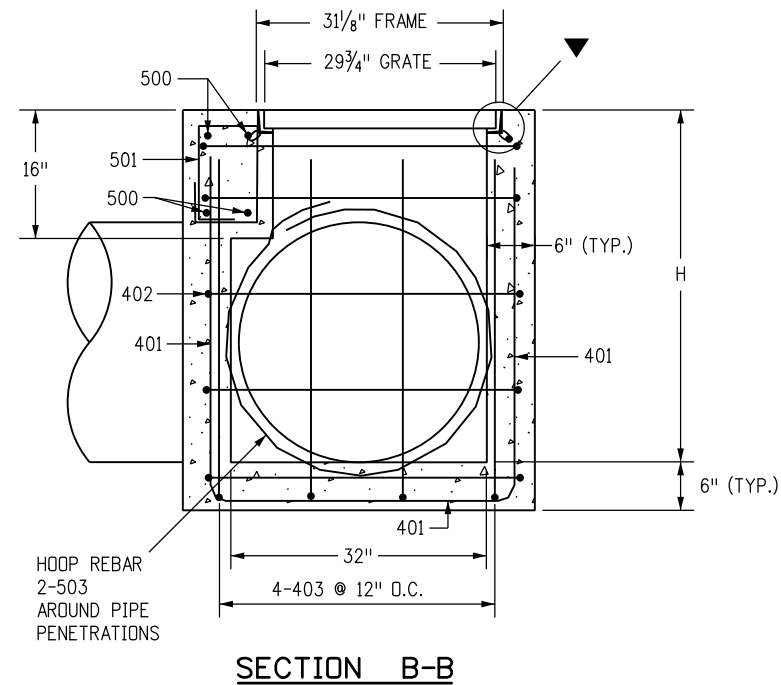
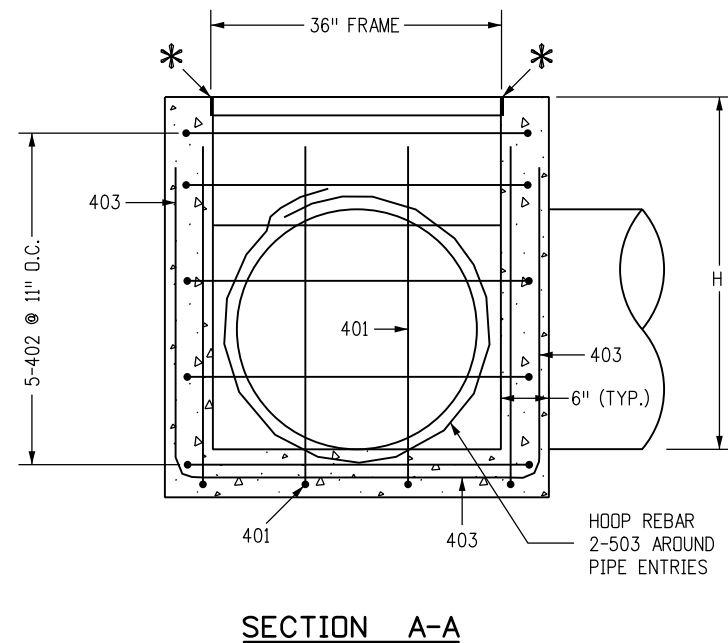


GENERAL NOTES

- FOR THE 32 INCH AND 36 INCH INSIDE INLET DIMENSIONS, THE ALLOWABLE PIPE I.D. IS 30 INCHES OR LESS. FOR THE 72 INCH INSIDE INLET DIMENSION, THE ALLOWABLE PIPE I.D. IS "H" MINUS 18 INCHES, OR LESS, UP TO A MAXIMUM OF 66 INCHES FOR "H" OF 7 FEET OR MORE.
- ALL CONCRETE SHALL BE CLASS B.
- INLET MAY BE CAST-IN-PLACE OR PRECAST.
- REINFORCING BARS SHALL BE #4 UNLESS SHOWN OTHERWISE.
- ALL REINFORCING BARS SHALL BE GRADE 60 AND EPOXY COATED. REINFORCING BARS SHALL HAVE A MINIMUM CLEARANCE OF 2 IN.
- ALL EDGE DISTANCES NOT MARKED "CLEAR" ARE TO THE CENTERLINE OF THE BAR.
- CUT OR BEND REINFORCING BARS AROUND PIPES AS REQUIRED.
- STEPS SHALL BE REQUIRED WHEN THE INLET DEPTH "H" IS EQUAL TO OR GREATER THAN 4 FT. AND SHALL CONFORM TO AASHTO M 199.
- THE INVERT OF THE BOX SHALL BE SLOPED TO DRAIN.
- THE CONTRACTOR SHALL STAMP FLOW ARROWS INTO THE TOP SURFACE OF THE INLET BOX SIDEWALLS TO INDICATE THE DIRECTION OF RUNOFF. THE STAMPED ARROWS SHALL BE 6 IN. LONG, 1 IN. HIGH, AND 3/8 IN. DEEP. FOR INLETS IN SUMP CONDITIONS, THE STAMPED FLOW ARROWS SHALL INDICATE THE PREDOMINATE DIRECTION OF RUNOFF FLOW.
- A 4 IN. DIA. STAINLESS STEEL MEDALLION WITH "NO DUMPING DRAINS TO STREAM" OR SIMILAR MESSAGE SHALL BE FIRMLY ATTACHED TO TOP OF THE INLET SURFACE WITH A PERMANENT FASTENER. THE MEDALLION WILL HAVE A FISH SYMBOL AND BLUE COLOR BACKGROUND. ALTERNATIVELY, THIS MESSAGE MAY BE CAST WITH 1 IN. HEIGHT LETTERS INTO THE TOP OF THE INLET'S CONCRETE SURFACE OR SURROUNDING CONCRETE APRON. THE NO DUMPING MESSAGE SHALL BE ELIMINATED FOR INLETS LOCATED WITHIN THE SHOULDER OF CONTROLLED ACCESS FREEWAYS WHEN SPECIFIED IN THE PLANS.



LEGEND

- ▼ GRATE TO BE INSTALLED DURING CONSTRUCTION OF THE BOX WITH THE VANE GRATE BOLTED IN PLACE TO THE FRAME.
- * TO FACILITATE REMOVAL OF THE GRATE, PLACE PLYWOOD 3 IN. x 1/4 IN. x 31-3/8 IN. ALONG EDGE OF THE GRATE AS SHOWN.
- ∅ FLOW ARROW STAMP IN DIRECTION OF FLOW (TYP.). FLOW →

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 Designer Initials: JBK
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Sheet Revisions

Date:	Comments
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(R-X)	
(R-X)	

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 CDDT HQ, 3rd Floor
 Denver, CO 80204
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VANE GRATE INLET

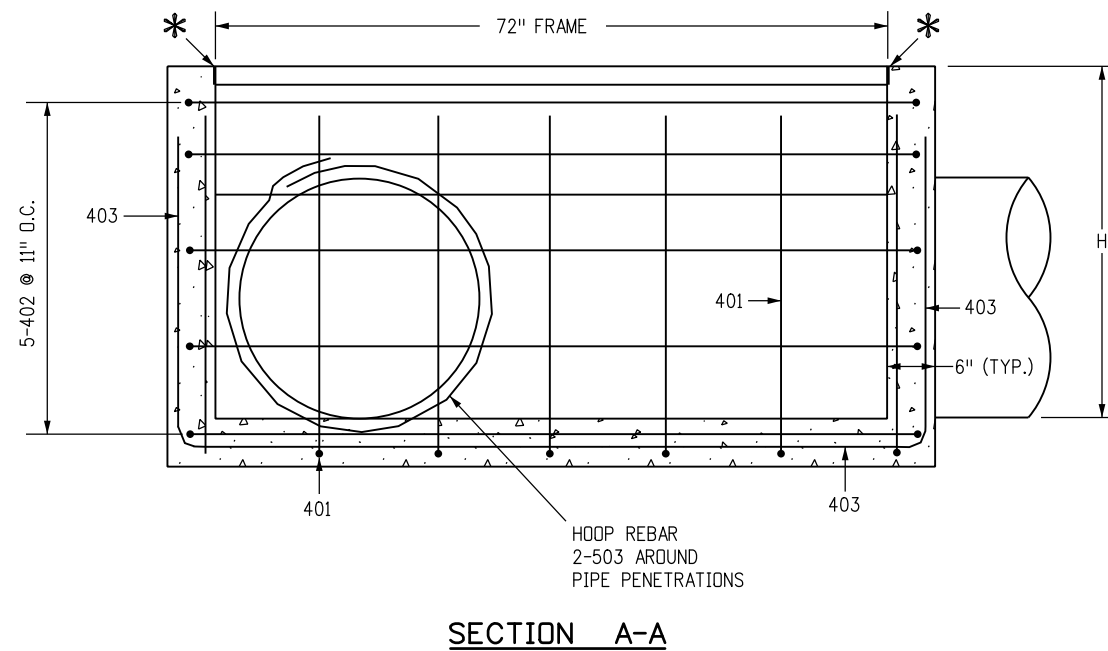
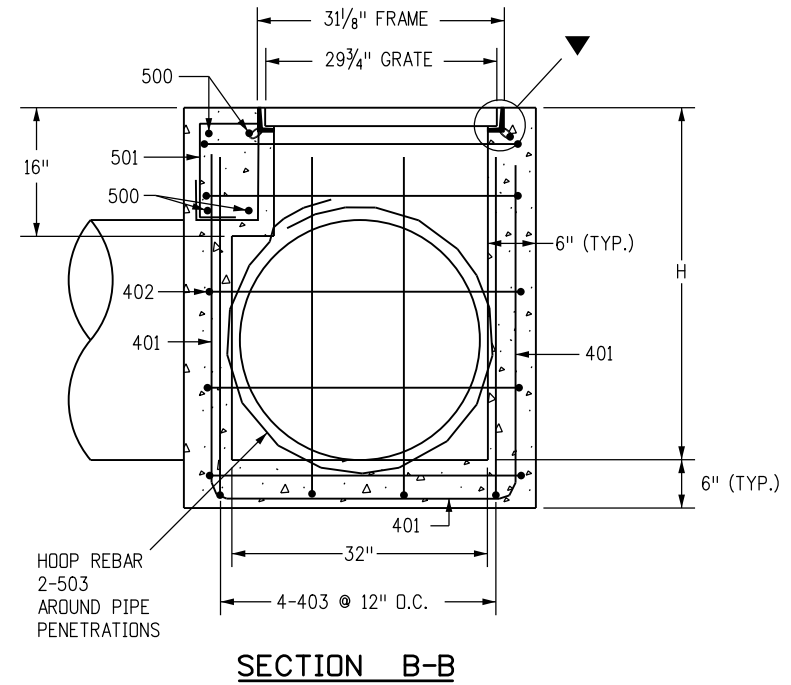
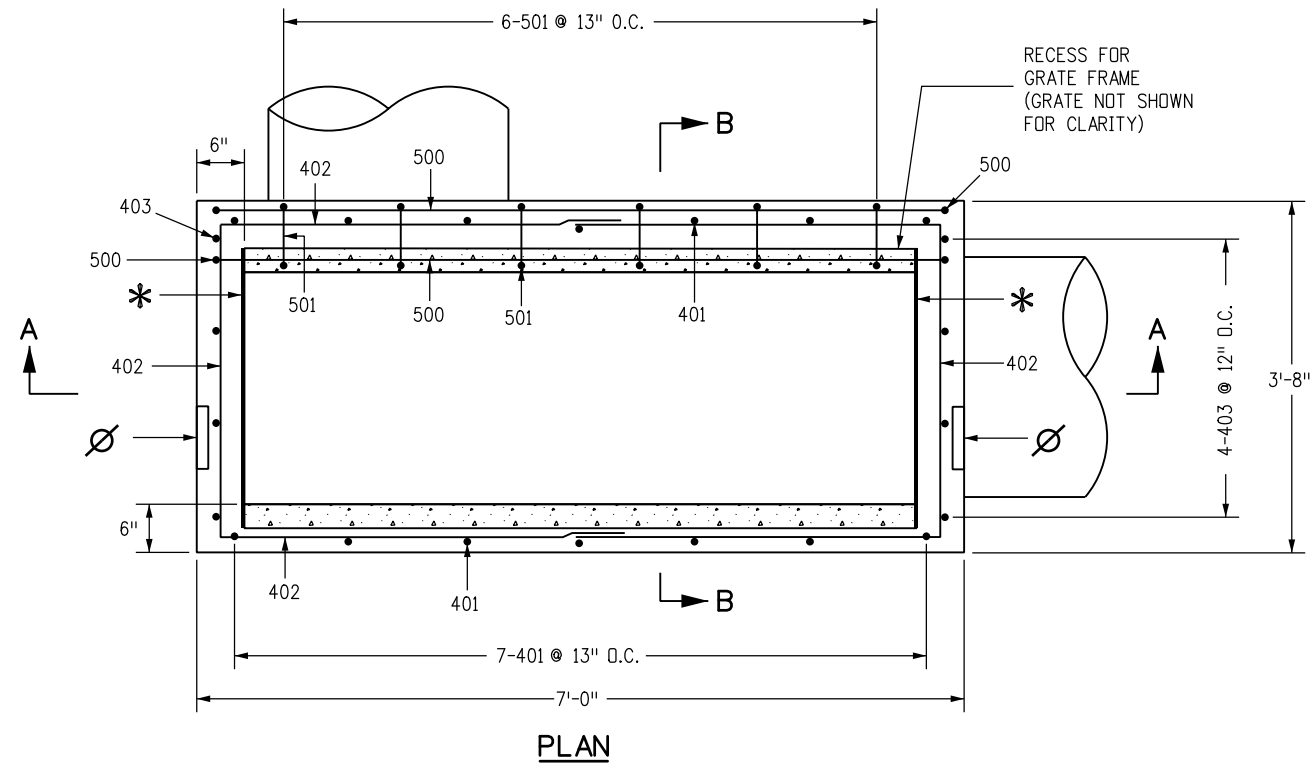
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Standard Sheet No. 1 of 5

Project Sheet Number:



LEGEND

- ▼ GRATE TO BE INSTALLED DURING CONSTRUCTION OF THE BOX WITH THE VANE GRATE BOLTED IN PLACE TO THE FRAME.
- * TO FACILITATE REMOVAL OF THE GRATE, PLACE PLYWOOD 3 IN. x 1/4 IN. x 31-3/8 IN. ALONG EDGE OF THE GRATE AS SHOWN.
- ∅ FLOW ARROW STAMP IN DIRECTION OF FLOW (TYP.). FLOW →

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**VANE GRATE
INLET**

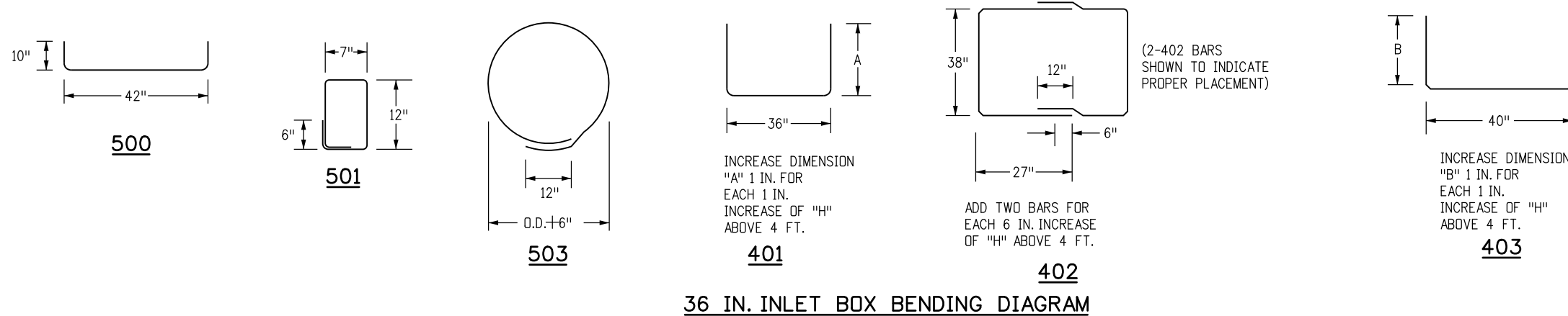
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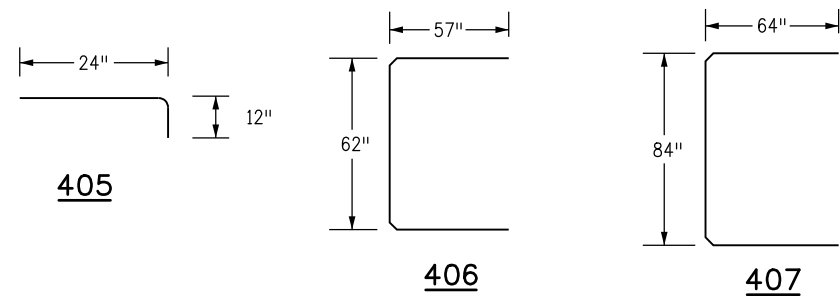
M-604-25

Standard Sheet No. 2 of 5

Project Sheet Number:



36 IN. INLET BOX BENDING DIAGRAM



INLET APRON BENDING DIAGRAM FOR 36 IN. INLET

MARK	NO. REQ'D	LENGTH (EACH)
405	9	3'-0"
406	1	14'-8"
407	1	17'-8"

BAR LIST FOR CONCRETE APRON
(FOR INFORMATION ONLY)

MARK	NO. REQ'D	HEIGHT "A"	HEIGHT "B"	LENGTH (EACH)
500	4			5'-2"
501	3			4'-2"
503	4			10'-5"
401	4	3'-10"		10'-8"
402	10			7'-8"
403	4		4'-0"	11'-4"

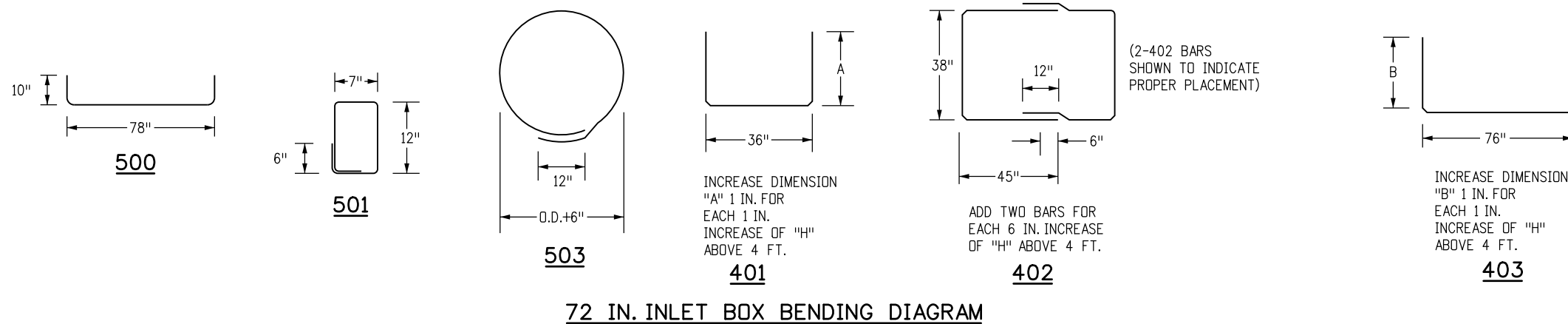
BAR LIST FOR H = 4'-0" 36 IN. INLET

QUANTITIES FOR ONE 36 IN. INLET

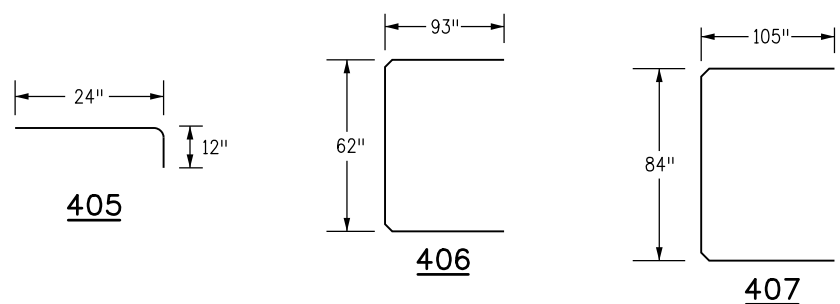
H	NUMBER OF STEPS REQUIRED	CONC. CU. YD.	STEEL LBS.
4'-0"	1	1.3	180
4'-6"	2	1.5	186
5'-0"	2	1.6	201
5'-6"	2	1.7	207
6'-0"	3	1.8	222
6'-6"	3	1.9	227
7'-0"	3	2.1	243
7'-6"	4	2.2	248
8'-0"	4	2.3	263
8'-6"	4	2.4	269
9'-0"	5	2.5	285
9'-6"	5	2.7	289
10'-0"	5	2.8	306
10'-6"	6	2.9	310
11'-0"	6	3.0	326
11'-6"	6	3.1	331

NOTES

1. CONCRETE QUANTITY INCLUDES VOLUME OCCUPIED BY PIPES.
2. REINFORCING STEEL QUANTITY ASSUMES TWO 503 HOOPS FOR EACH 24 IN. PIPE.
3. BARS NUMBERED IN 400 SERIES INDICATES #4 SIZE BAR. BARS NUMBERED IN 500 SERIES INDICATES #5 SIZE BAR.
4. ALL REINFORCING BARS SHALL BE GRADE 40 AND EPOXY COATED.



72 IN. INLET BOX BENDING DIAGRAM



INLET APRON BENDING DIAGRAM FOR 72 IN. INLET

MARK	NO. REQ'D	LENGTH (EACH)
405	13	3'-0"
406	1	20'-8"
407	1	24'-6"

BAR LIST FOR CONCRETE APRON
(FOR INFORMATION ONLY)

MARK	NO. REQ'D	HEIGHT "A"	HEIGHT "B"	LENGTH (EACH)
500	4			8'-2"
501	6			4'-2"
503	4			10'-5"
401	7	3'-10"		10'-8"
402	10			10'-8"
403	4		4'-0"	14'-4"

BAR LIST FOR H = 4'-0" 72 IN. INLET

QUANTITIES FOR ONE 72 IN. INLET

H	NUMBER OF STEPS REQUIRED	CONC. CU. YD.	STEEL LBS.
4'-0"	1	2.1	253
4'-6"	2	2.3	260
5'-0"	2	2.4	282
5'-6"	2	2.6	289
6'-0"	3	2.8	310
6'-6"	3	3.0	318
7'-0"	3	3.2	339
7'-6"	4	3.3	346
8'-0"	4	3.5	369
8'-6"	4	3.7	376
9'-0"	5	3.9	397
9'-6"	5	4.1	405
10'-0"	5	4.2	426
10'-6"	6	4.4	433
11'-0"	6	4.6	455
11'-6"	6	4.8	462

STANDARD PLAN NO.

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Standard Sheet No. 3 of 5

Project Sheet Number:

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(R-X)	
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Colorado Department of Transportation



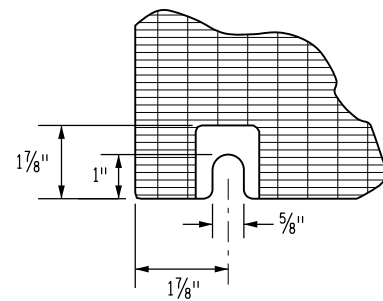
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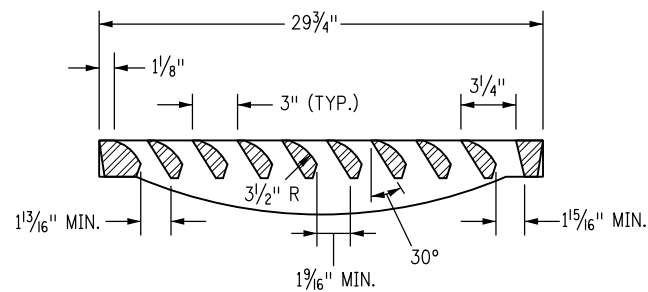
**VANE GRATE
INLET**

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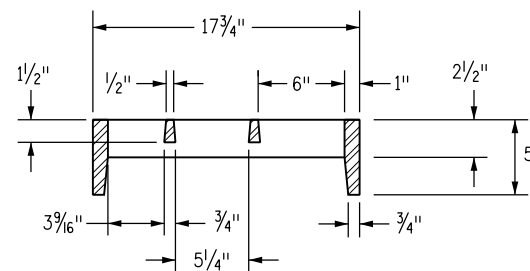


DETAIL A

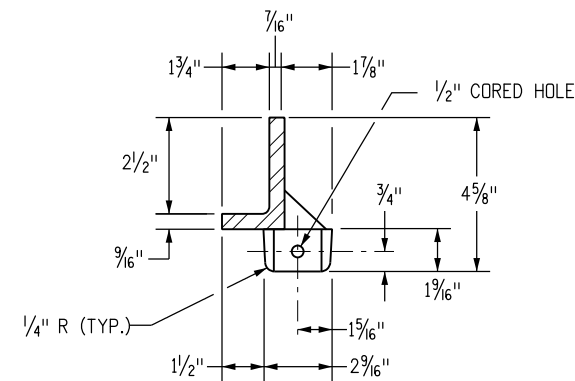
BOLT SLOT AT CORNER (TYP.)



SECTION A-A



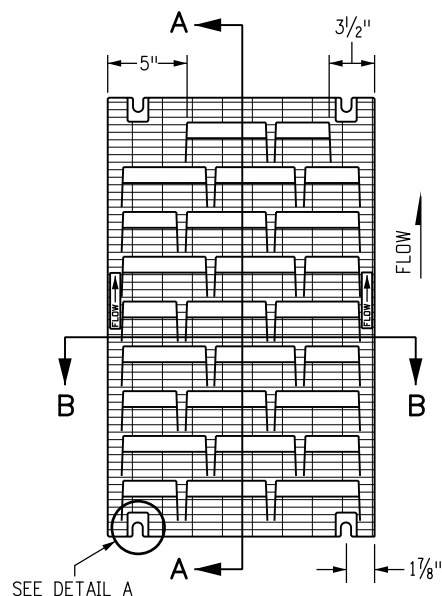
SECTION B-B



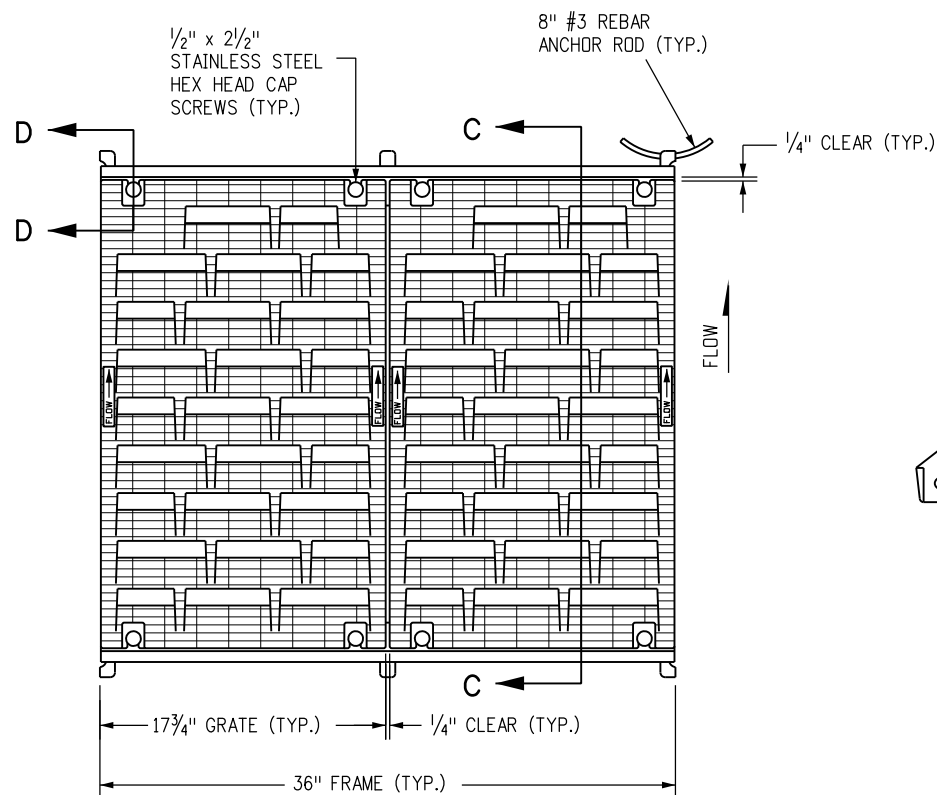
DETAIL B

NOTES

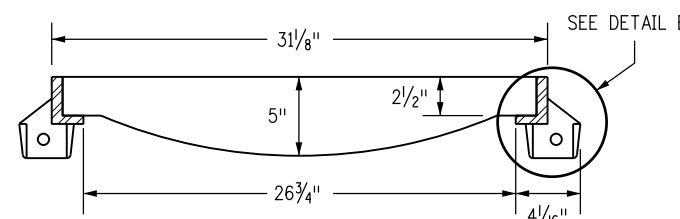
1. FREE OPEN AREA: 190 SQ. IN./GRATE.
2. MATERIAL: CAST GRAY IRON ASTM A-48 CLASS 35B.
3. FINISH: NO PAINT.
4. WEIGHT: GRATE 170 LBS. EACH; FRAME 29 LBS. EACH.
5. ALL REINFORCING BARS SHALL BE EPOXY COATED.



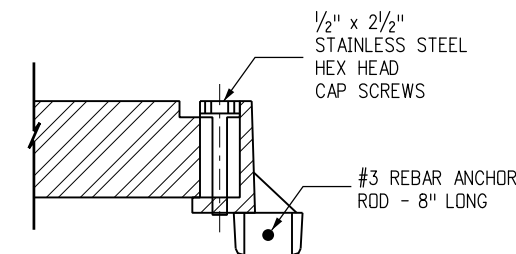
GRATE PLAN



MULTIPLE GRATE WITH FRAME PLAN



SECTION C-C



SECTION D-D

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**VANE GRATE
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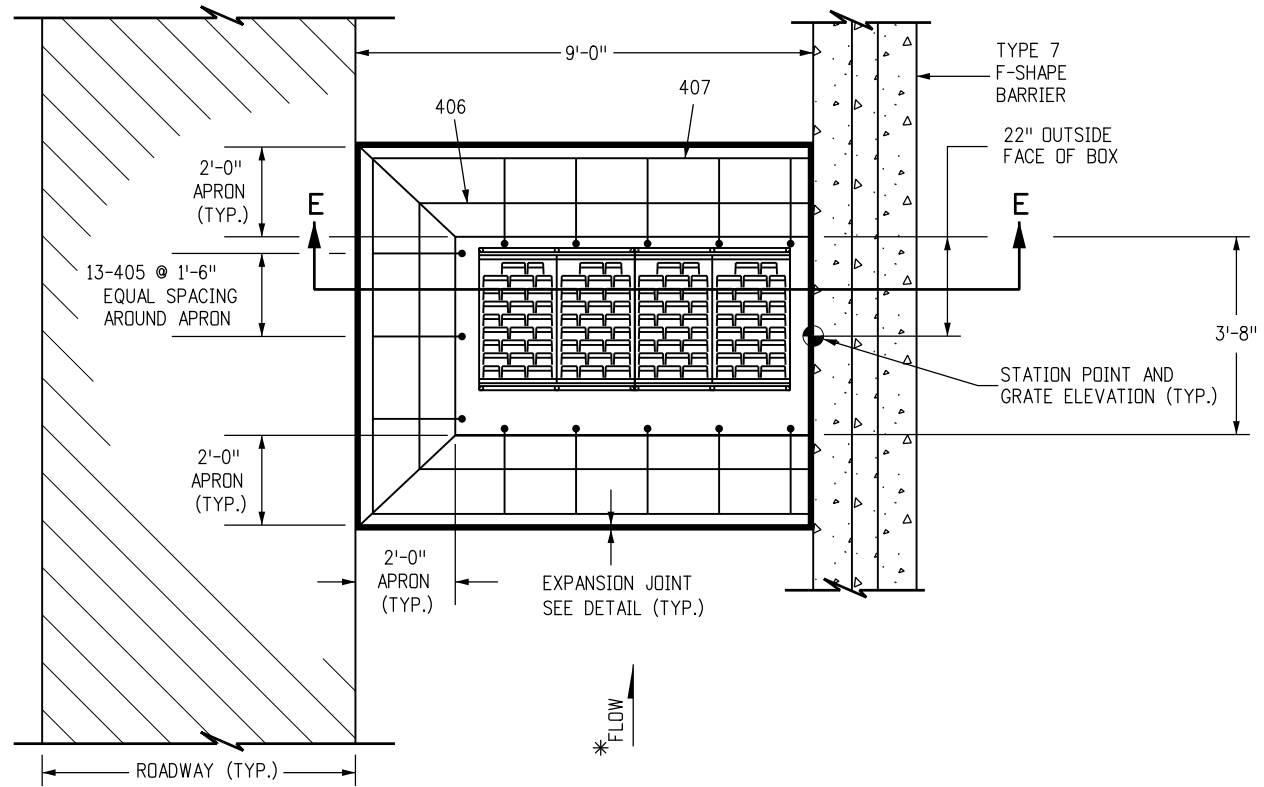
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STANDARD PLAN NO.

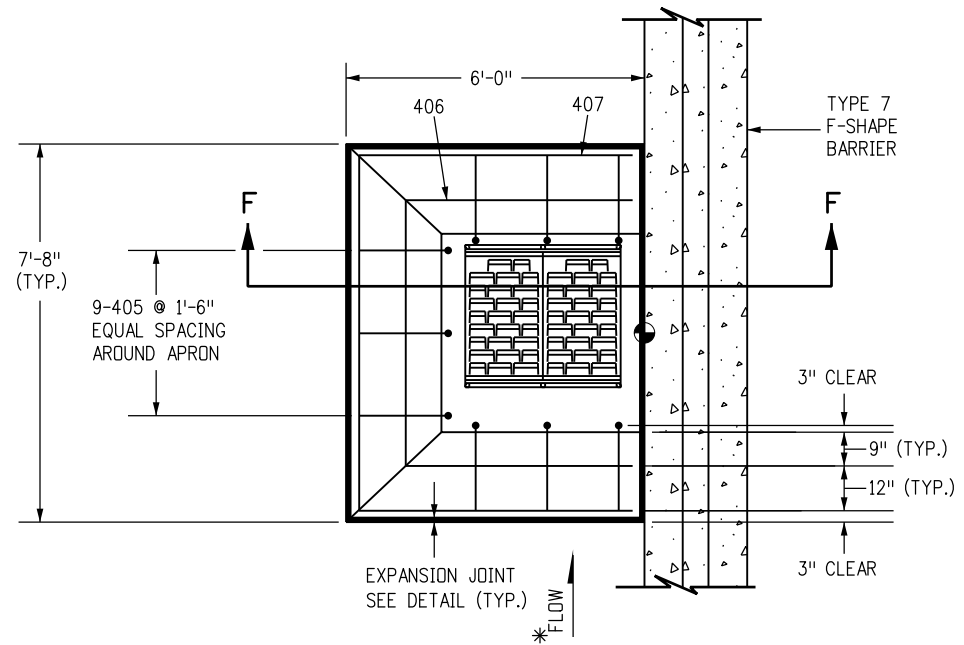
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Standard Sheet No. 4 of 5

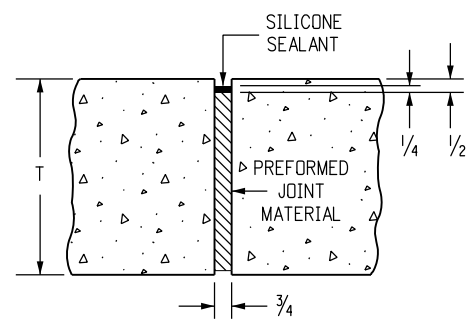
Project Sheet Number:



CONCRETE APRON FOR 72 IN. INLET



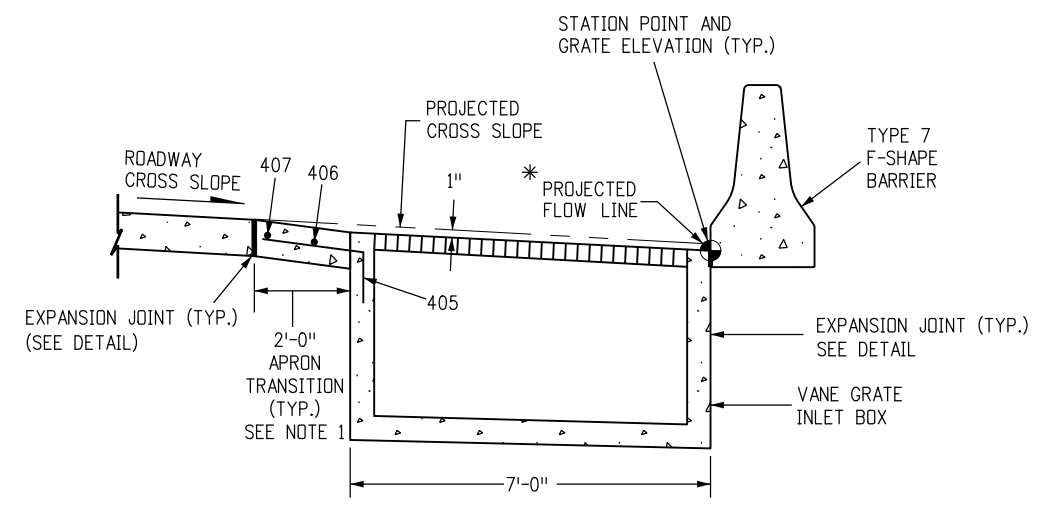
CONCRETE APRON FOR 36 IN. INLET



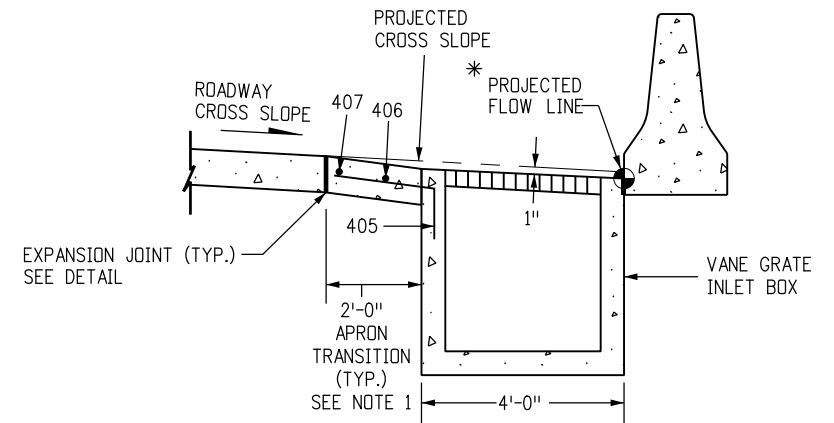
EXPANSION JOINT (TYP.)

NOTES

1. A 2 FT. CONCRETE TRANSITION APRON SHALL BE CONSTRUCTED AS SHOWN AND SHALL BE KEYED INTO THE INLET.
 2. CONCRETE APRON SHALL BE THE SAME THICKNESS AND TYPE AS THE SURROUNDING CONCRETE.
 3. THE COST OF THE CONCRETE APRON SHALL BE INCLUDED THE COST OF THE INLET.
- * IF THE INLET IS OFFSET FROM THE BARRIER, SLOPE THE APRON ADJACENT TO THE BARRIER TO DIRECT FLOW TOWARD THE GRATE.



SECTION E-E



SECTION F-F

Computer File Information	
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VANE GRATE INLET
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STANDARD PLAN NO.
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 Standard Sheet No. 5 of 5
 Project Sheet Number: