MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

OFFICE OF GEOLOGY

OPEN-FILE REPORT 277

GEOLOGIC MAP

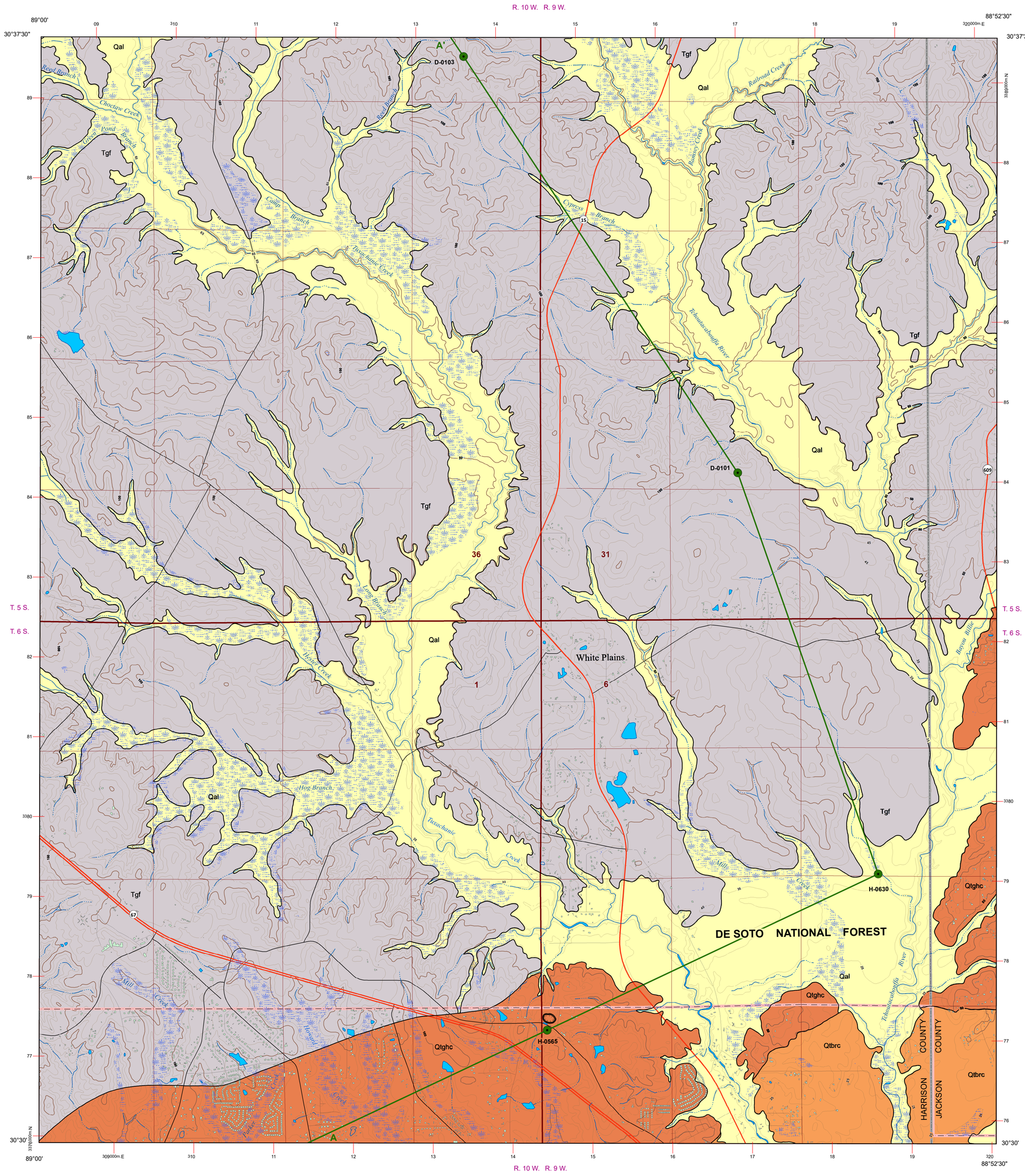
of the

WHITE PLAINS QUADRANGLE

Harrison and Jackson Counties, Mississippi

Geology by James E. Starnes, RPG
and Lindsey Stewart

2016



QUATERNARY — HOLOCENE

ALLUVIUM

Qal

Flood plain sands, silts, gravels, and clays. Gray to white- colored chert and quartz gravel was present in the western valley wall of Tuxachanie Creek in the southern half of Section 20, Township 6 South, Range 9 West. Thick alluvium in an over-sized floodplain was encountered in test hole H-0630. This may be interpreted as deep incision and subsequent alluviation of the stream valley caused by changes in sea level during the last glacial episode.

QUATERNARY — PLEISTOCENE

COASTAL TERRACES

BIG RIDGE COASTAL TERRACE

Qtbrc

50 foot Terrace: Sand, medium- to fine-grained, quartzose, gray to tan, slightly carbonaceous and clayey in places. Weathers yellow to mottled red and brown. The upper-limit of this terrace surface is approximately 50 to 60 feet above mean sea level in elevation. This terrace surface is better preserved just to the east of this map and serves as the basis for the habitat of the Mississippi Sandhill Crane National Wildlife Refuge.

GOOD HOPE COASTAL TERRACE

Qtghc

100 foot Terrace: Sand, medium- to fine-grained, quartzose with thinly bedded basal chert gravel, gray to tan, slightly carbonaceous and clayey in places. Weathers yellow to mottled red and brown. The upper-limit of this terrace surface is approximately 100 feet above mean sea level in elevation. This terrace is a combination of the 70- foot and 100- foot elevation terraces which were deposited at different times, having gradational contacts, and could not be reliably mapped as separate terraces. The Good Hope Terrace surface is typified just to the east of this map in Section 2, Township 6 South, Range 8 West in Jackson County.

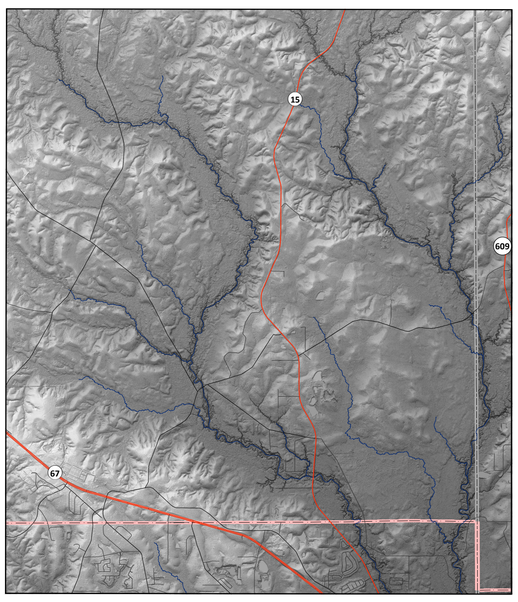
TERTIARY — PLIOCENE

GRAHAM FERRY FORMATION

Tgf

Sand, dark greenish-gray, yellow to tan, micaceous and glauconitic (exclusively in the fine-grained sands), fine- to coarse-grained, predominantly quartzose, cross-bedded to massive. Weathers to orange, purple, red, pink with reddish-brown colored pebbly ironstone residuum; Clay, green, gray, brown, weathers mottled purple to pink and white to reddish-brown, silty to fine-sandy, locally lignitic and contains pyrite nodules in places. Gravels, chert and quartz, brown to black, containing some Paleozoic marine fossils, pea to small cobble size. Gravel deposits in the Graham Ferry Formation were encountered on the Wayne Waits property in test hole D-0101 from 190 to 230 feet below land surface.

D - 0101 — Drill-hole locality and identification number



Bare Earth Coastal 2015 LIDAR Hillshade of the White Plains Quadrangle

GEOLOGIC MAP

WHITE PLAINS QUADRANGLE

Harrison and Jackson Counties, Mississippi

N W E S

SCALE 1:24,000

1 0.5 0 1 Mile

1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometer

Copyright © 2016 Mississippi Department of Environmental Quality, Office of Geology

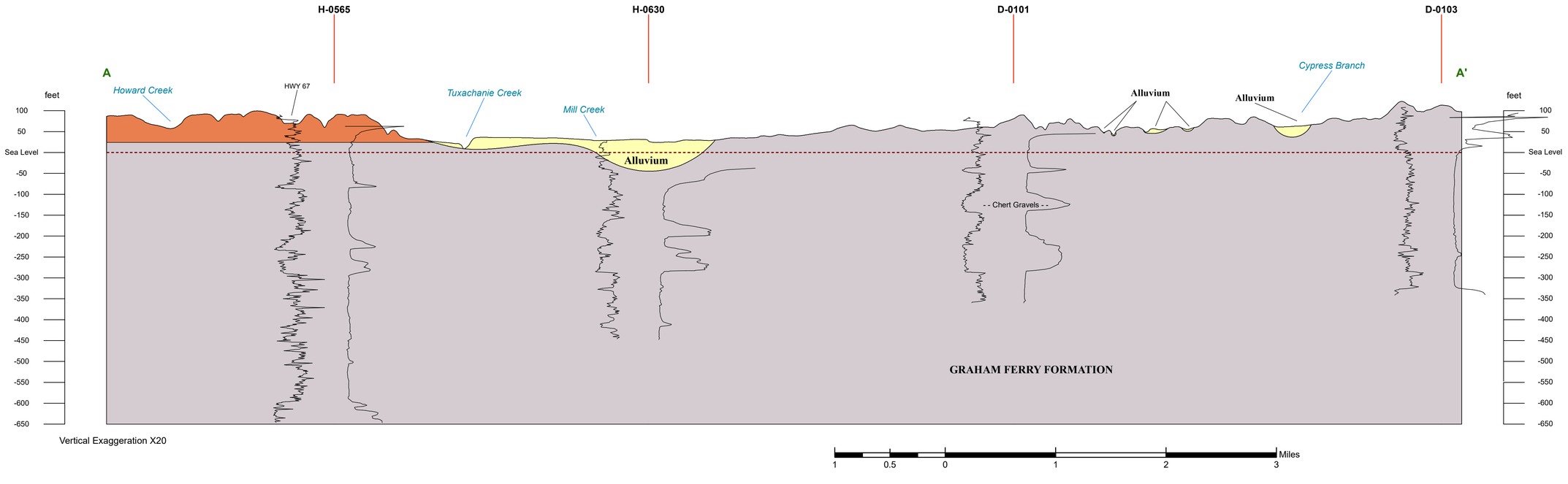
Geology field checked in 2015 using the 2000, U.S. Geological Survey 7.5-minute topographic quadrangle, produced by USGS 1982, revision by USDA Forest Service 2000. Universal Transverse Mercator projection, 1927 North American datum, contour interval 10 feet, supplementary contour interval 5 feet. Universal Transverse Mercator projection, 1983 North American datum . GRS80 spheroid. 1000-meter Universal Transverse Mercator 1983 datum grid ticks, zone 16, shown in red. January 2016, magnetic north declination in quadrangle center is 1°27' west of true north, 0°20' uncertainty, changing by 0°7' west per year.

Sources: Contours derived from Mississippi Automated Resource Information System (MARIS) vectorizing the mylar separate of the USGS 1982 topographic quadrangle, updated coding in 2000; Public Land Survey System, 1:24,000 scale, from MARIS; water features derived from the 7.5 minute Digital 2012 USTOPO; fresh water marsh and building footprint derived from the Mississippi Digital Earth Model (MDEM); streams in the LIDAR inset were derived from the Coastal 2015 LIDAR; road features derived from Mississippi Department Of Transportation (MDOT); Declination, National Oceanic and Atmospheric Administration (NOAA). We thank the US Forest Service for their cooperation and for facilitating the data collection and field work necessary for this mapping project.

Geographic Information System by Daniel W. Morse. MDEQ does not warrant the accuracy or completeness of the source data. Geologic maps are only a guide to current understanding and do not eliminate the need for detailed investigations of specific sites for specific purposes.

This map was produced by the Mississippi Office of Geology in cooperation with the United States Geological Survey, National Cooperative Geologic Mapping Program, under STATEMAP grant #G15AC00220.

Structural Cross-Section of the White Plains 7.5-Minute Geologic Quadrangle



Vertical Exaggeration X20