



EXPLANATION OF CROSS SECTIONS

A series of eight geological cross sections has been constructed to illustrate the correlation of confined aquifers, confining layers, and their stratigraphic equivalents in Kent County. Six west-to-east cross sections dissect the county in an approximately strike-parallel direction: from north to south, these are N1-N1', N2-N2', N3-N3', S3-S3', S2-S2', S1-S1'. Two north-to-south-oriented cross sections provide an up-dip-to-down-dip profile of the stratigraphy in the county: W-W' on the western side of the county and E-E' on the eastern. Correlations and lithologic interpretations are based on wireline geophysical logs shown on the cross section and on available lithologic logs. Each the seven confined aquifer intervals treated in this study is color-coded to highlight its vertical and lateral extent. Within these aquifer intervals, the presence of porous, permeable aquifer-quality lithologies is indicated with a stippled pattern. The vertical axes reflect elevations (in feet) and the horizontal axes indicates distance (in meters, based on UTM coordinates of wells).

Cross Section N1-N1'. This cross section across northern Kent County and nearby areas of Maryland shows the stratigraphic correlation of the Mount Laurel, Rancocas, Piney Point, and Cheswold aquifer intervals in an approximate strike direction. It includes two test holes drilled for this project (Ib14-32, Hd25-05). The Piney Point aquifer interval thins and disappears westward due to truncation by the unconformity at the base of the Miocene.

Cross Section N2-N2'. This approximately strike-oriented cross section shows the stratigraphic correlation of the Rancocas, Piney Point, and Cheswold aquifer intervals. The Piney Point aquifer interval thins and disappears westward on this cross section due to truncation by the unconformity at the base of the Miocene.

Cross Section N3-N3'. This cross section shows the correlation of the of the Piney Point, Cheswold, Federalsburg, and Fredricka aquifer intervals in an approximate strike direction in central Kent County and nearby areas of Maryland. It includes one test hole drilled for this project (Jc12-16). Geophysical log character suggests that the Federalsburg aquifer interval is relatively thin and finer-grained along this trend and that the Piney Point aquifer interval appears to include cleaner sand lithologies on the eastern end.

Cross Section S3-S3'. Just south of Cross Section N3-N3', this profile shows the stratigraphic correlation of the Piney Point, Cheswold, Federalsburg, and Frederica aquifer intervals in an approximate strike direction. It includes one test hole drilled for this project (Kc13-06). Geophysical logs appear to reflect the presence of cleaner sand lithologies in the Federalsburg and Piney Point aquifer intervals than in Cross Section N3-N3'.

Cross Section S2-S2'. This strike-oriented profile from southern Kent County shows the stratigraphic correlation of the Mount Laurel, Rancocas, Piney Point, Cheswood, Federalburg, and Frederica aquifer intervals, along with a small area likely assignable to the Milford aquifer. The Rancocas aquifer interval does not appear to contain sands suitable for aquifer use; the Mount Laurel aquifer interval appears to be sandy in places (Kb32-01).

Cross Section S1-S1'. This approximately strike-oriented cross section traverses the state near the Kent County - Sussex County line, extending into nearby Maryland and shows the stratigraphic correlation of the Piney Point, Cheswood, Federalsburg, Frederica, and Milford aquifer intervals. The Piney Point interval on the eastern end of the profile is of special interest because age determinations at one well (Me15-29) suggest the Piney Point aquifer at that locality is younger (Oligocene) than to the north or west (Eocene); the actual aquifer connectivity is uncertain.

Cross Section E-E'. The stratigraphy of all seven confined aquifers treated in this study can be traced on this dip-oriented profile, which extends across the eastern side of the study area from southeastern New Castle County across Kent County and into northernmost Sussex County. It includes two test holes drilled for this project (Hd25-05, Ke23-05).

Cross Section W-W'. This approximately dip-oriented cross section extends across the western side of the study area from southern New Castle County across Kent County, into northern Sussex County and adjacent eastern Maryland. Correlations of all seven confined aquifers show the south-dipping orientation of the Crataceous and Cenozoic section. This profile includes four holes drilled for this project (Ib14-32, Jc12-16, Kc13-06, and Ld41-16).