

DESCRIPTION OF MAP UNITS

Artificial fill/disturbed area

Areas of disturbance and spoil surrounding quarrying operations or landfills. Consists of mixture of soil and rock debris taken from the upper levels of bedrock that contains regolith. Also includes landfill sites containing trash and waste material. Thickness ranges from 0 to 60 feet (30 meters).

Grayish brown, light brown to reddish tan, poorly sorted, coarse to fine sand, silt, and clay with localized lenses of subrounded vein quartz cobbles. Locally, chips and angular cobbles of local bedrock are included. Thickness of this material ranges from a thin veneer up to 10 feet (3 meters). In smaller tributary streams alluvium is not been shown, but is present as a thin veneer overlying a bedrock channel.

Terrace Deposits

Reddish orange to light brown, sandy, clayey gravel with subrounded cobbles of quartz and local bedrock. Commonly occurs as a thin veneer that covers low-lands adjacent to present flood plains. Most extensively developed along Big Pipe Creek and Little Pipe Creek. Thickness ranges from 0 to 10 feet (3 meters).

New Oxford Formation Interbedded pinkish gray, very coarse-grained, pebbly, trough cross-bedded, argillaceous, arkosic sandstones and reddish brown, silty rooted mudstone and laminated siltstone. Some reddish gray to gray arkosic sandstone also occurs near the base of the formation. Sandstone intervals vary from 5 to 15 feet (1.5-5 m) in thickness, while siltstones range from 1 to 6 feet (30 cm- 2 m). Fine-grained intervals are intensely rooted or mudcracked which obscures primary bedding. Thicker sandstone-dominated intervals are mapped where feasible (Trns). The New Oxford Formation is best exposed in bluffs along Big Pipe Creek and Little Pipe Creek, and in channels of minor streams. Estimated thickness of the unit in the Union Bridge Quadrangle is about 1,000 feet (~300 meters).

Massive, reddish brown, coarse-grained sandstone, and massive to thick-bedded, grayish red conglomerate, interbedded with reddish brown mudstone, shale, and siltstone. Clasts in the conglomerates are predominantly rounded to subrounded cobbles and pebbles of vein quartz and quartzite with maximum dimensions of 8 inches (20 cm) embedded in a reddish calcareous, mudstone matrix. The conglomerate beds create loose and friable pebbles and cobbles that weather free on the surface. Thickness of the member ranges from 0 to approximately 100 feet (30 meters) with an average of about 25 feet (8 meters).

Wakefield Marble Predominantly white to gray, massive to bedded, locally banded and brecciated marble to tan dolomitic marble. Locally contains dark gray, bluish gray, pale green, and purple marble and interbeds of green, dark gray, and purple tuffaceous phyllite. Zones of brecciated are widespread. Unit is recognized only in the Priestland Valley. Thickness is estimated to

range between 500 and 1000 feet (150 to 350 meters).

Heterolithic unit composed of dark gray, purplish gray, and black, tuffaceous, fragmental, lapilli-rich, amygdaloidal phyllite, interlayered with thin intervals of dark gray andesite, reddish gray rhyolite, white to tan marble, light gray, tuffaceous sandstone, and greenish gray basalt. Meta-andesite layers (EZla) range from 20 to 100 feet (7-30 m) thick and discontinuous, medium to dark gray in color, flow-banded, chill-brecciated, commonly contain feldspar-filled orbicules and pumice fragments, and can be interlayered with green-gray, lapilli-rich basalt (CZlb). Marble layers (CZlm) consist of white to purple, brecciated calcium-rich marble, and tan, brecciated, dolomitic marble layers and lenses that are generally laterally discontinuous. The thickness of individual limestone and marble layers is estimated at 15 feet to 100 feet (5-30 m). Rare tuffaceous sandstone (EZIq) are medium-grained. The Libertytown Formation, as used here, is considered equivalent to an aggregate of lithologies considered the Ijamsville Phyllite (Jonas and Stose, 1938 b), and the Libertytown Metarhyolite (Jonas and Stose, 1946). The thickness of the formation is indeterminable owing to poor exposures and deformation, but may locally be several thousand feet thick.

Sams Creek Formation

The Sams Creek Formation is mapped as two separate lithologies, greenstone and phyllite. The primary lithology in outcrop is greenish gray to grayish green metabasalt (greenstone), while greenish gray to light gray tuffaceous phyllite tends to be poorly exposed. The two subdivisions are equivalent to the greenstone (scgs) and chlorite phyllite (sccp) (Fisher, 1978) in the New Windsor Quadrangle, and the Sams Creek basalt (scb) and Sams Creek phyllite (scp) (Edwards, 1986) and the metabasalt (EZsc) and phyllite (EZscp) (Reger and Edwards, 2006) for the Union Bridge Quadrangle.

Metabasalt Medium to dark greenish gray, locally medium bluish gray, banded to massive metabasalt. Basalt intervals are massive to flow-banded and are locally epidote-rich, and alternate with layers of vesicular basalt and gray phyllite containing flattened lapilli. Some beds are sheared and schistose, contain dark purple to black brecciated phyllite and are gradational with the Libertytown Formation.

Tuffaceous chlorite phyllite

Light greenish gray to light gray, locally variegated, dull to lustrous, tuffaceous phyllite with interbeds and lenses of dark greenish gray, sheared, phyllitic metabasalt. Greenish gray phyllite is locally interbedded with purplish gray phyllite that is composed of sericite and muscovite and contains small amounts of magnetite and hematite and may contain many thin calcite laminae or clasts. These greenish gray phyllites also contain layers of vesicles, flattened lapilli, and calcite-filled amygdules. Mappable tuffaceous sandstone layers (EZscq) and brecciated reddish marble (EZscm) are locally present. Unit is deformed and cleavage and small-scale folds preclude estimation of depositional thickness.

Ijamsville Formation

Formation is composed of a diverse assemblage of fine-grained lithologies dominated by purple, bluish gray, greenish gray, variegated, silvery, granular to fragmental, locally vesicular phyllite (Jonas and Stose 1938 a, b, 1946). Silty, banded, tuffaceous phyllite, discontinuous tuffaceous sandstone (EZiq), white to tan, brecciated marble (EZim), ribbony limestone (EZisr), and green-gray, vesicular metabasalt (EZib) intervals are present. Several distinct phyllite units are mapped.

Slaty phyllite

Dark gray to bluish gray phyllite with local light gray streaks and blebs of tuffaceous phyllite. Unit is not ubiquitously tuffaceous, but contains intermixed layers of lustrous to dull, purplish gray hematitic muscovite phyllite and tan to green chlorite and muscovite phyllite. This unit includes medium gray, ribbony, laminated, argillaceous limestone equal to the Silver Run Limestone (€Zisr) (Edwards, 1986). Stratification is up to 4 inches (10 cm) thick and highly contorted. Corresponds to parts of the tuffaceous phyllite (Brezinski et al., 2004). Locally discontinuous lenses and layers of light gray, tuffaceous sandstone can be mapped. Owing to deformation and inconsistent bedding indicators thickness is undeterminable.

Dull to lustrous, dusky reddish gray, bluish gray, and pale greenish gray, banded to granular tuffaceous, muscovite phyllite and silty tuffaceous phyllite. Locally, phyllite contains light gray bands and blebs representing crushed lapilli. Contains ribbony limestone beds (CZisr) interpreted to be equivalent to the Silver Run Limestone of Edwards (1986). Thin, traceable intervals of medium-grained to massive, banded, tuffaceous sandstone and reddish to cream-colored brecciated marble are present. Corresponds to the Ijamsville chlorite phyllite of (Brezinski et al., 2004) and much of the Urbana Formation of Edwards (1986), and mica-chlorite-quartz phyllite (ijqp) (Fisher, 1978) that crops out west of the

Avondale Fault. Thickness is not known, but is assumed to be greater than 1000 feet (330 m).

Silvery light greenish gray to grayish green, and tan phyllite. The micas and chlorite are typically segregated into prominent pinstripe laminations spaced 1 to 3 cm (0.4 to 1.2 inches) apart and parallel to cleavage. Resistant to weathering; crops out extensively and commonly forms low ridges capped by a thin sandy soil. Corresponds to the Ijamsville mica-chlorite-quartz phyllite (ijqp) (Fisher, 1978) that crops out west of the Avondale Fault, to the Ijamsville muscovite chlorite phyllite (Reger and Edwards, 2006), and to the Gillis Formation (gf) (Edwards, 1986).

Tuffaceous phyllite

Dark gray, grayish red, reddish purple, and bluish gray, silty, granular tuffaceous phyllite with light gray lapilli streaks and blebs. Intermixed with intervals of greenish gray to gray, tan-weathering, tuffaceous phyllite and silty tuffaceous phyllite. Contains intermixed variegated and lustrous to dull, purple to reddish gray hematitic muscovite phyllite and tan to green chlorite muscovite phyllite. Locally, light gray, discontinuous, tuffaceous sandstone can be mapped (€Ziq). Corresponds to parts of the Urbana Formation (Edwards, 1986), tuffaceous phyllite (Brezinski et al., 2004), and Ijamsville Phyllite (Reger and Edwards, 2006). Owing to deformation and inconsistent bedding indicators thickness is

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