# Amendments to the 2002 Water System Standards

| Description | WSS Section Modified | Approval Date |
|---|---|---|
| Expanded Metal Fencing | Division 100, Section 105, Sub-section 105.08 Perimeter Fence and Division 300, Section 303, Sub-section 303.34 Expanded Metal Fence and Gate | 8/2/2018 |
| Polyethylene Encasement and Exterior Coating | Division 200, Section 202 - Ductile Iron Pipe, Fittings, and Appurtenances | 11/17/2016 |
| Approved Material The *Ford Meter Box Company, Inc.* | Division 400, Section 402, Sub-section III Service Laterals, Fittings and Appurtenances | 5/6/2016 |
| Trench Backfill | Division 400, Section 403 Standard Details | 4/29/2016 |
| Ductile Iron Pipe | Division 200, Section 202 - Ductile Iron Pipe, Fittings, and Appurtenances | 4/15/2016 |
| Approved Material *DFW Plastics, Inc.* | Division 400, Section 402, Sub-section III Service Laterals, Fittings and Appurtenances | 5/13/2015 |
| Plastic Pipe | Division 200, Section 204 Plastic Pipe; Division 300, Section 302 Water Mains and Appurtenances, Sub-sections 302.14 Plastic Pipe & 302.15 Fittings and Specials | 4/23/2015 |
| Water Main Clearances | Division 100, Section 102 Mains, Sub-section 102.01 Location | 4/23/2015 |
| 3/4" Meter Splice Length | Division 400, Section 403 Standard Details | 12/8/2014 |
| Approved Material *Christy's* | Division 400, Section 402 Sub-section I Pipes and Appurtenances | 9/19/2014 |
| Approved Material *Clow Valve Company* | Division 400, Section 402, Sub-section IV Fire Hydrants | 6/20/2014 |
| Brass Products - Lead Free | Division 200, Section 211 Brass Products & Division 400, Section 402, Sub-section III Service Laterals, Fittings and Appurtenances | 10/22/2013 |
| Approved Material *Jensen Precast* | Division 400, Section 402, Sub-section III Service Laterals, Fittings and Appurtenances | 1/4/2013 |
| Rescinding Approval for Polyethylene (PE) Pipe | Division 200, Section 208 - Service Laterals and Appurtenances, 208.03 Plastic Tubing | 12/14/2012 |
| Brass Products | Division 200, Section 211 Brass Products & Division 400, Section 402, Sub-section III Service Laterals, Fittings and Appurtenances | 6/5/2012 |

| Description | WSS Section Modified | Approval Date |
|---|---|---|
| Approved Material *Armorcast* | Division 400, Section 402, Sub-section III Service Laterals, Fittings and Appurtenances | 5/14/2012 |
| Approved Material *Romac* | Division 400, Section 402 Sub-section I Pipes and Appurtenances | 11/9/2011 |
| Approved Material *IPEX* | Division 400, Section 402 Sub-section I Pipes and Appurtenances | 9/14/2011 |
| Rescinding Approval for Concrete Cylinder Pipe | Division 200, Section 203 Concrete Cylinder Pipe and Fittings | 7/15/2011 |
| Rescinding Approved Material *Royal Pipe Systems* | Division 400, Section 402 Sub-section I Pipes and Appurtenances | 4/29/2011 |
| Approved Material *METCO* | Division 400, Section 402 Sub-section I Pipes and Appurtenances | 11/4/2010 |
| Approved Material *Advance Products and Systems* | Division 400, Section 402 Sub-section I Pipes and Appurtenances | 5/6/2010 |
| Approved Material *Garlock* | Division 400, Section 402 Sub-section I Pipes and Appurtenances | 1/19/2010 |
| Approved Material *North American Pipe Corporation* | Division 400, Section 402 Sub-section I Pipes and Appurtenances | 11/10/2009 |
| Approved Material *Multi Fittings* | Division 400, Section 402 Sub-section I Pipes and Appurtenances | 10/27/2009 |
| Approved Material *Diamond Plastics* | Division 400, Section 402 Sub-section I Pipes and Appurtenances | 8/14/2009 |
| FM Meter & Box Standard Details | Division 400, Section 403 Standard Details | 5/18/2009 |
| Approved Material *Polytubes* | Division 400, Section 402, Subsection III Service Laterals, Fittings and Appurtenances | 2/24/2009 |
| Minimum Utility Depth | Division 100, Section 102 Mains, Sub-section 102.03 Cover & Division 400, Section 403 Standard Details | 12/31/2008 |
| Approved Material *American R/D* | Division 400, Section 402 Sub-Section II Valves and Appurtenances | 12/18/2008 |
| Approved Material *Armorcast* | Division 400, Section 402, Sub-section III Service Laterals, Fittings and Appurtenances | 12/4/2008, amended 6/26/2015 |
| Distance between main valves | Division 100, Section 103 Sub-section 103.01 Location, Type, Working Pressure | 10/21/2008 |

| Description | WSS Section Modified | Approval Date |
|---|---|---|
| Nuts and bolts for flanged joints and fire hydrant break-off bolts | Division 200, Section 202.04 Flanged Joint and Section 206.1 General | 3/18/2008 |
| Approved Material *Sigma Corporation* | Division 400, Section 402 Sub-section I Pipes and Appurtenances | 10/31/2007 |
| Approved Material *Star Pipe Products, Inc.* | Division 400, Section 402 Sub-section I Pipes and Appurtenances | 5/4/2007 |
| Electronic Markers | New requirement | 8/25/2006 |
| Approved Material *Pratt & Lambert* | Division 400, Section 402 Sub-section V Paints and Coatings | 1/27/2004 |
| Cathodic Protection | Division 500, Section 1.2 (Part 2), Table 3 | 10/15/2003 |
| Approved Material *Tripac Fasteners & NSS Industries* | Division 400, Section 402 Sub-section I Pipes and Appurtenances | 8/12/2003 |
| Nuts and bolts for mechanical joints | Division 200, Section 202.02 Mechanical Joint | 7/22/2003 |
| Approved Material *Romac* | Division 400, Section 402 Sub-section I Pipes and Appurtenances | 6/20/2003 |
| Approved Material *Sherwin Williams* | Division 400, Section 402 Sub-section V Paints and Coatings | 5/23/2003 |
| Rescinded 4/29/2011 ~~Approved Material Royal Pipe Systems~~ | ~~Division 400, Section 402 Sub-Section I Pipes and Appurtenances~~ | ~~5/19/2003~~ |
| Approved Material *FSC Coatings* | Division 400, Section 402 Sub-section V Paints and Coatings | 5/12/2003 |
| Dis-approved Material *Powerseal* | Division 400, Section 402 Sub-section I Pipes and Appurtenances | 3/24/2003 |
| Approved Material *James Jones* | Division 400, Section 402 Sub-section III Service Laterals, Fittings and Appurtenances | 11/27/2002 |
| Approved Materials for Globe Valves | Division 400, Section 402 Sub-Section II Valves and Appurtenances | 11/22/2002 |
| Approved Material *PPG Industries* | Division 400, Section 402 Sub-section V Paints and Coatings | 7/11/2002 |

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843
www.boardofwatersupply.com

November 17, 2016



TO: WHOM IT MAY CONCERN

FROM: ERNEST Y. W. LAU, P.E., MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: 2002 WATER SYSTEM STANDARDS AMENDMENT

**For Oahu only**, the 2002 Water System Standards shall be amended as follows:

DIVISION 200 – MATERIALS, Section 202 – Ductile Iron Pipe, Fittings, and Appurtenances:

1. Delete **Section 202.01.B. Polyethylene Encasement** and replace with the following:

   **B. Polyethylene Encasement.** Unless otherwise specified, all ductile iron pipes, valves, and fittings shall be encased in two layers of 8 mil minimum thickness polyethylene material in accordance with ANSI A-21.5 and AWWA C105. The polyethylene encasement film shall be manufactured from virgin polyethylene and shall consist of three layers of co-extruded linear low density polyethylene (LLDPE), fused into a single thickness of not less than eight mils. The inside surface of the polyethylene wrap to be in contact with the pipe exterior shall be infused with a blend of an antimicrobial to mitigate microbiologically influenced corrosion and a volatile corrosion inhibitor to control galvanic corrosion. Polyethylene material shall have permanent markings per AWWA C105.

   Copper service laterals shall be encased with polyethylene wrap (3 feet minimum) from the connection to ductile iron pipes as shown on the Standard Details.

2. Delete **Section 202.01E. Exterior Coating** and replace with the following:

   **E. Exterior Coating.** The exterior of all ductile pipe shall be coated with a layer of arc-sprayed zinc per ISO 8179-1. The mass of the zinc applied shall be a minimum of 200g/$m^2$ of pipe surface area. After the zinc coating, the pipe shall be given a finishing layer of bituminous paint topcoat compatible with zinc, approximately 1 mil thick.

   All ductile iron fittings, and special castings shall be coated on the exterior surfaces with a bituminous coating approximately 1 mil thick. The finished coating shall be continuous, smooth, neither brittle when cold nor sticky when exposed to the sun and shall be strongly adherent to the pipe. Surfaces shall be clean and dry, free from all grease, oil, sand, and other foreign materials when painted.

DIVISION 500 – WATER SYSTEM EXTERNAL CORROSION CONTROL STANDARDS, VOLUME 3 DATED 1991:

3. The design of the cathodic protection system shall incorporate zinc coated ductile iron pipe with two layers of polyethylene encasement in accordance to the above amended Section 202 – Ductile Iron Pipe, Fittings, and Appurtenances. The zinc coated ductile iron pipe with two layers of polyethylene encasement shall be in lieu of the bonded tape coating.

All construction plans received by the Board of Water Supply after December 30, 2016, shall comply with the above amendment.

If you have any questions, please contact Michael Domion, Support Branch Head, Capital Projects Division, at 748-5740.

cc: Hawaii, Kauai and Maui Water Departments

MP

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



May 6, 2016

Mr. Blake Kidd
The Ford Meter Box Company, Inc.
775 Manchester Avenue
P.O. Box 443
Wabash, Indiana 46992-0443

Dear Mr. Kidd:

Subject: Your Letter Dated December 20, 2013, Regarding Request for Inclusion into the Approved Materials List

The Board of Water Supply approves the following Ford Meter Box products for inclusion into the Approved Materials List of the Water System Standards **for Oahu only**:

1. FB400 Ball Corporation Stop
2. B11 Ball Valve
3. Pack Joint Coupling – C14 (female IPT x Pack Joint), C84 (male IPT x Pack Joint) and C44 (Pack Joint x Pack Joint)

Further evaluation is still needed for the Ford Meter Box Double Strap Brass Saddle 202B.

If you have any questions, please contact Michael Domion, Support Branch Head, Capital Projects Division, at (808)748-5740.

Very truly yours,

ERNEST Y. W. LAU, P. E.
Manager and Chief Engineer

cc: Kauai, Maui and Hawaii Department of Water Supply

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December 20, 2013

Mr. Ernest Lau, PE
Manager & Chief Engineer
Honolulu Board of Water Supply
630 S. Beretania St.
Honolulu, HI 96843



Dear Mr. Lau,

Ford Meter Box respectfully submits the following items for inclusion into The Board of Water's Approved Materials list. The 202B double strap bronze saddle, the FB400 ball corporation stop, the B11 style ball valve and pack joint adapters. All of the fittings (with the exception of the saddles) are manufactured of ASTM C89833 "no lead" brass in compliance with the Safe Drinking Water Act. The products with this alloy shall meet NSF/ANSI Standard 61 and/or NSF/ANSI Standard 372 as applicable. The bronze saddles continue to be manufactured from traditional waterworks red brass ASTM C83600.

The 202B saddle is designed with built-in flexibility to cover asbestos-cement and/or cast iron pipe along with ductile iron pipe. The straps are high quality silicon bronze flattened to provide a wide bearing surface against the pipe. The large EPDM rubber gasket is grooved to conform to the pipe surface and bonded in place for easy installation. It is available with both AWWA/CC taps and IP taps.

The FB400 ball corporation stop is designed to reduce hard turning and temporary weeping that is sometimes encountered with high pressure tests on standard plug type corporation stops. The Ford ball corporation stop is designed to withstand 300 psi.

The B11 style ball valve is designed to be watertight in either direction and features both female iron pipe inlets and outlets. As with the ball corporation stop the ball valve will also withstand 300 psi.

The Ford Meter Box line of pack joint fittings are designed with machined grooves in the clamping section to provide superior restraint on copper and plastic tubing. The gaskets are made from EPDM and beveled for a watertight seal on the tubing. We are submitting on the male iron pipe by compression (C84-xx-NL), the female iron pipe by compression (C14-xx-NL) and the compression by compression (C44-xx-NL) in all sizes.

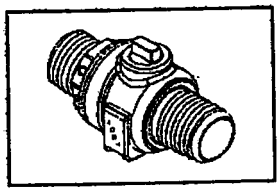
I have enclosed submittals for all of the products. Please contact me for samples or additional information.

Sincerely,

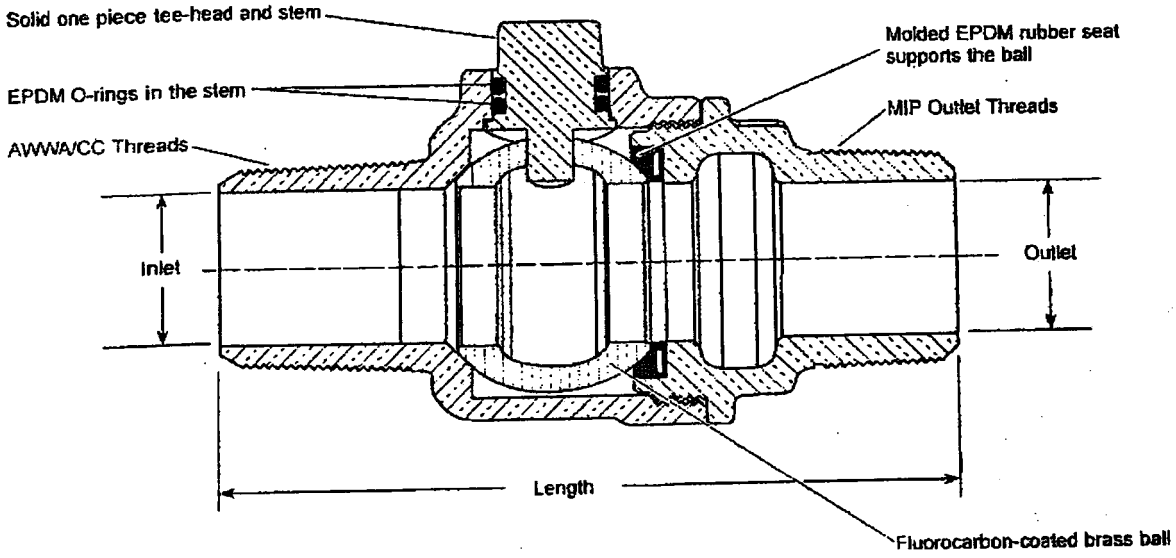
Blake Kidd
District Manager
THE FORD METER BOX COMPANY, Inc.
enclosures

# SUBMITTAL INFORMATION

## Ballcorp Corporation Stops - *(FB400-4-NL style)*



### AWWA/CC TAPER THREAD INLET BY MALE IRON PIPE OUTLET




| Valve Size | Inlet Size | Outlet Size | Valve Length | Body Outlet Threads | Approx. Wt. Lbs | Part Number | ✓ Submitted Item(s) |
|---|---|---|---|---|---|---|---|
| 1" | 1" | 1" | 4-33/64" | 1" MIP | 1.7 | FB400-4-NL | |

## FEATURES

- All brass that comes in contact with potable water conforms to AWWA Standard C800 (UNS NO C89833)
- The product has the letters "NL" cast into the main body for proper identification
- UL Classified to ANSI/NSF Standard 61 and Standard 61 Annex G (NSF/ANSI 372)
- Brass components that do not come in contact with potable water conform to AWWA Standard C800 (ASTM B-62 and ASTM B-584, UNS NO C83600 - 85-5-5-5)
- Ends are integral or secured with adhesive to prevent unintentional disassembly
- 300 PSI working pressure



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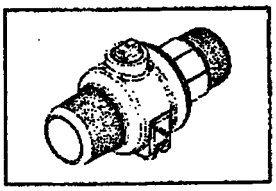
http://www.fordmeterbox.com

02/04/13

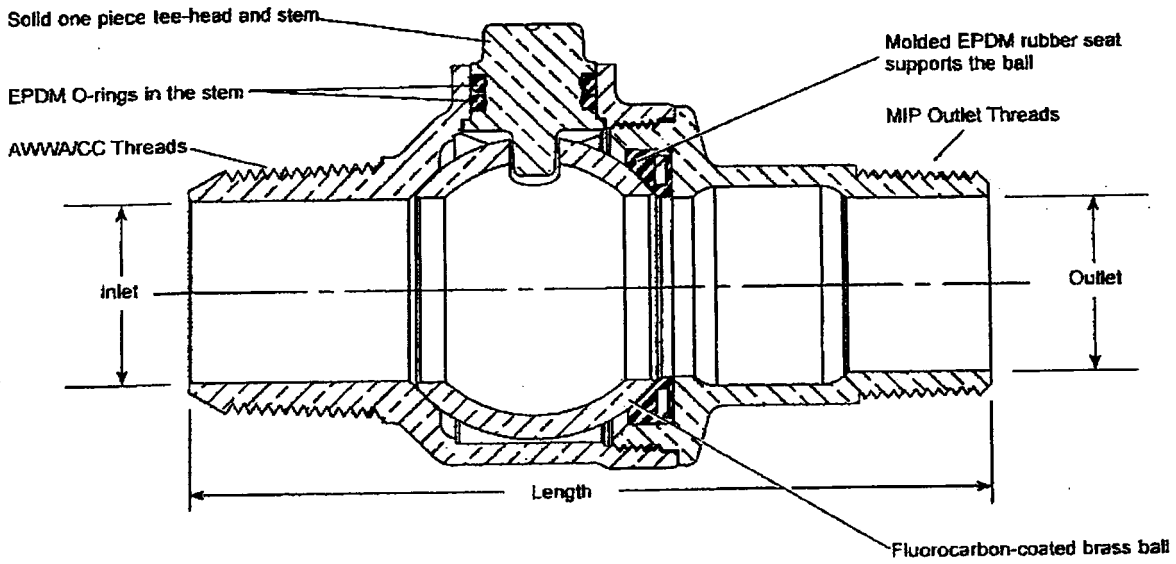
Submitted By:

# SUBMITTAL INFORMATION

## Ballcorp Corporation Stops - *(FB400-6-NL style)*



**AWWA/CC TAPER THREAD INLET BY MALE IRON PIPE OUTLET**




| Valve Size | Inlet Size | Outlet Size | Valve Length | Body Outlet Threads | Approx. Wt. Lbs | Part Number | ✓ Submitted Item(s) |
|---|---|---|---|---|---|---|---|
| 1-1/2" | 1-1/2" | 1-1/2" | 6-9/16" | 1-1/2" MIP | 4.7 | FB400-6-NL | |

## FEATURES

- All brass that comes in contact with potable water conforms to AWWA Standard C800 (UNS NO C89833)
- The product has the letters "NL" cast into the main body for proper identification
- UL Classified to ANSI/NSF Standard 61 and Standard 61 Annex G (NSF/ANSI 372)
- Brass components that do not come in contact with potable water conform to AWWA Standard C800 (ASTM B-62 and ASTM B-584, UNS NO C83600 - 85-5-5-5)
- Ends are integral or secured with adhesive to prevent unintentional disassembly
- 300 PSI working pressure



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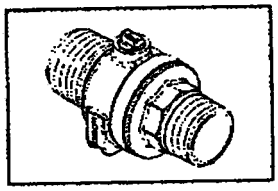
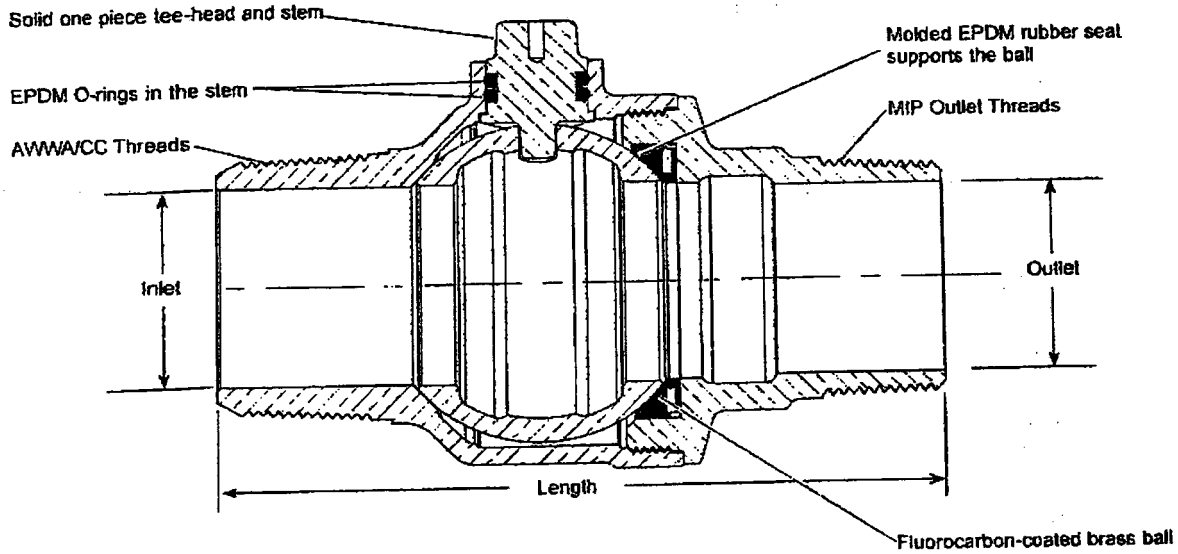
Submitted By:

# SUBMITTAL INFORMATION

## Ballcorp Corporation Stops - *(FB400-7-NL style)*



### AWWA/CC TAPER THREAD INLET BY MALE IRON PIPE OUTLET




| Valve Size | Inlet Size | Outlet Size | Valve Length | Body Outlet Threads | Approx. Wt. Lbs | Part Number | ✓ Submitted Item(s) |
|---|---|---|---|---|---|---|---|
| 2" | 2" | 2" | 7-5/16" | 2" MIP | 7.2 | FB400-7-NL | |

## FEATURES

- All brass that comes in contact with potable water conforms to AWWA Standard C800 (UNS NO C89833)
- The product has the letters "NL" cast into the main body for proper identification
- UL Classified to ANSI/NSF Standard 61 and Standard 61 Annex G (NSF/ANSI 372)
- Brass components that do not come in contact with potable water conform to AWWA Standard C800 (ASTM B-62 and ASTM B-584, UNS NO C83600 - 85-5-5-5)
- Ends are integral or secured with adhesive to prevent unintentional disassembly
- 300 PSI working pressure



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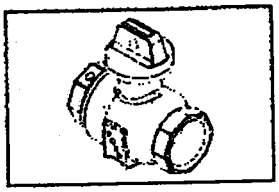
02/04/13

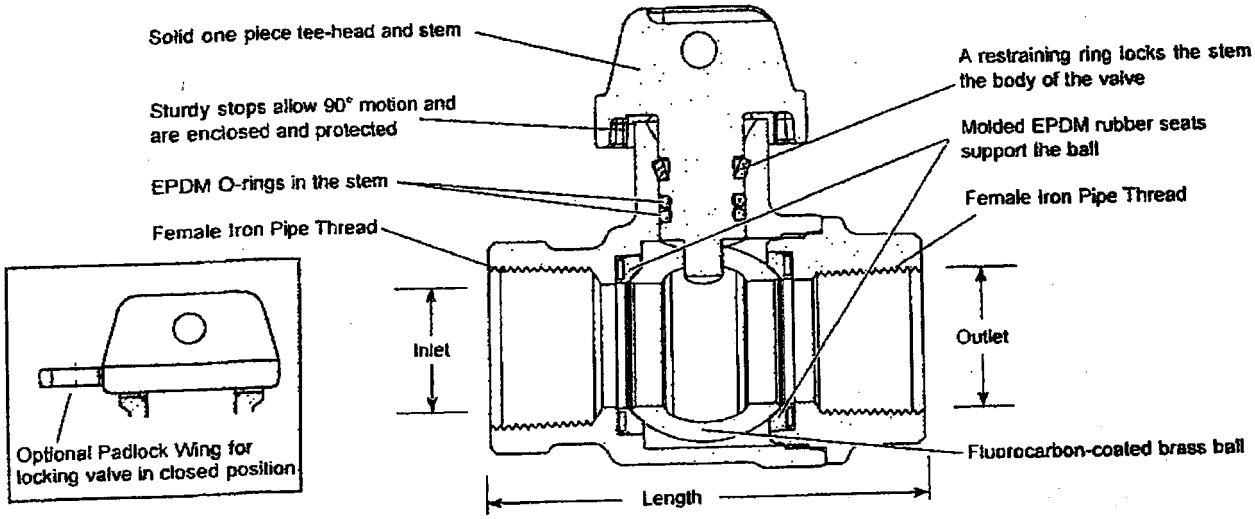
Submitted By:

# SUBMITTAL INFORMATION

## Ball Valve Curb Stop - *(B11-xxx-NL style)*



**FEMALE IRON PIPE THREAD INLET BY FEMALE IRON PIPE THREAD OUTLET**




| Valve Size | Inlet Size | Outlet Size | Length | Approx. Wt. Lbs | Part Number | ✓ Submitted Item(s) |
|---|---|---|---|---|---|---|
| 3/4" | 3/4" | 3/4" | 3-1/64" | 1.5 | B11-333-NL | |
| 1" | 1" | 1" | 3-7/16" | 2.0 | B11-444-NL | |

### FEATURES

- All brass that comes in contact with potable water conforms to AWWA Standard C800 (UNS NO C89833)
- The product has the letters "NL" cast into the main body for proper identification
- UL Classified to ANSI/NSF Standard 61 and Standard 61 Annex G (NSF/ANSI 372)
- Brass components that do not come in contact with potable water conform to AWWA Standard C800 (ASTM B-62 and ASTM B-584, UNS NO C83600 - 85-5-5-5)
- Valve is non-directional and is watertight with flow in either direction
- Ends are integral or secured with adhesive to prevent unintentional disassembly
- Hole for attaching curb box rod or handle is provided in tee-head
- 300 PSI working pressure

**Optional Padlock Wing** for locking valve in closed position. Add "W" to part number
**Optional full 360° tee-head rotation.** Add "R" to part number



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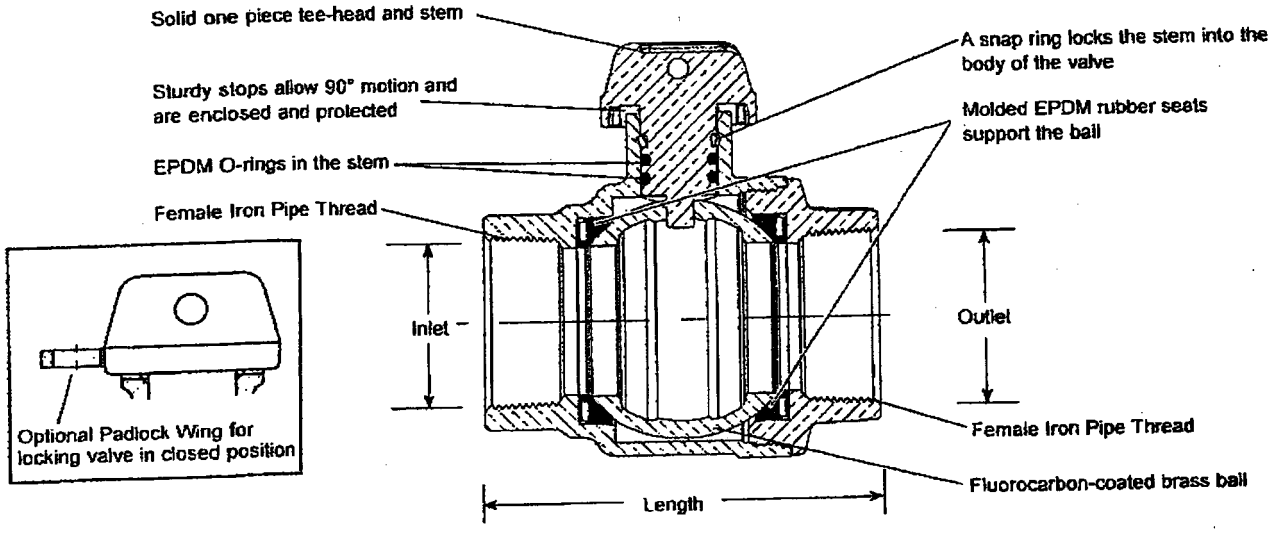
07/21/13

Submitted By:

# SUBMITTAL INFORMATION

## Ball Valve Curb Stop - *(B11-xxx-NL style)*

**FEMALE IRON PIPE THREAD INLET BY FEMALE IRON PIPE THREAD OUTLET**




| Valve Size | Inlet Size | Outlet Size | Length | Approx. Wt. Lbs | Part Number | ✓ Submitted Item(s) |
|---|---|---|---|---|---|---|
| 1-1/2" | 1-1/2" | 1-1/2" | 4-15/32" | 4.8 | B11-666-NL | |
| 2" | 2" | 2" | 5-1/4" | 7.2 | B11-777-NL | |

### FEATURES

- All brass that comes in contact with potable water conforms to AWWA Standard C800 (UNS NO C89833)
- The product has the letters "NL" cast into the main body for proper identification
- UL Classified to ANSI/NSF Standard 61 and Standard 61 Annex G (NSF/ANSI 372)
- Brass components that do not come in contact with potable water conform to AWWA Standard C800 (ASTM B-62 and ASTM B-584, UNS NO C83600 - 85-5-5-5)
- Valve is non-directional and is watertight with flow in either direction
- Ends are integral or secured with adhesive to prevent unintentional disassembly
- Hole for attaching curb box rod or handle is provided in tee-head
- 300 PSI working pressure

**Optional Padlock Wing** for locking valve in closed position. Add "W" to part number
**Optional full 360° tee-head rotation.** Add "R" to part number



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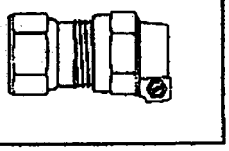
02/14/13

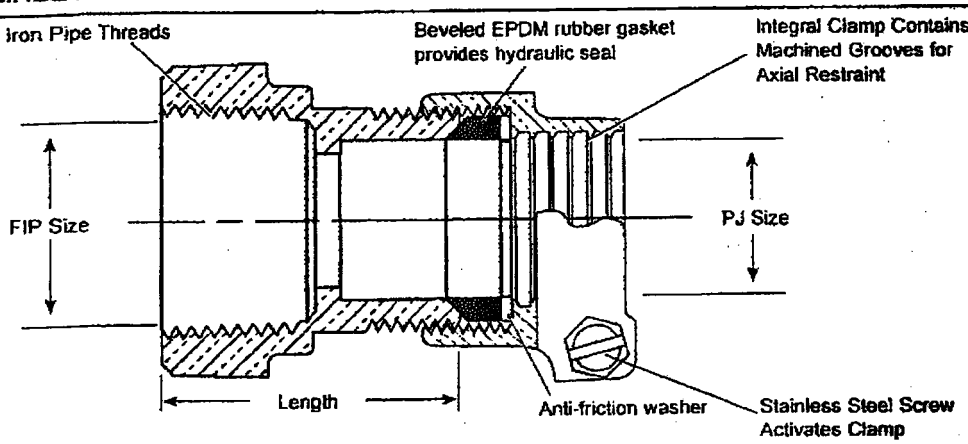
Submitted By:

# SUBMITTAL INFORMATION

## Pack Joint Coupling - *(C14-xx-NL style)*



### FEMALE IRON PIPE THREAD BY PACK JOINT FOR COPPER OR PLASTIC TUBING (CTS)




| Description | | Length | Approx. Wt. Lbs | Part Number | ✓ Submitted Item(s) |
|---|---|---|---|---|---|
| Female Iron Pipe | P.J. for CTS | | | | |
| 1/2" | 1/2" | 1-9/16" | .4 | C14-11-NL | |
| 1/2" | 3/4" | 1-5/16" | .5 | C14-13-NL | |
| 3/4" | 1/2" | 1-3/4" | .6 | C14-31-NL | |
| 3/4" | 3/4" | 1-5/16" | .6 | C14-33-NL | |
| 3/4" | 1" | 1-3/4" | .7 | C14-34-NL | |
| 3/4" | 1-1/4" | 1-7/8" | 1.3 | C14-35-NL | |
| 1" | 3/4" | 1-13/16" | .7 | C14-43-NL | |
| 1" | 1" | 1-7/8" | .9 | C14-44-NL | |
| 1" | 1-1/4" | 1-13/16" | 1.1 | C14-45-NL | |
| 1-1/4" | 1" | 1-13/16" | .9 | C14-54-NL | |
| 1-1/4" | 1-1/4" | 1-15/16" | 1.4 | C14-55-NL | |
| 1-1/4" | 1-1/2" | 2-1/8" | 1.7 | C14-56-NL | |
| 1-1/2" | 1-1/2" | 2-7/16" | 2.3 | C14-66-NL | |
| 1-1/2" | 2" | 2-1/2" | 2.6 | C14-67-NL | |
| 2" | 1-1/2" | 3-1/4" | 2.5 | C14-76-NL | |
| 2" | 2" | 2-1/4" | 2.8 | C14-77-NL | |

**Note:** Ford recommends insert stiffeners when using plastic pipe or tubing.

### FEATURES

- All brass that comes in contact with potable water conforms to AWWA Standard C800 (UNS NO C89833)
- Brass components that do not come in contact with potable water conform to AWWA Standard C800 (ASTM B-62 and ASTM B-584, UNS NO C83600 - 85-5-5-5)
- Sleeve design provides hexagonal wrench flats for proper installation
- The product has the letters "NL" cast into the main body for proper identification
- UL Classified to ANSI/NSF Standard 61 and Annex G



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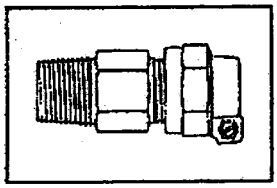
12/06/11

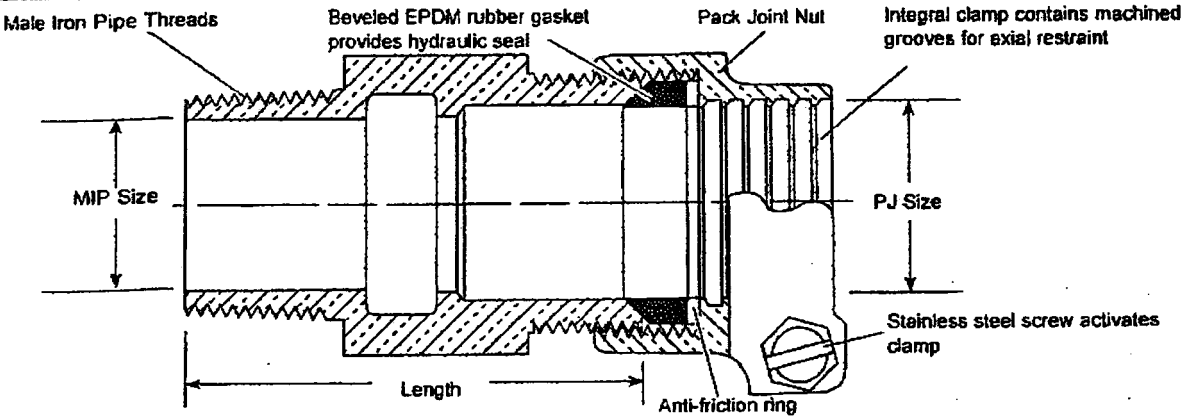
Submitted By:

# SUBMITTAL INFORMATION

## Pack Joint Coupling - *(C84-xx-NL style)*



### MALE IRON PIPE BY PACK JOINT FOR COPPER OR PLASTIC TUBING (CTS)




| Description | | Length | Approx. Wt. Lbs | Part Number | 3 Submitted Item(s) |
|---|---|---|---|---|---|
| Male Iron Pipe | P.J. for CTS | | | | |
| 1/2" | 1/2" | 2" | .5 | C84-11-NL | |
| 1/2" | 5/8" | 2-1/16" | .8 | C84-12-NL | |
| 1/2" | 3/4" | 2-1/16" | .8 | C84-13-NL | |
| 3/4" | 1/2" | 2" | .8 | C84-31-NL | |
| 3/4" | 5/8" | - | .7 | C84-32-NL | |
| 3/4" | 3/4" | 2-1/4" | .6 | C84-33-NL | |
| 3/4" | 1" | 2-3/8" | .7 | C84-34-NL | |
| 1" | 5/8" | - | - | C84-42-NL | |
| 1" | 3/4" | 2-3/8" | .7 | C84-43-NL | |
| 1" | 1" | 2-9/16" | .8 | C84-44-NL | |
| 1" | 1-1/4" | 2-1/2" | 1.2 | C84-45-NL | |
| 1" | 1-1/2" | 2-9/16" | 1.8 | C84-46-NL | |
| 1-1/4" | 1" | 2-9/16" | 1.4 | C84-54-NL | |
| 1-1/4" | 1-1/4" | 2-9/16" | 1.4 | C84-55-NL | |
| 1-1/4" | 1-1/2" | 3-1/4" | 1.8 | C84-56-NL | |
| 1-1/2" | 1-1/2" | 3-1/4" | 2.0 | C84-66-NL | |
| 1-1/2" | 2" | 2-15/16" | 2.6 | C84-67-NL | |
| 2" | 2" | 3-1/4" | 3.1 | C84-77-NL | |

Note: Ford recommends using insert stiffeners with plastic pipe or tubing.

### FEATURES

- All brass that comes in contact with potable water conforms to AWWA Standard C800 (UNS NO C89833)
- Brass components that do not come in contact with potable water conform to AWWA Standard C800 (ASTM B-62 and ASTM B-584, UNS NO C83600 - 85-5-5-5)
- Sleeve design provides hexagonal wrench flats for proper installation
- The product has the letters "NL" cast into the main body for proper identification
- UL Classified to ANSI/NSF Standard 61 and Annex G



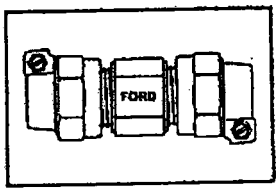
**The Ford Meter Box Company, Inc.**
P.O. Box 443, Wabash, Indiana U.S.A. 46992-0443
Phone: 260-563-3171 / Fax: 800-826-3487
Overseas Fax: 260-563-0167
http://www.fordmeterbox.com

12/06/11

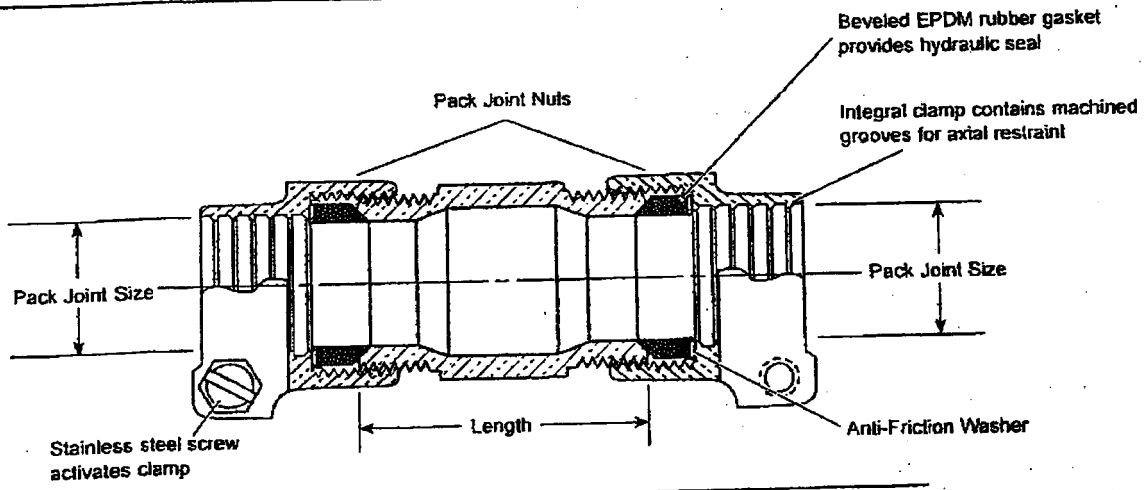
Submitted By:

# SUBMITTAL INFORMATION

## Pack Joint Coupling - *(C44-xx-NL style)*




**PACK JOINT FOR COPPER OR PLASTIC TUBING (CTS) BOTH ENDS**




| Description | | Length | Approx. Wt. Lbs | Part Number | ✓ Submitted Item(s) |
|---|---|---|---|---|---|
| P.J. for CTS | P.J. for CTS | | | | |
| 1/2" | 1/2" | 1-7/8" | .7 | C44-11-NL | |
| 1/2" | 5/8" | 2-1/16" | .7 | C44-12-NL | |
| 1/2" | 3/4" | 2" | .8 | C44-13-NL | |
| 1/2" | 1" | 2-5/16" | .9 | C44-14-NL | |
| 5/8" | 5/8" | 2" | 1.0 | C44-22-NL | |
| 5/8" | 3/4" | 2-1/16" | 1.0 | C44-23-NL | |
| 3/4" | 3/4" | 2" | .9 | C44-33-NL | |
| 3/4" | 1" | 2-1/8" | 1.0 | C44-34-NL | |
| 1" | 1" | 2-1/8" | 1.1 | C44-44-NL | |
| 1" | 1-1/4" | 1-15/16" | 1.5 | C44-45-NL | |
| 1" | 1-1/2" | 2-5/8" | 2.1 | C44-46-NL | |
| 1-1/4" | 1-1/4" | 2-1/2" | 1.5 | C44-55-NL | |
| 1-1/4" | 1-1/2" | 3-1/4" | 2.8 | C44-56-NL | |
| 1-1/2" | 1-1/2" | 3-5/8" | 3.0 | C44-66-NL | |
| 1-1/2" | 2" | 2-1/2" | 3.5 | C44-67-NL | |
| 2" | 2" | 3-15/16" | 4.5 | C44-77-NL | |

CLASSIFIED UL WATER QUALITY

**Note:** Ford recommends using insert stiffeners with plastic pipe or tubing.

### FEATURES

- All brass that comes in contact with potable water conforms to AWWA Standard C800 (UNS NO C89833)
- Brass components that do not come in contact with potable water conform to AWWA Standard C800 (ASTM B-62 and ASTM B-584, UNS NO C83600 - 85-5-5-5)
- Sleeve design provides hexagonal wrench flats for proper installation
- The product has the letters "NL" cast into the main body for proper identification
- UL Classified to ANSI/NSF Standard 61 and Annex G



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12/06/11

Submitted By:

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

April 29, 2016



TO: WHOM IT MAY CONCERN

FROM: ERNEST Y. W. LAU, P.E., MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: 2002 WATER SYSTEM STANDARDS AMENDMENT

**For Oahu only**, the 2002 Water System Standards shall be amended as follows:

DIVISION 400 – APPROVED MATERIALS LIST AND STANDARD DETAILS, Section 403 – Standard Details:

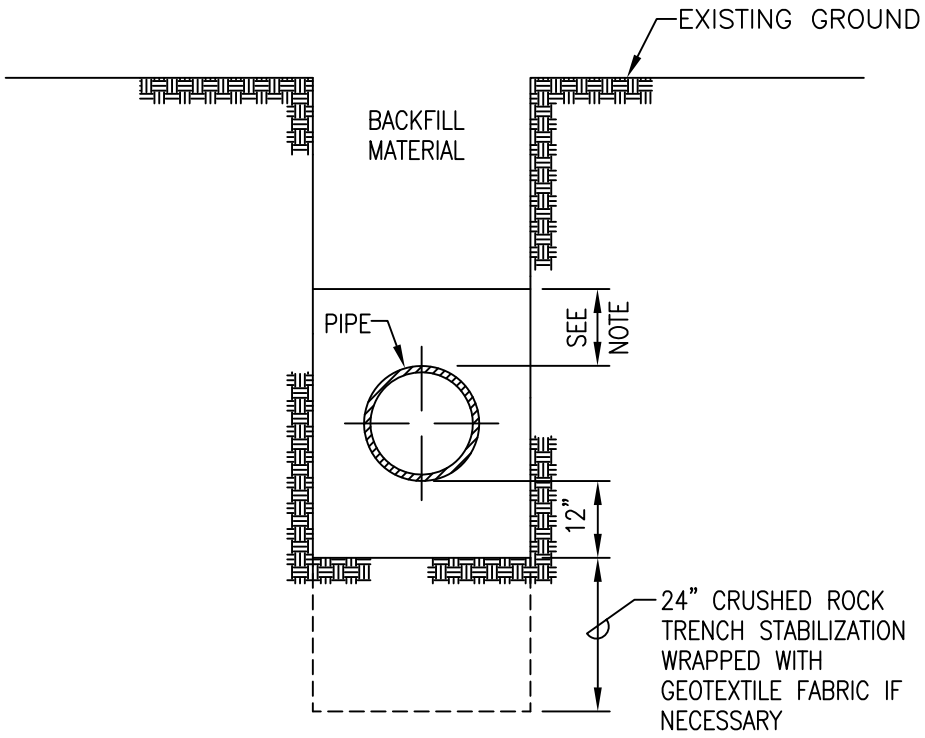
1. Delete Standard Detail P10 TRENCH BACKFILL and replace with the enclosed Standard Detail P10 TRENCH BACKFILL (2016 Revision) which reflects the increase in cushion material below the pipe to 12 inches.

All construction plans received by the Board of Water Supply after May 20, 2016, shall comply with the above amendment.

If you have any questions, please contact Michael Domion, Support Branch Head, Capital Projects Division, at 748-5740.

Enclosure

cc: Hawaii, Kauai and Maui Water Departments




NOTE:

1. 12" OF CUSHION MATERIAL FOR PIPES 16" OR LARGER. 6" CUSHION MATERIAL FOR PIPES 12" OR SMALLER AT LOCATIONS WHERE INVERT IS ABOVE 4–FOOT ELEVATION.

2. 12" OF CUSHION MATERIAL FOR ALL PIPE SIZES AT LOCATIONS WHERE THE INVERT IS AT OR BELOW THE 4–FOOT ELEVATION.

| | | | |
|---|---|---|---|
| | | | 2016 REVISION |
| OAHU | TRENCH BACKFILL<br>SCALE: NTS | STANDARD DETAILS | P10 |

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

April 15, 2016



TO: WHOM IT MAY CONCERN

FROM: ERNEST Y.W. LAU, P. E., MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: 2002 WATER SYSTEM STANDARDS AMENDMENT

**For Oahu only**, the 2002 Water System Standards shall be amended as follows:

DIVISION 200 – MATERIALS, Section 202 – Ductile Iron Pipe, Fittings, and Appurtenances:

1. Delete **Table 200-1 – STANDARD DIMENSIONS Of MECHANICAL JOINT And PUSH-ON JOINT DUCTILE IRON PIPE** and replace with the following table:

**Table 200-1 – STANDARD DIMENSIONS OF MECHANICAL JOINT AND PUSH-ON JOINT DUCTILE IRON PIPE (Revised 4/2016 - FOR OAHU ONLY)**

| Pipe Size (Inches) | Thickness (Class) | Thickness (Inches) | Outside Diameter (Inches) |
|---|---|---|---|
| 4 | 53 | 0.32 | 4.80 |
| 6 | 53 | 0.34 | 6.90 |
| 8 | 53 | 0.36 | 9.05 |
| 12 | 53 | 0.40 | 13.20 |
| 16 | 53 | 0.43 | 17.40 |
| 20 | 53 | 0.45 | 21.60 |
| 24 | 53 | 0.47 | 25.80 |
| 30 | 53 | 0.51 | 32.00 |
| 36 | 53 | 0.58 | 38.30 |
| 42 | 53 | 0.65 | 44.50 |

The thicker class of ductile iron pipe will provide better protection from the corrosive soils on Oahu.

All construction plans received by the Board of Water Supply after April 29, 2016, shall comply with the above amendment.

If you have any questions, please contact Michael Domion, Support Branch Head, Capital Projects Division, at 748-5740.

MD

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

May 13, 2015



Mr. Jeff Smith, Regional Sales Manager
DFW Plastics, Inc.
P.O. Box 648
Bedford, Texas 76095

Dear Mr. Smith:

Subject: Your Letter Dated March 7, 2014, Regarding Request of Product Approval

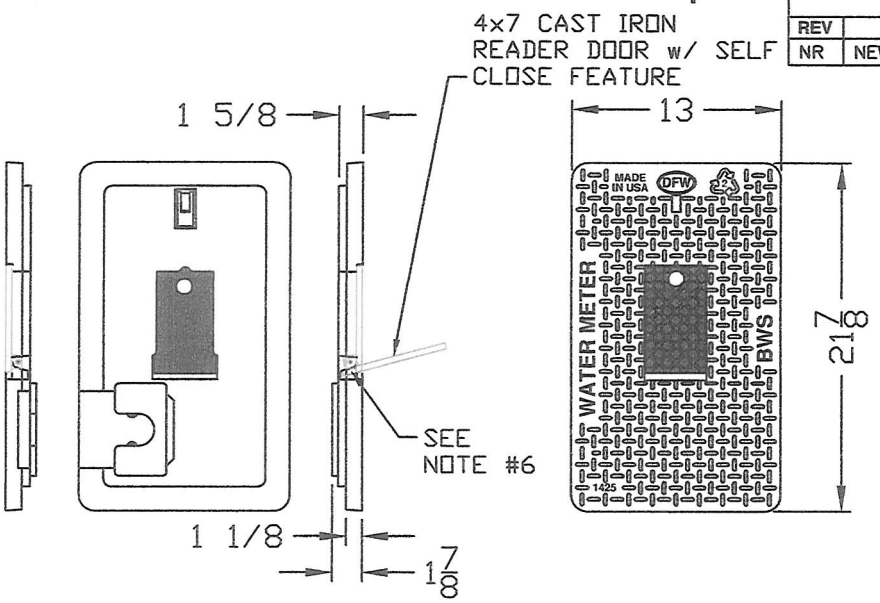
We approve the DFW Type X Meter Box and Cover (DFW1425C-12-1CA BWS) for inclusion into the Approved Materials List of the Water System Standards for Oahu only.

If you have any questions, please contact Michael Domion, Support Branch Head, of the Capital Projects Division, at (808)748-5740.

Very truly yours,

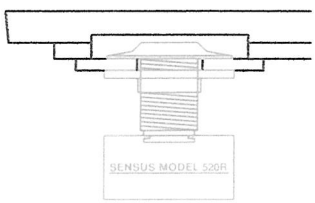
ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

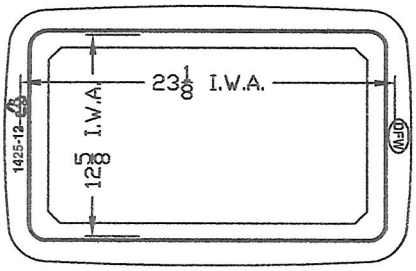
| REVISIONS | | |
|---|---|---|
| REV | DESCRIPTION | DATE |
| NR | NEW RELEASE | 03/07/14 |

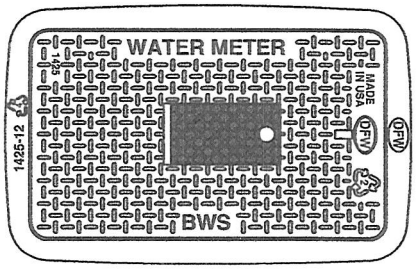



| LID KEY | |
|---|---|
| 1 | BLACK COLOR |
| C | CAST IRON READER DOOR 4x7 |
| A | AMR SLIDE MOUNT |
| BWS | BWS ENGRAVING |

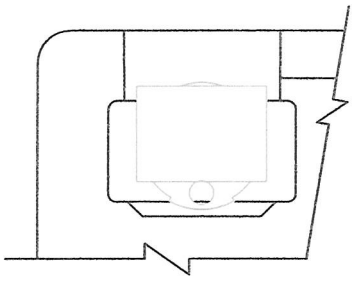
## DFW1425C-1CA BWS-LID



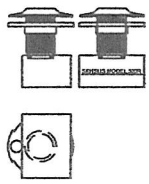



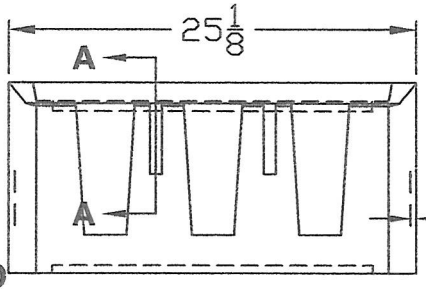

## DFW1425C-12-1CA BWS

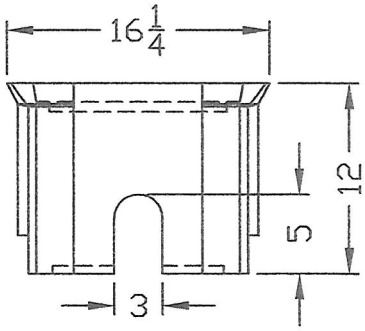


## SENSUS ERT INSTALLED

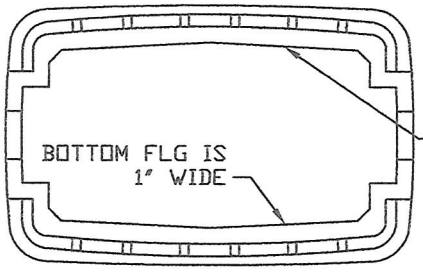
**MODEL 520R**






## SECTION A-A




## DFW1425C-12-BODY

NOTES

1) DIM'S ± 1/8 U.N.O.
2) LID MATERIAL: H.D.P.E.
3) BODY MATERIAL: L.L.P.E.
4) WALL THICKNESS: 3/8 ± 5%
5) I.W.A. = INSIDE WORK AREA
6) ø3/16" x 6" LONG ECO TECH STEEL PIN IMPREGNATED WITH ZINC & ALUMINUM FOR CORROSION RESISTANCE. CHROMIUM FREE.

DFW PLASTICS, INC. ENGAGES IN ONGOING RESEARCH AND DEVELOPMENT TO IMPROVE AND ENHANCE ITS PRODUCTS. THEREFORE, DFW PLASTICS, INC. RESERVES THE RIGHT TO CHANGE PRODUCT OR SYSTEM SPECIFICATIONS WITHOUT NOTICE.


DFW PLASTICS, INC.
PO BOX 648
BEDFORD, TEXAS 76095
(817) 439-3600
(817) 439-3700 (f)
www.dfwplasticsinc.com


# DFW1425C-12-1CA BWS

| | |
|---|---|
| CREATED: | 03/07/14 |
| UPDATED: | * |
| ACCEPTED: | * |
| DRAWN BY: | J.C.A. |
| PLOT SCALE: | 1:12 |

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

April 23, 2015



TO: WHOM IT MAY CONCERN

FROM: ERNEST Y. W. LAU, P.E., MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: 2002 WATER SYSTEM STANDARDS AMENDMENT

**For Oahu only**, the 2002 Water System Standards shall be amended as follows:

**Division 200 - MATERIALS:**

1. Delete Section 204 – PLASTIC PIPE in its entirety and replace with the enclosed Section 204 – PLASTIC PIPE, Revised 4/2015

**Division 300, Section 302 – WATER MAINS AND APPURTENANCES:**

2. Delete section 302.14 PLASTIC PIPE in its entirety and replace with the enclosed section 302.14 PLASTIC PIPE, Revised 4/2015.

3. Delete section 302.15 FITTINGS AND SPECIALS (DUCTILE IRON, AND CONCRETE CYLINDER) in its entirety and replace with the enclosed section 302.15 – FITTINGS AND SPECIALS (DUCTILE IRON, AND CONCRETE CYLINDER), Revised 4/2015

The elimination of DR18 plastic pipe and PVC fittings, and requiring DR14 for all plastic pipe installations will provide better protection from unknown transient pressure in our water system and will better withstand potential damage during transport, handling and installation.

All construction plans received by the Board of Water Supply **after April 30, 2015** shall comply with the above amendments.

If you have any questions, please contact Michael Domion of the Capital Projects Division at (808) 748-5740.

Enclosures

# SECTION 204 - PLASTIC PIPE

## 204.01 POLYVINYL CHLORIDE (PVC) C-900 & C-905 PIPE.

**A. General.** PVC C-900 and C-905 pipe shall be cast-iron-pipe-equivalent O.D. type as called for in the Bid, Plans, and Specifications. All PVC C-900 and C-905 pipe and materials used for potable service shall be NSF 61 certified.

Only elastomeric-gasket type joints shall be allowed. Pipe shall be furnished complete with integral bells, with gaskets conforming to ASTM F477 and NSF 61, and lubricants conforming to NSF 61. All gaskets and lubricants shall be made from materials that are compatible with the plastic material and with each other when used together. The material shall not support the growth of bacteria nor adversely affect the potable quality of the water that is to be transported.

Electronic markers shall be installed over the PVC pipe for its entire length in accordance to the plans and specification. See Division 500 for corrosion protection requirements as applicable to the project.

PVC pipe deflection at the bell is not allowed. Deflections at ductile iron fittings shall be in accordance to Section 102.07 DEFLECTION PER JOINT. Bending of PVC pipes is not allowed.

**B. AWWA C900 PVC PIPE.** PVC C900 pipe shall be in compliance with Table 200-5 and AWWA C900, " Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4-Inch Through 12-Inch for Water Transmission and Distribution".

**Table 200-5 - PVC C900 PIPE STANDARD DIMENSIONS**

| Pipe Size (In.) | Class (psi) | DR | Thickness (In.) | Outside Diameter (In.) |
|---|---|---|---|---|
| 4 | 150 | 14 | 0.343 | 4.800 |
| 6 | 150 | 14 | 0.493 | 6.900 |
| 8 | 150 | 14 | 0.646 | 9.050 |
| 12 | 150 | 14 | 0.943 | 13.200 |

**C. AWWA C905 PVC Pipe.** PVC C905 pipe shall be in compliance with Table 200-6 and AWWA C905, "Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14-Inch Through 48-Inch, for Water Transmission and Distribution".

**Table 200-6 - PVC C905 PIPE STANDARD DIMENSIONS**

| Pipe Size (In.) | Class (psi) | DR | Thickness (In.) | Outside Diameter (In.) |
|---|---|---|---|---|
| 16 | 150 | 14 | 1.243 | 17.400 |

**D. Fittings.**

**1. Ductile Iron Fittings.** Ductile iron fittings used with PVC C900 and C905 pipes shall conform to SECTION 202 – DUCTILE IRON PIPE, FITTINGS, AND APPURTENANCES.

**2. PVC Fittings.** PVC fittings, including deflection couplings are not approved.

## 302.14 PLASTIC PIPE.

**A. General.** Plastic pipe shall be installed at the location and to the lines, grades and details shown on the plans. No bending of plastic pipe shall be allowed unless specified otherwise.

Electronic markers shall be installed over the entire length of plastic pipe for "toning" purpose in accordance to the plans and specification.

When tapping for service connections and air relief valves, service saddles or tapped tees shall be used. The installation of service saddles or tapped tees shall be as specified for service laterals and connections. *(For Oahu only: Service saddles allowed only for tapping to existing mains and taps for ball corps at main valves and air relief valves where valves are to be installed in manholes.)*

Plastic pipe deflection at the bell is not allowed. Deflections at ductile iron fittings shall be in accordance to Section 102.07 DEFLECTION PER JOINT. For plastic pipes, the installation according to the plans and specifications may require additional fittings, and items of work not specified in the plans and specifications due to no deflection being allowed at the bell. Bending of plastic pipes is not be allowed. Deflections at ductile iron fittings shall be in accordance to Section 102.07 DEFLECTION PER JOINT.

Any additional design modification and/or work required due to no deflection being allowed at the joints shall be the responsibility of the Contractor and shall be approved by the Department.

**B. Payment.** Payment for the furnishing and installation of the various sizes of PVC PIPE, including all necessary joint accessories, will be made at the respective Unit Price Bids per linear foot based on the actual linear feet of PVC PIPE installed (exclusive of valves, fittings, bends and adapters), cleaned or pigged and successfully hydrotested.

The Unit Price Bids for the furnishing and installation of PVC PIPE shall be full compensation for all labor, materials, tools and equipment for all handling, hauling, unloading, placing, cutting, jointing, testing, dewatering, painting, installing, and service saddles and all other incidentals required to complete the work.

Measurement and payment for ductile iron fittings shall be as specified in Section 302.15 - FITTINGS AND SPECIALS (DUCTILE IRON, CONCRETE CYLINDER, PLASTIC PVC PIPE) of the Water System Standards.

*For Oahu only for service connections and air relief valves: Payment for service saddles, if allowed by the Department, will be made at the respective Unit Price Bid based on the actual number of SERVICE SADDLES installed and tested. Payment for tapped tees or bossed tees (with tap sizes specified) will be made at the Unit Bid Price per pound of DUCTILE IRON FITTINGS based on the total weight of the tapped tees installed and tested.*

## 302.15 FITTINGS AND SPECIALS (DUCTILE IRON AND CONCRETE CYLINDER).

**A. General.** The Contractor shall furnish and install the various types of fittings and specials (ductile iron or concrete cylinder) at locations shown on the plans or as directed by the Manager. Installation shall be in the same manner prescribed elsewhere in these Standards for the various types of pipe joints. *(For Oahu only: Buried ductile iron fittings shall be encased with 2 layers of 8 mil polyethylene wrap.)*

For concrete cylinder pipes, fittings may be fabricated to be integral with a straight section of pipe with the understanding that any field adjustments required will be done at no cost to the Department.

**B. Payment.** Payment for the furnishing and installation of DUCTILE IRON FITTINGS will be made at the Unit Price Bid per pound or per each fitting, based on the total body weight of the fittings or the actual number of DUCTILE IRON FITTINGS installed and tested.

The total weight of the various sizes and types of DUCTILE IRON FITTINGS shall be the sum of the body weights of the fittings based on the weights given in the latest edition of the "Handbook of Ductile Iron Pipe" by the Ductile Iron Pipe Research Association. If the weight of any fitting is not given in the handbook, the weight shall be based on the actual weight marked on that fitting. Weights of jointing accessories are considered incidental.

Payment for furnishing and installing CONCRETE CYLINDER FITTINGS AND SPECIALS will be made at the respective Unit Price Bids based on the actual number installed and tested.

Payment for FLANGED BY BELL ADAPTERS and FLANGED DISMANTLING JOINTS will be made at the respective Unit Price Bids based on the actual number installed and tested. Flanges shall be per ANSI B16.1, Class 125 or 250.

The Unit Price Bids for furnishing and installing fittings and specials (DUCTILE IRON or CONCRETE CYLINDER) shall be full compensation for all labor, materials, tools and equipment for all handling, hauling, unloading, placing, poly-wrapping, jointing, testing, bracing and blocking and other incidentals necessary to complete the work.

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

April 23, 2015



TO: WHOM IT MAY CONCERN

FROM: ERNEST Y. W. LAU, P.E., MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: 2002 WATER SYSTEM STANDARDS AMENDMENT

**Division 100, Section 102 – MAINS, Subsection 102.01 LOCATION:**

**For Oahu only**, delete Table 100-1 - WATER MAIN CLEARANCES and replace with the following:

**Table 100-1 – WATER MAIN CLEARANCES**

| Island | Utility Diameter (Inches) | Clearances | |
|---|---|---|---|
| | | Horizontal (Feet) | Vertical (Inches) |
| Hawaii | All Sizes | 8 | 18[a] |
| Kauai | All Sizes | 8 | 18[b] |
| Maui | <16 | 3 | 6[b] |
| Maui | ≥16 | 3 | 12[b] |
| Oahu | All Sizes | 3[c] | 12[b] |

a - Provided other utility mains are concrete jacketed.
b - For trenchless installation work (micro-tunneling, directional drilling, pipe ramming/jacking of new utilities such as electrical duct lines, sewer lines, drain lines) crossing or paralleling existing water mains, provide three-foot vertical clearances to existing mains.
c - Five-foot clearance to water mains 16-inches and larger.

The additional clearances will help facilitate the maintenance of our pipeline infrastructure. All construction plans received by the Board of Water Supply after April 30, 2015 shall comply with the above amended Table 100-1 – WATER MAIN CLEARANCES.

If you have any questions, please contact Michael Domion of the Capital Projects Division at (808)748-5740.

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

December 8, 2014



TO: WHOM IT MAY CONCERN

FROM: ERNEST Y. W. LAU, P.E., MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: 2002 WATER SYSTEM STANDARDS AMENDMENTS

The following amendment to the 2002 Water System Standards is effective immediately for **Oahu only**:

**Division 400, Section 403 STANDARDS DETAILS:**

Replace the following details with the enclosed details (2014 Revision) which reflect the new splice length of 7-1/2" for a 3/4" meter:

| Standard Detail | Description |
|---|---|
| L14 | Copper Service lateral for Connection Type "X" Meter Box 5/8", 3/4", & 1" Meters |
| L18 | Material List for Copper Laterals |

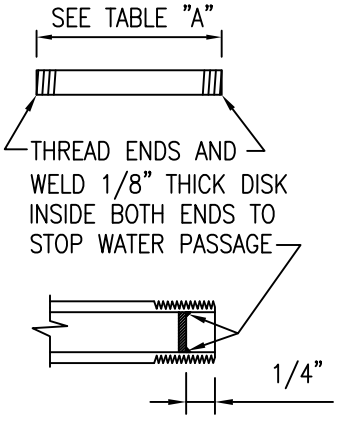
If you have any questions, please contact Michael Domion, Support Branch Head, Capital Projects Division, at 748-5740.

Enclosure

cc: Kauai, Maui, Hawaii Water Departments

NOTES:

1. SEE M3 FOR DETAILS OF TYPE "X" METER BOX.
2. IF THE CONSUMER'S SERVICE VALVE CANNOT BE INSTALLED 3–5 FEET FROM THE PROPERTY LINE, THE VALVE SHALL BE INSTALLED AS DIRECTED BY THE MANAGER, OR INSTALL BALL CORP. WITHIN METER BOX AFTER METER.
3. SEE PLATE M43 FOR METER INSTALLATION IN NON–SIDEWALK AREA.




| TABLE "A" | | |
|---|---|---|
| METER SIZE | SPLICE SIZE | SPLICE LENGTH |
| 5/8" | 1" DIA. | 7 1/2" |
| 3/4" | 1" DIA. | 7 1/2" |
| 1" | 1 1/4" DIA. | 10 3/4" |

METER SPLICE DETAIL

| | |
|---|---|
| | 2014 |
| | REVISION |

| | | | |
|---|---|---|---|
| OAHU | COPPER SERVICE LATERAL<br>FOR CONNECTION TYPE "X" METER BOX<br>5/8", 3/4", & 1" METERS<br>SCALE: NTS | STANDARD DETAILS | L14 |

OAHU

# MATERIAL LIST
FOR COPPER LATERALS

SCALE: NTS

STANDARD DETAILS

L18

REVISION 2014

| TABLE A (COPPER) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| METER | | | LOW RANGE FOR METER SIZING (GPM) | LATERAL TYPE | LATERAL SIZE | SPLICE SIZE | SPLICE LENGTH | METER COUPL'G | BRASS REDUC. | SERVICE VALVE | BRASS PIPE | CAP | METER BOX |
| CODE | SIZE | FLOW GPM | | | | | | | | | | | |
| 02 | 5/8" | 20 | 0–20 | "A" | 1" | 1" DIA. | 7 1/2" | 3/4" | 1"x3/4" | 1" | 1"x10" | 1" | TYPE X |
| 03 | 3/4" | 30 | 21–30 | "A" | 1" | 1" DIA. | 7 1/2" | 3/4" | 1"x3/4" | 1" | 1"x10" | 1" | TYPE X |
| 04 | 1" | 50 | 31–50 | "C" | 1–1/2" | 1" DIA.* | 10 3/4" | 1" | 1 1/2"x1" | 1 1/2" | 1 1/2"x10" | 1 1/2" | TYPE X |
| 06 | 1 1/2" | 100 | 51–100 | "D" | 2" | 1 1/2" DIA. | 13" R.E. | 1 1/2 FL. | NONE | 1 1/2" | 1 1/2"x10" | 1 1/2" | TYPE III |
| 07 | 2" | 160 | 101–160 | "E" | 2–1/2" | 2" DIA.** | 17" R.E. | 2" FL. | NONE | 2" | 2"x10" | 2" | TYPE III |

* INCLUDES 2–1 1/4"x 1" BUSHINGS

* * INCLUDES 2–2"x2 1/2" BUSHINGS

| MAXIMUM METER SIZES FOR DOMESTIC SERVICE LATERALS | | |
|---|---|---|
| LATERAL TYPE | MAXIMUM METER SIZE FOR SINGLE SERVICE LATERAL | MAXIMUM METER SIZES FOR COMMON SERVICE LATERAL |
| "A" | 3/4" | NA |
| "C" | 1" | 3/4" & 3/4" |
| "D" | 1–1/2" | 1" & 1" |
| "E" | 2" | 1–1/2" & 1" |

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



September 19, 2014

Ms. Maureen Patton
Water Works Specialties Manager
T. Christy Enterprises, Inc.
655 East Ball Road
Anaheim, California 92805

Dear Ms. Patton:

Subject: Your Letter Dated March 26, 2014, Regarding Request for Approval of Christy's Polyethylene Encasement (Polywrap)

We approve the Christy's Polywrap for inclusion into the Approved Material List of the Water System Standards for Oahu only.

If you have any questions, please contact Michael Domion, Support Branch Head of the Capital Projects Division, at (808)748-5740.

Very truly yours,

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

cc: Kauai Department of Water
Maui Department of Water Supply
Hawaii Department of Water Supply
D. Hiromoto, D. Ching, L. Fujikami, M. Domion

MD:es

14-0525

140525

Christy's™

2014 MAY -6 P 2:32

RECEIVED
BOARD OF WATER SUPPLY

3/26/2014

Mr. Ernest Y.W. Lau
Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

**RE: Request for Approval of Christy's Polyethylene Encasement (Polywrap)**

I am writing to respectfully request your consideration in approving Christy's Polywrap for inclusion on your Approved Material List. Our linear low density polyethylene encasement is made in conformance with the material requirements of ANSI/AWWA C105/A21.5-10 and ASM D4976 and NT4112-10.

I have included our Product Data Sheet and a Sample of our Blue Polywrap for your review. We manufacture this material in Clear, Black, Blue, Green and Purple. The sizes vary depending on the color.

We also offer this same product in a 3' wide sheet that comes on a 100' roll and is clear. This product was developed for ease of use in wrapping valves and fitting and irregular items. It is known as our Fitting Wrap.

Christy's Polywrap is Made in the USA and has been used for over 25 years all over the United States. Our main distribution facility is located in Anaheim, CA.

Thank you very much for your consideration in this matter. Should you have any questions or need anything additional, please don't hesitate to contact me. We look forward to the opportunity of supplying your material requirements.

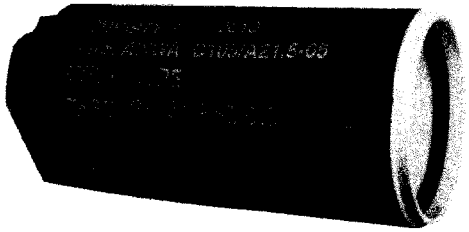
Kindest Regards,

Maureen Patton
Water Works Specialties Manager
T. Christy Enterprises, Inc.
655 East Ball Road
Anaheim, CA 92805
Maureen@tchristy.com
714-206-0534

# Christy's™

MADE IN USA

PRODUCT INFORMATION & SPECIFICATIONS - MARCH 2014



## PRODUCT SPECIFICATIONS

Manufactured of virgin polyethylene material

8 mil minimum, group 2, linear low density

Conforms to the material requirements of the latest revision of ANSI/AWWA C105/A21.5-10 and ASTM D4976 and NT4112-10

Film is imprinted every 18"-24" with:

- Trademark
- Year of manufacture
- Type of resin
- Specification conformance
- Applicable pipe sizes
- Text "Warning Corrosion Protection - Repair any Damage". Purple Polywrap verbiage reads "Recycled/Reclaimed Water Line"

Sizing Guidelines: Pipe Diameter/Polywrap Size

| | |
|---|---|
| Through 6" | 16" polywrap |
| Through 8" | 20" polywrap |
| Through 10" | 24" polywrap |
| Through 12" | 27" polywrap |
| Through 14" | 30" polywrap |
| Through 16" | 34" polywrap |
| Through 18" | 37" polywrap |
| Through 20"-24" | 54" polywrap |
| Through 30" | 67" polywrap |
| Through 36" | 84" polywrap |
| Through 42" | 84" polywrap |

*Larger sizes available upon request*

**T. Christy Enterprises, Inc.**
**655 E Ball Rd • Anaheim, CA 92805**
**Tel: (714) 507-3300 • Fax: (714) 507-3310**

# POLYWRAP

***(Polyethylene Encasement Tubing)***

## *Corrosion Protection for Cast Iron, Ductile Iron and Steel Pipe*

***AWWA C105-10, ANSI A21.5-10***

For over 40 years polyethylene encasement has proven to be an effective method of protecting ductile iron pipe from corrosion. Tests have shown that when loose polyethylene encasement is installed on pipe, it provides an economical means of corrosion protection

- Polyethylene film prevents contact between pipe and the surrounding soil for an economical and effective solution of corrosion protection
- For use on metal piping systems for identification and corrosion protection or PVC pipe for identification purposes such as Reclaimed/Recycled water
- Perforated every 20' or 22' for both 18' and 20' pipe joints
- Diameters available to cover ½" through 42" pipe
- Warning message repeats every 18 - 24 inches depending on size
- Printed with current AWWA C105 and ANSI A21.5 specification

### PROPERTIES

**Material**

| | |
|---|---|
| Group | 2 (Linear) |
| Density | 0.910 to 0.935 g/cm$^3$ |
| Class | B (Colors)(1) |
| Dielectric Strength | Volume resistivity $10^{15}$ohm-cm.,min. |

**Physical Properties**

| | |
|---|---|
| Minimum Tensile Strength | 3600 PSI (24.8 MPa- ASTM D882) |
| Minimum Elongation | 800% (ASTM 882) |
| Minimum Dielectric Strength | 800 V/mil (ASTM D149) Minimum |
| Impact Resistance | 600 g (ASTM D1709 Method B) |
| Propagation Tear Resistance | 2550 gf (ASTM D1922) |
| Thickness | Minimum of 0.008 in. (8 mils) |
| Colors Available | Black, Clear, Purple, Blue, Green. |

### INSTALLATION

Install polywrap according to the latest AWWA or DIPRA guidelines. Use with Christy's Polyethylene (Visqueen) Fitting Wrap and Pipewrap Tape

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

June 20, 2014



Mr. Jesse Anderson
Clow Valve Company
3126 Verde Avenue
Carlsbad, California 92009

Dear Mr. Anderson:

Subject: Your Letter Dated March 20, 2014, Requesting Approval of Clow 850 Fire Hydrant

We approve the updated version of the Clow 850 Fire Hydrant for inclusion into the Water System Standards for Oahu only.

If you have any questions, please contact Michael Domion of the Capital Projects Division at (808)748-5740.

Very truly yours,

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

cc: Kauai Department of Water Supply
Maui Department of Water Supply
Hawaii Department of Water Supply
D. Hiromoto, D. Ching, L. Fujikami, M. Domion

MD:st

CLOW VALVE COMPANY

Website: www.ClowValve.com

California- Wet Barrel Hydrants:
1375 Magnolia Avenue
Corona, CA 92879
Phone: 1(888) 889-2411
Fax: (951) 735-0837

Corporate & Engineering:
902 South 2nd Street
Oskaloosa, IA 52577
Phone: 1(800) 829-2569
Fax: (641) 673-8269

March 20th, 2014

Mr. Ernest Y.W. Lau
Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Lau,

Clow Valve Company would like to submit for approval the following items to be added to the approved material list for **Section 206.01 and 206.02 Wet Barrel Fire Hydrants**. Clow Valve would like to update the current wet barrel hydrant specification.

Clow 850 Fire Hydrant
Product Submittal/Paint Specification (Enclosed)

**206.01** Paint Coating now made with Ellis MX-5500-Y001 Maximus Polyurethane 100 VOC Safety Yellow. Per California Environmental changes with new (VOC) requirements.

**206.02** Clow 850 Fire Hydrant brass internals and outlets made with Eco-Brass (C87850).

**206.02** Composition of the valve rubber shall be Urethane. Valve and valve carrier shall be attached to the operating stem utilizing an "O" ring seal to prevent leakage through the valve. Stem packing shall be of the "O" ring type incorporating two "O" rings in the stem sleeves.

Thank you for taking the time to consider our product for approval.
Sincerely,

Jesse Anderson
Clow Valve Company
3126 Verde Ave.
Carlsbad, CA 92009

Clow Valve Company 902 South 2nd Street, Oskaloosa, IA 52577 www.clowvalve.com

**Effective 2014 (January)**

## Subject: **Certificate of Compliance – 800 Series Fire Hydrant**

Clow Valve Company manufactures the 800 series wet-barrel fire hydrant in the United States of America with compliance to the following criteria.

*Product*

- AWWA C503, Wet-Barrel Fire Hydrants (200psi rating)
- AWWA C550, Protective Interior Coatings for Valves and Hydrants
- UL 246, Hydrants for Fire-Protection Service (850/860 with 200psi rating)
- FM Class Number 1511, Fire Hydrants (Wet-Barrel Type) for Private Fire Service (850/860 with 175psi rating)
- NSF/ANSI 61, Drinking Water System Components – Health Effects (with Annex G) for models 850, 860 and 865
- NSF/ANSI 372, Drinking Water System Components – Lead Content (models 850, 860 and 865)

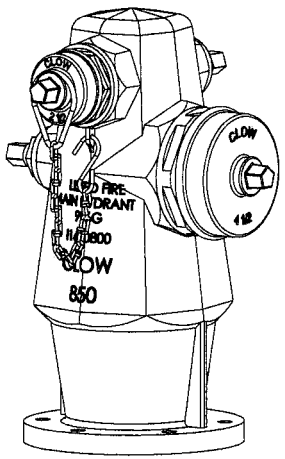
*Materials (where applicable)*

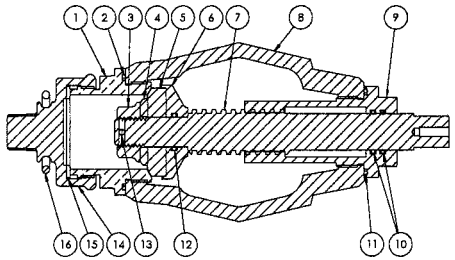
- Ductile Iron: ASTM A536 (Grade 65-45-12 minimum strength)
- Gray Iron: ASTM A126 (Class B)
- Copper Alloy:
  - ASTM B16 (C36000)
  - ASTM B98 (C65500)
  - ASTM B584 (C83600, C86700, C87610, C87850, C89833)
  - ASTM B763 (C86700, C87610, C99500)

Compliance with other standards, such as those related to end joint connections, is dictated by compliance with standards listed above. If you have additional questions please call (800) 829-2569 for assistance.

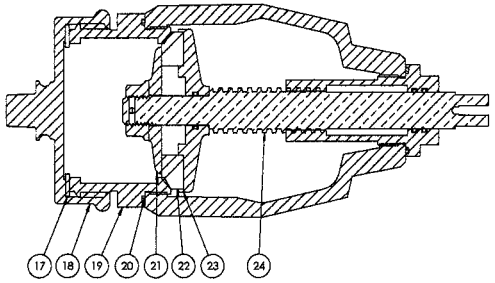
Sincerely,

T. Chad Harbour, P.E., LEED A.P.
Engineering & Quality Manager

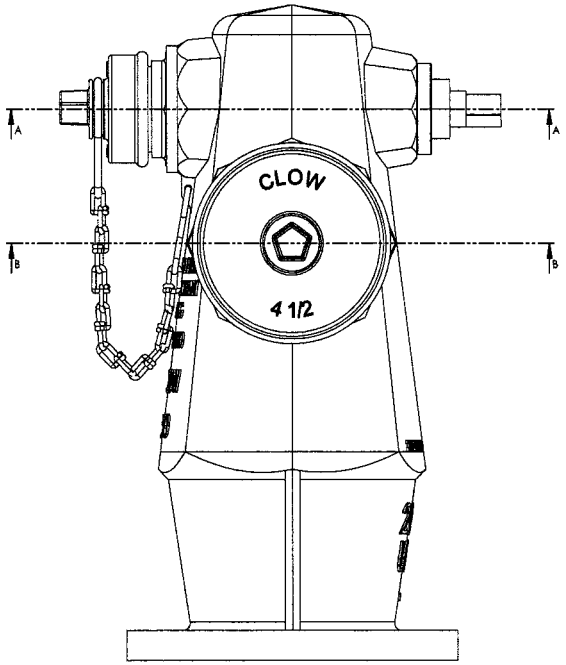



Section A-A
2 1/2" Port Detail




Section B-B
4 1/2" Port Detail




| ITEM NO. | DESCRIPTION | MATERIAL | QTY. |
|---|---|---|---|
| 1 | Outlet - Hose | ASTM B584 C87850 | 1 |
| 2 | O-Ring - Hose Outlet | Buna N Rubber | 1 |
| 3 | Slotted Nut | ASTM B584 C87850 | 2 |
| 4 | Retainer - Hose | ASTM B584 C87850 | 1 |
| 5 | Valve Rubber - Hose | Urethane | 1 |
| 6 | Carrier - Hose | ASTM B584 C87850 | 1 |
| 7 | Stem - Hose | ASTM B763 C99500 | 1 |
| 8 | Body | A126 Class B Cast Iron | 1 |
| 9 | Stem Sleeve | ASTM B584 C87850 | 2 |
| 10 | Stem Sleeve O-Ring - Internal | Buna N Rubber | 4 |
| 11 | Stem Sleeve O-Ring - External | Buna N Rubber | 2 |
| 12 | O-Ring - Carrier | Rubber | 2 |
| 13 | Cotter Pin | Brass | 2 |
| 14 | Cap - Hose | A126 Class B Cast Iron | 1 |
| 15 | Gasket - Hose | Rubber | 1 |
| 16 | Chain Assembly | Zinc Coated Steel | 1 |
| 17 | Gasket - Steamer | Rubber | 1 |
| 18 | Cap - Steamer | A126 Class B Cast Iron | 1 |
| 19 | Nozzle - Steamer | ASTM B584 C87850 | 1 |
| 20 | O-Ring - Steamer Outlet | Buna N Rubber | 1 |
| 21 | Retainer - Steamer | ASTM B584 C87850 | 1 |
| 22 | Valver Rubber - Steamer | Urethane | 1 |
| 23 | Carrier - Steamer | ASTM B584 C87850 | 1 |
| 24 | Stem - Steamer | ASTM B763 C99500 | 1 |

Notes:
- Hydrant complies with AWWA C-503 Sandard for Wet Barrel Fire Hydrants
- Fire hydrant is rated for 200 psi working pressure
- Interior cast surfaces shall be coated with fusion-bonded epoxy powder
- Exterior surfaces to be coated with:
  - Base: Minimum 2 mils DFT of white epoxy paint
  - Finish: Minimum 2 mils DFT polyurethane paint; color to be Safety Yellow

TOLERANCES UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DWG. WORK TO DIMENSIONS GIVEN.

MACHINED DIM.
DECIMAL ± .005
FRACT. ± 1/64
ANGLES ± 1°
SURF. FIN. 125
RADII 1/32

CASTING DIM.
0–4 ± 1/32
4–8 ± 3/64
8–12 ± 1/16
12–18 ± 3/32
18 UP ± 1/8
RADII 1/8
DRAFT 2°

MATL: See Bill of Materials

CLOW VALVE COMPANY
OSKALOOSA, IOWA
DIV. OF McWANE INC.

DR KJH
DATE 5/18/14
ESTIMATED WEIGHT LBS

SCALE
SIZE D–23042
DWG NAME SolidWorks

TITLE
**Model 850 Wet Barrel Fire Hydrant**
**BWS Submittal Drawing**

BROWN PART NO. DXXXXXXX
FINISHED PART NO. MXXXXXXX

REFERENCE SK–XXXX
DWG. NO. D–23042

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

October 22, 2013



TO: WHOM IT MAY CONCERN

FROM: ERNEST Y. W. LAU, P.E.
MANAGER AND CHIEF ENGINEER

SUBJECT: 2002 WATER SYSTEM STANDARDS AMENDMENTS

All waterworks brass fittings shall be in compliance with the amended Section 1417 of the Safe Drinking Water Act (SDWA) which takes effect on January 4, 2014. The amendment includes a change to the definition of "lead-free" by reducing lead content from 8% to a weighted average of not more than 0.25% in the wetted surface material. All waterworks brass fittings installed for potable water service on January 4, 2014 and beyond shall conform to the amended definition of "lead-free".

As indicated in Section 211 – Brass Products, all brass fitting shall conform to NSF Standard 61 and Section 1417 of the SDWA. In addition, for Oahu only, all brass fittings shall conform to NSF Standard 372. Until conforming brass products are approved for inclusion on the Approved Materials List, brass products must be submitted for review and approval on a project-to-project basis.

If you have any questions, please contact Michael Domion at (808)748-5740.

cc: Kauai, Maui and Hawaii Dept. of Water Supply

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

January 4, 2013



Mr. Josh Bivens
Jensen Precast
1255 Nuuanu Avenue, Suite C104
Honolulu, Hawaii 96817

Dear Mr. Bivens:

Subject: Your Letter Dated October 24, 2012, Requesting Approval of Jensen Precast Meter Boxes

We approve the Jensen Precast Type A valve box and cover, Type B meter box and Type X meter box, for inclusion into the Water System Standards for Oahu only.

Please note that the standard cover for our Type B meter box shall be made of cast iron.

If you have any questions, please contact Michael Domion at 748-5740.

Very truly yours,

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

cc: Kauai Department of Water Supply
Maui Department of Water Supply
Hawaii Department of Water Supply
M. Domion

EA:es

12-1287

**JENSEN PRECAST**
***1255 Nuuanu Ave Suite C104***
***Honolulu, HI 96817***
***808-528-1175***

121287
MP
DLP
CP
cc: FO

Mr. Ernest Y.W. Lau
Manager and Chief Engineer
Board of Water Supply
630 South Beretania St
Honolulu, HI 96843

October 24, 2012

RE: Request for Product Approval

Dear Mr. Lau,

I am writing you to request the Board of Water Supply's approval of Jensen Precast Meter Boxes. We have recently taken over precast concrete operations for Ameron. The products we are producing will be the same that Ameron was approved to make for the Board of Water Supply. Jensen Precast is an NPCA Certified material supplier, with our production plant in the Campbell Industrial Park in Kapolei, HI. We would like approval to build the following Board of Water Supply Products:

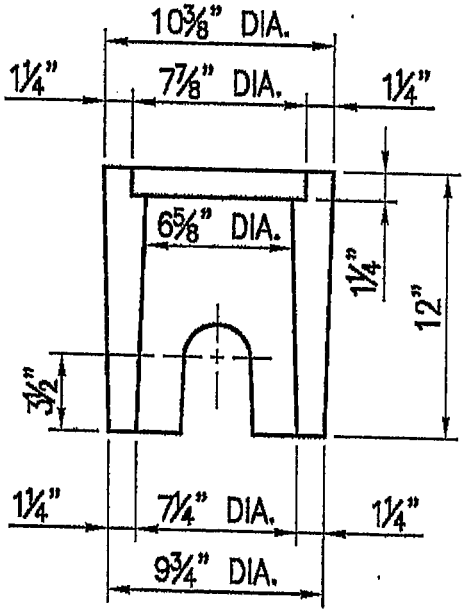
1. Board of Water Standard Detail V13 – Type A Meter Box
2. Board of Water Standard Detail M1 – Type B Meter Box
3. Board of Water Standard Detail M3 – Type X Meter Box

Please see the enclosed shop drawings for your consideration. If I can answer any questions or be of any assistance please don't hesitate to contact me. We appreciate your consideration to become an approved supplier and look forward to hearing from you.

Sincerely,

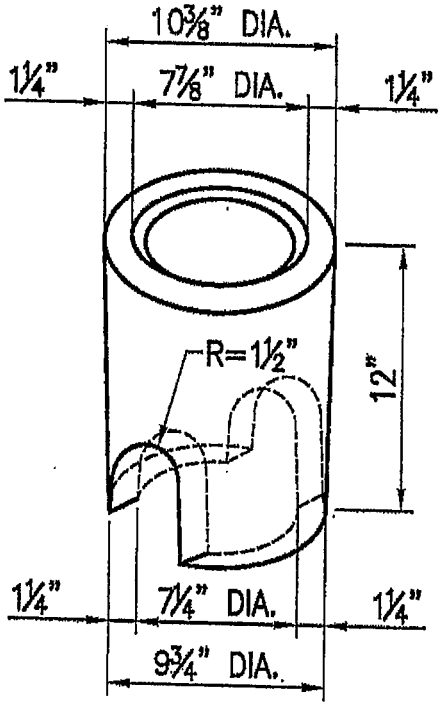
Josh Bivens
Product Applications Specialist
808-321-4665
jbivens@jensenprecast.com

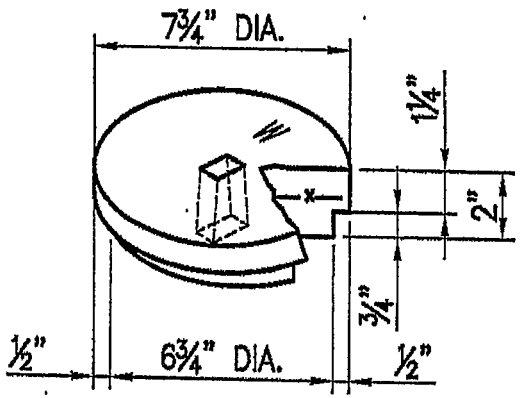
# TYPE "A" VALVE BOX & CONCRETE COVER

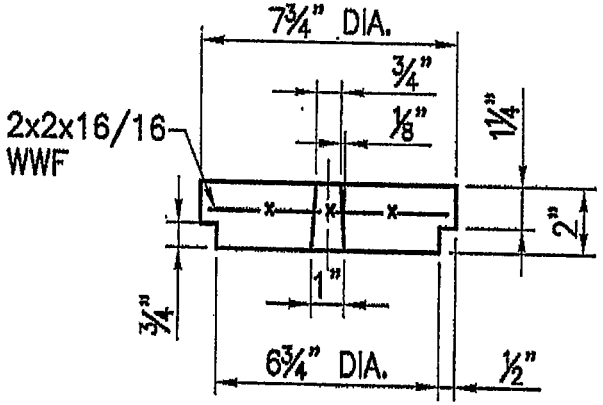



SECTION OF BOX

WEIGHT: = 16.0 lbs.




SECTION OF COVER

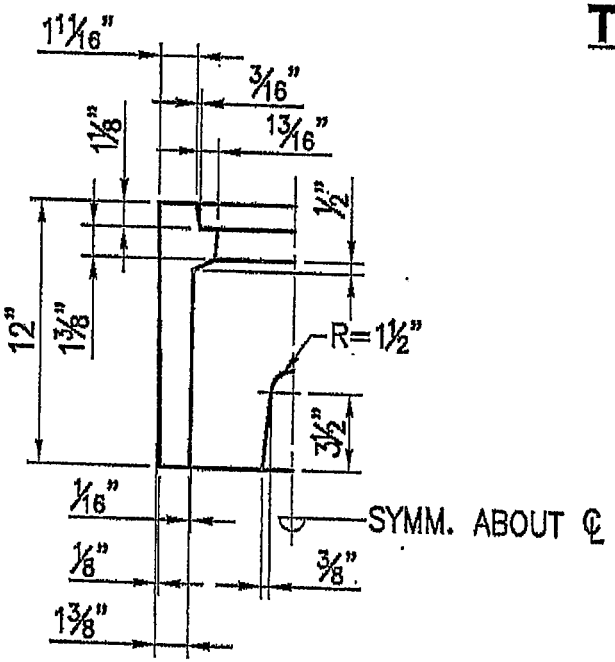
WEIGHT: = 6.6 lbs.

NOTES:

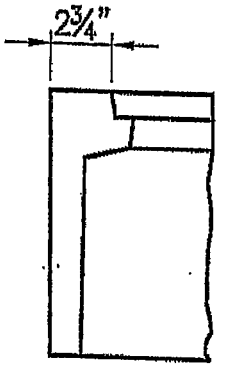
1. NON-REINFORCED
2. ACCOMMODATES 1", 1¼" & 1½" VALVES.
3. PRODUCT NUMBER: BOX P2010, COVER P2011.

JENSEN PRECAST

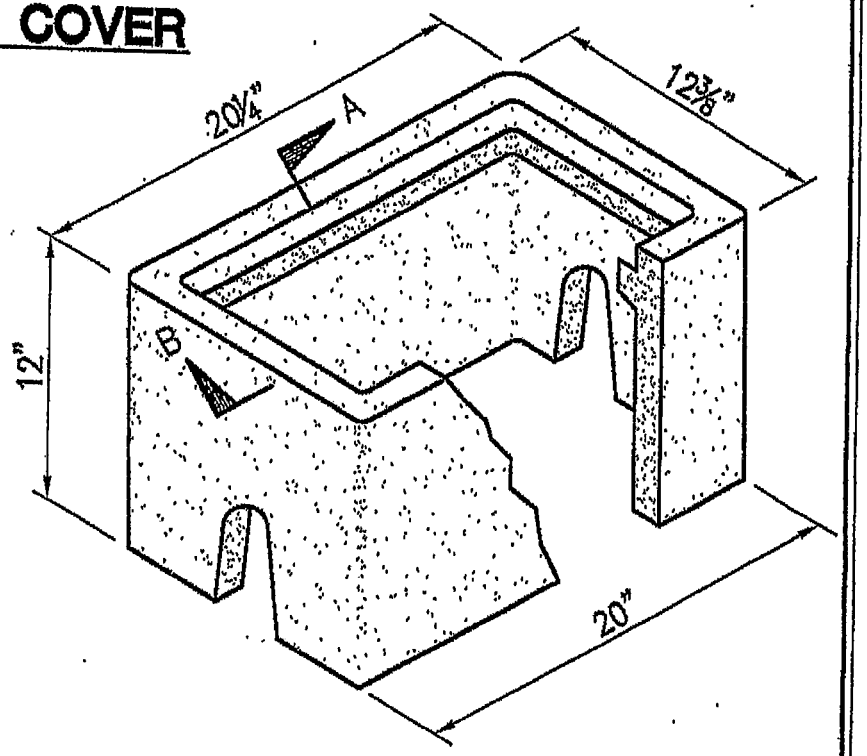
# TYPE "B" METER BOX & CONCRETE COVER

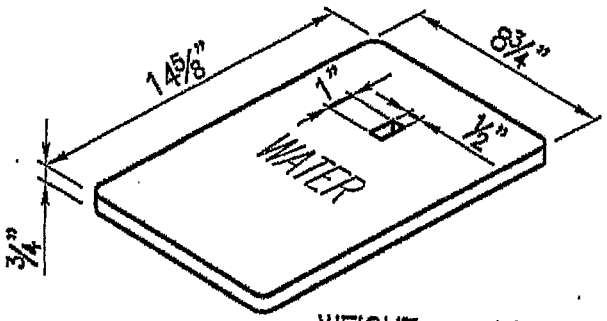



SECTION "A"




SECTION "A"



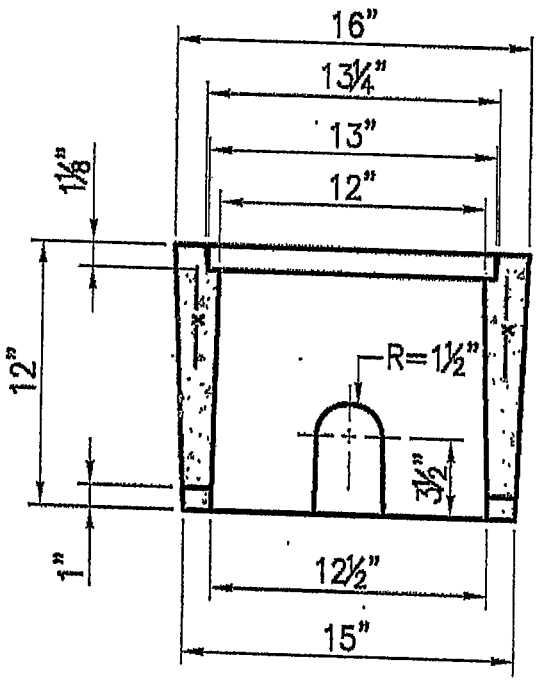

WEIGHT: = 14.2 lbs.

JENSEN PRECAST

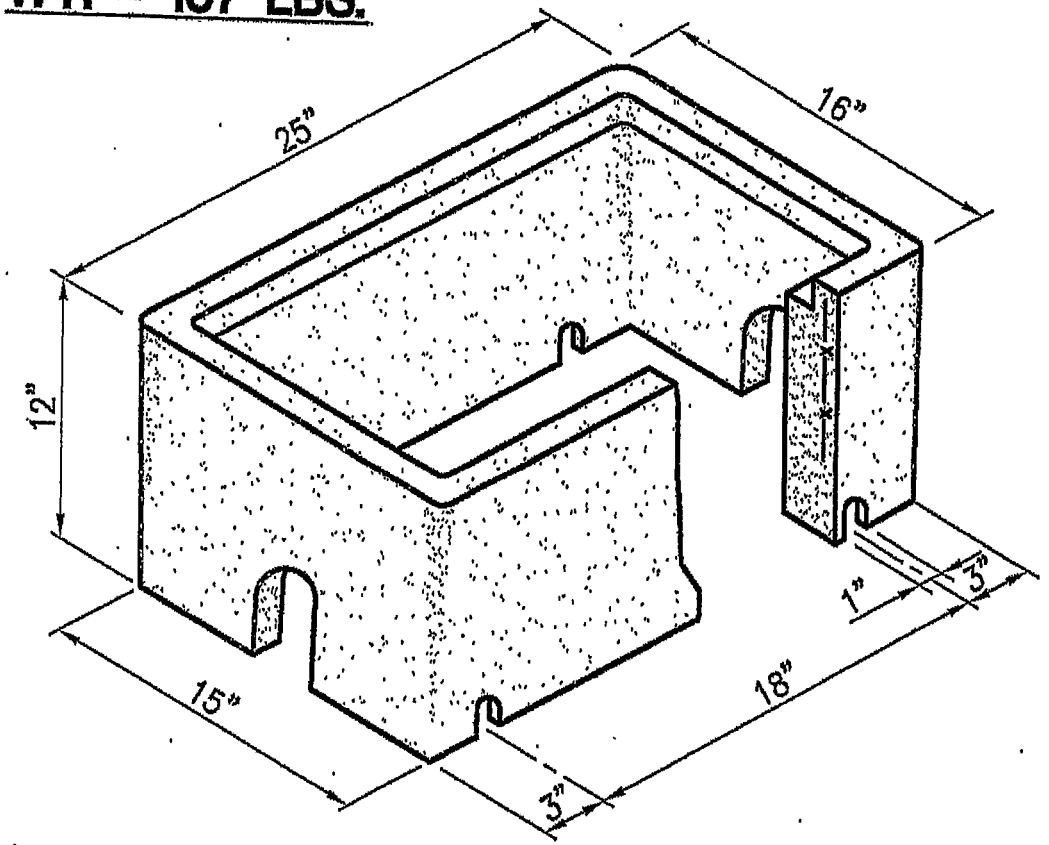
NOTES:

1. ACCOMMODATES 5/8" & 3/4" METERS.
2. SYNTHETIC FIBER REINFORCEMENT IN BOX AND COVER.
3. TYPE B VALVE BOX PRODUCT NO. P2012.
4. CONCRETE COVER, PRODUCT NO. 2013. TYPE B CAST IRON COVER, D&L MODEL NO. L-2440.
5. THIS COVER IS AVAILABLE WITH THE FOLLOWING BRANDS ON SPECIAL ORDERS; HTC, BWS HILO, GAS CO., GAS VALVE, TV, ELEC., TRAFFIC SIGNALS, CATV AND CO.

# TYPE "X" METER BOX
# WT. = 107 LBS.




WEIGHT: = 107 lbs.




NOTES:

1. TYPE "X" METER BOX FOR ⅝", ¾", AND 1" METERS.
2. FOR "HAWAII", TYPE "X" METER BOX IS FOR 1" METER ONLY.
3. CAST IRON COVER WITH CAST IRON READING COVER, D&L NO. L–2450.
4. REINFORCED WITH 2" x 2" – 16/16 GA. WELDED WIRE MESH AND SYNTHETIC FIBER REINFORCEMENT.

JENSEN PRECAST

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

December 14, 2012



TO: WHOM IT MAY CONCERN

FROM: ERNEST Y. W. LAU, P.E.
MANAGER AND CHIEF ENGINEER

SUBJECT: AMENDMENT TO THE WATER SYSTEM STANDARDS DATED 2002
FOR POLYETHYLENE (PE) PIPE FOR OAHU ONLY

Effective immediately, the Honolulu Board of Water Supply (BWS) rescinds approval of the incorporation of PE pipe into the municipal water system for the island of **Oahu only**. All service laterals and service connections 2-1/2 inches and smaller shall be copper pipe only unless otherwise approved by the BWS.

If you have any questions, please contact Michael Domion at (808)748-5740.

cc: Kauai Department of Water Supply
Maui Department of Water Supply
Hawaii Department of Water Supply

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



June 5, 2012

TO: WHOM IT MAY CONCERN

FROM: ERNEST Y. W. LAU, P.E.
MANAGER AND CHIEF ENGINEER

SUBJECT: MODIFICATIONS TO NSF STANDARD 61 AFFECTING MATERIALS APPROVALS FOR BRASS PRODUCTS FOR OAHU ONLY

Effective July 1, 2012, the requirements of NSF Standard 61 Annex F reduce the allowable limit for lead extracted from test bodies from 15 parts per billion (ppb) to 5 ppb. As all waterworks brass fittings must conform to NSF Standard 61 in accordance with Section 211 – Brass Products of the Water System Standards, all materials approvals for brass fittings will be rescinded upon the Annex F effective date for Oahu only, unless certification is provided that products are in conformance with the updated NSF Standard.

Construction projects that have received approval for their brass product materials submittals prior to July 1, 2012 shall not be affected. Until conforming brass products are approved for inclusion on the Approved Materials List, brass products must be submitted for review and approval on a project-to-project basis.

If you have any questions, please contact Michael Domion at (808)748-5740.

cc: Kauai Department of Water Supply
Maui Department of Water Supply
Hawaii Department of Water Supply

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

May 14, 2012



Mr. Wally Sunnaa, P.E.
Armorcast Products Company
13230 Saticoy Street
North Hollywood, California 91605

Dear Mr. Sunnaa,

Subject: Your Letter Dated November 18, 2011 Regarding Product Approval Request for Polymer Concrete Type "A" Valve Box

We approve the Armorcast Polymer Concrete Type "A" Valve Box (drawing no. A6000712TA) for inclusion into the Water System Standards for Oahu only.

If you have any questions, please contact Michael Domion at (808)748-5740.

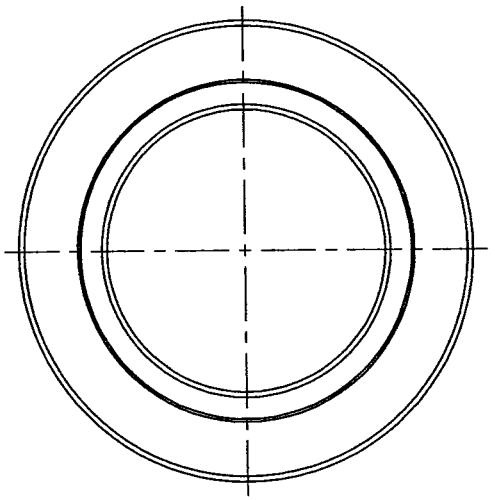
Very truly yours,

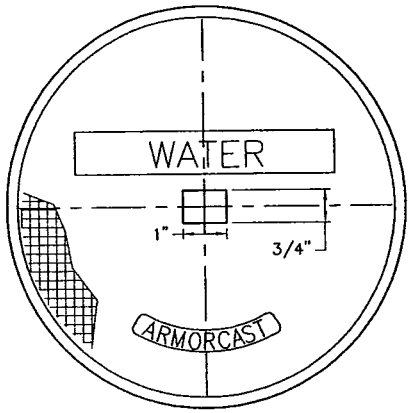
ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

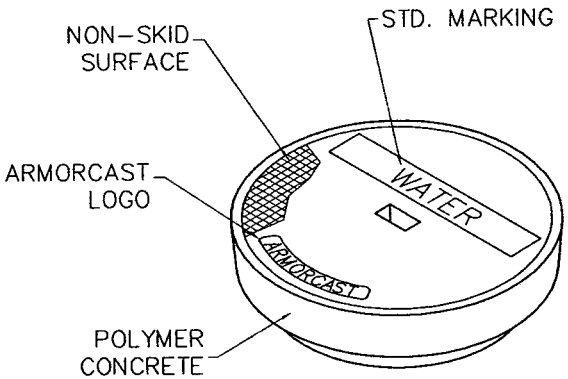
Enclosure

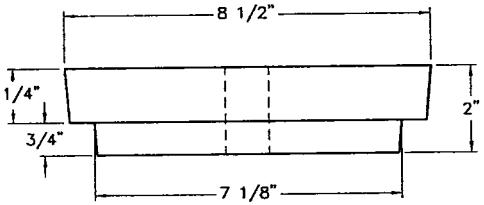
cc: Kauai Department of Water Supply
Maui Department of Water Supply
Hawaii Department of Water Supply

APPROX. BOX WT. = 18 LBS.
APPROX. COVER WT. = 8 LBS.

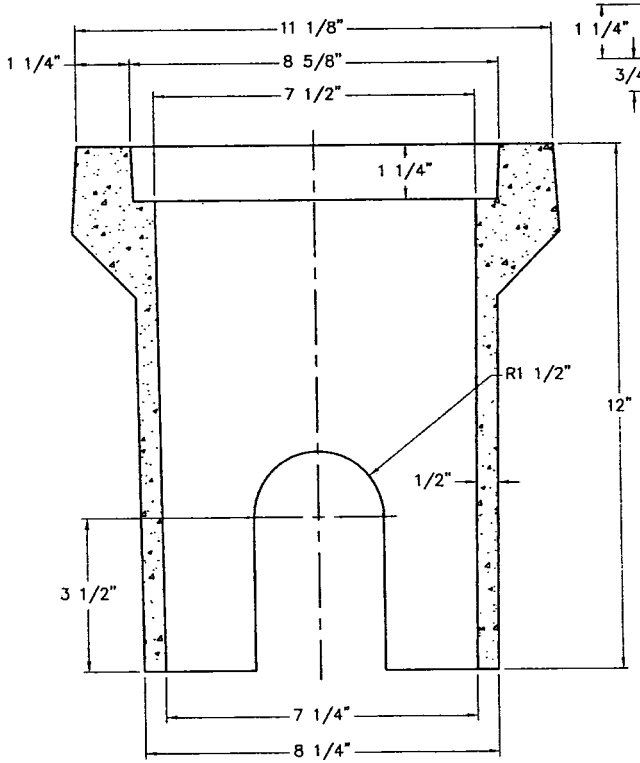




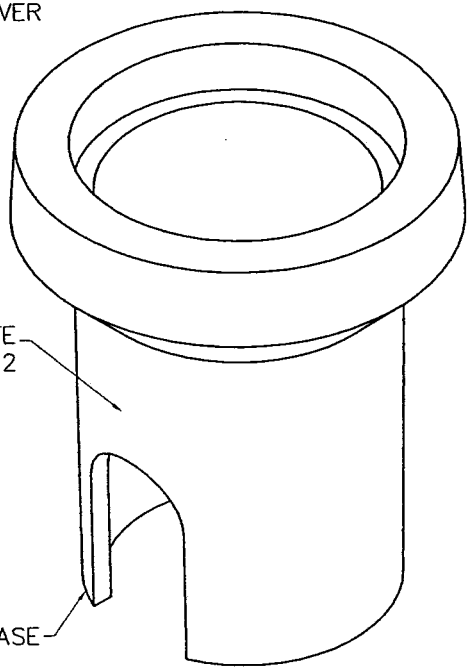




POLYMER CONCRETE COVER
A6000713




OPEN BASE




# TYPE "A" VALVE BOX

FILE NAME A6000712TA

| | | | | |
|---|---|---|---|---|
| 13230 Saticoy Street, North Hollywood, CA 91605 (818) 982-3600<br>ARMORCAST® PRODUCTS COMPANY | PART DESCRIPTION: ø7" X 12" POLYMER CONCRETE TYPE A VALVE BOX | | | |
| | CUSTOMER: OAHU BOARD OF WATER SUPPLY | | | |
| "THE INFORMATION IN THIS DRAWING IS CONFIDENTIAL. THE DRAWING IS NOT TO BE REPRODUCED OR ITS CONTENTS DIVULGED IN ANY WAY WHATSOEVER EXCEPT WITH THE PRIOR WRITTEN APPROVAL OF ARMORCAST PRODUCTS COMPANY. IT IS THE PROPERTY OF AND MUST BE RETURNED TO ARMORCAST PRODUCTS COMPANY, 13230 SATICOY STREET, NORTH HOLLYWOOD, CALIFORNIA 91605." | DRAWN: OA | DATE: 12/11 | SCALE: NONE | MAX. LOAD: 20K |
| | APPROV.: WS | 12/11 | MATERIAL: POLYMER CONCRETE | DRAWING NUMBER: A6000712TA |

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

November 9, 2011



Mr. John Nelson, Area Manager
Romac Industries, Inc.
21919 20th Avenue, SE, Suite 100
Bothell, Washington 98021

Dear Mr. Nelson:

Subject: Your Letter Dated May 6, 2011 Requesting Approval of Romac Style Macro Extended Range Coupling

We approve the Romac Macro Extended Range Coupling for inclusion into the Water System Standards for Oahu only.

If you have any questions, please contact Michael Domion at (808)748-5740.

Sincerely,

DEAN A. NAKANO
Acting Manager

cc: Maui, Kauai, and Hawaii Department of Water Supply

E-10/2011

ROMAC INDUSTRIES, INC.

21919 20th Avenue SE • Suite 100
Bothell, WA 98021

May 6, 2011

Jason H. Takaki, P.E.
Civil Engineer, Capital Projects Division
Honolulu Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Takaki:

Romac Industries, Inc. would like to submit for approval the following items to be added to the approved material list for the Board of Water Supply.

**Romac Style Macro Extended Range Coupling**

Product Submittal:
(Enclosed)

The Macro is an Extended Range Coupling for multipurpose use, having a range from steel pipe through class 200 asbestos cement pipe.

Samples of this product have been sent to Operations, attention Daryl Hiromoto, for evaluation.

Please call me if you require additional information or have any further questions. Thank you for taking the time to consider our product for approval.

Sincerely Yours,

John Nelson
Area Manager
Romac Industries, Inc.

c.c.
Daryl Hiromoto
Peter Schmidt

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



September 14, 2011

Mr. Jon A. Franzmeier
Hawaii Irrigation Supply Company, Inc.
803 Mapunapuna Street
Honolulu, Hawaii 96819-2038

Dear Mr. Franzmeier:

Subject: Your Letter Dated June 30, 2011 Requesting Confirmation of Approval for IPEX DR18 and DR14 C-900 4-Inch Through 12-Inch PVC Pipe

We approve the IPEX Blue Brute, AWWA C900 PVC Pipes, DR18 and DR14, sizes 4-inch through 12-inch, for inclusion into the Water System Standards for Oahu only.

The approval is based on the original approval given to Johns-Manville PVC pipe, dated January 30, 1980.

The design and construction of the IPEX PVC pipes shall be as specified in our Water System Standards.

If you have any questions, please contact Michael Domion at 748-5740.

Sincerely,

DEAN A. NAKANO
Acting Manager

cc: Hawaii, Maui, and Kauai Water Departments

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

July 15, 2011



TO: WHOM IT MAY CONCERN

FROM: DEAN A. NAKANO, ACTING MANAGER
BOARD OF WATER SUPPLY

SUBJECT: AMENDMENT TO THE WATER SYSTEM STANDARDS, DATED 2002, FOR CONCRETE CYLINDER PIPE AND FITTINGS

Effective immediately, the Honolulu Board of Water Supply herewith rescinds approval of the incorporation of concrete cylinder pipe (CCP) into the municipal water system for the island of Oahu only. Concrete cylinder fittings shall only be used for connections to existing CCP.

Historical data indicates CCP is not cost-effective based on expected service life. CCP is also difficult and time-consuming to repair.

If you have any questions, please contact Michael Domion at (808)748-5740.

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

April 29, 2011



Royal Pipe Systems
131 Regalcrest Court
Woodbridge, ON, Canada
L4L 8P3

Gentlemen:

Subject: Rescinding Approvals for Royal Pipe Systems PVC Pressure Pipe

Effective immediately, the Honolulu Board of Water Supply (BWS) herewith rescinds approval letters dated December 14, 2001 and May 19, 2003, for Royal Pipe System PVC pressure pipes for use on the island of Oahu.

The BWS experienced premature failure of a 12-inch PVC pipe installed in 2003. The PVC main shattered, causing extensive damage to the roadway, property damage, interruption of business and heavy traffic conditions. We could not determine the cause of the failure, and approximately 17 feet of main was needed to repair the break. The rescinding of your approvals is a precautionary measure as we further investigate the cause of the break.

If you have any questions, please contact Michael Domion at (808) 748-5740.

Sincerely,

DEAN A. NAKANO
Acting Manager

Enclosures

cc: Kauai, Maui, Hawaii Water Departments

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

November 4, 2010



Mr. Gary Kong
Delco Sales
111 Sand Island Access Road, Unit I-10
Honolulu, Hawaii 96819

Dear Mr. Kong:

Subject: Your Letter Dated July 29, 2010, Requesting
Approval of Fluor O Kote #1 Fasteners

We approve the METCO Fluor O Kote #1 Blue Bolts for inclusion into the Water System Standards for Oahu only, for mechanical joint installations.

If you have any questions, please contact Michael Domion at 748-5740.

Me ka mahalo pumehana,

Wayne M. Hashiro

WAYNE M. HASHIRO, P.E.
Manager and Chief Engineer

cc: Maui, Kauai, and Hawaii Department of Water Supply

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

May 6, 2010



Mr. Gary Kong
Delco Sales
111 Sand Island Access Road, Unit I-10
Honolulu, Hawaii 96819

Dear Mr. Kong:

Subject: Your Letter Dated September 29, 2009, Requesting Approval of Advance Products and Systems Full-Face Trojan Nitrile Gasket

We approve the Advance Products and Systems Full-Face Trojan Nitrile Gasket for inclusion into the Water System Standards for Oahu only.

If you have any questions, please contact Michael Domion at 748-5740.

Sincerely,

Wayne M. Hashiro

WAYNE M. HASHIRO, P.E.
Manager and Chief Engineer

cc: Maui, Kauai, and Hawaii Department of Water Supply

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



January 19, 2010

Mr. Rich Varalla
V.P. Sales & Marketing
Tripac Fasteners, A Division of Tripac Marketing, Inc.
475 Klug Circle
Corona, California 92880-5406

Dear Mr. Varalla:

Subject: Your Letter Dated May 20, 2009, Regarding Approval of Garlock/Tripac Style 5000 Compressed Non-Asbestos Gasket

We approve the Garlock/Tripac Style 5000 gaskets for inclusion into our Water System Standards.

If you have any questions, please contact Michael Domion at (808)748-5740.

Sincerely,

Wayne M. Hashiro

WAYNE M. HASHIRO, P.E.
Manager and Chief Engineer

cc: Maui, Kauai, and Hawaii Department of Water Supply



JAN 15 2010

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

November 10, 2009



Mr. Gary Kong
Delco Sales
111 Sand Island Access Road I-10
Honolulu, Hawaii 96819

Mr. Kong:

Subject: Your Letter Dated June 25, 2009 Requesting Inclusion of North American Pipe Corporation's PVC Pipes into the Approved Materials List for Oahu Only

We grant approvals as follows for the inclusion of North American Pipe Corporation's PVC pipes in the Water System Standards (WSS) Approved Materials List for Oahu only:

PVC C-900 Pipe

| Dimension Ratio (DR) | Nominal Pipe Size | |
|---|---|---|
| 14 | 4-inch | Approved |
| 14 | 6-inch | Approved |
| 14 | 8-inch | Approved |
| 14 | 10-inch | Not approved |
| 14 | 12-inch | Approved |
| 18 | 4-inch | Approved |
| 18 | 6-inch | Approved |
| 18 | 8-inch | Approved |
| 18 | 10-inch | Not approved |
| 18 | 12-inch | Approved |

Note: The 10-inch diameter PVC pipe is not a standard size specified in the WSS and is not approved for use.

PVC Schedule 40 Pipe is not included in the WSS Approved Materials List. Schedule 40 PVC pipe must meet the material specifications for irrigation pressure lines per Division 300, Section 307.02.C.2 and is considered for use on a job-to-job basis only.



NOV 10 2009

PVC C-905 Pipe

| Dimension Ratio (DR) | Nominal Pipe Size | |
|---|---|---|
| 18 | 14-inch | Not approved |
| 18 | 16-inch | Approved |
| 18 | 18-inch | Not approved |
| 18 | 20-inch | Approved |
| 18 | 24-inch | Approved |

Note: The 14-inch diameter PVC pipe is not a standard size specified in the WSS and is not approved for use. The 18-inch diameter PVC pipe size is also not approved for use on Oahu in accordance with the WSS.

If you have any questions, please contact Michael Domion at 748-5740.

Sincerely,

WAYNE M. HASHIRO, P.E.
Manager and Chief Engineer

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

October 27, 2009



Mr. Gary Kong
Delco Sales
111 Sand Island Access Road, I-10
Honolulu, Hawaii 96819

Dear Mr. Kong:

Subject: Your Letter Dated June 25, 2009 Requesting Approval of Delco Multi Fittings

We approve the Blue Brute pressure fittings in sizes from 4-Inch to 8-Inch conforming to AWWA C907 for inclusion into our Water System Standards (WSS) for Oahu only.

We deny approval of the CycleTough IPS Pressure Fittings. The product does not conform to AWWA C907 as required by the WSS.

If you have any questions, please contact Michael Domion at 748-5740.

Sincerely,

Wayne M. Hashiro

WAYNE M. HASHIRO, P.E.
Manager and Chief Engineer

cc: Maui, Kauai and Hawaii Department of Water Supply



OCT 2009

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

August 14, 2009



Mr. Mark Wright
Diamond Plastics Corporation
1212 Johnstown Road
P. O. Box 1608
Grand Island, Nebraska 68802-1608

Dear Mr. Wright:

Subject: Your Letter Dated June 27, 2008 and Follow-up Facsimile Dated March 24, 2009, Requesting Inclusion of Diamond Plastics PVC Pipes Into the Approved Material List for Oahu Only

We approve the Diamond Plastics PVC pipes for the following classes, dimension ratios (DR) and sizes, for inclusion in our Water System Standards (WSS) for Oahu only:

| Class | Dimension Ratio (DR) | Size |
|---|---|---|
| C900 | 14 | 4", 6", 8" and 12" |
| C900 | 18 | 4", 6", 8" and 12" |
| C905 | 18 | 16", 18", 20" and 24" |

We do not use 10-inch and 14-inch nominal pipe sizes and these sizes are not approved for inclusion in our Water System Standards.

The 16-inch DR14 PVC pipe does not conform to our standards (Division 200, Section 204.01.C); therefore, will not be approved for inclusion in our standards under Division 400, Section 402.I.E – Approved Material List. However, we will consider the use of the 16-inch DR14 PVC pipe in our water system on a case-by-case basis.

We deny approval of the Diamond Lok-21 restrained joint C900 PVC pipes. Restrained joint is not permitted in our water system.

If you have any questions, please contact Michael Domion at (808)748-5740.

Sincerely,

WAYNE M. HASHIRO, P.E.
Manager and Chief Engineer

cc: Maui, Kauai, and Hawaii Department of Water Supply



AUG 1

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

May 18, 2009



TO: WHOM IT MAY CONCERN

FROM: WAYNE M. HASHIRO, P.E.
MANAGER AND CHIEF ENGINEER

SUBJECT: 2002 WATER SYSTEM STANDARDS AMENDMENTS

The following amendment to the 2002 Water System Standards is effective immediately for **OAHU ONLY:**

**DIVISION 400, SECTION 403 STANDARD DETAILS:**

Replace the following details with the enclosed details (2009 Revision):

| Standard Detail | Description |
|---|---|
| M34 | 8" x 2" FM Meter & Box Layout Fire and Domestic Uses – CMU Walls |
| M35 | 8" x 2" FM Meter & Box Layout Fire and Domestic Uses – CMU Walls |
| M37 | 8" x 2" FM Meter & Box Layout Fire and Domestic Uses – Precast/Cast-In-Place Walls |
| M38 | 8" x 2" FM Meter & Box Layout Fire and Domestic Uses – Precast/Cast-In-Place Walls |

The manhole rungs in the FM meter box have been relocated to the outlet side of the meter to improve access for maintenance by Board of Water Supply personnel. The sump will be located on the opposite side due to the relocation of the manhole rungs.

If you have any questions, please contact Michael Domion at 748-5740.

Enclosures

cc: Kauai, Maui, Hawaii Water Departments

OAHU

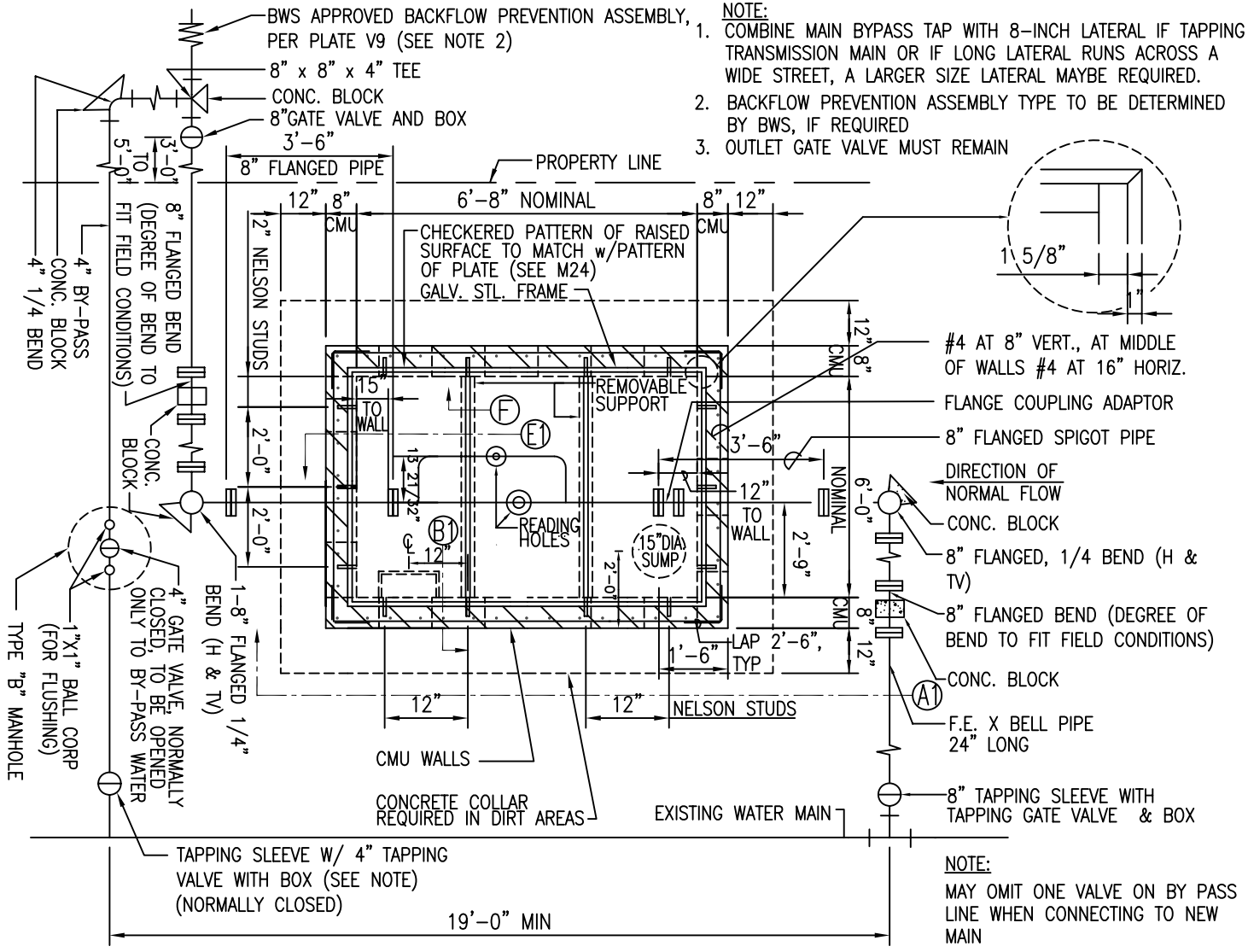
# 8" X 2" FM METER & BOX LAYOUT FIRE AND DOMESTIC USES - CMU WALLS

SCALE: NTS

STANDARD DETAILS

M34

REVISION 2009




NOTE:
1. COMBINE MAIN BYPASS TAP WITH 8-INCH LATERAL IF TAPPING TRANSMISSION MAIN OR IF LONG LATERAL RUNS ACROSS A WIDE STREET, A LARGER SIZE LATERAL MAYBE REQUIRED.
2. BACKFLOW PREVENTION ASSEMBLY TYPE TO BE DETERMINED BY BWS, IF REQUIRED
3. OUTLET GATE VALVE MUST REMAIN

NOTE:
MAY OMIT ONE VALVE ON BY PASS LINE WHEN CONNECTING TO NEW MAIN

PLAN VIEW OF GALV. STEEL FRAME AND REMOVABLE SUPPORT

FOR SECTIONS SEE PLATES M35, M36 AND M40

## CMU WALLS

OAHU

8" X 2" FM METER & BOX LAYOUT FIRE AND DOMESTIC USES - CMU WALLS

SCALE: NTS

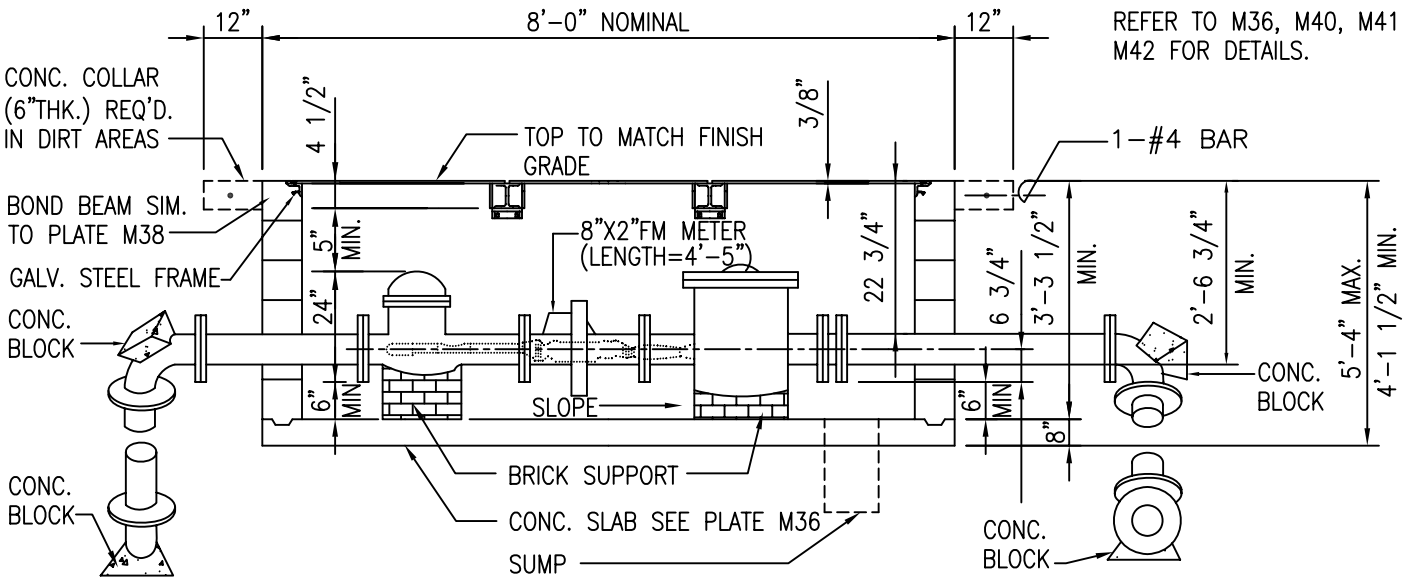
STANDARD DETAILS

M35

REVISION 2009

NOTES FOR CMU WALL MANHOLE

1. BWS 3500 CONCRETE, 1500 PSI CMU AND GRADE 60 REINFORCING STEEL
2. DESIGN IS BASED ON: 250 PSF LIVE LOAD; 0 SURCHARGE; 60 PCF/FT AT REST PRESSURE; AND WATER TABLE BELOW BOTTOM SLAB; PER AASHTO LRFD BRIDGE DESIGN SPECIFICATION (1998) NON-TRAFFIC TYPE.
3. ALL CELLS SHALL BE GROUTED SOLID WITH 2500 PSI GROUT. TYPE M MORTAR
4. SPECIAL INSPECTION SHALL BE PROVIDED DURING CONSTRUCTION FOR CMU WALL.




NOTE:

REFER TO M36, M40, M41 AND M42 FOR DETAILS.

SECTION "A1-A1"

NOTE:

COMBINED DOMESTIC AND FIRE FLOW REQUIREMENT = NOT TO EXCEED 3,500 GPM

# CMU WALLS

OAHU

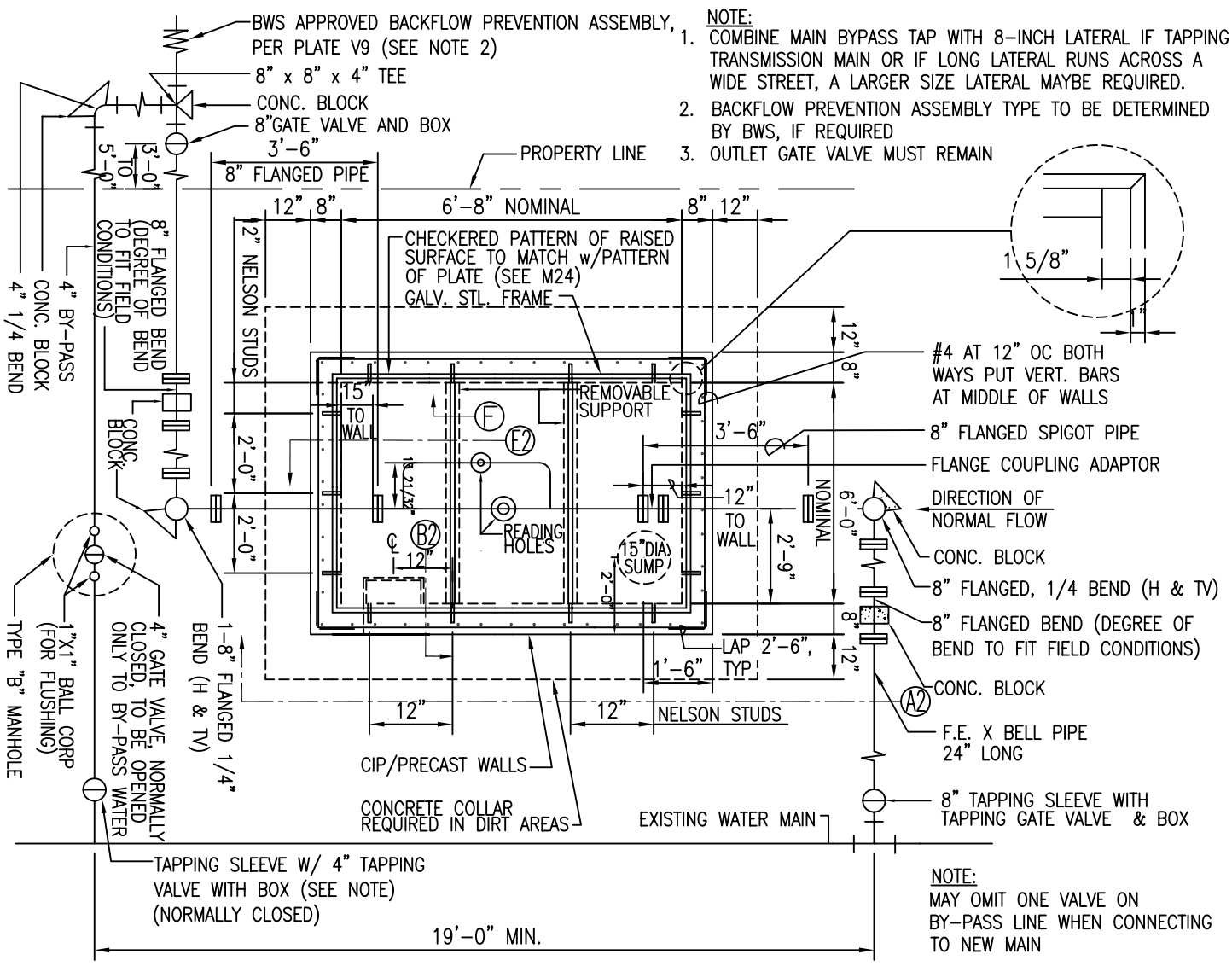
8" X 2" FM METER & BOX LAYOUT FIRE AND DOMESTIC USES - PRECAST / CAST-IN-PLACE WALLS

SCALE: NTS

STANDARD DETAILS

M37

| REVISION | 2009 | |
|---|---|---|




NOTE:
1. COMBINE MAIN BYPASS TAP WITH 8-INCH LATERAL IF TAPPING TRANSMISSION MAIN OR IF LONG LATERAL RUNS ACROSS A WIDE STREET, A LARGER SIZE LATERAL MAYBE REQUIRED.
2. BACKFLOW PREVENTION ASSEMBLY TYPE TO BE DETERMINED BY BWS, IF REQUIRED
3. OUTLET GATE VALVE MUST REMAIN

NOTE:
MAY OMIT ONE VALVE ON BY-PASS LINE WHEN CONNECTING TO NEW MAIN

FOR SECTIONS SEE M38, M39 AND M40

PLAN VIEW OF GALV. STEEL FRAME AND REMOVABLE SUPPORT

# PRECAST/CAST IN PLACE WALLS

OAHU

8" X 2" FM METER & BOX LAYOUT FIRE AND DOMESTIC USES - PRECAST / CAST-IN-PLACE WALLS

SCALE: NTS

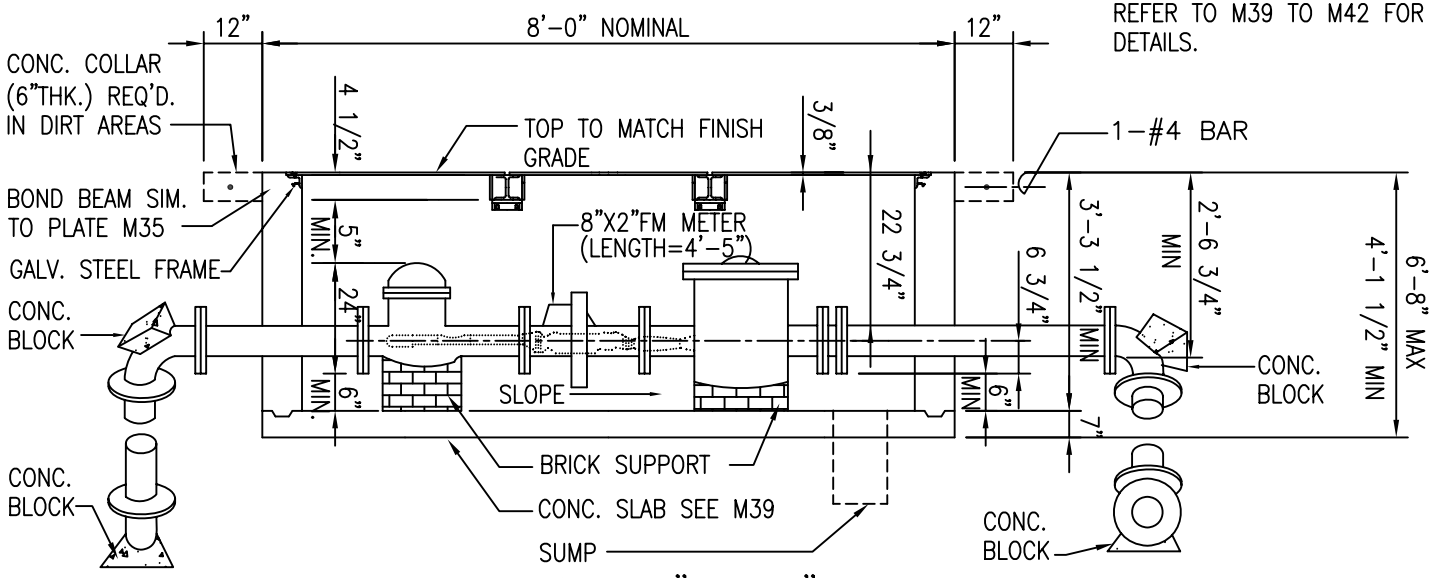
STANDARD DETAILS

M38

REVISION 2009

NOTES FOR PRECAST/CAST-IN-PLACE WALL MANHOLE

1. BWS 3500 CONCRETE AND GRADE 60 REINFORCING STEEL
2. DESIGN IS BASED ON: 250 PSF LIVE LOAD; 0 SURCHARGE; 60 PCF/FT AT REST PRESSURE; AND WATER TABLE BELOW BOTTOM SLAB, PER AASHTO LRFD BRIDGE DESIGN SPECIFICATION (1998). NON-TRAFFIC TYPE.




SECTION "A2-A2"

N.T.S.

NOTE:

REFER TO M39 TO M42 FOR DETAILS.

NOTE:

COMBINED DOMESTIC AND FIRE FLOW REQUIREMENT = NOT TO EXCEED 3,500 GPM

# PRECAST/CAST IN PLACE WALLS

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



February 24, 2009

Mr. Mike McLeod, Vice President
Frank J. Martin Company
18424 Highway 99
Lynnwood, Washington 98037

Dear Mr. McLeod:

Subject: Your Letter Dated October 23, 2008, Requesting Approval of Polytubes High Density Polyethylene Copper Tube Sized Pipes

We approve the Polytubes High Density Polyethylene (HDPE) copper tube sized (CTS) ¾-inch to 2-inches for inclusion into the Water System Standards. The Polytubes HDPE CTS pipes, which conform to the applicable requirements of the AWWA and ASTM Standards for polyethylene (PE) tubing, shall be used specifically between the meter and the property valve where indicated on the service lateral standard details for Oahu.

We apologize for the delay in our review and appreciate your patience. If you have any questions, please contact Michael Domion at (808)748-5740.

Sincerely,

Wayne M. Hashiro

WAYNE M. HASHIRO, P.E.
Manager and Chief Engineer

Supp

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

December 31, 2008



TO: WHOM IT MAY CONCERN

FROM: DEAN A. NAKANO, DEPUTY MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: 2002 WATER SYSTEM STANDARDS AMENDMENTS

In response to the City and County of Honolulu, Department of Planning and Permitting new minimum utility depth policy (Engineering and Policy Memorandum No. CEB-1-08), the following amendments to the 2002 Water System Standards are effective immediately for **Oahu only**:

**Division 100, Section 102 MAINS, Subsection 102.03 COVER:**

Delete Table 100-3 – COVER FOR WATER MAINS (FEET) and replace with the following:

**Table 100-3 - COVER FOR WATER MAINS (FEET)**

| Island | Minimum Cover for Pipe Diameter Indicated[a] | | | | | | Maximum[b] For All Mains |
|---|---|---|---|---|---|---|---|
| | Smaller Than 4-Inch | 4-Inch | 6-Inch | 8-Inch | 12-Inch | Larger Than 12-Inch | |
| Oahu | 3.0[c] | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 8 |
| Hawaii | 1.5 | 2.0 | 2.0 | 2.0 | 2.5 | 3.0 | 5 |
| Kauai | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 8 |
| Maui | N/A | 2.5 | 3.0 | 3.0 | 3.0 | 3.0 | 5 |

a - Minimum cover for mains and laterals to be installed in State rights-of-way shall be 3 feet.
b - Over maximum cover requires Manager's approval and concrete jacketing of pipe.
c - Minimum cover for laterals located within the curb & gutter and sidewalk areas in the City rights-of-way shall be 18-inch.

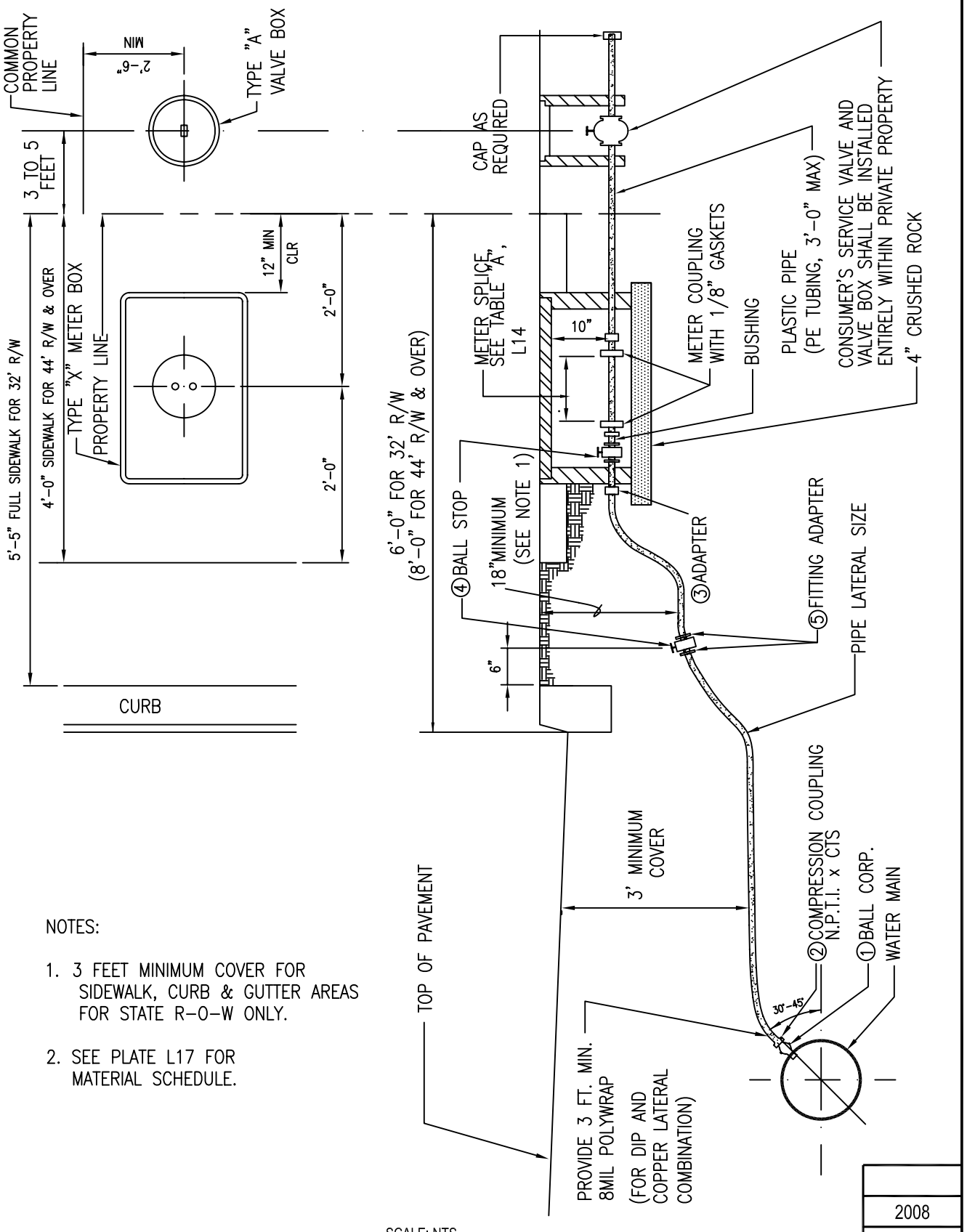
**Division 400, Section 403 STANDARD DETAILS:**

Replace the following details with the enclosed details (2008 Revision):

| Standard Detail | Description |
|---|---|
| L13 | Copper Service Lateral for Connection Type "X" Meter Box 5/8", 3/4", & 1" Meters |
| L15 | Copper Service Lateral for Connection Type III Meter Box 1-1/2" & 2" Meters |
| L20 | Typical Detail for Installation of Ball Stop After Meter |
| L21 | New Lateral Installation Schematic Detail |
| L22 | Lateral Reconnection Schematic Detail |

If you have any questions, please contact Michael Domion at 748-5740.

cc: Kauai, Maui, Hawaii Water Departments

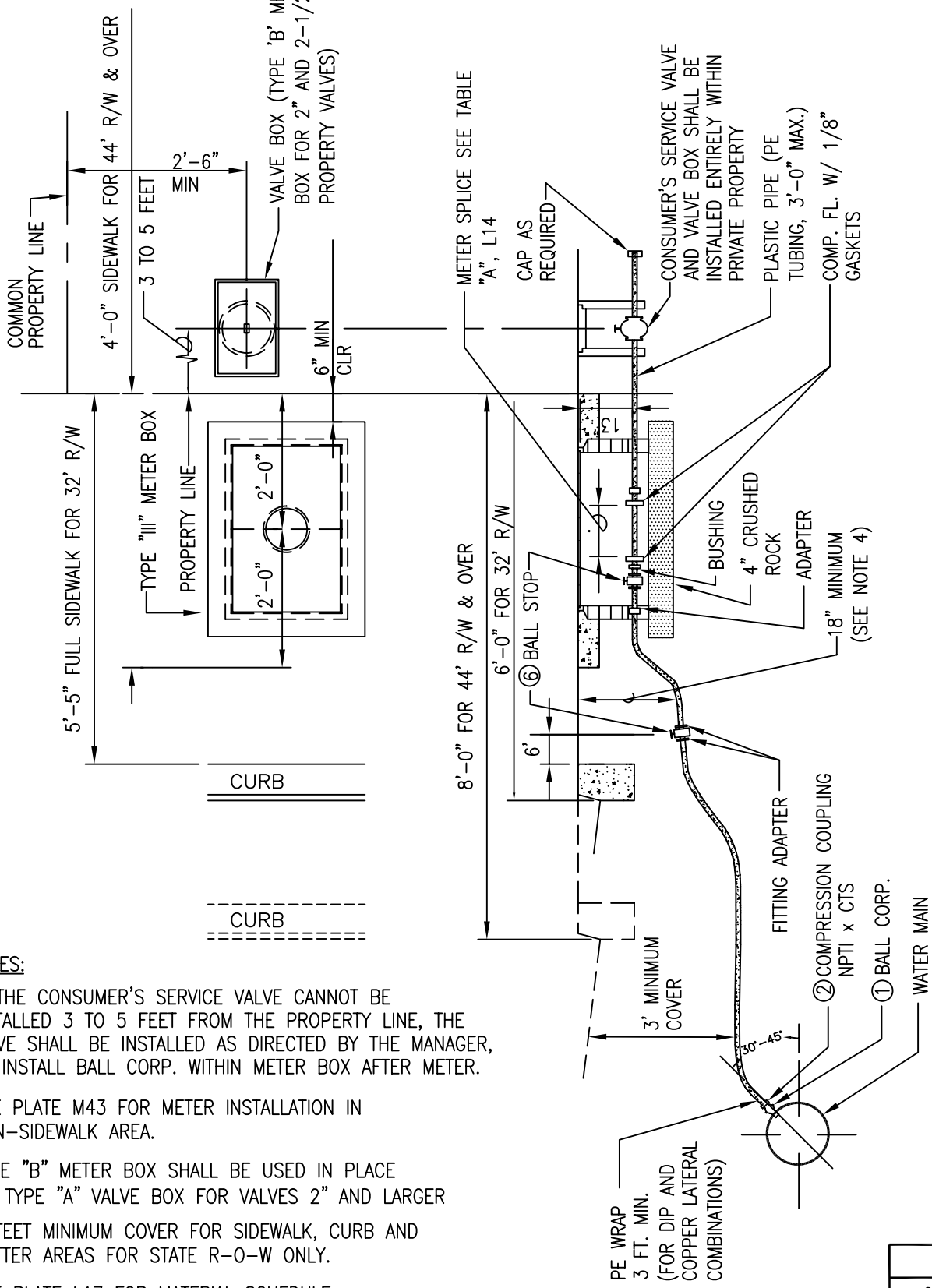



NOTES:

1. 3 FEET MINIMUM COVER FOR SIDEWALK, CURB & GUTTER AREAS FOR STATE R-O-W ONLY.
2. SEE PLATE L17 FOR MATERIAL SCHEDULE.

SCALE: NTS

| | | | |
|---|---|---|---|
| | | | 2008 |
| | | | REVISION |
| OAHU | COPPER SERVICE LATERAL<br>FOR CONNECTION TYPE "X" METER BOX<br>5/8", 3/4", & 1" METERS<br>SCALE: NTS | STANDARD DETAILS | L13 |




NOTES:

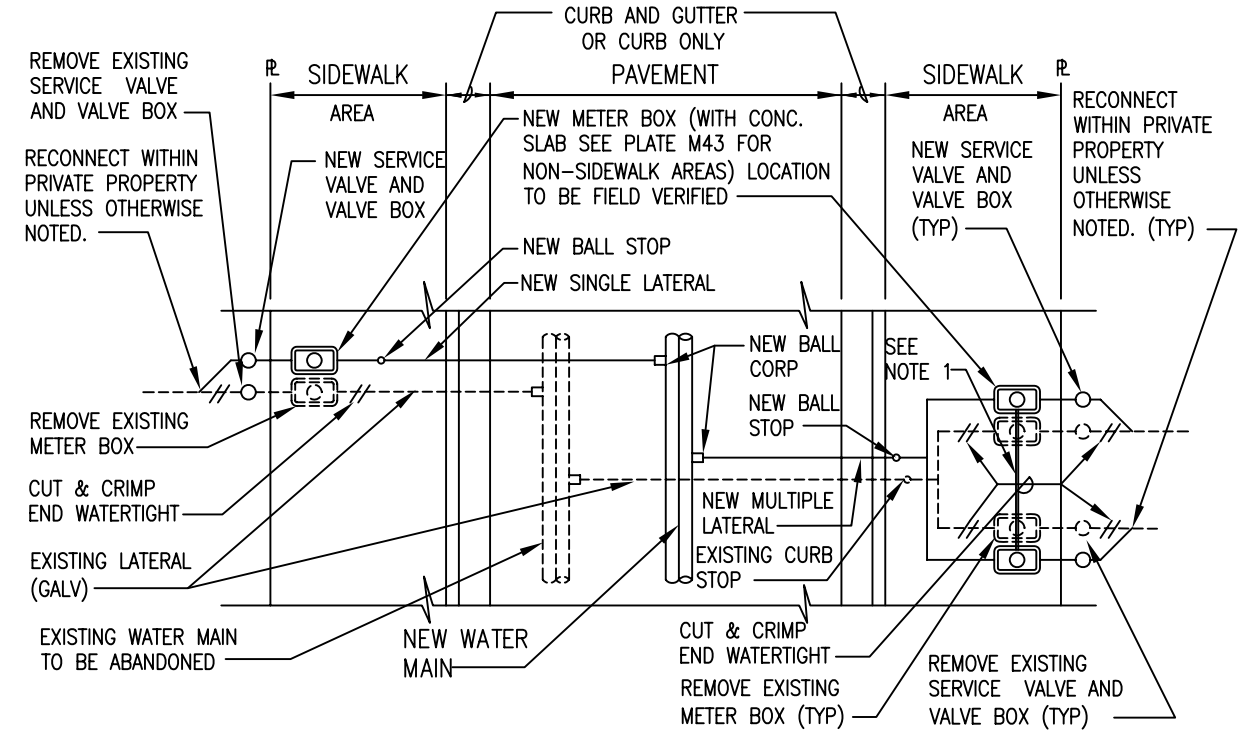
1. IF THE CONSUMER'S SERVICE VALVE CANNOT BE INSTALLED 3 TO 5 FEET FROM THE PROPERTY LINE, THE VALVE SHALL BE INSTALLED AS DIRECTED BY THE MANAGER, OR INSTALL BALL CORP. WITHIN METER BOX AFTER METER.
2. SEE PLATE M43 FOR METER INSTALLATION IN NON-SIDEWALK AREA.
3. TYPE "B" METER BOX SHALL BE USED IN PLACE OF TYPE "A" VALVE BOX FOR VALVES 2" AND LARGER
4. 3 FEET MINIMUM COVER FOR SIDEWALK, CURB AND GUTTER AREAS FOR STATE R-O-W ONLY.
5. SEE PLATE L17 FOR MATERIAL SCHEDULE.

| | |
|---|---|
| | |
| 2008 | |
| REVISION | |

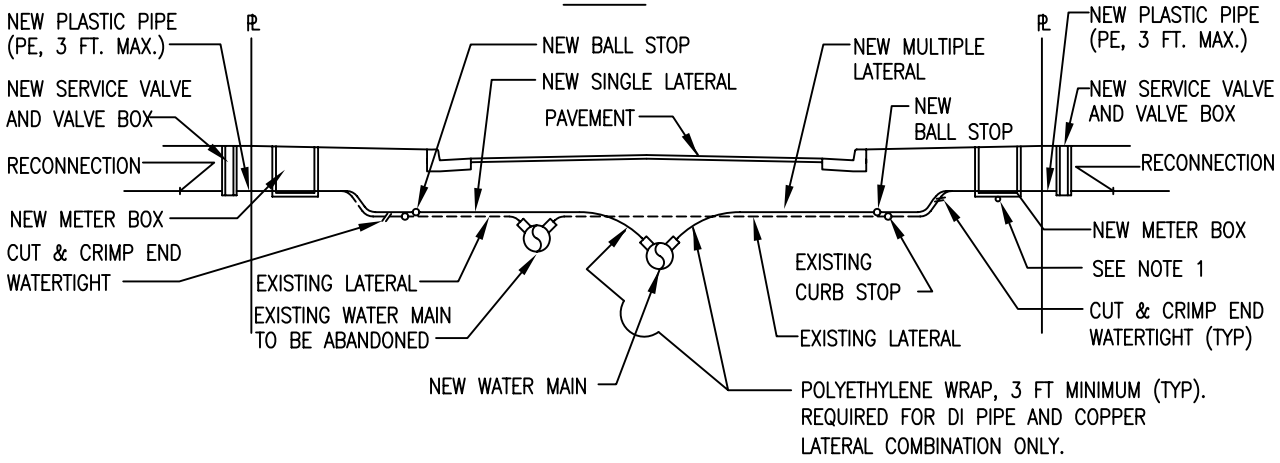
| | | | |
|---|---|---|---|
| OAHU | COPPER SERVICE LATERAL FOR CONNECTION TYPE III METER BOX 1 1/2" & 2" METERS<br>SCALE: NTS | STANDARD DETAILS | L15 |

| | | | |
|---|---|---|---|
| OAHU | **TYPICAL DETAIL FOR INSTALLATION**<br>OF BALL STOP AFTER METER<br>SCALE: NTS | STANDARD DETAILS | L20 |

| |
|---|
| 2008 |
| REVISION |




PLAN



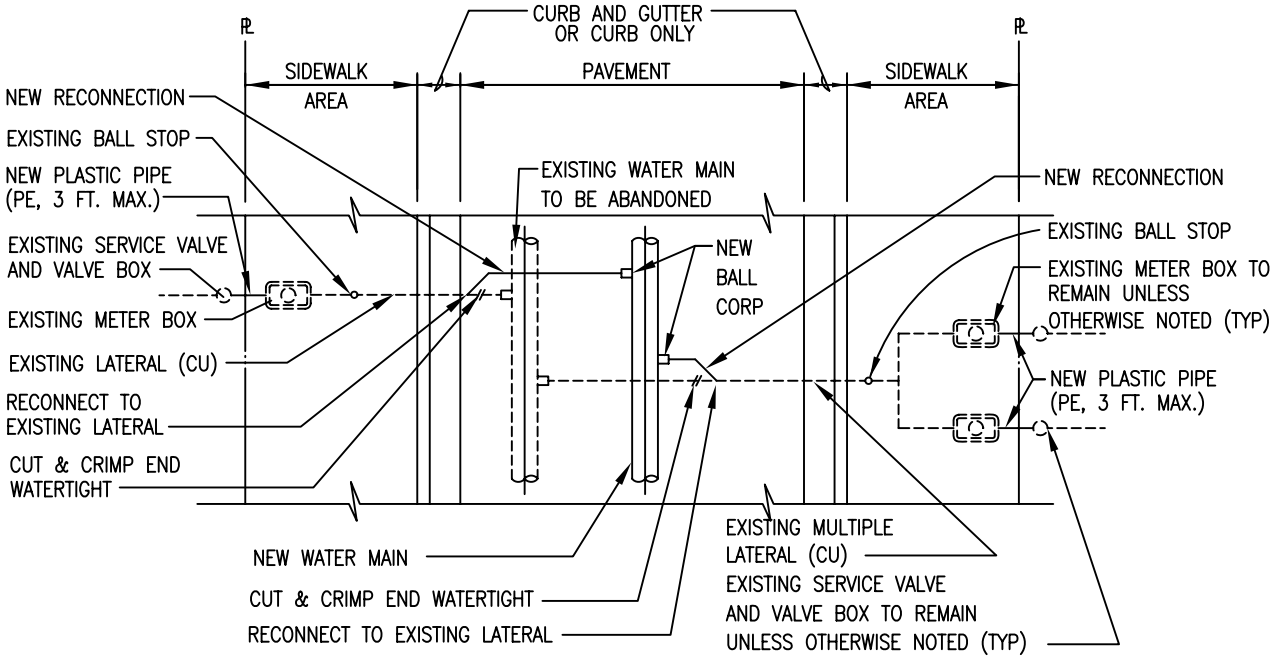

PROFILE

NOTE:

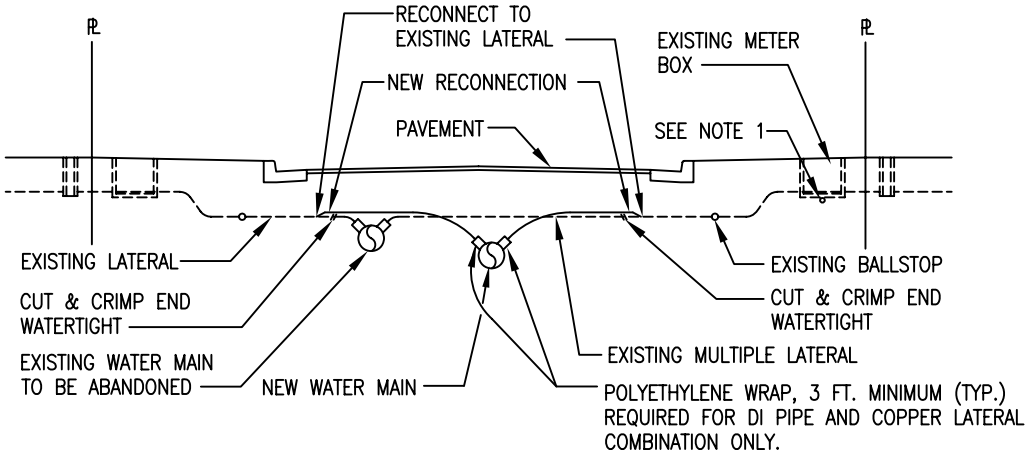
1. CONTRACTOR SHALL INSTALL A 3/4" PVC SCHEDULE 80 CONDUIT WITH STRING WHENEVER THE DISTANCE BETWEEN METER BOXES (2 TO 12 MULTIPLE METER BOXES) IS 4'-0" OR LESS (EDGE TO EDGE). CONDUIT SHALL EXTEND 2" WITHIN METER BOX, KEEP BOTH ENDS EXPOSED, PLUG OR TAPE TO PREVENT SOIL INTRUSION, AS REQUIRED. SAW CUT TRENCH AS REQUIRED AND REPAIR TO MATCH EXISTING CONDITIONS. FOR CONCRETE SLAB, REPAIR TRENCH WITH EPOXY MORTAR, LEVEL AND FINISH TO MATCH EXISTING.

| | |
|---|---|
| | 2008 |
| | REVISION |

| | | | |
|---|---|---|---|
| OAHU | NEW LATERAL INSTALLATION<br>SCHEMATIC DETAIL<br>SCALE: NTS | STANDARD DETAILS | L21 |




PLAN




PROFILE

NOTE:

1. CONTRACTOR SHALL INSTALL A 3/4" PVC SCHEDULE 80 CONDUIT WITH STRING WHENEVER THE DISTANCE BETWEEN METER BOXES (2 TO 12 MULTIPLE METER BOXES) IS 4'–0" OR LESS (EDGE TO EDGE). CONDUIT SHALL EXTEND 2" WITHIN METER BOX, KEEP BOTH ENDS EXPOSED, PLUG OR TAPE TO PREVENT SOIL INTRUSION, AS REQUIRED. SAW CUT TRENCH AS REQUIRED AND REPAIR TO MATCH EXISTING CONDITIONS. FOR CONCRETE SLAB, REPAIR TRENCH WITH EPOXY MORTAR, LEVEL AND FINISH TO MATCH EXISTING.

| | |
|---|---|
| | |
| 2008 | |
| REVISION | |

| | | | |
|---|---|---|---|
| OAHU | LATERAL RECONNECTION<br>SCHEMATIC DETAIL<br>SCALE: NTS | STANDARD DETAILS | L22 |

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



December 19, 2008

Mr. Bob Lake, President
CBC, Inc.
P. O. Box 669
Kailua, Hawaii 96734-0669

Dear Mr. Lake:

Subject: Your Letter Dated May 19, 2008 Regarding the State of Hawaii 2002 Water System Standards Consideration for Permanent Inclusion

We approve the American R/D Bevel Geared Gate Valve, Model 52, sizes 16-Inch to 42-Inch for inclusion into our Water System Standards.

If you have any questions, please contact Michael Domion at 748-5740.

Very truly yours

for DEAN A. NAKANO
Deputy Manager

cc: Kauai, Maui, Hawaii Water Departments

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

June 26, 2015



Mr. Paul Boghossian
Armorcast Products Company
13230 Saticoy Street
North Hollywood, California 91605

Dear Mr. Boghossian:

Subject: Amendment to the Approval Letter Dated December 4, 2008, for Polymer Concrete Type X and Type B Meter Box and Cover

Effective immediately for Oahu only, all Polymer Concrete Type X Meter Box Covers shall be furnished with a cast iron reader lid as shown on the enclosed Drawing No. A6001869TRCI.

If you have any questions, please contact Michael Domion, Support Branch Head, Capital Projects Division, at 748-5740.

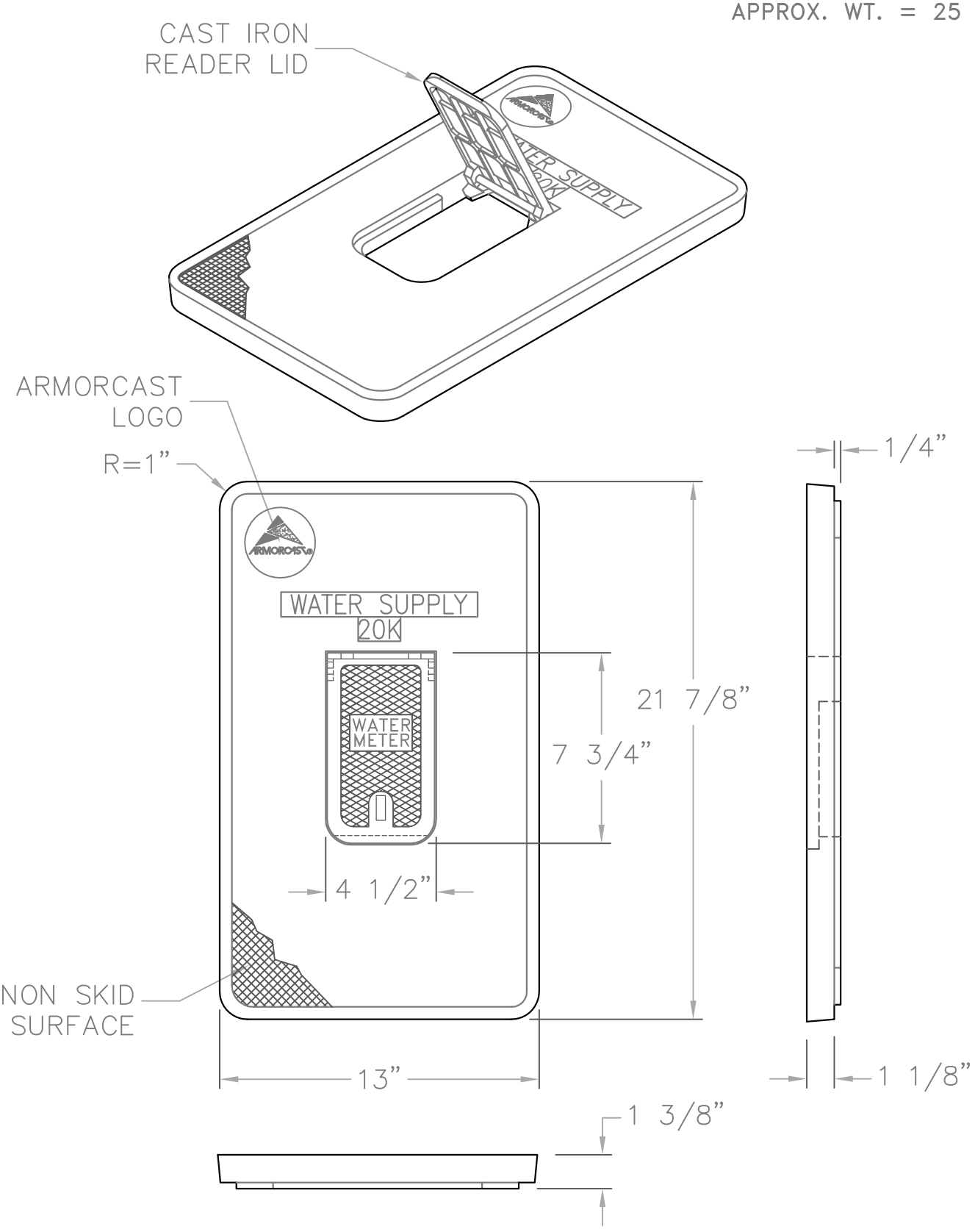
Very truly yours,

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

Enclosure

cc: Kauai, Maui, and Hawaii Department of Water Supply
D. Hiromoto, D. Ching, L. Fujikami, Support, Admin.
MD:st

APPROX. WT. = 25 LBS.




TYPE X COVER W/ CAST IRON READ LID

FILE # A6-1869TRCI-OAHU

13230 Saticoy Street,
North Hollywood, CA 91605
(818) 982-3600
ARMORCAST® PRODUCTS COMPANY



| | | | |
|---|---|---|---|
| PART DESCRIPTION: 13" X 21 7/8" X 1 1/8" POLYMER CONCRETE COVER | | | |
| CUSTOMER: BOARD OF WATER SUPPLY - OAHU | | | |
| DRAWN: GL | DATE: 12/06 | SCALE: NONE | MAX. LOAD: 20K |
| APROV.: WS | 12/06 | MATERIAL: POLYMER CONCRETE | DRAWING NUMBER: A6001869TRCI |

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

December 4, 2008



Mr. Paul H. Boghossian
Amorcast Products Company
13230 Saticoy Street
North Hollywood, California 91605

Dear Mr. Boghossian:

Subject: Your Letter Dated July July 28, 2008 Regarding Product Approval Request for Polymer Concrete Type X and B Meter Box and Cover

We approve the following materials for inclusion in our Water System Standards:

| | Model No. | Description |
|---|---|---|
| 1. | A6000477 | 12"x21"x12" Polymer Concrete Type X Meter Box |
| 2. | A6001869T | 12"x21" Polymer Concrete Type X Cover |
| 3. | A6000494 | 9"x14"x12" Polymer Concrete Type B Meter Box |
| 4. | A6000482T | 9"x14" Polymer Concrete Type B Cover |

If you have any questions, please contact Michael Domion at (808)748-5740.

Very truly yours,

DEAN A. NAKANO
Deputy Manager

cc: Kauai, Maui, Hawaii Water Departments

M. Fuke, K. Shida
D. Ching, L. Fujikami, M. Domion, R. Remigio

08-0810

080810

Mgr
Dep
Eng

ARMORCAST PRODUCTS COMPANY

13230 Saticoy Street
North Hollywood, California 91605
Telephone: (818) 982-3600
Fax #: (818) 982-7742

RECEIVED
BOARD OF WATER SUPPLY
2008 JUL 30 A 11: 16

**Clifford P. Lum**
**Manager and Chief Engineer**
**Honolulu Board of Water Supply**
**630 S. Beretania Street**
**Honolulu, HI 96843**

**July 28, 2008**

Re: Request for Product Approval

Mr. Lum,

Please accept this correspondence as a formal request for approval of Armorcast Products Company polymer concrete meter boxes and covers for use as equal to your current specification. We have supplied both standard sizes for field evaluation in January of 2007. Below are the product number references for your convenience:

| | |
|---|---|
| A6000477 | 12"x21"x12" Polymer Concrete Type X Meter Box |
| A6001869T | 12"x21" Polymer Concrete Type X Cover |
| A6000494 | 9"x14"x12" Polymer Concrete Type B Meter Box |
| A6000482T | 9"x14" Polymer Concrete Type B Cover |

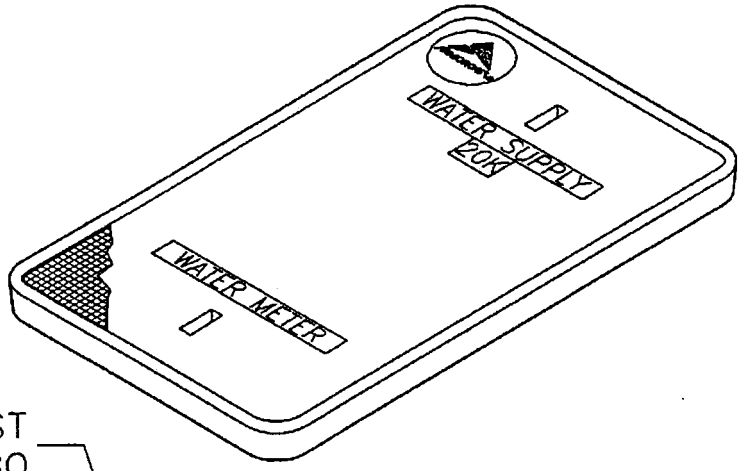
Armorcast enclosures have been installed over the past 20 years in many of Hawaii's utility distribution systems such as Verizon (Hawaiian Telephone) and Hawaiian Electric. We would truly appreciate the opportunity to service the Honolulu Board of Water Supply as well.

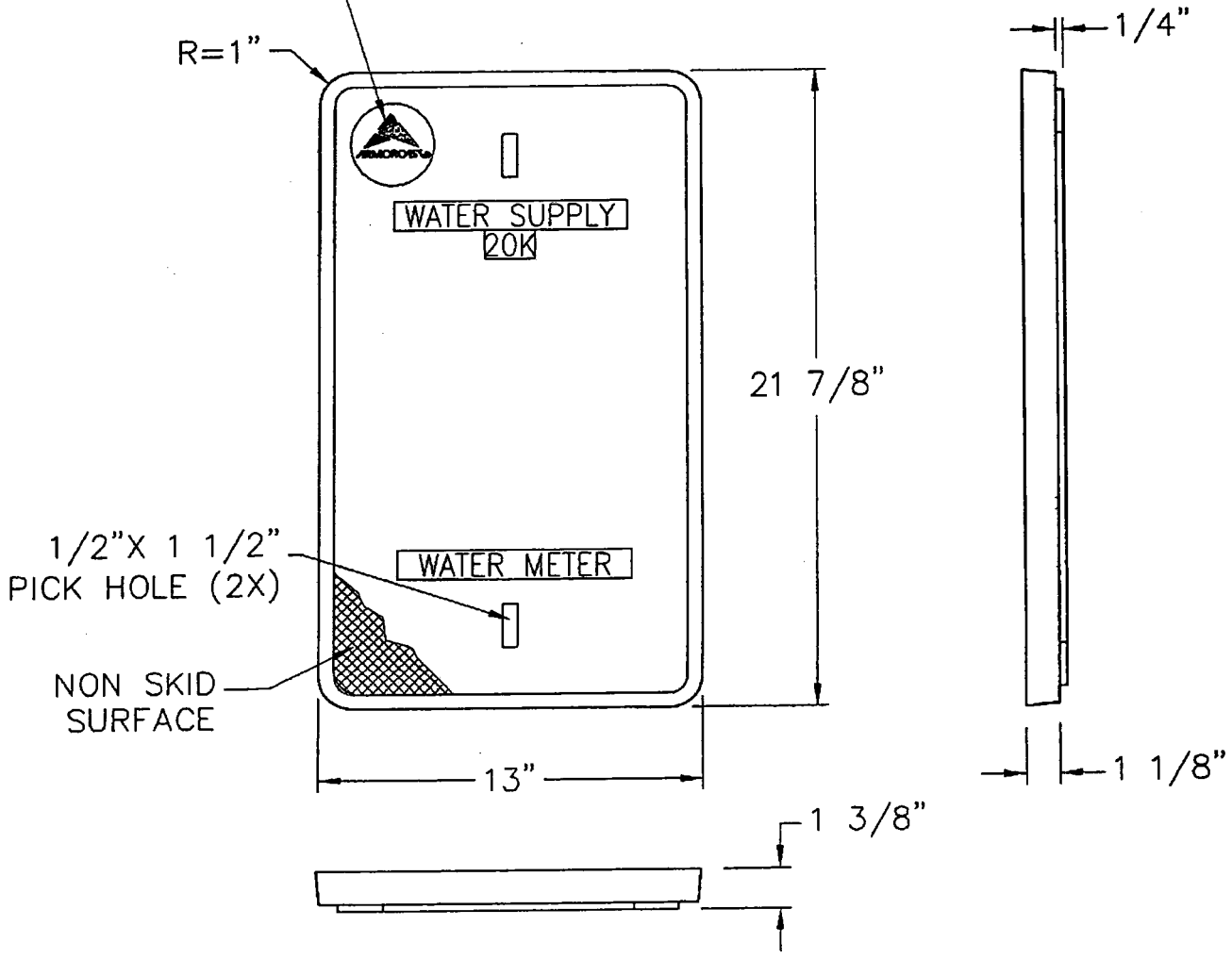
Sincerely,

Paul H. Boghossian
Armorcast Products Company

CC: Lan Yoneda, P.E./Honolulu Board of Water Supply
Wally Sunnaa, P.E./Armorcast Products Company

APPROX. WT. = 25 LBS.

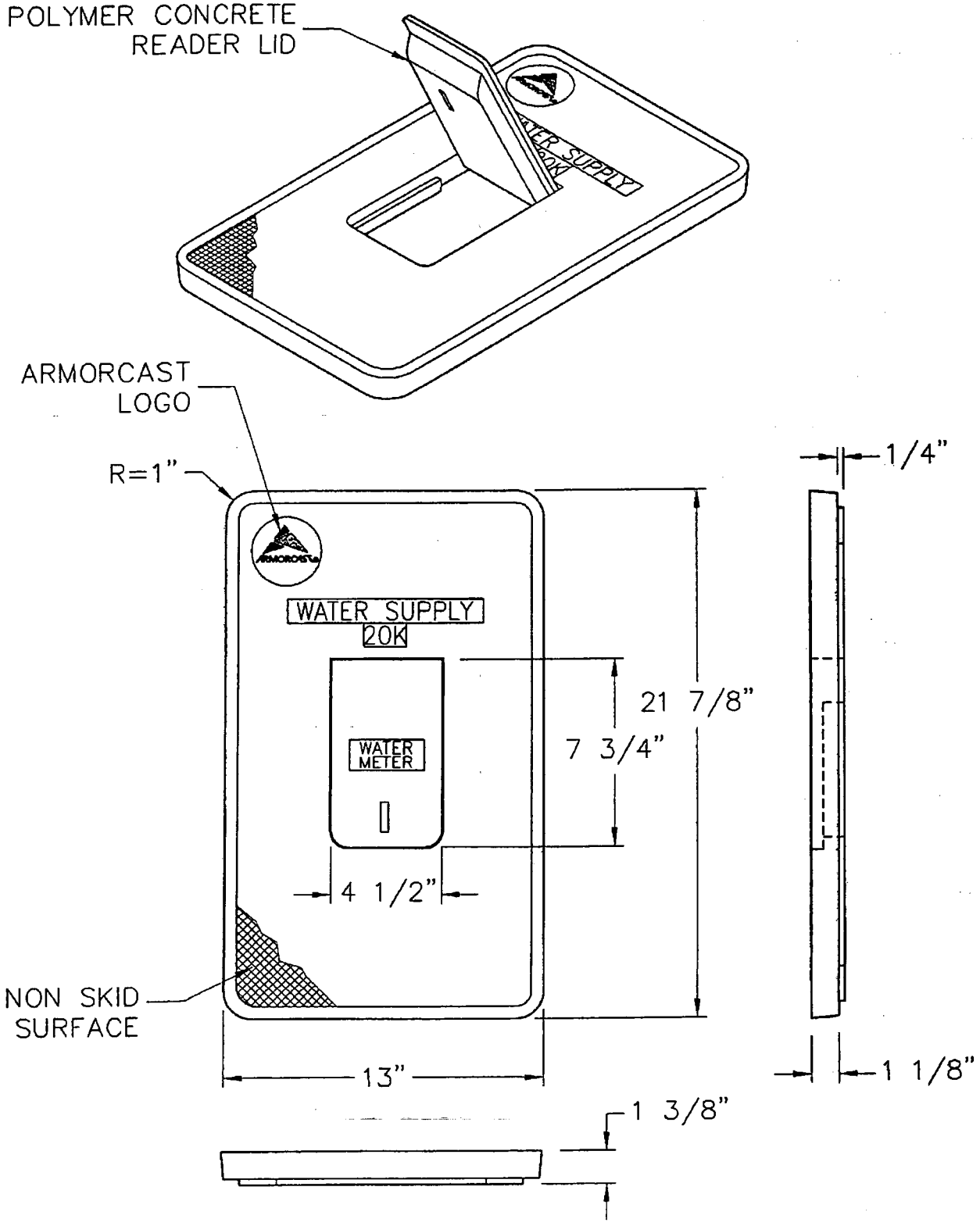



| | | | |
|---|---|---|---|
| 13230 Saticoy Street, North Hollywood, CA 91605 (818) 982-3600<br>ARMORCAST® PRODUCTS COMPANY | PART DESCRIPTION: 13" X 21 7/8" X 1 1/8" POLYMER CONCRETE COVER | | |
| | CUSTOMER: BOARD OF WATER SUPPLY - OAHU | | |
| "THE INFORMATION IN THIS DRAWING IS CONFIDENTIAL. THE DRAWING IS NOT TO BE REPRODUCED OR ITS CONTENTS DIVULGED IN ANY WAY WHATSOEVER EXCEPT WITH THE PRIOR WRITTEN APPROVAL OF ARMORCAST PRODUCTS COMPANY. IT IS THE PROPERTY OF AND MUST BE RETURNED TO ARMORCAST PRODUCTS COMPANY, 13230 SATICOY STREET, NORTH HOLLYWOOD, CALIFORNIA 91605." | DRAWN: GL — DATE: 12/06 — SCALE: NONE — MAX. LOAD: 20K | | |
| | APROV.: WS — 12/06 — MATERIAL: POLYMER CONCRETE — DRAWING NUMBER: A6001869T | | |

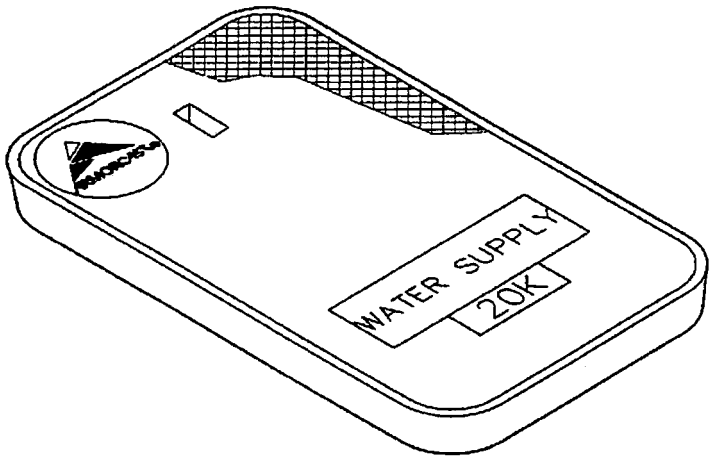
FILE # A6-1869T-OAHU

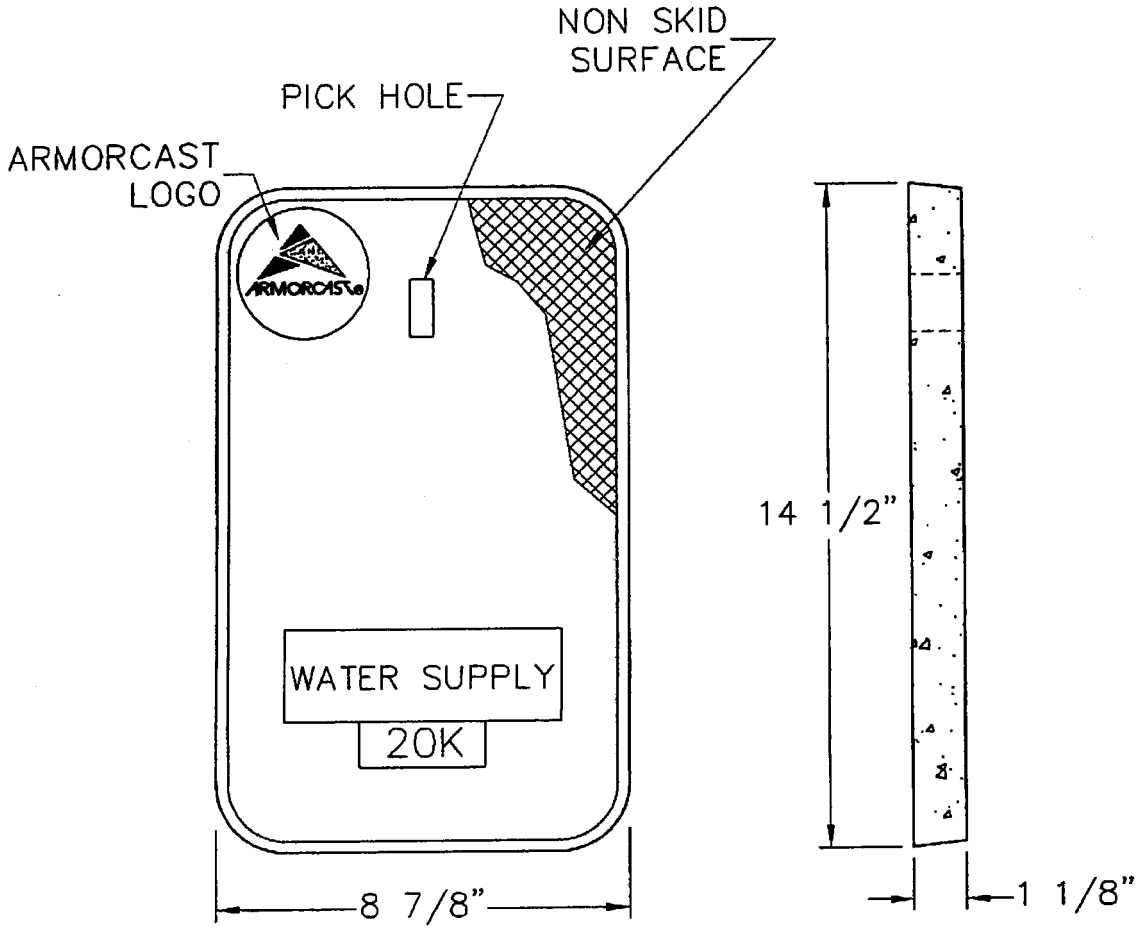
APPROX. WT. = 25 LBS.




| | | | |
|---|---|---|---|
| FILE # A6-1869TR-OAHU | 13230 Saticoy Street, North Hollywood, CA 91605 (818) 982-3600 ARMORCAST® PRODUCTS COMPANY | PART DESCRIPTION: 13" X 21 7/8" X 1 1/8" POLYMER CONCRETE COVER | |
| | | CUSTOMER: BOARD OF WATER SUPPLY - OAHU | |
| | | DRAWN: GL; DATE: 12/06; SCALE: NONE | MAX. LOAD: 20K |
| | | APROV.: WS; 12/06; MATERIAL: POLYMER CONCRETE | DRAWING NUMBER: A6001869TR |

APPROX. WT. 10 LBS.




POLYMER CONCRETE COVER

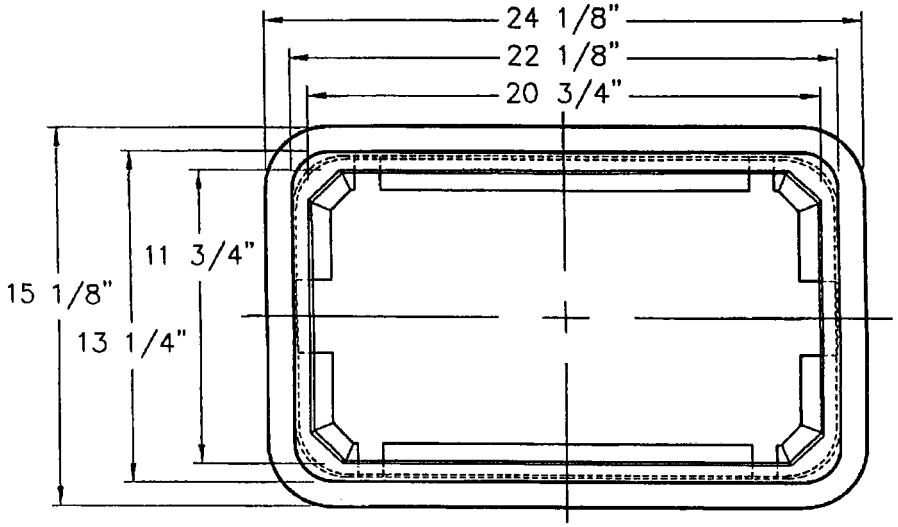
FILE # A6-0482T-OAHU

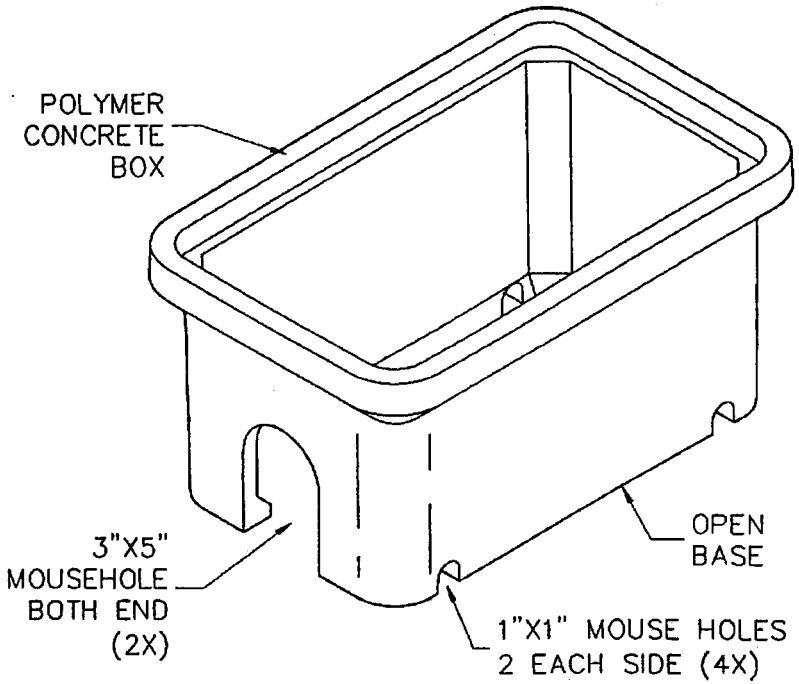
13230 Saticoy Street,
North Hollywood, CA 91605
(818) 982-3600
ARMORCAST® PRODUCTS COMPANY

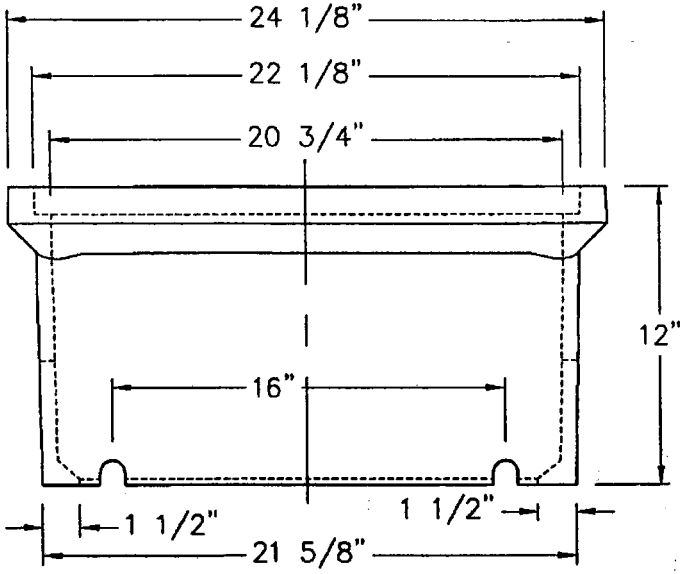


| | | | |
|---|---|---|---|
| PART DESCRIPTION: 9" X 14" X 1 1/8" POLYMER CONCRETE COVER | | | |
| CUSTOMER: BOARD OF WATER SUPPLY - OAHU | | | |
| DRAWN: OA | DATE: 12/06 | SCALE: NONE | MAX. LOAD: 20K |
| APROV.: WS | 12/06 | MATERIAL: POLYMER CONCRETE | DRAWING NUMBER: A6000482T |

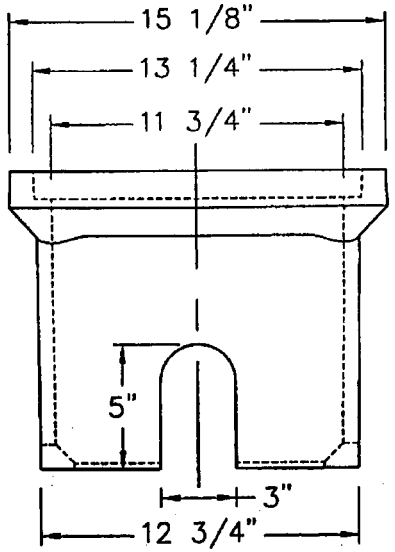
APPROX. BOX WT. = 40 LBS.




SIDE VIEW




END VIEW

**FOR 1 1/2" & 2" METER**

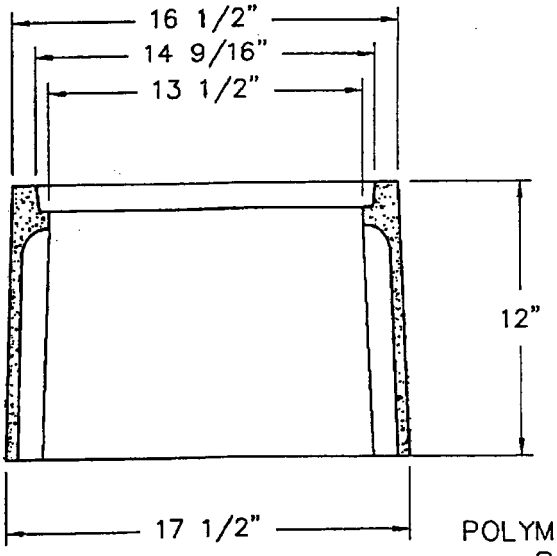
A6-0477X12-OAHU


ARMORCAST PRODUCTS COMPANY
13230 Saticoy Street,
North Hollywood, CA 91605
(818) 982-3600

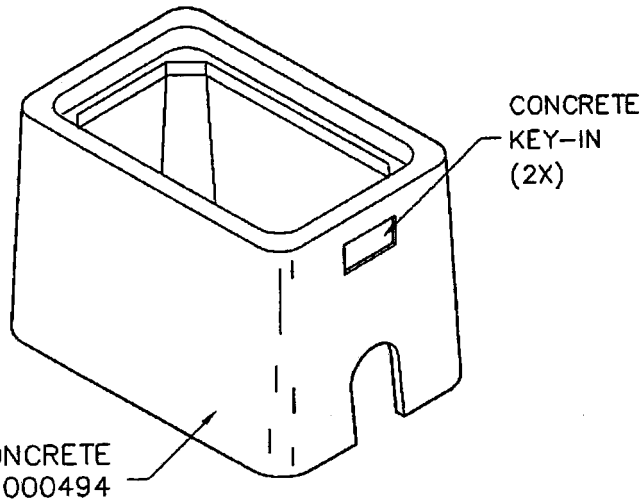


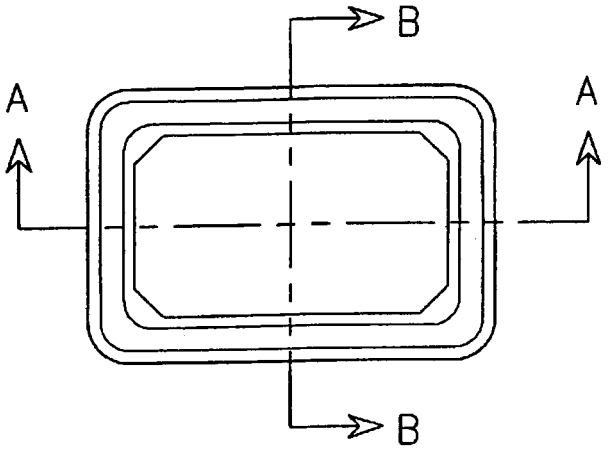

| | | | |
|---|---|---|---|
| PART DESCRIPTION | TYPE X WATER METER BOX - 12" X 21" X 12" | | |
| CUSTOMER | BOARD OF WATER SUPPLY - OAHU | | |
| DRAWN: GL | DATE: 12/06 | SCALE: NONE | MAT. LEAD |
| APPROV.: WS | 12/06 | MATERIAL: POLYMER CONCRETE | DRAWING NUMBER: A6000477-OAHU |

APROX. WT. 26 LBS

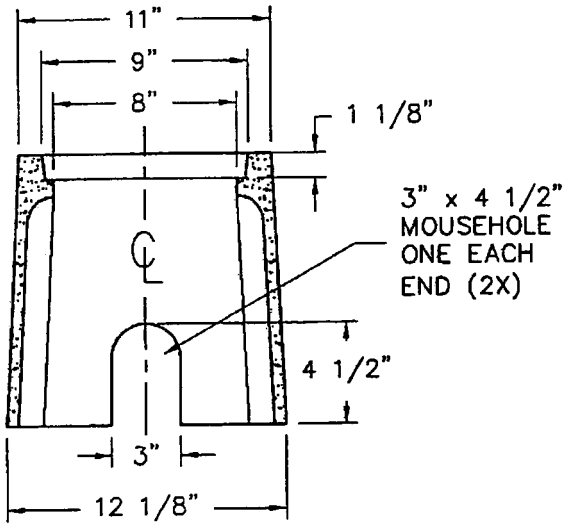



SECTION A-A




TOP VIEW




SECTION B-B

FILE # A6-049-OAHU

13230 Saticoy Street,
North Hollywood, CA 91605
(818) 982-3600
ARMORCAST® PRODUCTS COMPANY



| | | | |
|---|---|---|---|
| PART DESCRIPTION: 9" X 14" X 12" POLYMER CONCRETE BOX | | | |
| CUSTOMER: BOARD OF WATER SUPPLY - OAHU | | | |
| DRAWN: OA | DATE: 9/02 | SCALE: NONE | MAX. LOAD |
| APROV.: WS | 9/02 | MATERIAL: POLYMER CONCRETE | DRAWING NUMBER: A6000494 |

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

October 21, 2008



TO: WHOM IT MAY CONCERN

FROM: CLIFFORD P. LUM, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: 2002 WATER SYSTEM STANDARDS AMENDMENT FOR DISTANCE BETWEEN MAIN VALVES

The following amendments to the 2002 Water System Standards are effective immediately for **Oahu only**:

**Division 100, Section 103 MAIN VALVES, Subsection 103.01 LOCATION, TYPE, WORKING PRESSURE :**

1. Delete Table 100-9 and replace with the following:

| Table 100-9 - MAXIMUM DISTANCE BETWEEN MAIN VALVES (FEET) | | |
|---|---|---|
| Residential, Agricultural | Transmission Mains | All Others Districts |
| 750 | 2,000[a,d] | 500[b,c] |

a - *For Maui only: For mains 16-inch diameter or larger or as determined by the Manager, otherwise 1,000 feet.*
b - Or as determined by the Manager.
c - For mains that provide a one-way feed to subdivisions with more than 100 lots as determined by the Manager.
d - *For Oahu only: For mains 16-inch diameter or larger, maximum distance between main valves shall be 1,000 feet.*

2. Delete Table 100-10 and replace with the following:

| Table 100-10 - TYPES AND SIZE OF MAIN VALVES | | | |
|---|---|---|---|
| Island | Gate Valves | Bevel Geared | Butterfly |
| Maui | 5[a] | NA | 6 |
| Kauai, Oahu | 1 | 2[b] | 2 |
| Hawaii | 3 | NA | 4 |

1 - 12-inch and smaller
2 - 16-inch and larger
3 - 8-inch and smaller
4 - Larger than 8-inch
5 - 16-inch and smaller (subject to pressure)
6 - 18-inch and larger
NA - Not Allowed

a - For 16-inch mains with working pressure of 100 psi or greater, use butterfly valves.
b - *For Oahu Only: Install bevel-geared gate valves with bypass at key locations including, but not limited to, facilities, intersections (cluster valve locations) and every 2,000 feet spacing for long continuous transmission mains. The Manager may specify the type of valve to be used for transmission mains.*

If you have any questions, please contact Michael Domion at 748-5740.

cc: Kauai, Maui, Hawaii Water Departments

JT

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

March 18, 2008



TO: WHOM IT MAY CONCERN

FROM: CLIFFORD P. LUM, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: 2002 WATER SYSTEM STANDARDS AMENDMENTS FOR NUTS AND BOLTS

The following amendments to the 2002 Water System Standards are effective immediately for **Oahu only**:

**Division 200, Section 202 DUCTILE IRON PIPE, FITTINGS AND APPURTENANCES, Subsection 202.04 FLANGED JOINT:**

Delete the following (4th paragraph, page 202-5):

The bolts used for all flanged joints shall protrude beyond the nuts a minimum of 1/8-inch, but shall not exceed 1/2-inch. All stainless steel bolt and nut threads shall be pre-coated with anti-seizing graphite compound before installation. Should the bolts protrude more than 1/2-inch, the bolt ends shall be machine cut before installation. Bolts shall be with cut threads and American Standard heavy hexagon heads. Nuts shall be compatible with the bolts in strength and material characteristics. Nuts shall be hexagon. Bolts and nuts for flanges shall conform to one of the following:

1. Silicon bronze bolts and nuts shall conform to ASTM F467 and F468.

2. Stainless Steel bolts and nuts shall conform to ASTM F593 and F594, type 316.

Replace with the following:

The bolts used for all flanged joints shall protrude beyond the nuts a minimum of 1/8-inch, but shall not exceed 1/2-inch. All stainless steel bolt and nut threads shall be pre-coated with anti-seizing graphite compound before installation. Should the bolts protrude more than 1/2-inch, the bolt ends shall be machine cut before installation. Bolts shall be with cut threads and American Standard heavy hexagon heads. Nuts shall be compatible with the bolts in strength and material characteristics. Nuts shall be hexagon. Bolts and nuts for flanges shall conform to one of the following:

1. Silicon bronze bolts and nuts shall conform to ASTM F467 and F468.

2. For installations in vaults: Bolts and nuts shall be stainless steel, type 304, and shall conform to ASTM F593 and F594.

3. For buried installations: Bolts and nuts shall be corrosion resistant coated Cor-Ten®.

**Division 200, Section 206 HYDRANTS AND APPURTENANCES, Subsection 206.01 GENERAL:**

Delete the following (6th paragraph, page 206-1):

Each hydrant body shall be furnished with a set of break-off bolts, nuts, and full face gasket. Bolts shall be stainless steel 5/8" x 3" machine bolts with hexagon heads American Standard heavy. Bolts shall be break-off type drilled 11/32" x 1-3/8". Nuts shall be stainless steel American Standard heavy cold punched, hexagon nuts. Gaskets shall be 1/8-inch cloth inserted rubber. Hydrant flange shall have six (6) 3/4-inch bolt holes on 9.375-inch diameter.

Replace with the following:

Each hydrant body shall be furnished with a set of break-off bolts, nuts, and full face gasket. Bolts shall be hot-dipped galvanized 5/8"x3" machine bolts with hexagon heads American Standard heavy. Bolts shall be break-off type drilled 11/32"x1-3/8". Nuts shall be hot-dipped galvanized American Standard heavy cold-punched, hexagon nuts. Gaskets shall be 1/8-inch cloth inserted rubber. Hydrant flange shall have six (6) 3/4-inch bolt holes on 9.375-inch diameter.

If you have any questions, please contact Jason Takaki at 748-5740.

cc: Kauai, Maui, Hawaii Water Departments
M. Fuke, E. Kawata, K. Shida
J. Takaki, D. Ching, R. Remigio, Design Section

MD:st

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



October 31, 2007

Mr. Christopher King
Western Division Manager
Sigma Corporation
316 So. Bon View Avenue
Ontario, California 91761

Dear Mr. King:

Subject: Your Letter Dated January 9, 2007 Regarding Approval of SIGMA AWWA C110 Fittings

We approve the SIGMA Full Body Mechanical Joint Fittings and the Flanged Fittings for inclusion in the Water System Standards. The mechanical and flanged joint fittings meet the requirements of the AWWA C110 Standard.

If you have any questions, please contact Jason Takaki at (808)748-5740.

Very truly yours,

HOWARD H. TANAKA, Head
Capital Projects Division – Engineering Branch

cc: County Departments of Water
Jon Franzmeier (HISCO, Inc.)

GS:em

cc: Design Sect., Construction, Admin., Field Op., Plant Op., Supp. Sect.

Supp

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



May 4, 2007

Mr. Michael Berry
Western Division Manager
Star Pipe Products
263 Livorna Heights Road
Alamo, California 94507

Dear Mr. Berry:

Subject: Letter Dated March 23, 2005 Requesting Inclusion of the Star Pipe Products C110 FB MJ and Flanged Fittings in the Approved Materials List

We approve the Star Pipe Products C110 Full-body Mechanical and Flanged Joint Fittings for inclusion in the Water System Standards for Oahu only. The mechanical and flanged joint fittings meet the applicable requirements of the AWWA Standards as well as the testing and evaluation criteria being enforced during the probationary period.

This approval officially ends the two-year probationary period without reported incident. Henceforth, Star Pipe products, like any other products, shall be subject to normal material monitoring. If deficiencies reappear, appropriate action will be taken.

If you have any questions, please contact Jason Takaki at (808)748-5740.

Very truly yours,

HOWARD H. TANAKA, Head
Capital Projects Division – Engineering Branch

cc: Supp. Sect.

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



August 25, 2006

TO: WHOM IT MAY CONCERN

FROM: CLIFFORD P. LUM, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: INSTALLATION OF ELECTRONIC MARKERS

Effective immediately, the Honolulu Board of Water Supply (BWS) requires the installation of electronic markers in conjunction with all installations of water mains within the municipal water system, including any mains that may be dedicated to the BWS in the future. Electronic markers shall be installed along all mains, 4-inch diameter and larger, including non-potable water mains and fire hydrant and meter laterals. Electronic markers shall be installed in lieu of copper toning wire, where specified by the Water System Standards. Installation of the markers will facilitate pinpointing the locations of water mains in the field.

Installations shall be in accordance with the latest special provision for Electronic Markers. A copy of the current specification is attached.

If you have any questions, please contact Jason Takaki at 748-5740.

Attachments

cc: Customer Care (R. Chun)
Field Operations
D. Ching
F. Fung
J. Takaki

JT:em

SECTION SP-17 ELECTRONIC MARKERS

17.1 DESCRIPTION

This item of work shall include the furnishing of all labor, materials, tools and equipment necessary for the installation and testing of electronic markers for “locating” purposes.

Electronic markers shall be installed over all new mains 4-inch and larger including non-potable water mains, concrete jackets, mains under concrete pavement, and fire hydrant and meter laterals.

For plastic pipe, electronic markers shall be installed in lieu of copper toning wire.

17.2 MATERIAL

Electronic markers shall be the “Omni Marker”, manufactured by Tempo, or approved equal.

| Application | Color | Frequency | Model Number | UPC Number |
|---|---|---|---|---|
| Potable Water Main | Blue | 145.7 kHz | Model 161 | 60766 |
| Non-Potable Water Main | Purple | 66.35 kHz | Model 168 | 11050 |

17.3 CONSTRUCTION REQUIREMENTS

1. Placement

Electronic markers shall be hand placed in the trench, centered over the pipe and covered with sufficient base course material to prevent shifting prior to backfilling of the trench. Installation shall be at a minimum depth of two (2) feet and a maximum depth of three (3) feet from finish grade.

2. Location

Installation of electronic markers shall be in accordance with the following:

a. One marker at all changes in horizontal alignment.

(1) Tees with branches 4-inches and larger
(2) Bends
(3) Deflection couplings
(4) Deflections at joints

b. One marker 10 feet prior to and one marker 10 feet after a change in horizontal alignment unless markers are required within the 10 feet distance.

c. On straight runs, markers shall be placed at a maximum distance of 40 feet.

d. One marker at the end of all mains.

e. Markers at the beginning and end of all concrete jackets.

f. Markers at the beginning and end of all sections of mains under concrete pavement.

g. One marker at the connection of the new main to the existing main.

h. Markers shall not be placed at crossings with electrical duct lines, gas lines or telephone duct lines. Install markers at a minimum clearance of 5 feet from these utility crossings.

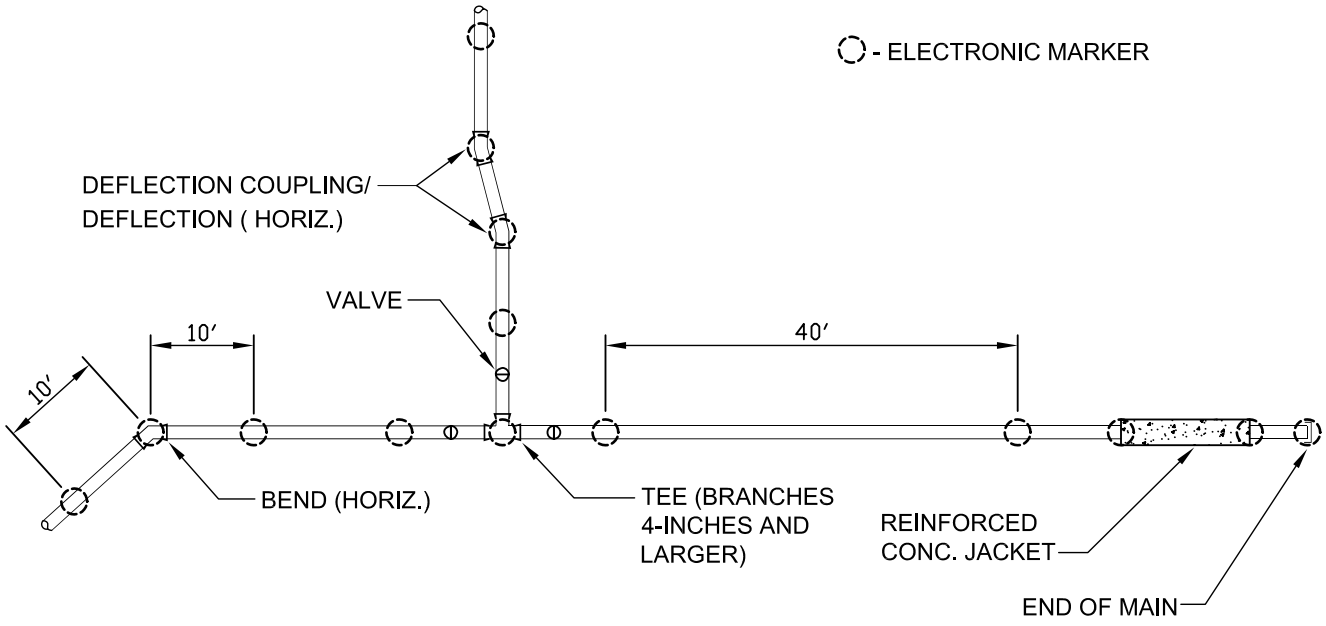
3. Testing

Contractor shall test the electronic markers prior to installation to verify proper operation. BWS personnel shall verify the number and locations of placed electronic markers prior to final paving.

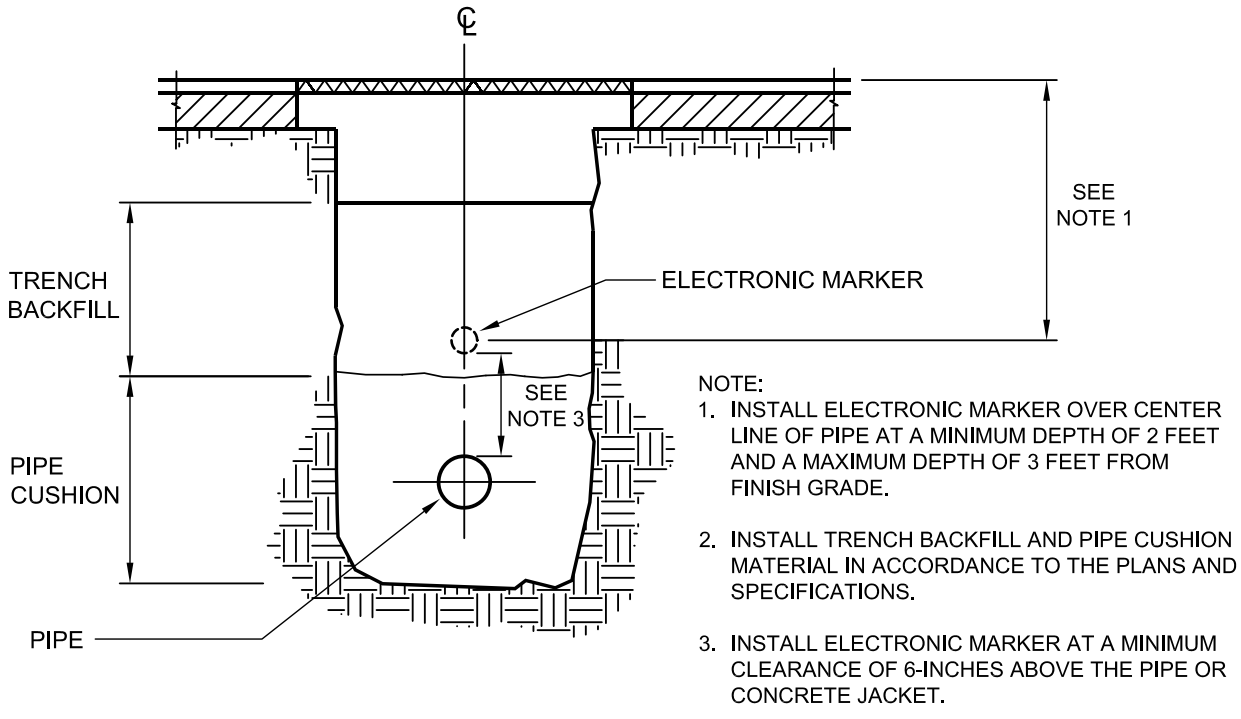
17.4 PAYMENT

Payment for ELECTRONIC MARKERS will be made at the Unit Price Bid based on the actual amount installed.

The Unit Price Bid for ELECTRONIC MARKERS shall be full compensation for all labor, materials, tools and equipment necessary for furnishing and installing ELECTRONIC MARKERS and all other incidentals required to complete the work.




PLAN VIEW




NOTE:
1. INSTALL ELECTRONIC MARKER OVER CENTER LINE OF PIPE AT A MINIMUM DEPTH OF 2 FEET AND A MAXIMUM DEPTH OF 3 FEET FROM FINISH GRADE.
2. INSTALL TRENCH BACKFILL AND PIPE CUSHION MATERIAL IN ACCORDANCE TO THE PLANS AND SPECIFICATIONS.
3. INSTALL ELECTRONIC MARKER AT A MINIMUM CLEARANCE OF 6-INCHES ABOVE THE PIPE OR CONCRETE JACKET.

SECTION VIEW

# TYPICAL ELECTRONIC MARKER INSTALLATION

N.T.S.

DC

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



January 27, 2004

Mr. Dennis R. Yoshimura
Independent Dealer Group
575 Cooke Street, Suite 2606
Honolulu, Hawaii 96813

Dear Mr. Yoshimura

Subject: Your Letter Dated October 2, 2003 Requesting Approval of Pratt & Lambert Products

We approve the following paint schedules for inclusion in the water system standards:

| A. NEW SCHEDULE FOR NEW SURFACES | PAINT SCHEDULE |
|---|---|
| 1. Ferrous Metals (Interior and Exterior) | Prime: 1 coat Poxy-Gard HB Aluminum Mastic S3508 (5.0-10.0 mils DFT).<br><br>Prime: 1 coat Poxy-Gard HB Expoy Mastic S3500 series (5.0-10.0 mils DFT).<br><br>Top Coat Enduthane HB Acrylic Urethane S2800 series (3.00-4.0 mils DFT). |
| 2. Galvanized Metals (Interior and Exterior) | Prime: 1 coat Z1 Latex Wash Primer 1.0 mil DFT<br><br>Top Coat Enduthane HB Acrylic Urethane S2800 series (3.0-4.0 mils DFT) |
| 4. Aluminum Surfaces | Prime: 1 coat Z1 Latex Wash Primer 1.0 mil DFT<br><br>Top Coat Enduthane HB Acrylic Urethane S2800 series (3.0-4.0 mils DFT) |
| 11. Wood, Other than Mahogany or Hardwood (Interior) | Prime: Interior Oil Primer S8161 (1.7-mils DFT) |

| | |
|---|---|
| | Two coats Pro-Hide Gold Interior Alkyd S/gloss S8800 (2.1-mils DFT)<br><br>Two coats Red Seal Interior Oil Satin Enamel S5700 series (2.1-mils DFT) |
| 12. Mahogany & Hardwood (Interior) | One coat Tonetic Wood Stain (if desired)<br><br>One or two coats Varmor Urethane Clear finish R10 gloss |

| B. PAINT SCHEDULE FOR EXISTING SURFACES | PAINT SCHEDULE |
|---|---|
| 2. Existing Concrete, Masonry and Plaster (Exterior) | Prime: Pro-Hide Gold Int./Ext. Acrylic Concrete & Stucco Primer Z6300 (3.2-mils DFT)<br><br>Two coats Red Seal Ext. Latex Flat Z1900 series (1.2 DFT per coat) |
| 3. Existing Concrete, Masonry & Plaster (Reservoir Exterior) | Prime: Exterior Acrylic & Stucco Primer Z6300 (3.2-mils DFT)<br><br>Two coats Pro-Hide Gold Exterior S/gloss Z8600 series (1.4-milsDFT) |

We disapprove the following paint schedules:

| A. NEW SCHEDULE FOR NEW SURFACES | PAINT SCHEDULE |
|---|---|
| 6. Masonry Surfaces (Exterior) | Prime: Pro-Hide Silver Heavy Duty Block Filler Z8465 (50-80 sq. ft. per gallon)<br><br>Topcoat: 2 coats Pro-Hide Gold Exterior latex Flat Z8400 series (1.2 mils DFT per coat) |
| 7. Masonry Surfaces (Interior) | Prime: Pro-Hide Silver Heavy Duty Block Filler Z8465 (50-80 sq. ft. per gallon)<br><br>Two coats Tech-Gard Water Borne Epoxy Z5300 series (1.5-2.0 mils DFT per coat) |

| | |
|---|---|
| 8. Concrete Surfaces (Exterior) | Prime: Pro-Hide Silver Heavy Duty Block Filler Z8465 (50-80 sq. ft. per gallon)<br><br>Top coat Pro-Hide Gold Exterior latex Flat Z8400 series (1.2 mils DFT per coat) |
| 9. Concrete Surfaces (Interior) | Prime: Pro-Hide Silver Heavy Duty Latex Block Filler Z8465 (50-80 sq. ft. per gallon)<br><br>Two coats Tech-Gard Water Borne Epoxy Z5300 series (1.5-2.0 mils DFT) |
| 10. Wood (Exterior) | Prime: Pro-Hide Gold Exterior Alkyd Wood Primer Z8460 (1.1-mils DFT)<br><br>Two coats Enducryl DDTM Z2900 Series 1.5-2.0 Series (1.5 -2.0 DFT) |

| B. PAINT SCHEDULE FOR EXISTING SURFACES | PAINT SCHEDULE |
|---|---|
| 1. Ferrous Metal Items (Interior and Exterior-Rust Retained) | Prime: Poxy-Gard rust Inhibitive Epoxy Primer S3301 series (3.0-6.0 mils DFT)<br><br>Topcoat Enduthane HB Urethane S2800 series (4.0-6.0-mils DFT) |

If you have any questions, contact Jason Takaki at 748-5740.

Very truly yours,

HOWARD H. TANAKA, Head
Maintenance Unit – Engineering Branch

Enclosure
cc: Hawaii, Kauai, Maui Water Departments
Maintenance-Field, F. Fung, Darwin Ching, J. Takaki GS:st

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



October 15, 2003

TO: WHOM IT MAY CONCERN

FROM: CLIFFORD S. JAMILE

SUBJECT: REVISION TO THE WATER SYSTEM EXTERNAL CORROSION CONTROL STANDARDS, VOLUME 3, DATED 1991

Effective January 1, 2004, the Board of Water Supply (BWS) will require the installation of cathodic protection systems in conjunction with all installations of ductile iron pipes, unless otherwise directed by the Manager. The requirements of Part 2, Section 1.2, Table 3 "Exterior Corrosion Control Requirements" will be revised to eliminate the corrosion rating based on the soil resistivity. The corrosion control requirements for ductile iron pipe installation shall be designed to a corrosion rating of 1. Construction plans with ductile iron pipe installations submitted to the BWS for review and approval prior to January 1, 2004, shall not require cathodic protection system unless otherwise instructed.

If you have any questions, please contact Jason Takaki at 748-5740.

cc: Kauai, Maui, Hawaii Water Departments

Customer Care
Maintenance-Field
D. Ching
F. Fung
J. Takaki

MD:st

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



August 12, 2003

Mr. Calvin Okinaka, Branch Manager
Fluid Systems Hawaii, Inc.
96-1407 Waihona Place
Pearl City, Hawaii 96782

Dear Mr. Okinaka:

Subject: Your Letter Dated April 10, 2003 Requesting Approval of Corrosion Resistant Coated Cor-Ten T-Bolts and Nuts

We approve the Cor-Ten T-bolts and nuts with corrosion resistant Tripac 2000 Blue Coating System by Tripac Fasteners, and the Cor-Blue T-bolts by NSS Industries for inclusion into the Water System Standards. The Tripac 2000 Blue coated Cor-Ten T-bolts and nuts and Cor-Blue T-bolts and nuts shall be used for underground mechanical joint installations.

If you have any questions, please contact Jason Takaki at (808)748-5740.

Very truly yours,

HOWARD H. TANAKA, Head
Maintenance Unit - Engineering

cc: County Depts. of Water
Maintenance Unit - Field
F. Fung
G. Matsunami
J. Takaki

FA:es

JT

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



July 22, 2003

TO: WHOM IT MAY CONCERN

FROM: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: WATER SYSTEM STANDARD AMENDMENT FOR NUTS AND BOLTS

Effective immediately, the Board of Water Supply (BWS) will allow the use of corrosion resistant coated Cor-Ten® T-Bolts and Nuts for underground mechanical joint installations in lieu of Type 316 stainless steel bolts and nuts as required in Division 200, Section 202.02, Mechanical Joint, of the 2002 Water System Standards (WSS). Until an amendment to the WSS Division 400, Section 402, Approved Material List, is approved to include Cor-Ten® T-Bolts and Nuts, material approvals shall be on a case-by-case basis. Materials shall be submitted to the BWS (Attn: Howard Tanaka) for review and approval.

If you have any questions, please contact Jason Takaki at 748-5740.

cc: Kauai, Maui, Hawaii Water Departments
Customer Care (J. Kaakua)
Maintenance-Field
G. Matsunami
F. Fung
J. Takaki

FA/JT:st

JT

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



June 20, 2003

Mr. Joshua James Larkin
Romac Industries, Inc.
21919 20th Avenue SE, Suite 100
Bothell, Washington 98021

Dear Mr. Larkin:

Subject: Your Letter Dated April 15, 2003 Requesting Approval of Romac Style DJ 400 Ductile Iron Dismantling Joints

The Romac Style DJ 400 Ductile Iron Dismantling Joints, sizes 16-inch and larger are approved for inclusion into the Water System Standards.

If you have any questions, please contact Jason Takaki at (808)748-5741.

Very truly yours,

HOWARD H. TANAKA, Head
Maintenance Unit – Engineering

cc: County Departments of Water

Maint. Field, F. Fung, G. Matsunami, J. Takaki
FA:st

Supp

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



May 23, 2003

Mr. John Miller
The Sherwin-Williams Company
1311 Kalani Street
Honolulu, Hawaii 96817

Dear Mr. Miller:

Subject: Your Letter Dated December 23, 2002 Requesting Approval of Sherwin Williams Coatings

We approve the following Sherwin Williams paint schedules for inclusion in the Water System Standards:

| A. NEW SURFACES | PAINT SCHEDULES |
|---|---|
| 1. Ferrous Metals (Int. and Ext.) | Prime Coat: 1 coat Zinc Clad II HS (B69VZ3) @ 3-5 mils DFT<br>Intermediate: 1 coat Macropoxy 646 Fast Cure (B58-600 Series ) @ 5-10 mils DFT<br>Finish Coat: 1 coat Hi-solids Polyurethane (B65-300 Series) @ 3-4 mils DFT |
| 2. Galvanized Metals (Int. and Ext.) | Prime Coat: 1 coat DTM Wash Primer (B71Y1) @ 0.7-1.3 mils DFT<br>Finish Coat: 1 coat Acrolon 218 HS Acrylic Polyurethan (B65-600 Series) @ 3-6 mils DFT |
| 3. Factory Finished Metals (Int. & Ext.) | Prime Coat: 1 coat W.B. Tile Clad Epoxy Primer (B73A200 Series) @ 2-4 Mils DFT<br>Finish Coat: 1 coat Centurion WB Urethane (B65-700 Series) @ 2-3 mils DFT, **or** 1 COAT Macropoxy HS (B58-400 Series) @ 3-6 mils DFT (B58-400 Series) |
| 4. Aluminum Surfaces | Prime 1 coat: DTM Wash Primer (B71Y1) @ 0.7-1.3 mils DFT<br>Finish Coat: 1 coat Corothane II Polyurethane (B65-200/400 Series) @ 2-4 mils DFT |

| | |
|---|---|
| 5. Masonry Surfaces (Exterior) | Prime Coat: 1 coat Loxon Masonry Primer (A24 Series) @ 2.5-3.2 mils DFT.<br>Finish Coat: 2 coats DTM Acrylic (B66 Series) @ 2.5-4 mils DFT |
| 6. Masonry Surfaces (Interior) | Prime Coat: 1 coat Loxon Masonry Primer (A24 Series) @ 2.5-3.2 mils DFT.<br>Finish Coat: 2 coats DTM Acrylic (B66 Series) @ 2.5-4 mils DFT |
| 7. Concrete Surfaces (Exterior) | Prime Coat: 1 coat Loxon Block Surfacer (A24 Series) @ 2.5-3.2 mils DFT<br>Finish Coat: 2 coats DTM Acrylic (B66 Series) @ 2.5-4 mils DFT, **or** 2 coats W.B. Tile Clad Epoxy Finish (B73W111 Series) @ 2-4 Mils DFT |
| 8. Concrete Surfaces (Interior) | Prime Coat: 1 coat Loxon Block Surfaces (A24 Series) @ 2.5-3.2 mils DFT<br>Finish Coat: 2 coats DTM Acrylic (B66 Series) @ 2.5-4 mils DFT, **or** 2 coats W.B. Tiile Clad Epoxy Finish (B73W111 Series) @ 2-4 Mils DFT |
| 9. Wood (Exterior) | Prime Coat: 1 coat A100 Alkyd Primer (Y24 Series) @ 2.3 mils DFT<br>Finish Coat: 2 coats A100 Latex (A6, A82, A8 Series) @ 1.2 mils DFT, **or** 2 coats DTM Acrylic (B66 Series) @ 2.5-4 mils DFT |
| 10. Wood Other than Mahogany (Int.) | Prime Coat: 1 coat PreRite Classic Int. Ltx. Primer (B28W101) @ 1.6 mils DFT<br>Finish Coat: 2 coats ProMar 200 Int. Ltx. Semi-Gloss (B31-200) @ 1.4 mils DFT |
| 11. Mahogany (Interior Only) | Prime Coat: 1 coat Wood Classic Stain (A49 Series)<br>Finish Coat: 2 coats Wood Classic Polyurethane (A67 Series) @ 1.7 mils DFT |

| B. EXISTING SURFACES | PAINT SCHEDULE |
|---|---|
| 1. Ferrous Metals (Interior & Exterior Rust Retained) | Prime Coat: 1 coat Macropoxy 920 PrePrime (B58T101) @ 1.5-2 mils DFT<br>Finish Coat: 1 coat HS Polyurethane (B65-300 Series) @ 3-4 mils DFT |
| 2. Concrete, Masonry, and Plaster (Exterior) | Prime Coat: WB Catalyzed Epoxy Ultradeep (B70200 Series) @ 2.5-3 mils DFT<br>Finish Coat: 2 coats A100 Ltx Acrylic (A6, A8, A82 Series) @ 1.2 mils DFT, **or** 2 coats DTM Acrylic (B66 Series) @ 2.4 mils DFT |
| 3. Concrete, Masonry, and Plaster (Reservoir Exterior) | Prime Coat: WB Catalyzed Epoxy Ultradeep (B70-200 Series) @ 2.5-3 mils DFT<br>Finish Coat: 2 coats A100 Ltx Acrylic (A6, A8, A82 Series) @ 1.2 mils DFT **or** 2 coats DTM Acrylic (B66 Series) @ 2.4 mils DFT |

We disapprove the treatment for reservoir interiors. The Board of Water supply does not paint the interior of its reservoirs as a standard practice.

If you have any questions, please contact Jason Takaki at 748-5741.

Very truly yours,

HOWARD H. TANAKA, Head
Maintenance Unit – Engineering

cc: Hawaii, Kauai, and Maui Water Departments
Maintenance – Field
G. Matsunami
F. Fung
Support Section

FA:em

Support

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

May 12, 2003



Mr. Teddy Pascual
FSC Coatings, Inc.
5360 Eastgate Mall Road, Suite F
San Diego, California 92121

Dear Mr. Pascual:

Subject: Your Letter Dated January 24, 2003 Requesting Approval of FSC High Performance Coatings

We approve the following paint schedules for inclusion in the water system standards:

| A. NEW SURFACES | | PAINT SCHEDULE |
|---|---|---|
| 1. | Ferrous Metals (Int. and Ext.) | Prime Coat: Zero-Rust Modified Phenolic Primer – Black (2.5 – 3.0 mils DFT)<br>Intermediate: Zero-Rust Modified Phenolic Primer – Red (2.5 –3.0 mils DFT)<br>Finish Coat: Silicone Polyplus Topcoat (Int.) (3.0 mils DFT). Silicone Polyplus Ultimate UV (Ext.) (3.0 mils DFT). |
| 2. | Galvanized Metals (Int. and Ext.) | Prep: Zero-Rust Prep Step Concentrate.<br>Prime Coat: Zero-Rust Modified Phenolic Primer – Black (2.5 – 3.0 mils DFT)<br>Intermediate: Zero-Rust Modified Phenolic Primer – Red (2.5 –3.0 mils DFT)<br>Finish Coat: Silicone Polyplus Topcoat (Int.) (3.0 mils DFT). Silicone Polyplus Ultimate UV (Ext.) (3.0 mils DFT). |

| | | |
|---|---|---|
| 3. | Factory Finished Metals (Int. & Ext.) | Prep: Zero-Rust Prep Step Concentrate.<br>Prime Coat: Zero-Rust Modified Phenolic Primer – Black (2.5 – 3.0 mils DFT)<br>Finish Coat: Silicone Polyplus Topcoat (Int.) (3.0 mils DFT). Silicone Polyplus Ultimate UV (Ext.) (3.0 mils DFT). |
| 4. | Aluminum Surfaces | Prep: FSC Wax and Grease Remover<br>Prime Coat: Zero-Rust Modified Phenolic Primer – Black (2.5 – 3.0 mils DFT)<br>Finish Coat: Silicone Polyplus Topcoat (Int.) (3.0 mils DFT). |
| 5. | Masonry Surfaces (Exterior) | Prime Coat: FSC Mildew Sealer<br>Intermediate: Maxlife 2400 Series/2800 Series.<br>Finish Coat: Maxlife 2400 Series/2800 Series. |
| 6. | Masonry Surfaces (Interior) | Prime Coat: FSC Prime and Seal.<br>Intermediate: Maxlife 2400 Series/2800 Series.<br>Finish Coat: Maxlife 2400 Series/2800 Series. |
| 7. | Concrete Surfaces (Exterior) | Prime Coat: FSC Mildew Sealer<br>Intermediate: Maxlife 2400 Series/2800 Series.<br>Finish Coat: Maxlife 2400 Series/2800 Series. |
| 8. | Concrete Surfaces (Interior) | Prime Coat: FSC Prime and Seal.<br>Intermediate: Maxlife 2400 Series/2800 Series.<br>Finish Coat: Maxlife 2400 Series/2800 Series. |
| 9. | Wood (Exterior) | Prime Coat: Silicone Polyplus (1.5 – 2.0 mils DFT)<br>Intermediate: Silicone Polyplus (1.5 – 2.0 mils DFT)<br>Finish Coat: Silicone Polyplus Topcoat Ultimate UV (3.0 mils DFT) |
| 10. | Wood Other than Mahogany (Int.) | Prime Coat: Silicone Polyplus (1.5 – 2.0 mils DFT)<br>Intermediate: Silicone Polyplus (1.5 – 2.0 mils DFT)<br>Finish Coat: Silicone Polyplus Topcoat (3.0 mils DFT) |
| 11. | Mahogany (Interior Only) | Prime Coat: TWP 300 Series/400Series<br>Finish Coat: FSC Quick Dry Varnish |

B. EXISTING SURFACES

| | | |
|---|---|---|
| 1. | Ferrous Metals (Interior & Exterior Rust Retained) | Prime Coat: Zero-Rust Modified Phenolic Primer – (2.5 mils DFT)<br>Intermediate: Zero-Rust Modified Phenolic Primer – (2.5 mils DFT)<br>Finish Coat: Silicone Polyplus Topcoat (Int.) (3.0 mils DFT). Silicone Polyplus Ultimate UV (Ext.) (3.0 mils DFT). |
| 2. | Concrete, Masonry, and Plaster (Exterior) | Prep: Silox-Seal Part "A"<br>Prime Coat: FSC Modified Mildew Sealer<br>Intermediate: Maxlife Series PC550<br>Finish Coat: Maxlife Series PC550 |
| 3. | Concrete, Masonry and Plaster (Reservoir Exterior) | Prep: Silox-Seal Part "A"<br>Prime Coat: FSC Modified Mildew Sealer<br>Intermediate: Maxlife Series PC550<br>Finish Coat: Maxlife Series PC550 |

We disapprove the Anti-Graffiti paint schedule for use in the Water System. The Board of Water Supply does not paint the exterior of its facilities with anti-graffiti coating at this time.

If you have any questions, contact Jason Takaki at (808) 748-5741.

Very truly yours,

HOWARD H. TANAKA, Head
Maintenance Unit - Engineering

cc: Hawaii, Kauai, and Maui Water Departments
Maint. – Field
G. Matsunami
F. Fung
Support

FA:em

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



March 24, 2003

Mr. Dennis Graham
Valve Service & Supply
91-210 Olai Street
Kapolei, HI 96707

Dear Mr. Graham:

Subject: PowerSeal Transition Couplings

The following PowerSeal Transition Couplings will not be allowed for use in our water system and will be removed from the Approved Material List of the Water System Standards:

Styles 3501, 3502, 3503, 3504, 3511, and 3512.

Samples representing the current shipment of the Style 3501 couplings show casting defects at critical locations that would impair their service in the water system.

Please remove the shipment of the Style 3501 couplings completely from the Board of Water Supply yard at your own expense. We will evaluate any future approval request to use the PowerSeal Couplings in the water system once the casting problem has been resolved.

If you have any questions, contact Jason Takaki at 748-5741.

Very truly yours,

HOWARD H. TANAKA, Head
Maintenance Unit - Engineering

cc: PowerSeal
Maintenance - Field
F. Fung
G. Matsunami
J. Takaki

Support

**BOARD OF WATER SUPPLY**

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630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



November 27, 2002

Mr. John L. Hawkins
James Jones Company
4127 Temple City Boulevard
El Monte, California 91731

Dear Mr. Hawkins:

Subject: Your Letter Dated October 8, 2002 Requesting Approval of
James Jones Company's Service Saddles, Couplings and Ball Valves

We approve the following materials for inclusion into our Water System Standards:

James Jones Compression Couplings: Models J-2605, J-2607, and J-2609.

James Jones Ball Valves: Model J-1905.

James Jones Meter Coupling: Model J-130.

The Ball Valve Model J-1905, when used as property valve, should be provided with a handle that would fit inside the required Type "A" or Type "B" box.

The Service Saddle, Model J-979, has already been approved and included in the Approved Material List of the Water System Standards (Refer to enclosed approval letter dated April 8, 1987).

If you have any questions, please contact Jason Takaki at 527-6196.

Very truly yours,

Howard H. Tanaka

HOWARD H. TANAKA, Head
Maintenance Unit – Engineering

Enclosure
cc: Hawaii, Kauai, and Maui DWS

G. Matsunami, F. Fung, Support FA:st

Frank/file KK

April 8, 1987

Mr. Harry Imai
Fluid Systems Hawaii, Inc.
96-1407 Waihona Place
Pearl City, Hawaii 96782

Dear Mr. Imai:

Subject: Your Letter of March 23, 1987 Requesting Additions and Amendments to the Approved Material List of the 1985 Water System Standards

We approve the Mueller Company H-619 Tapping Valve and Sleeve for asbestos-cement pipe and James Jones J-979 Bronze Double Strap Service Saddle for ductile iron and asbestos-cement pipes for use in our water system.

Our comments regarding the rest of your fittings will be sent to you by April 30, 1987.

If you have any questions, please contact Kenneth Kawamoto at 527-6144.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

FI:ki

cc: K. Hayashida
Finance
Field Operations
J. Yamauchi
R. Matsui
D. Ching
~~K.~~ Kawamoto

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



November 22, 2002

Fluid Systems Hawaii, Inc.
96-1407 Waihona Place
Pearl City, Hawaii 96782

Attention: Mr. Calvin Okinaka

Gentlemen:

Subject: Globe Valves for Property Valves

Henceforth, the Honolulu Board (BWS) of Water Supply will require the use of globe valves for property valves.

Attached is the list of approved globe valves. However, the BWS is still considering switching to ball valves with handles when a suitable design that would fit inside the Type "A" valve box is available.

If you have any questions, please contact Jason Takaki at 527-6196.

Very truly yours,

Howard H. Tanaka

HOWARD H. TANAKA, Head
Maintenance Unit – Engineering

Enc.

FA:em

cc: Maintenance – Field
Customer Care (J. Kaakua, D. Shimizu)
F. Fung
J. Takaki
G. Matsunami
Support Section

| APPROVED GLOBE VALVES FOR OAHU ONLY | |
|---|---|
| Manufacturer | Catalog or Model No. |
| Globe Valves | |
| A. 125-Pound Steam | |
| 1. Crane Co. | Model 1, Bronze |
| 2. Fairbanks | Model 45 & U-01 |
| 3. Hammond Valve Corp. | Model 440 |
| 4. Kennedy | Catalog 86, Model 150 |
| 5. A.Y. McDonald Mfg. Co. | Catalog PB-73, Model 9510 |
| 6. Milwaukee Valve Corp. | Catalog I172, Model 502 |
| 7. Nibco | T-211-B |
| 8. Ohio Brass Co. | Catalog 58, Models 101, 30I-T |
| 9. Ohio Injector Co. | Catalog 53, Model 234 |
| 10. Powell | Catalog 11, Model 650 |
| 11. Red & White Valve Co. | Catalog C/I, Model 211 |
| 12. (Stockham) Crane Co. | Catalog 57, Model B-16 |
| | Model B-13T |
| 13. Walworth | Catalog 52, Model 58 |
| | |
| B. 150-Pound Steam | |
| 1. Lunkenheimer | Catalog 66, Model 123 (No. 20 disc.) |
| 2. Nibco | T-235 |
| | |

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



July 11, 2002

Mr. Jose A. Casarez
Pittsburgh Paint Center
425 Kalihi Street
Honolulu, Hawaii 96819

Dear Mr. Casarez:

Subject: Your Letter Dated May 13, 2002 Requesting
Approval of PPG Industries High Performance Products

We approve the following paint schedules for inclusion in the water system standards:

| A. NEW SURFACES | | PAINT SCHEDULE |
|---|---|---|
| 1. | Ferrous Metals (Int. and Ext.) | Prime Coat: PPG 95-245 PITTGUARD Direct-to-rust Epoxy Coating @ 5.0 to 7.0 mils DFT.<br><br>Finish Coat: PPG 95-850 PITTHANE 35 Aliphatic Urethane Gloss Enamel @ 2.0 to 3.0 mils DFT. |
| 2. | Galvanized Metals (Int. and Ext.) | Prime Coat: PPG 95-245 PITTGUARD Direct-to-rust Epoxy Coating @ 5.0 to 7.0 mils DFT.<br><br>Finish Coat: PPG 95-850 PITTHANE 35 Aliphatic Urethane Gloss Enamel @ 2.0 to 3.0 mils DFT. |
| 3. | Factory Finished Metals (Int. & Ext.) | Prime Coat: PPG 95-245 PITTGUARD Direct-to-rust Epoxy Coating @ 5.0 to 7.0 mils DFT.<br><br>Finish Coat: PPG 95-850 PITTHANE 35 Aliphatic Urethane Gloss Enamel @ 2.0 to 3.0 mils DFT. |

| | | |
|---|---|---|
| 4. | Aluminum Surfaces | Pretreatment: In accordance with SSPC SP1<br><br>Prime Coat: PPG 95-245 PITTGUARD Direct-to-rust Epoxy Coating @ 5.0 to 7.0 mils DFT.<br><br>Finish Coat: PPG 95-850 PITTHANE 35 Aliphatic Urethane Gloss Enamel @ 2.0 to 3.0 mils DFT. |
| 5. | Masonry Surfaces (Exterior) | Prime Coat: PPG 6-7 SPEEDHIDE Interior/Exterior Acrylic Masonry Block Filler @ 4.8 to 14.0 mils DFT<br><br>Finish Coat: Two coats PPG 78-45 SUN-PROOF Exterior 100% Acrylic Semi-Gloss House and Trim Paint @ 1.5 to 2.0 mils DFT. |
| 6. | Concrete Surfaces (Exterior) | Prime Coat: PPG 98-46 AQUAPON WB Water Based Epoxy Primer Coating @ 3.0 to 4.0 mils DFT.<br><br>Finish Coat: PPG 78-45 SUN-PROOF Exterior 100% Acrylic Semi-Gloss House and Trim Paint @ 1.5 to 2.0 mils DFT. |
| 7. | Wood (Exterior) | Prime Coat: PPG 6-809 SPEEDHIDE Exterior Alkyd Wood Primer @ 1.5 to 2.0 mils DFT.<br><br>Finish Coat: PPG 90-374 PITTECH Interior/ Exterior Waterborne DTM Industrial High Gloss Enamel @ 2.0 to 3.0 mils DFT. |
| 8. | Mahogany (Interior Only) | Prime Coat: PPG 77-30 REZ Interior QD Wood Sanding Sealer @ .5 to 1.0 mils DFT.<br><br>Finish: PPG 77-10 REZ Interior/Exterior Alkyd Spar Varnish @ 1.10 to 1.5 mils DFT. |

B. EXISTING SURFACES

| | | |
|---|---|---|
| 1. | Ferrous Metals (Interior & Exterior Rust Retained) | Prime Coat: PPG 95-245 PITTGUARD Direct-to-rust Epoxy Coating @ 5.0 to 7.0 mils DFT.<br><br>Finish Coat: PPG 95-850 PITTHANE 35 Aliphatic Urethane Gloss Enamel @ 2.0 to 3.0 mils DFT. |

We had previously approved the following paint schedules in the attached letter dated April 9, 2002:

| A. NEW SURFACES | | PAINT SCHEDULE |
|---|---|---|
| 1. | Masonry Surfaces Interior | Prime Coat: PPG 16-90 PITT-GLAZE Interior/Exterior Acrylic Block Filler @ 12.0 to 25.0 mils DFT.<br><br>Finish Coat: Two coats PPG 98-1 AQUAPON Waterborne Polyamide Epoxy @ 2.0 to 3.0 mils DFT. |
| 2. | Concrete Surfaces ( Interior) | Prime Coat: PPG 16-90 PITT-GLAZE Interior/Exterior Acrylic Block Filler @ 12.0 to 25.0 mils DFT.<br><br>Finish Coat: Two coats PPG 98-1 AQUAPON Waterborne Polyamide Epoxy @ 2.0 to 3.0 mils DFT. |
| 3. | Wood Other than Mahogany (Int.) | Prime Coat: PPG 6-6 SPEEDHIDE Interior Alkyd Enamel Undercoater @ 1.8 to 2.2 mils DFT.<br><br>Finish Coat: Two coats PPG 6-1110 SPEEDHIDE Interior Semi-Gloss Alkyd Enamel @ 1.8 to 2.2 mils DFT. |

B. EXISTING SURFACES

| | | |
|---|---|---|
| 1. | Concrete, Masonry, and Plaster (Exterior) | Prime Coat: PPG 6-603 SPEEDHIDE Interior/ Exterior Acrylic Alkali Resistant Primer @ 1.2 to 1.5 mils DFT.<br><br>Finish Coat: Two coats PPG 6-900 SPEEDHIDE Exterior Semi-Gloss Latex @ 1.2 to 1.5 mils DFT. |

| | | |
|---|---|---|
| 2. | Concrete, Masonry and Plaster (Reservoir Exterior) | Prime Coat: PPG 6-603 SPEEDHIDE Interior/ Exterior Acrylic Alkali Resistant Primer @ 1.2 to 1.5 mils DFT.<br><br>Finish Coat: Two coats PPG 6-900 SPEEDHIDE Exterior Semi-Gloss Latex @ 1.2 to 1.5 mils DFT. |

As stated in our letter of April 9, 2002, we disapprove the paint schedules for Concrete Reservoir (Interior) and Anti-Graffiti. As standard practice, we do not paint the interior of reservoirs or the exterior of our facilities with anti-graffiti coatings at this time.

If you have any questions, contact Jason Takaki at 527-6196.

Very truly yours,

Howard H. Tanaka

HOWARD H. TANAKA, Head
Maintenance Unit - Engineering

Enclosure (Letter dated 4/9/02)

cc: Hawaii, Kauai, and Maui Water Departments
Maintenance - Field
G. Matsunami
F. Fung
Support

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



April 9, 2002

Mr. Dan Davis
PPG Industries, Inc.
24832 San Doval Lane
Mission, Viejo, CA 92691

Dear Mr. Davis:

Subject: Your Letter Dated November 2, 2001 Requesting
Approval of PPG Industries High Performance Coatings

We approve the following paint schedules for inclusion into the Water System Standards:

1. Paint Schedule for New Surfaces
   a. Schedule 7 – Masonry Surfaces: (Interior)
   b. Schedule 9 – Concrete Surfaces: (Interior)
   c. Schedule 11 – Wood, Other than Mahogany or Hardwood: (Interior)

2. Paint Schedule for Existing Surfaces
   a. Schedule 2 – Existing Concrete, Masonry and Plaster: (Exterior)
   b. Schedule 3 – Existing Concrete, Masonry and Plaster: (Reservoir Exterior)

We disapprove the following paint schedules:

1. Paint Schedule for New Surfaces
   a. Schedule 5 – Overflow Pipe. The paint specified is not recommended for use for potable water.
   b. Schedule 13 – Concrete Reservoir: (Interior). The interior of concrete reservoirs is not painted as a standard practice.

2. Remaining Paint Schedules
   a. Schedules 1, 2, 3, 4, 6, 8, 10, 12 & 14 for New Surfaces and Schedule 1 for Existing Surfaces. The Technical Data Sheets for the finish coats list a recommended primer; the prime coat selected in the paint schedules is not listed as one of the recommended primers.

If you have any questions, contact Jason Takaki at (808)527-6196.

Very truly yours,

HOWARD H. TANAKA, Head
Maintenance Unit - Engineering