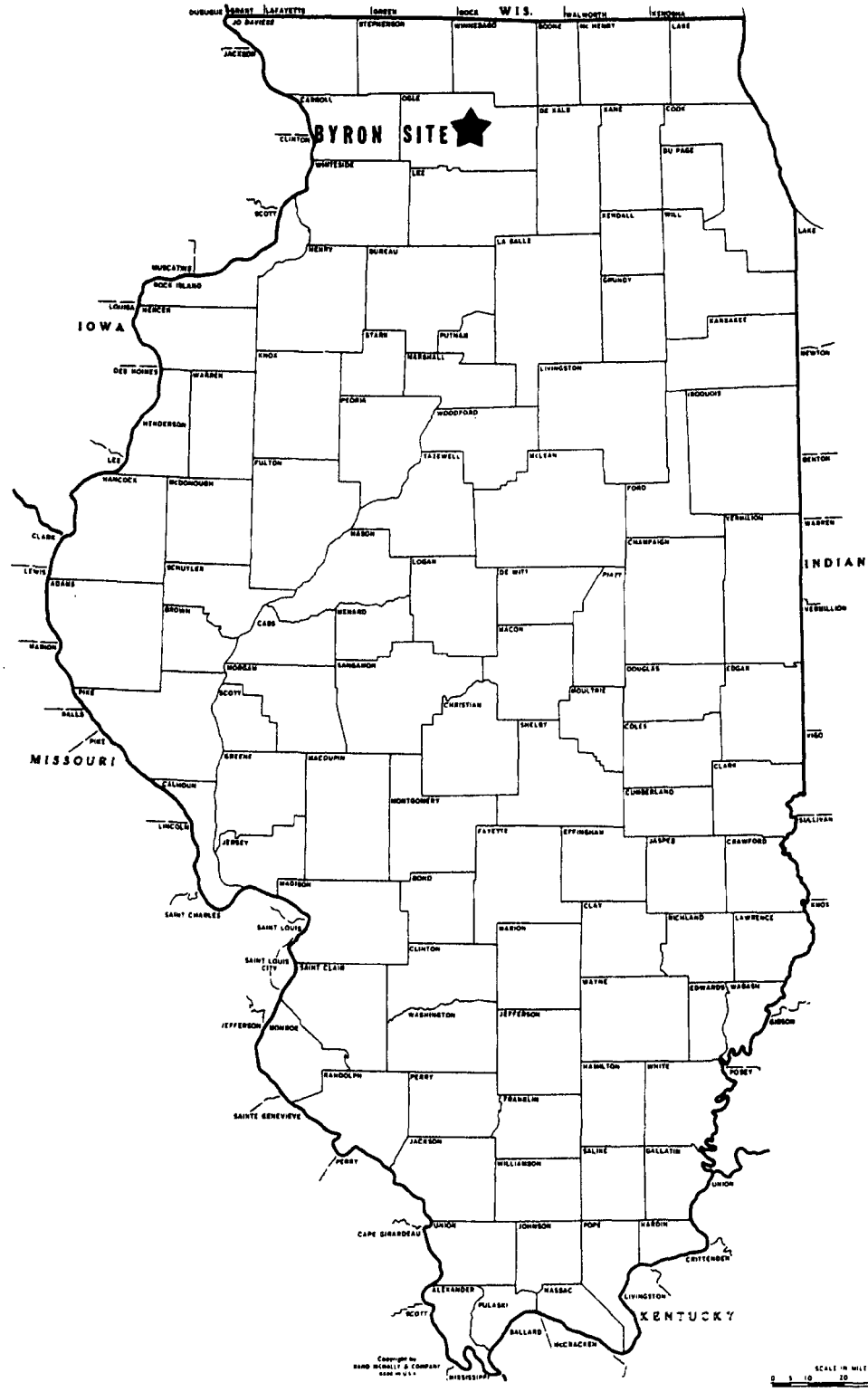

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FIGURE 2.1-1

LOCATION OF THE SITE WITHIN THE STATE

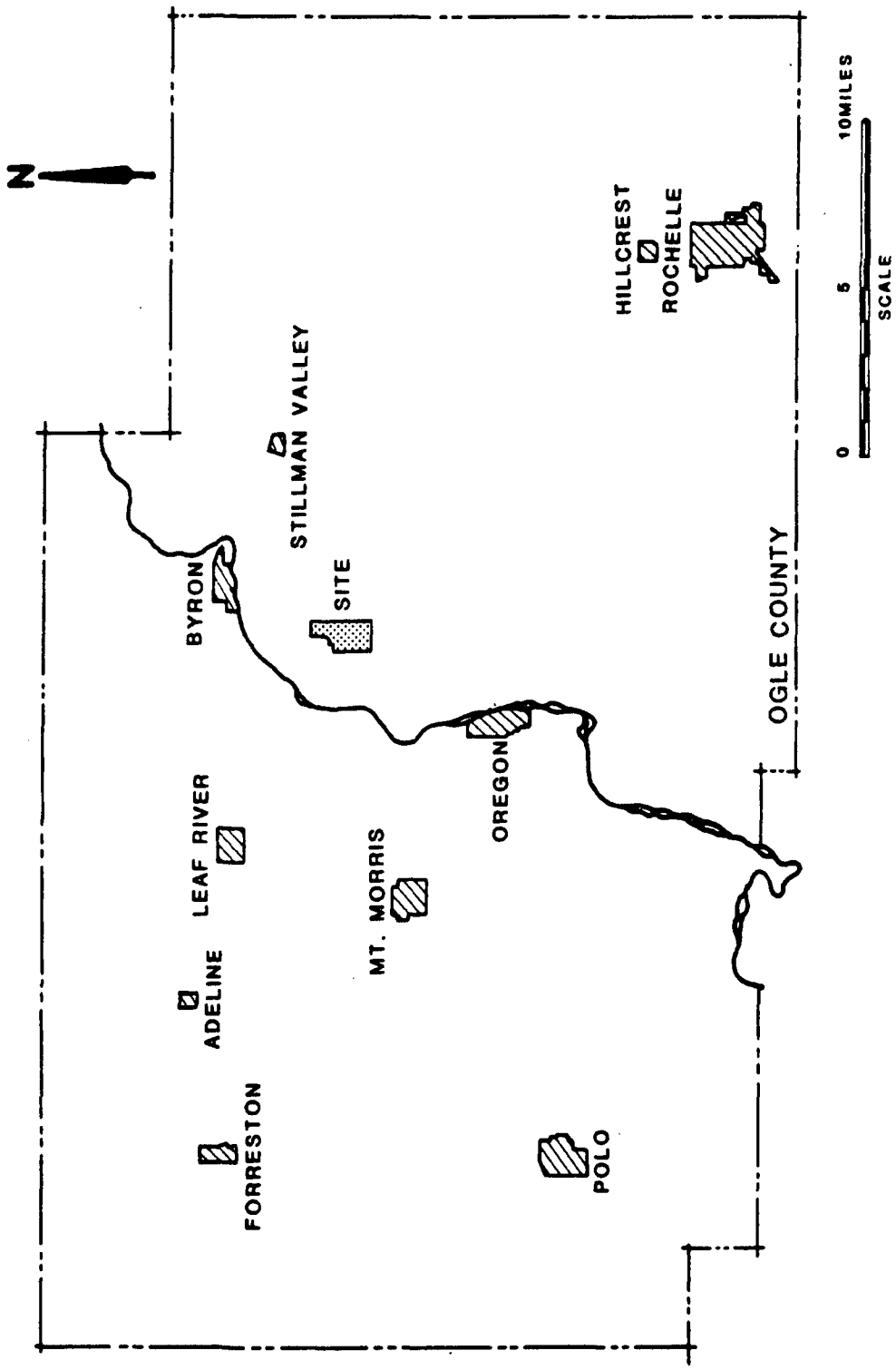

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FIGURE 2.1-2

LOCATION OF THE SITE WITHIN OGLE COUNTY

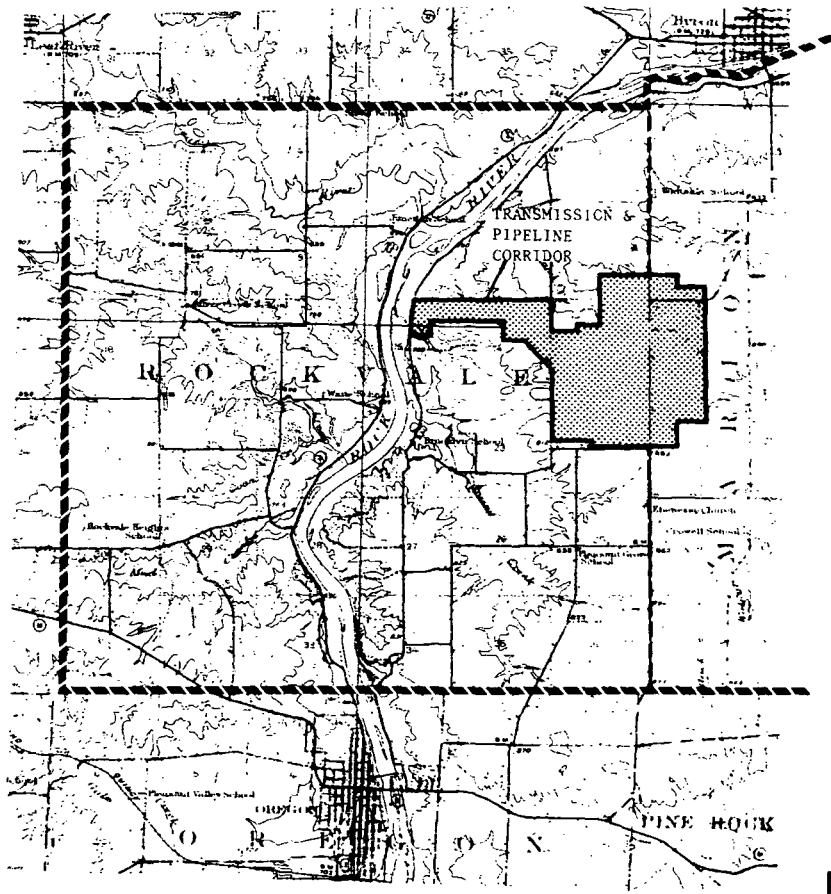

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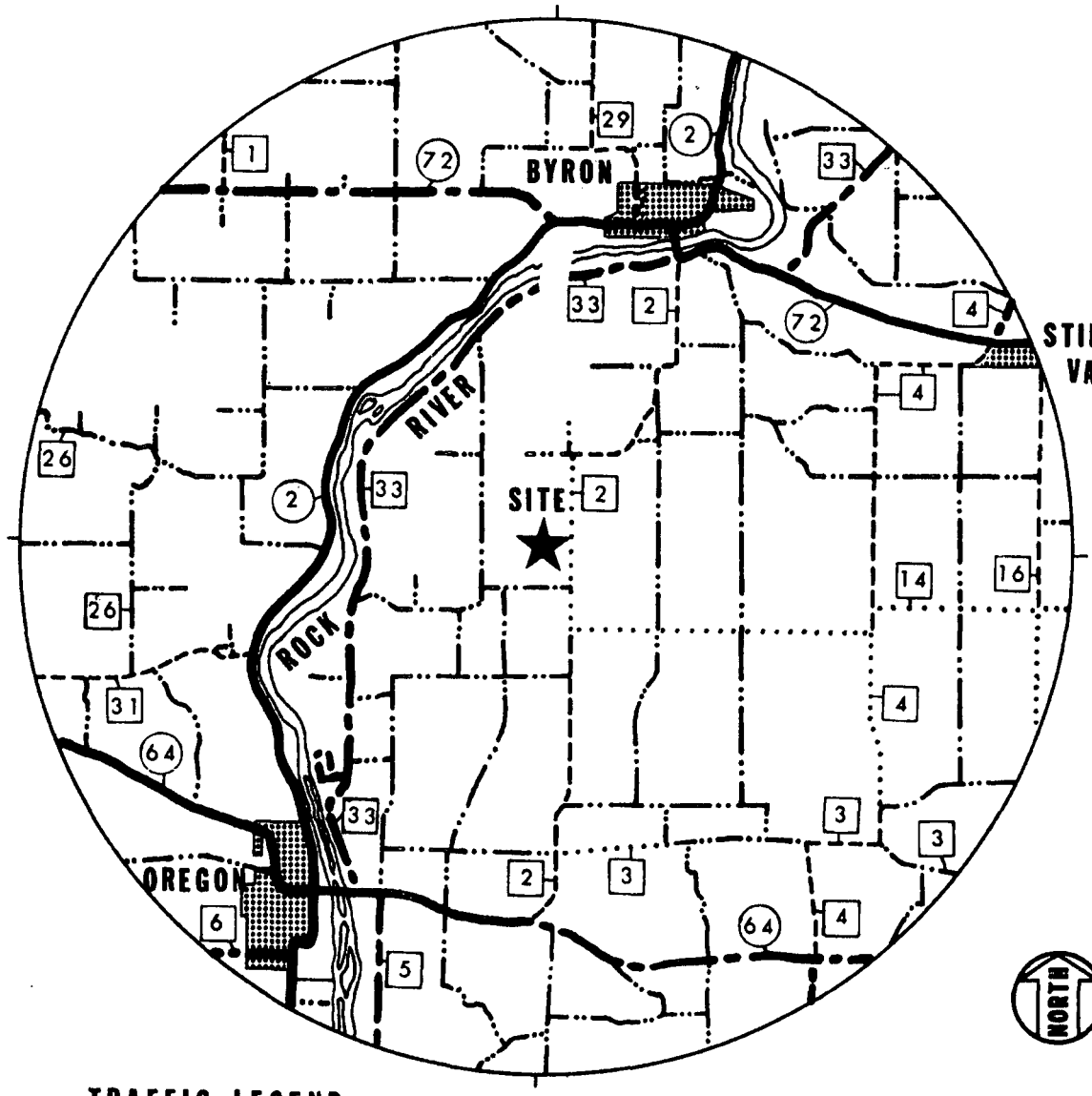
FIGURE 2.1-3

LOCATION OF THE SITE WITHIN ROCKVALE AND MARION TOWNSHIPS



TRAFFIC LEGEND

ANNUAL AVERAGE 24HOUR TRAFFIC VOLUME

- STATE HIGHWAYS
- COUNTY HIGHWAYS

0 1 2MILES

SCALE

PRIMARY HIGHWAYS

2000 AND OVER

OTHER HIGHWAYS

- 1000 TO 1999
- 400 TO 999
- 150 TO 399
- LESS THAN 150

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FIGURE 2.1-4

ROADS AND THEIR ASSOCIATED TRAFFIC VOLUMES WITHIN THE SITE VICINITY

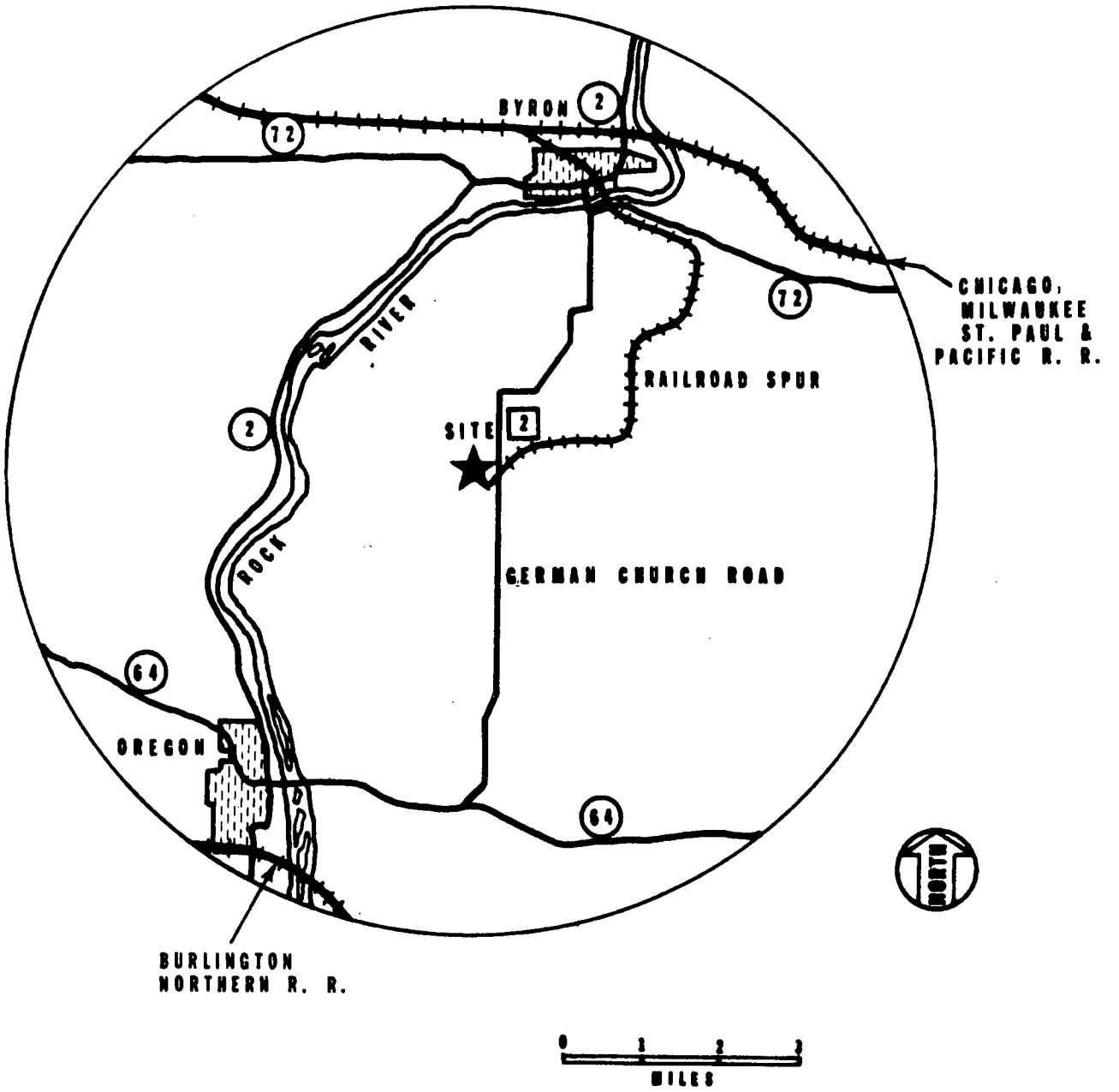

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FIGURE 2.1-5

RAILROAD NETWORK WITHIN 6 MILES OF THE SITE

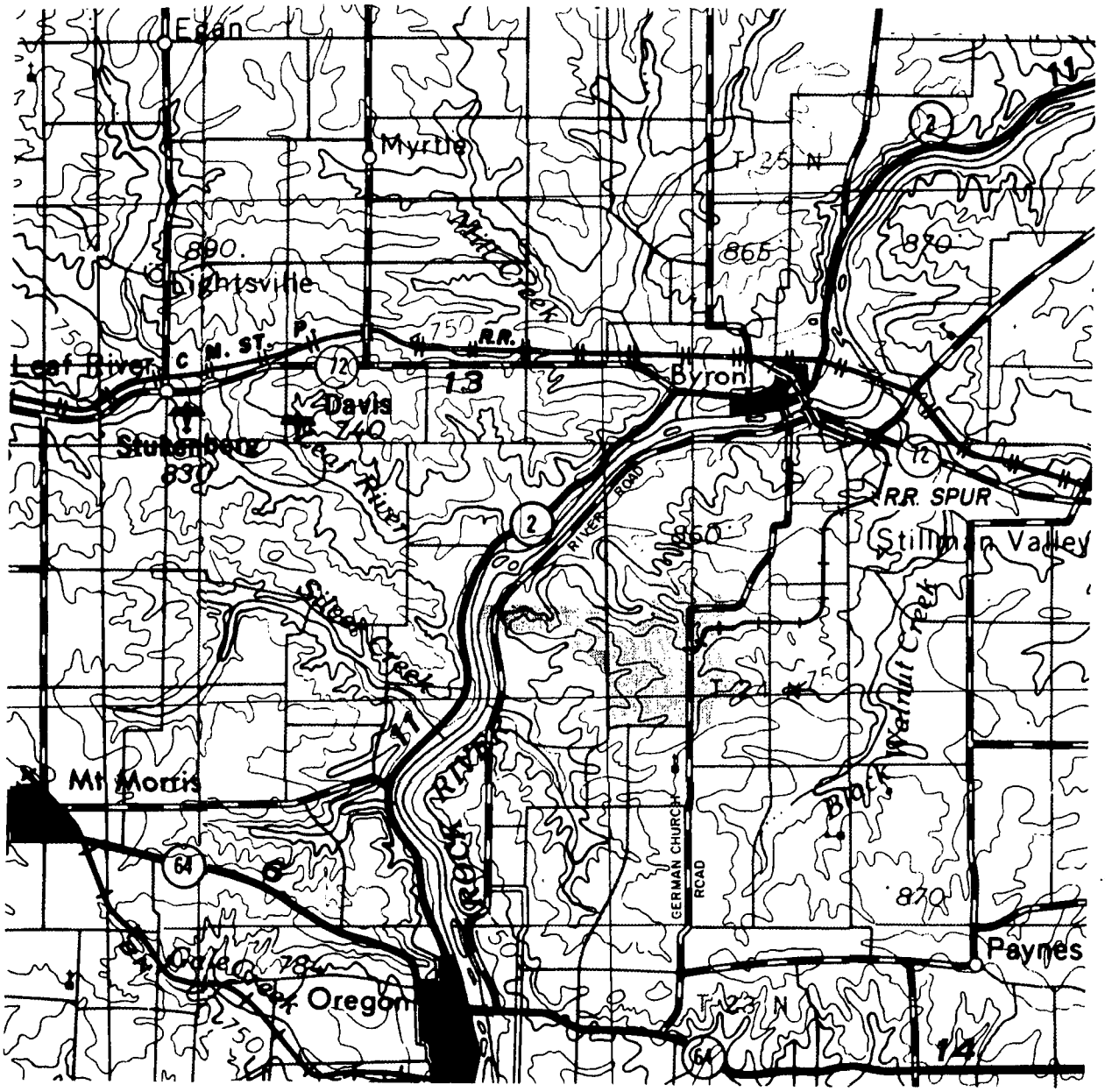

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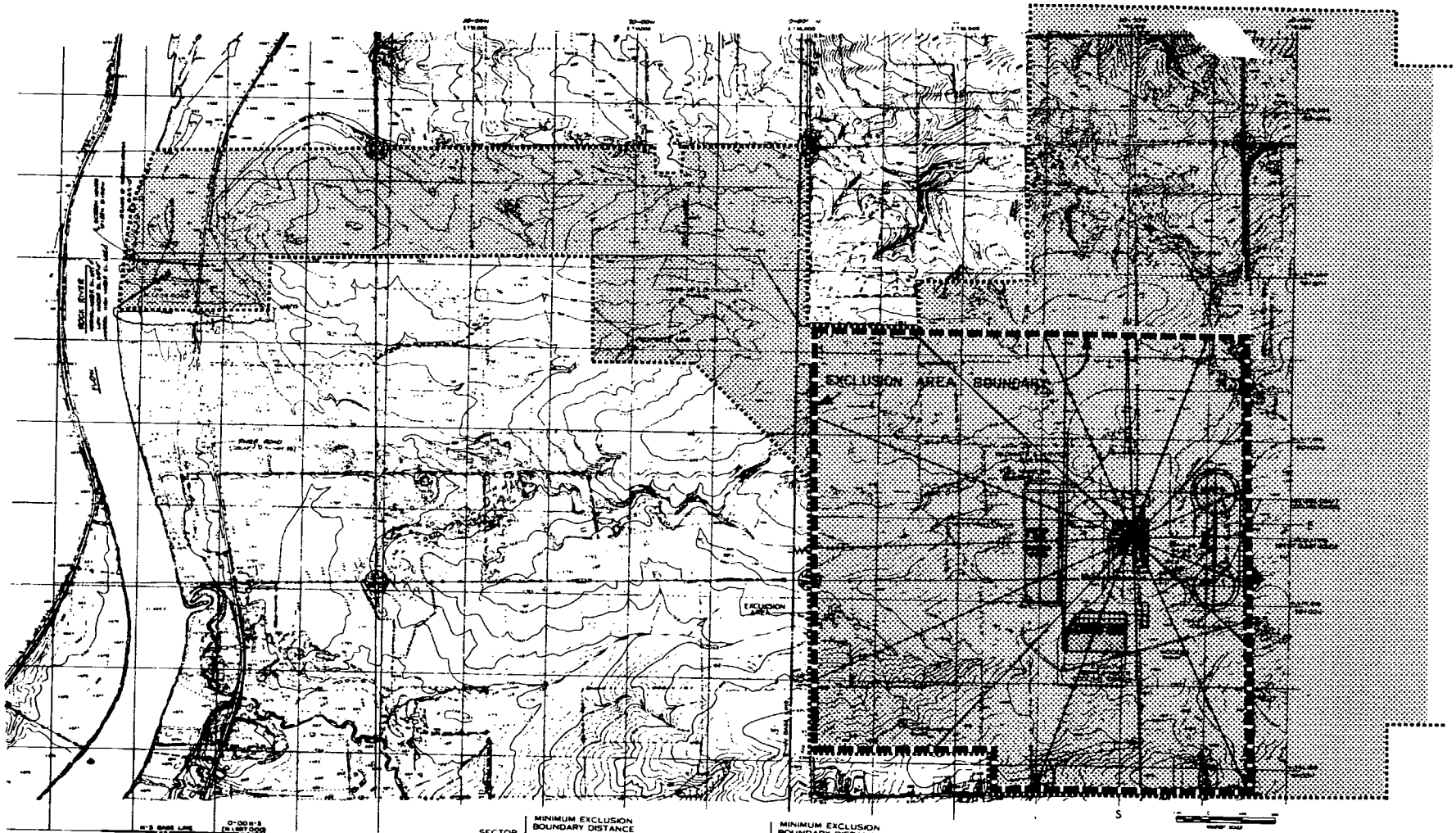
FIGURE 2.1-5a

ROUTE OF BYRON STATION
RAILROAD SPUR

REFERENCE:
BASE MAP FROM ROCKFORD, ILLINOIS; WISCONSIN
U.S.G.S. NK 16-4 DATED 1958



SECTOR	MINIMUM EXCLUSION BOUNDARY DISTANCE (FEET)	SECTOR	MINIMUM EXCLUSION BOUNDARY DISTANCE (FEET)
N	2900	S	3100
NNE	2350	SSW	3200
NE	1625	SW	3500
ENE	1400	WSW	3975
E	1375	W	3900
ESE	1425	WNW	4025
SE	1725	NW	3300
SSE	2625	NNW	2825

▬ ▬ ▬ ▬ EXCLUSION AREA

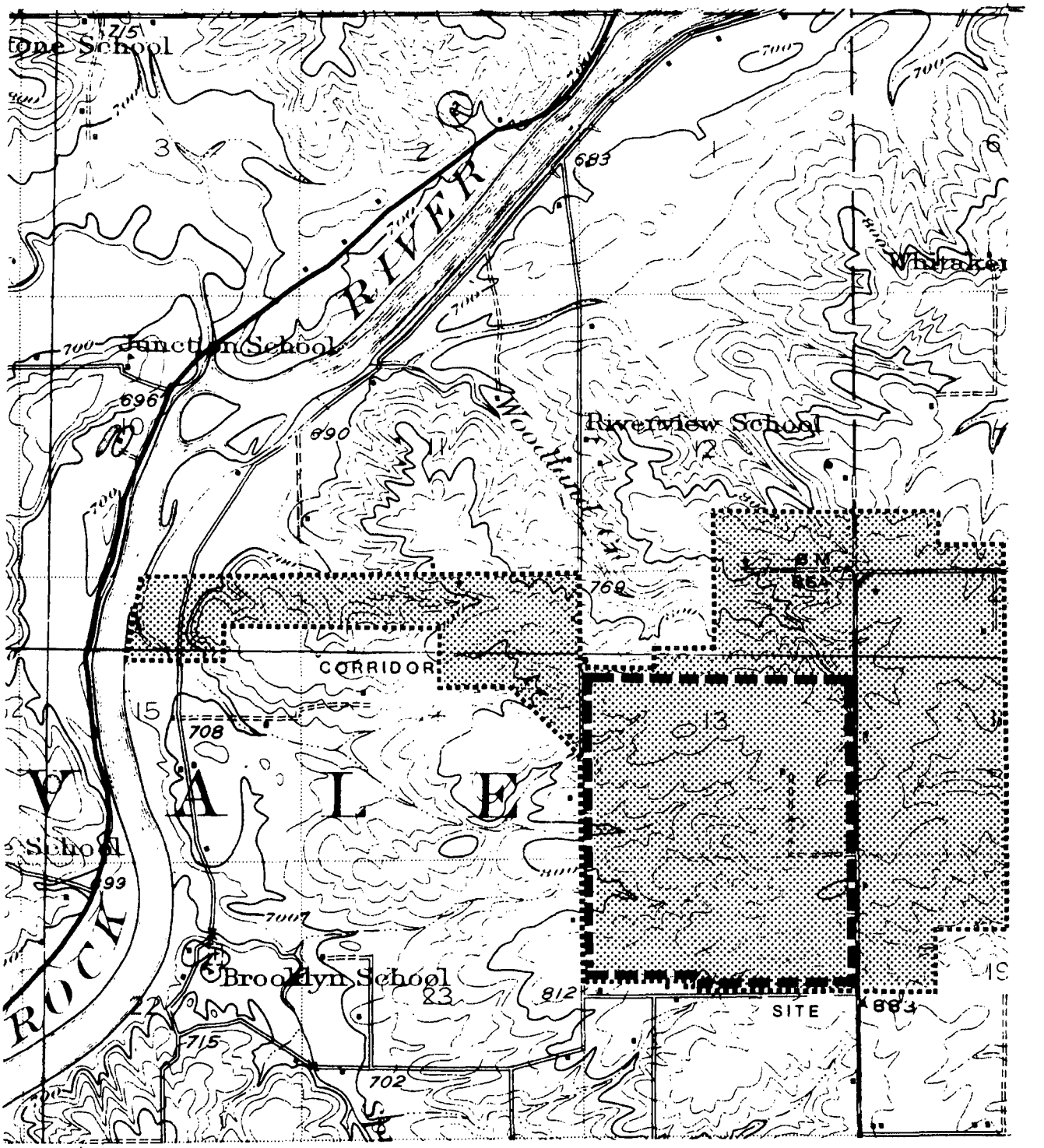
..... SITE BOUNDARY

NORTH

BYRON STATION
UPDATED FINAL SAFETY ANALYSIS REPORT

FIGURE 2.1-6

SITE LAYOUT AND EXCLUSION AREA



NORTH

0 1 2

SCALE IN MILES

EXCLUSION AREA

SITE BOUNDARY

BYRON STATION
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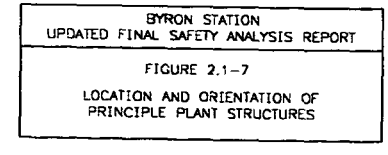
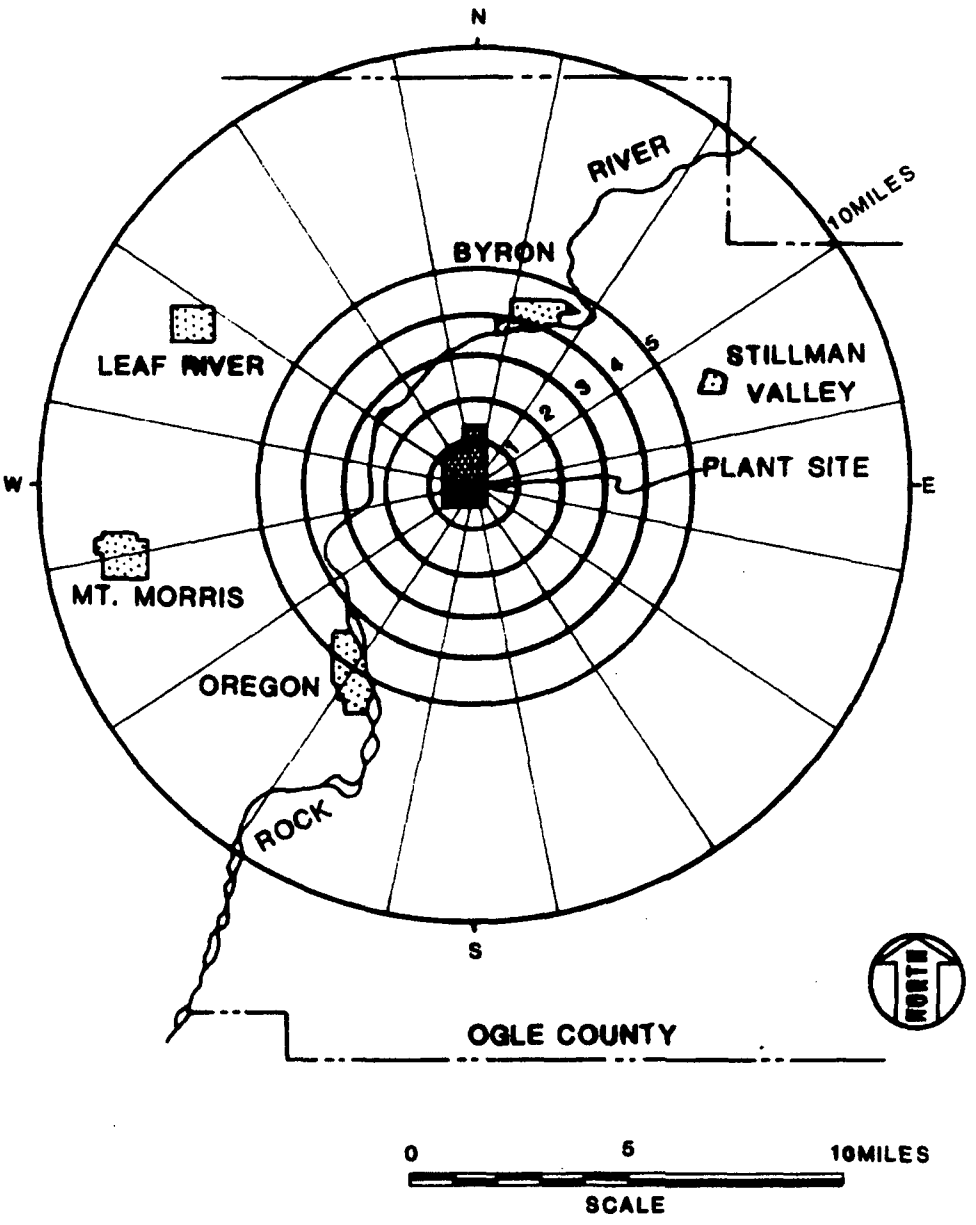
FIGURE 2.1-6a

TOPOGRAPHY OF THE SITE AREA

Security-Related Information Figure Withheld Under 10 CFR 2.390





BYRON STATION
UPDATED FINAL SAFETY ANALYSIS REPORT

FIGURE 2.1-8

SECTOR DESIGNATIONS WITHIN 10 MILES OF THE SITE

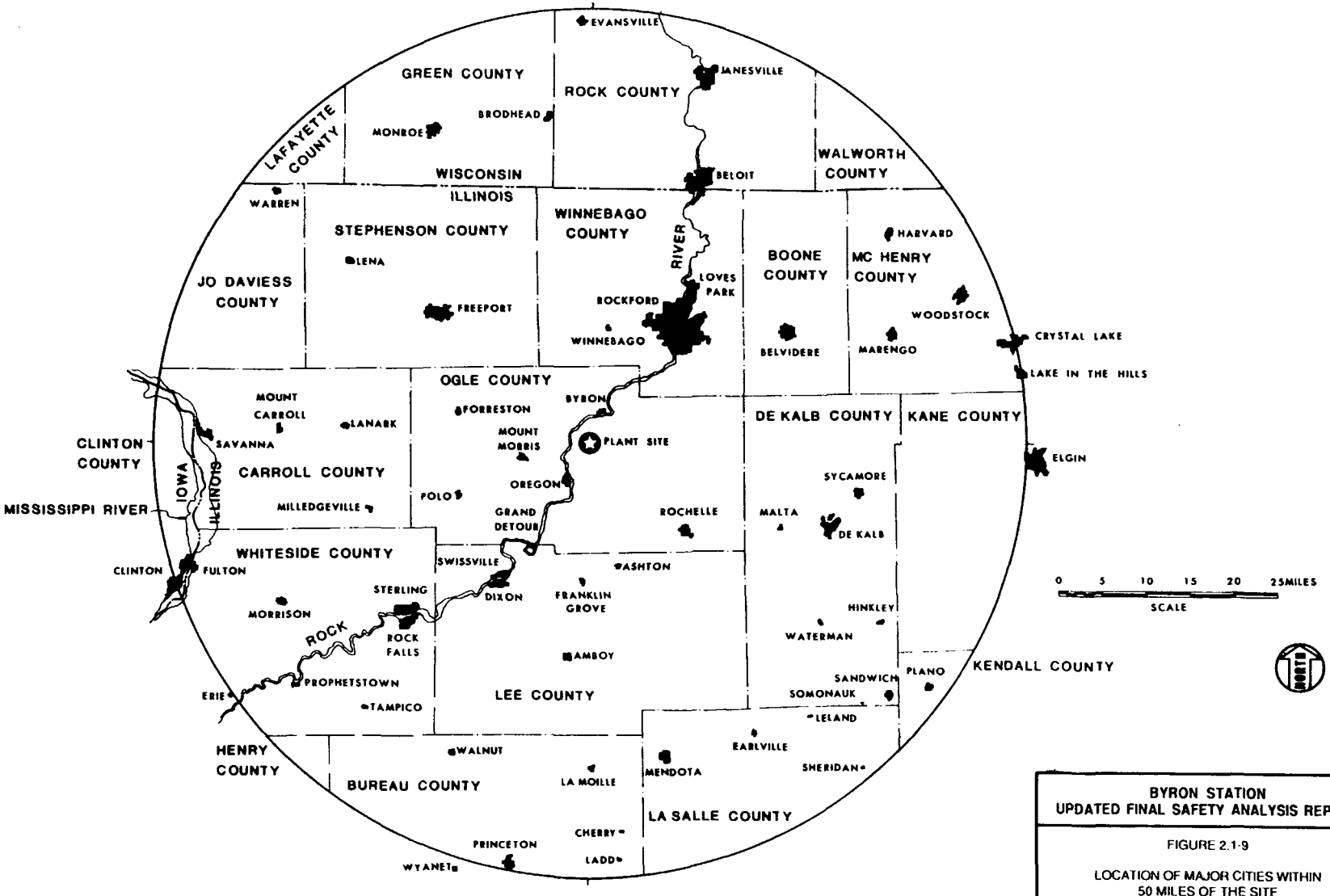


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FIGURE 2.1-9

LOCATION OF MAJOR CITIES WITHIN
50 MILES OF THE SITE

REVISION 9
DECEMBER 2002

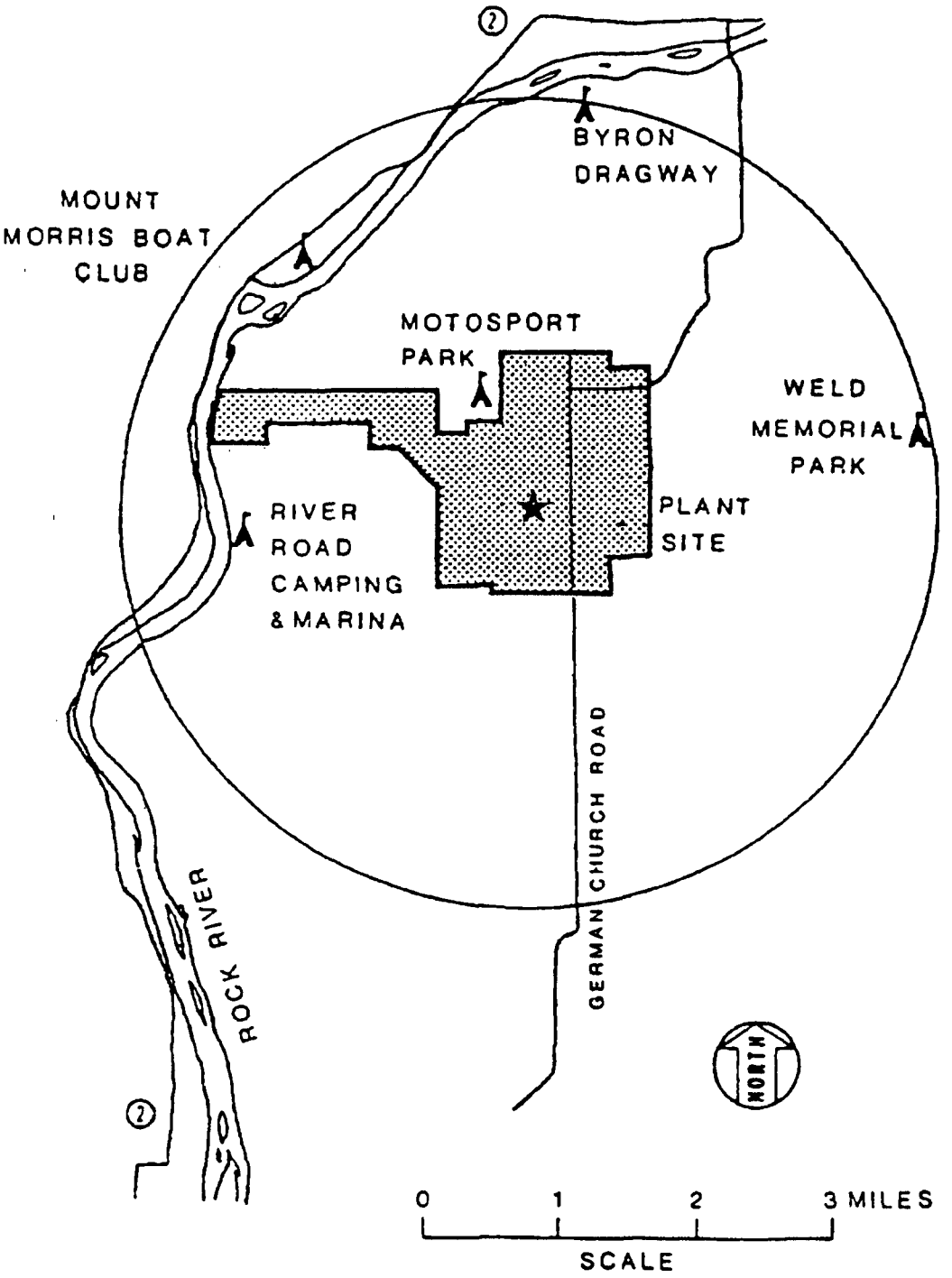

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FIGURE 2.1-10

TRANSPORTATION ROUTES AND PUBLIC FACILITIES WITHIN THE LOW POPULATION ZONE

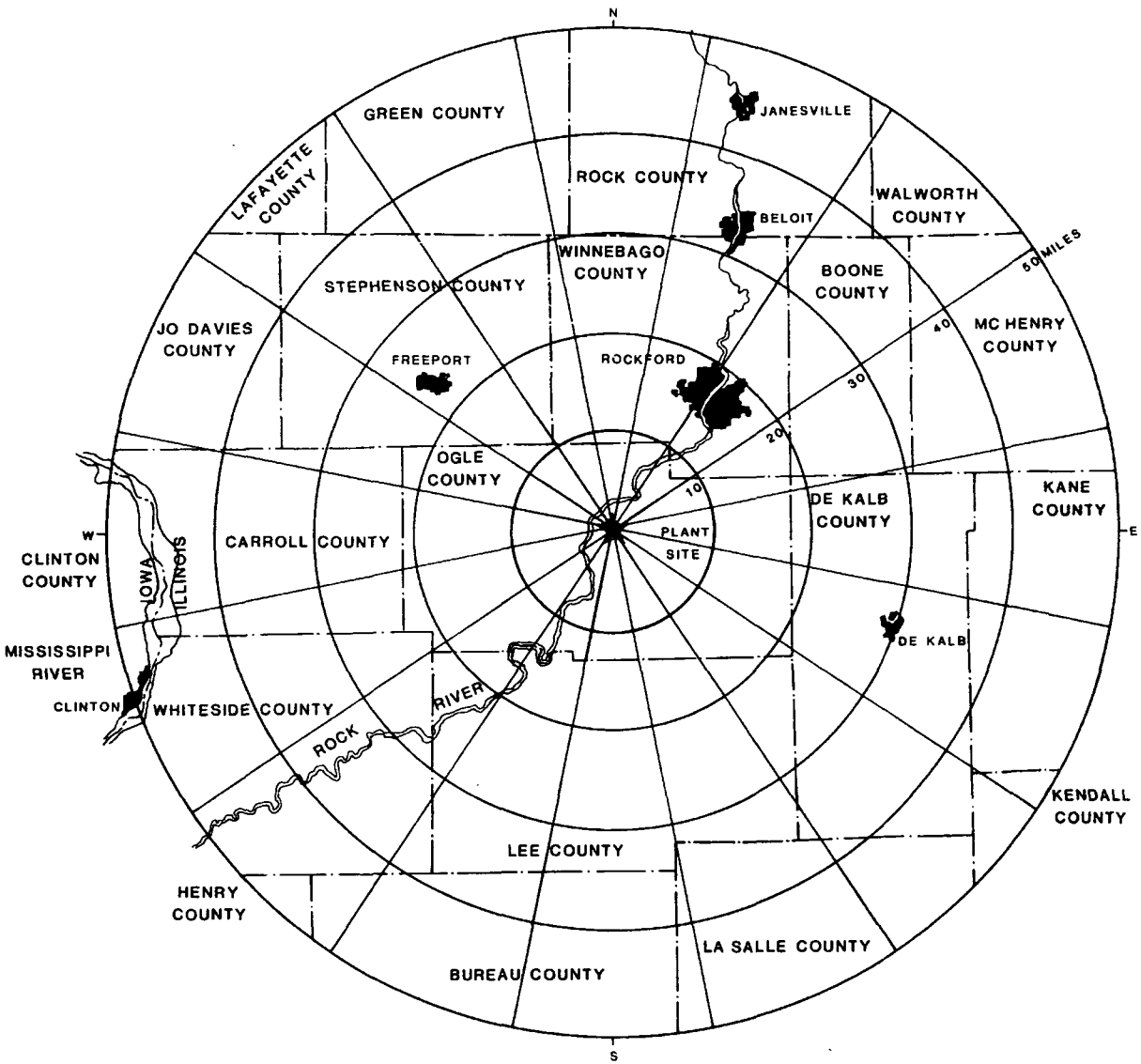

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FIGURE 2.1-11

POPULATION CENTERS WITHIN 50 MILES OF THE SITE

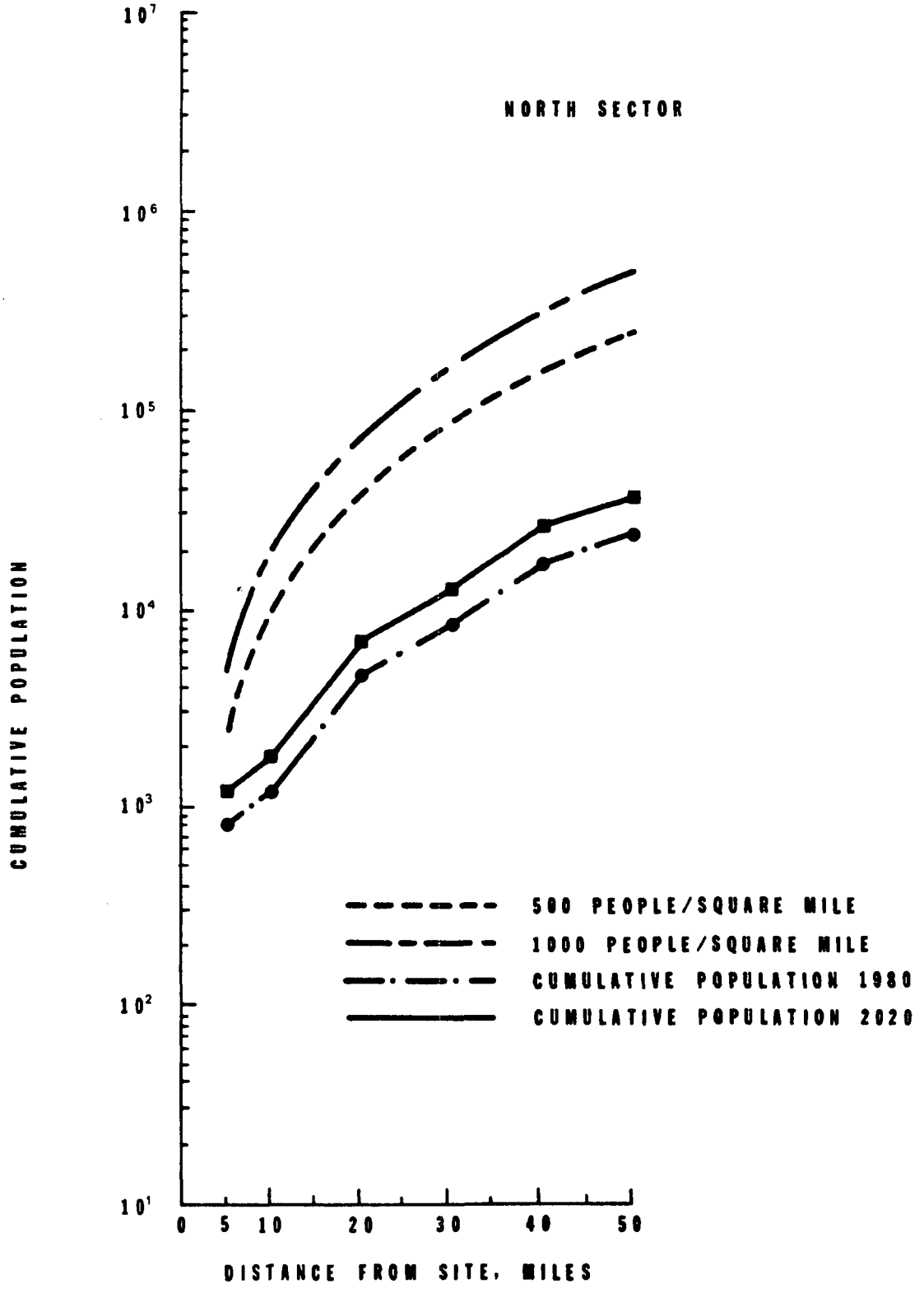

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FIGURE 2.1-12

1980 AND 2020 POPULATION DENSITY
WITHIN 50 MILES OF THE SITE
(SHEET 1 OF 16)

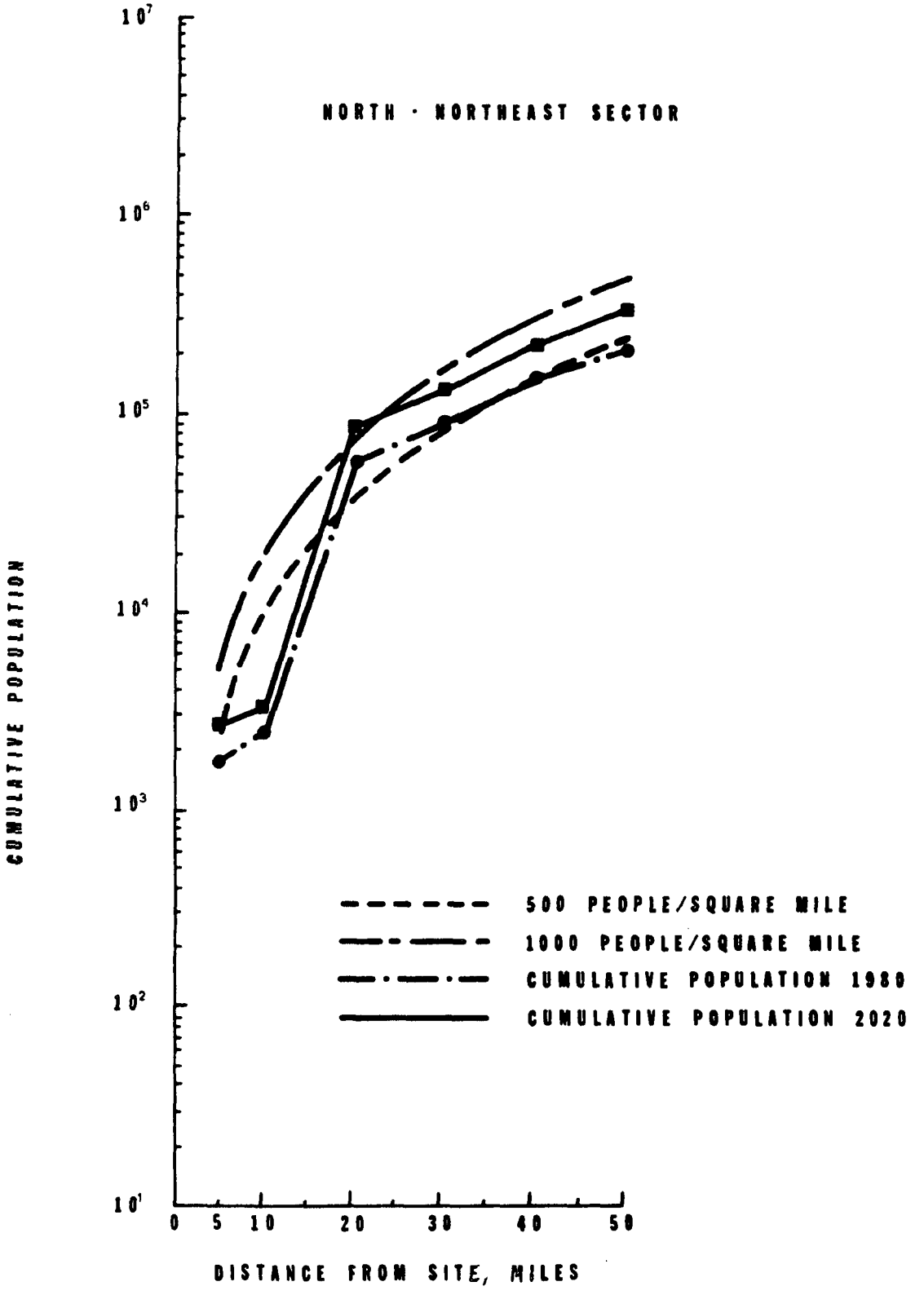

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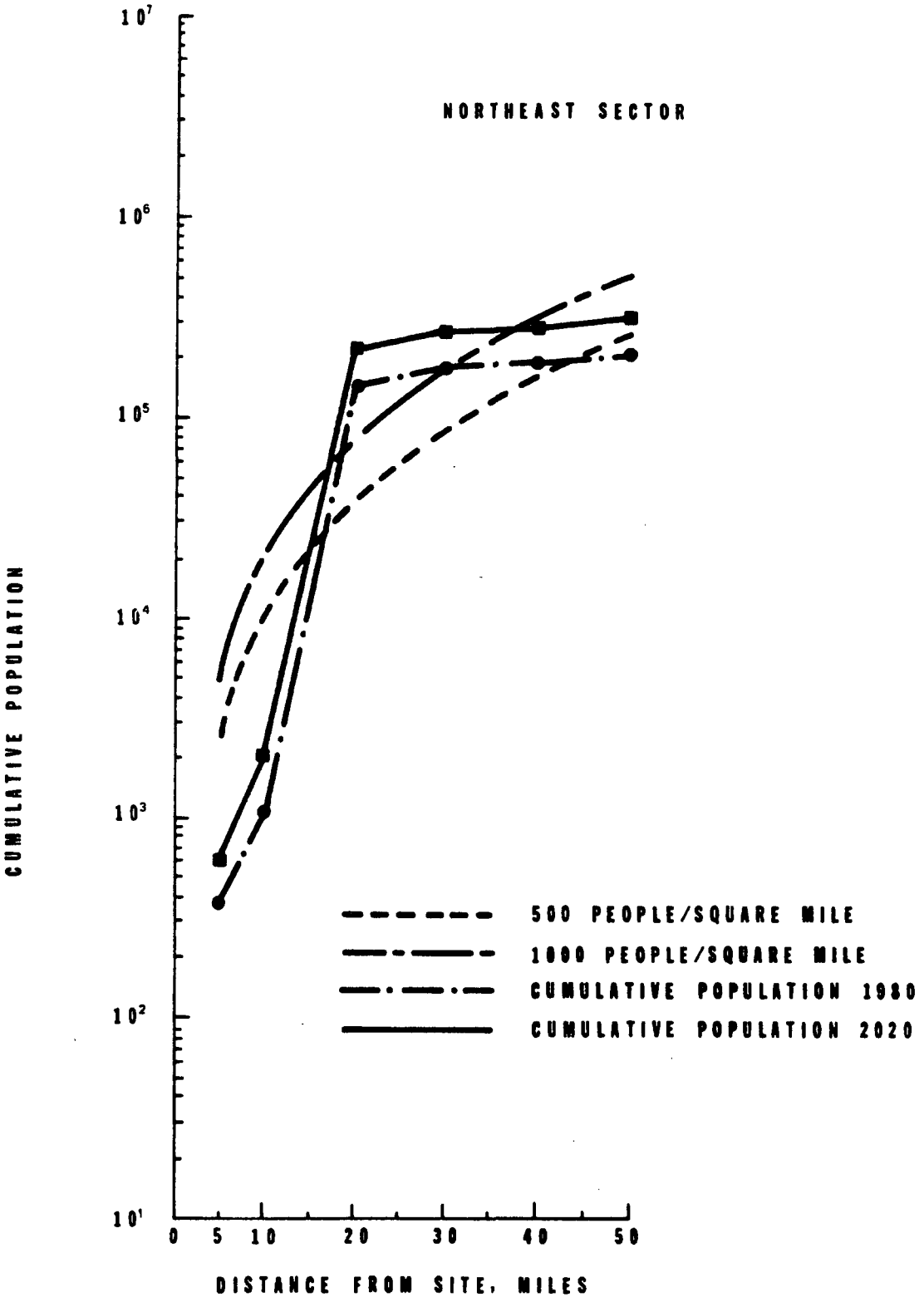
FIGURE 2.1-12

1980 AND 2020 POPULATION DENSITY
WITHIN 50 MILES OF THE SITE
(SHEET 2 OF 16)



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UPDATED FINAL SAFETY ANALYSIS REPORT

FIGURE 2.1-12

1980 AND 2020 POPULATION DENSITY
WITHIN 50 MILES OF THE SITE
(SHEET 3 OF 16)

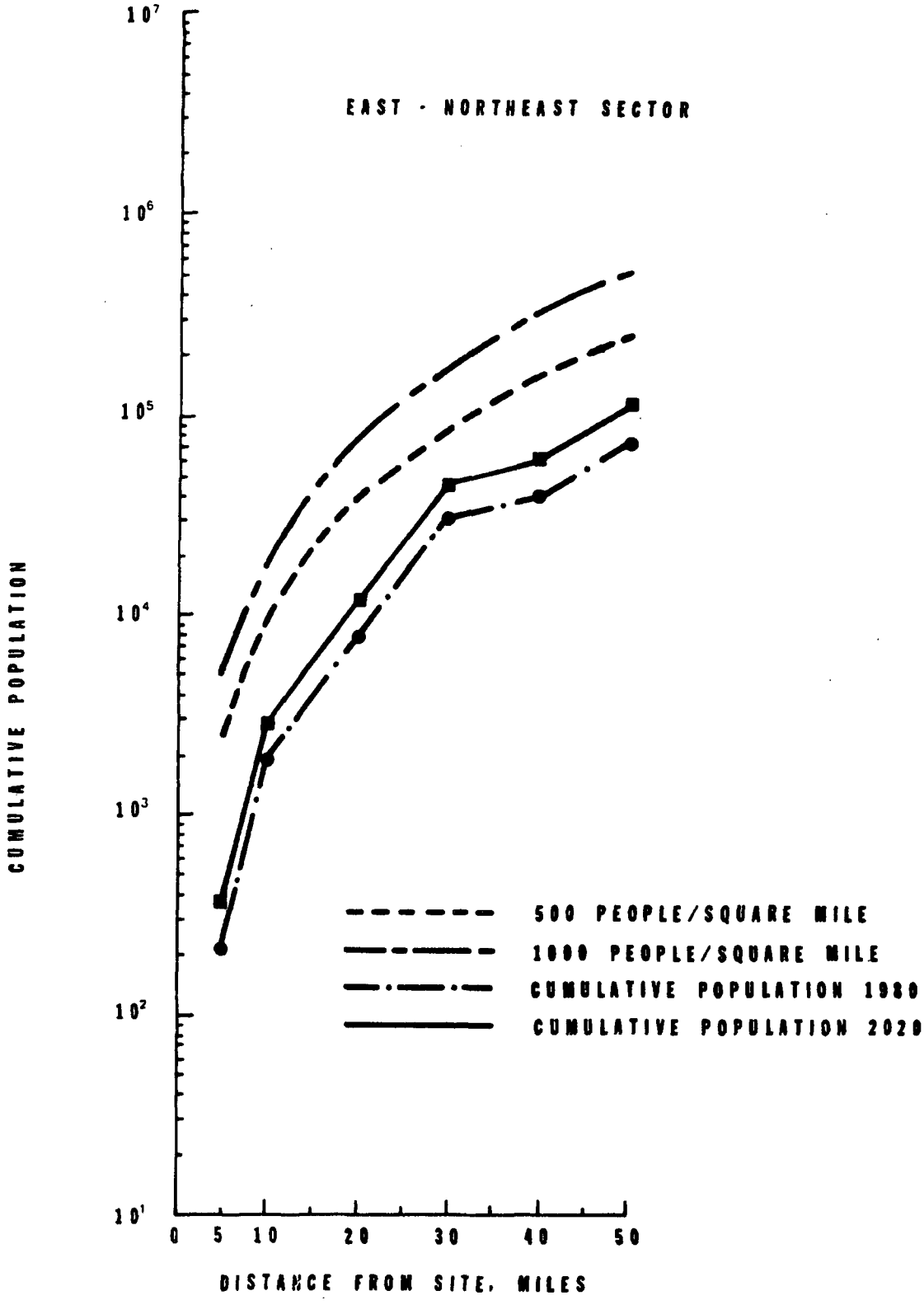

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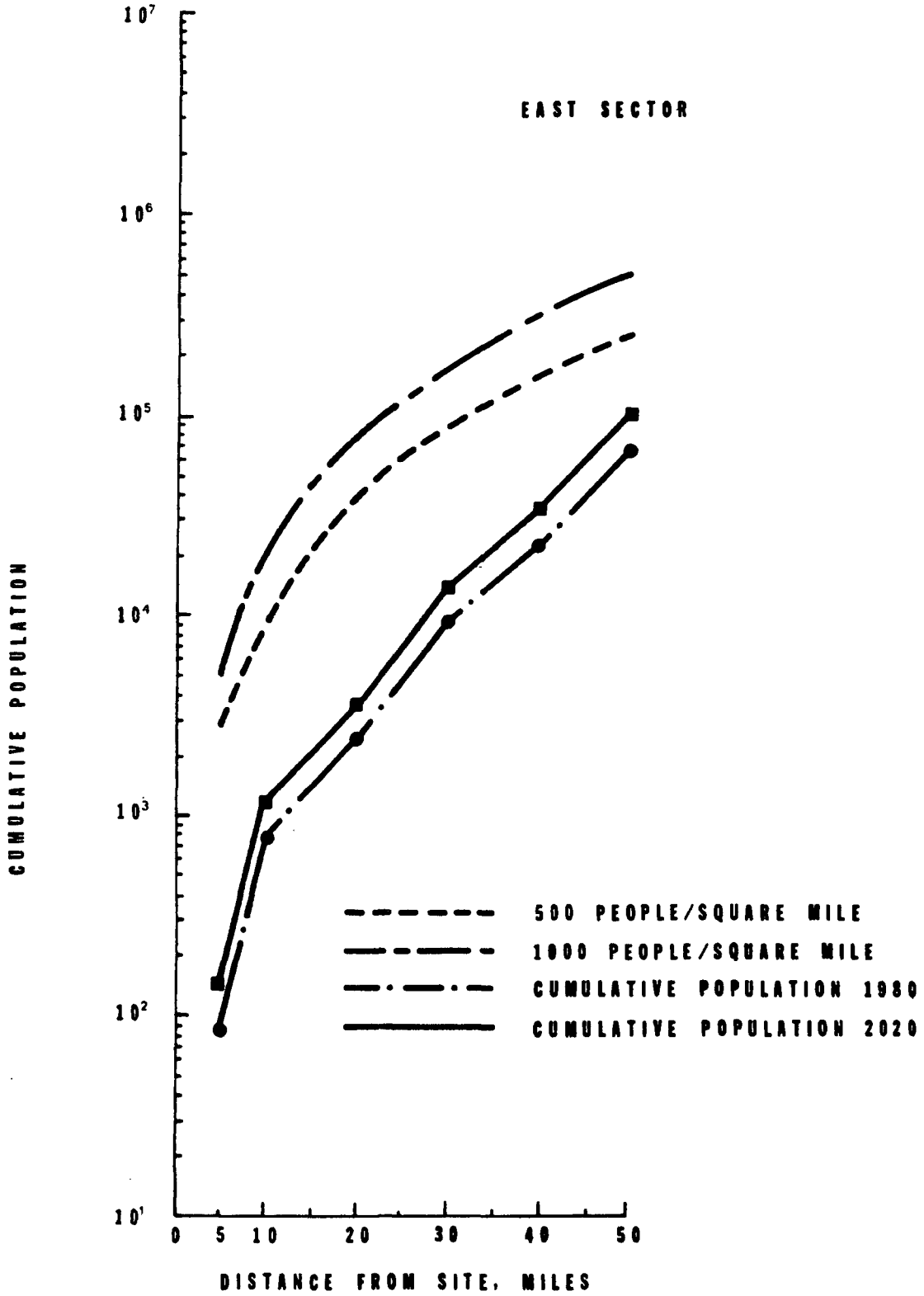
FIGURE 2.1-12

1980 AND 2020 POPULATION DENSITY
WITHIN 50 MILES OF THE SITE
(SHEET 4 OF 16)



BYRON STATION
UPDATED FINAL SAFETY ANALYSIS REPORT

FIGURE 2.1-12

1980 AND 2020 POPULATION DENSITY
WITHIN 50 MILES OF THE SITE
(SHEET 5 OF 16)

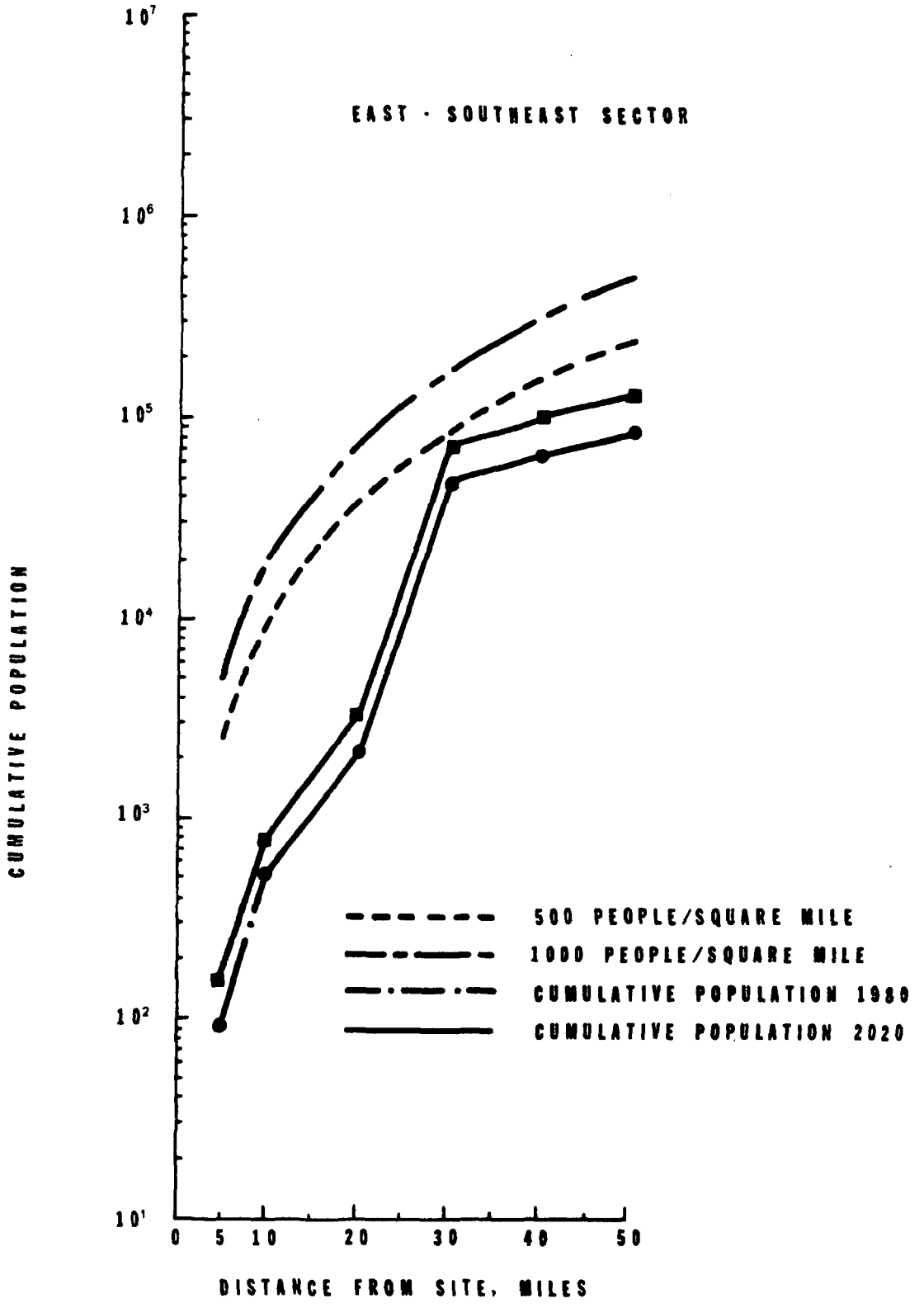


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FIGURE 2.1-12

1980 AND 2020 POPULATION DENSITY
WITHIN 50 MILES OF THE SITE
(SHEET 6 OF 16)

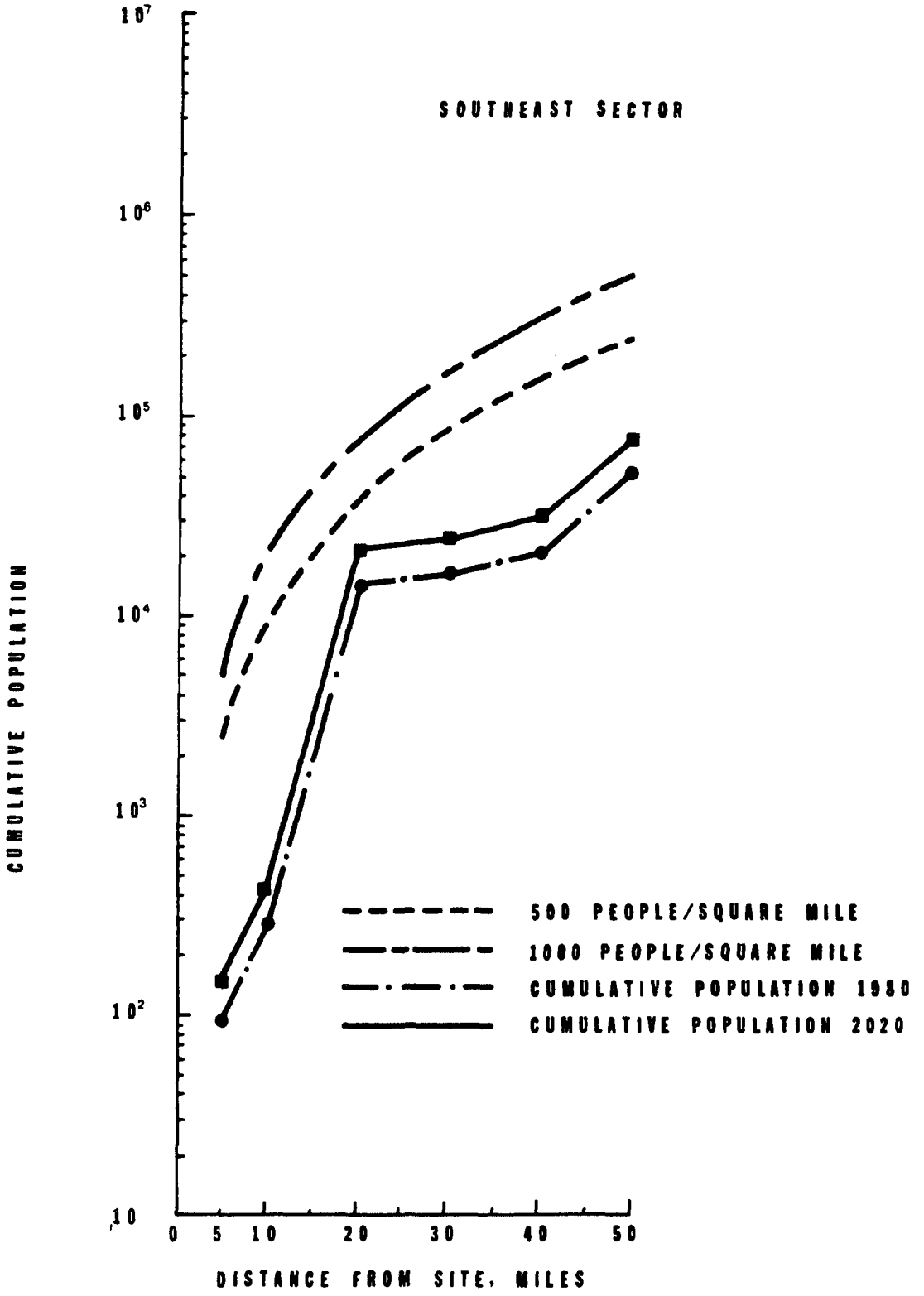

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FIGURE 2.1-12

1980 AND 2020 POPULATION DENSITY
WITHIN 50 MILES OF THE SITE
(SHEET 7 OF 16)

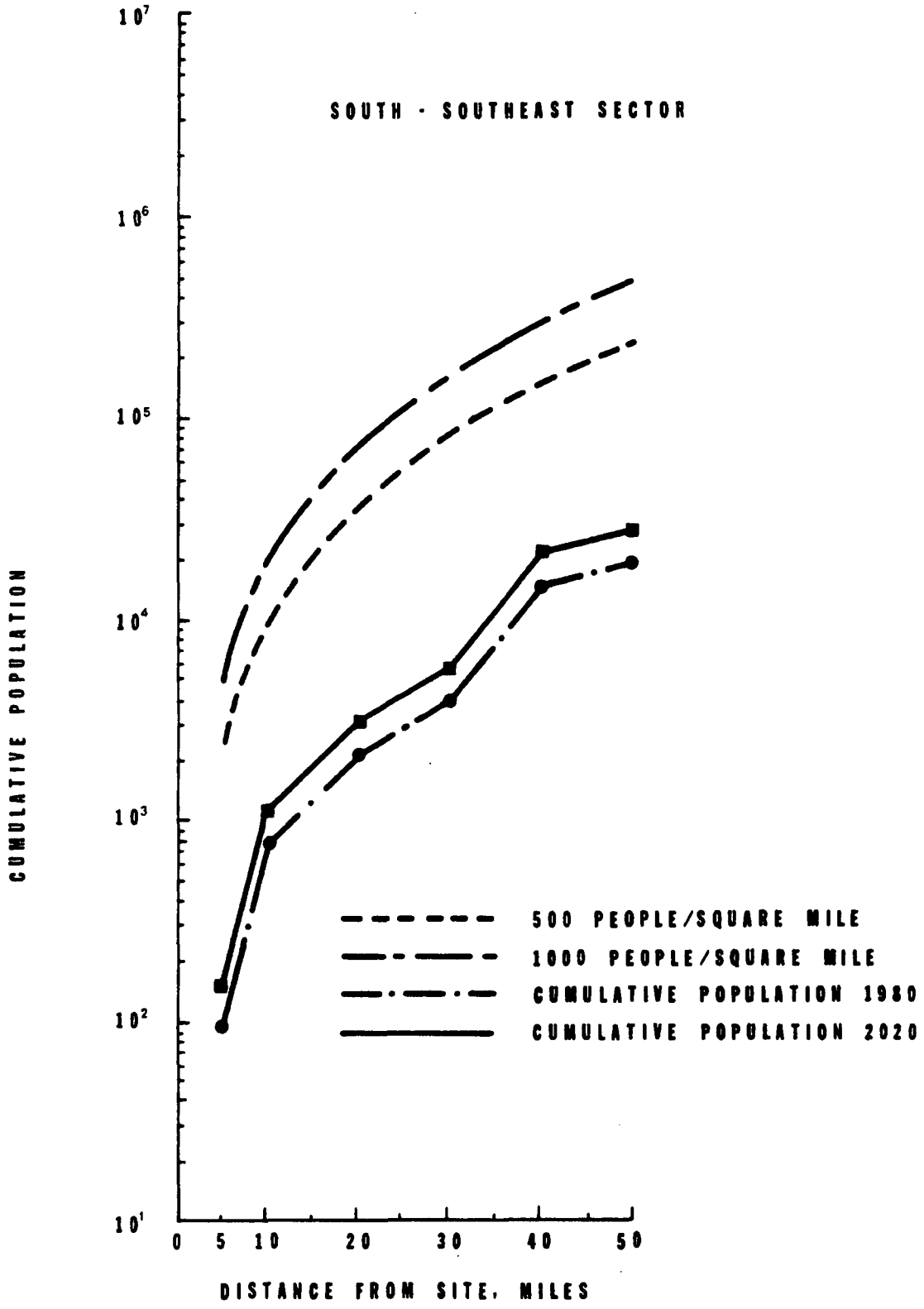

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FIGURE 2.1-12

1980 AND 2020 POPULATION DENSITY
WITHIN 50 MILES OF THE SITE
(SHEET 8 OF 16)

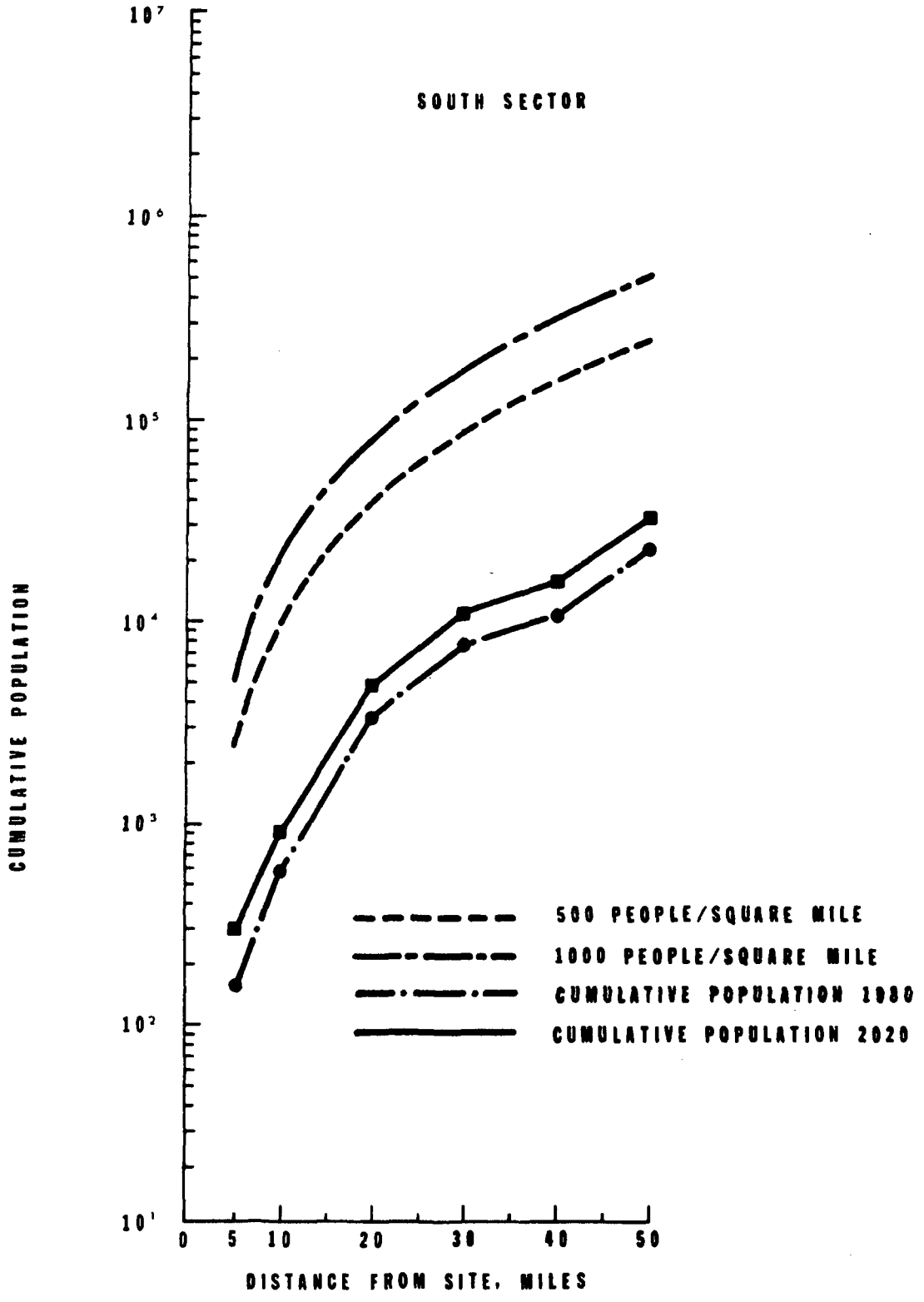

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FIGURE 2.1-12

1980 AND 2020 POPULATION DENSITY
WITHIN 50 MILES OF THE SITE
(SHEET 9 OF 16)

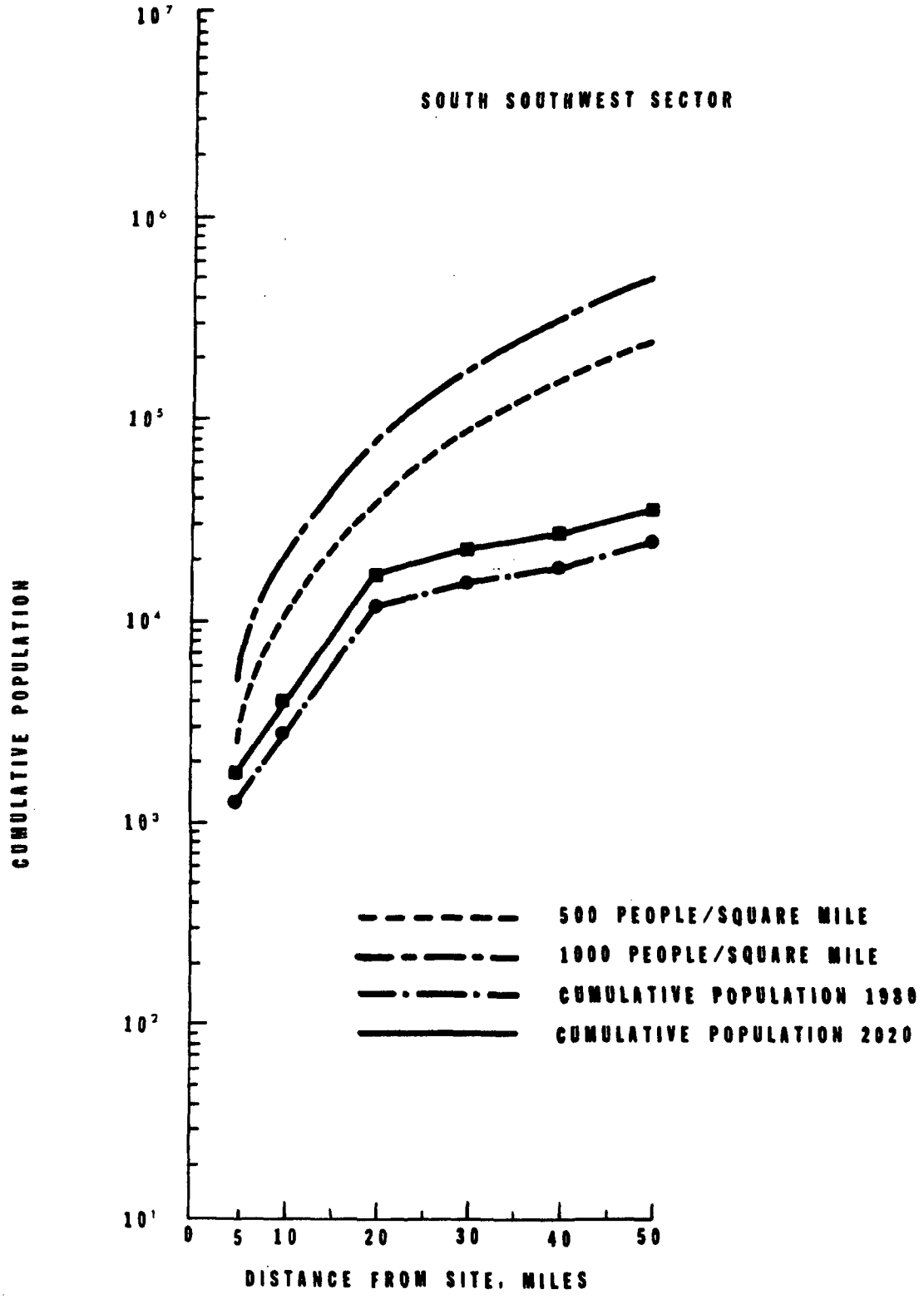

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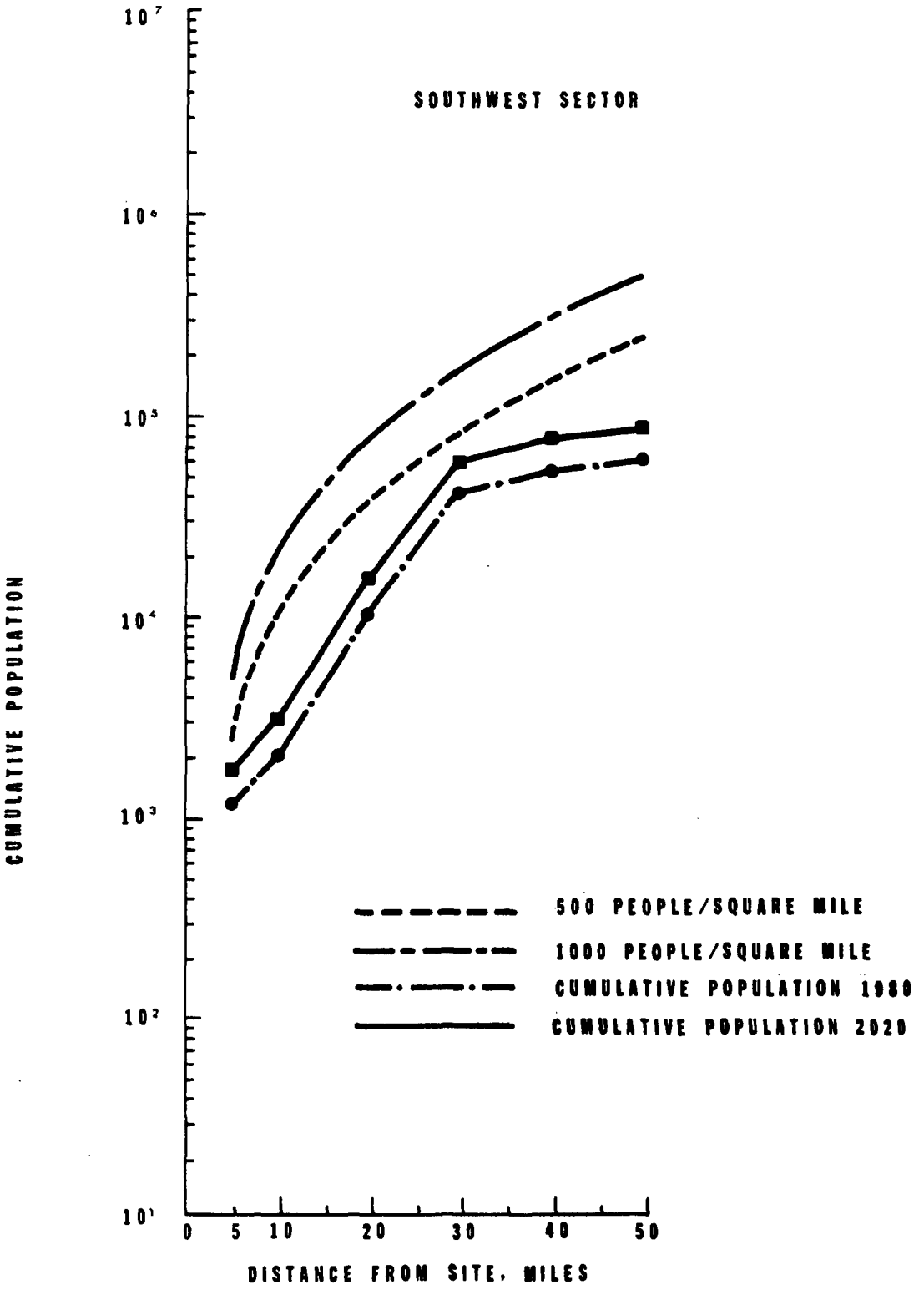
FIGURE 2.1-12

1980 AND 2020 POPULATION DENSITY
WITHIN 50 MILES OF THE SITE
(SHEET 10 OF 16)



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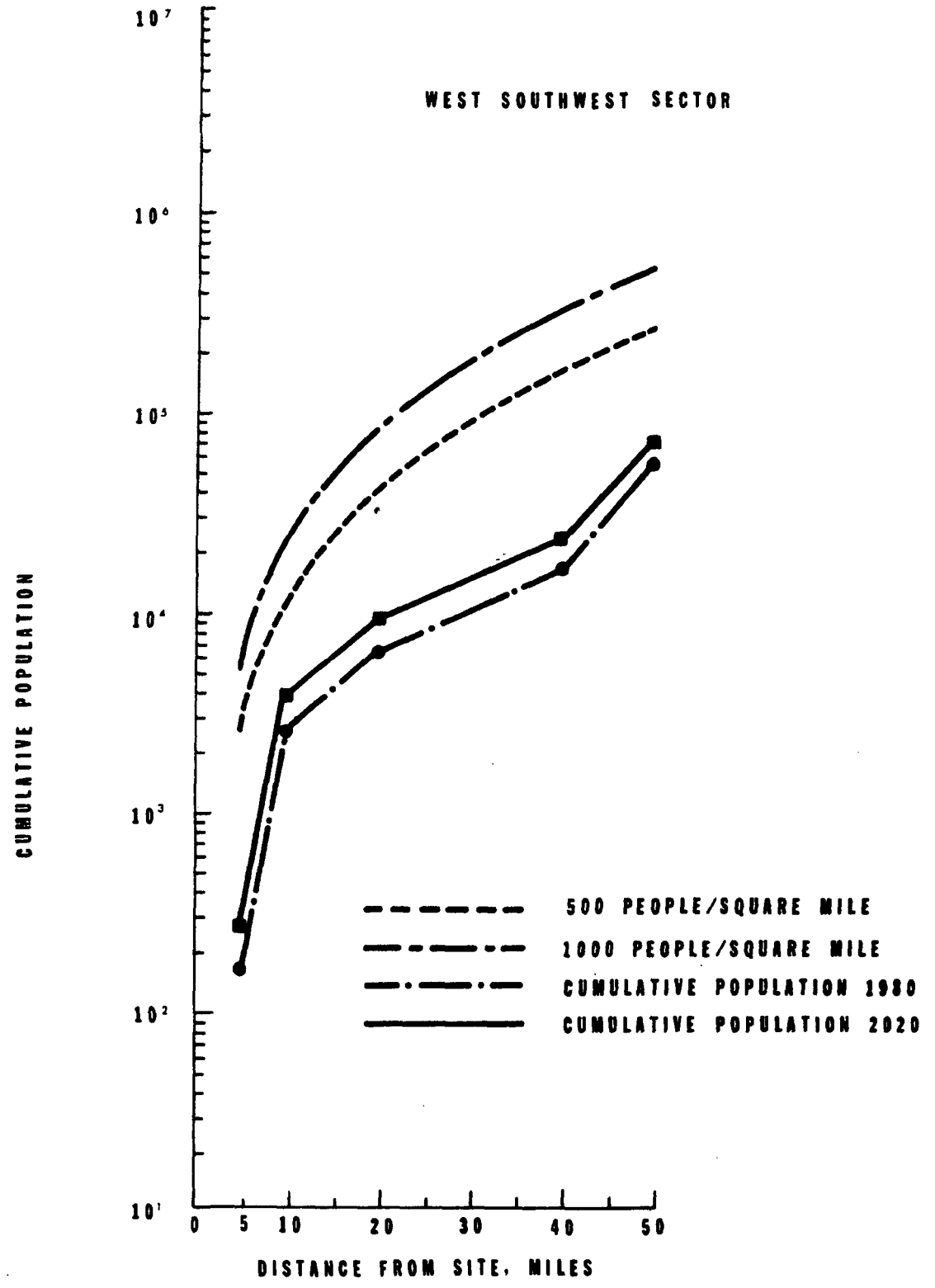
UPDATED FINAL SAFETY ANALYSIS REPORT

FIGURE 2.1-12

1980 AND 2020 POPULATION DENSITY
WITHIN 50 MILES OF THE SITE
(SHEET 11 OF 16)



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UPDATED FINAL SAFETY ANALYSIS REPORT

FIGURE 2.1-12

1980 AND 2020 POPULATION DENSITY
WITHIN 50 MILES OF THE SITE
(SHEET 12 OF 16)

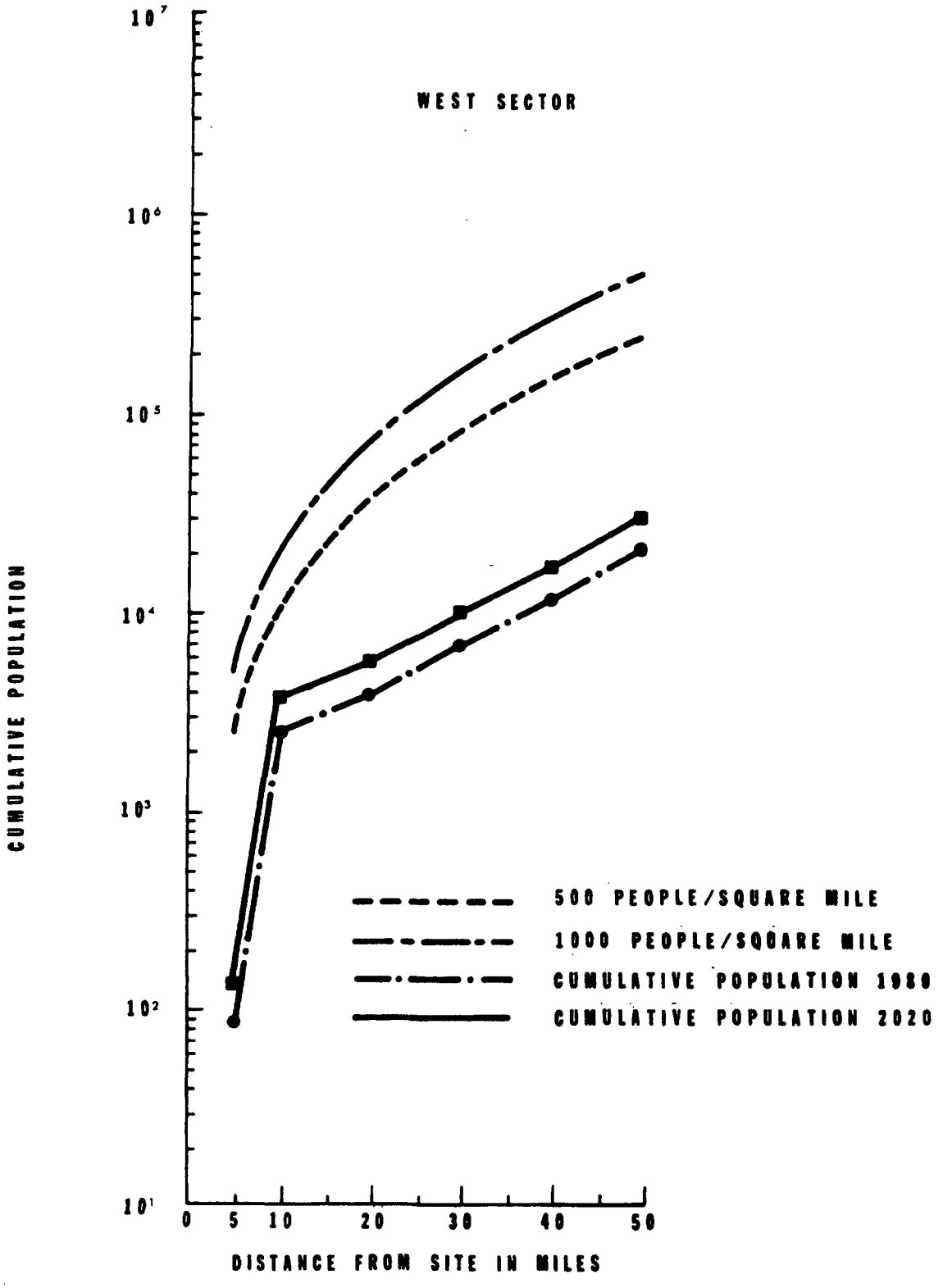

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FIGURE 2.1-12

1980 AND 2020 POPULATION DENSITY
WITHIN 50 MILES OF THE SITE
(SHEET 13 OF 16)

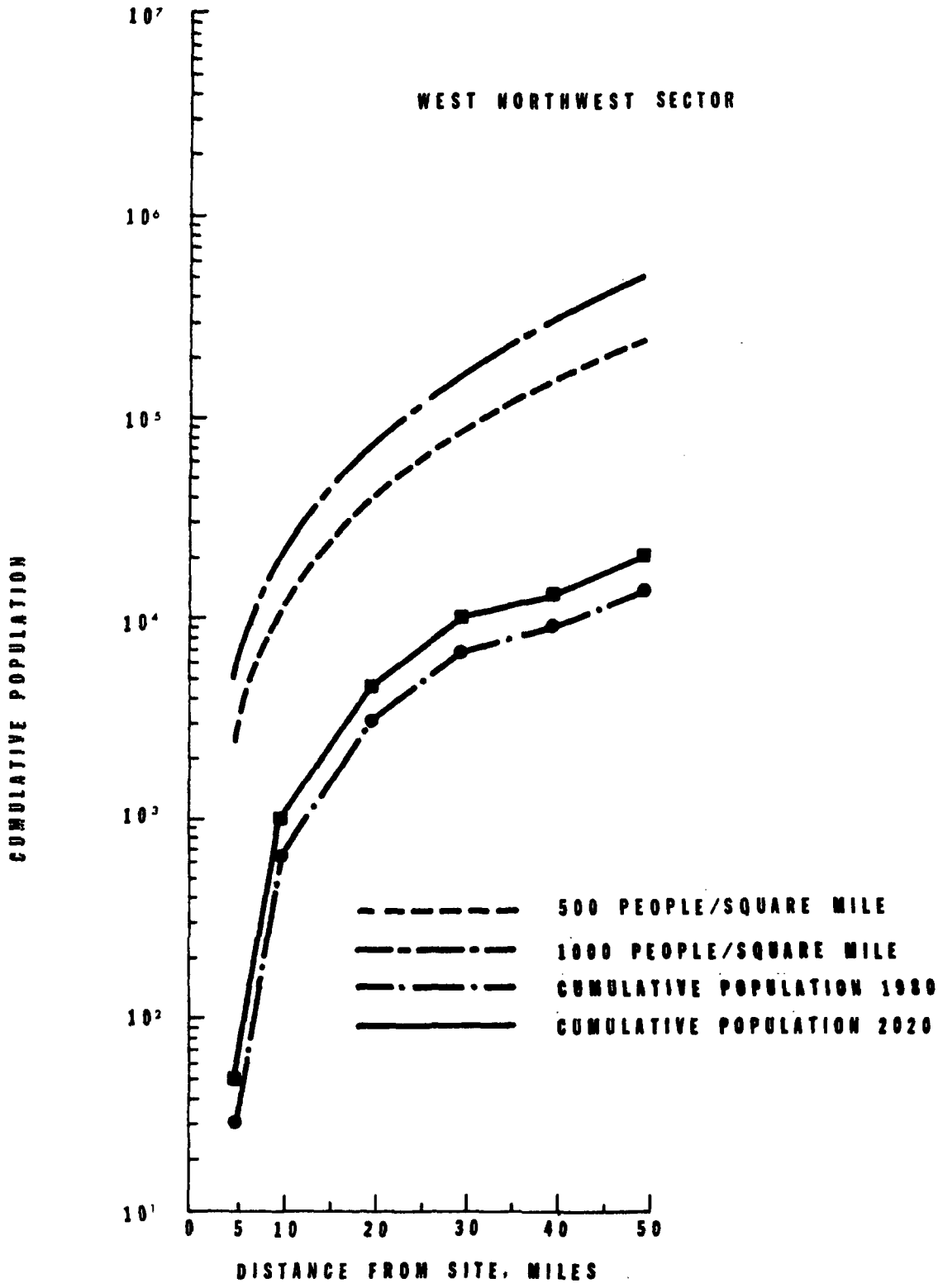

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FIGURE 2.1-12

1980 AND 2020 POPULATION DENSITY
WITHIN 50 MILES OF THE SITE
(SHEET 14 OF 16)

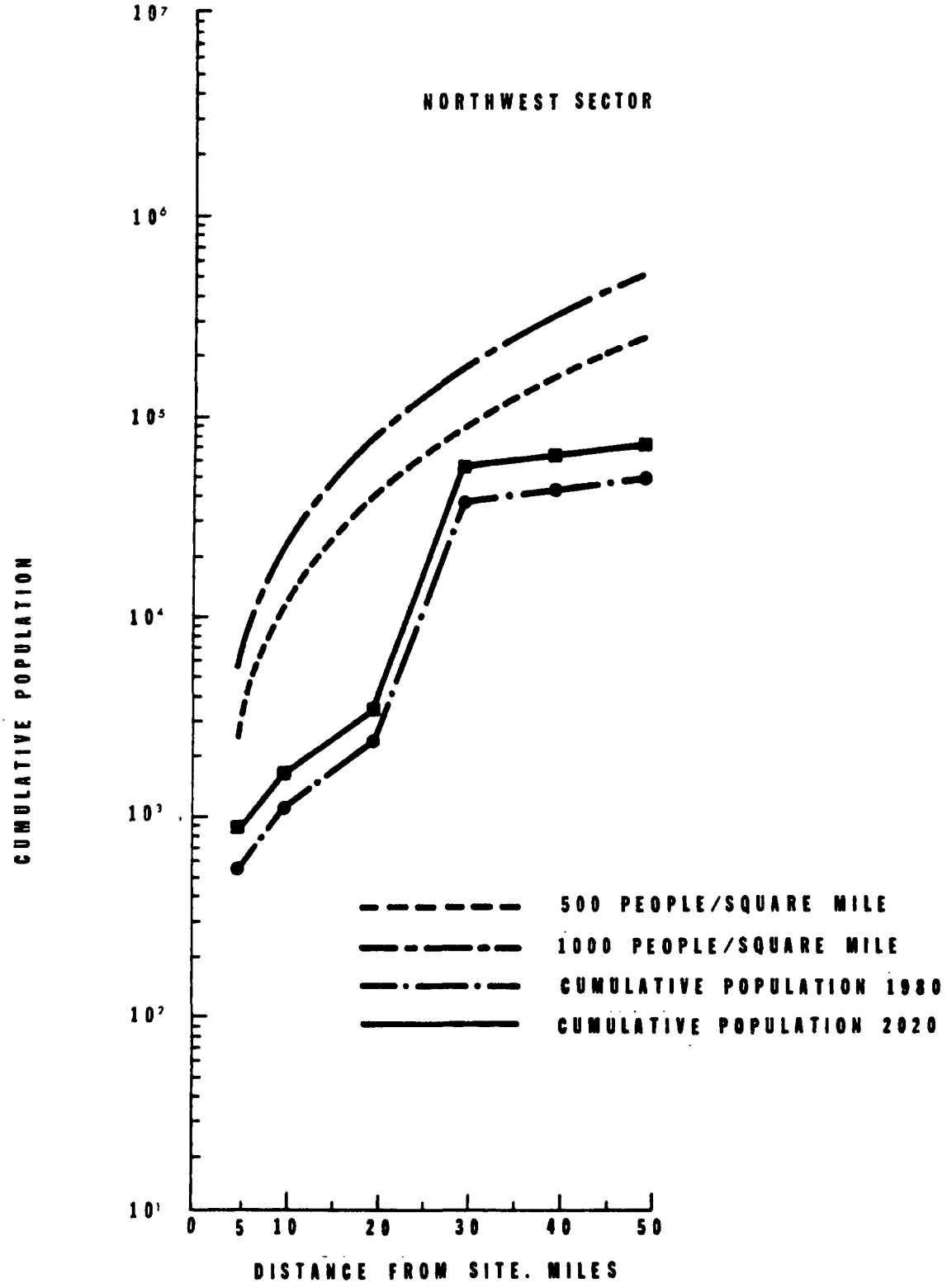

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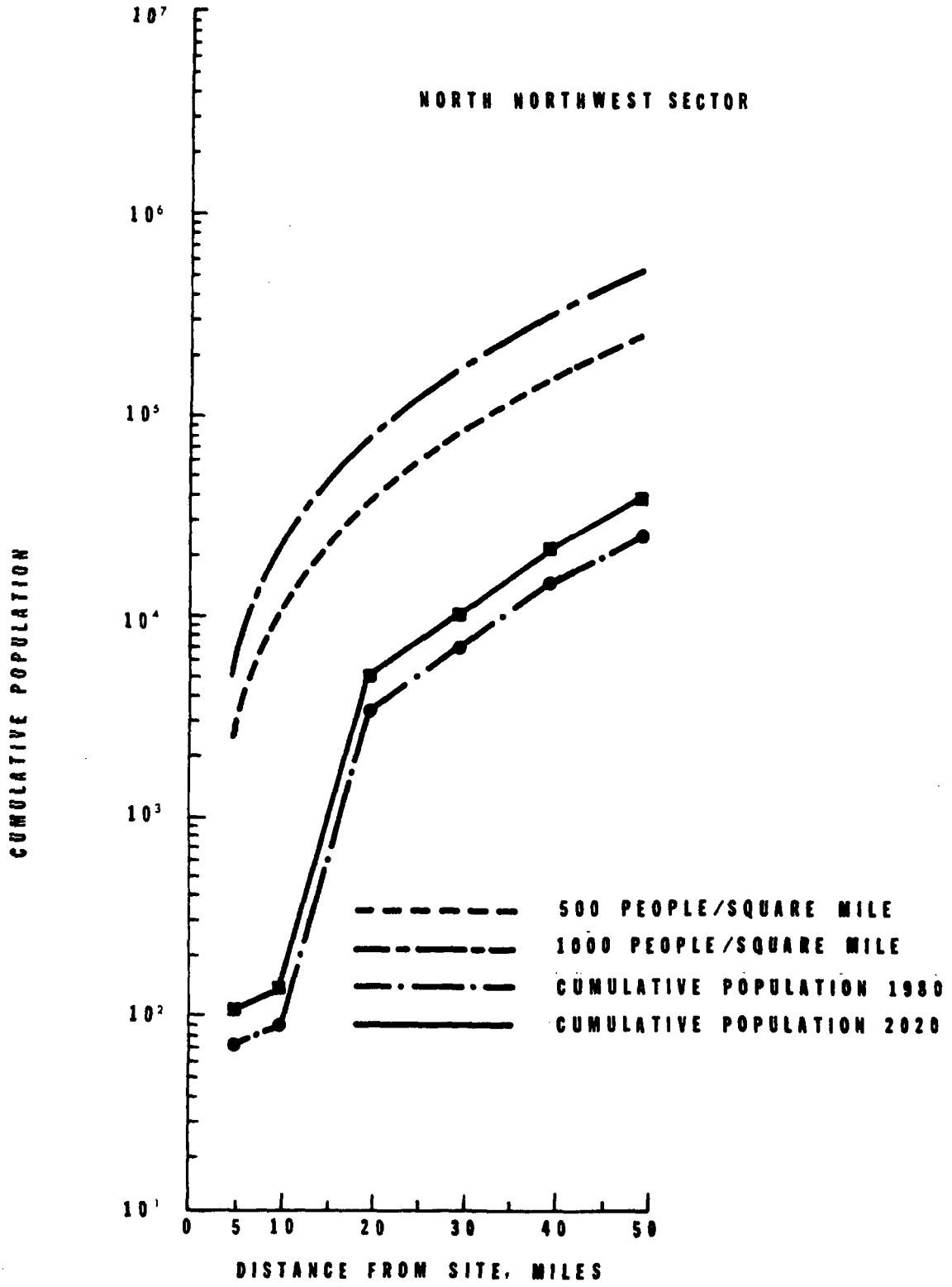
FIGURE 2.1-12

1980 AND 2020 POPULATION DENSITY
WITHIN 50 MILES OF THE SITE
(SHEET 15 OF 16)



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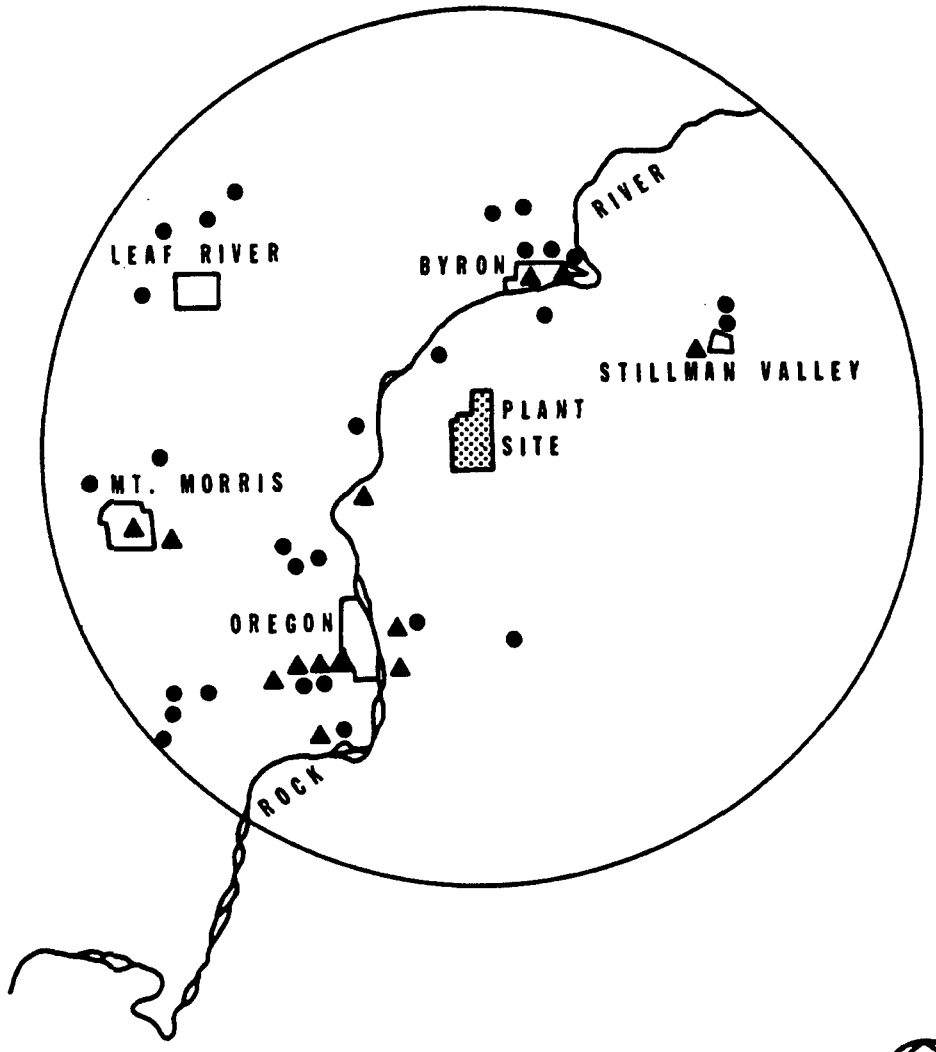
UPDATED FINAL SAFETY ANALYSIS REPORT

FIGURE 2.1-12

1980 AND 2020 POPULATION DENSITY
WITHIN 50 MILES OF THE SITE
(SHEET 16 OF 16)



▲ INDUSTRIAL AREAS

● QUARRIES

0 5 10 MILES

SCALE

BYRON STATION
UPDATED FINAL SAFETY ANALYSIS REPORT

FIGURE 2.2-1

LOCATION OF INDUSTRIAL AREAS WITHIN
10 MILES OF THE SITE

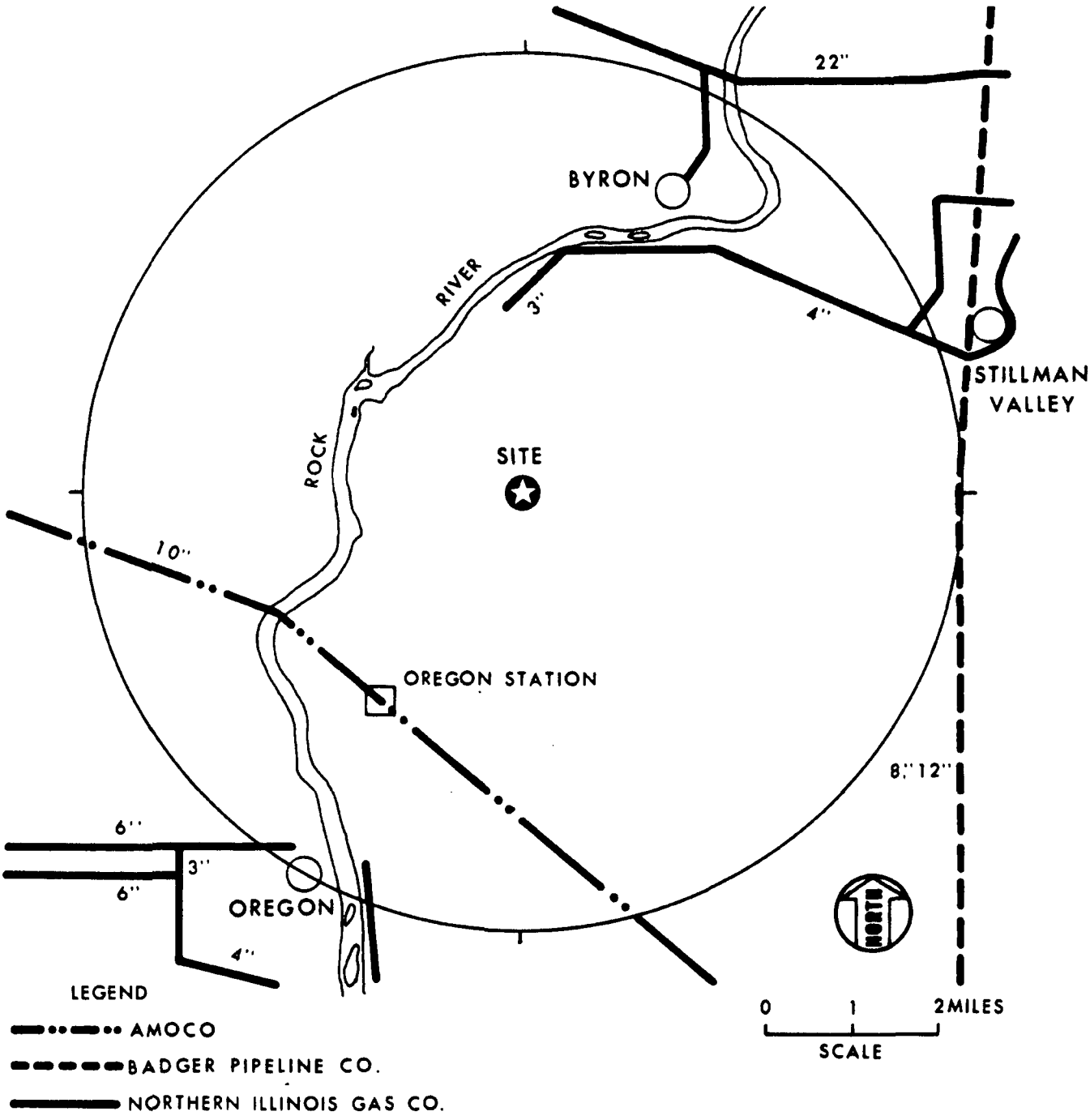


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FIGURE 2.2-2

LOCATION OF PIPELINES WITHIN
5 MILES OF THE SITE

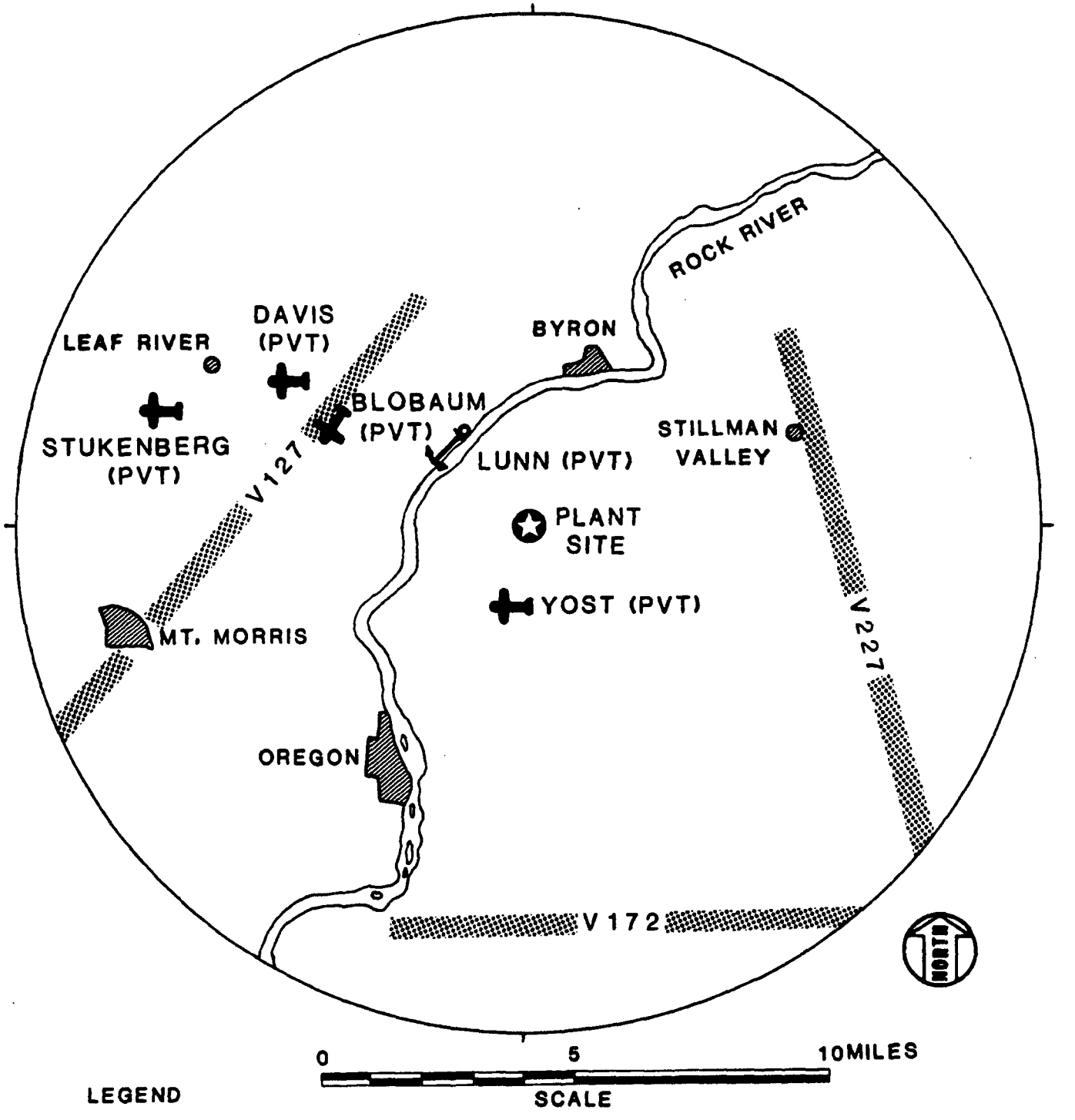

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FIGURE 2.2-3

AIRPORTS AND AIRWAYS WITHIN
10 MILES OF THE SITE

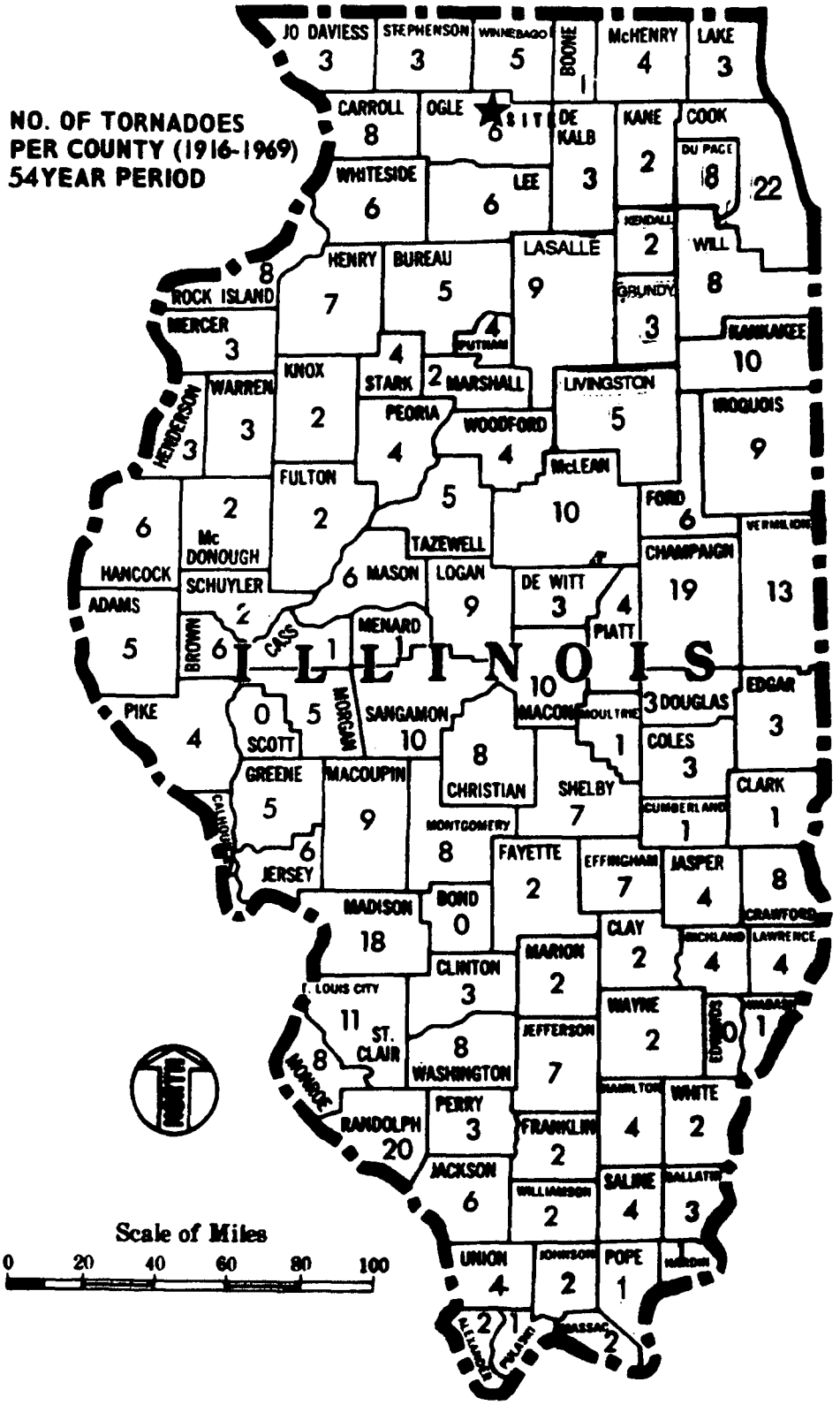

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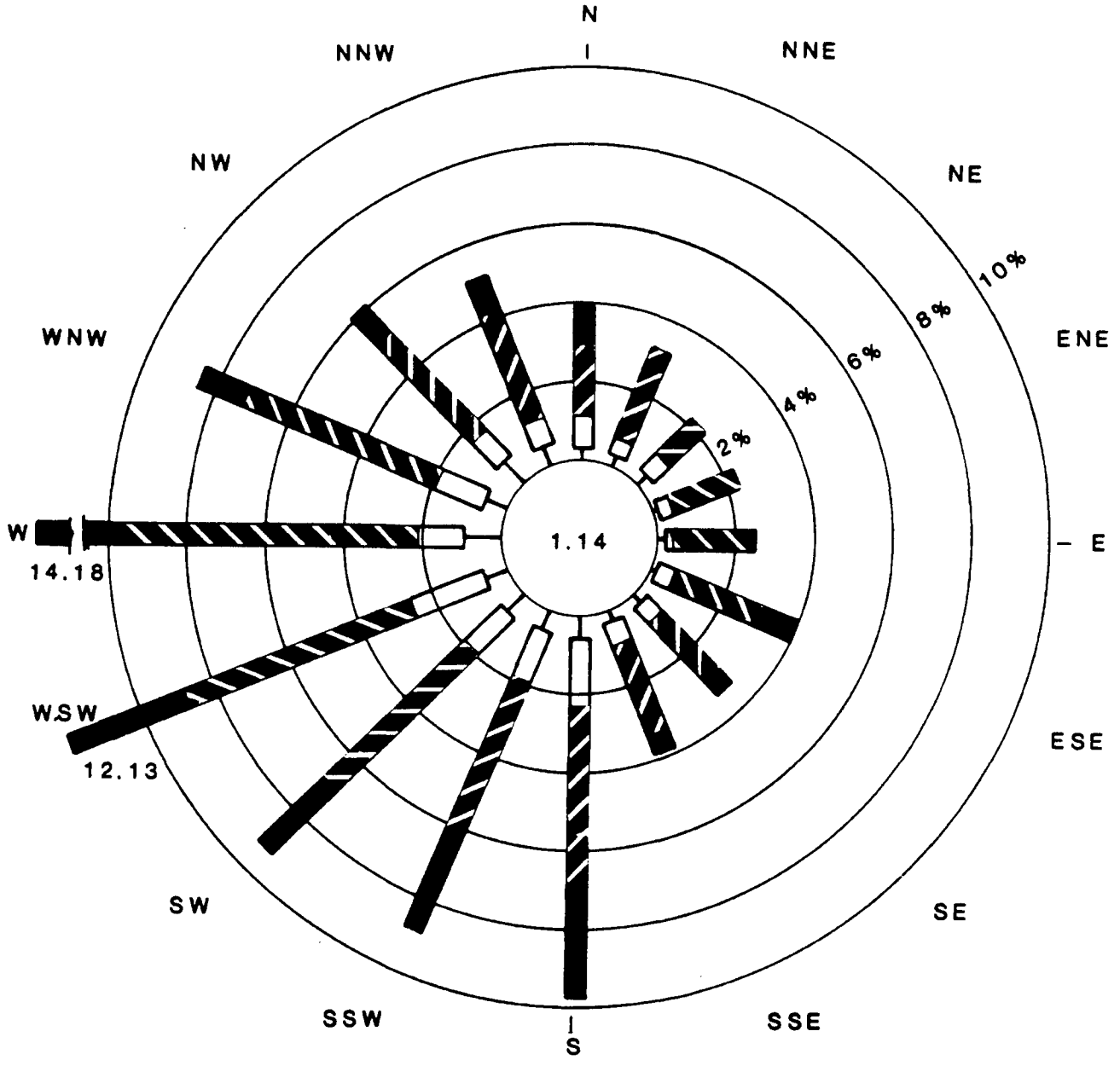
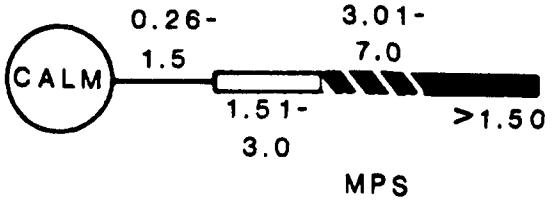
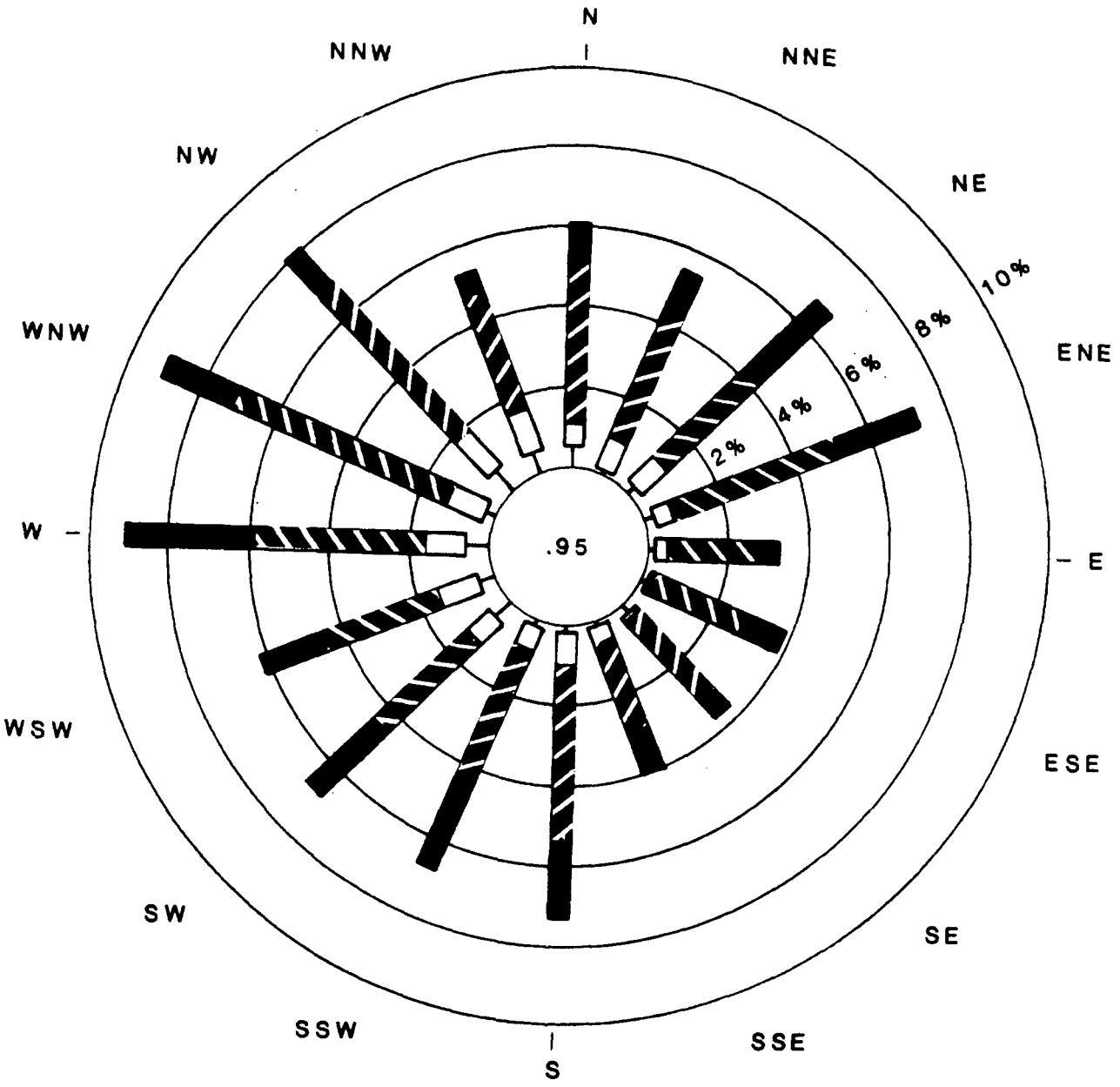
FIGURE 2.3-1

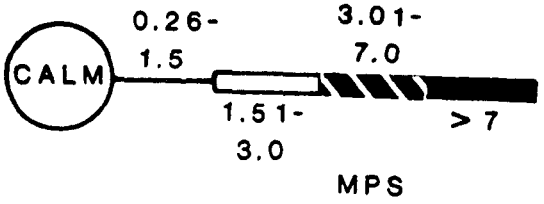
NUMBER OF TORNADOES ORIGINATING IN EACH COUNTY IN THE STATE OF ILLINOIS, 1916-1969





BYRON STATION UPDATED FINAL SAFETY ANALYSIS REPORT
FIGURE 2.3-2 JANUARY WIND ROSE 30-FOOT LEVEL (BYRON 1974-1976)

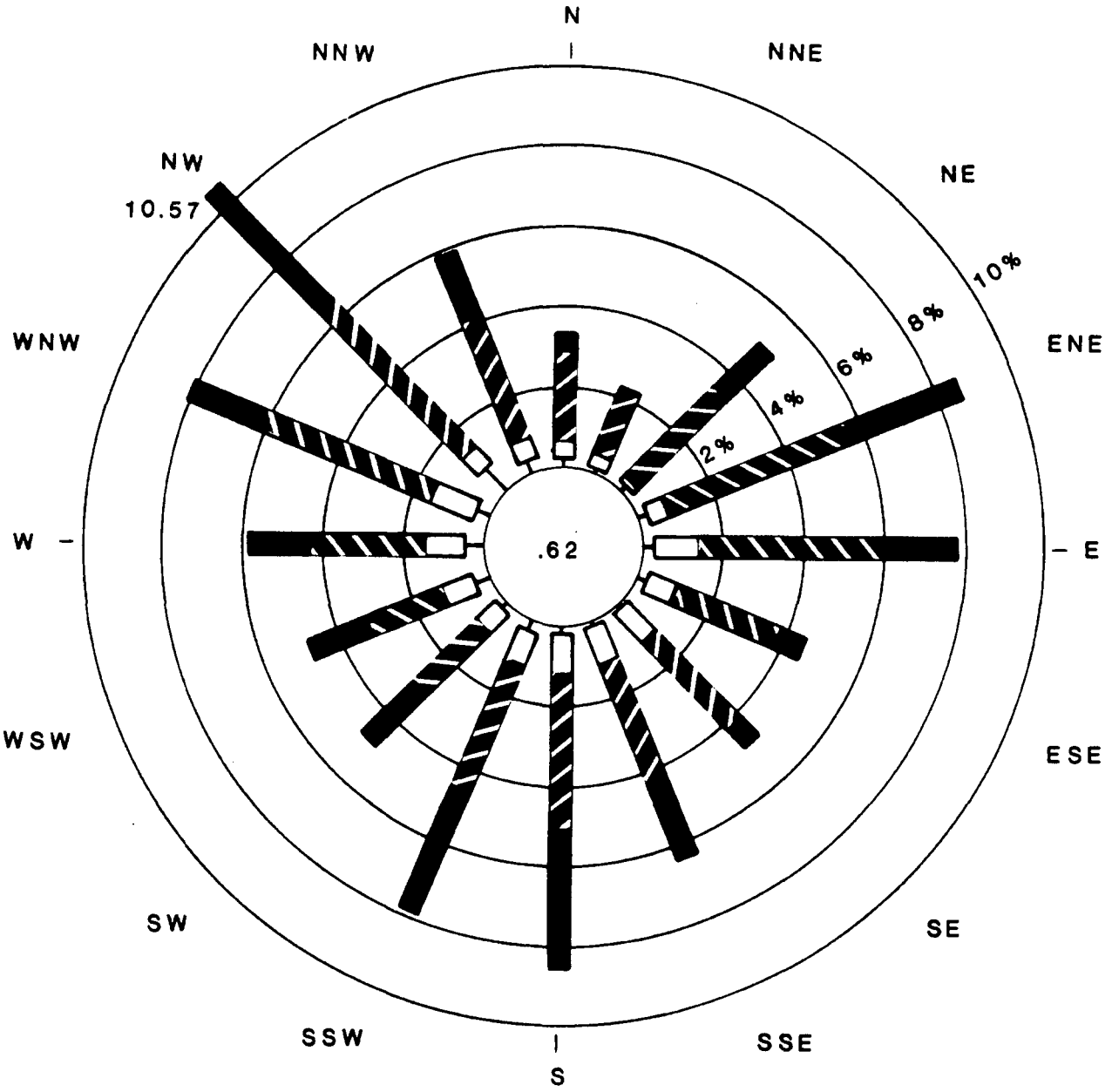


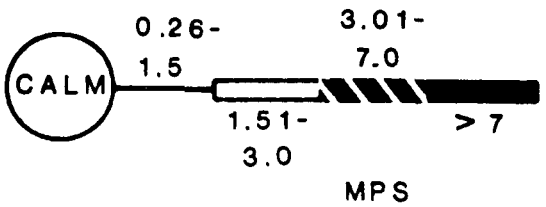


BYRON STATION
UPDATED FINAL SAFETY ANALYSIS REPORT

FIGURE 2.3-3

FEBRUARY WIND ROSE 30-FOOT LEVEL
(BYRON 1974-1976)

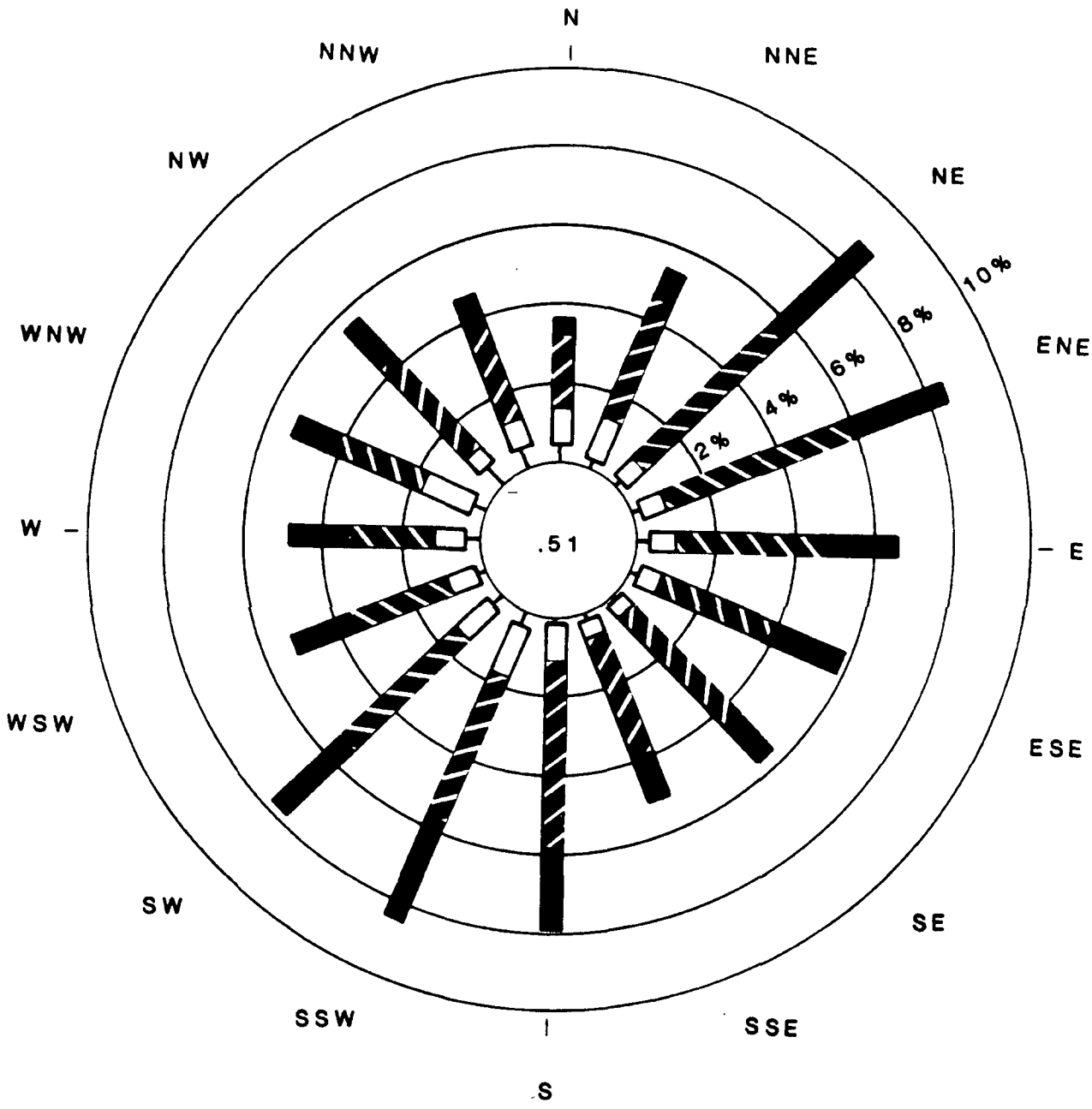


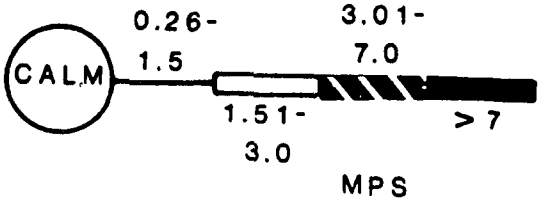


BYRON STATION
UPDATED FINAL SAFETY ANALYSIS REPORT

FIGURE 2.3-4

MARCH WIND ROSE 30-FOOT LEVEL
(BYRON 1974-1976)

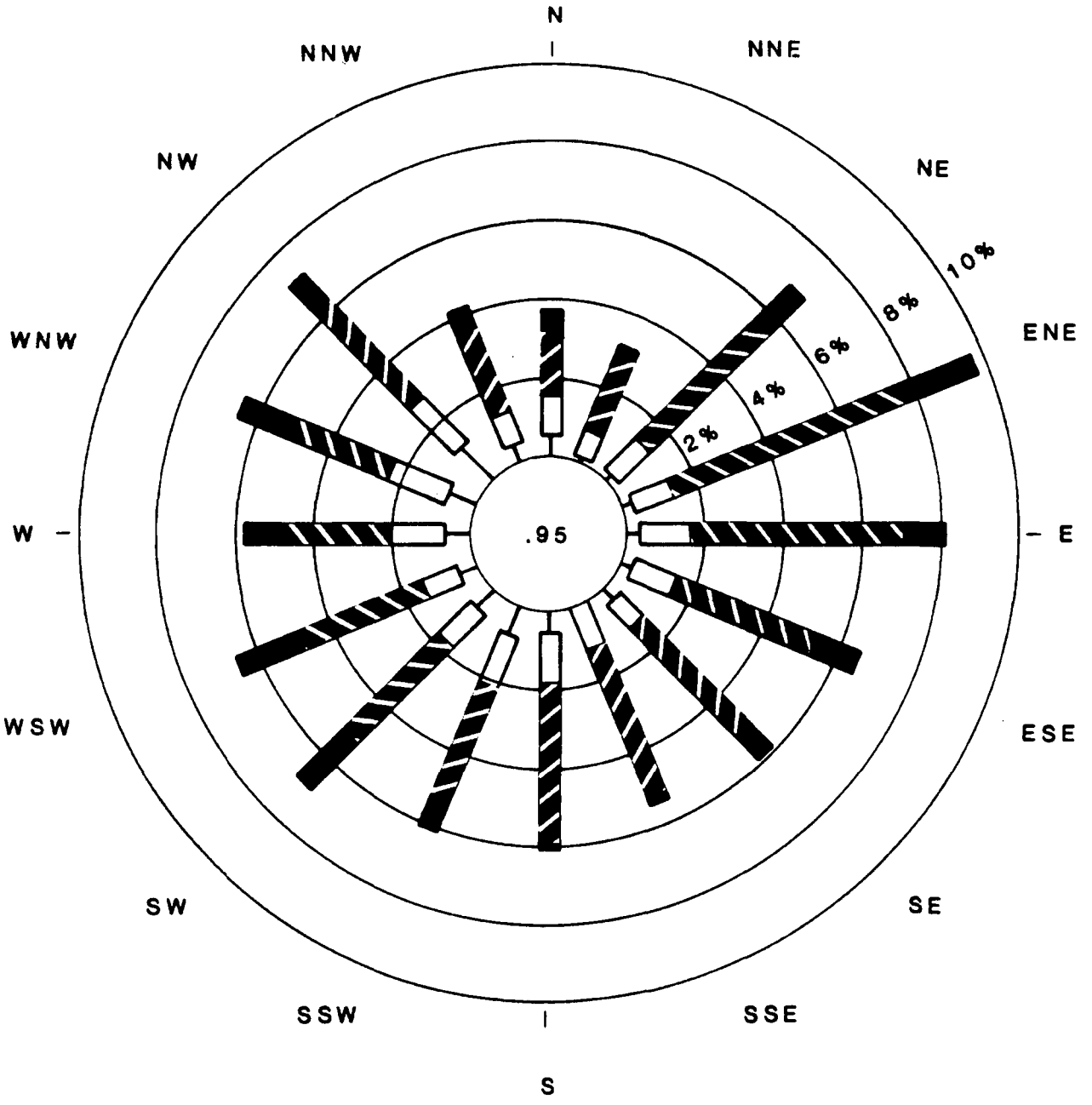


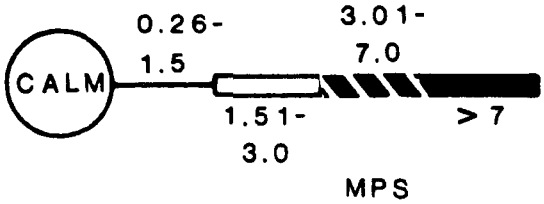


BYRON STATION
UPDATED FINAL SAFETY ANALYSIS REPORT

FIGURE 2.3-5

APRIL WIND ROSE 30-FOOT LEVEL
(BYRON 1974-1976)

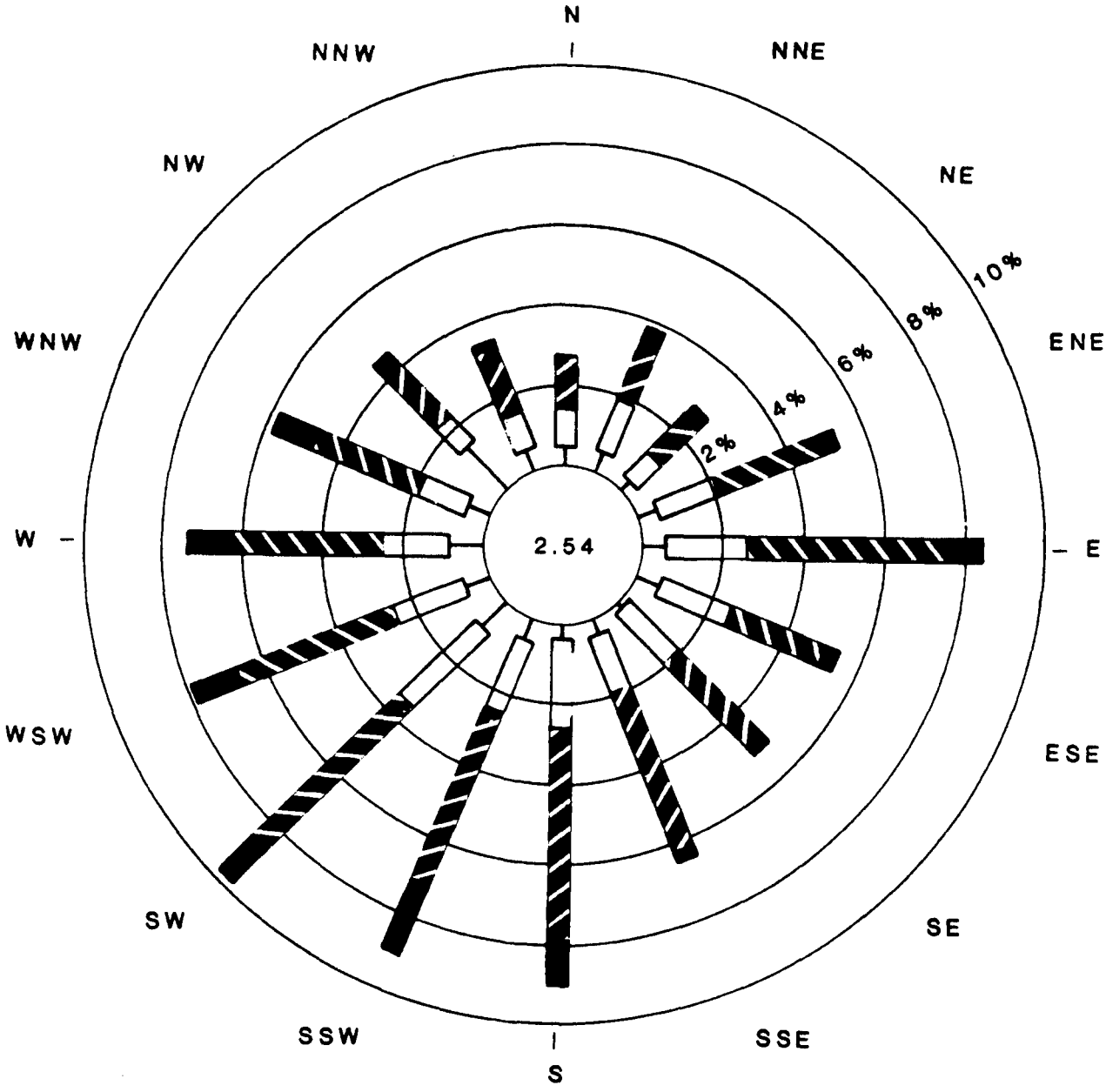




BYRON STATION
UPDATED FINAL SAFETY ANALYSIS REPORT

FIGURE 2.3-6

MAY WIND ROSE 30-FOOT LEVEL
(BYRON 1974-1976)



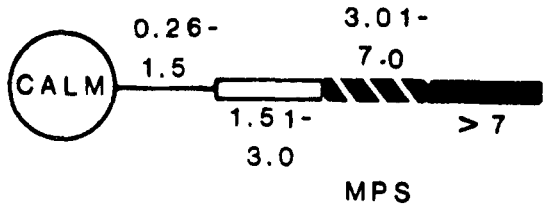


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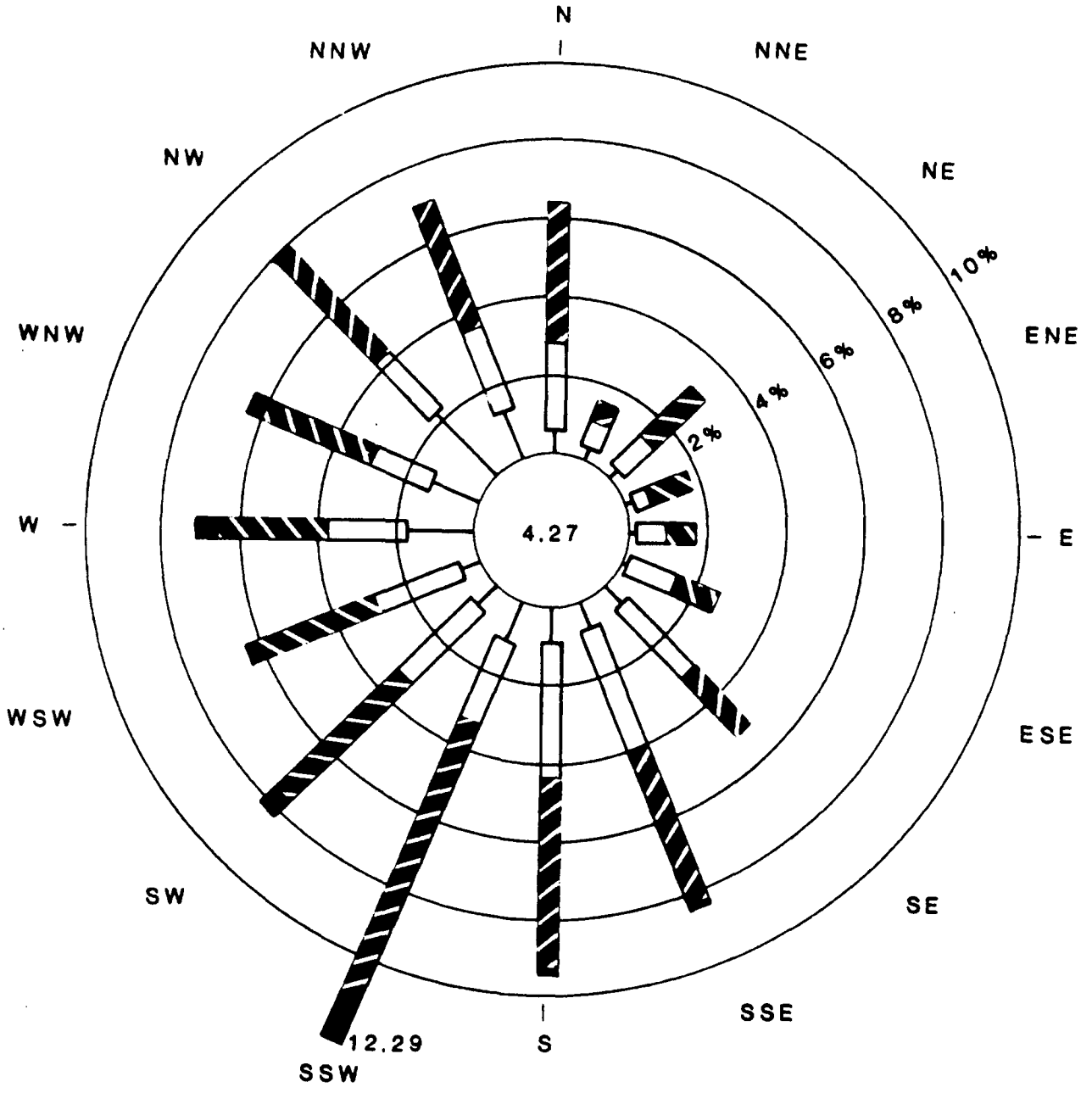
FIGURE 2.3-7

JUNE WIND ROSE 30-FOOT LEVEL
(BYRON 1974-1976)



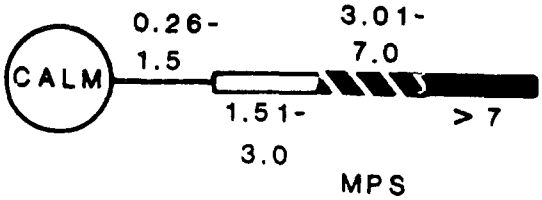


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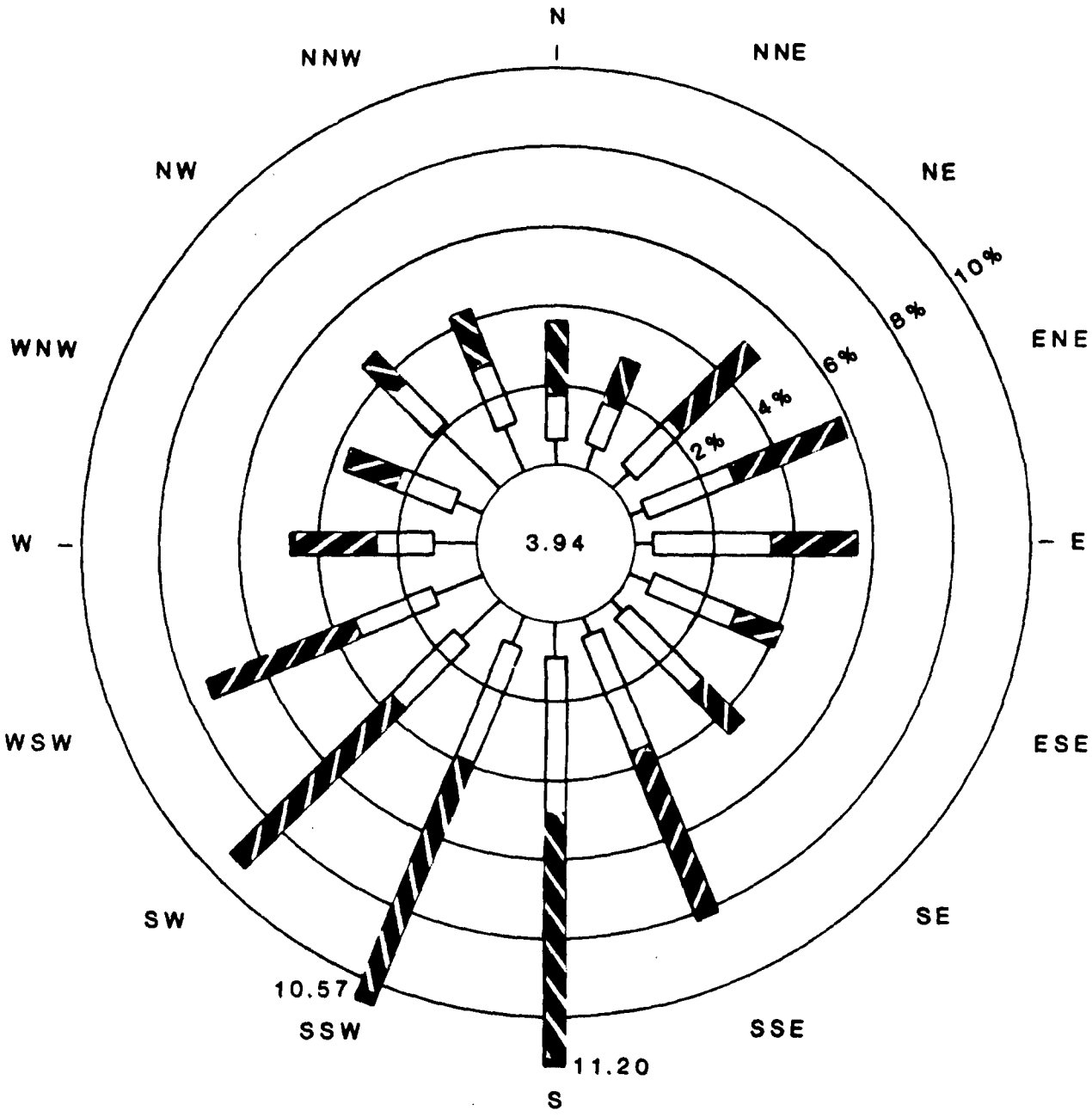
FIGURE 2.3-8

JULY WIND ROSE 30-FOOT LEVEL
(BYRON 1974-1976)



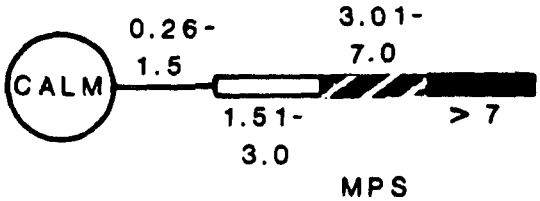


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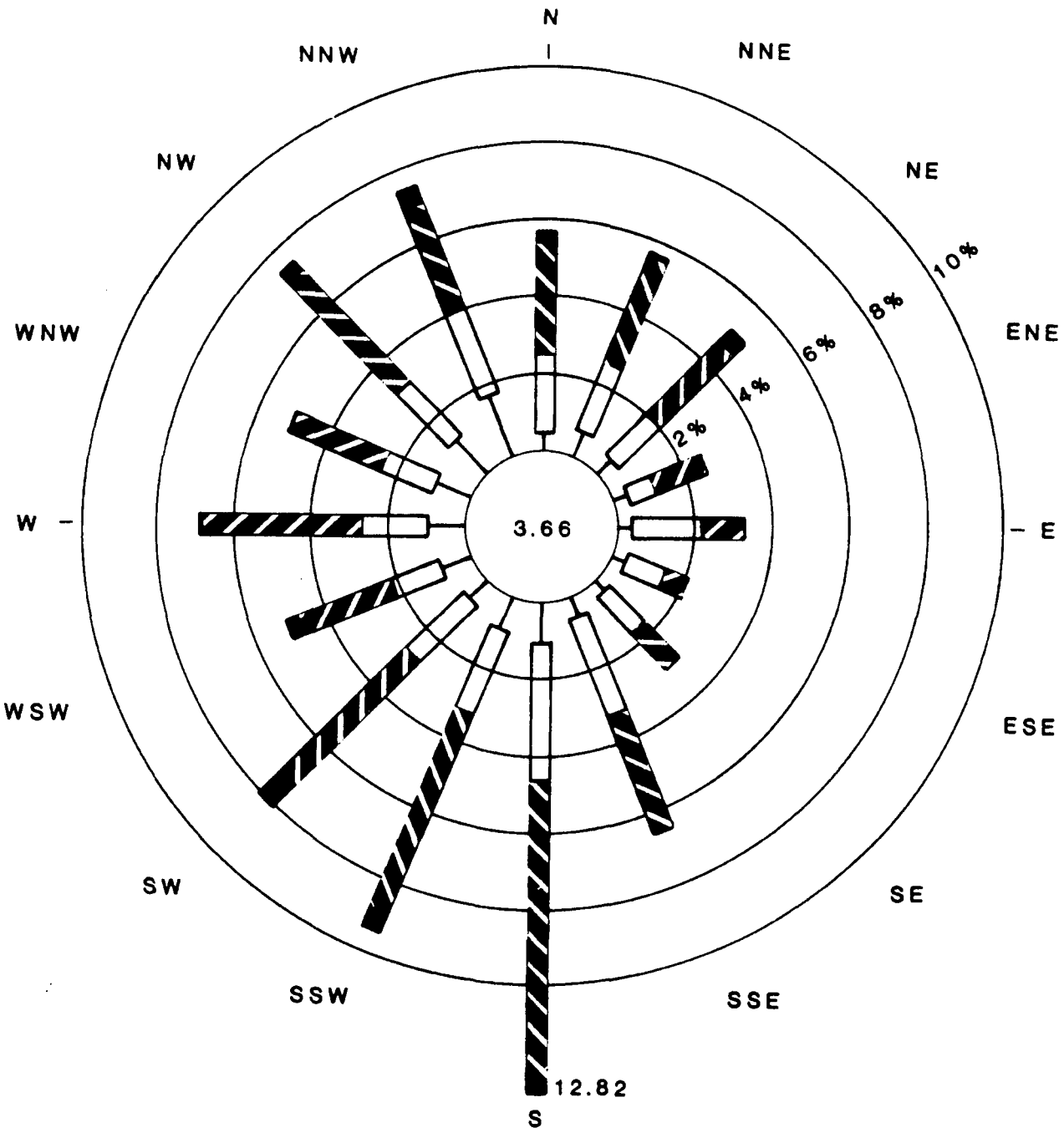
FIGURE 2.3-9

AUGUST WIND ROSE 30-FOOT LEVEL
(BYRON 1974-1976)



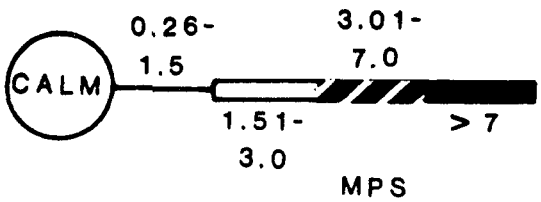


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FIGURE 2.3-10

SEPTEMBER WIND ROSE 30-FOOT LEVEL
(BYRON 1974-1976)

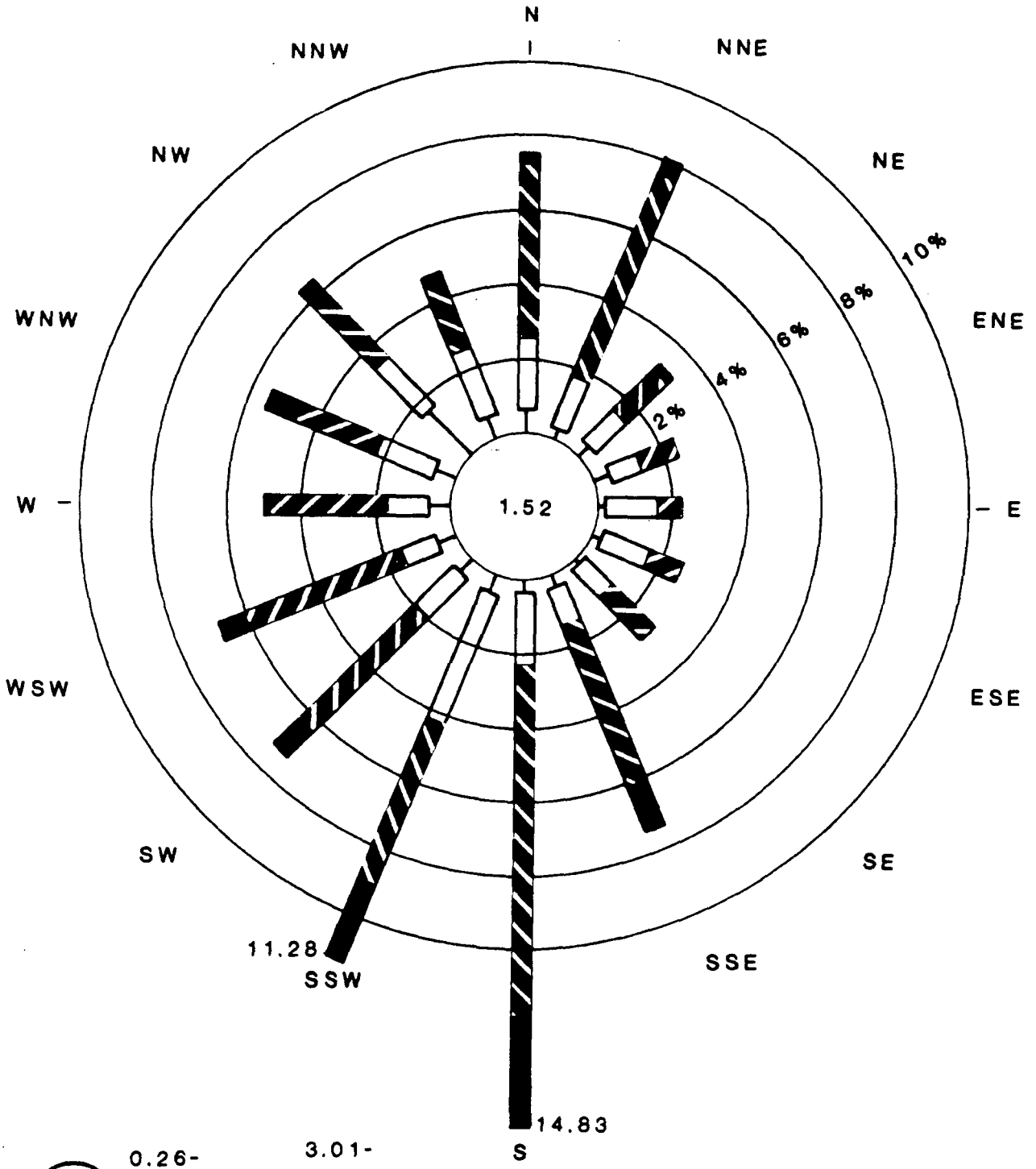

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FIGURE 2.3-11

OCTOBER WIND ROSE 30-FOOT LEVEL
(BYRON 1974-1976)

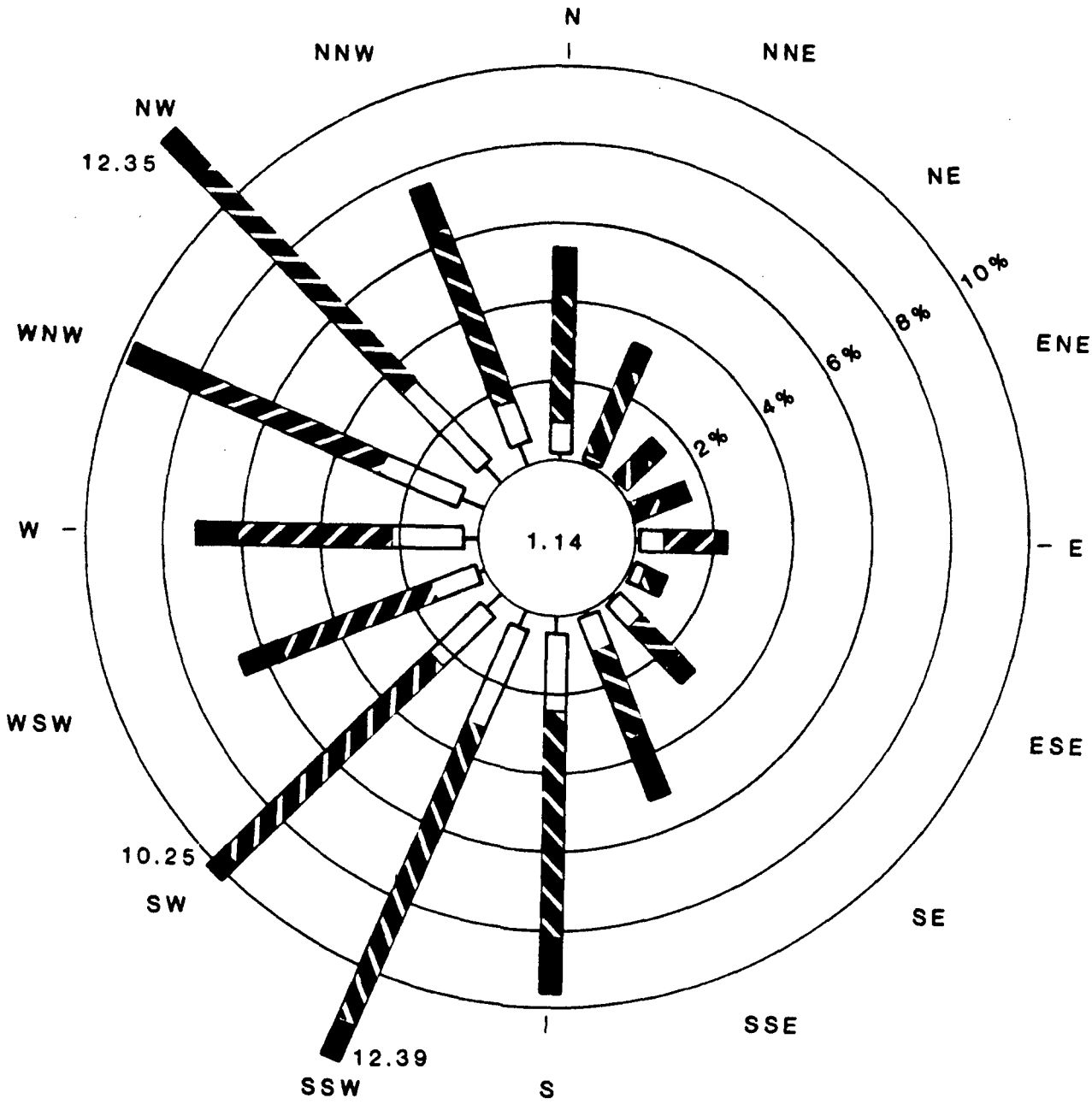

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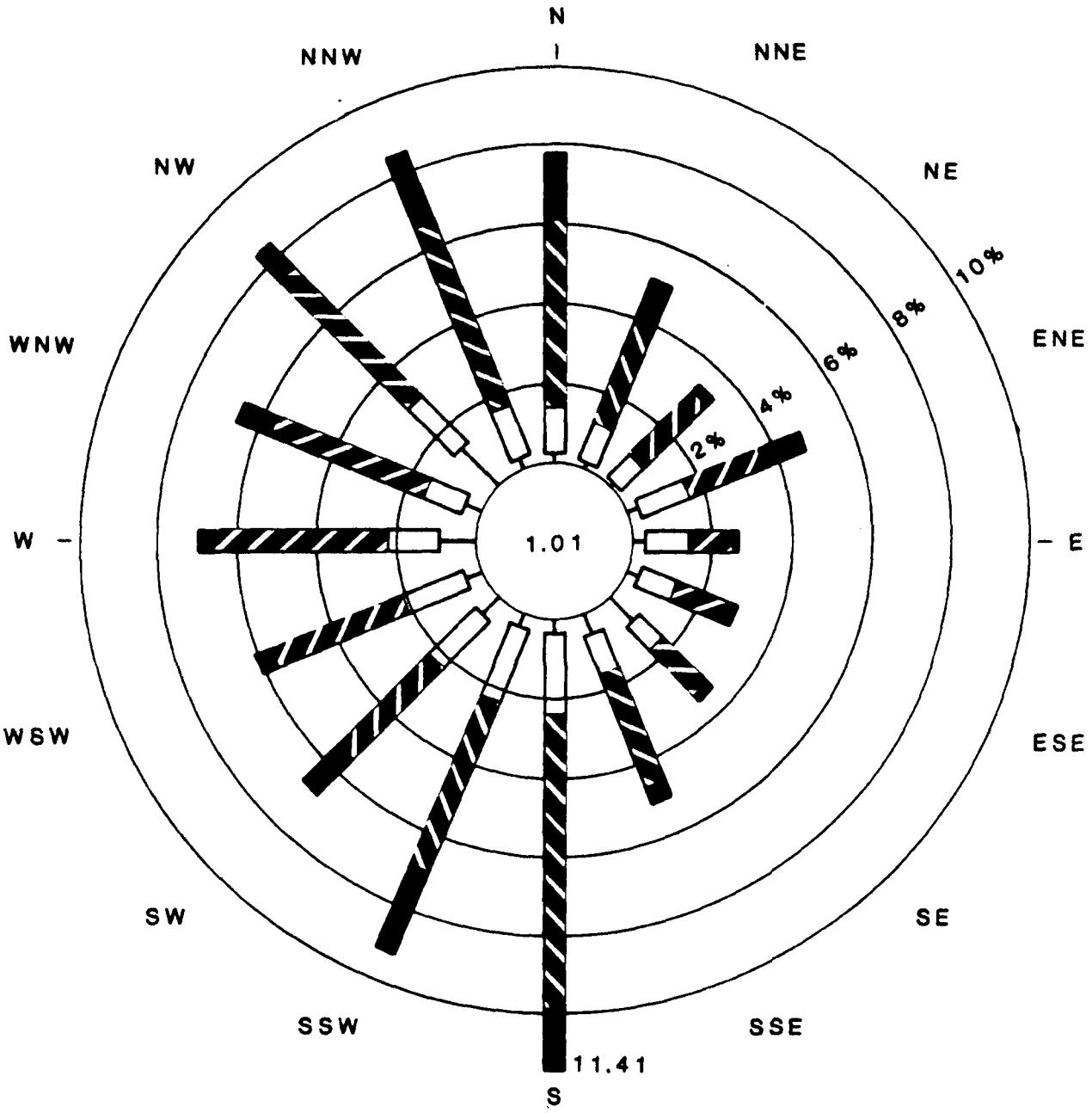
FIGURE 2.3-12

NOVEMBER WIND ROSE 30-FOOT LEVEL
(BYRON 1974-1976)



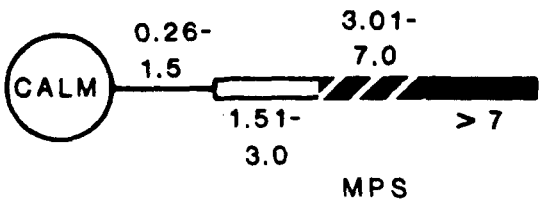


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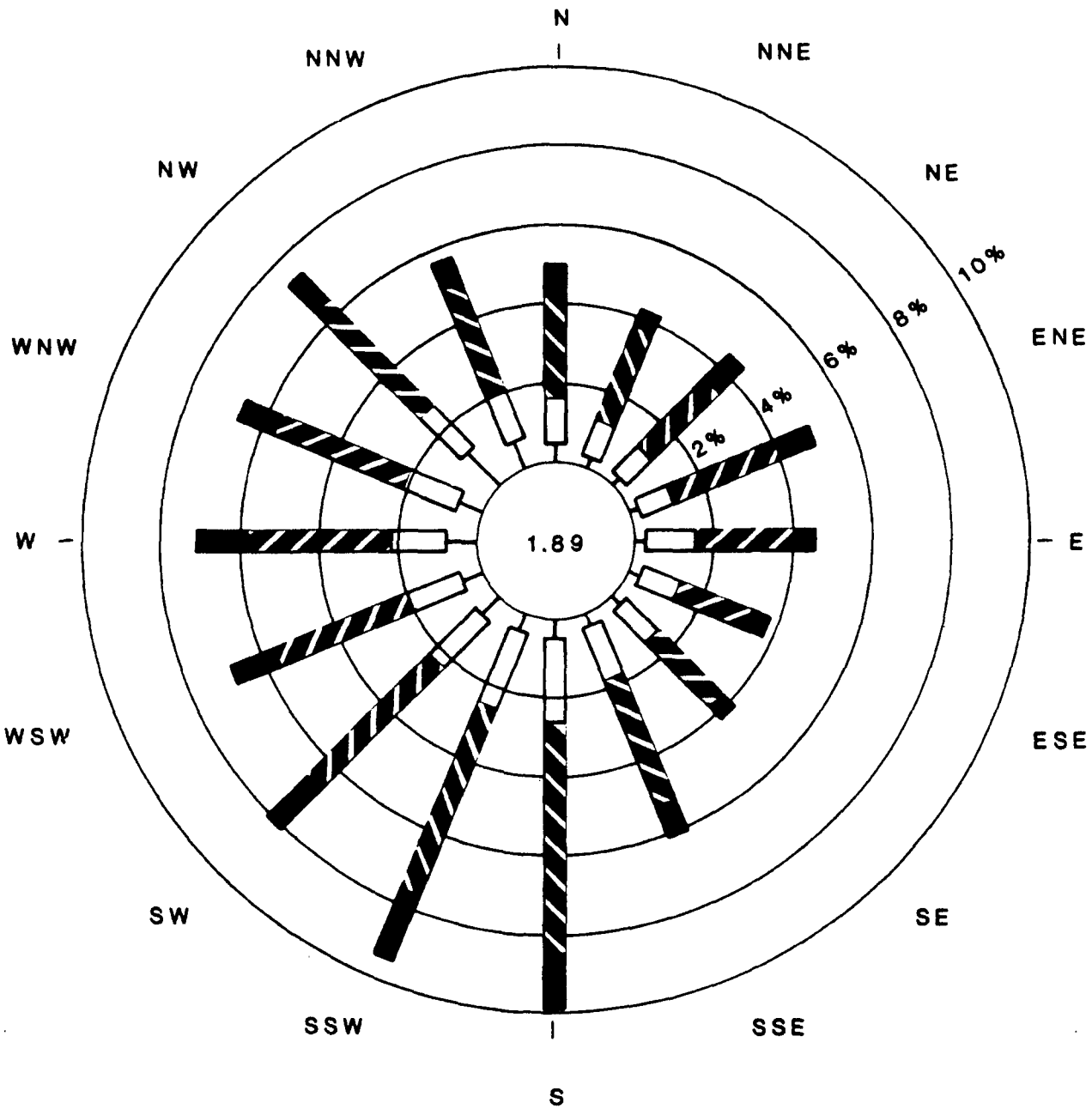
FIGURE 2.3-13

DECEMBER WIND ROSE 30-FOOT LEVEL
(BYRON 1974-1976)



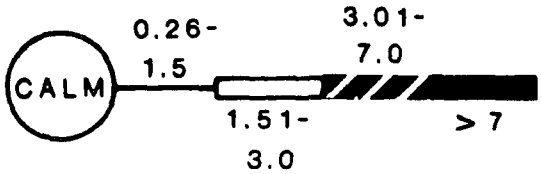


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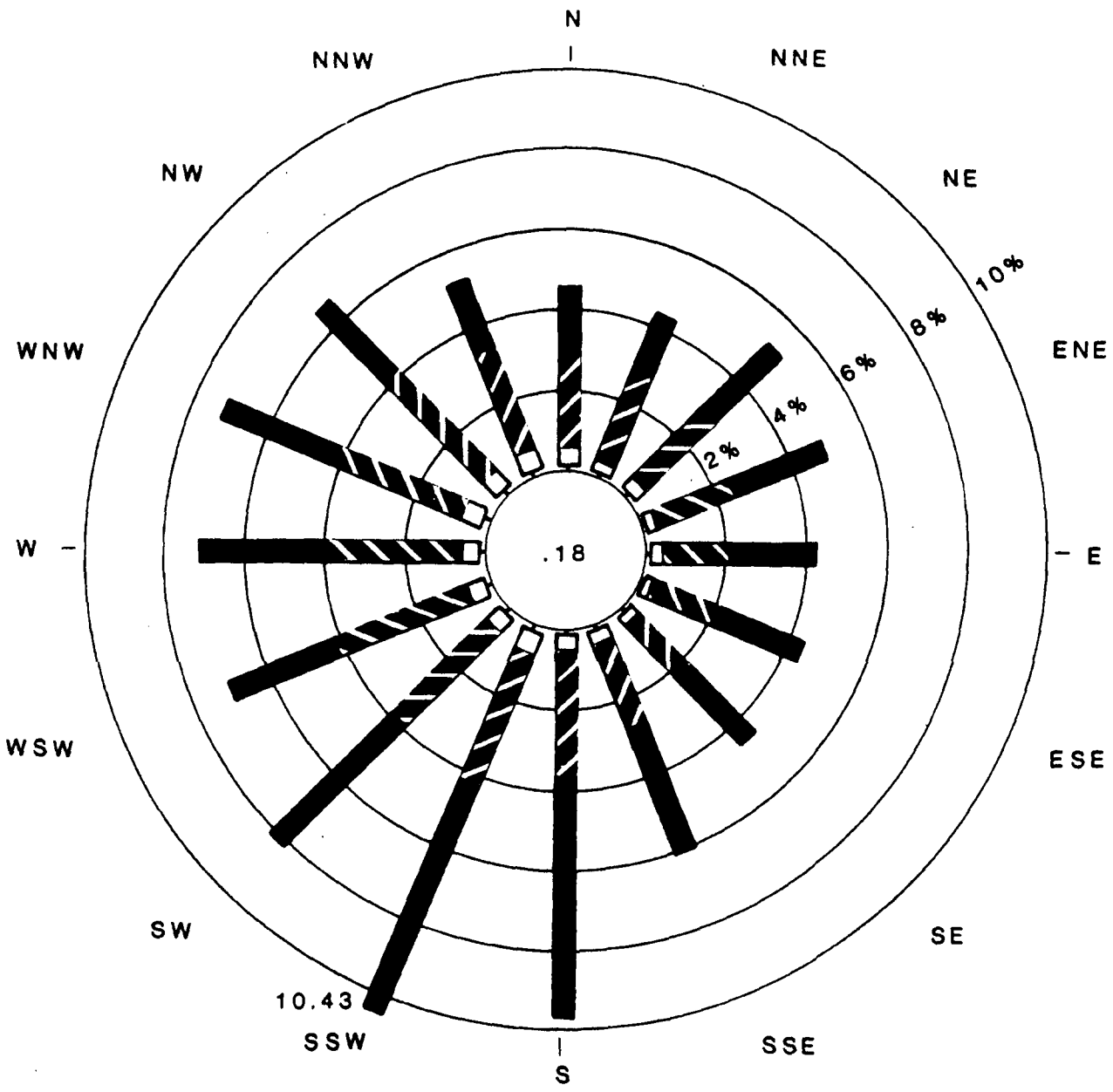
FIGURE 2.3-14

ANNUAL WIND ROSE 30-FOOT LEVEL
(BYRON 1974-1976)



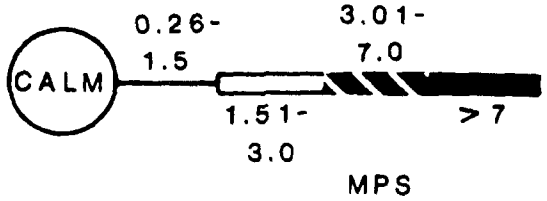


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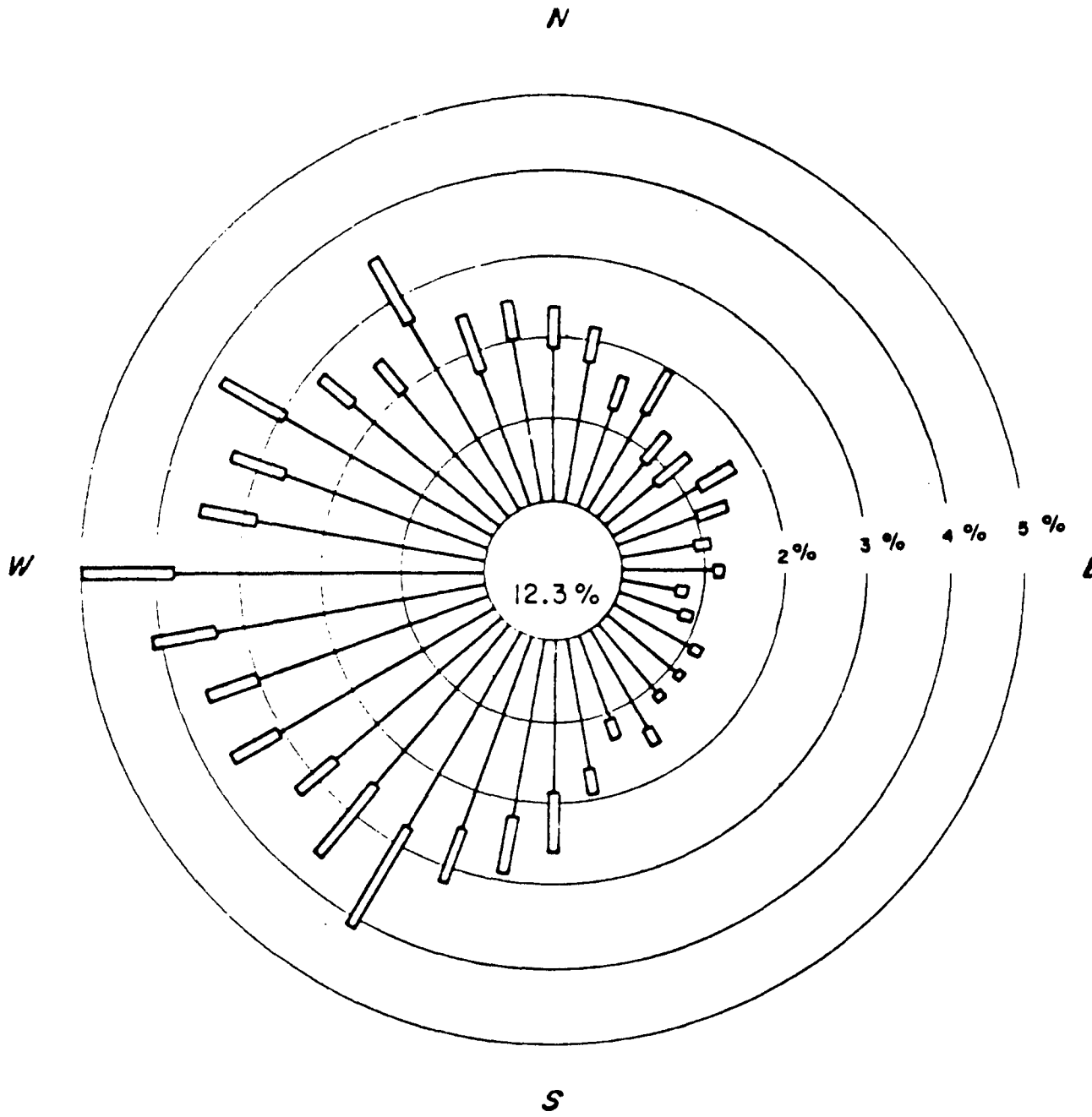
FIGURE 2.3-15

ANNUAL WIND ROSE 250-FOOT LEVEL
(BYRON 1974-1976)



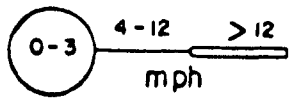


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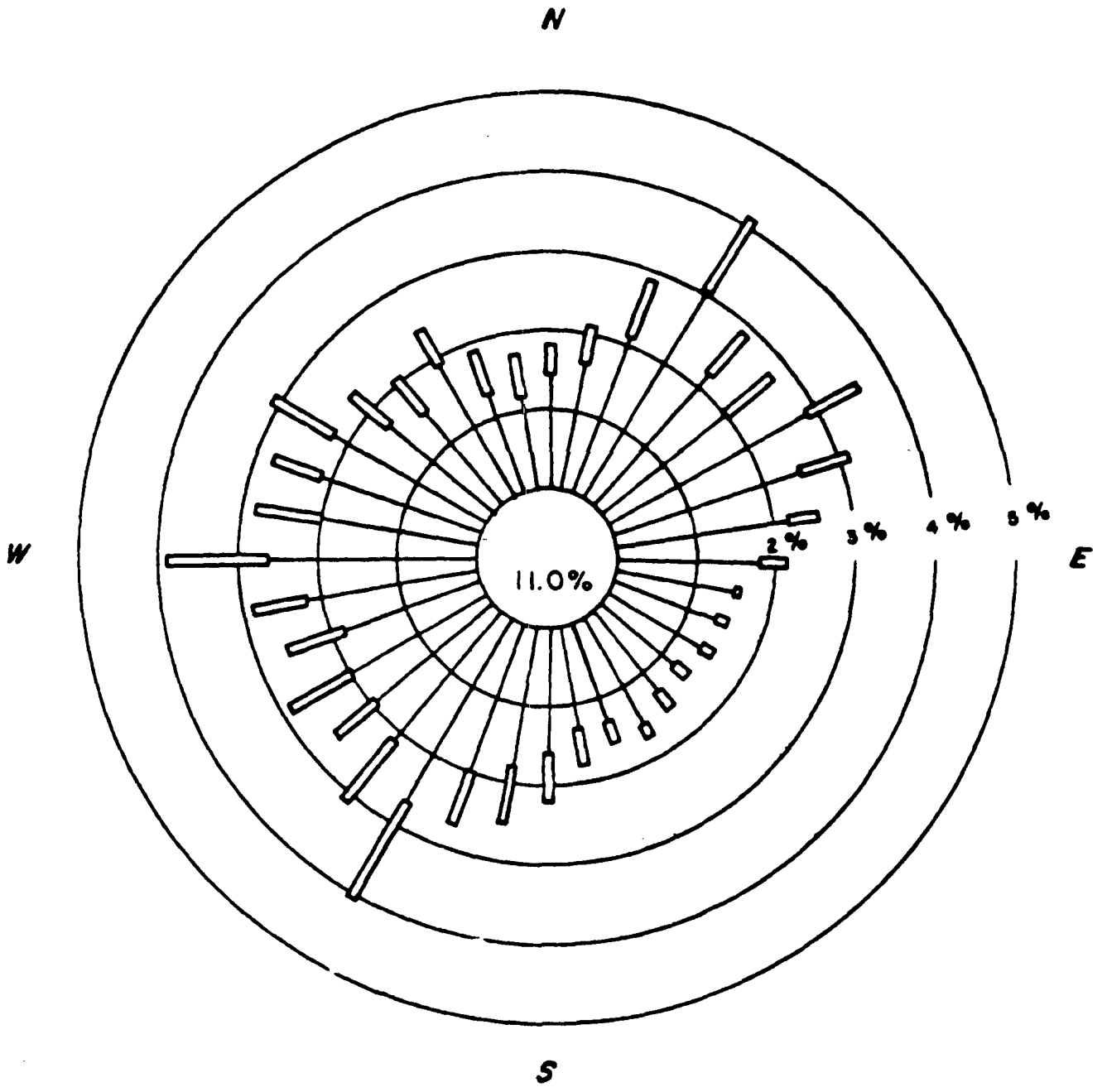
FIGURE 2.3-16

WINTER WIND ROSE 19-FOOT LEVEL
(ARGONNE 1950-1964)



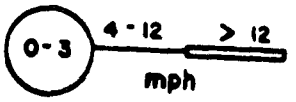


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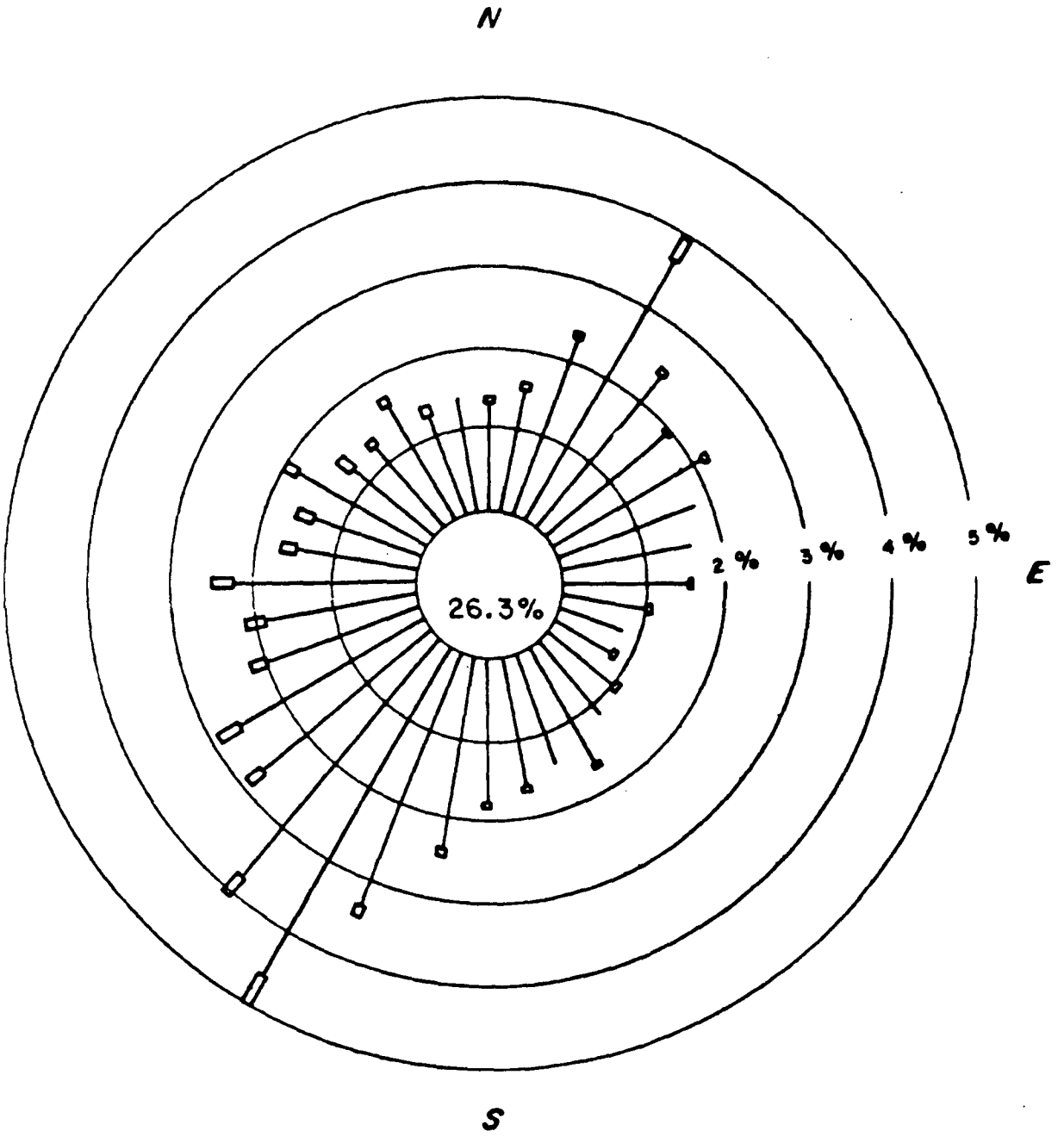
FIGURE 2.3-17

SPRING WIND ROSE 19-FOOT LEVEL
(ARGONNE 1950-1964)



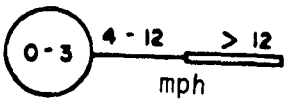


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FIGURE 2.3-18 SUMMER WIND ROSE 19-FOOT LEVEL (ARGONNE 1950-1964)

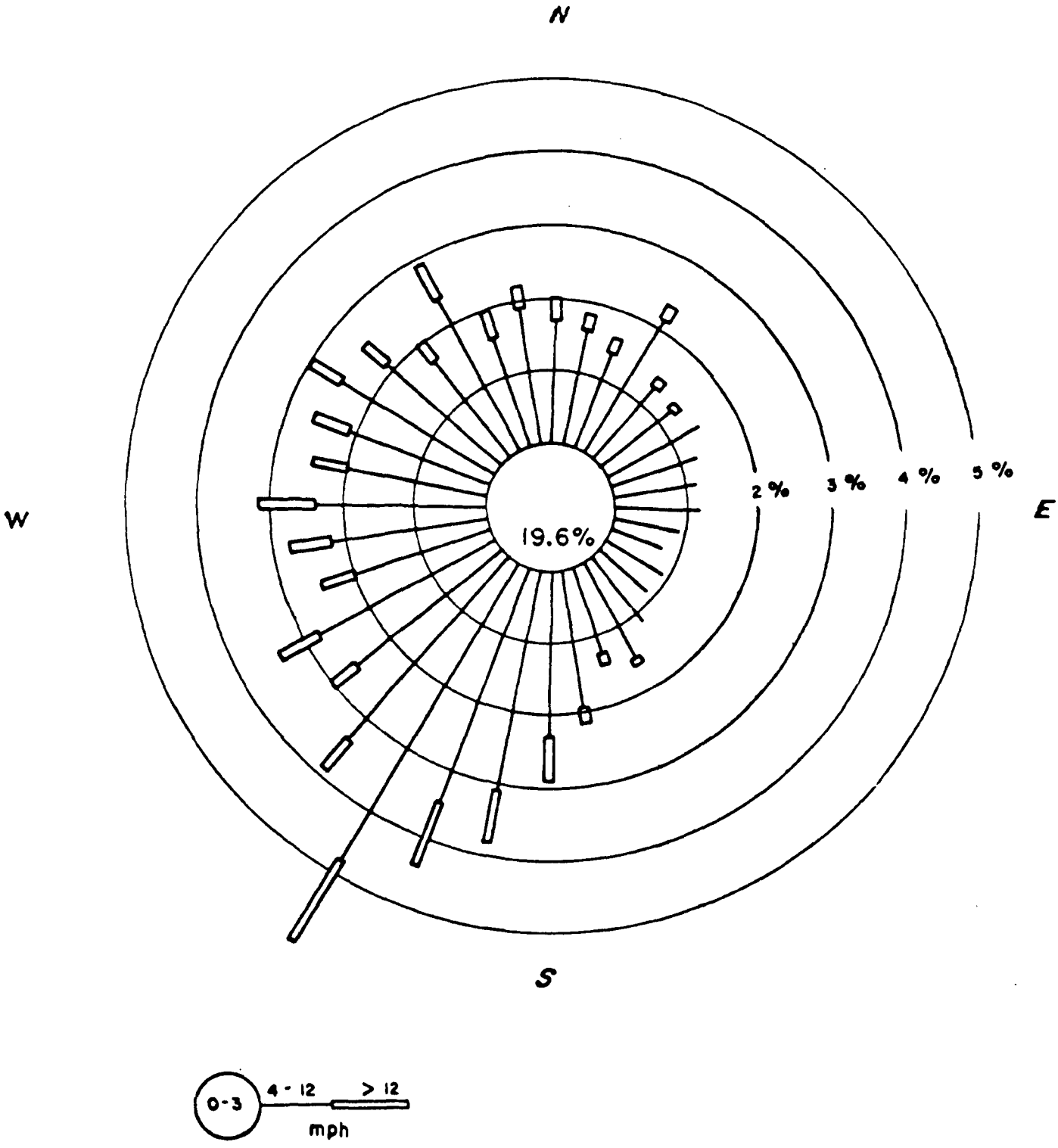

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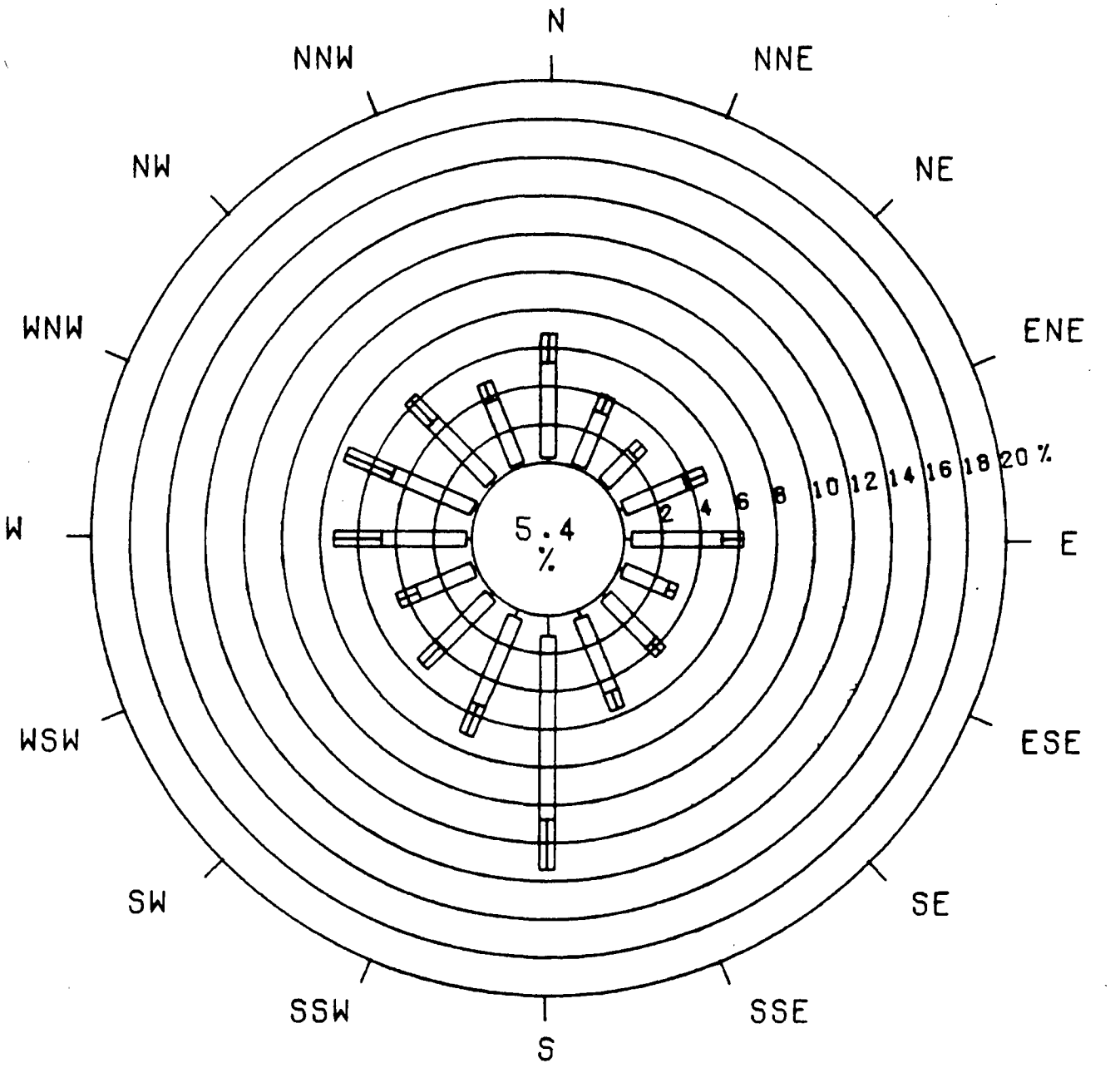
FIGURE 2.3-19

FALL WIND ROSE 19-FOOT LEVEL
(ARGONNE 1950-1964)



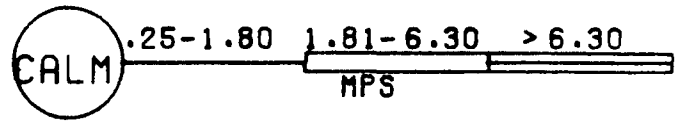


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FIGURE 2.3-20

ANNUAL WIND ROSE 20-FOOT LEVEL
(ROCKFORD 1966-1975)

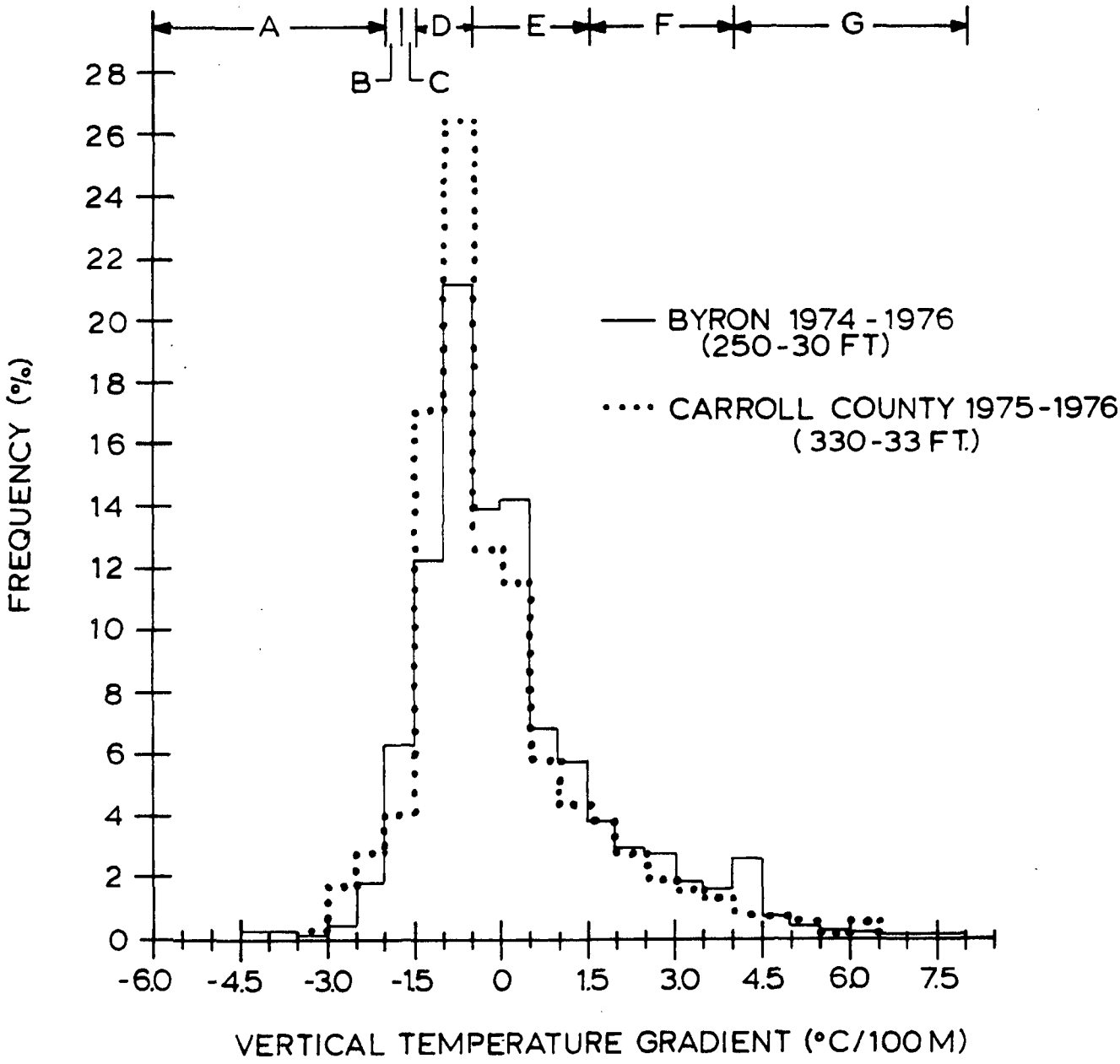

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FIGURE 2.3-21

VERTICAL TEMPERATURE GRADIENT HISTOGRAMS
FOR BYRON (1974-1976) AND
CARROLL COUNTY (1975-1976)

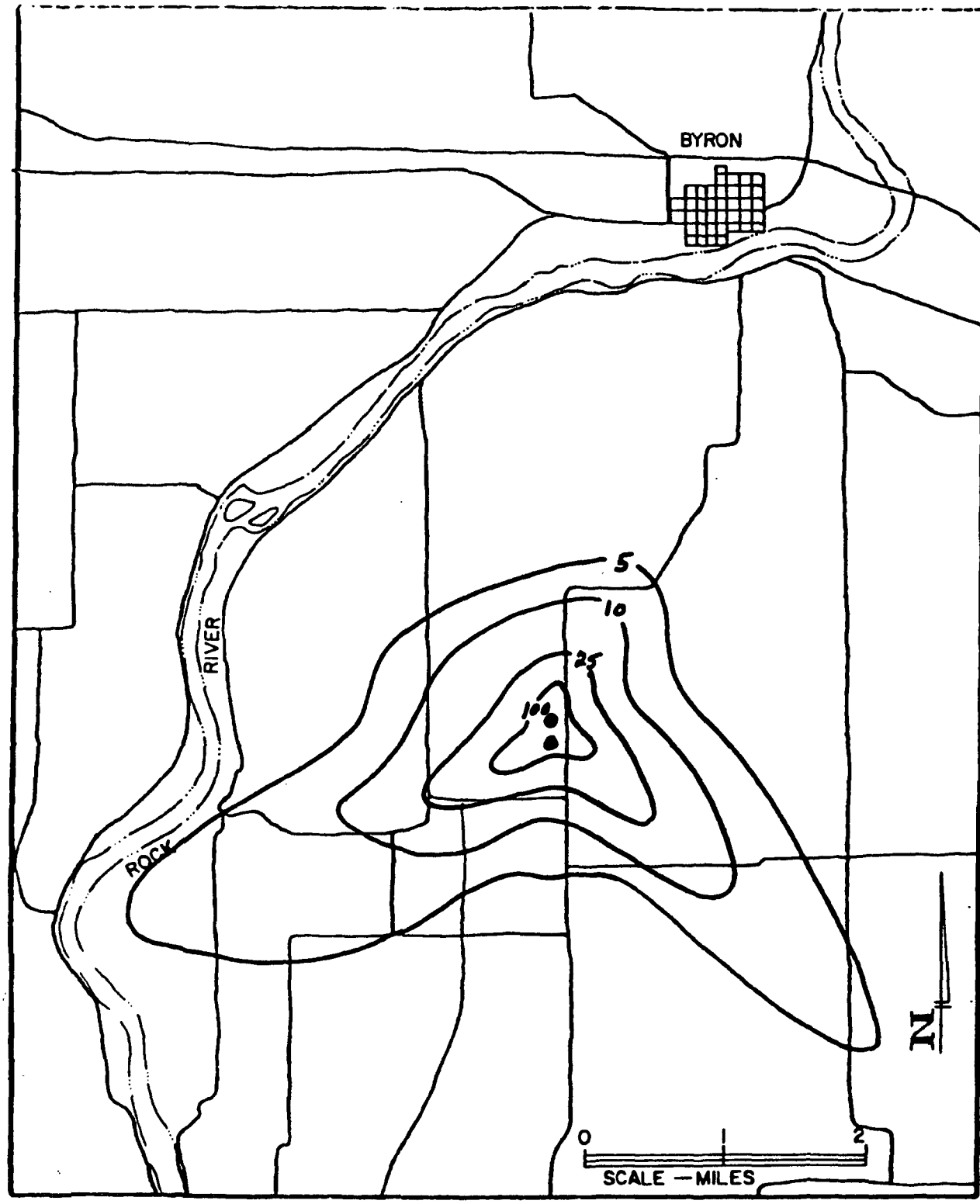

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FIGURE 2.3-21a

PREDICTED SPRING SEASON VISIBLE PLUME FREQUENCY, TWO NATURAL DRAFT TOWERS, 55% CAPACITY FACTOR

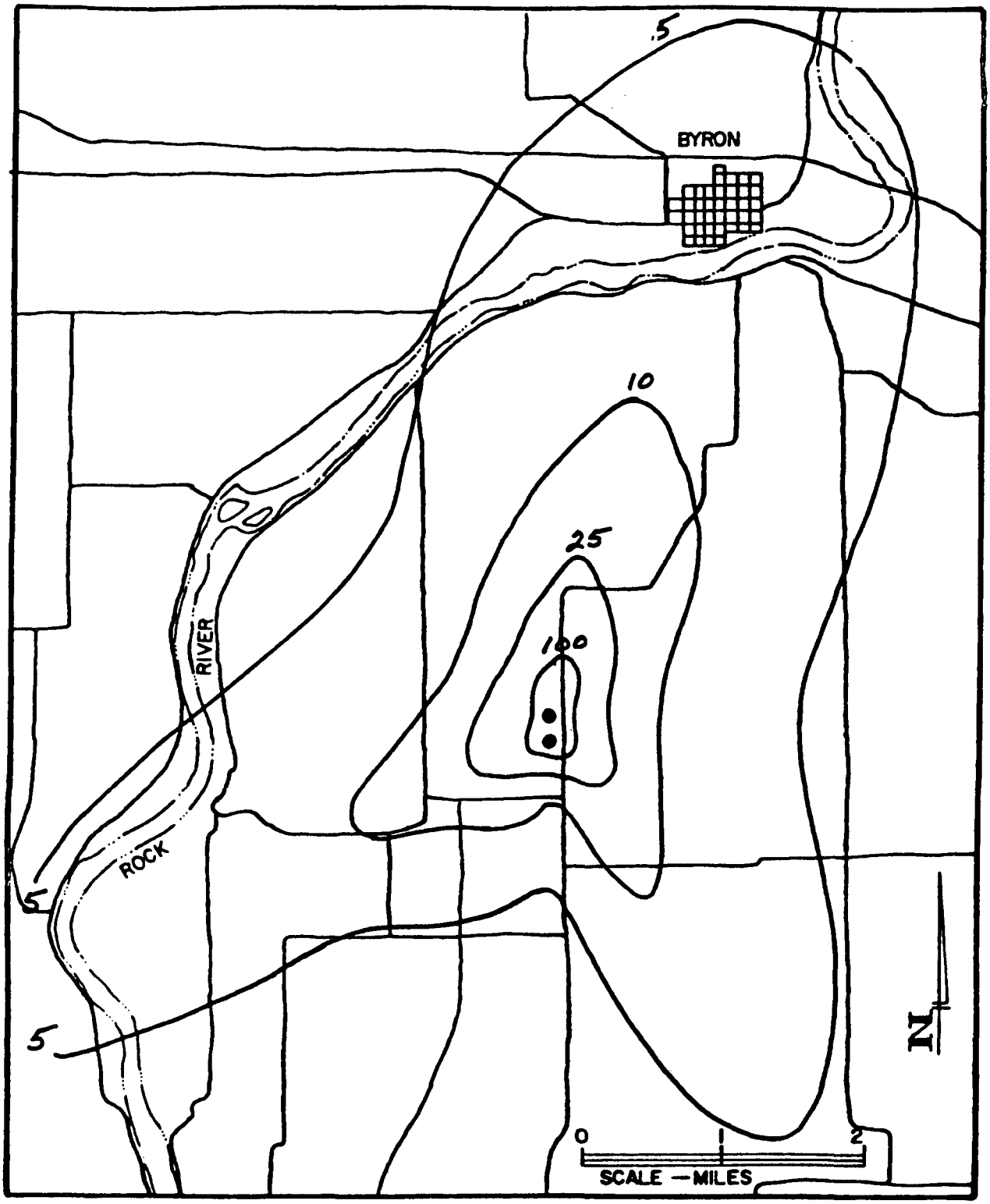

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FIGURE 2.3-21b

PREDICTED SUMMER SEASON VISIBLE PLUME FREQUENCY, TWO NATURAL DRAFT TOWERS, 75% CAPACITY FACTOR

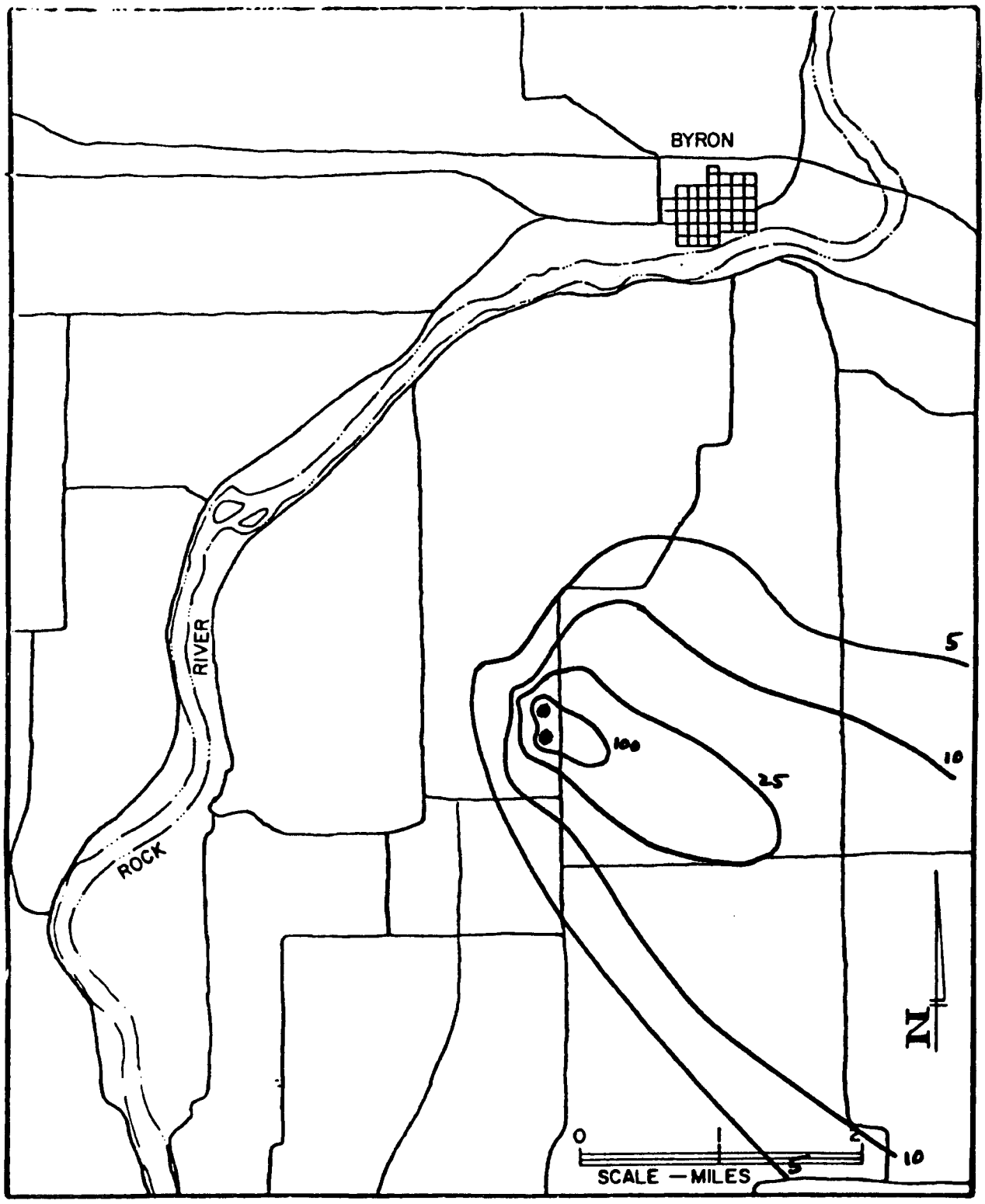

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FIGURE 2.3-21c

PREDICTED FALL SEASON VISIBLE PLUME FREQUENCY, TWO NATURAL DRAFT TOWERS, 55% CAPACITY FACTOR

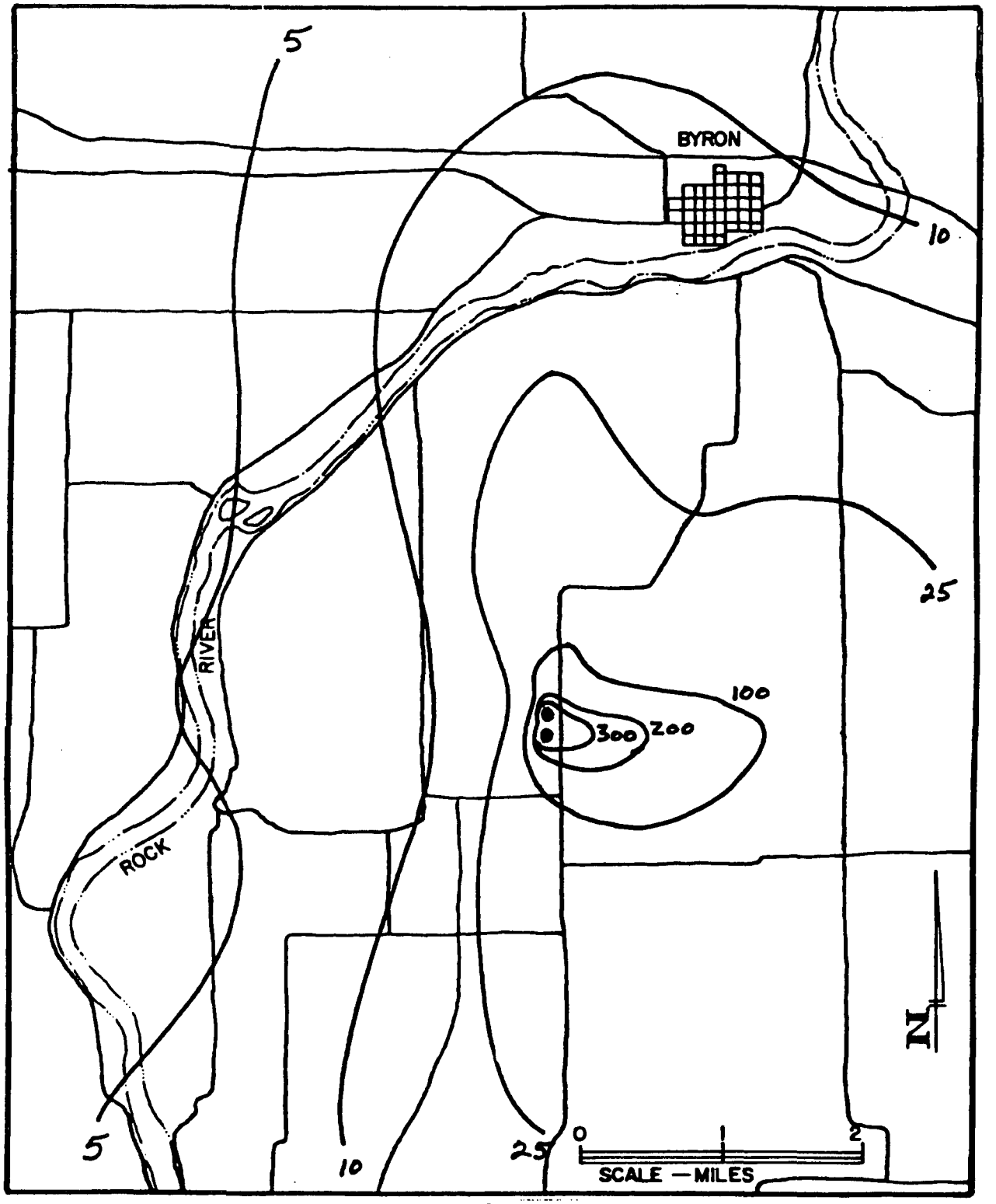

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FIGURE 2.3-21d

PREDICTED WINTER SEASON VISIBLE PLUME FREQUENCY, TWO NATURAL DRAFT TOWERS, 75% CAPACITY FACTOR

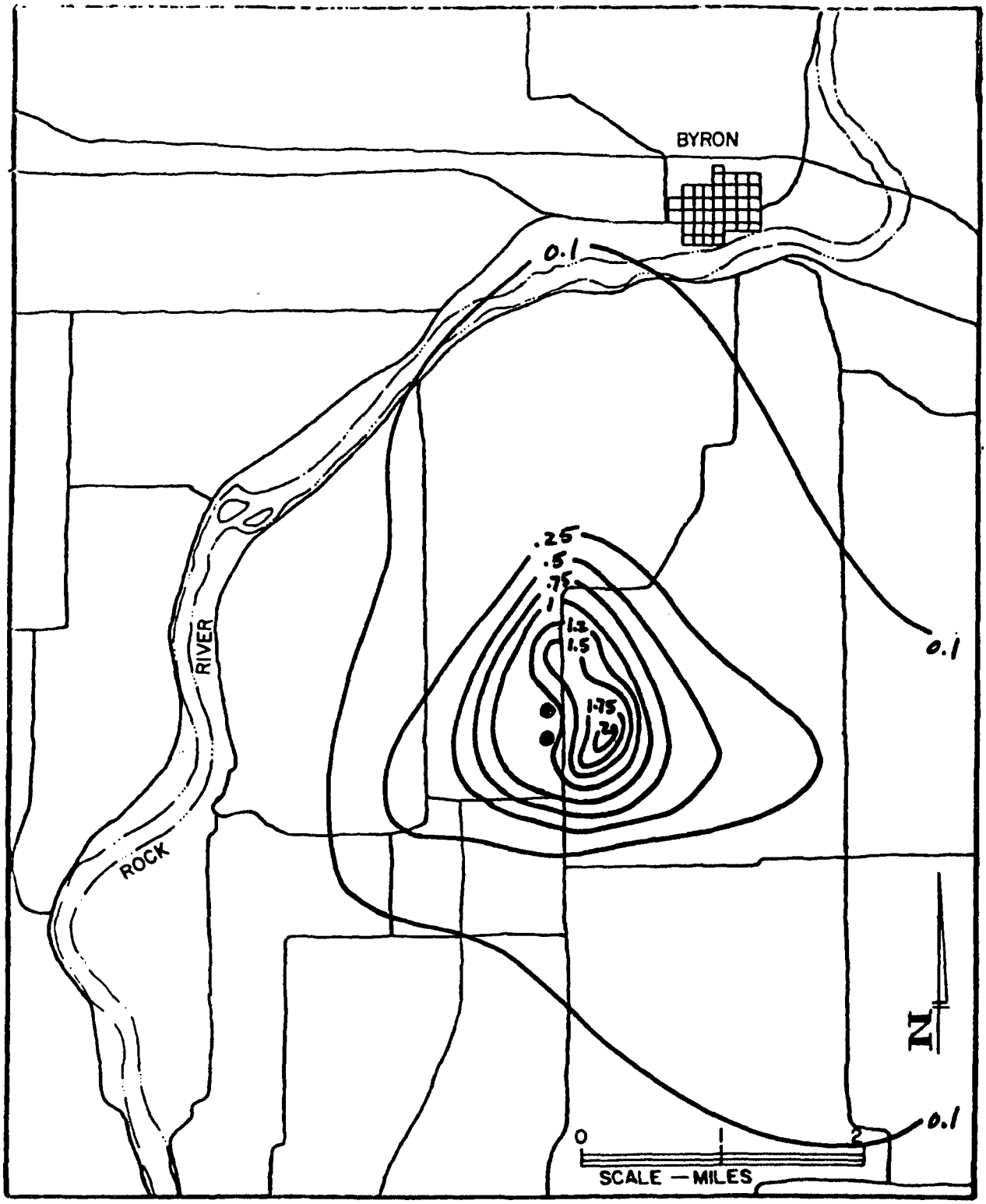

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FIGURE 2.3-21e

PREDICTED ANNUAL AVERAGE DEPOSITION RATE OF DRIFT SOLIDS, TWO NATURAL DRAFT TOWERS, 65% CAPACITY FACTOR

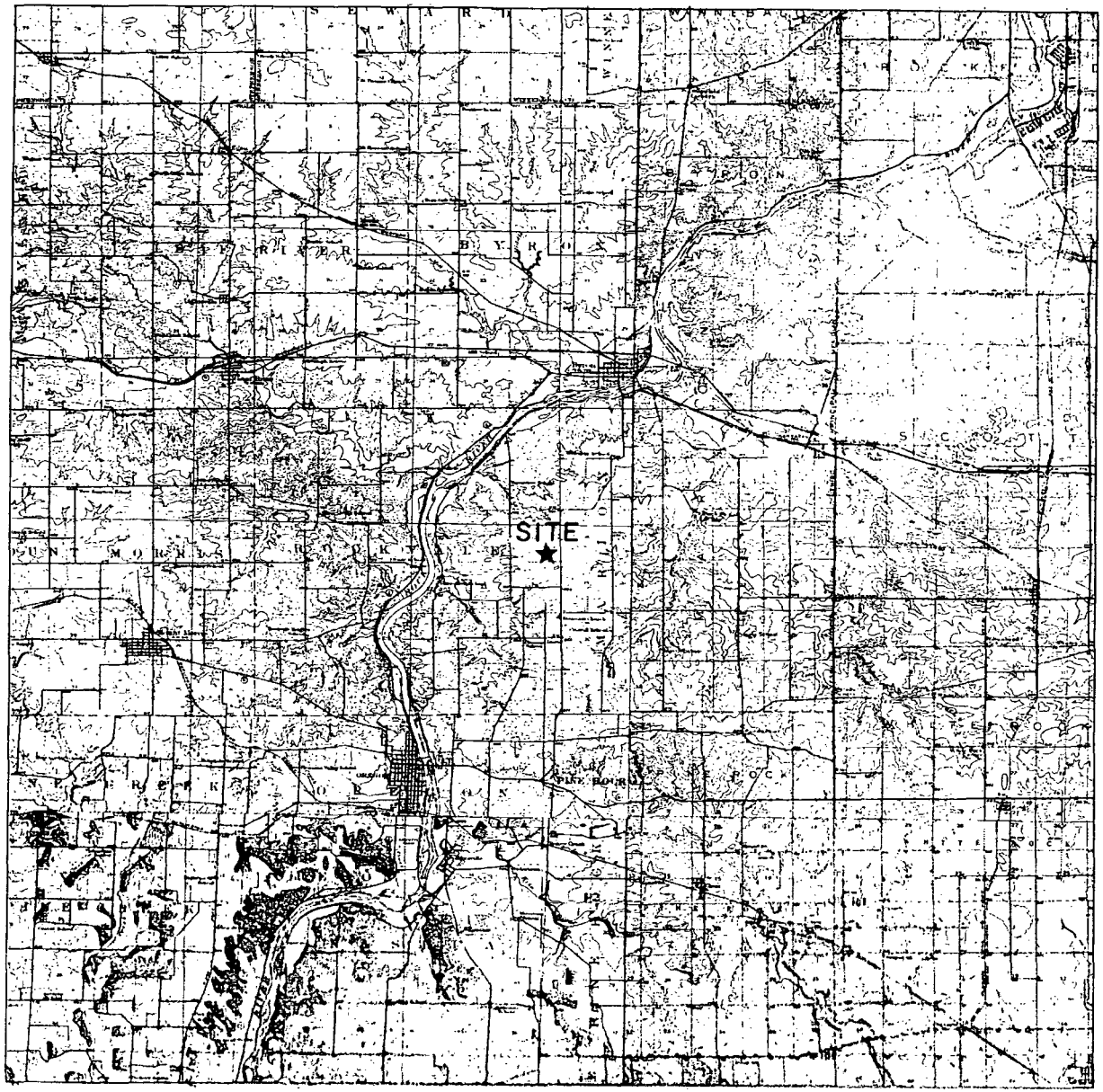

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FIGURE 2.3-22

TOPOGRAPHICAL MAP OF SITE VICINITY WITHIN A 10-MILE RADIUS

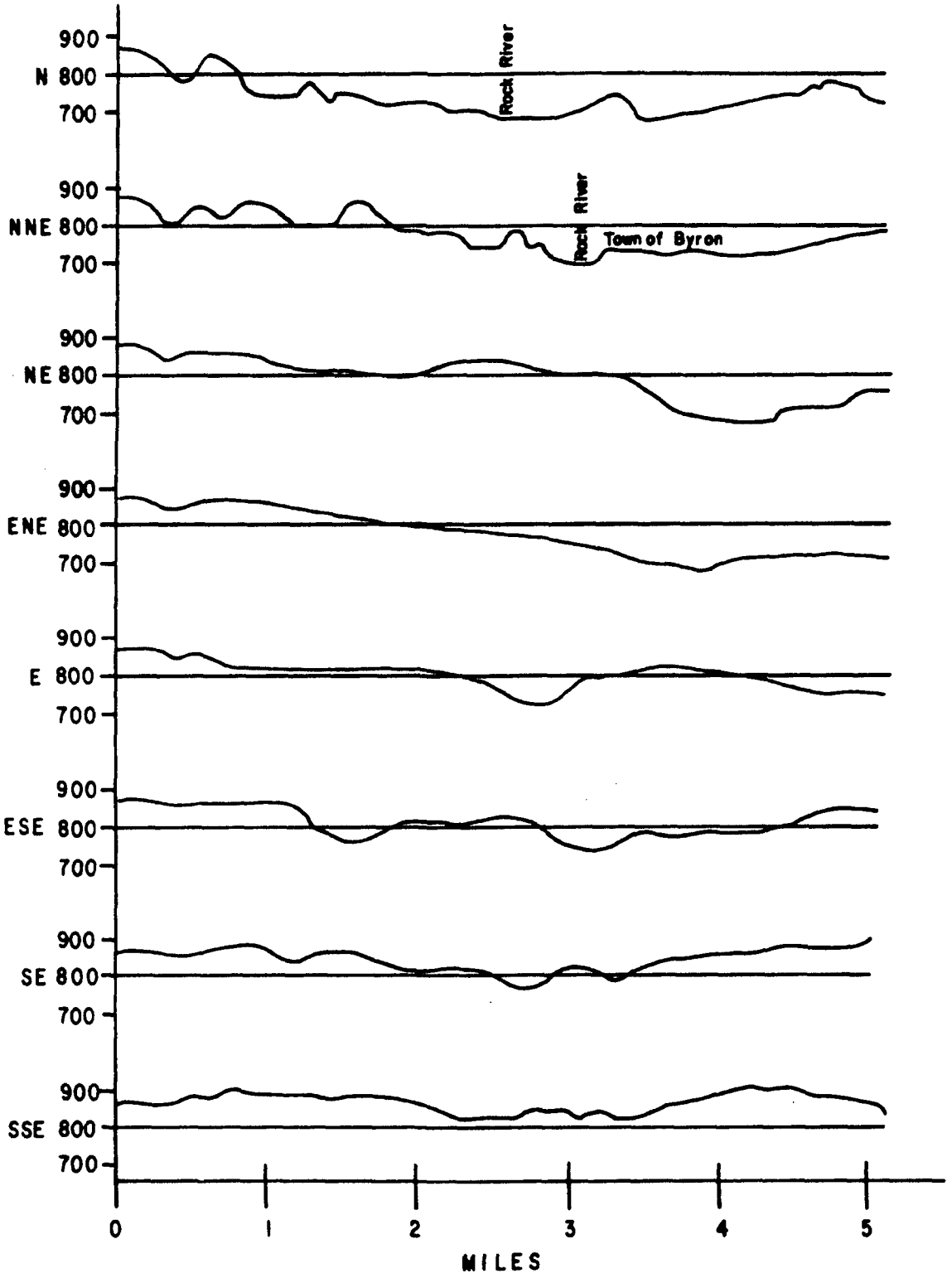

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FIGURE 2.3-23

TOPOGRAPHICAL CROSS SECTION OF SITE VICINITY WITHIN A 10-MILE RADIUS
(SHEET 1 OF 3)

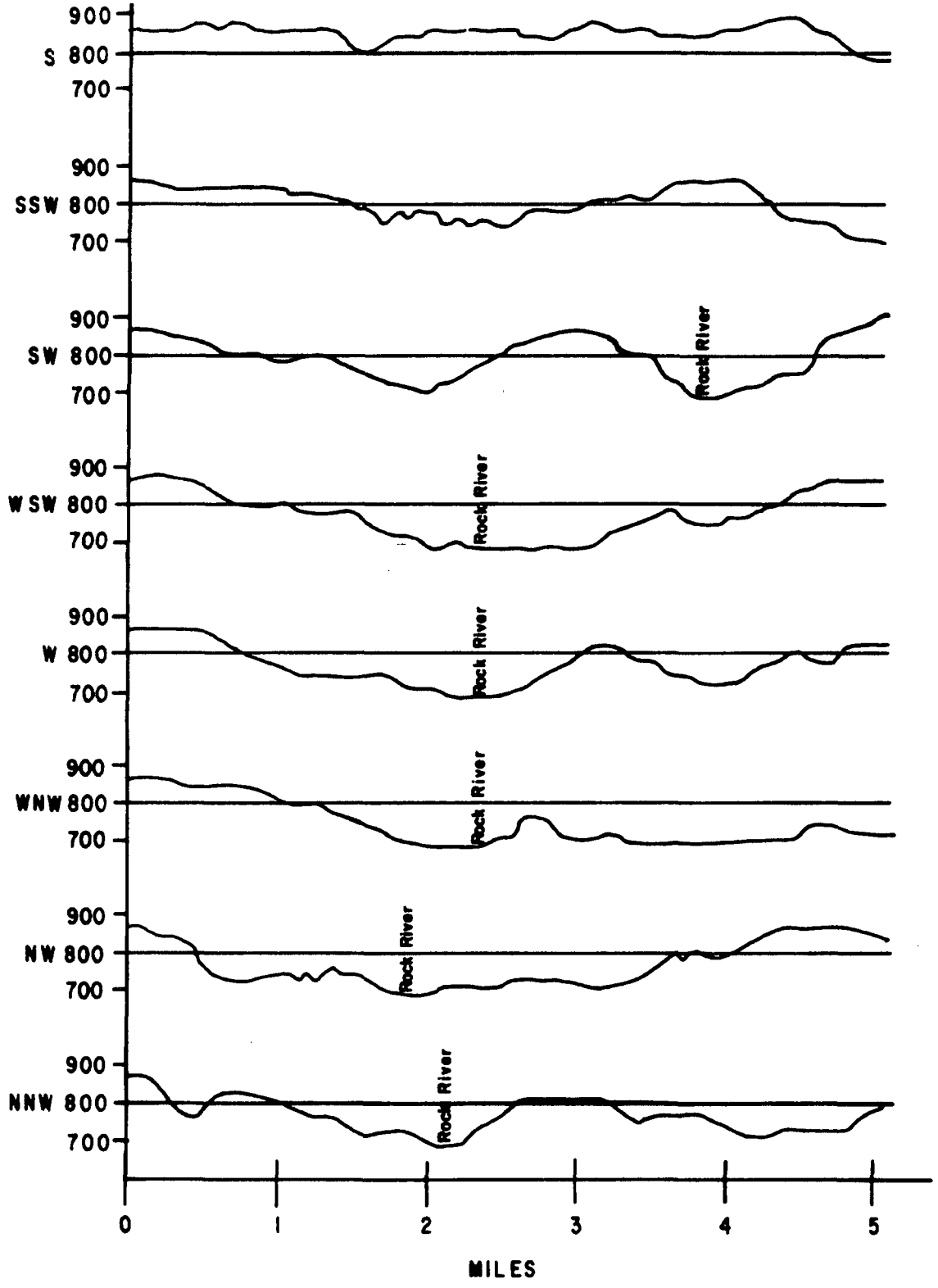

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FIGURE 2.3-23

TOPOGRAPHICAL CROSS SECTION OF SITE VICINITY WITHIN A 10-MILE RADIUS
(SHEET 2 OF 3)

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FIGURE 2.3-23

TOPOGRAPHICAL CROSS SECTION OF SITE VICINITY WITHIN A 10-MILE RADIUS
(SHEET 3 OF 3)

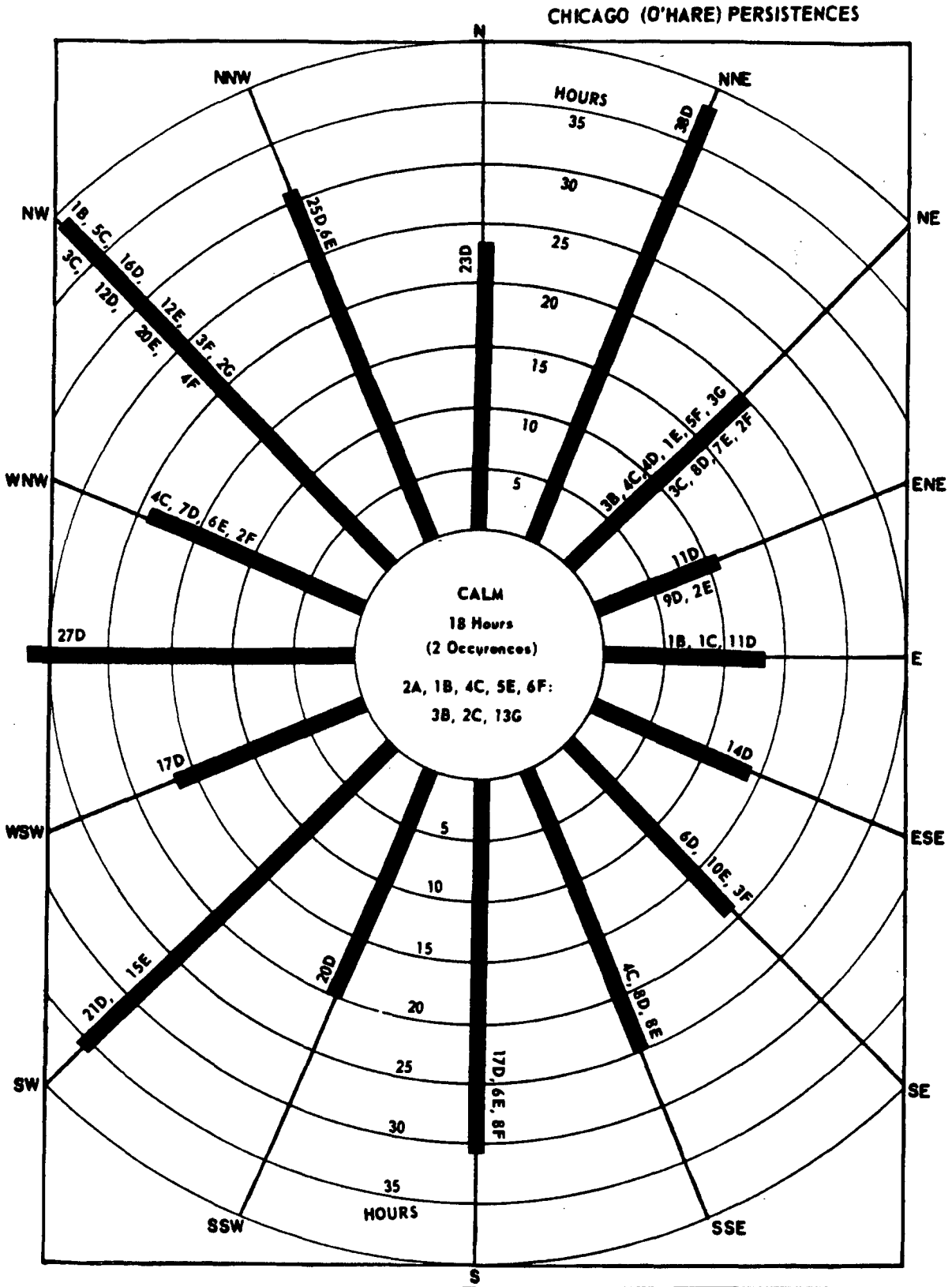

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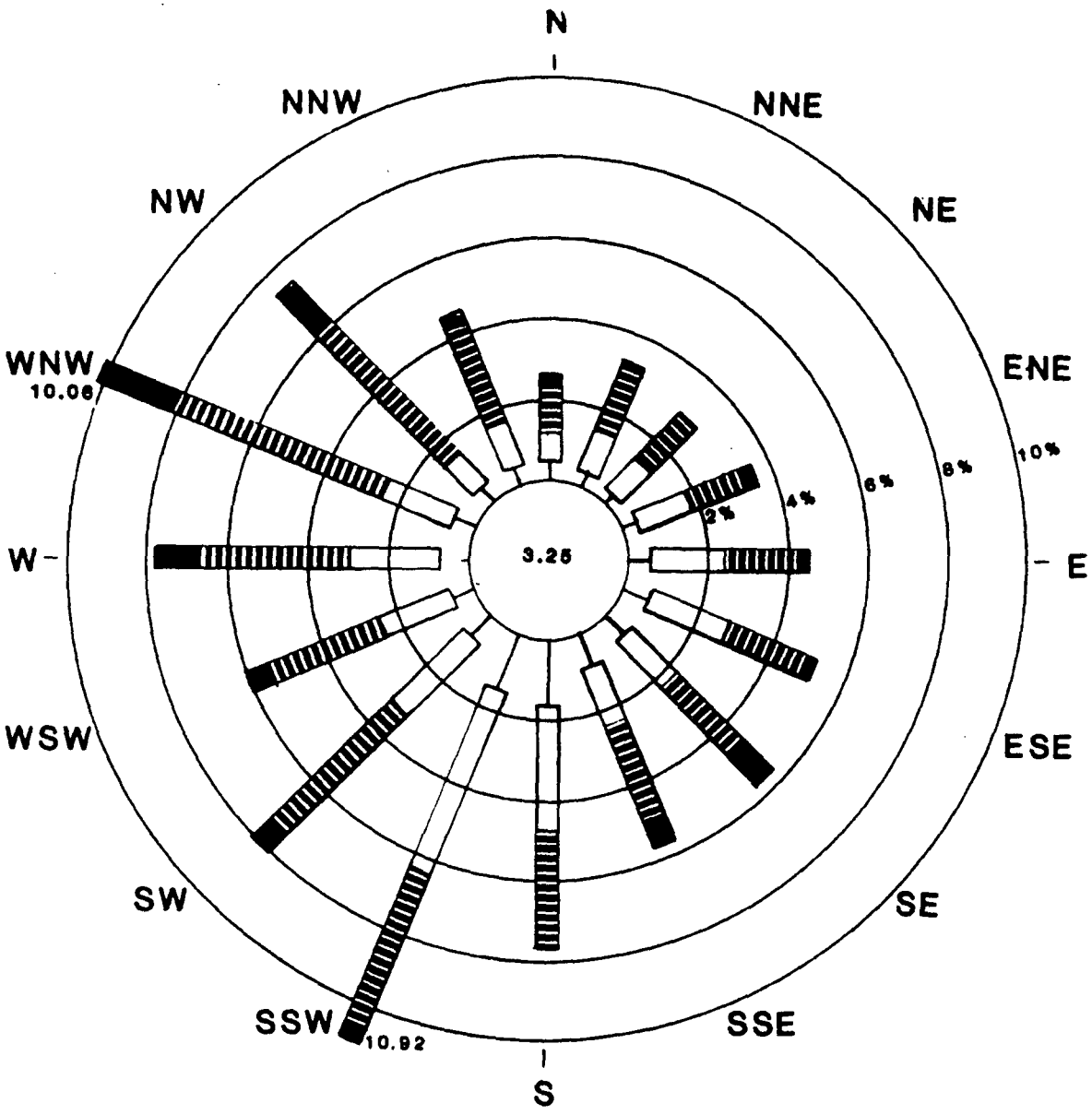
FIGURE 2.3-24

CHICAGO (O'HARE) WIND ROSE



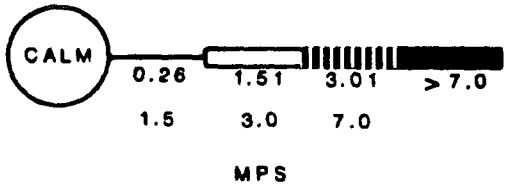


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FIGURE 2.3-25

ANNUAL WIND ROSE FOR 33-FOOT LEVEL
AT CARROLL COUNTY STATION SITE
(8-1-76 TO 7-31-77)

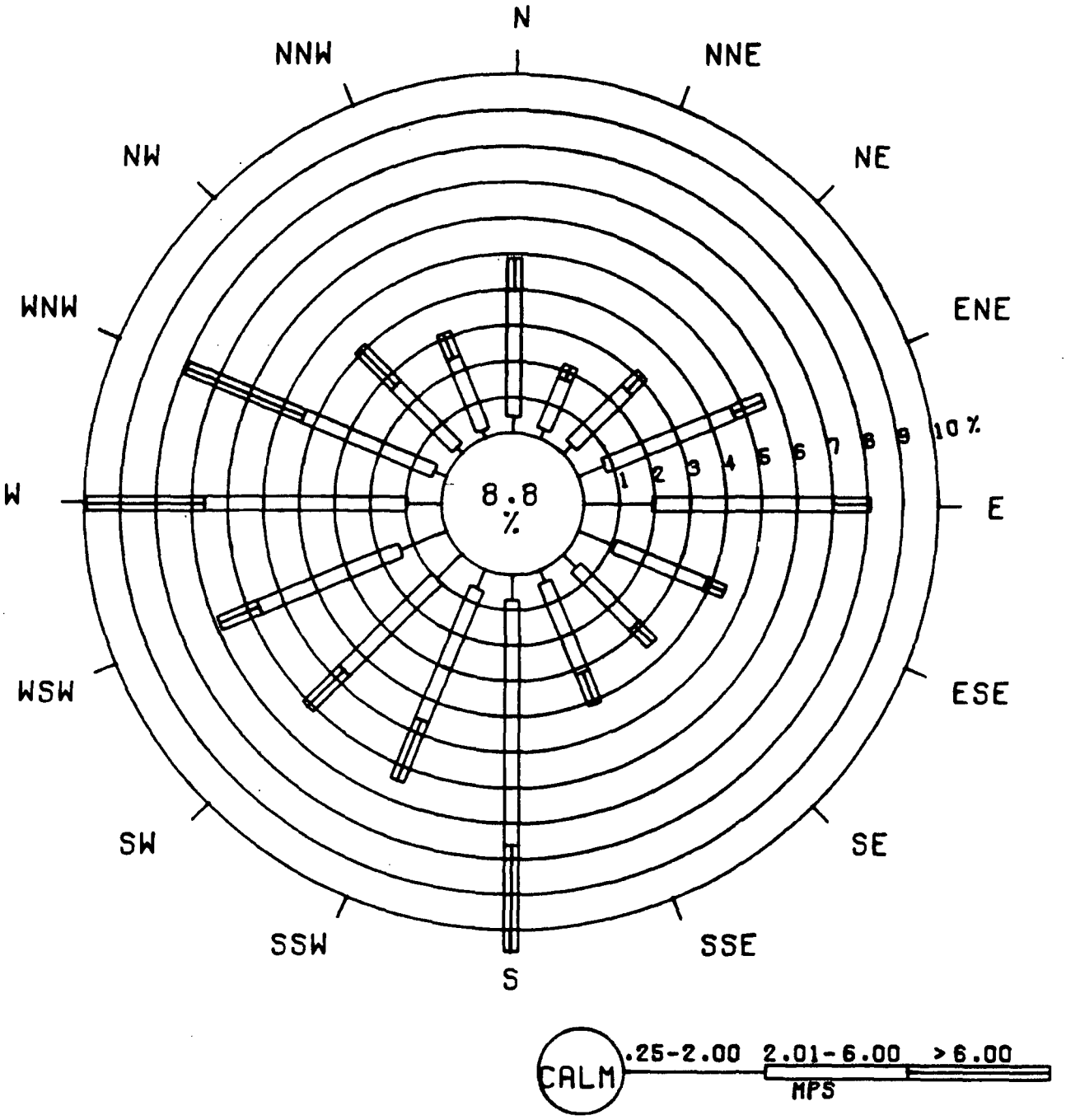

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FIGURE 2.3-26

ANNUAL WIND ROSE FOR 20-FOOT LEVEL
AT MOLINE, ILLINOIS
(1967-1976)

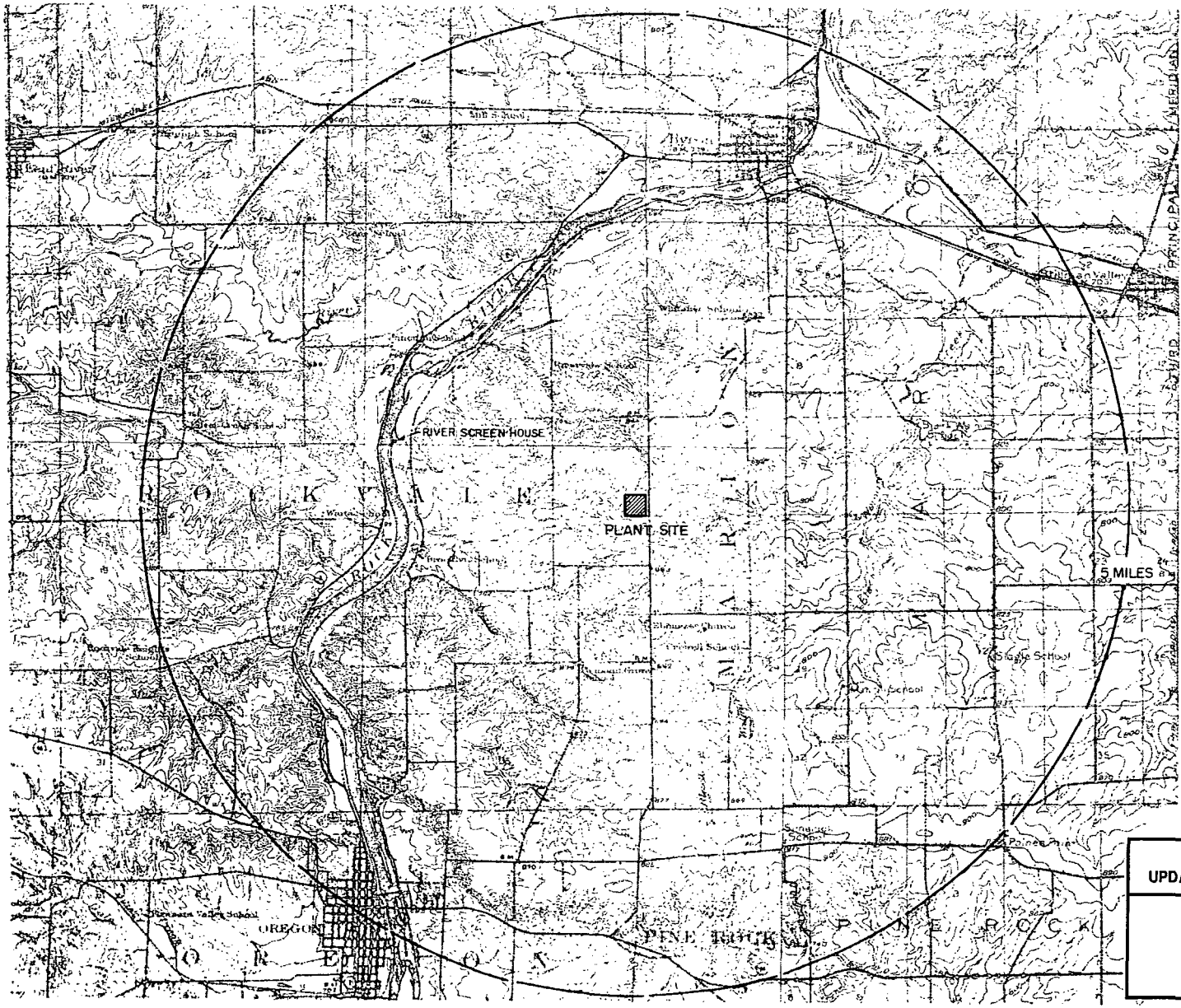

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FIGURE 2.4-1

PLANT SITE AREA TOPOGRAPHY

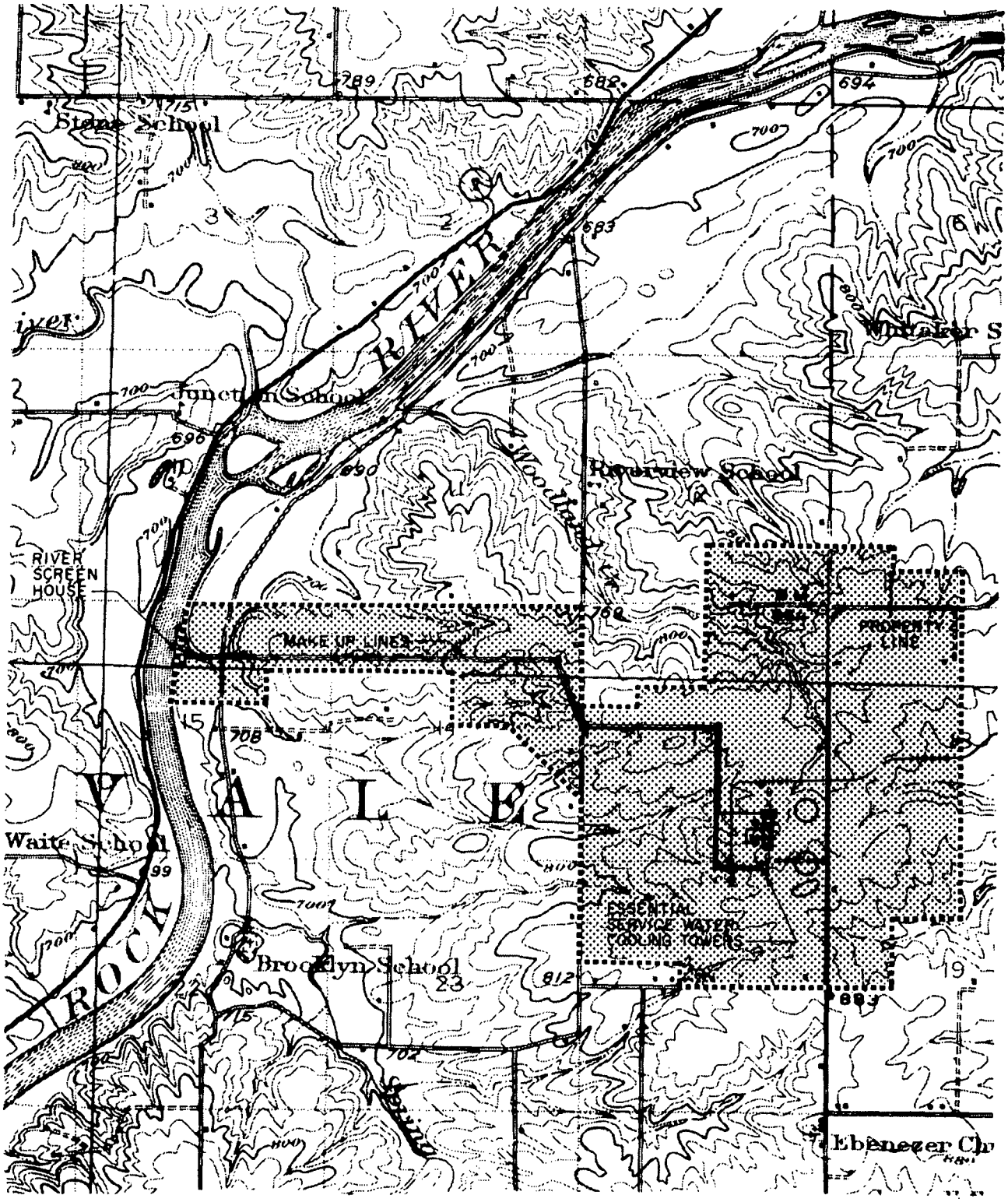

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FIGURE 2.4-2

RIVER SCREEN HOUSE AND
MAKEUP LINES

Security-Related Information Figure Withheld Under 10 CFR 2.390

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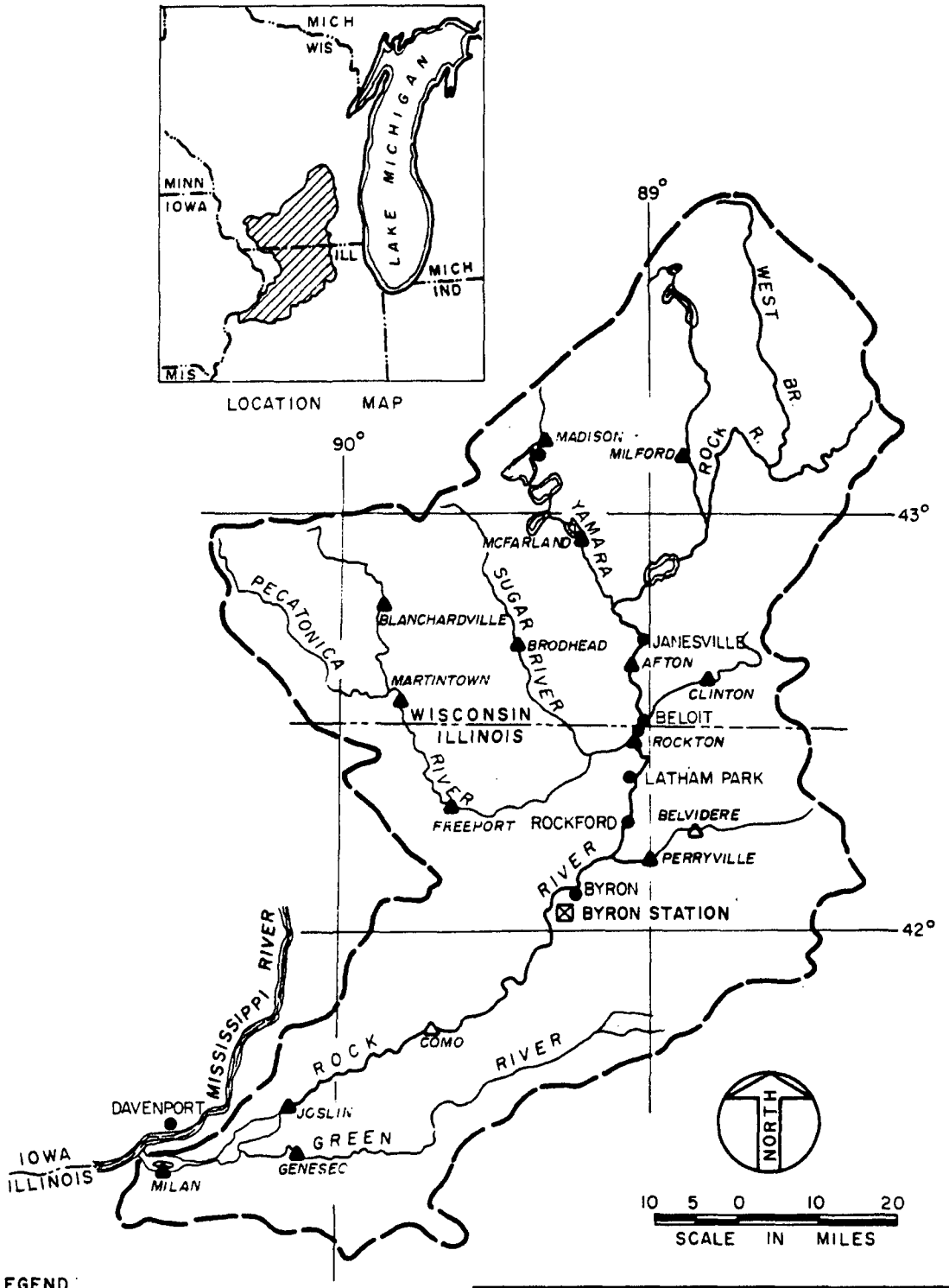
FIGURE 2.4-3

OUTLINE OF MAJOR PLANT STRUCTURES



LEGEND:

- ▲ RECORDING STATION
- △ NON-RECORDING STATION
- ● CITY OR TOWN

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FIGURE 2.4-4

HYDROLOGIC NETWORK OF ROCK RIVER

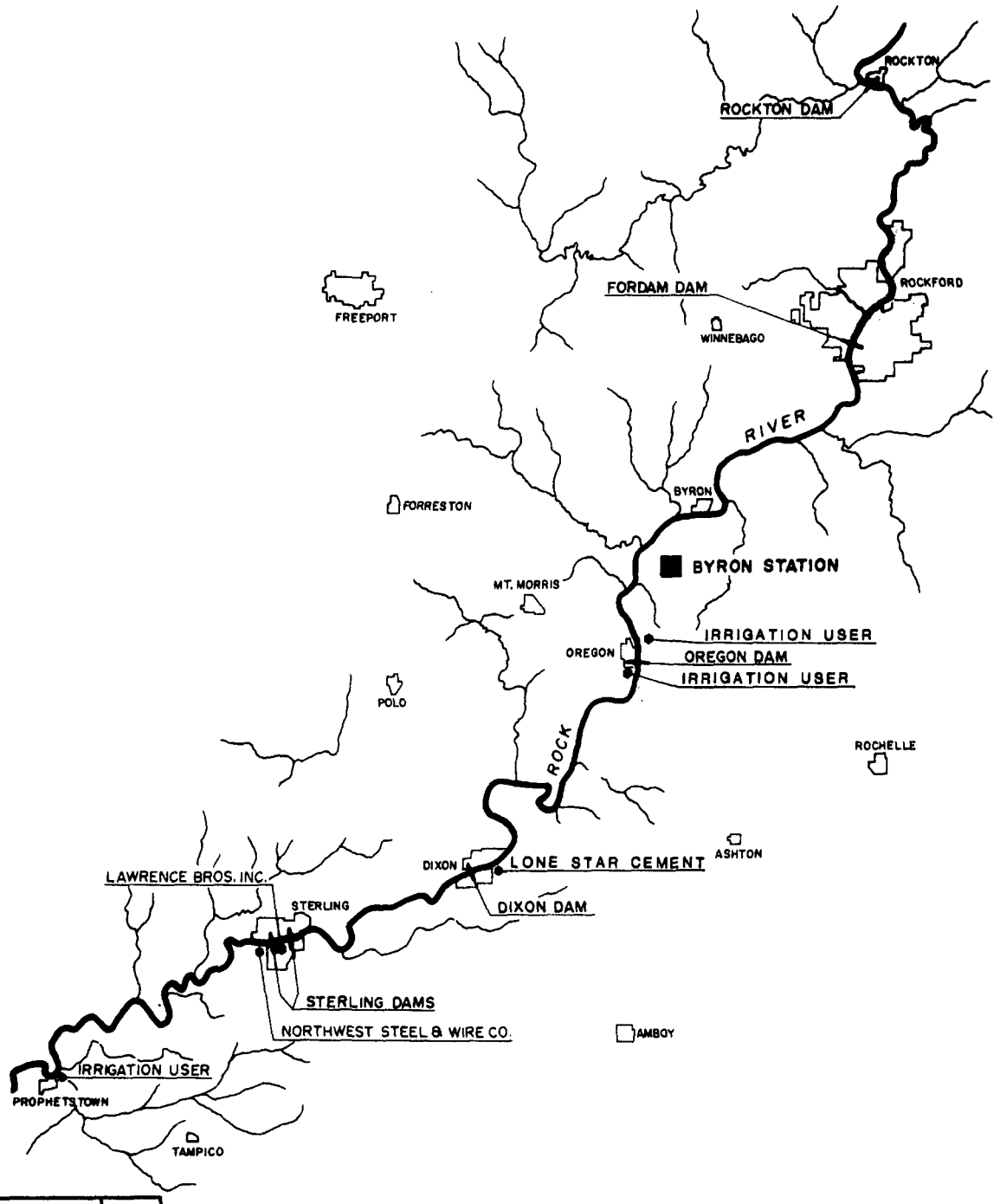

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FIGURE 2.4-5

DAM AND SURFACE WATER USERS NEAR
THE PLANT SITE

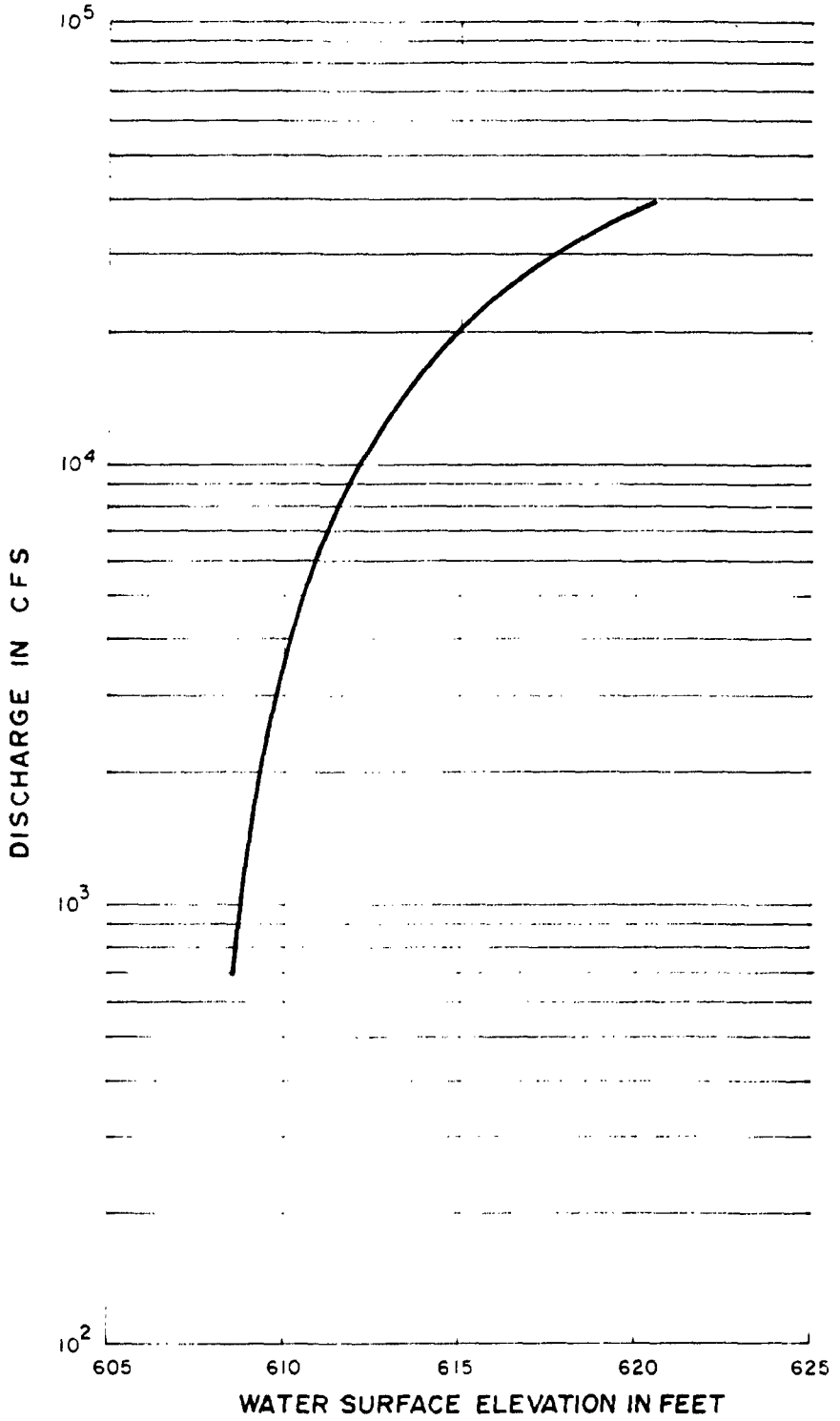

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FIGURE 2.4-6

RATING CURVE FOR ROCK RIVER AT COMO

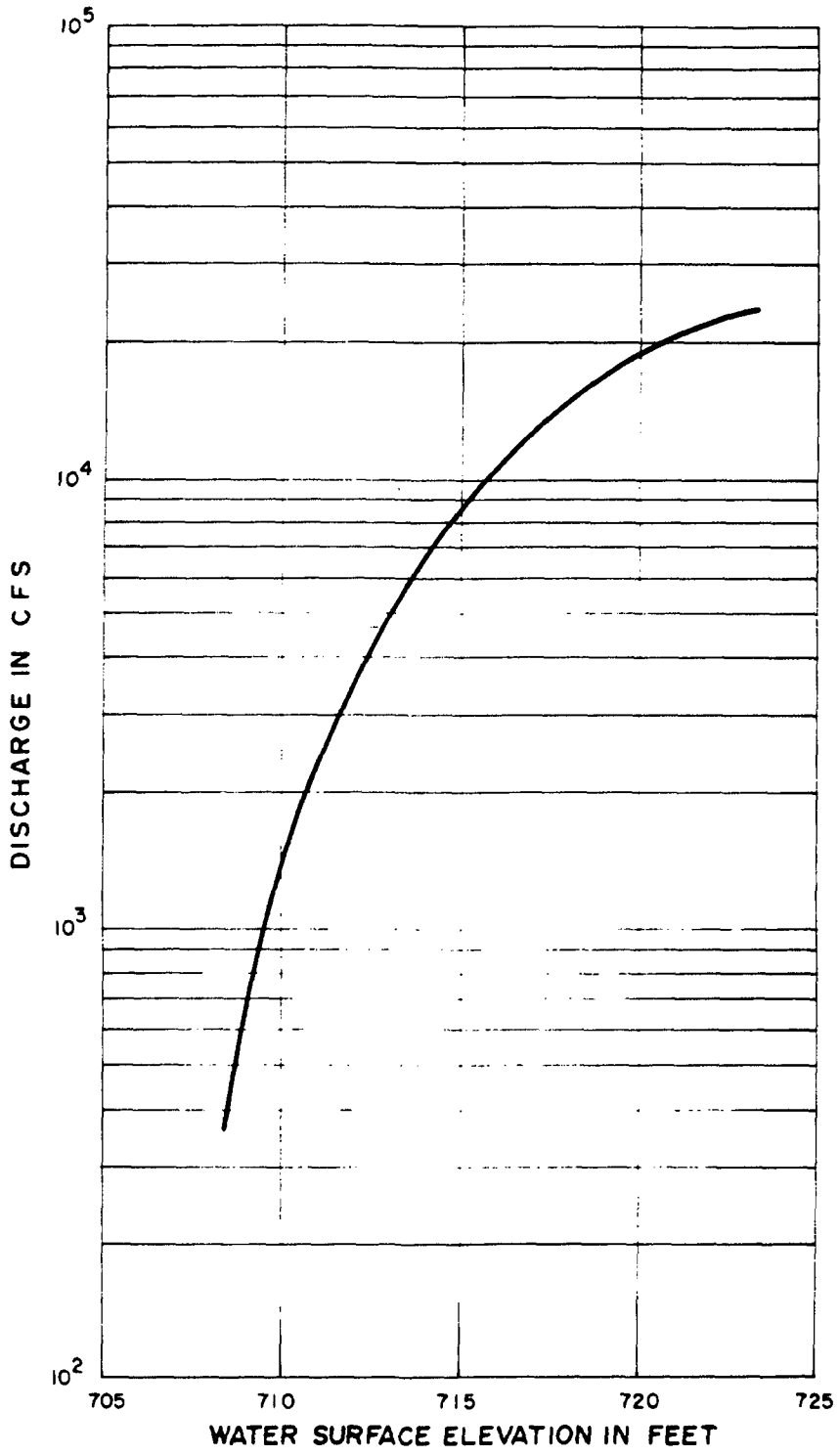

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FIGURE 2.4-7

RATING CURVE FOR ROCK RIVER AT ROCKTON

REVISION 8
DECEMBER 2000

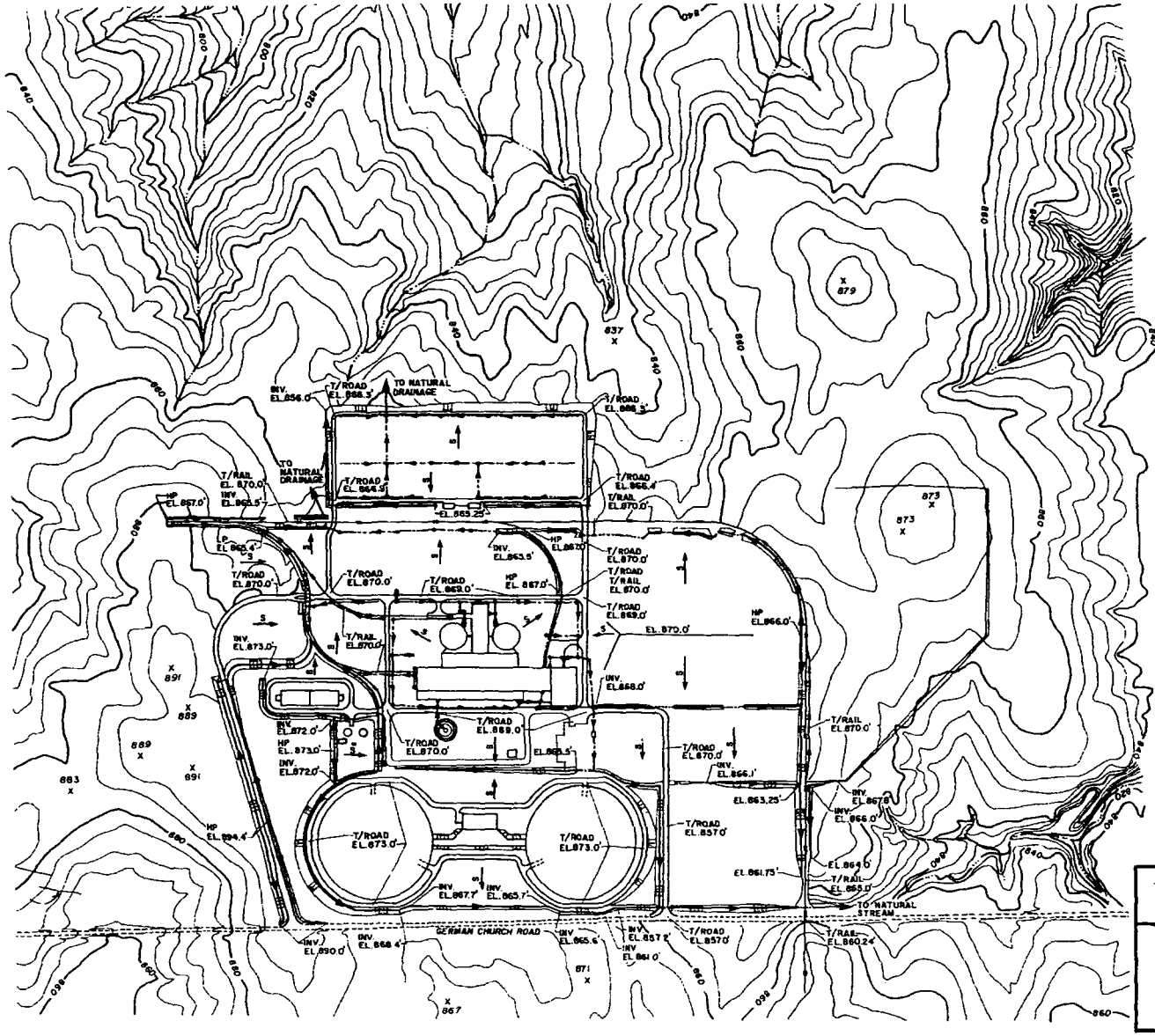

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FIGURE 2.4-8

SITE DRAINAGE, ROAD AND TRACK ELEVATIONS

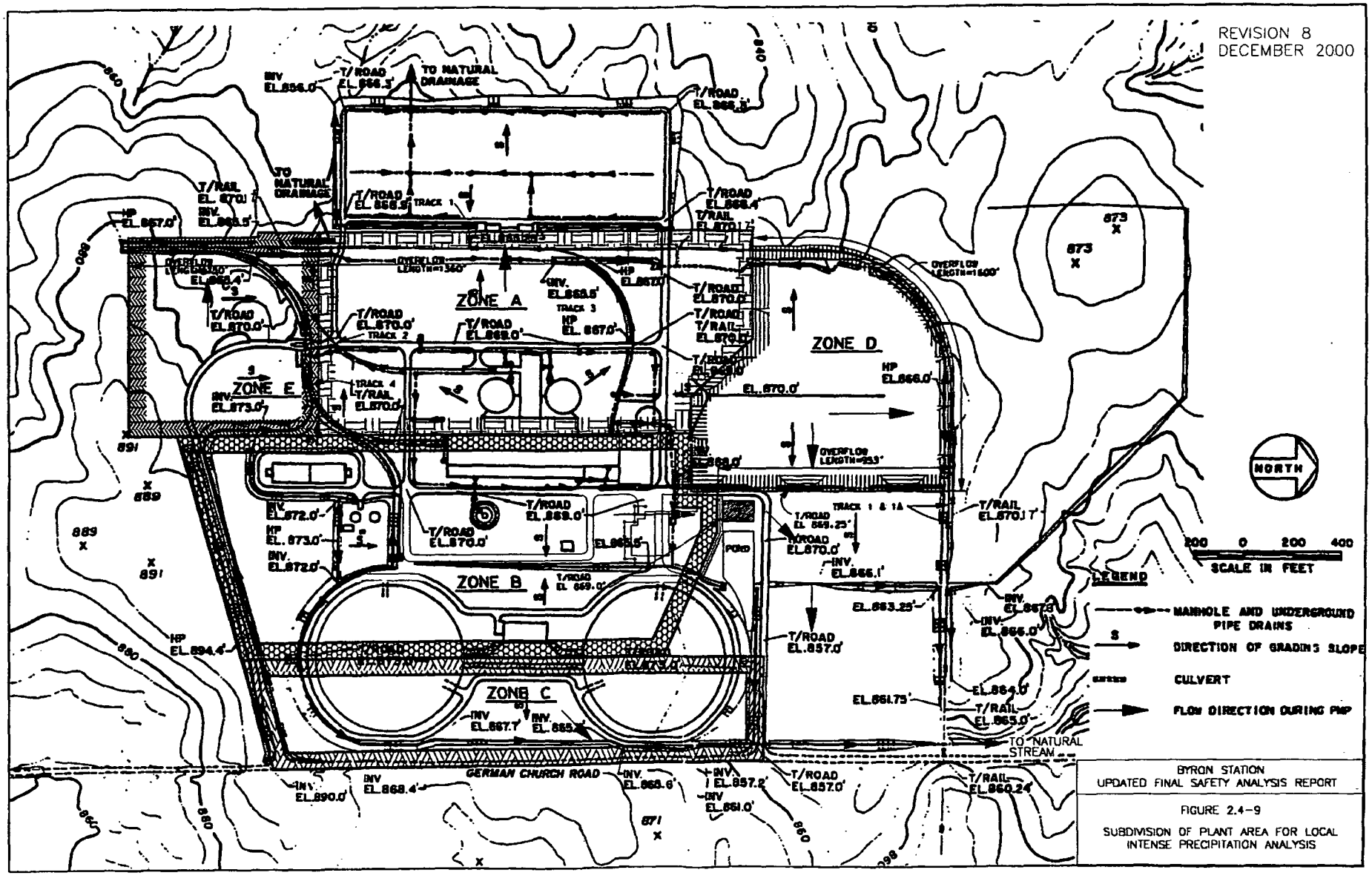
REVISION 8
DECEMBER 2000
ZONE A
ZONE B
ZONE C
ZONE D
ZONE E
TO NATURAL DRAINAGE
GERMAN CHURCH ROAD
TO NATURAL STREAM
NORTH
200 0 200 400
SCALE IN FEET
LEGEND
MANHOLE AND UNDERGROUND PIPE DRAINS
DIRECTION OF GRADING SLOPE
CULVERT
FLOW DIRECTION DURING PMP
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FIGURE 2.4-9
SUBDIVISION OF PLANT AREA FOR LOCAL INTENSE PRECIPITATION ANALYSIS

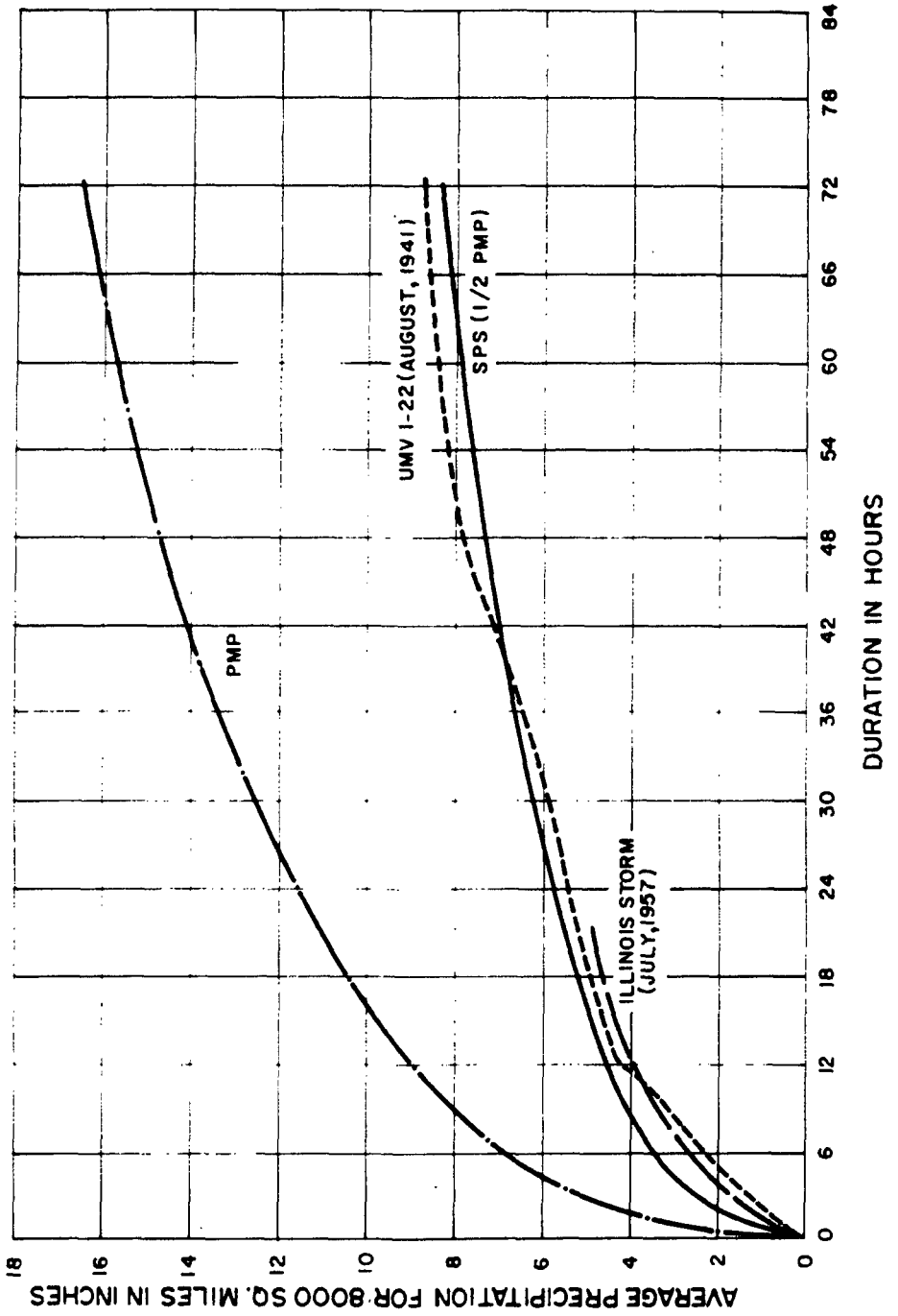

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FIGURE 2.4-10

COMPARISON OF DEPTH-DURATION RELATIONSHIPS FOR MAJOR STORMS

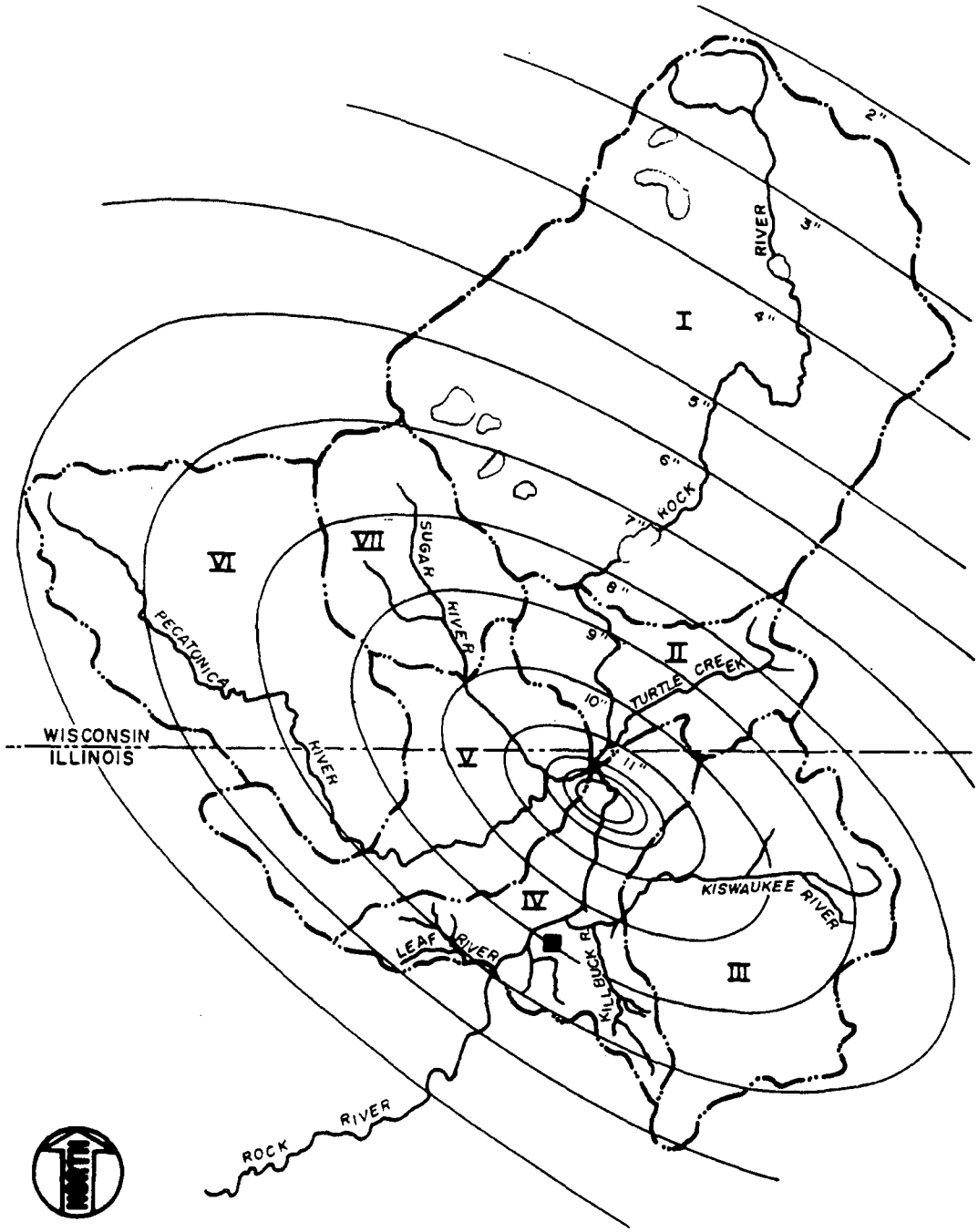

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FIGURE 2.4-11

ROCK RIVER 72-HOUR SPS ISOHYETAL
AND SUB-BASIN MAP

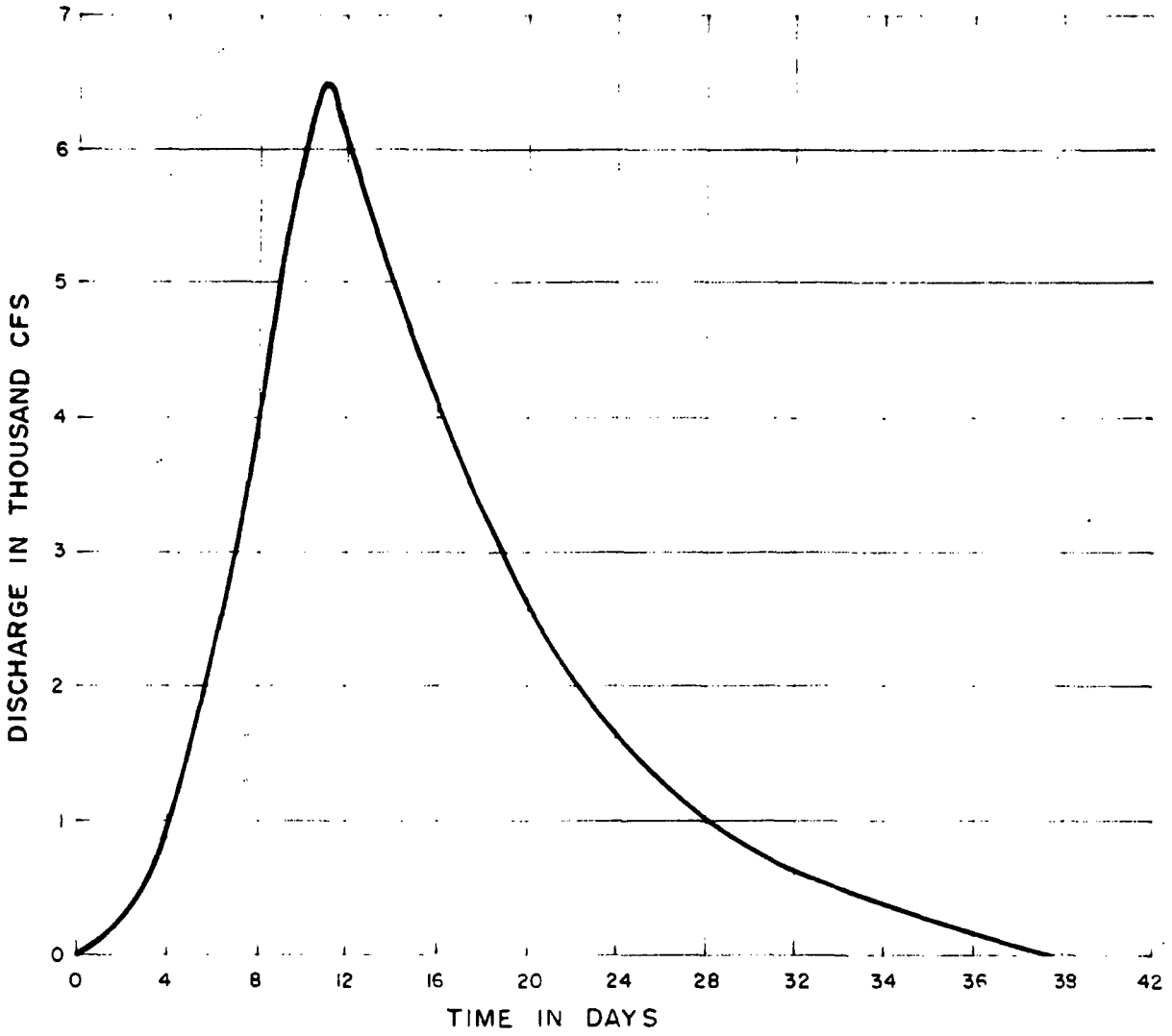

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FIGURE 2.4-12

ROCK RIVER SUB-BASIN I 12-HOUR
UNIT HYDROGRAPH

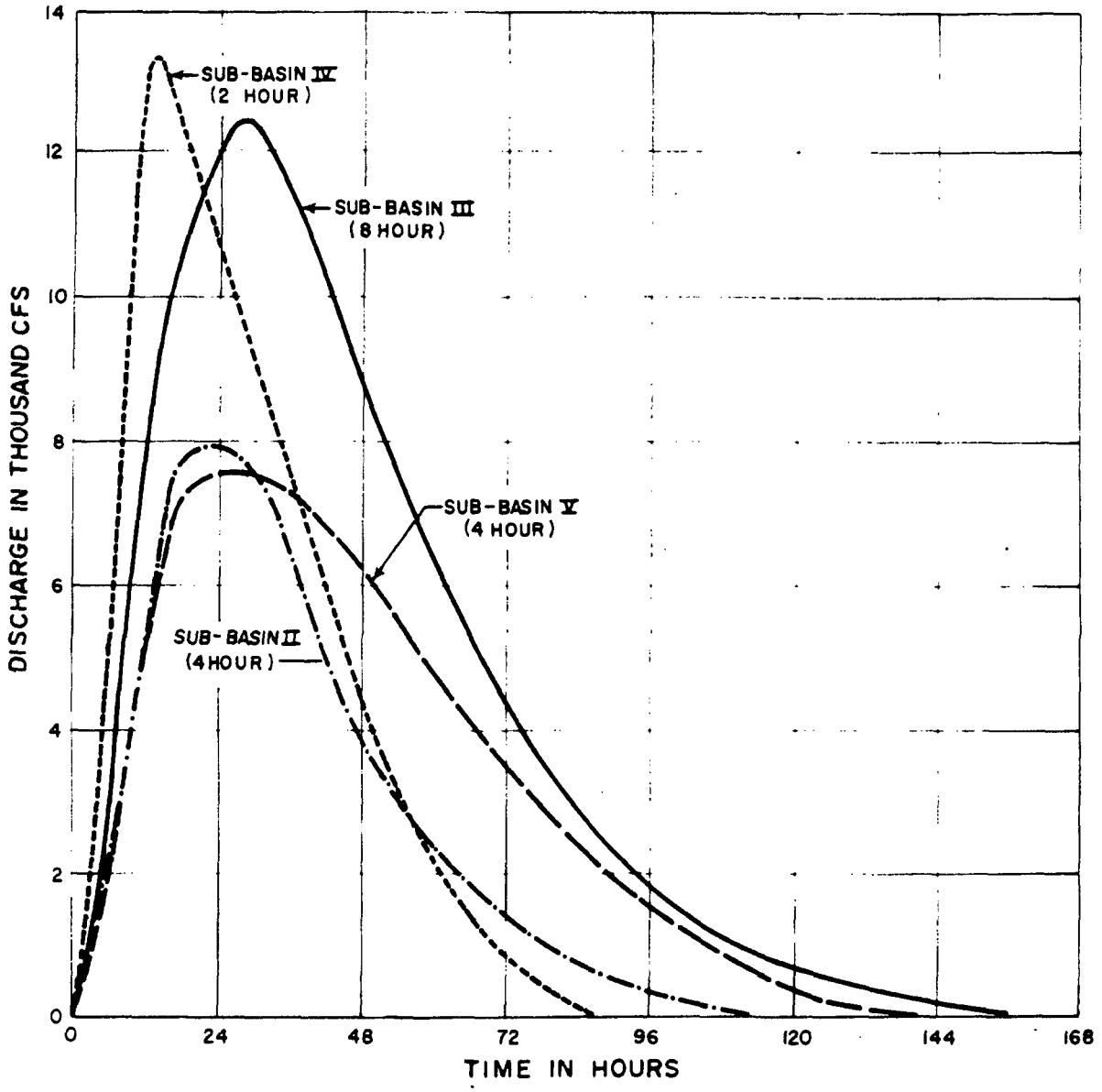

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FIGURE 2.4-13

ROCK RIVER SUB-BASINS II, III, IV, AND V
UNIT HYDROGRAPHS

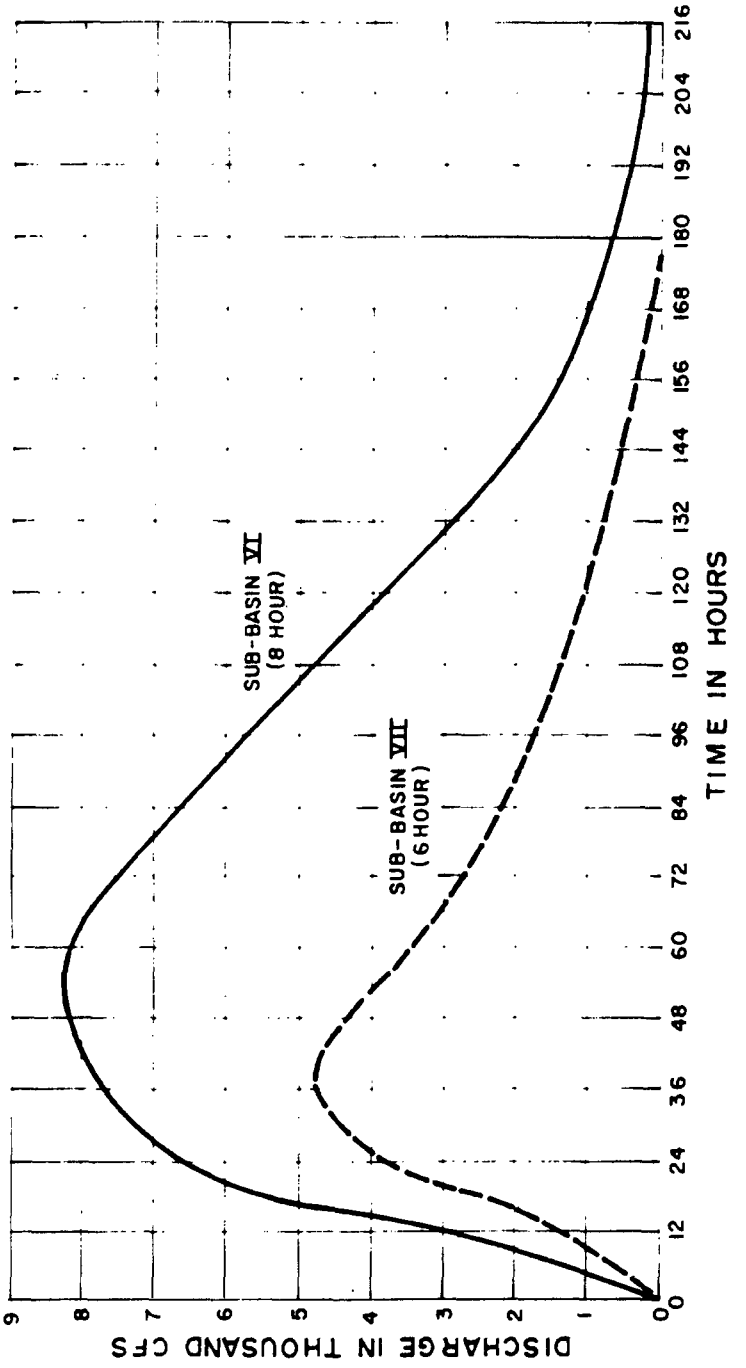

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FIGURE 2.4-14

ROCK RIVER SUB-BASINS VI AND VII
UNIT HYDROGRAPHS

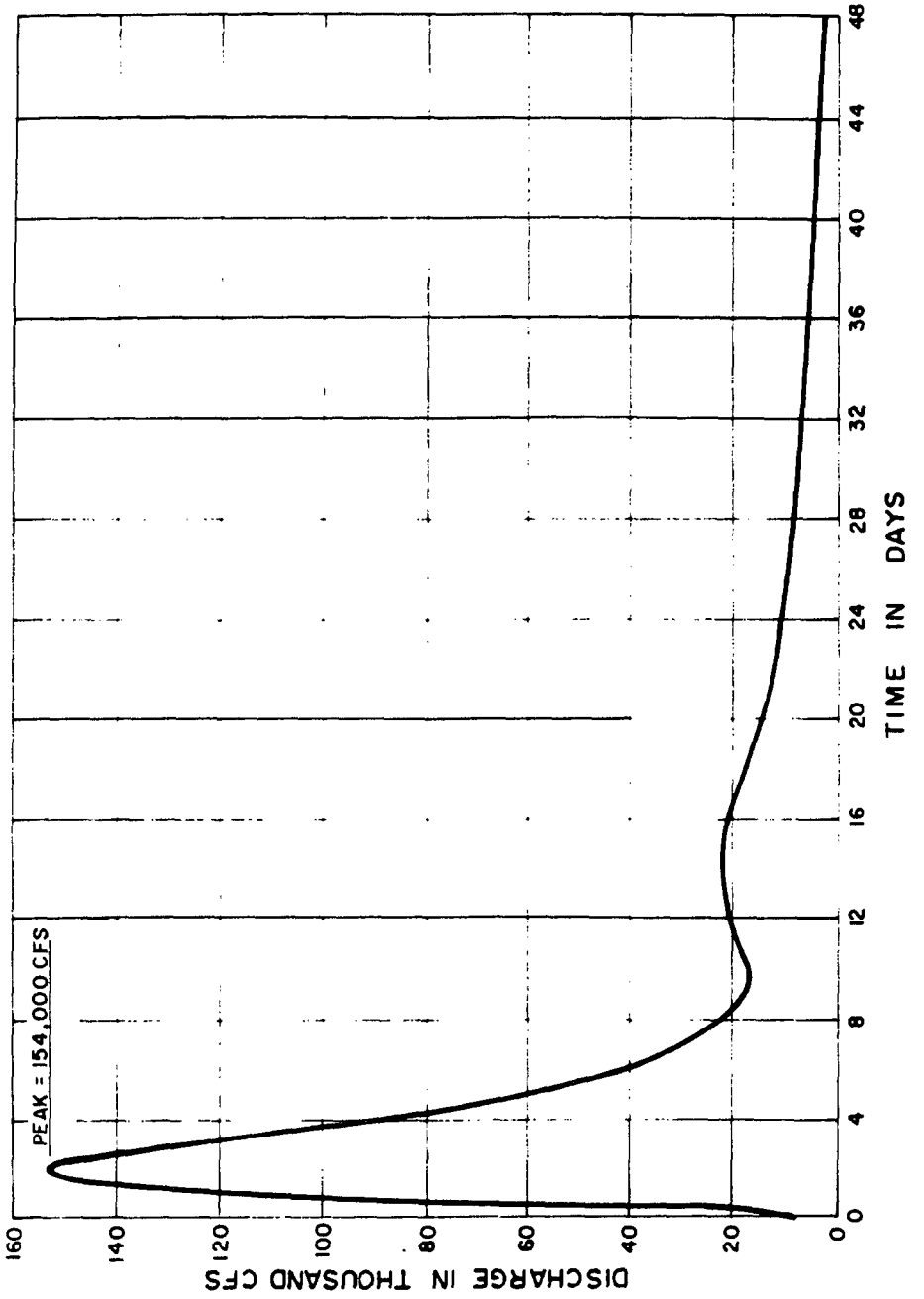

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FIGURE 2.4-15

ROCK RIVER STANDARD PROJECT
FLOOD HYDROGRAPH

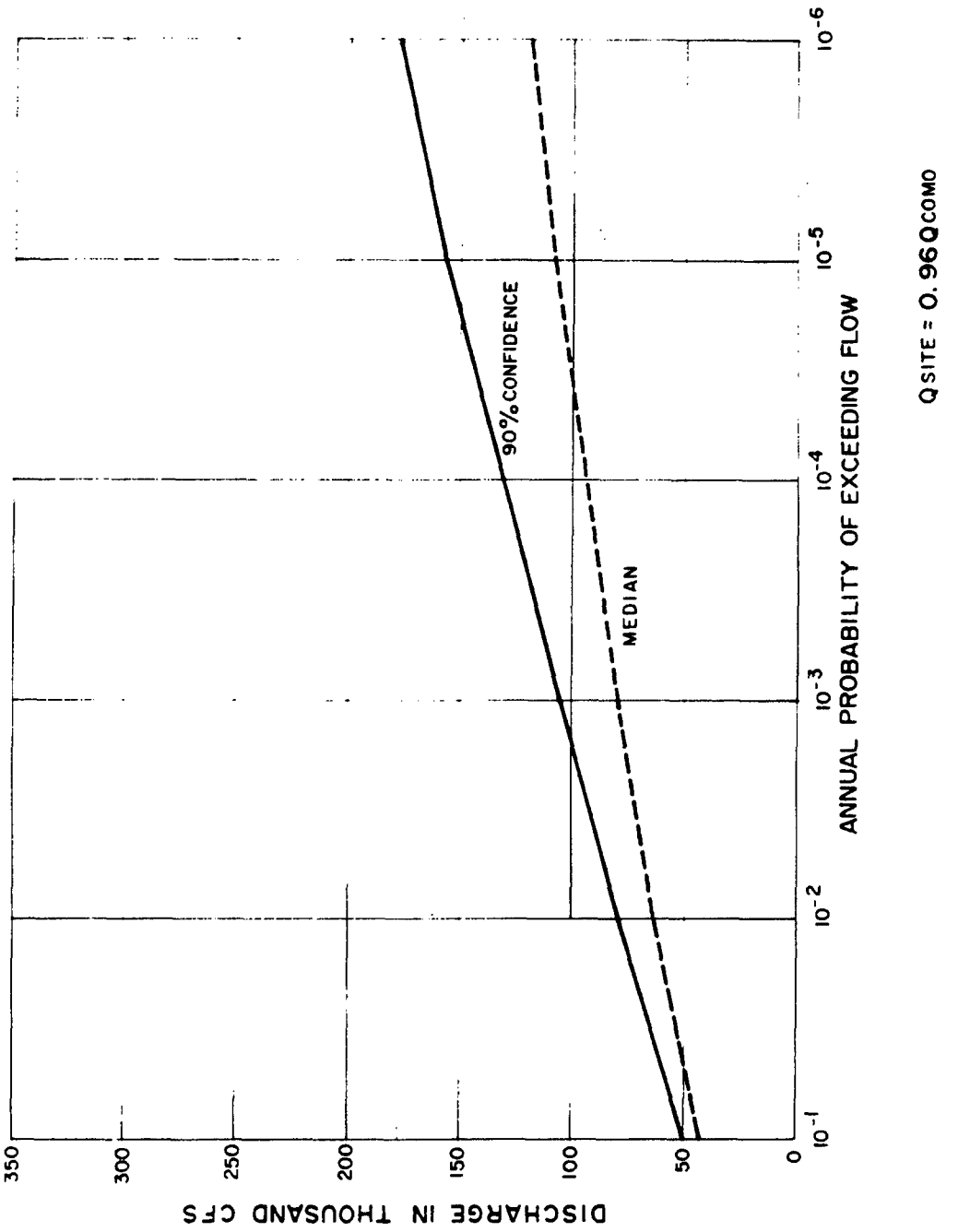

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FIGURE 2.4-16

FLOOD DISCHARGES AT INTAKE

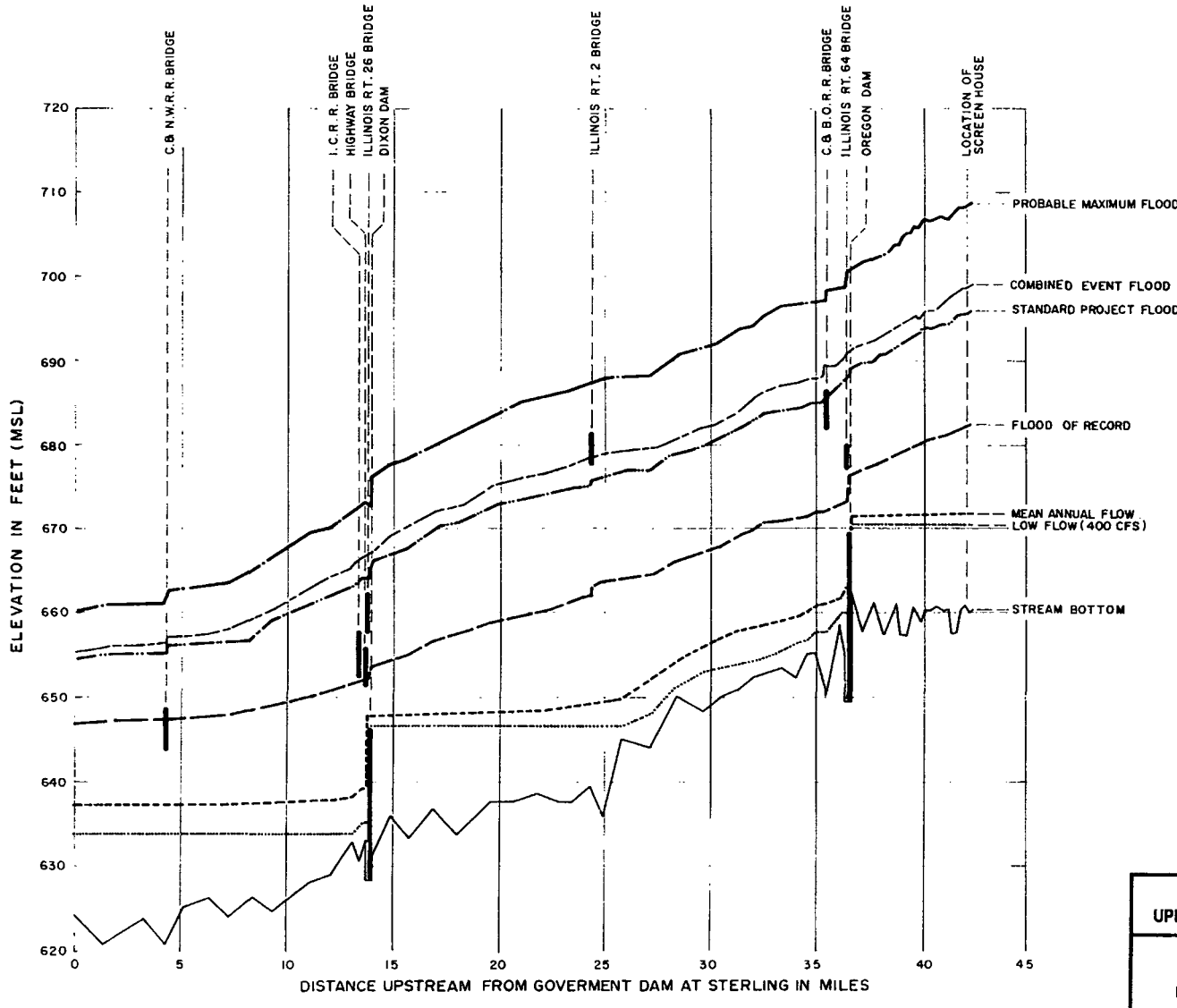

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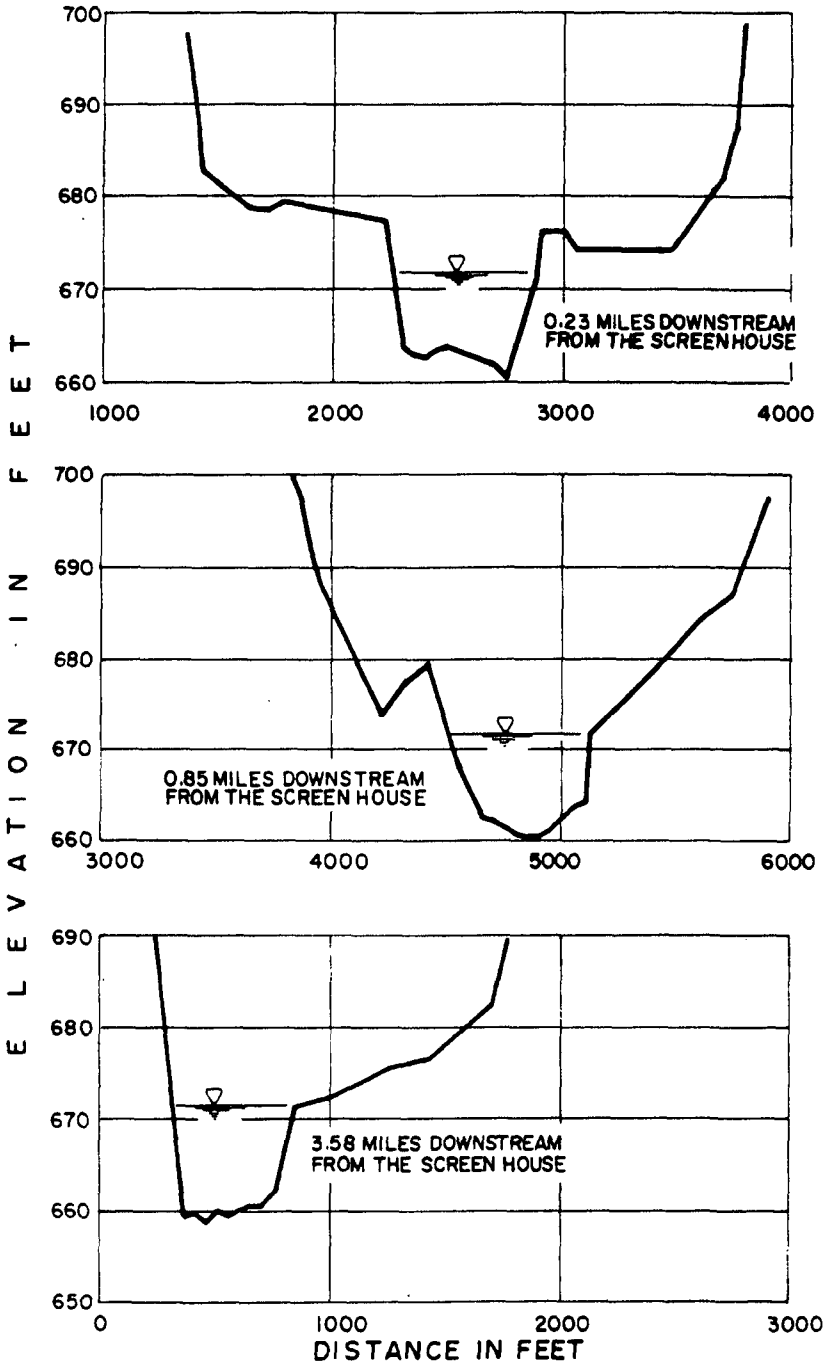
FIGURE 2.4-17

ROCK RIVER WATER SURFACE PROFILES



NOTE:
CROSS SECTIONS ARE
LOOKING DOWNSTREAM

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FIGURE 2.4-18

ROCK RIVER CROSS SECTIONS
NEAR THE SITE

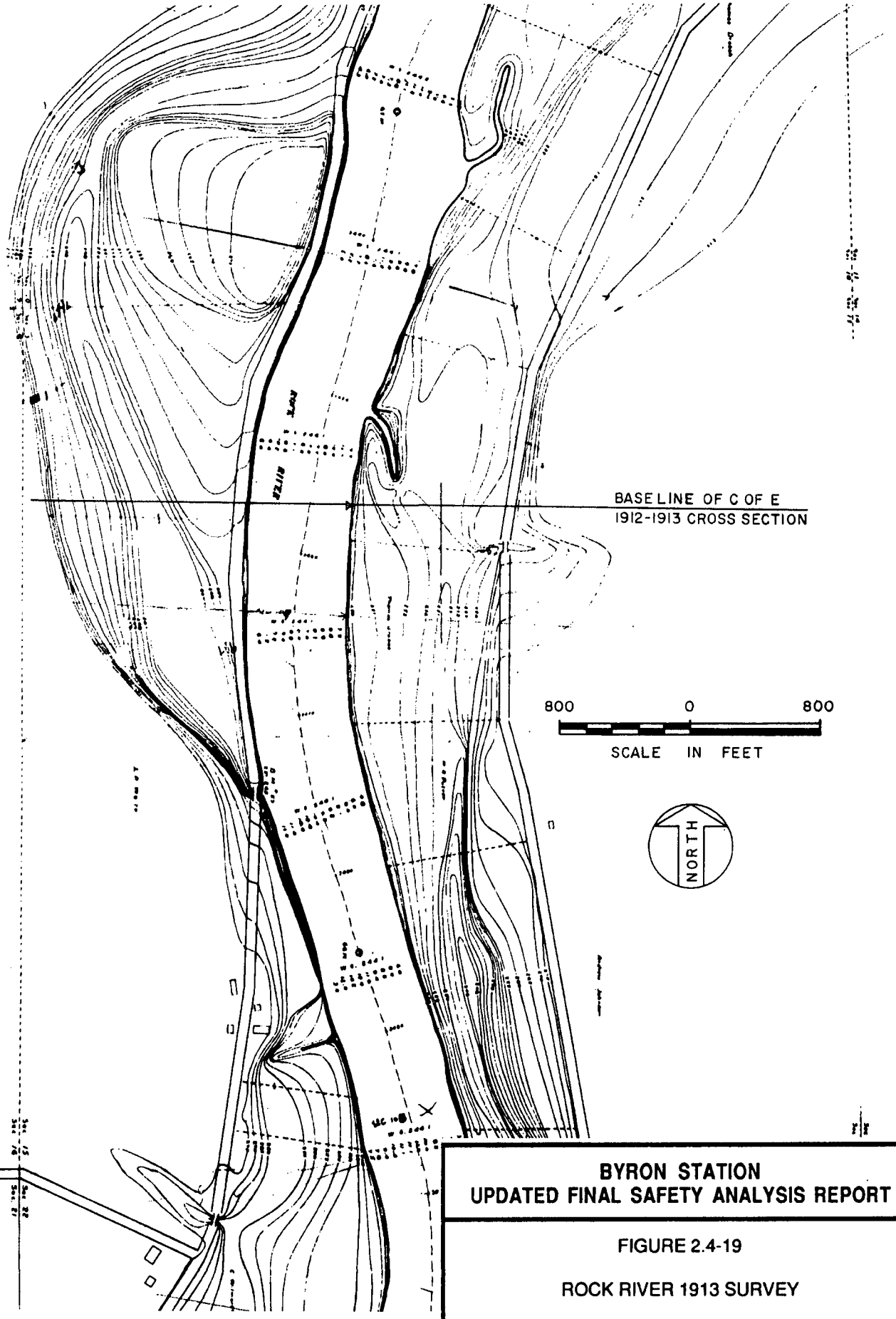

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FIGURE 2.4-19

ROCK RIVER 1913 SURVEY

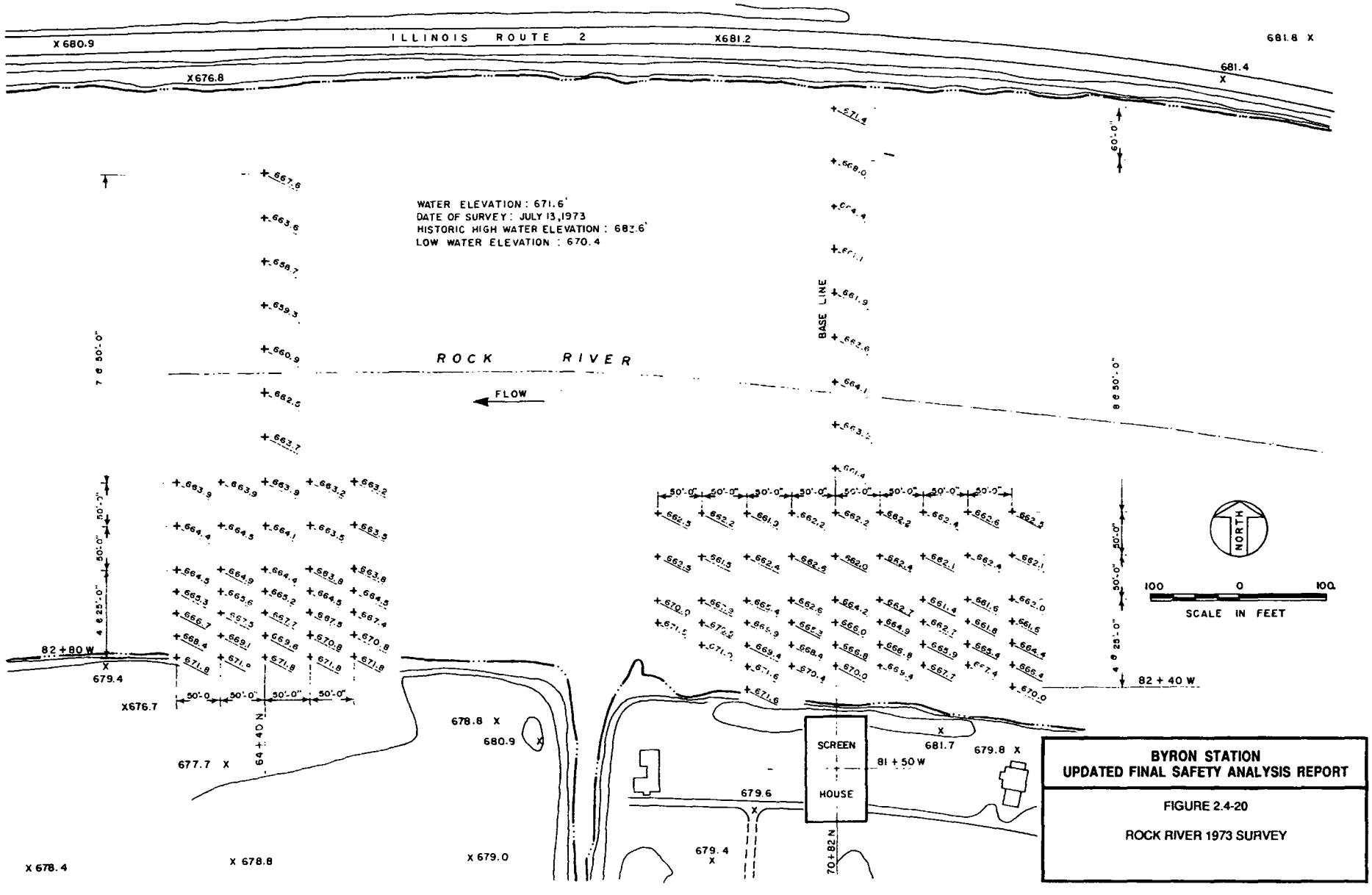

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FIGURE 2.4-20

ROCK RIVER 1973 SURVEY

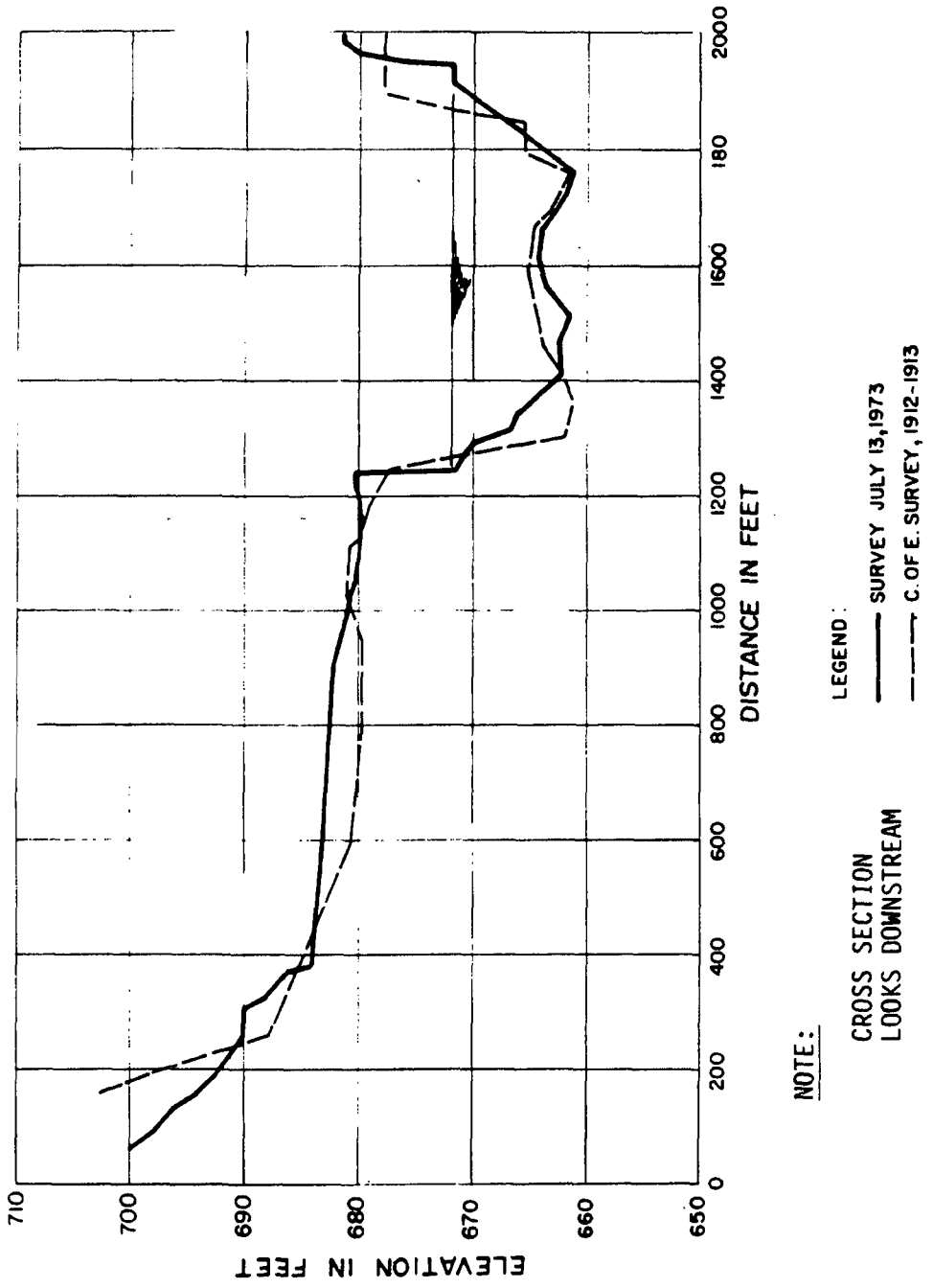

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FIGURE 2.4-21

ROCK RIVER CROSS SECTIONS
NEAR INTAKE

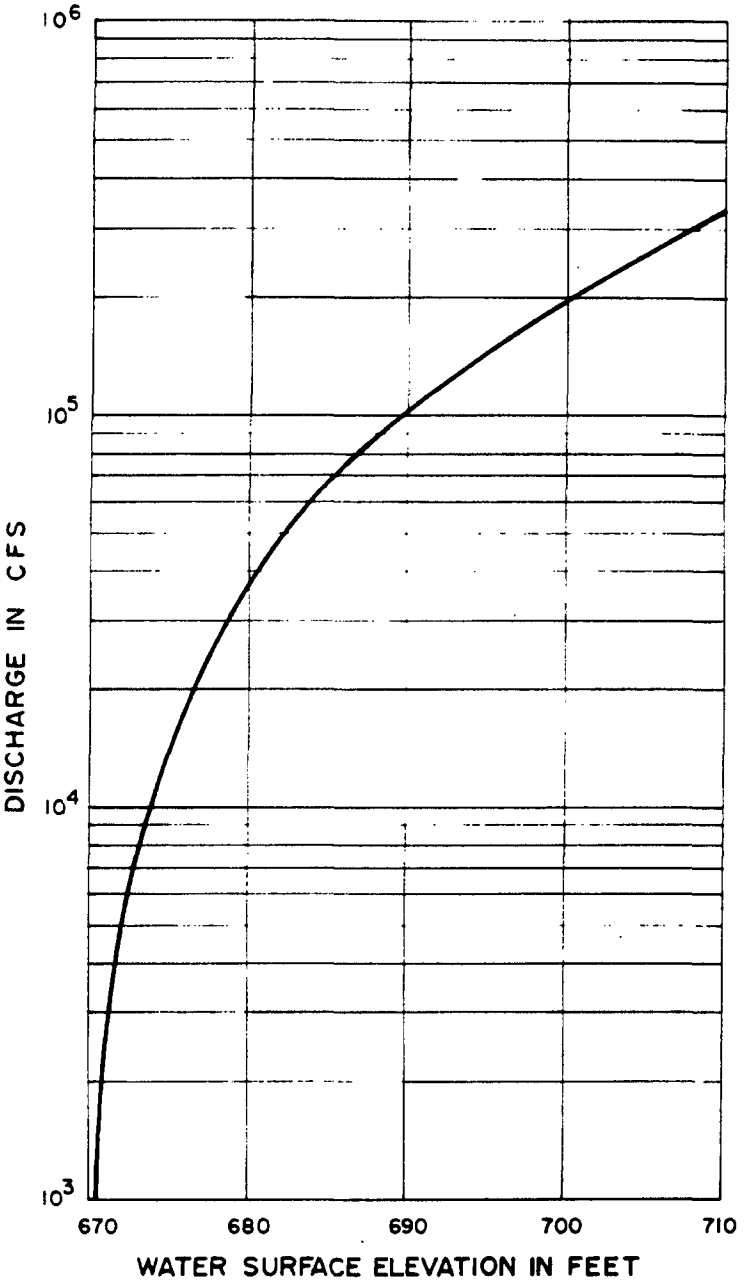

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FIGURE 2.4-22

RATING CURVE FOR ROCK RIVER
AT INTAKE

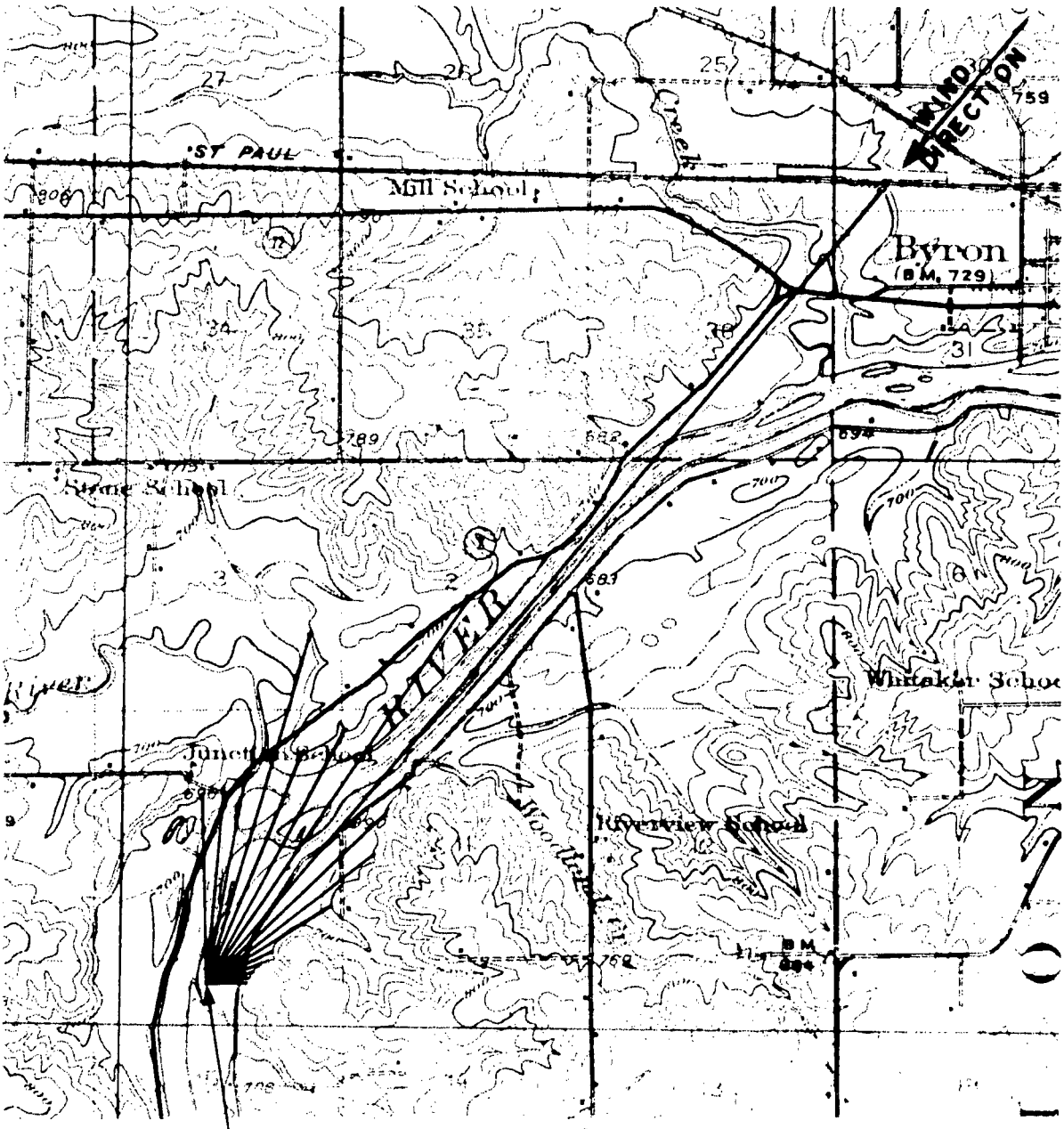

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FIGURE 2.4-23

ROCK RIVER WIND ACTION FETCH DIAGRAM

SYSTEM	SERIES	GROUP OR FORMATION	HYDROGEOLOGIC UNIT		DESCRIPTION	HYDROGEOLOGIC CHARACTERISTICS
QUATERNARY	Pleistocene	Peoria Loess (undifferentiated)	Glacial Drift Aquitard		Silt, locally clayey, gravelly and sandy; with interbedded lenses of sand and gravel	Ground water occurs predominantly in thin sand and gravel pockets within the glacial drift. Yields are quite variable and typically low, suitable only for domestic and farm purposes. Wells or cisterns that intersect the more permeable zones may exhibit high, short-term yields.
		Wedron Formation (Esmond Till Member)				
		Morton Loess				
		Winnebago Formation (Argyle Till Member)				
		Glasford Formation (Ogle Till Member)				
ORDOVICIAN	Champlainian	Galena Group	Galena-Platteville dolomites	Cambrian-Ordovician Aquifer	Dolomite and limestone, Locally cherty, sandy at base, shale partings	Ground water occurs under leaky artesian conditions in the sandstones and in joints in the dolomites. In the Galena-Platteville dolomites ground water also occurs under water table conditions where the overlying Maquoketa Group is absent. Yields are variable and depend upon which units are open to the well. In terms of the total yield of a well penetrating the entire thickness of the Cambrian-Ordovician Aquifer, the Glenwood-St. Peter sandstone supplies about 15 percent, the Prairie du Chien, Eminence, Potosi, and Franconia dolomites collectively supply about 35 percent, and the Ironton-Galesville sandstone supplies about 50 percent.
		Platteville Group				
		Ancell Group	Glenwood-St. Peter sandstone		Sandstone, shale at top, little dolomite, locally cherty at base	
	Canadian	Prairie du Chien Group	Prairie du Chien, Eminence, Potosi, and Franconia dolomites		Sandy dolomite, dolomitic sandstone, cherty at top, interbedded shale in lower part	
CAMBRIAN	Croixan	Eminence Formation				
		Potosi Dolomite				
		Franconia Formation				
		Ironton Sandstone	Ironton-Galesville sandstone		Sandstone, upper part dolomite	
		Galesville Sandstone				
		Eau Claire Formation	Eau Claire Aquitard (upper and middle beds)		Shales, dolomites, and shaly dolomitic sandstone	Insignificant amounts of ground water may occur in joints. These beds act as a confining layer between the Cambrian-Ordovician Aquifer and the Mt. Simon Aquifer.
		Mt. Simon Sandstone	Mt. Simon Aquifer		Sandstone	Ground water occurs under leaky artesian conditions. Adequate supplies for municipal and industrial use are more easily obtained from shallower aquifers.

NOTES:
1) MODIFIED FROM: REFERENCE 19.
2) STRATIGRAPHIC NOMENCLATURE FROM BULLETINS 94 AND 95, ILLINOIS STATE GEOLOGICAL SURVEY, REFERENCES 29 AND 26.
3) THE SPACING OF THE HYDROGEOLOGIC UNITS IS NOT INTENDED TO REPRESENT THEIR RELATIVE THICKNESSES.

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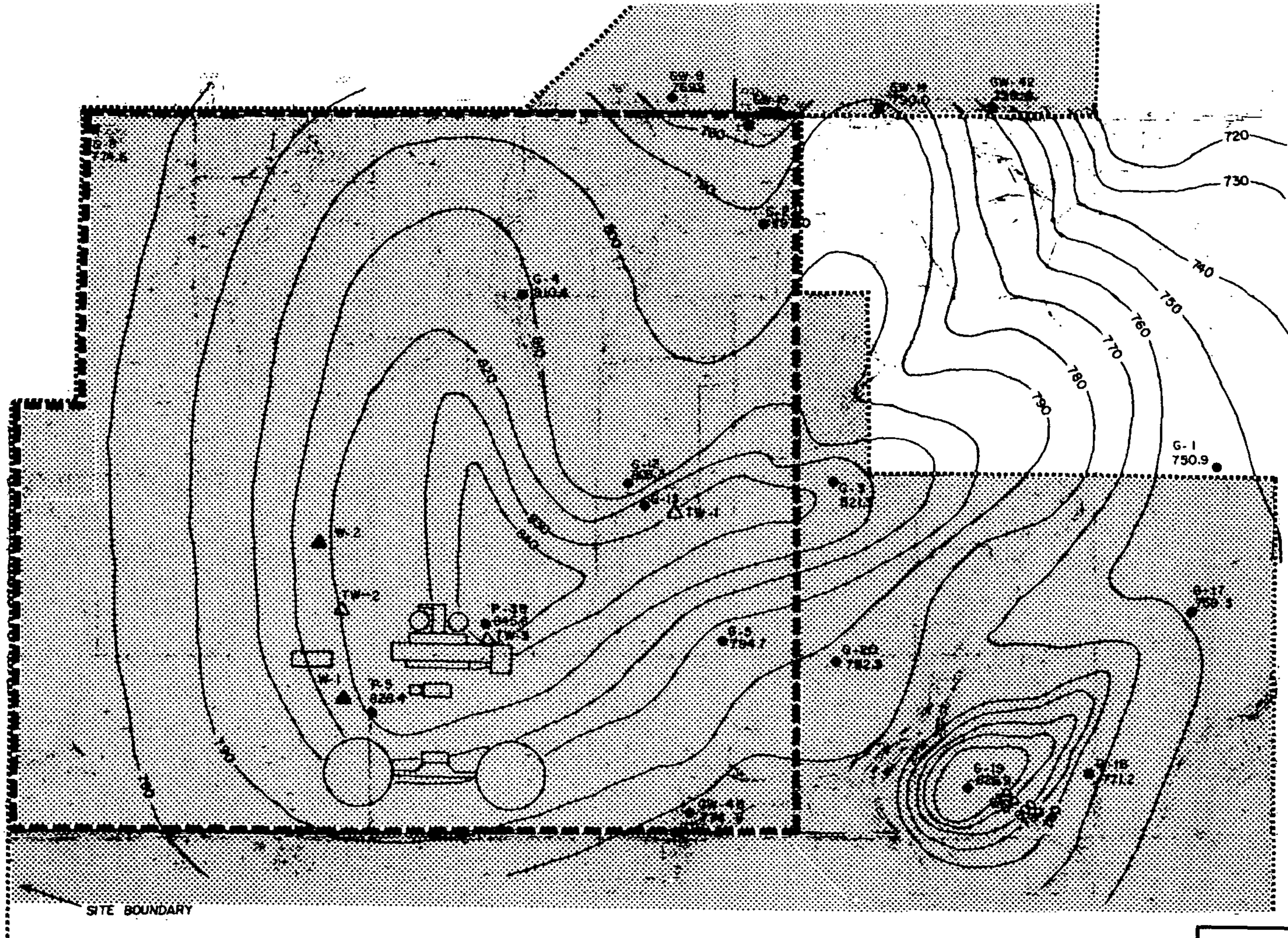
FIGURE 2.4-24

REGIONAL HYDROGEOLOGIC COLUMN



LEGEND

G-3 Well designation
● 822.3 Piezometer level

▲ W-1 Byron Station water well.

△ TW-1 Temporary construction well

GW-9 Former domestic well

NOTES

1. Map based on water level data measured on July 1, 1974.
2. Map modified from Dames & Moore, Environmental Report — Inv of Buried Toxic Materials, Unpublished Figure 9
3. GW- series are formerly private water wells.

400 0 400
Scale in Feet
Contour Interval = 10 Feet

▬ ▬ ▬ EXCLUSION AREA

.... SITE BOUNDARY

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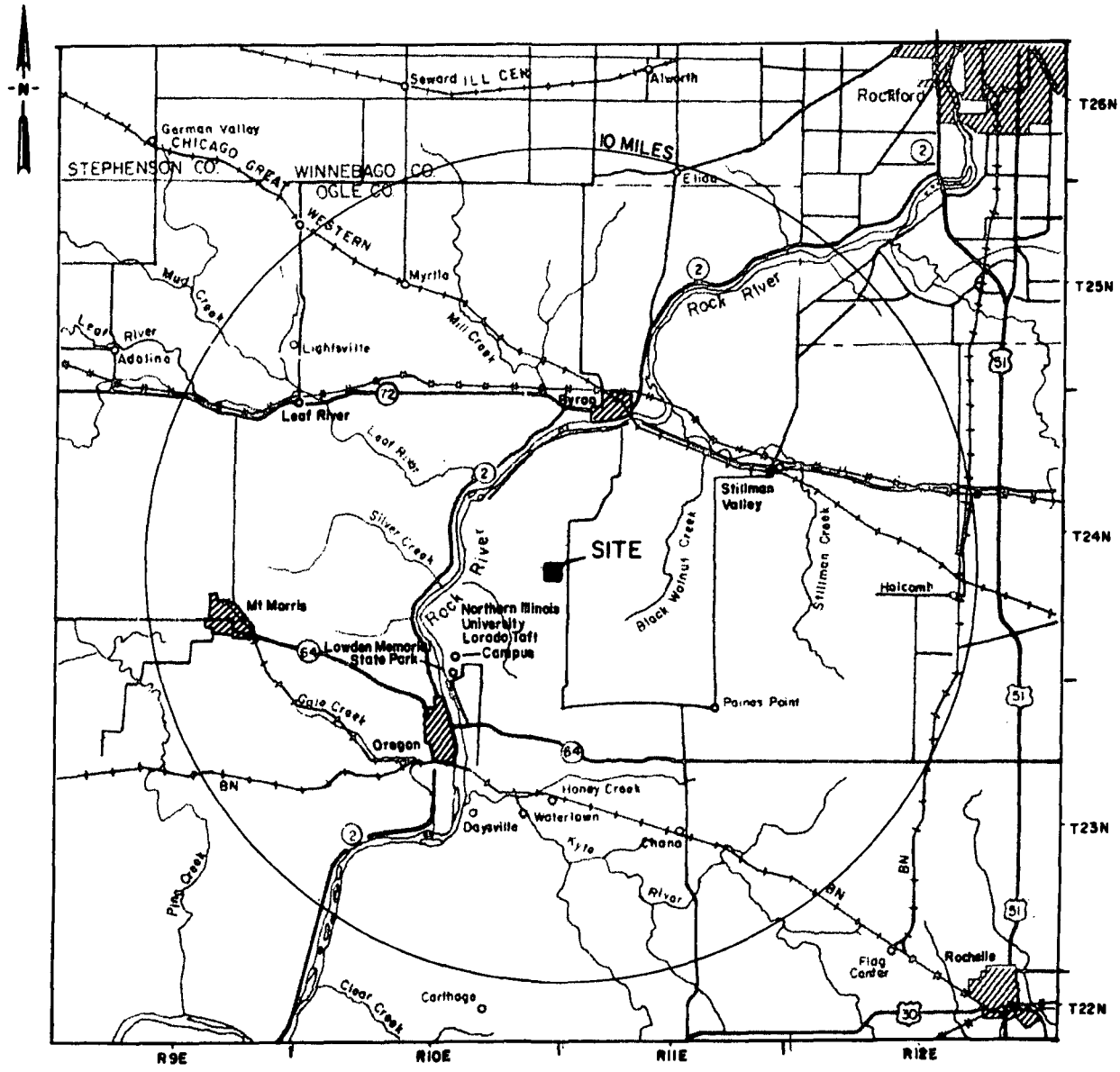
FIGURE 2.4-25

SITE AREA PIEZOMETRIC SURFACE MAP
GALENA-PLATTEVILLE AQUIFER



NOTES

1. Data for public ground water supplies within 10 miles are presented in Table 2.4-21
2. Base map modified from USGS, 1:250,000 series (topographic), Aurora, Illinois (NK 16-F), 1958. Rockford, Illinois (NK 16-4), 1958.

5 0 5

Scale in Miles

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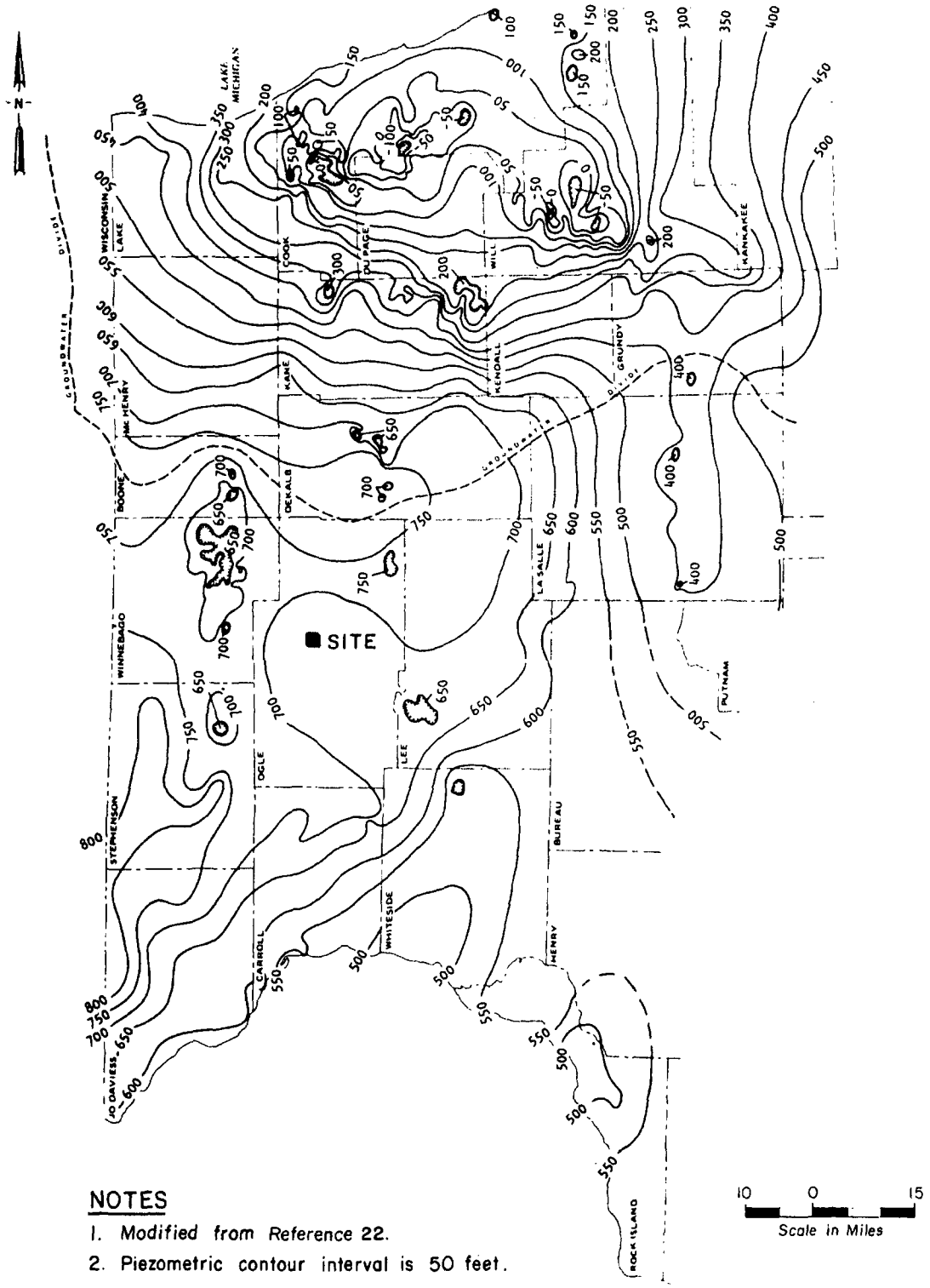
FIGURE 2.4-26

PUBLIC GROUNDWATER SUPPLIERS WITHIN 10 MILES



NOTES

1. Modified from Reference 22.
2. Piezometric contour interval is 50 feet.

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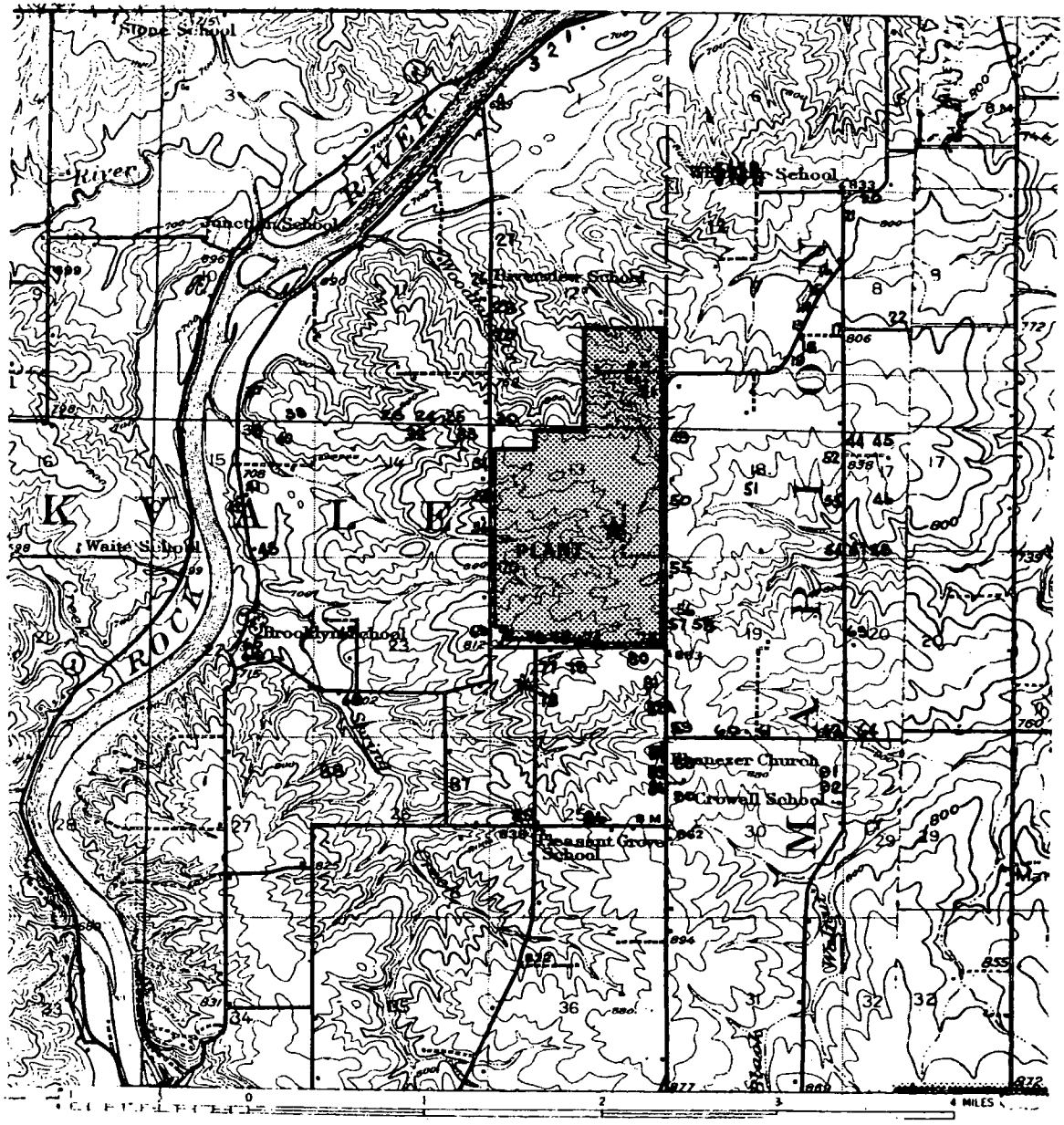
FIGURE 2.4-27

PIEZOMETRIC SURFACE OF THE
CAMBRIAN-ORDOVICIAN AQUIFER,
OCTOBER 1971



LEGEND

Site boundary

NOTES

Designators Refer to Table 2.4-26

Base map modified from USGS, 1:62,500 series (topographic), Oregon, Illinois, 1948

0 1/2 1 mile

SCALE

NORTH

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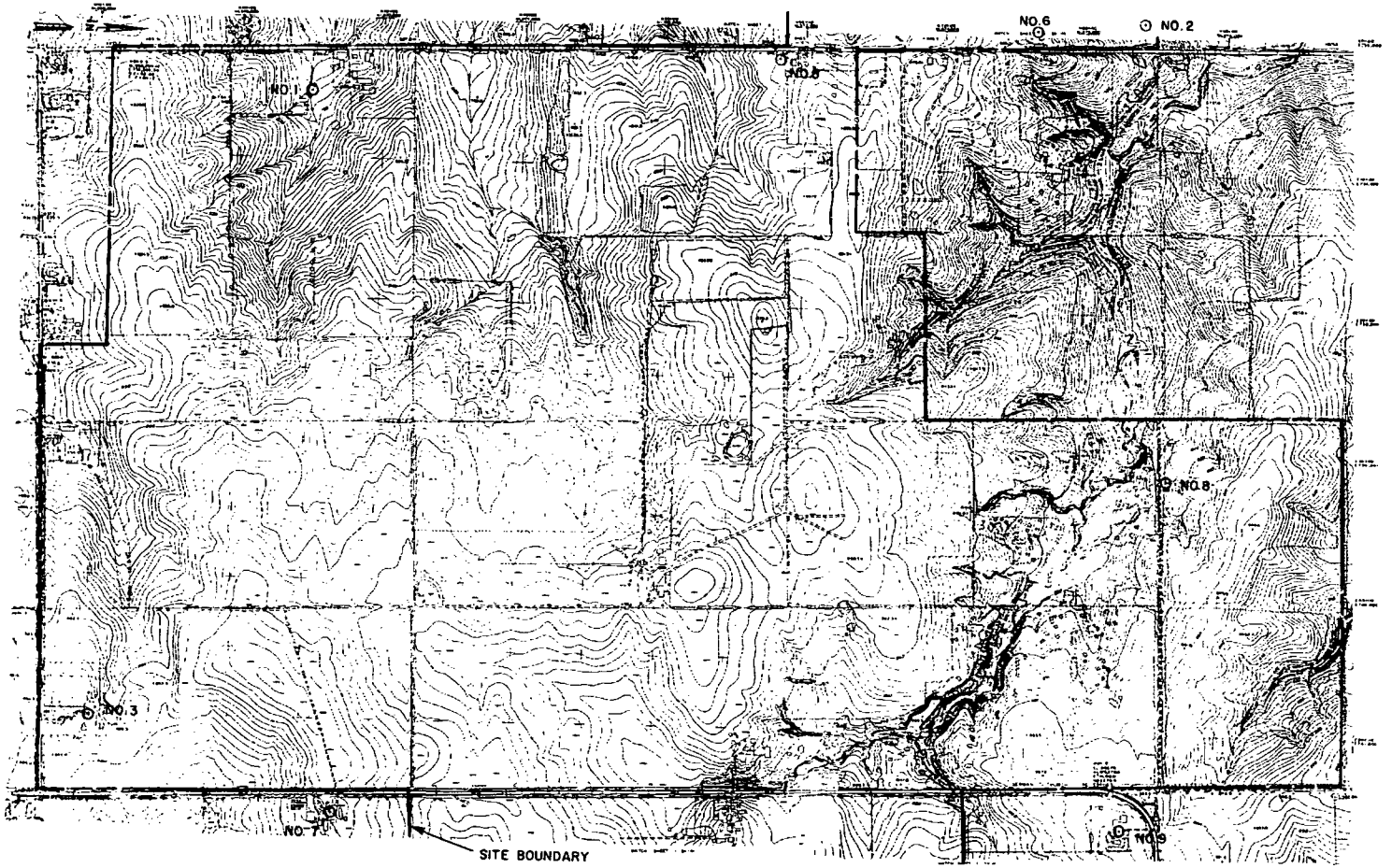
FIGURE 2.4-28

LOCATION OF WELLS WITHIN 2.25 MILES OF THE PLANT



LEGEND

⊙ Well location and number

NOTES

1. The records of ground water levels are presented on Table 2.4-28.
2. The water quality data from these wells is presented in Table 2.4-27.
3. Well No 4 was not included in the monitoring program.

400 0 400
Scale in Feet
Contour interval = 10 Feet

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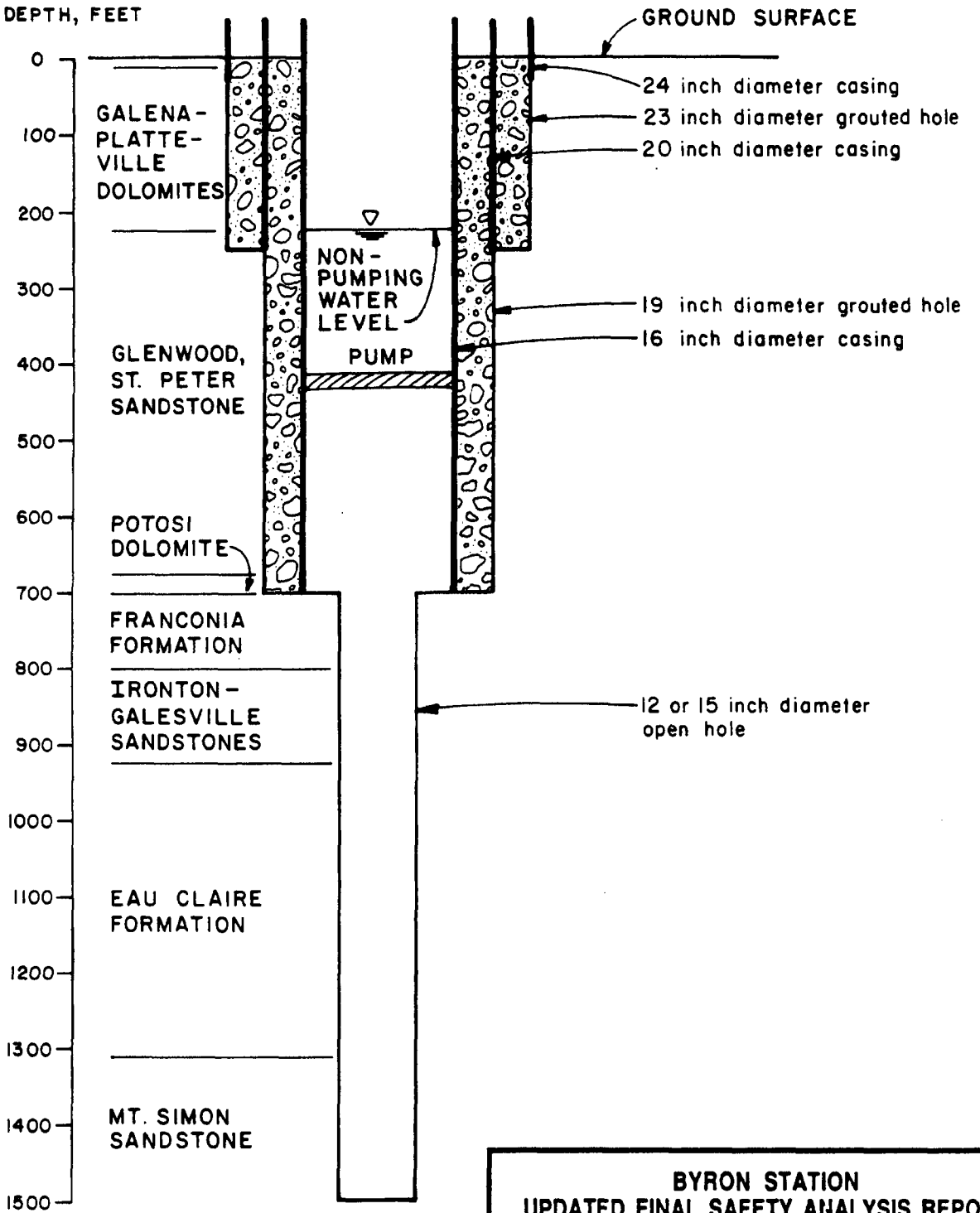
FIGURE 2.4-29

WELL LOCATION MAP—
WATER QUALITY MONITORING SYSTEM



NOTES

1. NOT TO SCALE.
2. WELL CONSTRUCTION DETAILS ARE SUMMARIZED IN TABLE 2.4-29.
3. PITLESS ADAPTER NOT SHOWN.

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FIGURE 2.4-30

SKETCH OF DEEP WELL CONSTRUCTION