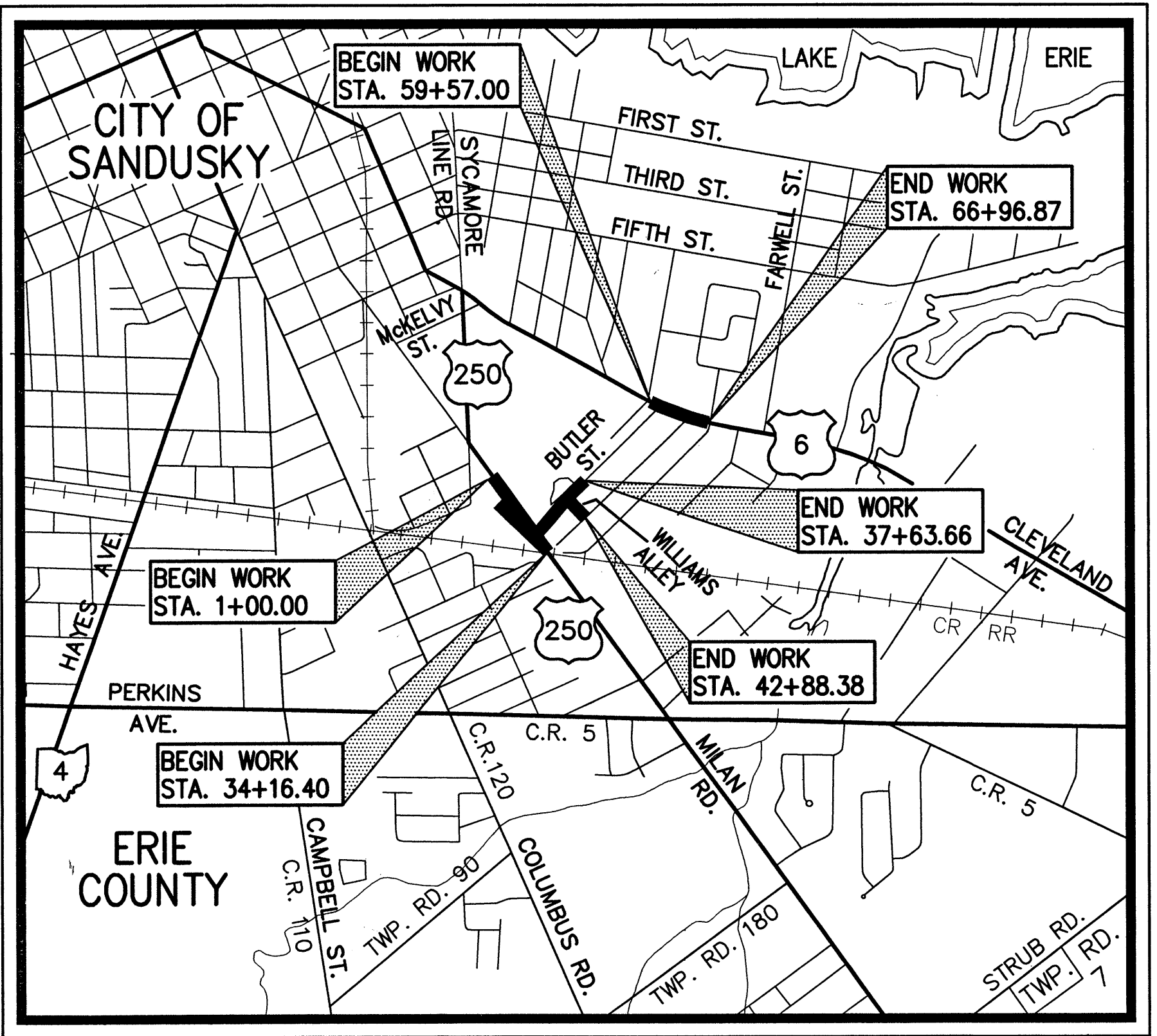
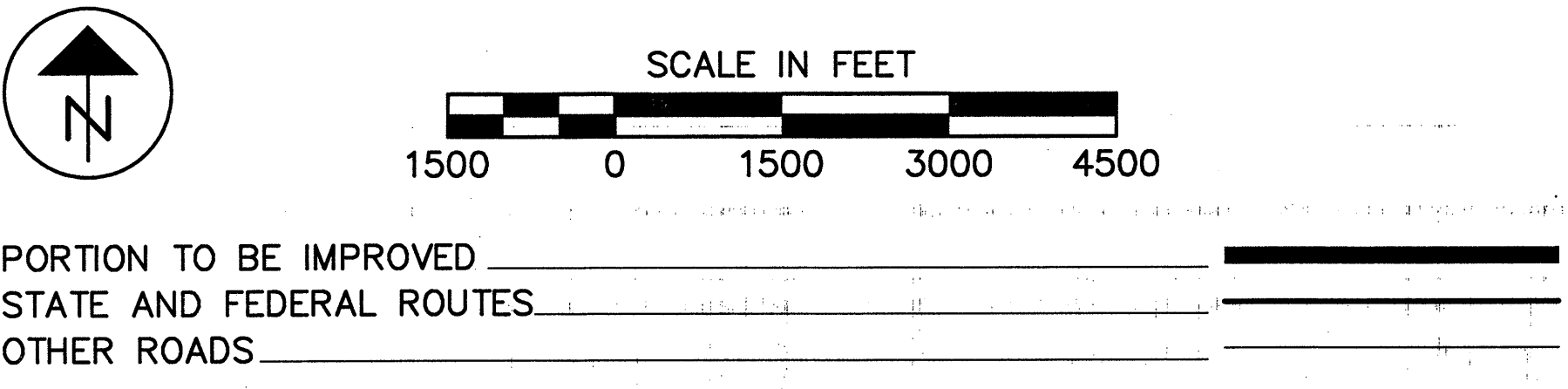


CITY OF SANDUSKY

BUTLER STREET CAPACITY IMPROVEMENT



LOCATION MAP



PROJECT DESCRIPTION

IMPROVEMENT OF 0.50 MILES OF BUTLER STREET FROM US ROUTE 250 TO CLEVELAND RD, RAMP B FROM US ROUTE 250 (MILAN RD.) TO WILLIAMS ALLEY, 0.05 MILES OF WILLIAMS ALLEY, .11 MILES OF FRONTAGE RD C AND 0.15 MILES OF US ROUTE 6 (CLEVELAND AVE.) BY WIDENING THESE ROADWAYS, BRIDGE WIDENING AND DECK REPLACEMENT OF RAMP B. CONSTRUCTION INCLUDES A NEW RETAINING WALL, CURB AND GUTTER, SIDEWALK, TRAFFIC CONTROL SIGNS, TRAFFIC SIGNAL ADJUSTMENT AND PAVEMENT MARKINGS.

1997 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT DETOURS WILL BE PROVIDED AS INDICATED ON SHEET 10.

Plans Prepared By:
HNTB ARCHITECTS ENGINEERS PLANNERS
One Cleveland Center
1375 East Ninth Street
Cleveland, Ohio 44114

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CONVENTIONAL SIGNS		
EXISTING	PROPOSED	
		TREE
		CATCH BASIN
		INLET
		SCUPPER
		MANHOLE
		ADJUST TO GRADE
		FIRE HYDRANT
		WATER METER
		WATER VALVE
		TELEPHONE POLE
		ELECTRIC BOX
		LIGHT POLE
		SIGN
		MAILBOX
		MONUMENT BOX
		IRON PIPE/PIN (SET)
		IRON PIPE/PIN (FOUND)
		TO BE REMOVED
		TO BE ABANDONED
		GATE
		PROPERTY LINE
		RIGHT OF WAY
		FENCE
		GUARDRAIL
		GAS LINE
		EXISTING SANITARY SEWER
		WATER LINE
		STORM SEWER
		POWER LINE
		DITCH
		UNDERDRAIN
		PAVEMENT REPLACEMENT & WIDENING
		SEEDING & JUTE MATTING

RECORD DRAWINGS

STANDARD CONSTRUCTION DRAWINGS										SUPPLEMENTAL SPECIFICATIONS	
A-1-69	6/12/69	CB-3A	5/1/79	HL-60.11	5/1/87	TC-41.40	6/18/79	815	5/30/96		
AS-1-81	9/15/94	EXJ-4-87	2/14/97	HL-60.12	5/1/87	TC-41.41	8/2/79	816	4/21/97		
BP-1.1	2/21/92	GR-1.1	5/6/91	I-2A	12/18/84	TC-42.20	3/26/79	910	4/21/97		
BP-1.2	2/21/92	GR-1.2	10/30/92	MC-1	6/13/69	TC-52.10	4/3/79				
BP-2.1	10/28/94	GR-1.3	2/21/92	MC-4	7/26/76	TC-52.20	4/3/79				
BP-2.2	10/28/94	GR-2.1	5/6/91	MC-7	10/15/76	TC-71.10	9/10/91				
BP-2.3	2/21/92	GR-3.2	5/6/91	MC-9.2	5/6/91	TC-81.10	1/20/84				
BP-3.1	2/21/92	GR-4.2	5/6/91	MC-10	5/1/76	TC-82.10	8/29/84				
BP-5.1	10/28/94	GSD-1-96	2/12/97	MC-11	8/1/78	TC-83.20	1/20/84				
BP-7.1	10/30/92	HL-10.13	5/1/87	MH-1	12/18/84	TC-84.20	1/20/84				
BP-8.1	10/28/94	HL-20.14	5/1/87	MT-95.41	10/01/92	TC-85.20	1/20/84				
BR-1	12/15/94	HL-20.15	5/1/87	PCB-91	4/24/92						
BR-2-82	11-01-82	HL-30.21	5/1/87	TC-12.30	1/20/84						
BS-1-93	12/19/94	HL-30.22	5/1/87	TC-17.10	1/20/84						
CB-2-2-B	5/1/79	HL-30.31	5/1/87	TC-21.20	9/1/92						
CB-3	5/1/79	HL-50.21	5/1/87	TC-21.40	9/1/92						

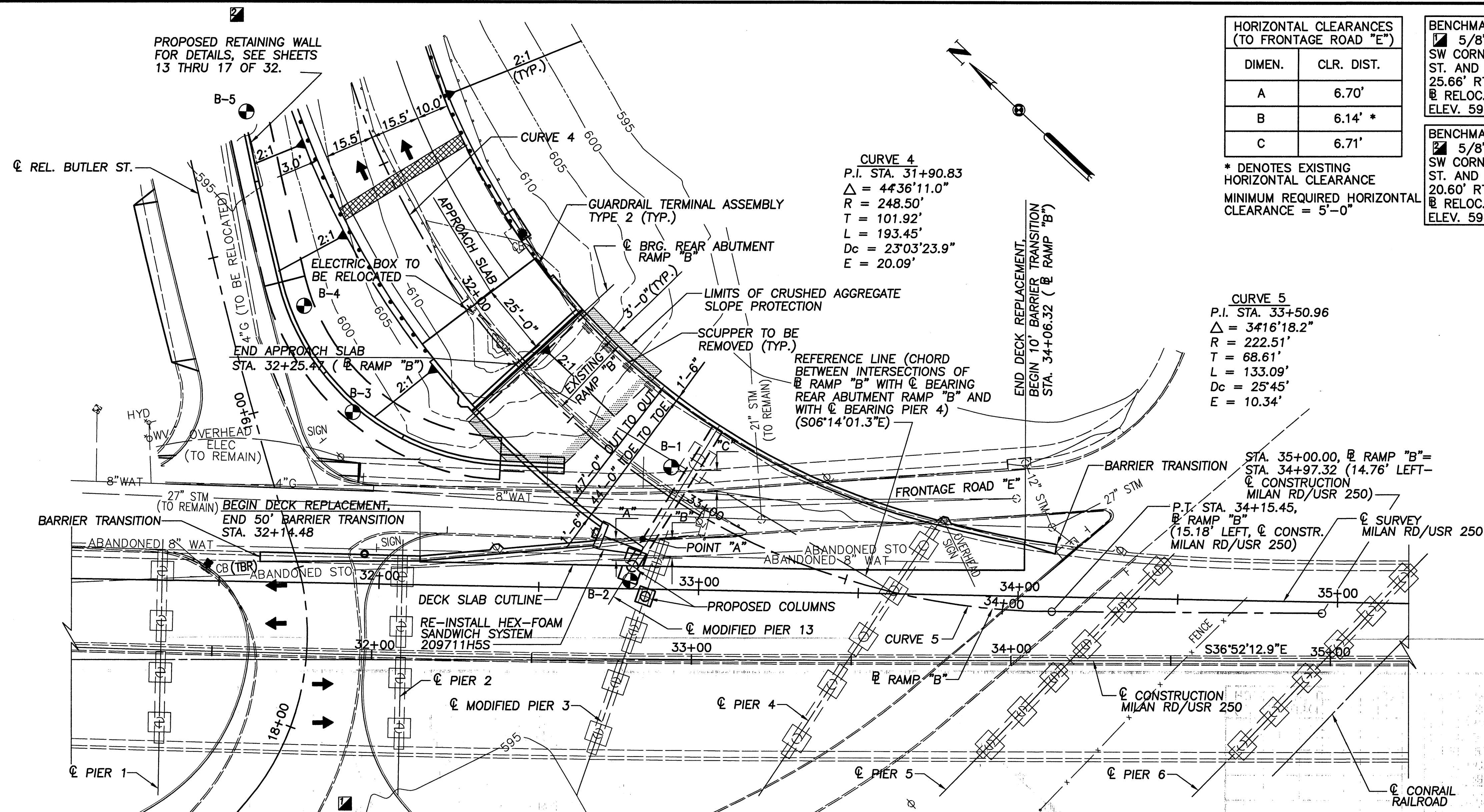
MICHAEL J. SCHIPPER
REGISTERED PROFESSIONAL ENGINEER
E-61408
MICHAEL J. SCHIPPER, P.E.

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
CALL 800-362-2764 (Toll Free)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

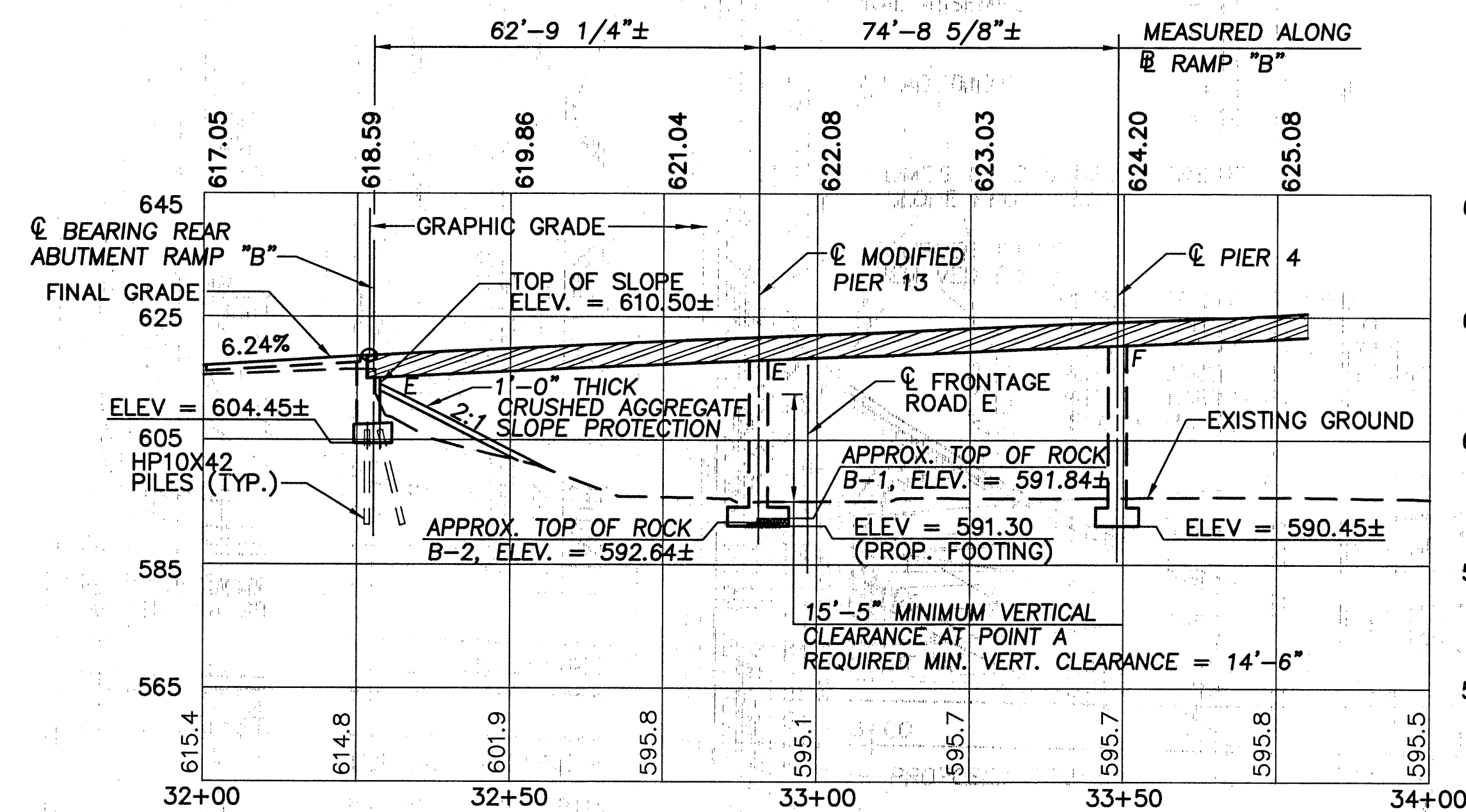
APPROVAL
The necessary right of way being available, these plans are hereby approved by:
Brent R. Smith
Brent R. Smith, P.E.
Director of Engineering Services
20 Nov 97
Date

No.	Date	By
1	8-13-98	J.E.

PROPOSED RETAINING WALL
FOR DETAILS, SEE SHEETS
13 THRU 17 OF 32.



PARTIAL PLAN



PROFILE ALONG RAMP "B"

NOTES:
EARTHWORK LIMITS SHOWN ARE APPROXIMATE.
ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS
SECTIONS.

FOR THE PILING DETAILS AND ESTIMATED PAY
LENGTHS, SEE SHEET 9 OF 32.

ALL STATIONING IS REFERENCED TO CENTERLINE
CONSTRUCTION MILAN ROAD/USR 250, UNLESS
OTHERWISE NOTED.

E DESIGNATES EXPANSION.
F DESIGNATES FIXED.

● DENOTES SOIL BORING LOCATION

HORIZONTAL CLEARANCES (TO FRONTAGE ROAD "E")	
DIMEN.	CLR. DIST.
A	6.70'
B	6.14' *
C	6.71'

* DENOTES EXISTING
HORIZONTAL CLEARANCE
MINIMUM REQUIRED HORIZONTAL
CLEARANCE = 5'-0"

BENCHMARK #1
5/8" RED CAPPED REBAR
SW CORNER OF RELOC. BUTLER
ST. AND MILAN RD/USR 250 SET
25.66' RT. OF STA. 17+87.59
RELOC. BUTLER ST.
ELEV. 596.35

BENCHMARK #2
5/8" RED CAPPED REBAR
SW CORNER OF RELOC. BUTLER
ST. AND WILLIAMS ALLEY SET
20.60' RT. OF STA. 23+61.45
RELOC. BUTLER ST.
ELEV. 594.10

RAMP "B" SUBSTRUCTURE LOCATION		
UNIT	STATION	*SKEW
REAR ABUT. RAMP "B"	32+27.72±	0°20'39" LF
PIER 13	32+90.49±	0°34'23" RF

*MEASURED FROM LOCAL TANGENT
LF DENOTES LEFT FORWARD
RF DENOTES RIGHT FORWARD

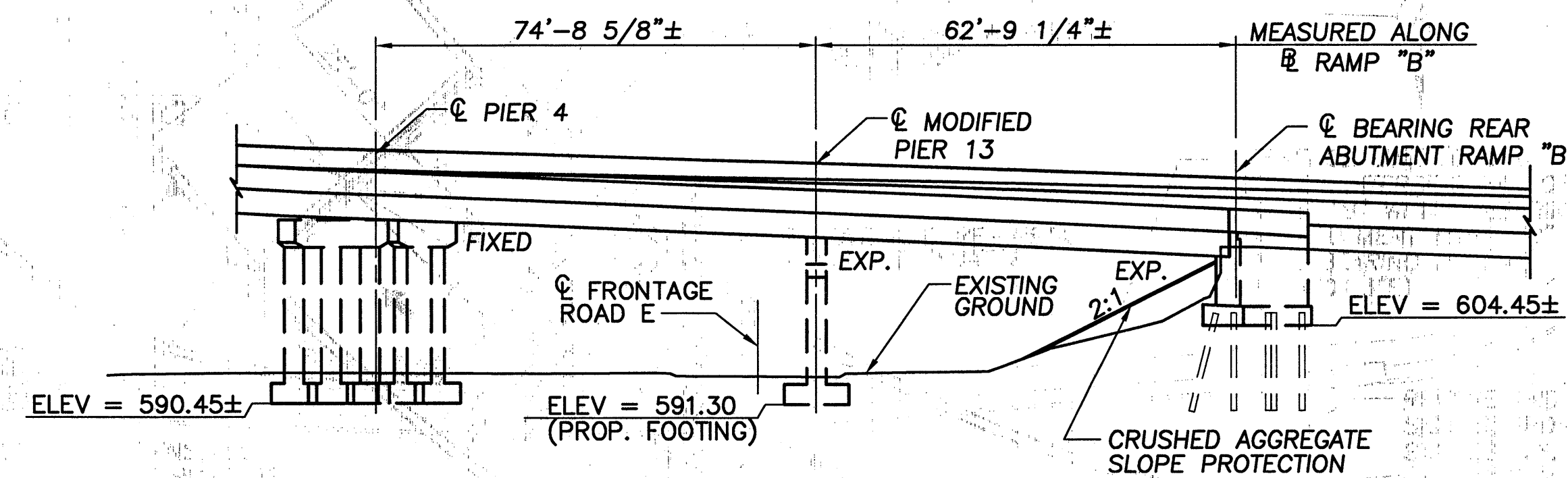
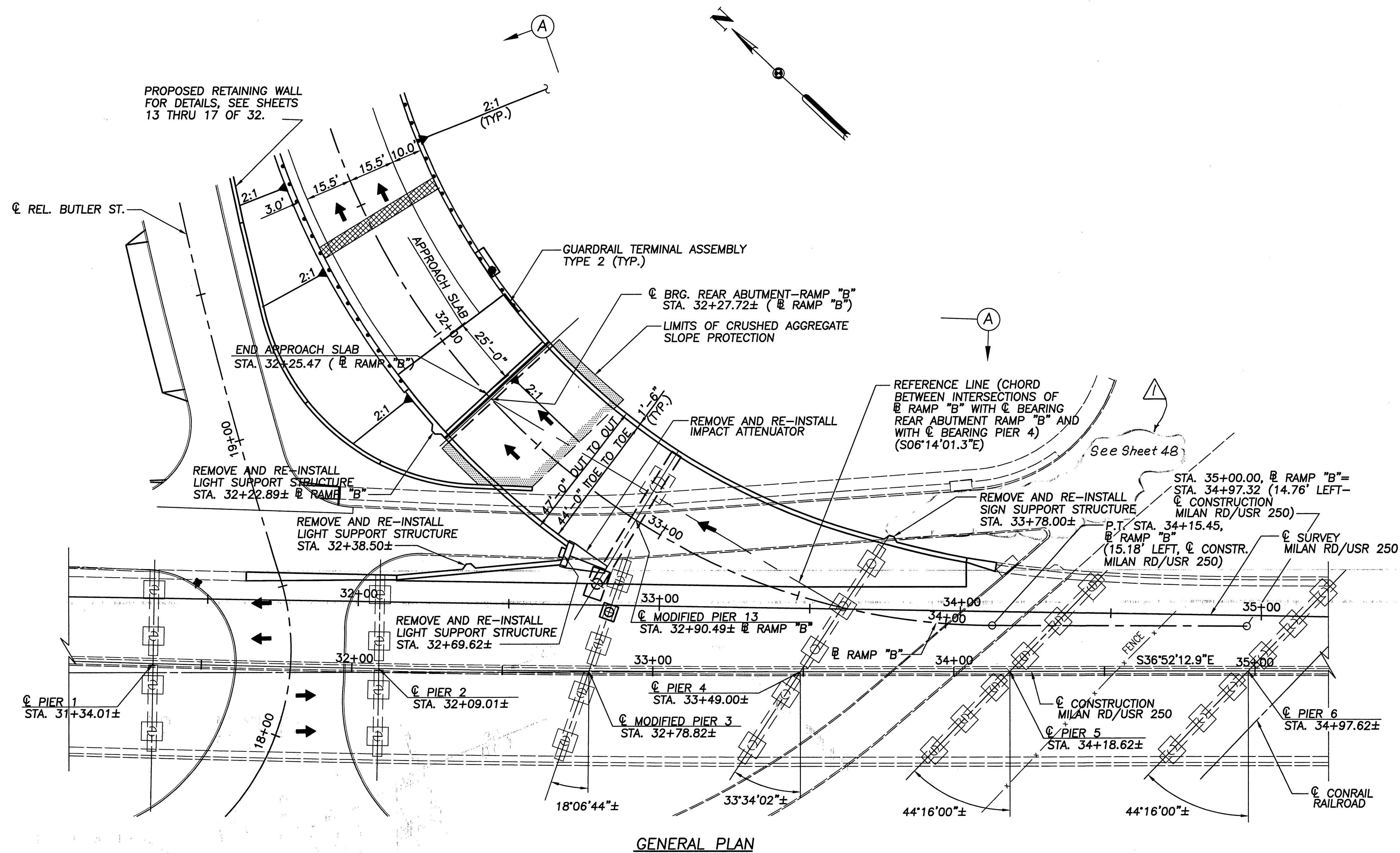
LIGHT AND SIGN POLE SUPPORTS TO BE REMOVED AND RE-INSTALLED		
TYPE	STATION	OFFSET
LIGHT	32+38.50±	34.2'± LT.
LIGHT	32+69.38±	39.2'± LT.
SIGN	33+78.00±	43.3'± LT.
LIGHT	32+22.89± (RAMP "B")	20.6'± RT.

TRAFFIC DATA (YEAR 2018)	ADI	ADTI
RAMP "B"	18,160	727

EXISTING STRUCTURE	
TYPE: CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE.	
SPANS: 59.00' & 70.56' C/C BEARINGS (RAMP "B")	
ROADWAY: 21'-6" FACE OF 2'-0" SAFETY CURBS TO TOE OF PARAPET (RAMP "B")	
LOAD FREQUENCY: CF400(57)	
SKEW: VARIES	
WEARING SURFACE: 1 1/4" LATEX MODIFIED CONCRETE	
APPROACH SLAB: AS-1-54 (25'-0" LONG) REAR ABUTMENT-RAMP "B"	
ALIGNMENT: 0'-44' CURVE; TANGENT	
YEAR BUILT: 1968	
STRUCTURE FILE NO. 2203189	

PROPOSED STRUCTURE	
PROPOSED WORK: REPLACE THE DECK, AND LIGHT AND SIGN SUPPORT STANDARDS, IN KIND. ADD NEW COMPOSITE STEEL BEAMS AND MAKE THE EXISTING BEAMS COMPOSITE. WIDEN THE ABUTMENT AND MODIFY PIER 3 AND 13 AND PATCH WHERE REQUIRED. SEAL THE SUPERSTRUCTURE, WITH AN ASTM A36 EXPANSION JOINT.	
TYPE: NEW AND EXISTING CONTINUOUS STEEL BEAMS MADE COMPOSITE WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES.	
SPANS: 62.77'± & 74.72'± C/C BEARINGS (RAMP "B")	
ROADWAY: 44'-0" TOE OF PARAPET TO TOE OF PARAPET (RAMP "B")	
LOADING: CF400(57)(MILAN RD./USR 250) HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING (RAMP "B")	
SKEW: VARIES	
WEARING SURFACE: 1" MONOLITHIC CONCRETE (RAMP "B")	
APPROACH SLAB: AS-1-81 (25'-0" LONG) (REAR ABUTMENT-RAMP "B")	
ALIGNMENT: 0'-44' CURVE; TANGENT	
BRIDGE COORDINATES: LAT. 41° 26' 24" LONG. 82° 41' 42"	
SUPERELEVATION: 0.0156 FT/FT (MILAN RD/USR 250) VARIES 0.0000 TO 0.0625 FT/FT (RAMP "B")	

\\CLEW001\PMWORK\JOBS\26668\TECHPROD\BRIDGE\FINAL\DRAWINGS\GENPLAN.DWG



NOTES:
ALL STATIONING IS REFERENCED TO CENTERLINE CONSTRUCTION MILAN ROAD/USR 250, UNLESS OTHERWISE NOTED.

Record Drawing 8/13/98

54 84	2 / 32	CITY OF SANDUSKY	GENERAL PLAN AND ELEVATION BRIDGE NO. ERI-250-0058 OVER CONRAIL RAIL ROAD	DESIGN AGENCY			
				DESIGNED	DRAWN	REVIEWED	DATE
				ADY	JMG	GT	09-26-97
				CHECKED	REVISED	STRUCTURE FILE NUMBER	
				RFI		200319Q	ARCHITECTS ENGINEERS PLANNERS

\\CLEWOO\PMWORK\JOBS\26988\TECHPRO\BRIDGE\FINAL\DRAWINGS\EQ.DWG

ESTIMATED QUANTITIES									
ITEM	ITEM EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUTMENTS	PIERS	RETAINING WALL	SUPER-STRUCTURE	GENERAL
202	11203	LUMP SUM	LUMP SUM	PORTIONS OF STRUCTURE REMOVED, OVER 10 FOOT SPAN, AS PER PLAN					LUMP SUM
503	11100	LUMP SUM	LUMP SUM	COFFERDAMS, CRIBS, AND SHEETING					LUMP SUM
503	21101	61	CU. YD.	UNCLASSIFIED EXCAVATION, AS PER PLAN	39	22			
503	21105	844	CU. YD.	UNCLASSIFIED EXCAVATION, INCLUDING ROCK, AS PER PLAN			844		
505	11100	LUMP SUM	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION	LUMP SUM				
507	00100	150	LIN. FT.	STEEL PILES HP 10X42, FURNISHED	150				
507	00150	150	LIN. FT.	STEEL PILES HP 10X42, DRIVEN	150				
507	93301	10	EACH	STEEL POINT (OR SHOE), AS PER PLAN	10				
511	31502	227	CU. YD.	CLASS S CONCRETE, SUPERSTRUCTURE				227	
511	43200	68	CU. YD.	CLASS C CONCRETE, PIER		68			
511	46500	368	CU. YD.	CLASS C CONCRETE, FOOTING			368		
511	43500	65	CU. YD.	CLASS C CONCRETE, ABUTMENT INCLUDING FOOTING	65				
511	46000	216	CU. YD.	CLASS C CONCRETE			216		
512	44400	46	SQ. YD.	TYPE B WATERPROOFING			46		
SPECIAL	51267510	1044	SQ. YD.	SEALING OF CONCRETE SURFACES (EPOXY - URETHANE) **	99	127	496	322	
SPECIAL	51273000	67	SQ. YD.	TREATING CONCRETE BRIDGE DECKS WITH HMWM RESIN **				67	
513	11100	54400	POUND	STRUCTURAL STEEL, AISC CATEGORY I				54400	
513	20000	1746	EACH	WELDED STUD SHEAR CONNECTOR				1746	
513	16600	LUMP SUM	LUMP SUM	STRUCTURAL STEEL, MISC.: HINGE ASSEMBLIES, AS PER PLAN				LUMP SUM	
516	11210	47	LIN. FT.	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL				47	
516	13600	100	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER	40		60		
516	44101	2	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (8.50"x12.00"x2.62") WITH 9.50"x13"x1.81" LOAD PLATE**	2				
516	44101	4	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (9.00"x14.00"x2.80") WITH 10"x15"x1.81" LOAD PLATE**	4				
516	44101	3	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (13.50"x21.00"x2.49") WITH 14.5"x22"x2.75" LOAD PLATE**		3			
516	44101	3	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (10.50"x17.00"x2.82") WITH 11.50"x18"x2.20" LOAD PLATE**		3			
516	47001	LUMP SUM	LUMP SUM	JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN					LUMP SUM
516	48001	LUMP SUM	LUMP SUM	JACKING AND TEMPORARY SUPPORT OF SUBSTRUCTURE, AS PER PLAN					LUMP SUM
518	21200	227	CU. YD.	POROUS BACKFILL WITH FILTER FABRIC	19		208		
518	40000	415	LIN. FT.	6" PERFORATED CORRUGATED PLASTIC PIPE	18		397		
518	40010	38	LIN. FT.	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	20		18		
519	11100	200	SQ. FT.	PATCHING CONCRETE STRUCTURE					200
601	20000	184	SQ. YD.	CRUSHED AGGREGATE SLOPE PROTECTION	184				
625	35011	3	EACH	REMOVE AND REERECT EXISTING LIGHT POLE, AS PER PLAN				3	
630	86320	1	EACH	REMOVAL OF STRUCTURE MOUNTED SIGN AND REERECTION, AS PER PLAN				1	
815	00050	661	SQ. FT.	SURFACE PREPARATION OF EXISTING STEEL, SYSTEM OZEU, AS PER PLAN				176	485
815	00056	661	SQ. FT.	FIELD PAINTING OF EXISTING STEEL, PRIME COAT, SYSTEM OZEU, AS PER PLAN				176	485
815	00060	661	SQ. FT.	FIELD PAINTING OF EXISTING STEEL, INTERMEDIATE COAT, SYSTEM OZEU, AS PER PLAN				176	485
815	00066	661	SQ. FT.	FIELD PAINTING OF EXISTING STEEL, FINISH COAT, SYSTEM OZEU, AS PER PLAN				176	485
816	00070	54400	POUND	FIELD PAINTING OF NEW STEEL, SYSTEM IZEU				54400	

**SEE PROPOSAL NOTE

MADE BY: JMG DATE: 09-24-97
CHECKED BY: CMB DATE: 09-24-97

DESIGN AGENCY
HNTB
ARCHITECTS ENGINEERS PLANNERS

REVIEWED
DATE
09-26-97
GT
STRUCTURE FILE NUMBER
2203189

DRAWN
JMG
CHECKED
RER

DESIGNED
ADY
CHECKED
RER

ESTIMATED QUANTITIES
BRIDGE NO. ERI-250-0058
OVER CONRAIL RAILROAD

CITY OF SANDUSKY

3 / 32

55
84

GENERAL NOTES - STRUCTURES OVER 10 FOOT SPAN

PROPOSED WORK

THE MAJOR ITEMS OF WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

1. REPLACE THE RAMP B DECK AND A PORTION OF THE MILAN ROAD/USR 250 DECK, PARAPETS, RAILING AND SIGN SUPPORT STANDARDS. REMOVE AND RE-INSTALL THE LIGHT POLES, SIGN POLE, AND IMPACT ATTENUATOR.
2. REMOVE A PORTION OF EXISTING BEAM N.
3. REMOVE THE EXISTING SCUPPERS.
4. PROVIDE ADDITIONAL BEAMS, CROSS FRAMES AND LAMINATED ELASTOMERIC BEARINGS.
5. REPLACE THE ROCKER BEARINGS AT THE REAR ABUTMENT RAMP B AND AT PIER 13 WITH LAMINATED ELASTOMERIC BEARINGS.
6. WIDEN THE REAR ABUTMENT RAMP B AND MODIFY THE EXISTING BACKWALLS FOR THE SEALING OF THE EXPANSION JOINT.
7. MODIFY THE EXISTING WINGWALL AND PROVIDE A NEW WINGWALL.
8. PATCH THE SUBSTRUCTURE WHERE REQUIRED.
9. REPLACE THE EXISTING END DAM AND SEAL THE EXPANSION JOINT.
10. MODIFY PIERS 3 AND 13.
11. CONSTRUCT THE RETAINING WALL.

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1996 AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING

HS20-44, CASE II AND THE ALTERNATE MILITARY LOADING.

DESIGN STRESSES

CONCRETE CLASS S	- COMPRESSIVE STRENGTH 4,500 P.S.I. FOR SUPER-STRUCTURE
CONCRETE CLASS C	- COMPRESSIVE STRENGTH 4,000 P.S.I. FOR SUB-STRUCTURE
EXISTING STRUCTURAL STEEL	- ASTM A36 - YIELD STRESS 36,000 P.S.I.
NEW STRUCTURAL STEEL	- ASTM A36 - YIELD STRESS 36,000 P.S.I.
REINFORCING STEEL	- ASTM A615, A616, OR A617 - GRADE 60 MINIMUM YIELD STRENGTH 60,000 P.S.I. SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A82 OR A615.
DECK PROTECTIVE METHOD	- EPOXY COATED REINFORCING STEEL, 2 1/2" CONCRETE COVER AND SEALING OF CONCRETE SURFACES.
MONOLITHIC WEARING SURFACE	- FOR DESIGN PURPOSES, MONOLITHIC WEARING SURFACE IS ASSUMED TO BE 1" THICK.

UTILITY LINES

ALL EXPENSE INVOLVED IN THE RELOCATION OF THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE UTILITIES. THE CONTRACTOR AND THE UTILITIES ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM. FOR A LIST OF VARIOUS UTILITY OWNERS IN THE AREA OF THE PROJECT, SEE THE ROADWAY GENERAL NOTES.

STANDARD DRAWINGS

REFERENCE SHALL BE MADE TO THE FOLLOWING STANDARD DRAWINGS:

A-1-69	DATED	06-12-69
AS-1-81	REVISED	09-15-94
BR-1	REVISED	12-15-94
BR-2-82	DATED	11-01-82
EXJ-4-87	REVISED	02-14-97
GSD-1-96	DATED	02-12-97
PCB-91	DATED	04-24-92
HL-20.14	DATED	05-01-87
GR-3.2	DATED	05-06-91

SUPPLEMENTAL SPECIFICATIONS

REFERENCE SHALL BE MADE TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

815	DATED	05-30-96
816	DATED	04-21-97
910	DATED	04-21-97

DIMENSIONS

DIMENSIONS ARE MEASURED HORIZONTALLY AND AT 60°F UNLESS NOTED OTHERWISE.

PLANS OF THE EXISTING BRIDGE

CONSTRUCTION PLANS FOR THE EXISTING BRIDGE ARE ON FILE AT THE CITY OF SANDUSKY, 222 MEIGS STREET, SANDUSKY, OHIO AND ARE AVAILABLE FOR REFERENCE.

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURES HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURES AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK, BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02, AND 513.02.

CONTRACT BID PRICES SHALL BE BASED UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE BY THE CONTRACTOR. HOWEVER, ALL PROJECT WORK SHALL BE BASED UPON ACTUAL DETAILS, DIMENSIONS, ELEVATIONS, AND SKEW ANGLES WHICH HAVE BEEN VERIFIED BY THE CONTRACTOR IN THE FIELD. THE STRUCTURAL STEEL AND STRUCTURAL STEEL DECK JOINTS SHALL NOT BE FABRICATED UNTIL THE ACTUAL DETAILS, DIMENSIONS, ELEVATIONS, AND SKEW ANGLES HAVE BEEN FIELD VERIFIED BY THE CONTRACTOR.

ANY ADDITIONAL COST RESULTING FROM VARIATIONS FROM PLAN DIMENSIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND NO ADDITIONAL PAYMENT OVER THE UNIT PRICE BID WILL BE AWARDED BY THE ENGINEER.

ITEM 202-PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

DESCRIPTION:

THIS WORK SHALL CONSIST OF THE REMOVAL OF A PORTION OF THE CONCRETE DECK INCLUDING PARAPETS, RAILING, DECK JOINTS, AND OTHER APPURTENANCES FROM STEEL SUPPORTING SYSTEMS (BEAMS, CROSS FRAMES, ETC.). IT ALSO INCLUDES THE PARTIAL REMOVAL OF BEAMS, BEARINGS, CROSSFRAMES, AN ABUTMENT AND WINGWALLS AND A PIER CAP. CARE SHALL BE TAKEN DURING DECK REMOVALS TO PROTECT PORTIONS OF SUCH SYSTEMS THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE. IN THIS RESPECT, THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED.

PROTECTION OF TRAFFIC:

PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING SUPERSTRUCTURE OR SUBSTRUCTURE, THE CONTRACTOR SHALL SUBMIT PLANS FOR THE PROTECTION OF TRAFFIC (VEHICULAR, PEDESTRIAN, ETC.) ADJACENT TO AND/OR UNDER THE STRUCTURE TO THE ENGINEER FOR APPROVAL. THESE PLANS SHALL INCLUDE PROVISIONS FOR ANY DEVICES AND STRUCTURES THAT MAY BE NECESSARY TO ENSURE SUCH PROTECTION. TEMPORARY VERTICAL CLEARANCES SPECIFIED ON THE PLANS OR IN THE PROPOSAL SHALL BE MAINTAINED AT ALL TIMES EXCEPT AS OTHERWISE APPROVED BY THE ENGINEER.

SUBSTRUCTURE CONCRETE REMOVAL:

THIS SHALL BE BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL TOOLS. HYDRAULIC HOE RAM TYPE HAMMERS WILL NOT BE PERMITTED. THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAN 35 POUNDS FOR REMOVAL WITHIN 18-INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18-INCH LIMIT, A HAMMER HEAVIER THAN 35 POUNDS, BUT NOT TO EXCEED 90 POUNDS, MAY BE USED AT THE APPROVAL OF THE ENGINEER. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

CUT LINE CONSTRUCTION JOINT PREPERATION:

SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1" DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. WHERE PRACTICABLE, THE EXISTING REINFORCING STEEL WHERE REQUIRED IN THE PLANS SHALL BE LEFT IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACE AND EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THE JOINT SURFACE AND EXPOSED REINFORCEMENT SHALL BE THOROUGHLY CLEANED OF ALL DIRT, DUST, OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS.

PROTECTION OF STEEL SUPPORT SYSTEMS:

BEFORE DECK SLAB CUTTING IS PERMITTED, THE OUTLINE OF PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK SHALL BE DRAWN ON THE SURFACE OF DECK. SMALL DIAMETER PILOT HOLES SHALL BE DRILLED 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES. DECK CUTS OVER OR WITHIN 2 INCHES OF FLANGE EDGES SHALL NOT EXTEND LOWER THAN THE BOTTOM LAYER OF DECK SLAB REINFORCING STEEL. CUTS MADE OUTSIDE 2 INCHES OF FLANGE EDGES MAY EXTEND THE FULL DEPTH OF THE DECK. DURING CUTTING OF THE DECK SLAB, CARE SHALL BE TAKEN NOT TO DAMAGE STEEL MEMBERS.

REMOVAL METHODS:

CONCRETE MAY BE REMOVED BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNTED CHISEL TYPE TOOLS. FOR REMOVALS ABOVE STEEL MEMBERS, A HAMMER HEAVIER THAN 35 POUNDS BUT NOT TO EXCEED 90 POUNDS MAY BE USED AS APPROVED BY THE ENGINEER TO ENSURE ADEQUATE DEPTH CONTROL AND TO PREVENT NICKING OR GOUGING PRIMARY STEEL MEMBERS.

DECK REMOVALS:

DUE TO THE POSSIBLE PRESENCE OF WELDED ATTACHMENTS TO EXISTING STRUCTURAL STEEL (FINISHING MACHINE, SCUPPER AND FORM SUPPORTS, ETC.), CARE SHALL BE TAKEN DURING DECK REMOVAL TO AVOID DAMAGING BEAMS AND CROSSFRAMES WHICH ARE TO REMAIN. BEAMS AND CROSSFRAMES DAMAGED BY THE CONTRACTOR'S REMOVAL OPERATIONS SHALL, AT NO COST TO THE PROJECT, BE REPLACED OR REPAIRED. PROPOSED REPAIRS, DEVELOPED BY A REGISTERED PROFESSIONAL ENGINEER, SHALL BE SUBMITTED IN WRITING FOR REVIEW AND APPROVAL BY THE ENGINEER.

EXTRANEOUS MEMBERS:

EXISTING EXTRANEIOUS MEMBERS (i.e. FINISHING MACHINE AND FORM SUPPORTS, ETC.) ATTACHED BY WELDED CONNECTIONS TO PORTIONS OF THE TOP FLANGES DESIGNATED "TENSION" SHALL BE REMOVED AND THE FLANGE SURFACES GROUND SMOOTH. GRINDING SHALL BE CAREFULLY DONE AND PARALLEL TO THE FLANGES.

LOADING LIMITATIONS:

NO PART OF THE STRUCTURE SHALL BE SUBJECTED TO UNIT STRESSES THAT EXCEED 136.5% OF THE ALLOWABLE UNIT STRESSES GIVEN IN THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DUE EITHER TO DEMOLITION, ERECTION OR CONSTRUCTION METHODS, OR TO THE USE OR MOVEMENT OF DEMOLITION OR ERECTION EQUIPMENT ON OR ACROSS THE STRUCTURE. STRUCTURAL ANALYSIS COMPUTATIONS, BY A REGISTERED PROFESSIONAL ENGINEER, SHOWING THE ALLOWABLE STRESSES AND THE MAXIMUM STRESSES PRODUCED BY THE CONTRACTOR'S METHODS OR EQUIPMENT SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL AT LEAST TWO WEEKS PRIOR TO THE START OF THE WORK.

PAYMENT:

THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE BID, WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK IN CONFORMANCE WITH THESE REQUIREMENTS, WITH PERTINENT PROVISIONS OF ITEM 202, AND TO THE SATISFACTION OF THE ENGINEER.

ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN

UNCLASSIFIED EXCAVATION SHALL BE IN ACCORDANCE WITH ITEM 503 EXCEPT THAT THE BACKFILL MATERIAL BEHIND THE ABUTMENTS SHALL BE 203 GRANULAR MATERIAL PLACED IN 6 INCH LIFTS AND COMPACTED IN ACCORDANCE WITH 304.04.

EMBANKMENT CONSTRUCTION

THE EMBANKMENT SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BACK OF THE ABUTMENTS. EXCAVATION MAY THEN BE MADE FOR THE ABUTMENTS AND PILES DRIVEN.

PILES

THE PILES SHALL BE DRIVEN TO REFUSAL ON BEDROCK. REFUSAL SHALL BE CONSIDERED AS OBTAINED BY PENETRATING SOFT BEDROCK FOR SEVERAL INCHES WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH OR REFUSAL SHALL BE CONSIDERED AS OBTAINED AFTER THE PILE HAS CONTACTED HARD BEDROCK AND THE PILE HAS THEN RECEIVED AT LEAST 20 BLOWS.

THE DESIGN LOAD IS 55 TONS PER PILE FOR THE ABUTMENT PILES.

PILE DRIVING

IF EQUIPMENT FOR PILE DRIVING OPERATIONS OCCUPIES ANY PORTION OF THE EXISTING STRUCTURE, STRESS CALCULATIONS BY A REGISTERED ENGINEER SHALL BE SUBMITTED TO THE ENGINEER IN ACCORDANCE WITH SECTION 501.09 OF THE SPECIFICATIONS.

DESIGN AGENCY	DATE	REVIEWED	DRAWN	DESIGNED	STRUCTURAL GENERAL NOTES	CITY OF SANDUSKY
HNTEB	09-26-97	GT	JMG	RER	BRIDGE NO. ERI-250-0038	
ARCHITECTS ENGINEERS PLANNERS	STRUCTURE FILE NUMBER	2203189	REVISED	CHECKED	OVER CONRAIL RAILROAD	
				ADY		
						4/32
						56 84

GENERAL NOTES - STRUCTURES OVER 10 FOOT SPAN

MECHANICAL CONNECTORS

AN APPROVED TYPE OF MECHANICAL CONNECTOR FOR REINFORCING BARS SHALL BE PROVIDED. INSTALLATION OF CONNECTORS SHALL CONFORM WITH MANUFACTURER'S RECOMMENDED PROCEDURES.

CONNECTORS AND DOWEL BARS USED WITH EPOXY COATED BARS SHALL BE EPOXY COATED. COATING FOR BOTH CONNECTORS AND BARS SHALL CONFORM TO THE SAME SPECIFICATIONS. COATINGS WHICH HAVE BEEN DAMAGED OR WHICH OTHERWISE DO NOT MEET SPECIFICATIONS WITH RESPECT TO COLOR, CONTINUITY, AND UNIFORMITY MAY BE REPAIRED AS DIRECTED BY THE ENGINEER OR THEY SHALL BE REPLACED WITH MATERIAL WHICH MEETS THE SPECIFICATIONS.

CONNECTORS AND DOWEL BARS SHALL CONFORM WITH ITEM 509 AND BE INCLUDED IN THE BID PRICE FOR ITEM 511, CONCRETE.

TREATING OF CONCRETE BRIDGE DECKS WITH HMWM RESIN

AFTER DECK SLAB CONCRETE HAS BEEN DRY AIR CURED FOR NOT LESS THAN 7 DAYS, AND IMMEDIATELY AFTER A MINIMUM 48 HOUR PERIOD WITHOUT PRECIPITATION, THE ENTIRE DECK JOINT BETWEEN THE EXISTING AND NEW CONCRETE SHALL BE SEALED WITH A HIGH MOLECULAR WEIGHT METHACRYLATE (HMWM) RESIN AS DESCRIBED IN THE HMWM PROPOSAL NOTE. SEALANT SHALL BE APPLIED BY BRUSH, SPRAY, OR OTHER SUITABLE APPLICATOR ALONG THE SURFACE OF THE JOINT FOR A WIDTH OF 1'-6" ON EACH SIDE OF THE JOINT. IF NECESSARY, MULTIPLE APPLICATIONS SHALL BE MADE UNTIL COMPLETE PENETRATION HAS BEEN ACHIEVED. AFTER SEALANT HAS BEEN CURED, IT SHALL BE SANDED AS SPECIFIED TO ROUGHEN THE SEALANT SURFACE AND RESTORE ITS SUITABILITY FOR VEHICULAR TRAFFIC. FOR OVERCOATING WITH A CONCRETE SURFACE SEALANT OR AS PREPARATION FOR A CONCRETE OVERLAY, TREATED SURFACES SHALL BE ROUGHENED BY ABRASIVE BLASTING AND OTHERWISE CLEANED AS SPECIFIED FOR THE SUBSEQUENT APPLICATION.

ITEM 815-SURFACE PREPARATION AND FIELD PAINTING OF EXISTING STEEL SYSTEM OZEU

THIS WORK SHALL CONSIST OF THE SURFACE PREPARATION AND FIELD PAINTING OF THE EXISTING STRUCTURE STEEL IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATIONS 815 DATED 05-30-96 AND 910 DATED 04-21-97.

FOR BIDDING PURPOSES THE SQUARE FOOT QUANTITY OF SURFACE PREPARATION AND FIELD PAINTING WAS BASED ON THE FOLLOWING:

1. BEAM N CUT LINE: TWO (2) FOOT LENGTH FOR COMPLETE PERIMETER OF BEAM; EXCEPT TOP OF FLANGE.
2. NEW CROSSFRAME WELDED TO AN EXISTING BEAM: ONE (1) FOOT EACH SIDE OF CROSSFRAME FOR FULL DEPTH OF BEAM ON BOTH SIDES OF BEAM.
3. NEW END CROSSFRAME WELDED TO AN EXISTING BEAM: ONE (1) FOOT LENGTH EACH SIDE OF CROSSFRAME FOR FULL DEPTH OF BEAM ON BOTH SIDES OF BEAM.
4. EXISTING BEARING REMOVED FROM AN EXISTING BEAM: ONE (1) FOOT LENGTH EACH SIDE OF BEARING FOR WIDTH OF BOTTOM FLANGE OF BEAM.
5. BEAM N AND BEAM L CONNECTION REMOVAL: ONE (1) FOOT EACH SIDE OF CONNECTION FOR FULL DEPTH OF BEAM.
6. NEW SHEAR STUDS WELDED TO AN EXISTING BEAM: ENTIRE BOTTOM FACE OF TOP FLANGE (CONTINGENCY QUANTITY OF 485 SQ. FT. TO BE USED AS DIRECTED BY ENGINEER).

IN ADDITION, ANY DAMAGE DONE TO THE EXISTING OZEU PAINT SYSTEM, EITHER BY THE CONTRACTOR'S OPERATIONS OR AS A RESULT OF THE WORK REQUIRED BY THIS CONTRACT, SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE.

THE PAYMENT SHALL BE MADE FOR THE ACTUAL AREA (SQUARE FEET) OF SURFACE PREPARED AND PAINTED. THE ENGINEER AND CONTRACTOR SHALL MARK AND MEASURE THE AREA TO BE PREPARED AND PAINTED PRIOR TO THE SURFACE PREPARATION OPERATION.

ITEM 513-STRUCTURAL STEEL MISC.: HINGE ASSEMBLIES, AS PER PLAN

DESCRIPTION:
THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, AND PAINTING THE HINGE ASSEMBLIES AS DETAILED IN THE PLANS. ALL PROVISIONS OF ITEM 513, STRUCTURAL STEEL (AISC CATEGORY 1), SHALL APPLY EXCEPT AS MODIFIED HEREIN.

MATERIALS:
PINS SHALL MEET THE REQUIREMENTS OF ASTM A668 CLASS F. PIN NUTS SHALL MEET THE REQUIREMENTS OF ASTM A27. HINGE ASSEMBLY CONNECTION PLATES SHALL BE A36 STEEL. ALL MATERIAL SHALL BE CVN, HAVING A CHARPY V NOTCH IMPACT VALUE OF 25 FT-LB @ 20 DEGREES F.

REQUIREMENTS:
THE FINISHED PINS SHALL BE 100 PERCENT ULTRASONICALLY TESTED IN ACCORDANCE WITH ASTM A388 AND 100 PERCENT MAGNETIC PARTICLE TESTED IN ACCORDANCE WITH ASTM A275. NONDESTRUCTIVE ACCEPTANCE CRITERIA SHALL BE BASED ON SECTIONS 9.25.2 AND 9.25.3 OF THE AMERICAN WELDING SOCIETY'S BRIDGE WELDING CODE, AWS D1.5, AND ANY CRACKS FOUND SHALL BE CAUSE FOR AUTOMATIC REJECTION OF THE PINS. ANY ITEMS FAILING THE NONDESTRUCTIVE TESTING SHALL BE REPLACED. THE CONTRACTOR SHALL HAVE ALL NONDESTRUCTIVE TESTING PERFORMED BY PERSONNEL QUALIFIED AT LEVEL II OR III IN ACCORDANCE WITH THE AMERICAN SOCIETY OF NONDESTRUCTIVE TESTING'S (ASNT) RECOMMENDED PRACTICE NO. SNT-TC-1A.

THE PINS AND HANGERS SHALL BE LUBRICATED USING CHEVRON ULTRA DUTY TWO GREASE, OR APPROVED EQUAL.

PAYMENT:
THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE BID, WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK IN CONFORMANCE WITH THESE REQUIREMENTS, PLAN DETAILS AND TO THE SATISFACTION OF THE ENGINEER.

STRUCTURES OVER 10 FOOT SPAN

DESCRIPTION:
THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, AND PAINTING THE HINGE ASSEMBLIES AS DETAILED IN THE PLANS. ALL PROVISIONS OF ITEM 513, STRUCTURAL STEEL (AISC CATEGORY 1), SHALL APPLY EXCEPT AS MODIFIED HEREIN.

MATERIALS:
PINS SHALL MEET THE REQUIREMENTS OF ASTM A668 CLASS F. PIN NUTS SHALL MEET THE REQUIREMENTS OF ASTM A27. HINGE ASSEMBLY CONNECTION PLATES SHALL BE A36 STEEL. ALL MATERIAL SHALL BE CVN, HAVING A CHARPY V NOTCH IMPACT VALUE OF 25 FT-LB @ 20 DEGREES F.

REQUIREMENTS:
THE FINISHED PINS SHALL BE 100 PERCENT ULTRASONICALLY TESTED IN ACCORDANCE WITH ASTM A388 AND 100 PERCENT MAGNETIC PARTICLE TESTED IN ACCORDANCE WITH ASTM A275. NONDESTRUCTIVE ACCEPTANCE CRITERIA SHALL BE BASED ON SECTIONS 9.25.2 AND 9.25.3 OF THE AMERICAN WELDING SOCIETY'S BRIDGE WELDING CODE, AWS D1.5, AND ANY CRACKS FOUND SHALL BE CAUSE FOR AUTOMATIC REJECTION OF THE PINS. ANY ITEMS FAILING THE NONDESTRUCTIVE TESTING SHALL BE REPLACED. THE CONTRACTOR SHALL HAVE ALL NONDESTRUCTIVE TESTING PERFORMED BY PERSONNEL QUALIFIED AT LEVEL II OR III IN ACCORDANCE WITH THE AMERICAN SOCIETY OF NONDESTRUCTIVE TESTING'S (ASNT) RECOMMENDED PRACTICE NO. SNT-TC-1A.

THE PINS AND HANGERS SHALL BE LUBRICATED USING CHEVRON ULTRA DUTY TWO GREASE, OR APPROVED EQUAL.

PAYMENT:
THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE BID, WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK IN CONFORMANCE WITH THESE REQUIREMENTS, PLAN DETAILS AND TO THE SATISFACTION OF THE ENGINEER.

DESIGN AGENCY
HNTEB
ARCHITECTS ENGINEERS PLANNERS

DATE
GT 09-26-97
STRUCTURE FILE NUMBER
2203189

DRAWN
JMG
DESIGNED
RER
CHECKED
ADY

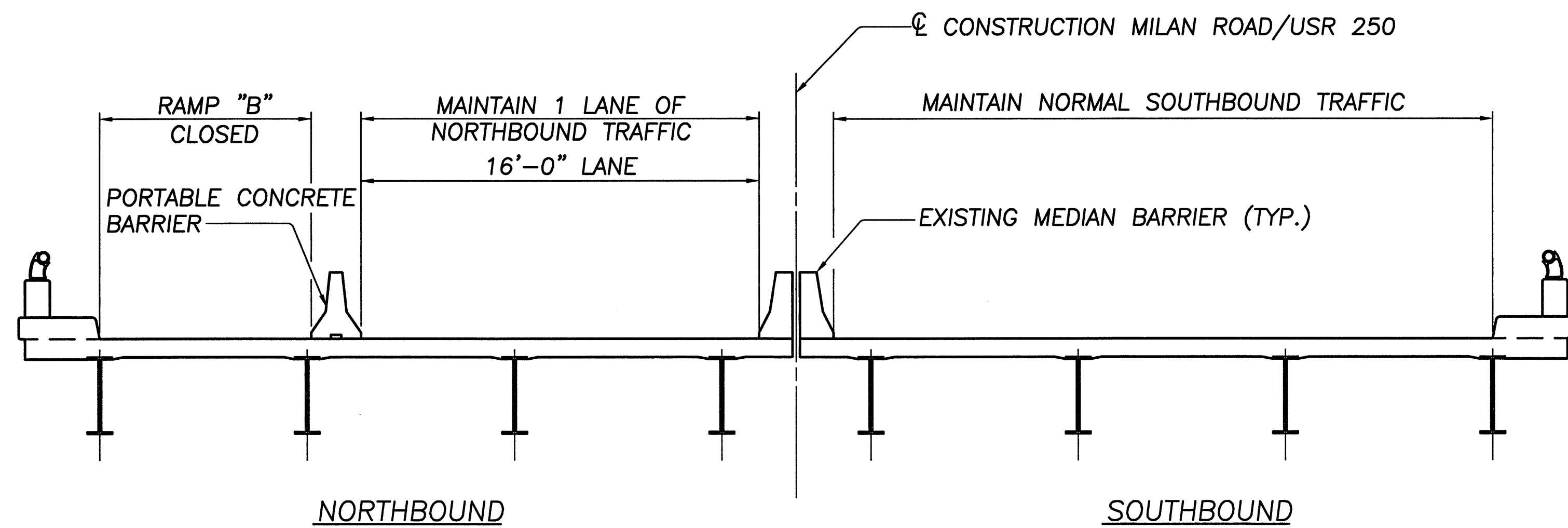
STRUCTURAL GENERAL NOTES
BRIDGE NO. ERI-250-0058
OVER CONRAIL RAILROAD

CITY OF SANDUSKY

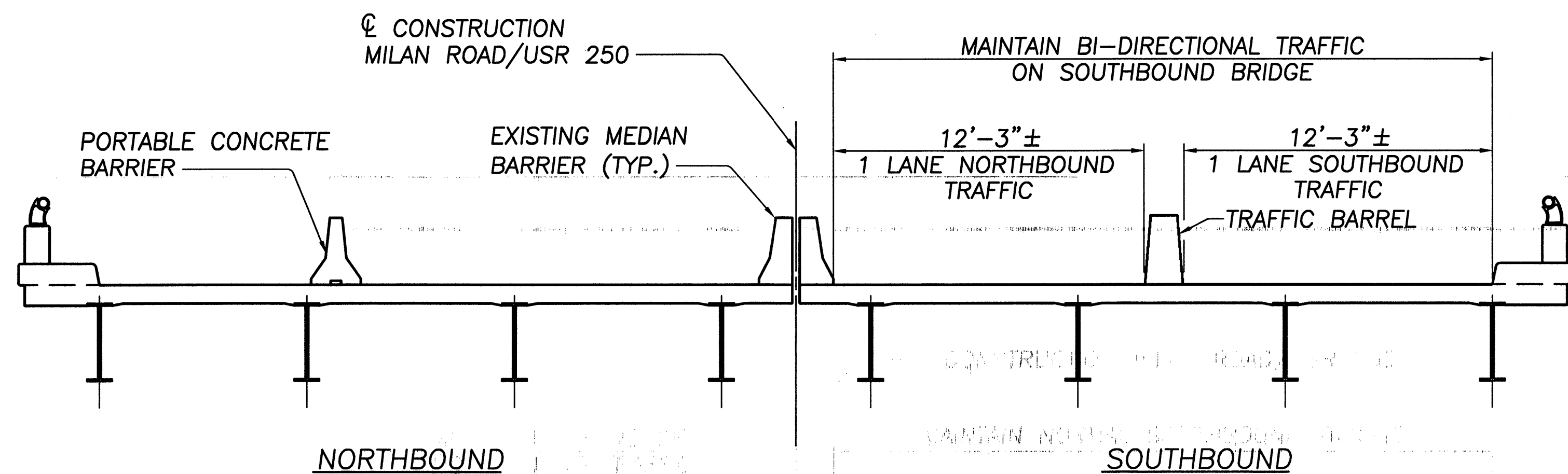
5A/32

57A
84

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TYPICAL CONSTRUCTION PHASE



TEMPORARY CROSSOVER PHASE

SUGGESTED CONSTRUCTION SEQUENCE

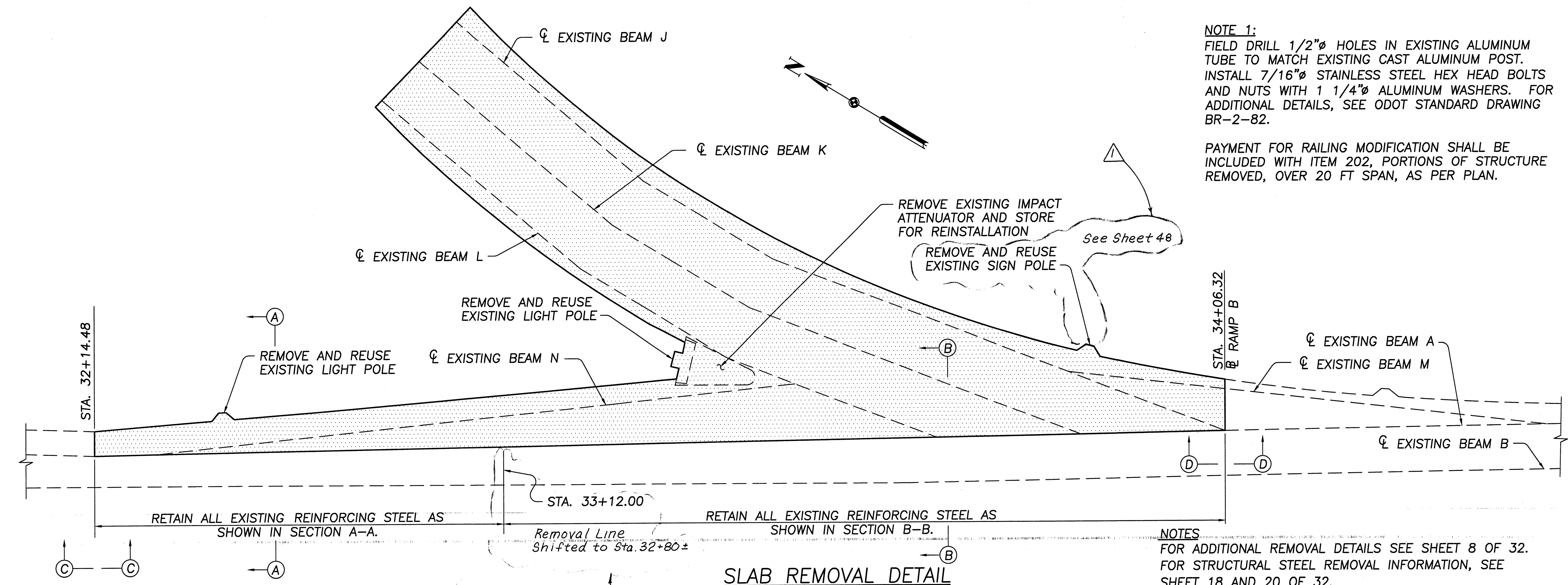
1. DIRECT USR 250 NB TRAFFIC TO MEDIAN LANE OF THE NB BRIDGE (SEE 'TYPICAL CONSTRUCTION PHASE' DETAIL). CLOSE RAMP 'B' TO TRAFFIC.
2. INSTALL PORTABLE CONCRETE BARRIER.
3. BEGIN CONSTRUCTING RETAINING WALL, MODIFIED PIER 3, AND MODIFIED PIER 13 SOUTH FOOTING AND COLUMN.
4. CONCURRENTLY WITH STEP 3, REMOVE EXISTING IMPACT ATTENUATOR, LIGHT POLES, SIGN POLE, CONCRETE PARAPETS, AND DECK SLAB TO LIMITS SHOWN ON SHEET 7 OF 32. LIGHT POLES, SIGN POLE, AND IMPACT ATTENUATOR ARE TO BE RE-INSTALLED.
5. TEMPORARILY SUPPORT EXISTING RAMP 'B' STRUCTURAL STEEL ADJACENT TO REAR ABUTMENT RAMP 'B' AND PIER 13.
6. REMOVE EXISTING BEARINGS AT REAR ABUTMENT RAMP 'B' AND PIER 13.
7. REMOVE PIER 13 AND REAR ABUTMENT RAMP 'B' TO THE LIMITS SHOWN ON SHEET 8 OF 32.
8. COMPLETE CONSTRUCTION OF MODIFIED PIER 13, MODIFIED PIER 3, AND RETAINING WALL.
9. BACKFILL RETAINING WALL AND CONSTRUCT REAR ABUTMENT RAMP 'B'.
10. INSTALL NEW BEARINGS AT REAR ABUTMENT RAMP 'B' AND MODIFIED PIER 13.
11. REMOVE TEMPORARY SUPPORTS FROM EXISTING RAMP 'B' STRUCTURAL STEEL AND BACKFILL REAR ABUTMENT RAMP 'B'.
12. INSTALL NEW STRUCTURAL STEEL AND FORM DECK SLAB.
13. DIRECT USR 250 NB TRAFFIC TO THE MEDIAN LANE OF THE SB BRIDGE (SEE 'TEMPORARY CROSSOVER PHASE' DETAIL).
14. PLACE CONCRETE DECK SLAB.
15. 7 DAYS AFTER PLACING CONCRETE DECK SLAB, JACK THE PIER CAP OF EXISTING PIER 3 AND INSTALL ELASTOMERIC BEARING PAD. RELEASE JACKS.
16. DIRECT USR 250 NB TRAFFIC TO THE MEDIAN LANE OF THE NB BRIDGE (SEE 'TYPICAL CONSTRUCTION PHASE' DETAIL).
17. RE-INSTALL LIGHT POLES, SIGN POLE, AND IMPACT ATTENUATOR.
18. REMOVE PORTABLE CONCRETE BARRIERS AND RESUME NORMAL USR 250 NB TRAFFIC.

NOTES

FOR REMOVAL DETAILS SEE SHEETS 7 AND 8 OF 32.
FOR ADDITIONAL MAINTENANCE OF TRAFFIC DETAILS, SEE ROADWAY PLANS.

DESIGN AGENCY HNTE ARCHITECTS ENGINEERS PLANNERS	
DATE 09-26-97	STRUCTURE FILE NUMBER 2203189
REVIEWED GT	DESIGNED ADY
DRAWN NDH	CHECKED RER
CONSTRUCTION SEQUENCE BRIDGE NO. ERI-250-0058 OVER CONRAIL RAILROAD	
CITY OF SANDUSKY	
6/32	
58 84	

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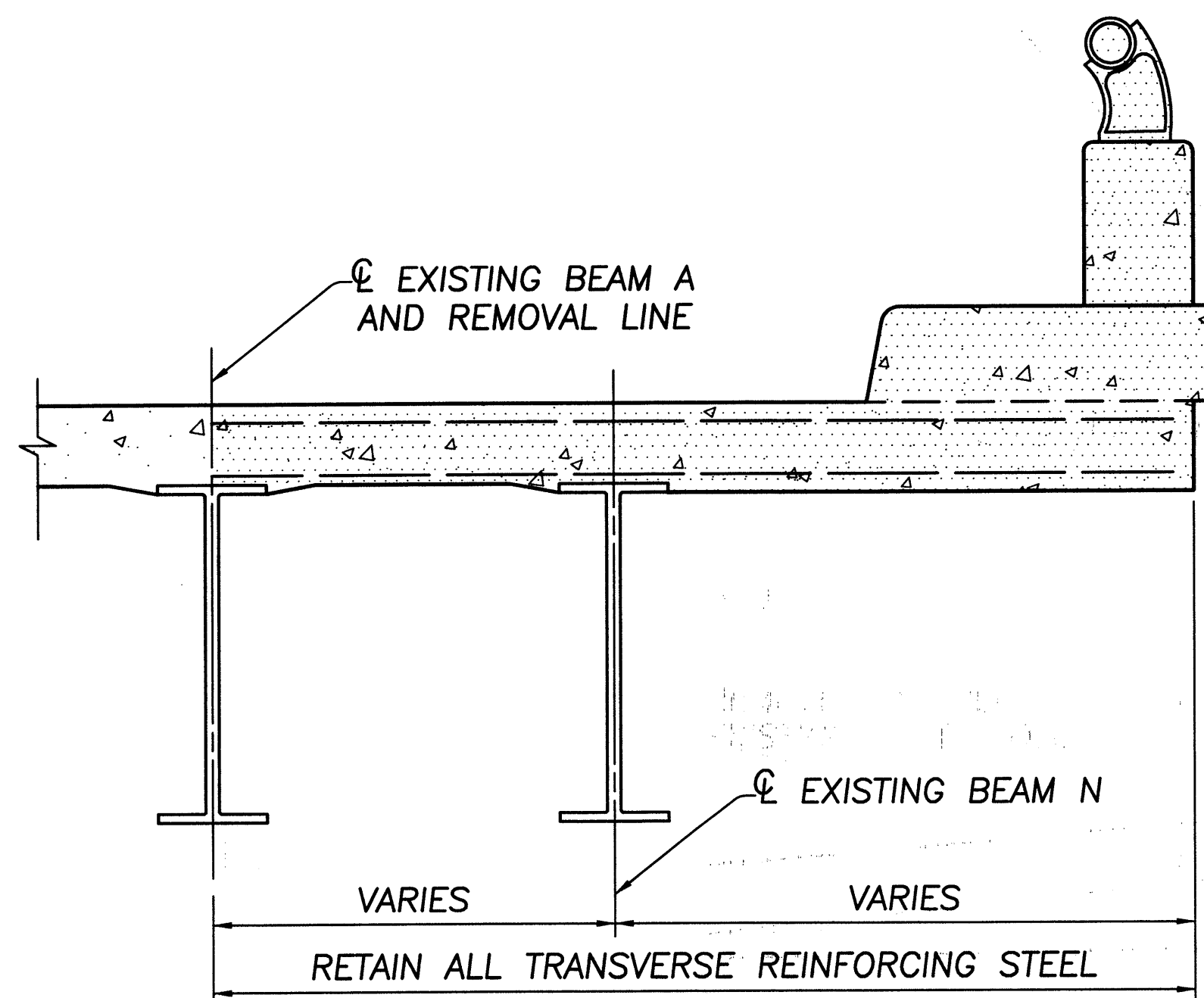


NOTE 1:
FIELD DRILL 1/2"Ø HOLES IN EXISTING ALUMINUM TUBE TO MATCH EXISTING CAST ALUMINUM POST.
INSTALL 7/16"Ø STAINLESS STEEL HEX HEAD BOLTS AND NUTS WITH 1 1/4"Ø ALUMINUM WASHERS. FOR ADDITIONAL DETAILS, SEE ODOT STANDARD DRAWING BR-2-82.

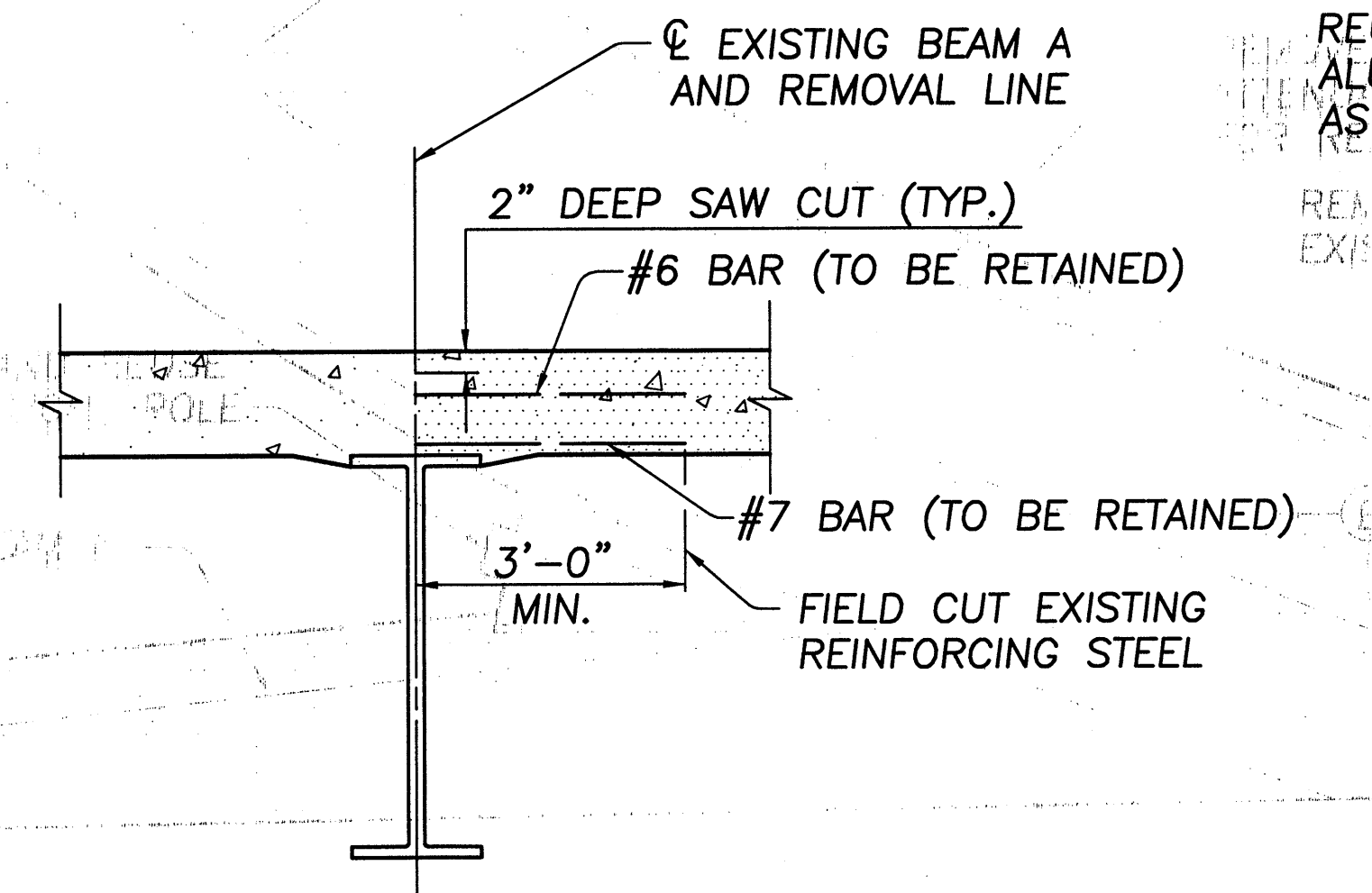
PAYMENT FOR RAILING MODIFICATION SHALL BE INCLUDED WITH ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FT SPAN, AS PER PLAN.

NOTES
FOR ADDITIONAL REMOVAL DETAILS SEE SHEET 8 OF 32.
FOR STRUCTURAL STEEL REMOVAL INFORMATION, SEE SHEET 18 AND 20 OF 32.
FOR BARRIER TRANSITION REMOVAL DETAILS, SEE SHEET 28 OF 32.

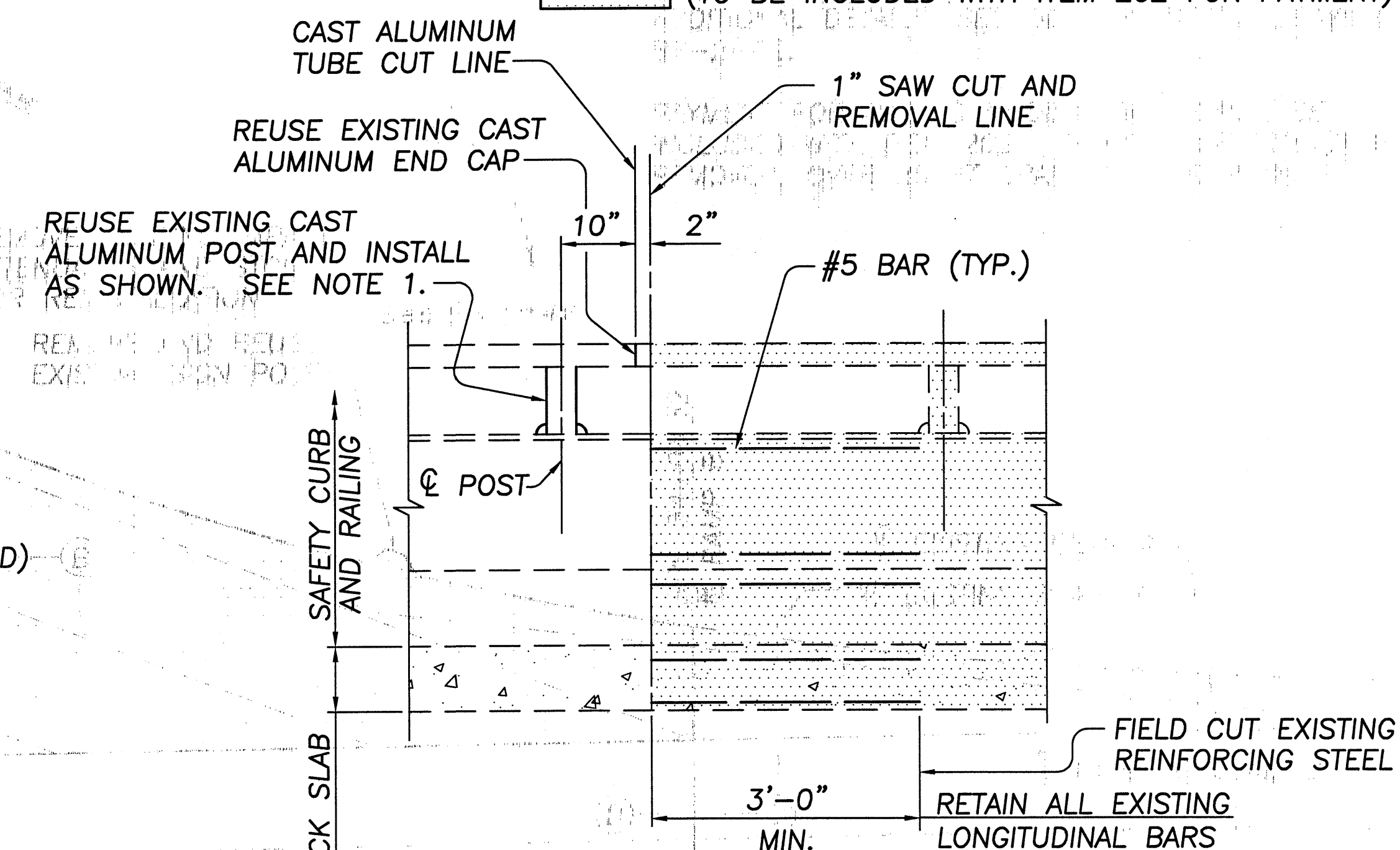
LEGEND
DENOTES PORTION OF STRUCTURE TO BE REMOVED (TO BE INCLUDED WITH ITEM 202 FOR PAYMENT)



SECTION A-A



SECTION B-B

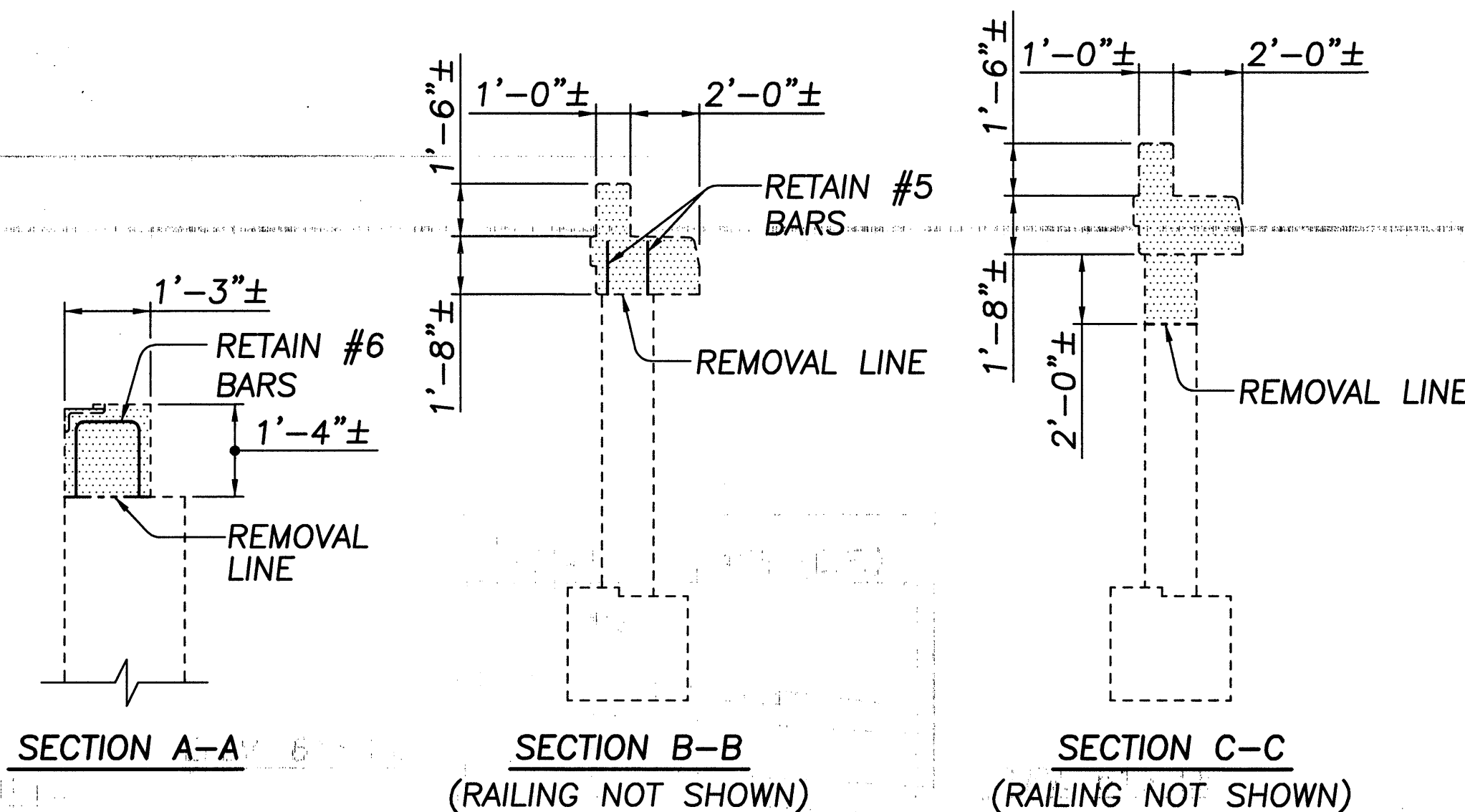
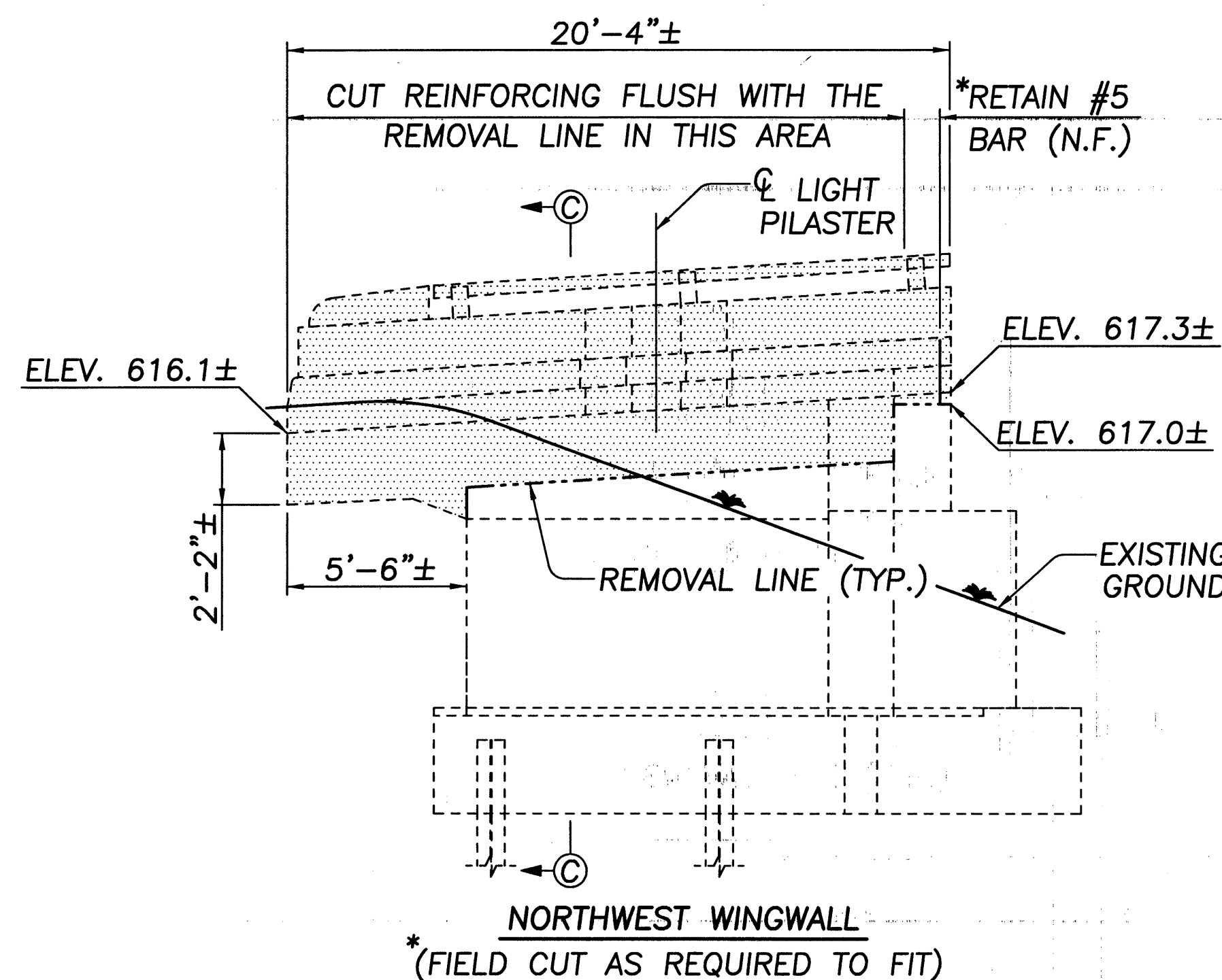
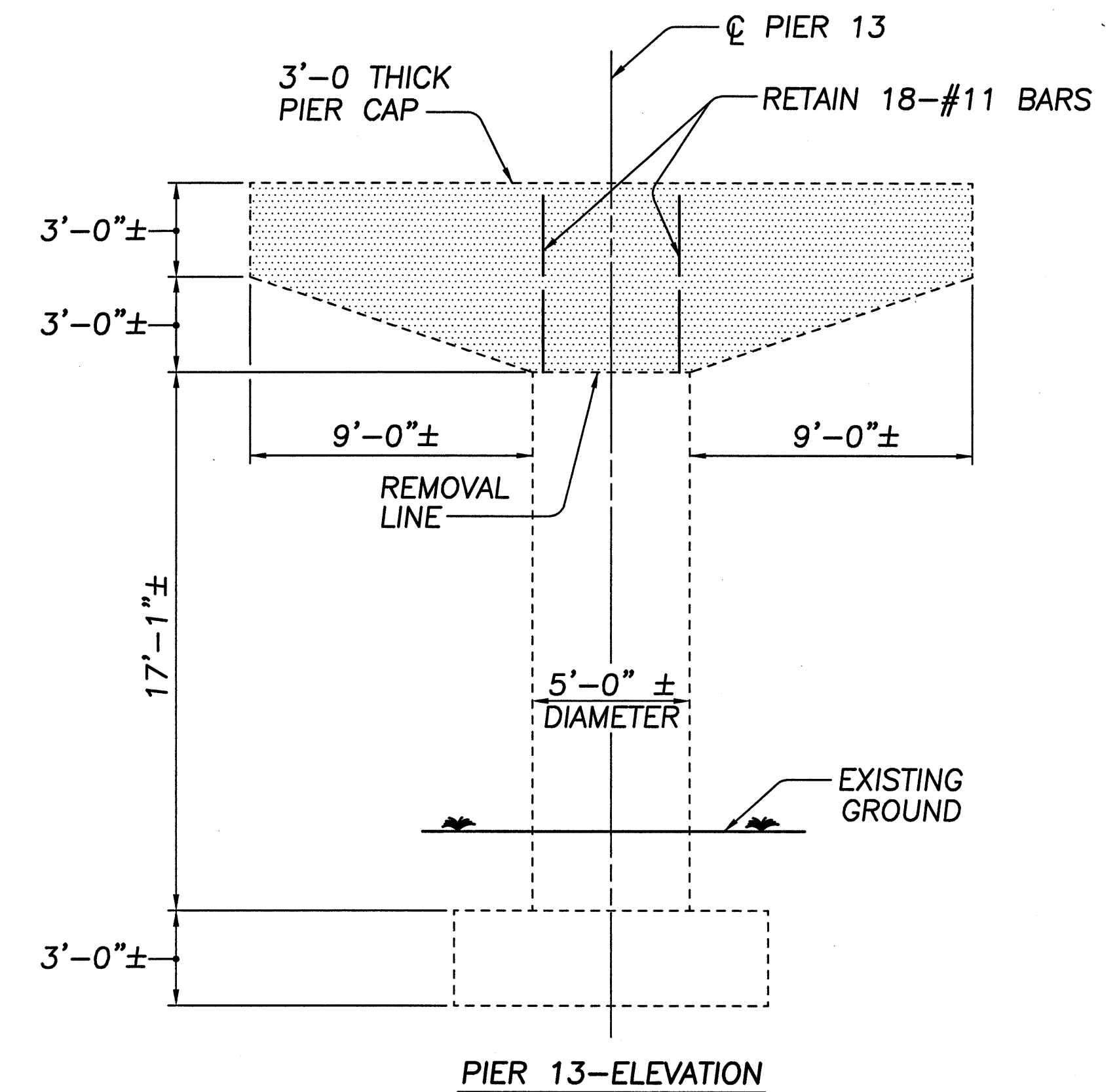
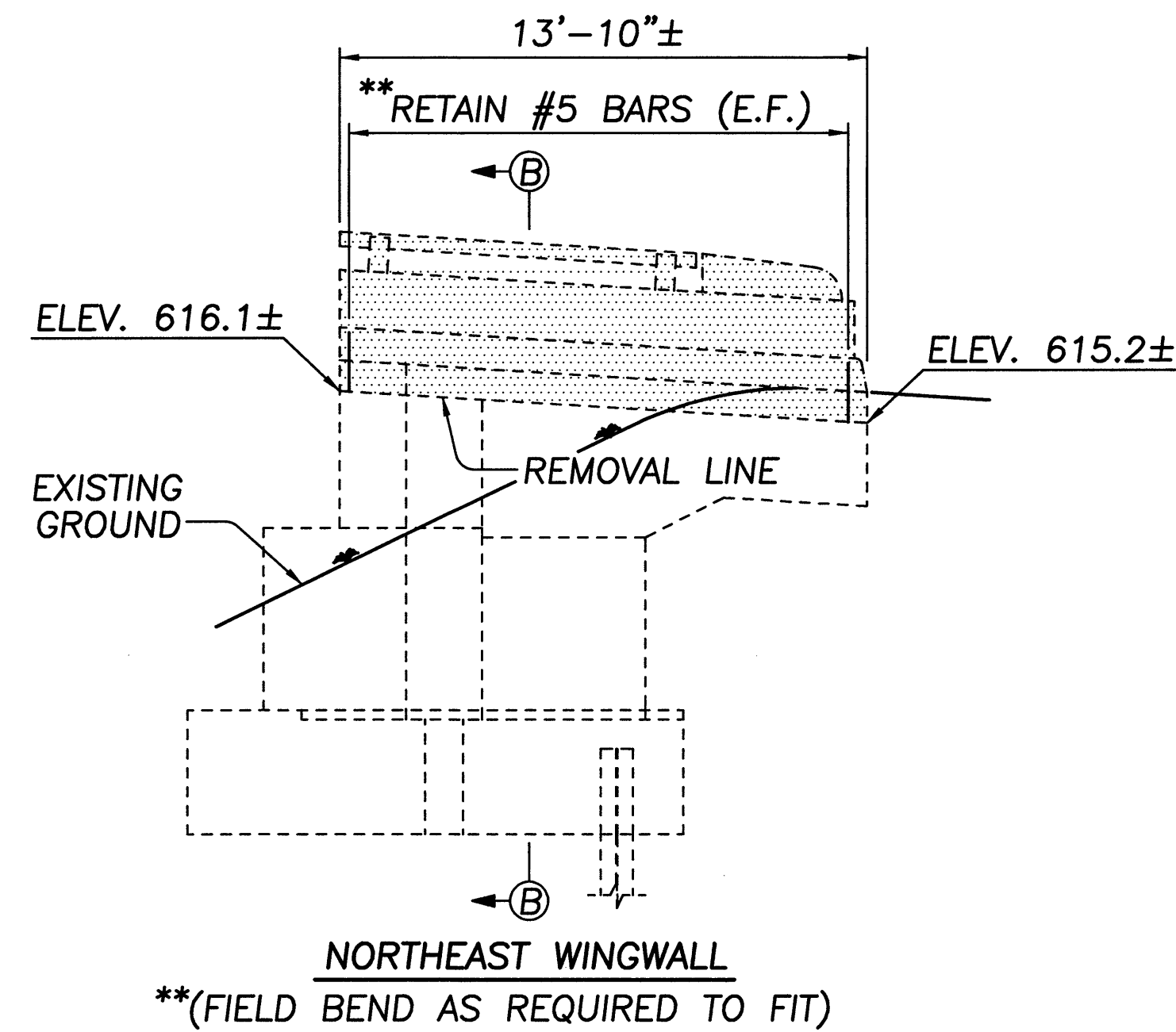
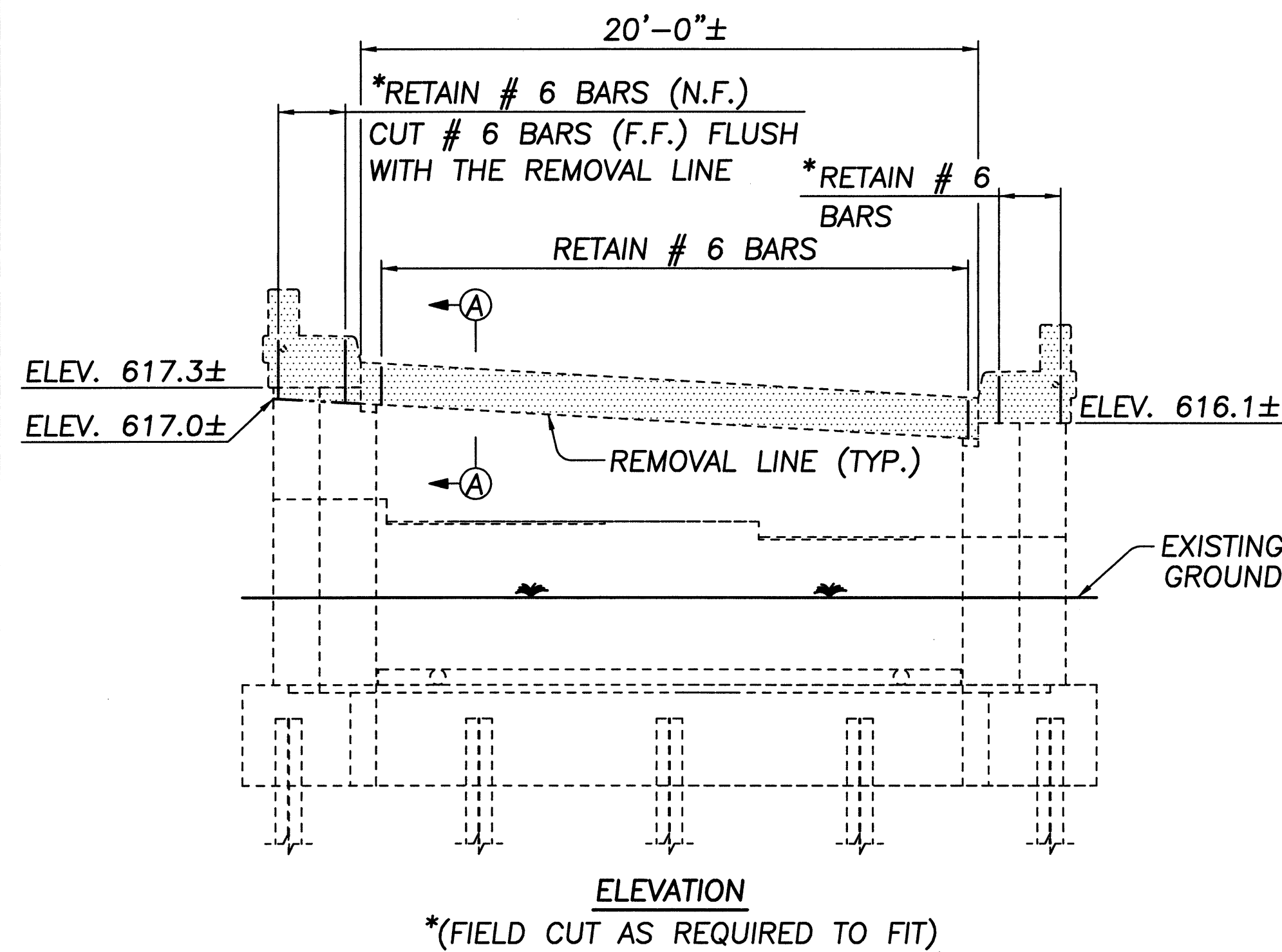


VIEW C-C

(VIEW D-D SIMILAR, OPPOSITE HAND)

Record Drawing 8/13/98

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REAR ABUTMENT-RAMP B REMOVAL DETAILS

NOTES:

■ DENOTES PORTION OF STRUCTURE
TO BE REMOVED (TO BE INCLUDED
WITH ITEM 202 FOR PAYMENT).

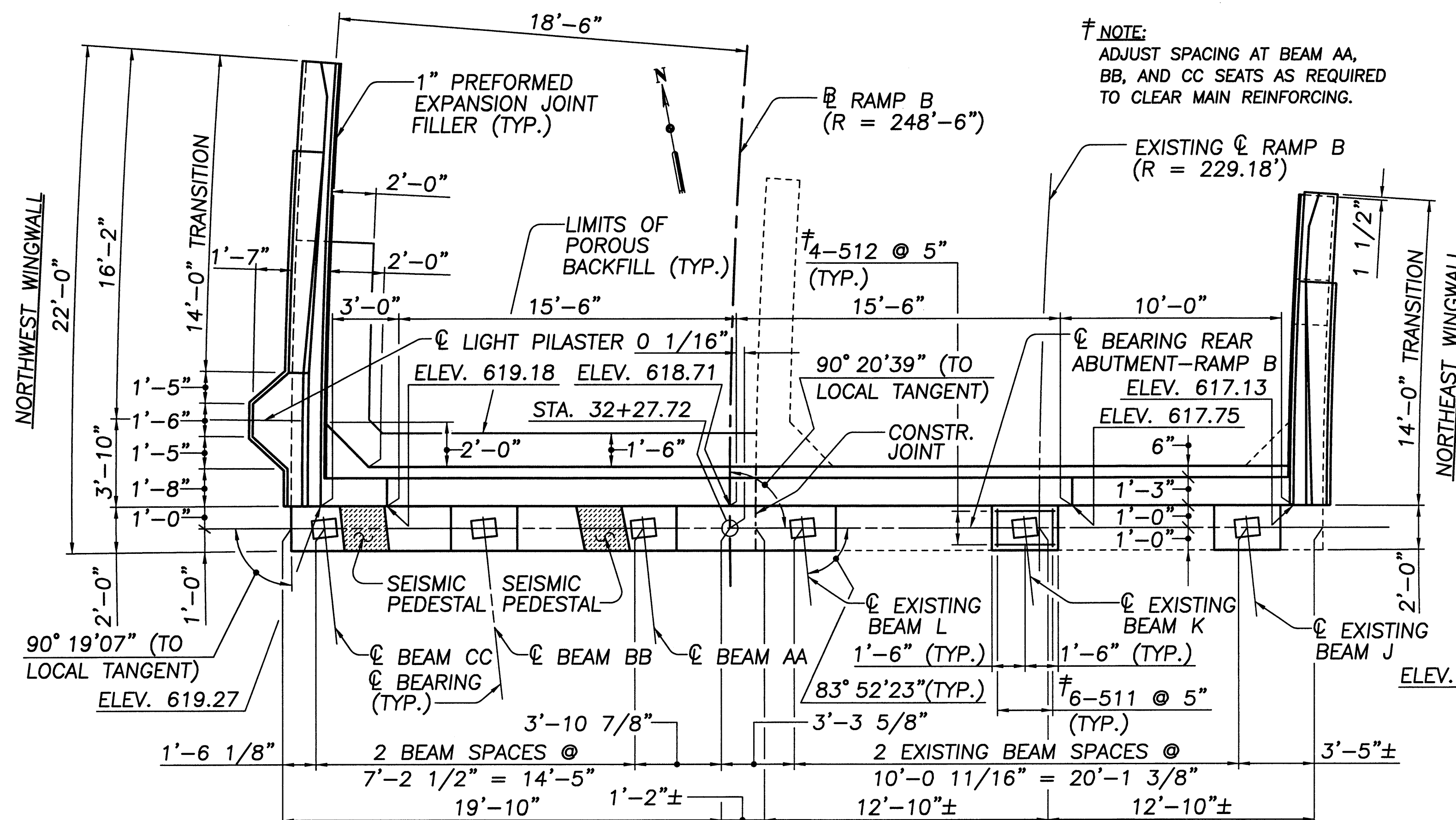
FOR REAR ABUTMENT-RAMP B DETAILS, SEE
SHEET 9 AND 10 OF 32.

FOR PIER 13 DETAILS, SEE SHEET 12 OF 32.

THE FOLLOWING ABBREVIATIONS ARE USED:

N.F. = NEAR FACE E.F. = EACH FACE
F.F. = FAR FACE

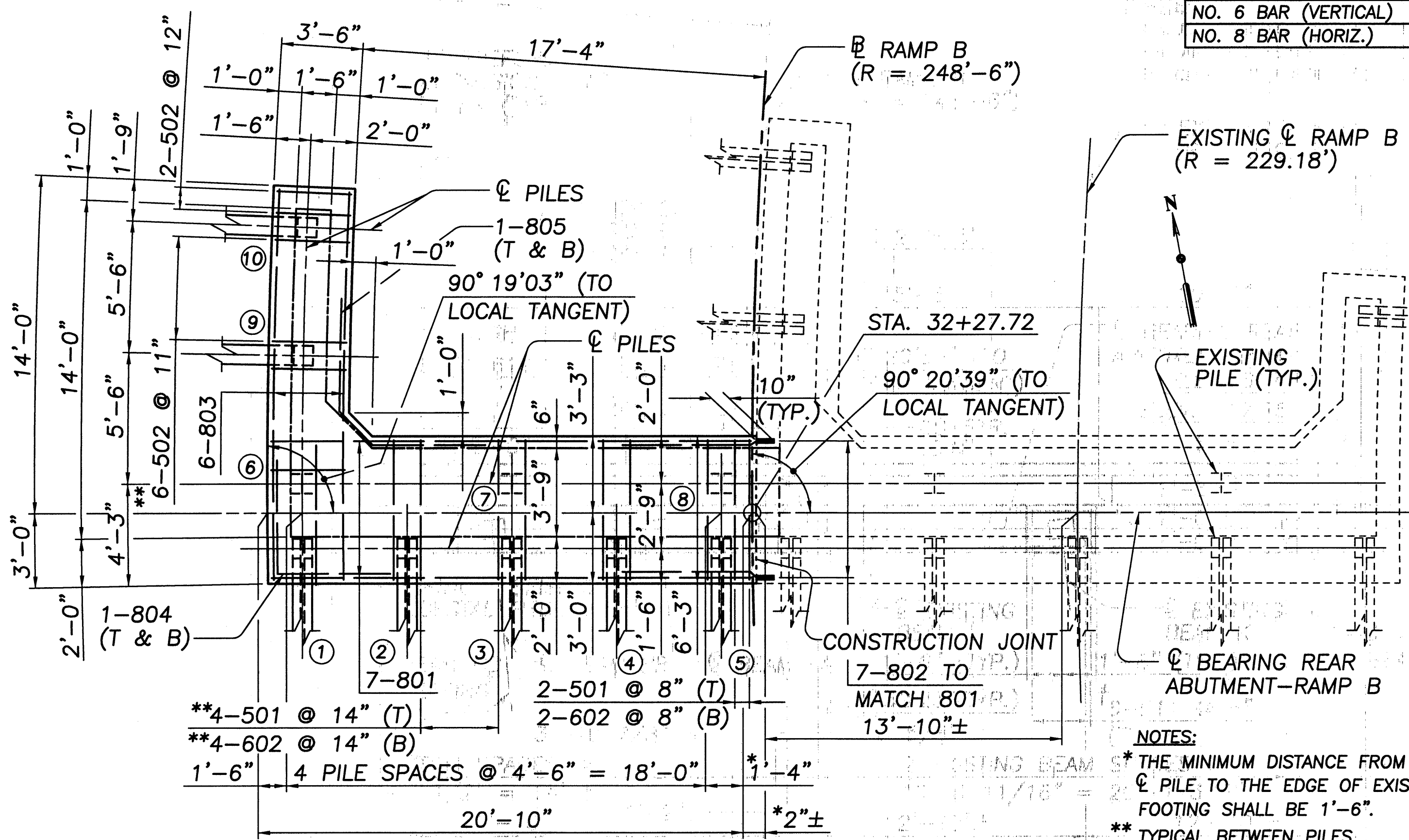
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NOTE:
THE ESTIMATED AVERAGE PILE
LENGTH OF PILES IS 15 FT.

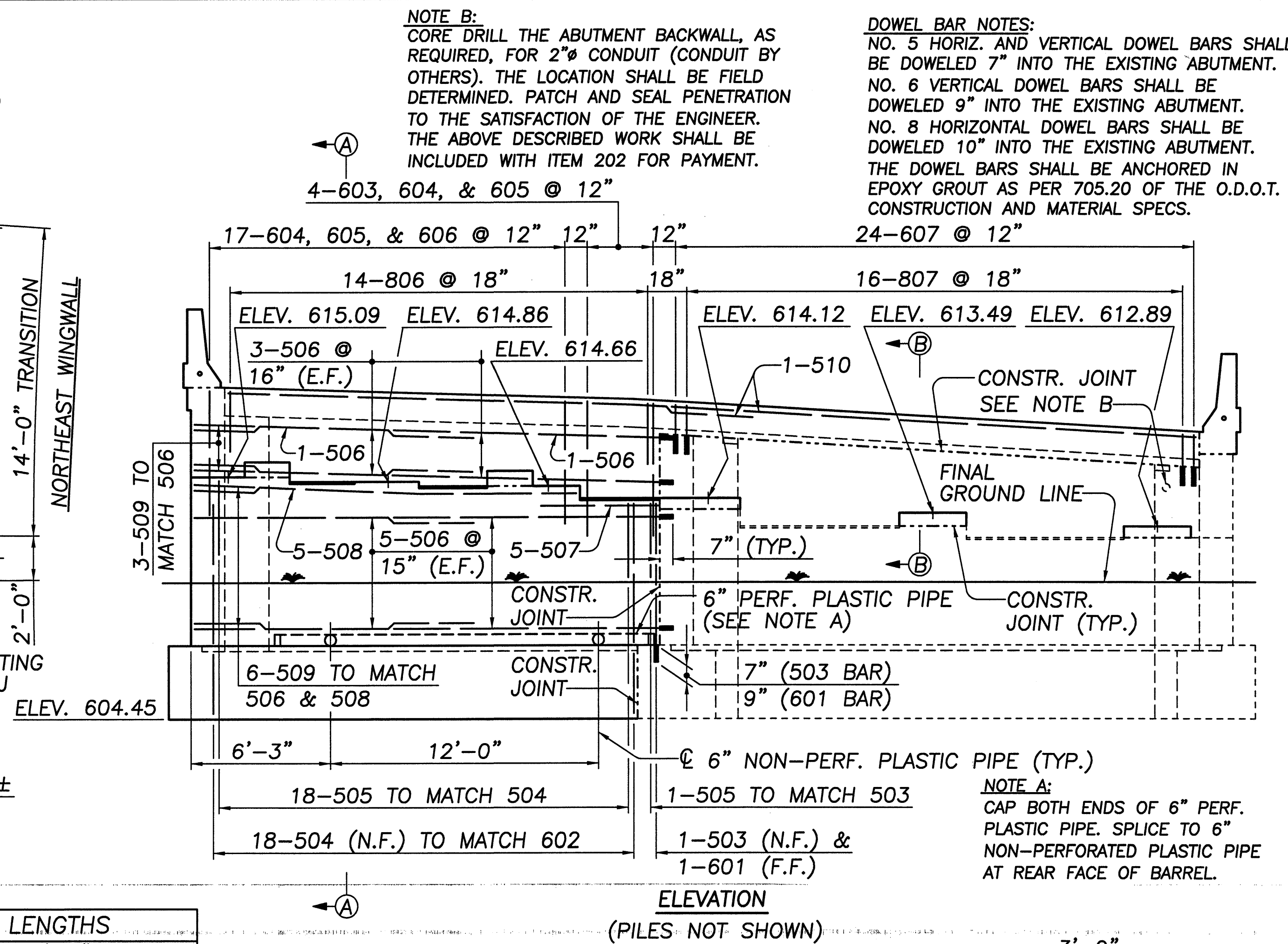
NOTE:
ADJUST SPACING AT BEAM AA,
BB, AND CC SEATS AS REQUIRED
TO CLEAR MAIN REINFORCING.

REQUIRED LAP LENGTHS	
NO. 5 BAR (VERTICAL)	= 2'-0" MINIMUM
NO. 5 BAR (HORIZ.)	= 2'-8" MINIMUM
NO. 6 BAR (VERTICAL)	= 2'-5" MINIMUM
NO. 8 BAR (HORIZ.)	= 4'-4" MINIMUM



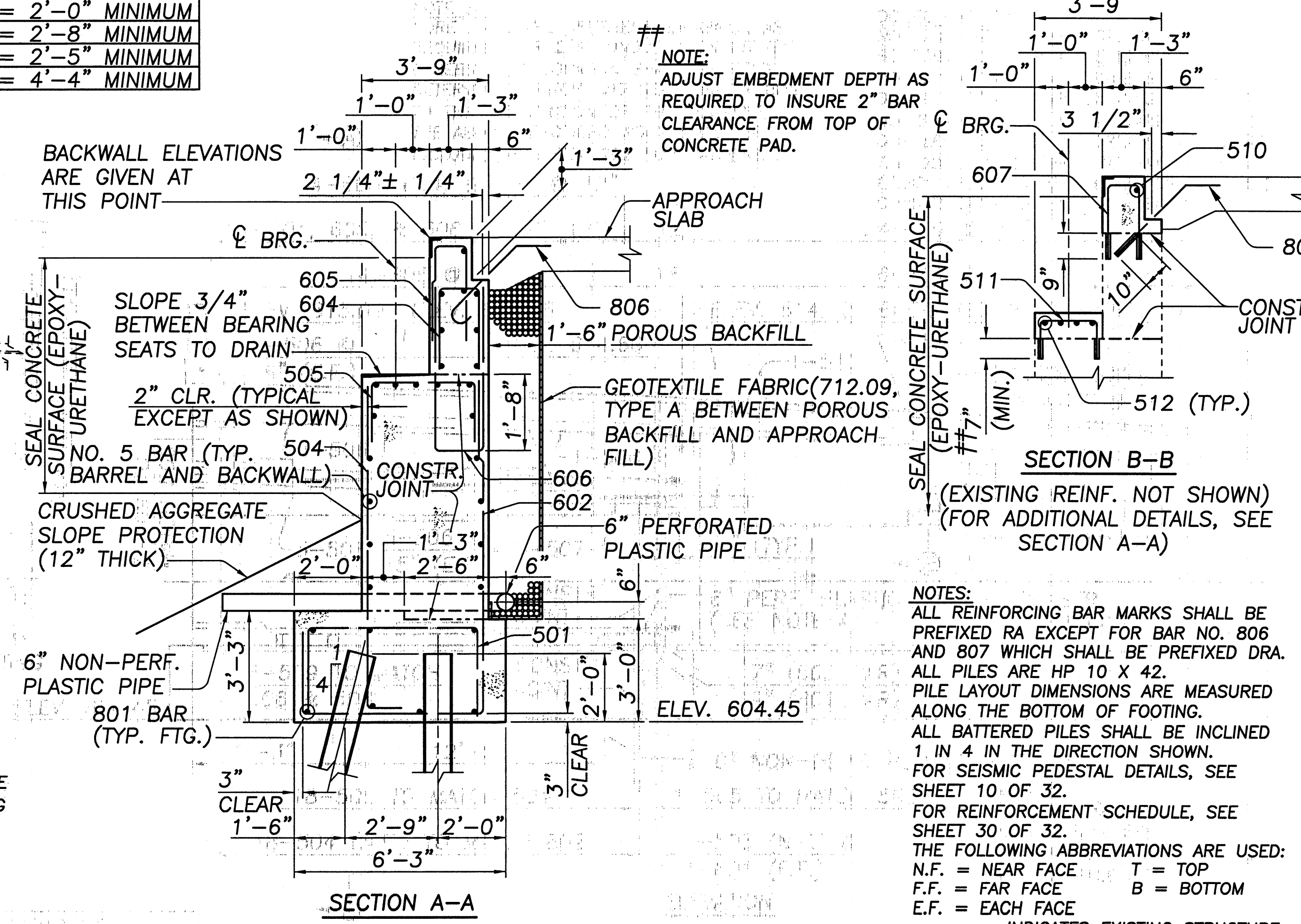
FOOTING PLAN

NOTES:
* THE MINIMUM DISTANCE FROM THE
PILE TO THE EDGE OF EXISTING
FOOTING SHALL BE 1'-6".
** TYPICAL BETWEEN PILES
① DENOTES PILE NUMBER



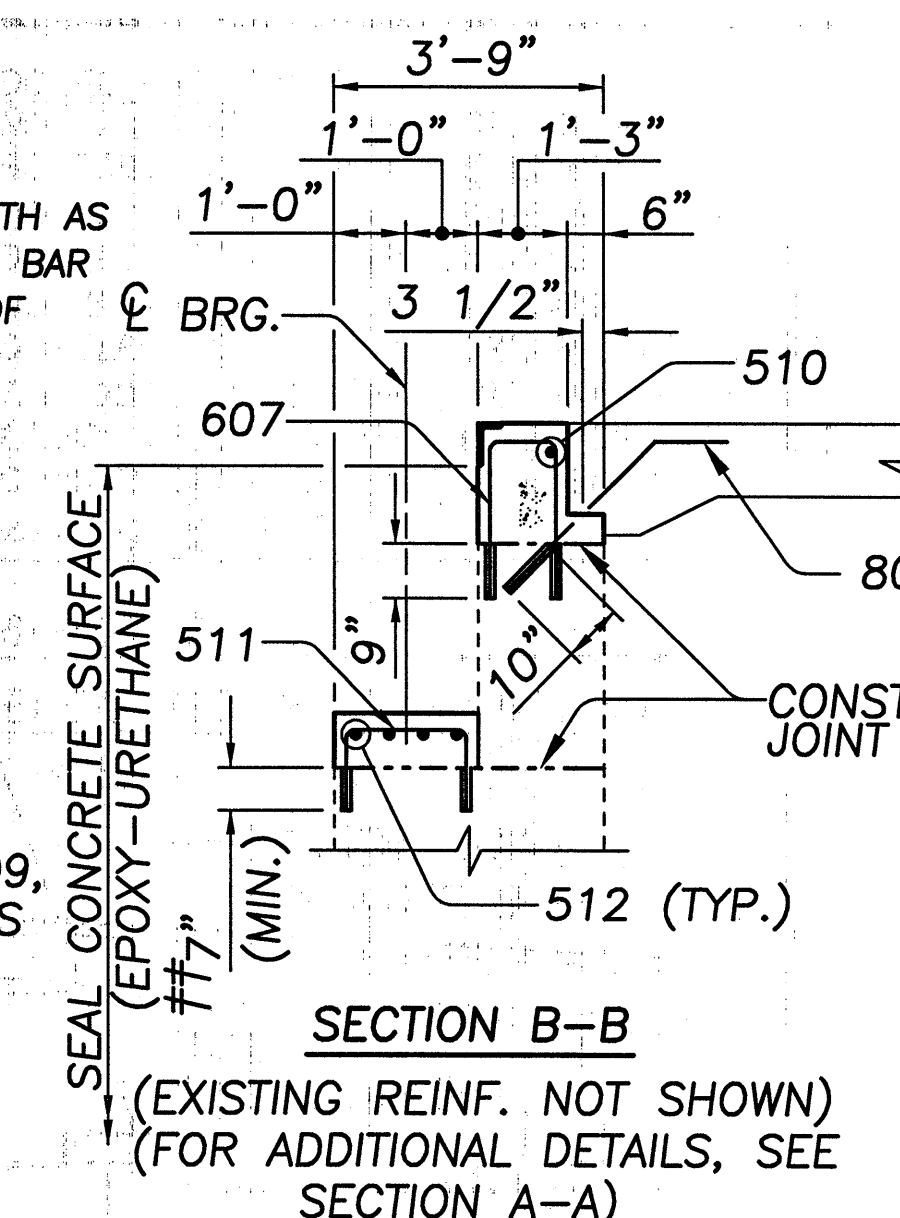
NOTE B:
CORE DRILL THE ABUTMENT BACKWALL, AS
REQUIRED, FOR 2" CONDUIT (CONDUIT BY
OTHERS). THE LOCATION SHALL BE FIELD
DETERMINED. PATCH AND SEAL PENETRATION
TO THE SATISFACTION OF THE ENGINEER.
THE ABOVE DESCRIBED WORK SHALL BE
INCLUDED WITH ITEM 202 FOR PAYMENT.

DOWEL BAR NOTES:
NO. 5 HORIZ. AND VERTICAL DOWEL BARS SHALL
BE DOWELED 7" INTO THE EXISTING ABUTMENT.
NO. 6 VERTICAL DOWEL BARS SHALL BE
DOWELED 9" INTO THE EXISTING ABUTMENT.
NO. 8 HORIZONTAL DOWEL BARS SHALL BE
DOWELED 10" INTO THE EXISTING ABUTMENT.
THE DOWEL BARS SHALL BE ANCHORED IN
EPOXY GROUT AS PER 705.20 OF THE O.D.O.T.
CONSTRUCTION AND MATERIAL SPECS.
24-607 @ 12"



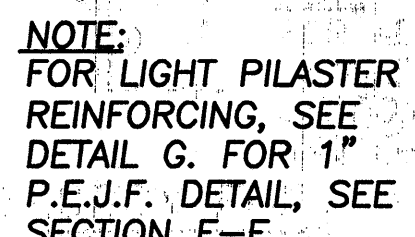
ELEVATION
(PILES NOT SHOWN)

NOTE:
ADJUST EMBEDMENT DEPTH AS
REQUIRED TO INSURE 2" BAR
CLEARANCE FROM TOP OF
CONCRETE PAD.

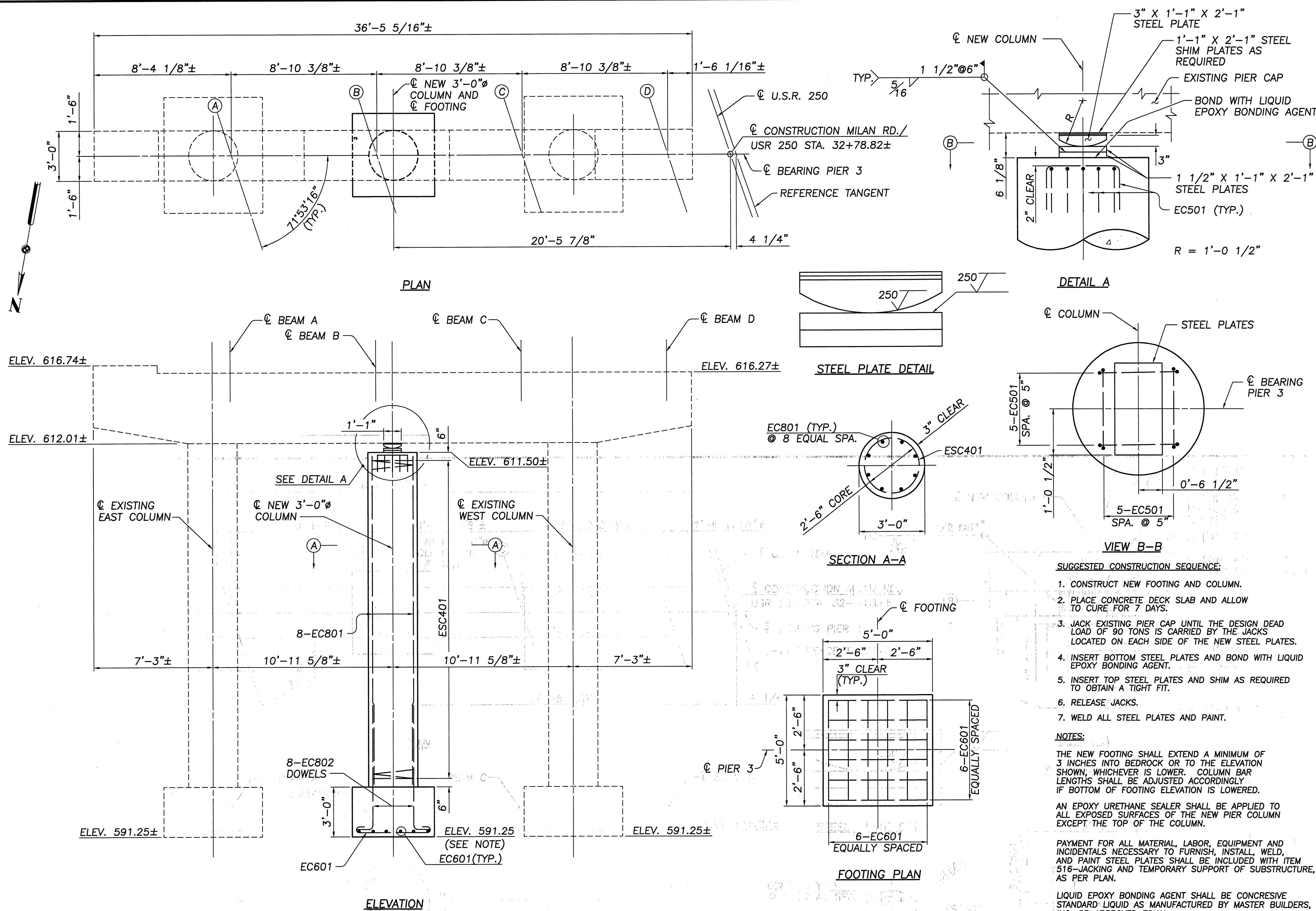


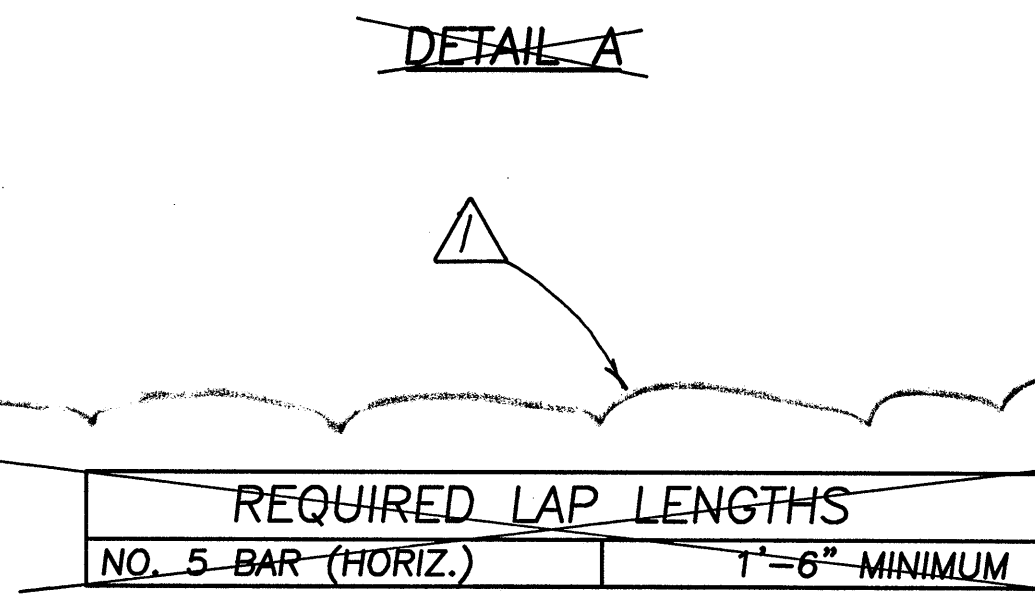
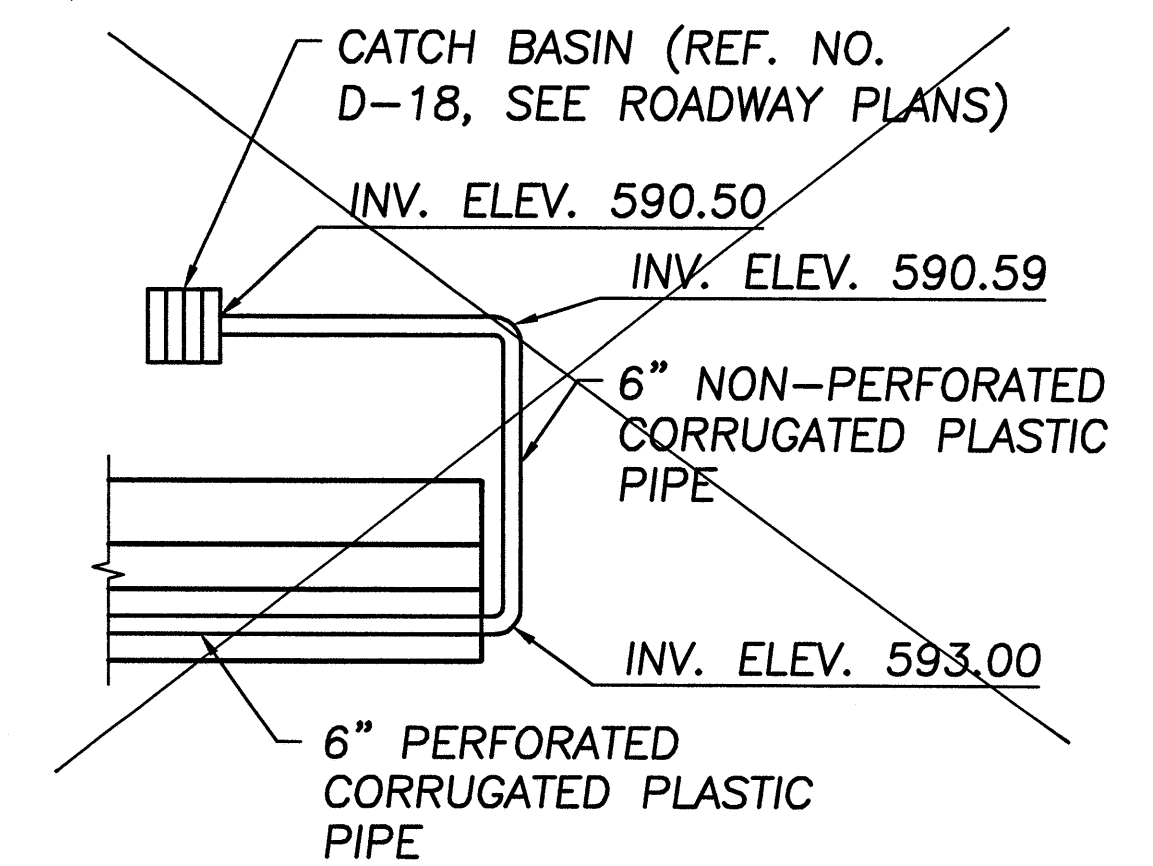
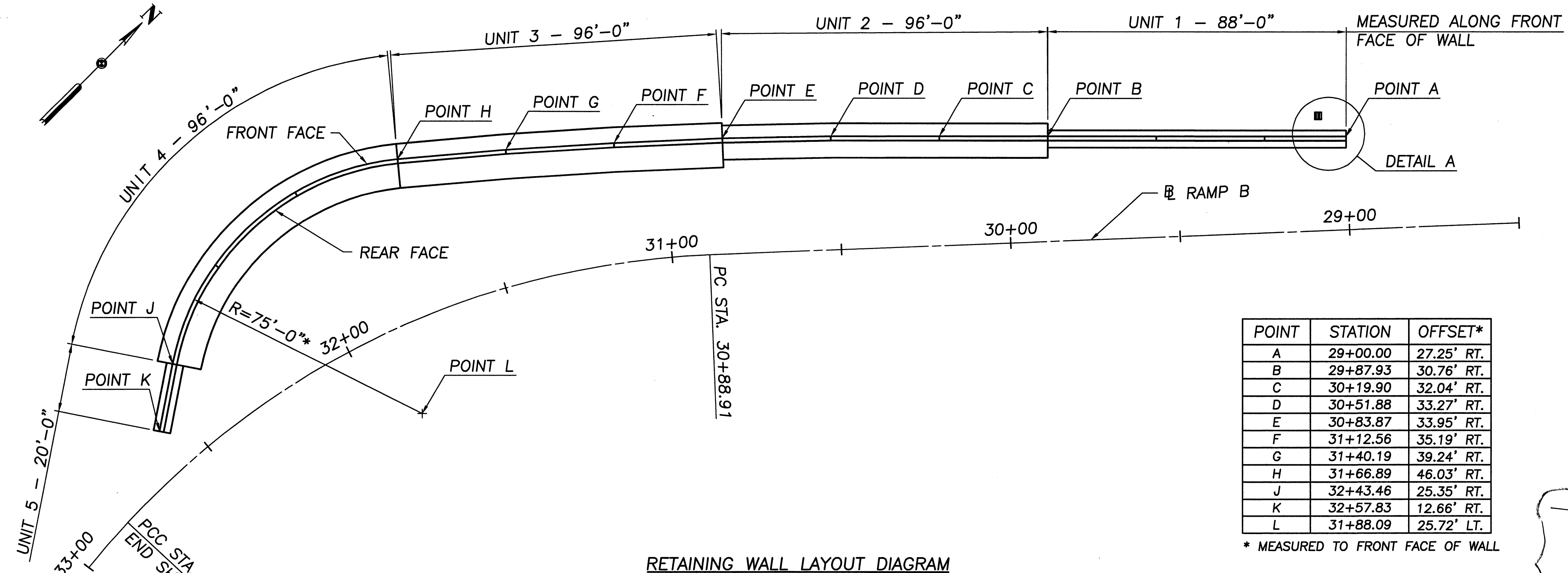
SECTION B-B
(EXISTING REINF. NOT SHOWN)
(FOR ADDITIONAL DETAILS, SEE
SECTION A-A)

NOTES:
ALL REINFORCING BAR MARKS SHALL BE
PREFIXED RA EXCEPT FOR BAR NO. 806
AND 807 WHICH SHALL BE PREFIXED DRA.
ALL PILES ARE HP 10 X 42.
PILE LAYOUT DIMENSIONS ARE MEASURED
ALONG THE BOTTOM OF FOOTING.
ALL BATTERED PILES SHALL BE INCLINED
1 IN 4 IN THE DIRECTION SHOWN.
FOR SEISMIC PEDESTAL DETAILS, SEE
SHEET 10 OF 32.
FOR REINFORCEMENT SCHEDULE, SEE
SHEET 30 OF 32.
THE FOLLOWING ABBREVIATIONS ARE USED:
N.F. = NEAR FACE T = TOP
F.F. = FAR FACE B = BOTTOM
E.F. = EACH FACE
----- INDICATES EXISTING STRUCTURE

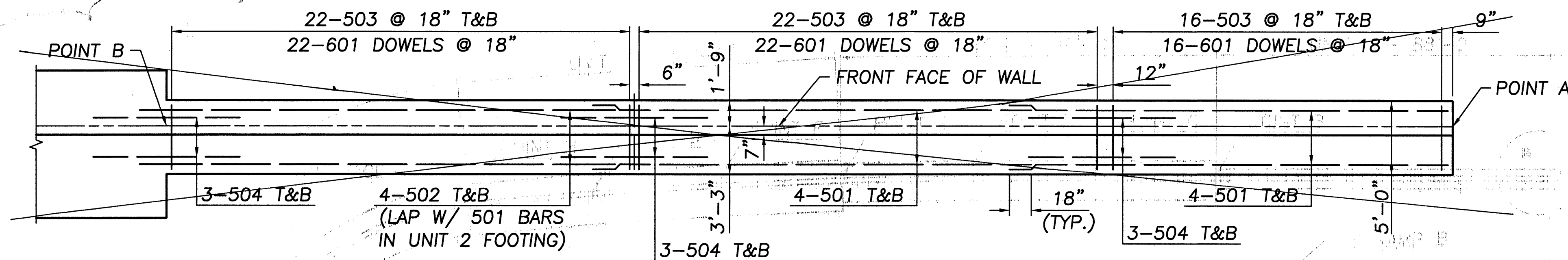


\\GLEW001\PMWORK\JOBS\26868\TECHPROD\BRIDGE\FINAL\DRAWINGS\PIERS.DWG





Note: Precast Retaining Wall placed in lieu of poured in place retaining wall see Manufactures Drawings.



NOTES:

ALL REINFORCING BAR MARKS SHALL BE PREFIXED ERW.

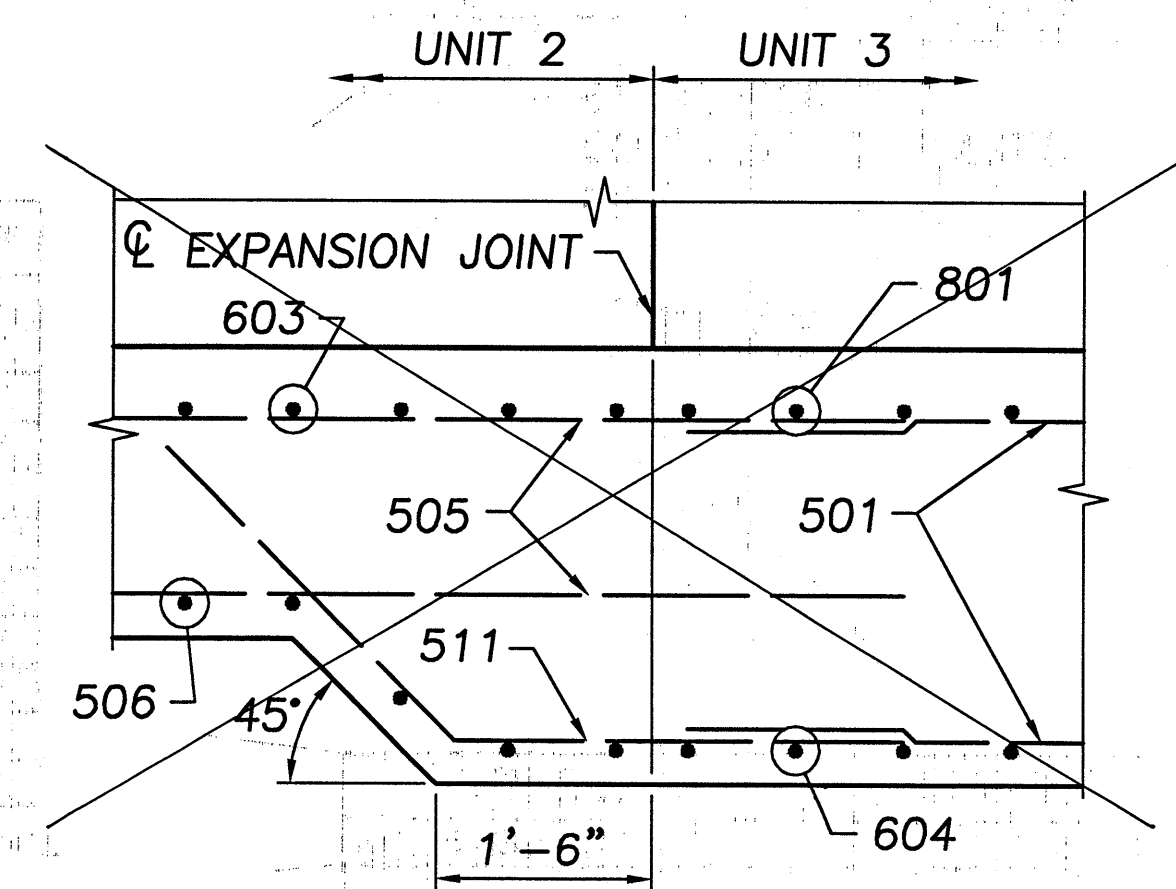
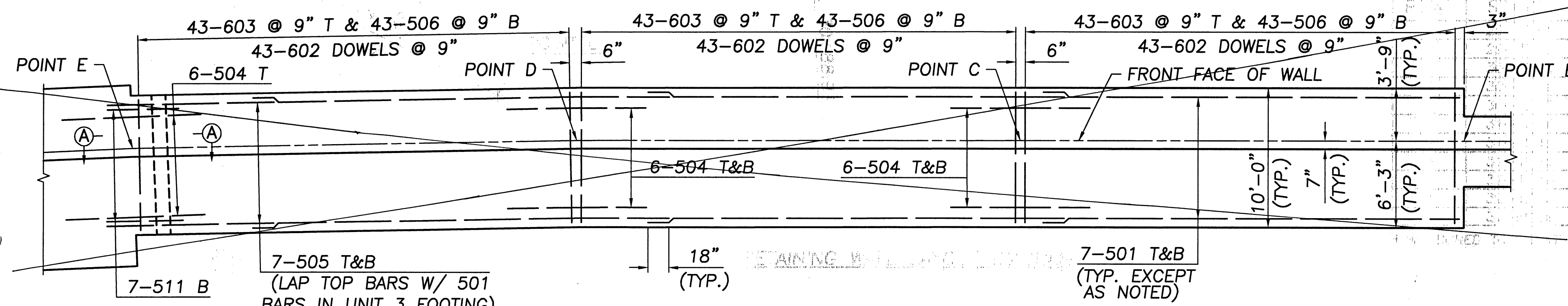
ALL REINFORCING BAR SPACINGS ARE MEASURED ALONG THE FRONT FACE OF THE WALL.

504 BARS SHALL BE CENTERED UNDER EXPANSION AND CONTRACTION JOINTS IN THE STEM.

FOR REINFORCEMENT SCHEDULE, SEE SHEET 32 OF 32.

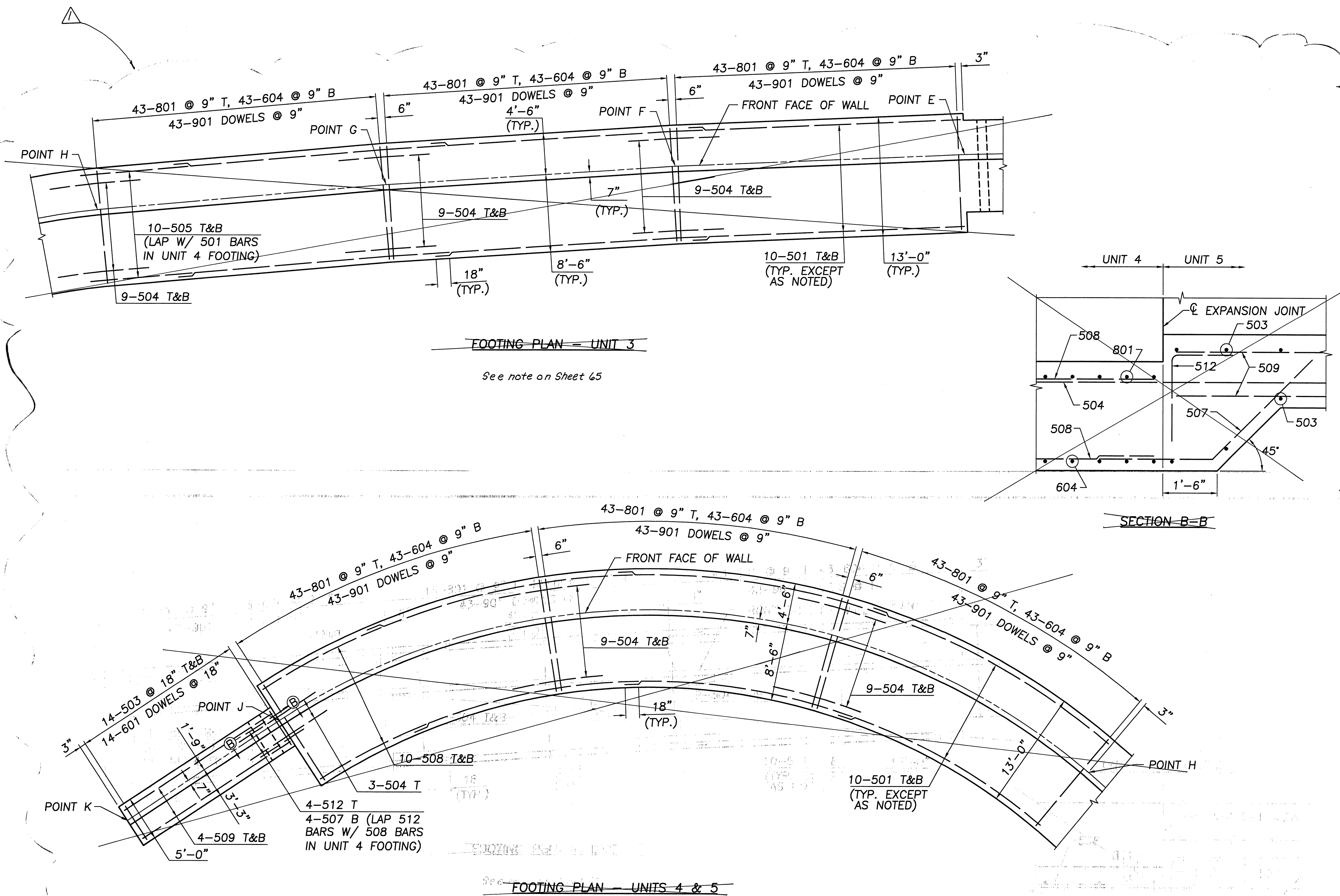
T DENOTES TOP

B DENOTES BOTTOM



Record Drawing 8/13/98

\\CLEW001\PMWORK\JOBS\26968\TECHPROD\BRIDGE\FINAL\DRAWINGS\RETWALL2.DWG

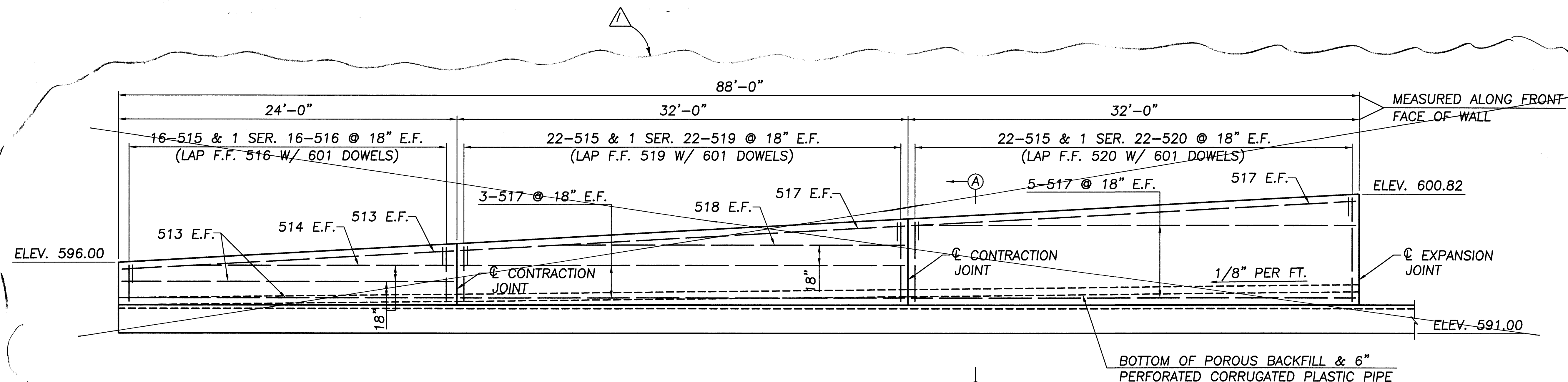


FOR NOTES AND REQUIRED LAP LENGTHS, SEE SHEET 13 OF 32.

Record Drawing
8/13/98

CITY OF SANDUSKY	DESIGNED JOL	CHECKED JMG	DRAWN JOL	REVIEWED GT	DATE 09-26-97	STRUCTURE FILE NUMBER 2203189	ARCHITECTS ENGINEERS PLANNERS	
	RETAINING WALL DETAILS 2							
	BRIDGE NO. ERI-250-0058							
	OVER CONRAIL RAILROAD							
14/32	66	84						

\\CLEW001\PMWORK\JOBS\26968\TECHPROD\BRIDGE\FINAL\DRAWINGS\RETWALL3.DWG



See note on Sheet 65

UNIT 1 ELEVATION
(LOOKING EAST)

REQUIRED LAP LENGTHS	
NO. 5 BAR (VERT. LAP W/ DOWELS, UNITS 1&5)	1'-6" MINIMUM
NO. 5 BAR (VERT. LAP W/ DOWELS, UNITS 2-4)	2'-0" MINIMUM

NOTES:

ALL REINFORCING BAR MARKS SHALL BE PREFIXED ERW.

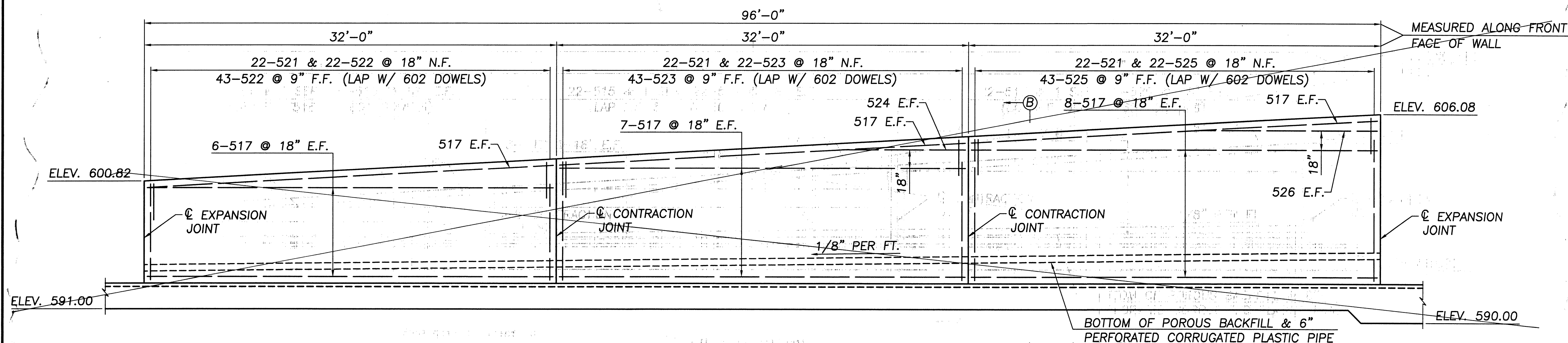
ALL REINFORCING BAR SPACINGS ARE MEASURED ALONG THE FRONT FACE OF THE WALL.

E.F. DENOTES EACH FACE
F.F. DENOTES FAR FACE
N.F. DENOTES NEAR FACE
SER. DENOTES SERIES

FOR JOINT DETAILS AND SECTIONS A-A AND B-B, SEE SHEET 17 OF 32.

PROVIDE VERTICAL RUSTICATION GROOVES AT 4'-0" C/C SPACING. SEE DETAIL ON SHEET 17 OF 32.

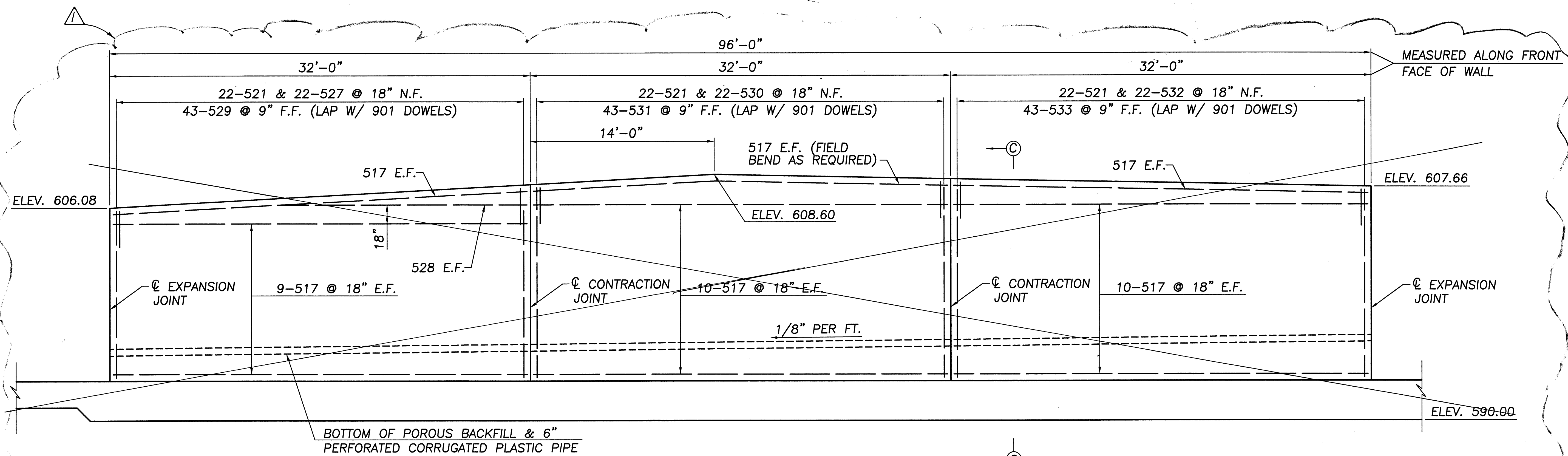
FOR REINFORCEMENT SCHEDULE, SEE SHEET 32 OF 32.



UNIT 2 ELEVATION
(LOOKING EAST)

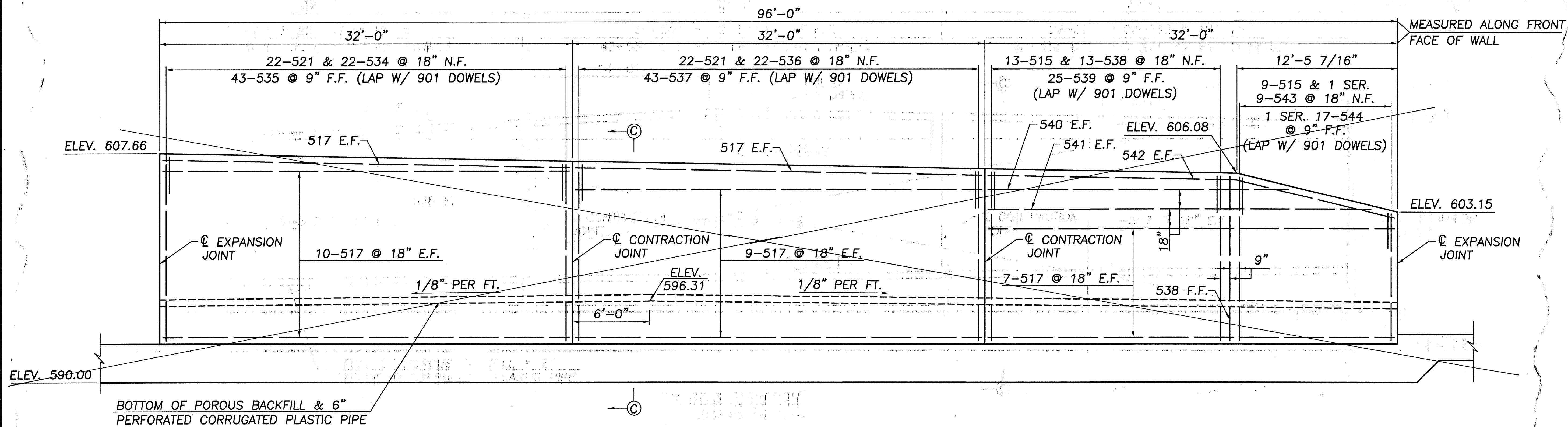
Record Drawing 8/13/98

\\CLEW001\PMWORK\JOBS\26968\TECHPROD\BRIDGE\FINAL DRAWINGS\RETWALL4.DWG



UNIT 3 ELEVATION
(LOOKING EAST)

See note on Sheet 65

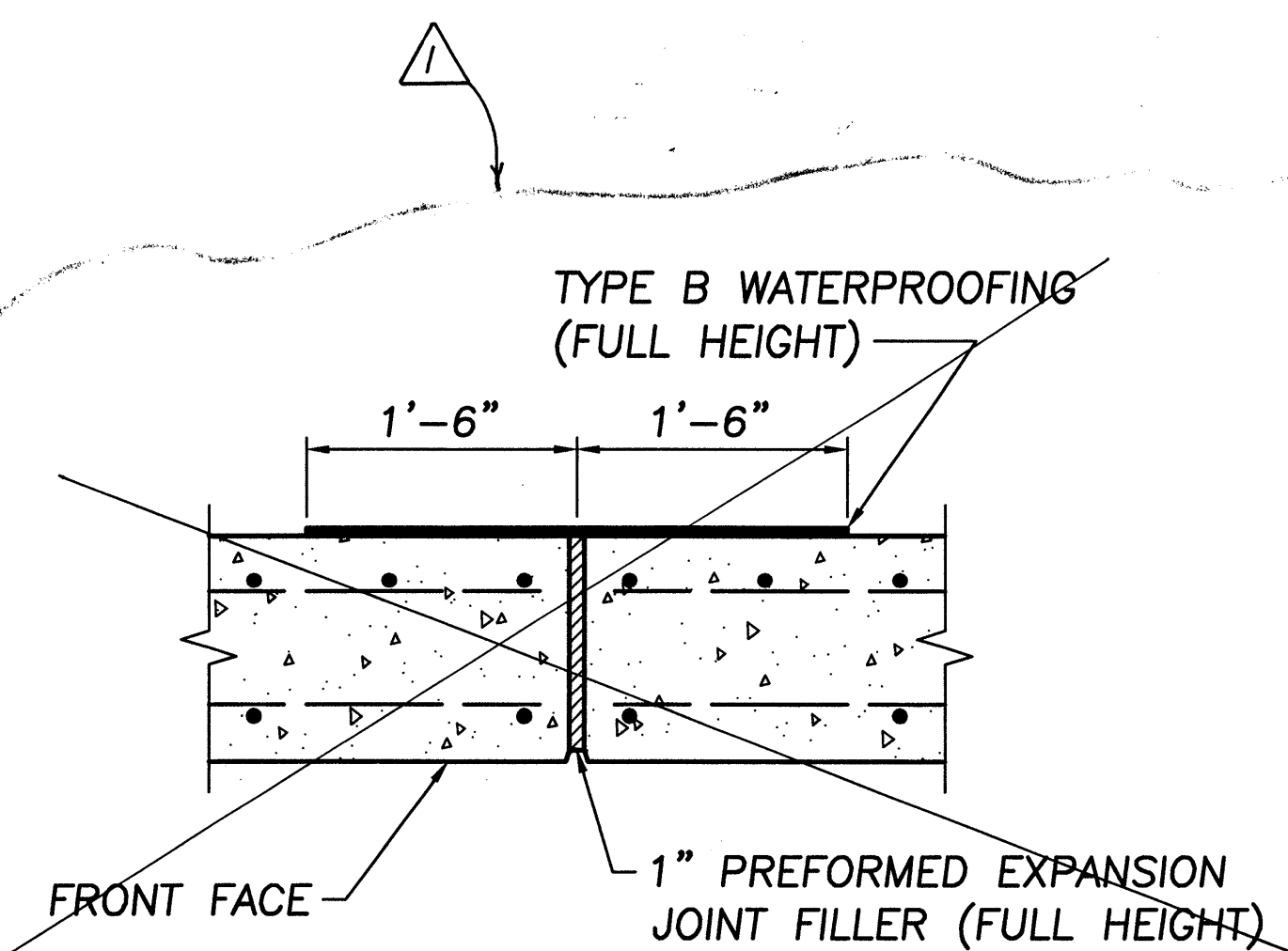


UNIT 4 ELEVATION
(LOOKING EAST)

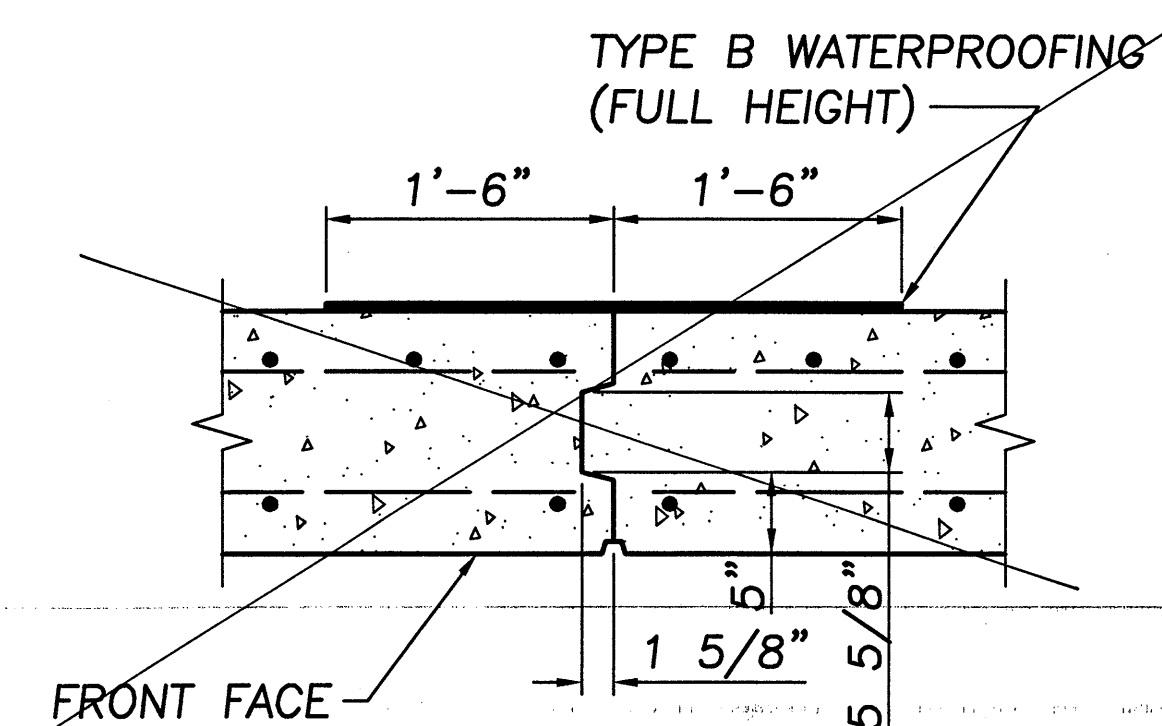
FOR NOTES AND REQUIRED LAP LENGTHS, SEE SHEET 15 OF 32.

Record Drawing 8/13/98

\\CLEW001\PM\WORK\JOBS\26968\TECH\PROD\BRIDGE\FINAL\DRAWINGS\RET WALLS.DWG



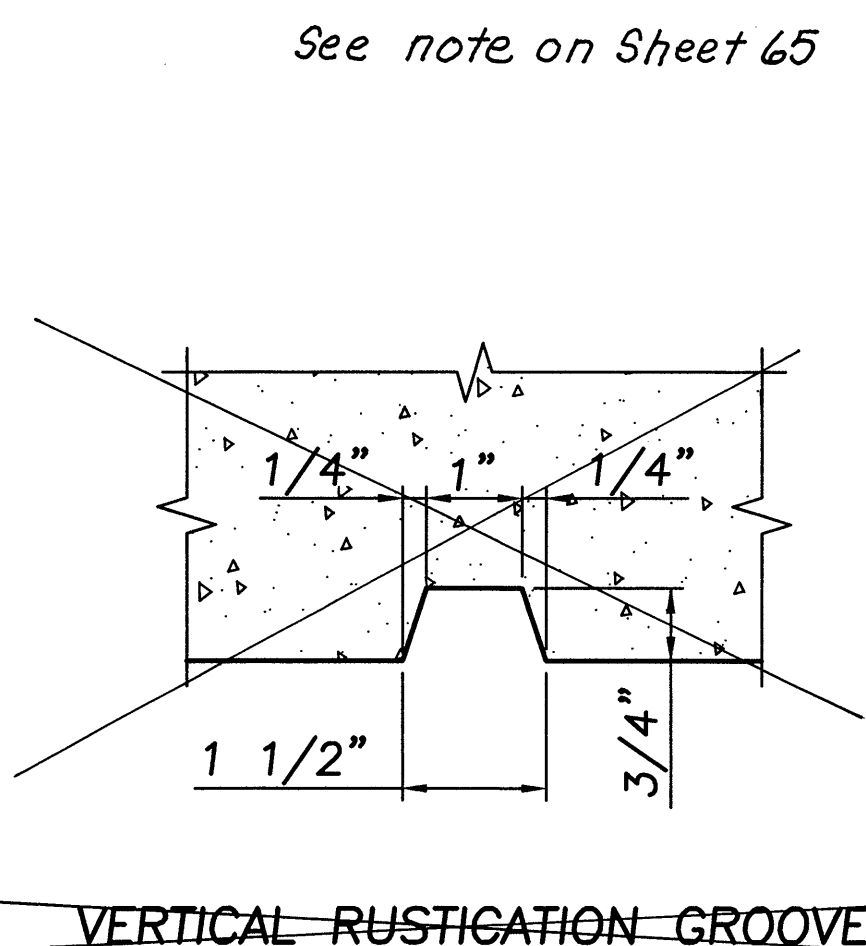
EXPANSION JOINT DETAIL



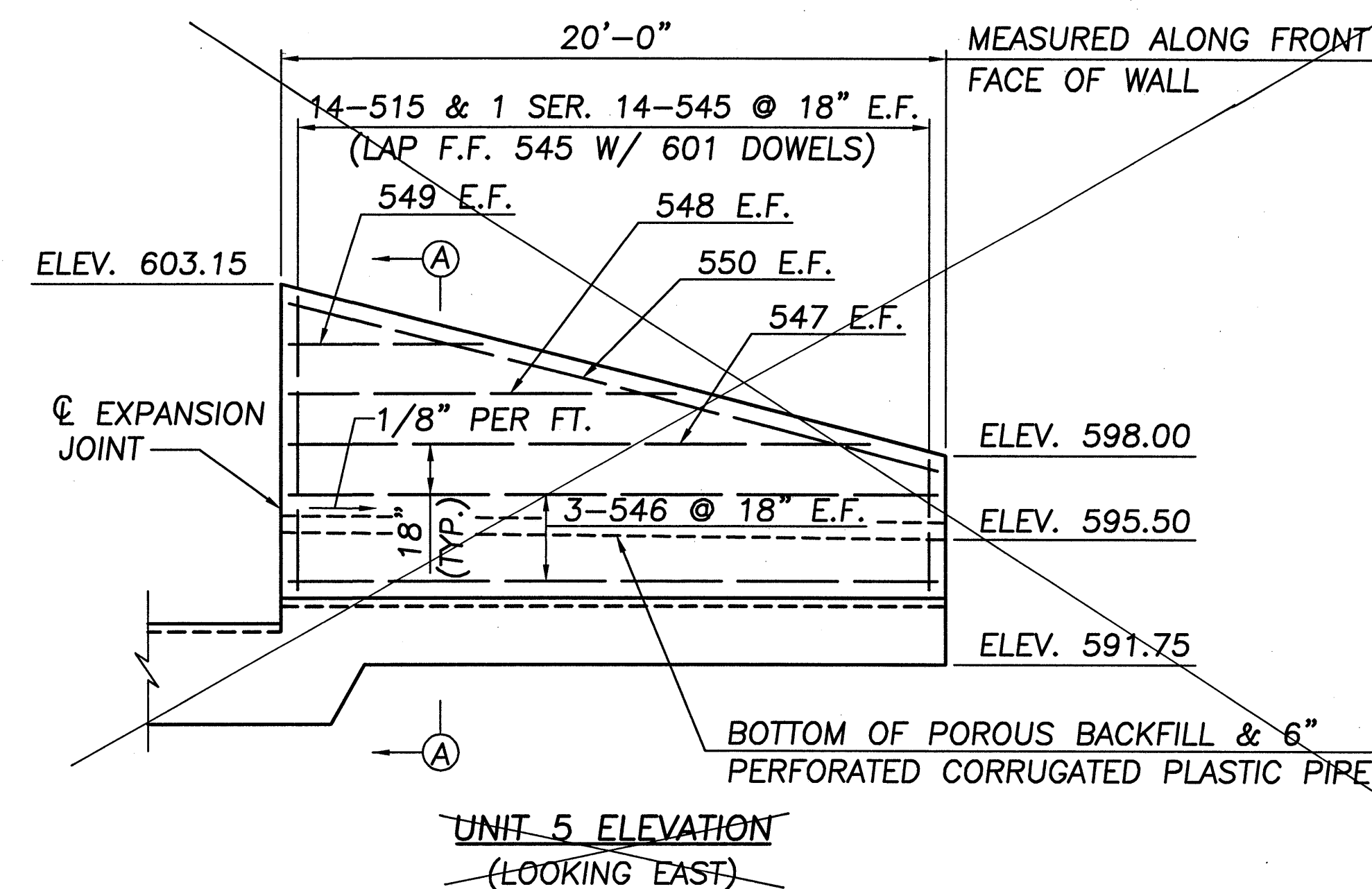
CONTRACTION JOINT DETAIL

NOTE A:
ALL EXPOSED SURFACES OF THE
RETAINING WALL SHALL BE SEALED WITH
AN EPOXY URETHANE SEALER.

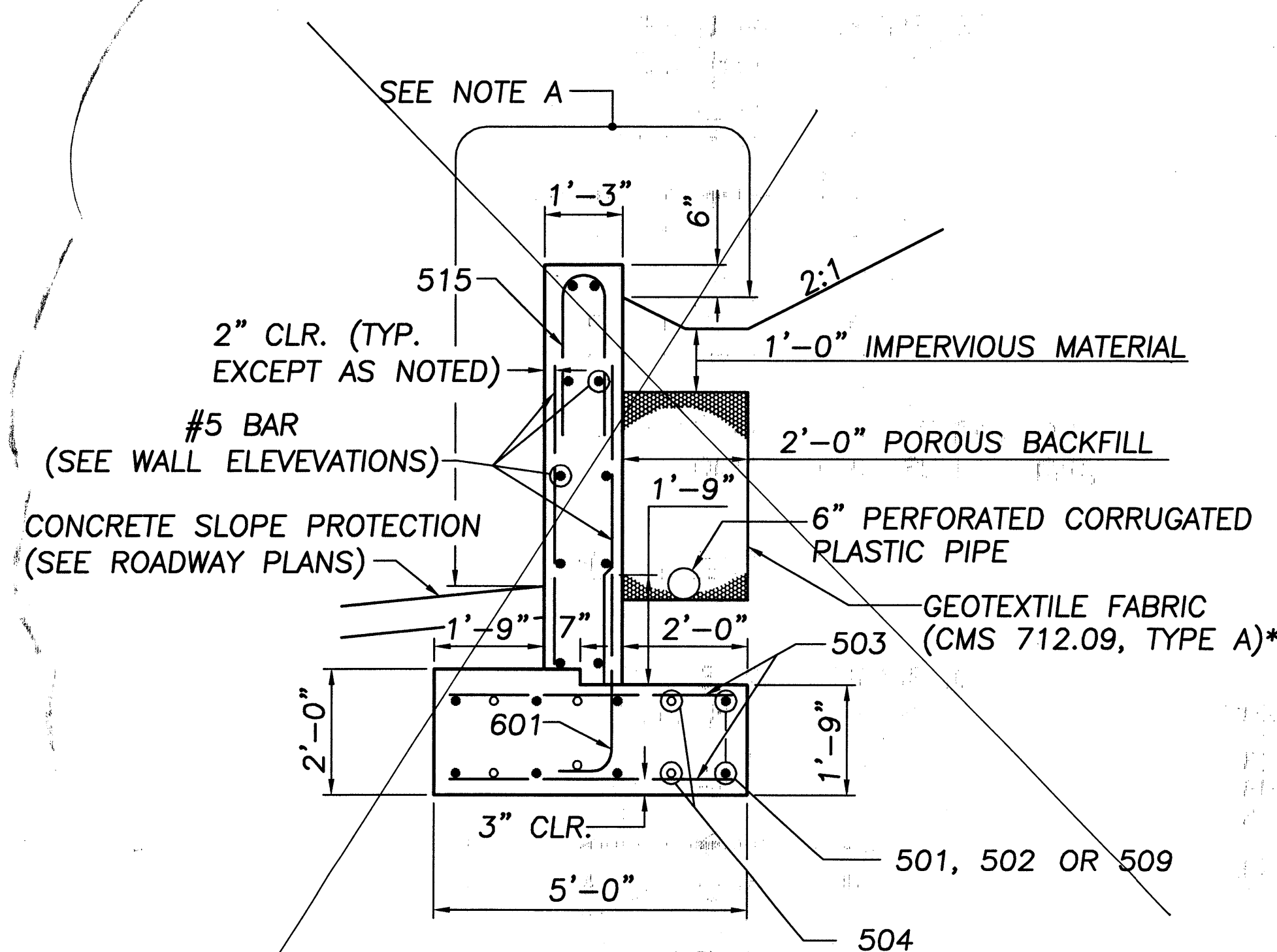
NOTES:
FOR DETAILS OF TERMINATION OF UNIT 5 6" PERFORATED CORRUGATED PLASTIC PIPE IN CRUSHED AGGREGATE SLOPE PROTECTION, SEE OHIO STD. DRAWING A-1-69, SHEET 3 OF 4.
FOR ADDITIONAL NOTES AND REQUIRED LAP LENGTHS, SEE SHEET 15 OF 32.



VERTICAL RUSTICATION GROOVE

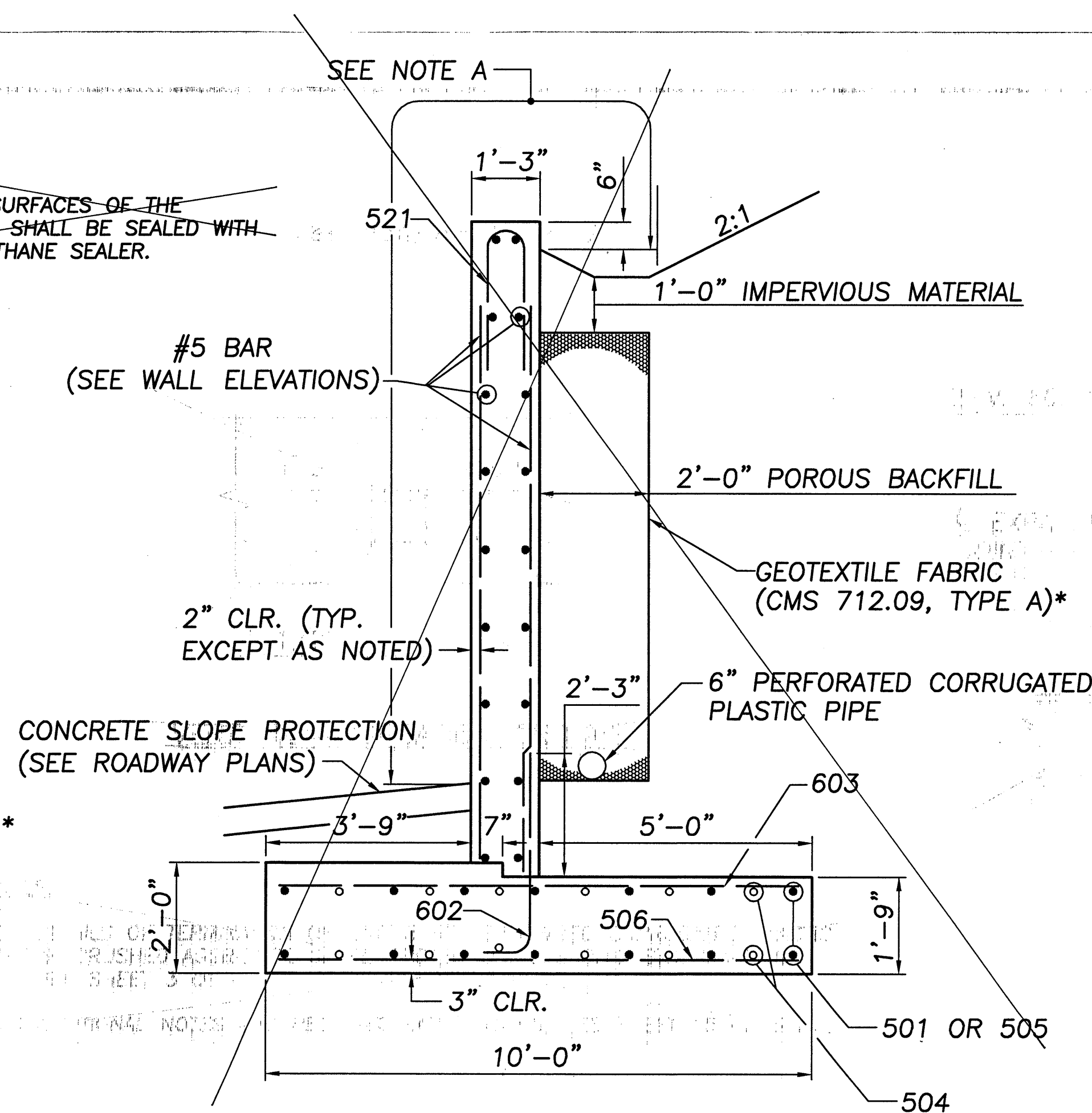


UNIT 5 ELEVATION
(LOOKING EAST)

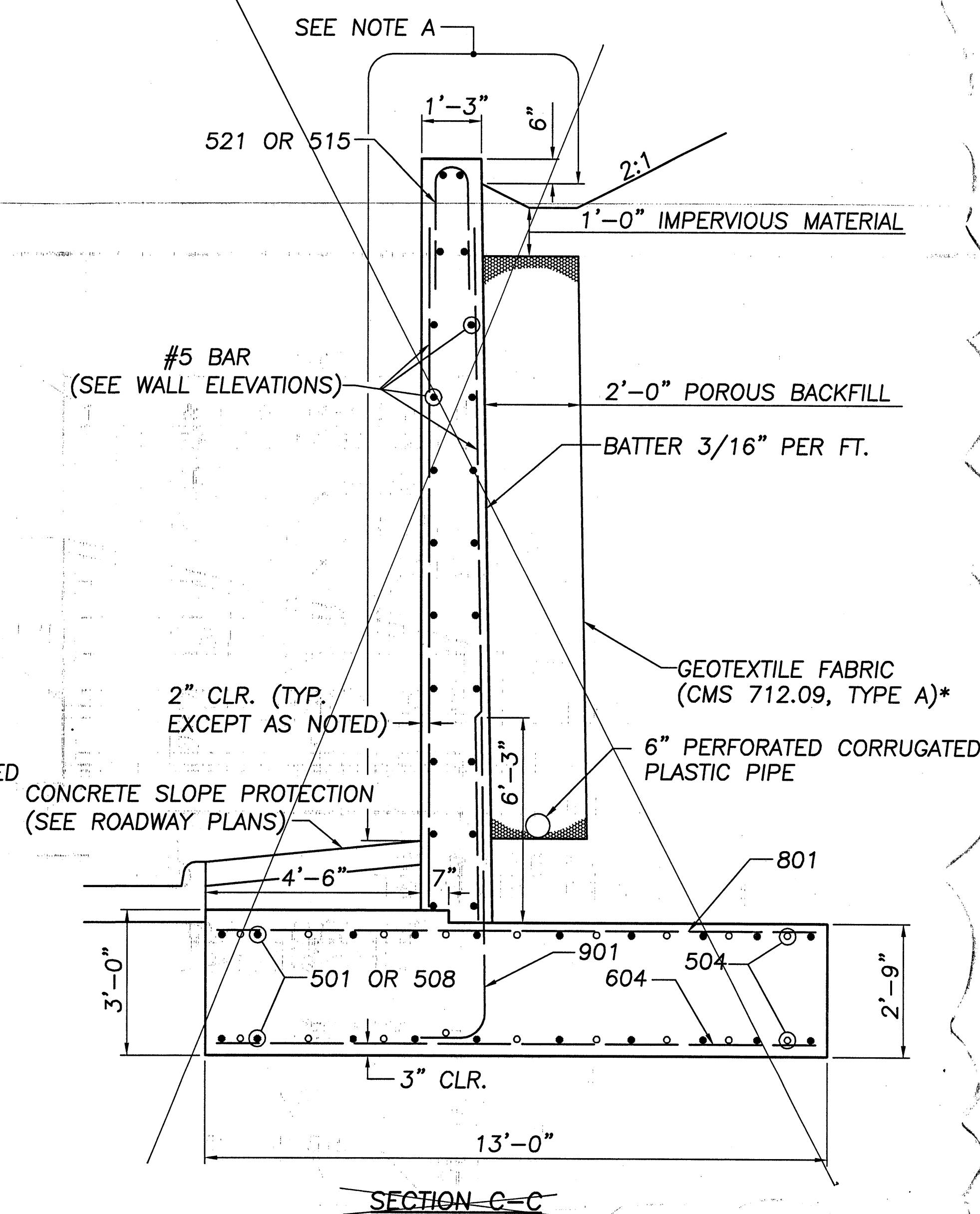


SECTION A-A

*INCLUDE W/ POROUS BACKFILL FOR PAYMENT.
GEOTEXTILE FABRIC SHALL EXTEND UP THE
WALL A MINIMUM DISTANCE OF 6".



SECTION B-B



SECTION C-C

Record Drawing
8/13/98

LEGEND:

- INDICATES PROPOSED END CROSSFRAME.
- ⊗ INDICATES HINGE AND BEND POINT.
- ⊕ INDICATES INTERMEDIATE CROSSFRAME OR DIAPHRAGM SET PERPENDICULAR TO BEAM.
- ⊗ INDICATES BEND POINT CROSSFRAME.
- INDICATES STRINGER AND DIAPHRAGM CONNECTION. FOR DETAILS, SEE SHEET 22 OF 32.
- △ INDICATES LOCATION OF STRUCTURAL STEEL ROCKER REMOVAL. AFTER ROCKER REMOVAL, THE EXISTING BEAM FLANGES SHALL BE GROUND SMOOTH TO THE SATISFACTION OF THE ENGINEER. INCLUDE WITH ITEM 202 FOR PAYMENT.

MEMBER	SIZE	LENGTH
STRINGER A	W36X135 (CVN)	9'-9 1/2" ± *
STRINGER B	W36X135 (CVN)	13'-3 1/8" ± *
DIAPHRAGM 1	W36X135 (CVN)	19'-6 1/2" ± **
DIAPHRAGM 2	W36X135 (CVN)	14'-0 1/4" ± **
DIAPHRAGM 3	W36X135 (CVN)	9'-2 5/8" ± **

* THE DISTANCE SHOWN IS FROM C - C DIAPHRAGM
** THE DISTANCE SHOWN IS FROM C - C BEAM

MEMBER	SIZE
EXISTING BEAM J	W36X135
EXISTING BEAM K	W36X194
EXISTING BEAM L	W36X150
EXISTING BEAM N	W36X135
NEW BEAM AA	W36X182 (CVN)
NEW BEAM BB	W36X182 (CVN)
NEW BEAM CC	W36X182 (CVN)

TABLE OF ANGLES	
ANGLE A	80°31'09"
ANGLE B	91°43'00"
ANGLE C	64°26'24"
ANGLE D	97°04'14"
ANGLE E	57°22'09"

HORIZONTAL OFFSETS TO EDGE OF SLAB					
LOCATION	* C BEARING REAR ABUT.	1/4	1/2	3/4	C FIELD SPLICE 1
C BEAM J TO EDGE OF SLAB	3'-7"	2'-9"	2'-5 1/2"	2'-8 1/2"	3'-6 3/8"
LOCATION	C FIELD SPLICE 1	1/4	1/2	3/4	C FIELD SPLICE 2
C BEAM J TO EDGE OF SLAB	3'-6 1/4"	3'-2 3/8"	3'-1 1/8"	3'-2 5/8"	3'-6 7/8"
LOCATION	C FIELD SPLICE 2	1/4	1/2	3/4	* C BEARING PIER 4
C BEAM J TO EDGE OF SLAB	3'-7 1/8"	2'-4"	2'-0 5/8"	2'-8 7/8"	4'-6"

* DENOTES MEASURED ALONG C BEARING, OR C PIER

HORIZONTAL OFFSETS TO EDGE OF SLAB					
LOCATION	* C BEARING PIER 4	1/4	1/2	3/4	POINT A
C BEAM M TO EDGE OF SLAB	4'-6"	3'-5 1/8"	2'-8 1/2"	2'-1 5/8"	1'-8 3/8"
LOCATION	* C BEARING REAR ABUT.	1/4	1/2	3/4	POINT B
C BEAM CC TO EDGE OF SLAB	1'-8 1/8"	2'-8 3/8"	3'-0 1/2"	2'-8 7/8"	1'-9 3/8"
LOCATION	POINT C	1/4	1/2	3/4	POINT D
C BEAM A TO EDGE OF SLAB	1'-9 5/8"	2'-2"	2'-6 1/2"	2'-10 7/8"	3'-3 3/8"
LOCATION	POINT D	1/4	1/2	3/4	POINT E
C BEAM N TO EDGE OF SLAB	3'-3 1/8"	3'-3 1/4"	3'-3 1/4"	3'-3 3/8"	3'-3 3/8"

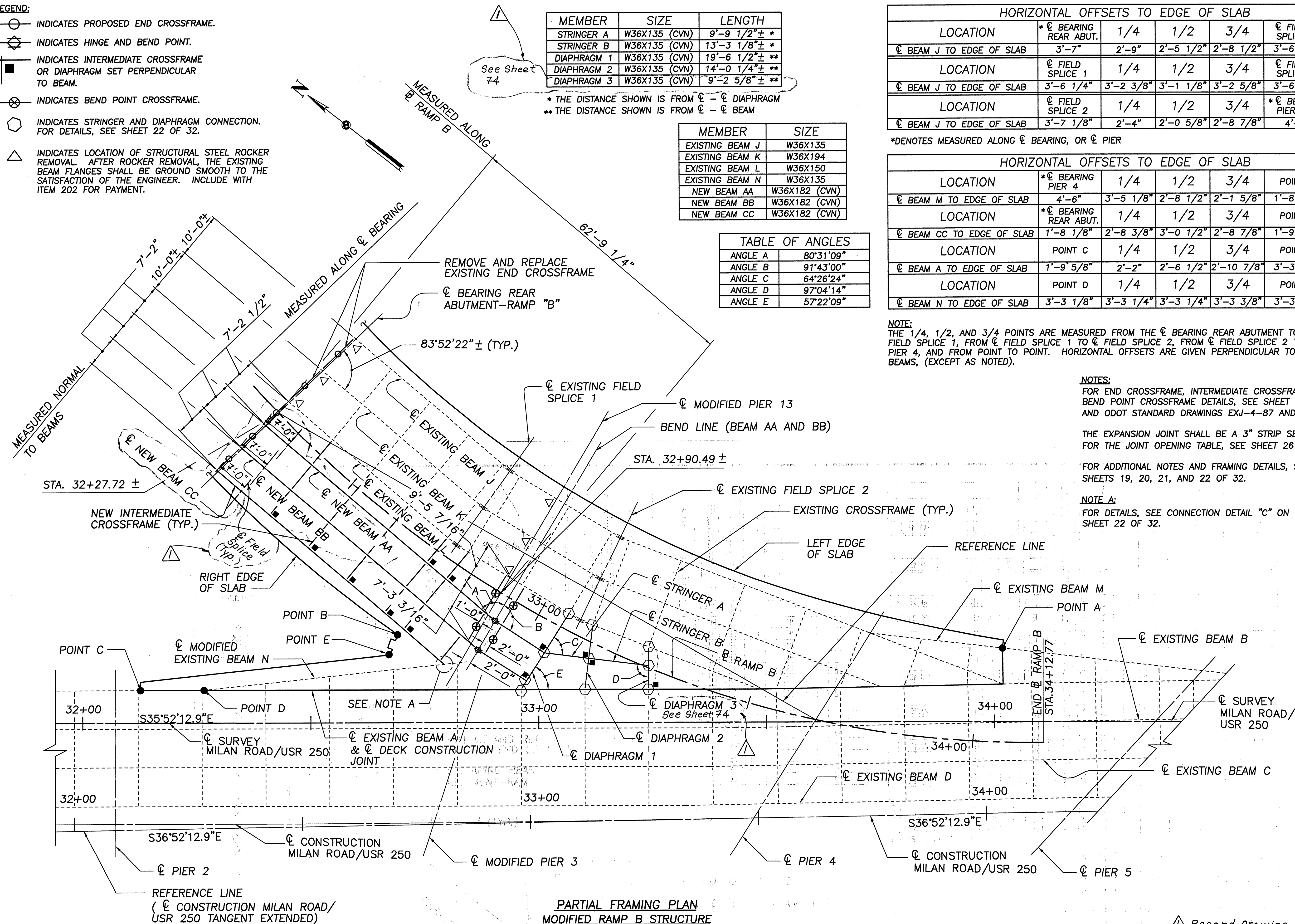
NOTE:
THE 1/4, 1/2, AND 3/4 POINTS ARE MEASURED FROM THE C BEARING REAR ABUTMENT TO C FIELD SPLICE 1, FROM C FIELD SPLICE 1 TO C FIELD SPLICE 2, FROM C FIELD SPLICE 2 TO C PIER 4, AND FROM POINT TO POINT. HORIZONTAL OFFSETS ARE GIVEN PERPENDICULAR TO C BEAMS, (EXCEPT AS NOTED).

NOTES:
FOR END CROSSFRAME, INTERMEDIATE CROSSFRAME, AND BEND POINT CROSSFRAME DETAILS, SEE SHEET 21 OF 32 AND ODOT STANDARD DRAWINGS EXJ-4-87 AND GSD-1-96.

THE EXPANSION JOINT SHALL BE A 3" STRIP SEAL.
FOR THE JOINT OPENING TABLE, SEE SHEET 26 OF 32.

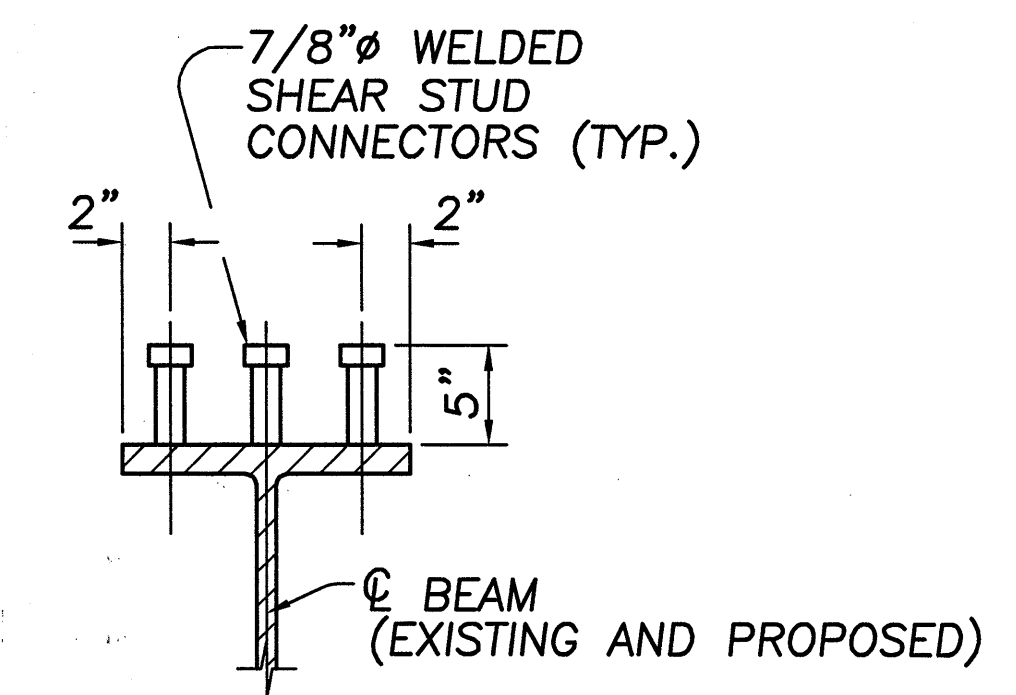
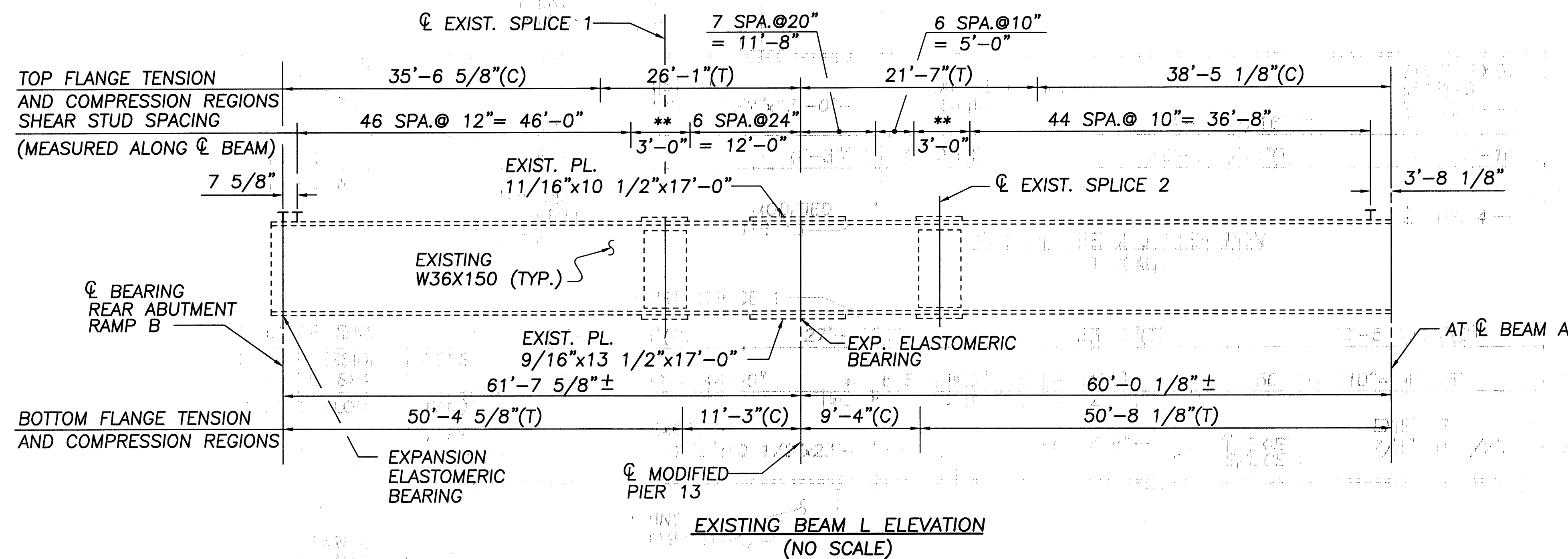
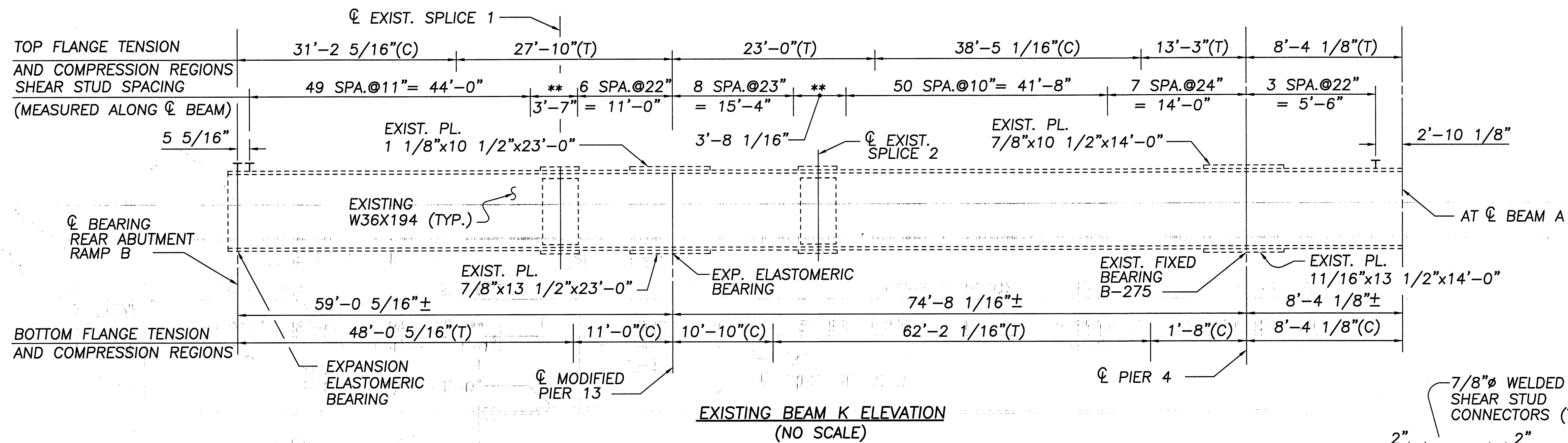
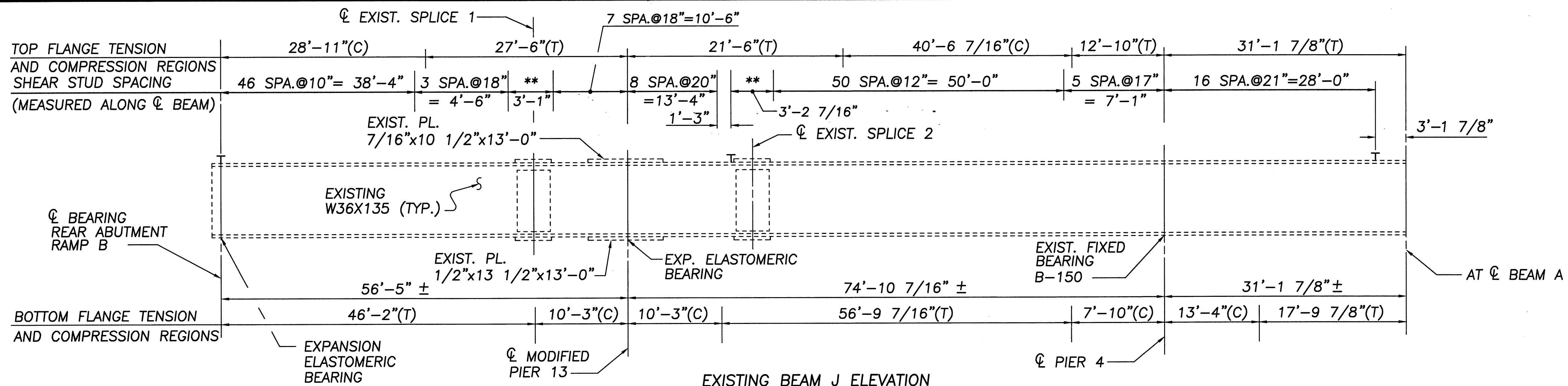
FOR ADDITIONAL NOTES AND FRAMING DETAILS, SEE SHEETS 19, 20, 21, AND 22 OF 32.

NOTE A:
FOR DETAILS, SEE CONNECTION DETAIL "C" ON SHEET 22 OF 32.



**PARTIAL FRAMING PLAN
MODIFIED RAMP B STRUCTURE
(SOUTH BRIDGE NOT SHOWN)**

Record Drawing 8/13/98



NOTES:

FOR ADDITIONAL NOTES SEE SHEET 20 OF 32.

THE FOLLOWING ABBREVIATIONS ARE USED:

EXP. = EXPANSION

TYP. = TYPICAL

BOT. = BOTTOM

T = TENSION

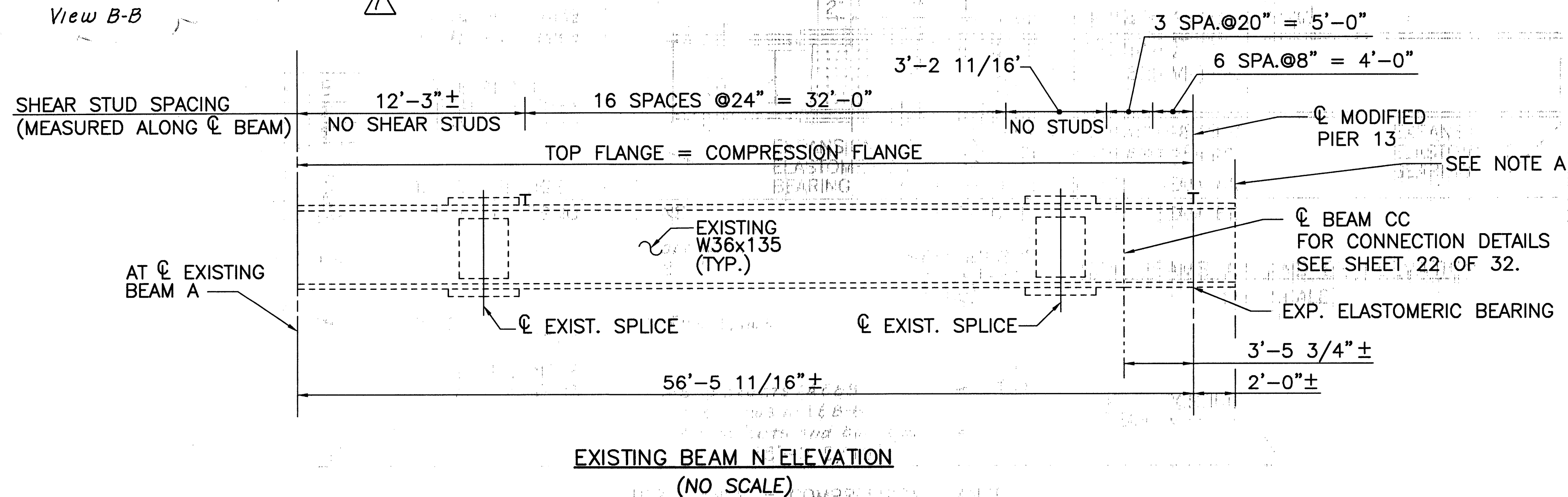
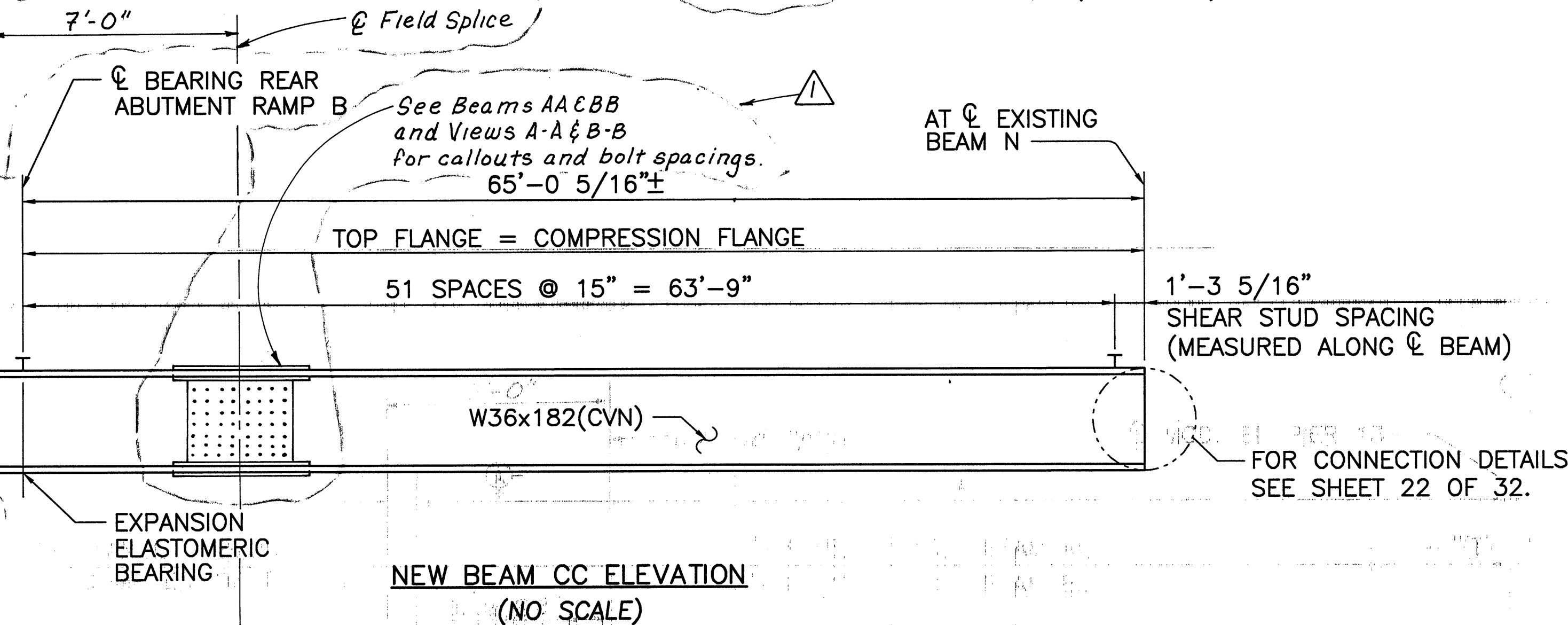
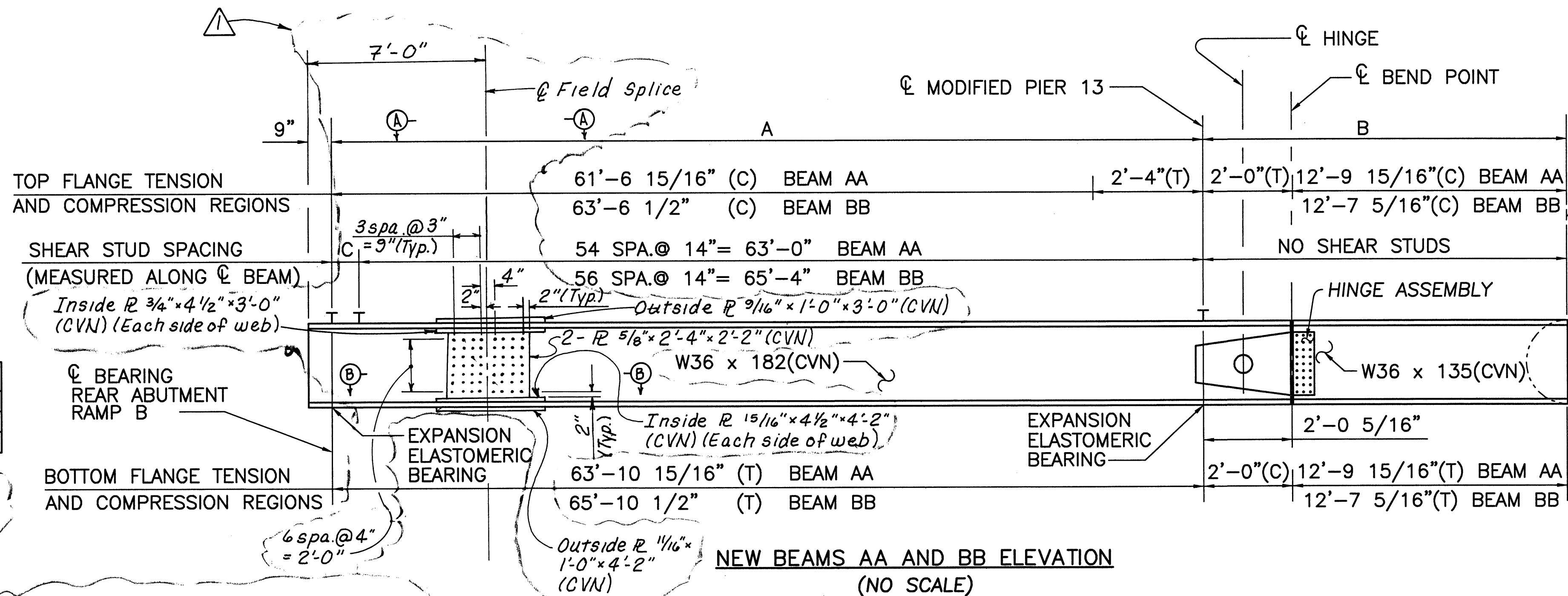
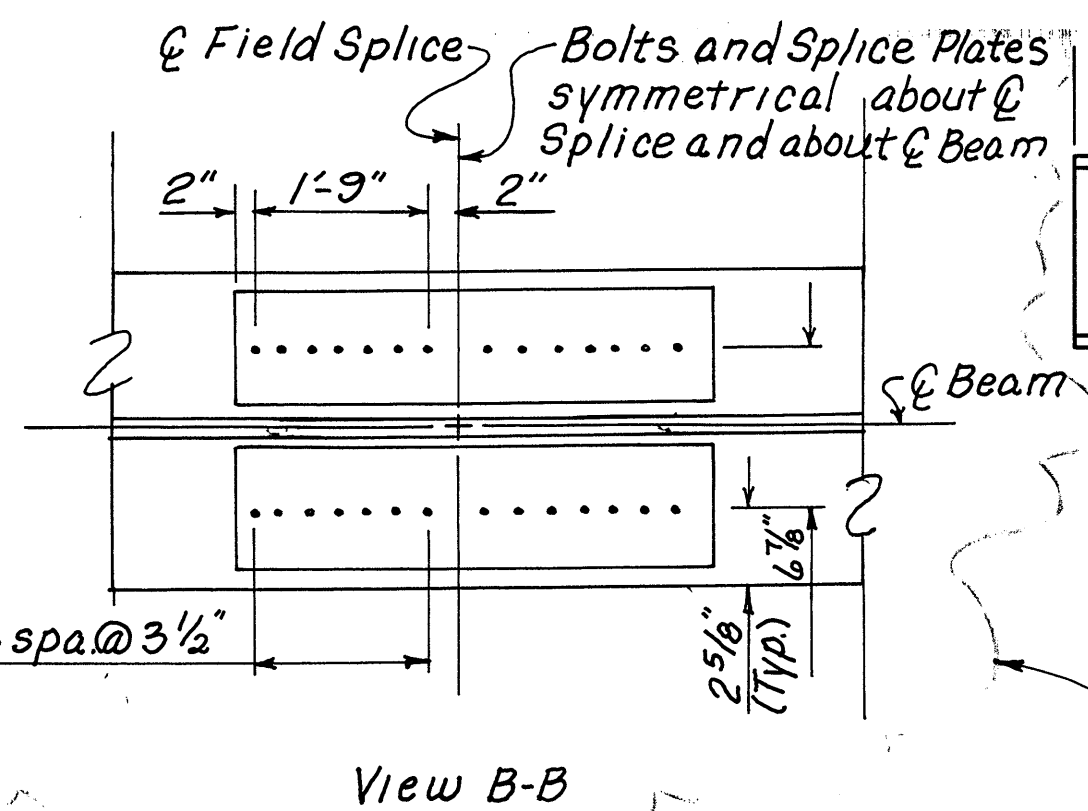
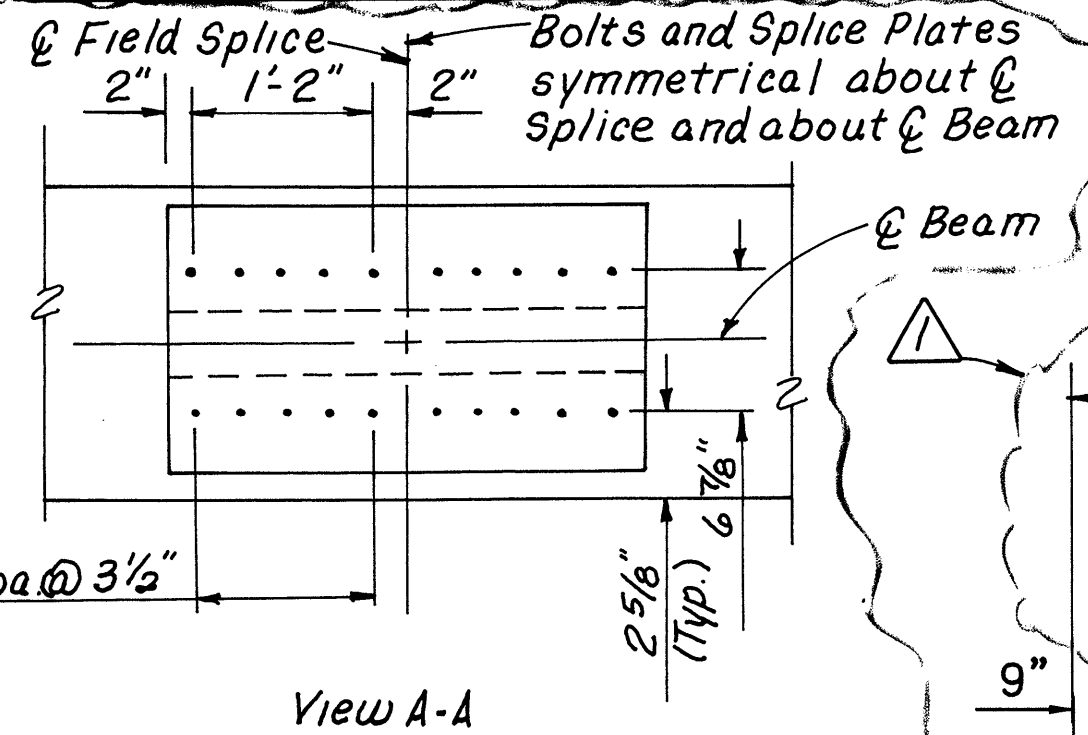
C = COMPRESSION

SPA. = SPACED

** SHEAR STUDS SHALL NOT BE PLACED OVER EXISTING FIELD SPLICES.

\\CLEWOOD\PMWORK\JOBS\26968\TECHPROD\BRIDGE\FINAL\DRAWINGS\BEAM1.DWG

DIMENSION	BEAM AA	BEAM BB
A	63'-10 15/16"	65'-10 1/2"
B	14'-9 15/16"	14'-7 5/16"
C	10 15/16"	6 1/2"



NOTES:

THE FOLLOWING ABBREVIATIONS ARE USED:

EXIST. = EXISTING
TYP. = TYPICAL
BOT. = BOTTOM
T = TENSION
C = COMPRESSION
SPA. = SPACES

ALL NEW STEEL SHALL BE ASTM A36 UNLESS NOTED OTHERWISE.

WHERE A PLATE OR SHAPE IS DESIGNATED "CVN", THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF THE SPECIFICATIONS.

ALL BOLTS SHALL BE 1" DIAMETER ASTM A325 HIGH STRENGTH BOLTS, UNLESS NOTED OTHERWISE.

SHEAR STUDS SHALL BE 7/8" DIAMETER AND PLACED PERPENDICULAR TO CENTERLINE OF BEAM AND SHALL CONFORM TO AASHTO M169 AND ITEM 513.

WELDED ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE TO AREAS OF THE FASCIA STRINGERS DESIGNATED "COMPRESSION". FILLET WELDS TO COMPRESSION FLANGES SHALL NOT BE CLOSER THAN 1" FROM EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO/AWS BRIDGE WELDING CODE.

FOR DEFLECTIONS, CAMBER TABLE, AND CAMBER DIAGRAM SEE SHEET 24 OF 32.

FOR LAMINATED ELASTOMERIC BEARING DETAILS SEE SHEET 23 OF 32.

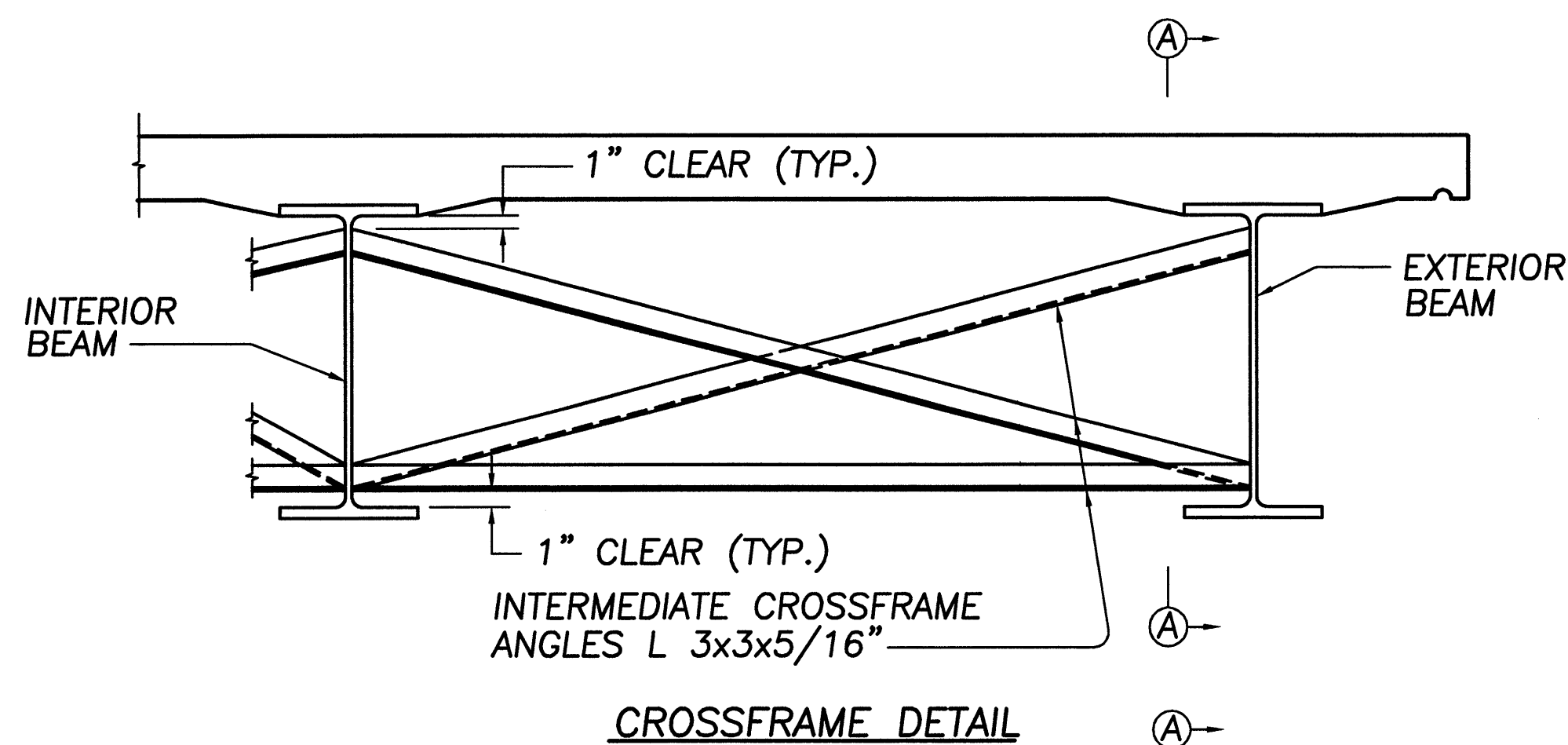
FOR THE HINGE ASSEMBLY DETAILS, SEE SHEET 21 OF 32.

FOR SHEAR STUD DETAIL, SEE SHEET 19 OF 32.

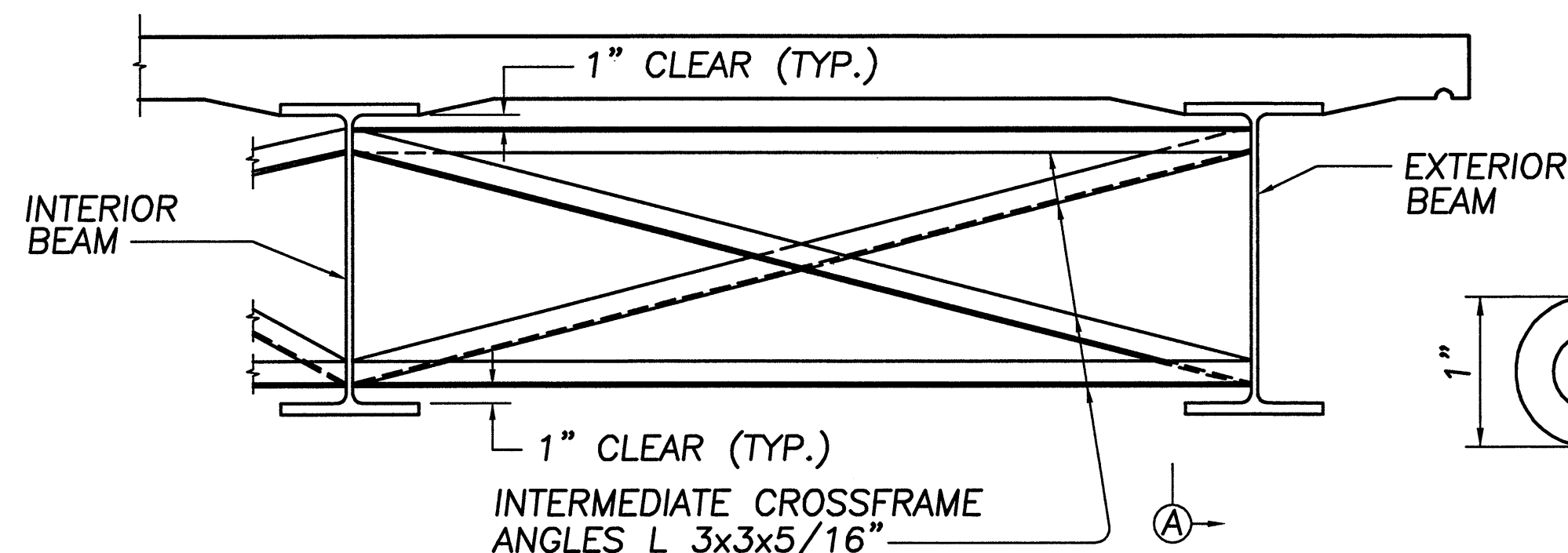
NOTE A:
PORTION OF EXISTING BEAM "N" AND THREE (3) INTERMEDIATE CROSSFRAMES TO BE REMOVED. THE EXISTING BEAM FLANGES AND WEB SHALL BE GROUND SMOOTH TO THE SATISFACTION OF THE ENGINEER. INCLUDE WITH ITEM 202 FOR PAYMENT.

Record Drawing 8/13/98

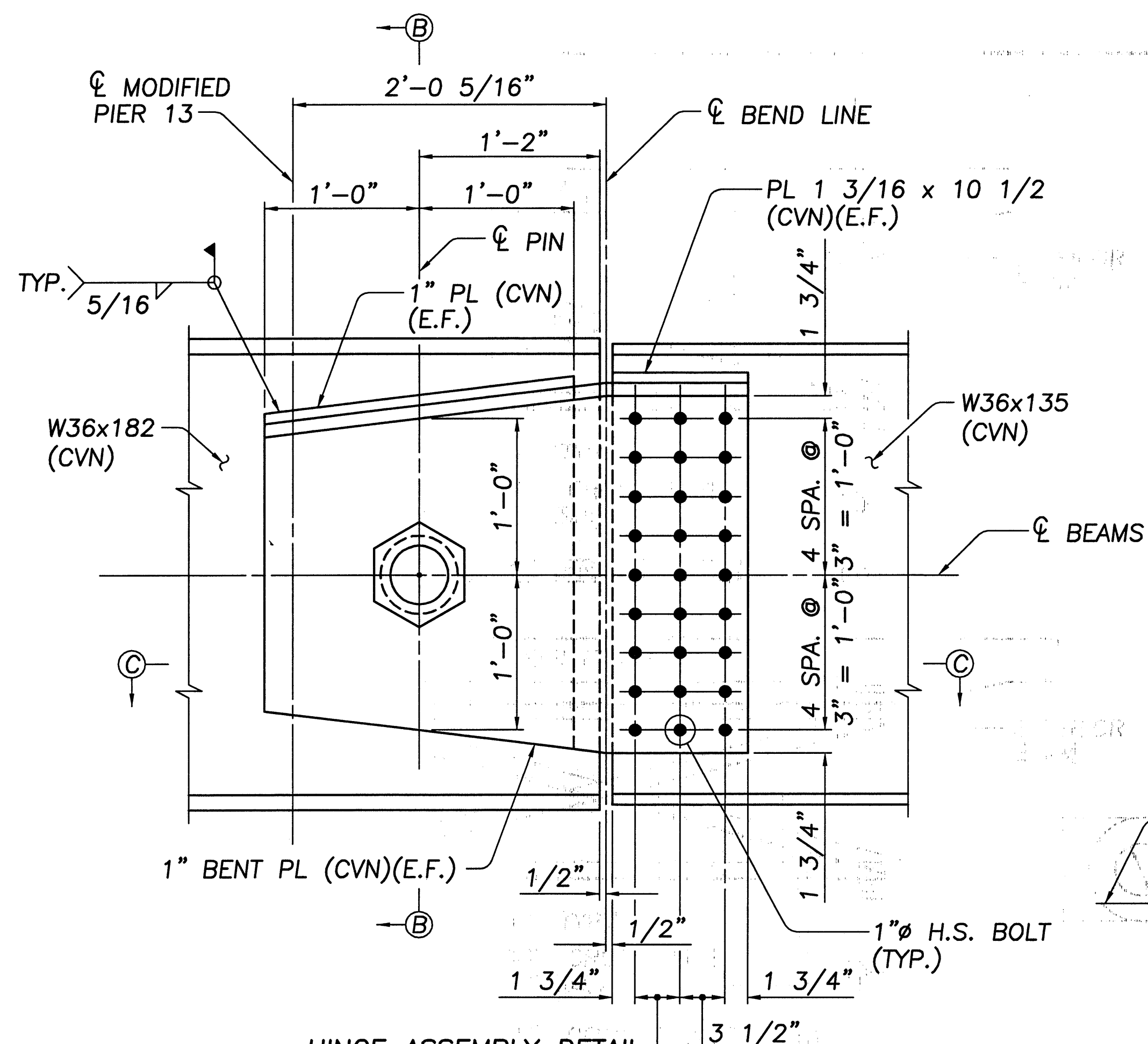
\\CLEW001\PMWORK\JOBS\26968\TECHPROD\BRIDGE\FINAL DRAWINGS\SUPERDET.DWG



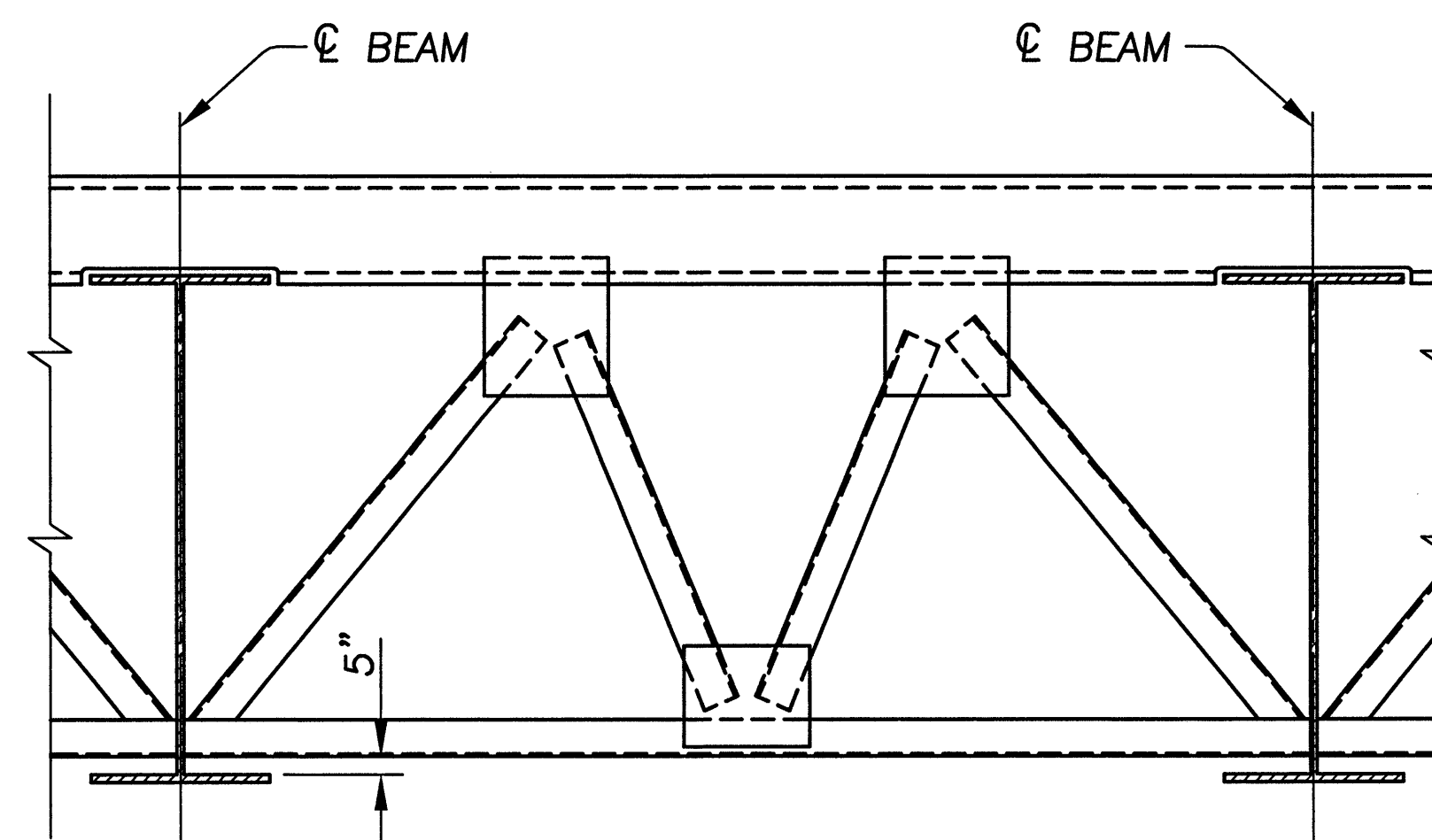
CROSSFRAME DETAIL



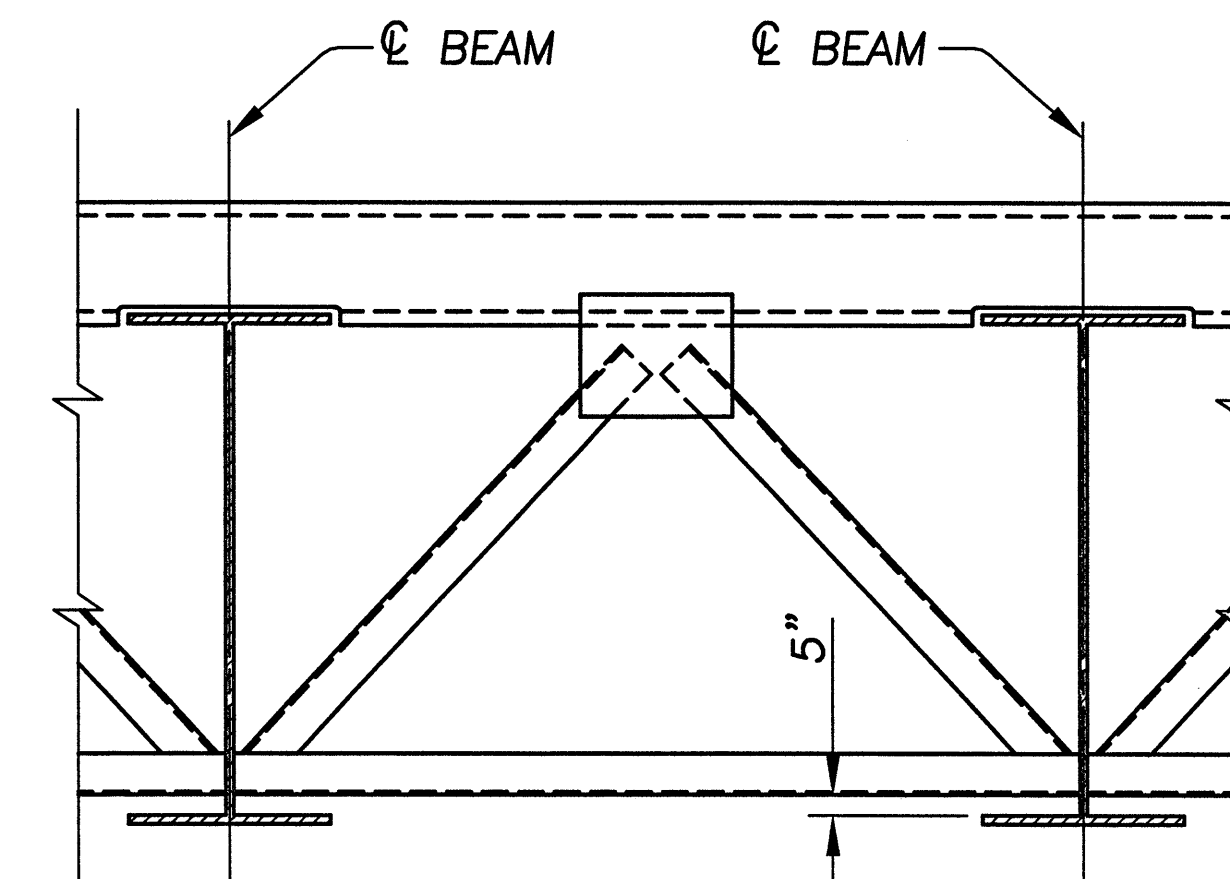
BEND POINT CROSSFRAME DETAIL



HINGE ASSEMBLY DETAIL
AT BEAM AA AND BB
(DEVELOPED ELEVATION)



END CROSSFRAME DETAIL
(FOR BEAM SPACES GREATER THAN 8'-0"
BUT LESS THAN 12'-0")



END CROSSFRAME DETAIL
(FOR BEAM SPACES LESS THAN 8'-0")

NOTES:

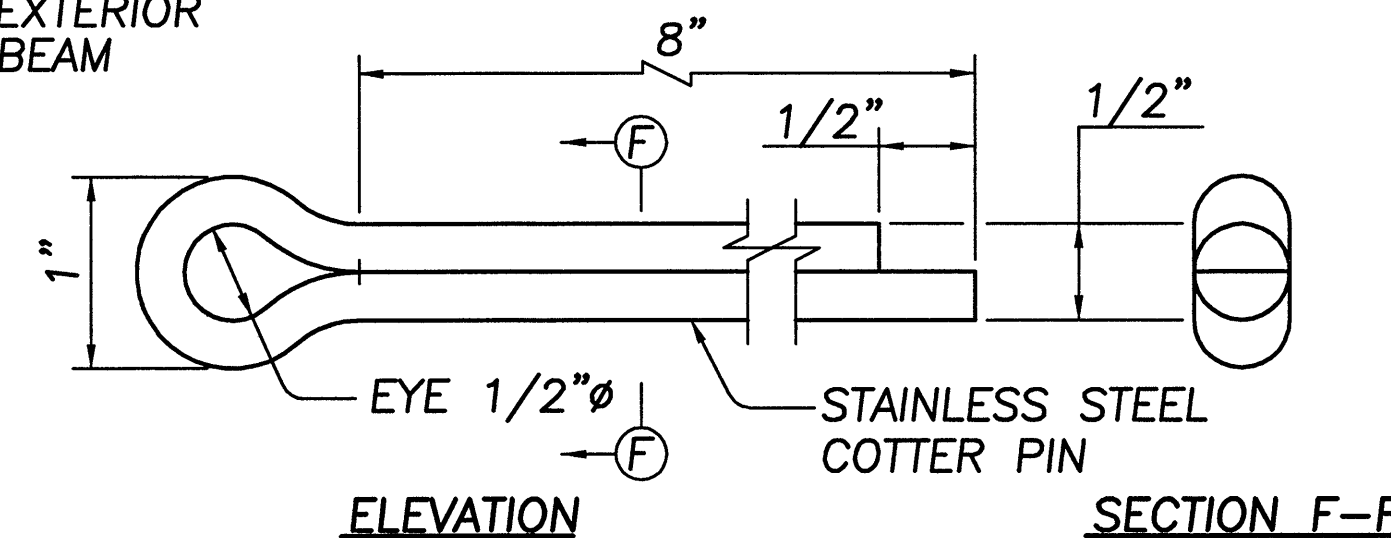
FOR SECTION A-A AND INTERMEDIATE AND BEND POINT CROSSFRAME DETAILS NOT SHOWN SEE ODOT STANDARD DRAWING GSD-1-96.

FOR END CROSSFRAME NOTES AND DETAILS NOT SHOWN SEE ODOT STANDARD DRAWING EXJ-4-87 SHEET 1 OF 5.

*DIMENSION TABLE FOR PINS AND NUTS

A	B	C	D	E
5"	1 3/4"	4 1/2"	6"	11"
F	G	H	J	K
5/8"	1 5/8"	6 1/2"	7"	8 1/8"

*2 PINS AND 4 RECESSED PIN NUTS ARE REQUIRED.



ELEVATION

SECTION F-F

COTTER PIN DETAIL

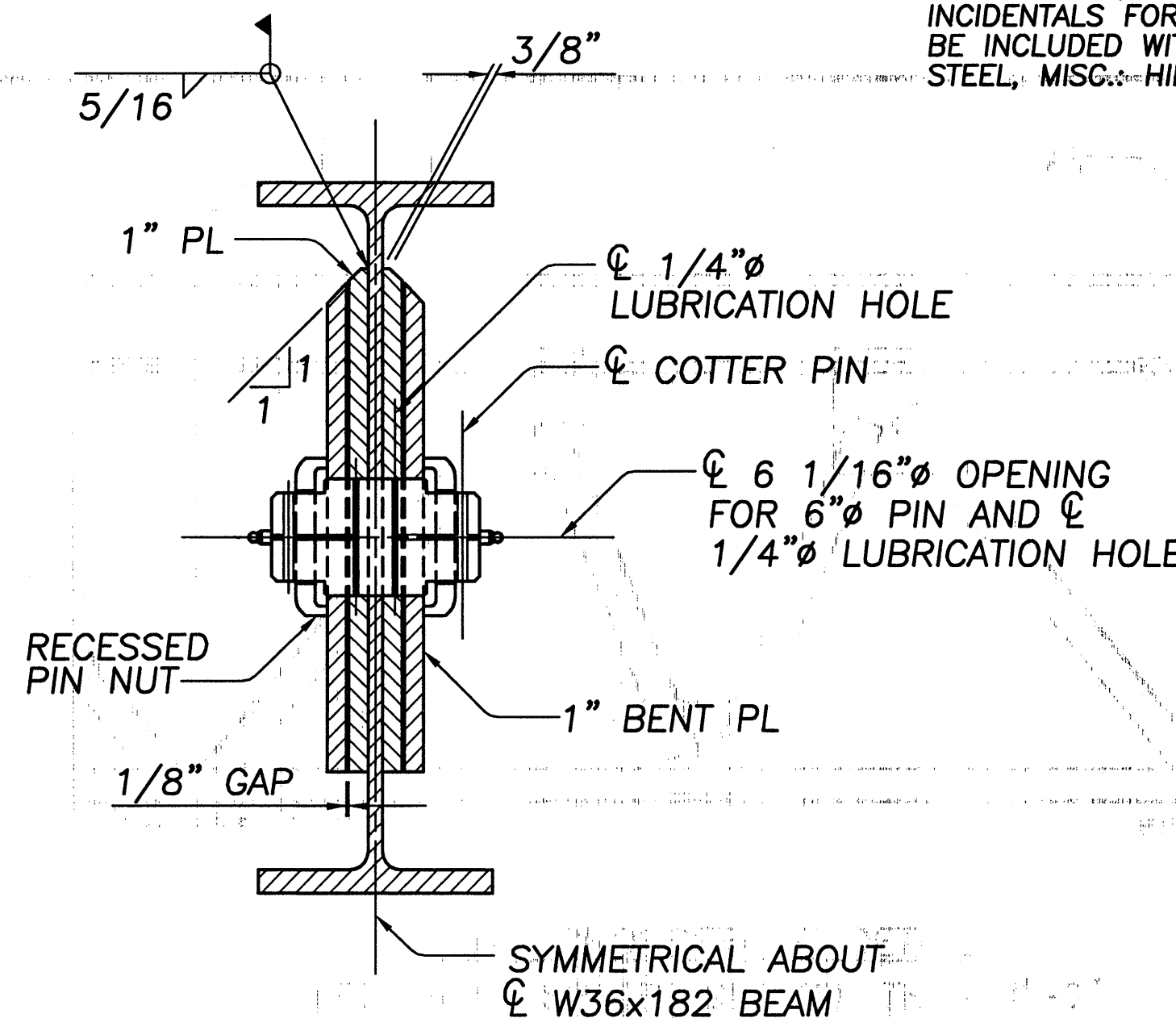
HINGE ASSEMBLY NOTES:

ALL BOLTS SHALL BE 1" DIAMETER ASTM A325 HIGH STRENGTH BOLTS.

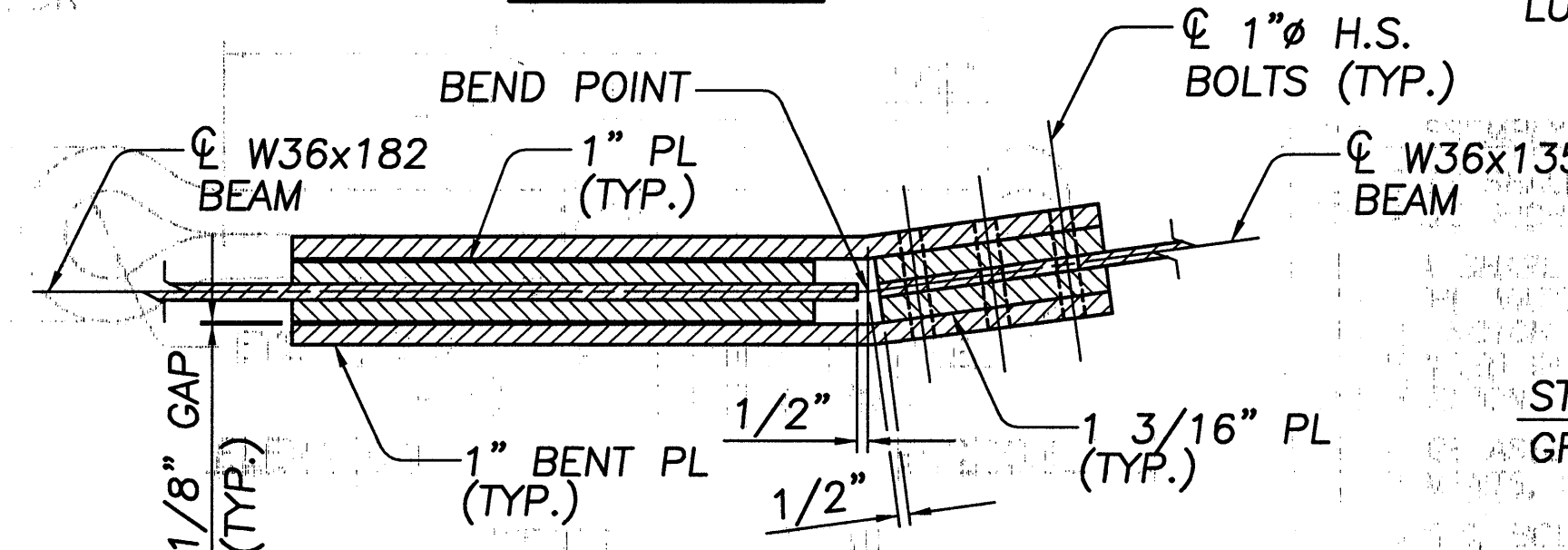
WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF THE O.D.O.T. CONSTRUCTION AND MATERIAL SPECS.

FOR HINGE ASSEMBLY MATERIALS AND REQUIREMENTS, SEE GENERAL NOTES.

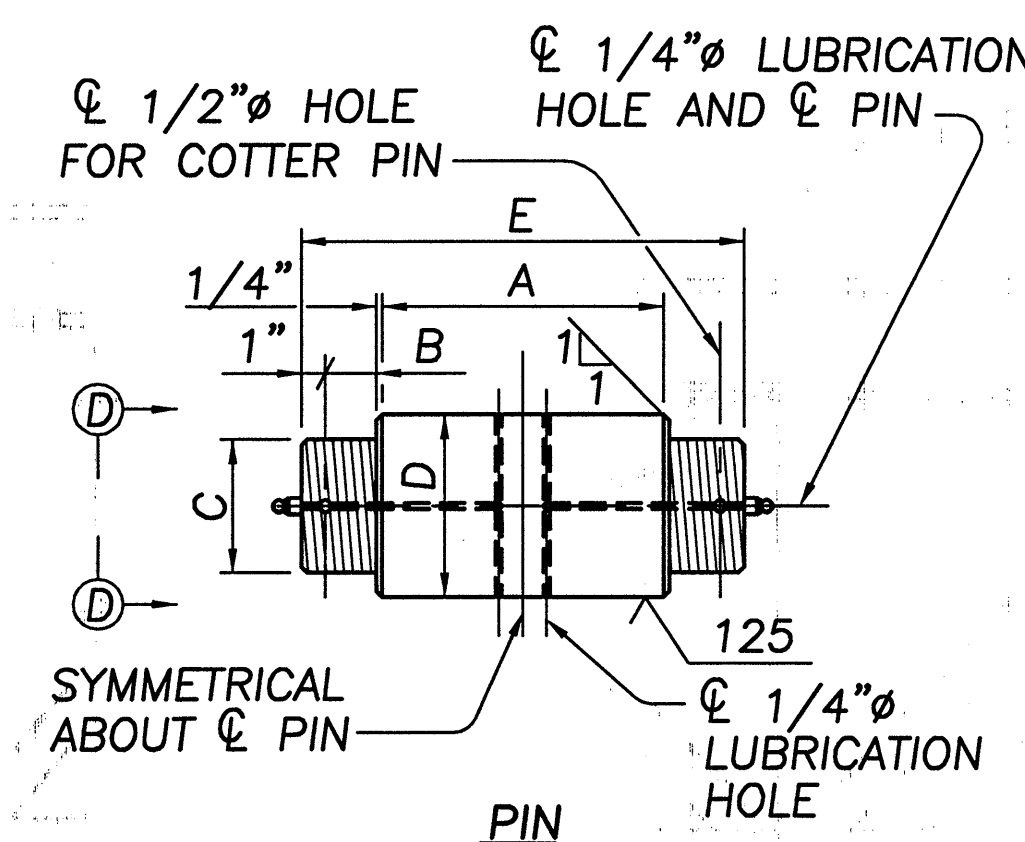
ALL PLATES, BOLTS, PINS, RECESSED PIN NUTS, COTTER PINS, GREASE FITTINGS AND OTHER INCIDENTALS FOR THE HINGE ASSEMBLIES SHALL BE INCLUDED WITH ITEM 513, STRUCTURAL STEEL, MISC. HINGE ASSEMBLIES, AS PER PLAN.



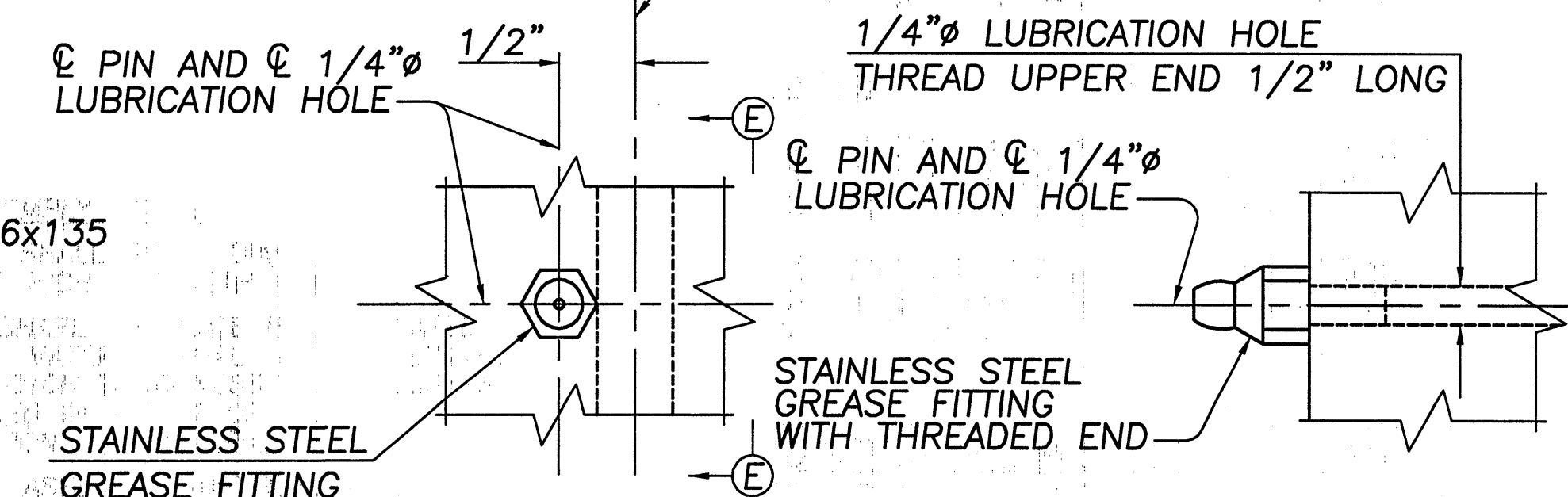
SECTION B-B



SECTION C-C



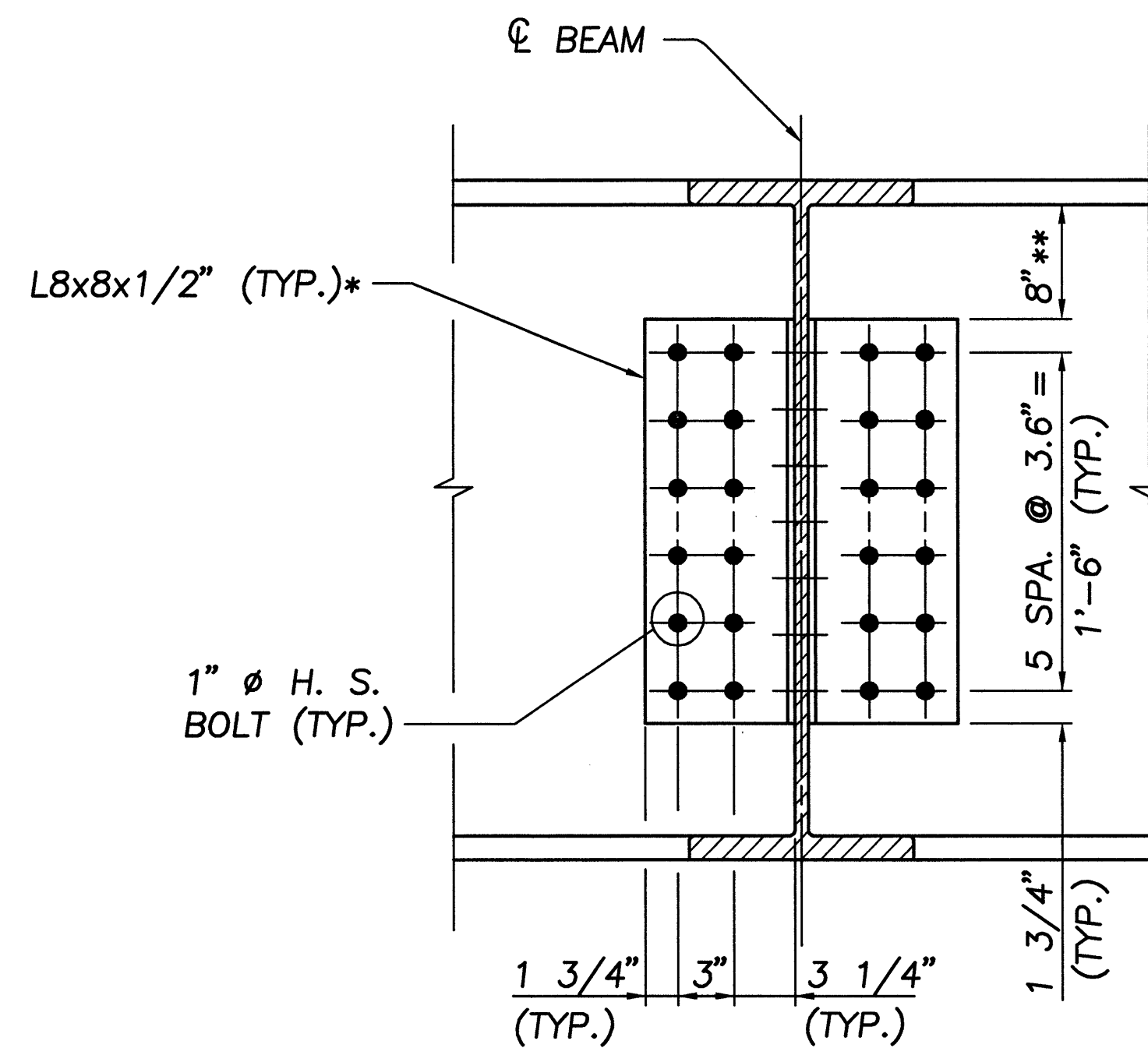
PIN AND PIN NUT DETAILS



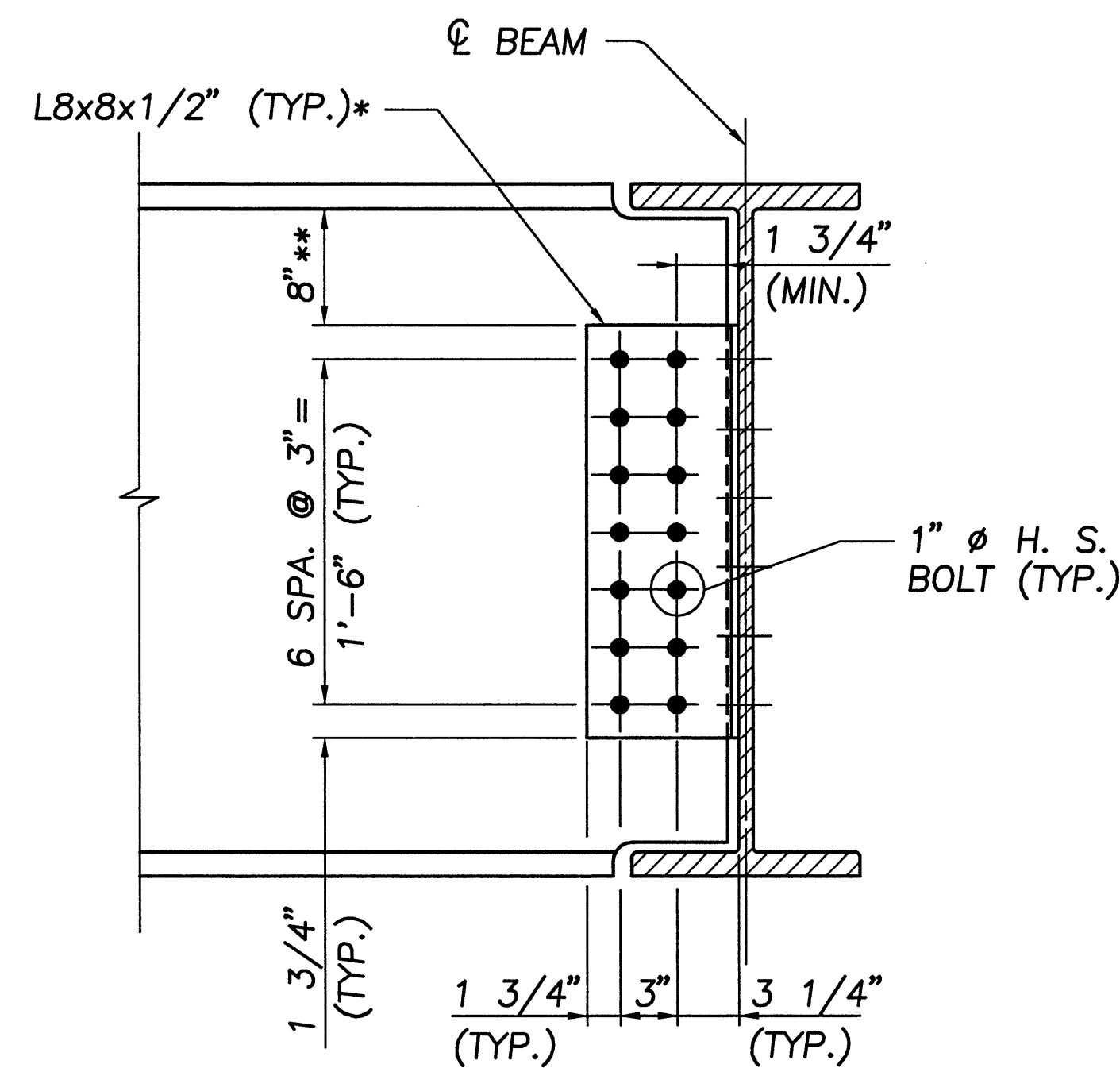
SECTION D-D

SECTION E-E
(COTTER PIN NOT SHOWN)

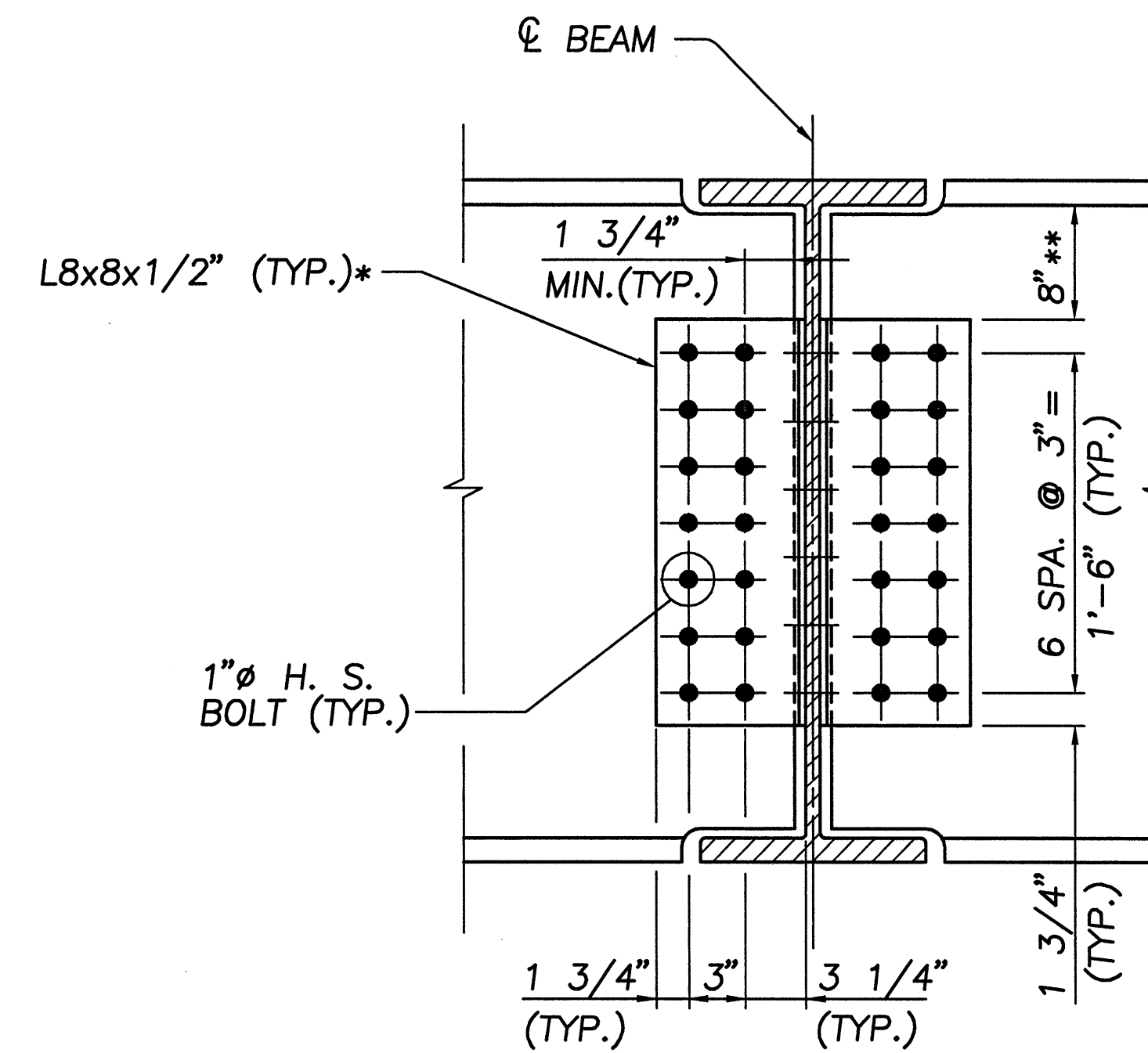
GREASE FITTING DETAILS



SECTION A-A
(TYPE A OR B CONNECTION)



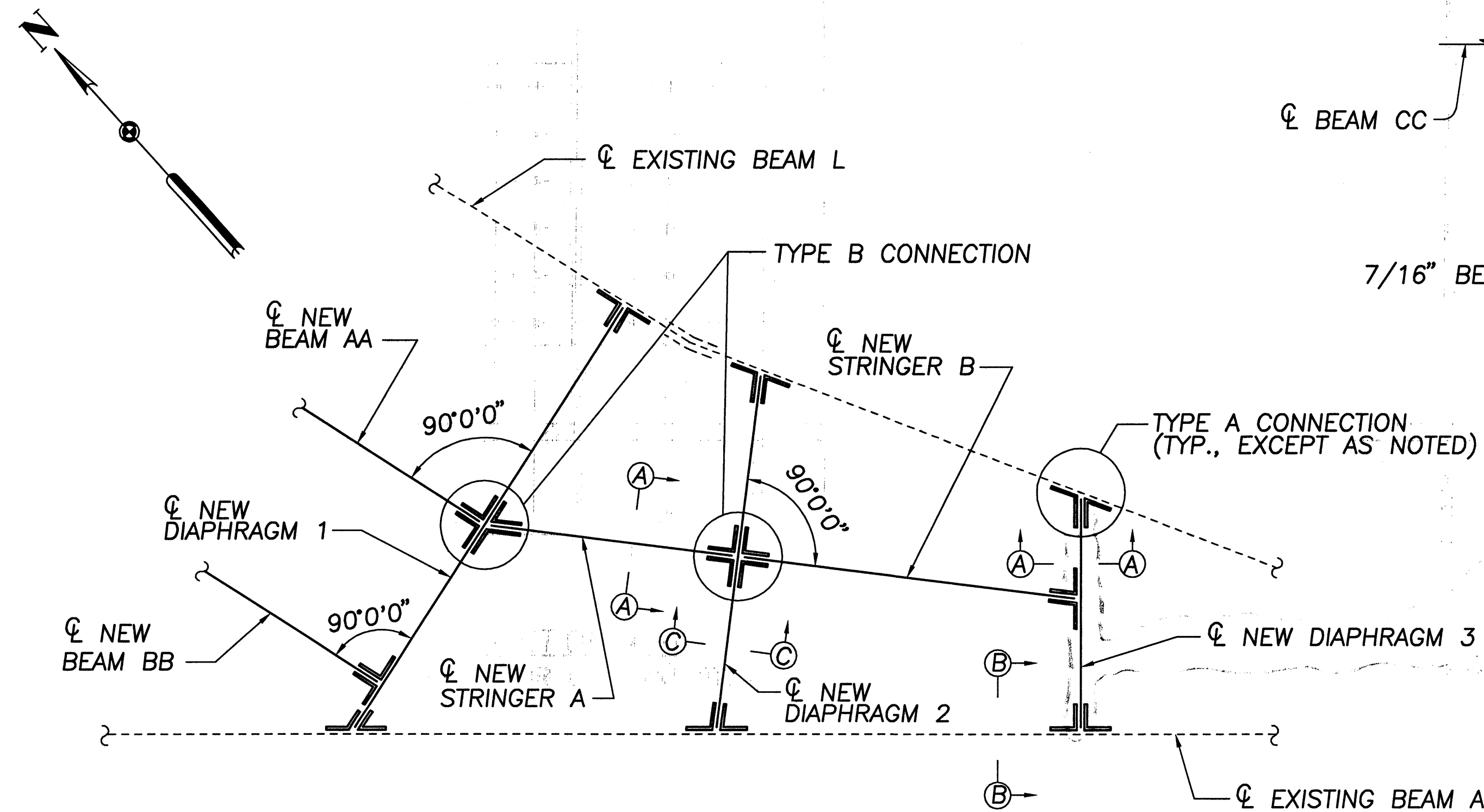
SECTION B-B
(TYPE A CONNECTION)



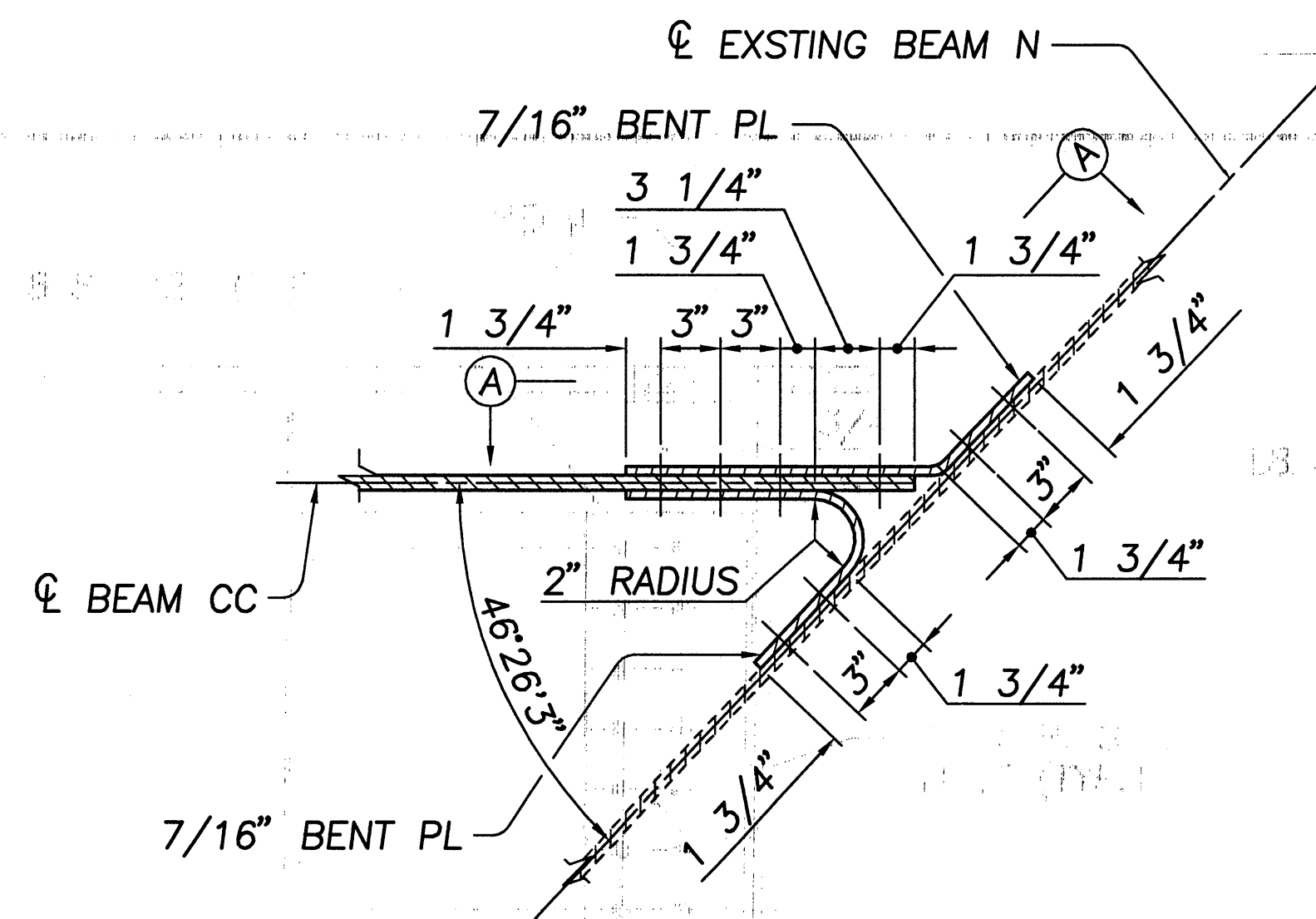
SECTION C-C
(TYPE B CONNECTION)

* - FOR INTERSECTIONS NOT EQUAL TO 90°, A 1/2" BENT PLATE MAY BE USED INSTEAD OF AN L8x8x1/2"

** - DIMENSION MAY BE ADJUSTED TO AVOID EXISTING CROSSFRAMES

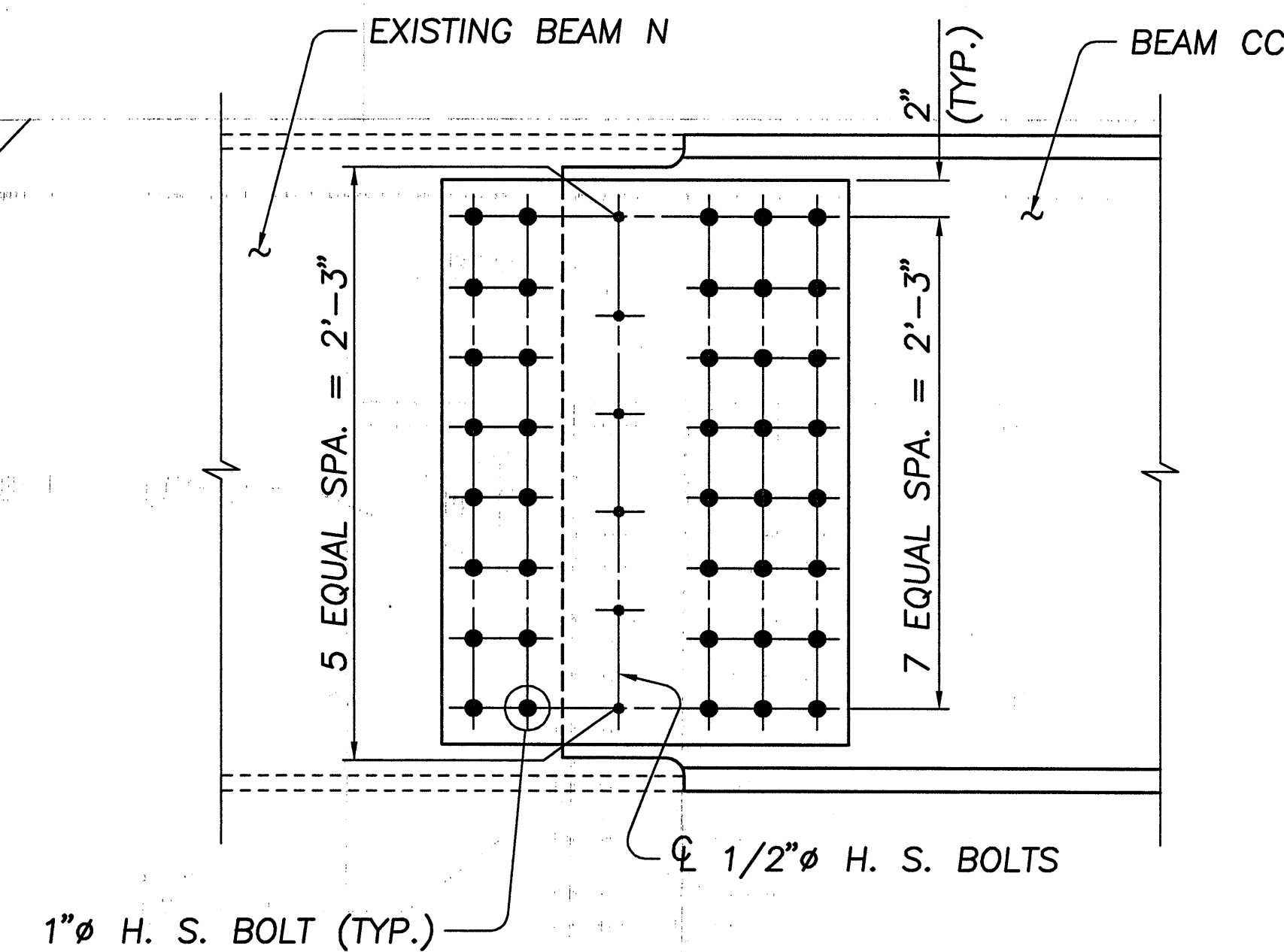


PARTIAL FRAMING PLAN
(STRINGERS AND DIAPHRAGMS)



CONNECTION PLAN

Shop fabricated Diaphragm 3 was improperly fabricated. Diaphragm 3 was field fabricated from removed portion of existing Beam N (W36x135).



VIEW A-A

CONNECTION DETAIL C
(BEAM CC TO BEAM N)

NOTES

ALL BOLTS SHALL BE ASTM A325 HIGH-STRENGTH BOLTS.

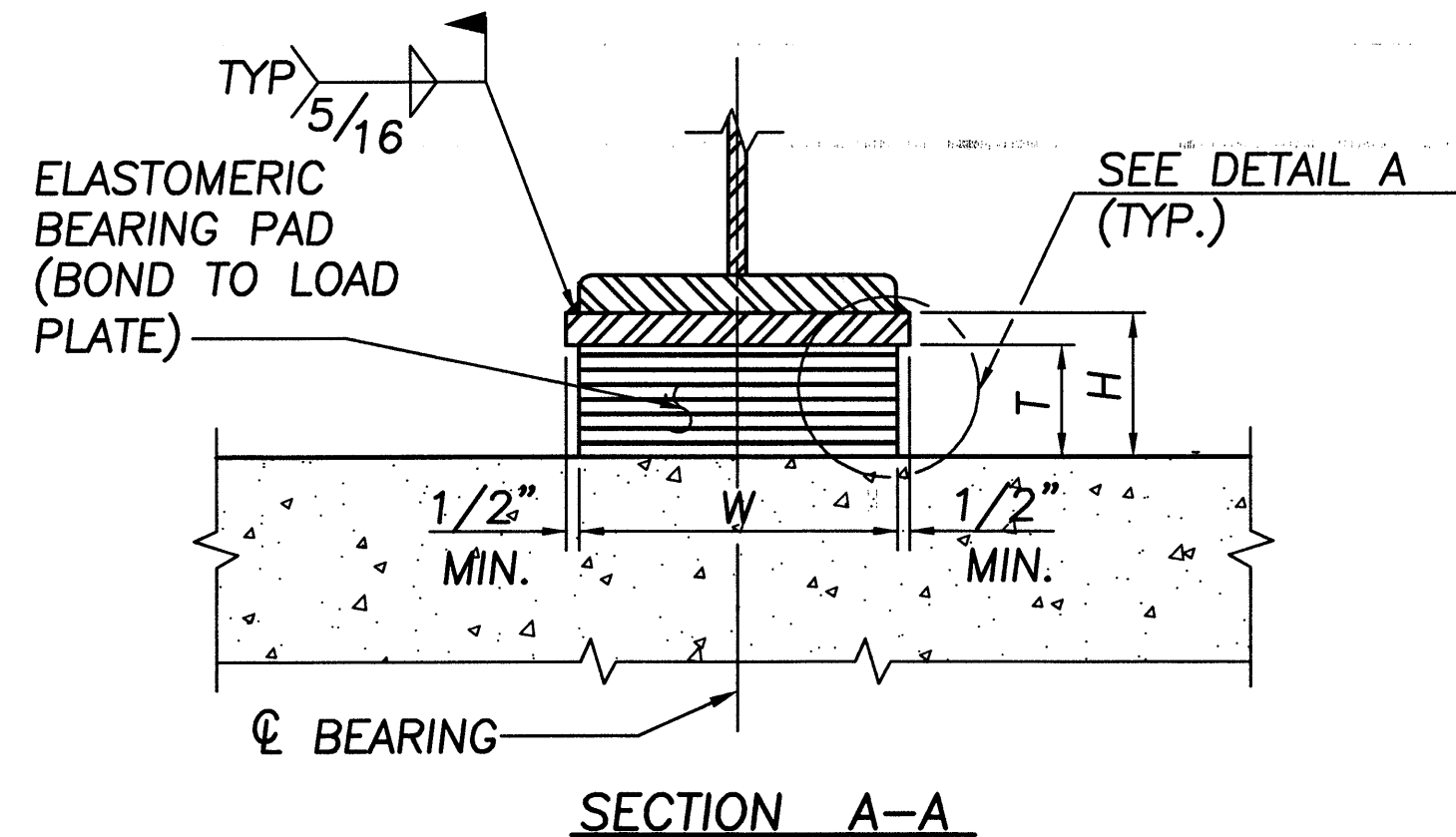
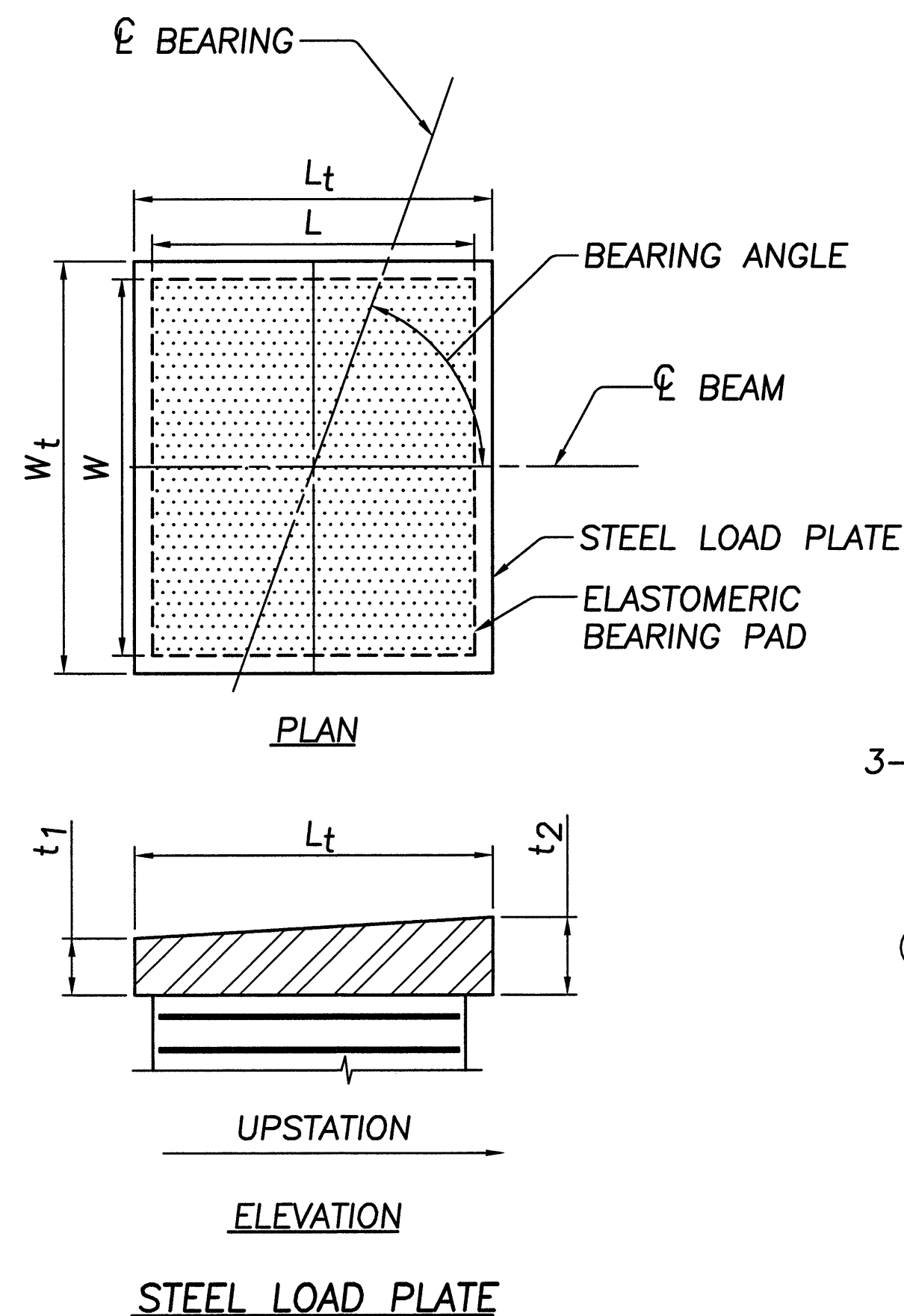
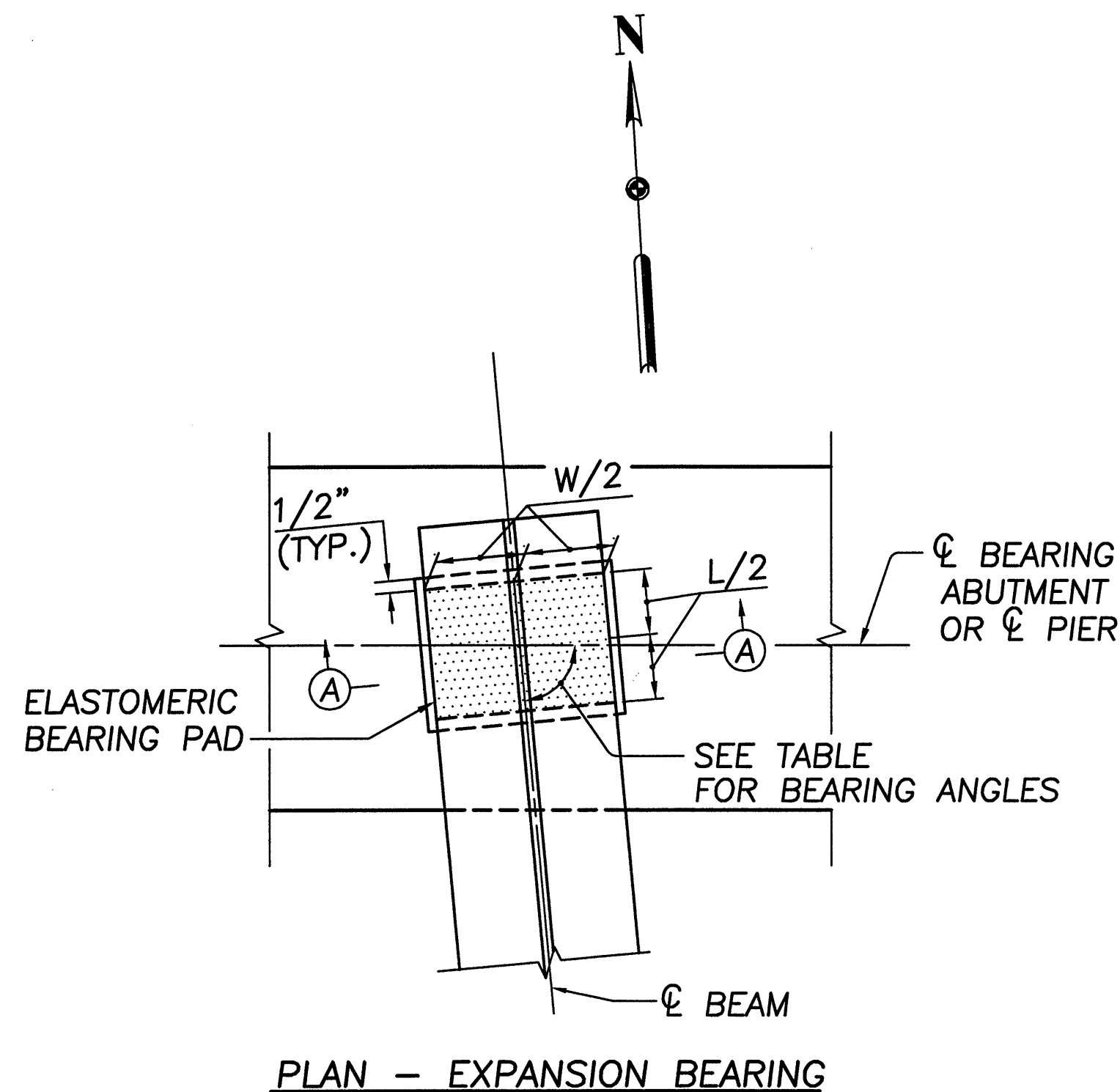
PRIOR TO CONNECTING BEAMS OR DIAPHRAGMS TO EXISTING BEAMS, THE CONNECTION AREA SURFACE OF THE EXISTING BEAM SHALL BE BLAST CLEANED AND HAVE PAINT REMOVED.

ALL CONNECTION ANGLES AND BENT PLATES SHALL BE A36 STEEL AND SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF THE ODOT MATERIAL SPECIFICATIONS.

DIAPHRAGM MEMBERS SHALL BE CONTINUOUS OVER NEW BEAM AND NEW STRINGERS LOCATIONS.

FOR ADDITIONAL DETAILS, INCLUDING DIAPHRAGM AND STRINGER SIZES SEE FRAMING PLAN, SHEET 18 OF 32.

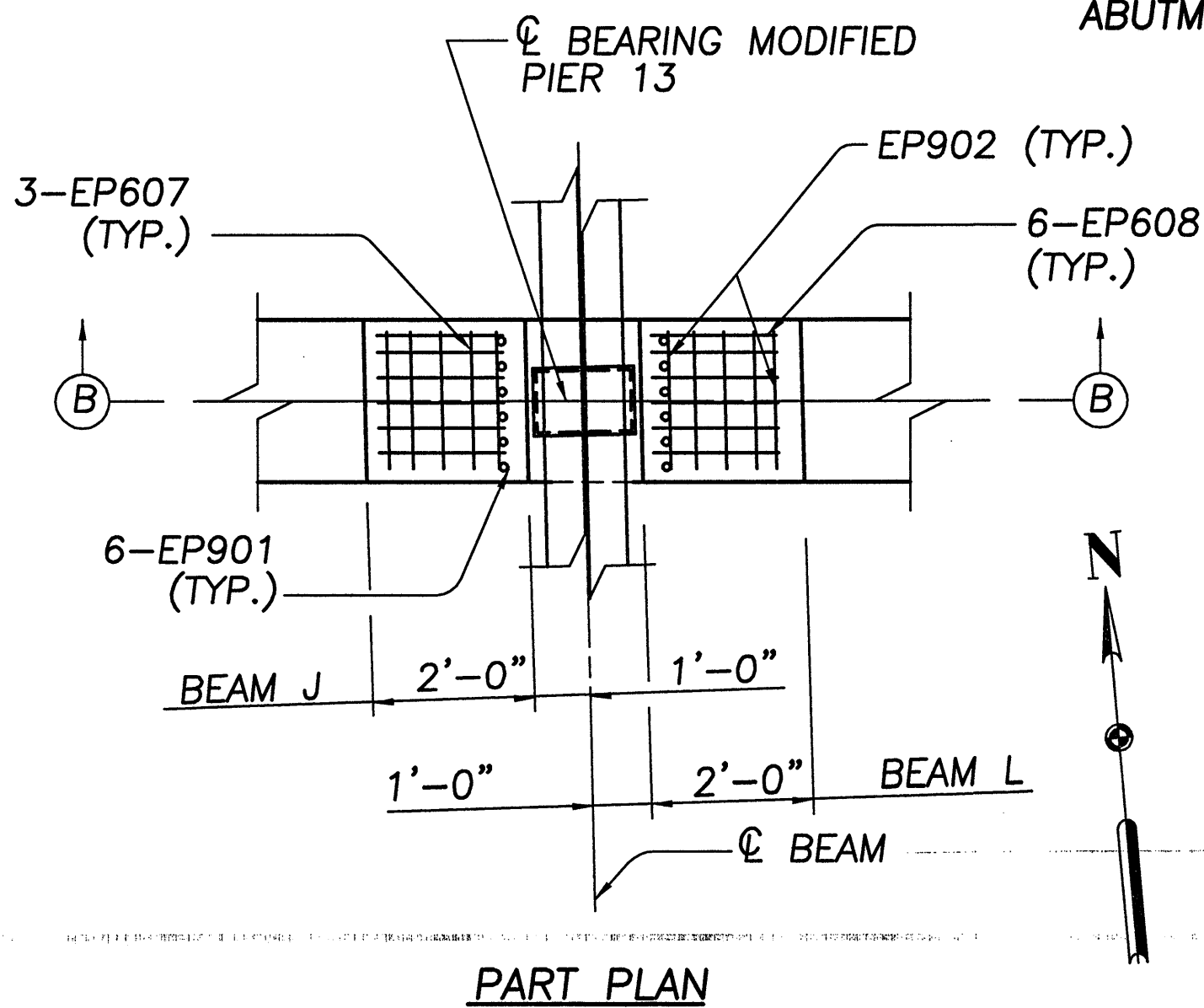
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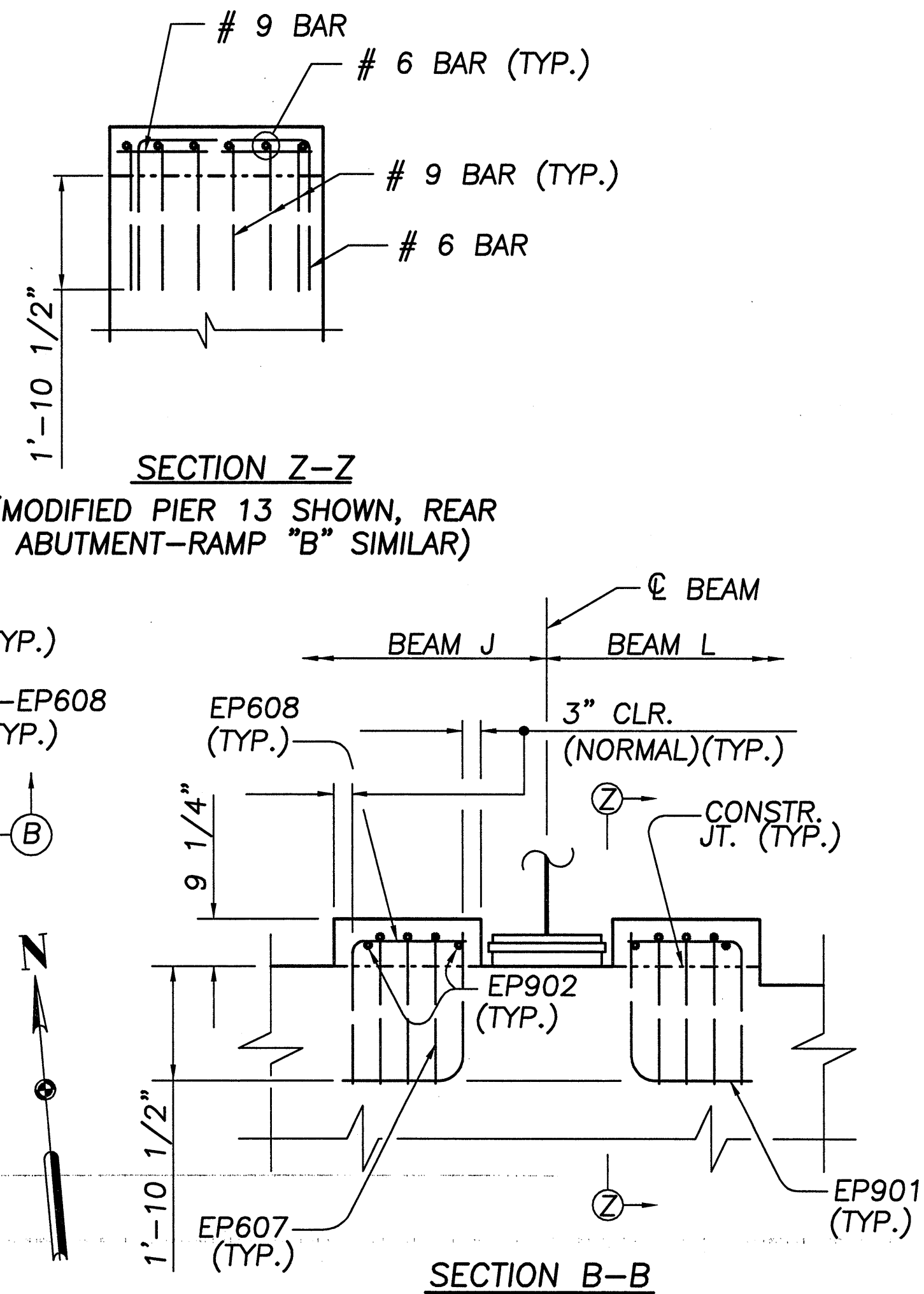
INTERNAL STEEL
LAMINATE THICKNESS =
0.0747" (14 GAGE)
(n = NUMBER OF PLATES)

DETAIL A

SEISMIC PEDESTAL NOTES:
FOR LOCATION OF SEISMIC
PEDESTALS SEE PLAN VIEW
ON SHEET 12 OF 32.



SECTION Z-Z
(MODIFIED PIER 13 SHOWN, REAR
ABUTMENT-RAMP "B" SIMILAR)



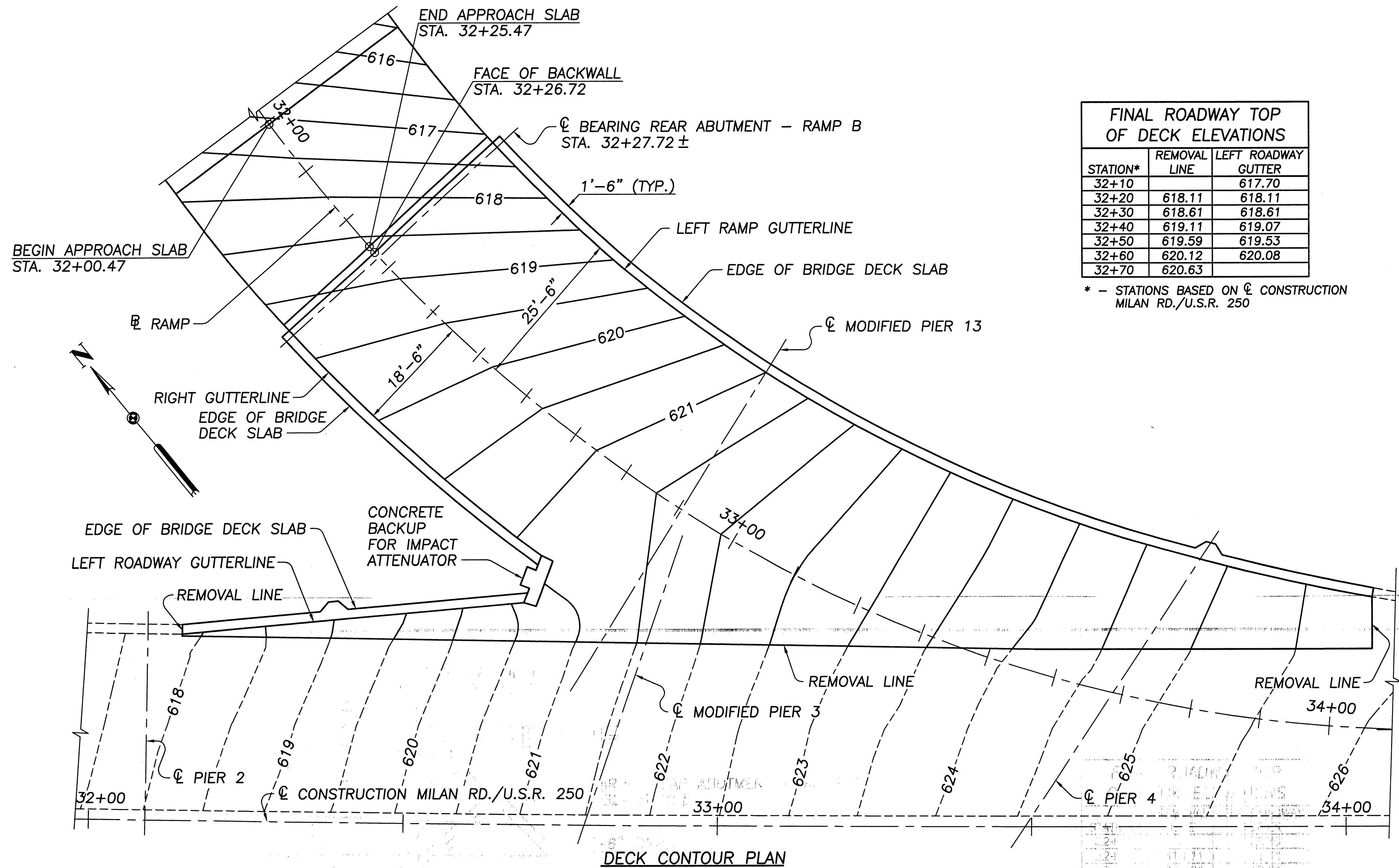
SEISMIC PEDESTAL DETAILS
(MODIFIED PIER 13)

NOTES:

- ELASTOMERIC BEARINGS SHALL COMPLY WITH ITEM 516 AND ARTICLES 18.2.5 THROUGH 18.2.8 OF SECTION 18, BEARING DEVICES, DIVISION II, CONSTRUCTION OF THE AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES. BEARINGS SHALL BE GRADE 3, 50 DUROMETER ELASTOMER, AND SHALL BE SUBJECTED TO THE LOAD TESTING REQUIREMENTS CORRESPONDING TO DESIGN METHOD A. TESTING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE BEARINGS, EACH.
- ELASTOMER: 50 DUROMETER
LOAD PLATE: THE LOAD PLATE SHALL BE ASTM A-36.
- INTERNAL STEEL LAMINATE THICKNESS = .0747"
- THE STEEL LOAD PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS. WELDING OF THE LOAD PLATE TO THE SUPERSTRUCTURE SHALL BE CONTROLLED SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE SHALL NOT EXCEED 300°F AS DETERMINED BY THE USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES, WHICH SHALL BE SUPPLIED BY THE CONTRACTOR.
- BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516, LAMINATED ELASTOMERIC BEARING, AS PER PLAN.
- BEARING REPOSITIONING: IF THE STEEL IS ERECTED AT AN AMBIENT TEMPERATURE HIGHER THAN 80°F OR LOWER THAN 40°F AND THE BEARING SHEAR DEFLECTION EXCEEDS 1/6 OF THE BEARING HEIGHT AT 60°F ±10°F THE GIRDERS SHALL BE RAISED TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE AT 60°F ±10°F.
- TOTAL DESIGN LOAD FOR BEARINGS EQUALS THE SUM OF THE DEAD LOADS AND LIVE LOADS TABULATED IN THE BEARING TABLE.

ELASTOMERIC BEARING DATA

ELASTOMERIC BEARING DATA																	
LOCATION	BEAM	TYPE	DL (KIPS)	LL (KIPS) W/O IMPACT	TOTAL LOAD (DL+LL)	ELASTOMER						STEEL LOAD PLATE				BEARING ANGLES	
						L (IN.)	W (IN.)	t _e (IN.)	t _i (IN.)	n	T (IN.)	L _t (IN.)	W _t (IN.)	t ₁ (IN.)	t ₂ (IN.)		H (IN.)
ABUTMENT	J	EXPANSION	33.0	56.9	89.9	8.5	12	.17	.24	7	2.62	9.5	13	1.5	2.11	4.42	83°52'22"
	K	EXPANSION	42.6	71.3	113.9	9	14	.19	.26	7	2.8	10	15	1.5	2.10	4.60	83°52'22"
	L	EXPANSION	39.9	64.0	103.9	9	14	.19	.26	7	2.8	10	15	1.54	2.07	4.60	83°52'22"
	AA	EXPANSION	53.5	56.8	110.2	9	14	.19	.26	7	2.8	10	15	1.56	2.05	4.60	83°52'22"
	BB	EXPANSION	55.1	56.9	112.0	9	14	.19	.26	7	2.8	10	15	1.59	2.02	4.60	83°52'22"
	CC	EXPANSION	49.4	48.213	97.6	8.5	12	.17	.24	7	2.62	9.5	13	1.61	2.00	4.42	83°52'22"
PIER 13	J	EXPANSION	133.7	72.6	206.3	13.5	21	.28	.39	4	2.49	14.5	22	2.31	3.19	5.24	90°25'44"
	K	EXPANSION	159.5	88.0	247.5	13.5	21	.28	.39	4	2.49	14.5	22	2.38	3.12	5.24	90°25'44"
	L	EXPANSION	163.3	82.7	246.0	13.5	21	.28	.39	4	2.49	14.5	22	2.43	3.07	5.24	90°25'44"
	AA	EXPANSION	72.0	63.9	135.9	10.5	17	.22	.31	6	2.82	11.5	18	1.98	2.42	5.02	99°28'51"
	BB	EXPANSION	72.5	64.0	136.5	10.5	17	.22	.31	6	2.82	11.5	18	1.97	2.43	5.02	99°28'51"
	N	EXPANSION	87.1	73.2	160.3	10.5	17	.22	.31	6	2.82	11.5	18	1.86	2.54	5.02	53°02'48"



FINAL ROADWAY TOP OF DECK ELEVATIONS		
STATION*	REMOVAL LINE	LEFT ROADWAY GUTTER
32+10		617.70
32+20	618.11	618.11
32+30	618.61	618.61
32+40	619.11	619.07
32+50	619.59	619.53
32+60	620.12	620.08
32+70	620.63	

* - STATIONS BASED ON ϕ CONSTRUCTION MILAN RD./U.S.R. 250

FINAL RAMP PAVEMENT AND TOP OF DECK ELEVATIONS				
STATION	LEFT RAMP GUTTER	PROFILE GRADE	RIGHT GUTTER	REMOVAL LINE
32+00	615.46	617.05	617.90	
32+10	616.07	617.67	618.41	
32+20	616.70	618.30	618.93	
32+30	617.33	618.88	619.41	
32+40	617.97	619.37	619.80	
32+50	618.59	619.86	620.17	
32+60	619.23	620.35	620.56	
32+70	619.85	620.82	620.93	
32+80	620.43	621.26		620.47
32+90	620.99	621.68		621.16
33+00	621.55	622.09		621.80
33+10	622.07	622.44		622.38
33+20	622.59	622.83		622.84
33+30	623.11	623.26		623.29
33+40	623.50	623.72		623.72
33+50	623.89			624.07
33+60	624.29			624.43
33+70	624.66			624.80
33+80	625.00			625.12
33+90	625.35			625.39
34+00	625.64			625.67
34+10	625.88			

FINAL TOP OF DECK ELEVATIONS OVER BEAMS**												
SPAN LOCATION	REAR ABUT.	0.10	0.20	0.30	0.40	0.50	0.60	0.70	F.S.	0.80	0.90	PIER 13
BEAM J	617.35	617.70	618.07	618.45	618.84	619.23	619.62	620.01	620.34	620.39	620.72	621.06
BEAM K	618.02	618.36	618.69	619.06	619.40	619.72	620.10	620.45	620.70	620.74	621.08	621.37
BEAM L	618.58	618.89	619.21	619.52	619.82	620.15	620.47	620.77	621.03	621.08	621.34	621.62
BEAM AA	618.87	619.17	619.47	619.75	620.04	620.34	620.62	620.92	----	621.20	621.39	621.59
BEAM BB	619.09	619.37	619.63	619.89	620.15	620.43	620.68	620.96	----	621.21	621.23	621.45
BEAM CC	619.28	619.54	619.76	619.99	620.23	620.46	620.70	620.92	----	621.06	621.07	621.19*
SPAN LOCATION	PIER 13	0.10	0.20	F.S.	0.30	0.40	0.50	0.60	0.70	0.80	0.90	PIER 4
BEAM J	621.06	621.52	621.96	622.03	622.37	622.80	623.18	623.53	623.86	624.19	624.53	624.81
BEAM K	621.37	621.72	622.12	622.22	622.48	622.85	623.16	623.49	623.81	624.13	624.45	624.75
SPAN LOCATION	PIER 13	0.10	0.20	0.30	F.S.	0.40	0.50	0.60	0.70	0.80	0.90	BEAM A
BEAM L	621.62	621.87	622.14	622.39	622.39	622.61	622.85	623.09	623.36	623.63	623.88	624.12
SPAN LOCATION	PIER 4	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	REM. LINE	
BEAM J	624.81	624.93	625.04	625.15	625.25	625.37	625.49	625.58	625.66	625.73	625.79	
SPAN LOCATION	BEAM A	0.10	F.S.	0.20	0.30	0.40	0.50	0.60	0.70	0.80	F.S.	0.90
BEAM N	618.53	618.80	619.04	619.07	619.33	619.58	619.89	620.19	620.52	620.85	620.92	621.09
SPAN LOCATION	PIER 13	WEB SPLICE	0.10	0.20	0.30	DIAPH. 1	0.40	0.50	0.60	DIAPH. 2	0.70	0.80
BEAMS AA, A, B	621.59	621.67	621.74	621.90	622.07	622.20	622.22	622.38	622.53	622.60	622.67	622.81

* - ELEVATION AT CONNECTION OF BEAM CC AND EXISTING BEAM N

FINAL TOP OF DECK ELEVATIONS OVER BEAMS**					
SPAN LOCATION	PIER 4	0.10	0.20	0.30	REM. LINE
BEAM M	624.81	625.07	625.35	625.59	625.78
SPAN LOCATION	PIER 13	WEB SPLICE	0.50	DIAPH. 1	
BEAM BB	621.45	621.53	621.76	622.08	

** - DECK ELEVATIONS SHOWN ARE THE FINISH DECK ELEVATIONS. PROPER ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS CAUSED BY THE WEIGHT OF CONCRETE. SPAN LOCATIONS FOR REAR ABUTMENT AND PIERS ARE AT ϕ BEARINGS.

NOTES:

ELEVATIONS GIVEN ALONG REMOVAL LINE ARE $\pm$. NEW PAVEMENT SHALL MATCH THE EXISTING PAVEMENT ELEVATION.

FOR SUPERELEVATION TRANSITION DIAGRAM SEE SHEET 27 OF 32.

FOR COMPUTATION OF DECK SCREED ELEVATIONS, REFER TO STRUCTURAL GENERAL NOTES.

THE FOLLOWING ABBREVIATIONS ARE USED:
DIAPH. = DIAPHRAGM
F.S. = FIELD SPLICE
REM. = REMOVAL

\\CLENOW\PMWORK\JOBS\28988\TECHPROD\BRIDGE\FINAL\DRAWINGS\CONTOUR.DWG

DECK CONTOUR PLAN AND ELEVATIONS
BRIDGE NO. ERI-250-0058
OVER CONRAIL RAILROAD

CITY OF SANDUSKY

25/32

77
84

DESIGNED: GLG
CHECKED: MJL
DRAWN: GLG
REVISED:
REVIEWED: CT
DATE: 09-26-97
STRUCTURE FILE NUMBER: 2203189
HNTB
ARCHITECTS ENGINEERS PLANNERS

CONCRETE PLACEMENT SHALL BEGIN AT THE REAR ABUTMENT RAMP "B" AND PROCEED TO THE SOUTH WHERE THE CONCRETE PLACEMENT WILL END AT AND MATCH THE EXISTING DECK SLAB.

REQUIRED LAP LENGTHS	
#4 BARS	2'-4" MINIMUM
#5 BARS	3'-2" MINIMUM

HNTB
ARCHITECTS ENGINEERS PLANNERS
DESIGN AGENCY

VIEWED	DATE
GT	09-26-97
STRUCTURE FILE NUMBER	
2203180	

DRAWN
GLG
REVISED

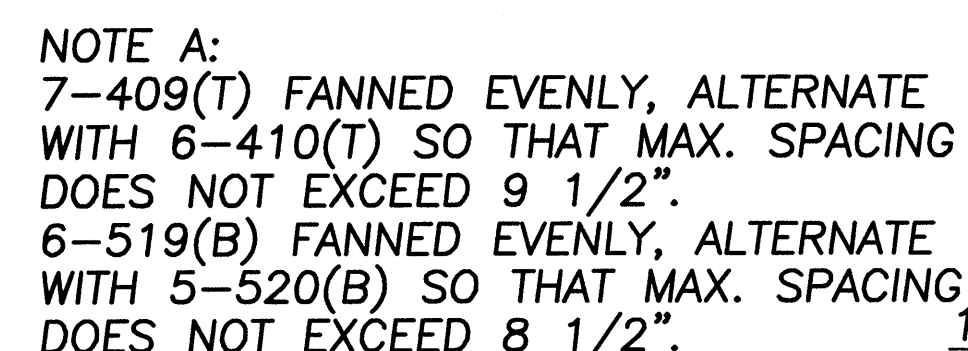
DESIGNED
BY
CHECKED
PLS

SLAB PLAN
BRIDGE NO. ER1-250-0058
OVER CONRAIL RAILROAD

CITY OF SANDUSKY

26/32

78
84



* - BARS ARE TO BE PLACED RADIALLY WITH A MAXIMUM SPACING OF 6".

** - SEE TYPICAL DECK CROSS SECTION FOR SPACING.

*** - FIELD CUT BARS AS REQUIRED
TO MAINTAIN 6" MINIMUM SPACING.

EXPANSION JOINT OPENING AT REAR ABUTMENT - RAMP "B"									
TEMPERATURE	30°F	40°F	50°F	60°F	70°F	80°F	90°F	MIN. OPEN.	MAX. OPEN.
JOINT OPENING	1 15/16"	1 13/16"	1 3/4"	1 5/8"	1 1/2"	1 7/16"	1 5/16"	1"	2 9/16"

CL PIER 13

3'-0" (TYP.) 19'-2" 17'-1"

603

606

VARIES 6'-0" TO 17'-0"

604

CL PIER 4

3'-0" 12'-7" 27'-0"

605

608

VARIES 8'-0" TO 29'-0"

607

NOTES:

ALL LONGITUDINAL REINFORCEMENT SHALL BE PLACED PARALLEL TO THE BEAMS, WITH THE EXCEPTION OF OUTSIDE THE FASCIA BEAMS, WHERE THE BARS SHALL BE PLACED CONCENTRIC TO THE EDGE OF THE SLAB. BETWEEN BEAMS WITH FLARED SPACING, BARS SHALL BE PLACED TO MAINTAIN EVEN SPACES BETWEEN THE BARS FOR THE ENTIRE LENGTH OF THE FLARE. FIELD BEND LONGITUDINAL BARS AS REQUIRED.

FOR TYPICAL DECK CROSS SECTION AND SUPERELEVATION
DIAGRAM SEE SHEET 27 OF 32.

FOR BARRIER DETAILS, SEE SHEET 28 OF 32.

FOR ADDITIONAL SLAB DETAILS, SEE SHEET 29 OF 32.

FOR REINFORCEMENT SCHEDULE, SEE SHEET 31 OF 32.

ALL BARS SHALL BE PREFIXED ES.

THE MINIMUM JOINT OPENING AT THE TIME OF THE SEAL GLAND INSTALLATION SHALL NOT BE LESS THAN 1 1/2". IF THE JOINT OPENING IS LESS, THE INSTALLATION SHALL BE POSTPONED UNTIL THE TEMPERATURE DROPS A SUFFICIENT AMOUNT TO ALLOW THE MINIMUM 1 1/2" OPENING.

FOR LOCATION OF SECTION X-X AND ADDITIONAL DETAILS, SEE
STANDARD DRAWING NO. EXJ-4-87, REVISED 2-14-97,
SHEETS 1 THROUGH 5 OF 5.

T = TOP
B = BOTTOM
SER. = SERIES

\\CLEW00\PMWORK\JOBS\26968\TECHPROD\FINAL\DRAWINGS\SLABPLN.DWG

\\CLEW001\PMWORK\JOBS\26968\TECHPROD\BRIDGE\FINAL DRAWINGS\DECK.DWG

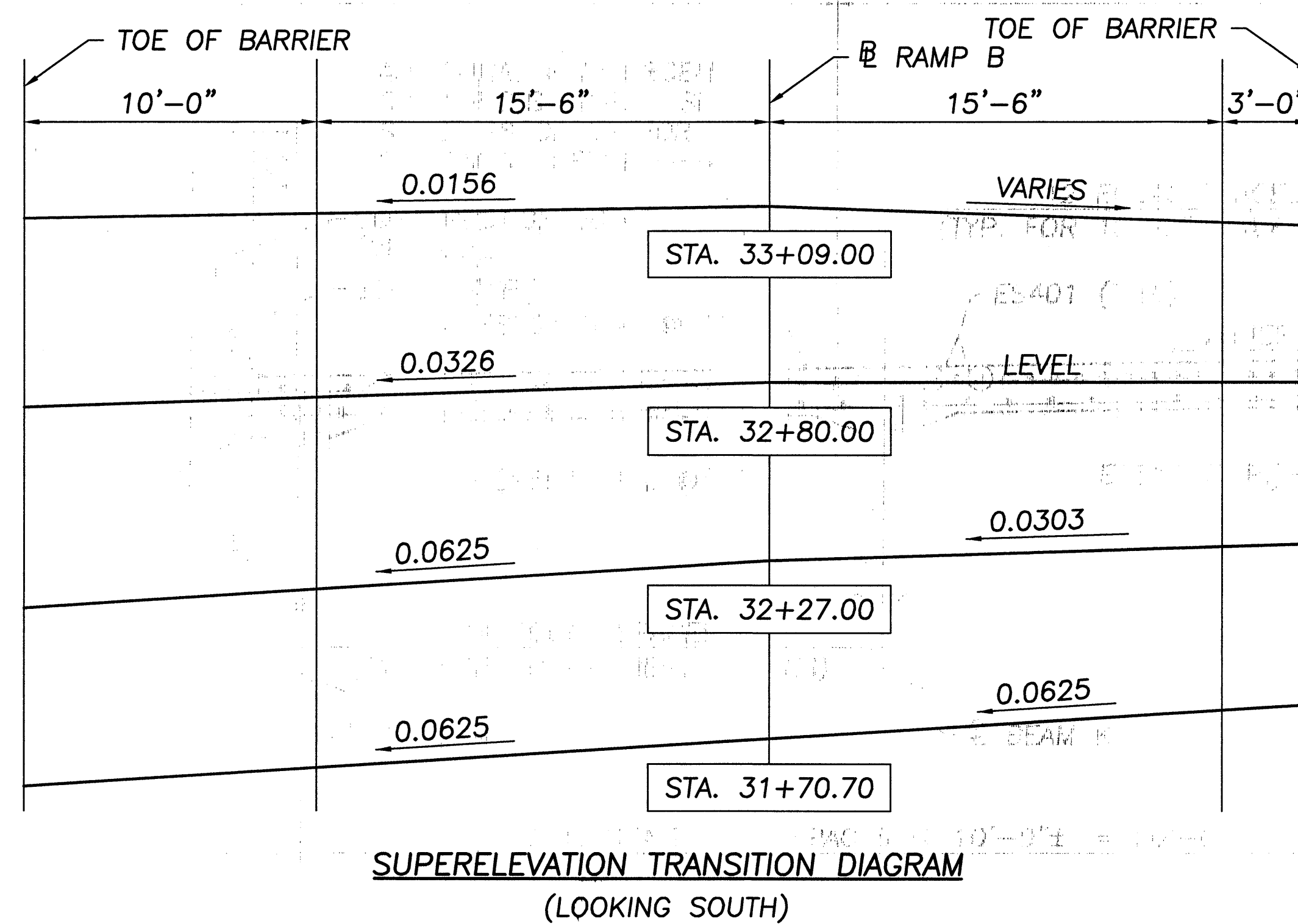
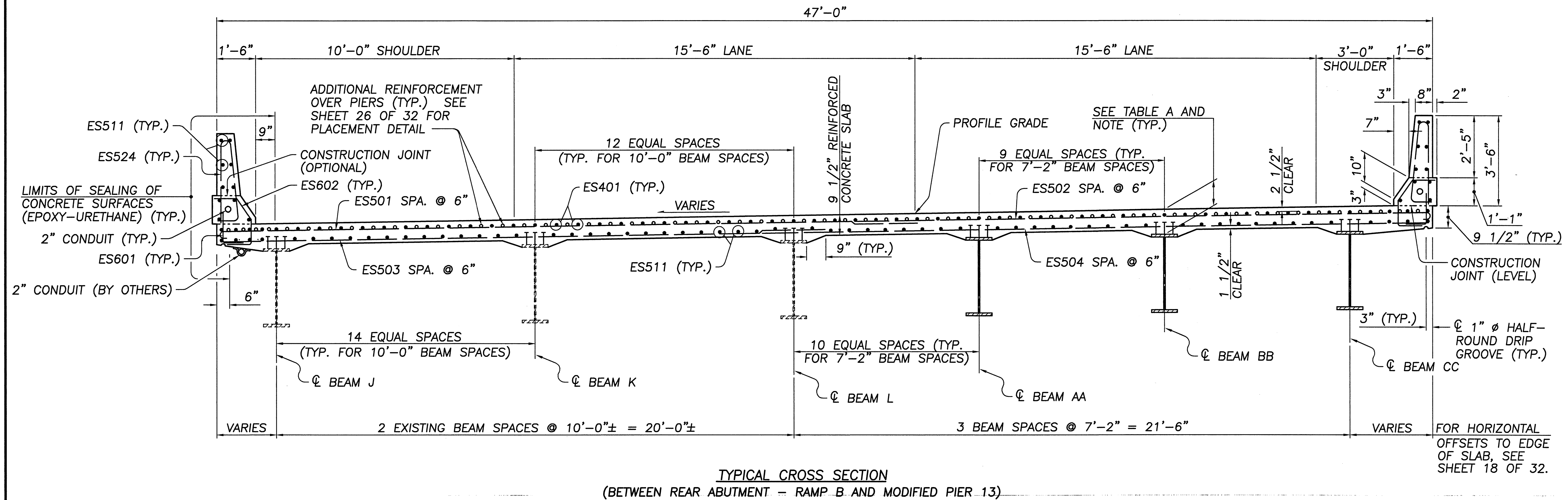


TABLE A*	
EX. BEAM J	VARIES 9 15/16" TO 13 9/16"
EX. BEAM K	VARIES 9 1/2" TO 13 1/4"
EX. BEAM L	VARIES 9 13/16" TO 13 1/16"
BEAM AA	9 13/16"
BEAM BB	9 13/16"
BEAM CC	9 15/16"

* - DIMENSION INDICATED IS DIMENSION FROM TOP OF DECK TO TOP OF BEAM FLANGE. FOR EXISTING BEAMS AT THE DECK REMOVAL JOINT, THE DIMENSION IS BASED ON EXISTING CONSTRUCTION PLANS AND ADJUSTED BY 1" FOR THE CONCRETE OVERLAY.

NOTES:

DECK SLAB DEPTH: THE DISTANCE SHOWN FROM THE TOP OF DECK SLAB TO THE TOP OF STEEL BEAM IS THE THEORETICAL DESIGN DIMENSION INCLUDING THE DESIGN HAUNCH THICKNESS. THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED ON THIS DIMENSION, MINUS THE DESIGN HAUNCH THICKNESS, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE BEAM MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE.

A HAUNCH WIDTH OF 9 INCHES SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6 AND 12 INCHES.

TYPICAL CROSS SECTION AND SLAB DETAILS
BRIDGE NO. ERI-250-0058
OVER CONRAIL RAILROAD

CITY OF SANDUSKY

27/32

79
84

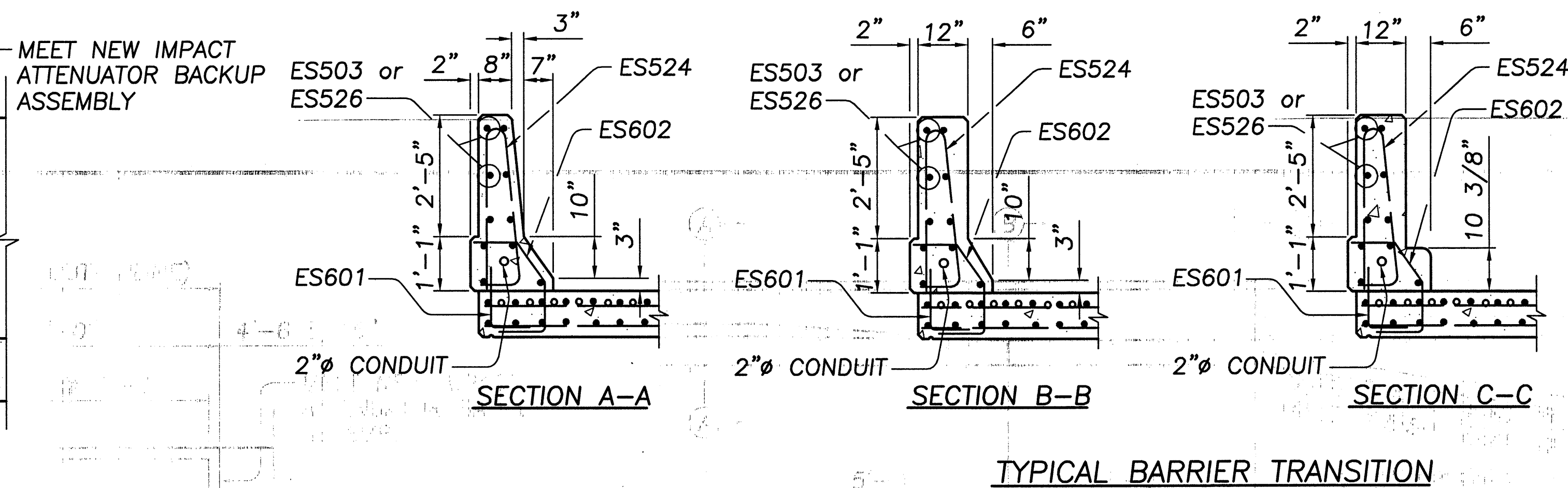
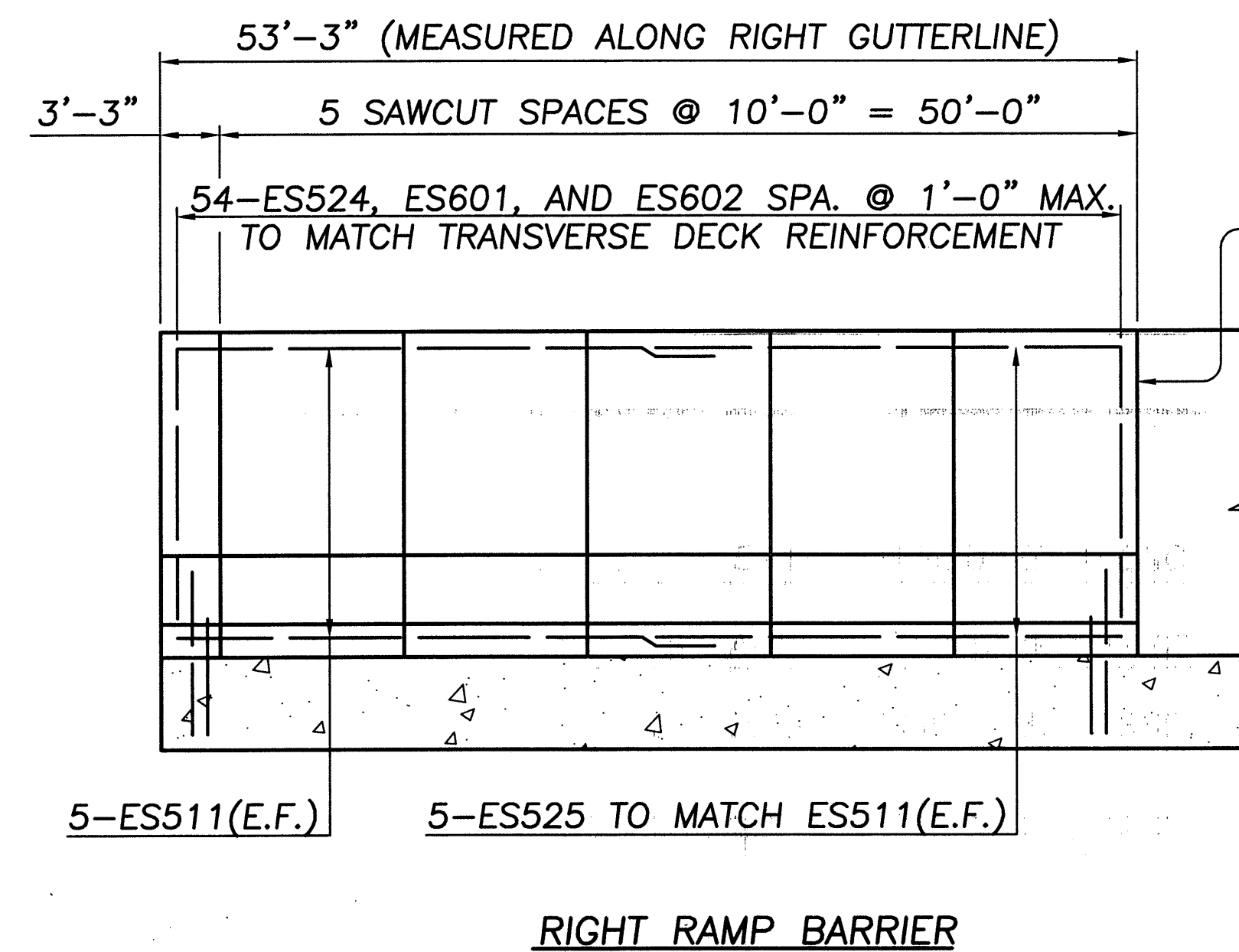
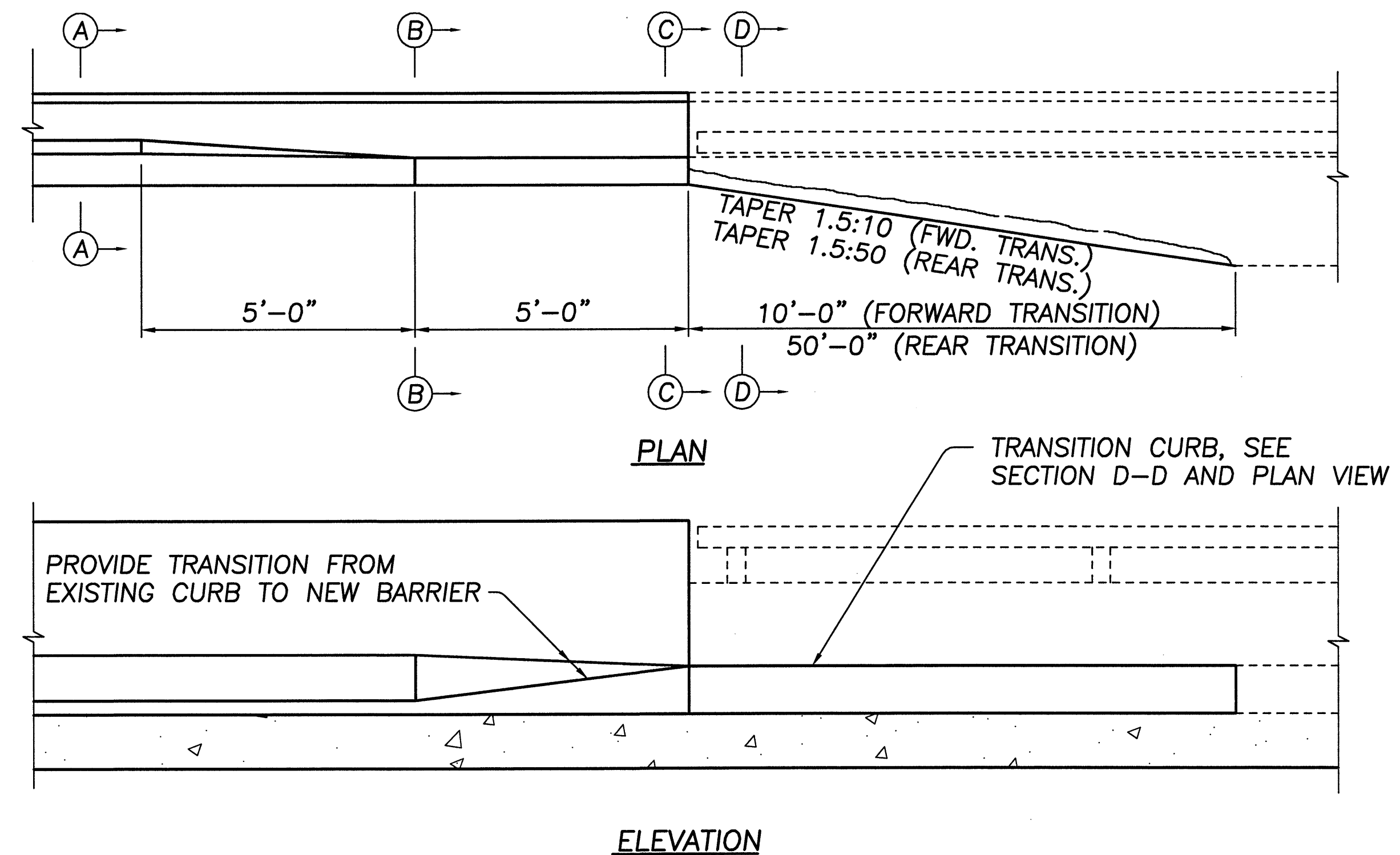
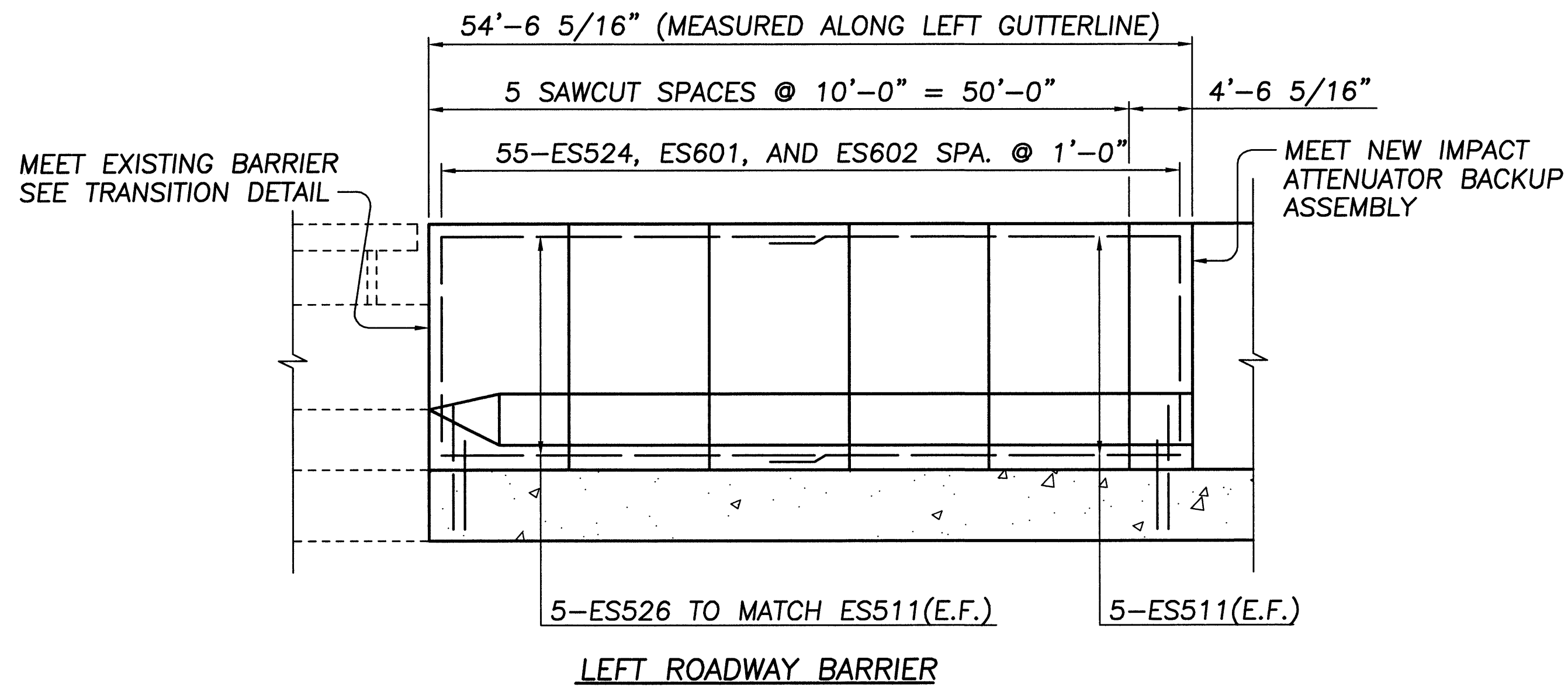
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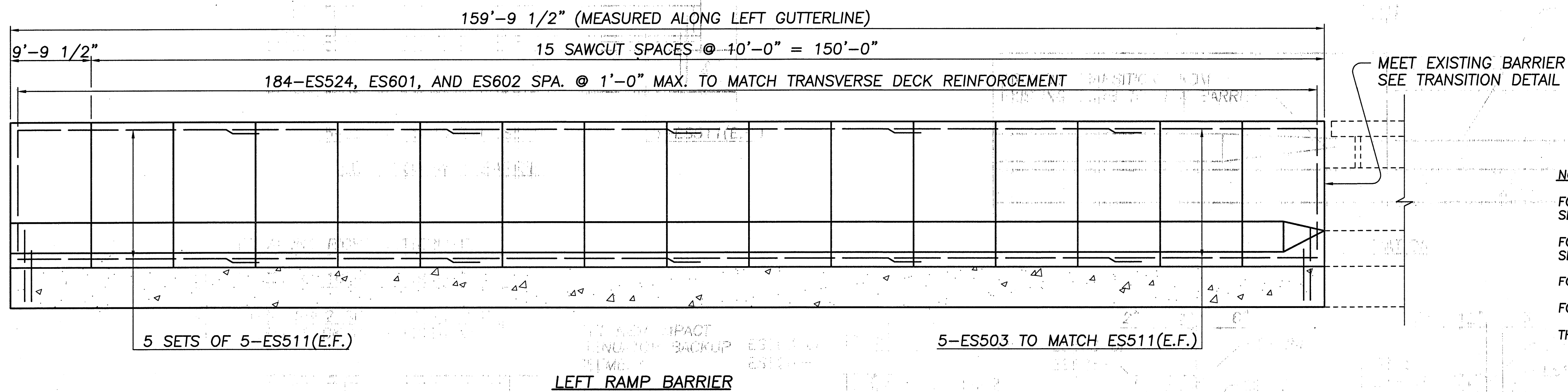
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DATE
09-26-97

STRUCTURE FILE NUMBER
2203189

DESIGN AGENCY
HNTB
ARCHITECTS ENGINEERS PLANNERS

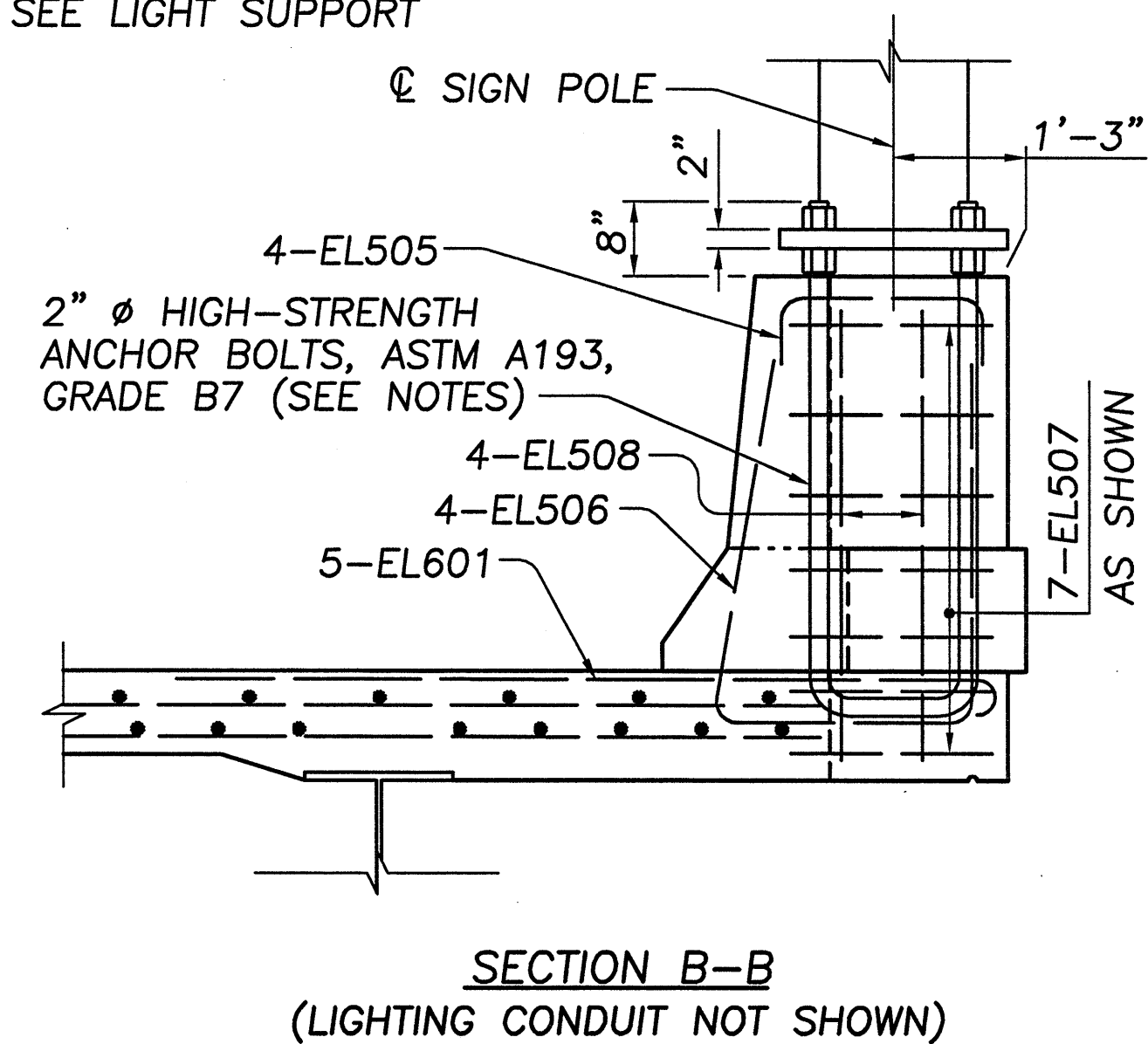
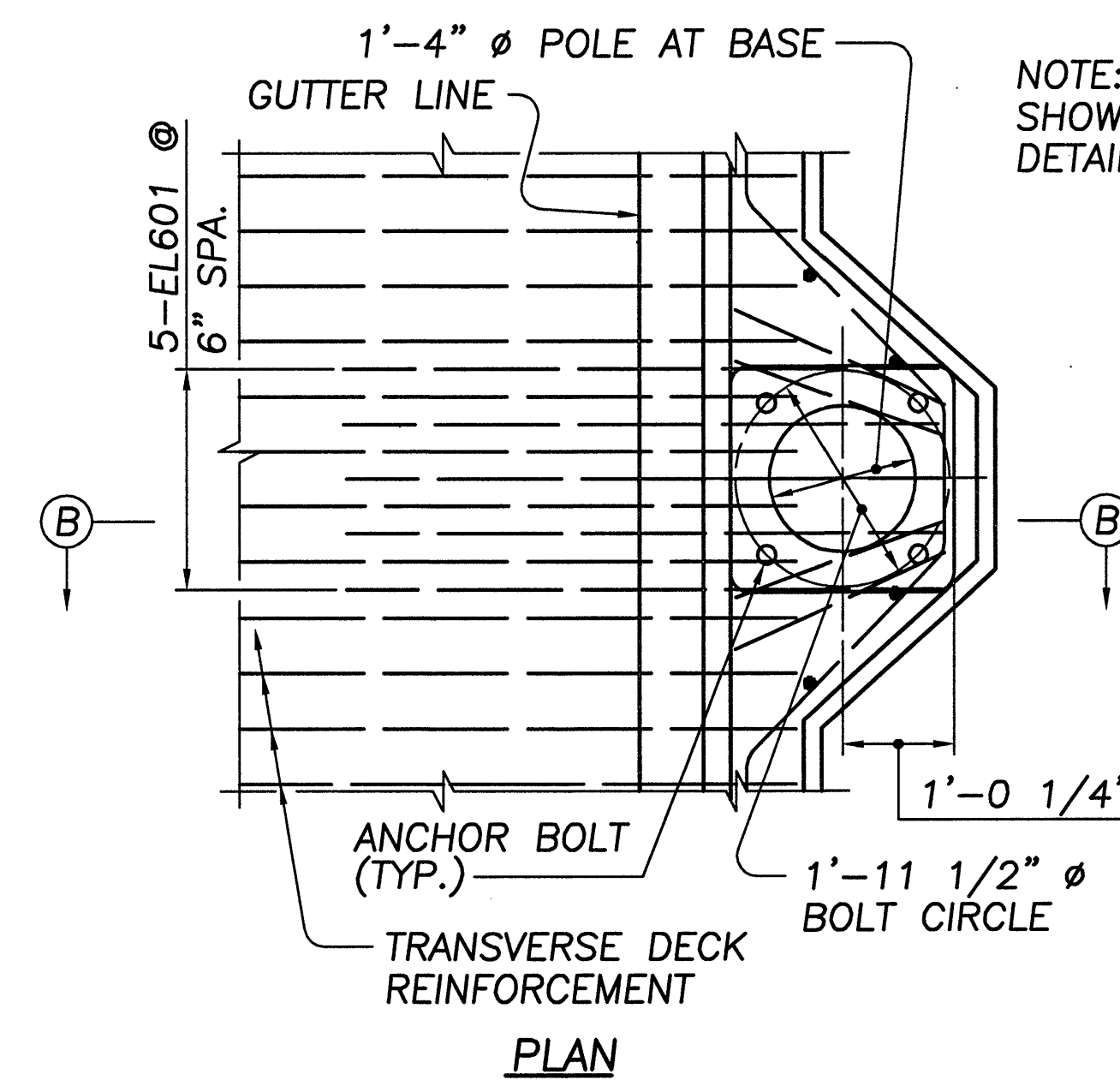
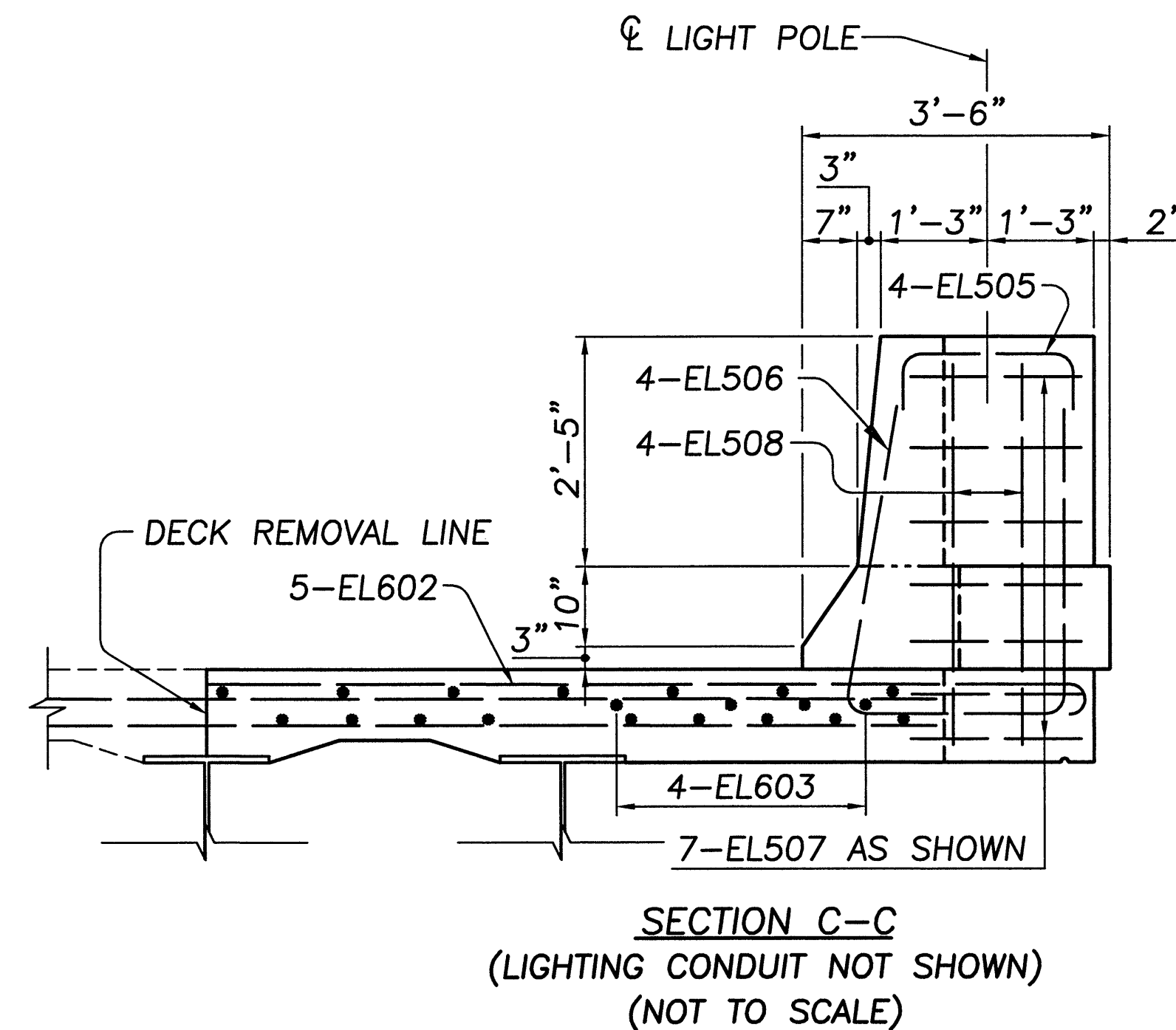
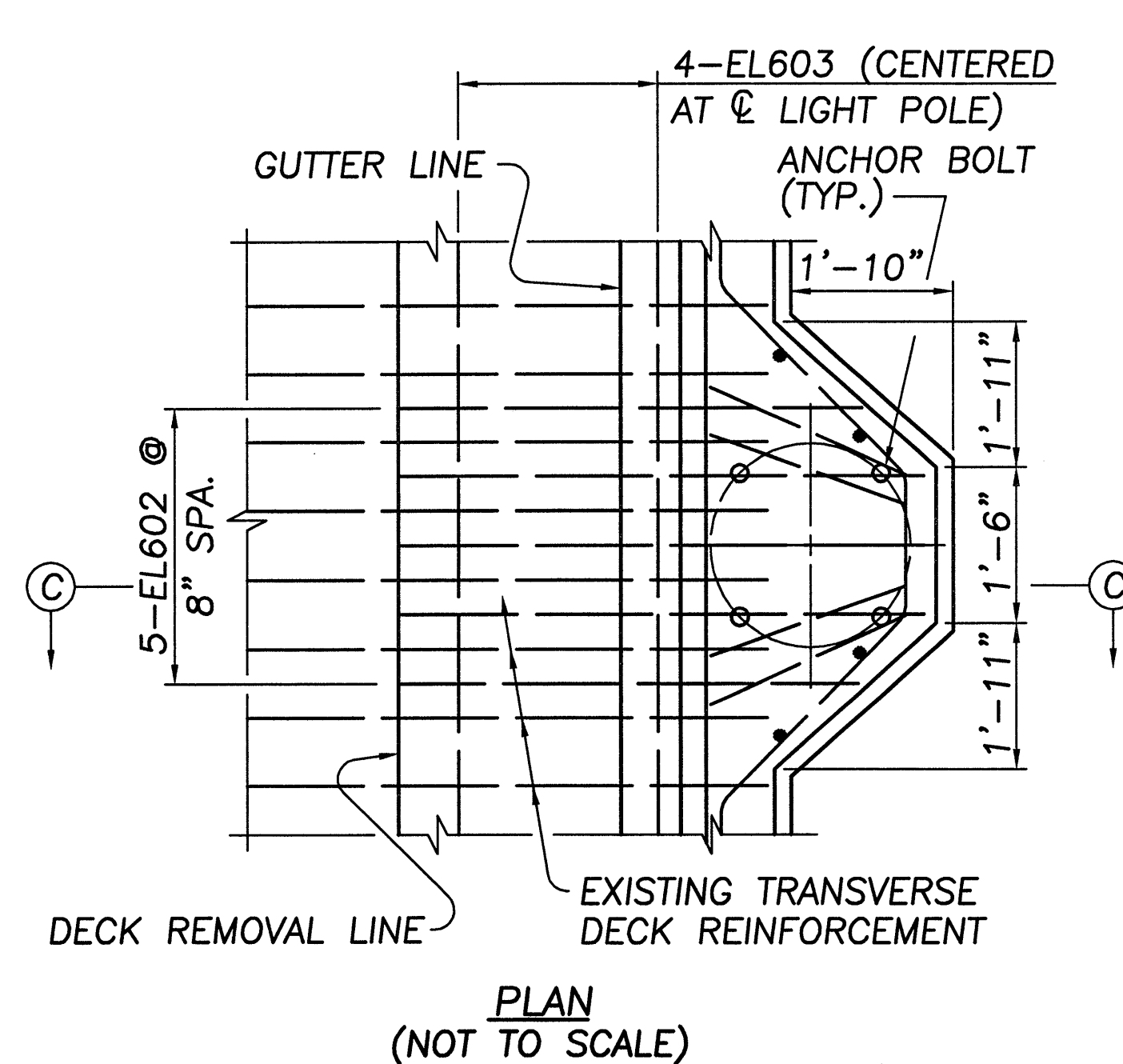


NOTE:
REMOVE LONGITUDINAL STEEL
AND TRIM ALL TIE BARS FLUSH
WITH REMOVAL LINE.



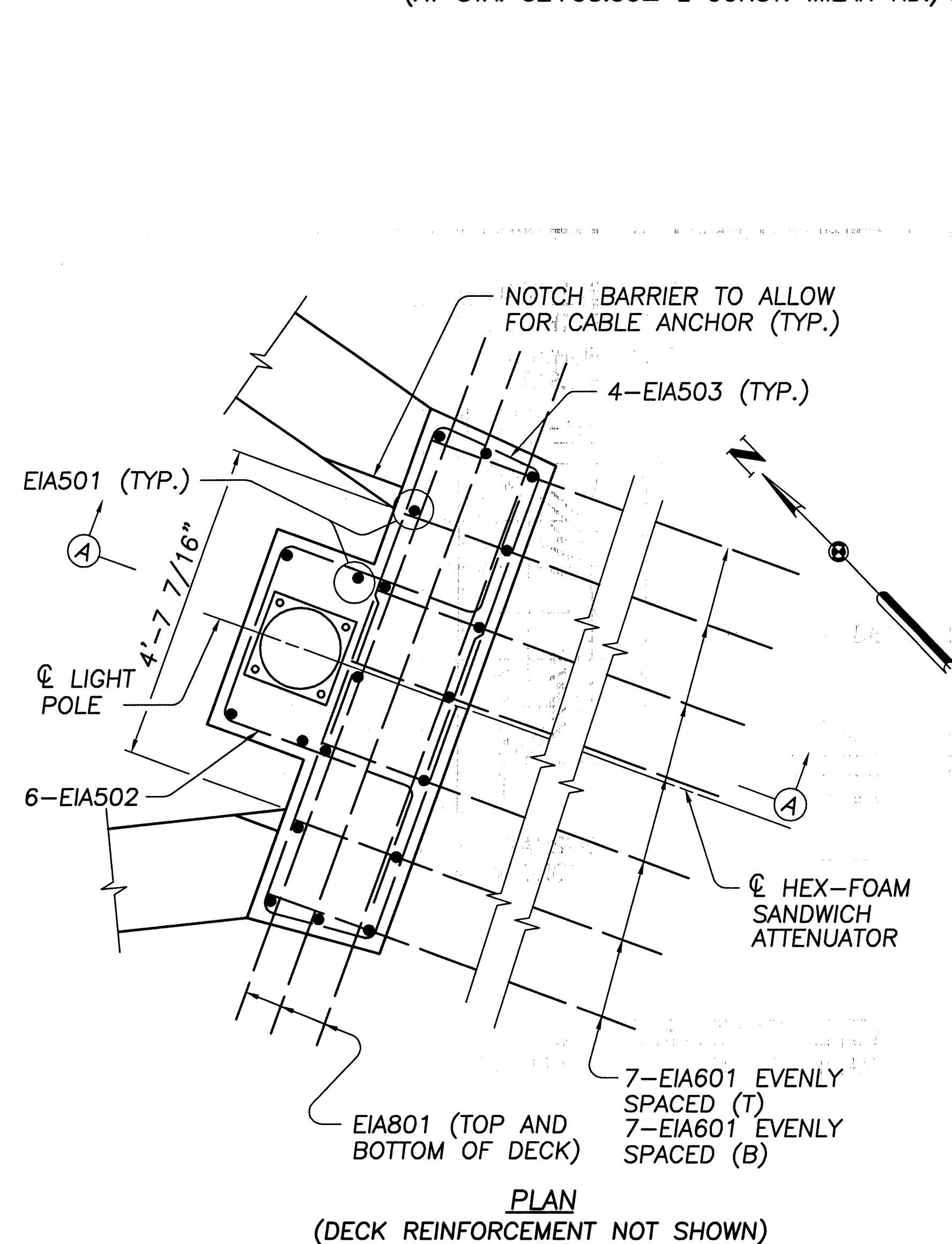
NOTES:

- FOR LIGHT POLE PILASTER AND SIGN SUPPORT LOCATIONS
SEE SHEET 2 OF 32.
- FOR TYPICAL CROSS SECTION AND SLAB DETAILS
SEE SHEET 27 AND 29 OF 32.
- FOR IMPACT ATTENUATOR DETAILS SEE SHEET 29 OF 32.
- FOR REINFORCEMENT SCHEDULE SEE SHEET 31 OF 32.
- THE FOLLOWING ABBREVIATIONS ARE USED:
E.F. = EACH FACE
FWD. = FORWARD
TRANS. = TRANSITION



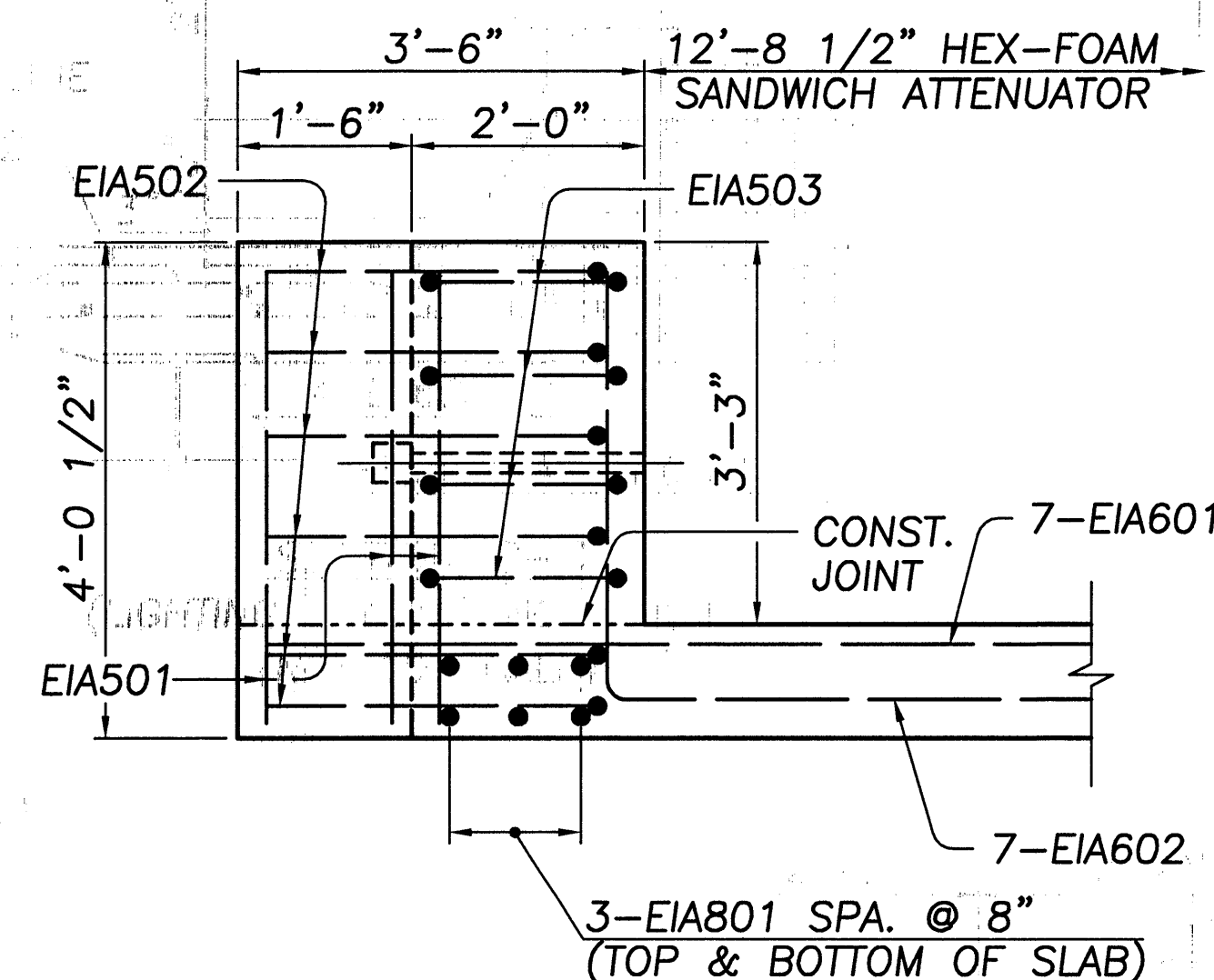
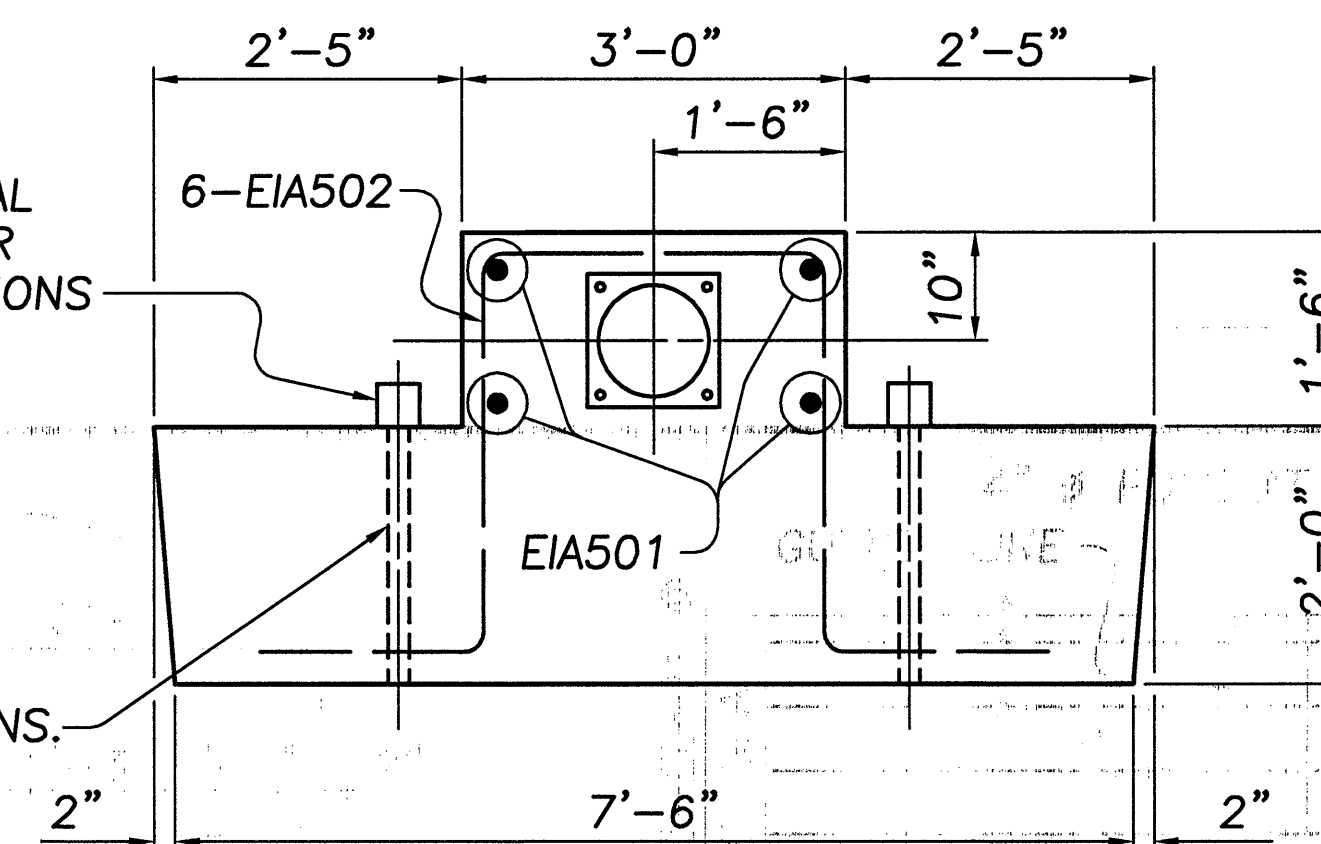
LIGHT SUPPORT DETAILS
(AT STA. 32+38.50± ϕ CONST. MILAN RD./USR 250)

SIGN SUPPORT DETAILS
(AT STA. 33+78.00± ϕ RAMP B)



REAR CABLE ANCHOR, TYPICAL
EACH SIDE. INSTALL AS PER
MANUFACTURER'S SPECIFICATIONS.

2" ϕ SCHEDULE 40
GALVANIZED PIPE, TYPICAL
EACH SIDE. INSTALL AS PER
MANUFACTURER'S SPECIFICATIONS.



NOSE DETAILS

NOTES:

ALL MATERIAL, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO REMOVE AND REERECT THE EXISTING LIGHT POLES SHALL BE INCLUDED WITH ITEM 625 REMOVE AND REERECT EXISTING LIGHT POLE, AS PER PLAN.

ALL MATERIAL, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO REMOVE AND REERECT THE EXISTING SIGN SUPPORT STRUCTURE SHALL BE INCLUDED WITH ITEM 630 REMOVAL OF STRUCTURE MOUNTED SIGN AND REERECTION, AS PER PLAN.

ALL MATERIAL, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO REMOVE, REBUILD AND RE-INSTALL THE EXISTING IMPACT ATTENUATOR SHALL BE INCLUDED WITH ITEM SPECIAL - IMPACT ATTENUATOR REBUILT, HEX-FOAM SANDWICH SYSTEM, MODEL NO. 209711H5S. PAYMENT FOR THE BACKUP ASSEMBLY CONCRETE AND REINFORCING STEEL SHALL BE INCLUDED WITH ITEM 511 - CLASS S CONCRETE, SUPERSTRUCTURE.

FOR ADDITIONAL LIGHT SUPPORT AND SIGN SUPPORT NOTES AND DETAILS SEE STANDARD DRAWING HL-20.14.

FOR REINFORCEMENT SCHEDULE SEE SHEET 31 OF 32.

FOR LOCATION OF BARRIER NOSE, SIGN SUPPORT, AND LIGHT SUPPORTS SEE SHEET 2 OF 32.

THE FOLLOWING ABBREVIATIONS ARE USED:

SPA. = SPACED
CONST. = CONSTRUCTION
T = TOP
B = BOTTOM

\\CLEWOO\PMWORK\JOBS\26968\TECHPROD\BRIDGE\FINAL\DRAWINGS\SLABDET.DWG

\\CLEW001\PIWORK\JOBS\26968\TECHPROD\BRIDGE\FINAL\DRAWINGS\REBAR04.DWG

REINFORCEMENT SCHEDULE

MARK	NUMBER REQ'D	LENGTH		TYPE	A		B		C		D		E		SER. INCR.	
		FT.	IN.		FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.		
REAR ABUTMENT—RAMP B – EPOXY COATED BARS																
RA 501	18	10	1	105	2	6	5	4								
RA 502	14	11	7	109	3	0	2	6								
RA 503	1	6	9	STR												
RA 504	18	9	11	104	9	2	0	10								
RA 505	19	9	8	105	3	3	3	5								
RA 506	34	12	6	STR												
RA 507	5	6	0	STR												
RA 508	5	17	0	STR												
RA 509	9	9	5	104	4	9	4	9								
RA 510	2	23	6	STR												
RA 511	36	3	5	105	1	0	1	8								
RA 512	24	4	3	105	0	11	2	8								
RA 513	8	13	6	STR												
RA 514	2	15	0	STR												
RA 515	2	17	0	STR												
RA 516	2	7	9	STR												
RA 517	8	19	6	STR												
RA 518	9	9	4	147	3	2	3	1	3	2	12					
RA 519	9	10	2	178	1	10	1	5	1	7	2	8	1	5		
RA 520	6	7	1	160	3	0	3	3	0	8	1	1/4				
RA 521	1 SER 11	3	10	101	3	3									0	1
		3	0		2	5										
RA 522	4	19	9	STR												
RA 523	4	9	0	STR												
RA 524	8	10	0	STR												
RA 525	4	5	8	STR												
RA 526	4	5	8	176	1	10	2	5	1	5	0	1 1/2	0	5		
RA 527	4	10	3	177	2	4	4	1	4	1	0	5				
RA 528	4	3	8	105	1	0	1	11								
RA 529	4	4	0	STR												
RA 530	6	13	9	STR												
RA 601	1	7	3	STR												
RA 602	18	17	3	126	9	3	5	4	3	0						
RA 603	4	10	7	105	4	9	1	5								
RA 604	21	6	3	105	2	7	1	5								
RA 605	21	7	11	105	3	8	0	11								
RA 606	17	9	11	105	4	5	1	5								
RA 607	24	5	0	105	2	3	0	10								
RA 608	3	11	1	104	10	3	1	0								
RA 609	4	14	11	104	14	3	1	0								
RA 610	9	28	6	105	13	10	1	2								
RA 611	3	14	0	104	13	2	1	0								
RA 612	1 SER 8	11	4	105	5	3	1	2							0	6 7/8
		7	4		3	3	1	2								
RA 613	2	12	0	STR												
RA 614	17	6	0	142	1	0	3	8	0	10 1/2	0	8	8 1/2			
RA 615	6	3	3	STR												
RA 616	19	5	0	STR												
RA 617	9	4	3	104	3	0	1	5								
RA 618	1 SER 11	5	6	104	4	4	1	4							0	1 1/8
		4	7		3	5	1	4								
RA 619	1 SER 11	5	2	104											0	1 1/8
		4	3													
RA 620	11	3	10	142	1	2	1	2 1/2	0	10 1/2	0	8	8 1/2			
RA 621	4	3	3	STR												
RA 622	4	4	3	STR												
RA 623	12	3	9	104	2	5	1	6								
RA 624	6	6	3	105	2	6	1	7								
RA 801	7	20	6	STR												
RA 802	7	5	8	STR												
RA 803	6	16	6	STR												
RA 804	2	9	6	104	4	10	4	10								
RA 805	2	11	4	147	4	10	1	9	4	10	12					
DRA 806	14	4	11	107	1	5	2	7	12	12						
DRA 807	16	4	2	108	1	5	2	9	12	12						
RA 901	4	3	5	STR												
RA 902	12	4	9	104	2	6	2	6								

REINFORCEMENT SCHEDULE

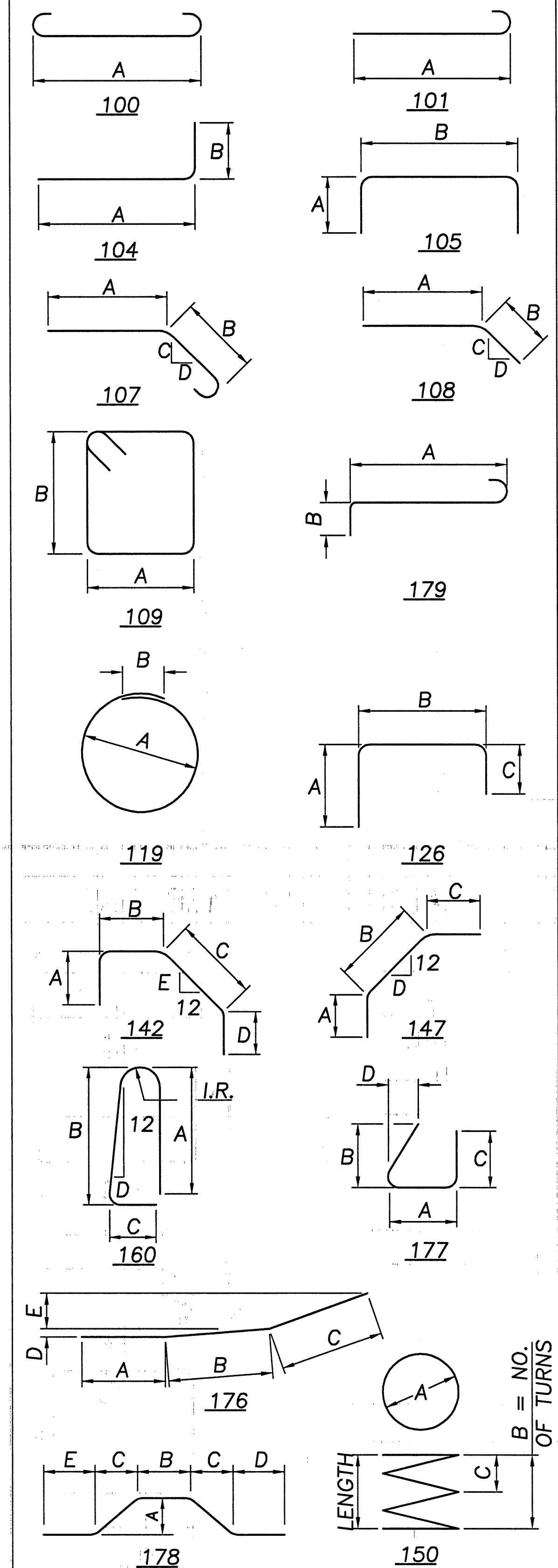
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		FT.	IN.		FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.		
MODIFIED PIER 3 – EPOXY COATED BARS																
ESC 401	1	16	3	150	2	6	46		4½							
EC 501	10	3	1	105		10	1	8								
EC 601	12	5	10	100	4	6										
EC 801	8	16	11	STR												
EC802	8	8	8	104	7	9	1	1								
MODIFIED PIER 13 – EPOXY COATED BARS																
ESP 401	1	16	2	150	3	0	46		4½							
EP402	6	15	10	119	4	8	1	2								
EP 501	86	11	3	105	4	2	3	2								
EP502	2	10	7	105	4	2	2	6								
EP503	6	9	11	105	3	6	3	2								
EP 601	10	30	0	STR												
EP602	8	24	2	STR												
EP603	2	20	2	STR												
EP604	5	12	0	108	2	6	9	6	2½	12						
EP605	14	7	8	105	2	5	3	2								
EP606	10	6	10	100	5	6										
EP607	6	7	6	105	2	5	3	0								
EP608	12	3	8	104	2	4	1	6								
EP 801	11	11	4	100	9	6										
EP 901	12	4	7	104	2	5	2	5								
EP902	4	7	3	105	2	5	3	0								
EP 1001	5	30	0	104	28	6	1	10								
EP1002	5	23	4	104	21	9	1	10								
EP1003	5	26	0	STR												
EP 1101	16	28	5	179	25	2	2	0								
EP1102	5	30	0	104	28	4	2	0								
EP1103	5	25	8	101	24	1										
EP1104	5	26	4	104	24	8	2	0								
EP1105	5	30	0	101	28	5										

SPIRAL REINFORCEMENT NOTE

FOUR STEEL CHANNELS, TEE, OR ANGLE SPACERS SHALL BE PROVIDED FOR EACH SPIRAL UNIT. THEY SHALL BE EQUALLY SPACED ALONG THE PERIPHERY OF THE COIL. SPACER BARS SHALL BE EPOXY COATED. SPACER BARS SHALL BE INCLUDED FOR PAYMENT WITH ITEM 511, CLASS 'C' CONCRETE, PIER.

SPIRAL REINFORCEMENT MAY BE PLAIN BARS, BUT SHALL IN ALL OTHER RESPECTS, CONFORM TO CMS 509.

BAR BENDING DIAGRAMS



REINFORCING STEEL SAMPLES

REFER TO CMS SECTIONS 106.03, 700, 709.00, AND 709.01. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURE BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

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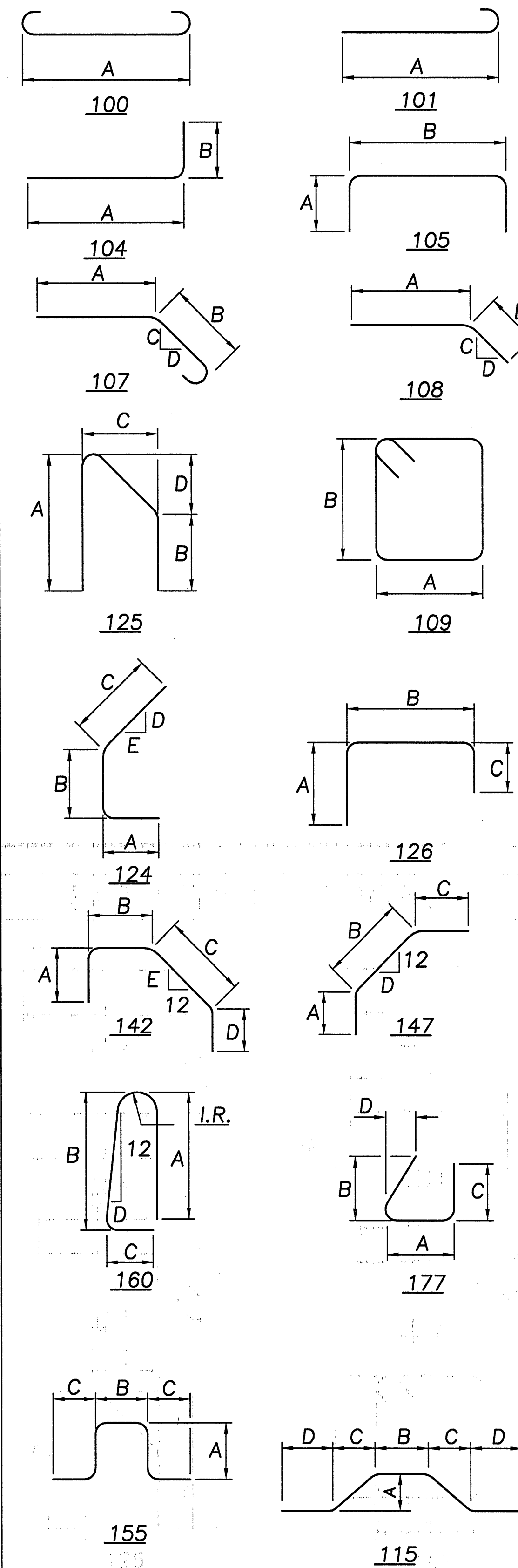
REINFORCEMENT SCHEDULE

MARK	NUMBER REQ'D	LENGTH		T Y P E	A		B		C		D		E		SER. INCR.	
		FT.	IN.		FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
DECK SLAB – EPOXY COATED BARS																
ES 401	220	30	0	STR												
ES 402	1 SER 5	20	0	STR												7
		22	4													
ES 403	12	20	0	STR												
ES 404	1 SER 12	14	0	STR												1 8 1/8
		32	5													
ES 405	1 SER 12	11	4	STR												1 8 1/4
		29	11													
ES 406	1 SER 13	18	8	STR												10 1/2
		29	2													
ES 407	1 SER 9	16	8	STR												6 5/8
		21	1													
ES 408	1 SER 9	20	8	STR												6 1/2
		25	0													
ES 409	7	24	10	STR												
ES 410	6	13	7	STR												
ES 411	3	33	2	STR												
ES 412	4	28	2	STR												
ES 413	4	16	10	STR												
ES 414	1 SER 18	18	4	STR												1 3/4
		20	9													
ES 501	225	29	0	101	28	5										
ES 502	108	22	0	101	21	5										
ES 503	235	25	2	STR												
ES 504	108	24	8	STR												
ES 505	1 SER 3	21	8	STR												1 10 1/2
		25	5													
ES 506	1 SER 3	24	11	STR												1 10 1/2
		28	8													
ES 507	1 SER	5	0	STR												3
	114	33	6													
ES 508	1 SER	8	3	STR												3
	114	36	9													
ES 509	59	19	10	101	19	3										
ES 510	85	9	10	101	9	3										
ES 511	293	30	0	STR												
ES 512	1 SER 4	24	2	STR												9 3/8
		26	6													
ES 513	13	20	0	STR												
ES 514	1 SER 13	18	1	STR												1 6 3/8
		36	6													
ES 515	1 SER 13	14	8	STR												1 8 1/4
		34	11													
ES 516	1 SER 13	20	4	STR												10 1/2
		30	10													
ES 517	1 SER 9	19	2	STR												6 5/8
		23	7													
ES 518	1 SER 9	23	2	STR												6 1/2
		27	6													
ES 519	6	25	8	STR												
ES 520	5	16	0	STR												
ES 521	3	33	2	STR												
ES 522	4	28	2	STR												
ES 523	4	16	10	STR												
ES 524	293	6	0	160	2	6	3	3	8	1	1/4					I.R.=1 1/2
ES 525	10	26	1	STR												
ES 526	10	27	4	STR												
ES 527	2 SER 59	3	6	STR												2 1/4
		14	6													
ES 528	59	19	3	STR												1 1/8
ES 529	2 SER 85	3	6	STR												
		13	6													
ES 530	85	9	7	101	9	0										
ES 531	18	20	9	STR												

REINFORCEMENT SCHEDULE

MARK	NUMBER REQ'D	LENGTH		T Y P E	A		B		C		D		E		SER. INCR.	
		FT.	IN.		FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
DECK SLAB – EPOXY COATED BARS CONTINUED																
ES 601	293	2	1	104	1	4		11								
ES602	293	3	0	142	10 ½		10	10 ¾			9		8 ½			
ES603	47	39	3	STR												
ES604	1 SER 6	25	2	STR											2	0
		35	3													
ES605	4	42	7	STR												
ES606	1 SER 6	29	2	STR											2	0
		39	2													
ES607	1 SER 5	22	7	STR											4	2 ½
		39	5													
ES608	1 SER 6	23	6	STR											4	2 ½
		44	6													
LIGHT AND SIGN POLE PILASTERS – EPOXY COATED BARS																
EL505	8	3	0	105	2	0		7								
EL506	8	10	3	177	2	6	4	0	4	0	8 ¾					
EL507	14	7	9	115	1	10	1	4	1	10	6					
EL508	8	3	11	STR												
EL 601	5	8	8	101	8	0										
EL602	5	4	8	101	4	0										
EL 603	4	15	0	STR												
IMPACT ATTENUATOR BACKUP ASSEMBLY – EPOXY COATED BARS																
EIA 501	13	3	8	STR												
EIA502	6	12	2	155	3	0	2	8	1	9						
EIA503	8	10	7	125	4	8	4	6	1	9	2					
EIA 601	7	14	3	STR												
EIA 602	7	17	10	104	14	4	3	8								
EIA 801	6	13	0	STR												
LIGHT AND SIGN POLE PILASTERS – EPOXY COATED BARS																
EL 505	8	3	0	105	2	0		7								
EL 506	8	10	3	177	2	6	4	0	4	0	8 ¾					
EL 507	14	7	9	115	1	10	1	4	1	10	6					
EL 508	8	3	11	STR												
EL 601	5	8	8	101	8	0										
EL 602	5	4	8	101	4	0										
EL 603	4	15	0	STR												
IMPACT ATTENUATOR BACKUP ASSEMBLY – EPOXY COATED BARS																
EIA 501	13	3	8	STR												
EIA502	6	12	2	155	3	0	2	8	1	9						
EIA503	8	10	7	125	4	8	4	6	1	9	2					
EIA 601	7	14	3	STR												
EIA 602	7	17	10	104	14	4	3	8								
EIA 801	6	13	0	STR												
LIGHT AND SIGN POLE PILASTERS – EPOXY COATED BARS																
EL 505	8	3	0	105	2	0		7								
EL 506	8	10	3	177	2	6	4	0	4	0	8 ¾					
EL 507	14	7	9	115	1	10	1	4	1	10	6					
EL 508	8	3	11	STR												
EL 601	5	8	8	101	8	0										
EL 602	5	4	8	101	4	0										
EL 603	4	15	0	STR												
IMPACT ATTENUATOR BACKUP ASSEMBLY – EPOXY COATED BARS																
EIA 501	13	3	8	STR												
EIA502	6	12	2	155	3	0	2	8	1	9						
EIA503	8	10	7	125	4	8	4	6	1	9	2					
EIA 601	7	14	3	STR												
EIA 602	7	17	10	104	14	4	3	8								
EIA 801	6	13	0	STR												
LIGHT AND SIGN POLE PILASTERS – EPOXY COATED BARS																
EL 505	8	3	0	105	2	0		7								
EL 506	8	10	3	177	2	6	4	0	4	0	8 ¾					
EL 507	14	7	9	115	1	10	1	4	1	10	6					
EL 508	8	3	11	STR												
EL 601	5	8	8	101	8	0										
EL 602	5	4	8	101	4	0										
EL 603	4	15	0	STR												
IMPACT ATTENUATOR BACKUP ASSEMBLY – EPOXY COATED BARS																
EIA 501	13	3	8	STR												
EIA502	6	12	2	155	3	0	2	8	1	9						
EIA503	8	10	7	125	4	8	4	6	1	9	2					
EIA 601	7	14	3	STR												
EIA 602	7	17	10	104	14	4	3	8								
EIA 801	6	13	0	STR												
LIGHT AND SIGN POLE PILASTERS – EPOXY COATED BARS																
EL 505	8	3	0	105	2	0		7								
EL 506	8	10	3	177	2	6	4	0	4	0	8 ¾					
EL 507	14	7	9	115	1	10	1	4	1	10	6					
EL 508	8	3	11	STR												
EL 601	5	8	8	101	8	0										
EL 602	5	4	8	101	4	0										
EL 603	4	15	0	STR												
IMPACT ATTENUATOR BACKUP ASSEMBLY – EPOXY COATED BARS																
EIA 501	13	3	8	STR												
EIA502	6	12	2	155	3	0	2	8	1	9						
EIA503	8	10	7	125	4	8	4	6	1	9	2					
EIA 601	7	14	3	STR												
EIA 602	7	17	10	104	14	4	3	8								
EIA 801	6	13	0	STR												
LIGHT AND SIGN POLE PILASTERS – EPOXY COATED BARS																
EL 505	8	3	0	105	2	0		7								
EL 506	8	10	3	177	2	6	4	0	4	0	8 ¾					
EL 507	14	7	9	115	1	10	1	4	1	10	6					
EL 508	8	3	11	STR												
EL 601	5	8	8	101	8	0										
EL 602	5	4	8	101	4	0										
EL 603	4	15	0	STR												
IMPACT ATTENUATOR BACKUP ASSEMBLY – EPOXY COATED BARS																
EIA 501	13	3	8	STR												
EIA502	6	12	2	155	3	0	2	8	1	9						
EIA503	8	10	7	125	4	8	4	6	1	9	2					
EIA 601	7	14	3	STR												
EIA 602	7	17	10	104	14	4	3	8								
EIA 801	6	13	0	STR												
LIGHT AND SIGN POLE PILASTERS – EPOXY COATED BARS																
EL 505	8	3	0	105	2	0		7								
EL 506	8	10	3	177	2	6	4	0	4	0	8 ¾					
EL 507	14	7	9	115	1	10	1	4	1	10	6					
EL 508	8	3	11	STR												
EL 601	5	8	8	101	8	0										
EL 602	5	4	8	101	4	0										
EL 603	4	15	0	STR												
IMPACT ATTENUATOR BACKUP ASSEMBLY – EPOXY COATED BARS																
EIA 501	13	3	8	STR												
EIA502	6	12	2	155	3	0	2	8	1	9						
EIA503	8	10	7	125	4	8	4	6	1	9	2					
EIA 601	7	14	3	STR												
EIA 602	7	17	10	104	14	4	3	8								
EIA 801	6	13	0	STR												
LIGHT AND SIGN POLE PILASTERS – EPOXY COATED BARS																
EL 505	8	3	0	105	2	0		7								
EL 506	8	10	3	177	2	6	4	0	4	0	8 ¾					
EL 507	14	7	9	115	1	10	1	4	1	10	6					
EL 508	8	3	11	STR												
EL 601	5	8	8	101	8	0										
EL 602	5	4	8	101	4	0										
EL 603	4	15	0	STR												
IMPACT ATTENUATOR BACKUP ASSEMBLY – EPOXY COATED BARS																
EIA 501	13	3	8	STR												
EIA502	6	12	2	155	3	0	2	8	1	9						
EIA503	8	10	7	125	4	8	4	6	1	9	2					
EIA 601	7	14	3	STR												
EIA 602	7	17	10	104	14	4	3	8								
EIA 801	6	13	0	STR												
LIGHT AND SIGN POLE PILASTERS – EPOXY COATED BARS																
EL 505	8	3	0	105	2	0		7								
EL 506	8	10	3	177	2	6	4	0	4	0	8 ¾					
EL 507	14	7	9	115	1	10	1	4	1	10	6					
EL 508	8	3	11	STR												
EL 601	5	8	8	101	8	0										
EL 602	5	4	8	101	4	0										
EL 603	4	15	0	STR												
IMPACT ATTENUATOR BACKUP ASSEMBLY – EPOXY COATED BARS																
EIA 501	13	3	8	STR												
EIA502	6															

BAR BENDING DIAGRAMS



REINFORCING STEEL SAMPLES

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REINFORCEMENT SCHEDULE																
MARK	NUMBER REQ'D	LENGTH		T Y P E	A		B		C		D		E		SER. INCR.	
		FT.	IN.		FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
RETAINING WALL – EPOXY COATED BARS																
ERW 501	178	30	0	STR												
ERW502	8	32	6	STR												
ERW503	148	4	6	STR												
ERW504	141	10	0	STR												
ERW505	34	12	0	STR												
ERW506	129	9	6	STR												
ERW507	4	6	10	108	3	0	3	10	1		1					
ERW508	20	15	6	STR												
ERW509	8	19	6	STR												
ERW 511	7	5	10	108	3	0	2	10								
ERW512	4	3	10	104	1	6	2	6								
ERW513	6	23	8	STR												
ERW514	2	18	6	STR												
ERW515	96	3	2	105	1	3	0	11								
ERW516	2 SER 16	2	8	STR											0	1
		3	11													
ERW517	188	31	8	STR												
ERW518	2	23	1	STR												
ERW519	2 SER 22	4	0	STR											0	1
		5	9													
ERW520	2 SER 22	5	9	STR											0	1
		7	6													
ERW 521	176	6	2	105	2	9	0	11								
ERW522	65	7	6	STR												
ERW523	65	9	3	STR												
ERW524	2	9	7	STR												
ERW525	65	11	0	STR												
ERW526	2	14	2	STR												
ERW527	22	12	9	STR												
ERW528	2	18	10	STR												
ERW529	43	13	0	STR												
ERW530	22	14	6	STR												
ERW 531	43	14	9	STR												
ERW532	22	14	4	STR												
ERW533	43	14	7	STR												
ERW534	22	13	9	STR												
ERW535	43	14	0	STR												
ERW536	22	13	2	STR												
ERW537	43	13	5	STR												
ERW538	14	12	9	STR												
ERW539	25	13	0	STR												
ERW540	2	22	8	STR												
ERW 541	2	29	1	STR												

[illegible]

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101

104

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REFER TO CMS SECTIONS 106.03, 700, 709.00, AND 709.01. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURE BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.