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SECTION 02320 - DRAINAGE SYSTEMS, SEPTIC

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PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included

Work under this SECTION covers requirements for materials, tools, equipment and services necessary to complete the drainage systems for this project. The work shall include, but is not necessarily limited to, completion of the following work:

1. Field engineering
2. Complete design and installation of septic system
3. All required permits and fees
4. Repair and replacement of all site improvements disturbed during installation

1.2 QUALITY ASSURANCE

- A. Contractor shall use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this SECTION.
- B. Contractor shall use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.
- C. In addition to complying with requirements of governmental agencies having jurisdiction, Contractor shall comply with the directions of Engineer and Division.
- D. All septic system work shall be completed by a licensed and approved contractor for the county in which the work is performed.
- E. The County Sanitarian shall approve and inspect the design and construction of the septic system.
- F. Contractor shall furnish and operate sufficient pumps and/or provide other means including materials, labor, and equipment to provide continuous sanitary sewer service to the existing facilities. Correction of any malfunctions or damages during construction and during the one (1) year guarantee period shall be required and repaired at no cost to Division.

1.3 SUBMITTALS

- A. Submit manufacturer's certification and material data for all material delivered to the project site for the work of this section.
- B. Submit design and proposed location of septic system for review and approval by the County Sanitarian.
- C. Contractor Approval
 1. Contractor shall select a licensed contractor to complete work required under this SECTION. The name and address of the contractor to be used in this work shall be submitted to and must be accepted by Engineer prior to start of this work.
- D. Submit copy(s) of all required permits and approvals prior to start of work under this SECTION.

- E. As-built drawings of the septic system and laterals.

1.4 PERMITS

- A. Contractor shall complete design of the septic system and revise the proposed drawings as required for all approvals and permitting. Revisions shall be made only after consultation with and direction from Engineer and/or Division.
- B. Contractor shall apply for and receive all required permits and approvals. All permit fees will be the responsibility of the Contractor and are considered incidental to the septic system installation.

1.5 JOB CONDITIONS

- A. Contractor shall protect all existing underground utilities, including all private lines.
- B. Exact locations of existing sanitary sewer lines are unknown. Contractor shall determine location, depth, and materials of existing sanitary sewer lines as required. Proposed septic system shall connect to existing sanitary lines as required for proper installation.

PART 2 - PRODUCTS

2.1 SEPTIC TANK

- A. Septic tank shall be sized according to the notes shown on the Plans with a discharge filter meeting all regulations and requirements. Refer to IAC 567-69.8.

2.2 SEWER LATERALS

- A. Sewer laterals shall be constructed of four inch (4") Perforated Schedule 40 Polyvinyl Chloride Pipe (PVC).
- B. PVC pipe shall be plastic PVC – ASTM D3034-SDR35 Type 1, Grade 1. Joints shall meet ASTM D3033/D3034 Standards and IAC 567-69.8(11) c.

2.3 OTHER MATERIALS

- A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by Contractor, subject to the approval of Engineer.

PART 3 - EXECUTION

3.1 SITE CONDITIONS

- A. Contractor shall examine the areas and conditions under which work of this SECTION will be performed and shall correct conditions detrimental to timely and proper completion of the work. Contractor shall not proceed until unsatisfactory conditions are corrected.

- B. Contractor shall adjust proposed septic system locations as required by site conditions and design requirements. Location changes shall be made only after consultation with and direction from Engineer and/or Division.
- C. Contractor shall protect all existing structures and improvements. Repair or replace all damage incidental to the septic system including but not limited to driveway replacement, lawn seeding, and all other improvements that must be removed for proper installation.
- D. Contractor shall complete all required percolation testing required for the design of the septic system. Any required soil amendments shall be completed incidental to septic system.

3.2 SEPTIC TANK

- A. Septic tank shall be located no less than ten (10) feet from the existing structure or property line and be installed according to manufacturer recommendations and all regulations governing the septic system. Match flow lines of existing sanitary sewers and provide proper connections to new system.

3.3 SEWER LATERALS

- A. Contractor shall construct sewer laterals as shown on the Plans or as required for proper functioning. The laterals shall be installed in equal lengths not greater than one hundred (100) feet with ends capped and placed in trenches having a maximum depths of thirty-six (36) inches. A distribution box shall be installed level to equally distribute septic tank effluent to all laterals. Installation of the laterals and distribution box shall be according to manufacturer recommendations and all regulations governing the septic system.
- B. Where soil conditions are not conducive to laterals or where the seasonal high water table is closer than three (3) feet to the soil surface Engineer shall develop and specify an alternative treatment system subject to approval of the County Sanitarian. Approved alternative treatment systems shall be installed in strict accordance with manufacturer's recommendations and/or Engineer's design details.

3.4 MEASUREMENT AND PAYMENT

The construction cost of all work included in this Section of the Construction Specifications shall be included in Contractor's unit prices set forth in the Proposal and Schedule of Prices (*Document C*) for the work items described below. The unit price for each of these items shall include its pro rata share of overhead so that the sum of the products obtained by multiplying the unit prices so set forth by the amount of the work actually constructed, measured as described herein, shall constitute full payment to Contractor for performance of the work included in this SECTION.

Measurement and payment for each work item in this SECTION shall be in accordance with the following:

- A. *Septic System*: Unit price shall include all materials and work required for installation of a septic system in conformance with details and dimensions shown on the Plans, these Construction Specifications, as may be required by the manufacturer, and as required by all governing regulations and permits. Unit prices shall include furnishing and installing the septic system, connecting the system, excavation, backfill, site repair, lawn seeding, driveway repair, and all other incidental construction including cleaning of sediment, maintenance, and repairs. Measurement and payment of septic system shall be based on the number of each septic system properly installed and maintained.

B. *Summary:* Proposal Bid Items applicable to work covered by this SECTION are as follows:

<u>Description</u>	<u>Unit</u>
Septic System	Each

END OF SECTION 02320