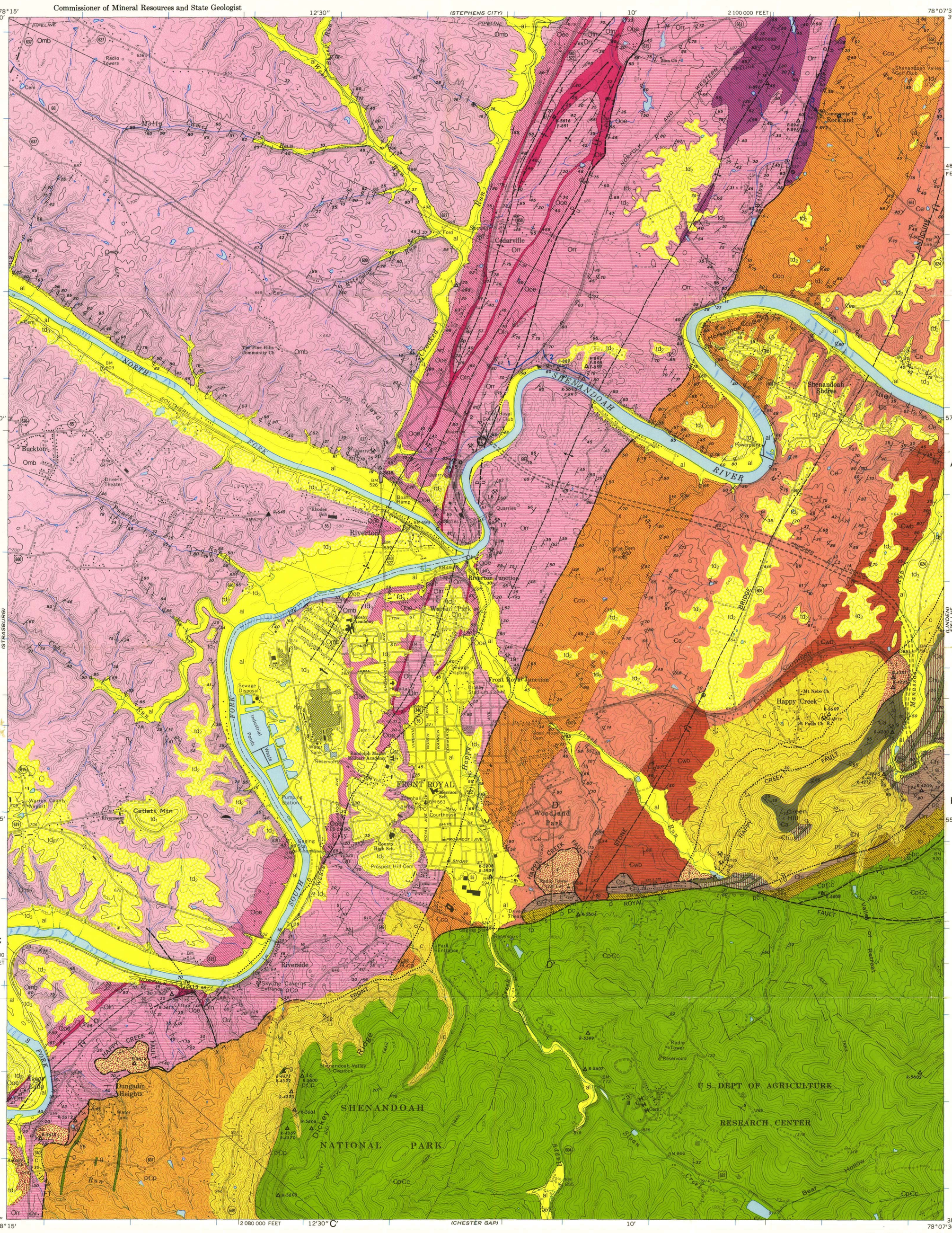
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT
DIVISION OF MINERAL RESOURCES
James L. Calver
Commissioner of Mineral Resources and State Geologist



Base map from U.S. Geological Survey, 1967—(72 PR)
Front Royal Quadrangle, 7½-Minute Series

Williams & Heintz Map Corporation

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GEOLOGIC MAP OF THE FRONT ROYAL QUADRANGLE, VIRGINIA

Geology by Eugene K. Rader, Thomas H. Biggs, and W. Edward Nunan

MN GN 7° 124 MILS 1°46' 31 MILS
UTM GRID AND 1972 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000
1 ½ 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

1975

VIRGINIA
QUADRANGLE LOCATION

EXPLANATION

CENOZOIC — QUATERNARY

al — Alluvium
Dark-brown clayey sand and silt; locally, rounded stones common.

c — Colluvium
Angular cobbles and boulders in sand and clay matrix.

td3, td2, td1 — Terrace deposits
td3, *pebbles and cobbles of sandstone and quartzite in a sandy-clay matrix (low-level deposits).* td2, *pebbles and cobbles of sandstone and quartzite in a sand, silt, and clay matrix (middle-level deposits).* td1, *pebbles, cobbles, and boulders of sandstone, quartzite, and conglomerate in a sand, silt, and clay matrix (high-level deposits).*

PALEOZOIC — ORDOVICIAN

Omb — Martinsburg Formation
Alternating thin, olive-green to gray shale and greenish-gray lithic sandstone; basal part is black, silty shale and scattered thin beds of black limestone.

Ooe — Oranda Formation and Edinburg Formation
Oranda: coarse-grained siltstone. Edinburg: black, fissile shale; dark-gray, micrograined limestone; gray, cobbly-weathering limestone.

Oln — Lincolnshire Formation and New Market Limestone
Lincolnshire: gray, medium-grained limestone; locally, black and dark-gray, blocky chert; thin beds of light-gray, coarse-grained bioclastic limestone. New Market: bluish- to dove-gray, micritic limestone with impure limestone (upper part); carbonate pebble, cobble, and boulder conglomerate (lower part).

Orr — Rockdale Run Formation
Gray, fine-grained limestone; dolomitic limestone, dolomite, and thin lenses of sandstone and chert.

Ost — Stonehenge Formation
Gray to black limestone.

PALEOZOIC — CAMBRIAN

Ꞓco — Conococheague Formation
Gray, laminated dolomite and lesser amounts of limestone and conglomerate (upper part). Ribbon-banded limestone and dolomite; limestone with siliceous laminae; and some dolomite and conglomerate (middle part). Big Spring Station Member: calcareous sandstone, laminated limestone, dolomitic limestone, dolomite, and intraformational conglomerate (lower part).

Ꞓe — Elbrook Formation
Yellow-weathering dolomite and blue, algal limestone (upper part). Gray limestone, dolomitic limestone, dolomite, and dolomitic shale (middle part). Green to greenish-gray dolomite, dolomitic limestone, dolomitic shale, and siltstone (lower part).

Ꞓwb — Waynesboro (Rome) Formation
Maroon and green shale and sandstone (upper part). Dolomite and limestone (middle part). Maroon, olive, and dark-gray shale, maroon to pale-orange sandstone, and gray limestone (lower part).

Ꞓs — Shady Formation (In cross section B-B′ only)

Ꞓa — Antietam Formation
White quartzite, subarkosic quartzite, and quartz-granule and -pebble conglomerate.

Ꞓhu, Ꞓhl — Harpers Formation
Ꞓhu, *upper member: gray, sandy phyllite;* q, *quartzite.* Ꞓhl, *lower member: sandy, feldspathic phyllite and metalithic sandstone.*

Ꞓpc, Ꞓp, Ꞓw, Ꞓs, Ꞓlp, Ꞓbc — Weverton Formation
Ꞓw (in cross section D-D′): includes pc, p, s, lp, and bc
pc, *quartz-pebble conglomerate member: ferruginous, granule to pebble quartz conglomerate.* p, *silty phyllite member: olive-gray, silty phyllite, phyllitic sandstone, and quartz sandstone.* s, *subarkose member: gray subarkose.* lp, *laminated phyllite member: olive-gray phyllite and conglomeratic phyllite.* bc, *basal conglomerate member: clayey, sandy pebble conglomerate.*

PRECAMBRIAN

ꞒpꞒc — Catoctin Formation
Greenstone, epidosite, phyllite, red argillite, meta-arkose, metalithic sandstone, rhyolitic tuff, and flow breccia.

pꞒp, g — Pedlar Formation
Hypersthene granodiorite and quartzofeldspathic granulite; g, *greenstone dikes.*

Breccia
f, *Fault breccia, angular blocks of sandstone cemented by iron oxide;* i, *Ironstone breccia, angular carbonate and siltstone clasts replaced and cemented by iron oxides and silica.*

CONTACTS

Solid where exposed, dashed where approximate, dotted where covered or inferred

FOLDS

Anticline—trace of fold and direction of plunge
Syncline—trace of fold and direction of plunge
Overturned anticline—trace of fold
Overturned syncline—trace of fold

FAULTS

Solid where exposed, dashed where approximate, dotted where covered or inferred; tick mark indicates direction of dip; U, upthrown side; D, downthrown side; T, upper sheet; arrows indicate direction of relative movement

ATTITUDE OF ROCKS

45 Strike and dip of beds
69 Strike and dip of overturned beds
Strike of vertical beds
Horizontal beds

MINES, QUARRIES, AND PROSPECTS

Active quarry
1. Shale quarry
4. Riverton Corporation quarry (limestone)
6. Riverton Corporation quarry (limestone)
7. Interstate Stone Corporation quarry (limestone)
16. Riverton Corporation quarry (limestone)

Abandoned mine or quarry
2. Riverton Corporation quarry (limestone)
3. Riverton Corporation quarry (limestone)
5. Riverton Corporation quarry (limestone)
8. Happy Creek or Seibel mine (manganese ore)
9. Southern Railway (sandstone)
10. Seible Iron Mines, Inc. mine (iron ore)
11. Seibel Iron Mines Inc. mine (iron ore)
13. Crushed stone quarry
15. Gooney-Manor copper mine
17. Riverton Corporation quarry (limestone)
18. Riverton Corporation quarry (limestone)
19. Dimension stone quarry
20. Shale quarry

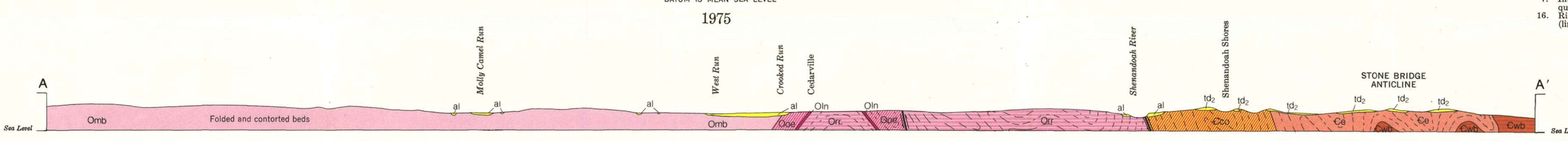
Prospect
12. Abandoned copper prospect
14. Abandoned copper prospect

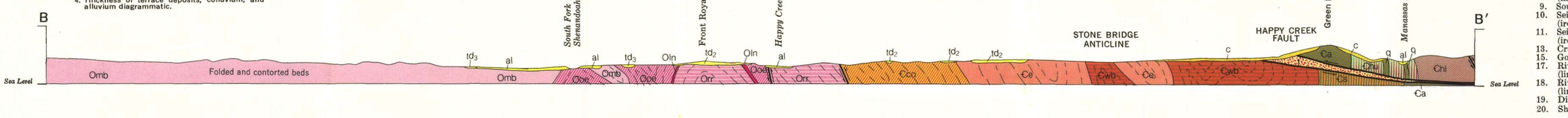
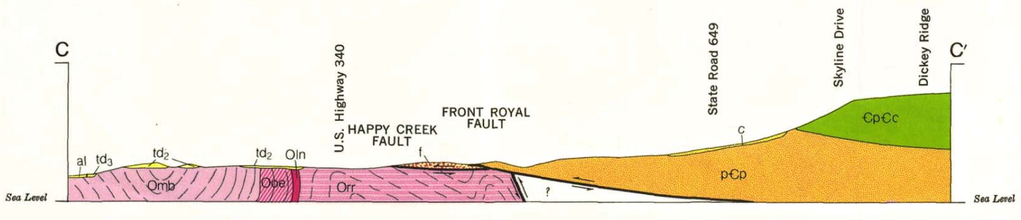
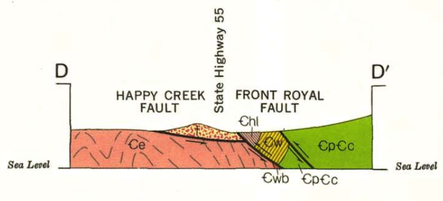
MISCELLANEOUS SITES

Sanitary landfill

SAMPLE LOCATIONS

R-5600 — R, repository number of sample
R-649 — Sample of raw material having potential commercial use; R, repository number
X — Outcrop having distinctive lithology
F-890 — F, repository number of fossil sample
X_F — Outcrop containing fossils
3 — Location of measured stratigraphic section that is described in text



CROSS SECTION DESIGN:

1. No vertical exaggeration.
2. Subsurface structure interpreted from surface measurements.
3. In areas of thin terrace deposits, colluvium, and alluvium small outcrops are present and rock attitude measurements and identification can be made at the ground surface.
4. Thickness of terrace deposits, colluvium, and alluvium diagrammatic.