The surficial geologic map of the Center Sandwich, New Hampshire, 7.5-minute Quadrangle shows the lateral distribution of the unconsolidated surficial materials (e.g. alluvium, glacial till, sand and gravel) and bedrock exposed at the ground surface. The unconsolidated sediments largely reflect deposition related to the most recent period of continental glaciation (which ended approximately 14,000 years ago), post-glacial deposition within fans and along streams and rivers. The advance and retreat of the glacial ice resulted in the deposition of an assortment of surficial deposits and the formation of a variety of landforms.

As the continental glacier advanced through the area, it scoured the paleo-landscape, mobilizing vast quantities of pre-glacial sediment and bedrock fragments. These materials were entrained at the bottom of the glacier, where they were crushed and then re-deposited directly beneath the ice mass as till deposits, which are present as a thin veneer of poorly-sorted sediments over a majority of the Center Sandwich Quadrangle. Some of the till was deposited as streamlined hills/ridges, the orientation of which indicates the direction of glacial advancement through the quadrangle. The LiDAR (Light Ranging and Detection) slope map that provides the backdrop of the map, highlights these streamlined ridges, especially in the northern reaches of the quadrangle where many of the features indicate ice flow direction to the north of east, as opposed to the typical regional ice flow direction towards the southeast.

As the glacial period ended, the ice sheet began to melt and retreat through the Center Sandwich Quadrangle. During this retreat, glacial meltwater and precipitation remobilized much of the sediment that was previously entrained within the advancing glacial ice. Most of the deposits demarcated on the map were deposited by glacial meltwater (glaciofluvial deposits) away from the active ice margin. However, a number of the glacial “ice-contact” deposits appear to have been bounded by active or stagnant ice blocks. These deposits have been classified as ablation till (Qta) and were laid down proximal to or on the melting ice sheet, but with minimal sorting of material. The present day ground surface within the ablation till deposits is typically highly irregular, hilly, and hummocky (Photos 1 and 2).

A number of post-glacial fan deposits developed from sediments derived directly from the glaciers or from post-glacial streams which eroded into the glacial till and other deposits. The most significant erosion by glacial meltwater occurred in the Cold River Valley, which despite a relatively small watershed reflects deep erosion (over 100 feet). The meltwater that carved this valley is thought to have been largely contributed by a glacial lake in the Beebe River basin to the west of quadrangle. As the glacier receded, it formed a dam forcing meltwater from that drainage system into the Cold River watershed. Stranded stream terraces far above the present river level provide evidence of protracted erosion as the river carved its current channel.

Post-glacial fluvial processes continue today, eroding and depositing surficial deposits in the Center Sandwich quadrangle. Sediments remobilized during the erosion are deposited as alluvial deposits within numerous streams. In addition, abundant wetlands and ponds now lie in the lowlands that were once scoured by glacial meltwater.