Board of Public Utilities

Cheyenne Water and Sewer Departments

2416 Snyder Ave.
P.O. Box 1469
Cheyenne, Wyoming 82003

Phone 307.637.6460
www.cheyennebopu.org

Dry Creek Water Reclamation Facility Dewatering Improvements Construction
2020RPI01-B02
Addendum 03

To: All Prospective Bidders
From: Bryce Dorr, BOPU
Date: 10/23/2020
Subject: Addendum 03 for the DCWRF Dewatering Improvements Construction

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The changes, clarifications, omissions, additions, and/or alterations in, on, and to the bid information and specifications shall apply to the Advertisement for Bid submitted for and to the project indicated above. Except as modified by this Addendum 03, all the terms and provisions of the bidding documents for the above listed project remain in full force and effect. This Addendum 03 supersedes all previous instructions pertaining to the items listed:

Addendum 03 for the DCWRF Dewatering Improvements Construction consists of 2 total pages and includes the following changes/additions:

1. Standard detail drawings are included as Attachment A.
2. BOPU lobby is currently closed due to COVID-19. If the lobby is not scheduled to be open on the date bids are due (Nov 5), updated bid submittal instructions will be distributed with final addendum (Nov 2).
3. Questions and **answers**:
    a. Q: There are detail numbers called out on the drawings and I don't believe these details where included in the bid package. Please provide standard details for the project.
    A: Correct. Standard details were inadvertently left out of the original bid package. Standard detail drawings are included as Attachment A.
    b. Q: Is it the owner's responsibility or the contractors to offload the Huber equipment and set it into an onsite building?
    A: The contractor will be responsible to coordinate shipment, offload, and store equipment prior to installation. The owner is responsible for coordinating submittals (and paying for them) prior to the Huber contract getting assigned to the contractor.
    c. Q: Can HVAC work start during phase 1?
    A: Yes, HVAC can start during Phase 1 or Phase 0.
    d. Q: I was wondering why all duct is stainless.
    A: While, aluminum ductwork holds up well with moisture, stainless steel is the best for areas with H2S concerns. Since there is no odor control in this building to aid in the H2S removal and since there

are historical H2S concerns in the building (i.e. electrical equipment rapidly corroding), stainless steel ductwork is determined to be the best option.

e. Q: Is there additional information, model numbers or specifications available for the washwater booster pumps and the initial/supplemental mixers?
   A: The washwater booster pumps and mixers are all part of the Huber scope. Their contract and scope is attached to Section 01 64 00 Owner-Furnished Products. The submittal information for this equipment was provided in Addendum 01.
f. Q: Will the HVAC duct work require insulation. I know the specifications were included but I didn't see anything notating the need for insulation on the prints?
   A: The required HVAC ductwork is specified in Section 23 07 00 HVAC Insulation.
g. Q: Will the piping need to be insulated?
   A: There is no piping insulation required.

End of Addendum 03

Attachments:

Attachment A: Standard Detail Drawings

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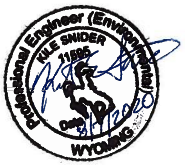
2020RPI01-B02
Addendum 03

Attachment A
Standard Detail Drawings

DRY CREEK WATER RECLAMATION FACILITY DEWATERING IMPROVEMENTS BOARD OF PUBLIC UTILITIES CHEYENNE, WYOMING



ISSUED FOR BID

AUGUST 2020

JACOBS

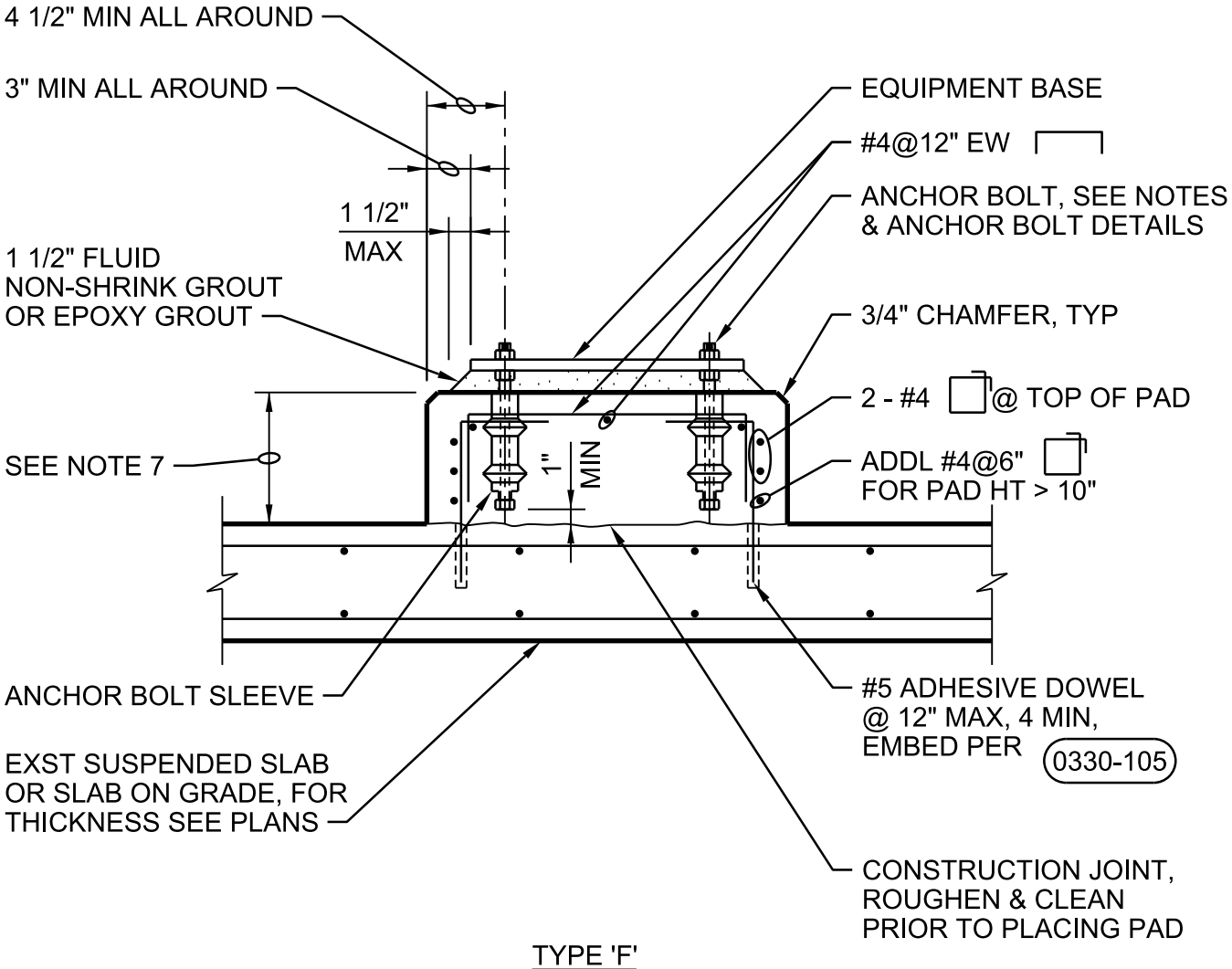
DETAIL NO.	DETAIL TITLE
0000-000	COVER SHEET
0000-001	INDEX OF DETAILS
0330-056	CONCRETE EQUIPMENT PADS 1 OF 3
0330-056	CONCRETE EQUIPMENT PADS 2 OF 3
0330-056	CONCRETE EQUIPMENT PADS 3 OF 3
0330-057	ANCHOR BOLT DETAILS
0330-105	ADHESIVE DOWEL
0422-046	MASONRY ANCHOR BOLT
0422-051	EXISTING MASONRY WALL OPENING
0512-001	COLUMN BASE - STEEL
0512-020	TYPICAL BEAM CONSTRUCTION - STEEL
0512-056	BEAM/WALL CONNECTION - STEEL
0512-101	MONORAIL DETAIL
0531-021	ROOF DECK OPENING
0551-041	STAIR DETAILS
0552-003	RAILING - REMOVABLE THREE RAIL - ALUMINUM
0553-001	STANDARD GRATING 1 OF 3
0553-001	STANDARD GRATING 2 OF 3
0553-001	STANDARD GRATING 3 OF 3
2210-801	GAS FIRED EQUIPMENT CONNECTION
2305-412	FLOOR PENETRATION - DRY AREA
2305-806	ABOVE ROOF DUCTING AND SUPPORT
2305-807	INSULATED DUCT THROUGH ROOF
2331-110	LOW PRESSURE DUCT CONSTRUCTION
2331-140	BRANCH DUCT TAKE-OFF
2331-380	DUCT BRACING SCHEDULE
2334-301	ROOF MOUNTED FAN
2337-805	FLOOR EXHAUST DUCT
2337-810	DUCT WALL PENETRATION
3471-810	GUARD POST - EXTERIOR
4005-500	PIPE SUPPORT - SADDLE SUPPORT PEDESTAL TYPE - ADJUSTABLE
4005-503	PIPE SUPPORT - WALL MOUNT
4005-505	PIPE SUPPORT - WALL MOUNTED
4005-508	PIPE SUPPORT - WALL MOUNTED MEDIUM
4005-550	OVERHEAD PIPE HANGER
4005-551	OVERHEAD PIPE HANGER
4005-556	BEAM CLAMP
4027-182	TYPE 2 FLUSHING CONNECTION
4027-190	SAMPLE VALVE

INDEX OF DETAILS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

0000-001

JACOBS



TYPE 'F'

GENERAL NOTE:
FOR GENERAL NOTES SEE DETAIL 3 OF 3.

CONCRETE EQUIPMENT PADS

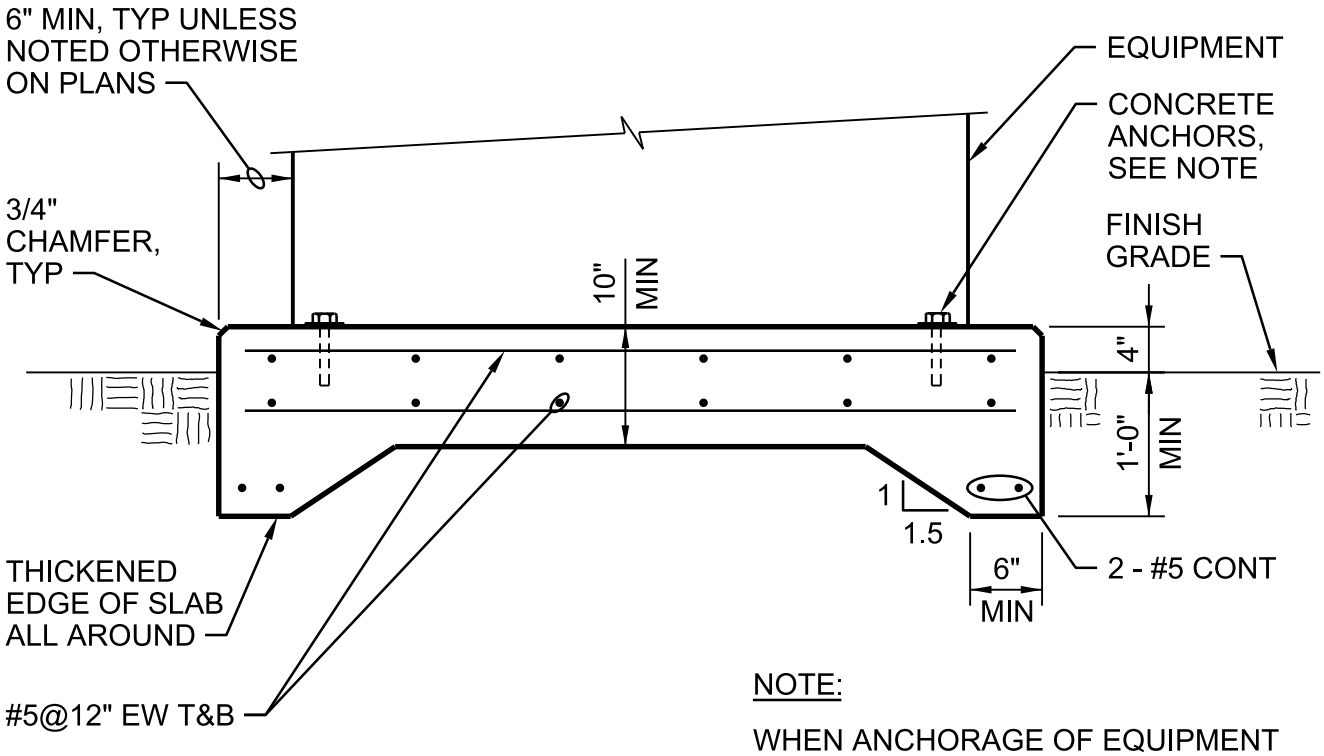
NTS

DETAIL 1 OF 3

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

0330-056

JACOBS



NOTE:

WHEN ANCHORAGE OF EQUIPMENT TO PAD IS REQUIRED, USE CONCRETE ANCHORS SPECIFIED.

TYPE 'H'

GENERAL NOTE:
FOR GENERAL NOTES SEE DETAIL 3 OF 3.

CONCRETE EQUIPMENT PADS

NTS

DETAIL 2 OF 3

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

0330-056

JACOBS

NOTES:

1. PAD SIZE SHALL BE MINIMUM INDICATED OR AS SHOWN ON THE PLANS OR AS INDICATED BY THE MANUFACTURER AND APPROVED BY THE ENGINEER.

2. THE SIZE, NUMBER, TYPE, LOCATION, AND THREAD PROJECTION OF THE ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER AND AS APPROVED BY THE ENGINEER. ANCHOR BOLTS SHALL BE HELD IN POSITION WITH A TEMPLATE OR OTHER ACCEPTABLE MEANS, MATCHING THE BASE PLATE, WHILE PAD IS BEING PLACED.

3. ANCHOR BOLT SLEEVES SHALL BE USED TO PROVIDE MINIMUM ANCHOR BOLT MOVEMENT OF 1/2" IN ALL HORIZONTAL DIRECTIONS. THE MINIMUM SLEEVE LENGTH SHALL BE 8 TIMES THE BOLT DIAMETER.

4. ANCHOR BOLT SLEEVES SHALL HAVE A MINIMUM INTERNAL DIAMETER 1" GREATER THAN BOLT DIAMETER AND A MAXIMUM INTERNAL DIAMETER 3" GREATER THAN ANCHOR BOLT DIAMETER. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT AFTER BOLTS ARE ALIGNED. SEE 0330-057.

5. EQUIPMENT BASES SHALL BE INSTALLED LEVEL UNLESS INDICATED OTHERWISE.

6. WEDGES, SHIMS, OR LEVELING NUTS SHALL BE USED TO SUPPORT THE BASE WHILE THE GROUT IS PLACED. WEDGES OR SHIMS SHALL BE REMOVED AFTER GROUT IS SET AND PACK VOID WITH GROUT.

7. HEIGHT OF PADS SHALL BE MINIMUM REQUIRED FOR ANCHOR BOLT CLEARANCE TO KEEP ANCHOR BOLT ABOVE SUPPORTING SLAB (SEE TABLE BELOW). WHERE EQUIPMENT OR PIPING ELEVATION REQUIRE A PAD HEIGHT LESS THAN THE MINIMUM SHOWN, USE TYPE "B" EQUIPMENT PAD WITH BLOCKOUT.

8. TYPE "D" PAD SHALL BE USED ONLY WHERE SPECIFICALLY INDICATED. PLACE THE SURROUNDING FLOOR SLAB AFTER THE EQUIPMENT PAD.

9. AT CONTRACTOR'S OPTION, CONCRETE ANCHORS MAY BE USED IN LIEU OF CAST-IN-PLACE ANCHOR BOLTS FOR EQUIPMENT ANCHOR BOLTS LESS THAN 3/4" DIAMETER WHEN APPROVED BY THE EQUIPMENT MANUFACTURER AND APPROVED BY THE ENGINEER. ANCHORS SHALL BE INSTALLED WITH 4" MINIMUM EDGE DISTANCE IN EACH DIRECTION.

AB DIA (IN.)	1/2	5/8	3/4	7/8	1	1 1/4	1 3/8	1 1/2	1 3/4	2
MIN PAD HT (IN.)	7	8 1/2	10	11	12 1/2	15	16 1/2	18	21	24

CONCRETE EQUIPMENT PADS

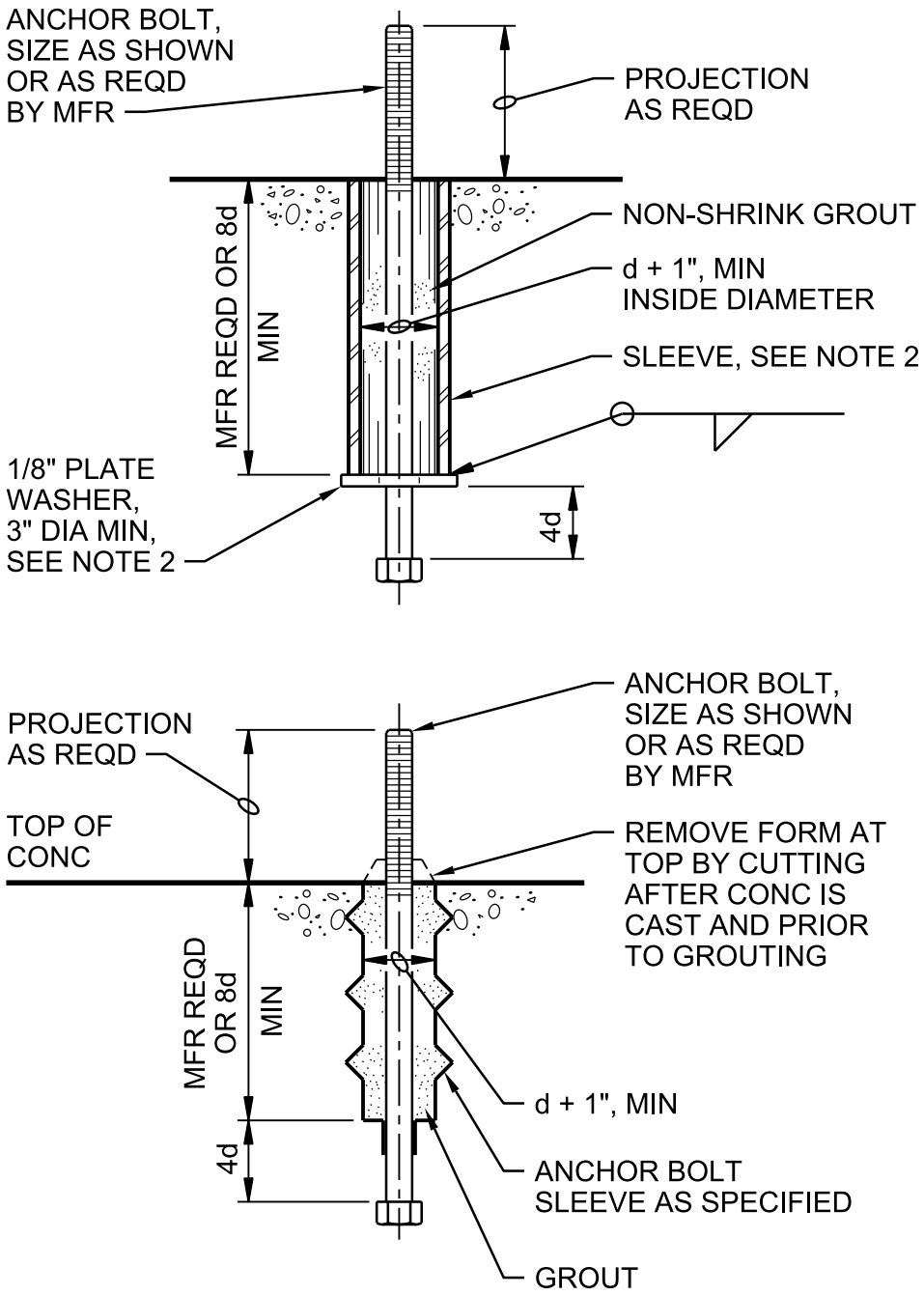
NTS

DETAIL 3 OF 3

0330-056

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

JACOBS



MACHINERY ANCHOR BOLT DETAIL

NOTES:

1. FOR CONCRETE EQUIPMENT PAD DETAILS AND NOTES NOT SHOWN SEE 0330-056
2. MATERIAL TO MATCH BOLT.

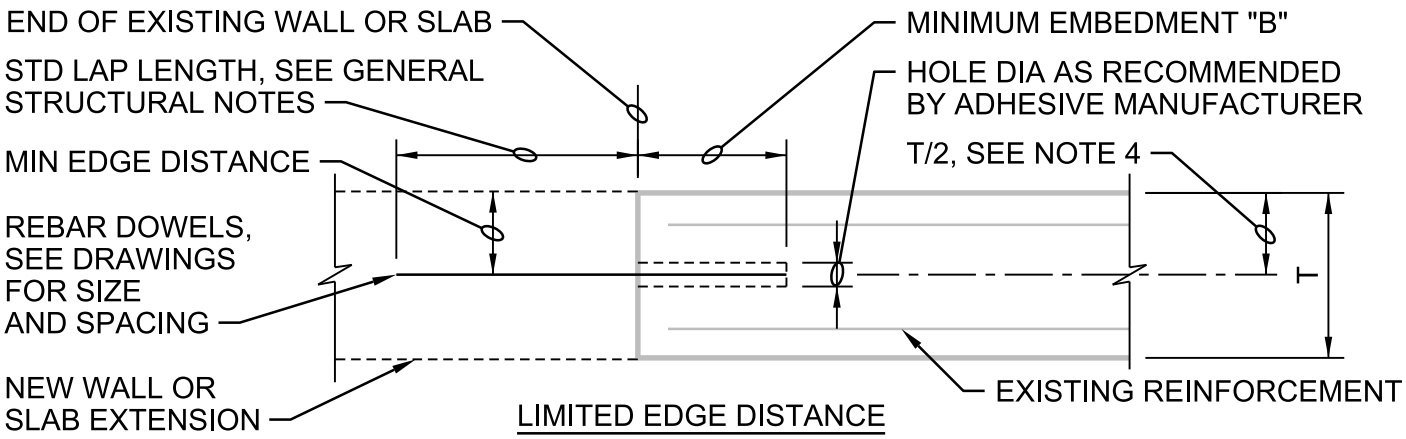
ANCHOR BOLT DETAILS

NTS

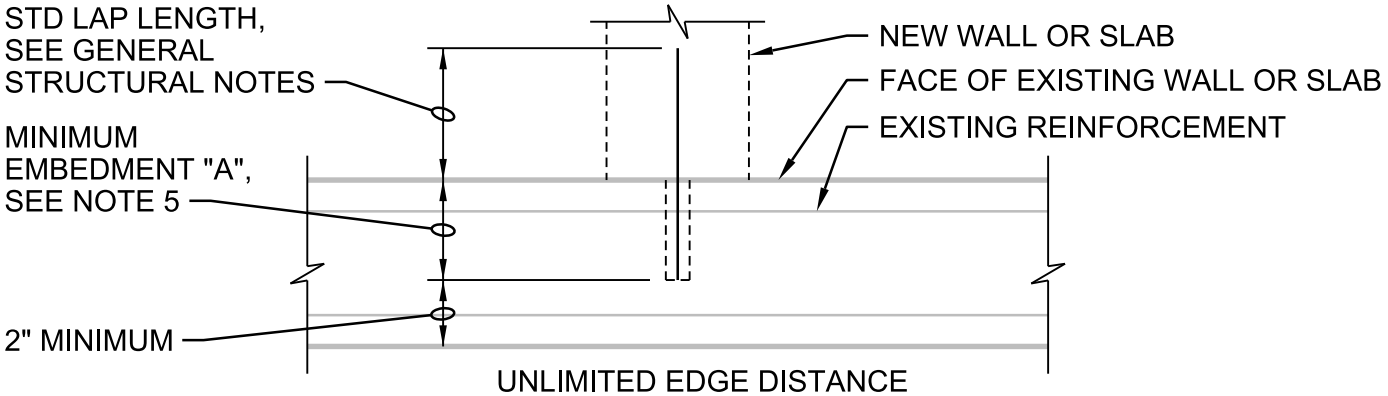
DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

0330-057

JACOBS



LIMITED EDGE DISTANCE



UNLIMITED EDGE DISTANCE

DOWEL SIZE	MINIMUM EDGE DISTANCE	MINIMUM EMBEDMENT "A"	MINIMUM EMBEDMENT "B"
#3	2 1/2"	5"	8"
#4	3 1/2"	7"	11"
#5	4"	8"	13"
#6	5"	10 1/2"	16"
#7	6"	12 1/2"	20"
#8	7"	14"	22"
#9	7 1/2"	15"	24"

NOTES:

1. CONFORM TO REQUIREMENTS OF SPECIFICATION SECTION 03 63 00, CONCRETE DOWELING.
2. FOLLOW ADHESIVE MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
3. USE MINIMUM EMBEDMENTS SHOWN, EXCEPT USE MANUFACTURER'S MINIMUM RECOMMENDED EMBEDMENT IF GREATER.
4. LOCATE DOWELS CENTERED IN WALL OR SLAB UNLESS OTHERWISE NOTED ON DRAWINGS. WHERE 2 ROWS OF DOWELS INDICATED, STAGGER SPACING & LOCATE ALTERNATING DOWELS AT MINIMUM EDGE DISTANCE FROM OPPOSITE FACES.
5. PROVIDE MINIMUM EMBEDMENT "A" SHOWN IN TABLE UNLESS SHORTER EMBEDMENT DEPTH IS CALLED OUT ON DRAWINGS.

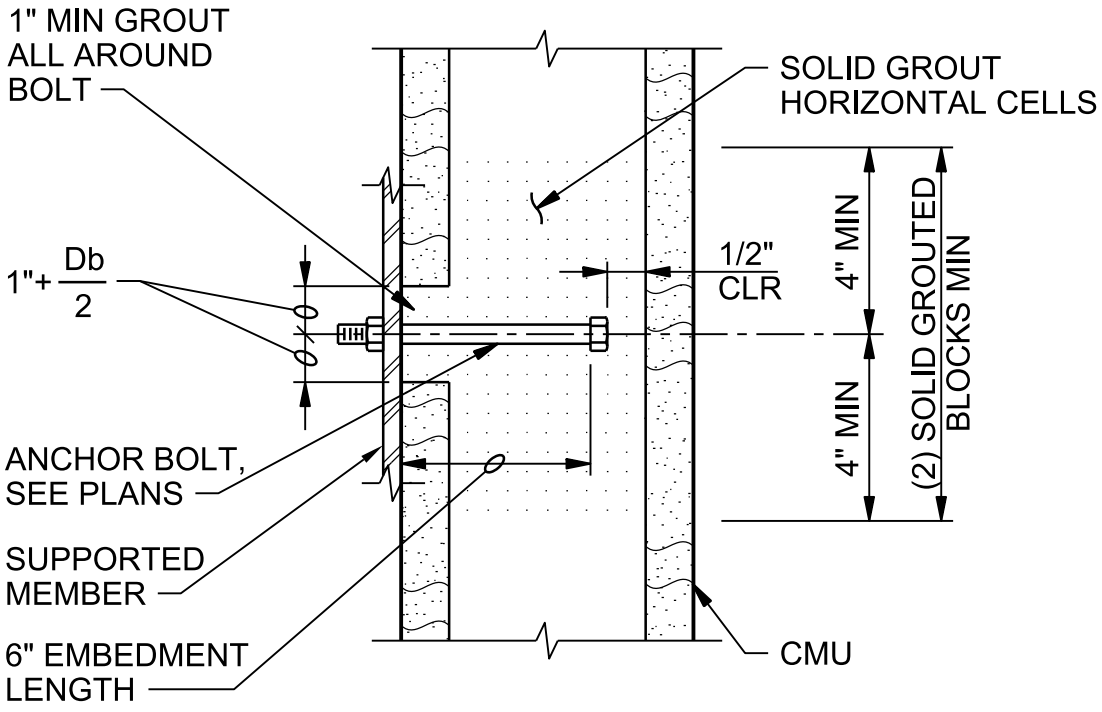
ADHESIVE DOWEL

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

0330-105

JACOBS



NOTE:

Db = DIAMETER OF BOLT

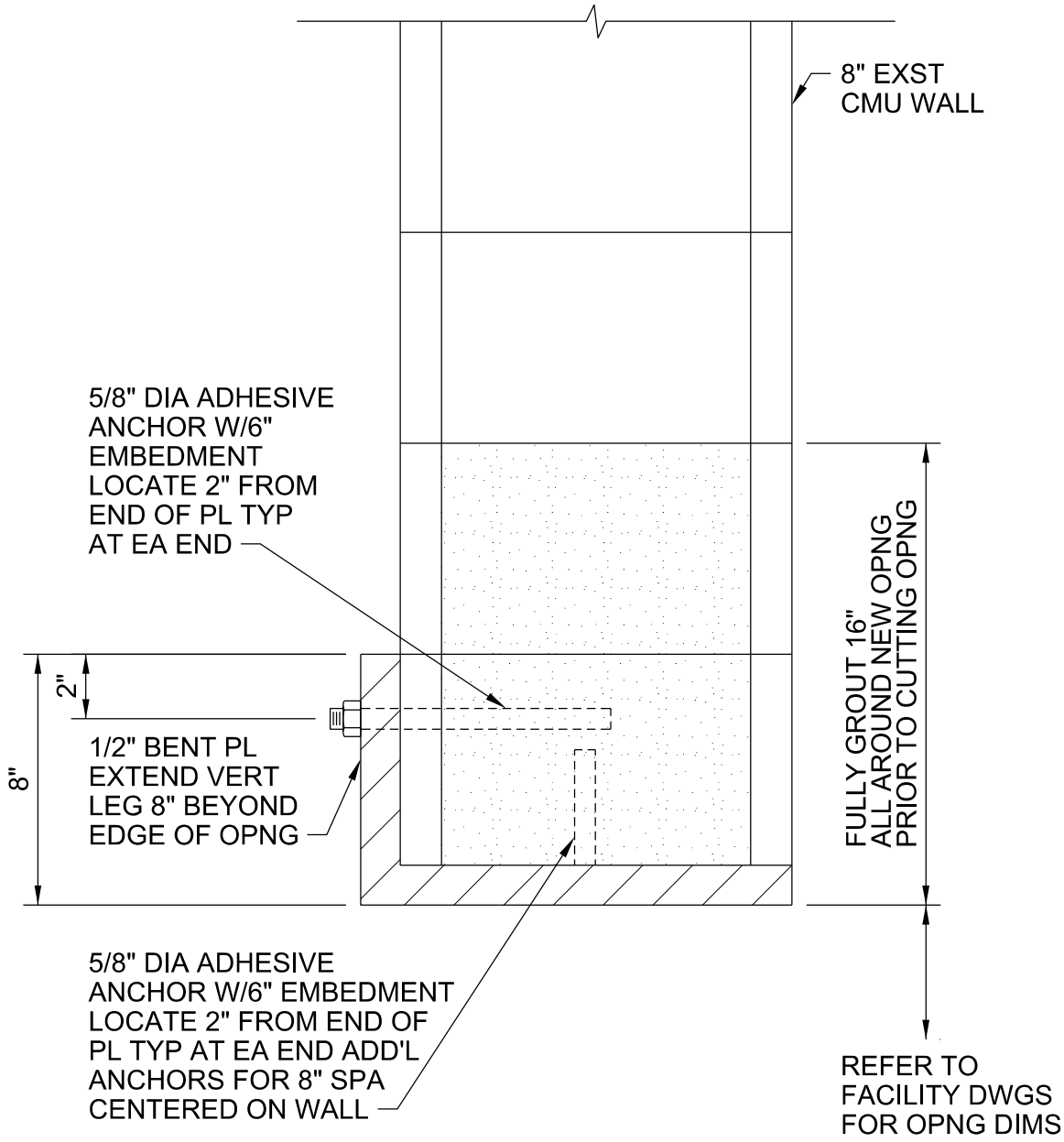
MASONRY ANCHOR BOLT

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

0422-046

JACOBS



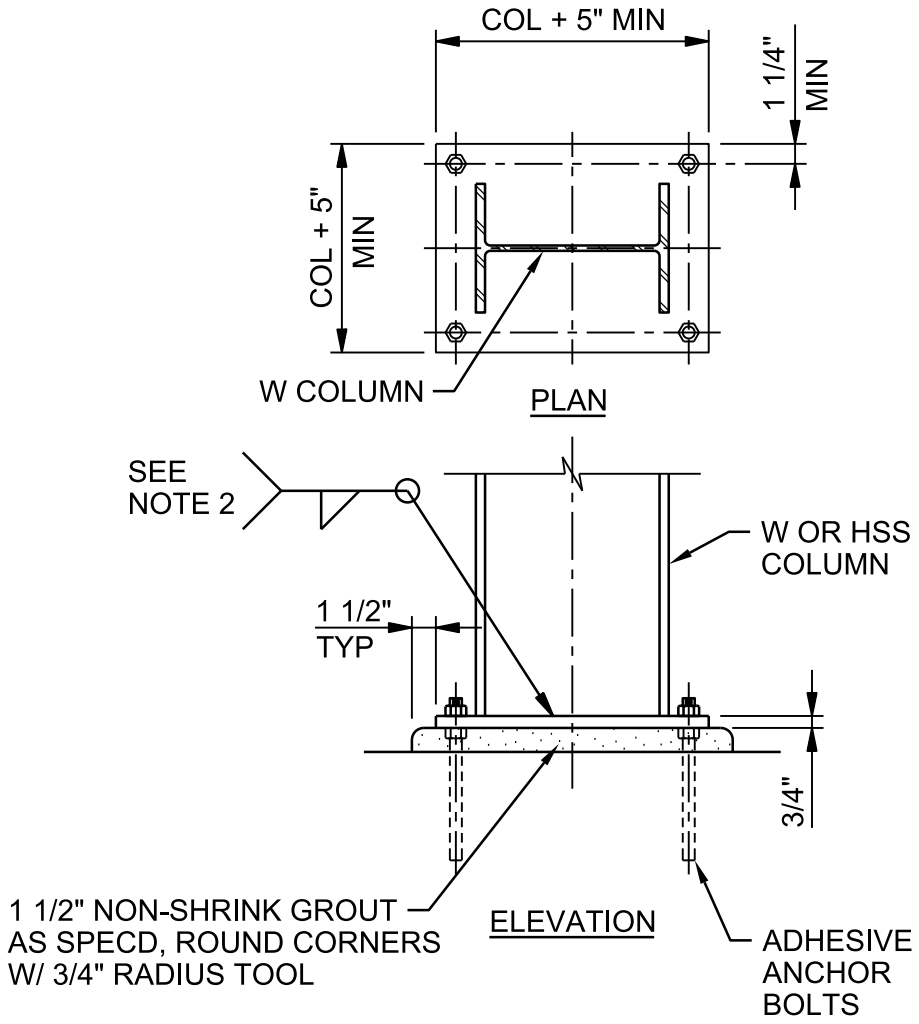
EXISTING MASONRY WALL NEW OPENING

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

0422-051

JACOBS



NOTES:

1. UNLESS OTHERWISE NOTED, ANCHOR BOLTS SHALL BE 3/4" DIA x REQUIRED WITH LEVELING NUTS AND 6" MINIMUM EMBED AND BASEPLATES SHALL BE CENTERED ON COLUMN.
2. MINIMUM WELD SIZE SHALL BE 3/16" FILLET, ALL WELDS SHALL BE SINGLE-PASS WELDS.

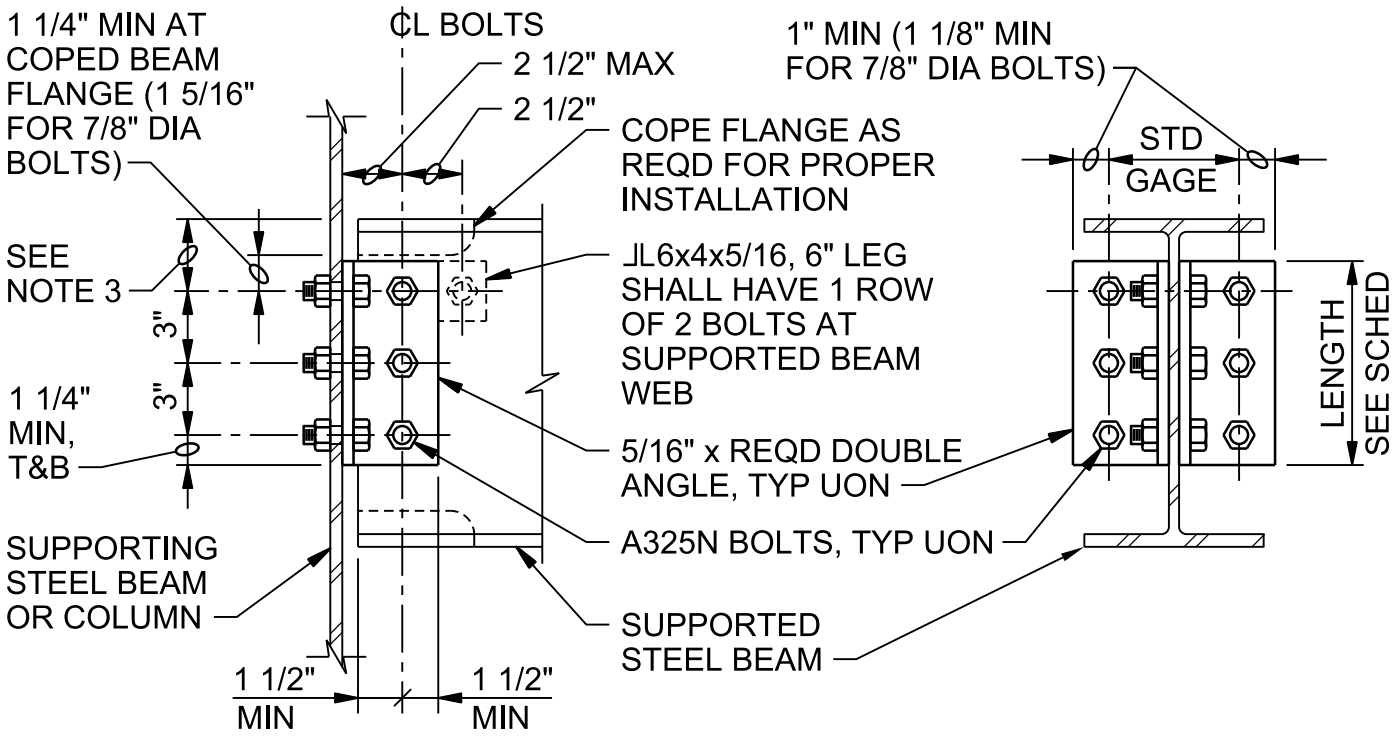
COLUMN BASE - STEEL

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

0512-001

JACOBS



NOMINAL BEAM DEPTH, INCHES	ROWS OF BOLTS	BOLT DIA, INCHES	DOUBLE ANGLE, LENGTH, INCHES	COMMENTS
12	3	3/4"	0'-8 1/2"	-
10	2	3/4"	0'-5 1/2"	-

NOTES:

1. ALL BEAM FRAMING CONNECTIONS SHALL CONFORM TO THIS DETAIL UNLESS SPECIFICALLY NOTED OTHERWISE OR APPROVED IN WRITING BY THE ENGINEER.

2. PROVIDE ADDITIONAL 1 1/2" LENGTH TO DOUBLE ANGLE FOR STAGGERED BOLT CONNECTIONS WHEN REQUIRED OR USED.

3. DIMENSION SHALL BE 3" UNLESS OTHERWISE REQUIRED FOR PROPER FABRICATION.

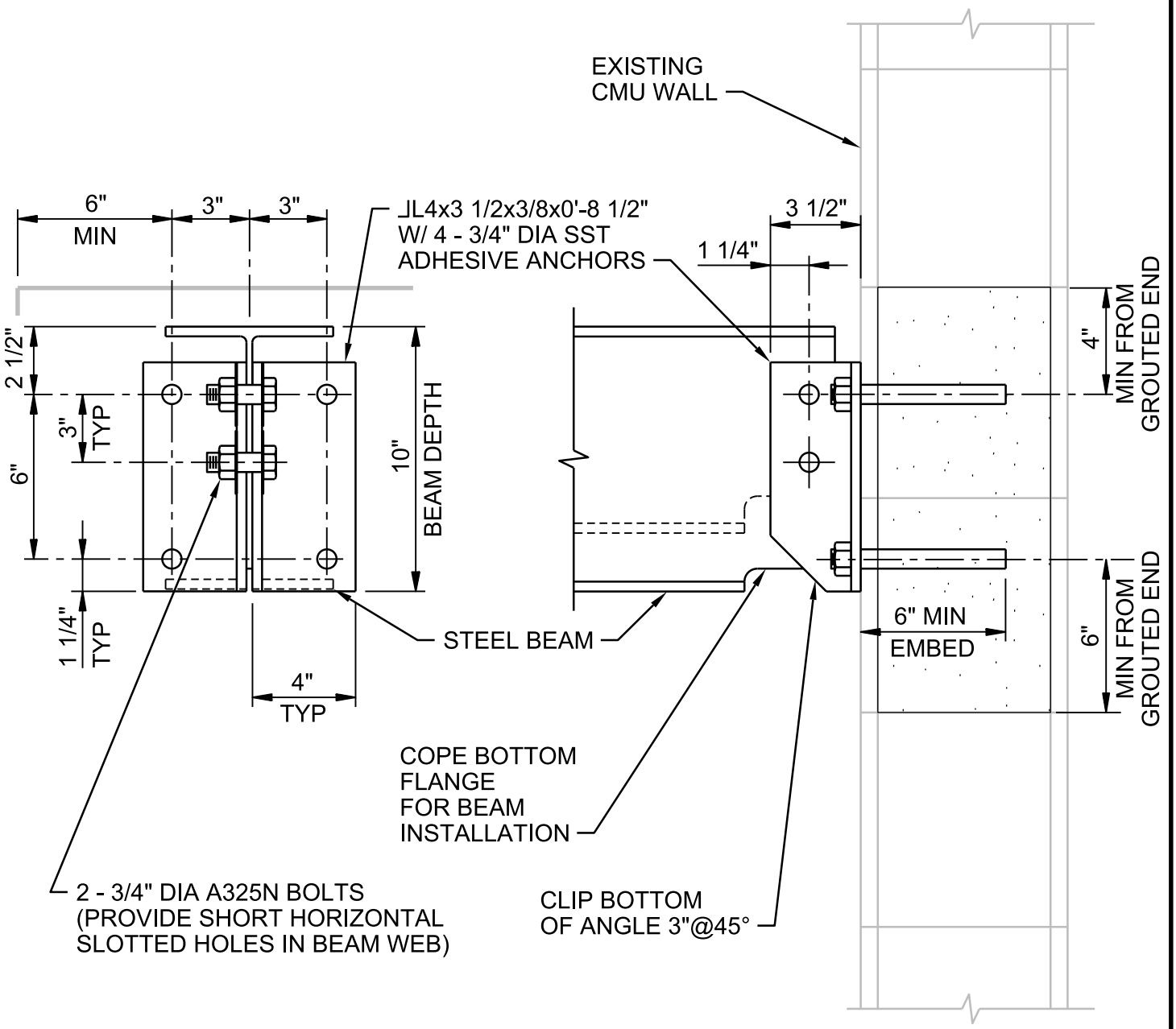
TYPICAL BEAM CONNECTION - STEEL

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

0512-020

JACOBS



NOTE:

1. DO NOT CUT EXISTING REINFORCING DURING DRILL-IN ANCHOR INSTALLATION.

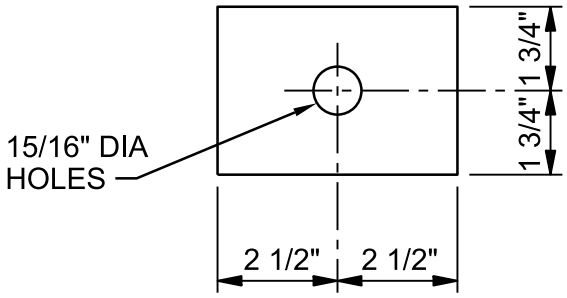
BEAM / WALL CONNECTION - STEEL

NTS

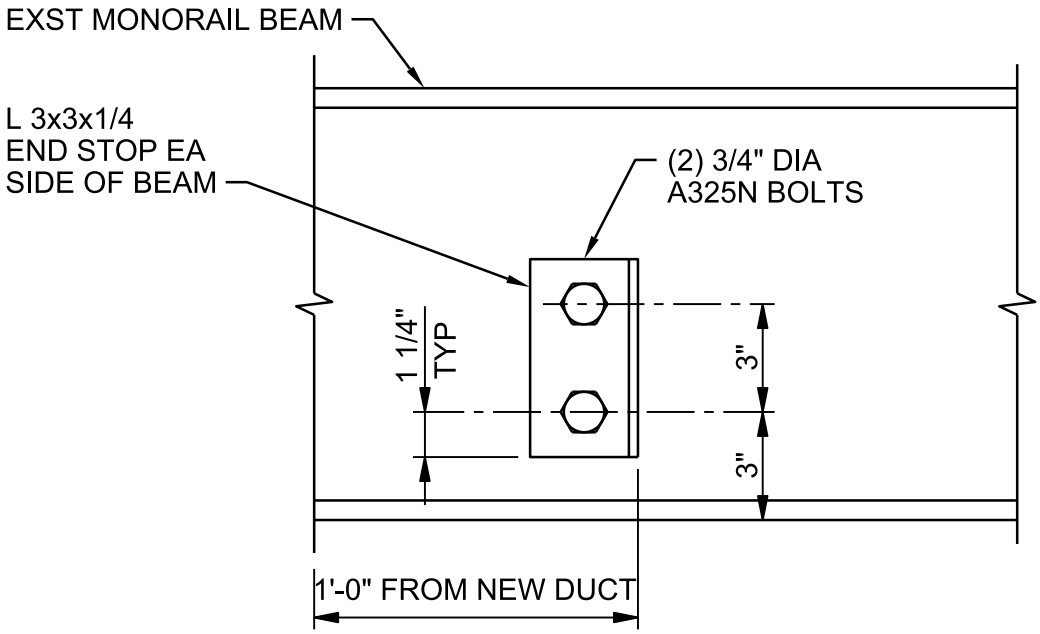
DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

0512-056

JACOBS



SPACER DETAIL



MONORAIL STOP

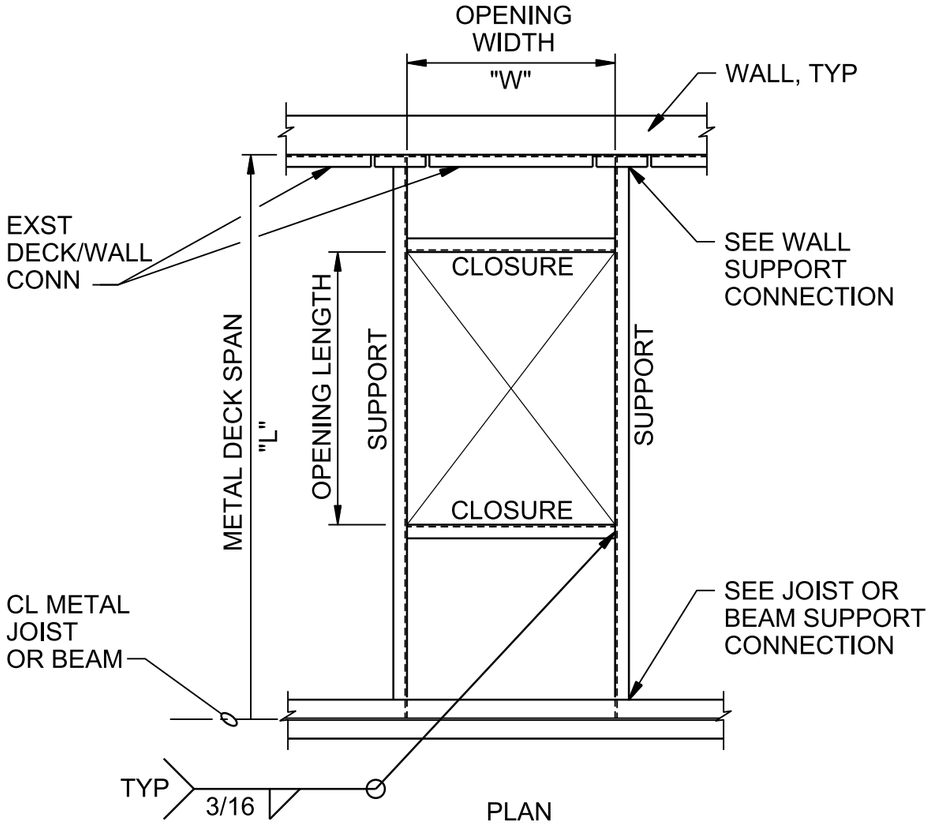
MONORAIL DETAIL

NTS

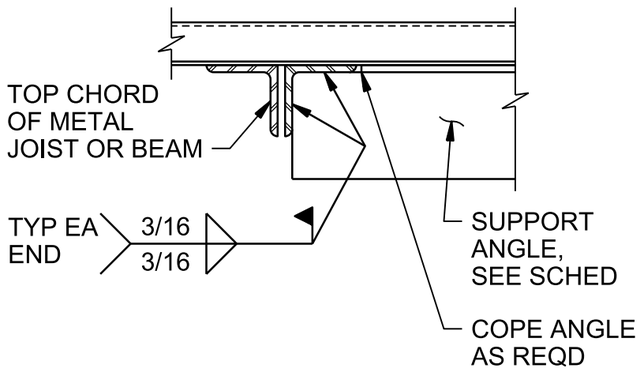
DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

0512-101

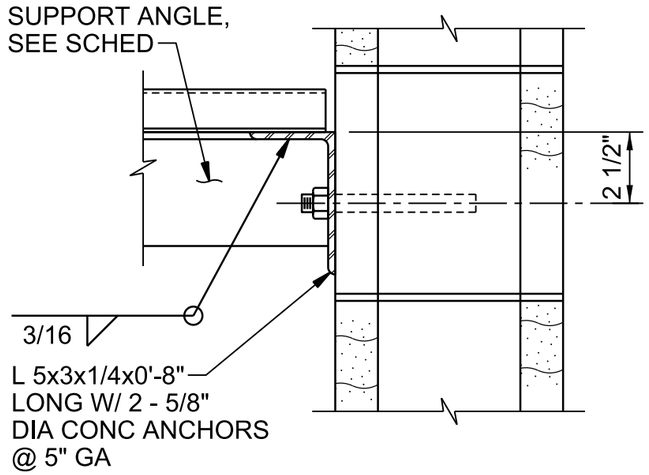
JACOBS



PLAN



JOIST OR BEAM SUPPORT



WALL SUPPORT

FRAMING CONNECTIONS

OPENING	CLOSURE
W < 4'-0"	L 3x3x1/4
4'-0" < W ≤ 6'-0"	L 4x3x1/4 (LLV)
6'-0" < W	NA

DECK SPAN	SUPPORT
L ≤ 6'-0"	L 4x3x1/4 (LLV)
6'-0" < L ≤ 7'-6"	L 5x3x1/4 (LLV)
7'-6" < L	NA

OPENINGS 2'-1" TO 6'-0"

NOTES:

1. ATTACH METAL DECKING TO ALL SUPPORTS PERPENDICULAR TO DECKING SPAN WITH SPECIFIED FASTENERS AT EACH VALLEY OF DECKING. ATTACH METAL DECKING TO SUPPORTS PARALLEL TO SPAN @ 6" ON CENTER. WHERE VALLEY OF DECKING DOES NOT FALL AT SUPPORTS PARALLEL TO DECK SPAN, PROVIDE FILLER PIECES FOR EQUAL ATTACHMENTS.

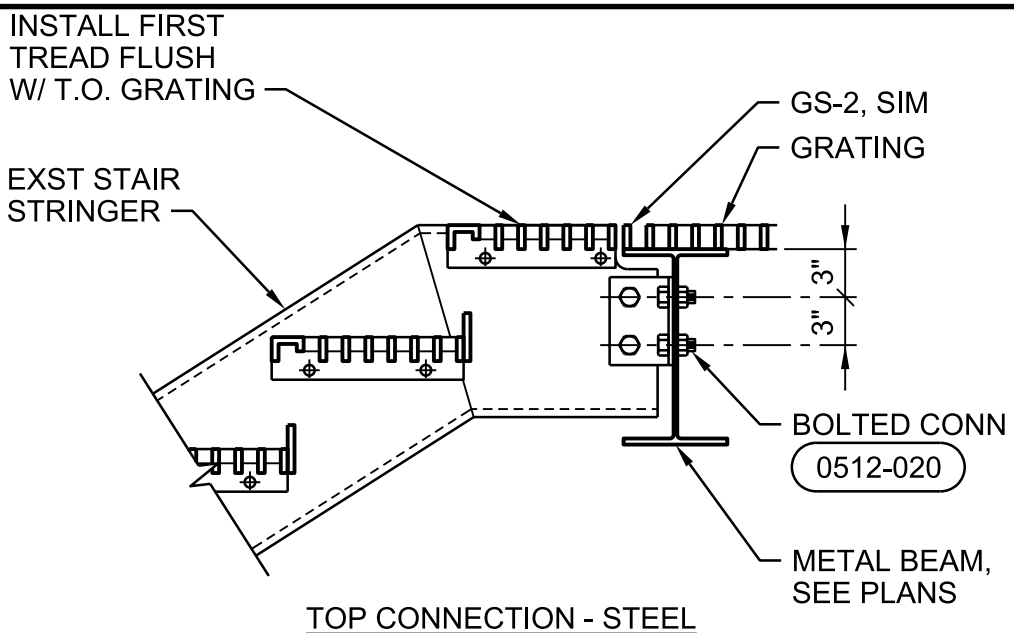
ROOF DECK OPENING

NTS

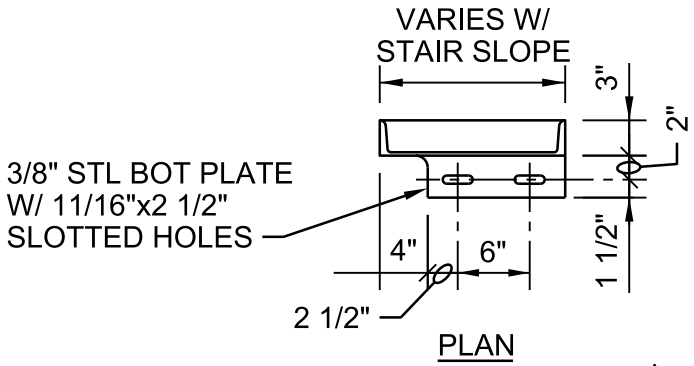
DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

0531-021

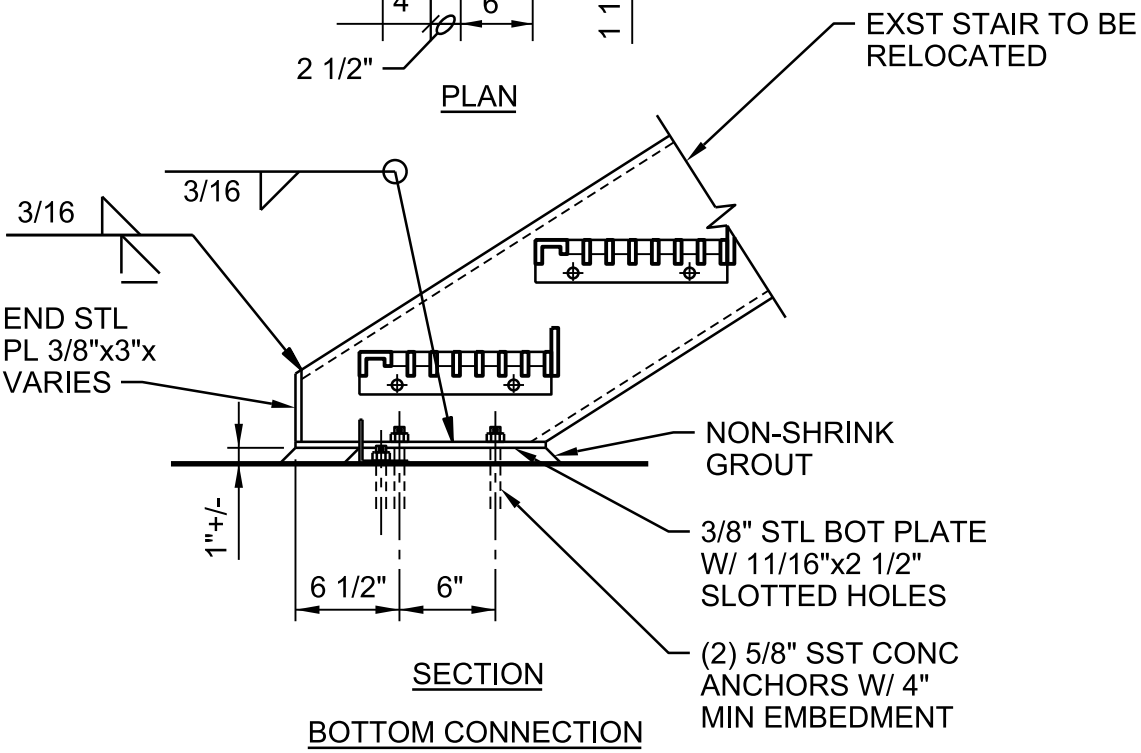
JACOBS



TOP CONNECTION - STEEL



PLAN



SECTION

BOTTOM CONNECTION

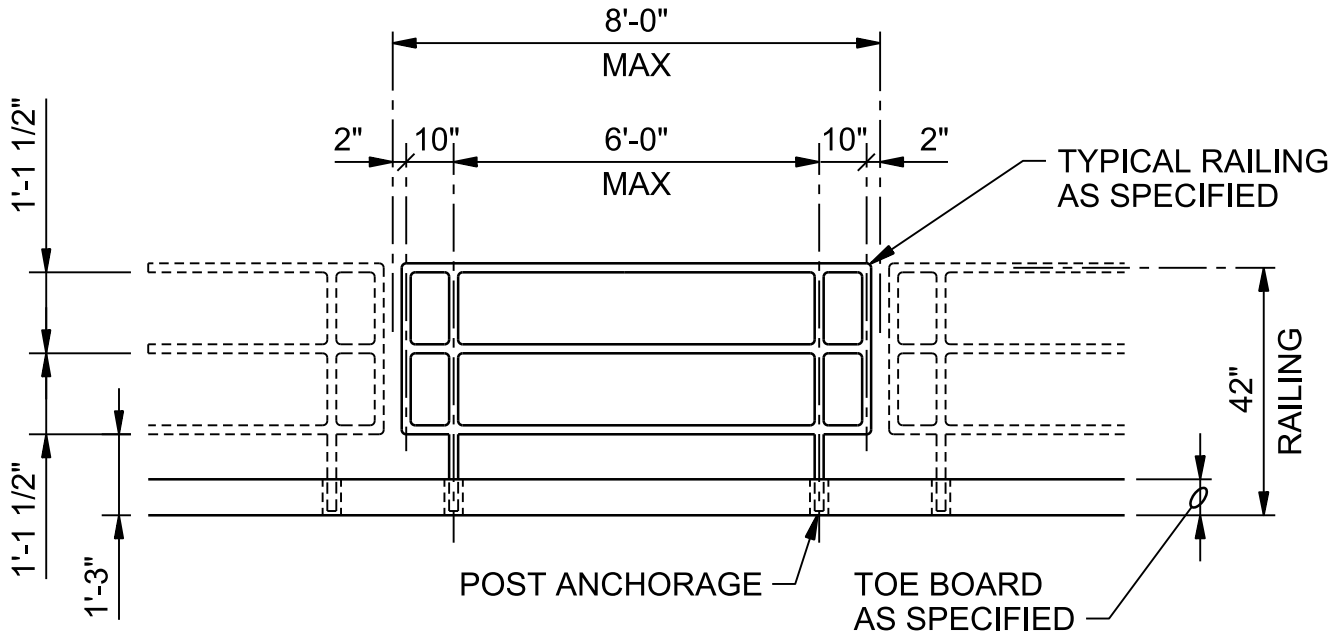
STAIR DETAILS

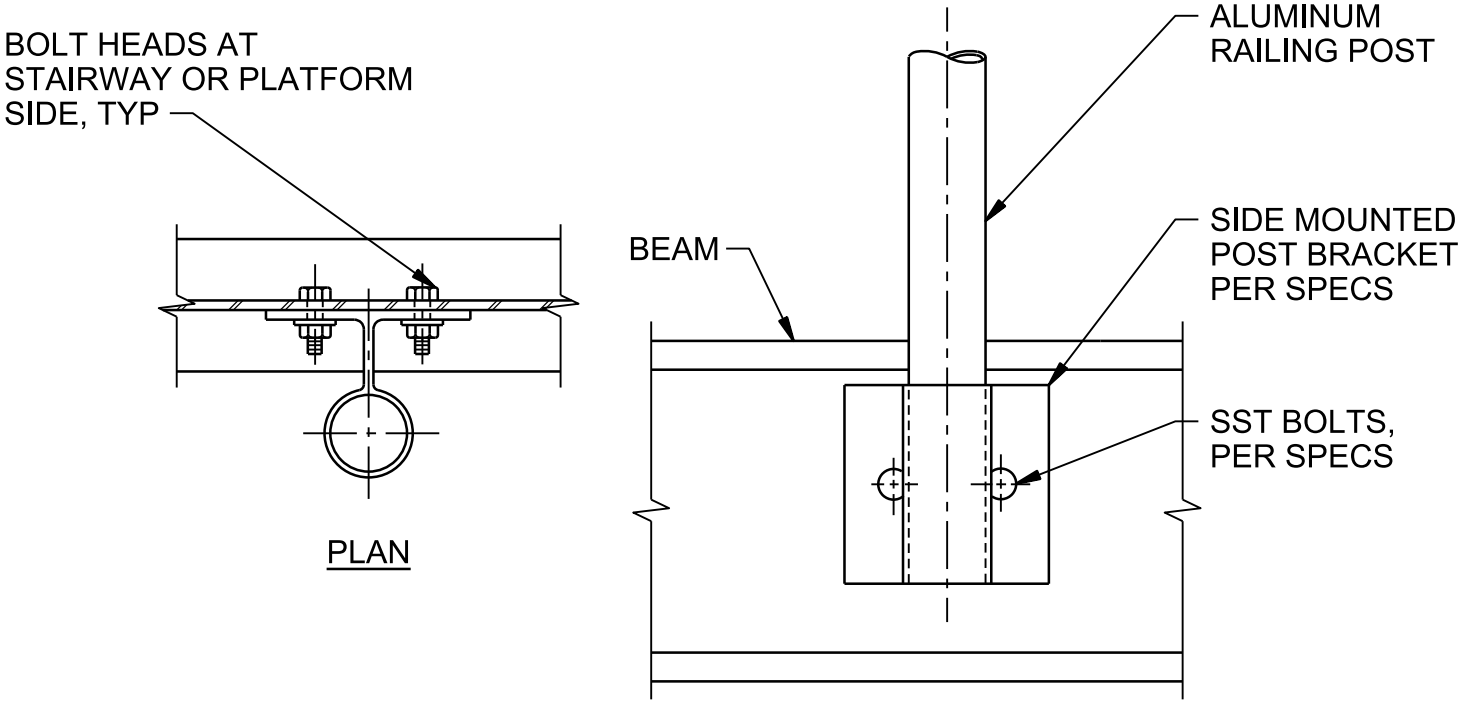
NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

0551-041

JACOBS





NOTES:

1. PROVIDE 6" STIFFENED KICK PLATE ATTACHED TO REMOVABLE RAILING.
2. FABRICATE REMOVABLE RAILING IN MAXIMUM 8'-0" SECTIONS WITH 2 POSTS EACH SECTION.

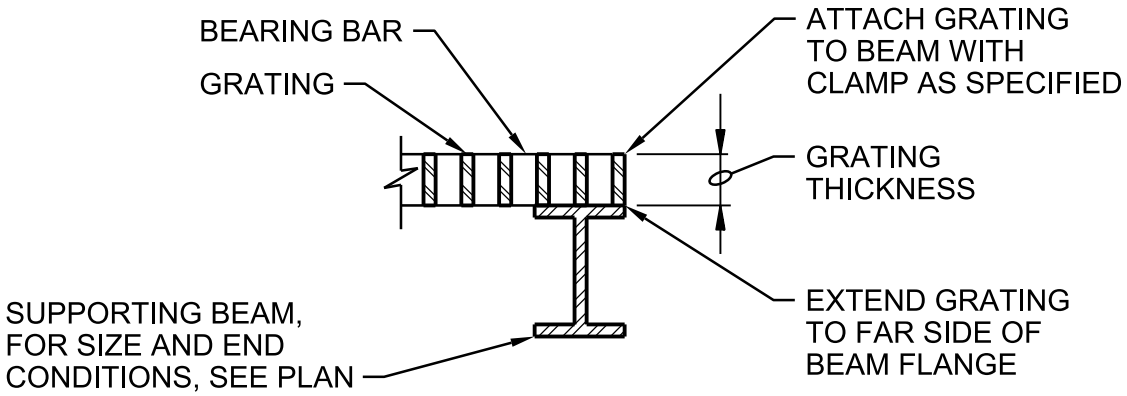
RAILING - REMOVABLE THREE RAIL - ALUMINUM

NTS

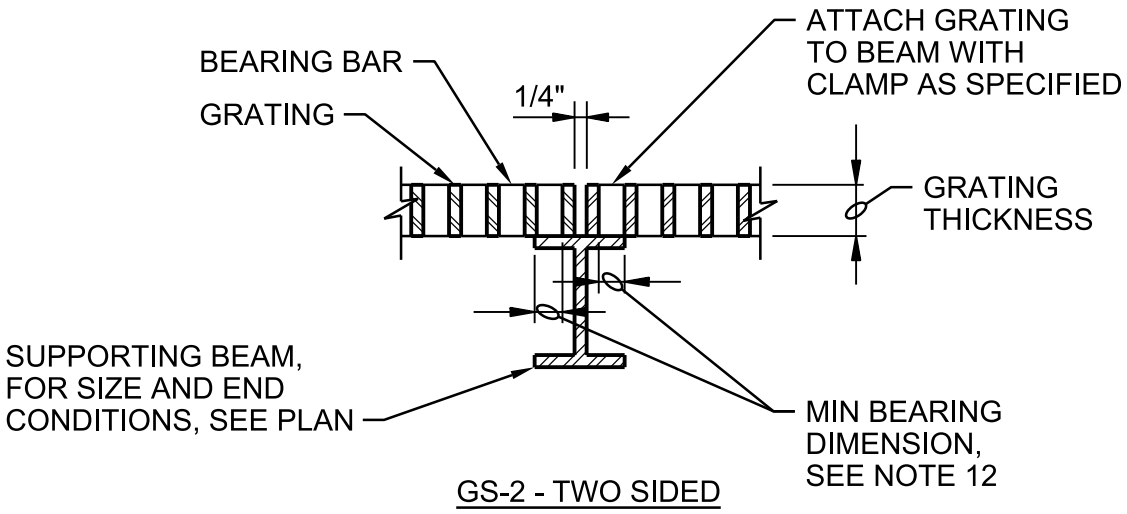
DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

0552-003

JACOBS



GS-2 - ONE SIDED



GS-2 - TWO SIDED

STANDARD GRATING

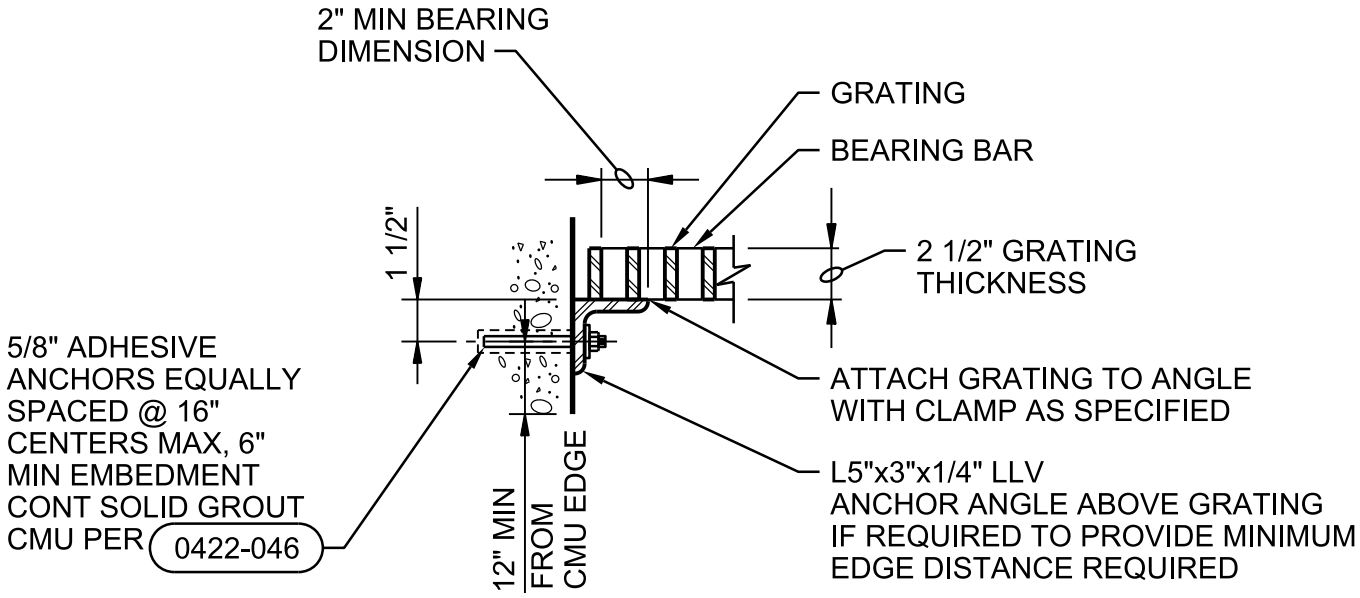
NTS

DETAIL 1 OF 3

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

0553-001

JACOBS

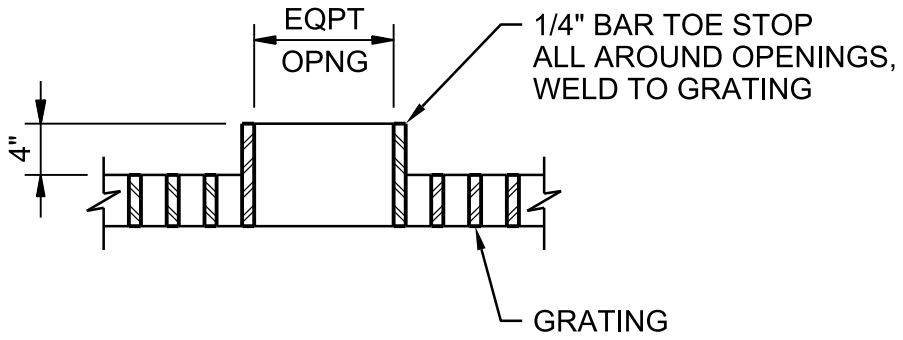


NOTES:

1. INSTALL ANCHORS MAXIMUM 4" FROM EACH END.

2. WHEN ANCHOR IS WITHIN 4" OF A CMU EDGE, UTILIZE MANUFACTURER'S LOW-TORQUE INSTALLATION PROCEDURES.

GS-3



EQUIPMENT OPENINGS

STANDARD GRATING

NTS

DETAIL 2 OF 3

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

0553-001

JACOBS

GENERAL NOTES:

1. GRATING SHALL BE LIGHT DUTY GRATING UNLESS OTHERWISE NOTED ON DRAWINGS.

2. GRATING SPAN IS INDICATED BY ⟷, SEE PLAN.

3. INDIVIDUAL GRATING SECTIONS SHALL NOT EXCEED 3'-0" IN WIDTH OR WEIGH MORE THAN 150 POUNDS, UNLESS INDICATED OTHERWISE.

4. SHOP DRAWINGS BASED ON FIELD DIMENSIONS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FABRICATION.

5. MATERIAL FOR SUPPORTS OF STEEL AND ALUMINUM GRATING TO BE SAME AS GRATING, EXCEPT METAL SUPPORTS THAT ARE TO BE EMBEDDED IN CONCRETE SHALL BE TYPE 316 STAINLESS STEEL.

6. GRATING THICKNESS SHALL BE 2 1/2".

7. BEARING BAR THICKNESS FOR GRATING TO BE 3/16" MINIMUM. SEE SPECIFICATIONS FOR SPACING OF BEARING AND CROSS BARS.

8. BAND ALL EDGES. MATCH DEPTH OF BEARING BAR.

9. TYPE OF MATERIAL USED SHALL BE AS SHOWN ON PLANS OR AS SPECIFIED. THIS STANDARD DETAIL INCLUDES 2 TYPES, ALTHOUGH BOTH MAY NOT BE INCLUDED IN PROJECT.

10. THE HORIZONTAL CLEARANCE BETWEEN THE GRATING AND GRATING SUPPORTS SHALL NOT BE LESS THAN 1/4" NOR GREATER THAN 1/2" AND AS SPECIFIED.

11. MINIMUM BEARING HORIZONTAL DIMENSION = 2".

STANDARD GRATING

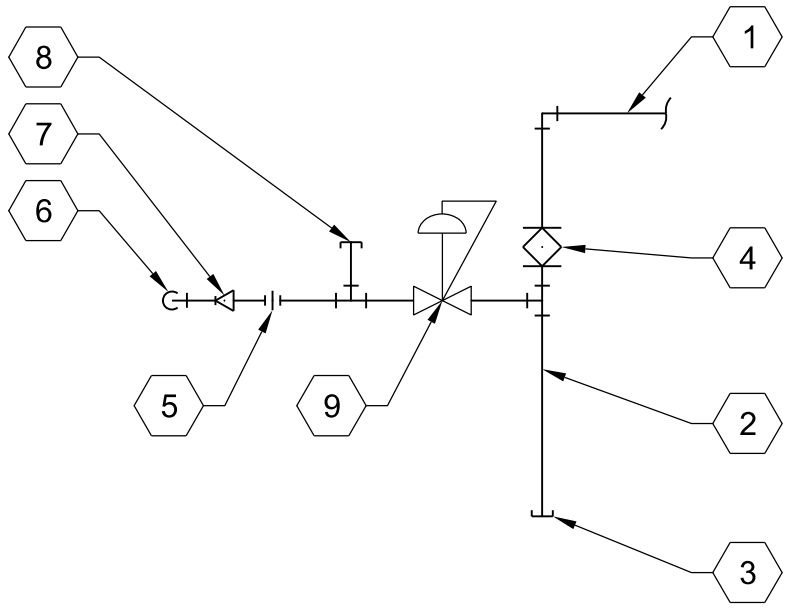
NTS

DETAIL 3 OF 3

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

0553-001

JACOBS



1. FROM NATURAL GAS DISTRIBUTION SYSTEM, SIZE AS SHOWN ON PLANS
2. 6" LONG DIRT LEG LOCATED AS CLOSE TO INLET OF EQUIPMENT AS POSSIBLE.
3. REMOVABLE CAP
4. BALL VALVE V305, LOCATED CLOSE TO INLET SIDE OF DIRT LEG TEE
5. GROUND JOINT UNION
6. CONNECT TO EQUIPMENT GAS TRAIN, INCLUDING 316 SST FLEXIBLE CONNECTOR OR RIGID PIPE FOR 1" DIA AND LARGER CONNECTIONS, TYP
7. TRANSITION TO UNIT CONNECTION, SIZE AS REQUIRED
8. 1/8" NPT PLUGGED TAPPING ACCESSIBLE FOR TEST GAUGE CONNECTION
9. PRESSURE REDUCING VALVE

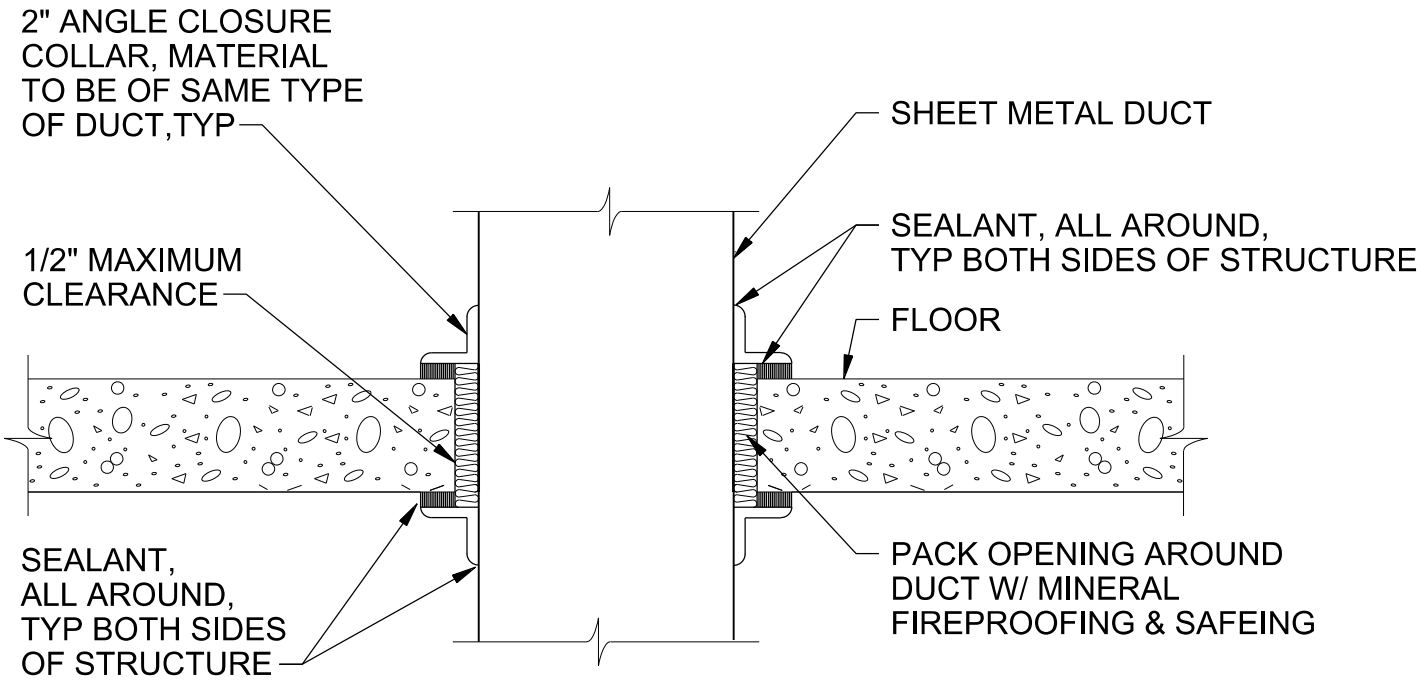
GAS FIRED EQUIPMENT CONNECTION

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

2210-801

JACOBS



NOTES:

1. 2" ANGLE CLOSURE COLLAR OF SAME MATERIAL AS DUCT.

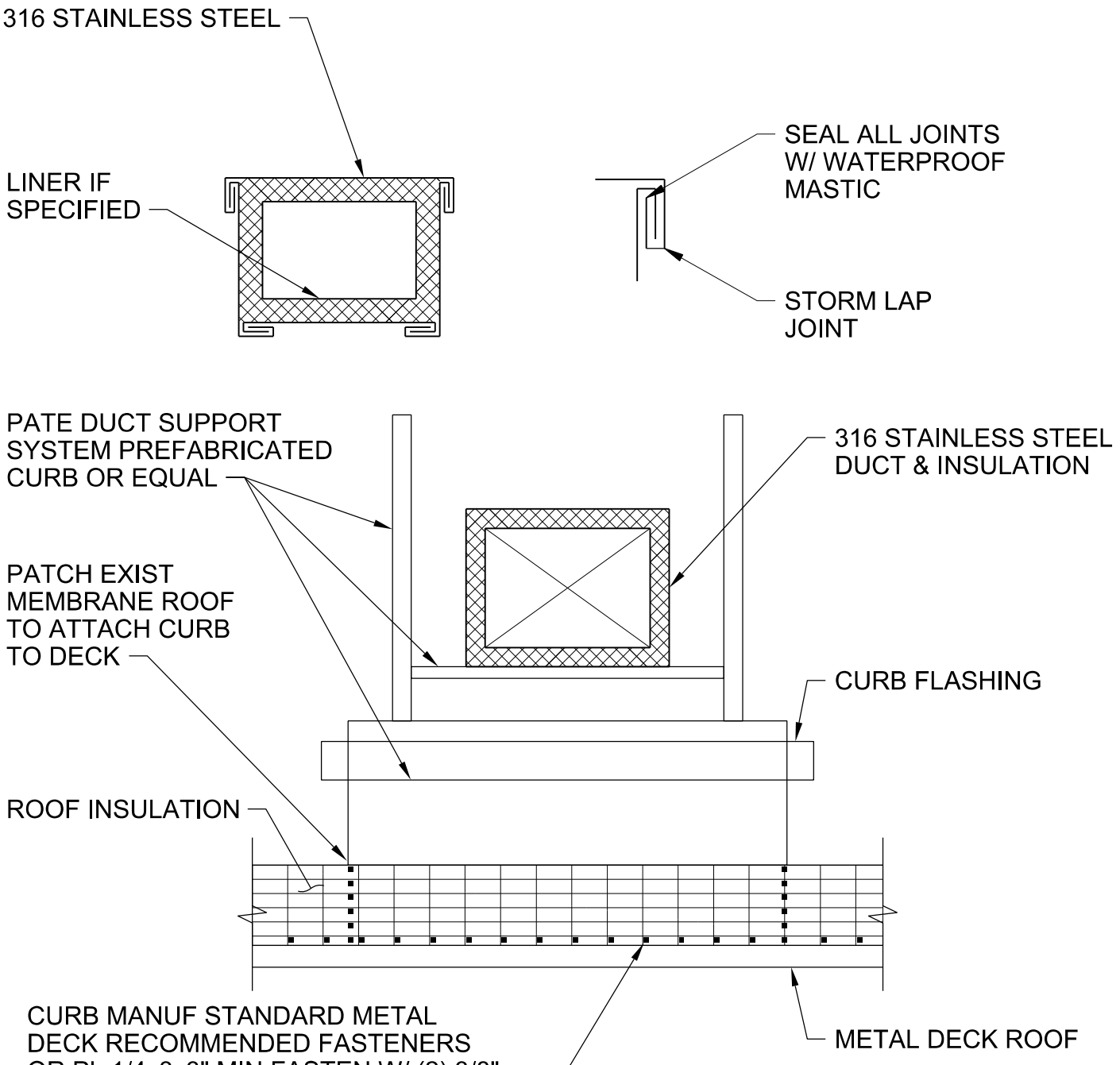
FLOOR PENETRATION - DRY AREA

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

2305-412

JACOBS



NOTE:

1. SPACE SUPPORTS ON BAR JOISTS OR NO MORE THAN 5' APART.

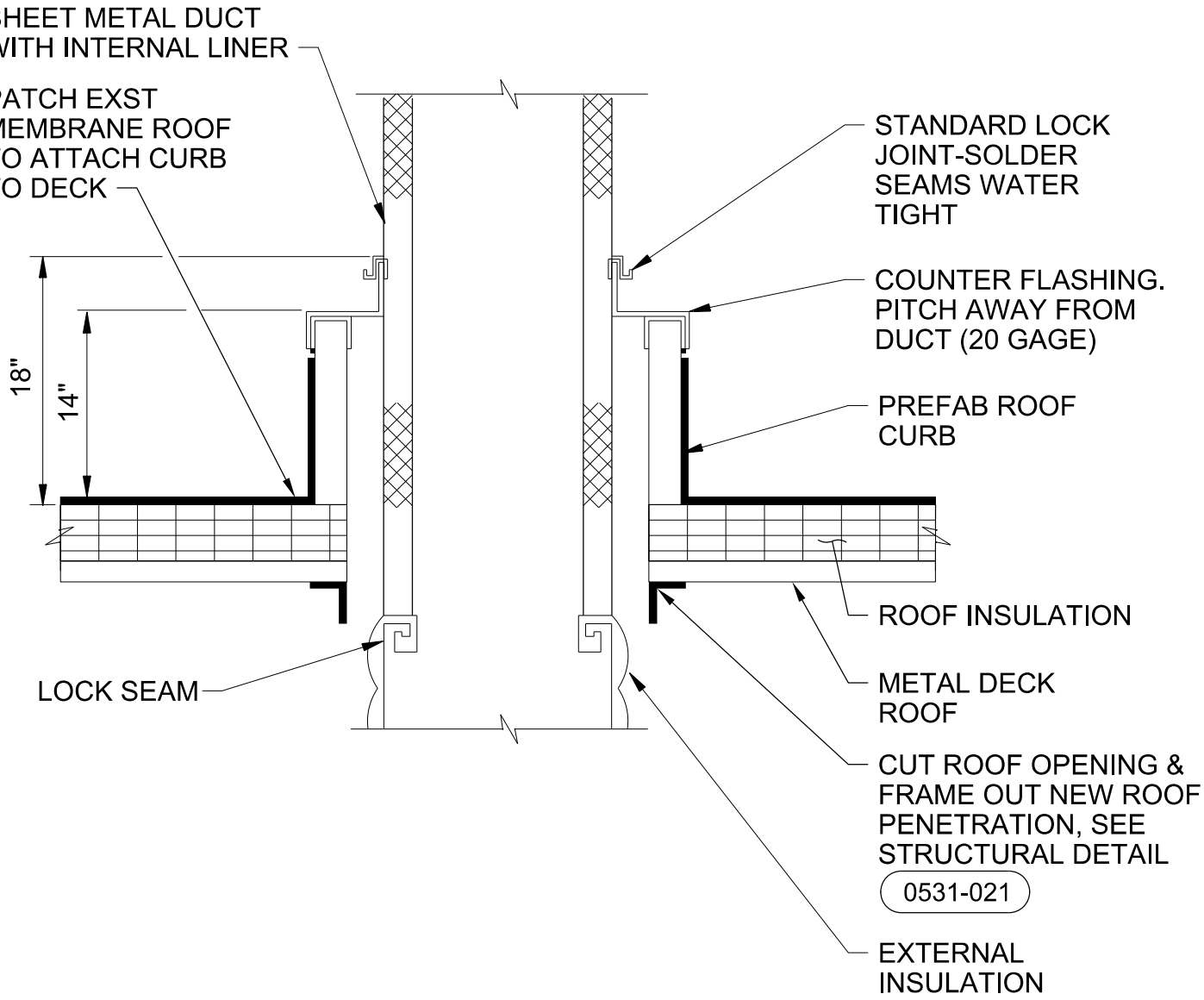
ABOVE ROOF DUCTING AND SUPPORT

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

2305-806

JACOBS



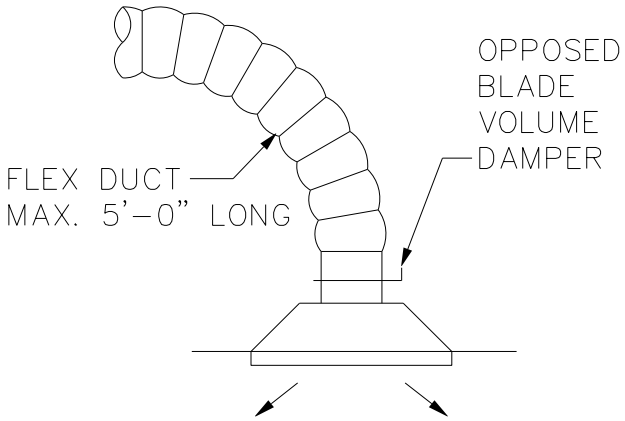
INSULATED DUCT THROUGH ROOF

NTS

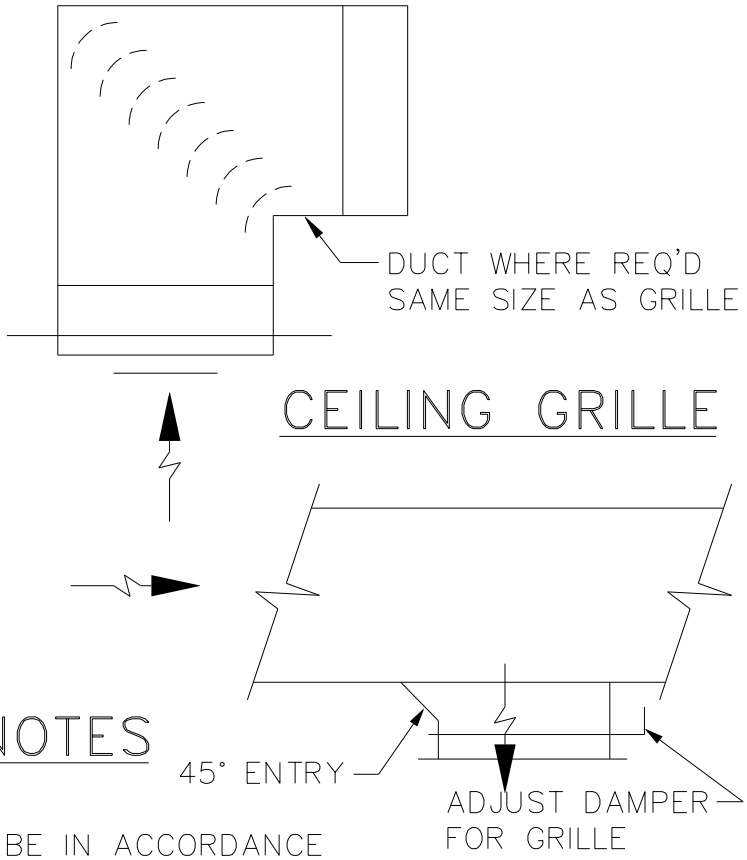
DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

2305-807

JACOBS



CEILING DIFFUSER



CEILING GRILLE

REGISTER OR GRILLE

GENERAL DUCTWORK NOTES

1. LOW PRESSURE CONSTRUCTION SHALL BE IN ACCORDANCE WITH LOCAL MECHANICAL CODES AND THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOC., INC. HVAC DUCT CONSTRUCTION STANDARDS UNLESS OTHERWISE INDICATED ON DRAWINGS.

2. CEILING DIFFUSER SIZES ARE NECK SIZES AND ARE TO BE LOCATED IN THE T-BAR GRIDS IN ALL SUSPENDED CEILING SYSTEMS. WHERE REFLECTED CEILING PLANS ARE PROVIDED LOCATE DIFFUSERS AND GRILLES AS INDICATED.

3. ALL DUCT SIZES SHOWN ARE NET FREE ARE DIMENSIONS

4. PROVIDE SPLITTER OR VOLUME DAMPER AT EACH SUPPLY DUCT TAKE-OFF IN ACCORDANCE WITH TYPICAL DUCT CONSTRUCTION DETAILS.

5. PROVIDE VOLUME DAMPERS FOR EACH GRILLE AT EACH CONNECTION AND ANY OTHER LOCATIONS INDICATED ON THE DRAWINGS IN ACCORDANCE WITH TYPICAL DUCT RE CONSTRUCTION DETAILS. DAMPERS TO BE INSTALLED MIN. 5'-0" FROM GRILLE.

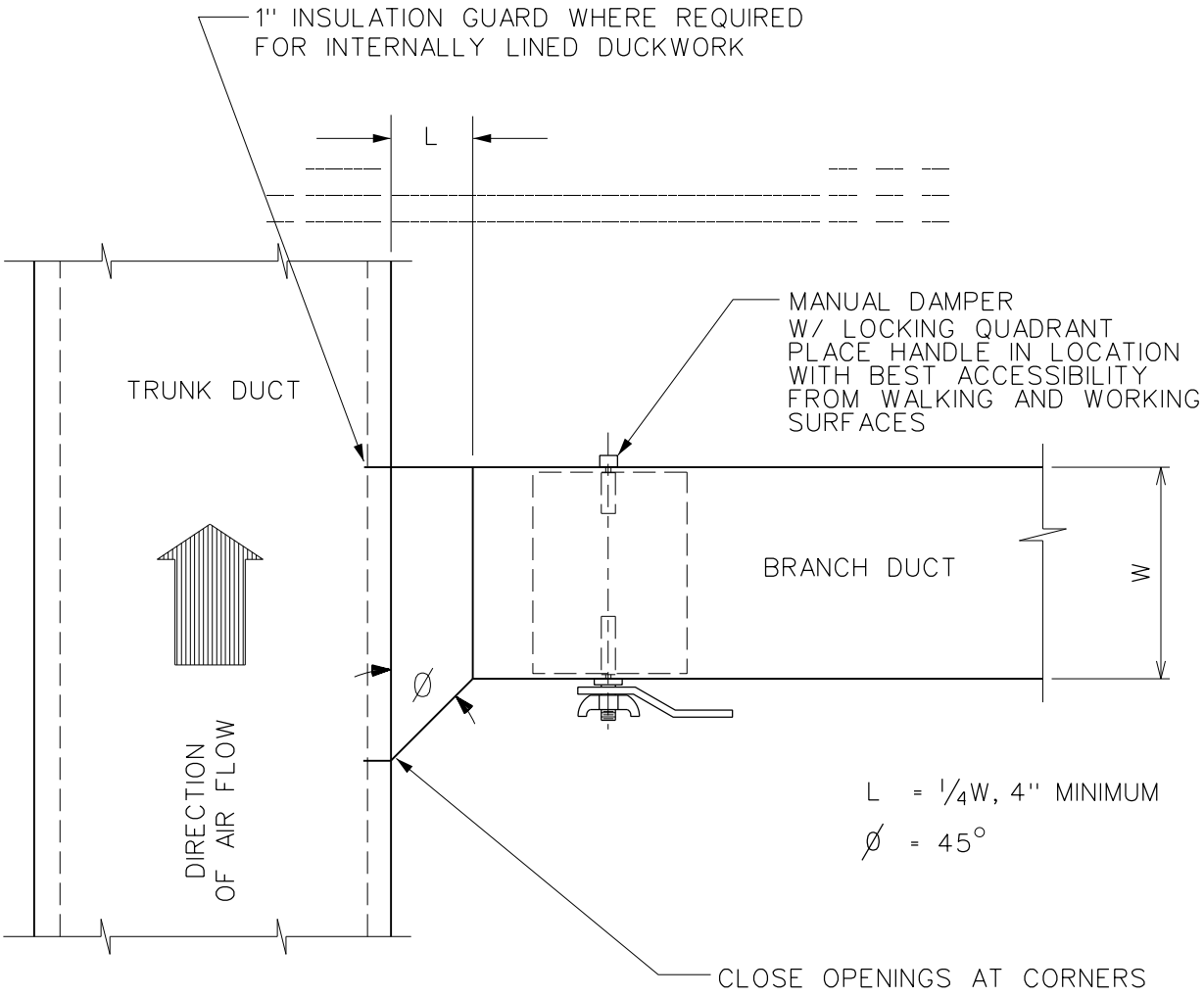
LOW PRESSURE DUCT CONSTRUCTION

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

2331-110

JACOBS



BRANCH DUCT TAKE-OFF

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

2331-140

JACOBS

SCHEDULE OF CENTER BRACING FOR RECTANGULAR DUCTS						
DUCT SIZE (3)	VERTICAL L'S	DIAGONAL L'S	HORIZONTAL L'S	LONGITUDINAL L'S	BOLT SIZE	CONN. TO STRUCT-URAL SUPPORT-ING MEMBER (1)
30" SQ.	2 1/2x2 1/2x16GA.	2 1/2x2 1/2x16GA.	2x2x16GA.	3x3x16GA.	1/4"	TYPE III
42" SQ.	4x4x16GA.	2 1/2x2 1/2x16GA.	2 1/2x2 1/2x16GA.	DO	3/8"	TYPE III
54" SQ.	4x4x12GA.	2 1/2x2 1/2x16GA.	2 1/2x2 1/2x16GA.	DO	3/8"	TYPE III
60" SQ.	4x4x12GA.	3x3x16GA.	3x3x16GA.	DO	3/8"	TYPE III
84" SQ.	4x4x1/4	4x4x14GA.	4x4x14GA.	DO	3/8"	TYPE IV
96" SQ.	5x3x1/4	4x4x12GA.	4x4x12GA.	DO	1/2"	TYPE V

"L" DENOTES ANGLE.
ALL HOLES IN L'S 1/16" OVERSIZE MAX.
PLACE STANDARD CUT WASHERS
BETWEEN SHEET METAL L'S & NUT.

MIN. EDGE DISTANCE FOR BOLTS
1/4" ——— 1"
3/8" ——— 1"
1/2" ——— 1"
5/8" ——— 1 1/8"
3/4" ——— 1 1/4"
7/8" ——— 1 1/2"

1. BRACE ALL RECTANGULAR DUCTS 6 SQ. FT. OF AREA AND LARGER. BRACE ALL ROUND DUCTS 28" IN DIAMETER AND LARGER.

2. TRANSVERSE BRACING TO OCCUR 30'-0" O.C. MAXIMUM. (EXCEPT RECTANGULAR DUCTS 61" AND LARGER IN EITHER DIRECTION MAY BE BRACED AT 32'-0"O.C.) TRANSVERSE BRACING SHALL BE INSTALLED AT EACH DUCT TURN AND AT EACH END OF A DUCT RUN. LONGITUDINAL BRACING SHALL OCCUR AT 60'-0" MAXIMUM.

3. NO BRACING IS REQUIRED IF THE TOP OF DUCT IS SUSPENDED 12" OR LESS FROM THE SUPPORTING STRUCTURAL MEMBER AND ATTACHED TO TOP OF DUCT.

4. SEE SCHEDULE FOR TYPICAL CONNECTION TO STRUCTURAL SUPPORTING MEMBERS.

5. THE DUCTS MAX. DIMENSION SHALL GOVERN WHAT BRACING IS REQUIRED. EXAMPLE: A 36"x60" DUCT SHALL BE BRACED AS A 60" SQ. DUCT.

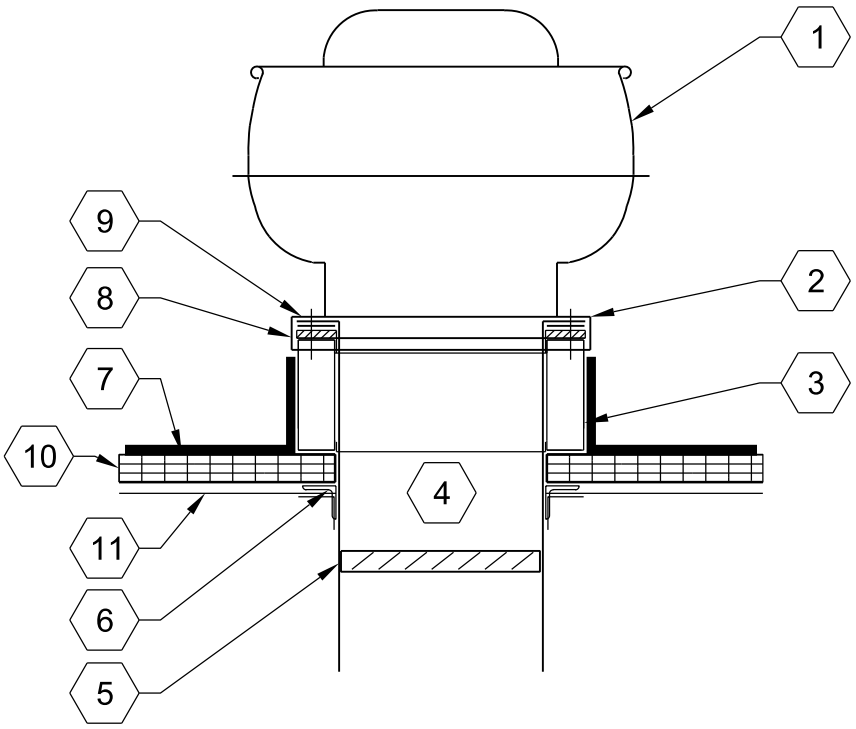
DUCT BRACING SCHEDULE

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

2331-380

JACOBS



1. FAN
2. PROVIDE 1" MINIMUM FLANGE ON SLEEVE
3. PRE-FABRICATED ROOF CURB
4. ROOF OPENING AS REQUIRED BY EQUIPMENT MANUFACTURER
5. PROVIDE BACKDRAFT DAMPER
6. CUT ROOF OPENING AND FRAME OUT NEW ROOF PENETRATION. SEE ARCHITECTURAL DETAIL 0531-021
7. PATCH EXST MEMBRANE ROOF TO ATTACH CURB TO DECK
8. FASTEN SLEEVE FLANGE AND FAN TO CURB
9. RUBBER PAD
10. ROOF INSULATION
11. METAL DECK ROOF

NOTES
A. REFER TO STRUCTURAL DRAWINGS FOR ROOF OPENING DETAILS.

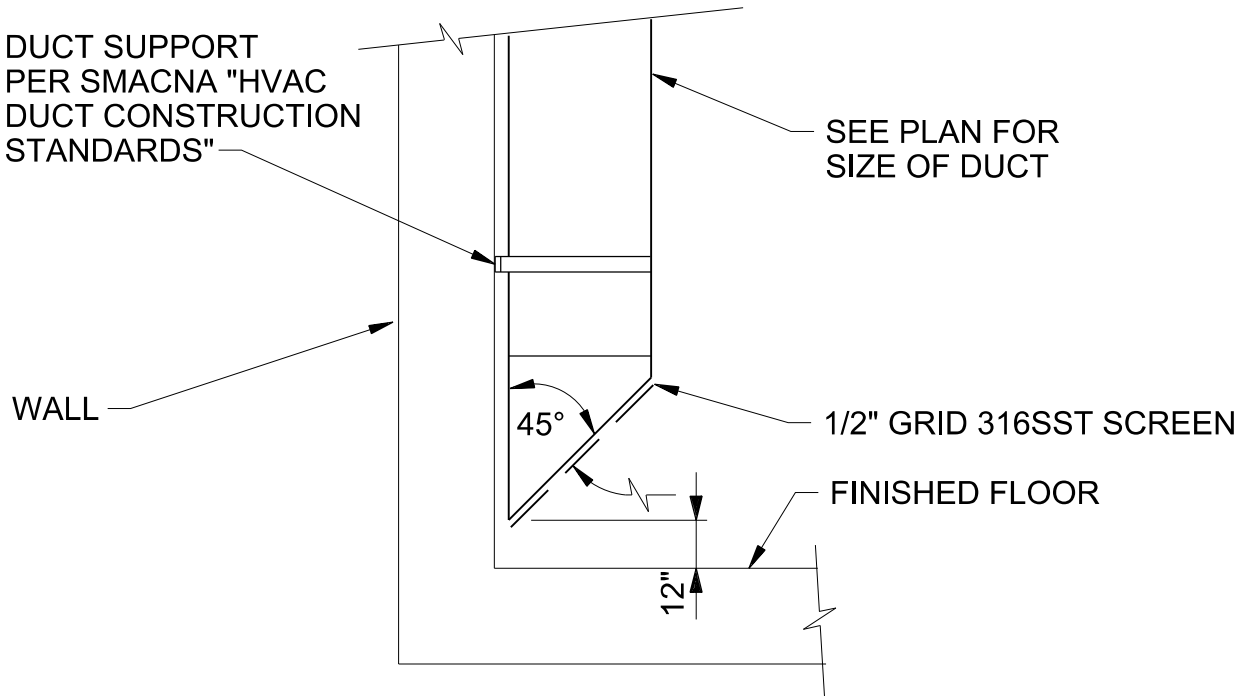
ROOF MOUNTED FAN

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

2334-301

JACOBS



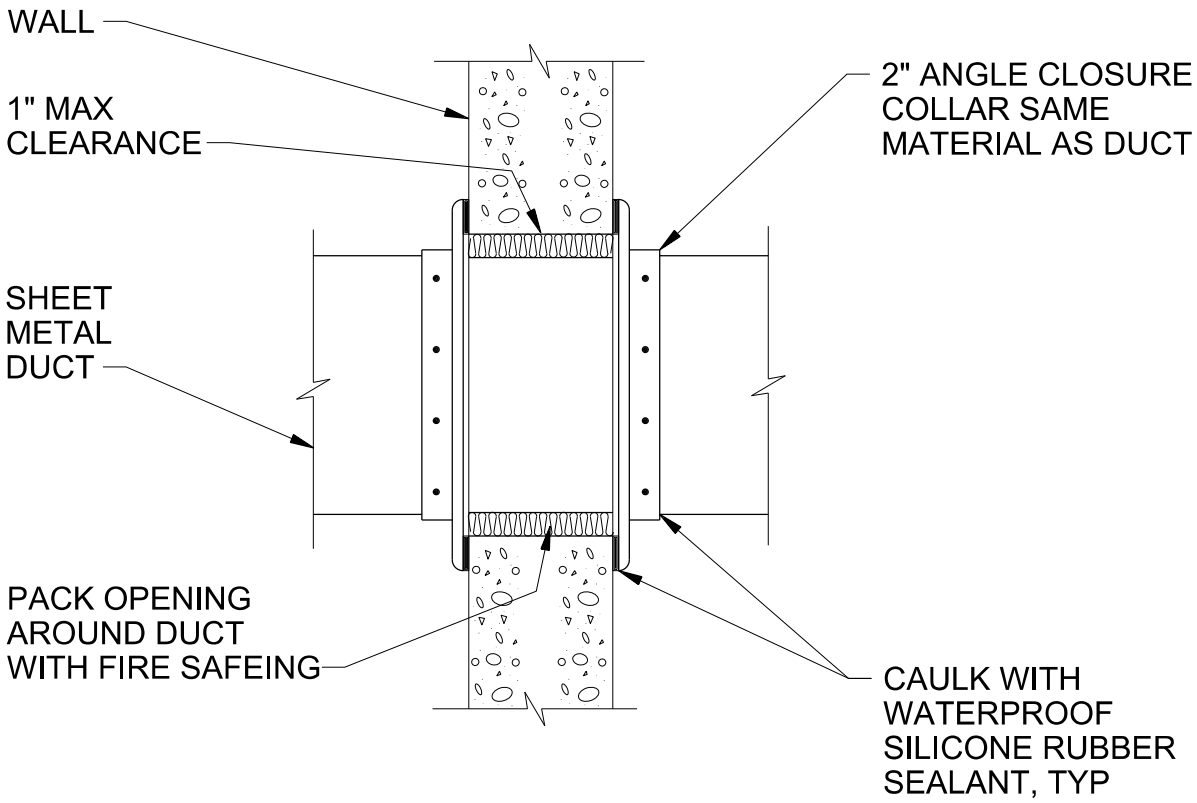
FLOOR EXHAUST DUCT

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

2337-805

JACOBS



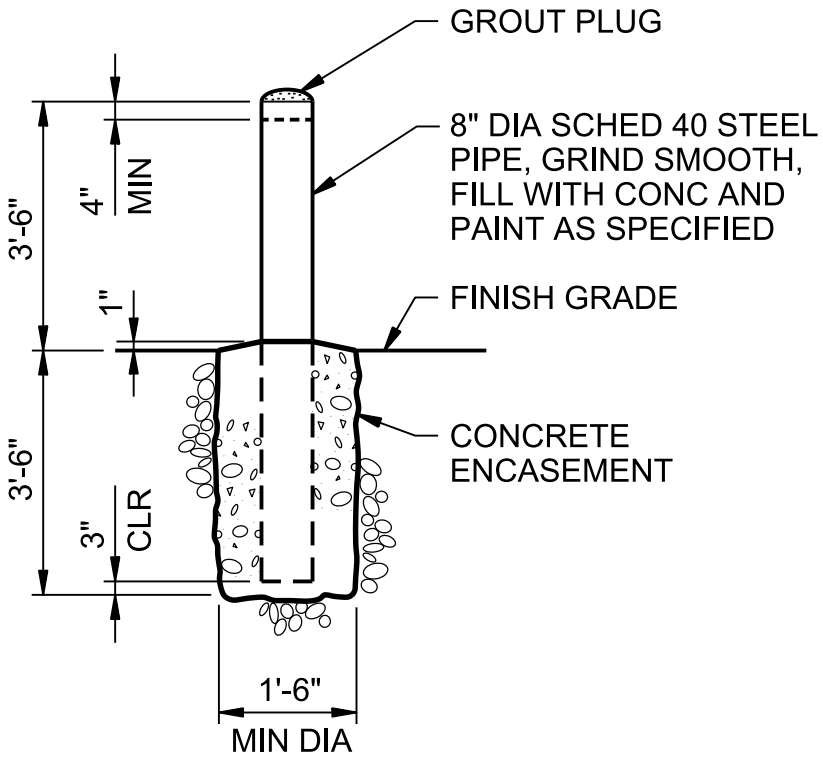
DUCT WALL PENETRATION

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

2337-810

JACOBS



NOTE:

FOR INTERIOR GUARD POST, SEE (0559-026) .

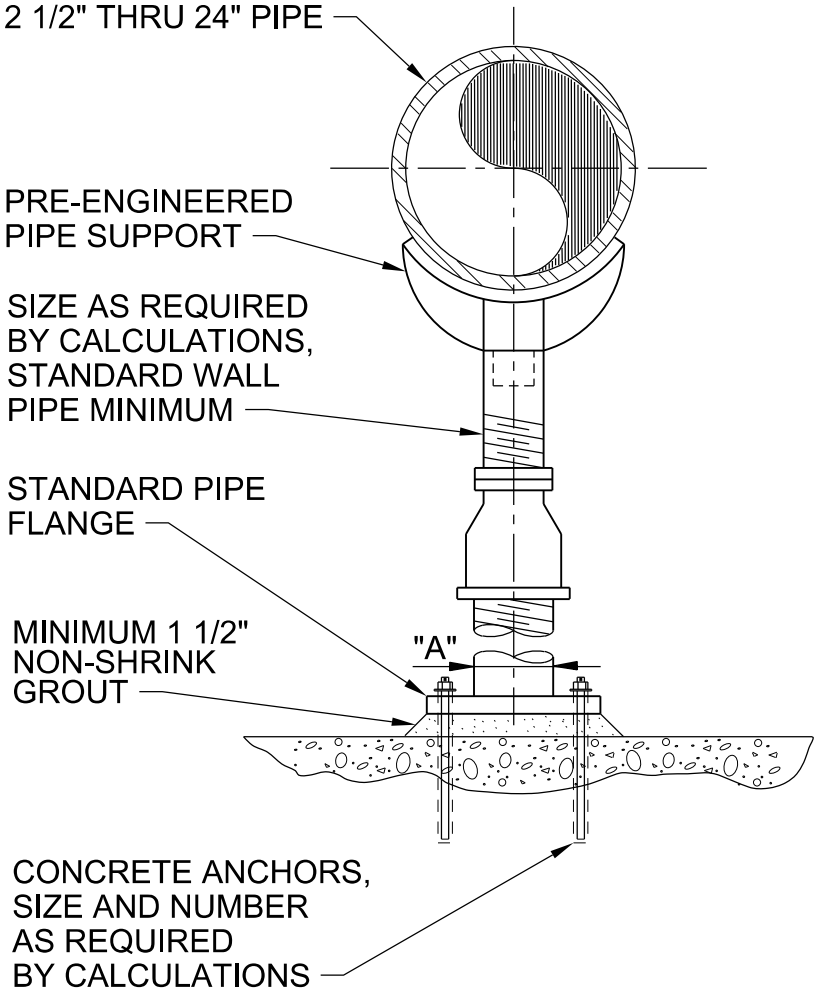
GUARD POST - EXTERIOR

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

3471-810

JACOBS



DIMENSION TABLE	
PIPE SIZE	"A" MINIMUM NOMINAL PIPE SIZE
2-1/2"	2-1/2"
3"	2-1/2"
4"	3"
6"	3"
8"	3"
10"	3"
12"	3"
14"	4"
16"	4"
20"	6"
24"	6"

NOTE:
SUBMIT FINAL DESIGN AND CALCULATIONS FOR SUPPORT AND ANCHORAGE AS SPECIFIED.

PIPE SUPPORT

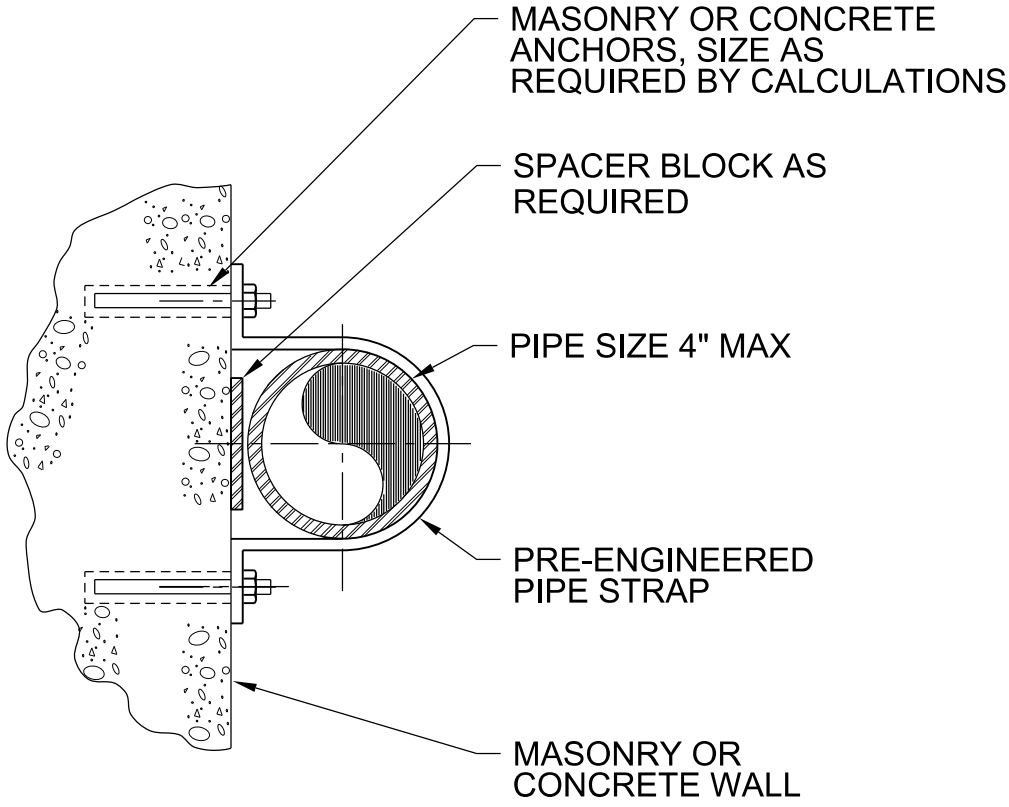
SADDLE SUPPORT PEDESTAL TYPE - ADJUSTABLE

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

4005-500

JACOBS



NOTES:

1. ONLY FOR VERTICAL PIPES.
2. NOT FOR USE ON CEILINGS OR BOTTOMS OF BEAMS.
3. PROVIDE PIPE PROTECTION BARRIER AS SPECIFIED. FABRICATE OVERSIZE STRAP WHERE REQUIRED.
4. SUBMIT FINAL DESIGN AND CALCULATIONS FOR SUPPORT AND ANCHORAGE AS SPECIFIED.

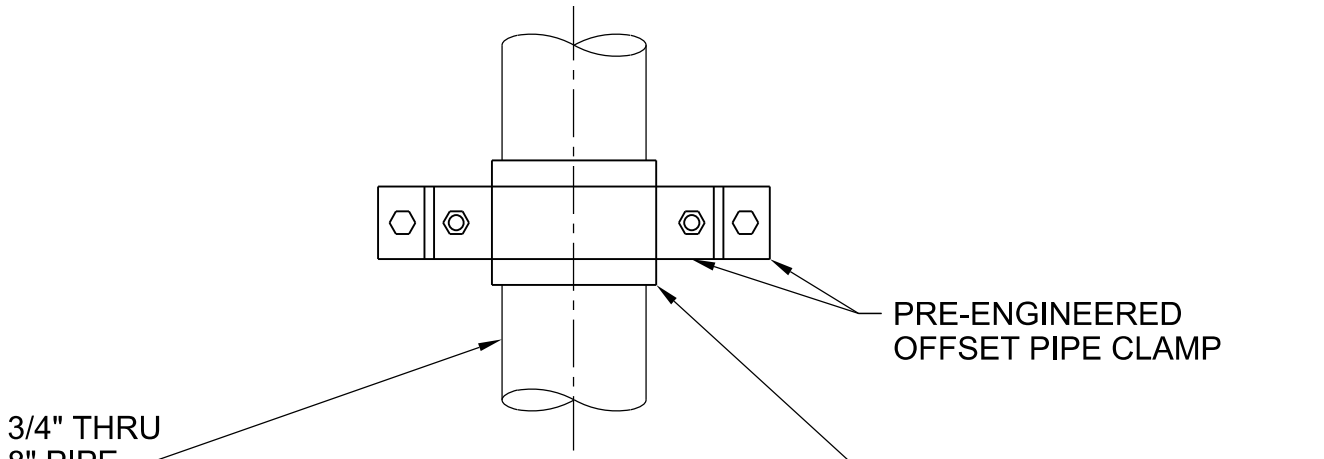
PIPE SUPPORT - WALL MOUNT

NTS

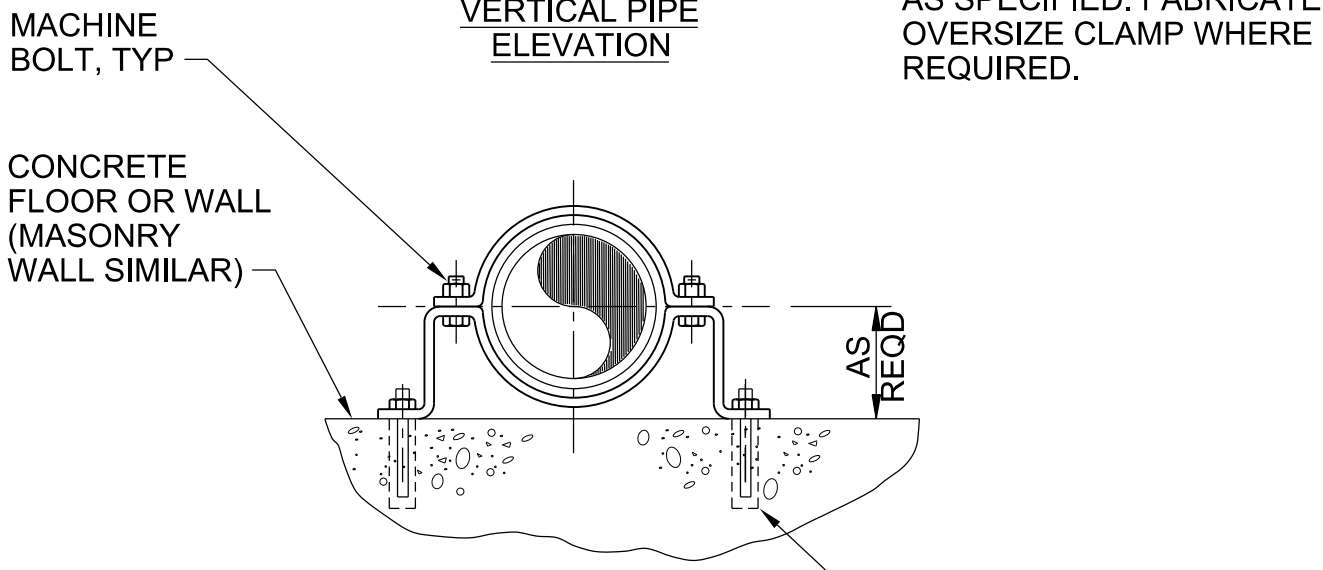
DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

4005-503

JACOBS



PLAN OR
VERTICAL PIPE
ELEVATION



SECTION

NOTES:

1. ONLY FOR VERTICAL OR FLOOR MOUNTED PIPES.

2. SUBMIT FINAL DESIGN AND CALCULATIONS FOR SUPPORT AND ANCHORAGE AS SPECIFIED.

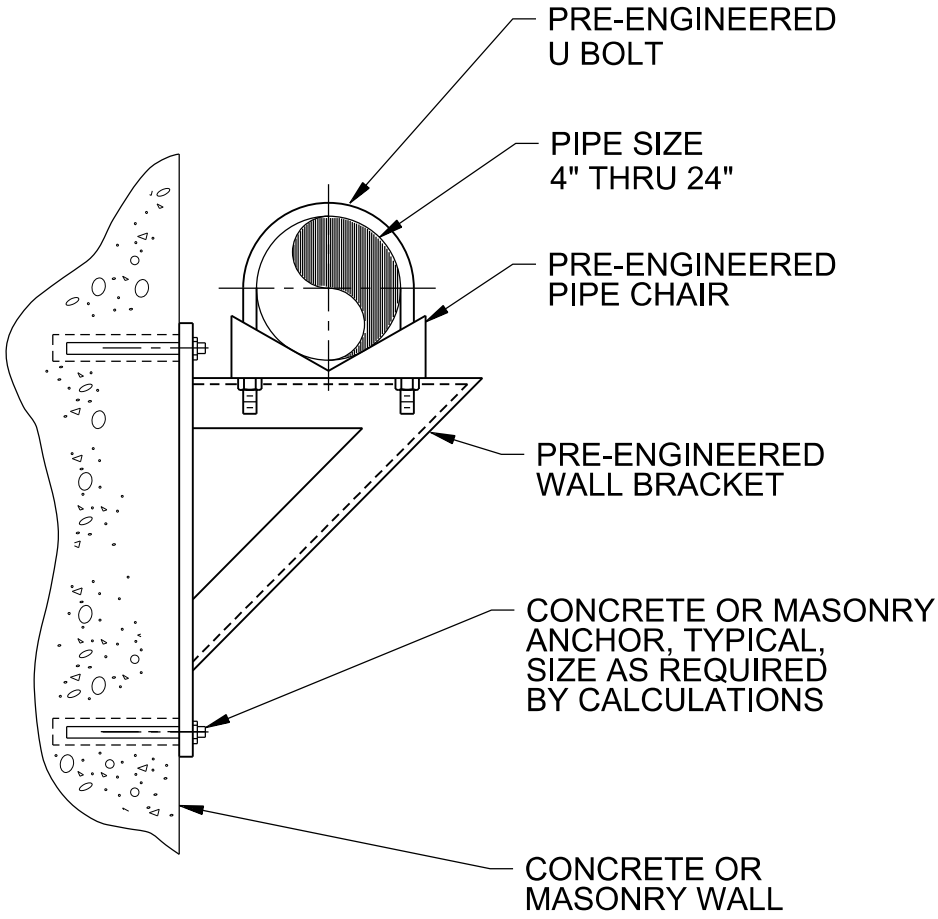
PIPE SUPPORT - WALL MOUNTED

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

4005-505

JACOBS



NOTES:

1. WALL BRACKET SHALL BE MEDIUM HEAVY DUTY AS REQUIRED BY CALCULATIONS.

2. SUBMIT FINAL DESIGN AND CALCULATIONS FOR SUPPORT AND ANCHORAGE AS SPECIFIED.

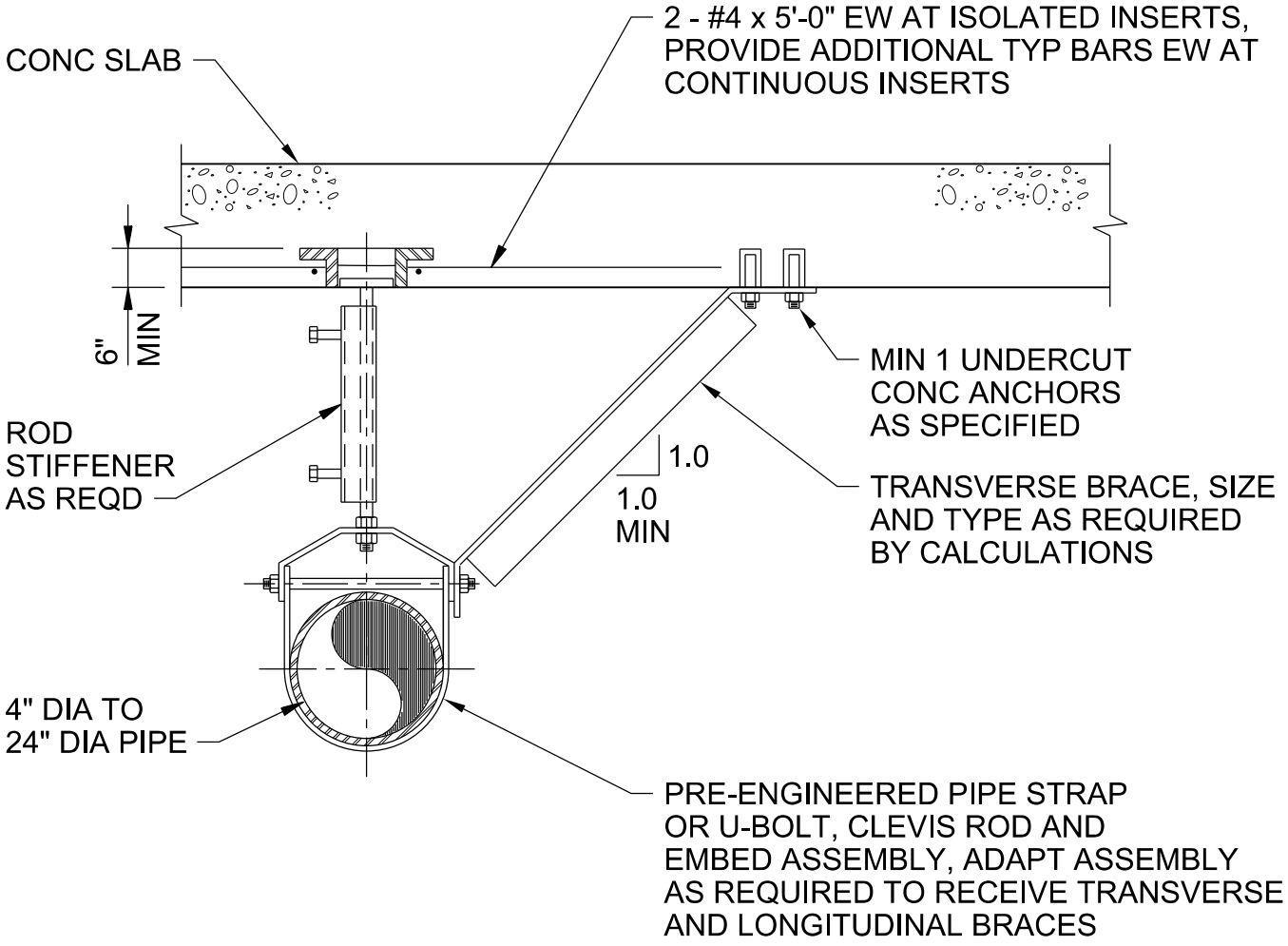
PIPE SUPPORT - WALL MOUNTED MEDIUM

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

4005-508

JACOBS



NOTES:

1. SUBMIT FINAL DESIGN DRAWINGS AND CALCULATIONS OF SUPPORTS AND ANCHORS AS SPECIFIED.

2. LONGITUDINAL BRACE BEYOND (NOT SHOWN) AS REQUIRED BY CALCULATIONS, SEE (4005-5XX)

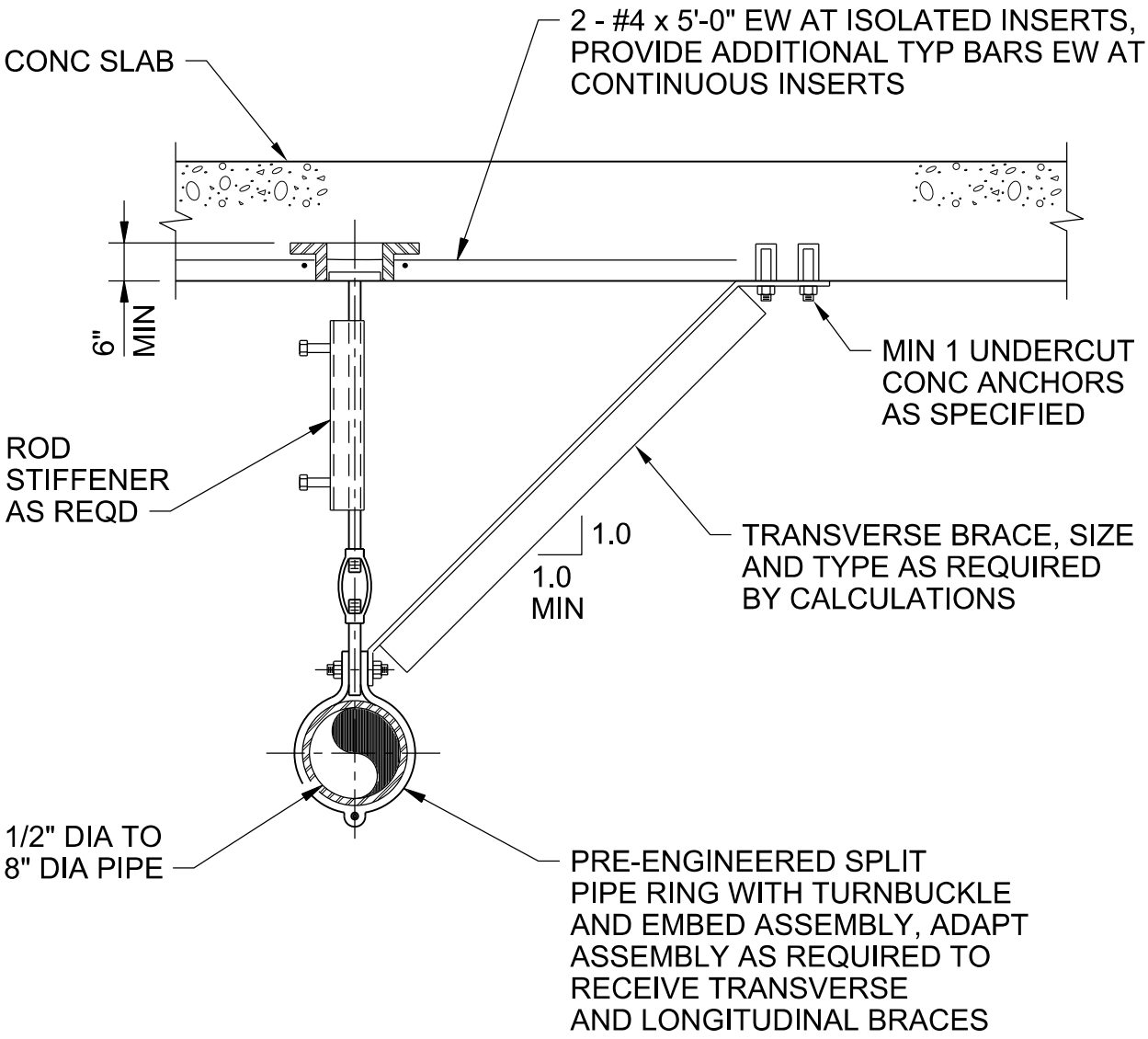
OVERHEAD PIPE HANGER

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

4005-550

JACOBS



NOTES:

1. SUBMIT FINAL DESIGN DRAWINGS AND CALCULATIONS OF SUPPORTS AND ANCHORS AS SPECIFIED.

2. LONGITUDINAL BRACE BEYOND (NOT SHOWN) AS REQUIRED BY CALCULATIONS, SEE (4005-5XX)

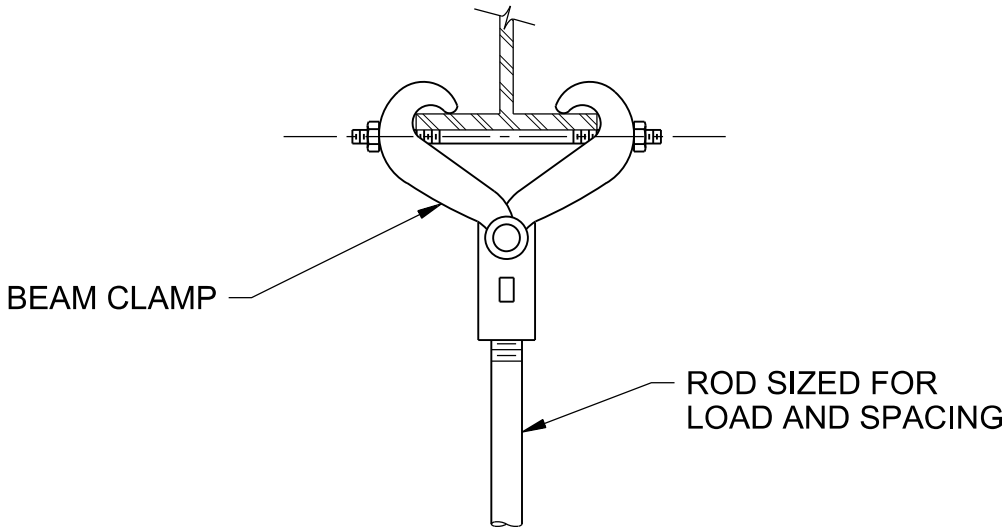
OVERHEAD PIPE HANGER

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

4005-551

JACOBS



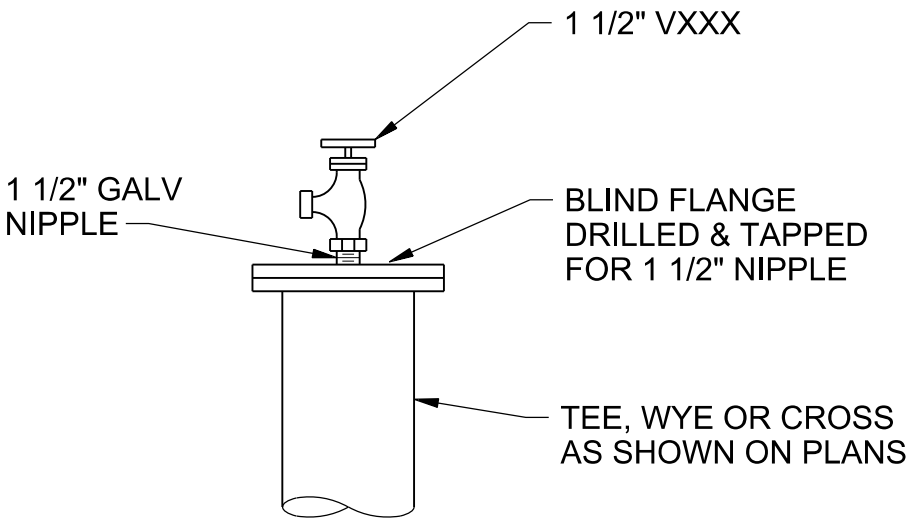
BEAM CLAMP

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

4005-556

JACOBS



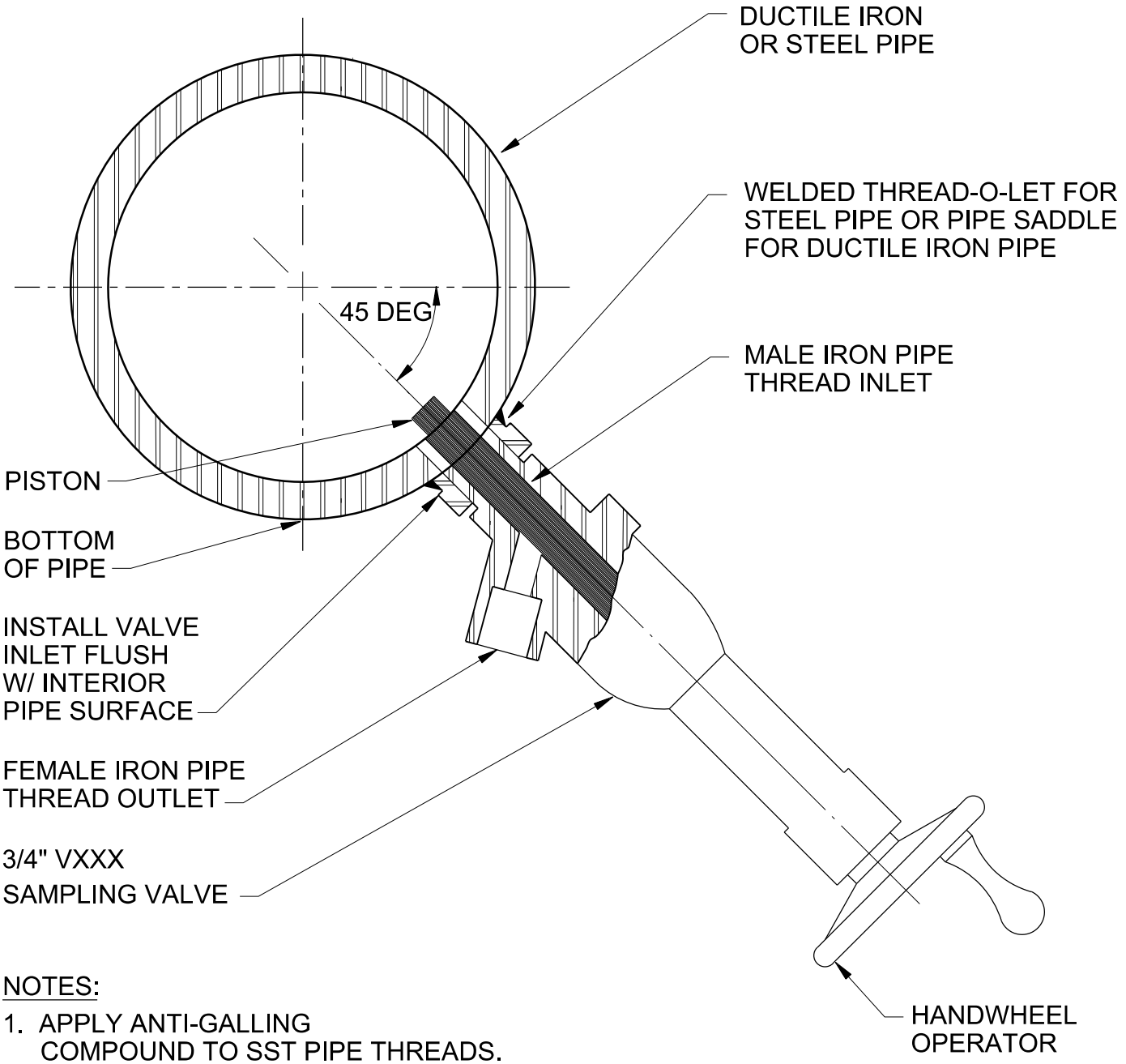
TYPE 2 FLUSHING CONNECTION

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

4027-182

JACOBS



NOTES:

1. APPLY ANTI-GALLING COMPOUND TO SST PIPE THREADS.
2. LOCATE VALVE FOR CONVENIENT OPERATION WITH OWNER'S REPRESENTATIVES APPROVAL ONLY.

SAMPLE VALVE

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

4027-190

JACOBS