

2026 REVISION LOG			
Rev.	Chapter No.	Standard Detail No.	Issue or name
2	ALL		Minor revisions for spelling, grammatical and formatting editing, error correction and web link pathways
2	Definitions		add definition for short side and Long Side an extension, service, lateral or appurtenance that requires crossing the roadway and is on the opposite side the roadway from the main.
2	10 Design 2(J)1		add "non-looped" after dead end
2	10 Design 2(J)2		add blow off as optional end of main "shall have a <i>blow off</i> , a fire hydrant ..."
2	10 Design 3(B)2		add 20" pipe size at 4' cover with 12" and 16"
2	10 Design 7(B)		revise to add clarity application to new water main installations
2	10 Design 7(B)1		revise to address new hydrant connections on existing water mains
2	10 Design 7(B)2		strike section
2	10 Design 7(K)		add blow off as optional end of main "shall have a <i>blow off</i> , a fire hydrant ..."; remove end of sentence ...(within 10 feet...)
2	10 Design 7(L)		strike section
2	10 Design 8(I)		revise to match details ≤12" uses 2 in BO, 16 through 24 uses 4 in BO. > 24 will use flushing hydrant
2	10 Spec 2.2[I]7 and [I]9		add Ford Uniflange UFR1400 to restraint lists; move SIP EZgrip from ≥30" and above to ≤ 24" and below list
2	10 Spec 2.3(D)		Change PVC type from 12545 to 12454 (typo)
2	10 Spec 2.3(D)4		add JetStream (by Pipelife) as approved pvc pipe manufacturer
2	10 Spec 2.3[G]1		add Ford Uniflange UFR1500 to restraint list
2	10 Spec 2.13(B)10		add Clow Valve 5.25 inch Medallion hydrant Model F-2545 4-way
2	10 Spec 2.13(A)5		remove "or bronze" [color]
2	10 Spec 2.13(B)5		remove "or bronze" [color]
2	10 Spec 2.14(C)1		Febco 800 should be LF800; Change Wilkins to Zurn Wilkins 310
2	10 Spec 2.14(C)2		clarify Ford model "HA91-444-AWT-G-NL". Add last sentence "A FIP X CTS adapter may be required."
2	10 spec 2.15(D)a(2), (3), (6) and (7)		(2) Add fusion bond epoxy requirement; (6) add type 304 s.s. clarification; (7) strike Ford FRCTS model (it is not FBE)
2	10 spec 2.15(F)6		specify type 304 stainless steel
2	10 spec 2.15(F)8(a)		Add Mueller brand options; update Ford model numbers
2	10 spec 2.15(F)8(b)		Add Mueller brand options
2	10 Spec 2.19(I)15		add Howard Precast as approved manufacturer, all sizes
2	10 Spec 3.7(C)1 and (C)2		replace "PPI TN-42" with "ASTM F3190" which has now superseded TN-42
2	10 Spec 3.15(B)		strike "12 inches" and "and" before 24 inches [One row of warning tape 24 inches below grade].
2	10 Spec 3.16(A)1		add clarification additional free of charge water detailed in 3.16(A)4(b)3
2	10 Spec 3.16(A)4(b)3		add clarification additional free of charge water detailed in 3.16(A)1
2	10 Spec 3.16(A)4(b)3		add clarification additional free of charge water detailed in 3.16(A)1
2	10 Spec 3.6(I)		Add "All" to beginning of sentence; revise 1st sentence from "... joint glands and restraints". To "... joints and wedge action restraint glands."
2		10 Details - Table of Contents	detail 10.1.5 - rename file to Valve Box-Concrete Valve Pads
2		10 Details - Table of Contents	detail 10.5.6 - rename file to ≥30-inch main
2		10.1.5	change "grade rings" to "valve pads" all locations; add note G for CLTW initials
2		10.3.3	revise for clarity notes no. 2 and 8
2		10.3.6	revise distance lines to front and /or rear of hydrant rather than center of hydrant
3		10.4.1	add "304" for type of stainless steel in notes, 7,8,9,17 and 20; Add note D not to mix materials; add note E. that main valve may be eliminated
2		10.4.4	add note 18 and call outs for coupling
2		10.4.5	add 2 inch blow off gate valve to detail - same as 10.4.1; add "304" to stainless steel in notes 7,8,9; Note 12 change to aluminum conduit; Add note E not to mix materials
2		10.5.5	Item 1 - add the option for a reducer instead of a cap to be more efficient. Require the cap/tap to be eccentric or offset and not in middle of cap.
3		10.5.6	Change ≥24-inch to ≥30-inch in title, rename file
3		10.13.1	Note E remove "CLTW Furnished" and "20"; Note F remove "CLTW" and "...unless specifically approved at alternate location No. 20"; Note 2 change 4" to Larger; note 4 change 4" to Larger, change Gals to Cu Ft; Note 14 remove CLTW Furnished; Note 19 remove "ultrasonic" and change Gals to Cu. Ft
3		10.13.2	create new 2 inch jumper detail

3		10.13.4	remove lower row of warning tape (1 row 24" below final grade only)	
2		10.14.1	12" uses 4' of cover - Revise L1 table column for 12"; Note c - add 12" to 4' depth of cover	
2		10.14.2	12" uses 4' of cover - Revise L1 table column for 12"; Note c - add 12" to 4' depth of cover	
2		10.14.3	12" uses 4' of cover - Revise L1 table columns for 12" ; Change "Z" to "L"; Note c - add 12" to 4' depth of cover	
2		10.14.4	12" uses 4' of cover - Revise L1 table columns for 12" ; Note c - add 12" to 4' depth of cover	
2		10.14.5	12" uses 4' of cover - Revise L1 table columns for 12" ; Change "Z" to "L"; Note c - add 12" to 4' depth of cover	
2		10.14.6	12" uses 4' of cover - Revise L1 table columns for 12" ; Change "Z" to "L"; Note c - add 12" to 4' depth of cover	
3		10.15.1	on profile and trench details move tape #22 to 2 feet below grade (only)	
2	11 Design 14(C)		add sewer main material table 11.8	
2	11 Spec 2.3(B)9(a); 2.3(B)910(i); 2.3 (C)2(a)7; 2.3 (C)2(b)7		add JetStream (by Pipelife) as approved pvc pipe manufacturer	
2	11 Spec 2.3(B)2		strike end of sentence "PVC sewer pipe shall be green in color" which is referenced in color requirements	
2	11 Spec 2.3(C)2(a)		strike end of sentence "PVC sewer pipe shall be green in color" which is referenced in color requirements	
2	11 specs 2.4(H)2(b) and (c)		strike b. and c. - removing Thompson and Future Pipe from approved manufacturers - no longer made in North American continent	
2	11 Spec 2.8(A)2(a)		add Trelleborg Kor-N-Seal boots	
2	11 Spec 2.8(A)4(f)1(c)		Add Crete Stik sealant to Press Seal	
2	11 spec 2.8(1)a		remove manufacturer addresses (not restricted to location)	
2	11 spec 2.8(B)6(d) NEW		new section - joint wrap requirement	
2	11 Spec 2.8(B)10		Delete ", National Precast Concrete Association (NPCA)" - not applicable	
2	11 Spec 2.8(D)4(b)		Revise for clarity; on Cretex Pro-Ring adhesive add "or Rapid Set Flexible Construction Adhesive" after M-1	
2	11 spec 2.8(B)8(a)		add "or stainless steel" pipe	
2	11 spec 2.10(B)2		revise to reference table 1 of ASTM C33; strike incorrect references to ASTM paragraphs 4.1 and 4.2; strike no. 50 and no. 100 sieve criteria.	
2	11 spec 2.11(D)		insert new subsection D for stainless steel vent pipe option for future development; renumber	
2	11 Spec 2.17(A)1		insert "directly above the pipe and" before 24 inches	
2	11 spec 3.4(B)6		add "or stainless steel" pipe	
2	11 spec 3.11(E) and (E)1		revise to combine both sections for brevity and clarity and remove "12 inches" above pipe requirement	
2	11 Spec 3.11(E) and (E)1		combine subsection 1 to eliminate duplication and reword to remove discrepancy. Tape should be installed approx. 24 inches below grade with a minimum of 12 inches above top of pipe.	
2		11.1.3	change item 7 from gasket to Harco adapter; change detail to add adapter; Add note allowing combo wye bend as alternate	
2		11.2.1	change ground level to show flush with cover not with top of cone; Change note 15 to allow vertical wall skirt for cones taller than 32" to correspond with specs	
2		11.2.2	change ground level to show flush with cover not with top of cone; Change note 15 to allow vertical wall skirt for cones taller than 32" to correspond with specs	
2		11.2.3	move the top vent pipe outlet to ~ 6" below top of cone	
2		11.2.5	Remove detached drop w/o clean out, misc. clarifications and note	
2		11.2.6	Remove detached drop w/o clean out, misc. clarifications and note	
2		11.2.10	add a 316 stainless steel option for vent pipe, move the top vent pipe outlet to ~ 6" below top of cone	
2		11.2.11	add a 316 stainless steel option for vent pipe, move the top vent pipe outlet to ~ 6" below top of cone	
2		11.2.12	add Reliner drop bowl as Alternate installation	
2		11.5.1	show warning tape in profile at 24 inches from surface; remove warning tape at lower position in trench detail	
2	12 Spec 2.2(I)1		add JetStream (by Pipelife) as approved pvc pipe manufacturer	
2		12.4	center lettering in lid, add note for manufacturer name area on lid	
2	13 Design 6(E)2(c)		replace safety factor of 1.5 with 1.25	
2	13 Spec 2.1(C)		change "W" to "G" in rhino rail model number	
2	13 Spec 2.2(A)1		eliminate cement mortar lining and only allow Protecto 401	
2	13 Spec 2.2(B)1		eliminate fusion bond epoxy and require protecto 401	
2	13 Specs 2.3(B)4		Certa-lok add "<16 inch only"	
2	13 Spec 2.9(A)2(o) NEW		add section for access doors on polymer concrete wetwells	
2	13 Spec 2.9(A)1(4) NEW		Add section for interior coating system	

2	13 Spec 2.9(A)1(a)3 and (A)3(c) (A)4(a)		add fall protection grating requirement; add "(S Series)" after Halliday; Replace US Foundry with USF Fabrication
2	13 Spec 2.10(B)		replace "US Foundry" with "USF Fabrication"
2	13 Spec 2.17(A)1		change dimensions to match detail 13.3 1' either side and behind and 3' in front, 8" thick
2	13 Spec 2.26(B)		replace Neenah Foundry with US Foundry and add EJ Corp
3		13.1	revise details and notes 1,2,3,6 and B to correspond to NCDOT specifications
3		13.3	add a 1 foot dimension from top of electrical cabinet to lowest point of roof shelter for adequate clearance under roof; add 1' clearance on right side (mirror left); add roof panel info; add note that additional electrical panels not shown may be required; show gutter downspout; add note "Structure and footing shall be designed to withstand 100 mph wind load"
3		13.4	revise to replace EBAA Flex 900 with Romac Alpha couplings and add piping detail; delete pipe diameter chart info >18 inch; add notes 19,20,21,22
3		13.5	replace EBAA Flex 900 with Romac Alpha couplings; delete pipe dia. chart info >18 inch; note 25, delete tee option; add notes 28, 29, 30; add "M" full pond elevation; Note 20 add fall protection grate
3		13.6	delete pipe diameter chart info >18 inch
3		13.7	delete pipe diameter chart info >18 inch
3		13.10.3	change note 36 - overflow is now 1' below wet wetwell; change drawing to lower rim elevation of overflow vault
3		13.13	Added EJ Product number COM148016 for clarity
3		13.14	Note 1 - change the EJ model number to 00104044; remove note C (the grate is not dipped) and reorder notes
3		13.15.1	add note that pipe through cored wall to use flexible boot, no brick or grout to allow flex, note 5 change to 20 foot piece centered in vault
2	15 spec all		Change "ERT (Electronic Radio Transmitter)" throughout to "Endpoint/Meter communication device" to reflect change from Itron ERT to Badger Orion cellular endpoint
2	15 spec 2.1(C)		revisions to reflect new style of LCD registers
2	15 spec 2.1(D)		strike D section on register attachment, renumber E and F
2	15 spec all		remove any reference to "encoded" registers. Absolute encoded only.
2	15 spec		editing for changes in meter program including switch to Badger Orion Cellular endpoint
2	15 Spec 2.12(B)1 and 2		add 5'x6' lid, verify lid dimensions, remove "aluminum" and change 900 psf to 1000 psf
2	15 Spec 2.3(A)1		remove 90-degree outlet coupling and add angle valve; add straight ball valve for manifold assemblies; add clarification for irrigation 90 bend
2	15 Spec 2.3(A)4 New		Add new table 4 for 5/8" meter straight ball valves used in manifold assemblies
2	15 Spec 2.5(A)8 and (B)9		strike b. Hershey model 420 and renumber
2	15 Spec 2.6		strike 8 inch compound meter sizes which had been eliminated
2	15 Spec 2.11(B) and (C)		combines subsections 1 and 2 and update meter manufacturers. Only one box for both 3/4 and 1-inch size.
2		15.1.2	unshade sump pit hole on side and end view. It is an unfilled hole; Note 16 - add note M for option for Cretex Proring instead of bricks
2		15.1.3	unshade sump pit hole on side and end view. It is an unfilled hole; Note 16 - add note M for option for Cretex Proring instead of bricks
3		15.2.3	strike detail - no longer to be used - reference detail 15.2.4
2		15.2.4	add lid information, change title to include 3/4-inch application
2		15.2.5	strike detail no longer to be used - reference other detail?
2		15.2.6	Add Badger Orion detail and note 10: make Itron detail clarity revisions
3		15.4.1	note 33 "Tow" to "Two"; show item 6 in plan and profile as straight ball valve
2		15.4.2	Note 15 - add note N for option for Cretex Proring instead of bricks
2		15.4.3	Note 15 - add note N for option for Cretex Proring instead of bricks
2		15.4.5	Change 8'-2" (length) to 9'; Note D replace "pipe (7.5'x4' minimum)" with "minimum clearance as shown", correct HS21 to HS20; Note H - correct A616 to A615
2		15.4.6	Note D replace "pipe (8.5'x4' minimum)" with "minimum clearance as shown"
2		15.4.7	Section View A-A - Add second endpoint transmitter and wire from meter
2		15.4.9	change length from 9'6" to 10'; note 30 - add "All hardware, bolt, nuts and tie rods shall be 304 s.s.
2		15.4.10	note 30 - add "All hardware, bolt, nuts and tie rods shall be 304 s.s.
2		15.4.11	note 30 - add "All hardware, bolt, nuts and tie rods shall be 304 s.s.
2		15.4.12	note 30 - add "All hardware, bolt, nuts and tie rods shall be 304 s.s.
2		15.5.1	Note 8.4 -add "All hardware, bolt, nuts and tie rods shall be 304 s.s.
2		15.5.2	Note 8.4 -add "All hardware, bolt, nuts and tie rods shall be 304 s.s.
2		15.5.3	Note 8.4 -add "All hardware, bolt, nuts and tie rods shall be 304 s.s.
2		15.5.4	Note 8.4 -add "All hardware, bolt, nuts and tie rods shall be 304 s.s.
2		15.5.5	Note 8.4 -add "All hardware, bolt, nuts and tie rods shall be 304 s.s.

2		15.5.6	Note 8.4 -add "All hardware, bolt, nuts and tie rods shall be 304 s.s.	
2		15.6.1	remove transmitter support bracket detail	
2		15.6.2	Strike "True" from True bolt in details and note e; show corner hinges and not piano style hinge; remove Detail B	
2		15.6.3	Strike "True" from True bolt in details and note e; show corner hinges and not piano style hinge; remove Detail B; notes e and f change type 300 to 304	
2		15.6.4	Strike "True" from True bolt in details and note e; show corner hinges and not piano style hinge; remove Detail B; notes e and f change type 300 to 304	
2		15.6.5	Strike "True" from True bolt in details and note e; show corner hinges and not piano style hinge; remove Detail B; notes e and f change type 300 to 304	
2		15.6.6	Revise No. 17 and Transmitter slot details to remove street name from label	
3		15.6.7	remove transmitter support bracket detail; strike weight column in dimensions table	
1		15.6.8 NEW	new detail for 5'x 6' hatch lid	
2		15.7.1	Item 4 - change desc. to "copper or HDPE service line"	
2		15.7.3	add lid information, change title to include 3/4-inch application	
3		15.7.4	correct 90 bend model numbers	
2	18 Spec		Reformat whole chapter to be consistent format throughout manual	
2	18 Spec 2.19(A)1(a); 2.21(A)3		revise "GPT" to "Garlock" for link seal and end seal;	
2	18 Spec 2.22(A)3 NEW		add Denso Rockshield	
2	20 Spec 3.7(J)		Revise to require warning tape at 24 inches below finish grade only	
2	21 Spec 1.6 NEW		add section requiring contractor boring and tunneling licensing	
2	21 spec 2.1(A)7(a) and (b)		add "... or fusion-bond epoxy coated..." for carbon steel option	
2	21 spec 2.1(A)7(f)		correction "BMW" should be "BWM" ; add Advance Products; delete GPT	
2	21 spec 3.3(M)		add clarity "...designed to support the weight of the carrier pipe filled with water..."	
2	21 spec 3.4(G)		add clarity "...designed to support the weight of the carrier pipe filled with water..."	
2	22 Spec 3.1(A)		Add "Where jurisdiction of the road cannot reasonably be determined, Charlotte Water, at its discretion, may require removal and restoration to the specifications of the NCDOT."	