

COUNTY OF KAUAI
DEPARTMENT OF WATER
2005 AMENDMENTS

*to the 2002 Water System Standards
adopted by the
Hawaii County Department of Water Supply,
City and County of Honolulu Board of Water Supply,
Kauai County Department of Water, and
Maui County Department of Water Supply*

THESE 2005 AMENDMENTS to the 2002 Water System Standards adopted by the Hawaii County Department of Water Supply, City and County of Honolulu Board of Water Supply, Kauai County Department of Water, and Maui County Department of Water Supply revise and modify various provisions of the 2002 Standards and should therefore be considered part of the these Standards.

If any provision of these amendments or the application thereof to any person or circumstances is held invalid, the invalidity does not affect other provisions or applications of these amendments which can be given effect without the invalid provision, or application, and to this end the provisions of these amendments are severable.

DATED: JUN 25 2005, 2005

EDWARD W. TSCHUPP



MANAGER AND CHIEF ENGINEER

Department of Water, County of Kaua'i, Hawai'i

2005 AMENDMENTS
to the 2002 Water System Standards

As used in these 2005 Amendments:

“2002 Standards” means the 2002 Water System Standards adopted by the Hawaii County Department of Water Supply, City and County of Honolulu Board of Water Supply, Kauai County Department of Water, and Maui County Department of Water Supply.

“2005 Amendments” means the County of Kaua‘i Department of Water’s 2005 amendments and revisions to the 2002 Standards.

“Administrative rule” means the administrative rules and regulations of the Department of Water of the County of Kaua‘i, Hawai‘i.

“County” means the County of Kauai, Hawai‘i.

“Department” or “Water Department” means the Water Department of the County of Kaua‘i.

“K.C.C.” or “Kaua‘i County Code” means the Kaua‘i County Code 1987, as amended.

“H.R.S.” means Hawai‘i Revised Statutes, as amended.

“Manager” means the Kaua‘i County Water Department’s Manager and Chief Engineer.

“State” means State of Hawai‘i.

Further, the following rules of construction shall apply to these 2005 Amendments:

Number. Words in the singular or plural number signify both the singular and plural number.

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The following section, tables, and other provisions within the 2002 Standards are hereby amended and revised as follows:

- 1. Table 100-10 “TYPES AND SIZE OF MAIN VALVES”:** Table 100-10 is hereby revised by adding the following annotation:

For Kaua‘i only: Butterfly valves shall not be used as a standard type of main valve.

2. **Table 100-19 “FIRE FLOW REQUIREMENTS”**: Table 100-19 is hereby deleted from the 2002 Standards and replaced in its entirety as follows. Any and all references in the 2002 Standards to Table 100-19 shall mean this Table 100-19A:

**Table 100-19A FIRE FLOW REQUIREMENTS
FOR COUNTY OF KAUA‘I**

LAND USE	FLOW (GPM) / DURATION (HOURS) / FIRE HYDRANT SPACING (FEET)
Agriculture	250 / 1 / 500
Rural	
Single Family	<i>See</i> Note (b) below
Duplex	<i>See</i> Note (b)below
PUD Townhouses, Apartments	<i>See</i> Note (b)below
Schools, Retail Stores or Shops, Shopping Centers, Hotels, and Hospitals	2,000 / 2 / 350
Industry	3,000 / 3 / 350

ANNOTATIONS TO TABLE 100-19A:

- (a) “GPM” means gallons per minute.
- (b) Fire Flow, Duration, and Fire Hydrant Spacing shall be dictated by the following zoning district designations described in the Kaua‘i County Code.

R-2: 500/1/500	R-20: 1500/2/350
R-4: 750/2/500	RR-10: 1500/2/350
R-6: 1000/2/500	RR-20: 2000/2/350
R-10: 1250/2/350	
- (c) On dead end streets, the last fire hydrant shall be located at one-half (½) the spacing distance for fire hydrants from the last house/unit (frontage property line or to the driveway or access for the property).
- (d) Spacing of fire hydrants shall be measured along the roadway.
- (e) The Department may utilize State and County statutes, codes, administrative rules and other authoritative sources of law in interpreting the land use classifications described in Table 100-19A. These legal authorities include, but are not limited to, chapters 8 (Comprehensive Zoning Ordinance) and 9 (Subdivision Ordinance) of the Kaua‘i County Code, and H.R.S. chapter 205.

- (f) General applicability of Table 100-19A; exceptions thereto: Unless otherwise specifically adverted to in this annotation (f), the 2002 Standards, or the Department's administrative rules, the requirements of Table 100-19A shall apply to all County subdivision applications and actions, all County zoning and use permit applications, all requests for variances, all requests for building permit approval from the Department, all requests for water service from the Department, and all other actions which may fall under the jurisdiction of the Department.

As used in this annotation (f), the terms "dwelling unit" and "lot" shall have the meanings ascribed to them in K.C.C. Sec. 8-1.5.

The requirements of Table 100-19A are minimum standards; the Department may, in consultation with the Kaua'i County Fire Department, determine that additional or more stringent fire flow, flow duration, and hydrant spacing requirements are appropriate and necessary in certain cases because of heightened fire safety concerns.

- (i) Building permit approval for first and second dwelling units; Applications for first and second 5/8" water meters: When County building permit approval is sought from the Department for the first and second dwelling units only on an existing lot of record, the requirements of Table 100-19A shall not apply. However, the requirements of Table 100-19A shall apply when County building permit approval is sought from the Department for any dwelling unit in excess of the second dwelling unit on an existing lot of record.

When application is made for a first or second five-eighth inch (5/8") water meter only to serve an existing lot of record, the requirements of Table 100-19A shall not apply. However, the requirements of Table 100-19A shall apply when application is made for any five-eighth inch (5/8") water meter to serve an existing lot of record in excess of the second 5/8" water meter. The foregoing exception for 5/8" water meters shall not apply to applications for any other size water meters.

- (ii) Alternative methodology for satisfying fire protection requirements for non-residential structures: Where County building permit approval is sought from the Department for any structure other than a home, house, or dwelling unit, an applicant may utilize the alternative methodology described in this paragraph (ii) of annotation (f) in lieu of satisfying the requirements of Table 100-19A.

As used in this paragraph (ii) of annotation (f), "Fire Chief" or "Chief" means the Fire Chief of the County of Kaua'i. "On-site" means on the lot to which the building permit appertains. "Off-site" means off and away from the lot to which the building permit appertains.

Under this paragraph (ii) of annotation (f), an applicant need not satisfy the requirements of Table 100-19A if:

- (A) The applicant submits a written analysis signed by a professional engineer licensed under H.R.S. chapter 464, in which the engineer certifies that the existing off-site water system, together with the addition of on-site fire mitigation measures, satisfy the fire protection

requirements of the National Fire Protection Association (hereafter “NFPA”);

- (B) The professional engineer submitting the required certification possesses, at the time the certification is provided, a minimum of three years engineering experience as a licensed professional engineer in responsible charge of fire protection engineering work or has experience, in the Department’s judgment, equivalent to such engineering work; and
- (C) The applicant submits the written analysis described in subparagraph (A) of this paragraph (ii) to both the Water Department and the County Fire Chief, and the Fire Chief does not reject the sufficiency of the applicant’s fire mitigation measures.

The Chief may reject the sufficiency of the applicant’s fire mitigation measures if the Chief determines that:

- the measures are insufficient relative to the structures to be built on the lot, or the uses which will occur in conjunction with the proposed structures, or both; or
- the measures are insufficient to prevent the spread of any potential on-site fire to off-site structures or uses, or both, surrounding or adjacent to the lot.

In evaluating the sufficiency of any mitigation measures, the Fire Chief may consider the *Fire Code of the County of Kaua’i*, the codes and standards of the NFPA, the International Code Council’s *Uniform Fire Code* (as may be amended from time to time), and other nationally-recognized fire protection codes or standards, or both.

The Fire Chief may reject the sufficiency of the applicant’s measures no later than one-hundred twenty (120) calendar days after the Chief has determined in writing that the applicant has submitted a complete written analysis to the Chief.¹ The burden shall be on the Applicant to provide the Chief with a complete written analysis.

If the Chief rejects the sufficiency of the applicant’s measures, the Chief shall so inform the Water Department, who shall in turn inform the applicant of the rejection.

The Applicant shall have the burden of proving to the Water Department that the professional engineer submitting the certification described in this paragraph (ii) of annotation (f) has the necessary qualifications described in subparagraph (B) of this paragraph (ii).

This paragraph (ii) only of annotation (f) shall be repealed on July 1, 2008.

¹ H.R.S. 91-13.5

(iii) Minor interior additions and alterations; changes in ownership or commercial use. The requirements of Table 100-19A shall not apply when an application is made under chapter 8 of the Kaua‘i County Code for a County use or zoning permit, or a variance, if:

- (A) The application is to permit a change from an existing, legal commercial use to another legal, commercial use;
- (B) The application is to allow a change in the ownership of a permittee; or
- (C) The application is to permit the minor repair, reconstruction, redesign, renovation, or renewal of any part of the interior of an existing building, which does not affect the structural integrity of the building, and which also does not add any square footage to the building or its footprint, or both.

3. **Sec. 105.04 “ACCESS ROAD.”**: Item no. 2 only is hereby deleted and replaced in its entirety as follows:

- 2. Maximum grade of 15%. (for Kaua‘i only).

4. **Sec. 202.01 “GENERAL.”**: Paragraph F “Bolts and Nuts.” of Sec. 202.01 is hereby deleted and replaced in its entirety as follows:

F. Bolts and Nuts. All bolts and nuts shall be either silicon bronze (ASTM F467 and F468) or “Cor-Ten”, U.S.S. alloy, “Mayari”, Bethlehem Steel, or approved equal, ASTM 325, Type 3. All bolts and nuts shall be silicon bronze only if submerged in water. Bolts and nuts installed shall be compatible in strength and material characteristics. Bolts shall protrude beyond the nuts and protrusion shall be a minimum of 1/8 inch but shall not exceed ½ inch.

5. **Sec. 202.02 “MECHANICAL JOINT.”**: The fourth paragraph only of paragraph A “General.” of Sec. 202.02 is hereby deleted and replaced in its entirety as follows:

Silicon bronze (ASTM F467 and F468) or “Cor-Ten”, U.S.S. alloy, “Mayari”, Bethlehem Steel, or approved equal, ASTM 325, Type 3 bolts and nuts shall be used for all mechanical joints. All bolts and nuts shall be silicon bronze only if submerged in water.

6. **Sec. 202.04 “FLANGED JOINT.”**: The fourth paragraph only of paragraph A “General.” of Sec. 202.04 is hereby deleted and replaced in its entirety as follows:

The bolts used for all flanged joints shall protrude beyond the nuts by a minimum of 1/8-inch but shall not exceed ½ inch. Should the bolts protrude more than

½ inch, the bolts 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. Hot-dipped galvanized nuts and bolts shall be “Cor-ten”, U.S.S. alloy, “Mayari”, Bethlehem Steel, or approved equal, ASTM 325, Type 3.

7. **Sec. 206.01 “GENERAL.”**: The sixth and thirteenth(last) paragraphs only of Sec. 206.01 are hereby deleted and replaced in their entirety as follows:

(sixth paragraph)

Each hydrant body shall be furnished with a set of break-off bolts, and full face gasket. Bolts shall be hot-dipped galvanized 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 hot-dipped galvanized 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.

.....

(thirteenth paragraph)

Fire hydrants shall be provided with bonnets, stuffing boxes and other appurtenant features all made of silicon bronze conforming to ASTM B98 and as specified in the approved material list. Fire hydrants shall be provided with bolts and nuts made of silicon bronze (ASTM F467 and F468).

8. **Sec. 206.02 “WET-BARREL HYDRANTS.”**: The first paragraph only of Sec. 206.02 is hereby deleted and replaced in its entirety as follows:

All hydrants shall comply with AWWA C503 “Wet-Barrel Fire Hydrants for Ordinary Water Works Service”. All hydrants shall have one (1) 4½ inch and one (1) 2½ inch outlet with Type B valves. All hydrants shall have brass caps with stainless steel chains.

9. **DIVISION 400, Sec. 402 “APPROVED MATERIAL LIST”, subsection I. “PIPES AND APPURTENANCES”, subdivision K. “Gland”**: The following item no. 7 is added to Division 400, Sec. 402, subsection I, subdivision K:

DESCRIPTION		Applicable to:			
Manufacturer	Catalogue or Model No.	Kauai	Hawai‘i	O‘ahu	Maui
K. Gland					
7. U.S. Pipe	M J Field Lok	0			

10. DIVISION 400, Sec. 402 “APPROVED MATERIAL LIST”, subsection I. “PIPES AND APPURTENANCES”, subdivision M. “Flanged Adapters”: The following item no. 10 is added to Division 400, Sec. 402, subsection I, subdivision M:

DESCRIPTION		Applicable to:			
Manufacturer	Catalogue or Model No.	Kauai	Hawai‘i	O‘ahu	Maui
I. PIPES AND APPURTENANCES					
M. Flanged Adapters					
10. Romac Industries, Inc.	Style DJ 400 Ductile Iron Dismantling Joints (sizes 16-inch and larger)	O			

11. DIVISION 400, Sec. 402 “APPROVED MATERIAL LIST”, subsection II. “VALVES AND APPURTENANCES”, subdivision A. “Air Relief Valves/Combination Air Valves (ARV), further subdivision 2. “High Pressure (Higher than 150 pse), item g. “Val-Matic Valve & Manufacturing Corp.”: The following item is added to Division 400, Sec. 402, subsection II, subdivision A, further subdivision 2, item g:

DESCRIPTION		Applicable to:			
Manufacturer	Catalogue or Model No.	Kauai	Hawai‘i	O‘ahu	Maui
II. VALVES AND APPURTENANCES					
A. Air Relief Valves/ Combination Air Valves (ARV)					
2. High Pressure (Higher than 150 psi)					
g. Valve-Matic Valve & Manufacturing Corp.	Combination Air Valve 201C.2	O			

12. DIVISION 400, Sec. 402 “APPROVED MATERIAL LIST”, subsection III. “SERVICE LATERALS, FITTINGS, AND APPURTENANCES”, subdivision D. “Service Lateral Fittings”, item 2. “Elkhart Products Corp.”: The following item is approved for use for Kaua‘i:

DESCRIPTION		Applicable to:			
Manufacturer	Catalogue or Model No.	Kauai	Hawai‘i	O‘ahu	Maui
III. SERVICE LATERALS, FITTINGS, AND APPURTENANCES					
H. Service Lateral Fittings					
2. Elkhart Products Corp.	Cast bronze threaded fittings, Cast copper alloy fittings for flared copper tube, bronze pipe flanges and flanged fittings	O	O	O	

13. DIVISION 400, Sec. 402 “APPROVED MATERIAL LIST”, subsection III. “SERVICE LATERALS, FITTINGS, AND APPURTENANCES”, subdivision H. “Copper Pipe”, item 2. “Kembla”: The following item is approved for use for Kaua‘i:

DESCRIPTION		Applicable to:			
Manufacturer	Catalogue or Model No.	Kauai	Hawai‘i	O‘ahu	Maui
III. SERVICE LATERALS, FITTINGS, AND APPURTENANCES					
H. Copper Pipe					
2. Kembla	Type K, seamless water tube	O		O	O

14. DIVISION 400, Sec. 402 “APPROVED MATERIAL LIST”, subsection V. “PAINTS AND COATINGS”: The following paint products, as further described in attached Exhibit “A”, are added to the various subdivisions within subsection V of Sec. 402 of Division 400. Only *approved* paint products described in Exhibit “A” are added to the respective subdivisions:

- **Pratt and Lambert Products** (*see* attached January 27, 2004 Honolulu Board of Water Supply letter);
- **PPG Industries High Performance Products** (*see* attached July 11, 2002 Honolulu Board of Water Supply letter); and
- **Sherwin Williams Coatings** (*see* attached May 23, 2003 Honolulu Board of Water Supply letter).

Exhibit “A” is incorporated by reference into these 2005 Amendments.

15. DIVISION 400, Sec. 403 “STANDARD DETAILS”, subsection II. “Chain Link Fence and Gate (F), subdivision A. “Chain Link Fence”, detail no. F2: Division 400, Sec. 403, subsection II, subdivision A, detail no. F2 is hereby deleted and replaced in its entirety with attached Exhibit “B”, which is incorporated by reference into these 2005 Amendments.

16. DIVISION 400, Sec. 403 “STANDARD DETAILS”, subsection III. “Fire Hydrants and Appurtenances (FH), subdivision B. “Connection Layouts”, detail no. FH4: Division 400, Sec. 403, subsection III, subdivision B, detail no. FH4 is hereby deleted and replaced in its entirety with attached Exhibit “C”, which is incorporated by reference into these 2005 Amendments.

17. **DIVISION 400, Sec. 403 “STANDARD DETAILS”, subsection IV. “Service Laterals (L)”, subdivision A. “Kaua‘i”, detail no. L1**: Division 400, Sec. 403, subsection IV, subdivision A, detail no. L1 is hereby deleted and replaced in its entirety with attached Exhibit “D”, which is incorporated by reference into these 2005 Amendments.
18. **DIVISION 400, Sec. 403 “STANDARD DETAILS”, subsection IV. “Service Laterals (L)”, subdivision A. “Kaua‘i”, detail no. L2**: Division 400, Sec. 403, subsection IV, subdivision A, detail no. L2 is hereby deleted and replaced in its entirety with attached Exhibit “E”, which is incorporated by reference into these 2005 Amendments.
19. **DIVISION 400, Sec. 403 “STANDARD DETAILS”, subsection IV. “Service Laterals (L)”, subdivision A. “Kaua‘i”, detail no. L4**: Division 400, Sec. 403, subsection IV, subdivision A, detail no. L4 is hereby deleted and replaced in its entirety with attached Exhibit “F”, which is incorporated by reference into these 2005 Amendments.
20. **DIVISION 400, Sec. 403 “STANDARD DETAILS”, subsection IV. “Service Laterals (L)”, subdivision A. “Kaua‘i”, detail no. L5**: Division 400, Sec. 403, subsection IV, subdivision A, detail no. L5 is hereby deleted and replaced in its entirety with attached Exhibit “G”, which is incorporated by reference into these 2005 Amendments.
21. **DIVISION 400, Sec. 403 “STANDARD DETAILS”, subsection IV. “Service Laterals (L)”, subdivision A. “Kaua‘i”, detail no. L6**: Division 400, Sec. 403, subsection IV, subdivision A, detail no. L6 is hereby deleted and replaced in its entirety with attached Exhibit “H”, which is incorporated by reference into these 2005 Amendments.
22. **DIVISION 400, Sec. 403 “STANDARD DETAILS”, subsection VII. “Trench Details, and Concrete Cylinder Pipe and Appurtenances (P)”, subdivision C. “Trench Details”, detail no. P11**: Division 400, Sec. 403, subsection VII, subdivision C, detail no. P11 is hereby deleted and replaced in its entirety with attached Exhibit “I”, which is incorporated by reference into these 2005 Amendments.
23. **DIVISION 400, Sec. 403 “STANDARD DETAILS”, subsection VIII. “Valves and Appurtenances (V)”, subdivision D. “Valve Box Installation and Miscellaneous Details”, detail no. V11**: Division 400, Sec. 403, subsection VIII, subdivision D, detail no. V11 is hereby deleted and replaced in its entirety with attached Exhibit “J”, which is incorporated by reference into these 2005 Amendments.
24. **DIVISION 400, Sec. 403 “STANDARD DETAILS”, subsection VIII. “Valves and Appurtenances (V)”, subdivision D. “Valve Box Installation and Miscellaneous Details”, detail no. V13**: Division 400, Sec. 403, subsection VIII, subdivision D, detail no. V13 is hereby deleted in its entirety as to Kaua‘i only.

25. DIVISION 400, Sec. 403 “STANDARD DETAILS”, subsection VIII. “Valves and Appurtenances (V)”, subdivision D. “Valve Box Installation and Miscellaneous Details”, detail no. V14: Division 400, Sec. 403, subsection VIII, subdivision D, detail no. V14 is hereby deleted and replaced in its entirety with attached Exhibit “K”, which is incorporated by reference into these 2005 Amendments.

26. DIVISION 400, Sec. 403 “STANDARD DETAILS”, subsection VIII. “Valves and Appurtenances (V)”, subdivision D. “Valve Box Installation and Miscellaneous Details”, detail no. V15: Division 400, Sec. 403, subsection VIII, subdivision D, detail no. V15 is hereby deleted and replaced in its entirety with attached Exhibit “L”, which is incorporated by reference into these 2005 Amendments.

27. DIVISION 400, Sec. 403 “STANDARD DETAILS”, subsection VIII. “Valves and Appurtenances (V)”, subdivision D. “Valve Box Installation and Miscellaneous Details”, detail no. V16: Division 400, Sec. 403, subsection VIII, subdivision D, detail no. V16 is hereby deleted and replaced in its entirety with attached Exhibit “M”, which is incorporated by reference into these 2005 Amendments.

28. DIVISION 400, Sec. 403 “STANDARD DETAILS”, subsection VIII. “Valves and Appurtenances (V)”, subdivision E. “Valve Marker and Nut Extension”, detail no. V18: Division 400, Sec. 403, subsection VIII, subdivision E, detail no. V18 is hereby deleted in its entirety as to Kaua‘i only.

29. NEW OR ALTERNATIVE MATERIALS: Although the 2002 Standards and 2005 Amendments specify the products and materials to be used in the construction of waterworks facilities under the Department’s jurisdiction, the Department recognizes that, over time, alternative or new products and materials may be developed, or that there may be advances in existing materials or products already approved for use in the 2002 Standards or 2005 Amendments. The Department recognizes that, as a matter of engineering practice, it may be advantageous to utilize such products or materials.

In recognition of these facts, the Department hereby establishes the following process for determining the use of such new or alternate products and materials.

- (i) A person requesting the use of a product or material not approved for use in the 2002 Standards or 2005 Amendments shall submit a written request addressed to the Department’s Manager asking for approval to use the product or material. The request shall be submitted on a form provided by the Department, and shall provide product information as may be required by the Department.
- (ii) The requesting party shall specify if the proposed product or material has been approved for use by the City & County of Honolulu Board of Water Supply, County of Hawai‘i Department of Water Supply, County of Maui Department of Water Supply and whether the proposed product or material satisfies the latest

applicable standard specifications of the American Society of Testing Materials (“ASTM”), the American National Standards Institute (“ANSI”), the American Water Works Association (“AWWA”), or the U.S. General Services Administration Federal Specifications.

- (iii) The request shall be evaluated by the Department’s staff. The staff may, as deemed necessary, require the requesting party to submit additional information or documentation regarding the proposed product or material.

The Department’s staff shall then recommend to the Manager the appropriate action to take with respect to any such request. Such action may include, but shall not be limited to, approval or disapproval of the request, approval or disapproval in part, or a recommendation that the request be modified.

- (iv) Products and materials approved for use by the Manager shall be published as further amendments to the 2002 Standards. All such amendments shall be posted in a designated area accessible to the public and shall be distributed by any means the Manager deems appropriate.

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BOARD OF WATER SUPPLY

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

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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)

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).

2. Galvanized Metals (Interior and Exterior)

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)

4. Aluminum Surfaces

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)

11. Wood, Other than Mahogany or Hardwood (Interior)

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

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

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

12. Mahogany & Hardwood (Interior)

One coat Tonetic Wood Stain (if desired)

One or two coats Varmor Urethane Clear finish
R10 gloss

**B. PAINT SCHEDULE FOR
EXISTING SURFACES**

2. Existing Concrete, Masonry and
Plaster (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)

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

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)

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)

7. Masonry Surfaces (Interior)

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)

8. Concrete Surfaces (Exterior) Prime: Pro-Hide Silver Heavy Duty Block Filler Z8465 (50-80 sq. ft. per gallon)
9. Concrete Surfaces (Interior) 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)
10. Wood (Exterior) 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)

B. PAINT SCHEDULE FOR EXISTING SURFACES

1. Ferrous Metal Items (Interior and Exterior-Rust Retained)

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

BOARD OF WATER SUPPLY

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
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HERBERT S.K. KAOPUA, SR.
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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

- | | |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Ferrous Metals (Int. and Ext.) | Prime Coat: 1 coat Zinc Clad II HS (B69VZ3) @ 3-5 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 |

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) 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
7. Concrete Surfaces (Exterior) 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
8. Concrete Surfaces (Interior) 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
9. Wood (Exterior) 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
10. Wood Other than Mahogany (Int.) 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
11. Mahogany (Interior Only) Prime Coat: 1 coat Wood Classic Stain (A49 Series)
Finish Coat: 2 coats Wood Classic Polyurethane (A67 Series) @ 1.7 mils DFT

B. EXISTING SURFACES

PAINT SCHEDULE

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

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

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

Very truly yours,



HOWARD H. TANAKA, Head
Maintenance Unit – Engineering

cc: Hawaii, Kauai, and Maui Water Departments
Maintenance – Field

BOARD OF WATER SUPPLY

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



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CLIFFORD S. JAMILE
Manager and Chief Engineer

July 11, 2002

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

Dear Mr. Casarez:

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

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

A. NEW SURFACES

PAINT SCHEDULE

- | | | |
|----|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Ferrous Metals (Int. and Ext.) | Prime Coat: PPG 95-245 PITTGUARD Direct-to-rust Epoxy Coating @ 5.0 to 7.0 mils DFT.

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. |

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.

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.

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.

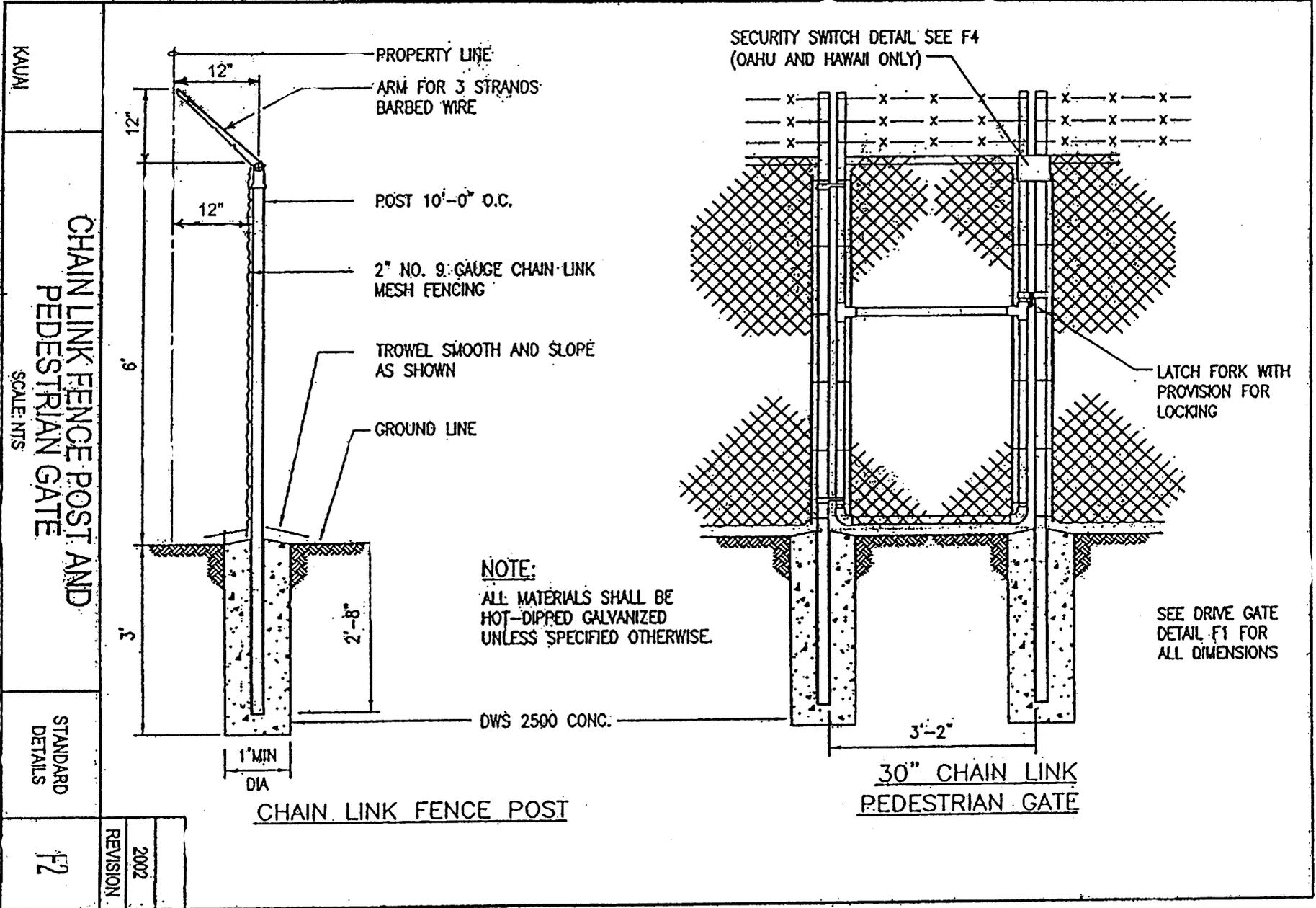
If you have any questions, contact Jason Takaki at 527-6196.

Very truly yours,


HOWARD H. TANAKA, Head
Maintenance Unit - Engineering

Enclosure (Letter dated 4/9/02)

cc: Hawaii, Kauai, and Maui Water Departments



KAUAI

CHAIN LINK FENCE POST AND PEDESTRIAN GATE

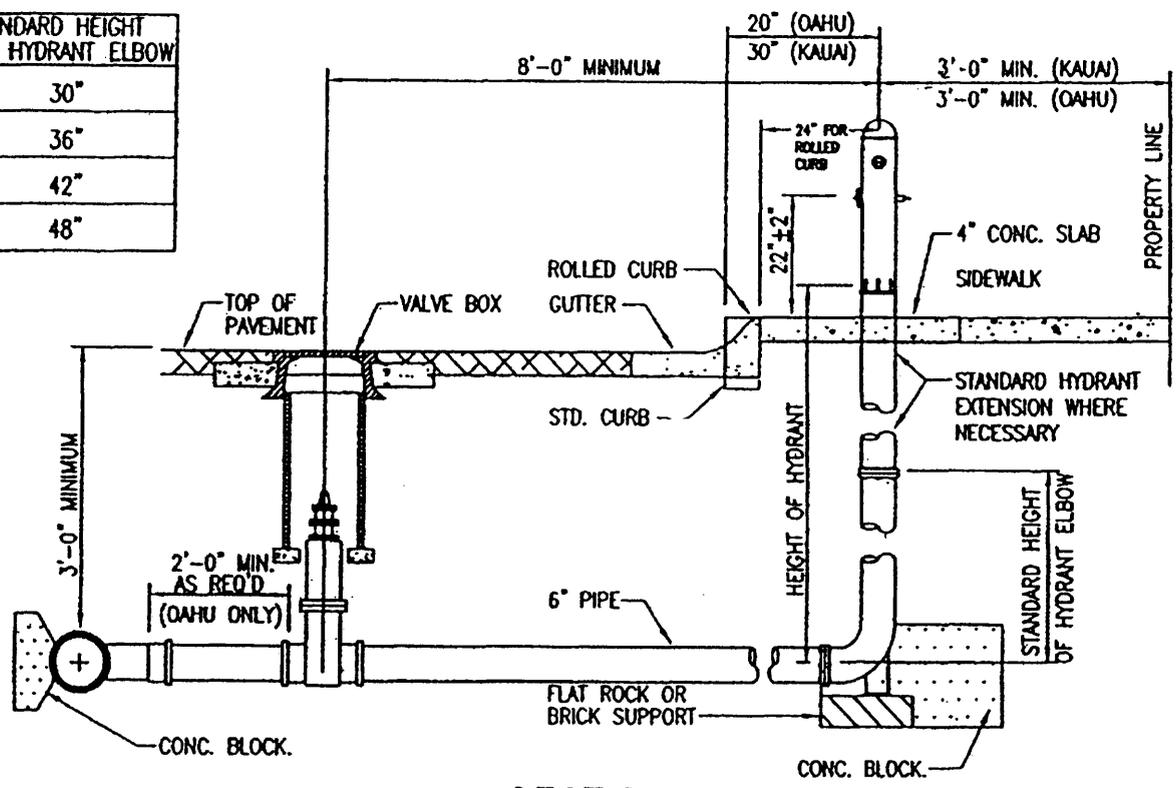
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STANDARD DETAILS

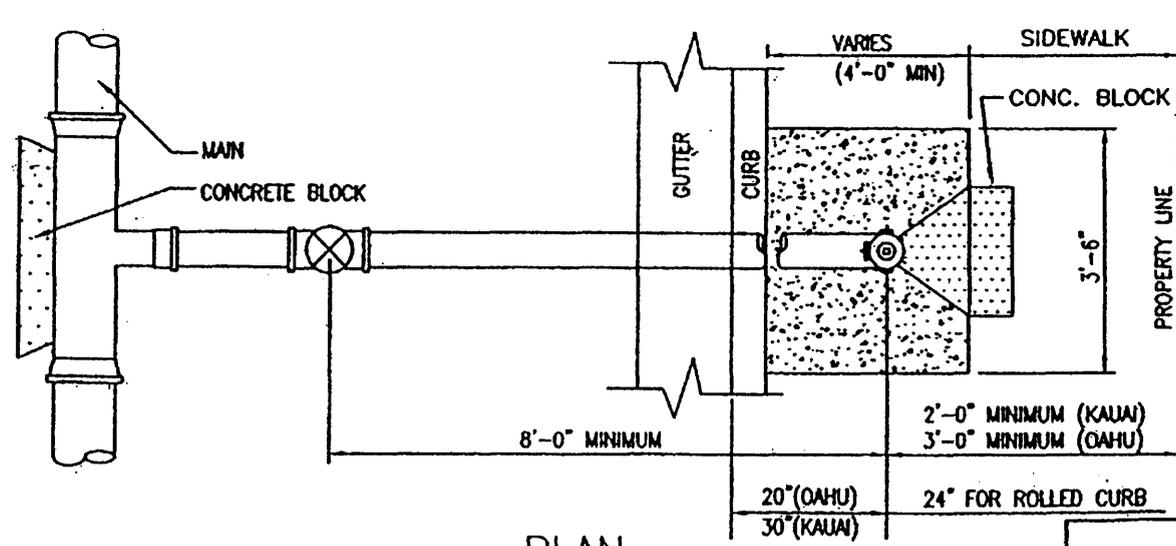
F2

REVISION	
	2002

STANDARD HEIGHT FOR HYDRANT ELBOW
30"
36"
42"
48"



STANDARD HYDRANT EXTENSIONS ARE AVAILABLE IN THE FOLLOWING LENGTHS: 6 TO 30 INCHES LONG IN INCREMENTS OF 6 INCHES.



* SEE NOTES ON PLATE FH8

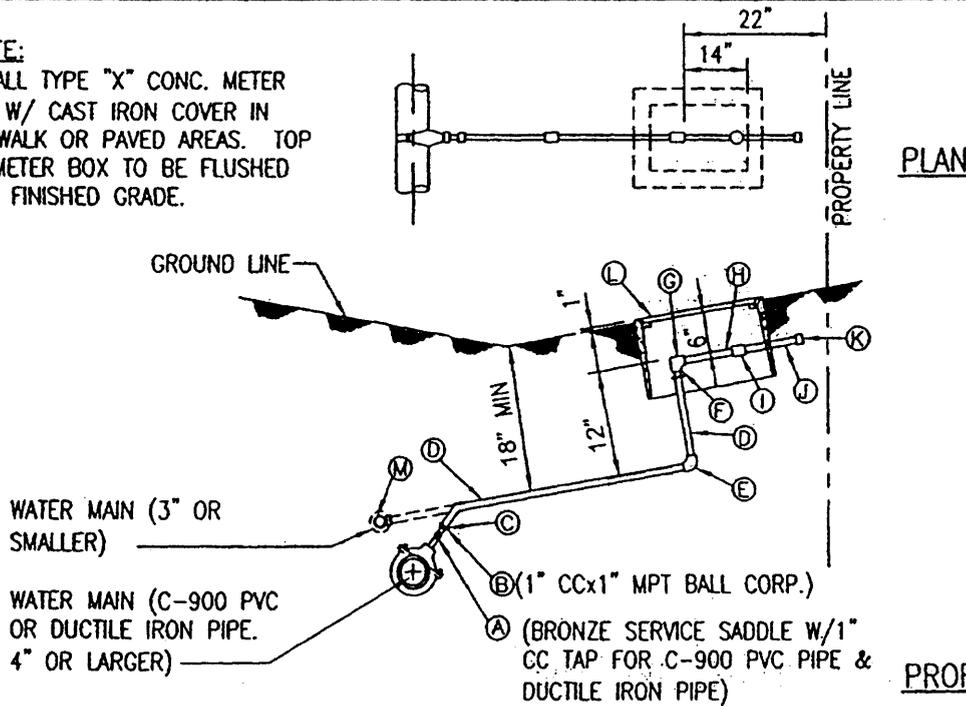
2002
REVISION

KAUAI OAHU	HYDRANT CONNECTION STRAIGHT RUN SCALE: NTS	STANDARD DETAILS	FH4
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SCHEDULE OF FITTINGS		
ITEM	DESCRIPTION	SINGLE SERVICE
A	BRONZE SERVICE SADDLE W/ 1" CC TAP FOR C-900 PVC PIPE & D.I. PIPE	1
B	1" CC x 1" MPT BALL CORPORATION	1
C	PACK JOINT COUPLINGS (FORD C14-44 OR APPROVED EQUAL)	1
D	1" COPPER TUBE, TYPE "K" SOFT	1
E	1" 90° COPPER ELBOW, S x S	1
F	1" COPPER MALE ADAPTER, SXT	1
G	ANGLE BALL VALVE, 1" FEMALE IPT INLET x 3/4" METER COUPLING NUT OUTLET (FORD BA13-342W OR APPROVED EQUAL)	1
H	METER SPACER, SUPPLIED BY DEPT. OF WATER & INSTALLED BY CONTRACTOR	1
I	BALL VALVE W/ HANDLE, 3/4" METER COUPLING NUT INLET. x 1" FEMALE IPT. OUTLET (FORD B13-342 W/ HT-34 HANDLE OR APPROVED EQUAL)	1
J	LINESSETTER, 1" COPPER TUBE, TYPE "K" SOFT, 12" LONG (SEE STD. DET. L3)	1
K	1" PLASTIC THREAD PROTECTOR	1
L	TYPE "B" CONCRETE METER BOX W/ CAST IRON COVER	1
M	TEE W/ 1" BUSHING (WHEN CONNECTING TO 3" OR SMALLER PIPE)	1

NOTE:

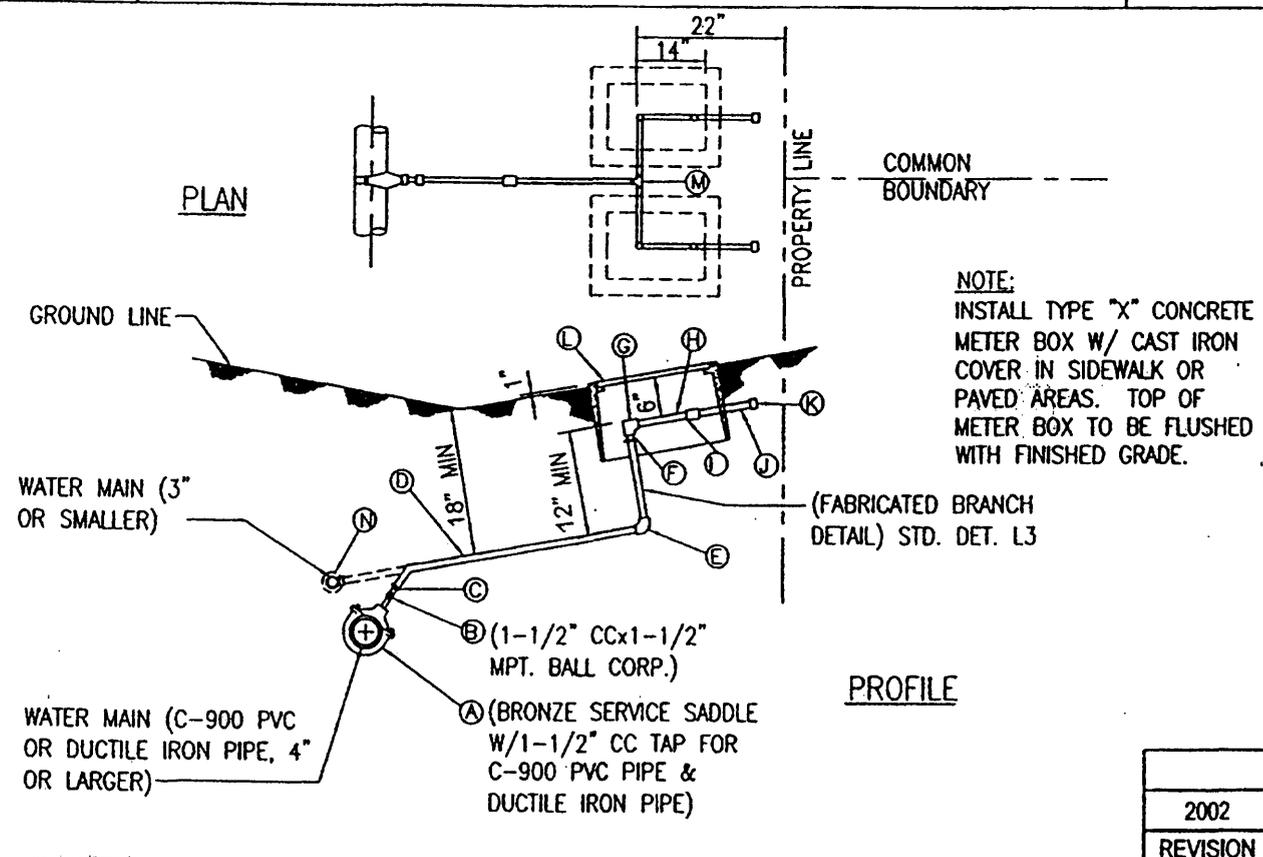
INSTALL TYPE "X" CONC. METER BOX W/ CAST IRON COVER IN SIDEWALK OR PAVED AREAS. TOP OF METER BOX TO BE FLUSHED WITH FINISHED GRADE.



2002
REVISION

KAUAI	SINGLE SERVICE LATERAL PLAN, PROFILE & MATERIAL LIST SCALE: NTS	STANDARD DETAILS	L1
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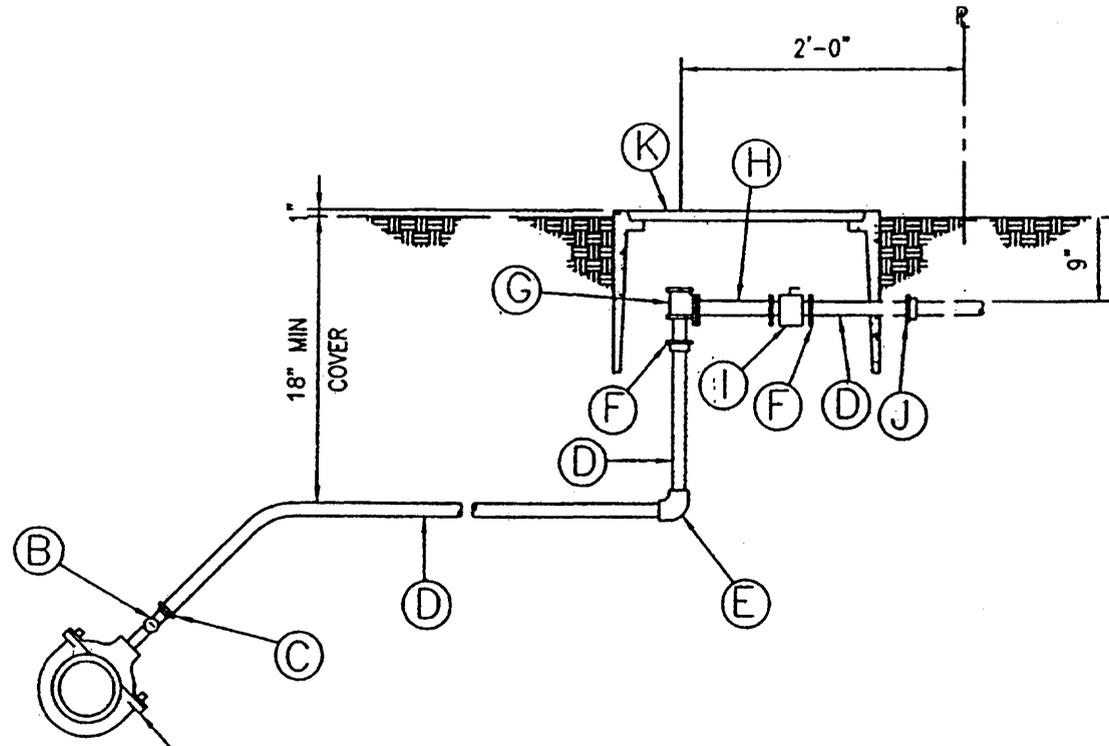
SCHEDULE OF FITTINGS		
ITEM	DESCRIPTION	DOUBLE SERVICE
A	BRONZE SERVICE SADDLE W/ 1-1/2" CC TAP FOR C-900 PVC PIPE AND DUCTILE IRON PIPE	1
B	1-1/2" CC x 1-1/2" MPT BALL CORPORATION	1
C	PACK JOINT COUPLING (FORD C14-66 OR APPROVED EQUAL)	1
D	1-1/2" COPPER TUBE, TYPE "K" SOFT	2
E	1" 90° COPPER ELBOW, S x S	2
F	1" COPPER MALE ADAPTER, S x T	2
G	ANGLE BALL VALVE, 1" FEMALE IPT INLET x 3/4" METER COUPLING NUT OUTLET (FORD BA13-342W OR APPROVED EQUAL)	2
H	METER SPACER, SUPPLIED BY DEPT. OF WATER & INSTALLED BY CONTRACTOR	2
I	BALL VALVE W/ HANDLE, 3/4" METER COUPLING NUT INLET x 1" FEMALE IPT OUTLET (FORD B13-342 W/ HT-34 HANDLE OR APPROVED EQUAL)	2
J	LINESSETTER, 1" COPPER TUBE, TYPE "K" SOFT, 12" LONG (SEE STD. DET. L3)	2
K	1" PLASTIC THREAD PROTECTOR	2
L	TYPE "B" CONCRETE METER BOX WITH CAST IRON COVER	2
M	1" x 1" x 1-1/2" COPPER TEE, S x S x S	1
N	TEE W/ 1-1/2" BUSHING (WHEN CONNECTING TO 3" OR SMALLER PIPE)	1



KAUAI	DOUBLE SERVICE LATERAL PLAN, PROFILE & MATERIAL LIST SCALE: NTS	STANDARD DETAILS	L2
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ITEM	DESCRIPTION	SIZE
A	SERVICE SADDLE (SIZE DEPENDS UPON MAIN)	1 1/2" CC TAP
B	BALL CORPORATION (FORD FB 400 OR APPROVED EQUAL)	1 1/2" CC X 1 1/2" MPT
C	PACK JOINT COUPLING (FORD C14-66 OR APPROVED EQUAL)	1 1/2"
D	COPPER TUBE TYPE "K" SOFT	1 1/2"
E	90° COPPER ELBOW	1 1/2"
F	COPPER MALE ADAPTER	1 1/2" X 1"
G	ANGLE BALL VALVE (FORD BA13-444W OR APPROVED EQUAL)	1"
H	METER SPACER (TO BE SUPPLIED BY THE DEPT. OF WATER & INSTALLED BY CONTRACTOR)	1"
I	BALL VALVE(FORD B13-444W W/HT 34 OR APPROVED EQUAL)	1"
J	COPPER MALE ADAPTER	1 1/2"
K	TYPE "X" CONC. METER BOX W/ C.I. COVER	---

SCHEDULE OF FITTINGS



(A) BRONZE SERVICE SADDLE W/ 1-1/2"CC TAP FOR USE ON C-900 PVC PIPE AND DUCTILE IRON PIPE.

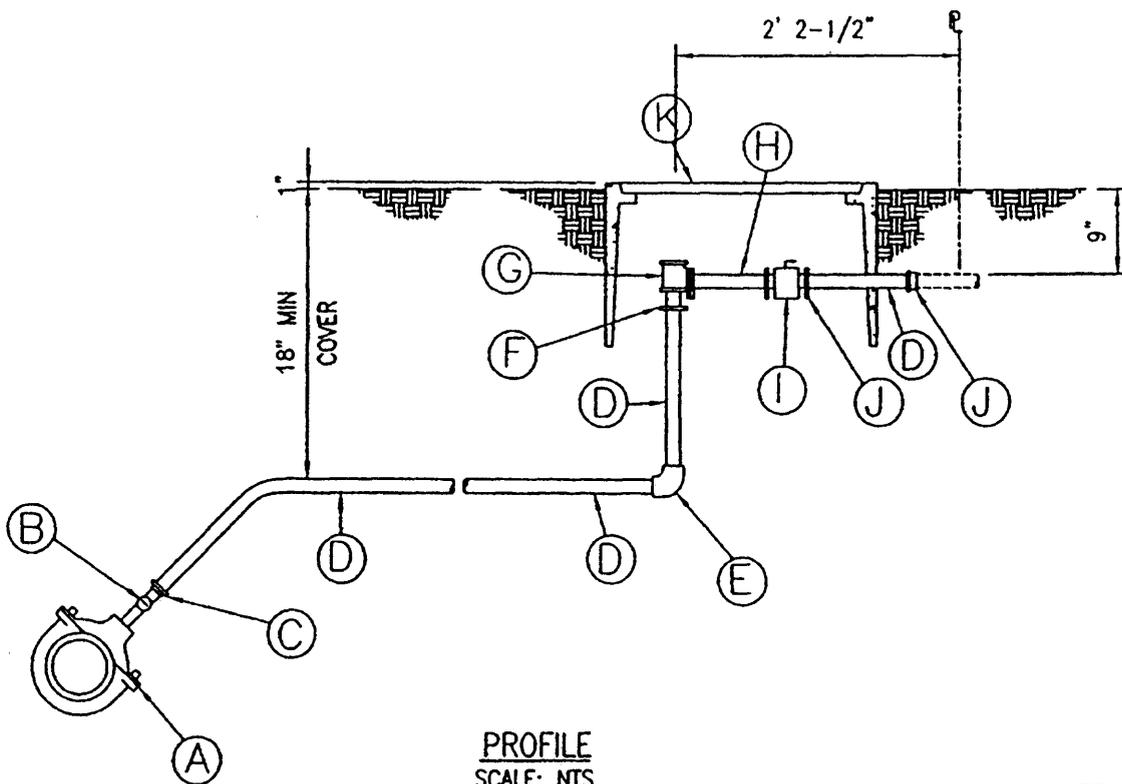
PROFILE

2002
REVISION

KAUAI	ONE INCH METER PROFILE & MATERIAL LIST SCALE: NTS	STANDARD DETAILS	L4
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ITEM	DESCRIPTION	SIZE
A	SERVICE SADDLE (SIZE DEPENDS UPON MAIN)	2" CC TAP
B	BALL CORPORATION (FORD FB 400 OR APPROVED EQUAL)	2" CC X MPT
C	PACK JOINT COUPLING (FORD C14-77 OR APPROVED EQUAL)	2"
D	COPPER TUBE TYPE "K" SOFT	2"
E	90° COPPER ELBOW	2"
F	COPPER MALE ADAPTER	2" X 1 1/2"
G	ANGLE BALL VALVE (FORD BFA13-666W OR APPROVED EQUAL)	1 1/2"
H	METER SPACER (TO BE SUPPLIED BY THE DEPT OF WATER & INSTALLED BY CONTRACTOR)	1 1/2"
I	BALL VALVE (FORD BF13-676W W/ HB67S OR APPROVED EQUAL)	1 1/2"
J	COPPER MALE ADAPTER	2"
K	TYPE "X" CONC. METER BOX W/ C.I. COVER	—

SCHEDULE OF FITTINGS



PROFILE
SCALE: NTS

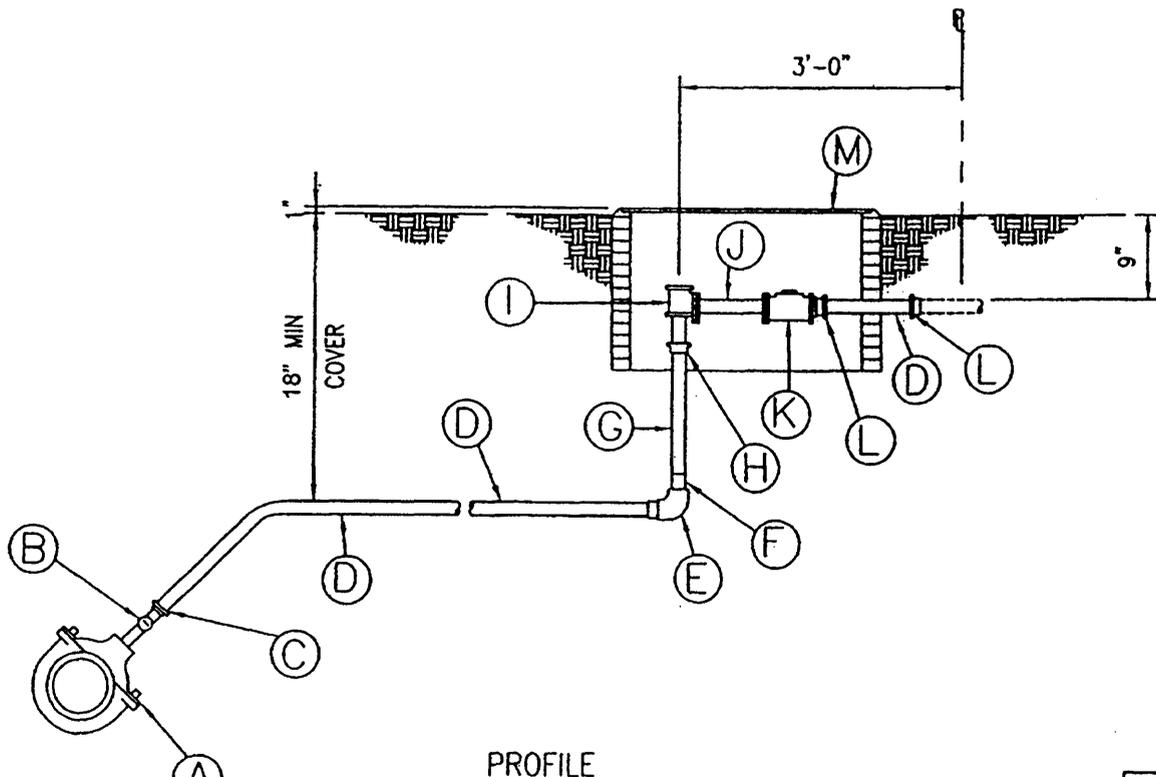
BRONZE SERVICE SADDLE W/ 2" CC TAP FOR USE
ON C-900 PVC PIPE AND DUCTILE IRON PIPE

2002
18" REVISION

KAUAI	1 1/2" INCH METER PROFILE & MATERIAL LIST SCALE: NTS	STANDARD DETAILS	18" L5
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ITEM	DESCRIPTION	SIZE
A	SERVICE SADDLE (SIZE DÉPENDS UPON MAIN)	2" CC TAP
B	BALL CORPORATION (FORD FB 800 OR APPROVED EQUAL)	2" CC X 2 1/2" MPT
C	PACK JOINT COUPLING (FORD C14-88 OR APPROVED EQUAL)	2 1/2"
D	COPPER TUBE TYPE "K" SOFT	2 1/2"
E	90° COPPER ELBOW	2 1/2"
F	COPPER FLUSH BUSHING	2 1/2" C X 2" FTG.
G	COPPER TUBE TYPE "K" SOFT	2"
H	COPPER MALE ADAPTER	2"
I	ANGLE BALL VALVE (FORD BFA13-777W OR APPROVED EQUAL)	2"
J	METER SPACER (TO BE SUPPLIED BY THE DEPT. OF WATER & INSTALLED BY CONTRACTOR)	2"
K	BALL VALVE (FORD BF13-787W W/ HB 67S OR APPROVED EQUAL)	2"
L	COPPER MALE ADAPTER	2 1/2"
M	TYPE III METER BOX FRAME AND COVER	—

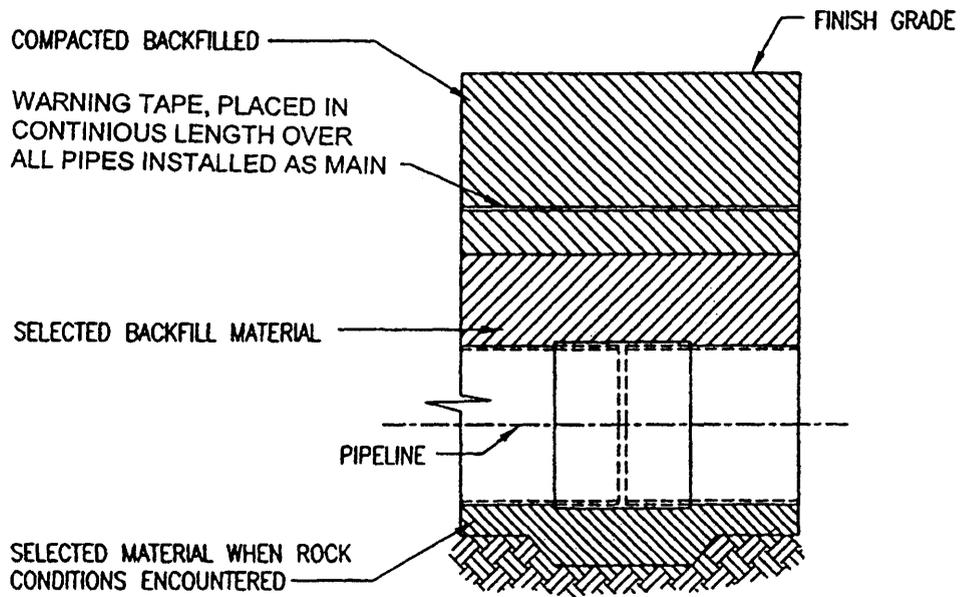
SCHEDULE OF FITTINGS



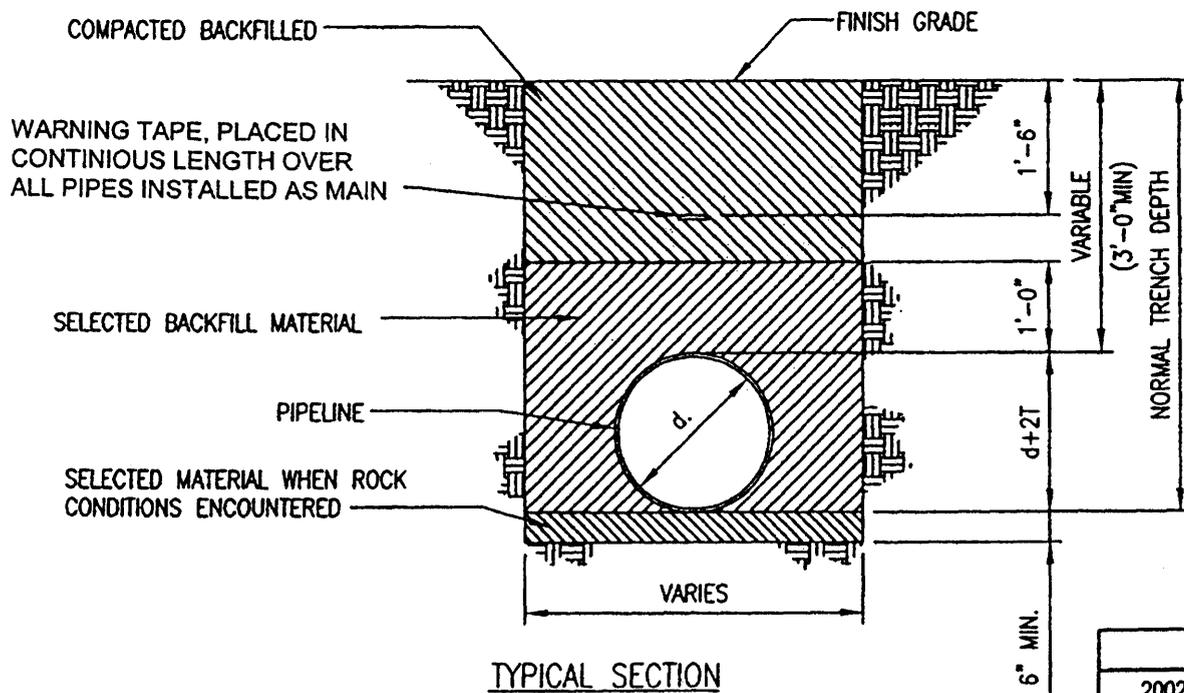
PROFILE
SCALE: NTS
BRONZE SERVICE SADDLE W/ 2" CC TAP FOR
USE C-900 PVC PIPE AND DUCTILE IRON PIPE

2002
REVISION

KAUAI	TWO-INCH METER PROFILE & MATERIAL LIST SCALE: NTS	STANDARD DETAILS	L6
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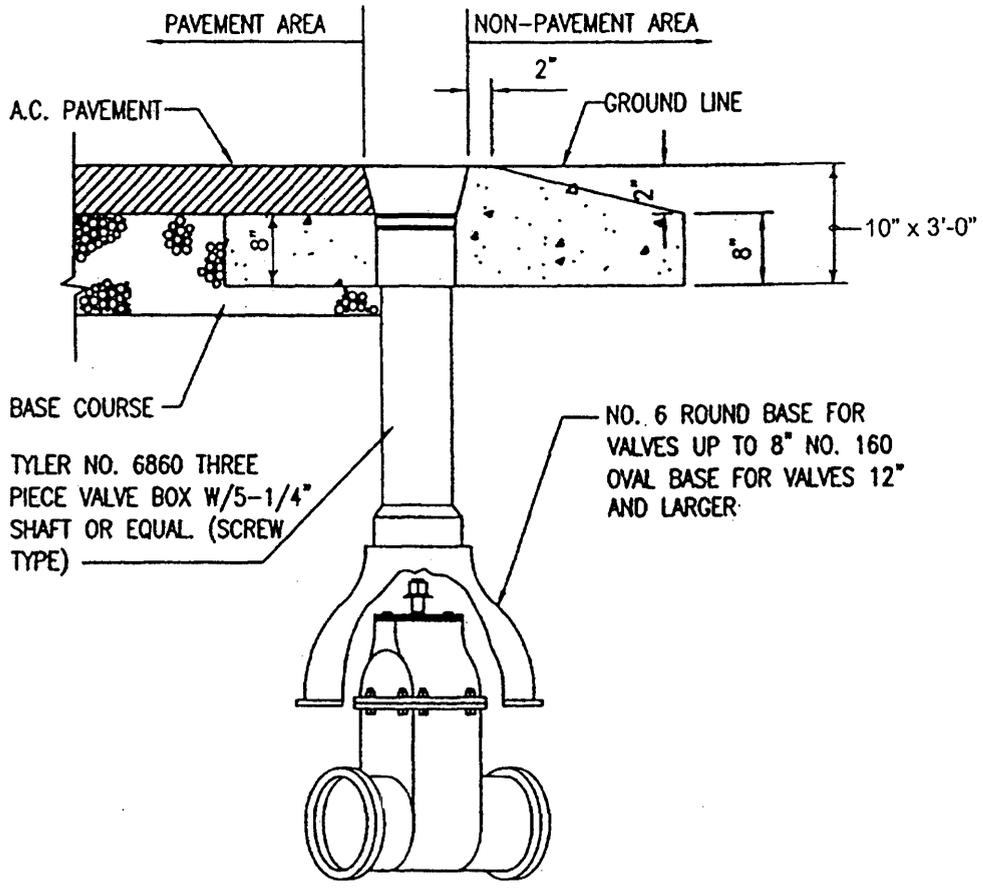
DETAIL AT JOINT



TYPICAL SECTION

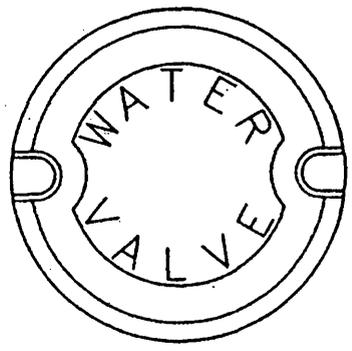
2002
REVISION

KAUAI	WATERLINE TRENCH DETAILS MISCELLANEOUS DETAILS SCALE: NTS	STANDARD DETAILS	P11
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PROFILE

FOR GATE VALVE, BEVEL
GEARED GATE VALVE AND
BUTTERFLY VALVES



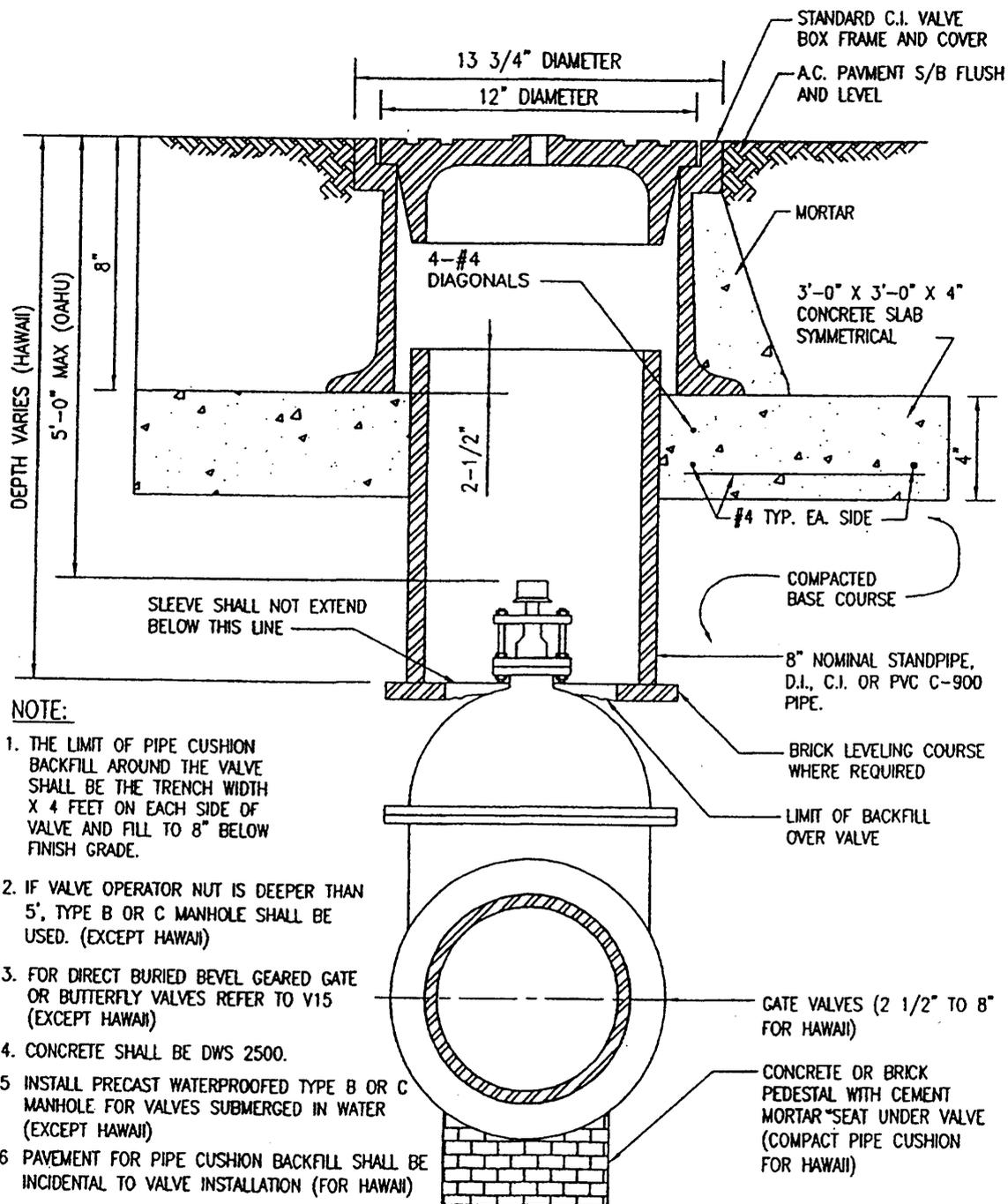
COVER

GENERAL NOTES:

1. PAVEMENT AREA: 2'-0" DIA. OR 2'-0" X 2'-0" SQUARE X 8" THICK CONCRETE SETTLEMENT SLAB.
2. NON-PAVEMENT AREA: 3'-0" DIA. OR 3'-0" X 3'-0" SQUARE X 10" THICK CONCRETE SETTLEMENT SLAB TAPERED TO 8".
3. COVER TO BE DROP LID COVER.

2002
REVISION

KAUAI	CAST IRON VALVE BOX DETAILS	STANDARD DETAILS	V11
SCALE: NTS			



NOTE:

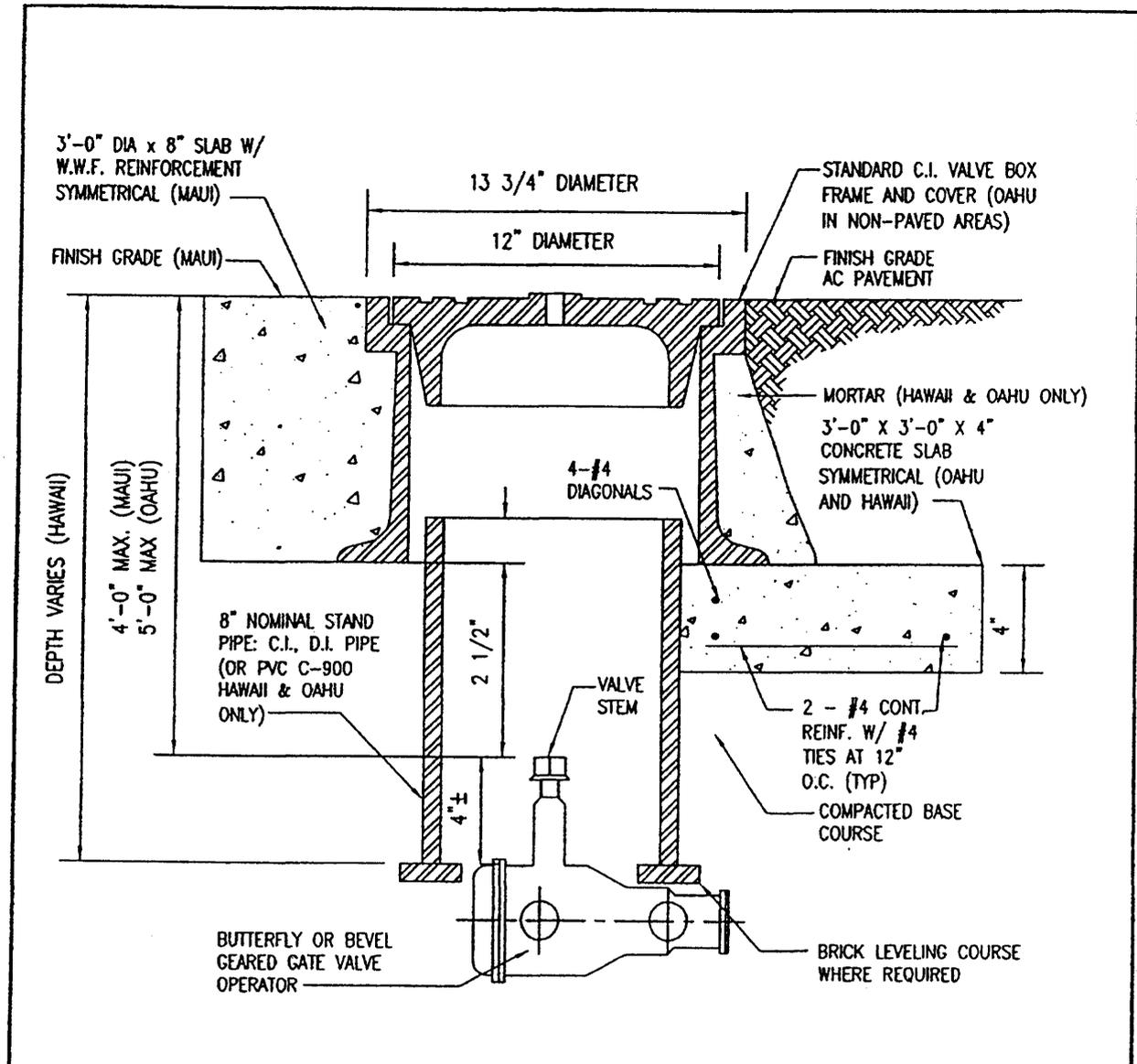
1. THE LIMIT OF PIPE CUSHION BACKFILL AROUND THE VALVE SHALL BE THE TRENCH WIDTH X 4 FEET ON EACH SIDE OF VALVE AND FILL TO 8" BELOW FINISH GRADE.
2. IF VALVE OPERATOR NUT IS DEEPER THAN 5', TYPE B OR C MANHOLE SHALL BE USED. (EXCEPT HAWAII)
3. FOR DIRECT BURIED BEVEL GEARED GATE OR BUTTERFLY VALVES REFER TO V15 (EXCEPT HAWAII)
4. CONCRETE SHALL BE DWS 2500.
5. INSTALL PRECAST WATERPROOFED TYPE B OR C MANHOLE FOR VALVES SUBMERGED IN WATER (EXCEPT HAWAII)
6. PAVEMENT FOR PIPE CUSHION BACKFILL SHALL BE INCIDENTAL TO VALVE INSTALLATION (FOR HAWAII)

GATE VALVES (2 1/2" TO 8" FOR HAWAII)

CONCRETE OR BRICK PEDESTAL WITH CEMENT MORTAR SEAT UNDER VALVE (COMPACT PIPE CUSHION FOR HAWAII)

2002
REVISION

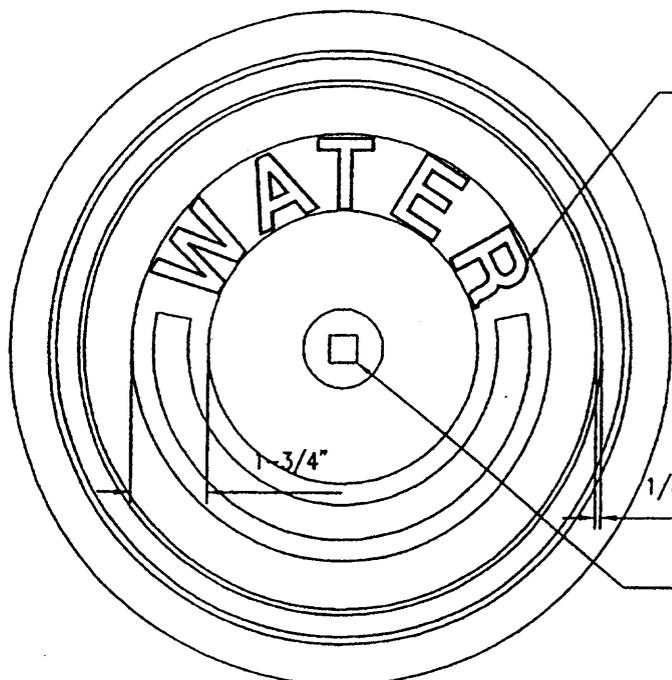
KAUAI OAHU HAWAII	12" VALVE BOX INSTALLATION FOR GATE VALVE SCALE: NTS	STANDARD DETAILS	V14
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NOTE:

1. THE LIMIT OF PIPE CUSHION BACKFILL AROUND THE VALVE SHALL BE THE TRENCH WIDTH X 4 FEET ON EACH SIDE OF VALVE AND FILL TO 8" BELOW FINISH GRADE.
2. CONCRETE SHALL BE DWS 2500.
3. TWO VALVE BOXES REQUIRED PER BEVEL GEARED GATE VALVE WITH BY-PASS VALVE. APPLICABLE FOR DIRECT-BURIED BGGVS IN PAVED ROADWAYS AS APPROVED BY MANAGER. (OAHU ONLY)

KAUAI OAHU MAUI HAWAII	12" VALVE BOX INSTALLATION FOR VALVE OPERATORS SCALE: NTS	STANDARD DETAILS	2002
			REVISION
			V15

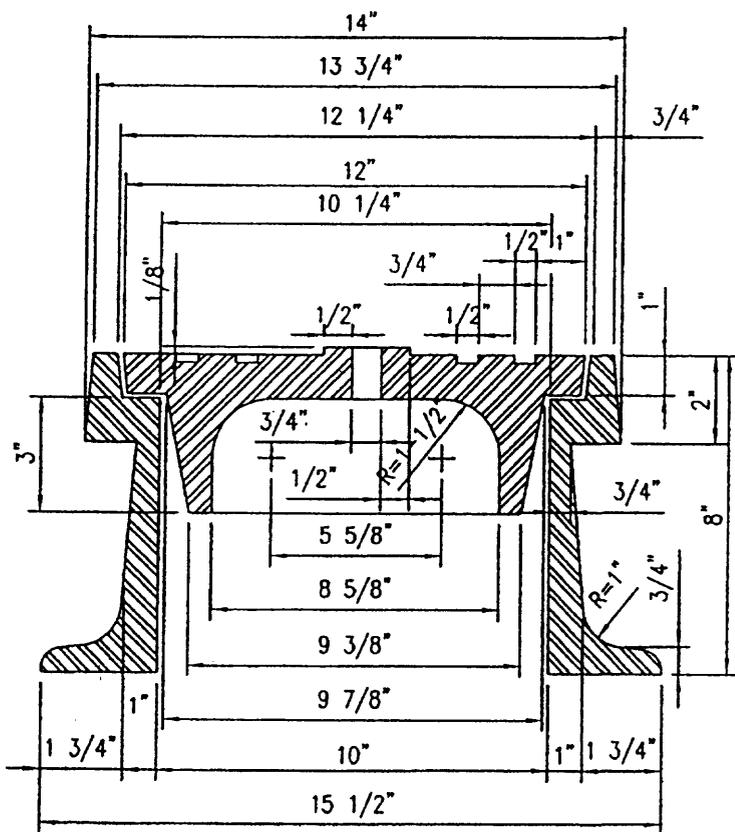


1/8" RAISED LETTERS

NOTE:

ALL CASTINGS SHALL BE MADE ACCURATELY TO THE DIMENSIONS SHOWN. SEAT AND COVER SHALL BE MACHINED, NOT GROUND TO SECURE FLAT AND TRUE SURFACES. THE COVER SHALL NOT RATTLE IN ANY POSITION.

3/4" SQUARE HOLE



SEE TABLE 200-9 FOR MINIMUM WEIGHT REQUIREMENTS

CAST IRON FRAME & COVER

2002
REVISION

KAUAI OAHU MAUI HAWAII	12" VALVE BOX FRAME & COVER SCALE: NTS	STANDARD DETAILS	2002
			V16