

A STUDY OF THE NEW OUTCROP OF SEDIMENTS IN CHARLESTON, STATEN ISLAND, NY

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Exposed in Charleston, at the south end of Staten Island, is a newly excavated outcrop (40.54° N; longitude 74.236° W) of sediments 33.58 m long. The lower unit of this outcrop consists of 1.1 meter (above road) of white silt and clay. This unit also contains cross beds. On top of the lower unit is a sequence of 4 yellow/beige units: (1) layer (1 meter thick) of poorly sorted gravel containing cobble size grains. At the west side of the outcrop, this layer contains yellow/beige/gold/orange types of gravel with cobbles of up to 10 cm in length of red sand stones, quartz grains, quartzite, and partially decomposed rocks. At the east end of the outcrop are large(0.26 m thick) irregular blocks of red yellow sandstone.(2) a layer of well sorted, cross-bedded silts and clays(0.43 m thick) containing quartz and clay minerals. (3) A thin layer of poorly gravel containing cobbles. (4) Another layer of well sorted cross-bedded silts and clays, 0.27m thick. The cross-beds dip 33° to the west. Textural evidence and the presence of cross-beds in the lower unit indicate that these sediments were deposited in a fluvial (stream) environment. The data indicate this unit is the Cretaceous Raritan formation that crops out in the southern part of Staten Island and in New Jersey. The data suggest that the upper sequence of gravels and cross bedded sediments appear to represent the Pleistocene Pennsauken Formation. At the west end of the outcrop the contact between white sediments and gravels steeply dips 30° to the west. This contact suggests that post Cretaceous streams cut into the Raritan Formation depositing the basal layers of the Pennsauken formation.