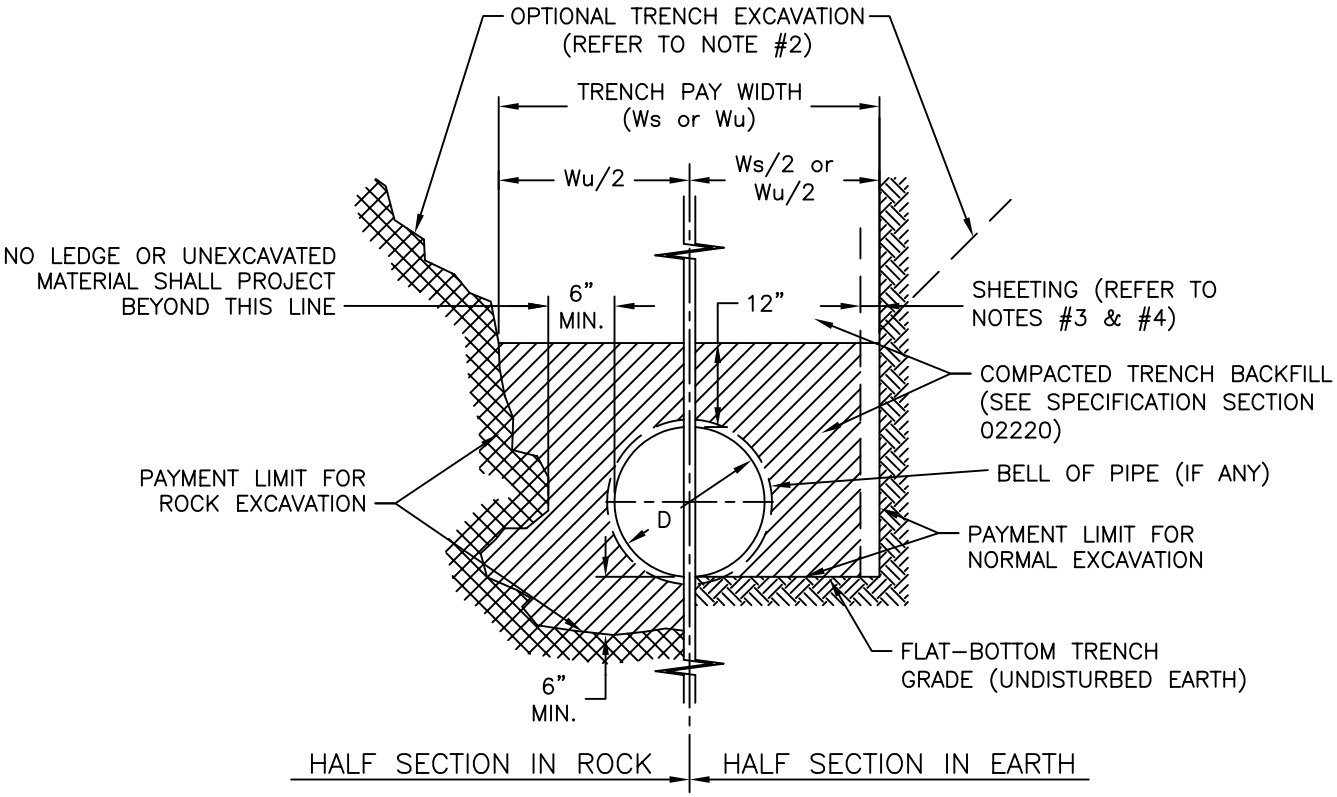


APPROVED DATE: June 20, 2003

Digitally signed by Leonard Benson
Date: 2004.11.24 09:25:34 -05'00'

DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES

REVISION NO.: 0
DATE: 6/20/03
PREPARED BY: OBG/BKJV
CHECKED BY: W.DARROW

STANDARD DETAIL
DUCTILE IRON WATER MAIN
PIPE LAYING CONDITION TYPE 2A
(TRENCH INSTALLATION)

TRENCH PAY WIDTH (Ws OR Wu)		
PIPE DIAMETER D	SHEETED EXCAVATION Ws	UNSHEETED EXCAVATION Wu
8"	2' – 10"	2' – 4"
12"	3' – 2"	2' – 8"
16"	3' – 6"	3' – 0"
20"	3' – 10"	3' – 4"
24"	4' – 2"	3' – 8"
30"	4' – 8"	4' – 2"
36"	6' – 1"	5' – 7"
42"	6' – 7"	6' – 1"
48"	7' – 1"	6' – 7"

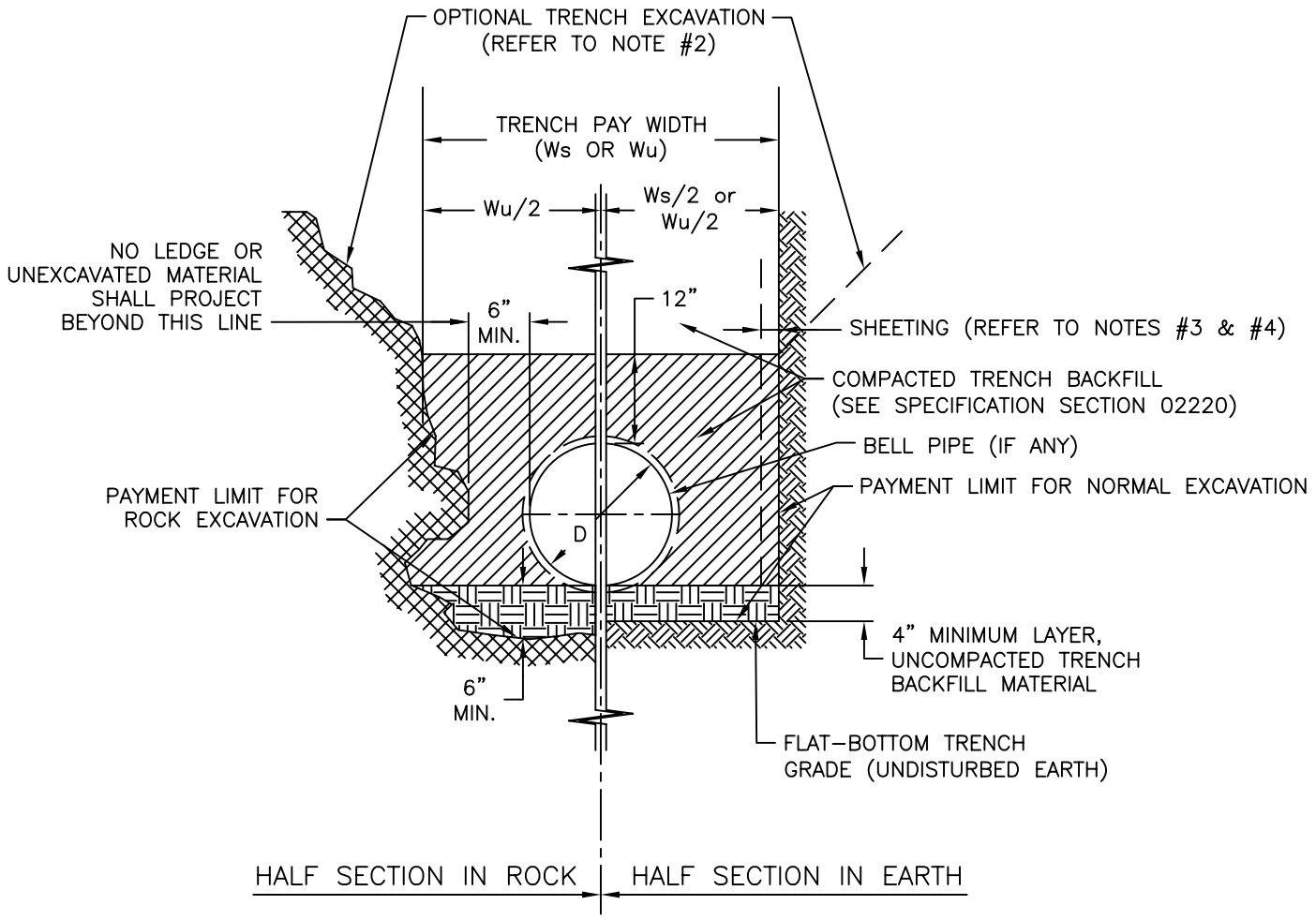
NOTES:

1. PIPE LAYING CONDITION TYPE 2A (TRENCH INSTALLATION) SHALL BE USED FOR ALL WATER MAIN CONSTRUCTION UNLESS OTHERWISE SPECIFIED OR SHOWN ON DRAWINGS.
2. TRENCHES MAY BE EXCAVATED WIDER THAN THE TRENCH PAY WIDTH (Ws OR Wu) ABOVE A LINE 1' – 0" FROM TOP OF PIPE, AT CONTRACTOR'S OPTION AND AT NO ADDITIONAL COST TO THE AUTHORITY.
3. IF EXCAVATION BELOW NORMAL DEPTH OF WATER MAIN INSTALLATION (DEPTHS GREATER THAN 4.5 FEET) IS REQUIRED, EXCAVATION SUPPORT SHEETING MAY BE ORDERED OR TRENCH SHIELDS UTILIZED AT CONTRACTORS OPTION. COSTS UNDER THIS OPTION SHALL BE PART OF THE UNIT PRICE BID FOR EXCAVATION.
4. SHEETING, IF USED, SHALL BE REMOVED IN CONJUNCTION WITH THE BACKFILLING OPERATION UNLESS OTHERWISE SPECIFIED OR SHOWN ON DRAWINGS. HOWEVER, IF APPROVED IN WRITING, SHEETING MAY BE CUT–OFF AND LEFT IN PLACE BELOW A LINE 1' – 0" ABOVE THE TOP OF PIPE OR AS DIRECTED BY THE ENGINEER.

APPROVED DATE: June 20, 2003
Digitally signed by Leonard Benson
Date: 2004.11.24 09:25:53 -05'00'
DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES

REVISION NO.: 0
DATE: 6/20/03
PREPARED BY: OBG/BKJV
CHECKED BY: W.DARROW

STANDARD DETAIL
DUCTILE IRON WATER MAIN
PIPE LAYING CONDITION TYPE 2A
(TRENCH INSTALLATION)



APPROVED DATE: June 20, 2003

Digitally signed by Leonard Benson
Date: 2004.11.24 09:26:06 -05'00'

DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES

REVISION NO.:	0
DATE:	6/20/03
PREPARED BY:	OBG/BKJV
CHECKED BY:	W.DARROW

STANDARD DETAIL
DUCTILE IRON WATER MAIN
PIPE LAYING CONDITION TYPE 3A
(TRENCH INSTALLATION)

TRENCH PAY WIDTH (Ws OR Wu)		
PIPE DIAMETER D	SHEETED EXCAVATION Ws	UNSHEETED EXCAVATION Wu
8"	2' – 10"	2' – 4"
12"	3' – 2"	2' – 8"
16"	3' – 6"	3' – 0"
20"	3' – 10"	3' – 4"
24"	4' – 2"	3' – 8"
30"	4' – 8"	4' – 2"
36"	6' – 1"	5' – 7"
42"	6' – 7"	6' – 1"
48"	7' – 1"	6' – 7"

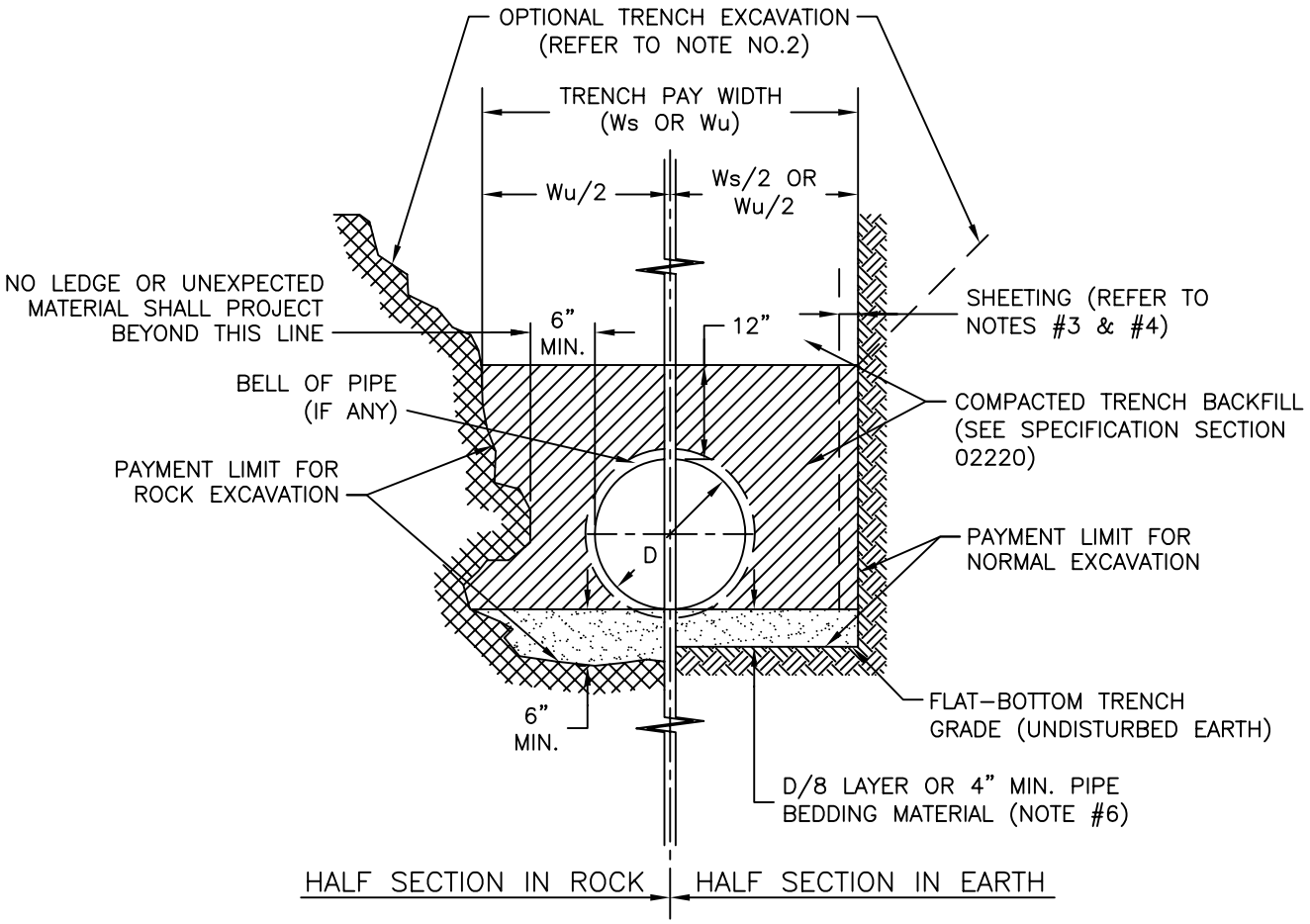
NOTES:

1. PIPE LAYING CONDITION TYPE 3A (TRENCH INSTALLATION) SHALL BE USED FOR WATER MAIN CONSTRUCTION ONLY WHEN SPECIFIED OR SHOWN ON DRAWINGS.
2. TRENCHES MAY BE EXCAVATED WIDER THAN THE TRENCH PAY WIDTH (Ws OR Wu) ABOVE A LINE 1' – 0" FROM TOP OF PIPE, AT CONTRACTOR'S OPTION AND AT NO ADDITIONAL COST TO THE DISTRICT.
3. IF EXCAVATION BELOW NORMAL DEPTH OF WATER MAIN INSTALLATION (DEPTHS GREATER THAN 4.5 FEET) IS REQUIRED, EXCAVATION SUPPORT SHEETING MAY BE ORDERED OR TRENCH SHIELDS UTILIZED AT CONTRACTORS OPTION. COSTS UNDER THIS OPTION SHALL BE PART OF THE UNIT PRICE BID FOR EXCAVATION.
4. SHEETING, IF USED, SHALL BE REMOVED IN CONJUNCTION WITH THE BACKFILLING OPERATION UNLESS OTHERWISE SPECIFIED OR SHOWN ON DRAWINGS. HOWEVER, IF APPROVED IN WRITING, SHEETING MAY BE CUT–OFF AND LEFT IN PLACE BELOW A LINE 1' – 0" ABOVE THE TOP OF PIPE OR AS DIRECTED BY THE ENGINEER

APPROVED DATE: June 20, 2003
Digitally signed by Leonard Benson
Date: 2004.11.24 09:26:20 -05'00'
DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES

REVISION NO.: 0
DATE: 6/20/03
PREPARED BY: OBG/BKJV
CHECKED BY: W.DARROW

STANDARD DETAIL
DUCTILE IRON WATER MAIN
PIPE LAYING CONDITION TYPE 3A
(TRENCH INSTALLATION)



APPROVED DATE: June 20, 2003

Digitally signed by Leonard Benson
Date: 2004.11.24 09:26:35 -05'00'

DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES

REVISION NO.: 0
DATE: 6/20/03
PREPARED BY: OBG/BKJV
CHECKED BY: W.DARROW

STANDARD DETAIL
DUCTILE IRON WATER MAIN
PIPE LAYING CONDITION TYPE 4A
(TRENCH INSTALLATION)

TRENCH PAY WIDTH (Ws OR Wu)		
PIPE DIAMETER D	SHEETED EXCAVATION Ws	UNSHEETED EXCAVATION Wu
8"	2' – 10"	2' – 4"
12"	3' – 2"	2' – 8"
16"	3' – 6"	3' – 0"
20"	3' – 10"	3' – 4"
24"	4' – 2"	3' – 8"
30"	4' – 8"	4' – 2"
36"	6' – 1"	5' – 7"
42"	6' – 7"	6' – 1"
48"	7' – 1"	6' – 7"

NOTES:

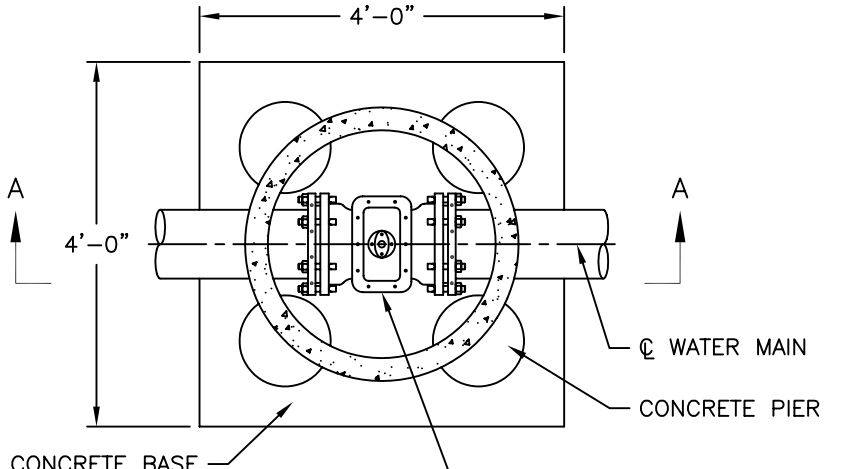
1. PIPE LAYING CONDITION TYPE 4A (TRENCH INSTALLATION) SHALL BE USED FOR WATER MAIN CONSTRUCTION ONLY WHEN SPECIFIED OR SHOWN ON DRAWINGS.
2. TRENCHES MAY BE EXCAVATED WIDER THAN THE TRENCH PAY WIDTH (Ws OR Wu) ABOVE A LINE 1'–0" FROM TOP OF PIPE, AT CONTRACTOR'S OPTION AND AT NO ADDITIONAL COST TO THE AUTHORITY.
3. IF EXCAVATION BELOW NORMAL DEPTH OF WATER MAIN INSTALLATION (DEPTHS GREATER THAN 4.5 FEET) IS REQUIRED, EXCAVATION SUPPORT SHEETING MAY BE ORDERED OR TRENCH SHIELDS UTILIZED AT CONTRACTORS OPTION. COSTS UNDER THIS OPTION SHALL BE PART OF THE UNIT PRICE BID FOR EXCAVATION.
4. SHEETING, IF USED, SHALL BE REMOVED IN CONJUNCTION WITH THE BACKFILLING OPERATION UNLESS OTHERWISE SPECIFIED OR SHOW ON DRAWINGS. HOWEVER, IF APPROVED IN WRITING, SHEETING MAY BE CUT–OFF AND LEFT IN PLACE BELOW A LINE 1'–0" ABOVE THE TOP OF PIPE, OR AS DIRECTED BY THE ENGINEER.
5. COMPACTED TRENCH BACKFILL, 80% BETWEEN PIPE BEDDING AND 12 INCHES ABOVE TOP OF PIPE.
6. PIPE BEDDING MATERIAL SHALL BE GRAVEL OR CRUSHED STONE CONFORMING TO ASTM C–33, GRADING SIZE NO. 76 OR NO. 57.

APPROVED DATE: June 20, 2003
L R Benson
Digitally signed by Leonard Benson
Date: 2004.11.24 09:26:50 -05'00'
DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES

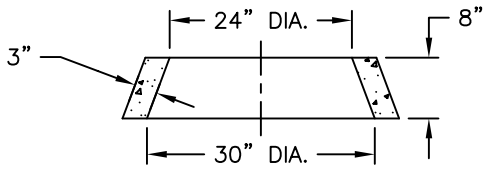
REVISION NO.: 0
DATE: 6/20/03
PREPARED BY: OBG/BKJV
CHECKED BY: W.DARROW

STANDARD DETAIL
DUCTILE IRON WATER MAIN
PIPE LAYING CONDITION TYPE 4A
(TRENCH INSTALLATION)

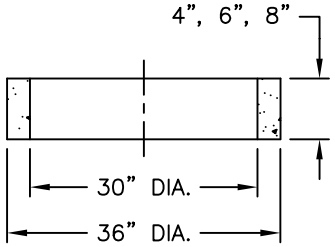
DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY	W–20.01 1 OF 1



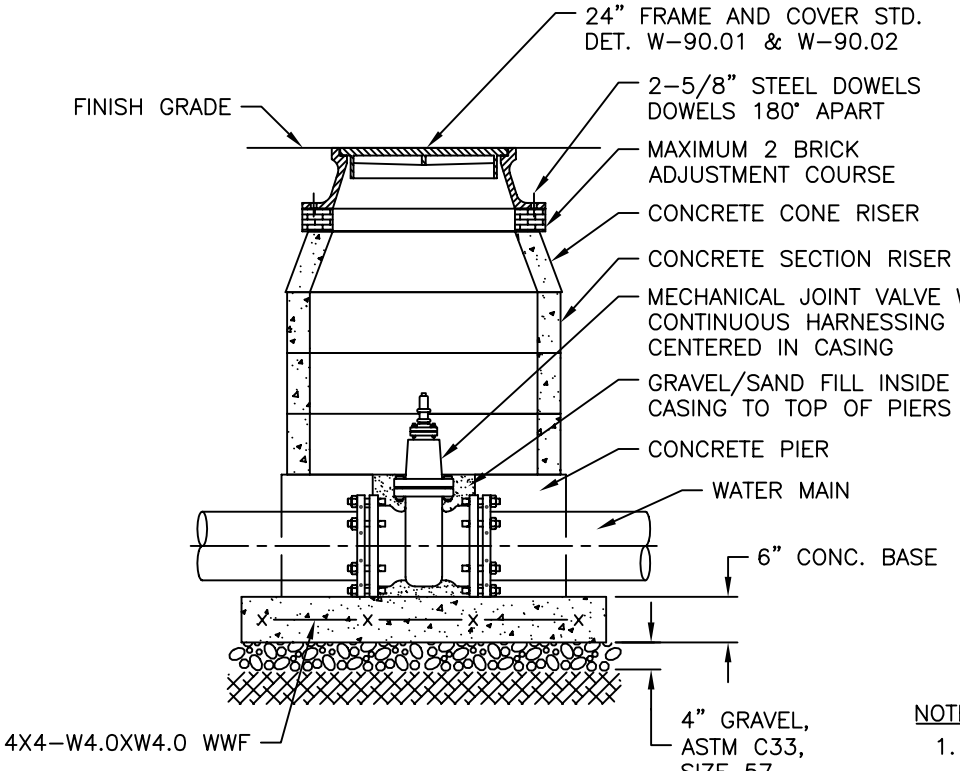
SECTIONAL PLAN



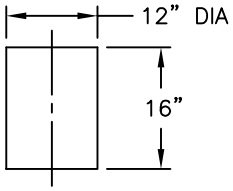
SECTION CONE RISER
ALL BEARING SURFACES TRUE,
FLAT, PARALLEL PLANES



SECTION RISER
ALL BEARING SURFACES TRUE,
FLAT, PARALLEL PLANES



SECTION A–A



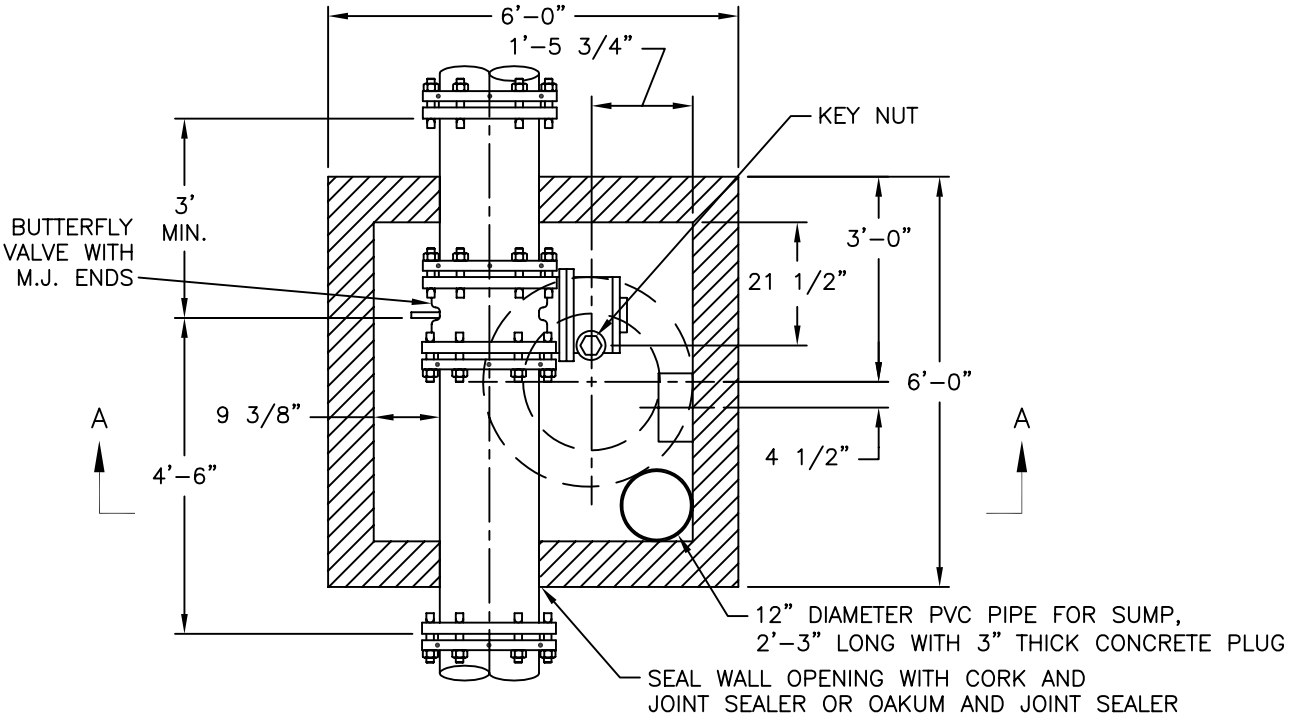
CONCRETE PIER DETAIL
ALL BEARING SURFACES TRUE,
FLAT, PARALLEL PLANES

NOTES:

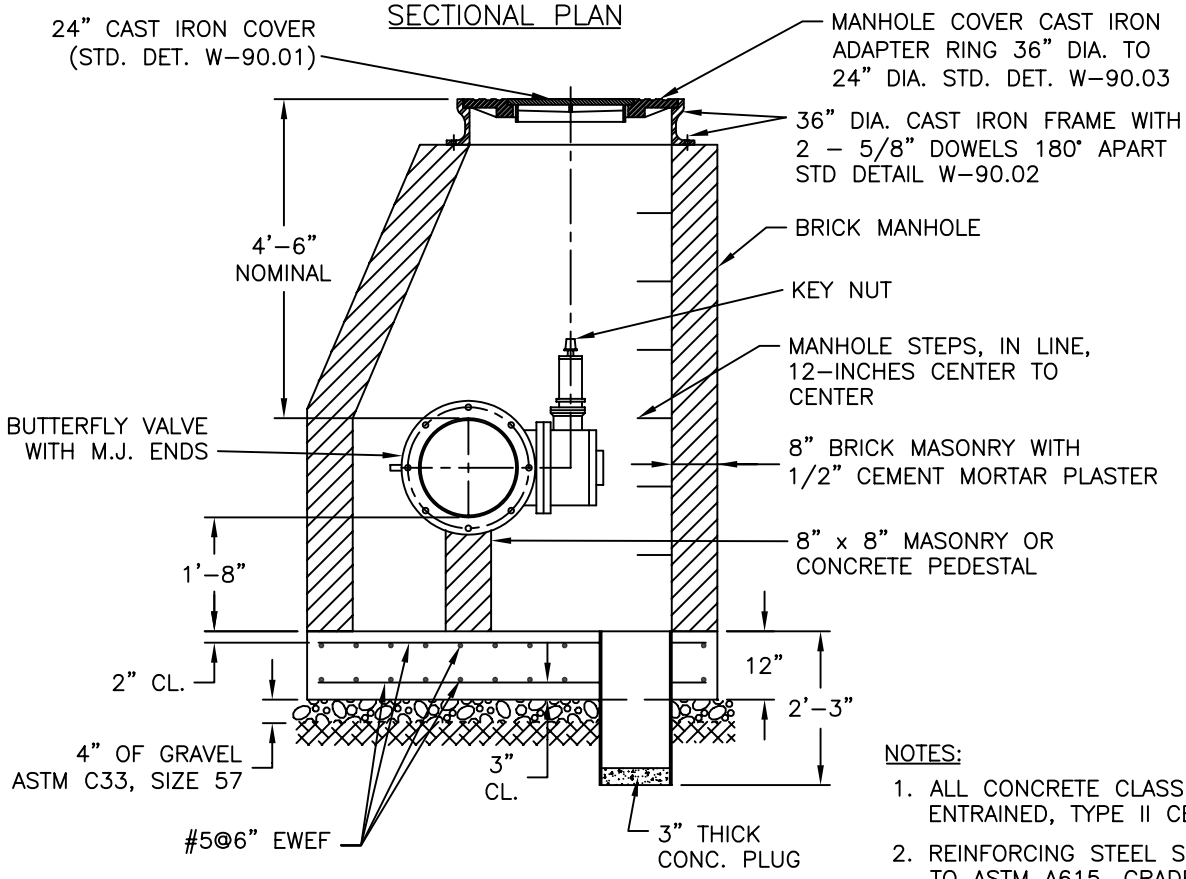
1. ALL CONCRETE CLASS 4000, AIR ENTRAINED, TYPE II CEMENT
2. PRECAST ELEMENTS INCLUDING REINFORCING TO BE PER ASTM C478.
3. WWF PER ASTM A185

APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL VALVE CASING FOR 12" AND SMALLER GATE VALVE

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY	W–21.01 1 OF 1



SECTIONAL PLAN



SECTION A–A

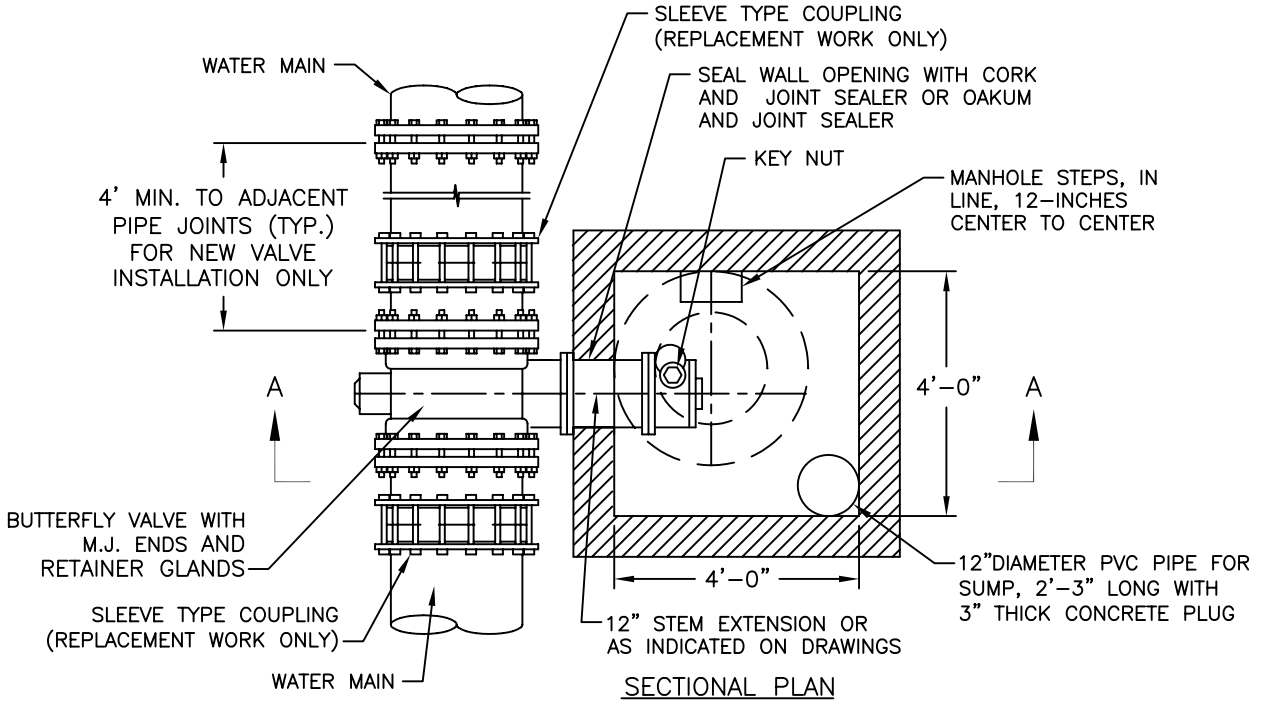
NOTES:

1. ALL CONCRETE CLASS 4000, AIR ENTRAINED, TYPE II CEMENT
2. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.

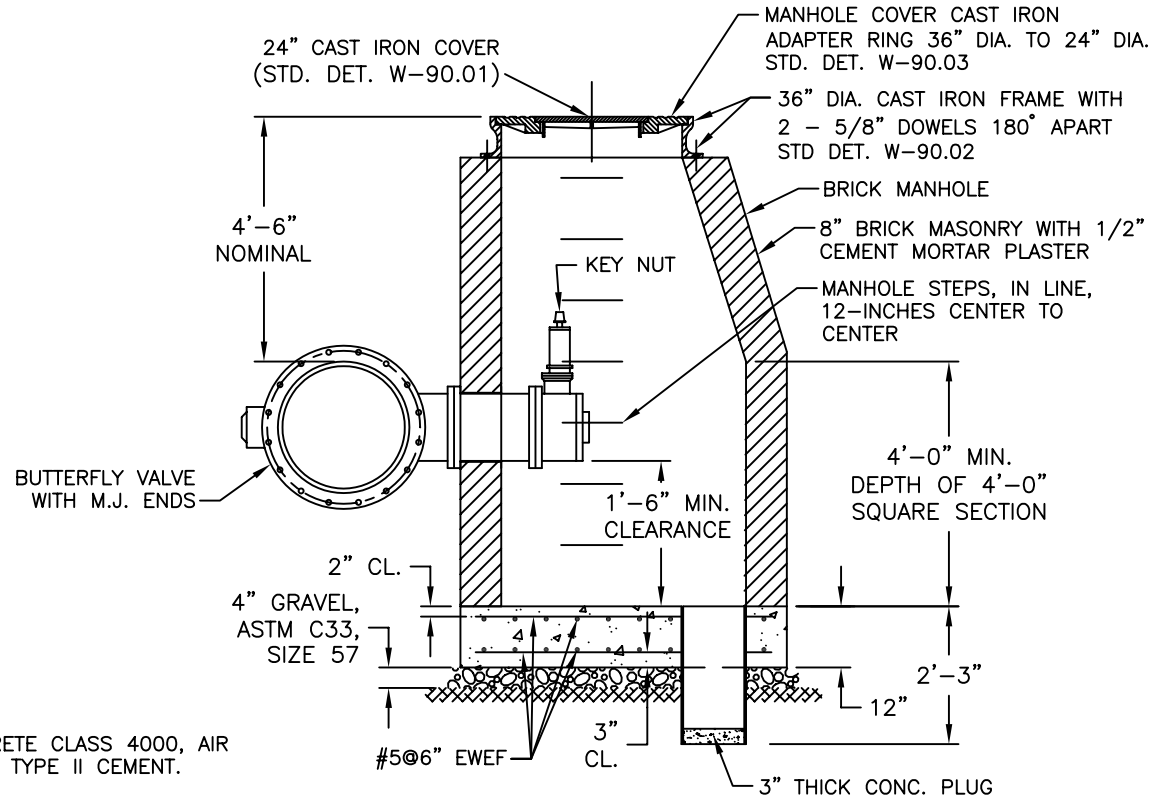
APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL BRICK MANHOLE FOR 16" BUTTERFLY VALVE

DISTRICT OF COLUMBIA
WATER AND SEWER AUTHORITY

W–21.05
1 OF 1



SECTIONAL PLAN



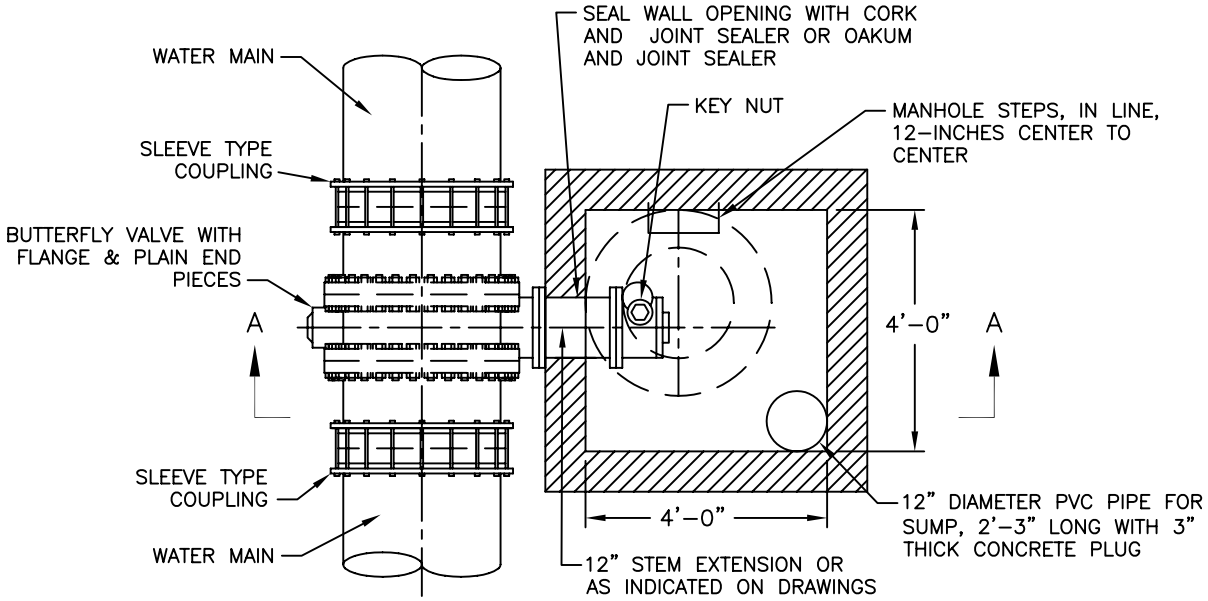
SECTION A–A

NOTES:

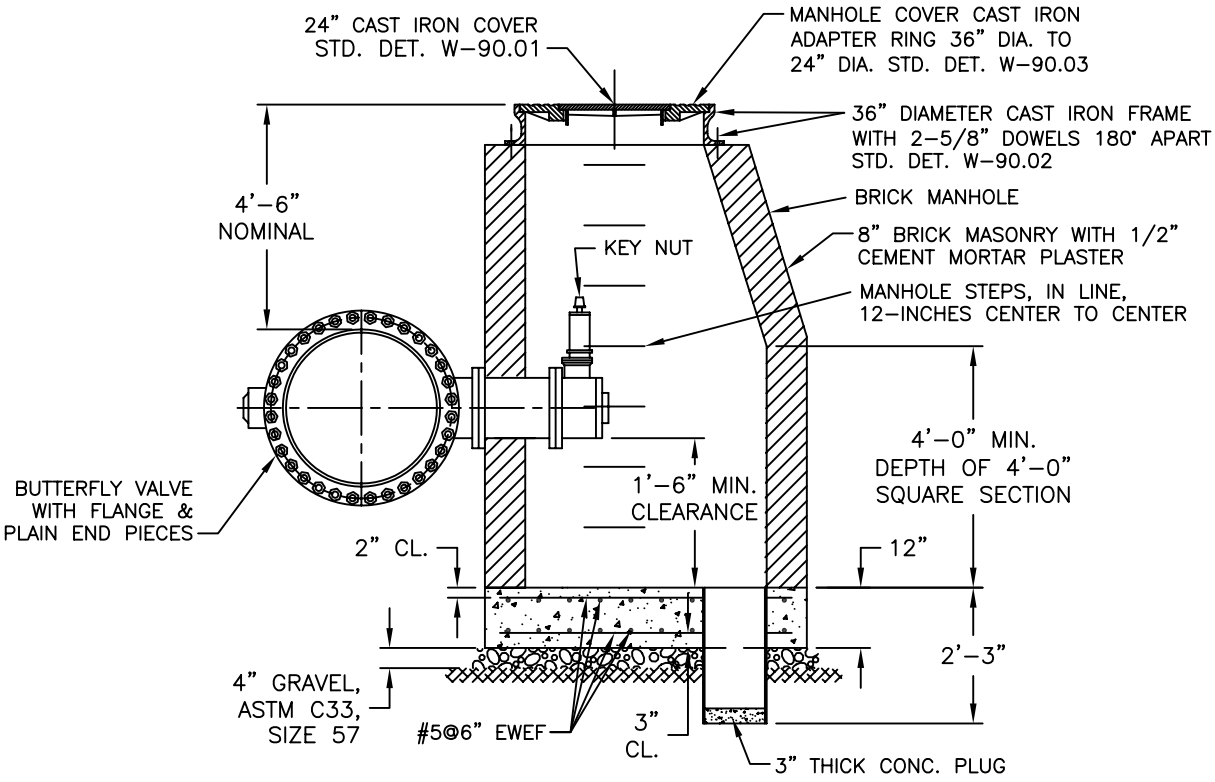
1. ALL CONCRETE CLASS 4000, AIR ENTRAINED, TYPE II CEMENT.
2. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
3. CONSTRUCT MANHOLE TO LOCATE KEY NUT BENEATH 24" COVER.

APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL BRICK MANHOLE FOR 20" & 24" BUTTERFLY VALVE REPLACEMENT AND NEW INSTALLATION

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY	W–21.10 1 OF 1



SECTIONAL PLAN



SECTION A–A

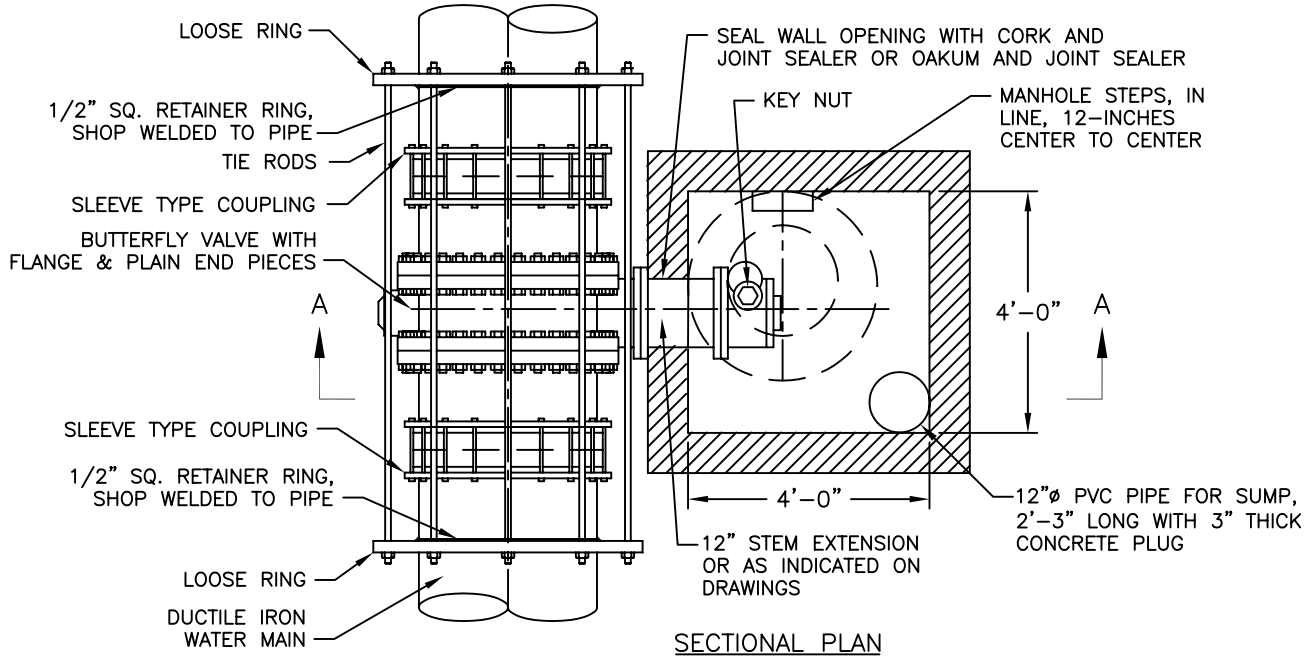
NOTES:

1. ALL CONCRETE CLASS 4000, AIR ENTRAINED, TYPE II CEMENT.
2. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
3. CONSTRUCT MANHOLE TO LOCATE KEY NUT BENEATH 24" COVER.

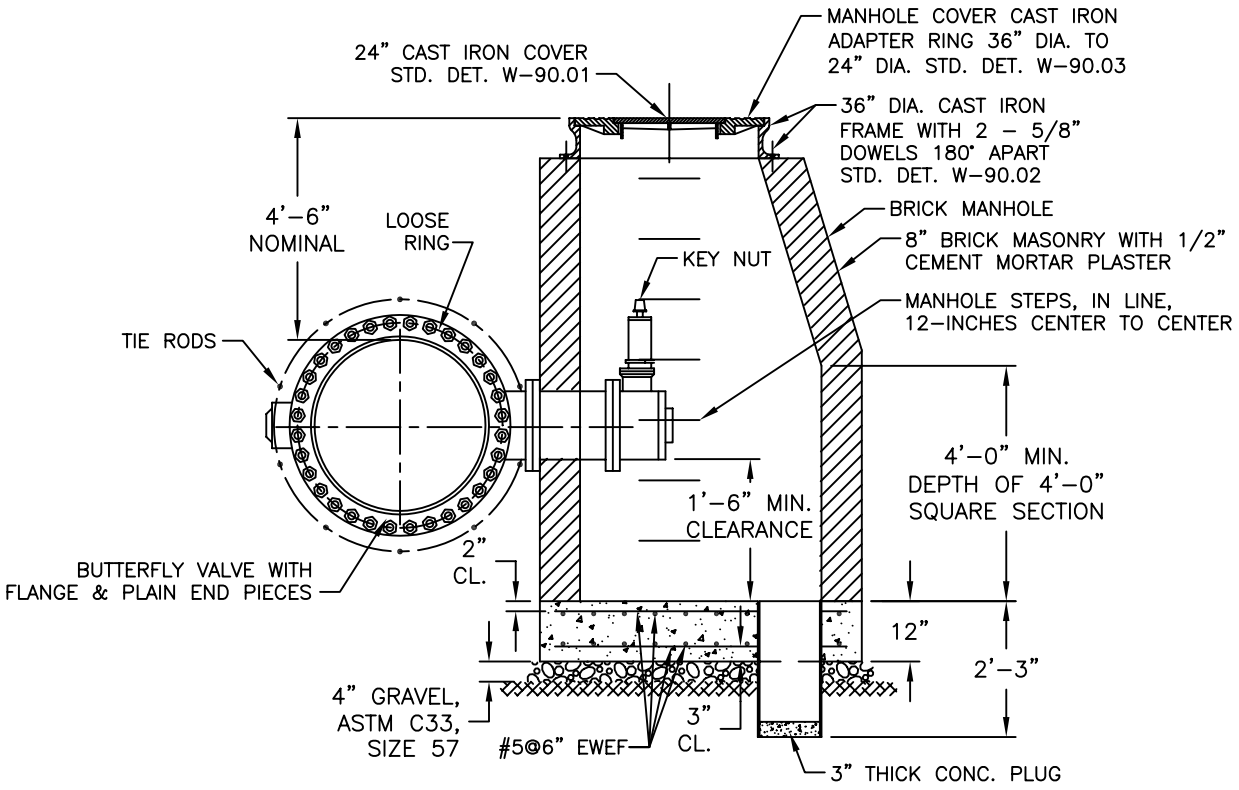
APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL BRICK MANHOLE FOR 30" & LARGER BUTTERFLY VALVE UNHARNESSED

DISTRICT OF COLUMBIA
WATER AND SEWER AUTHORITY

W–21.11
1 OF 1



SECTIONAL PLAN

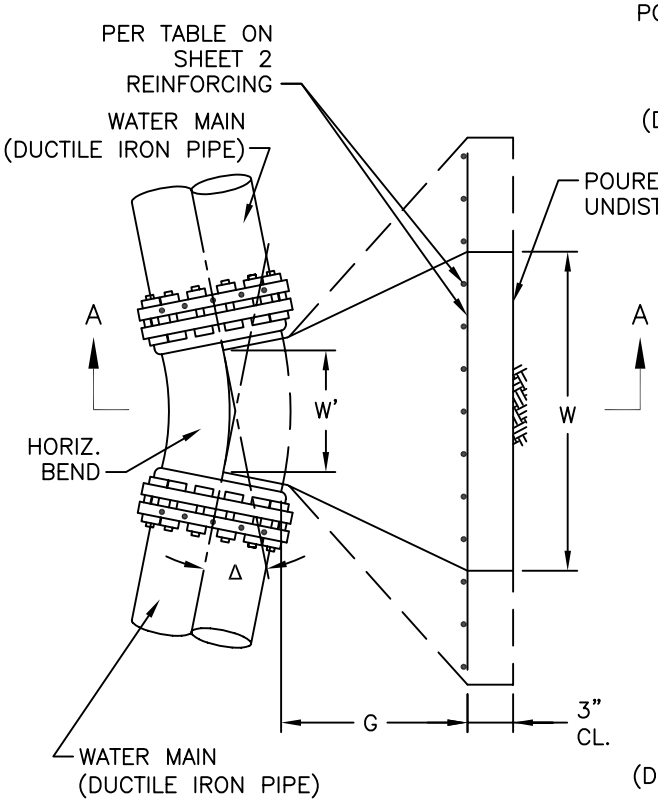


SECTION A–A

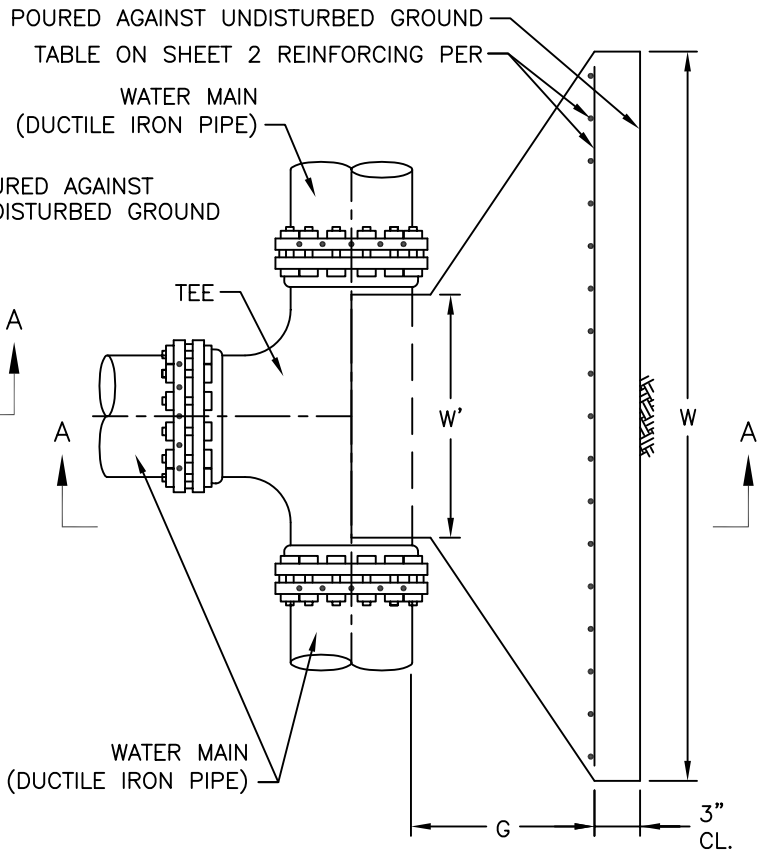
NOTES:

1. ALL CONCRETE CLASS 4000, AIR ENTRAINED, TYPE II CEMENT.
2. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
3. CONSTRUCT MANHOLE TO LOCATE KEY NUT BENEATH 24" COVER.

APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL BRICK MANHOLE FOR 30" & LARGER BUTTERFLY VALVE HARNESSED



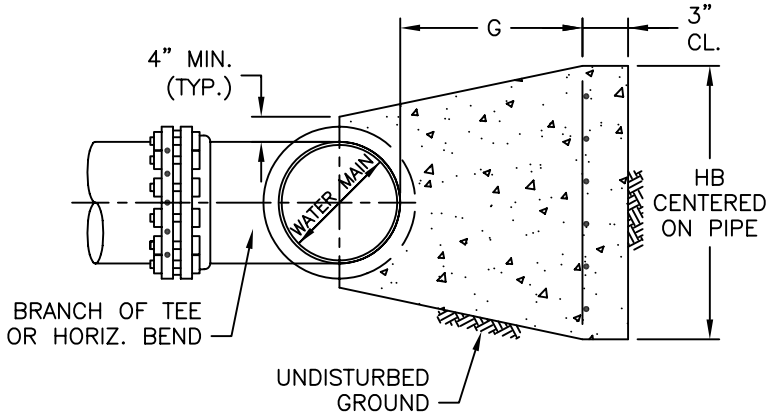
SECTIONAL PLAN – BENDS



SECTIONAL PLAN – TEES

LEGEND

Δ – ANGLE OF BEND
HB – HEIGHT OF BLOCK
W – WIDTH AGAINST UNDISTURBED GROUND
W' – WIDTH AT FITTING
G – DEPTH OF BLOCK



SECTION A–A

APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL CONCRETE THRUST BLOCK FOR HORIZONTAL PIPE BEND & TEE 12" DIAMETER & SMALLER WATER MAINS

BRANCH OF TEE OR PIPE DIA	BEND TYPE	W	HB	W'	G	REINF. (E.W.)
6"	11.25°	1'–6"	1'–6"	0'–8"	1'–0"	#4 @12"
	22.5°	1'–9"	1'–6"	0'–8"	1'–0"	#4 @12"
	45°	2'–8"	2'–0"	0'–8"	1'–0"	#4 @12"
	90°	4'–6"	2'–3"	0'–10"	1'–0"	#5 @12"
	TEE	3'–0"	3'–0"	0'–10"	1'–0"	#5 @12"
8"	11.25°	1'–6"	1'–6"	0'–8"	1'–0"	#4 @12"
	22.5°	1'–9"	1'–6"	0'–8"	1'–0"	#4 @12"
	45°	2'–8"	2'–0"	0'–8"	1'–0"	#4 @12"
	90°	5'–0"	3'–9"	1'–0"	1'–6"	#6 @12"
	TEE	4'–0"	3'–6"	1'–4"	1'–0"	#5 @12"
12"	11.25°	2'–6"	2'–6"	1'–0"	1'–0"	#4 @12"
	22.5°	3'–6"	2'–6"	1'–0"	1'–3"	#4 @12"
	45°	7'–0"	4'–6"	1'–4"	1'–6"	#6 @12"
	90°	10'–0"	4'–6"	1'–4"	1'–6"	#6 @12"
	TEE	8'–6"	5'–0"	1'–4"	1'–6"	#6 @12"

NOTES:

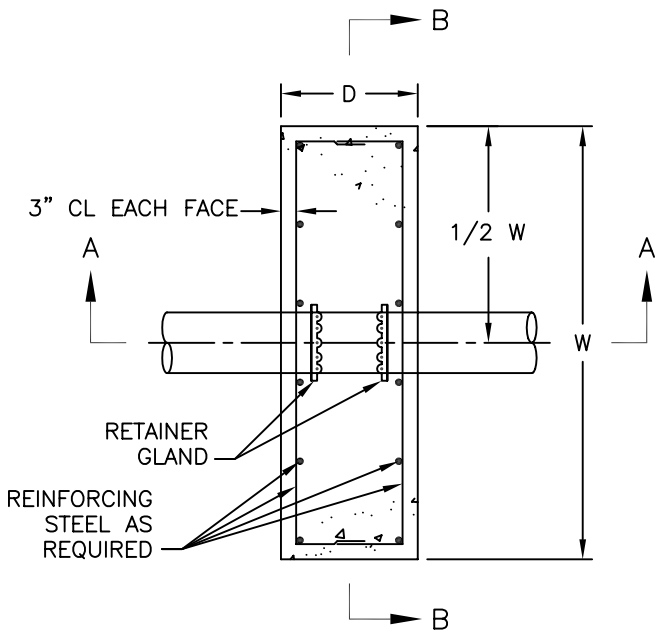
1. ALL CONCRETE TO BE CLASS 4000, AIR ENTRAINED, TYPE II CEMENT
2. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60
3. NOMINAL DEPTH OF COVER ON WATER MAIN IS FOUR FEET
4. UNIT WEIGHT OF SOIL, 120 PCF
5. DESIGN BASED ON ø = 30° AND TEST PRESSURE = 195 PSI
6. HB – HEIGHT OF BLOCK, W'–WIDTH AT FITTING AND W–WIDTH AGAINST UNDISTURBED GROUND SHOULD BE CENTERED ON PIPE AND FITTING.
7. FOR PIPE SIZE GREATER THAN 12", BLOCKS BEDDED IN SOILS WEAKER THAN ø =30°, OR FOR MAINS WITH A TEST PRESSURE GREATER THAN 195 PSI, THE THRUST BLOCK MUST BE SPECIFICALLY DESIGNED FOR EACH APPLICATION.

APPROVED DATE: June 20, 2003

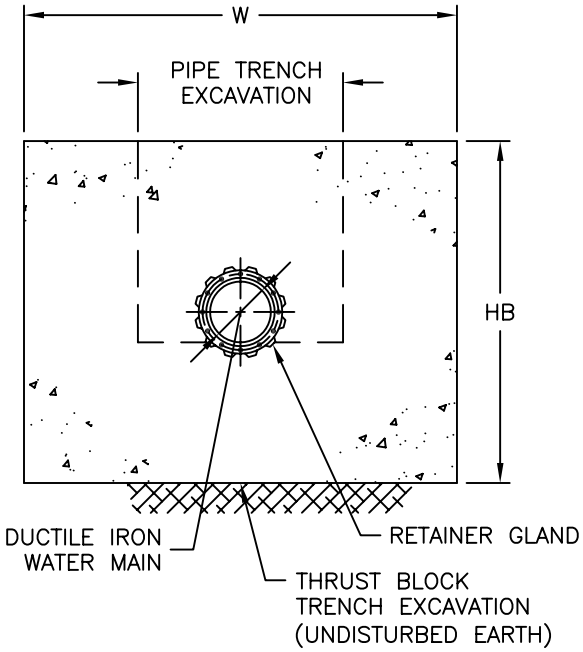
DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES

REVISION NO.: 0
DATE: 6/20/03
PREPARED BY: OBG/BKJV
CHECKED BY: W.DARROW

STANDARD DETAIL
CONCRETE THRUST BLOCK
FOR HORIZONTAL PIPE BEND & TEE
12" DIAMETER & SMALLER WATER MAINS

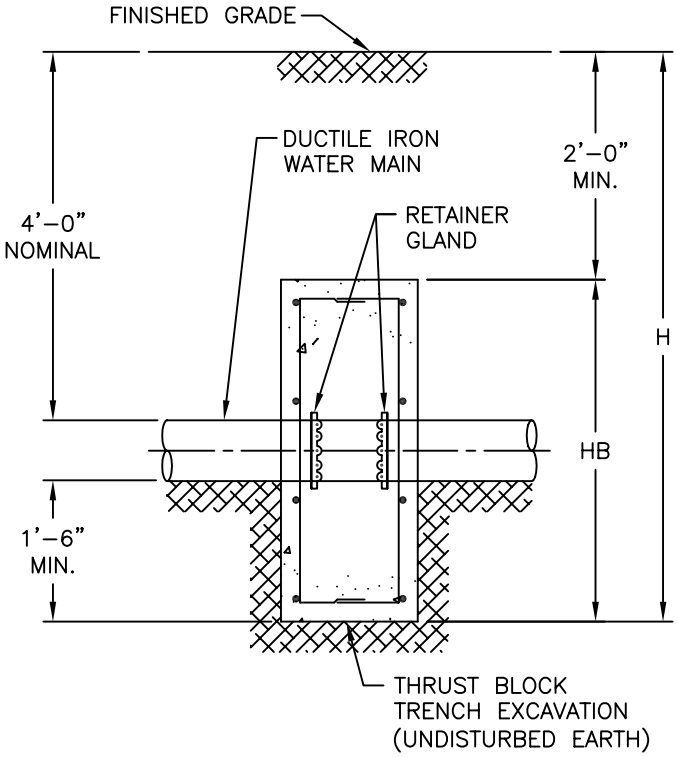


SECTIONAL PLAN



SECTION B–B

REINFORCING STEEL NOT SHOWN FOR CLARITY



SECTION A–A

LEGEND

W – WIDTH OF BLOCK

HB – HEIGHT OF BLOCK

D – DEPTH OF BLOCK

H – HEIGHT FROM FINISHED GRADE TO BOTTOM OF BLOCK

APPROVED DATE: June 20, 2003

DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES

REVISION NO.: 0
DATE: 6/20/03
PREPARED BY: OBG/BKJV
CHECKED BY: W.DARROW

STANDARD DETAIL
IN–LINE THRUST BLOCK
12" DIAMETER & SMALLER
DUCTILE IRON WATER MAINS

PIPE SIZE		W	D	HB	H	REINF. (E.W.E.F.)
PIPE	6"	4' – 7"	1' – 0"	3' – 7"	6' – 1"	#4 @12"
	8"	4' – 9"	1' – 6"	3' – 9"	6' – 3"	#4 @10"
	12"	5' – 0"	2' – 0"	5' – 0"	7' – 0"	#4 @8"
REDUCER	8" X 6"	3' – 8"	1' – 0"	3' – 2"	6' – 2"	#4 @12"
	12" X 8"	4' – 9"	1' – 6"	3' – 9"	6' – 6"	#4 @10"
	12" X 6"	4' – 9"	1' – 6"	3' – 9"	6' – 6"	#4 @10"

NOTES:

1. RETAINER GLANDS WITH DUCTILE IRON WEDGES IN COMBINATION WITH SPECIAL HEAT TREATED SET SCREWS. TORQUE PER MANUFACTURER INSTRUCTIONS.
2. ALL CONCRETE TO BE CLASS 4000, AIR ENTRAINED, TYPE II CEMENT.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
4. EXCAVATION BACKFILL, PER SPECIFICATIONS 02220.
5. UNIT WEIGHT OF SOIL, 120 PCF.
6. NOMINAL DEPTH OF COVER ON WATER MAIN IS FOUR FEET.
7. DESIGN BASED ON ø=30°, AND TEST PRESSURE = 195 PSI.
8. FOR PIPE SIZE LARGER THAN 12", BLOCKS BEDDED IN SOILS WEAKER THAN ø30°, OR FOR MAINS WITH A TEST PRESSURE GREATER THAN 195 PSI, THE THRUST BLOCK MUST BE SPECIFICALLY DESIGNED FOR EACH APPLICATION.

APPROVED DATE: June 20, 2003

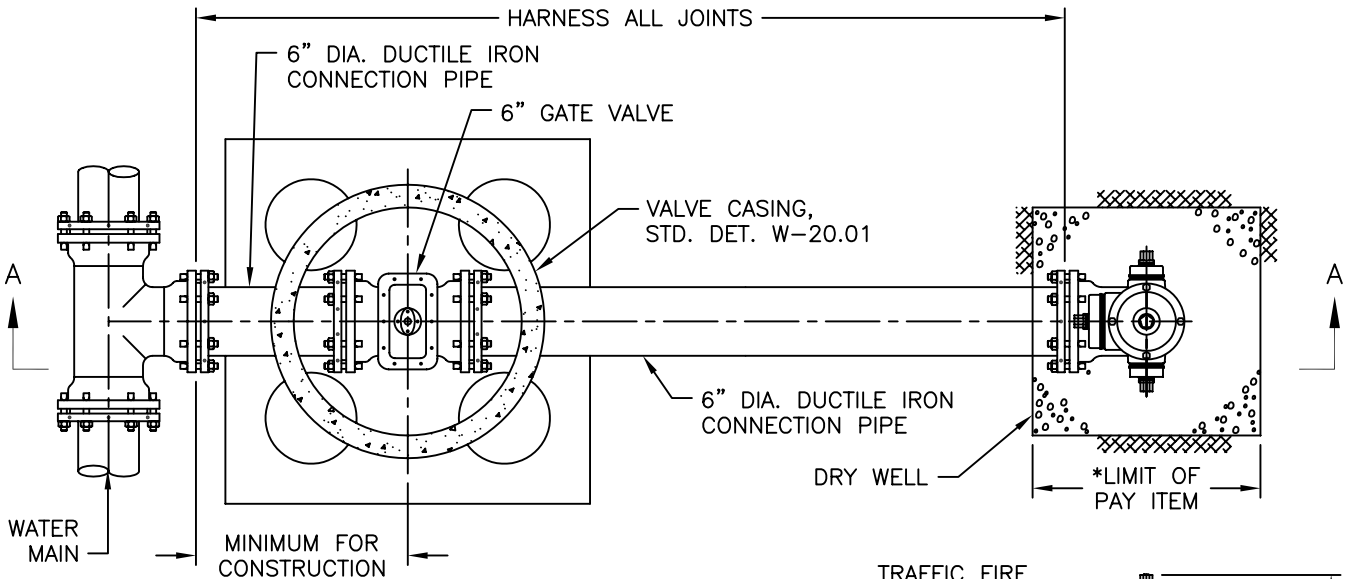
DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES

REVISION NO.: 0
DATE: 6/20/03
PREPARED BY: OBG/BKJV
CHECKED BY: W.DARROW

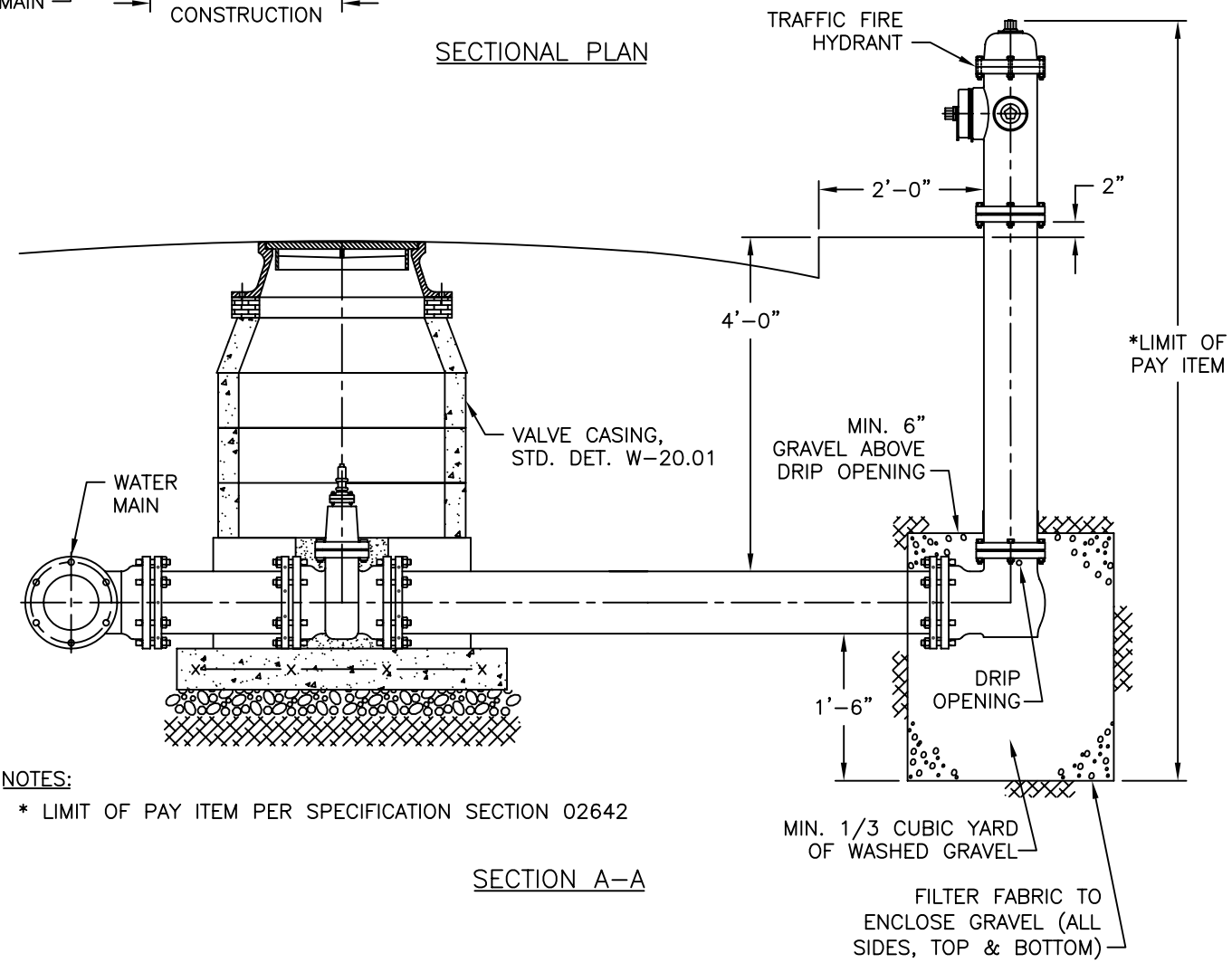
STANDARD DETAIL
IN–LINE THRUST BLOCK
12" DIAMETER & SMALLER
DUCTILE IRON WATER MAINS

DISTRICT OF COLUMBIA
WATER AND SEWER AUTHORITY

W–50.01
1 OF 1



SECTIONAL PLAN



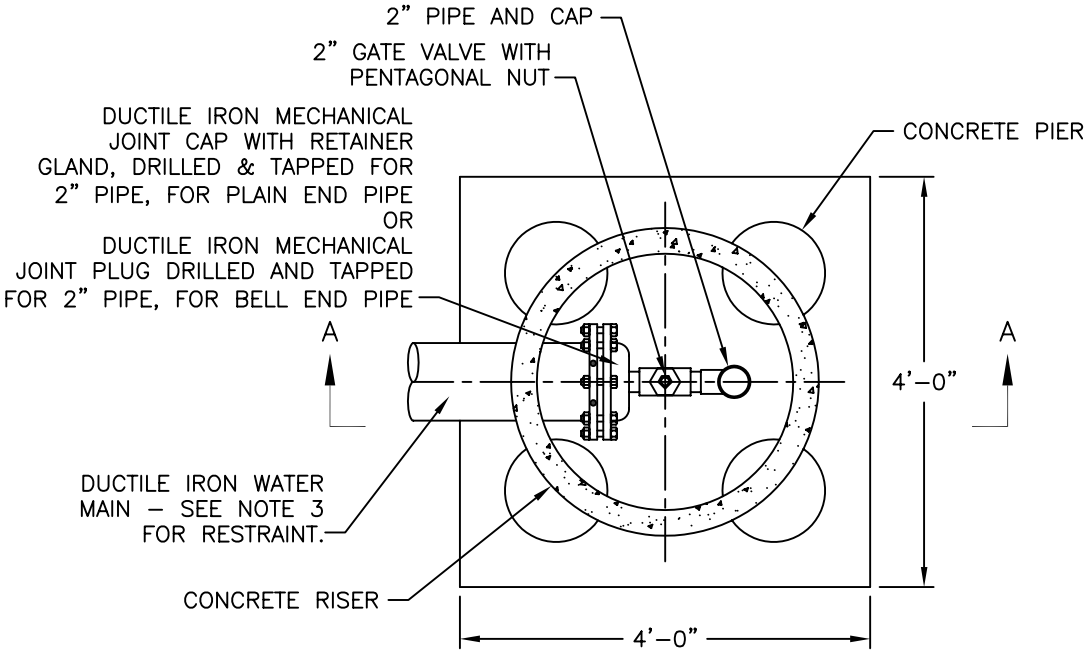
NOTES:

* LIMIT OF PAY ITEM PER SPECIFICATION SECTION 02642

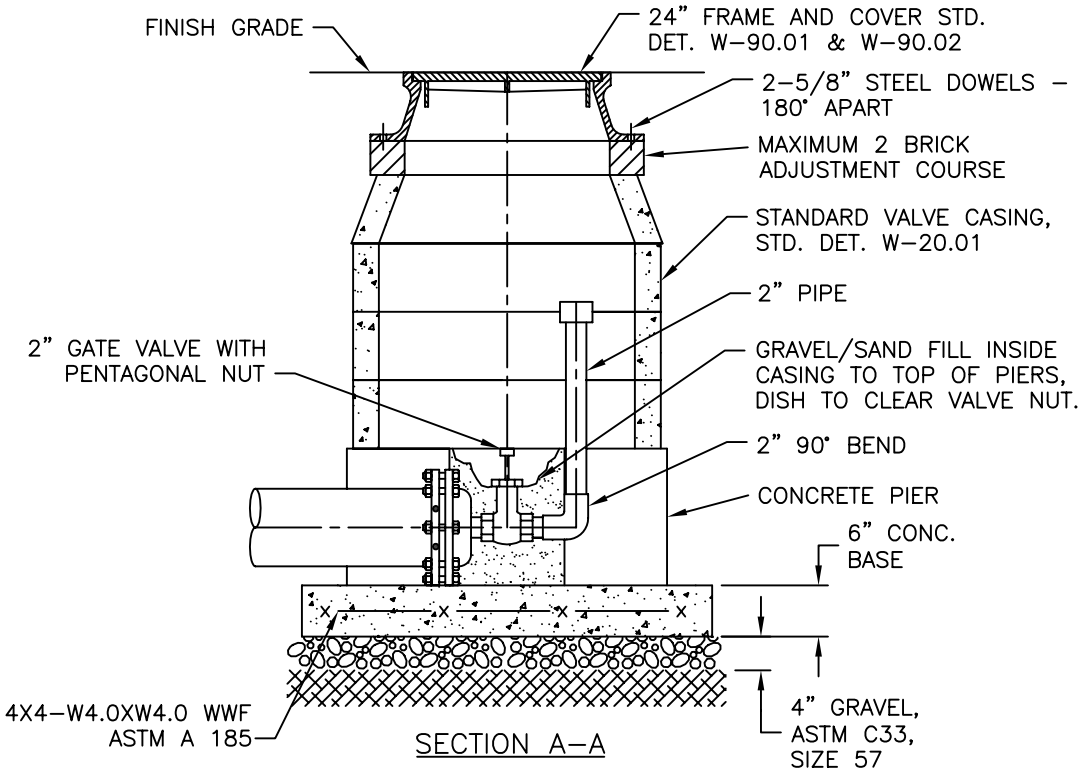
SECTION A–A

APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL TRAFFIC FIRE HYDRANT INSTALLATION

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY	W–50.10 1 OF 1



SECTIONAL PLAN



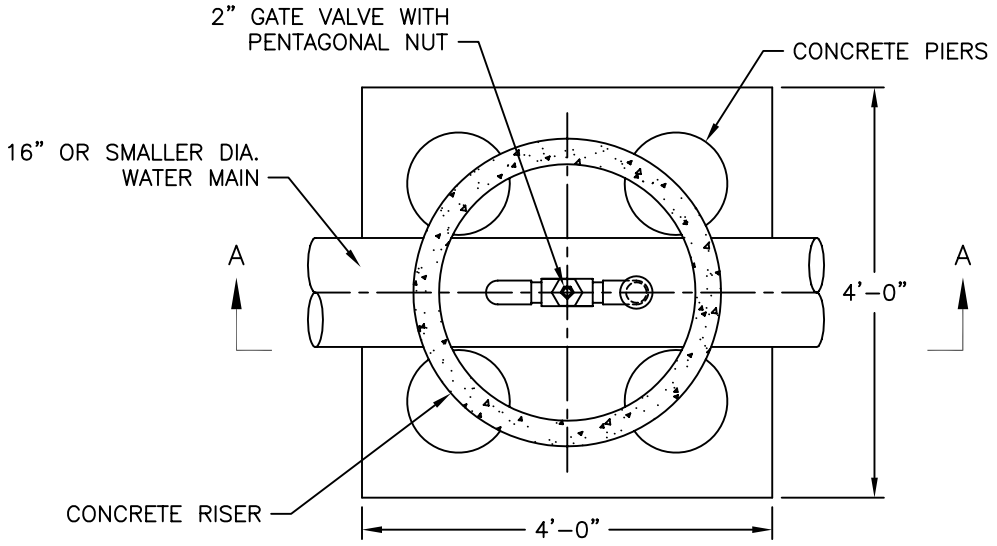
SECTION A–A

NOTES:

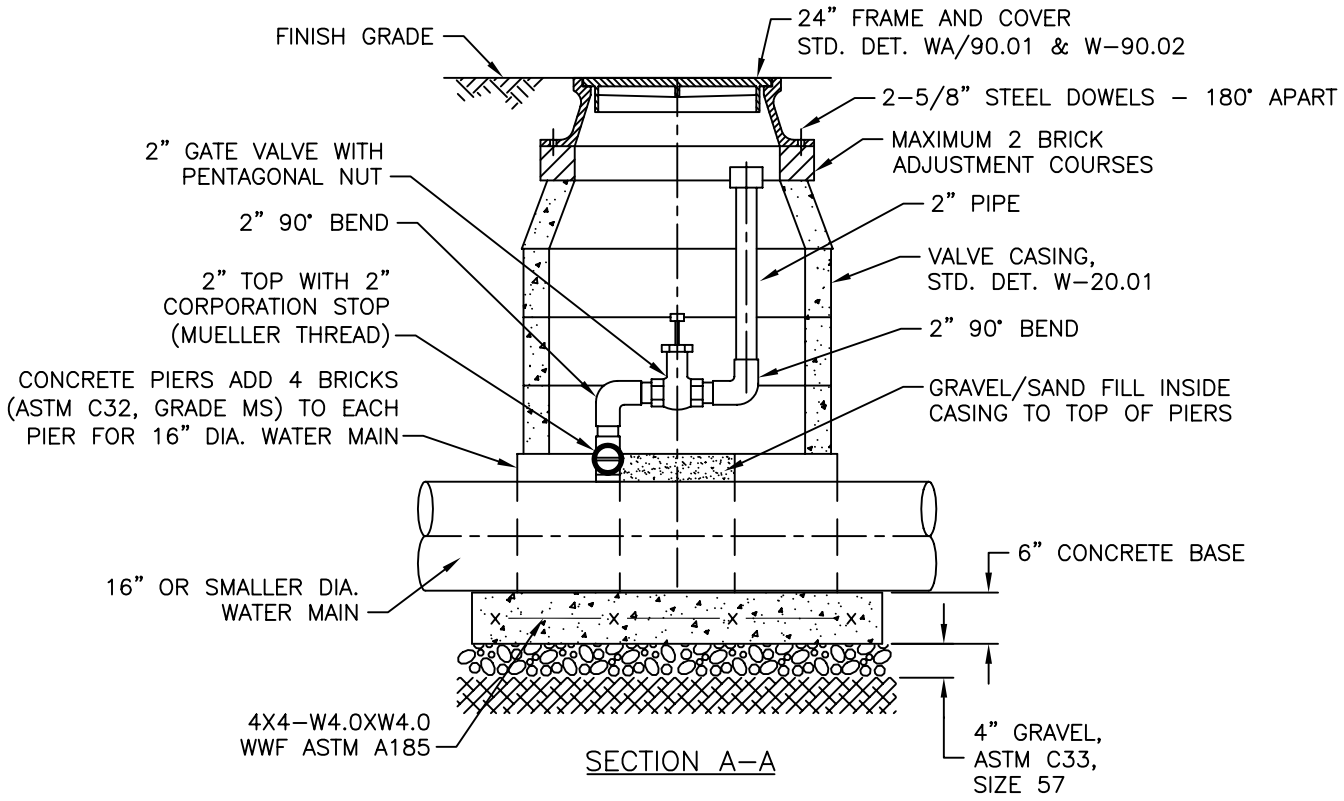
1. ALL CONCRETE CLASS 4000, AIR ENTRAINED, TYPE II CEMENT.
2. FITTINGS AND 2" PIPE TO BE BRASS.
3. PROVIDE THRUST RESTRAINT CONSISTING OF IN–LINE THRUST BLOCK ON FIRST PIPE LENGTH PER W–40.02 OR MINIMUM LENGTH OF HARNESSED PIPE AS FOLLOWS: 6" PIPE – 40'; 8" PIPE – 53';12" PIPE – 77'.

APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL DEAD END 2" AIR/DRAIN BLOW–OFF FOR 12" DIAMETER & SMALLER WATER MAINS

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY	W–50.11 1 OF 1



SECTIONAL PLAN

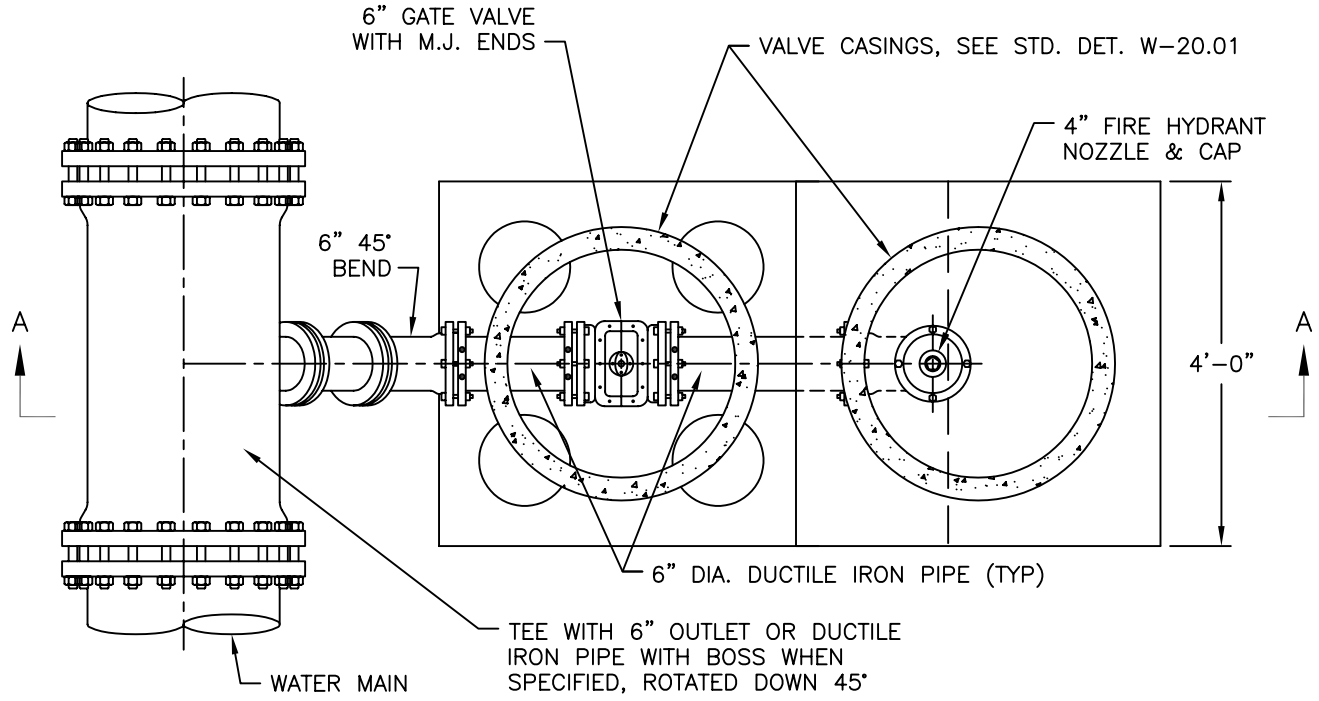


SECTION A–A

NOTES:

1. ALL CONCRETE CLASS 4000, AIR ENTRAINED, TYPE II CEMENT.
2. FITTINGS AND 2" PIPE TO BE BRASS.

APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL 2" AIR/DRAIN BLOWOFF

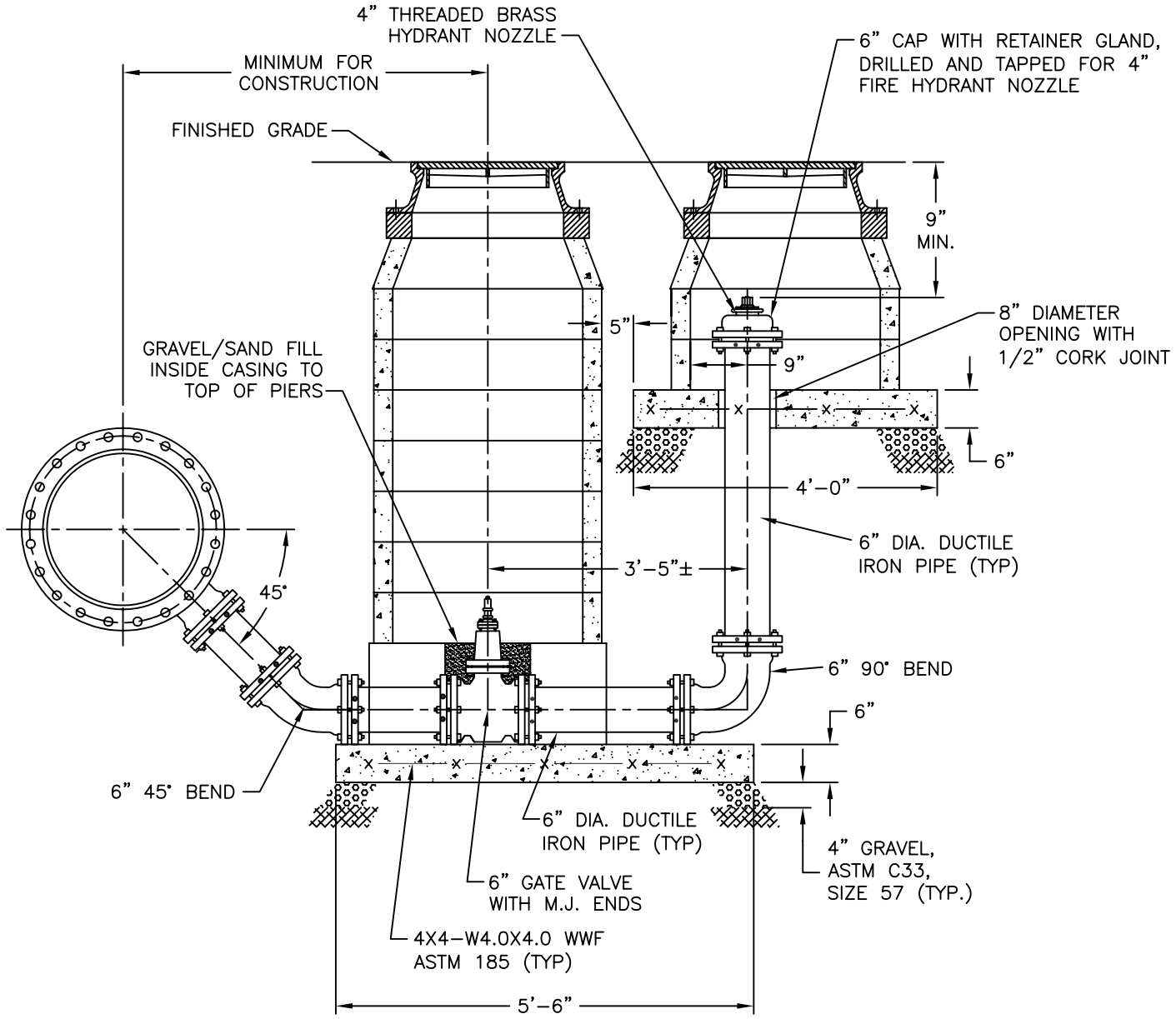


SECTIONAL PLAN

NOTES:

1. ALL CONCRETE TO BE CLASS 4000, AIR ENTRAINED, TYPE II CEMENT.
2. ALL PIPE AND FITTINGS SHALL BE MECHANICAL JOINT WITH RETAINER GLANDS UTILIZED IN PLACE OF STANDARD GLANDS FOR RESTRAINT.
3. FOR 36", 42" AND 48" DIAMETER WATER MAINS USE MECHANICAL JOINT TEE AS FOLLOWS:
   - 36" x 8" TEE WITH 8" x 6" REDUCER
   - 42" x 12" TEE WITH 12" x 6" REDUCER
   - 48" x 12" TEE WITH 12" x 6" REDUCER
4. DUCTILE IRON PIPE WITH A 6" BOSSED OUTLET MAY BE USED ONLY WHEN APPROVED BY WASA.

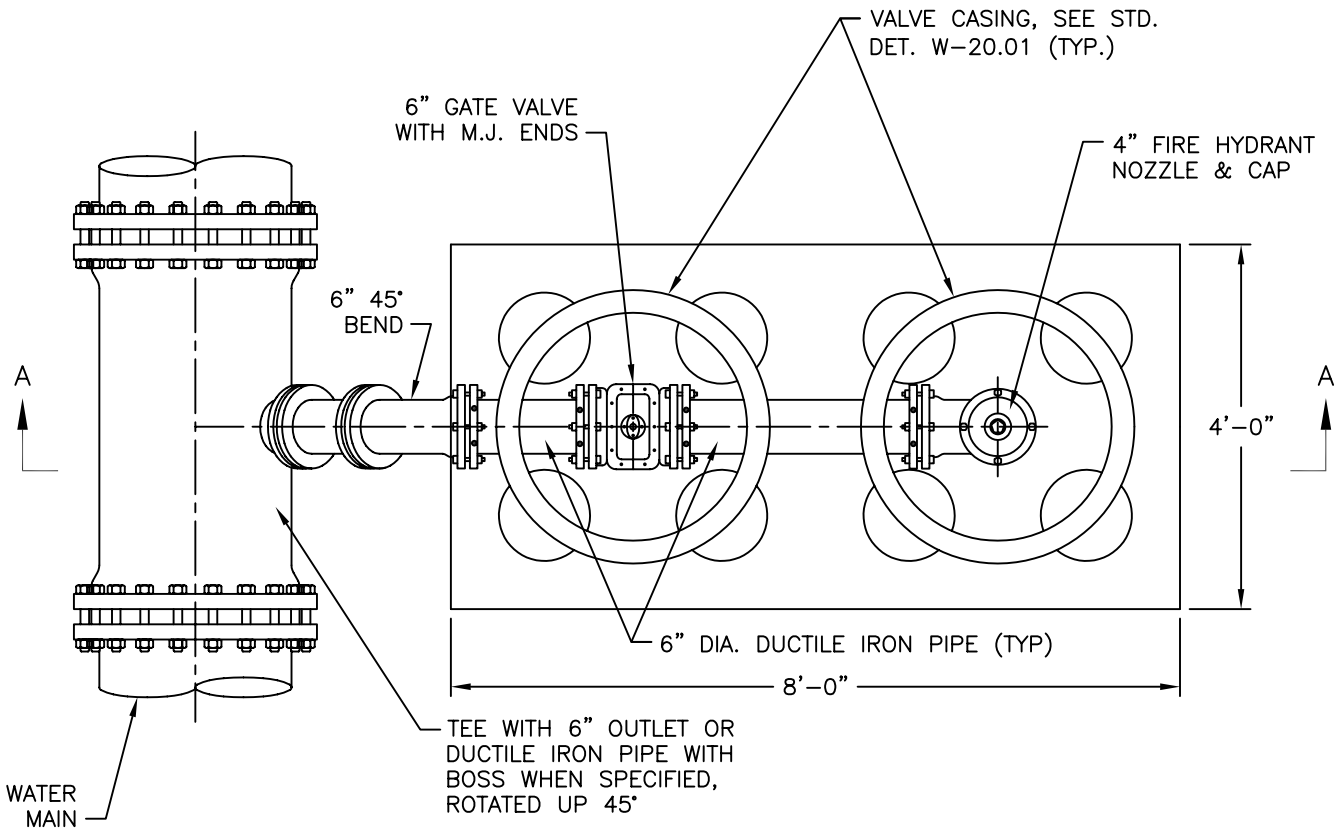
APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL 6" DRAIN BLOWOFF



SECTION A-A

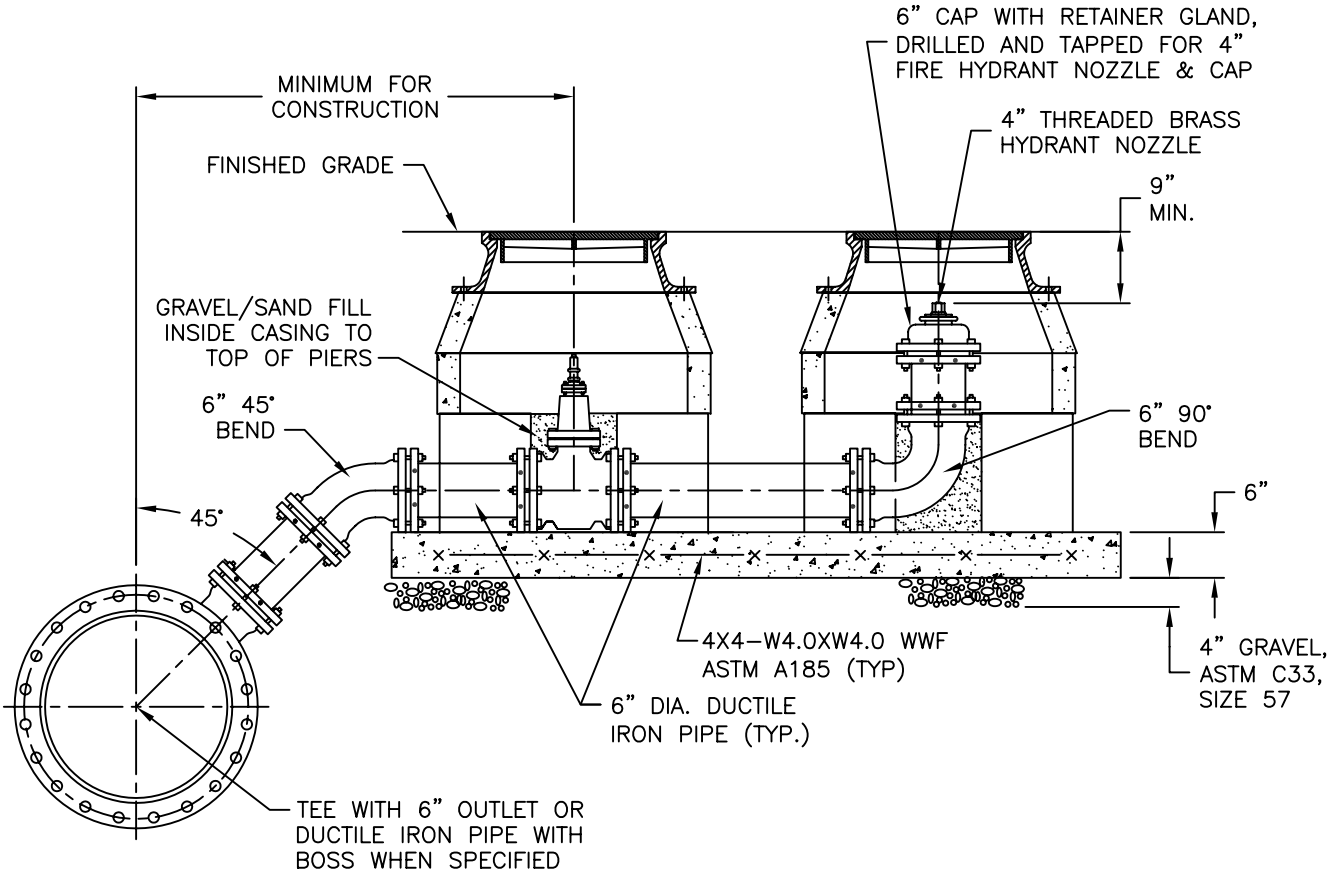
APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL 6" DRAIN BLOWOFF

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY	W–50.13 1 OF 2



SECTIONAL PLAN

APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL 6" AIR BLOWOFF



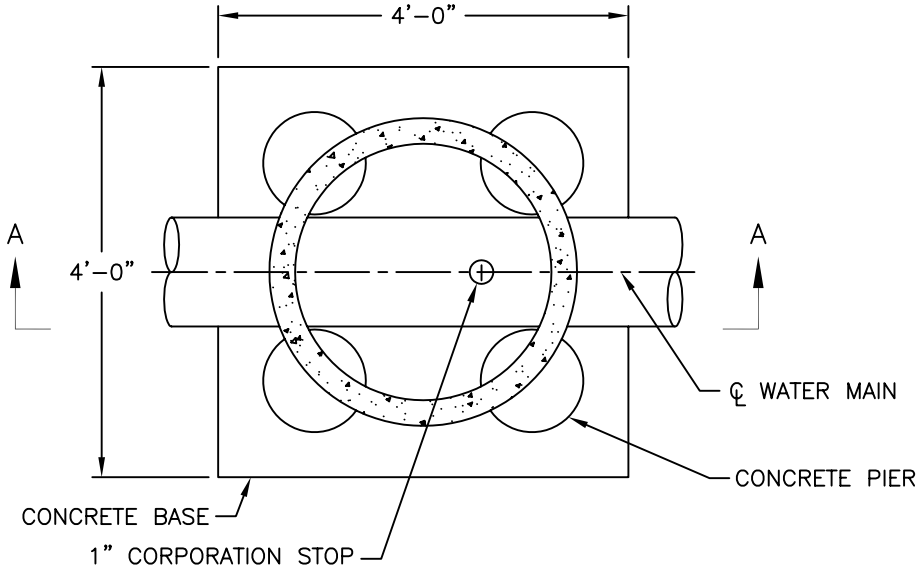
SECTION A–A

NOTES:

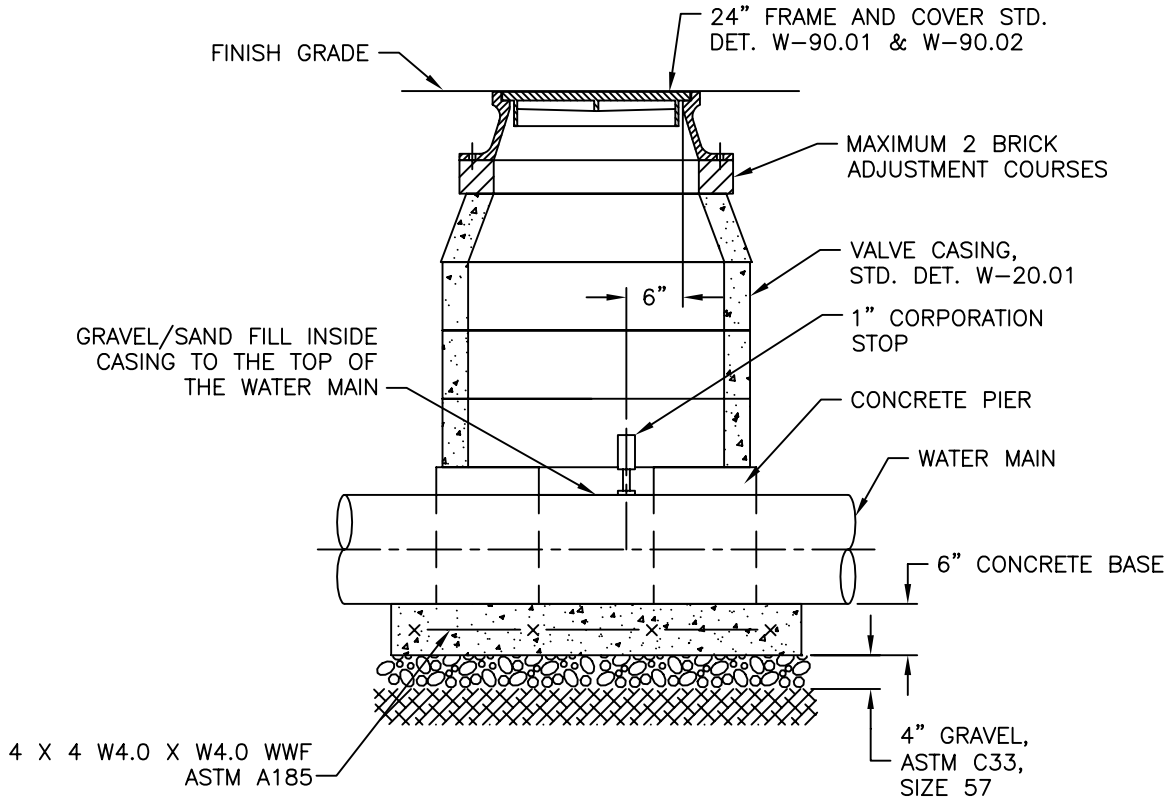
1. ALL CONCRETE TO BE CLASS 4000, AIR ENTRAINED, TYPE II CEMENT.
2. ALL PIPE AND FITTINGS SHALL BE MECHANICAL JOINT WITH RETAINER GLANDS UTILIZED IN PLACE OF THE STANDARD GLANDS FOR RESTRAINT.
3. FOR 36", 42" AND 48" DIAMETER WATER MAINS USE MECHANICAL JOINT TEE AS FOLLOWS:
   - 36" x 8" TEE WITH 8" x 6" REDUCER
   - 42" x 12" TEE WITH A 12" x 6" REDUCER
   - 48" x 12" TEE WITH A 12" x 6" REDUCER
4. DUCTILE IRON PIPE WITH A 6" BOSSED OUTLET MAY BE USED INSTEAD OF A TEE ONLY WHEN APPROVED BY WASA.
5. FOR WATER MAINS 36" AND LARGER AND FOR DEPTH OF COVER LESS THAN 4'–3", THE DESIGNER SHALL VERIFY THE VERTICAL DISTANCE REQUIRED FOR THE DETAIL TO BE CONSTRUCTED AS SHOWN AND MODIFY THE DETAIL AS REQUIRED, TO ASSURE ITS CONSTRUCTIBILITY.

APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL 6" AIR BLOWOFF

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY	W–50.20 1 OF 1



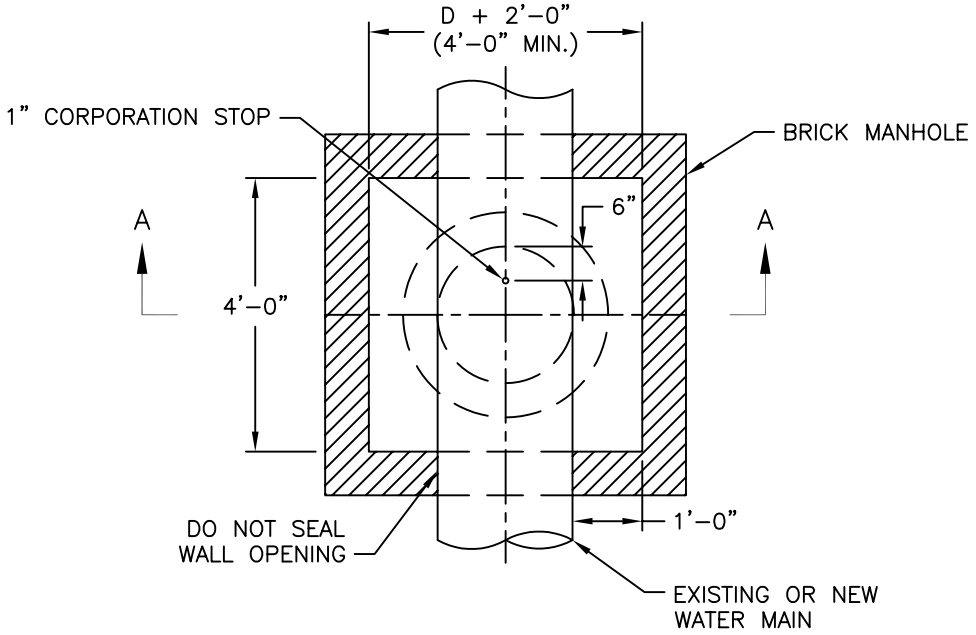
SECTIONAL PLAN



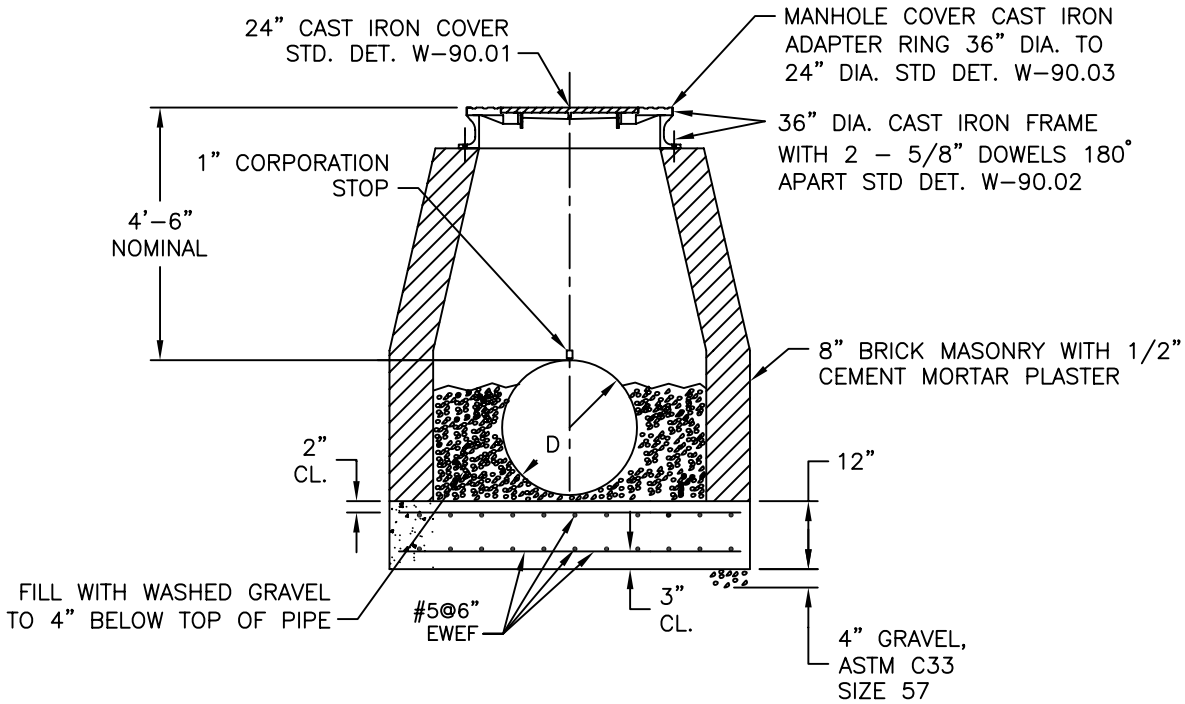
SECTION A–A

APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL PITOMETER CORPORATION STATION 12" DIAMETER & SMALLER WATER MAIN

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY	W–50.21 1 OF 1



SECTIONAL PLAN



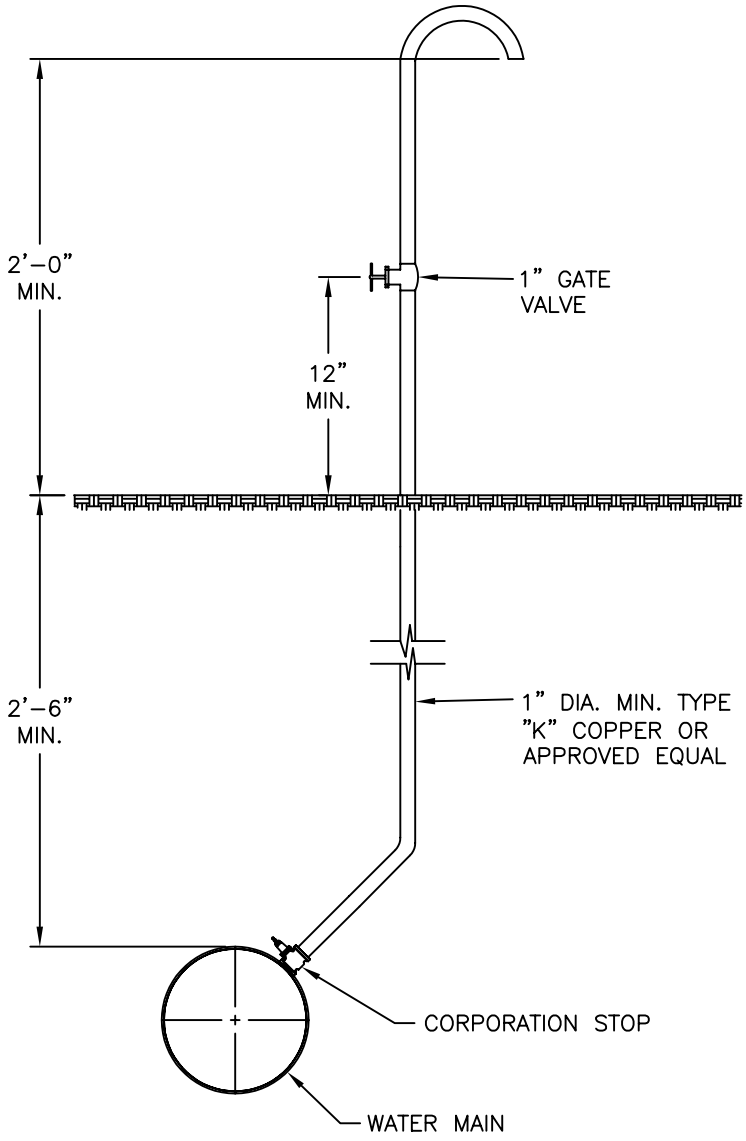
SECTION A–A

NOTES:

1. ALL CONCRETE TO BE CL 4000, AIR ENTRAINED.
2. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.

APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL PITOMETER CORPORATION STATION 16" THROUGH 48" DIA. WATER MAINS

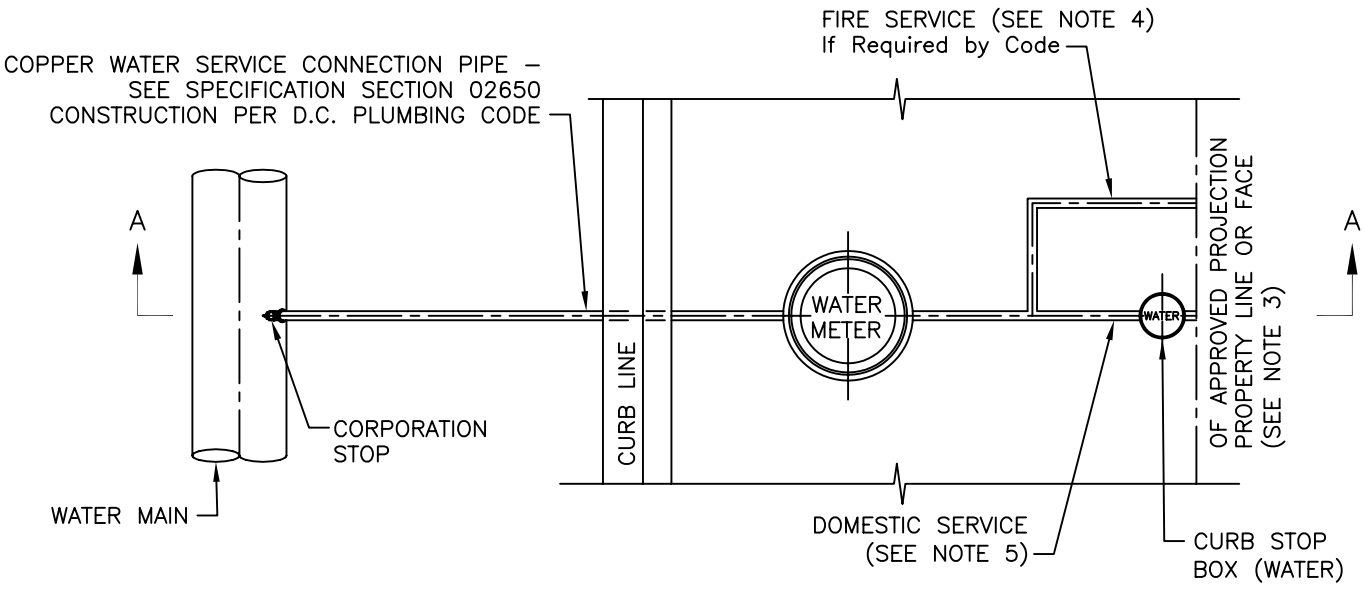
DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY	W–50.25 1 OF 1



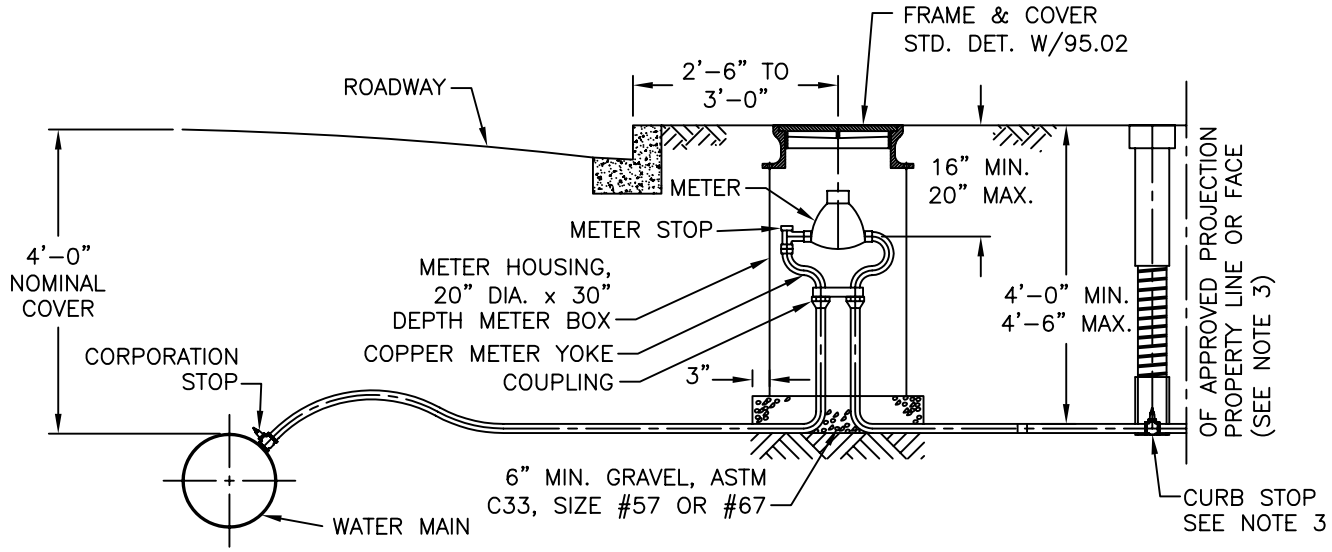
APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL TEMPORARY WATER SAMPLING STATION

DISTRICT OF COLUMBIA
WATER AND SEWER AUTHORITY

W–80.01
1 OF 1



PLAN



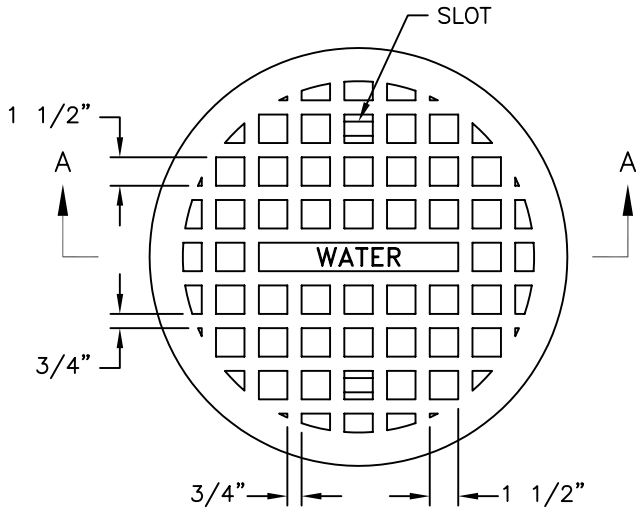
SECTION A–A

NOTES:

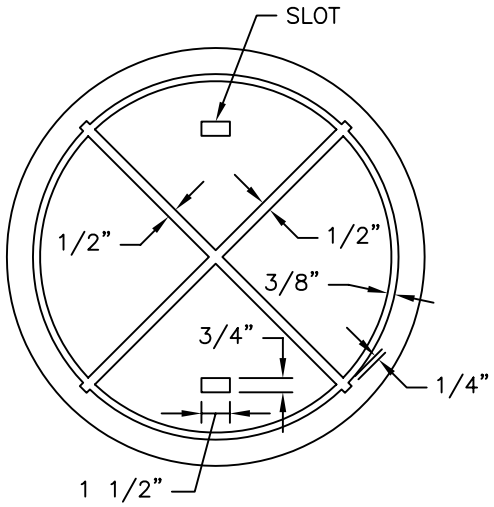
1. 1" DOMESTIC METER SETTER AS SHOWN.
2. 1 1/2" – 2" METER SETTER REQUIRES A METER VALVE ON EACH SIDE (NOT SHOWN ON DETAIL)
3. IF THE BUILDING OR APPROVED PROJECTION IS AT OR EXTENDS BEYOND THE PROPERTY LINE, THE CURB STOP SHALL BE PLACED 18 INCHES FROM FACE OF BUILDING OR APPROVED PROJECTION.
4. FOR NEW BUILDING CONSTRUCTION ONLY (IF REQUIRED): THE FIRE SERVICE LINE SHALL INCLUDE A SHUT–OFF VALVE INSTALLED INSIDE THE BUILDING.
5. FOR NEW BUILDING CONSTRUCTION ONLY (IF REQUIRED): THE DOMESTIC SERVICE LINE SHALL INCLUDE A PRESSURE REDUCING VALVE AND SHUT–OFF VALVE INSTALLED INSIDE THE BUILDING.

APPROVED DATE: January 2, 2004 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 1 DATE: 6/20/03 PREPARED BY: J. Shabelski CHECKED BY: W.DARROW	STANDARD DETAIL WATER SERVICE CONNECTIONS 1" THRU 2" DIAMETER

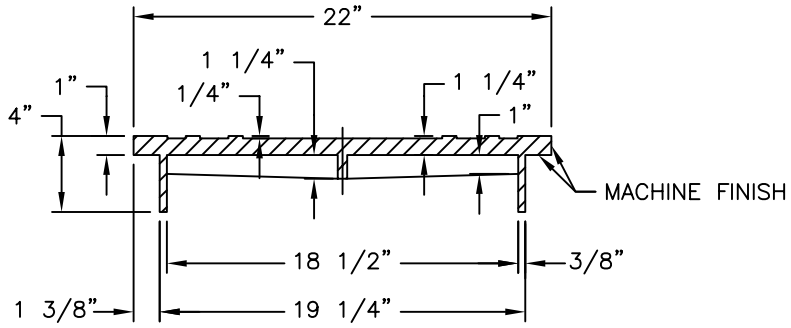
DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY	W–90.01 1 OF 1



PLAN – COVER



PLAN – COVER BOTTOM

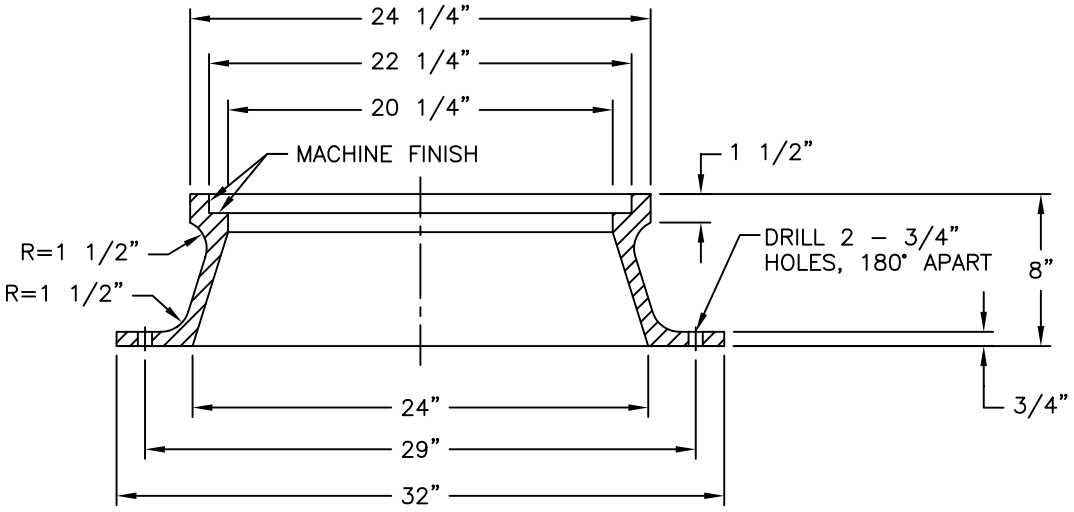


SECTION A–A

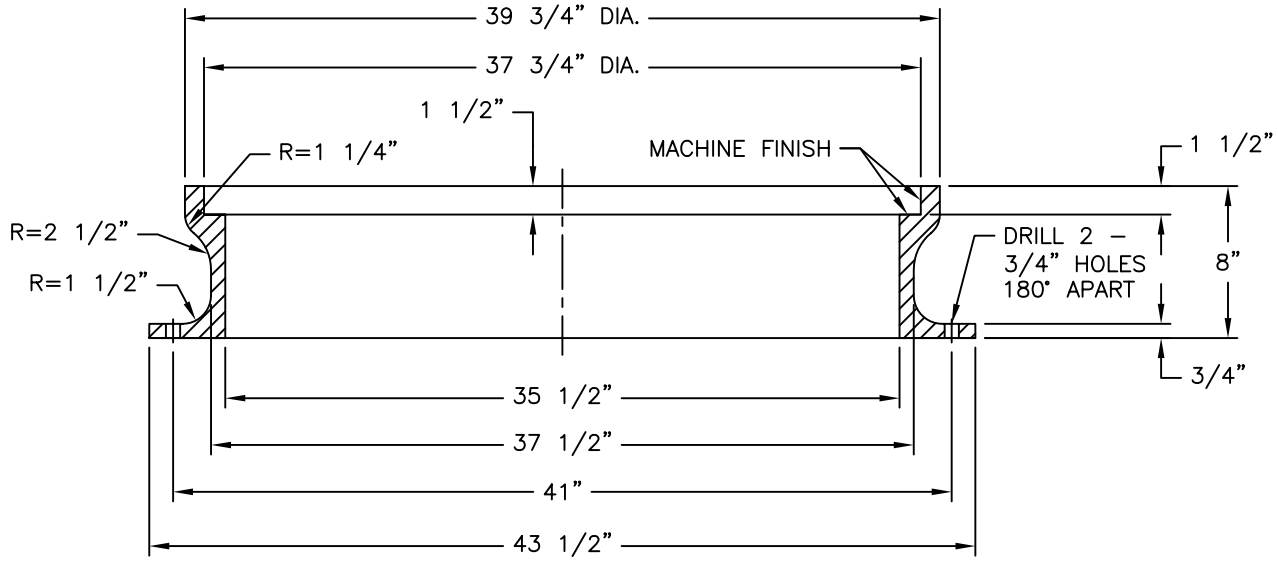
NOTE:

1. GRAY IRON CASTINGS PER ASTM A48, CLASS 30A OR 35.
2. ALL MACHINE FINISH TO BE A.S.A. SPECIFICATION, ROUGHNESS SYMBOL 250, TOLERANCE –0" +1/16".
3. THE WORD "WATER" IN 1" LETTERS SHALL BE CAST IN THE DEPRESSION SHOWN IN THE CENTER OF TOP OF COVER AND TO BE FLUSH WITH SURFACE OF COVER.

APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL 24" CAST IRON MANHOLE COVER



SECTION OF 24-INCH DIAMETER FRAME



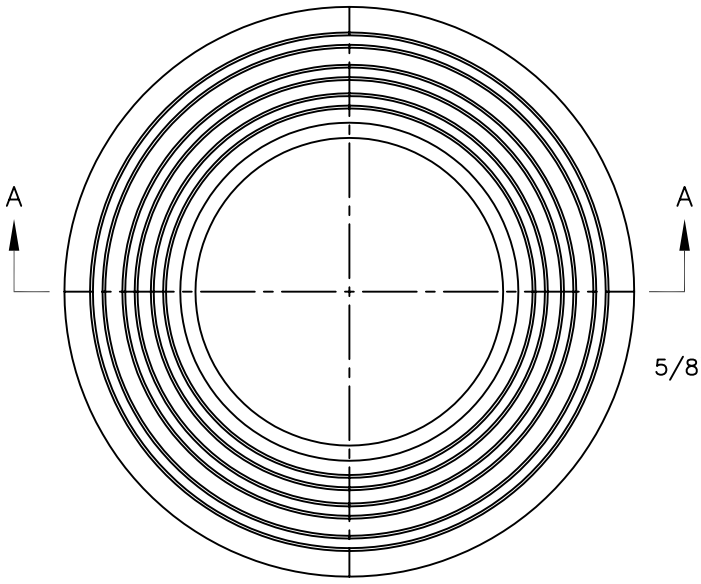
SECTION OF 36-INCH DIAMETER FRAME

NOTE:

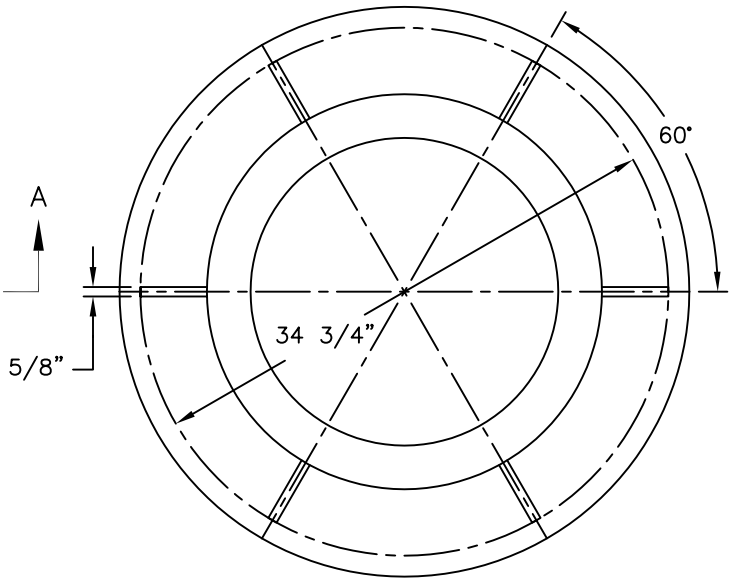
1. GRAY IRON CASTINGS PER ASTM A48, CLASS 30A OR 35.
2. ALL MACHINE FINISH TO BE A.S.A. SPECIFICATION, ROUGHNESS SYMBOL 250, TOLERANCE –0" +1/16".

APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL 24" AND 36" DIAMETER CAST IRON FRAMES

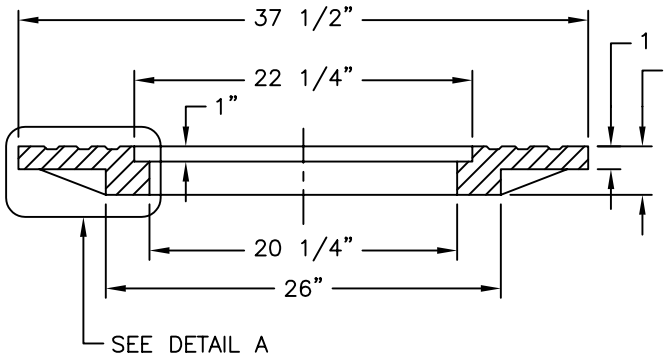
DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY	W–90.03 1 OF 1



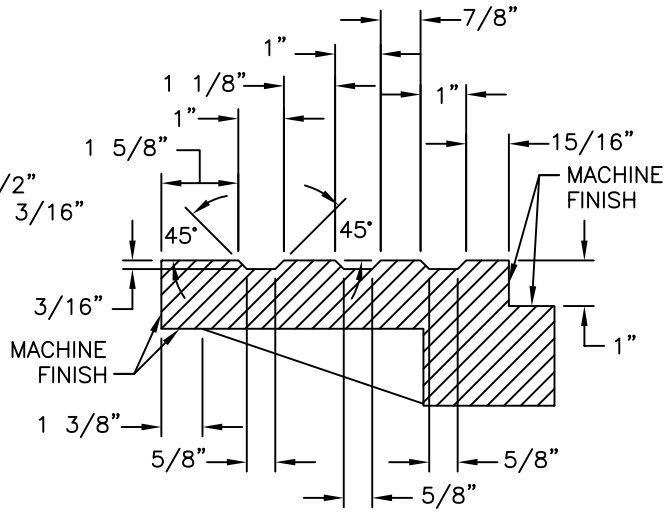
PLAN – ADAPTER RING



PLAN – RING BOTTOM



SECTION A–A



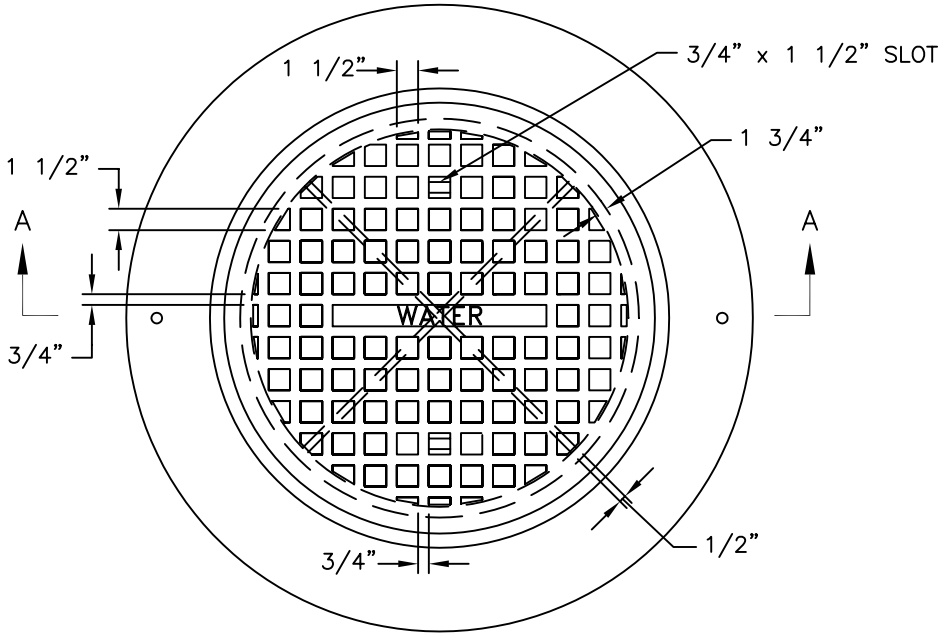
DETAIL A

NOTE:

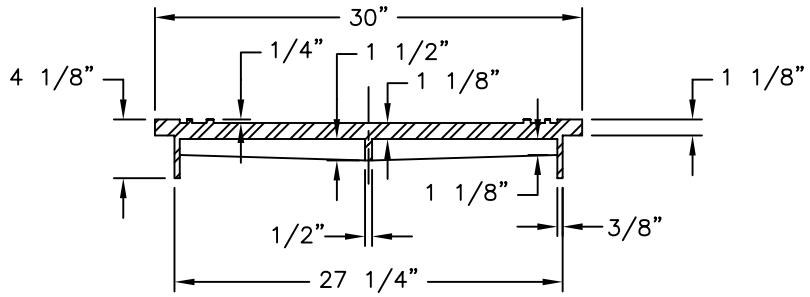
1. GRAY IRON CASTINGS PER ASTM A–48, CLASS 30A OR 35.
2. ALL MACHINE FINISH TO BE A.S.A. SPECIFICATIONS, ROUGHNESS SYMBOL 250, TOLERANCE –0" +1/16".

APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL MANHOLE COVER CAST IRON ADAPTER RING 36" DIAMETER TO 24" DIAMETER

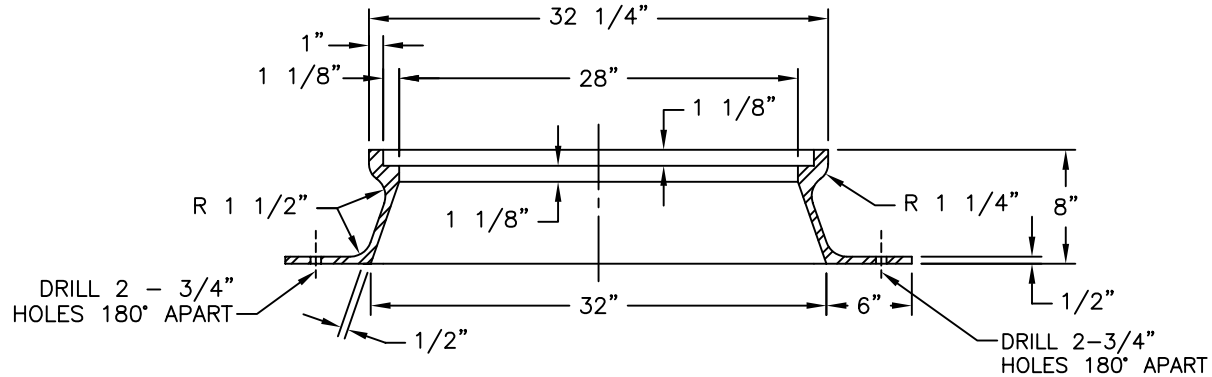
DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY	W–95.01 1 OF 1



SECTIONAL PLAN



SECTION OF COVER

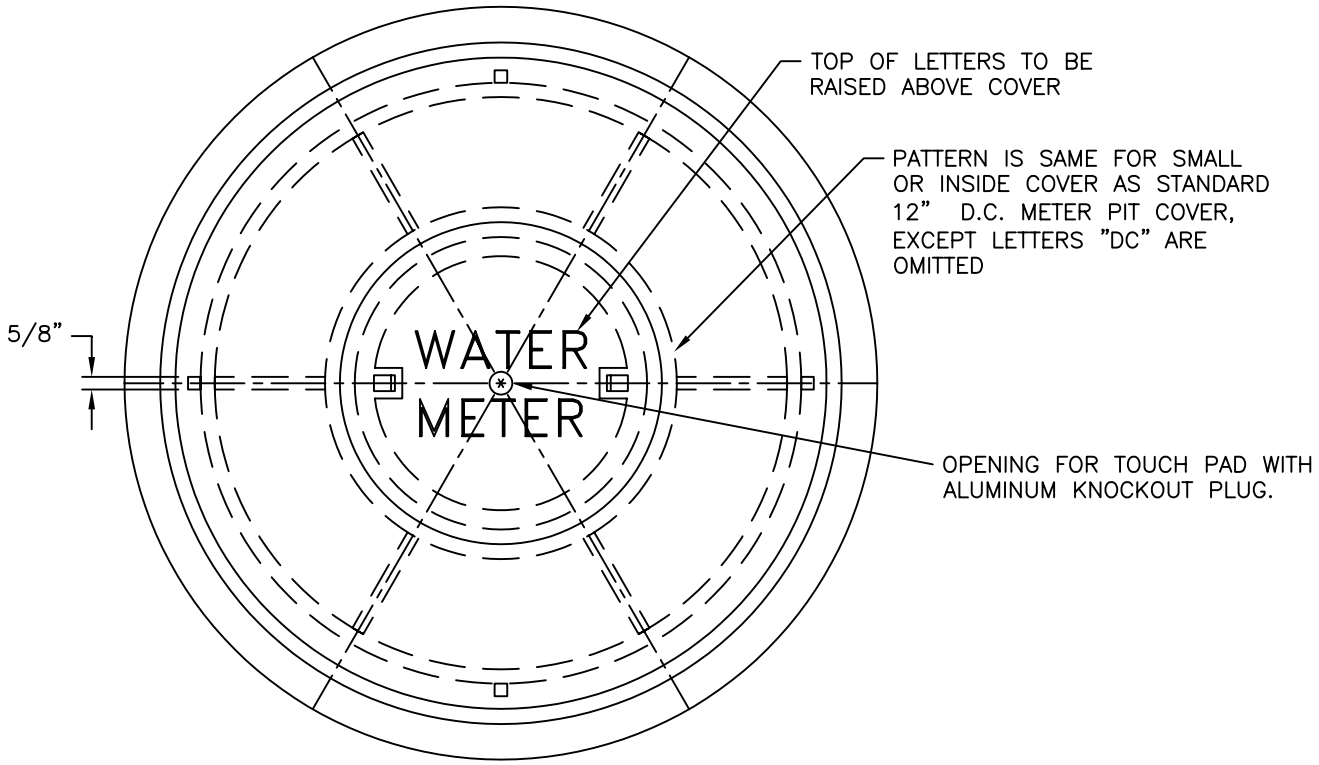


SECTION OF FRAME

NOTES:

1. GRAY IRON CASTINGS PER ASTM A–48, CLASS 30A OR 35.
2. ALL MACHINE FINISH TO BE A.S.A. SPECIFICATION, ROUGHNESS SYMBOL 250, TOLERANCE –0" +1/16".
3. THE WORD "WATER" IN 1" LETTERS SHALL BE CAST IN THE DEPRESSION SHOWN IN THE CENTER OF TOP OF COVER AND TO BE FLUSH WITH SURFACE OF COVER.

APPROVED DATE: June 20, 2003 DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES	REVISION NO.: 0 DATE: 6/20/03 PREPARED BY: OBG/BKJV CHECKED BY: W.DARROW	STANDARD DETAIL STANDARD 30" DIAMETER CAST IRON WATER METER FRAME AND COVER (ROADWAY USE)



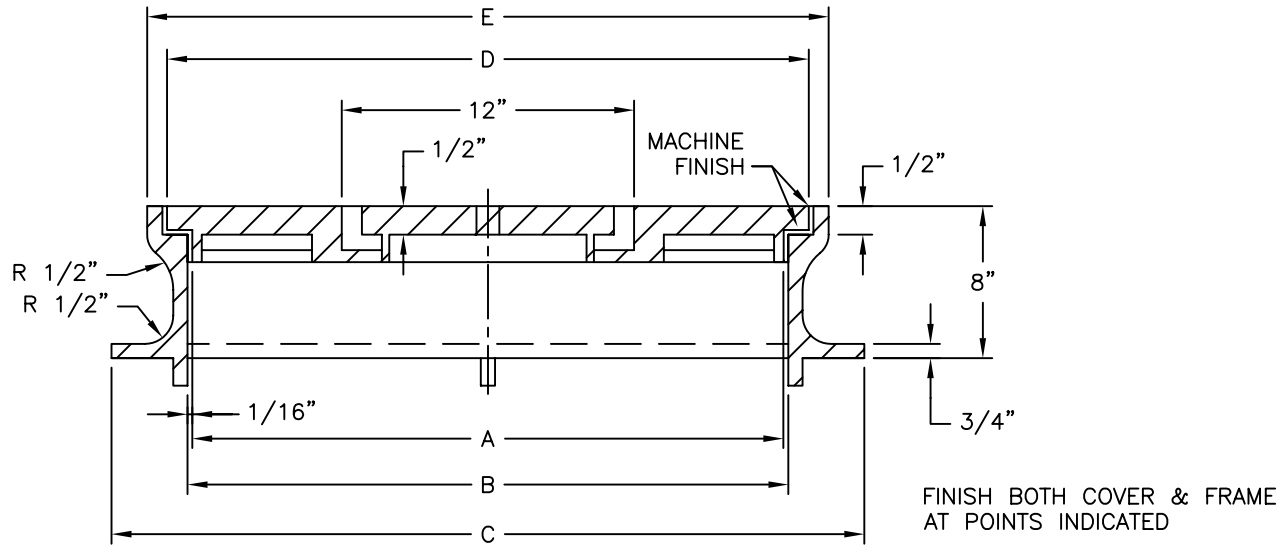


TABLE OF DIMENSIONS					
INSIDE DIA. METER PIT	A	B	C	D	E
20" (21") –	17 7/8"	18"	23"	19 7/8"	21"
24"	21 7/8"	22"	27"	23 7/8"	25"
30"	27 7/8"	28"	33"	29 7/8"	31"

NOTES:

1. GRAY IRON CASTINGS PER ASTM A-48, CLASS 30A OR 35.
2. ALL MACHINE FINISH TO BE A.S.A. SPECIFICATION, ROUGHNESS SYMBOL 250, TOLERANCE -0" +1/16".

APPROVED DATE: June 20, 2003

DIRECTOR, DEPARTMENT OF ENGINEERING AND TECHNICAL SERVICES

REVISION NO.: 0
DATE: 6/20/03
PREPARED BY: OBG/BKJV
CHECKED BY: W.DARROW

STANDARD DETAIL
20", 24" & 30" DIAMETER CAST IRON WATER METER FRAME AND COVER (NON ROADWAY USE)