Amendments to the 2002 Water System Standards

Description	WSS Section Modified	Approval Date
Type and Classes of Mains,	Division 100, Section 102, Sub-section 102.05 Type,	7/29/2019
and Pipe Cushion	Class and Division 200, Section 209, Sub-section	
	209.02 Pipe Cushion	
Expanded Metal Fencing	Division 100, Section 105, Sub-section 105.08	8/2/2018
	Perimeter Fence and Division 300, Section 303, Sub-	
	section 303.34 Expanded Metal Fence and Gate	
Polyethylene Encasement and	Division 200, Section 202 - Ductile Iron Pipe,	11/17/2016
Exterior Coating	Fittings, and Appurtenances	
Approved Material	Division 400, Section 402, Sub-section III Service	5/6/2016
The Ford Meter Box	Laterals, Fittings and Appurtenances	
Company, Inc.		
Trench Backfill	Division 400, Section 403 Standard Details	4/29/2016
Ductile Iron Pipe	Division 200, Section 202 - Ductile Iron Pipe,	4/15/2016
	Fittings, and Appurtenances	
Approved Material	Division 400, Section 402, Sub-section III Service	5/13/2015
DFW Plastics, Inc.	Laterals, Fittings and Appurtenances	
Plastic Pipe	Division 200, Section 204 Plastic Pipe; Division	4/23/2015
	300, Section 302 Water Mains and Appurtenances,	
	Sub-sections 302.14 Plastic Pipe & 302.15 Fittings	
	and Specials	
Water Main Clearances	Division 100, Section 102 Mains, Sub-section	4/23/2015
	102.01 Location	
3/4" Meter Splice Length	Division 400, Section 403 Standard Details	12/8/2014
Approved Material	Division 400, Section 402 Sub-section I Pipes and	9/19/2014
Christy's	Appurtenances	
Approved Material	Division 400, Section 402, Sub-section IV Fire	6/20/2014
Clow Valve Company	Hydrants	
Brass Products - Lead Free	Division 200, Section 211 Brass Products &	10/22/2013
	Division 400, Section 402, Sub-section III Service	
	Laterals, Fittings and Appurtenances	
Approved Material	Division 400, Section 402, Sub-section III Service	1/4/2013
Jensen Precast	Laterals, Fittings and Appurtenances	
Rescinding Approval for	Division 200, Section 208 - Service Laterals and	12/14/2012
Polyethylene (PE) Pipe	Appurtenances, 208.03 Plastic Tubing	

Description	WSS Section Modified	Approval Date
Brass Products	Division 200, Section 211 Brass Products &	6/5/2012
	Division 400, Section 402, Sub-section III Service	
	Laterals, Fittings and Appurtenances	
Approved Material	Division 400, Section 402, Sub-section III Service	5/14/2012
Armorcast	Laterals, Fittings and Appurtenances	
Approved Material	Division 400, Section 402 Sub-section I Pipes and	11/9/2011
Romac	Appurtenances	
Approved Material	Division 400, Section 402 Sub-section I Pipes and	9/14/2011
IPEX	Appurtenances	
Rescinding Approval for	Division 200, Section 203 Concrete Cylinder Pipe	7/15/2011
Concrete Cylinder Pipe	and Fittings	
Rescinding Approved	Division 400, Section 402 Sub-section I Pipes and	4/29/2011
Material	Appurtenances	
Royal Pipe Systems		
Approved Material	Division 400, Section 402 Sub-section I Pipes and	11/4/2010
METCO	Appurtenances	
Approved Material	Division 400, Section 402 Sub-section I Pipes and	5/6/2010
Advance Products and	Appurtenances	
Systems		
Approved Material	Division 400, Section 402 Sub-section I Pipes and	1/19/2010
Garlock	Appurtenances	
Approved Material	Division 400, Section 402 Sub-section I Pipes and	11/10/2009
North American Pipe	Appurtenances	
Corporation		
Approved Material	Division 400, Section 402 Sub-section I Pipes and	10/27/2009
Multi Fittings	Appurtenances	
Approved Material	Division 400, Section 402 Sub-section I Pipes and	8/14/2009
Diamond Plastics	Appurtenances	
FM Meter & Box Standard	Division 400, Section 403 Standard Details	5/18/2009
Details		
Approved Material	Division 400, Section 402, Subsection III Service	2/24/2009
Polytubes	Laterals, Fittings and Appurtenances	
Minimum Utility Depth	Division 100, Section 102 Mains, Sub-section	12/31/2008
	102.03 Cover & Division 400, Section 403 Standard	
	Details	
Approved Material	Division 400, Section 402 Sub-Section II Valves and	12/18/2008
American R/D	Appurtenances	
Approved Material	Division 400, Section 402, Sub-section III Service	12/4/2008,
Armorcast	Laterals, Fittings and Appurtenances	amended
		6/26/2015

Description	WSS Section Modified	Approval Date
Distance between main	Division 100, Section 103 Sub-section 103.01	10/21/2008
valves	Location, Type, Working Pressure	
Nuts and bolts for flanged	Division 200, Section 202.04 Flanged Joint and	3/18/2008
joints and fire hydrant break-	Section 206.1 General	
off bolts		
Approved Material	Division 400, Section 402 Sub-section I Pipes and	10/31/2007
Sigma Corporation	Appurtenances	
Approved Material	Division 400, Section 402 Sub-section I Pipes and	5/4/2007
Star Pipe Products, Inc.	Appurtenances	
Electronic Markers	New requirement	8/25/2006
Approved Material	Division 400, Section 402 Sub-section V Paints and	1/27/2004
Pratt & Lambert	Coatings	
Cathodic Protection	Division 500, Section 1.2 (Part 2), Table 3	10/15/2003
Approved Material	Division 400, Section 402 Sub-section I Pipes and	8/12/2003
Tripac Fasteners & NSS	Appurtenances	
Industries		
Nuts and bolts for mechanical	Division 200, Section 202.02 Mechanical Joint	7/22/2003
joints		
Approved Material	Division 400, Section 402 Sub-section I Pipes and	6/20/2003
Romac	Appurtenances	
Approved Material	Division 400, Section 402 Sub-section V Paints and	5/23/2003
Sherwin Williams	Coatings	
Rescinded 4/29/2011	Division 400, Section 402 Sub-Section I Pipes and	5/19/2003
Approved Material	Appurtenances	
Royal Pipe Systems		
Approved Material	Division 400, Section 402 Sub-section V Paints and	5/12/2003
FSC Coatings	Coatings	
Dis-approved Material	Division 400, Section 402 Sub-section I Pipes and	3/24/2003
Powerseal	Appurtenances	
Approved Material	Division 400, Section 402 Sub-section III Service	11/27/2002
James Jones	Laterals, Fittings and Appurtenances	
Approved Materials for	Division 400, Section 402 Sub-Section II Valves and	11/22/2002
Globe Valves	Appurtenances	
Approved Material	Division 400, Section 402 Sub-section V Paints and	7/11/2002
PPG Industries	Coatings	

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



KIRK CALDWELL, MAYOR

BRYAN P. ANDAYA, Chair KAPUA SPROAT, Vice Chair KAY C. MATSUI RAY C. SOON MAX J. SWORD

ROSS S. SASAMURA, Ex-Officio JADE T. BUTAY, Ex-Officio

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

ELLEN E. KITAMURA, P.E. Deputy Manager and Chief Engineer

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 100 PLANNING, Section 102 Mains:
 - Delete **Table 100-4 TYPE AND CLASSES OF MAINS** and replace with the following table:

Table 100-4 - TYPES AND CLASSES OF MAINS (Revised 7/2019 - FOR OAHU ONLY)				
Island	Ductile Iron AWWA C151	PVC AWWA C900		
Oahu	1, 4, 5	2, 3, 5		

- Ductile Iron pipe is required for mains 4-inch through 42-inch in diameter, class 53, zinc coated, except as identified in item 2 and 3 below. See Water System External Corrosion Control Standards as applicable to the project.
- PVC pipe is required if one of the following conditions are present and the maximum static pressure does not exceed 100 psi or approved by the Manager:
 - The invert of the pipe is at mean sea level elevation of +5-feet or lower.
 - The average soil resistivity for the project is less than 500 ohm-cm. Average soil resistivity shall be based on laboratory soil resistivity testing performed on soil samples taken along the main alignment at a maximum of 300 feet on center, and at the invert of the main.

- 3 Mains 4-inch through 12-inch in diameter, DR14 only.
- Ductile Iron Pipe shall be required for all water system piping installed in petroleum contaminated soil or petroleum contaminated groundwater. All gaskets shall be made of Nitrile elastomer or approved equal for use in petroleum conditions. See Water System External Corrosion Control Standards as applicable to the project.
- 5 For Mains installed in other types of contaminated soil or other types of contaminated groundwater, the type of main shall be as directed by the Manager.
- DIVISION 200 MATERIALS, Section 209 Premolded Filler, Crushed Rock, Pipe Cushion, Backfill Material and Bricks:
 - Add the following requirement in Section 209.02 Pipe Cushion:

Pipe cushion for PVC pipes shall be natural sand or manufactured sand only.

All construction plans received by the Board of Water Supply after September 30, 2019, shall comply with the above amendments.

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

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

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August 2, 2018

KIRK CALDWELL, MAYOR

BRYAN P. ANDAYA, Chair KAPUA SPROAT, Vice Chair DAVID C. HULIHEE KAY C. MATSUI RAY C. SOON

ROSS S. SASAMURA, Ex-Officio JADE T. BUTAY, Ex-Officio

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

ELLEN E. KITAMURA, P.E. Deputy Manager and Chief Engineer

TO: WHOM IT MAY CONCERN

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

SUBJECT: 2002 WATER SYSTEM STANDARD AMENDMENTS

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

DIVISION 100 – PLANNING, Section 105 STRUCTURES

1. Delete section 105.08 PERIMETER FENCE and replace with:

Provide an 8-foot high, expanded metal fence around perimeter of property and gate for driveway, and security devices as specified by the Department.

DIVISION 300 - CONSTRUCTION, Section 303 STRUCTURES

2. Add new sub-section 303.34 EXPANDED METAL FENCE AND GATE (attached).

All construction plans received by the Board of Water Supply after August 31, 2018, shall comply with the above amendment.

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

Attachment

DIVISION 300 - CONSTRUCTION

303.34 EXPANDED METAL FENCE AND GATE.

A. Description. The work shall consist of furnishing all material, labor, tools, equipment and incidentals required to install expanded metal fence, expanded metal gate, and all appurtenances in place complete, as shown on the plans and as specified in these Standards.

B. Material. All materials for the expanded metal fence work shall have a powder-coating finish consisting of an electro deposition pretreatment E-coat, a color coat, and top coated with a TGIC polyester powder. The color of the powder-coating shall be standard green.

1. Expanded Metal Mesh. Expanded metal mesh shall be hot-dipped galvanized carbon steel in accordance with ASTM A123. The expanded metal mesh shall be No. 9 gauge, standard type with a 3/4-inch size opening. The mesh shall have a strand width of 0.15-inches, strand thickness of 0.134-inches, SWD of 0.923-inches, LWD of 2.0-inches, and a percent open area of 68%.

Expanded metal mesh shall be fabricated to 8-foot high panels. Width of the panels shall be maximized to meet post spacing requirements as shown on the plans and as recommended by the manufacturer.

Table 300-19 – EXPANDED METAL FENCE POST							
Type of Post	Nominal Diameter (in.)	Outside Diameter (in.)	Weight (lbs./lin. ft.)				
Line post	21/2	2.875	5.79				
Gate, terminal, end, and corner post	31/2	4.0	9.11				
Gate frame	11/2	1.9	2.72				

2. Posts. All posts shall be Schedule 40 galvanized steel pipe. Galvanizing shall be in accordance with ASTM F1083-06 and sizes shall be as specified in Table 300-19:

All posts shall be provided at heights to accommodate the full height of the expanded metal mesh panels, concrete footings, specified security fencing wire, topography, and wind load requirements as shown on the plans or as recommended by the manufacturer.

All posts shall include pressed steel dome caps.

3. Horizontal Rails. The expanded metal fence shall utilize three (3) horizontal rails (top, mid, and bottom) as part of the fence framework. Horizontal rails shall be shall be hotdipped galvanized No. 14 gauge, c-channel rails 1-5/8-inch x 13/16-inch with slotted holes, in accordance with ASTM A123, and attached with associated fittings. Welding shall not be permitted.

4. Fittings. All fittings used in connection with the installation of expanded metal fence and gate shall be hot-dipped galvanized No. 11 gauge, pressed steel with slotted holes, in accordance with ASTM A123. Expanded metal mesh fittings (bands, clamps, tensioners, etc.) shall be used to attach and secure expanded metal mesh-to-mesh and mesh-to-post components, and shall be sized to match the outside diameter of all line, gate, terminal, end, and corner posts.

All nuts and bolts shall be 5/16-inch x 2-inch stainless steel carriage bolts with breakaway nuts to maximize security and per manufacturer's recommendation.

5. Gate. Gate shall be expanded metal single or double leaf as called for on the plans. Gate frame shall be of welded construction in accordance with ASTM 900 and operate under the added weight of the expanded metal mesh and the effects of additional wind loading.

Expanded metal mesh panels shall be attached to the outside of the frame with associated fittings. Gate hinges shall be structurally capable of supporting each gate leaf and allow the gate to open and close without binding. The gate shall be furnished complete with special pivot type hinges, catch, stops, center rest and locking device for padlock. Gate shall be securely braced and trussed to prevent sagging as necessary.

6. Lock Opening. Lock opening shall be located immediately adjacent to the frame and approximately 4 feet above ground. The lock opening should measure approximately 4-inch x 4-inch and align with lock opening of adjacent gate or secured post. The lock opening shall have a framed edge that match approved fittings in material type and color. Chain and lock to be provided by BWS upon transition of ownership to BWS.

7. Security Fencing Wire. Either barbed wire or razor wire shall be installed at the top of the expanded metal fence and gate where called for on the plans or as directed by the Manager.

- a. Barbed wire shall be composed of 3 strands of No. 12-1/2 gauge wire with 4 point barbs spaced 5 inches apart and heavily galvanized.
- b. Razor wire shall be 18-inch long barb, wire-reinforced concertina with stainless steel strip and stainless steel core.

8. Extension Arm. Post extension arms shall be used for supporting barbed wire and shall be formed from 0.090-inch steel sheet and hot dip galvanized. Arms for barbed wire shall be designed to extend at a 45° angle with lock to securely fasten strands of barbed wire equally spaced with top strand located 12 inches above the expanded metal mesh and 12 inches out from the fence line.

C. Installation. The ground along the fence line shall be properly graded on a straight grade unless otherwise noted on the plans. All obstructions and vegetation shall be removed on both sides of proposed fence alignment as necessary, for the proper installation of the new expanded metal fence and gate.

Installation and layout of the new expanded metal fence alignment shall be in accordance with the construction plans and approved by the Manager prior commencing work. The maximum clearance between the bottom of the fence and the ground surface shall be 4 inches. Post spacing shall allow for two expanded metal mesh panels per section and posts shall be located within the maximum spacing based on topography and wind load requirements as shown on the plans or as recommended by the manufacturer. Post spacing shall be determined by measurement parallel to the slope of the ground. All posts shall be placed plumb and set on center.

All posts shall be set in DWS 2500 concrete footings. Size of footings for the posts shall be as shown on the on the plans or as recommended by the manufacturer. Concrete shall be consolidated and crowned at the top to keep water from ponding on the post footing.

Install all horizontal rails level. Bottom rails shall be installed 3 to 6 inches above the bottom of the expanded metal mesh panels. Top rails shall be installed 3 to 6 inches from the top of the expanded metal mesh panels.

All posts, rails, and gate frames shall be covered with expanded metal mesh panels and shall fit flush on all sides allowing no open spaces between the expanded metal mesh. Expanded metal mesh panels shall overlap a minimum of three diamonds or three inches and be secured with appropriate fittings as recommended by the manufacturer.

The expanded metal mesh panels shall be attached and secured with various associated fittings as shown on the plans or as recommended by the manufacturer. All fittings shall be sized to match the outside diameter of all line, gate, terminal, end, and corner posts. Bands shall be used to attach all horizontal rails to line posts. C-clamps shall be used to attach the expanded metal mesh panels at each line post. Latch clamps shall lock into expanded metal mesh and through the horizontal rails and shall be placed every 12 to15 inches along all horizontal rails. Clamp bars shall be used in pairs to join expanded metal mesh panels vertically between horizontal rails. End Tensioners shall be used to secure expanded metal mesh to the gate posts.

All expanded metal fence and gate components that have been damaged or repaired shall be touchedup with a cold galvanizing compound. Color shall match the powder-coating finish, standard green.

DIVISION 300 - CONSTRUCTION

D. Payment. Payment for EXPANDED METAL FENCE AND GATE (1) will be made at the respective Unit Price Bids or Lump Sum Bids, whichever is specified, or (2) will not be made directly but shall be included in the payment of which it is a part. In either case, such payment shall represent full compensation for furnishing all materials, labor, tools, equipment and incidentals, including excavation, grading and concrete required to complete the work.

Payment quantity under Unit Price Bid shall be the actual number of linear feet of expanded metal fence inclusive of mesh, posts, horizontal rails, fittings, excavation and backfill, concrete footings, fencing wire and other incidentals constructed in place complete from the outside of end posts exclusive of the expanded metal gate, and the actual number of expanded metal gates constructed in place complete.



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



KIRK CALDWELL, MAYOR

BRYAN P. ANDAYA, Chair ADAM C. WONG, Vice Chair DAVID C. HULIHEE KAPUA SPROAT KAY C. MATSUI

ROSS S. SASAMURA, Ex-Officio FORD N. FUCHIGAMI, Ex-Officio

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

ELLEN E. KITAMURA, P.E. Deputy Manager and Chief Engineer

WHOM IT MAY CONCERN TO:

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

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.

2002 Water System Standards Amendment November 17, 2016 Page 2

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/m² 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:

 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

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



May 6, 2016

KIRK CALDWELL, MAYOR

DUANE R. MIYASHIRO, Chair ADAM C. WONG, Vice Chair DAVID C. HULIHEE KAPUA SPROAT BRYAN P. ANDAYA

ROSS S. SASAMURA, Ex-Officio FORD N. FUCHIGAMI, Ex-Officio

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

ELLEN E. KITAMURA, P.E. Deputy Manager and Chief Engineer

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,

ERNESTY, W. LAU, P. E.

Manager and Chief Engineer

cc: Kauai, Maui and Hawaii Department of Water Supply

BWS - ENGINEERING

The Ford Meter Box Company, Inc.

RECEIVED BOARD OF WATERWandprester Avenue • P.O. Box 443, Wabash, Indiana U.S.A. 46992-0433 Phone: 206-563-3171 • Fax 800-826-3487 • Overseas Fax: 260-563-0167 • www.fordmeterbox.com

Mr. Ernest Lau, PE

Manager & Chief Engineer Honolulu Board of Water Supply 630 S. Beretania St. Honolulu, HI 96843 December 20, 2013



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Dear Mr. Lau,

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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 value 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 value will also withstand 300 psi.

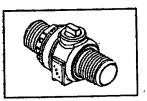
The Ford Meter Box line of pack joint fittings are designed with machined grooves in the clamping section to provide superior restraint on copper and plastic tubing. The gaskets are made from EPDM and beveled for a watertight seal on the tubing. We are submitting on the male iron pipe by compression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

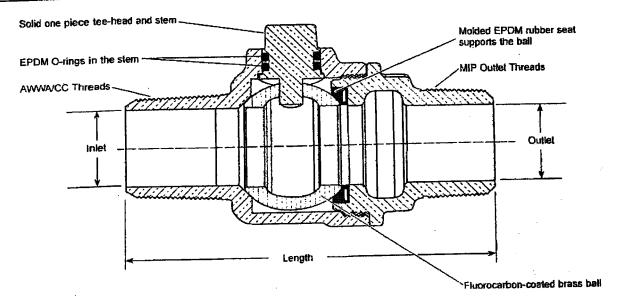
Blake Kidd District Manager THE FORD METER BOX COMPANY, Inc. enclosures

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

AWWA/CC TAPER THREAD INLET BY MALE IRON PIPE OUTLET



			VALVE	BODY OUTLET	APPROX.	PART	SUBMITTED
VALVE SIZE	INLET SIZE	OUTLET SIZE	LENGTH	THREADS	Wr. Les	NUMBER	ITEM(S)
	1"	1"	4-33/64"	1" MIP	1.7	F8400-4-NL	<u> </u>

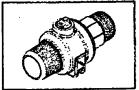
FEATURES

- 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 .

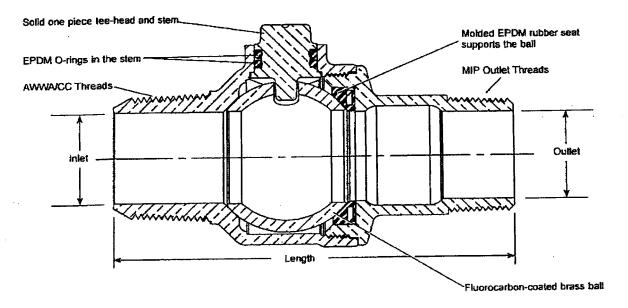
The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availability. including specifications, are subject to change without notice. Please verify that your product information is current.

FORD	The Ford Meter Box Company, I P.O. Box 443, Wabash, Indiana U.S.A. 46992 Phone: 260-563-3171 / Fax: 800-826-3487 Overseas Fax: 260-563-0167 http://www.fordmeterbox.com	nc. 2-0443 02/04/13	4 7
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AWWA/CC TAPER THREAD INLET BY MALE IRON PIPE OUTLET



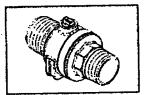
VALVE SIZE	INLET SIZE	OUTLET SIZE	VALVE LENGTH			Part Number	SUBMITTED
1-1/2"	1-1/2"	1-1/2"	6-9/16"	1-1/2" MIP	4.7	FB400-6-NL	L

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

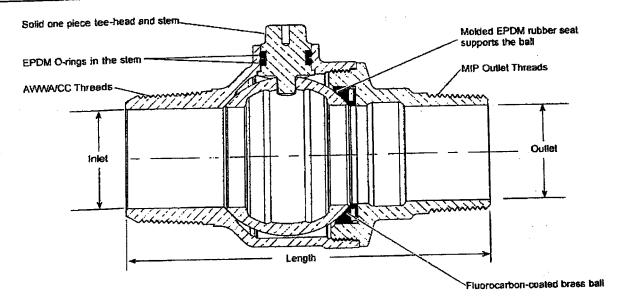
The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availability, including specifications, are subject to change without notice. Please verify that your product information is current

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 07/0	/13
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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
2"	2"	2*	7-5/16"	2" MIP	7.2	FB400-7-NL	<u> </u>

FEATURES

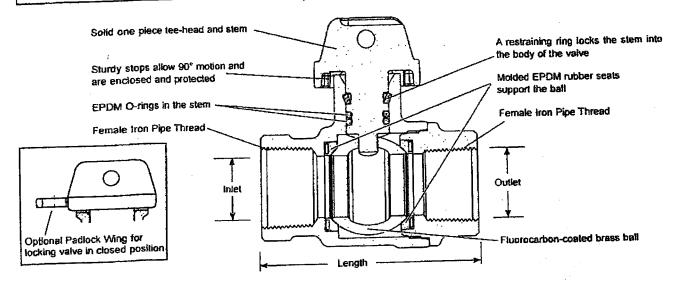
- All brass that comes in contact with potable water conforms to AWWA Standard C800 (UNS NO C89833)
- The product has the letters "NL" cast into the main body for proper identification
- UL Classified to ANSI/NSF Standard 61 and Standard 61 Annex G (NSF/ANSI 372)
- · Brass components that do not come 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

The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availability. including specifications, are subject to change without notice. Please verify that your product information is current.

 ARD	The Ford Meter Box Company, P.O. Box 443, Wabash, Indiana U.S.A. 4699 Phone: 260-563-3171 / Fax: 800-826-3487	Inc. 2-0443	Submitted By:	
	Overseas Fax: 260-563-0167 http://www.fordmeterbox.com	02/04/13	1	

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	J SUBMITTED
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	L

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

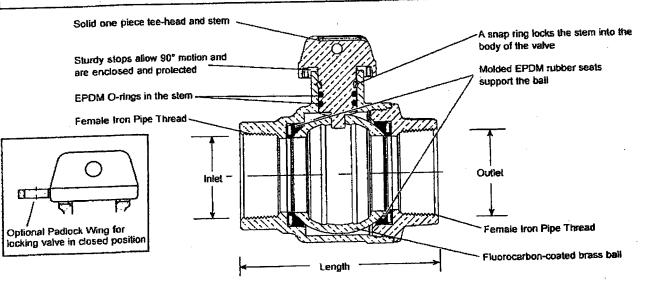
The Ford Meter Box Company considers the information in this submittel form to be correct at the time of publication. Item and option availability, subject to change without notice. Please verify that your product information is current.

Including speci	FIRD	The Ford Meter Box Company, P.O. Box 443, Wabash, Indiana U.S.A. 4695 Phone: 260-563-3171 / Fax: 800-826-3487 Overseas Fax: 260-563-0167	Inc. 92-0443	Submitted By:
		Overseas Fax: 260-563-0167 http://www.fordmeterbox.com	07/21/13	



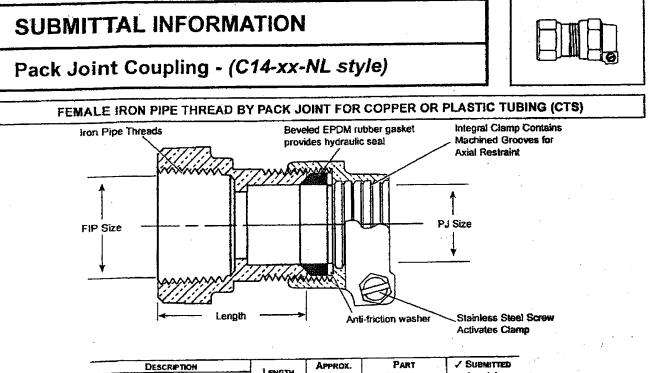
Ball Valve Curb Stop - (B11-xxx-NL style)

FEMALE IRON PIPE THREAD INLET BY FEMALE IRON PIPE THREAD OUTLET



VALVE SIZE	INLET SIZE	QUTLET SIZE	LENGTH	APPROX. W1, LBS	Part Number	V SUBMITTED
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) 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
The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availabilit ncluding specifications, are subject to change without notice. Please verify that your product information is current.
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 02/14/13



DESCRIPTION		LENGTH	APPROX.	PART	SUBMITTED
EMALE IRON PIPE	P.J. FOR CTS	LENGIH	WT. LBS	NUMBER	ITEM(6)
1/2"	1/2"	1-9/16"	_4	C14-11-NL	
1/2"	3/4"	1-5/16"	.5	C14-13-NL_	1
3/4"	1/2"	1-3/4"	.6	C14-31-NL	
3/4"	3/4*	1-5/16"	.6	C14-33-NL	ļ
3/4"	1"	1-3/4"	.7	C14-34-NL	
3/4"	1-1/4"	1-7/8"	1.3	C14-35-NL	4
1.	3/4"	1-13/16*	.7	C14-43-NL	
1"	1"	1-7/6"	.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	

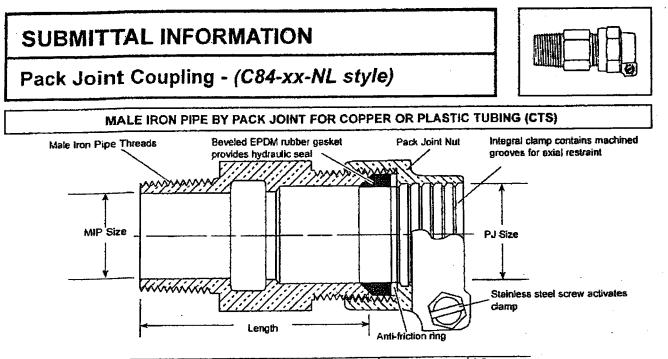
Note: Ford recommends insert stiffeners when using plastic pipe or tubing.

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

1. The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availability, including specifications, are subject to change without notice. Please verify that your product information is current.

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 12/06/1	Submitted By:
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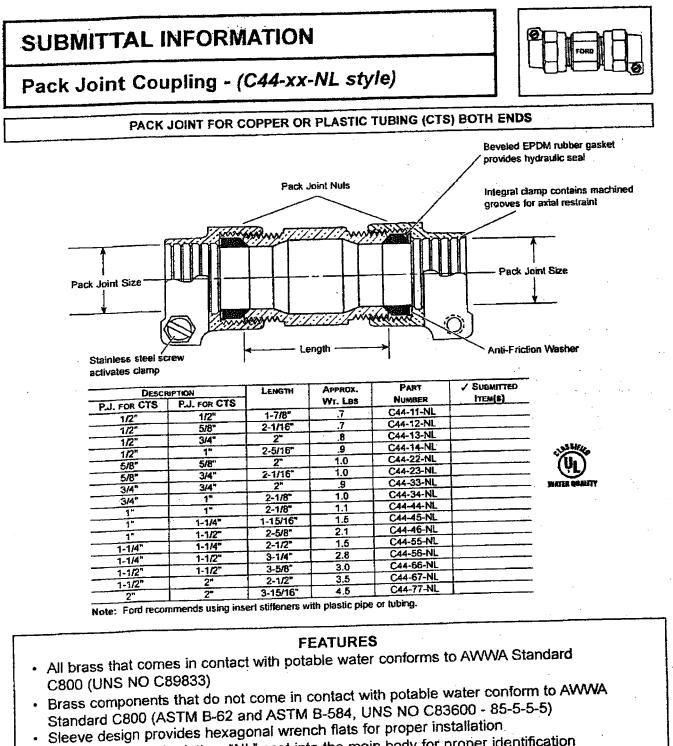
DESCRIPTION		APPROX.	PART	3 SUBMITTED		
MALE IRON PIPE	P.J. FOR CTS	LENGTH	WT. LES	NUMBER	TEM(8)	
1/2"	1/2"	2*	.5	C84-11-NL		•
1/2"	5/8"	2-1/16"	.8	C84-12-NL		
1/2"	3/4"	2-1/16"	.8	C84-13-NL		
3/4"	1/2"	2*	8.	C84-31-NL		C'ISMULE
3/4"	5/8"	-	.7	C84-32-NL		- Xin
3/4"	3/4"	2-1/4*	.6	C84-33-NL		(ŲL)
3/4"	1"	2-3/8*	.7	C84-34-NL		WATER MOAL
	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 considers the information in this submittal form to be correct at the time of publication. Item and option availability, including specifications, are subject to change without notice. Please verify that your product information is current.



- Sleeve design provides nexagonal within the nain body for proper identification
 The product has the letters "NL" cast into the main body for proper identification
- The product has the letters 'NE' Cast into the main so
 UL Classified to ANSI/NSF Standard 61 and Annex G

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	The Ford Meter Box Company, I P.O. Box 443, Wabash, Indiana U.S.A. 46992 Phone: 260-563-3171 / Fax: 800-826-3487 Overseas Fax: 260-563-0167	nc. 2-0443	Submitted By:	
	Overseas Fax: 260-563-0167 http://www.fordmeterbox.com	12/06/11		

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



KIRK CALDWELL, MAYOR

DUANE R. MIYASHIRO, Chair ADAM C. WONG, Vice Chair DAVID C. HULIHEE KAPUA SPROAT BRYAN P. ANDAYA

ROSS S. SASAMURA, Ex-Officio FORD N. FUCHIGAMI, Ex-Officio

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

ELLEN E. KITAMURA, P.E. Deputy Manager and Chief Engineer

TO: WHOM IT MAY CONCERN

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

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:

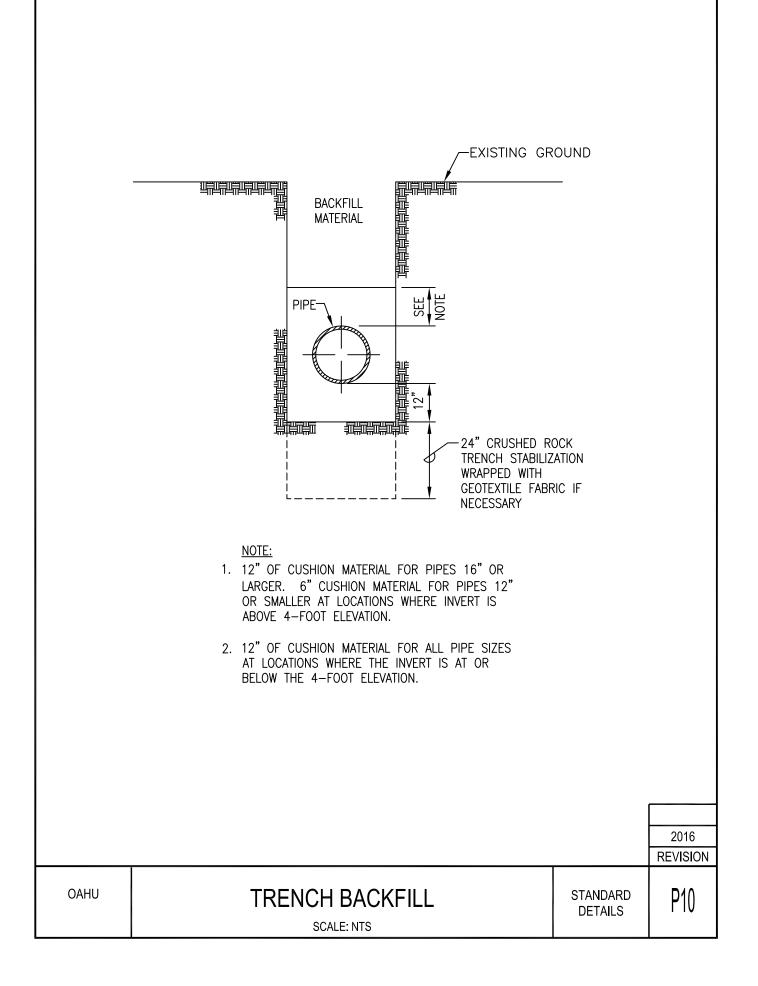
1. Delete Standard Detail P10 TRENCH BACKFILL and replace with the enclosed Standard Detail P10 TRENCH BACKFILL (2016 Revision) which reflects the increase in cushion material below the pipe to 12 inches.

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



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



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

ELLEN E. KITAMURA, P.E. Deputy Manager and Chief Engineer

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:

 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			

2002 Water System Standards Amendment April 15, 2016 Page 2

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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.

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



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

ELLEN E. KITAMURA, P.E. Deputy Manager and Chief Engineer

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

Dear Mr. Smith:

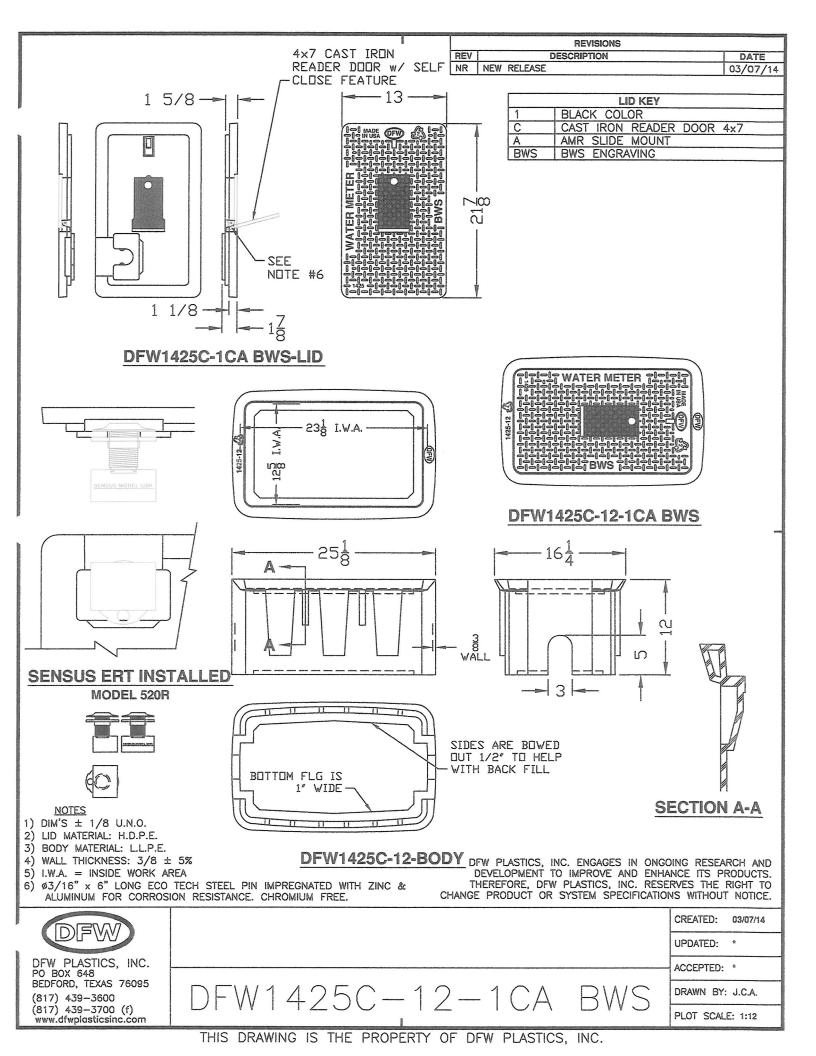
Subject: Your Letter Dated March 7, 2014, Regarding Request of Product Approval

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



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



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

ELLEN E. KITAMURA, P.E. Deputy Manager and Chief Engineer

TO: WHOM IT MAY CONCERN

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

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.
- 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

DIVISION 200 - MATERIALS

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		

DIVISION 200 - MATERIALS

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.

DIVISION 300 - CONSTRUCTION

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.

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



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

ELLEN E. KITAMURA, P.E. Deputy Manager and Chief Engineer

TO: WHOM IT MAY CONCERN

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

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							
		Cleara	inces				
Island	Utility Diameter (Inches)	Horizontal (Feet)	Vertical (Inches)				
Hawaii	All Sizes	8	18 ^a				
Kauai	All Sizes	8	18 ^b				
Maui	<16	3	6 ^b				
Maui	<u>></u> 16	3	12 ^b				
Oahu All Sizes		3°	12 ^b				

- a Provided other utility mains are concrete jacketed.
- 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.

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



KIRK CALDWELL, MAYOR

DUANE R. MIYASHIRO, Chair ADAM C. WONG, Vice Chair MAHEALANI CYPHER THERESIA C. McMURDO DAVID C. HULIHEE

ROSS S. SASAMURA, Ex-Officio FORD N. FUCHIGAMI, Ex-Officio

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

Deputy Manager and Chief Engineer ELLEN E. KITAMURA, P.E.

TO: WHOM IT MAY CONCERN

4400 ERNEST Y. W. LAU, P.E., MANAGER AND CHIEF ENGINEER FROM: BOARD OF WATER SUPPLY

2002 WATER SYSTEM STANDARDS AMENDMENTS SUBJECT:

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

	<u>NOTES:</u> 1. SEE M3 FOR DETAILS OF TYPE "X" METER BOX.					
2. IF THE INSTALI VALVE MANAGI	 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 PL	3. SEE PLATE M43 FOR METER INSTALLATION IN NON-SIDEWALK AREA.					
	SEE TABLE "A"	TABLE "A"		7		
		METER SIZESPLICE SIZE5/8"1" DIA.	SPLICE LENGTH	_		
	LITHREAD ENDS AND	5/8" 1" DIA. 3/4" 1" DIA.	7 1/2"	-		
WELD 1/8" THICK DISK INSIDE BOTH ENDS TO STOP WATER PASSAGE						
METER SPLICE DETAIL						
				2014 REVISION		
OAHU	COPPEI FOR CONNEC 5/8",	R SERVICE LATERAL TION TYPE "X" METER BOX 3/4", & 1" METERS SCALE: NTS	STANDARD DETAILS	L14		

H	TYPE	TYPE	TYPE	TYPE III						
CAP 1"	"—	1 1/2"	1 1/2"	2"						
BRASS PIPE 1"x10"	1"×10"	1 1/2"×10"	1 1/2"×10"	2"x10"						
SERVICE VALVE 1"	~	1 1/2"	1 1/2"	2"						
BRASS REDUC. 1"x3/4"	1"x3/4"	1 1/2"×1"	NONE	NONE						
(LUPPEK) CE METER STH COUPL'G '2" 3/4"	3/4"	1"	1 1/2 FL.	2" FL.	ALS	.R SIZES SERVICE		t"		"
TABLE A (UU E SPLICE LENGTH	7 1/2"	10 3/4"	13" R.E.	17" R.E.	SERVICE LATERALS	MAXIMUM METER SIZES FOR COMMON SERVICE LATERAL	AN	3/4" & 3/4"	1"& 1"	1-1/2" &
IAE SPLICE SIZE 1" DIA.	1" DIA.	1" DIA.*	1 1/2" DIA.	2" DIA.**						
LATERAL SIZE 1"	"	1-1/2"	2"	2-1/2"	" BUSHINGS BUSHINGS BUSHINGS R DOMESTIC	R DOMES JM METER INGLE SER AL 3/4"	1"	1-1/2"	2"	
LATERAL TYPE "A"	"Å"	"J"	"D"	"E"	ZES FOF	MAXIMU FOR S LATERA				
LOW RANGE FOR METER SIZING (GPM) 0-20	21–30	31–50	51-100	101-160	METER	AL TYPE	'A"	"C"	'D"	۳۲"
ELOW GPM	/4" 30	1" 50	1/2"100	2" 160	AXIMUN	LATER	-	-	2	
MET CODE SI 02 5/	03 3,	04	06 1	07	2					
METER LOW RANGE LATERAL E SIZE FLOW SIZING (GPM) TYPE 5/8" 20 0–20 "A"	3/4" 30 21-30 "A"	1" 50 31–50 °C"	→ 06 1 1/2 [*] 100 51-100 **D*	2" 160 101–160 "E"	MAXIMUM METER SIZE	LATERAL TYPE MAXIMUM METER SIZE FOR SINGLE SERVICE LATERAL	"A" 3/	"C"	"0"	

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



KIRK CALDWELL, MAYOR

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ROSS S. SASAMURA, Ex-Officio FORD N. FUCHIGAMI, Ex-Officio

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

ELLEN E. KITAMURA, P.E. Deputy Manager and Chief Engineer

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,

an

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

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



3/26/2014

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

1107 D

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 <u>Maureen@tchristy.com</u> 714-206-0534



MADE IN USA



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 Density Class Dielectric Strength

2 (Linear) 0.910 to 0.935 g/cm³ B (Colors)(1) Volume resistivity 10¹⁵ohm-cm.,min.

Physical Properties

Minimum Tensile Strength Minimum Elongation Minimum Dielectric Strength Impact Resistance Propagation Tear Resistance Thickness Colors Available

3600 PSI (24.8 MPa- ASTM D882) 800% (ASTM 882) 800 V/mil (ASTM D149) Minimum 600 g (ASTM D1709 Method B) 2550 gf (ASTM D1922) Minimum of 0.008 in. (8 mils) Black, Clear, Purple, Blue, Green.

INSTALLATION

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



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

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KIRK CALDWELL, MAYOR

DUANE R. MIYASHIRO, Chair MAHEALANI CYPHER, Vice Chair THERESIA C. McMURDO ADAM C. WONG DAVID C. HULIHEE

ROSS S. SASAMURA, Ex-Officio FORD N. FUCHIGAMI, Ex-Officio

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

ELLEN E. KITAMURA, P.E. Deputy Manager and Chief Engineer

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 JK.

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.

<u>Clow 850 Fire Hydrant</u> 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

A Division of McWane, Incorporated.





Clow Valve Company

902 South 2nd Street, Oskaloosa, 14 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)
 - o ASTM B98 (C65500)
 - o ASTM B584 (C83600, C86700, C87610, C87850, C89833)
 - o ASTM B763 (C86700, C87610, C99500)

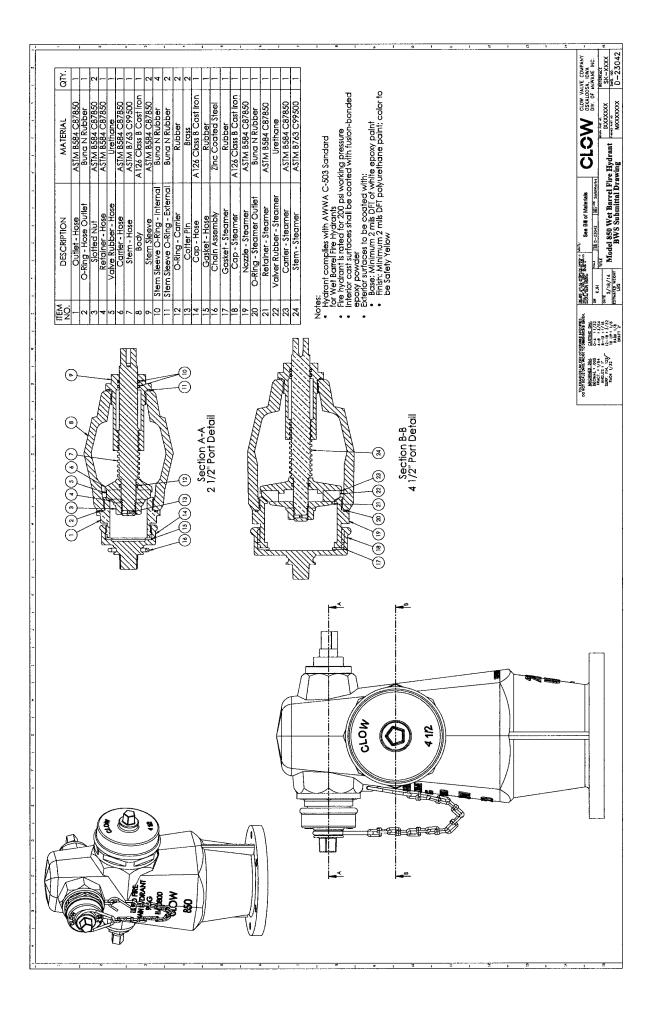
Compliance with other standards, such as those related to end joint connections, is dictated by compliance with standards listed above. If you have additional questions please call (800) 829-2569 for assistance.

Sincerely,

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







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



KIRK CALDWELL, MAYOR

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ROSS S. SASAMURA, Ex-Officio GLENN M. OKIMOTO, Ex-Officio

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

ELLEN E. KITAMURA, P.E. Deputy Manager and Chief Engineer

TO: WHOM IT MAY CONCERN

FROM: ERNEST Y. W. LAU, P.E.

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

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



KIRK W. CALDWELL, MAYOR

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ROSS S. SASAMURA, Ex-Officio GLENN M. OKIMOTO, Ex-Officio

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

ELLEN E. KITAMURA, P.E. Deputy Manager and Chief Engineer

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,

yar. In

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

BWS - ENGINEERING

2012 OCT 31 P 2: 580 OF WATER SUPPLY ADMINISTRATION

2012 OCT 30 A 7 14

JENSEN PRECAST

1255 Nuuanu Ave Suite C104 Honolulu, HI 96817 808-528-1175 121297 Mg DP CP cc: Ft

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

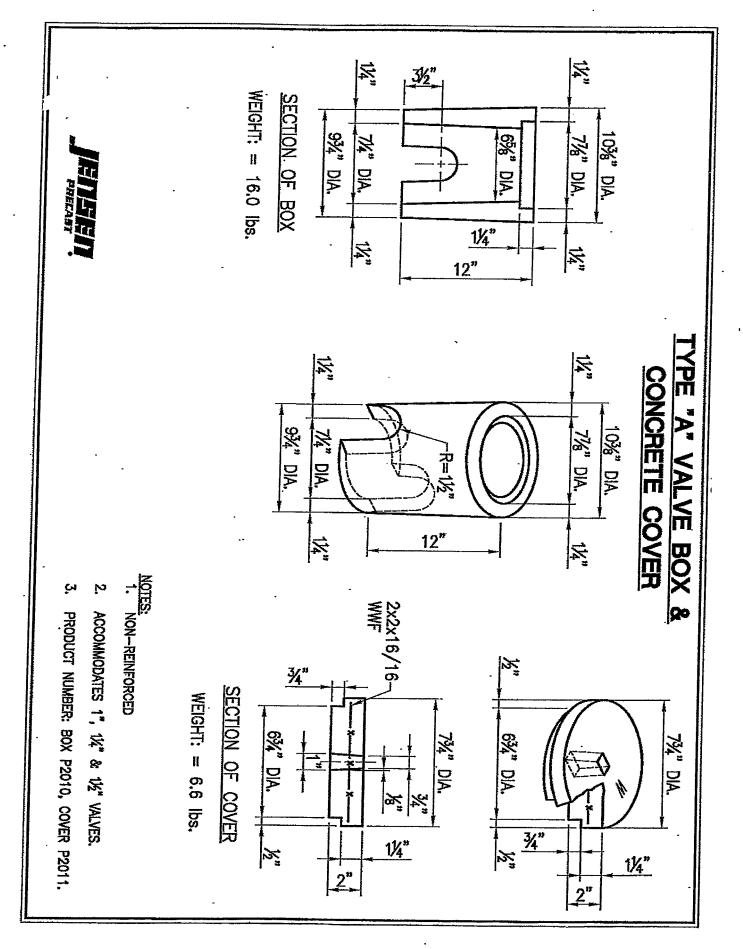
Please see the enclosed shop drawings for your consideration. If I can answer any questions or be of any assistance please don't hesitate to contact me. We appreciate your consideration to become an approved supplier and look forward to hearing from you.

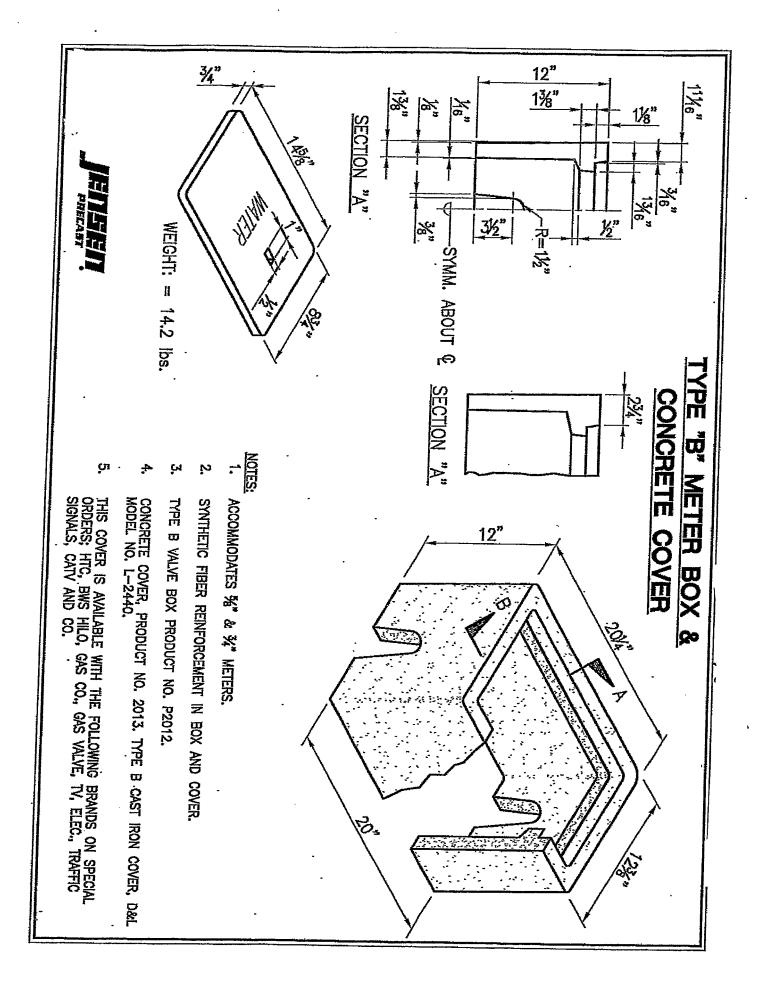
Sincerely,

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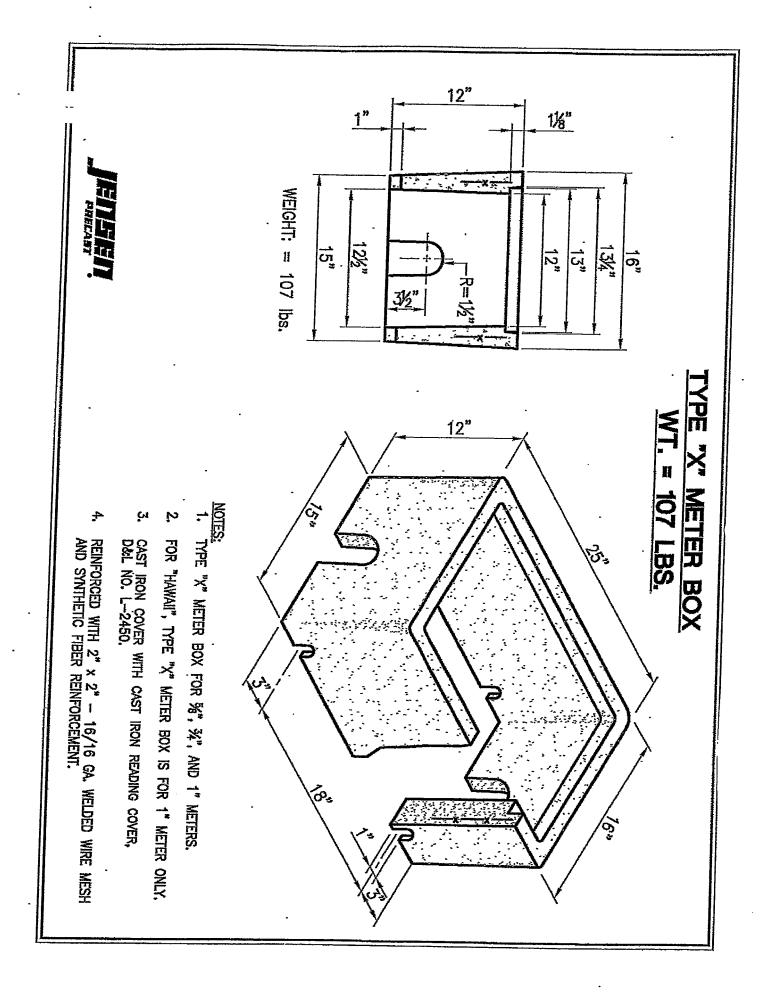
Josh Bivens Product Applications Specialist 808-321-4665 jbivens@jensenprecast.com





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



PETER B. CARLISLE, MAYOR

DUANE R. MIYASHIRO, Chairman MAHEALANI CYPHER, Vice Chair THERESIA C. McMURDO ADAM C. WONG KAULANA H. R. PARK

KENNETH A. SHIMIZU, Ex-Officio GLENN M. OKIMOTO, Ex-Officio

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

ELLEN E. KITAMURA, P.E. Deputy Manager and Chief Engineer

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

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



June 5, 2012

PETER B. CARLISLE, MAYOR

RANDALL Y. S. CHUNG, Chairman MAHEALANI CYPHER, Vice Chair THERESIA C. McMURDO DUANE R. MIYASHIRO ADAM C. WONG

WESTLEY K.C. CHUN, Ex-Officio GLENN M. OKIMOTO, Ex-Officio

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

ELLEN E. HIRAYAMA, P.E. Deputy Manager and Chief Engineer



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



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



PETER B. CARLISLE, MAYOR

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WESTLEY K.C. CHUN, Ex-Officio GLENN M. OKIMOTO, Ex-Officio

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

ELLEN E, HIRAYAMA, P.E. Deputy Manager and Chief Engineer

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.

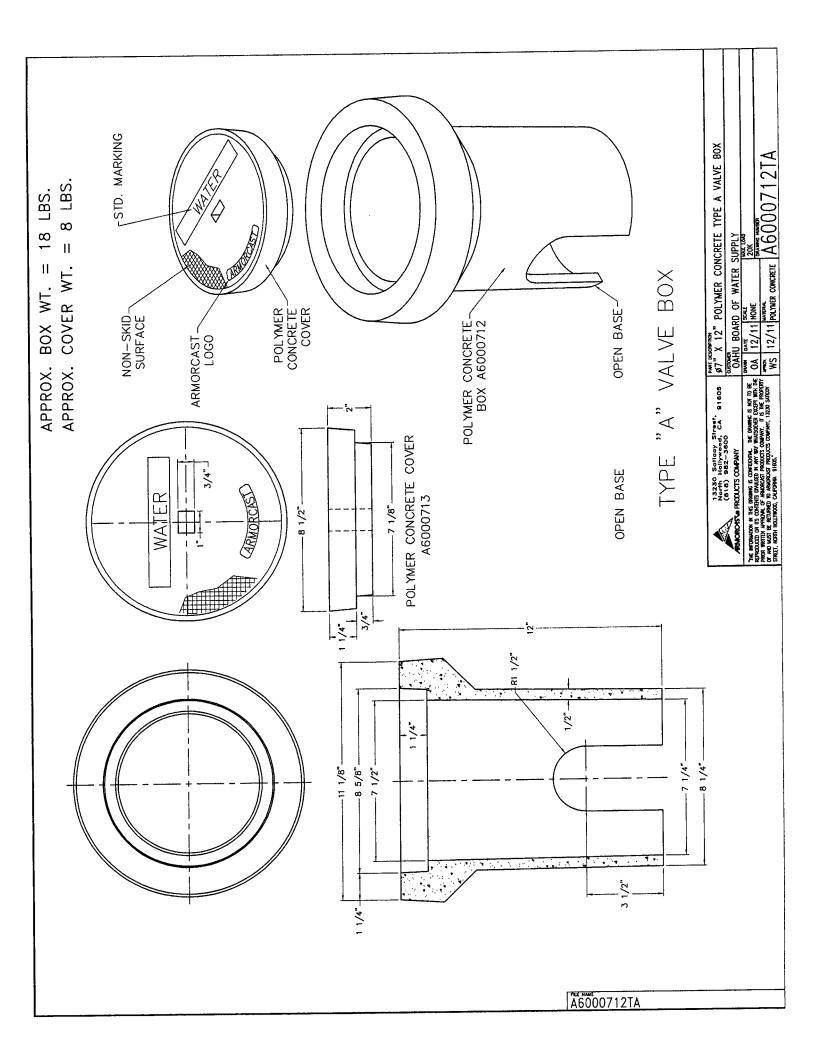
If you have any questions, please contact Michael Domion at (808)748-5740.

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



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

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PETER B. CARLISLE, MAYOR

RANDALL Y. S. CHUNG, Chairman DENISE M. C. DE COSTA, Vice Chair THERESIA C. McMURDO DUANE R. MIYASHIRO ADAM C. WONG

WESTLEY K.C. CHUN, Ex-Officio GLENN M. OKIMOTO, Ex-Officio

DEAN A. NAKANO Acting Manager

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



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 ⊳

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



September 14, 2011

PETER B. CARLISLE, MAYOR

RANDALL Y. S. CHUNG, Chairman DENISE M. C. DE COSTA, Vice Chair THERESIA C. McMURDO DUANE R. MIYASHIRO ADAM C. WONG

WESTLEY K.C. CHUN, Ex-Officio GLENN M. OKIMOTO, Ex-Officio

DEAN A. NAKANO Acting Manager

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

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



PETER B. CARLISLE, MAYOR

RANDALL Y. S. CHUNG, Chairman DENISE M. C. DE COSTA ANTHONY R. GUERRERO, JR. THERESIA C. McMURDO ADAM C. WONG

WESTLEY K.C. CHUN, Ex-Officio GLENN M. OKIMOTO, Ex-Officio

DEAN A. NAKANO Acting Manager

TO: WHOM IT MAY CONCERN

FROM: DEAN A. NAKANO, ACTING MANAGER

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.

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



PETER B. CARLISLE, MAYOR

RANDALL Y. S. CHUNG, Chairman DENISE M. C. DE COSTA ANTHONY R. GUERRERO, JR. THERESIA C. McMURDO ADAM C. WONG

WESTLEY K.C. CHUN, Ex-Officio GLENN M. OKIMOTO, Ex-Officio

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

DEAN A. NAKANO Deputy Manager

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,

a. These

DEAN A. NAKANO Acting Manager

Enclosures

cc: Kauai, Maui, Hawaii Water Departments

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



PETER B. CARLISLE, MAYOR

RANDALL Y. S. CHUNG, Chairman ANTHONY R. GUERRERO, JR. WILLIAM K. MAHOE THERESIA C. McMURDO ADAM C. WONG

GEORGE "KEOKI" MIYAMOTO, Ex-Officio MICHAEL D. FORMBY, Ex-Officio

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

DEAN A. NAKANO Deputy Manager

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,

ine in 1

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

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



MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman SAMUEL T. HATA WILLIAM K. MAHOE THERESIA C. MCMURDO ADAM C. WONG

JEOFFREY S. CUDIAMAT, Ex-Officio BRENNON T. MORIOKA, Ex-Officio

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

DEAN A. NAKANO Deputy Manager

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,

hayne in fosturo

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

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



MUFI HANNEMANN, Mayor

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JEOFFREY S. CUDIAMAT, Ex-Officio BRENNON T. MORIOKA, Ex-Officio

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

DEAN A. NAKANO Deputy Manager and Chief Engineer

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

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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,

Mayne M Hartino

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

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



MUFI HANNEMANN, Mayor

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JEOFFREY S. CUDIAMAT, Ex-Officio BRENNON T. MORIOKA, Ex-Officio

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

DEAN A. NAKANO Deputy Manager and Chief Engineer

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 <u>Pipe Corporation's PVC Pipes into the Approved Materials List for Oahu Only</u>

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.

Mr. Gary Kong November 10, 2009 Page 2

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,

Mayne in fasting

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

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



MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman SAMUEL T. HATA ALLY J. PARK ROBERT K. CUNDIFF WILLIAM K. MAHOE

JEOFFREY S. CUDIAMAT, Ex-Officio BRENNON T. MORIOKA, Ex-Officio

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

DEAN A. NAKANO Deputy Manager and Chief Engineer

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,

Stayne in Mashiris

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

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



MUFI HANNEMANN, Mayor

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JEOFFREY S. CUDIAMAT, Ex-Officio BRENNON T. MORIOKA, Ex-Officio

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

DEAN A. NAKANO Deputy Manager and Chief Engineer

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 <u>Plastics PVC Pipes Into the Approved Material List for Oahu Only</u>

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:

<u>Class</u>	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

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



MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman SAMUEL T. HATA ALLY J. PARK ROBERT K. CUNDIFF WILLIAM K. MAHOE

JEOFFREY S. CUDIAMAT, Ex-Officio BRENNON T. MORIOKA, Ex-Officio

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

DEAN A. NAKANO Deputy Manager and Chief Engineer

TO: WHOM IT MAY CONCERN Many - In A fractures 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):

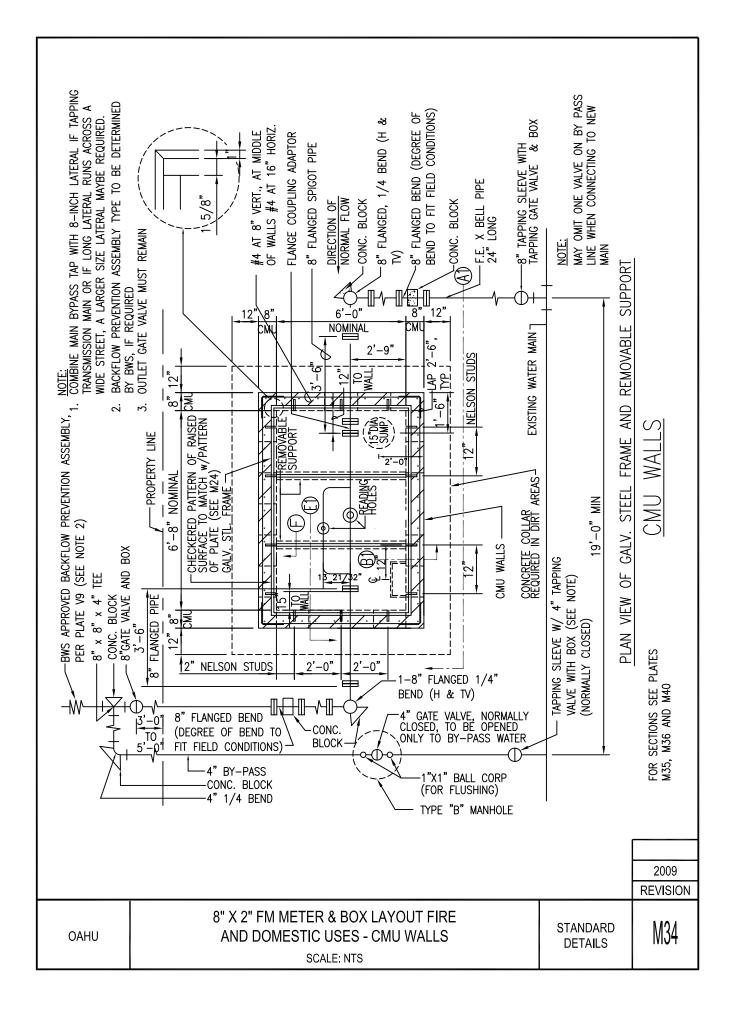
Standard Detail	Description
M34	8" x 2" FM Meter & Box Layout Fire and
	Domestic Uses – CMU Walls
M35	8" x 2" FM Meter & Box Layout Fire and
	Domestic Uses – CMU Walls
M37	8" x 2" FM Meter & Box Layout Fire and
	Domestic Uses – Precast/Cast-In-Place Walls
M38	8" x 2" FM Meter & Box Layout Fire and
	Domestic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

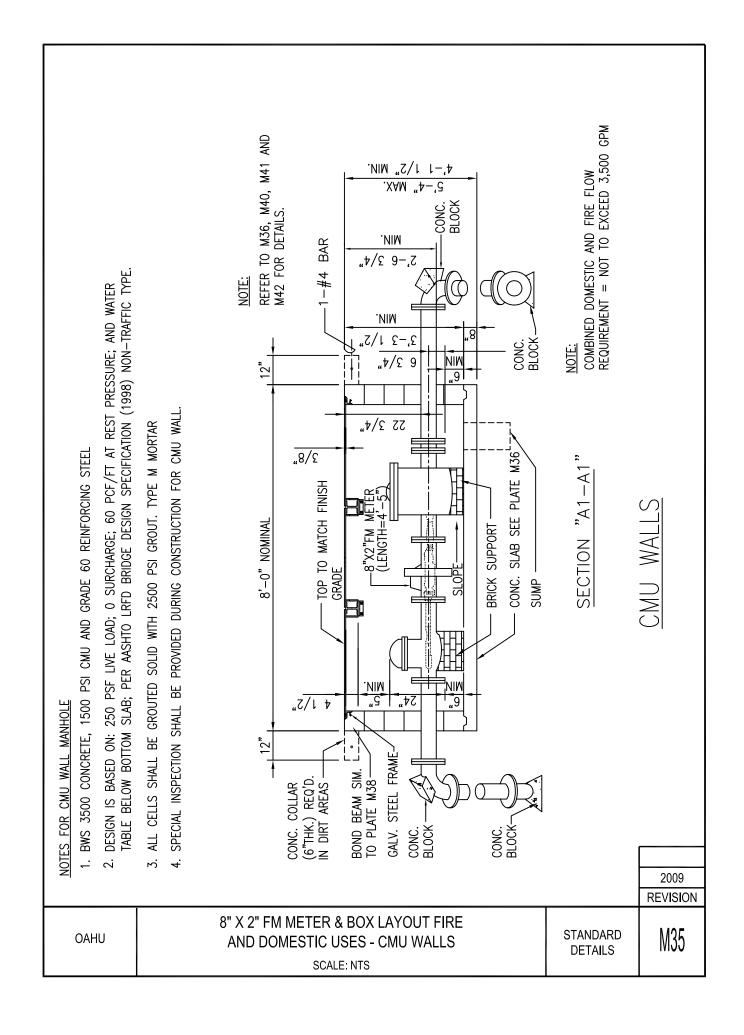
The manhole rungs in the FM meter box have been relocated to the outlet side of the meter to improve access for maintenance by Board of Water Supply personnel. The sump will be located on the opposite side due to the relocation of the manhole rungs.

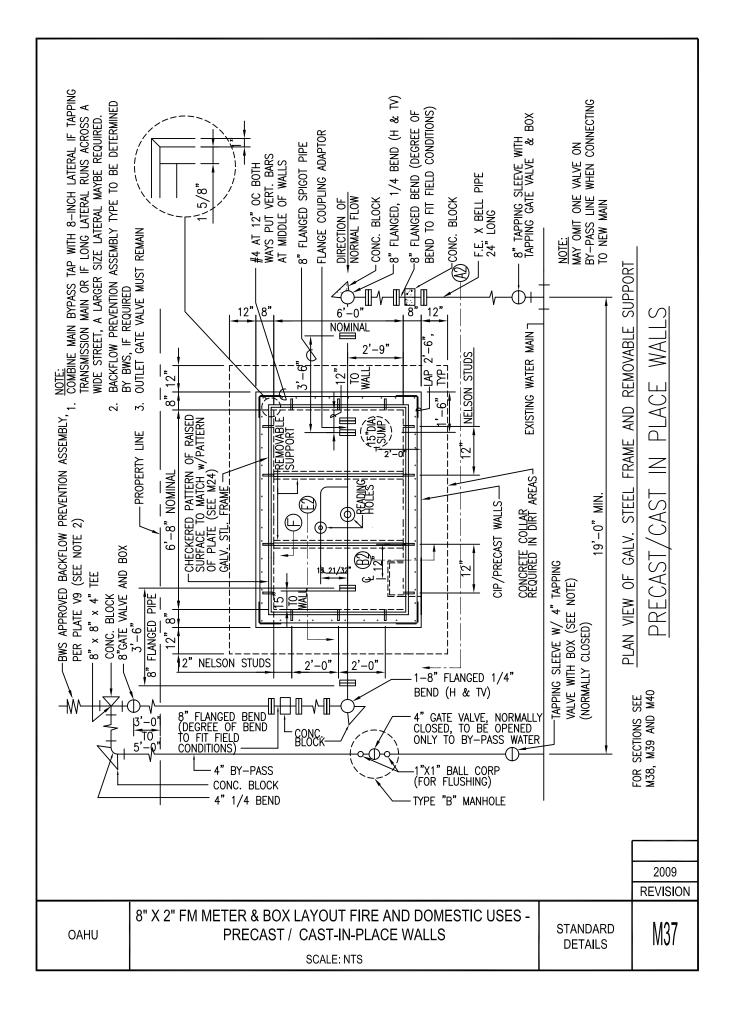
If you have any questions, please contact Michael Domion at 748-5740.

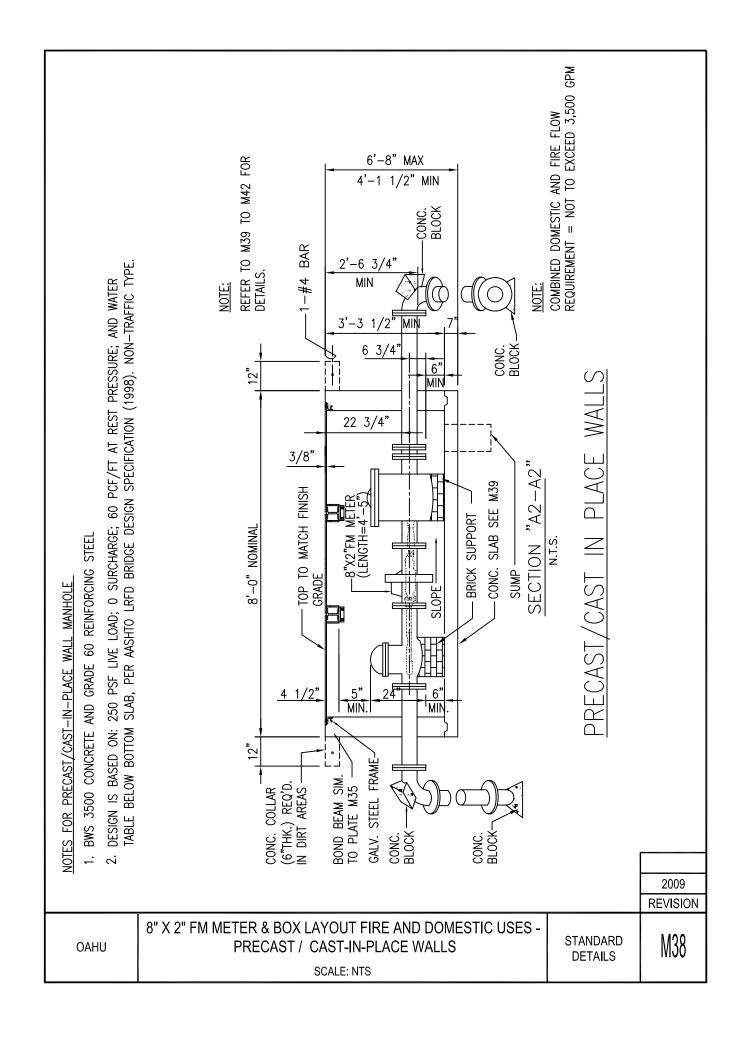
Enclosures

cc: Kauai, Maui, Hawaii Water Departments









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



February 24, 2009

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman SAMUEL T. HATA ALLY J. PARK ROBERT K. CUNDIFF

JEOFFREY S. CUDIAMAT, Ex-Officio BRENNON T. MORIOKA, Ex-Officio

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

DEAN A. NAKANO Deputy Manager and Chief Engineer

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) ³/₄-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, P.E. Manager and Chief Engineer

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



MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman SAMUEL T. HATA ALLY J. PARK ROBERT K. CUNDIFF MARC C. TILKER

CRAIG I. NISHIMURA, Ex-Officio BRENNON T. MORIOKA, Ex-Officio

CLIFFORD P. LUM, P.E. Manager and Chief Engineer

DEAN A. NAKANO Deputy Manager and Chief Engineer

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)							
	Minimum Cover for Pipe Diameter Indicated ^a					<u>ed</u> ^a	
Island	Smaller Than 4-Inch	4-Inch	6-Inch	8-Inch	12-Inch	Larger Than 12-Inch	Maximum ^b For All Mains
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.

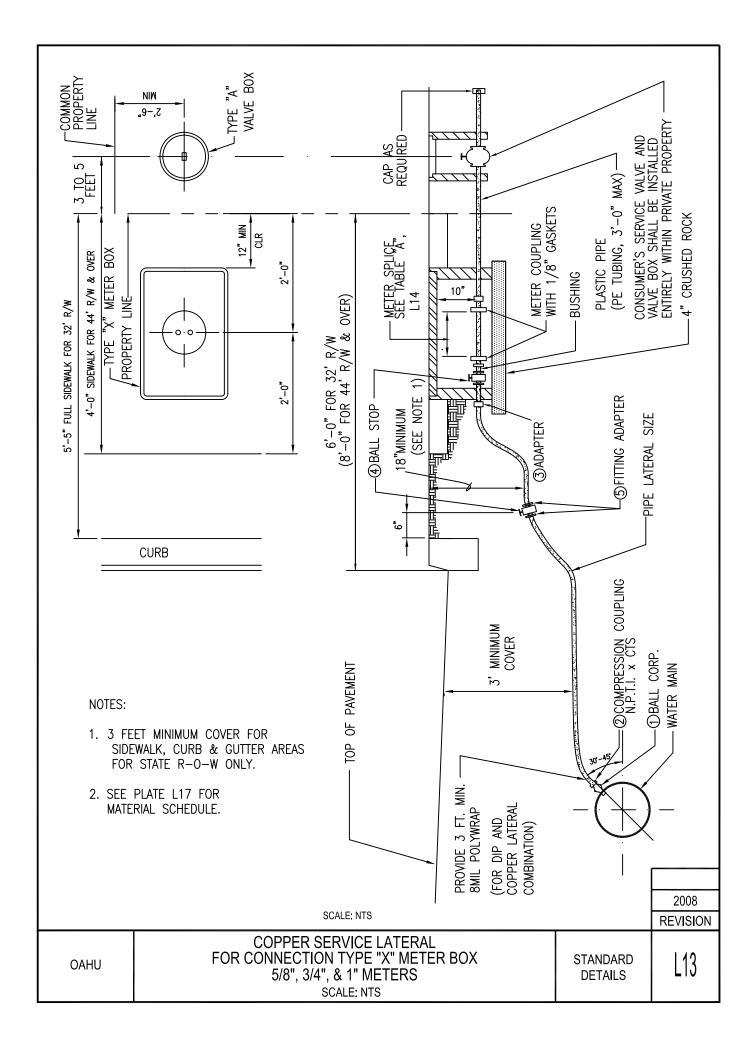
Division 400, Section 403 STANDARD DETAILS:

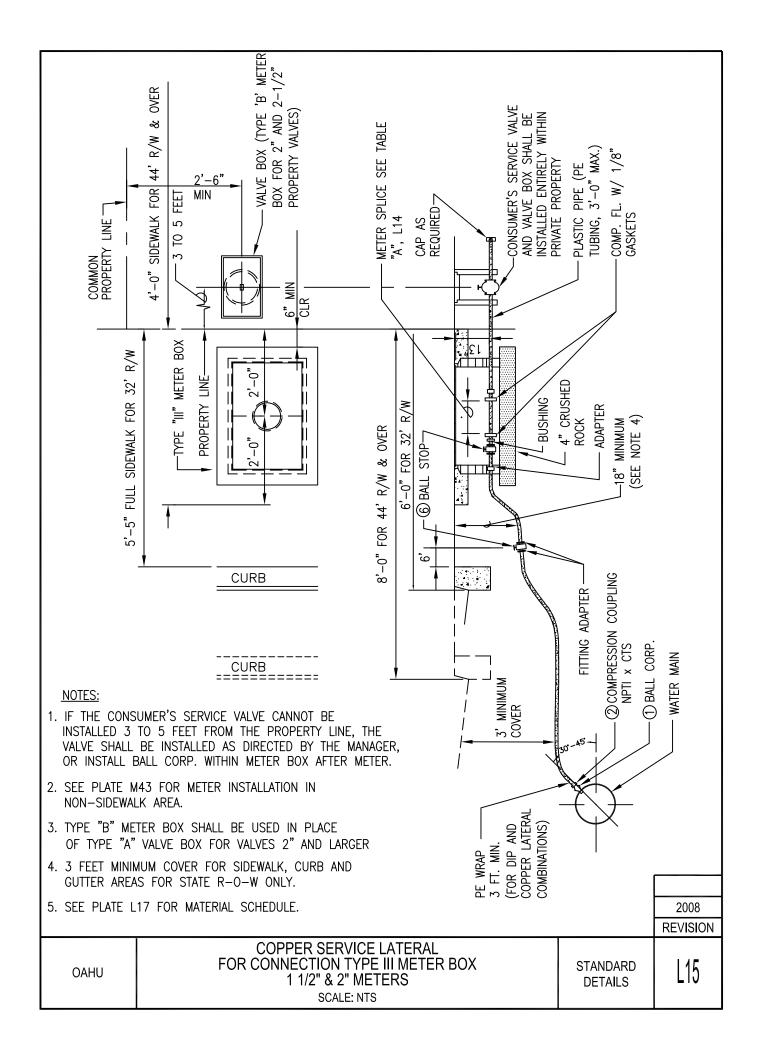
Replace the following details with the enclosed details (2008 Revision):

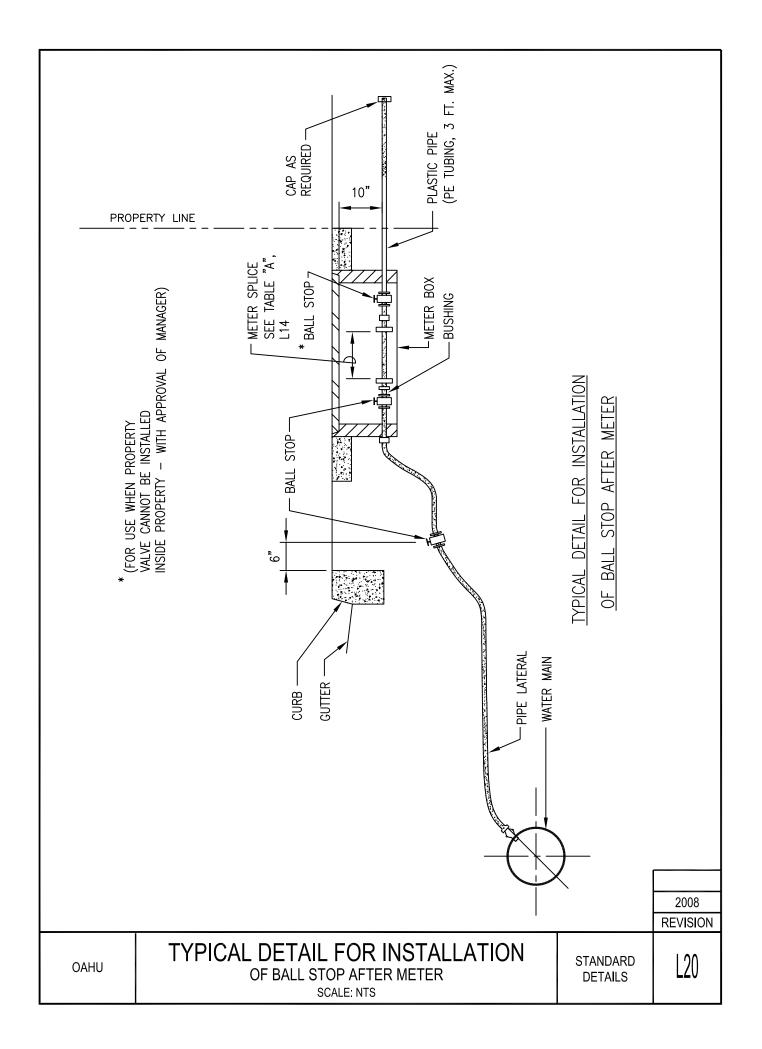
Standard Detail	Description
L13	Copper Service Lateral for Connection Type "X" Meter Box
	5/8", 3/4", & 1" Meters
L15	Copper Service Lateral for Connection Type III Meter Box
	1-1/2" & 2" Meters
L20	Typical Detail for Installation of Ball Stop After Meter
L21	New Lateral Installation Schematic Detail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

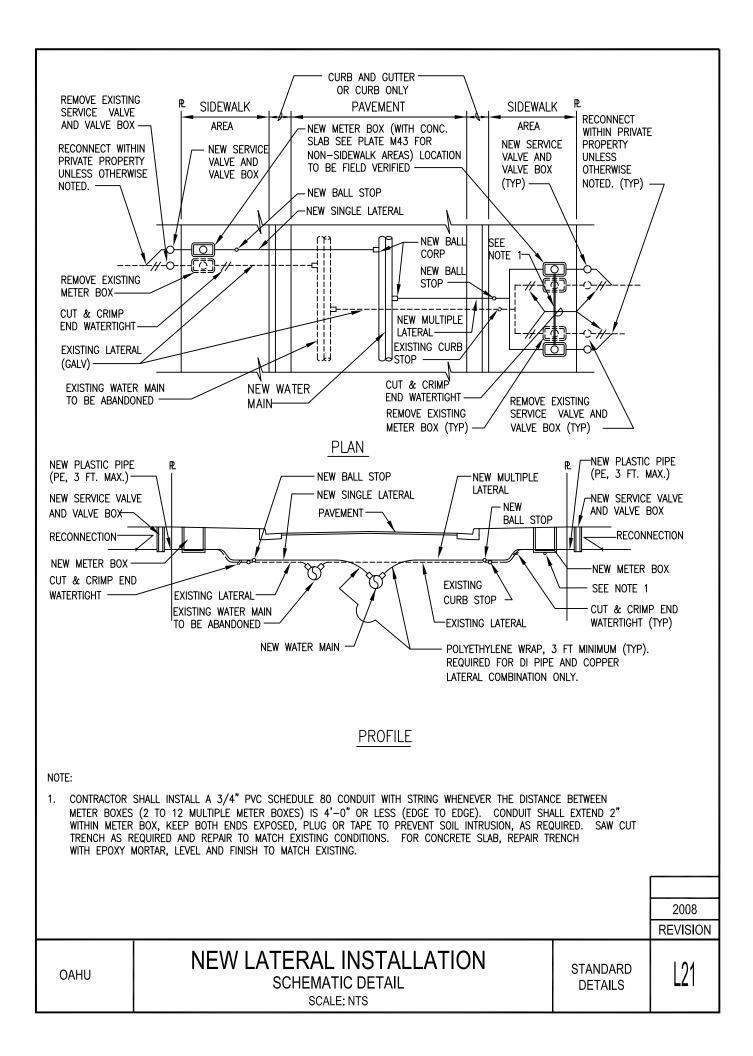
If you have any questions, please contact Michael Domion at 748-5740.

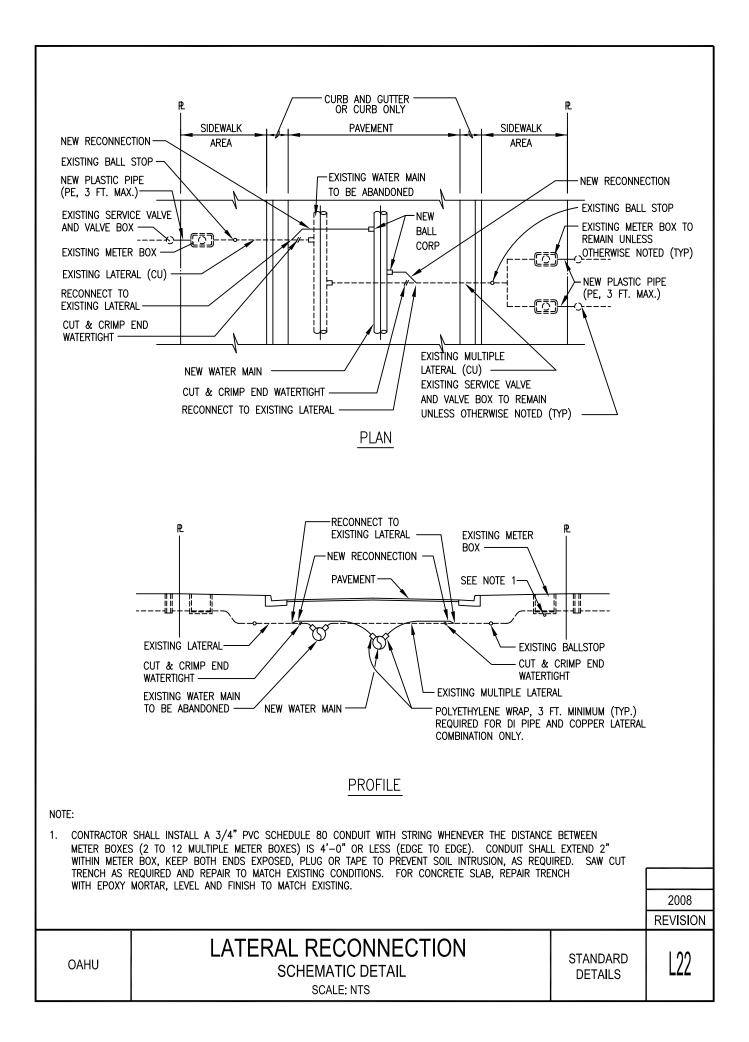
cc: Kauai, Maui, Hawaii Water Departments













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



MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman SAMUEL T. HATA ALLY J. PARK ROBERT K. CUNDIFF MARC C. TILKER

CRAIG I. NISHIMURA, Ex-Officio BRENNON T. MORIOKA, Ex-Officio

CLIFFORD P. LUM Manager and Chief Engineer

DEAN A. NAKANO Deputy Manager and Chief Engineer

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

EAN A. NAKANO Deputy Manager

cc: Kauai, Maui, Hawaii Water Departments

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



KIRK CALDWELL, MAYOR

DUANE R. MIYASHIRO, Chair ADAM C. WONG, Vice Chair THERESIA C. McMURDO DAVID C. HULIHEE KAPUA SPROAT

ROSS S. SASAMURA, Ex-Officio FORD N. FUCHIGAMI, Ex-Officio

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

ELLEN E. KITAMURA, P.E. Deputy Manager and Chief Engineer

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,

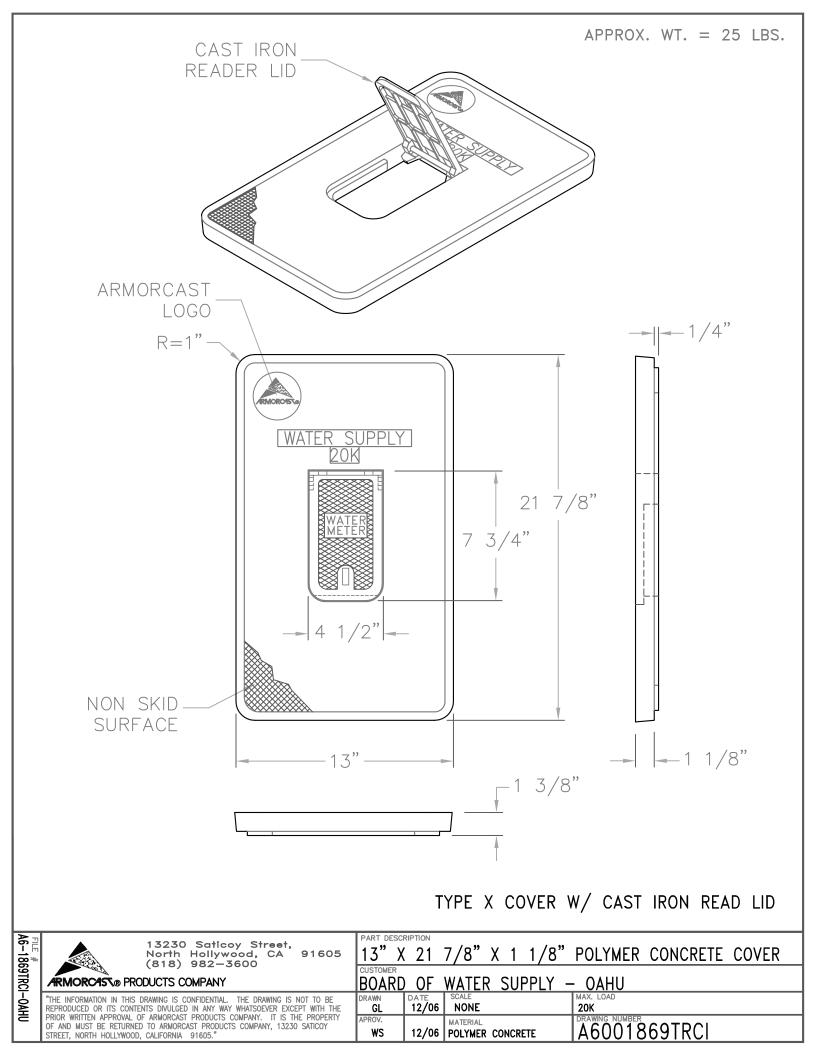
garthu

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, &upport, Admin. MD:st



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



December 4, 2008

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman SAMUEL T. HATA ALLY J. PARK ROBERT K. CUNDIFF MARC C. TILKER

CRAIG I, NISHIMURA, Ex-Officio BRENNON T. MORIOKA, Ex-Officio

CLIFFORD P. LUM Manager and Chief Engineer

DEAN A. NAKANO Deputy Manager and Chief Engineer

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,

Melen

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



ARMORCAST PRODUCTS COMPANY

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

080810

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,

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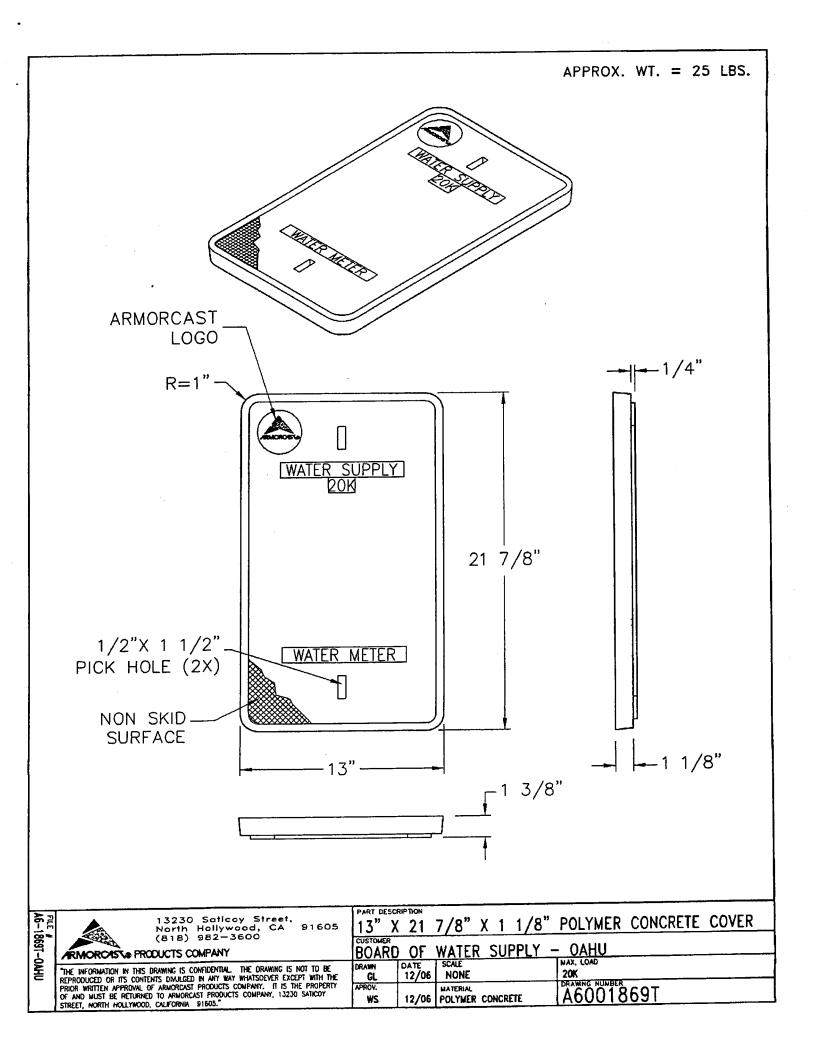
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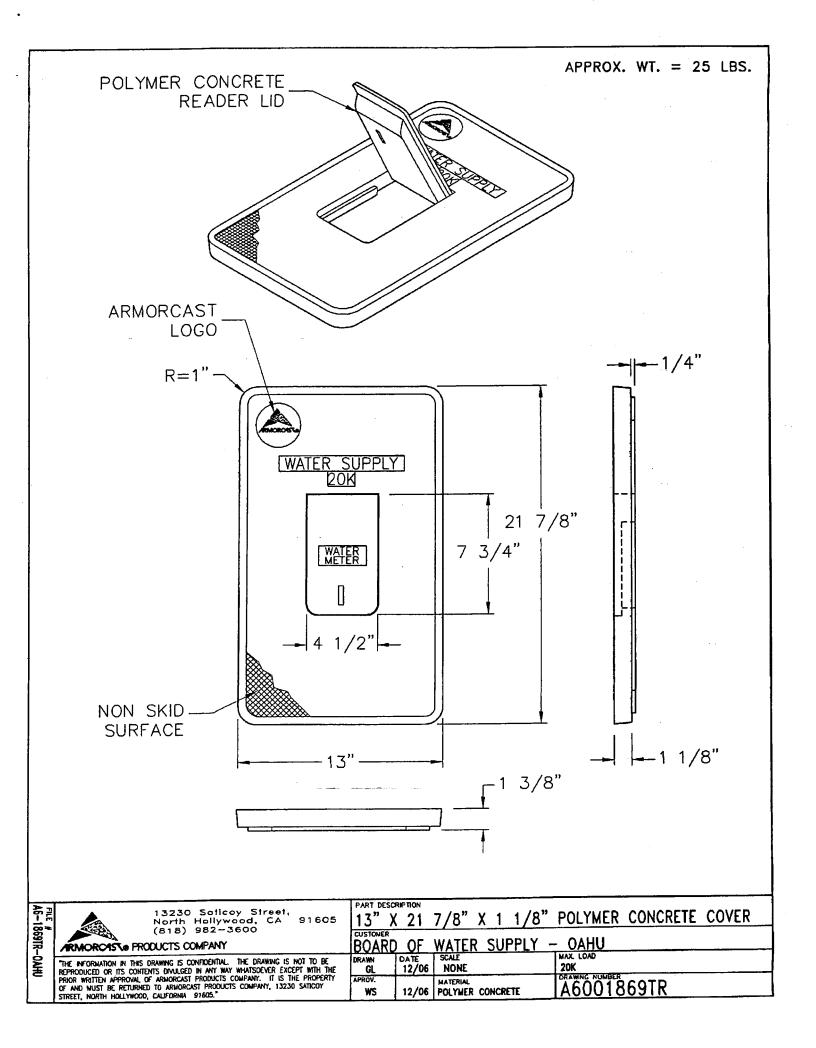
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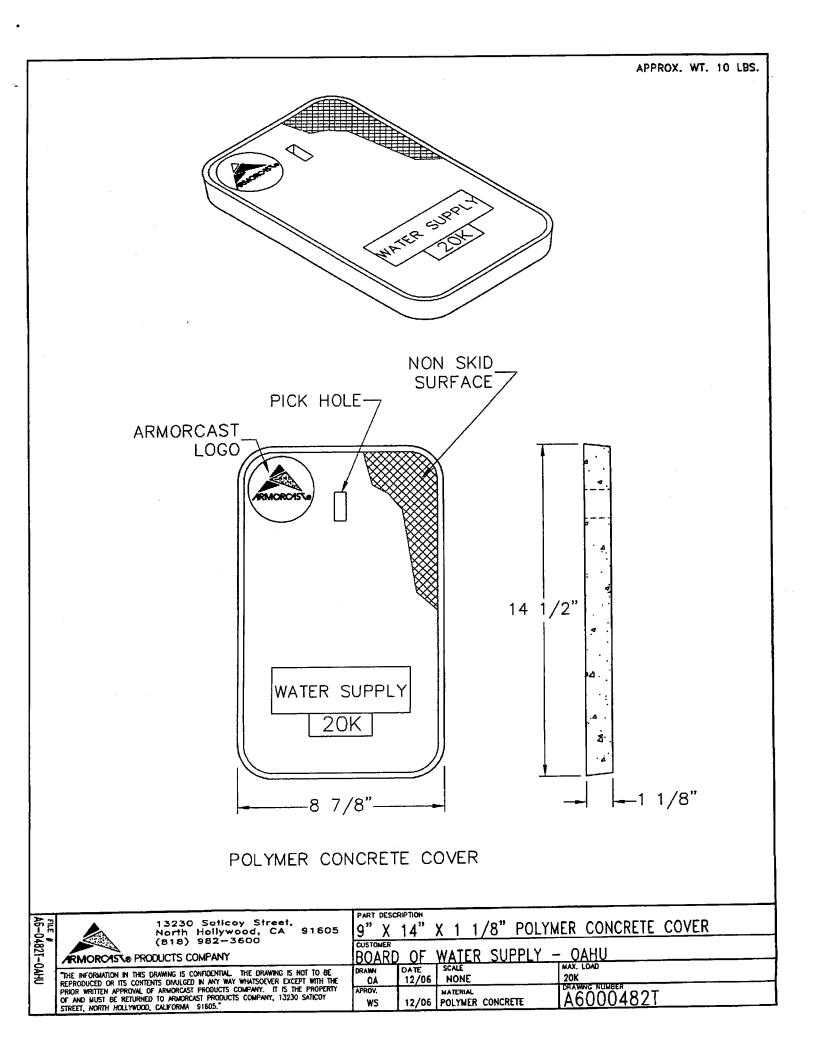
Paul II. Boebossian Armorcast Products Company

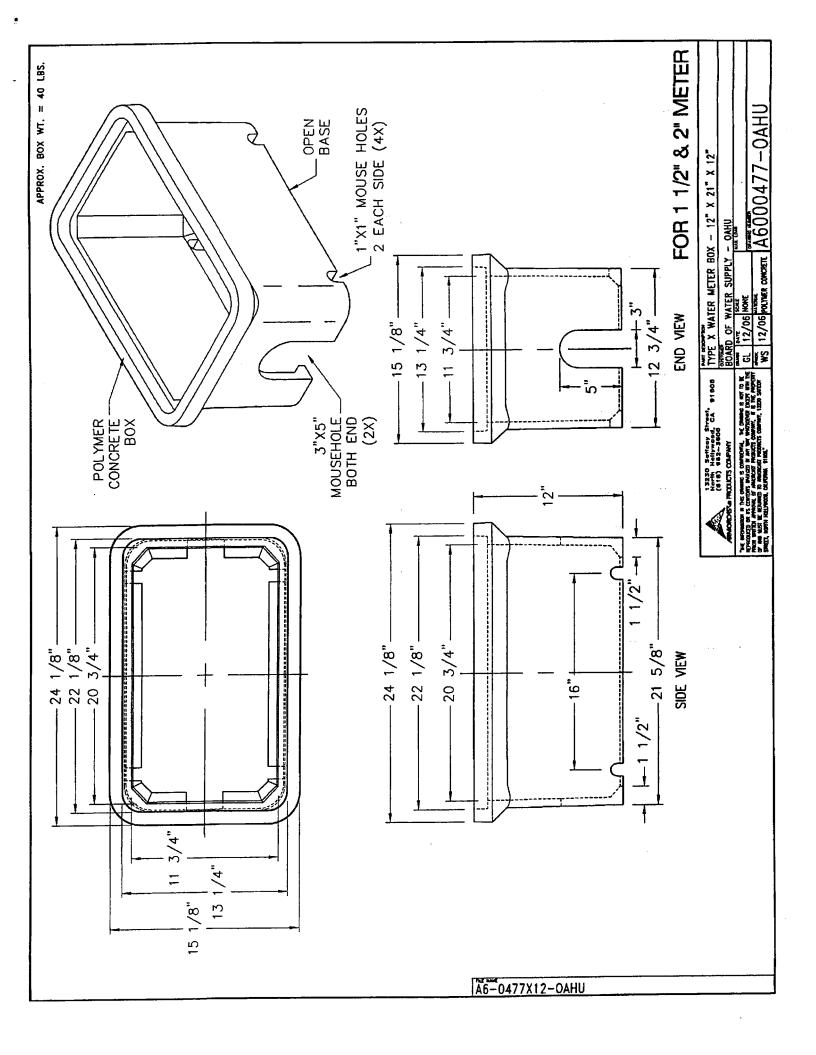
CC: Lan Yoneda, P.E./Honolulu Board of Water Supply Wally Sunnaa, P.E./Armorcast Products Company

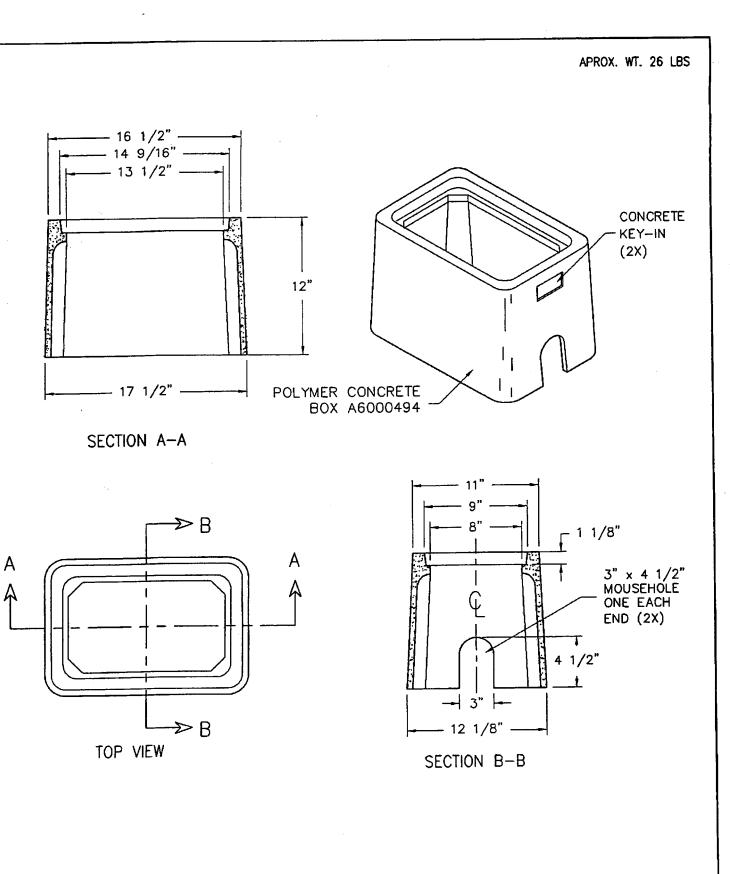
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A6-0494	13230 Saticoy Street, North Hollywood, CA 91605 (818) 982-3600	ART DESCRIPTION "X 14" X 12" POLYMER CONCRETE BOX	
(818) 982-3800 RMOROTS PRODUCTS COMPANY THE INFORMATION IN THIS DRAWING IS CONFIDENTIAL. THE DRAWING IS NOT TO BE REPRODUCED OR ITS CONTENTS DIVUGED IN ANY WAY WHATSOEVER EXCEPT WITH THE PRIOR WRITTEN APPROVAL OF ARMORCAST PRODUCTS COMPANY. IT IS THE PROPERTY OF AND MUST BE RETURNED TO ARWORCAST PRODUCTS COMPANY, 13230 SATICOY STREET, NORTH HOLLYWOOD, CAUFORNA 91605."		USTONER BOARD OF WATER SUPPLY - OAHU RAWN DATE SCALE MAX. LOAD 0A 9/02 NONE	
		WS 9/02 POLYMER CONCRETE A6000494	

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



MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman SAMUEL T. HATA ALLY J. PARK ROBERT K. CUNDIFF MARC C. TILKER

CRAIG I. NISHIMURA, Ex-Officio BRENNON T. MORIOKA, Ex-Officio

CLIFFORD P. LUM Manager and Chief Engineer

DEAN A. NAKANO Deputy Manager and Chief Engineer

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	5ª	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

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



MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman SAMUEL T. HATA ALLY J. PARK ROBERT K. CUNDIFF MARC C. TILKER

CRAIG I. NISHIMURA, Ex-Officio BRENNON T. MORIOKA, Ex-Officio

CLIFFORD P. LUM Manager and Chief Engineer

DEAN A. NAKANO Deputy Manager and Chief Engineer

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

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



October 31, 2007

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman SAMUEL T. HATA ALLY J. PARK ROBERT K. CUNDIFF MARC C. TILKER

LAVERNE T. HIGA, Ex-Officio BARRY FUKUNAGA, Ex-Officio

CLIFFORD P. LUM Manager and Chief Engineer

DEAN A. NAKANO Deputy Manager and Chief Engineer

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,

RD 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.

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



May 4, 2007

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman HERBERT S. K. KAOPUA, SR. SAMUEL T. HATA ALLY J. PARK ROBERT K. CUNDIFF

LAVERNE T. HIGA, Ex-Officio BARRY FUKUNAGA, Ex-Officio

CLIFFORD P. LUM Manager and Chief Engineer

DEAN A. NAKANO Deputy Manager and Chief Engineer

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 <u>Products C110 FB MJ and Flanged Fittings in the Approved Materials List</u>

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,

maha

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

cc: Supp. Sect.



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



August 25, 2006

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman HERBERT S. K. KAOPUA, SR. SAMUEL T. HATA ALLY J. PARK ROBERT K. CUNDIFF

RODNEY K. HARAGA, Ex-Officio LAVERNE T. HIGA, Ex-Officio

CLIFFORD P. LUM Manager and Chief Engineer

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.

4

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 nonpotable 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 <u>MATERIAL</u>

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 <u>minimum</u> depth of two (2) feet and a <u>maximum</u> 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.

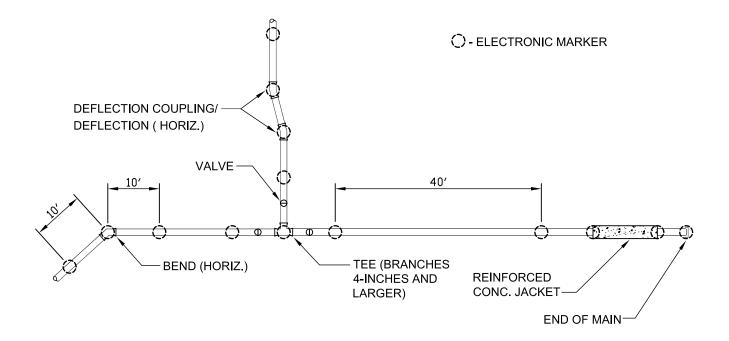
- c. On straight runs, markers shall be placed at a maximum distance of 40 feet.
- d. One marker at the end of all mains.
- e. Markers at the beginning and end of all concrete jackets.
- f. Markers at the beginning and end of all sections of mains under concrete pavement.
- g. One marker at the connection 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.

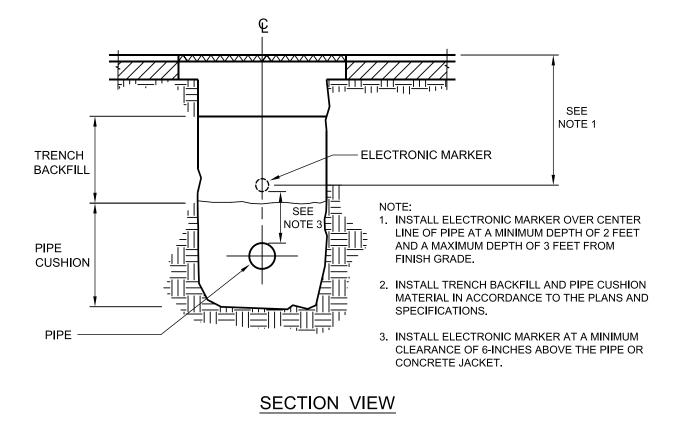
17.4 <u>PAYMENT</u>

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



TYPICAL ELECTRONIC MARKER INSTALLATION

N.T.S.

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



January 27, 2004

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman CHARLES A. STED, Vice-Chairman JAN M.L.Y. AMII HERBERT S.K. KAOPUA, SR. DAROLYN H. LENDIO

RODNEY K. HARAGA, Ex-Officio LARRY J. LEOPARDI, Ex-Officio

CLIFFORD S. JAMILE Manager and Chief Engineer

DONNA FAY K. KIYOSAKI Deputy Manager and Chief Engineer

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

1. Ferrous Metals (Interior and Exterior)

- 2. Galvanized Metals (Interior and Exterior)
- 4. Aluminum Surfaces
- 11. Wood, Other than Mahogany or Hardwood (Interior)

PAINT SCHEDULE

Prime: 1 coat Poxy-Gard HB Aluminum Mastic S3508 (5.0-10.0 mils DFT).

Prime: 1 coat Poxy-Gard HB Expoy Mastic S3500 series (5.0-10.0 mils DFT).

Top Coat Enduthane HB Acrylic Urethane S2800 series (3.00-4.0 mils DFT).

Prime: 1 coat Z1 Latex Wash Primer 1.0 mil DFT

Top Coat Enduthane HB Acrylic Urethane S2800 series (3.0-4.0 mils DFT)

Prime: 1 coat Z1 Latex Wash Primer 1.0 mil DFT

Top Coat Enduthane HB Acrylic Urethane S2800 series (3.0-4.0 mils DFT)

Prime: Interior Oil Primer S8161 (1.7-mils DFT)

Mr. Dennis R. Yoshimura January 27, 2004 Page 2

Two coats Pro-Hide Gold Interior Alkyd S/gloss S8800 (2.1-mils DFT)

Two coats Red Seal Interior Oil Satin Enamel S5700 series (2.1-mils DFT)

One coat Tonetic Wood Stain (if desired)

One or two coats Varmor Urethane Clear finish R10 gloss

B. PAINT SCHEDULE FOR EXISTING SURFACES

2. Existing Concrete, Masonry and Plaster (Exterior)

12. Mahogany & Hardwood (Interior)

3. Existing Concrete, Masonry & Plaster (Reservoir Exterior)

PAINT SCHEDULE

Prime: Pro-Hide Gold Int./Ext. Acrylic Concrete & Stucco Primer Z6300 (3.2-mils DFT)

Two coats Red Seal Ext. Latex Flat Z1900 series (1.2 DFT per coat)

Prime: Exterior Acrylic & Stucco Primer Z6300 (3.2-mils DFT)

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 6. Masonry Surfaces (Exterior)

7. Masonry Surfaces (Interior)

PAINT SCHEDULE

Prime: Pro-Hide Silver Heavy Duty Block Filler Z8465 (50-80 sq. ft. per gallon)

Topcoat: 2 coats Pro-Hide Gold Exterior latex Flat Z8400 series (1.2 mils DFT per coat)

Prime: Pro-Hide Silver Heavy Duty Block Filler Z8465 (50-80 sq. ft. per gallon)

Two coats Tech-Gard Water Borne Epoxy Z5300 series (1.5-2.0 mils DFT per coat)

Mr. Dennis R. Yoshimura January 27, 2004 Page 3

8. Concrete Surfaces (Exterior)

9. Concrete Surfaces (Interior)

10. Wood (Exterior)

B. PAINT SCHEDULE FOR EXISTING SURFACES

1. Ferrous Metal Items (Interior and Exterior-Rust Retained) Prime: Pro-Hide Silver Heavy Duty Block Filler Z8465 (50-80 sq. ft. per gallon)

Top coat Pro-Hide Gold Exterior latex Flat Z8400 series (1.2 mils DFT per coat) Prime: Pro-Hide Silver Heavy Duty Latex Block Filler Z8465 (50-80 sq. ft. per gallon)

Two coats Tech-Gard Water Borne Epoxy Z5300 series (1.5-2.0 mils DFT)

Prime: Pro-Hide Gold Exterior Alkyd Wood Primer Z8460 (1.1-mils DFT)

Two coats Enducryl DDTM Z2900 Series 1.5-2.0 Series (1.5 - 2.0 DFT)

PAINT SCHEDULE

Prime: Poxy-Gard rust Inhibitive Epoxy Primer S3301 series (3.0-6.0 mils DFT)

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

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



October 15, 2003

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman CHARLES A. STED, Vice-Chairman JAN M.L.Y. AMII HERBERT S.K. KAOPUA, SR. DAROLYN H. LENDIO

RODNEY K. HARAGA, Ex-Officio LARRY J. LEOPARDI, Ex-Officio

CLIFFORD S. JAMILE Manager and Chief Engineer

DONNA FAY K. KIYOSAKI Deputy Manager and Chief Engineer

TO:

WHOM IT MAY CONCERN

FROM:

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

8/13/2003 8:02 PAGE

BOARD OF WATER SUPPLY

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



August 12, 2003

JEREMY HARRIS, Mayor

ghtFax

EDDIE FLORES, JR., Chairman CHARLES A. STED, Vice-Chairman JAN M.L.Y. AMII HERBERT S.K. KAOPUA, SR. DAROLYN H. LENDIO

RODNEY K. HARAGA, Ex-Officio LARRY J. LEOPARDI, Ex-Officio

CLIFFORD S. JAMILE Manager and Chief Engineer

DONNA FAY K. KIYOSAKI Deputy Manager and Chief Engineer

=

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,

HO ARDH Head

Maintenance Unit - Engineering

cc: County Depts. of Water Maintenance Unit - Field

- F. Fung
- G. Matsunami
- J. Takaki

FA:es

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



JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman CHARLES A. STED, Vice-Chairman JAN M.L.Y. AMII HERBERT S.K. KAOPUA, SR. DAROLYN H. LENDIO

RODNEY K. HARAGA, Ex-Officio LARRY J. LEOPARDI, Ex-Officio

CLIFFORD S. JAMILE Manager and Chief Engineer

DONNA FAY K. KIYOSAKI Deputy Manager and Chief Engineer

TO:

WHOM IT MAY CONCERN

FROM:

CLIFFORD STAMPLE, 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



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



June 20, 2003

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman CHARLES A. STED, Vice-Chairman JAN M.L.Y. AMII HERBERT S.K. KAOPUA, SR. DAROLYN H. LENDIO

RODNEY K. HARAGA, Ex-Officio LARRY J. LEOPARDI, Ex-Officio

CLIFFORD S. JAMILE Manager and Chief Engineer

DONNA FAY K. KIYOSAKI Deputy Manager and Chief Engineer

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,

NOWARD H. TANAKA, Head Maintenance Unit – Engineering

cc: County Departments of Water

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

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



May 23, 2003

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman CHARLES A. STED, Vice-Chairman JAN M.L.Y. AMII HERBERT S.K. KAOPUA, SR. DAROLYN H. LENDIO

RODNEY K. HARAGA, Ex-Officio LARRY J. LEOPARDI, Ex-Officio

CLIFFORD S. JAMILE Manager and Chief Engineer

DONNA FAY K. KIYOSAKI Deputy Manager and Chief Engineer

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 Prime Coat: 1 coat Zinc Clad II HS (B69VZ3) @ 3-5 1. Ferrous Metals (Int. and Ext.) mils DFT Intermediate: 1 coat Macropoxy 646 Fast Cure (B58-600 Series) @ 5-10 mils DFT 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 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 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 Finish Coat: 1 coat Corothane II Polyurethane (B65-200/400 Series) @ 2-4 mils DFT

Mr. John Miller May 23, 2003 Page 2

5. Masonry Surfaces (Exterior) Prime Coat: 1 coat Loxon Masonry Primer (A24 Series) @ 2.5-3.2 mils DFT. Finish Coat: 2 coats DTM Acrylic (B66 Series) @ 2.5-4 mils DFT

6. Masonry Surfaces (Interior)

- 7. Concrete Surfaces (Exterior)
- 8. Concrete Surfaces (Interior)

9. Wood (Exterior)

10. Wood Other than Mahogany (Int.)

11. Mahogany (Interior Only)

Prime Coat: 1 coat Loxon Masonry Primer (A24

Series) @ 2.5-3.2 mils DFT. Finish Coat: 2 coats DTM Acrylic (B66 Series) @ 2.5-4 mils DFT

Prime Coat: 1 coat Loxon Block Surfacer (A24 Series) @ 2.5-3.2 mils DFT 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

Prime Coat: 1 coat Loxon Block Surfaces (A24 Series) @ 2.5-3.2 mils DFT 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

Prime Coat: 1 coat A100 Alkyd Primer (Y24 Series) @ 2.3 mils DFT 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

Prime Coat: 1 coat PreRite Classic Int. Ltx. Primer (B28W101) @ 1.6 mils DFT Finish Coat: 2 coats ProMar 200 Int. Ltx. Semi-Gloss (B31-200) @ 1.4 mils DFT

Prime Coat: 1 coat Wood Classic Stain (A49 Series) Finish Coat: 2 coats Wood Classic Polyurethane (A67 Series) @ 1.7 mils DFT

Mr. John Miller May 23, 2003 Page 3

PAINT SCHEDULE **B. EXISTING SURFACES** Prime Coat: 1 coat Macropoxy 920 PrePrime 1. Ferrous Metals (Interior & Exterior (B58T101) @ 1.5-2 mils DFT Rust Retained) Finish Coat: 1 coat HS Polyurethane (B65-300 Series) @ 3-4 mils DFT Prime Coat: WB Catalyzed Epoxy Ultradeep (B70200 2. Concrete, Masonry, and Plaster Series) @ 2.5-3 mils DFT (Exterior) Finish Coat: 2 coats A100 Ltx Acrylic (A6, A3, A82 Series) @ 1.2 mils DFT, or 2 coats DTM Acrylic (B66 Series) @ 2.4 mils DFT 3. Concrete, Masonry, and Plaster Prime Coat: WB Catalyzed Epoxy Ultradeep (B70-(Reservoir Exterior) 200 Series) @ 2.5-3 mils DFT 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,

ANIAHA

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

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



May 12, 2003

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman CHARLES A. STED, Vice-Chairman JAN M.L.Y. AMII HERBERT S.K. KAOPUA, SR. DAROLYN H. LENDIO

RODNEY K. HARAGA, Ex-Officio LARRY J. LEOPARDI, Ex-Officio

CLIFFORD S. JAMILE Manager and Chief Engineer

DONNA FAY K. KIYOSAKI Deputy Manager and Chief Engineer

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) Intermediate: Zero-Rust Modified Phenolic Primer – Red (2.5 – 3.0 mils DFT) 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. Prime Coat: Zero-Rust Modified Phenolic Primer – Black (2.5 – 3.0 mils DFT) Intermediate: Zero-Rust Modified Phenolic Primer – Red (2.5 – 3.0 mils DFT) Finish Coat: Silicone Polyplus Topcoat (Int.) (3.0 mils DFT). Silicone Polyplus Ultimate UV (Ext.) (3.0 mils DFT).

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Mr. Teddy Pascual May 12, 2003 Page 2

 Factory Finished Metals (Int. & Prep: Zero-Rust Prep Step Concentrate. Ext.)
 Prime Coat: Zero-Rust Modified Phenolic Primer – Black (2.5 – 3.0 mils DFT) Finish Coat: Silicone Polyplus Topcoat (Int.) (3.0 mils DFT). Silicone Polyplus Ultimate UV (Ext.) (3.0 mils DFT).
 Aluminum Surfaces
 Prep: FSC Wax and Grease Remover Prime Coat: Zero-Rust Modified Phenolic Primer –

Prime Coat: Zero-Rust Modified Phenolic Primer – Black (2.5 – 3.0 mils DFT) Finish Coat: Silicone Polyplus Topcoat (Int.) (3.0 mils DFT).

 Masonry Surfaces (Exterior)
 Prime Coat: FSC Mildew Sealer Intermediate: Maxlife 2400 Series/2800 Series.
 Finish Coat: Maxlife 2400 Series/2800 Series.

 Masonry Surfaces (Interior)
 Prime Coat: FSC Prime and Seal. Intermediate: Maxlife 2400 Series/2800 Series. Finish Coat: Maxlife 2400 Series/2800 Series.

 Concrete Surfaces (Exterior)
 Prime Coat: FSC Mildew Sealer Intermediate: Maxlife 2400 Series/2800 Series.
 Finish Coat: Maxlife 2400 Series/2800 Series.

 Concrete Surfaces (Interior)
 Prime Coat: FSC Prime and Seal. Intermediate: Maxlife 2400 Series/2800 Series. Finish Coat: Maxlife 2400 Series/2800 Series.

9. Wood (Exterior) Prime Coat: Silicone Polyplus (1.5 – 2.0 mils DFT) Intermediate: Silicone Polyplus (1.5 – 2.0 mils DFT) 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)
Intermediate: Silicone Polyplus (1.5 - 2.0 mils DFT)
Finish Coat: Silicone Polyplus Topcoat (3.0 mils DFT)

11.Mahogany (Interior Only)Prime Coat: TWP 300 Series/400SeriesFinish Coat:FSC Quick Dry Varnish

Mr. Teddy Pascual May 12, 2003 Page 3

B. EXISTING SURFACES

1.	Ferrous Metals (Interior & Exterior Rust Retained)	Prime Coat: Zero-Rust Modified Phenolic Primer – (2.5 mils DFT) Intermediate: Zero-Rust Modified Phenolic Primer – (2.5 mils DFT) 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" Prime Coat: FSC Modified Mildew Sealer Intermediate: Maxlife Series PC550 Finish Coat: Maxlife Series PC550
3.	Concrete, Masonry and Plaster (Reservoir Exterior)	Prep: Silox-Seal Part "A" Prime Coat: FSC Modified Mildew Sealer Intermediate: Maxlife Series PC550 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,

unha HOWARD H. TANAKA, Head

Maintenance Unit - Engineering

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

FA:em

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



March 24, 2003

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman CHARLES A. STED, Vice-Chairman JAN M.L.Y. AMII HERBERT S.K. KAOPUA, SR. DAROLYN H. LENDIO

RODNEY K. HARAGA, Ex-Officio LARRY J. LEOPARDI, Ex-Officio

CLIFFORD S. JAMILE Manager and Chief Engineer

DONNA FAY K. KIYOSAKI Deputy Manager and Chief Engineer

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,

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Maintenance Unit - Engineering

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

Support

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



November 27, 2002

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman CHARLES A. STED, Vice Chairman JAN M.L.Y. AMII HERBERT S.K. KAOPUA, SR. DAROLYN H. LENDIO

BRIAN K. MINAAI, Ex-Officio

CLIFFORD S. JAMILE Manager and Chief Engineer

DONNA FAY K. KIYOSAKI Deputy Manager and Chief Engineer

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,

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Maintenance Unit - Engineering

Enclosure cc: Hawaii, Kauai, and Maui DWS

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

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,

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KAZU HAYASHIDA Manager and Chief Engineer Frank/ file KK

FI:ki

cc: K. Hayashida Finance Field Operations J. Yamauchi R. Matsui

D. Ching

K. Kawamoto

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



November 22, 2002

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman CHARLES A. STED, Vice Chairman JAN M.L.Y. AMII HERBERT S.K. KAOPUA, SR. DAROLYN H. LENDIO

BRIAN K. MINAAI, Ex-Officio

CLIFFORD S. JAMILE Manager and Chief Engineer

DONNA FAY K. KIYOSAKI Deputy Manager and Chief Engineer

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,

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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

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	Т-211-В
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

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



July 11, 2002

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman CHARLES A. STED, Vice-Chairman JAN M.L.Y. AMII HERBERT S.K. KAOPUA, SR.

BRIAN K. MINAAI, Ex-Officio ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE Manager and Chief Engineer

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:

<u>A. N</u>	EW 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.
		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.
		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.
		Finish Coat: PPG 95-850 PITTHANE 35 Aliphatic Urethane Gloss Enamel @ 2.0 to 3.0 mils DFT.

Mr. Jose A. Casarez July 11, 2002 Page 2

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4.	Aluminum Surfaces	Pretreatment: In accordance with SSPC SP1
		Prime Coat: PPG 95-245 PITTGUARD Direct-to-rust Epoxy Coating @ 5.0 to 7.0 mils DFT.
		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
		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.
		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.
		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.
		Finish: PPG 77-10 REZ Interior/Exterior Alkyd Spar Varnish @ 1.10 to 1.5 mils DFT.

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Mr. Jose A. Casarez July 11, 2002 Page 3

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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.
	,	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.
		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.
		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.
		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.
		Finish Coat: Two coats PPG 6-900 SPEEDHIDE Exterior Semi-Gloss Latex @ 1.2 to 1.5 mils DFT.

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Mr. Jose A. Casarez July 11, 2002 Page 4

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.

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,

Iaka. HOWARD H. TANAKA, Head

Maintenance Unit - Engineering

Enclosure (Letter dated 4/9/02)

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

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



April 9, 2002

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman CHARLES A. STED, Vice-Chairman JAN M.L.Y. AMI! HERBERT S.K. KAOPUA, SR.

BRIAN K. MINAAI, Ex-Officio ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE Manager and Chief Engineer

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.

Mr. Dan Davis PPG Industries, Inc. April 9, 2002 Page 2

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

Very truly yours,

nahr HOWARD H. TANAKA, Head

Maintenance Unit - Engineering