



ENGINEERING SERVICES DEPARTMENT
401 Clematis Street
Fourth Floor
West Palm Beach, FL 33401
Phone: 561-822-1200
Fax: 561-494-1116

APPROVED MATERIALS LIST (AML)

REVISED: May 11, 2009

PLEASE REFER TO THE GENERAL NOTES AND SUBMITTAL GUIDELINES SECTION STARTING ON PAGE 6 PRIOR TO FILLING OUT ANY OF THE SUBMITTAL SHEETS.



TABLE OF CONTENTS

ITEM	PAGE	APPLICABLE STANDARD DETAIL No.
COVER SHEET	1	NA
TABLE OF CONTENTS	2 thru 4	NA
INSTRUCTIONS AND GENERAL NOTES ...	5 thru 6	NA
SUBMITTAL COMPLIANCE FORM	7 and 8	NA
CONCURRENCY FORM	9	NA
 SECTION ONE, PRESSURE PIPE (cover sheet)	 10	
(Water mains, large services and force mains)		
Hydrants	11	
Hydrant Cap, Bonnet & Barrel paint	11	
Ductile Iron Pipe	12	
Linings and Coatings for Pipe & Fitting	13	
Ductile Iron Fittings	14	
Joint Restraint	14 & 15	
Valves	16	
Valve box debris caps	17	
Valve Boxes	17	
Valve Box Lids	17	
Valve Stem Extensions	17	
Valve Box Alignment Device (VBAD)	17	
Valve ID Tags	18	
Valve Trench Adapter	18 & 19	
Blow-off Materials.....	20	
Corporations (for Blow-offs)		
Brass Nipples		
Blow-offs		
Meter box		
Tapping Sleeves and Saddles.....	21	
Casing Materials	22	
Casing Spacers		
End Seals		
ARV Materials	23 & 24	
ARV's		
Corporations (for ARV's)		
48" Ring and Cover (for ARV's)		
S. S. Ball valves (for ARV's)		
S. S. Nipples (for ARV's)		
Linings and Coatings for ARV manholes		



TABLE OF CONTENTS

ITEM	PAGE	APPLICABLE STANDARD DETAIL No.
SECTION TWO, WATER SERVICES: (cover sheet)	25	
Tapping Saddles	26	NA
1" Water Service.....	27	
2" Water Service	28	
Dual Water Service	29	
Extended Water Services.....	30 and 31	
Miscellaneous Service Parts	32	
3" and Larger Water Services	33 thru 35	
Private Fire Lines (PFL)	36 thru 37	
Backflow Preventers Check List Sheet.....	38	
Backflow Preventer General Requirements..	39	
3" or larger single DCA & RPA	40	
Fire Department Connection (FDC)	40	
3" or Larger Parallel DCA & RPA	40	
3/4 to 2" Single RPA	40 & 41	
3/4 to 2" Parallel RPA	41	
Additional Material for 3/4" L.S. RPA	41	
 SECTION THREE, GRAVITY SEWERS: (cover sheet)	42	
(Gravity mains and laterals)		
Gravity Sewer Material	43	
Pipe		
Fittings		
Clean-outs		
Manhole Materials	43	
Rings & covers		
Manhole lid seals		
Manhole Joint Sealant		
Manhole adapters	44	
Manhole precast adjustment rings		
Couplings		
Pipe Transition Sleeves		
Manhole Lining		
Manhole Coatings		
Manhole Sealant	45	



TABLE OF CONTENTS

ITEM	PAGE	APPLICABLE STANDARD DETAIL No.
SECTION FOUR, LIFT STATIONS:		
Pumps and Electric	INCOMPLETE	
Wet well	INCOMPLETE	
Manhole Sealant (Ramnek or Madwell)	INCOMPLETE	
Manhole Seal (Wrapid Seal)	INCOMPLETE	
Valve Vault.....	INCOMPLETE	
Valves (Plug) (FJ) in valve vault.....	INCOMPLETE	
Pressure Sensors	INCOMPLETE	
RTU (JM Process Systems)	INCOMPLETE	
Water Service Piping	INCOMPLETE	
RPA's (for water service)	INCOMPLETE	
Link-Seals (for valve vaults and wet wells)	INCOMPLETE	
DI Piping	INCOMPLETE	
Retainer's glands (Megalug 2100)	INCOMPLETE	
Water Service Materials	INCOMPLETE	
DIP Fittings	INCOMPLETE	
Wet well and Vault Coating (inside)	INCOMPLETE	
Wet well and Vault Coating (outside)	INCOMPLETE	
Bypass Pumping Material (Cam-Lok Fittings)..	INCOMPLETE	
In-Ground Valves	INCOMPLETE	
SECTION FIVE, CORRECTIONS AND ADDITIONS:		
(For use as a tracking device)		
Cover and Introduction	46	NA
Water Pressure Pipe	47 & 48	NA
Water Services	49 & 50	NA
Gravity Sewers	51 & 52	NA
Lift Stations	54	NA

- End of Section -



INSTRUCTIONS AND GENERAL NOTES:

In the following sections 1 through 4 are lists of items for specific uses in our water and wastewater systems listed by type of item, group, short specification listed with each approved item, approved manufacturer, and manufacturers part number.

If applicable, the detail sheet number(s) will be called out on the Approved Product List (APL) page to make it easier for you to cross reference the part to the drawing. This way when you are looking at a particular detail sheet you will be able to match it with the particular APL page.

We feel that these lists will reduce the amount of paper work required, time needed for review, approval and ordering. If there are any items you wish to have added to these approved lists, then send the full specifications to the "users" office for review and have the manufacturer's representative contact the user group.

SUBMITTAL GUIDELINES:

1. To accept the materials listed in this package we require a transmittal letter with one original (for the project file) and one copy (for our Construction Coordinator's use) of the following:
 - A. The Concurrency form signed and dated by the Engineer and Contractor. The Supplier, Engineer, and or Contractor will need to determine how many additional copies are required for their use to be approved by the City.
 - B. Submit the section cover sheets and only the pages of the package that list items to be used:
 1. Checked off each type of the items to be used
 2. Circle each manufacturer and model number to be used
 3. Initial each page (both the EOR and contractor).
 - C. Any non-standard submittals, two copies for our use with the form filled out from pages 8 & 9.
2. The Public Utilities Department approves materials that will be used for water mains and water services within the rights of ways, easements and on private property up to the downstream side of the backflow preventers in the following Municipalities:
 - A. City of West Palm Beach
 - B. Town of Palm Beach
 - C. Town of South Palm Beach
 - D. Parts of Palm Beach CountyAdditionally the Public Utilities Department approves materials that will be used for wastewater lift stations, force mains, gravity mains and services within the rights of ways and easements of:
 - A. City of West Palm Beach.The City of West Palm Beach Construction Services Department approves all items on these lists, via the resolution covering the plumbing code. Everything used on private property in the City of West Palm Beach will need to meet these standards, unless approved otherwise by the Plumbing, Mechanical, Fire officials.
3. All materials, fittings, pipe and equipment shall be new, unused, and warranted for one year after acceptance.
4. For the purpose of standardization, materials should be as much as possible of a like kind in order to achieve conformity while meeting the applicable standards. This will also help in reducing different types and numbers of spare parts, which The City of West Palm Beach will have to keep in their inventory.
5. In the past few years there has been a consolidation in the industry with regard to manufacturers; IE, American-Darling now owns Waterous and McWane owns Kennedy and Clow. This list tries to include all of the manufacturers that specialize in the manufacture of the materials, and we are aware that there will be other such changes including change in styles and model numbers as time goes by.
6. A continual effort between The City of West Palm Beach, engineers, contractors, suppliers and manufacturer representatives to update equipment, materials, products and model numbers will be made to keep the Approved Product List (APL) as current as possible.



7. This APL does not supersede any of the City of West Palm Beach Purchasing Department's rules or regulations, or the technical specifications. If there is any conflict with any of those documents, the contractor shall consult the City of West Palm Beach Public Utilities Project Manager for the project to resolve the issue.
8. Materials manufactured overseas should have an affidavit and certification as to quality control and design criteria and that the materials meet the standards listed in the APL for the products being supplied. In other words "overseas manufacturers" should meet the same criteria as "domestic" manufacturers.
9. Defective materials shall always be cause for rejection.
10. The Public Utilities Department will not sign off on the APL unless the latest edition of the APL package is used, so please call ahead and ask for the date on the latest revision (see the revision date in the footer of each page). The exception to this rule is where the APL has been used as part of the City contract documents. The APL in that contract will be used.
11. All new and additional manufacturers submittal's will be required to be signed off on by the Public Utilities Department and shall be added to the next edition of this Approved Product List (APL).
12. Material cut sheets from a supply house catalog will not be considered a suitable shop drawing submittal.
13. These are the minimum standards allowable. Any item that you wish to use that is not listed must meet or exceed these standards.
14. By signing the Concurrency form, the Contractor and Engineer for the referenced project agree to adhere to the specifications and the approved material list in this manual. It is understood that the Public Utilities Department will reject construction materials not in accordance with this document.
15. For non-standard submittals the City uses the form on the following page entitled "SHOP DRAWING SUBMITTAL COMPLIANCE FORM". The Public Utilities Department fills out this form and submits it back to the engineer of record with the submittals. The form out-lines whether the submittals are in compliance, (Items not listed in our submittal package).
There are five review areas that items will be listed under;
 - A. APPROVED
 - B. APPROVED AS NOTED
 - C. NOT APPROVED
 - D. NOT APPLICABLE TO PUBLIC UTILITIES
 - E. SUBMITTALS NOT SUPPLIED

If any item is listed under "APPROVED AS NOTED" all the contractor has to do is comply with our notes, or submit another product. If the item is listed under "NOT APPROVED" or "SUBMITTAL NOT SUPPLIED" then we will expect a submittal. Items listed under "NOT APPLICABLE TO PUBLIC UTILITIES" are normally items that are required on the building site which we do not review.
16. Manholes, wet wells, valve vaults, air release manholes are not standardized and must be submitted under the criteria listed in item No. 15.
17. All parts of the water system, except hydrants will need to meet National Sanitation Foundation (NSF) International Standard 61 as adopted in Rule 62-555.335 of the #FAC. This includes all chemicals used."

- End of Section -





PUBLIC UTILITIES DEPARTMENT
Engineering Services Division
P. O. Box 3506,
West Palm Beach, FL 33402
TEL (561) 494-1041 FAX (561) 494-1116

"The Capital City of the Palm Beaches"

**PUBLIC UTILITIES DEPARTMENT, ENGINEERING SERVICES DIVISION
SHOP DRAWING SUBMITTAL COMPLIANCE FORM**

CONTRACTOR:

ENGINEER:

PROJECT NO.

PROJECT NAME:

APPROVED:

APPROVED AS NOTED:

NOT APPROVED:

NOT APPLICABLE TO UTILITIES:

- On site utility piping material (local Plumbing Official must approve)
- On site storm drainage material (local Plumbing Official must approve)
- Off site storm drainage material (If applicable: 1-Public Utilities Stormwater Engineer, 2-Palm Beach County Road and Bridge, 3-FDOT, 4-Northern Improvement District)

SUBMITTALS NOT SUPPLIED:

PRESSURE PIPE (water and force mains):

- | | |
|--|--|
| Hydrants (WPB Spec) | Hydrant Bonnet paint |
| Hydrant Barrel paint | DIP, water main (Class 52, CL) |
| Retainers glands (Megalug 1100) | DIP Fittings (SJ, RJ) (CL) |
| Tapping Sleeves, DI/CI, MJ style | Valve boxes (Tyler) |
| Interior Pipe Lining (for Force Mains) | S.S. Tapping Sleeves |
| RWG Valves (Water) | Plug Valves (Force Mains) |
| Valve Markers (Wagco) | Valve stem extensions |
| Valve box dirt protectors | 48" Air Release Manhole Lids (for ARV's) |
| Manholes (for ARV's) | Corporations (for ARV's) |
| Ball valves (for ARV's) | Air Release Valve (ARV) |



WATER SERVICES:

Corporations
Meter boxes
Meter couplings
DCA (for fire lines)

Curb stops/angle valves
Copper pipe
RPA (for metered services)

GRAVITY:

C.I. hand holes (USF 7610, for clean-outs)
DIP (EL) (gravity mains)
PVC/SDR26 (gravity fittings)
Pipe transition sleeves (Harco DIP to PVC)
Manholes
Manhole Sealant (Ramnek or Madwell)
Manhole Interior Coating

Clean-outs
PVC/SDR26 (gravity pipe)
Manhole rings & covers
Manhole lid seals (must be Cretex)
Manhole risers
Manhole adapters (Harco)
Manhole Exterior Coating

LIFT STATIONS:

Pumps and Electric
Manhole Sealant (Ramnek or Madwell)
Valves (Plug) (FJ) in valve vault
RTU (JM Process Systems)
DIP Fittings (FJ) (Epoxy Lined)
Outside coating for wetwell and vault
Bypass Pumping Material (Cam-Lok Fittings) Link-Seals (for vaults and wetwells)
Retainer glands (Megalug 2100)

Wetwell
Valve Vault
Pressure Sensors
DI Piping (Epoxy Lined)
Epoxy Lining (for pipe and fittings)
Inside coating for wetwell and vault

The materials commented on as listed above are approved for use as utilities that will be owned by the City of West Palm Beach Public Utilities Department. The materials described above shall be in City rights-of-way and or easements dedicated to the City for utilities purposes. The exception to this shall be all materials used from the property line/back of easement through and including all backflow preventers and piping materials. On the sanitary sewer side the Public Utilities Department has the right to approve the clean-outs and grease/oil separators used. If you have any questions please call a Public Utilities Plan Reviewer, at (561) 659-8040 or fax use at (561) 659-8039 for clarification.

Public Utilities Project Coordinator

xc: Engineer:
Project file #:
Construction Coordinator:

- End of Section -





**APPROVED
PRODUCT LIST**

SECTION ONE

PRESSURE PIPE

PRESSURE PIPE STANDARDS ARE TO BE USED FOR:

- 1. Potable water distribution, water transmission mains, large water services and private fire lines. Service areas covered: West Palm Beach, Palm Beach and South Palm Beach.**
- 2. Sanitary force mains and DIP sanitary gravity mains. Service areas covered: West Palm Beach.**
- 3. PLEASE REFER TO THE GENERAL NOTES AND SUBMITTAL GUIDELINES SECTION STARTING ON PAGE 6 PRIOR TO FILLING OUT ANY OF THE SUBMITTAL SHEETS.**



Submittal: **FIRE HYDRANTS**

Applicable Standard Details:

FIRE HYDRANTS APPROVED FOR USE:

Hydrants shall conform to requirements of AWWA Standard C502-94 for Dry Barrel Hydrants or the latest revision, as they pertain to the design, component materials, construction and manufacture except as modified or noted in the City supplementary specifications (a copy of those specifications can be supplied on request). Approved hydrants will be used in areas where the system is dedicated to the Public Utilities Department, as well as on private property.

_____ Clow	American	Mueller
_____ Medallion	B-84-B	Super Centurion 250

HYDRANT COATINGS:

When built to the City of West Palm Beach specifications hydrants will have a shop coat of silver paint applied at the manufacturer. This will guarantee that when the hydrant is inspected on site it is "factory built" to WPB specs. Contractors shall paint the hydrants with the following coatings after installation and prior to acceptance.

Paint for fire hydrant bonnet.

_____ AXON AEROSPACE, INC.: Alert Series Light Reflective Coating. Distributed by J. D. L. INDUSTRIES, INC.

Paint for the barrel section and nozzle caps of the hydrant.

_____ SHERMAN-WILLIAMS: Silver-Brite Aluminum paint. Two numbers on the can are B59-511 and 631-1336

MISCELLANEOUS COLORS:

In some areas the developers have requested different color hydrant paint. The developer must write the Fire Chief of the applicable service area (WPB, PB, SPB) and ask for permission to paint the barrel section any color other than Silver Brite Aluminum. A copy of that approval letter must accompany your submittal. The reflective bonnet paint color can not be changed.

_____ Only other pre-approved color: Forest Green.

List Manufacturer: _____

Attach letter To/From the Fire Chief asking for approval of color to be used),

_____ Other color: _____, Manufacturer:

EOR _____ CONTRACTOR _____ CITY _____



DUCTILE IRON PIPE:

ANSI/AWWA Standard or latest revision. 3, 14 and 18" pipe are considered "odd" sizes and can only be used to tie into existing lines. Use the next size up for the line to be laid. Refer to the guide lines on the next page for coatings and linings. The minimum standards for 3 to 12" pipe, for water and force mains, is a minimum of class 52. 14 to 64" pipe, for water and force mains, is a minimum of class 51. All F. J. Pipe for any usage must be a minimum of Class 53. All sizes, for sanitary gravity mains must be a minimum of class 50 or Pressure Class 350, since direct taps are not to be made on the pipe.

MANUFACTURER:

____ American Clow U.S. Pipe McWane Griffin

CLASS:

____ Class 52, sizes to be used on water mains: _____
____ Class 51, sizes to be used on water mains: _____
____ Class 52, sizes to be used on force mains: _____
____ Class 51, sizes to be used on force mains: _____
____ Class 50, sizes to be used on gravity mains: _____
____ Pressure Class 350, sizes to be used on gravity mains: _____
____ Class 53, sizes to be used for FJ pipe: _____

BELL TYPE:

____ **FLANGE JOINTS:**

Flanges shall be ANSI Standard Class 125, plain faced and drilled, in accordance with ANSI B16.1. Flanges shall be solid with a uniform thickness as shown on Table 15.3 and Figure 15.1 of the ANSI/AWWA C115/A21.15 standard or latest revision.

Attach shop certification letter for flanged pipe on the "shop's" letterhead. Stating the ANSI/AWWA Flange standard, the ANSI/AWWA pipe standard and the ANSI/AWWA lining standard (if for water) or the lining for gravity or force mains.

____ **MECHANICAL JOINT:**

All mechanical joints shall conform to ANSI/AWWA C111/A21.11 standard or latest revision.

____ **SLIP OR PUSH-ON JOINTS:**

All push-on type joints shall conform to ANSI/AWWA C111/A21.11 standard or latest revision. The gasket material shall be SBR type or equal.

EOR _____ CONTRACTOR _____ CITY _____



LININGS AND COATINGS FOR DUCTILE IRON PIPE AND FITTINGS:

WATER MAINS:

INTERIOR:

- Cement mortar lining required, per ANSI/AWWA C104/A21.4 standard or the latest revision.
- Fusion-Bonded Epoxy Coating, per ANSI/AWWA C116/A.21.16

EXTERIOR:

- In ground placement, bituminous asphalt coating required, per ANSI/AWWA C104/A21.4 standard or latest revision.
- Fusion-Bonded Epoxy Coating, per ANSI/AWWA C116/A.21.16

And if required:

- Polyethylene Encasement, per ANSI/AWWA C105/A21.5 standard or latest revision. Encasement shall be 4 mil CL/HDPE.
 Fulton Enterprises
 American Ductile Iron Pipe Company
 U. S. Pipe Company

GRAVITY MAINS, LATERALS (when DIP is required) and FORCE MAINS:

INTERIOR:

- PERMITE
 Permax PCS-9043, Glass Flake Epoxy
- VULCAN PAINTERS, INC.
 Protecto 401, Ceramic Epoxy Lining.

NOTE: When DIP is used in wetwells and air release valve vaults the interior coating will also be applied to the outside of the pipe.

EXTERIOR:

- In ground placement, Bituminous asphalt coating required, per ANSI/AWWA C104/A21.4 standard or latest revision.

And if required:

- Polyethylene Encasement, per ANSI/AWWA C105/A21.5 Standard or latest revision. for in ground placement. Encasement shall be a minimum of 4 mils thick, CL/HDPE.
 Fulton Enterprises
 American Ductile Iron Pipe Company
 U. S. Pipe Company

COATING CERTIFICATIONS:

Certification letter must state the pipe and or fitting manufacturer to be used, the applicable ANSI/AWWA standard, the coating to be used and the thickness of the coating.

- Shop for pipe (attach certification letter after this page)
- Shop for fittings (attach certification letter after this page)

EOR _____ CONTRACTOR _____ CITY _____



FLANGED JOINT RESTRAINT:

Flange Bolts and nuts shall be carbon steel, hex head, ASTM A183, with a Zinc electroplated finish. The flange type gasket material shall be 1/8-inch thick rubber type conforming to ANSI B16.21 and AWWA C-207, unless otherwise specified. For all joint restraint products, apply corrosion resistant coating Mega-bond (or approved equal). Polyester based powder electro-statically applied in two coats and heat cured after each coating for cast body. Xylan flouropolymer coating will be used for wedge assemblies. Applicable for all restraint devices through 24".

- _____ EBAA IRON
Megalug
Series 2100

APPROVED JOINT RESTRAINT FITTINGS:

- _____ UNION FOUNDRY
swivel joint fittings

APPROVED JOINT RESTRAINT FOR PVC:

In some cases there are existing PVC water mains that need to be cut or tied into and restrained back due to the addition of elbows, tees and valves. This section covers the types and approved joint restraint allowed. For all joint restraint products, apply corrosion resistant coating Mega-bond (or approved equal). Polyester based powder electro-statically applied in two coats and heat cured after each coating for cast body. Xylan flouropolymer coating will be used for wedge assemblies. Applicable for all restraint devices through 24".

BELL RESTRAINTS:

- _____ EBAA IRON
Series 1600(4 thru 12")
Series 2800 (14 thru 36")

MISCELLANEOUS MATERIALS:

In some cases there are existing lines and no other way to tie them back other than using clamps, rods and duc lugs. Here is a list of approved materials that can be used, when approved by the City project manager.

TIE RODS AND ACCESSORIES:

- SIGMA PRODUCTS:
 - Duc Lugs (bent eye bolts not allowed):
 - Socket Clamps (with cast iron washers)
 - All thread rod, zinc plated (3/4" only)



Submittal: **VALVES**

Applicable Standard Details:

___ **RESILIENT WEDGE GATE VALVES (RWGV):**

Water main. ANSI/AWWA C509-87 standard or latest revision, Non-rising stems (NRS) with 2" square operating nuts. 4" and larger, 3" valves are not allowed. Smaller than 4" see curb stops. All type of joint ends approved. UL/FM Required on shut-off RSGV for Double Detector check valves application only. See backflow prevention.

AMERICAN	CLOW	KENNEDY	MUELLER	U.S.PIPE
500 Series	F-6100 Series	Ken-Seal	A-2360	
2500 Series		2370 (Super Seal)		

WATEROUS	M & H
Series 500	Style 3067 or 3068

___ **RESILIENT SEAT BUTTERFLY VALVES:**

For use on 14" and larger water mains only. 2" square operating nuts. AWWA 504 standard or latest revision.

AMERICAN	CLOW	Dresser	DEZURIK
1450	5300 Series	14501	BAW
150-B		H Series 450 & 4500	

KENNEDY	MUELLER	PRATT
	Line Seal III	Groundhog

PLUG VALVES:

To be used on force mains only. If a tapping valve is used then a plug valve has to be installed immediately after the tapping valve. The tapping valve will need to be laid on it's side and buried. Plug valve opening must be capable of passing a "cleaning pig", 2" larger than the ID of the pipe.

For force main use only. Not allowed for tapping.

___ PRATT

JOINT TYPES (for all valve types):

___ MJ FJ SJ TF to MJ (Tapping Flange to Mechanical Joint)



The following materials shall be used if the American valve trench adapter will not be used. The valve box, valve lid, debris cap and valve extension must be used together. The UVI tags will be used where the debris cap can not be used.

DEBRIS CAP:

Lockable handle, with ID tag attached to the bottom of the debris cap, tag will be labeled to identify the valve. Each valve will have the following minimum information on the tag, words in parentheses are examples of wording to use, with City code (WPB), valve size (6"), type of valve (RV, BV, PV), type of use (WM, FM), and operation instructions (R-21) right 21 turns to open), plus valve number, if applicable. Words in parentheses are examples of wording to use. All Debris Caps within the system shall have color coded operating handles to the following standard:

- ___ "Yellow" hydrant and private fire line valves
- ___ "Orange" curb stops and valves on water services
- ___ "Blue" potable water main valves
- ___ "Green" sanitary force main valves
- ___ "Red" Any water or sewer valve that is to be normally in the "off" position

___ SW SERVICES: Debris Cap, Model DC-590 or DC-590BC (for top section of valve box), with ID Tag.

___ SW SERVICES: Debris Cap, Model DC-500 (for bottom section of valve box), with ID Tag.

VALVE BOX ALIGNMENT DEVICE (VBAD)

All buried gate valves 4" and larger requiring a valve box shall be furnished with a Valve Box Alignment Device (VBAD). The VBAD will lock under the operating nut of the valve and will center the valve box over the operating nut. The device shall not affect the operation of the valve.

- ___ Box Lok by EMMA Sales LLC
 - 7-1/4" Diameter (Designed to fit inside the bottom of a valve box)
 - Model #1; Only fits US Pipe valves 3 thru 12", AFC 10 & 12", Mueller 12"
 - Model #2; Only fits all Kennedy, Clow, Dresser valves, AFC 4 thru 8, Mueller 4 thru 10".
- ___ 6" Diameter (Designed to fit inside a 6" pipe riser)
 - Model #1; Only fits US Pipe valves 3 thru 12", AFC 10 & 12", Mueller 12"
 - Model #2; Only fits all Kennedy, Clow, Dresser valves, AFC 4 thru 8", Mueller 4 thru 10".
- ___ AFC Valve Box Alignment Ring
 - Fits all sizes and manufacturers of valves.

VALVE BOXES:

Heavy duty, Cast Iron ASTM-A48 Class 30, 2 piece, 5-1/4" opening, flanged base, 18 to 24" adjustable, screw type, valve box, with Locking lid (in paved areas), embossed with "WATER" on the lid for water mains and services.

- ___ Tyler/Union _____ Russell/Russco
461-S 461-S Part # VB261X/60WT
(Russco and Tyler are interchangeable)

VALVE BOX LIDS:

Lid, Cast Iron ASTM-A48, Class 30. Class 30, embossed with "SEWER" on the lid for force mains, embossed with "WATER" on the lid for water mains and services.

- ___ Tyler/Union RUSSCO
Locking lid (in paved areas), Cast Iron ASTM-A48, Class 30, embossed with "SEWER" on the lid for force mains. To be used on Tyler model 461S, 5-1/4", screw type box.
- ___ Russell Pipe
Locking lid (in paved areas), Cast Iron ASTM-A48 Class 30, embossed with "WATER" on the lid for water mains and services.
- ___ Tyler/Union RUSSCO

VALVE EXTENSION STEMS:

To be used on all in ground valves that do not use the American valve trench adapter (valve box). To be bolted to the valve stem, not set over the operating key, when the valve is more than 36" below finished grade.

- ___ MUELLER JOHNSON DAVIS
A-26441



UNDERGROUND VALVE IDENTIFICATION (UVI) TAGS:

To be used when the Tyler style valve box with the Debris Cap are not used, such as with the AMERICAN valve trench adapter. 3" x 1/4", Brass, with 1-1/2" theft proof "J" rod anchor. **Stamped**, 1/4 to 3/8" Capital lettering. Each valve will have the following minimum information on the tag, words in parentheses are examples of wording to use, City code (WPB), valve size (6"), type of valve (RV, BV, PV), type of use (WM, FM), and operation instructions (R-21) right 21 turns to open, plus valve number, if applicable. In unpaved areas the UVI will be placed in the concrete collar around valve boxes. In paved areas the UVI will be epoxied adjacent to the valve box or on a nearby concrete curb face.

____ WAGCO MARKER

VALVE TRENCH ADAPTERS:

The American Flow Control trench adapter is to be used on ALL in ground valves. It is required that the optional Cast Iron Lid be used and that the valve have embossed on the lid "WATER" for all water applications and "SEWER" for all force main applications. The UVI tags specifications will also need to be used with the trench adapter.

____ AMERICAN FLOW CONTROL
Model # 1 ,2, 3, 4, 5, 6, 7

The following information is supplied to help the supplier to pick the proper model number of the American Flow Control trench adapter. American used the measurements for a trench adapter resting on 7 different sized American Flow Control RW valves. The supplier will need to compare the valve manufacturer used (if not American) with the American valve to figure out the differences in height of Dimension "B" (TABLE 2 on the following page), which is the depth from the trench bottom to where the trench adapter will rest on the valve bonnet.

EXAMPLE:

If you are using a Mueller 6" valve and Dimension "B" is 14.25 and you were going to have 6' of bury from the bottom of the trench then you would add 14.25" to 72" which would give you 86.25" of bury. So you would need to use a Model # 7 to have the ability to adjust the box.

TABLE 1 on this page is based on the valve size and the trench depth. It then refers to the model number to use. If you wish you can use TABLE 3 to figure the minimum length of a trench adapter and your dimension "B" to figure the length of the model to use.

If the minimum length of the No. 1 Valve Trench Adapter is too great or the No. 7 extended out as far as it will go is not long enough then, revert to using the valve boxes, debris caps and valve stem extension listed after this section.

EXAMPLE:

If you are installing a 16" American Flow Control Valve and the depth of bury is 36" then the OD of the pipe (17.5) would place the trench depth at 53.5". Dimension "B" for a 16" valve is 41", so the remaining distance is 12.5" and a valve trench adapter would not be usable, since the minimum length for a #1 is 18.25".



VALVE SIZE	TRENCH DEPTH AND TRENCH ADAPTER MODEL NUMBER (dimension "B")										
	3'0"	3'6"	4'0"	4'6"	5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"
4"	3	4	4-5	5	5-6	6	6	6	6	7	7
6"	2	3	4	4-5	5	5-6	6	6	6	6	7
8"	-	2	3-4	4	5	5	6	6	6	6	6
10"	-	1	2	3-4	4	5	5	6	6	6	6
12"	-	-	1	3	3-4	4-5	5	5	6	6	6
14"	-	-	-	-	-	3	4	5	5	5	6
16"	-	-	-	-	-	-	3-4	4	5	5	6

TABLE 1 (part 1)

VALVE SIZE	TRENCH DEPTH AND TRENCH ADAPTER MODEL NUMBER									
	8'6"	9'0"	9'6"	10'0"	10'6"	11'0"	11'6"	12'0"	12'6"	13'0"
4"	7	7	7	7	7	7	-	-	-	-
6"	7	7	7	7	7	7	7	-	-	-
8"	7	7	7	7	7	7	7	7	-	-
10"	7	7	7	7	7	7	7	7	7	-
12"	6	7	7	7	7	7	7	7	7	7
14"	6	6	6	7	7	7	7	7	7	7
16"	6	6	6	7	7	7	7	7	7	7

TABLE 1 (part 2)

VALVE SIZE	DIMENSION "B"
4"	9.25"
6"	13.50"
8"	18.25"
10"	23.00"
12"	27.50"
14"	36.50"
16"	41.00"

TABLE 2

MODEL NUMBER	MINIMUM LENGTH	MAXIMUM EXTENSION
# 1	18.25	20.25
# 2	22.25	28.25
# 3	24.75	32.50
# 4	29.75	40.50
# 5	37.75	56.50
# 6	49.75	80.50
# 7	73.75	128.50

TABLE 3



CORPORATIONS FOR BLOW-OFFS:

When the corporation is to be screwed into a cast iron plug or cap then the corporation must meet these specifications, 2" Male, Iron pipe thread (for tap side) by 2" female or male, iron pipe thread for tie-in to blow-off. (it is suggested using a male thread otherwise a nipple (brass) will be required between the corporation and the permanent blow-off).

	FORD	MUELLER	MACDONALD
Female	FB1700-7, or 3149B, or	B-20046, or H-15015, or	
Male	FB500-7	H-9969	3131B

BRASS NIPPLES:

___ For connections from corporation to blow-off must be 2" iron pipe thread by 6" long brass nipples.

BLOW-OFFS: Prefabricated

___ Model VB2000B, The hydrant Plus for meter box installation, as manufactured by Water Plus Corporation. Due to dead-end streets where water mains cannot be looped, the following automatic flush type blow-offs are to be used at all dead-ends.

- ___ Hydro-Guard Standard Unit or:
- ___ Hydro-Guard Vacuum Breaker DDU (Direct Discharge Unit).

METER BOX:

___ Meter box as outlined in the 1" Water Services Submittal Package on page 30.



TAPPING SLEEVES:

_____ **DUCTILE IRON** Allowed for 4" and larger size taps, can be used on DIP, CIP, ACP and PVC. Water and or force main use. Ductile iron with mechanical joints. List sizes to be used: _____.

AMERICAN	CLOW	MUELLER	U.S. PIPE
2800	F-5200 Series	H-615	Type 9
1004		H-616	

_____ **STAINLESS STEEL:** Allowable only when tapped line is more than twice as large as tapping diameter (i.e., 12 x 4 is allowable, a 12 x 6 is not allowed). Water and or force main use. All 304 stainless steel (SS), with 304 SS hardware for water or force main taps. Can be used on DIP, CIP, AC, PVC. List sizes to be used: _____.

JCM	MUELLER	SMITH BLAIR	ROMAC	FORD	CASCADE
	H304	(Rockwell)	419	FAST	CST-ST
			622	SST	FTSS

The following materials are to be used when an existing PVC or Transite water or force main is encountered and a sample point, air release or test tap needs to be installed.

SERVICE SADDLES:

All saddles (all sizes) shall be of water works brass. All straps shall be either double stainless steel or single wide stainless steel strap with two bolts on each side of the strap. Usage, size and tapping thread for the corporation to be attached to the saddle shall be as follows:

- A. Water Services: Only 1" and 1-1/2"x 2" AWWA tapping thread are allowed.
- B. Sample Point/Vent pipe (temporary): 3/4" or 1" AWWA tapping thread
- C. Terminal Blow-offs: 2" Iron pipe tapping thread
- D. Air Releases: 1-1/2"x 2" AWWA tapping thread

List the following with each saddle to be used:

- A. Size of pipe to be tapped _____",
- B. Type of pipe to be tapped _____,
- C. Size of tap to be made _____",
- D. Usage _____ (See A through D above).

_____ FORD
 202BS Double Band Brass Saddles

_____ MUELLER
 BR 2 S Series, Double Strap Design



Submittal: EOR _____ CONTRACTOR _____ CITY _____
CASING MATERIAL: Applicable Standard Details:

CASING SPACERS:

Install casing spacers four feet on both sides of each carrier pipe joints. All bolts, nuts, and washers to be attach to spacer sections shall be cadmium plated or stainless steel. All casing spacers larger than 36-inch shall be factory designed, taking into consideration the weight of the carrier pipe filled with water. Wooden skids are not acceptable as an alternative.

- | | |
|---|--|
| _____ GREATER THAN 24" CARRIER PIPE: | _____ 24" OR SMALLER CARRIER PIPE: |
| _____ Pipeline Seal and Insulators, Inc | _____ Pipeline Seal and Insulators, Inc. |
| A8G-2 | Ranger Model |
| C8G-2 | |
| A12G-2 | |
| C12G-2 | |
| _____ APS - Advance Products Systems | |
| Cascade CST-SL | |
| PSI - Pipeline Seal | |
| Romac Series □55T" | |
| Ford | |

END SEALS:

shall be used to completely close both openings of all Jack and bore crossings. These seals shall be no less than 1/8" thick and made of specially compounded synthetic rubber.

- _____ Model "C" as manufactured by PSI
 - _____ Model "W" as manufactured by PSI
- or
- _____ LINK-SEAL, Stainless steel 316 bolts, washers and nuts.



Submittal: EOR _____ CONTRACTOR _____ CITY _____
AIR RELEASES: Applicable Standard Details:

General: ARV's should be painted blue (potable water) green (force main) for ease of identification. First choice for ARV will be the 927, then the smaller 929 if the pipe is too close to the surface. The connection on all ARV's shall be a 2-inch threaded connection (unless called out). Air releases shall be installed every 1,500' and at every dip in the line.

On force mains the air release will be with the flow, before the dip. The same will be true on water systems where it is known which direction the normal flow will be in. Otherwise water air releases will be placed on one or the other side of a dip or on a rise. ARV's must be supplied with all back-flush valves, which must use stainless steel nipples and ball valves.

Canal Crossings: ARV's should be painted blue (potable water) green (force main) for ease of identification.

_____ GA 927 GA 929
SIZE: _____ 2" Thread, For special uses to be called out on the plans _____ 4" Flanged

CORPORATIONS FOR AIR RELEASES:

The corporation is to be tapped directly into the main. AWWA tapping thread by male or female iron pipe thread (it is suggested using a male thread otherwise a nipple (SS) will be required between the corporation and the ball valve increasing the height of the top of the air release).

SIZES: _____ 1" _____ 1-1/2 x 2"
THREAD TYPE: _____ Female _____ Male
_____ FORD MUELLER MACDONALD

AIR RELEASE MANHOLE RING AND COVER:

Heavy duty, traffic rated, large manhole rings with double covers. The cover must have the offset inner access lid. Ordering information must include: "WEST PALM BEACH" embossed in the lid. If it is a privately owned sewer system then leave out "WEST PALM BEACH". If the air release is on a force main then it should come with "SANITARY" embossed on the lid, if it is on an air release for a water main then it should come with "WATER" embossed on the lid. Manhole lid style "D" must be used in sidewalk areas (non-skid, pedestrian traffic design). Manhole lid style "G" must be used in traffic areas and grass medians.

_____ USF 690-AH-M. 10" high casting with a base of 62", large lid is 50-7/8" wide. 105 lbs. Access lid weight, 760 lbs. Main lid weight, 700 lbs. Ring weight.

BALL VALVES:

_____ Nebco

NIPPLES:

2" NPT stainless steel. 3 or 4" in length.



Submittal: EOR _____ CONTRACTOR _____ CITY _____
AIR RELEASES: Applicable Standard Details:

WATER AND FORCE MAIN AIR RELEASE MANHOLES COATINGS AND LININGS:

To be applied per manufacturers specifications and by a certified applicator (Supply letter of certification).

FORCE MAIN ARV MANHOLES:

To be applied per manufacturers specifications and by a certified applicator (Supply letter of certification).

INTERIORS:

SPRAY OR BUSH APPLIED (by certified applicator)

- _____ MADEWELL: Mainstay ML72 sprayable micro silica cement mortar base, with DS-5 epoxy lining coat.
- _____ CHEM REX: ThoRoc Sewer Guard SP15 sprayed mortar base, with HBS100 epoxy lining coat.
- _____ LAFARGE ALUMINATES: SewperCoat PG (new and rehabbed manholes)
- _____ FLOWRITE FIBERGLASS LINING SYSTEMS (for rehabilitation of manholes)
- _____ SPECTRAGUARD by SPECTRUM (new and rehabbed manholes)

FACTORY APPLIED (joints sealed in the field by a certified applicator)

- U. S. PRECAST/AGRU: Studded polypropylene welded liner fabric. Must be applied by a certified pre-caster.
- U. S. PRECAST/AGRU: Studded HDPE welded liner fabric. Must be applied by a certified pre-caster.
- T-LOCK: Polyethylene or polybutylene welded fabric. Must be applied by a certified pre-caster.

EXTERIOR:

- _____ KOPPERS: 300M
- _____ MAB: Ply-Tile Epoxy Tar Coating for exterior coating of manholes.

WATER MAIN ARV MANHOLES:

INTERIOR AND EXTERIOR:

- _____ KOPPERS: 300M
- _____ MAB: Ply-Tile Epoxy Tar Coating for exterior coating of manholes.

EOR _____ CONTRACTOR _____ CITY _____





**APPROVED
PRODUCT LIST**

SECTION TWO

WATER SERVICES

WATER SERVICES STANDARDS ARE TO BE USED FOR:

- 1. Potable water distribution services and private fire lines. Service areas covered: West Palm Beach, Palm Beach and South Palm Beach.**
- 2. If DIP pipe and or fittings are required, review and use the appropriate pages in Section One "Pressure Pipe" submittal package for materials.**
- 3. PLEASE REFER TO THE GENERAL NOTES AND SUBMITTAL GUIDELINES SECTION STARTING ON PAGE 6 PRIOR TO FILLING OUT ANY OF THE SUBMITTAL SHEETS.**



Submittal: **TAPPING SADDLES**

Applicable Standard Details:

The following materials are to be used when an existing PVC or Transite water main are encountered and a service, sample point, air release or test tap needs to be installed.

SERVICE SADDLES:

All saddles (all sizes) shall be of water works brass. All straps shall be either double strap brass with two bolts on each side of the strap. Usage, size and tapping thread for the corporation to be attached to the saddle shall be as follows:

- A. Water Services: Only 1" and 1-1/2"x 2" AWWA tapping thread are allowed.
- B. Sample Point/Vent pipe (temporary): 3/4" or 1" AWWA tapping thread
- C. Terminal Blow-offs: 2" Iron pipe tapping thread
- D. Air Releases: 1-1/2"x 2" AWWA tapping thread

List the following with each saddle to be used:

- A. Size of pipe to be tapped _____",
- B. Type of pipe to be tapped _____,
- C. Size of tap to be made _____",
- D. Usage _____ (See A through D above).

____ FORD
202BS Double Band Brass Saddles
____ MUELLER
BR 2 S Series, Double Strap Design

- End of Section -

EOR _____ CONTRACTOR _____ CITY _____



The following material is required for all 1" services. The brass fittings listed in these specifications must meet 85-5-5-5 ASTM B62 Cast Brass Specs. Use NPT by copper tubing compression fittings, such as; Pack Joint, 110, Mac-Pak or "T" compression. If polyethylene pipe is used then stainless steel stiffeners are required.

METER BOXES:

All lids will have a non-skid surface, the metal hinged meter readers lid will be self closing and the lids will have the hole drilled for touch read meters. All boxes and lids will be H-20 traffic rated. All boxes will come with mouse holes and be of the flared design, except Okie Dokie. All lids will have a blank mushroom screwed into the hole drilled for the touch read module. The mushroom shall be as manufactured by Sensus Technologies, Inc. Use TR/PL Housing Item No. 45 with Sensor Button (blank) Item No. 53907152-39004.

	TYPE	CDR No.	ADVANCE No.	OKIE DOAKIE
_____	Box	LWB10-1118-12	WFB111812TC21	OKDK12
_____	Lid	WC10-1118-2	WPA111812WMCLR1	OKDK-2RT
_____	Mushroom			

PIPE:

Only continuous lengths will be allowed, no joints are allowed in the services, except at the corporation and angle stop.

Poly Pipe is only to be used in lieu of copper when permission is granted by the Director of Engineering.

1" Copper tubing, ASTM B88, and WWT-799, type "K", soft or hard drawn, rolls or 20' straight lengths; or

1" CTS polyethylene as manufactured by Endot Industries.

_____ Endotrace, CTS, polyethylene, with attached tracing wire

_____ MUELLER INDUSTRIES, INC.
 CERRO

ANGLE VALVES (plug or ball style):

1" compression by 1" meter coupling, locking style, quarter turn.

	FORD	MUELLER	MCDONALD
_____	KV43-444W	H14258	4602BT or 4602T
	BA43-444W	or B-24258	4602B-22 or 4602-22

METER BUSHING:

1" meter size (male IPT) reducer to 3/4" meter size (female IPT) to be used on 1" angle valves to set 5/8 x 3/4 and 3/4" meters.

	FORD	MUELLER	MCDONALD
_____	34 or 12M	H-10889	4134-239

METER COUPLING: (consumers side): 3/4" or 1".

	SIZE	FORD	MUELLER	MCDONALD
_____	3/4"	C38-23-2.5	H-14223	4624
_____	1"	C38-44-2.625		

CORPORATIONS:

1" AWWA tapping thread by 1" compression coupling

	FORD	MUELLER	MCDONALD
_____	# FB1000-4	# B-25008	4701-22, 4701T, 4701B-22 or 4701BT

- End Section -

EOR _____ CONTRACTOR _____ CITY _____



The following material is required for all 2" services. The brass fittings listed in these specifications must meet 85-5-5-5 ASTM B62 Cast Brass Specs. Use NPT by copper tubing compression fittings, such as; Pack Joint, 110, Mac-Pak or "T" compression. If polyethylene pipe is used then stainless steel stiffeners are required.

METER BOXES:

All lids will have a non-skid surface, the metal hinged meter readers lid will be self closing and the lids will have the hole drilled for touch read meters. All boxes and lids will be H-20 traffic rated. All boxes will come with mouse holes and be of the flared design, except Okie Dokie. All lids will have a blank mushroom screwed into the hole drilled for the touch read module. The mushroom shall be as manufactured by Sensus Technologies, Inc. Use TR/PL Housing Item No. 45 with Sensor Button (blank) Item No. 53907152-39004.

	TYPE	CDR No.	ADVANCE No.	OKIE DOKIE
_____	Box	WB10-1730-12	WFB173012C21	OKDK15
_____	Lid	#WC10-1730-2C	WPA173012WMCLR1	OKDK-5RT
_____	Mushroom			

PIPE:

Only continuous lengths will be allowed, no joints are allowed in the services, except at the corporation and angle stop. **Poly Pipe is only to be used in lieu of copper when permission is granted by the Director of Engineering.** 2" Copper tubing, ASTM B88, and WWT-799, type "K", soft or hard drawn, rolls or 20' straight lengths; or 2" CTS, polyethylene as manufactured by Endot Industries.

_____ Endotrace, CTS, polyethylene, with attached tracing wire
 _____ MUELLER INDUSTRIES, INC. _____ CERRO

ANGLE VALVES (plug or ball style):

2" compression by 1 - 1/2 & 2" meter flange coupling, locking style, quarter turn to open.
 _____ FORD MUELLER MCDONALD
 FV43-777W H14277 46 02B22
 BFA43-777W

METER COUPLING (consumers side):

Two sizes of couplings are listed. The first size is to come out of the back of a 1-1/2" meter, and the other is to come out the back of a 2" meter. Two types of couplings are specified. The first is a meter flange to compression coupling iron pipe size, the second is meter flange to compression coupling copper tubing size.

SIZE	FORD	MUELLER	MCDONALD
_____ 1-1/2" x IP Size	CF35-66		
_____ 1-1/2" x CT Size	CF34-66		
_____ 2" x IP Size	CF35-77		
_____ 2" x CT Size	CF34-77		

CORPORATIONS:

1-1/2" AWWA tapping thread by 2" compression coupling.
 _____ FORD MUELLER MCDONALD

_____ FB1000-67 * H-15014 * 3128B

* _____ Must use 2" female by compression fitting FORD 5-77 or MCDONALD 4754-22

* _____ 1-1/2 by 2" Brass Bushing, FORD C18-67 or MCDONALD 3126-626

- End of Section -

EOR _____ CONTRACTOR _____ CITY _____



The following material is required for all dual services. The City of West Palm Beach specifies two sizes for its dual water services, 1" copper tubing for short services, and 2" for longer services. Dual services can not have more than 2 - 3/4" meters on the one 1" service. The brass fittings listed in these specifications must meet 85-5-5-5 ASTM B62 Cast Brass Specs. If additional meters or a longer service is required use the additional material listed in the submittal entitled "Extended and Multiple Services. Use NPT by copper tubing compression fittings, such as; Pack Joint, 110,Mac-Pak or "T" compression. If polyethylene pipe is used then stainless steel stiffeners are required.

METER BOXES:

All lids will have a non-skid surface, the metal hinged meter readers lid will be self closing and the lids will have the hole drilled for touch read meters. All boxes and lids will be H-20 traffic rated. All boxes will come with mouse holes and be of the flared design, except Okie Dokie. All lids will have a blank mushroom screwed into the hole drilled for the touch read module. The mushroom shall be as manufactured by Sensus Technologies, Inc. Use TR/PL Housing Item No. 45 with Sensor Button (blank) Item No. 53907152-39004.

	TYPE	CDR No.	ADVANCED No.	OKIE DOKIE
___	Box	WB10-1517-12	WPA151712CLR1	OKDK13
___	Lid	WC10-1517-2CU	WFB151712C21	OKDK-3RT ?
___	Mushroom			

PIPE:

Only continuous lengths will be allowed, no joints are allowed in the services , except at the corporation and angle stop.

Poly Pipe is only to be used in lieu of copper when permission is granted by the Director of Engineering.

1" Copper tubing, ASTM B88, and WWT-799, type "K", soft or hard drawn, rolls or 20' straight lengths; or 1" CTS, polyethylene as manufactured by Endot Industries.

- ___ Endotrace, CTS, polyethylene, with attached tracing wire
- ___ MUELLER INDUSTRIES, INC. or ___ CERRO

ANGLE VALVES (plug or ball style):

1" female by 1" meter coupling, locking style, quarter turn (for dual services only).

- ___ FORD, KV13-444W (Ford "U" branch comes with angle valves)
- ___ MUELLER, # H-14285 or B-24265, To be used with the "U" branches listed below
- ___ MCDONALD, # 4604, or 4644B, To be used with the "U" branches listed below

"U" BRANCHES:

1-1/2" female iron pipe thread by 2 - 1" male iron pipe threads by 7.5" separation between angle valves.

- ___ FORD, # UV43-62W (1-1/2" by 3/4" for the long side)
- ___ FORD, # UV43-42W (1" by 3/4" for the short side)
- ___ MUELLER, _____, Need to supply angle valves with "U" branch (see above)
- ___ MCDONALD, _____, Need to supply angle valves with "U" branch (see above)

2" compression by 1-1/2" male iron pipe thread

METER COUPLING (consumers side): 3/4 by 3/4"

- ___ FORD # C38-23-2.5
- ___ MUELLER # H-10890
- ___ MCDONALD, # 4620 or 4621

CORPORATIONS:

1-1/2"AWWA tapping thread by 2" compression coupling.

- ___ FORD FB1000-67
- ___ MUELLER * H-15014
- ___ MCDONALD * 3128B

* Must use 2" female by compression fitting and ___ FORD C15-77 MCDONALD 4754-22

1-1/2 by 2" Brass Bushing ___ FORD C18-67 MCDONALD 3126-626
 EOR _____ CONTRACTOR _____ CITY _____

- End of Section -



The City of West Palm Beach specifies a 2" water service for multiple services (for 3 or 4 - 5/8, 3/4 or 1" meters) or long runs for 1" single services. The next two pages will pertain only to the additional materials needed that are not listed under the submittal's for 1", 2" or Dual Services. Select the required materials from those lists and the additional materials listed in these submittals. The brass fittings listed in these specifications must meet 85-5-5-5 ASTM B62 Cast Brass Specs. Use NPT by copper tubing compression fittings, such as; Pack Joint, 110,Mac-Pak or or "T" compression.

If a 2" meter needs to be on an extended service or multiple service then a minimum of 4" D.I.P. will need to be used. Review and select material listed in the "Pressure Pipe Submittal Package" for the material needed..

It is the Engineer Of Record's (EOR) responsibility to size the service piping to hydraulically handle flows from the main through the meter(s), backflow preventer(s) and on to the house or business.

CURB STOPS:

2" compression by 2" female IPT. To be placed on the end of an extended service.

_____	FORD	MUELLER	MCDONALD
_____	B41-777	B-25170	6106-22

VALVE BOXES:

Heavy duty, Cast Iron ASTM-A48 Class 30, 2 piece, 5-1/4" opening, flanged base, 18 to 24" adjustable, screw type, valve box, with Locking lid (in paved areas), Russco is interchangeable w/Tyler.

_____	Tyler/Union	_____	Russell/Russco
_____	461-S	_____	461-S Part # VB261X/60WT

VALVE BOX LIDS:

Lid, Cast Iron ASTM-A48, Class 30. Class 30, embossed with "SEWER" on the lid for force mains, embossed with "WATER" on the lid for water mains and services.

_____ Tyler/Union RUSSCO

Locking lid (in paved areas), Cast Iron ASTM-A48, Class 30, embossed with "SEWER" on the lid for force mains. To be used on Tyler model 461S, 5-1/4", screw type box.

_____ Russell Pipe

Locking lid (in paved areas), Cast Iron ASTM-A48 Class 30, embossed with "WATER" on the lid for water mains and services.

_____ Tyler/Union RUSSCO

EOR _____ CONTRACTOR _____ CITY _____



UNDERGROUND VALVE IDENTIFICATION (UVI) TAGS:

To be used when the Tyler style valve box with the Debris Cap are not used, such as with the AMERICAN valve trench adapter. 3" x 1/4", Brass, with 1-1/2" theft proof "J" rod anchor. **Stamped**, 1/4 to 3/8" Capital lettering. Each valve will have the following minimum information on the tag, words in parentheses are examples of wording to use, City code (WPB), valve size (6"), type of valve (RV, BV, PV), type of use (WM, FM), and operation instructions (R-21) right 21 turns to open, plus valve number, if applicable. In unpaved areas the UVI will be placed in the concrete collar around valve boxes. In paved areas the UVI will be epoxied adjacent to the valve box or on a nearby concrete curb face .

____ WAGCO MARKER

DEBRIS CAP:

Lockable handle, with ID tag attached to the bottom of the debris cap, tag will be labeled to identify the valve. Each valve will have the following minimum information on the tag, words in parentheses are examples of wording to use, with City code (WPB), valve size (6"), type of valve (RV, BV, PV), type of use (WM, FM), and operation instructions (R-21) right 21 turns to open, plus valve number, if applicable. Words in parentheses are examples of wording to use. All Debris Caps within the system shall have color coded operating handles to the following standard:

- ____ "Orange" curb stops and valves on water services
- ____ SW SERVICES: Debris Cap, Model DC-590 or DC-590BC (for top section of valve box), with ID Tag.
- ____ SW SERVICES: Debris Cap, Model DC-500 (for bottom section of valve box), with ID Tag.

BRASS BUSHING:

2" male IPT by 1" female IPT solid brass bushing. To be placed on the end of the curb stop for an extended 1" or Dual service. Use 2 bushings in the tee listed below for two one inch or dual services. See the 2 by 1" - "Y" fitting which can be used in lieu of the 2" tee, brass bushing and compression fittings.

____ LEE BRASS

BRASS TEE:

2 male IPT. To be placed on the end of the extended service for a multiple service connection. See the 2 by 1" - "Y" fitting to be used in lieu of the tee, brass bushing and compression fittings.

____ LEE BRASS

BRASS FITTINGS:

1 compression by 1" female IPT to be placed in the bushings on the run of the tee for multiple services. See the 2 by 1" - "Y" fitting to be used in lieu of the tee, brass bushing and compression fittings.

____ FORD MUELLER MCDONALD
C84, 1"

2" male IPT by 2" Female IPT
FORD MUELLER MCDONALD
FB1700-7

BRASS NIPPLE:

2" threaded by 6" long solid brass nipple. To be placed between the curb stop and tee for multiple services.

____ LEE BRASS FORD

BRASS "Y" BRANCH:

2" by 1" compression double ended "Y" branch fitting. Placed on end of curb stop to multiple services. Use in lieu of the tee, brass bushing and compression fittings.

____ FORD MUELLER
Y441-774
Y44-274

- End of Section -

EOR _____ CONTRACTOR _____ CITY _____



Sometimes a variety of "parts" are needed to install services that are not listed in the normal submittal sheets for the previously listed service submittal sheets. Below is a list of items that are approved:

When there is not enough room to bend 1 or 2" soft annealed Type "K" copper enough to make a 90 degree bend and a compression by compression, a brass bend is required:

_____	SIZE	FORD	MUELLER
	1"	L44-77	H15526
	2"	L44-44	H15526

If the Engineer of Record (EOR) requires a larger service be installed, but with a smaller meter. The City allows the following materials to be used to go from a 2" meter flange to a 1" or smaller meter:

1 - 2" flange to 2" threaded adapter

_____	FORD
	CF31-77

With 1 - 2" to 1" Brass bushing

_____	FORD
	C18-47

- End of Section -

EOR _____ CONTRACTOR _____ CITY _____



GENERAL REQUIREMENTS:

1. See the standard detail sheet for the location of the material for a large meter installation and the corresponding "item" codes listed below in item No. 7. Review Section One "Pressure Pipe" for the approved material requirements for water mains and make your selections from that list and submit those applicable sheets. Remember each meter installation will have it's own character and may call for additional material.
2. Backflow preventers are required behind the meter so the pipe is not required to be offset back down to the proper laying depth until after the backflow preventer installation.
3. The material list pertains to a meter that will be set on a new or existing stub. Materials for each individual service will call for additional materials, refer to the plan design. The itemized list of material used for the water service will not include the following; tapping valve and sleeve, material for the backflow preventer riser after the meter installation, and material to go from a larger direct tap for fire flow to tee off to the water service.
4. Location and piping for the meter may be rotated to fit the available parkway, sidewalk and/or easement space.
5. A single tapping valve and sleeve may be made on a City water main for both the private fire line and metered service. A tee can be installed in the line after the tapping valve and sleeve for the metered service. If this is the way it is to be installed, then separate valves will need to be installed after the tee to operate the fire line and metered line separately. The tapping valve and sleeve will need to be sized for the larger of the two services (6" private fire line and 4" water service would call for a 6" minimum tap).
6. The following is an itemization of minimum amount and type of materials specifically detailed for a three inch meter. For a 4", 6 or 8" meter delete item "E" and change all other items to the meter size. For a more thorough list of the specifications for the material refer to Section One "PRESSURE PIPE".

The contractor may choose to use F. J. Instead of M. J. Fittings on the meter assembly, but not in the roadway. The tapping valve, and first elbow (item "G") to bring the service to the proper bury depth must be M. J.

ITEM "A", VALVES:

2 required, 4", Resilient Wedge, M. J., 2" square operating nut. To be installed in line with the meter, on each side and as close as the pipe and fittings will allow. If one will fit in the meter box, usually the one after the meter then delete one each of the valve boxes and debris caps.

VALVE BOXES:

2 required on the valves listed above.

VALVE BOX LIDS:

2 required on the valve boxes listed above.

DEBRIS CAP:

2 required in the valve boxes listed above. All Debris Caps within the system shall have color coded operating handles to the following standard; "Orange" for curb stops and valves on water services.

VALVE EXTENSION STEMS:

To be used on all in ground valves that do not use the American valve trench adapter (valve box).

UDERGROUND VALVE IDENTIFICATION (UVI) TAGS:

To be used when the Tyler style valve box with the Debris Cap are not used, such as with the AMERICAN valve trench adapter, or if the valve is inside the box.

ITEM "B", FLANGE ADAPTERS:

2 required, 3", Megalug series 2100 flange to P.E. pipe (restrained). One on each side of the meter/strainer/test port.

ITEM "C", METER: (1- required, supplied by the City, call for length)

"C-1" a length of pipe 5 times the diameter of the pipe before the strainer/meter and

"C-2" a length of pipe 3 times the diameter of the pipe after the meter.

EOR _____ CONTRACTOR _____ CITY _____



ITEM "D", STRAINER:

(1 required)

As manufactured by Badger Meter, flanged, NSF 61 Envirobrass II housing, stainless steel strainer with twice the flow capacity as the meter, stainless steel bolts and nuts. Does not take the place of the straight pipe (C-1). Not required when the meter comes supplied with a built in strainer (Fire Flow Meter).

ITEM "E", REDUCERS:

2 required, 4 by 3", P. E. on the 4" end is allowed to save on the amount of Megalugs and pipe to be used. The reducers can not be used in lieu of the straight pipe listed under item "C".

ITEM "F", METER VAULTS: (1 to 2 required)

Vaults for 3 and 4" compound meters will be 48" wide and 48" long and 18" deep. All lids will have the metal, hinged, meter readers lid within the heavy duty, hot dipped galvanized, steel, traffic rated lid (2-piece). 4" Fire flow and larger meters will call for a minimum of a 48" wide and 72" vault with a three piece lid. The hinged meter reader's lid will be centered over the meter dial. All boxes and lids will be H-20 traffic rated. Due to the size of the services the bypass (see item "H") may need to be installed in a separate 48 by 48" vault.

All lids will have a blank mushroom screwed into the hole drilled for the touch read module. The mushroom shall be as manufactured by Sensus Technologies, Inc. Use TR/PL Housing Item No. 45 with Sensor Button (blank) Item No. 53907152-39004.

- _____ US Precast Brooks
- _____ #5-5.0 #744
- _____ Mushroom

ITEM "G", MECHANICAL OFFSET:

The service at the meter is to be offset higher than the depth of the road crossing. To bring up the service to the proper grade (14" of cover) use one group of the following:

1, M. J., 18" Offset, 2 - M. J. 45 degree bends, cement mortar lined, 2, M. J. 90 degree bends, Backflow preventer(s) are required behind the meter so the pipe is not required to be offset back down to the proper laying depth until after the backflow preventer installation.

ITEM "H", BY-PASS:

Bypass piping around meter to allow meter to be tested, repaired or replaced. Bypass piping to be same size as metered service piping (4, 6, or 8").

2 - 4", Resilient Wedge Gate Valves, F. J., with wheel handles

2 - 4", Megalug series 2100, flange to P.E. pipe (restrained). One on each side of the two valves.

2-4", M. J., tees, cement mortar lined. One on the outside of each of item # A.

1-4" x 2" , F. J. By threaded tee or 4 x 4 tee with a tapped plate, to be installed between the F. J. valves, with the 2" threaded "branch" looking straight up.

with,

1-2 x 6" brass nipple threaded into the tee to,

1- 2" locking style curb cock,

2 - 4" M. J. 90 degree bends,

ITEM "I", TEST PORT:

Flanged tee is to be bolted to the back of the meter and may be used as part of "C-2".

1-3" Flanged tee with 2" threaded branch.

1-2" by 3" brass nipple.

1-2" Stainless steel ball valve or curb stop with handle.

EOR _____ CONTRACTOR _____ CITY _____



ITEM "J", MISCELLANEOUS ITEMS:

- 16-4" Megalug series 1100 restrainer glands for M. J. fittings (minimum).
- 2-3" Megalug series 1100 restrainer glands for M. J. fittings (minimum).
- 3",DIP, class 52, cement mortar lined. List Manufacturer:
- 4", DIP, class 52, cement mortar lined. List Manufacturer:
- 3",DIP, class 53, FJ, cement mortar lined. List Pipe Manufacturer and Company installing the flanges (attach certification letter from shop):
- 4", DIP, class 53, FJ, cement mortar lined. List Pipe Manufacturer and Company installing the flanges (attach Certification letter from shop):
- 2 – 4" Megalug series 2100 may be used in lieu of the flanged pipe.

- End of Section -

EOR _____ CONTRACTOR _____ CITY _____



GENERAL REQUIREMENTS:

1. Review Section One "Pressure Pipe" for the approved material requirements for water mains and make your selections from that list and submit those applicable sheets. Remember each Private Fire Line (PFL) installation will have it's own character and may call for additional material.
2. Backflow preventers are required at the property line.
3. The material list pertains to a new tap for a private fire line (PFL). Information and materials for each individual case will call for additional materials, refer to the plan design for this material. The itemized list of material used for the private fire line will not include the material for the backflow preventer riser after the property line.
4. A single tapping valve and sleeve may be made on a City water main for both the PFL and the metered service. A tee can be installed in the line after the tapping valve and sleeve for the metered service. If this is the way it is installed, then separate valves will need to be installed after the tee to operate the fire line and metered line separately. The tapping valve and sleeve will need to be sized for the larger of the two services (6" private fire line 4" water service would call for a 6" minimum tap). This material is listed separately under "DUAL SERVICE MATERIAL"
5. There is no standard detail sheet for a Private Fire Line. A breakdown of the minimum required material for a private fire line installation are listed below. Remember each PFL installation will have it's own character and may call for additional material.
6. The following is an itemization of minimum amount and type of materials specifically detailed for a four inch fire line, which is the smallest fire line tap made. For a 6, 8 or 10" PFL change all items need to be changed to the size required. For a 3" PFL add the items under "D". See a two inch water service and an extended water service for the materials used for a 2" PFL.

ITEM "A", VALVES:

2 required, 4", Resilient Wedge, M. J., 2" square operating nut. To be installed in line with the meter, on each side and as close as the pipe and fittings will allow. If one will fit in the meter box, usually the one after the meter then delete one each of the valve boxes and debris caps.

VALVE BOXES:

2 required on the valves listed above.

VALVE BOX LIDS:

2 required on the valve boxes listed above.

DEBRIS CAP:

2-required in the valve boxes listed above. All Debris Caps within the system shall have color coded operating handles to the following standard; "Yellow" for curb stops and valves on water services.

VALVE EXTENSION STEMS:

To be used on all in ground valves that do not use the American valve trench adapter (valve box).

UNDERGROUND VALVE IDENTIFICATION (UVI) TAGS:

To be used when the Tyler style valve box with the Debris Cap are not used, such as with the AMERICAN valve trench adapter, or if the valve is inside the box.

ITEM "B", TAPPING SLEEVE:

1-required, size of the main to be tapped by 4"

ITEM "C", MISCELLANEOUS ITEMS:

- 1 - 4" Megalug series 1100 restrainer glands for M. J. fittings.
- 4", DIP.

ITEM "D", REDUCER:

- For a 3" PFL. 1-4 by 3", M. J. Reducer, to be installed in the City Right of Way, just before the property line.
- 1 additional 4" Megalug series 1100 restrainer glands for M. J. fittings.
- 1-3" Megalug series 1100 restrainer glands for M. J. fittings.
- 3", DIP

- End of Section -

EOR _____ CONTRACTOR _____ CITY _____



DUAL SERVICE MATERIALS (fire line and water service):

It is less expensive to make a single tap on a main and have both the fire line and water service come off of the tapped line. The tap will need to be sized for the larger of the two services (normally the PFL). Here is the additional material required to do the work.

ITEM "A", VALVES:

2 required, 1-M. J., R.W. valve, on the building side of the tee to isolate the PFL (sized to fit the run). 1-M. J., R.W. valve, on the branch of the tee to isolate the water service (sized to fit the branch).

VALVE BOXES:

2 required on the valves listed above.

VALVE BOX LIDS:

2 required on the valve boxes listed above.

DEBRIS CAP:

2 required in the valve boxes listed above. All Debris Caps within the system shall have color coded operating handles for each type service.

VALVE EXTENSION STEMS:

To be used on all in ground valves that do not use the American valve trench adapter (valve box).

UNDERGROUND VALVE IDENTIFICATION (UVI) TAGS:

To be used when the Tyler style valve box with the Debris Cap are not used, such as with the AMERICAN valve trench adapter, or if the valve is inside the box.

ITEM "B", TEE:

M.J, Run of the tee sized to fit the PFL , branch sized by the service size required (4, 6 or 8").

ITEM "C", MISCELLANEOUS ITEMS:

Minimum of 7 Megalug series 1100 restrainer glands for M. J. fittings to be used on the tee and valves.

- End of Section -

EOR _____ CONTRACTOR _____ CITY _____



Submittal: **BACKFLOW PREVENTER(S)** Applicable Standard Details:

Assemblies that are approved by the Public Utilities Department is just part of what it will take to have the water service activated. It is suggested that you review the Manual on Cross Connection Control, published by the City.

All backflow prevention assemblies used on City properties such as buildings, irrigation systems, lift stations, water re-pump stations, water treatment facilities and wastewater treatment facilities must use any one of the following:

BACKFLOW PREVENTER TYPE	TYPE OF SYSTEM TO BE PROTECTED	MAKER	MODEL No.	SIZE
DCDA	Fire Line Protection:	Conbraco	40-60	3" thru 10"
DCDA	Fire Line Protection:	Febco	806YD	3" thru 10"
DCDA	Fire Line Protection:	Watts	709DC_A	3" thru 10"
DCDA	Fire Line Protection:	Wilkins	950DA	2.5" thru 10"
RP	Domestic & Irrigation	Conbraco	40-200	3/4" thru 2.5"
RP	Domestic & Irrigation	Conbraco	40-20	4" thru 10"
RP	Domestic & Irrigation	Febco	825Y	3/4" thru 2"
RP	Domestic & Irrigation	Febco	825YD	2-1/2" thru 10"
RP	Domestic & Irrigation	Watts	909	3/4" thru 10"
RP	Domestic & Irrigation	Wilkins	975	3/4" thru 10"

The following is an example of how to fill out the form for devices to be used on private property. The full and proper model number must be used:

BACKFLOW PREVENTER TYPE	TYPE OF SYSTEM TO BE PROTECTED	MAKER	MODEL No. AND OR NAME	SIZE
RP	Domestic	Watts	U009M1APCQT	1-1/2"
DCDA	Fire Line	Ames	3000-DCDC	10"
PVB	Irrigation	Conbraco	40-505-02	1"

List the backflow prevention assemblies to be used; include type, manufacturer, model number, model name (if applicable) size and what type of system it will protect. The following are the minimum standards to be met:

1. All assemblies must appear on the latest approval list from the University of South California's Foundation for Cross Connection Control
2. Only assemblies on that list that are currently being manufactured will be allowed.

BACKFLOW PREVENTER TYPE	TYPE OF SYSTEM TO BE PROTECTED	MAKER	MODEL No. AND OR NAME	SIZE
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

EOR _____ CONTRACTOR _____ CITY _____



GENERAL REQUIREMENTS:

The following lists of material are for:

1. 3" or larger, single, approved Double Check Detector Assembly (DCDA) or a 3" or larger, single, approved Reduced Pressure Principle Assembly (RPPA).
2. Additional material will be required for a parallel 3" or larger RPA with the first assembly.
3. ¾ to 2", single, approved Reduced Pressure Principle Assembly (RPPA). After the list is the material to have an additional RPPA installed in parallel with the first assembly.
4. Additional material for a ¾ to 2" parallel RPPA with the first assembly.
5. Additional material for a ¾ RPPA for a City owned lift station.
6. Dual, parallel installations of RPPA's are not required, but it is strongly suggested for restaurants and businesses that can not afford to have their water turned off during regular working hours.
7. Backflow prevention assemblies and piping are required behind the meter on private property. Due to our ordinances the Public Utilities Department is required to approve the material used through the backflow prevention assembly installation.
8. Location and piping for the backflow prevention assemblies may be rotated to fit the available property lay-out space with no increase in materials or distance from the property line.
9. Landscaping is a requirement for the installation of backflow preventers. Since backflow preventers must be installed at the property line hedges must be planted around the assemblies to hide them. The hedges are also suggested as a security measure, this may avoid the backflow prevention assemblies not to be tampered by vandals.
10. See the standard detail sheet for the minimum design standards required for backflow installations. Remember the standard detail sheet is the standard, each backflow installation will have it's own character and may call for additional material.
11. Some backflow prevention assemblies come built with elbows into the body and others are built with the purpose of being installed in the vertical position. By using these assemblies you can reduce the amount of fittings used. Call you supplier or our backflow techs for a list of this type of approved assemblies.
12. The Fire Department of the local Municipality that the DCDA is installed may have their own requirements. Check with the local official on these items. One item is the installation of tamper switches on the OS & Y valves to insure against them being operated.
13. The following is an itemization of minimum amount and type of materials specifically detailed for a three inch DCDA or RPPA. For a 4", 6" or 8" backflow preventer change all items to the size required.
14. All backflow preveters used must be new, on the latest USC, FCCC approved list and be a device that is currently manufactured.

EOR _____ CONTRACTOR _____ CITY _____



3" OR LARGER, SINGLE DCDA OR RPPA INSTALLATION

FITTINGS:

4-3", 90 degree elbows are required. Most installers use two FJ elbows at the top where they are attached to the flanged valves on the assembly and two MJ elbows on the bottom. All flanged elbows are allowed, but it is suggested that mechanical joint elbows be used underground.

FLANGE ADAPTERS:

2-3", Megalug series 2100 flange to P.E. pipe (restrained). If flanged pipe is not used or flanged joint (F. J.) by plain end (P. E.) Pipe is used then flange joint to plain end adapters will be required.

MISCELLANEOUS ITEMS:

4 - 3" Megalug series 1100 restrainer glands for M. J. fittings (minimum).
3",DIP, class 52, cement mortar lined. List Manufacturer:
3",DIP, class 53, FJ, cement mortar lined. Supply Company installing the flanges on the pipe. **WARNING:** If pipe, flanged on both ends is used it must be manufactured to fit the correct height requirement for the backflow preventers, or the assembly will not be approved.
Supports under each device.
Electrical conduit, wiring and two tamper switches. May be required to be installed on the O. S. & Y. Valves on DCDA only. Check with local Fire Department and Building Official.

FIRE DEPARTMENT CONNECTIONS (FDC): (Not a Public Utilities Requirement or review item)

To reduce the amount of pipe and fittings many contractors are placing the siamese connections on the back of the DCDA. It must be understood in West Palm Beach it is required that the FDC must not be more than 150' (hose length) from the closest City fire hydrant. To install the FDC on the backflow preventer do not place a flanged 90 degree bend on the back of the DCDA, but instead place the following (WITH PERMISSION AND MATERIAL REVIEW FROM THE BUILDING DEPARTMENT AND THE FIRE DEPARTMENT):

- 1-3" F. J. Tee, one end of run coming off of the DCDA, the branch going down and;
- 1-3" flanged 90 degree bend, on the other end of the run and then;
- 1-3" wafer check valve, then;
- 1-3" flange tapped for 3" IPT, then;
- 1-3" steel nipple (IPT), and a
- 1-3" FDC (siamese).

Check with your local Fire, Mechanical, Plumbing plan reviewers and construction inspectors for the requirements of the local municipality you are working in.

3" OR LARGER, PARRELLEL RPA INSTALLATION

2-3", F. J., Tee, run and branch same size to fit the riser pipe.
2 or 4, 3", DIP, length to fit, class 53, FJ, cement mortar lined spool pieces. None may be required if there is enough space between the tee and 90 degree bends to separate the backflow preventers. Supply certification letter from the Company installing the flanges.

3/4 to 2", SINGLE RPA INSTALLATION

The brass fittings listed in these specifications must meet 85-5-5-5 ASTM B62 Cast Brass Specs. If solder joint fittings are used they must meet the brass spec unless they are pressed cooper fittings.

EOR _____ CONTRACTOR _____ CITY _____



PIPE:

3/4, 1", 1-1/2", & 2" Copper tubing, ASTM B88, and WWT-799, type "K", hard drawn, 20' straight lengths.

APPROVED MANUFACTURERS:

____ MUELLER BRASS COMPANY
____ CERRO

FITTINGS:

____ Brass, 90 degree elbows, compression to female iron pipe thread. To screw into the ball valves on the backflow preventer

____ Brass, 90 degree elbows, compression on both ends. Located at the bottom of the backflow preventer.

OR:

____ Brass or copper, 90 degree elbows, solder to female iron pipe thread. To screw into the ball valves on the backflow preventer. Size: _____.

____ Brass or copper, 90 degree elbows, solder joint on both ends. Located at the bottom of the backflow preventer.

ACCEPTABLE JOINTS:

____ Solder Joints, per Plumbing and Health Department regulations (lead free).

____ Use NPT by copper tubing compression fittings, such as; Pack Joint, 110, Mac-Pak or or "T" compression.

3/4 to 2", PARALLEL RPA INSTALLATION (Additional required material)

____ Brass tee, compression to female iron pipe thread. To screw into the ball valves on the backflow preventer.

____ Brass, 90 degree elbows, compression on both ends. Located at the bottom of the backflow preventer.

OR:

____ Brass or copper, 90 degree elbows, solder to female iron pipe thread. To screw into the ball valves on the backflow preventer.

____ Brass or copper, 90 degree elbows, solder joint on both ends. Located at the bottom of the backflow preventer.

3/4" Single RPPA FOR A CITY OWNED LIFT STATION (additional material besides what is listed above).

INCOMPLETE.

EOR _____ CONTRACTOR _____ CITY _____





**APPROVED
PRODUCT LIST**

SECTION THREE

GRAVITY SEWERS

GRAVITY SEWERS STANDARDS ARE TO BE USED FOR:

- 1. Gravity sewer mains and gravity sewer laterals. Service areas covered: West Palm Beach.**
- 2. If DIP pipe and or fittings are required review and use the appropriate pages in the section one "Pressure Pipe" submittal package for materials.**
- 3. PLEASE REFER TO THE GENERAL NOTES AND SUBMITTAL GUIDELINES SECTION STARTING ON PAGE 6 PRIOR TO FILLING OUT ANY OF THE SUBMITTAL SHEETS.**



PVC MANHOLE TO PIPE ADAPTERS:

Used to seal the pipe to the manhole. All adapters will be made to fit PVC, SDR-26 pipe. Adapters for use with all new construction. PVC adapters shall have double gasketed bell, with sandcoating cast into the outside to allow for adherence to the concrete seal.

- _____ Harco - The Harrington Corp., P.O. Box 10335, Lynchburg, VA 24306
- _____ Flow Control

OTHER MANHOLE TO PIPE ADAPTERS:

Used to seal the pipe to the manhole. All adapters will be made to fit PVC, SDR-26 pipe. Adapters for use with all new construction. Adapters shall have stainless steel ring seals to seal the adapter to the pipe and to the manhole if they are not poured in place.

- _____ Press Seal Gasket Corporation
- _____ Press-Boot
- _____ U.S. Precast Manhole w/HDPE liner cast-in boot to sleeve connection
- _____ U.S. Precast HDPE liner system "Turn Back" joint installed after cast

MANHOLE PRECAST ADJUSTING RINGS:

Brick is not allowed to be used to raise to grade manholes or air release manholes. Concrete reinforced 12" wide, 2" high with OD of 36" precast concrete rings are required.

- _____ TRI-COUNTY CONCRETE PRODUCTS

COUPLINGS FOR USE ON EXISTING FACILITIES (VCP, ETC):

Must have the stiffening collars (shear rings) or they can not be used.

- _____ FERNCO, RC Series
- _____ MISSON COUPLING

COUPLINGS FOR USE TO CHANGE PIPE TYPE:

Required when installing DIP in a PVC run of main or a lateral that is too close to another utility.

- _____ HARRINGTON:
- _____ 8", PVC, C900 (DIP) x SDR 26 Bell to Bell Adapters.

MANHOLE COATINGS AND LININGS:

To be applied per manufacturers specifications and by a certified applicator (Supply letter of certification).

INTERIORS:

SPRAY OR BUSH APPLIED (by certified applicator)

- _____ MADEWELL: Mainstay ML72 sprayable micro silica cement mortar base, with DS-5 epoxy lining coat.
- _____ CHEM REX: ThoRoc Sewer Guard SP15 sprayed mortar base, with HBS100 epoxy lining coat.
- _____ LAFARGE ALUMINATES: SewperCoat PG (new and rehabbed manholes)
- _____ FLOWRITE FIBERGLASS LINING SYSTEMS (for rehabilitation of manholes)
- _____ SPECTRAGUARD by SPECTRUM (new and rehabbed manholes)
- _____ SPECTRASHEILD by Concrete Conservation, Inc.

FACTORY APPLIED (joints sealed in the field by a certified applicator)

- _____ U. S. PRECAST/AGRU: Studded polypropylene welded liner fabric. Must be applied by a certified pre-caster.
- _____ U. S. PRECAST/AGRU: Studded HDPE welded liner fabric. Must be applied by a certified pre-caster.
- _____ T-LOCK: Polyethylene or polybutylene welded fabric. Must be applied by a certified pre-caster.

EXTERIOR:

- _____ KOPPERS: 300M
- _____ MAB: Ply-Tile Epoxy Tar Coating for exterior coating of manholes.

EOR _____ CONTRACTOR _____ CITY _____



Submittal: **Gravity Sewers**

Applicable Standard Details:

MANHOLE AND LIFT STATION WETWELL SEALANT:

On Rehabilitation projects It is required that all joints in manholes and lift station wetwells be sealed on the outside with an 8" wide band of Wrapid Seal on flat surfaces and a 12" wide band on angled surfaces at all riser rings and manhole castings. Must be used in conjunction with the joint sealant.

_____ CANUSA
Wrapid Seal

- End of Section -

EOR _____ CONTRACTOR _____ CITY _____



Submittal: **Corrections / Additions List**

CHANGES TO THE COVER AND INTRODUCTION:

9-20-2000:

1. Added corrections list.

01-26-2001:

1. Made major revisions.

07-27-2001:

1. Changed revised date.

03-04-2002:

1. Set up in WORD, spell check and grammar check were run. Also used new City logos on letterheads.

03-05-2002:

1. Changed wording in Submittal form.

03-08-2002:

1. Created one document with cover sheet, introduction, pressure pipes, water services and gravity in it. Changed all page numbers

05-20-02:

1. Changed and added to cover memo.

06-06-02:

1. Corrected wording on item 4, page 7 "to while meeting the applicable standards".

10-01-03: DSL

1. Made changes to pages 3, 4 & 5. Items did not line up with page numbers

12-02-03: DSL

1. Changed title to "APPROVED PRODUCT LIST" and revision date. Made major revisions to the whole document. Did not make any changes to products.

02-02-04: DSL

1. Changed revision date (See Gravity Sewers and Pressure Pipe).

04-08-04: DSL

1. Changed revision date (See Pressure Pipe).

04-10-04: DSL

1. Changed revision date (See gravity sewer).

03-30-04: DSL

1. Changed General Notes section took out references to the Submittal List and substituted Approved Product List (APL).

06-04-04: DSL

1. Changed telephone and fax numbers on first page, 8th page and 9th page.

07-15-04 (DSL)

1. Changed dates on form to match last "save". No other changes made.

01-20-05 (DSL)

1. Changed wording through-out general notes area (pages 6, 7 and 8).

03-29-05: (Dean)

1. Changed margins, causing all page numbers to change and created 3 to 4 lines per page.
2. Changed font size from 12 to 10, gained 12 to 14 lines per page. Reduced over-all book from 62 to 54 pages. Rewrote page numbers under contents to show changes.
3. Added City Logo to the footer of each page
4. Page 1, item F changed language for insertion into contract documents.

02-24-06 (Dean):

1. Page 7, item 10 of the Submittal guidelines has had the last [paragraph added "The Public Utilities Department will not sign off on the APL unless the latest edition of the APL package is used, so please call ahead and ask for the date on the latest revision (see the revision date in the footer of each page). **The exception to this rule is where the APL has been used as part of the City contract documents. The APL in that contract will be used.**
2. Changed item 17 on page 7 to read "**All parts of the water system, except hydrants will need to meet NSF International Standard 61 as adopted in Rule 62-555.335 of the #FAC**" and deleted "Per State Law, all materials used in the construction of any drinking water system must comply with Standard 61 of the National Sanitary Foundation (NSF) approved, with the exception of fire hydrants." This includes all chemicals used."



Submittal: **Corrections / Additions List**

CHANGES TO THE COVER AND INTRODUCTION:

08-17-06 (Dean)

Changed item 17 on page 7 to add the words **National Sanitary Foundation (NSF)** to the line. Someone asked what NSF stood for.

08-24-06 (Dean)

Added; VALVE BOX ALIGNMENT DEVICE (VBAD) to page 18 and to page 3



Submittal: **Corrections / Additions List**

CHANGES TO THE PRESSURE PIPE SECTION:

Write below any changes made to the previous submittal sheets.

08-11-2000:

1. Added corrections list.
2. Removed , Model #750 from permanent blow-off. Rewrote air release manhole standards, changed around items under the miscellaneous listings

08-17-2000:

1. Listed Pressure Class 350 as a line item, it was mentioned in the paragraph that it was allowed for gravity pipe. This and class 50 for gravity was a request to Ken from Bob Spink of Johnson Davis, since it is not "tapped".

11-14-2000:

1. Edited air release ring and cover info.

01-27-2001:

1. Major changes through-out.

05-19-2001:

1. Changes to ARV info added GA 927

07-17-2001:

2. Added Griffen Pipe Products (fittings). WHO DID THIS?

03-04-2002:

1. Changed doc name in footer.

03-08-2002:

1. Created one document with cover sheet, introduction, pressure pipes, water services and gravity in it. Changed all page numbers

5-20-02:

1. Added "large water services" to the description on the cover sheet for "Pressure Pipes"

05-21-02:

1. Added line to all pages for City, Contractor, EOR to sign.

6-10-02:

1. Rearranged items on page 19 and 20 so items required for valve boxes are together.
2. Changed gutter to curb face on last sentence of the UVI tags.

6-20-02:

1. took Kennedy hydrants off of the list per conversation with Bill Galrton, three brands are approved as City or privately owned.

07-01-02:

1. Change page 27: Per email from Bill Galton on 6-29-02, in response to email from Isaac Kovner: Upon review of the specifications, SPECTRAGUARD by SPECTRUM is approved as an interior coating for sanitary sewer gravity manholes and force main ARV vaults, when installed in accordance with the manufacturers recommendation. Please have this product added to the City's specifications and standards, currently being finalized. Thanks.

11-26-02: Changed page 24 on tapping saddles

4-04-03 (Dean):

Added permanent "automatic flush type" blow-offs to page 23.

02-02-04 (DSL)

Added comment to "plug valve" The tapping valve will need to be laid on it's side and buried.

04-08-04 (DSL)

Added Star Pipe restrained joints.

08-26-04 (DSL)

Added note to page 16 and 17 involving EBAA Iron 1100 and 2100 restraints. (Note: For EBBA IRON products, apply corrosion resistant coating Mega-Bond - Polyester based powder electro-statically applied in two coats and heat cured after each coating. Applicable for all restraint fittings thru 24".)



Submittal: **Corrections / Additions List**

CHANGES TO THE PRESSURE PIPE SECTION:

Write below any changes made to the previous submittal sheets.

12-21-04 (DSL)

Added a part on page 17: "APPROVED JOINT RESTRAINT FOR PVC:

In some cases there are existing PVC water mains that need to be cut or tied into and restrained back due to the addition of elbows, tees and valves. This section covers the types and approved joint restraint allowed. BELL RESTRAINTS: EBAA IRON Series 2000V Series 2800."

Also changed the change made on 8-26-04 in page 16 and 17 to now read: "Coatings: Manufacturer applied polyester based powder electro-statically applied, two coats, heat cured coating is required. Applicable for all restraint fittings thru 24". One of the manufacturers stated it is a standard practice of all of the manufacturers.

01-19-05 (DSL)

Changed series number on page 17 for EBAA Iron RJ, PVC to 1600 from 2000V.

Changed the change on page 16 and 17 to read " For all joint restraint products, apply corrosion resistant coating Mega-bond (or approved equal). Polyester based powder electro-statically applied in two coats and heat cured after each coating for cast body. Xylan flouropolymer coating will be used for wedge assemblies. Applicable for all restraint devices through 24".

08-24-06 (Dean)

1. Added valve boxes; VALVE BOX ALIGNMENT DEVICE (VBAD) to page 18 and to page 3
2. Added to MECHANICAL JOINT RESTRAINT; Clow Field Lok Gaskets will use a normal cast or ductile iron mechanical joint gland or the Clow Field Lok gland. Page 16

10-23-06 (Dean):

1. Page 15 Added STAR PIPE PRODUCTS to the Ductile Iron Fittings list.
2. Page 14, Added to Interior and exterior coating for DIP fittings "Fusion-Bonded Epoxy Coating, per ANSI/AWWA C116/A.21.16"

10-25-06 (Dean):

1. Page 15 added Sigma Fittings to the approved lists
2. Page 15 added Sigma SLD to the DIP restraints
3. Page 15 added Sigma SLC to the PVC restraints
4. Page 3 and 16 added MISCELLANEOUS MATERIALS: TIE RODS AND ACCESSORIES: SIGMA PRODUCTS: Duc Lugs (bent eye bolts not allowed): Socket Clamps (with cast iron washers): All thread rod, zinc plated (¾" only)



Submittal: **Corrections / Additions List**

CHANGES TO THE WATER SERVICES SECTION:

9-20-00:

1. Added corrections list.
2. Added size to meter vault on bottom of page 9 for large water services.

01-27-2001:

1. Made major changes.

02-05-2001:

Added page for tapping saddles for all size services.

03-03-2001

Added mushroom cap to all meter box ordering info

Added Enduro pipe for all services

Changed Dual service materials to 2"

Changed font size to 10 to allow more information per page.

06-07-2001:

Corrected ruler. May have thrown some items out of alignment.

07-27-2001:

2. Changed revised date.

11-05-01:

1. Changes made by Laura Le or Daniel, (unknown).

03-04-2002:

1. Reconfigured for WORD.

03-08-2002:

Created one document with cover sheet, introduction, pressure pipes, water services and gravity in it. Changed all page numbers

05-01-02:

Added Okie Dokie meter boxes and changed box language.

05-28-02:

Changed approved backflows on page 45

06-06-02:

From Bill Galton Dean, I don't what package you're reading from, but the one I have is not the same. This one is dated 9-20-2000. I hope it is the most current or Engineering would certainly have sent the "owners" the revised edition. Anyway, what I'm talking about is under **2" WATER SERVICE** to simply amend "The following material is for setting a single 1-1/2 or 2" meter." to "The following material is required for ALL 2" water services." Then we can address 1-1/2" meters by saying " 1-1/2 and 2" meters require 2" water services." Presently the contractors are saying that the existing language allows them to install 2" services with 1" boxes for anything less than a 1-1/2" meter. Additionally the details do not call out " Typical (call out size) Water Service Installation" by size, nor this there an arrow designating box size, but instead refer to "Typical (size called)

Meter Installation Details". The word meter, when used in this way allows them wiggle room. **LET'S CLOSE THE DOOR.**

06-02-02:

1. Changed gutter to curb face on last sentence of the UVI tags.

06-13-02:

1. Changes to large water services and PFL section removed at least two pages. Ended review on page 45.

06-14-02:

1. Changes to large water services and PFL section removed at least two pages. Ended review on page 48.

06-20-02:

1. Changes to large water services and PFL section removed at least two pages. Ended review at top of page 49.

2. Changed cover sheet for this section

11-26-02:

1. Added changes to the tapping saddles on page 29

01-14-03:

1. Page 44 changed list of approved devices to be used on City projects

01-31-03:

1. Corrected the word underground on pages 42 and 43.



CHANGES TO THE WATER SERVICES SECTION:

03-05-03: By DSL

1. Added numbers and descriptions for long and short sided u-branch. _____ FORD, # UV43-62W (1-1/2" by 3/4" for the long side), FORD, # UV43-42W (1" by 3/4" for the short side)

05-03-04: By DSL

1. Per changes to the USC list, changes were made to page 44, accepted assemblies in WPB

05-20-04: By DSL

1. Changed language for meter vault lids and added mushrooms.

11-08-04: By DSL

1. Changes language to page 39, item F Meter Vaults to read "Vaults for 3 and 4" compound meters will be 48" wide and 48" long and 18" deep. All lids will have the metal, hinged, meter readers lid within the heavy duty, **hot dipped galvanized**, steel, traffic rated lid (2-piece). **4" Fire flow and larger meters will call for a minimum of a 48" wide and 72" vault with a three piece lid.** The hinged meter reader's lid will be centered over the meter dial. **Due to the size of the services the bypass (see item "H") may need to be installed in a separate 48 by 48" vault."**

03-29-05: (Dean)

1. Page 38, Removed item 2, description is located in item 6 (now #5) on same page. Changed all item numbers after No.1.
2. Page 39, item D, Per Wayne Schooley, Jeff Stewart, meter strainers are now to be supplied by contractor. Added language.
3. Page 40, Added the following to "F" Meter Vaults: "Use TR/PL Housing Item No. 45 with Sensor Button (blank) Item No. 53907152-39004."

04-26-05: (Dean)

1. Changed RPPA to RP on page 39

10-23-06: (dean)

1. Pages 28, 29, 30, changed specs for service pipe to read:
Poly Pipe is only to be used in lieu of copper when permission is granted by the Director of Engineering.
1" Copper tubing, ASTM B88, and WWT-799, type "K", soft or hard drawn, rolls or 20' straight lengths; or
1" CTS, polyethylene as manufactured by Endot Industries.
_____ Endotrace, CTS, polyethylene, with attached tracing wire

01-09-08 (Dean):

1. Pages 28, 29, 30 & 35, changed specs for meter boxes and lids to read "All boxes and lids will be H-20 traffic rated."



Submittal: **Corrections / Additions List**

CHANGES TO THE GRAVITY SEWERS SECTION:

9-20-2000:

1. Added corrections list.

11-14-2000:

1. Added Air release manhole ring and cover note.

01-26-2001:

1. Changed cover sheet,
2. Added Chem Rex liner, deleted MAB liner
3. Minor changes through out.

01-27-2001:

1. Changed revised date

03-04-2002:

1. Corrected fonts, corrected changes from Wordperfect to Word (quote marks did not transfer).
2. Added additional wording on cover sheet.

03-08-2002:

1. Created one document with cover sheet, introduction, pressure pipes, water services and gravity in it. Changed all page numbers

05-02-2002:

1a. Per Isaac Kovner email this date:

Take off: U. S. PRECAST/AGRU: Studded polypropylene welded liner fabric. Must be applied by a certified pre-caster.

U. S. PRECAST/AGRU: Studded HDPE welded liner fabric. Must be applied by a certified pre-caster.

T-LOCK: Polyethylene or polybutylene welded fabric, must be applied by a certified pre-caster.

They messed up Lift Station #6A big time. No quality control.....

As for lift stations: I've seen them all and the only one I will approve in the future is **Spectrum**.

1b. Per Laura Le email this date;

Below is the very last changes of the lining specs. that Bill Galton and I worked on late last year. I've previously given you a hard copy, check with him for any recent changes:

MANHOLE, AIR RELEASE, LIFT STATION WETWELL AND VALVE VAULT COATINGS:

To be applied per manufacturers specifications and by a certified applicator (Supply letter of certification).

INTERIORS:

For Sanitary Sewer Collection :

____ MADEWELL: Mainstay ML72 sprayable mico silica cement mortar base, with DS-5 epoxy lining coat.

CHEM REX: ThoRoc Sewer Guard SP15 sprayed mortar base, with HBS100 epoxy lining coat.

04-10-04 (DSL)

email from Bill Galton:

After review of the fax from Tri-County Concrete, I've decided to approve 2 of 3 submittals, as noted below:

Approved:

U.S. Precast Manhole w/HDPE liner cast-in boot to sleeve connection

U.S. Precast HDPE liner system "Turn Back" joint installed after cast

Disapproved:

KOR-N-SEAL Wedge Korband and Wedge Expander

U. S. PRECAST/AGRU: Studded polypropylene welded liner fabric. Must be applied by a certified pre-caster.

U. S. PRECAST/AGRU: Studded HDPE welded liner fabric. Must be applied by a certified pre-caster.

T-LOCK: Polyethylene or polybutylene welded fabric, must be applied by a certified pre-caster.

5-30-02:

1. Added LAFARGE ALUMINATES: SewperCoat PG (new and rehabed manholes)

6-20-02:

1. Changed cover sheet for this section



Submittal: **Corrections / Additions List**

CHANGES TO THE GRAVITY SEWERS SECTION:

07-01-02:

1. Change page 53: Per email from Bill Galton on 6-29-02, in response to email from Isaac Kovner: Upon review of the specifications, SPECTRAGUARD by SPECTRUM is approved as an interior coating for sanitary sewer gravity manholes and force main ARV vaults, when installed in accordance with the manufacturers recommendation. Please have this product added to the City's specifications and standards, currently being finalized. Thanks.

07-09-02:

1. Revised sheet 45-49 Standardize the Backflow Prevention Assemblies designations. Clarify criteria and use of backflows on City property. Updated Febco 906 YD. Deleted information referencing the Project Management and Plan review publication.

02-04-03:

1. Added Insertate lateral connection on page 59.

09-29-03:

Updated air release coating (page 27) to match manhole coatings (page 53)

02-02-04: DSL

1. Added C-900, DR 18, Class 150 to approved list on page 51

06-28-05 (DSL):

1. Added to coatings and linings on page 45 per email from B. Galton and approval of R. Rearden; SPECTRASHEILD by Concrete Conservation, Inc.

07-21-05 (DSL)

1. Removed from air release description the following sentence "On all pipelines larger than 12" the ARV shall have a 4-inch flange connection." Also removed "12-inch and smaller" from a sentence and added "For special uses to be called out on the plans" to the 4" flange size. Bill Galton, Supt. of O&M had standardized on 2" ARV years ago.

09/19/06 (DSL):

1. Changed language on page 45 and added model Must have the stiffening collars (**shear rings**) or they can not be used. FERNCO, **RC Series** MISSON COUPLING. RC stands for repair coupling. Can be used with same material or new material such as clay to pvc.



CHANGES TO THE LIFT STATION SECTION:

_____ ACTION PRODUCTS MARKETING CORPORATION: Permaform
SPECTRUM: 4 step coatings of Epoxy Primer, 1st moisture barrier, surfacer and final barrier coat.
QUADEX, INC.: Quadex Hyperform and Quadex QM-1s Restore.
LAFARGE ALUMINATES: SewperCoat PG
TNEMEC: H. S. Epoxy System 104-5, High Solids Epoxy-Amine.

EXTERIOR:

_____ KOPPERS: 300M
MAB: Ply-Tile Epoxy Tar Coating for exterior coating of manholes.

1c. Bill Galton email:

I know we've been over this before , O&M will only accept the following:

Field Applied:

Mainstay and ThoRoc in our gravity manholes.

The air release vaults for force main, the coatings are the same as the manholes and on water mains it's Koppers inside and out.

Factory applied: As you listed

FYI- We have also approved Flowtite Fiberglass for manhole rehabilitation.

Then Isaac emailed back the following when I asked which were no good:

Mainstay failed in Ibis #100

Agro Liner was messed up in 6A

Lafarge Aluminates had check cracks in #13

So in accordance with the above emails the linings for sanitary manholes, water and force main ARV's have been changed.

2. Changed the general notes section, major changes and deleted "Section five has a long specification description for all material, but there is a short specification listed with each approved item. Refer to the long specification if there are any questions regarding what is required to be met for any submittal." Since we have not completed the specs.
 3. Removed info on section covers and added new language. Language on covers is in the General Notes section.
- 05-03-02:
1. Removed all but pratt from plug valve list and added language:
CLOW DEZURIK KENNEDY PRATT U.S. PIPE
5400 Series (Eccentric)
Full-Flo
 3. Stopped review on page 36.

- End of Section -

