

SEE SHEET 2 FOR INDEX OF SHEETS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	NFA	45	72
PROJECT FILE NO. 604007			

**GENERAL NOTES**

**DESIGN**  
IN ACCORDANCE WITH THE 2002 SPECIFICATIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) FOR HS25 LOADING USING THE LOAD FACTOR DESIGN METHOD.

**BENCH MARK**  
BENCH MARKS: PK NAIL #1 (GPS CED 1) N 2940217.1700 E 724833.0250 ELEV. 100.91.  
PK NAIL #2 (GPS CED 2) N 2940515.7000 E 724766.6250 ELEV. 95.69.

**SURVEY NOTEBOOK:**  
SURVEY NOTEBOOK No. 29082 PAGES 1 THRU 73. SURVEY PERFORMED BY RICHARD F. KAMINSKI & ASSOCIATES, INC. ARCHITECTS ENGINEERS SURVEYORS LAND PLANNERS 360 MERRIMACK STREET LAWRENCE, MA 01843 TELEPHONE NO. (978) 687-1483. DATE OF SURVEY: FEB. 2004-MARCH 2004

**PLANS**  
PLANS FOR EXISTING BRIDGE MAY BE SEEN AT THE OFFICE OF THE BRIDGE ENGINEER, MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, 10 PARK PLAZA, BOSTON, MASSACHUSETTS.

**TRAFFIC**  
BRIDGE W-13-015 (2MH) PROPOSED BRIDGE SUPERSTRUCTURE REPLACEMENT SHALL BE CONSTRUCTED IN SINGLE STAGE. TRAFFIC MANAGEMENT SHALL BE IN ACCORDANCE WITH THE APPROVED TEMPORARY TRAFFIC CONTROL PLAN.

**EXISTING CONDITIONS**  
DIMENSIONS SHOWN ARE TAKEN FROM ORIGINAL DESIGN DRAWINGS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND DETAILS NECESSARY FOR COMPLETION OF ALL WORK BY FIELD MEASUREMENT AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE AND NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL HE HAS MADE THE REQUIRED MEASUREMENTS ON THE ACTUAL STRUCTURE AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER.

**DATE**  
TO BE PLACED ON THE INSIDE FACE OF THE NORTHWEST AND SOUTHEAST END POSTS. A SHEET SHOWING SIZE AND CHARACTER OF NUMERALS WILL BE FURNISHED. THE DATE USED SHALL BE THE LATEST YEAR OF THE CONTRACT COMPLETION AS OF THE DATE THE FIRST END POST IS CONSTRUCTED. ALL END POSTS SHALL FEATURE THE SAME DATE.

**REINFORCEMENT**  
REINFORCING STEEL SHALL BE EPOXY COATED UNLESS NOTED AS "BLACK BAR" AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615 GRADE 60. ALL CONTACT LAP SPLICES SHALL BE AASHTO CLASS C, UNLESS LAP LENGTHS ARE NOTED ON THE PLANS OR LISTED AS FOLLOWS:

MODIFICATION CONDITION	#4 BARS	#5 BARS
1. NONE	21"	26"
2. 12 INCHES OF CONCRETE BELOW BAR	29"	36"
3. COATED BARS, COVER <3db, OR CLEAR SPACING < 6db	31"	39"
4. COATED BARS, ALL OTHER CASES	24"	30"
5. CONDITION 2 AND 3	35"	44"
6. CONDITION 2 AND 4	33"	42"

IF THE ABOVE BARS ARE SPACED 6 INCHES OR MORE ON CENTER, THE LAP LENGTH SHALL BE 80% OF THE LAP LENGTH GIVEN ABOVE.

**DOWEL BAR SPLICERS**  
ALL REINFORCING BARS SHALL BE MADE CONTINUOUS ACROSS STAGE CONSTRUCTION JOINTS BY DOWEL BAR SPLICERS. DOWEL BAR SPLICERS SHALL HAVE THE SAME COATINGS AS THE REINFORCING BARS THEY ARE SPlicing.

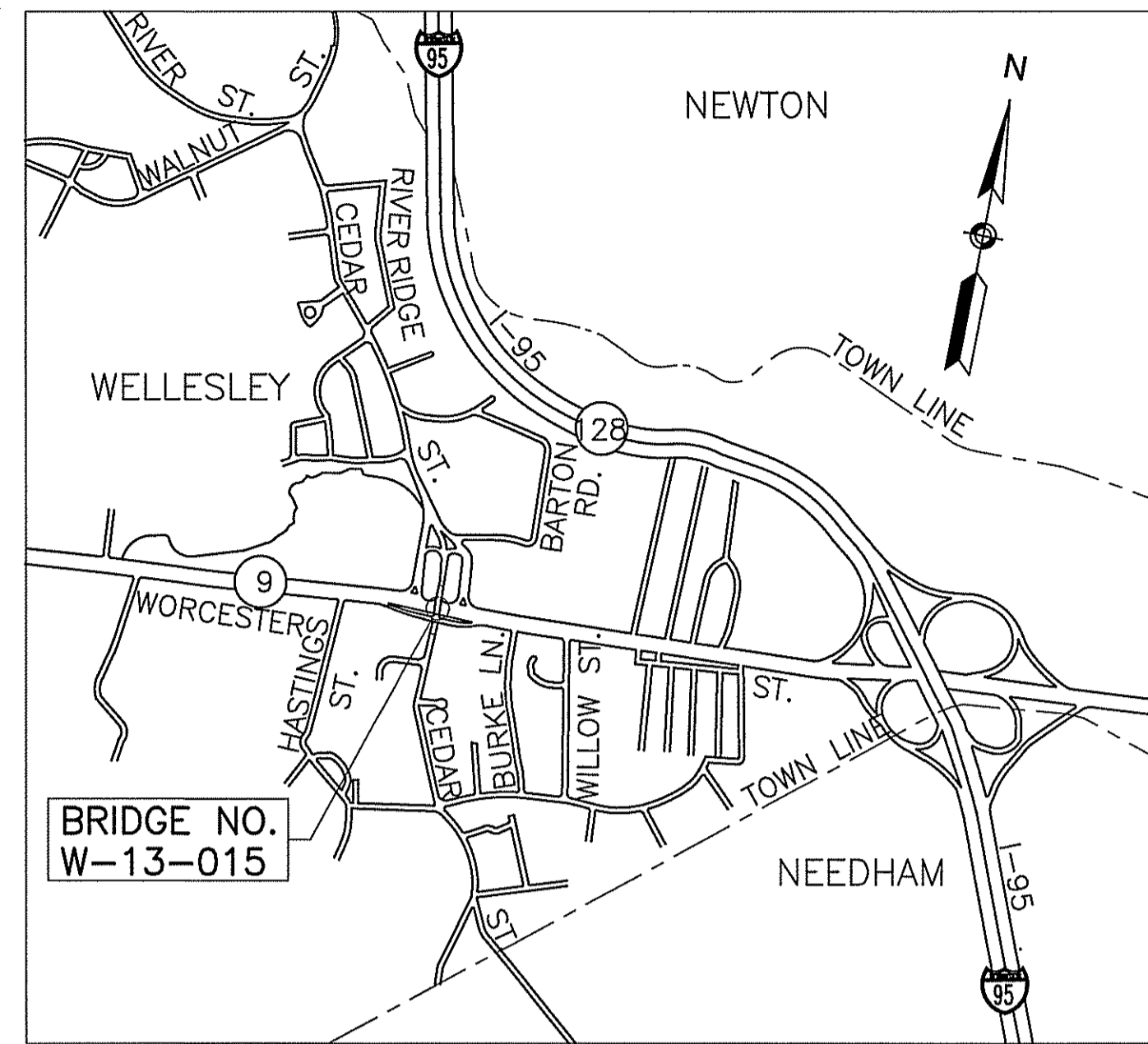
**ANCHOR BOLTS**  
ALL ANCHOR BOLTS SHALL BE SET BY TEMPLATE BEFORE THE CONCRETE IS PLACED.

**CONCRETE MIXES**  
THE FOLLOWING CONCRETE MIXES ARE TO BE USED:  
4000 PSI, 3/4 IN, 585 HP CEMENT CONCRETE (BRIDGE DECK)  
4000 PSI, 3/4 IN, 610 CEMENT CONCRETE (ABUTMENT CAPS, PILASTERS AND WINGWALL MODIFICATIONS)  
5000 PSI, 3/4 IN, 685 HP CEMENT CONCRETE (SIDEWALK, SAFETY CURB, CP-PL2 BARRIER AND HIGHWAY GUARDRAIL TRANSITION)  
4000 PSI, 1/2", 565 CEMENT CONCRETE (HIGHWAY GUARDRAIL TRANSITION BASE)

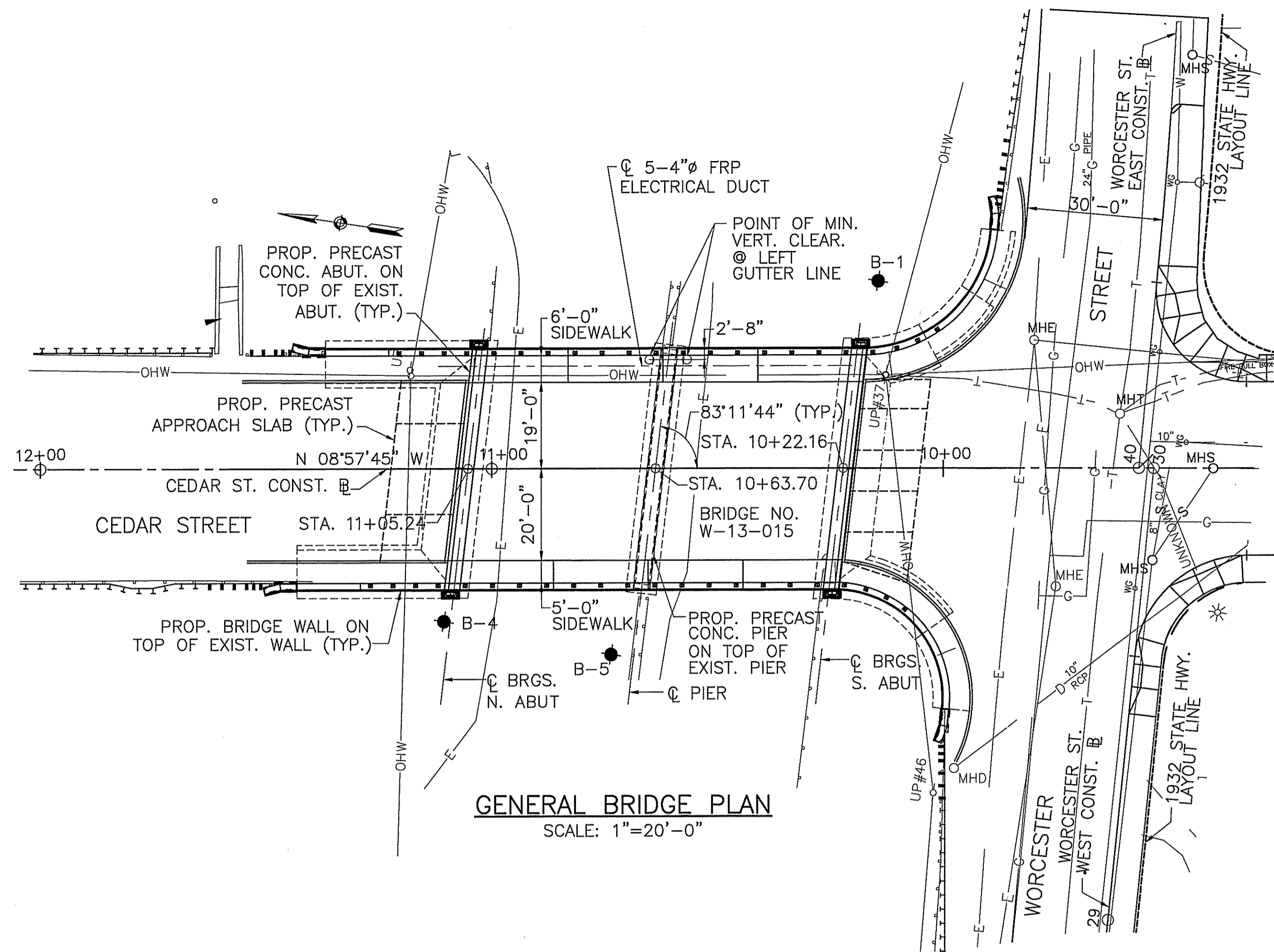
**DRILLING AND GROUTING DOWELS**  
GROUT TO BE USED FOR DRILLING AND GROUTING DOWELS INTO THE EXISTING SUBSTRUCTURE AND WINGWALLS SHALL BE HARRIS CONSTRUCTION GROUT AS MANUFACTURED BY A.H. HARRIS & SONS INC. HOLE DIAMETERS AND DEPTHS SHALL BE AS SHOWN ON THE PLANS.

**UTILITIES**  
THE CONTRACTOR SHALL LOCATE AND PROTECT FROM DAMAGE ALL EXISTING UTILITIES.

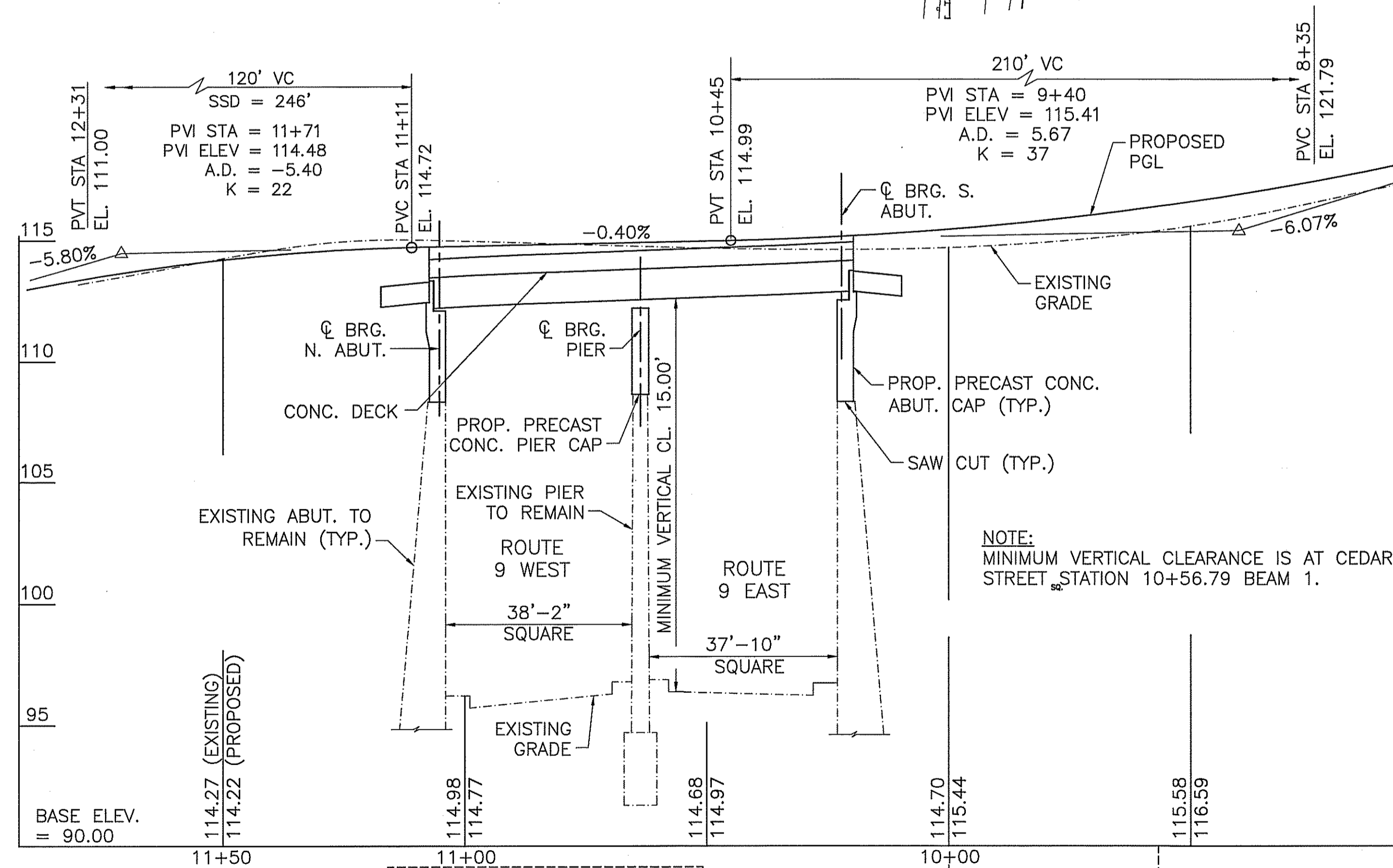
**SCALES**  
SCALES AS NOTED ON PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. FOR 1/2 SIZE PRINTS DIVIDE SCALE BY TWO.



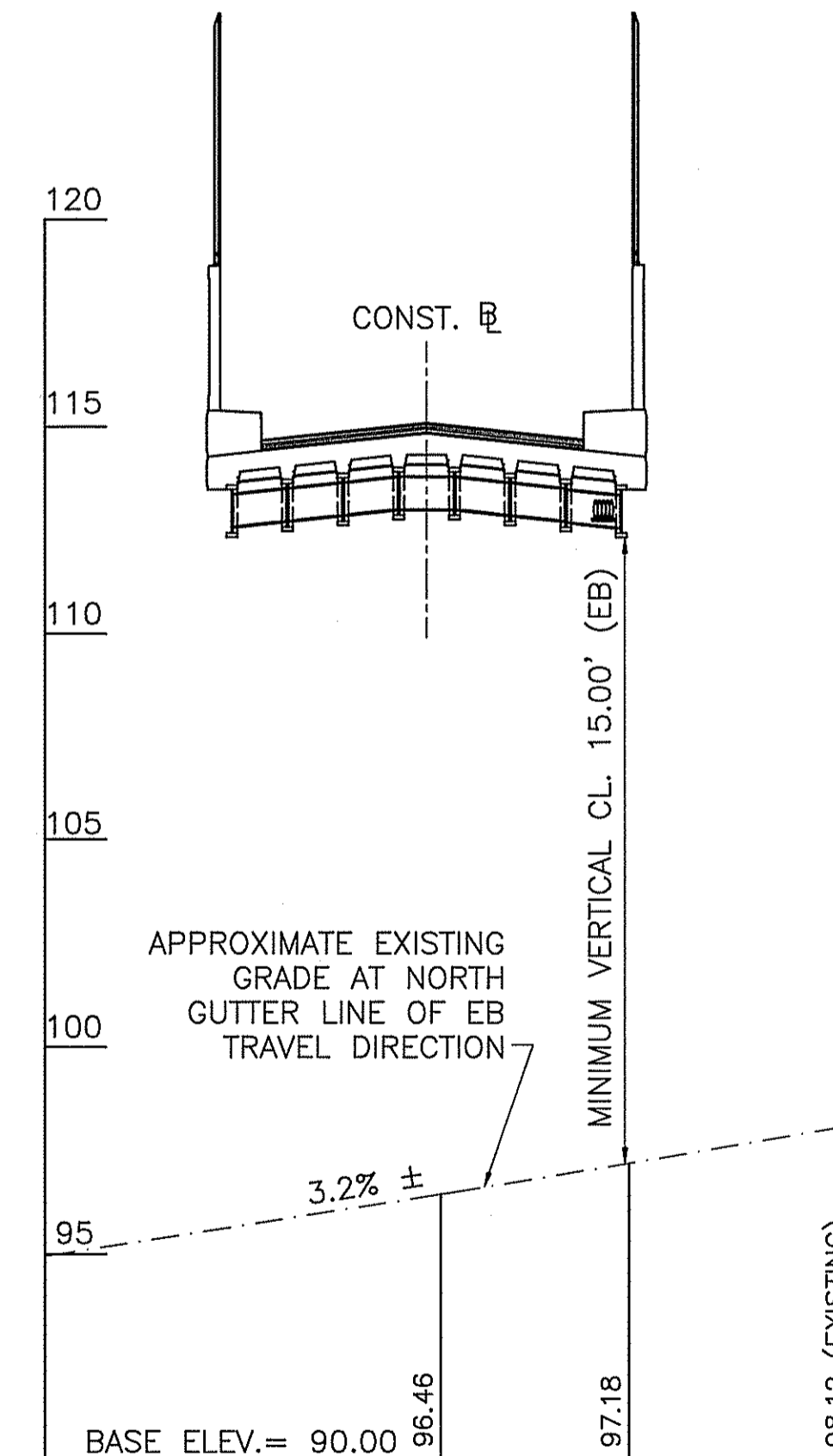
**LOCUS**  
SCALE: 1" = 1000'



**GENERAL BRIDGE PLAN**  
SCALE: 1" = 20'-0"



**PROFILE - CEDAR STREET**  
SCALE: 1" = 20' HORIZ.  
1" = 4' VERT.

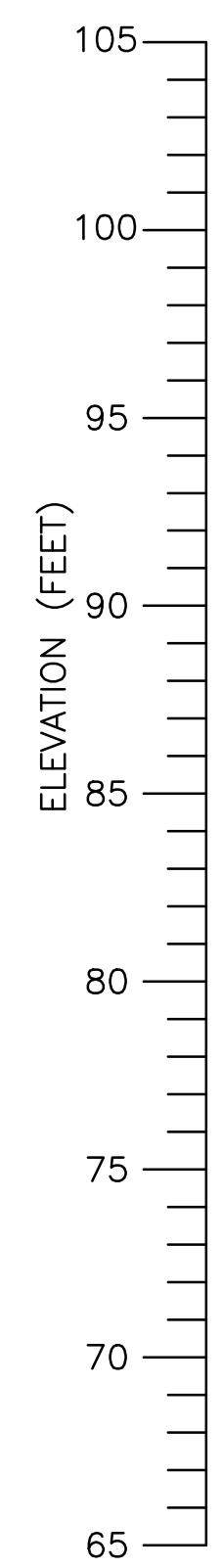


**PROFILE - ROUTE 9 EAST BOUND**  
SCALE: 1" = 20' HORIZ.  
1" = 4' VERT.

	JUNE 20, 2011	ISSUED FOR CONSTRUCTION
	SUPERSTRUCTURE REPLACEMENT  <b>WELLESLEY</b> CEDAR STREET OVER ROUTE 9  MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION 10 PARK PLAZA BOSTON, MASS	
	TITLE: _____ CHIEF ENGINEER	

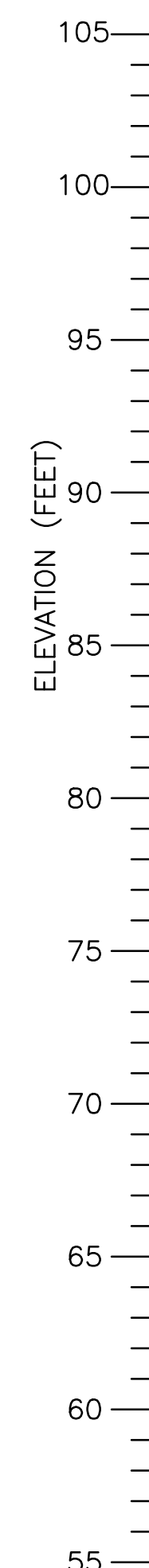
**BORING B-1**  
 STA. 10+14.35  
 OFFSET 41.29' RT.

PHONE: (603) 437-1610		NEW HAMPSHIRE BORING, INC.		FAX: (603) 437-0034	
P. O. BOX 165 DERRY, NH 03038		E MAIL: nhb@nhboring			
Boring #: B-1	Project: W-13-15	Contract #: 31361	Station: N294018.230		
Project Address: Cedar Street over Route 9	City: Wellesley	State: MA	Offset: E724743.993		
Date Start: 07-19-05	Start Time: 8:00AM	Date End: 07-19-05	End Time: 3:00PM	Elev: 100.9'	
Casing:	Type: HW	Size: 4"	Amount: 15'	SIS:	Size: 1 3/8" ID
Hammer: 300 Lbs.	Fall: 30"	Hammer: 140 Lbs.	Fall: 30"		
GROUNDWATER OBSERVATION - ENGLISH, SCALE					
Date:	Time: 12:00PM	Depth: 7'	Casing: 15'	Stabilization Per: 25 Minutes	
DP	S.#	DEPTH (FT)	PEN (")	REC	BLOWS/6"
	S-1	0' - 2'	24"	12'	3-3-6-6
	S-2	5' - 5'8"	8"	4"	47-120/2"
	S-3	9' - 11'	24"	4"	8-8-9-17
	S-4	15' - 15'2"	2"	1"	120/2"
	C-1	15' - 20'	60"	58'	Coring Times Minute per foot 3 4 6 5 4 4 5
	C-2	20' - 25'	60"	57'	4 4 5 4 5
	C-1	27' - 32'	60"	58'	5 4 5 5
	C-2	32' - 37'	60"	57'	5 6 4 4 5
Driller: Sam Cooley    Helper: Jason Rapsis    Inspection: Michael Clement					
Remarks: PAGE 1 OF 1    Hours Worked: 6 Hrs.    Casing: Type: HW    Size: 4"    Amt: 15'    Type of Corebarrel 2.15" ID					
Changed location: Moved from N2940118.23, E724738.99 to N2940118.230, E724743.993 because of a drill rig access issue.					
S./#: SAMPLE	PEN: PENETRATION	REC: RECOVERY	S/C: STRATA CHANGE		



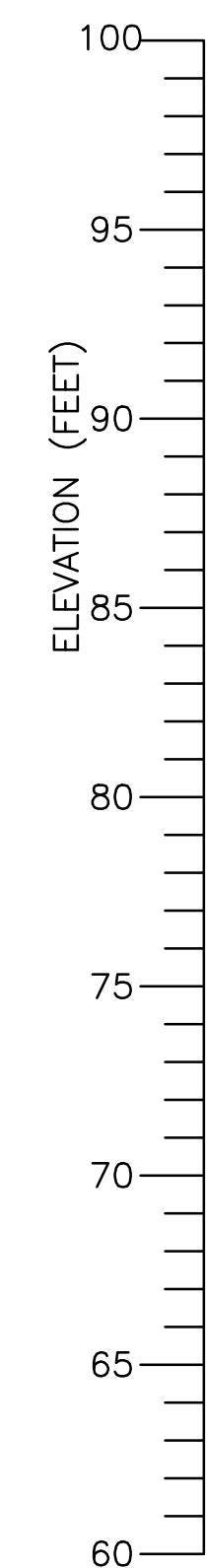
**BORING B-4**  
 STA. 11+00.66  
 OFFSET 33.59' LT.

PHONE: (603) 437-1610		NEW HAMPSHIRE BORING, INC.		FAX: (603) 437-0034	
P. O. BOX 165 DERRY, NH 03038		E MAIL: nhb@nhboring			
Boring #: B-4	Project: W-13-15	Contract #: 31361	Station: N2940201.692		
Project Address: Cedar Street over Route 9	City: Wellesley	State: MA	Offset: E724655.019		
Date Start: 07-18-05	Start Time: 8:30AM	Date End: 07-18-05	End Time: 2:30PM	Elev: 96.5'	
Casing:	Type: HW	Size: 4"	Amount: 25'	SIS:	Size: 1 3/8" ID
Hammer: 300 Lbs.	Fall: 30"	Hammer: 140 Lbs.	Fall: 30"		
GROUNDWATER OBSERVATION - ENGLISH, SCALE					
Date:	Time: 11:00AM	Depth: 10'	Casing: 25'	Stabilization Per: 30 Minutes	
DP	S.#	DEPTH (FT)	PEN (")	REC	BLOWS/6"
	S-1	0' - 2'	24"	7"	4-5-17-14
	S-2	5' - 7'	24"	12"	6-12-13-14
	S-3	10' - 12'	24"	5"	12-10-7-11
	S-4	15' - 17'	24"	12"	14-20-46-32
	S-5	20' - 22'	24"	6"	28-19-12-19
	S-6	25' - 25'6"	6"	4"	44-120/0"
	C-1	27' - 32'	60"	58'	5 4 5 5
	C-2	32' - 37'	60"	57'	5 6 4 4 5
Driller: Sam Cooley    Helper: Jason Rapsis    Inspection: Michael Clement					
Remarks: PAGE 1 OF 1    Hours Worked: 6 Hrs.    Casing: Type: HW    Size: 4"    Amt: 25'    Type of Corebarrel 2.15" ID					
S./#: SAMPLE	PEN: PENETRATION	REC: RECOVERY	S/C: STRATA CHANGE		



**BORING B-5**  
 STA. 10+73.65  
 OFFSET 40.91' LT.

PHONE: (603) 437-1610		NEW HAMPSHIRE BORING, INC.		FAX: (603) 437-0034	
P. O. BOX 165 DERRY, NH 03038		E MAIL: nhb@nhboring			
Boring #: B-5	Project: W-13-15	Contract #: 31361	Station: N2940164.000		
Project Address: Cedar Street over Route 9	City: Wellesley	State: MA	Offset: E724653.554		
Date Start: 10-27-05	Start Time: 8:30AM	Date End: 10-27-05	End Time: 1:30PM	Elev: 95.1'	
Casing:	Type: HW	Size: 4"	Amount: 15'	SIS:	Size: 1 3/8" ID
Hammer: 300 Lbs.	Fall: 30"	Hammer: 140 Lbs.	Fall: 30"		
GROUNDWATER OBSERVATION - ENGLISH, SCALE					
Date:	Time: 1:00PM	Depth: 5'	Casing: 15'	Stabilization Per: 15 Minutes	
DP	S.#	DEPTH (FT)	PEN (")	REC	BLOWS/6"
	S-1	1' - 3'	24"	16"	27-18-22-3
	S-2	5' - 6'	12"	9"	17-24
	S-2A	6' - 7'	12"	8"	25-30
	S-3	10' - 12'	24"	12"	22-28-23-14
	S-4	15' - 15'3"	3"	3"	120/3"
	C-1	16' - 21'	60"	60"	3 3 2 3 4
	C-2	21' - 26'	60"	60"	3 3 3 5
Driller: Mark D'Ambrosio    Helper: Adam Ford    Inspection: Jeremy Haugh					
Remarks: PAGE 1 OF 1    Hours Worked: 5 Hrs.    Casing: Type: HW    Size: 4"    Amt: 15'    Type of Corebarrel 2.15" ID					
Changed location: Moved from N2940160.83, E724657.22 to N2940164.000, E724653.554 because of possible utility interference.					
S./#: SAMPLE	PEN: PENETRATION	REC: RECOVERY	S/C: STRATA CHANGE		



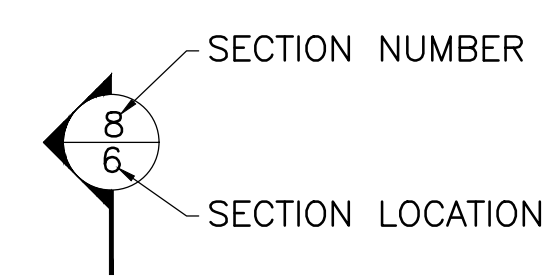
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	NFA	46	72
PROJECT FILE NO. 604007			

BORING LOGS

BOTTOM OF EXIST. FOOTING AT PIER EL. 91.7±

**BORING NOTES**

- LOCATION OF BORINGS ARE SHOWN ON THE PLAN THUS: ● B-1, ● B-4, ● B5
- BORINGS ARE TAKEN FOR THE PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
- WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.
- FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A 1 3/8" I.D. SPLIT SPOON SAMPLER 6" USING 140 POUND WEIGHT FALLING 30".
- BORING SAMPLES ARE STORED AT A STORAGE FACILITY LOCATED ON ROUTE 114 (219 WINTHROP AVE.) IN LAWRENCE, MA. THE CONTRACTOR MAY EXAMINE THE SOIL AND ROCK SAMPLES BY CONTACTING MASSDOT GEOTECHNICAL SECTION AT 10 PARK PLAZA, ROOM 6500, BOSTON, MA 02116-3973 AT (617)973-8836.
- ALL BORINGS WERE MADE IN JULY & OCTOBER, 2005.
- BORINGS WERE MADE BY NEW HAMPSHIRE BORING, INC. P.O. BOX 165 DERRY, NH 03038.
- THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.
- THE DEPTHS AS SHOWN ON THE ORIGINAL BORING LOGS HAVE BEEN CONVERTED TO ELEVATIONS BY THE ENGINEER.



SECTION SYMBOL

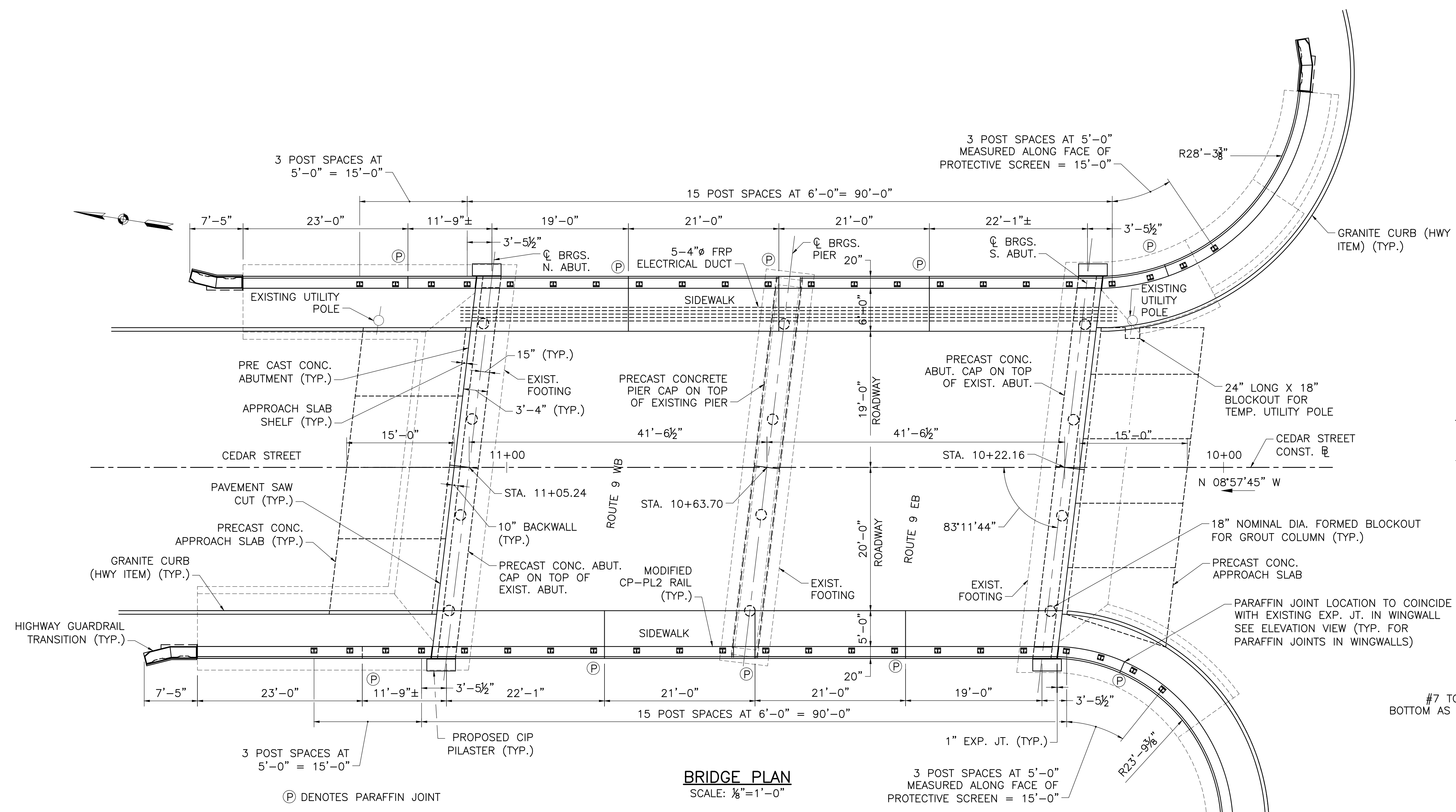
**INDEX OF DRAWINGS**

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- APPROACH SLAB AND PILASTER DETAILS
- PIER AND BARRIER DETAILS AND PAVEMENT SAW CUT
- ABUTMENTS AND WINGWALLS REINFORCEMENT DETAILS
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- PROTECTIVE SCREEN DETAILS

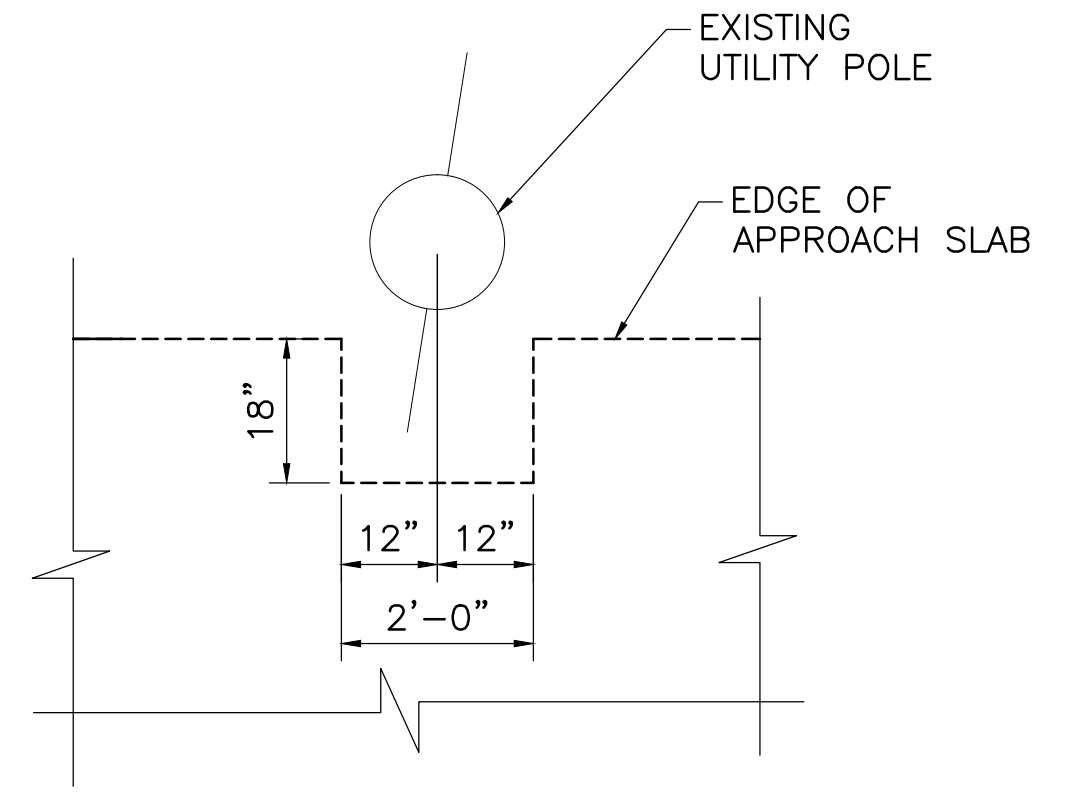
	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	NFA	47	72
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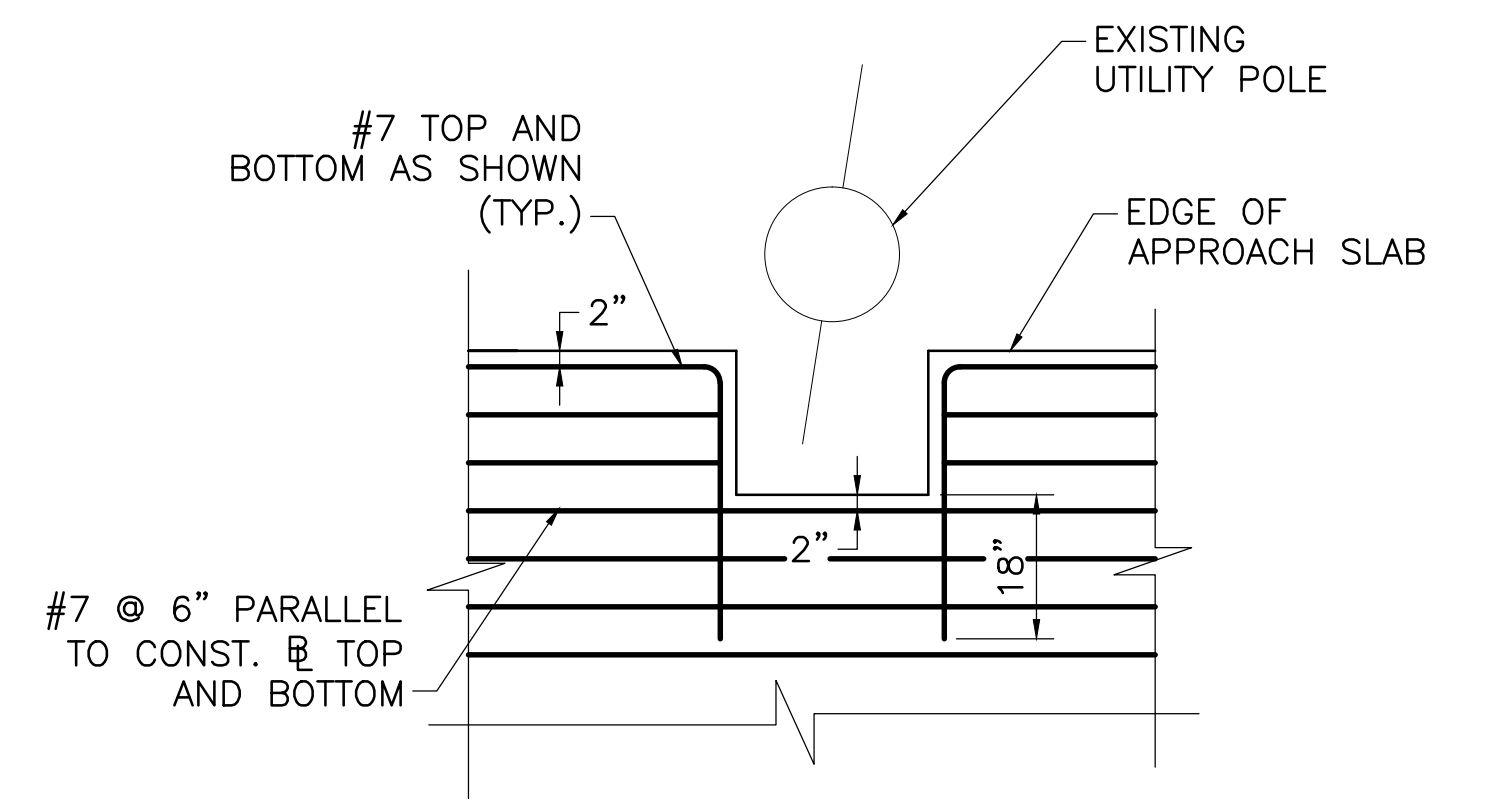
BRIDGE PLAN AND ELEVATION



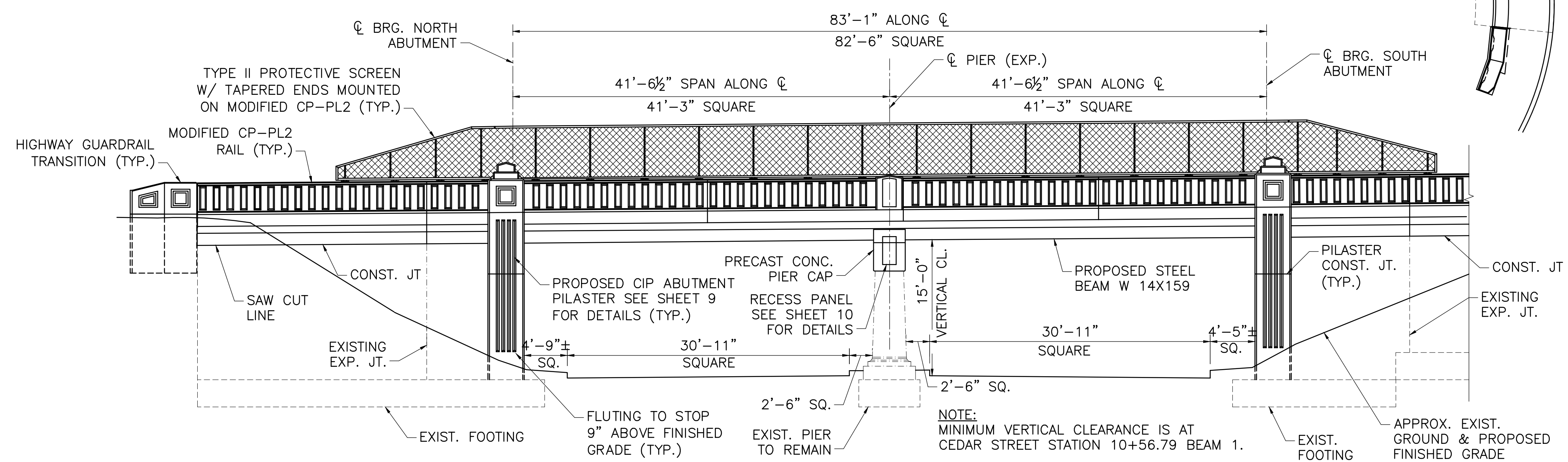
**BRIDGE PLAN**  
SCALE: 1/8" = 1'-0"



**APPROACH SLAB BLOCK AT FOR UTILITY POLE**  
N.T.S.



NOTE: #4 @ 18" TOP & BOT. NOT SHOWN  
**APPROACH SLAB BLOCKOUT FOR UTILITY POLE**  
N.T.S.

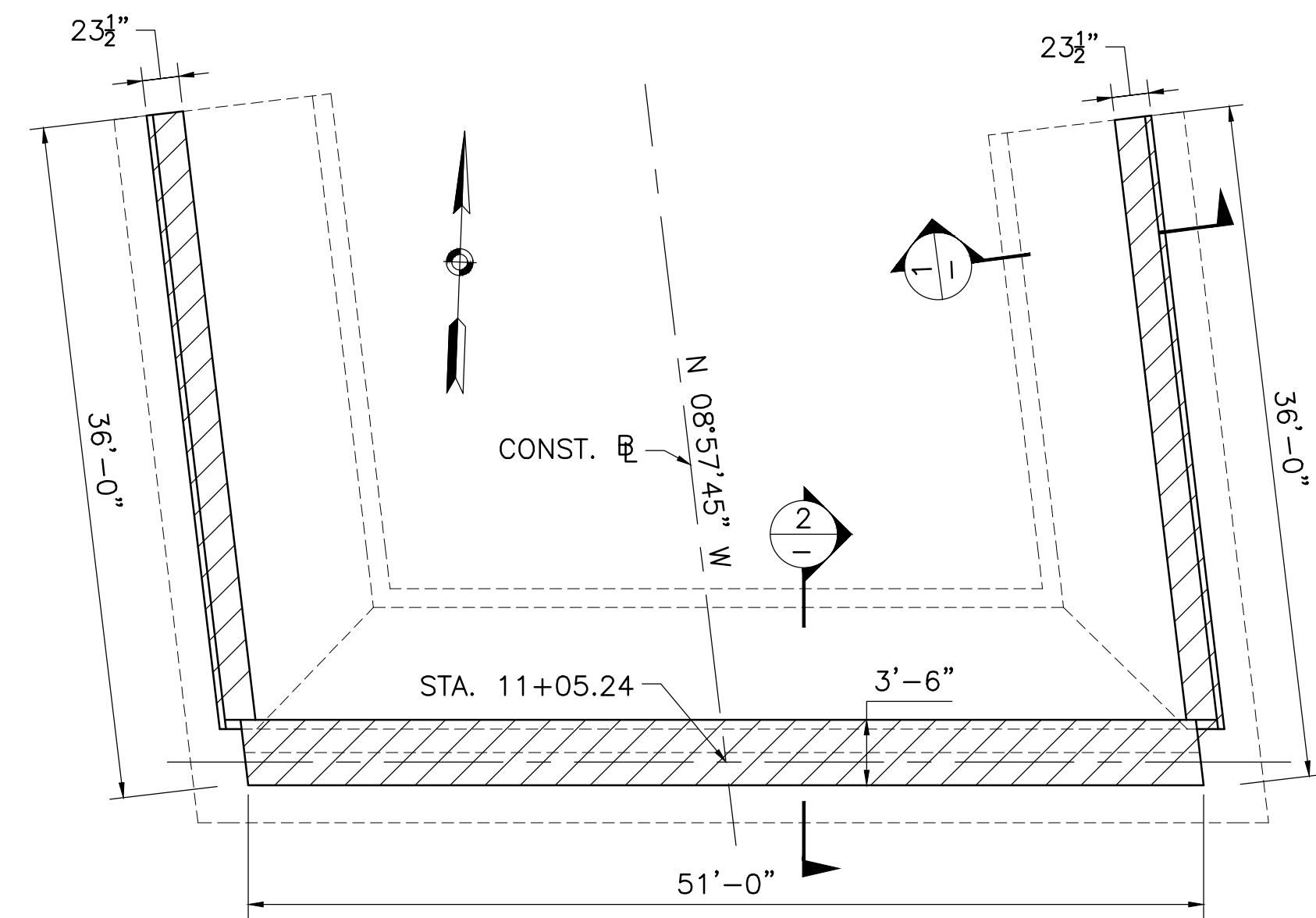


**BRIDGE ELEVATION (LOOKING EAST)**  
SCALE: 1/8" = 1'-0"

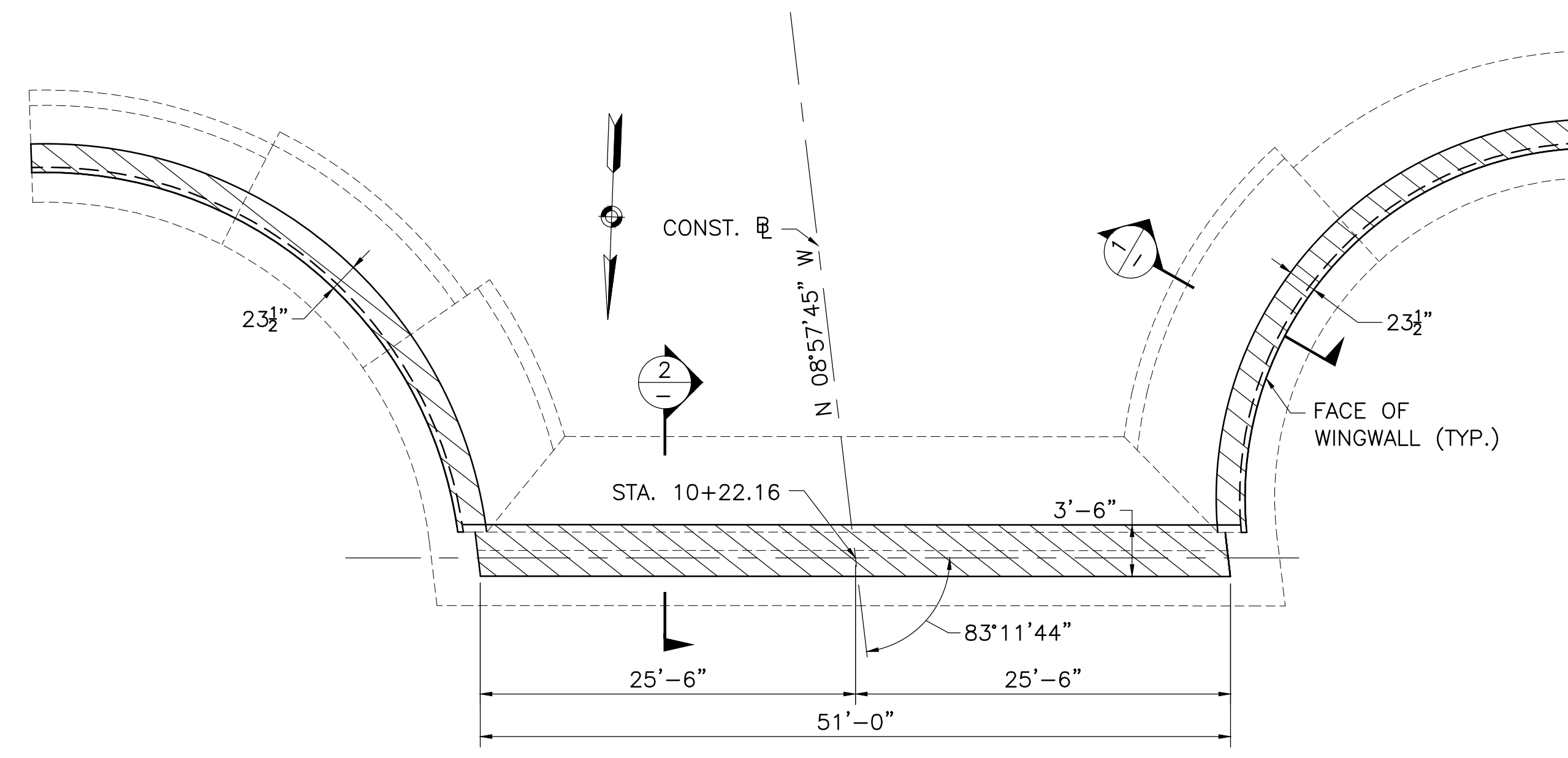
DATE	ISSUED FOR CONSTRUCTION
	DESCRIPTION
	USE ONLY PRINTS OF LATEST DATE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	NFA	48	72
PROJECT FILE NO. 604007			

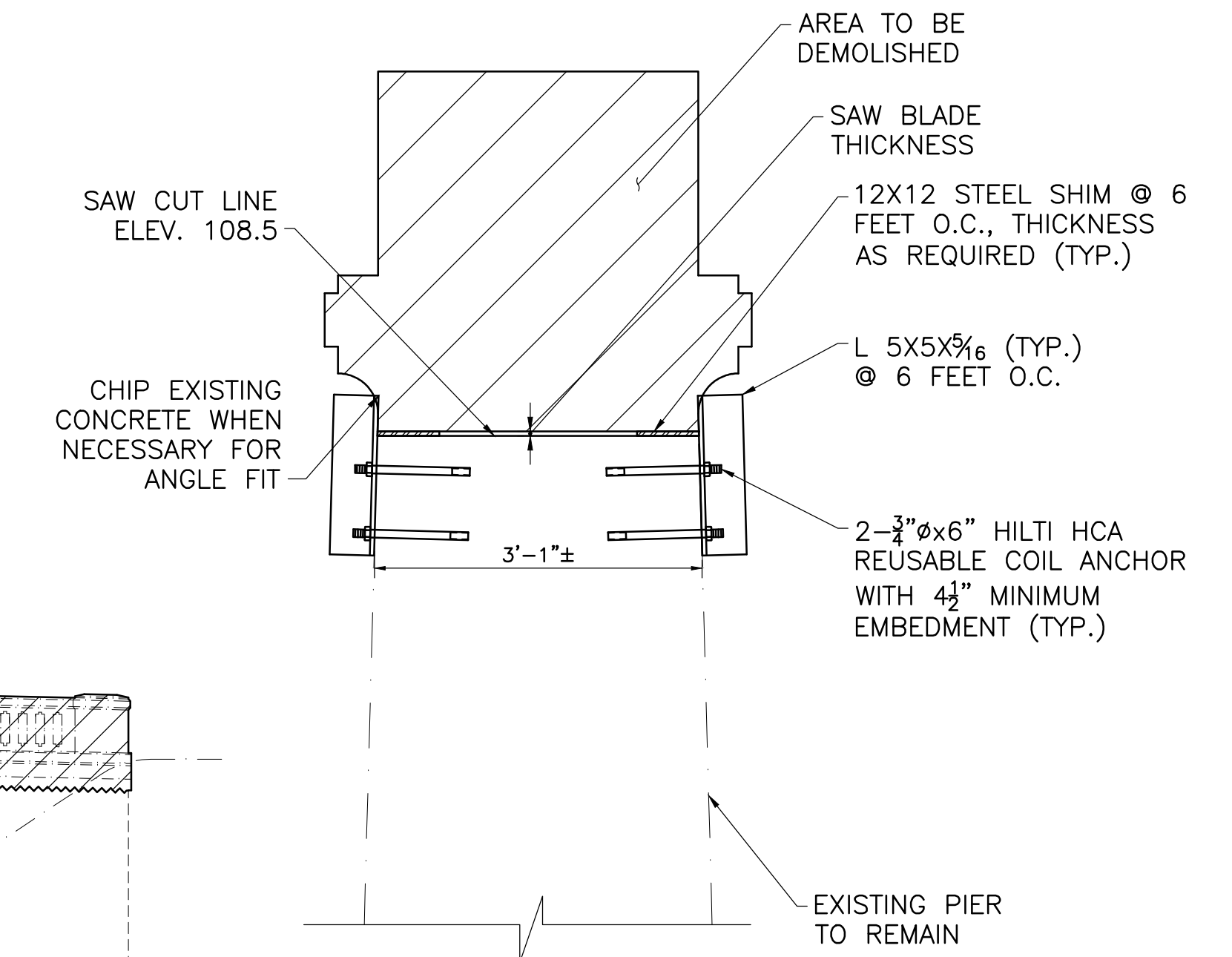
**SUBSTRUCTURE DEMOLITION**



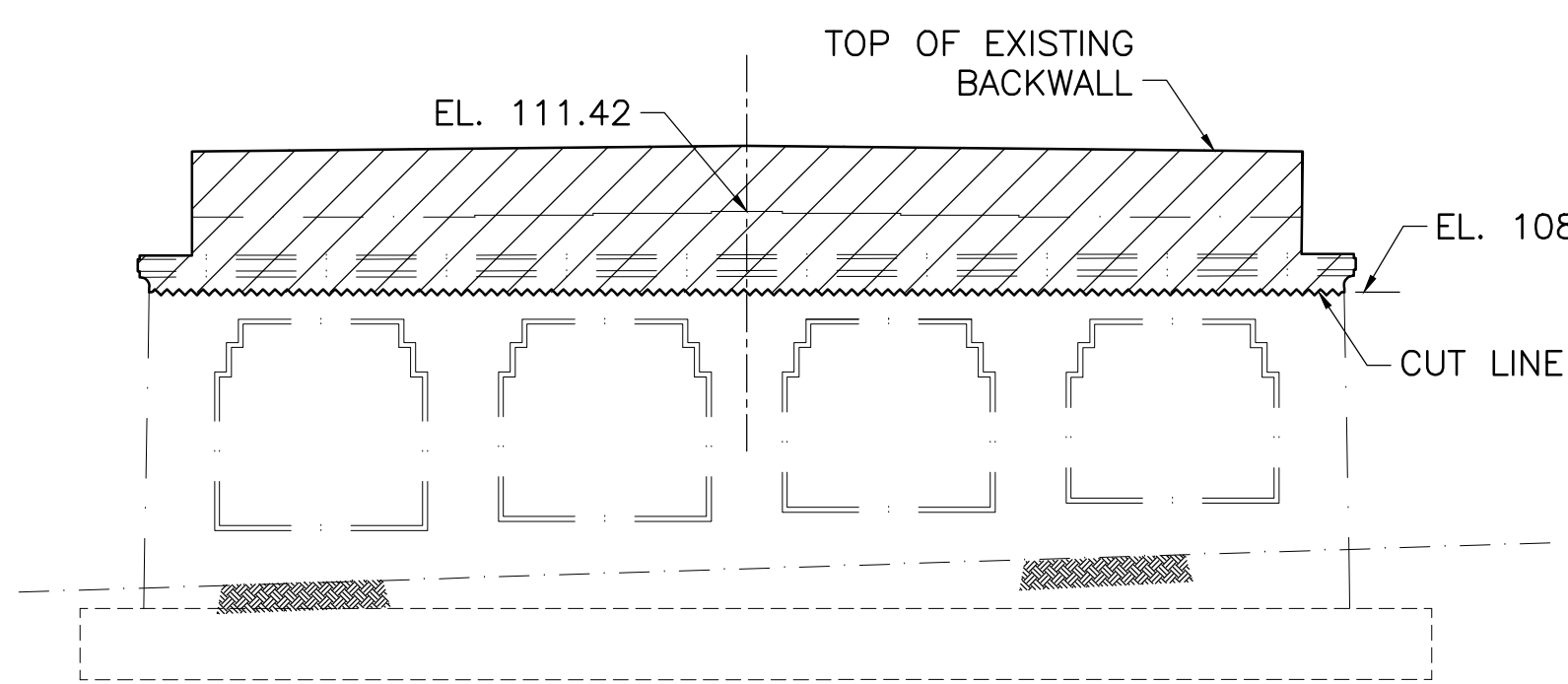
**NORTH ABUTMENT DEMOLITION PLAN**  
SCALE: 1/8" = 1'-0"



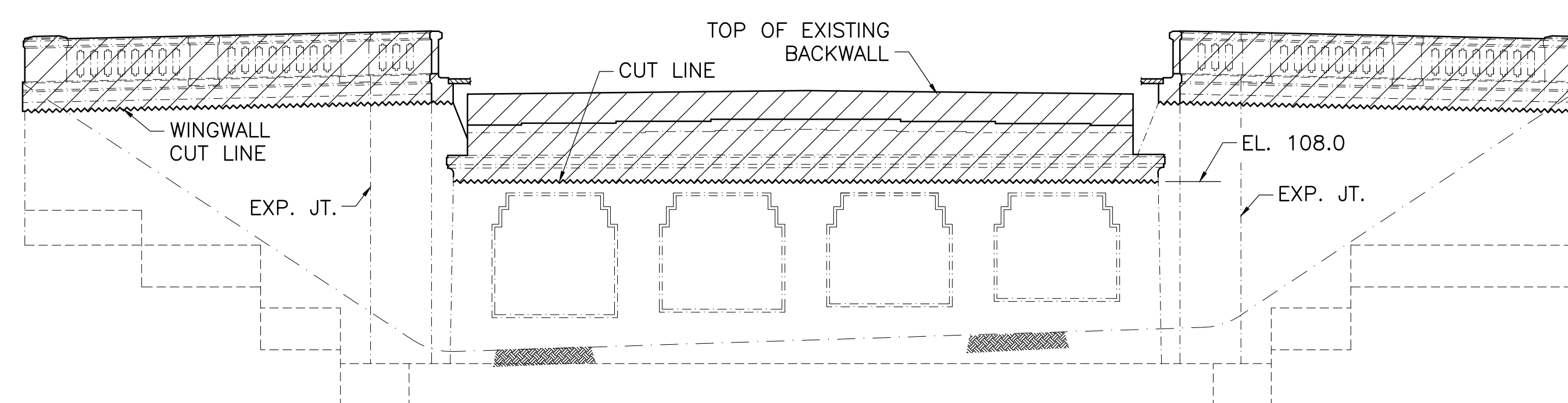
**SOUTH ABUTMENT DEMOLITION PLAN**  
SCALE: 1/8" = 1'-0"



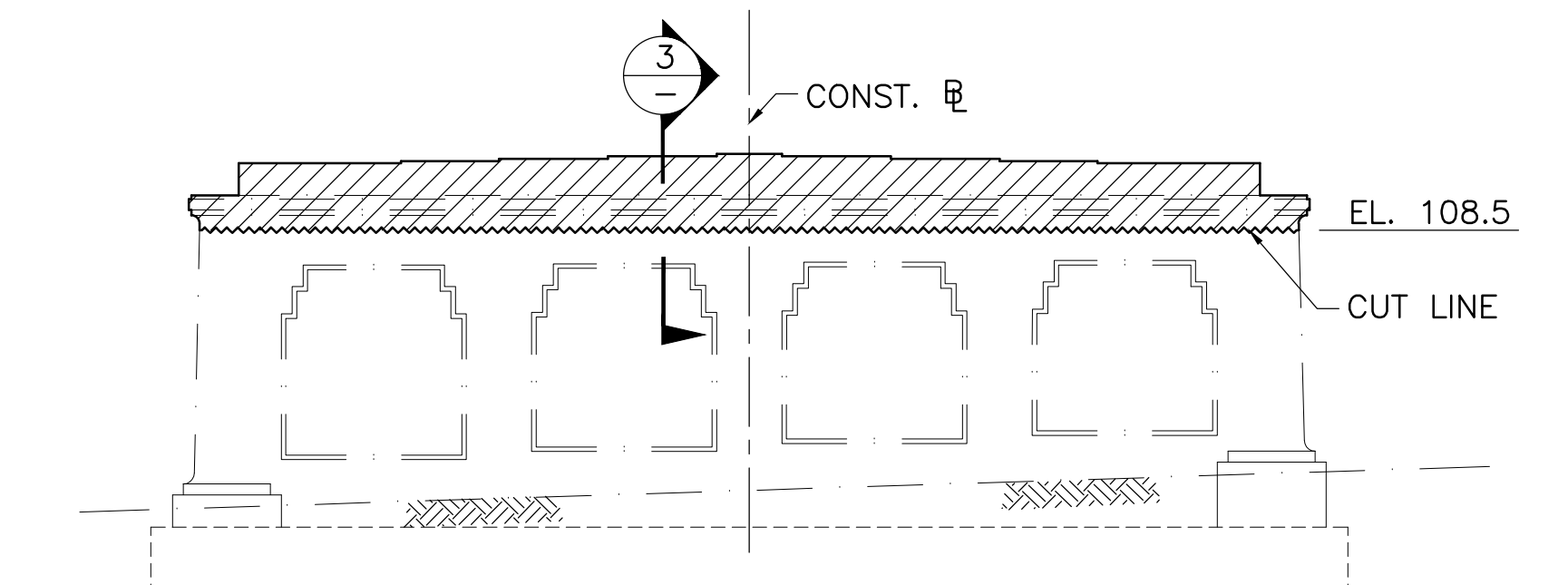
**SECTION 3**  
SCALE: 3/4" = 1'-0"



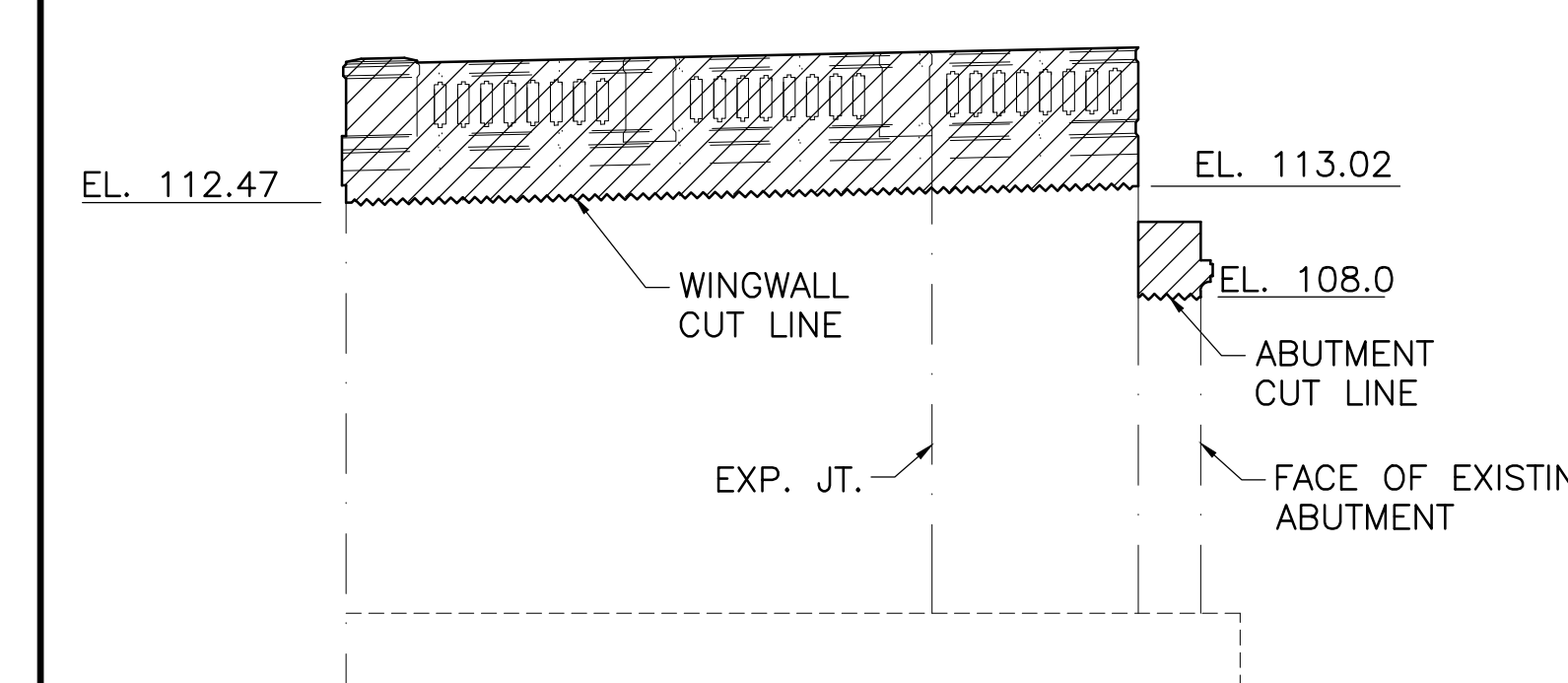
**NORTH ABUTMENT DEMOLITION ELEVATION**  
SCALE: 1/8" = 1'-0"



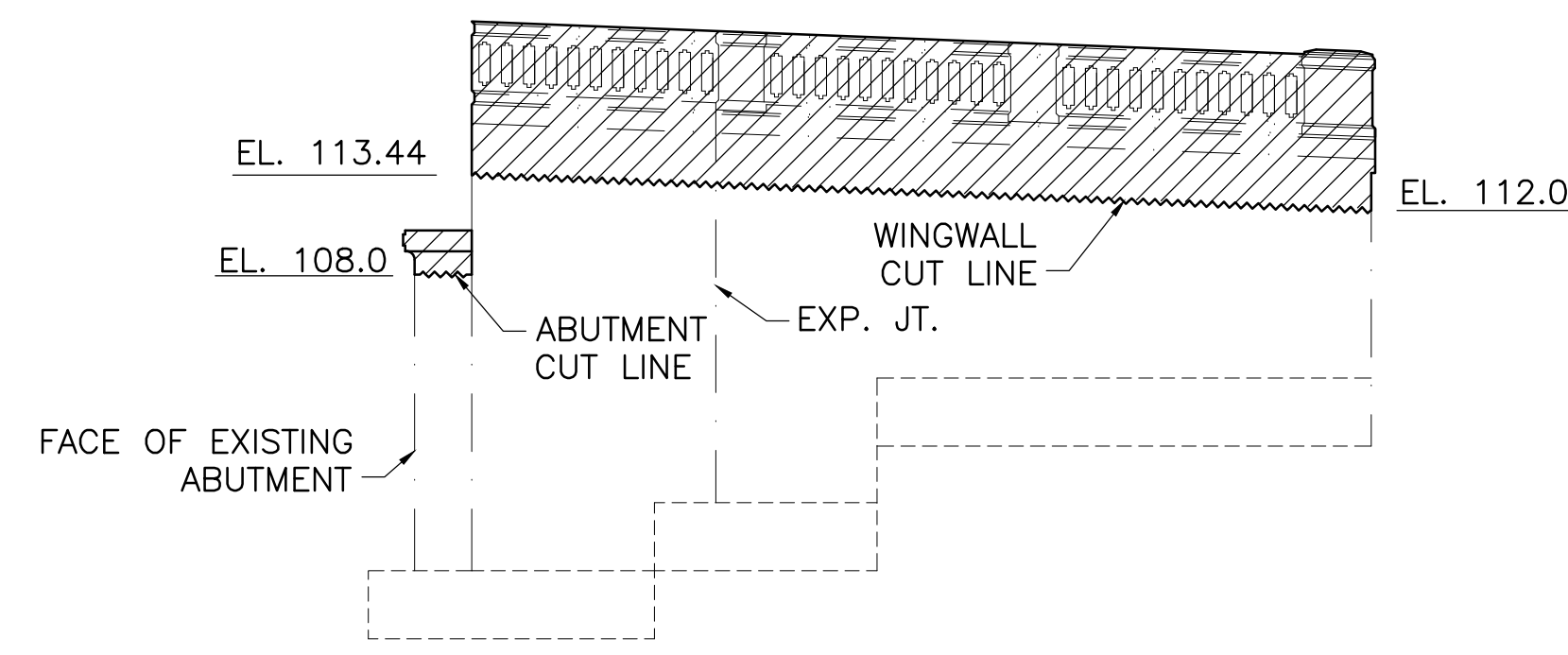
**SOUTH ABUTMENT DEMOLITION ELEVATION**  
SCALE: 1/8" = 1'-0"



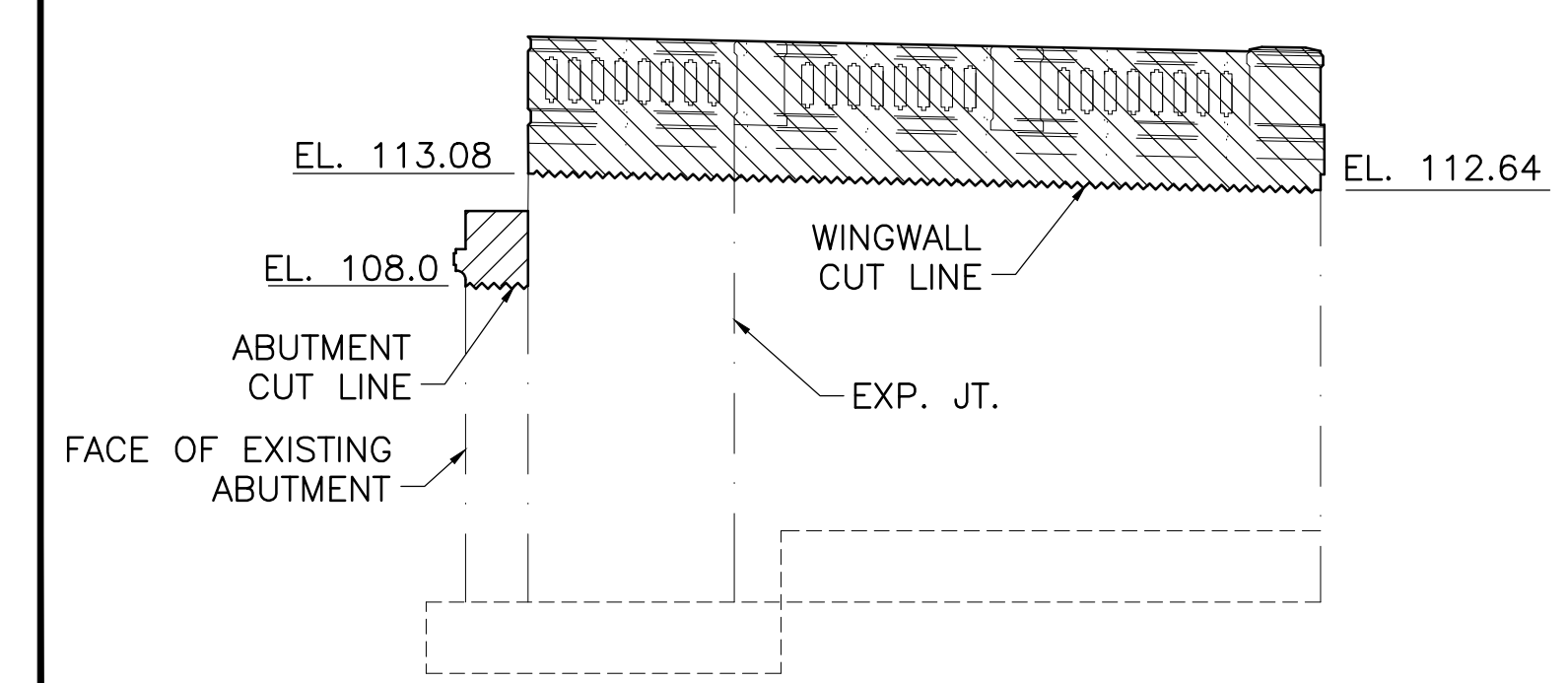
**EXISTING PIER ELEVATION**  
SCALE: 1/8" = 1'-0"



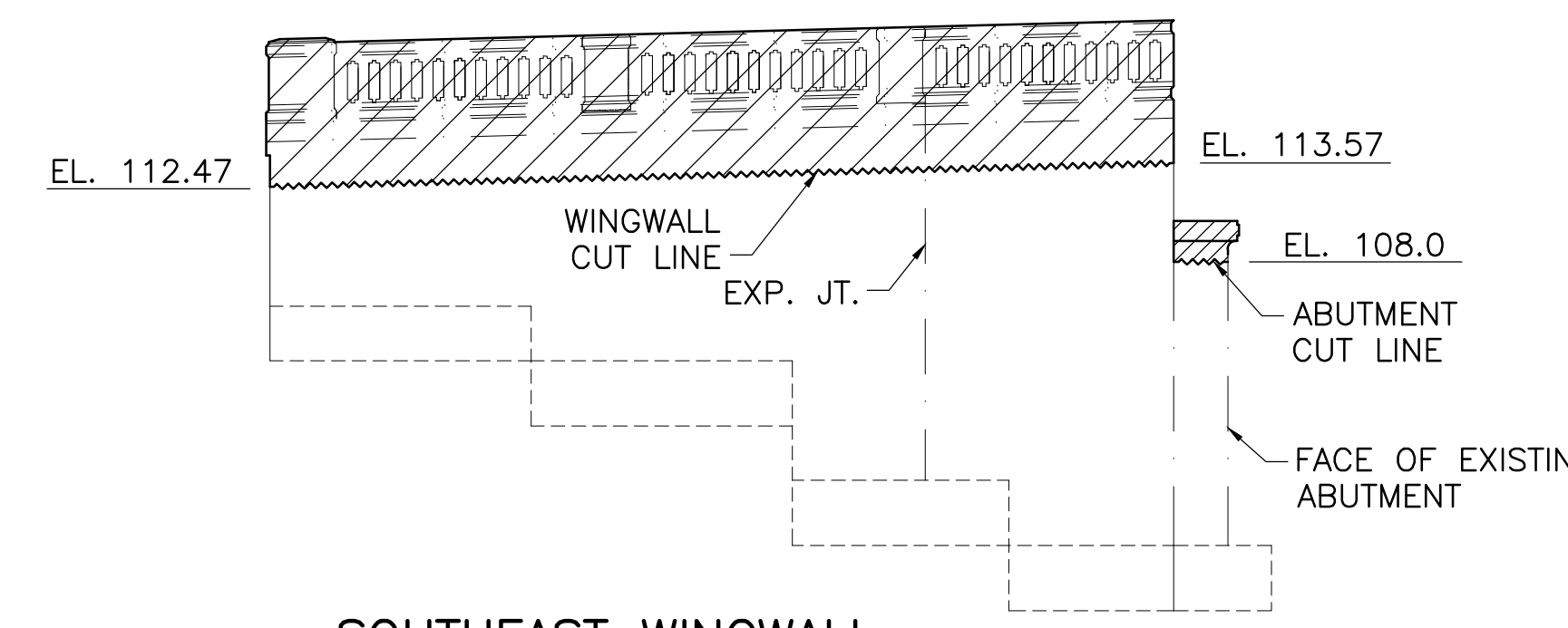
**NORTHWEST WINGWALL ELEVATION**  
SCALE: 1/8" = 1'-0"



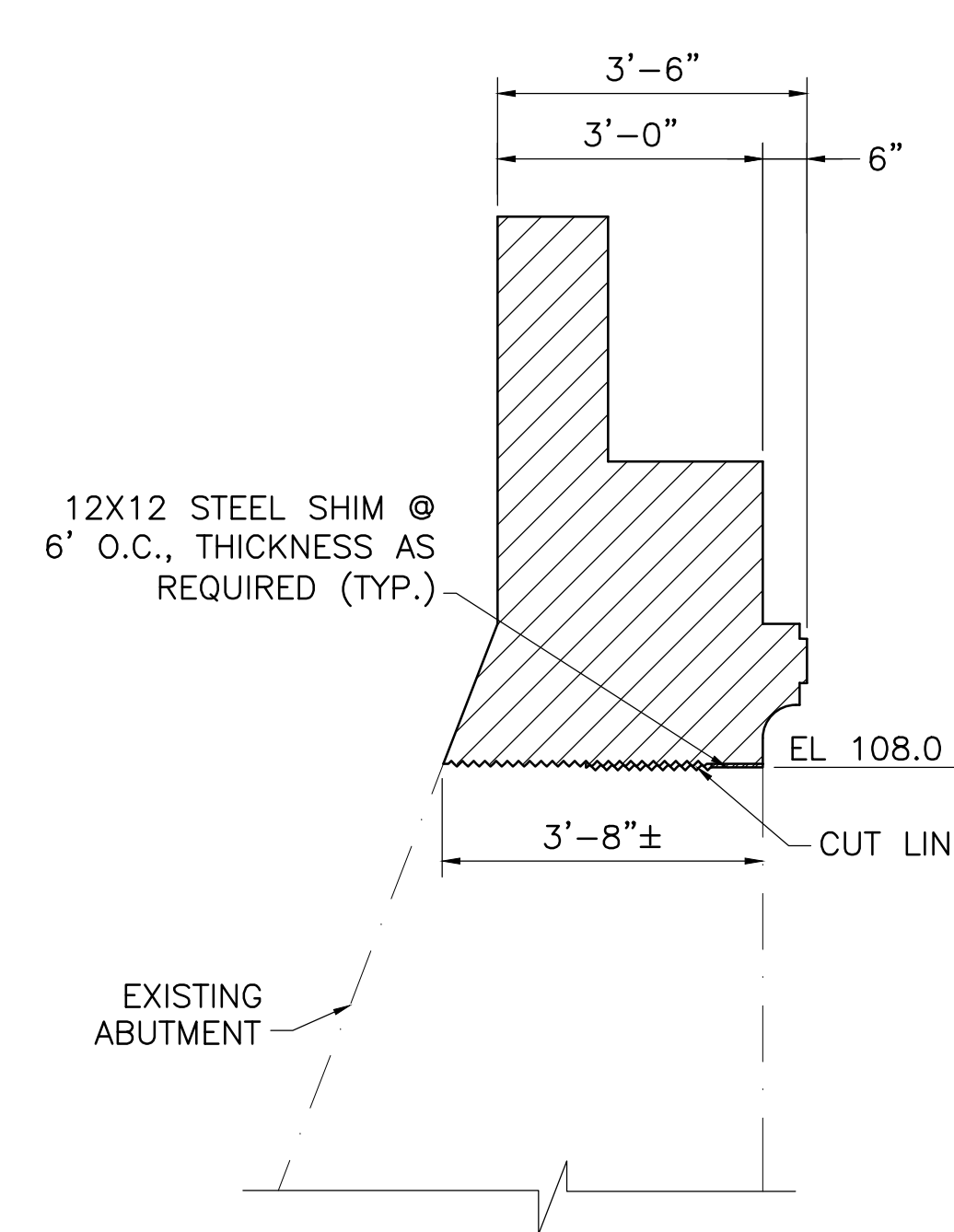
**SOUTHWEST WINGWALL ELEVATION (DEVELOPED)**  
SCALE: 1/8" = 1'-0"



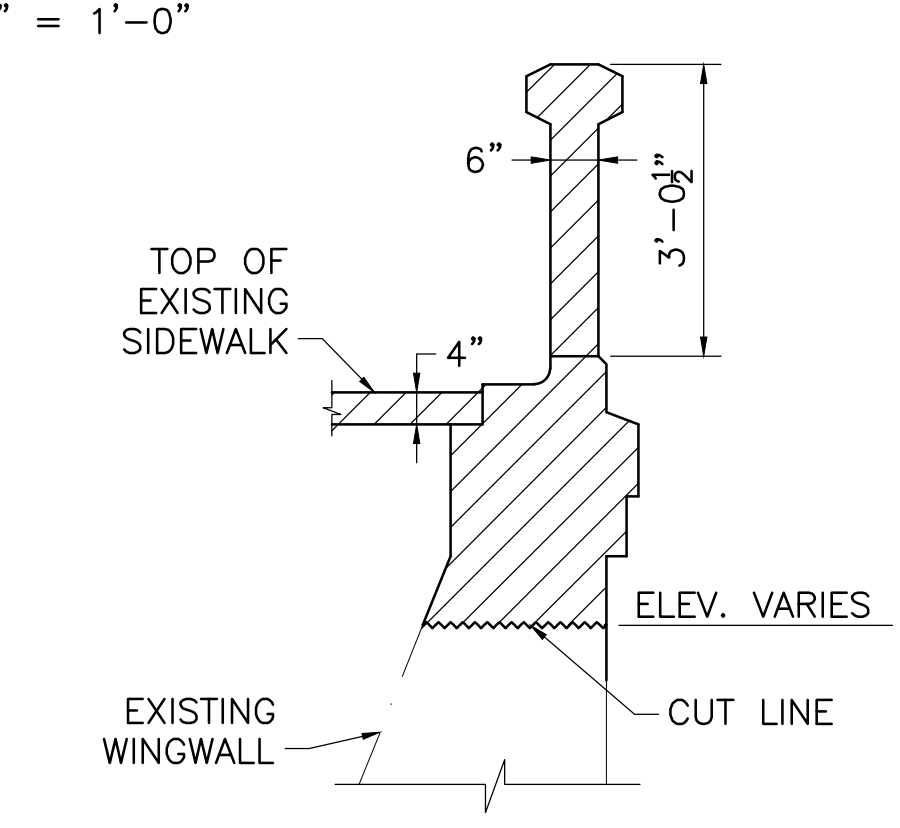
**NORTHEAST WINGWALL ELEVATION**  
SCALE: 1/8" = 1'-0"



**SOUTHEAST WINGWALL ELEVATION (DEVELOPED)**  
SCALE: 1/8" = 1'-0"



**SECTION 2**  
SCALE: 1/2" = 1'-0"

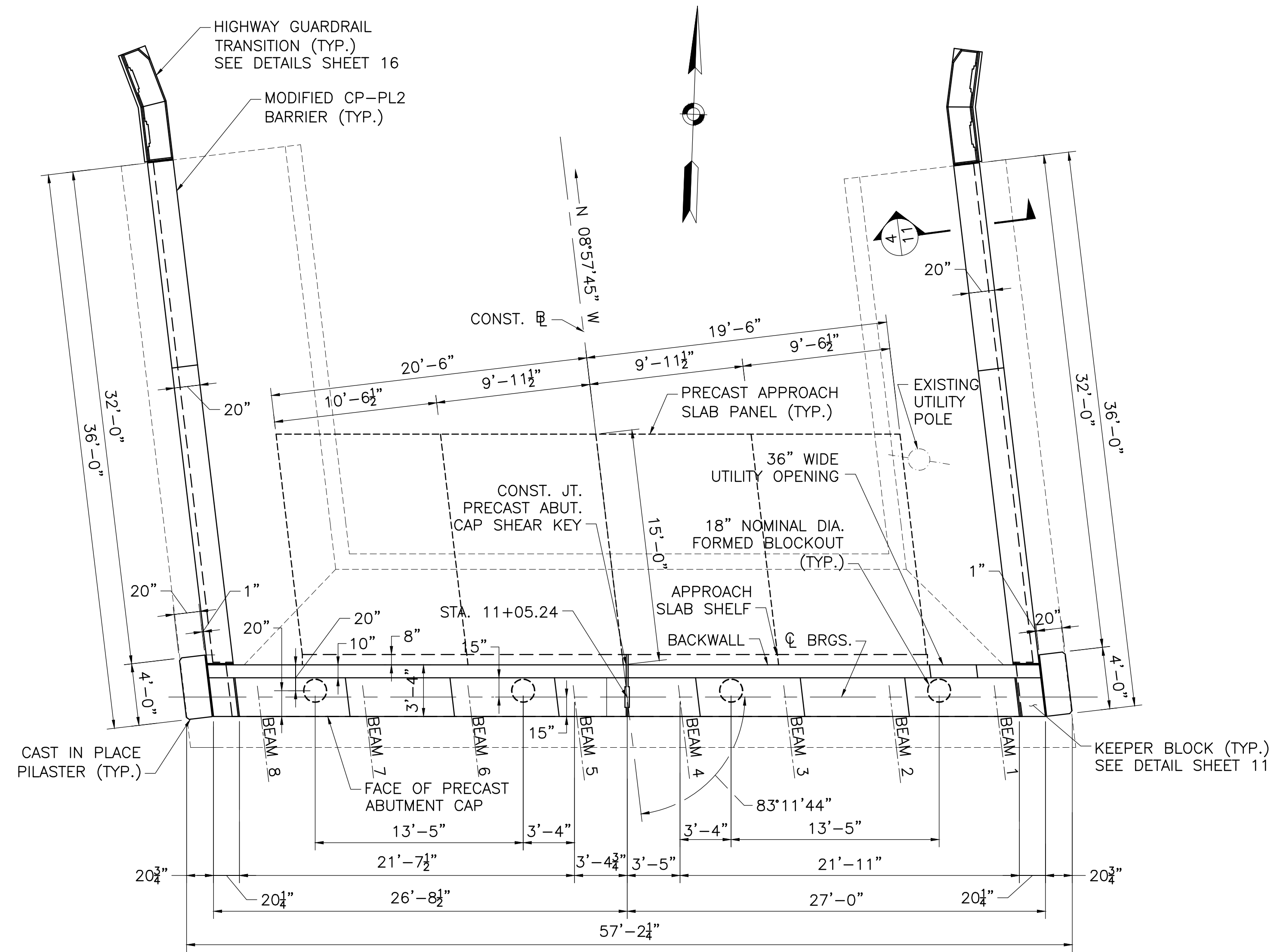


**SECTION 1**  
SCALE: 1/2" = 1'-0"

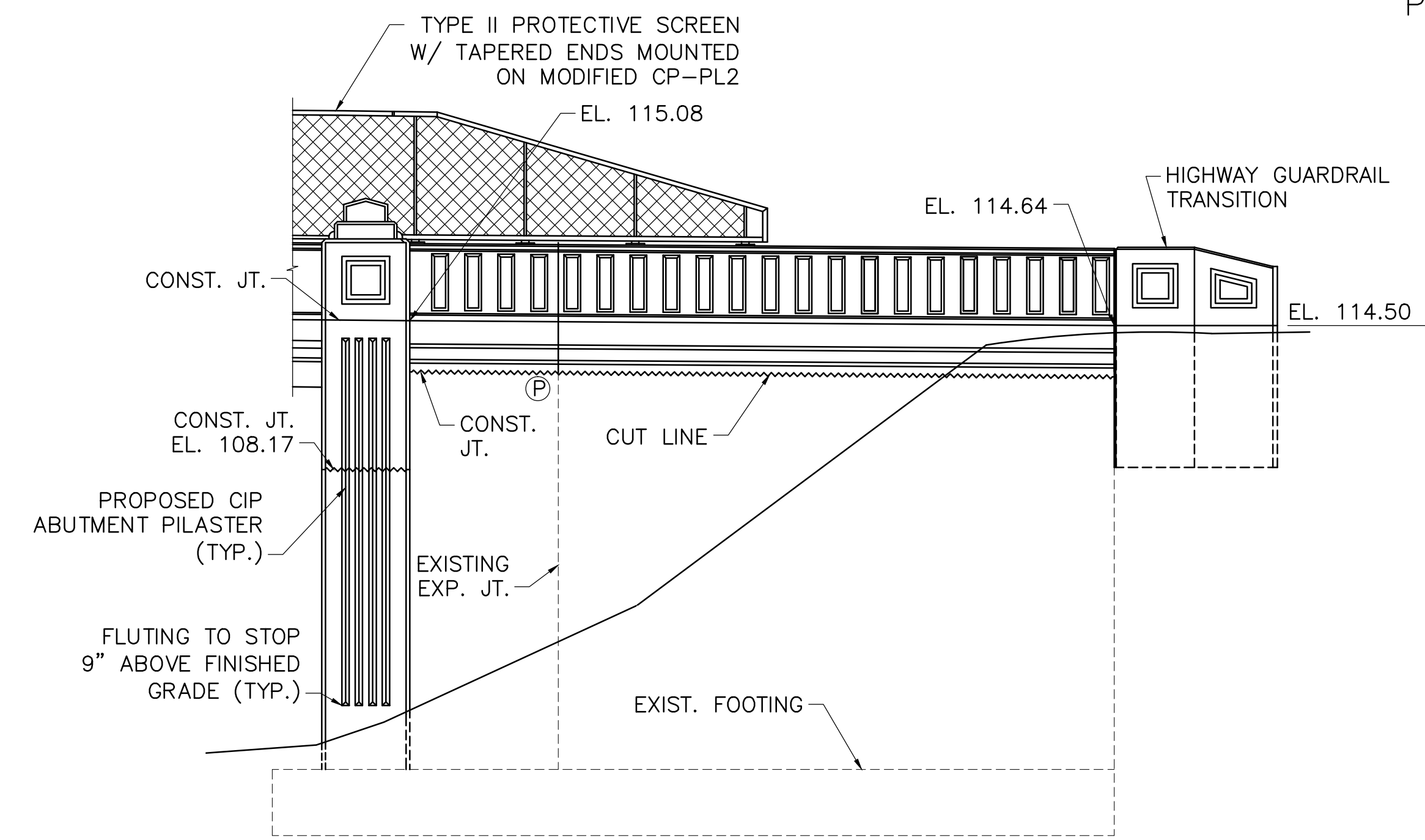
DATE	ISSUED FOR CONSTRUCTION
	DESCRIPTION
	USE ONLY PRINTS OF LATEST DATE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	NFA	49	72
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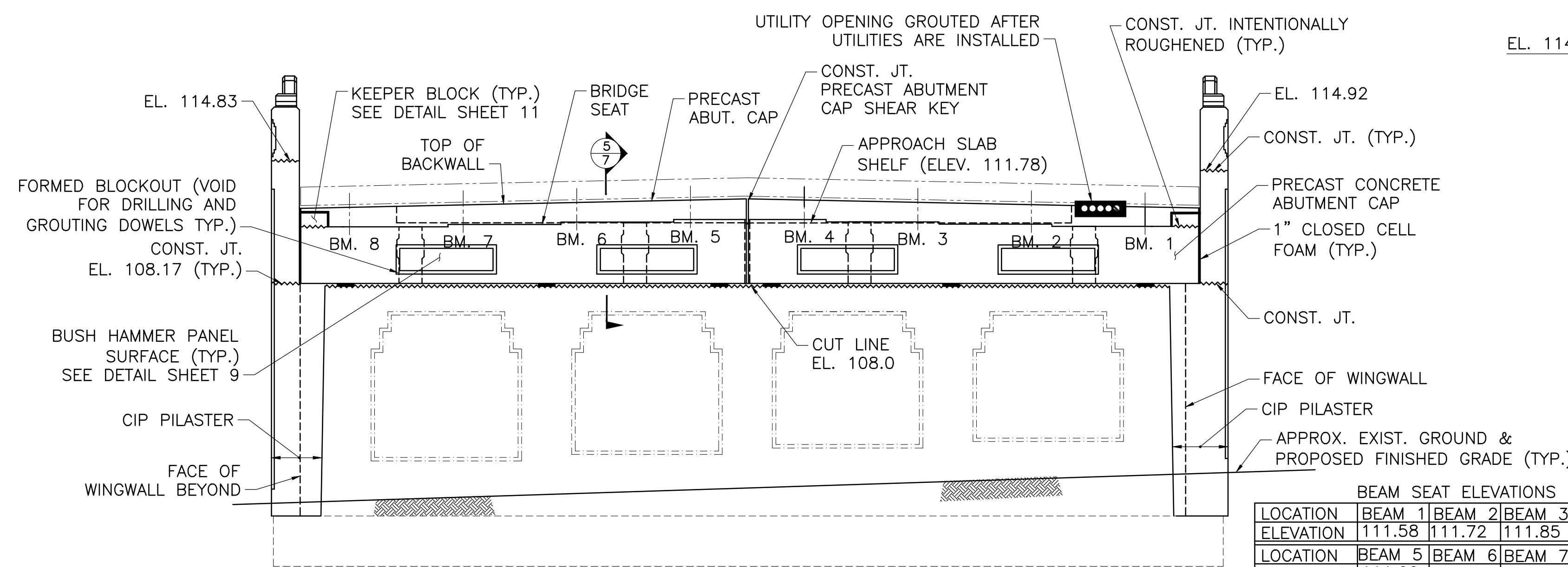
NORTH ABUTMENT  
PLAN AND ELEVATION



**NORTH ABUTMENT PLAN**  
SCALE: 3/16" = 1'-0"

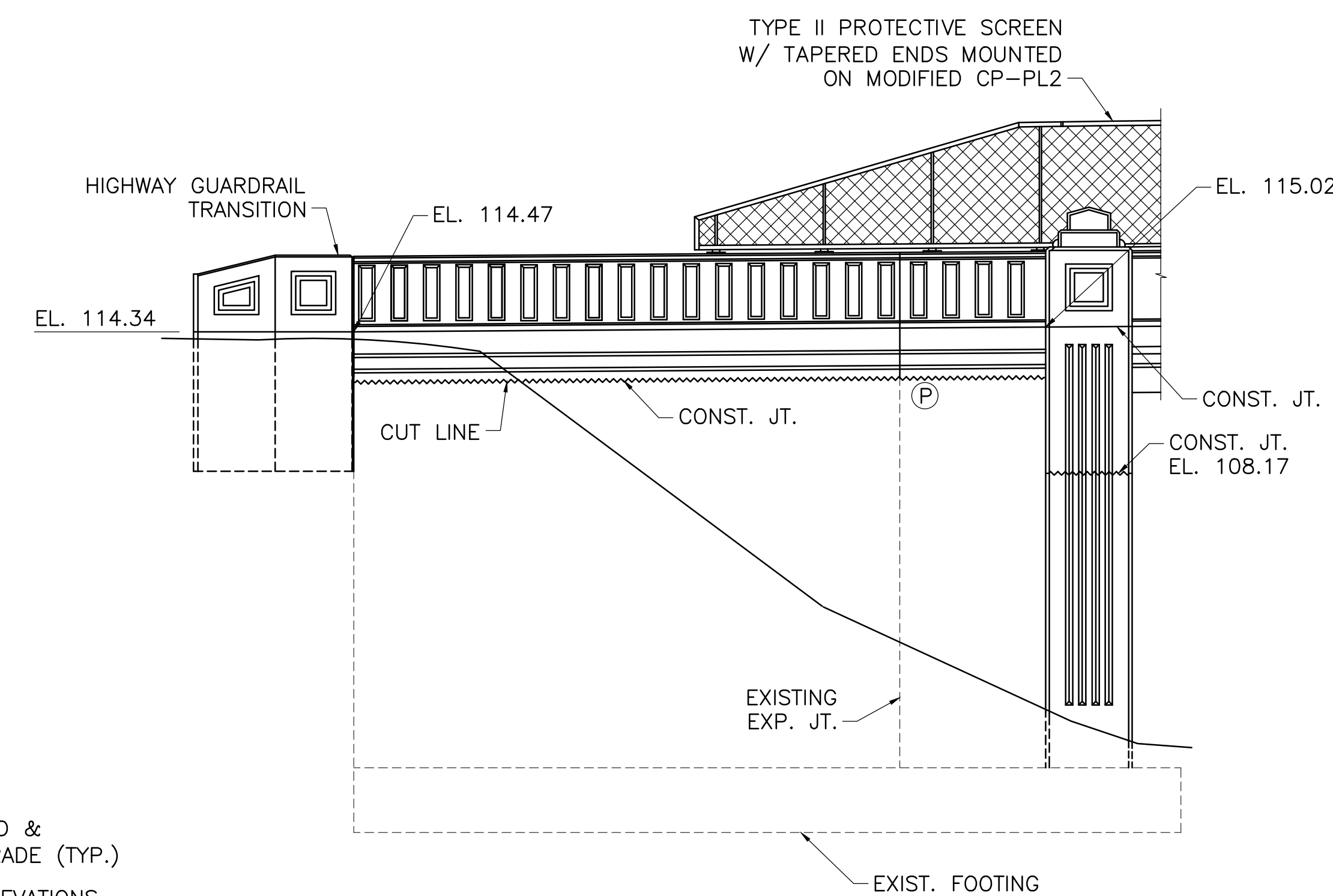


**NORTHEAST WINGWALL ELEVATION**  
SCALE: 3/16" = 1'-0"



- NOTES:
1. FOR PRECAST ABUTMENT CAP DETAILS SEE SHEET 7
  2. FOR PANEL DETAILS SEE SHEET 9
  3. FOR PILASTER DETAILS SEE SHEET 9

**NORTH ABUTMENT ELEVATION**  
SCALE: 3/16" = 1'-0"



**NORTHWEST WINGWALL ELEVATION**  
SCALE: 3/16" = 1'-0"

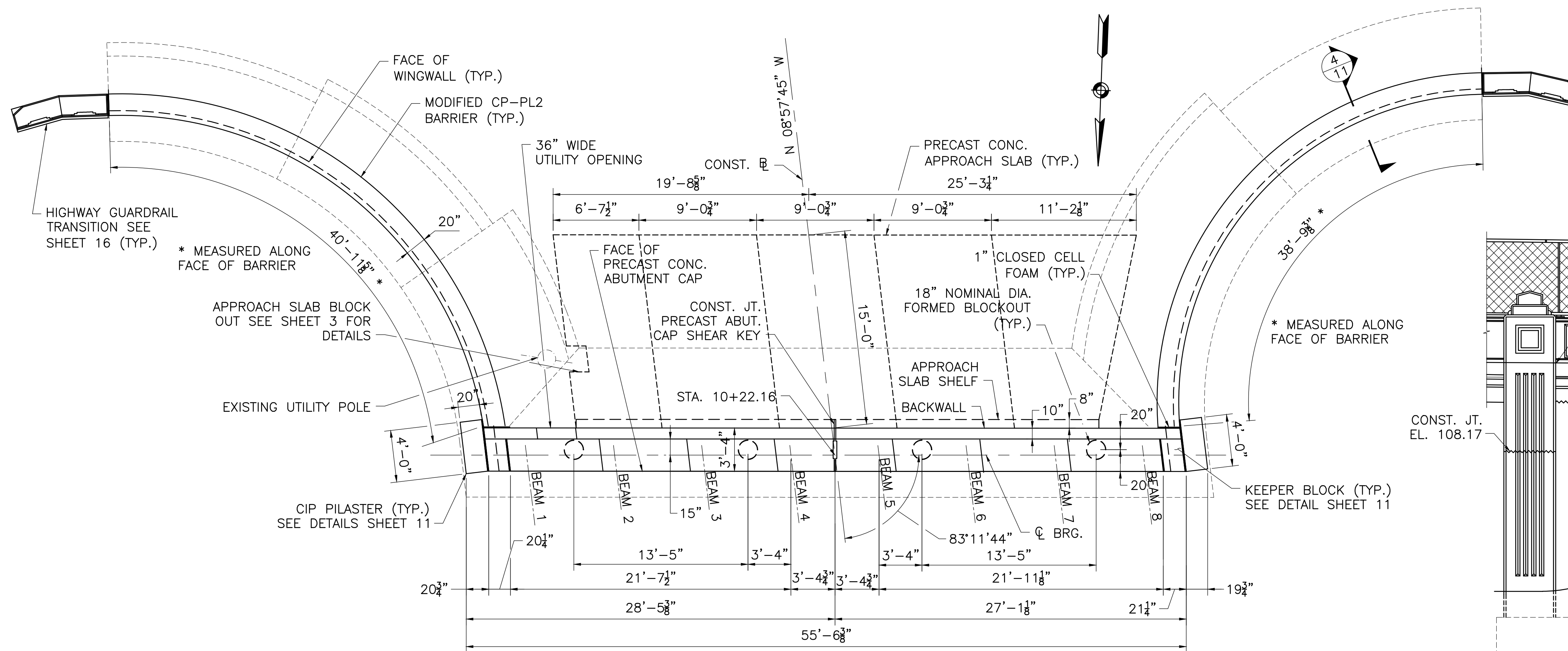
BEAM SEAT ELEVATIONS				
LOCATION	BEAM 1	BEAM 2	BEAM 3	BEAM 4
ELEVATION	111.58	111.72	111.85	111.99
LOCATION	BEAM 5	BEAM 6	BEAM 7	BEAM 8
ELEVATION	111.99	111.84	111.70	111.56

1. IT SHALL BE PERMISSIBLE TO USE SHIM PLATES TO ADJUST THE SUPERSTRUCTURE TO FINAL GRADE.
2. BEAM SEAT ELEVATIONS HAVE BEEN CALCULATED ASSUMING THAT EACH BEARING HAS A 0.5 INCH THICK SHIM PLATE INSTALLED.
3. THERE SHALL BE A PERMISSIBLE -0.5 INCH TO +1.5 INCH TOLERANCE ON OVERALL BEARING THICKNESS FROM THE BOTTOM OF STEEL TO THE BRIDGE SEAT.

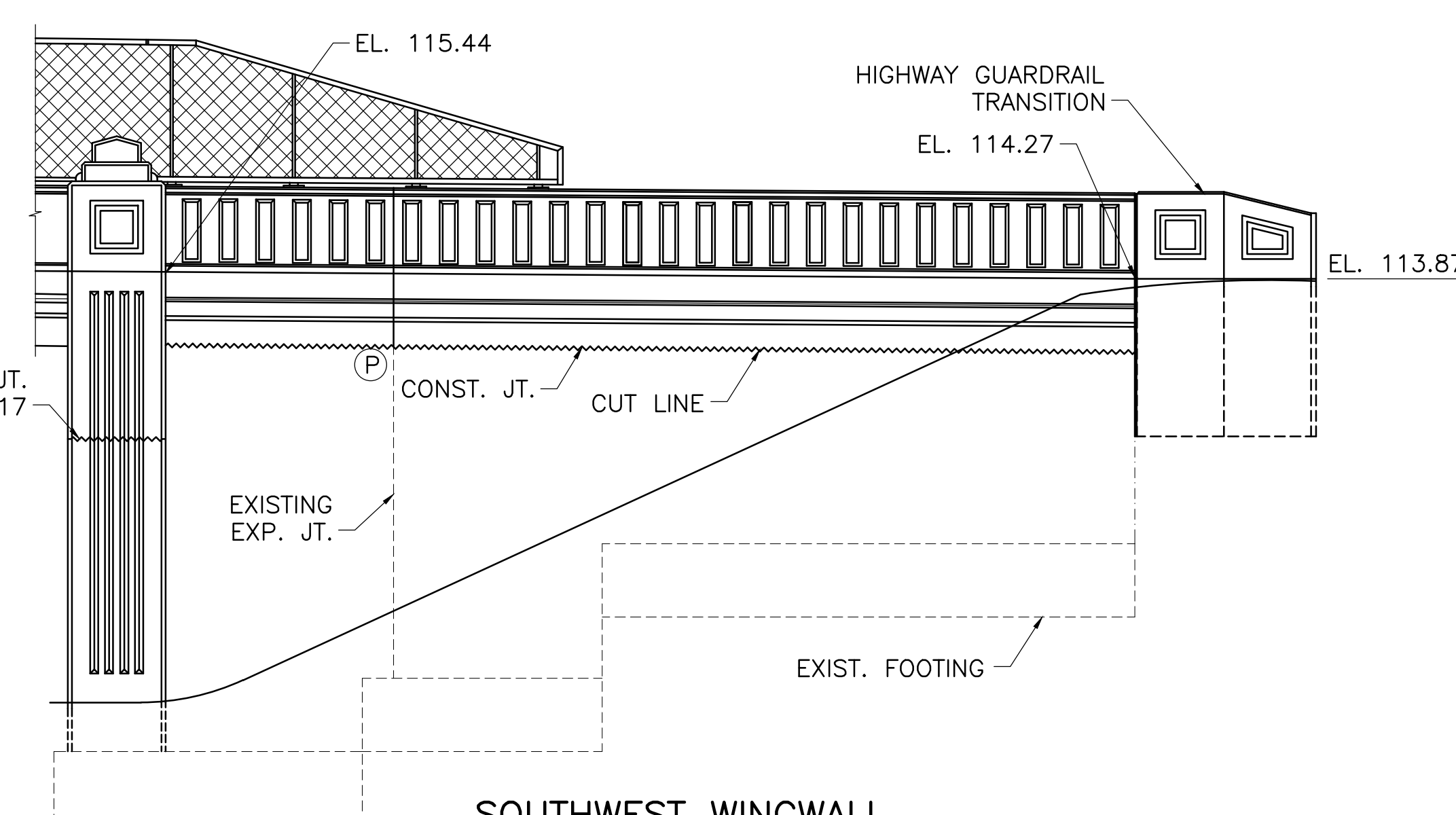
ISSUED FOR CONSTRUCTION	
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	NFA	50	72
PROJECT FILE NO. 604007			

**SOUTH ABUTMENT  
PLAN AND ELEVATION**



**SOUTH ABUTMENT PLAN**  
SCALE: 3/16" = 1'-0"

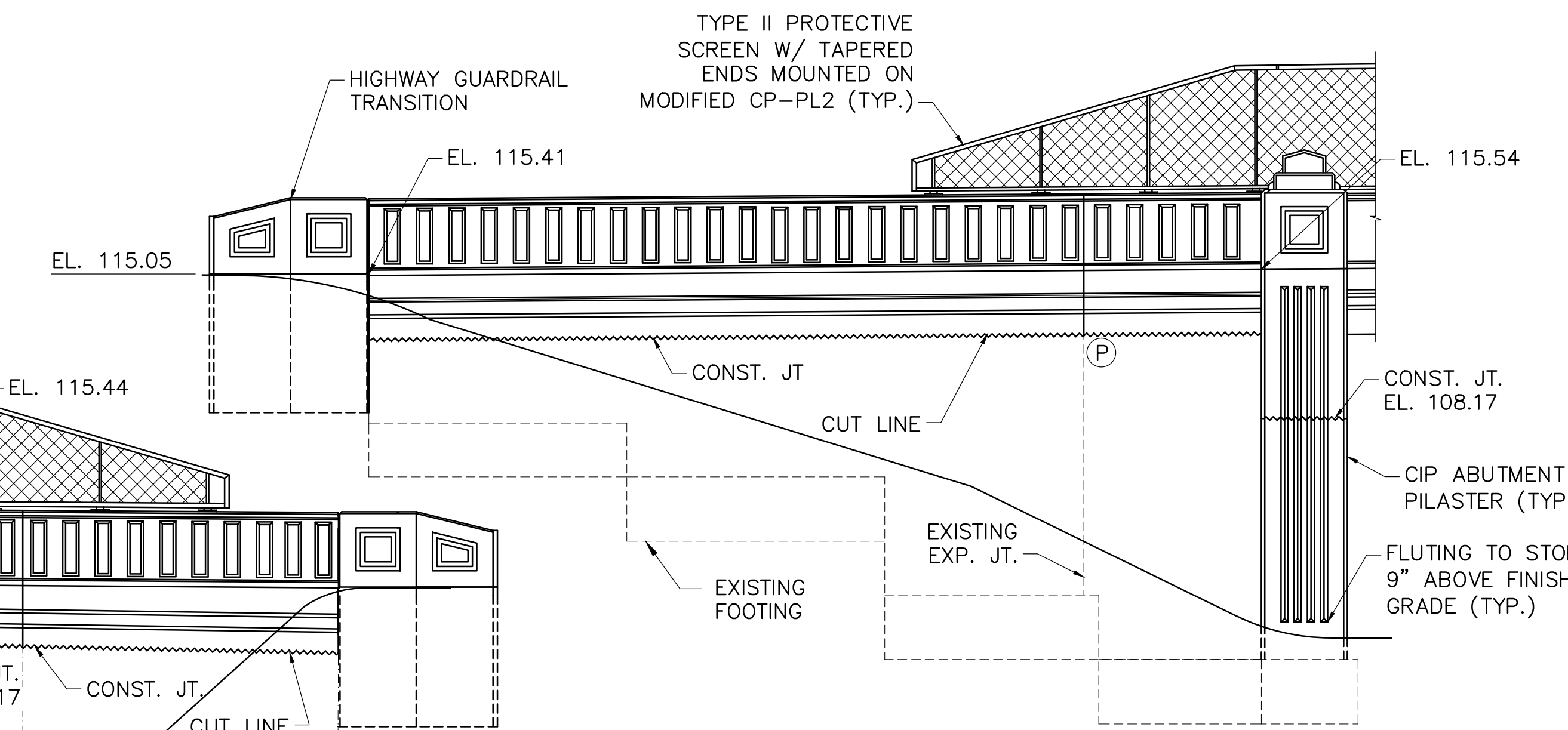


**SOUTHWEST WINGWALL  
ELEVATION (DEVELOPED)**  
SCALE: 3/16" = 1'-0"

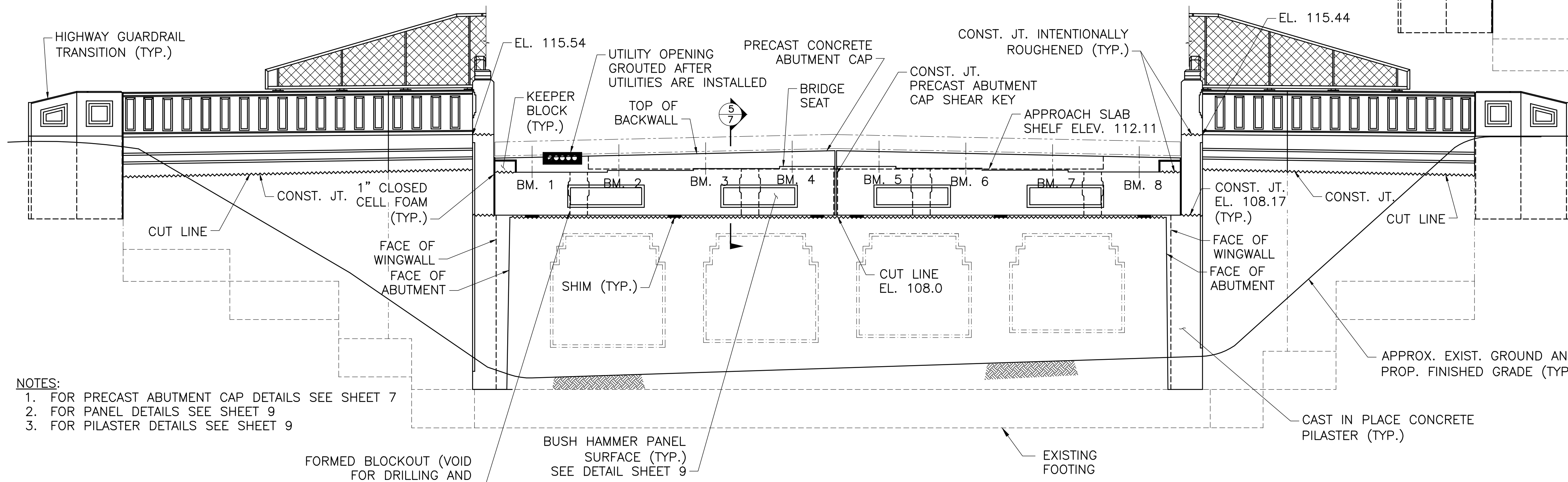
BEAM SEAT ELEVATIONS

LOCATION	BEAM 1	BEAM 2	BEAM 3	BEAM 4
ELEVATION	111.91	112.05	112.19	112.32
LOCATION	BEAM 5	BEAM 6	BEAM 7	BEAM 8
ELEVATION	112.32	112.18	112.03	111.89

- IT SHALL BE PERMISSIBLE TO USE SHIM PLATES TO ADJUST THE SUPERSTRUCTURE TO FINAL GRADE.
- BEAM SEAT ELEVATIONS HAVE BEEN CALCULATED ASSUMING THAT EACH BEARING HAS A 0.5 INCH THICK SHIM PLATE INSTALLED.
- THERE SHALL BE A PERMISSIBLE -0.5 INCH TO +1.5 INCH TOLERANCE ON OVERALL BEARING THICKNESS FROM THE BOTTOM OF STEEL TO THE BRIDGE SEAT.



**SOUTHEAST WINGWALL  
ELEVATION (DEVELOPED)**  
SCALE: 3/16" = 1'-0"



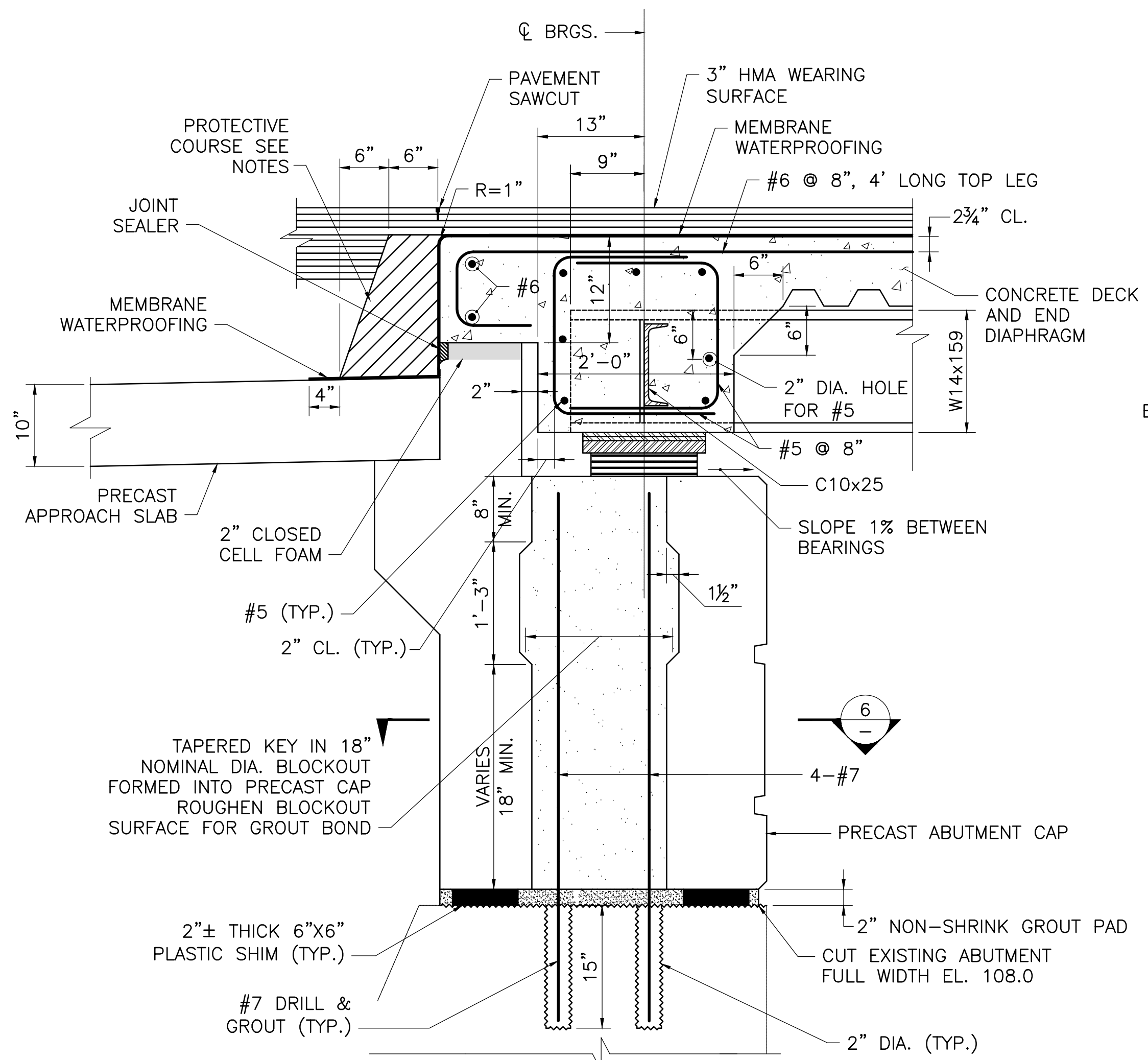
**SOUTH ABUTMENT ELEVATION**  
SCALE: 3/16" = 1'-0"

- NOTES:**
- FOR PRECAST ABUTMENT CAP DETAILS SEE SHEET 7
  - FOR PANEL DETAILS SEE SHEET 9
  - FOR PILASTER DETAILS SEE SHEET 9

DATE	ISSUED FOR CONSTRUCTION
	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

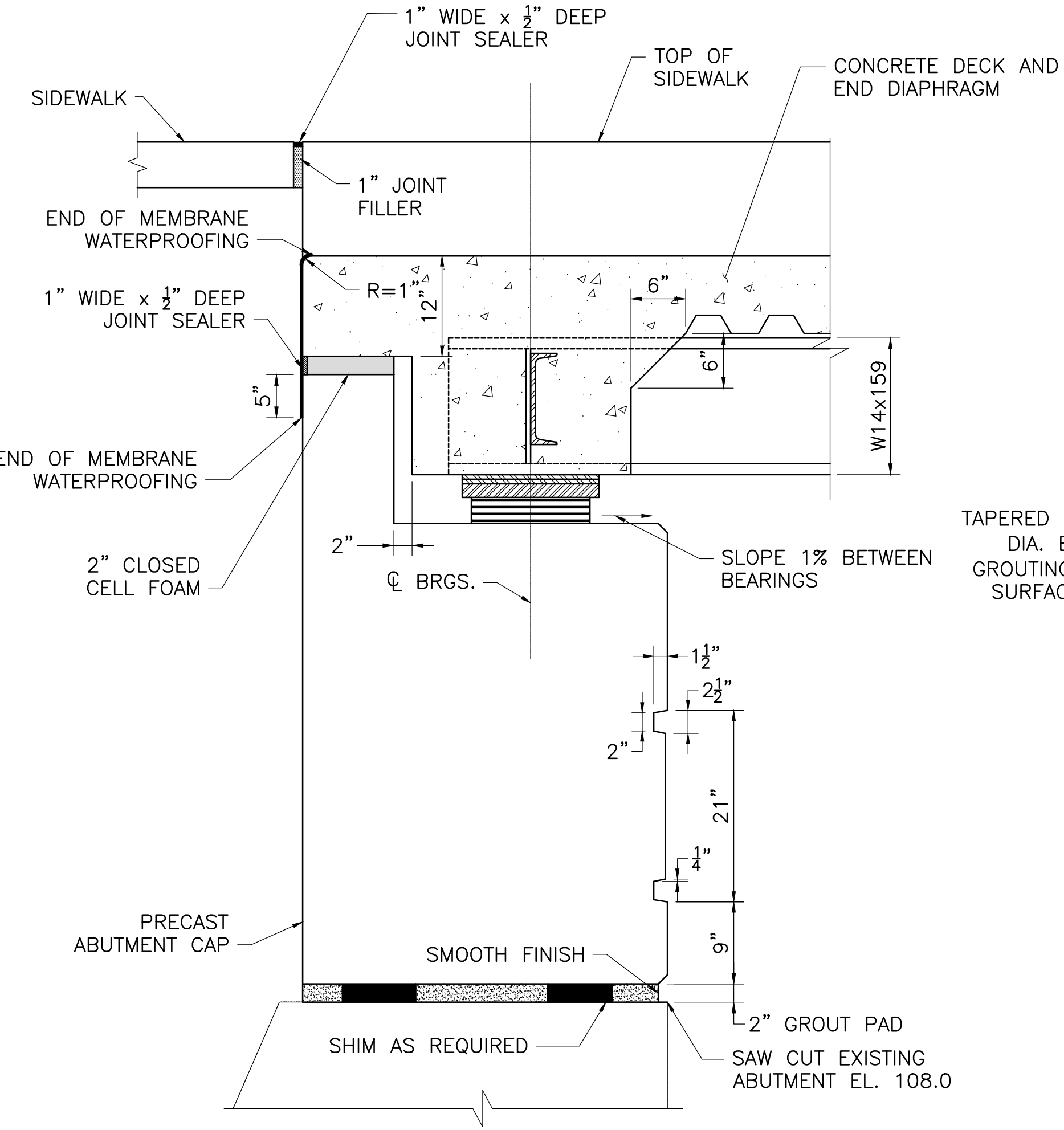
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	NFA	51	72
PROJECT FILE NO. 604007			

ABUTMENT DETAILS

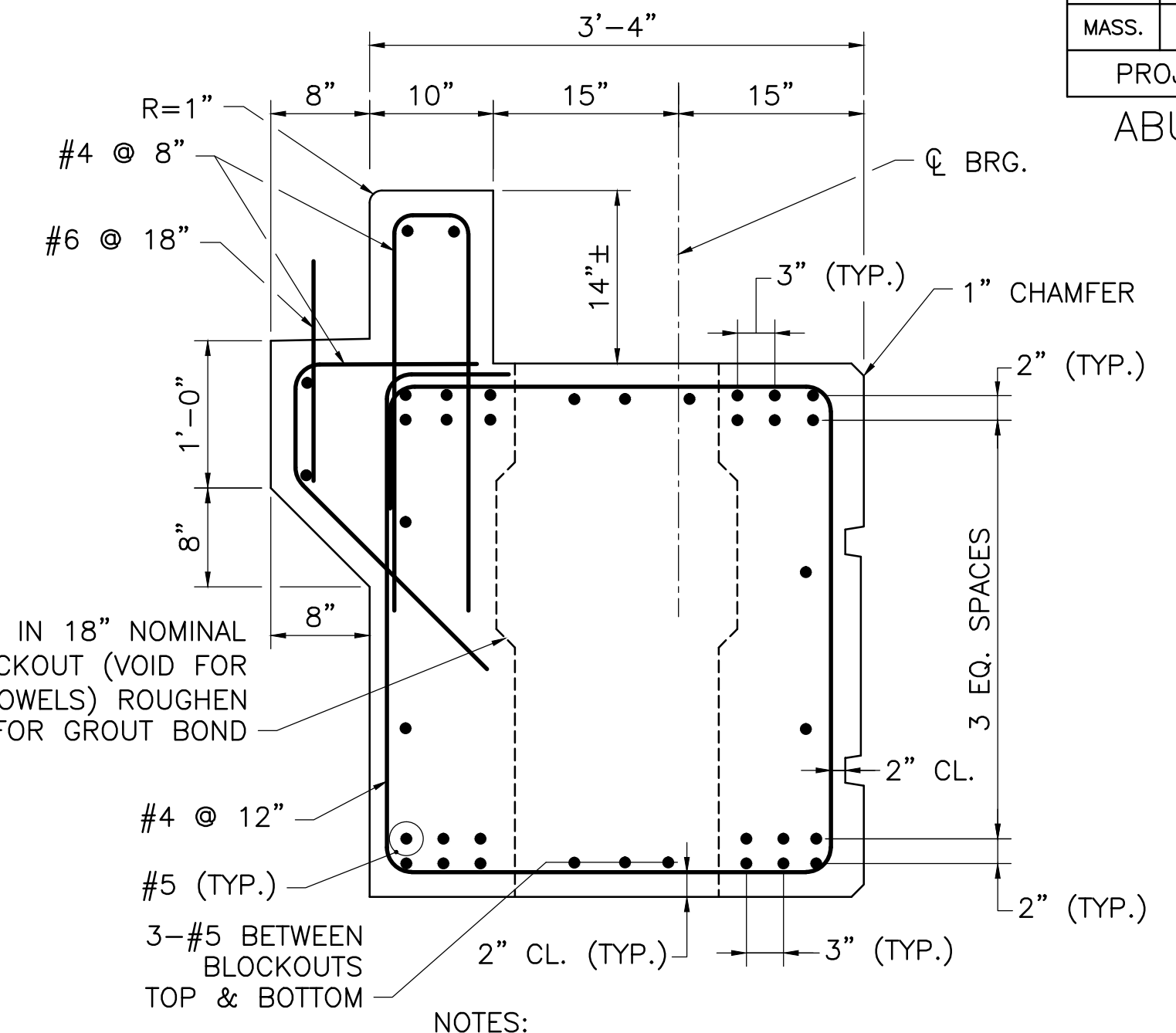


- NOTES:
1. PROTECTIVE COURSE TO BE HOT MIX ASPHALT DENSE BINDER COURSE FOR BRIDGES, PLACED IN 2 INCH LAYERS AND COMPACTED WITH A MECHANICAL HAND-GUIDED TAMPER WITHIN 12 HOURS AFTER PLACING MEMBRANE WATERPROOFING.
  2. STEEL REINFORCING NOT SHOWN FOR CLARITY.
  3. ALL DECK AND END DIAPHRAGM CONCRETE TO BE 4000 PSI 3/4 IN 585 HP CEMENT CONCRETE.
  4. SEE UTILITY BLOCKOUT DETAILS SHEET 11

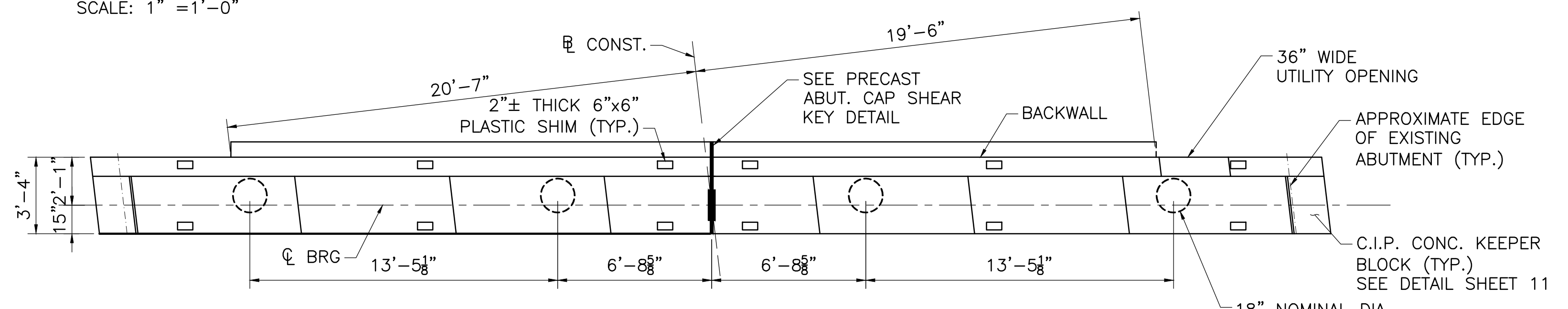
TYPICAL SECTION THROUGH ABUTMENT  
SCALE: 1" = 1'-0"



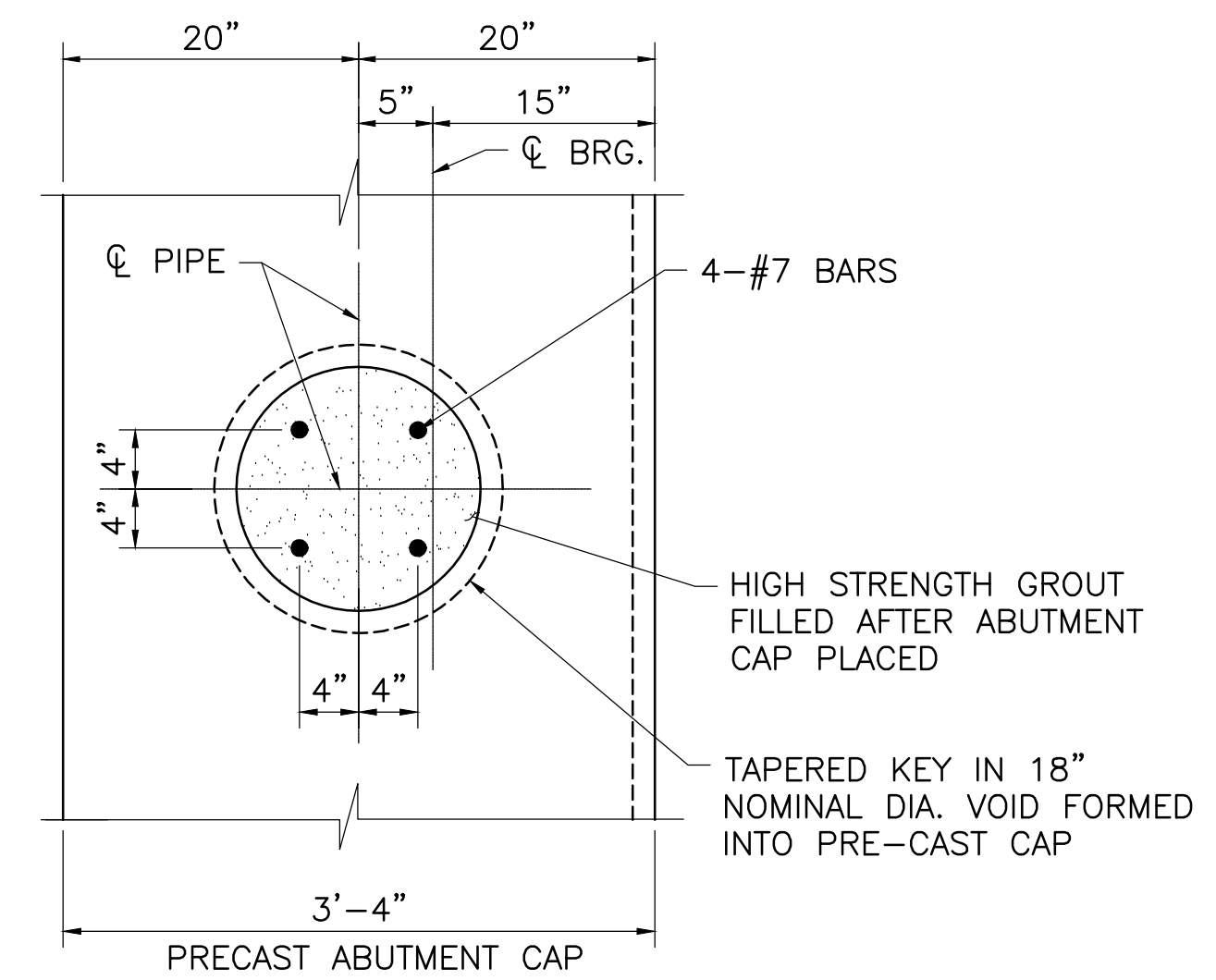
TYPICAL ABUTMENT SECTION AT SIDEWALK  
SCALE: 1" = 1'-0"



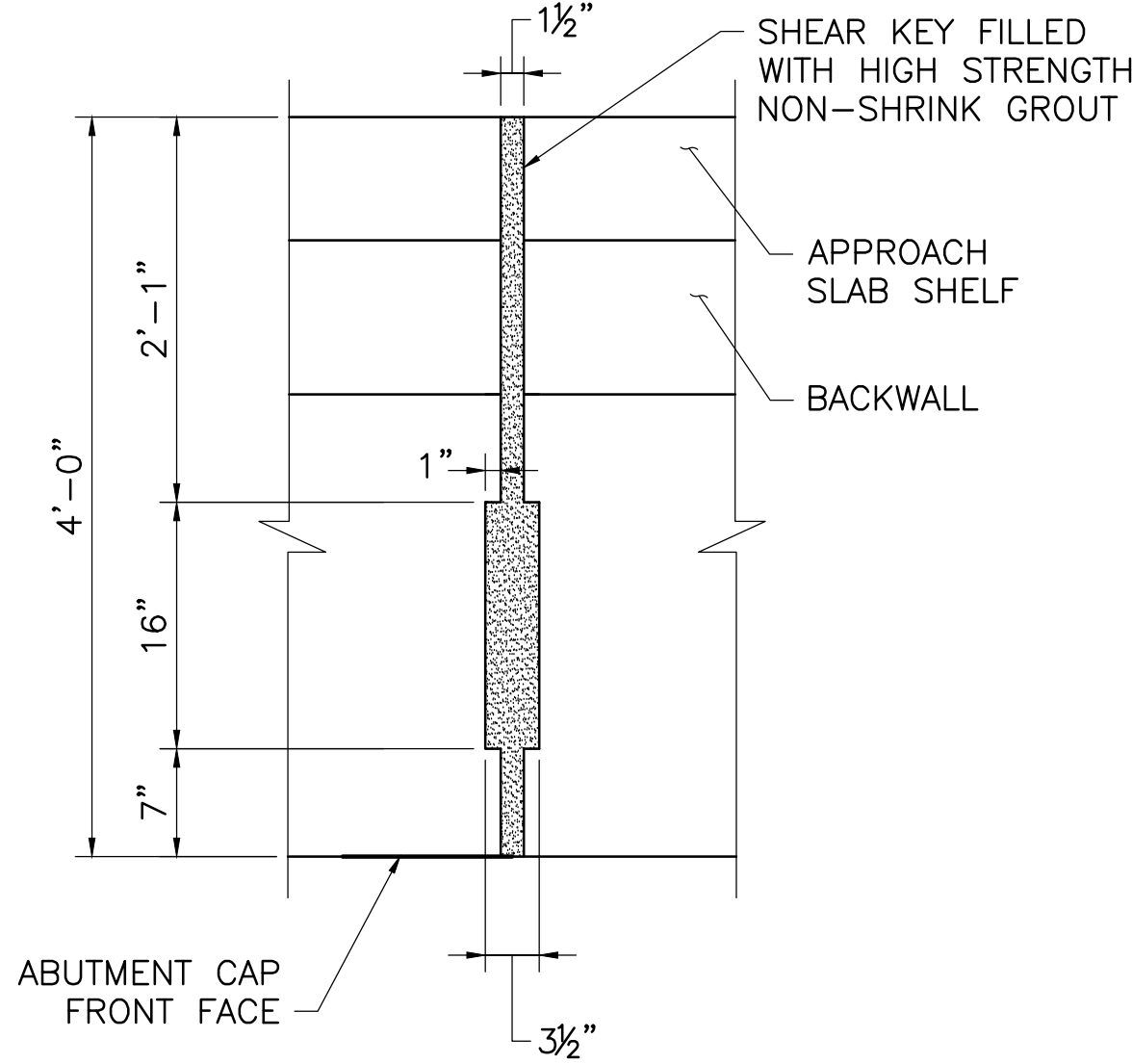
TYPICAL PRECAST ABUTMENT CAP  
SECTION 5  
SCALE: 1" = 1'-0"



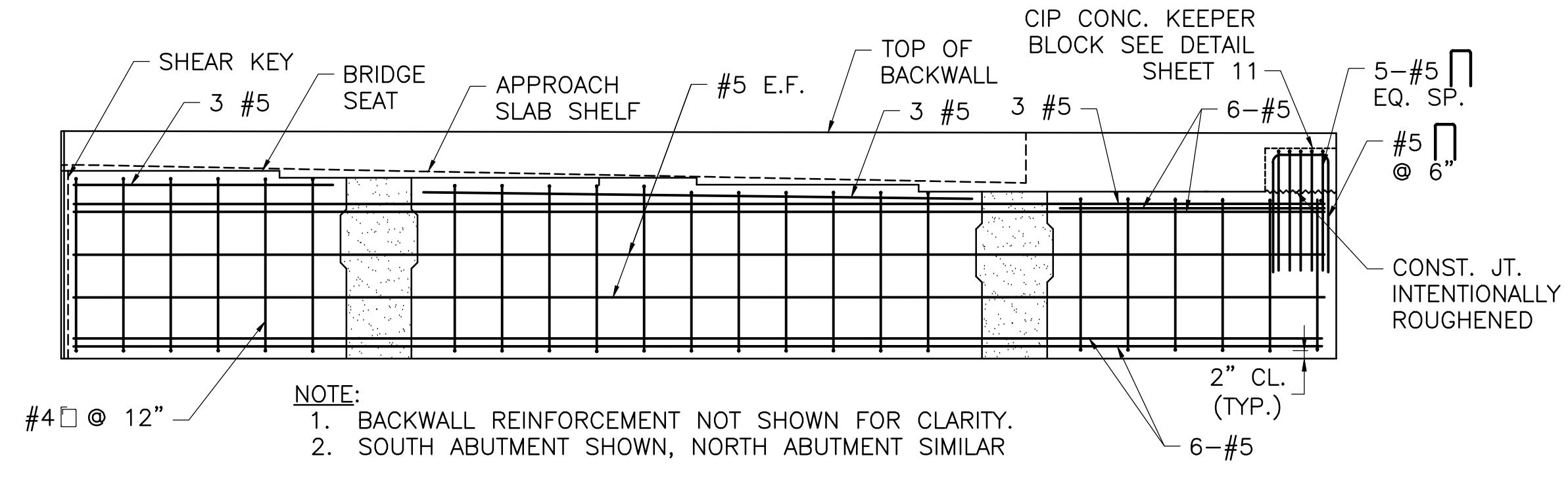
TYPICAL PRECAST ABUTMENT CAP PLAN  
(NORTH ABUT. SHOWN, SOUTH ABUT. SIMILAR OPPOSITE HAND)  
SCALE: 1/4" = 1'-0"



SECTION 6  
SCALE: 1" = 1'-0"



PRECAST ABUTMENT CAP  
SHEAR KEY DETAIL  
SCALE: 1" = 1'-0"



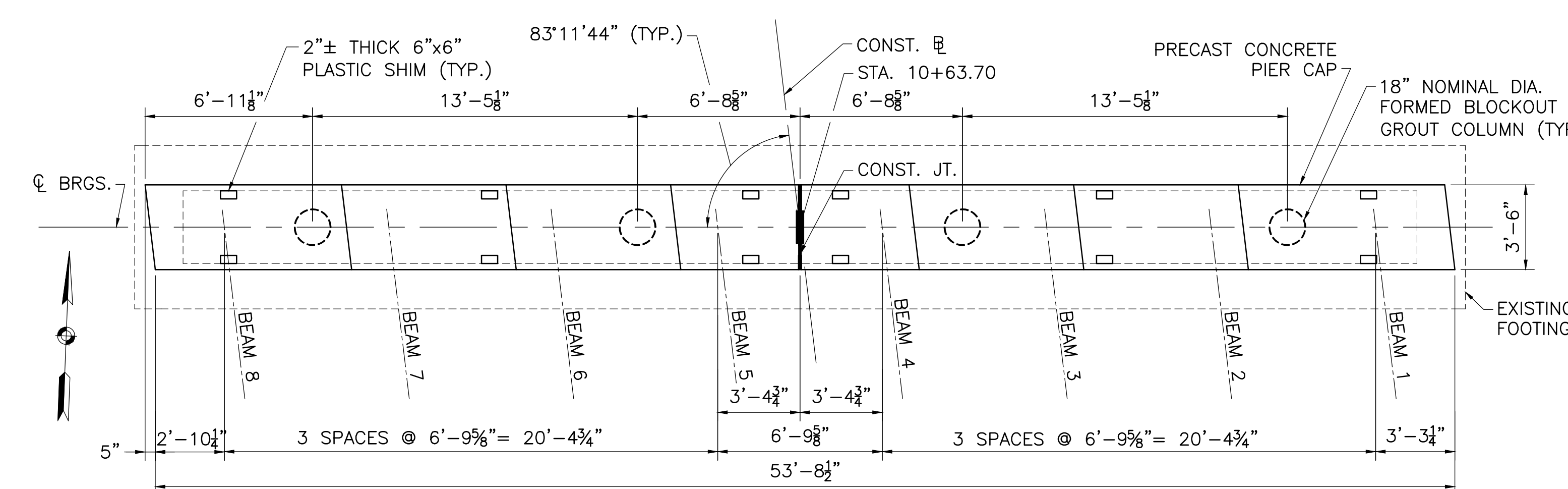
- NOTE:
1. BACKWALL REINFORCEMENT NOT SHOWN FOR CLARITY.
  2. SOUTH ABUTMENT SHOWN, NORTH ABUTMENT SIMILAR

TYPICAL PRECAST ABUTMENT CAP ELEVATION  
SCALE: 3/8" = 1'-0"

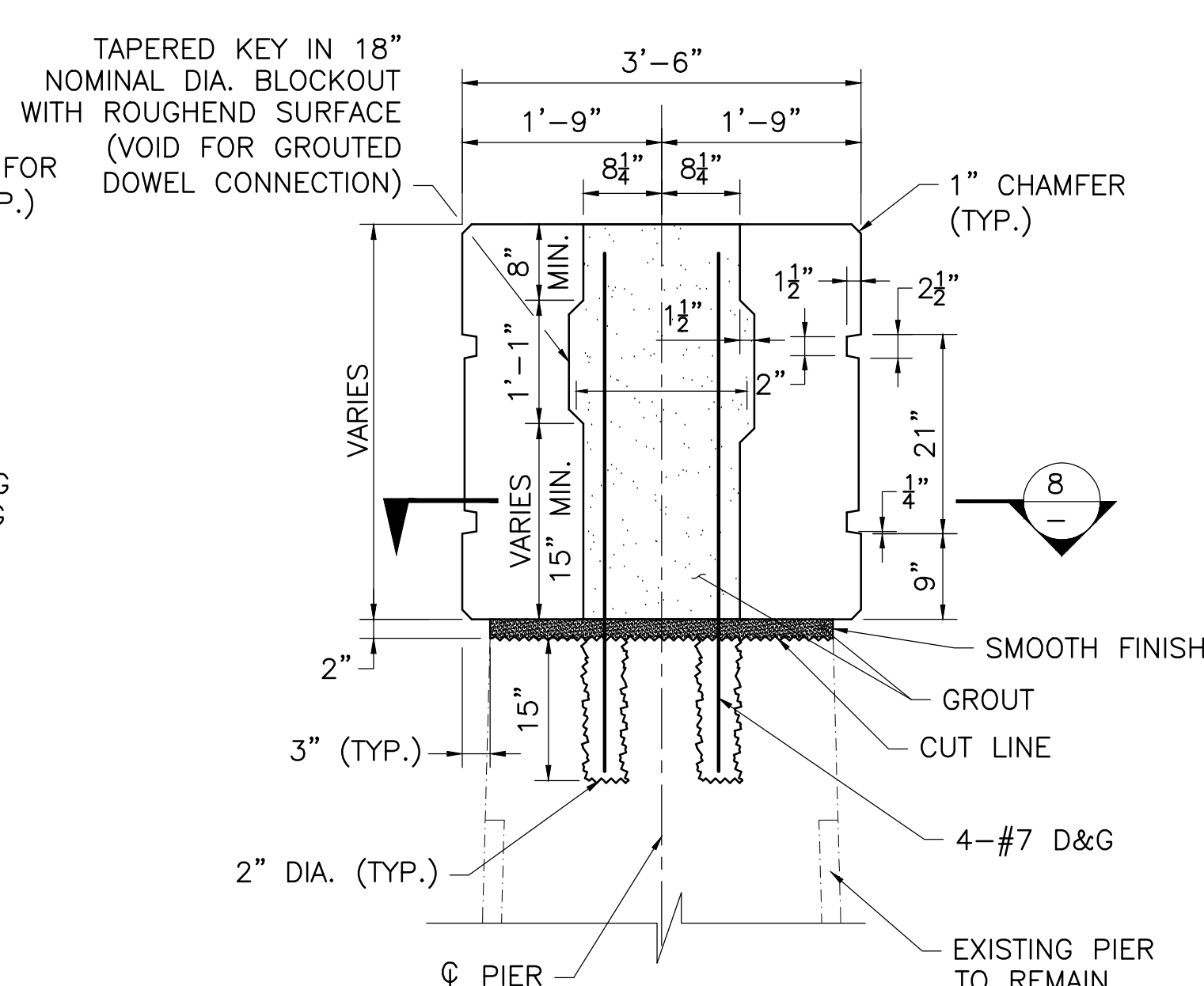
DATE	ISSUED FOR CONSTRUCTION
	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	NFA	52	72
PROJECT FILE NO. 604007			

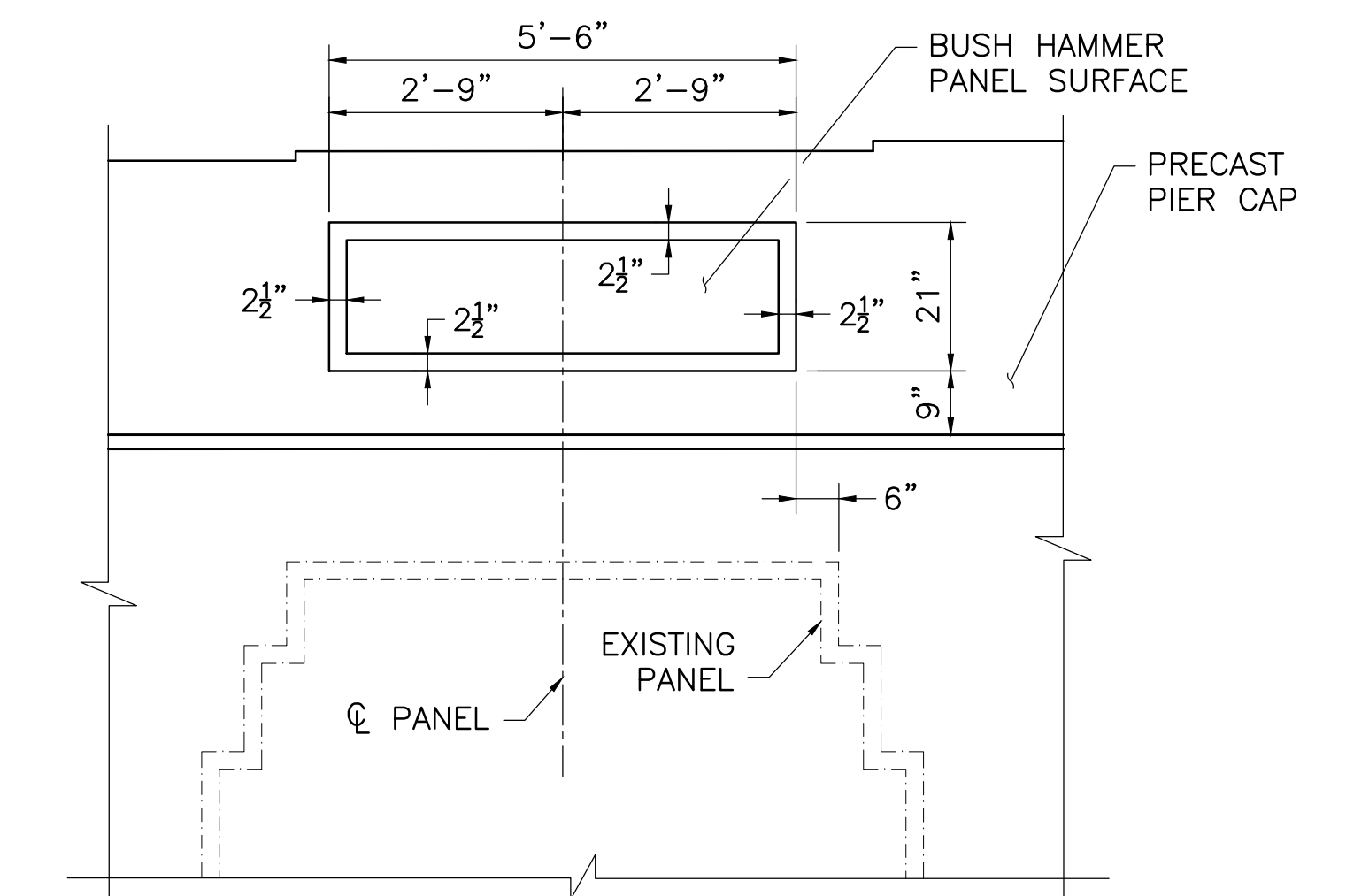
PIER PLAN, ELEVATION AND DETAILS



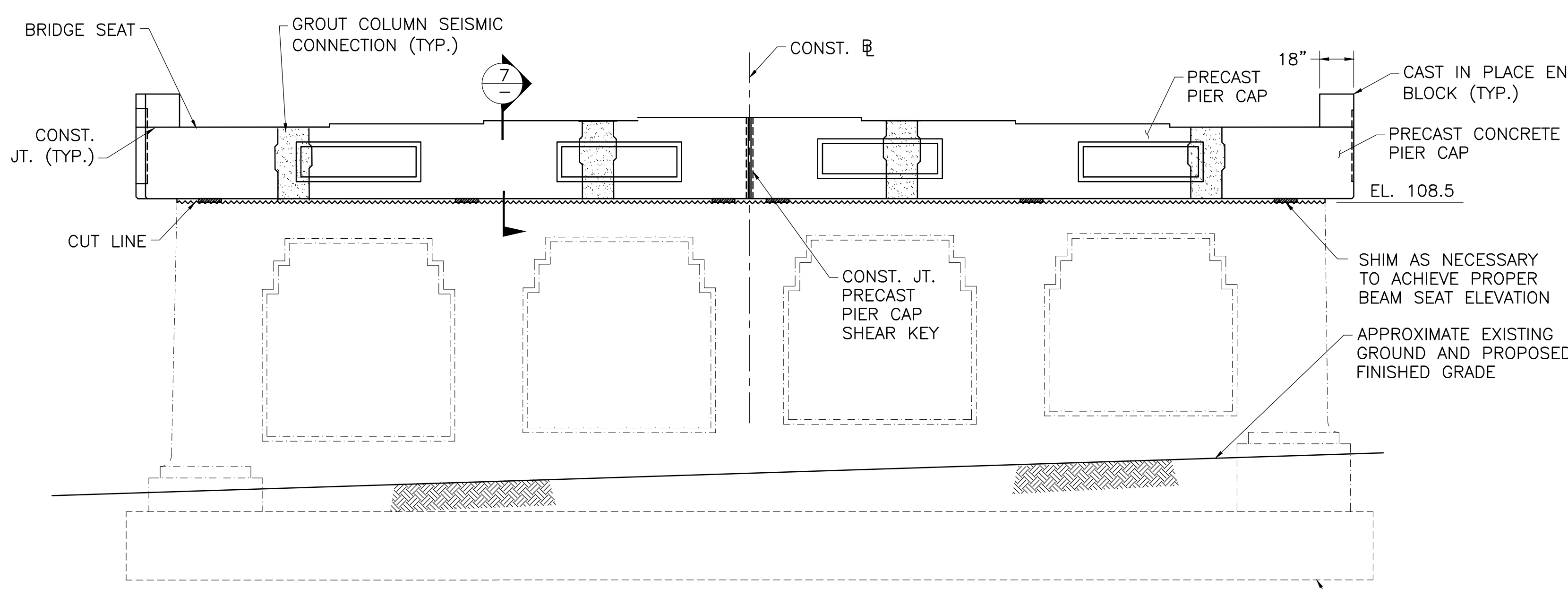
**PIER PLAN**  
SCALE: 1/4" = 1'-0"



**TYPICAL SECTION THROUGH PIER**  
SCALE: 3/4" = 1'-0"

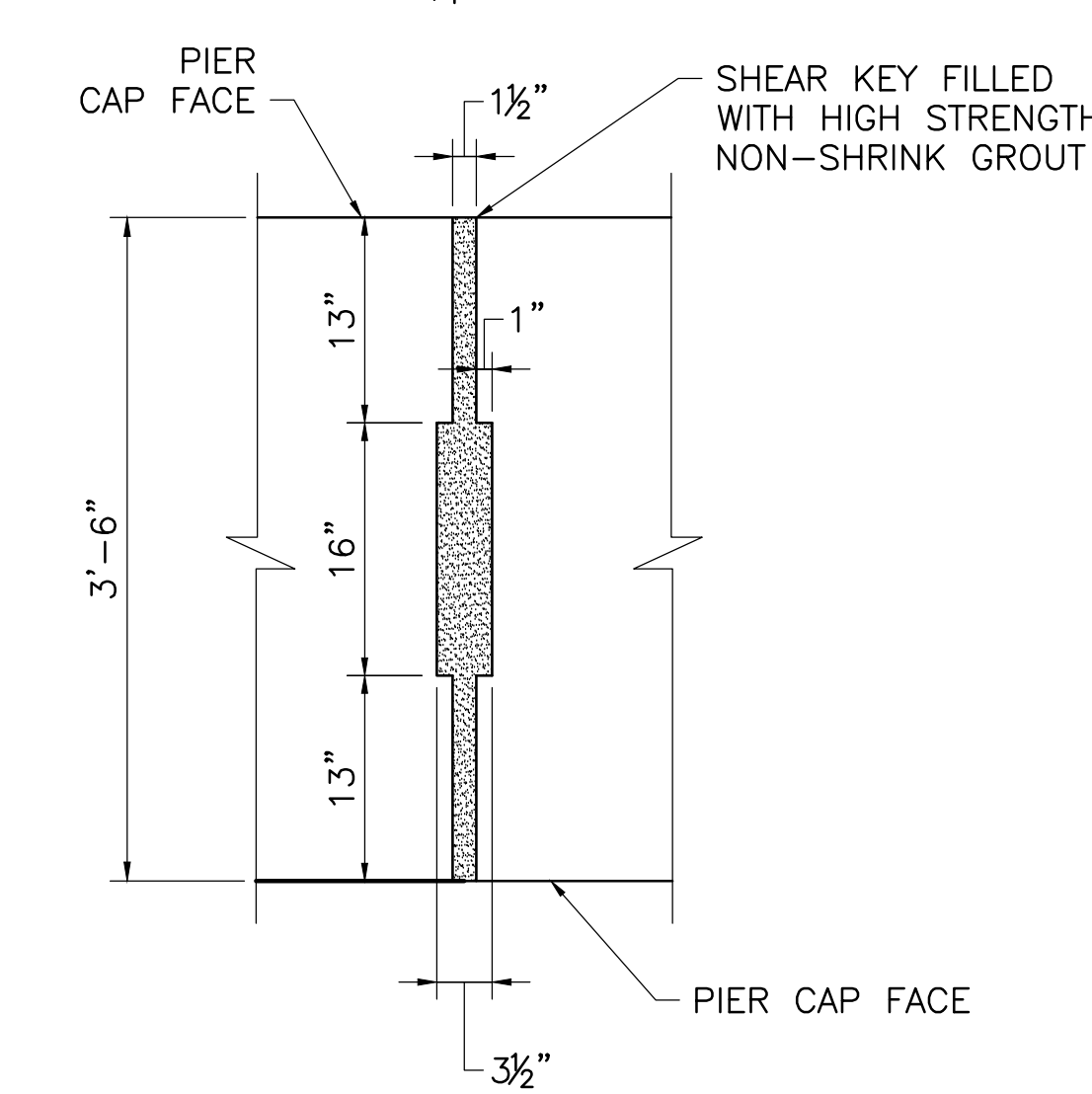


**TYPICAL PIER PANEL DETAIL**  
SCALE: 1/2" = 1'-0"

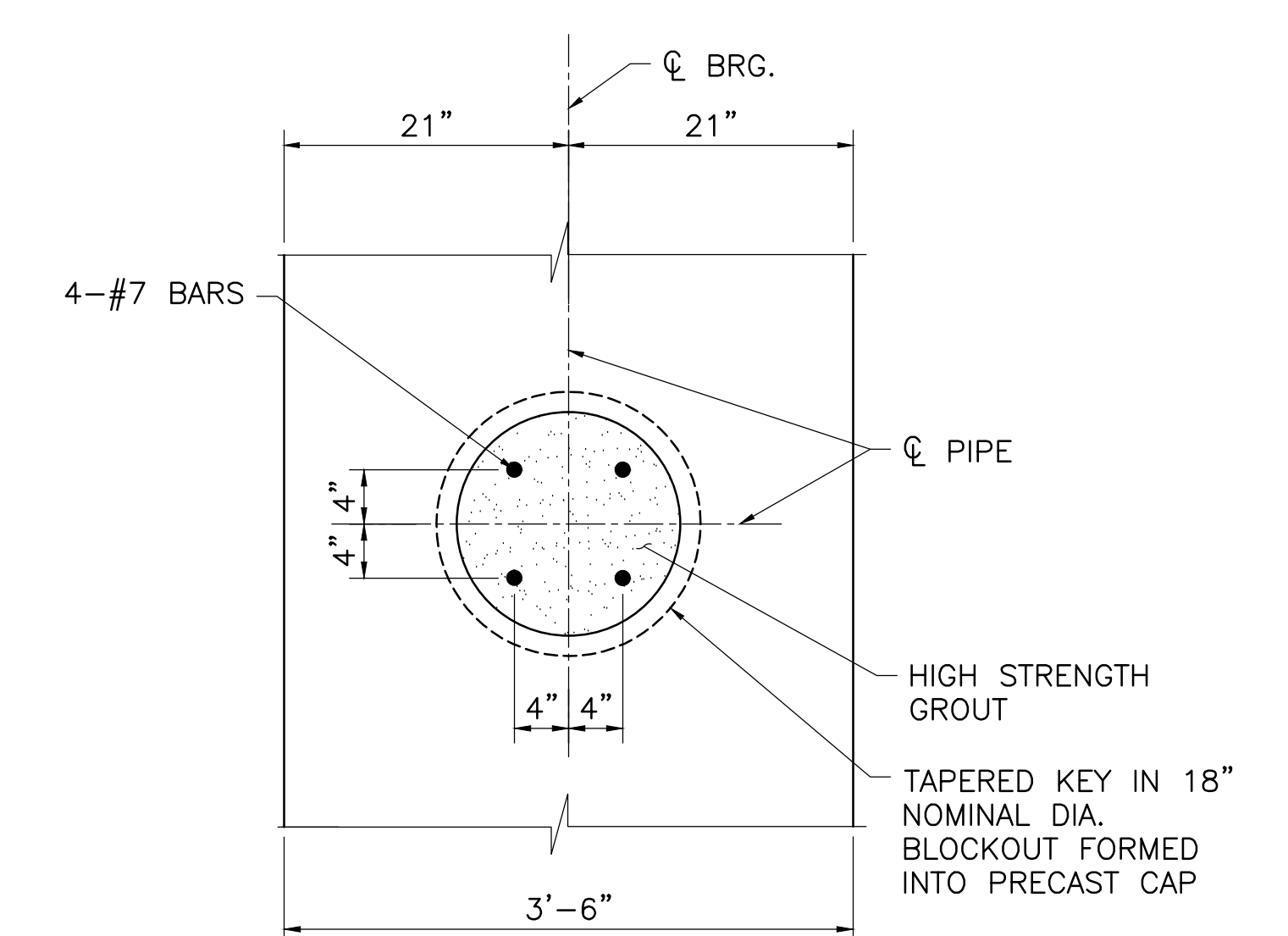


**PIER ELEVATION**  
SCALE: 1/4" = 1'-0"

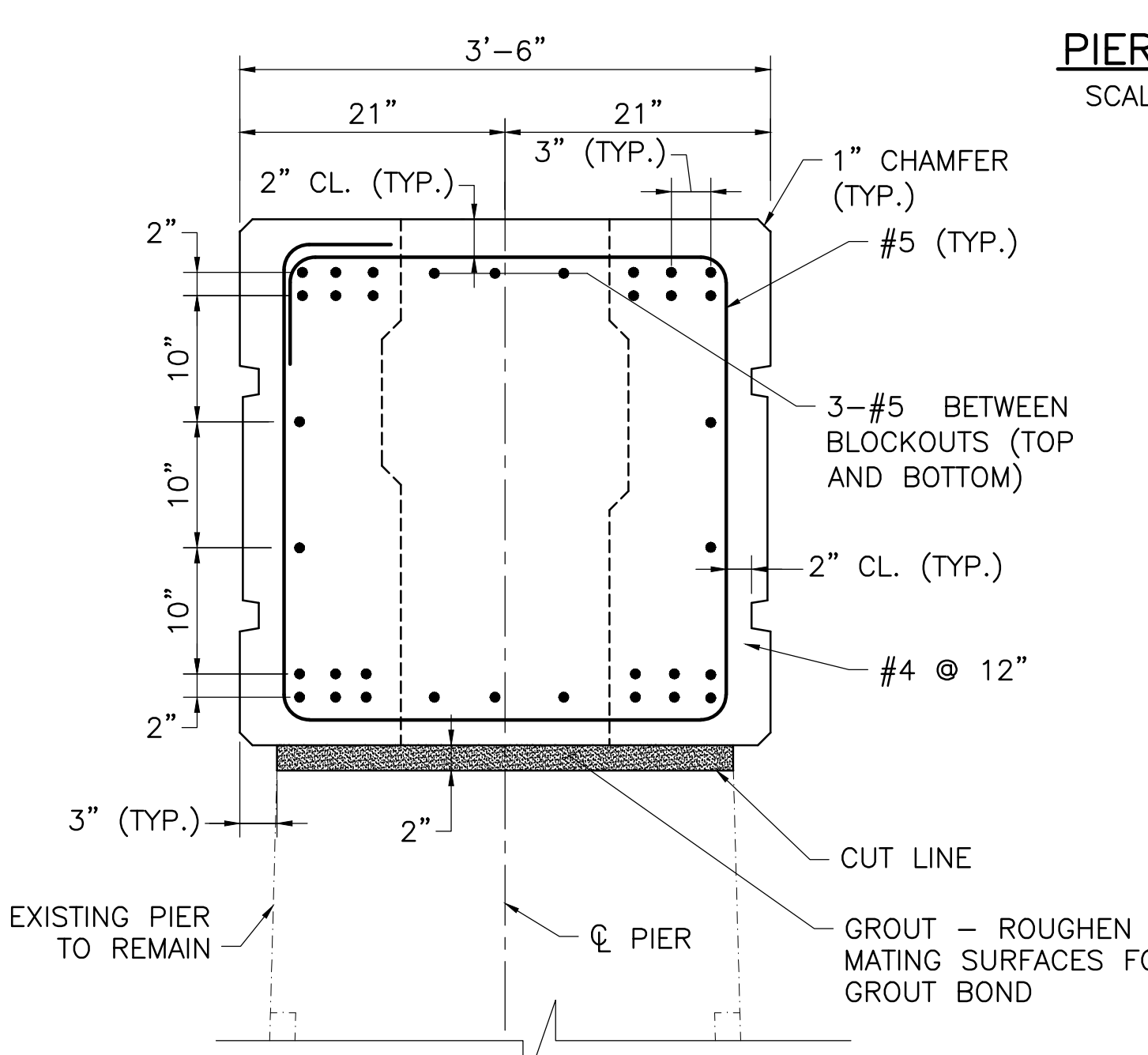
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
LOCATION	BEAM 1	BEAM 2	BEAM 3	BEAM 4
ELEVATION	111.62	111.75	111.89	112.03
LOCATION	BEAM 5	BEAM 6	BEAM 7	BEAM 8
ELEVATION	112.02	111.88	111.74	111.59



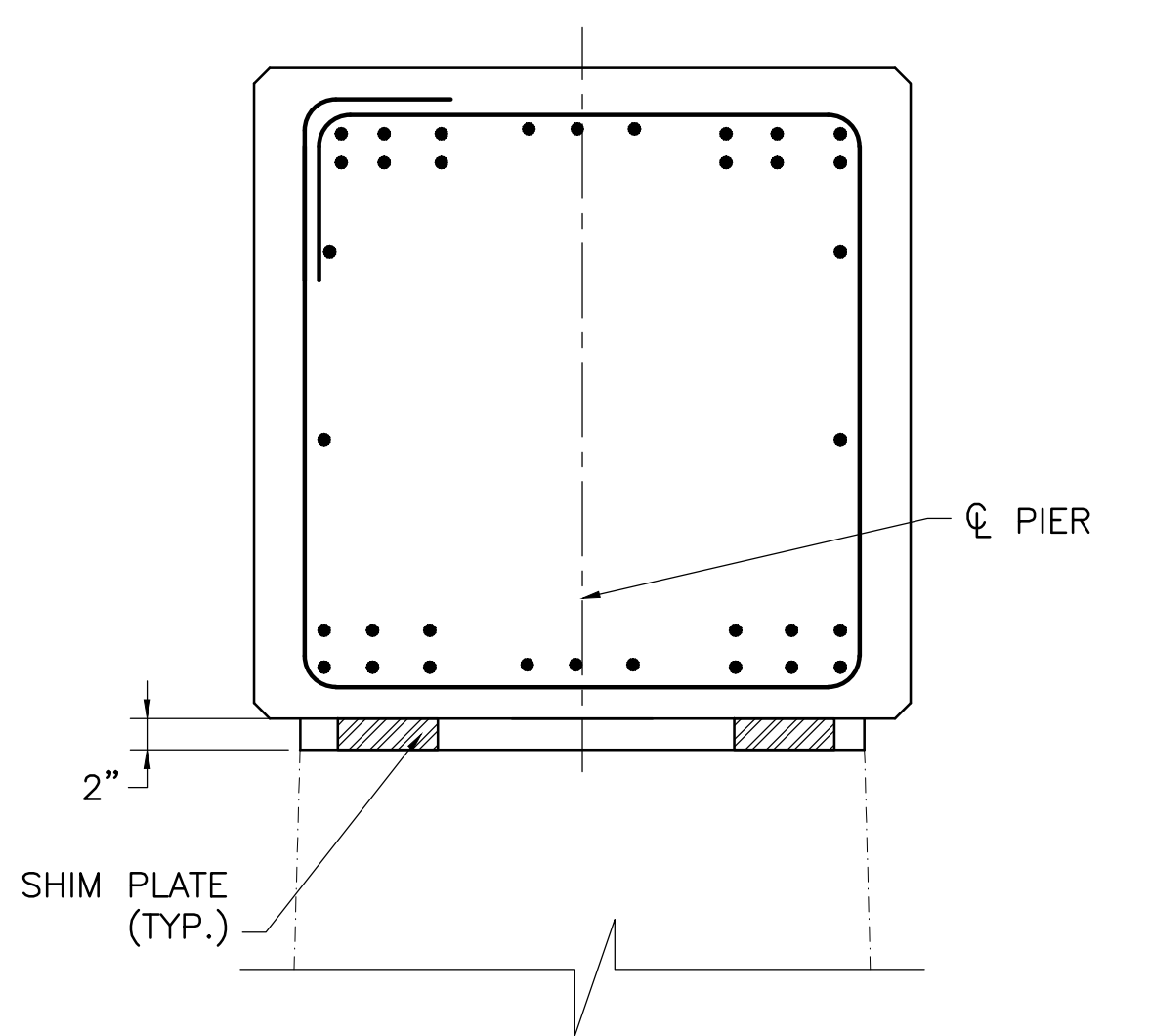
**PRECAST PIER CAP SHEAR KEY DETAIL**  
SCALE: 1" = 1'-0"



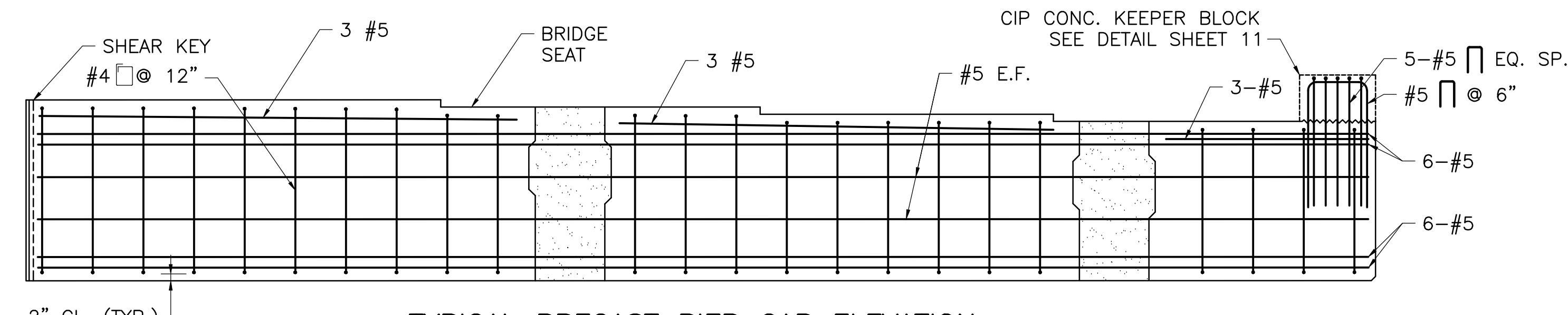
**SECTION 8**  
SCALE: 1" = 1'-0"



**TYPICAL PRECAST PIER CAP SECTION 7**  
SCALE: 1" = 1'-0"



**PRECAST PIER CAP SECTION AT ADJUSTMENT**  
SCALE: 1" = 1'-0"



**TYPICAL PRECAST PIER CAP ELEVATION**  
SCALE: 1/2" = 1'-0"

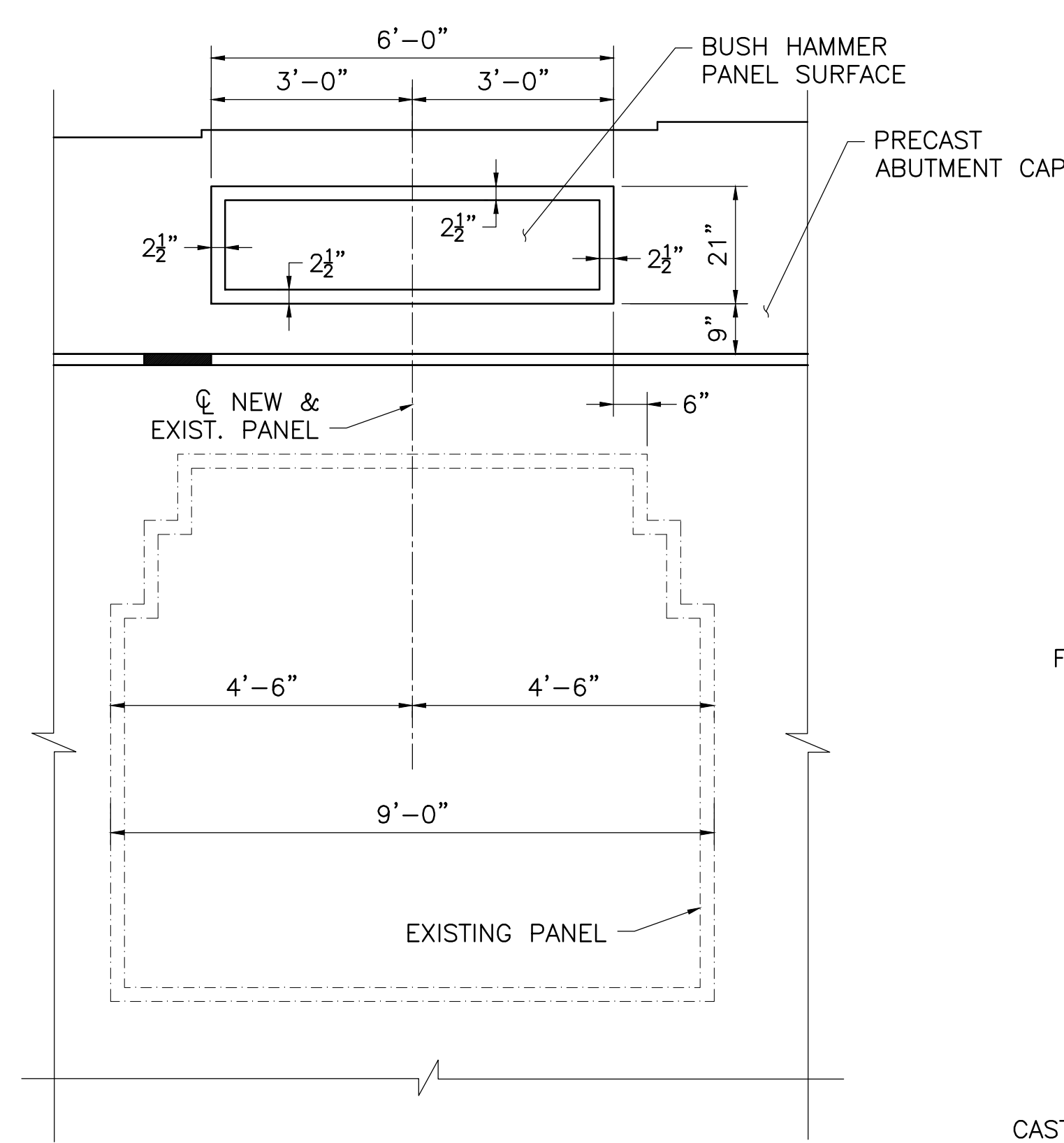
- NOTES:
- PIER CAP CONCRETE TO BE 4000 PSI 3/4" 610 CEMENT CONCRETE.
  - ALL REINFORCEMENT SHALL BE COATED

DATE	ISSUED FOR CONSTRUCTION
	DESCRIPTION
	USE ONLY PRINTS OF LATEST DATE

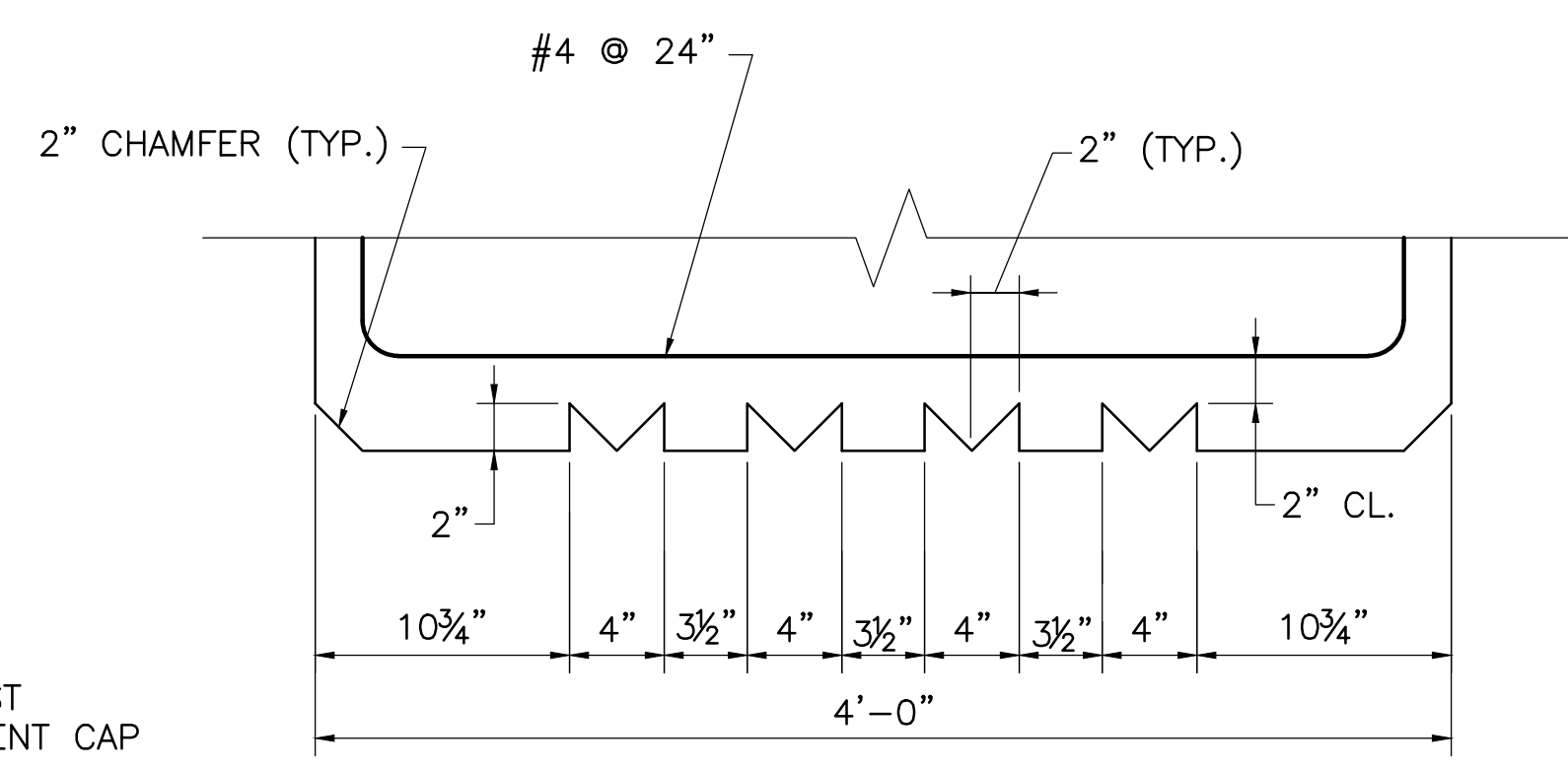


STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	NFA	53	72

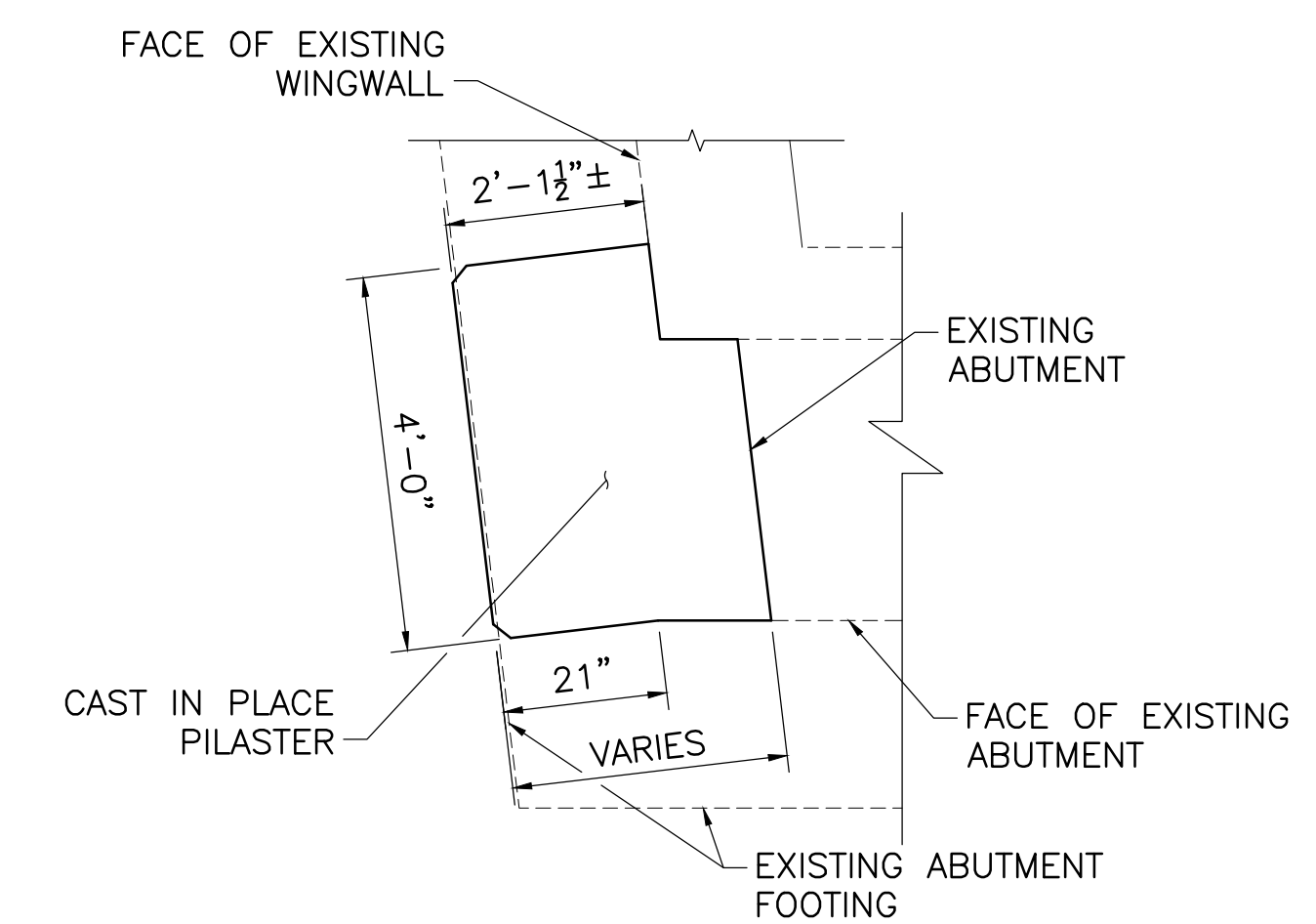
PROJECT FILE NO. 604007  
 APPROACH SLAB AND  
 PILASTER DETAILS



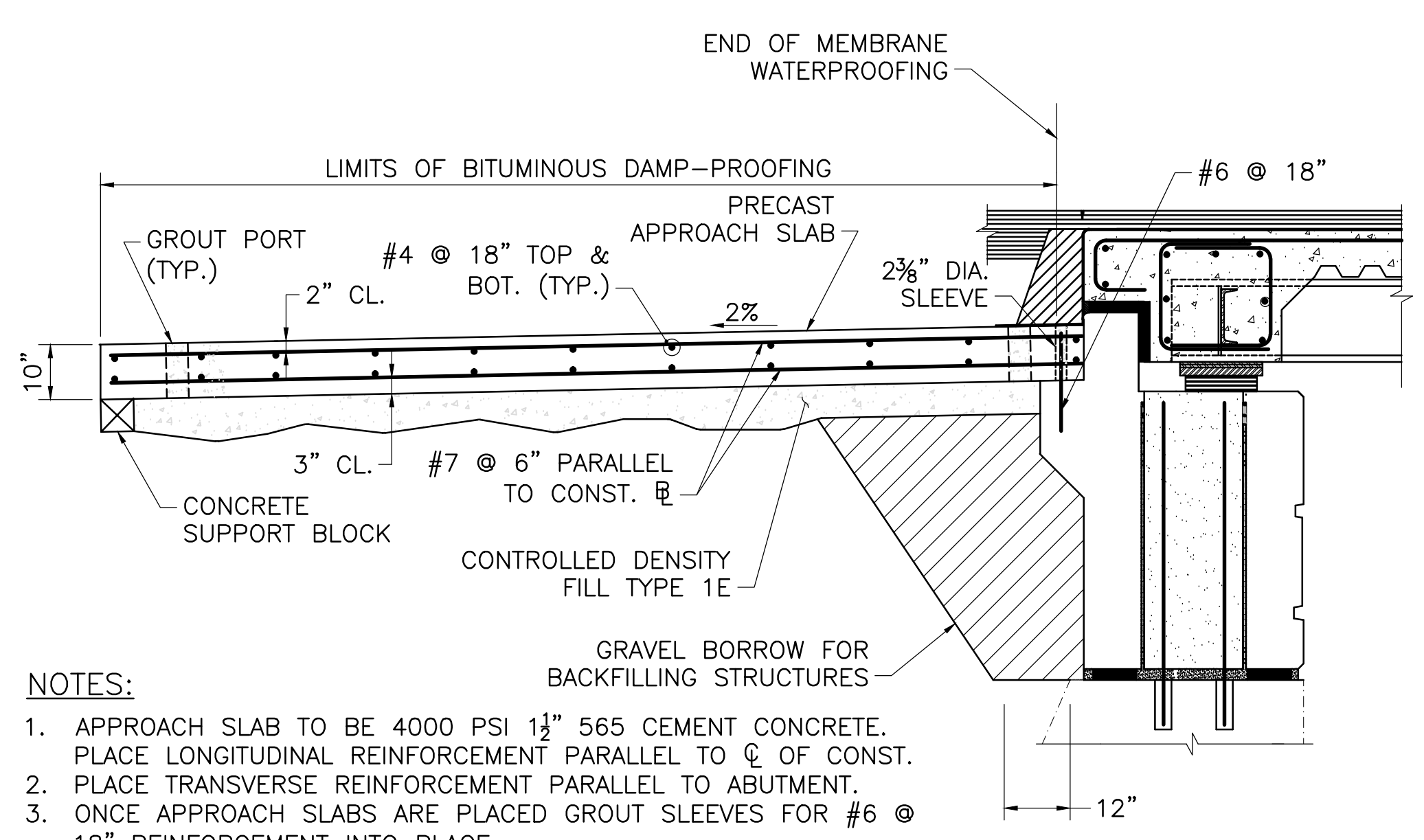
**TYPICAL ABUTMENT PANEL DETAIL**  
 SCALE: 1/2" = 1'-0"



**SECTION 11**  
 SCALE: 1/2" = 1'-0"

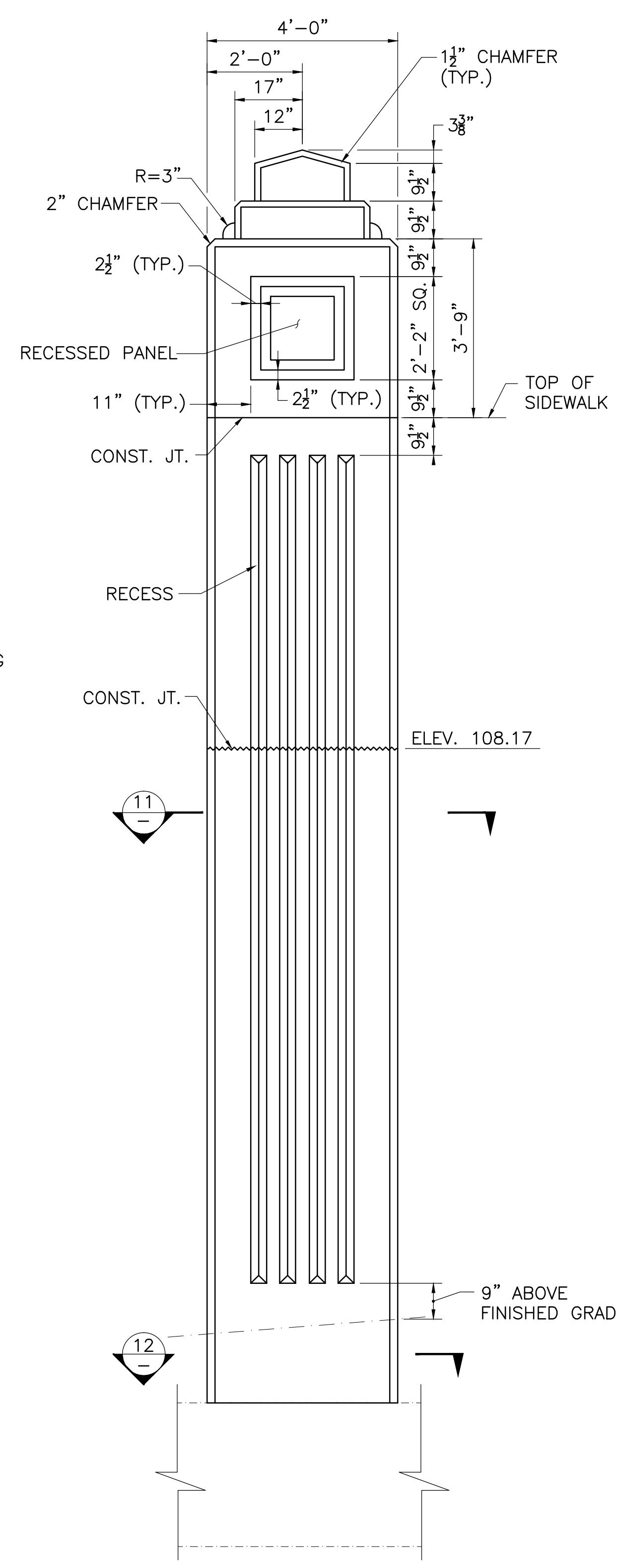


**SECTION 12**  
 SCALE: 1/2" = 1'-0"

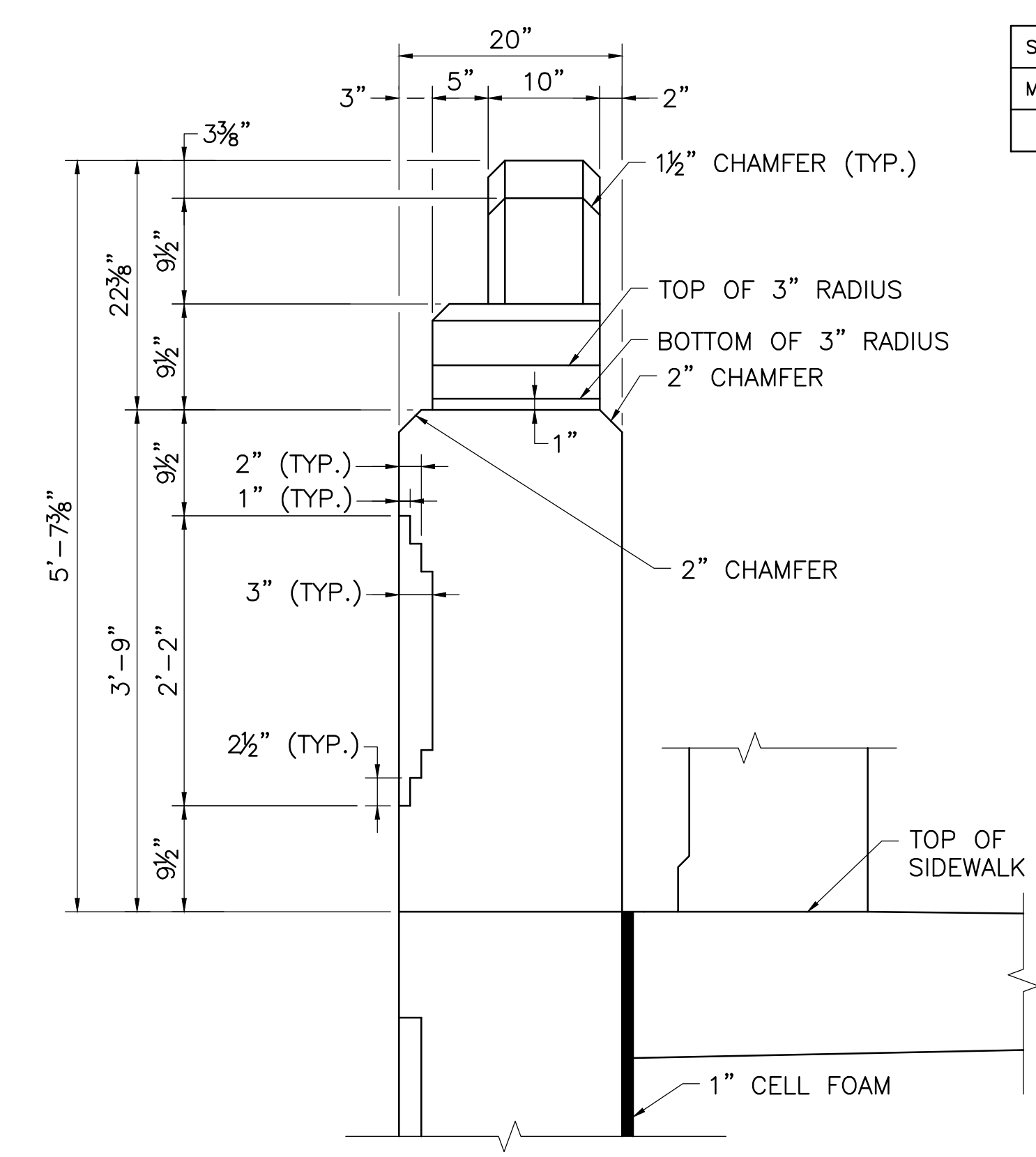


**SECTION AT APPROACH SLAB**  
 SCALE: 1/2" = 1'-0"

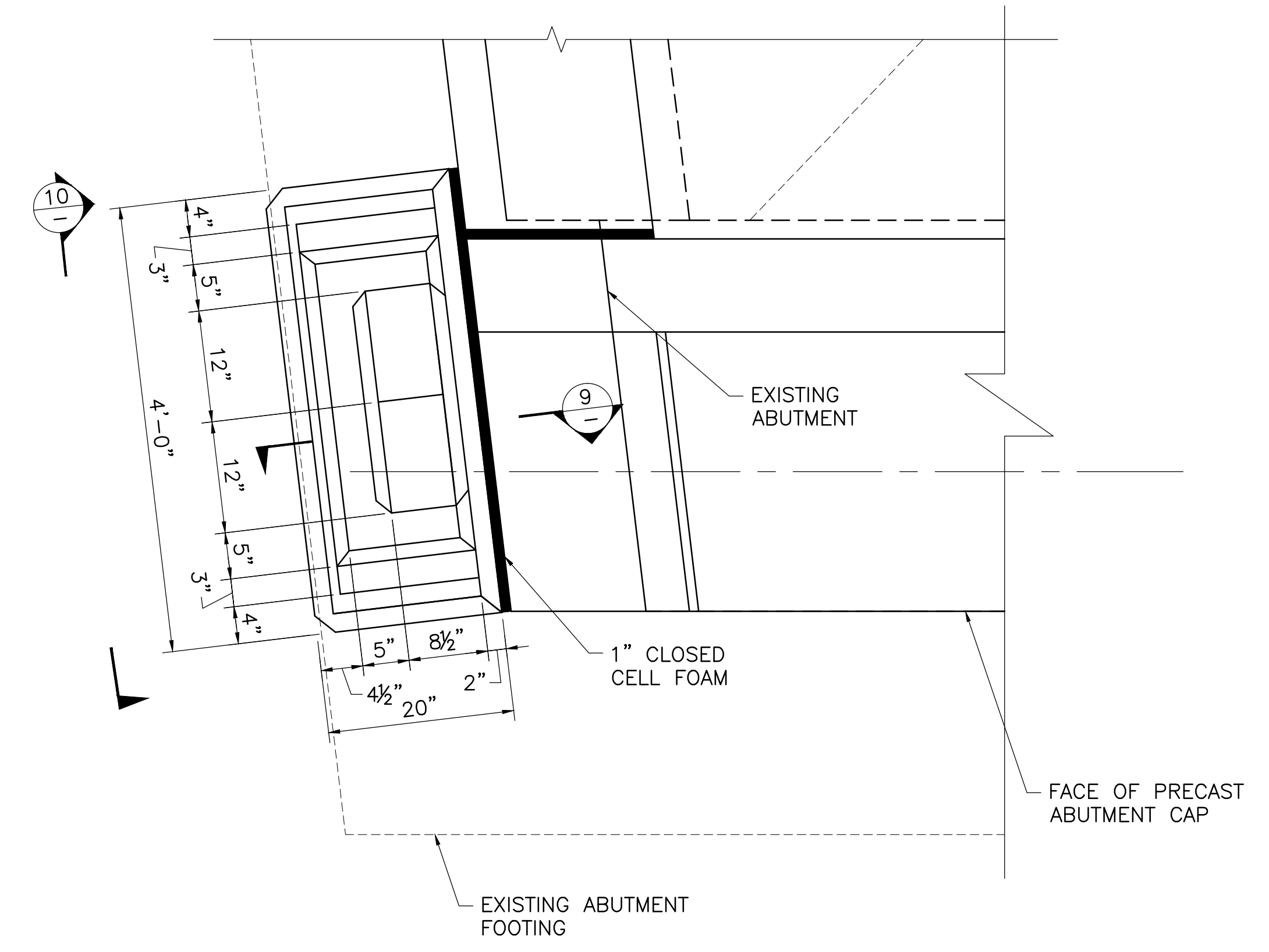
- NOTES:**
1. APPROACH SLAB TO BE 4000 PSI 1 1/2" 565 CEMENT CONCRETE. PLACE LONGITUDINAL REINFORCEMENT PARALLEL TO C OF CONST.
  2. PLACE TRANSVERSE REINFORCEMENT PARALLEL TO ABUTMENT.
  3. ONCE APPROACH SLABS ARE PLACED GROUT SLEEVES FOR #6 @ 18" REINFORCEMENT INTO PLACE.



**SECTION 10**  
 SCALE: 1/2" = 1'-0"



**SECTION 9**  
 SCALE: 1" = 1'-0"

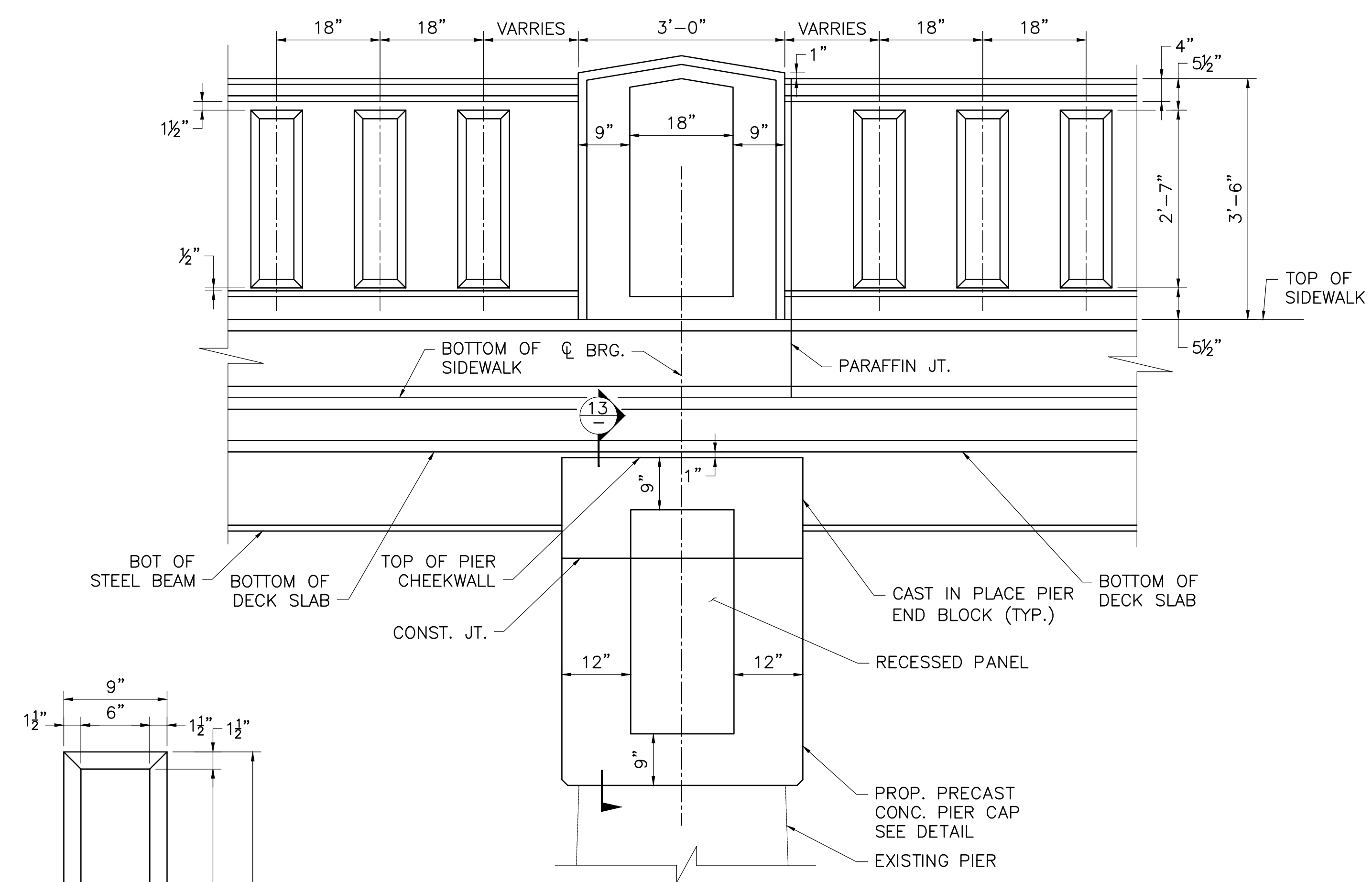


**TYPICAL PILASTER PLAN AT NORTH ABUTMENT**  
 SCALE: 1" = 1'-0"

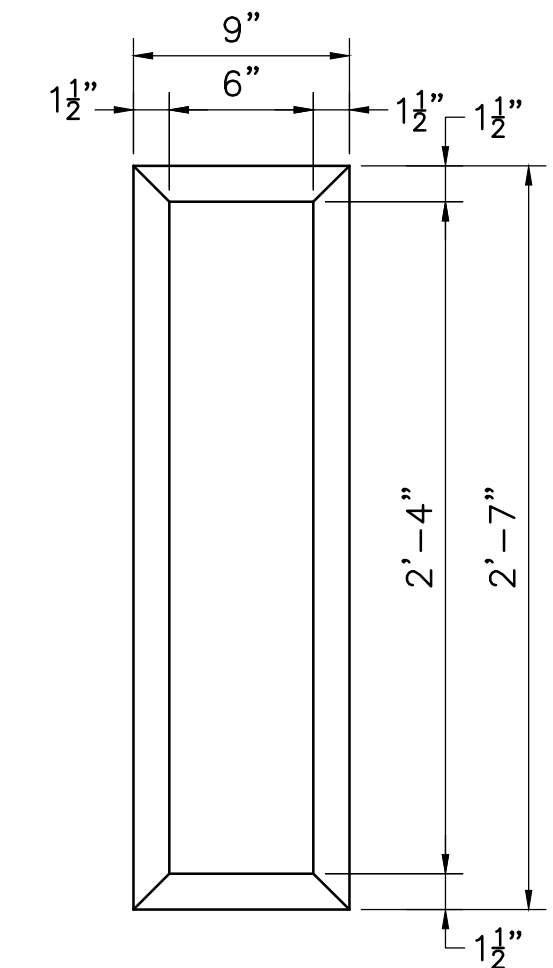
DATE	ISSUED FOR CONSTRUCTION
	DESCRIPTION
	USE ONLY PRINTS OF LATEST DATE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	NFA	54	72
PROJECT FILE NO. 604007			

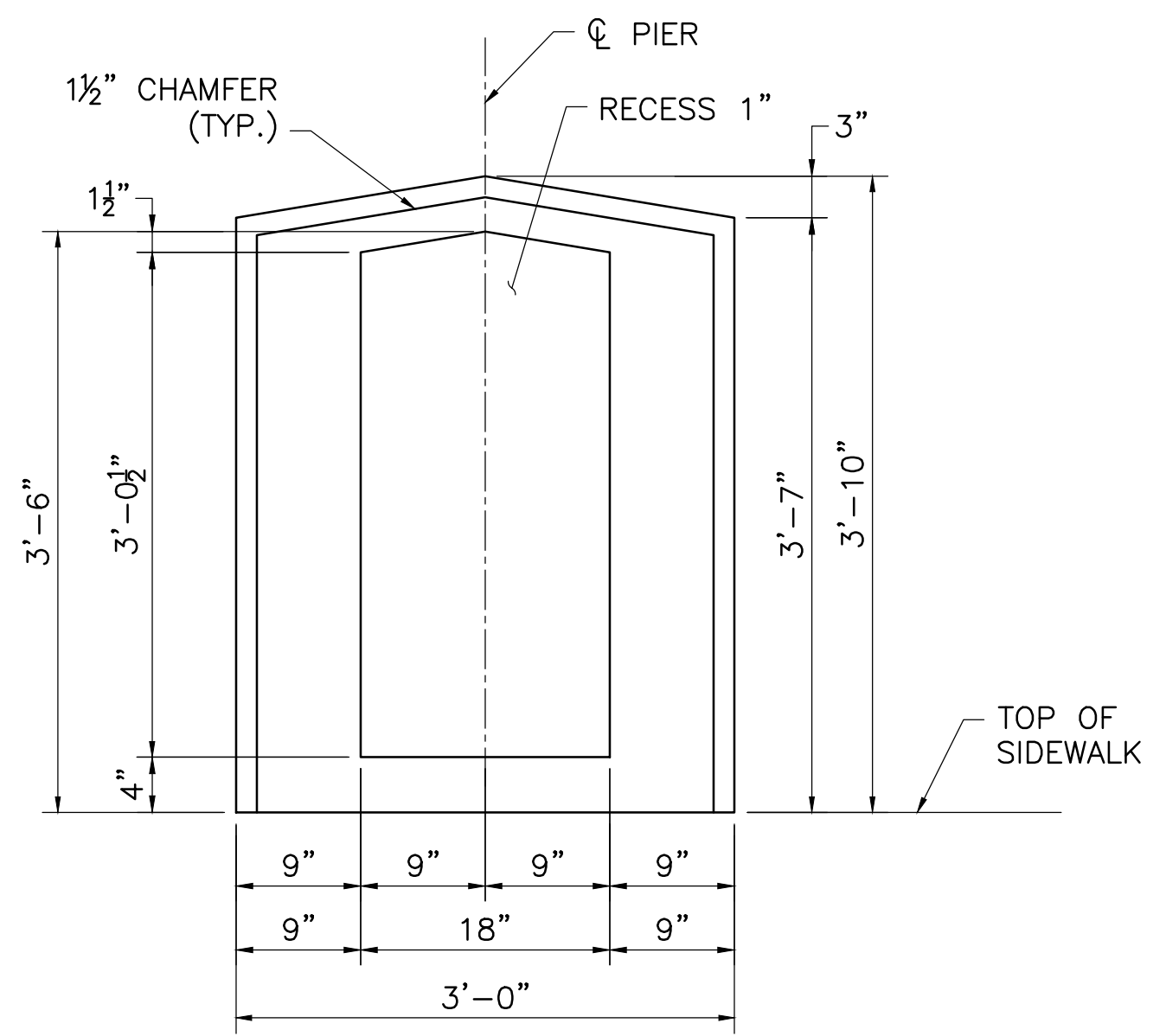
PIER AND BARRIER  
DETAILS AND PAVEMENT  
SAW CUT



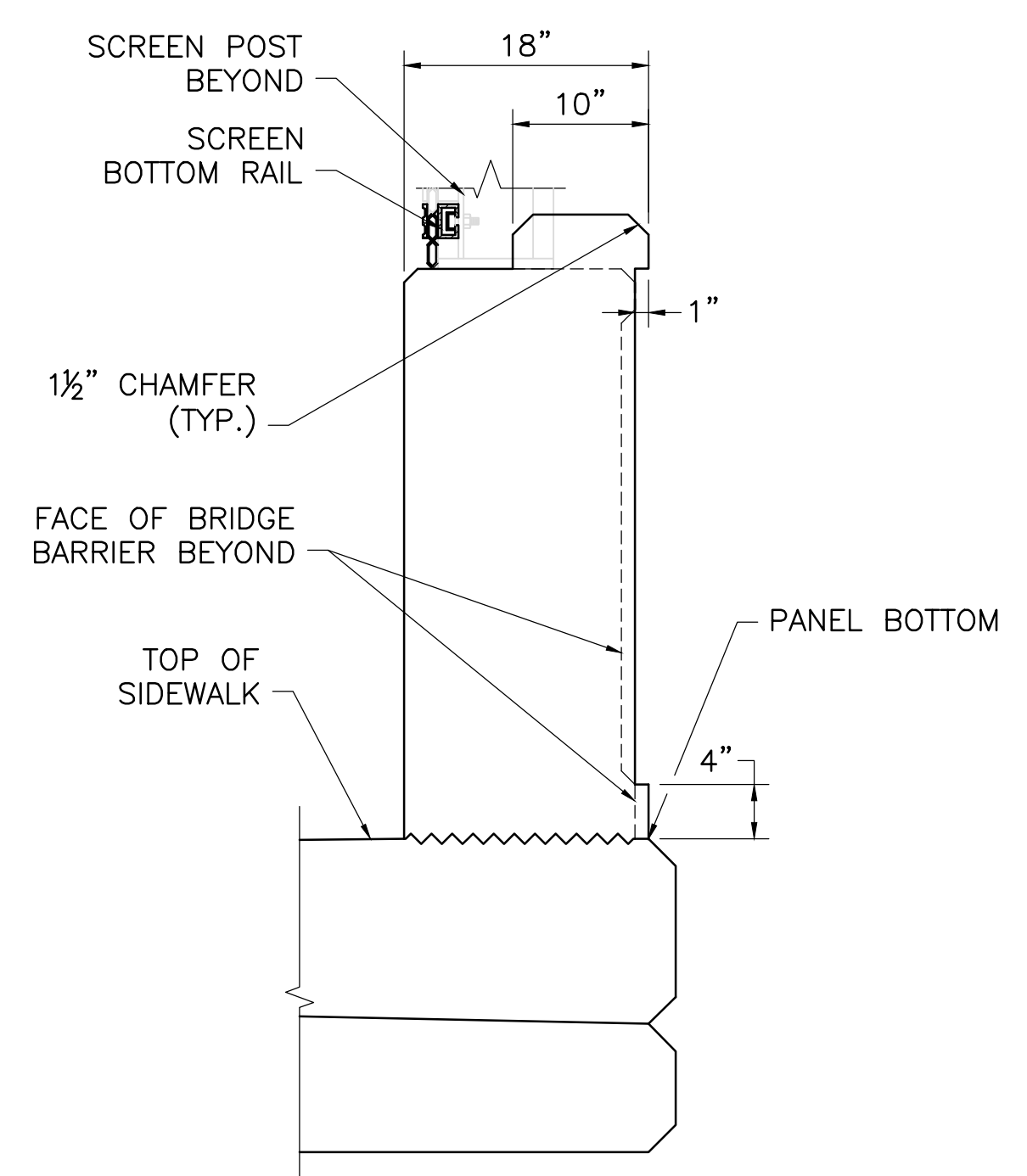
**BARRIER DETAIL AT PIER**  
SCALE: 3/4" = 1'-0"



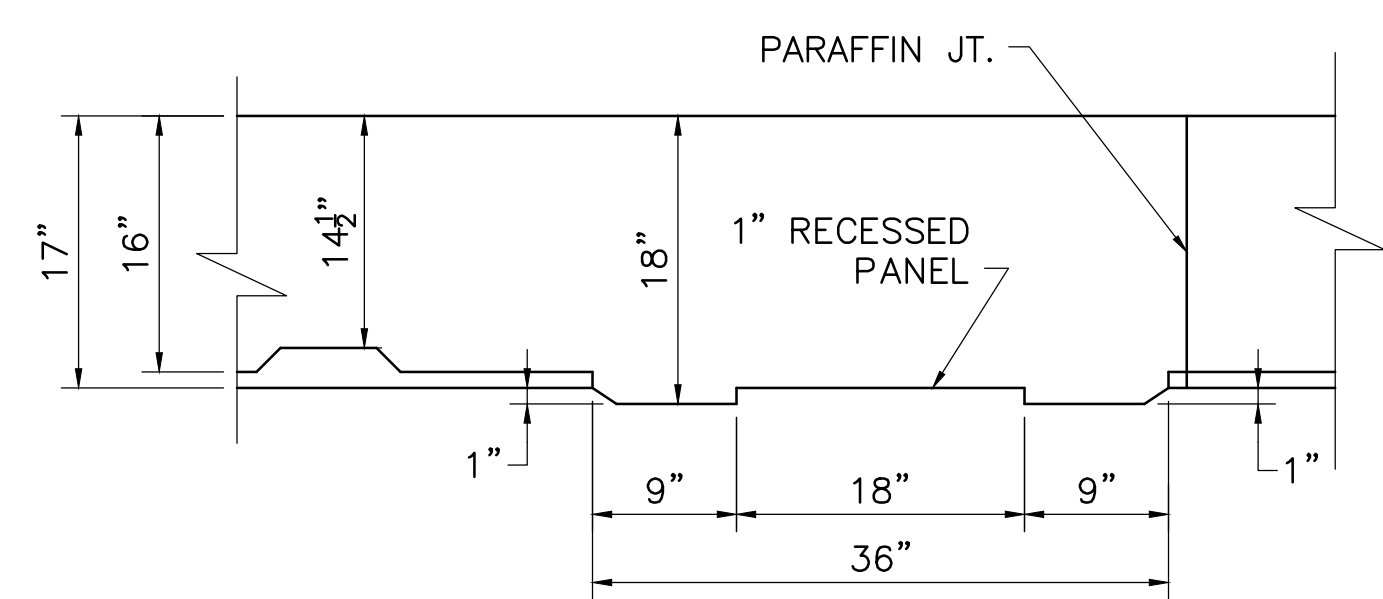
**PANEL DETAIL**  
SCALE: 1 1/2" = 1'-0"



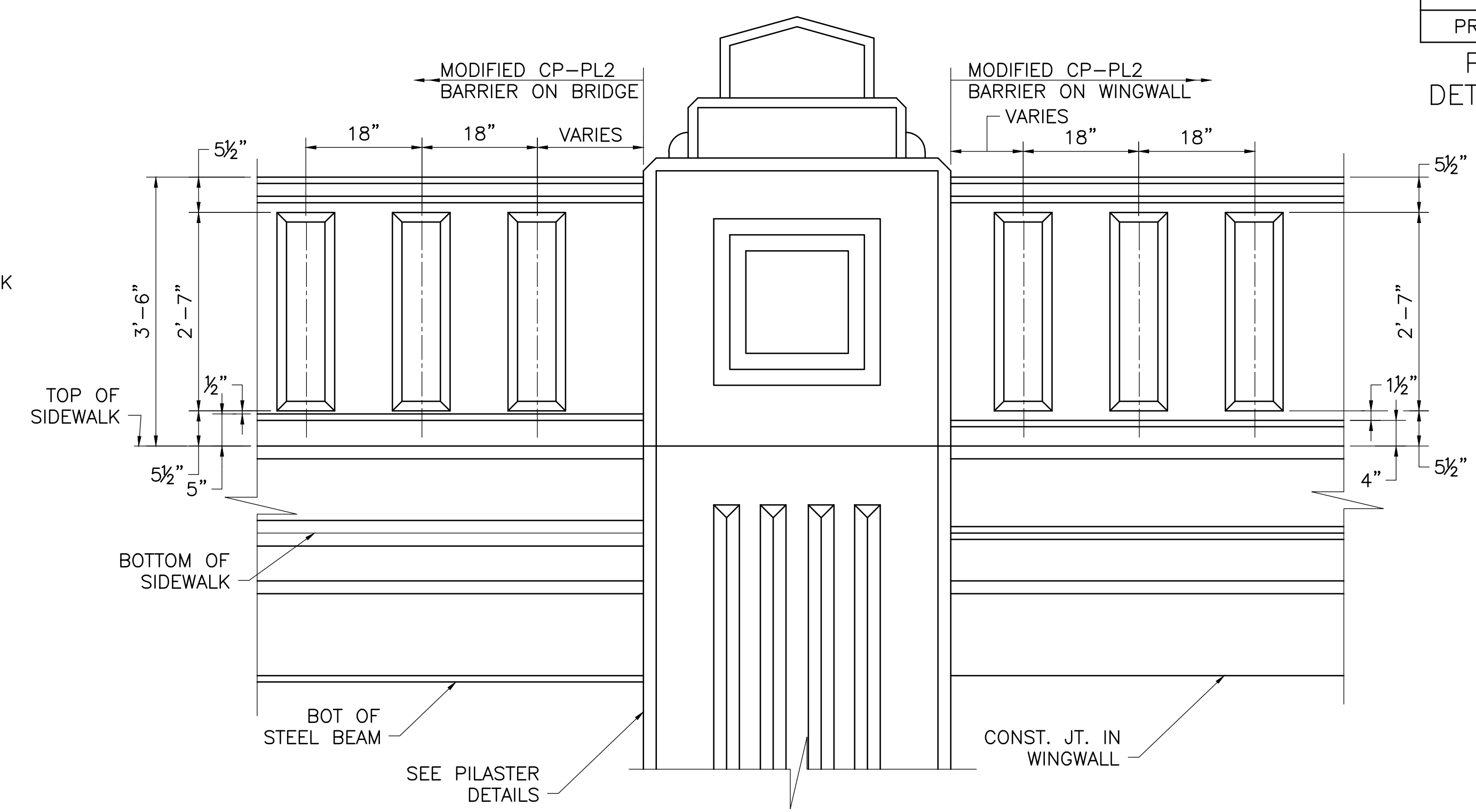
**PANEL DETAIL AT PIER**  
SCALE: 1" = 1'-0"



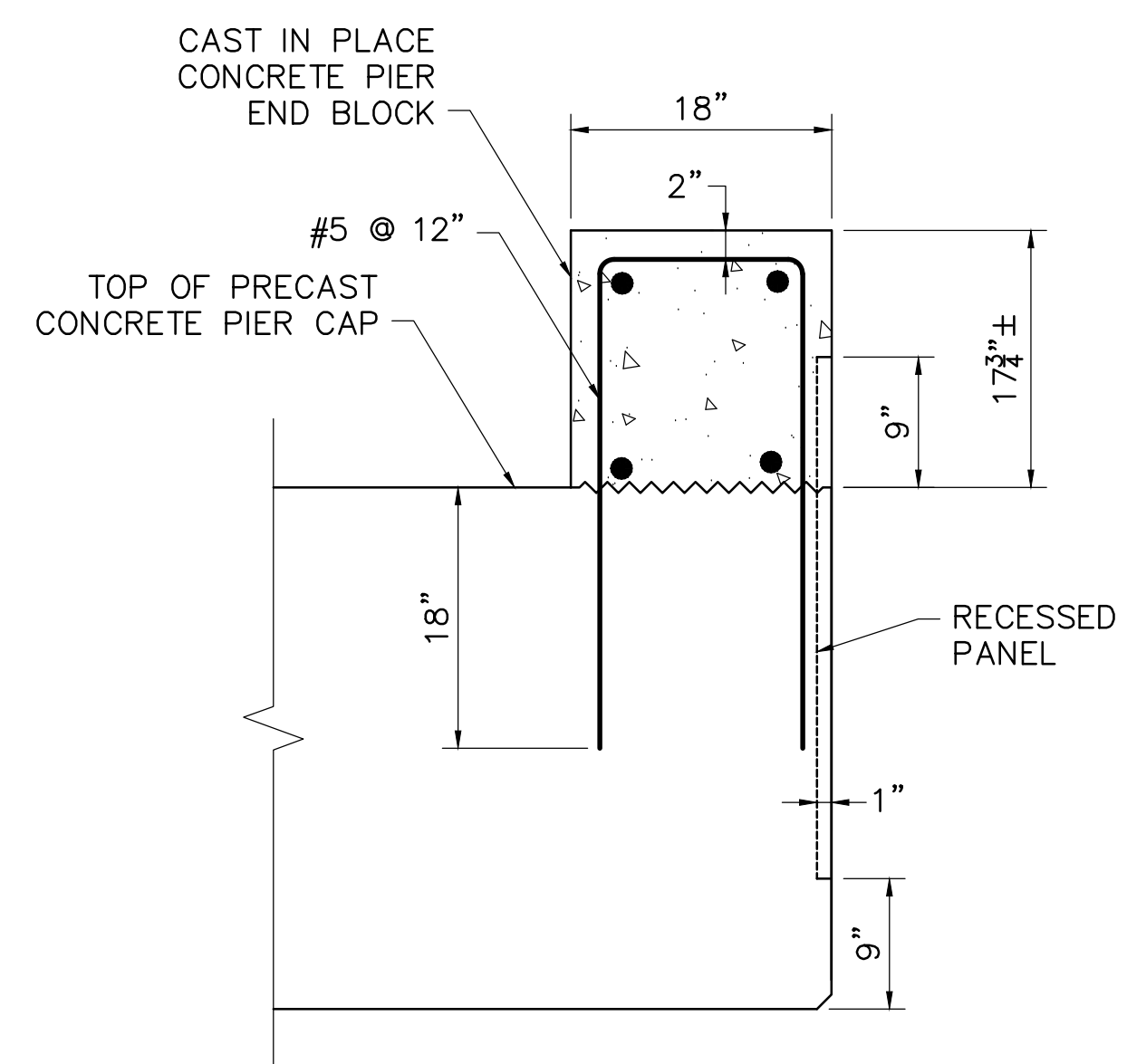
**PANEL SECTION AT PIER**  
SCALE: 1" = 1'-0"



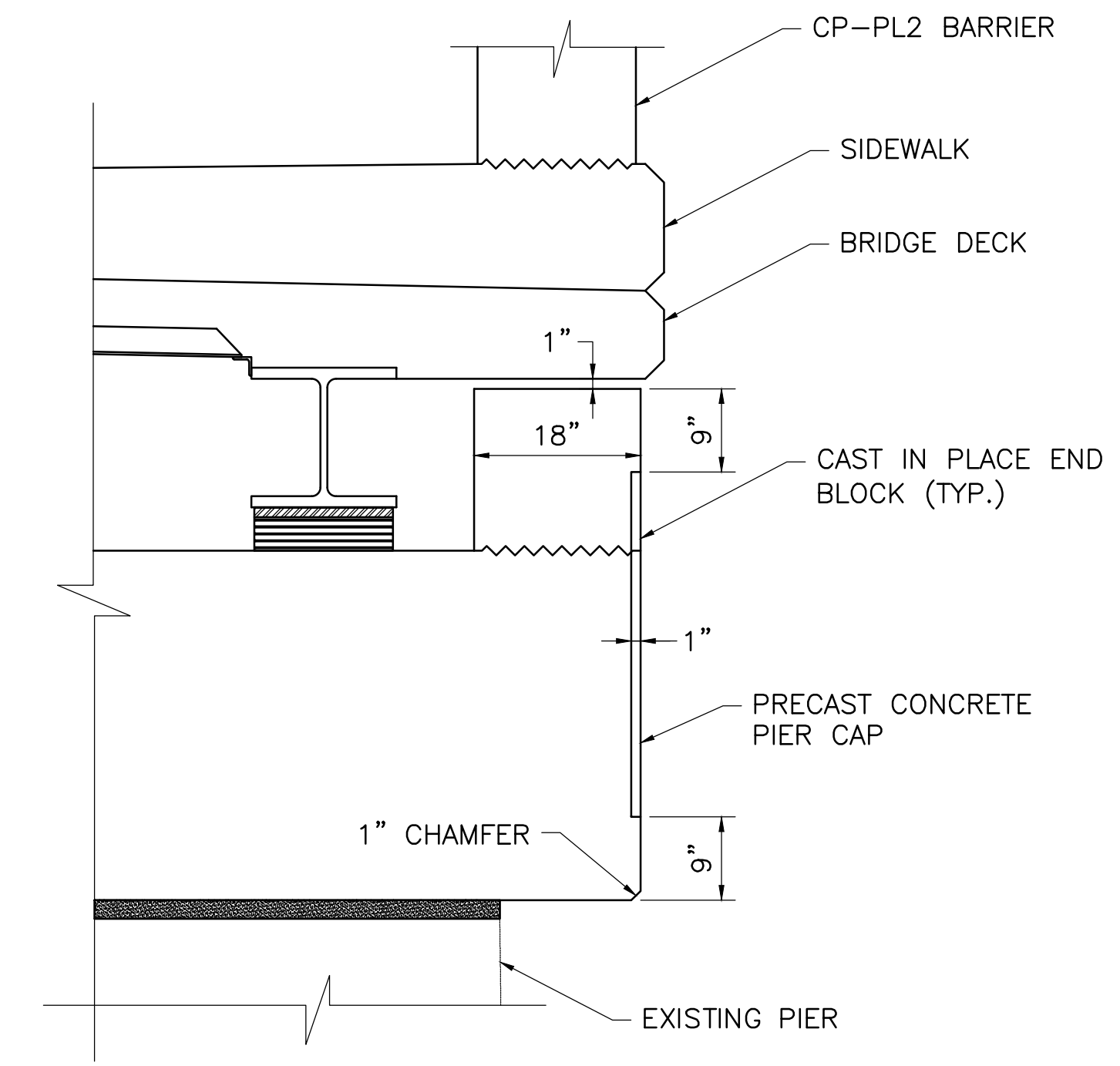
**BARRIER PLAN AT PIER**  
SCALE: 1" = 1'-0"



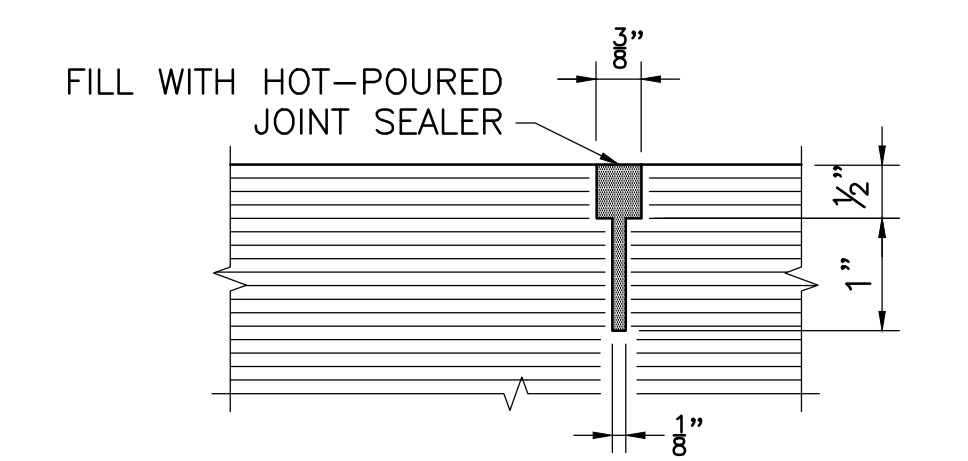
**RAIL DETAIL AT ABUTMENT**  
SCALE: 3/4" = 1'-0"



**SECTION 13** 13  
SCALE: 1" = 1'-0"



**CAST IN PLACE END BLOCK DETAIL**  
SCALE: 3/4" = 1'-0"

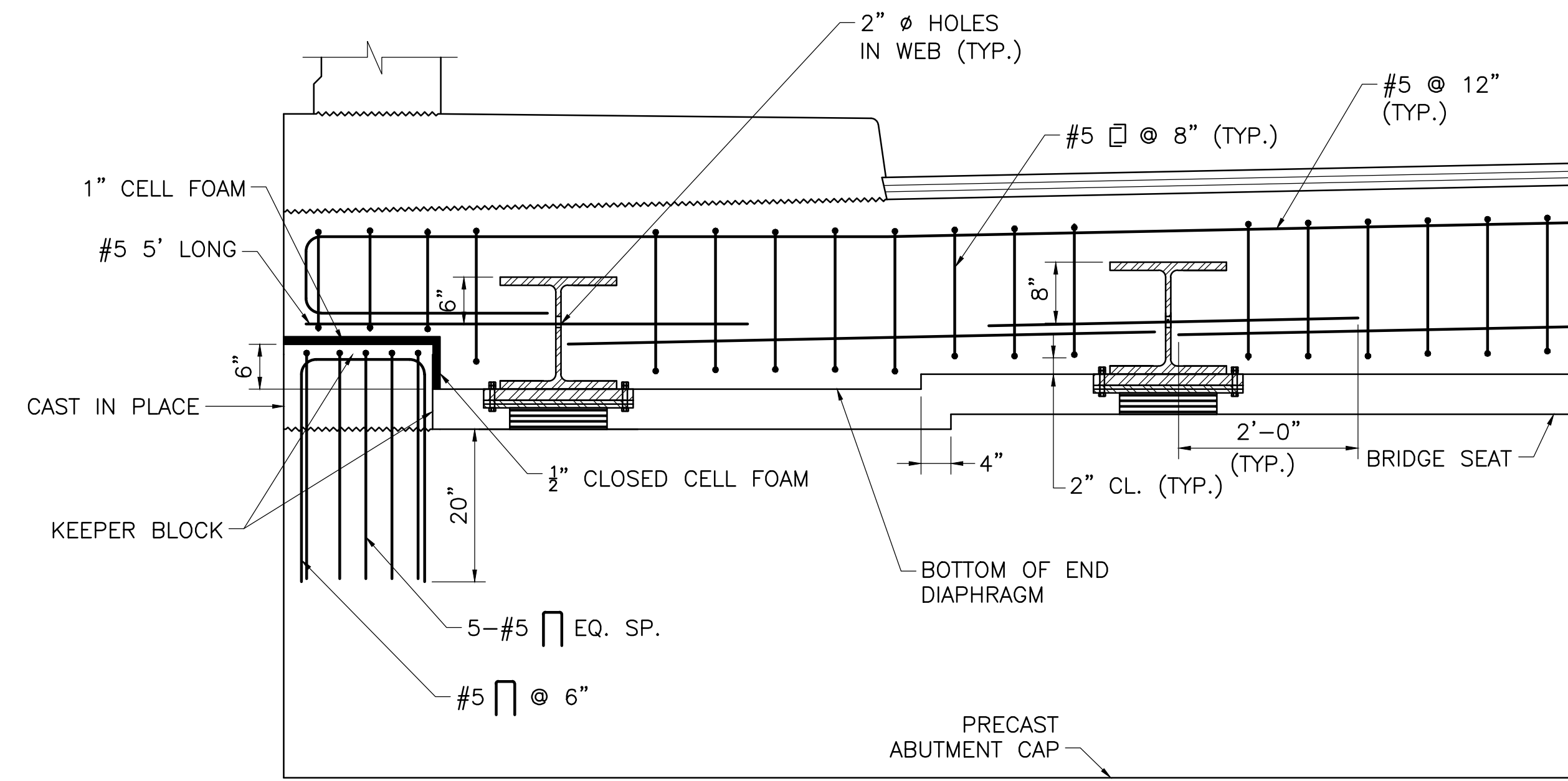
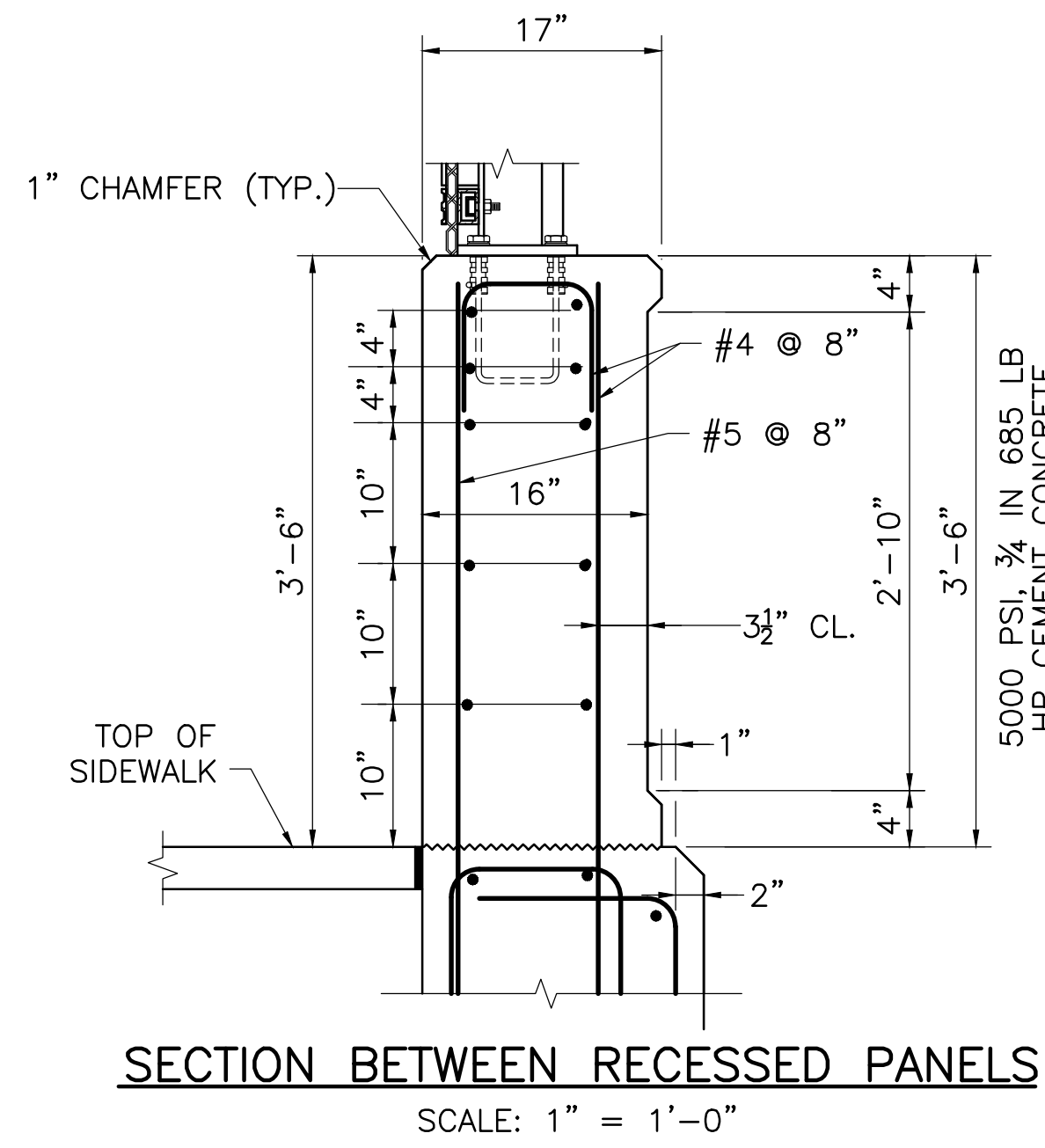


**PAVEMENT SAWCUT DETAIL**  
NOT TO SCALE

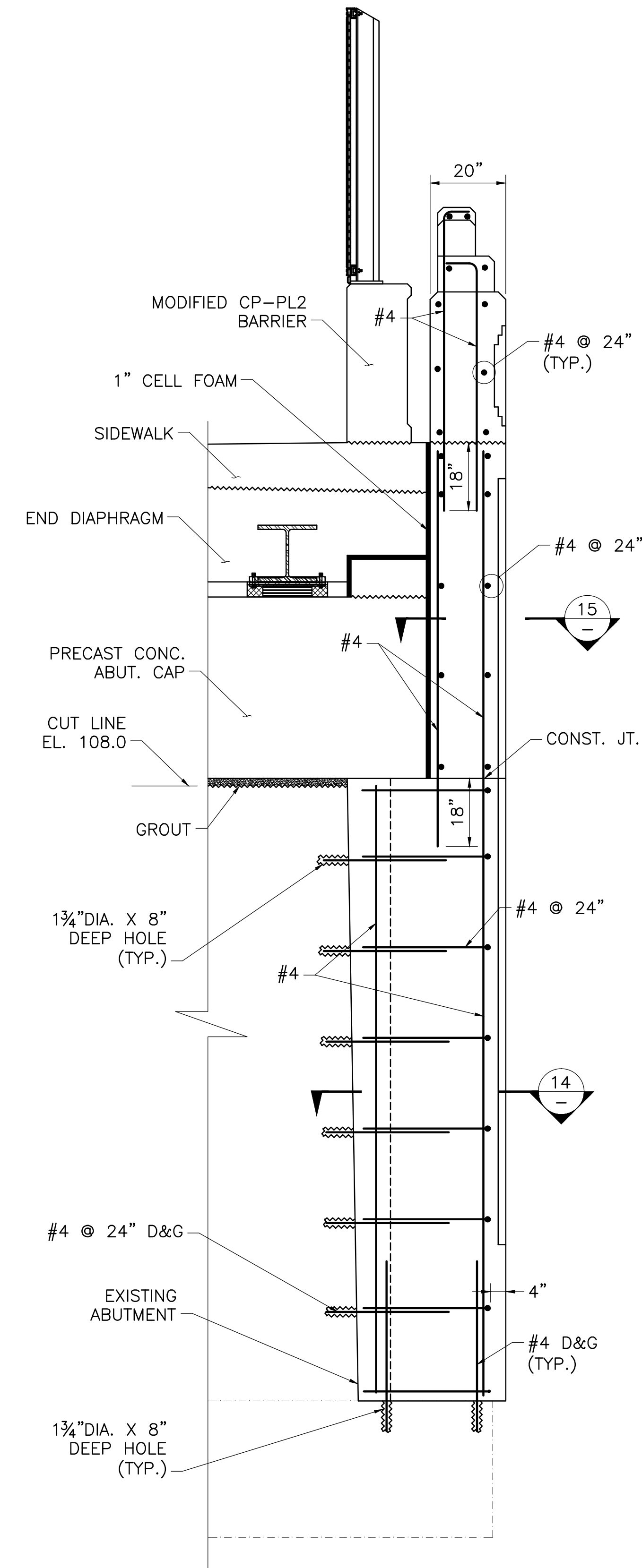
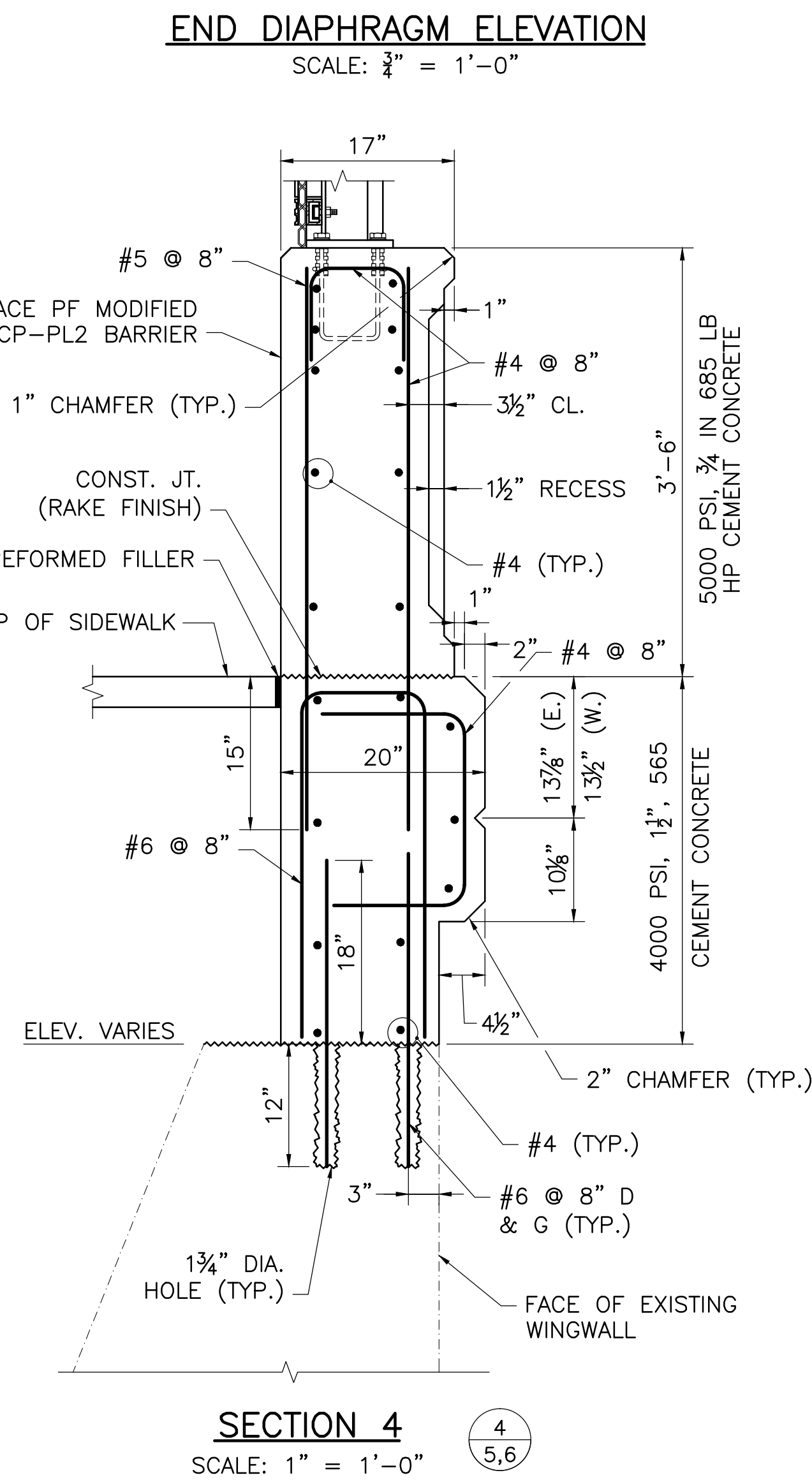
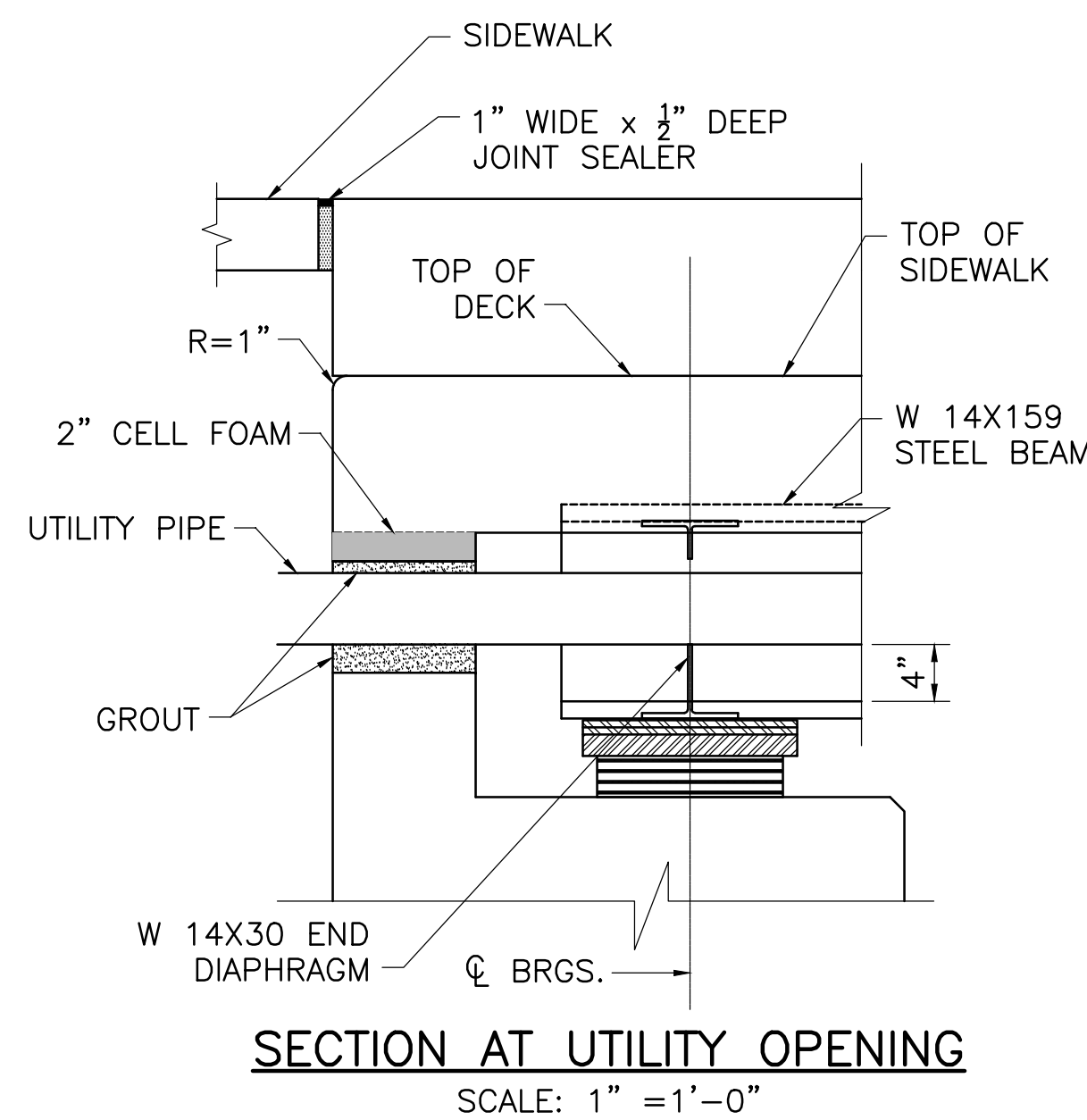
DATE	ISSUED FOR CONSTRUCTION DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	NFA	55	72
PROJECT FILE NO. 604007			

ABUTMENT AND WINGWALL REINFORCEMENT DETAILS

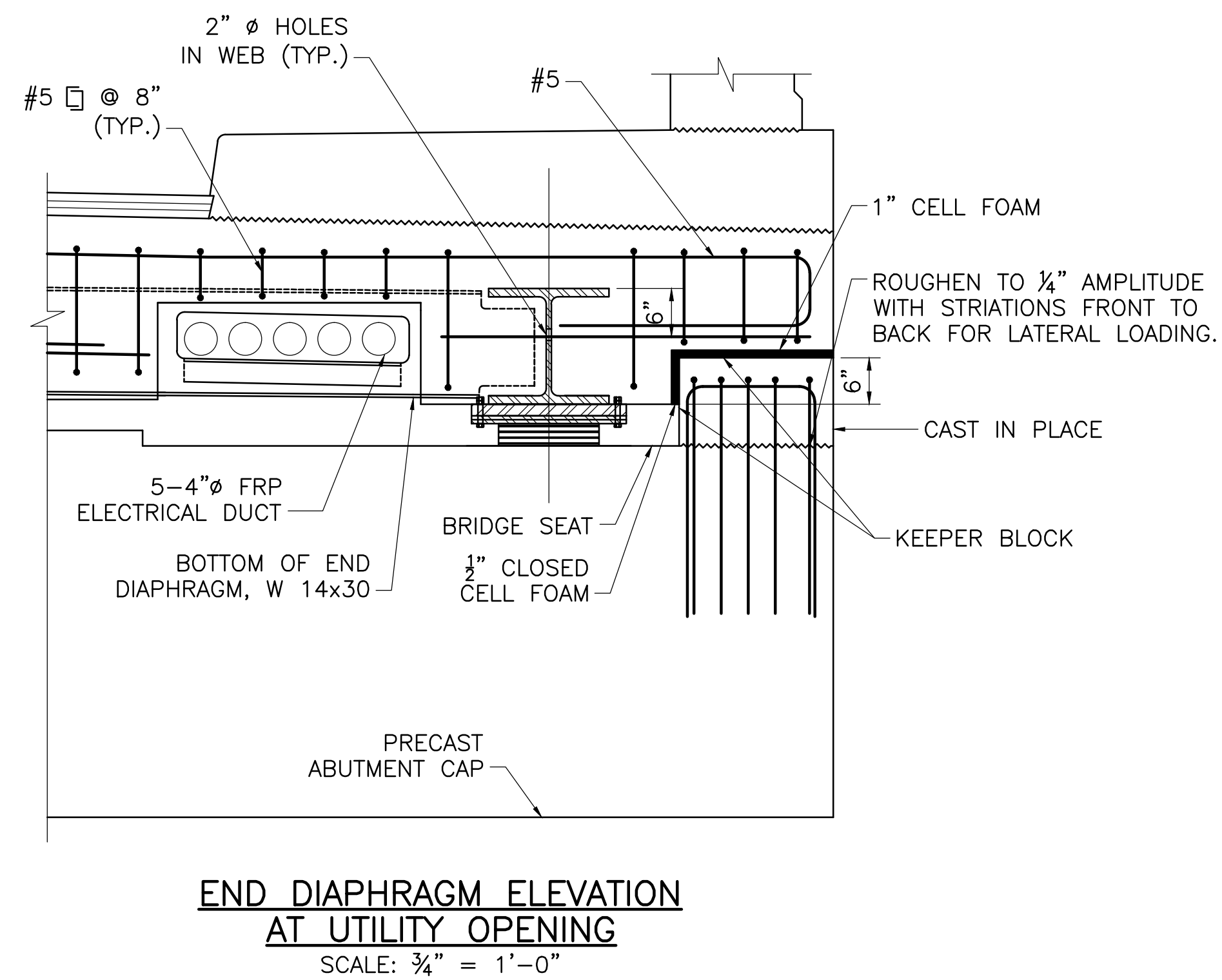
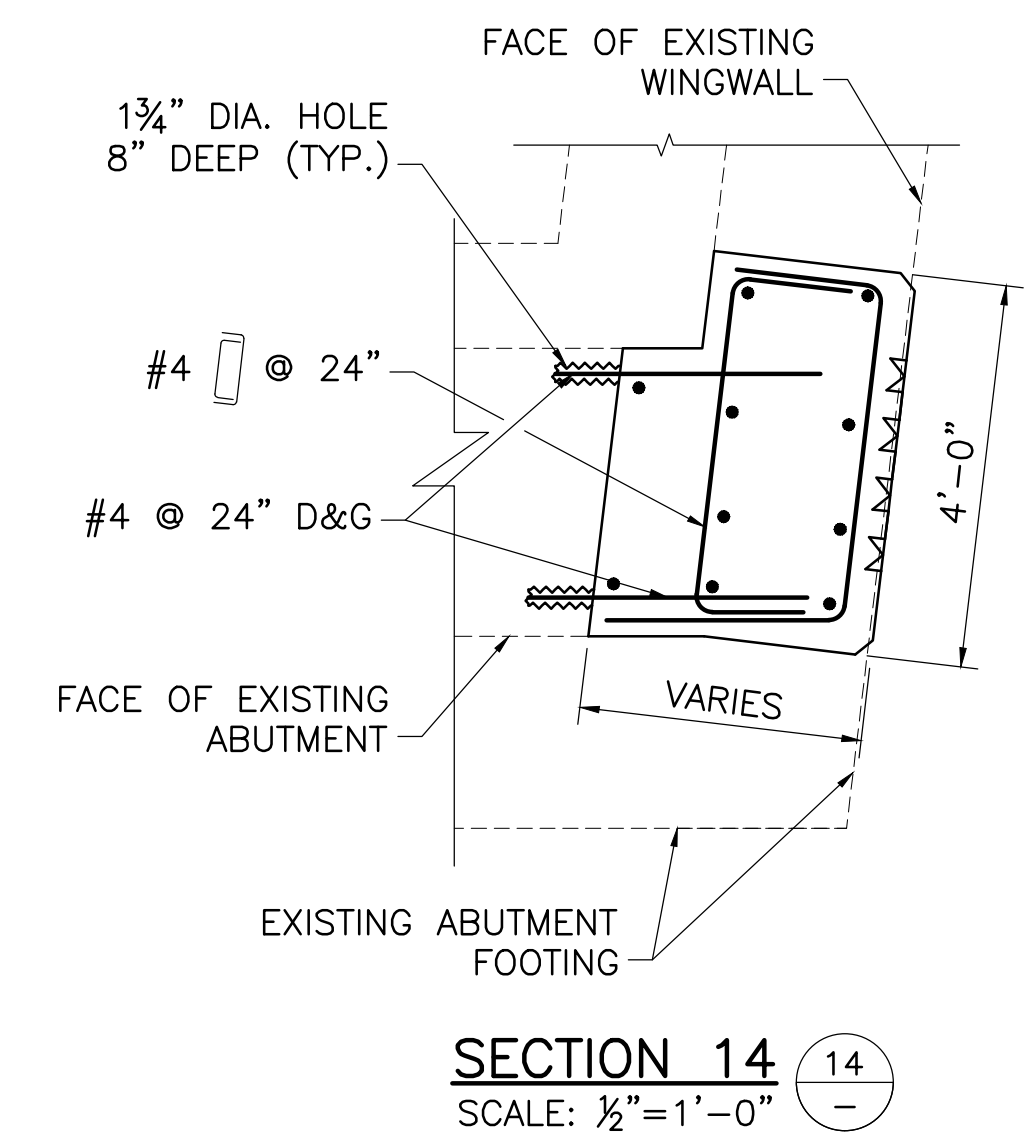
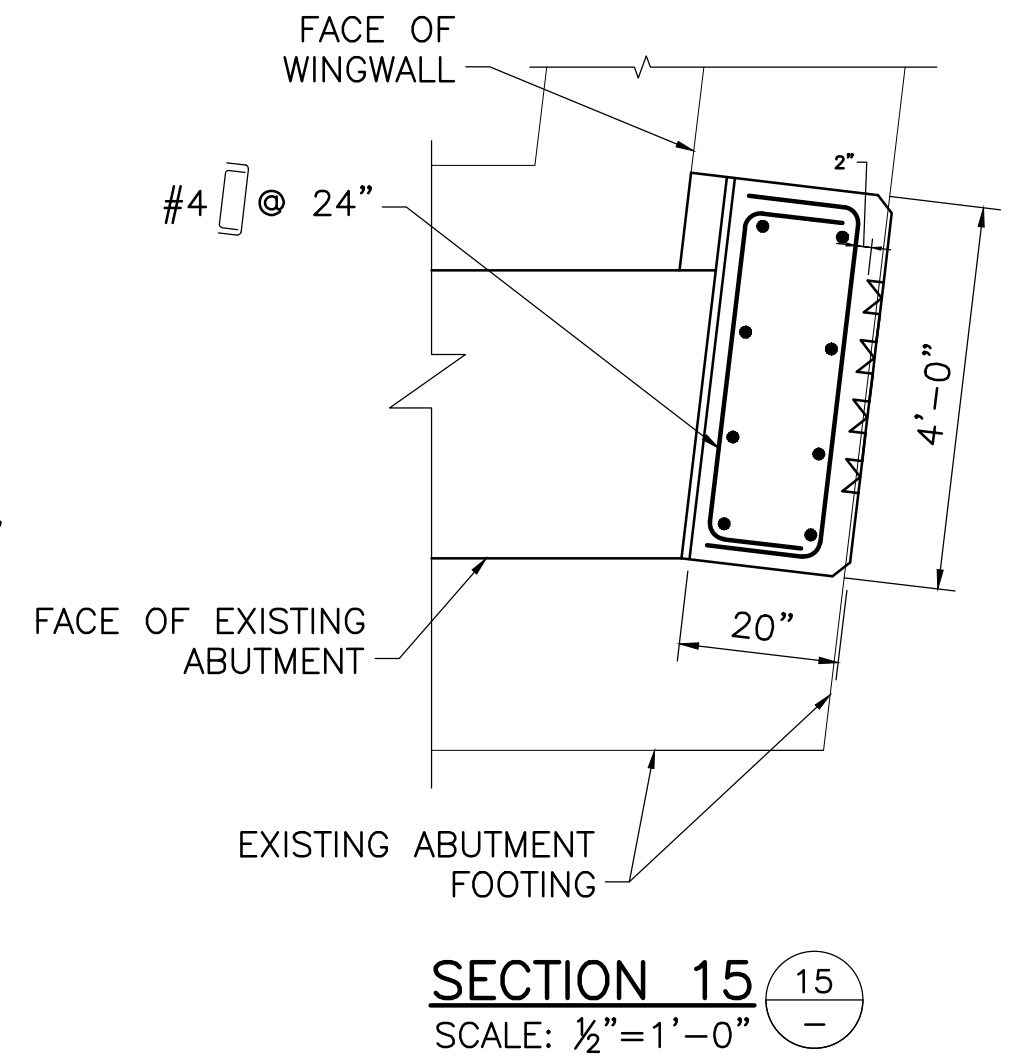


- NOTES:
1. ELIMINATE DECK SLAB CHAMFERS AT PILASTER LOCATIONS.
  2. PILASTER NOT SHOWN FOR CLARITY



- NOTES:
1. PILASTER CONCRETE TO BE 4000 PSI 3/4 IN 610 CEMENT CONCRETE.
  2. ALL REINFORCEMENT SHALL BE COATED

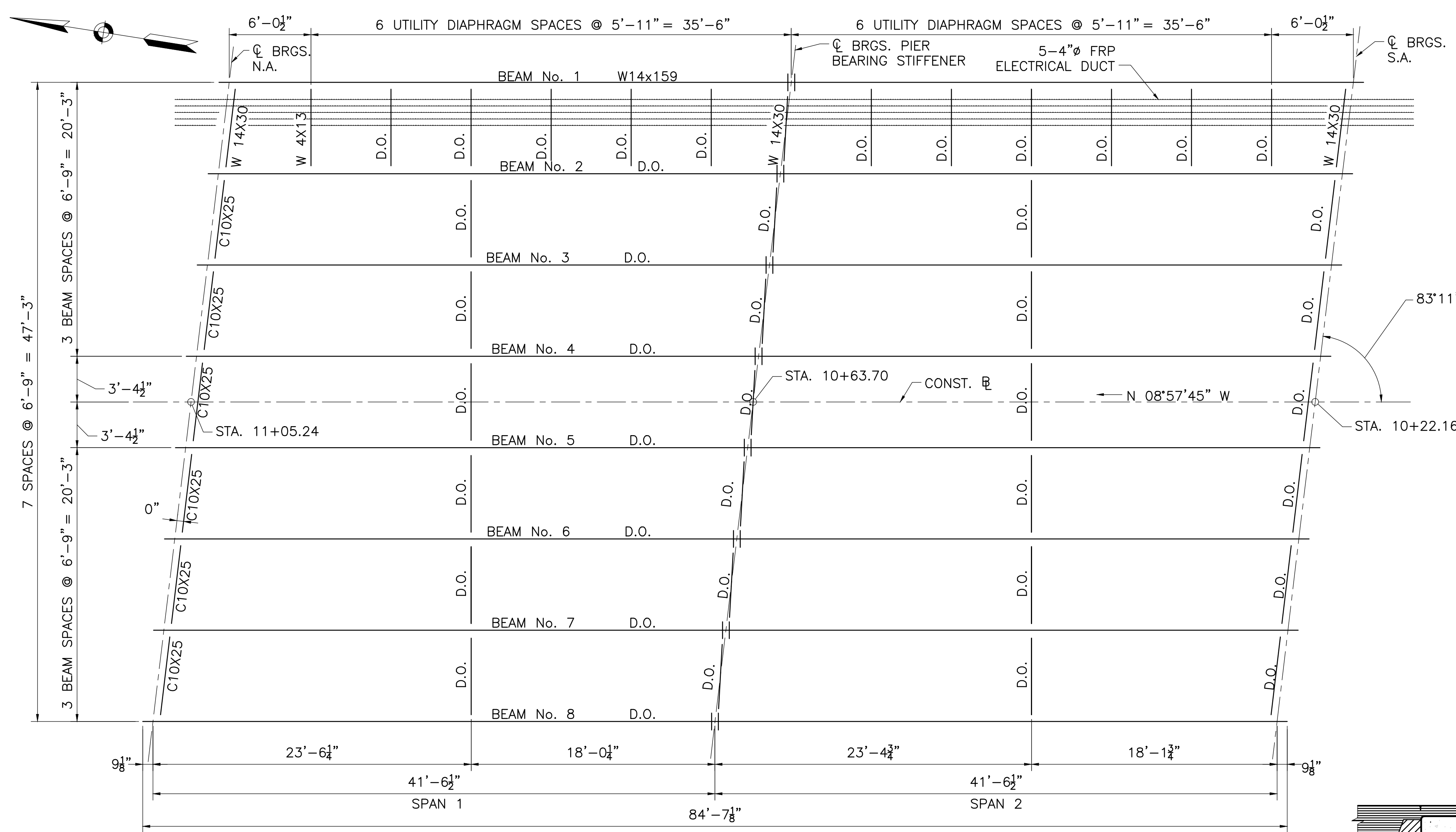
TYPICAL PILASTER REINFORCEMENT  
SCALE: 1/2" = 1'-0"



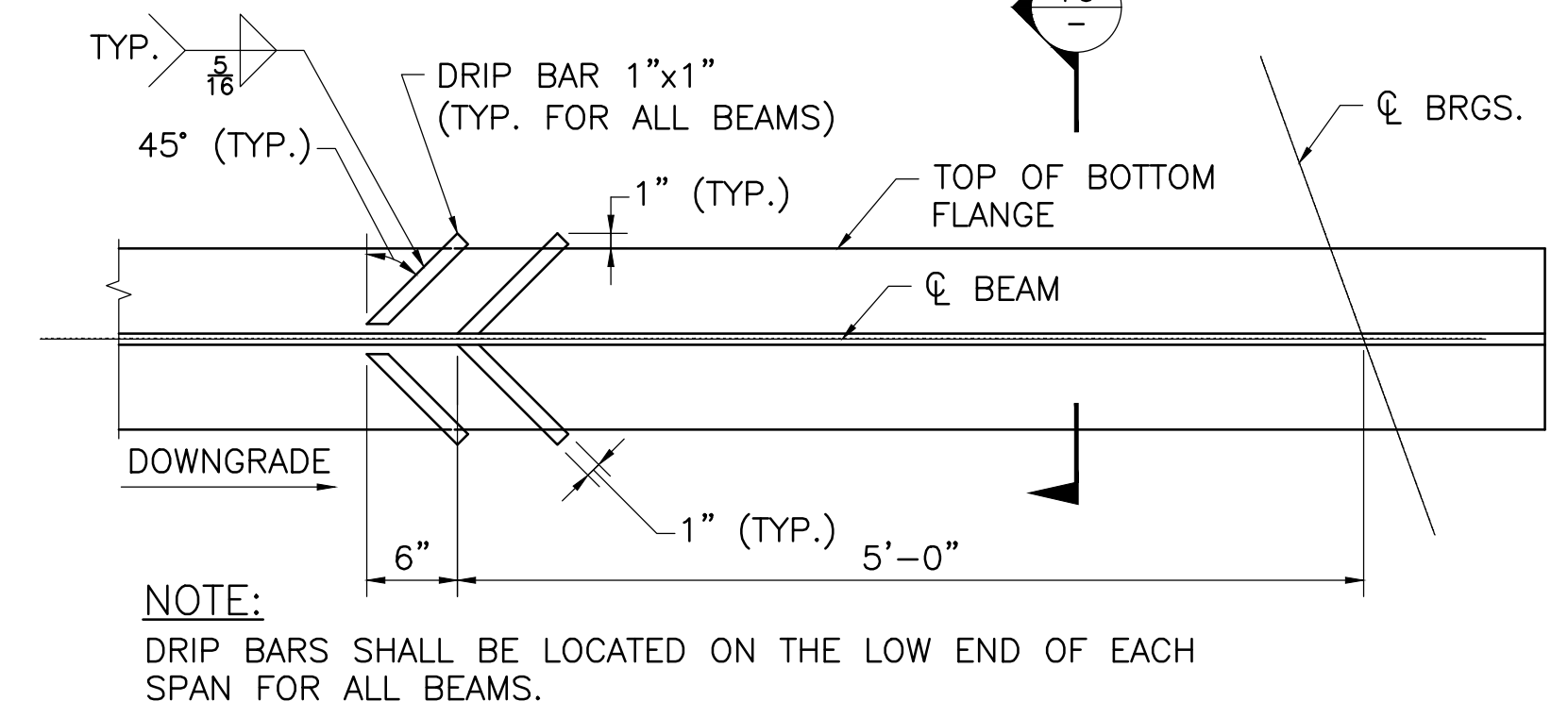
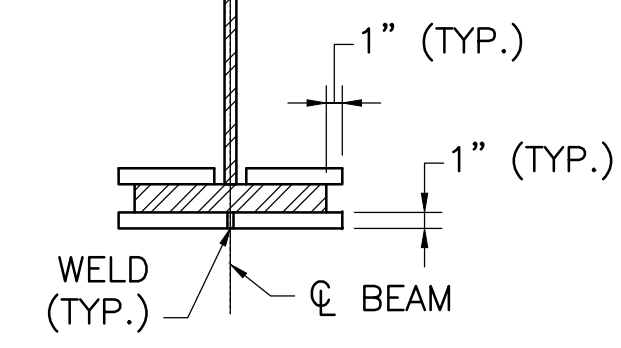
ISSUED FOR CONSTRUCTION
DATE
DESCRIPTION
USE ONLY PRINTS OF LATEST DATE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	NFA	56	72

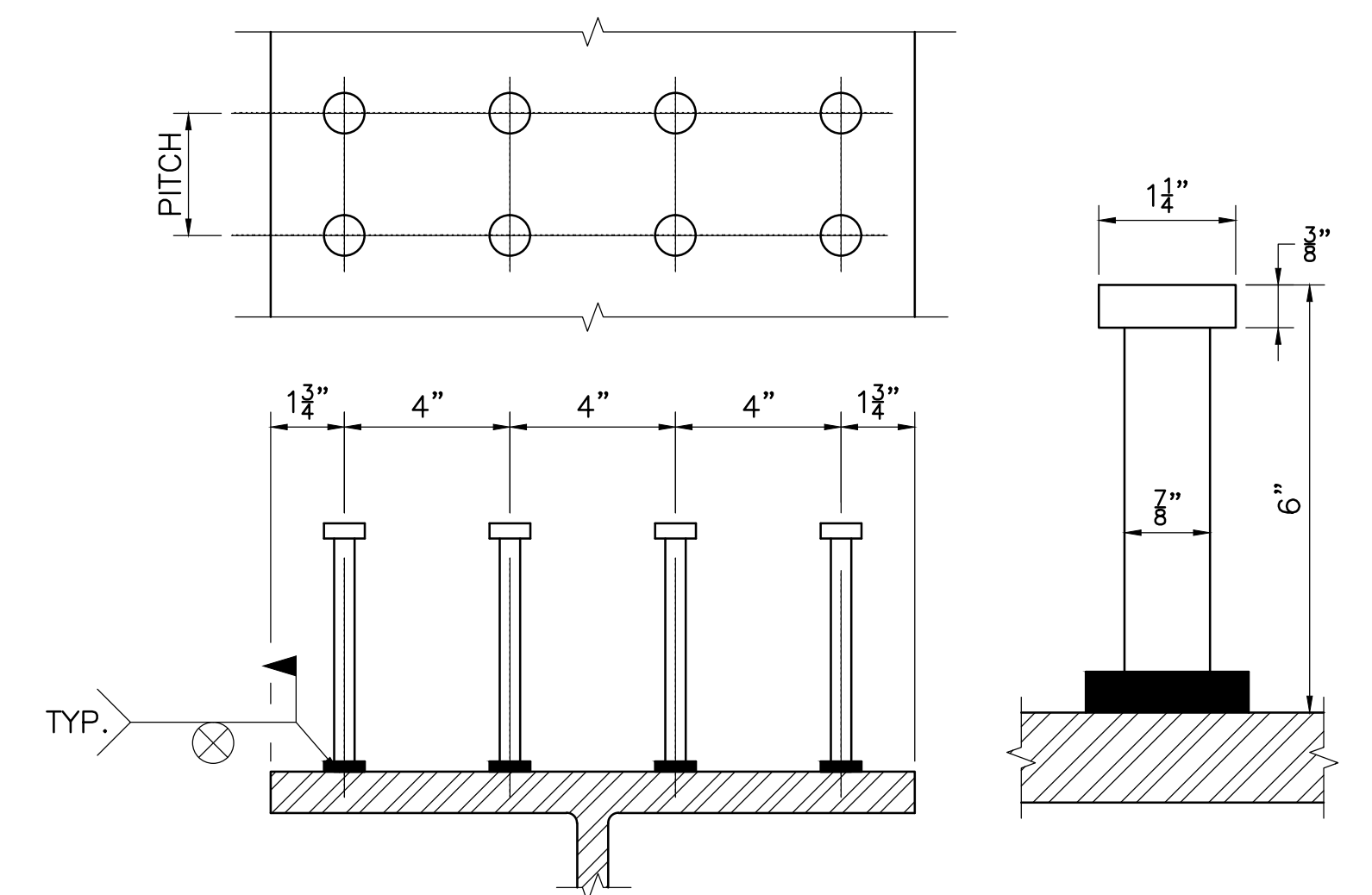
PROJECT FILE NO. 604007  
FRAMING PLAN AND DIAPHRAGM DETAILS



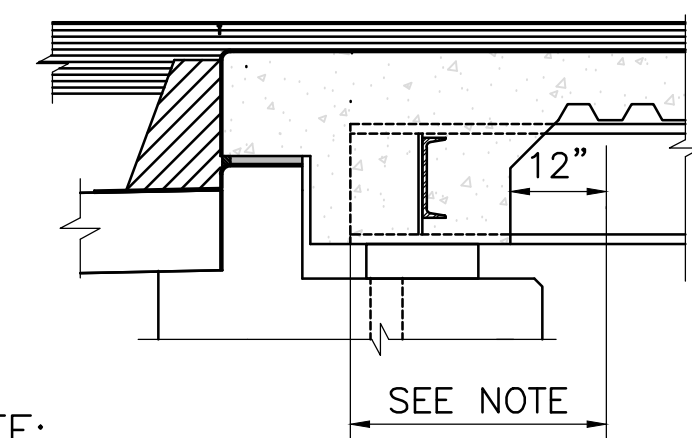
**SECTION 16**  
SCALE: 1"=1'-0"



**DRIP BAR DETAIL**  
SCALE: 1" = 1'-0"

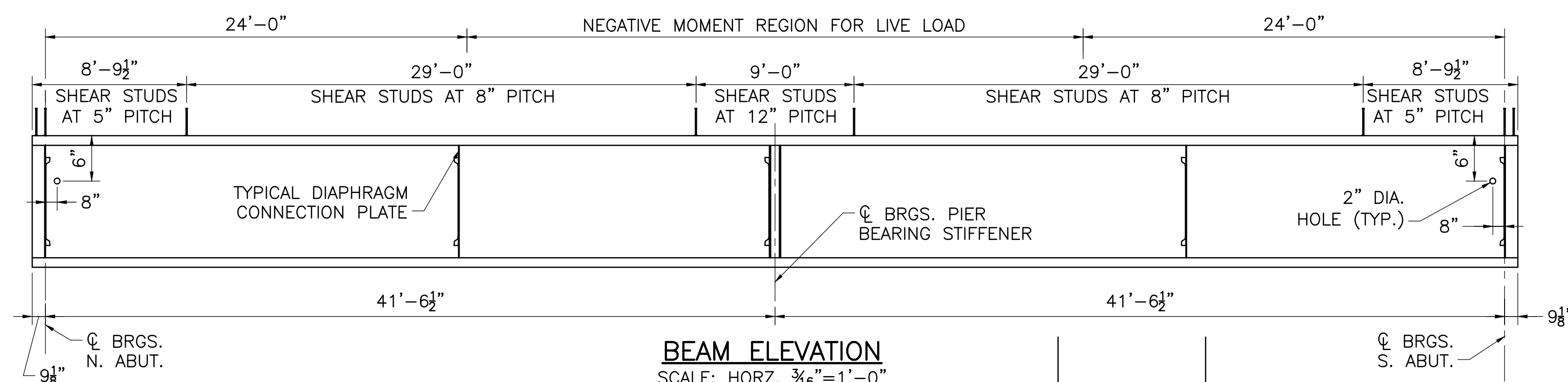


**STUD SHEAR CONNECTORS**  
NOT TO SCALE



**NOTE:**  
THE UNPAINTED WEATHERING STEEL BEAM AND ATTACHED PLATES EMBEDDED IN THE END DIAPHRAGM AND WITHIN 12" OF THE FACE OF END DIAPHRAGM SHALL BE PAINTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. THE FINISH COAT COLOR SHALL MATCH COLOR CHIP NO. 30045 OF FEDERAL STANDARD 595B. THE STEEL DIAPHRAGM SHALL NOT BE PAINTED.

**LIMITS OF PAINTED WEATHERING STEEL**  
SCALE: 1/2" = 1'-0"



**BEAM ELEVATION**  
SCALE: HORZ. 3/16"=1'-0"  
VERT. 1" = 1'-0"

**NOTE:** ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W  
**PROPOSED FRAMING PLAN**  
SCALE: 3/16"=1'-0"

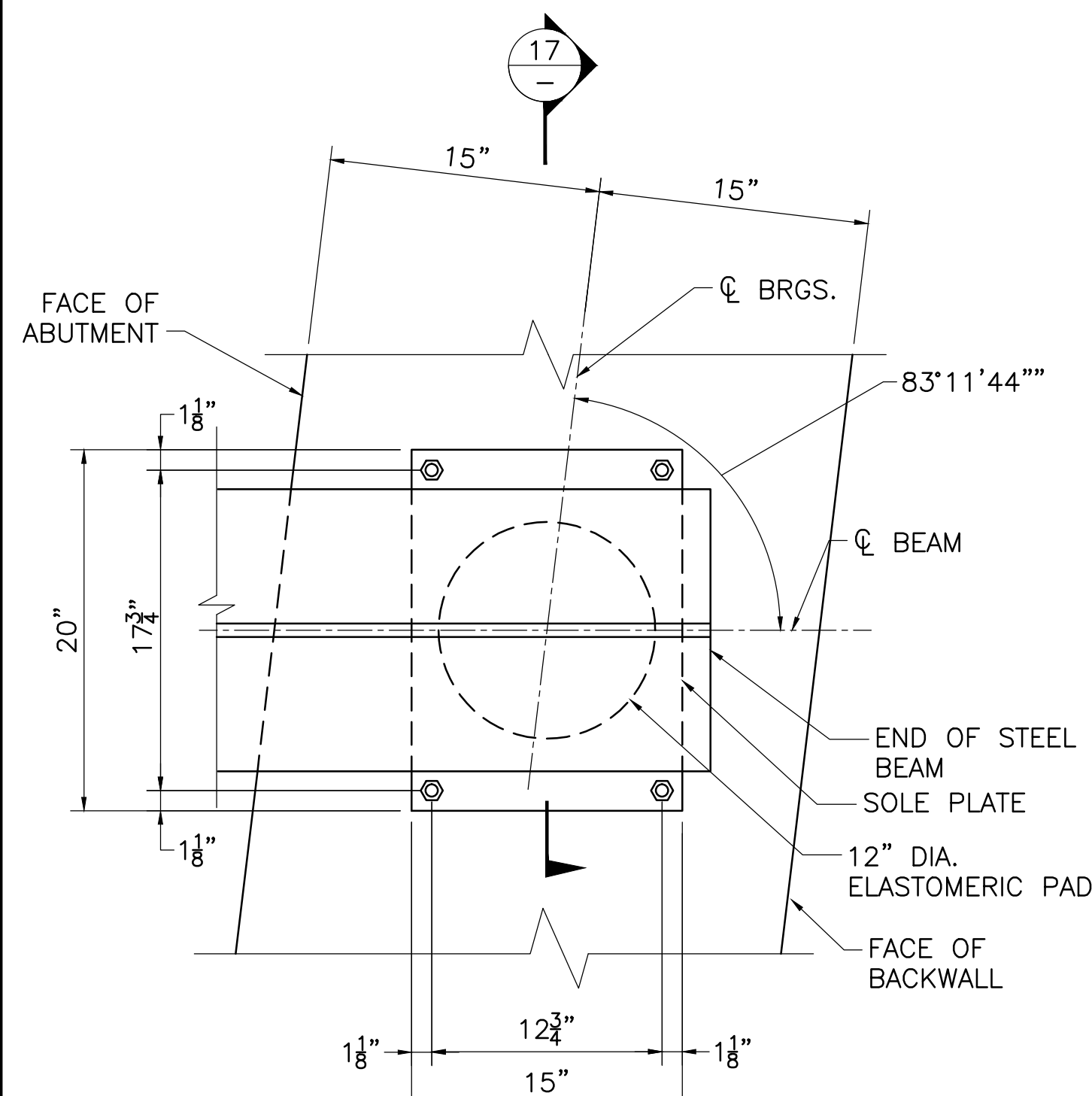
**CAMBER TABLE (INCHES)**

INCREASING STATIONS		SPAN 1										SPAN 2																					
		NA	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	Pier	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	SA											
BEAM 1	STEEL DL DEFLECTION	0.0000	0.0000	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0000	0.0000	0.0000	0.0000	0.0625	0.0625	0.0625	0.0625	0.0625	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0625	0.0625	0.0625	0.0625	0.0625	0.0000	0.0000		
	CONC. DL DEFLECTION	0.0000	0.1875	0.3125	0.3750	0.4375	0.4375	0.3750	0.2500	0.1250	0.0625	0.0000	0.0625	0.1250	0.2500	0.3750	0.4375	0.4375	0.3750	0.3125	0.1875	0.0000	0.0000	0.0000	0.1250	0.1875	0.2500	0.3125	0.3750	0.4375	0.4375	0.3750	0.0000
	S.D.L. DEFLECTION	0.0000	0.1250	0.1875	0.2500	0.3125	0.3125	0.2500	0.1875	0.1250	0.0000	0.0000	0.0000	0.1250	0.1875	0.2500	0.3125	0.3125	0.2500	0.1875	0.1250	0.0000	0.0000	0.0000	0.1250	0.1875	0.2500	0.3125	0.3125	0.2500	0.1875	0.1250	0.0000
	ADDITIONAL CAMBER	0.0000	0.1250	0.1875	0.1875	0.1875	0.2500	0.2500	0.1875	0.1250	0.0625	0.0000	0.0625	0.1250	0.1875	0.2500	0.2500	0.1875	0.1875	0.1250	0.0625	0.0000	0.0000	0.0625	0.1250	0.1875	0.2500	0.2500	0.1875	0.1875	0.1250	0.0625	0.0000
BEAM 2	STEEL DL DEFLECTION	0.0000	0.0000	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0000	0.0000	0.0000	0.0000	0.0625	0.0625	0.0625	0.0625	0.0625	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0625	0.0625	0.0625	0.0625	0.0625	0.0000	0.0000		
	CONC. DL DEFLECTION	0.0000	0.1250	0.2500	0.3750	0.4375	0.4375	0.3750	0.2500	0.1250	0.0625	0.0000	0.0625	0.1250	0.2500	0.3750	0.4375	0.4375	0.3750	0.3125	0.1875	0.0000	0.0000	0.0000	0.1250	0.1875	0.2500	0.3125	0.3750	0.4375	0.4375	0.3750	0.0000
	S.D.L. DEFLECTION	0.0000	0.0625	0.0625	0.0625	0.1250	0.0625	0.0625	0.0625	0.0000	0.0000	0.0000	0.0000	0.0625	0.0625	0.0625	0.0625	0.1250	0.0625	0.0625	0.0625	0.0000	0.0000	0.0000	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0000
	ADDITIONAL CAMBER	0.0000	0.1250	0.1875	0.1875	0.1875	0.2500	0.2500	0.1875	0.1250	0.0625	0.0000	0.0625	0.1250	0.1875	0.2500	0.2500	0.1875	0.1875	0.1250	0.0625	0.0000	0.0000	0.0625	0.1250	0.1875	0.2500	0.2500	0.1875	0.1875	0.1250	0.0625	0.0000
BEAM 3 TO 7	STEEL DL DEFLECTION	0.0000	0.0000	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0000	0.0000	0.0000	0.0000	0.0625	0.0625	0.0625	0.0625	0.0625	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0625	0.0625	0.0625	0.0625	0.0625	0.0000	0.0000		
	CONC. DL DEFLECTION	0.0000	0.1250	0.2500	0.3125	0.3750	0.3750	0.3125	0.1875	0.1250	0.0625	0.0000	0.0625	0.1250	0.1875	0.2500	0.3750	0.3750	0.3125	0.2500	0.1250	0.0000	0.0000	0.0000	0.1250	0.1875	0.2500	0.3125	0.3750	0.3750	0.3125	0.2500	0.0000
	S.D.L. DEFLECTION	0.0000	0.0625	0.0625	0.0625	0.1250	0.0625	0.0625	0.0625	0.0000	0.0000	0.0000	0.0000	0.0625	0.0625	0.0625	0.1250	0.0625	0.0625	0.0625	0.0625	0.0000	0.0000	0.0000	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0000
	ADDITIONAL CAMBER	0.0000	0.1250	0.1875	0.2500	0.2500	0.2500	0.2500	0.1875	0.1250	0.0625	0.0000	0.0625	0.1250	0.1875	0.2500	0.2500	0.1875	0.1875	0.1250	0.0625	0.0000	0.0000	0.0625	0.1250	0.1875	0.2500	0.2500	0.1875	0.1875	0.1250	0.0625	0.0000
BEAM 8	STEEL DL DEFLECTION	0.0000	0.0000	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0000	0.0000	0.0000	0.0000	0.0625	0.0625	0.0625	0.0625	0.0625	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0625	0.0625	0.0625	0.0625	0.0625	0.0000	0.0000		
	CONC. DL DEFLECTION	0.0000	0.1250	0.2500	0.3750	0.4375	0.4375	0.3750	0.2500	0.1250	0.0625	0.0000	0.0625	0.1250	0.2500	0.3750	0.4375	0.4375	0.3750	0.3125	0.1875	0.0000	0.0000	0.0000	0.1250	0.1875	0.2500	0.3125	0.3750	0.4375	0.4375	0.3750	0.0000
	S.D.L. DEFLECTION	0.0000	0.1250	0.1875	0.2500	0.2500	0.2500	0.2500	0.1875	0.1250	0.0625	0.0000	0.0625	0.1250	0.1875	0.2500	0.2500	0.1875	0.1875	0.1250	0.0625	0.0000	0.0000	0.0000	0.1250	0.1875	0.2500	0.2500	0.1875	0.1875	0.1250	0.0625	0.0000
	ADDITIONAL CAMBER	0.0000	0.1250	0.1875	0.2500	0.2500	0.2500	0.2500	0.1875	0.1250	0.0625	0.0000	0.0625	0.1250	0.1875	0.2500	0.2500	0.1875	0.1875	0.1250	0.0625	0.0000	0.0000	0.0625	0.1250	0.1875	0.2500	0.2500	0.1875	0.1875	0.1250	0.0625	0.0000

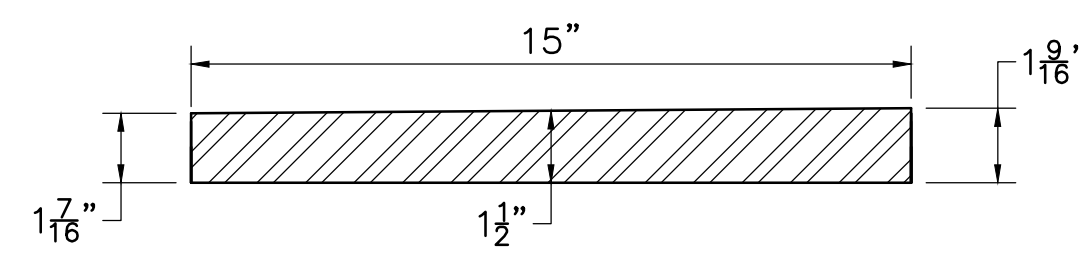
DATE	ISSUED FOR CONSTRUCTION
	DESCRIPTION
	USE ONLY PRINTS OF LATEST DATE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	NFA	57	72

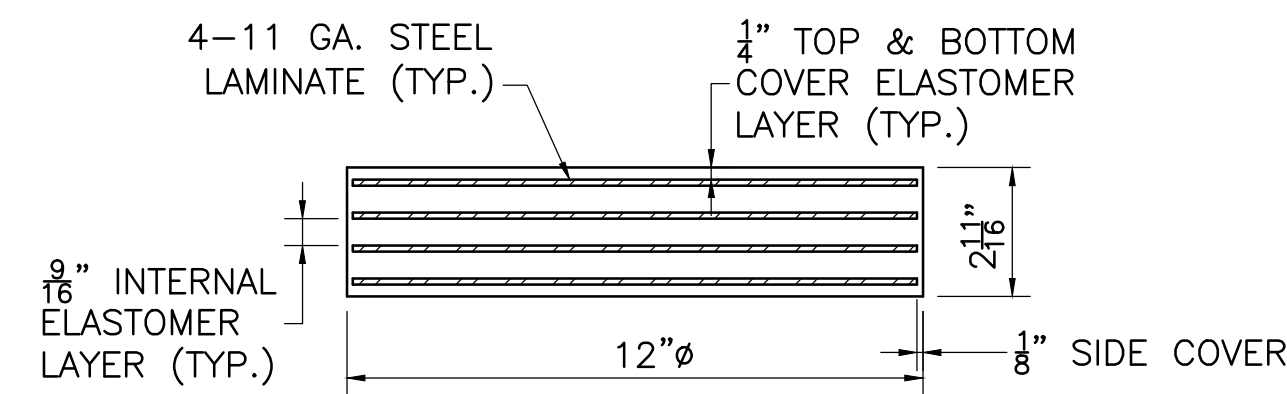
PROJECT FILE NO. 604007  
BEARING DETAILS



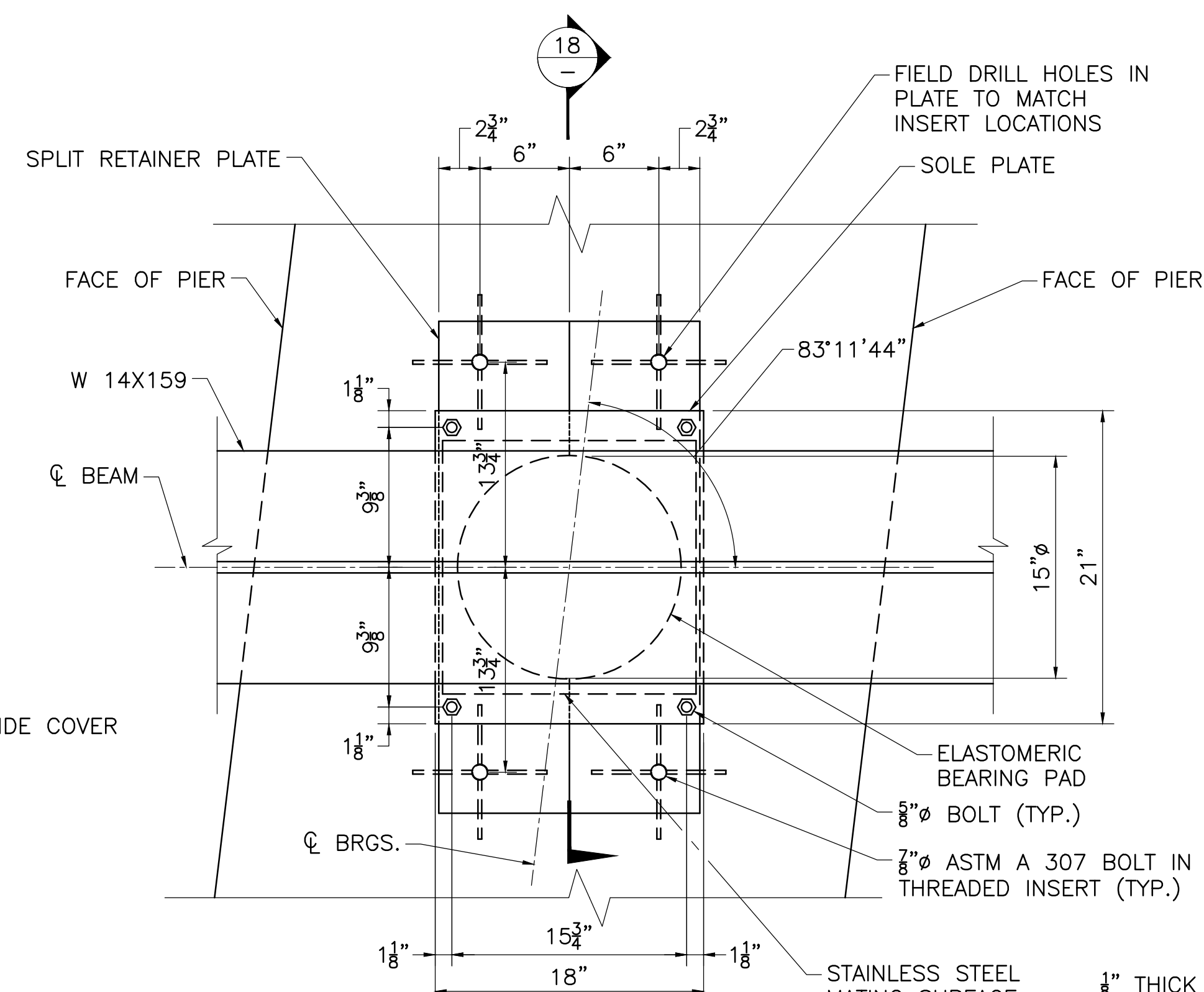
**PLAN (ABUTMENT)**  
SCALE: 1/2" = 1'-0"



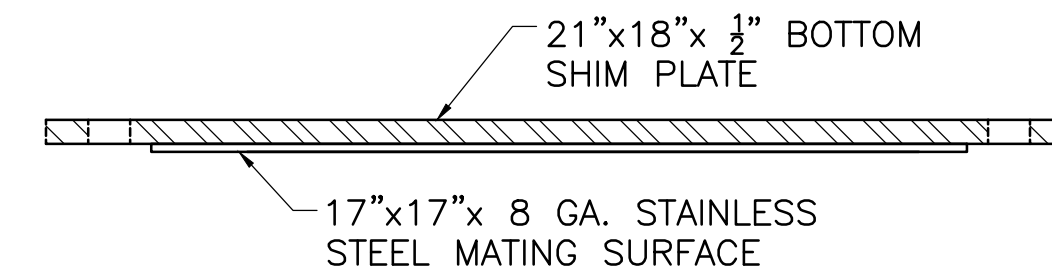
**TAPERED SOLE PLATE**  
SCALE: 3" = 1'-0"



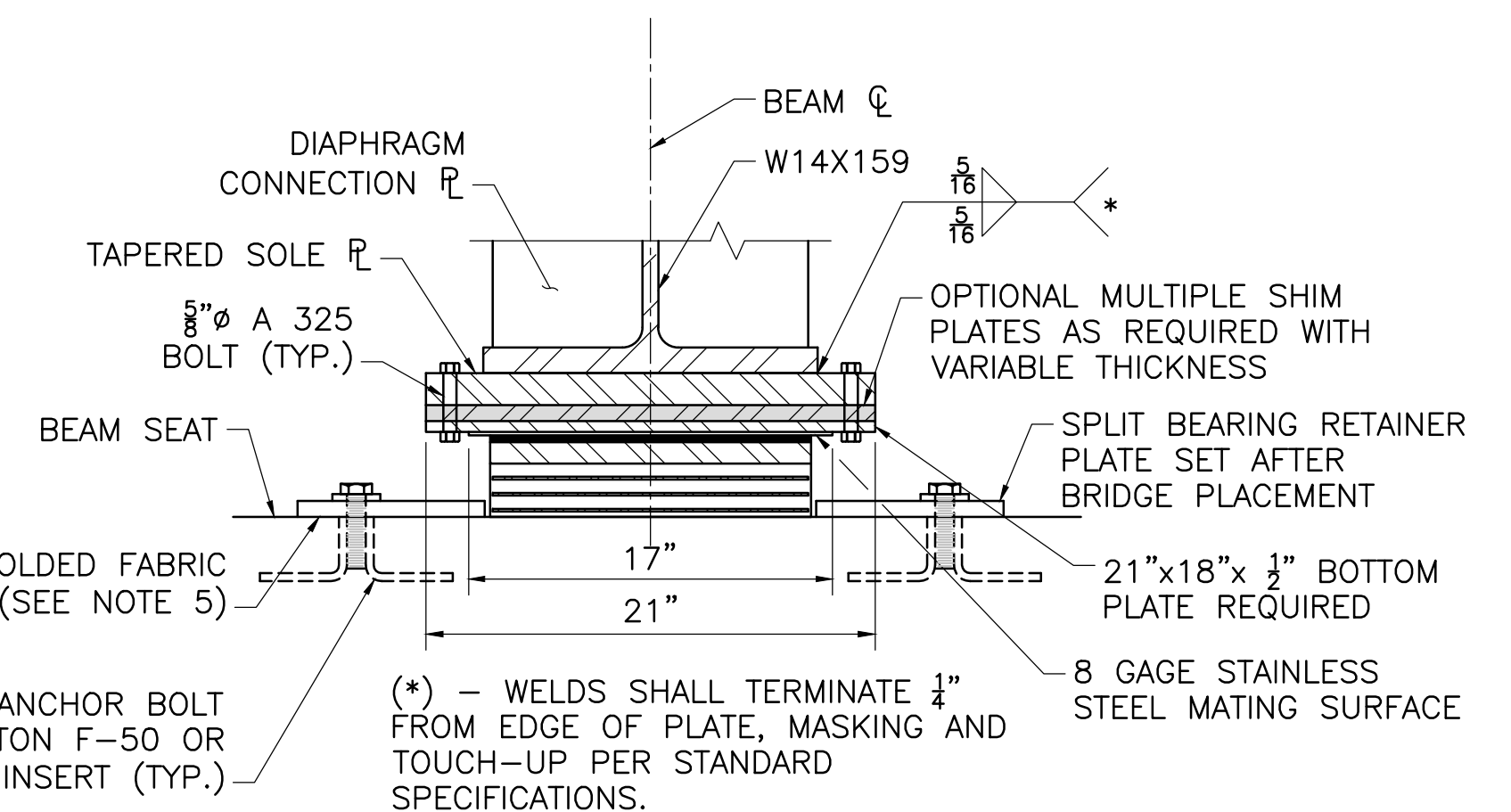
**ELASTOMERIC BEARING PAD**  
SCALE: 3" = 1'-0"



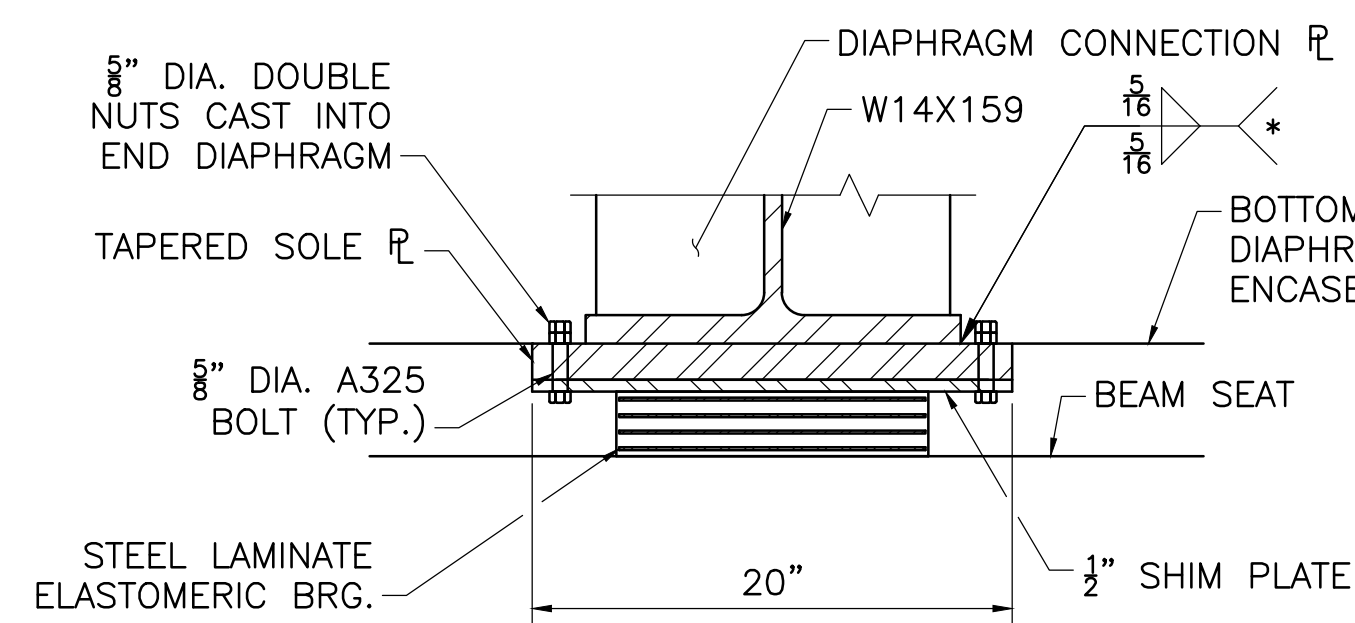
**PLAN (PIER)**  
SCALE: 1/2" = 1'-0"



**BOTTOM SHIM PLATE**  
SCALE: 3" = 1'-0"

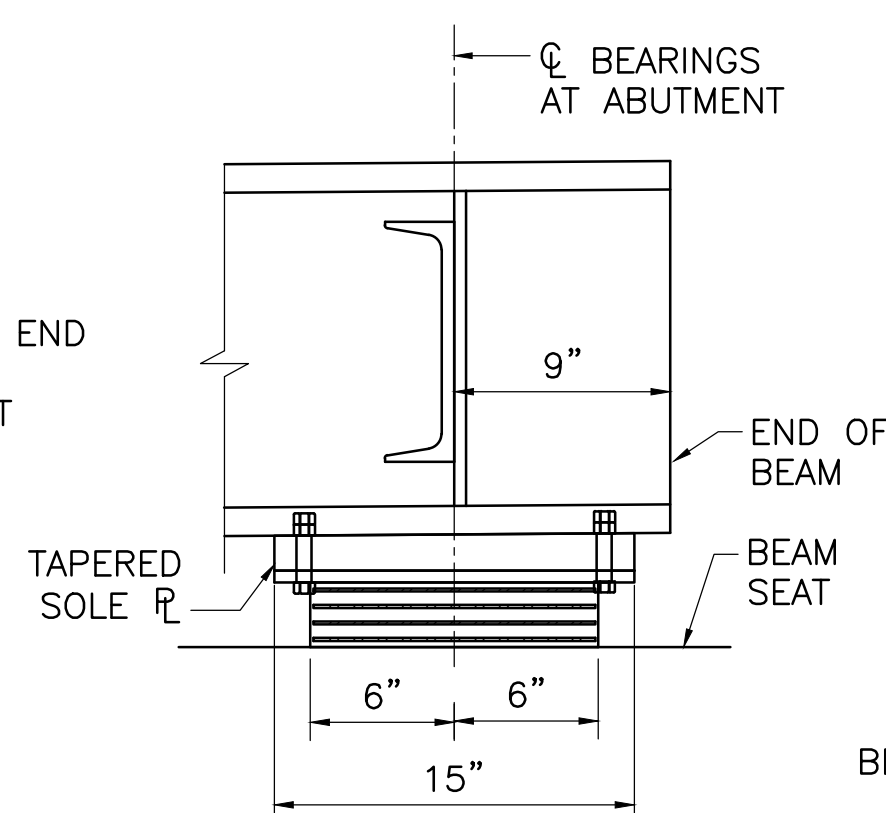


**SECTION 18**  
SCALE: 1/2" = 1'-0"



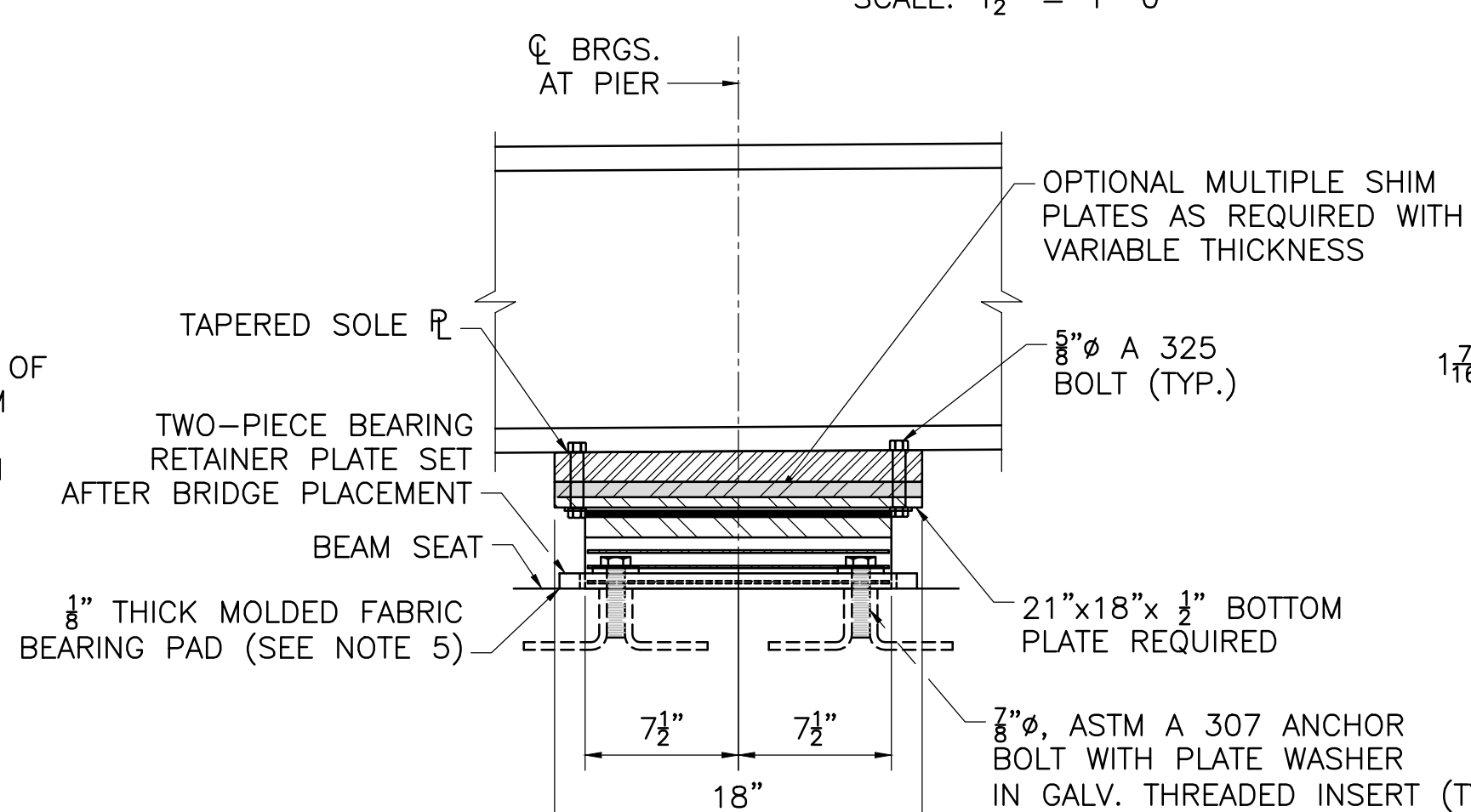
(\* - WELDS SHALL TERMINATE 1/4" FROM EDGE OF PLATE, MASKING AND TOUCH-UP PER STANDARD SPECIFICATIONS.)

**SECTION 17**  
SCALE: 1/2" = 1'-0"

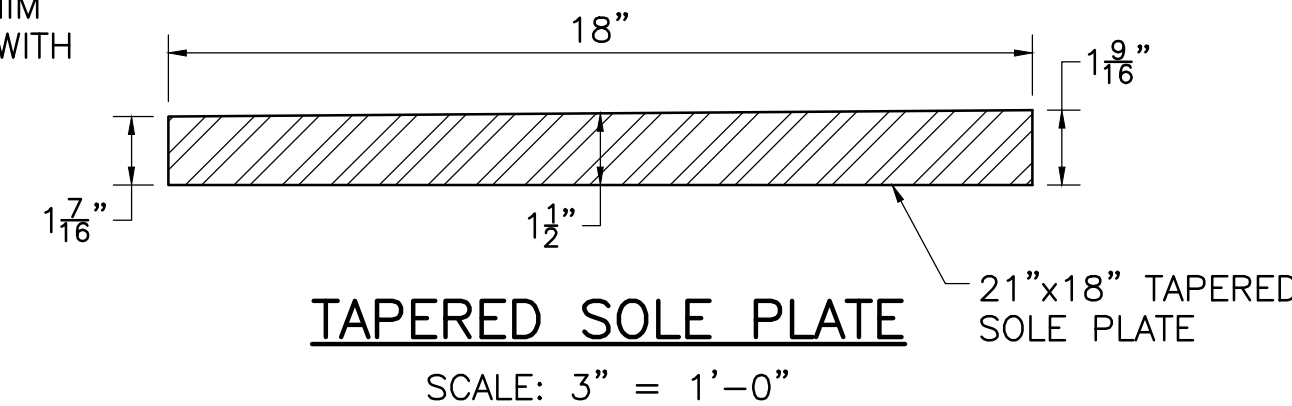


NOTE: CONCRETE ENCASEMENT NOT SHOWN FOR CLARITY

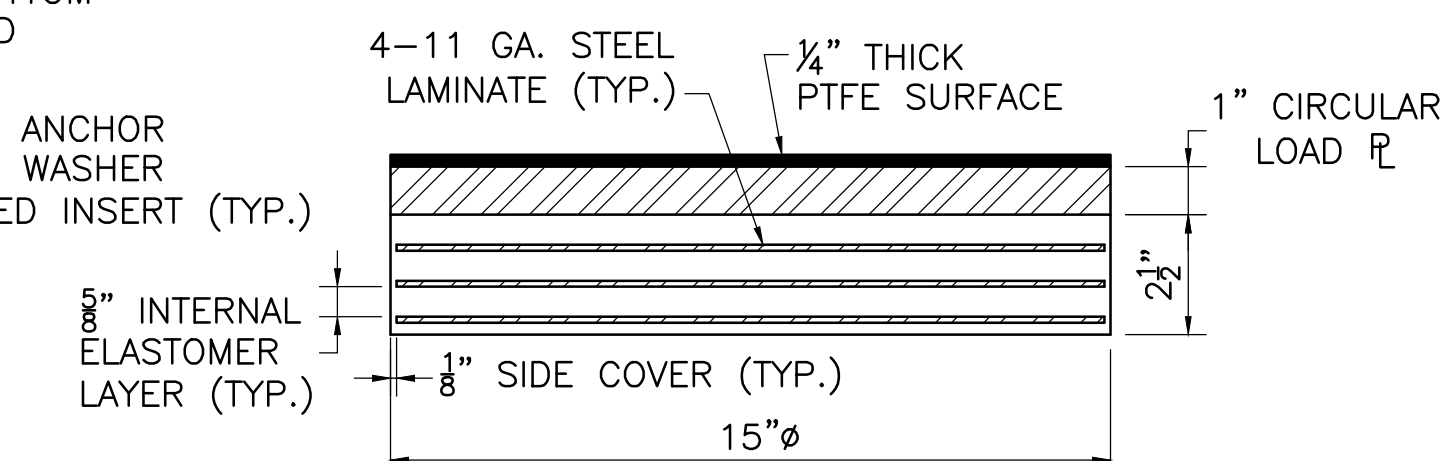
**ELEVATION**  
SCALE: 1/2" = 1'-0"



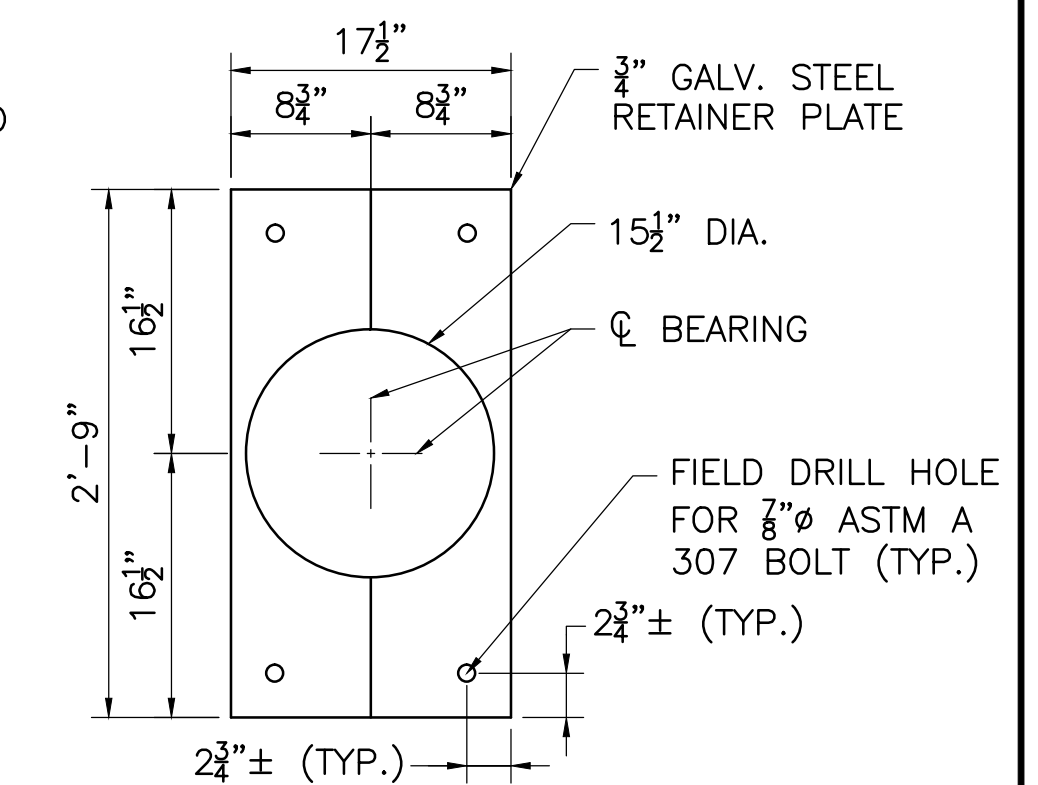
**ELEVATION**  
SCALE: 1/2" = 1'-0"



**TAPERED SOLE PLATE**  
SCALE: 3" = 1'-0"



**ELASTOMERIC BEARING PAD**  
SCALE: 3" = 1'-0"



**TWO-PIECE RETAINER PLATE DETAIL**  
SCALE: 1" = 1'-0"

**NOTES:**

- ELASTOMER SHALL HAVE A HARDNESS OF 60 DUROMETER.
- STEEL LAMINATES SHALL CONFORM TO ASTM A1011 GRADE 36.
- THE COMPRESSIVE DESIGN LOAD ON THE BEARING PAD IS 74.58 KIPS. THE COMPRESSIVE DESIGN STRESS IS THE RESULT OF DIVIDING THE COMPRESSIVE DESIGN LOAD BY THE AREA OF THE PAD AND IS EQUAL TO 0.659 KSI.
- ELASTOMERIC BEARING PAD SHALL NOT BE VULCANIZED TO SOLE PLATE.
- STEEL SOLE PLATE SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE HOT-DIP GALVANIZED.
- CENTER THE ELASTOMERIC PAD UNDER THE SOLE PLATE DURING ERECTION.
- BEAMS SHALL BE ERECTED WHEN THE AMBIENT TEMPERATURE IS BETWEEN 50°F AND 100°F.
- ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE, AND A 1/2" DEEP DIRECTION ARROW THAT POINTS UP-STATION. ALL MARKS SHALL BE PERMANENT AND VISIBLE AFTER THE BEARING IS INSTALLED.

**DETAIL OF BEARING AT ABUTMENT**

**SHIM PLATE NOTES:**

- FOR BOTH ABUTMENTS AND PIER IT SHALL BE PERMISSIBLE TO USE SHIM PLATES TO ADJUST THE SUPERSTRUCTURE TO FINAL GRADE.
- BEAM SEAT ELEVATIONS HAVE BEEN CALCULATED ASSUMING THAT EACH BEARING HAS A 0.5 INCH THICK SHIM PLATE INSTALLED.
- THERE SHALL BE A PERMISSIBLE -0.5 INCH TO +1.5 INCH TOLERANCE ON OVERALL BEARING THICKNESS FROM THE BOTTOM OF STEEL TO THE BRIDGE SEAT.
- ALL SHIM PLATES SHALL BE AASHTO M270 GRADE 36 AND SHALL BE HOT-DIPPED GALVANIZED.
- THE CONTRACTOR SHALL HAVE AN ASSORTMENT OF SHIM PLATES OF VARIOUS THICKNESSES AVAILABLE FOR USE IN SETTING THE SUPERSTRUCTURE.
- SHIM PLATES SHALL MATCH THE SOLE PLATES IN PLAN.

**NOTES:**

- ELASTOMER SHALL HAVE A HARDNESS OF 60 DUROMETER.
- STEEL LAMINATES SHALL CONFORM TO ASTM A1011 GRADE 36.
- LOAD PLATE SHALL BE VULCANIZED TO THE ELASTOMERIC BEARING PAD. THE SIDES OF THE LOAD PLATE SHALL BE METALIZED PRIOR TO VULCANIZATION.
- PTFE SURFACE SHALL BE FABRICATED AS UNFILLED SHEET AND SHALL BE MADE FROM PTFE RESIN ALONE. IT SHALL CONTAIN DIMPLES TO ACT AS A RESERVOIR FOR LUBRICANT.
- THE MAXIMUM COEFFICIENT OF FRICTION BETWEEN THE PTFE AND THE STAINLESS STEEL MATING SURFACE SHALL BE 0.03 AT 68°F.
- THE COMPRESSIVE DESIGN LOAD ON THE BEARING PAD IS 130.5 KIPS. THE COMPRESSIVE DESIGN STRESS IS THE RESULT OF DIVIDING THE COMPRESSIVE DESIGN LOAD BY THE AREA OF THE PAD AND IS EQUAL TO 0.738 KSI.
- STAINLESS STEEL MATING SURFACE SHALL BE TYPE 304 CONFORMING TO ASTM A 167/A 240 WITH A SURFACE FINISH OF 8 MICRO-INCHES RMS OR BETTER. IT SHALL BE WELDED WITH AN ALL-AROUND WELD TO THE BOTTOM REQUIRED PLATE SO THAT IT REMAINS FLAT AND IN FULL CONTACT WITH THE BOTTOM PLATE.

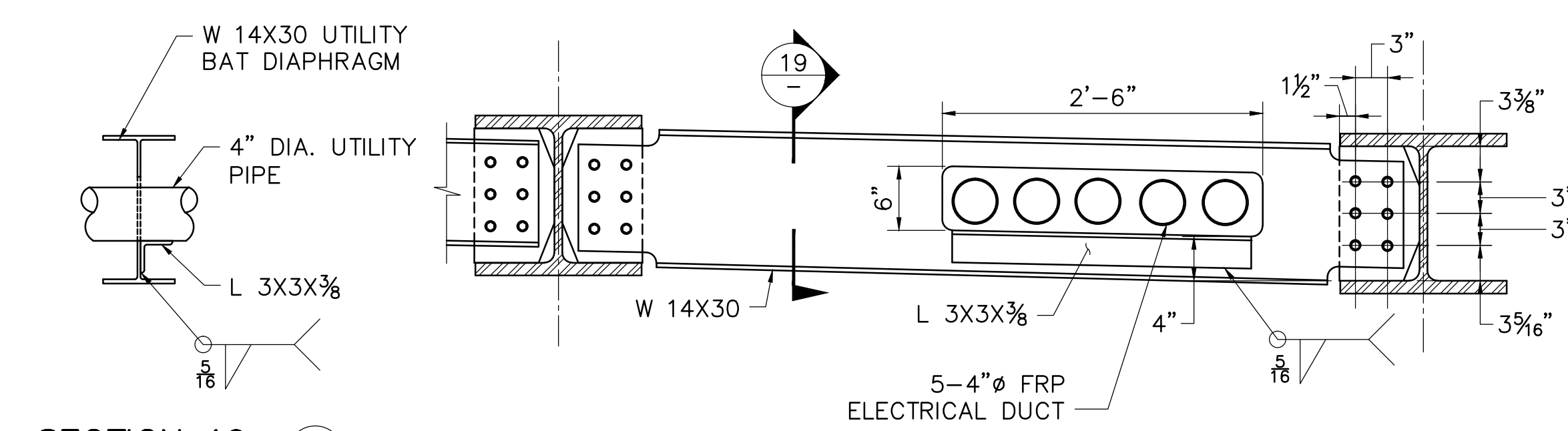
- STAINLESS STEEL MATING SURFACE SHALL BE TYPE 304 STAINLESS STEEL MATING SURFACE SHALL BE PROTECTED FROM SCRATCHES, GOUGES OR OTHER DAMAGE DURING SHIPMENT AND STORAGE.
- THE SOLE PLATE ASSEMBLY SHALL BE METALIZED, EXCEPT FOR THE STAINLESS STEEL MATING SURFACE AND FOR 1" WIDE STRIPS, WHERE THE SOLE PLATE SHALL BE WELDED TO THE FLANGE. AFTER WELDING, APPLY A GALVANIZING REPAIR PAINT (M7.04.11) WITH A MINIMUM DRY FILM THICKNESS OF 3 MILLS TO THESE STRIPS. THE RETAINER PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M 111.
- PIER BEARING RETAINER PLATES AND HARDWARE, SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTOM M232 AND THE STANDARD SPECIFICATIONS. PLATES MAY BE FABRICATED AND INSTALLED AFTER BRIDGE PLACEMENT TO PERMIT ADJUSTMENT FOR FIT-UP.

**DETAIL OF BEARING AT PIER**

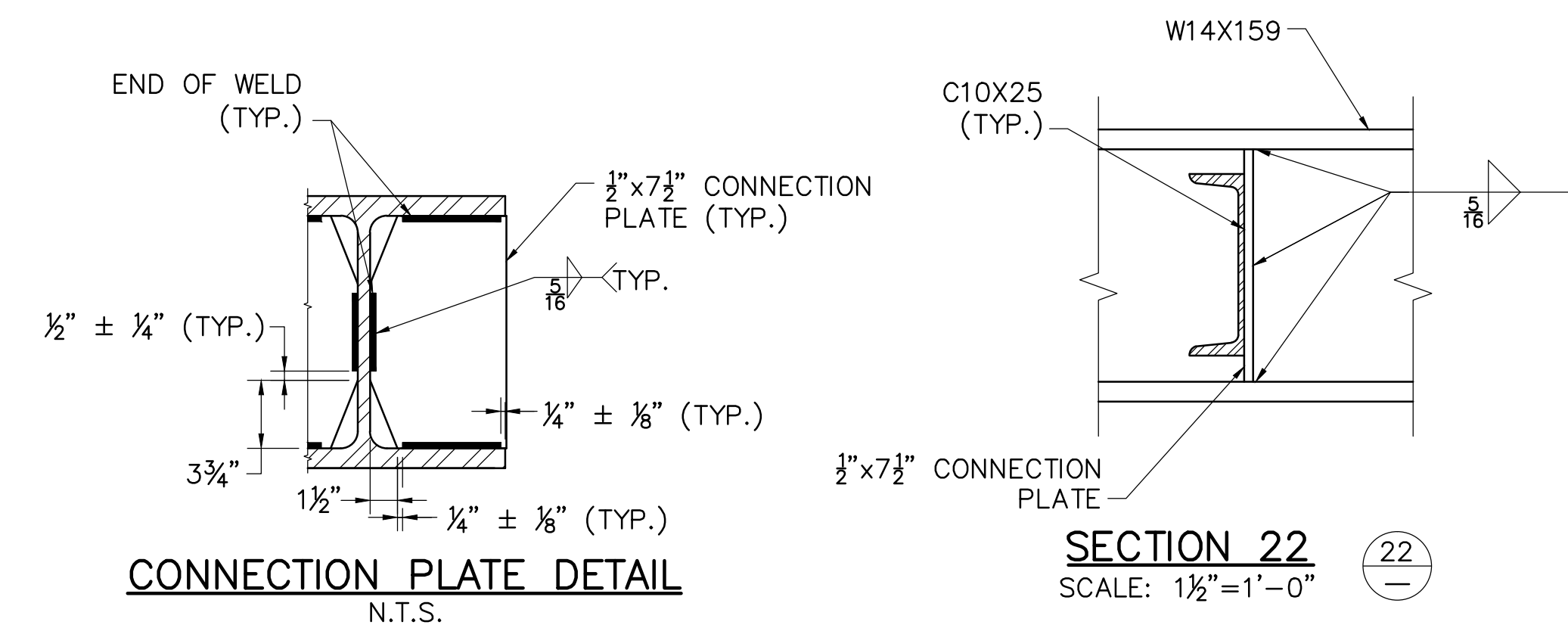
DATE	ISSUED FOR CONSTRUCTION DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	NFA	58	72
PROJECT FILE NO. 604007			

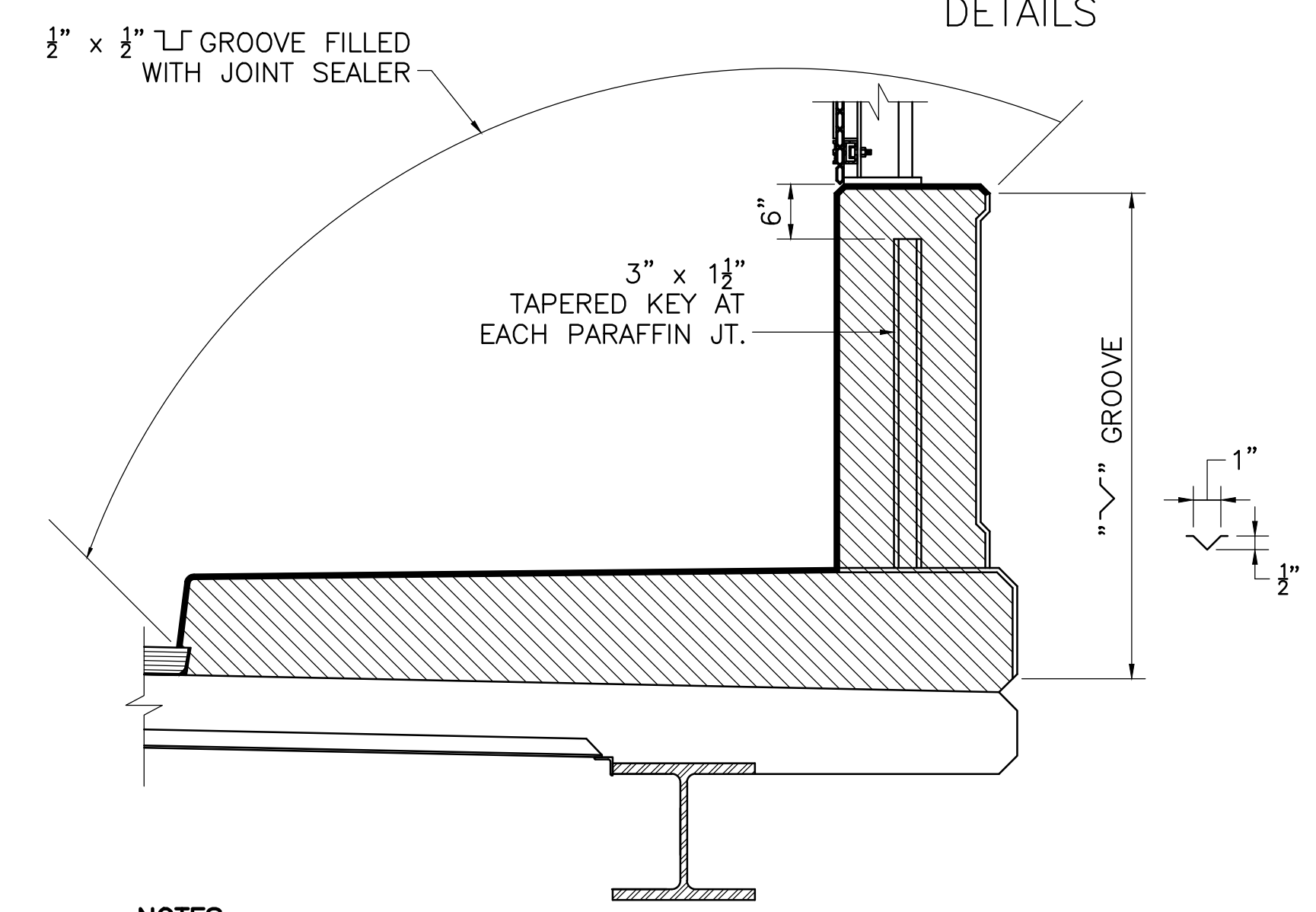
DIAPHRAGM AND DECK DETAILS



**SECTION 19**  
SCALE: 1"=1'-0"  
**UTILITY SUPPORT DETAILS AT INTERMEDIATE DIAPHRAGMS LOCATIONS**  
SCALE: 1" = 1'-0"

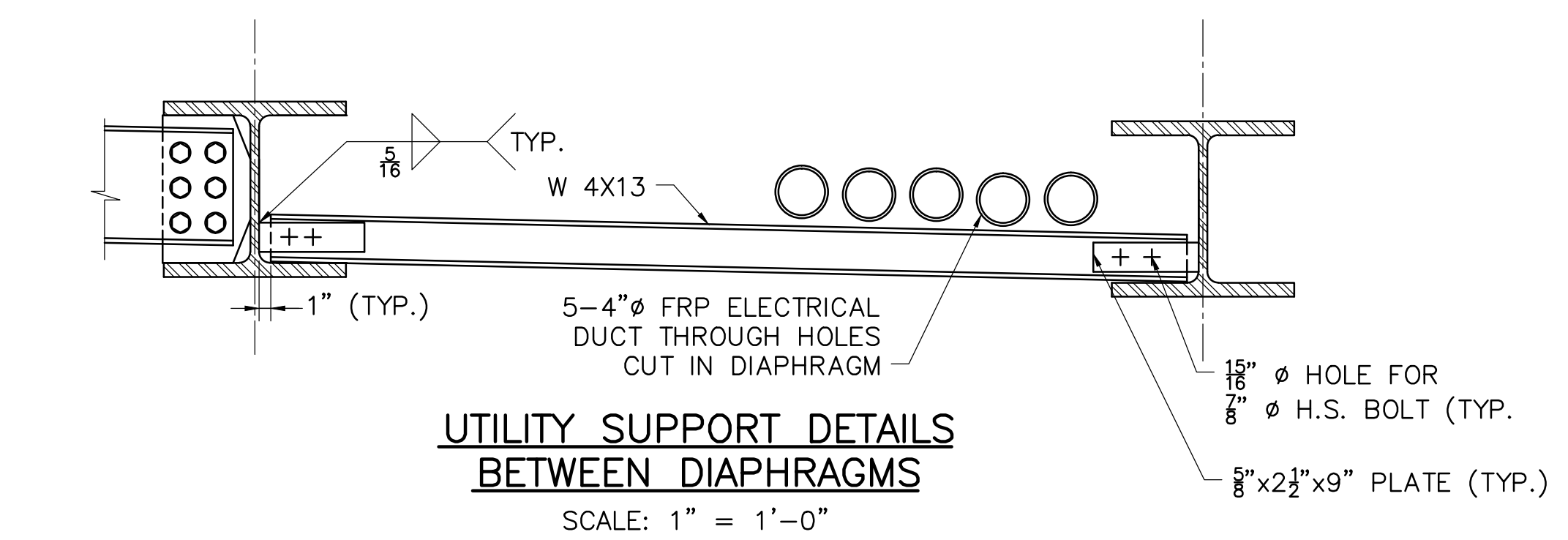


**SECTION 22**  
SCALE: 1 1/2"=1'-0"  
**CONNECTION PLATE DETAIL**  
N.T.S.

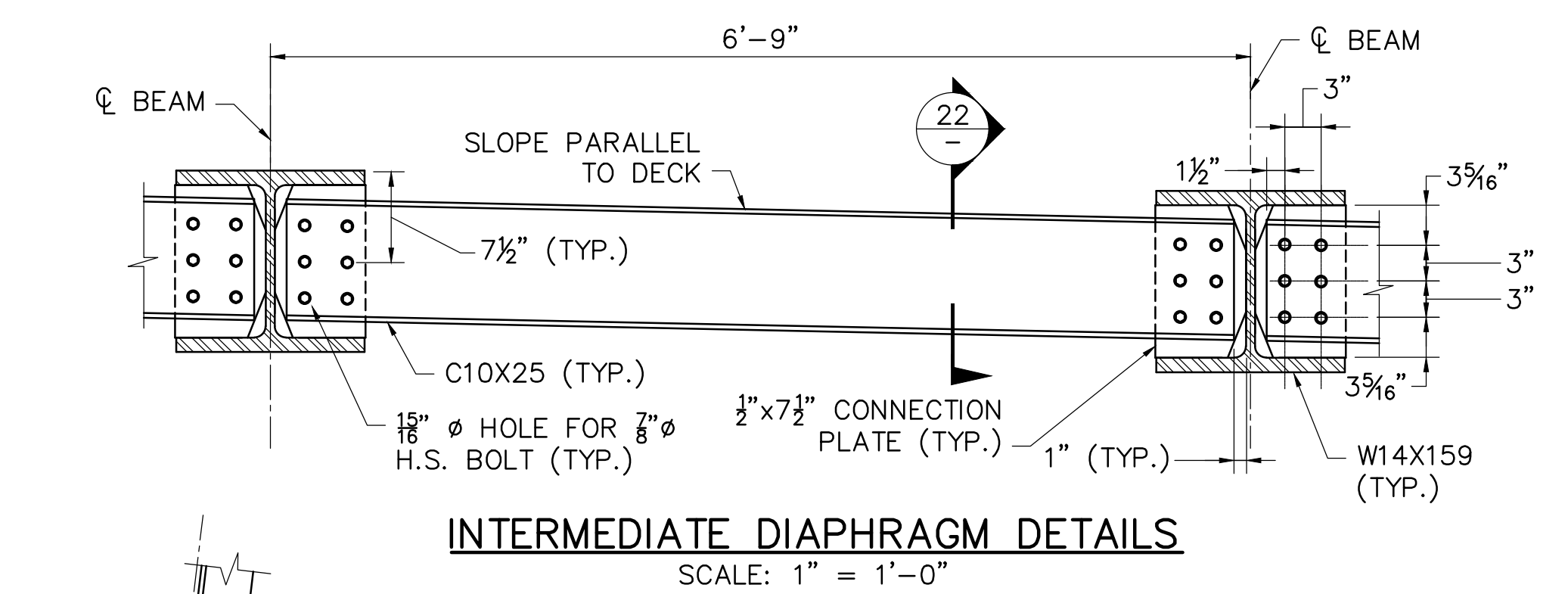


- NOTES:**
- ALL CONCRETE ABOVE SLAB SHALL BE POURED IN ALTERNATING SECTIONS WITH NOT LESS THAN 3 DAYS BETWEEN POURS.
  - DO NOT CARRY LONGITUDINAL BARS THROUGH THE PARAFFIN JOINTS.
  - END THE REINFORCEMENT 2" CLEAR OF JOINT. JOINT SHALL BE SQUARE TO FACE OF CURB

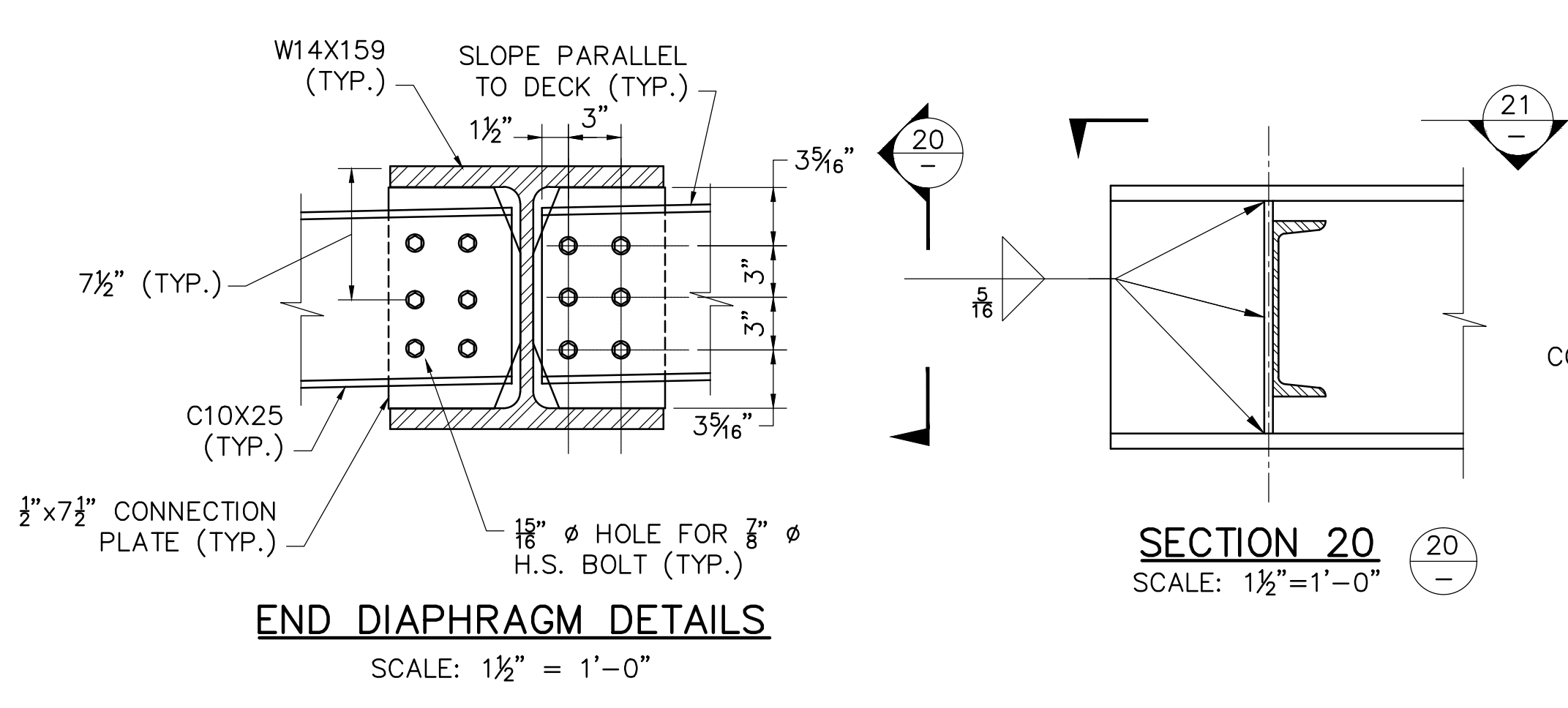
**PARAFFIN JOINT DETAILS**  
SCALE: 3/4" = 1'-0"



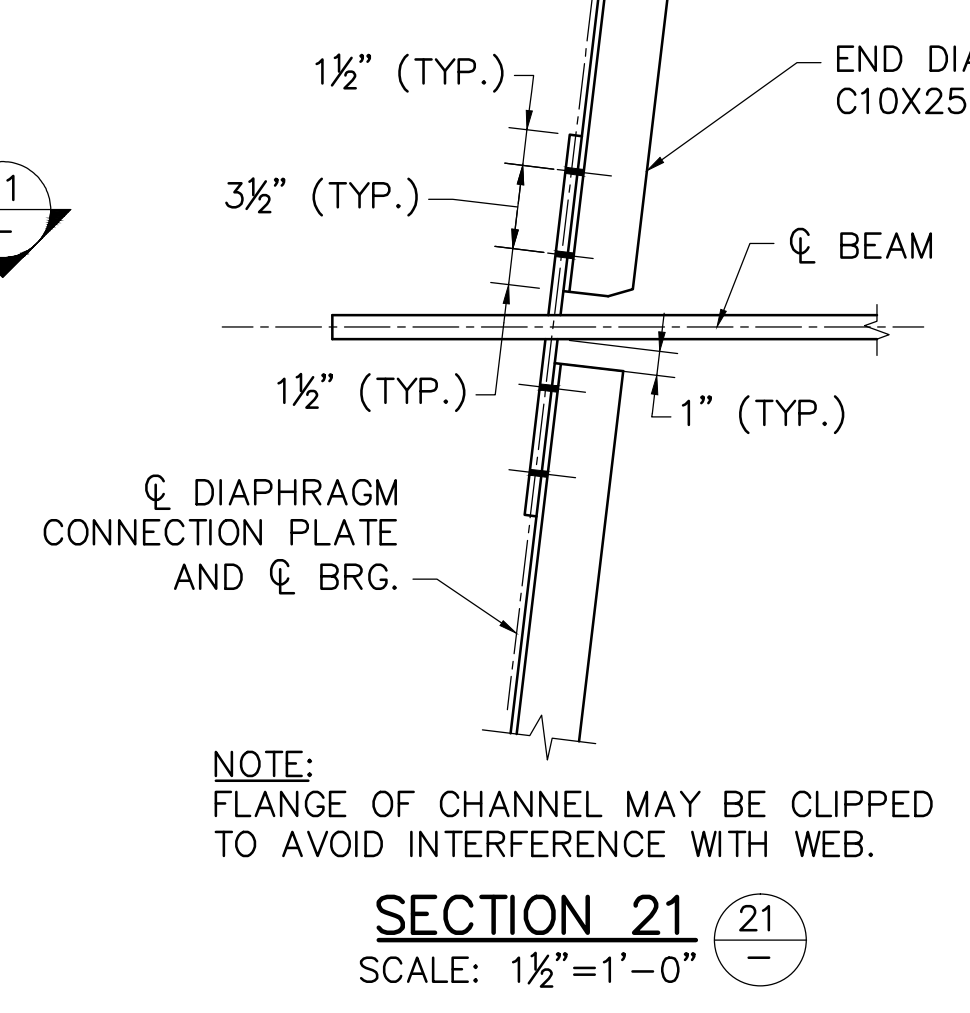
**UTILITY SUPPORT DETAILS BETWEEN DIAPHRAGMS**  
SCALE: 1" = 1'-0"



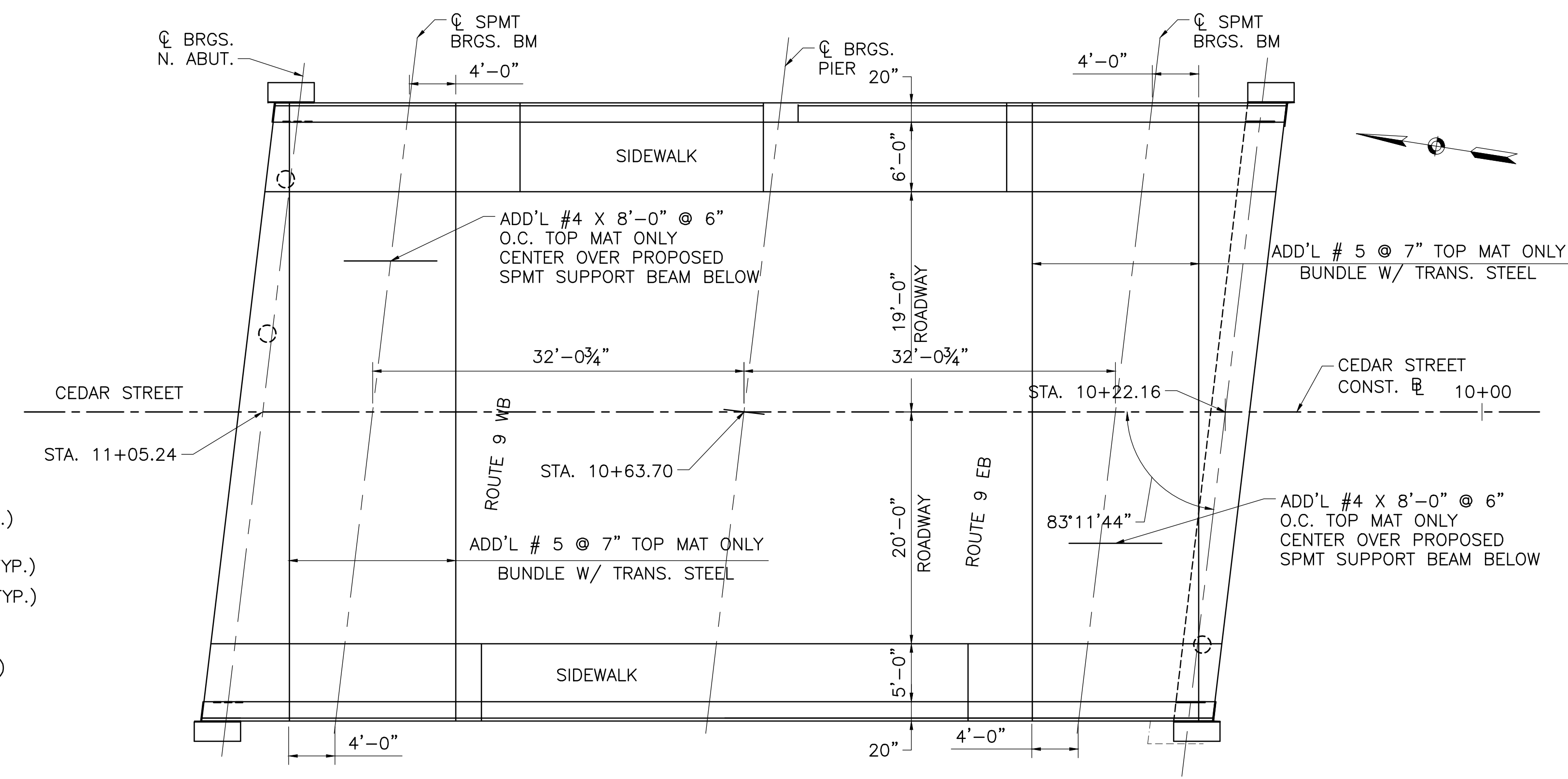
**INTERMEDIATE DIAPHRAGM DETAILS**  
SCALE: 1" = 1'-0"



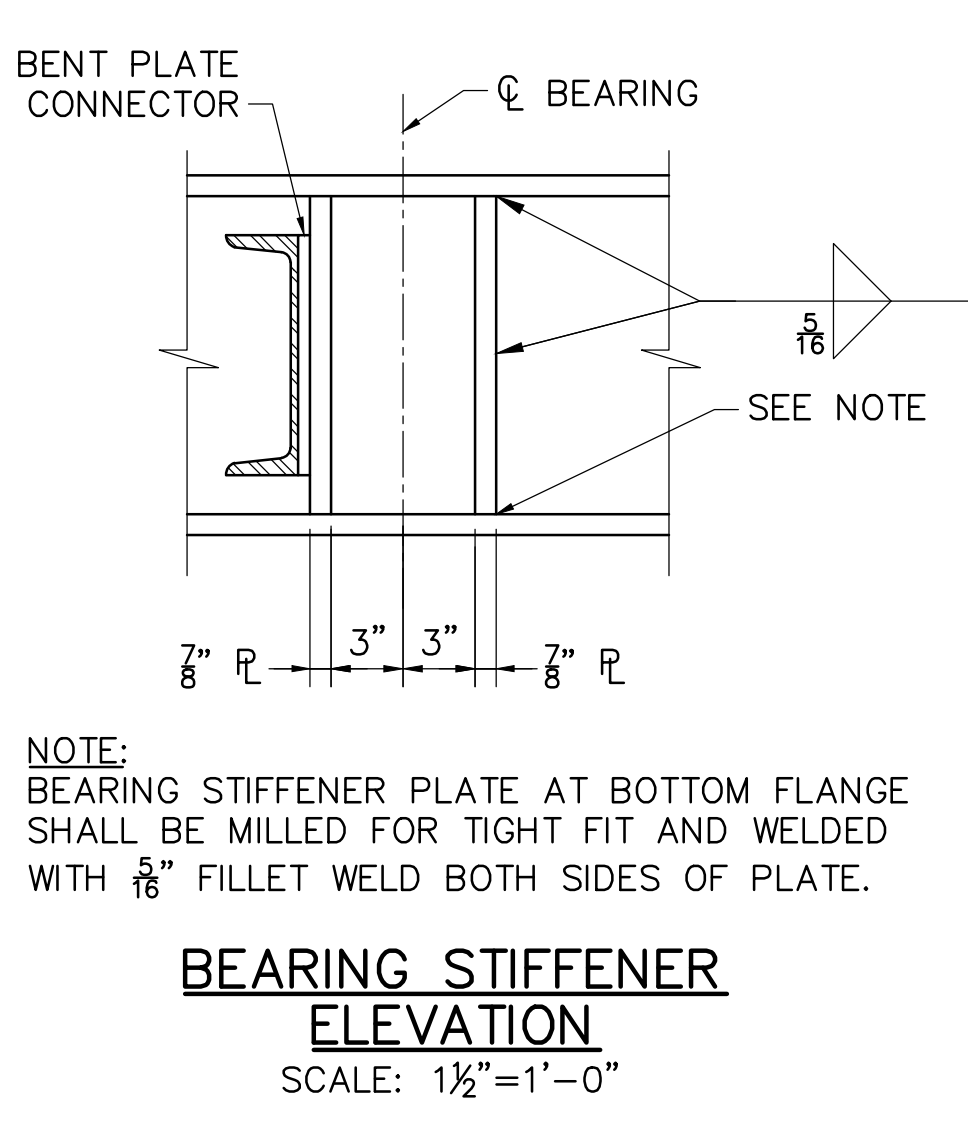
**SECTION 20**  
SCALE: 1 1/2"=1'-0"  
**END DIAPHRAGM DETAILS**  
SCALE: 1 1/2" = 1'-0"



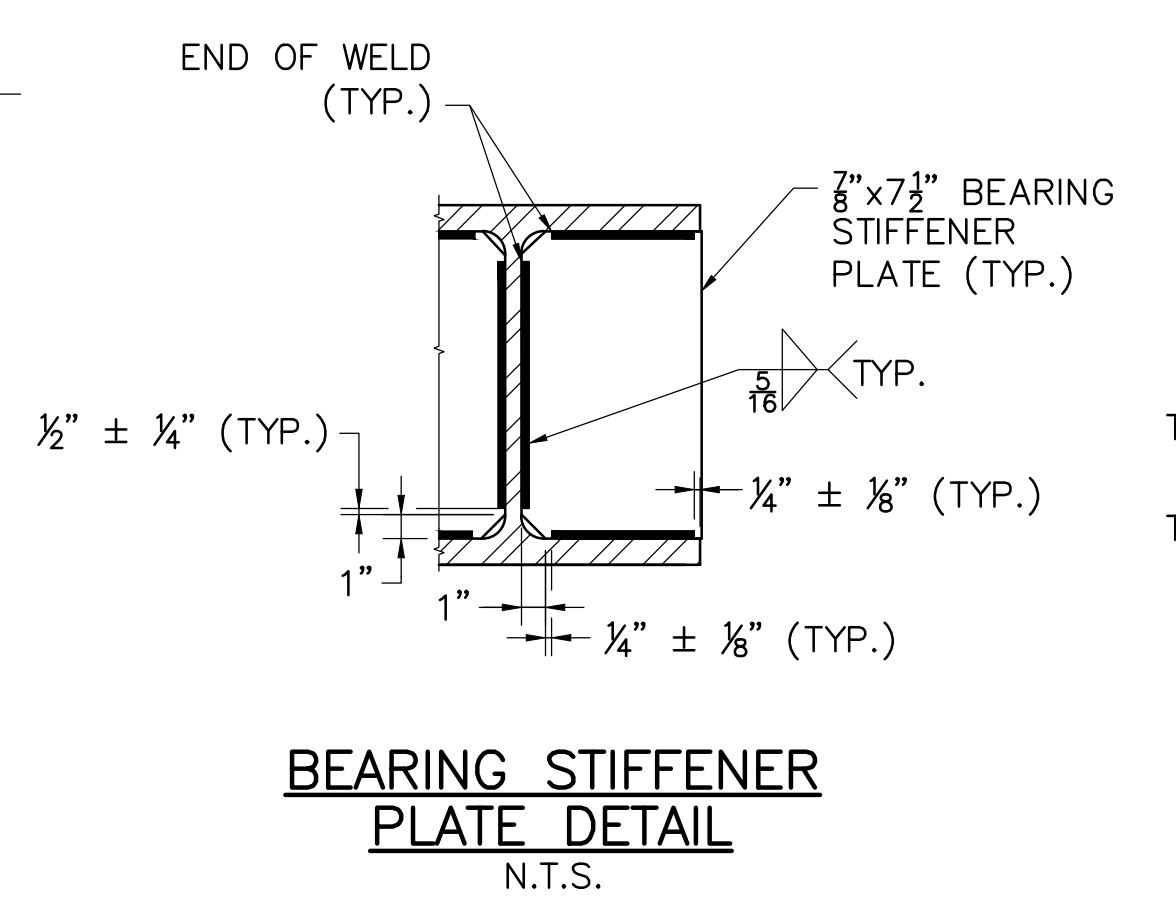
**SECTION 21**  
SCALE: 1 1/2"=1'-0"  
**BEARING STIFFENER AT PIER DETAILS**  
N.T.S.



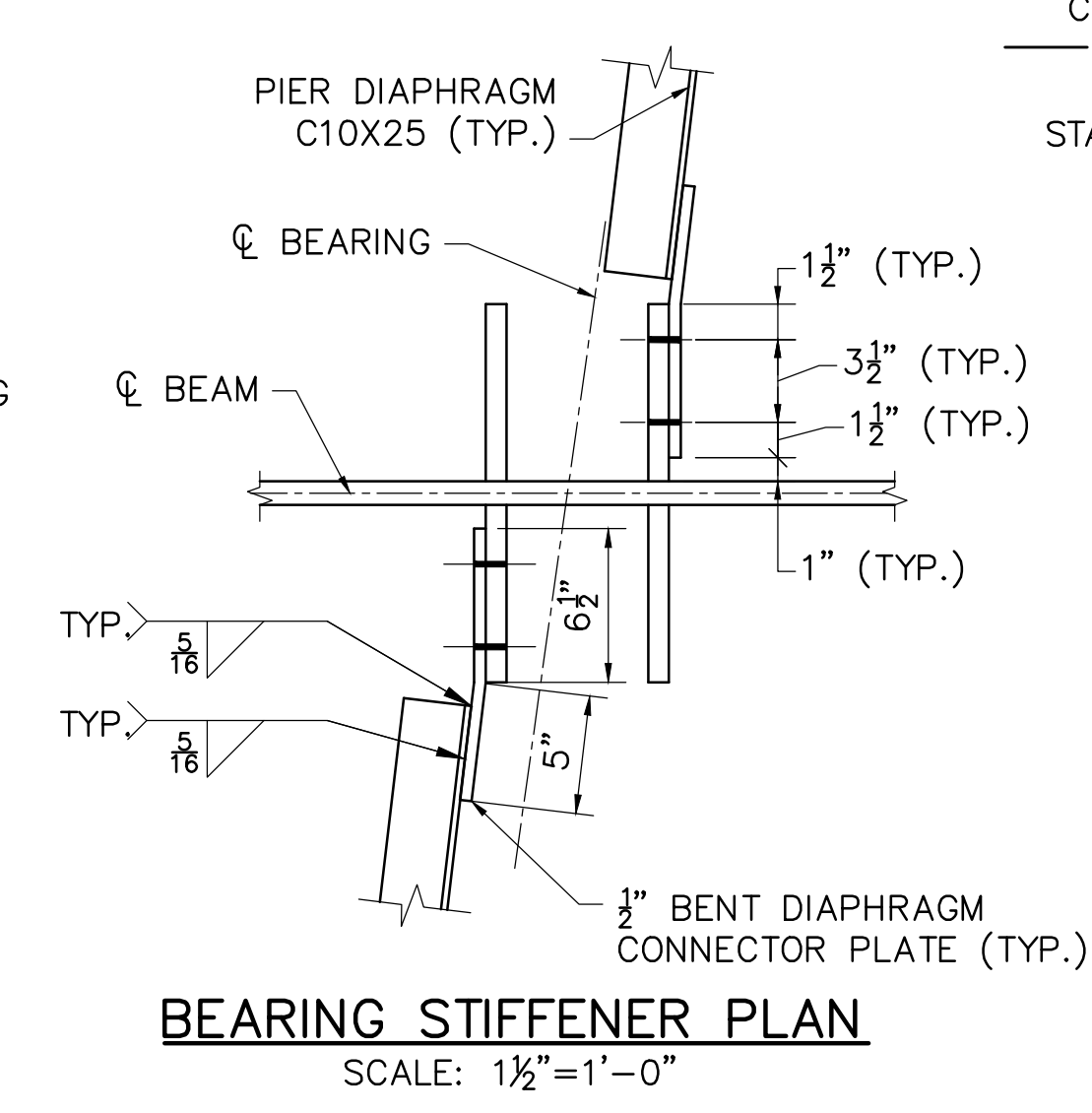
**ADDITIONAL DECK REINFORCING PLAN**  
SCALE: 1/8"=1'-0"



**BEARING STIFFENER ELEVATION**  
SCALE: 1 1/2"=1'-0"



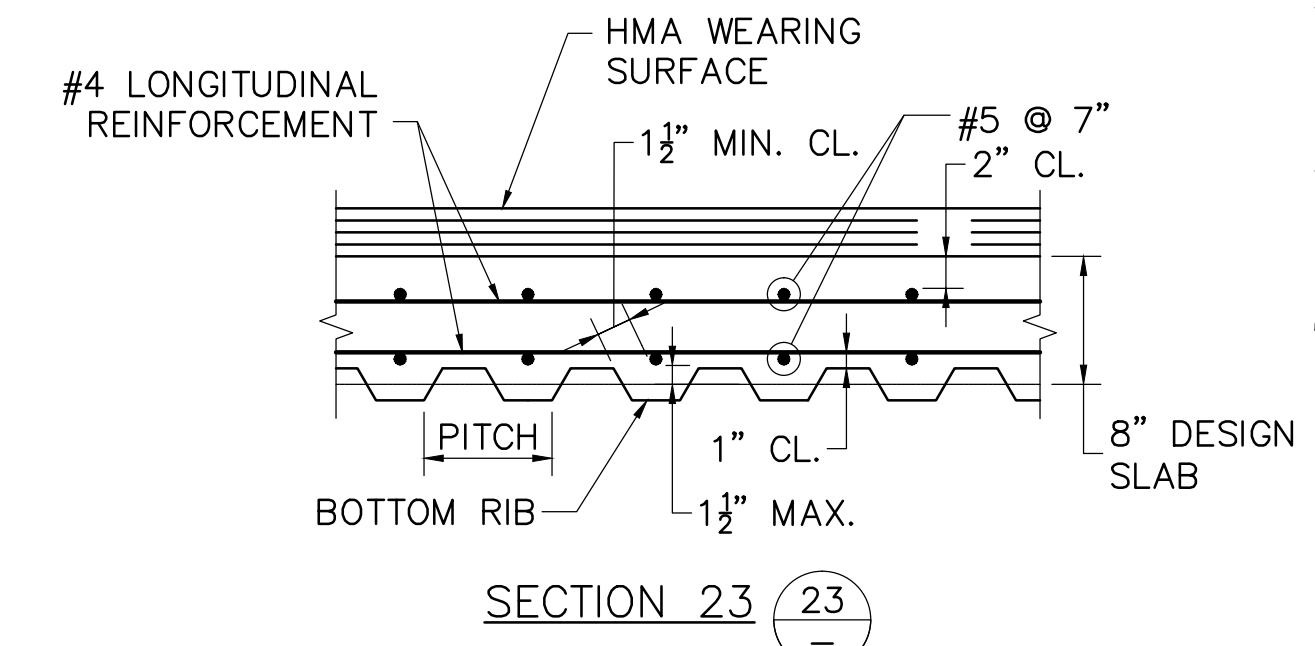
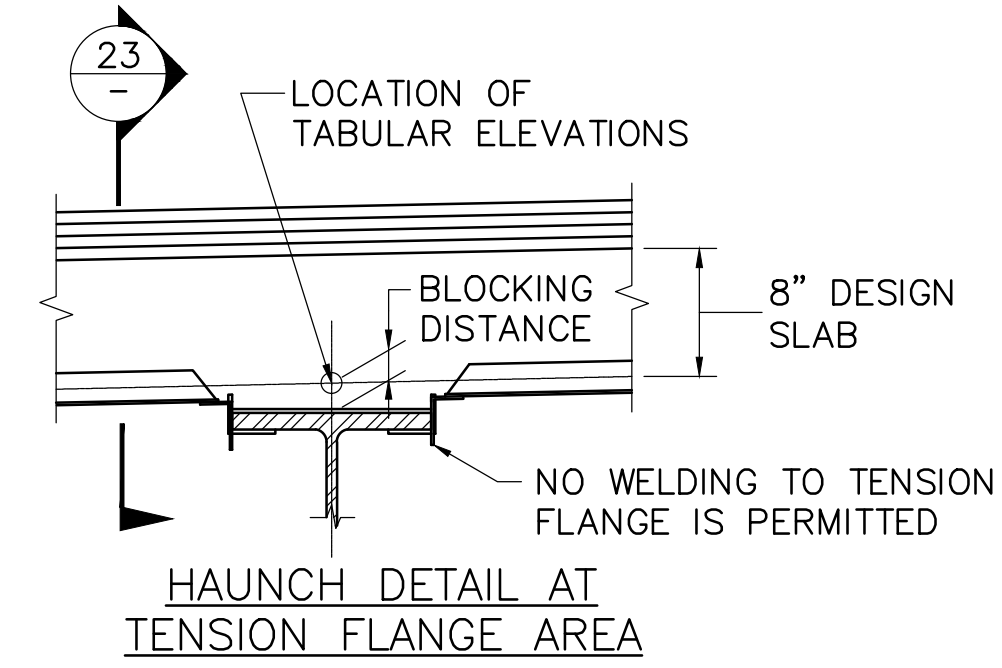
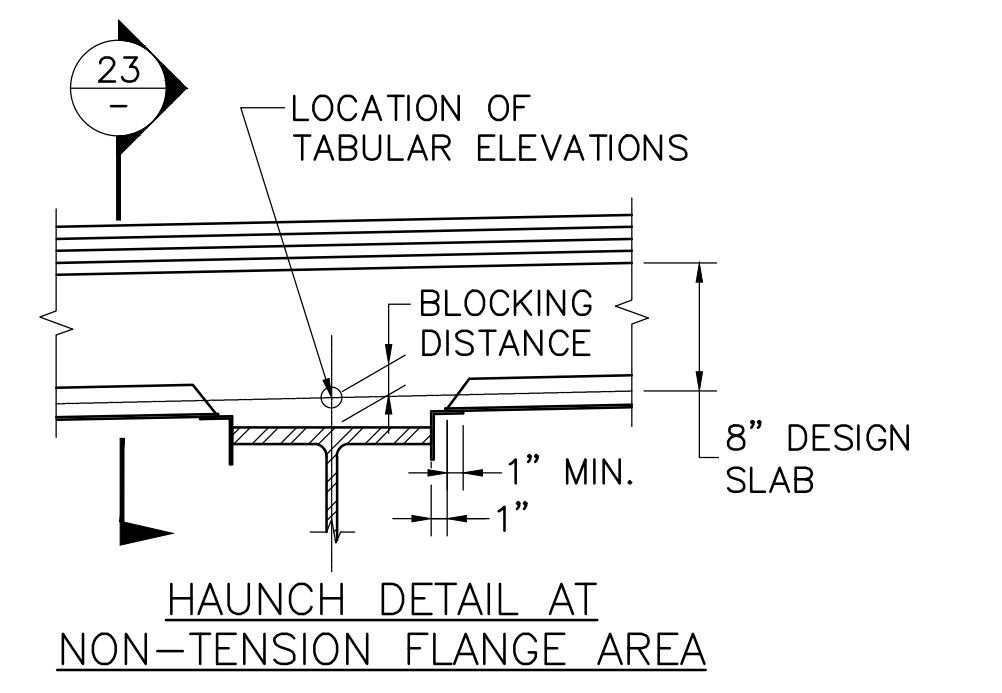
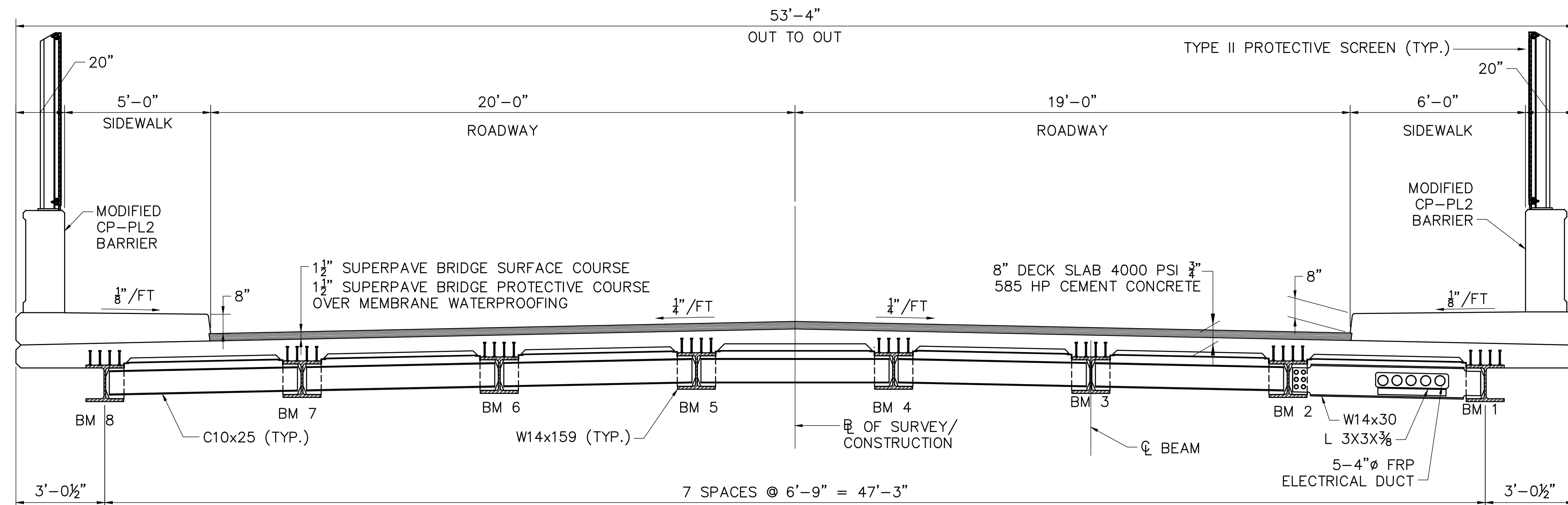
**BEARING STIFFENER PLATE DETAIL**  
N.T.S.



**BEARING STIFFENER PLAN**  
SCALE: 1 1/2"=1'-0"

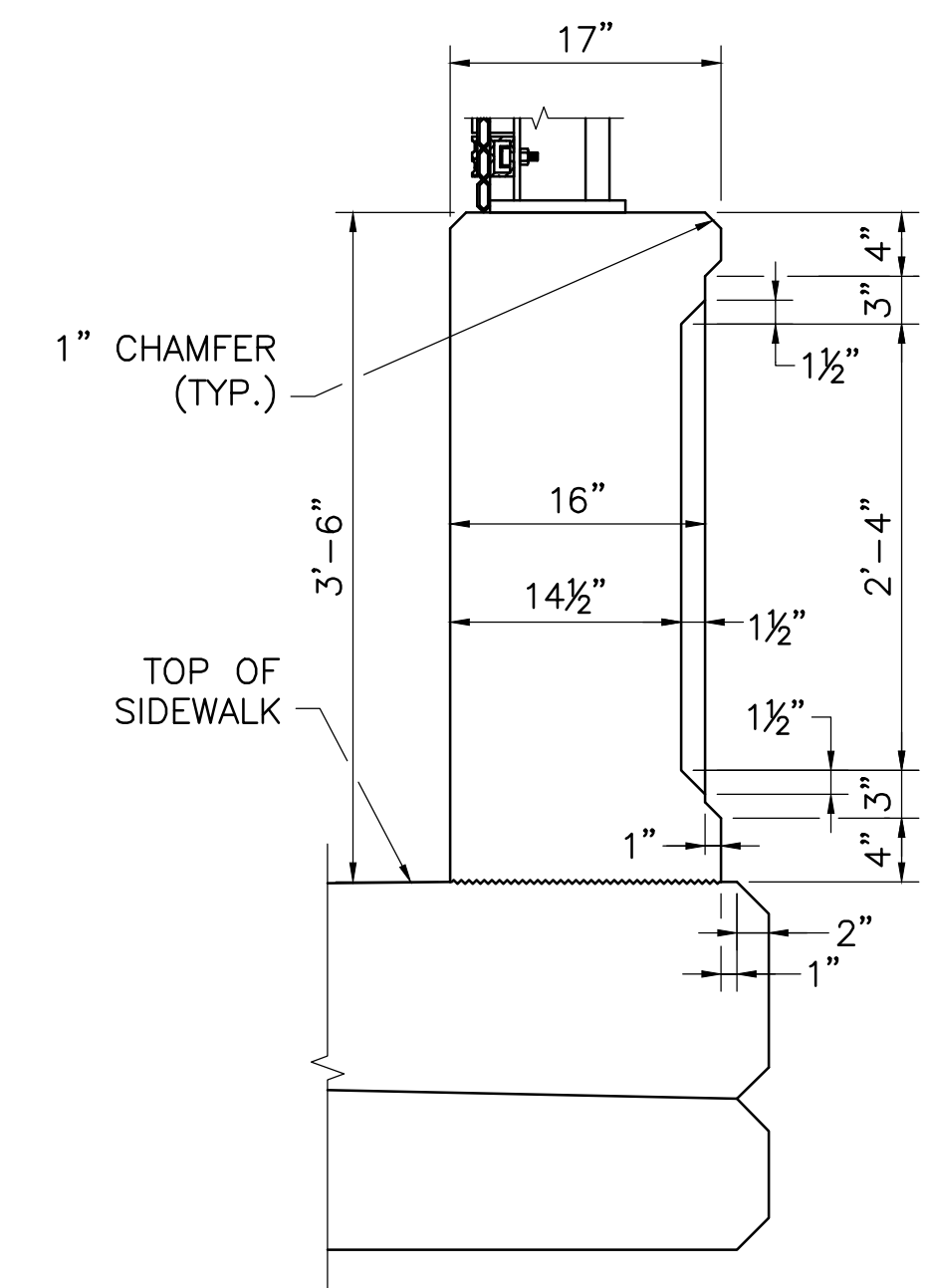
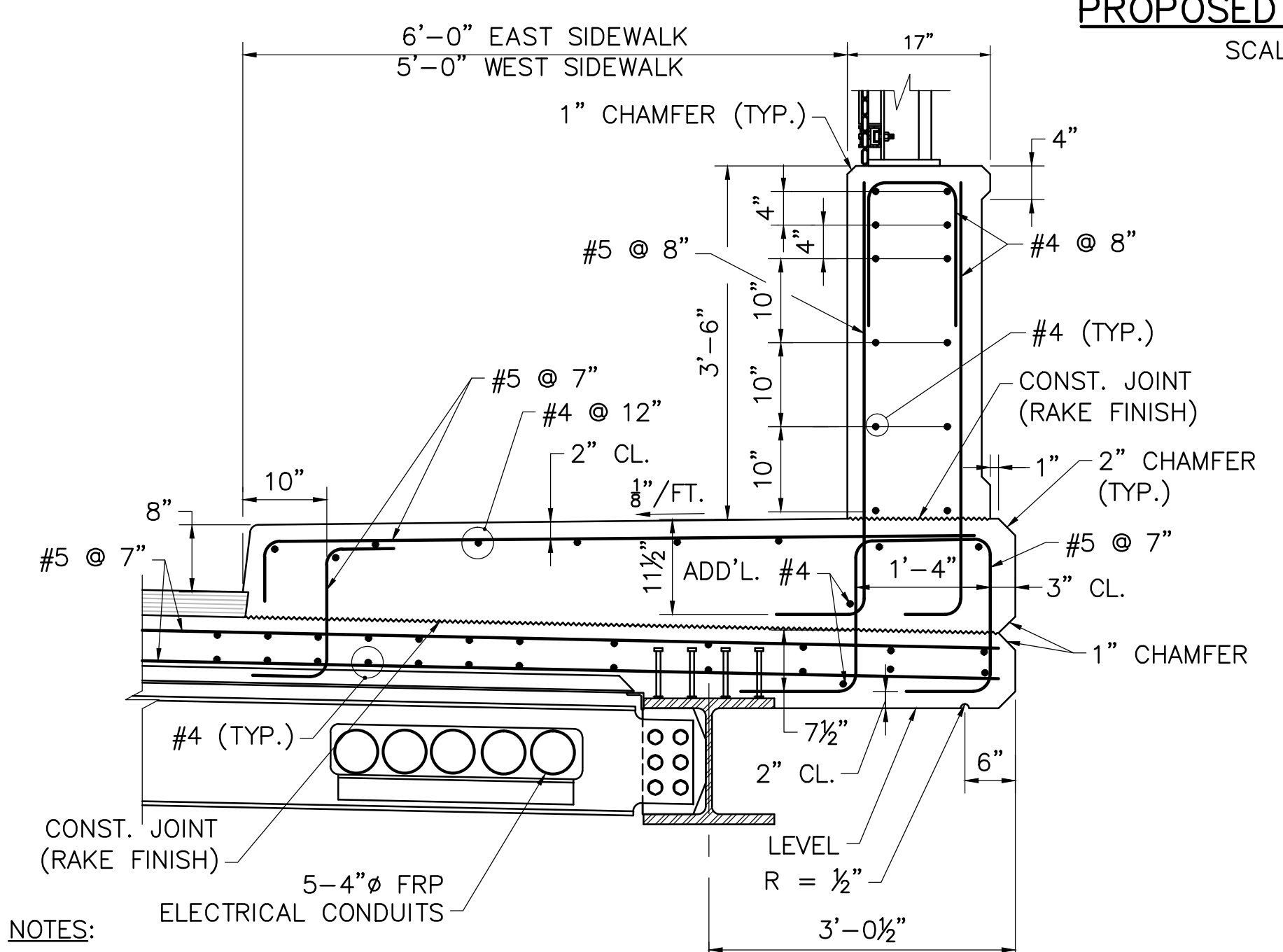
**BEARING STIFFENER AT PIER DETAILS**

DATE	ISSUED FOR CONSTRUCTION
	DESCRIPTION
	USE ONLY PRINTS OF LATEST DATE



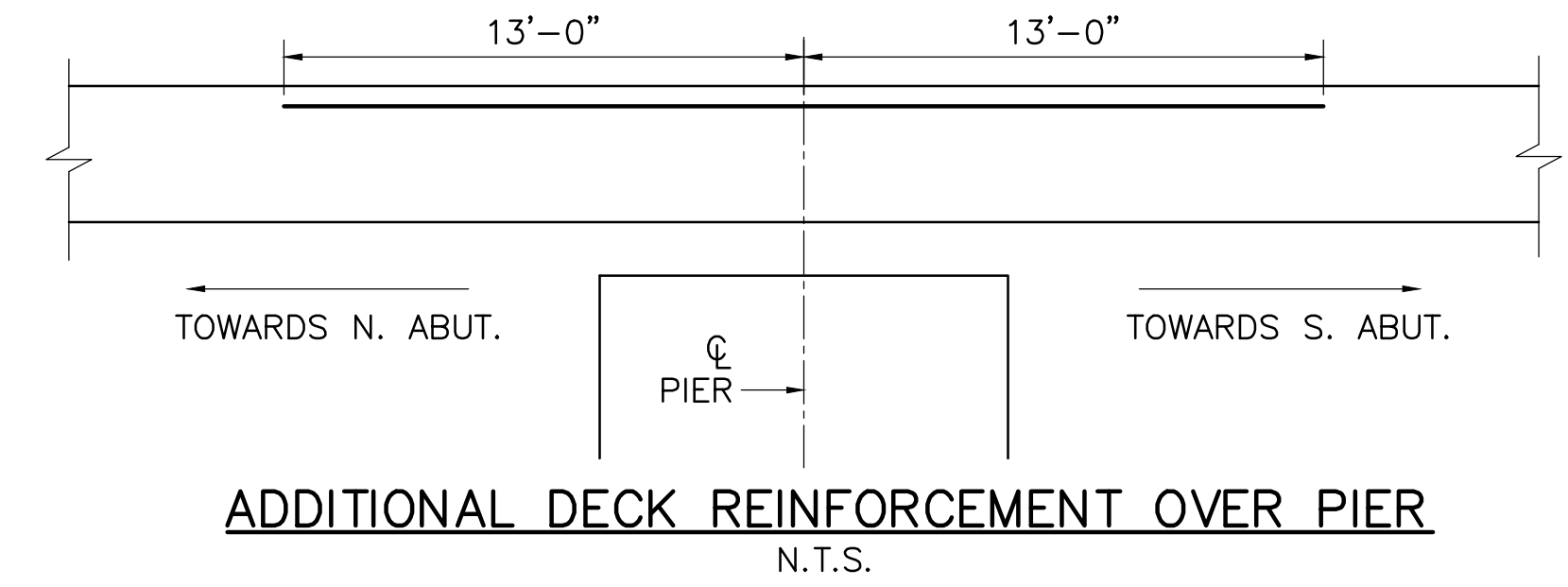
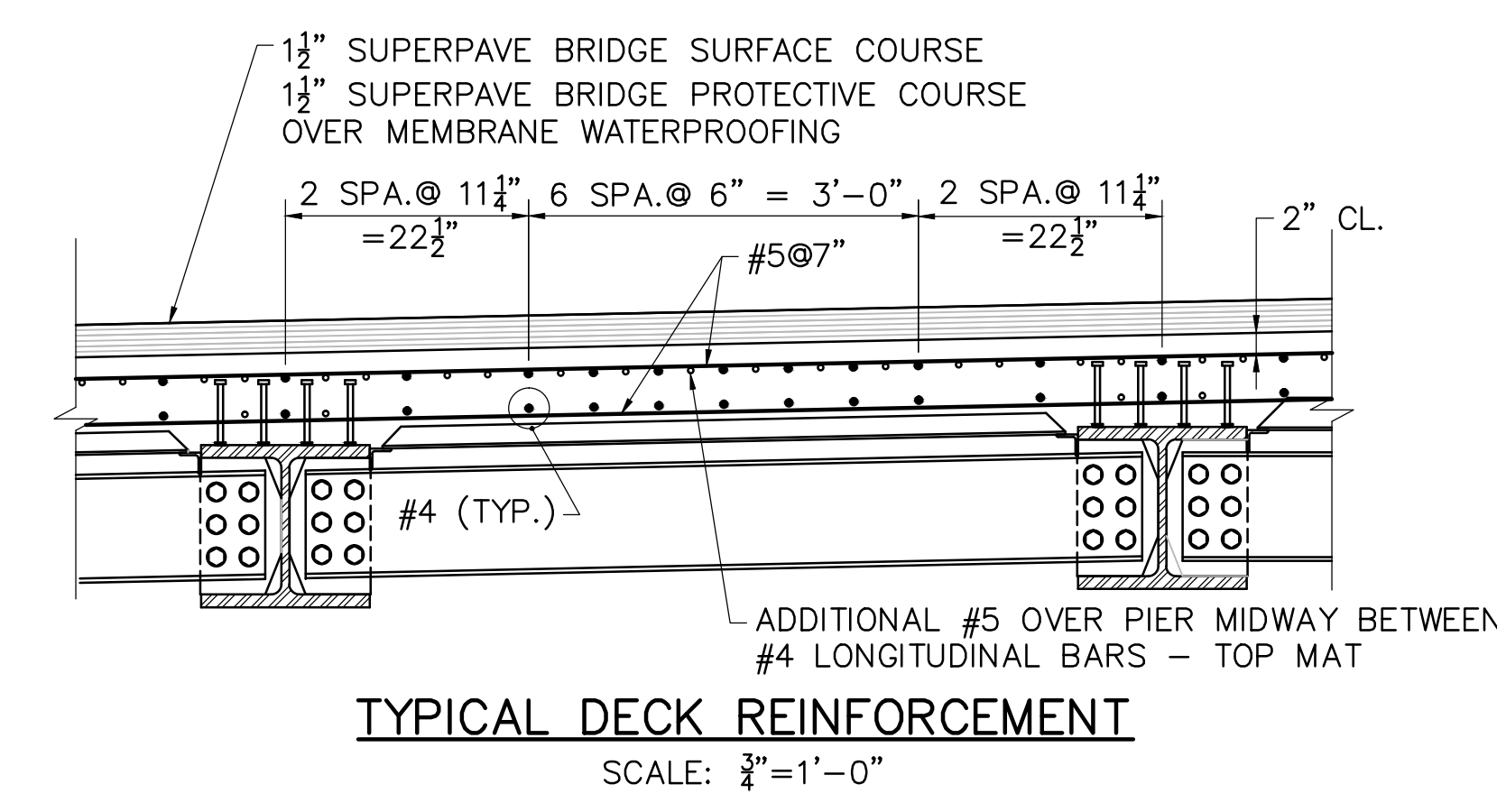
- NOTES:
- FOR 2" S.I.P. FORM, SET BOTTOM OF FORM 1" BELOW ELEVATION GIVEN IN TABLE. FOR 3" S.I.P. FORM, SET BOTTOM OF FORM 1 1/2" BELOW TABLE ELEVATIONS.
  - FORM ENDS SHALL BE CRIMPED CLOSED IN A TAPERED MANNER. SEPARATE END CLOSURE PIECES WILL NOT BE ALLOWED.
  - SUPPORT ANGLES SHALL BE PLACED IN THE "LEG DOWN" POSITION WHERE POSSIBLE. WHERE "LEG UP" POSITION IS NECESSARY, THE UPPER MOST PORTION OF THE ANGLE SHALL NOT PROJECT MORE THAN 1" ABOVE THE TOP FLANGE OR COVER PLATE. THE CONTRACTOR SHALL HAVE AN ASSORTMENT OF ANGLES OF VARIOUS SIZES AVAILABLE ON THE SITE TO CONFORM TO THIS REQUIREMENT.
  - ALL MAIN STEEL REINFORCEMENT IN THE LOWER MAT SHALL BE CENTERED OVER THE VALLEY OF THE S.I.P. FORM.
  - CONTRACTOR SHALL DESIGN AND DETAIL ALL ELEMENTS OF THE FORMING SYSTEM AND SHALL SUBMIT TO THE ENGINEER FOR APPROVAL.
  - IN CASES WHERE STANDARD 2" OR 3" DEEP S.I.P. FORMS DO NOT SATISFY DESIGN REQUIREMENTS AN ALTERNATIVE FORMING SYSTEM CONSISTING OF DEEPER S.I.P. FORMS OR REMOVABLE FORMS SHALL BE DESIGNED AND DETAILED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL. THE DESIGN THICKNESS OF THE SLAB SHALL NOT BE REDUCED.

**PROPOSED CROSS SECTION**  
SCALE: 3/8"=1'-0"

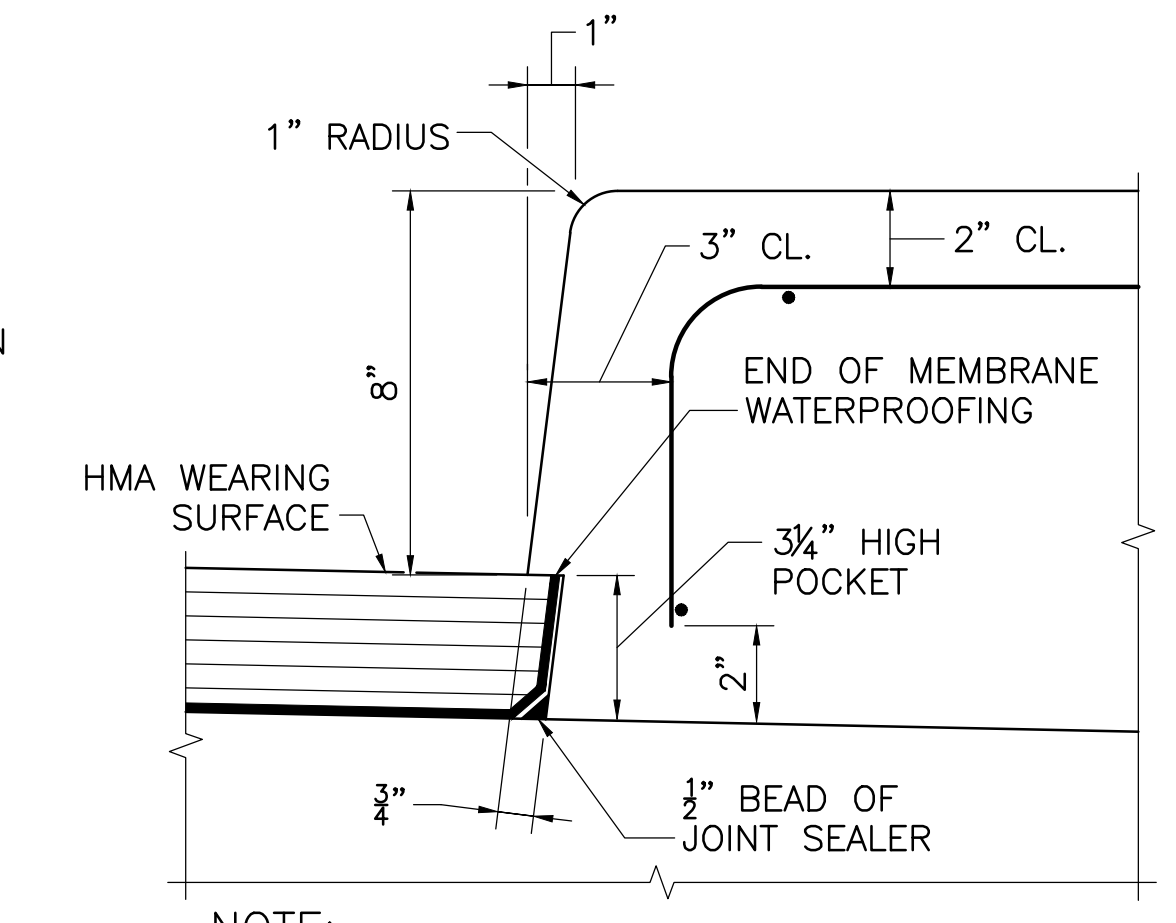


**MODIFIED CP-PL2 BARRIER AT RECESS PANEL**  
SCALE: 1"=1'-0"

**STAY-IN-PLACE FORM DETAILS**  
NOT TO SCALE



- NOTES:
- ROADWAY DECK SLAB SHALL BE 4000 PSI, 3/4" IN, 585 HP CEMENT CONCRETE.
  - LONGITUDINAL REINFORCEMENT SHALL BE PLACED PARALLEL TO THE CL OF CONSTRUCTION. TRANSVERSE (PRIMARY) REINFORCEMENT SHALL BE PLACED PERPENDICULAR TO THE CL OF CONSTRUCTION.
  - ALL REINFORCEMENT AND SUPPORT DEVICES SHALL BE COATED.
  - THE FINISHED SURFACE OF BRIDGE DECK SHALL BE SMOOTH AND WITHOUT ANY PROJECTIONS THAT COULD PUNCTURE THE MEMBRANE WATERPROOFING OR DEPRESSIONS THAT COULD RETAIN WATER.



**TYPICAL SIDEWALK SECTION**  
SCALE: 3/4"=1'-0"

**TOP OF FORM ELEVATIONS FOR DECK SLAB PRIOR TO PLACEMENT OF CONCRETE**

BM. NO.	CL BRG. NORTH	INCREASING STATIONS																CL BRG. SOUTH			
		1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	10/10	11/10	12/10	13/10	14/10	15/10	16/10				
1	113.32	113.37	113.40	113.43	113.45	113.47	113.48	113.48	113.48	113.48	113.49	113.51	113.54	113.58	113.62	113.65	113.67	113.69	113.71	113.73	113.75
2	113.46	113.49	113.52	113.55	113.57	113.58	113.59	113.60	113.61	113.62	113.63	113.65	113.67	113.70	113.73	113.76	113.78	113.81	113.83	113.86	113.88
3	113.60	113.63	113.66	113.68	113.71	113.72	113.73	113.74	113.74	113.75	113.77	113.79	113.81	113.84	113.86	113.89	113.92	113.94	113.96	113.99	114.02
4	113.74	113.77	113.80	113.82	113.84	113.86	113.87	113.88	113.89	113.90	113.92	113.95	113.97	114.00	114.03	114.06	114.07	114.10	114.12	114.15	114.15
5	113.73	113.77	113.79	113.81	113.84	113.85	113.86	113.87	113.88	113.89	113.90	113.92	113.94	113.97	114.00	114.03	114.05	114.07	114.09	114.12	114.14
6	113.59	113.62	113.65	113.67	113.70	113.71	113.72	113.73	113.73	113.74	113.76	113.78	113.80	113.83	113.85	113.88	113.91	113.92	113.94	113.97	113.99
7	113.45	113.48	113.51	113.53	113.55	113.57	113.58	113.58	113.59	113.60	113.61	113.63	113.66	113.68	113.71	113.74	113.76	113.78	113.80	113.82	113.84
8	113.30	113.34	113.37	113.40	113.42	113.44	113.45	113.45	113.45	113.46	113.47	113.49	113.52	113.55	113.58	113.60	113.63	113.65	113.66	113.68	113.69

NOTE:

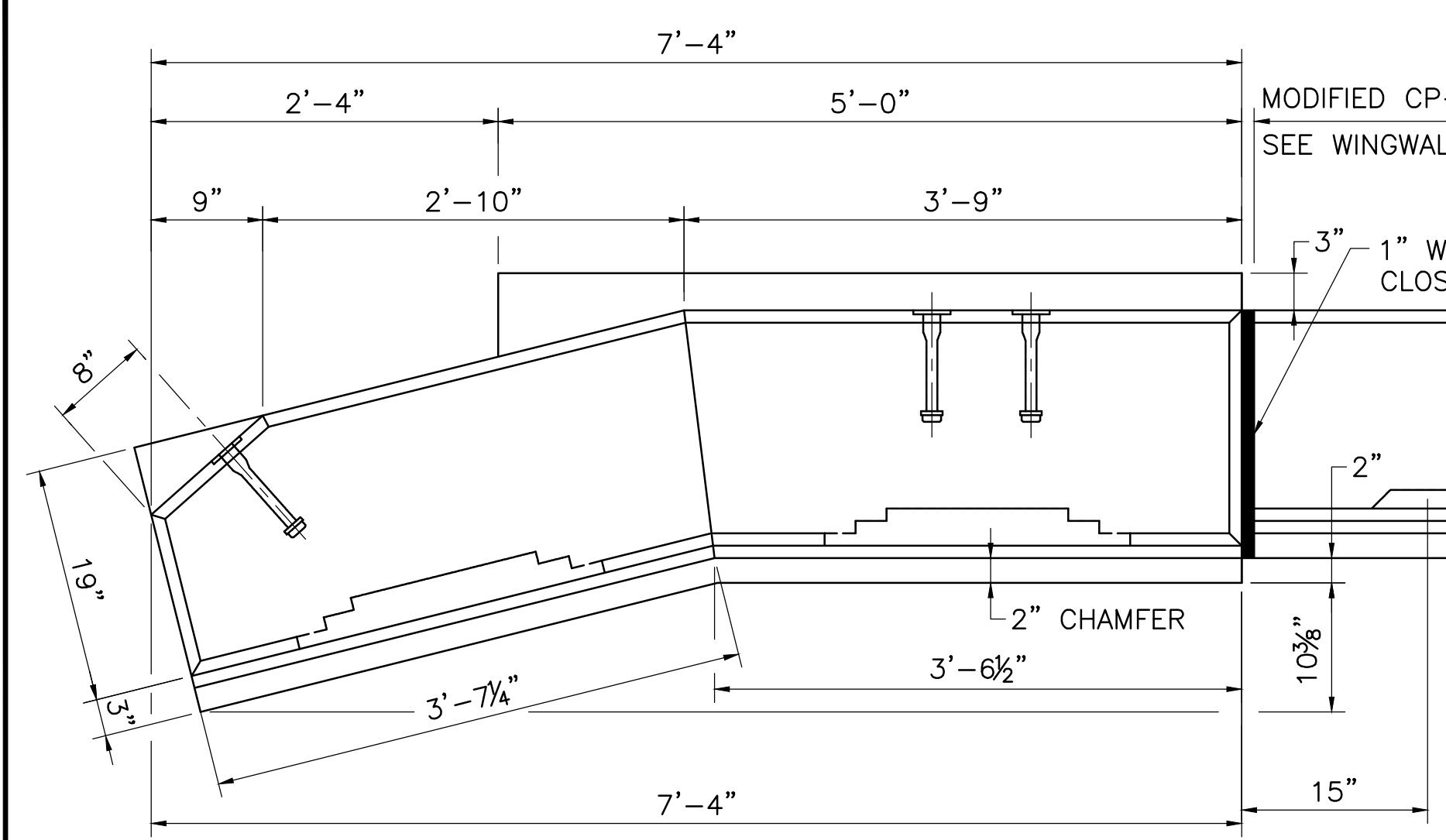
AFTER THE BEAMS ARE ERECTED BUT BEFORE THE FORMS ARE BUILT, ELEVATIONS ON TOP OF THE FLANGE OF THE BEAMS ARE TO BE OBTAINED AT THE POINTS INDICATED IN THE TABLE. THE DIFFERENCE BETWEEN THE ELEVATIONS OBTAINED AND THOSE SHOWN IN THE TABLE GIVES THE ACTUAL BLOCKING DISTANCE FROM THE TOP OF BEAM TO THE BOTTOM OF THE SLAB AT CENTER LINE OF BEAM.

**TOP OF FORM ELEVATIONS**

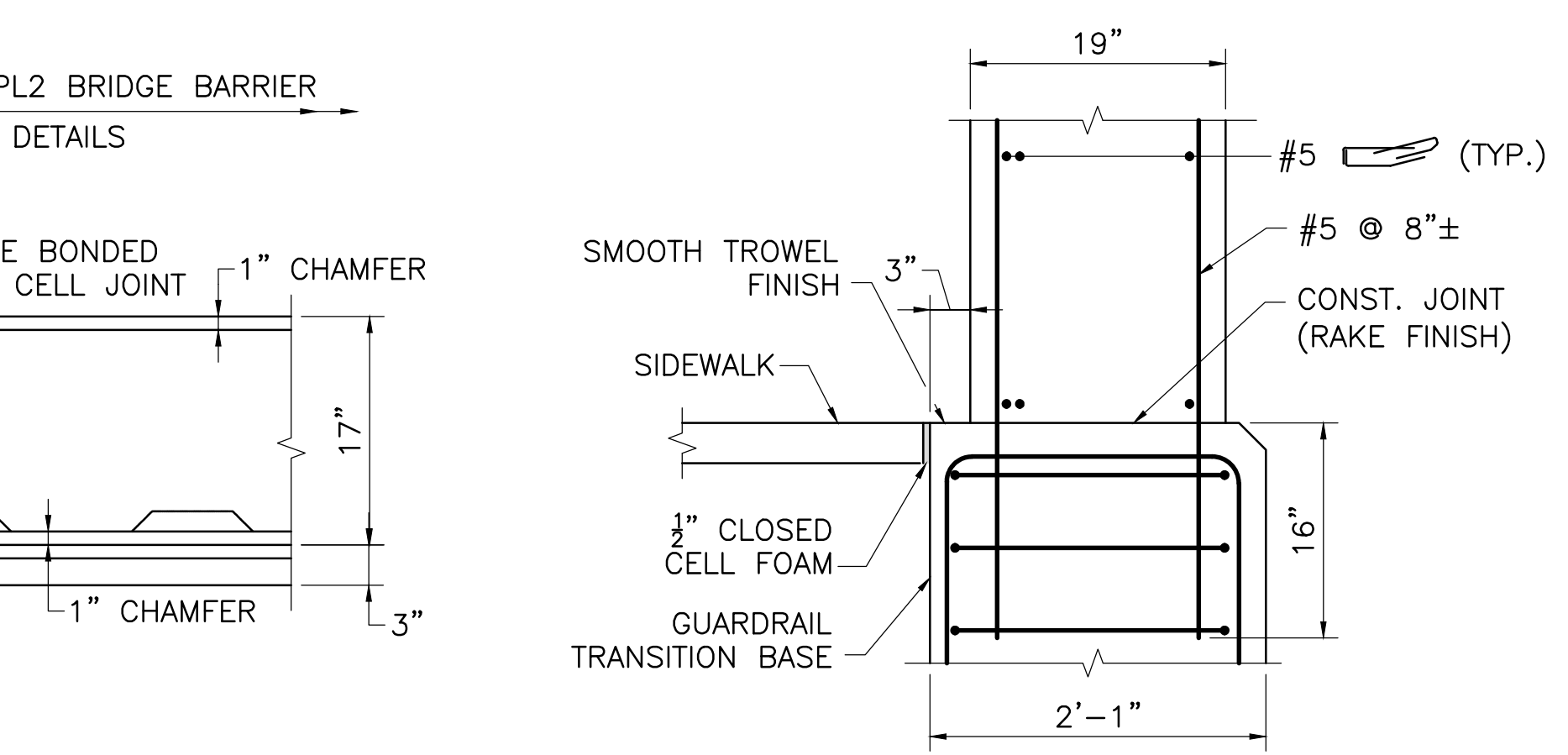
ISSUED FOR CONSTRUCTION
DATE
DESCRIPTION
USE ONLY PRINTS OF LATEST DATE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	NFA	60	72

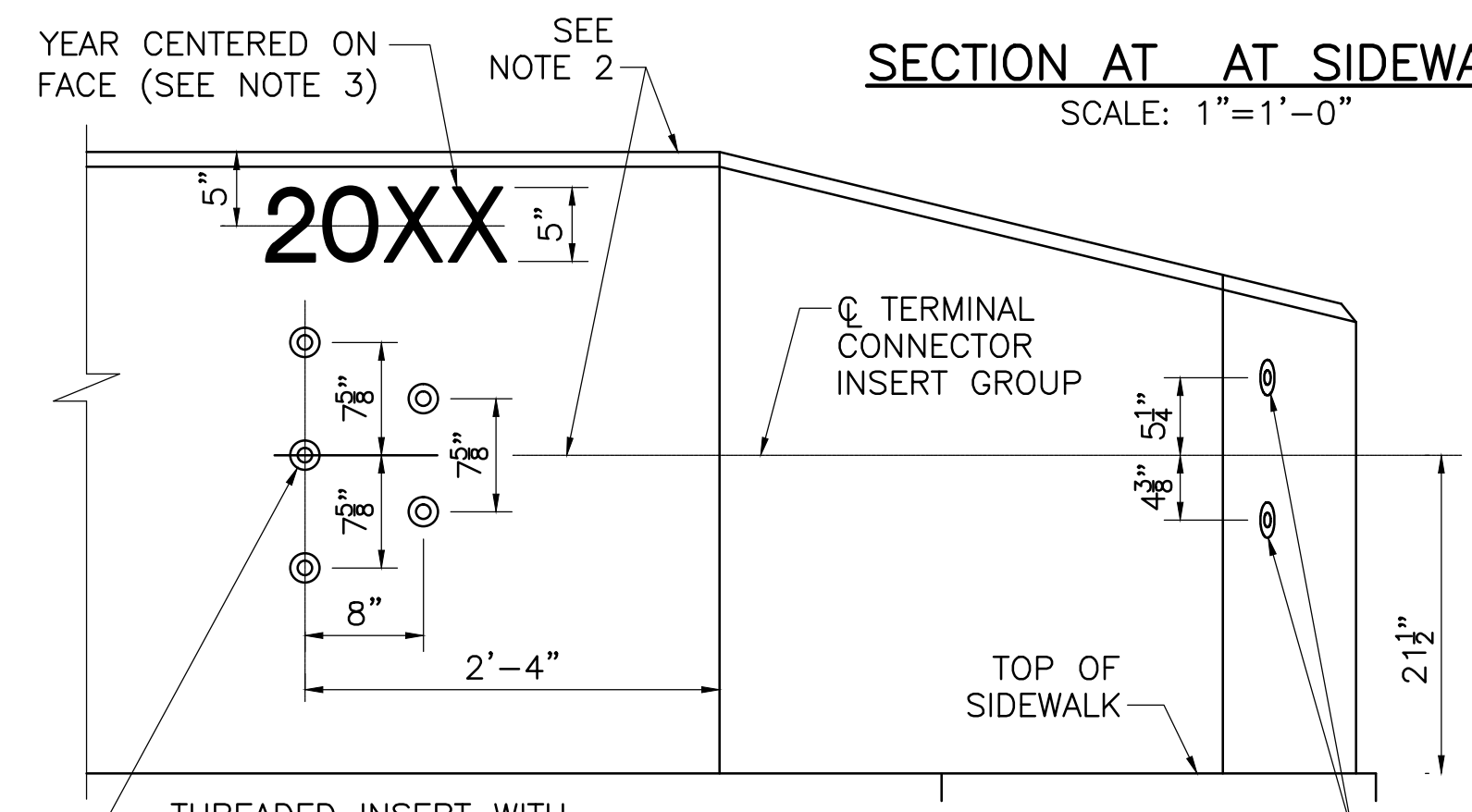
PROJECT FILE NO. 604007  
HIGHWAY GUARDRAIL  
TRANSITION DETAILS



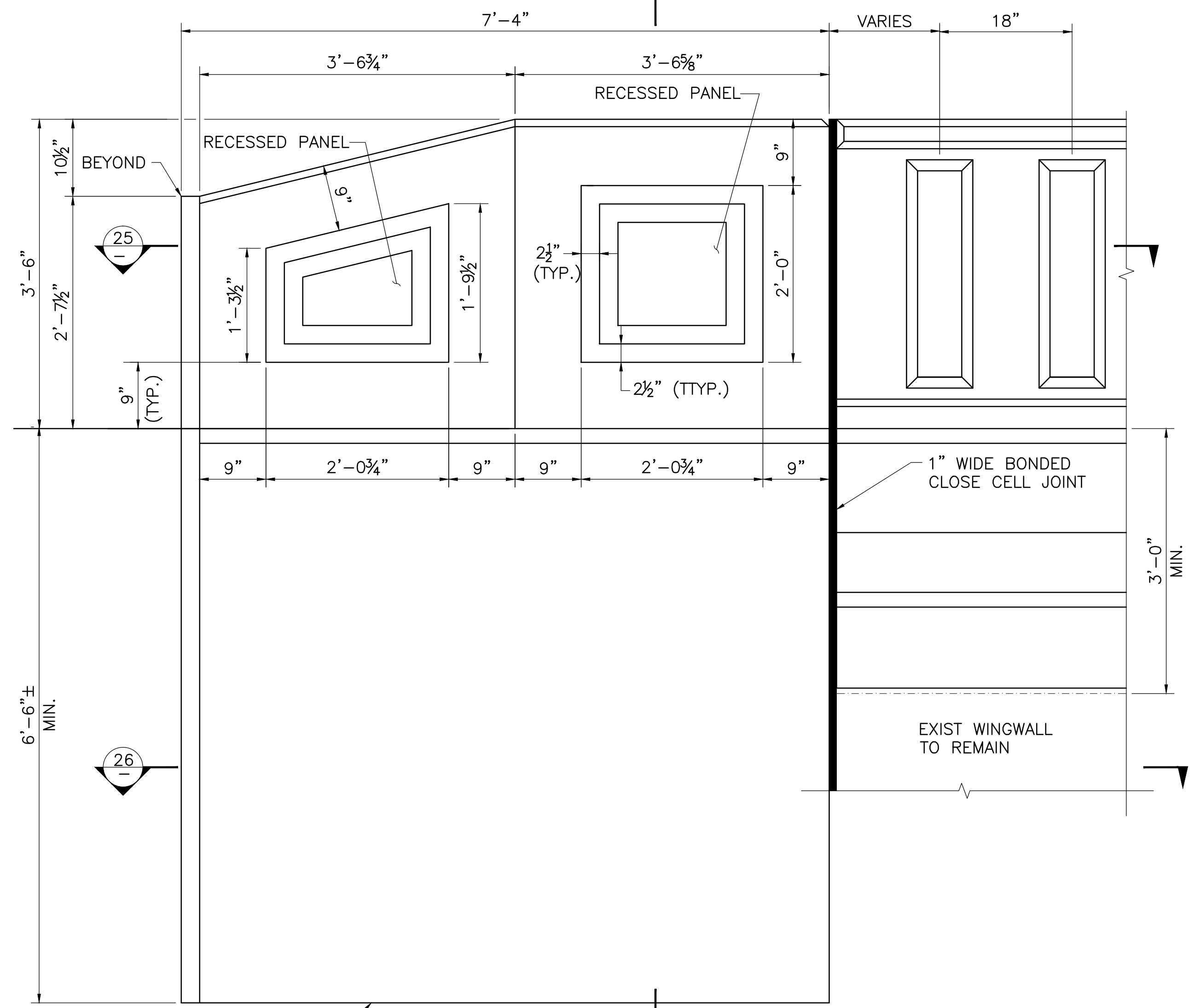
**HIGHWAY GUARDRAIL TRANSITION PLAN**  
SCALE: 1" = 1'-0"



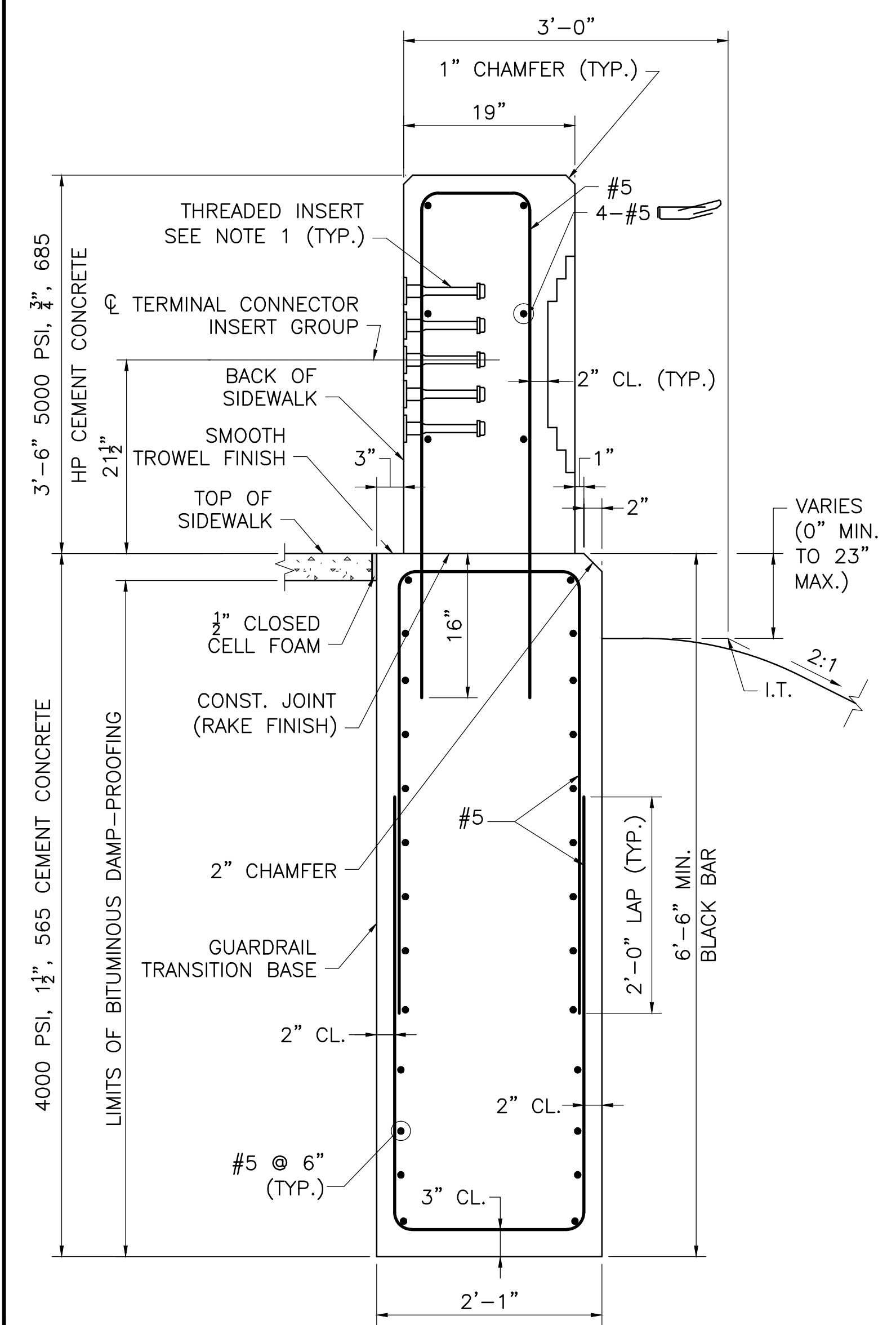
**SECTION AT AT SIDEWALK**  
SCALE: 1" = 1'-0"



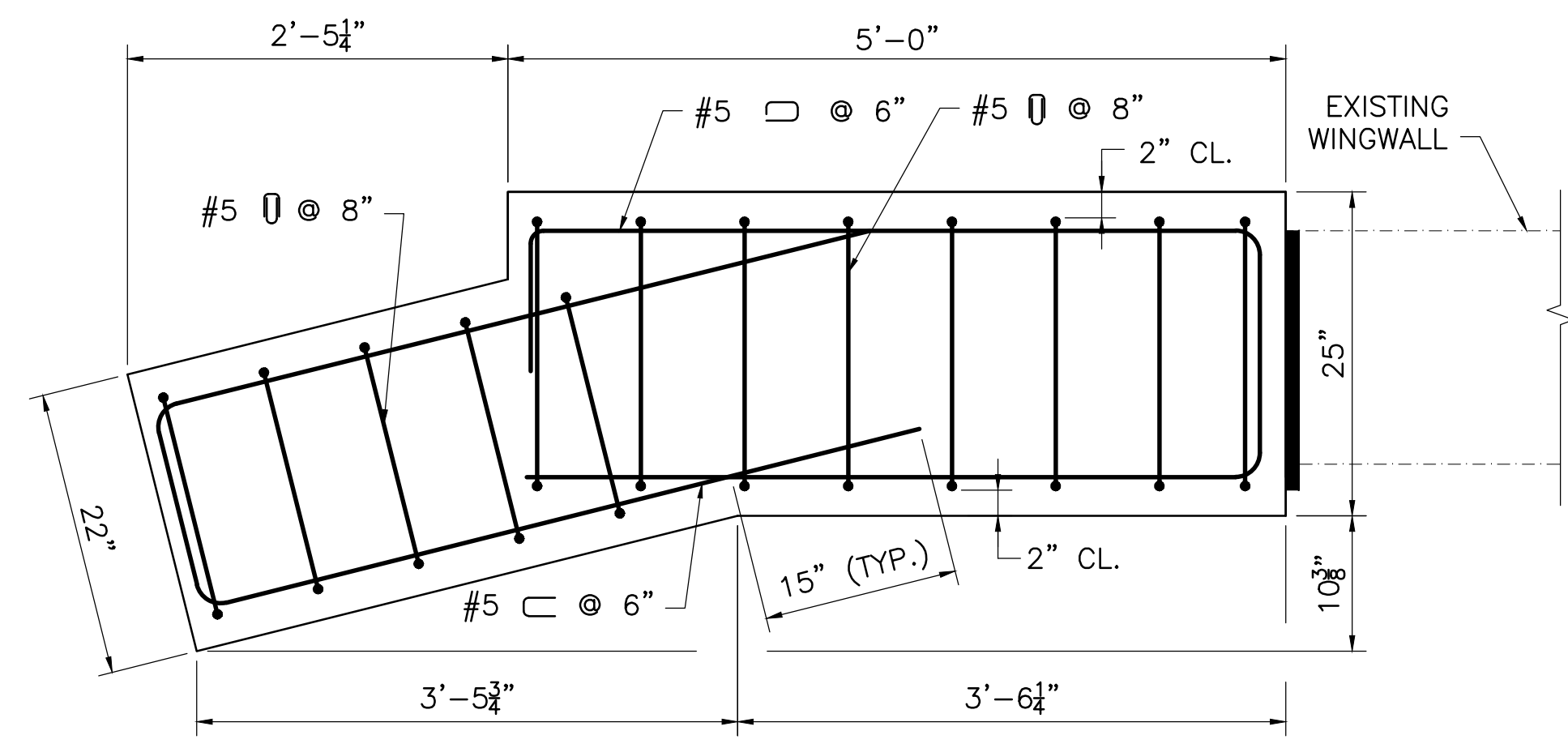
**ELEVATION (INSIDE FACE)**  
SCALE: 1" = 1'-0"



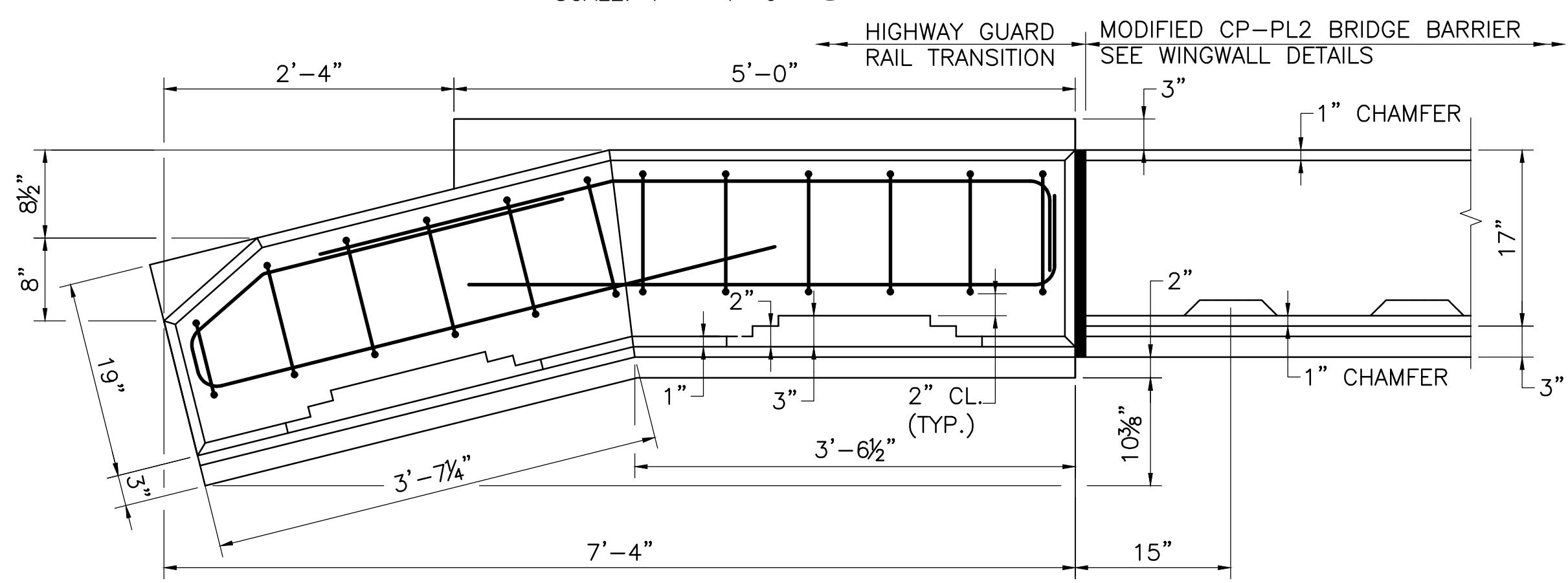
**ELEVATION (OUTSIDE FACE)**  
SCALE: 1" = 1'-0"



**SECTION 24** (24)  
SCALE: 1" = 1'-0"



**SECTION 26** (26)  
SCALE: 1" = 1'-0"



**SECTION 25** (25)  
SCALE: 1" = 1'-0"

**NOTES:**

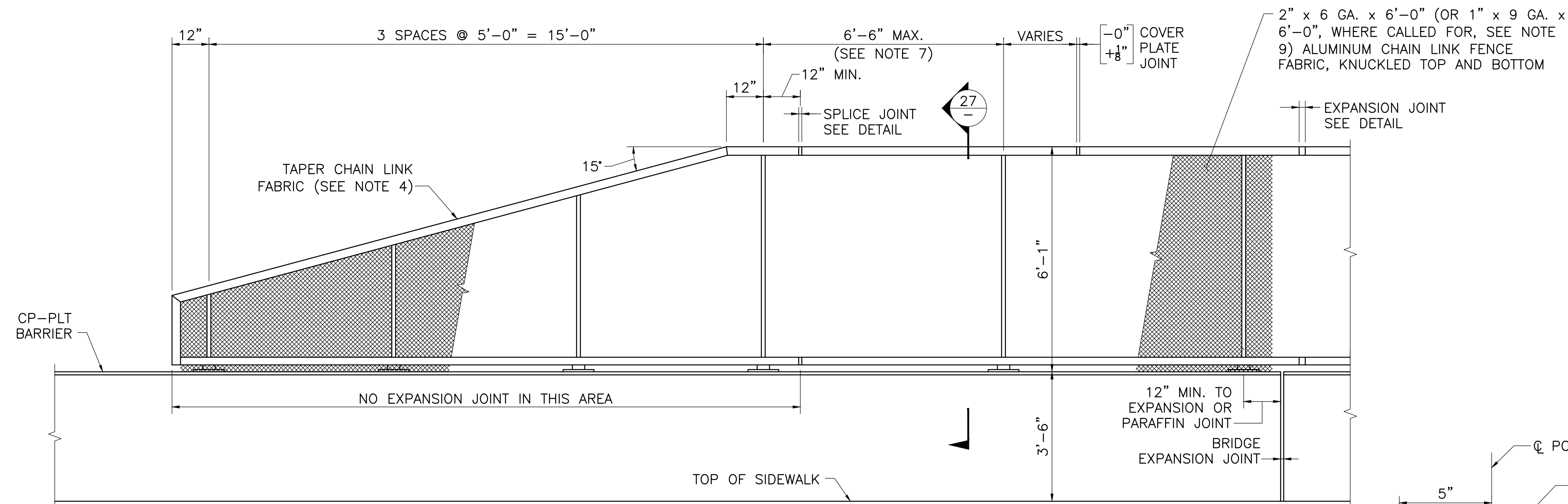
1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING AN ULTIMATE SHEAR CAPACITY OF 20 KIPS PER 1/2" Ø S.S. BOLT. S.S. BOLTS SHALL BE 1/2" Ø x 1 1/2" LONG FULLY THREADED AISI TYPE 304N STAINLESS STEEL. INSERTS FOR 3/8" S.S. BOLTS SHALL BE CAST-IN-PLACE AND GALVANIZED.
2. TOP OF GUARDRAIL TRANSITION AND TERMINAL CONNECTOR INSERT GROUP SHALL BE SLOPED TO MATCH THE PROFILE GRADE.
3. USE LATEST CONTRACT COMPLETION DATE IN EFFECT WHEN THE FIRST GUARDRAIL TRANSITION IS CAST. USE THIS DATE FOR ALL GUARDRAIL TRANSITIONS.
4. GRAVEL BORROW SHALL BE PLACED AND THOROUGHLY COMPACTED TO THE GRADE OF THE BOTTOM OF THE GUARDRAIL TRANSITION BASE. WHERE NO GRAVEL BORROW IS REQUIRED THE CONCRETE SHALL BE PLACED ON UNDISTURBED SOIL.
5. THE CONTRACTOR SHALL EXERCISE CAUTION WHILE BACKFILLING TO PREVENT TIPPING OF THE HIGHWAY GUARDRAIL TRANSITION/BASE. TOP OF BACKFILL SHALL BE KEPT WITH IN 2 FT ON BOTH SIDES OF THE TRANSITION/BASE.
6. CONTRACTOR HAS THE OPTION OF USING PRECAST CONCRETE HIGHWAY GUARDRAIL TRANSITION OR CAST IN PLACE CONCRETE.

DATE	ISSUED FOR CONSTRUCTION
	DESCRIPTION
	USE ONLY PRINTS OF LATEST DATE



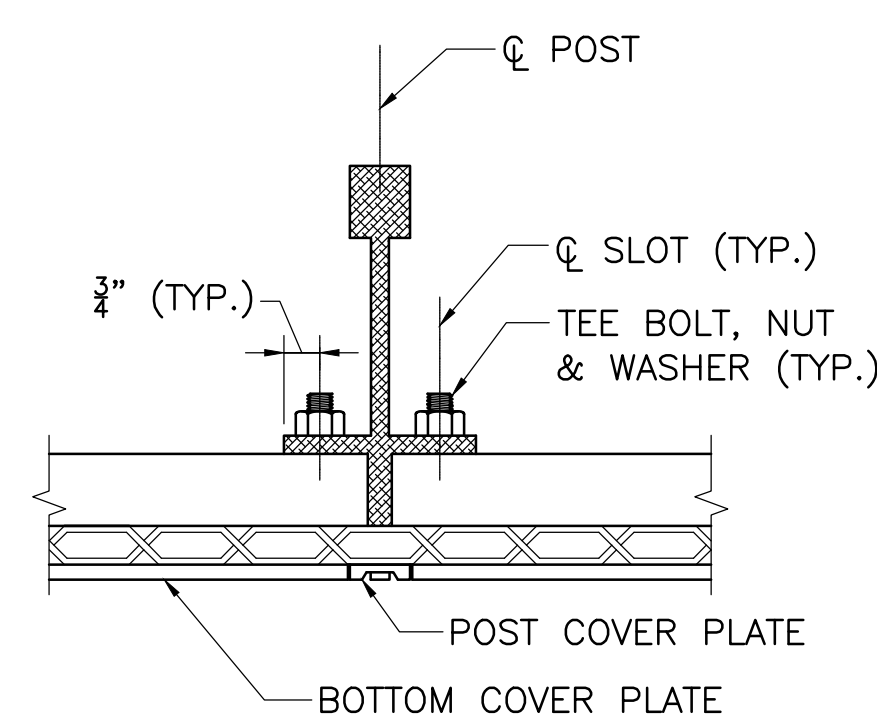
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	NFA	61	72
PROJECT FILE NO. 604007			

PROTECTIVE SCREEN DETAILS

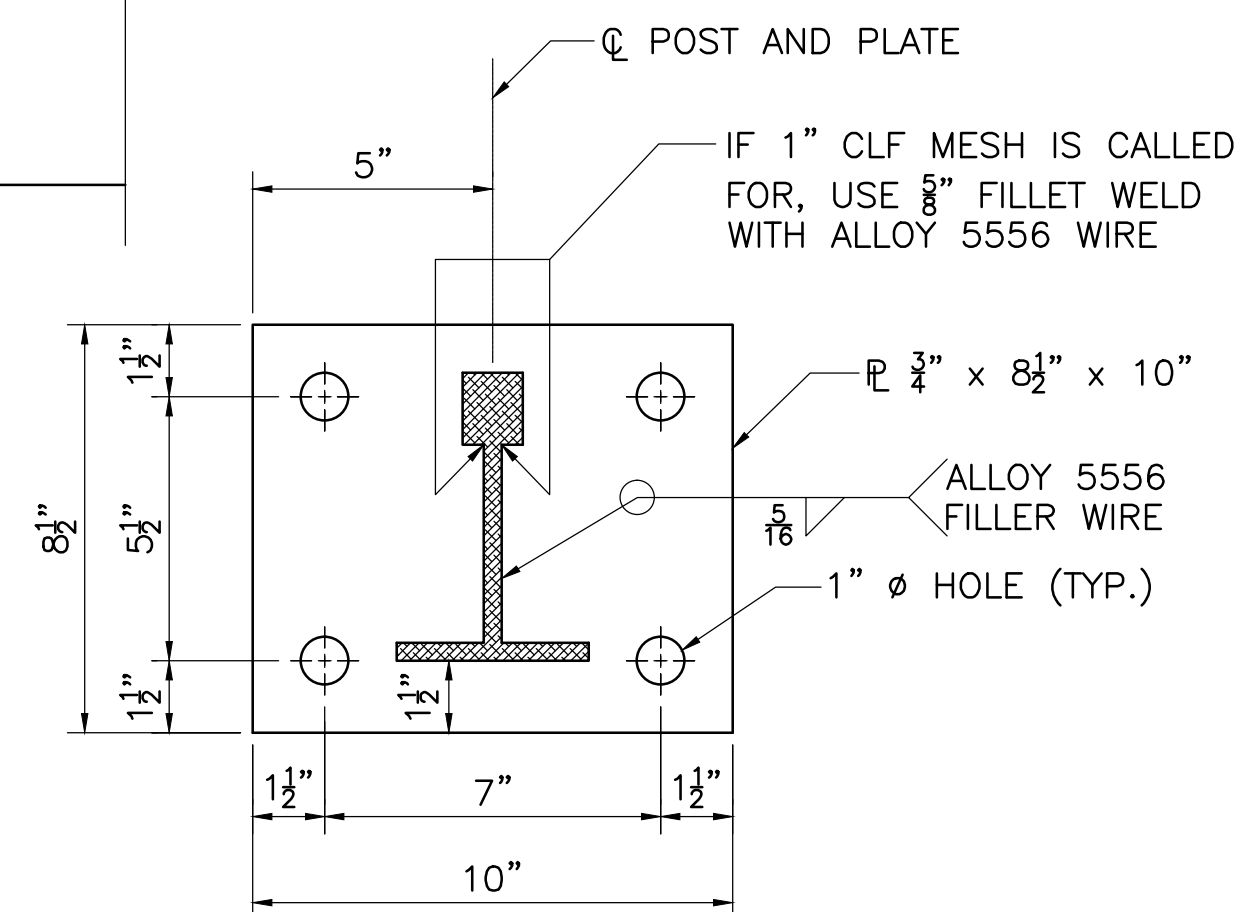


PROTECTIVE SCREEN ELEVATION

SCALE: 1/2" = 1'-0"

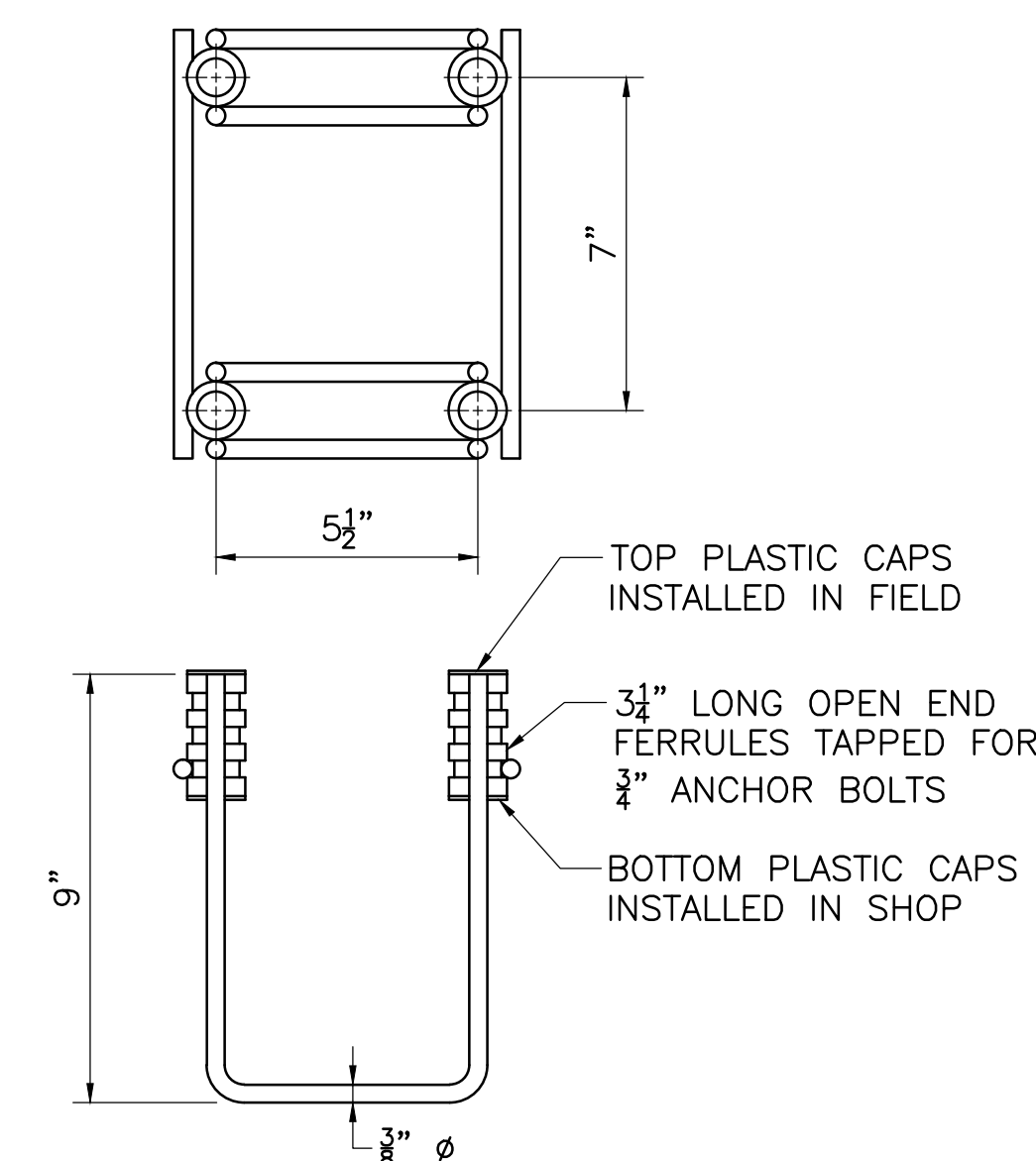


SECTION 28  
SCALE: 3" = 1'-0"



BASE PLATE DETAIL

SCALE: 3" = 1'-0"

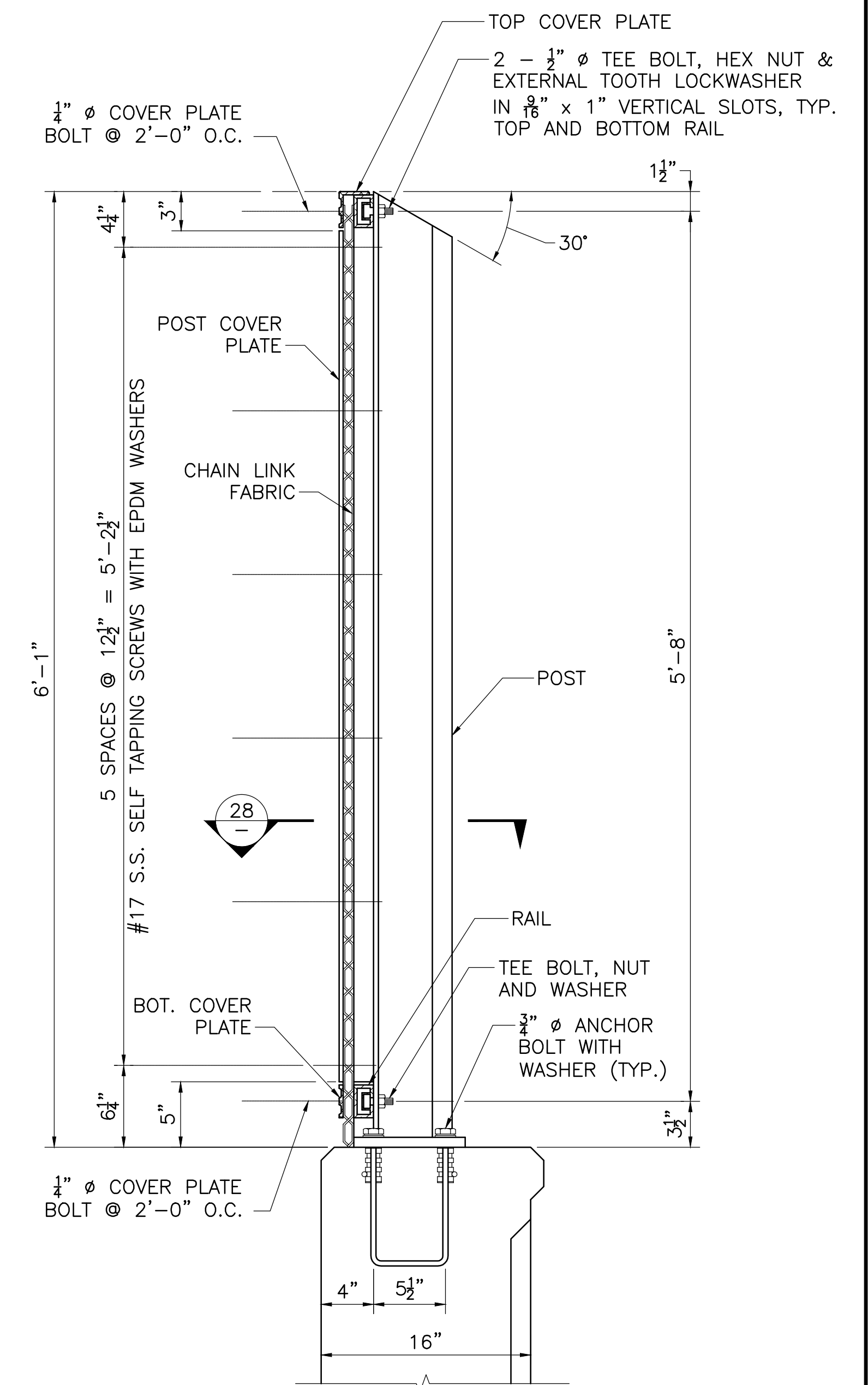


NOTE:

GALVANIZED OR ELECTROPLATE FINISH.

ANCHOR CAGE

SCALE: 3" = 1'-0"



SECTION 27

SCALE: 1/2" = 1'-0"

FINISHES:

- POSTS, RAILS, COVER PLATES AND SPLICE PLATES SHALL RECEIVE A DARK BRONZE ANODIZED FINISH.
- CHAIN LINK FABRIC SHALL RECEIVE A 4±1 MIL POLYESTER POWDER COAT FINISH. THE COLOR SHALL BE DARK BRONZE TO MATCH COLOR OF ANODIZED ALUMINUM FRAMEWORK.
- #17 SELF TAPPING SCREWS AND 1/4" Ø COVER PLATE BOLTS TO BE COLORED TO MATCH THE ANODIZED EXTRUSIONS.

MATERIALS:

- EXTRUSIONS & PLATES — ASTM B 221, ALLOY 6061-T6
- CHAIN LINK FABRIC — AASHTO M 181 TYPE III (ALLOY 6061-T89 OR T94)
- TYPE 304 STAINLESS STEEL WITH 1/4" THICK EPDM (ETHYLENE PROPYLENE DIENE MONOMER) WASHERS
- AASHTO M 164 GALVANIZED (ROTATION CAPACITY TEST NOT REQUIRED)
- ASTM A 307 GALVANIZED OR TYPE 304 STAINLESS STEEL
- TYPE 304 STAINLESS STEEL WITH OVERSIZED STAINLESS WASHER AND STAINLESS NUT WITH NYLON INSERT

RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF FOUR POSTS, IF POSSIBLE.

RAILS SHALL HAVE AN EXPANSION JOINT IN THE PANEL OVER A BRIDGE EXPANSION JOINT AND AT 30 FOOT MAXIMUM SPACING ELSEWHERE.

BOTTOM OF POST BASE PLATE TO BE SET ON A 1/8" MOLDED FABRIC BEARING PAD (M9.16.2). THE THICKNESS OF THE PAD SHALL BE IGNORED BY THE DETAILER.

THE CHAIN LINK FABRIC SHALL BE SECURED BY KNUCKLING TOGETHER THE CUT ENDS OF THE FABRIC WIRE IN A MANNER SIMILAR TO THE ORIGINALLY MANUFACTURED END.

WHERE THE R.O.W. FENCE MUST MEET THE SCREEN, USE THE SQUARE END TO HIGHWAY GUARDRAIL TRANSITION DETAIL.

THE SCREEN END TREATMENT TO BE USED (SQUARE OR TAPERED) IS SPECIFIED ELSEWHERE ON THE CONSTRUCTION DRAWINGS.

POST SPACING SHALL BE UNIFORM BETWEEN TAPERED ENDS.

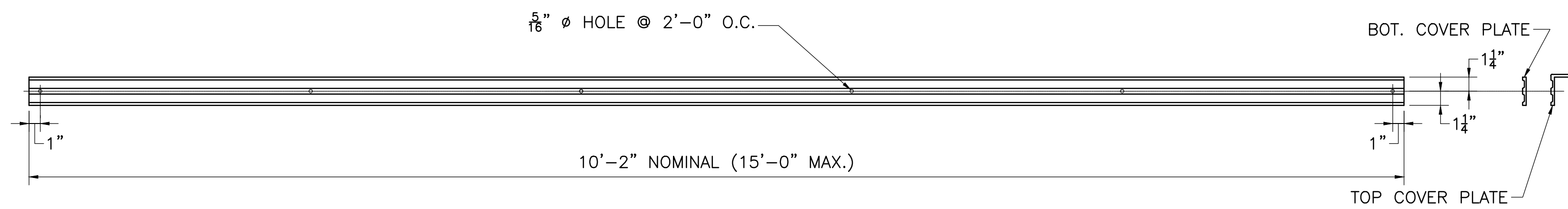
SET POSTS PERPENDICULAR TO GRADE FOR GRADES UP TO 1.5%. SET POSTS PLUMB FOR GRADES GREATER THAN 1.5%.

USE 2" x 6 GA. FABRIC EXCEPT OVER MBTA RAPID TRANSIT LINES WHERE 1" x 9 GA. FABRIC SHALL BE USED.

DATE	ISSUED FOR CONSTRUCTION DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	NFA	62	72
PROJECT FILE NO.		604007	

PROTECTIVE SCREEN  
DETAILS

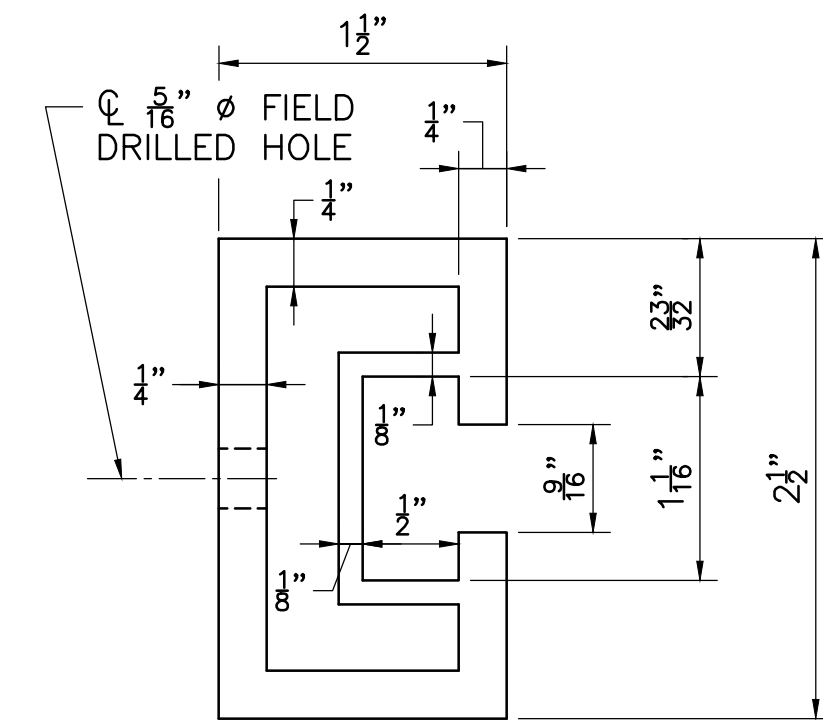


**TOP AND BOTTOM COVER PLATE**

SCALE: 1 1/2" = 1'-0"

**COVER PLATE NOTES:**

- COVER PLATES MAY BE CONTINUOUS OVER A RAIL SPLICE. COVER PLATES SHALL BE FIELD CUT AS REQUIRED TO CLEAR THE EXPANSION JOINT. SEE DETAIL AT EXPANSION JOINT.
- FIELD DRILL 5/16" Ø HOLE 1" FROM THE FIELD CUT END OF A COVER PLATE, UNLESS THERE IS AN EXISTING HOLE WITHIN 6" FROM THE COVER PLATE END.
- FIELD PAINT THE FIELD CUT ENDS OF THE COVER PLATES TO MATCH THE ANODIZED COLOR.

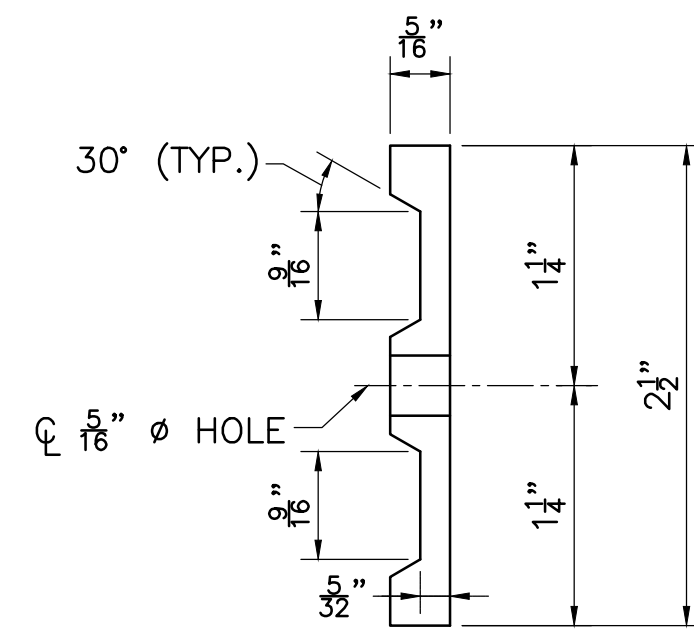


**NOTE:**

OTHER CONFIGURATIONS OF THE INTERNAL WALLS OF THE RAIL EXTRUSION MAY BE SUBMITTED FOR APPROVAL.

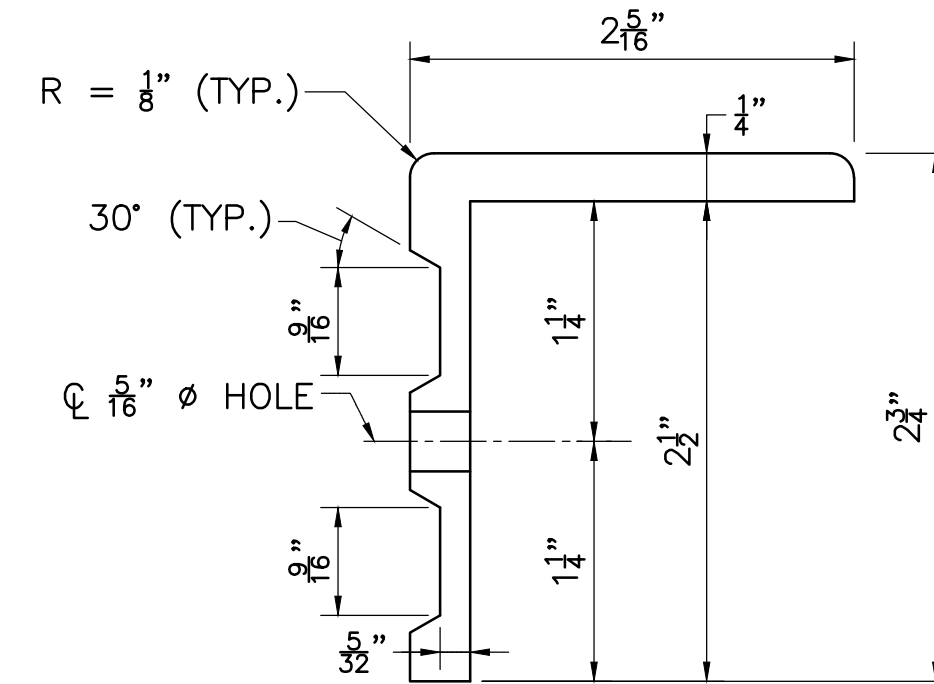
**RAIL EXTRUSION**

FULL SIZE



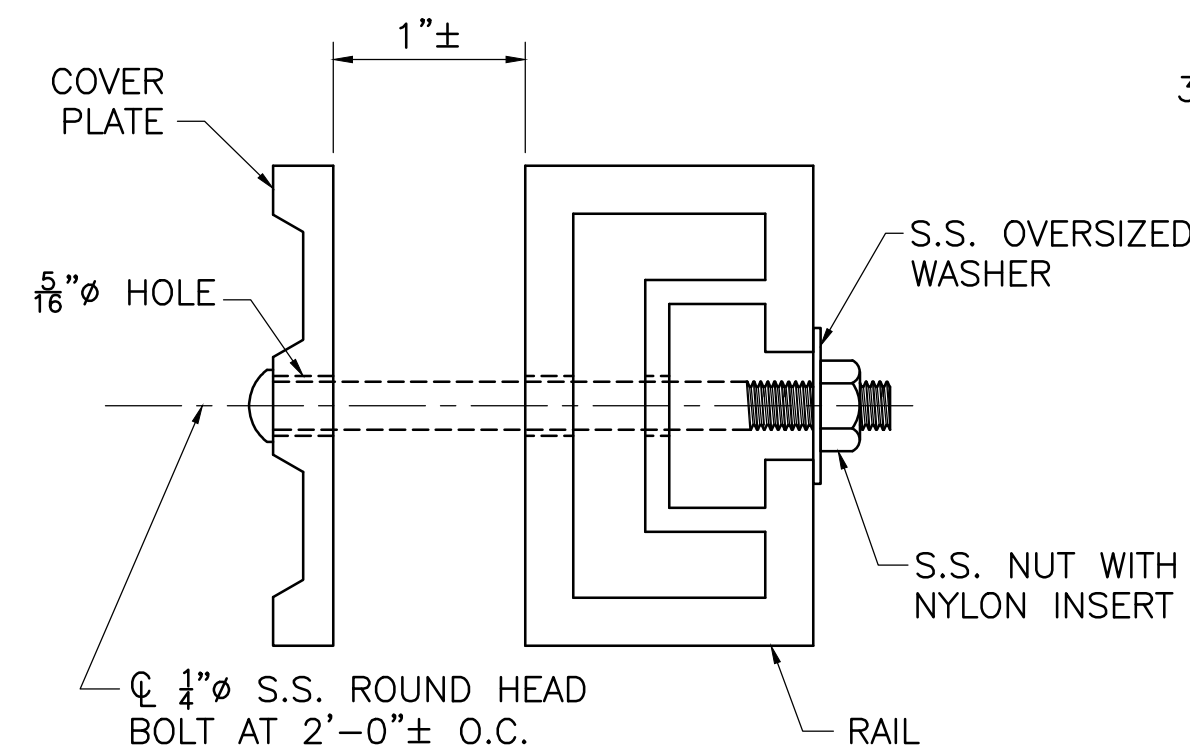
**BOTTOM COVER PLATE EXTRUSION**

FULL SIZE



**TOP COVER PLATE EXTRUSION**

FULL SIZE

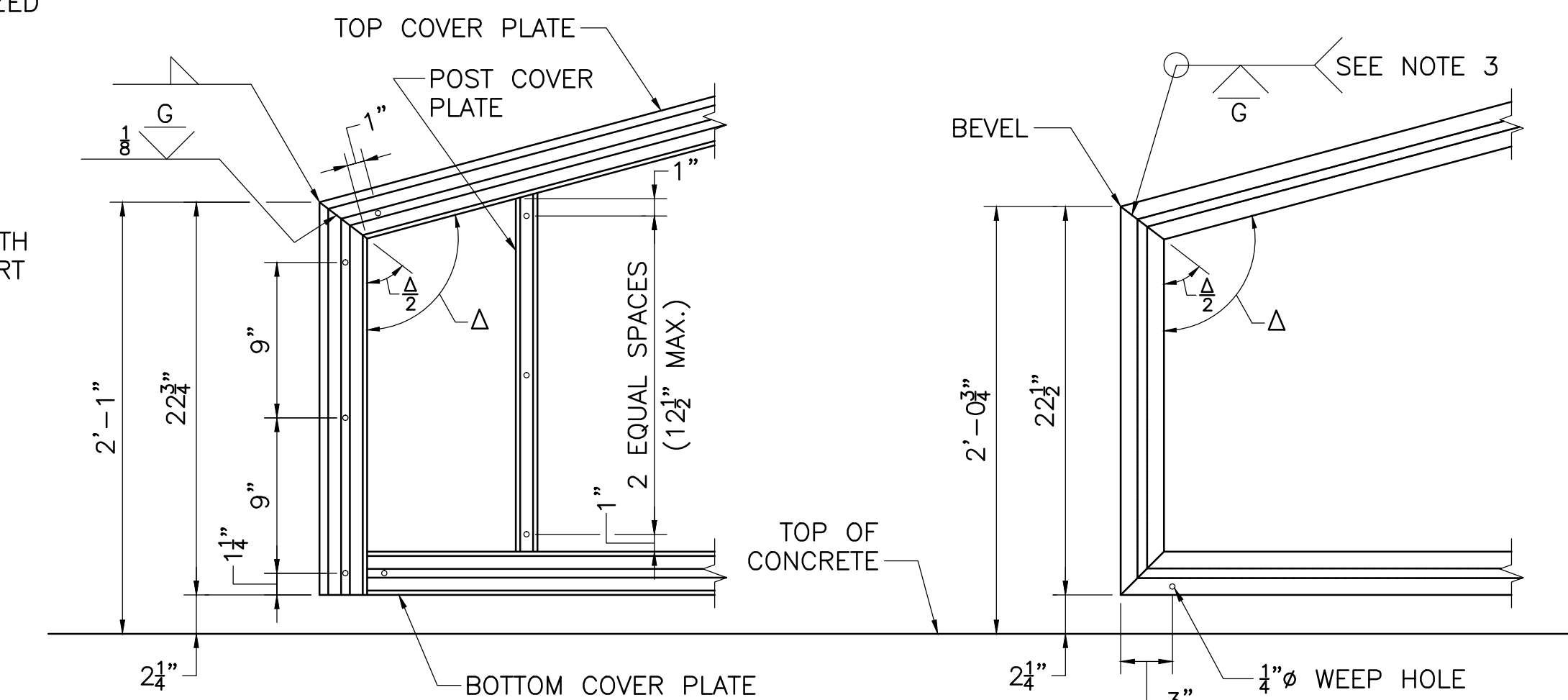


**NOTE:**

BOLTS SHALL BE TYPE 304 WITH A DRIVE HEAD TO BE COLORED TO MATCH ANODIZING.

**RAIL & COVER P DETAIL**

FULL SIZE



**COVER PLATE DETAILS**

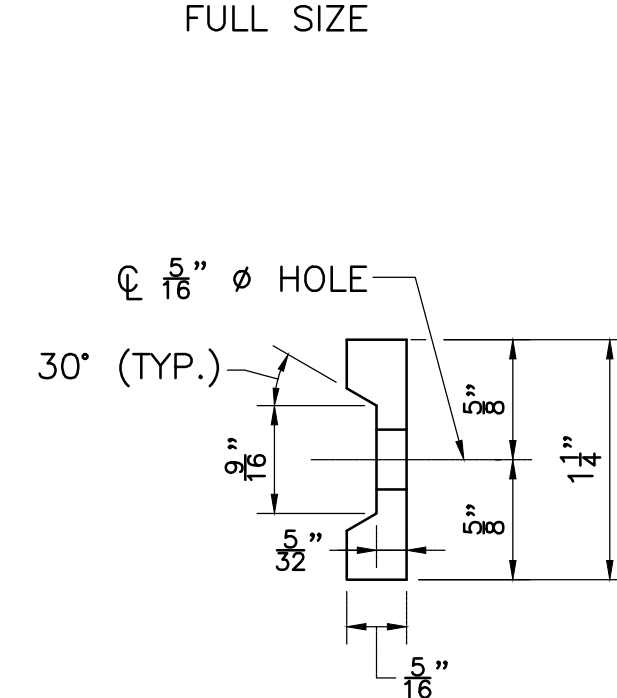
**RAIL DETAILS**

**NOTES:**

- WELDING OF TOP COVER PLATE AND RAILS OF NON-TAPERED END IS SIMILAR.
- WELDS AND MITERING TYPICAL FOR ALL ANGLED CORNERS.
- WELD TYPICAL FOR TOP AND BOTTOM END CORNERS OF RAIL. INTERRUPT WELD AT SLOT IN BACK OF RAIL.

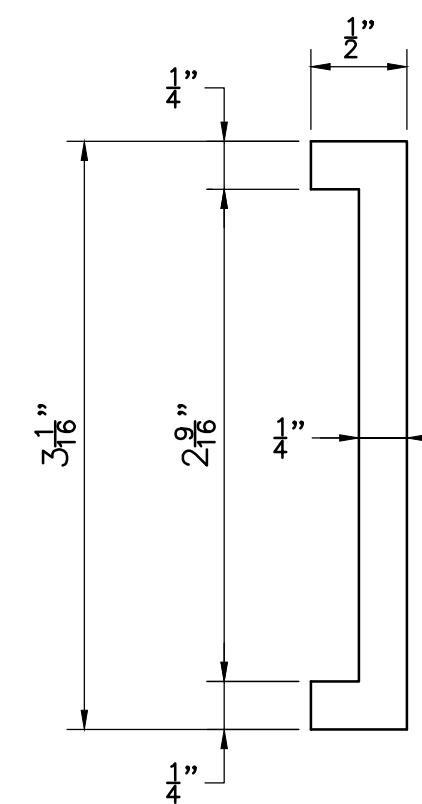
**TAPERED END DETAILS**

SCALE: 1 1/2" = 1'-0"



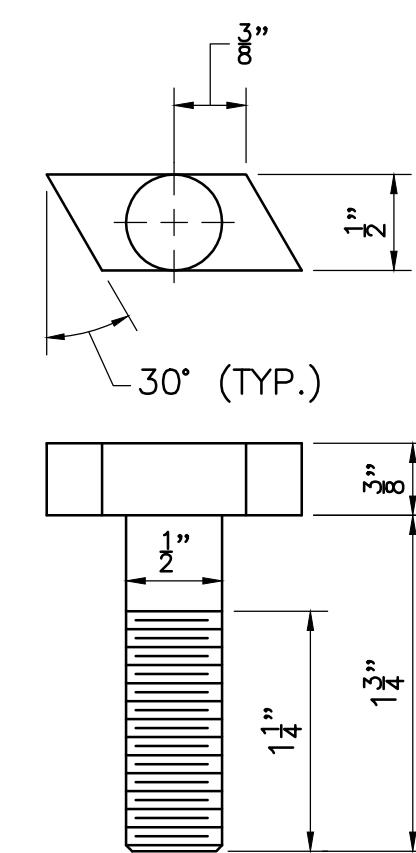
**POST COVER PLATE EXTRUSION**

FULL SIZE



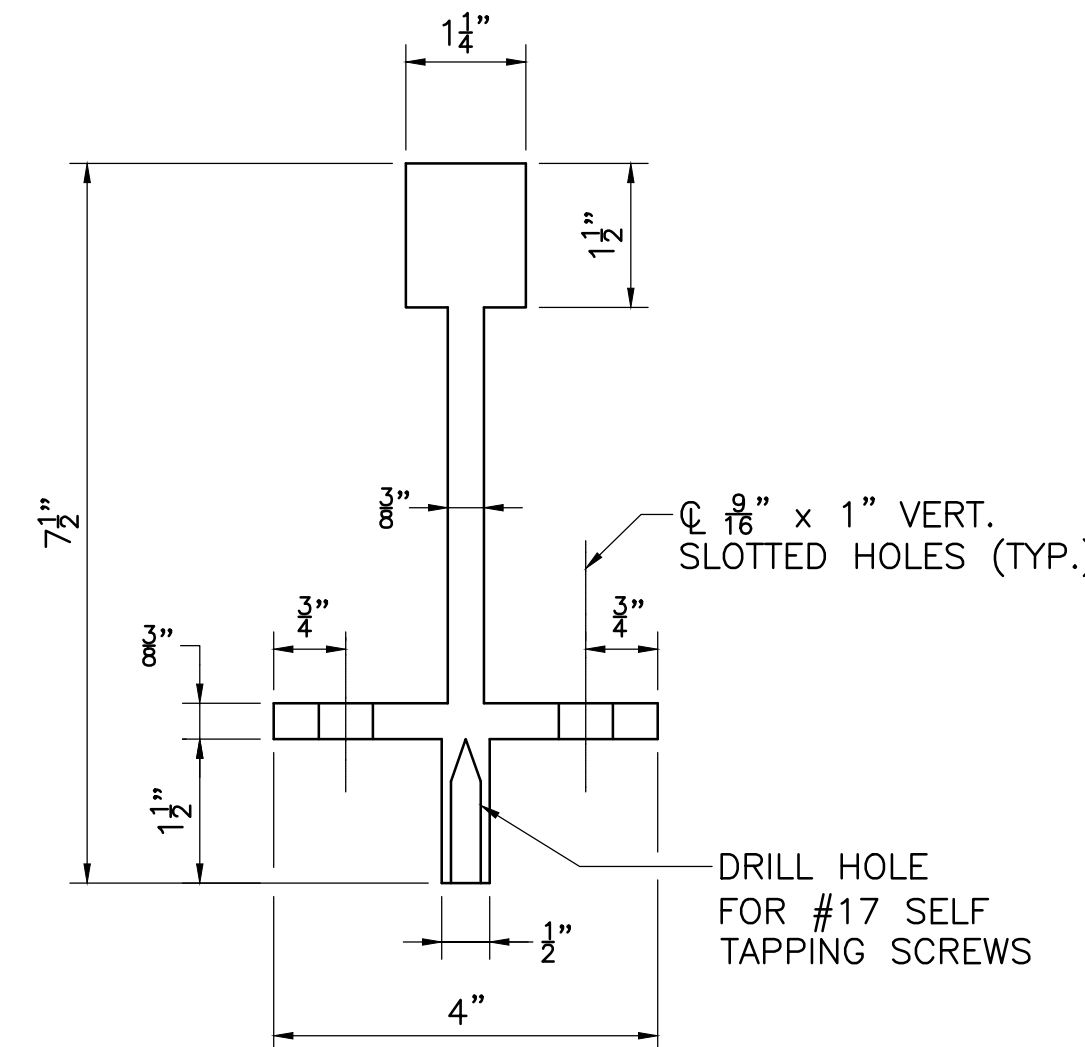
**SPLICE PLATE EXTRUSION**

FULL SIZE



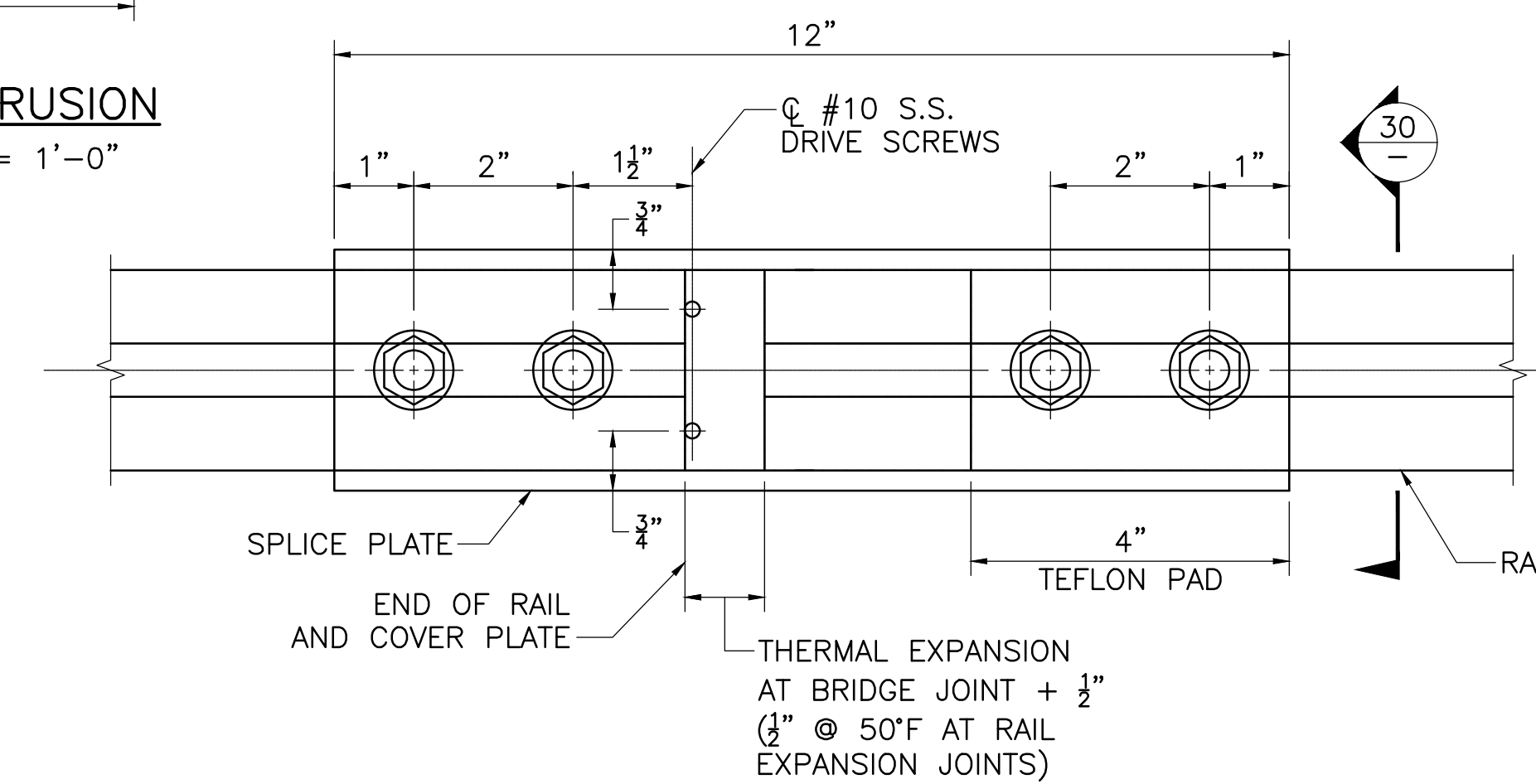
**TEE BOLT**

FULL SIZE



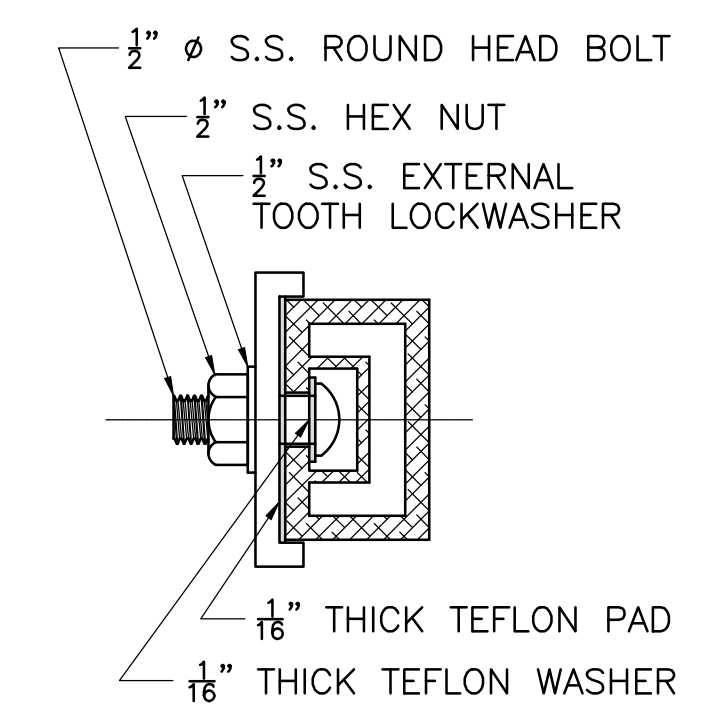
**POST EXTRUSION**

SCALE: 6" = 1'-0"



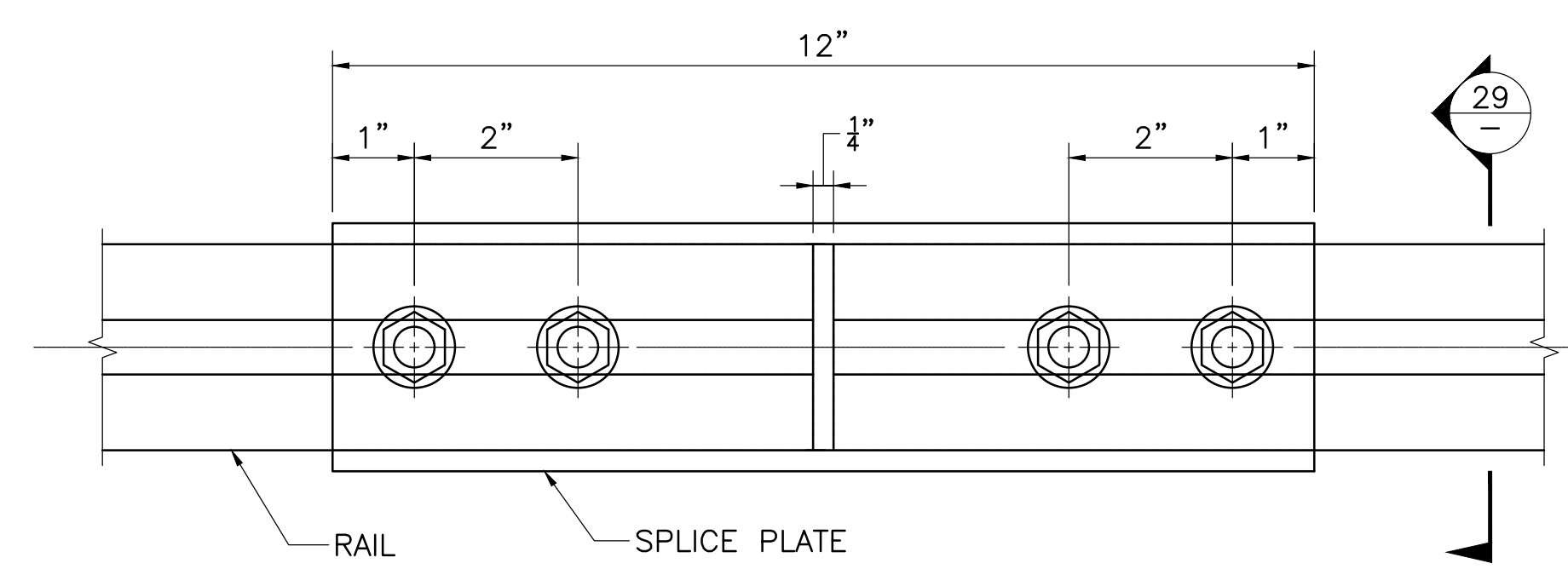
**DETAIL AT EXPANSION JOINT**

SCALE: 6" = 1'-0"



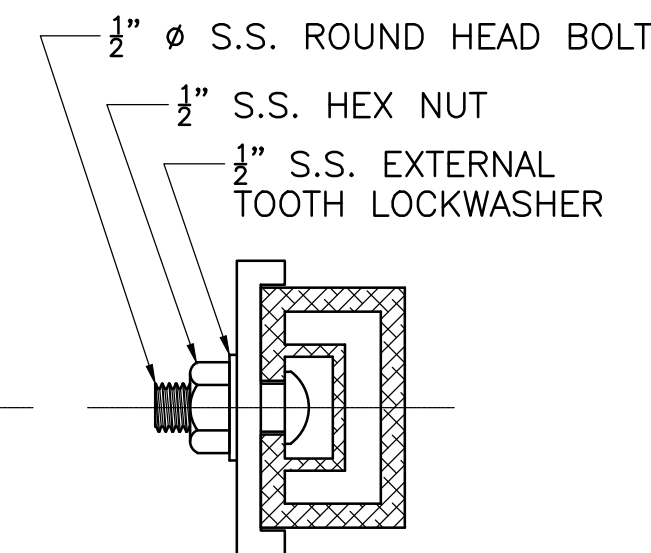
**SECTION 30**

SCALE: 6" = 1'-0"



**DETAIL AT SPLICE JOINT**

SCALE: 6" = 1'-0"



**SECTION 29**

SCALE: 6" = 1'-0"

DATE	ISSUED FOR CONSTRUCTION
	DESCRIPTION
	USE ONLY PRINTS OF LATEST DATE