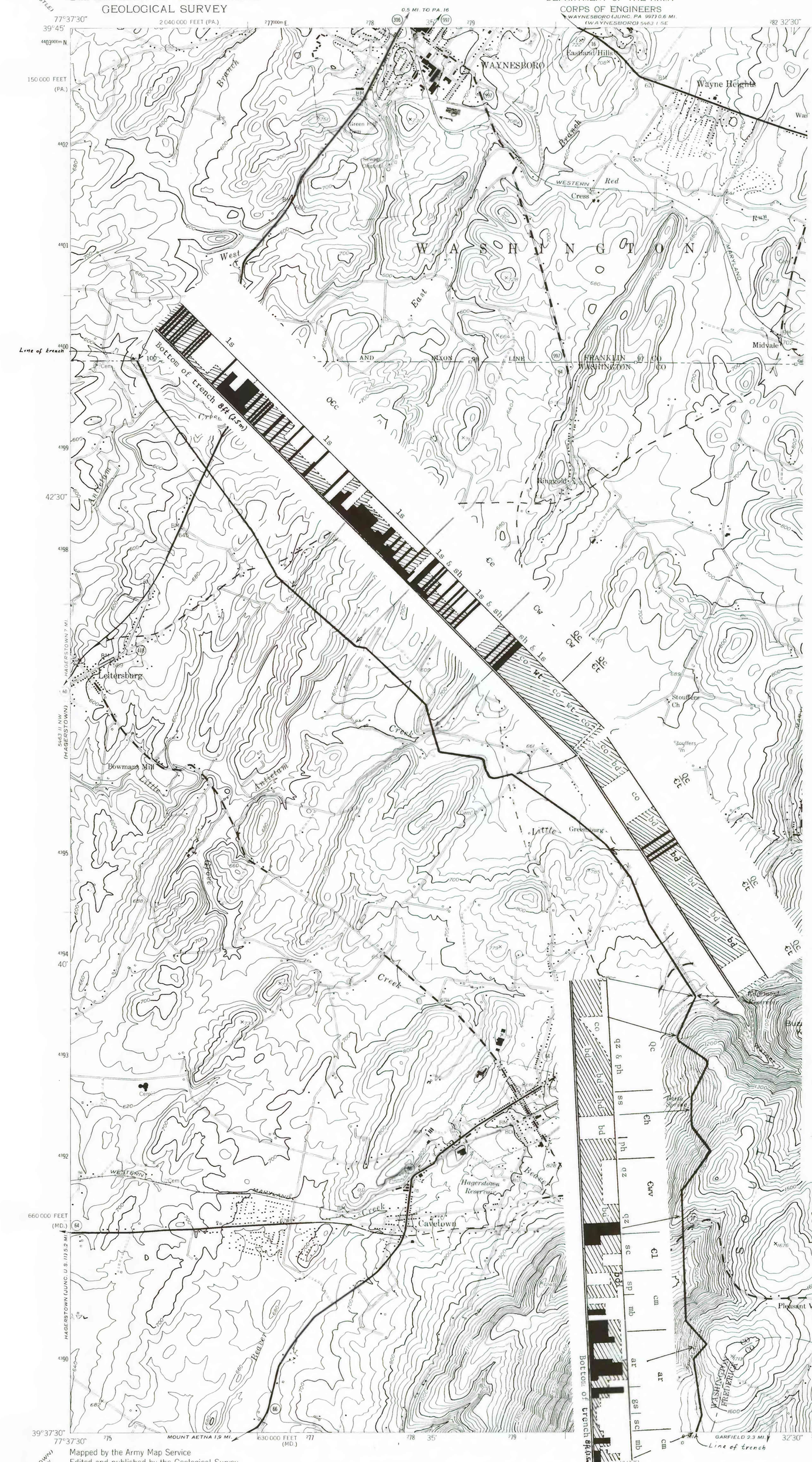
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

SMITHSBURG QUADRANGLE
MARYLAND—PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)



UNITED STATES GEOLOGICAL SURVEY

OPEN FILE MAP 84-386

Sheet 6 of 6

GEOLOGIC OBSERVATIONS ALONG A PIPELINE TRENCH IN FREDERICK COUNTY, MARYLAND

by

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In 1977 the Consolidated System laid a pipeline to carry liquid natural gas from Cove Point, Md. to south-central Pennsylvania via Masons Neck and Loudoun County, Va. and Frederick County, Md. Geologic observations were made along the trench for the pipeline in the summer of 1977 from the Monocacy River northward across Frederick County to the Maryland - Pennsylvania state line. Other portions of the line were not investigated because the pipe was laid and covered before observations could be made.

Explanation

The trench was 8 feet deep and the geologic profile is based on soil and rock exposed in the walls. In the vicinity of roads and railroads the trench was 4 to 12 feet deeper to permit boring under these features. In such areas only the upper 8 feet of the excavation are presented in the profile.

Engineering Geology Features

Bedrock blasted and excavated by backhoe.

Weathered rock and soil with boulders excavated by backhoe; includes areas of loose, wet soil. Short areas of loose soil at curves excavated by backhoe are not differentiated in the profile.

Loose soil removed by continuous wheel excavator.

Rock Types (code letters placed along top of profile)

db Diabase
ar Aporhyolite and rhyolite tuff
ap Aplite dikes
gs Gneiss
mb Metabasalt (greenstone)
ph Phyllite
qz Quartzite
sc Schist
sp Serpentine
cg Conglomerate
ls Limestone and dolomite
sh Shale
ss Sandstone
bd Boulders
co Cobbles

Geologic Structure

F Fault

Color codes (used only for sedimentary rocks)

gy gray
rd red

Geologic Formations (code letters above rock type designations)

Quaternary

Qc Colluvium - Boulders, cobbles and sand eroded from mountain slopes and deposited at the base of the slope and on adjacent valley floors.

Triassic

Trno New Oxford formation - red shale and sandstone with limestone conglomerate; limestone conglomerate and sandstone generally require blasting.

Cambrian-Ordovician

OCc Conococheague limestone - argillaceous to siliceous limestone with some shale; requires extensive blasting of pinnacles.

Cambrian

Ce Elbrook limestone - shaly limestone and calcareous shale; requires blasting of scattered, isolated pinnacles.

Cf Frederick limestone - slabby limestone with shale partings; commonly excavated by backhoe.

Cw Waynesboro formation - shale and siltstone with some dolomite in lower part; pinnacles of siltstone and dolomite require blasting.

Ct Tomstown formation - crystalline limestone, dolomite and shale; few pinnacles of limestone and dolomite require blasting, otherwise rock is deeply weathered and excavated by wheel or backhoe.

Ca Antietam formation - quartzitic sandstone with shale partings; generally buried beneath deposits of boulders and sand; where bedrock is encountered some blasting required but most can be excavated by backhoe.

Ch Harpers formation - shale and phyllite, generally buried beneath deposits of boulders and sand; bedrock generally excavated by backhoe.

Cwv Weverton formation - quartzite and phyllite; normally requires extensive blasting but along pipeline only thin zones of weathered quartzite were encountered which were excavated by backhoe.

Cl Loudoun formation - quartzite, tuffaceous slate and sandy phyllite; generally excavated by backhoe except for thin bands that require blasting.

Precambrian

Cm Catoctin formation - metabasalt (greenstone) and greenstone schist; blasting extensive in some areas of metabasalt.

ar Aporhyolite, rhyolite tuff intermixed in places with metabasalt; blasting generally required.

mdg Gneiss complex - gneiss, schist and diorite; blasting common, especially in zones of gneiss.

NOTE

The data presented can be used for general planning purposes pertaining to shallow excavations. It cannot be used for specific site evaluation nor as a substitute for detailed geologic investigations for engineered structures. Physical characteristics of rock types and their weathering may vary throughout the area and changes should be anticipated close to the line of the profile.

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature. Released in response to a Freedom of Information Act request.

Mapped by the Army Map Service
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Topography from aerial photographs by stereophotogrammetric methods. Aerial photographs taken 1943. Field check 1944
Culture revised by the Geological Survey 1953

Polyconic projection. 1927 North American datum
10,000-foot grids based on Maryland coordinate system, and Pennsylvania coordinate system, south zone
1000 meter Universal Transverse Mercator grid ticks, zone 18, shown in blue

UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION

Heavy-duty — 4 LANE | 6 LANE — Light-duty
Medium-duty — 4 LANE | 6 LANE — Unimproved dirt
U.S. Route State Route

MARYLAND
SQUADRANGLE LOCATION

SMITHSBURG, MD.—PA.

N3937.5—W7730/7.5

1953

AMS 5463 II NE—SERIES V833