Gravity Wall Construction by Jet Grouting

October 3, 2018

CUY-77-13.80 CCG6B
Cleveland Innerbelt Contract Group 6B

Peter Narsavage, PE
Proposed Wall Location
Existing wingwall & footing
Scope requirements for sewers

13.6.7
The 60 inch interceptor ... shall be protected in place by the DBT. ... The DBT shall provide a minimum 21 foot diameter buffer zone ... centered on the pipe.
The 48 inch sewer shall be relocated to avoid Wall 1A or to cross the wall so that a 15 feet diameter of clear space centered around the pipe centerline is achieved.
Sewers

60” Dia. Brick Tunnel

48” Dia. Concrete Pipe

Alternate Wall Location?
Scope requirements for walls

16.3

8. No utilities, including storm and sanitary sewers, shall be placed within the reinforced soil mass of all MSE walls with the exception of new roadway drainage structures, lateral pipes and underdrain.

9. Existing storm and/or sanitary facilities within 10 feet* of the reinforced soil mass of all MSE walls shall be removed and relocated at least 10 feet outside of the reinforced soil mass.
Scope requirements for walls

16.3

10. Existing and proposed utilities, including storm and sanitary sewers, shall be offset a minimum dimension of (0.6 X the total height of the proposed wall)* from the back of a retaining wall that does not utilize a reinforced soil mass. For walls of any construction type that utilize tiebacks, existing and proposed utilities shall be held to the MSE wall offset requirement described above.

* This dimension shall be measured horizontally in a 2 dimensional plan view. The elevations of the utility and the retaining wall elements shall not be considered for this requirement.
Cannot do this!

Any Utility

⌀ GROUND ANCHOR (TYP.)
What to do?
Ohio Canal Interceptor Tunnel
Akron, Ohio
Ground Improvement at OCIT-1 Tunnel Portal
Working slab
Jet Grouting in Cleveland, Ohio, 2018
Contractor: Schnabel Foundation Co.
Drilling through old sheet pile
Confirmation hole
Jet Grout Strength

The graph shows the unconfined compressive strength of jet grout over different days. The x-axis represents the number of days, ranging from 0 to 28, while the y-axis represents the unconfined compressive strength in psi, ranging from 0 to 2500. Multiple lines with different colors indicate the strength growth over time, with each line representing a different sample or condition. The data suggests an increasing trend in strength with time.
Removing Surface of Jet Grout Soilcrete
Cleveland, Ohio, 2018
Exposed Jet Grout
Exposed Jet Grout
Questions?