SECTION 022600

EXCAVATION SUPPORT AND PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes temporary excavation support and protection systems.

1.2 PERFORMANCE REQUIREMENTS

A. Design, furnish, install, monitor, and maintain excavation support and protection system capable of supporting excavation sidewalls and of resisting soil and hydrostatic pressure and superimposed and construction loads.

1. Provide professional engineering services needed to assume engineering responsibility, including preparation of Shop Drawings and a comprehensive engineering analysis by a qualified professional engineer.

1.3 SUBMITTALS

A. Shop Drawings for Information: Prepared by or under the supervision of a qualified professional engineer for excavation support and protection systems if required by field conditions.

1. Include Shop Drawings signed and sealed by the qualified professional engineer responsible for their preparation.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide materials that are either new or in serviceable condition.

B. Structural Steel: ASTM A 36/A 36M, ASTM A 690/A 690M, or ASTM A 992/A 992M.

C. Steel Sheet Piling: ASTM A 328/A 328M, ASTM A 572/A 572M, or ASTM A 690/A 690M; with continuous interlocks.

D. Wood Lagging: Lumber, mixed hardwood, nominal rough thickness of 3 inches.

E. Cast-in-Place Concrete: ACI 301, of compressive strength required for application.

F. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards that could develop during excavation support and protection system operations.

B. Install excavation support and protection systems to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

C. In general, all portions of the excavations shall be made so that the safe slope of the earth is not exceeded. The Contractor shall comply with all OSHA requirements and provide a competent person on site to supervise excavation at all times. It shall be the responsibility of the Contractor to properly and adequately protect any part of the excavation from caving or slipping by the use of sheeting, bracing, or shoring as required. All shoring or underpinning shall be put in place or driven by men skilled in such work.

D. All shoring in trench excavations shall be installed so that it may be withdrawn in stages on both sides of the trenches to prevent lateral movement of the pipe as the backfilling progresses, except where the Engineer permits the shoring to be left in place at the Contractor's request. The Contractor shall cut off any sheeting left in place at least twenty-four inches below finished grade wherever directed and shall remove and properly dispose of the material cut off.

E. Wherever necessary, in quicksand, soft or wet ground, or for the protection of surrounding structures and property, sheeting shall be driven to such depth below the bottom of the excavation as may be necessary. The Contractor may use well points or other methods in lieu of sheeting to stabilize the banks or for protection at the discretion of the Contractor.

F. Monitor excavation support and protection systems daily during excavation progress and for as long as excavation remains open. Promptly correct bulges, breakage, or other evidence of movement to ensure that excavation support and protection systems remain stable.

G. Promptly repair damages to adjacent facilities caused by installing excavation support and protection systems.

3.2 REMOVAL AND REPAIRS

A. Remove excavation support and protection systems when construction has progressed sufficiently to support excavation and bear soil and hydrostatic pressures. Remove in stages to avoid disturbing underlying soils or damaging structures, pavements, facilities, and utilities.

1. Remove excavation support and protection systems to a minimum depth of 48 inches below overlying construction and abandon remainder.
2. Repair or replace, as approved by Owner/Owner Agent, adjacent work damaged or displaced by removing excavation support and protection systems.

END OF SECTION 022600