



HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

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Date: May 24, 2017 [Draft Letter to be dated per County Council Approval]

To: Holders of Howard County Design Manuals

Subject: DRAFT changes to the Howard County Volume IV Design Manual
Standard Specifications and Details for Construction

Dear Sir or Madam:

The proposed changes to the Design Manual, known as Volume IV, have been in process for many months. This DRAFT version of the Howard County Volume IV Design Manual, Standard Specifications and Details for Construction is dated May 30th 2017 and has been available to the public since May of 2016. During this past year we held public meetings and invited the public including representatives from Association of Utility Contractors, Concrete Pre-Caster Associations, and Home Builders Associations to provide their comments. The latter part of this cover letter includes the public comments received during this time period and their effects on this latest version.

The last comprehensive revision to Volume IV was on May 7, 2007. The Draft version will be available on-line at "<https://www.howardcountymd.gov/Departments/Public-Works/Bureau-Of-Engineering>" for the public knowledge.

This revision will be presented to the Public Works Board on June 13, 2017 to request their recommendation for approval by the County Council. Upon recommendation for approval by Public Works Board, the "DRAFT" watermark will be removed and the Design Manual will be presented to the Howard County Council for their approval and acceptance into the County law.

Please note that until the revisions to the Design Manual are approved by County Council, the proposed revisions are not binding.

The proposed Design Manual Volume IV increased in size: 154 pages were added to the Standard Specifications, 10 new Construction Details were added, 61 Construction Details were revised and 14 were deleted. These changes are proposed after performing extensive research, and consultation with multiple stake holders. The resulting 902 pages document needs to be studied to understand the changes. Different parties will have varying perspectives of the changes. The intention of listing changes here is to highlight, for your reference, many of the interesting changes, instead of providing an exhaustive catalogue of all of the changes. We have distinguished the changes in two categories below: "Significant Changes" and less significant "Improvements, Updates and Clarifications."

The practice of accepting and amending the Maryland State Highway Administration's (SHA's) Standard Specification is continued in the current proposed revisions to Volume IV; however, please note that Category 300 & Category 500 now stand alone. We incorporated all text of SHA's 2008 Hardcopy Standard Specifications as well as updating them according to the SHA SUPPLEMENTAL SPECIFICATIONS AND PROVISIONS TO THE JULY 2008 STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS BOOK SPECIAL PROVISION INSERTS (as published on SHA's website as of May of 2016). If this approach of completely publishing categories is appreciated by our stakeholders (vs referencing SHA's), in our future revisions, we will consider completely publishing other categories.

Significant changes

This category includes changes in existing requirements as well as imposing new requirements to improve the quality of the construction and consistency within the Design Manual. Additionally, this category includes New Construction Details or Existing Details that have been revised to clarify multiple ambiguities in the drawings.

A. Standard Specifications

- Page 99 (PDF 233) paragraph 504.03 Construction, Pre-Paving Meeting added to require a meeting on site before the paving operation. The Inspector, Paving Foreman, Paving Superintendent and a representative from testing agency shall be present in the meeting. The contractor shall submit the Plant name and location, Geotechnical lab name and location responsible for testing core samples, asphalt quantity and paving schedule, prior scheduling the meeting.
- Page 105 (PDF 239) paragraph 504.03.11 Sampling & Testing For Density Determination added to establish the quality control requirements of paving.
- Page 89 (PDF 223) paragraph 501.03.10 Compaction, statement added to require test rolling of the aggregate base course before paving.
- Page 45 (PDF 179) paragraph 204.03.04 Compaction, statement added to require test rolling of the embankment fills, and trench backfill within the road right of way prior to installation of aggregate base.
- Page 76 (PDF 210) SECTION 317- Stormwater Management (SWM) Filtration Facilities, added from SHA SUPPLEMENTAL SPECIFICATIONS AND PROVISIONS TO THE JULY 2008 STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS BOOK SPECIAL PROVISION INSERT (herein after referred to as SPI) dated 4/11/2011 Section 316 Stormwater Management Filtration Facilities.
- Page 267 (PDF 401) paragraph 916.01 Borrow Excavation, the SHA soil characteristics were adopted from SPI dated 04/06/2009 Section- 916 Soil and

Soil Aggregate Borrow. As a result, the Select Borrow gradation is specified and maximum Liquid Limit and Plasticity Index were reduced to 34 and 7 from 40 and 10 respectively.

- Page 110 (PDF 244) Minimum asphalt lift thickness increased to 1.5” for 9.5mm mix designation. The thickness is changed from 1” to 1.5” because based on the size of the aggregates, 1” paving thickness is not achievable for the 9.5mm mix designation.
- Page 442 (PDF 576) paragraph 1100.03.01 As-Built Requirements, paragraph added to provide more clarification to the current process of As-Built preparation and submittal to the County.

B. Construction Details

The changes are marked with a red triangle beside them. The following details have been significantly changed or newly added to the manual.

- Detail D – 4.01 (PDF 745) Storm Drain Inlet General Requirement, new detail.
- Detail D – 4.11 (PDF 749) Type D Inlet with Beehive Grate, new detail.
- Detail D – 4.35 (PDF 761) Inlet Flow Through, new detail.
- Detail D – 9.02 (PDF 777) Rain Garden Private For Reference, blank spaces for As-Built information added to the detail so it can be used in SWM Certification.
- Detail D – 9.03 (PDF 778) Micro-Bioretention Facility Private For Reference, new detail.
- Detail E – 2.03 (PDF 735) Grinder Pump, showing generic tank, pump and other components.

The following details were re-drawn and sketches added to the sheet to show the integration of the inlet and curb & gutter. The details clarify the location of expansion/contraction joints, maximum gutter slope at the inlet, slope transition, and underdrain knockout.

- Detail D – 4.02 (PDF 746) Type A-5 Inlet Precast
- Detail D – 4.03 (PDF 747) Type A-10 Inlet Precast

Improvements, updates and clarifications (Minor Changes)

A. Standard Specifications

The following sections were copied entirely from the SHA book or the latest SPI (published here instead of the Reader having to research the SHA website):

- Page 49 (PDF 183) Section 301- Class 3 Excavation for Incidental Construction
- Page 49 (PDF 183) Section 302- Selected Backfill
- Page 54 (PDF 188) Section 304- Structural Plate Pipe and Structural Plate Pipe for Arch Culverts
- Page 62 (PDF 196) Section 307- Prefabricated Edge Drains
- Page 63 (PDF 197) Section 309- Concrete Ditches
- Page 65 (PDF 199) Section 310- Concrete Slope and Channel Protection
- Page 66 (PDF 200) Section 311- Riprap Ditches
- Page 67 (PDF 201) Section 312- Riprap Slope and Channel Protection
- Page 69 (PDF 203) Section 313- Gabions
- Page 70 (PDF 204) Section 314- Flowable Backfill for Utility
- Page 71 (PDF 205) Section 315- Infiltration Trenches
- Page 87 (PDF 221) Section 501- Aggregate Base Course
- Page 96 (PDF 230) Section 503- Chip Seal Surface Treatment
- Page 107 (PDF 241) Section 505- Asphalt Patches
- Page 112 (PDF 221) Section 508- Milling Asphalt Pavement

The following section was added from Howard County Design Manual Volume III.

- Page 99 (PDF 233) paragraph 504.03 Construction, added Paving Section. This section clarifies the sub grade soil CBR requirement within the road right of the way. It gives the option to the contractor to specify the paving section after installation of the utilities, based on the new CBR value of the disturbed soil and weather there is a need for Cement Modified Soil or not.

The following sections have been updated per latest SHA Special Provision.

- Page 1 (PDF 135) Paragraph 101.03 Construction – Erosion and Sediment Control, updated per SPI Section 308 – Erosion and Sediment Control dated 1/5/2016.
- Page 219 (PDF 353) Section 901- Aggregates, updated per SPI Section 901 – Aggregate dated 2/9/16.

The following paragraph added to Preface and General Conditions to provide clarification.

- Page 2 of 2 Preface (PDF 6) paragraph Design Manual Waiver Requirement added to clarify the need for submission of Design Manual Waiver Request if the Construction Documents are different than Standards.
- General Condition Page 1 (PDF 11) paragraph (h) added definition of Engineer of Record.

B. Construction Details

- Detail S – 1.32 (PDF 704) Manhole Drop Connection Type “A” and “B” improved the drawing, eliminated the use of concrete in Type “A” connection.

The following details were corrected and improved.

- Detail G – 5.11 (PDF 620) Precast Manhole
- Detail W – 3.27 (PDF 682) Water Meter ¾” Outside Meter Setting
- Detail E – 2.02 (PDF 734) Grinder Pump Backfill
- Detail D – 4.10 (PDF 748) Type D Inlet
- Detail R – 4.01 (PDF 799) Sidewalk Ramp Type A
- Detail R – 4.02 (PDF 800) Sidewalk Ramp Type B
- Detail R – 4.03 (PDF 801) Sidewalk Ramp Type C

Public Review Comments and resulted Changes

This section includes description of public comments and changes since DRAFT version was made available online in May of 2016. We invited the Association of Utility Contractors, Concrete Pre-Caster Associations, Home Builders Associations and the general public in two separate meetings on 11/10/16 and 11/17/16. We received comments during these two meetings and also via emails. Minor revisions were made in response to informal comments. Below are the written comments that were taken into consideration.

A. Changes resulting from Public Comments:

Comment: Maryland Building Industry Association proposed following changes to “Section 502-Cement Modified Soil”.

- Remove the requirement of testing the compacted CMS for three, 7 and 28 days compressive strength.
- Change the compaction requirement to 95% of maximum dry density as determined by the Modified Proctor ASTM D1557

Response: After review of the proposed changes above they were both accepted and shown on Page 92 (PDF 226) paragraph 502.01.02 (g) and Page 95 (PDF 229) paragraph 502.03.04 Compaction.

Comment: Add detail for Yard Inlet.

Response: Detail D-4.12 (PDF 751) Yard Inlet was added to the Standard Details.

Comment: Field problem with maintenance of sediment control fence at the end of pipe outfalls.

Response: Detail D-5.53 (PDF 777) Sediment Control Fence after Stabilization detail was added to provide option.

Comment: Association of Utility Contractors suggested to clarify the acceptable height for the factory assembled meter setter. Detail D-3.27, 28, 29, 31, 32, 33.

Response: Redundant dimension line was deleted and “1’-6”Min” and 2’ Max” were added to the dimension line from the surface to the center of meter in Detail W-3.32, to make all “meter setting” Details consistent. Also some drafting mistakes were corrected.

Comments: PDF Page 229, Paragraph 502.03.04, ASTM D 2922 and 3017 are withdrawn from “2016 Annual Book of Standards”.

Response: ASTM D 2922 and 3017 are withdrawn and replaced by ASTM D 6938. Design Manual was changed to reflect that.

Comment: PDF Page 394, Paragraph 905.11, referencing 905.12 is incorrect. Correct reference is 905.10.

Response: Design Manual was changed to reflect the correct reference paragraph number.

Comment: County does not allow Class 52 Ductile Iron pipe for gravity sewer. PDF Page 394 Paragraph 905.11 (a) Class 52 should be corrected to Class 54.

Response: Design Manual was corrected.

B. The following Comments were reviewed, no changes were made to the Design Manual, responses to the comments are followed below:

Comment: BGE representatives in the 11/17/16 meeting suggested reducing the depth of underground street light cables to 24" from 36" in Detail G-2.01 (PDF Page 611). We asked them to provide applicable standards that show the 24" cover and make their request in writing by marking the changes in the Detail G-2.01.

Response: We did not receive the information we requested and the Draft Revision did not change as the result of their comment.

Comment: Association of Utility Contractors suggested that the meter setter Details W-3.27, 28, 29, 31, are not addressing details needed for repairing existing meter setters.

Response: The details are intended to address construction standard to install new meter setters. Project Specifications should address the requirements for repairing an existing meter.

Comment: Association of Utility Contractor pointed out that the meter vaults location in regard to the property line is not consistent between single and twin meter. It was suggested that all meter vaults to be placed in the public side as shown in the single meters details.

Response: The twin water meters are commonly installed in denser communities. In the anticipation of lack of sufficient real estate, the twin meter detail shows half of the meter assembly in the public and half in the private side.

Comment: Detail W-3.32 and 33 require using ½" bituminous joint sealer between concrete vault and top frame, no other meter details call for that.

Response: The use of joint sealer was discussed with Utility Design division and Bureau of Utilities. They recommended removing the requirement of using the joint sealer in Details W-3.32 and 33 because it is not necessary.

Comment: Detail R-1.04 and other typical road section details need to have options for guardrail location. The County Design Manual III calls for guard rail placement to be as shown in the SHA details. SHA typical road sections are different than the County. With ESD swales being used outside of the open section roadway, the placement of guardrail should be looked at again.

Response: This needs to be designed specifically for each case by a design engineer and shown on the approved plans. A standard detail cannot address all possible situations in site design.

Comment: PDF Page 74, Paragraph GC-7.13 (b) (D) Builder's Risk Insurance: It was suggested that this requirement to be waived because all the risks are already covered in general liability and acquiring this insurance impose additional unnecessary cost.

Response: Documentation of duplications are needed to move forward.

Comment: PDF Page 159, Paragraph 109.01 Initial Critical Path Method Project Schedule (ICPM). Is this needed why?

Response: Yes, the ICPM is referred to as the initial submission of the project schedule or base line schedule after acceptance of the ICPM this document becomes CPM of record and contractor's work plan for completing the entire project as specified in contract document.

The objective of revising the Design Manual Volume IV is to continuously provide a sound, workable and up-to-date guide for standardization of all design and construction projects in Howard County. Maryland Department of Transportation's State Highway Administration (SHA) periodically releases Special Provisions Inserts (SPI) to its 2008 Standard Specifications for Construction and Materials (2008 Spec Book). SPIs released after May of 2016 that impact our Design Manual Volume IV, and any other comments and recommendations from users received after May 5th 2017, will be considered in a future revision.

Comments and recommendations regarding the Design Manual Volume IV are always appreciated by the Department of Public Works and should be sent by email to the Deputy Chief, Construction Inspection Division in the Bureau of Engineering, Mr. Kamran Sadeghi at ksadeghi@howardcountymd.gov.

The Design Manual is the culmination of several months of preparation by the County staff members and review by various County Departments and professional organizations. Our thanks go out to all who participated and contributed to this effort.

Very truly yours,



Thomas E. Butler, Deputy Director
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