City of Milwaukee | MILWAUKEE WATER WORKS

City of Milwaukee
Department of Public Works

Milwaukee Water Works

Material Specifications for Cast Iron Valve Boxes (Buffalo Pattern)

City of Milwaukee Specification No. 30-B-7
Revised April 26, 2023

841 N. Broadway, Room 409 • Zeidler Municipal Building • Milwaukee, WI 53202 • milwaukee.gov/water

I. GENERAL REQUIREMENTS: Vendors bidding through the Department of Administration - Business Operations Division, Procurement Services Section shall comply with the latest version of City of Milwaukee Specification No. 70b-D-7, except as modified herein. **MATERIALS FURNISHED UNDER THIS SPECIFICATION SHALL COMPLY WITH AND BE CERTIFIED WITH THE PROVISIONS OF THE CITY OF MILWAUKEE ORDINANCE 310-18.9 AND THE REQUIREMENTS OF THE STATE OF WISCONSIN DRINKING WATER STATE REVOLVING FUND (DWSRF).**

MATERIALS FURNISHED UNDER THIS SPECIFICATION SHALL COMPLY WITH AND BE CERTIFIED WITH THE PROVISIONS OF BUILD AMERICA, BUY AMERICA (BABA) PROVISIONS UNLESS A WAIVER OF REQUIREMENTS HAS BEEN APPROVED BY THE USEPA.

ADDITIONAL INFORMATION REGARDING BUILD AMERICA, AMERICA (BABA) CAN BE FOUND AT THE FOLLOWING LINK: HTTPS://WWW.EPA.GOV/CWSRF/BUILD-AMERICA-BUY-AMERICA-BABA

II. TECHNICAL REQUIREMENTS

A. Description: Valve boxes specified herein shall be screw type and shall consist of a base, middle section, top section with cover and intermediate extension sections. The top section shall be designed to thread onto the middle section so that the unit can be adjusted to a continuously variable length. The top section shall be designed to receive a circular drop or locking cover. Valve boxes may have extension sections designed to fit between the middle and top section to achieve the required length. Various adjustment section options may be used to adjust previously installed valve boxes. A valve box is installed to provide access to the operator of a direct buried valve.

B. Material: The valve box and component parts shall be cast iron in accordance with ASTM-A48 class 20, 30, 35 or approved equal.

C. Valve Box Design: The valve box and component parts shall be the "Buffalo Pattern" in substantial accordance with drawings VB-1 thru VB-13 and shall be constructed within dimensional tolerances that will assure interchangeability with valve boxes manufactured in accord with these drawings as specified in Section III – Acceptable Brands.

1. The valve box shall be a three piece 5-1/4" diameter unit, screw type, cast iron, in accordance with the following requirements:

2. The inside diameter of the base section as shown on drawing VB-6 shall be 14" minimum.

3. Overall height of the box shall be in accordance with the table below.

Standard Box

Size Identification	Retracted Maximum	Extended Minimum
D	47"	65"
DD	53"	71"
F	69"	82"

4. The 27" nominal top section as shown on drawing VB-3 shall be between 25" and 29" in length.

5. One extension section may be used to achieve the "Standard" overall height of the "F" middle section as shown on Drawing VB-4.

6. The height increased by the extension section as shown on drawing VB-5 shall be 14", 18" or 20".

7. Fixed risers (rings) as shown on drawings VB-7, VB-10 and VB-11 shall fit the "Buffalo Pattern" valve box and shall be the circular drop type capable of 1", 2", 2-1/2" or 3" height increase as required.

8. Adjusting riser (section) shall fit the "Buffalo Pattern" valve box, with screw type design (drawings VB-8 or VB-12) or slip type (Drawing VB-13) as required, and shall be capable of 9" minimum height increase.

9. Covers as shown on drawings VB-2 and VB-9 shall be the standard circular drop type with the word "Water" cast flush with the top of the cover. When covers are required with fixed or adjustable risers, the cover shall fit the risers specified.

10. Locking covers shall consist of a circular lid, two jaws, a standard 27/32” pentagon head screw of bronze meeting ASTM B62, or 18-8 stainless steel meeting ASTM F593. and a spreader. The pentagon screws shall be of sufficient length and have the end threads upset after assembly to prevent the screw from being removed. The jaws of the locking lids shall be capable of being inserted inside a top section and all adjusting pieces.

D. **Workmanship and Finish:** The cast iron valve box and components shall be free from blowholes, cold shots, shrinkage defects, cracks or other injurious defects and shall have a normal smooth casting finish.

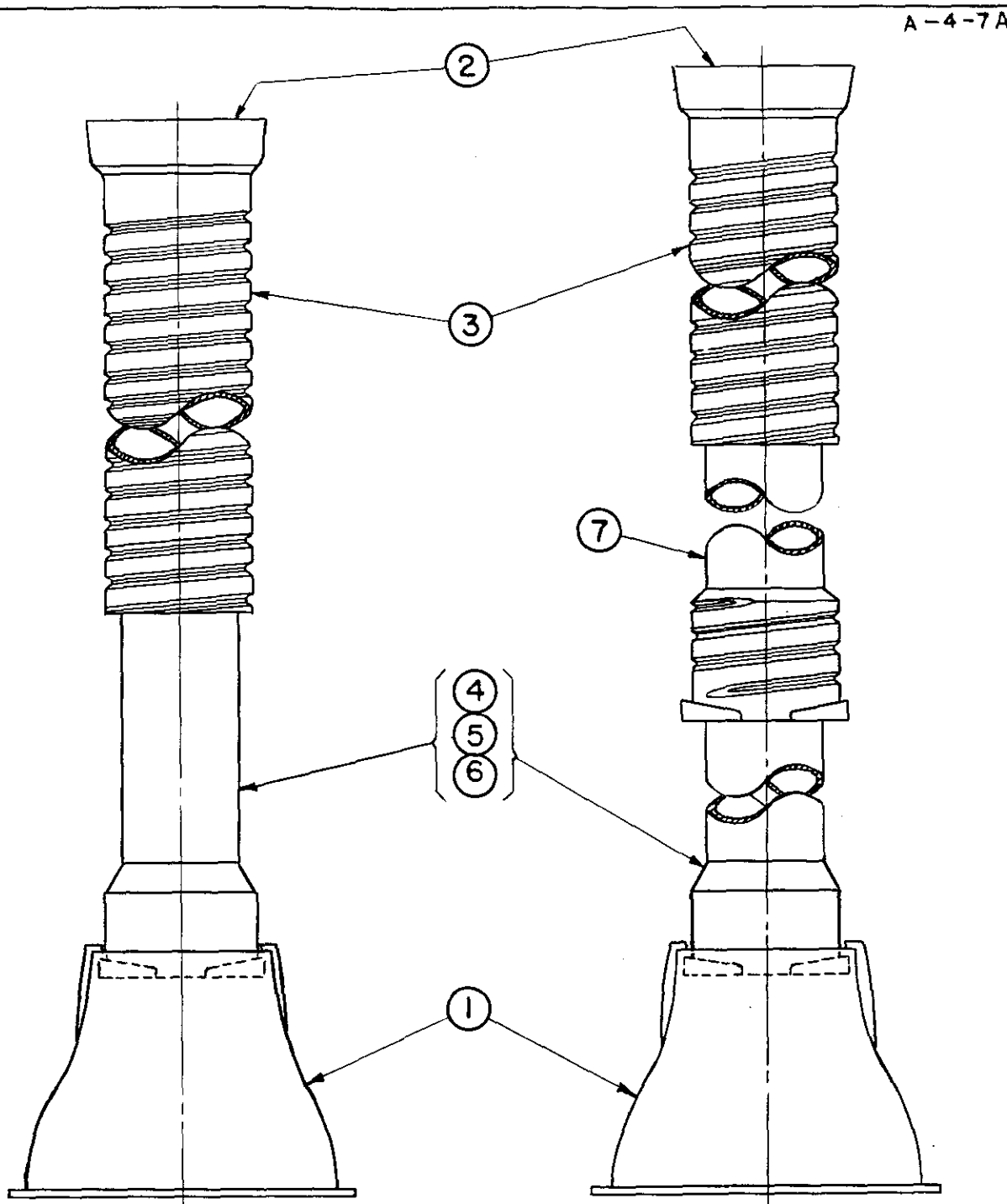
E. **Coating:** All cast iron valve boxes and components shall be thoroughly coated with asphaltic pitch varnish or approved equal.

F. **Certification:** Certification of compliance with provisions of the Build America, Buy America (BABA) shall be furnished with every order.

III. ACCEPTABLE BRANDS: Following brands are acceptable to the City of Milwaukee

Bingham & Taylor – 4906 Series Valve Box castings (All component parts), I5LBWULB and I4LWULBVB9 locking covers
Tyler – 6860 Series Valve Box castings; Lid must be 145370 "MWW drop lid"
East Jordan Iron Works – Series 8560 Valve Box castings; Lid must be 2½" skirt (All component parts except Valve Box Base)

A-4-7A



VALVE BOX

VALVE BOX WITH EXTENSION

1. BASE
2. COVER
3. TOP SECTION
4. "D" SECTION
5. "D D" SECTION
6. "F" SECTION
7. EXTENSION

BOX	STANDARD	
	RETRACTED	EXTENDED
"D"	47"	65"
"D D"	53"	71"
"F"	69"	82"

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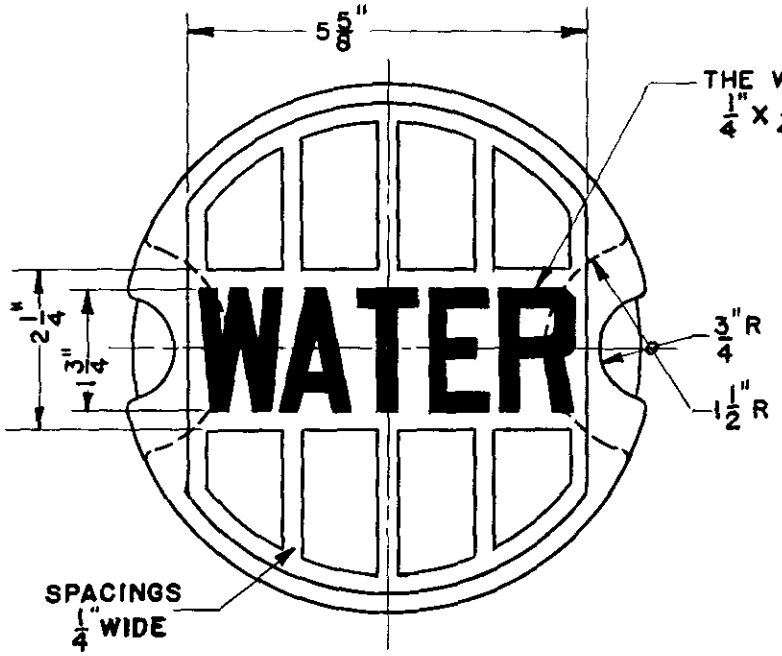
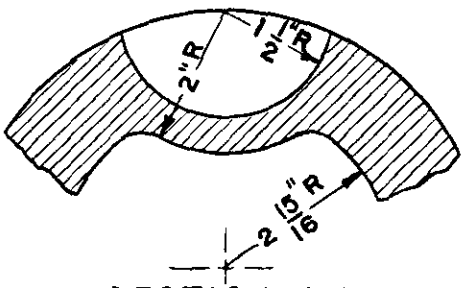
VALVE BOX ASSEMBLY

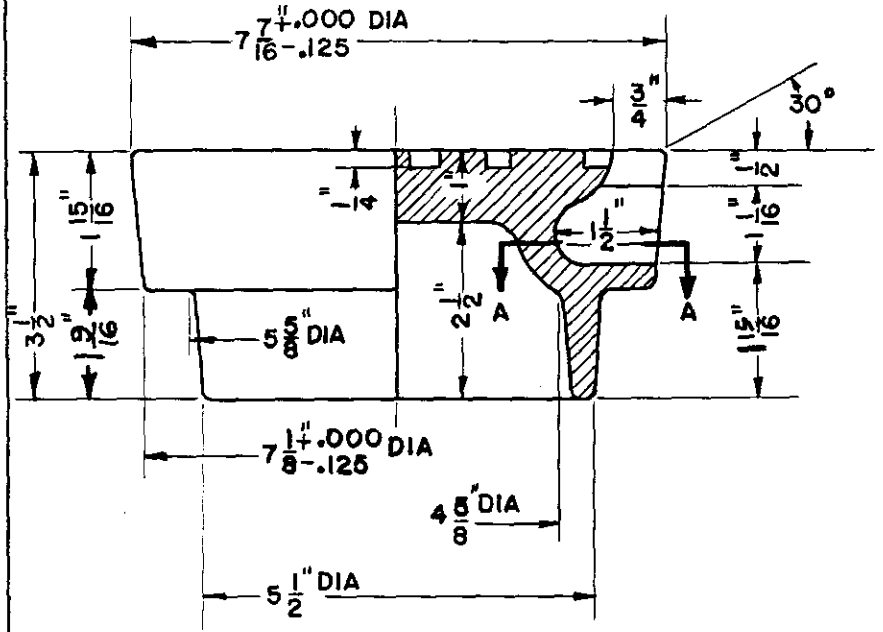
R. J. Koval — ENGINEER
Edward J. Lesynski — CITY ENGINEER

DRAWN J.R.S. DATE 9-10-82
CHECKED W.E.P SCALE 1/8"=1"
FILE A-4-7A DWG. VB-1





SECTION A A



MATERIAL: CAST IRON
A. S. T. M. A 48 CL 20

PAINT COATING:
TO BE THOROUGHLY COATED WITH ASPHALTUM PITCH VARNISH

WEIGHT - 18 LBS.

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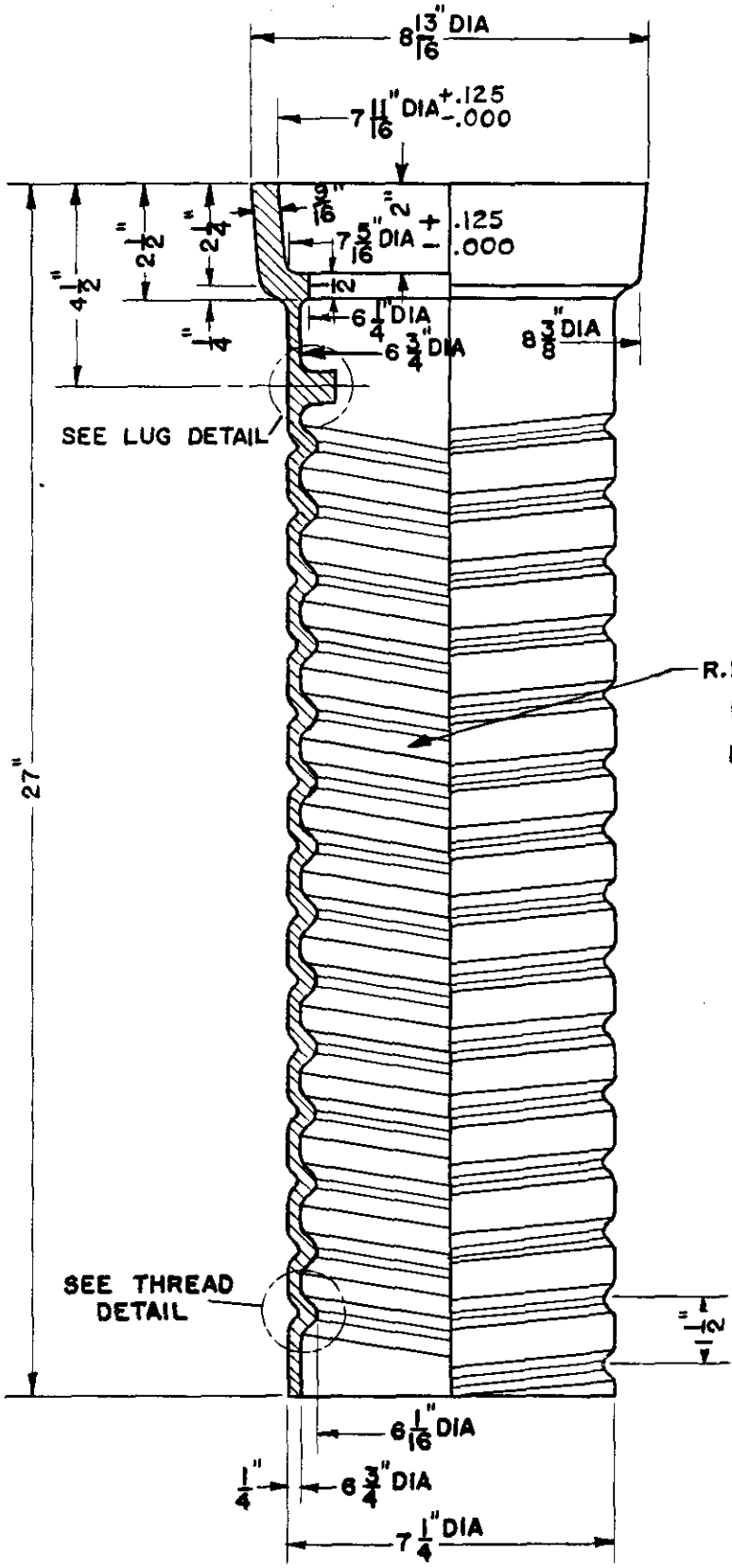
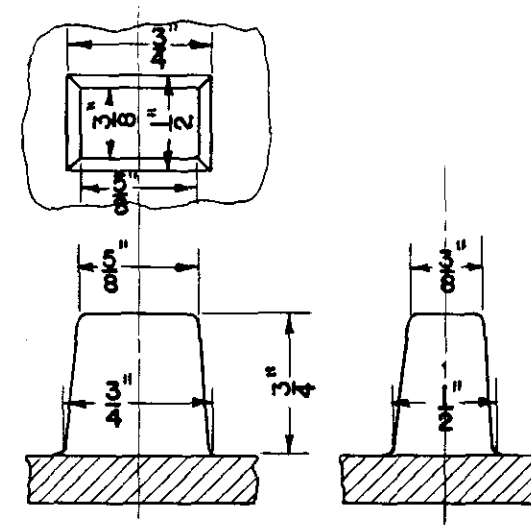
VALVE BOX (STD.) COVER

R. J. Kocal — ENGINEER
C. J. Langwald — CITY ENGINEER

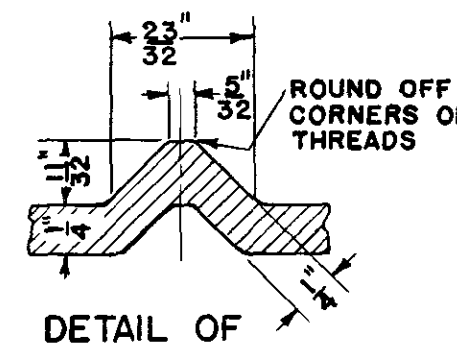
DRAWN J. R. S.
CHECKED W. E. P
FILE A-4-7A
DATE 9-10-82
SCALE 3/8"=1"
DWG VB-2

② COVER





DETAIL OF LUG



DETAIL OF THREAD
SCALE FULL SIZE

③ TOP SECTION

MATERIAL: CAST IRON
A. S. T. M. A48 CL20
PAINT COATING:
TO BE THOROUGHLY COATED WITH ASPHALTUM PITCH VARNISH

WEIGHT 53LBS.

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VALVE BOX TOP SECTION

R. J. Kosel C. J. Lasywork

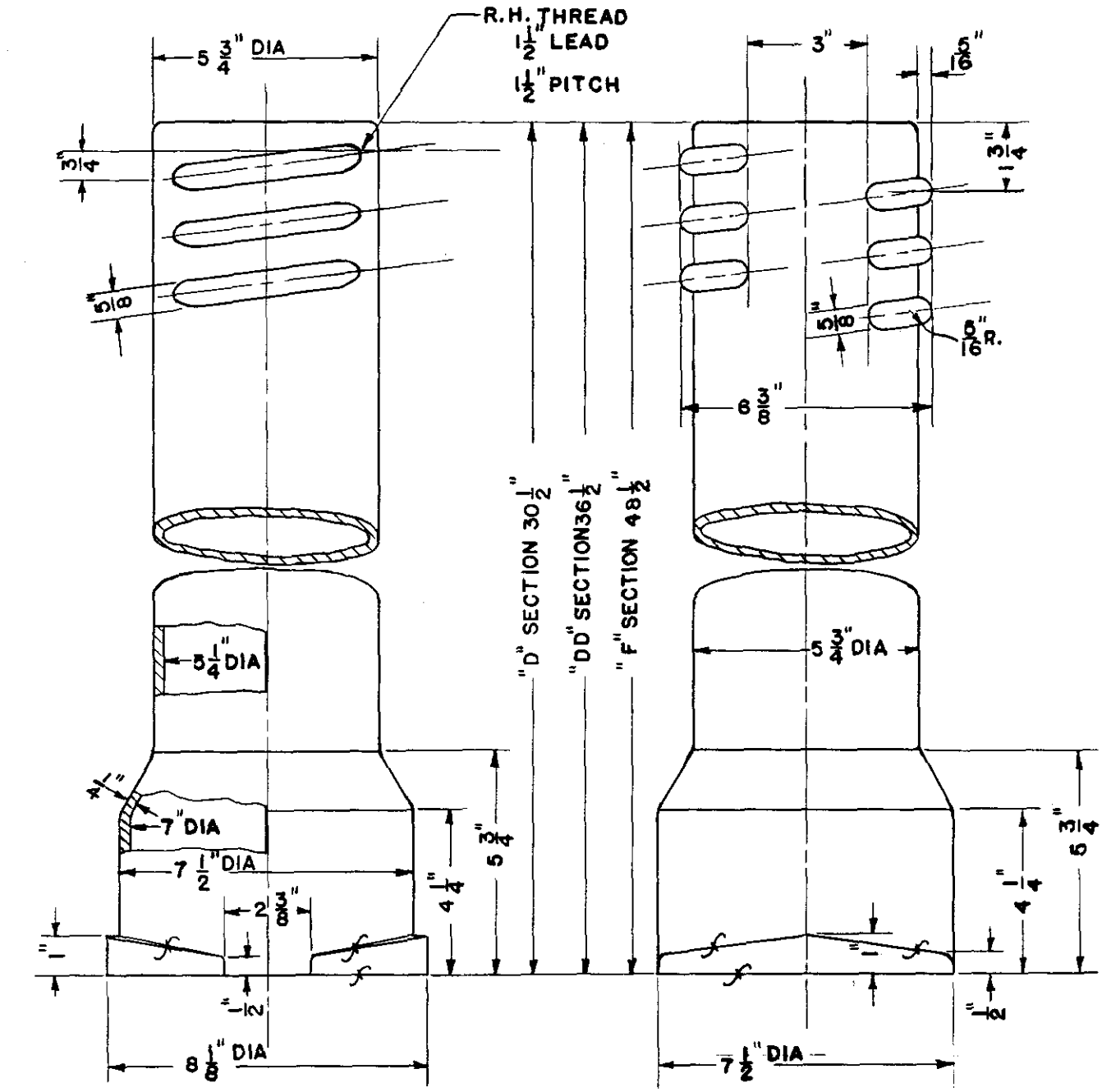
ENGINEER CITY ENGINEER

DRAWN J.R.S. DATE 9-10-82
CHECKED W.E.P. SCALE 1/4"=1"
FILE A-4-7A DWG. VB-3

MATERIAL: CAST IRON
A S T M A48 CL20

PAINT COATING:
TO BE THOROUGHLY COATED WITH ASPHALTUM PITCH VARNISH

WEIGHT
"D" SECTION 38 LBS
"DD" SECTION 43 LBS
"F" SECTION 59 LBS



$\mathcal{F}$ = GROUND FINISH

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VALVE BOX MIDDLE SECTIONS

(4) "D" SECTION
(5) "DD" SECTION
(6) "F" SECTION -(May be composed of two castings As Approved)

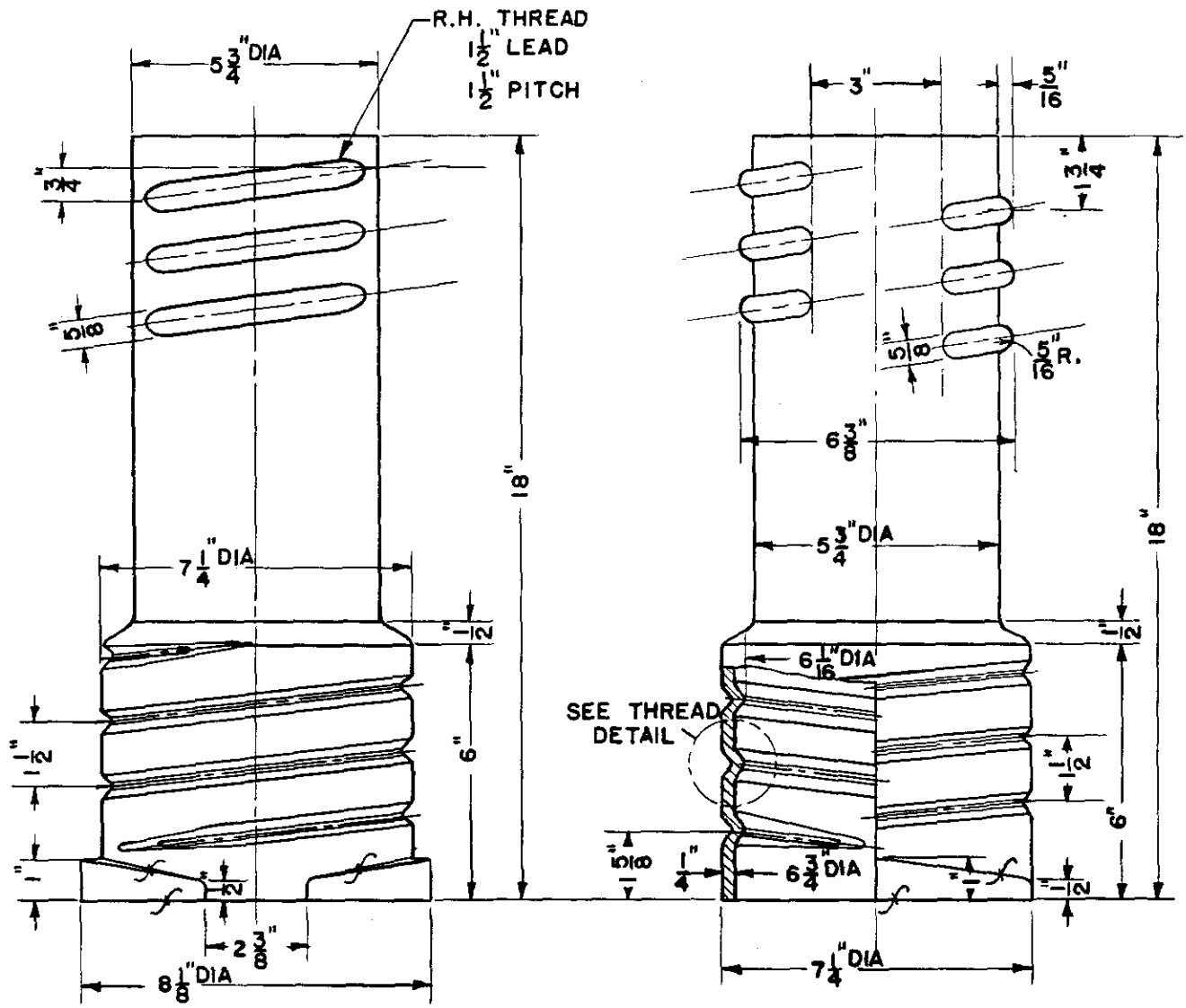
R. A. Koehl — ENGINEER
E. J. Lange — CITY ENGINEER

DRAWN J.R.S.
CHECKED W.E.P
FILE A-4-7A
DATE 9-10-82
SCALE 1/4=1"
DWG. VB-4

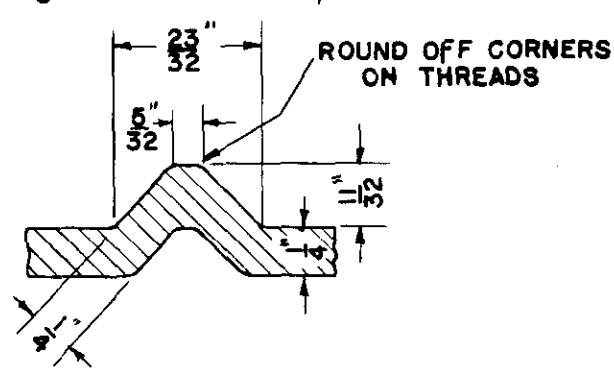
MATERIAL: CAST IRON
A. S. T. M. A 48 CL 20

PAINT COATING:
TO BE THOROUGHLY COATED
WITH ASPHALTUM PITCH
VARNISH

WEIGHT-25LBS.



$\mathcal{f}$ = GROUND FINISH



DETAIL OF THREAD
SCALE FULL SIZE

(7) EXTENSION

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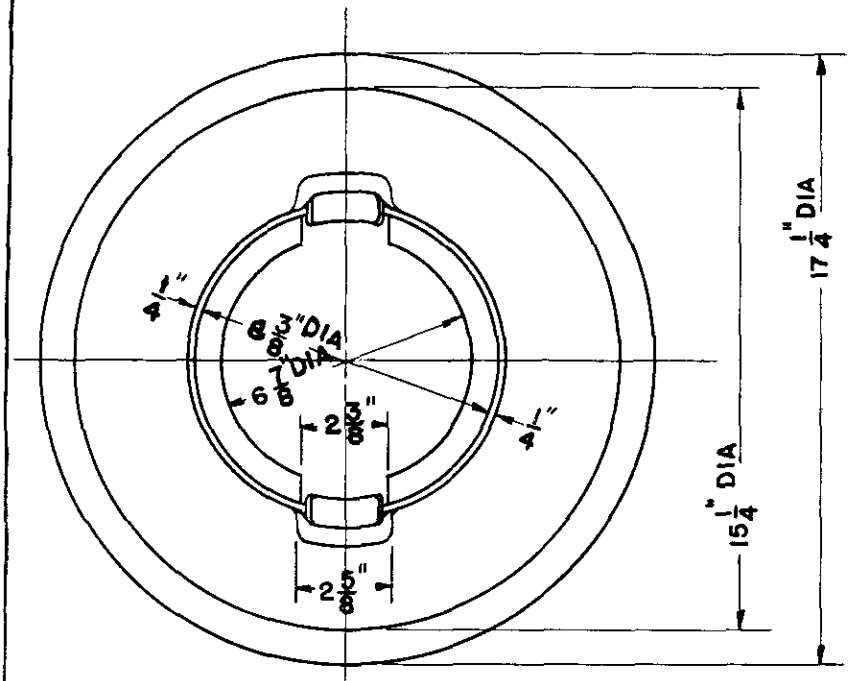
VALVE BOX EXTENSION

R. J. Kowal E. J. Langrock

ENGINEER CITY ENGINEER

DRAWN J.R.S. DATE 9-10-82
CHECKED W.E.P SCALE 1/4=1
FILE A-4-7A DWG. VB-5

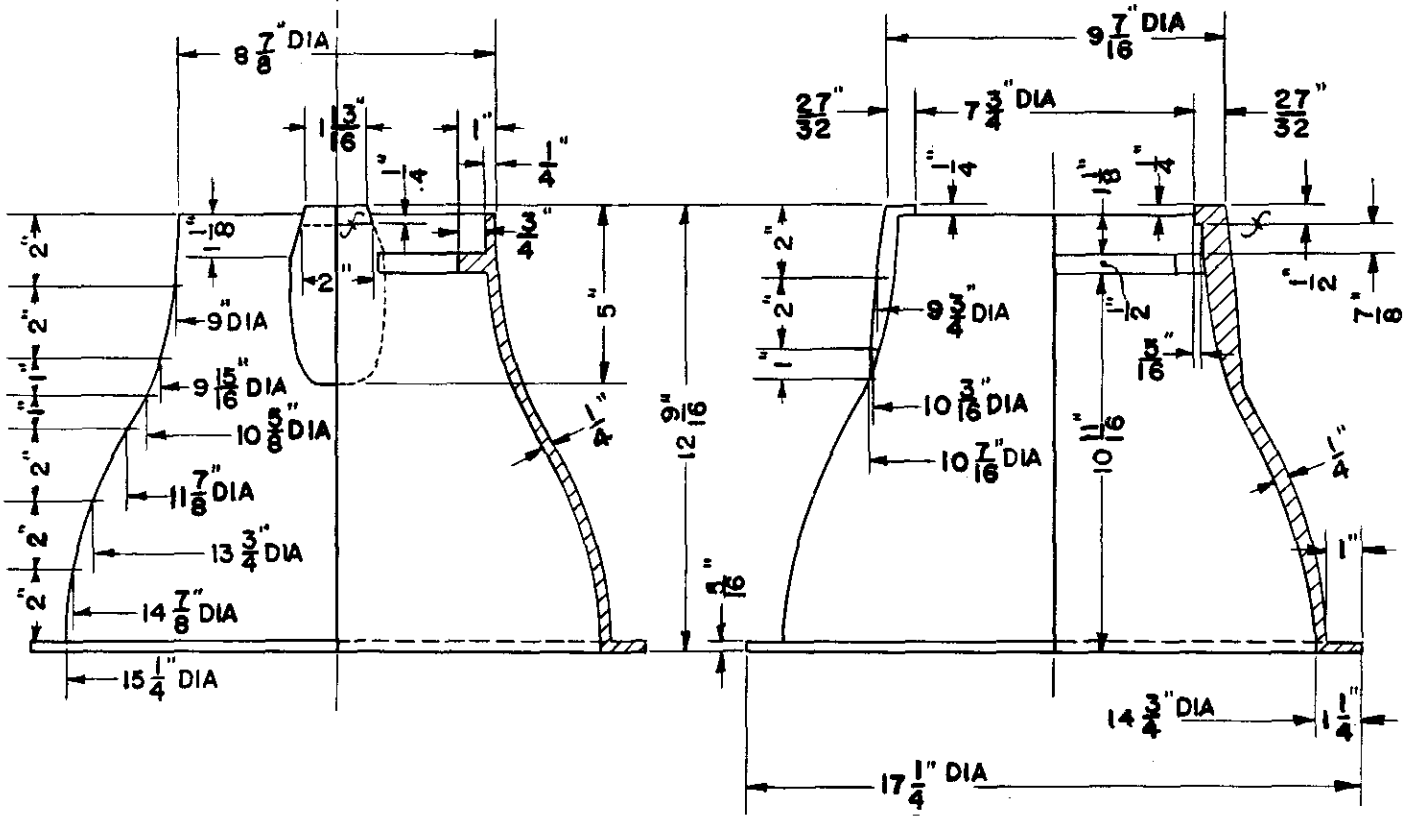


MATERIAL : CAST IRON
A.S.T.M. A48 CL 20

PAINT COATING:
TO BE THOROUGHLY COATED WITH ASPHALTUM PITCH VARNISH

WEIGHT-45LB.

$\mathcal{f}$ = GROUND FINISH



① BASE

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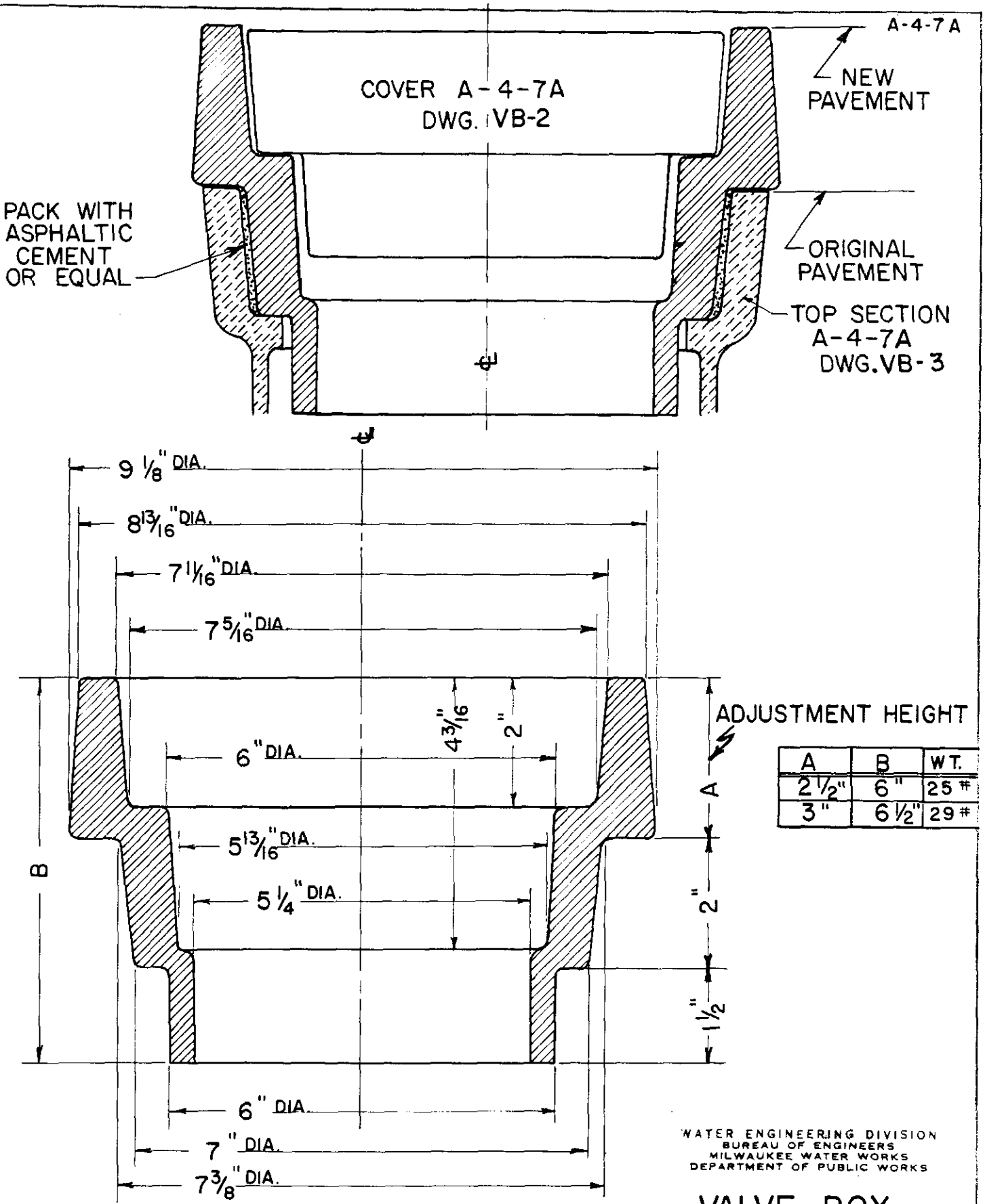
VALVE BOX
BASE

R. A. Koval E. J. Langenhan

ENGINEER CITY ENGINEER

DRAWN J.R.S. DATE 9-10-82
CHECKED W.E.P SCALE 3/16"=1"
FILE A-4-7A DWG VB-6

A-4-7A



ADJUSTMENT HEIGHT

A	B	WT.
2 1/2"	6"	25 #
3"	6 1/2"	29 #

PAINT COATING:
TO BE THOROUGHLY COATED WITH ASPHALTUM PITCH VARNISH

MATERIAL: CAST IRON
A.S.T.M. A48 - CLASS NO. 20.

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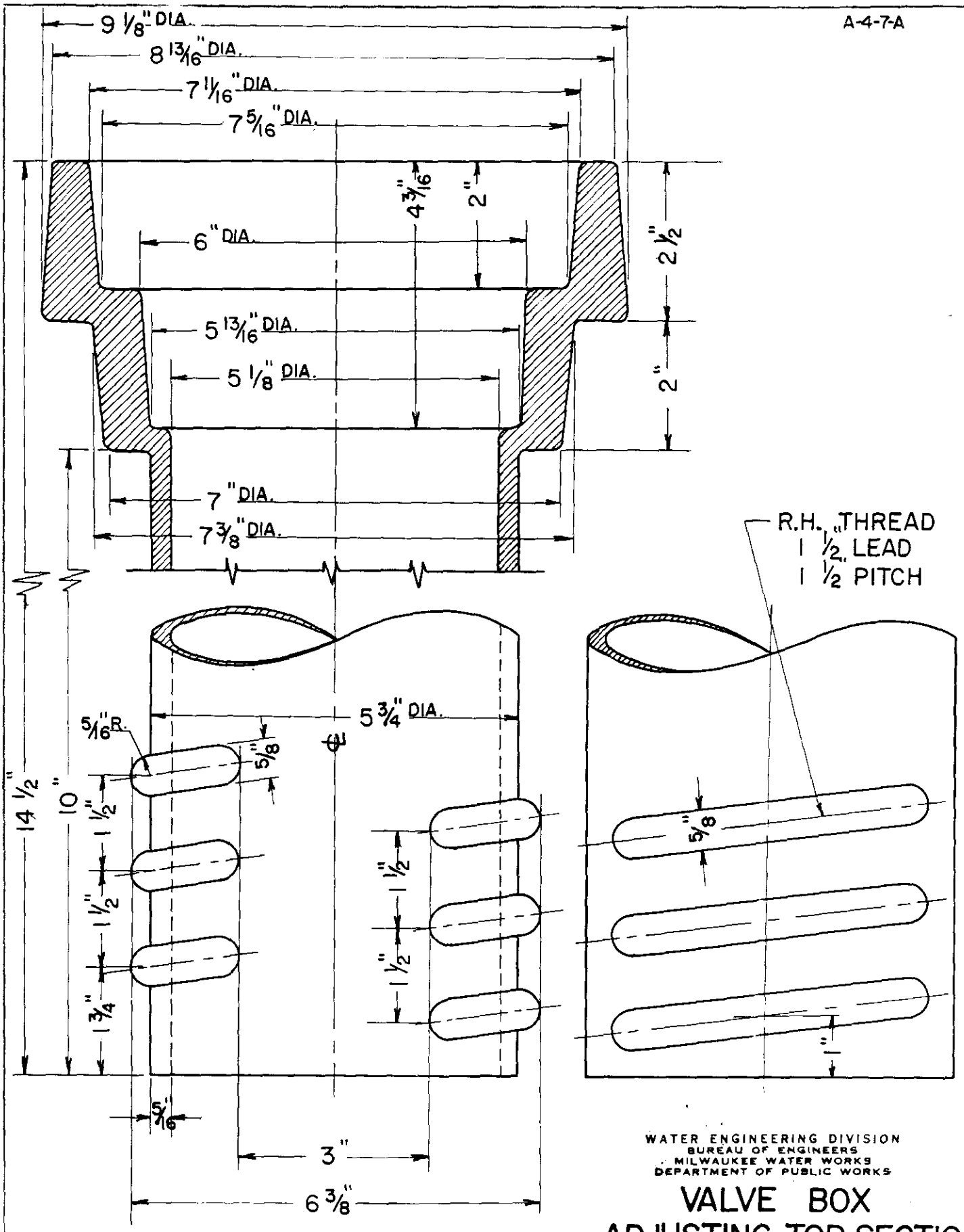
VALVE BOX ADJUSTING RING

R. J. Kocal — ENGINEER
E. Johnson — CITY ENGINEER

DRAWN H. B. - J. S. DATE 9-10-82
CHECKED W. E. P SCALE N. T. S.
FILE A-4-7A DWG VB-7

A-4-7-A



PAINT COATING:
TO BE THOROUGHLY COATED WITH
ASPHALTUM PITCH VARNISH

MATERIAL: CAST IRON
A.S.T.M. A48 – CLASS NO. 20.

WEIGHT - 40 LBS.

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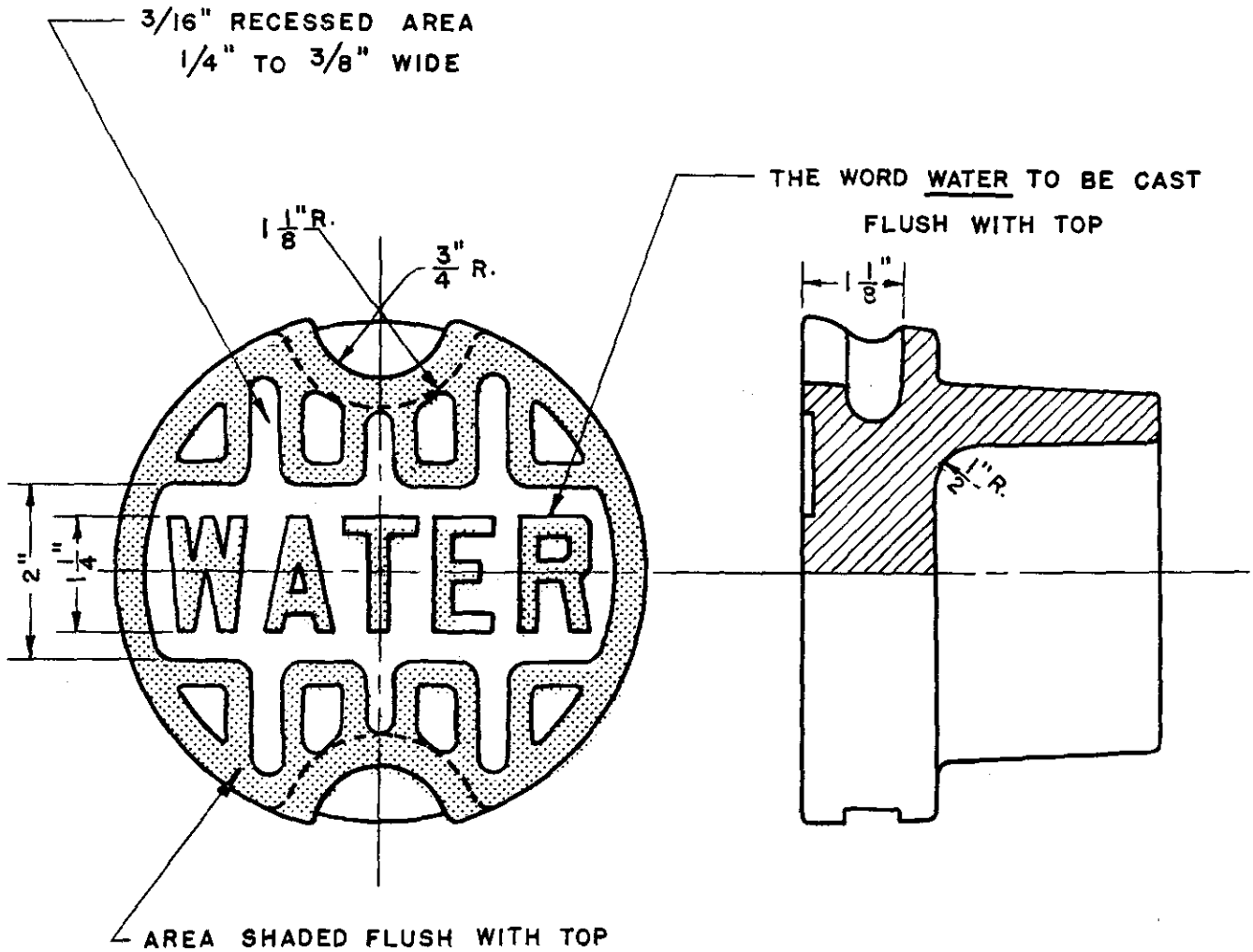
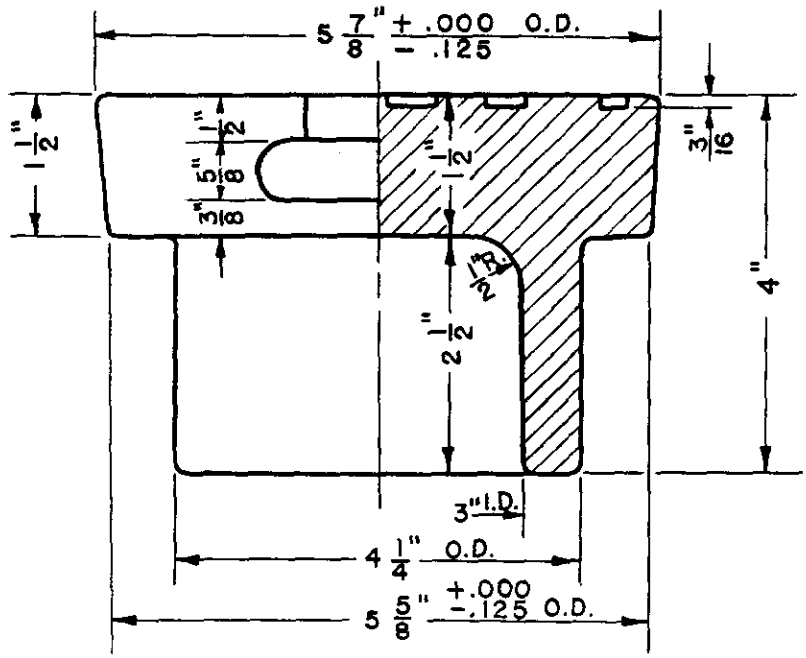
VALVE BOX ADJUSTING · TOP · SECTION

R. A. Koral — ENGINEER
E. J. Langenhorst — ENGINEER

DRAWN H.B. – J.S. DATE 9-10-82
CHECKED W.E.P SCALE N.T.S.
FILE A-4-7A DWG VB-8





MATERIAL: CAST IRON
A.S.T.M. A48 CLASS-20
PAINT COATING:
TO BE THOROUGHLY COATED WITH ASPHALTUM PITCH VARNISH

WEIGHT - 13 LBS.

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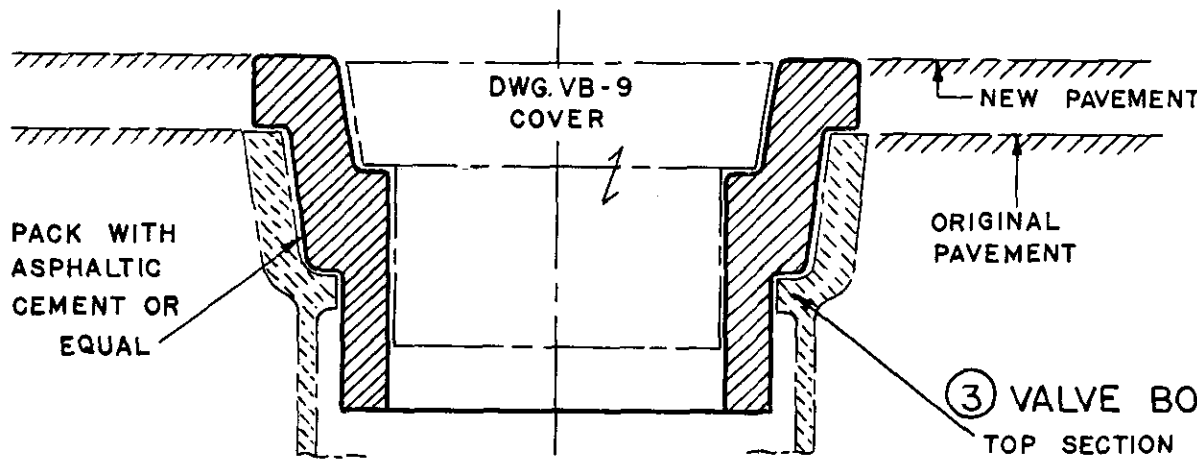
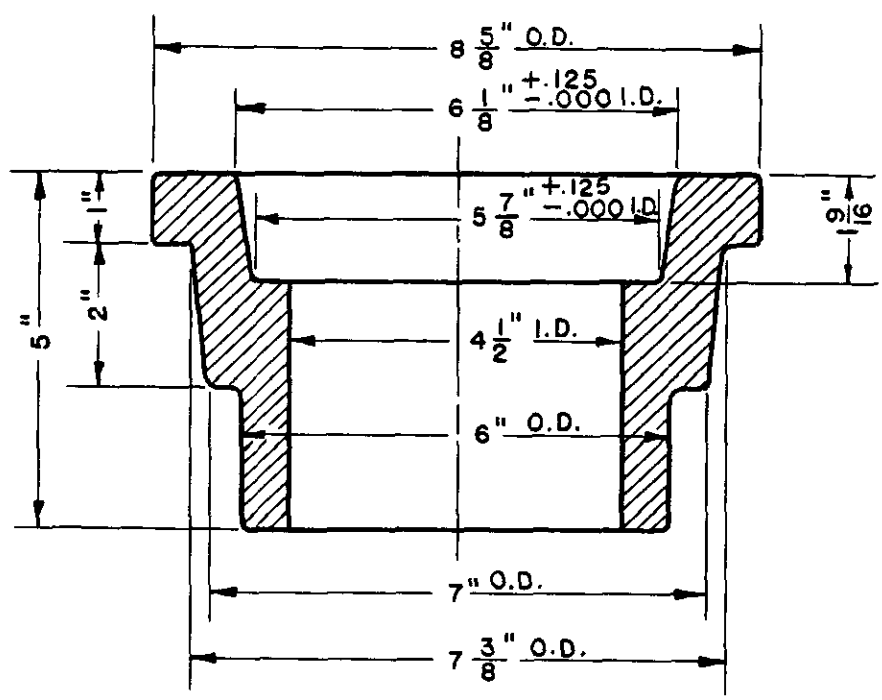
VALVE BOX (SM.) COVER

R. J. Koval — ENGINEER
E. J. Konopinski — CITY ENGINEER

DRAWN W. M.
CHECKED W·E·P
FILE A-4-7A
DATE 9-10-82
SCALE 1/2" = 1"
DWG. VB-9



TYPICAL INSTALLATION



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MATERIAL: CAST IRON
A.S.T.M. A 48 CLASS-20

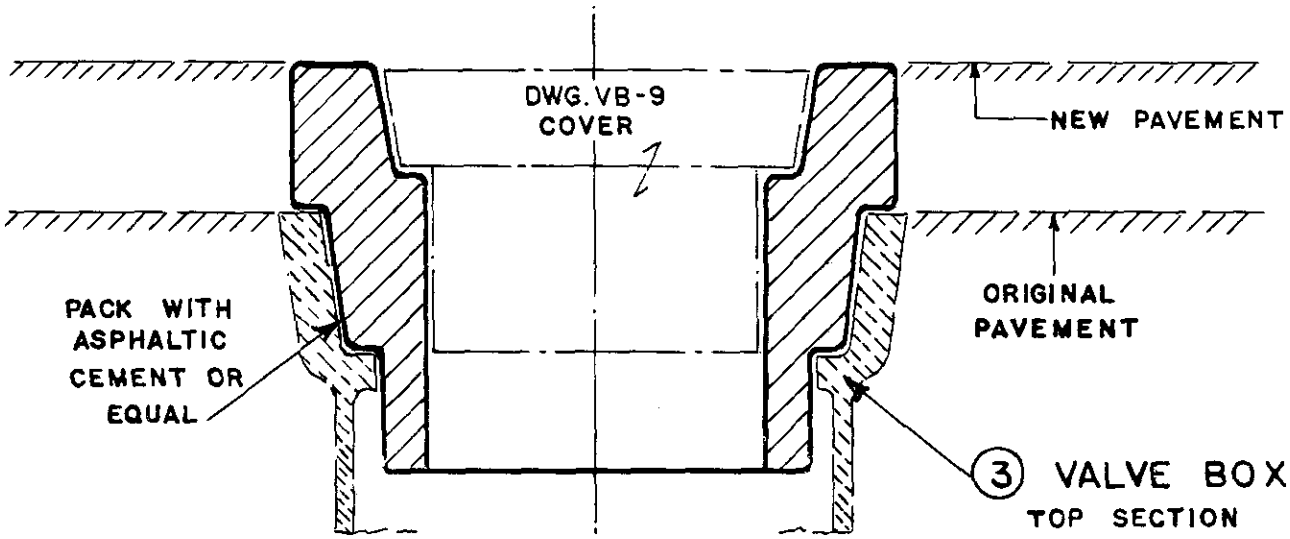
PAINT COATING:
TO BE THOROUGHLY COATED
WITH ASPHALTUM PITCH
VARNISH

WEIGHT 25 1/2 LBS.

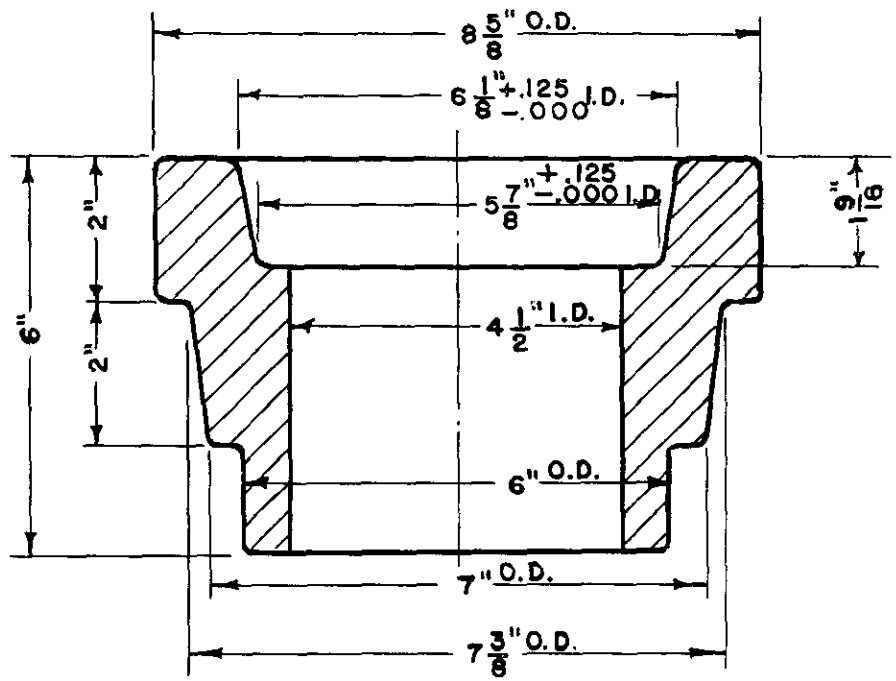
VALVE BOX ADJUSTING RING

R.A. Koral — ENGINEER
E.P. Lozowski — CITY ENGINEER

DRAWN W.M.
CHECKED W.E.P
FILE A-4-7A
DATE 9-10-82
SCALE 3/8" = 1"
DWG. VB-10



TYPICAL INSTALLATION



MATERIAL: CAST IRON
A.S.T.M. A48 CLASS-20

PAINT COATING:
TO BE THOROUGHLY COATED
WITH ASPHALTUM PITCH
VARNISH

WEIGHT 35 LBS.

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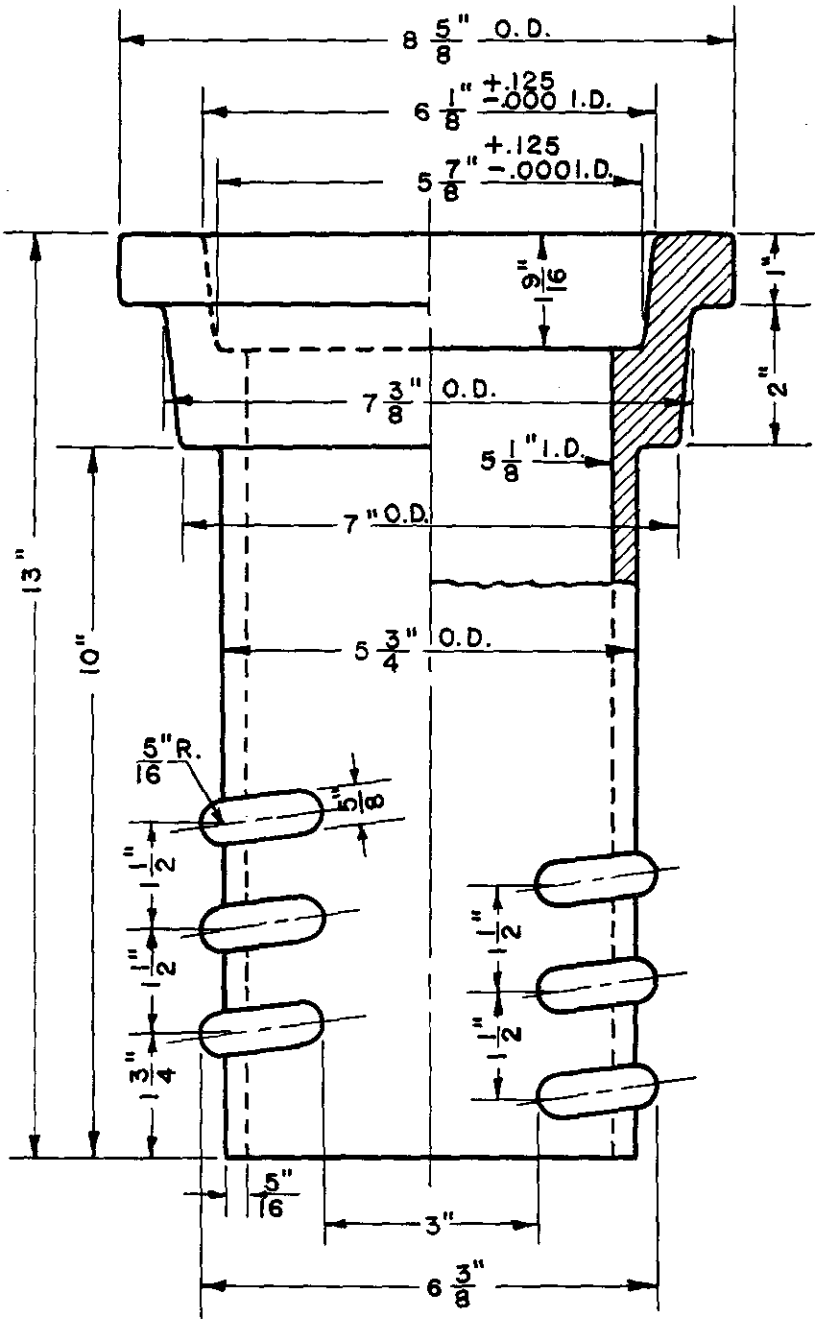
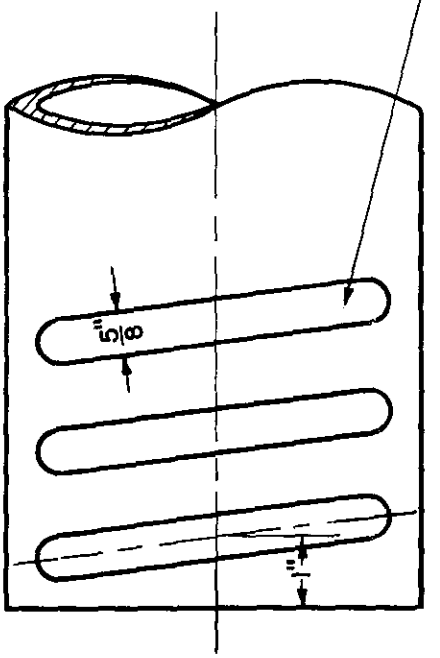
VALVE BOX ADJUSTING RING

R. J. Kool — ENGINEER
E. J. Langenhan — CITY ENGINEER

DRAWN M.C.K. DATE 9-10-82
CHECKED W.E.P SCALE 3/8" = 1"
FILE A-4-7A DWG VB-11

A-4-7A





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MATERIAL: CAST IRON
A.S.T.M. A48 CLASS-20

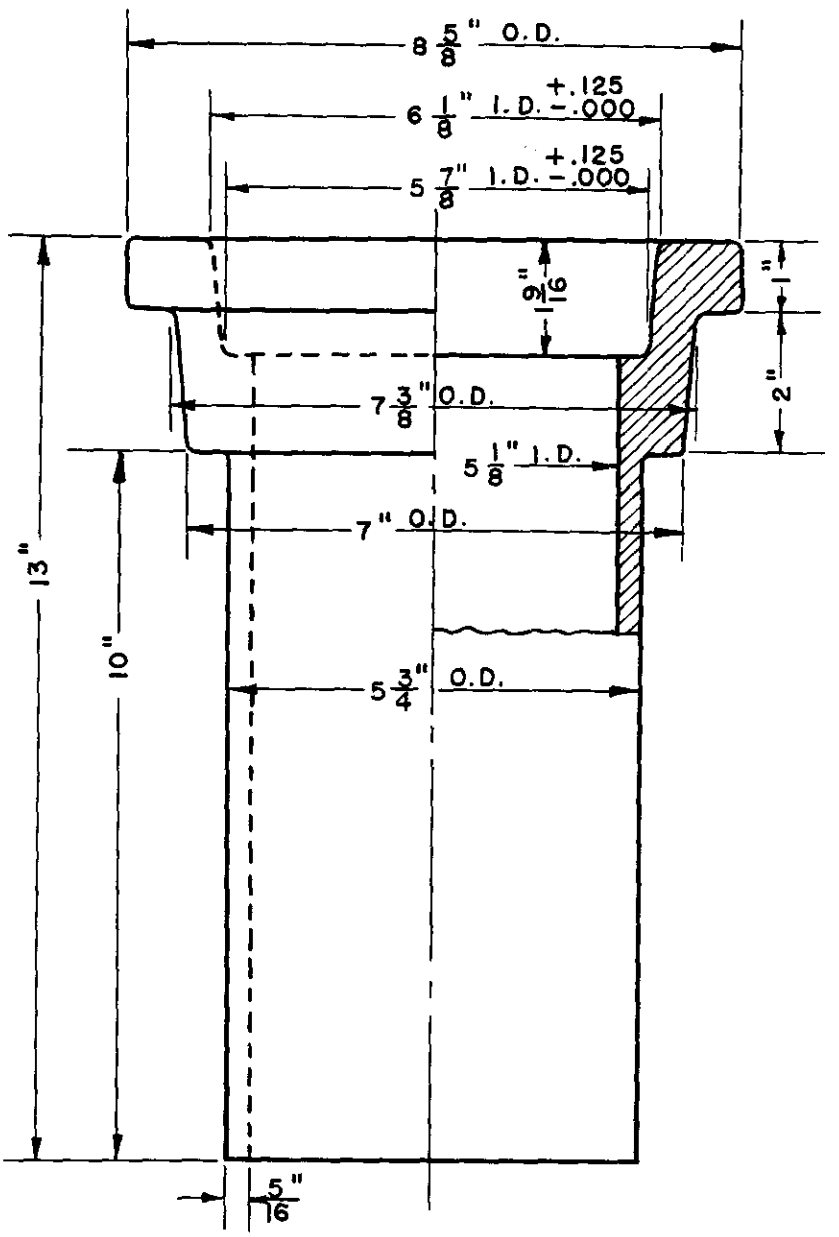
PAINT COATING:
TO BE THOROUGHLY COATED
WITH ASPHALTUM PITCH
VARNISH

WEIGHT 28LBS.

VALVE BOX
ADJUSTING TOP SECTION

R.J. Koral — ENGINEER
E.J. Jaworski — CITY ENGINEER

DRAWN W. M. — DATE 9-10-82
CHECKED W.E.P — SCALE 3/8" = 1"
FILE A-4-7A — DWG VB-12



MATERIAL: CAST IRON
A.S.T.M. A48 CLASS-20

PAINT COATING:
TO BE THOROUGHLY COATED
WITH ASPHALTUM PITCH
VARNISH

WEIGHT 30 LBS.

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VALVE BOX
ADJUSTING TOP SECTION

R.J. Kaul — ENGINEER
E.J. Lazarski — CITY ENGINEER

DRAWN W. M
CHECKED W.E.P
FILE A-4-7A
DATE 9-10-82
SCALE 3/8" = 1"
DWG VB-13