0008

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Dianne R. Nielson, Ph.D.
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

January 23, 1990

Ms. Jean Semborski
Environmental Coordinator
U.S. Fuel Company
P.O. Box A
Hiawatha, Utah 84527

Dear Ms. Semborski:

Re: Final Approval, Amendment, New Small Area Exemption, U.S. Fuel Company, Hiawatha Complex, ACT/007/012-90A, Folder #3, Carbon County, Utah

The submittal received January 11, 1990, regarding the above noted permitting action was reviewed and found to be complete and adequate by Mike DeWeese, Reclamation Hydrologist of the Division's technical staff (see attached technical review memo).

The Division hereby approves the above referenced action. Please submit ten (10) additional copies for distribution. Thank you for your cooperation in this matter.

If you have any questions, please call Mike DeWeese or me.

Sincerely,

Susan C. Linner

Susan C. Linner
Reclamation Biologist/
Permit Supervisor

cl
Attachment
cc: J. Helfrich
L. Kunzler
D. Haddock
BT46/11

an equal opportunity employer

APPENDIX V-8

SMALL AREA EXEMPTIONS

Revised 05/07/91

UNITED STATES FUEL COMPANY

SMALL AREA EXEMPTIONS

The following list identifies locations in the permit area that because of their size and location employ alternative methods of sediment control. Figures 1 through 13, included with this appendix, delineate each area on a contour map and identify site locations by U.S. Fuel coordinates. The acreage comprising each site is summarized on page four of this appendix. Total acreage designated as small area exemptions is 9.78 The total current disturbed acreage is 281.2 acres (May, 1991).

HIAWATHA SMALL AREA EXEMPTIONS

1. Topsoil Pile Below Slurry Pond #5

Topsoil stockpiled below slurry pond #5 is shown in Figure 1 and on Exhibits II-1 and V-9. The stockpile has been revegetated. It is contained by a berm-ditch sediment control around its perimeter to control runoff from this site.

2. Topsoil Pile Below Slurry Pond #4

In 1988 topsoil was stripped from an area below slurry pond #4 and stockpiled adjacent to the site. The pile was seeded, mulched and a berm-ditch sediment control was constructed around the perimeter to control runoff. The dimensions of the stockpile are 145 feet long by 60 feet wide. See Figure 1 and Exhibits II-1 and V-9 for the site location.

3. Equipment Storage Yard Topsoil Pile

Topsoil was stockpiled at this location in 1978. The pile has been revegetated. Runoff from the topsoil pile would run into the Equipment Storage Yard and be contained by the sediment control basin which treats drainage from the Equipment Storage Yard area. This stockpile is 515 feet long and 50 feet wide. Figure 1 and Exhibits II-1 and V-9 depict the location of this exemption.

4. Area East Of Lower Rail Yard And North Of Refuse Area

The area directly east of the lower rail yard and north of Slurry Pond No. 4 drains to sediment control structures east of the lower rail yard. Neither the lower rail yard nor the railroad right of way is included as part of U.S. Fuel's disturbed area, however, U.S. Fuel has constructed two catch basins east of the rail yard to contain runoff from this site. These structures are shown on Exhibit V-9. The northern catch basin is designed to contain runoff from the area west of where the undisturbed drainage culvert passes beneath the railroad yard. This catch basin is shown in detail in Figure 9. The southern catch basin has no diversion ditches but collects drainage directly from a semi-circular zone above it. The location of this small area exemption is shown in Figure 2. Runoff containment calculations are included as well.

5. Water Truck Fill Site

Near the railroad crossing at the south end of the rail yard there is a small site where the water truck refills. A ditch collects water from the site and conveys it twenty feet into a small catch basin. The basin measures 85 feet long by an average of 26 feet wide and 1.5 feet deep. It is more than adequate to contain what little runoff collects on this site. Refer to Figure 10 for a map of this site.

6. South West Corner Of No. 5 Slurry Pond

A 1.88 acre area near the south west corner of No. 5 Slurry Pond has been designated a small area exemption as a result of an O.S.M inspection on February 13, 1991. Runoff from this area was being contained in a natural depression near by, however, the depression was not designated for this purpose in the Permit Application. Calculations were submitted showing that the depression was of adequate size to contain design storm runoff from the area and a request for small area exemption status was submitted. Figures 11, 12 and 13 of this appendix show the location of this site and the detail of the catch basin. Storm runoff calculations are also included. This site is within the disturbed area of No. 5 Slurry Pond and does not add to the total disturbed area of the permit.

MIDDLE FORK CANYON SMALL AREA EXEMPTIONS

7. Middle Fork Substation And Water Tank Area

The substation and water tank area is shown on Figure 3 as area "C". It is located at the north end of the Middle Fork disturbed area. The minor amount of runoff from this site is adequately treated by the vegetation surrounding it. A watertight block wall has been constructed around the substation to contain any runoff or spillage within it. As this remote area contains only the substation and water tank, very little activity occurs here.

8. Middle Fork Timber Yard

Below the Middle Fork mine yard and adjacent to the road is an area used to store timbers for use in the mine. Because of the nature of the material stored here and the small area of disturbance, drainage is treated in an alternate manner. Gravel berms help retain water within the disturbed area and channel it toward approved outflow locations. The outflow route passes through a gabian filter basket filled with gravel to filter any runoff leaving the disturbed area. Refer to Exhibit V-6 of the Permit Application and Figure 4 of this appendix for site locations.

SOUTH FORK CANYON SMALL AREA EXEMPTIONS

9. South Fork Topsoil Pile

The topsoil site in South Fork was established during construction of the South Fork Loadout in 1981. The stockpile, made up of three adjacent piles, has been revegetated and is protected by a berm-ditch sediment control around the

perimeter. The first pile measures 45 feet wide by 55 feet long. The second pile is 35 feet in diameter. The largest pile measures 52 feet wide by 145 feet long. Exhibits II-1 and V-9 of the Permit and Figure 5 of this appendix depict the location of this stockpile.

10. South Fork Water Tank Area

The South Fork water tank and travel corridor are shown on Exhibit V-7. As the water tank and trail to it have been in place for many years, vegetative cover is effective in minimizing erosion and filtering runoff. The trail is utilized to access the water tank infrequently. Utilization of the vegetation cover appears to be the best choice of sediment control at this location for several reasons. First, vegetation has worked well in the past. No significant erosion is evident. Second, it requires minimal maintenance and is the most natural. Last, it creates no new disturbance as would the installation of sediment ponds and ditches.

NORTH FORK CANYON SMALL AREA EXEMPTIONS

11. North Fork Junction Topsoil Pile

At the junction of the Middle Fork and North Fork roads there is a small topsoil pile. This is the only one presently at this site although expansion is possible at some time in the future. The topsoil pile measures fifty feet in diameter and is protected by a berm-ditch sediment control and has been revegetated. This site is depicted on Exhibit V-6 and Figure 7.

12. North Fork Ventilation Portal Pad

Runoff from the pad area is treated by passing through a filter fabric fence before leaving the disturbed area. Refer to Exhibit V-4 and Figure 8 for this site location. The area has been revegetated. This location is remote and has negligible activity associated with it.

ACREAGE COMPRISING SMALL AREA EXEMPTIONS

SITE	ACRES
Topsoil Pile Below Slurry Pond No. 5	0.28
Topsoil Pile Below Slurry Pond No. 4	0.25
Topsoil Pile At Equipment Storage Yard	0.69
Area East Of Lower Raliroad Yard	4.70
Water Truck Fill Site	0.34
South West Corner Of No. 5 Slurry Pond	1.88
Middle Fork Substation And Water Tank	0.83
Middle Fork Timber Yards	1.28
South Fork Topsoil Pile	0.30
South Fork Water Tank	0.42
Topsoil Pile At North Fork Junction	0.06
North Fork Ventilation Pad	0.63
Total	11.66

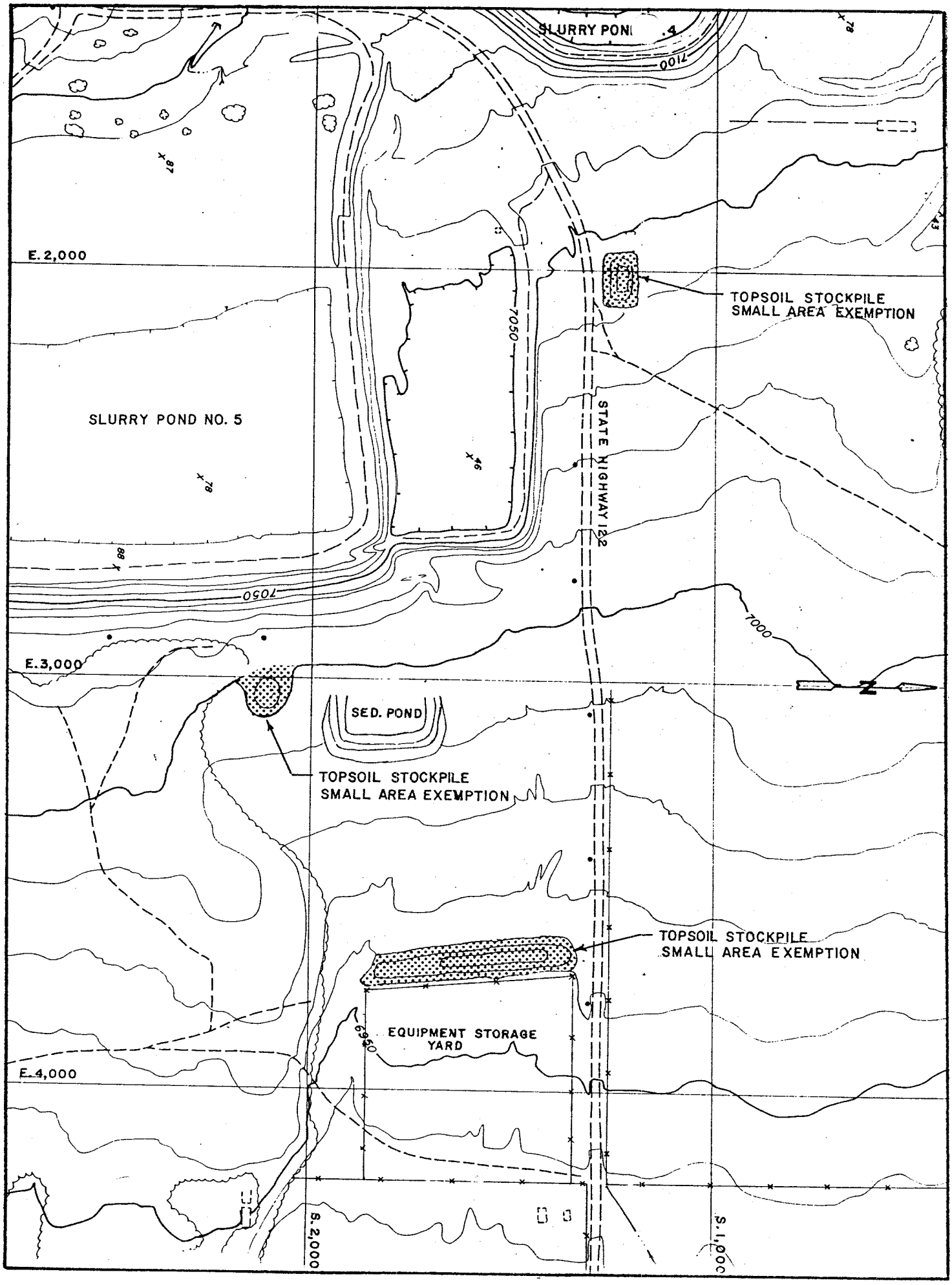


FIG.1 SMALL AREA EXEMPTIONS EAST OF HIAWATHA

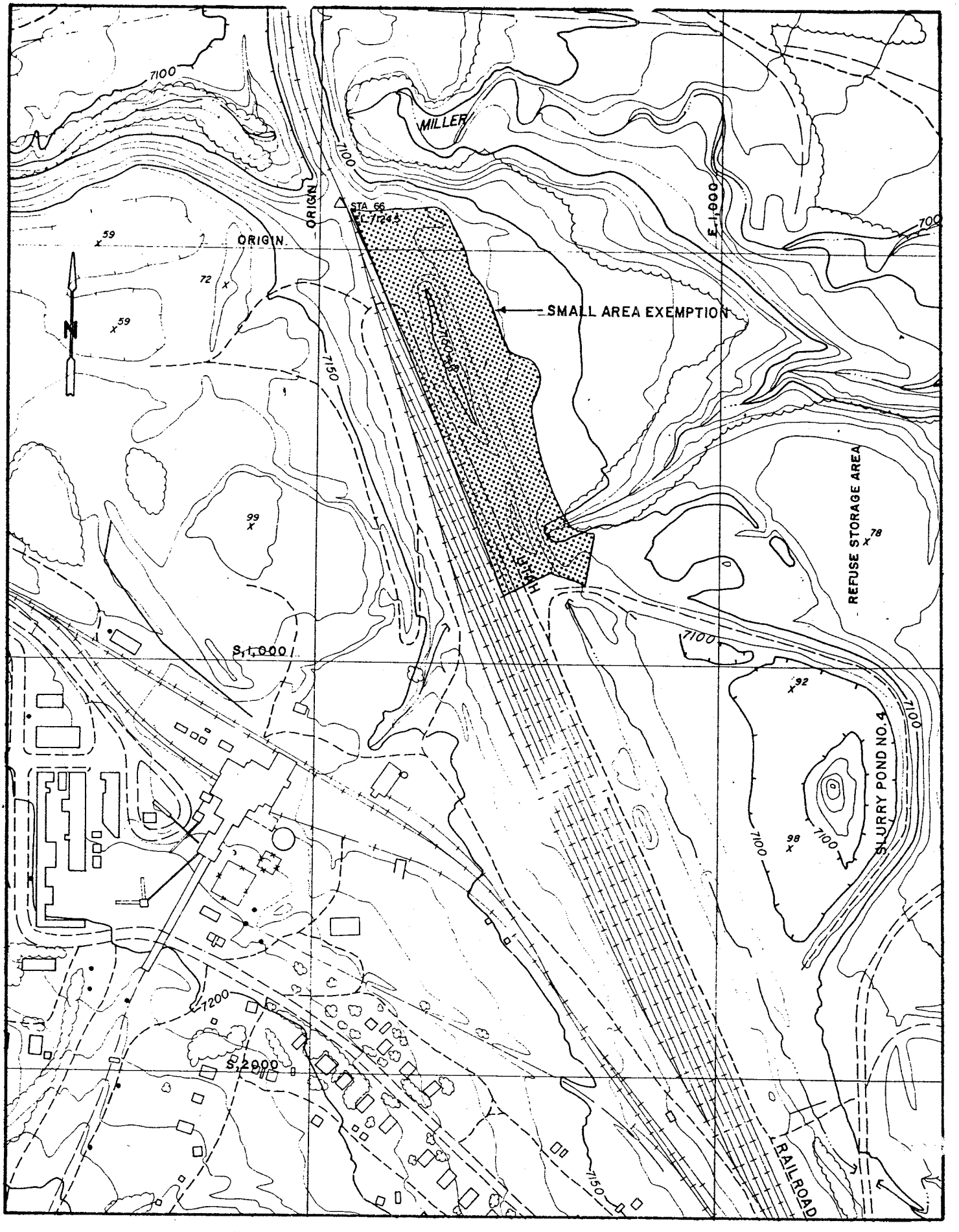


FIG. 2 SMALL AREA EXEMPTION EAST OF LOWER RAIL YARD

VOLUME OF CATCH BASIN EAST
OF LOWER RAILROAD YARD

BASIN CAPACITY	=	6,500 FT^3
RUNOFF CURVE NUMBER	=	74
REQUIRED CAPACITY (from storm run-off estimate)	=	5,929.172 FT^3

CONCLUSION: CATCH BASIN AS CURRENTLY EXISTS WILL ADEQUATELY HANDLE RUNOFF FROM THE DESIGN STORM

STORM RUNOFF ESTIMATE

FOR

AREA CONTRIBUTING TO CATCH BASIN EAST OF LOWER RAILROAD YARD

p = Precipitation Depth (in.)

$p := 2.25$ in. (10 yr.,24 hr. storm at Hiawatha)

A = Area Contributing to Catch Basin (ft.)

$A := 150400$ sq. ft.

l = Hydraulic Length of Drainage Basin (ft.)

$l := 500$ ft.

Y = Average Slope of Drainage Basin (%)

$Y := 6$ %

CN = Runoff Curve Number

$CN := 74$

$$S := \frac{1000}{CN} - 10 \qquad S = 3.514$$

L = Watershed Lag (hrs.)

$$L := \frac{l^{0.8} \cdot (S + 1)^{0.7}}{1900 \cdot Y^{0.5}} \qquad L = 0.089 \quad \text{hr.}$$

Tc = Time of Concentration (hrs.)

$$Tc := \frac{L}{0.6} \qquad Tc = 0.148 \quad \text{hr.}$$

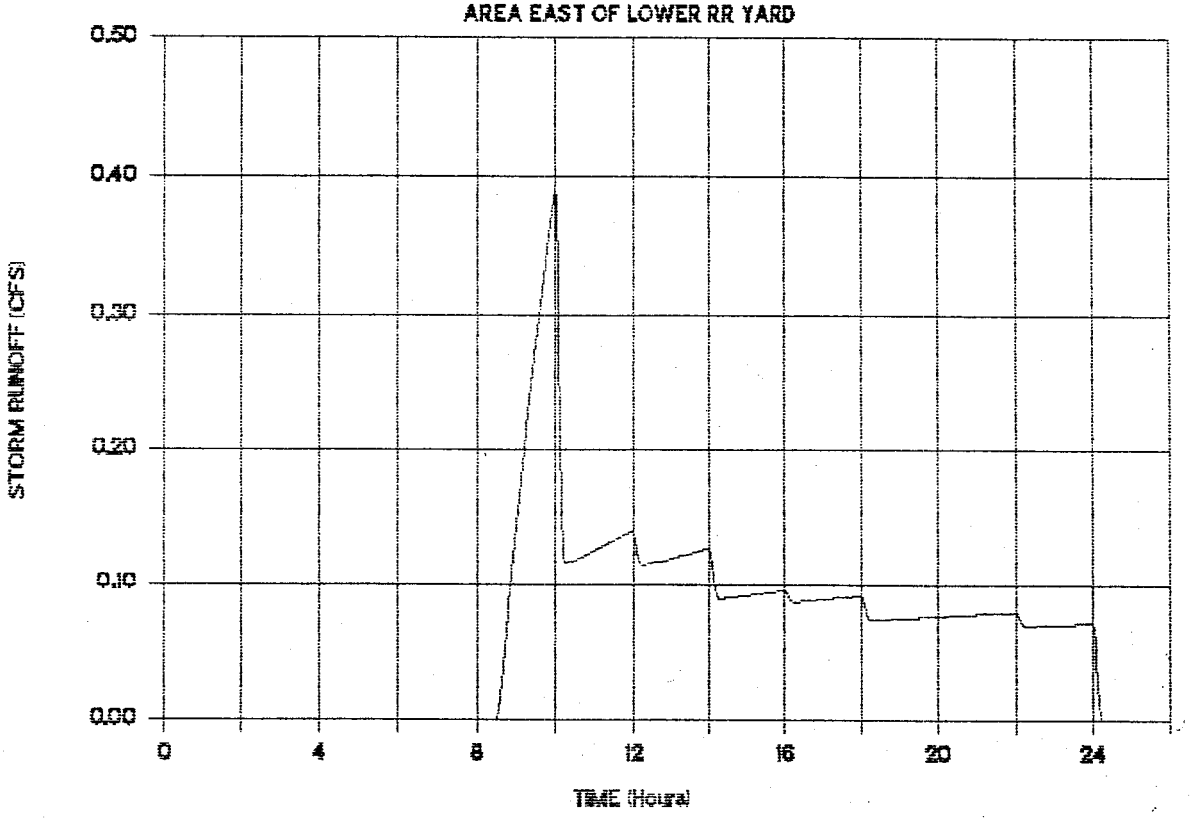
Q = Runoff Volume (in.)

$$Q := \frac{(p - 0.2 \cdot S)^2}{p + 0.8 \cdot S} \qquad Q = 0.473 \quad \text{in.}$$

$$Total_Runoff := \frac{Q}{12} \cdot A \qquad Total_Runoff = 5929.172 \quad \text{Cu.Ft.}$$

STORM RUNOFF DETERMINATION

AREA EAST OF LOWER RR YARD



STORM RUNOFF ESTIMATE

FOR

AREA CONTRIBUTING TO CATCH BASIN ABOVE PREP. PLANT BYPASS CULVERT OUTLET

p = Precipitation Depth (in.)

$p := 2.25$ in. (10 yr.,24 hr. storm at Hiawatha)

A = Area Contributing to Catch Basin (sq.ft.)

$A := 54400$ sq.ft.

CN = Runoff curve Number

$CN := 60$

$$S := \frac{1000}{CN} - 10 \qquad S = 6.667$$

Q = Runoff Volume (in.)

$$Q := \frac{(p - 0.2 \cdot S)^2}{p + 0.8 \cdot S} \qquad Q = 0.111 \quad \text{in.}$$

$$Total_Runoff := \frac{Q}{12} A \qquad Total_Runoff = 502.32 \quad \text{cu.ft.}$$

VOLUME OF CATCH BASIN ABOVE

BYPASS CULVERT OUTLET

Area of Catch Basin	=	2000 $Ft.^2$
Average Depth of Catch Basin (Minus .3' Freeboard)	=	3.2 Feet
Average Depth x Area 3.0' x 2000 $Ft.^2$	=	6000 $Ft.^3$
Required Capacity (From Storm Runoff Estimate)	=	502.3 $Ft.^3$

Conclusion: Catch basin as currently designed, should adequately handle runoff from design storm.

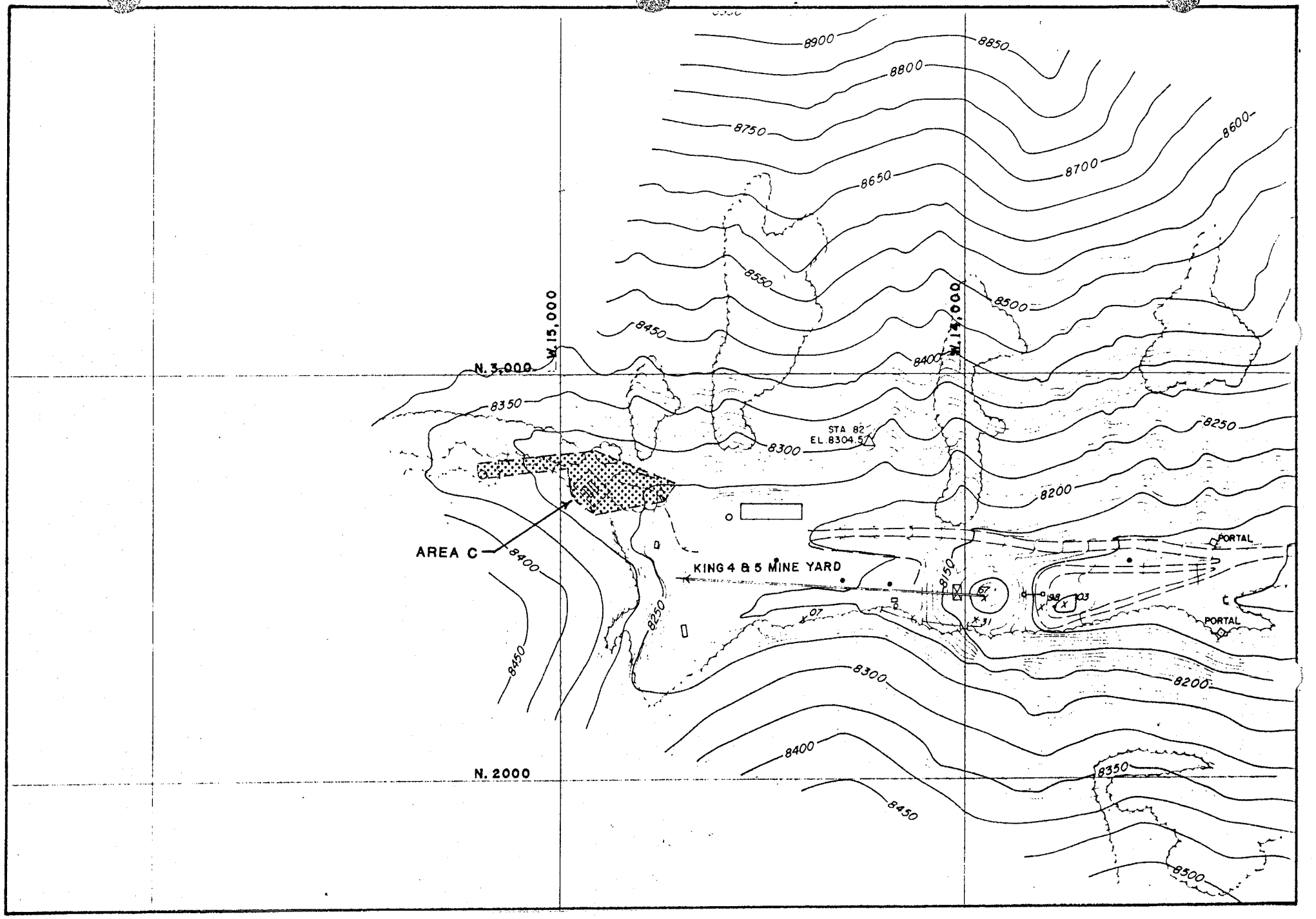


FIG. 3 SMALL AREA EXEMPTION MIDDLE FORK SUBSTATION & WATER TANK AREA

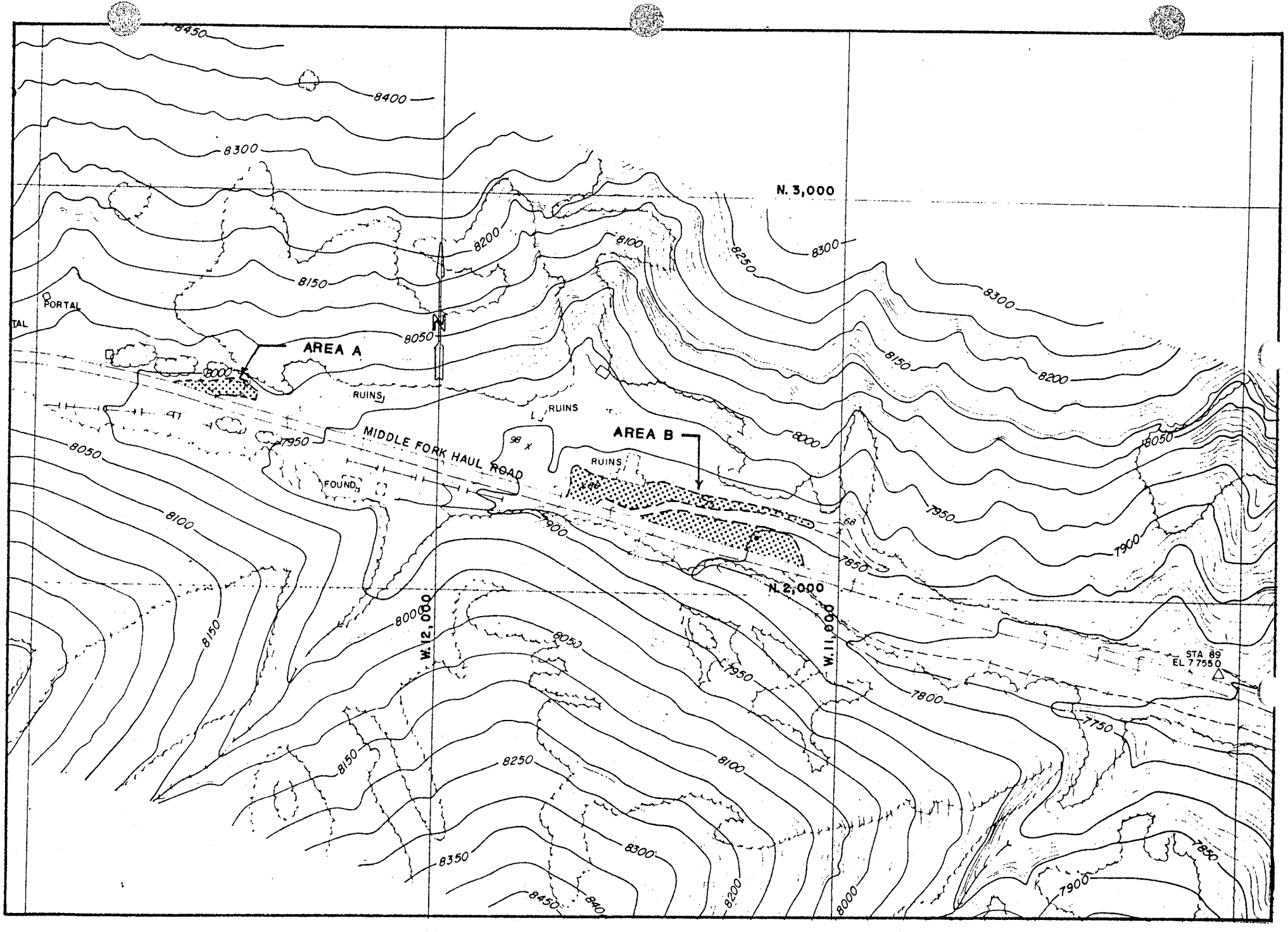


FIG. 4 SMALL AREA EXEMPTION MIDDLE FORK TIMBER YARDS

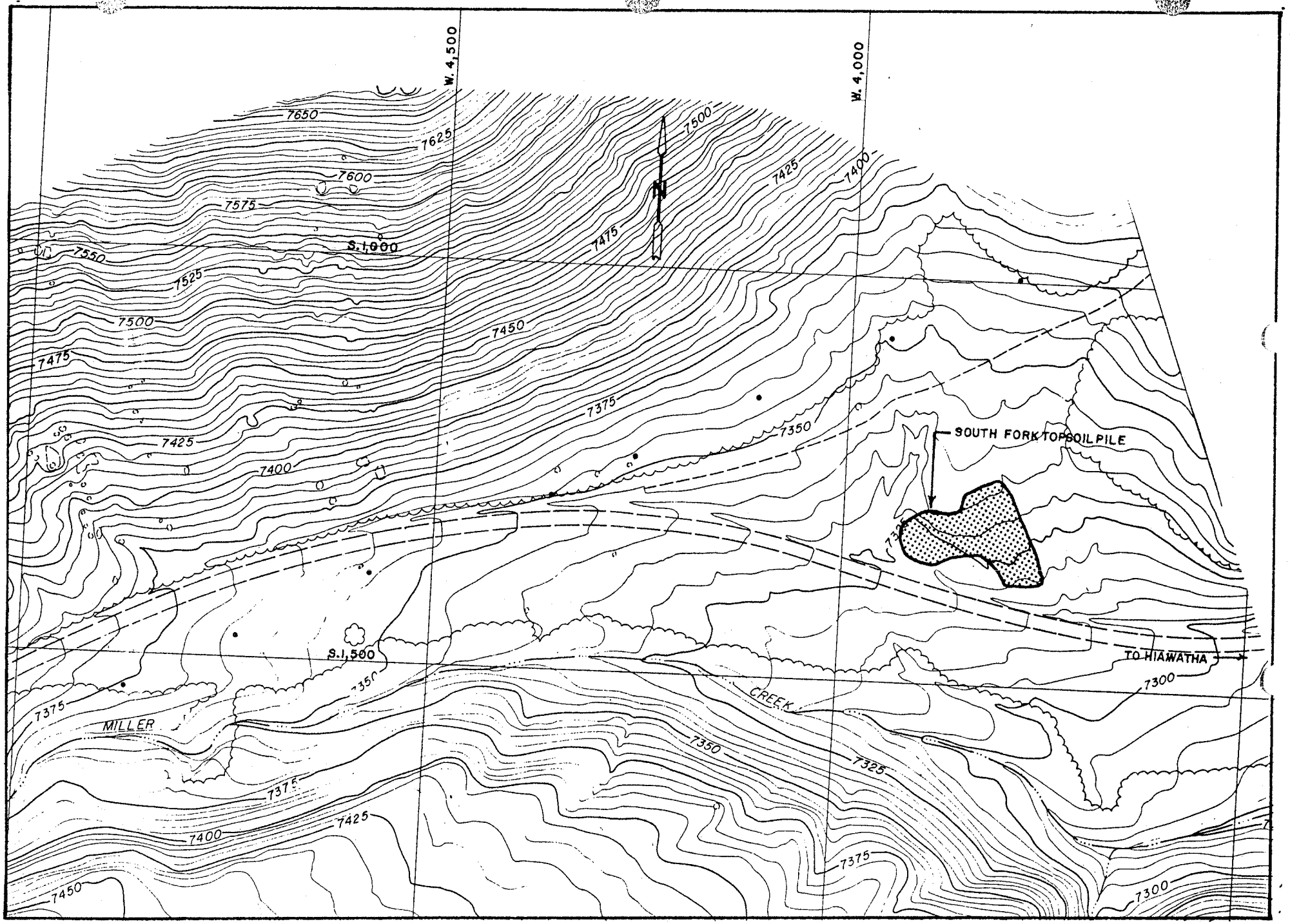


FIG. 5 SMALL AREA EXEMPTION SOUTH FORK TOPSOIL PILE

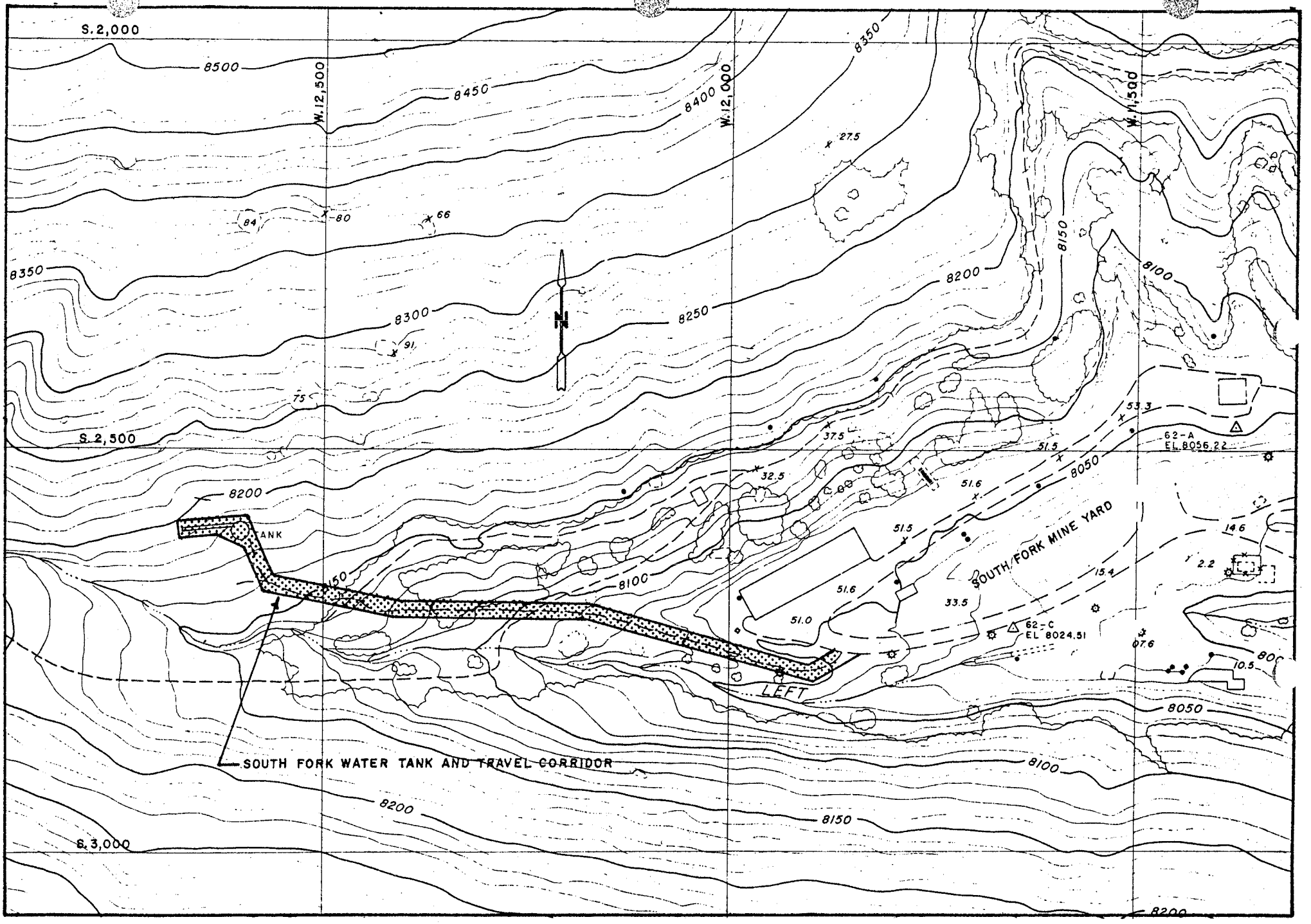
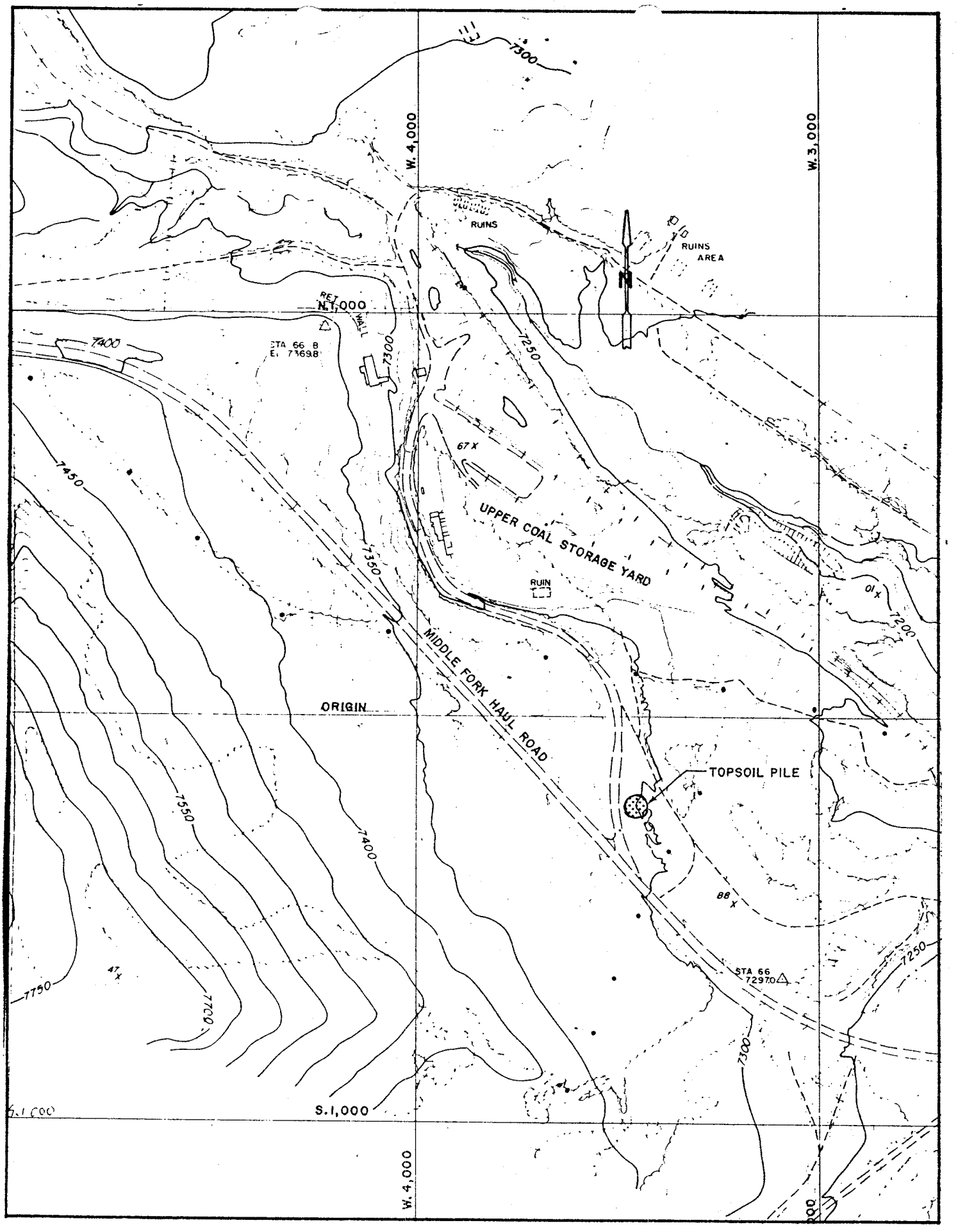


FIG. 6 SMALL AREA EXEMPTION SOUTH FORK WATER TANK AND ACCESS CORRIDOR



FIG, 7 SMALL AREA EXEMPTION NORTH FORK JUNCTION TOPSOIL PILE

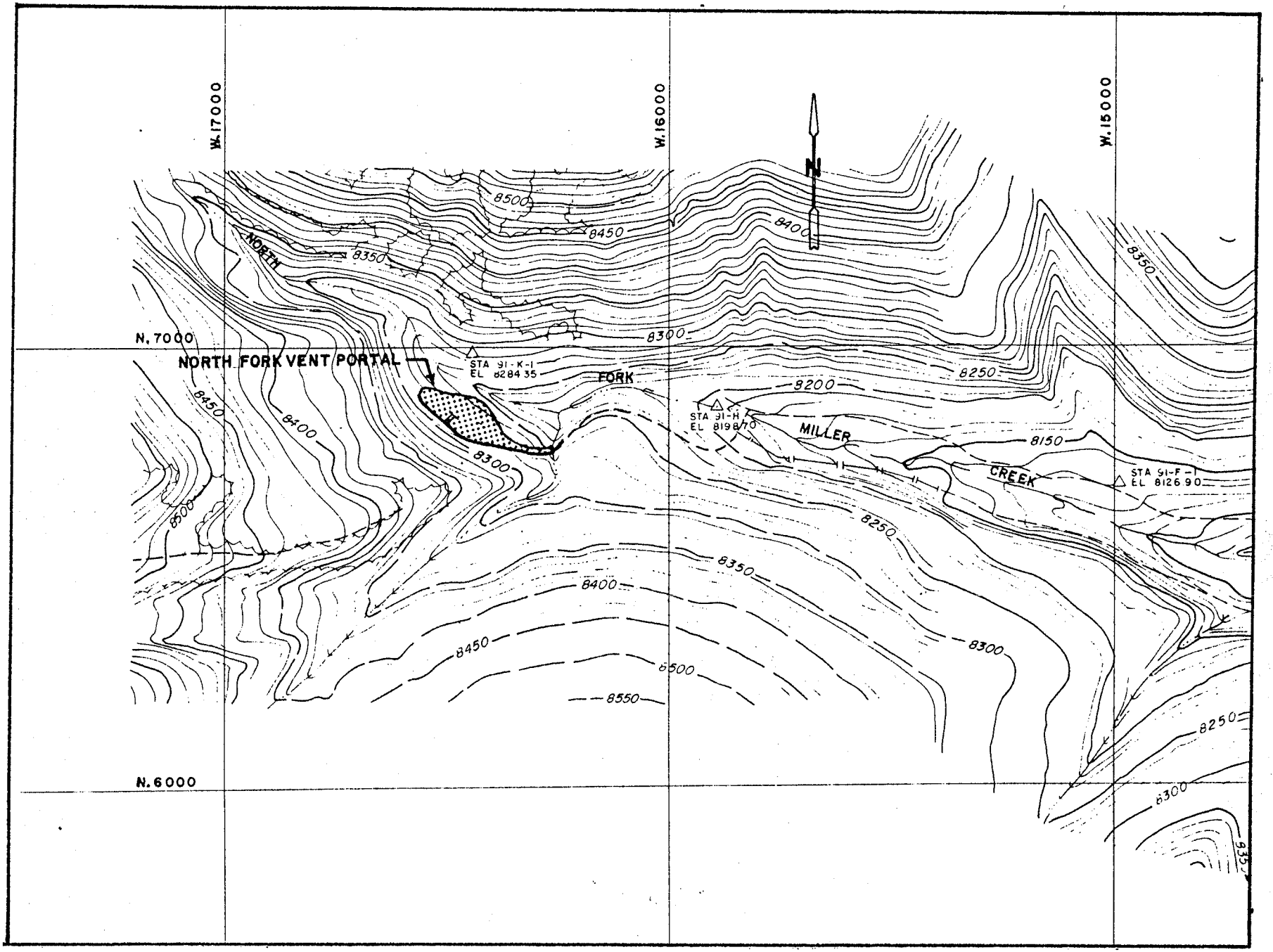


FIG. 8 SMALL AREA EXEMPTION NORTH FORK VENT PORTAL PAD

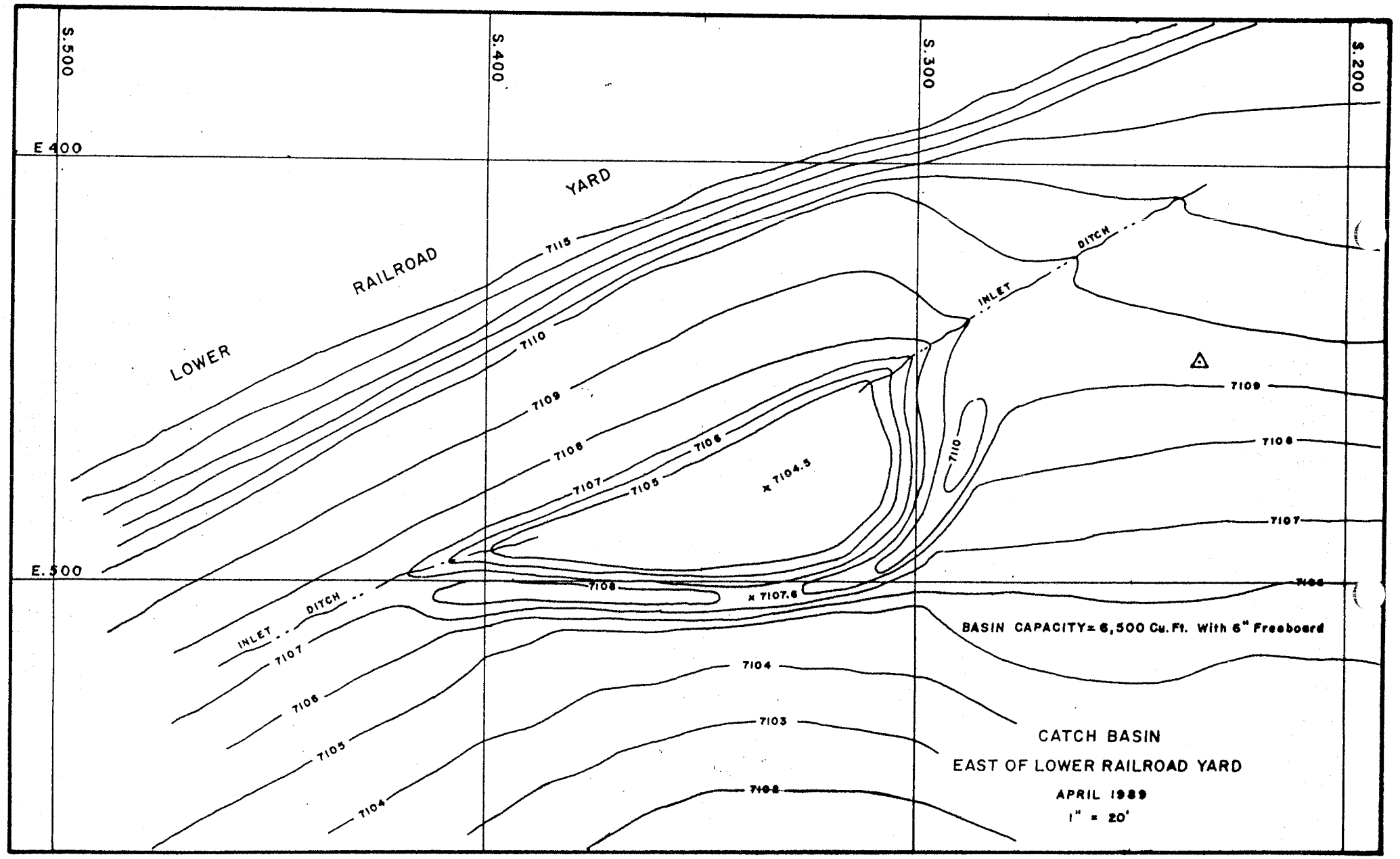


FIG. 9 CATCH BASIN EAST OF LOWER RAILROAD YARD

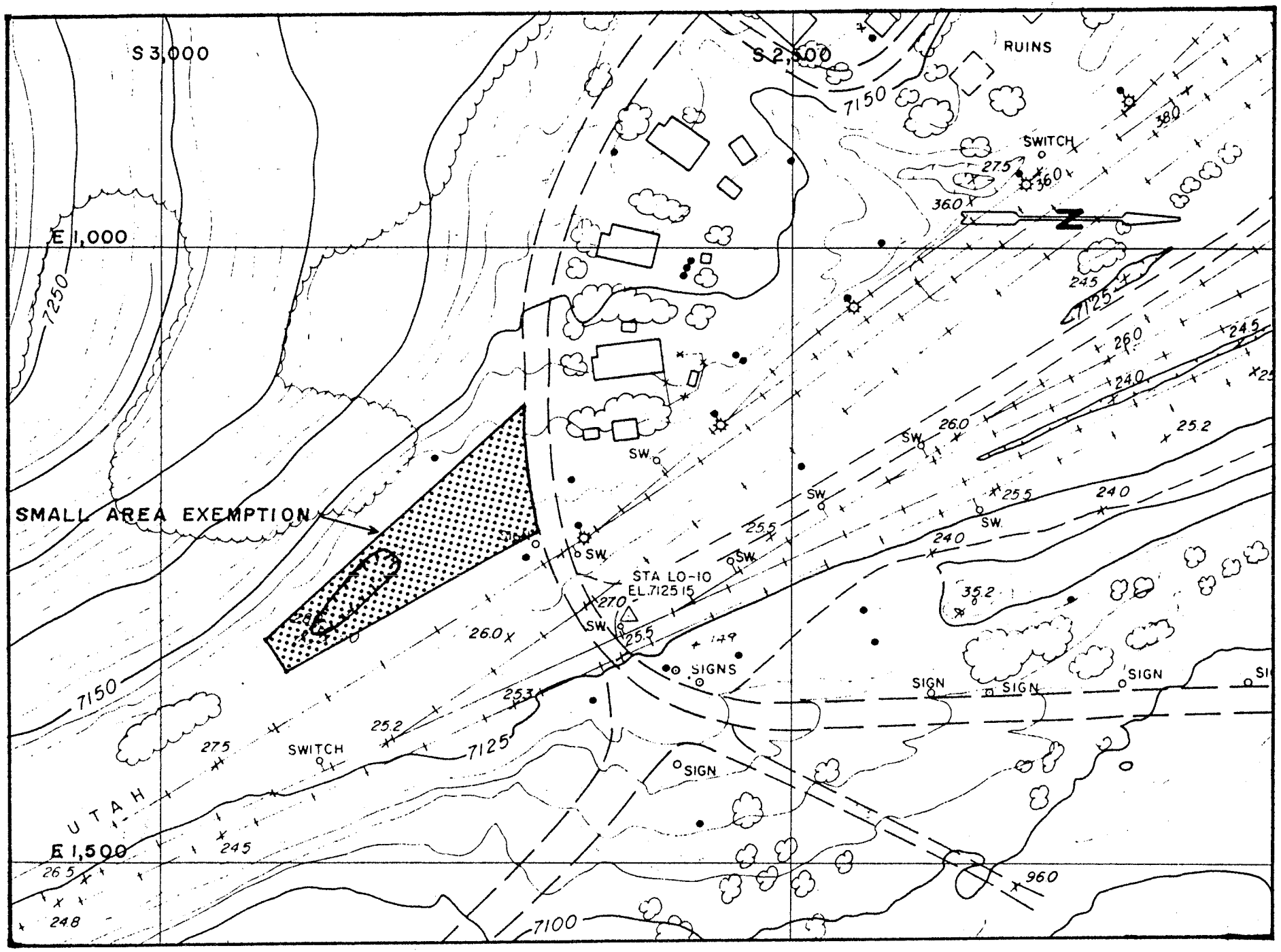


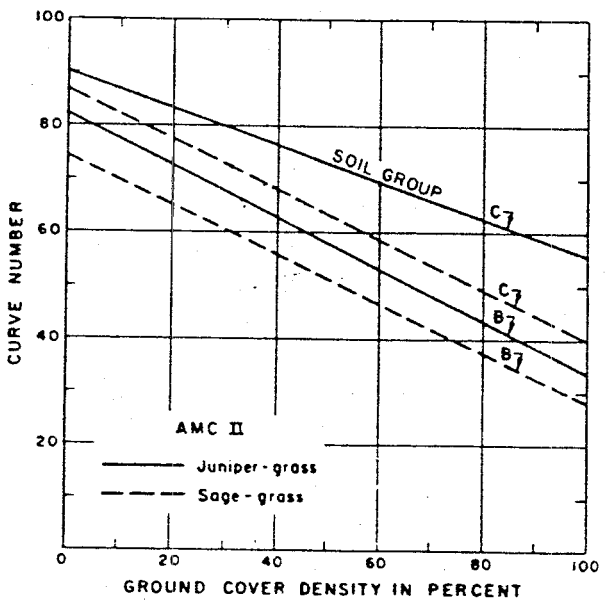
FIG. 10 SMALL AREA EXEMPTION - WATER TRUCK FILL LOCATION

This plan proposes to establish a small area exemption near the south west corner of Slurry Pond No. 5. An existing depression is proposed to be utilized as a catch basin siltation structure (see attached area map).

The catch basin has been surveyed and mapped and found to have a total containment volume of 0.18 acre-feet (see detailed drawing attached).

The area comprising the proposed small area exemption contains 1.29 acres of slurry pond embankment (coal refuse) and 0.59 acres of well vegetated (sagebrush-grass) Strych family soil for a total area of 1.88 acres. See USDA, Soil Survey of Carbon Area Utah, June 1988, Sheets 26 and 27 for soil types in this area. A conservative curve number of 90 is assumed for the coal refuse material. A curve number of 50 is used for the vegetated area (see chart below). The Strych soil family is classified as hydrologic soil group B. A weighted average CN for the total area is:

$$CN = \frac{(1.29)(90) + (0.59)(50)}{1.88} = 77$$



From SCS National Engineering Handbook

Following are storm runoff calculations for the area. The dirt road shown on the attached drawings has drainage ditches on both sides, therefore, runoff from the west side of the road does not contribute to the catch basin. The precipitation depth for a 10 year-24 hour storm at Hiawatha is 2.25 inches.

$$Q=\frac{(P-0.2S)^2}{P+0.8S)}$$

Where: Q is the direct runoff in inches
P is the rainfall in inches
S is the maximum potential difference between P and Q at beginning of the storm, determined by:

$$S=\frac{1000}{CN}-10$$

$$S=\frac{1000}{77}-10 = 2.99$$

$$Q=\frac{[2.25-0.2(2.99)]^2}{[2.25+0.8(2.99)]} = 0.59 \ Inches$$

$$RunoffVolume = \frac{0.59 \ Inches}{12 \ Inches/Ft.}\times 1.88 \ Acres = 0.092 \ Acre\text{-}Ft.$$

The catch basin capacity of 0.18 Acre-Ft. is,therefore, adequate to contain the 0.092 Acre-Ft. of runoff.

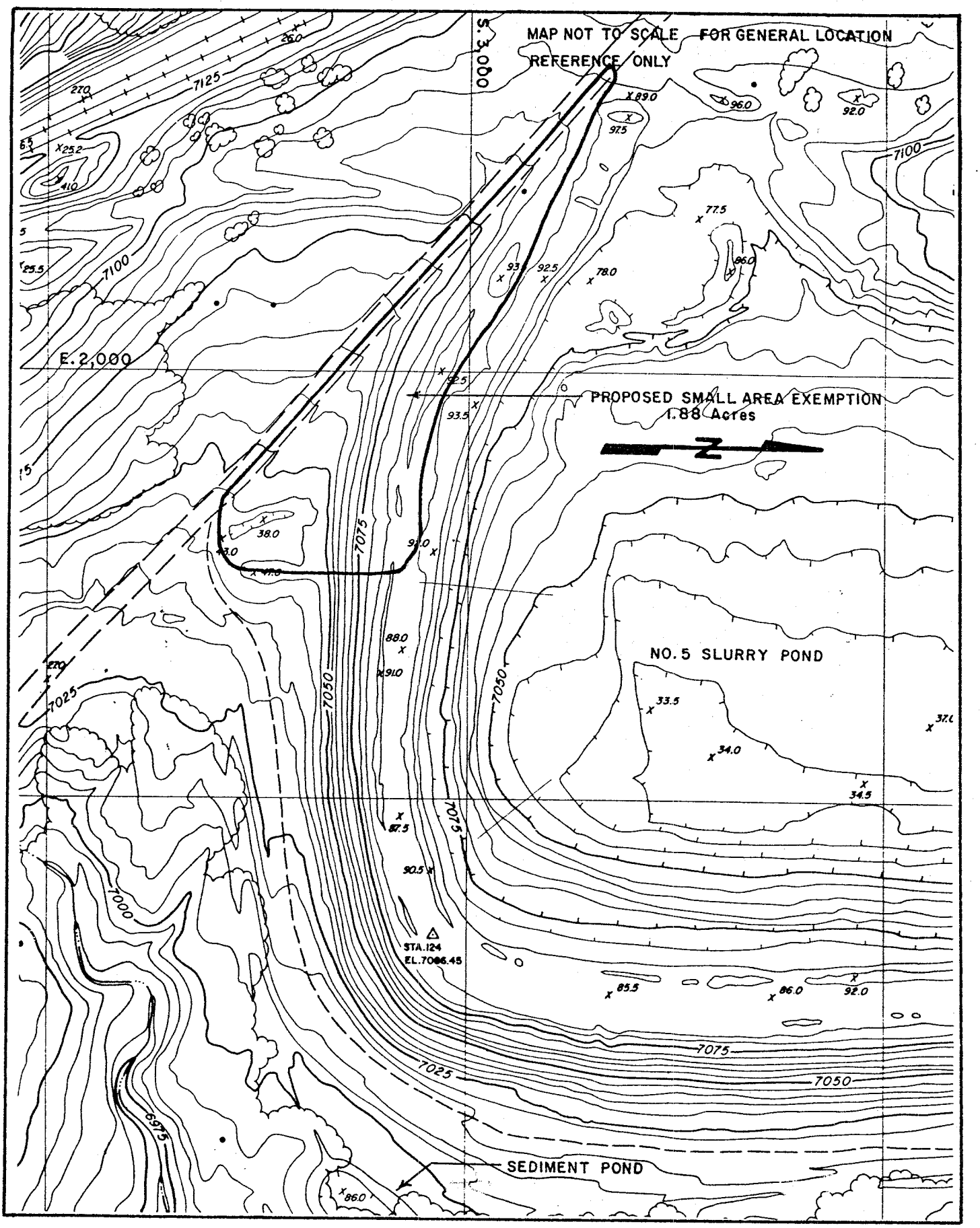


Figure 11 Location Map Small Area Exemption At South West Corner Of No. 5 Slurry Pond

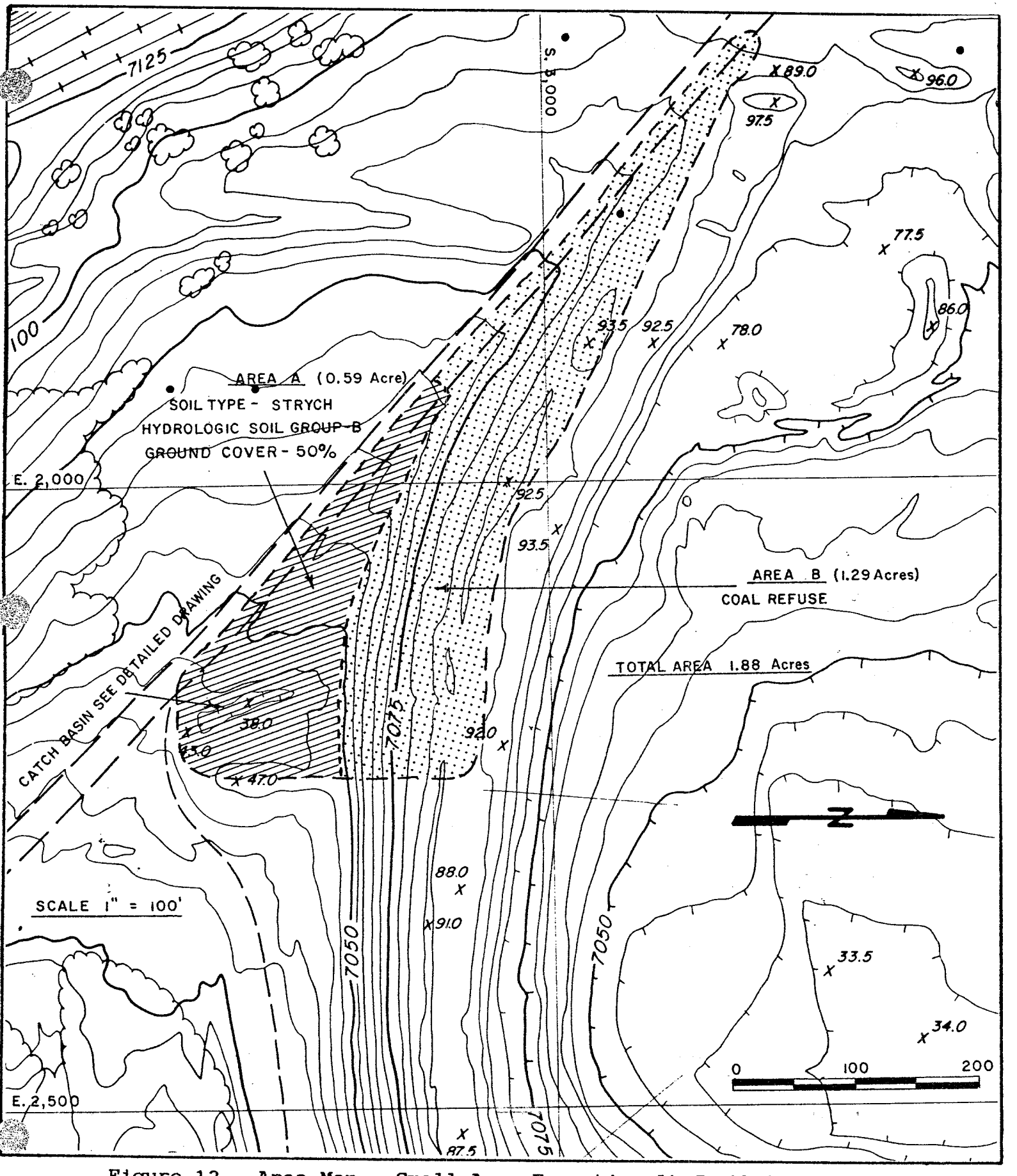


Figure 12 Area Map Small Area Exemption At South West Corner Of No. 5 Slurry Pond

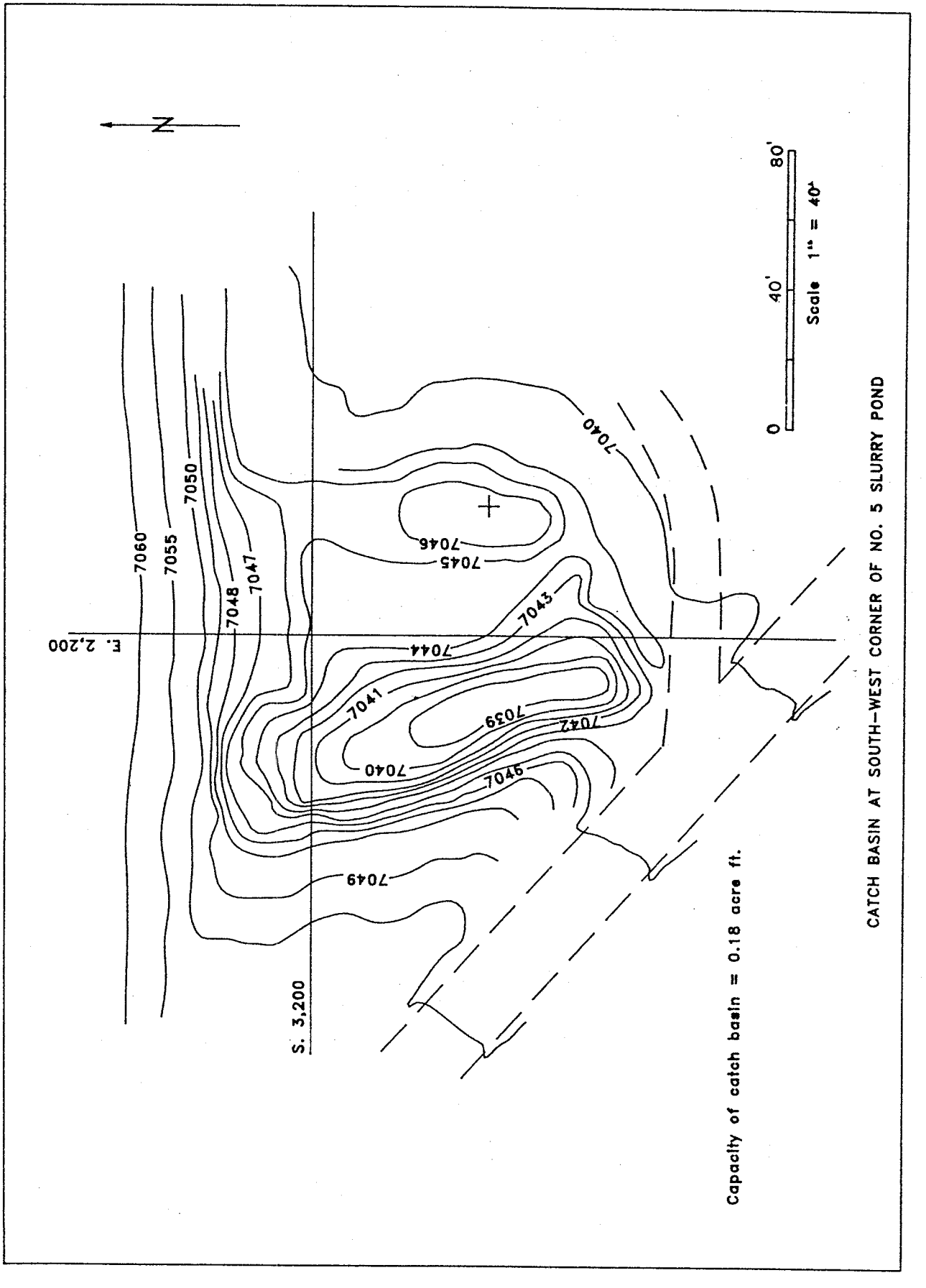


Figure 13 Catch Basin Detail Small Area Exemption At South West Corner Of No. 5 Slurry Pond