

V. C. Summer Nuclear Station, Units 2 and 3
 COL Application
 Part 2, FSAR

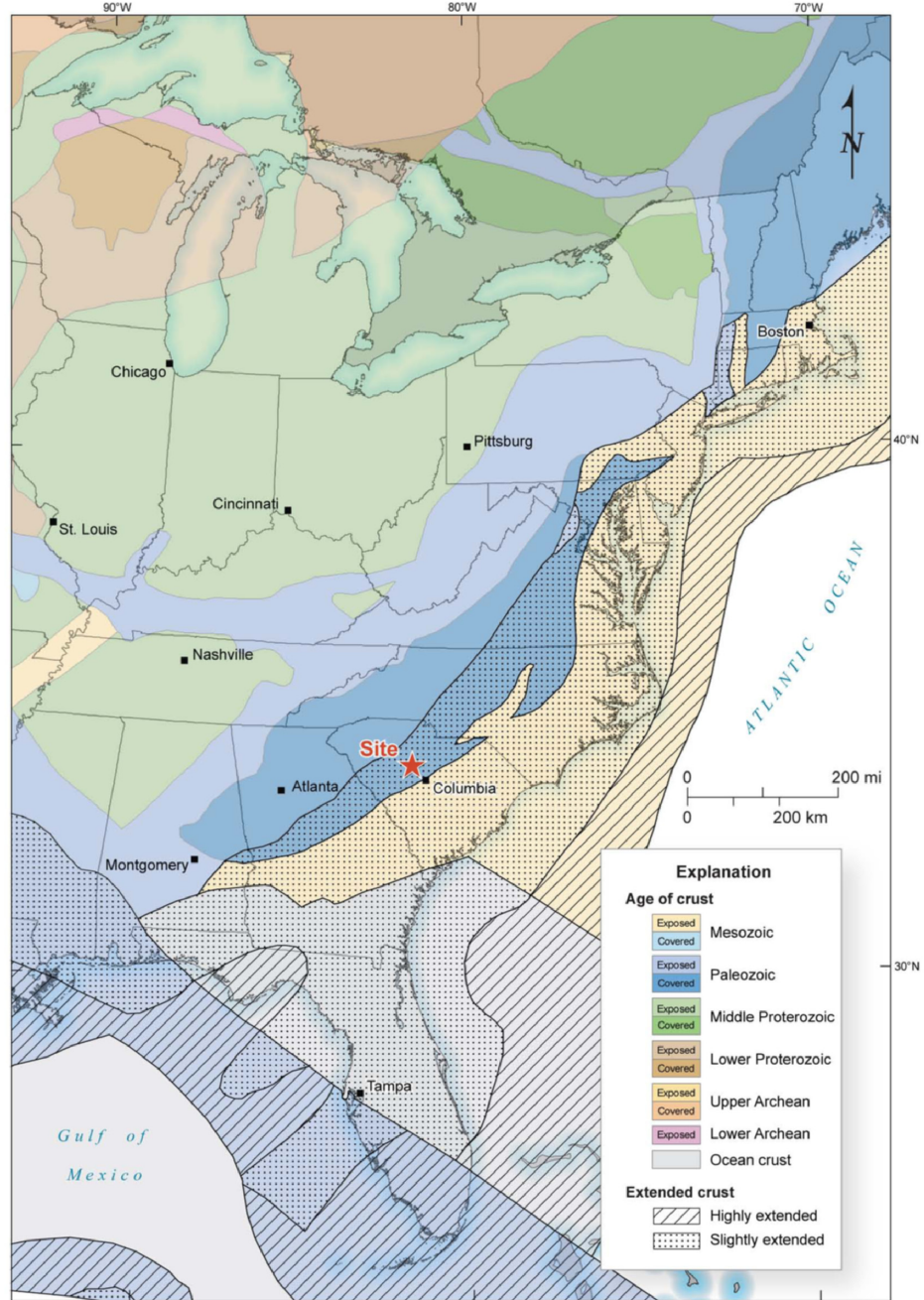


Figure 2.5.1-214. Crustal Ages from Johnston et al. (1994)

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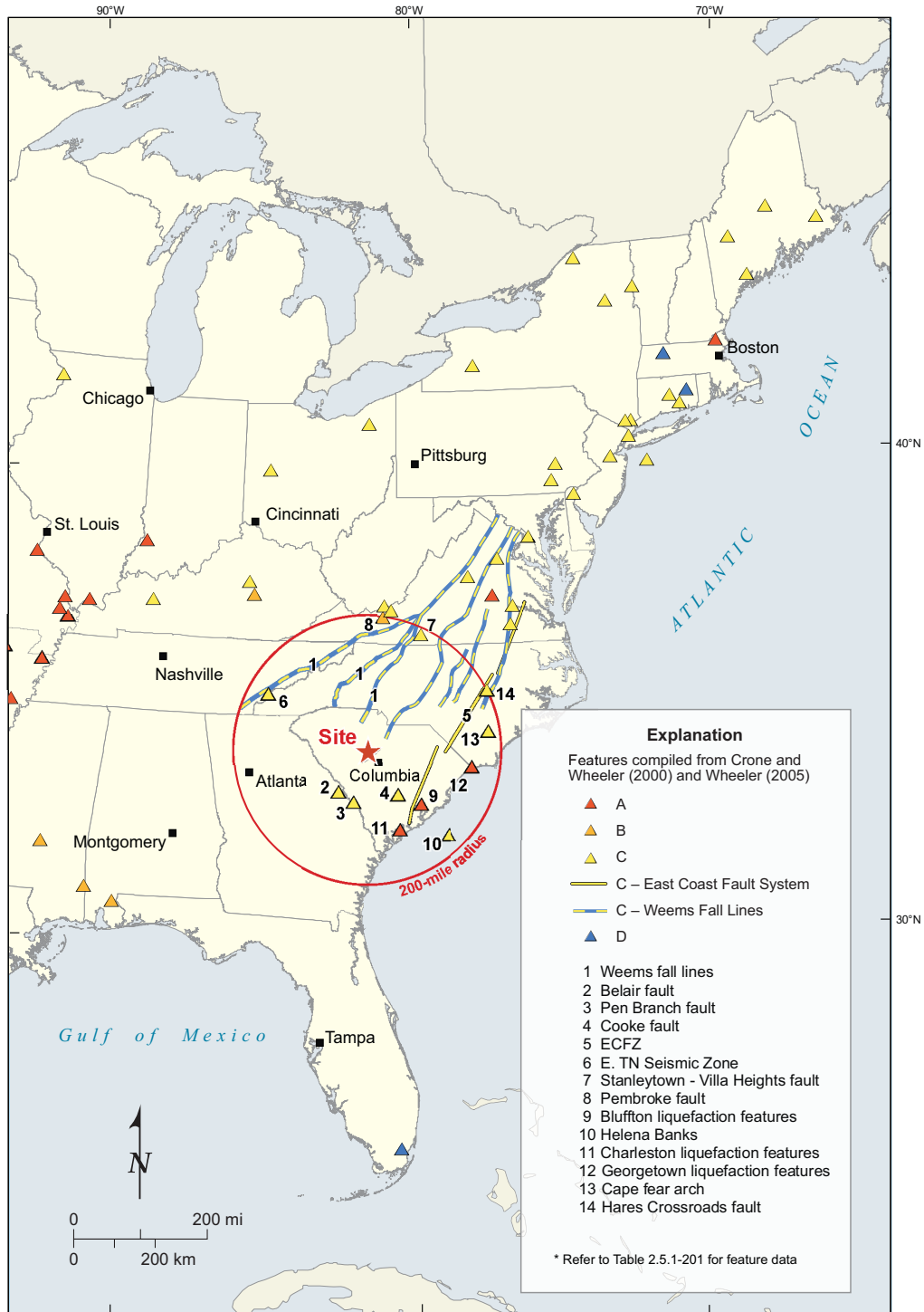


Figure 2.5.1-215. Potential Quaternary Features in the Site Region

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Figure 2.5.1-216. Seismic Zones and Seismicity in CEUS

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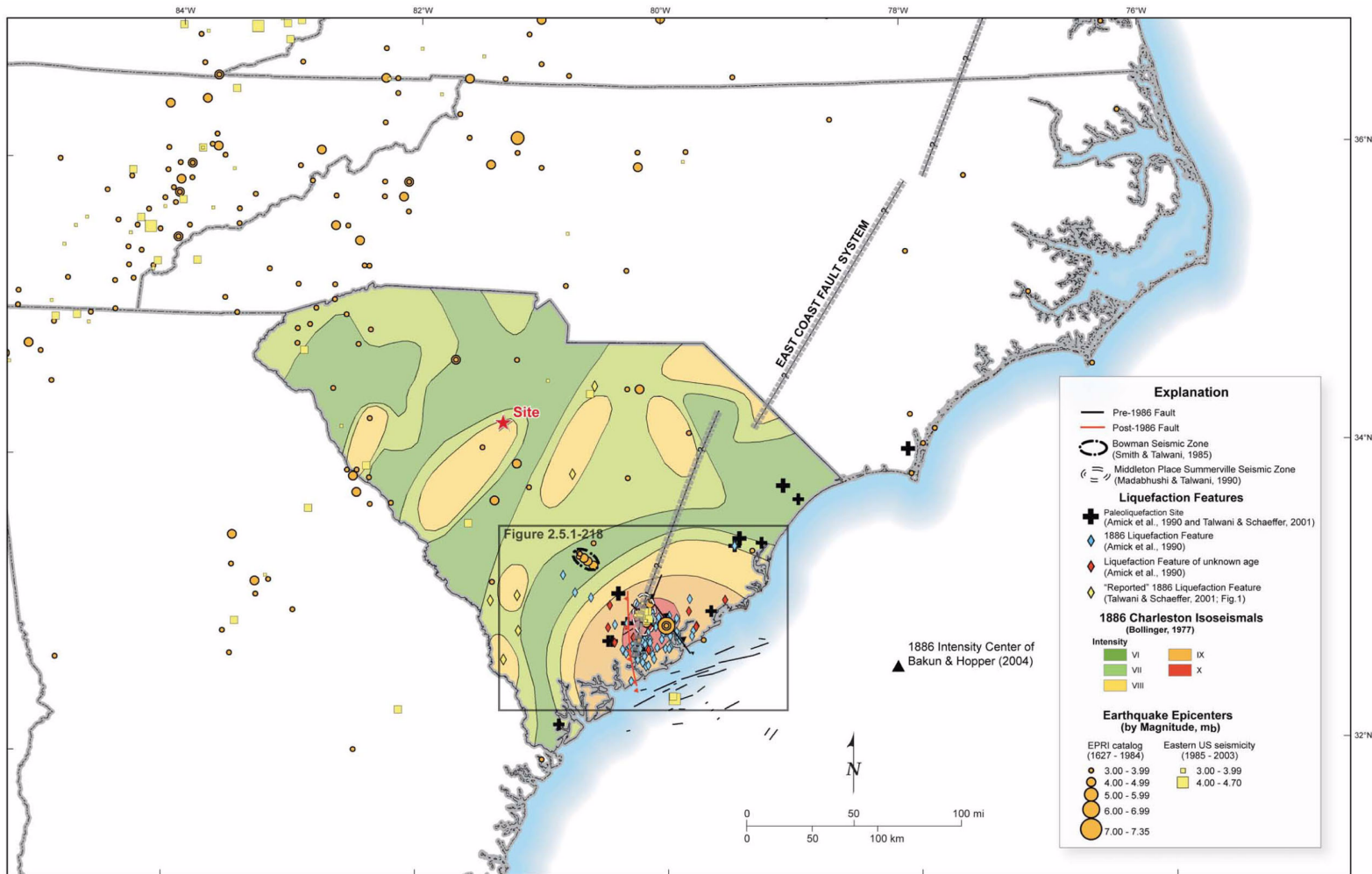


Figure 2.5.1-217. Regional Charleston Tectonic Features

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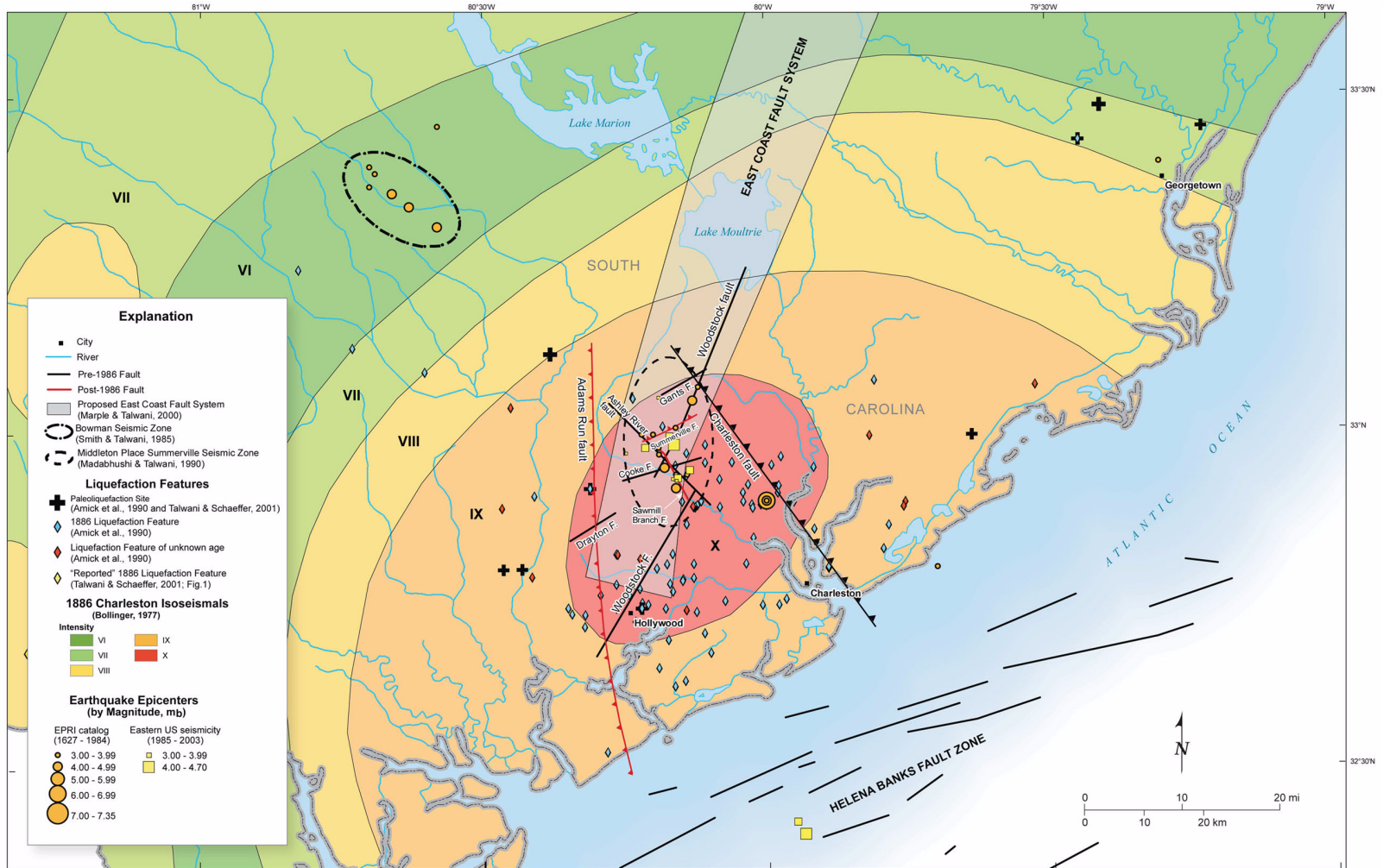


Figure 2.5.1-218. Local Charleston Tectonic Features

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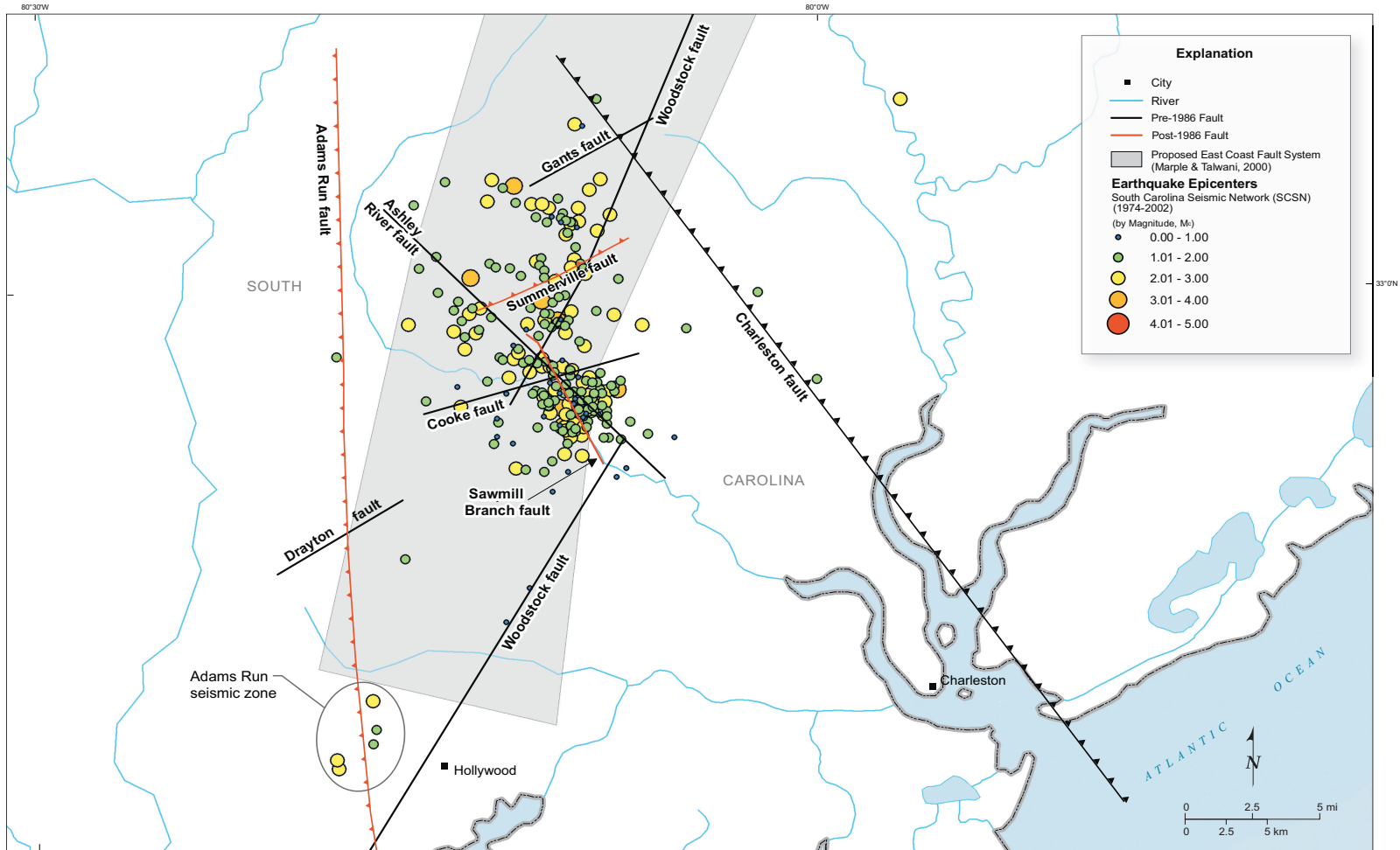


Figure 2.5.1-219. Charleston Area Seismicity

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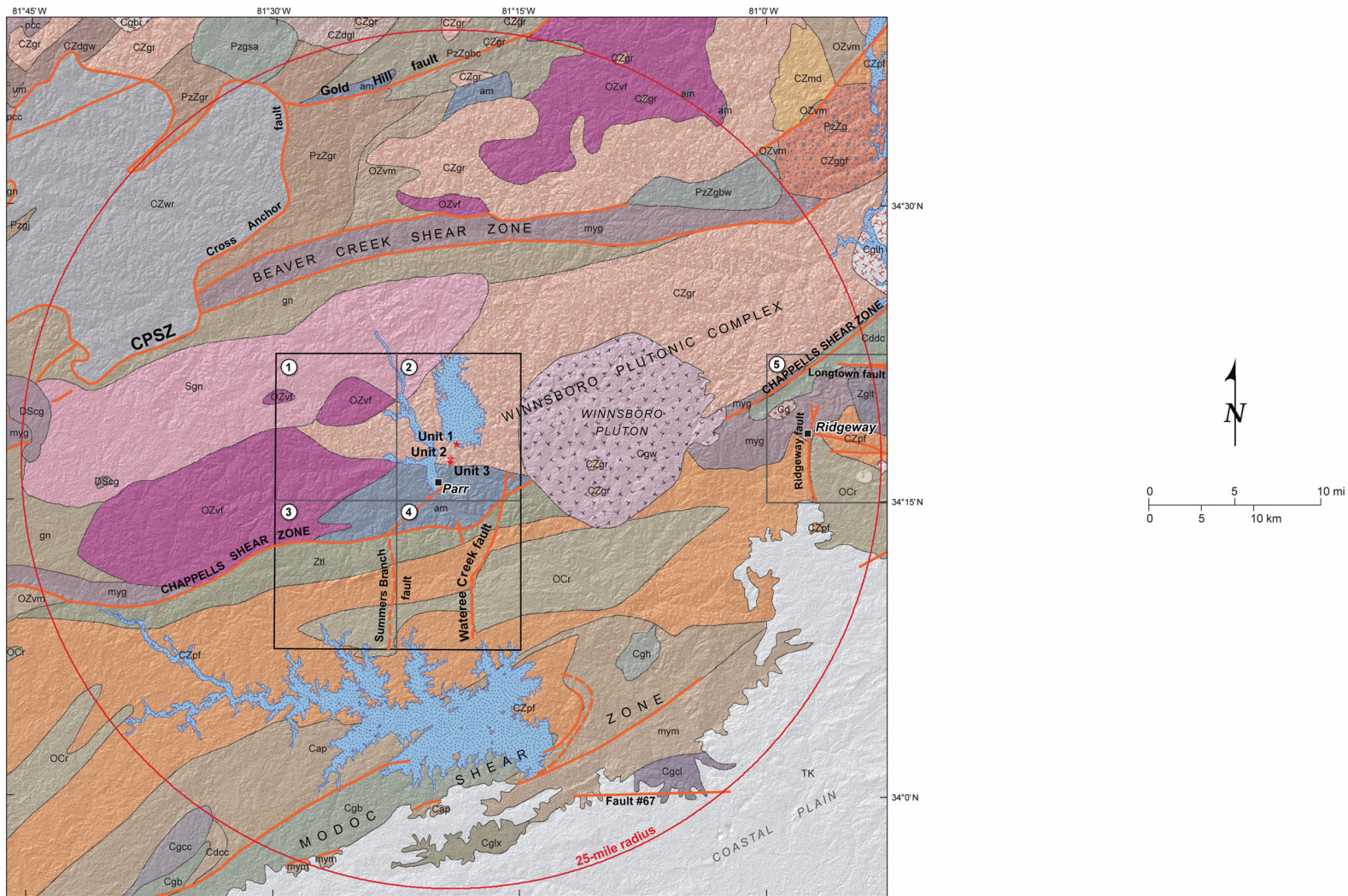


Figure 2.5.1-220. Site Vicinity Geologic Map (Sheet 1 of 2)

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Explanation

Horton and Dicken (2001)

LATE PALEOZOIC	<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #808080; border: 1px solid black; margin-right: 5px;"></div> Myg </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #c0c0c0; border: 1px solid black; margin-right: 5px;"></div> mym </div>	<p>Mylonitic gneiss</p> <p>Mylonitic rocks of Modoc fault zone</p>
CARBONIFEROUS TO PERMIAN	<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> Cgb </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #ff69b4; border: 1px solid black; margin-right: 5px;"></div> Cgbr </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> Cgoc </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> Cgcl </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> Cgh </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #ff69b4; border: 1px solid black; margin-right: 5px;"></div> Cgth </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> Cgwi </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> Cgx </div>	<p>Granite, Batesman pluton</p> <p>Granite, Bald Rock pluton</p> <p>Granite, Clouds Creek pluton</p> <p>Granite, Columbia pluton</p> <p>Granite, Harbison pluton</p> <p>Granite, Liberty Hill pluton</p> <p>Granite, Winnsboro pluton</p> <p>Granite, Lexington pluton</p>
CARBONIFEROUS	<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> Cdoc </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> Cddc </div>	<p>Gabbro and diorite, Clouds Creek pluton</p> <p>Gabbro and diorite, Dutchmans Creek pluton</p>
DEVONIAN TO SILURIAN	<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #808080; border: 1px solid black; margin-right: 5px;"></div> DScg </div>	<p>Gabbro</p>
SILURIAN	<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #ff69b4; border: 1px solid black; margin-right: 5px;"></div> Sgn </div>	<p>Newberry granite and similar, possibly related granites</p>
ORDOVICIAN TO MIDDLE CAMBRIAN	<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> Ocr </div>	<p>Richtex Formation - metamudstone</p>
MIDDLE CAMBRIAN	<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> Cap </div>	<p>Asbill Pond Formation - metamorphosed siltstone and sandstone with interbedded metavolcanic rocks</p>
PALEOZOIC	<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> Pzgj </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> Pzgsa </div>	<p>Granite sheets near Joanna</p> <p>Santuck granite</p>

MIDDLE PALEOZOIC TO NEOPROTEROZOIC	<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> PzZg </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> PzZgbc </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> PzZgbw </div>	<p>Metagabbro and minor metadiorite</p> <p>Metagabbro and minor metadiorite - Chester</p> <p>Metagabbro and minor metadiorite - Big Wateree Creek</p>
ORDOVICIAN TO NEOPROTEROZOIC	<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> OZvf </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> OZvm </div>	<p>Felsic metavolcanic rocks and layered felsic gneiss</p> <p>Mafic to intermediate metavolcanic rocks including hornblende gneiss and amphibolite</p>
PALEOZOIC TO NEOPROTEROZOIC	<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> PzZgr </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> am </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> gn </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> um </div>	<p>Metamorphosed granitoids</p> <p>Amphibolite and amphibole gneiss</p> <p>Biotite-quartz-plagioclase gneiss</p> <p>Ultramafic rock - metamorphosed</p>
EARLY PALEOZOIC-NEOPROTEROZOIC	<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> CZdgl </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> CZdgw </div>	<p>Metadiorite and minor metagabbro - Lockhart metadiorite</p> <p>Metadiorite and minor metagabbro - Wildcat Branch complex</p>
CAMBRIAN OR NEOPROTEROZOIC	<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #ff69b4; border: 1px solid black; margin-right: 5px;"></div> CZgfl </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> CZgr </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> CZnd </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> CZpf </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> CZwr </div>	<p>Great Falls metagranite - metamorphosed muscovite-biotite granite</p> <p>Metamorphosed granite to granodiorite</p> <p>Metadiorite</p> <p>Persimmon Fork Formation - mainly metatuff</p> <p>Biotite-quartz-feldspar gneiss of Whitmire reentrant</p>
NEO-PROTEROZOIC	<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> Zll </div>	<p>Metatolalite</p>
UNDETERMINED	<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 20px; height: 10px; background-color: #90ee90; border: 1px solid black; margin-right: 5px;"></div> pcc </div>	<p>Philson Crossroads complex - biotite-quartz-feldspar gneiss having layers of amphibolite and metagranite</p>

Other Mapped Quadrangles, not shown

- ① Pomaria 7.5-minute quadrangle, Secor (2007); See Figure 2.5.1-225
- ② Jenkinsville 7.5-minute quadrangle, Secor (2007); See Figure 2.5.1-225
- ③ Little Mountain 7.5-minute quadrangle, Secor (2007); See Figure 2.5.1-225
- ④ Chapin 7.5-minute quadrangle, Secor (2007); See Figure 2.5.1-225
- ⑤ Ridgeway 7.5-minute quadrangle, Secor et al. (1998); See Figure 2.5.1-213

--- Faults modified from Hibbard et al. (2006) and Secor (2007); dashed where postulated and likely non-existent

Figure 2.5.1-220. Explanation of Site Vicinity Geologic Map (Sheet 2 of 2)

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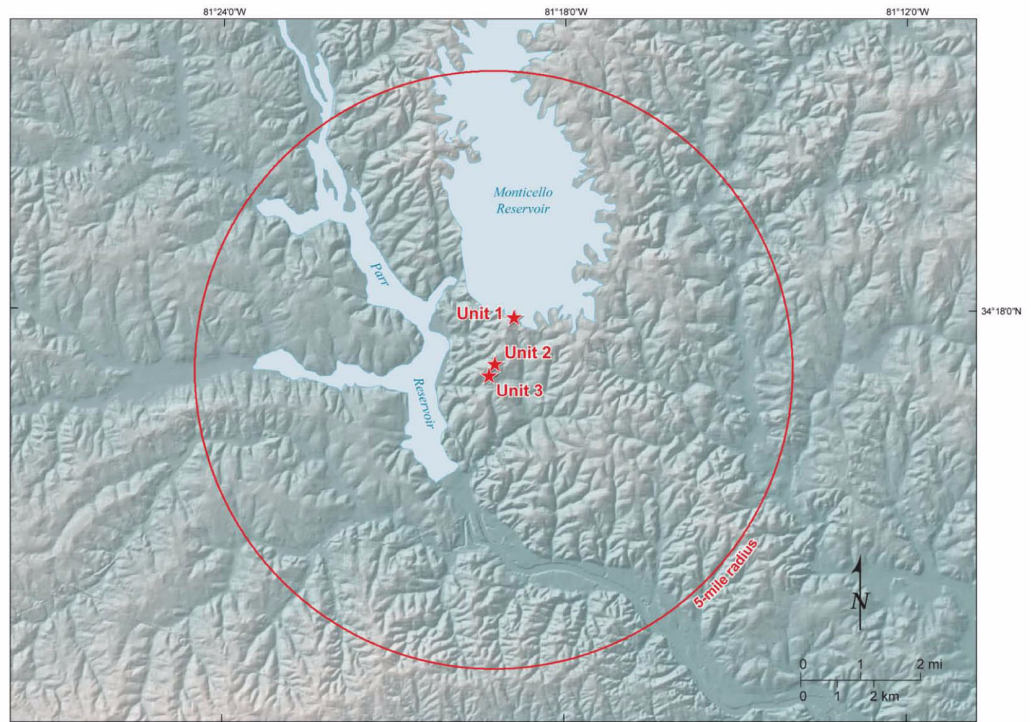


Figure 2.5.1-221. Site Area Relief Map

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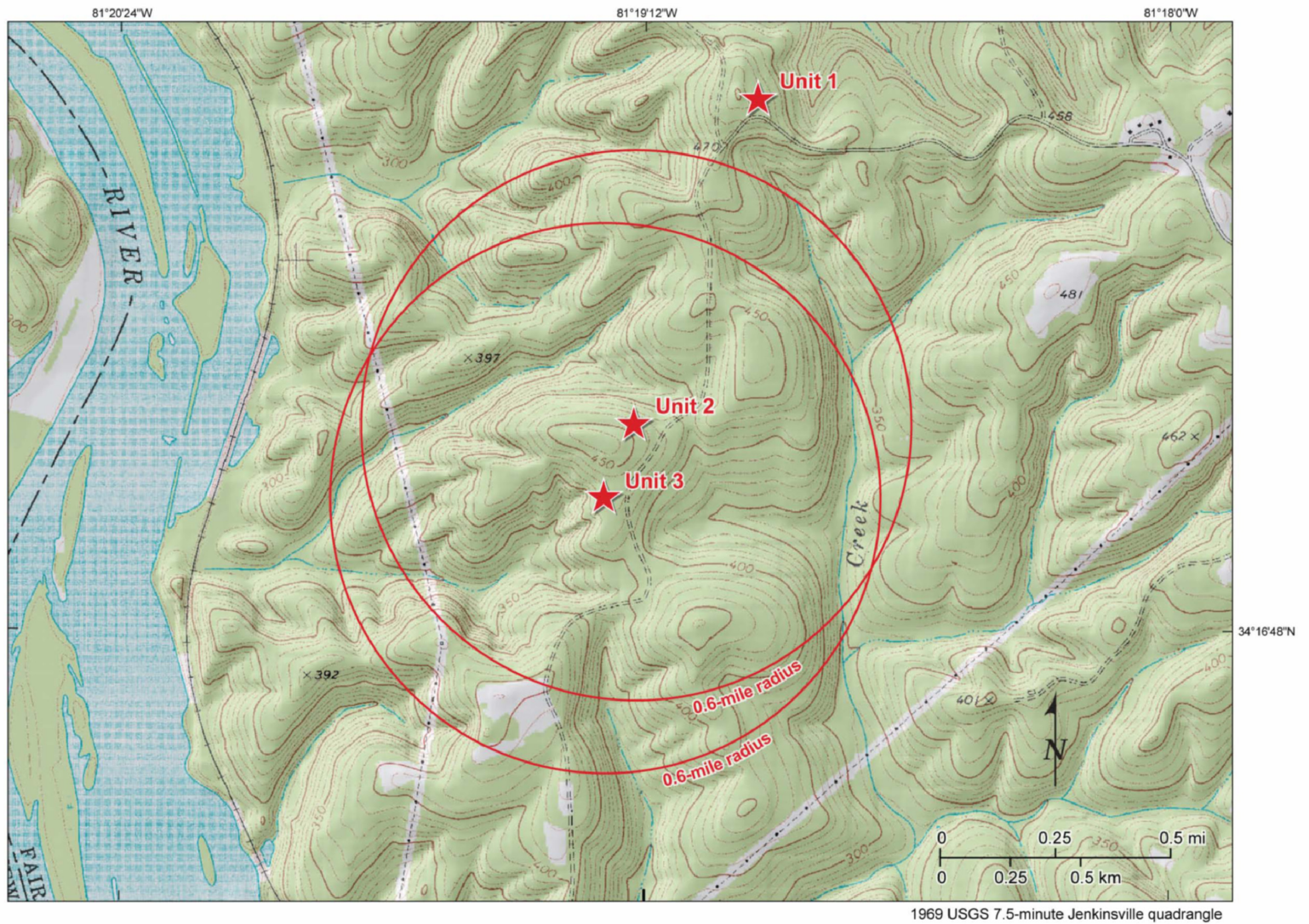


Figure 2.5.1-222. Site Topographic Map