Summary of Revisions to the Department of Public Utilities Design Standards Manual 2022

All sections of the Design Standards Manual were updated to reflect current practices and the manual was re-organized to consolidate common elements. The following is a summary of revisions that have been incorporated:

General

All information related to construction activities, irrigation systems, and wells have been removed from the Design Standards Manual.

Section 1 Introduction

Section 1.1 Authority

This section expands on information that was previously in Section 1.1 Authority, Section 3.1.2.1 Sewer Use Ordinance, Section 3.1.2.2 Subdivision Ordinance, and Section 4.1.1 Subdivision Ordinance.

Section 1.2 Revisions

No change.

Section 1.3 Organization and Interpretation of Manual

No change.

Section 1.4 Definitions

No change.

Section 1.5 Acronyms

This section was previously Section 1.5 Abbreviations.

Section 1.6 Specifications

This section was previously Section 1.7 Specifications.

Section 1.7 Standard Details

This section was previously Section 1.8 Standard Details.

Section 1.8 Approved Products

This section was previously Section 1.9 Approved Products.

Section 1.9 References

This section was previously Section 1.10 References.

Section 2 Project Coordination

This section was previously named Section 2 Development Coordination.

Section 2.1 Regulatory Requirements

Information in this section was previously in Section 2.3.4 Flow Acceptance (Sanitary Sewer Capacity), Section 2.3.5 Fats, Oils, and Grease Requirements, and Section 4.4.9 Cross Connections and Backflow Prevention.

Section 2.2 HRSD

Information in this section was previously in Section 2.3.7 HRSD Coordination, Section 3.16 HRSD Gravity Sewer Interceptor, Section 3.3.16 HRSD Gravity Sewer Interceptor, and Section 3.8.15 Connection to HRSD.

Section 2.3 Planning

Information in this section was previously in Section 2.2.1 Comprehensive Plan, Section 2.2.2 Development Services Center, and Section 2.2.3 Permits and Inspections.

Section 2.4 Public Works

No change.

Section 2.5 Development

This is a new section related to capacity of utility extensions.

Section 2.6 Public Participation

Information in this section was previously in Section 2.3.9 Public Involvement.

Section 3 General Public Utilities Design Considerations

This is a new section that includes design considerations common to Public Utility projects.

Section 3.1 Regulatory Requirements

Information in this section was previously in Section 2.1 Regulatory Requirements.

Section 3.2 Public Utility Easements

Information in this section was previously in Section 2.3.6 Utility Easements, Section 2.3.10.4 Utility Easement Plans, and Section 4.3.3 Alignment and Easement Requirements.

Section 3.3 Variances

Information in this section was previously in Section 1.6 Variance and Section 2.3.10.5 Variance Process.

Section 3.4 Survey Standards

Information in this section was previously in Section 2.4.5 Surveys and Section 4.5.7 Design Survey Requirements.

Section 3.5 Record Drawings

Information in this section was previously in Section 2.3.10.6 Record Drawing Requirements, Section 4.3.12 Record Drawings, and Section 5.1.12 Record Drawings.

Section 3.6 Subsurface Investigations

Information in this section was previously in Section 3.14 Subsurface Investigations and Section 4.1.4 Subsurface Investigations.

Section 3.7 Boring and Jacking

Information in this section was previously in Section 3.3.3 Boring and Jacking and Section 3.8.11 Boring and Jacking.

Section 3.8 Horizontal and Directional Drilling

This is a new section related to the requirements for horizontal and directional drilling of public utilities.

Section 3.9 Surface Water Crossings

Information in this section was previously in Section 3.1.6 Surface Water Crossings, Section 3.3.14 Aerial Crossings, and Section 4.17 Surface Water Crossings.

Section 3.10 Corrosion Prevention

Information in this section was previously in Section 3.3.8 Corrosion Prevention, Section 3.4.11 Corrosion Prevention, Section 3.8.6 Corrosion Prevention, and Section 4.3.8 Corrosion Prevention.

Section 3.11 Separation

Information in this section was previously in Section 3.3.10 Separation, 3.4.7 Manhole Separation from Water Mains, and Section 4.3.9 Separation.

Section 3.12 Thrust Restraint

Information in this section was previously in Section 3.8.7 Thrust Protection Design, Section 3.8.10 Anchorage, Section 4.3.7 Thrust Restraint, Section 4.4.6 Restraint Systems, and Section 4.5.4 Restraint Systems.

Section 3.13 Buoyancy

Information in this section was previously in Section 3.3.11 Buoyancy.

Section 3.14 Design Submittals

Information in this section was previously in Section 2.3.10 Submittals.

Section 3.15 Preliminary Engineering Report

Information in this section was previously in Section 2.3.10.1 Design Report.

Section 3.16 Construction Plans

Information in this section was previously in Section 2.3.10.2 Construction Plans – CIP Projects and Projects with City Cost Participation and Section 2.3.10.3 Construction Plans – Private Development.

Section 3.17 Wastewater Collection System

This new section contains general information pertaining to the design of wastewater facilities.

Section 3.18 Water Distribution and Transmission Systems

This new section contains general information pertaining to the design of water distribution and transmission systems.

Section 3.19 Other Water Facilities

This new section contains general information pertaining to the design of water facilities.

Section 3.20 Environmental Considerations – Contaminated Sites

This new section contains general information pertaining to groundwater discharge and contaminated soils.

Section 3.21 Stormwater Management

This new section references the stormwater management requirements of the Public Works Design Standards Manual.

Section 3.22 Utility Abandonment

Information in this section was previously in Section 3.9 Wastewater Collection System Abandonment and Section 4.9 Water System/Component Abandonment.

Section 4 Wastewater Collection – Gravity Sewer

Information in this section was previously in Section 3 Wastewater Collection System

Section 4.1 General

Information in this section was previously in Section 3.3.1 Depth and Section 3.3.7 Alignment.

Section 4.2 Pipe Materials
Information in this was previously in Section 3.3.4 Acceptable Pipe Materials.

Section 4.3 Design Criteria

Information in this section was previously in Section 3.2 Wastewater Design Flows, Section 3.3.5 Pipe Sizing, and Section 3.3.6 Slope and Velocity.

Section 4.4 Conflict Structures

Information in this section was previously in Section 3.3.15 Conflict Structures.

Section 4.5 Manholes

Information in this section was previously in Section 3.4 Manholes.

Section 4.6 Private Gravity Sanitary Sewer System Connection

Information in this section was previously in Section 3.5.2 Manhole Required at Right-of Way.

Section 4.7 End of Line Requirements

Information in this section was previously in Section 3.4.2 End of Line Requirement.

Section 4.8 Gravity Sanitary Sewer Laterals

Information in this section was previously in Section 3.5 Service Connections.

Section 4.9 Service Connection Sizes

Information in this section was previously in Section 3.5.51 Service Connection Sizes.

Section 5 Wastewater Collection – Vacuum Sewer

Information in this section was previously in Section 3.6 Vacuum Sanitary Sewer Lines.

Section 5.1 General

This section contains general information pertaining to new vacuum systems.

Section 5.2 Pipe Materials

Information in this section was previously in Section 3.6.1 Materials.

Section 5.3 Design Criteria

Information in this section was previously in Section 3.6.4 Vacuum Main Design.

Section 5.4 Vacuum System Valve Pits

Information in this section was previously in Section 3.6.2 Vacuum Pit and Valve.

Section 5.5 Vacuum Buffer Tanks

Information in this section was previously in Section 3.6.3 Buffer Tanks.

Section 5.6 Division Valves

Information in this section was previously in Section 3.6.6 Isolation Valves.

Section 5.7 Gauge Taps

Information in this section was previously in Section 3.6.5 Gauge Taps.

Section 5.8 Odor Control

Information in this section was previously in Section 3.6.9 Odor Control.

Section 5.9 Monitoring

Information in this section was previously in Section 3.6.8 Vacuum Monitoring System Requirements.

Section 6 Force Mains

Information in this section was previously in Section 3.8 Force Mains.

Section 6.1 General

Information in this section was previously in Section 3.8.2 Depth.

Section 6.2 Pipe Materials

Information in this section was previously in Section 3.8.5 Material Requirements.

Section 6.3 Design Criteria

Information in this section was previously in Section 3.8.3 System Capacity and Hydraulic Design and Section 3.8.4 Velocity.

Section 6.4 Air Relief and Isolation Valves

Information in this section was previously in Section 3.8.8 Air Relief and Vacuum Intake.

Section 6.5 Markers

Information in this section was previously in Section 3.8.9 Markers.

Section 6.6 Connection Requirements

Information in this section was previously in Section 3.8.12 Standard Connection Requirements.

Section 6.7 Low Pressure Force Mains (LPFM)

Information in this section was previously in Section 3.8.13 Connections to Low Pressure Force Mains (LPFM).

Section 7 Wastewater Pump Stations

Information in this section was previously in Section 3.7 Wastewater Pump Stations.

Section 7.1 General

This new section contains general information pertaining to pump station design.

Section 7.2 Service Area

Information in this section was previously in Section 3.7.1 Location and Section 3.7.1.1 Service Area.

Section 7.3 Site Requirements

Information in this section was previously in Section 3.7.1.2 Site Availability.

Section 7.4 Types of Stations

Information in this section was previously in Section 3.7.2 Types of Stations.

Section 7.5 Design Calculations

This section expands on information that was previously in Section 3.7.3 Mechanical Design.

Section 7.6 Pumps and Motors

This new section contains information related to sewage pumps and motors.

Section 7.7 Piping and Appurtenances

Information in this section was previously in Section 3.7.3.2 Piping Systems and Section 3.7.3.3 Valves.

Section 7.8 Ventilation

Information in this section was previously in Section 3.7.3.4 Ventilation.

Section 7.9 Structural Design

Information in this section was previously in Section 3.7.4 Structural Design and Section 3.7.4.6 Lifting Beam.

Section 7.10 Permanent Bypass Pumping and Auxiliary Power

This new section contains information related to permanent bypass pumps and permanent backup generators.

Section 7.11 Controls

This section expands on information previously in Section 3.7.5 Electrical Design, Section 3.7.8 SCADA and Telemetry Requirements, and Section 3.7.11 Instrumentation Requirements.

Section 7.12 Electrical

This section expands on information previously in Section 3.7.5 Electrical Design.

Section 7.13 Fall Protection

This new section contains information for safety measures to be incorporated into the station design.

Section 7.14 Architectural Design and Aesthetics

Information in this section was previously in Section 3.7.6 Architectural Design and Aesthetics.

Section 8 Water Distribution and Transmission Systems

Information in this section was previously in Section 4 Water Distribution and Transmission Systems.

Section 8.1 General

Information in this section was previously in Section 4.4.1 Location/Alignment, Section 4.4.2 Depth, Section 4.5.1 Location/Alignment, and Section 4.5.2 Depth.

Section 8.2 Pipe Materials

Information in this section was previously in Section 4.6.1 Acceptable Pipe Materials.

Section 8.3 Design Criteria

Information in this section was previously in Section 4.2 Water Demand, Section 4.3.6 Hydraulic Requirements, and Section 4.6.2 Design Requirements.

Section 8.4 Service Connections

Information in this section was previously in Section 4.3.2 Service Connections.

Section 8.5 Water Meter Sizing

Information in this section was previously in Section 4.3.2.1 Water Meter Sizing.

Section 8.6 Service Line Sizing

Information in this section was previously in Section 4.3.2.2 Service Line Sizing.

Section 8.7 Distribution and Transmission Main Design Criteria

Information in this section was previously in Section 4.4.3 Valve Spacing Requirement, Section 4.4.4 Fire Hydrant Requirements, Section 4.4.5 Line Valves, Section 4.4.7 Air Release, Section 4.5.3 Line Valves and Spacing, and Section 4.5.5 Air/Vacuum Valve Assemblies.

Section 9 Water Pumping and Storage Facilities

Information in this section was previously in Section 5 Other Water Facilities.

Section 9.1 General

This new section contains general information related to water pumping and storage facilities.

Section 9.2 Site Requirements

Information in this section was previously in Section 5.1.4 Project Site Requirements and Section 5.1.3 Environmental, Biological and Cultural Assessment.

Section 9.3 Design Calculations

This section expands on information that was previously in Section 5.2.2 Design Criteria.

Section 9.4 Pumps and Motors

Information in this section was previously in Section 5.2.1 Pumping Units and Size.

Section 9.5 Piping and Appurtenances

Information in this section was previously in Section 5.1.7 Piping Systems and Section 5.1.8 Valves.

Section 9.6 Ventilation

This is a new section that outlines ventilation requirements for water pump stations.

Section 9.7 Pump Station Structural Design

This is a new section that outlines structural design requirements for water pump stations.

Section 9.8 Backup Generators

This new section contains information related to permanent backup generators.

Section 9.9 Controls

This section expands on information that was previously in Section 5.1.5 Supervisory Control and Data Acquisition (SCADA) and Section 5.1.9 Flow Metering.

Section 9.10 Pump Station Electrical Design

This section expands on information that was previously in Section 5.1.6 Electrical Design.

Section 9.11 Fall Protection

This new section contains information for safety measures to be incorporated into the station design.

Section 9.12 Pump Station Architectural Design and Aesthetics

This is a new section that outlines architectural design requirements for water pump stations.

Section 9.13 Security Access and Surveillance

This is a new section that outlines security and surveillance requirements for water pump stations.

Section 9.14 Pump Station Painting and Coating

This is a new section that outlines painting and coating requirements for water pump stations.

Section 9.15 Pump Station Miscellaneous

This is a new section that outlines miscellaneous requirements for water pump stations.

Section 9.16 Elevated Water Storage

This section expands on information that was previously in Section 5.4 Water Storage Facilities.

Section 9.17 Site Requirements

This is a new section that outlines site requirements for water storage tanks.

Section 9.18 Hydraulic Calculations

This is a new section that outlines hydraulic calculation requirements for water storage tanks.

Section 9.19 Tank Piping and Appurtenances

This is a new section that outlines piping requirements for water storage tanks.

Section 9.20 Tank Mixing

This is a new section that outlines mixing requirements for water storage tanks.

Section 9.21 Tank Structural Design

This is a new section that outlines structural design requirements for water storage tanks.

Section 9.22 Tank Electrical Design

This is a new section that outlines electrical design requirements for water storage tanks.

Section 9.23 Tank Architectural Design and Aesthetics

This is a new section that outlines architectural design requirements for water storage tanks.

Section 9.24 Tank SCADA, Instrumentation, and Telemetry Requirements

This is a new section that outlines control and telemetry requirements for water storage tanks.

Section 9.25 Tank Painting and Coatings

Information in this section was previously in Section 5.4.4 Coatings.

Section 9.26 Venting

This is a new section that outlines venting requirements for water storage tanks.

Section 9.2.7 Tank Disinfection

This is a new section that outlines disinfection requirements for water storage tanks.

Section 9.28 Tank Quality Assurance

This is a new section that outlines quality assurance requirements for water storage tanks.

Appendix A – DPU Administrative Directives, Policies and Codes

This section has been expanded to include additional administrative and operating policies.

Appendix B – Reference Documents

The standard legend for record drawings was removed from this appendix. This appendix now includes external documents referenced in the Design Standards Manual.

Appendix C – Charts and Tables

This is a new appendix that contains charts and tables referenced in the Design Standards Manual.