

## DIVISION 40

### PUMP STATION SITE WORK AND LANDSCAPING

**40.01 SCOPE:** The contractor shall furnish all labor, materials, equipment, and supplies; and shall perform all work necessary for the installation of landscaping as shown on the plans for the pump station site and the site work for the pump station. This work shall include clearing and grubbing; earthwork; concrete driveway; sidewalk, and entrances; landscaping, grading and drainage pipe, topsoil, seeding, erosion and sediment control; water service installation, cleanup, and any other restoration work required due to construction activity.

**40.02 MATERIALS:** (Site work) See Applicable Divisions

#### (Landscaping)

- A. Trees and Shrubs: Provide trees and shrubs grown in a recognized nursery in accordance with good horticultural practice. Provide healthy, vigorous stock grown under climatic conditions, similar to conditions in the locality of the project and free of disease, insects, eggs, larvae, and defects such as knots, sunscald, injuries, abrasions, or disfigurement.
  - 1. Sizes: Provide trees and shrubs of the size shown or specified. Trees and shrubs of larger size may be used if acceptable to Engineer, and if sizes of roots or balls are increased proportionately.
- B. Mulch: Provide hardwood bark mulch in accordance with State Nursery Guidelines. Size of pine bark chips to be between 1/2" and 2' size.
- C. Inspection: The Engineer reserves the right to inspect trees and shrubs either at place of growth or at site before planting, for compliance with requirements for name, variety, size and quality.
- D. General: ship landscape materials with certificated of inspection as required by governmental authorities. Comply with governing regulations applicable to landscape materials.
- E. Do Not Make substitutions. If specified landscape material is not obtainable, submit to the Engineer proof of non-availability and proposal for use of equivalent material. When authorized, adjustment of contract amount will be made.

## 40.03 EXECUTION:

### (Site Work)

A. Clearing and Grubbing: See Division 19

B. Earthwork:

1. **Excavation and Backfill**: Excavation shall conform to the lines and grades shown on the drawings and established by the Contractor. Excavation shall not be carried below the established grades and any excavation below the required level shall be backfilled, and tamped at the Contractor's expense unless directed by the Engineer.

The Contractor shall do all sheeting, bracing, and shoring necessary to perform the work and protect workers and excavations as required to conform to all governing laws and ordinances and as directed by the engineer.

All necessary dewatering and pumping shall be performed in such a manner as to keep the excavation in a satisfactory condition. The Contractor shall conduct his operations such as to provide adequate drainage of the construction area and adjacent areas affected by construction through temporary ditching, piping, or other means as may be appropriate. Drainage shall not be impeded by construction operations.

2. **Backfilling** shall be done with material free from large clods and foreign matter, and shall evenly and carefully be placed and tamped in a maximum of twelve (12) inch horizontal layers. Tamping shall be performed using suitable pneumatic compactors or an approved equal. Compaction equipment specifically designed for these purposes must be present and operational at the job site and shall be utilized to obtain uniform compaction. Where settlement is important and where excavation has been made through permanent pavements, curbs, and driveways, and sidewalks, or where structures are undercut by excavation, it shall be the Contractor's responsibility to provide compaction of the backfill material to ninety-five percent (95%) of its maximum density at plus or minus twenty percent (20%) of its optimum moisture. Surplus material shall be disposed of by the Contractor in accordance with all Federal, State, and local laws and regulations.
3. **Compaction Tests**: The City or its authorized representative reserves the right to perform compaction tests on any or all portion(s) of backfill placed in the trench at no costs to the Contractor. However, in the event the compaction of this backfill is not in compliance with the specification, Section 10.03. B, then the Contractor shall take corrective measures at no

costs to the City to bring the backfill within the limits of the Specifications, Section 10.03.B. The Contractor shall then be responsible for reimbursing the City all costs associated with the performance of compacting test(s) in those sections of the backfill that failed the compaction test(s). However if the tests should indicate compaction within the required limits, the City will then be responsible for said costs.

4. Should it be determined that removal of sheeting in excavated areas might endanger adjacent properties or structures, the Engineer may direct that the sheeting be left in place. In such instances, sheeting will be cut off one (1) foot below grade and left in place. Backfilling will be performed in accordance with appropriate sections of this specification.
- C. Pipe Work: Pump station contractor shall terminate the pump station pipe work 3' outside the building wall, after sheet pile removal, connection to the gravity sewer, forcemain, and the emergency pump connection will be completed by the pipeline contractor.
- D. Concrete Driveway, Sidewalk, and Entrances: See Division 22.
- E. Drainage Pipe: See Division 10.
- F. Erosion and Sediment Control: See Division 23.
- G. Topsoil, Seeding and Grading: All unpaved, and disturbed areas due to the contractor's activities shall be graded, topsoiled, seeded, and restored. Grading shall be done in accordance with the proposed grades shown on the plan. Topsoil, seeding and restoration work shall be done in accordance to Division 20.
- H. Water Service Installation:
1. Materials: Shall conform to Division 33 for service pipe, corporation stops, angle valve, meter box and service saddle.
    - a. Dual Check Valves: Dual check valves shall be watts No. 7.
    - b. Hose Bib:
      - 1) Hose bib vacuum breaker shall be Watts No. 8 or 8A or approved equal.
      - 2) Hose bib shall be Crane #438 valve or approved equal with male hose threads for 3/4" hose connection.

2. Installation:

- a. The installation of water service connections shall be in accordance with the detail shown in City Standard PFM Vol. II.
- b. Meter boxes shall be placed at the end of each service line with their tops set at finished grade.
- c. Service lines shall have a minimum of 24" to a maximum of 36" cover from the top of the tubing to finished grade. The top of the angle curb stop/valve shall be set at an elevation 12" below finished grade.

- I. Cleanup and Restoration Work: Provide cleanup and restoration work in accordance to the General Conditions, Supplemental Conditions, and these technical specifications.

**(Landscaping)**

- A. Trees and Shrubs: Provide freshly dug trees and shrubs. Do not use trees or shrubs which have been heeled-in. Do not prune prior to delivery. Do not bend or bind-tie trees or shrubs in such manner as to damage bark, break branches or destroy natural shape. Provide protective covering during delivery.
- B. Deliver trees and shrubs after preparations for planting have been completed and plant immediately. If planting is delayed more than 6 hours after delivery, set trees and shrubs in shade, protect from weather and mechanical damage, and keep roots moist.
- C. Do not remove container-grown stock from containers until planting time.
- D. Layout individual tree and shrub locations, and areas for multiple plantings. Stake locations and outline areas and secure Engineer's acceptance before start of planting work. Make minor adjustments as may be requested.
- E. Utilities: Determine location of underground utilities and perform working manner which will avoid possible damage. Hand excavate, as required, to minimize possibility of damage to underground utilities. Maintain grade stakes set by others until removal is mutually agreed upon by all parties concerned.
- F. Excavate pits, beds and trenches with vertical sides and with bottom of excavation slightly raised at center to provide proper drainage. Loosen hard soil in bottom of excavation.
  1. For bare root trees and shrubs, make excavations at least 1' - 0" wider than root spread and deep enough to allow for seeding of roots on a layer of

compacted backfill and with collar set at same grade as in nursery, but 2" below finished grade at site.

Allow for 9" setting layer of planting soil mixture.

2. For balled and burlapped (B&B) trees and shrubs, make excavations at least twice as wide as the ball diameter and equal to the ball depth, plus the following allowance for setting of ball on a layer of compacted backfill:

Allow for 3" setting layer of planting soil mixture.

3. For container grown stock, excavate as specified for balled and burlapped stock, adjusted to size of container width and depth.

Dispose of subsoil removed from landscape excavations. Do not mix with planting soil or use as backfill.

Fill excavations for trees and shrubs with water and allow to percolate out before planting.

- G. Set balled and burlapped (B&B) stock on layer of compacted planting soil mixture, plumb and in center of pit or trench with top of ball at same elevation as adjacent finished landscape grades. When set, place additional backfill around base and eliminate voids and air pockets. When excavation is approximately 2/3 full, water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. Water again after placing final layer of backfill. Remove burlap from sides of balls; retain on bottoms.
- H. Set bare rootstock on cushion of planting soil mixture. Spread roots and carefully work backfill around roots by hand and puddle with water until backfill layers are completely saturated. Plumb before backfilling and maintain plumb while working backfill around roots and placing layers above roots. Set collar 1" to 2" below adjacent finish landscape grades- Spread Cut roots without tangling or turning up to surface. Cut injured roots clean, do not break.
- I. Set container grown stock as specified for balled and burlapped stock, except cut cans on 2 sides with an approved can cutter; remove bottoms of wooden boxes after partial backfilling so not to damage root balls.
- J. Mulch pits, trenches and planted areas. Provide not less than 3 inch thickness of mulch and work into top of backfill and finish level with adjacent grades.
- K. Prune, thin out and shape trees and shrubs in accordance with standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise directed by the Engineer, do not cut tree leaders, and remove only

injured or dead branches from flowering trees, if any. Prune shrubs to retain natural character and accomplish their use in the landscape design. Required shrub sizes are the size after pruning.

**40.04 MEASUREMENT AND PAYMENT:** Pump Station site work will not be measured but included in the lump sum bid price for the pumping station.