Gall Zeidler Consultants
Geotechnics | Tunnel Design | Engineering

Weehawken Tunnel West Portal Stabilization
New Jersey Transit

Location: Newark, New Jersey

Date: 2022 - Present

Structure: Tunnel West Portal North Embankment Slope

Geology: Stockton Formation Sandstone, and Triassic Diabase

Client: Hudson-Bergen Light Rail Transit System (HBLR)

Owner: New Jersey Transit (NJT)

Geotechnical Engineering:

From August 26th through September 1st, 2021, Hurricane Ida made landfall as a category 4 hurricane in the state of Louisiana. Newark, New Jersey recorded 8.41 inches of rainfall in a single day, with rates over 3 inches per hour at one point. The torrential rain resulted in a destabilization of a stretch of the north embankment slope adjacent to the West Portal of the Weehawken Tunnel (Figure 1). The resultant debris flow inundated the tracks of the Hudson-Bergen Light Rail Transit System (HBLR). Concern regarding the stability of the slope and the potential for future debris flow events has prompted HBLR New Jersey Transit (NJT) to evaluate and implement slope stabilization or debris flow protection measures at the location.

Gall Zeidler Consultants (GZ) was retained by SRK by HBLR to investigate the potential cause of the debris flow, assess the current stability of the slope itself, and provide conceptual level recommendations for remediation measures as well as interim measures that can be immediately implemented by HBLR. The interim measures served to stabilize the slope on the short-term while GZ develops the final design for long-term slope stabilization.

Figure 1. View of track from within the Weehawken Tunnel after debris flow at the West Portal.

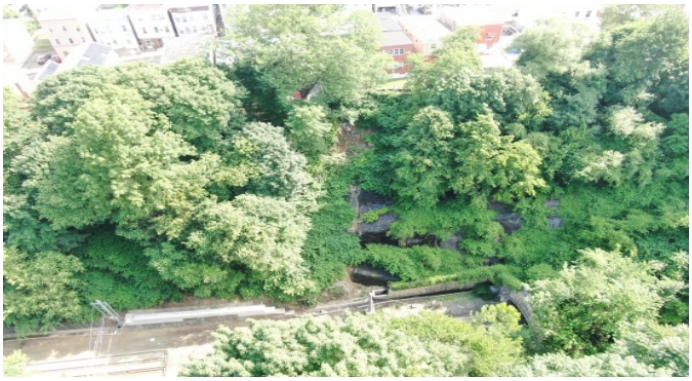

Figure 2. Drone Aerial image of West Portal North Embankment Slope where debris flow occurred.