SECTION 334913

STORM DRAINAGE MANHOLES, FRAMES, AND COVERS

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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.*

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1. GENERAL
	1. SUMMARY
		1. Section Includes:
			1. Monolithic concrete manhole section with the option of monolithic concrete or masonry transition to lid frame, covers, anchorage and accessories.
			2. Modular precast concrete manhole section with tongue‑and‑groove joints and with the option of precast concrete or masonry transition to lid frame, covers, anchorage and accessories.
			3. Masonry manhole section with masonry transition to lid frame, covers, anchorage and accessories.
		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: Site storm drainage system.
			3. Section 033000 ‑ Cast‑In‑Place Concrete: Concrete for utility structure base pads.
	2. REFERENCES
		1. American Society for Testing and Materials (ASTM):
			1. ASTM C55 ‑ Specification for Concrete Building Brick.
			2. ASTM A48 ‑ Specification for Gray Iron Castings.
			3. ASTM C478 ‑ Specification for Precast Reinforced Concrete Manhole Sections.
			4. ASTM C923 ‑ Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures and Pipes.
		2. International Masonry Industry All‑Weather Council (IMIAC): Recommended Practices and Guide Specification for Cold Weather Masonry Construction.
	3. SUBMITTALS
		1. Section 013300 - Submittal Procedures: Procedures for submittals.
			1. Product Data: Data for manhole covers, manhole steps, component construction, features, configuration, and dimensions.
			2. Shop Drawings: Drawings of manhole locations, elevations, piping with sizes, locations and elevations of penetrations.
	4. PROJECT CONDITIONS OR SITE CONDITIONS
		1. Environmental Requirements:
			1. Cold Weather Requirements: IMIAC - Recommended Practices and Specifications for Cold Weather Masonry Construction.
2. PRODUCTS
	1. MATERIALS
		1. Manhole Section: Reinforced precast concrete. in accordance with ASTM C 478 with gaskets in accordance with ASTM C 923.
			1. Construct manholes of precast concrete sections as required by Drawings to size, shape, and depth indicated, but never less than 4 foot 0 inch inside diameter.
		2. Manhole Section: Non-reinforced cast‑in‑place concrete as specified in Section 033000 -‑ Cast‑In‑Place Concrete.
			1. Cast‑in place Manholes shall be constructed of 3500 psi concrete.
			2. Forms shall be made of steel sheets accurately shaped and fabricated of sufficient strength to form dense watertight walls to true dimensions.
			3. Concrete shall be deposited in evenly distributed layers of about 18 inches, with each layer vibrated to bond it to the preceding layer.
		3. Concrete Brick Units: ASTM C 55, Grade N Type I‑ Moisture Controlled, normal weight, of same Grade, Type and weight as block units, nominal modular size of 3 5/8 x 7 5/8 x 2 1/4 inches.
		4. Mortar and Grout: Mortar for finishing and sealing shall be Class "C". Honeycombing less than 2 inches deep shall be repaired using Class "D" mortar.
		5. Brick Transition Reinforcement: Formed steel 8 gage wire with galvanized finish.
	2. COMPONENTS
		1. Lid and Frame: ASTM A 48, Class 30B Heavy Duty Cast iron construction, machined flat bearing surface, removable lid, closed or open as indicated on Drawings; sealing gasket; manufactured by Neenah Foundry Company.
		2. Manhole Steps: Neenah Foundry Company catalog No. R‑ 1982‑F for precast or catalog No. R-1980-0 for brick/cast-in-place manholes or M.A. Industries PS‑1.
		3. Base Pad: Cast‑in‑place concrete as specified in Section 033000 ‑ Cast‑In‑Place Concrete.
		4. Section 016000 - Product Requirements: Product requirements and substitutions. Substitutions: Permitted.
	3. CONFIGURATION
		1. Manhole Section Construction: Concentric with eccentric cone top section.
		2. Shape: Cylindrical.
		3. Clear Inside Dimensions: 48 inch diameter or as indicated on Drawings.
		4. Design Depth: As indicated on Drawings.
		5. Clear Lid Opening: 24 inches minimum.
		6. Pipe Entry: Provide openings as indicated on Drawings.
		7. Main and Lateral Pipes: Neatly cut off main and lateral pipes flush with inside of manhole or inlet where they enter structure walls, and point up irregularities and rough edges with non-shrink grout.
		8. Inverts: Shape inverts for smooth flow across structure floor as shown on Drawings. Use concrete and mortar to obtain proper grade and contour and finish surface with fine textured wood float.
3. EXECUTION
	1. EXAMINATION
		1. Section 017300 - Execution: Verification of existing conditions before starting work.
		2. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.
		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. D. 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. PREPARATION
		1. Coordinate placement of inlet and outlet pipe or duct sleeves as indicated on Drawings for drainage system piping specified in Section 334000.
	3. PLACING PRE-CAST MANHOLE SECTIONS
		1. Place base pad to proper elevation and location and trowel top surface level for placement of manhole section.
		2. Place manhole section plumb and level to correct elevations and anchor to base pad.
			1. After completion of slab foundation, the first joint of manhole section shall be lowered into position, grooved end first, and set level and plumb on concrete base. Align and adjust to proper grade prior to placing and forming invert which shall be poured immediately after setting of first section of manhole section.
			2. Prior to setting subsequent manhole sections, apply primer to tongue and groove ends and allow to set in accordance with manufacturer recommendations. Place "Ram‑nek", or equivalent, plastic rope on tongue end. Lower next section into position, and remove excess material from interior of structure. Add additional material on exterior of joint, if necessary, for completely watertight joint.
	4. MASONRY MANHOLE SECTION CONSTRUCTION
		1. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
		2. Lay masonry units in running bond. Course 3 brick units and 3 mortar joints to equal 8 inches.
		3. Form flush mortar joints.
		4. Lay masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.
		5. Install joint reinforcement 16 inches on center
		6. Place joint reinforcement in first and second horizontal joints above base pad and below lid frame opening.
		7. As work progresses, build‑in fabricated metal items.
		8. Cut and fit masonry for pipes as specified herein.
		9. Set cover frames and covers level without tipping, to correct elevations.
		10. Grout base of shaft section to achieve slope to exit piping. Trowel smooth. Contour as required.
		11. Coordinate with other sections of Work to provide correct size, shape and location.
	5. BACKFILLING
		1. Backfill around manholes as specified in Section 312300.

END OF SECTION

USPS MPF Specification Last Revised: 10/1/2022