

PROJECT:	Durham Meadows Waterline Remedial Design											
CONTRACT NO.:	W912WJ19C0002	AECOM PROJECT NO.:	60494812									
ENGINEER'S SUBMITTAL NO.:	02510-1	REVISION IDENTIFIER:	4									
CONTRACTOR'S SUBMITTAL NO.:	02510-1	REVISION IDENTIFIER:	4									
SUBJECT:	Foster Adapter											
<p>REVIEW CODES:</p> <table border="0"> <tr> <td>A – Approved as submitted.</td> <td>B – Approved, except as noted on drawings. Resubmission not required.</td> <td>C – Approved, except as noted on drawings. Refer to attached comments. Resubmission required.</td> </tr> <tr> <td>D – Will be returned by separate correspondence.</td> <td>E – Disapproved. Refer to attached comments.</td> <td>F – Receipt Acknowledged.</td> </tr> <tr> <td>X – Receipt acknowledged, does not comply with contract requirements, as noted.</td> <td>G – Other action required.</td> <td></td> </tr> </table>				A – Approved as submitted.	B – Approved, except as noted on drawings. Resubmission not required.	C – Approved, except as noted on drawings. Refer to attached comments. Resubmission required.	D – Will be returned by separate correspondence.	E – Disapproved. Refer to attached comments.	F – Receipt Acknowledged.	X – Receipt acknowledged, does not comply with contract requirements, as noted.	G – Other action required.	
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D – Will be returned by separate correspondence.	E – Disapproved. Refer to attached comments.	F – Receipt Acknowledged.										
X – Receipt acknowledged, does not comply with contract requirements, as noted.	G – Other action required.											
<p>The Engineer's review is for general conformance with the design concept and Contract Documents. Markings or comments shall not be construed as relieving the Contractor from compliance with the Contract plans and specifications or from departures there from. The Contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner. AECOM Technical Services, Inc.</p>												
DATE:	27 August 2019	REVIEWER:	R. Berlandy									

The review is provided to assist the contractor in the management of construction. It should not be considered complete. In order to maintain continuity between submittals, the previous comment numbers have been retained. The shop drawing review comments follow:

COMMENT NUMBER	REFERENCE	CODE	COMMENT
1.	02510	B	Foster Adapter to be provided with option 1, NSF-61 listed, 7-mil fusion bonded epoxy coating conforming to AWWA C116 as well as the coating surface preparation and application requirements contained in AWWA C550.

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE

For use of this form, see ER 415-1-0; the proponent agency is CECW-CE

DATE

8/23/2019

TRANSMITTAL NO.

02510-1.4

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS (This section will be initiated by the contractor)

TO: WESTOVER RESIDENT OFFICE 570 Patriot Avenue Box 70 Chicopee, MA 01022-1634	FROM: Ludlow Construction Co., Inc. 19 Carmelina's Circle, Ludlow MA01056	CONTRACT NO. W912WJ19C0002	THIS IS A: RESUBMITTAL OF TRANSMITTAL 02510-1.1
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SPECIFICATION SEC. NO. (Cover only one section with each transmittal)
02510-Water Distribution System

PROJECT TITLE AND LOCATION 01
Durham Meadows Waterline Remedial Design,

THIS TRANSMITTAL IS FOR: (Check one)
 FIO GA DA CR DA/CR DA/GA S

ITEM NO. (See Note 3)	DESCRIPTION OF SUBMITTAL ITEM (Type size, model number/etc)	SUBMITTAL TYPE CODE (See Note 8)	NO. OF COPIES	CONTRACT REFERENCE DOCUMENT		FOR CONTRACTOR USE	VARIATION (See Instruction No. 6)	FOR CE USE CODE (Note 9)
				SPEC. PARA NO.	DRAWING SHEET NO.			
a.	b.	c.	d.	e.	f.	g.	h.	i.
4	Product Data Pipe Thrust Restraint	03 - PRODUCT DATA	0	1.04-A.4		A	No	

Remarks from Contractor

I certify that the above submitted items have been reviewed in detail and are correct and in the strict conformance with the contract drawings and specifications except as otherwise stated.

NAME AND SIGNATURE OF CONTRACTOR _____

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED (List by item No.)	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE
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WATERWORKS PRODUCTS



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SPECIFICATIONS**

**WATERWORKS
PRODUCTS**

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BOLT-THRU MECHANICAL JOINT RESTRAINT RESTRAIN MJ VALVES AND FITTINGS TO EACH OTHER



**BOLT-THROUGH
MJ RESTRAINT**

Simple
Secure

PRODUCT APPLICATIONS

Valves to tees, crosses

90's, 45's other fittings



APPROXIMATE DRAW-UP LENGTHS

3 to 12-in	1-inch
14 to 24-in	2-inches
30 to 36-in	3-inches

PRODUCT BENEFITS

- 1** No pipe to saw
- 2** Space saving and light-weight
- 3** No possibility of pipe damage since no pipe connection is used
- 4** Secure bolt-through design makes for labor-saving, easy and fast installation
- 5** Made in U.S.A., ductile iron
3 to 24-inch: 350psi rating
30 to 36-inch: 250psi rating
- 6** Up to four times fewer bolts to tighten
- 7** Comes complete with all accessories
- 8** Close-coupled connections allow you to pre-assemble valves and fittings, then transport to the job site
- 9** Less chance for leakage. Two MJ's are connected using one accessory kit rather than the standard two
- 10** Available in standard ~~asphalt or~~ epoxy coating. Sizes 14 to 36-inch ship standard with epoxy coating

COATINGS ~~Asphalt or~~ Epoxy on sizes 3 to 12-inch; 14-inch and above, epoxy is standard. ~~Protecto 401 epoxy is available for sewer applications.~~

ACCESSORY PAKS Corten included, Teflon® blue and stainless optional

Special Long-bolt Accessory Paks available for C110 full-body fittings and certain butterfly valves with thicker bolt flanges.

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BOLT-THRU MECHANICAL JOINT RESTRAINT RESTRAIN MJ VALVES AND FITTINGS TO EACH OTHER



SIZES	3, 4, 6, 8, 10, 12, 14, 16, 18, 20, 24, 30, 36
TYPICAL USES	Restrains valves to tees and valves to crosses Restrains reducers and other fittings to tees or crosses Restrains 90's and other fittings to each other
ADVANTAGES (Product)	<ul style="list-style-type: none"> ✓ Tough, BOLT-THROUGH Restraint ✓ Takes the place of <u>two</u> bolt-on lug type products ✓ No pipe to saw and no lug bolts to tighten ✓ Ultra-compact; saves critical space; 1 to 2-inch draw-up length ✓ Quicker to install than to saw pipe and tighten up to 4 times more bolts ✓ One accessory kit to install (included in price) ✓ Integral casting, no welds ✓ 14, 16, 18, 20, 24, 30, 36-in epoxy coated — standard
ADVANTAGES (Manufacturer) INFAC T PRODUCTS ARE AVAILABLE FROM YOUR LOCAL WATERWORKS DISTRIBUTOR	<ul style="list-style-type: none"> ✓ Products made in U. S. A. and Infact is an American-owned company ✓ BIG inventory; Quick shipping; No extra charge to drop ship ✓ No minimum order
HYDRANT AND OTHER CONNECTIONS	<ol style="list-style-type: none"> 1) When using 3-inch to 14-inch Fosters on both the “branch” and “run” of compact tees or crosses, the standard accessory bolts may obstruct each other. Substitution of shorter bolts should solve this. Conduct a trial connection prior to field assembly. Special short-bolt accessory paks are available. Contact Infact for more info. 2) Because of the large variety of hydrant designs, we strongly recommend that you conduct a trial connection prior to field assembly. Foster Adaptors can be assembled on many hydrant shoes that have adequate space for bolt clearance, including M&H Model 129, Mueller Centurion and Clow Medallion. Contact Infact for more info.
OPTIONS	<ol style="list-style-type: none"> 1) NSF 61, 7-mil fusion bonded epoxy conforming to AWWA C116/A21.16-09 as well as the coating, surface preparation and application requirements of ANSI/ AWWA C550. 2) 40-mil Protecto 401 epoxy coating for Foster Adaptor sewer applications. Contact Infact for specs and availability. 3) Long-bolt Paks, to restrain C110 full-bodied fittings, certain valves, etc. with thicker bolt flanges.

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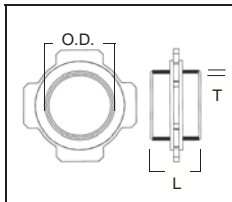
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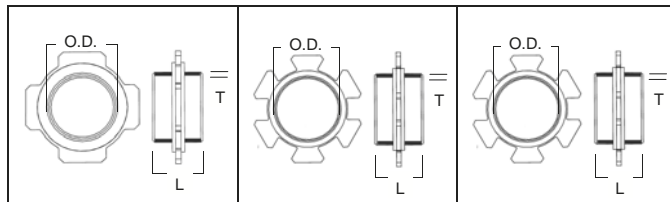
FOSTER ADAPTOR



BOLT-THRU MECHANICAL JOINT RESTRAINT RESTRAIN MJ VALVES AND FITTINGS TO EACH OTHER



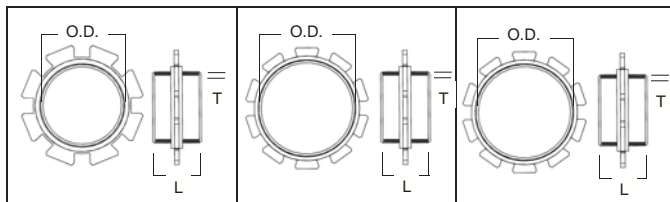
3-INCH



4-INCH

6-INCH

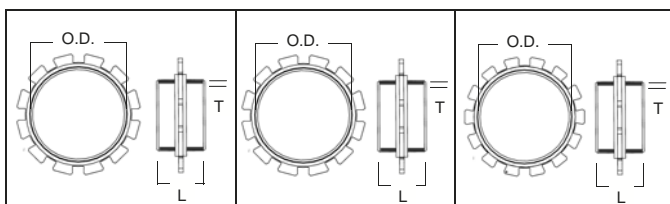
8-INCH



10-INCH

12-INCH

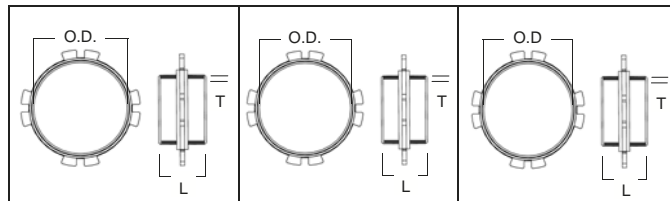
14-INCH



16-INCH

18-INCH

20-INCH



24-INCH

30-INCH

36-INCH

LATEST SIZES ADDED: 3-inch, 30-inch, and 36-inch

SIZE, inches	DIMENSIONS, inches			ADAPTOR Weight	PAK Weight	TOTAL Weight
	O. D.	T	L	lbs.	lbs.	lbs.
3	3.96	.34	4	6	5	11
4	4.80	.35	4	8	8	16
6	6.90	.37	4	16	9	25
8	9.05	.39	4	19	10	29
10	11.10	.40	4	29	13	42
12	13.20	.43	4.5	31	15	46
14	15.30	.48	6.75	55	16	71
16	17.40	.51	6.75	60	20	80
18	19.50	.55	6.75	92	16	108
20	21.60	.58	6.75	101	20	121
24	25.80	.62	6.75	117	28	135
30	32.00	.66	7.75	153	68	221
36	38.30	.75	7.75	220	86	306

Adaptor sizes, dimensions and weights are nominal



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ENGINEERING DATA / SPECIFICATIONS

**FOSTER
ADAPTOR**



**BOLT-THRU
MECHANICAL JOINT RESTRAINT
RESTRAIN MJ VALVES AND FITTINGS TO EACH OTHER**



All

STANDARD ADAPTORS, STANDARD ACCESSORIES

The Infact Foster Adaptor is made in the U. S. A. It meets the ductile iron and working pressure specifications of AWWA compact fittings, ANSI/AWWA C153/A21.53 and C110/A21.10 — American National Standard for Ductile Iron Compact Fittings, 3-Inch Through 36-Inch (76mm Through 914mm) for Water Service.

SAMPLE SPECIFICATION: Mechanical joint (MJ) valves and fittings shall be connected using a bolt-through positive restraint mechanism manufactured of U. S. A. ductile iron conforming to ASTM A536, 65-45-12. The positive restraint device shall connect the valves and/or fittings at a linear distance not to exceed three (3) inches and without attachment to pipe. The device shall come complete with all accessories, including standard styrene butadiene rubber (SBR) MJ gaskets conforming to the latest revision of AWWA C111/ASTM F-477 and weathering steel (Corten) bolts conforming to AWWA C111/A21.11 and ASTM A242. Nuts for 3 through 12-inch sizes shall be SAE Grade 5 steel with black oxide coating. Nuts for 14-inch and larger adaptors shall be heavy hex Corten steel conforming to ASTM A242. ~~Sizes 3-12-inch of the bolt-through MJ positive restraining device shall be supplied with an NSF 61 asphaltic seal coating in accordance with ANSI/AWWA C104/A21.4. Sizes 14-36 inch shall be supplied with NSF 61, 7-mil. fusion bonded epoxy conforming to AWWA C116/A21.16-09 as well as the coating, surface preparation and application requirements of ANSI/AWWA C550. For sewer installations, the device shall be supplied with 40-mil Protecto 401 epoxy. [Epoxy coating, blue Teflon® coated, and stainless steel hardware are available for all sizes.]~~ The device shall be used with standard mechanical joint fittings (AWWA C110 or C153) and valves. The device shall be Infact Corporation FOSTER ADAPTOR or equal.

EPOXY ADAPTORS, BLUE FLUOROCARBON (TEFLON®) ACCESSORIES

The Infact Foster Adaptor is made in the U. S. A. It meets the ductile iron and working pressure specifications of AWWA compact fittings, ANSI/AWWA C153/A21.53 and C110/A21.10 — American National Standard for Ductile Iron Compact Fittings, 3-Inch Through 36-Inch (76mm Through 914mm) for Water Service.

SAMPLE SPECIFICATION: Mechanical joint (MJ) valves and fittings shall be connected using a bolt-through positive restraint mechanism manufactured of U. S. A. ductile iron conforming to ASTM A536, 65-45-12. The positive restraint device shall connect the valves and/or fittings at a linear distance not to exceed three (3) inches and without attachment to pipe. The device shall come complete with all accessories, including standard styrene butadiene rubber (SBR) MJ gaskets conforming to the latest revision of AWWA C111/ASTM F-477 and blue fluorocarbon [Teflon®] coated bolts and nuts conforming to AWWA C111/A21.11. The bolt-through MJ positive restraining device and the ductile iron spacers shall be supplied with an NSF 61, 7-mil. fusion bonded epoxy conforming to AWWA C116/A21.16-09 as well as the coating, surface preparation and application requirements of ANSI/AWWA C550. For sewer installations, the device shall be supplied with 40-mil Protecto 401 epoxy. The device shall be used with standard mechanical joint fittings (AWWA C110 or C153) and valves. The device shall be Infact Corporation FOSTER ADAPTOR or equal.

EPOXY ADAPTORS, STAINLESS STEEL ACCESSORIES

The Infact Foster Adaptor is made in the U. S. A. It meets the ductile iron and working pressure specifications of AWWA compact fittings, ANSI/AWWA C153/A21.53 and C110/A21.10 — American National Standard for Ductile Iron Compact Fittings, 3-Inch Through 36-Inch (76mm Through 914mm) for Water Service.

SAMPLE SPECIFICATION: Mechanical joint (MJ) valves and fittings shall be connected using a bolt-through positive restraint mechanism manufactured of U. S. A. ductile iron conforming to ASTM A536, 65-45-12. The positive restraint device shall connect the valves and/or fittings at a linear distance not to exceed three (3) inches and without attachment to pipe. The device shall come complete with all accessories, including standard styrene butadiene rubber (SBR) MJ gaskets conforming to the latest revision of AWWA C111/ASTM F-477. The bolt-through MJ positive restraining device and the ductile iron spacers shall be supplied with an NSF 61, 7-mil. fusion bonded epoxy conforming to AWWA C116/A21.16-09 as well as the coating, surface preparation and application requirements of ANSI/AWWA C550. For sewer installations, the device shall be supplied with 40-mil Protecto 401 epoxy. The bolts and nuts shall be ASTM A193 type 304 or 316 stainless (as requested) and the nuts shall be Teflon® coated. The device shall be used with standard mechanical joint fittings (AWWA C110 or C153) and valves. The device shall be Infact Corporation FOSTER ADAPTOR or equal.

NOTE: When using 3-inch to 14-inch Fosters on both the “branch” and “run” of compact tees or crosses, the standard accessory bolts may obstruct each other. Substitution of shorter bolts should solve this. Conduct a trial connection prior to field assembly. Special short-bolt accessory paks are available. For C110 full-body fittings and certain thick-flange valves, Infact Long-bolt Paks are available. Because of the large variety of hydrant designs, we strongly recommend that you conduct a trial connection prior to field assembly. Foster Adaptors can be assembled on many hydrant shoes that have adequate space for bolt clearance, including M&H Model 129, Mueller Centurion and Clow Medallion. Contact Infact for more info.

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Installer's Guide

PRODUCT	DESCRIPTION	INSTALLED DRAW-UP DISTANCE	TYPE OF JOINT		RECOMMENDED APPLICATIONS		
			MJ	FLANGE	VALVES	FITTINGS	HYDRANTS
FOSTER ADAPTOR	 <p>Bolt-thru MJ Adaptor</p>	<p>Sizes 3-12: 1-inch --- Sizes 14-24: 2-inches --- Sizes 30-36: 3-inches</p>	✓		✓	✓	
FLEX T-2	 <p>Self-Restraining 2-way Tee</p>	<p>0 inches --- (Direct Restraint)</p>	✓	✓	✓	✓	
FLEX T-3	 <p>Self-Restraining 3-way Tee</p>	<p>0 inches --- (Direct Restraint)</p>	✓	✓	✓	✓	
FLEX ADAPTOR	 <p>Ultra-Compact Coupling</p>	<p>8 1/2 inches</p>	✓	✓	✓	✓	✓
FLEX REDUCER	 <p>Ultra-Compact Reducer</p>	<p>8 1/2 inches</p>	✓	✓	✓	✓	✓

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Comparison of Waterworks Products that Restrain Valves, Fittings and Hydrants

	INFAC T FOSTER ADAPTOR	LUG PRODUCT	INFAC T FLEX T-2 & T-3	ANCHOR COUPLING	INFAC T FLEX ADAPTOR	GRIP RINGS	INFAC T FLEX REDUCER
Built-in full axial, circumferential restraint. Restraining forces are spread more evenly than in products using radial bolts or lugs.	X		X	X	X	X	X
Bolt-through restraint	X						
Angular deflection for easy restraint of unaligned fittings			X		X	X	X
Full axial rotation for easy alignment of bolt holes			X	X	X	X	X
Two independent pivot points adjacent to fittings for better close quarters installation and easier connection to misaligned fittings			X		X		X
Requires ONE device to connect fittings (rather than two or more)	X		X	X	X		X
Do not have to cut and install a piece of pipe in order for device to restrain fittings	X			X	X		
Uses standard bolts and gaskets and no radial bolts on pipe that operator may forget to or improperly tighten			X	X	X	X	
Field adaptable to being connected to any length pipe		X				X	
Field adaptable to restrain either MJ or flange joints using interchangeable glands			X		X		X

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BOLT-THRU MJ RESTRAINT FOR VALVES AND FITTINGS



- No pipe to saw
- Up to 75% fewer bolts
- Saves space
- Easier to lift and install

Infact Foster Adaptors, like all Infact products are made in USA

FLEX ADAPTOR

SPACE-SAVING MJ OR FLANGE RESTRAINT FOR VALVES AND FITTINGS



Easier to Install Restraint



- EZ-align glands spin and deflect
- Extra-heavy-duty split glands
- Substitute MJ or flange glands
- Epoxy-coating standard

U. S. PATENT NO. 6015170

FLEX REDUCER

SPACE-SAVING MJ OR FLANGE REDUCER FOR VALVES AND FITTINGS



Hassle-free 8x6 Reducer



- 8 1/2-inch draw-up length
- EZ-align glands spin and deflect
- EZ-change MJ or flange glands
- Uses standard accessories

U. S. PATENT NO. 6015170

FLEX T-2 and T-3

SPACE SAVING MJ OR FLANGE RESTRAINT FOR VALVES AND FITTINGS

Direct-to-Tee
Secure Restraint



MJ x flange x MJ shown
(or any mix you choose)

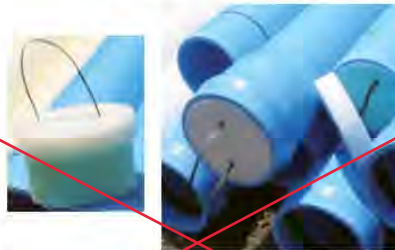
MJ x MJ

- Bolt valves or fittings direct-to-tee
- No pipe sawing or couplings
- Save space, time and money
- Use standard gaskets and bolts
- Change to MJ or flange in the field

U. S. PATENT NO. 6015170

COMBO PIPE PLUGS

2-PIECE PIPE PLUGS FIT BELL OR SPIGOT OF PIPE



- White plug in bell, green in spigot
- Easy to insert, even in stacked pipe
- Combo plugs won't fall out of pipe
- Combo simplifies inventory, usage
- Handle and plug made in USA

COMBO PLUGS are available for all classes of iron and plastic pipe (non-pressure applications)

MUD PLUGS and INSULATION

VALVE BOX DEBRIS PLUGS AND METER BOX, VAULT, AND AIR RELIEF INSULATION



2, 4, and 6-inch
thick insulation for
pits and boxes

- Push-in, pull-out installation
- Plug compresses for tight seal
- Won't absorb water or freeze
- Flexible, non-conductive handle
- Custom sizes available

Call for large variety of sizes and shapes of waterproof insulation and plugs

Call your local waterworks distributor for prices

