Geologic Unit Descriptions

Aaron slate (Za, Zac; Laney, 1917)
Za *phyllite and slate.* Very-light-gray, fine-grained, bedded volcaniclastic sediments, conglomerate, lithic feldspathic arenite, micaceous sandstone, siltstone, phyllite, argillite, and vitric tuff, with minor greenstone. Lithic fragments and relict euhedral crystals are common. The lower part of the unit is dominantly grayish-green slate interbedded with light-gray to grayish-green micaceous metasandstone; bedding is conspicuous and graded-bedding is common. The unit grades upward to bedded light-gray to moderate-red phyllite, metasandstone and slate.

Buggs Island pluton. Light-gray, medium- to coarsegrained, massive to strongly foliated biotite-muscovite granite. The name first appears in the literature as the Buggs Island granite gneiss (Kish and Fullagar, 1978); those workers report an Rb-Sr whole-rock age of 314±16 Ma.

nv *North View granite* (Bentley, 1992). Light-gray, fine to coarse-grained, lineated to foliated to massive alkali granite composed of blocky alkali feldspar mesoperthite, quartz, magnetite, and minor aegirine, riebeckite, biotite, allanite, titanite, fluorite, zircon, and garnet. Minor microcline and albite form separate phases with recrystallization. Garnet, which may be metamorphic in origin, is grossular-almandine-spessartine with up to three percent yttrium; riebeckite is in the plane of foliation and is metamorphic in origin. The northern and western borders of the pluton are fine-grained and granophyric, with phenocrysts of mesoperthite, albite, and quartz; accessory and secondary minerals include magnetite, biotite, garnet, titanite, chlorite, epidote, muscovite, and calcite.

rbg *biotite gneiss*. Light-gray, medium- to coarse grained, compositionally-layered and locally migmatitic rocks, include interlayered biotite gneiss, muscovite-biotite gneiss, muscovite-biotite schist, and sillimanite-mica schist; also includes minor interlayers and lenses of granitic gneiss, biotite-amphibole gneiss, amphibolite, garnet-mica schist, calc-silicate granofels, and rare ultramafic rocks. This unit correlates with Raleigh belt rocks in North Carolina (Parker, 1979; Geologic Map of North Carolina, 1985).

bgs *biotite gneiss and schist*:. Dark-gray, mediumgrained, foliated and broadly-layered. Mineralogy: biotite + plagioclase + potassium feldspar + quartz + muscovite; accessory minerals include titanite, epidote, and opaque minerals.

grbi *biotite granite.* Light-gray, medium-grained, equigranular, broadly-layered, locally migmatitic, foliated. Mineralogy: quartz + plagioclase + microcline + biotite+ muscovite ± hornblende + apatite + zircon.

bgd *biotite granodiorite.* Light-gray, medium-grained, foliated. Mineralogy: quartz + potassium feldspar + plagioclase+ biotite + muscovite; accessory minerals include epidote, apatite, and opaque minerals.

bmgl *biotite-muscovite granite.* Light-gray, fine- to coarsegrained, muscovite-biotite granite, biotite-muscovite granite, and leucogranite with accessory garnet. The granite is undated but interpreted as part of the Pennsylvanian-Permian suite of granites, and considered as part of the Wise pluton, which can be traced into North Carolina (McSween and others, 1991).

Zfv *felsic metavolcanic rocks.* Very-light-gray, fine- to medium-grained crystal, lithic, and lithic-crystal andesitic metatuff with minor light-gray to white, fine-grained metasedimentary interbeds.

Zlv *layered mafic to felsic metavolcanic rocks.* Volcanogenic sequence includes felsic pyroclastic and volcaniclastic rocks with intercalated mafic pyroclastic and amygdaloidal flows and phyllitic metasedimentary interbeds. Felsic rocks are crystal, lithic, and vitric tuff and tuff breccia ranging in composition from rhyolite to dacite. Mafic rocks consist of mafic lithic crystal and vitric tuff, with associated amygdaloidal pyroclastic rocks, and greenstone metabasalt.

Zmv *mafic metavolcanic rocks.* Greenish-gray to duskygreen, fine- to medium-grained, massive to amygdaloidal metabasalt with dark-gray to white, medium-grained mafic lithic and crystal tuff, and minor purple phyllite and metasedimentary rocks. Geophysical signature: linear positive magnetic and negative radiometric anomalies.

grt *metatonalite.* White to light-gray, medium- to coarse-grained, faintly foliated, locally porphyritic; ranges from granodiorite to quartz diorite. Mineralogy: quartz + plagioclase + biotite + microcline. This unit includes the Vance pluton of Horton and others (1993), dated at 571±17 Ma (U-Pb zircon; LeHuray, 1989).

mpg *migmatitic paragneiss*. Leucocratic to mesocratic, medium- to coarse-grained layered gneiss contains interlayered biotite-rich and quartzofeldspathic zones, locally migmatitic; includes lesser amounts of biotite schist, muscovite schist, and thin lenticular amphibolite bodies. Mineralogy: biotite + muscovite + plagioclase + po tas si um feldspar + garnet ± hornblende.

ga *hornblende-plagioclase gabbro*. Dark-grayish-green, coarse- to medium-grained, massive to foliated metagabbro. Mineralogy: amphibole + plagioclase + clinopyroxene + quartz + biotite + muscovite + epidote ± magnetite. Geophysical signature: small circular positive magnetic anomalies. Plutons of these gabbros intrude interlayered mafic and felsic metavolcanic rocks.

Zph *phyllite and metasiltstone*. Dominantly light-gray, schistose chlorite-sericite phyllite and phyllitic metasiltstone with a well-developed phyllitic or slaty cleav age; includes minor interlayered mafic and felsic metavolcanic rocks.

grp *porphyritic granite.* Light-gray to pink, medium to coarse-grained, coarse granular texture common; locally pegmatitic. Mineralogy: quartz + porphyroblastic microcline + biotite+ muscovite ± epidote ± titanite ± opaque minerals.

pbg *porphyroblastic granite gneiss*: Light-gray, medium to coarse-grained, compositionally layered, well-foliated, commonly lineated gneiss composed of metamorphosed granite, leucogranite, and granodiorite, which locally contains feldspar megacrysts. This unit includes the granite at Lawrenceville; the rocks are variably mylonitic and lineated along the Lake Gordon mylonite zone near Kenbridge (Horton and others,1993).

PzYpm *quartzofeldspathic gneiss* (Bobyarchick and others, 1981). Light-gray, fine- to coarse-grained, foliated, layered muscovitie-bearing quartzofeldspathic gneiss; contains inter-calated quartz-muscovite schist. Mineralogy: quartz + plagioclase + microcline + garnet + muscovite + biotite.