

MASS Updates
DIV 55 - Storm Drain Systems

Comment	Response
<p>If I might make the suggestion, all the he/his/him's are a bit out of control. Flipping through Division 10 really makes one wonder how much of the MASS has been copied and pasted since the 80's rather than being kept current.</p> <p>I saw the "Working Titles" disclaimer, but I can't imagine it would take more than an hour or two to find-and-replace all the he/his/him's with they/their/them/"the Contractor"/whatever.</p>	<p>Instances in Div 55 have been revised.</p>
<p>Consider adding ASTM F2648 & D2321</p>	<p>ASTM D2321 was added to Section 55.01 Article 1.2. ASTM F2648 was added to Section 55.01 Article 1.2 and Section 55.02 Article 2.2D.1&2</p>
<p>Section 55.02: Consider adding standards for perforated storm mainline</p>	<p>Standards for perforated storm mainlines has been added to Section 55.03 Subdrains.</p>
<p>Section 55.02, Article 2.2E: AASHTO MP-21 should be AASHTO M330</p>	<p>Corrected</p>
<p>Section 55.02, Article 2.2E/F: Polypropylene Pipe should be listed under F not E? E is listed twice</p>	<p>Corrected</p>
<p>Section 55.02, Article 2.3C: Minimum Length of Pipe: Connecting to structure or banding a splice, 6 ft, 8 ft?</p>	<p>A minimum length of pipe at connection to structures has been added. Minimum length for banding a splice would need to be assessed for each specific location.</p>
<p>Section 55.02, Article 2.3E: F&I Pipe 12-36" pipe. CCTV >12" – fix so people stop calling.</p>	<p>Revised so that CCTV is required on new pipes greater than 12" diameter.</p>
<p>Section 55.23: consider moving this section to Division 80, since that is where the rest of the electrical specifications reside.</p> <p>Article 23.6: provide guidance for installation of heat trace conduit. IE, "conduit installed along the culvert at the 8 o'clock position using 2-hole conduit straps attached to the culvert wall using galvanized lag screws, lock washers, and nuts. Supports shall not be placed further apart than 10 feet." Or something similar.</p> <p>Article 23.6: provide guidance for any usage of thermostats that might be used to control the heat trace.</p> <p>Article 23.6, paragraph 7: remove the word "watertight".</p> <p>Article 23.6, paragraph 7: allow liquidtight flexible metallic conduit for the installation of heat trace in certain areas, such as the grit separator portion of Stormcepters, where it is difficult to make those bends with rigid conduit.</p> <p>Article 23.6, paragraph 7: require end terminations be made accessible within a cast j-box (inside a manhole) or NEMA 3R j-box (above grade).</p>	<p>Section 55.23 Heat Trace has been moved to Division 80.</p>

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Section 55.24, Article 24.3: Consider changing "center of structure to center of structure" to "actual length of pipe". If the pipe daylights to a drainage swale, there is no "center of structure". This also matches better to Article 25.5 in the next Section.	Agreed.
Section 55.25, Article 25.4: Recommend changing language in first paragraph of SubArticle A to "... thirty feet per minute (30 ft/min), unless using a camera system identified in Article 25.3, Paragraph 4 using a 360 degree spherical camera system."	Agreed.
We should consider requiring video of infiltration systems such as Contech. We are going to be seeing more of these with the new DCM requirements.	A new section (55.23) has been provided for Underground Detention and Infiltration Systems, to include CCTV inspection.
Hobas Pipe USA has supplied Fiberglass Reinforced Polymer Mortar Pipes since 1984 in the United States. These pipes are manufactured per ASTM D3262 for a variety of infrastructure services, including sewer, storm drain, force mains and waterlines. Over 9,000,000 LF of pipe in 18"-126" sizes have been produced in our plant in Houston and shipped to open-cut, slipline, jack & Bore and microtunneling projects in the Americas in the past 30 years. We have also supplied pipes to projects in Alaska in the recent years for slipline rehabilitation of sewers and culverts in Anchorage area in the recent years. We would like to discuss adding ASTM D3262 to the M.A.S.S. Division 50 and Division 55, so a uniform standard would be available to the consultants and agencies in the area.	AWWU response: We have no intent to act on this item as this product is used exclusively on our rehabilitation projects in which we use specials to incorporate the requirements. PM&E response: We do not intend on adding this to Division 55 at this time. Will revisit if local suppliers/installers suggest it as a desired option.
Section 55.26, Article 26.3C: Replace #1 with "All pipes shall be considered fully deteriorated."	Revised to "All pipes shall be partially or fully deteriorated, as shown on the drawings."
Section 55.26, Article 26.3C: Is there a reason for "fully"? This adds cost and is not always the best option. This could say "All pips shall be partially or fully deteriorate, as shown on the drawings." This requires the designer to verify which thickness is prudent for the project. Larger diameters more than 24-inches "fully" deteriorated effectively removes one of the local contractors from bidding due to resin volumes. This effectively sole-sources the UV-cured CIPP.	Agreed.

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Section 55.26, Article 26.4: Add "For heat cured CIPP" at the beginning of SubArticle H.	Agreed.
Section 55.26, Article 26.4: Second paragraph of SubArticle I is meant for sewer, not storm drain. Revise to read ".....provide a smooth transition from the liner to the manhole invert existing pipe end. If necessary, grind the exposed liner edge smooth or fill with mortar to eliminate rough or abrupt edges taht may collect debris or hamper CCTV equipment operation." Delete the last sentence of the paragraph.	Agreed.
Section 55.26, Article 26.4L: Replace the first paragraph with "Sampling and testing shall meet the requirements of ASTM F-1216 or ASTM F-1743. Deviations from sampling methods described in the appropriate ASTM shall be reviewed and approved or denied in advance of the start of construction. Sampling and testing shall include the following:" Delete #6.	Suggested revisions have been implemented.
Section 55.26, Article 26.5A: 2700 gpm bypass is not inconsequential. Recommend discussions and keeping bypass pay item.	Additional discussion is needed.
Recommend adding standard provision and pay item for storm drain system bypass pumping. See example.	Will discuss adding this to Special Provisions so the section can be easily modified for specifics of each project.
Dtl 55-4: While looking over sheet 55-4, we noticed a contradiction in the distance to the first ladder rung. It shows the maximum adjustment on top of the MH being 18". However, in note 4 it mentions the distance to the first ladder rung as 24" when using a cone. 28" when using a single access flat lid. If you are allowed to have 18" of adjustment, the distance would need to be 26" when using a cone, and 30" when using a single access flat lid. We have noticed a revision in the sewer manholes to allow for 26" when using a cone. That same revision, along with the distance if using a flat lid, in the storm drain section would solve this problem.	Additional discussion is needed.

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<p>Dtl 55-4: Note states ladder rung is to be a max 6" from top of cone, (new revised detail shows it at 8"). Detail shows 18" max from top of cone to top of manhole casting. For a total of 24" max from top rung to top of casting. But it also references Detail 55-11, which is an 8" slab (shown in ghost manhole).</p> <p>So if you go 6" from top of rung to bottom of flat lid, then 8" for the thickness of the flat lid, plus the max. 18" for grade rings and casting it comes up to 32". This length is beyond acceptable criteria for the first step. Street maintenance wants it to be 24". Steps mounted in reducing slabs and or grade rings are not standard practice as it inhibits access into manholes.</p>	<p>Additional discussion is needed.</p>
<p>Dtl 55-5 & 55-6: References detail 55-4 for rungs and details 55-13, 14, 15, 16 for reducing slabs (shown in the manhole ghost detail).</p> <p>These reducing slabs vary from 12' to 16". Combined with the 6" for rung (or 8") and the 18" max for grade rings and casting, you have a depth that runs from 36" to 40". These lengths are beyond acceptable criteria for the first step. Street maintenance wants it to be 24".</p> <p>Steps mounted in reducing slabs and or grade rings are not standard practice as it inhibits access into manholes. (OSHA regulation)</p>	<p>Additional discussion is needed.</p>
<p>Jan 1, 2015: I have an additional question on details 50-08, 50-10, and 55-7: The closed pickhole design shown on the Muni drawings are patented by EJIW and our foundry had to come up with a new design. Attached are two drawings of what our foundry is proposing. Both of the options are waterproof. Who do I need contact to get the new design approved or a comment on preference?</p> <p>Mar 2, 2015: I sent you an email about the pick hole design in the frame & cover castings. You told me Street Maintenance didn't care as long as the storm lid had a vent hole. (attached is a drawing showing just the vent hole). I have attached D&L Foundry's proposed design for the pick holes (since East Jordan Iron Works has a patent on the design in the MASS book). Can you see if the Sewer design will work for AWWU?</p>	<p>Additional discussion is needed.</p>

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Something that comes up on our Private Development warranty inspections are the differences in MH and monument depths (at grade) between storm, sewer and water structures and monuments. If we could get the depth to be consistent across all utilities it would make construction and inspections easier.	Detail 55-10 Manhole Heights for storm drain system has been revised to be more consistent with Dtl 50-05 Manhole Heights for sewer system.
Dtl 55-10: <ul style="list-style-type: none"> • I believe 6"-12" is too deep for backyards, gravel streets, and alleyways. • Add Pedestrian Facilities, sidewalk and pathways: Recessed not to exceed ¼". • Elevation of manhole lid on CBMH behind curb in seeded area, 2" below F.G.? 	<ul style="list-style-type: none"> • Agreed. Will match Dtl 50-05 which calls for manhole to be 0"-2" below grade in landscaped areas, gravel streets & alleyways. • Agreed. • Additional discussion is needed to clarify where "Highway R.O.W.'s Outside Traffic Areas" applies and height range desired.
Dtl 55-22: Replace "Pavement" in the side view detail. The casting, from the face to the toe of the curb, should be concrete, not asphalt.	Concrete casting applies to Type II C&G only. Detail 55-22 has been revised to distinguish between installation at Type I vs Type II curb & gutter.
Dtl 55-22: Revise 5'-9" dimension on Front View detail to reflect dimensions on side view.	Dimension in question has been removed.
Dtl 55-22: I am designing a catch basin in an area with Type 2 C&G. When calculating the maximum invert depth from the LOC per the side view detail, I get 4.25'. (5" frame + (2) 6" grade rings + 52" to bottom of basin - 18" sump depth.) When calculating the maximum invert depth from the TBC per the front view detail, I get 4.25'. 5'-9" from TBC to bottom of basin - 18" sump depth = 4.25' The front view calculation is based on Type 1 C&G and should be higher than the calculation based on the side view detail. Am I missing something in the detail that would cause this discrepancy?	Dimension in question has been removed to resolve discrepancy.
This is your reminder to require expansion joints to be installed within 5' each side of SD structure curb intake grates.	Standard Detail 55-22 calls for expansion joints on each side of curb intake grates, spaced 5 ft apart.
Develop dual entry manhole detail	Agreed. See new detail 55-28.
Develop OGS bypass detail	Agreed. See new details 55-29A & 55-29B.

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Consider adding Self Level Access Assemblies to MASS	Would like to see these installed as a special provision on a couple projects to see how they "perform" before adding them to MASS.
<p>Recommend providing a thickened (6") concrete section and/or expansion joints around manhole castings installed in our sidewalks. This is something that has been requested in the field on a couple Private Development projects and it appears to be working - i.e. the sidewalk panels around the manholes don't crack.</p> <p>Part of the problem is that no one is installing expansion joint material or even a bond-breaker around the manhole lid casting like you see around most j-boxes located in sidewalks. I think this would go a long way toward crack mitigation, but it's not being done. Another solution to deal with the dual-access manholes is to rotate the cone to get the access lid out of the sidewalk and located in the asphalt instead. This can result in the lid being located in the wheel path so you have to watch out for that, but this approach does eliminate the sidewalk cracking and potential for ADA non-compliance.</p>	Additional discussion is needed.