COMMONWEALTH OF VIRGINIA
DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF MINERAL RESOURCES

MAGNETIC AND RADIOMETRIC DATA, SOUTHWEST PIEDMONT OF VIRGINIA

INFORMATION CIRCULAR 12

VIRGINIA DIVISION OF MINERAL RESOURCES

James L. Calver
Commissioner of Mineral Resources and State Geologist

CHARLOTTESVILLE, VIRGINIA
1966

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Commonwealth of Virginia
Department of Purchases and Supply
Richmond
1966

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MAGNETIC AND RADIOMETRIC DATA SOUTHWEST PIEDMONT OF VIRGINIA

Between May 28 and June 23, 1965, an airborne magnetic and radiometric survey was flown in an area of nearly 1700 square miles across parts of Carroll, Floyd, Franklin, Grayson, Henry, Patrick and Wythe counties (Figure 1). The traverse flight direction was N. 45° W. and S. 45° E.; tie line direction was at right angles to the traverse direction. Distance between adjacent traverses was 0.5 mile; flight altitude, 500 feet above terrain; and speed of the aircraft, about 150 miles per hour.

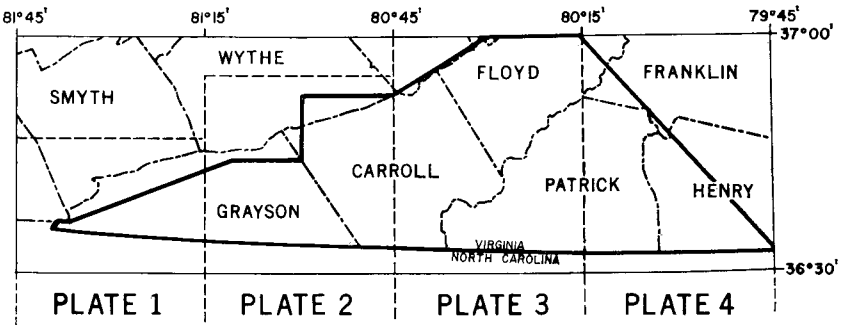

Figure 1. Index map showing location of airborne magnetic and radiometric survey.

Total magnetic intensity contoured (in black) at 10 and 20 gammas and radiometric data contoured (in red) at 300 counts per second are delineated on Plates 1 through 4 (in pocket). The map base was taken from United States Geological Survey topographic quadrangle maps, scale—1:62, 500. Within the area, the magnetic inclination is 69.6° and 69.7° below a horizontal plane and the declination ranges from 2.1° to 2.7° west of true north. Intensity of the undisturbed total field vector is about 55,700 gammas.

The data were compiled to provide basic information for the interpretation of the geology and evaluation of mineral occurrences in the southwestern Piedmont area of Virginia. This survey was accomplished for the Division of Mineral Resources by contract with Aero Service Corporation, a Division of Litton Industries, Philadelphia, Pennsylvania.

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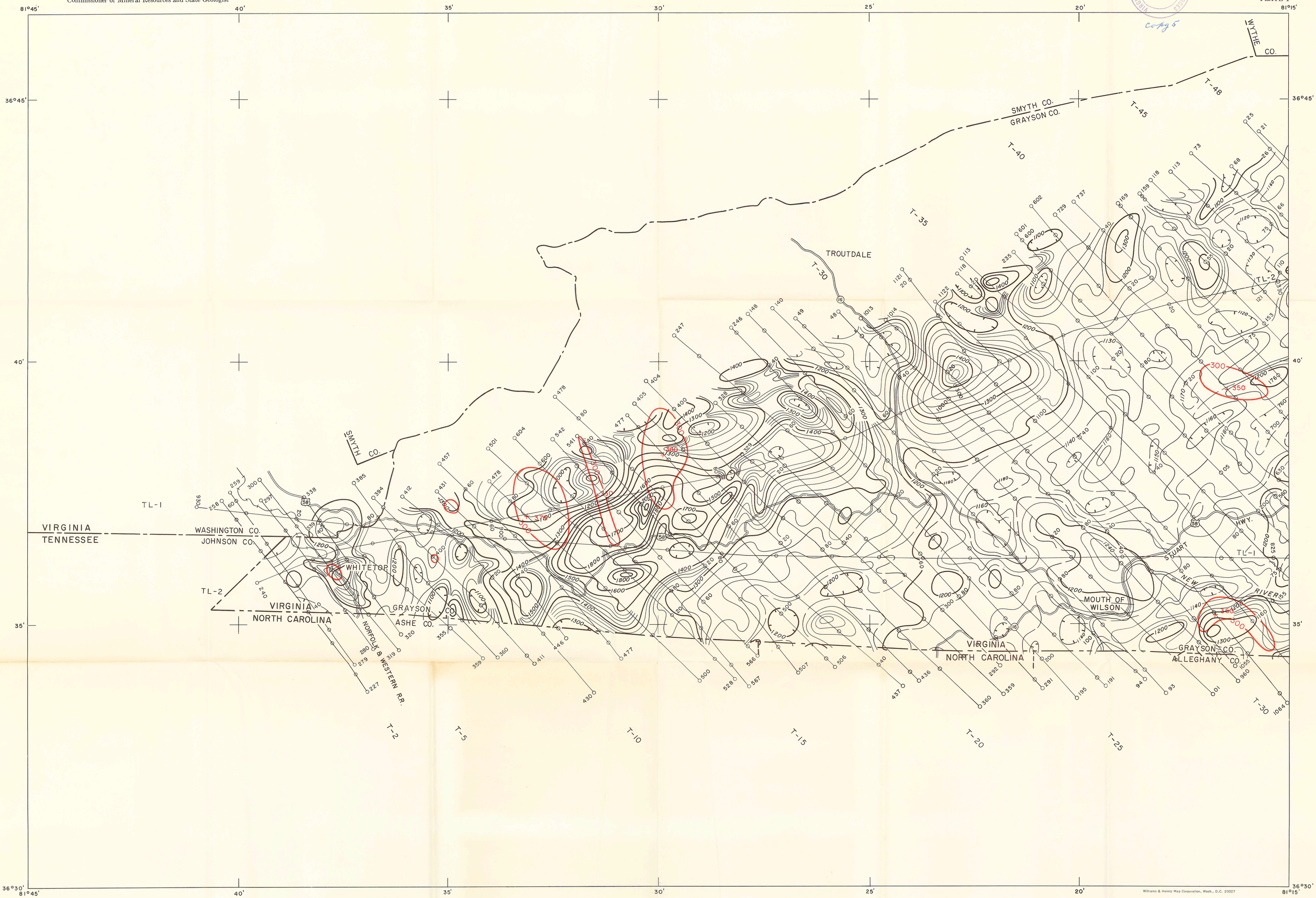


Planimetric detail taken from USGS topographic maps scales 1:62,500 and 1:24,000

Polyconic projection on Clarke 1866 Spheroid

Prepared by:
AERO SERVICE CORPORATION
A DIVISION OF LITTON INDUSTRIES
Philadelphia, Pennsylvania

2.1°
APPROXIMATE MEAN DECLINATION

TOTAL MAGNETIC INTENSITY

Flight altitude 500 feet T.C.
Flight interval 0.5 mile
Contour interval 10 and 20 gamma
Base intensity arbitrary

+1.59γ PER MILE
+577γ PER MILE
NORMAL REGIONAL VARIATION REMOVED
REGIONAL MAGNETIC VALUES 1965

69.8°
55,248γ
INCLINATION

RADIOMETRIC DATA: Average backround 200 to 250 C.P.S. at 500'T.C.; base contour 300 C.P.S.; inferred continuity dashed

TOTAL MAGNETIC INTENSITY AND RADIOMETRIC DATA

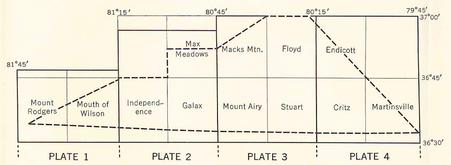
SOUTHWEST PIEDMONT OF VIRGINIA

1966

SCALE 1:62,500

5000 0 5000 10000 15000 20000 25000 FEET
1 0 1 2 3 4 5 MILES

INDEX TO MAPS



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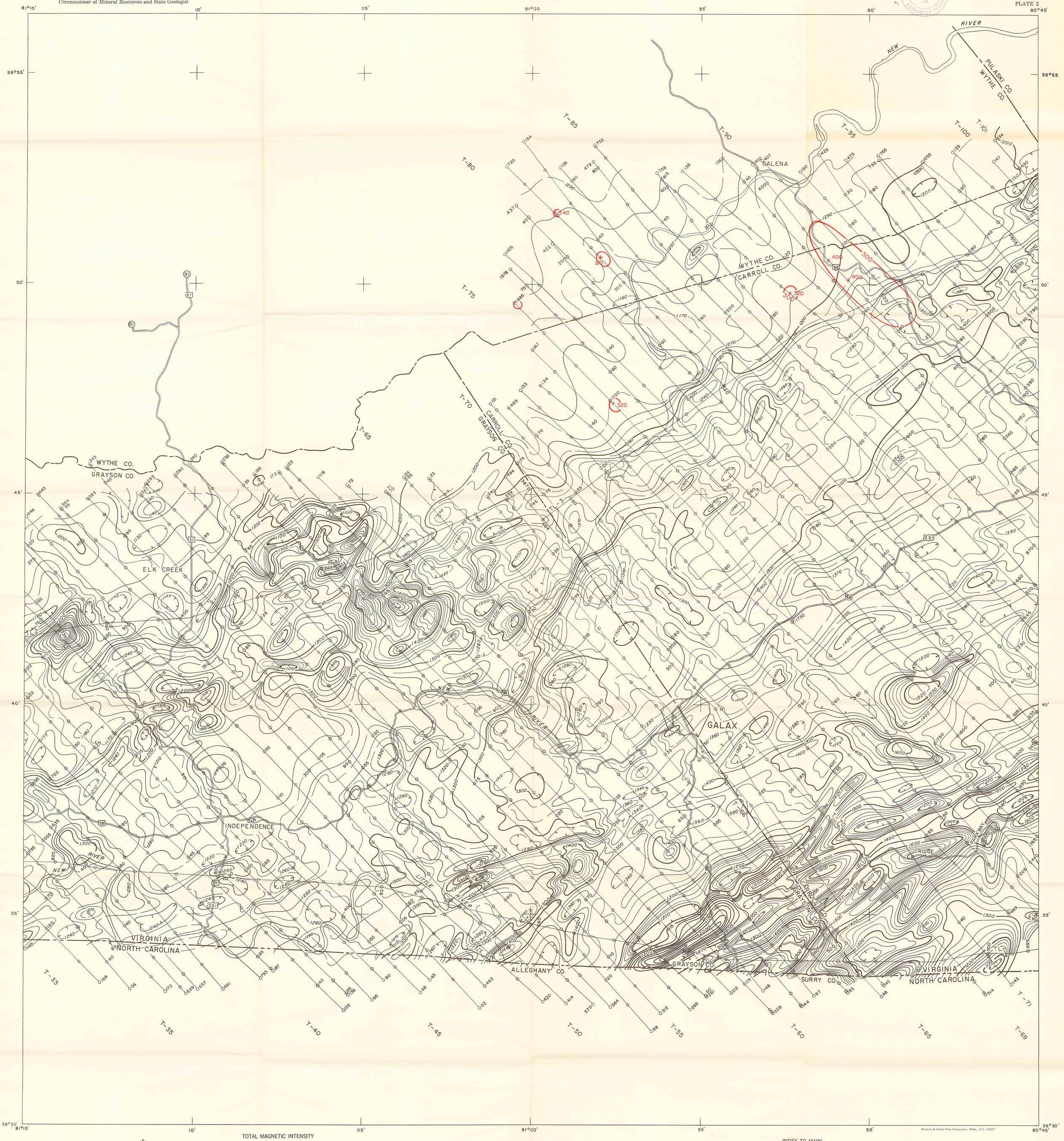


Planimetric detail taken from USGS topographic maps scales 1:62,500 and 1:24,000

Polyconic projection on Clarke 1866 Spheroid

Prepared by:
AERO SERVICE CORPORATION
A DIVISION OF LITTON INDUSTRIES
Philadelphia, Pennsylvania

2.3°
APPROXIMATE MEAN DECLINATION

TOTAL MAGNETIC INTENSITY

Flight altitude 500 feet T.C.
Flight interval 0.5 mile
Contour interval 10 and 20 gamma
Base intensity arbitrary

+1.59γ PER MILE
+5.86γ PER MILE
NORMAL REGIONAL VARIATION REMOVED
REGIONAL MAGNETIC VALUES 1965

69.6°
55.70γ
INCLINATION

RADIOMETRIC DATA: Average backround 200 to 250 C.P.S. at 500'T.C.; base contour 300 C.P.S.; inferred continuity dashed

TOTAL MAGNETIC INTENSITY AND RADIOMETRIC DATA

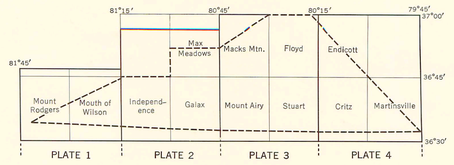
SOUTHWEST PIEDMONT OF VIRGINIA

1966

SCALE 1:62,500

5000 0 5000 10000 15000 20000 25000 FEET
1 0 1 2 3 4 5 MILES

INDEX TO MAPS



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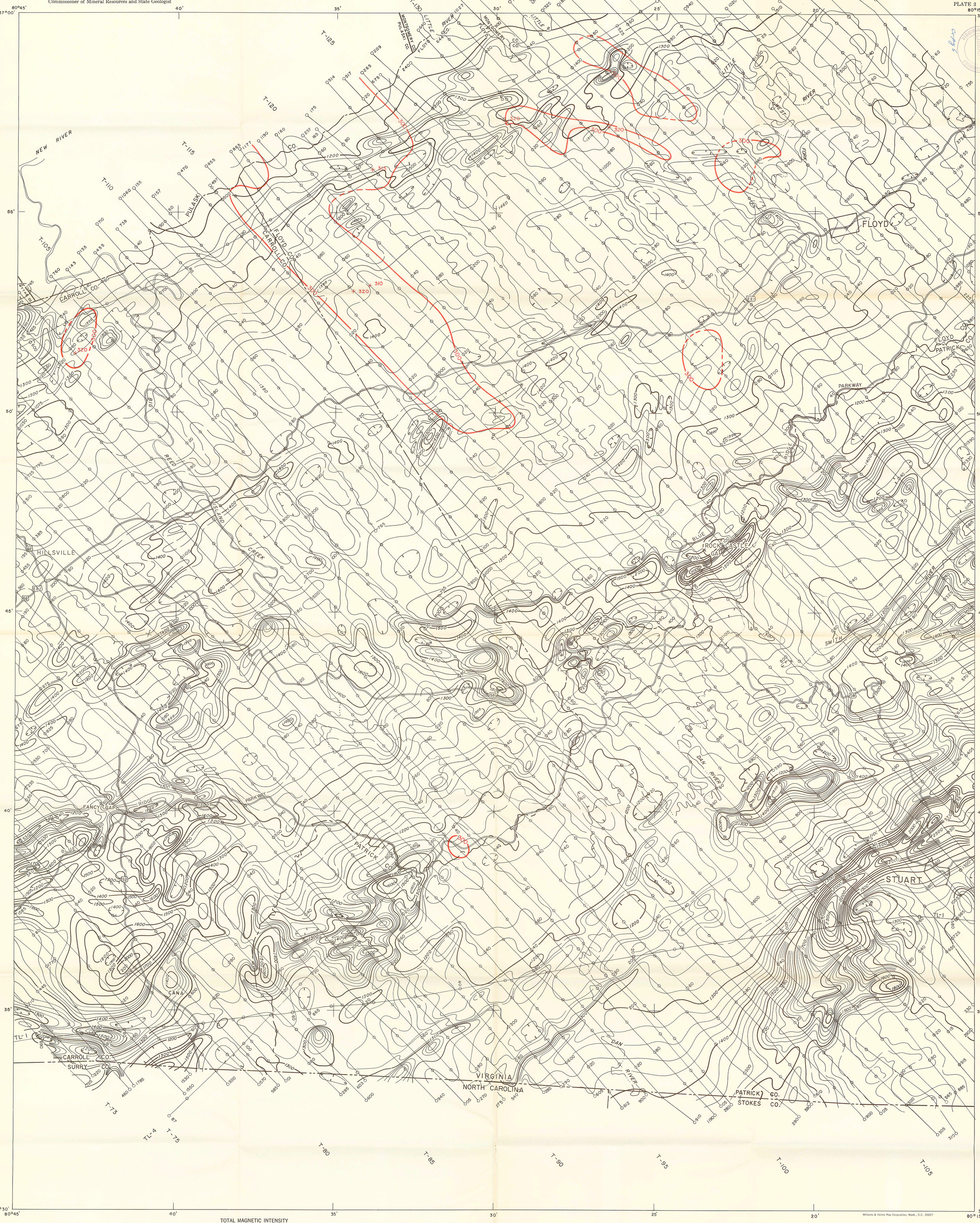

Planimetric detail taken from USGS topographic maps scales 1:62,500 and 1:24,000

Polyconic projection on Clarke 1866 Spheroid

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A DIVISION OF LITTON INDUSTRIES
Philadelphia, Pennsylvania

2.5°
APPROXIMATE MEAN DECLINATION

TOTAL MAGNETIC INTENSITY

Flight altitude 500 feet T.C.
Flight interval 0.5 mile
Contour interval 10 and 20 gamma
Base intensity arbitrary

+1.59γ PER MILE
+5.95γ PER MILE
NORMAL REGIONAL VARIATION REMOVED
REGIONAL MAGNETIC VALUES 1965

69.7°
55.60γ
INCLINATION

RADIOMETRIC DATA: Average backround 200 to 250 C.P.S. at 500'T.C.; base contour 300 C.P.S.; inferred continuity dashed

TOTAL MAGNETIC INTENSITY AND RADIOMETRIC DATA

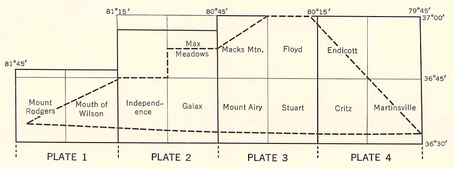
SOUTHWEST PIEDMONT OF VIRGINIA

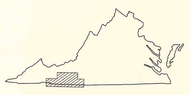
1966

SCALE 1:62,500

5000 0 5000 10000 15000 20000 25000 FEET
1 0 1 2 3 4 5 MILES

INDEX TO MAPS





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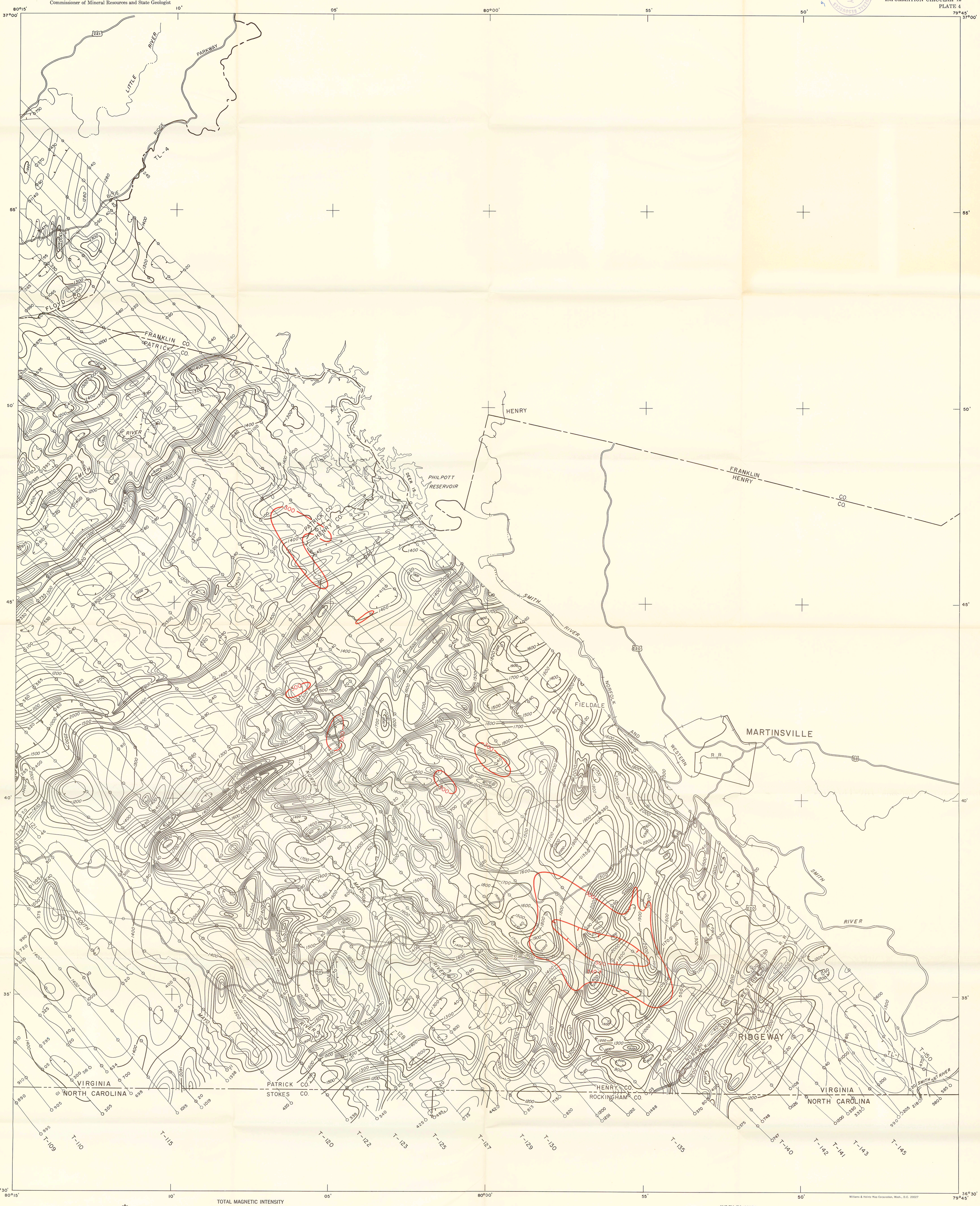

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Polyconic projection on Clarke 1866 Spheroid

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Philadelphia, Pennsylvania

2.7°
APPROXIMATE MEAN DECLINATION

TOTAL MAGNETIC INTENSITY

Flight altitude 500 feet T.C.
Flight interval 0.5 mile
Contour interval 10 and 20 gamma
Base intensity arbitrary

+6.03γ PER MILE
+1.59γ PER MILE
NORMAL REGIONAL VARIATION REMOVED

69.7°
55.812γ
INCLINATION

REGIONAL MAGNETIC VALUES
1965

RADIOMETRIC DATA: Average backround 200 to 250 C.P.S. at 500'T.C.; base contour 300 C.P.S.; inferred continuity dashed

TOTAL MAGNETIC INTENSITY AND RADIOMETRIC DATA

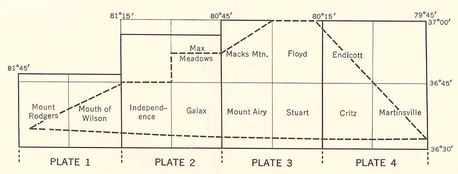
SOUTHWEST PIEDMONT OF VIRGINIA

1966

SCALE 1: 62,500

5000 0 5000 10000 15000 20000 25000 FEET
1 0 1 2 3 4 5 MILES

INDEX TO MAPS



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