SECTION 334613

FOUNDATION DRAINAGE

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***NOTE TO SPECIFIER***

*Use this Specification Section for Mail Processing Facilities.*

***This is a Type 1 Specification with completely editable text; therefore, any portion of the text can be modified by the A/E preparing the Solicitation Package to suit the project.***

*For Design/Build projects, do not delete the Notes to Specifier in this Section so that they may be available to Design/Build entity when preparing the Construction Documents.*

*For the Design/Build entity, this specification is intended as a guide for the Architect/Engineer preparing the Construction Documents.*

*The MPF specifications may also be used for Design/Bid/Build projects. In either case, it is the responsibility of the design professional to edit the Specifications Sections as appropriate for the project.*

*Text shown in brackets must be modified as needed for project specific requirements.* *See the “Using the USPS Guide Specifications” document in Folder C for more information.*

*The last date that USPS revised this standard specification section occurs in two places, at the end of this section and in the Table of Contents. If the date in this section matches the date in the Table of Contents, then you are using the latest version. Do not delete or revise the “last revised” date at the end of the section during the development of the Project Manual.*

*The footer in this section should be edited to replace the text, “USPS MPF SPECIFICATION” with the project name, and the blank date in the center should be replaced with the submission date, for interim design reviews, or the issue date of the completed Project Manual.*

***Use this section where Foundation Drainage is part of the Work. Before editing this Section, obtain the "Report of Subsurface Investigation" prepared by the Geotechnical Engineer. Read the report and incorporate the recommendations included in the report into this Section.***

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1. GENERAL
	1. SUMMARY
		1. Section includes:
			1. Foundation, Subsoil Drainage Systems.
		2. Related Documents: The Contract Documents, as defined in Section 011000 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other Documents.
		3. Related Sections:
			1. Section 312300 ‑ Excavation and Fill: Earthwork for utilities.
			2. Section 334000‑ Storm Drainage Utilities.
			3. Section 033000 - Cast-In-Place Concrete: Concrete for catch basins, inlets, and junction boxes.
	2. REFERENCES
		1. American Society for Testing and Materials (ASTM):
			1. ASTM F 405 Standard Specification for Corrugated Polyethylene (PE) Tubing and Fittings
			2. ASTM D 448 Standard Classification for Sizes of Aggregate for Road and Bridge Construction
			3. ASTM D 2321 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
	3. SUBMITTALS
		1. Section 013300 - Submittal Procedures.
		2. Section 017704 - Closeout Procedures and Training.
	4. QUALITY ASSURANCE
		1. Qualifications:
			1. Manufacturer Company specializing in manufacturing Products specified with minimum 5 years documented experience.
			2. Installer: Company specializing in performing the Work of this Section with minimum 5 years documented experience.
2. PRODUCTS

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**NOTE TO SPECIFIER**

Verify manufacturer information, products, and availability at time of Project Manual preparation for Project.

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* 1. MANUFACTURERS
		1. Subject to compliance with project requirements, manufacturers offering Products which may be incorporated in the Work include the following:
			1. Drainage Conduits:
				1. Advanced Drainage Systems, Incorporated, London, OH, (800) 733-9554.
				2. CertainTeed Corporation, Valley Forge, PA, (800) 274-8530.
				3. Flo-Well Products, Centerville, MA, (800) 356-9935.
		2. Section 016000 - Product Requirements: Product options and substitutions. Substitutions: Permitted.
	2. MATERIALS
		1. Pipes and Fittings:
			1. Perforated, Polyethylene (PE) Pipe and Fittings: ASTM F 405, corrugated, for coupled joints.
	3. ACCESSORIES
		+ 1. Couplings: Manufacturer's standard, band type.
	4. SOIL MATERIALS
		1. Drainage Fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, ASTM D 448, coarse aggregate, Size No. 57, with 100 percent passing 1-1/2-inch sieve and not more than 5 percent passing No. 8 sieve.
1. EXECUTION
	1. EXAMINATION
		1. Section 017300 - Execution.
		2. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.
			1. Where foundation drainage systems are to be installed, examine surfaces and areas for suitable conditions.
			2. Do not proceed with Work until negative conditions have been corrected.
		3. Report in writing to Contracting Officer prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.
		4. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the United States Postal Service.
	2. FOUNDATION DRAINAGE SYSTEM APPLICATIONS

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**NOTE TO SPECIFIER**

Products listed below must correlate with specifications in Part 2 Products and pipe size indicated on Contract Drawings.

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* + 1. Systems with 6-Inch (DN 150) Piping:
			1. Perforated, polyethylene (PE) pipe and fittings, couplings, and coupled joints.
	1. INSTALLATION
		1. Contract Drawings and details indicate general location and arrangement of foundation drainage system piping.
		2. Install piping beginning at low points of system, true to grades and alignment indicated, with unbroken continuity of invert. Bed piping with full bearing, solidly in filtering material. Install gaskets, seals, sleeves, and couplings according to manufacturer's instructions and specifications and other requirements indicated.

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**NOTE TO SPECIFIER**

Edit the paragraphs below as required for different minimum slope and cover.

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* + - 1. Install piping pitched down in direction of flow, at a minimum slope of [1 percent (1:100)] and with a minimum cover of [36 inches], except where otherwise indicated in the Contract Drawings.
			2. Apply and compact impervious fill material to raise low areas or where unsatisfactory bearing soil may occur.
			3. Use increasers, reducers, and couplings made for different sizes or materials of pipes and fittings being connected. Reduction of pipe size in direction of flow is prohibited.
		1. Extend piping and connect to storm [storm drainage system] [building storm drains], of sizes and in locations indicated. Terminate piping as indicated in the Contract Drawings.
	1. CONSTRUCTION
		1. General Requirements:
			1. Join and install pipe and fittings as indicated in the Contract Drawings and according to the following requirements:
		2. Polyethylene (PE) Pipe and Fittings:
			1. Join pipe, tubing, and fittings with couplings for soil tight joints according to AASHTO "Standard Specifications for Highway Bridges," Division II, Section 26.4.2.4 "Joint Properties"; and manufacturer's instructions.
			2. Join perforated pipe and fittings with couplings for soil tight joints according to AASHTO "Standard Specifications for Highway Bridges," Division II, Section 26.4.2.4 "Joint Properties"; or ASTM D 2321; and manufacturer's instructions.
			3. Install according to ASTM D 2321 and manufacturer's instructions.
			4. Install perforated pipe with perforations down.
		3. System Piping Joints:
			1. Make joints using system manufacturer's seals and couplings, except where otherwise specified.
			2. Join piping made of different materials and dimensions with special couplings made for this application. Use couplings that are compatible with and that fit both pipe materials and dimensions.
		4. Soil Material Installation:
			1. Drainage Fill: Place fill over drain piping after satisfactory testing and covering with filtering material. Cover piping to width of at least 6 inches on each side and above top of pipe to within 12 inches of finish grade. Place fill material in layers not exceeding 3 inches in loose depth, and compact each layer placed.
			2. Fill to Grade: Place impervious fill material over compacted drainage fill. Place material in loose-depth layers not exceeding 6 inches. Thoroughly compact each layer. Fill to finish elevations and slope away from building.
	2. FIELD QUALITY CONTROL
		1. Section 014000 - Quality Requirements: Field testing and inspection.

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**NOTE TO SPECIFIER**

Add specific test requirements to comply with local and Federal regulations.

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* + 1. Testing:
			1. Test drain piping with water or visually check piping to ensure free flow before backfilling. Remove obstructions, replace damaged components, and repeat test until results are satisfactory.
			2. Place additional filtering material to depth of 4 inches around sides and top of drains after testing.

END OF SECTION

USPS MPF Specification Last Revised: 10/1/2022