

Summary of Revisions to the Department of Public Works Specifications and Standards Manual, Amendment 9

All sections of the Public Works Specifications and Standards, Amendment 9 were updated to meet current design guidelines. The following summary lists the major revisions/restructuring that is recommended by the committee:

The name of the manual will be changed from the Public Works Engineering Division Specifications and Standards Manual, Amendment 9 to the Public Works Design Standards Manual.

Chapter 1 Introduction

Section 1.2 Resolution of Conflicts

This section was deleted. It provided guidance for conflict between the manual and other publications.

Section 1.4 Variances

A process for variances has been added, (New Section 1.2).

Section 1.8 Public Works Role in Private Development Review and Construction

This section outlines the roles and responsibilities Public Works has in relation to the Planning Department's Development Services Center (DSC) review process for private development and construction.

This process will be moved to DSC's control.

Chapter 2 Materials

This chapter was dismantled and the appropriate material requirements were placed in the corresponding Sections.

Section 2.1 General

These statements are in each appropriate Section.

Section 2.2 Storm Sewers

Section 2.3 Culverts

These Sections have been moved to Section 8, Stormwater Management. Metal pipes as an option within City roadbeds, easements, or property have been removed.

Section 2.4 Permanent Monuments

This Section was moved to Section 6, Incidental Construction Items.

Section 2.5 Incidental Construction Items

These items have been incorporated into Section 6, Incidental Construction Items.

Section 2.6 Aggregate Base Material

These statements have been moved to Section 4, Geotechnical Information & Design.

Section 2.8 Rigid Pavement

Section 2.9 Flexible Pavement

These statements have been added to Section 5, Pavement Design.

Section 2.11 Street Name Signs

Section 2.12 Reflective Sheeting

These sections have been moved to Section 10, Traffic Control.

Section 2.13 Specifications for Ribback Sign Posts

Section 2.14 Telescoping Steel Sign Posts & Anchors

These sections have been deleted. They are out of date.

Section 2.15 Recycled Plastic Decorative Traffic Sign Posts

Section 2.16 Powder Coated Steel Sign Posts & Anchors

Section 2.17 Geotextile Fabric

Section 2.18 Masonry Units

These sections have been deleted. The statement that materials are per VDOT specifications is throughout the new manual.

Chapter 3 Geometric Alignment and Design

Section 3.8.8 Development of Major Right-of-Way Improvements

This section defines the criteria that should be followed when developing major right-of-way improvements adjacent to subdivisions.

The criteria in this section will be moved to DSC control.

Section 3.8.9 Right-of-Way Permit Specifications

This section defines the requirements for obtaining a permit for work in the right-of-way, notification to the Civil Inspections Bureau, posting a surety for the public improvements and other items of concern when working in the right-of-way.

This section will be moved to DSC.

Section 3.8.13 Construction in the Beach Area

This section defines the policy for date limits of construction work done in the Beach areas.

This section will be eliminated.

Section 3.16 “As-built” Drawings

Section 3.17 “As-built” Drawing Checklist

This information was updated and included in Section 12 of the Manual addressing the procedures for providing “As-Builts” required by the City.

Chapter 4 Geotechnical Information and Design

This Section was renamed “Geotechnical Engineering” and was reviewed and updated by the committee.

Chapter 5 Pavement Design and Pavement Patching

The entire section was revised to incorporate the most recent procedures.

Section 5.6 Full Depth Asphalt

Section 5.10 Asphalt Anti-Stripping Requirements

Section 5.11 Pavement Conformance Standards

Section 5.14 Application Rates for Asphalt Mixes

Section 5.15 Traffic Improvement Factors (TIFs)

These sections have been removed from the manual because they are out of date.

Section 5.10 Pavement Replacement and Patching

This section was moved from Chapter 3 and includes information for temporary pavement patching.

Section 5.11 Testing Requirements

This section has been added to provide the guidelines for the performance of field density testing for new roadways and roadway reconstruction.

Chapter 6 Incidental Construction Items

Section 6.3.3 Beach Borough Sidewalks

This section has been removed since the construction of the Beach Borough sidewalks are complete.

Section 6.4 Permanent Monuments

This section has been added.

Chapter 7 Underground Utilities

Section 7.1 General

A paragraph has been added to contact Parks and Recreation three days prior to removing trees or other vegetation.

Section 7.2 Gas

Section 7.3 Relocation of Above Ground Utilities

These sections have been removed.

Chapter 8 Stormwater Management

The entire Section has been updated to coordinate with the Virginia Stormwater Management Program Regulation and Virginia Stormwater BMP Clearinghouse Design Specifications. Requirements that are more stringent than the Virginia Stormwater BMP Clearinghouse Design Specifications are noted as such.

Figures, tables, and process flow charts have been added to clearly explain drainage design procedures and requirements.

The main sections were reorganized into the following:

- 8.1 General
- 8.2 Definitions
- 8.3 Design Requirements Applicable To All Drainage System Components
- 8.4 Stormwater Conveyance System Design Requirements
- 8.5 SWMF/BMP Design Requirements
- 8.6 Materials (Transferred from Chapter 2)

Old Section 8.1 General

This section was replaced by Section 8.1 Introduction. The Introduction explains and highlights some city-specific stormwater management design procedures and drainage design criteria.

Old Section 8.2 Drainage in Floodplains

This section was deleted. Requirements relating to lakes, wet ponds, retention SWMFs, and upstream and downstream flooding were moved to other parts of this section.

Old Section 8.3 Open Drainage Systems, Ditches and Canals

Requirements were moved to either new Sections 8.4 or 8.5.

Old Section 8.4 Standard Structures and Inspections

These requirements were moved to new Section 8.6

Old Section 8.5 Storm Drainage Design

This section was reorganized. Requirements were placed in Section 8.3, 8.4, 8.5, or 8.6, as appropriate.

Old Section 8.6 Design Coefficients

Design coefficient tables, Tables VIII-1 through VIII-5 were moved to new Appendix J.

Old Section 8.7 Retention (Wet) and Detention (Dry) Storm Water Management Facility (SWMF) Design Guidelines

This section was renamed to Section 8.5 SWMF/BMP Design Requirements. Most guidance remains, including Course ‘C’ (Modified Rational) Method and Waller Method.

Guidance that conflicted with the VSMP Regulation and Virginia Stormwater BMP Clearinghouse Design Specifications was removed or was noted as being more stringent.

Old Section 8.8 SWMF and Drainage Facility Setback Requirements

This section was removed, as it conflicts with the Virginia Stormwater BMP Clearinghouse Design Specifications.

Old Section 8.9 Rear Lot Drainage in Multi-Family Dwellings

This section has been moved to DSC control.

Old Section 8.10 Impoundment Easements

This section has been moved to DSC control.

Old Section 8.11 Stone Used in Storm Water Management Facilities

This section was moved to a paragraph in new Section 8.5.

Old Section 8.12 Bonds for Storm Water Management Facilities

This section has been moved to DSC control.

Old Section 8.13 Storm Water Management Facilities Considerations

This section was moved to subsection 8.5.3 Additional Design Criteria for SWMFs/BMPs.

Old Section 8.14 Storm Water Management Facilities “As-Built” Drawings

The as-built drawing requirement was deleted, since it was superseded by the VSMP Regulation. Marking of Underground SWMFs/BMPs was moved to subsection 8.5.3 Additional Design Criteria for SWMFs/BMPs.

Old Section 8.15 Storm Water Management Facilities Monitoring Wells

This section was deleted, since it was superseded by the Virginia Stormwater BMP Clearinghouse Design Specifications.

Old Section 8.16 Storm Sewer Pipe Termination

This section was deleted, since it was superseded by the Virginia Stormwater BMP Clearinghouse Design Specifications.

Old Section 8.17 Development Adjacent to the City of Norfolk

This section was moved to subsection 8.3.9 Projects Adjacent to or Discharging onto Property in Other Cities.

Old Section 8.18 Water Quality

This section was deleted, since it was superseded by the VSMP Regulation.

Old Section 8.19 Storm Water Utility Fee Adjustment

This section was replaced by Section 8.7.

Old Section 8.20 Technical Instructions and Application Form for Stormwater Utility Fee

This section was updated and moved to new Appendix K.

Section 8.21 Agricultural Stormwater Management Practices-Water Control Structures and Agricultural Ditch Piping

This section has been deleted.

New Section 8.2 Definitions

Definitions for the following items have been added: culvert, drainage system, impoundment, lake, major water body, point of adequacy, private stormwater drainage, public stormwater drainage, stormwater conveyance system, storm sewer system, and stormwater management facility.

New Section 8.3 Design Requirements Applicable to All Drainage System Components

Section 8.3.1 Design Storms – Minimum Frequency Criteria

Design storm criteria for critical infrastructure added.

Section 8.3.2 Design Storm Depth-Duration and Rainfall Distribution Criteria

Rainfall frequency depths were increased by 20% to account for climate change. Twenty-four (24) hour rainfall distributions from NOAA Atlas 14 Type II were revised to mimic NOAA Type C.

Section 8.3.3 Sea Level Rise/ Recurrent Flooding Analyses

Requirements added for critical and non-critical infrastructure.

Section 8.3.4 Hydraulic Grade Line and Tailwater Criteria

Requirements divided into the following categories:

- a. Tidally influenced waters
- b. Non-tidally influenced waters (Impoundments, lakes, SWMFs/BMPs, and non-tidal waterways)
- c. Stormwater Management Facilities/Best Management Practices (SWMFs/BMPs) in series
- d. Storm sewer systems analyzed or designed using the Rational Method draining to proposed stormwater retention facilities design using the Modified Rational Method (Drainage area equal to or less than 2 acres)
- e. Check storm requirements for all projects

Design storm/ tide joint probability pairs for tailwater elevations were updated from the VDOT Drainage Manual and included as a table.

Section 8.3.5 Compensation for Seasonal High Groundwater

Added for clarification of groundwater baseflow requirements.

New Section 8.4 Stormwater Conveyance System Design Requirements

From Open Drainage Systems, Ditches, and Canals and Storm Drainage Design sections.

New Section 8.5 SWMF/BMP Design Requirements

Hydraulic grade line requirements from SWMFs/BMPs clarified.

AASHTO HS-20 design was added to stormwater SWMF/BMP access driveway design criteria.

New Section 8.6 Materials

Relocated from Chapter 2 Materials to here.

Section 8.6.1 Drainage Structures

Section 8.6.2 Pipes

Section 8.6.3 Culvert and Pipe Durability

Section 8.6.4 Standard Inspections

Chapter 9 Miscellaneous Requirements

Section 9.1 General

Section 9.2 Historic and Cultural Districts

Section 9.3 Painting House Numbers within the City Right-of-Way

This Chapter and all of its sections have been deleted.

Chapter 10 Plats, Easements and Encroachments

The majority of this section has been moved to Section 2, Plats, Easements and Encroachments.

Section 10.2 Encroachments into Public Right-of-Ways

This section outlines procedures for processing encroachments planned to be temporarily or permanently installed, erected or placed in a public right-of-way, easement, on public property, or in navigable waters.

This section is recommended to be moved to the Real Estate website.

Section 10.8(a-b) Declaration of Easements

This section describes the private drainage easements on all sides and rear lot lines having a Declaration of Easements recorded with the subdivision plat.

These sections will be moved to DSC.

Section 10.9 Recordable Agreements, Deeds of Dedication, and/or Deeds of Easements

This section will be moved to DSC.

Section 10.10 Disposal of Excess City Real Estate

This section outlines the procedures used to declare and dispose of excess City real estate.

This section is recommended to be moved to the Real Estate website.

Section 10.11 Storm Water Management Facility (SWMF) Maintenance Agreement for Commercial Site Development

This section will be moved to DSC.

Chapter 11 Site Plans and Subdivision Requirements

This section describes site plan and subdivision construction.

Most of this chapter will be moved to DSC with the following exceptions;

Section 11.6 As-built Drawings will be in the new As-built Section 12.

Section 11.11, 3rd paragraph has been moved to Section 3.15 Drive-up or Pick-up Windows.

Chapter 12 Coastal, Waterfront and Flood Plain

This chapter covers all coastal and waterfront related plans. The majority of this information is being removed with the following exceptions:

Section 12.3 Walkways through Dune Systems

This section was deleted.

Section 12.4 Removal of Obstructions

This section will be moved to PW Operations to be incorporated into the new Aids to Navigation document.

Section 12.5 Waterfront Applications

Section 12.6 Bulkheads, Revetments or Other Shoreline Hardening

Section 12.8 Coastline Management

These will be moved to Planning Environmental and Sustainability to be incorporated into the Specific Guidelines for Waterfront Construction Application Submittals.

Section 12.7 Lake Holly Fill

This section has been deleted.

Section 12.9 Fill Activity within Flood Plains

This section will go to DSC.

Section 12.10 Waterfront Construction of Piers and Docks

This section will be moved to Planning Environmental and Sustainability to be incorporated into the Specific Guidelines for Waterfront Construction Application Submittals.

Section 12.11 Flood Plain Restrictions

This section will be moved to DSC.

Chapter 13 Chesapeake Bay Preservation Area

This is a partial repeat of the City code Appendix F, Chesapeake Bay Preservation Area Ordinance and will be deleted from the Design Standards Manual.

Chapter 14 Southern Watershed

This is a repeat of the city code Appendix G, Southern Watersheds Management Ordinance and will be deleted from the Design Standards Manual.

Chapter 15 Erosion, Sediment Control and Tree Protection

This Chapter was reviewed and updated by the committee and is now Section 9 of the Design Standards Manual.

The statement “All provisions of this section shall be adhered to unless a variance is approved in accordance with Section 30-76.1 of the City Code.” was added under Section 9.1, General.

Chapter 16 Traffic Control

This Chapter was reviewed and updated by the committee and is now Section 10 of the Design Standards Manual.

Chapter 17 Roadway Lighting

This Chapter was reviewed and updated by the committee and is now Section 11 of the Design Standards Manual. LED requirements have been added.

Chapter 18 North Beach Street and Unimproved Street Improvements

This Chapter will be deleted from the Design Standards Manual. Information on entrances in the North Beach area is covered in Section 3.9. The policy/procedure portion of this chapter is recommended to be placed on the Public Works website or the

Public Works Policies & Procedures manual or deleted if the program is no longer desired.

Appendix A – Right of Way Typical Sections Standard Drawings

- Removed plan views of Typical Sections.
- Added table for dimensions of Typical Sections.
- Removed berms in most medians.
- Removed shrubs.
- Dimensioned shared use path at 10’.
- Dimensioned minimum 5’ separation from back of curb to Shared use path/sidewalk.
- Added CG-7 and CG-3 curb call-out for roadways with speeds greater than 45 mph.
- Added Note referencing Appendix F.
- A-25 Delete-Typical Section for Local One Way (CBD Core Area).
- A-26 Delete-Typical Section for Local Two Way (CBD Core Area).
- A-27 Delete-Typical Section for Core Area Collector Street.
- A-28 Delete-Typical Section for Arterial (CBD Core Area).
- A-29 Delete-Typical Section for Core Street Plan.
- A-30 Delete-Typical Section for Structure Over Soil Area.
- A-31 Delete-Cross Sections/Planting Detail.
- A-32 Delete-Plan Views: Paving Tree Grates and Islands.
- A-33 Delete-Tree Spacing Details (CBD).
- A-37 Delete-Typical Section for Seaboard Road in Transition Area.

Appendix B – Storm Drainage Standard Drawings

- B-7 Delete- Infiltration Drop Inlet.
- B-11 Delete- Sedimentation Trap and Oil Separator.
- B-16(a) Delete- schematic of a Wet Retention Basin.
- B-26 Delete- Paved Canal section.
- B-34(a) Delete- Shoreline Protection for Small Retention Ponds (SWMF’s) less than 100’ of Open Water (Fetch) and Water Surface Area < 1.0 Acre.
- B-34(b) Delete- Revetment (Concrete Hardening) Shoreline Protection Alternate Design for Small Retention Ponds (SWMF’s).
- B-35 Delete- Schematic of a Dry Extended Dry Detention Basin.
- B-36 Delete- Schematic of Infiltration Basin during Storm.
- B-38 Move to DSC- Storm Water Infiltration Trench behind Curb.
- B-39 Move to DSC- Standard Storm Water Infiltration Trench.
- B-40 Move to DSC- SWMF Detail of Dripline Interceptor for Roof without Drain Gutters in Chesapeake Bay Preservation Area.
- B-41 Move to DSC- SWMF Detail of Dripline Interceptor for Roof with Drain Gutters in Chesapeake Bay Preservation Area.

- B-42 Move to DSC- SWMF Detail of Treatment under Residential Decks in Chesapeake Bay Preservation Area.
- B-43 Move to DSC- SWMF Detail of Treatment under Pool Decks in Chesapeake Bay Preservation Area.
- B-44 Move to DSC- Chesapeake Bay Preservation Area (C.B.P.A.) Gravel Bed #1.
- B-45 Move to DSC- Chesapeake Bay Preservation Area (C.B.P.A.) Planting Bed #1.
- B-46 Move to DSC- Chesapeake Bay Preservation Area (C.B.P.A.) Planting Bed #2.
- B-46(a) Move to DSC- Chesapeake Bay Preservation Area (C.B.P.A.) Bioretention/Planting Bed Residential Use Only.
- B-47 Move to DSC-Fourth Side French Drain in Poorly Drained Soils.

Appendix C- Incidental Concrete Standard Details and Other Miscellaneous Standard Drawings

- C-3A Revised detail.
- C-3B Revised detail.
- C-4 Revised detail.
- C-6 Delete- Concrete Slab over Utility Pipe.
- C-7 Delete- CG-12 Requirements Location and Thickness Modified.
- C-9 Delete- Typical Detail for Concrete Paver Crosswalk.
- C-10 Move to DSC- On-site Parking Lot Turn Around for Passenger Vehicles for Small Sites.
- C-14 Delete- Acceptable Examples of Well Protection Barriers.
- C-16 Move to Appendix D, Residential Entrance Concrete Paver Detail.
- C-21 Move to Appendix D, North Beach Streets Residential Driveway Apron Detail.

Appendix D- Traffic Engineering Standard Drawings

- D-2 Delete- Single Left Turn lane Geometrics 12'.
- D-22 Delete- Handhold for Traffic Signal Installation and Maintenance.
- D-23 Delete- Above Ground Cable Terminal Cabinet (CTC).
- D-24 Delete- Above Ground Cable Terminal Enclosure (CTE).
- D-25 Delete- Guidelines for Selecting Cable Terminal Enclosures.
- D-26 Delete- Conductor Cable and Conduit Cross Sectional Areas.
- D-28 Delete- Recessed and Raised Retro-Reflective Pavement Markers.
- D-34 Delete- Modified Pedestrian Pole and Modified VDOT PF-2 Foundation.
- D-35 Delete- Circular Foundation for School Zone Caution Light Pedestal Pole.
- D-41 Delete- Right Turn Yield to Pedestrian Sign 24"x30".
- D-56 Delete- "Emergency Signal" Sign.

Appendix E- Site Plan, Subdivision, and Construction Tables, General Notes & Check Lists

- E-1 Subdivision and Site Development General Notes moved to DSC.
- E-2 Moved to new Appendix J and updated (Storm Drainage Design Outline)

- E-3 Storm Water Management (SWM) Plan Check List deleted and superseded by VSMP checklists
- E.4 Preliminary Subdivision Review Checklist moved to DSC.
- E.5 Subdivision and Construction Review Checklist moved to DSC.
- E.6 Site Plan Review Checklist moved to DSC.
- E.7 Final Plat Review Checklist moved to DSC.
- E.8 Land Management Plan Review Checklist moved to DSC.
- E.9 Chesapeake Bay Preservation Area Checklist and Application moved to DSC.
- E.10 As-Built Drawing Checklist moved to DSC.
- E.12 Rainfall Intensity Chart (Rational) for Virginia Beach- Deleted. Section 8.8 refers to VDOT Drainage Manual.
- E.13 Precipitation Values for Virginia Beach-Deleted. Section 8.8 refers to NOAA Atlas 14 website.
- E.14 Rainfall Intensity Chart (SCS Type II) for Virginia Beach-Deleted. Section 8.8 refers to NOAA Atlas 14 website.
- E.15 Design Tidal Elevations for Virginia Beach-Deleted. Section 8.8 refers to VDOT Drainage Manual.
- E.16 Drainage Structure Minimum Depth- Moved to new Appen. J.
- E.17 Standard Interior Dimensions for Drainage Structures-Moved to new Appen. J.
- E.18 Standard Throat Lengths for Drainage Structures-Moved to new Appen. J.
- E.19 Acceptable Stone for Infiltration SWMF Use- Moved to new Appen. J.
- E.20 Acceptable Non-woven Fabrics for SWMF Use-Deleted-VDOT Road and Bridge Specs govern.
- E.21 Acceptable Perforated Pipes for SWMF Use-Deleted-Virginia BMP Clearinghouse specifications govern.
- E.22 Semi-permanent and Permanent Erosion Control Mats- Deleted-VDOT Road and Bridge Specs govern.
- E.23 Erosion Control Stone- Deleted-VDOT Road and Bridge Specs govern.
- E.24 Gabions- Deleted-VDOT Materials Division approved list governs.
- E.25 Geotextiles- Deleted-VDOT Materials Division approved list governs.
- E.26 Turbidity Curtains- Moved to new Appen. J.

Appendix F- Stormwater Management Guidance Manual

Appendix has been deleted. Material was redundant. Conflicts with VSMP.

F.2.4 Chesapeake Bay Preservation Area Ordinance

Delete section, repeat of Ordinance.

F.2.5 Southern Watershed Management Ordinance

Delete section, repeat of Ordinance.

F.2.6 Erosion and Sediment Control Code

Delete section, repeat of Ordinance.

Appendix G- Manuals and Publications

Updated references.

Appendix H- Policy Governing Traffic Impact Studies

No changes.

Appendix I- Acquisition Plat Standards

Updated Appendix to reflect current practices.

New Appendix F- Bicycle Facility Standards Public Works/Engineering Technical Report

New Appendix containing specifications and standard drawings for on-road and off-road bicycle facilities as listed in the Bikeways and Trails Plan.

New Appendix J- Stormwater Management Design Checklists and Tables

New Appendix containing storm water design parameters and tables (From Chapter 8 and Appendix E).

Also contains Table showing the City's more stringent items than DEQ requirements.

New Appendix K- Technical Instructions and Application Form for Stormwater Utility Fee

From Chapter 8.