31700

31800

31900

32000

32100

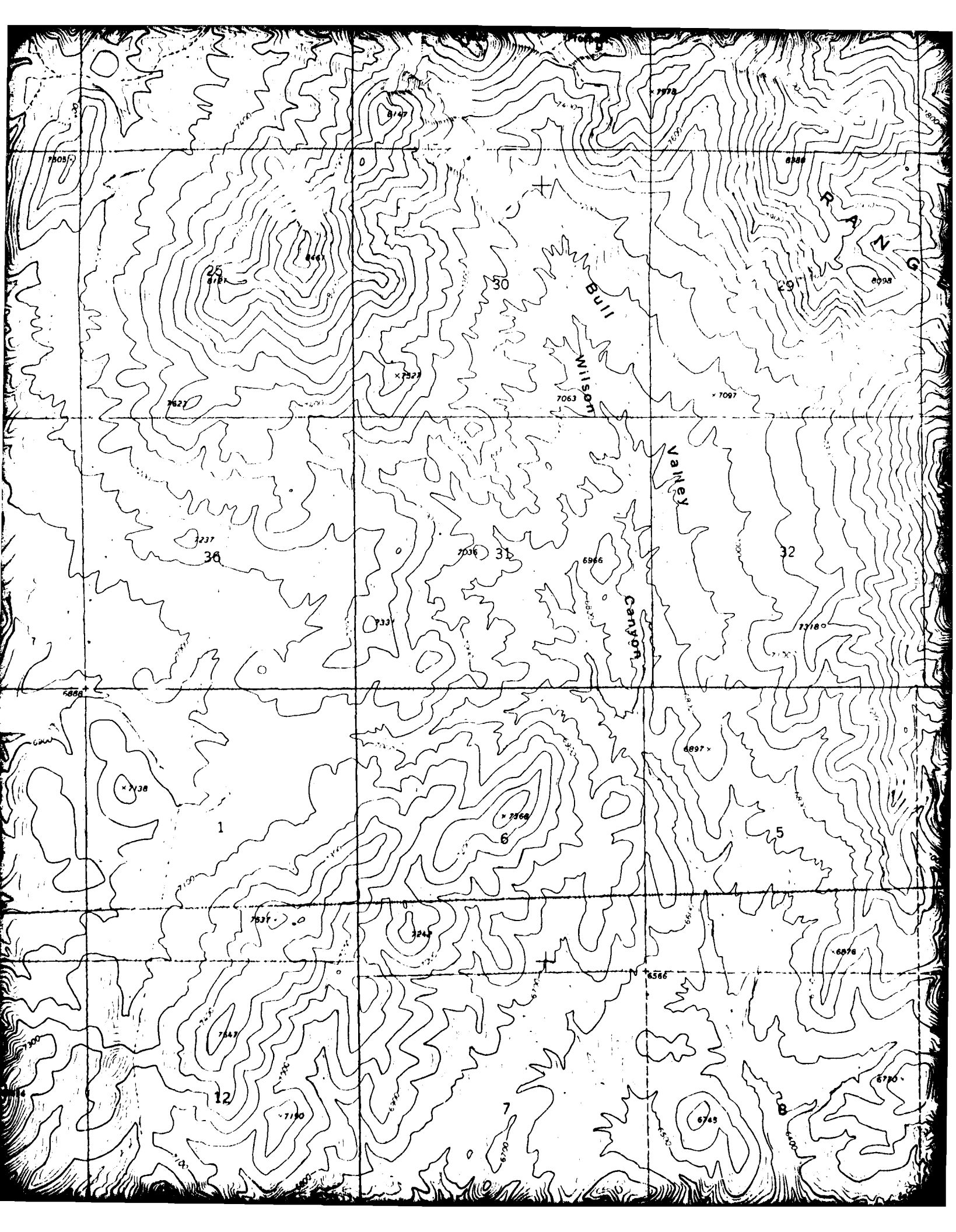
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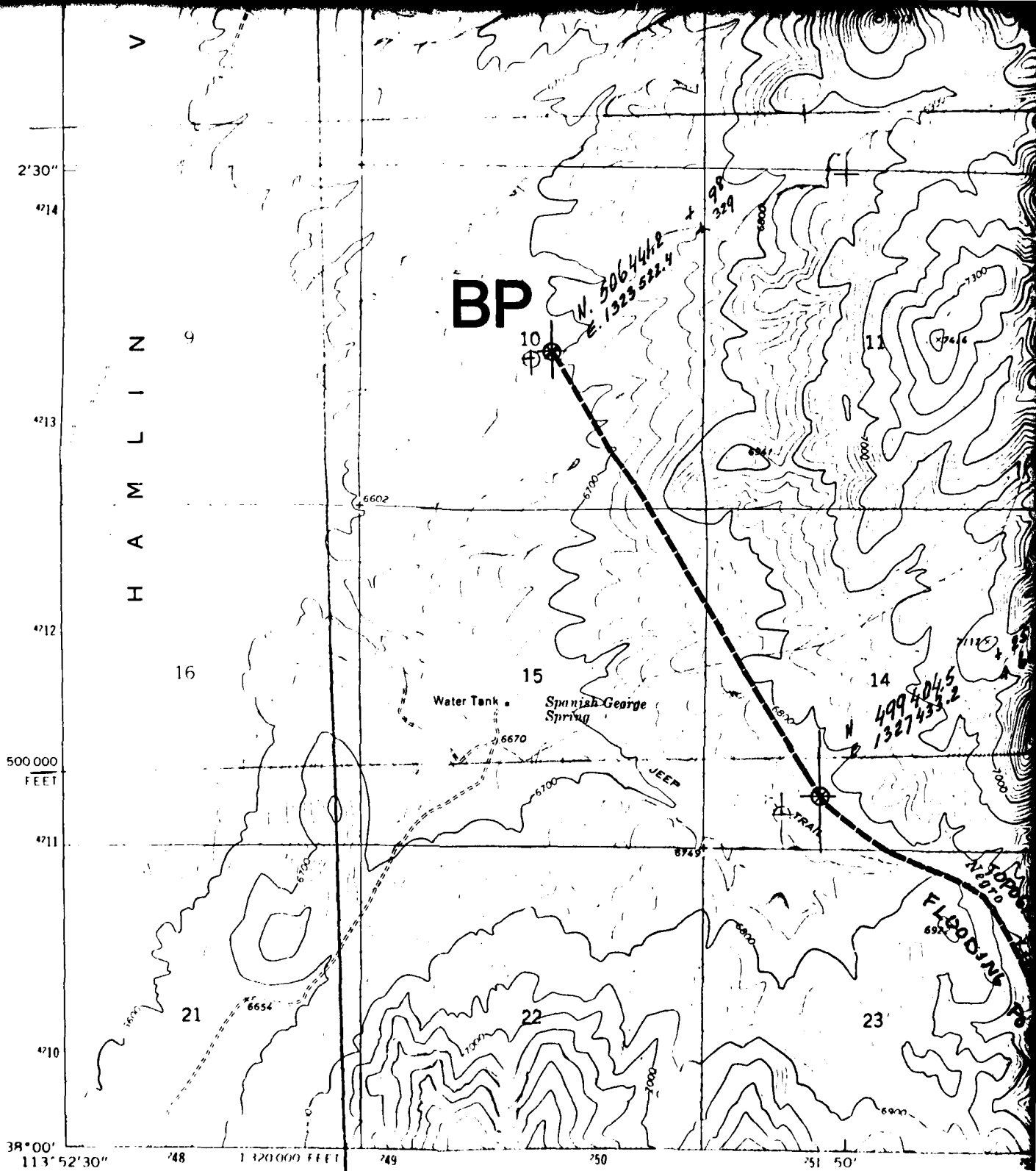
32300

32400

32500

32600





Mapped, edited, and published by the Geological Survey

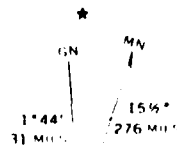
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1000 meter Universal Transverse Mercator grid ticks, zone 12, shown in blue. 1927 North American datum

Fine red dashed lines indicate selected fence lines

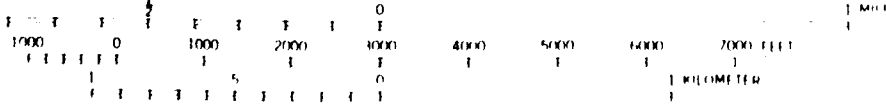


FOR SALE BY U.S. A FOLDER

7



SCALE 1:24,000



CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

Primary highway,
hard surface
Secondary highway,
hard surface
Interstate Rd



QUADRANGLE LOCATION

Ertec
The Earth Technology Corporation

THIS MAP COMPLEIES WITH NATIONAL MAP ACCURACY STANDARDS

SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225 OR RESTON, VIRGINIA 22092

A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

8

