

SHALEROCK 2
PRIVATE UTILITY BRIDGE PACKAGE

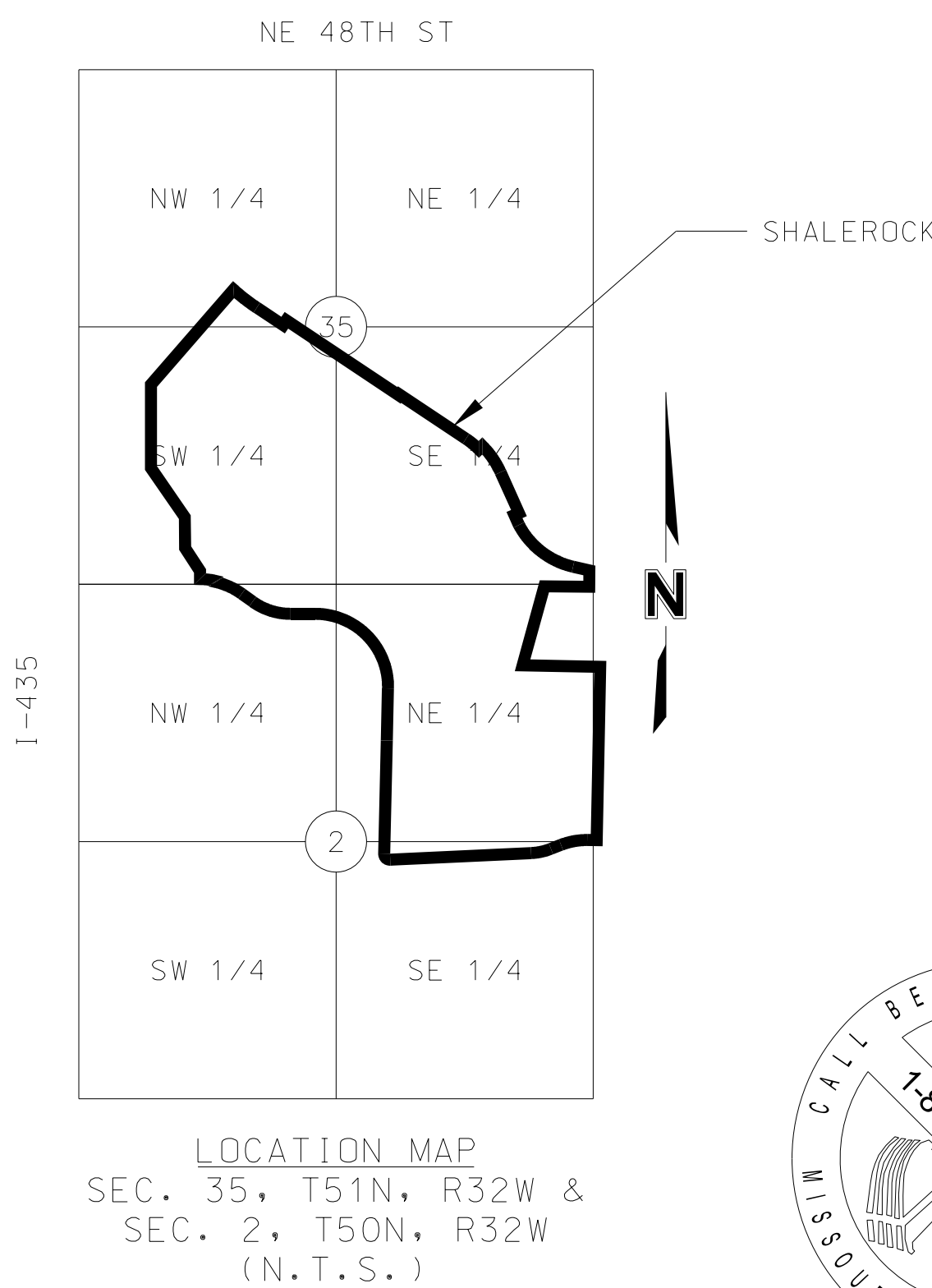
SECTION 35, TOWNSHIP 51N, RANGE 32W
SECTION 2, TOWNSHIP 50N, RANGE 32W
IN KANSAS CITY, CLAY COUNTY, MISSOURI

2024-09-18
KANSAS CITY, MO

HDR PROJECT # 10393064

PROJECT TEAM & UTILITY CONTACT LIST	
OWNER PORT AUTHORITY OF KANSAS CITY, MISSOURI 110 BERKLEY PLAZA KANSAS CITY, MO 64120 CONTACT: JON D. STEPHENS PHONE: 816.559.3750	UTILITY SERVICE NUMBERS NAME: KCMO PUBLIC WORKS PHONE: 816-513-2627
	NAME: KCMO WATER SERVICES DEPARTMENT PHONE: 816-513-2171
	NAME: SPIRE (MGE) PHONE: 314-342-0500
DEVELOPER TRAVIS BRIGHT SHALEROCK, LLC EMAIL: SHALEROCKPERMITS@GMAIL.COM	NAME: AT&T PHONE: 800-286-8313
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ENGINEER OLSSON 1301 BURLINGTON, SUITE 100 NORTH KANSAS CITY, MO 64116 CONTACT: JULIE E. SELLERS, P.E. PHONE: 816.361.1177 EMAIL: JSSELLERS@OLSSON.COM	NAME: SPECTRUM (TWC) PHONE: 877-772-2253
	NAME: GOOGLE FIBER PHONE: 877-454-6959
SURVEYOR OLSSON 1301 BURLINGTON, SUITE 100 NORTH KANSAS CITY, MO 64116 CONTACT: JASON ROUDEBUSH, P.L.S. PHONE: 816.361.1177 EMAIL: JROUDEBUSH@OLSSON.COM	

☐ NOT FOR CONSTRUCTION ☐ REVIEWED FOR CONSTRUCTION	CITY PROJECT NO.:
	PLAT NO.:
	CASE NO.:
	FILE NUMBER:
APN NO.: CL1830100010540001; CL1830100010510001 CL1830100010480001; CL1830100010490001 CL1490300010040001; CL1830100010480201	
WATERSHED NAME: SHOAL CREEK	



VICINITY MAP
NTS

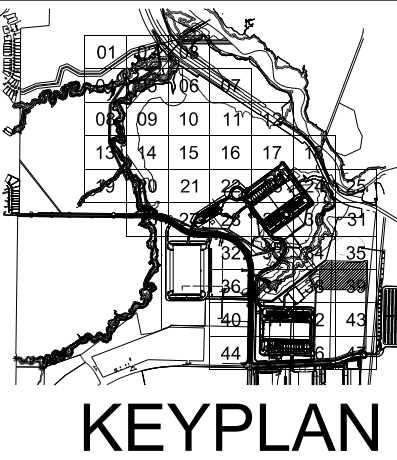
PROPERTY DESCRIPTION
LOT 33, LOT 36, AND TRACT I HUNT MIDWEST BUSINESS PARK - FIFTH PLAT
LOT 37, TRACT I, AND TRACT J HUNT MIDWEST BUSINESS PARK - SIXTH PLAT

NO.	SHEET NAME
B-100	COVER SHEET
B-101	BRIDGE LAYOUT
B-102	BRIDGE ELEVATION AND PLAN
B-103	GENERAL NOTES
B-104	END BENT NO. 1 DETAILS (1 OF 2)
B-105	END BENT NO. 1 DETAILS (2 OF 2)
B-106	VERTICAL DRAIN AT END BENTS
B-107	INTERMEDIATE BENT NO. 2 & 4 (1 OF 2)
B-108	INTERMEDIATE BENT NO. 2 & 4 (2 OF 2)
B-109	INTERMEDIATE BENT NO. 3 (1 OF 2)
B-110	INTERMEDIATE BENT NO. 3 (2 OF 2)
B-111	INTERMEDIATE BENT NO. 5 (1 OF 2)
B-112	INTERMEDIATE BENT NO. 5 (2 OF 2)
B-113	END BENT NO. 6 (1 OF 2)
B-114	END BENT NO. 6 (2 OF 2)
B-115	DIAPHRAGM DETAILS AT INTERMEDIATE BENTS
B-116	FRAMING PLAN
B-117	PRESTRESSED GIRDER DETAILS
B-118	DEAD LOAD DEFLECTION
B-119	PLAN OF SLAB REINFORCEMENT
B-120	TYPICAL SECTION
B-121	DETAILS OF PEDESTRIAN ANTI-CLIMB FENCE
B-122	DETAILS OF PEDESTRIAN CHAIN LINK FENCE
B-123	SLIP-FORM BARRIER CURB DETAILS
B-124	INTERIOR CURB DETAILS
B-125	APPROACH SLAB DETAILS
B-126	AS-BUILT PILE DATA
B-127	SOIL BORING DATA (SHEET 1 OF 2)
B-128	SOIL BORING DATA (SHEET 2 OF 2)

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SHALEROCK PRIVATE UTILITY BRIDGE



REVISIONS	
No.	DESCRIPTION

DRAWN:
Author
APPROVED:
Approver

PROJECT ADDRESS:
9002 NE 48th STREET
KANSAS CITY, MISSOURI 64116
Proj No. 10393064

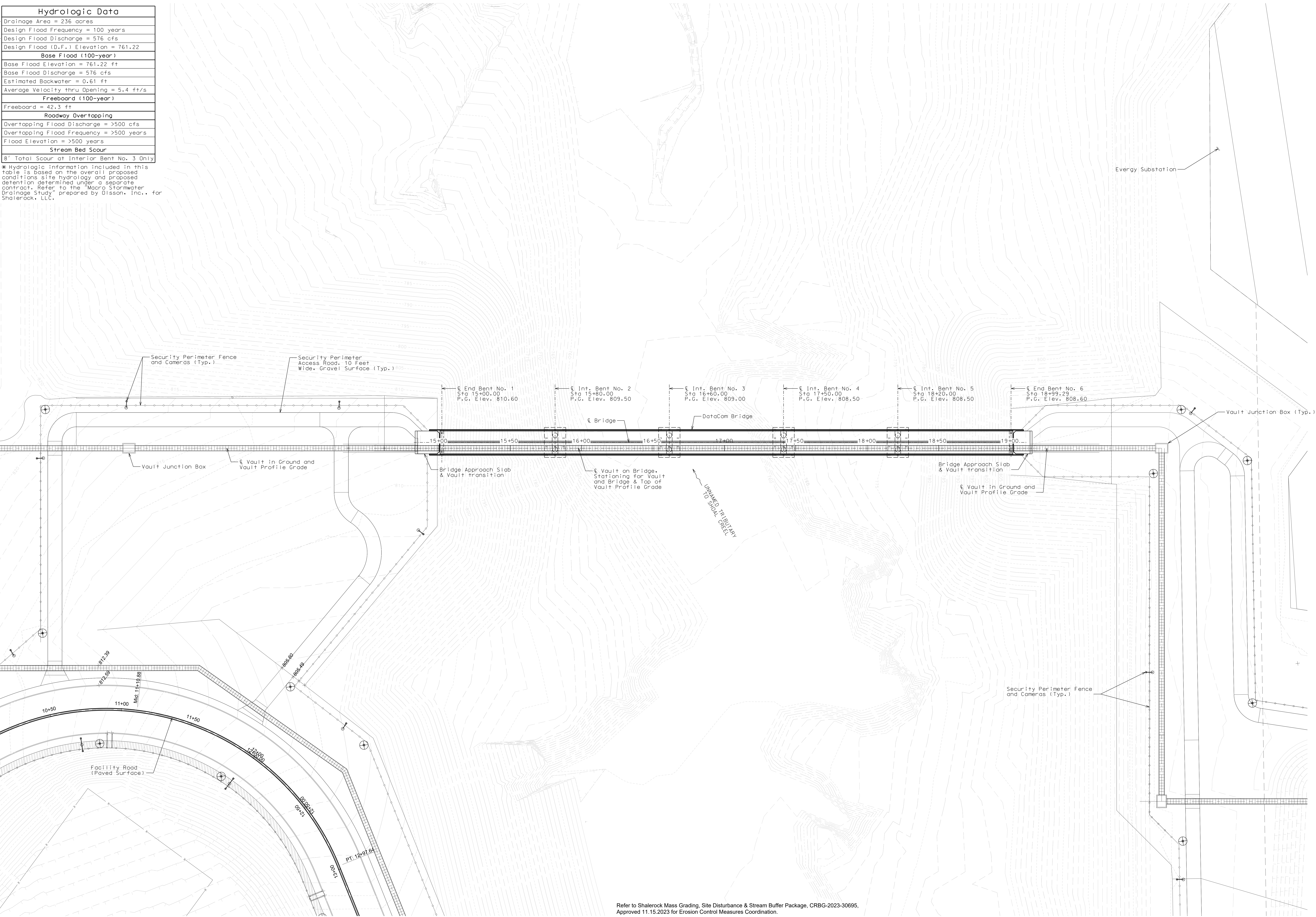
COVER SHEET

SCALE: NOT TO SCALE. FOLLOW DIMENSIONS

SHEET NUMBER:
2A-B-100
Paper Size: E (36"x48")
PHASE:

Hydrologic Data
* Drainage Area = 236 acres
Design Flood Frequency = 100 years
* Design Flood Discharge = 576 cfs
Design Flood (D.F.) Elevation = 761.22
Base Flood (100-year)
Base Flood Elevation = 761.22 ft
* Base Flood Discharge = 576 cfs
Estimated Backwater = 0.61 ft
Average Velocity thru Opening = 5.4 ft/s
Freeboard (100-year)
Freeboard = 42.3 ft
Roadway Overlapping
Overlapping Flood Discharge = >500 cfs
Overlapping Flood Frequency = >500 years
Flood Elevation = >500 years
Stream Bed Scour
8' Total Scour at Interior Bent No. 3 Only

* Hydrologic information included in this table is based on the overall proposed conditions site hydrology and proposed detention determined under a separate contract. Refer to the "Macro Stormwater Drainage Study" prepared by Disson, Inc., for Shaleroak, LLC.

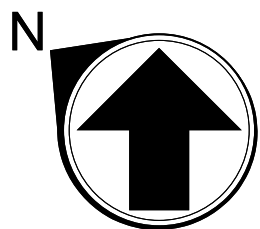


Refer to Shaleroak Mass Grading, Site Disturbance & Stream Buffer Package, CRBG-2023-30695, Approved 11.15.2023 for Erosion Control Measures Coordination.

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SHALEROCK PRIVATE UTILITY BRIDGE



REVISIONS	
No.	DATE DESCRIPTION

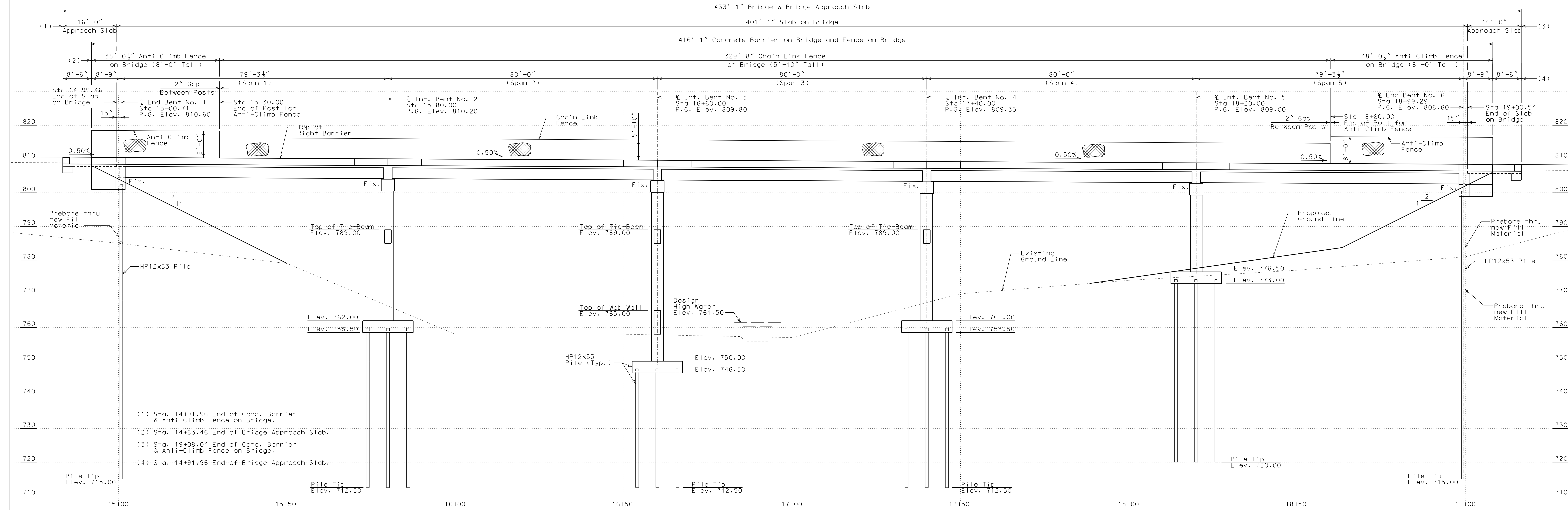
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Author
APPROVED:
Approver

PROJECT ADDRESS:
9002 NE 48th STREET
KANSAS CITY, MISSOURI 64165
Proj. No. 10303064

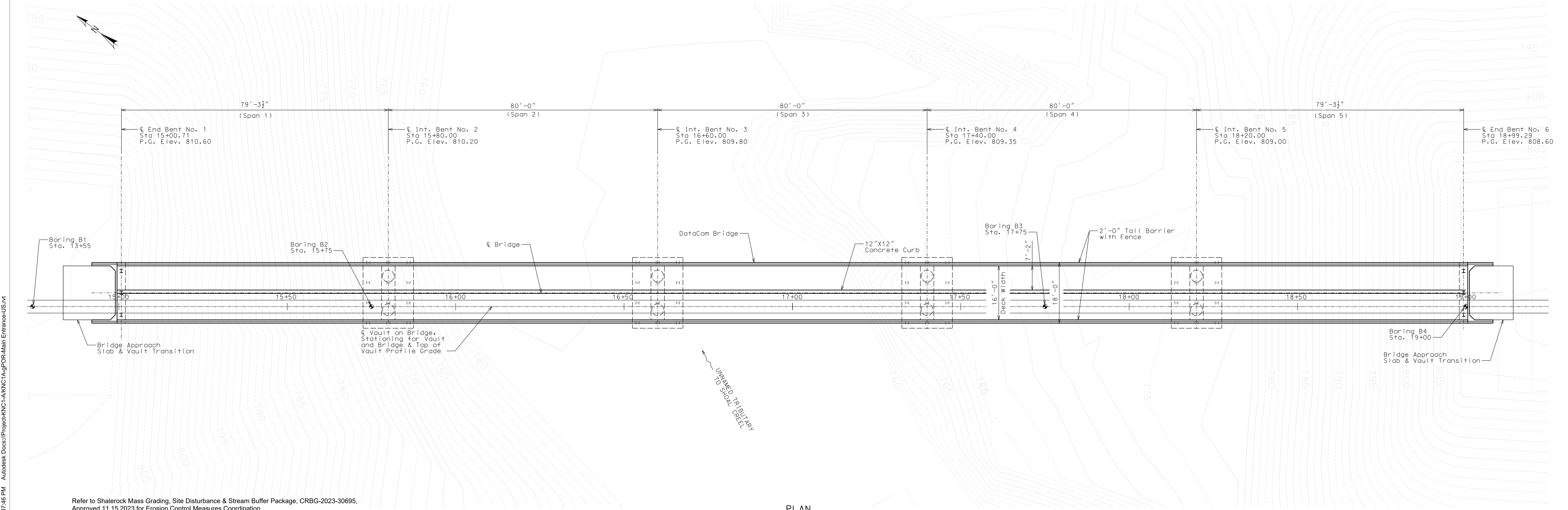
BRIDGE LAYOUT

SCALE: NOT TO SCALE, FOLLOW DIMENSIONS

SHEET NUMBER:
2A-B-101
Paper Size: E (36"x48")
PHASE:



ELEVATION
80'-80'-80'-80'-80'
NU-35 Prestressed Concrete Girder Spans
Integral End Bents, Column Bent Piers



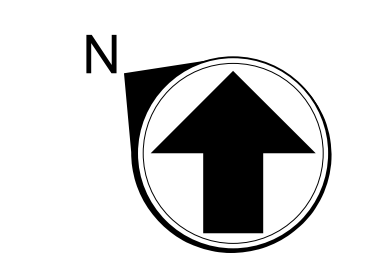
PLAN

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Refer to Shalerock Mass Grading, Site Disturbance & Stream Buffer Package, CRBG-2023-30695,
Approved 11.15.2023 for Erosion Control Measures Coordination.



SHALEROCK PRIVATE UTILITY BRIDGE



REVISIONS		
No.	DATE	DESCRIPTION

DRAWN:
Author
APPROVED:
Approver

PROJECT ADDRESS:
9000 NE 48th STREET
KANSAS CITY, MISSOURI 64165
Proj No. 10300064

BRIDGE ELEVATION AND PLAN

SCALE: NOT TO SCALE, FOLLOW DIMENSIONS

SHEET NUMBER:
2A-B-102
Paper Size: E (36"x48")
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Refer to Shaleroch Mass Grading, Site Disturbance & Stream Buffer Package, CRBG-2023-30695,
Approved 11.15.2023 for Erosion Control Measures Coordination.

DESIGN SPECIFICATIONS:
2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
Seismic Design Category A

DESIGN LOADING:
Vehicular Live Load = H5
Pedestrian Live Load = 90 psf
Plasticbeton Cable Trench System Model T4016 (closed bottom trench & lid) = 150 lbs/lf
Fiber Optic Cables (Furukawa FB-KZ9054B) (all cables inside trench) = 200 lb/lf
(LRFD Superstructure, LRFD Substructure)
Earth 120#/Cu. Ft., Equivalent Fluid Pressure 45#/Cu. Ft.,
Superstructure: Simply-supported, non-composite for dead load,
Continuous composite for live load.

DESIGN UNIT STRESSES:
Class B Concrete (Substructure) f'c = 3,000 psi
Class B-1 Concrete (Slip-Form Barrier Curb & Interior Curb) f'c = 4,000 psi
Class B-2 Concrete (Superstructure Except Prestressed Girders, Slip-Form Barrier Curb & Interior Curb) f'c = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi
Structural Carbon Steel (ASTM A709 Grade 36) fy = 36,000 psi
Structural Steel HP Pile (ASTM A709 Grade 50S) fy = 50,000 psi
For Prestressed Girder Stresses, see Prestressed Girder Detail Sheets

BEARING PADS:
For Bearing Pads see the Prestressed Girder Detail Sheets.

JOINT FILLER:
All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

REINFORCING STEEL:
Minimum clearance to reinforcing steel shall be 1 1/2", unless otherwise shown.
All Reinforcing Steel shall be non-epoxy coated.

MISCELLANEOUS:
"Sec" refers to the sections in the Missouri Department of Transportation Standard Specifications for Highway Construction and supplemental specifications unless specified otherwise.

BRIDGE DECK:
The surface of the concrete deck slab and concrete approach slab shall have a broom finish applied per MoDOT Specifications.

Corrugated steel forms, supports, closure elements and accessories shall be in accordance with grade requirement and coating designation G165 of ASTM A653. Complete shop drawings of the permanent steel deck forms shall be required in accordance with Sec 1080.

Corrugations of stay-in-place forms shall be filled with an expanded polystyrene material. The polystyrene material shall be placed in the forms with an adhesive in accordance with the manufacturer's recommendations.

Form sheets shall not rest directly on the top of girder beam flanges. Sheets shall be securely fastened to form supports with a minimum bearing length of one inch on each end. Form supports shall be placed in direct contact with the flange. Welding on or drilling holes in the girder flanges will not be permitted. All steel fabrication and construction shall be in accordance with Sec 1080 and 712. Certified field welders will not be required for welding of the form supports.

The design of stay-in-place corrugated steel forms is per manufacturer which shall be in accordance with Sec 703 for false work and forms. Maximum actual weight of corrugated steel forms allowed shall be 4 psf assumed for girder loading.

LOAD BEARING PILE DATA TABLE						
Design Data	Bent Number					
	1	2	3	4	5	6
Pile Type and Size	HP 12x53	HP 12x53	HP 12x53	HP 12x53	HP 12x53	HP 12x53
Number	3	12	12	12	12	3
Approximate Length Per Each	ft	--	48	--	48	59
Pile Point Reinforcement	ea	--	All	All	All	--
Min. Penetration (Elev.)	ft	--	Full Length	Full Length	Full Length	750
Resistance Factor		Dynamic Testing	Dynamic Testing	Dynamic Testing	Dynamic Testing	Dynamic Testing
Pile Driving Verification Method		0.65	0.65	0.65	0.65	0.65
Design Bearing Minimum Nominal Axial Compressive Resistance	kip	--	249	249	249	249

Pile Notes:

Load Bearing Pile: Minimum Nominal Axial Compressive Resistance = Maximum Factored Loads/ Resistance Factor.

Dynamic Pile Testing shall be performed during pile installation to verify pile integrity and capacity. See project Specification.

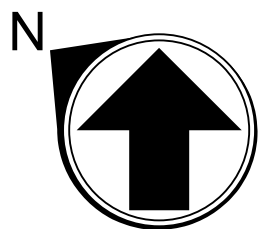
A minimum of one Dynamic Pile Test shall be performed at each End Bent and Interior Bent location.

All piling shall be non-galvanized.

Prebore for piles at End Bents No. 1 and No. 6 to elevations 785.0 and 780.0, respectively.



SHALEROCK PRIVATE UTILITY BRIDGE



REVISIONS			DRAWN: Author APPROVED: Approver
No.	DATE	DESCRIPTION	

PROJECT ADDRESS:
9020 NE 48th STREET
KANSAS CITY, MISSOURI 64116

Proj. No. 10300084

GENERAL NOTES

SCALE: NOT TO SCALE, FOLLOW DIMENSIONS

SHEET NUMBER:
2A-B-103

Paper Size: E (36"x48")
PHASE:



Notes:

Bend F100 bar in field, as needed, to clear girders.

All vertical reinforcing bars in the substructure beam or caps shall be field adjusted to clear piles by at least 1 1/2".

The U-bars, pairs of V-bars and #5-H709 bars shall be placed parallel to centerline of roadway.

All concrete in the end bent above top of beam and below top of slab shall be Class B-2.

Strands at end of girders shall be field bent or, if bent, shall be field bent to maintain 1 1/2" minimum clearance to fill face of end bent.

All concrete in the end bent above top of beam and below top of slab shall be Class B-2.

① - Denotes girder number

1 - Denotes pile number.

E.F. - Denotes Earch Face.

F.F. - Denotes Foot Face.





(*) Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.

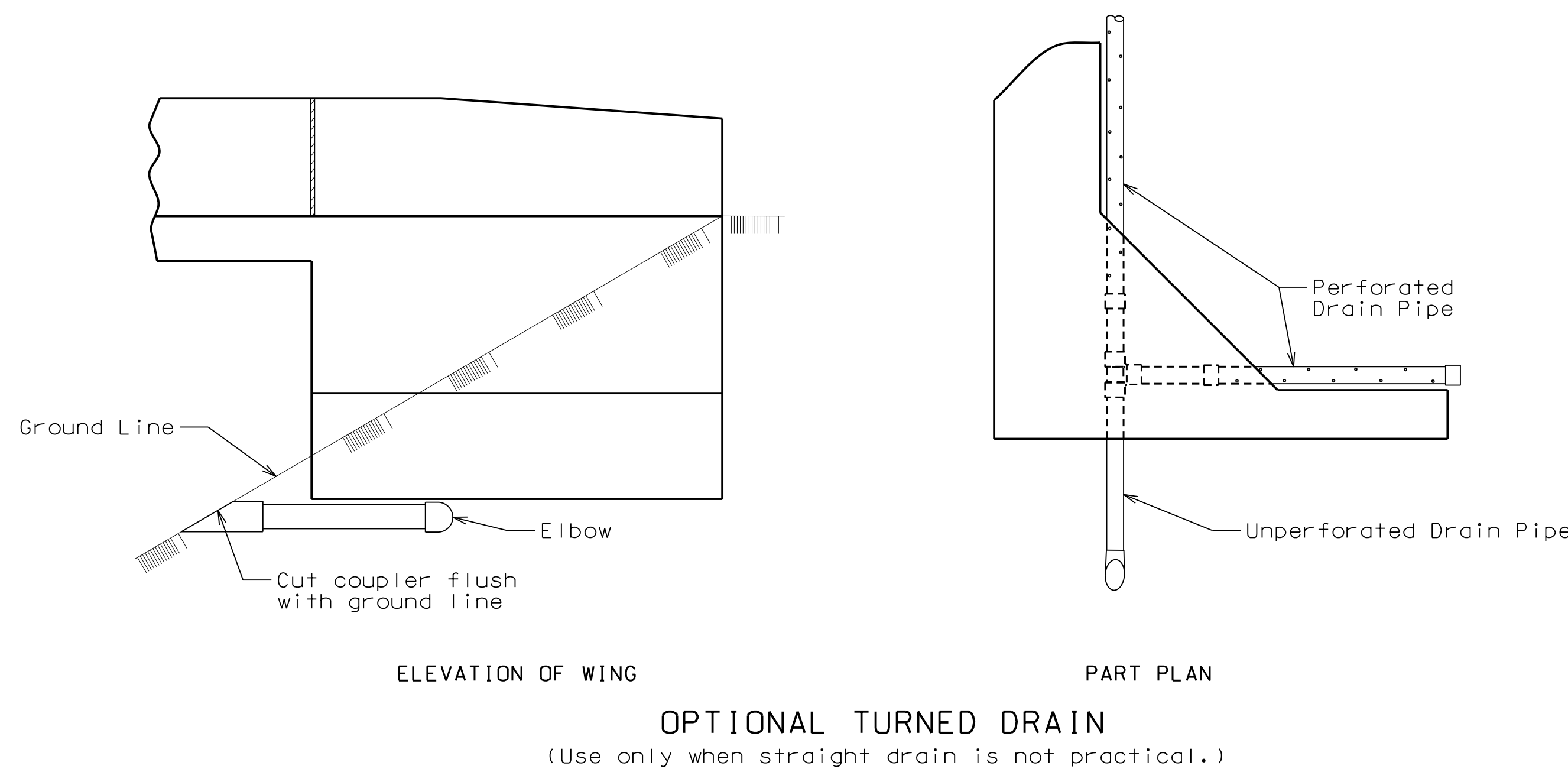
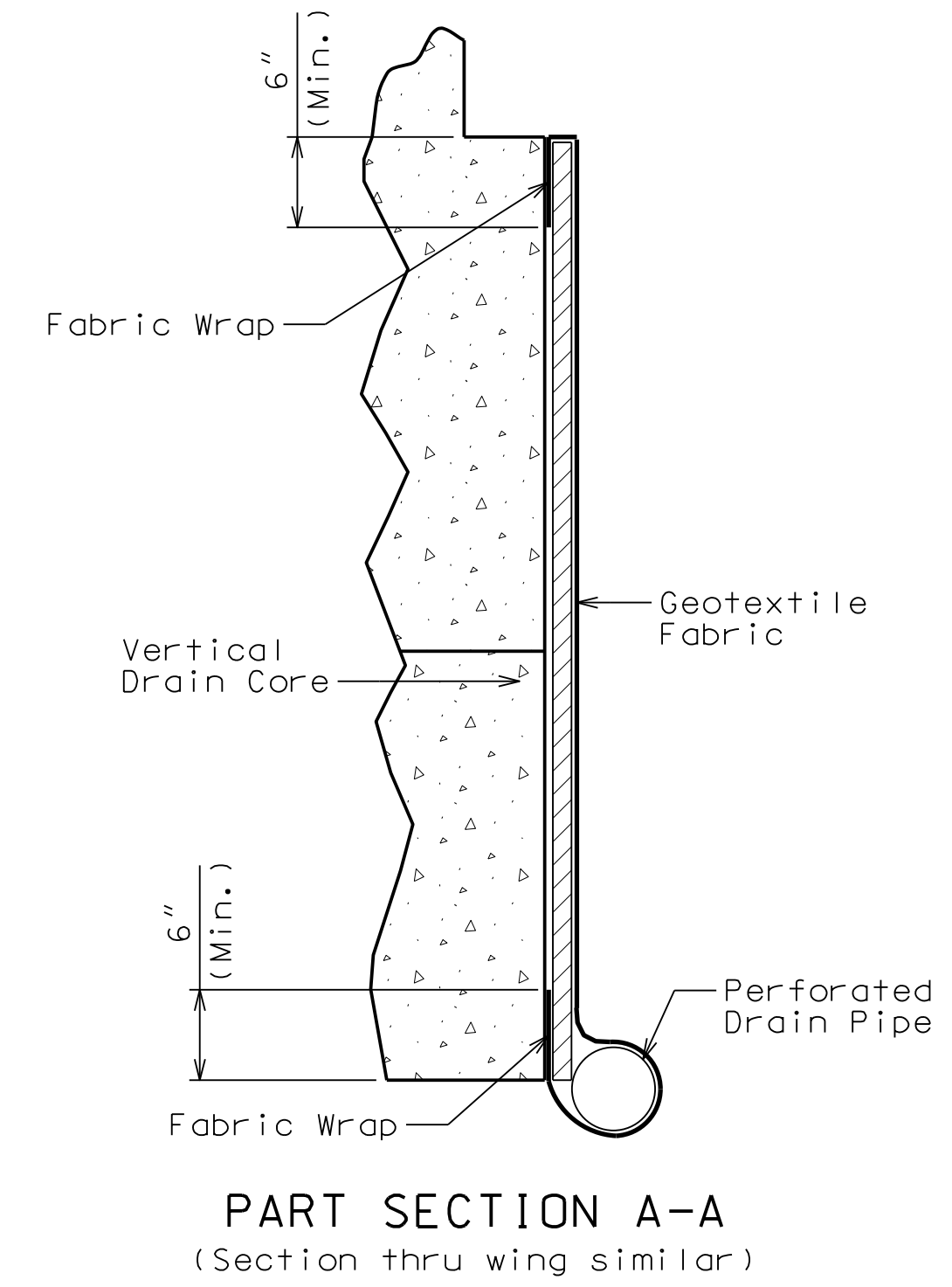
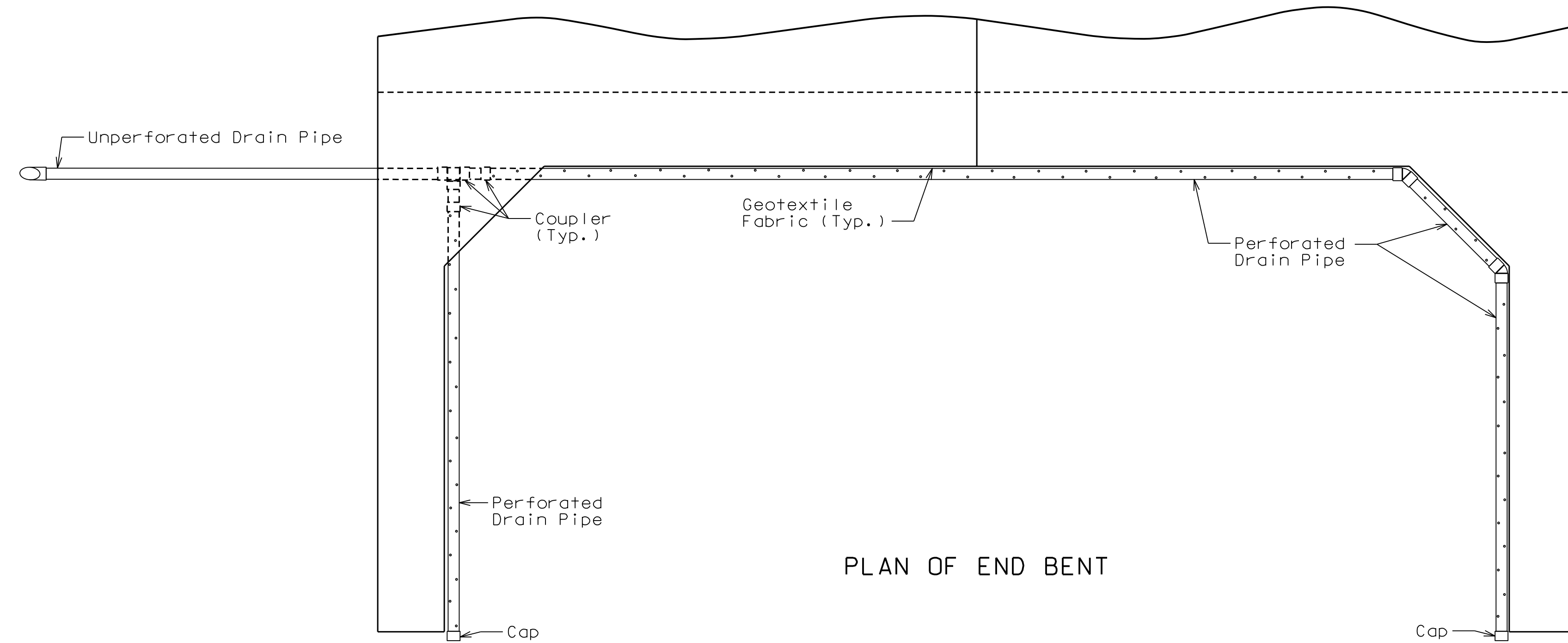
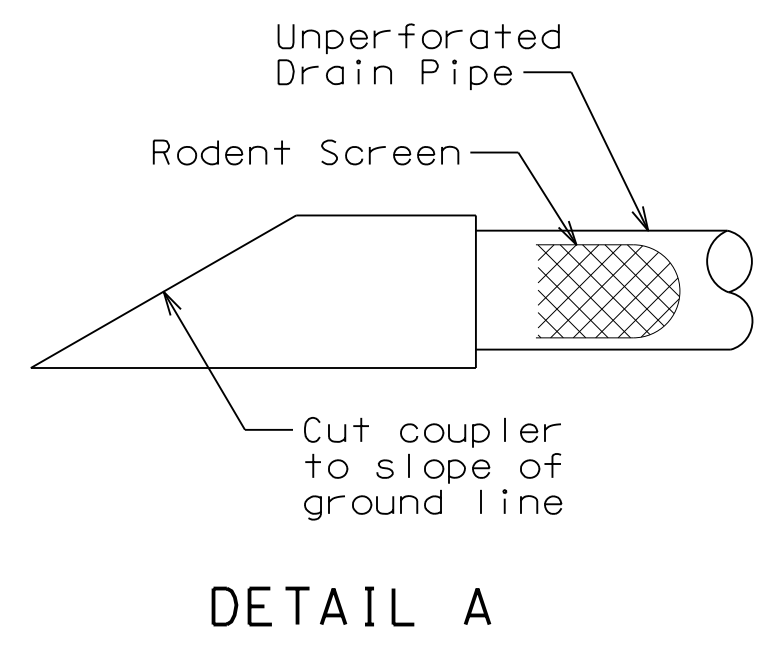
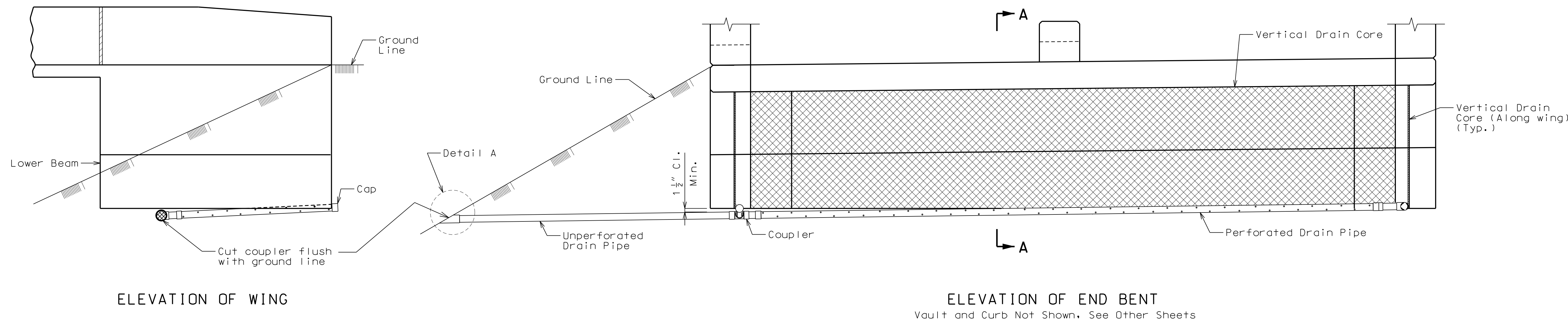
Notes:

The #5-H100 bars shall be mechanically coupled to the #5-H101 bars during Stage 2 Construction. The #5-H101 bars shall be mechanically coupled to the #5-H102 bars during Stage 3 Construction.

The Modular Exp. Jt. Support Shelf be formed to crown and grade of the roadway.

- Denotes Resin Anchor Reinforcing Steel.

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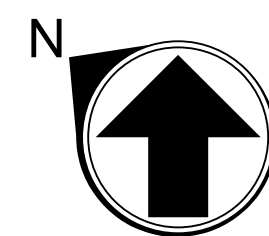
General Notes:

- All drain pipe shall be sloped 1 to 2 percent.
- Drain pipe may be either 6-inch diameter corrugated metallic-coated steel pipe underdrain, 4-inch diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4-inch diameter corrugated polyethylene (PE) drain pipe.
- Drain pipe shall be placed at fill face of end bent and inside face of wings. The pipe shall slope to lowest grade of ground line, also missing the lower beam of end bent by a minimum of 1 1/2 inches.
- Perforated pipe shall be placed at fill face side and inside face of wings at the bottom of end bent and plain pipe shall be used where the vertical drain ends to the exit at ground line.

VERTICAL DRAIN AT END BENTS



SHALEROCK PRIVATE UTILITY BRIDGE



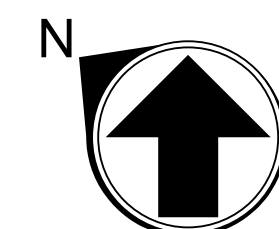
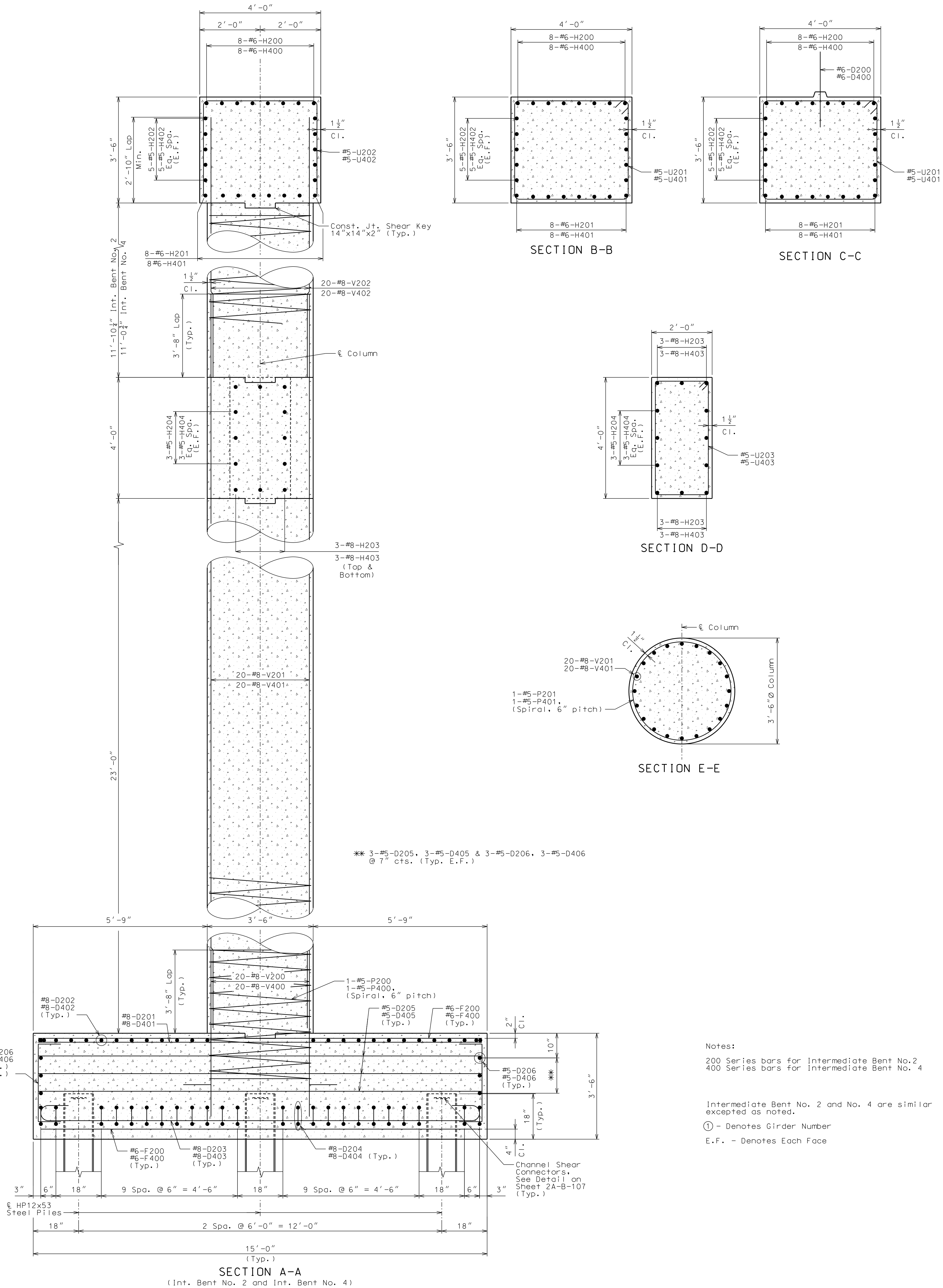
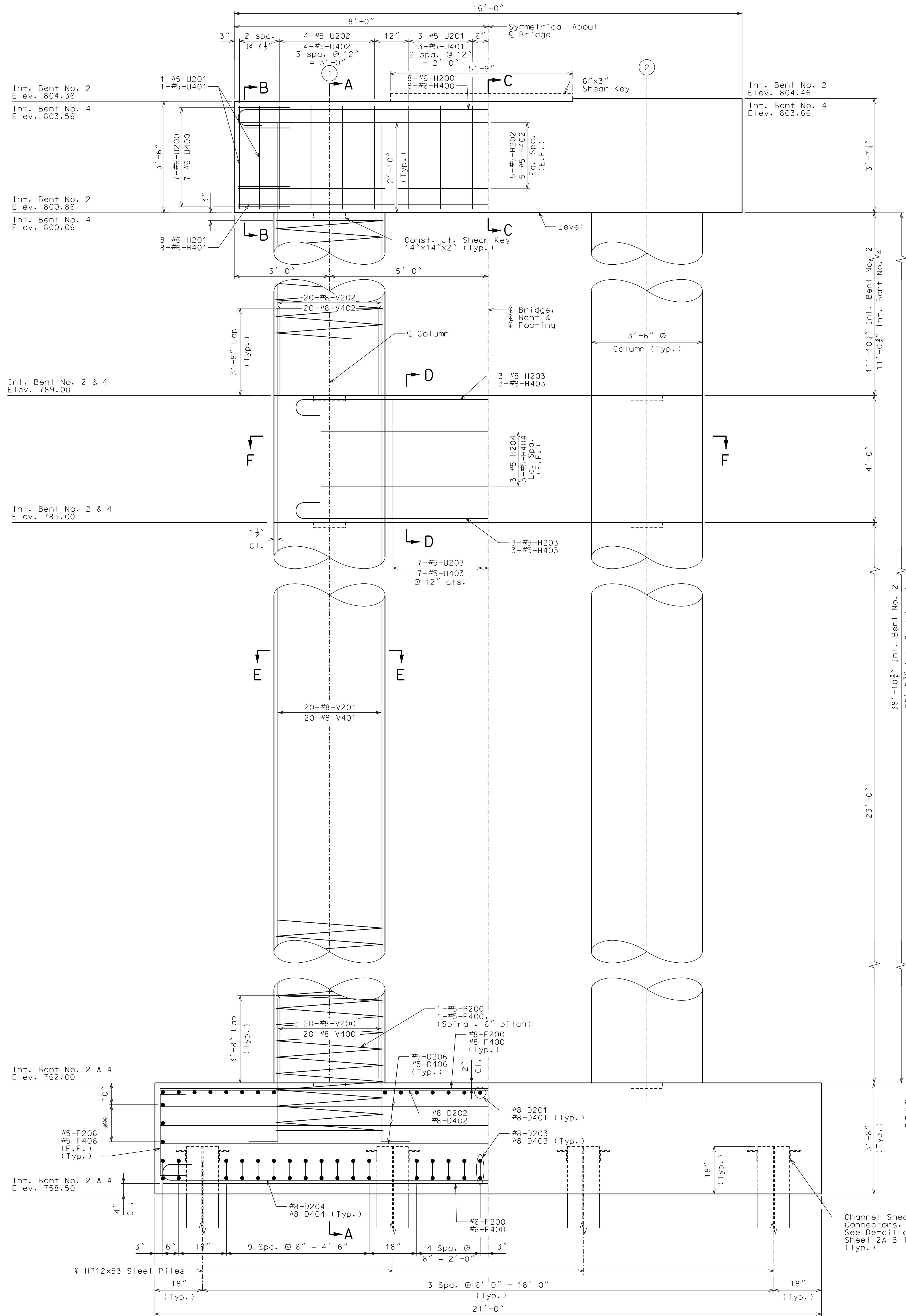
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No.	DATE	DESCRIPTION	
			Author
			APPROV'D:
			Approver

PROJECT ADDRESS:
9002 NE 48th STREET
KANSAS CITY, MISSOURI 64115
Proj. No. 10393084

VERTICAL DRAIN AT END BENTS

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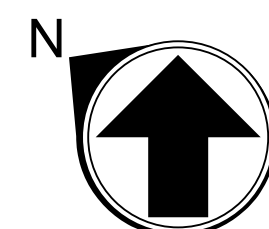
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SHALEROCK PRIVATE UTILITY BRIDGE



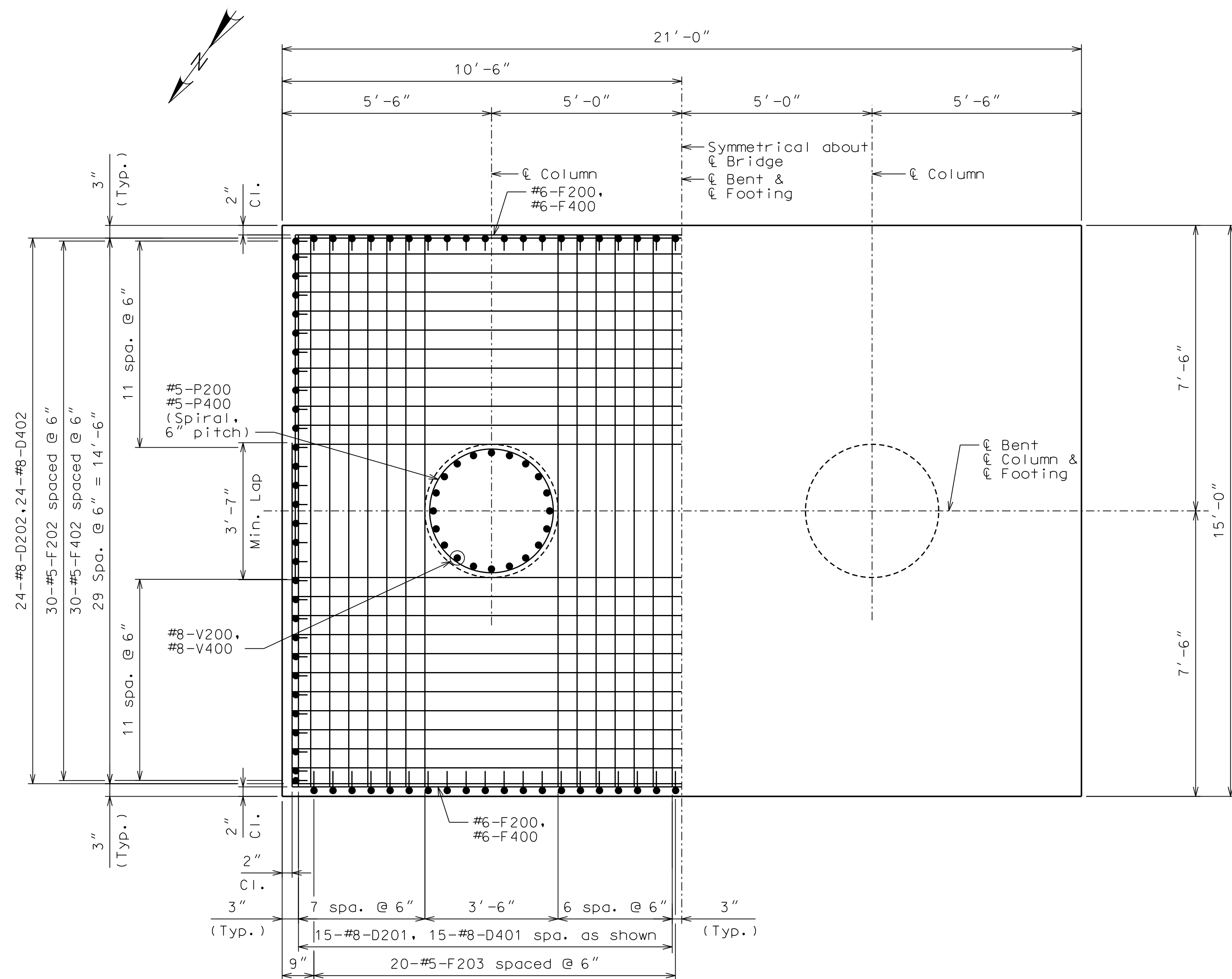
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No.	DATE	DESCRIPTION	

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KANSAS CITY, MISSOURI 64165
Proj. No. 10300864

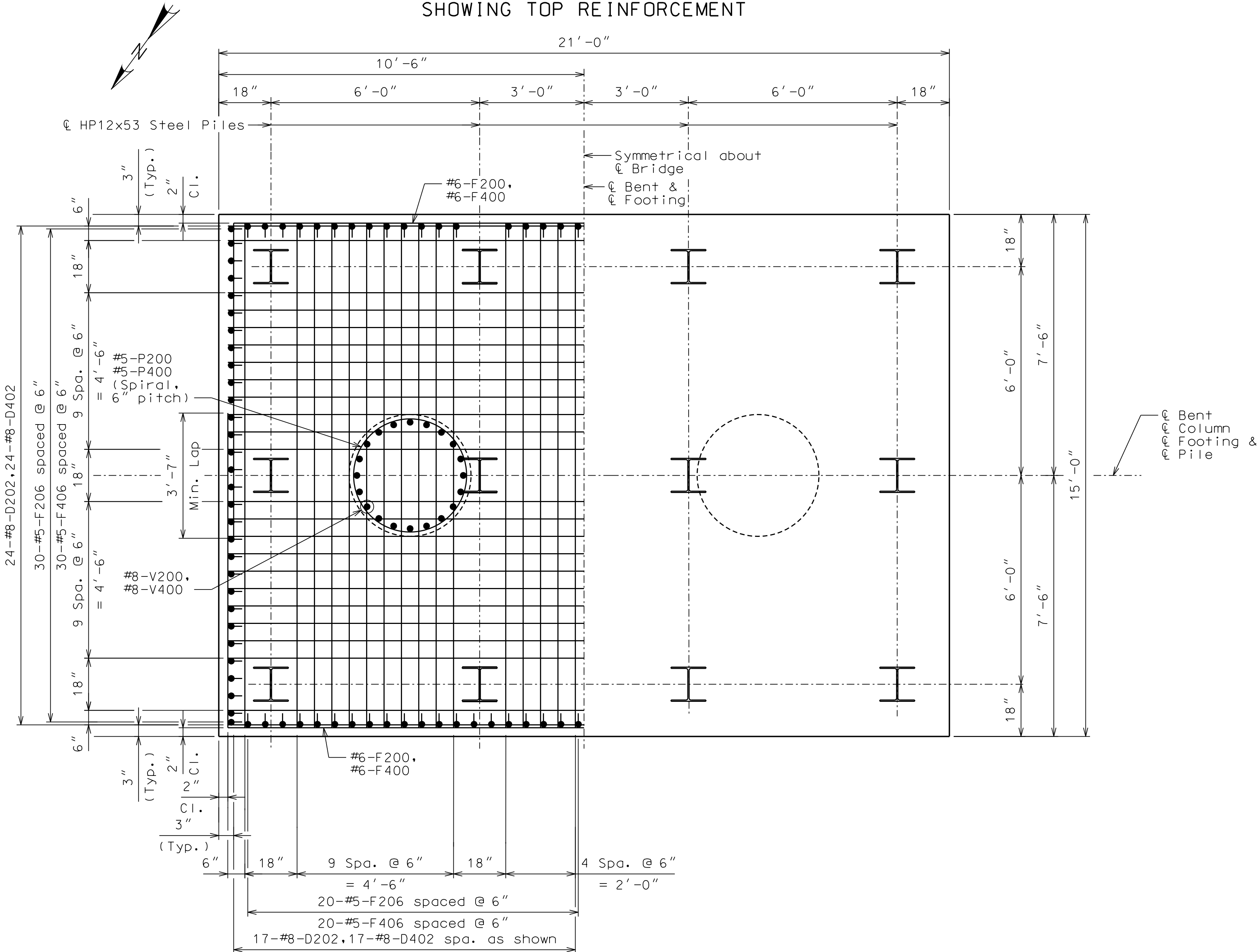
INTERMEDIATE BENT NO. 2 & 4 (2 OF 2)

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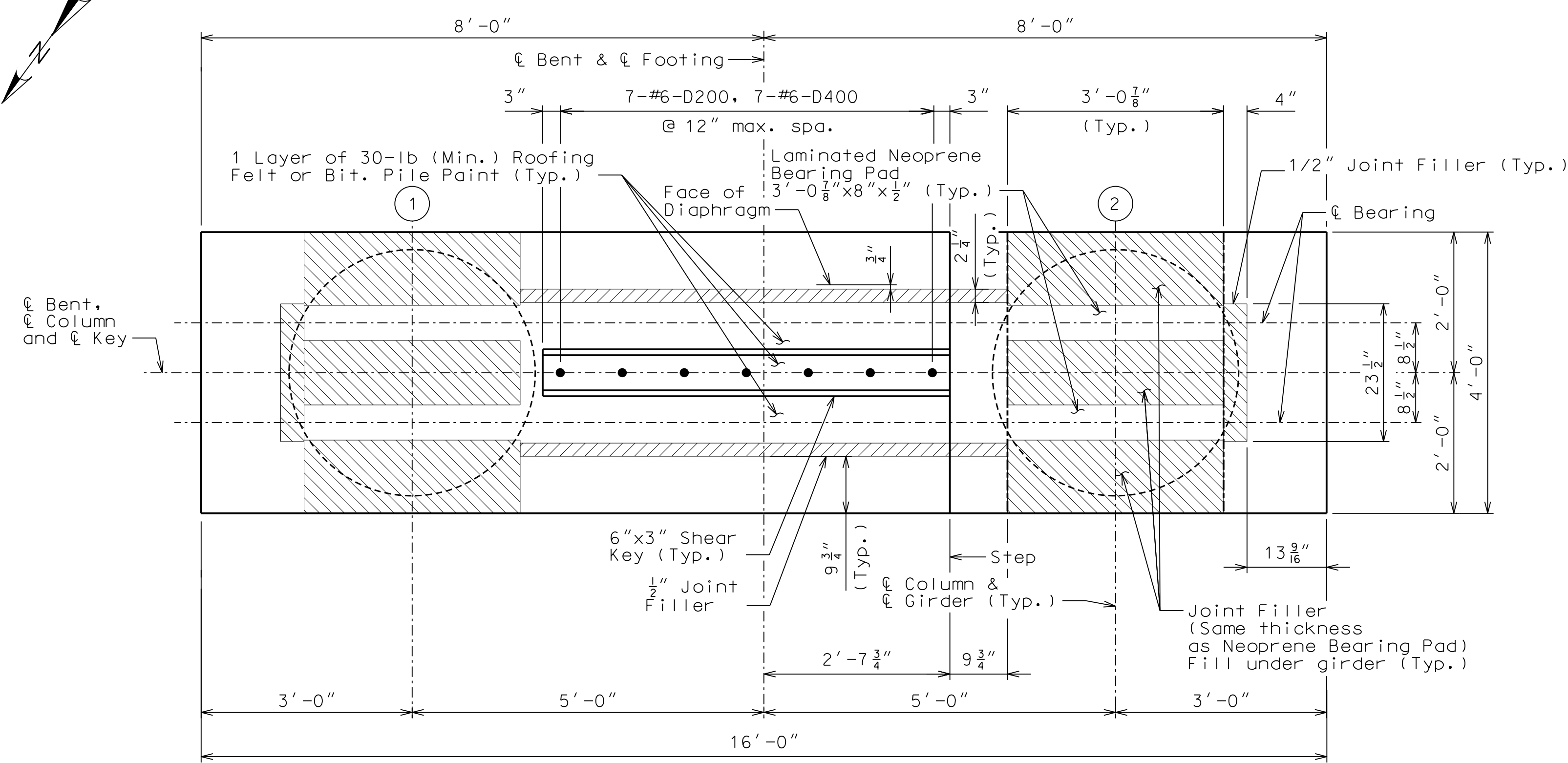
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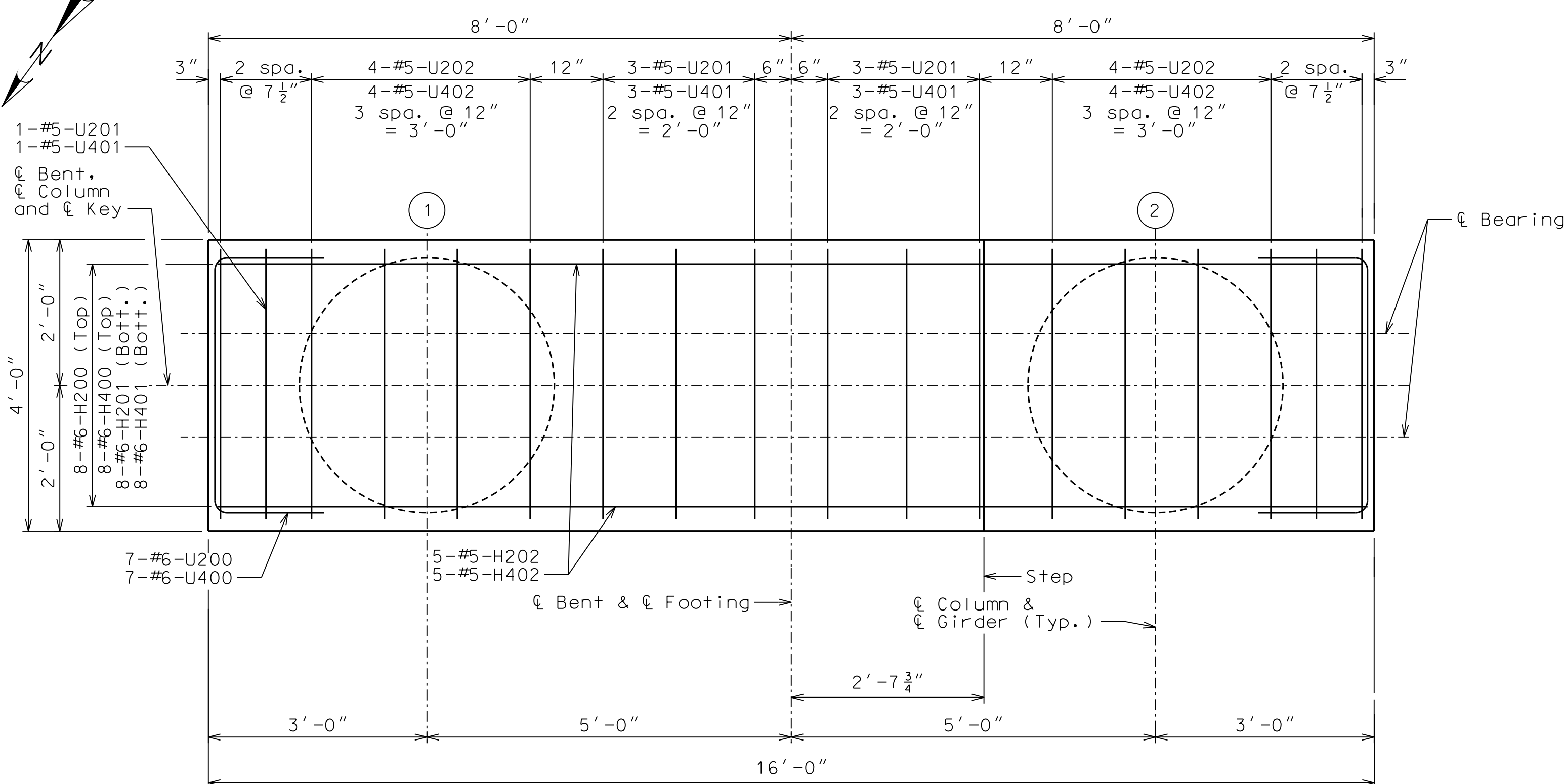
PLAN OF FOOTING
SHOWING TOP REINFORCEMENT



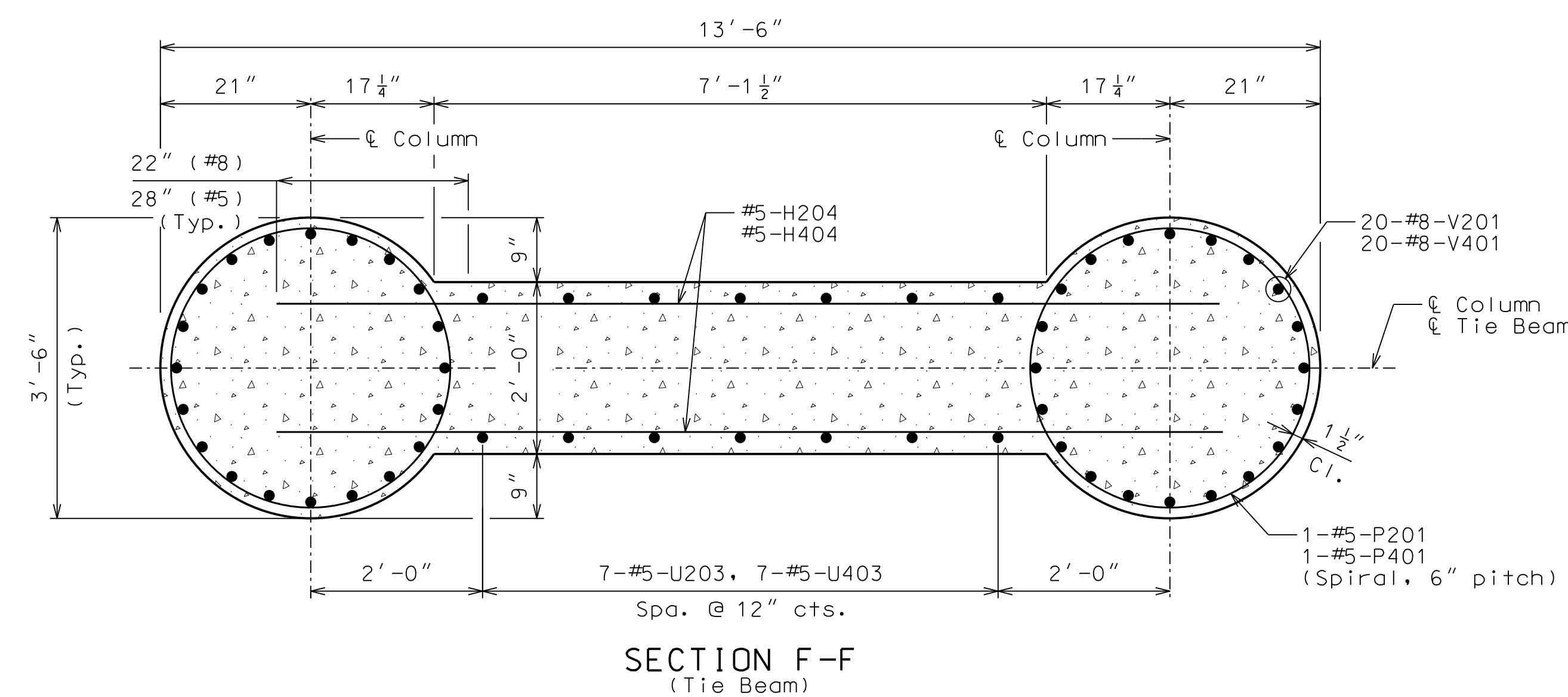
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SHOWING BOTTOM REINFORCEMENT
(Channel Shear Connectors not shown for clarity.)



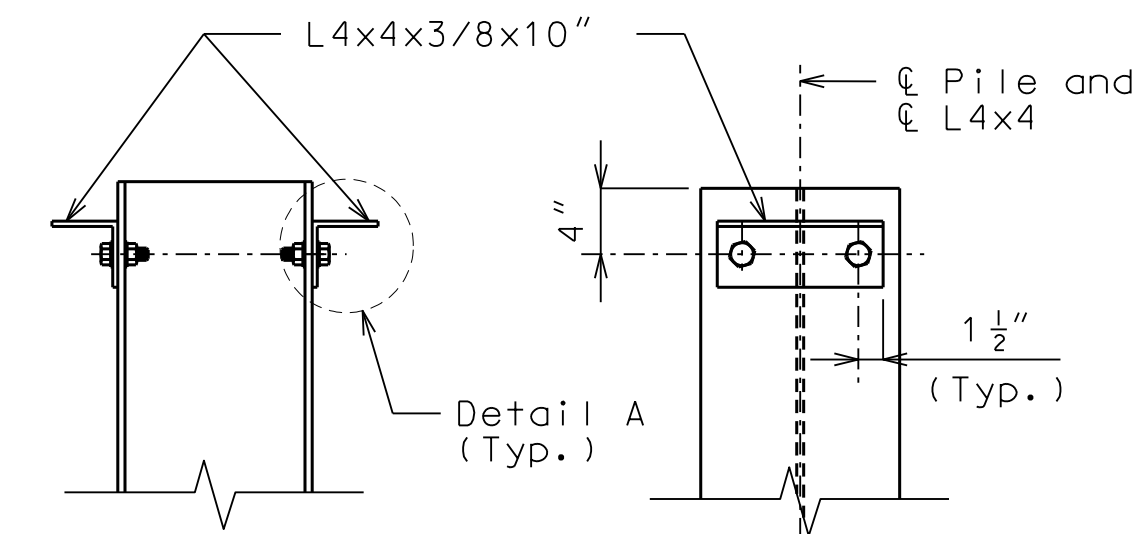
PLAN OF BEAM



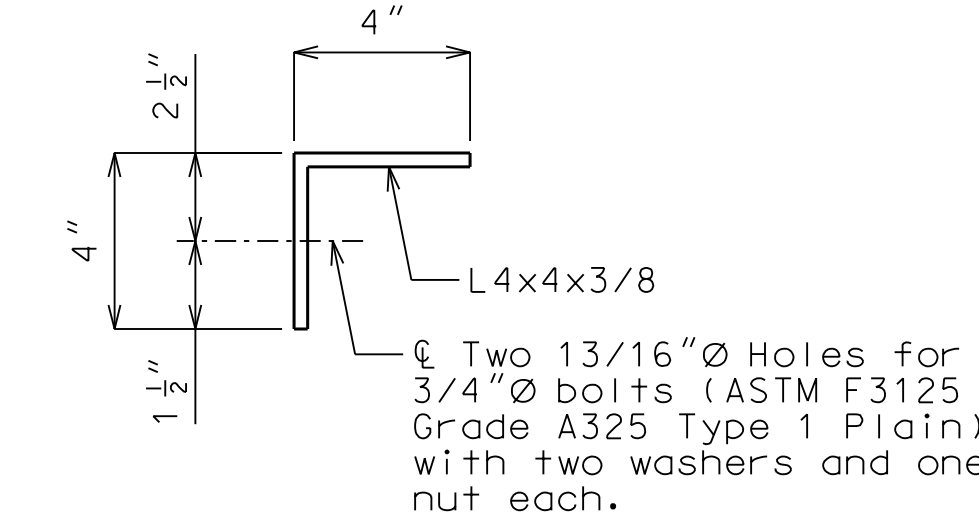
PLAN OF BEAM SHOWING REINFORCEMENT



SECTION F-F
(Tie Beam)

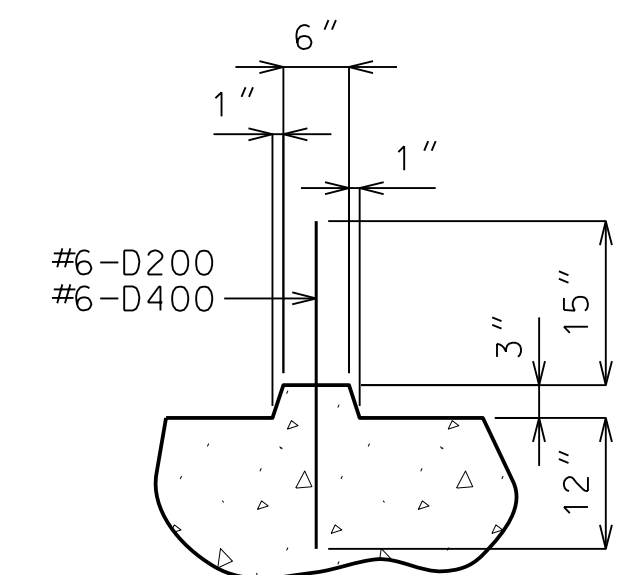


DETAILS OF HP PILE ANCHORS



DETAIL A

Galvanizing angles, bolts, washers
and nuts will not be required.



SECTION THRU KEY

Notes:

- 200 Series bars for Intermediate Bent No. 2.
- 400 Series bars for Intermediate Bent No. 4.

- ① - Denotes girder number.
- E.F. - Denotes Each Face.

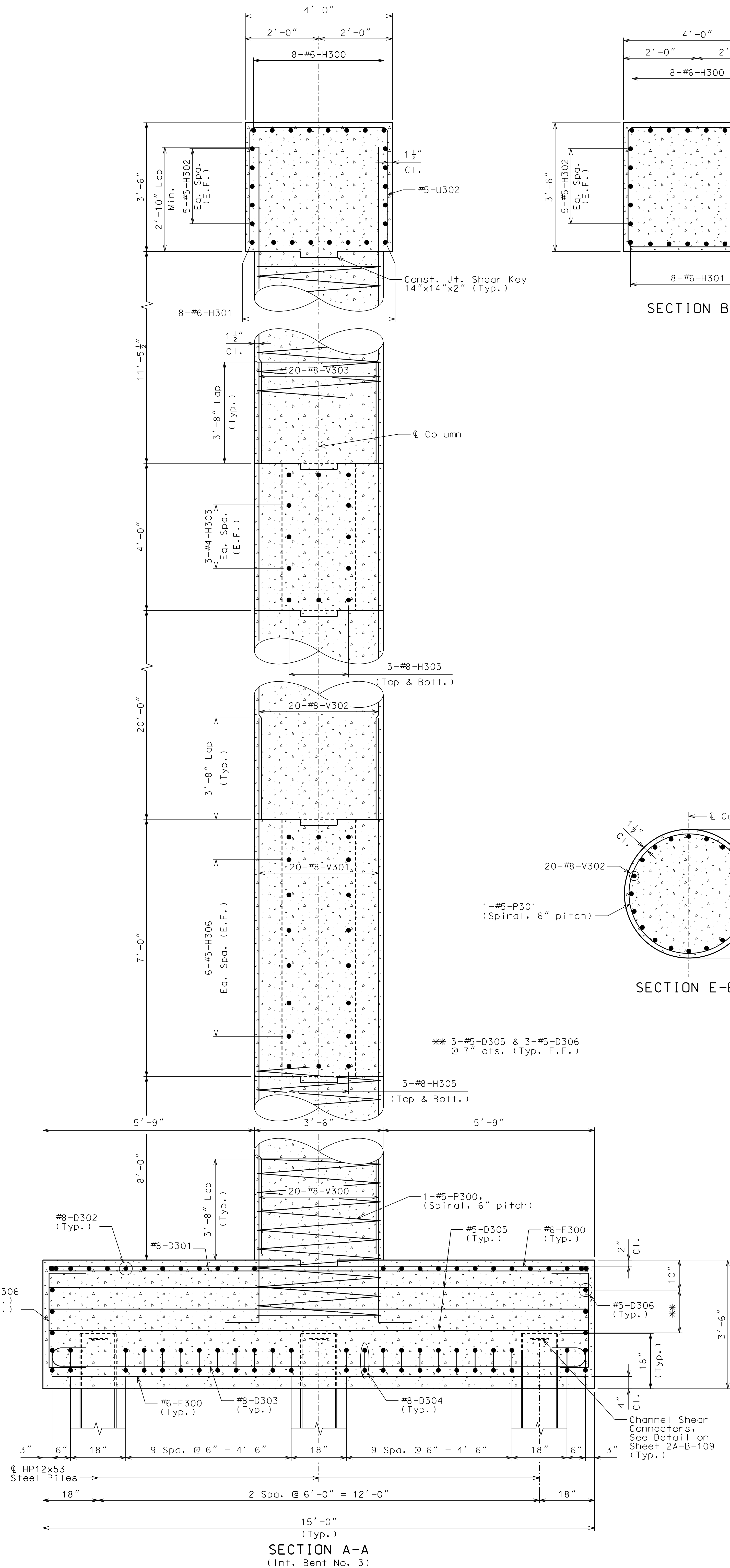


DRAWN:
Author
APPRVD:
Approver

Proj. No. 1039306

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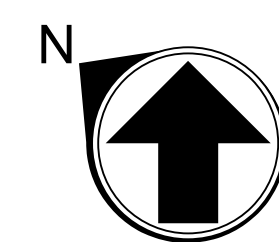
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① - Denotes Girder Number
E.F. - Denotes Each Face

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SHALEROCK PRIVATE UTILITY BRIDGE



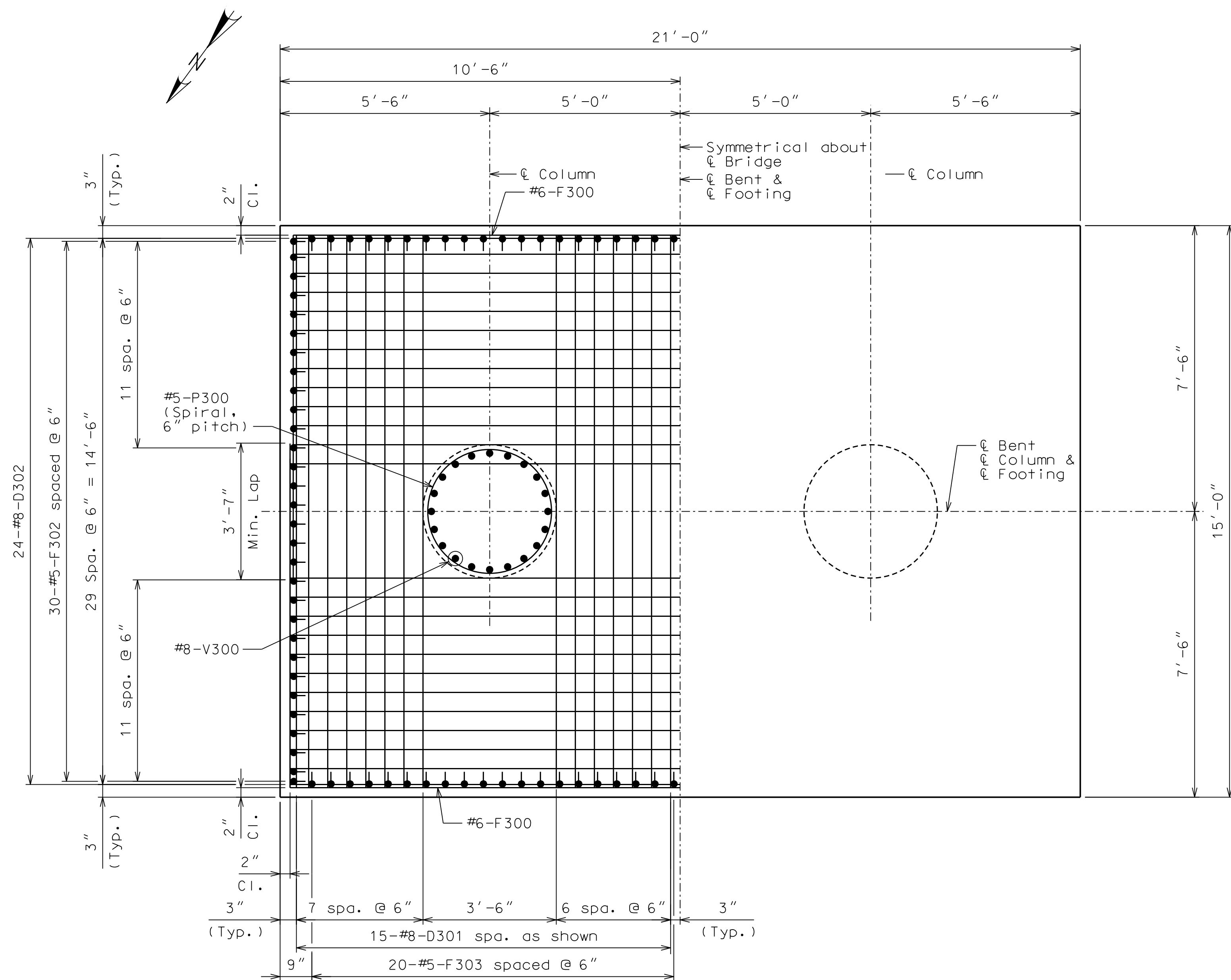
REVISIONS		DESCRIPTION	DRAWN: Author
No.	DATE		

PROJECT ADDRESS:
9002 NE 48th STREET
KANSAAS CITY, MISSOURI 64115
Proj. No. 10300084

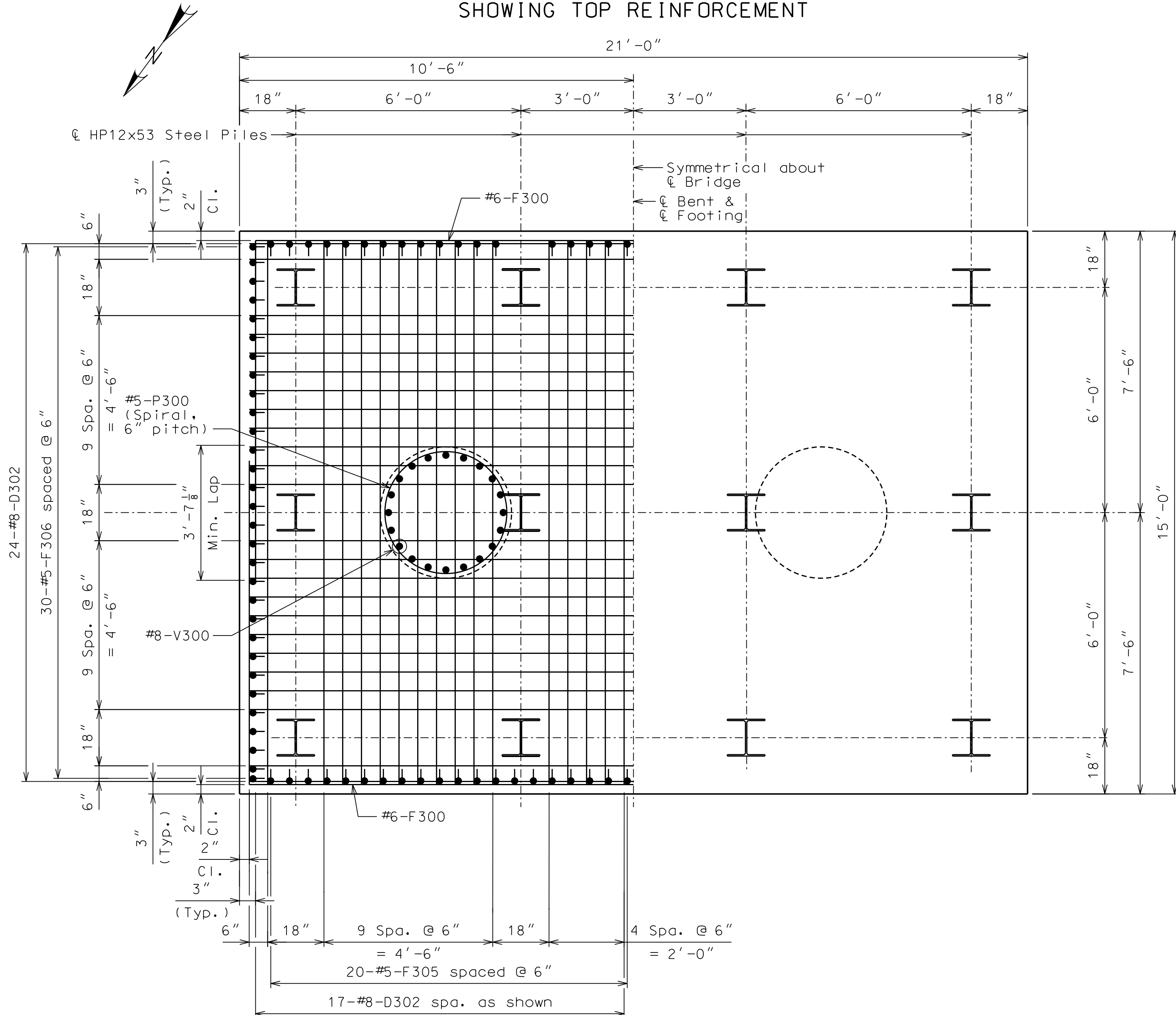
INTERMEDIATE BENT NO. 3 (2 OF 2)

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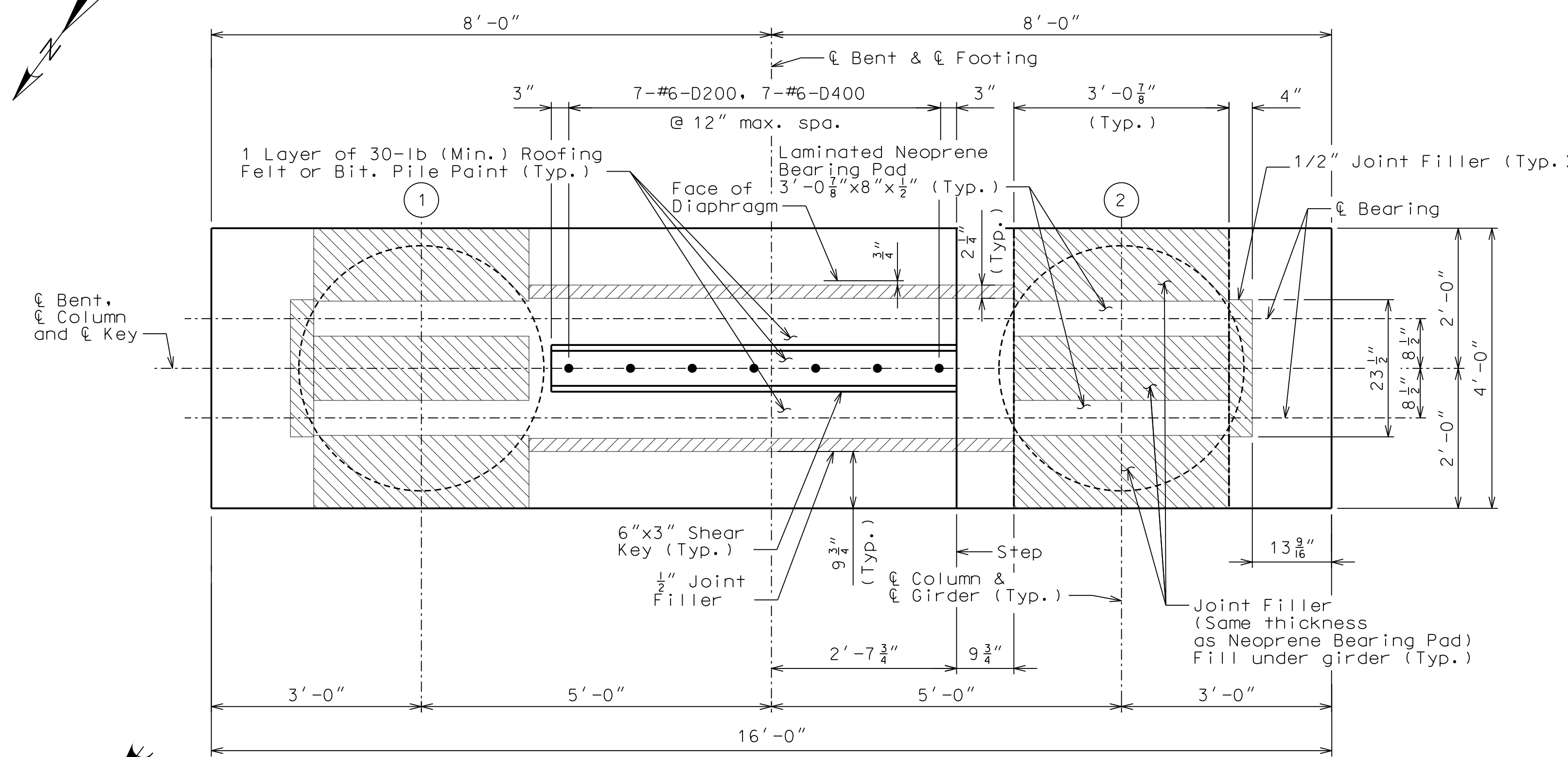
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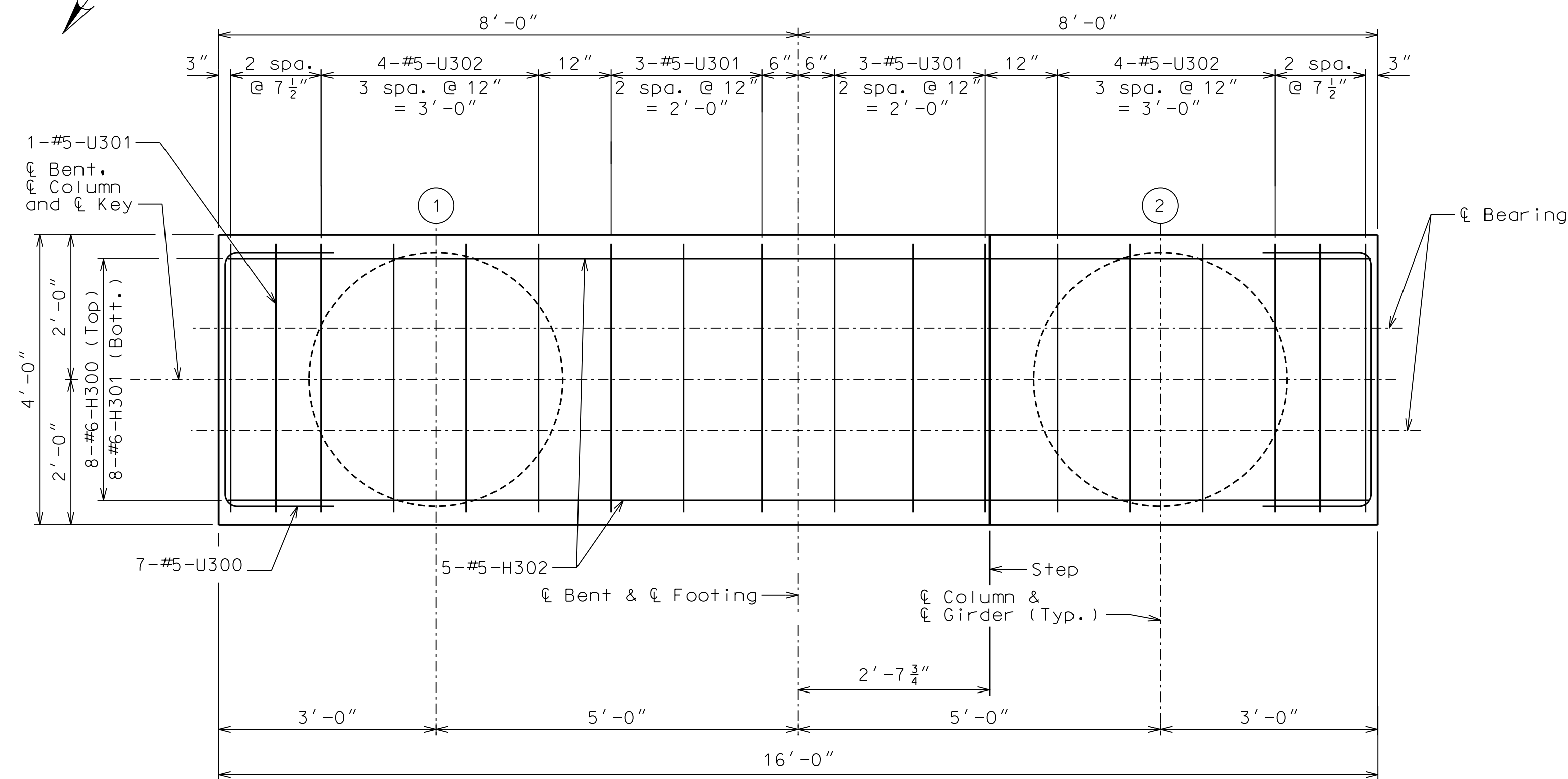
PLAN OF FOOTING
SHOWING TOP REINFORCEMENT



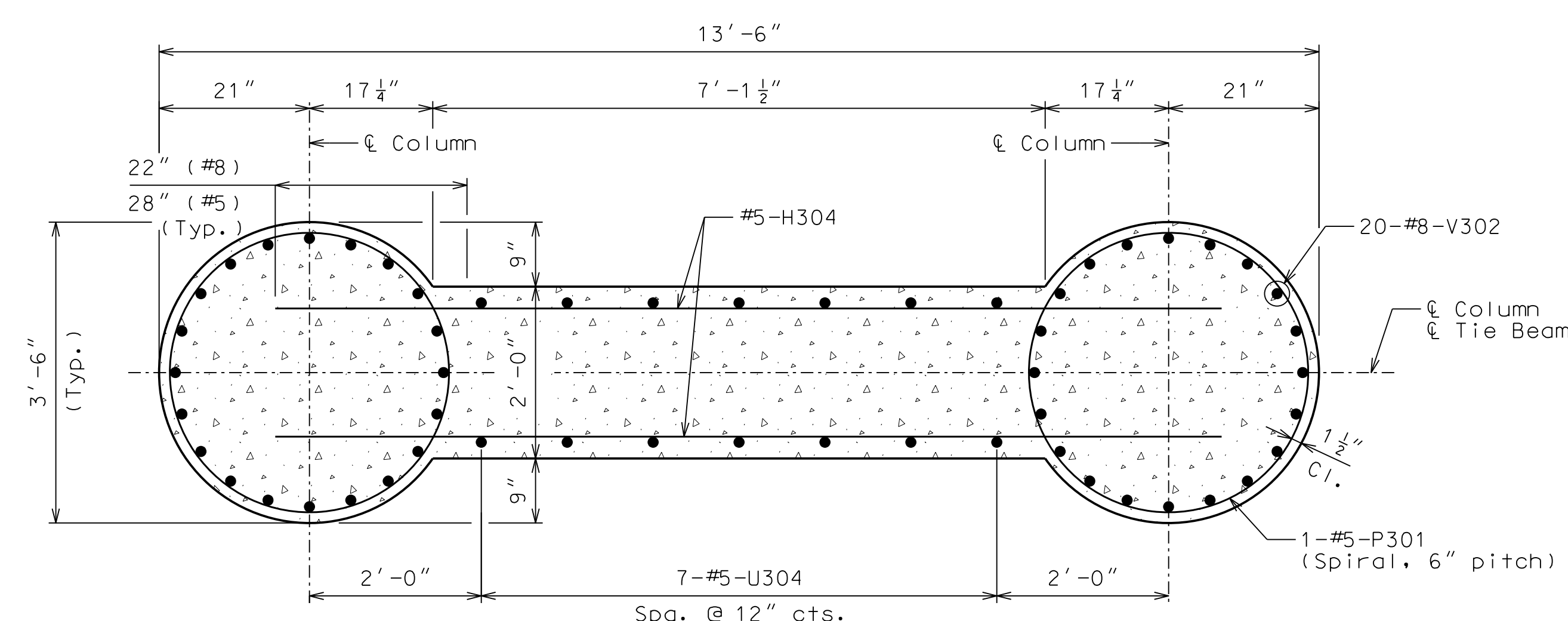
PLAN OF FOOTING
SHOWING BOTTOM REINFORCEMENT
(Channel Shear Connectors not shown for clarity.)



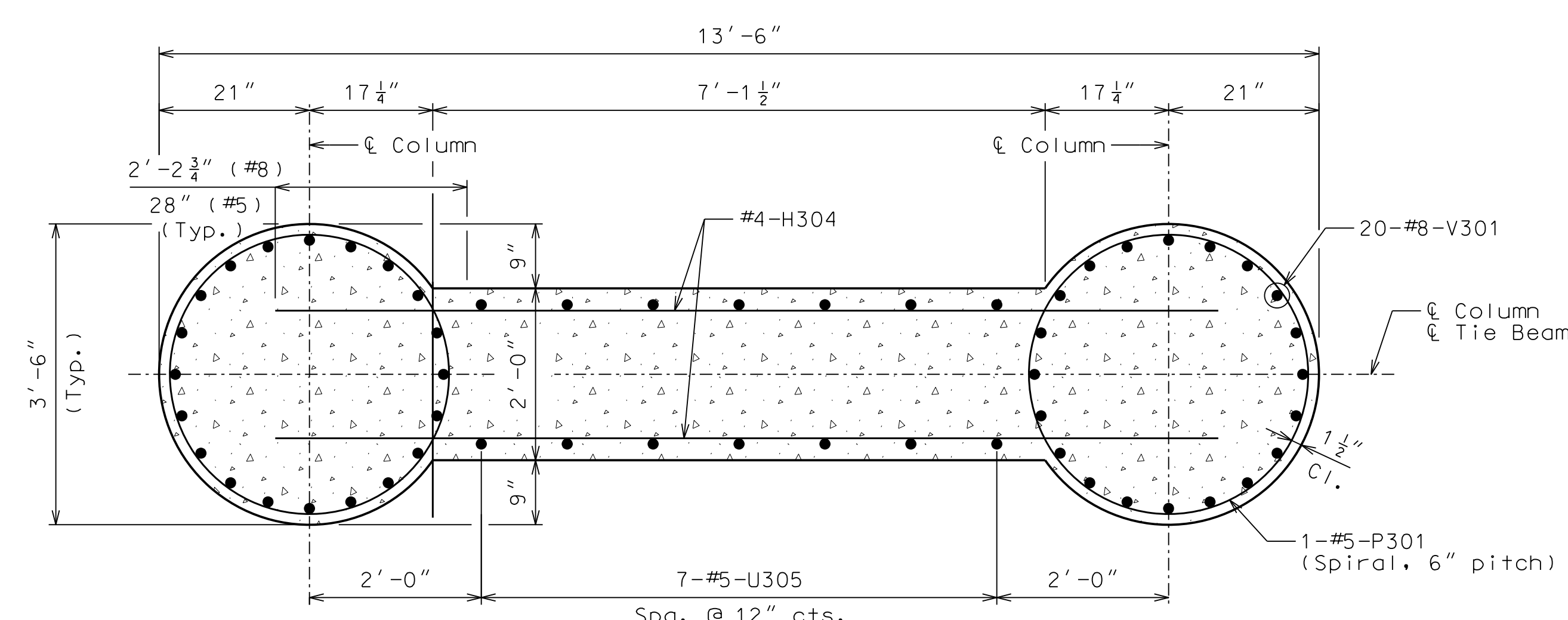
PLAN OF BEAM



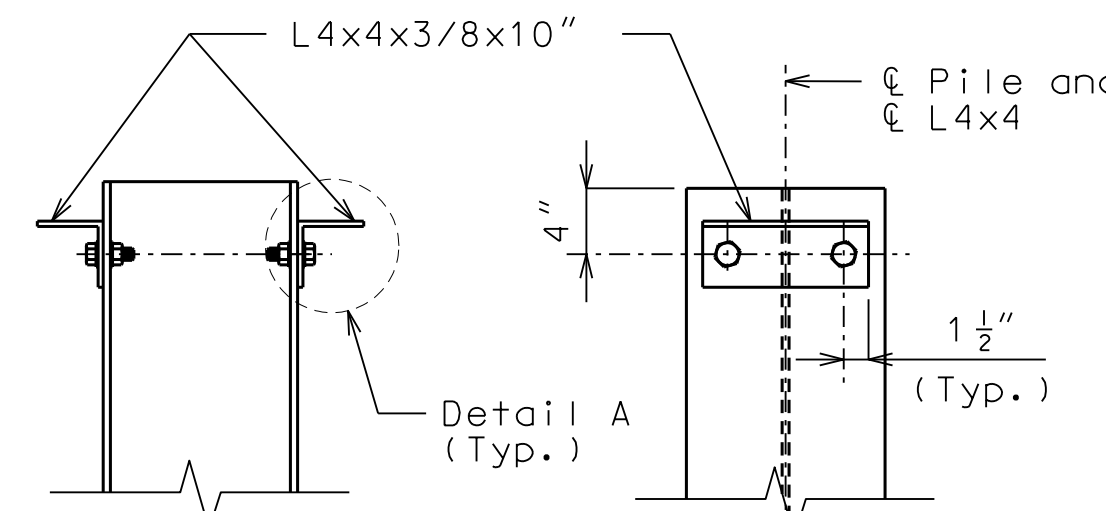
PLAN OF BEAM SHOWING REINFORCEMENT



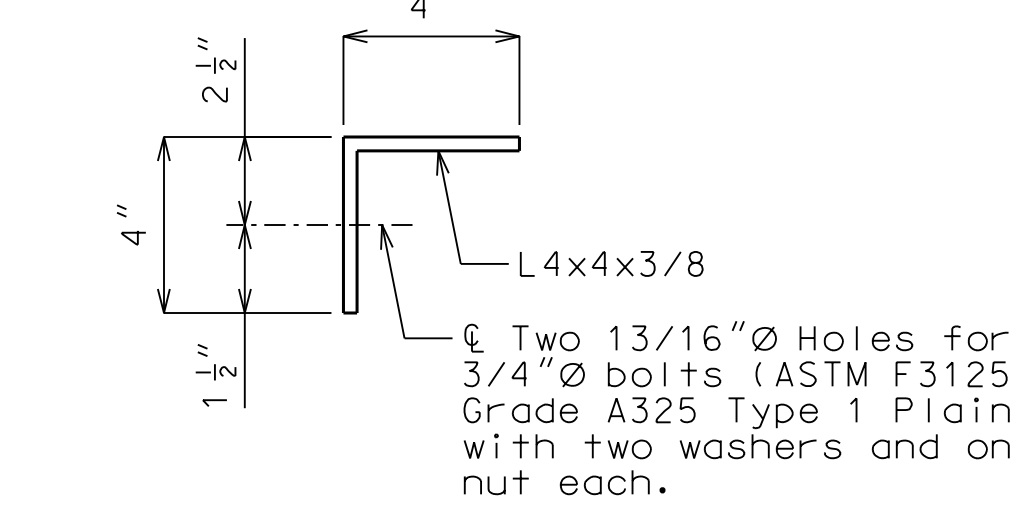
SECTION F-F
(Tie Beam)



SECTION H-H
(Web Wall)



DETAILS OF HP PILE ANCHORS



DETAIL A

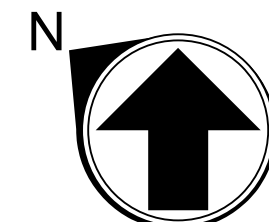
Galvanizing angles, bolts, washers and nuts will not be required.

Notes:
300 Series bars for Intermediate Bent No. 3.

① - Denotes girder number.
E.F. - Denotes Each Face.



SHALEROCK PRIVATE UTILITY BRIDGE

[illegible]

DRAWN:	Author
APPROVED:	Approver

PROJECT ADDRESS:
9500 NE 48th STREET
KANSAS CITY, MISSOURI 64161

Proj. No. 10350064

Proj. No. 10393064

INTERMEDIATE BENT NO. 5 (1 OF 2)

SCALE: NOT TO SCALE, FOLLOW DIMENSIONS

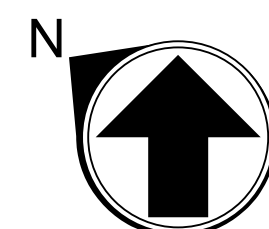
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2A-B-111

Paper Size: E (36"x48")
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SHALEROCK PRIVATE UTILITY BRIDGE



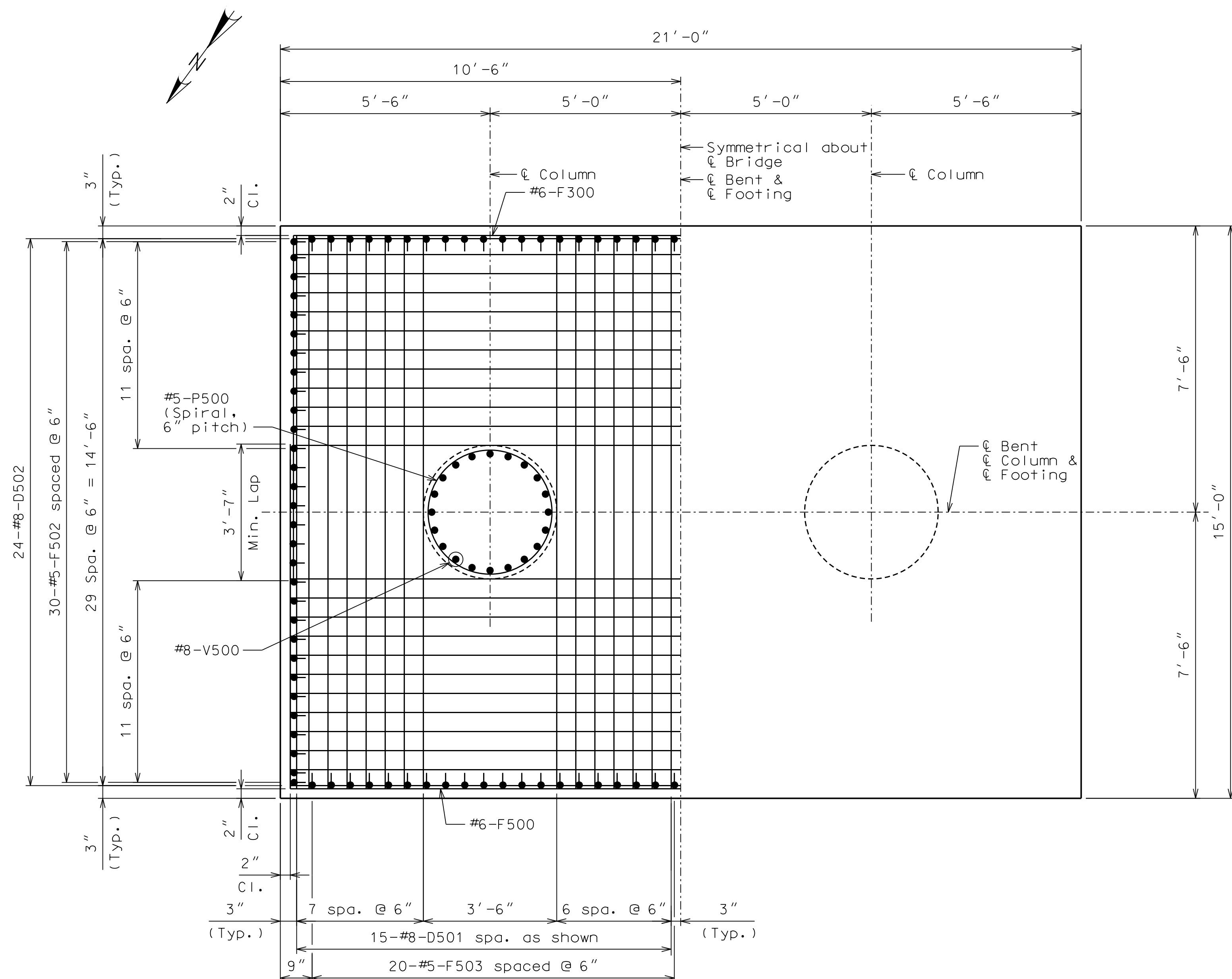
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No.	DATE	DESCRIPTION	

PROJECT ADDRESS:
9002 NE 48th STREET
KANSAAS CITY, MISSOURI 64165
Proj. No. 10303084

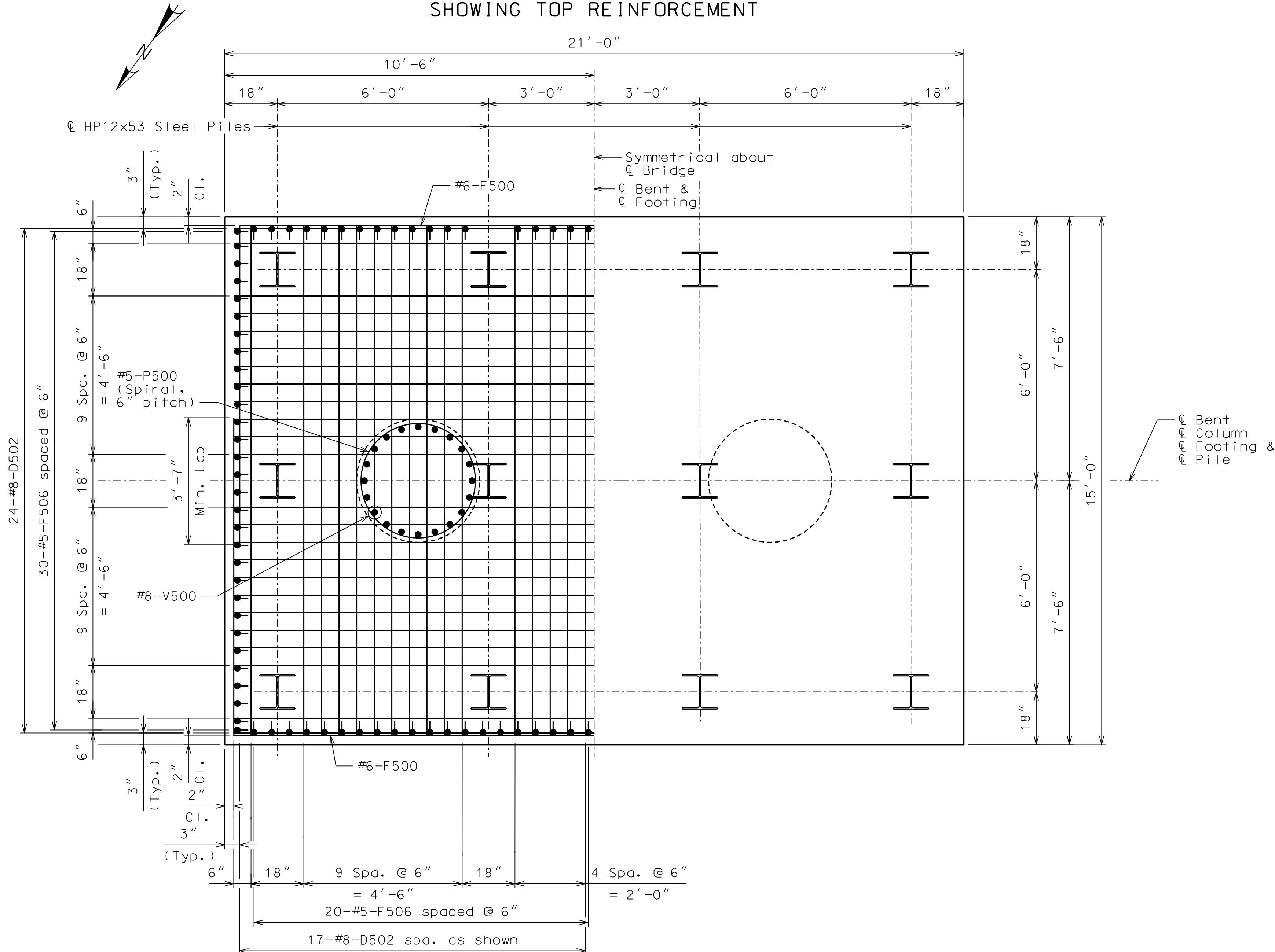
INTERMEDIATE BENT NO. 5 (2 OF 2)

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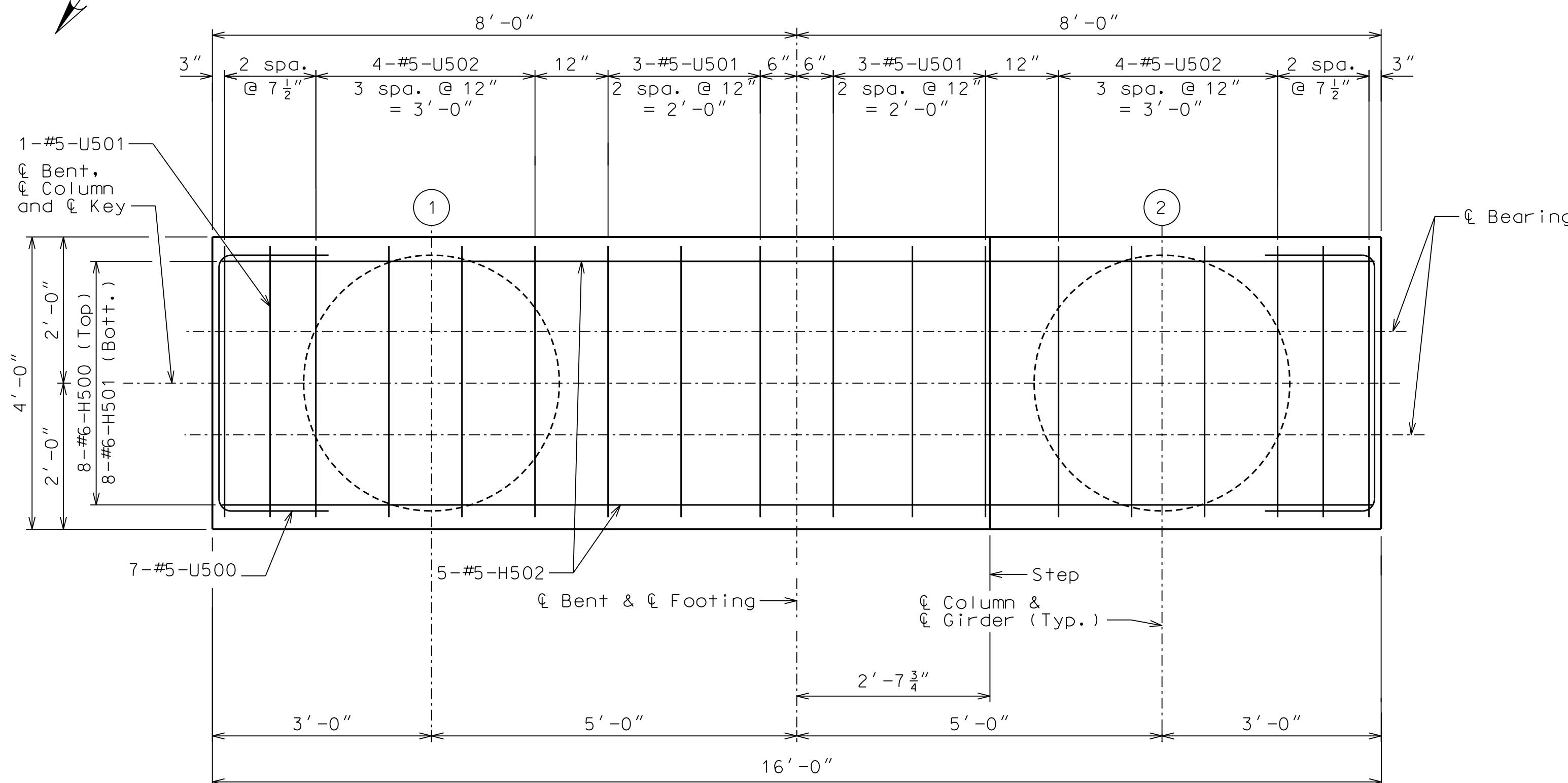
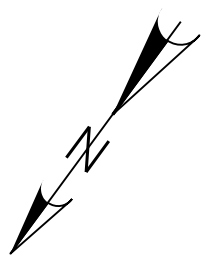
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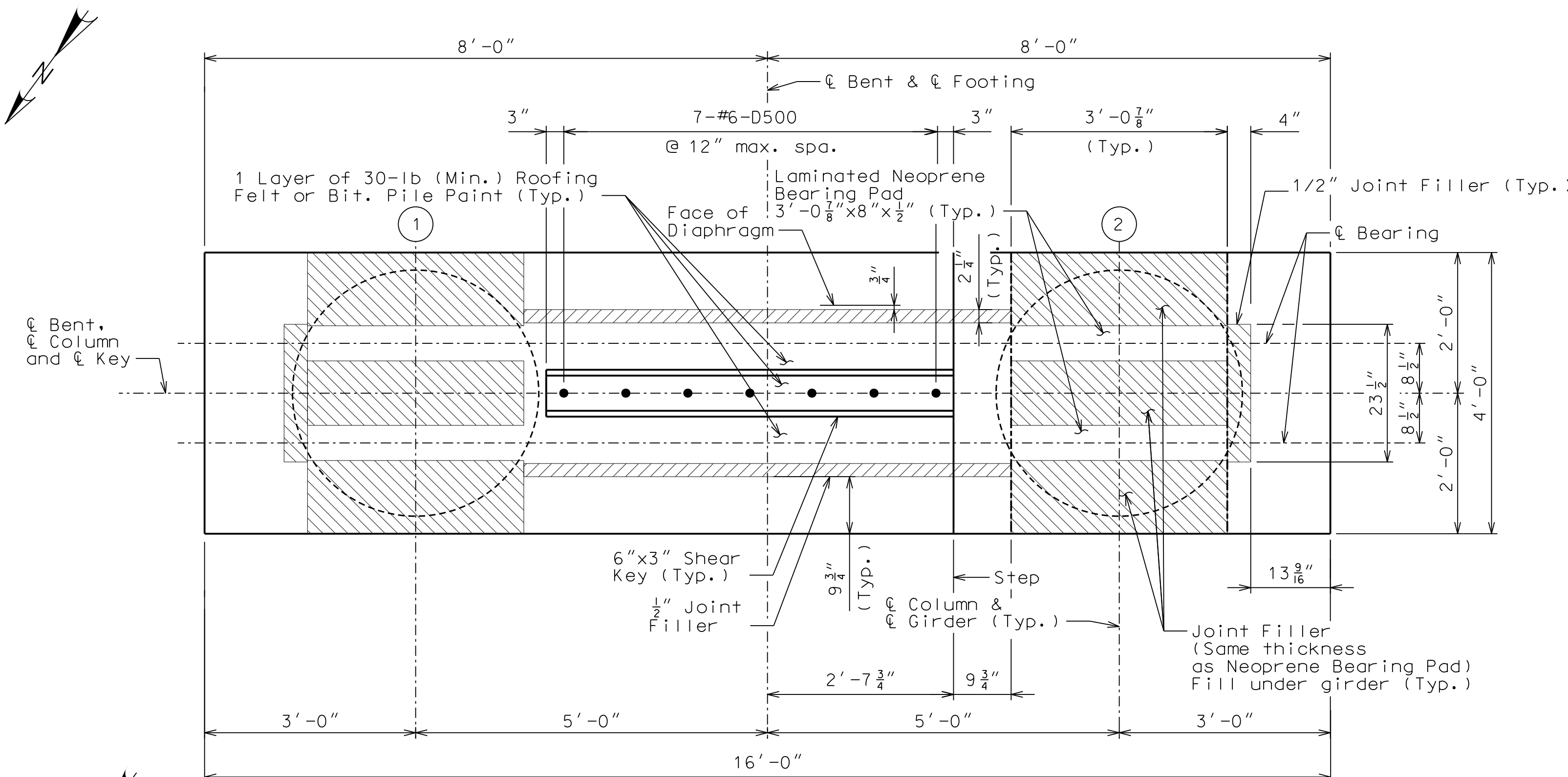
PLAN OF FOOTING
SHOWING TOP REINFORCEMENT



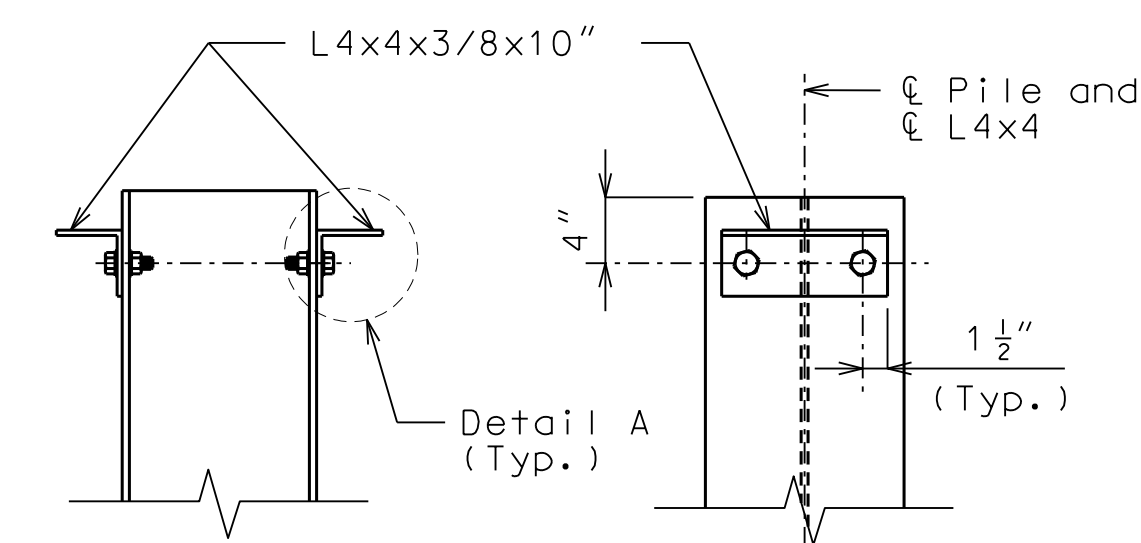
PLAN OF FOOTING
SHOWING BOTTOM REINFORCEMENT
(Channel Shear Connectors not shown for clarity.)



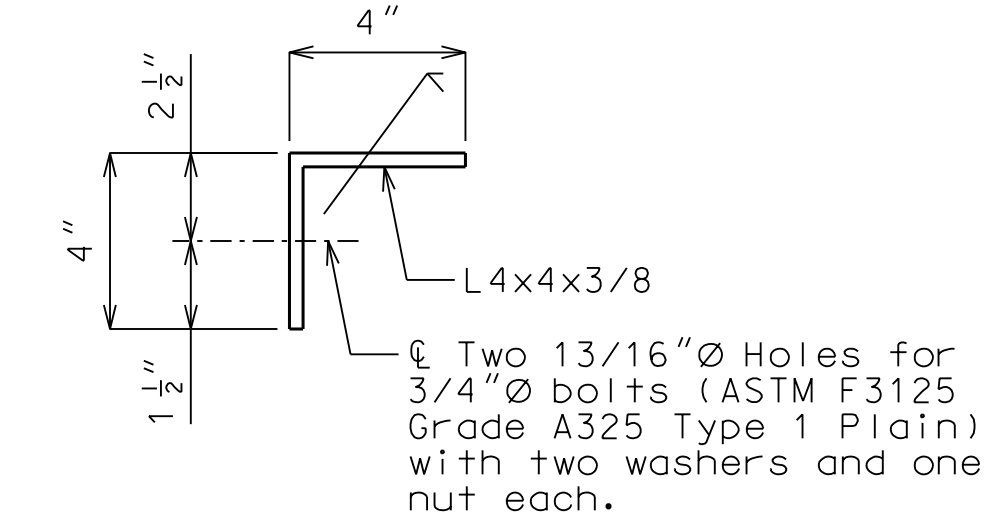
PLAN OF BEAM SHOWING REINFORCEMENT



PLAN OF BEAM

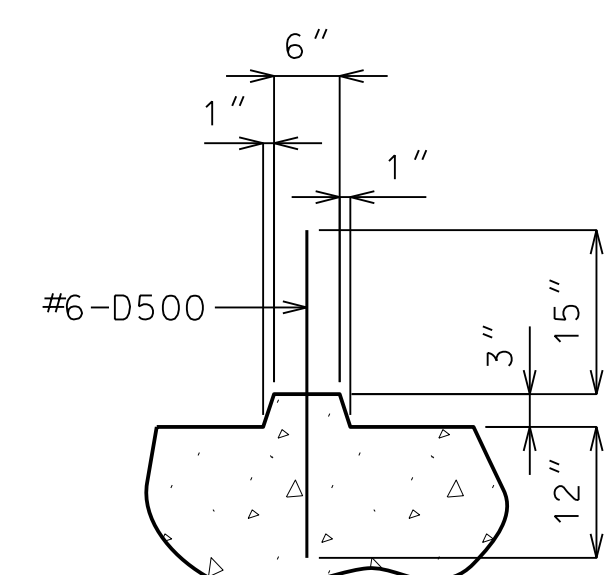


DETAILS OF HP PILE ANCHORS



DETAIL A

Galvanizing angles, bolts, washers
and nuts will not be required.



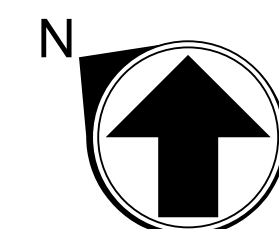
SECTION THRU KEY

Notes:
500 Series bars for Intermediate Bent No. 5.

① - Denotes girder number.
E.F. - Denotes Each Face.

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SHALEROCK PRIVATE UTILITY BRIDGE



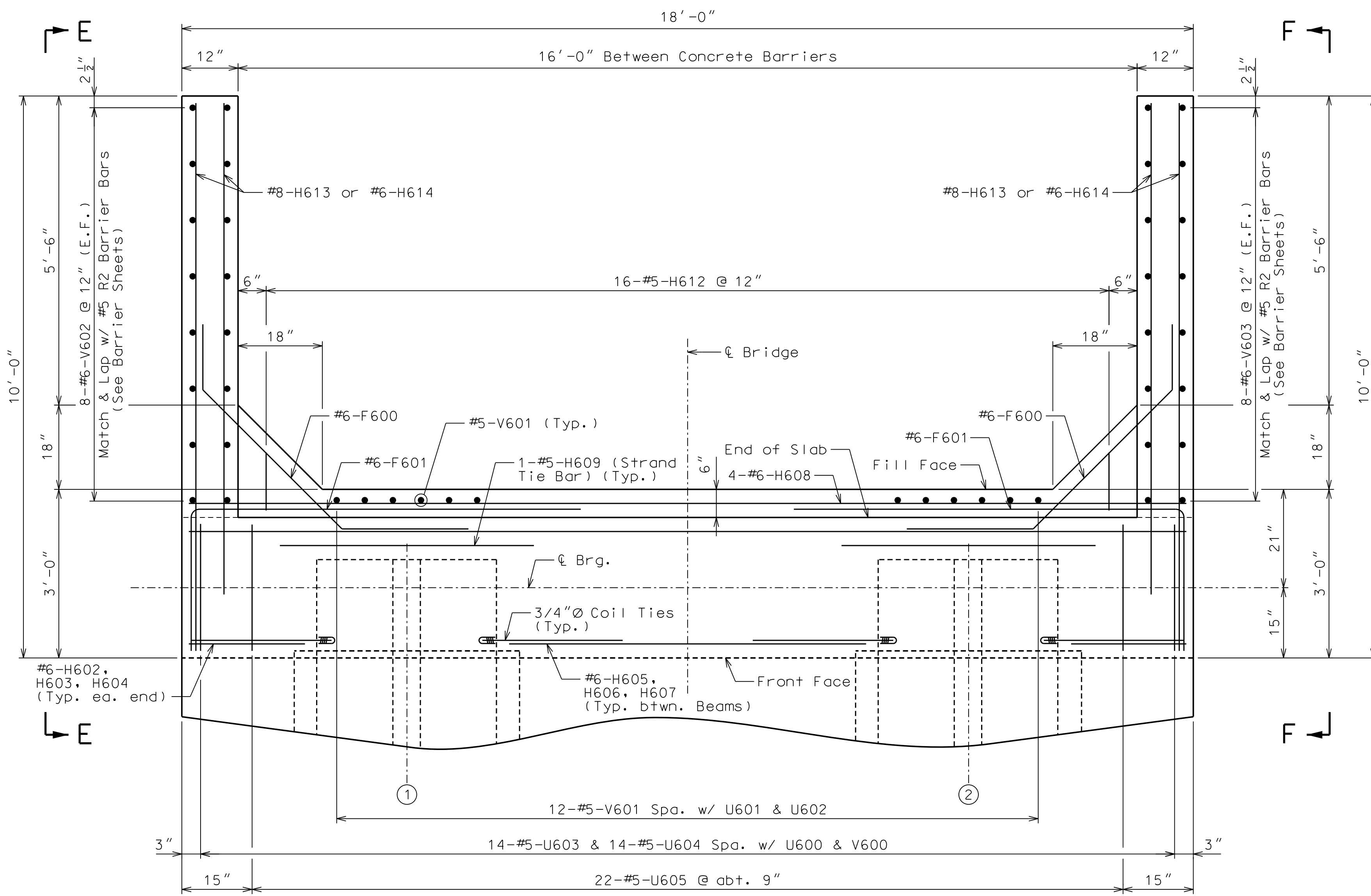
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No.	DATE		

PROJECT ADDRESS:
9020 NE 48th STREET
KANSAS CITY, MISSOURI 64116
Proj. No. 10393084

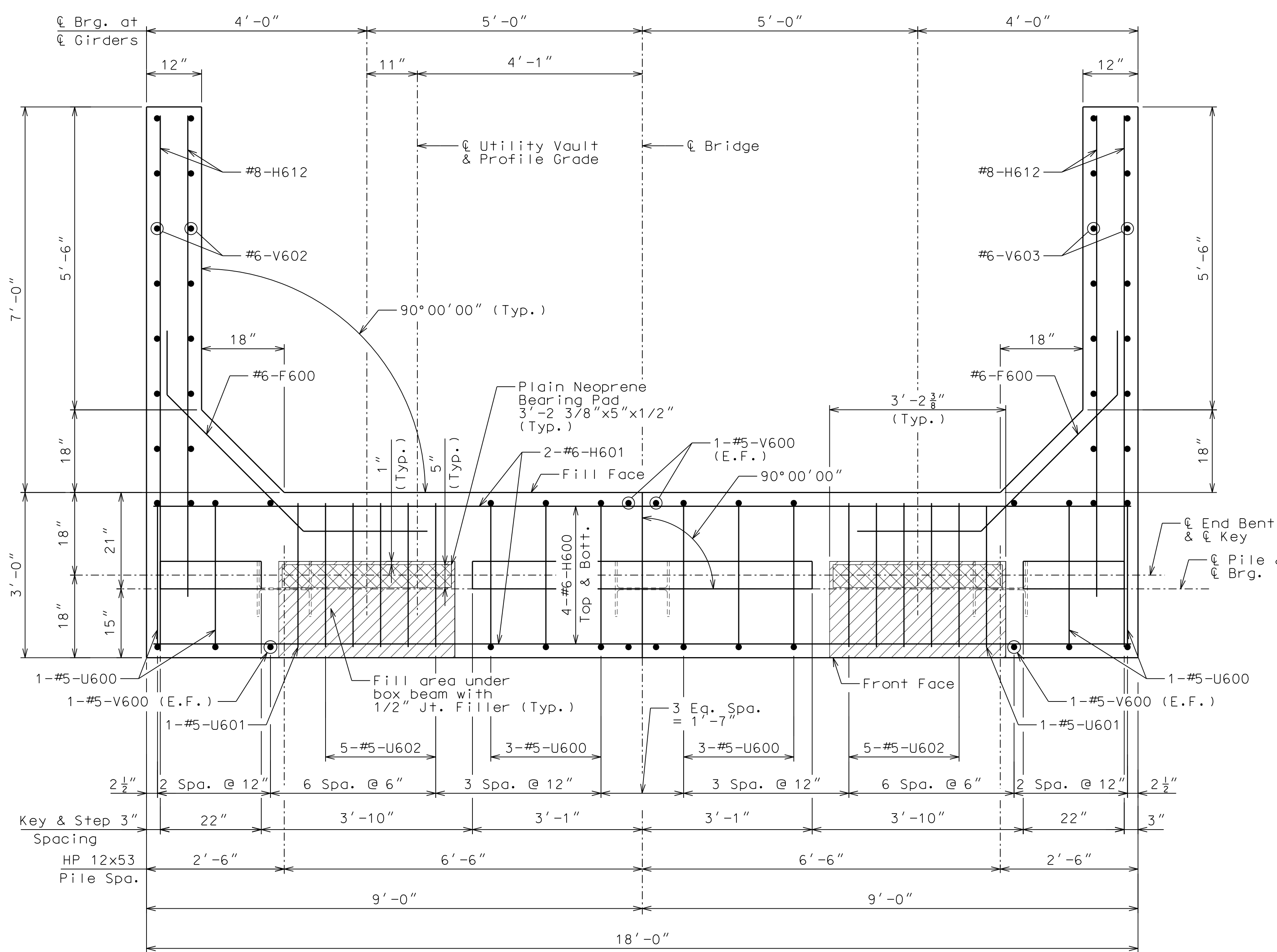
END BENT NO. 6 (1 OF 2)

SCALE: NOT TO SCALE. FOLLOW DIMENSIONS

SHEET NUMBER:
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Paper Size: E (36"x48")
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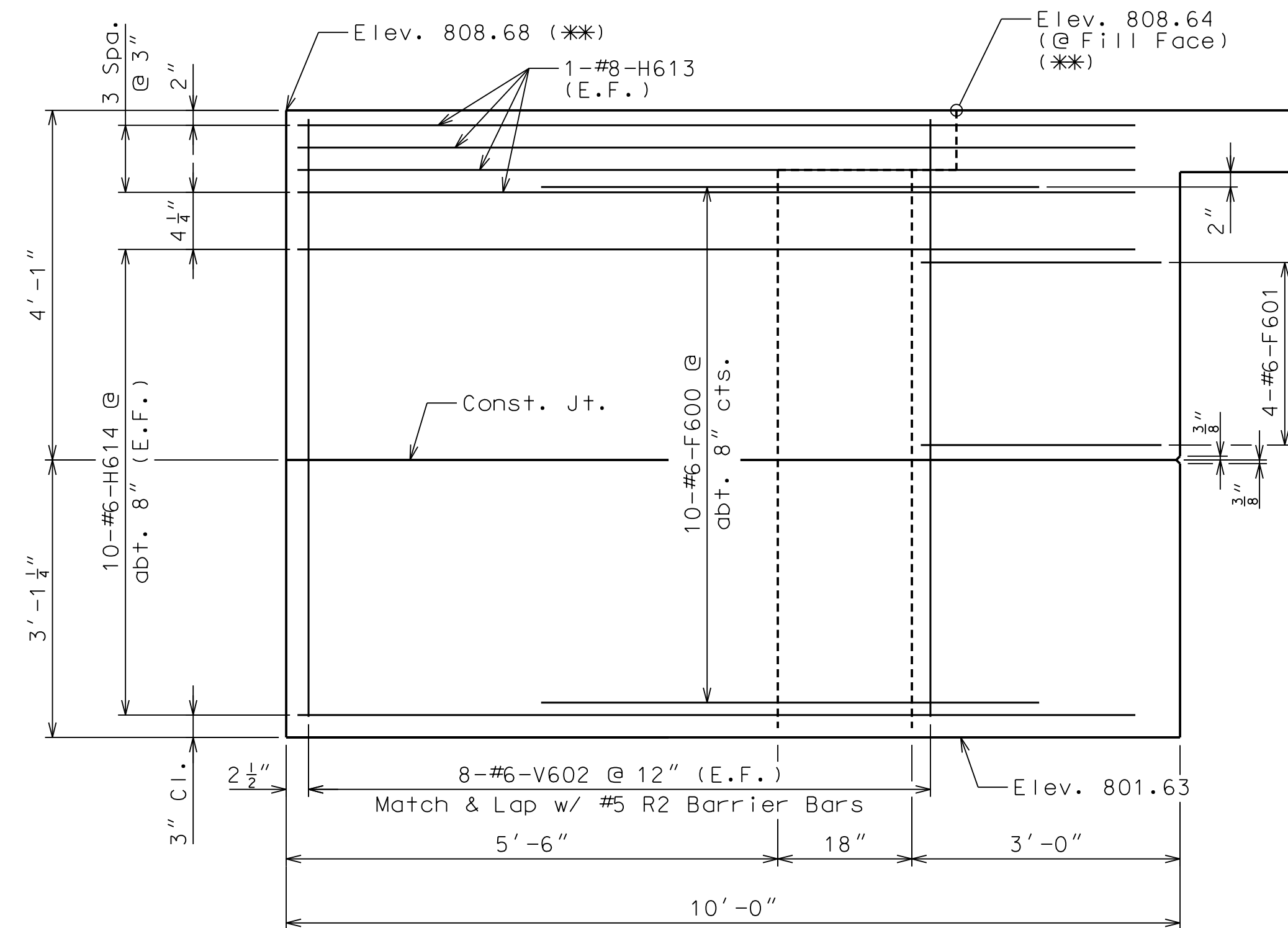


PART PLAN

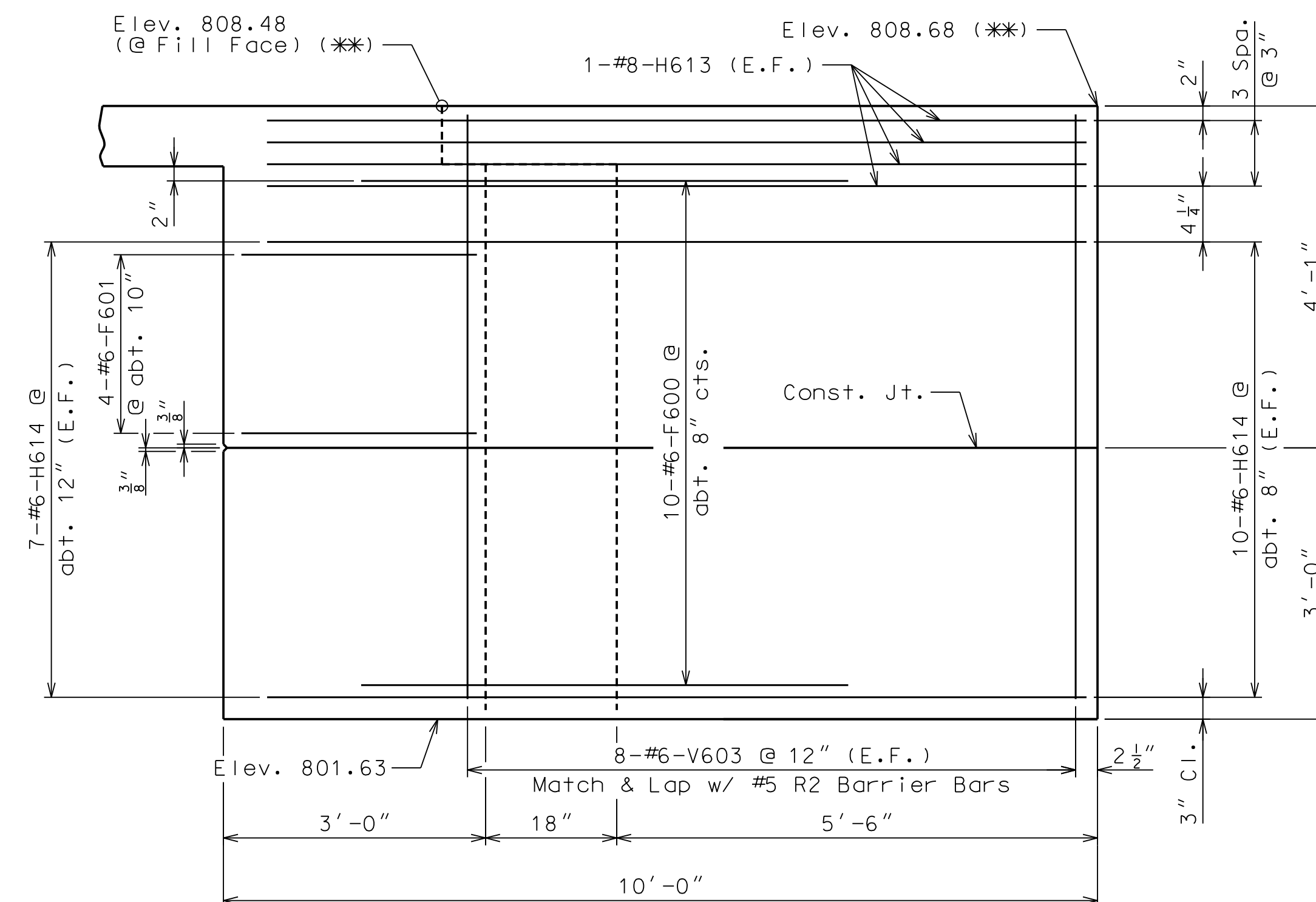


PLAN OF BEAM

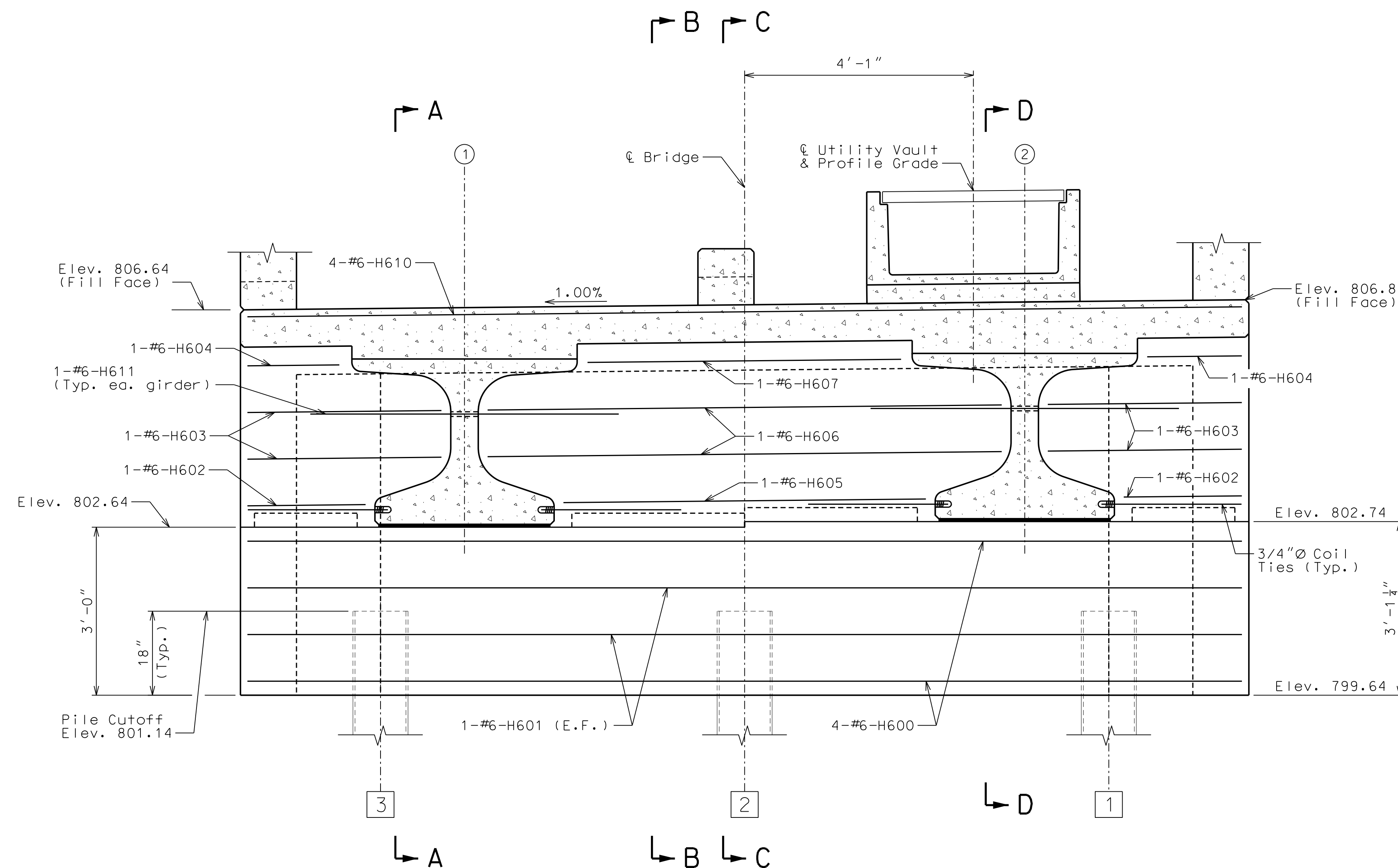
(Horizontal dimensions are measured along ℓ Pile and ℓ Brg.)



ELEVATION E-E



ELEVATION F-F

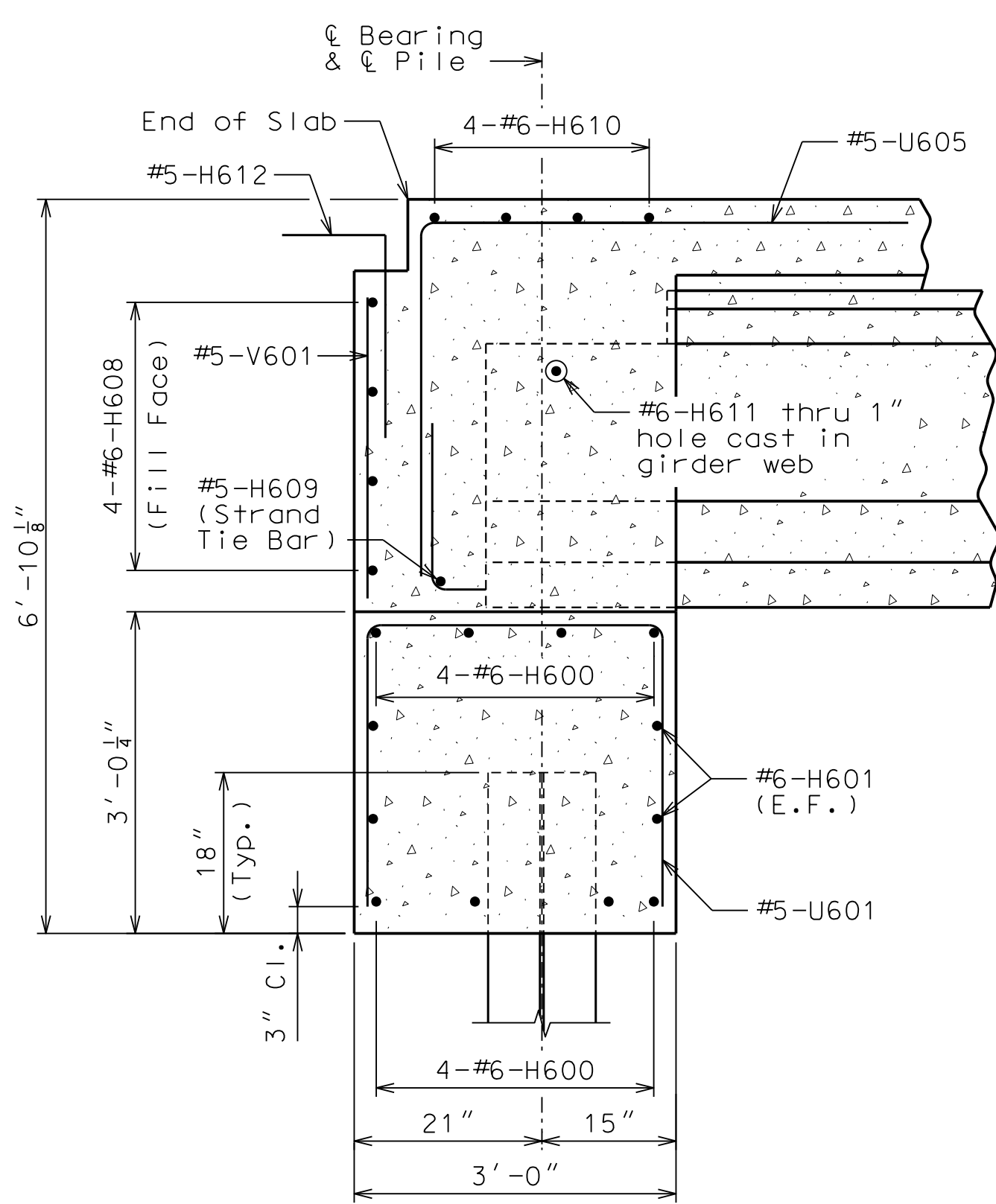


ELEVATION

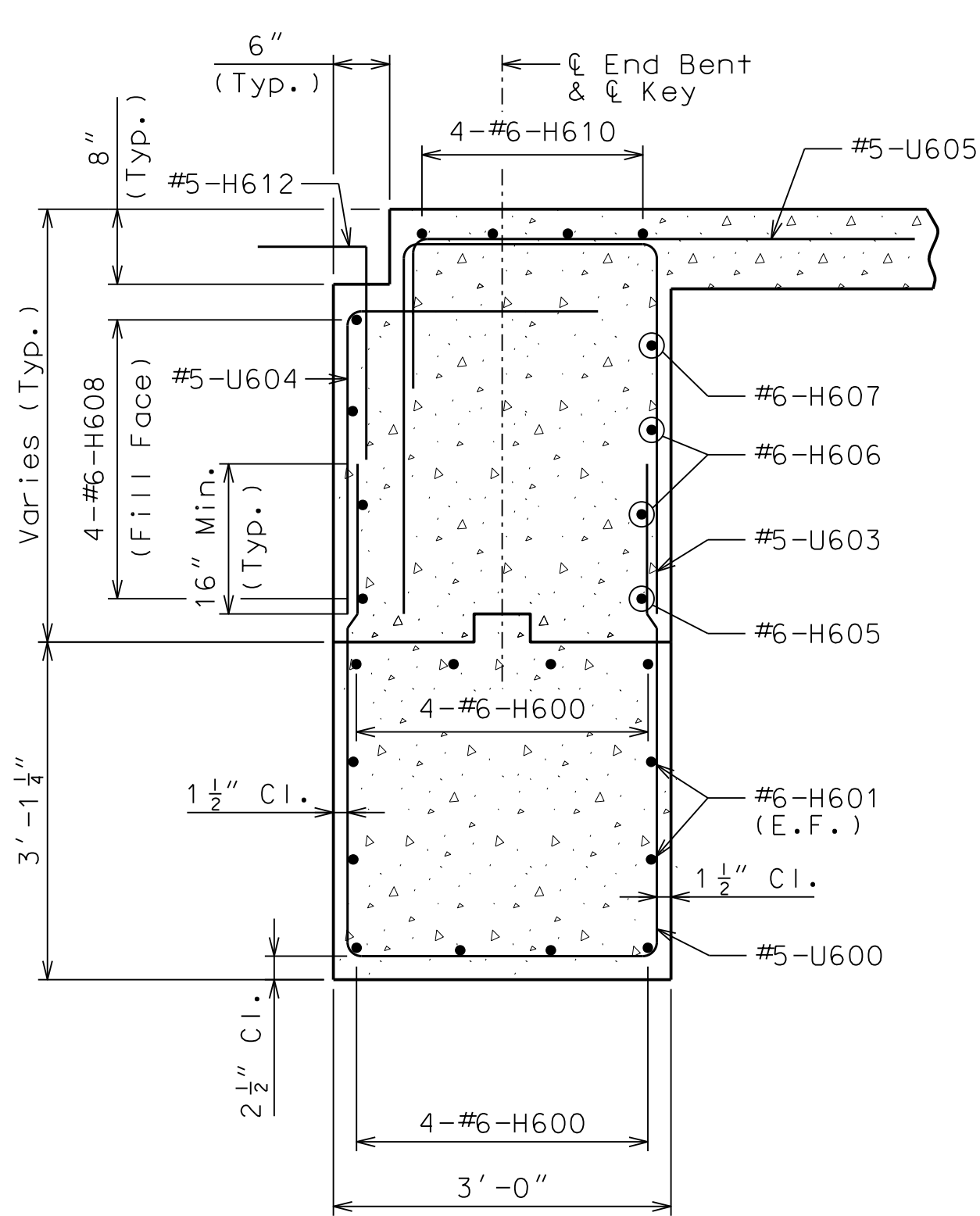
(For U-Bar and V-Bar details, see Plan Views)

Notes:
The #5-H100 bars shall be mechanically coupled to the #5-H101 bars during Stage 2 Construction. The #5-H101 bars shall be mechanically coupled to the #5-H102 bars during Stage 3 Construction.
The Modular Exp. Jt. Support Shelf be formed to crown and grade of the roadway.

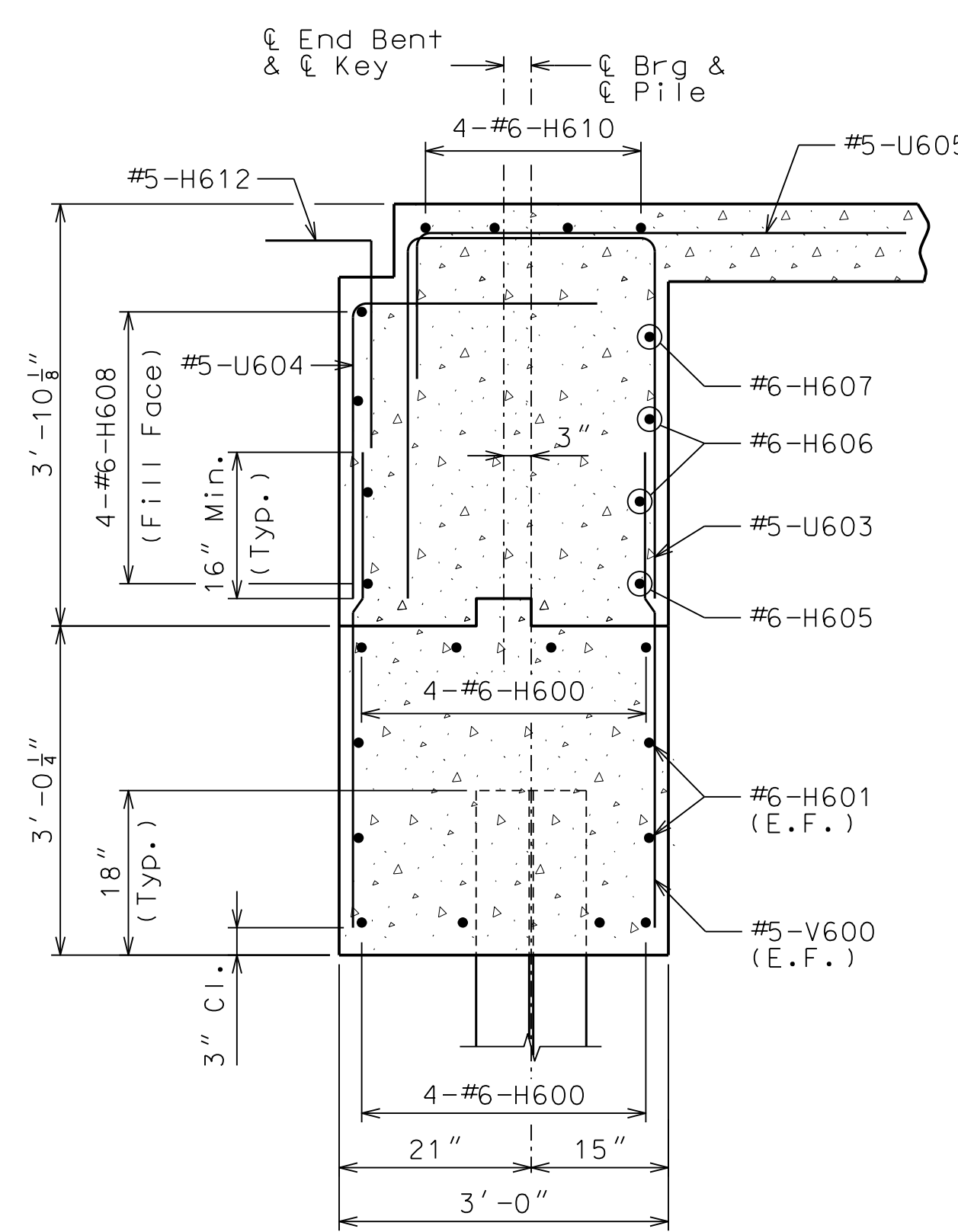
- Denotes Resin Anchor Reinforcing Steel.



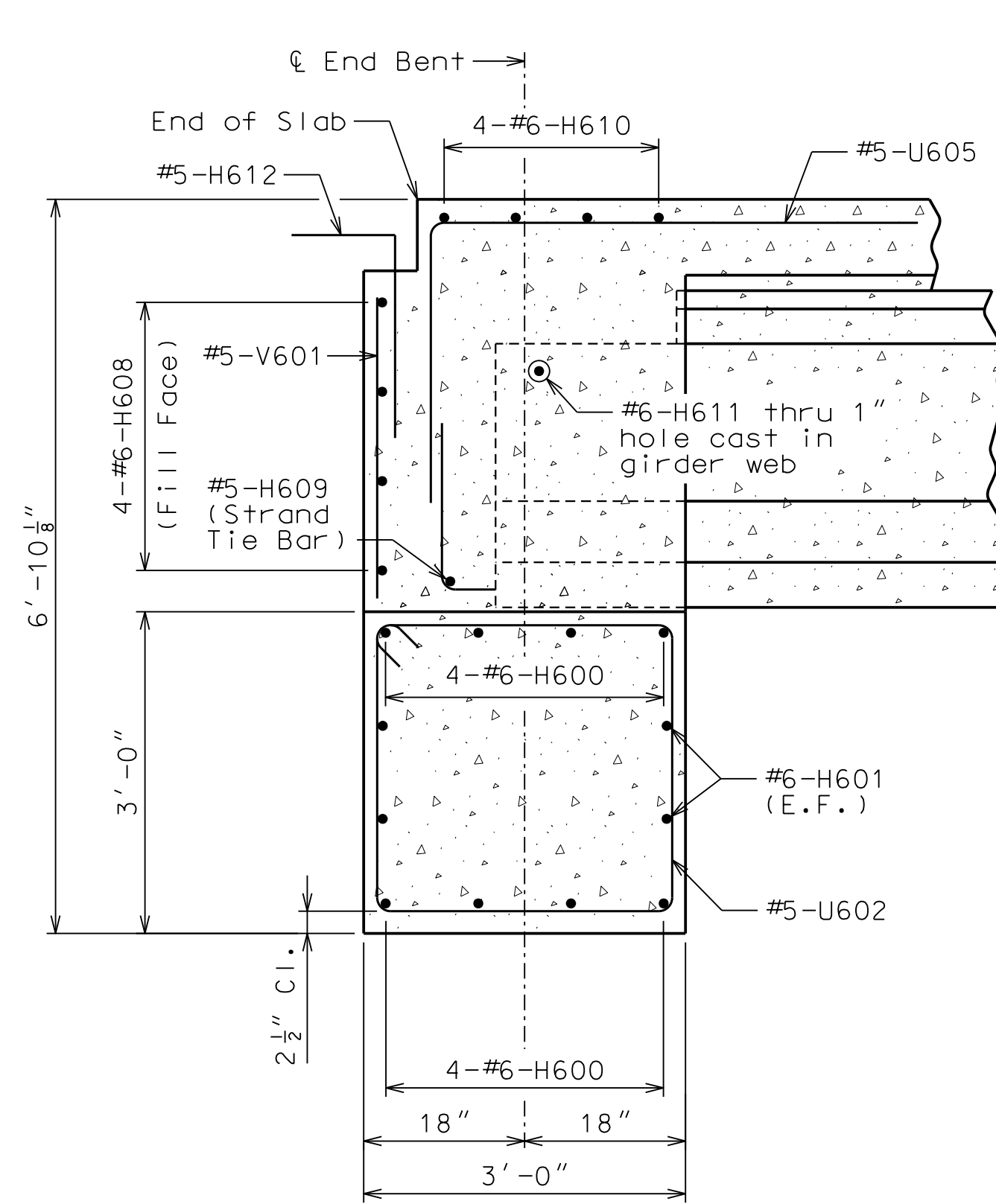
SECTION A-A



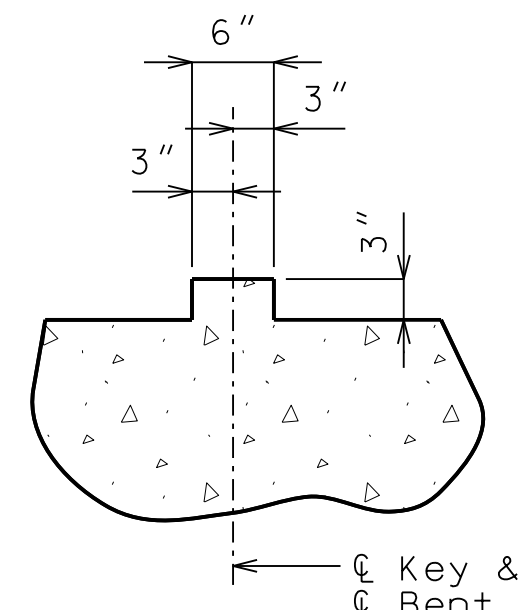
SECTION B-B



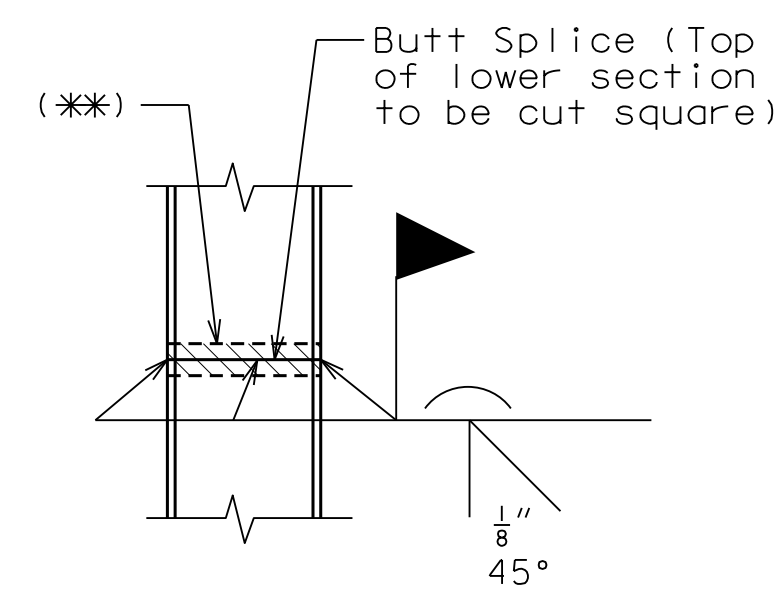
SECTION C-C



SECTION D-D



SECTION THRU KEY



STEEL PILE SPLICE

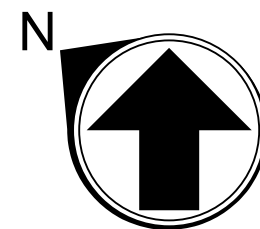
(If required)

(**) Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.

Notes:

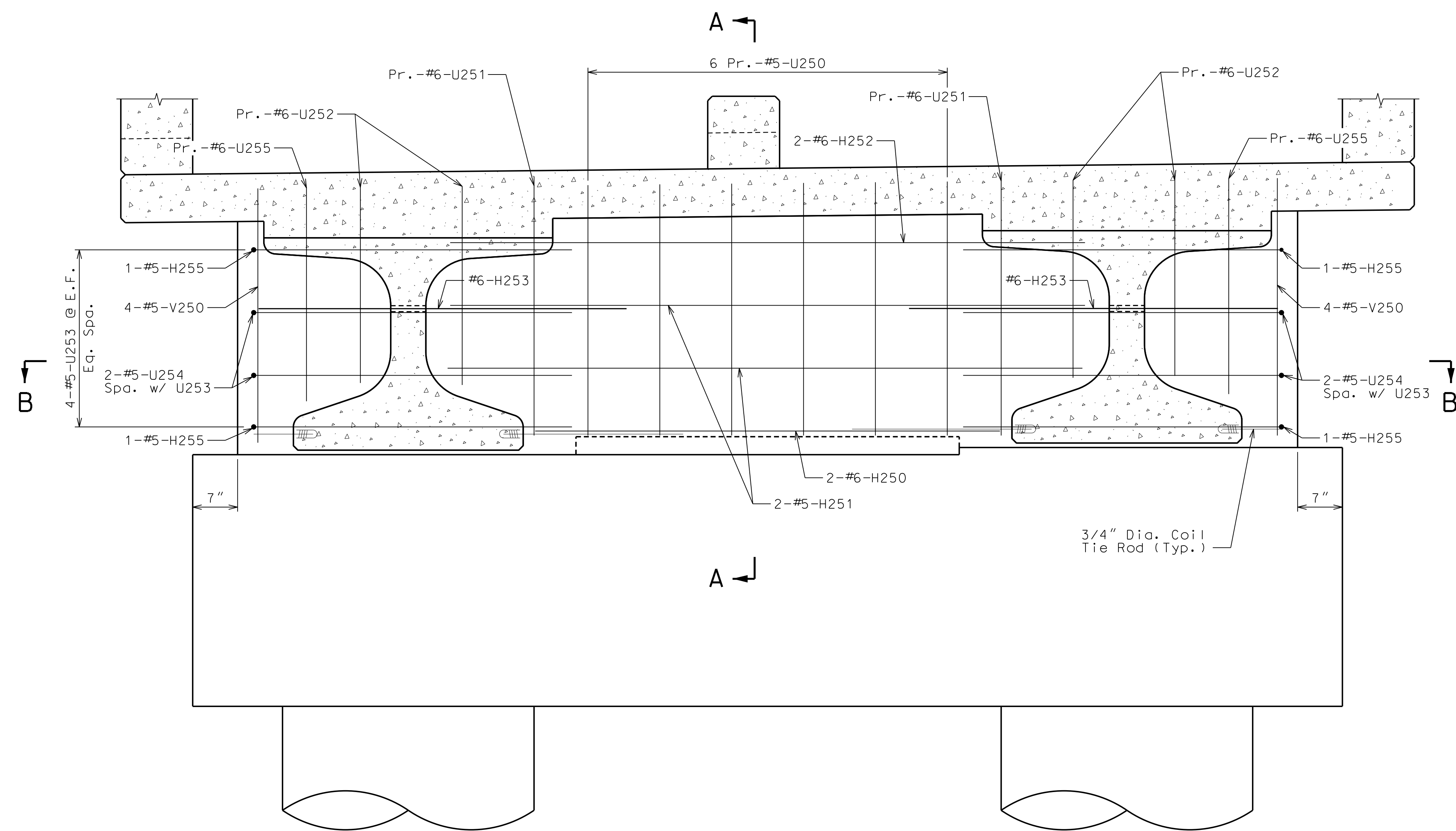
The #5-H100 bars shall be mechanically coupled to the #5-H101 bars during Stage 2 Construction. The #5-H101 bars shall be mechanically coupled to the #5-H102 bars during Stage 3 Construction.

The Modular Exp. Jt. Support Shelf be formed to crown and grade of the roadway.

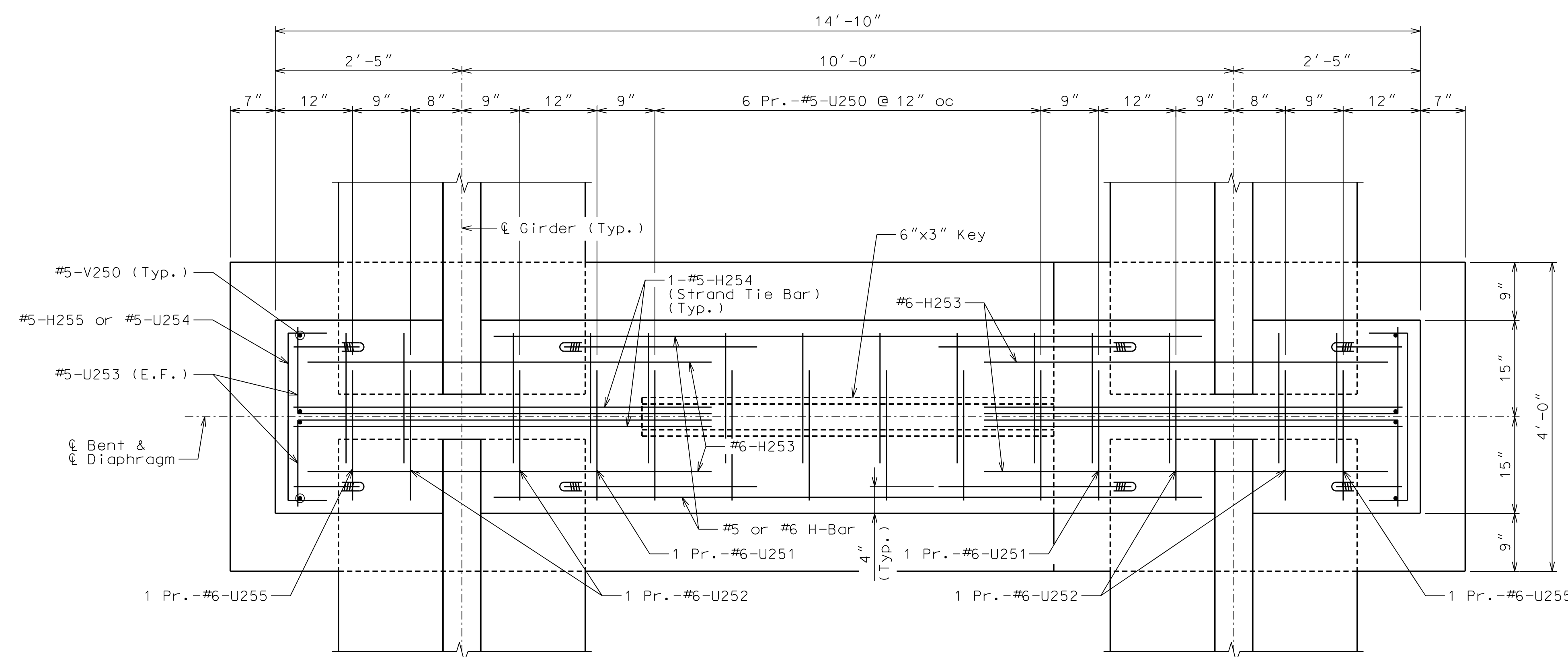


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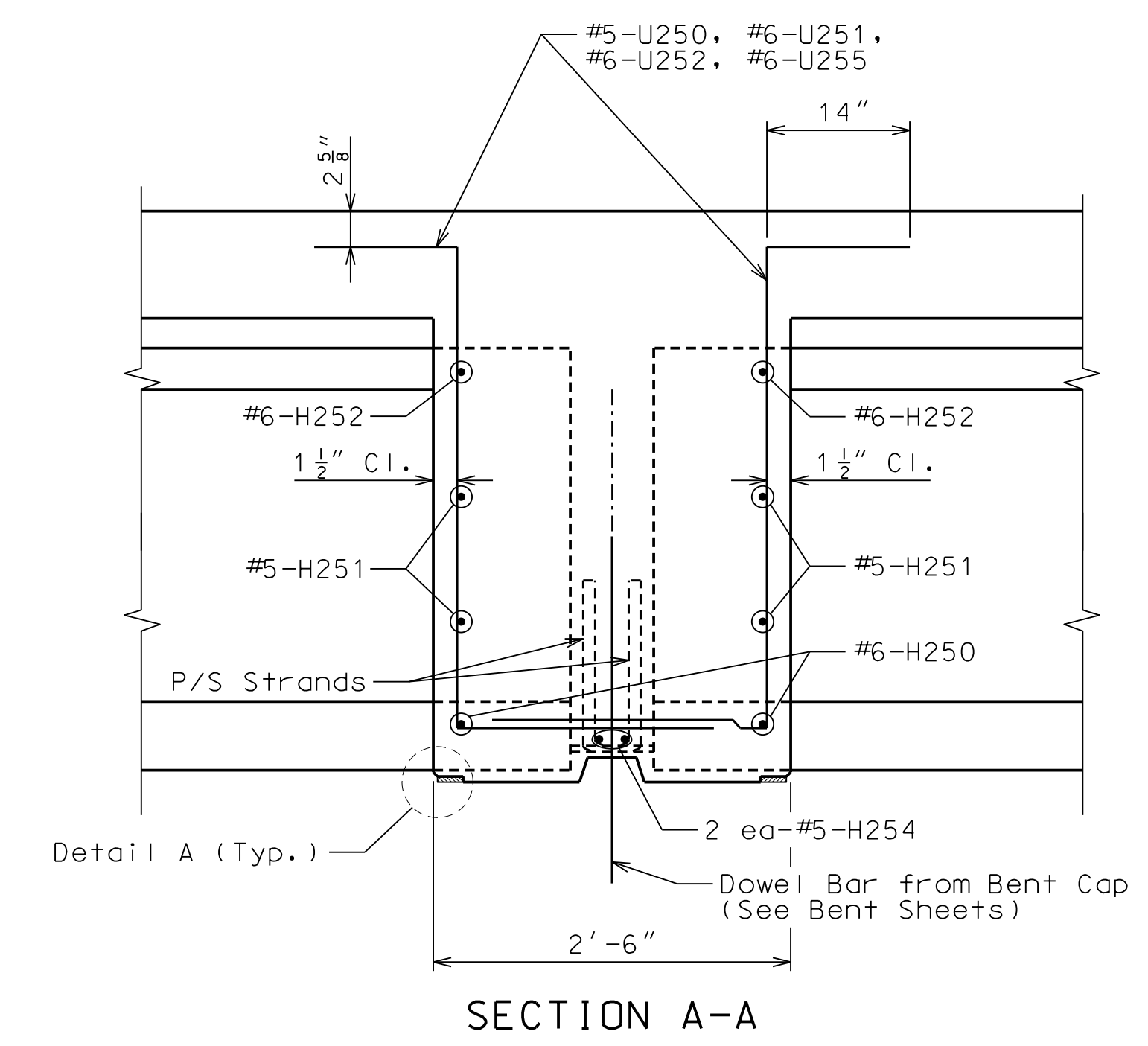
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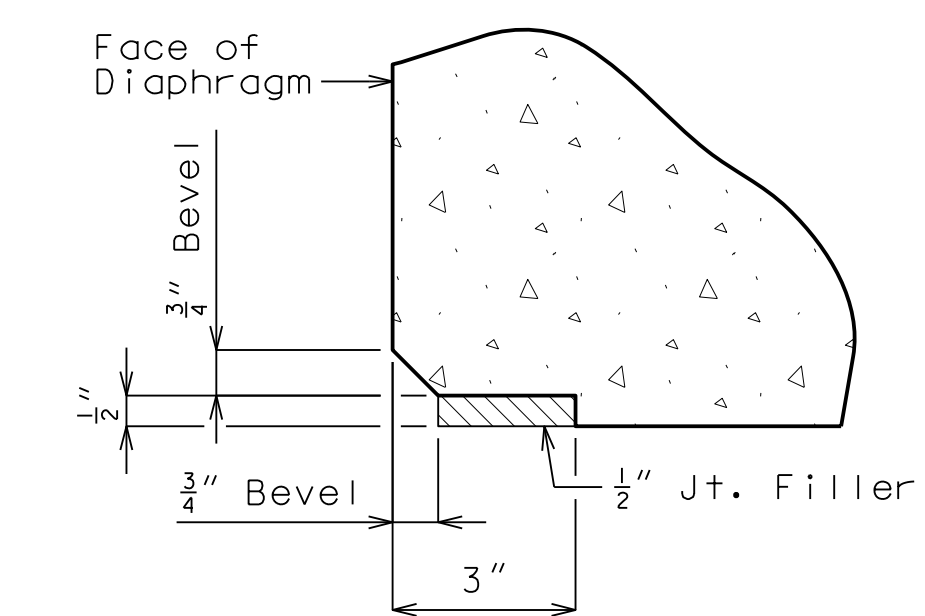
SECTION AT INT. BENT NO. 2
(Int. Bents No. 3, 4, and 5 similar)



SECTION B-B

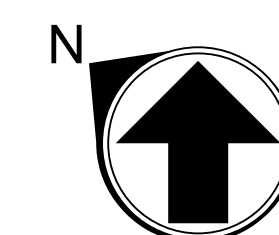


SECTION A-A



DETAIL A

Notes:
Diaphragms at Intermediate Bents shall be built vertical.
The concrete diaphragm at the Intermediate Bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab poured.
Use 200 Series bars for Intermediate Bent No. 2 as shown.
Use 300 Series bars for Intermediate Bent No. 3.
Use 400 Series bars for Intermediate Bent No. 4.
Use 500 Series bars for Intermediate Bent No. 5.



REVISIONS		DATE	DESCRIPTION
No.	DATE	DESCRIPTION	

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Author
APPROVED:
Approver

PROJECT ADDRESS:
9000 NE 48th STREET
KANSAS CITY, MISSOURI 64115
Proj. No. 10300064

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SHALEROCK PRIVATE UTILITY BRIDGE

FRAMING PLAN
(Longitudinal dimensions are horizontal)

FRAMING PLAN

REVISIONS			DRAWN: Author
No.	DATE	DESCRIPTION	
	2024-06-24	EARLY GIRDER PACKAGE	
			APPROV'D: Approver

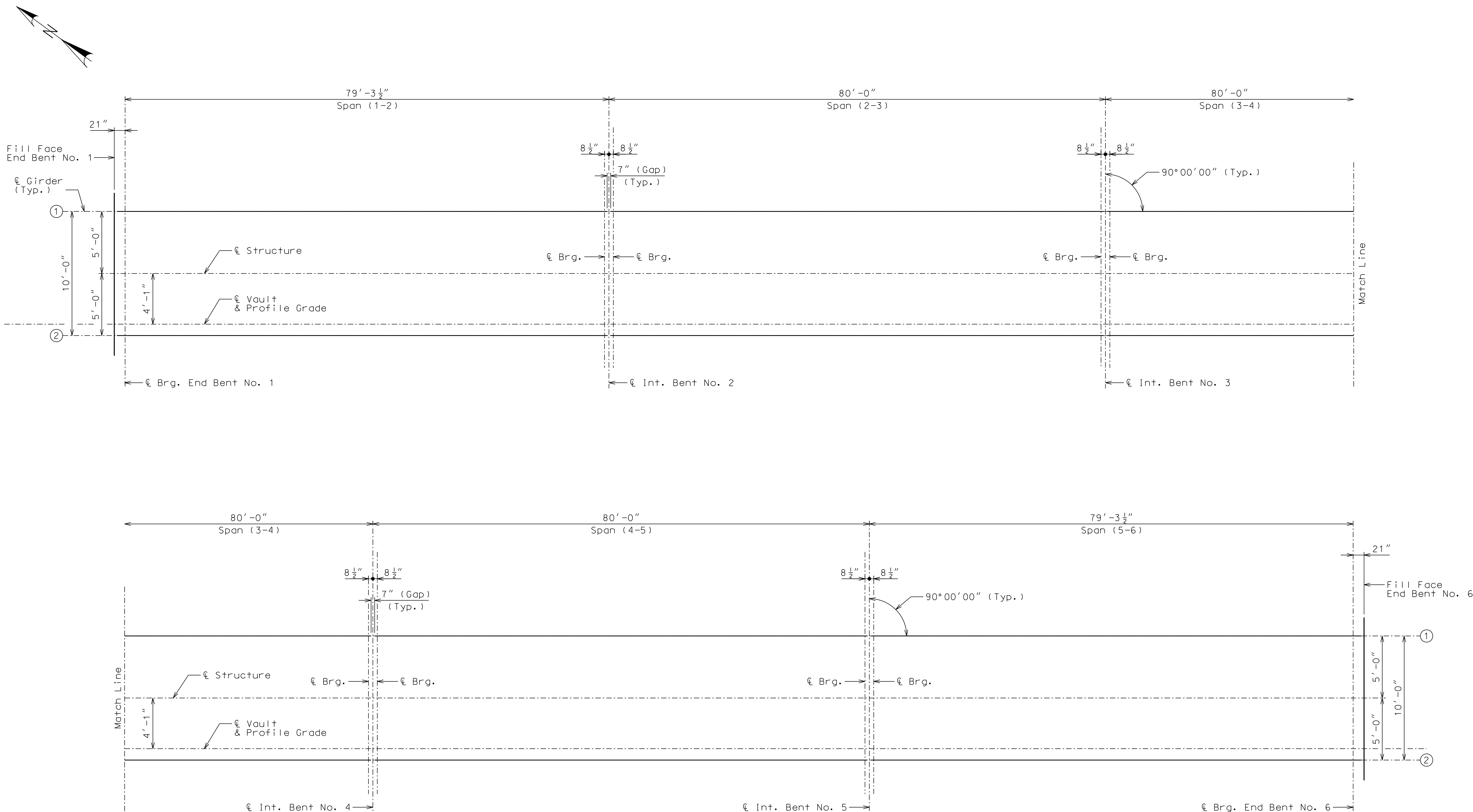
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9002 NE 48th STREET
KANSAS CITY, MISSOURI 64116
Proj. No. 10390064

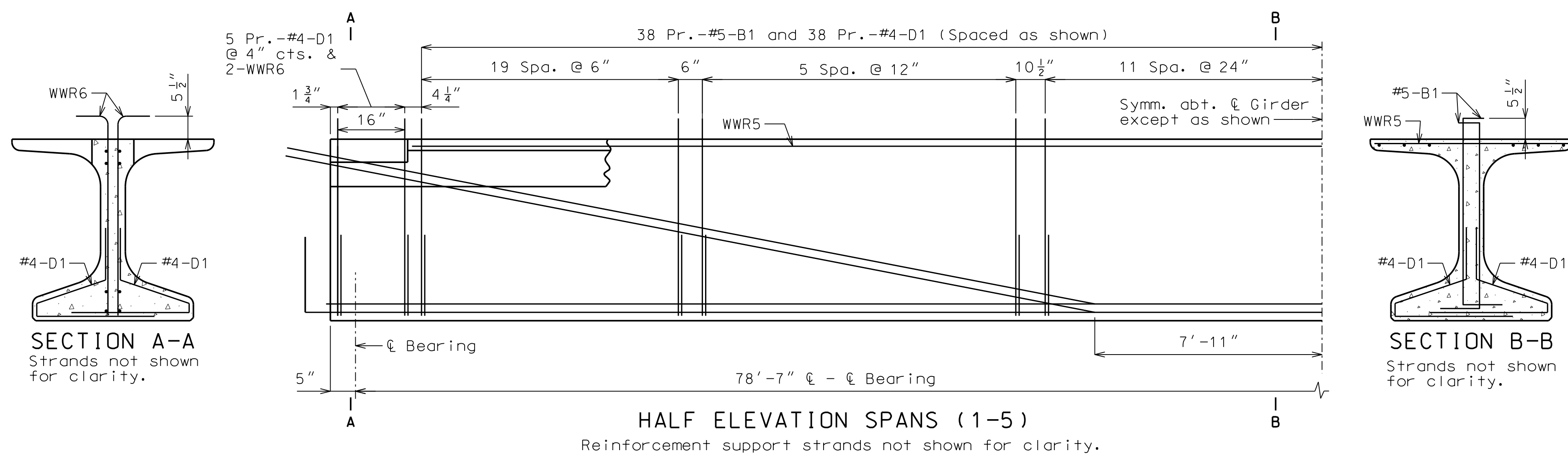
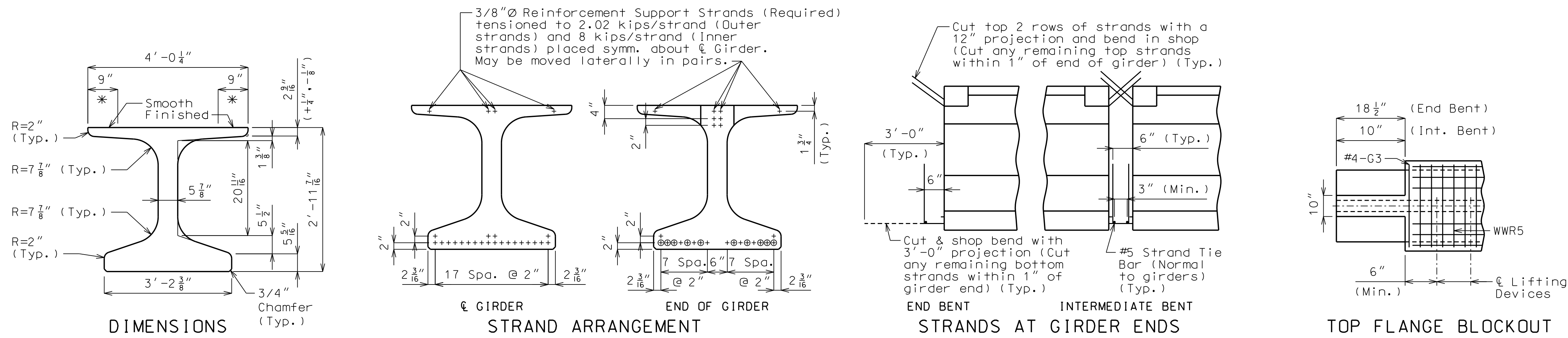
FRAMING PLAN

SCALE: NOT TO SCALE, FOLLOW DIMENSIONS

SHEET NUMBER:
2A-B-116
Paper Size: E (36"x48")
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Notes:
The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.





Bill of Reinforcing Steel - Each Girder				Bending Diagrams	
No.	Size/Mark	Length	Shape		
150	5 B1	4'-4"	11		Shape 20
170	4 D1	4'-0"	9		
2	4 G3	3'-10½"	20		

Welded Wire Reinforcement - Each Girder

WWR5

WWR6

General Notes:

Concrete for prestressed girders shall be Class A-1 with $f'c = 8000$ psi and $f'ci = 6500$ psi.

Use 22 0.6"Ø Grade 270 strands with an initial prestress force of 967 kips.

Pretensioned members shall be in accordance with Sec 1029.

Fabricator shall be responsible for location and design of lifting devices.

Reinforcing Steel:

All dimensions are out to out.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures. Stirrup and Tie Dimensions.

Actual bar lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be 1".

All bar reinforcement shall be Grade 60. The two D1 bars may be furnished as one bar at the fabricator's option.

Welded Wire Reinforcement (WWR) shall be in accordance with AASHTO M 221.

Miscellaneous:

Cost of 3/4"Ø coil tie rods placed in diaphragms will be considered completely covered by the contract unit price for Prestressed Concrete NU-Girder.

Coil ties shall be held in place in the forms by slotted wire-setting-studs projecting thru forms. Studs are to be left in place or replaced with temporary plugs until girders are erected, then replaced by coil tie rods.

Provide 20 each Elastomeric Bearing Pads (1/2"x8"x3'-0"). Ship with Girders to Project site.

The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders. The cost for furnishing, installing, and removing bracing will be considered completely covered by the contract unit price for Prestressed Concrete NU-Girder.

The same type of reinforcing steel shall be used for all girders in all spans.

NU-GIRDERS - SPANS (1-5)

SHALEROCK PRIVATE UTILITY BRIDGE

PRESTRESSED GIRDER DETAILS

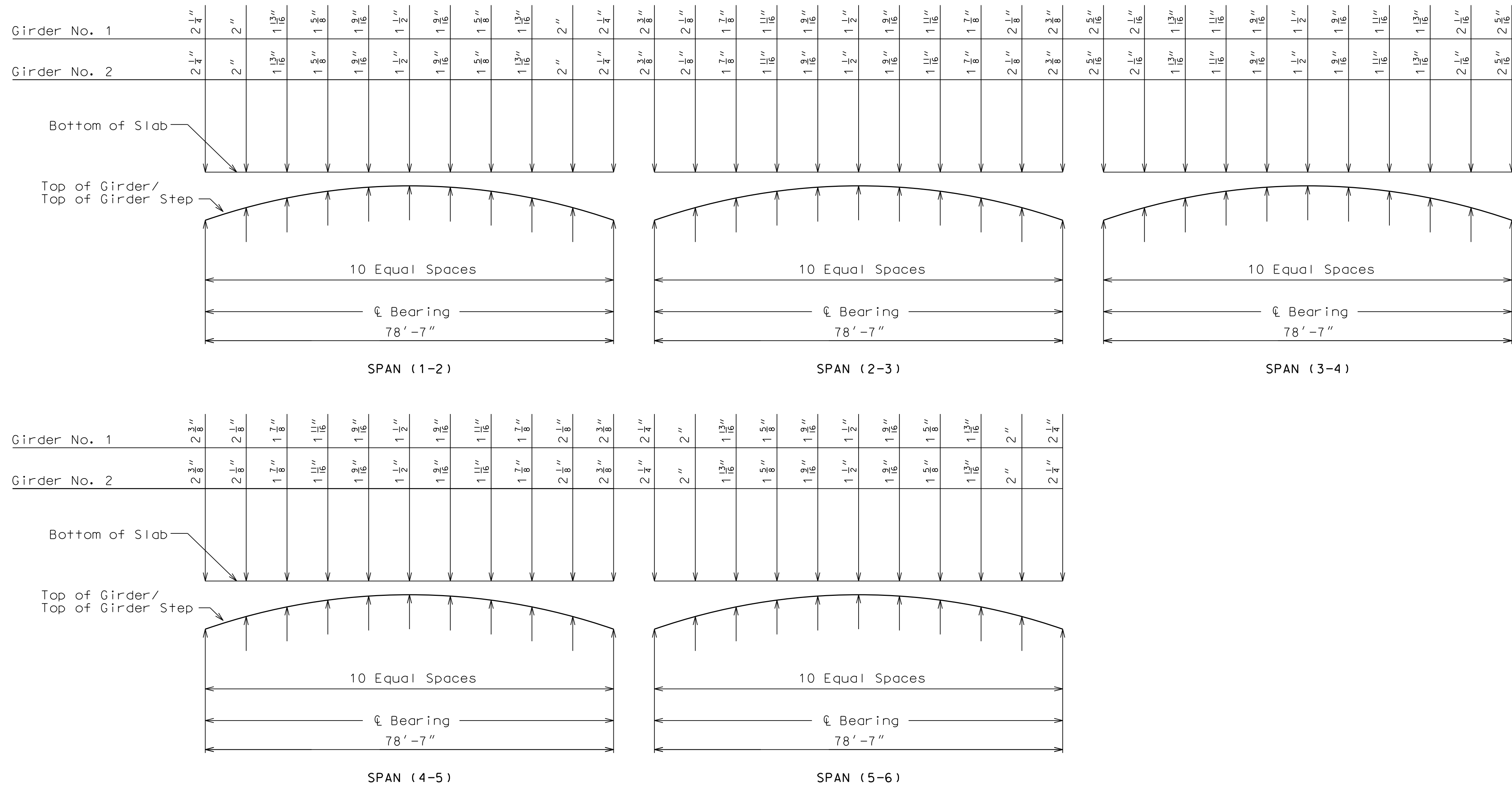
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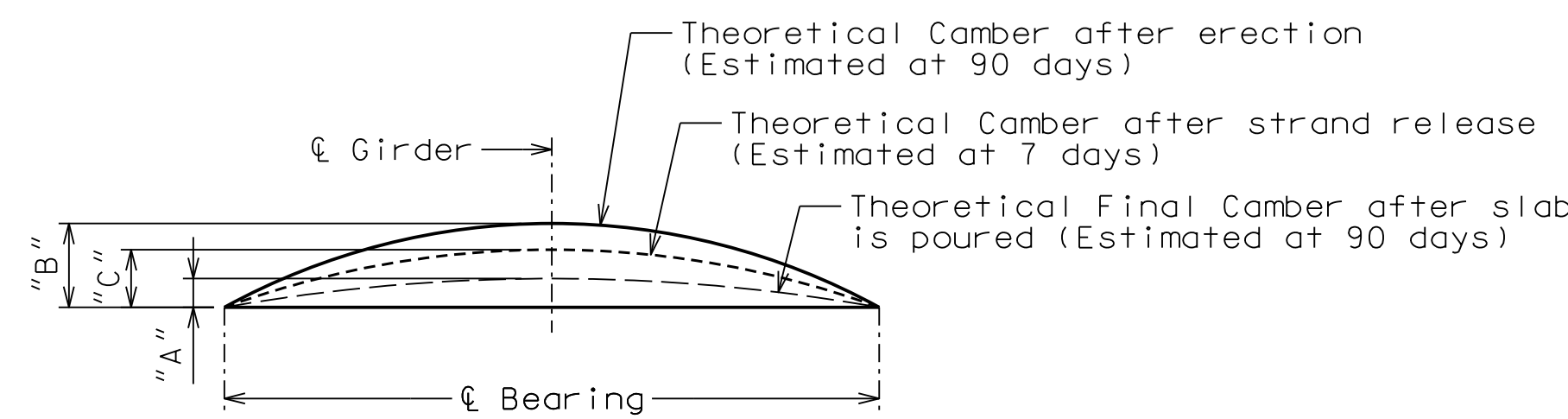
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THEORETICAL SLAB HAUNCHING DIAGRAM

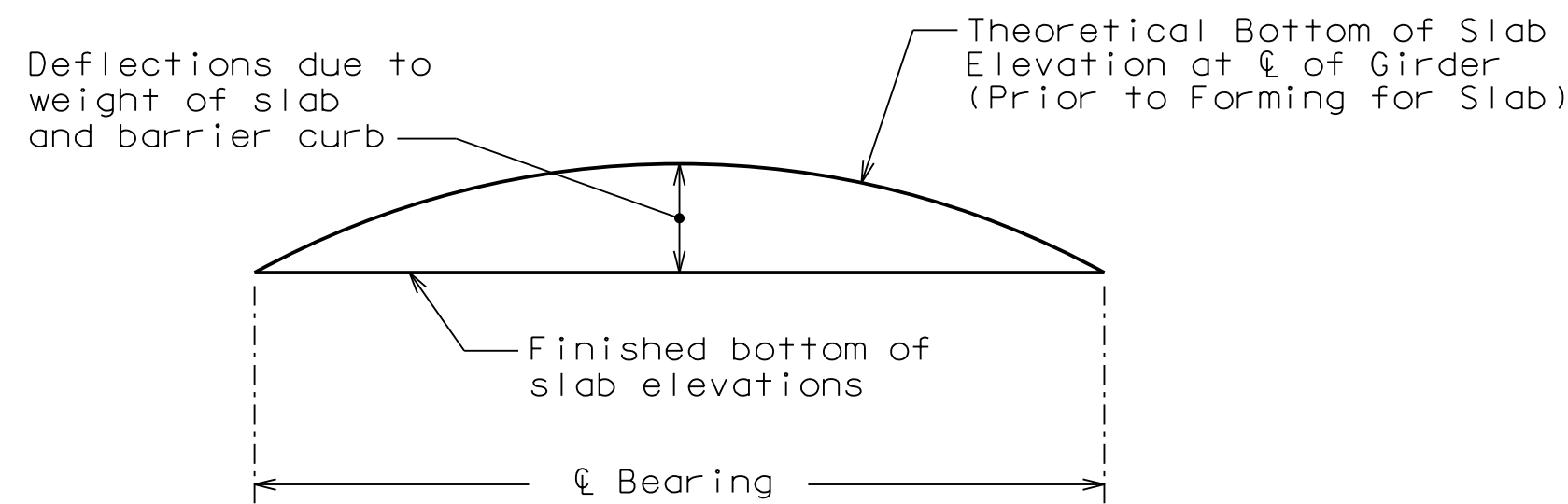


Girder No.	All Spans		
	"A"	"B"	"C"
1	1"	2 3/8"	1 3/8"
2	1"		

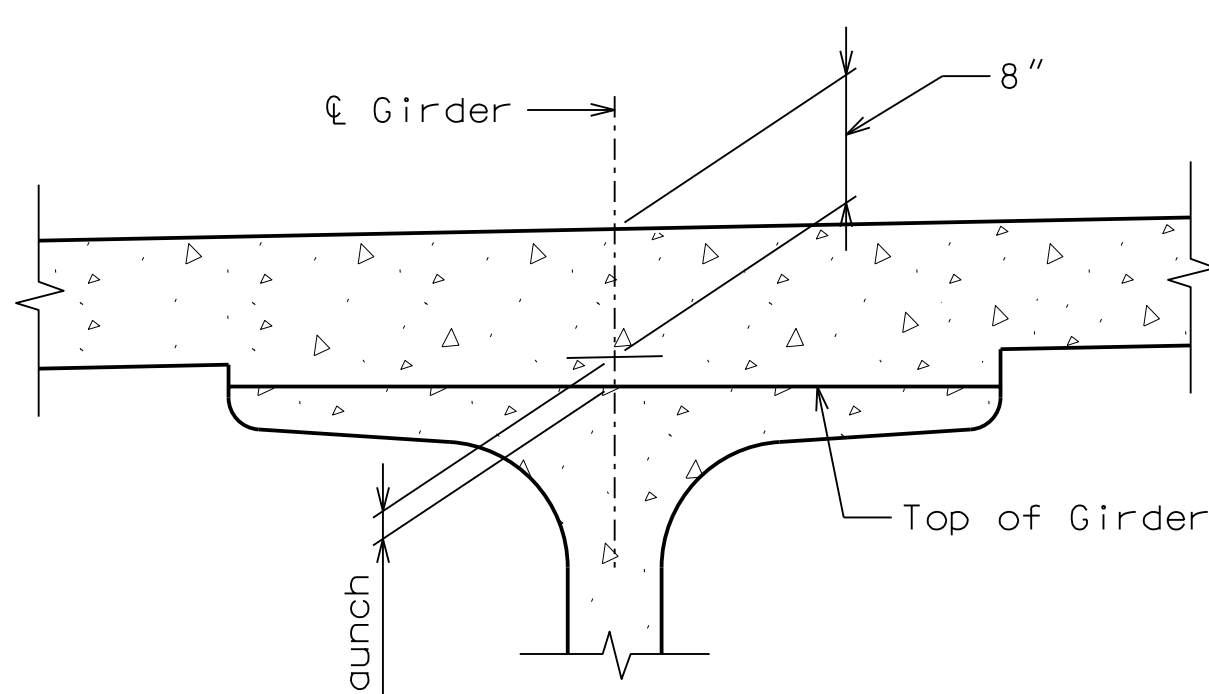
GIRDER CAMBER DIAGRAM

Conversion Factors for Girder Camber (Estimated at 90 days):

0.1 pt. = 0.314 x 0.5 pt.
0.2 pt. = 0.593 x 0.5 pt.
0.3 pt. = 0.813 x 0.5 pt.
0.4 pt. = 0.952 x 0.5 pt.



TYPICAL SLAB ELEVATIONS DIAGRAM



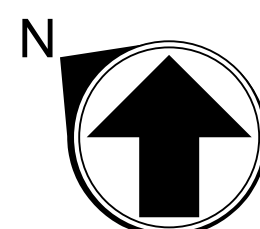
SLAB HAUNCHING DETAIL

THEORETICAL BOTTOM OF SLAB ELEVATIONS AT CENTERLINE OF GIRDER (PRIOR TO FORMING FOR SLAB) (ESTIMATED AT 90 DAYS) (*)											
Girder No.	Span (1-2) (78'-7" @ brg. - @ brg.)										
	@ brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	@ brg.
1	807.84	807.84	807.84	807.83	807.81	807.78	807.73	807.68	807.61	807.53	807.45
2	807.94	807.94	807.94	807.93	807.91	807.88	807.83	807.78	807.71	807.63	807.55
Girder No.	Span (2-3) (78'-7" @ brg. - @ brg.)										
	@ brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	@ brg.
1	807.44	807.44	807.43	807.42	807.40	807.37	807.32	807.26	807.20	807.12	807.05
2	807.54	807.54	807.53	807.52	807.50	807.47	807.42	807.36	807.30	807.22	807.15
Girder No.	Span (3-4) (78'-7" @ brg. - @ brg.)										
	@ brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	@ brg.
1	807.04	807.04	807.04	807.03	807.00	806.97	806.93	806.87	806.80	806.73	806.65
2	807.14	807.14	807.14	807.13	807.10	807.03	807.03	806.97	806.90	806.83	806.75
Girder No.	Span (4-5) (78'-7" @ brg. - @ brg.)										
	@ brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	@ brg.
1	806.64	806.64	806.63	806.62	806.60	806.57	806.52	806.46	806.40	806.32	806.25
2	806.74	806.74	806.73	806.72	806.70	806.67	806.62	806.56	806.50	806.42	806.35
Girder No.	Span (5-6) (78'-7" @ brg. - @ brg.)										
	@ brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	@ brg.
1	806.24	806.24	806.24	806.23	806.21	806.18	806.13	806.08	806.01	805.93	805.85
2	806.34	806.34	806.34	806.33	806.31	806.28	806.23	806.18	806.11	806.03	805.95

* Elevations are based on a constant slab thickness of 8" and include allowance for theoretical dead load deflections due to weight of slab (including stay-in-place metal forms) and barriers/curbs.

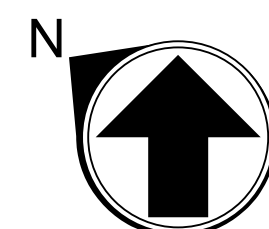
Notes:

If girder camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, adjustment of the slab haunches, an increase in the slab thickness or a raise in grade uniformly throughout the structure shall be necessary. No payment will be made for additional labor or materials required for variation in haunching, slab thickness or grade adjustment.



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SHALEROCK PRIVATE UTILITY BRIDGE



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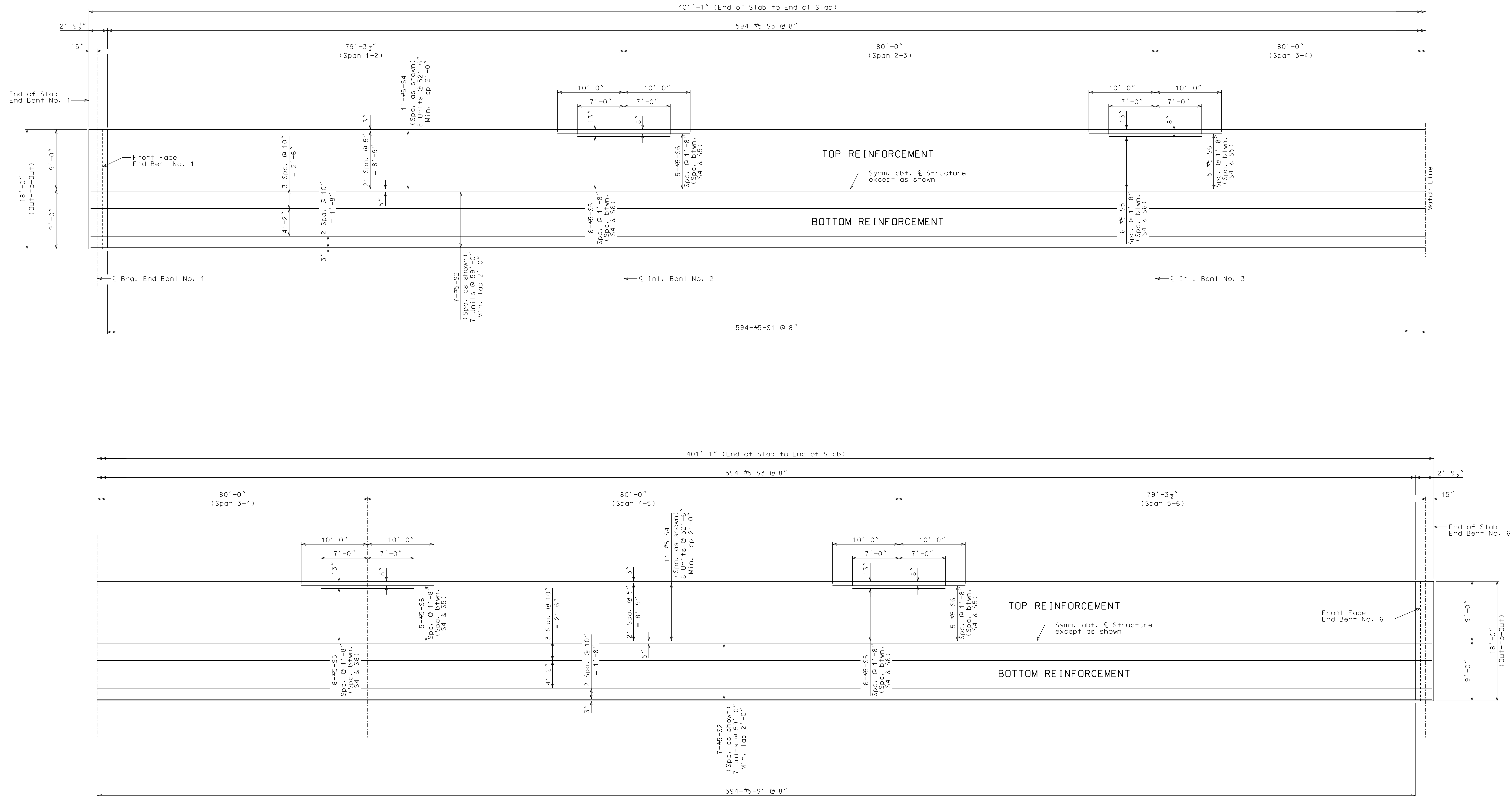
APPROVED: Approver

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9020 NE 48th STREET
KANSAS CITY, MISSOURI 64116
Proj. No. 10393084

PLAN OF SLAB REINFORCEMENT

SCALE: NOT TO SCALE, FOLLOW DIMENSIONS

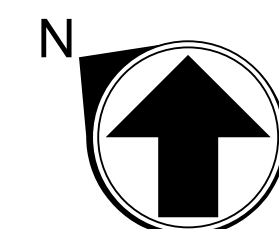
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Notes:
Dimensions shown are measured horizontal.
End Bent reinforcement not shown for clarity.

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SHALEROCK PRIVATE UTILITY BRIDGE



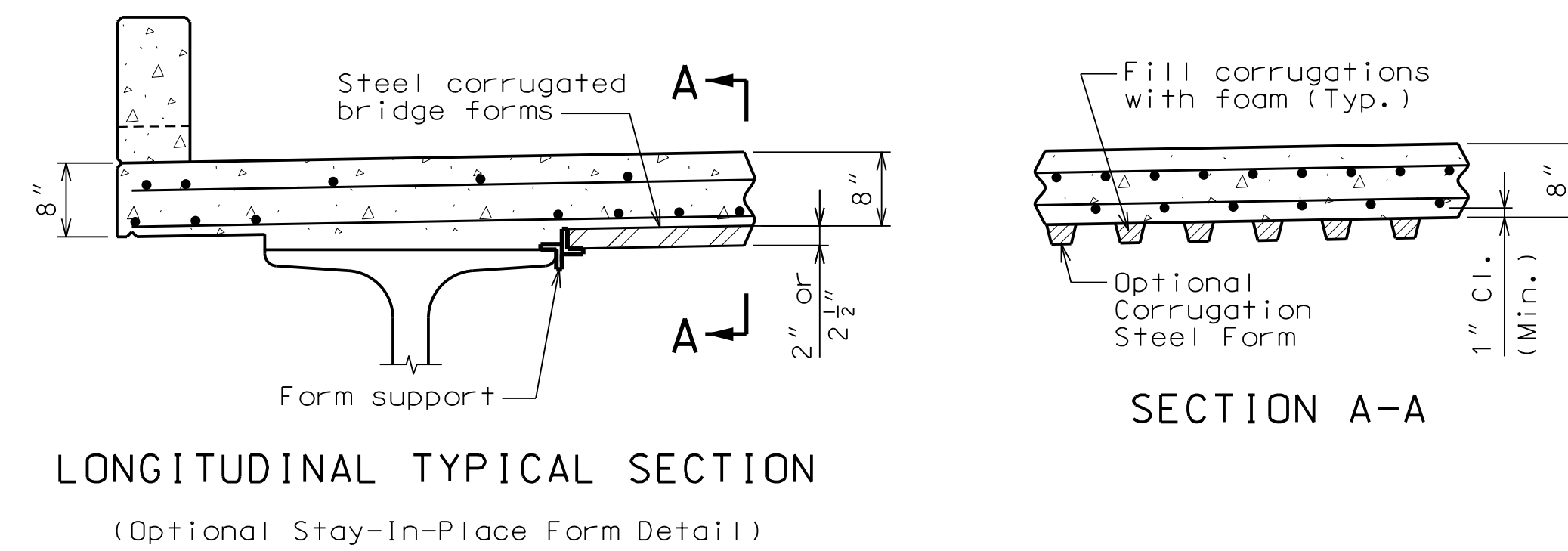
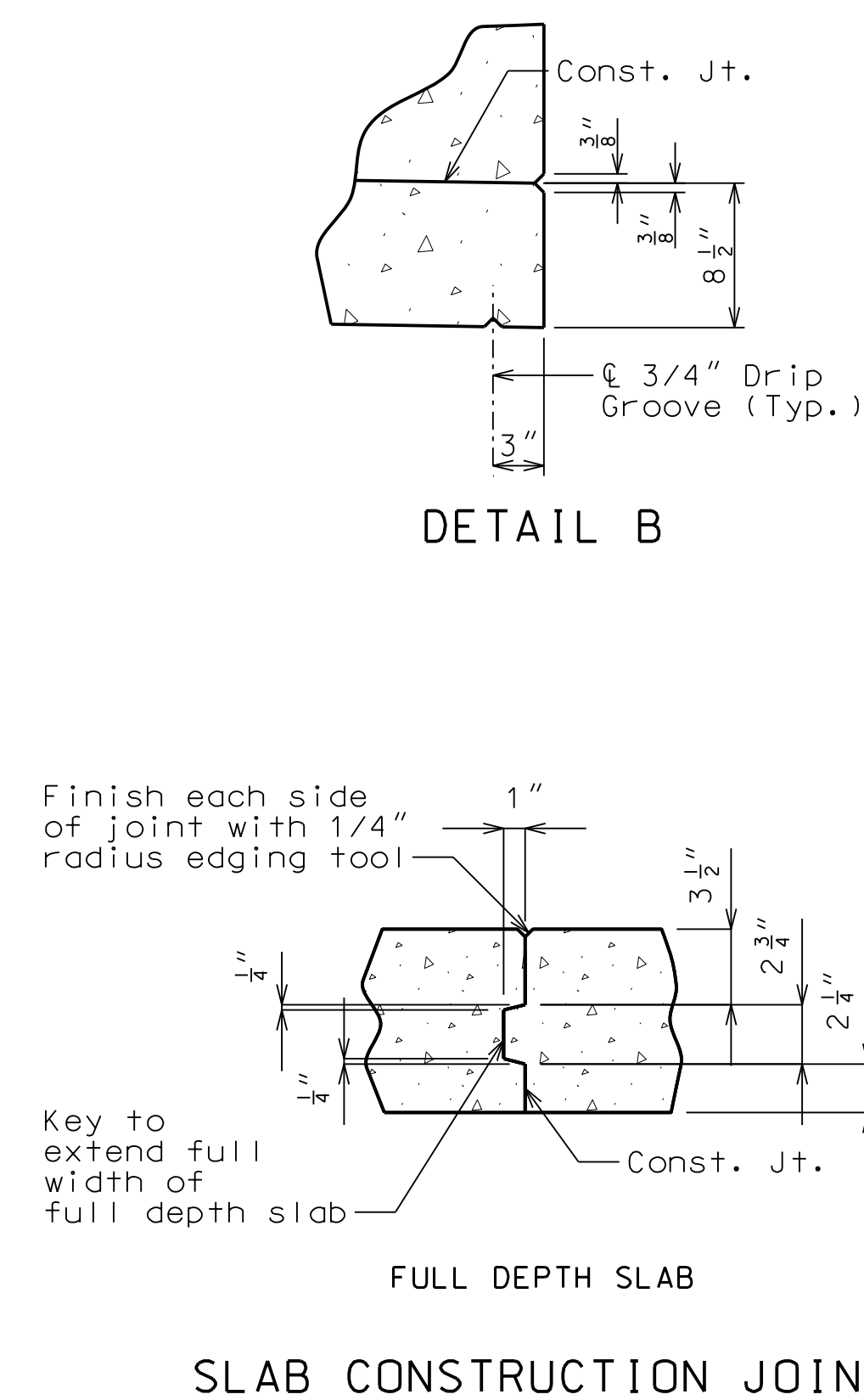
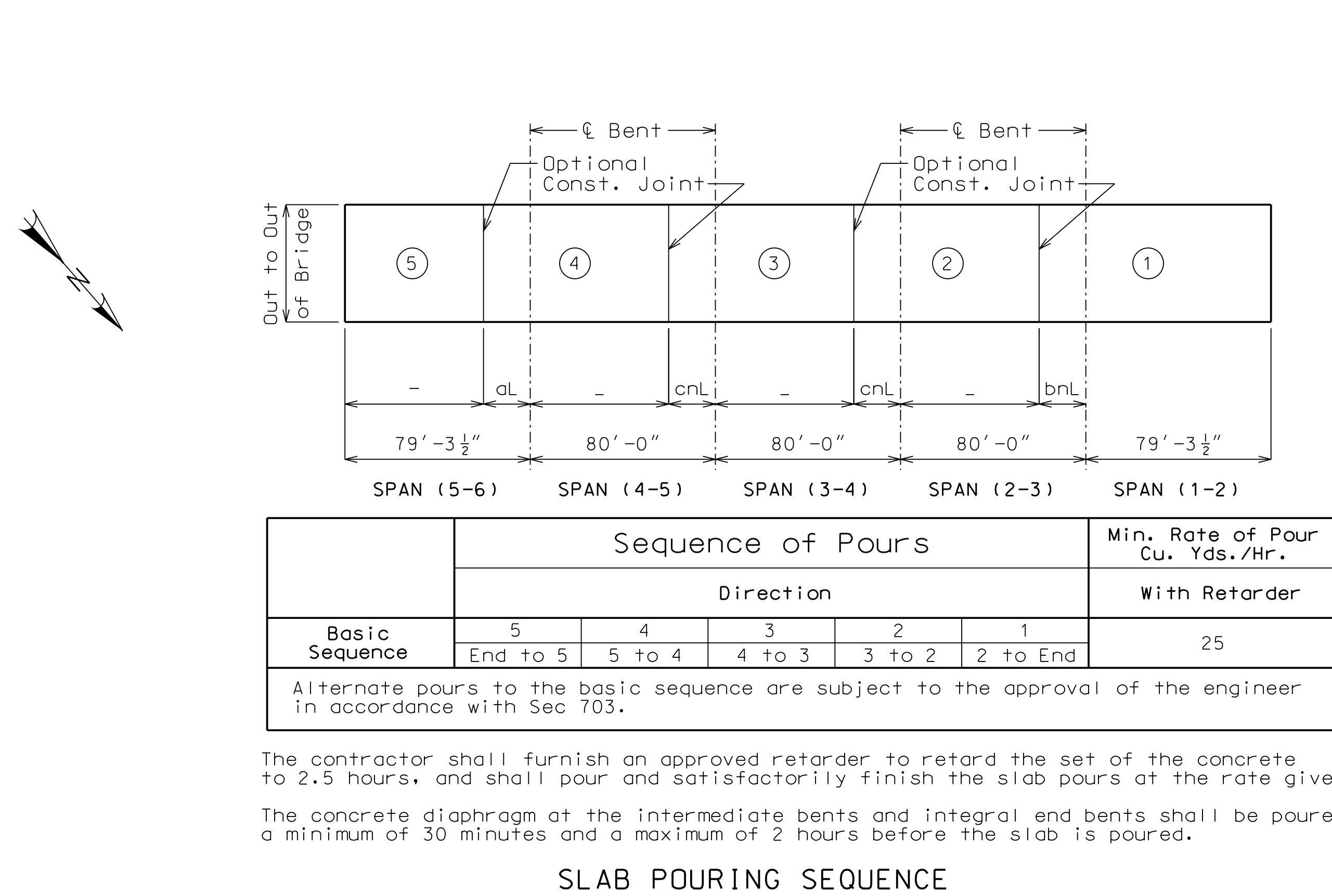
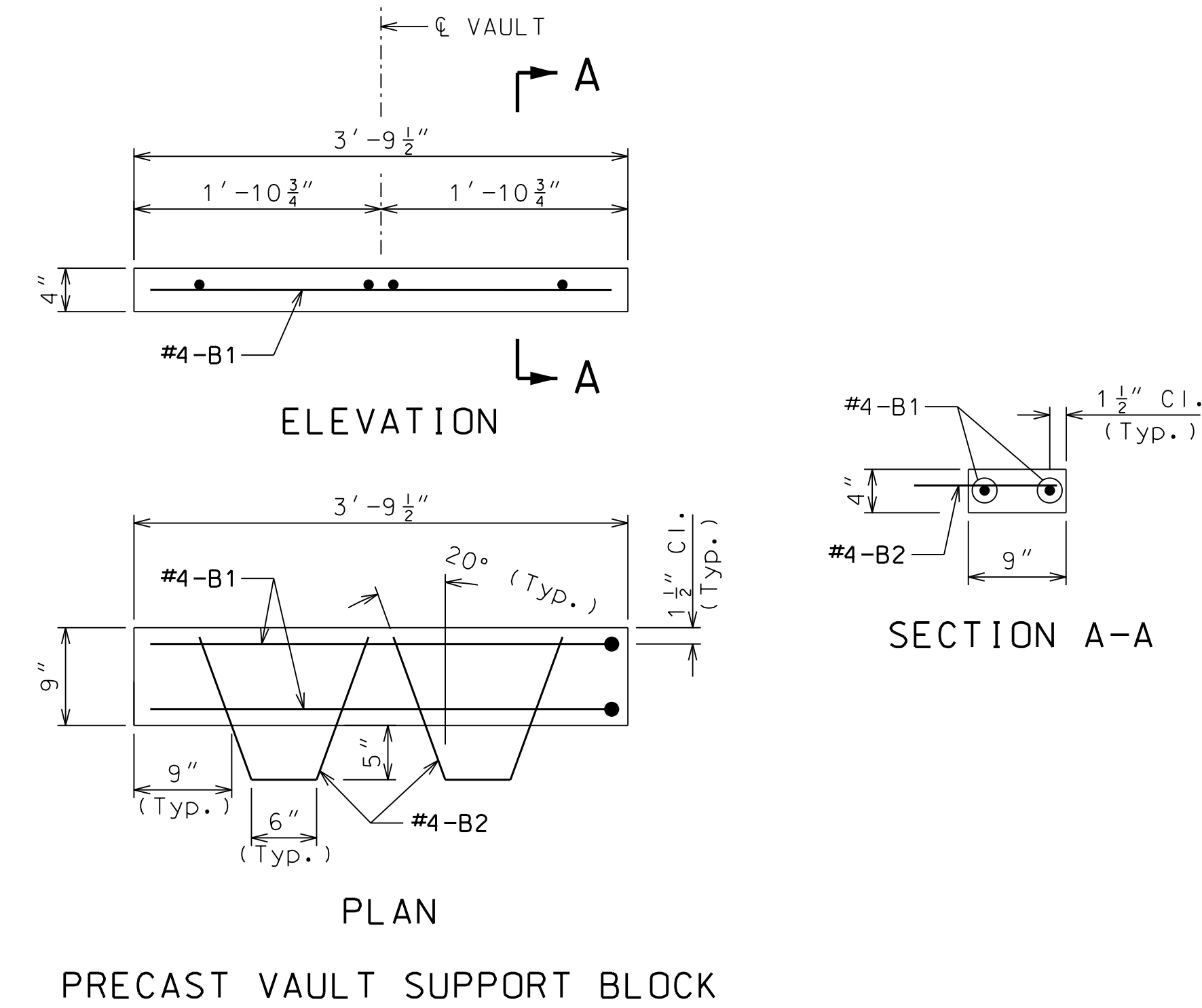
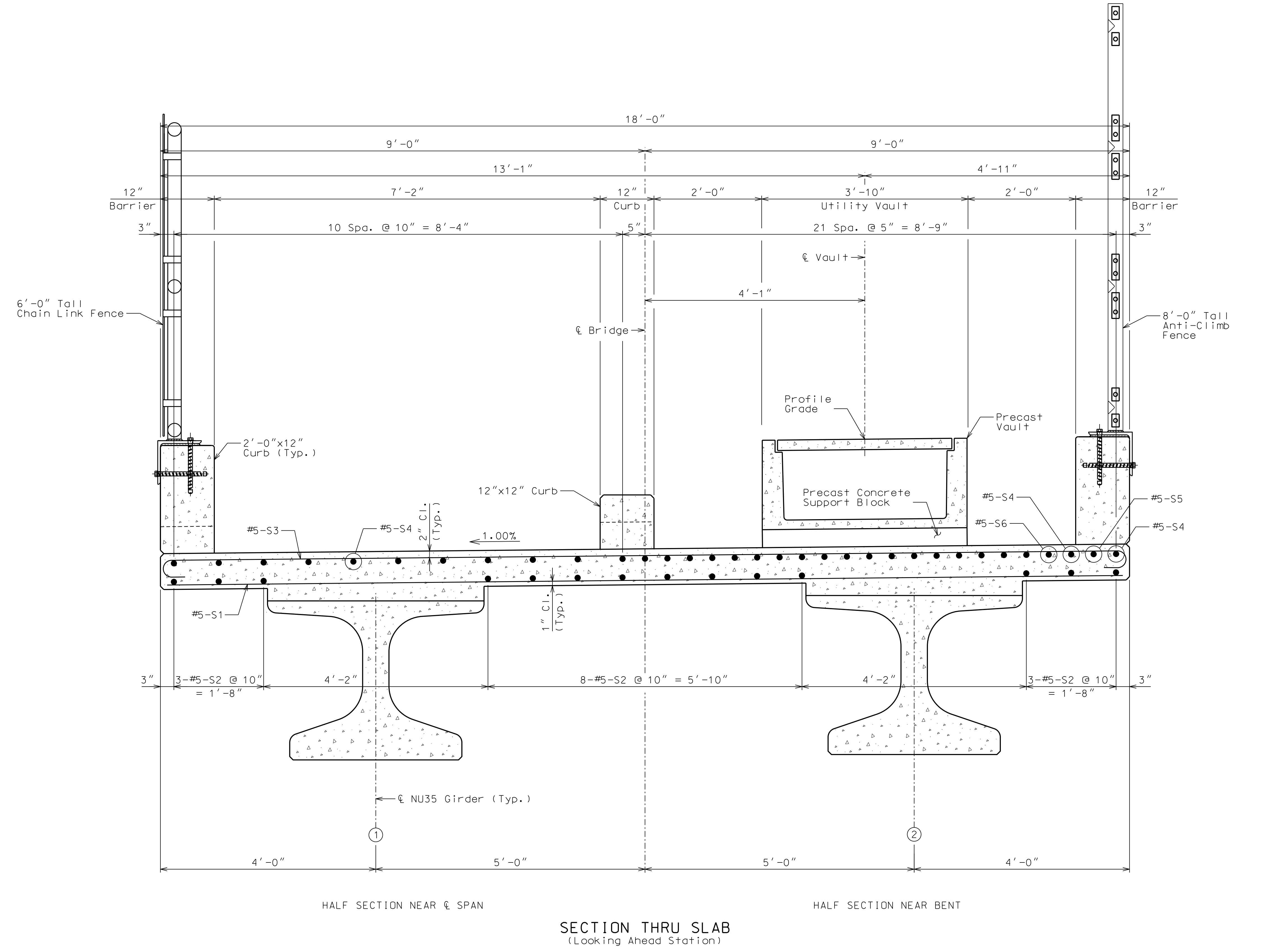
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No.	DATE	DESCRIPTION	
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9020 NE 48th STREET
KANSAS CITY, MISSOURI 64165
Proj. No. 10393084

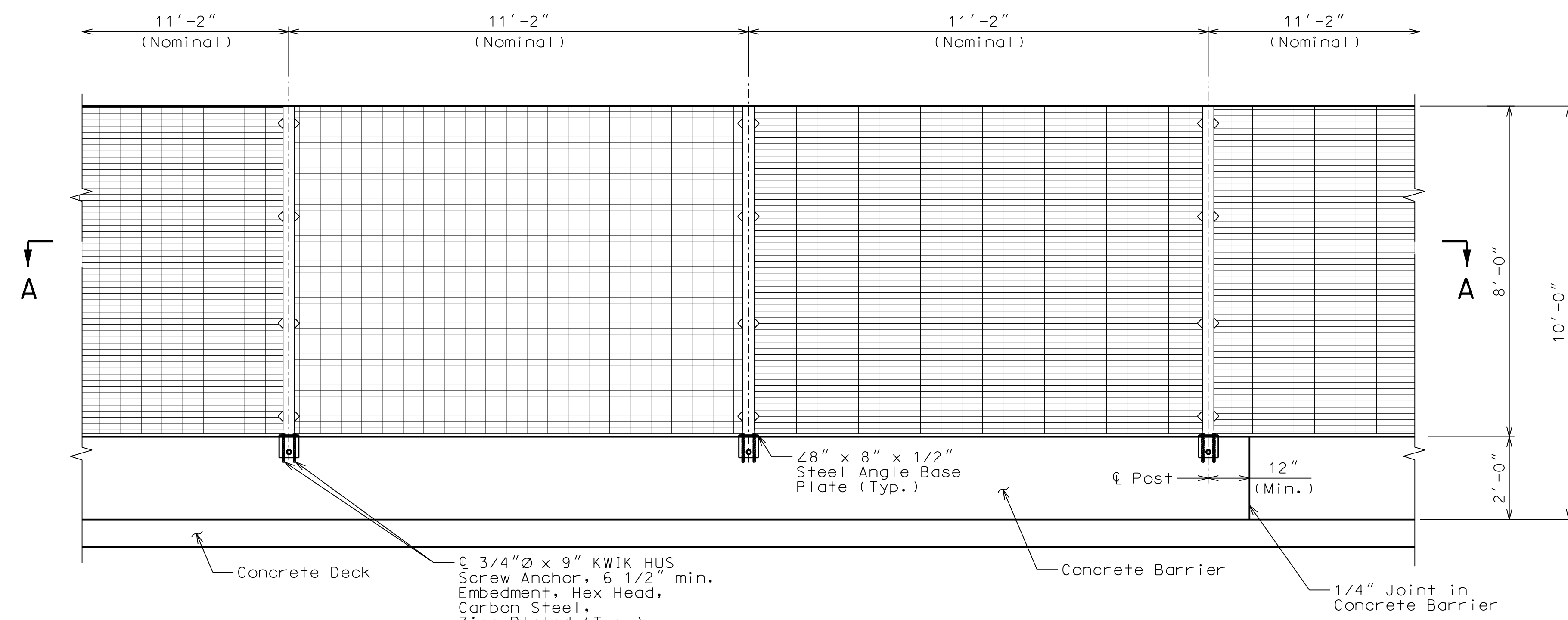
TYPICAL SECTION

SCALE: NOT TO SCALE, FOLLOW DIMENSIONS

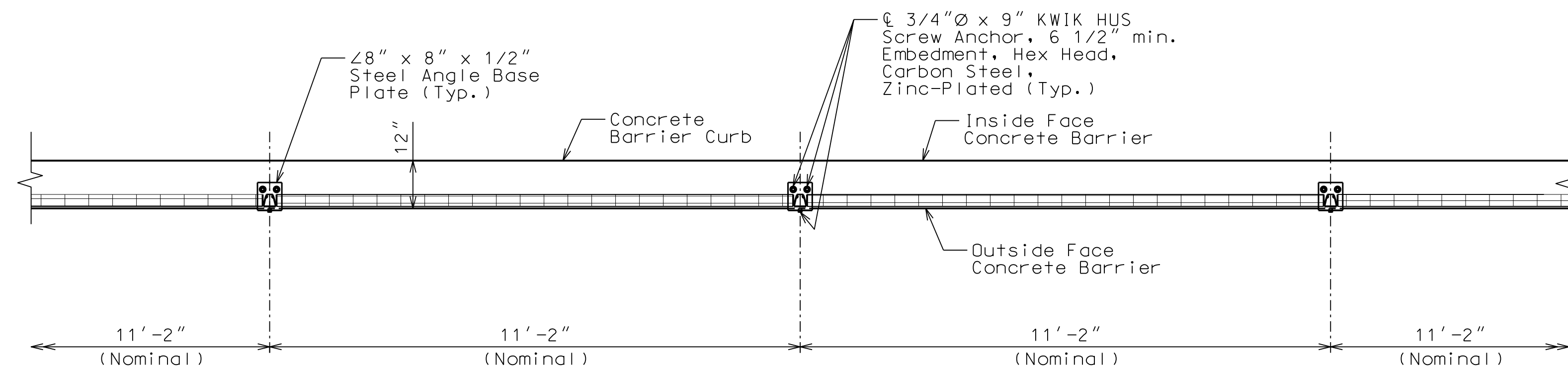
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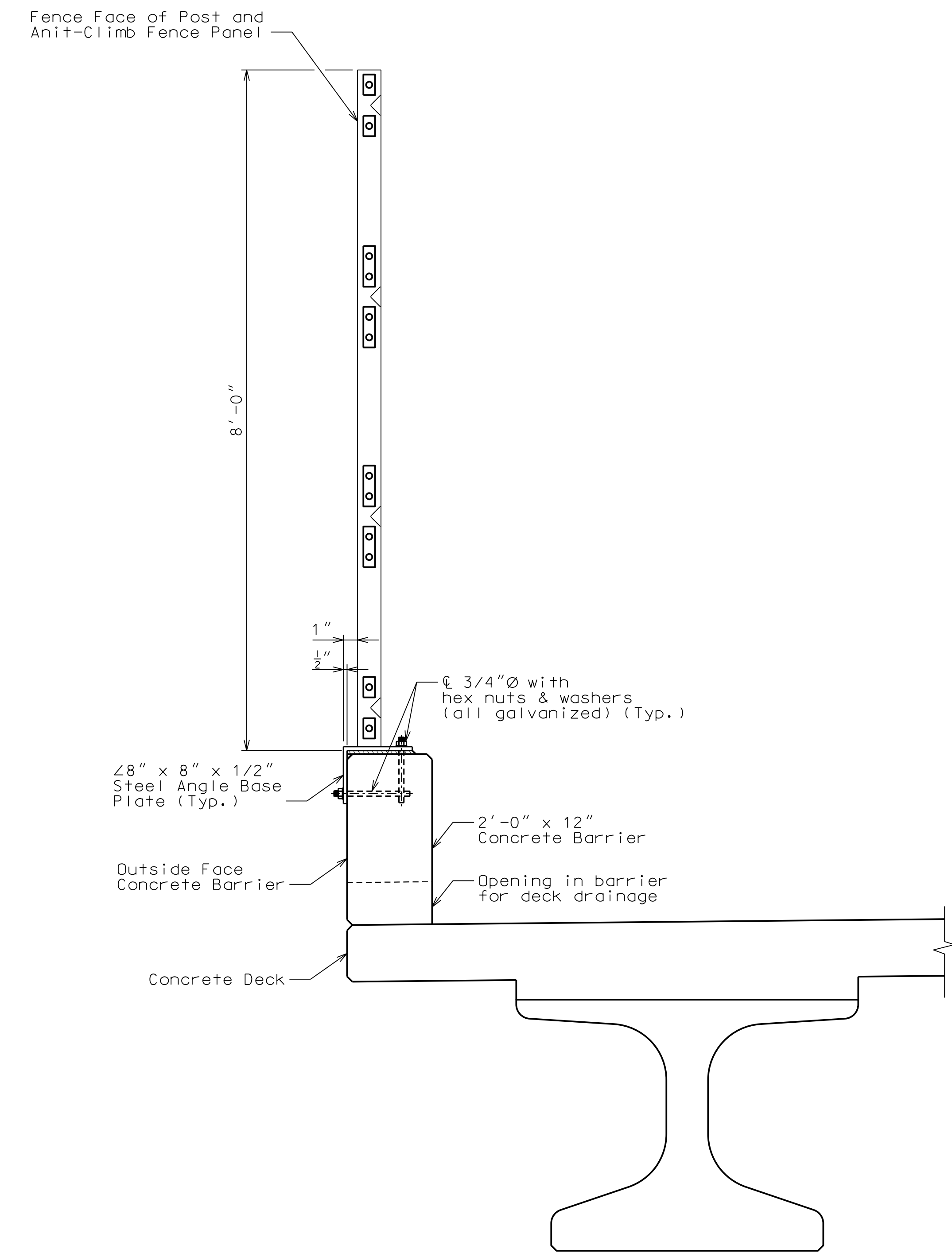
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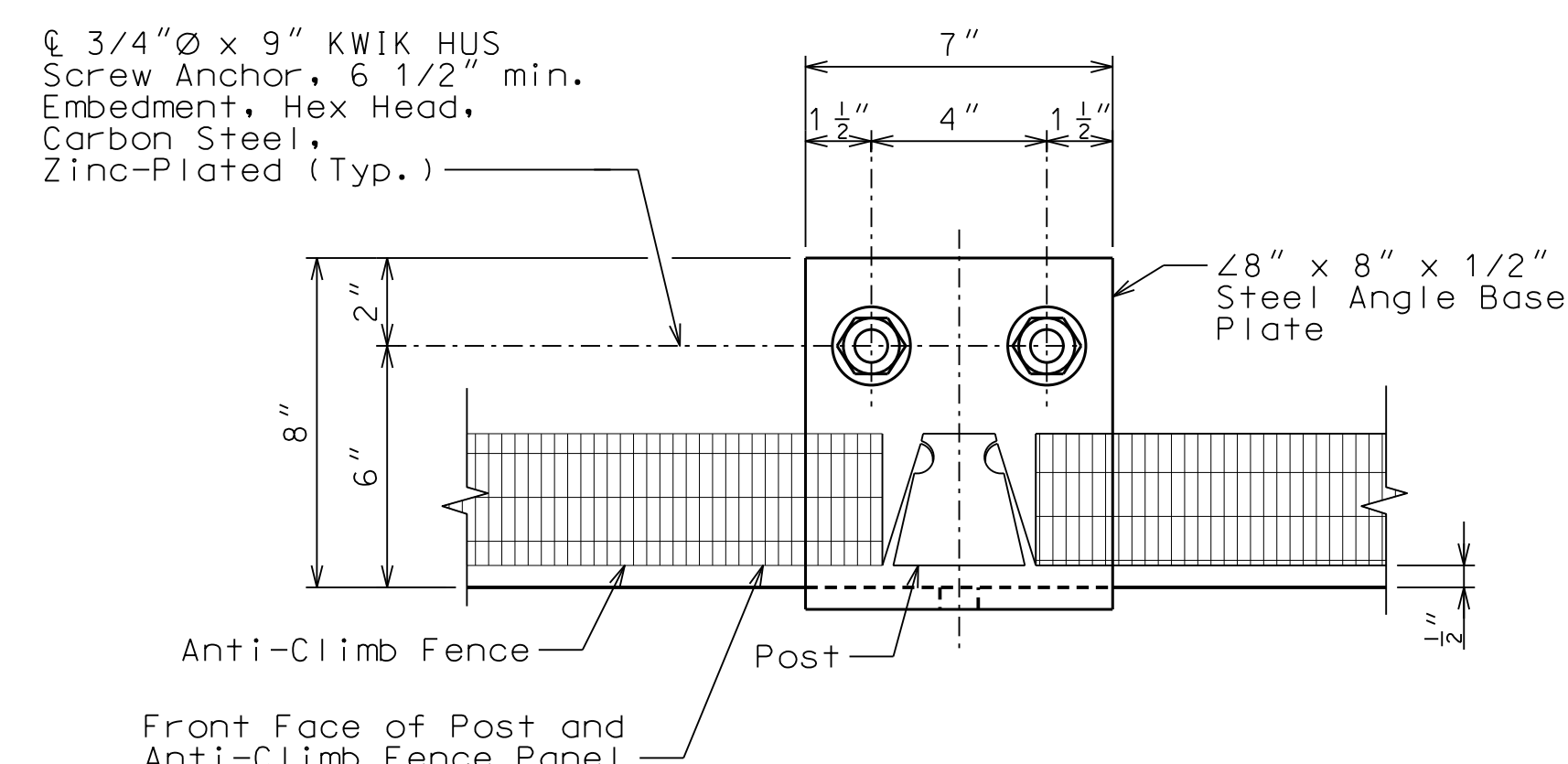
OUTSIDE ELEVATION



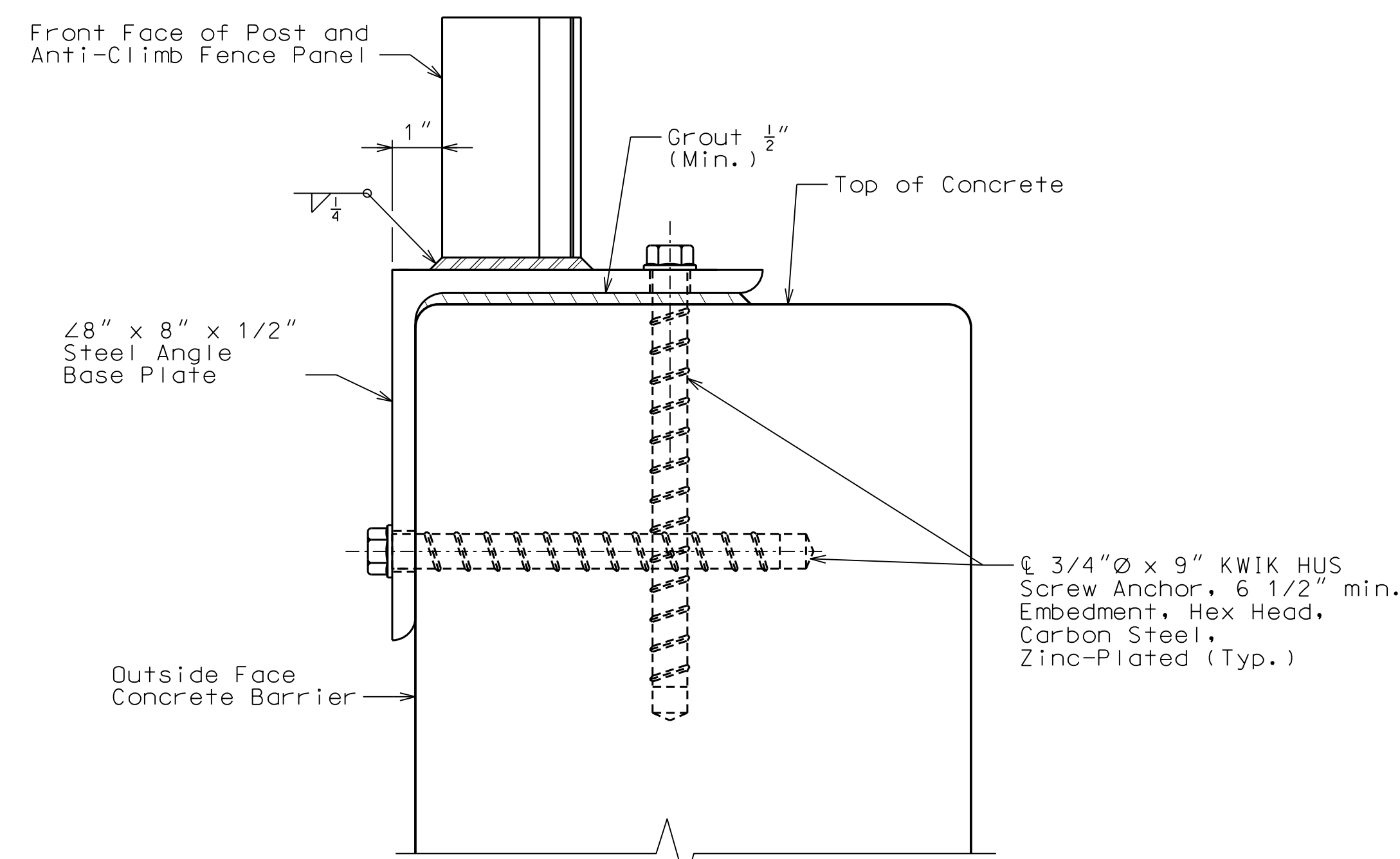
SECTION A-A



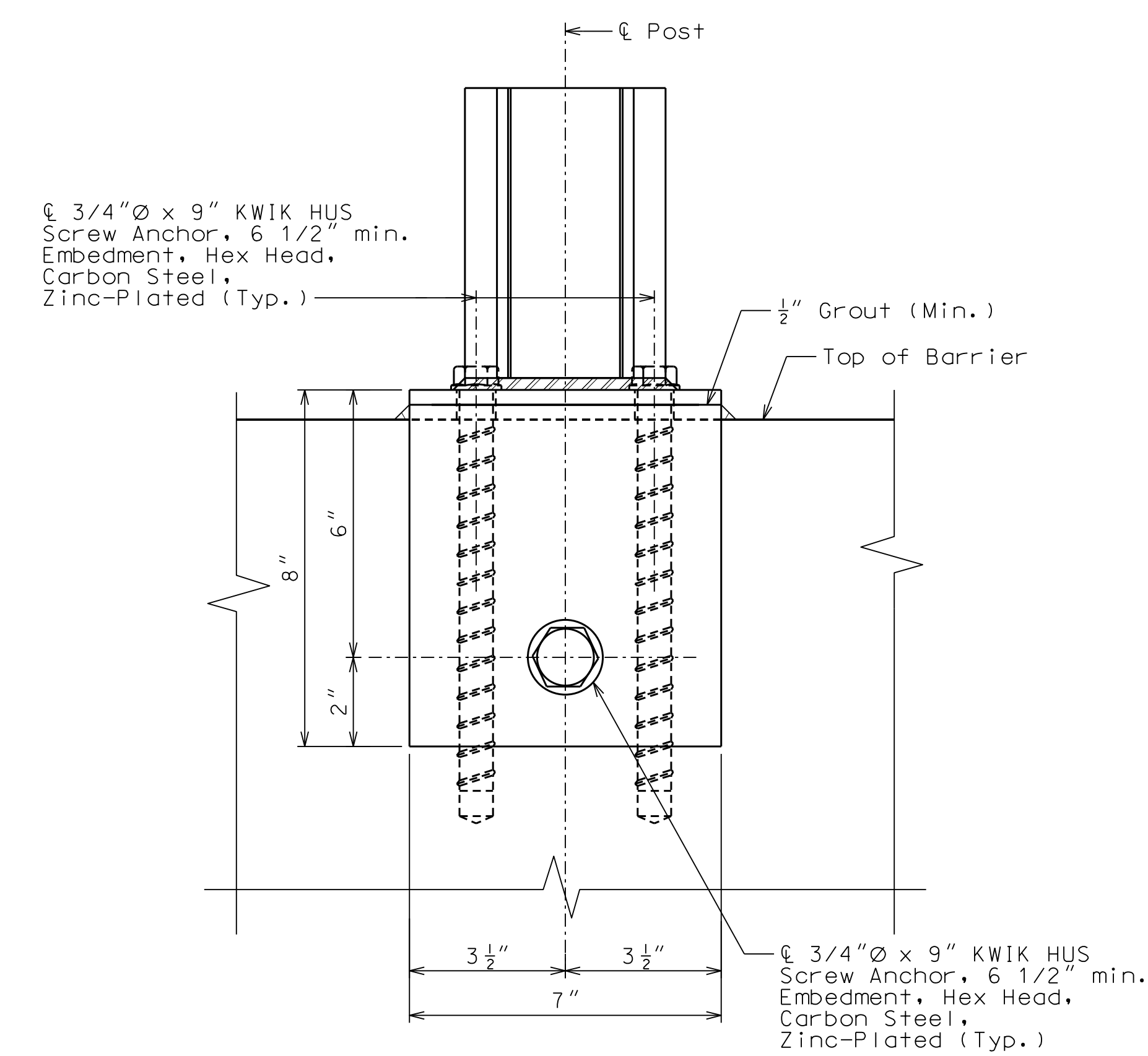
TYPICAL SECTION AT BRIDGE OVERHAND WITH ANTI-CLIMB FENCE



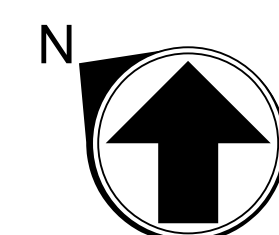
PLAN OF POST, BASE PLATE AND FENCE



POST CONNECTION (TYPICAL)



POST CONNECTION (TYPICAL)

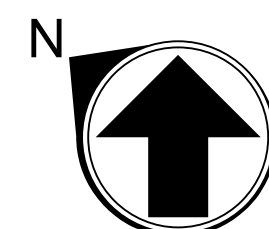
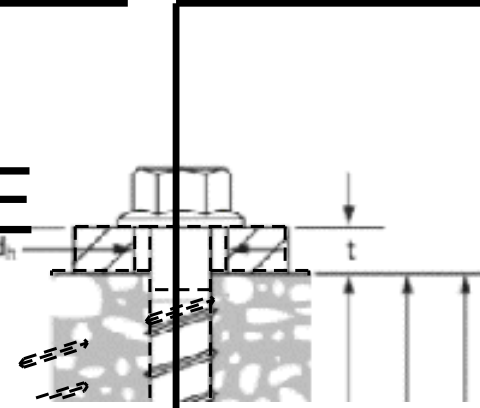


REVISIONS			DRAWN:
No.	DATE	DESCRIPTION	
			Author
			APPROV'D:
			Approver

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SHALEROCK PRIVATE UTILITY BRIDGE

4-1



REVISIONS		DESCRIPTION	DRAWN: Author
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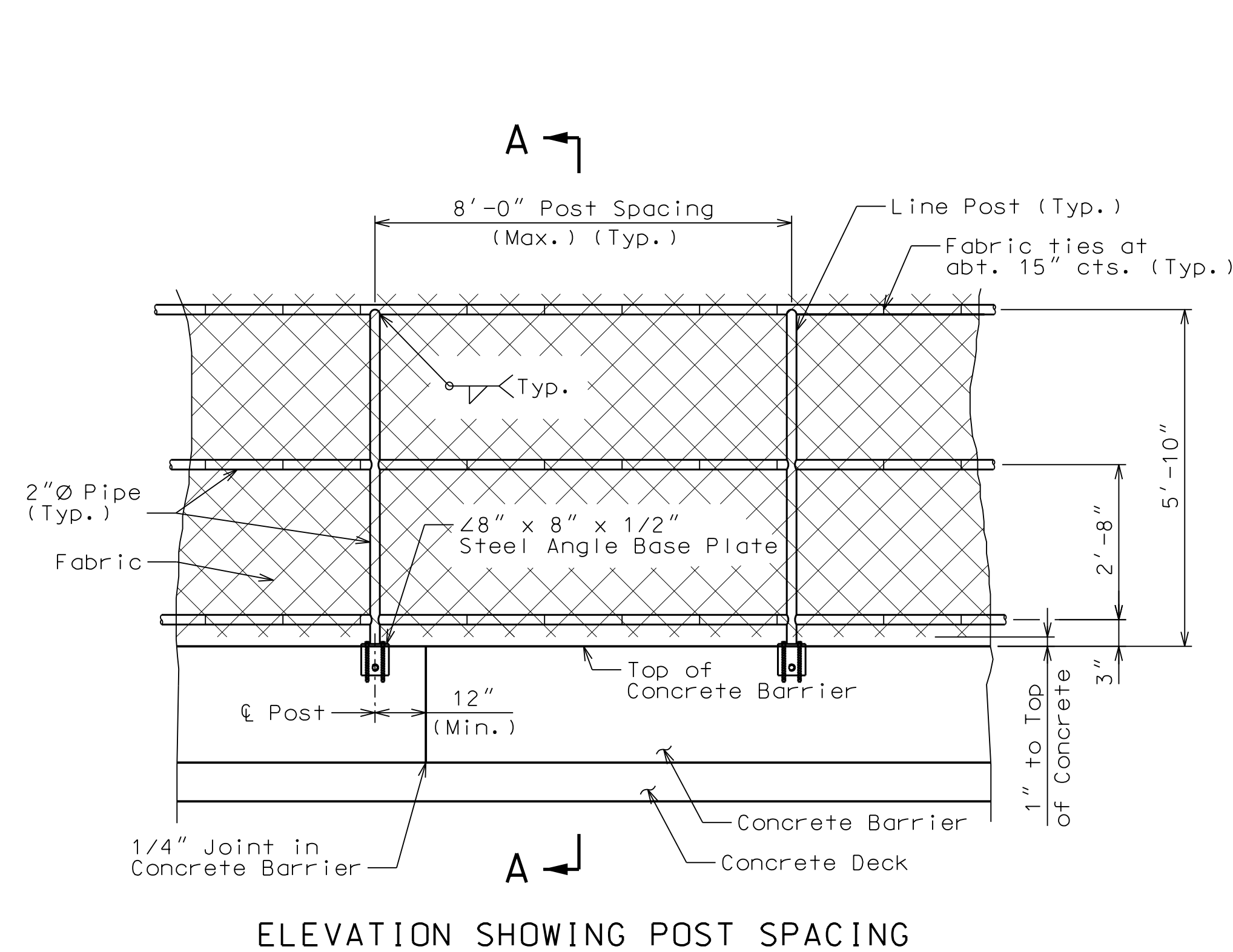
APPROVED:	Approver

PROJECT ADDRESS:
9002 NE 48th STREET
KANSAS CITY, MISSOURI 64116
Proj. No. 10303084

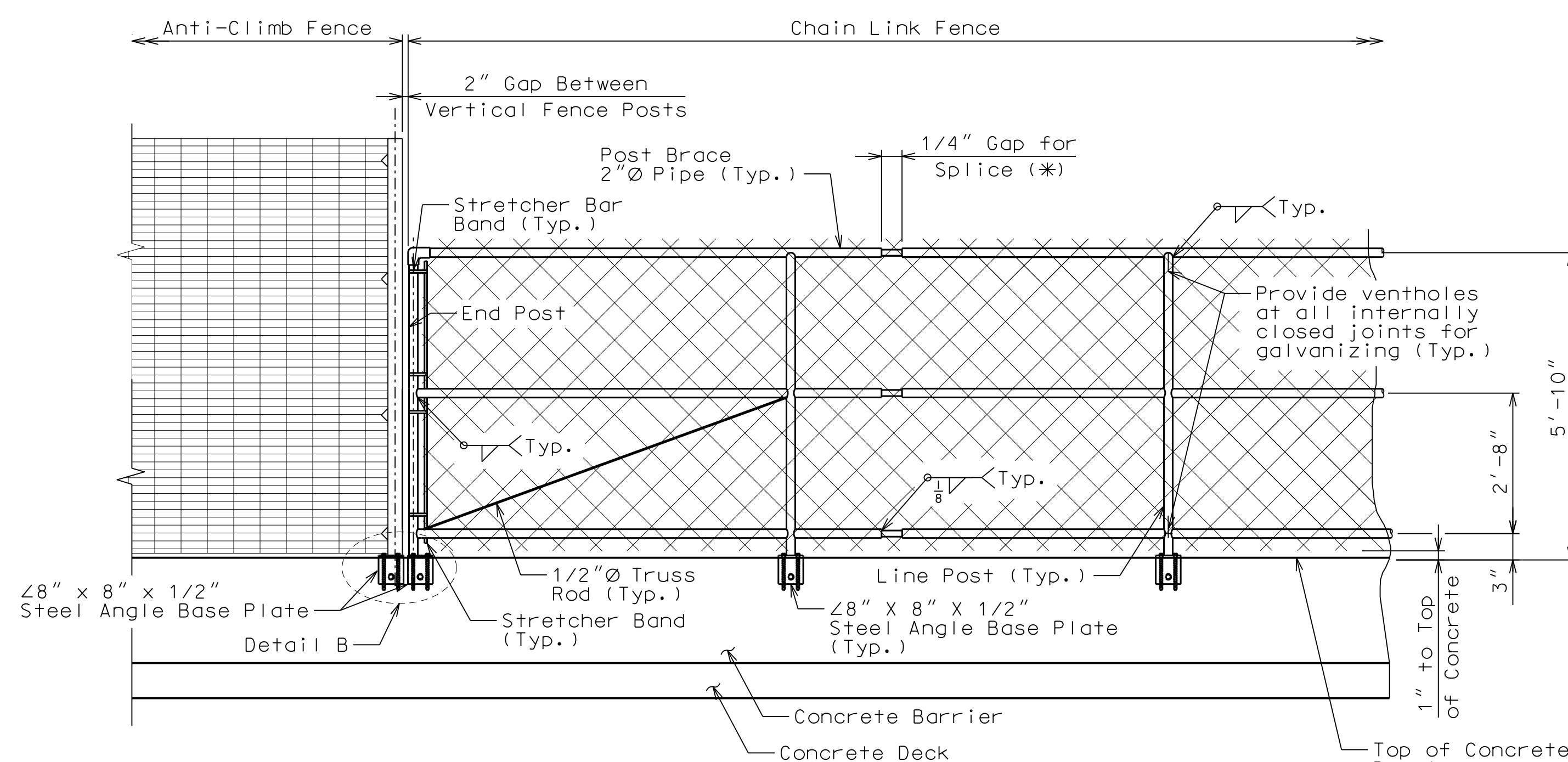
DETAILS OF PEDESTRIAN CHAIN LINK FENCE

SCALE: NOT TO SCALE, FOLLOW DIMENSIONS

SHEET NUMBER:
2A-B-122
Paper Size: E (36"x48")
PHASE:

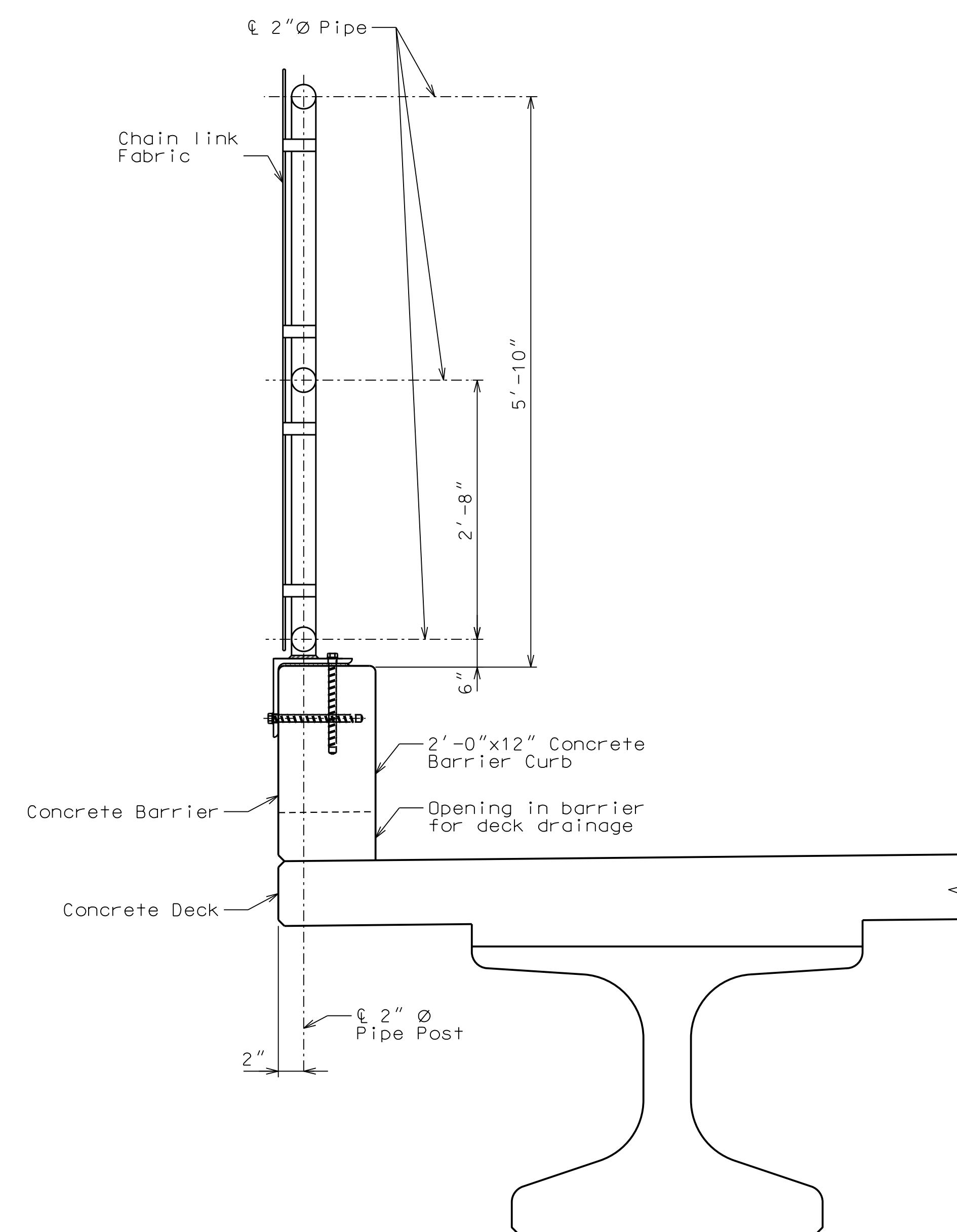


ELEVATION SHOWING POST SPACING

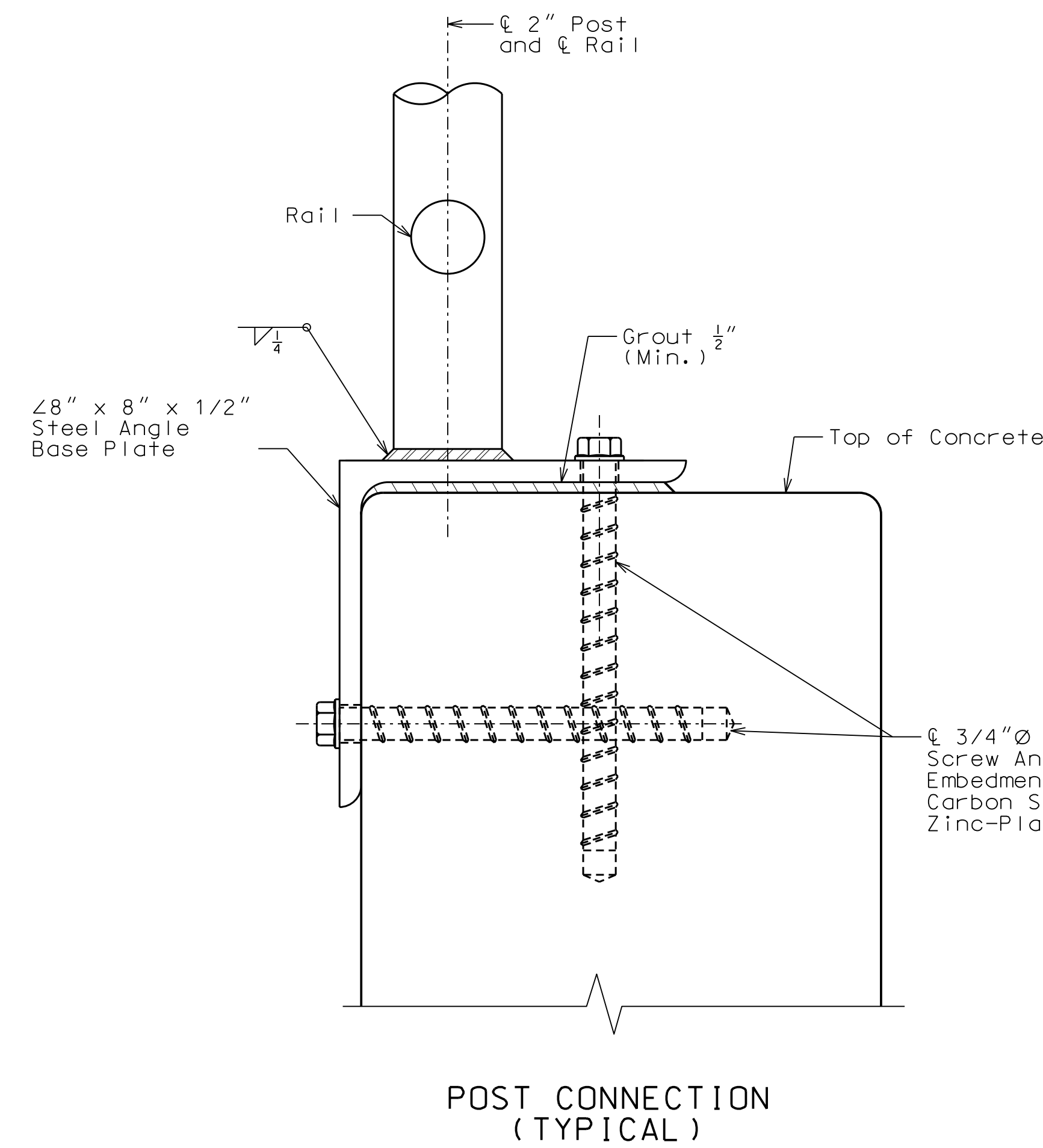


ELEVATION AT FENCE TYPE TRANSITION AND CHAIN LINK FENCE SPLICE

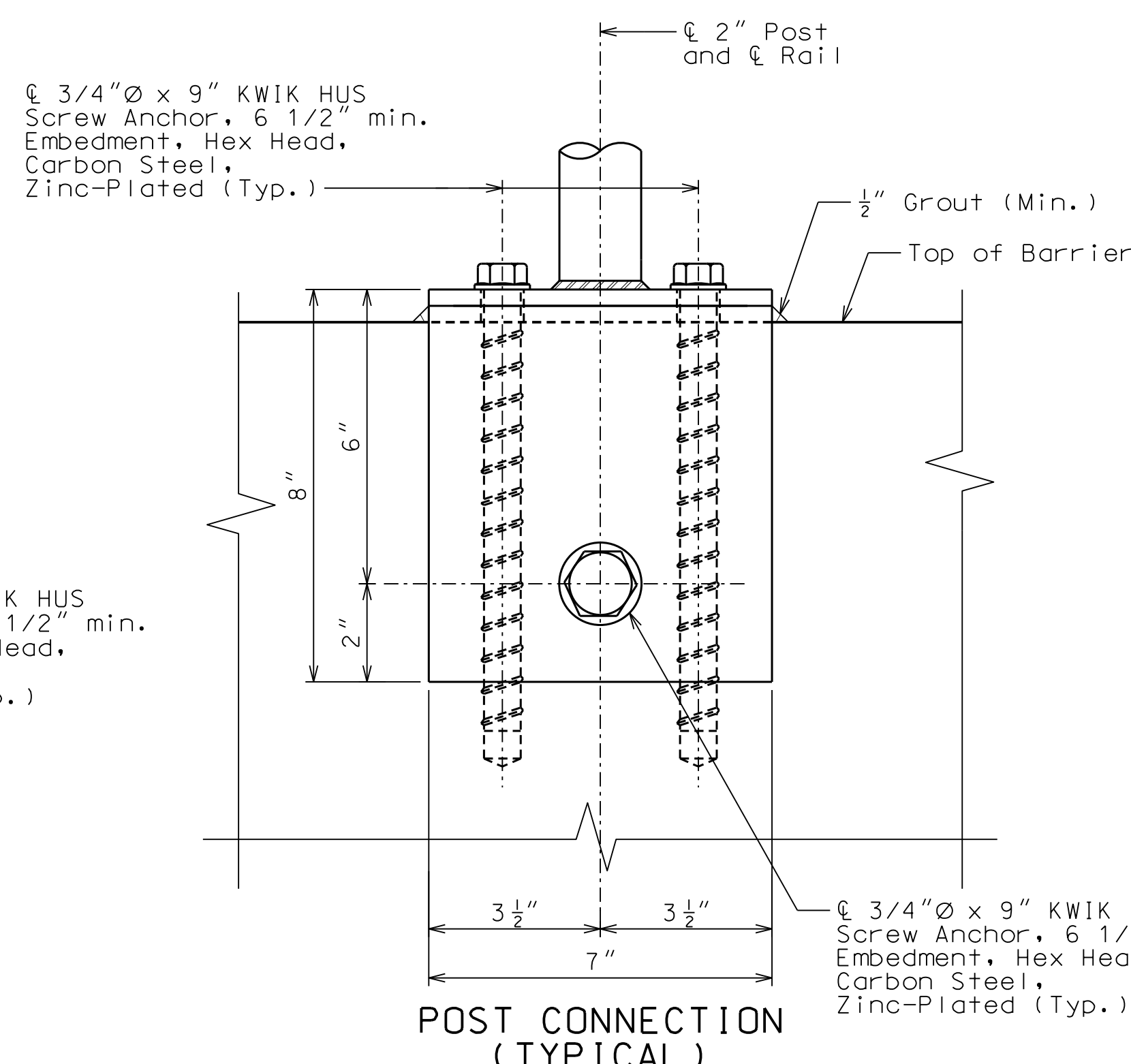
* At about 30'-0" centers with at least one splice gap between pull or end posts.



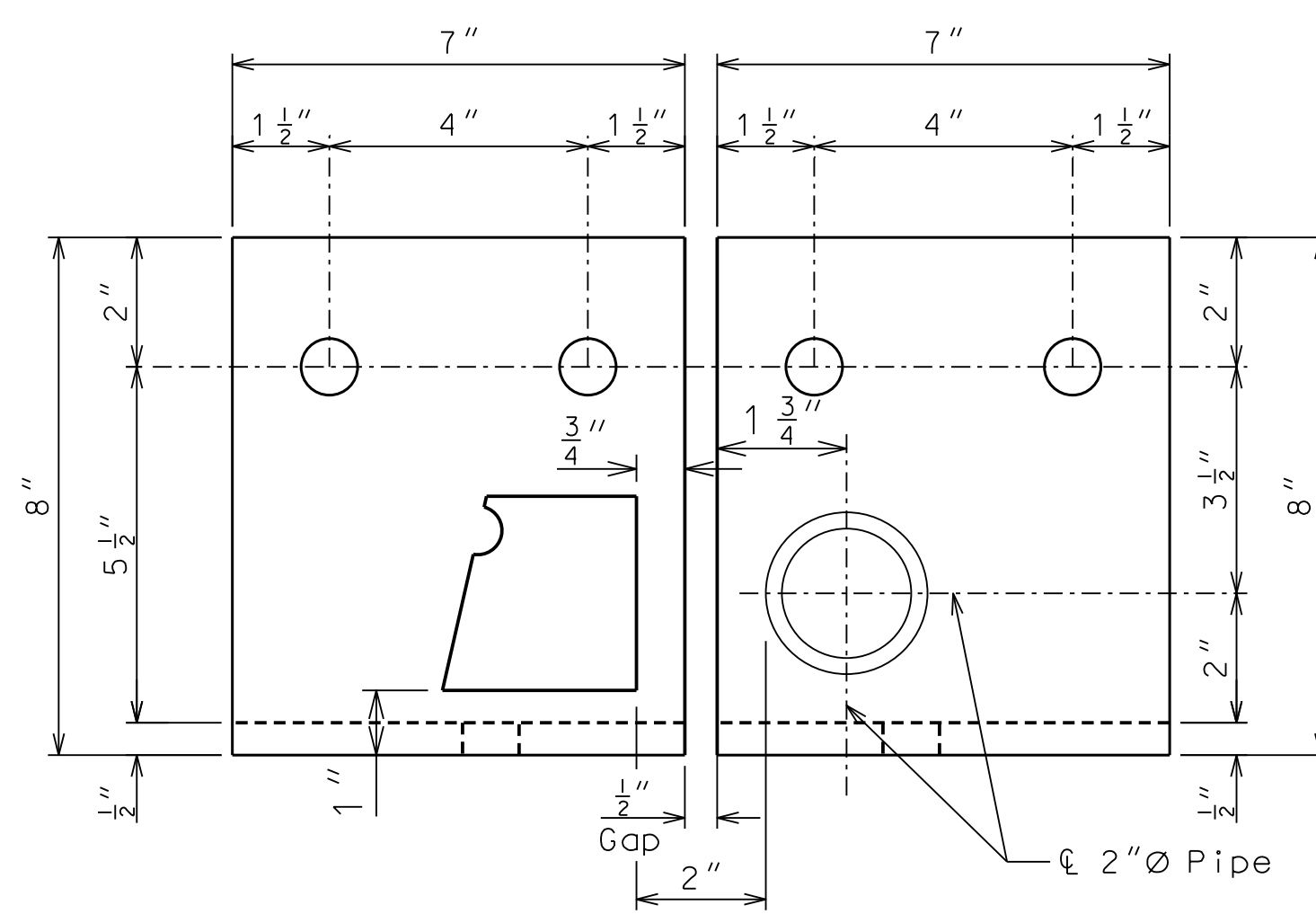
TYPICAL SECTION AT BRIDGE OVERHANG WITH CHAIN LINK FENCE



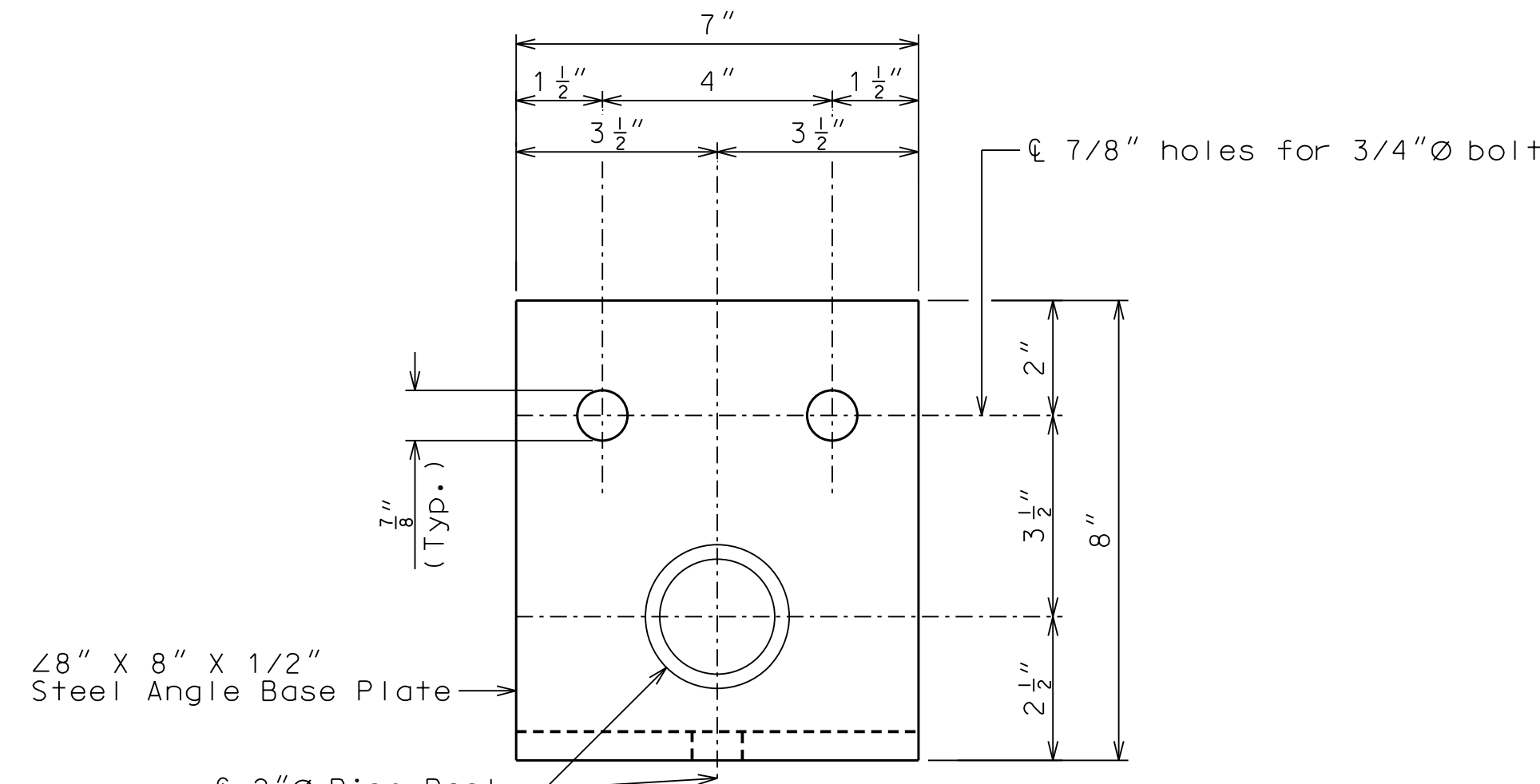
POST CONNECTION (TYPICAL)



POST CONNECTION (TYPICAL)



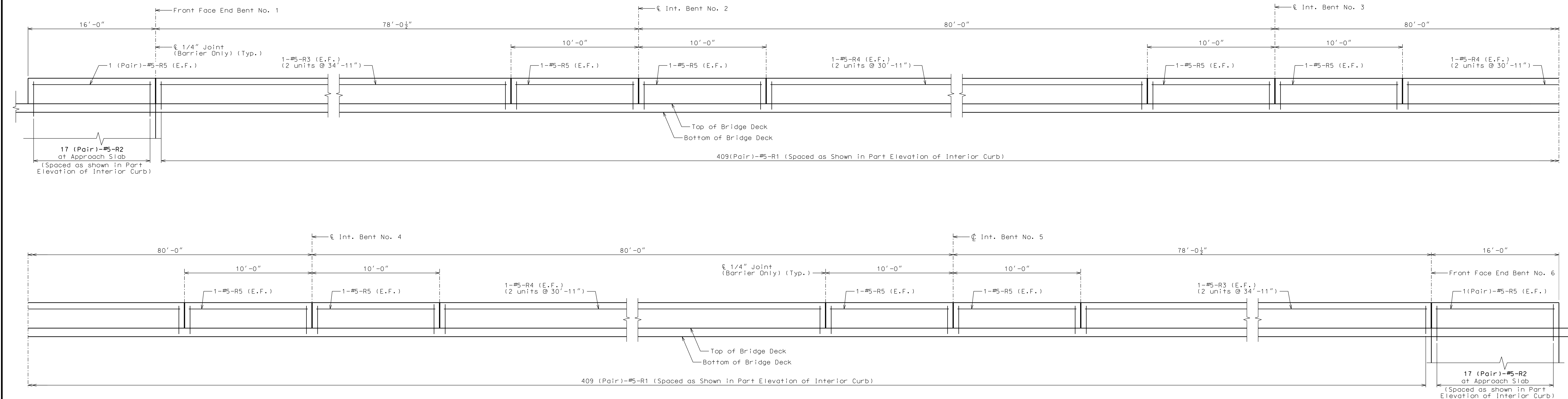
DETAIL B



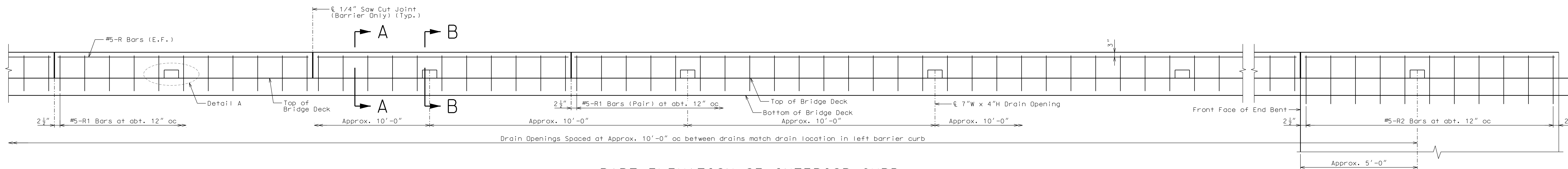
PLAN OF FLOOR PLATE

NOTE:
Pedestrian guard fence (Chain link type) shall be in accordance with Sec 1043 except all fabric shall have the top and bottom edges knuckled.
All posts shall be vertical. Grout of 1/2" minimum thickness shall be placed under floor plates to provide for vertical alignment of posts.
Dimensions of pedestrian guard fence are measured horizontally.
The maximum spacing allowed between pull posts and end posts is 100 ft. Post brace and 1/2" truss rod are required for panels adjacent to pull posts and end posts only.
Connect the lower end of the 1/2" truss rod to the bottom of the pull posts and end posts to which the stretcher bar is attached.
Core wire size for wire fabric shall be 6 gage minimum.

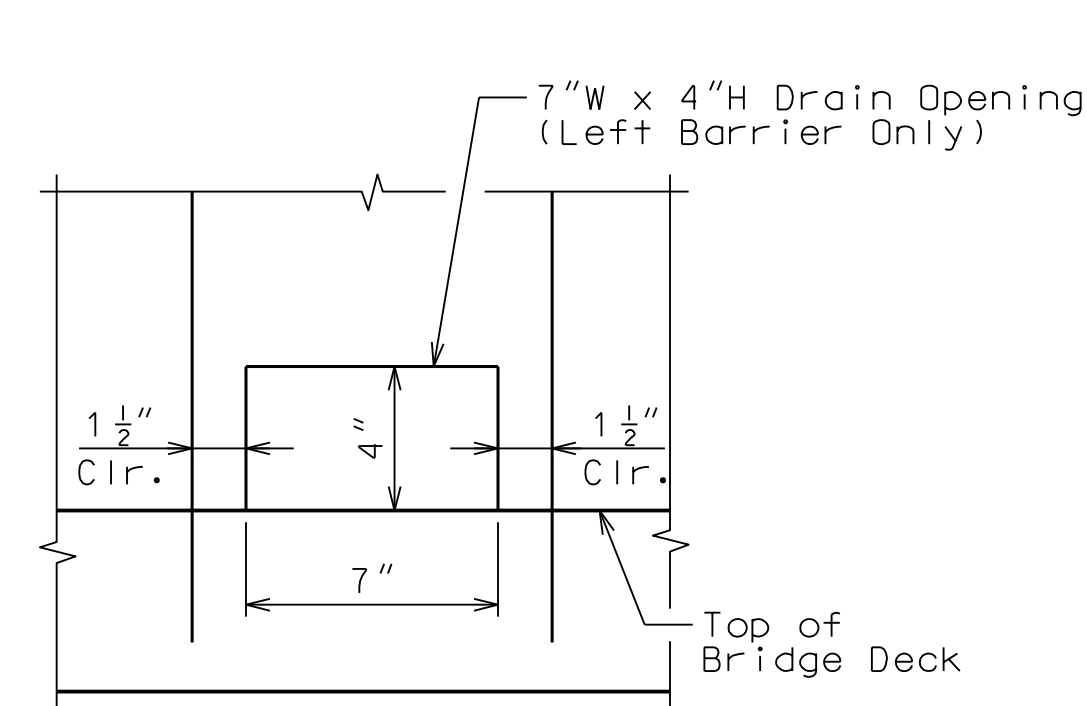
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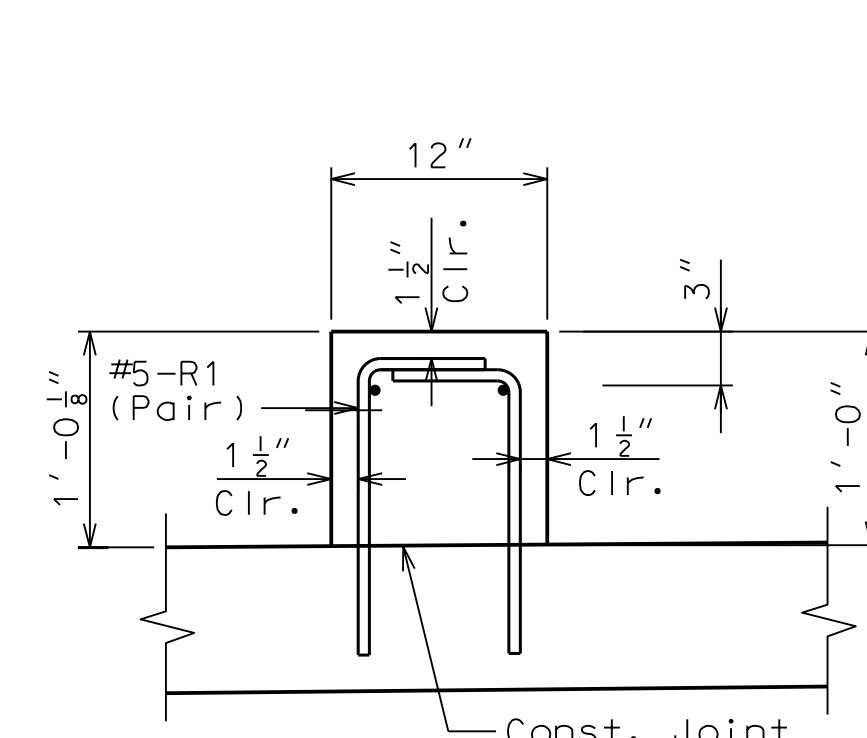
ELEVATION OF INTERIOR CURB
Longitudinal dimensions are horizontal



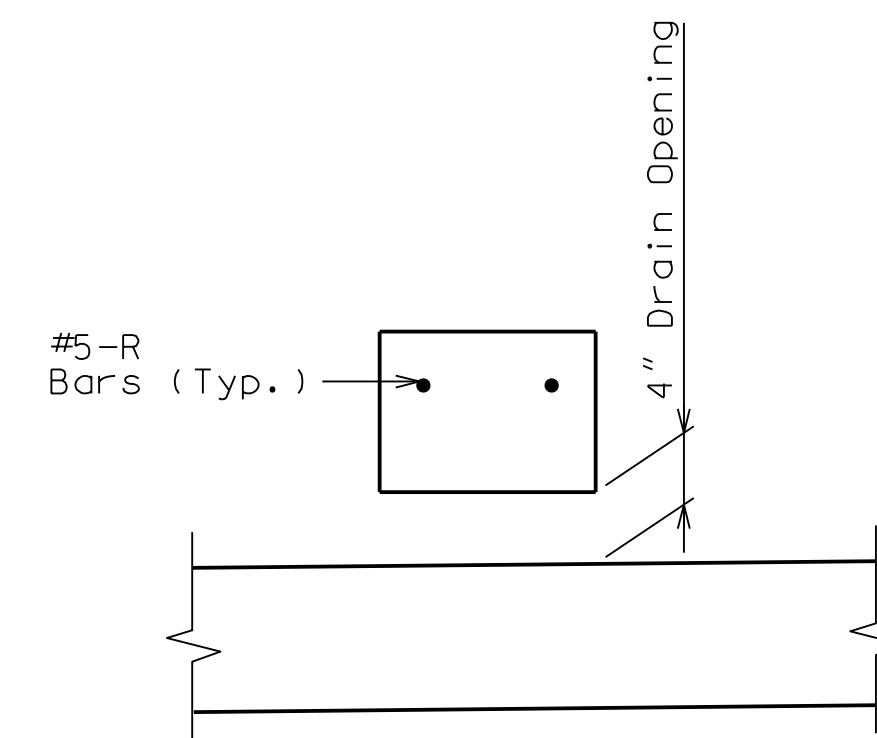
PART ELEVATION OF INTERIOR CURB



DETAIL A

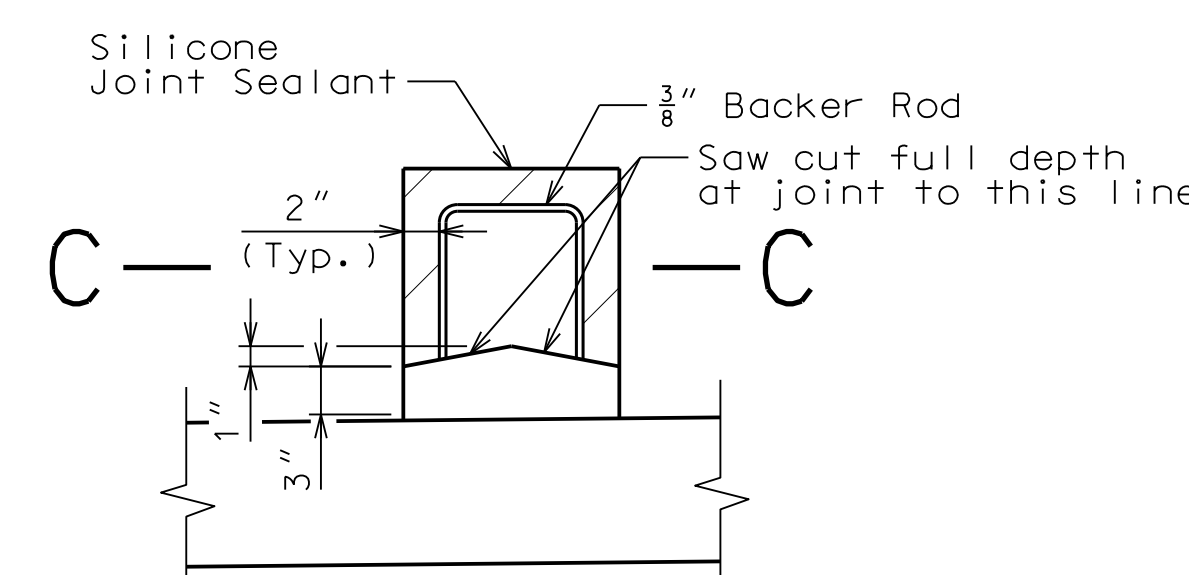


SECTION A-A

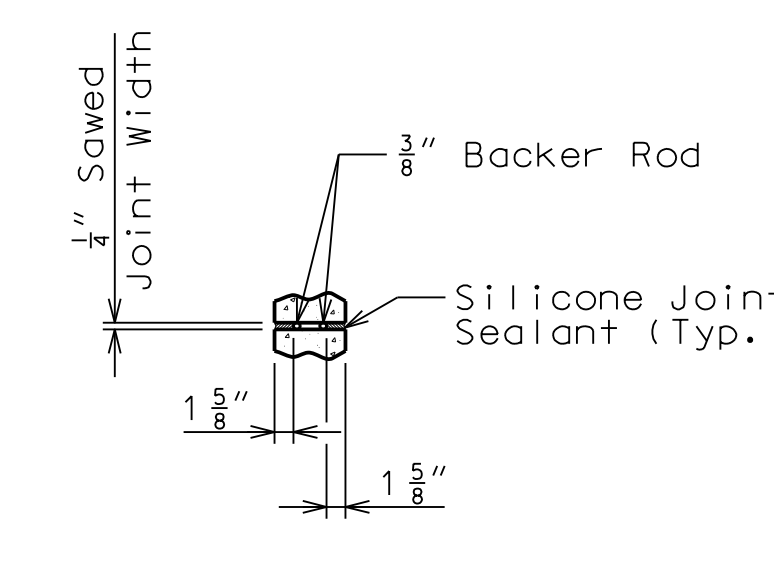


SECTION B-B

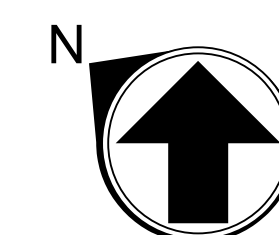
Use a Minimum Lap of 2'-0" for #5 Horizontal Curb Bars.



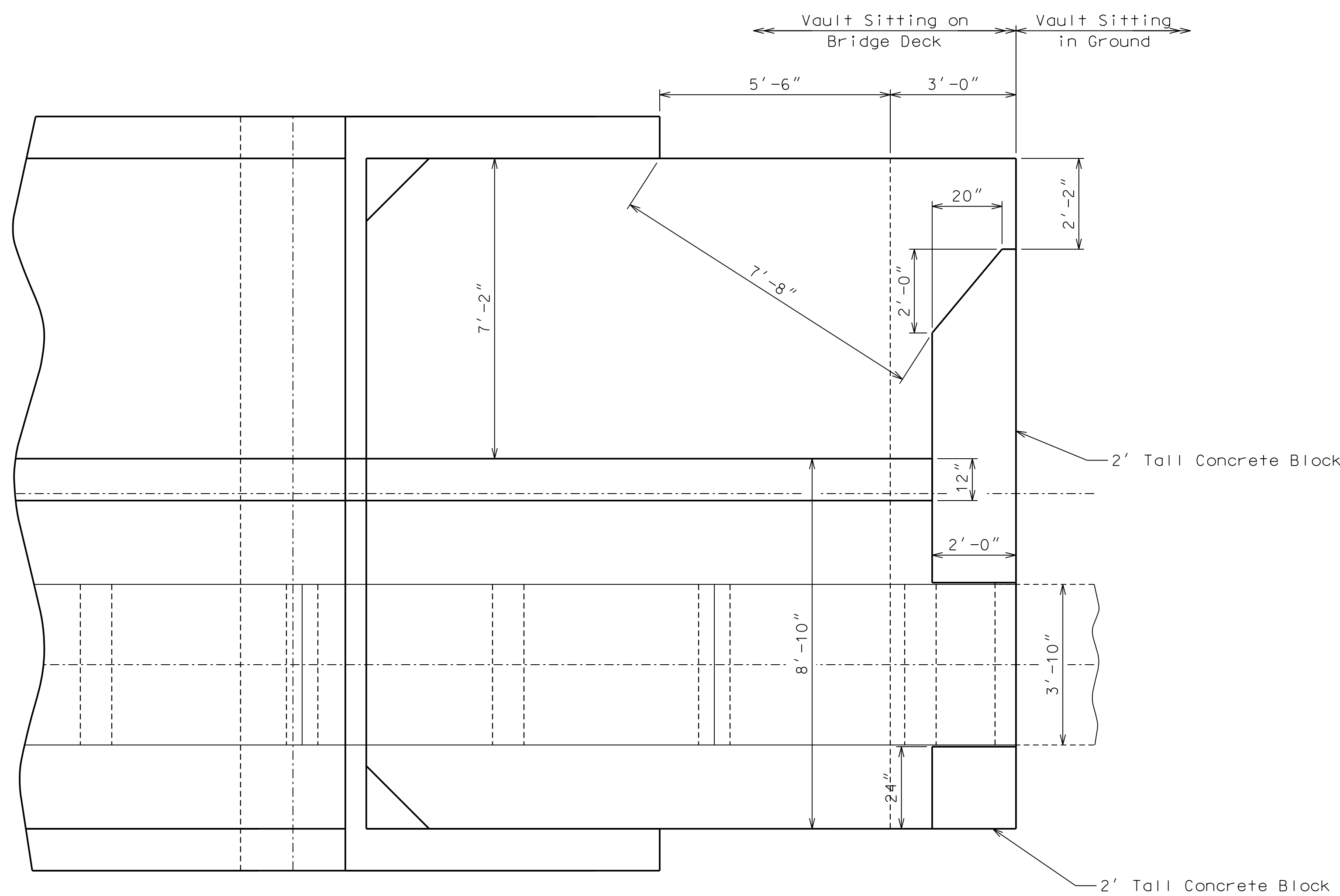
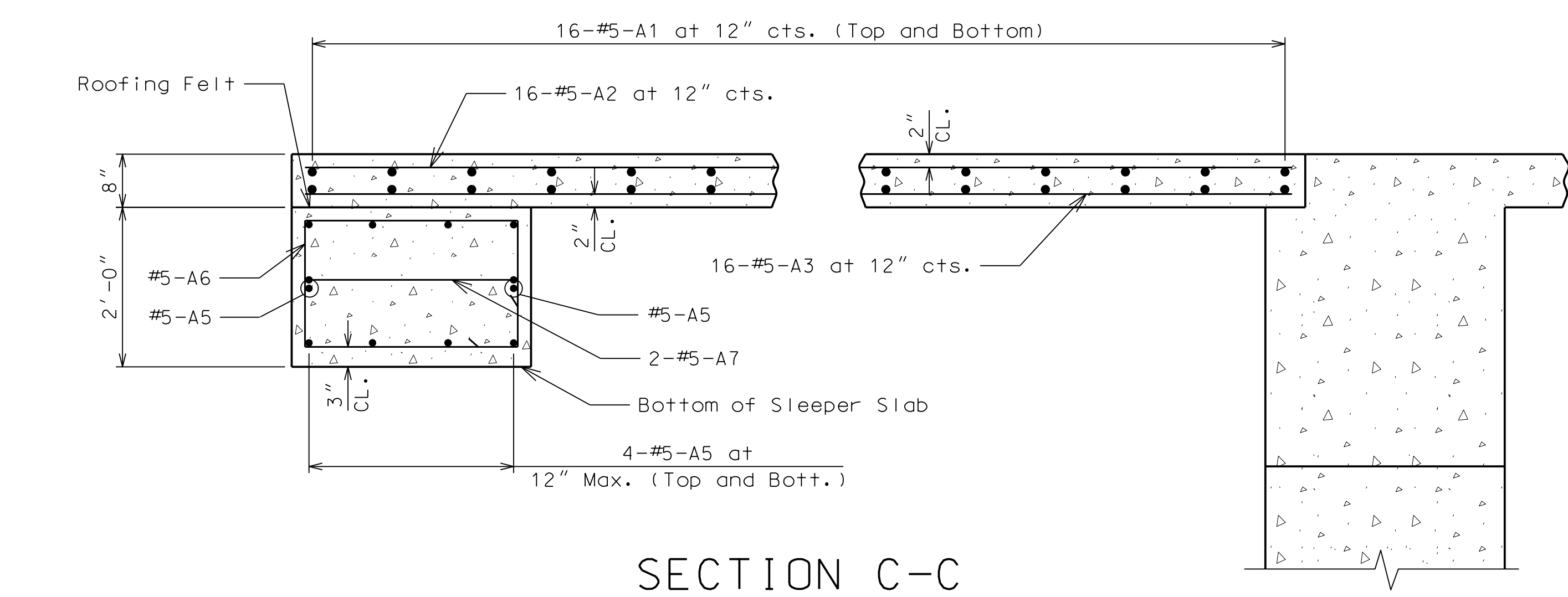
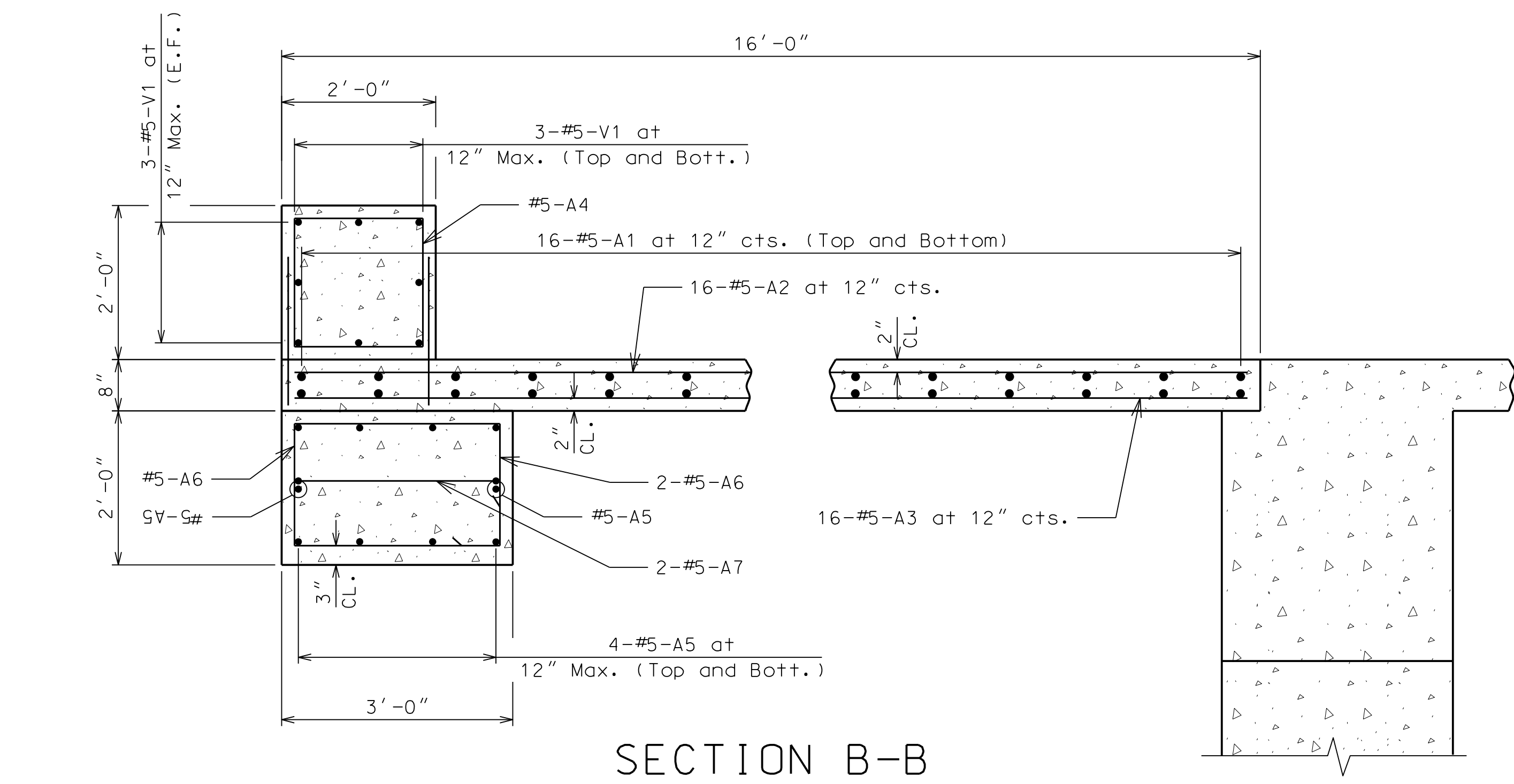
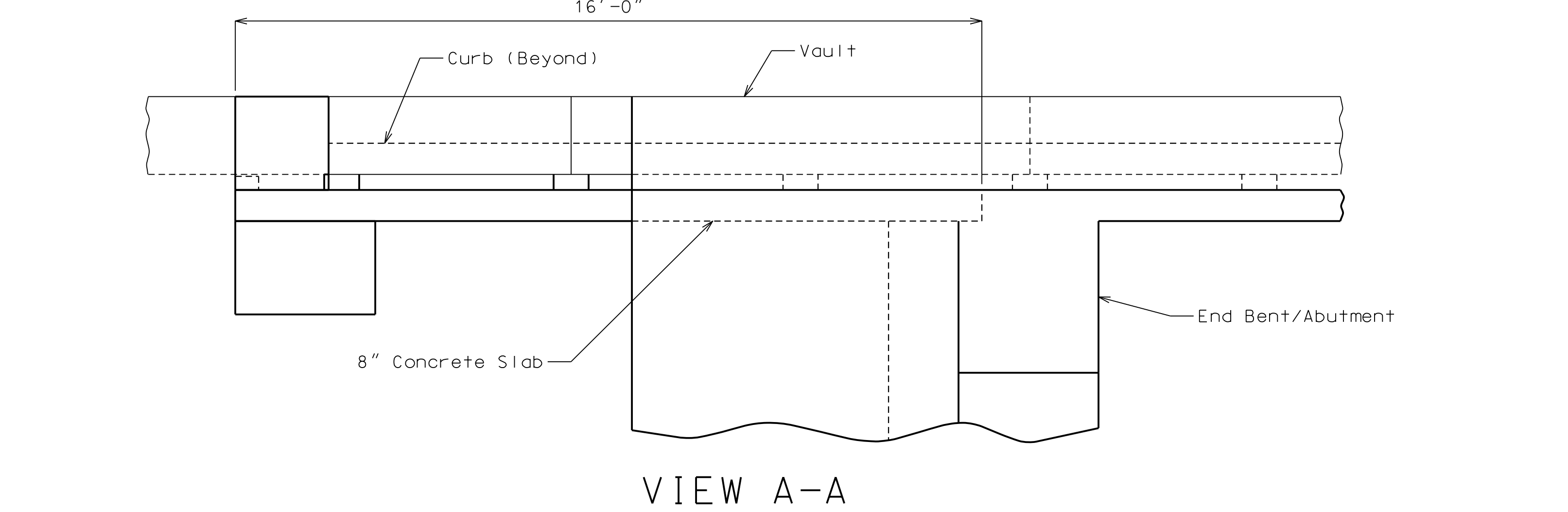
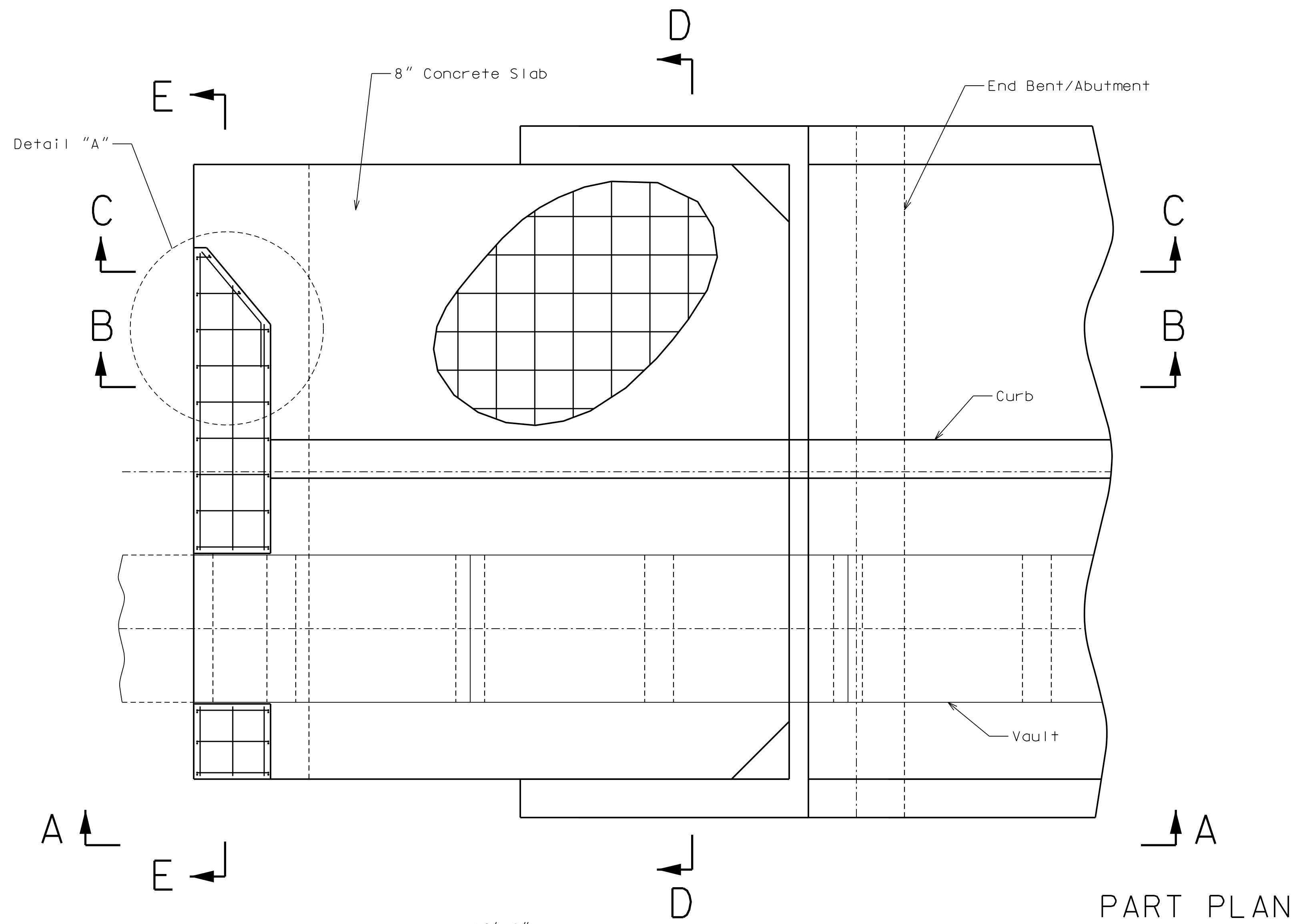
SECTION THRU SAW CUT JOINT



SECTION C-C



REVISIONS		DESCRIPTION	DRAWN: Author APPROVED: Approver
No.	DATE		



General Notes:

All concrete for the bridge approach slab and sleeper slab shall be in accordance with Sec 503 (f'c = 4,000 psi).

The reinforcing steel in the bridge approach slab and the sleeper slab shall be epoxy coated Grade 60 with fy = 60,000 psi.

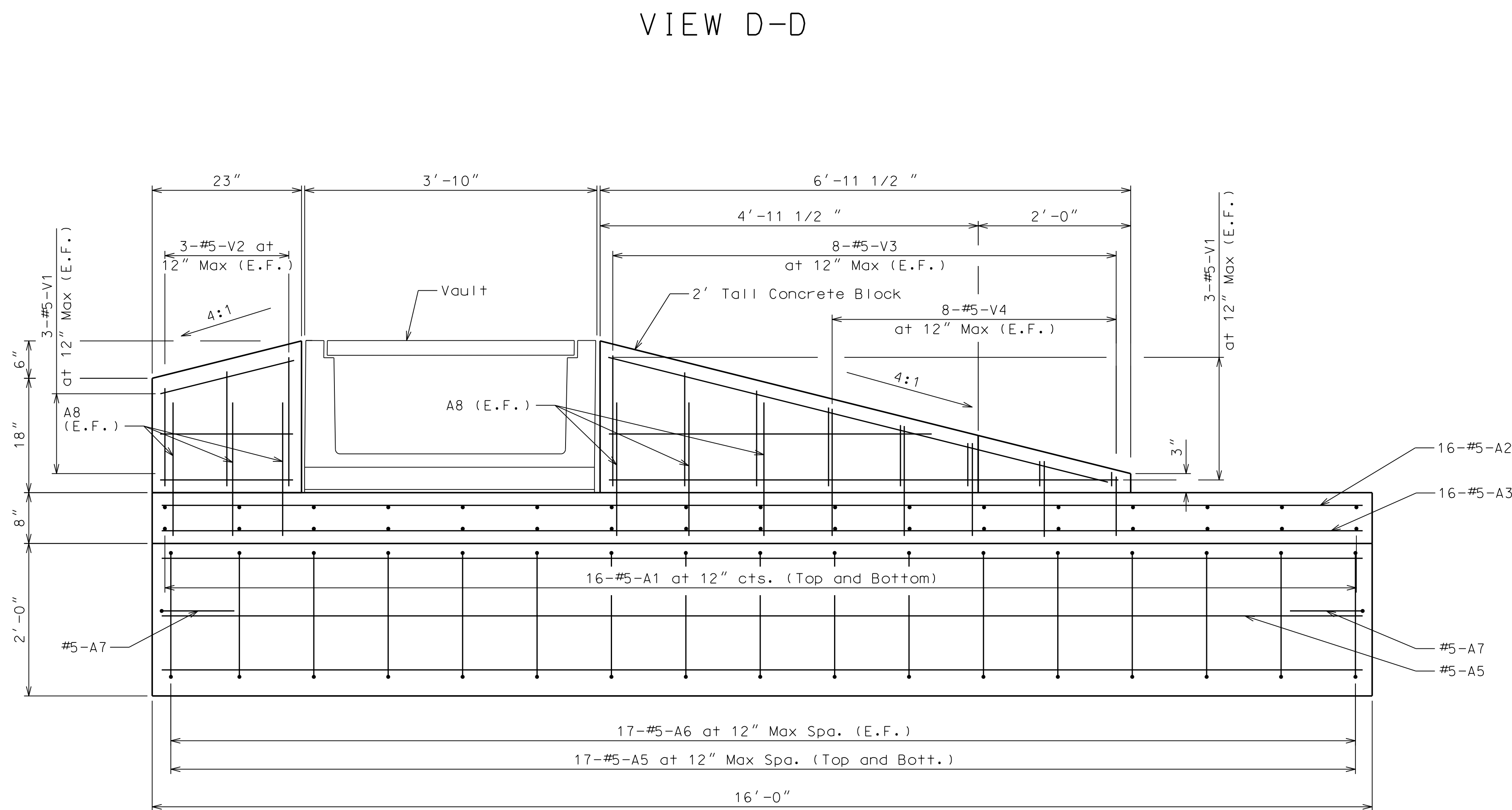
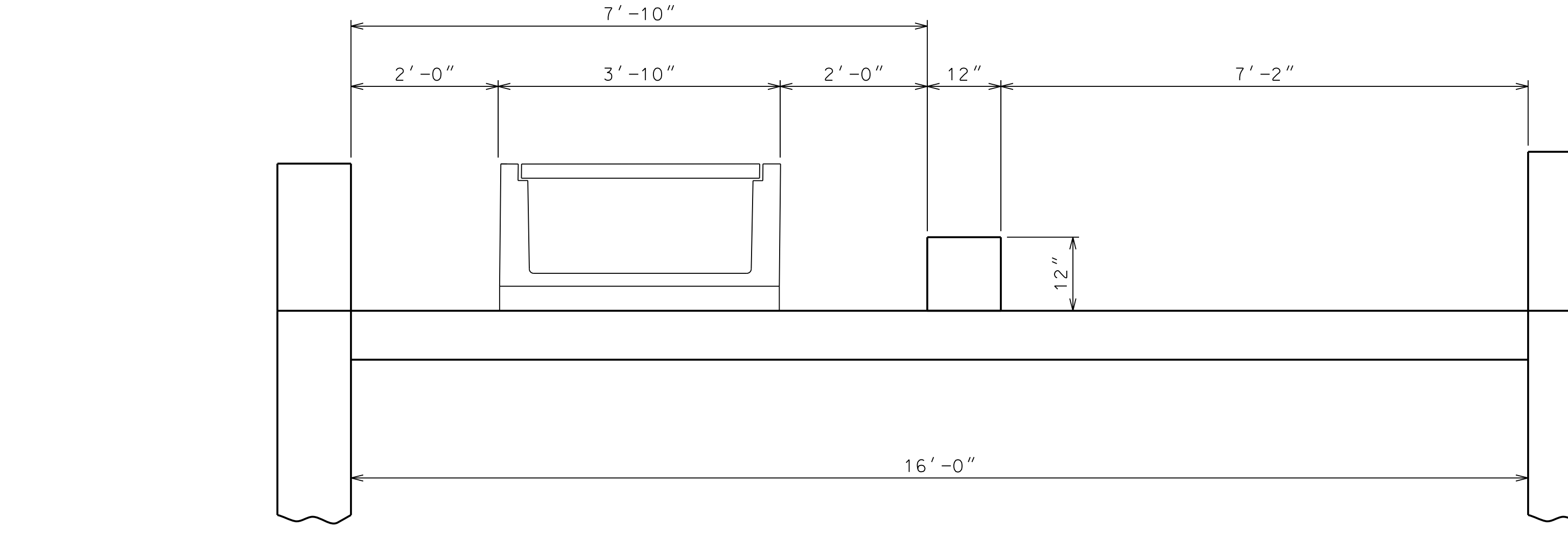
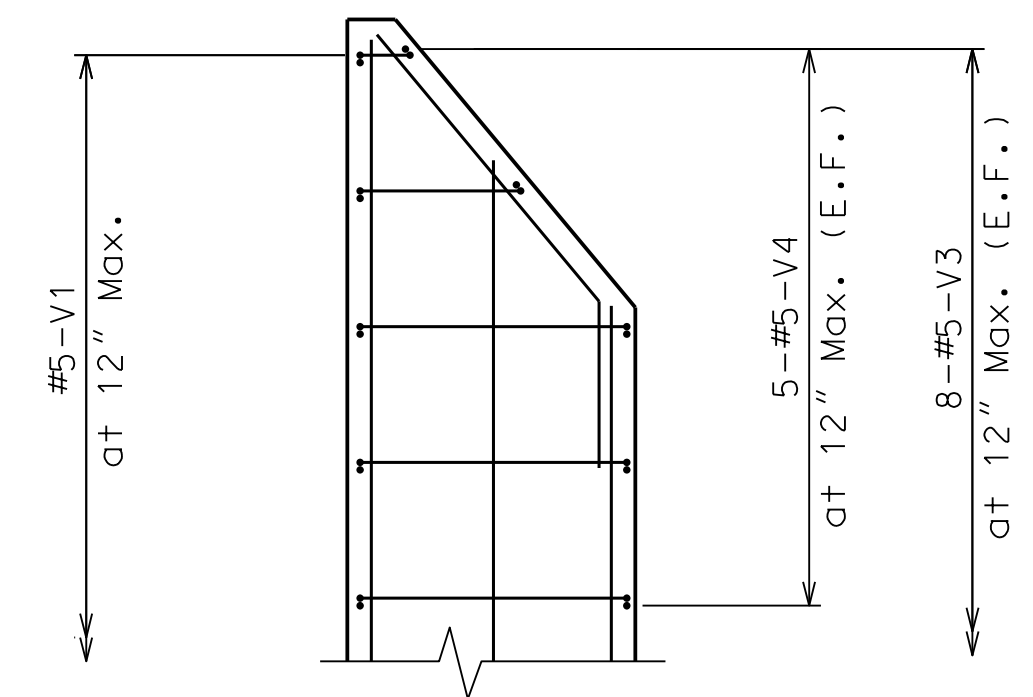
Drain pipe may be either 6" diameter corrugated metallic-coated pipe underdrain, 4" diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4" diameter corrugated polyethylene (PE) drain pipe.

Minimum clearance to reinforcing steel shall be 1 1/2", unless otherwise shown.

The reinforcing steel in the bridge approach slab and the sleeper slab shall be continuous. The transverse reinforcing steel may be made continuous by providing a minimum lap splice of 29 inches for #5 bars.

The contractor shall pour and satisfactorily finish the bridge before placing the bridge approach slab.

Longitudinal construction joints in approach slab and sleeper slab shall be aligned with longitudinal construction joints in bridge slab.

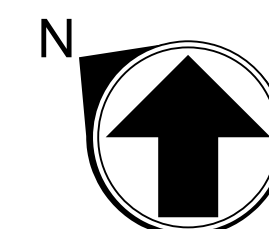


SECTION E-E

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SHALEROCK PRIVATE UTILITY BRIDGE



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No.	DATE			

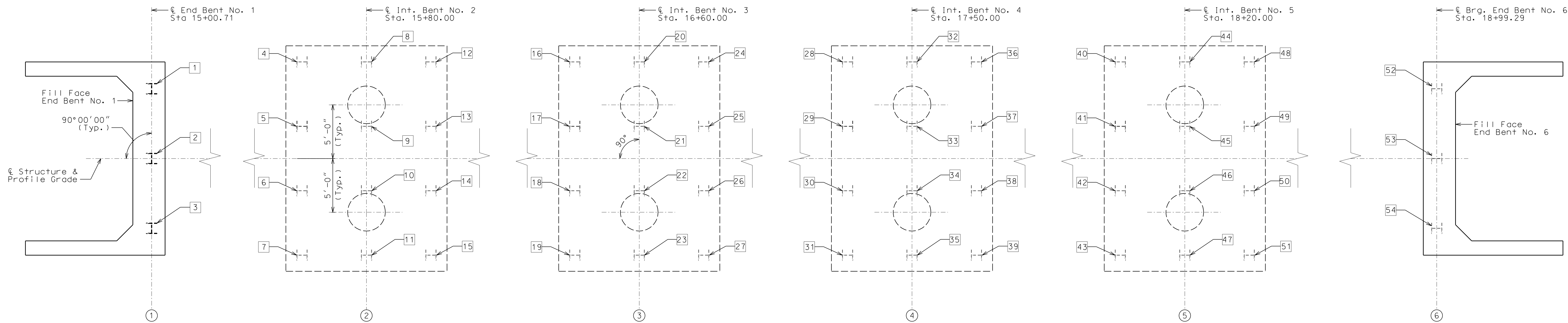
PROJECT ADDRESS:
9002 NE 48th STREET
KANSAS CITY, MISSOURI 64165
Proj. No. 10303084

APPROACH SLAB DETAILS

SCALE: NOT TO SCALE. FOLLOW DIMENSIONS

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Paper Size: E (36"x48")
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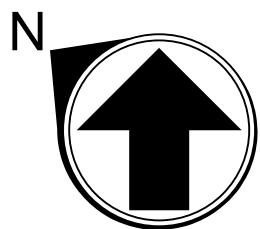


PART PLAN SHOWING PILE NUMBERING FOR RECORDING AS-BUILT PILE DATA

As-Built+ Pile Data			
Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			

As-Built+ Pile Data			
Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
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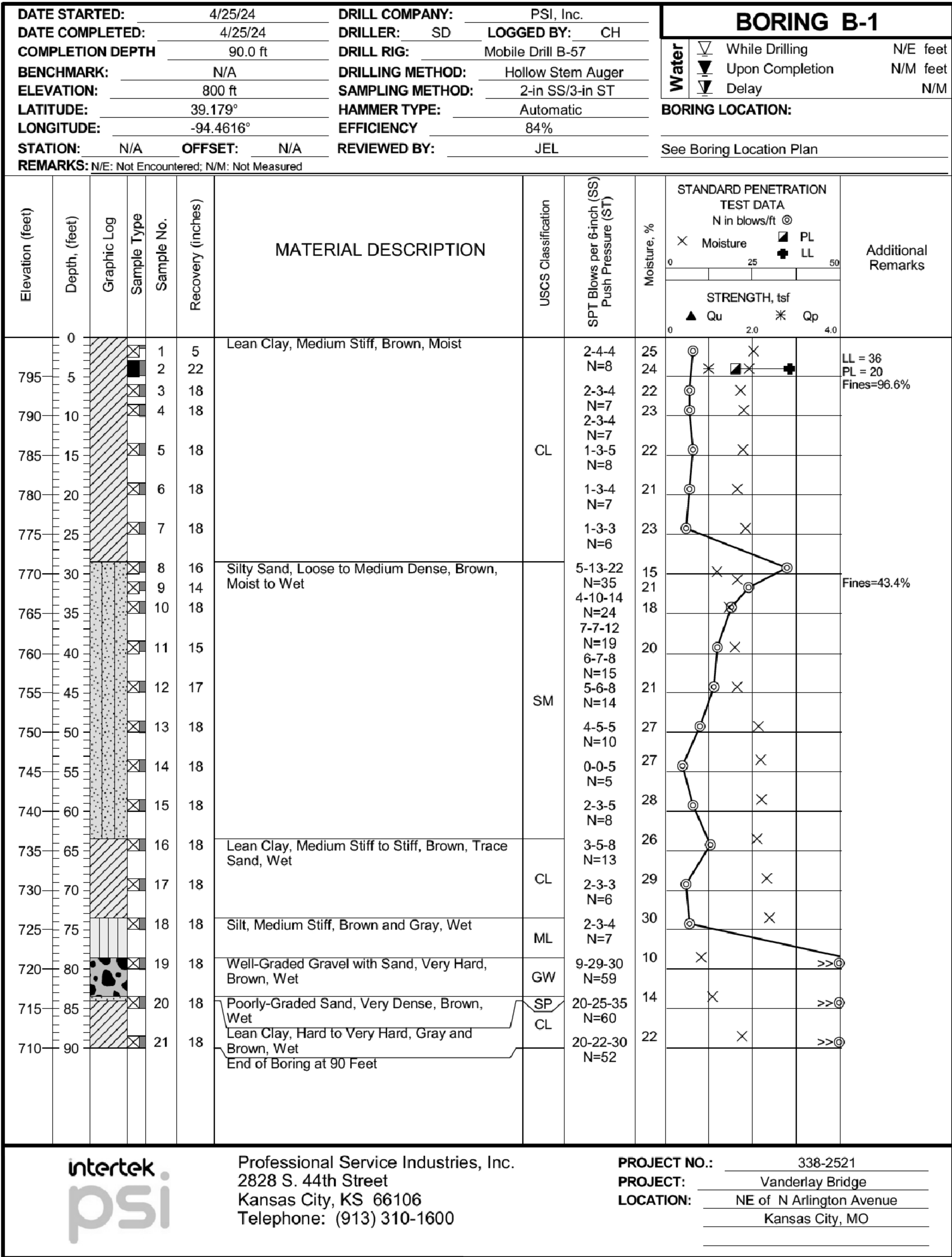
Note:
Indicate in remarks column:
A. Pile type and grade
B. Batter
C. Driven to practical refusal
This sheet to be completed by construction personnel.



REVISIONS		
No.	DATE	DESCRIPTION

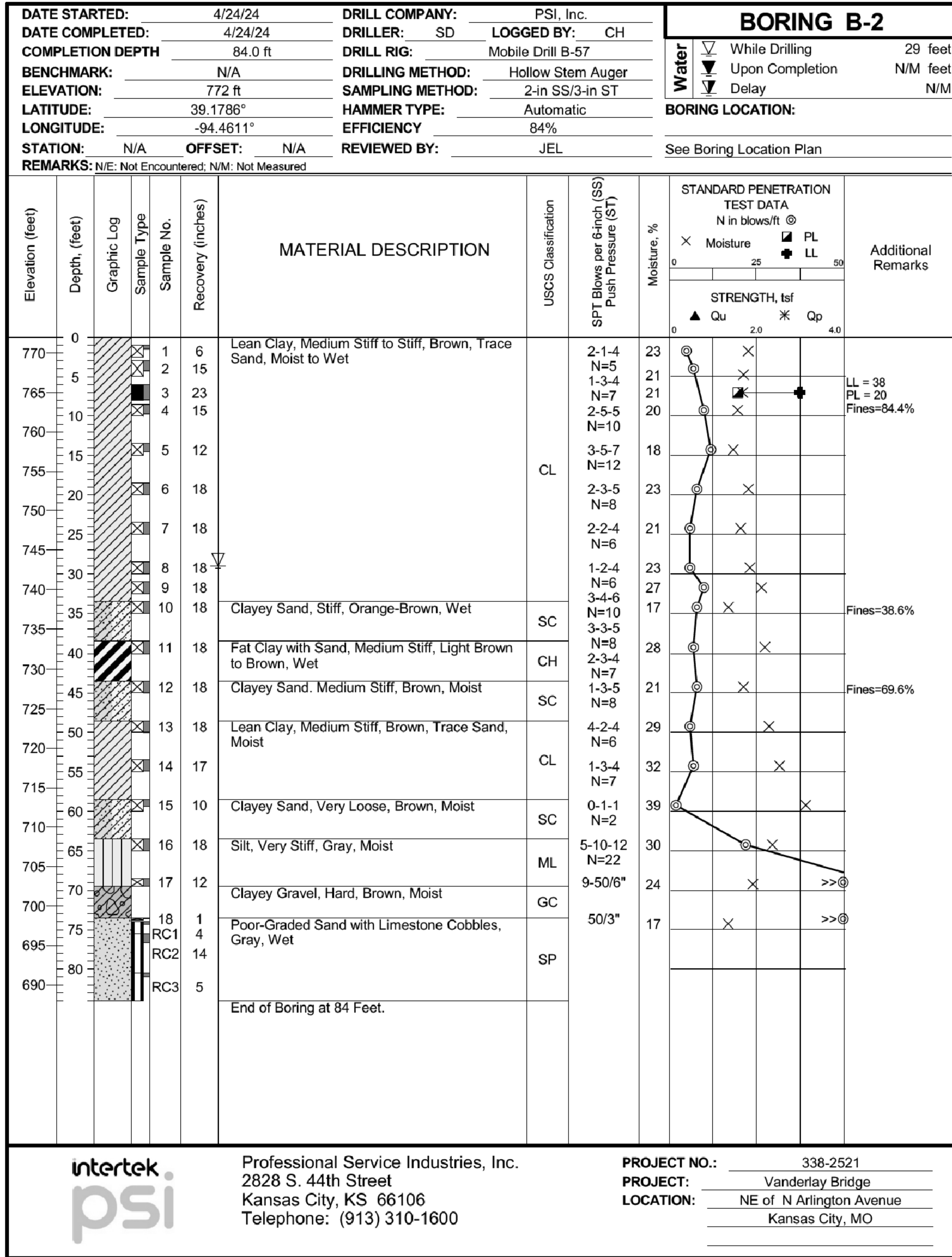
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	Author
	APPROVED:
	Approver

PROJECT ADDRESS:
9000 NE 48th STREET
KANSAAS CITY, MISSOURI 64165
Proj. No. 10390084



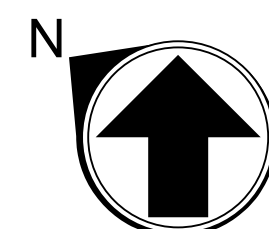
The stratification lines represent approximate boundaries. The transition may be gradual.

Sheet 1 of 1



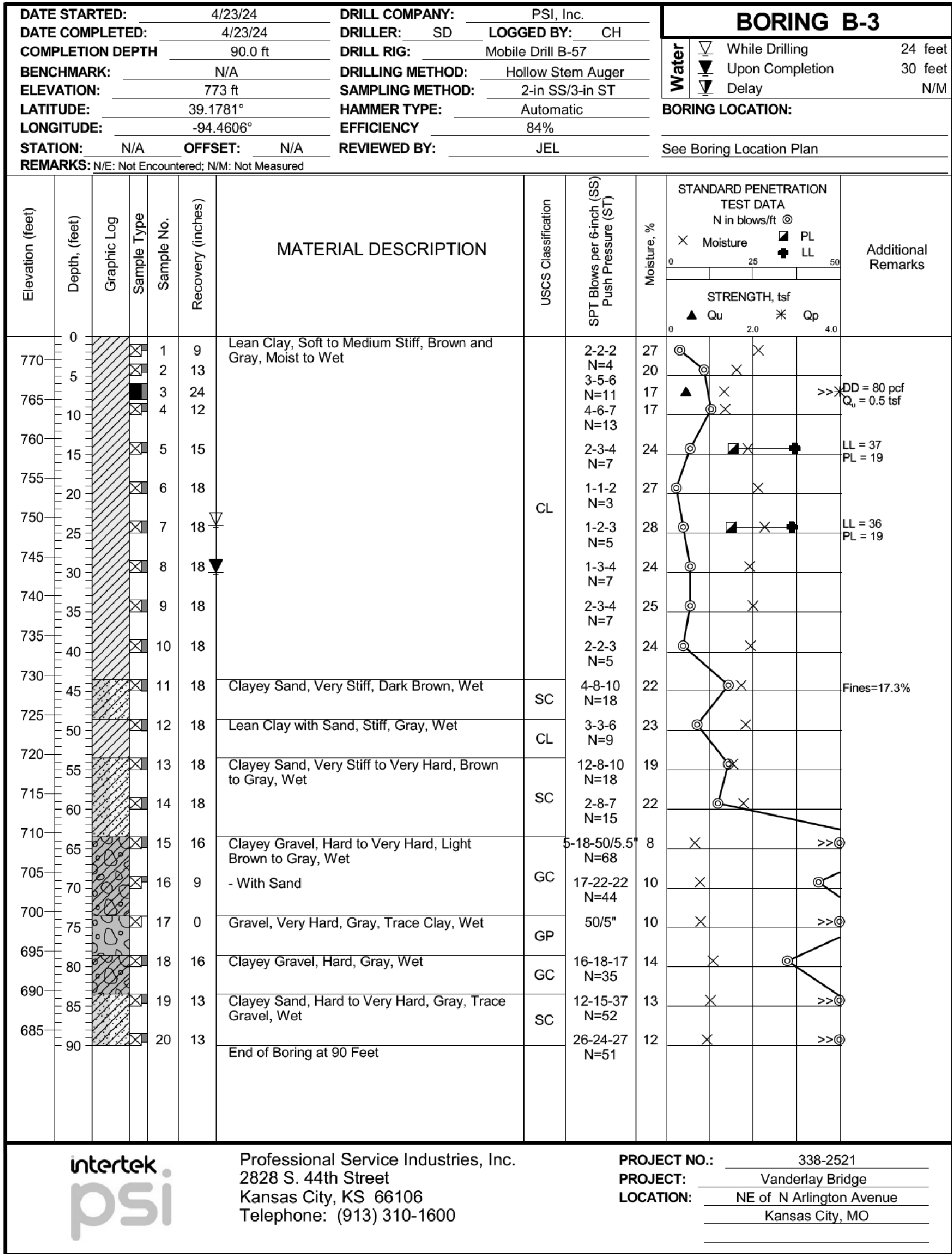
The stratification lines represent approximate boundaries. The transition may be gradual.

Sheet 1 of 1



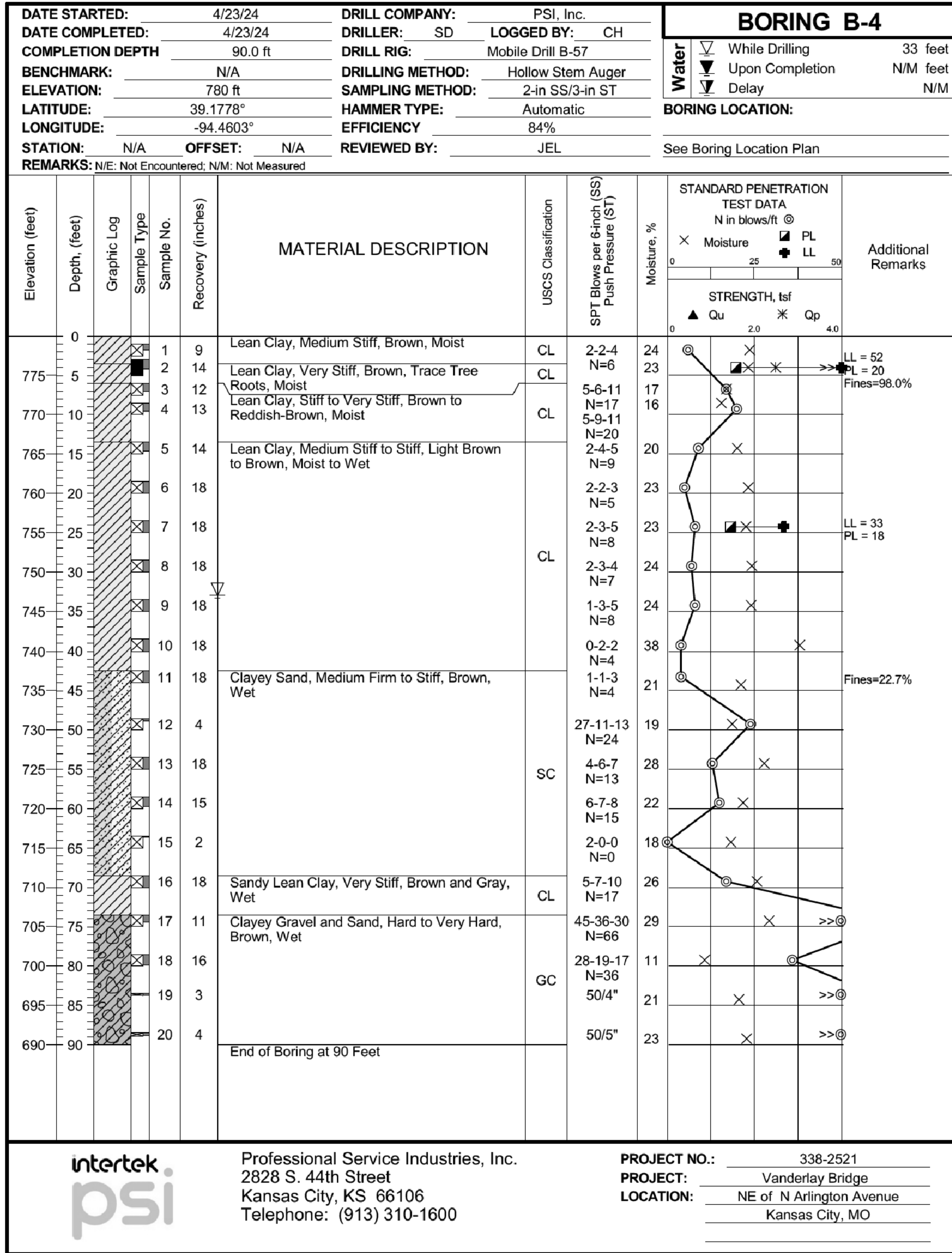
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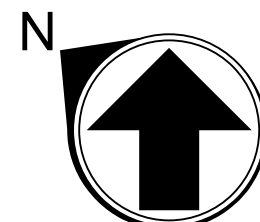
The stratification lines represent approximate boundaries. The transition may be gradual.

Sheet 1 of 1



The stratification lines represent approximate boundaries. The transition may be gradual.

Sheet 1 of 1



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No.	DATE	DESCRIPTION	
			Author
			APPROVED:
			Approver