

PART 1 - GENERAL**1.1 Description of Work**

- A. The item is intended to be used when excavation is required within but not limited to the following: root collar investigation, Critical Root Zone (CRZ) investigation, root pruning especially large roots > 1.5" diameter or root pruning where existing underground cables or conduits are located, radial mulching and restoration of compacted soils, insertion of piers, footers, and pilings within the protected CRZs during construction.
- B. The excavation is performed using a handheld tool designed to focus highly compressed air (90-125 psi) provided by an air compressor (185-375 cfm) at speeds close to Mach 2 (approx. 1400 mph) at the tip of the tool.
- C. This item shall consist of all work associated with supersonic airtool excavation in accordance with these specifications, and as detailed on the plans or as directed by the Project Engineer. This shall include all labor, materials, testing, submittals, tools, and equipment necessary to perform supersonic airtool excavation to the lines and grades shown on the plans including any incidentals thereof.

1.2 Definitions

- A. Finish Grade: Elevation of the finished surface of planting soil
- B. Existing Grade: Existing, native surface topsoil formed under natural conditions with the duff layer retained during the excavation period and stockpiled. Refer to Section 329100 Planting Preparation.
- C. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill, before placing planting soil.
- D. ISA: International Society of Arboriculture
- E. ANSI: American National Standards Institute
- F. Urban Forester/County Urban Forester: Refers to the Arlington County Urban Forester
- G. Landscape Architect: Refers to an Arlington County Landscape Architect or their designee

1.3 Related Work Specified Elsewhere

- A. Section 01500 – Erosion Sediment Control and Pollution Prevention
- B. Section 02100 – Clearing and Grubbing
- C. Section 02200 – Earthwork
- D. Section 02202 – Rock Excavation
- E. Section 03100 – Concrete, Formwork, Reinforcement, and Materials
- F. Section 311300 – Tree Protection and Root Pruning
- G. Section 329100 – Planting Preparation
- H. Section 329200 – Seeding and Sodding

1.4 Submittals

- A. **Arborist.** All excavation work shall be performed under the direction of a Certified Arborist (International Society of Arboriculture (ISA) or equal). The Contractor shall submit the arborist's qualifications prior to the Notice to Proceed.
- B. **Operator.** Pneumatic excavation shall be conducted by an Operator having: at least one (1) year of experience operating the pneumatic excavation equipment and demonstrated experience working within the CRZ of existing trees and shrubs. The Operator may also be a certified arborist (ISA or equal), which would fulfill the Arborist requirement. The Contractor shall submit written certification of the Operator's training and experience prior to the Notice to Proceed.

PART 2 - MATERIALS

2.1 Supersonic Airtool (SSAT)

Pneumatic excavation hand-held tool designed to focus highly compressed air (90-125 psi) provided from a large air compressor (185-375 cfm) at speeds close to Mach 2 (approx. 1400 mph) at the tip of the tool.

PART 3 - EXECUTION

3.1 General

- A. The Contractor, Landscape Architect, and Urban Forester shall review the proposed location(s) and layout the limit of work.
- B. The Contract Arborist shall provide a qualified arborist crew experienced with the SSAT and utility excavation to protect adjacent natural resources and construction work, open the excavation, hand prune minor roots, and identify and protect priority roots to remain.
- C. Do not perform this operation during drought months without adequate supplemental moisture to reach a minimum of 50% field capacity.
- D. Protect adjacent trades or pedestrians from dust or flying debris.
- E. Coordination with the appropriate trade / sub-contractor shall be made as to appropriate width, depth, sequencing, utility installation, backfill, completion, and cover.
- F. Supplemental watering by root misting on a daily basis during excess of 80 degrees Fahrenheit days is recommended for exposed roots. A temporary plastic or equal membrane may be applied over the trench for exposed roots over 24 hours duration and then removed prior to backfill.

PART 4 - MEASUREMENT AND PAYMENT

- 4.1 The unit price bid per cubic foot of excavated area shall include the cost of all labor, materials, testing, submittals, tools, demolition, restoration, and equipment necessary to perform supersonic airtool excavation to the lines and grades shown on the plans including any incidentals thereof in accordance with the contract documents, specifications and to the satisfaction of the Project Officer.