

RAMP "G" CURVE DATA
 $\Delta = 11^\circ 37' 17''$
 $D_c = 4^\circ 00' 00''$
 $L = 290.53'$
 $R = 1432.39'$
 $T = 145.77'$

APPROXIMATE LOCATION OF
 TEMPORARY SHEETING (TYP.)

☉ FIRST POST
 STA. 27+37.62

RAMP "G" P.C. STA. 0+00
 44' LT. OF ☉ STA. 28+00

EX. SCUPPERS
 (TO BE REMOVED) (TYP.)
 SEE SHT. NO. 47/52
 FOR PROP. SCUPPERS

EX. BUILDING

REPAIR SLOPE WITH
 CRUSHED AGGREGATE
 SLOPE PROTECTION

EX. LIGHT POLE
 ON BRIDGE DECK
 (SEE NOTES)

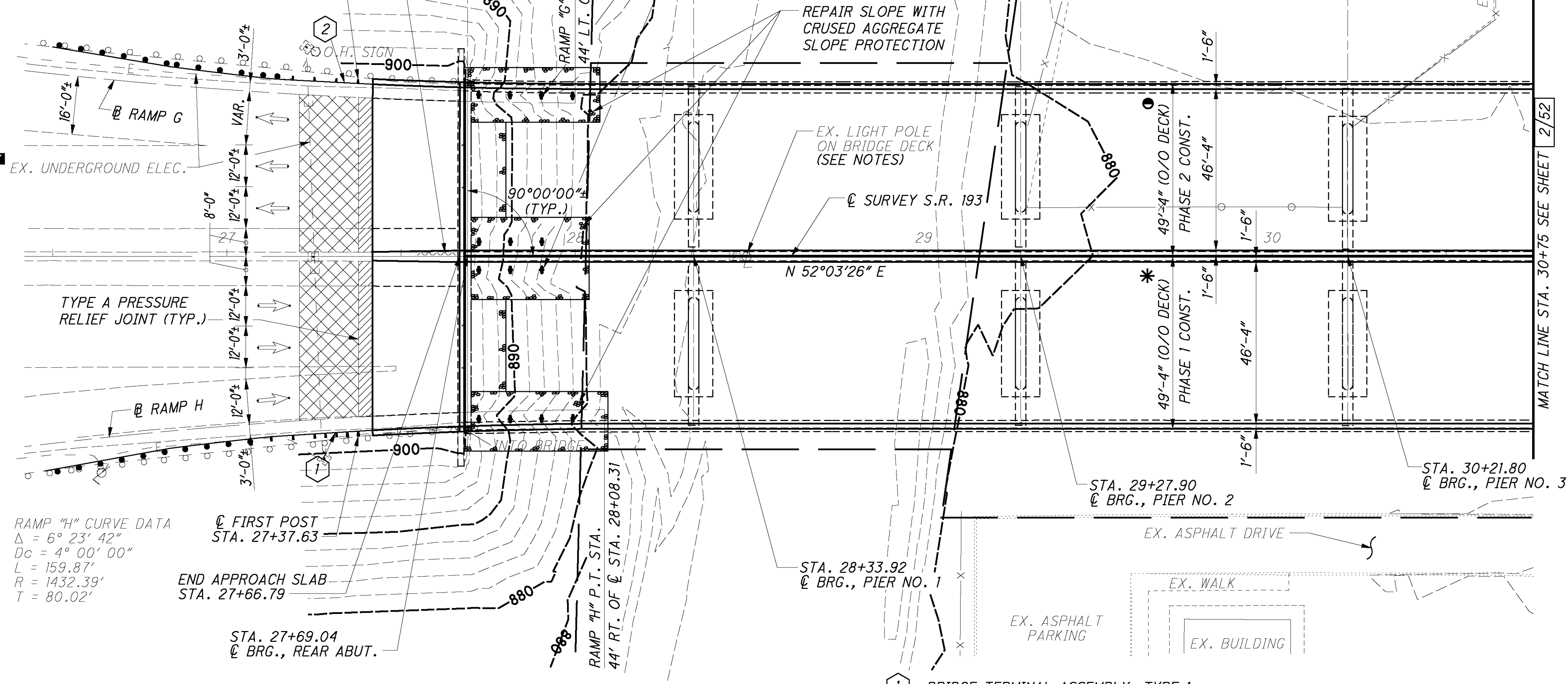
☉ SURVEY S.R. 193

N $52^\circ 03' 26''$ E

49'-4" (O/O DECK)
 PHASE 2 CONST.

49'-4" (O/O DECK)
 PHASE 1 CONST.

MATCH LINE STA. 30+75 SEE SHEET 2/52



RAMP "H" CURVE DATA
 $\Delta = 6^\circ 23' 42''$
 $D_c = 4^\circ 00' 00''$
 $L = 159.87'$
 $R = 1432.39'$
 $T = 80.02'$

☉ FIRST POST
 STA. 27+37.63

END APPROACH SLAB
 STA. 27+66.79

STA. 27+69.04
 ☉ BRG., REAR ABUT.

RAMP "H" P.T. STA. 28+08.31
 44' RT. OF ☉ STA. 28+08.31

STA. 28+33.92
 ☉ BRG., PIER NO. 1

49'-4" (O/O DECK)
 PHASE 2 CONST.

49'-4" (O/O DECK)
 PHASE 1 CONST.

STA. 29+27.90
 ☉ BRG., PIER NO. 2

STA. 30+21.80
 ☉ BRG., PIER NO. 3

EX. ASPHALT DRIVE

EX. ASPHALT
 PARKING

EX. WALK

EX. BUILDING

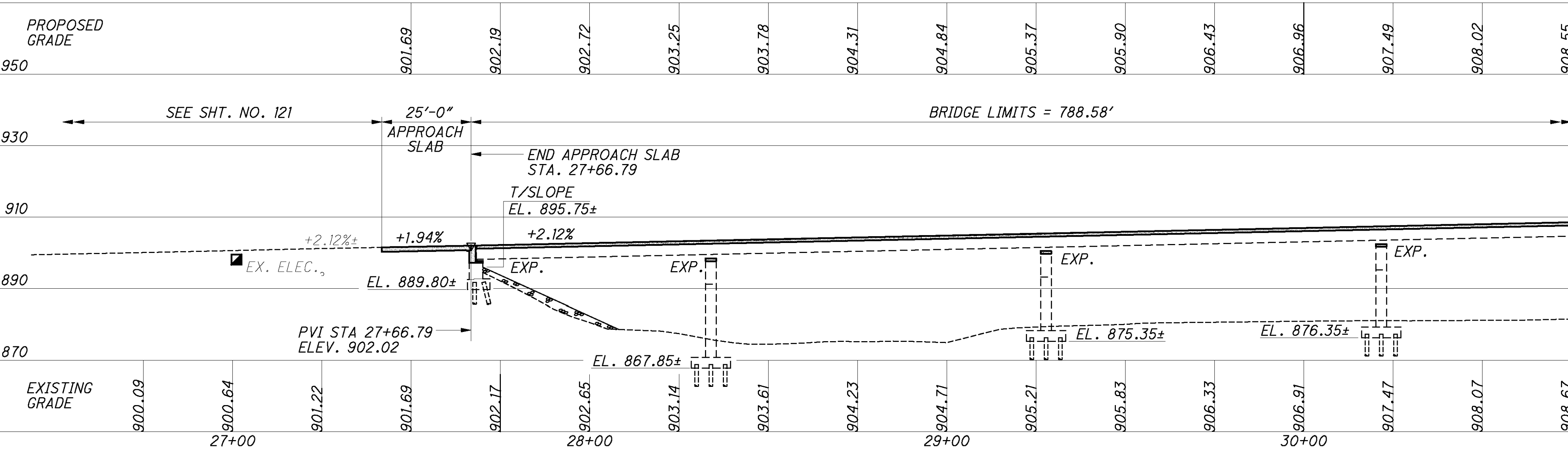
- * VAR. 49'-11 1/4" @ ☉ BRG. REAR ABUT
 TO 49'-2" @ STA. 28+08.31
- VAR. 49'-7 1/4" @ ☉ BRG. REAR ABUT.
 TO 49'-2" @ STA. 28+00.00

RIGID BASE REMOVAL AND REPLACEMENT
 WITH PRESSURE RELIEF JOINT INSTALLATION.
 SEE ROADWAY PLANS & ODOT STD. DWG. BP-2.3

- ① BRIDGE TERMINAL ASSEMBLY, TYPE 1
- ② BRIDGE TERMINAL ASSEMBLY, TYPE 2
- INDICATES TO REMAIN

NOTES

- 1. LIGHT POLES TO BE REMOVED, STORED AND
 RE-ERECTED. FOR LIGHTING PLANS,
 SEE SHEETS 141, 142 & 145.



S.R. 193 PROFILE (NORTHBOUND AND SOUTHBOUND)

BENCHMARK DATA

TBM #3 (T65) ODOT CAPPED REBAR STA 31+01.65, 157.18' LT. ELEV. - 884.13	TBM #4 (SV501) MAG SET IN CONCRETE WALK STA 29+81.43, 94.19' RT. ELEV. - 881.605
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DESIGN TRAFFIC:
 2010 ADT = 30,070 2010 ADTT = 1,504
 2030 ADT = 32,040 2030 ADTT = 1,602
 RAILROAD TRAFFIC (SPAN 6):
 TRAINS PER DAY: 2±
 MAXIMUM AUTHORIZED SPEED: 20 MPH±

EXISTING STRUCTURE

TYPE: LEFT AND RIGHT STRUCTURES WITH CONTINUOUS STEEL
 BEAM (INCLUDING INTERMEDIATE HINGE JOINT) WITH NON-
 COMPOSITE REINFORCED CONCRETE DECK SUPPORTED ON
 T-TYPE PIERS AND SPILL-THRU ABUTMENTS FOUNDED ON
 CAST-IN-PLACE REINFORCED CONCRETE PILES.

SPANS: 64'-10 1/8"±, 93'-11 3/4"±, 93'-10 13/16"±, 93'-10 7/16"±,
 93'-11 1/8"±, 94'-0 3/8"±, 93'-11 3/8"±, 91'-0"±,
 64'-5 3/8"± C/C BEARINGS

ROADWAY: 45'-9"± & VARIES TOE OF MEDIAN BARRIER
 TO FACE OF SAFETY CURB

LOADING: CF 2000 (57)

SKEW: REAR ABUTMENT & PIERS 1-7: NONE.
 PIER 8 & FORWARD ABUTMENT: 11°30'16"± RIGHT FORWARD

APPROACH SLABS: 25' LONG

WEARING SURFACE: CONCRETE OVERLAY, 1"± THICK

ALIGNMENT: TANGENT

CROWN: 0.0156 AND VARIES AT RAMPS

STRUCTURAL FILE NUMBER: 5004470

DATE BUILT: 1967

DISPOSITION: TO REMAIN

PROPOSED STRUCTURE

PROPOSED WORK: REPLACE DECK SLAB, REMOVE INTERMEDIATE
 HINGE, RETROFIT ENDS OF WELDED COVER
 PLATES ON BEAMS, INSTALL SHEAR CONNECTORS,
 REPLACE BEARINGS, RAISE PIER & ABUTMENT
 BEAMS SEATS, REPLACE BACKWALLS, INSTALL
 NEW EXPANSION JOINTS, REPLACE
 APPROACH SLABS, AND PAINT STEEL. REPAIR
 CRUSHED AGGREGATE PROTECTION.

TYPE: LEFT AND RIGHT STRUCTURES WITH CONTINUOUS STEEL
 BEAM WITH COMPOSITE REINFORCED CONCRETE DECK
 SUPPORTED ON T-TYPE PIERS AND SPILL-THRU ABUTMENTS
 FOUNDED ON CAST-IN-PLACE REINFORCED CONCRETE PILES.

SPANS: 64'-10 1/8"±, 93'-11 3/4"±, 93'-10 13/16"±, 93'-10 7/16"±,
 93'-11 1/8"±, 94'-0 3/8"±, 93'-11 3/8"±, 91'-0"±,
 64'-5 3/8"± C/C BEARINGS

ROADWAY: 46'-4" & VARIES TOE OF MEDIAN BARRIER
 TO TOE OF PARAPET

LOADING: HS25 CASE II AND ALTERNATE MILITARY LOADING
 FOR SUPERSTRUCTURE
 HS20 AND ALTERNATE MILITARY LOADING
 FOR SUBSTRUCTURE
 60 PSF FWS

SKEW: REAR ABUTMENT & PIERS 1-7: NONE.
 PIER 8 & FORWARD ABUTMENT: 11°30'16"± RIGHT FORWARD

APPROACH SLABS: 25' LONG, FULL-WIDTH (AS-1-81)

WEARING SURFACE: MONOLITHIC CONCRETE

ALIGNMENT: TANGENT

CROWN: 0.0156 AND VARIES AT RAMPS

COORDINATES: LATITUDE N $41^\circ 06' 36''$
 LONGITUDE W $80^\circ 40' 12''$

DESIGN AGENCY
 GPD ASSOCIATES
 350 South Main Street, Suite 203, Akron, Ohio 44311
 330.575.2100 / Fax 330.575.2101

DATE 9-26-08
 REVIEWED CGN
 STRUCTURE FILE NUMBER 5004470

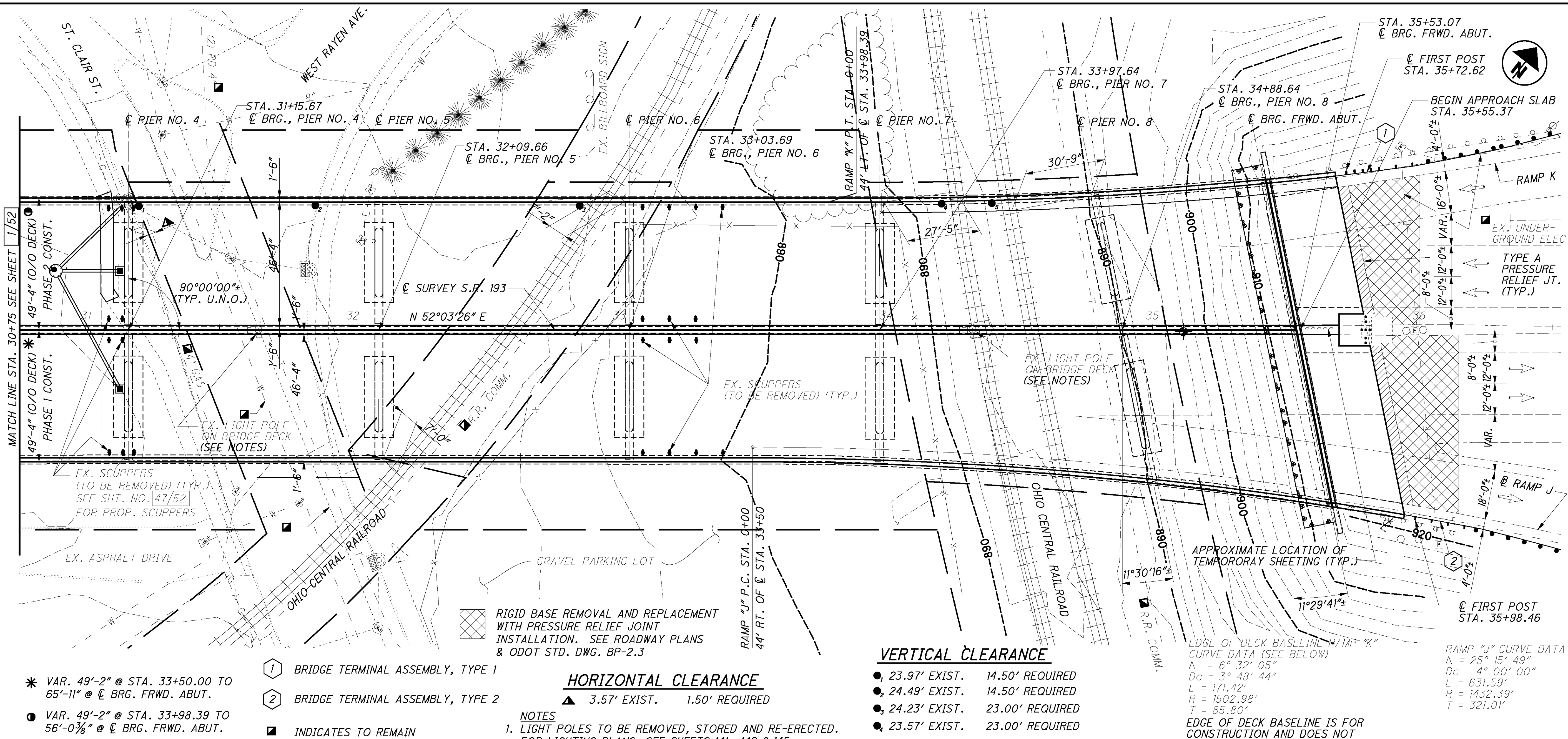
DRAWN DPC
 DESIGNED T.JW
 CHECKED EAF

MAHONING COUNTY
 STA. 27+66.79
 STA. 35+55.37

SITE PLAN
 BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL
 EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR

MAH-193/422
 -0.46 / 1.85
 PID No. 25235

\\VARNOLD\DATA\CTVILL\20070113\MAH-193-0072\STRUCTURES\MAH-193-0072\CSHETS\193_0072\SP9002.DGN
7/8/2009 7:32:37 AM BRYMER



- * VAR. 49'-2" @ STA. 33+50.00 TO 65'-11" @ BRG. FRWD. ABUT.
- VAR. 49'-2" @ STA. 33+98.39 TO 56'-0 3/8" @ BRG. FRWD. ABUT.

- ① BRIDGE TERMINAL ASSEMBLY, TYPE 1
- ② BRIDGE TERMINAL ASSEMBLY, TYPE 2
- INDICATES TO REMAIN

HORIZONTAL CLEARANCE

- ▲ 3.57' EXIST. 1.50' REQUIRED
- NOTES
1. LIGHT POLES TO BE REMOVED, STORED AND RE-ERECTED. FOR LIGHTING PLANS, SEE SHEETS 141, 142 & 145.

VERTICAL CLEARANCE

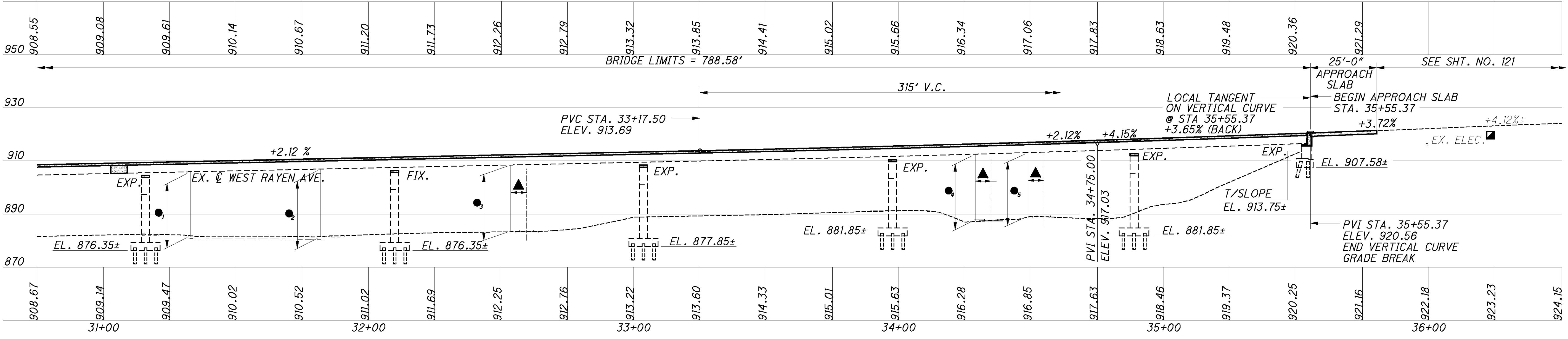
- 23.97' EXIST. 14.50' REQUIRED
- 24.49' EXIST. 14.50' REQUIRED
- 24.23' EXIST. 23.00' REQUIRED
- 23.57' EXIST. 23.00' REQUIRED
- 22.12' EXIST. 23.00' REQUIRED

EDGE OF DECK BASELINE RAMP "K" CURVE DATA (SEE BELOW)
 $\Delta = 6^\circ 32' 05"$
 $Dc = 3^\circ 48' 44"$
 $L = 171.42'$
 $R = 1502.98'$
 $T = 85.80'$

RAMP "J" CURVE DATA
 $\Delta = 25^\circ 15' 49"$
 $Dc = 4^\circ 00' 00"$
 $L = 631.59'$
 $R = 1432.39'$
 $T = 321.01'$

EDGE OF DECK BASELINE IS FOR CONSTRUCTION AND DOES NOT FOLLOW RECORD RAMP "K" BASELINE

■ RIGID BASE REMOVAL AND REPLACEMENT WITH PRESSURE RELIEF JOINT INSTALLATION. SEE ROADWAY PLANS & ODOT STD. DWG. BP-2.3



S.R. 193 PROFILE (NORTHBOUND AND SOUTHBOUND)

▲ 6'-0" NORMAL

DESIGN AGENCY: GPD ASSOCIATES
 330 South Main Street, Suite 233, Akron, Ohio 44311
 330.575.2100, Fax 330.575.2101

DATE: 9-26-08
 REVISIONS: GGN
 DRAWN: RPR
 CHECKED: TJM
 DESIGNED: JMW

MAHONING COUNTY
 STA. 27+66.79
 STA. 35+55.37

SITE PLAN 2
 BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR

MAH-193/422
 -0.46/1.85
 PID No. 25235

2/52
 164
 260

DESIGN SPECIFICATIONS

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002, AND THE ODOT BRIDGE DESIGN MANUAL.

STANDARD DRAWINGS

REFER TO THE FOLLOWING ODOT STANDARD BRIDGE DRAWINGS:

- A-1-69 REVISED: 7-19-02
- AS-1-81 REVISED: 7-19-02
- BR-1 REVISED: 7-19-02
- EXJ-4-87 REVISED: 7-19-02
- GSD-1-96 REVISED: 7-19-02
- SICD-1-96 REVISED: 7-19-02

DESIGN LOADING

DESIGN LOADING: HS25, CASE 11 AND THE ALTERNATE MILITARY LOADING FOR SUPERSTRUCTURE
 HS20 AND ALTERNATE MILITARY LOADING FOR SUBSTRUCTURE

FUTURE WEARING SURFACE (FWS) OF 60 POUNDS PER SQUARE FOOT

DESIGN STRESSES

CONCRETE CLASS HP - COMPRESSIVE STRENGTH 4500 PSI (SUPERSTRUCTURE)

CONCRETE CLASS HP - COMPRESSIVE STRENGTH 4000 PSI (SUBSTRUCTURE)

PROPOSED STRUCTURAL STEEL - ASTM A709 GRADE 50 - MINIMUM YIELD STRENGTH 50,000 PSI

REINFORCING STEEL - ASTM A615 OR A996 GRADE 60, MINIMUM YIELD STRENGTH 60,000 PSI

EXISTING STRUCTURAL STEEL - ASTM A36 GRADE 36 - YIELD STRENGTH 36,000 PSI

DECK PROTECTION METHOD

EPOXY COATED REINFORCING STEEL
 2 1/2" CONCRETE COVER

MONOLITHIC WEARING SURFACE

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK.

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

DESCRIPTION: THIS WORK CONSISTS OF THE REMOVAL OF THE CONCRETE DECK INCLUDING PARAPETS, RAILINGS, DECK JOINTS AND OTHER APPURTENANCES FROM STEEL SUPPORTING SYSTEMS (SCUPPERS ETC.), STEEL BEAM HINGES, END CROSSFRAMES AND PORTIONS OF THE ABUTMENTS AND WINGWALLS AS INDICATED IN THE PLANS AND ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES THAT ARE NOT LISTED SEPARATELY FOR PAYMENT. THE PROVISIONS OF ITEM 202 APPLY EXCEPT AS SPECIFIED BY THE FOLLOWING NOTES. PERFORM WORK CAREFULLY DURING DECK REMOVAL TO PROTECT PORTIONS OF SUCH SYSTEMS THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE AND IN A MANNER THAT WILL NOT CUT, ELONGATE OR DAMAGE THE EXISTING REINFORCING STEEL TO BE PRESERVED. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NOMINAL 90-POUND CLASS. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE. SUBMIT CONSTRUCTION PLANS ACCORDING TO CMS 501.05.

PROTECTION OF STEEL SUPPORT SYSTEMS: BEFORE DECK SLAB CUTTING IS PERMITTED, DRAW THE OUTLINE OF PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK ON THE SURFACE OF THE DECK. DRILL SMALL DIAMETER PILOT HOLES 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF THE 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. PERFORM WORK CAREFULLY DURING CUTTING OF THE DECK SLAB TO AVOID DAMAGING STEEL MEMBERS THAT ARE TO BE INCORPORATED INTO THE PROPOSED STRUCTURE. REPLACE OR REPAIR STEEL MEMBERS DAMAGED BY THE DECK SLAB CUTTING OPERATIONS AT NO COST TO THE PROJECT. AT LEAST 7 DAYS BEFORE PERFORMING REPAIR WORK, SUBMIT A PROPOSED REPAIR PLAN, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER TO THE DIRECTOR. OBTAIN THE DIRECTOR'S APPROVAL BEFORE PERFORMING REPAIR.

REMOVAL METHODS: THE CONTRACTOR MAY REMOVE CONCRETE BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNTED CHISEL TYPE TOOLS. FOR REMOVALS OVER STRUCTURAL MEMBERS (STEEL BEAMS), THE CONTRACTOR MAY USE A HAMMER HEAVIER THAN 35 POUNDS BUT NOT TO EXCEED 90 POUNDS UNLESS APPROVED BY THE ENGINEER. REMOVAL METHODS OVER STRUCTURAL MEMBERS SHALL ENSURE ADEQUATE DEPTH CONTROL AND PREVENT NICKING OR GOUGING THE PRIMARY STRUCTURAL MEMBERS.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN (CONT.)

DUE TO THE POSSIBLE PRESENCE OF ATTACHMENTS (E.G., FINISHING MACHINE AND FORM SUPPORTS, ETC.) TO EXISTING STRUCTURAL MEMBERS, PERFORM WORK CAREFULLY DURING DECK REMOVAL TO AVOID DAMAGING STRUCTURAL MEMBERS THAT ARE TO REMAIN. REPLACE OR REPAIR STRUCTURAL MEMBERS DAMAGED BY THE REMOVAL OPERATIONS AT NO COST TO THE PROJECT. AT LEAST 7 DAYS BEFORE PERFORMING REPAIR WORK, SUBMIT A PROPOSED REPAIR PLAN, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER TO THE DIRECTOR. OBTAIN THE DIRECTOR'S APPROVAL BEFORE PERFORMING REPAIR.

EXISTING WELDED ATTACHMENTS: REMOVE EXISTING WELDED ATTACHMENTS (E.G., FINISHING MACHINE AND FORM SUPPORTS; AND SUPPORTS FOR SCUPPERS AND BULB ANGLES WHICH ARE TO BE REMOVED) LOCATED IN THE DESIGNATED TENSION PORTIONS OF THE TOP FLANGES OF EXISTING STEEL MEMBERS AND GRIND THE FLANGE SURFACES SMOOTH. CAREFULLY GRIND PARALLEL TO FLANGES.

CUT LINE CONSTRUCTION JOINT PREPARATION: SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

SUBSTRUCTURE CONCRETE REMOVAL: REMOVE CONCRETE 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, THE CONTRACTOR MAY USE HAMMERS NOT EXCEEDING 90 POUNDS UPON THE APPROVAL OF THE ENGINEER. DO NOT PLACE PNEUMATIC HAMMERS IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE. THIS WORK ALSO INCLUDES REMOVAL OF ALL LOOSE AND DISINTEGRATED CONCRETE AT THE ABUTMENT BEAM SEAT AND BREASTWALL SURFACES WHICH ARE TO BE ENCAPSULATED WITH NEW CONCRETE UNDER ITEM 511. CLEAN EXISTING REINFORCING STEEL EXPOSED AFTER REMOVAL OF DISINTEGRATED CONCRETE BY HIGH-PRESSURE WATER BLASTING OR OTHER METHOD ACCEPTABLE TO THE ENGINEER.

DEMOLITION OVER RAILROADS: THE CONTRACTOR SHALL SUBMIT PLANS AND PROCEDURES FOR THE PROPOSED DEMOLITION OF STRUCTURES OVER RAILROAD PROPERTIES AS PER CMS 501.05. THIS SUBMITTAL SHALL INCLUDE THE METHOD FOR PROTECTING THE TRACK FROM ACCIDENTAL DROPPING OF CONCRETE. CONCRETE SHALL NOT BE ALLOWED TO INTENTIONALLY FALL OR DROP ONTO THE RAILWAY PROPERTY.

A TEMPORARY VERTICAL CLEARANCE OF 20 FEET FROM THE TOP OF RAIL AND A TEMPORARY HORIZONTAL CLEARANCE OF 12 FEET FROM THE CENTERLINE OF THE TRACK MUST BE MAINTAINED AT ALL TIMES TO ANY FORM WORK, FALSE WORK OR OTHER TEMPORARY OBSTRUCTION DURING CONSTRUCTION OF THIS BRIDGE.

MEASUREMENT & PAYMENT: THE DEPARTMENT WILL MEASURE THE QUANTITY OF REMOVALS ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES OF REMOVALS AT THE CONTRACT PRICE FOR ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.

EXISTING STRUCTURE VERIFICATION

EXISTING STRUCTURE VERIFICATION: DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE 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 513.04.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

ITEM 516 - JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN

THIS WORK CONSISTS OF RAISING OR RE-POSITIONING THE EXISTING STRUCTURE TO THE DIMENSIONS AND REQUIREMENTS DEFINED IN THE PROJECT PLANS.

SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH CMS 501.05.

AT A MINIMUM, A JACKING OPERATION SHALL LIFT ALL BEAMS AT ANY ONE ABUTMENT OR PIER SIMULTANEOUSLY. THE ONLY EXCEPTION IS THE SITUATION WHERE WORK INVOLVES REPLACING INDIVIDUAL BEARINGS AND THE HEIGHT OF THE LIFT SHALL NOT EXCEED 1/4 INCH. THE MAXIMUM DIFFERENTIAL JACKING HEIGHT BETWEEN ANY ADJACENT ABUTMENTS OR PIERS SHALL BE 1 INCH OR LESS. IF THIS 1 INCH IS TO BE EXCEEDED, PROVIDE CALCULATIONS SHOWING THAT THE SUPERSTRUCTURE COMPONENTS WILL NOT BE TEMPORARILY STRESSED BEYOND ALLOWABLE STRESSES AND THAT NO PERMANENT STRESSES WILL BE INDUCED IN THE COMPONENTS AFTER THEY OBTAIN THEIR FINAL POSITION.

ITEM 516 - JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN (CONT.)

IF, DURING THE JACKING OPERATIONS, DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, IMMEDIATELY CEASE THE JACKING OPERATION AND INSTALL SUPPORTS TO THE SATISFACTION OF THE ENGINEER. ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR APPROVAL. THE DEPARTMENT WILL NOT PAY FOR THE COST OF REQUIRED REPAIRS. THE BRIDGE BEARINGS SHALL BE FULLY SEATED AT ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUBMIT A REPAIR PLAN TO THE ENGINEER. THE DEPARTMENT WILL NOT PAY FOR THE REPAIR COSTS TO ENSURE FULL SEATING ON BEARINGS.

THE DEPARTMENT WILL PAY FOR THIS WORK ON A LUMP SUM BASIS.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516 - JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

ITEM 511 - CLASS HP CONCRETE, AS PER PLAN

THE PROVISIONS OF ITEM 511 SHALL APPLY EXCEPT AS NOTED BELOW

MIX OPTIONS:
 ALL SUPERSTRUCTURE, BRIDGE DECK, APPROACH SLABS AND PARAPET CONCRETE SHALL BE THIS MIX (HP4, AS PER PLAN). THE FOLLOWING PROPORTIONS WILL BE USED AS A STARTING MIX DESIGN.

AGG TYPE	CONCRETE TABLE QUANTITIES PER CUBIC YARD AGGREGATES (SSD) MIX 4, AS PER PLAN, (GGBF SLAG + MOCROSILICA)								AIR CONTENT +2%
	#8 FINE (LB)	#57 COURSE AGG (LB)	#57 COURSE AGG (LB)	TOTAL (LB)	CEMENT (LB)	GGBF SLAG (LB)	MICRO SILICA (LB)	MAX WATER TO CEMENTITIOUS RATIO	
GRAVEL	1370	650	790	2810	440	190	30	0.42	6
LIMESTONE SLAG	1370	655	800	2820	440	190	30	0.42	6
	1370	570	695	2635	440	190	30	0.42	6

* ALL COURSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127

BASIS OF PAYMENT:
 PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR:
 ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN, CU YD
 ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN, CU YD
 ITEM 511 - CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN, CU YD
 ITEM 511 - CLASS HP CONCRETE, TEST SLAB, LUMP

CONCRETE PARAPETS

CONCRETE PARAPETS: AS SOON AS A CONCRETE SAW CAN BE OPERATED WITHOUT DAMAGING THE FRESHLY PLACED CONCRETE, SAWCUT 1/4" DEEP CONTROL JOINTS INTO THE PERIMETER OF THE CONCRETE PARAPET STARTING AND ENDING AT THE ELEVATION OF THE CONCRETE DECK. PLACE THE SAWCUTS AS SPECIFIED IN THE PLANS. USE AN EDGE GUIDE, FENCE OR JIG TO ENSURE THAT THE CUT JOINT IS STRAIGHT, TRUE AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF 1/4 INCH. SEAL THE PERIMETER OF THE DEFLECTION CONTROL JOINT TO A MINIMUM DEPTH OF 1 INCH WITH A POLYURETHANE OR POLYMERIC MATERIAL CONFORMING TO ASTM C920, TYPE S. LEAVE THE BOTTOM 1/2 INCH OF THE INSIDE AND OUTSIDE FACE UNSEALED TO ALLOW WATER TO ESCAPE.

ITEM 601 - SLOPE PROTECTION MISC.: CRUSHED AGGREGATE SLOPE PROTECTION, AS PER PLAN

THIS ITEM SHALL INCLUDE THE FURNISHING AND PLACING OF ADDITIONAL CRUSHED AGGREGATE SLOPE PROTECTION TO SUPPLEMENT THE EXISTING CRUSHED AGGREGATE SLOPE PROTECTION, IN AREAS AS REQUIRED TO MEET FINAL GROUND LINE AND NEW CRUSHED AGGREGATE SLOPE PROTECTION BENEATH WIDENED AREAS. PLACEMENT SHALL BE AS DIRECTED BY THE ENGINEER. CRUSHED AGGREGATE SLOPE PROTECTION AT TERMINATION OF THE 6" NON-PERFORATED DRAINAGE PIPES AT THE ABUTMENTS IS ALSO INCLUDED WITH THIS ITEM. THIS ITEM SHALL ALSO INCLUDE THE REMOVAL OF ALL BRUSH AND DEBRIS BELOW THE STRUCTURE AND TO 10 FEET FROM EACH SIDE OF THE STRUCTURE.

ITEM 526 - REINFORCED CONCRETE APPROACH SLABS, AS PER PLAN

THE PROVISIONS OF CMS 526 APPLY EXCEPT AS NOTED BELOW:
 CLASS HP CONCRETE, MIX 4, AS PER PLAN, SHALL BE THE ONLY MIX DESIGN OPTION. THE PROPORTIONS FOR THE STARTING MIX DESIGN SHALL BE AS SHOWN FOR ITEM 511 - CLASS HP CONCRETE, AS PER PLAN. PARAPETS AND BARRIERS MOUNTED TO APPROACH SLABS, INCLUDING ALL ASSOCIATED REINFORCING STEEL, SHALL BE INCLUDED FOR PAYMENT WITH ITEM 526.

\MAPR01\DATA\CV\1\2007\013\MAH-193\STRUCTURES\MAH193-0072C-SHEETS\119-0072CON002.DGN
 3/21/2009 11:46:05 AM RUDYCITZKY

DESIGN AGENCY
GLASSBORO ENGINEERING & SURVEYING, INC.

570 South Main Street, Suite 1311, Akron, Ohio 44311
330.273.2100 • Fax: 330.273.2101

DATE	9-26-08	REVIEWED	GGN	STRUCTURE FILE NUMBER	5004470
DRAWN	RHC	REVISID			
DESIGNED	RHC	CHECKED		T.JW	

STRUCTURE GENERAL NOTES

BRIDGE NO. MAH-193-0072
 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR

MAH-193/422
-0.46/1.85
PID No. 25235

3/52

ITEM SPECIAL - STRUCTURE MISC.: COMPOSITE FIBER WRAP SYSTEM

DESCRIPTION: THIS WORK SHALL CONSIST OF PROVIDING AND INSTALLING A FIBER WRAP MEMBER PREPARATION, WRAPPING THE CONCRETE MEMBER, AND ALL INCIDENTALS NECESSARY TO COMPLETE. THE INSTALLATION SHALL BE PER THE MANUFACTURER'S REQUIREMENTS.

MATERIALS: SUPPLIERS SHALL HAVE A MINIMUM OF 10 INSTALLATIONS AND FURNISH CERTIFIED TEST REPORTS INCLUDING 1000 HOUR TESTS FOR 140° WATER, SALT WATER ALKALINE SOIL, OZONE, AND EFFERVESCENCE IN ADDITION TO THE REQUIREMENTS LISTED BELOW.

THE FABRIC FOR THE COMPOSITE CASING SHALL BE CONTINUOUS FILAMENT WOVEN FABRIC. PRIMARY FIBERS FOR THE FABRIC SHALL BE (E) ELECTRICAL GLASS FIBERS. THE FIBER SHALL HAVE A MINIMUM NOMINAL THICKNESS OF 0.05 INCHES. THE MINIMUM WEIGHT OF THE FABRIC SHALL BE 27.0 OUNCES PER SQUARE YARD.

THE EPOXY SHALL BE AS SUPPLIED BY THE MANUFACTURER TO MEET THE COMPOSITE STRENGTH GIVEN BELOW. POLYESTER RESIN SHALL NOT BE ALLOWED AS A SUBSTITUTE FOR EPOXY RESIN.

THE COMPOSITE OF THE FIBER WRAPPED MEMBER CASING SYSTEM SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

PROPERTY	REQUIREMENTS	ASTM TEST METHOD
ULTIMATE TENSILE STRENGTH, PSI MIN. IN PRIMARY FIBER DIRECTION.	60,000 PSI	D3039, AVERAGE OF 7, 1" BY 10" NORMALIZED TO 0.80" THICK 0.01" PER MINUTE TESTING SPEED.
ULTIMATE TENSILE STRENGTH, PSI MIN. IN PRIMARY FIBER DIRECTION.	3,000 PSI	D3039, AVERAGE OF 7, 1" BY 10" NORMALIZED TO 0.80" THICK 0.01" PER MINUTE TESTING SPEED.
TENSILE STRENGTH (MIN. AFTER TEST) 1000 HOURS EXPOSURE TO 100% HUMIDITY.	60,000 PSI	C581
TENSILE STRENGTH (MIN. AFTER TEST) 1000 HOURS EXPOSURE TO OZONE.	60,000 PSI	D1149 EXPERTS NOT UNDER STRESS DURING OZONE EXPOSURE.
TENSILE STRENGTH (MIN. AFTER TEST) 1000 HOURS EXPOSURE TO ALKALI.	60,000 PSI	D3083 USING SOIL BURIAL - WATER CONTENT OF 73% ± 3%.
TENSILE STRENGTH (MIN. AFTER TEST) 1000 HOURS EXPOSURE TO SALT WATER.	60,000 PSI	C581 AND D1141 OMITTING ADDITION OF HEAVY METAL REAGANTS.
TENSILE STRENGTH (MIN. AFTER TEST) 1000 HOURS EXPOSURE AT 140°F.	60,000 PSI	D3045
TENSILE STRENGTH (MIN. AFTER TEST) ULTRAVIOLET (UV) EXPOSURE.	60,000 PSI	G154 USING FS40 UV-B BULBS FOR A MIN. 40 CYCLES. THE CYCLE SHALL BE 4 HOURS OF CONDENSATE EXPOSURE AT 40°C.
ELONGATION: PERCENT, MIN.	1.7%	
PERCENT, MAX.	5.0%	
TENSILE MODULUS, PSI MIN. OF PRIMARY FIBERS	3,000,000	D3039
VISUAL DEFECTS	ACCEPTANCE LEVEL III	D2563
COEFFICIENT OF THERMAL EXPANSION IN THE PRIMARY DIRECTION.	4,300,000 PPM/DEG. F (+15%)	D696

SURFACE PREPARATION: THE SURFACE TO RECEIVE THE COMPOSITE WRAP SHALL BE FREE FROM FINIS, SHARP EDGES, AND PROTRUSIONS THAT WILL CAUSE VOIDS BEHIND THE CASING OR THAT, IN THE OPINION OF THE ENGINEER, WILL DAMAGE THE FIBER. IF FIBERS ARE TO WRAP AROUND CORNERS OF RECTANGULAR CROSS-SECTIONS, THE CORNERS SHALL BE ROUNDED TO A 1/2 INCH RADIUS. THIS WILL HELP PREVENT STRESS CONCENTRATIONS IN THE FIBER WRAP AND VOIDS BETWEEN THE FIBER WRAP AND THE CONCRETE. IN ADDITION, THE SURFACE SHALL BE SMOOTH AND FREE OF VOIDS OR UNDULATIONS THAT WOULD PREVENT FULL CONTACT BETWEEN THE CONCRETE AND THE FIBER WRAP.

ADDITIONALLY, THERE ARE CONDUITS AND/OR DOWNSPOUTS ATTACHED TO THE COLUMNS TO RECEIVE FIBER WRAP. THE CONTRACTOR MUST MAINTAIN THE SAME SERVICE PROVIDED WHILE DISCONNECTING THE CONDUIT FROM THE COLUMN ONLY. RECONNECT THE CONDUIT AFTER THE APPLICATION OF THE ACRYLIC FINISH COAT.

COMPOSITE APPLICATION: THE AMBIENT TEMPERATURE AND THE TEMPERATURE OF THE EPOXY RESIN COMPONENTS SHALL BE BETWEEN 55°F AND 95°F AT THE TIME OF MIXING. THE COMPOSITE SHALL BE APPLIED WHEN THE RELATIVE HUMIDITY IS LESS THAN 85% AND THE SURFACE TEMPERATURE IS MORE THAN 5°F ABOVE THE DEW POINT. APPLICATION SHALL BEGIN WITHIN ONE HOUR AFTER THE BATCH HAS BEEN MIXED.

THE COMPONENTS OF THE EPOXY RESIN SHALL BE MIXED WITH A MECHANICAL MIXER AND APPLIED UNIFORMLY TO THE FIBER AT A RATE THAT SHALL INSURE COMPLETE SATURATION OF THE FABRIC.

THE FABRIC /EPOXY COMPOSITE SHALL BE APPLIED TO THE SURFACE OF THE MEMBER BY WRAPPING USING METHODS THAT PRODUCE A UNIFORM FORCE THAT IS DISTRIBUTED ACROSS THE ENTIRE WIDTH OF THE FABRIC. THE PRIMARY FIBERS OF THE FABRIC SHALL NOT DEVIATE FROM A HORIZONTAL LINE MORE THAN 1/2 INCH PER FOOT. ENTRAPPED AIR SHALL BE RELEASED OR ROLLED OUT BEFORE THE EPOXY SETS.

SUCCESSIVE LAYERS OF COMPOSITE MATERIALS SHALL BE PLACED BEFORE POLYMERIZATION OF THE PREVIOUS LAYER OF EPOXY IS TOO DRY TO ACHIEVE ADEQUATE BONDING BETWEEN LAYERS. IF POLYMERIZATION DOES OCCUR BETWEEN LAYERS THE SURFACE MUST BE ROUGHENED USING A LIGHT ABRASIVE THAT WILL NOT DAMAGE THE FIBER.

THE FINAL LAYER OF EPOXY SHALL BE APPLIED TO THE FINAL LAYER OF FABRIC, WITH CARE TAKEN TO INSURE COATING OF ALL EDGES AND SEAMS. SPACES BETWEEN THE BANDS OF FABRIC SHALL BE FILLED WITH EPOXY THICKENED AS DIRECTED BY THE MANUFACTURER.

A FINAL INSPECTION SHALL BE PERFORMED ON ALL FIBER WRAPPED MEMBERS AFTER THE EPOXY SETS YET PRIOR TO THE APPLICATION OF THE ACRYLIC FINISH COAT. ALL DEFECTS (INCLUDING BUBBLES, DELAMINATIONS, AND FABRIC TEARS) MORE THAN 1 SQUARE INCH OF THE SURFACE AREA, OR AS SPECIFIED BY THE PROJECT ENGINEER, SHALL BE REPAIRED AS SUCH:

- 1) SMALL DEFECTS (ON THE ORDER OF 6" DIAMETER) SHALL BE INJECTED OR BACK FILLED WITH EPOXY.
- 2) BUBBLES LESS THE 12" IN DIAMETER SHALL BE REPAIRED BY INJECTING WITH EPOXY. TWO HOLES SHALL BE DRILLED INTO THE BUBBLES TO ALLOW INJECTION OF THE EPOXY AND ESCAPE OF ENTRAPPED AIR.
- 3) BUBBLES, DELAMINATIONS AND FABRIC TEARS GREATER THAN 12" IN DIAMETER SHALL BE REPAIRED BY REMOVING AND REAPPLYING THE REQUIRED NUMBER OF LAYERS OF THE COMPOSITE AND THE REQUIRED FINISH COATINGS. ALL REPAIRS SHALL BE APPROVED BY THE PROJECT ENGINEER.

COATING SYSTEM APPLICATION: A FINAL ACRYLIC COATING IS REQUIRED TO PROTECT THE FIBERS FROM THE ELEMENTS, SPECIFICALLY UV RADIATION AND TO GIVE THE FINAL AESTHETIC EFFECT.

AFTER 96 HOURS FROM FINAL APPLICATION OF EPOXY, IF THE FINAL EPOXY POLYMERIZED, THE EXTERIOR SURFACES OF THE COMPOSITE WRAP SHALL BE CLEANED AND ROUGHENED BY A LIGHT ABRASIVE. CARE SHOULD BE TAKEN DURING THE ROUGHENING PROCESS SO THAT THE FIBERS ARE NOT DAMAGED. ALL CLEANED AND ROUGHENED SURFACES SHALL BE DRY BEFORE APPLYING THE ACRYLIC COATING.

MEASUREMENT AND PAYMENT: THE BID PRICE SHALL INCLUDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO PROVIDE AND INSTALL A FIBER WRAP MEMBER CASING SYSTEM USING HIGH STRENGTH, HYBRID FIBER/EPOXY COMPOSITES FIELD APPLIED TO THE MEMBER, INCLUDING ERECTION OF SCAFFOLDING, CLEANING, SURFACE PREPARATION, WRAPPING THE MEMBER, AND ALL INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION PER THE MANUFACTURER'S REQUIREMENTS.

PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES OF FINISHED SURFACE AREA WRAPPED WILL BE MADE AT THE CONTRACT BID PRICE FOR:
 ITEM SPECIAL STRUCTURE MISC: COMPOSITE FIBER WRAP SYSTEM,
 2 LAYER GLASS FIBER, SQ FT
 ITEM SPECIAL STRUCTURE MISC: COMPOSITE FIBER WRAP SYSTEM,
 4 LAYER GLASS FIBER, SQ FT

THE ACRYLIC FINISH COAT WILL BE PAID FOR UNDER A SEPARATE PAY ITEM.

ITEM SPECIAL - SEALING MISC.: ACRYLIC FINISH COAT

THIS WORK SHALL CONSIST OF THE APPLICATION OF A 100% ACRYLIC EXTERIOR COATING MATERIAL OVER THE COMPOSITE FIBER WRAP SYSTEM APPLIED TO PIER CANTILEVERS PER THE NOTE "ITEM SPECIAL - STRUCTURE MISC.: COMPOSITE WRAP SYSTEM". THE COLOR OF THE FINISH COAT SHALL BE FEDERAL COLOR STANDARD NO. 17778 (LIGHT NEUTRAL) TO MATCH THE FINAL COLOR OF ADJACENT CONCRETE SURFACES TO BE SEALED UNDER ITEM 512. THE ACRYLIC FINISH COAT MATERIAL SHALL BE SPECIFICALLY RECOMMENDED BY THE MANUFACTURER OF THE COMPOSITE FIBER WRAP SYSTEM, BE INSTALLED IN ACCORDANCE WITH THE COATING MANUFACTURER'S REQUIREMENTS AND MEET FEDERAL PERFORMANCE SPECIFICATION TT-P-19 AND TT-P-55.

- ITEM 514 - FIELD PAINTING EXISTING STRUCTURAL STEEL, PRIME COAT
- ITEM 514 - FIELD PAINTING, STRUCTURAL STEEL, INTERMEDIATE COAT
- ITEM 514 - FIELD PAINTING, STRUCTURAL STEEL, FINISH COAT, AS PER PLAN
- ITEM 514 - FINAL INSPECTION REPAIR

FIELD PAINTING TO BE INCLUDED IN THESE ITEMS ARE FOR PAINTING STEEL BEAMS AND CROSSFRAMES. AT EXPOSED PORTIONS OF FASCIA BEAMS, THE FINISH COAT COLOR SHALL BE RED, FEDERAL STANDARD NO. 11105. THE INSIDE OF THE FASCIA BEAMS AND ALL CROSSFRAMES SHALL HAVE A FINISH COAT COLOR OF BROWN, FEDERAL STANDARD NO. 10324. THE PERCENTAGE USED TO ACCOUNT FOR THE AREA OF INCIDENTALS IS 15%.

ASBESTOS NOTIFICATION:

AN ASBESTOS SURVEY OF THE S.R. 193 BRIDGE OVER RAYEN AVENUE AND RAILROAD TRACKS (STRUCTURE NO. MAH-193-0072, SFN 5004470), SCHEDULED FOR REHABILITATION WAS CONDUCTED BY A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST. THE SURVEY DETERMINED THAT APPROXIMATELY 408 LINEAR FEET (34 SQUARE FEET) OF CATEGORY II NONFRIABLE ASBESTOS WAS IDENTIFIED IN CAULKING MATERIAL ASSOCIATED WITH THE PARAPET RAILING. THE REMOVAL AND DISPOSAL OF THE ASBESTOS CONTAINING MATERIAL MUST COMPLY WITH THE OHIO ADMINISTRATIVE CODE, THE OCCUPATION SAFETY & HEALTH ADMINISTRATIVE (OSHA) REGULATIONS AND THE NATIONAL EMISSION STANDARD FOR HAZARDOUS AIR POLLUTANTS (NESHAP) STANDARD FOR ASBESTOS. THIS ASBESTOS CONTAINING MATERIAL WILL BE REMOVED BY THE CONTRACTOR DURING CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE AN INDIVIDUAL TRAINED IN THE PROVISIONS OF THE NESHAP ON SITE, TO DIRECT THE REMOVAL OF THE ASBESTOS CONTAINING MATERIAL.

A COPY OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) NOTIFICATION OF THE DEMOLITION AND RENOVATION FORM, PARTIALLY COMPLETED AND SIGNED BY THE BRIDGE OWNER, WILL BE PROVIDED TO THE SUCCESSFUL BIDDER. THE CONTRACTOR SHALL COMPLETE THE FORM AND SUBMIT IT TO:

MAHONING-TRUMBULL AIR POLLUTION CONTROL
 345 OAK HILL AVENUE, SUITE 200
 YOUNGSTOWN, OHIO 44502
 NEIL H. ALTMAN
 (330) 743-3333
 FAX (330) 743-3960

AT LEAST TEN (10) WORKING DAYS PRIOR TO START OF THE DEMOLITION OF THE BRIDGES. THE CONTRACTOR SHALL PROVIDE A COPY OF THE COMPLETED FORM TO THE ENGINEER. INFORMATION REQUIRED ON THE FORM WILL INCLUDE: (1) THE CONTRACTOR'S NAME AND ADDRESS, (2) THE SCHEDULED DATES FOR THE START AND COMPLETION OF THE BRIDGE RENOVATION, (3) A DESCRIPTION OF THE PLANNED DEMOLITION WORK AND THE METHOD(S) TO BE USED, (4) THE DATES AND HOURS OF OPERATION FOR THE ASBESTOS REMOVAL, (5) A DESCRIPTION OF THE PLANNED RENOVATION WORK AND THE METHOD(S) TO BE USED, (6) A DESCRIPTION OF WORK PRACTICES AND ENGINEERING CONTROLS TO BE USED TO PREVENT EMISSIONS OF ASBESTOS AT THE SITE, (7) THE NAME AND ADDRESSES OF WASTE TRANSPORTERS TO BE USED ON THE PROJECT, (8) THE NAME AND ADDRESS OF WASTE DISPOSAL FACILITY TO BE USED AND (9) A DESCRIPTION OF PROCEDURES TO BE FOLLOWED IN THE EVENT THAT UNEXPECTED ASBESTOS IS FOUND OR PREVIOUSLY NON-FRIABLE ASBESTOS MATERIAL BECOMES CRUMBLED, PULVERISED OR REDUCED TO POWDER. A COPY OF THE OEPA FORM IS AVAILABLE FOR INSPECTION AT THE ODOT DISTRICT 4 OFFICE, 2088 SOUTH ARLINGTON RD., AKRON, OHIO 44306

BASIS FOR PAYMENT: THE CONTRACTOR SHALL FURNISH ALL FEES, LABOR, AND MATERIAL NECESSARY TO COMPLETE AND SUBMIT THE OEPA NOTIFICATION FORM. THIS ITEM WILL INCLUDE REMOVAL OF ANY/ALL ASBESTOS CONTAINING MATERIAL (ACM). PAYMENT FOR THIS WORK SHALL BE INCLUDED IN ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.



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ESTIMATED QUANTITIES

CALCULATED: TJW DATE: 9-29-08
 CHECKED: DJC DATE: 2-20-09

ITEM 519 - PATCHING CONCRETE STRUCTURES, AS PER PLAN

PRIOR TO THE SURFACE CLEANING SPECIFIED IN 519.04 AND WITHIN 24 HOURS OF PLACING PATCHING MATERIAL, BLAST CLEAN ALL SURFACES TO BE PATCHED INCLUDING THE EXPOSED REINFORCING STEEL. ACCEPTABLE METHODS INCLUDE HIGH-PRESSURE WATER BLASTING WITH OR WITHOUT ABRASIVES IN THE WATER, ABRASIVES BLASTING WITH CONTAINMENT, OR VACUUM ABRASIVE BLASTING.

ITEM	EXT.	TOTAL	UNITS	DESCRIPTION	ABUT	PIER	SUPER	GENERAL	A.P.P. REFERENCE SHT. NO.
202	11203	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				LUMP	3
202	22900	477	SQ YD	APPROACH SLAB REMOVED				477	
503	11100	LUMP		COFFERDAMS, CRIBS AND SHEETING				LUMP	
503	21300	LUMP		UNCLASSIFIED EXCAVATION	LUMP				
509	10000	754612	POUND	EPOXY COATED REINFORCING STEEL	20734	30617	703261		
510	10000	2568	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT	1330	1238			
511	50001	2304	CU YD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN			2304		3
511	50101	428	CU YD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN	2		426		3
511	50201	212	CU YD	CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN	132	80			3
511	52000	LUMP		CLASS HP CONCRETE, TEST SLAB				LUMP	
512	10100	5344	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	251	2003	2938	152	
512	33000	4	SQ YD	TYPE 2 WATERPROOFING	4				
SPECIAL	51275500	657	SQ YD	SPECIAL - SEALING, MISC.: ACRYLIC FINISH COAT		657			4
513	10241	235510	POUND	STRUCTURAL STEEL MEMBERS, LEVEL 2, AS PER PLAN			235510		24
513	20000	27984	EACH	WELDED STUD SHEAR CONNECTORS			27984		
* 513	21000	30	EACH	TRIMMING OF BEAM END			30		
513	21500	3950	POUND	REPLACEMENT OF DETERIORATED END CROSSFRAMES			3950		
514	00050	125600	SQ FT	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL			125600		
514	00056	126500	SQ FT	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT			126500		
514	00060	126500	SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT			126500		
514	00067	126500	SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT, AS PER PLAN			126500		4
514	00504	188	MAN HR	GRINDING FINS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL			188		
514	10000	110	EACH	FINAL INSPECTION REPAIR			110		
516	11210	223	FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL			223		
516	13600	285	SQ FT	1" PREFORMED EXPANSION JOINT FILLER	25			260	
516	13900	12	SQ FT	2" PREFORMED EXPANSION JOINT FILLER			9	3	
516	44101	14	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (1'-0" x 1'-9" x 2.31" THICK), AS PER PLAN		14			22, 23
516	44101	28	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (1'-2" x 1'-9" x 3.76" THICK), AS PER PLAN					22, 23
516	46900	30	EACH	BEARING DEVICE MISC.: ELASTOMERIC BEARING WITH INTERNAL LAMINATES, LOAD PLATE AND PTFE (NEOPRENE) (9" x 1'-1" x 2.44" THICK)	30				22, 23
516	46900	71	EACH	BEARING DEVICE MISC.: ELASTOMERIC BEARING WITH INTERNAL LAMINATES, LOAD PLATE AND PTFE (NEOPRENE) (1'-2" x 1'-9" x 3.58" THICK)		71			22, 23
516	47001	LUMP		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN				LUMP	3
518	12201	16	EACH	SCUPPERS, INCLUDING SUPPORTS, AS PER PLAN			16		48, 49
518	21230	LUMP		POROUS BACKFILL WITH FILTER FABRIC					
518	40000	266	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	266				
518	40010	51	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	51				
518	51100	138	FT	8" PIPE DOWNSPOUT, INCLUDING SPECIALS		138			
519	11101	4	SQ FT	PATCHING CONCRETE STRUCTURE, AS PER PLAN		4			5
526	25001	627	SQ YD	REINFORCED CONCRETE APPROACH SLABS (T=15"), AS PER PLAN				627	3, 42-46
SPECIAL	53000600	3860	SQ FT	STRUCTURE MISC.: COMPOSITE FIBER WRAP SYSTEM, 2 LAYER GLASS FIBER		3860			4
SPECIAL	53000600	2050	SQ FT	STRUCTURE MISC.: COMPOSITE FIBER WRAP SYSTEM, 4 LAYER GLASS FIBER		2050			4
601	20001	510	SQ YD	CRUSHED AGGREGATE SLOPE PROTECTION, AS PER PLAN				510	3

PROPOSED WORK

- REMOVE ENTIRE EXISTING DECK ABOVE THE BEAMS, INCLUDING WEARING SURFACE, EXPANSION JOINTS AND SCUPPERS,
- REMOVE EXISTING APPROACH SLABS.
- PROVIDE TEMPORARY SUPPORT FOR EXISTING BEAMS, REMOVE EXISTING BEARINGS AND PORTIONS OF STEEL SUPERSTRUCTURE (HINGES) AS INDICATED IN THE PLANS.
- REMOVE EXISTING ABUTMENT BACKWALL AND PORTIONS OF WINGWALLS AS INDICATED IN THE PLANS.
- BUILD UP THE EXISTING PIER CAPS AND ABUTMENT BEAM SEATS
- CONSTRUCT NEW PORTIONS OF STEEL SUPERSTRUCTURE TO REPLACE EXISTING HINGES, INSTALL MOMENT PLATE RETROFIT SPLICE PLATES AND PLACE COMPOSITE FIBER WRAP ON EXISTING PIER CAPS AS INDICATED IN THE PLANS.
- SET NEW LAMINATED ELASTOMERIC BEARINGS AT THE ABUTMENTS AND PIERS AND PLACE BEAMS ON THE NEW BEARINGS.
- WELD SHEAR CONNECTORS TO EXISTING BEAMS.
- INSTALL NEW EXPANSION JOINT, SCUPPERS AND CONSTRUCT DECK AND SUPERSTRUCTURE DRAINAGE SYSTEM AS INDICATED IN THE PLANS.
- RECONSTRUCT ABUTMENT BACKWALLS AND PORTIONS OF WINGWALLS AS INDICATED IN THE PLANS AND INSTALL NEW ABUTMENT DRAINAGE SYSTEM WHILE BACKFILLING.
- CONSTRUCT APPROACH SLABS.
- SEAL CONCRETE SURFACES AS INDICATED IN THE PLANS.
- PAINT THE EXISTING STEEL.

ABBREVIATIONS

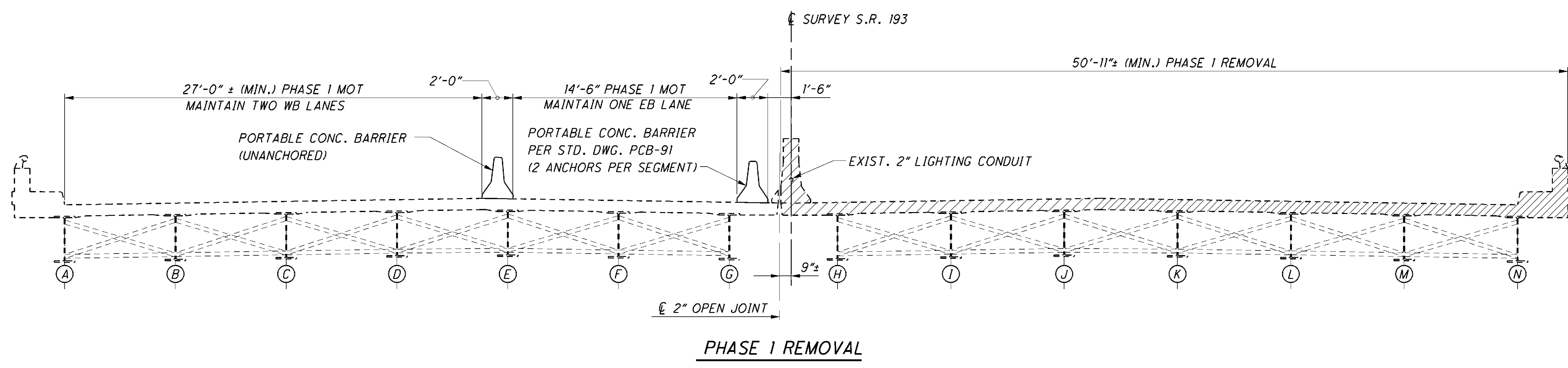
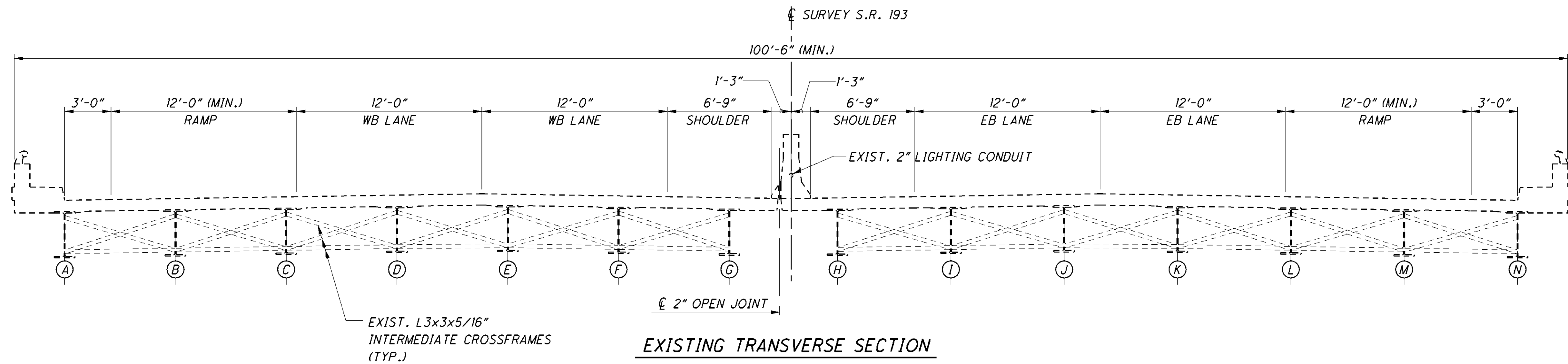
ABUT.	ABUTMENT
BRG.	BEARING
B.S.	BOTH SIDES
N.S.	NEAR SIDE
F.S.	FAR SIDE
SER.	SERIES
TYP.	TYPICAL
EQ.	EQUAL
DIM.	DIMENSION
SPA.	SPACES
EA.	EACH
P.E.J.F.	PREFORMED EXPANSION JOINT FILLER
MIN.	MINIMUM
NO.	NUMBER
ADDIT.	ADDITIONAL
FRWD.	FORWARD
SPL.	SPLICE
CLR.	CLEAR
CONC.	CONCRETE
CONST.	CONSTRUCTION
C.I.P.	CAST IN PLACE
JT.	JOINT
BTWN.	BETWEEN
SHLD.	SHOULDER
V.P.F.	VANDAL PROTECTION FENCE
P.C.P.P.	PERFORATED CORRUGATED PLASTIC PIPE
N.P.C.P.P.	NON-PERFORATED CORRUGATED PLASTIC PIPE

* AS DIRECTED

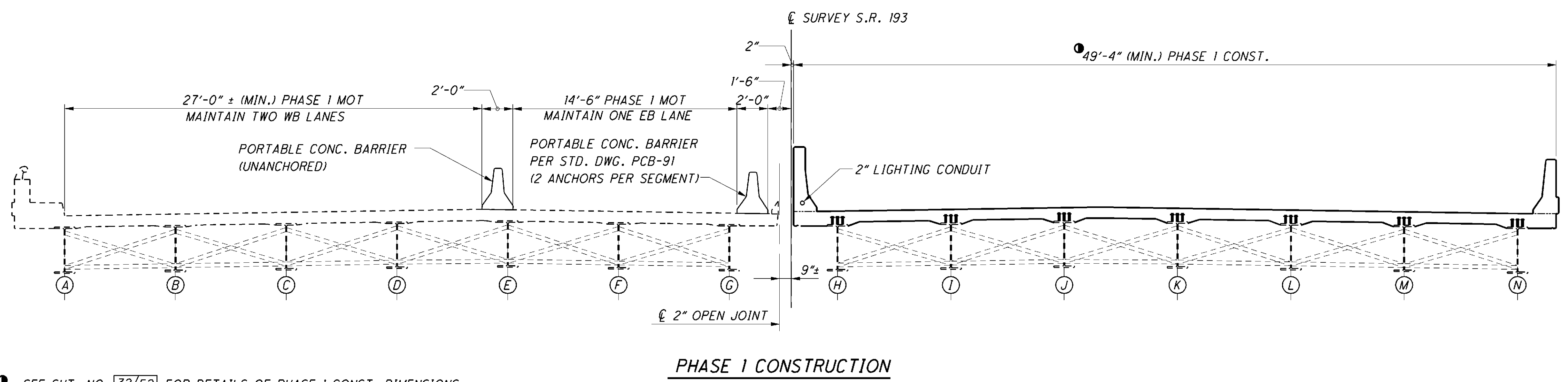
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 DJC/STRONDA

DESIGN AGENCY: GPD ASSOCIATES, INC. 330 South Main Street, Suite 231 Albany, Ohio 44411
 330.575.2100 Fax 330.575.2101
 DATE: 3-20-09
 REVISED: GGN
 DRAWN: RHC
 DESIGNED: TJW
 CHECKED: DJC
 STRUCTURE FILE NUMBER: 5004470
ESTIMATED QUANTITIES & STRUCTURAL GENERAL NOTES
 BRIDGE NO. MAH-193-0072
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 5 / 52
 167
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INDICATES REMOVAL LIMITS

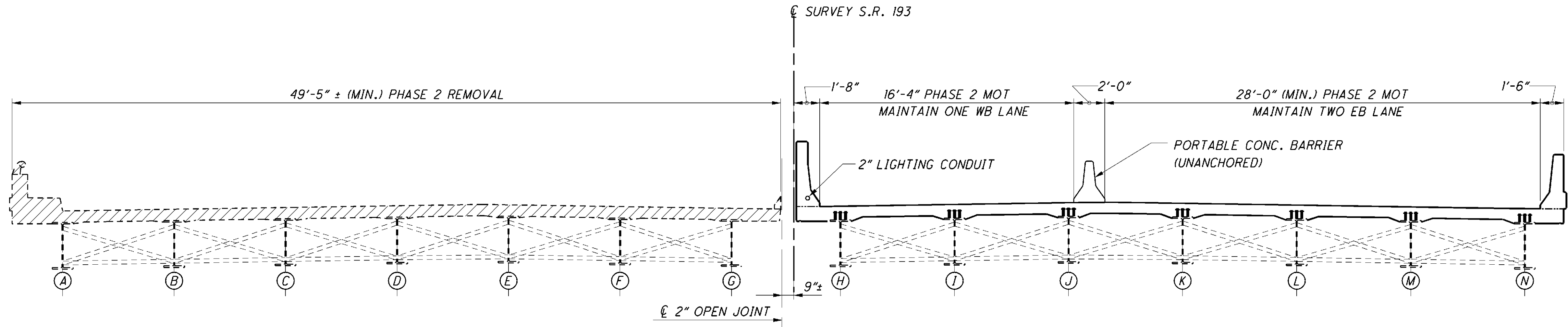


SEE SHT. NO. 32/52 FOR DETAILS OF PHASE 1 CONST. DIMENSIONS

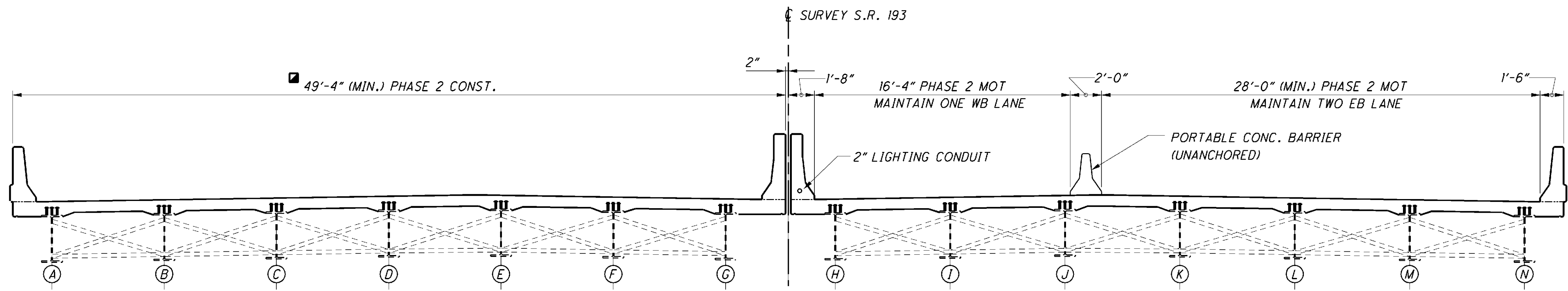
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DESIGN AGENCY CLAYTON SCHWABER BURNS & CREW, INC. GPD ASSOCIATES <small>570 South Main Street, Suite 3337, Akron, Ohio 44311 330.975.2100 • Fax 330.975.2101</small>	
REVIEWED CGN	DATE 9-26-08
DRAWN RPR	STRUCTURE FILE NUMBER 5004470
DESIGNED RPR	CHECKED TJW
PHASE CONSTRUCTION DETAILS BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR	
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PHASE 2 REMOVAL



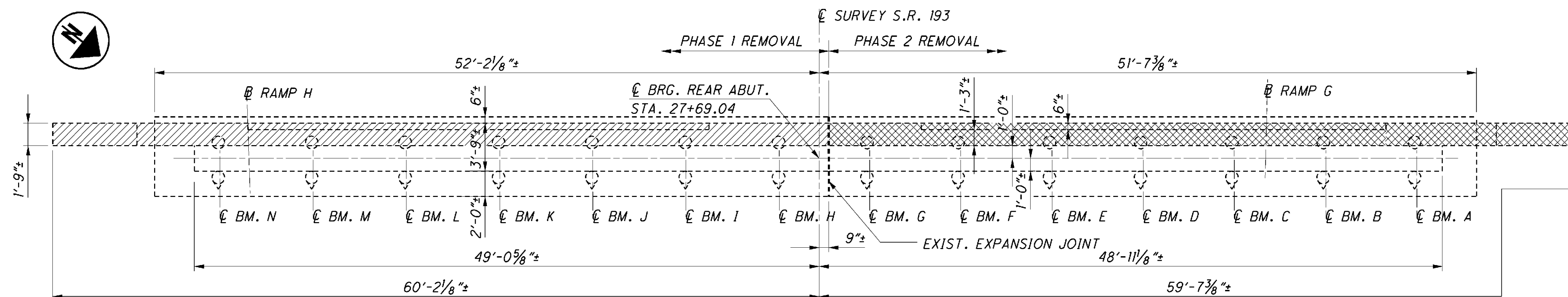
PHASE 2 CONSTRUCTION

SEE SHT. NO. 33/52 FOR DETAILS OF PHASE 2 CONST. DIMENSIONS

DATE	9-26-08
REVIEWED	CGN
STRUCTURE FILE NUMBER	5004470
DRAWN	RPR
REVISION	
DESIGNED	RPR
CHECKED	TJW

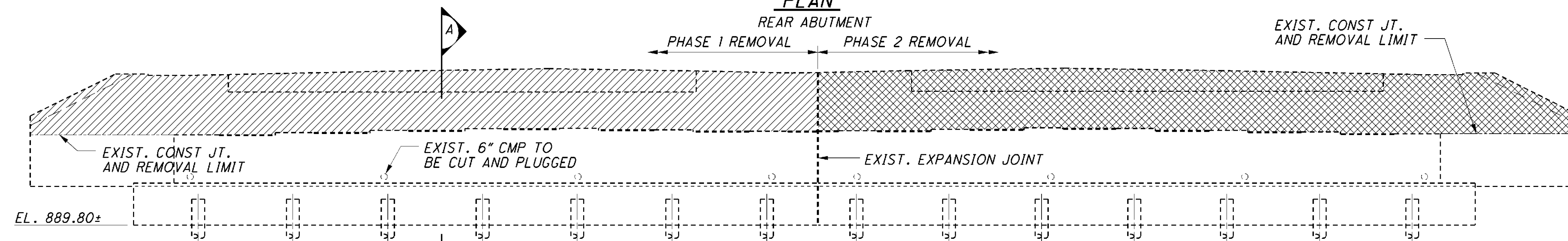
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 PID No. 25235



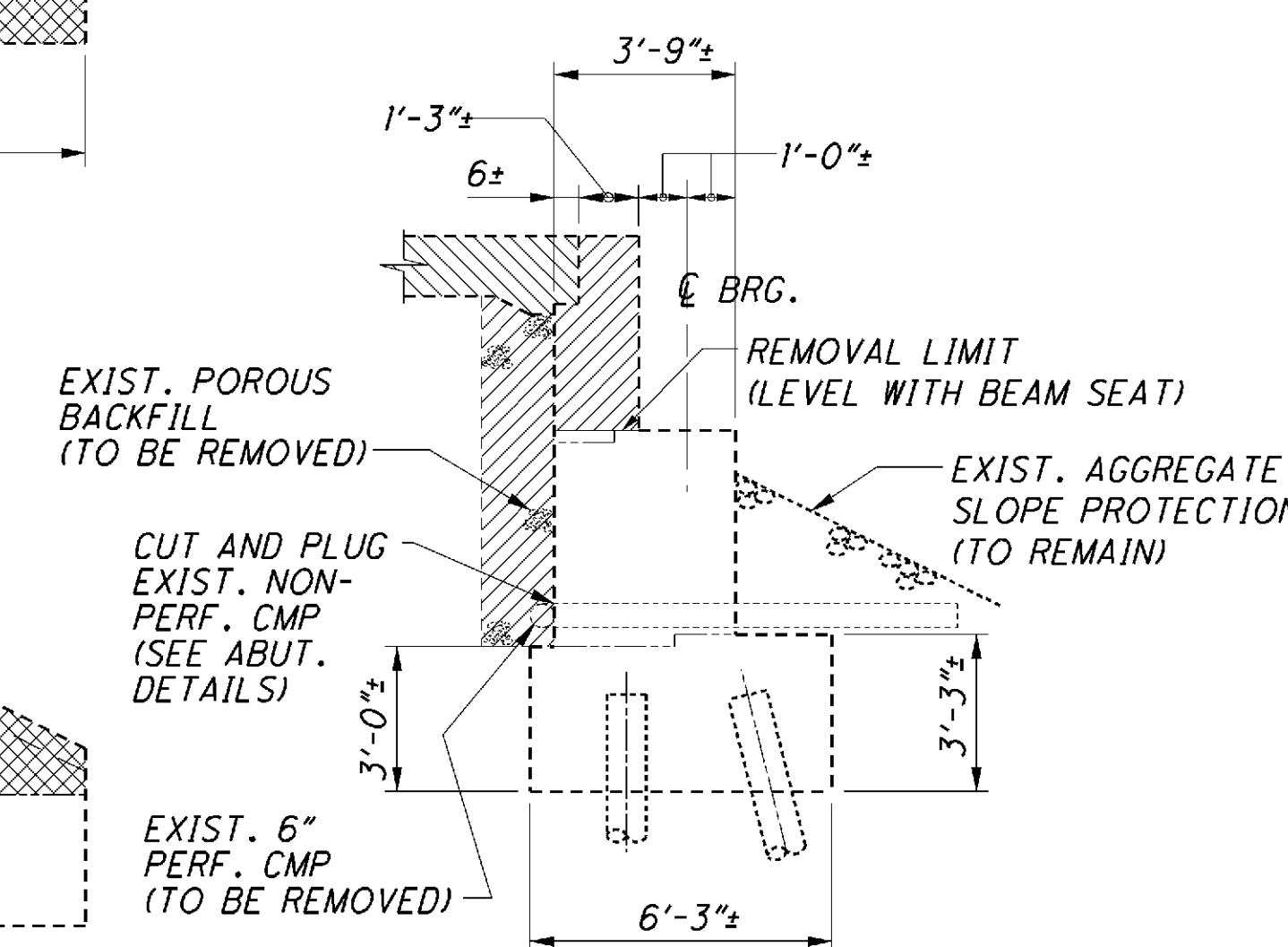
PLAN

REAR ABUTMENT



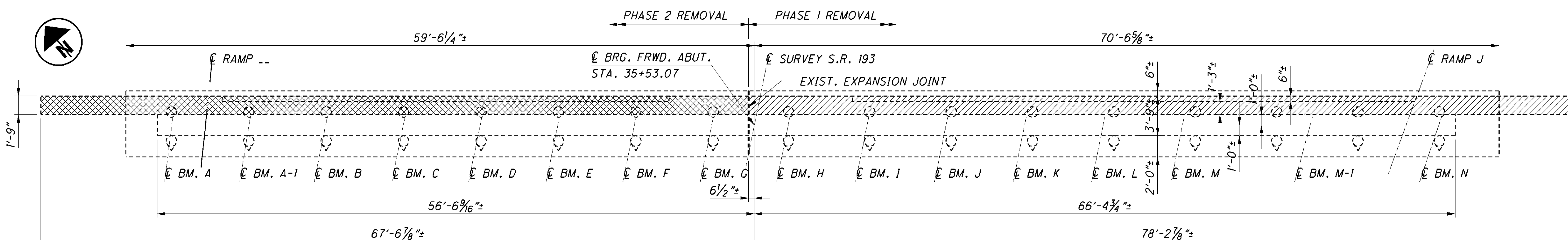
ELEVATION

REAR ABUTMENT



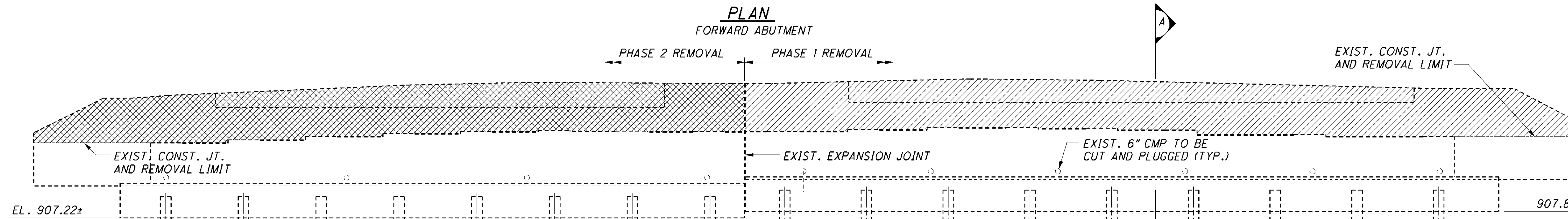
SECTION A

PHASE 1 SHOWN, PHASE 2 IS SIMILAR



PLAN

FORWARD ABUTMENT



ELEVATION

FORWARD ABUTMENT

- INDICATES LIMITS OF ITEM 202, APPROACH SLAB REMOVED
- INDICATES REMOVAL LIMITS (PHASE 2) ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FT. SPAN, AS PER PLAN
- INDICATES REMOVAL LIMITS (PHASE 1) ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FT. SPAN, AS PER PLAN

\\\NF01\DATA\CIVIL\2007\13\MAH25235\STRUCTURES\MAH193_0072C\SHEETS\193_0072CRE001.DGN
 3/19/2009 1:15:17 PM RMD\CLITZKY

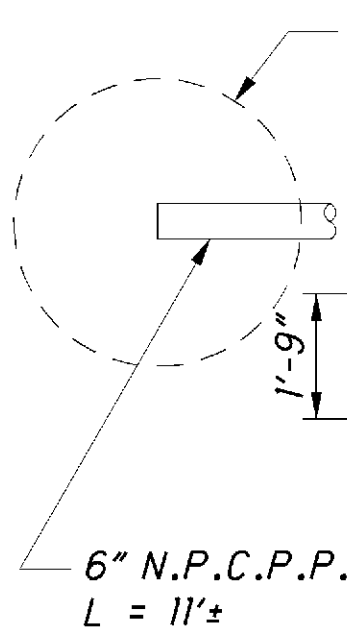
DATE	9-26-08
REVIEWED	CGN
STRUCTURE FILE NUMBER	5004470
DRAWN	RPR
REVISOR	
DESIGNED	RPR
CHECKED	RHC

ABUTMENT REMOVAL DETAILS
 BRIDGE NO. MAH-193-0072
 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR

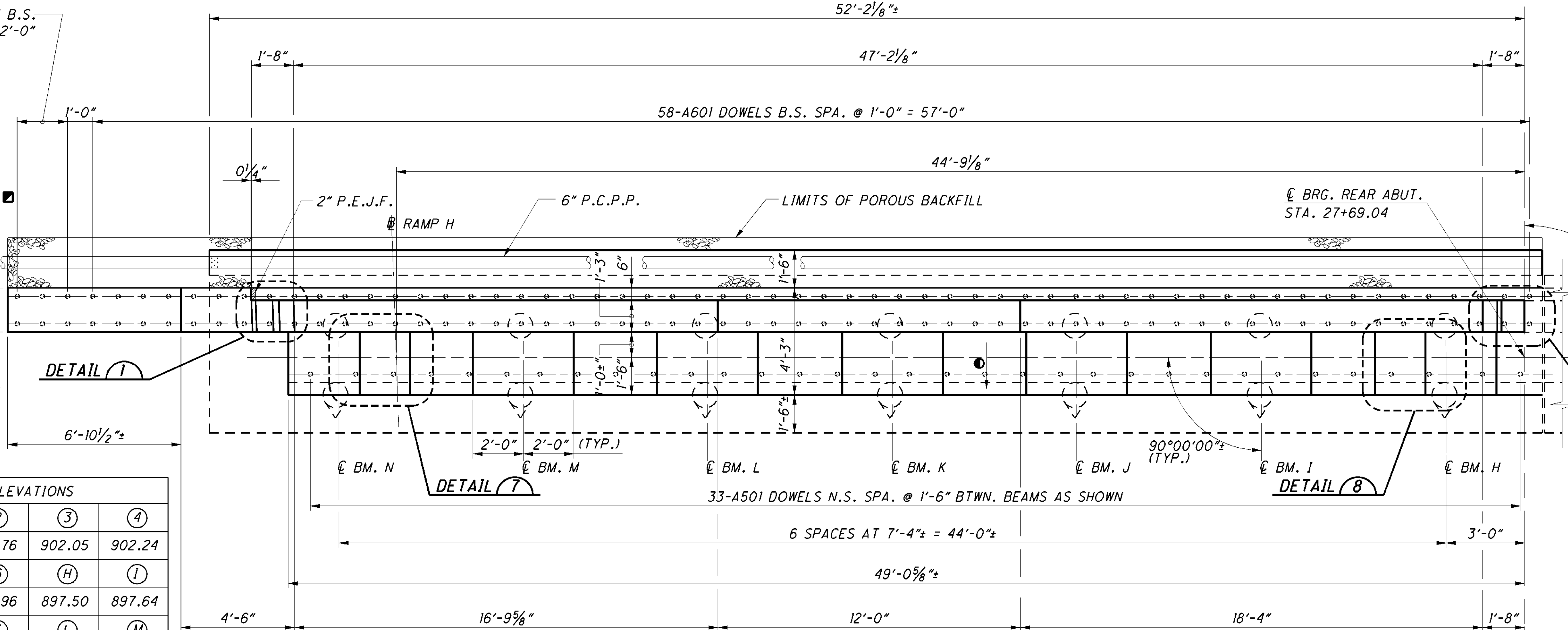
MAH-193/422
-0.46/1.85
PID No. 25235

3-A602 DOWELS B.S.
SPA. @ 1'-0" = 2'-0"

☉ SURVEY S.R. 193



ELEVATIONS			
①	②	③	④
901.67	901.76	902.05	902.24
⑤	⑥	⑧	⑩
902.05	901.96	897.50	897.64
⑪	⑫	⑬	⑭
897.76	897.71	897.61	897.43
⑮			
897.25			

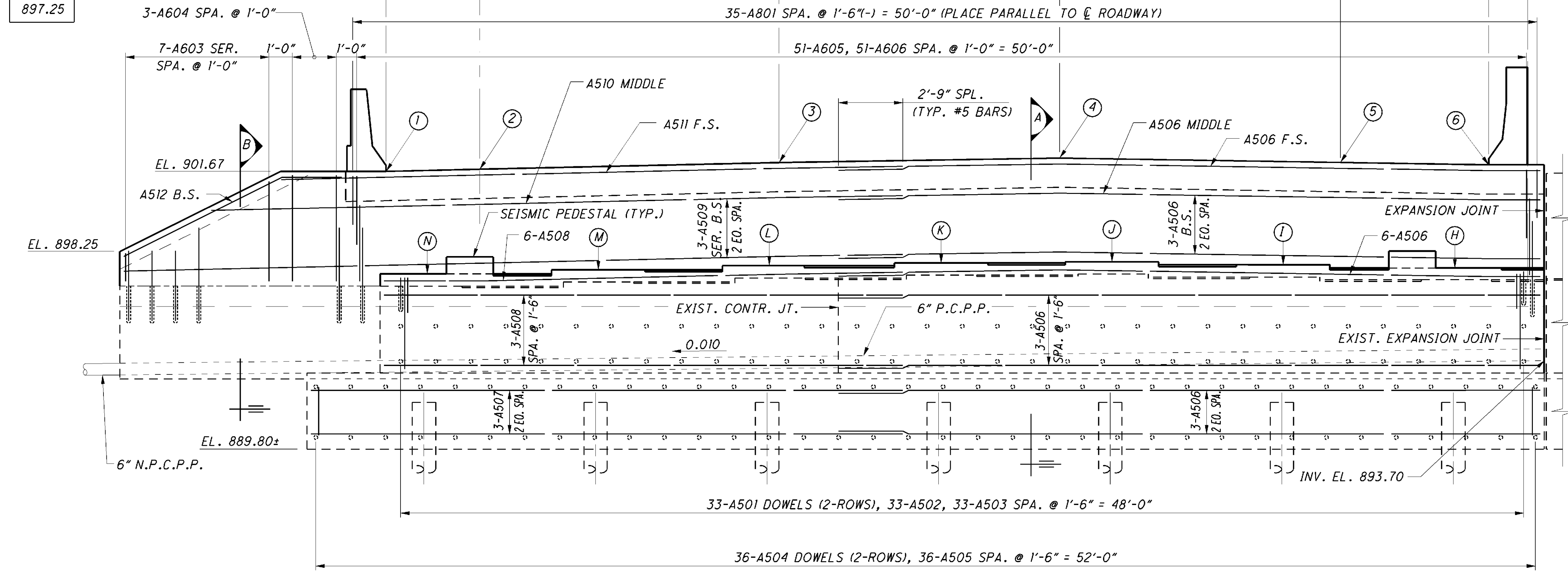


■ 4'-0" DIA. CRUSHED AGGREGATE SLOPE PROTECTION 601.06 1'-0" THICK AT END OF PIPE. FOR ADDITIONAL DETAILS SEE STANDARD DRAWING NO. SICD-1-96.

● 3/4" SLOPE BTWN. BEAM SEATS (TYP.)

NOTES:

- BACKWALL CONCRETE: IN ADDITION TO 511.10 DO NOT PLACE BACKWALL CONCRETE ABOVE THE OPTIONAL CONSTRUCTION JOINT AT THE APPROACH SLAB SEAT UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT THE ABUTMENT HAS BEEN PLACED.
- POROUS BACKFILL WITH FILTER FABRIC, 2 FEET THICK SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO 1 FOOT BELOW THE EMBANKMENT SURFACE, AND Laterally TO THE ENDS OF THE WINGWALLS.
- FOR SECTIONS A & B, SEE SHT. NO. 13/52.
- FOR DETAILS 1 AND 3, SEE SHT. NO. 14/52.
- FOR DETAIL 7 & 8, SEE SHT. NO. 13/52.
- FOR BEARING DETAILS, SEE SHT. NOS. 22/52 AND 23/52.



ELEVATION

\\\NF01\DATA\CIVIL\2007\13\MAH25235\STRUCTURES\MAH193_0072C\SHEETS\193_0072CAR001.DGN
 3/23/2009 11:36:20 AM RMD\CLITZKY

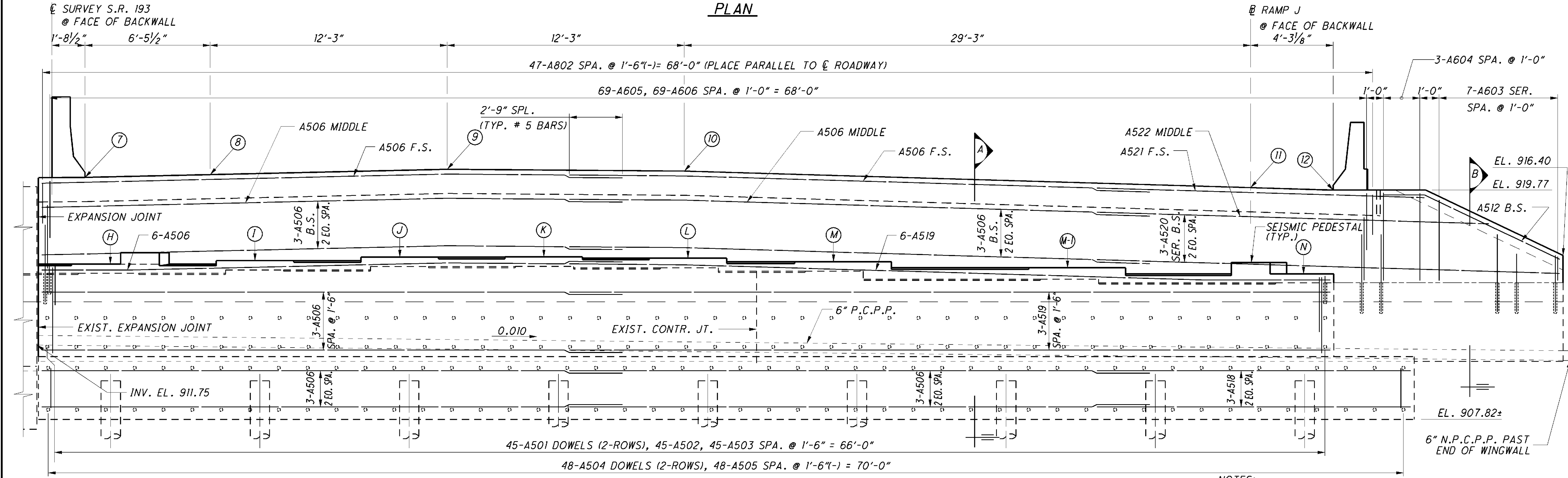
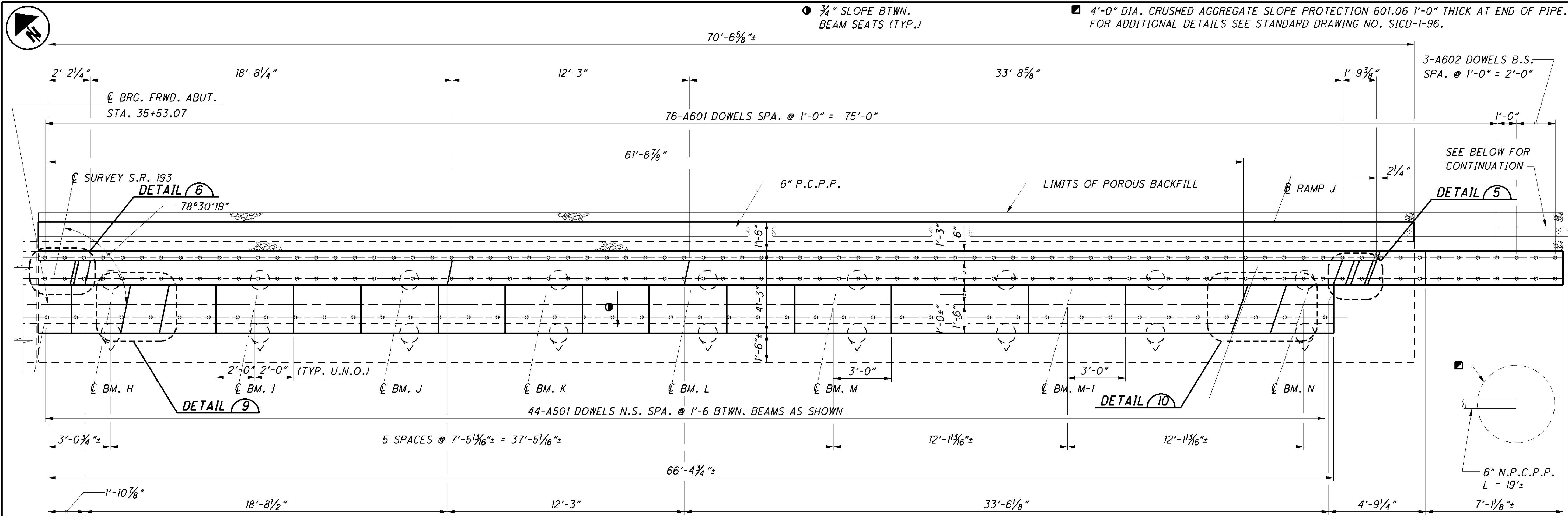
DESIGN AGENCY: CLAYTON SCHROEDER BURNS & CREW, INC.
 GPD ASSOCIATES
 570 South Main Street, Suite 3331, Akron, Ohio 44311
 330.975.2100 Fax: 330.975.2101

DESIGNED	RPR	CHECKED	RHC
DRAWN	RPR	REVIEWED	
REVIEWED	CGN	DATE	9-26-08
STRUCTURE FILE NUMBER	5004470		

MAH-193/422
 -0.46/1.85
 PID No. 25235

REAR ABUTMENT - EASTBOUND (PHASE 1)
 BRIDGE NO. MAH-193-0072
 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR

9 / 52
 171
 260



PLAN

ELEVATION

ELEVATIONS													
7	8	9	10	11	12	H	I	J	K	L	M	M-1	N
920.42	920.57	920.85	920.75	919.90	917.77	915.89	916.08	916.25	916.27	916.20	916.02	915.71	915.39

- NOTES:**
- FOR LOCATION OF SECTION A & B, AND DETAIL 9 & 10, SEE SHT. NO. 13/52.
 - FOR DETAILS 5 AND 6, SEE SHT. NO. 14/52.
 - FOR ADDITIONAL NOTES, SEE SHT. NO. 9/52.

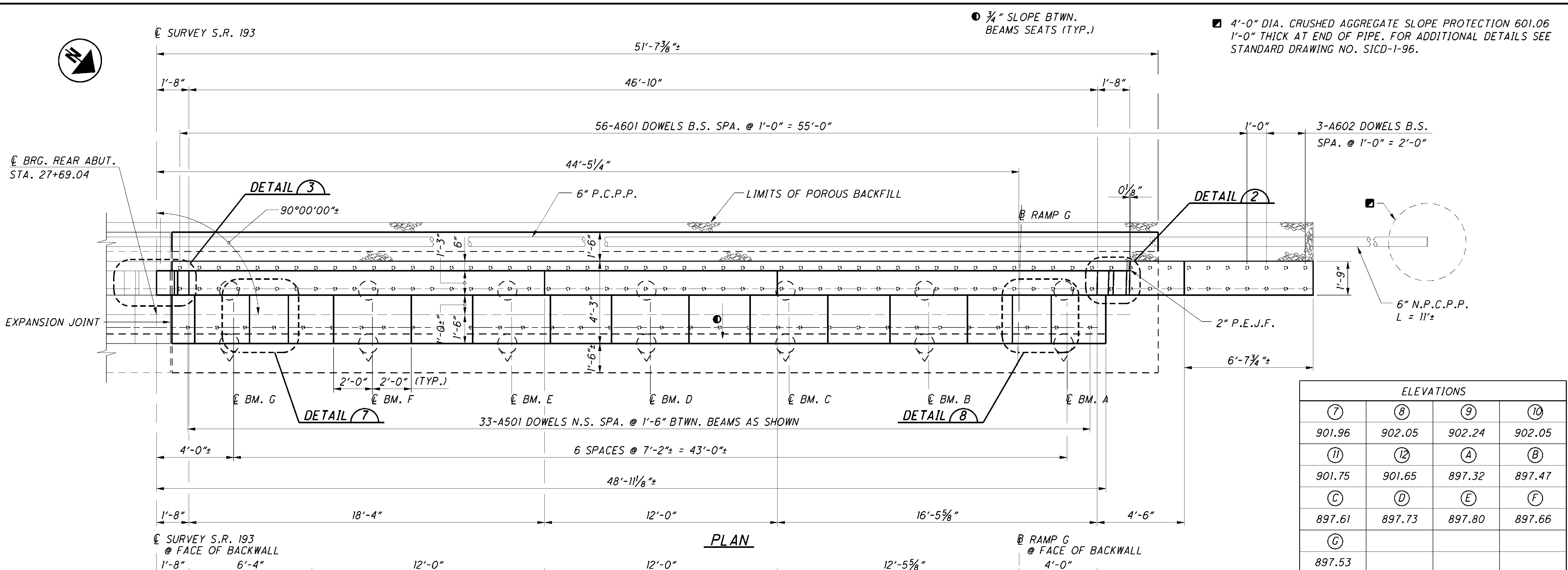
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MAH-193/422
-0.46/1.85
PID No. 25235

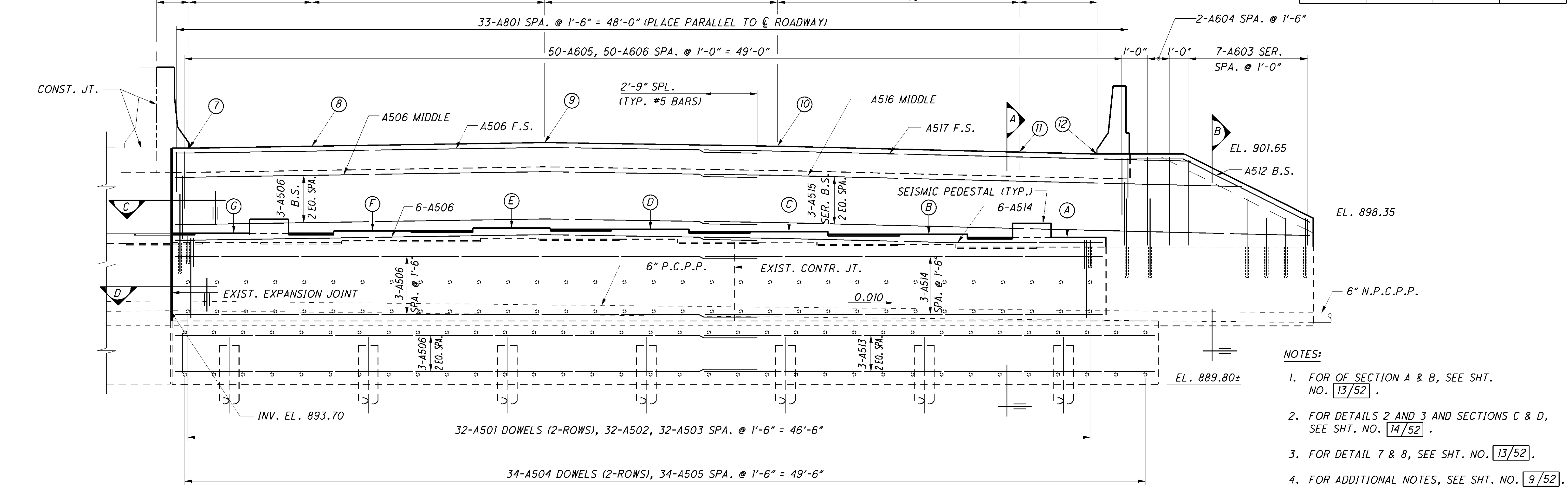
FORWARD ABUTMENT - EASTBOUND (PHASE 1)
 BRIDGE NO. MAH-193-0072
 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR

DESIGNED	RPR	CHECKED	RHC
DRAWN	RPR	REVIEWED	
REVIEWED	CGN	DATE	9-26-08
STRUCTURE FILE NUMBER	5004470		

DESIGN AGENCY: GRASS PAPER ENGINEERING & DEVELOPMENT, INC.
 570 South Main Street, Suite 2311, Akron, Ohio 44311
 330.971.2100, Fax: 330.971.2101
GPD ASSOCIATES



ELEVATIONS			
⑦	⑧	⑨	⑩
901.96	902.05	902.24	902.05
⑪	⑫	④	⑤
901.75	901.65	897.32	897.47
③	⑥	⑦	⑧
897.61	897.73	897.80	897.66
⑨			
897.53			



- NOTES:**
- FOR OF SECTION A & B, SEE SHT. NO. 13/52.
 - FOR DETAILS 2 AND 3 AND SECTIONS C & D, SEE SHT. NO. 14/52.
 - FOR DETAIL 7 & 8, SEE SHT. NO. 13/52.
 - FOR ADDITIONAL NOTES, SEE SHT. NO. 9/52.

\MAPR01\DATA\CIVIL\2007\13\MAH25235\STRUCTURES\MAH193_0072C\SHEETS\193_0072CAR002.DGN
 3/23/2009 11:31:45 AM RMD\CLITZY

DESIGN AGENCY: CLAYTON SCHUBERT BURNS & BROWN, INC.
 GPD ASSOCIATES
 570 South Main Street, Suite 1311, Akron, Ohio 44311
 330.974.2100 Fax: 330.974.2101

DESIGNED	RPR	CHECKED	RHC
DRAWN	RPR	REVIEWED	
REVIEWED	CGN	DATE	9-26-08
STRUCTURE FILE NUMBER	5004470		

REAR ABUTMENT - WESTBOUND (PHASE 2)
 BRIDGE NO. MAH-193-0072
 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR

MAH-193/422
-0.46/1.85
 PID No. 25235

11 / 52
 173 / 260

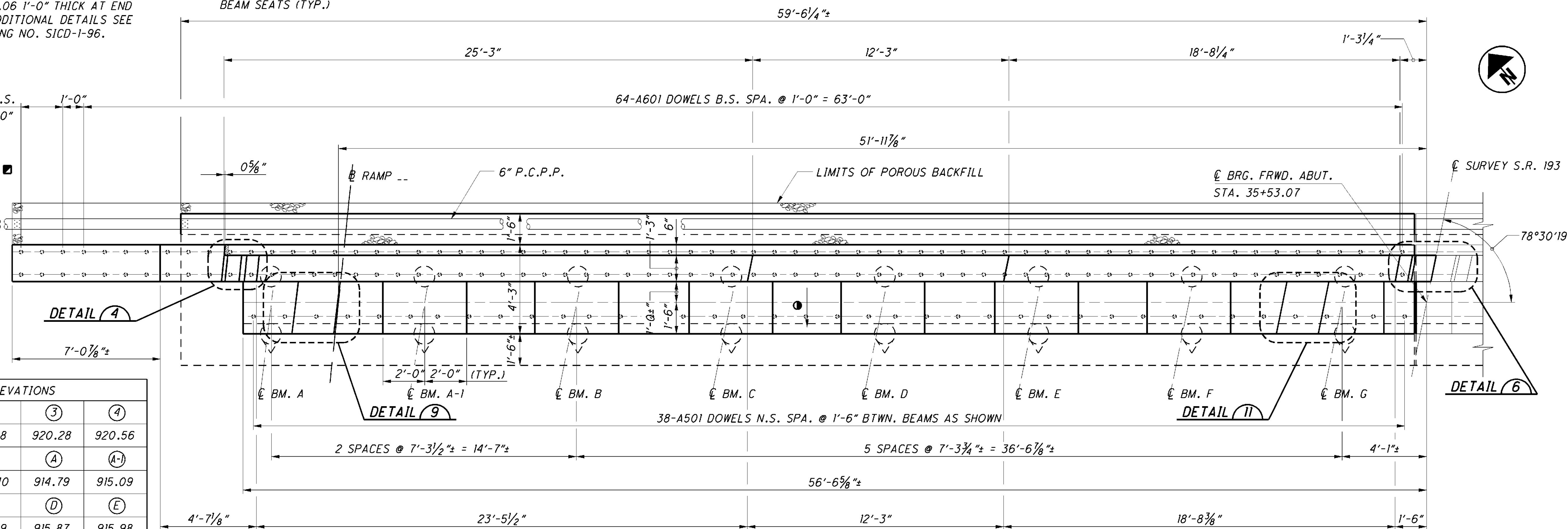
4'-0" DIA. CRUSHED AGGREGATE SLOPE PROTECTION 601.06 1'-0" THICK AT END OF PIPE. FOR ADDITIONAL DETAILS SEE STANDARD DRAWING NO. SICD-1-96.

3/4" SLOPE BTWN. BEAM SEATS (TYP.)

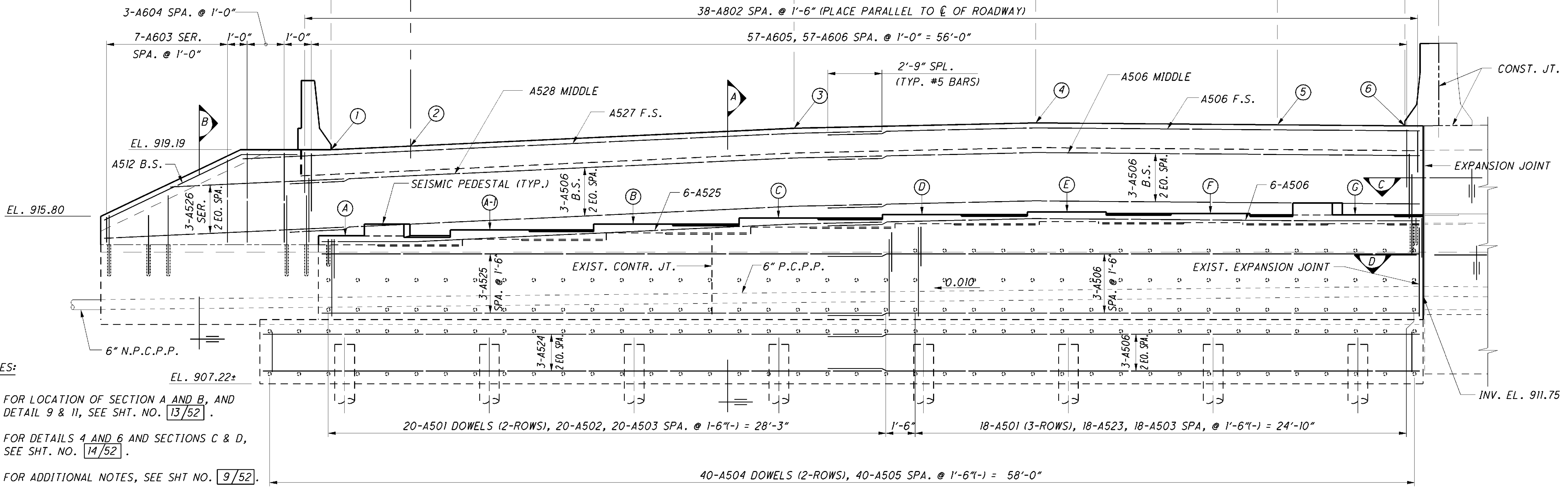
3-A602 DOWELS B.S. SPA. @ 1'-0" = 2'-0"

6" N.P.C.P.P. L = 10'±

ELEVATIONS			
①	②	③	④
919.19	919.38	920.28	920.56
⑤	⑥	A	A-1
920.45	920.40	914.79	915.09
B	C	D	E
915.39	915.69	915.87	915.98
F	G		
915.92	915.85		



PLAN



ELEVATION

- NOTES:
- FOR LOCATION OF SECTION A AND B, AND DETAIL 9 & 11, SEE SH. NO. 13/52.
 - FOR DETAILS 4 AND 6 AND SECTIONS C & D, SEE SH. NO. 14/52.
 - FOR ADDITIONAL NOTES, SEE SH. NO. 9/52.

DESIGN AGENCY: GPD ASSOCIATES
 570 South Main Street, Suite 1311, Akron, Ohio 44311
 330.974.2100 • FAX: 330.974.2101

DATE: 9-26-08
 REVIEWED: CGN
 STRUCTURE FILE NUMBER: 5004470

DRAWN: RPR
 CHECKED: RHC

DESIGNED: RPR
 CHECKED: RHC

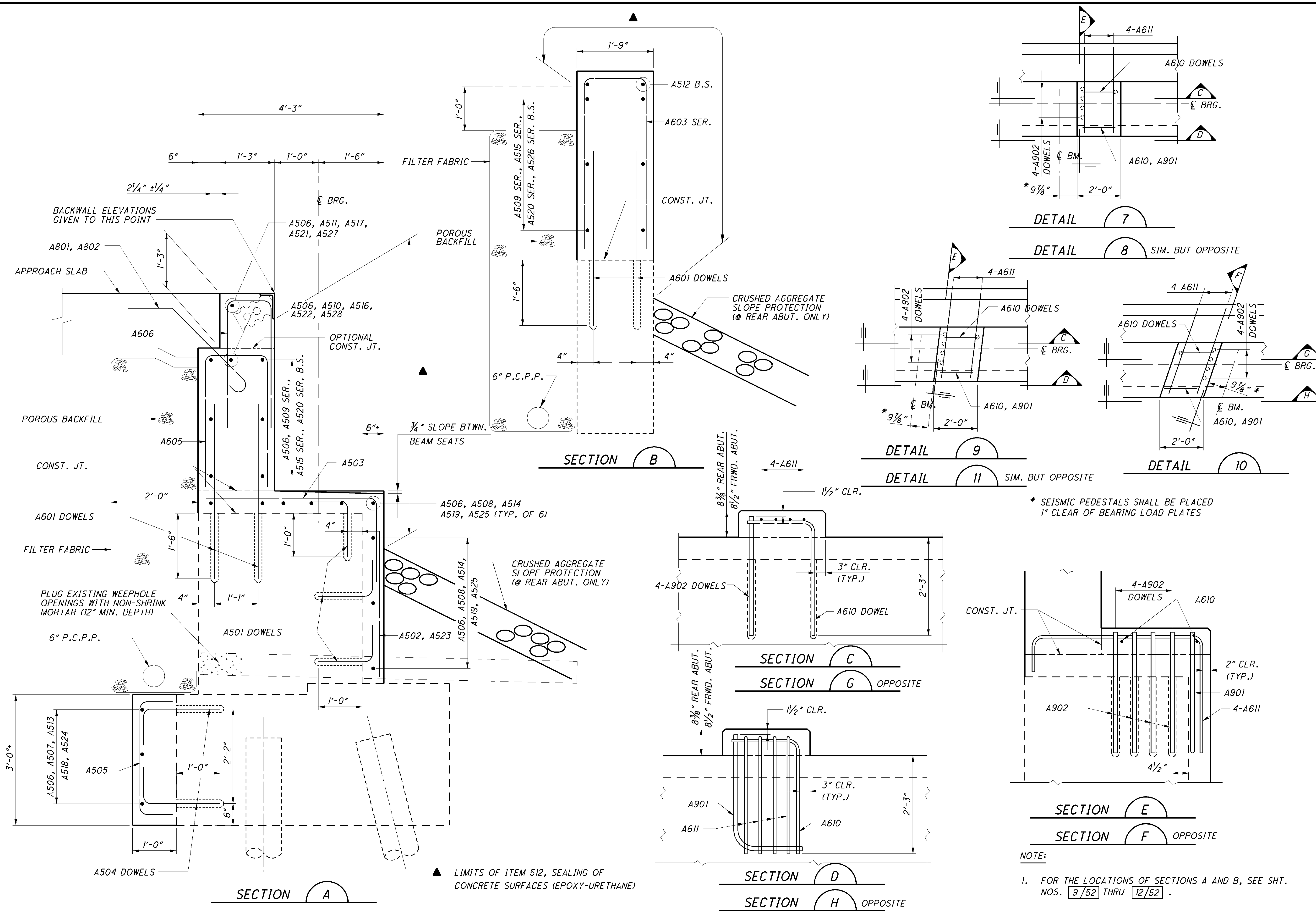
FORWARD ABUTMENT - WESTBOUND (PHASE 2)
 BRIDGE NO. MAH-193-0072
 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR

MAH-193/422
 -0.46/1.85
 PID No. 25235

12 / 52
 174 / 260

I:\PROJECTS\193\193-0072\STRUCTURES\MAH193_0072C\SHEETS\193_0072C4692.DGN
 3/23/2009 11:31:06 AM RMD\CLITZKY

\\NF01\DATA\CIVIL\2007\13\MAH-25235\STRUCTURES\MAH193-0072C\SHEETS\193-0072CAR003.DGN
 3/23/2009 11:32:04 AM
 RMD\CLTZKY



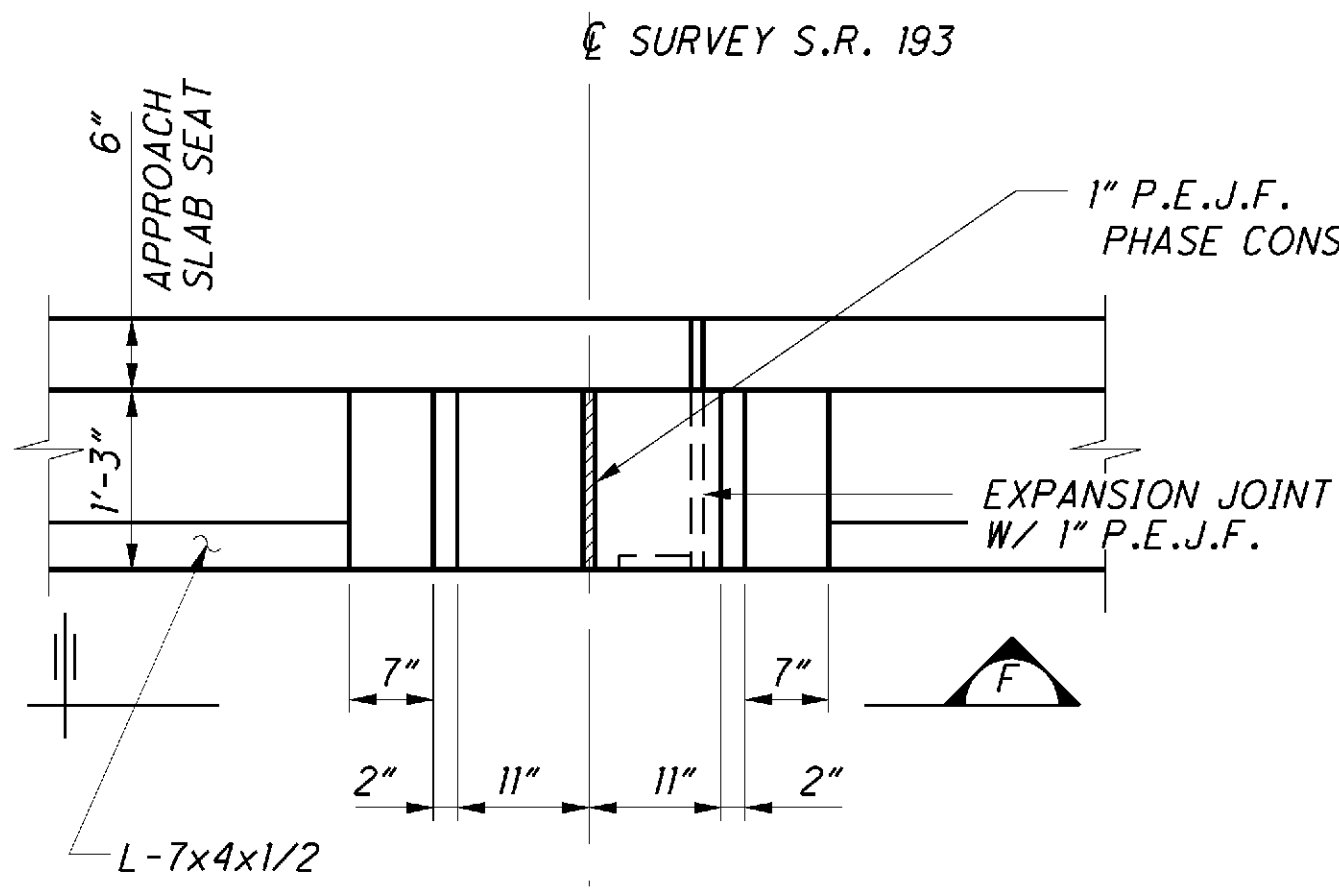
▲ LIMITS OF ITEM 512, SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)

* SEISMIC PEDESTALS SHALL BE PLACED 1\"/>

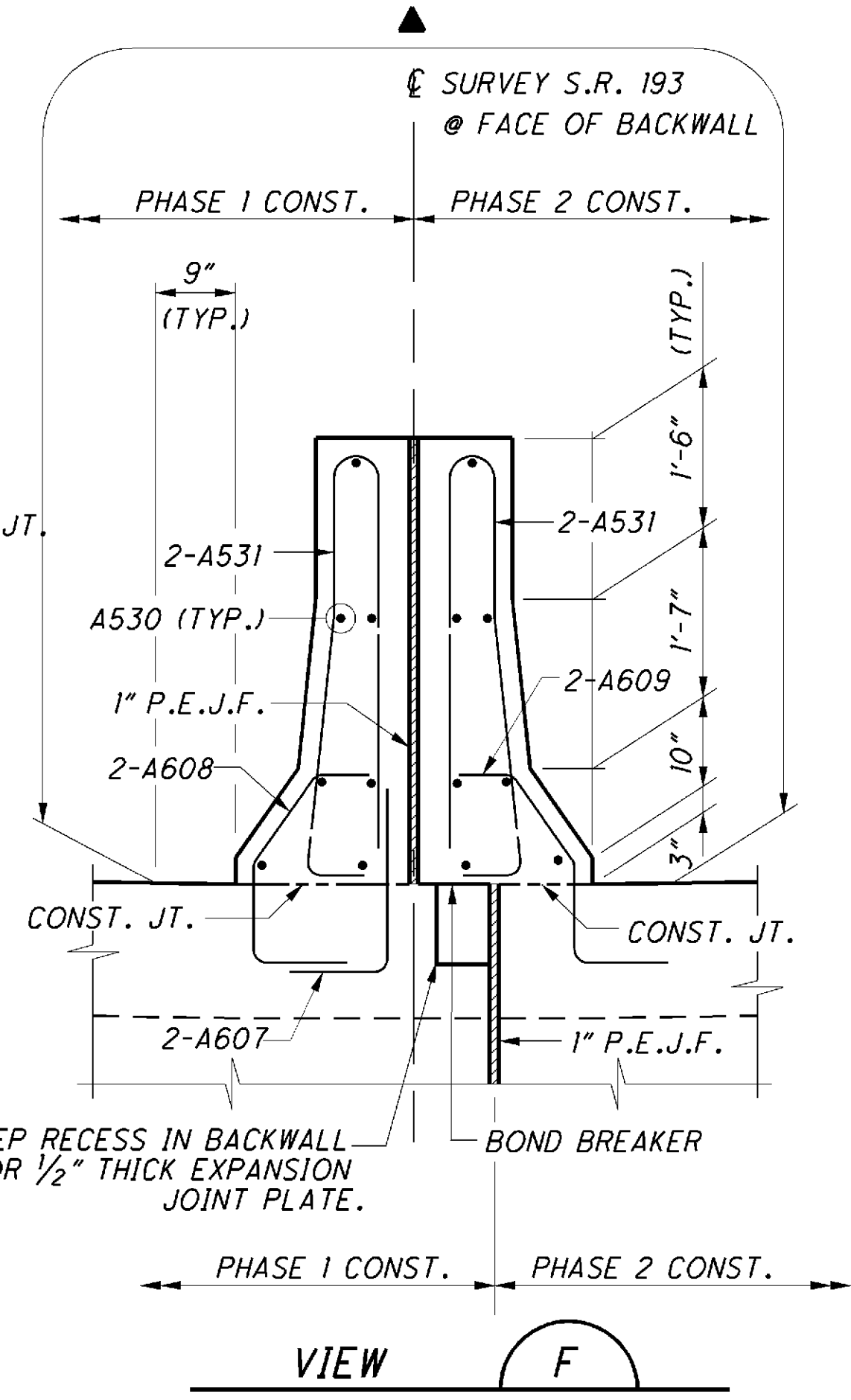
NOTE:
 1. FOR THE LOCATIONS OF SECTIONS A AND B, SEE SHT. NOS. 9/52 THRU 12/52.

DESIGN AGENCY GPD ASSOCIATES <small>520 South Main Street, Suite 2311, Akron, Ohio 44311 330.297.2100 • Fax: 330.297.2101</small>	
DATE 9-26-08	REVIEWED CGN
DRAWN RPR	REVISION 5004470
DESIGNED RPR	CHECKED RHC
ABUTMENT DETAILS BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR	
MAH-193/422 -0.46/1.85 PID No. 25235	13 / 52 175 / 260

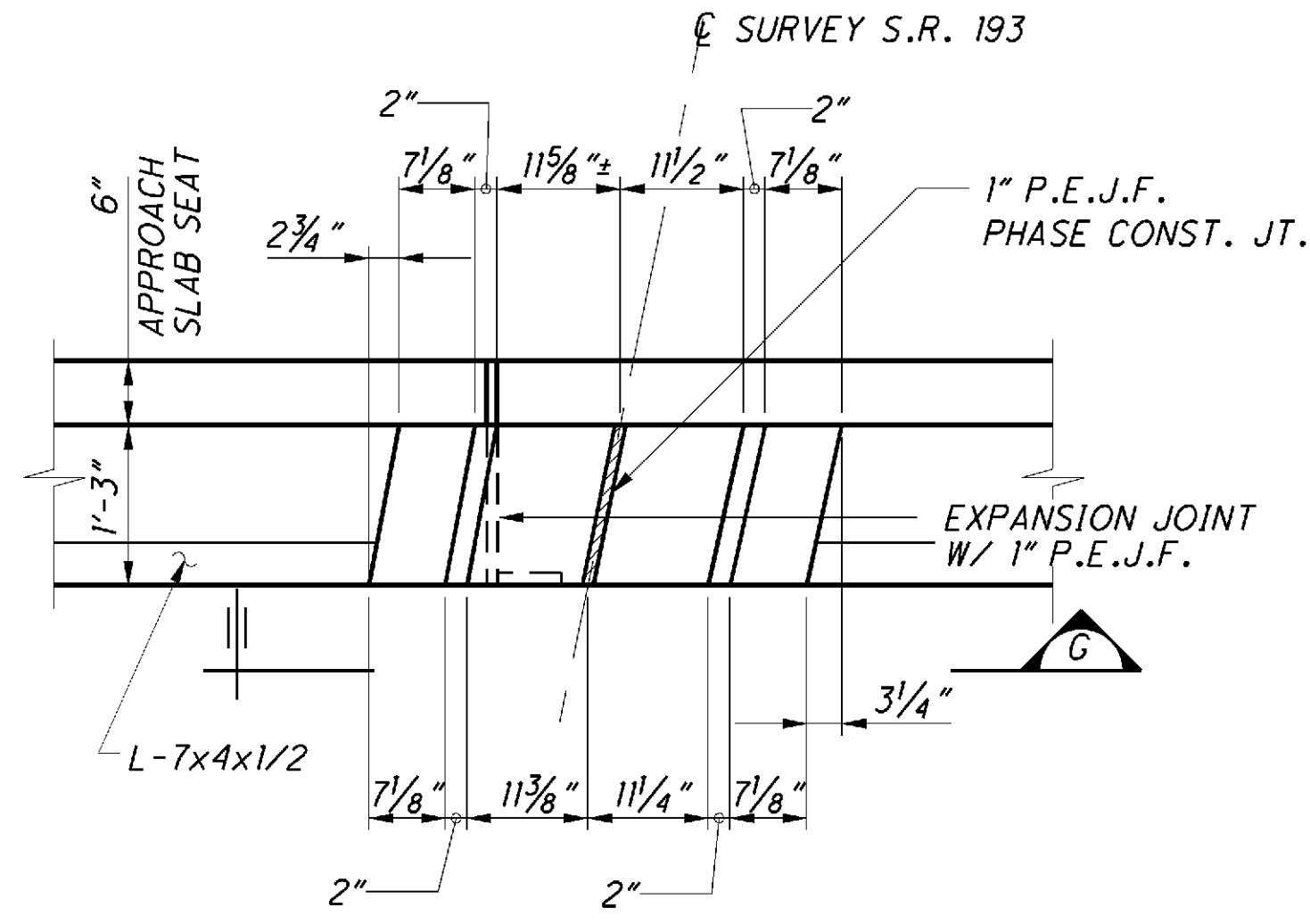
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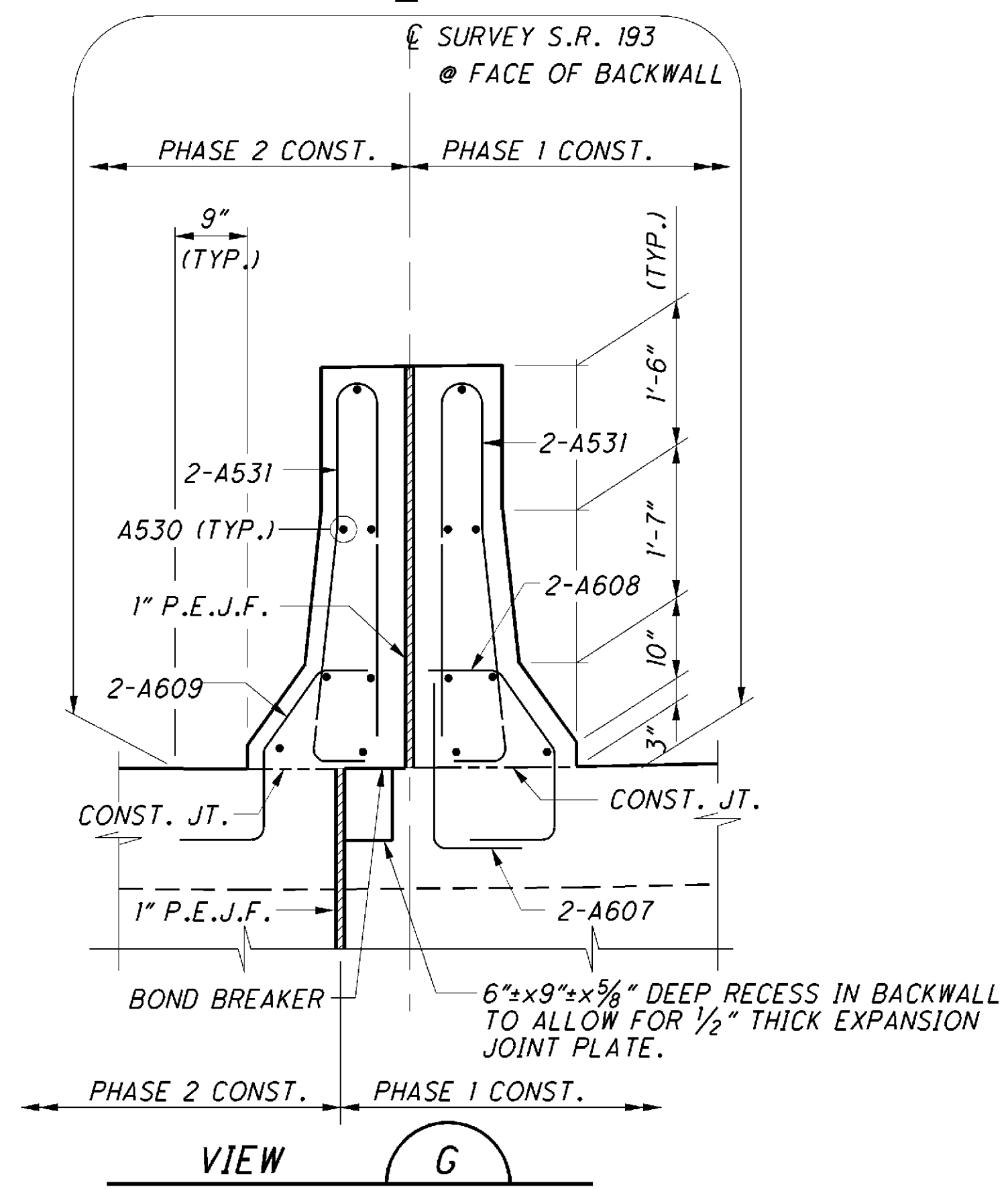
DETAIL 3
REAR ABUTMENT



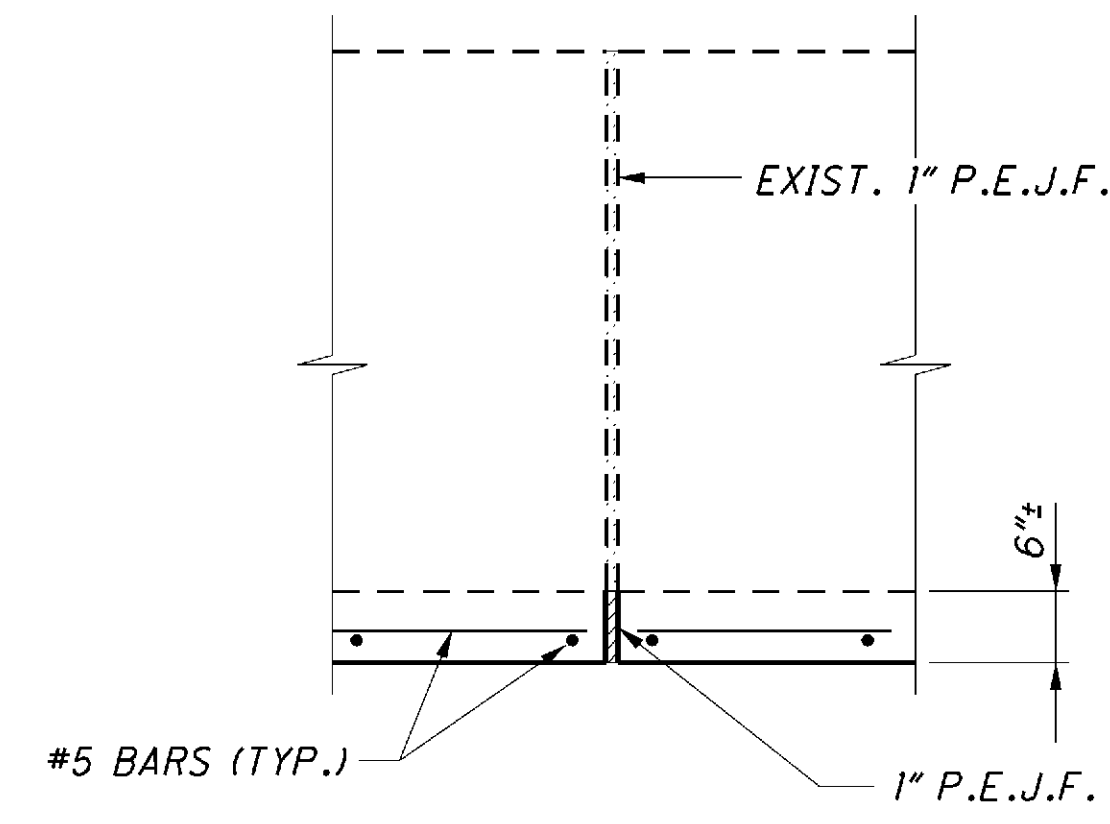
VIEW F
FACE OF BACKWALL



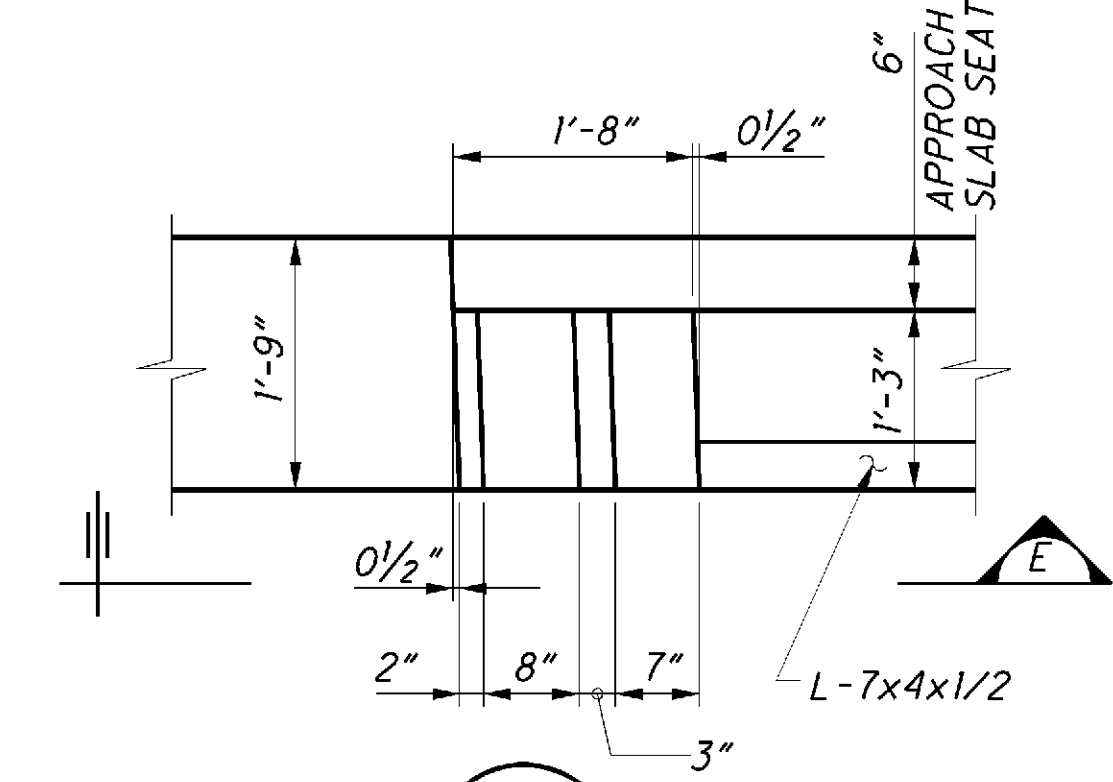
DETAIL 6
FRWD. ABUTMENT



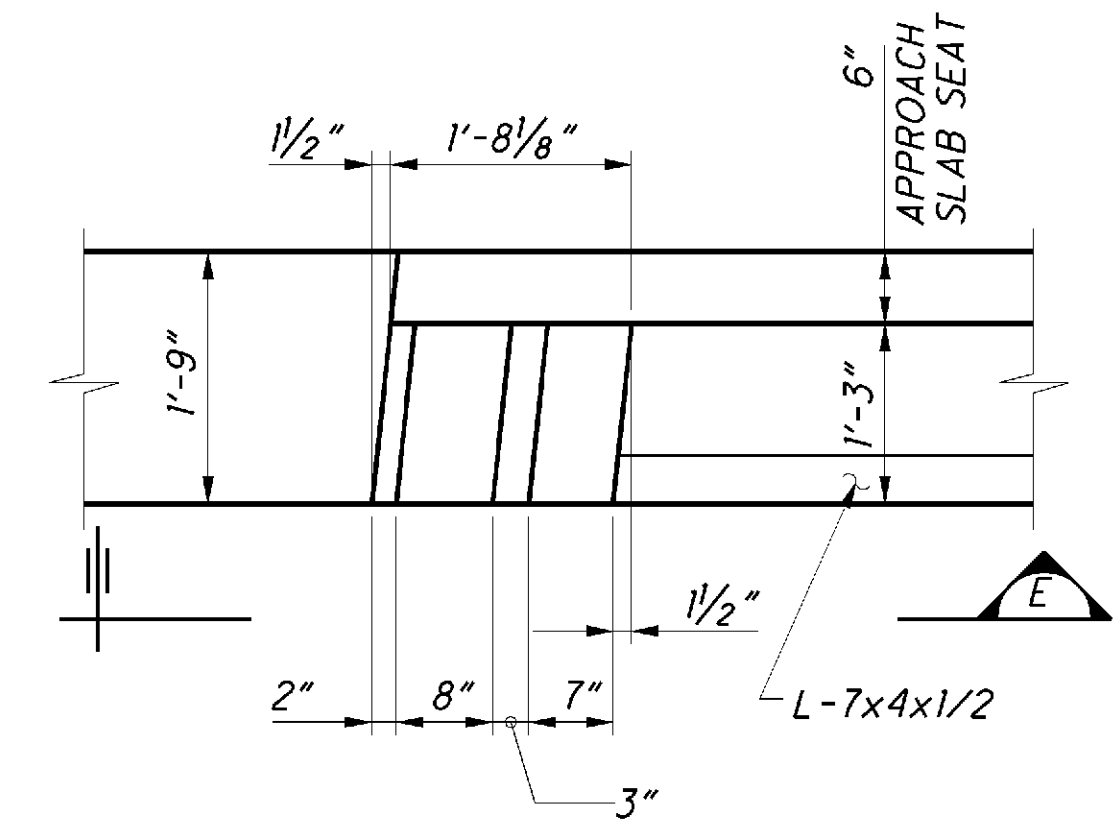
VIEW G
FACE OF BACKWALL



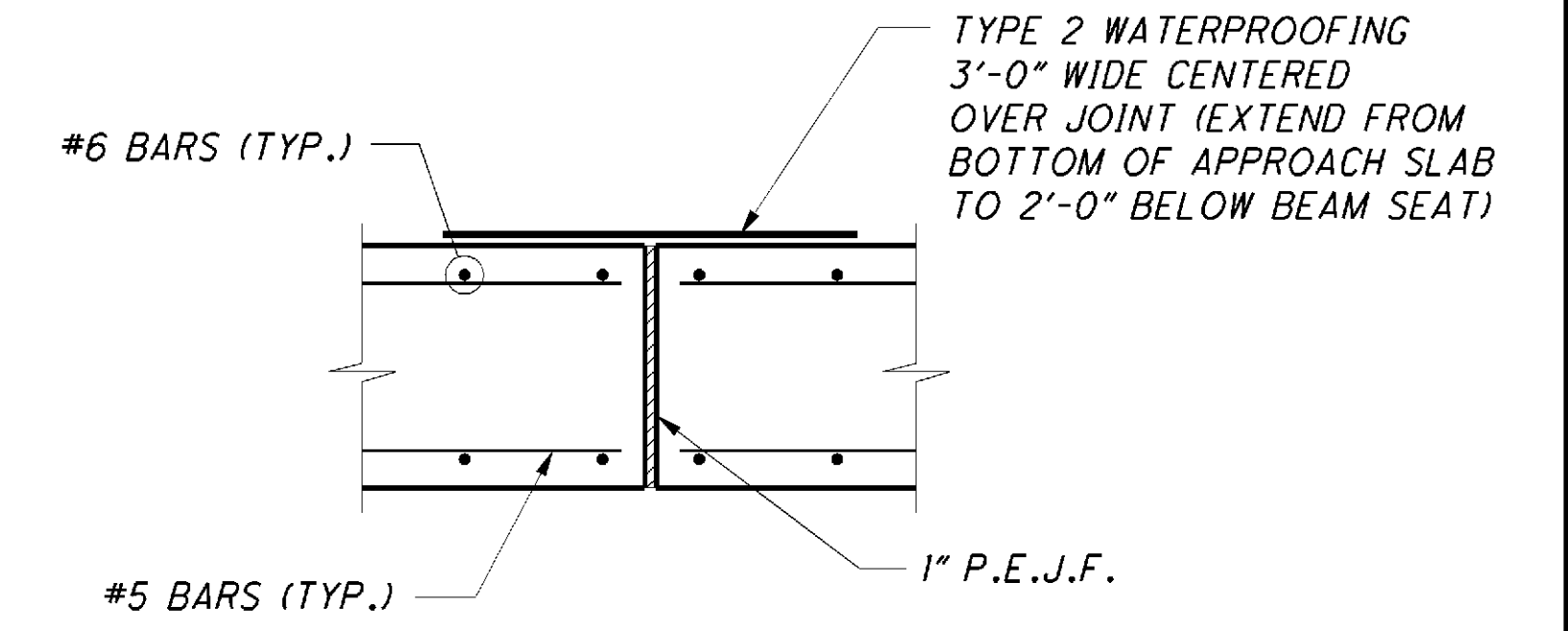
SECTION D
EXPANSION JOINT DETAIL



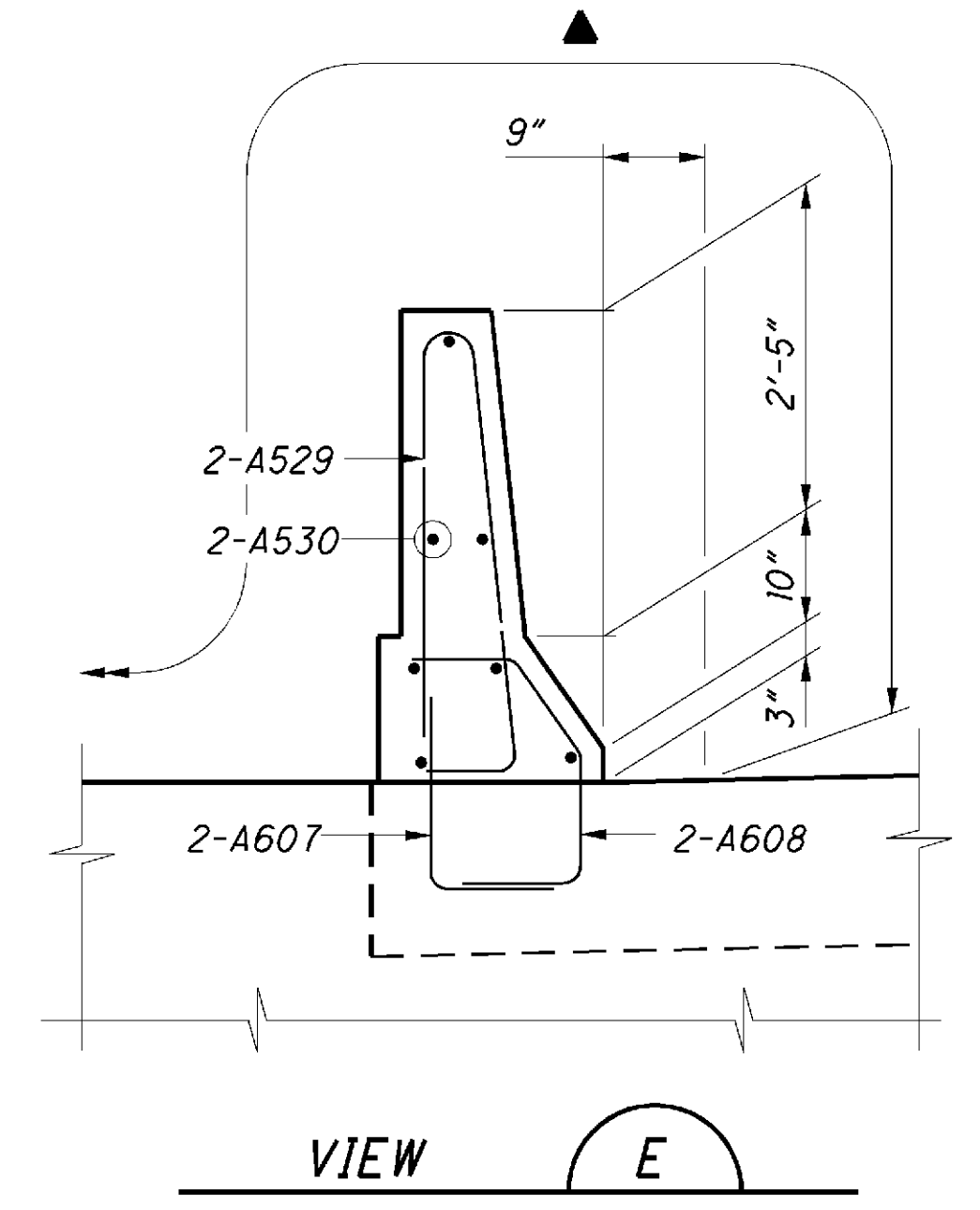
DETAIL 1
REAR ABUTMENT



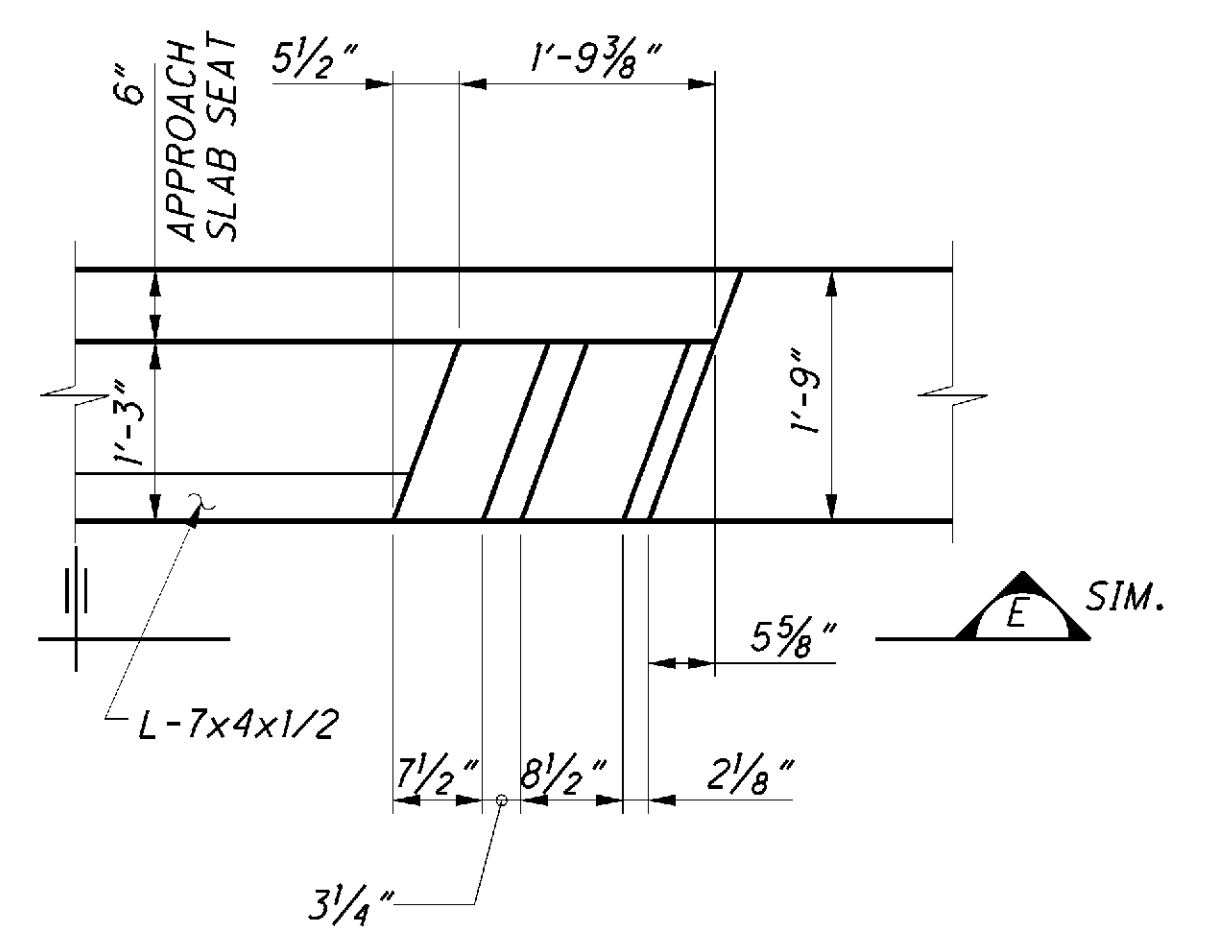
DETAIL 4
FRWD. ABUTMENT



SECTION C
EXPANSION JOINT DETAIL



VIEW E
FACE OF BACKWALL



DETAIL 5
FRWD. ABUTMENT

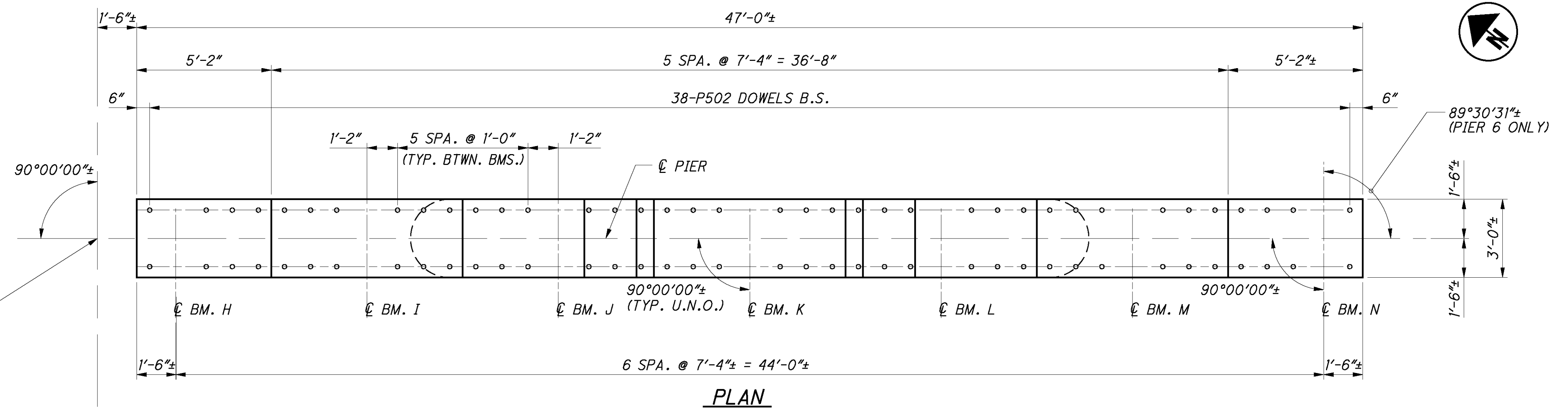
NOTE:
FOR ADDITIONAL EXPANSION JOINT DETAILS, SEE SHT. NO. 31A/52
AND ODOT STD. DWG. EXJ-4-87.

▲ LIMITS OF ITEM 512, SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)

 GPD ASSOCIATES <small>530 South Main Street, Suite 1331, Akron, Ohio 44311 330.929.2100 • Fax: 330.929.2101</small>	DATE 9-26-08	REVIEWED CGN	STRUCTURE FILE NUMBER 5004470	DESIGNED RPR	CHECKED RHC	DRAWN RPR	REVISED
ABUTMENT DETAILS BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR							
MAH-193/422 -0.46/1.85 PID No. 25235							
14 / 52 							

CL SURVEY S.R. 193

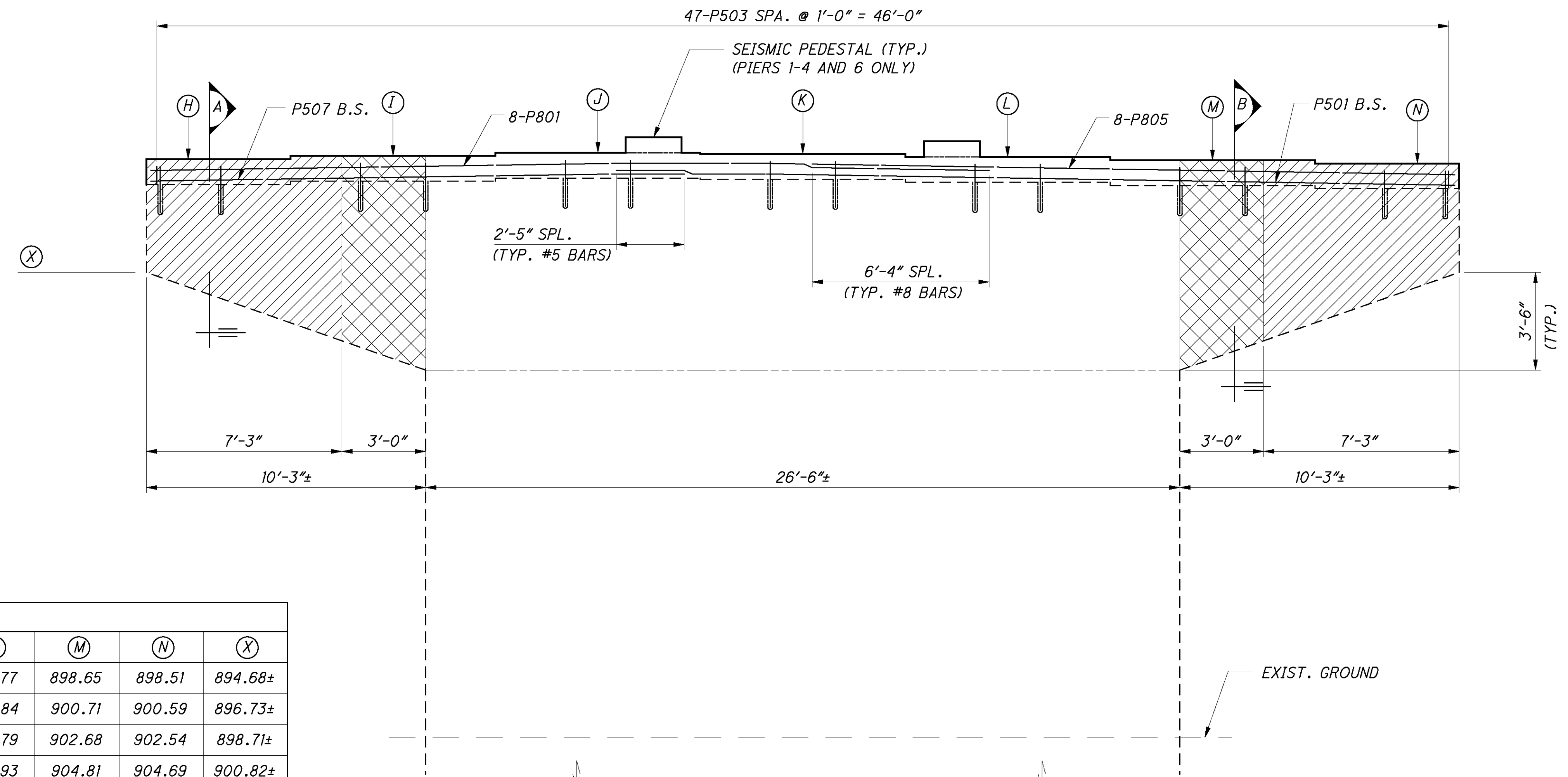
STA. 28+33.92 PIER 1
 STA. 29+27.90 PIER 2
 STA. 30+21.80 PIER 3
 STA. 31+15.67 PIER 4
 STA. 32+09.66 PIER 5
 STA. 33+03.69 PIER 6



PLAN

LEGEND:

- ITEM SPECIAL - STRUCTURE MISC: COMPOSITE FIBER WRAP SYSTEM, 2 LAYER GLASS FIBER. 2 LAYERS OF TYFO SEH-51A OR EQUIVALENT (PRIMARY GLASS FIBER, UNIDIRECTIONAL)
- ITEM SPECIAL - STRUCTURE MISC: COMPOSITE FIBER WRAP SYSTEM, 4 LAYER GLASS FIBER. 4 LAYERS OF TYFO SEH-51A OR EQUIVALENT (PRIMARY GLASS FIBER, UNIDIRECTIONAL). OR AT CONTRACTOR'S OPTION AND AT NO ADDITIONAL COST TO THE DEPARTMENT, PROVIDE 2 LAYERS OF PRIMARY CARBON FIBER, UNIDIRECTIONAL, AS ALTERNATE TO 4 LAYER OF GLASS FIBER.



ELEVATION

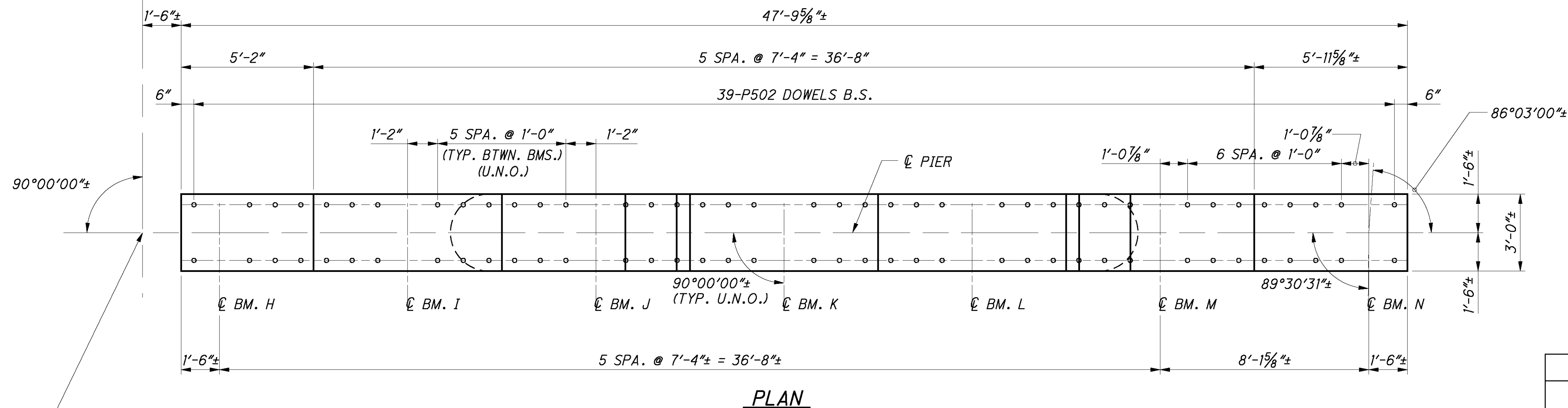
ELEVATIONS								
PIER NO.	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(X)
1	898.66	898.82	898.91	898.87	898.77	898.65	898.51	894.68±
2	900.72	900.86	900.98	900.96	900.84	900.71	900.59	896.73±
3	902.69	902.85	902.95	902.92	902.79	902.68	902.54	898.71±
4	904.84	904.98	905.10	905.05	904.93	904.81	904.69	900.82±
5	906.88	907.00	907.14	907.07	906.96	906.84	906.71	902.64±
6	908.82	908.94	909.05	909.02	908.89	908.78	908.64	904.67±

NOTES:

1. FOR SECTIONS A & B, SEE SHT. NO. 21/52.
2. FOR SEISMIC PEDESTAL DETAILS, SEE SHT. NO. 20/52.
3. FOR ADDITIONAL NOTES, SEE SHT. NO. 4/52.

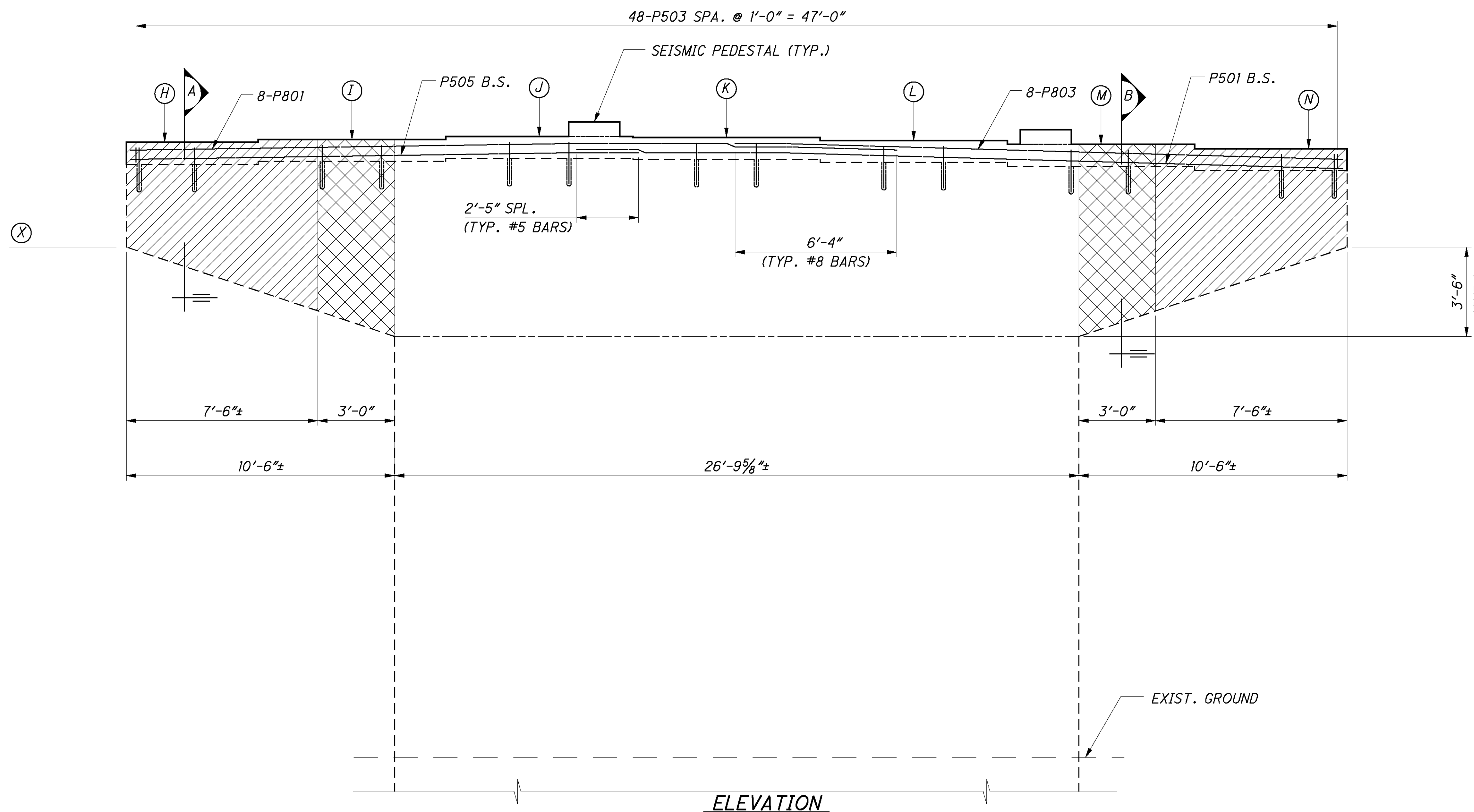


☉ SURVEY S.R. 193



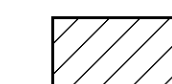
PLAN

ELEVATIONS			
(H)	(I)	(J)	(K)
910.80	910.93	911.06	911.00
(L)	(M)	(N)	(X)
910.88	910.73	910.53	906.72±

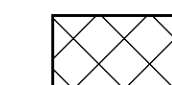


ELEVATION

LEGEND:



ITEM SPECIAL - STRUCTURE MISC:
COMPOSITE FIBER WRAP SYSTEM, 2 LAYER
GLASS FIBER. 2 LAYERS OF TYFO SEH-51A
OR EQUIVALENT (PRIMARY GLASS FIBER,
UNIDIRECTIONAL)

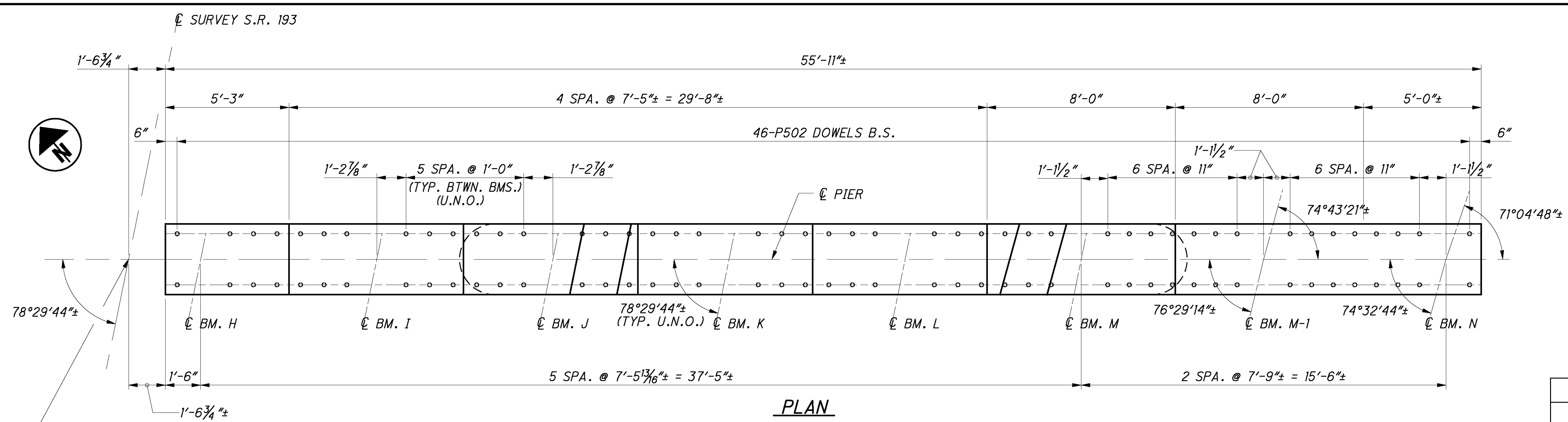


ITEM SPECIAL - STRUCTURE MISC:
COMPOSITE FIBER WRAP SYSTEM, 4 LAYER
GLASS FIBER. 4 LAYERS OF TYFO SEH-51A
OR EQUIVALENT (PRIMARY GLASS FIBER,
UNIDIRECTIONAL). OR AT CONTRACTOR'S
OPTION AND AT NO ADDITIONAL COST TO
THE DEPARTMENT, PROVIDE 2 LAYERS OF
PRIMARY CARBON FIBER, UNIDIRECTIONAL,
AS ALTERNATE TO 4 LAYER OF GLASS
FIBER.

NOTES:

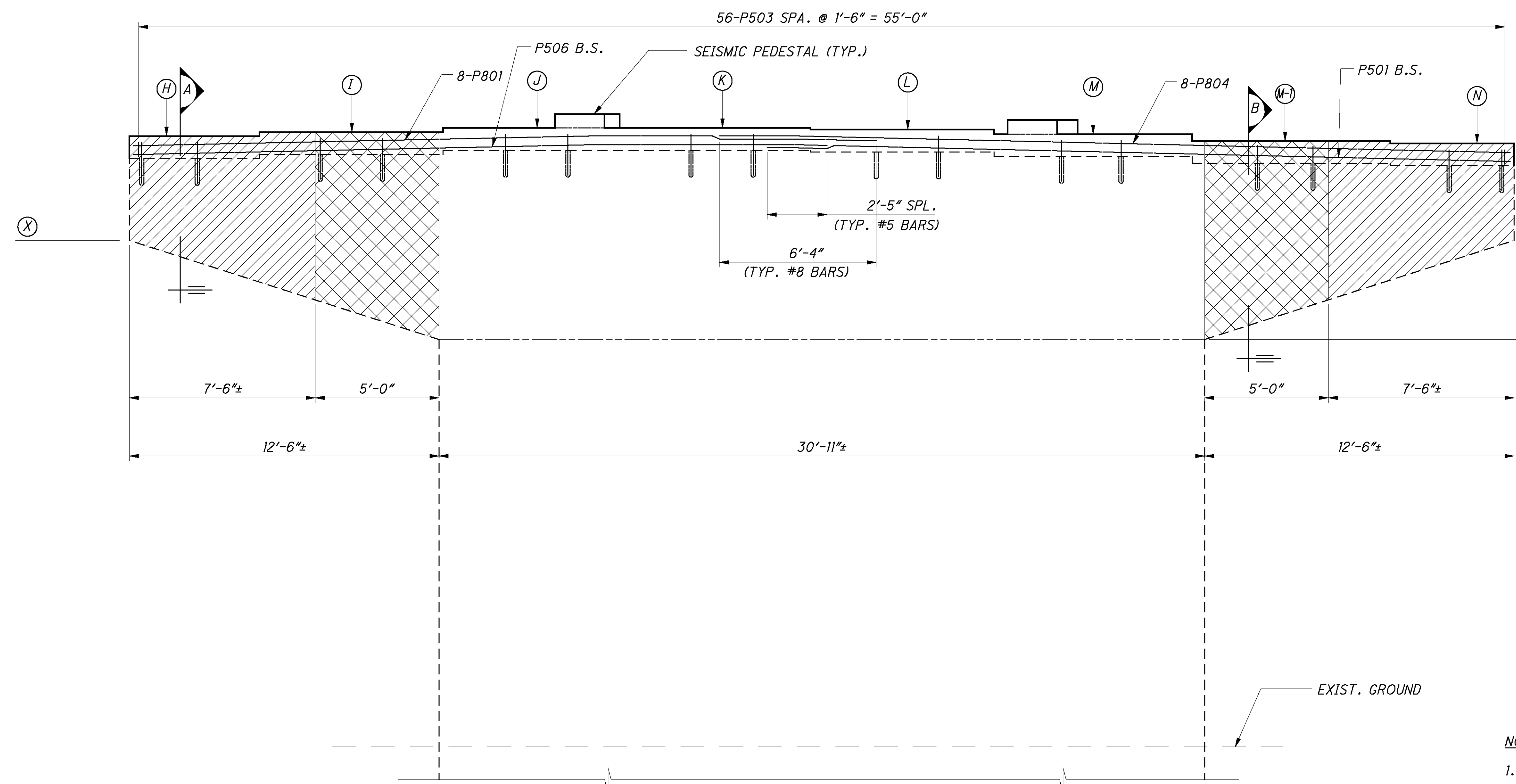
- FOR SECTIONS A & B, SEE SHT. NO. 21/52.
- FOR SEISMIC PEDESTAL DETAILS, SEE SHT. NO. 20/52.
- FOR ADDITIONAL NOTES, SEE SHT. NO. 15/52.

G:\CV\1\2007\013\MAH\25235\STRUCTURES\MAH193_00720\SHEETS\193_00720CP1004.DGN
 7/7/2009 10:19:17 AM RRYMER



PLAN

ELEVATIONS			
(H)	(I)	(J)	(K)
913.52	913.72	913.90	913.92
(L)	(M)	(M-1)	(N)
913.83	913.67	913.43	913.23
(X)			
909.38±			



ELEVATION

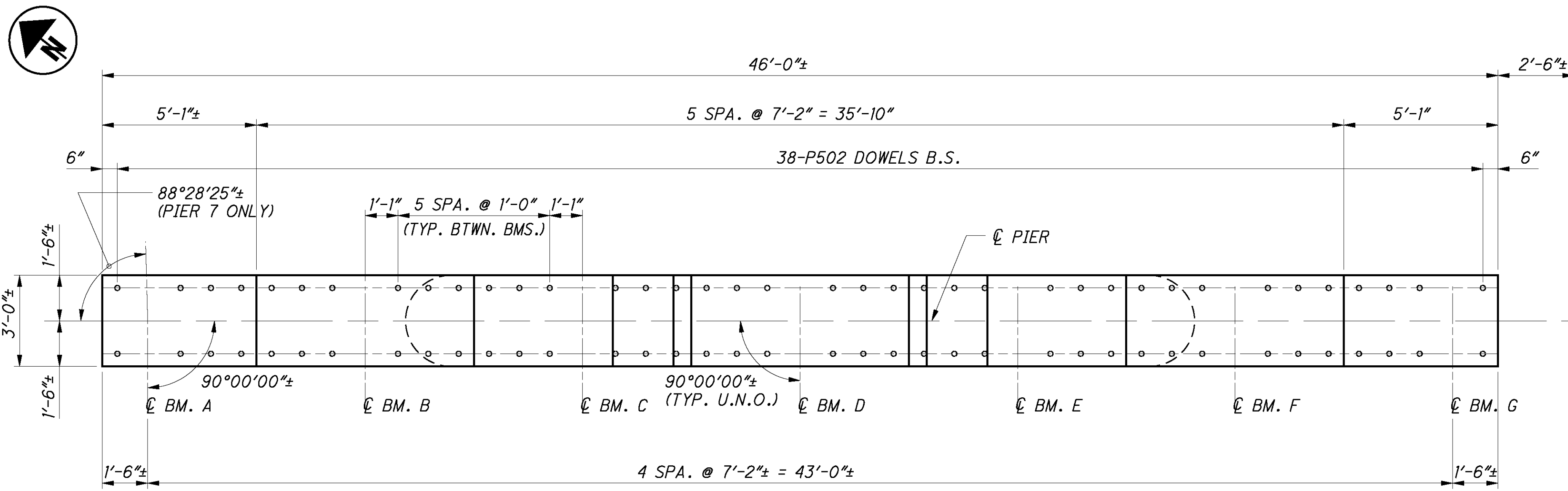
LEGEND:

ITEM SPECIAL - STRUCTURE MISC: COMPOSITE FIBER WRAP SYSTEM, 2 LAYER GLASS FIBER. 2 LAYERS OF TYFO SEH-51A OR EQUIVALENT (PRIMARY GLASS FIBER, UNIDIRECTIONAL)

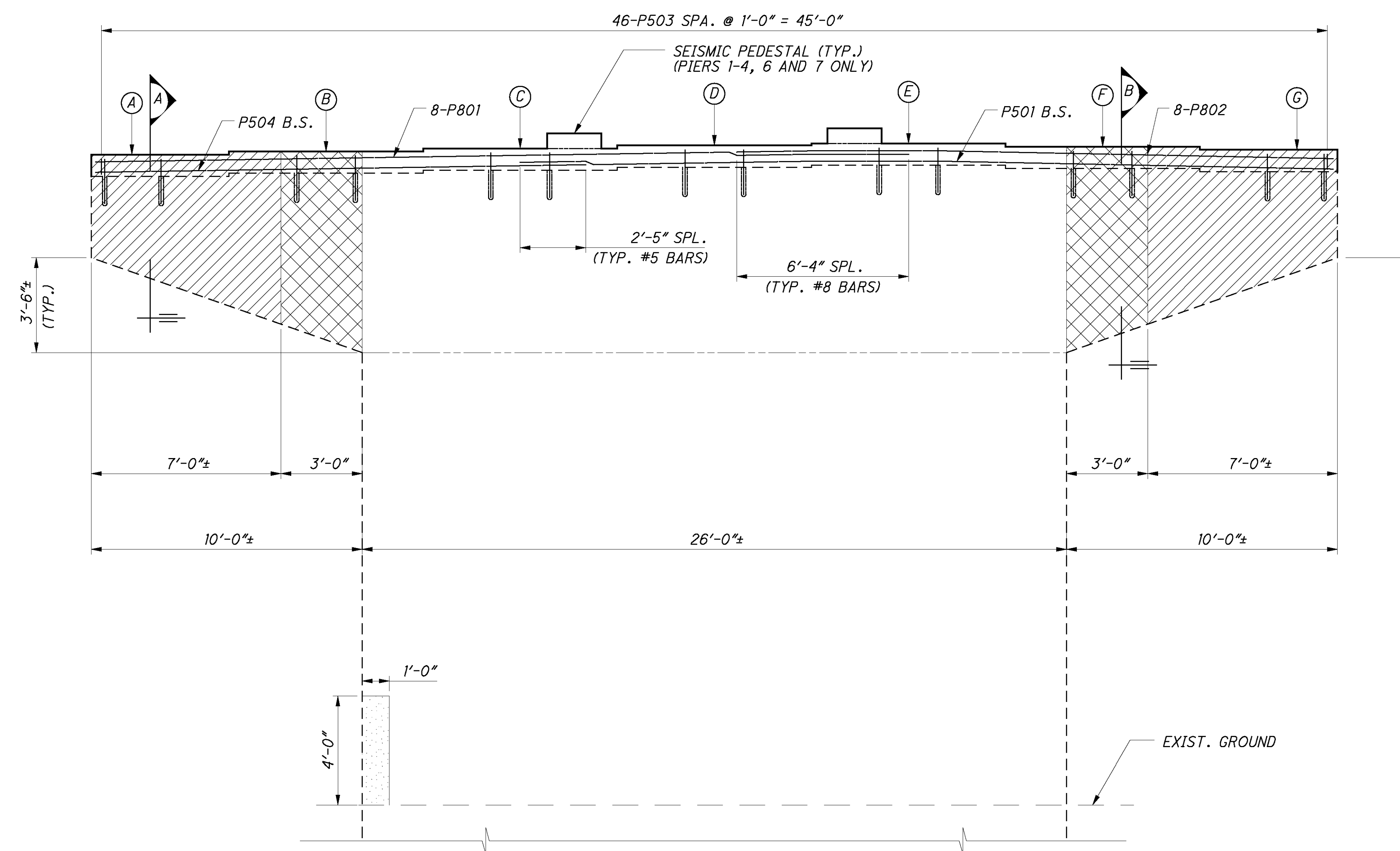
ITEM SPECIAL - STRUCTURE MISC: COMPOSITE FIBER WRAP SYSTEM, 4 LAYER GLASS FIBER. 4 LAYERS OF TYFO SEH-51A OR EQUIVALENT (PRIMARY GLASS FIBER, UNIDIRECTIONAL). OR AT CONTRACTOR'S OPTION AND AT NO ADDITIONAL COST TO THE DEPARTMENT, PROVIDE 2 LAYERS OF PRIMARY CARBON FIBER, UNIDIRECTIONAL, AS ALTERNATE TO 4 LAYER OF GLASS FIBER.

- NOTES:
- FOR SECTIONS A & B, SEE SHT. NO. 21/52.
 - FOR SEISMIC PEDESTAL DETAILS, SEE SHT. NO. 20/52.
 - FOR ADDITIONAL NOTES, SEE SHT. NO. 15/52.

G:\CV\1\2007\013\MAH\25235\STRUCTURES\MAH193_0072\25\193_0072\CP1\005.DGN
 7/7/2009
 10:19:42 AM
 RRYMER



PLAN



ELEVATION

CL SURVEY S.R. 193
 2'-6"
 6"
 90°00'00"

STA. 28+33.92 PIER 1
 STA. 29+27.90 PIER 2
 STA. 30+21.80 PIER 3
 STA. 31+15.67 PIER 4
 STA. 32+09.66 PIER 5
 STA. 33+03.69 PIER 6
 STA. 33+97.64 PIER 7

ELEVATIONS								
PIER NO.	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(X)
1	898.50	898.62	898.74	898.86	898.94	898.80	898.70	894.68±
2	900.57	900.71	900.82	900.93	900.99	900.89	900.76	896.73±
3	902.55	902.68	902.78	902.91	902.97	902.84	902.74	898.74±
4	904.67	904.81	904.92	905.04	905.10	904.98	904.86	900.77±
5	906.74	906.87	906.98	907.10	907.15	907.03	906.90	902.67±
6	908.64	908.77	908.88	908.99	909.07	908.96	908.85	904.64±
7	910.64	910.77	910.88	910.98	911.06	910.94	910.83	906.81±

LEGEND:

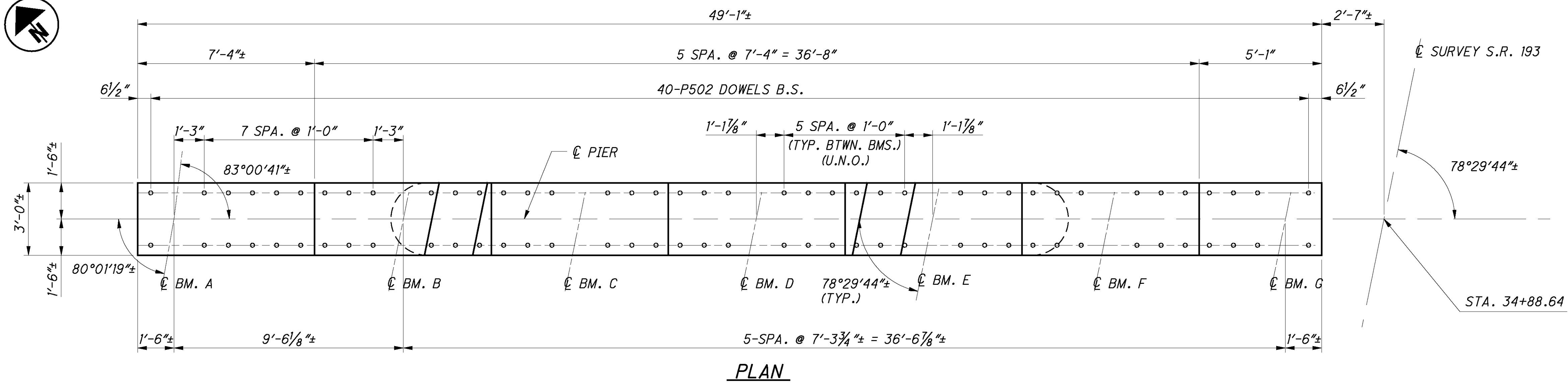
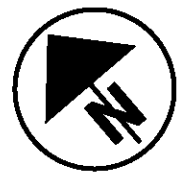
- ITEM SPECIAL - STRUCTURE MISC: COMPOSITE FIBER WRAP SYSTEM, 2 LAYER GLASS FIBER. 2 LAYERS OF TYFO SEH-51A OR EQUIVALENT (PRIMARY GLASS FIBER, UNIDIRECTIONAL)
- ITEM SPECIAL - STRUCTURE MISC: COMPOSITE FIBER WRAP SYSTEM, 4 LAYER GLASS FIBER. 4 LAYERS OF TYFO SEH-51A OR EQUIVALENT (PRIMARY GLASS FIBER, UNIDIRECTIONAL). OR AT CONTRACTOR'S OPTION AND AT NO ADDITIONAL COST TO THE DEPARTMENT, PROVIDE 2 LAYERS OF PRIMARY CARBON FIBER, UNIDIRECTIONAL, AS ALTERNATE TO 4 LAYER OF GLASS FIBER.
- INDICATES AREA TO BE PATCHED PER ITEM 519, PATCHING CONCRETE STRUCTURE (@ PIER 4 ONLY)

NOTES:

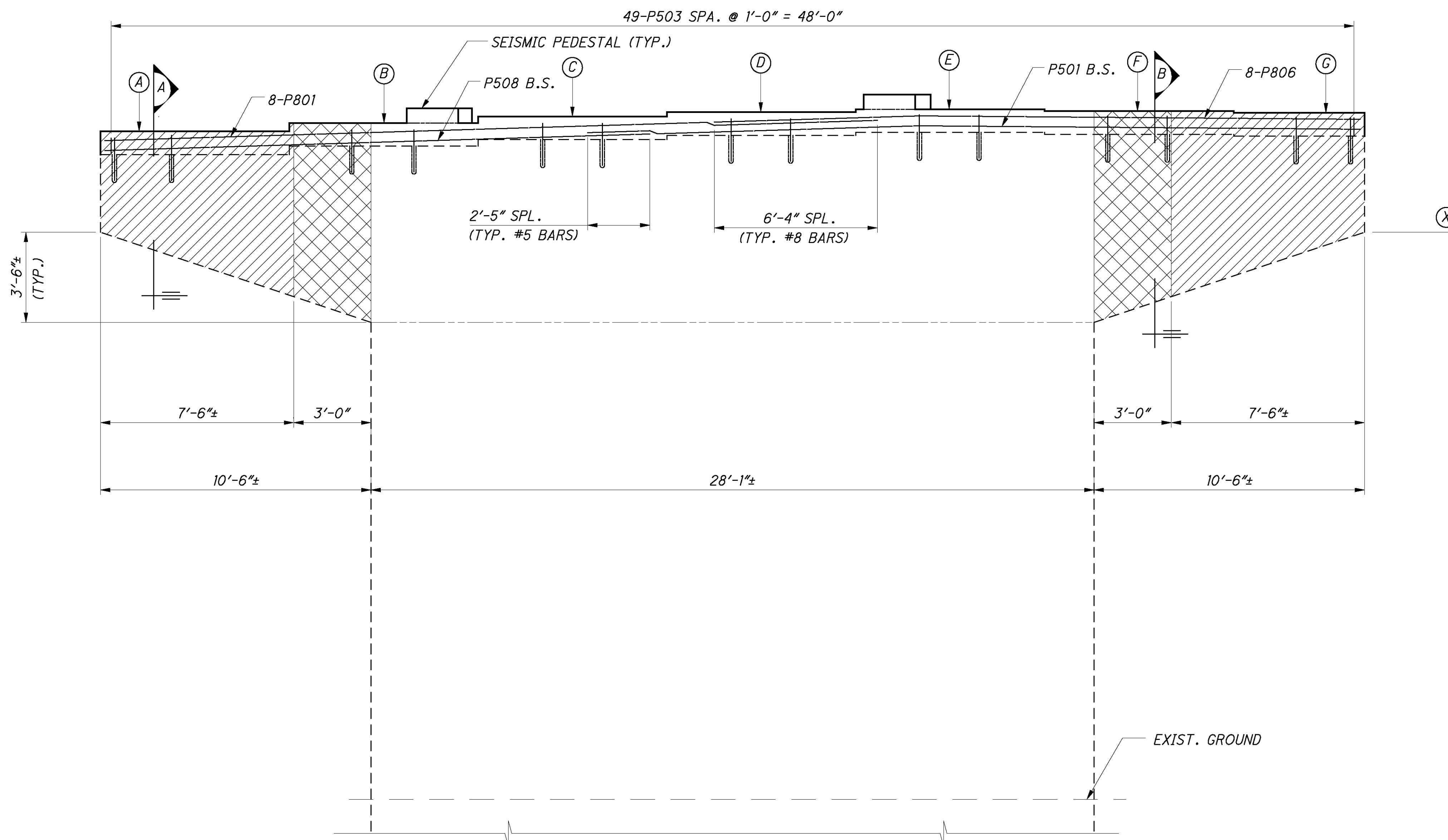
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2. FOR SEISMIC PEDESTAL DETAILS, SEE SHT. NO. 20/52.
3. FOR ADDITIONAL NOTES, SEE SHT. NO. 15/52.

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DESIGN AGENCY: GPD ASSOCIATES
 970 South Main Street, Suite 233, Akron, Ohio 44311
 330.575.2100, Fax 330.575.2101
 DATE: 9-26-08
 REVIEWED: DJC
 DRAWN: RPR
 DESIGNED: GGN
 CHECKED: TJW
 STRUCTURE FILE NUMBER: 5004470
MAH-193/422
-0.46/1.85
PID No. 25235
PIERS 1 THRU 7 - WESTBOUND (PHASE 2)
 BRIDGE NO. MAH-193-0072
 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR
 18/52
180
260



PLAN



ELEVATION

ELEVATIONS			
(A)	(B)	(C)	(D)
912.75	913.15	913.40	913.58
(E)	(F)	(G)	(X)
913.71	913.63	913.54	908.94±

LEGEND:

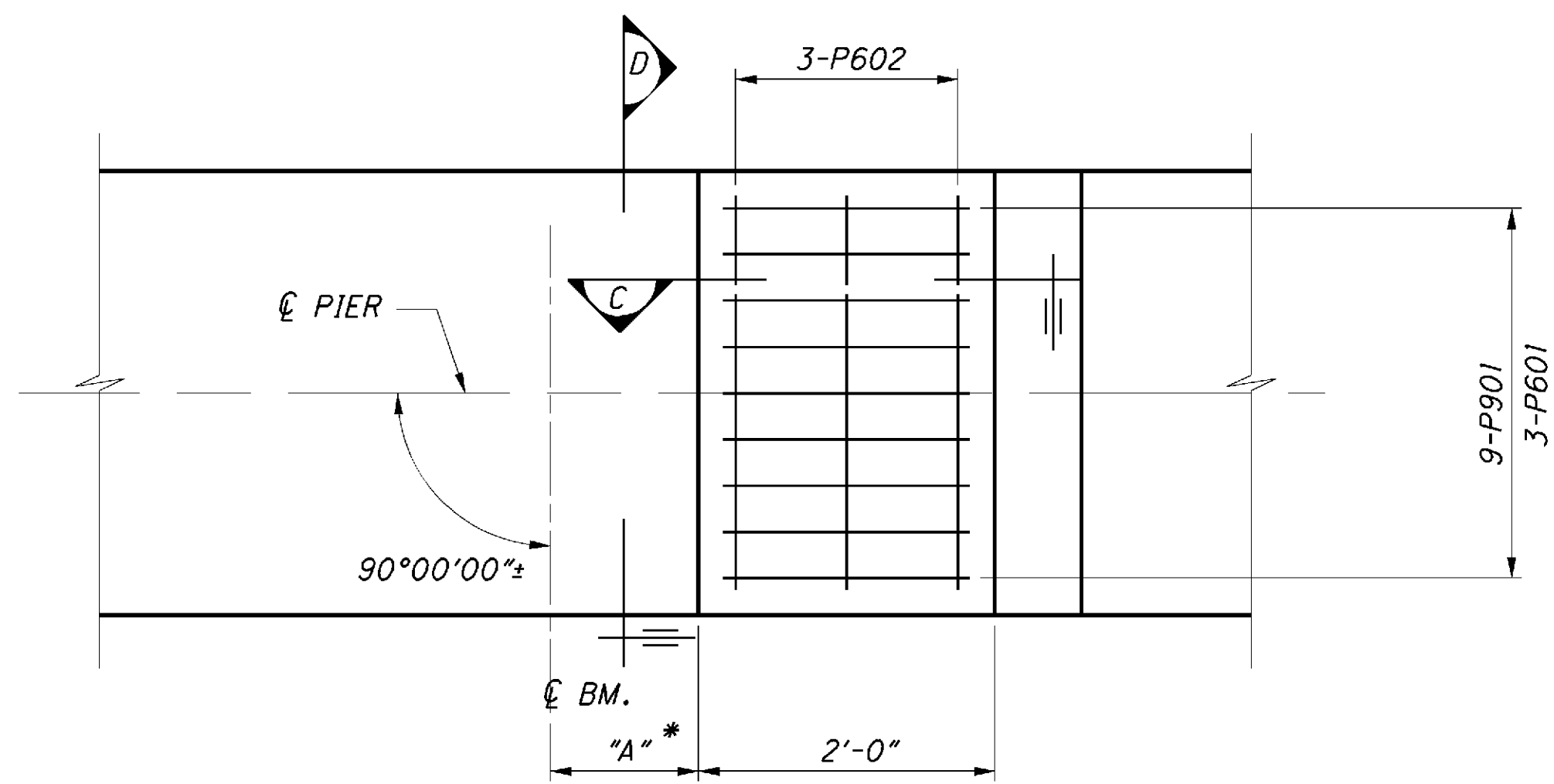
- ITEM SPECIAL - STRUCTURE MISC: COMPOSITE FIBER WRAP SYSTEM, 2 LAYER GLASS FIBER. 2 LAYERS OF TYFO SEH-51A OR EQUIVALENT (PRIMARY GLASS FIBER, UNIDIRECTIONAL)
- ITEM SPECIAL - STRUCTURE MISC: COMPOSITE FIBER WRAP SYSTEM, 4 LAYER GLASS FIBER. 4 LAYERS OF TYFO SEH-51A OR EQUIVALENT (PRIMARY GLASS FIBER, UNIDIRECTIONAL). OR AT CONTRACTOR'S OPTION AND AT NO ADDITIONAL COST TO THE DEPARTMENT, PROVIDE 2 LAYERS OF PRIMARY CARBON FIBER, UNIDIRECTIONAL, AS ALTERNATE TO 4 LAYER OF GLASS FIBER.

NOTES:

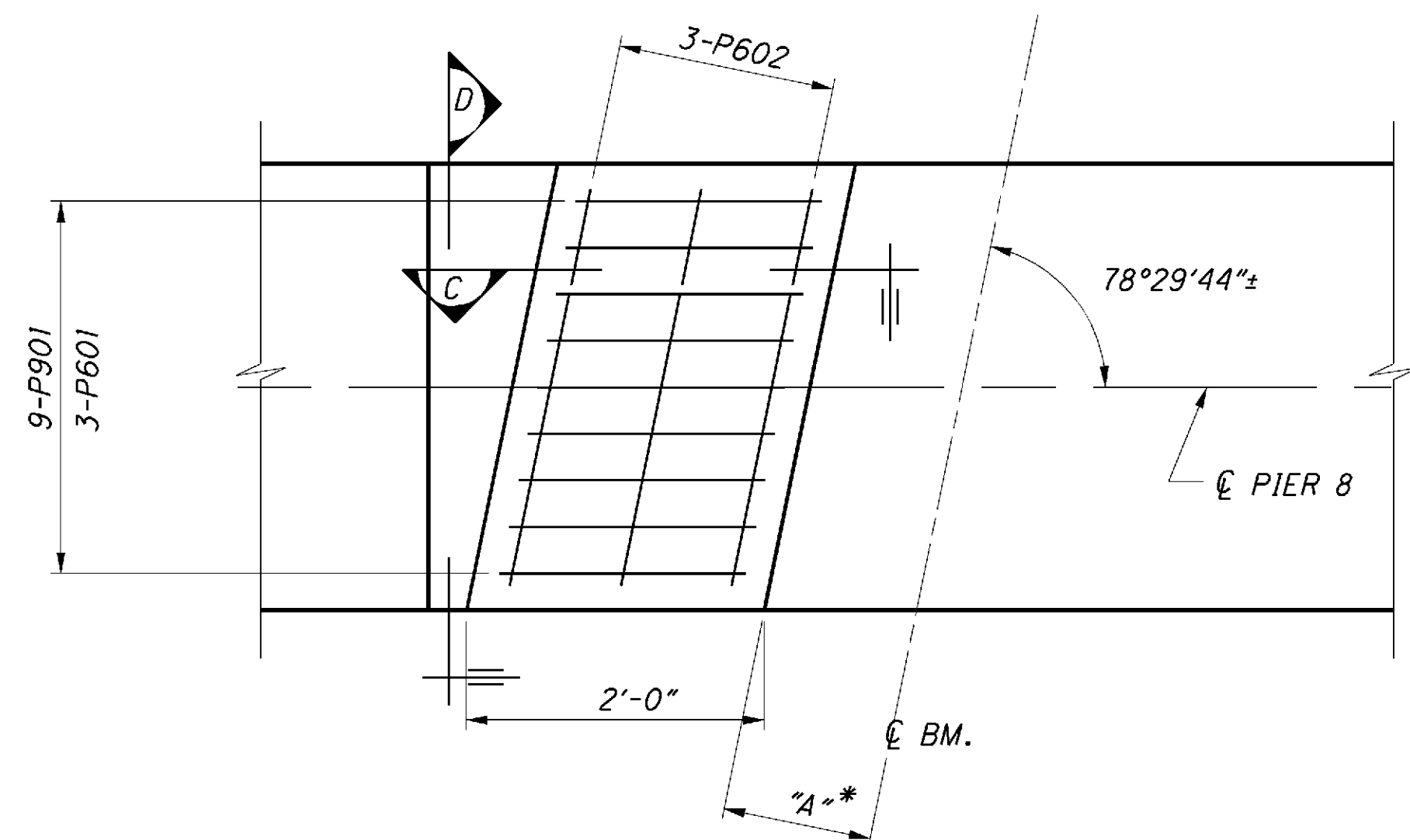
1. FOR SECTIONS A & B, SEE SHT. NO. 21/52.
2. FOR SEISMIC PEDESTAL DETAILS, SEE SHT. NO. 20/52.
3. FOR ADDITIONAL NOTES, SEE SHT. NO. 15/52.

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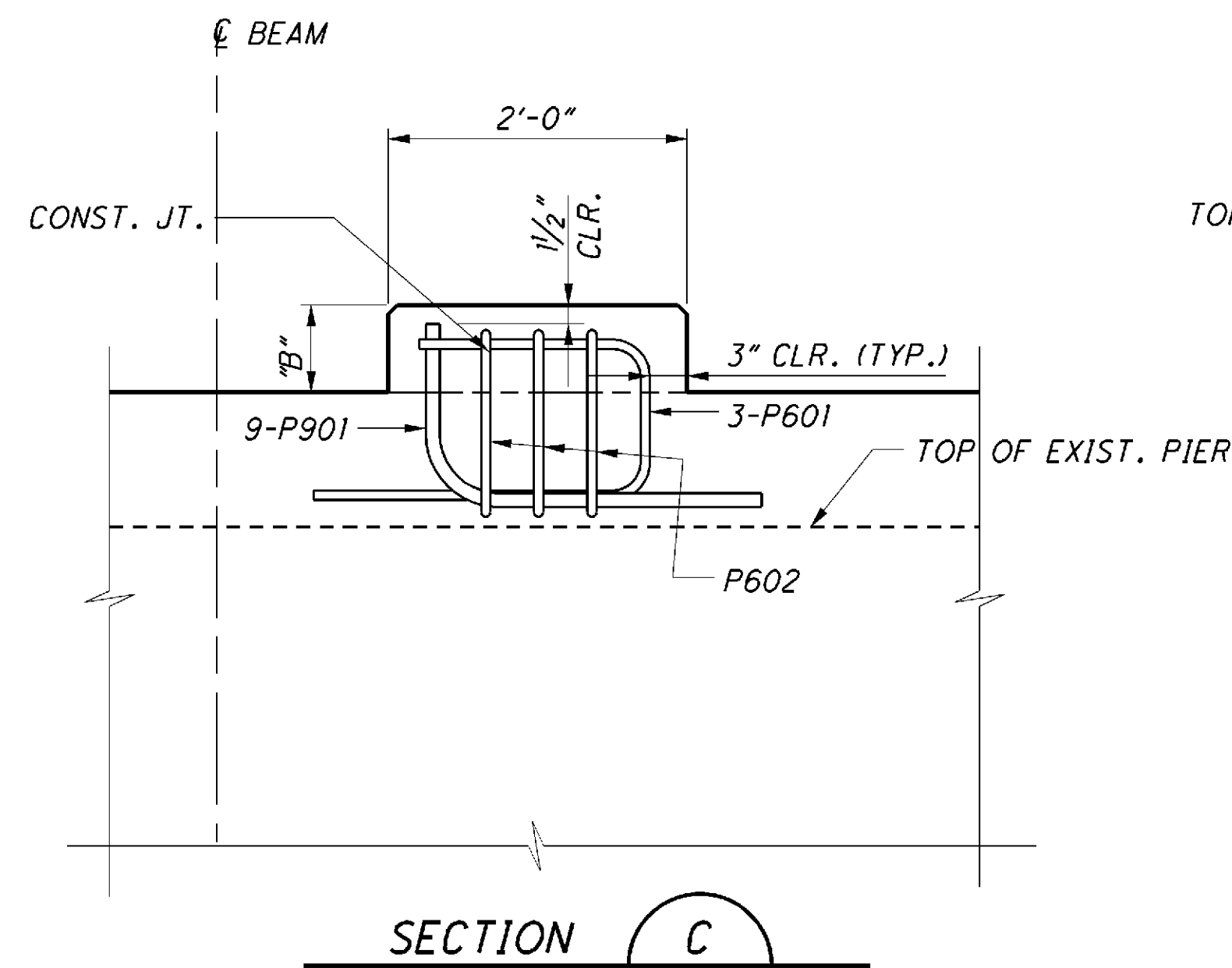
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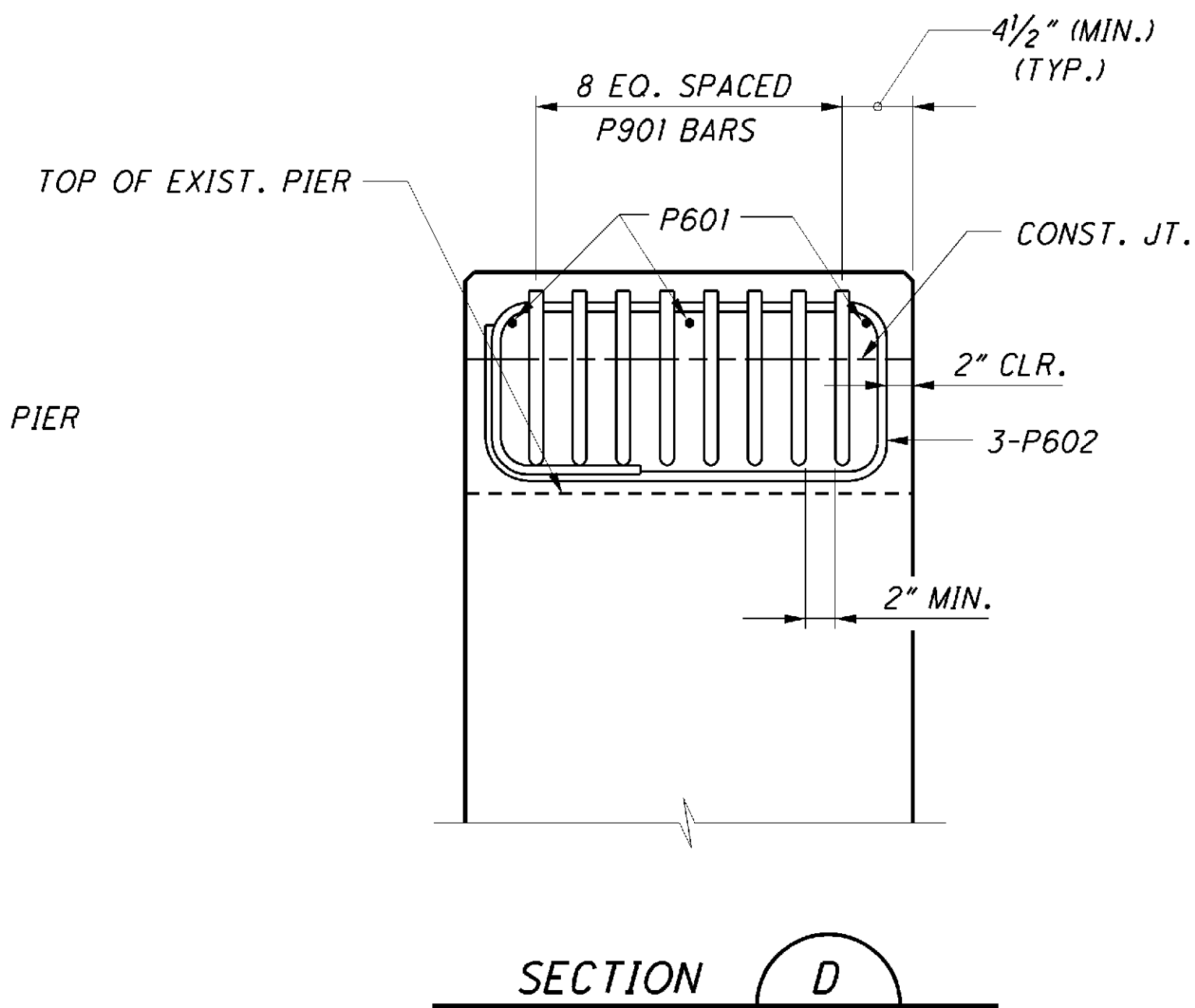
SEISMIC PEDESTAL DETAIL PIERS 1-7
 LEFT PEDESTAL ON PIER SHOWN, RIGHT PEDESTAL SIMILAR



SEISMIC PEDESTAL DETAIL PIER 8
 RIGHT PEDESTAL ON PIER SHOWN, LEFT PEDESTAL SIMILAR



SECTION C



SECTION D

SEISMIC PEDESTAL DIMENSIONS			
PIER	BEAM	DIM. A	DIM. B
1 THRU 3	C	1'-1 7/8"	10"
	E		
	J		
	L		
4 & 6	C	1'-0"	8 5/8"
	E		
	J		
	L		
7	C	1'-1 7/8"	10 1/8"
	E		
	J		
	M		
8	B	1'-1 7/8"	10 1/8"
	E		
	J		
	M		

* SEISMIC PEDESTALS SHALL BE PLACED
 1" CLEAR OF BEARING LOAD PLATES

DESIGN AGENCY
 GRAND PRAIRIE STRUCTURAL ENGINEERS & ARCHITECTS, INC.
GPD ASSOCIATES
 520 South Main Street, Suite 2371, Morris, Ohio 44131
 330.297.2100 • Fax: 330.297.2101

DESIGNED T JW	DRAWN RPR	REVIEWED GGN	DATE 9-26-08
CHECKED DJC	REVISED	STRUCTURE FILE NUMBER 5004470	

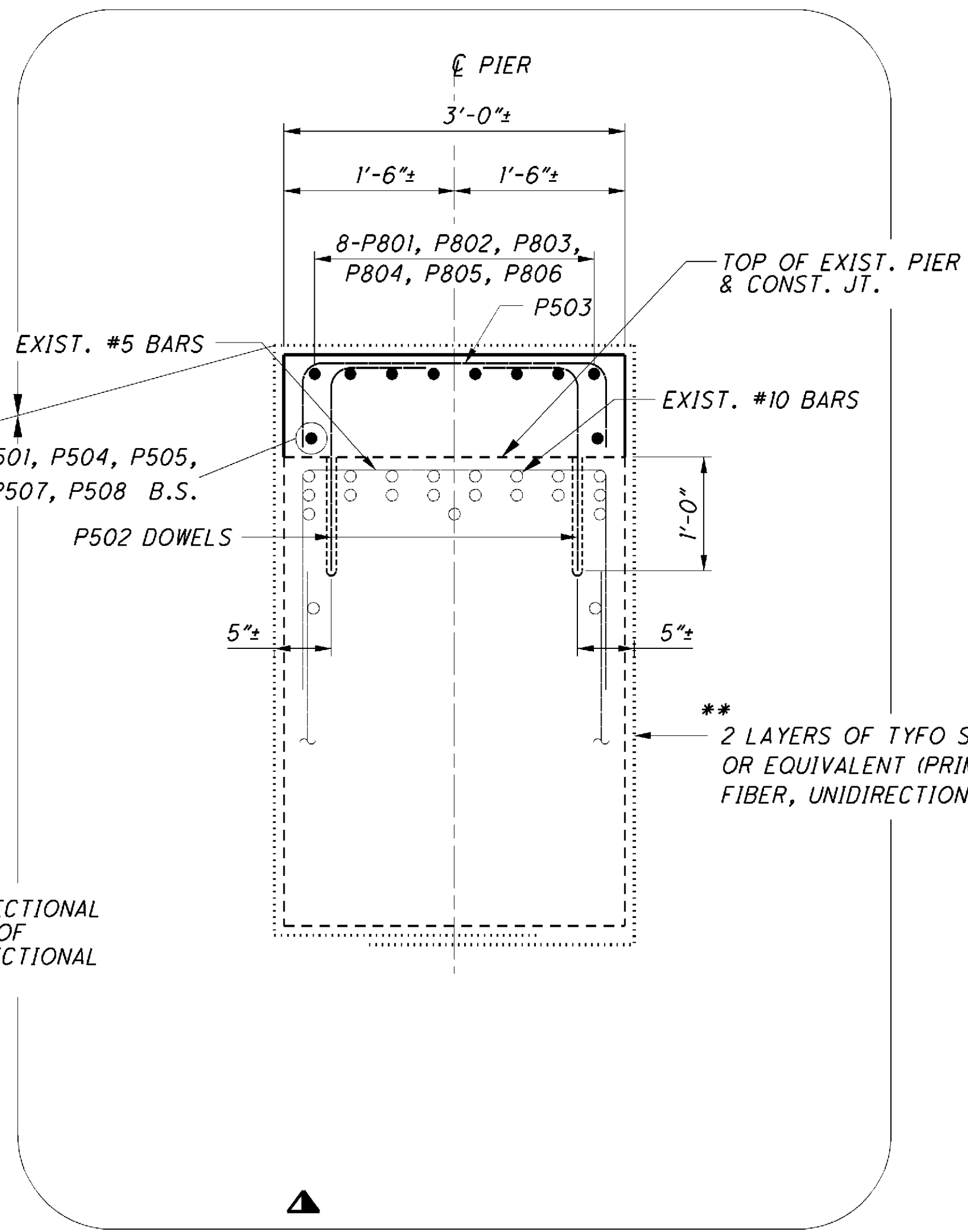
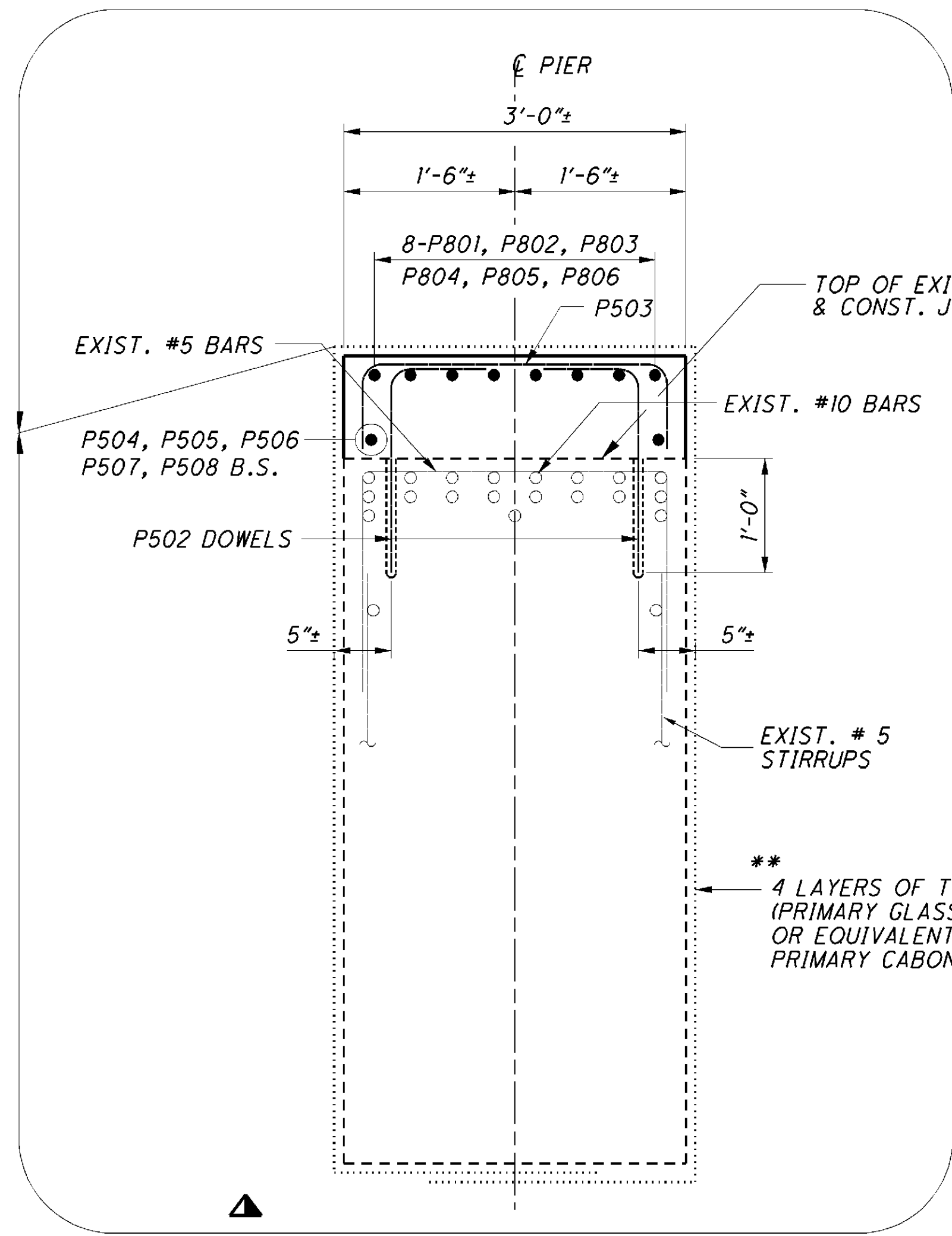
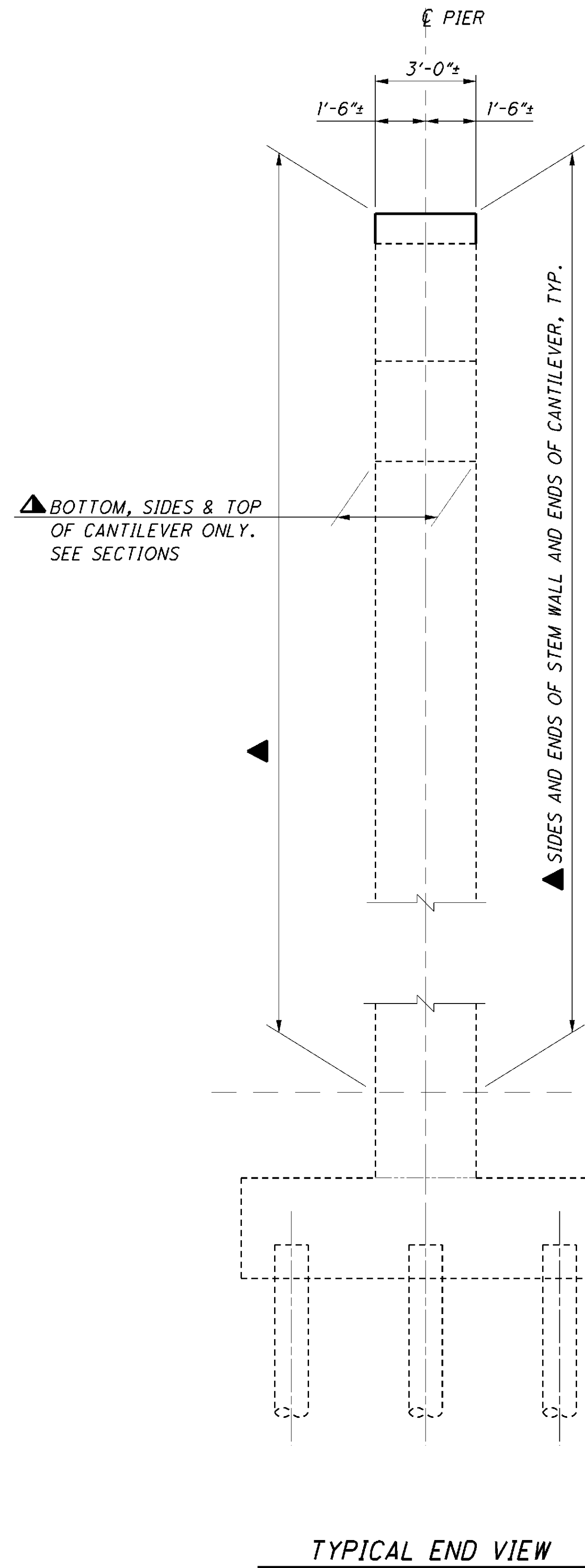
PIER SEISMIC PEDESTAL DETAILS
 BRIDGE NO. MAH-193-0072
 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR

MAH-193/422
-0.46/1.85
 PID No. 25235

20 / 52

182
260

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 3/23/2009 11:32:49 AM RMD\CLTZKY



LEGEND:

- ▲ INDICATES LIMITS OF ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE). THIS MATERIAL SHALL NOT BE APPLIED TO THE SURFACE OF THE COMPOSITE FIBER WRAP SYSTEM.
- ▲ INDICATES LIMITS OF ITEM SPECIAL - SEALING, MISC.: ACRYLIC FINISH COAT. THIS MATERIAL IS INTENDED TO COLOR AND PROTECT THE SURFACE OF THE COMPOSITE FIBER WRAP SYSTEM.
- ** COMPOSITE FIBER WRAP SYSTEM TO BE TRIMMED CLEAR OF BEARING LOCATION AT THE TOP OF CANTILEVER ARM.

NOTE:

FOR ADDITIONAL NOTES ON ACRYLIC FINISH COAT AND COMPOSITE FIBER WRAP SYSTEM, SEE SHT. NO. 4/52.

MAH-193/422 -0.46/1.85 PID No. 25235		PIER DETAILS BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR	DESIGNED GGN	CHECKED TJW	DRAWN RPR	REVISIONS REVISED	REVIEWED DUC	DATE 9-26-08	STRUCTURE FILE NUMBER 5004470	DESIGN AGENCY GPD ASSOCIATES <small>530 South Main Street, Suite 3337, Akron, Ohio 44311 330.975.2100 • Fax 330.975.2101</small>
21 / 52		183 260								

NOTES:

1. ELASTOMERIC BEARINGS: THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.6.6 (METHOD A) OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.
2. WELDING: CONTROL WELDING SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300° F AS DETERMINED BY THE USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.
3. BEARING REPOSITIONING: IF 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.
4. GRADE 50 STEEL SHALL BE USED FOR ALL STEEL PLATES. THE LOAD PLATE SHALL BE VULCANIZED BONDED TO THE LAMINATED ELASTOMERIC PAD DURING THE MOLDING PROCESS.
5. FIXED BEARING ANCHOR RODS SHALL BE GALVANIZED AS PER CMS 711.02. ANCHOR RODS SHALL EXTEND 1 INCH ABOVE THE LOAD OR MASONRY PLATE.
6. PROVIDE SHOP DRAWINGS CONFORMING TO 501.04.
7. BASIS OF PAYMENT: THE UNIT PRICE BID SHALL INCLUDE ALL MATERIALS, LABOR AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL THE LAMINATED ELASTOMERIC BEARINGS, STEEL LOAD PLATES. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516 - ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN.

PTFE AND STAINLESS STEEL SLIDING SURFACES

(ABUTMENTS, PIER NOS. 1 TO 3 & PIER NOS. 7 & 8)

PTFE SURFACE:

8. FINISHED UNFILLED DIMPLED LUBRICATED PTFE SHEETS SHALL BE MADE FROM 100 PERCENT VIRGIN PTFE RESIN AND SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

TENSILE STRENGTH ASTM D4894 - 2800 SPI (MINIMUM).
 ELONGATION ASTM D4894 - 200 PERCENT (MINIMUM).
 SPECIFIC GRAVITY ASTM D792 - 2.13 (MINIMUM).
 MELTING POINT - ASTM D4894 - 623° F (±2° F)

THE SHEET SHALL BE RECESSED AND EPOXY BONDED INTO THE STEEL SUBSTRATE. THE SHOULDERS OF THE RECESS SHALL BE SHARP AND SQUARE AND THE DEPTH SHALL BE EQUAL TO ONE-HALF OF THE PTFE THICKNESS.

PTFE SHEET SHALL BE COMMERCIALY ETCHED ON ITS BONDING SIDE.

THE BONDING SURFACE OF THE SUBSTRATE PLATE SHALL BE CLEANED OF RUST, SCALE, OIL AND GREASE BY BLAST CLEANING AND THEN WIPED CLEAN WITH A CLEANING SOLVENT. BLAST CLEANING SHALL BE PERFORMED WITHIN A MAXIMUM OF FOUR HOURS PRIOR TO BONDING.

THE ADHESIVE MATERIAL, THE BONDING PROCEDURES TO BE USED, AND SURFACE PREPARATION SHALL CONFORM TO THE REQUIREMENTS OF FEDERAL SPECIFICATION MMM-A-134 AND THE MANUFACTURER'S RECOMMENDATIONS. THE ADHESION BETWEEN THE PTFE AND STEEL SUBSTRATE SHALL BE TESTED IN ACCORDANCE WITH ASTM D429, METHOD B. THE MINIMUM PEEL STRENGTH SHALL BE 25 PER INCH.

AFTER COMPLETION OF THE BONDING OPERATION, THE PTFE SURFACE SHALL BE FREE FROM BUBBLES.

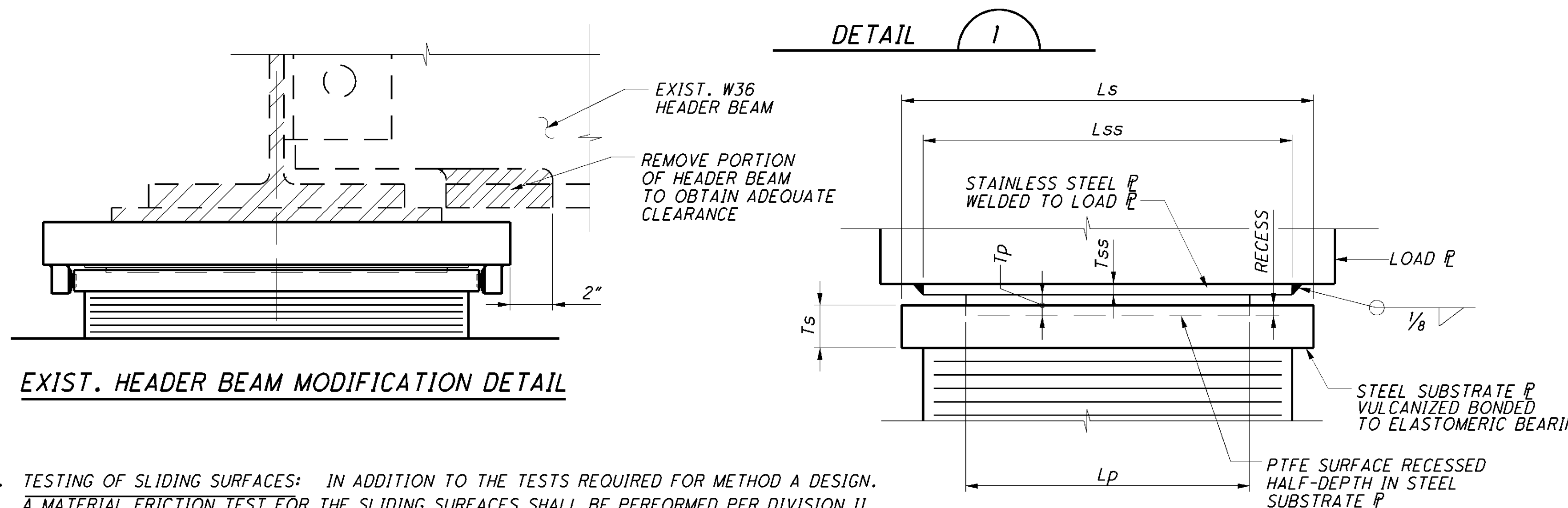
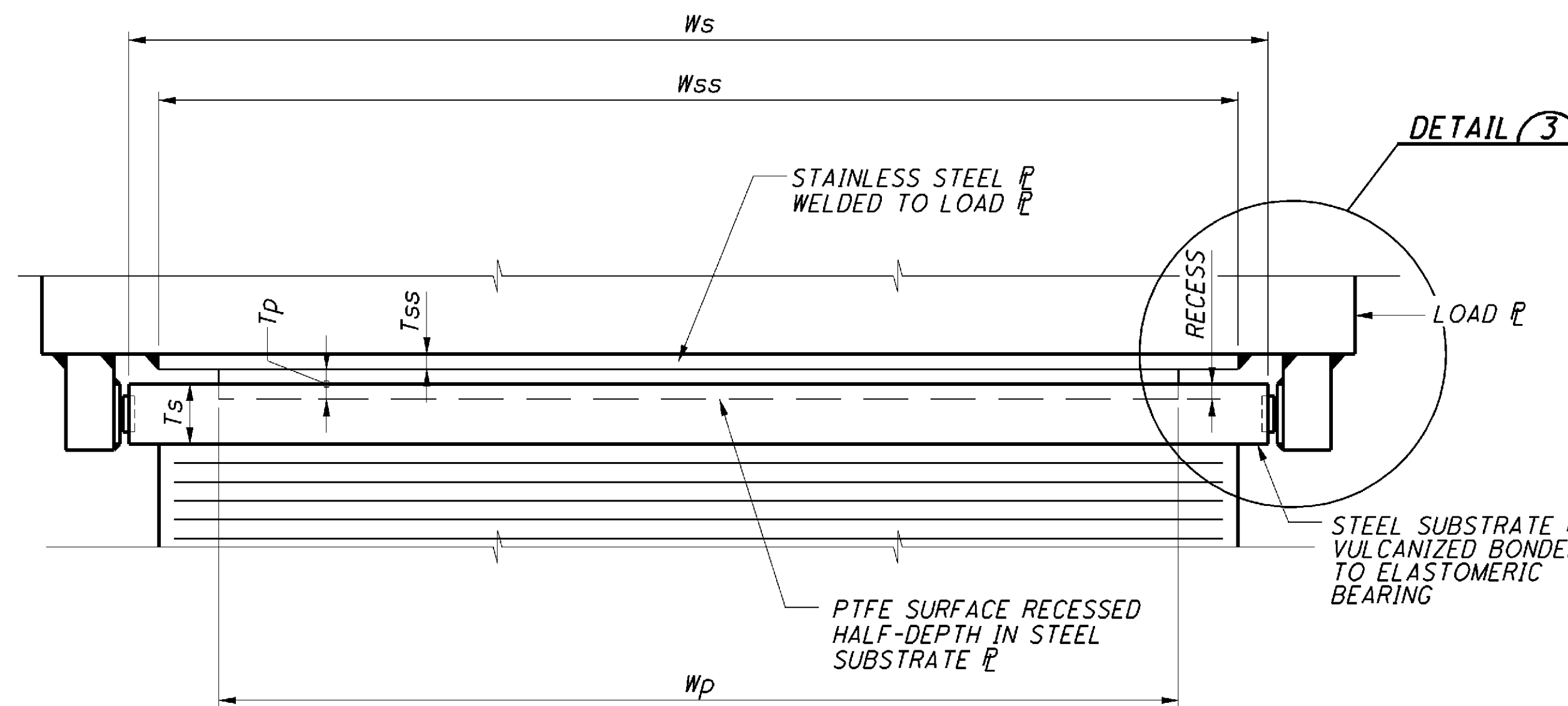
9. STAINLESS STEEL PLATES:

THE STAINLESS STEEL SHEET SURFACE SHALL CONFORM TO ASTM A167 OR A240 TYPE 304 AND SHALL HAVE A #8 MIRROR FINISH OR BETTER.

STAINLESS STEEL SHALL BE ATTACHED TO THE LOAD PLATE BY A CONTINUOUS SEAL WELD AROUND ITS ENTIRE PERIMETER. WELDS SHALL BE PREQUALIFIED BY TEST WELDS PREPARED. WELDED AND TESTED IN ACCORDANCE WITH 6.7 OF ANSI / AWS D1.3, STRUCTURAL WELDING CODE - SHEET STEEL. AFTER WELDING, THE STAINLESS STEEL SHEET SHALL BE FLAT, FREE FROM WRINKLES AND IN CONTINUOUS CONTACT WITH ITS BACKING PLATE. NO ROUGHNESS FROM THE WELD PROTRUDING ABOVE THE SURFACE OF THE STAINLESS STEEL WILL BE PERMITTED.

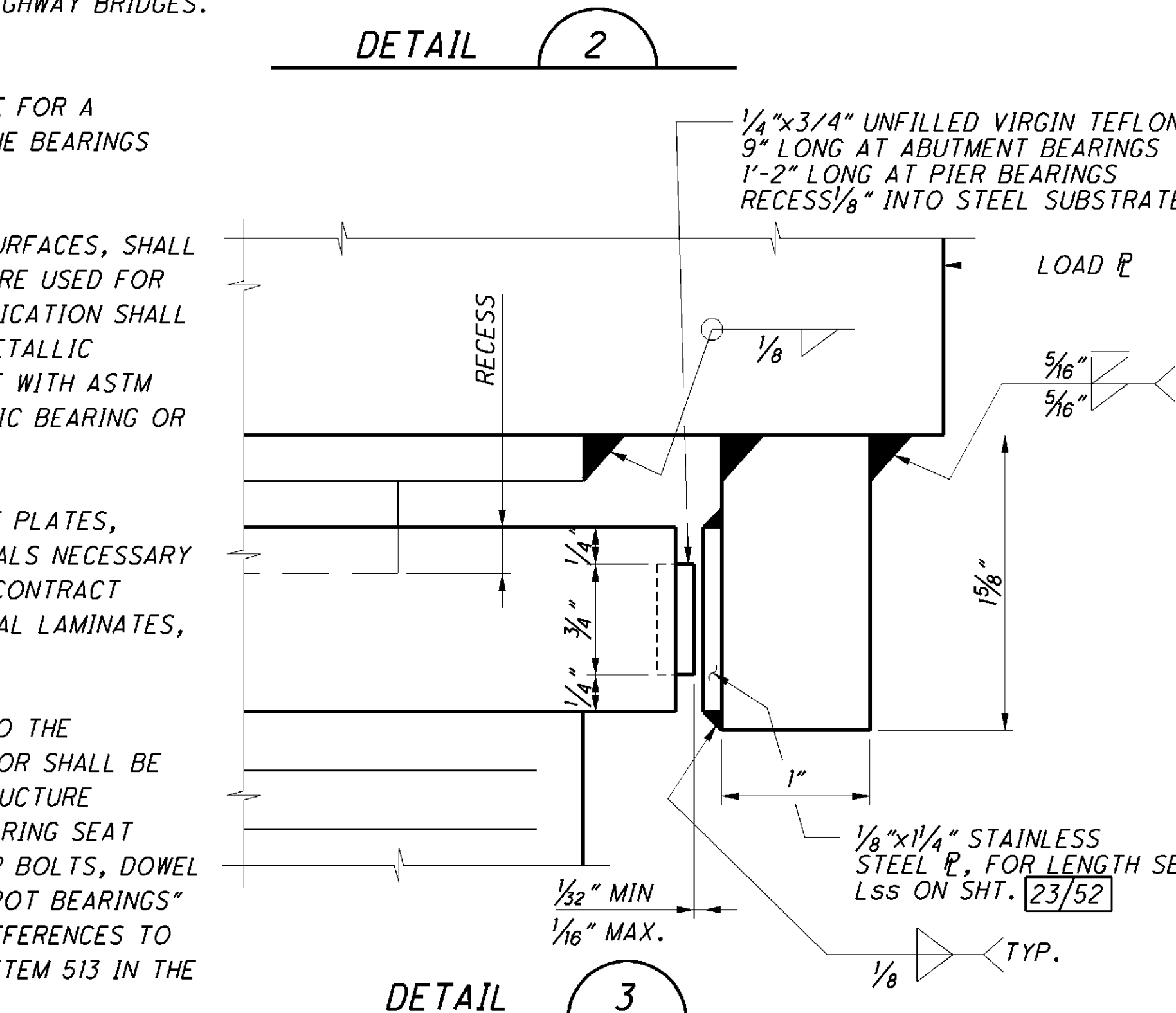
10. LUBRICANT:

LUBRICANTS SHALL BE SILICONE GREASE WHICH SATISFIES MILITARY SPECIFICATION MIL-S-8660.



EXIST. HEADER BEAM MODIFICATION DETAIL

11. TESTING OF SLIDING SURFACES: IN ADDITION TO THE TESTS REQUIRED FOR METHOD A DESIGN. A MATERIAL FRICTION TEST FOR THE SLIDING SURFACES SHALL BE PERFORMED PER DIVISION II, SECTION 18.7.2.2 AND 18.7.4.2 OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.
12. INSTALLATION OF SLIDING BEARINGS: A REPRESENTATIVE FROM THE BEARING MANUFACTURER SHALL BE PRESENT ON SITE FOR A SUFFICIENT PERIOD OF TIME TO ENSURE THAT THE CONTRACTOR IS INSTALLING THE BEARINGS PROPERLY.
13. ALL STEEL SURFACES EXPOSED TO THE ATMOSPHERE, EXCEPT STAINLESS STEEL SURFACES, SHALL BE METALIZED. THE THICKNESS OF THE COATING SHALL BE 12 TO 14 MILS. THE WIRE USED FOR THE METALIZING SHALL CONSIST OF 100% ZINC. SURFACE PREPARATION AND APPLICATION SHALL CONFORM TO SSPC COATING SYSTEM GUIDE 23.00 "GUIDE FOR THERMAL SPRAY METALLIC COATING SYSTEMS". FIELD REPAIR DAMAGED METALIZED COATING IN ACCORDANCE WITH ASTM A780, TYPE A1 OR A3 IN SUCH A MANNER THAT WILL NOT DAMAGE THE ELASTOMERIC BEARING OR PTFE SURFACE.
14. THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, TESTING, SUBSTRATE PLATES, STAINLESS STEEL PLATES, PTFE SURFACES, LUBRICANT, COATINGS AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL THE SLIDING PLATES. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516, BEARING DEVICE MISC.: ELASTOMERIC BEARING WITH INTERNAL LAMINATES, LOAD PLATE AND PTFE (NEOPRENE), AS PER PLAN
15. AT THE CONTRACTOR'S OPTION, POT BEARINGS MAY BE USED AS AN ALTERNATE TO THE SPECIFIED ELASTOMERIC BEARINGS WITH PTFE SLIDING SURFACES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FULL COST OF ALL MODIFICATIONS TO THE PROPOSED STRUCTURE REQUIRED BY THE ALTERNATE POT BEARING INCLUDING, BUT NOT LIMITED TO, BEARING SEAT ELEVATION ADJUSTMENTS, REINFORCING STEEL ADJUSTMENTS, ADDITIONAL ANCHOR BOLTS, DOWEL HOLES. POT BEARINGS SHALL CONFORM TO NOTE AN-6 "ITEM SPECIAL - STEEL POT BEARINGS" CONTAINED WITHIN THE APPENDIX OF THE 2004 ODOT BRIDGE DESIGN MANUAL. REFERENCES TO SUPPLEMENTAL SPECIFICATION 863 WITHIN NOTE AN-6 SHALL BE TAKEN TO MEAN ITEM 513 IN THE LATEST CMS.



DETAIL 3

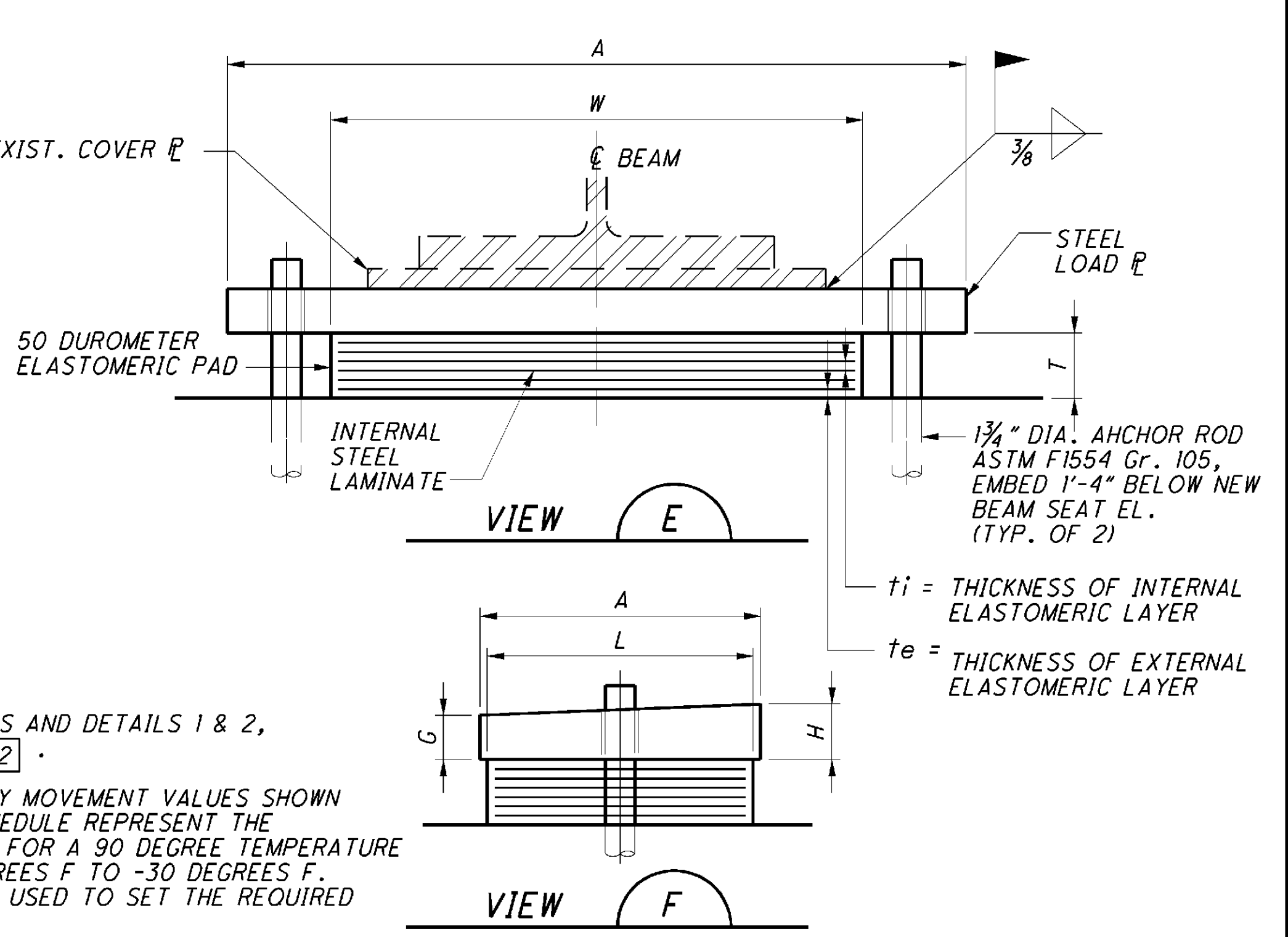
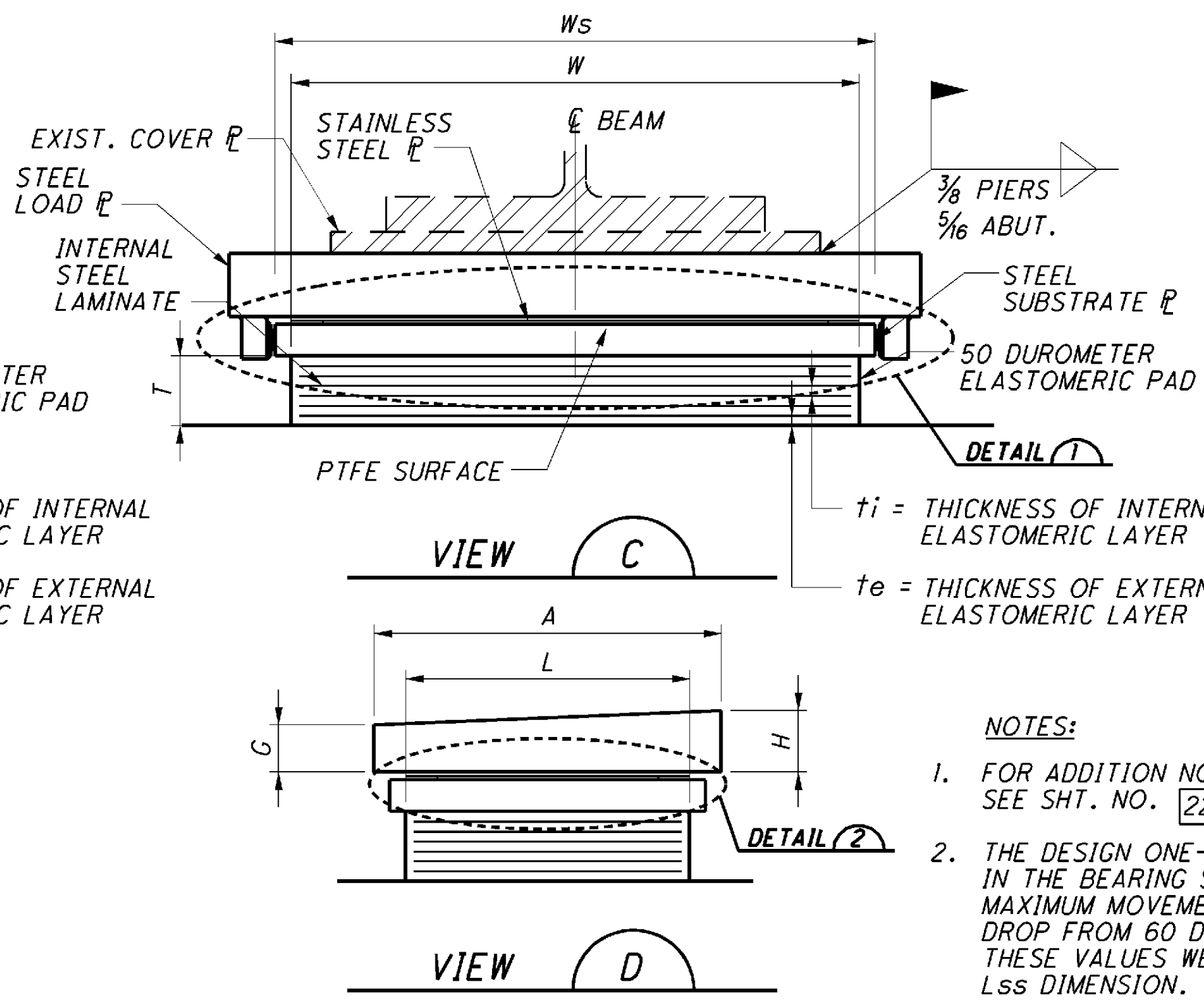
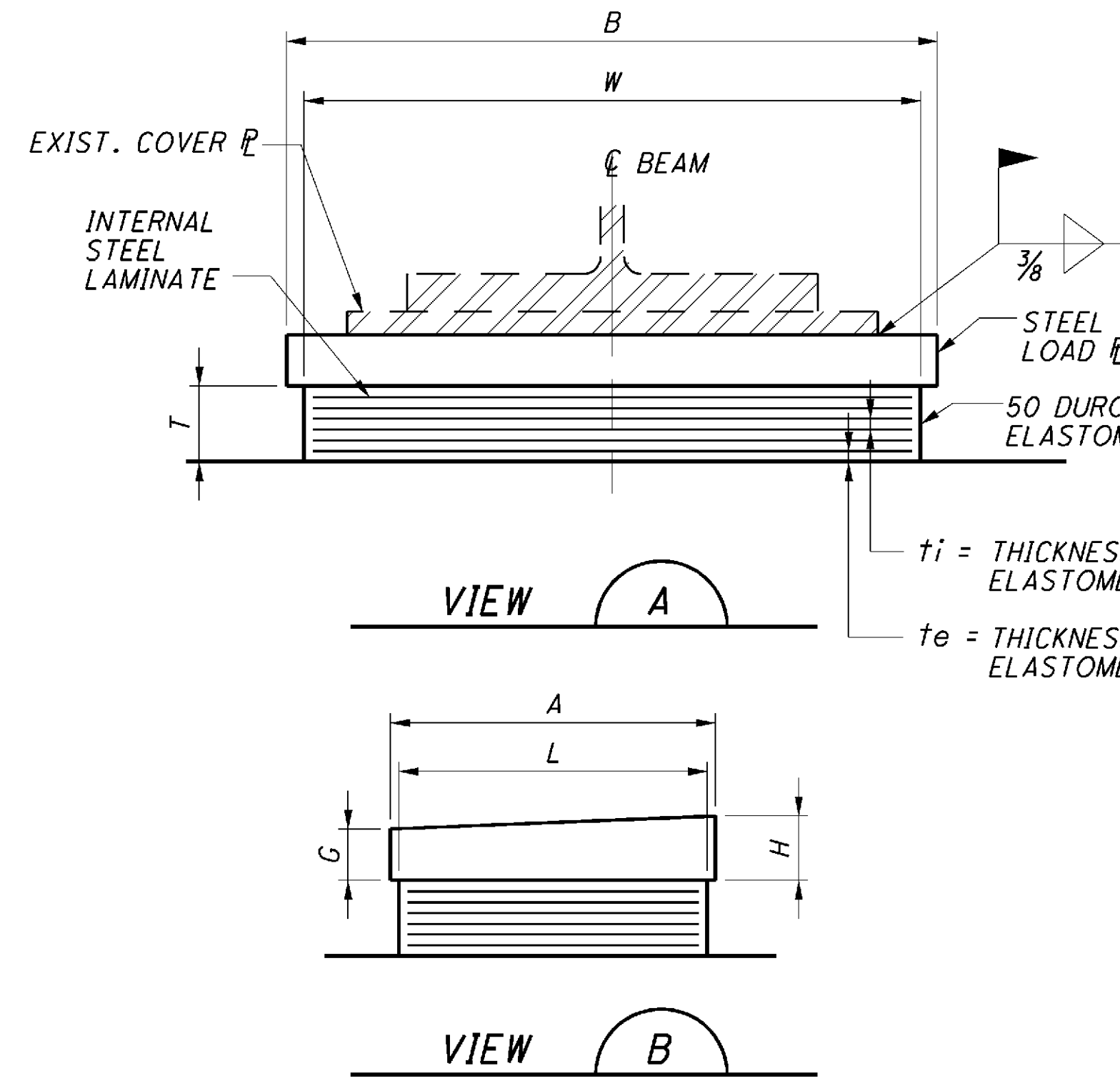
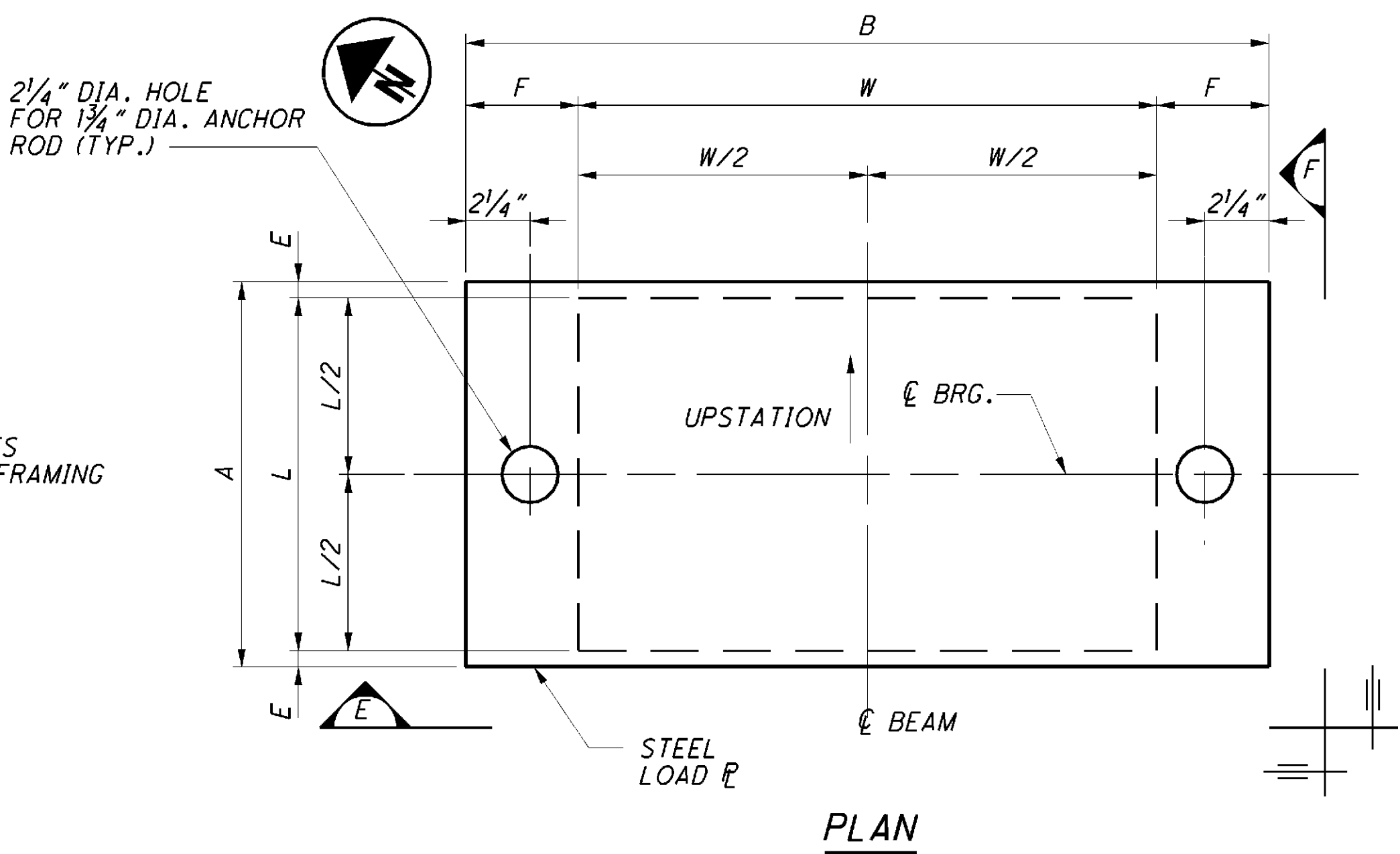
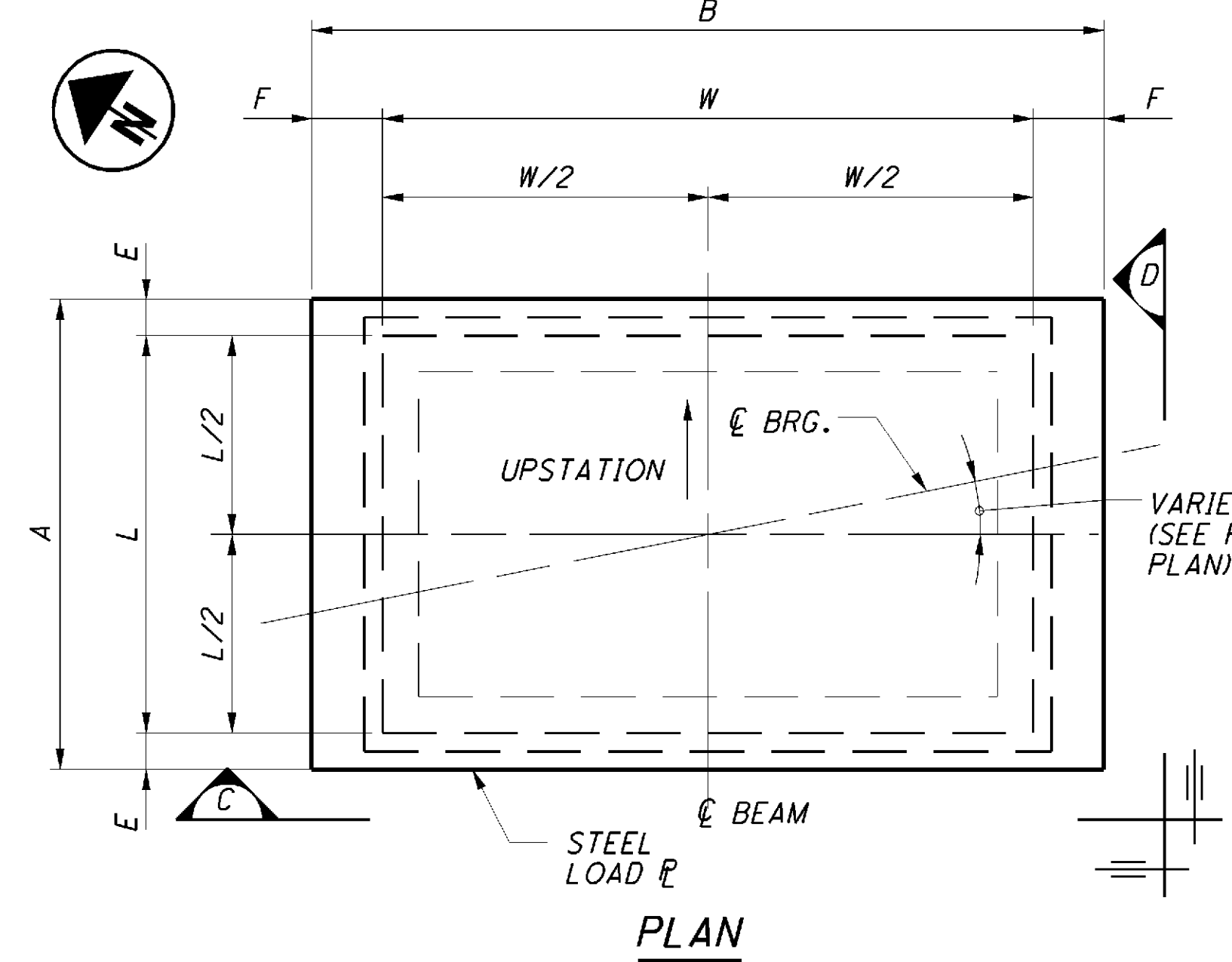
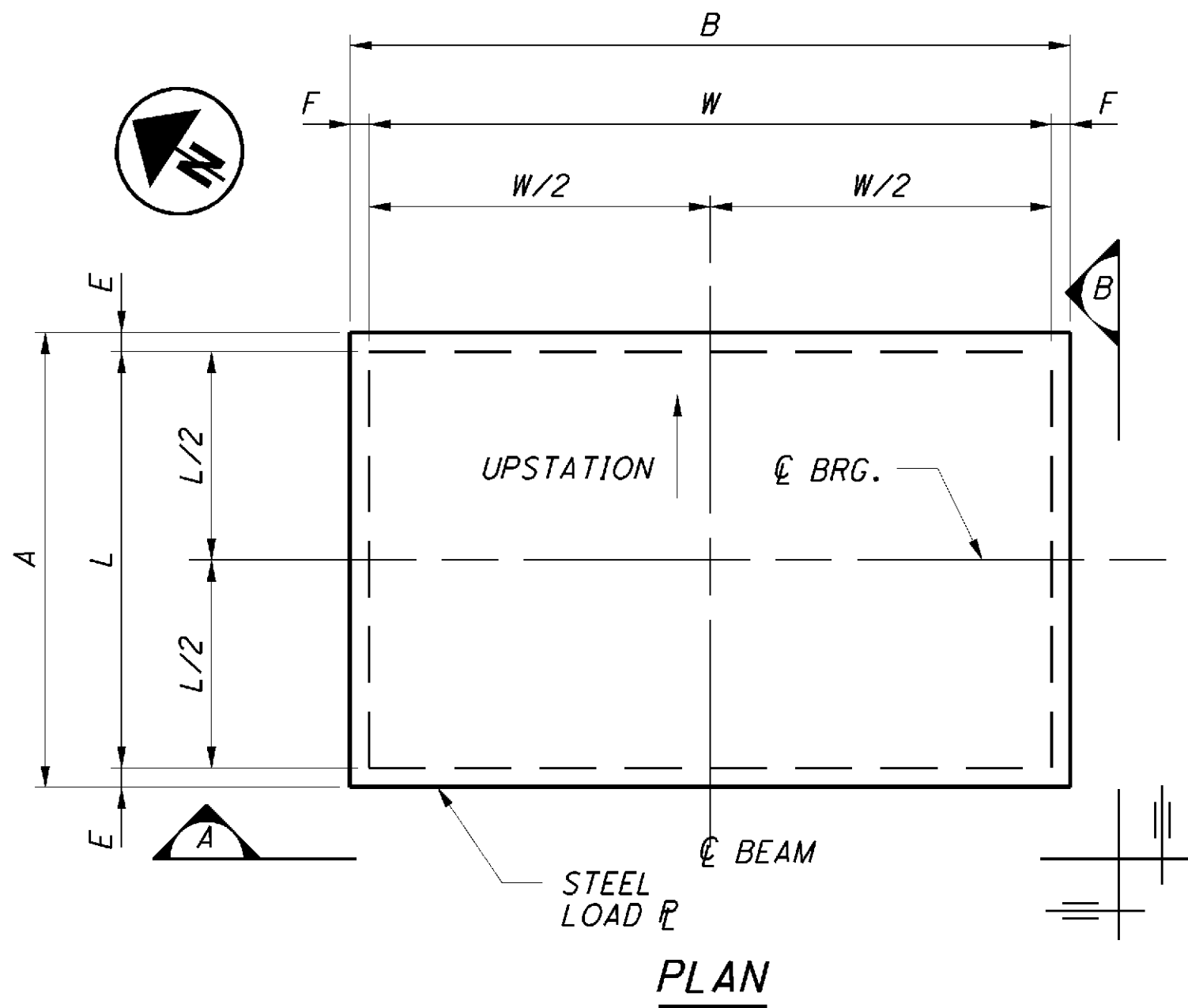
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DESIGNED BY GONNEN GONNEN		DATE 9-26-08	PROJECT NO. MAH-193-0072
DRAWN BY RHC		REVIEWED BY TJW	STRUCTURE FILE NUMBER 5004470
CHECKED BY DUC		DESIGNED BY GONNEN	PROJECT NO. MAH-193-0072
REVISIONS		DATE	DESCRIPTION
BEARING AND MISC. DETAILS BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR			
MAH-193/422 -0.46/1.85 PID No. 25235		22 / 52 184 / 260	

BEARING SCHEDULE

* WITHOUT IMPACT

	LOAD PLATE						ELASTOMERIC PAD						STEEL LAMINATES		STAINLESS STEEL PLATE			STEEL SUBSTRATE PLATE			PTFE SURFACE			TYPE	DEAD LOAD (K)	LIVE * LOAD (K)	TOTAL LOAD (K)	DESIGN ONE-WAY MOVEMENT
	A	B	E @ 60° F	F	G	H	L	W	T	NO. OF INTER. LAYERS	ti	te	NO.	THICK.	Lss	Wss	Tss	Ls	Ws	Ts	Lp	Wp	Tp					
															NO.	THICK.												
REAR. ABUT.	1'-5 1/4"	1'-5 5/8"	4 1/8"	2 5/16"	1 1/2"	1 1/8"	9"	1'-1"	2.44"	6	0.26"	0.18"	7	0.0747"	1'-4 1/4"	1'-2"	1/8"	10"	1'-2"	1 1/4"	9"	1'-1"	1/4"	EXP.	35.9	55.4	112.6	3.10"
PIER 1	1'-9 1/4"	2'-1 5/8"	3 3/8"	2 5/16"	2"	2 1/16"	1'-2"	1'-9"	3.58"	6	0.42"	0.27"	7	0.0747"	1'-8 1/4"	1'-10"	1/8"	1'-3"	1'-10"	1 1/4"	1'-2"	1'-9"	1/4"	EXP.	159.8	69.9	229.7	2.64"
PIER 2	1'-8"	2'-1 5/8"	3"	2 5/16"	2"	2 1/16"	1'-2"	1'-9"	3.58"	6	0.42"	0.27"	7	0.0747"	1'-7"	1'-10"	1/8"	1'-3"	1'-10"	1 1/4"	1'-2"	1'-9"	1/4"	EXP.	175.9	75.7	251.6	1.98"
PIER 3	1'-6 3/4"	2'-1 5/8"	2 3/8"	2 5/16"	2"	2 3/8"	1'-2"	1'-9"	3.58"	6	0.42"	0.27"	7	0.0747"	1'-5 3/4"	1'-10"	1/8"	1'-3"	1'-10"	1 1/4"	1'-2"	1'-9"	1/4"	EXP.	173.8	76.6	250.4	1.32"
PIER 4	1'-3"	1'-10"	1/2"	1/2"	2"	2 3/8"	1'-2"	1'-9"	3.76"	6	0.44"	0.30"	7	0.0747"	-	-	-	-	-	-	-	-	-	EXP.	174.1	76.8	250.9	0.66"
PIER 5	1'-1"	2'-6"	1/2"	4 1/2"	2"	2 1/4"	1'-0"	1'-9"	2.31"	4	0.36"	0.25"	5	0.0747"	-	-	-	-	-	-	-	-	-	FIX.	175.6	77.2	252.8	0
PIER 6	1'-3"	1'-10"	1/2"	1/2"	2"	2 3/8"	1'-2"	1'-9"	3.76"	6	0.44"	0.30"	7	0.0747"	-	-	-	-	-	-	-	-	-	EXP.	171.7	76.3	248.0	0.66"
PIER 7	1'-6 3/4"	2'-1 5/8"	2 3/8"	2 5/16"	2"	2 1/2"	1'-2"	1'-9"	3.58"	6	0.42"	0.27"	7	0.0747"	1'-5 3/4"	1'-10"	1/8"	1'-3"	1'-10"	1 1/4"	1'-2"	1'-9"	1/4"	EXP.	188.8	80.0	268.0	1.32"
PIER 8	1'-8"	2'-1 5/8"	3"	2 5/16"	2"	2 3/8"	1'-2"	1'-9"	3.58"	6	0.42"	0.27"	7	0.0747"	1'-7"	1'-10"	1/8"	1'-3"	1'-10"	1 1/4"	1'-2"	1'-9"	1/4"	EXP.	190.7	88.1	278.8	2.04"
FRWD. ABUT.	1'-4"	1'-5 5/8"	3 1/2"	2 5/16"	1 1/2"	2"	9"	1'-1"	2.44"	6	0.26"	0.18"	7	0.0747"	1'-3"	1'-2"	1/8"	10"	1'-2"	1 1/4"	9"	1'-1"	1/4"	EXP.	41.1	71.5	112.3	2.51"



- NOTES:
- FOR ADDITION NOTES AND DETAILS 1 & 2, SEE SHT. NO. 22/52.
 - THE DESIGN ONE-WAY MOVEMENT VALUES SHOWN IN THE BEARING SCHEDULE REPRESENT THE MAXIMUM MOVEMENT FOR A 90 DEGREE TEMPERATURE DROP FROM 60 DEGREES F TO -30 DEGREES F. THESE VALUES WERE USED TO SET THE REQUIRED Lss DIMENSION.

EXPANSION BEARING DETAIL
PIER NOS. 4 & 6

EXPANSION BEARING WITH SLIDING PLATES DETAIL
REAR & FRWD. ABUTMENTS AND PIER NOS. 1 TO 3, 7 & 8

FIXED BEARING DETAIL
PIER NO. 5

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DESIGN AGENCY: CLAYTON SCHUBERT ENGINEERS & ARCHITECTS, INC.
 GPD ASSOCIATES
 570 South Main Street, Suite 331, Ames, Ohio 44831
 330.252.2100 • Fax: 330.252.2101

DATE: 9-26-08
 REVIEWED: TJW
 DRAWN: RHC
 DESIGNED: GGN
 CHECKED: DJC

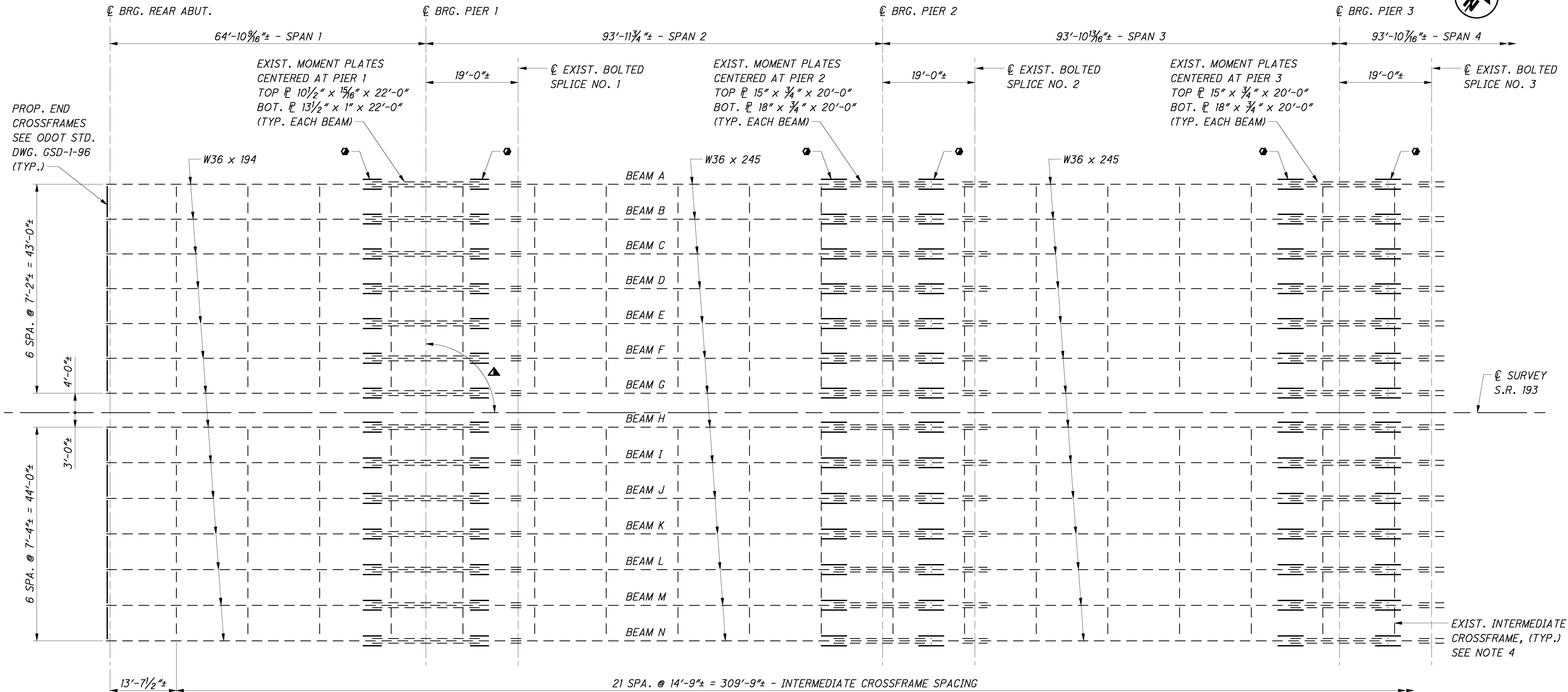
STRUCTURE FILE NUMBER: 5004470

BEARING AND MISC. DETAILS
 BRIDGE NO. MAH-193-0072
 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR

MAH-193/422
 -0.46 / 1.85
 PID No. 25235

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PARTIAL FRAMING PLAN

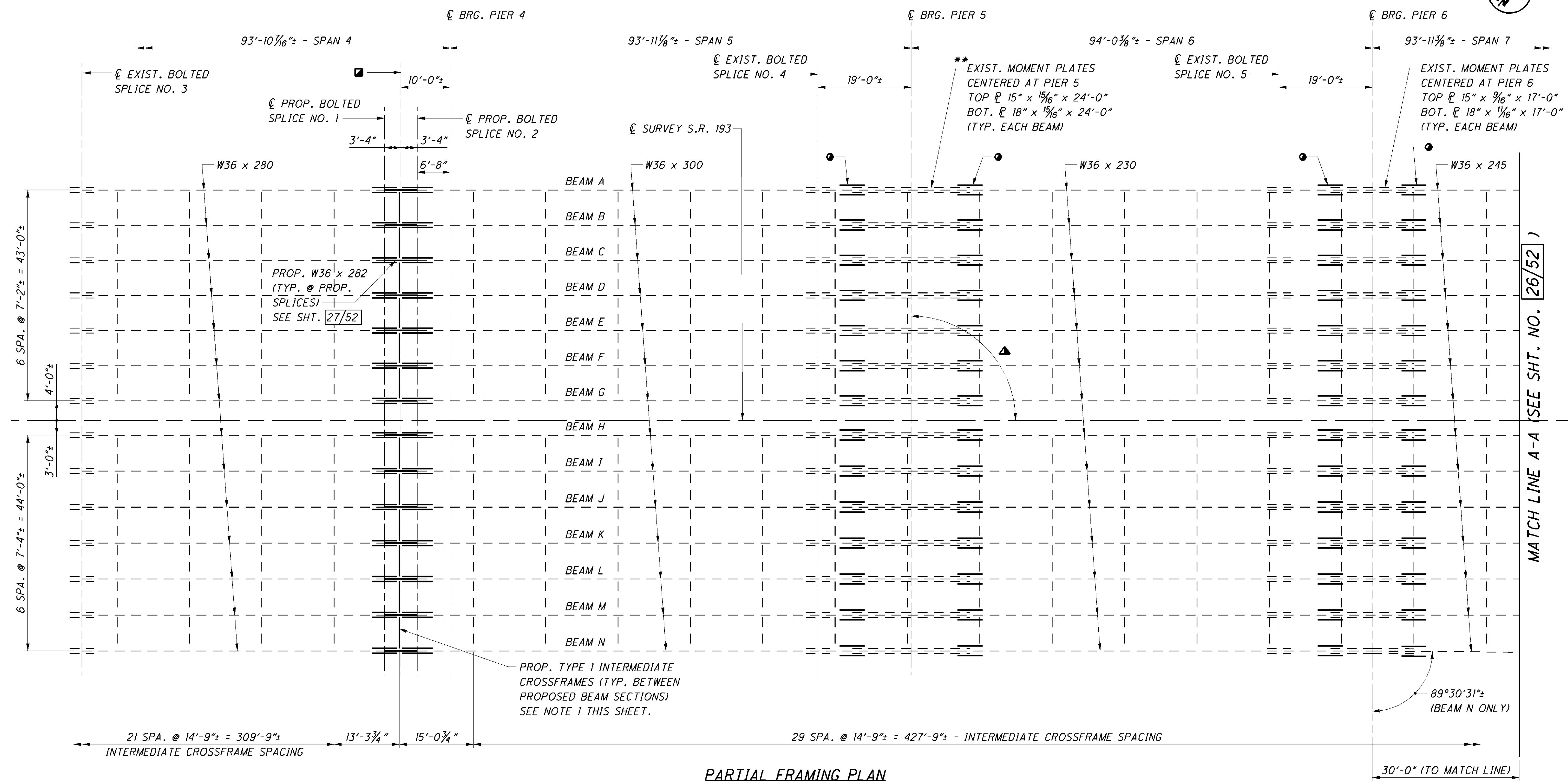
NOTES:

- ALL PROPOSED STRUCTURAL STEEL SHALL BE ASTM A709, GRADE 50.
- INTERMEDIATE CROSSFRAMES ARE NORMAL TO THE CENTERLINE SURVEY S.R. 193.
- FOR MOMENT RETROFIT DETAILS, SEE SHEET 28/52.
- THE CONTRACTOR SHALL RELOCATE EXISTING INTERMEDIATE CROSSFRAME ANGLES THAT INTERFERE WITH THE PLACEMENT OF THE INSIDE PLATES AND BOLTS FOR THE PROPOSED MOMENT PLATE RETROFIT. THE CONFLICTING ANGLE(S) SHALL BE CUT LOOSE FROM THE WEB, RELOCATED AND RE-WELDED TO THE WEB, AS DIRECTED BY THE ENGINEER. WELD MATERIAL REMAINING ON THE BEAM FROM THE ORIGINAL ANGLE LOCATION SHALL BE GROUND SMOOTH AND FLUSH WITH THE WEB. 83 CROSSFRAME LOCATIONS HAVE BEEN ESTIMATED AS BEING IN CONFLICT. THE FULL COST OF THIS WORK SHALL BE INCLUDED WITH THE INSTALLATION OF THE PROPOSED MOMENT PLATE RETROFIT UNDER ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 2, AS PER PLAN.

LEGEND

- PROP. MOMENT PLATE RETROFIT - SEE DETAIL & TABLE SHEET 28/52
- 90°00'00" (TYP. U.N.O.)

	<small>DESIGN AGENCY</small> GPD ASSOCIATES <small>330 South Main Street, Suite 233, Akron, Ohio 44311 330.575.2100, Fax 330.575.2101</small>
<small>DATE</small> 9-26-08	<small>REVIEWED</small> GGN
<small>DESIGNED</small> T.J.W.	<small>STRUCTURE FILE NUMBER</small> 5004970
<small>DRAWN</small> D.J.C.	<small>REVISION</small> REVISED
PARTIAL FRAMING PLAN BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR	
MAH-193/422 -0.46 / 1.85 PID No. 25235	24 / 52
186 260	



PARTIAL FRAMING PLAN

LEGEND

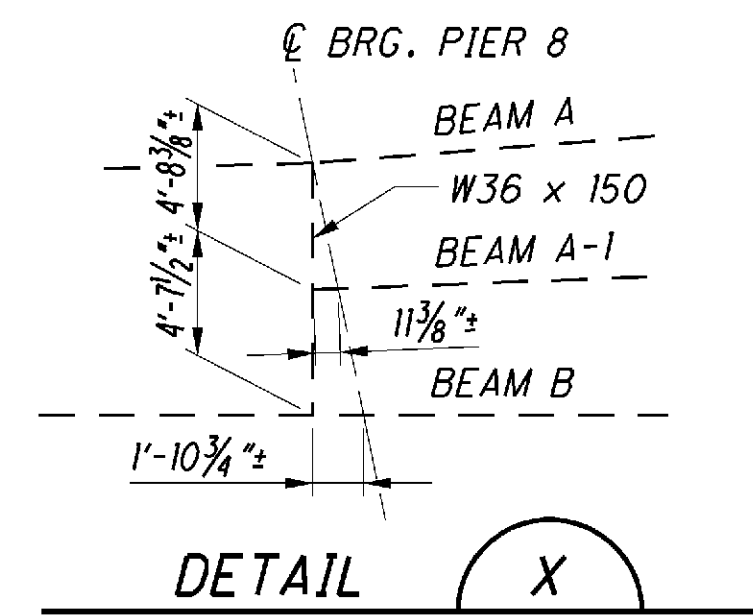
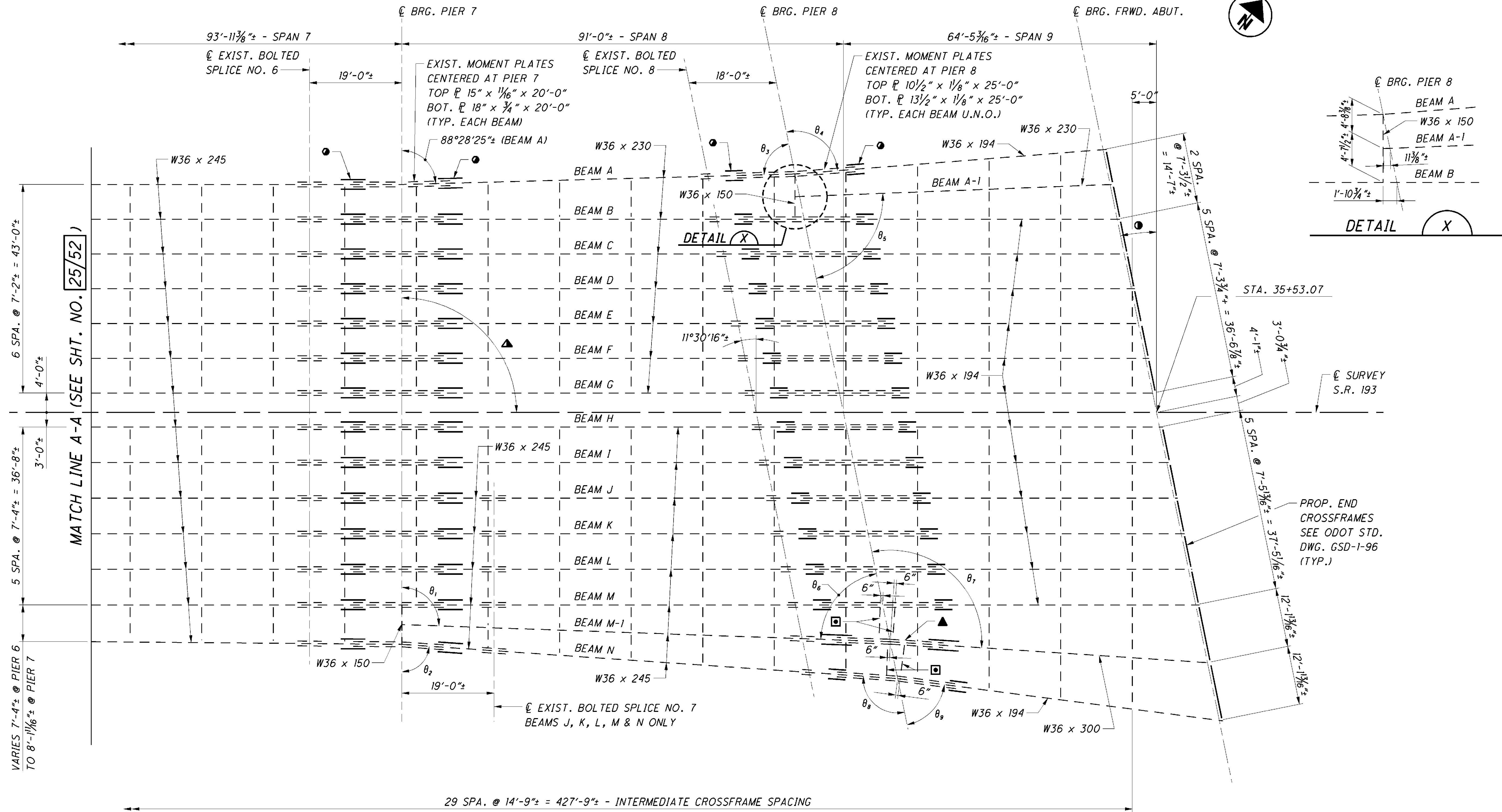
- ◻ CL EXIST. INTERMEDIATE HINGE (TO BE REMOVED)
- PROP. MOMENT PLATE RETROFIT - SEE DETAIL & TABLE SHEET 28/52
- ▲ 90°00'00" (TYP. U.N.O.)
- ** CONTRACTOR TO VERIFY IF TOP PLATE THICKNESS IS 1⁵/₁₆" OR 1³/₁₆"

NOTES:

1. PROPOSED INTERMEDIATE CROSSFRAMES AT THE LOCATION OF THE NEW BEAM SECTION AS SHOWN IN THE PLAN SHALL BE TYPE 1 ACCORDING TO ODOT STD. DWG. GSD-1-96.
2. FOR PROPOSED BOLTED SPLICE DETAILS, SEE SHEET 27/52.
3. FOR ADDITIONAL NOTES, SEE SHEET 24/52.

\\\NF01\DATA\CIVIL\2007\13\MAH-25235\STRUCTURES\MAH193_0072C\SHEETS\193_0072C50602.DGN
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PARTIAL FRAMING PLAN

TABLE OF EXISTING BEAM ANGLES

LOCATION	BEAM	SPAN	DEFLECTION ANGLE
PIER 7	M-1	8	$\theta_1 = 92^\circ 00' 30'' \pm$
PIER 7	N	8	$\theta_2 = 86^\circ 03' 00'' \pm$
PIER 8	A	8	$\theta_3 = 80^\circ 01' 19'' \pm$
PIER 8	A	9	$\theta_4 = 96^\circ 59' 19'' \pm$
PIER 8	A-1	9	$\theta_5 = 80^\circ 44' 00'' \pm$
PIER 8	M-1	8	$\theta_6 = 76^\circ 29' 14'' \pm$
PIER 8	M-1	9	$\theta_7 = 105^\circ 16' 39'' \pm$
PIER 8	N	8	$\theta_8 = 105^\circ 27' 16'' \pm$
PIER 8	N	9	$\theta_9 = 71^\circ 04' 48'' \pm$

LEGEND

- ▲ 90°00'00" (TYP. U.N.O.)
- PROP. MOMENT PLATE RETROFIT - SEE DETAIL & TABLE SHEET 25/52
- 11°30'16"± SKEW (TYP. @ PIER 8 & FRWD. ABUT.)
- ▲ EXIST. MOMENT PLATES CENTERED AT PIER 8
 TOP PL 15" x 1 5/8" x 22'-0"
 BOT. PL 18" x 1 7/8" x 22'-0"
 (BEAM M-1 ONLY) - CONTRACTOR TO VERIFY IF TOP PLATE THICKNESS IS 1 5/8" OR 1 7/8" PRIOR TO SPLICE PLATE FABRICATION
- 4-Ls 3 1/2" x 3 1/2" x 3/8" @ LOCATIONS SHOWN ONLY

NOTES:
 1. FOR ADDITIONAL NOTES, SEE SHEET 24/52.

DESIGN AGENCY
 CLAYTON SCHUBERT BURNS & CREW, INC.
 GPD ASSOCIATES
 570 South Main Street, Suite 1311, Ames, Ohio 44831
 330.972.1200 Fax: 330.972.1201

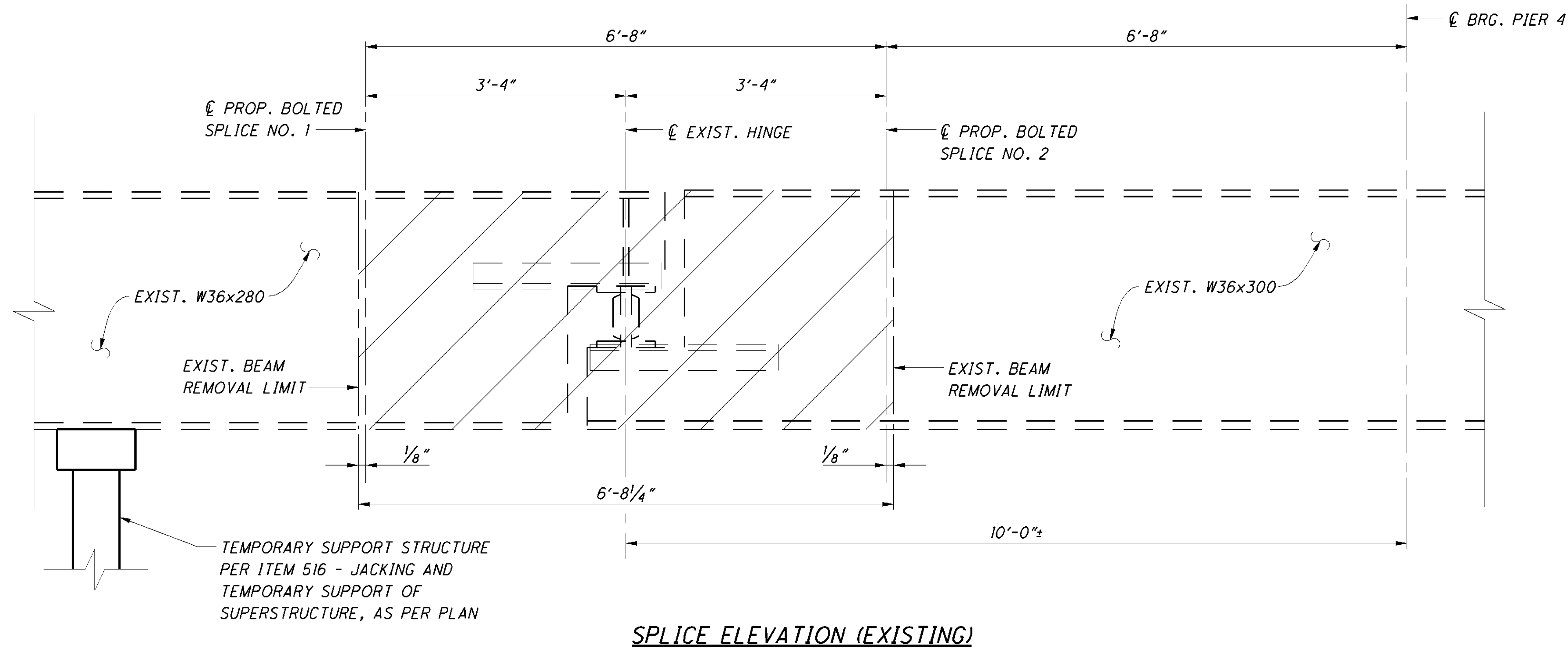
DATE	9-26-08	REVIEWED	CGN
STRUCTURE FILE NUMBER	5004470	DRAWN	DJC
CHECKED	DJC	DESIGNED	TJW

PARTIAL FRAMING PLAN
 BRIDGE NO. MAH-193-0072
 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR

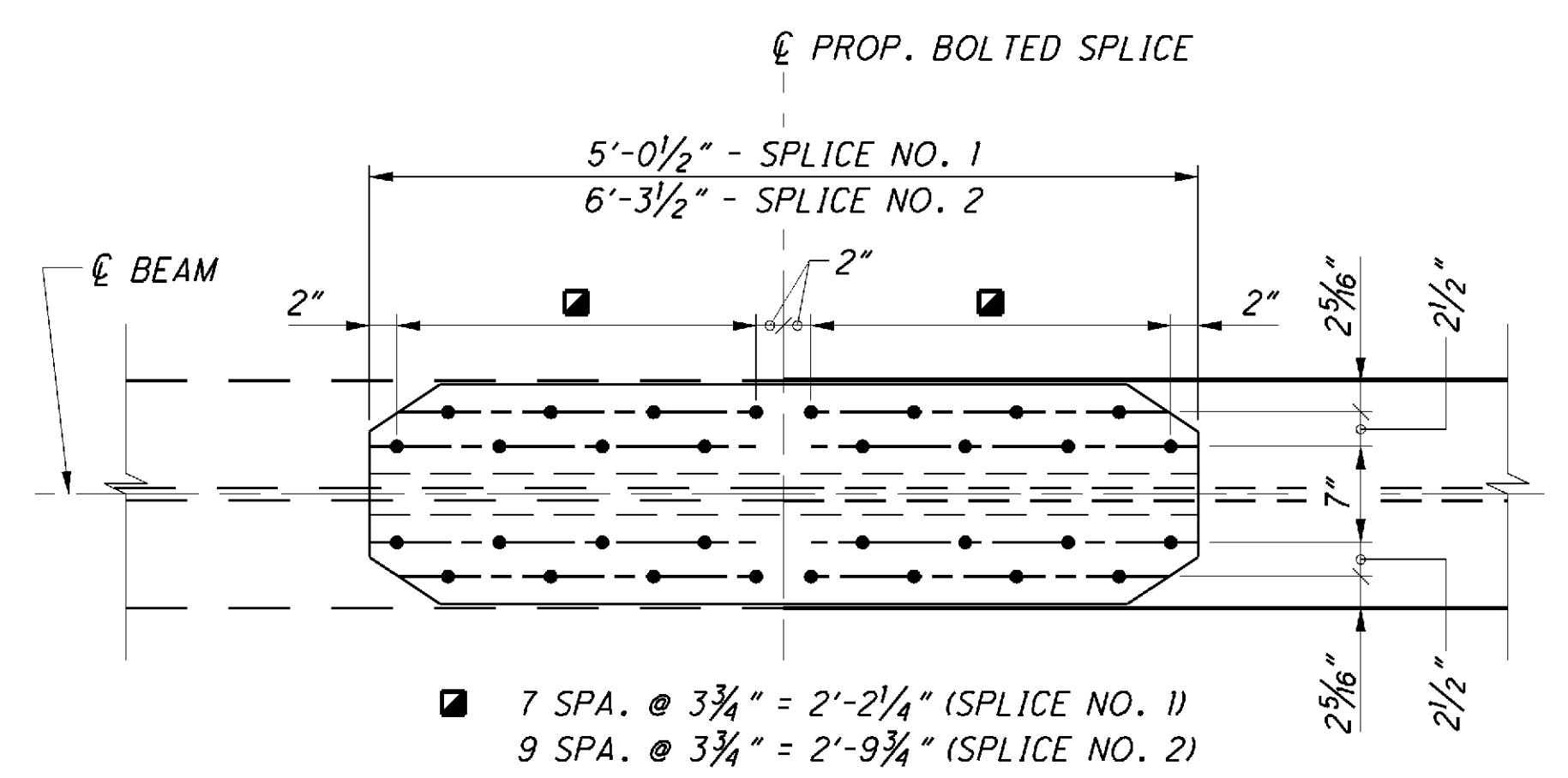
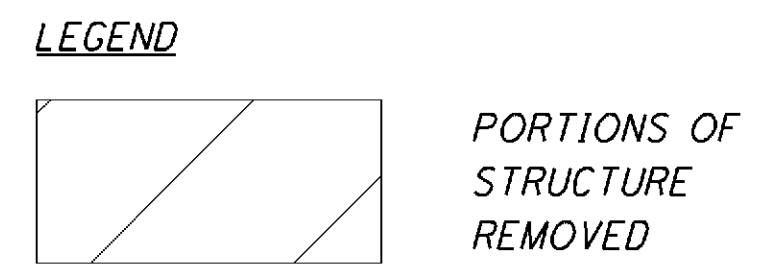
MAH-193/422
-0.46/1.85
 PID No. 25235

26 / 52

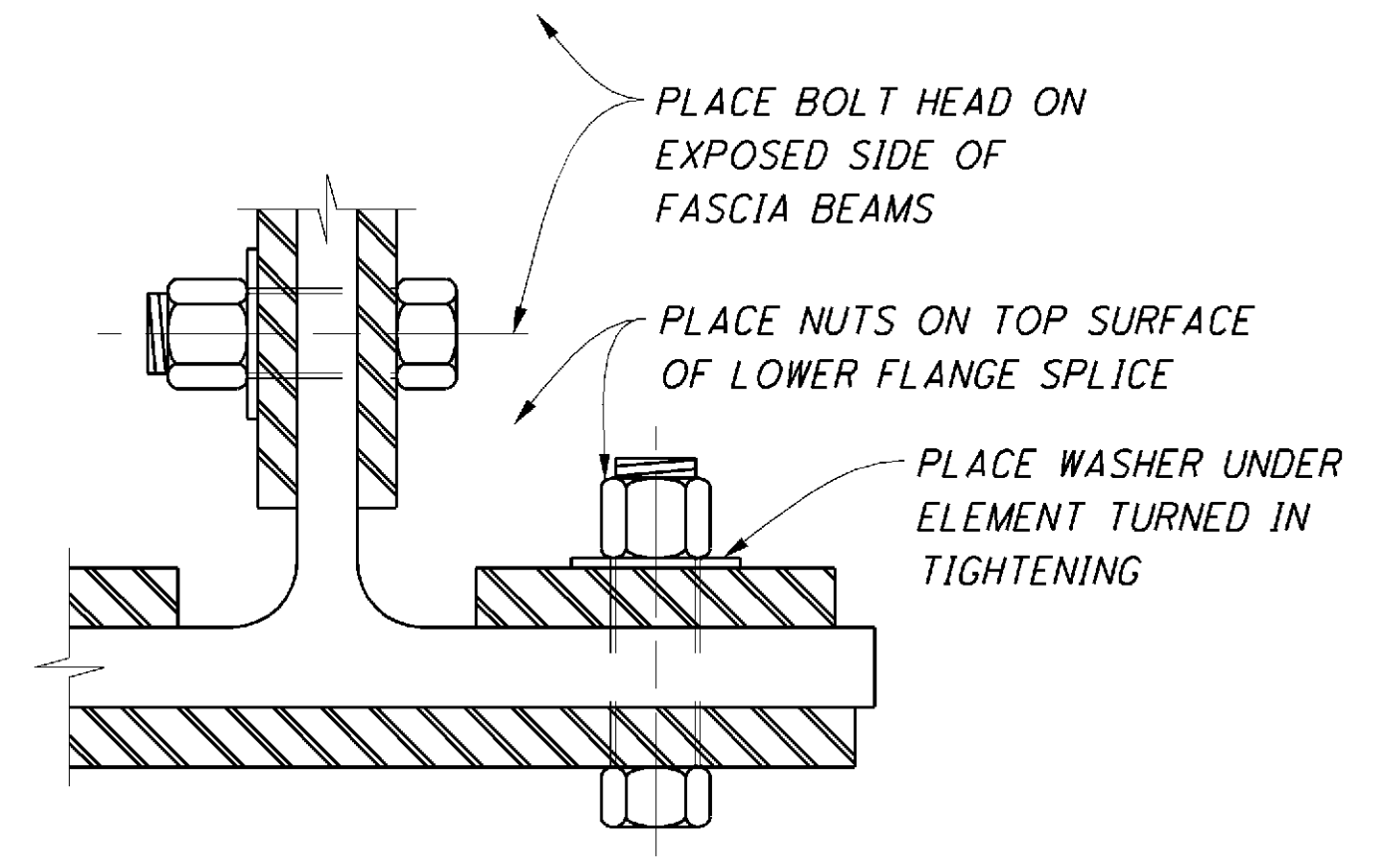
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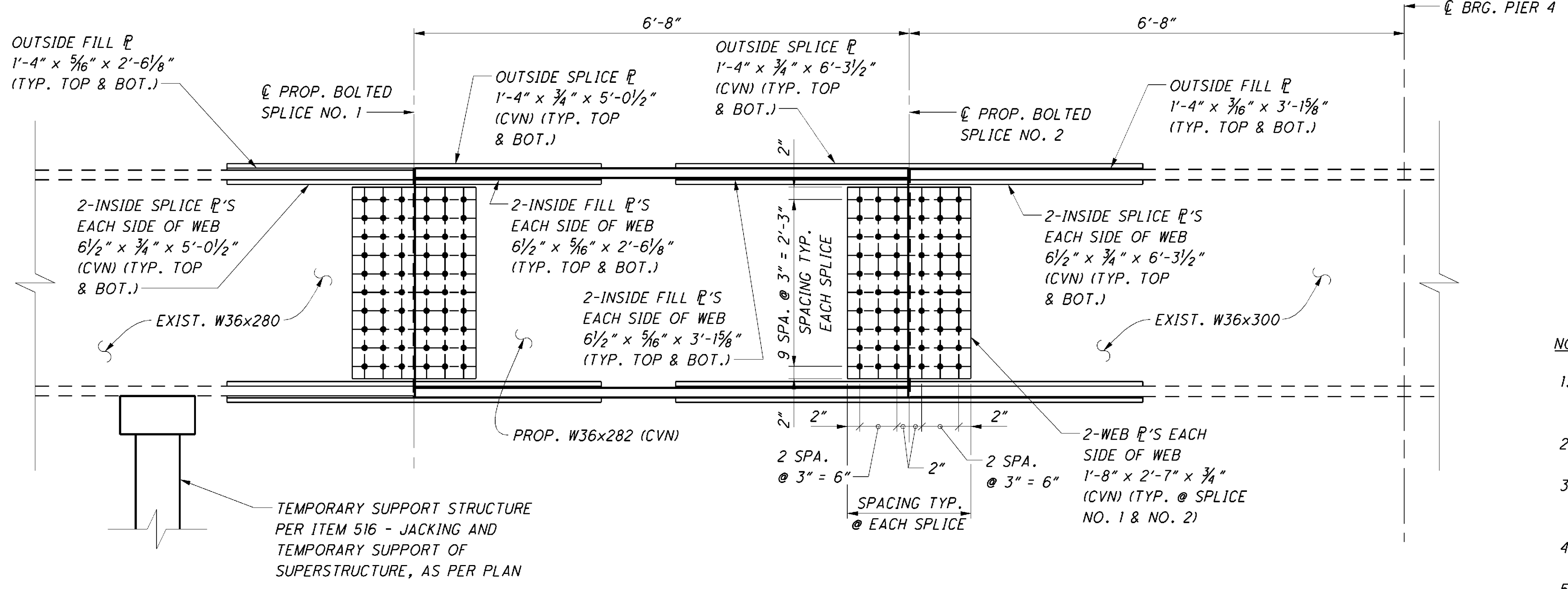
SPlice Elevation (Existing)



FLANGE SPLICE PLATE (TYP. TOP & BOTTOM)



PARTIAL SECTION AT CL OF BEAM SPLICE



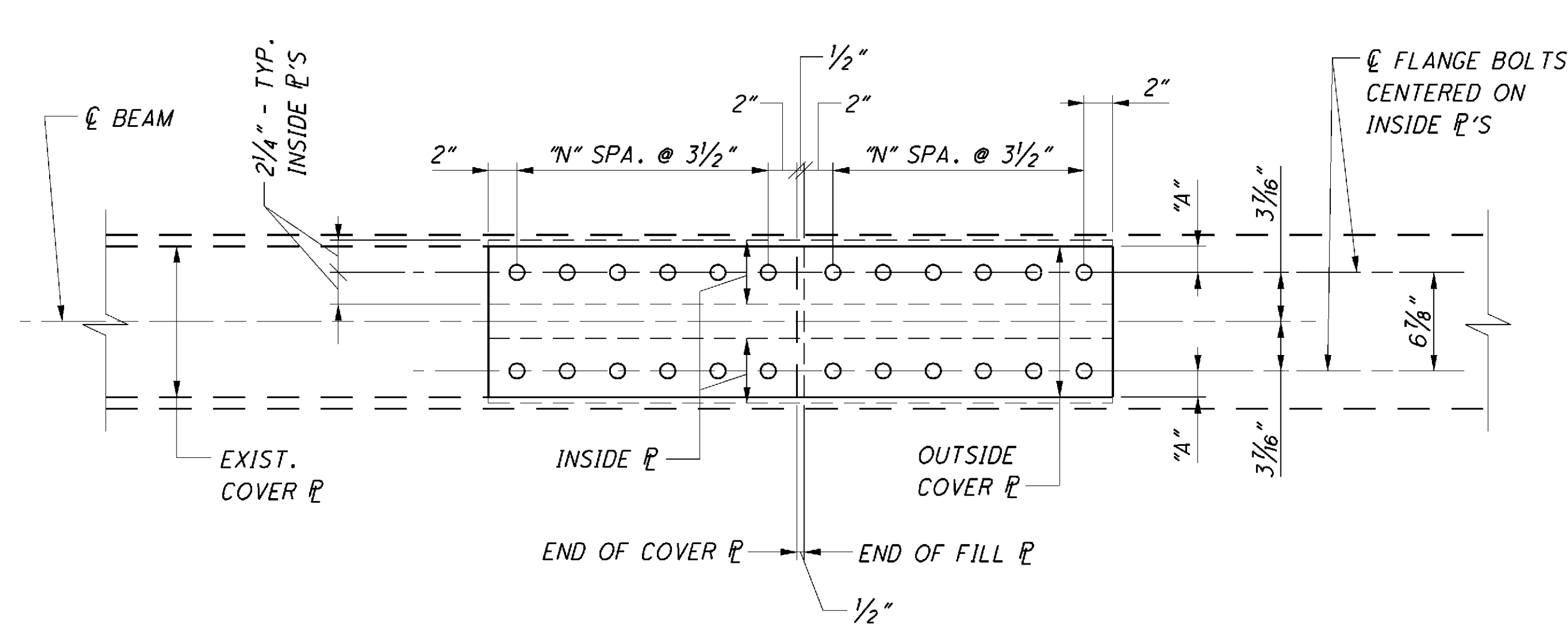
SPlice Elevation (Proposed)

NOTES:

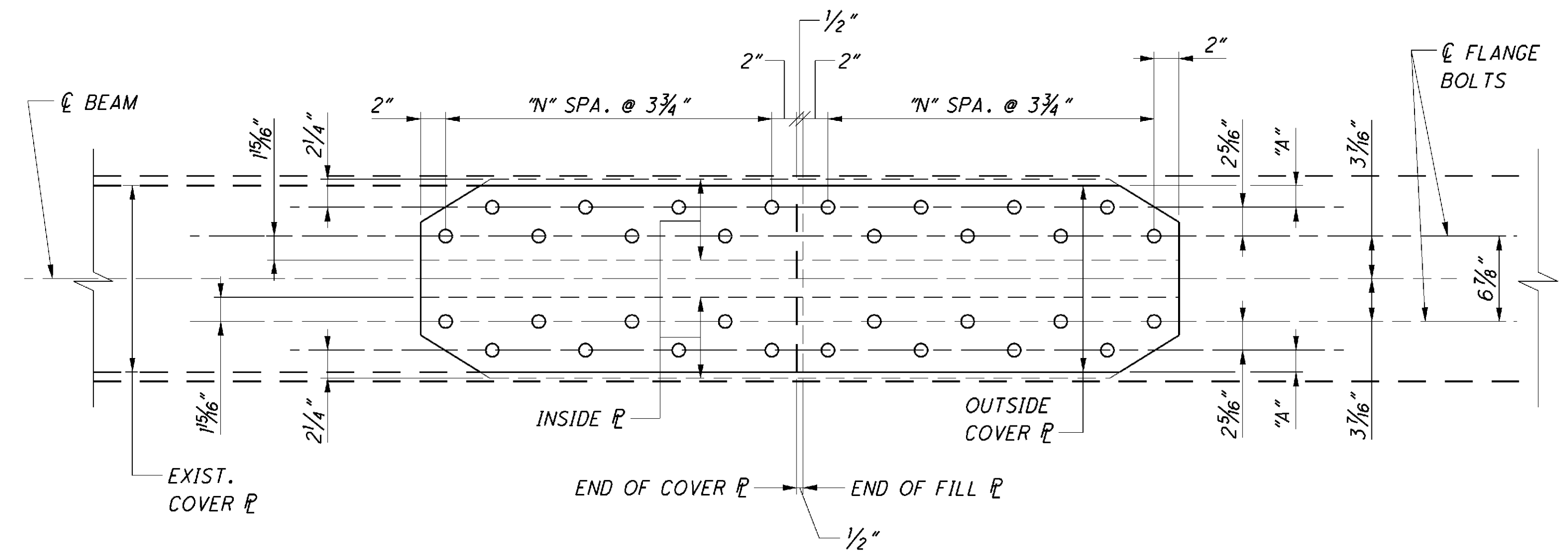
1. CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
2. HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER A325 UNLESS OTHERWISE NOTED.
3. ALL BOLT HOLES FOR 1" DIAMETER HIGH STRENGTH BOLTS SHALL BE 1/16" DIAMETER.
4. ALL PROPOSED STRUCTURAL STEEL SHALL BE ASTM A709, GRADE 50.
5. FOR FRAMING PLAN, SEE SHEET NO. 25/52.

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 GPD ASSOCIATES 520 South Main Street, Suite 3331, Akron, Ohio 44311 330.252.5200 • Fax: 330.252.5201	DATE 9-26-08	REVIEWED GGN	STRUCTURE FILE NUMBER 5004470	DESIGNED T.J.W.	CHECKED D.J.C.	DRAWN D.J.C.	REVISIONS
PROPOSED FIELD SPLICE DETAILS BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR							
MAH-193/422 -0.46/1.85 PID No. 25235		27/52		189 260			



COVER PLATE RETROFIT FOR NOMINAL 12" WIDE FLANGE
TOP FLANGE SHOWN, BOTTOM FLANGE SIMILAR - SEE TABLE THIS SHEET



COVER PLATE RETROFIT FOR NOMINAL 16" WIDE FLANGE
TOP FLANGE SHOWN, BOTTOM FLANGE SIMILAR - SEE TABLE THIS SHEET

COVER PLATE RETROFIT PLATE SCHEDULE

PIER	BEAM	NOM. FLANGE WIDTH	TOP FLANGE				BOTTOM FLANGE					
			"N" SPA.	OUTSIDE PLATE		INSIDE PLATES	"N" SPA.	OUTSIDE PLATE		INSIDE PLATES		
				SPLICE PLATE	FILL PLATE			DIM "A"	SPLICE PLATE		FILL PLATE	DIM "A"
1	A THRU N	12"	5	10 1/2" x 9/16" x 3'-7 1/2"	10 1/2" x 15/16" x 1'-9 1/2"	1 3/16"	4 1/2" x 5/8" x 3'-7 1/2"	7	12" x 9/16" x 4'-9 1/2"	12" x 1" x 2'-4 1/2"	2 9/16"	4 1/2" x 5/8" x 4'-9 1/2"
2 & 3	A THRU N	16"	7	15" x 9/16" x 5'-1"	15" x 3/4" x 2'-6 1/4"	1 3/4"	6 1/2" x 5/8" x 5'-1"	9	16" x 1/2" x 6'-4"	16" x 3/4" x 3'-1 3/4"	2 1/4"	6 1/2" x 9/16" x 6'-4"
5	A THRU N	16"	7	15" x 1/2" x 5'-1"	15" x 1 3/16" x 2'-6 1/4" ** 15" x 1/8" x 2'-6 1/4"	1 3/4"	6 1/2" x 9/16" x 5'-1"	9	16" x 1/2" x 6'-4"	16" x 15/16" x 3'-1 3/4"	2 1/4"	6 1/2" x 9/16" x 6'-4"
6	A THRU N	16"	7	15" x 9/16" x 5'-1"	15" x 9/16" x 2'-6 1/4"	1 3/4"	6 1/2" x 1 1/16" x 5'-1"	9	16" x 1/2" x 6'-4"	16" x 1 1/16" x 3'-1 3/4"	2 1/4"	6 1/2" x 9/16" x 6'-4"
7 LT	A THRU G	16"	7	15" x 1/2" x 5'-1"	15" x 1 1/16" x 2'-6 1/4"	1 3/4"	6 1/2" x 9/16" x 5'-1"	9	16" x 1/2" x 6'-4"	16" x 3/4" x 3'-1 3/4"	2 1/4"	6 1/2" x 9/16" x 6'-4"
7 RT	H THRU M, N	16"	7	15" x 9/16" x 5'-1"	15" x 1 1/16" x 2'-6 1/4"	1 3/4"	6 1/2" x 5/8" x 5'-1"	9	16" x 1/2" x 6'-4"	16" x 3/4" x 3'-1 3/4"	2 1/4"	6 1/2" x 9/16" x 6'-4"
8	A, B THRU M, N	12"	5	10 1/2" x 9/16" x 3'-7 1/2"	10 1/2" x 1 1/8" x 1'-9 1/2"	1 3/16"	4 1/2" x 5/8" x 3'-7 1/2"	7	12" x 5/8" x 4'-9 1/2"	12" x 1 1/8" x 2'-4 1/2"	2 9/16"	4 1/2" x 3/4" x 4'-9 1/2"
8	M-1	16"	9	15" x 3/4" x 6'-4"	15" x 1 3/16" x 3'-1 3/4" ** 15" x 1/8" x 3'-1 3/4"	1 3/4"	6 1/2" x 1 1/16" x 6'-4"	11	16" x 9/16" x 7'-7"	16" x 7/8" x 3'-9 1/4"	2 1/4"	6 1/2" x 3/4" x 7'-7"

** CONTRACTOR SHALL VERIFY THE EXISTING TOP FLANGE COVER PLATE THICKNESS AND PROVIDE THE SUPPLEMENTAL 1/8" FILL PLATE AS NECESSARY.

NOTES:

1. THE PROPOSED INSIDE AND OUTSIDE PLATES FOR THE MOMENT PLATE RETROFITS SHALL BE DESIGNATED "CVN".
2. ALL BOLTS FOR THE MOMENT RETROFITS SHALL BE 1" DIAMETER, A325 HIGH STRENGTH BOLTS.
3. FOR FRAMING PLAN, SEE SHEET NOS. 24/52 THRU 26/52.
4. FOR ADDITIONAL NOTES, SEE SHEET NO. 27/52.

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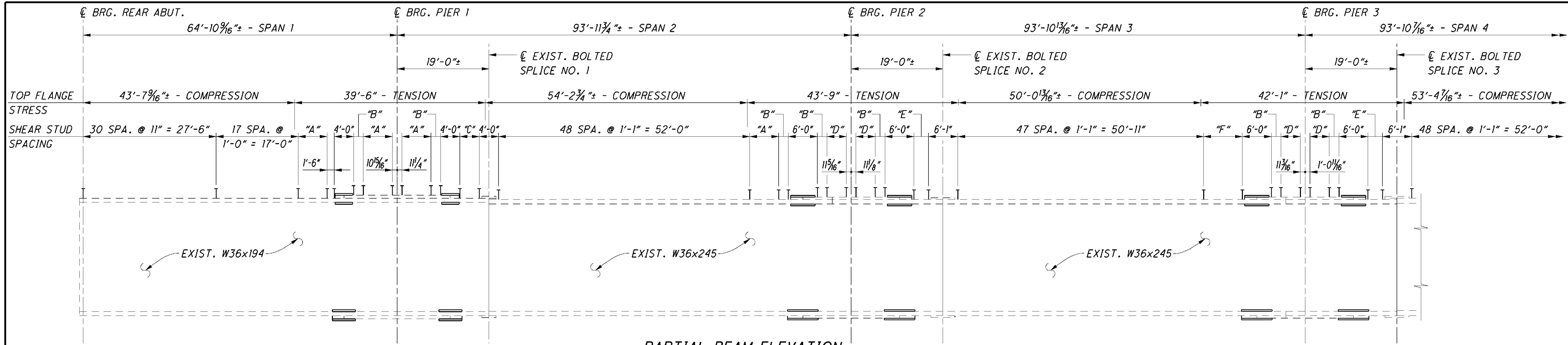
DESIGN AGENCY: CLAYTON SCHROEDER BURNS & CREW, INC.
 GPD ASSOCIATES
 570 South Main Street, Suite 1311, Akron, Ohio 44311
 (330) 241-2100, Fax: (330) 241-2101

DESIGNED	TJW	CHECKED	DJC
DRAWN	DJC	REVISED	
REVIEWED	GGN	STRUCTURE FILE NUMBER	5004470
DATE	9-26-08		

MAH-193/422
 -0.46/1.85
 PID No. 25235

MISCELLANEOUS SUPERSTRUCTURE DETAILS
 BRIDGE NO. MAH-193-0072
 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR

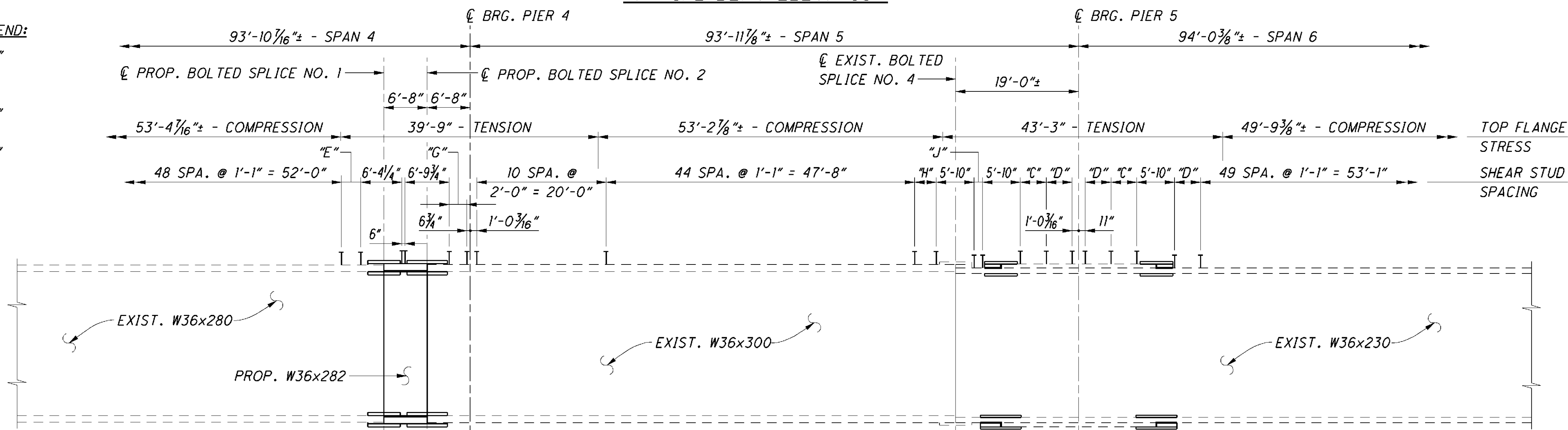
28 / 52
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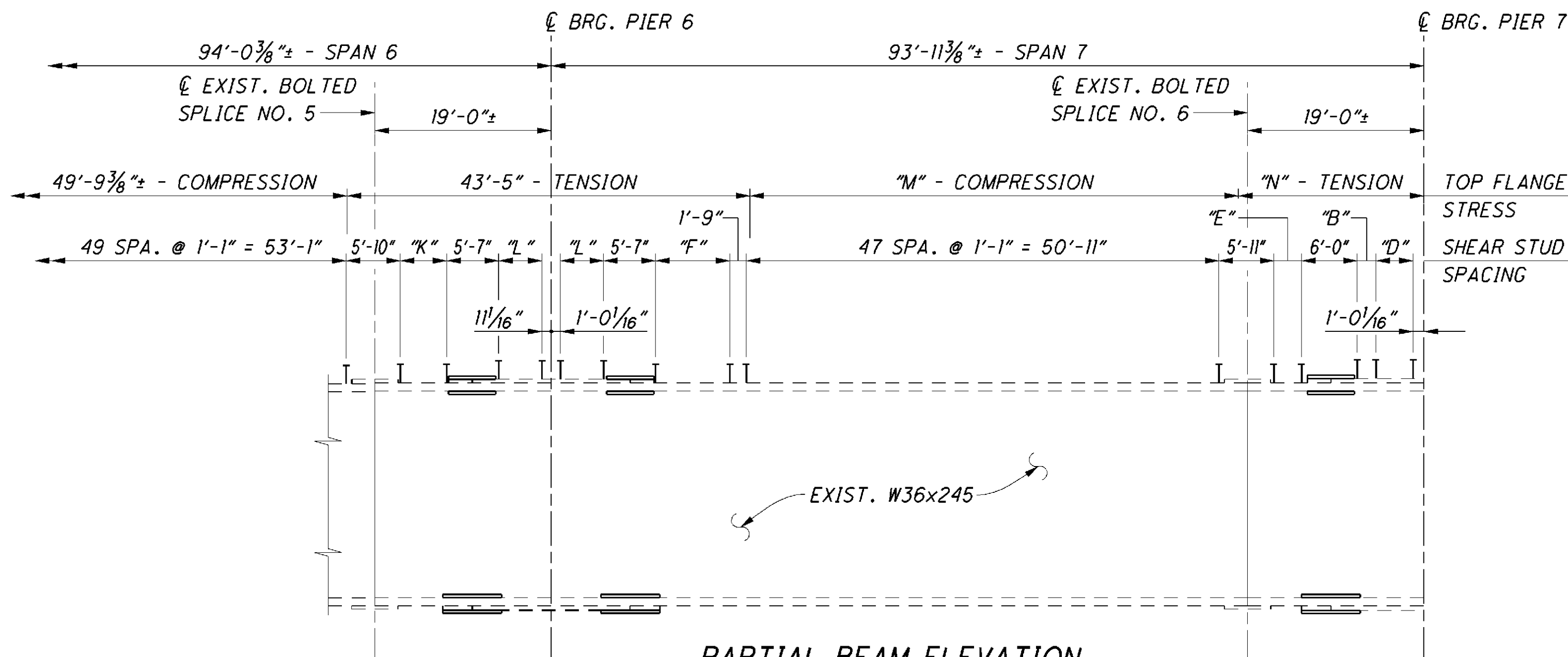
PARTIAL BEAM ELEVATION

SHEAR STUD DIMENSION LEGEND:

- "A" = 3 SPA. @ 2'-0" = 6'-0"
- "B" = 2 SPA. @ 1'-0" = 2'-0"
- "C" = 4 SPA. @ 1'-0" = 4'-0"
- "D" = 2 SPA. @ 2'-0" = 4'-0"
- "E" = 4 SPA. @ 9" = 3'-0"
- "F" = 4 SPA. @ 2'-0" = 8'-0"
- "G" = 3 SPA. @ 11" = 2'-9"
- "H" = 5 SPA. @ 8" = 3'-4"
- "J" = 2 SPA. @ 8" = 1'-4"
- "K" = 5 SPA. @ 1'-0" = 5'-0"
- "L" = 4 SPA. @ 1'-2" = 4'-8"



PARTIAL BEAM ELEVATION



PARTIAL BEAM ELEVATION

FOR DIMENSIONS "M" & "N", SEE TABLE THIS SHEET

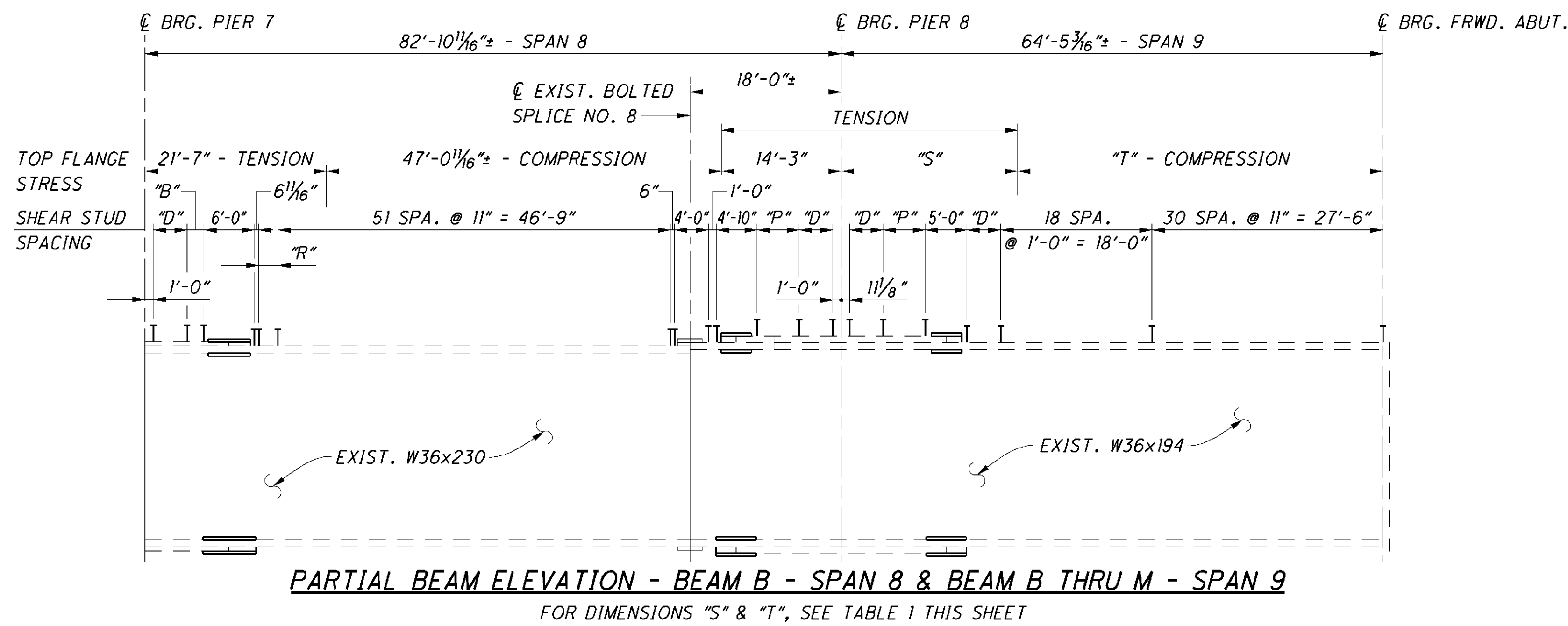
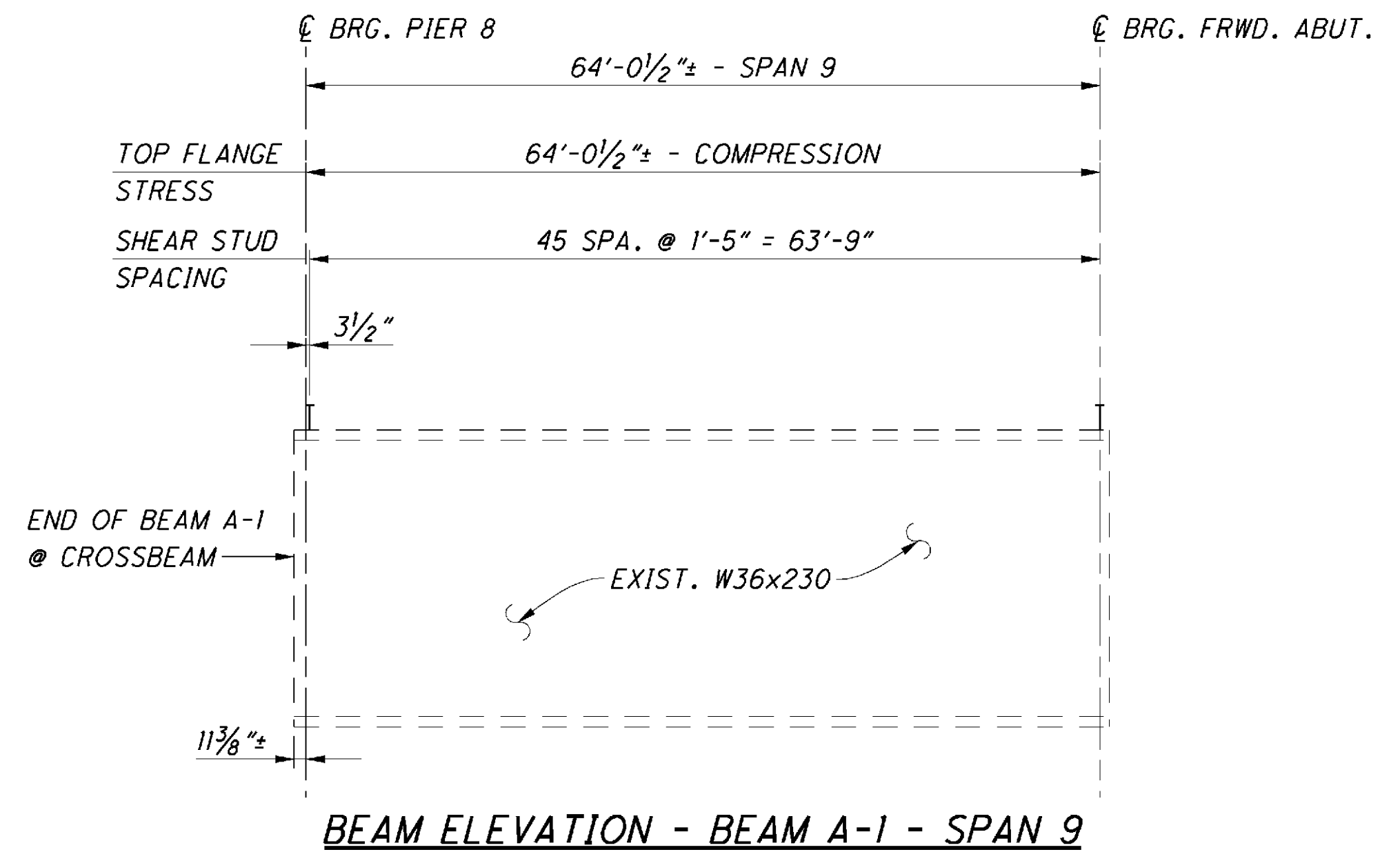
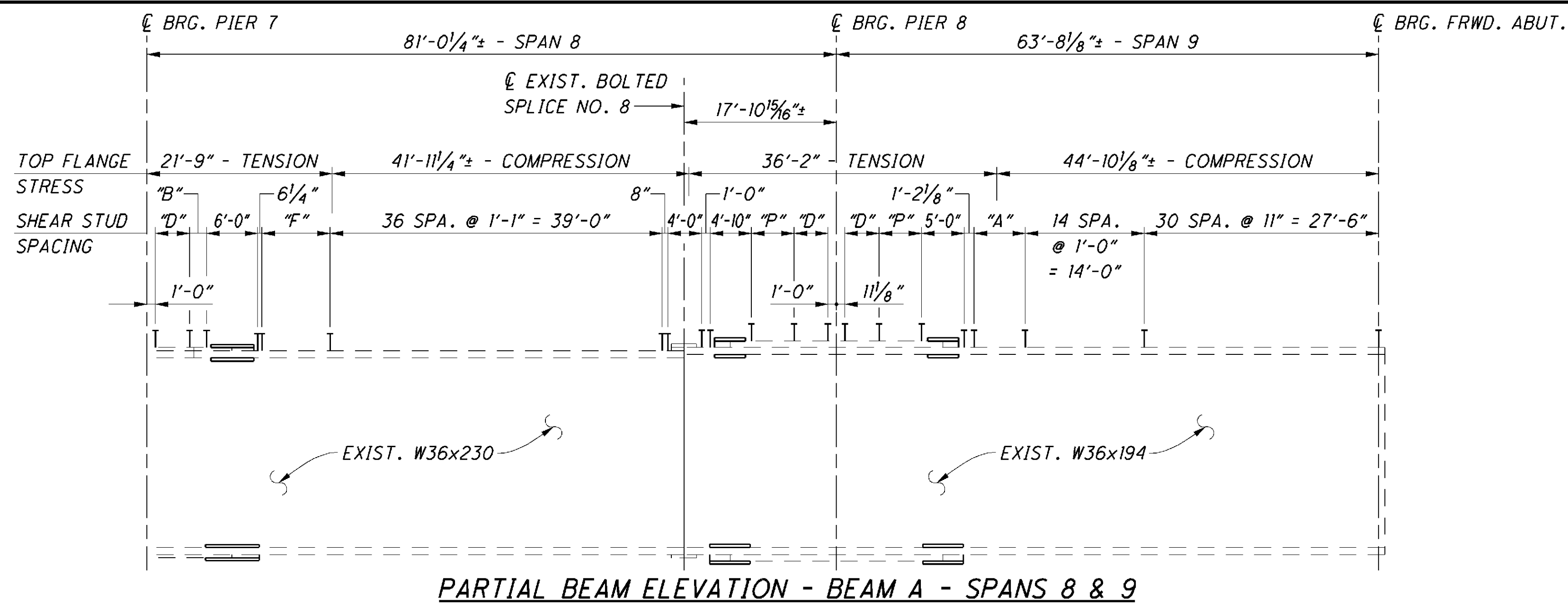
TABLE OF SPAN 7 TOP FLANGE STRESS DIMENSIONS		
BEAM	DIM "M"	DIM "N"
A	53'-5 3/8"±	19'-1"
B	52'-5 3/8"±	20'-1"
C	52'-10 3/8"±	19'-8"
D	52'-11 3/8"±	19'-7"
E	52'-9 3/8"±	19'-9"
F	52'-1 3/8"±	20'-5"
G	51'-8 3/8"±	20'-10"
H	51'-0 3/8"±	21'-6"
I	50'-7 3/8"±	21'-11"
J	50'-2 3/8"±	22'-4"
K	49'-9 3/8"±	22'-9"
L	49'-4 3/8"±	23'-2"
M	50'-6 3/8"±	22'-0"
N	50'-10 3/8"±	21'-8"

NOTES:

1. WELD ATTACHMENTS OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE NO MORE THAN 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 5/16" FOR GREATER THAN 3/4" THICK.
2. EXISTING AND PROPOSED WEB SPLICE PLATES NOT SHOWN.
3. FOR BEAM ELEVATIONS FOR SPANS 8 & 9, SEE SHEETS [30/52] THRU [31/52].
4. FOR DETAILS OF PROPOSED BOLTED SPLICES NO. 1 & NO. 2, SEE SHEET [27/52].
5. FOR EXISTING MOMENT PLATE RETROFIT DETAILS, SEE SHEET [28/52].

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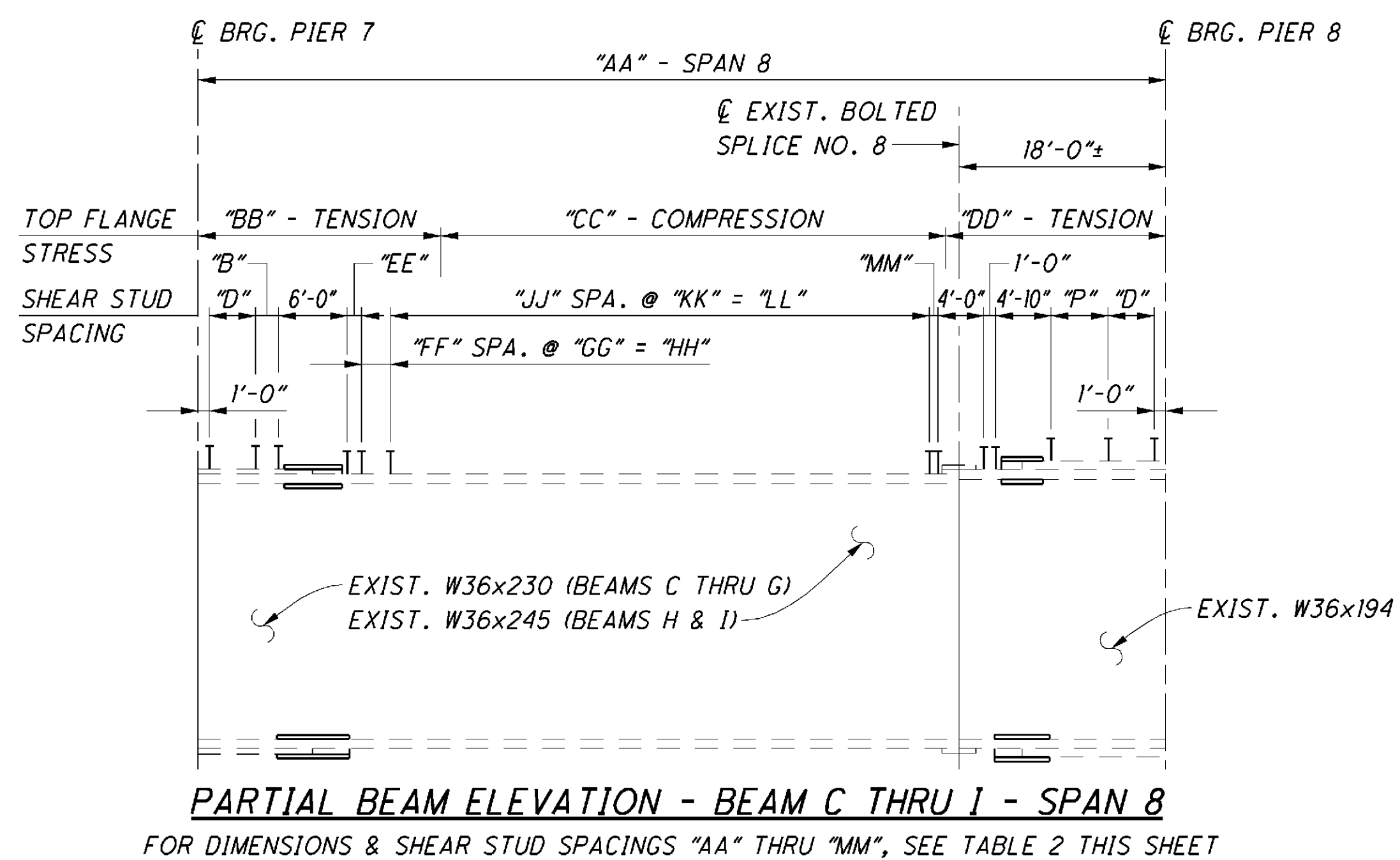
DESIGN AGENCY: CLAYTON ENGINEERING & DESIGN, INC.
 570 South Main Street, Suite 1311, Akron, Ohio 44311
 330.974.2100 • FAX 330.974.2101
GPD ASSOCIATES
 DATE: 9-26-08
 REVIEWED: GGN
 DRAWN: DJC
 DESIGNED: TJW
 CHECKED: DJC
 STRUCTURE FILE NUMBER: 5004470
BEAM ELEVATIONS
 BRIDGE NO. MAH-193-0072
 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR
MAH-193/422
-0.46/1.85
PID No. 25235
 29/52
 191
 260



SHEAR STUD DIMENSION LEGEND:

- "A" = 3 SPA. @ 2'-0" = 6'-0"
- "B" = 2 SPA. @ 1'-0" = 2'-0"
- "D" = 2 SPA. @ 2'-0" = 4'-0"
- "F" = 4 SPA. @ 2'-0" = 8'-0"
- "P" = 4 SPA. @ 1'-3" = 5'-0"
- "R" = 3 SPA. @ 9" = 2'-3"

BEAM	DIM "S"	DIM "T"
B	19'-8"	44'-9 ³ / ₁₆ "±
C	19'-5"	45'-0 ³ / ₁₆ "±
D	19'-0"	45'-5 ³ / ₁₆ "±
E	19'-2"	45'-3 ³ / ₁₆ "±
F	20'-1"	44'-4 ³ / ₁₆ "±
G	20'-7"	43'-10 ³ / ₁₆ "±
H	20'-11"	43'-6 ³ / ₁₆ "±
I	21'-6"	42'-11 ³ / ₁₆ "±
J	22'-0"	42'-5 ³ / ₁₆ "±
K	22'-6"	41'-11 ³ / ₁₆ "±
L	23'-1"	41'-4 ³ / ₁₆ "±
M	20'-5"	44'-0 ³ / ₁₆ "±



BEAM	"AA"	"BB"	"CC"	"DD"	"EE"	"FF"	"GG"	"HH"	"JJ"	"KK"	"LL"	"MM"
C	84'-4 ³ / ₁₆ "±	21'-2"	44'-0 ³ / ₁₆ "±	19'-2"	1'-3 ³ / ₁₆ "	3	10"	2'-6"	47	1'-0"	47'-0"	9"
D	85'-9 ³ / ₄ "±	21'-8"	45'-0 ³ / ₄ "±	19'-1"	1'-7 ³ / ₄ "	2	1'-4"	2'-8"	48	1'-0"	48'-0"	8"
E	87'-3 ¹ / ₄ "±	21'-8"	45'-6 ¹ / ₄ "±	20'-1"	1'-0 ¹ / ₄ "	2	2'-0"	4'-0"	45	1'-1"	48'-9"	8"
F	88'-8 ³ / ₄ "±	21'-7"	48'-5 ³ / ₄ "±	18'-8"	1'-6 ³ / ₄ "	3	2'-0"	6'-0"	44	1'-1"	47'-8"	8"
G	90'-2 ¹ / ₄ "±	21'-6"	49'-11 ¹ / ₄ "±	18'-9"	1'-11 ¹ / ₄ "	3	2'-0"	6'-0"	45	1'-1"	48'-9"	8"
H	91'-7 ⁵ / ₁₆ "±	21'-6"	51'-7 ⁵ / ₁₆ "±	18'-6"	1'-4 ⁵ / ₁₆ "	4	2'-0"	8'-0"	45	1'-1"	48'-9"	8"
I	93'-1 ¹ / ₄ "±	21'-6"	53'-0 ¹ / ₄ "±	18'-7"	8 ¹ / ₄ "	4	2'-0"	8'-0"	47	1'-1"	50'-11"	8"

FOR ADDITIONAL NOTES, SEE SHEET 29/52.

DESIGN AGENCY: CLAYTON ENGINEERING & ARCHITECTS, INC.
 GPD ASSOCIATES
 570 South Main Street, Suite 3331, Akron, Ohio 44311
 330.929.2100 • FAX 330.929.2101

DESIGNED	T.J.W.	CHECKED	D.J.C.
DRAWN	D.J.C.	REVISED	
REVIEWED	CGN	DATE	9-26-08
STRUCTURE FILE NUMBER	5004470		

BEAM ELEVATIONS
 BRIDGE NO. MAH-193-0072
 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR

MAH-193/422
 -0.46/1.85
 PID No. 25235

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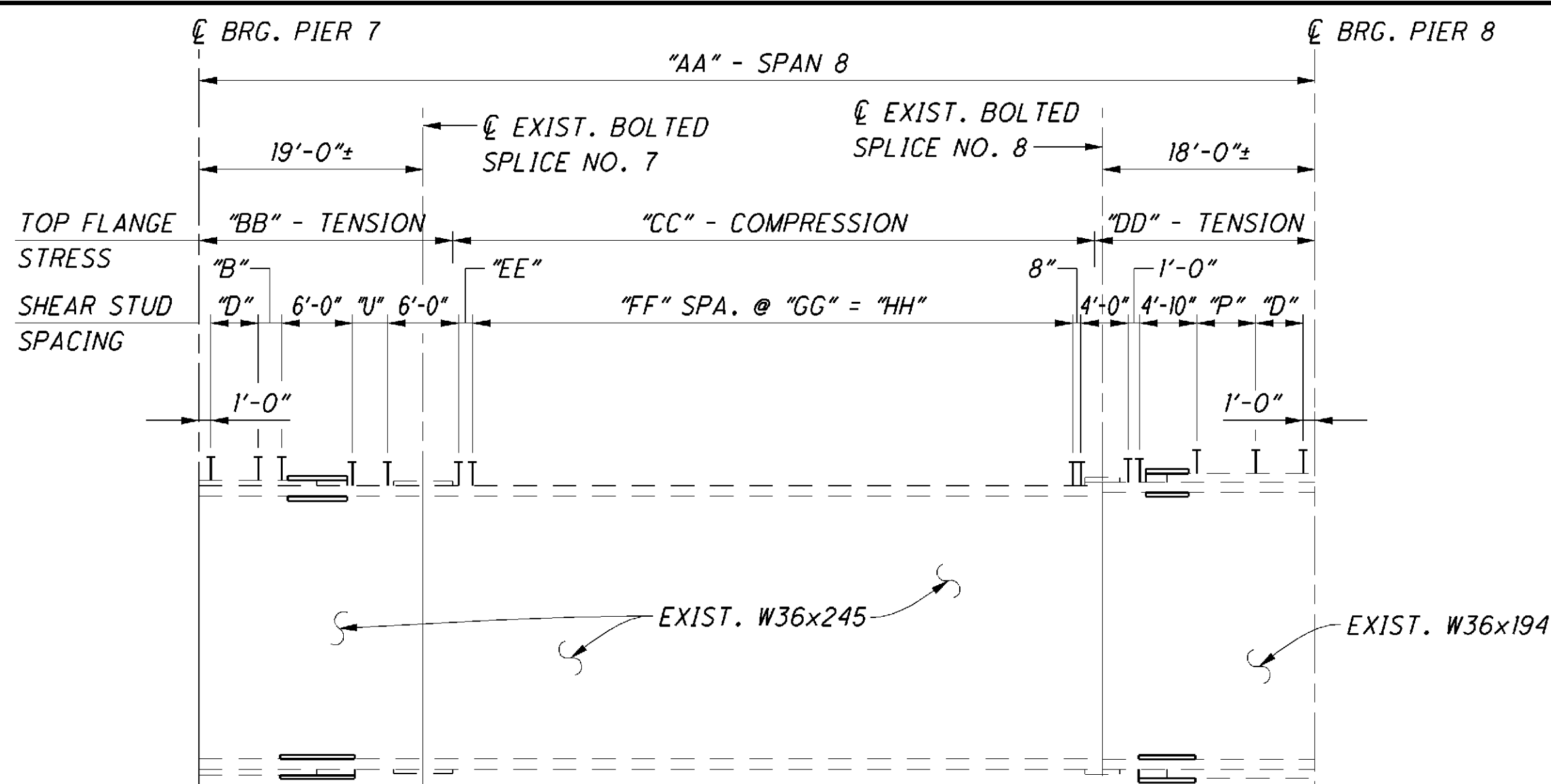
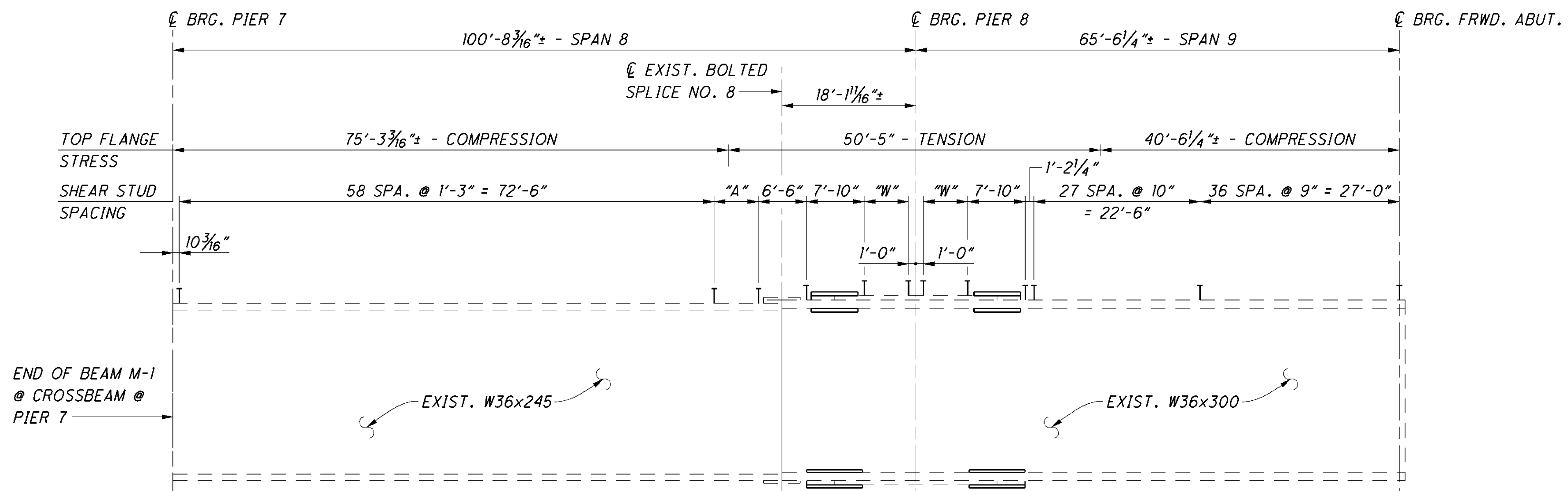


TABLE 3								
TABLE OF DIMENSIONS & SHEAR STUD SPACINGS								
BEAM J THRU M - SPAN 8								
BEAM	"AA"	"BB"	"CC"	"DD"	"EE"	"FF"	"GG"	"HH"
J	94'-7 ¹ / ₈ " ±	21'-6"	54'-5 ¹ / ₈ " ±	18'-8"	1'-2 ¹ / ₈ "	47	1'-1"	50'-11"
K	96'-1 ¹ / ₁₆ " ±	21'-7"	55'-8 ¹ / ₁₆ " ±	18'-10"	1'-7 ¹ / ₁₆ "	48	1'-1"	52'-0"
L	97'-7" ±	21'-7"	57'-2" ±	18'-10"	11"	50	1'-1"	54'-2"
M	99'-0 ⁷ / ₈ " ±	22'-7"	55'-10 ⁷ / ₈ " ±	20'-7"	1'-3 ³ / ₈ "	51	1'-1"	55'-3"

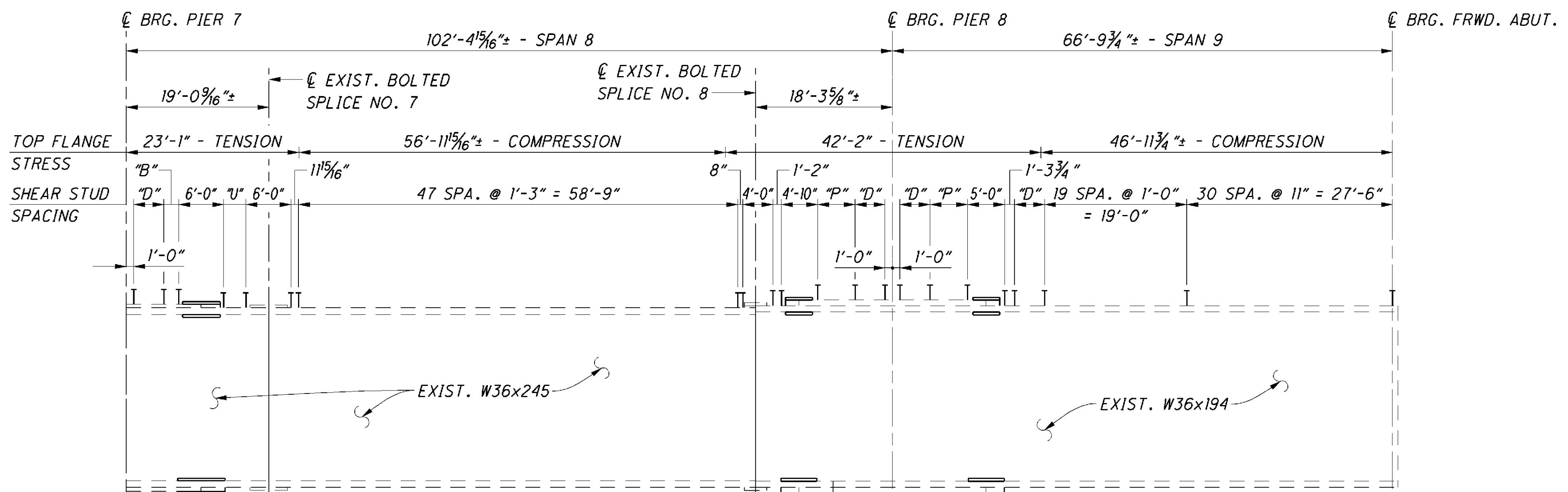
PARTIAL BEAM ELEVATION - BEAM J THRU M - SPAN 8

FOR DIMENSIONS & SHEAR STUD SPACINGS "AA" THRU "HH", SEE TABLE 3 THIS SHEET



SHEAR STUD DIMENSION LEGEND:
 "A" = 3 SPA. @ 2'-0" = 6'-0"
 "B" = 2 SPA. @ 1'-0" = 2'-0"
 "D" = 2 SPA. @ 2'-0" = 4'-0"
 "P" = 4 SPA. @ 1'-3" = 5'-0"
 "U" = 2 SPA. @ 1'-6" = 3'-0"
 "W" = 6 SPA. @ 1'-0" = 6'-0"

PARTIAL BEAM ELEVATION - BEAM M-1 - SPANS 8 & 9



PARTIAL BEAM ELEVATION - BEAM N - SPANS 8 & 9

\MAPR01\DATA\CIVIL\2007\13\MAH\25235\STRUCTURES\MAH15_0072C\SHEETS\19_0072C50008.DGN
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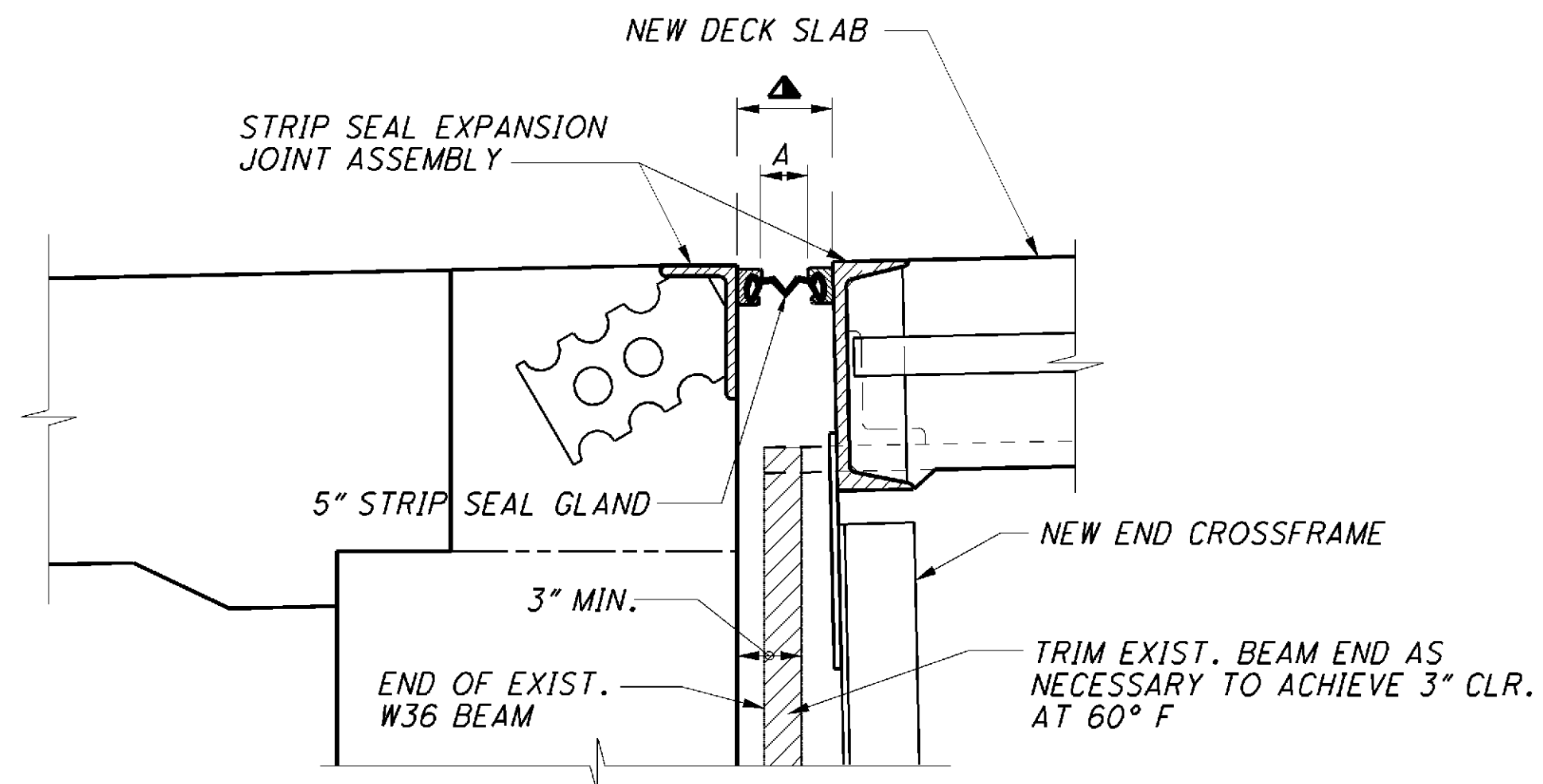
DESIGN AGENCY: CLAYTON SCHWABER BURNS & CRONIN, INC.
 GPD ASSOCIATES
 570 South Main Street, Suite 1311, Akron, Ohio 44311
 330.974.2100 Fax: 330.974.2101

DESIGNED	TJM	CHECKED	DJC
DRAWN	DJC	REVISED	
REVIEWED	CGN	DATE	9-26-08
		STRUCTURE FILE NUMBER	5004470

BEAM ELEVATIONS
 BRIDGE NO. MAH-193-0072
 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR

MAH-193/422
 -0.46/1.85
 PID No. 25235

31 / 52
 193 / 260



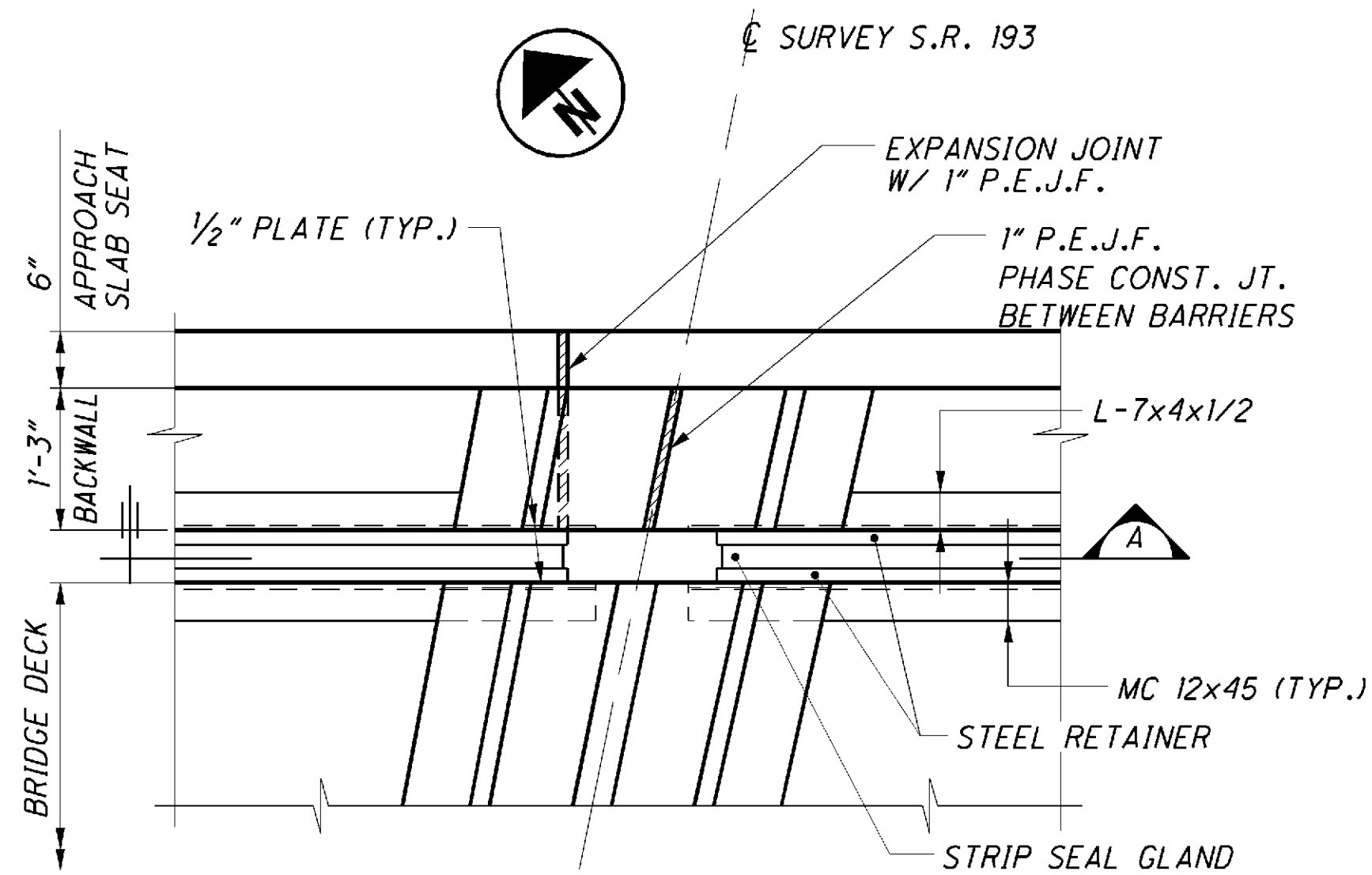
EXPANSION JOINT DETAIL

▲ THIS DIMENSION IS 2 x STEEL RETAINER WIDTH PLUS DIMENSION "A"

TEMPERATURE (°F)	REAR ABUT.	FRWD. ABUT.
30	3 1/4"	3 1/8"
40	2 5/16"	2 7/8"
50	2 3/16"	2 5/8"
60	2 1/4"	2 3/8"
70	1 7/8"	2 1/16"
80	1 9/16"	1 3/16"
90	* 1 3/16"	1 1/2"

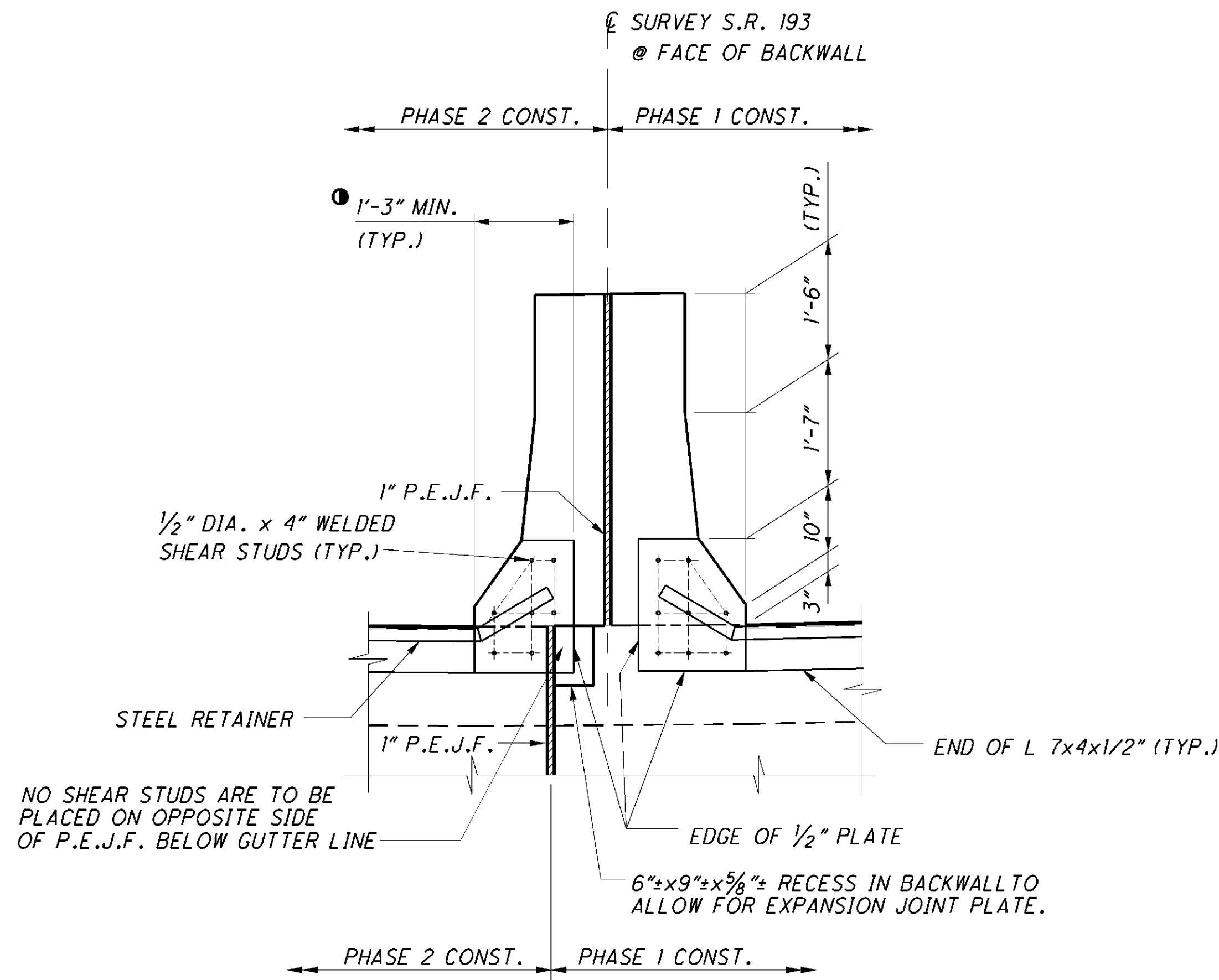
* MINIMUM JOINT OPENING (DIM "A") AT TIME OF SEAL GLAND INSTALLATION SHALL NOT BE LESS THAN 1/2". IF THE JOINT OPENING IS LESS, INSTALLATION SHALL BE POSTPONED UNTIL THE TEMPERATURE DROPS A SUFFICIENT AMOUNT TO ALLOW THE MINIMUM 1/2" OPENING.

TABLE OF REQUIRED EXPANSION JOINT OPENINGS (DIM "A")



EXPANSION JOINT MEDIAN PLAN

FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR



VIEW A

● MEASURED PERPENDICULAR TO BARRIER

NOTE:
FOR EXPANSION JOINT DETAILS NOT SHOWN,
SEE ODOT STD. DWG. EXJ-4-87.

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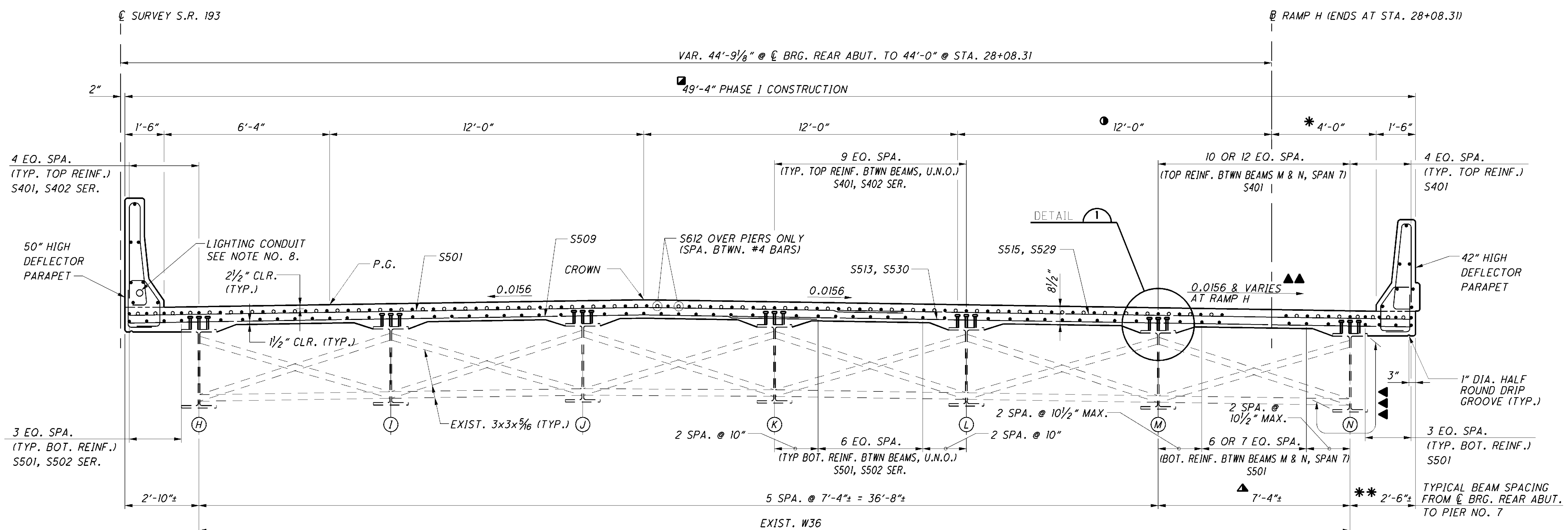
DESIGN AGENCY: CLAVIS PYLE SCHUBERT BURNS & CREW, INC. GPD ASSOCIATES
 570 South Main Street, Suite 3331, Akron, Ohio 44311
 330.974.2100 Fax: 330.974.2101

DESIGNED	RPR	CHECKED	TJW
DRAWN	RPR	REVISION	
REVIEWED	CGN	STRUCTURE FILE NUMBER	5004470
DATE	2-20-09		

EXPANSION JOINT DETAILS
 BRIDGE NO. MAH-193-0072
 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR

MAH-193/422
 -0.46/1.85
 PID No. 25235

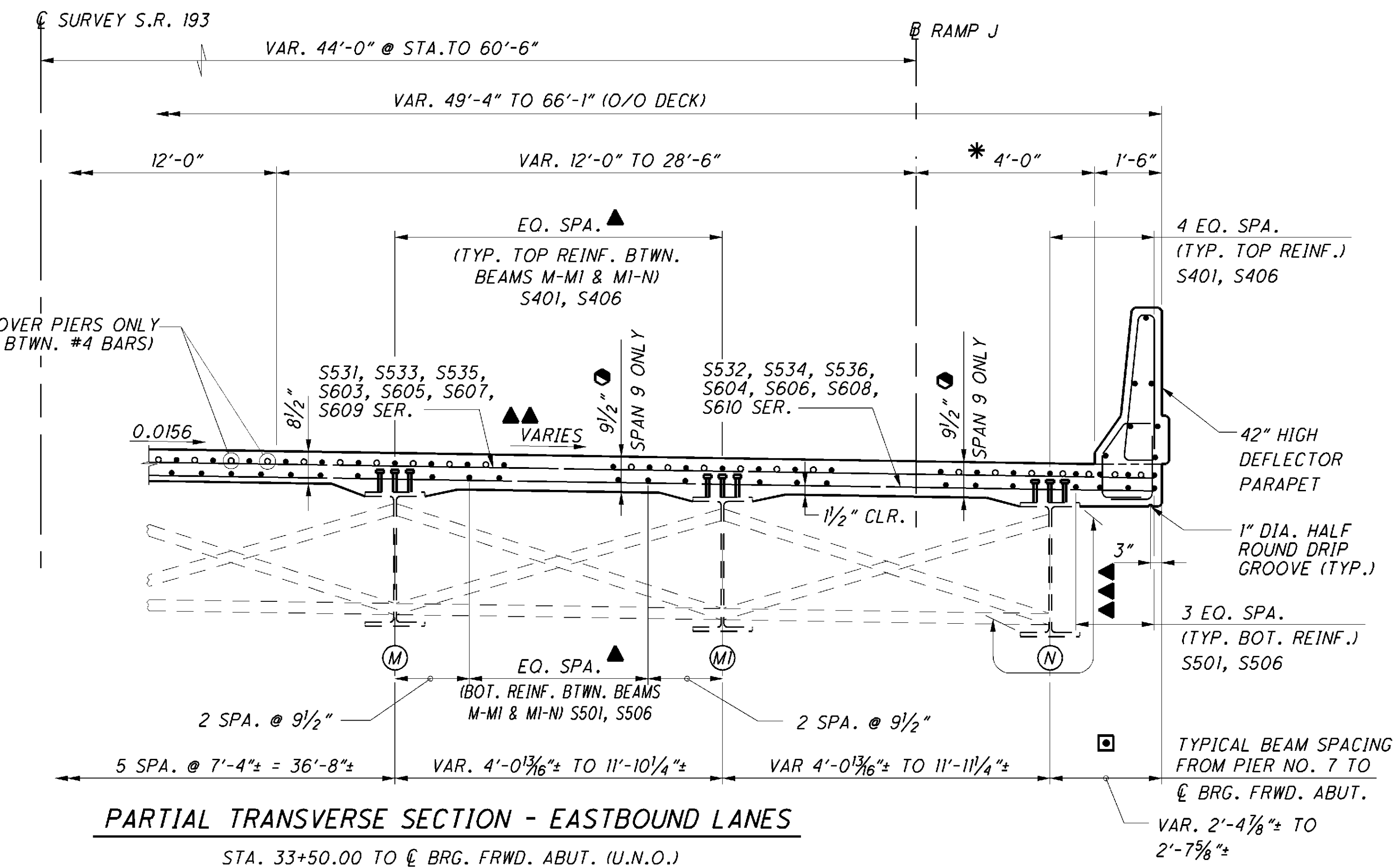
31A/52
 193A
 260



TRANSVERSE SECTION - EASTBOUND LANES

CL BRG. REAR ABUT TO STA. 33+50.00 (U.N.O.)

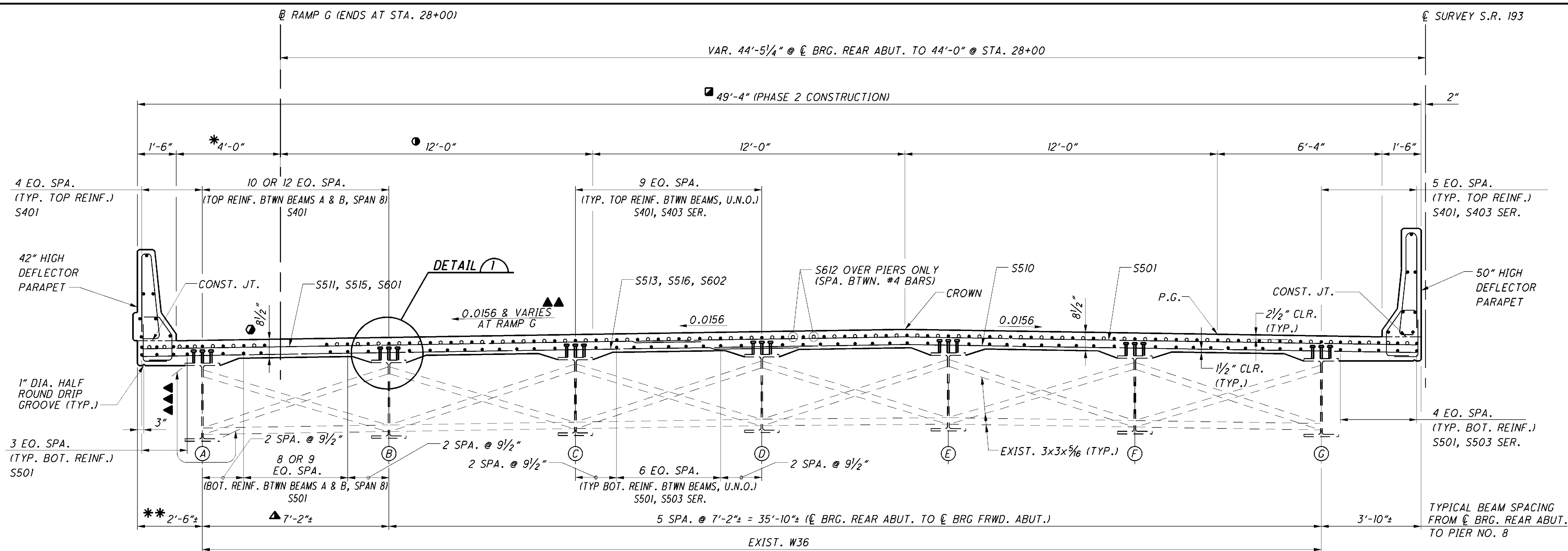
- LEGEND:**
- * INDICATES MEASURED NORMAL TO RAMP
 - VAR. 12'-9 1/8" @ CL BRG. REAR ABUT. TO 12'-0" @ STA. 28+08.31
 - VAR. 50'-1 1/4" @ CL BRG. REAR ABUT. TO 49'-4" @ STA. 28+08.31
 - ▲ VAR. 7'-4" @ PIER NO. 6 TO 8'-2 1/2" @ PIER NO. 7
 - ** VAR. 3'-2 3/4" @ CL BRG. REAR ABUT. TO 2'-6 1/2" @ STA. 28+08.31
 - 2'-0" @ STA. 33+50.00
 - DECK THICKNESS 9 1/2" WITHIN SPAN 9, BETWEEN BEAMS M & N (1" MIN. HAUNCH REQUIRED)
 - ▲ SEE DETAIL 3 ON SHT. NO. 35A/52 FOR BAR SPACING DETAILS
 - ▲▲ FOR VARIABLE CROSS-SLOPE DETAILS, SEE SHT. NO. 39/52
 - ▲▲▲ LIMITS OF FASCIA BEAM TO BE PAINTED RED. REMAINDER OF STRUCTURAL STEEL AT EASTBOUND LANES TO BE PAINTED BROWN. SEE STRUCTURAL GENERAL NOTES FOR ADDITIONAL INFORMATION.



- NOTES:**
1. ALL STATIONS ARE REFERENCED TO CL SURVEY S.R. 193.
 2. FOR DECK SLAB PLAN, SEE SHT. NOS. 34/52 & 35/52.
 3. FOR PARAPET DETAILS, SEE SHT. NOS. 36/52 THRU 38/52.
 4. DECK SLAB CONCRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 2 INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE OF INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE IS ±3 INCHES.

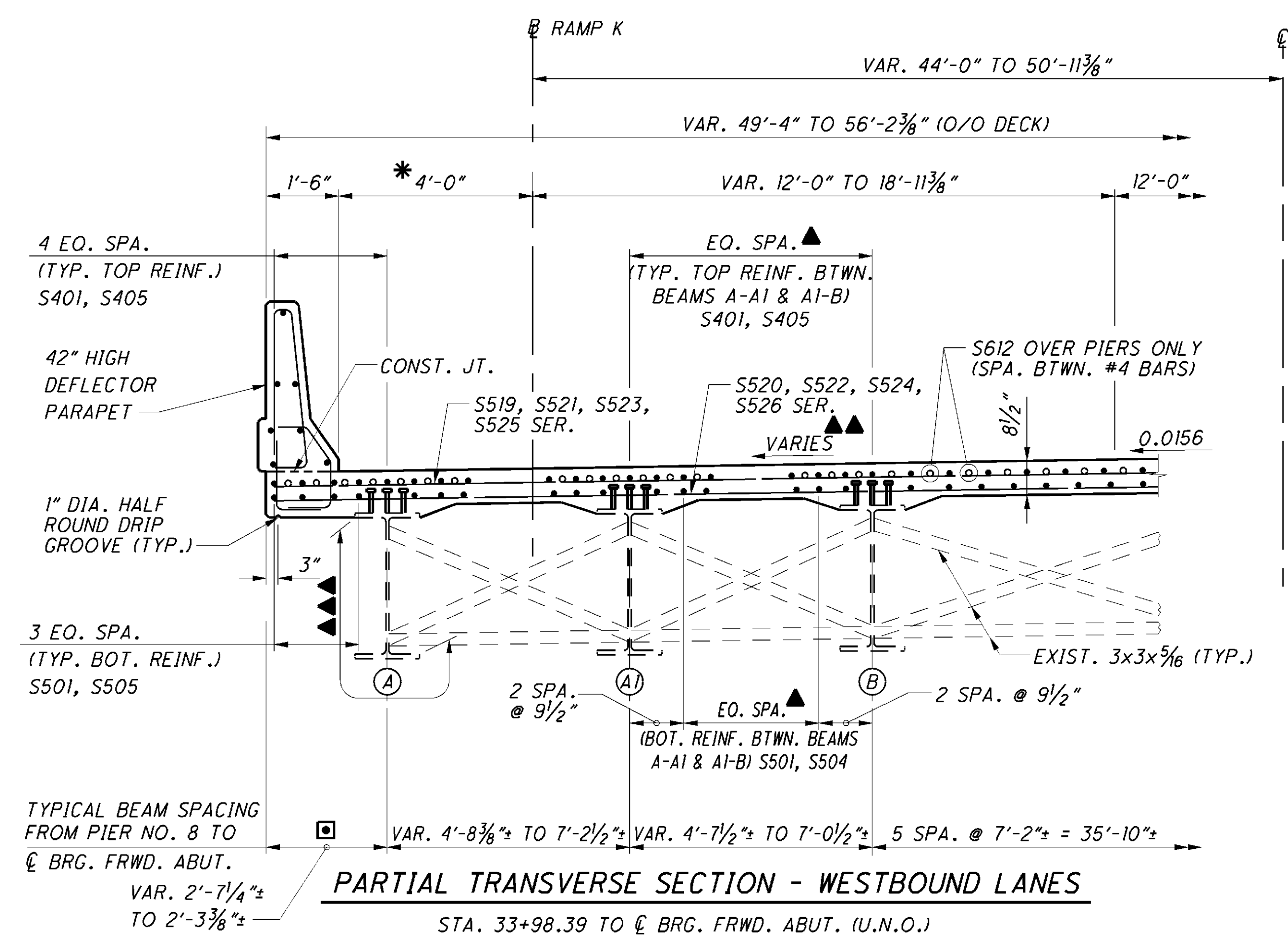
THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE BEAM, FROM THE SURFACE OF THE DECK TO THE BOTTOM OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF THE EMBEDDED TOP FLANGE HAS BEEN DEDUCTED FROM THE HAUNCH QUANTITY IN ACCORDANCE WITH 511.24.
 5. MIN. LAP LENGTHS SHALL BE AS FOLLOWS:
#5 (TOP TRANSVERSE) = 2'-6"
#5 (BOT. TRANSVERSE) = 3'-3"
#6 (TOP TRANSVERSE) = 3'-0"
#6 (BOT. TRANSVERSE) = 4'-0"
 6. FOR DETAIL 1, SEE SHT. NO. 33/52.
 7. FOR SCUPPER DETAILS, SEE SHT. NOS. 47/52 THRU 49/52.
 8. TRANSITION THE LIGHTING CONDUIT LOCATION TO MEET THE LOCATION OF THE TRANSITION JUNCTION BOX ON THE APPROACH SLAB BARRIER. LIGHTING CONDUIT IS INCLUDED FOR PAYMENT WITH LIGHTING PAY ITEMS. FOR LIGHTING PLANS SEE SHEETS 140 -147.

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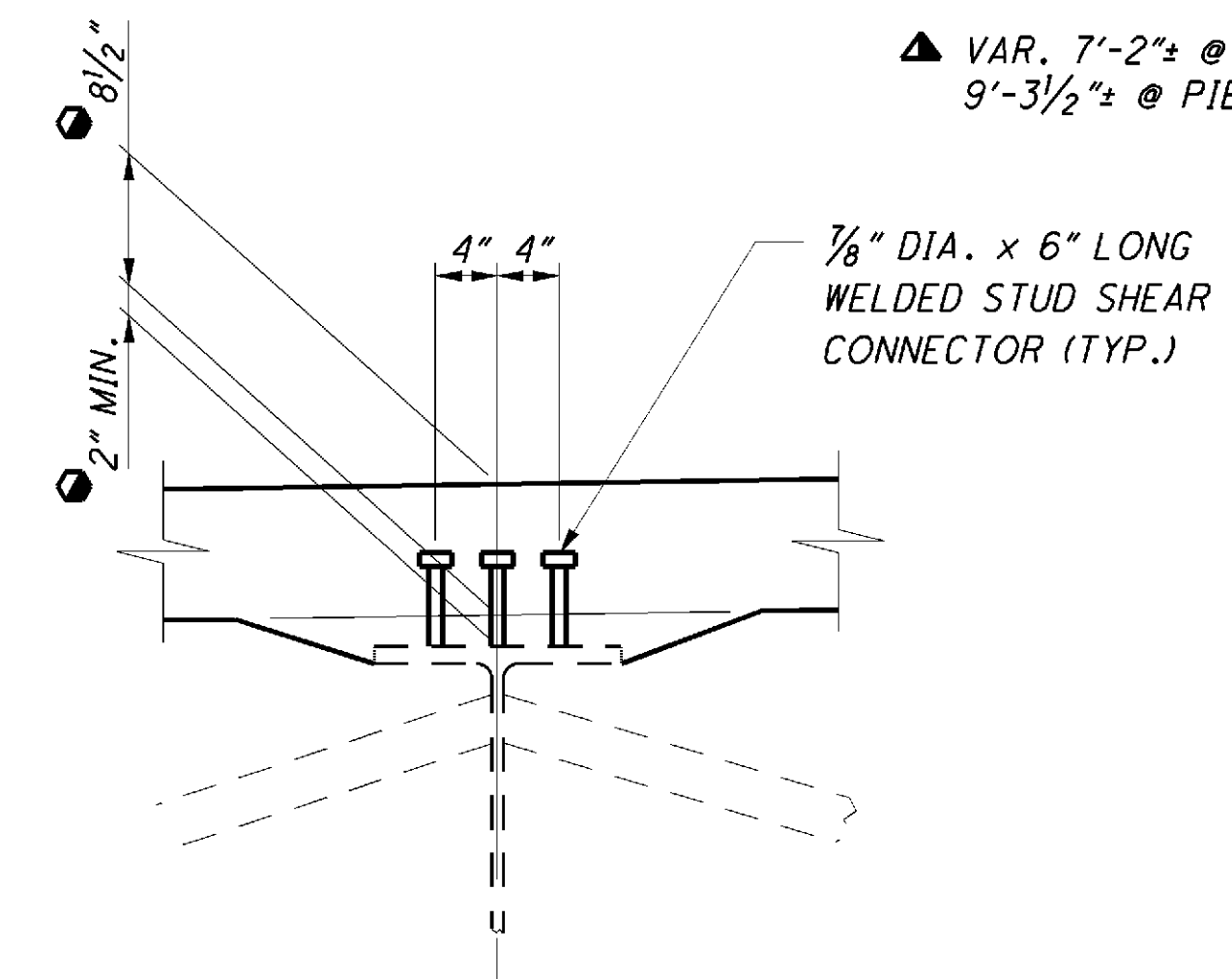


TRANSVERSE SECTION - WESTBOUND LANES

CL BRG. REAR ABUT. TO STA. 33+98.39 (U.N.O.)



- LEGEND:**
- * INDICATES MEASURED NORMAL TO RAMP E
 - VAR. 12'-5 1/4" @ CL BRG. REAR ABUT. TO 12'-0" @ STA. 28+00.00
 - VAR. 49'-9 1/4" @ CL BRG. REAR ABUT. TO 49'-4" @ STA. 28+00.00
 - ▲ VAR. 7'-2" ± @ PIER NO. 7 TO 9'-3 1/2" ± @ PIER NO. 8
 - ** VAR. 2'-11 1/4" ± @ CL BRG. REAR ABUT. TO 2'-6" ± @ STA. 28+00.00
 - 2'-5 3/4" ± @ STA. 33+98.39
 - ⊙ DECK THICKNESS 8 3/4" WITHIN SPAN 8 ONLY, BETWEEN BEAMS A & B (1 1/4" MIN. HAUNCH REQUIRED)
 - ▲ SEE DETAIL 4 ON SHT. NO. 35A/52 FOR BAR SPACING DETAILS
 - ▲▲ FOR VARIABLE CROSS-SLOPE DETAILS, SEE SHT. NO. 39/52
 - ▲▲▲ LIMITS OF FASCIA BEAM TO BE PAINTED RED. REMAINDER OF STRUCTURAL STEEL AT WESTBOUND LANES TO BE PAINTED BROWN. SEE STRUCTURAL GENERAL NOTES FOR ADDITIONAL INFORMATION.



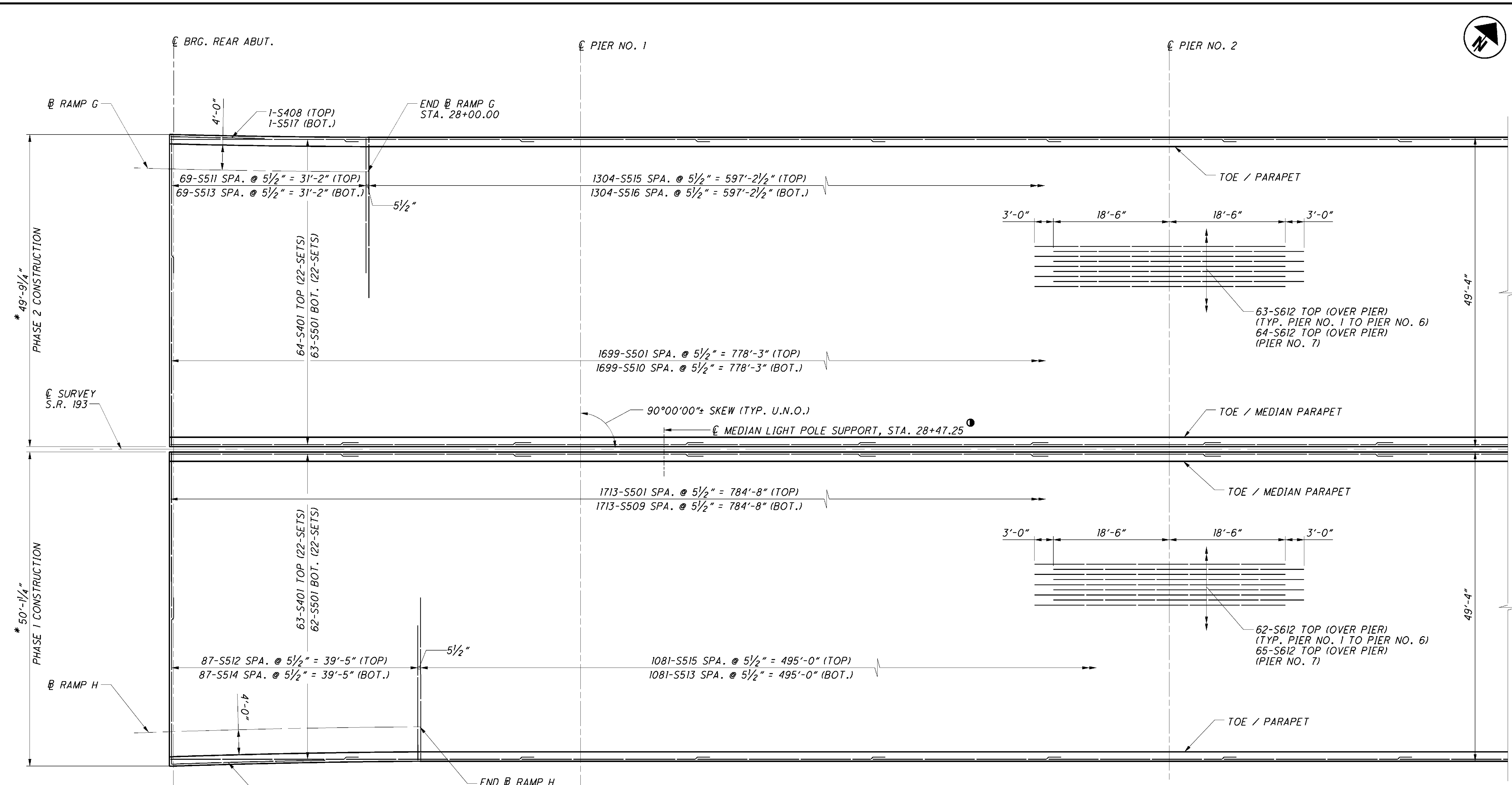
DETAIL 1

THE HAUNCH DEPTHS SHALL BE CALCULATED AS THE DIFFERENCE BETWEEN THE FIELD MEASURED TOP OF BEAMS AND THE SCREED ELEVATIONS MINUS THE DECK THICKNESS.

- NOTES:**
1. ALL STATIONS ARE REFERENCED TO CL SURVEY S.R. 193.
 2. FOR ADDITIONAL NOTES, SEE SHT. NO. 32/52.
 3. MINIMUM LAP LENGTH SHALL BE AS FOLLOWS:
#5 (TOP TRANSVERSE) = 2'-6"
#5 (BOT. TRANSVERSE) = 3'-3"
#6 (TOP TRANSVERSE) = 3'-0"
#6 (BOT. TRANSVERSE) = 4'-0"

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PLAN
 BOTH W.B. AND E.B. DECKS SHOWN

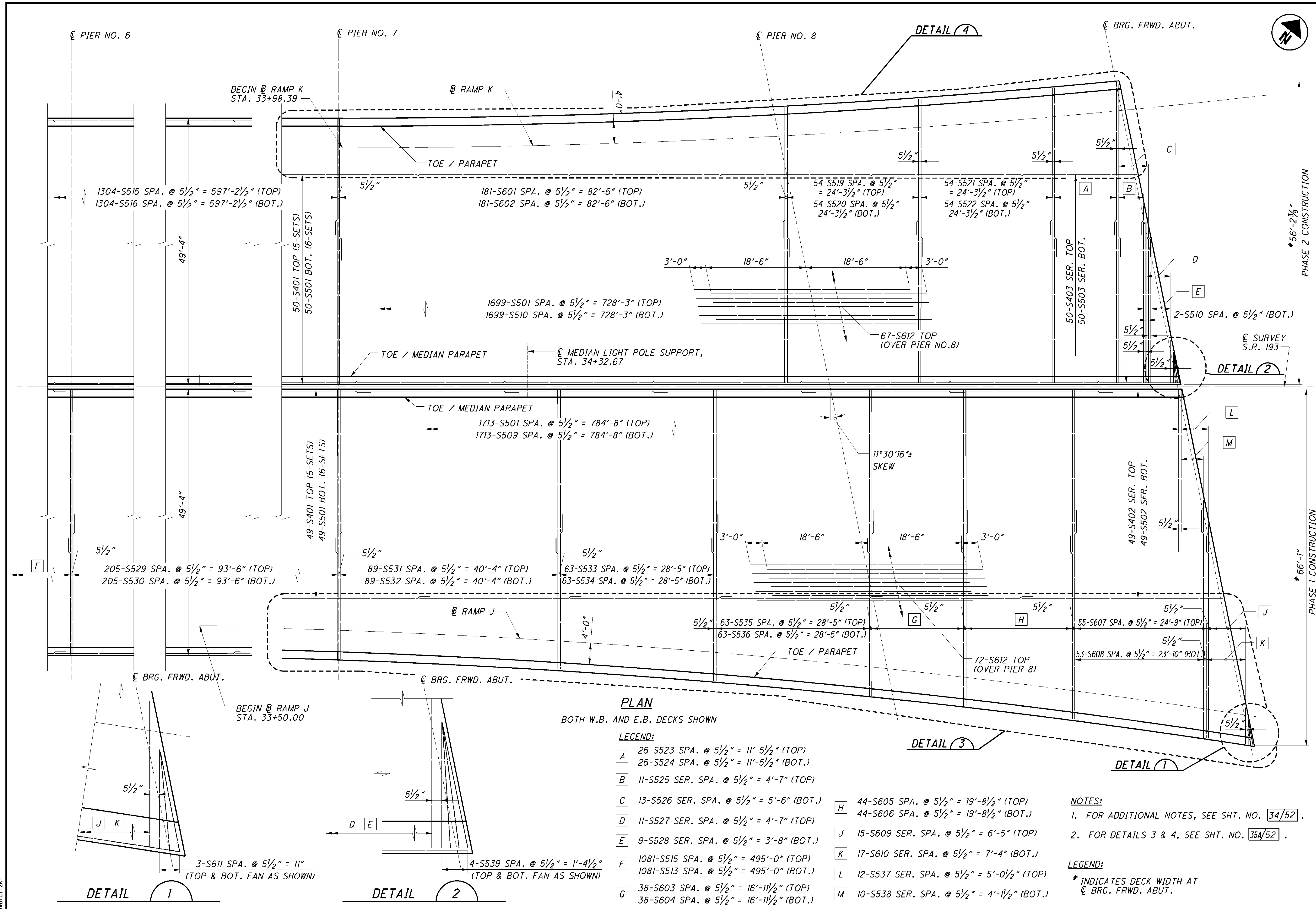
- LEGEND:**
- \bar{C} MEDIAN LIGHT POLE SUPPORT, STA. 31+64.00 (NOT SHOWN FOR CLARITY)
 - * INDICATES MEASURED ALONG \bar{C} BRG. REAR ABUT.

- NOTES:**
1. MINIMUM LAP LENGTH SHALL BE AS FOLLOWS:
 #4 BARS (LONGITUDINAL) = 2'-0"
 #5 BARS (LONGITUDINAL) = 2'-6"
 #5 BARS (TOP TRANSVERSE) = 2'-6"
 #5 BARS (BOT. TRANSVERSE) = 3'-3"
 #6 BARS (TOP TRANSVERSE) = 3'-0"
 #6 BARS (BOT. TRANSVERSE) = 4'-0"
 2. FOR W.B. & E.B. TRANSVERSE SECTIONS, SEE SHEET NOS. 32/52 & 33/52.
 3. FOR PARAPET DETAILS, SEE SHT. NOS. 36/52 THRU 38/52.
 4. FOR SCREED ELEVATIONS, SEE SHT. NOS. 39/52 THRU 41/52.
 5. FOR LOCATIONS OF PROPOSED SCUPPERS, SHEE SHT. NO. 47/52.



 GPD ASSOCIATES <small>520 South Main Street, Suite 231A, Akron, Ohio 44311 330.974.2100 • Fax: 330.974.2101</small>	DESIGN AGENCY CLAUD PYLE SCHWABER BURNS & DEWAPPE, INC.
DESIGNED D.J.P. CHECKED D.J.C.	DRAWN D.J.P. REVISED D.J.C.
REVIEWED G.G.N.	DATE 9-26-08 STRUCTURE FILE NUMBER 5004470
DECK SLAB PLAN BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR	
MAH-193/422 -0.46 / 1.85 PID No. 25235	
34 / 52	
196 260	

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DESIGN AGENCY
 CLAUD PYLE SCHWABER BURNS & DEWOLFE, INC.
GPD ASSOCIATES
 570 South Main Street, Suite 231A, Akron, Ohio 44311
 330.297.2100 • 1.419.259.7210

DESIGNED	DUP	CHECKED	DUC
DRAWN	DUP	REVIEWED	DUC
REVIEWED	GGN	DATE	9-26-08
STRUCTURE FILE NUMBER	5004470		

MAH-193/ 422
DECK SLAB PLAN
 BRIDGE NO. MAH-193-0072
 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR

MAH-193/ 422
-0.46 / 1.85
PID No. 25235
 35 / 52
 197
 260

PLAN

BOTH W.B. AND E.B. DECKS SHOWN

LEGEND:

- A 26-S523 SPA. @ 5 1/2" = 11'-5 1/2" (TOP)
26-S524 SPA. @ 5 1/2" = 11'-5 1/2" (BOT.)
- B 11-S525 SER. SPA. @ 5 1/2" = 4'-7" (TOP)
- C 13-S526 SER. SPA. @ 5 1/2" = 5'-6" (BOT.)
- D 11-S527 SER. SPA. @ 5 1/2" = 4'-7" (TOP)
- E 9-S528 SER. SPA. @ 5 1/2" = 3'-8" (BOT.)
- F 1081-S515 SPA. @ 5 1/2" = 495'-0" (TOP)
1081-S513 SPA. @ 5 1/2" = 495'-0" (BOT.)
- G 38-S603 SPA. @ 5 1/2" = 16'-11 1/2" (TOP)
38-S604 SPA. @ 5 1/2" = 16'-11 1/2" (BOT.)
- H 44-S605 SPA. @ 5 1/2" = 19'-8 1/2" (TOP)
44-S606 SPA. @ 5 1/2" = 19'-8 1/2" (BOT.)
- J 15-S609 SER. SPA. @ 5 1/2" = 6'-5" (TOP)
- K 17-S610 SER. SPA. @ 5 1/2" = 7'-4" (BOT.)
- L 12-S537 SER. SPA. @ 5 1/2" = 5'-0 1/2" (TOP)
- M 10-S538 SER. SPA. @ 5 1/2" = 4'-1 1/2" (BOT.)

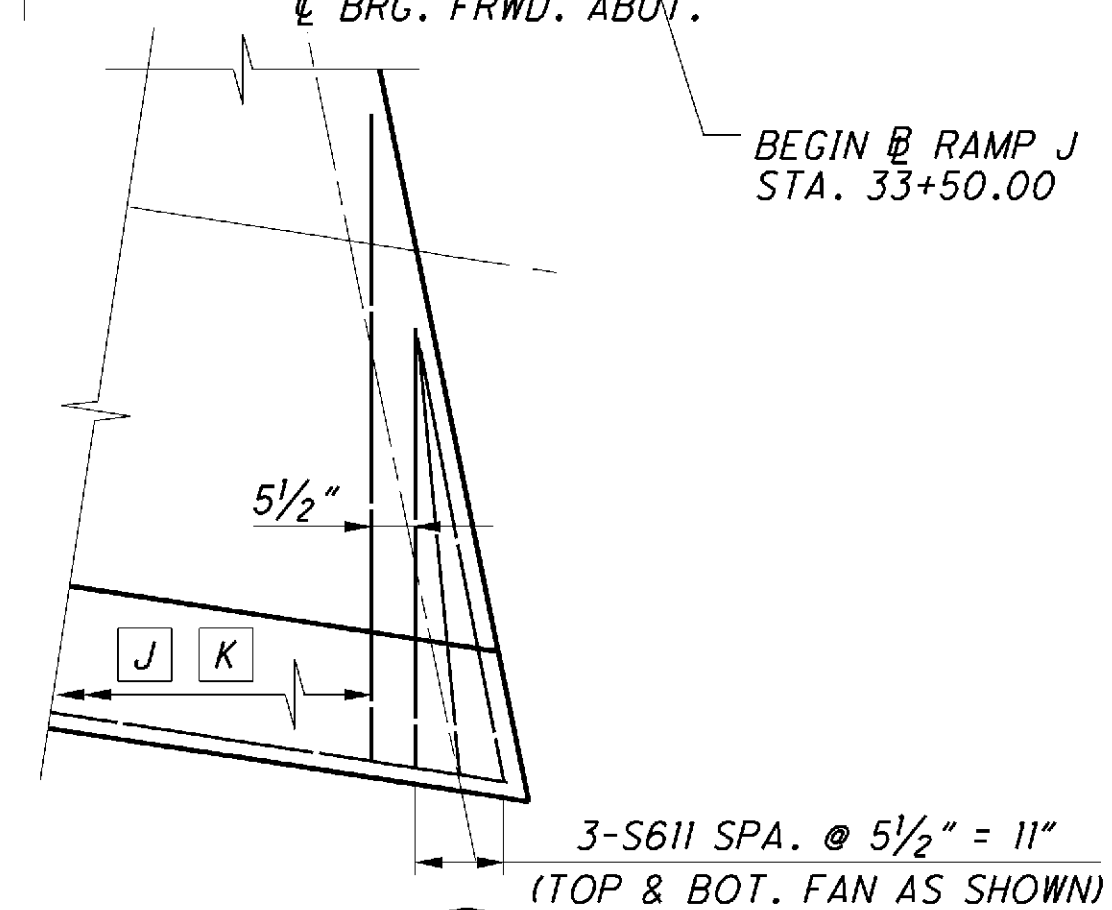
NOTES:

1. FOR ADDITIONAL NOTES, SEE SHT. NO. 34/52.
2. FOR DETAILS 3 & 4, SEE SHT. NO. 35A/52.

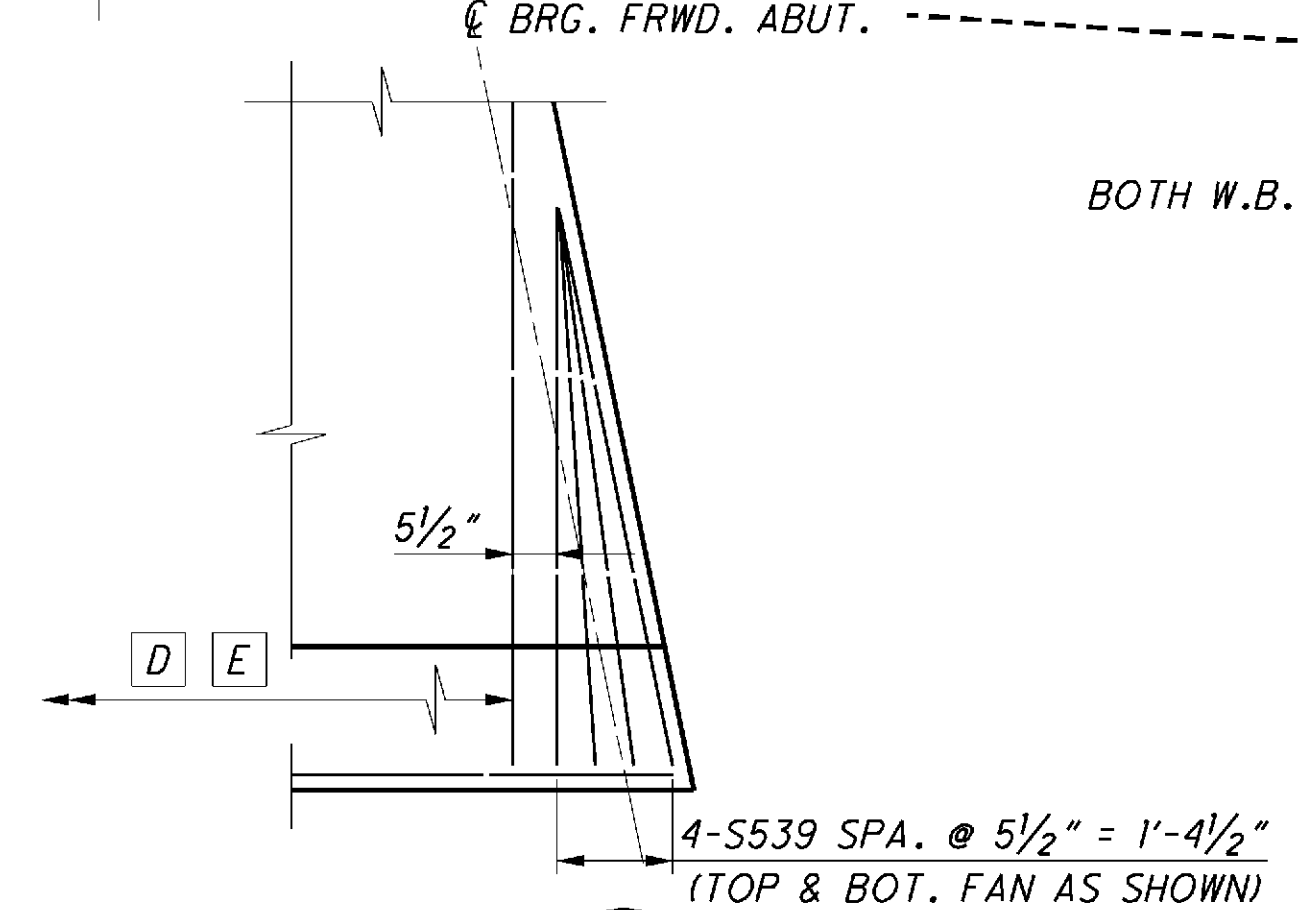
LEGEND:

* INDICATES DECK WIDTH AT
 @ BRG. FRWD. ABUT.

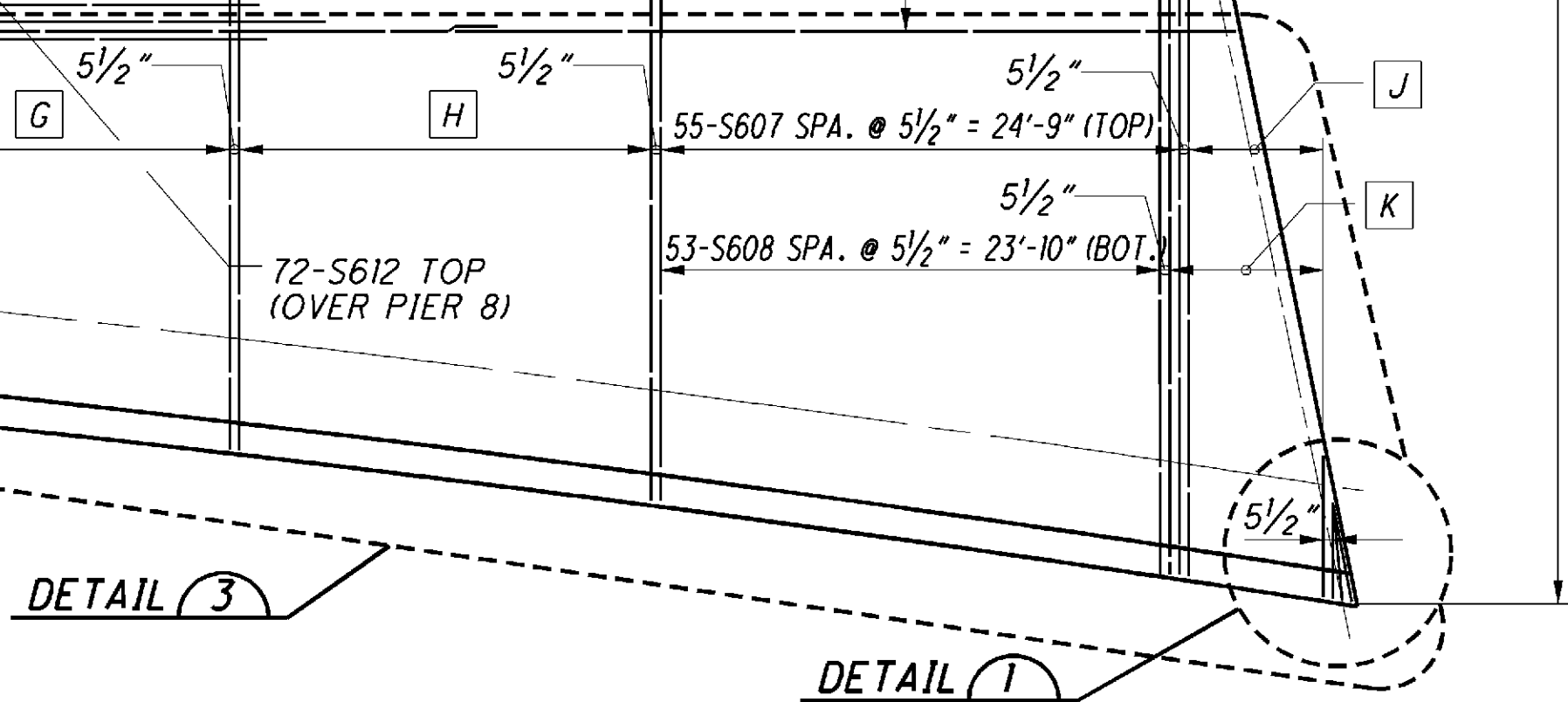
DETAIL 1



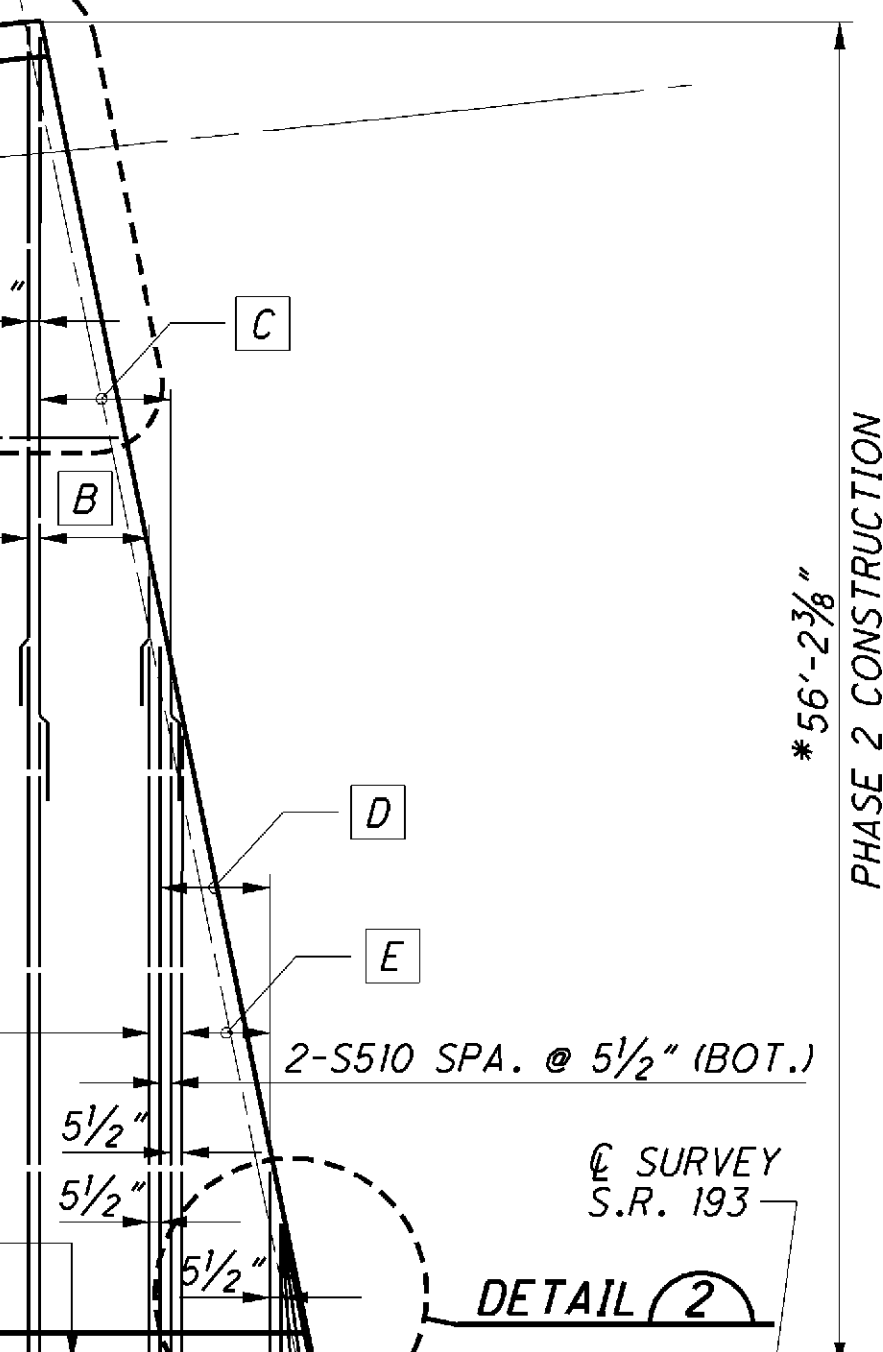
DETAIL 2



DETAIL 3



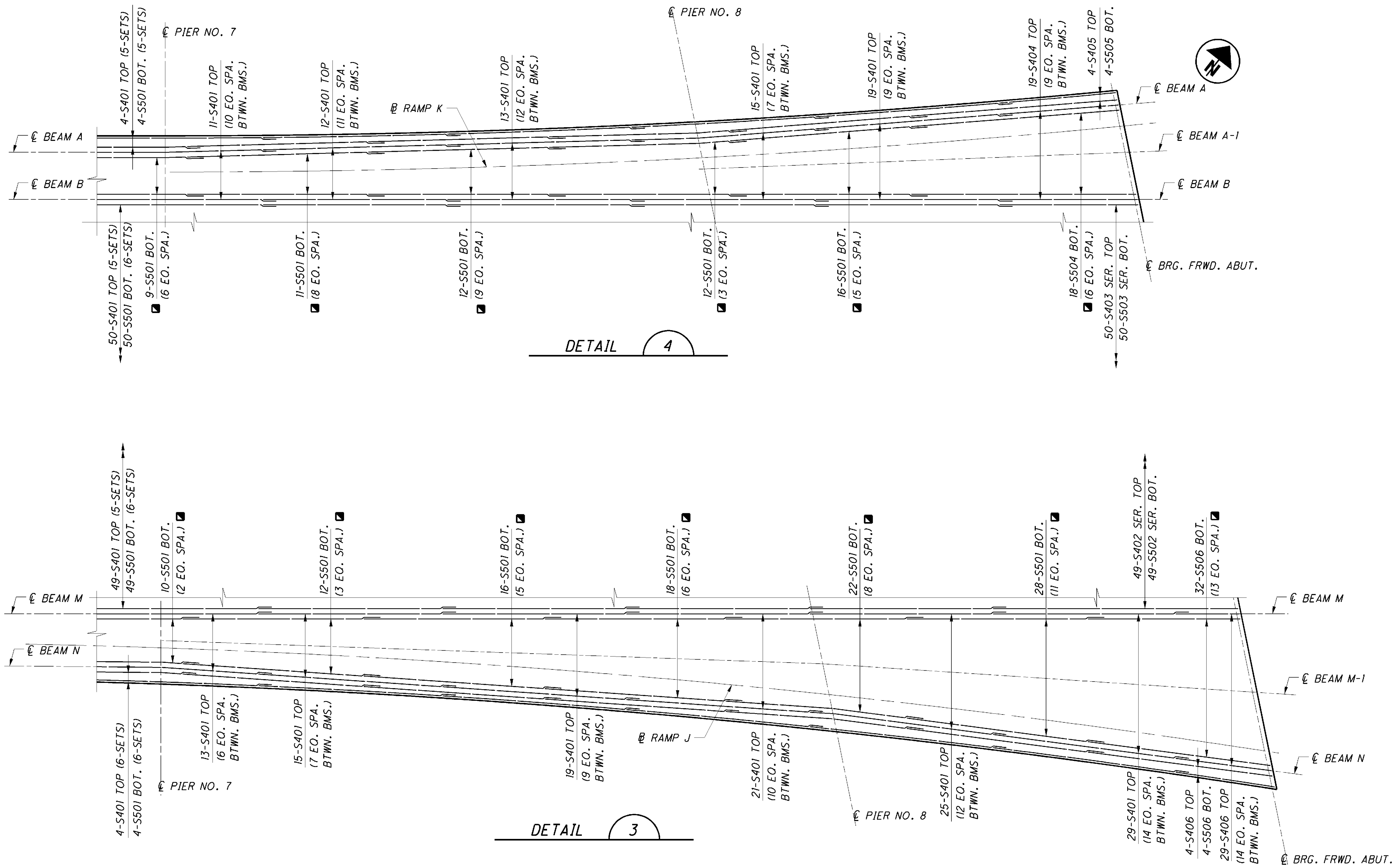
DETAIL 4



#56'-2 3/8" PHASE 2 CONSTRUCTION

#66'-1" PHASE 1 CONSTRUCTION

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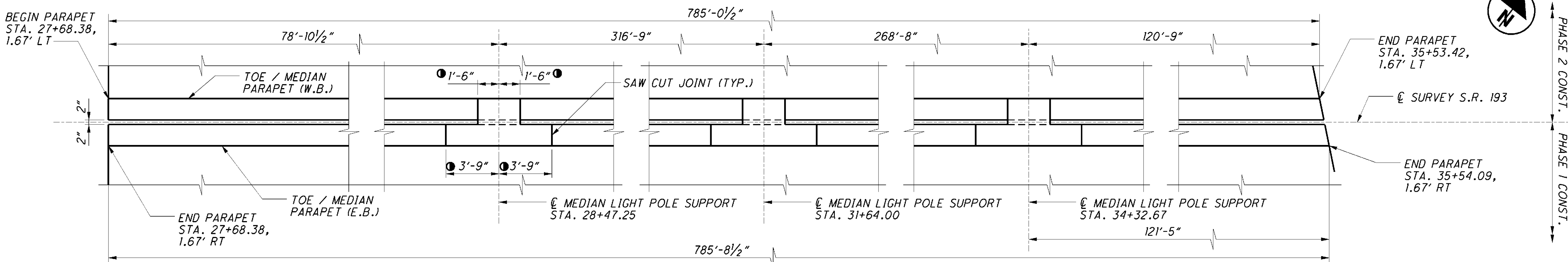


■ INDICATES SPACING INSIDE OF 9/2" SPACING BETWEEN BEAMS, SEE TRANSVERSE SECTIONS ON SHT. NOS. 32/52 & 33/52.

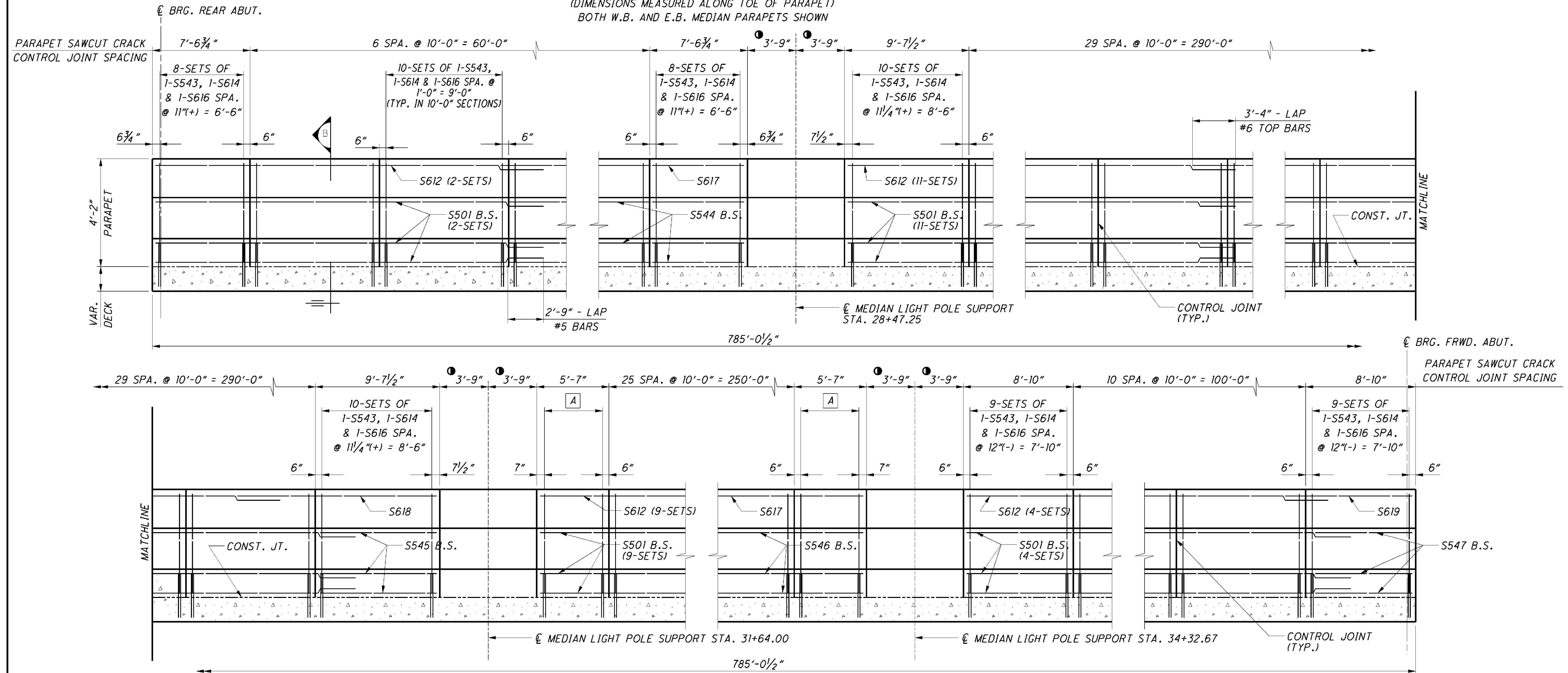
DETAIL 4

DETAIL 3

MAH-193 / 422 -0.46 / 1.85 PID No. 25235	DECK SLAB PLAN DETAILS BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR			DESIGN AGENCY GPD ASSOCIATES <small>520 South Main Street, Suite 337, Akron, Ohio 44311 330.257.2100 • Fax 330.257.2101</small>
	35A / 52 197A 260	DESIGNED RPR CHECKED DJC	DRAWN RPR REVISED	REVIEWED GGN STRUCTURE FILE NUMBER 5004470



MEDIAN PARAPET PLAN
 (DIMENSIONS MEASURED ALONG TOE OF PARAPET)
 BOTH W.B. AND E.B. MEDIAN PARAPETS SHOWN



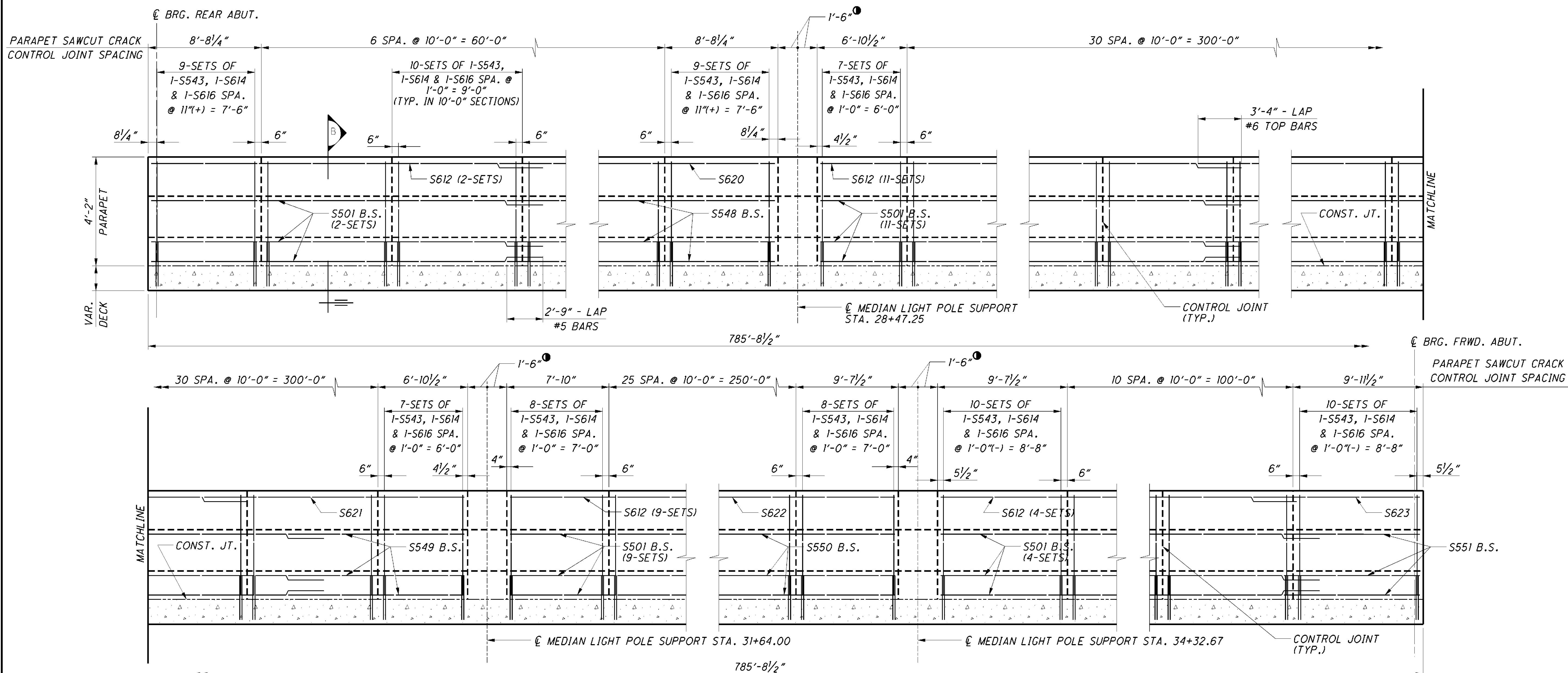
- LEGEND:**
- DIMENSION TYPICAL AT \odot MEDIAN LIGHT POLE SUPPORT. SEE MEDIAN LIGHT POLE SUPPORT ON SHT. NO. 37/52.
 - A 6-SETS OF 1-S537, 1-S616 & 1-S617 SPA. @ 11"(-) = 4'-6"

EASTBOUND MEDIAN PARAPET ELEVATION
 (DIMENSIONS MEASURED ALONG TOE OF PARAPET)

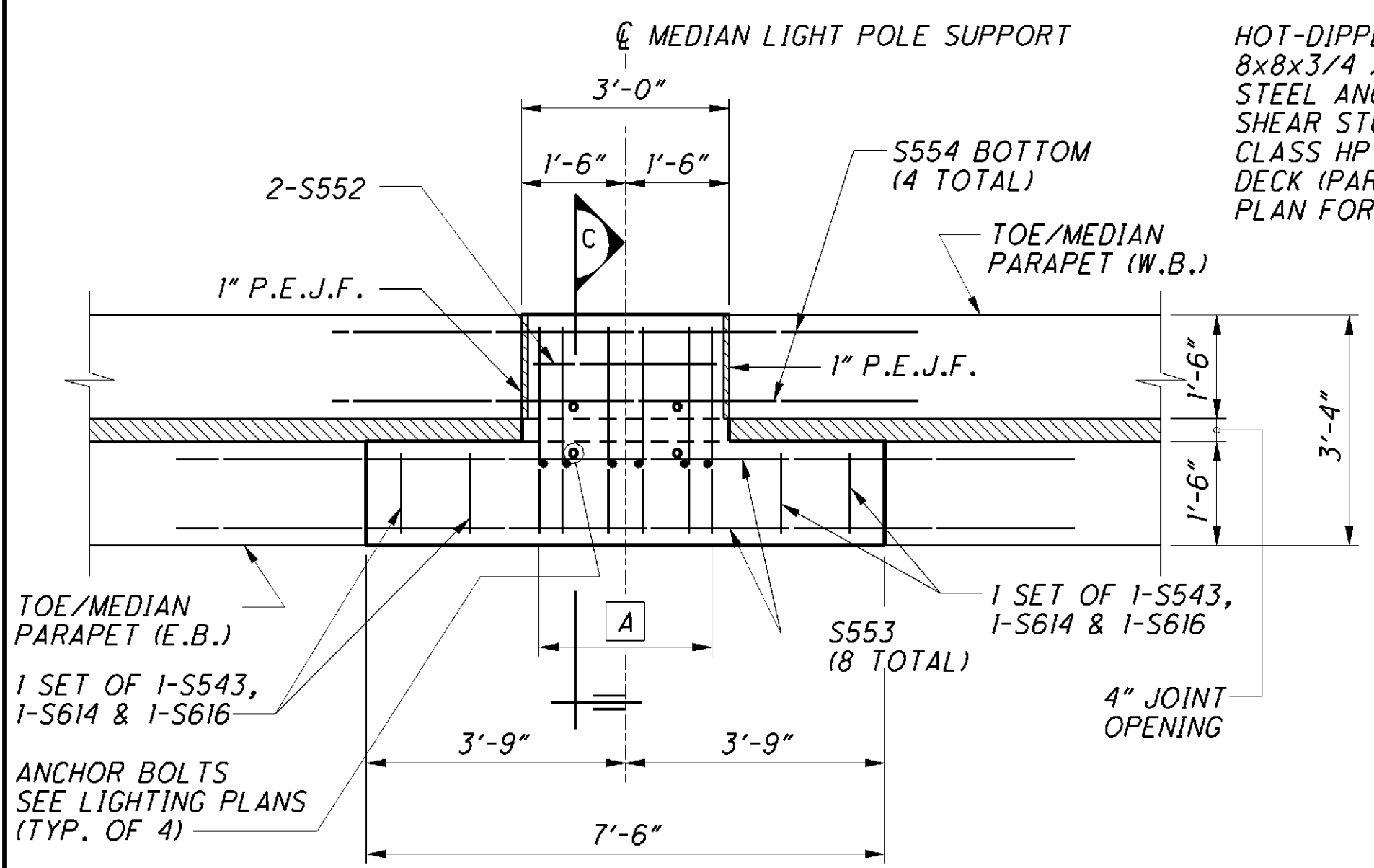
- NOTES:**
1. FOR MEDIAN LIGHT SUPPORT DETAILS, SEE SHT. NO. 37/52.
 2. FOR SECTION B, SEE SHT. NO. 37/52.
 3. FOR EASTBOUND MEDIAN PARAPET DETAILS, SEE SHT. NO. 37/52.
 4. FOR 42" PARAPET DETAILS, SEE SHT. NO. 38/52.

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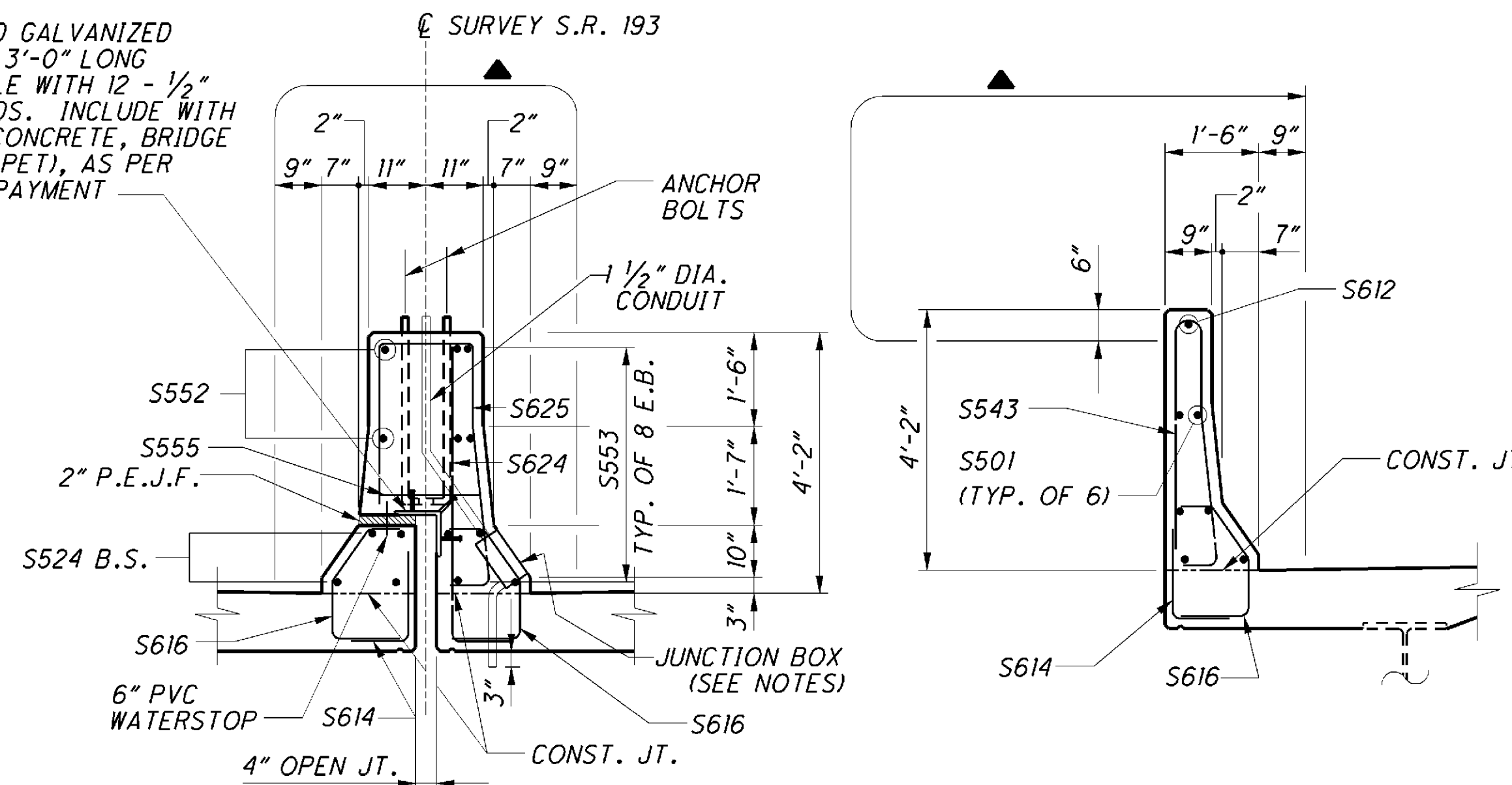
 GPD ASSOCIATES 570 South Main Street, Suite 1311, Akron, Ohio 44311 (330) 241-5100 • Fax: (330) 241-5101
DESIGN AGENCY CLAYTON SCHOENBERG BURNS & CREW, INC.
DATE 9-26-08
REVIEWED CGN
DRAWN DJP
DESIGNED DJP
STRUCTURE FILE NUMBER 5004470
REVISION T.J.W.
MEDIAN PARAPET DETAILS BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR
MAH-193/422 -0.46/1.85 PID No. 25235
36 / 52
198 260



WESTBOUND MEDIAN PARAPET ELEVATION
(DIMENSIONS MEASURED ALONG TOE OF PARAPET)



MEDIAN LIGHT POLE SUPPORT DETAIL
TYP. AT STA. 28+47.25, 31+64.00, & 34+32.67



SECTION C
DECK SLAB REINFORCING NOT SHOWN FOR CLARITY

SECTION B
DECK SLAB REINFORCING NOT SHOWN FOR CLARITY

LEGEND:

- DIMENSION TYPICAL AT \bar{C} MEDIAN LIGHT POLE SUPPORT. SEE MEDIAN LIGHT POLE SUPPORT DETAIL THIS SHEET.
- A 6-SETS OF 1-S616, 1-S624, 1-S625 SPA. @ 6" = 5'-0" (E.B.)
6-SETS OF 1-S614 & 1-S616 SPA. @ 6" = 5'-0" (W.B.)
- ▲ LIMITS OF ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)

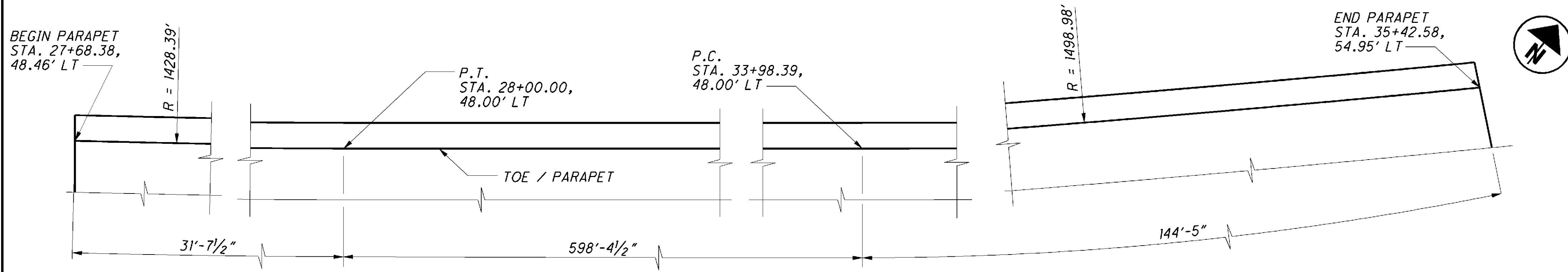
NOTES:

1. FOR 42" PARAPET DETAILS, SEE SHT. NO. 38/52.
2. FOR WESTBOUND MEDIAN PARAPET DETAILS, SEE SHT. NO. 36/52.
3. ANCHOR BOLTS FOR THE MEDIAN LIGHT POLE ARE TENTATIVE. THE CONTRACTOR SHALL VERIFY THE EXISTING LIGHT POLE TO BE REMOVED AND REPLACE WITH A SIMILAR POLE BASE PLATE AND ANCHOR BOLTS. PAYMENT FOR LIGHTING JUNCTION BOXES, CONDUIT, ANCHOR BOLTS, ETC. IS INCLUDED WITH THE LIGHTING PLANS, SEE SHEETS 140 - 147. THE JUNCTION BOX SHALL HAVE MAXIMUM INSIDE DIMENSIONS AS FOLLOWS:

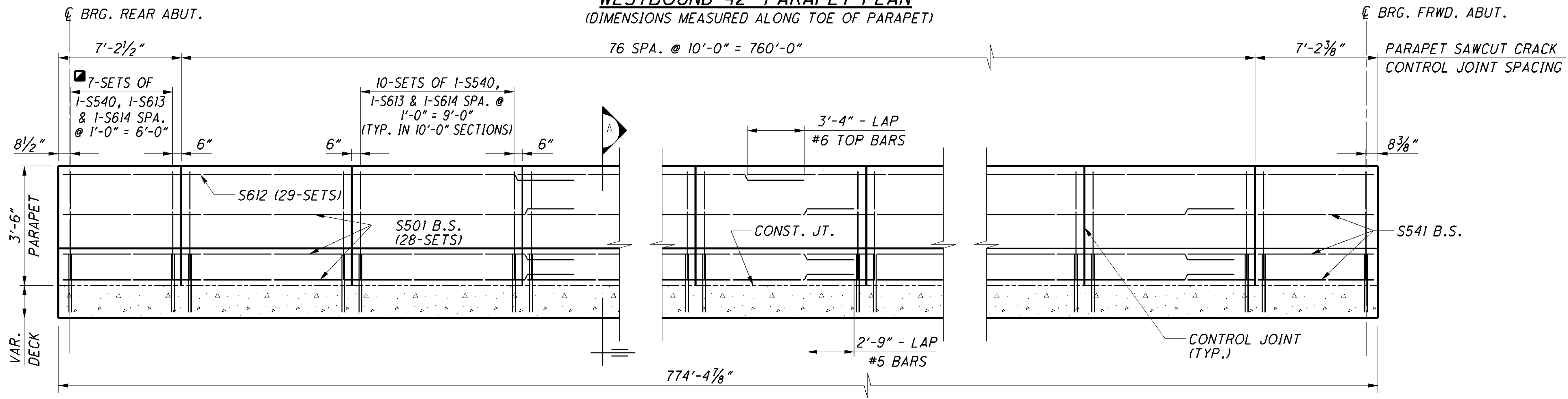
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DEPTH = 6"

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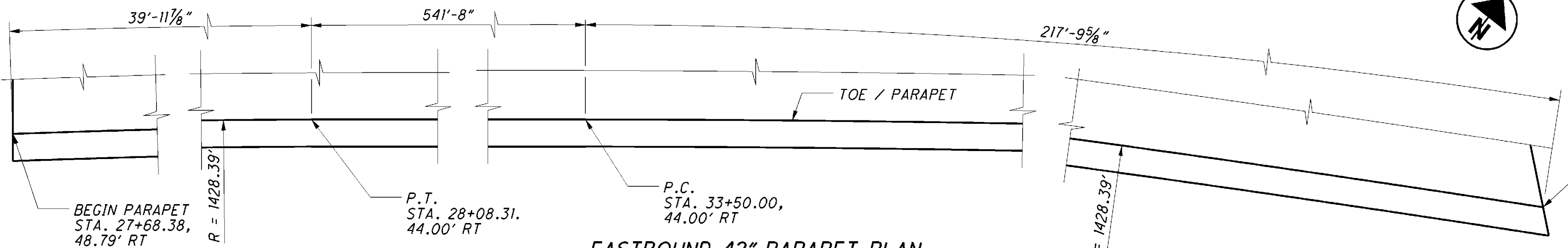
 GPD ASSOCIATES <small>570 South Main Street, Suite 1311, Akron, Ohio 44311 330.925.2100 Fax: 330.925.2101</small>	DATE 9-26-08	REVIEWED CGN	STRUCTURE FILE NUMBER 5004470	DESIGNED DJP
DRAWN DJP	REVISIONS	CHECKED T.J.W.		
MEDIAN PARAPET DETAILS BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR				
MAH-193/422 -0.46/1.85 PID No. 25235				
37/52				
199 260				



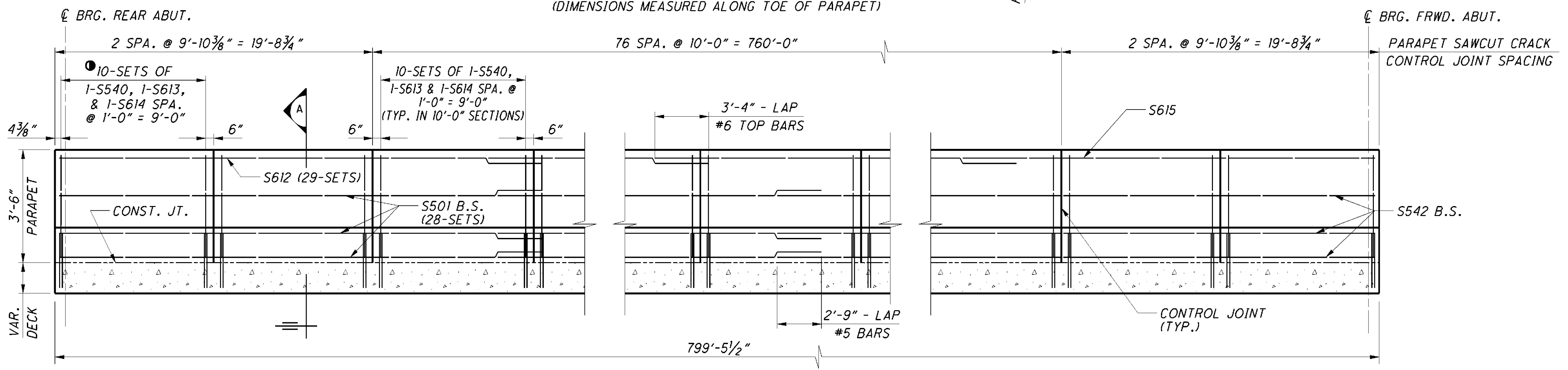
WESTBOUND 42" PARAPET PLAN
(DIMENSIONS MEASURED ALONG TOE OF PARAPET)



WESTBOUND 42" PARAPET ELEVATION
(DIMENSIONS MEASURED ALONG TOE OF PARAPET)



EASTBOUND 42" PARAPET PLAN
(DIMENSIONS MEASURED ALONG TOE OF PARAPET)



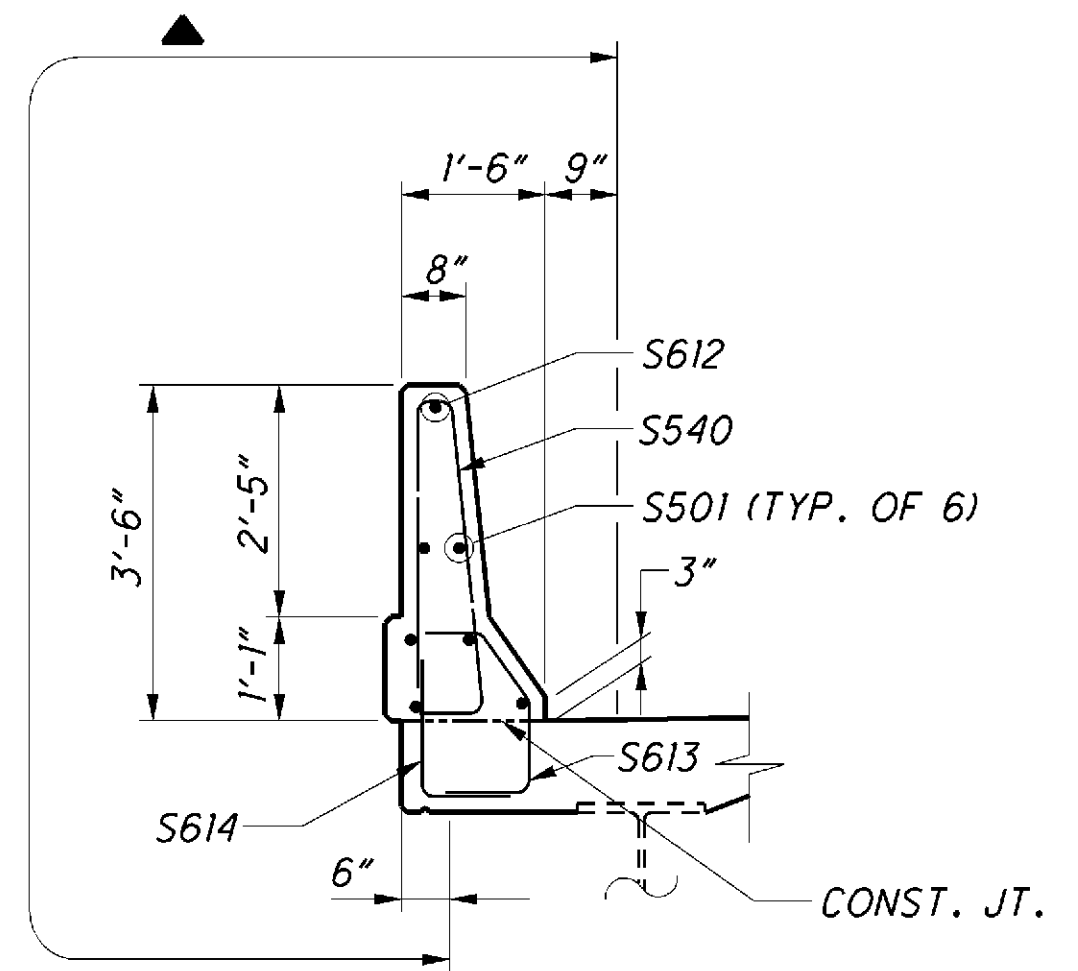
EASTBOUND 42" PARAPET ELEVATION
(DIMENSIONS MEASURED ALONG TOE OF PARAPET)

NOTES:

1. MIN. CLEAR TO REINFORCING STEEL IS 2 INCHES.
2. FOR PARAPET DETAILS NOT SHOWN, SEE STD. DWG. BR-1 FOR 42" PARAPET.
3. FOR SAWCUT CRACK CONTROL JOINT DETAILS SEE STD. DWG. BR-1.
4. FOR MEDIAN PARAPET DETAILS, SEE SHT. NOS. **36/52** & **37/52**.
5. ALL STATIONS AND OFFSETS ARE REFERENCED TO \odot SURVEY S.R. 193.

LEGEND:

- TYPICAL EACH END SECTION
- TYPICAL EACH 9'-10³/₈" SECTION
- ▲ LIMITS OF ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)



SECTION A
DECK SLAB REINFORCING NOT SHOWN FOR CLARITY

\\\NF001\DATA\CIVIL\2007\013\MAH\25235\STRUCTURES\MAH150_0072C\SHEETS\193_0072CR001.DGN
 3/19/2009 11:14:21 PM RMD\CLITZKY

	DESIGN AGENCY CLAYTON SCHOENBERG BURNS & BROWN, INC. 520 South Main Street, Suite 3337, Akron, Ohio 44311 (330) 765-5100, Fax (330) 765-5101
DATE 9-26-08	STRUCTURE FILE NUMBER 5004470
DRAWN DJP	REVISION T.J.W.
PARAPET DETAILS BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR	
MAH-193/422 -0.46/1.85 PID No. 25235	
38 / 52	

● VARIABLE CROSS SLOPE

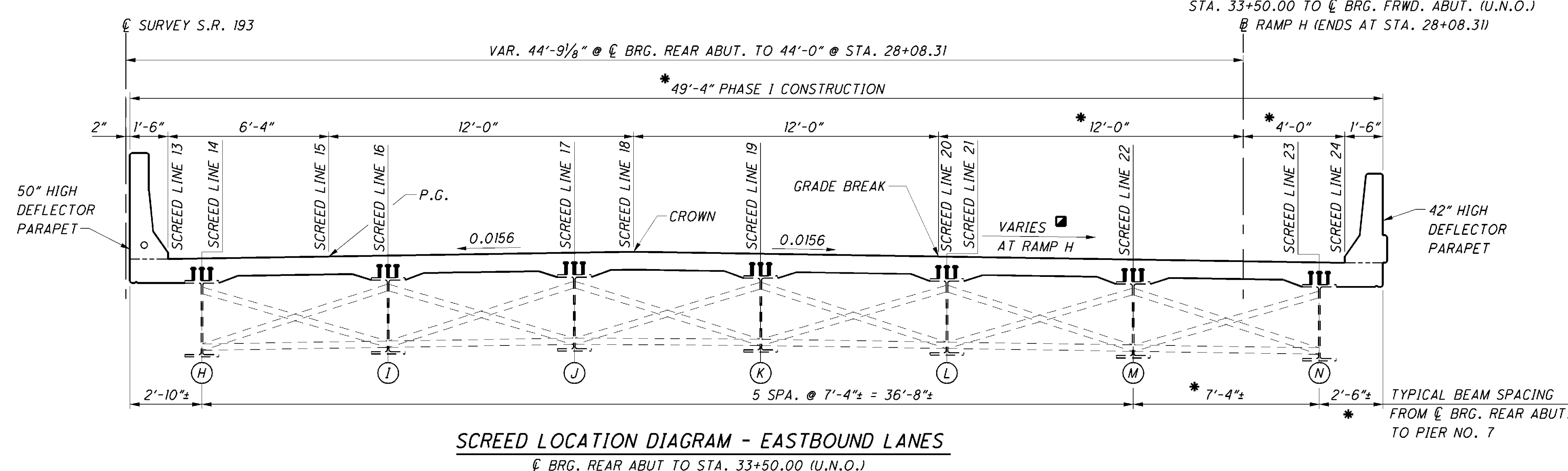
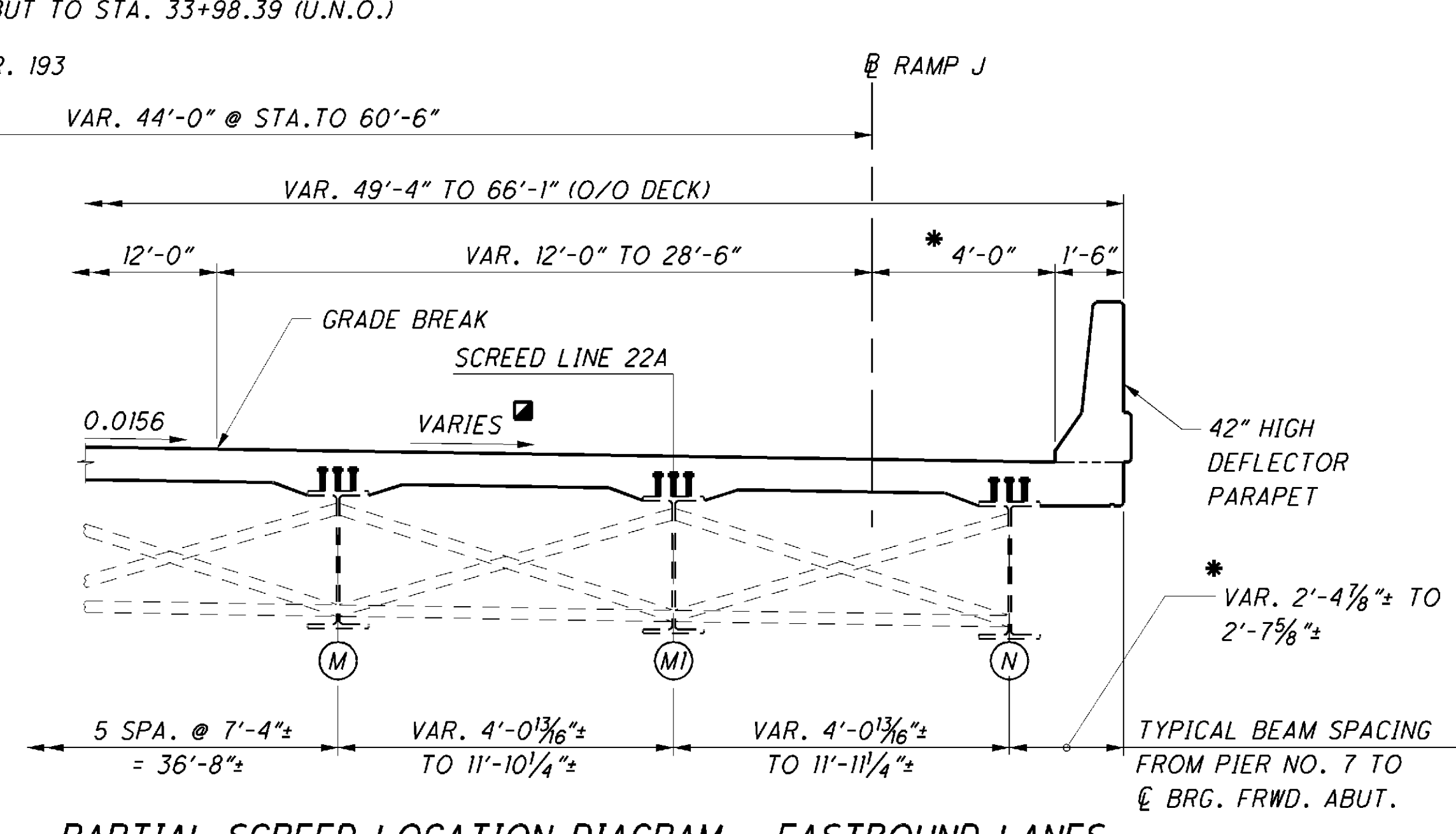
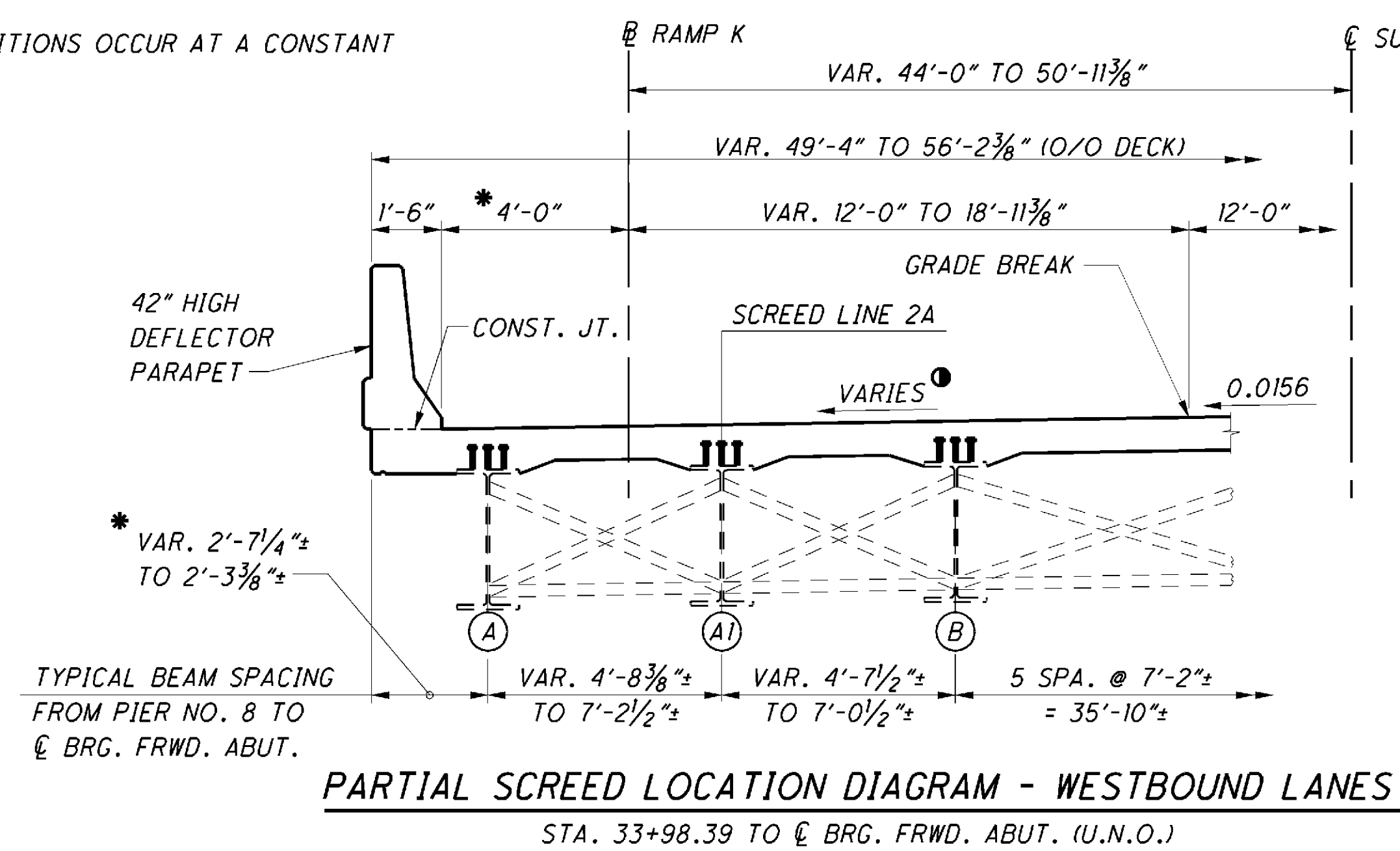
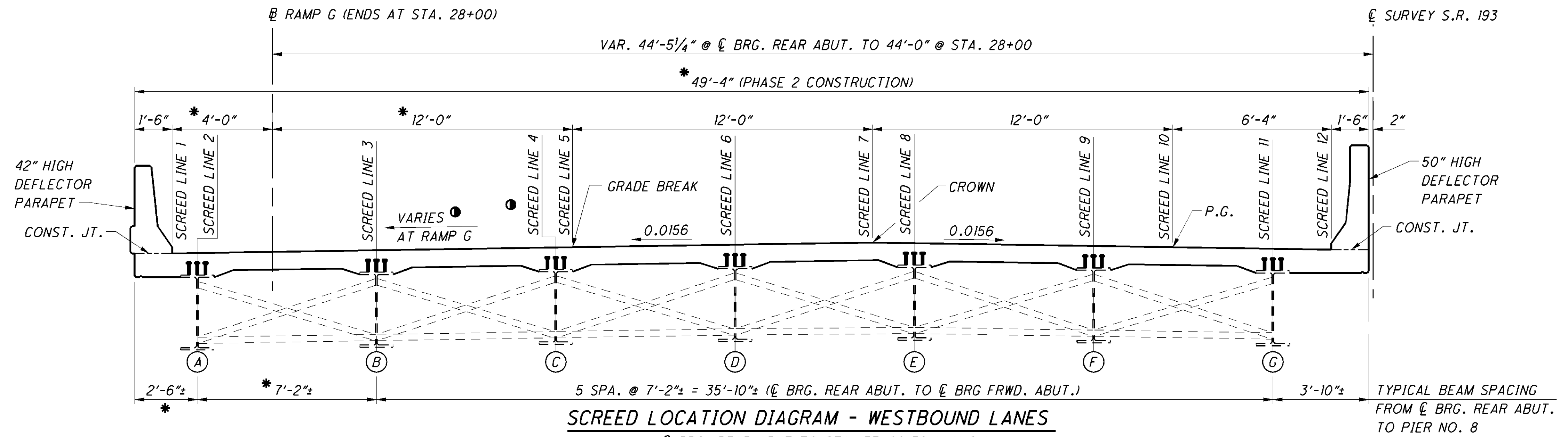
STA.	X-SLOPE
27+69.04	0.0241
28+00.00	0.0156
34+00.00	0.0156
35+46.57	0.0405

■ VARIABLE CROSS SLOPE

STA.	X-SLOPE
27+69.04	0.0225
28+08.31	0.0156
33+50.00	0.0156
35+66.23	0.0374

NOTES:

- FOR SCREED ELEVATIONS, SEE SHEETS 40/52 & 41/52.
- ALL CROSS-SLOPES ARE GIVEN PERPENDICULAR TO THE CENTERLINE OF CONSTRUCTION S.R. 193
- CROSS-SLOPE TRANSITIONS OCCUR AT A CONSTANT RATE OF CHANGE.



* SEE TRANSVERSE SECTIONS SHEETS 32/52 & 33/52 FOR DIMENSIONS & STATION LIMITATIONS.

\MAPR01\DATA\CIVIL\2007\13\MAH-193\STRUCTURES\MAH193_0072C\SHEETS\193_0072C50013.DGN
 3/19/2009 1:20:31 PM RMD\CLTZKY

DESIGN AGENCY CLAYTON SCHROEDER BURNS & CREW, INC. GPD ASSOCIATES 570 South Main Street, Suite 331, Akron, Ohio 44311 3309724100, 714.230.0210	
DATE 9-26-08	REVIEWED GGN
DRAWN DJC	STRUCTURE FILE NUMBER 5004470
DESIGNED T.J.W.	CHECKED DJC
SCREED LOCATION DIAGRAMS BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR	
MAH-193/422 -0.46/1.85 PID No. 25235	
39/52	
201 260	

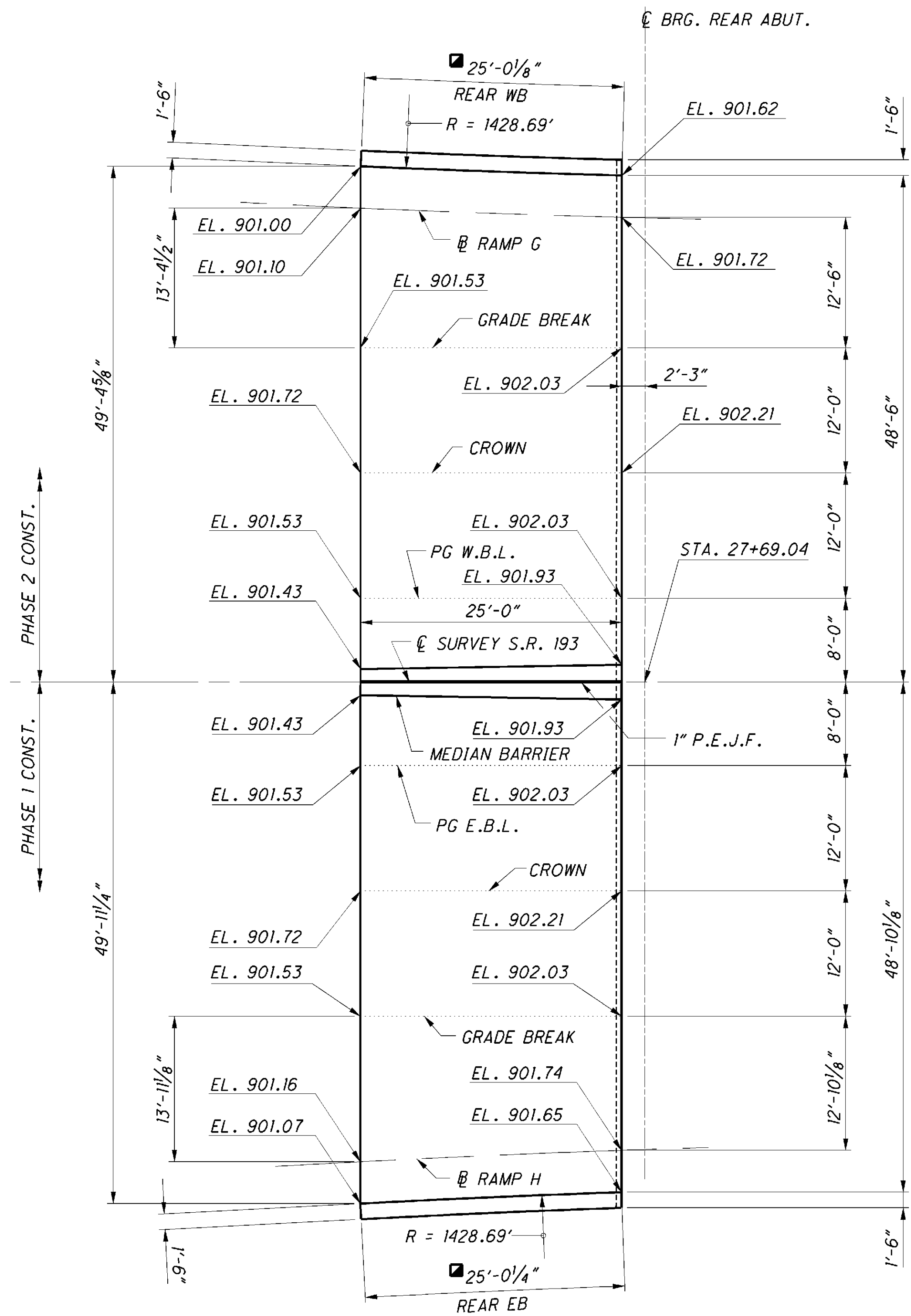
SCREED ELEVATIONS TABLE - WESTBOUND

LOCATION	SCREED LINE 1		SCREED LINE 2		SCREED LINE 2A		SCREED LINE 3		SCREED LINE 4		SCREED LINE 5		SCREED LINE 6		SCREED LINE 7		SCREED LINE 8		SCREED LINE 9		SCREED LINE 10		SCREED LINE 11		SCREED LINE 12			
	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.
☉ BRG. R.A.	27+69.04	901.68	27+69.04	901.71			27+69.04	901.89	27+69.04	902.06	27+69.04	902.07	27+69.04	902.18	27+69.04	902.26	27+69.04	902.24	27+69.04	902.12	27+69.04	902.07	27+69.04	902.01	27+69.04	901.98		
¼ SPAN 1	27+85.26	902.12	27+85.26	902.15			27+85.26	902.29	27+85.26	902.43	27+85.26	902.44	27+85.26	902.54	27+85.26	902.63	27+85.26	902.60	27+85.26	902.49	27+85.26	902.44	27+85.26	902.38	27+85.26	902.35		
½ SPAN 1	28+01.48	902.54	28+01.48	902.55			28+01.48	902.66	28+01.48	902.77	28+01.48	902.79	28+01.48	902.89	28+01.48	902.97	28+01.48	902.95	28+01.48	902.83	28+01.48	902.79	28+01.48	902.73	28+01.48	902.69		
¾ SPAN 1	28+17.70	902.86	28+17.70	902.88			28+17.70	902.99	28+17.70	903.10	28+17.70	903.11	28+17.70	903.21	28+17.70	903.30	28+17.70	903.27	28+17.70	903.16	28+17.70	903.11	28+17.70	903.05	28+17.70	903.02		
☉ BRG. PIER 1	28+33.92	903.20	28+33.92	903.22			28+33.92	903.33	28+33.92	903.44	28+33.92	903.45	28+33.92	903.55	28+33.92	903.64	28+33.92	903.61	28+33.92	903.50	28+33.92	903.45	28+33.92	903.39	28+33.92	903.35		
EXIST. SPLICE 1			28+52.72	903.64			28+52.72	903.75	28+52.72	903.87			28+52.72	903.98			28+52.72	904.04	28+52.72	903.93			28+52.72	903.82				
¼ SPAN 2	28+57.42	903.73	28+57.42	903.75			28+57.42	903.86	28+57.42	903.97			28+57.42	904.09	28+57.42	904.17	28+57.42	904.15	28+57.42	904.03	28+57.42	903.99	28+57.42	903.93	28+57.42	903.89		
½ SPAN 2	28+80.91	904.26	28+80.91	904.27			28+80.91	904.38	28+80.91	904.50			28+80.91	904.61	28+80.91	904.69	28+80.91	904.67	28+80.91	904.56	28+80.91	904.51	28+80.91	904.45	28+80.91	904.42		
¾ SPAN 2	29+04.41	904.73	29+04.41	904.74			29+04.41	904.85	29+04.41	904.97			29+04.41	905.08	29+04.41	905.16	29+04.41	905.14	29+04.41	905.03	29+04.41	904.98	29+04.41	904.92	29+04.41	904.88		
☉ BRG. PIER 2	29+27.90	905.19	29+27.90	905.21			29+27.90	905.32	29+27.90	905.43			29+27.90	905.54	29+27.90	905.63	29+27.90	905.60	29+27.90	905.49	29+27.90	905.44	29+27.90	905.38	29+27.90	905.34		
EXIST. SPLICE 2			29+46.68	905.62			29+46.68	905.73	29+46.68	905.85			29+46.68	905.96			29+46.68	906.02	29+46.68	905.91			29+46.68	905.80				
¼ SPAN 3	29+51.38	905.71	29+51.38	905.73			29+51.38	905.84	29+51.38	905.95			29+51.38	906.06	29+51.38	906.15	29+51.38	906.12	29+51.38	906.01	29+51.38	905.97	29+51.38	905.92	29+51.38	905.88		
½ SPAN 3	29+74.85	906.23	29+74.85	906.25			29+74.85	906.36	29+74.85	906.47			29+74.85	906.58	29+74.85	906.67	29+74.85	906.64	29+74.85	906.53	29+74.85	906.50	29+74.85	906.45	29+74.85	906.41		
¾ SPAN 3	29+98.33	906.71	29+98.33	906.73			29+98.33	906.84	29+98.33	906.95			29+98.33	907.06	29+98.33	907.15	29+98.33	907.12	29+98.33	907.01	29+98.33	906.97	29+98.33	906.91	29+98.33	906.87		
☉ BRG. PIER 3	30+21.80	907.18	30+21.80	907.20			30+21.80	907.31	30+21.80	907.42			30+21.80	907.53	30+21.80	907.62	30+21.80	907.59	30+21.80	907.48	30+21.80	907.43	30+21.80	907.37	30+21.80	907.33		
EXIST. SPLICE 3			30+40.57	907.62			30+40.57	907.73	30+40.57	907.84			30+40.57	907.95			30+40.57	908.01	30+40.57	907.90			30+40.57	907.79				
¼ SPAN 4	30+45.27	907.71	30+45.27	907.72			30+45.27	907.84	30+45.27	907.95			30+45.27	908.06	30+45.27	908.14	30+45.27	908.12	30+45.27	908.01	30+45.27	907.96	30+45.27	907.90	30+45.27	907.86		
½ SPAN 4	30+68.74	908.23	30+68.74	908.24			30+68.74	908.35	30+68.74	908.47			30+68.74	908.58	30+68.74	908.66	30+68.74	908.64	30+68.74	908.53	30+68.74	908.48	30+68.74	908.42	30+68.74	908.39		
¾ SPAN 4	30+92.20	908.70	30+92.20	908.72			30+92.20	908.83	30+92.20	908.94			30+92.20	909.06	30+92.20	909.14	30+92.20	909.11	30+92.20	909.00	30+92.20	908.96	30+92.20	908.90	30+92.20	908.86		
PROP. SPLICE 1			31+02.53	908.92			31+02.53	909.03	31+02.53	909.15			31+02.53	909.26			31+02.53	909.32	31+02.53	909.21			31+02.53	909.10				
PROP. SPLICE 2			31+09.10	909.05			31+09.10	909.17	31+09.10	909.28			31+09.10	909.39			31+09.10	909.45	31+09.10	909.34			31+09.10	909.23				
☉ BRG. PIER 4	31+15.67	909.17	31+15.67	909.19			31+15.67	909.30	31+15.67	909.41			31+15.67	909.52	31+15.67	909.61	31+15.67	909.58	31+15.67	909.47	31+15.67	909.42	31+15.67	909.36	31+15.67	909.32		
¼ SPAN 5	31+39.17	909.70	31+39.17	909.71			31+39.17	909.82	31+39.17	909.94			31+39.17	910.05	31+39.17	910.13	31+39.17	910.11	31+39.17	910.00	31+39.17	909.95	31+39.17	909.89	31+39.17	909.85		
½ SPAN 5	31+62.67	910.21	31+62.67	910.23			31+62.67	910.34	31+62.67	910.45			31+62.67	910.56	31+62.67	910.65	31+62.67	910.62	31+62.67	910.51	31+62.67	910.47	31+62.67	910.41	31+62.67	910.37		
¾ SPAN 5	31+86.16	910.69	31+86.16	910.71			31+86.16	910.82	31+86.16	910.93			31+86.16	911.04	31+86.16	911.13	31+86.16	911.10	31+86.16	910.99	31+86.16	910.94	31+86.16	910.88	31+86.16	910.85		
EXIST. SPLICE 4			31+90.86	910.80			31+90.86	910.91	31+90.86	911.02			31+90.86	911.13			31+90.86	911.19	31+90.86	911.08			31+90.86	910.97				
☉ BRG. PIER 5	32+09.66	911.17	32+09.66	911.18			32+09.66	911.29	32+09.66	911.41			32+09.66	911.52	32+09.66	911.60	32+09.66	911.58	32+09.66	911.47	32+09.66	911.42	32+09.66	911.35	32+09.66	911.32		
¼ SPAN 6	32+33.17	911.69	32+33.17	911.71			32+33.17	911.82	32+33.17	911.93			32+33.17	912.04	32+33.17	912.13	32+33.17	912.10	32+33.17	911.99	32+33.17	911.94	32+33.17	911.88	32+33.17	911.85		
½ SPAN 6	32+56.68	912.21	32+56.68	912.23			32+56.68	912.34	32+56.68	912.45			32+56.68	912.56	32+56.68	912.65	32+56.68	912.62	32+56.68	912.51	32+56.68	912.47	32+56.68	912.41	32+56.68	912.38		
¾ SPAN 6	32+80.18	912.69	32+80.18	912.70			32+80.18	912.82	32+80.18	912.93			32+80.18	913.04	32+80.18	913.12	32+80.18	913.10	32+80.18	912.99	32+80.18	912.94	32+80.18	912.88	32+80.18	912.85		
EXIST. SPLICE 5			32+84.88	912.79			32+84.88	912.91	32+84.88	913.02			32+84.88	913.13			32+84.88	913.19	32+84.88	913.08			32+84.88	912.97				
☉ BRG. PIER 6	33+03.69	913.16	33+03.69	913.18			33+03.69	913.29	33+03.69	913.40			33+03.69	913.51	33+03.69	913.60	33+03.69	913.57	33+03.69	913.46	33+03.69	913.41	33+03.69	913.35	33+03.69	913.31		
¼ SPAN 7	33+27.18	913.68	33+27.18	913.70			33+27.18	913.81	33+27.18	913.92			33+27.18	914.03	33+27.18	914.12	33+27.18	914.09	33+27.18	913.98	33+27.18	913.93	33+27.18	913.87	33+27.18	913.83		
½ SPAN 7	33+50.67	914.24	33+50.67	914.25			33+50.67	914.36	33+50.67	914.47			33+50.67	914.59	33+50.67	914.67	33+50.67	914.65	33+50.67	914.53	33+50.67	914.49	33+50.67	914.43	33+50.67	914.39		
¾ SPAN 7	33+74.15	914.78	33+74.15	914.80			33+74.15	914.91	33+74.15	915.02			33+74.15	915.13	33+74.15	915.21	33+74.15	915.19	33+74.15	915.08	33+74.15	915.03	33+74.15	914.97	33+74.15	914.93		
EXIST. SPLICE 6			33+78.85	914.90			33+78.85	915.01	33+78.85	915.13			33+78.85	915.24			33+78.85	915.30	33+78.85	915.19			33+78.85	915.07				
☉ BRG. PIER 7	33+97.64	915.35	33+97.64	915.36			33+97.64	915.47	33+97.64	915.59	33+97.64	915.60	33+97.64	915.70	33+97.64	915.78	33+97.64	915.76</										

SCREED ELEVATIONS TABLE - EASTBOUND

LOCATION	SCREED LINE 13		SCREED LINE 14		SCREED LINE 15		SCREED LINE 16		SCREED LINE 17		SCREED LINE 18		SCREED LINE 19		SCREED LINE 20		SCREED LINE 21		SCREED LINE 22		SCREED LINE 22A		SCREED LINE 23		SCREED LINE 24			
	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.
⊕ BRG. R.A.	27+69.04	901.98	27+69.04	902.00	27+69.04	902.07	27+69.04	902.11	27+69.04	902.23	27+69.04	902.26	27+69.04	902.18			27+69.04	902.07	27+69.04	901.90			27+69.04	901.74	27+69.04	901.70		
1/4 SPAN 1	27+85.26	902.35	27+85.26	902.37	27+85.26	902.44	27+85.26	902.48	27+85.26	902.59	27+85.26	902.63	27+85.26	902.55			27+85.26	902.43	27+85.26	902.29			27+85.26	902.15	27+85.26	902.12		
1/2 SPAN 1	28+01.48	902.69	28+01.48	902.71	28+01.48	902.79	28+01.48	902.82	28+01.48	902.94	28+01.48	902.97	28+01.48	902.89			28+01.48	902.78	28+01.48	902.66			28+01.48	902.53	28+01.48	902.52		
3/4 SPAN 1	28+17.70	903.02	28+17.70	903.04	28+17.70	903.11	28+17.70	903.15	28+17.70	903.26	28+17.70	903.30	28+17.70	903.22			28+17.70	903.11	28+17.70	902.99			28+17.70	902.88	28+17.70	902.86		
⊕ BRG. PIER 1	28+33.92	903.35	28+33.92	903.37	28+33.92	903.45	28+33.92	903.49	28+33.92	903.60	28+33.92	903.64	28+33.92	903.56			28+33.92	903.45	28+33.92	903.33			28+33.92	903.22	28+33.92	903.20		
EXIST. SPLICE 1			28+52.72	903.81			28+52.72	903.91			28+52.72	904.03					28+52.72	903.87	28+52.72	903.76			28+52.72	903.64				
1/4 SPAN 2	28+57.42	903.90	28+57.42	903.92	28+57.42	903.99	28+57.42	904.02	28+57.42	904.14	28+57.42	904.17	28+57.42	904.09			28+57.42	903.98	28+57.42	903.87			28+57.42	903.75	28+57.42	903.73		
1/2 SPAN 2	28+80.91	904.43	28+80.91	904.45	28+80.91	904.51	28+80.91	904.54	28+80.91	904.66	28+80.91	904.69	28+80.91	904.62			28+80.91	904.50	28+80.91	904.39			28+80.91	904.27	28+80.91	904.26		
3/4 SPAN 2	29+04.41	904.89	29+04.41	904.91	29+04.41	904.98	29+04.41	905.01	29+04.41	905.13	29+04.41	905.16	29+04.41	905.09			29+04.41	904.97	29+04.41	904.86			29+04.41	904.74	29+04.41	904.73		
⊕ BRG. PIER 2	29+27.90	905.34	29+27.90	905.36	29+27.90	905.44	29+27.90	905.48	29+27.90	905.59	29+27.90	905.63	29+27.90	905.55			29+27.90	905.44	29+27.90	905.32			29+27.90	905.21	29+27.90	905.19		
EXIST. SPLICE 2			29+46.68	905.78			29+46.68	905.89			29+46.68	906.01					29+46.68	905.85	29+46.68	905.74			29+46.68	905.62	29+46.68	905.59		
1/4 SPAN 3	29+51.38	905.87	29+51.38	905.89	29+51.38	905.97	29+51.38	906.00	29+51.38	906.11	29+51.38	906.15	29+51.38	906.07			29+51.38	905.96	29+51.38	905.84			29+51.38	905.73	29+51.38	905.71		
1/2 SPAN 3	29+74.85	906.40	29+74.85	906.42	29+74.85	906.49	29+74.85	906.52	29+74.85	906.63	29+74.85	906.67	29+74.85	906.59			29+74.85	906.48	29+74.85	906.36			29+74.85	906.25	29+74.85	906.23		
3/4 SPAN 3	29+98.33	906.87	29+98.33	906.89	29+98.33	906.96	29+98.33	907.00	29+98.33	907.11	29+98.33	907.15	29+98.33	907.07			29+98.33	906.96	29+98.33	906.84			29+98.33	906.73	29+98.33	906.71		
⊕ BRG. PIER 3	30+21.80	907.33	30+21.80	907.36	30+21.80	907.43	30+21.80	907.47	30+21.80	907.58	30+21.80	907.62	30+21.80	907.54			30+21.80	907.43	30+21.80	907.31			30+21.80	907.20	30+21.80	907.18		
EXIST. SPLICE 3			30+40.57	907.78			30+40.57	907.89			30+40.57	908.00					30+40.57	907.85	30+40.57	907.73			30+40.57	907.62	30+40.57	907.59		
1/4 SPAN 4	30+45.27	907.87	30+45.27	907.89	30+45.27	907.96	30+45.27	907.99	30+45.27	908.11	30+45.27	908.15	30+45.27	908.07			30+45.27	907.95	30+45.27	907.84			30+45.27	907.72	30+45.27	907.71		
1/2 SPAN 4	30+68.74	908.39	30+68.74	908.42	30+68.74	908.48	30+68.74	908.51	30+68.74	908.63	30+68.74	908.67	30+68.74	908.59			30+68.74	908.47	30+68.74	908.36			30+68.74	908.24	30+68.74	908.23		
3/4 SPAN 4	30+92.20	908.86	30+92.20	908.89	30+92.20	908.96	30+92.20	908.99	30+92.20	909.11	30+92.20	909.14	30+92.20	909.06			30+92.20	908.95	30+92.20	908.83			30+92.20	908.72	30+92.20	908.70		
PROP. SPLICE 1			31+02.53	909.08			31+02.53	909.19			31+02.53	909.31					31+02.53	909.27					31+02.53	909.15	31+02.53	909.14		
PROP. SPLICE 2			31+09.10	909.21			31+09.10	909.32			31+09.10	909.44					31+09.10	909.28					31+09.10	909.17				
⊕ BRG. PIER 4	31+15.67	909.32	31+15.67	909.35	31+15.67	909.42	31+15.67	909.46	31+15.67	909.57	31+15.67	909.61	31+15.67	909.53			31+15.67	909.42	31+15.67	909.30			31+15.67	909.19	31+15.67	909.17		
1/4 SPAN 5	31+39.17	909.85	31+39.17	909.87	31+39.17	909.95	31+39.17	909.98	31+39.17	910.10	31+39.17	910.13	31+39.17	910.06			31+39.17	909.94	31+39.17	909.83			31+39.17	909.71	31+39.17	909.70		
1/2 SPAN 5	31+62.67	910.38	31+62.67	910.40	31+62.67	910.47	31+62.67	910.50	31+62.67	910.61	31+62.67	910.65	31+62.67	910.57			31+62.67	910.46	31+62.67	910.34			31+62.67	910.23	31+62.67	910.21		
3/4 SPAN 5	31+86.16	910.85	31+86.16	910.87	31+86.16	910.94	31+86.16	910.98	31+86.16	911.09	31+86.16	911.13	31+86.16	911.05			31+86.16	910.93	31+86.16	910.82			31+86.16	910.71	31+86.16	910.69		
EXIST. SPLICE 4			31+90.86	910.96			31+90.86	911.07			31+90.86	911.18					31+90.86	911.03	31+90.86	910.91			31+90.86	910.80				
⊕ BRG. PIER 5	32+09.66	911.32	32+09.66	911.34	32+09.66	911.42	32+09.66	911.45	32+09.66	911.57	32+09.66	911.60	32+09.66	911.53			32+09.66	911.41	32+09.66	911.30			32+09.66	911.18	32+09.66	911.17		
1/4 SPAN 6	32+33.17	911.86	32+33.17	911.88	32+33.17	911.95	32+33.17	911.98	32+33.17	912.09	32+33.17	912.13	32+33.17	912.05			32+33.17	911.94	32+33.17	911.82			32+33.17	911.71	32+33.17	911.69		
1/2 SPAN 6	32+56.68	912.39	32+56.68	912.41	32+56.68	912.47	32+56.68	912.50	32+56.68	912.62	32+56.68	912.65	32+56.68	912.58			32+56.68	912.46	32+56.68	912.35			32+56.68	912.23	32+56.68	912.22		
3/4 SPAN 6	32+80.18	912.86	32+80.18	912.88	32+80.18	912.95	32+80.18	912.98	32+80.18	913.09	32+80.18	913.13	32+80.18	913.05			32+80.18	912.94	32+80.18	912.82			32+80.18	912.71	32+80.18	912.69		
EXIST. SPLICE 5			32+84.88	912.97			32+84.88	913.07			32+84.88	913.14					32+84.88	913.03	32+84.88	912.91			32+84.88	912.80				
⊕ BRG. PIER 6	33+03.69	913.31	33+03.69	913.33	33+03.69	913.41	33+03.69	913.45	33+03.69	913.56	33+03.69	913.60	33+03.69	913.52			33+03.69	913.41	33+03.69	913.29			33+03.69	913.18	33+03.69	913.16		
1/4 SPAN 7	33+27.18	913.83	33+27.18	913.85	33+27.18	913.93	33+27.18	913.96	33+27.18	914.08	33+27.18	914.11	33+27.18	914.03			33+27.18	913.92	33+27.18	913.81			33+27.18	913.68	33+27.18	913.67		
1/2 SPAN 7	33+50.67	914.38	33+50.67	914.40	33+50.67	914.48	33+50.67	914.51	33+50.67	914.63	33+50.67	914.66	33+50.67	914.58			33+50.67	914.47	33+50.67	914.36			33+50.67	914.23	33+50.67	914.23		
3/4 SPAN 7	33+74.15	914.92	33+74.15	914.94	33+74.15	915.02	33+74.15	915.06	33+74.15	915.17	33+74.15	915.21	33+74.15	915.13			33+74.15	915.02	33+74.15	915.01			33+74.15	914.88	33+74.15	914.73		
EXIST. SPLICE 6			33+78.85	915.05			33+78.85	915.17			33+78.85	915.28					33+78.85	915.12	33+78.85	914.99			33+78.85	914.83				
⊕ BRG. PIER 7	33+97.64	915.50	33+97.64	915.52	33+97.64	915.60	33+97.64	915.63	33+97.64	915.75	33+97.64	915.78	33+97.64	915.71			33+97.64	915.60	33+97.64	915.59			33+97.64	915.44	33+97.64	915.25		
EXIST. SPLICE 7			</																									

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■ INDICATES MEASURED ALONG TOE OF PARAPET

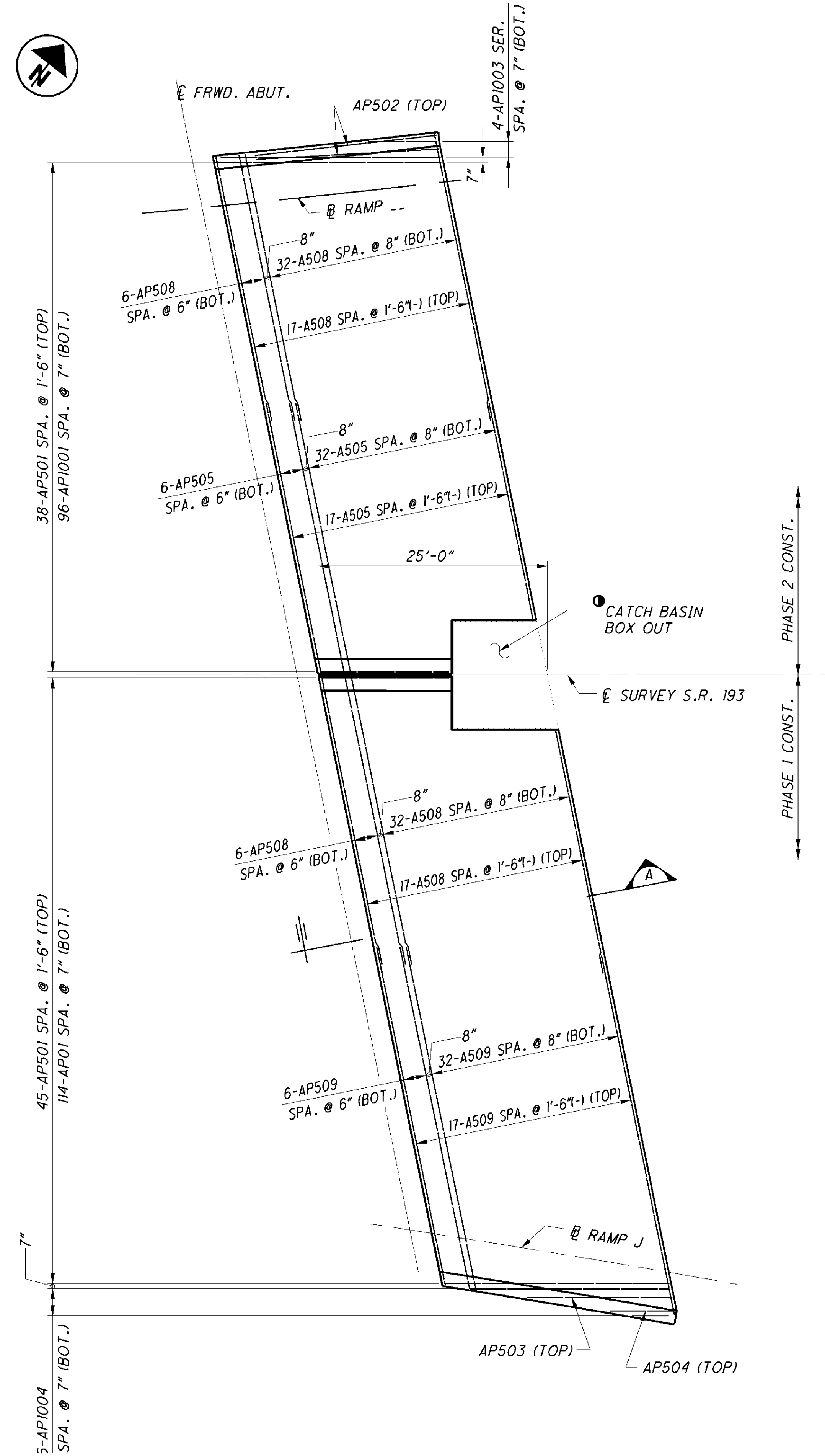
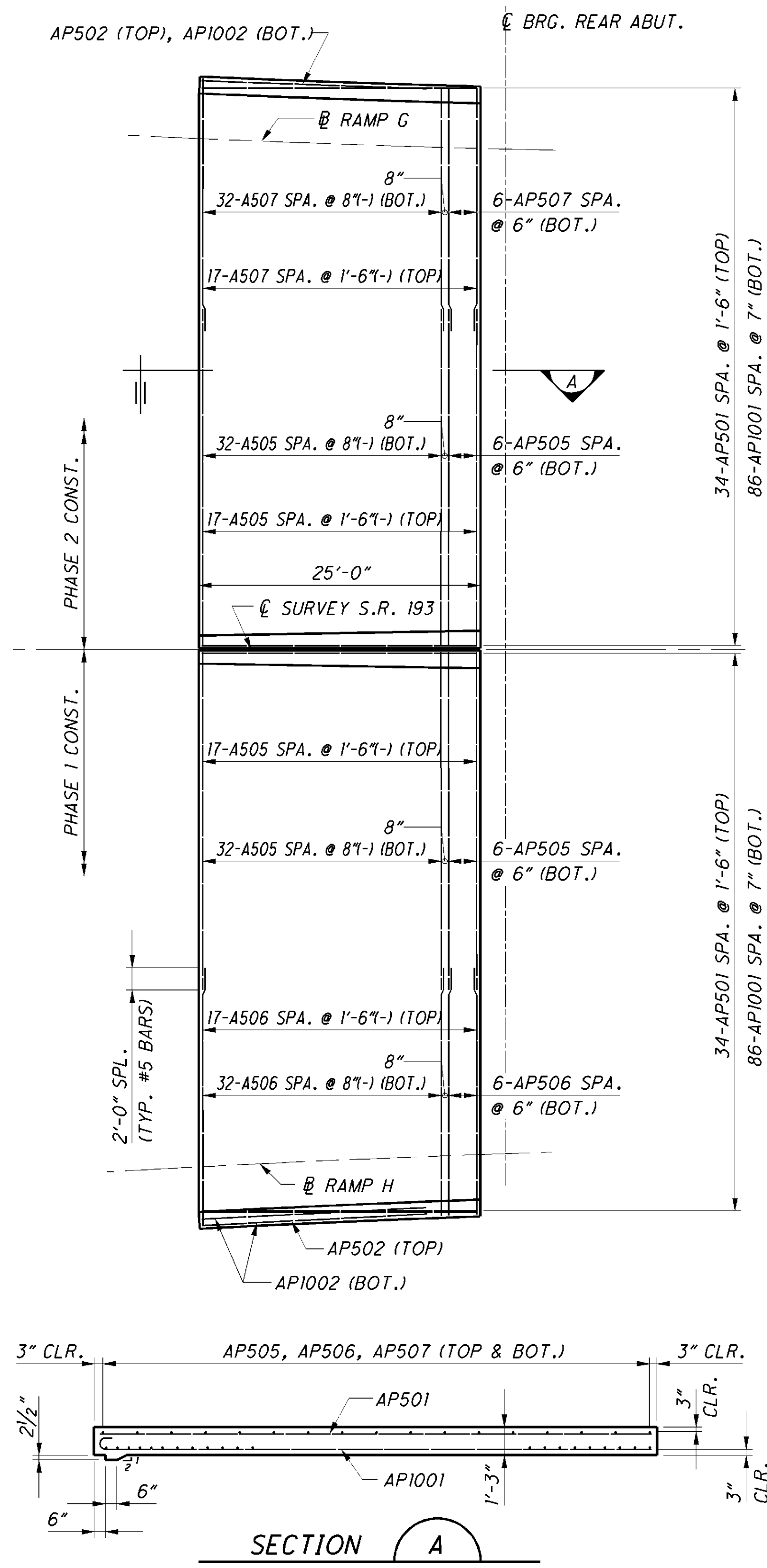
● CONTRACTOR TO DETERMINE DIMENSIONS OF EXIST. CATCH BASIN BOX OUT AFTER REMOVAL OF EXISTING PAVEMENT. PROPOSED APPROACH SLAB BARS SHALL BE CUT TO ACCOMMODATE BOX OUT. COST OF CUTTING BARS TO BE INCLUDED WITH ITEM 526 - REINFORCED CONCRETE APPROACH SLAB (T-15"), AS PER PLAN.

- NOTES:
1. FOR APPROACH SLAB REINFORCING, SEE SHT. NO. 43/52.
 2. FOR PARAPET DETAILS, SEE SHT. NO. 44/52.
 3. FOR MEDIAN BARRIER DETAILS, SEE SHT. NO. 45/52.
 4. FOR DETAILS NOT SHOWN, SEE STD. DWG. NO. AS-1-81.



DESIGN AGENCY GRAND PRAIRIE ENGINEERING & DESIGN, INC. 520 South Main Street, Suite 2311, Morris, Ohio 44131 330.272.2100 / 1.419.239.2101	
DATE	9-26-08
REVIEWED	CGN
STRUCTURE FILE NUMBER	5004470
DRAWN	RPR
REVISOR	RHC
DESIGNED	RPR
CHECKED	RHC
APPROACH SLAB GEOMETRY DETAILS BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR	
MAH-193/422 -0.46/1.85 PID No. 25235	42 / 52 204 260

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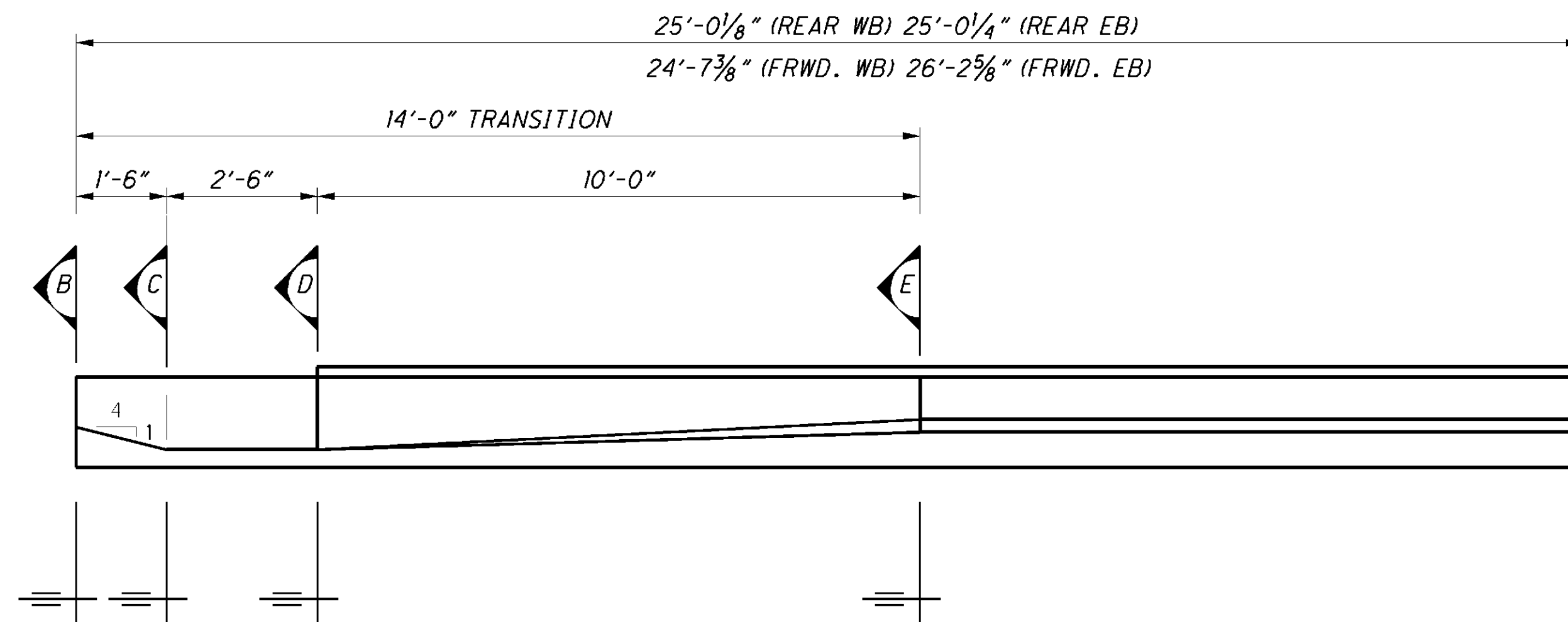
CONTRACTOR TO DETERMINE DIMENSIONS OF EXIST. CATCH BASIN BOX OUT AFTER REMOVAL OF EXISTING PAVEMENT. PROPOSED APPROACH SLAB BARS SHALL BE CUT TO ACCOMADATE BOX OUT. COST OF CUTTING BARS TO BE INCLUDED WITH ITEM 526 - REINFORCED CONCRETE APPROACH SLAB (T-15"), AS PER PLAN.

DESIGN AGENCY
 CLAYTON SCHOENBERG BURNS & CREW, INC.
 GPD ASSOCIATES
 570 South Main Street, Suite 1311, Akron, Ohio 44311
 330.974.2100 • Fax 330.974.2101

DESIGNED	RPR	CHECKED	RHC
DRAWN	RPR	REVISED	
REVIEWED	CGN	STRUCTURE FILE NUMBER	5004470
DATE	9-26-08		

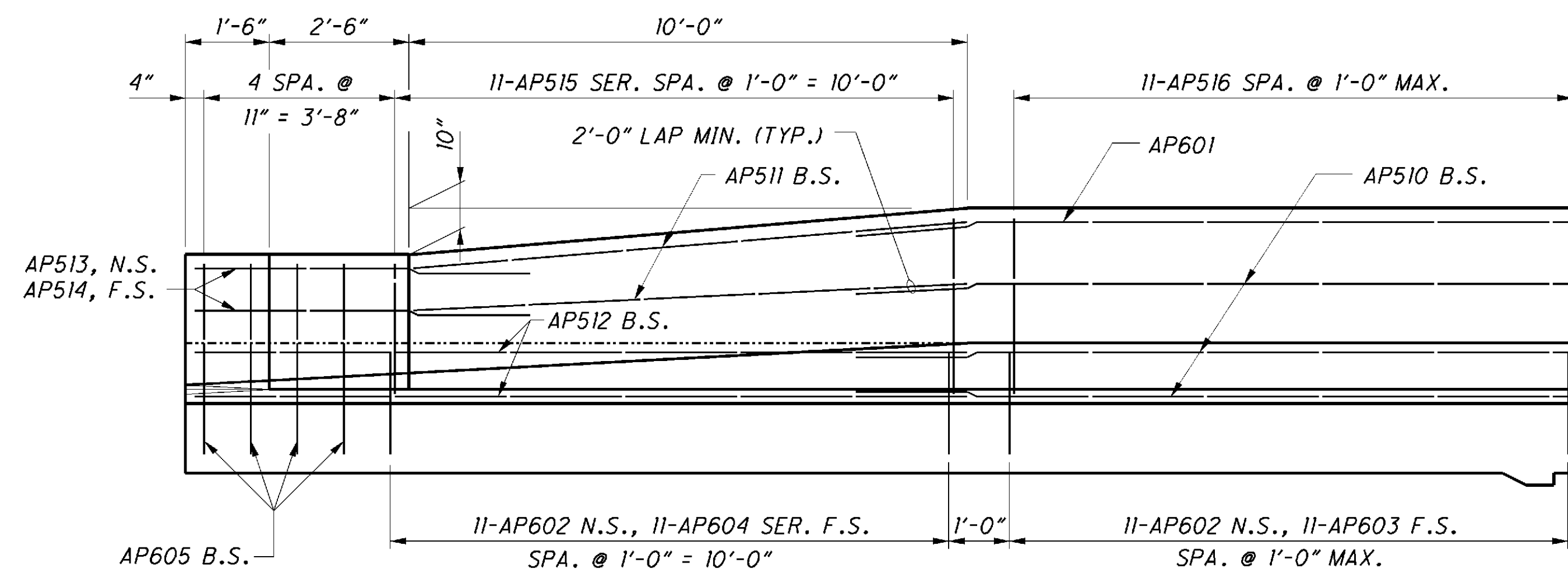
APPROACH SLAB REINFORCING
 BRIDGE NO. MAH-193-0072
 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR

MAH-193/422
 -0.46/1.85
 PID No. 25235



PARAPET PLAN

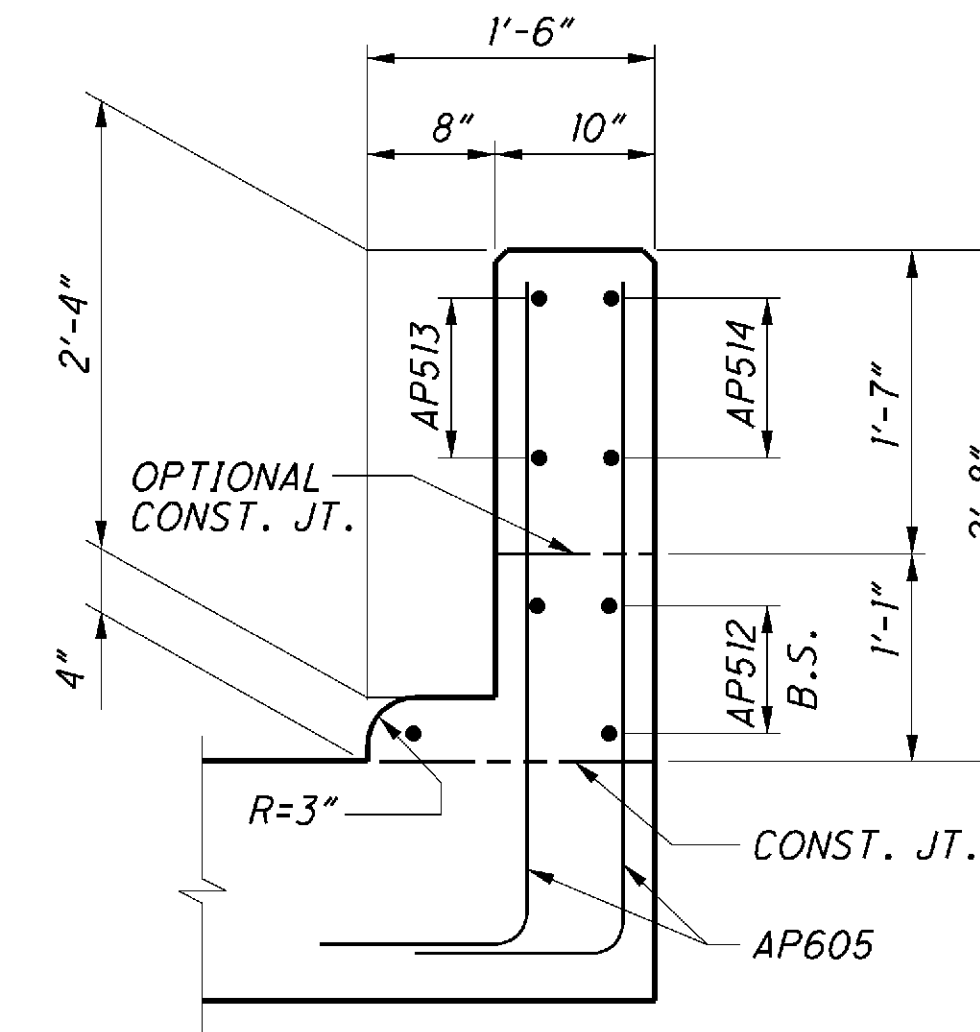
REAR WB AND FRWD. EB SHOWN
REAR EB AND FRWD. WB SIMILAR BUT OPPOSITE



PARAPET ELEVATION

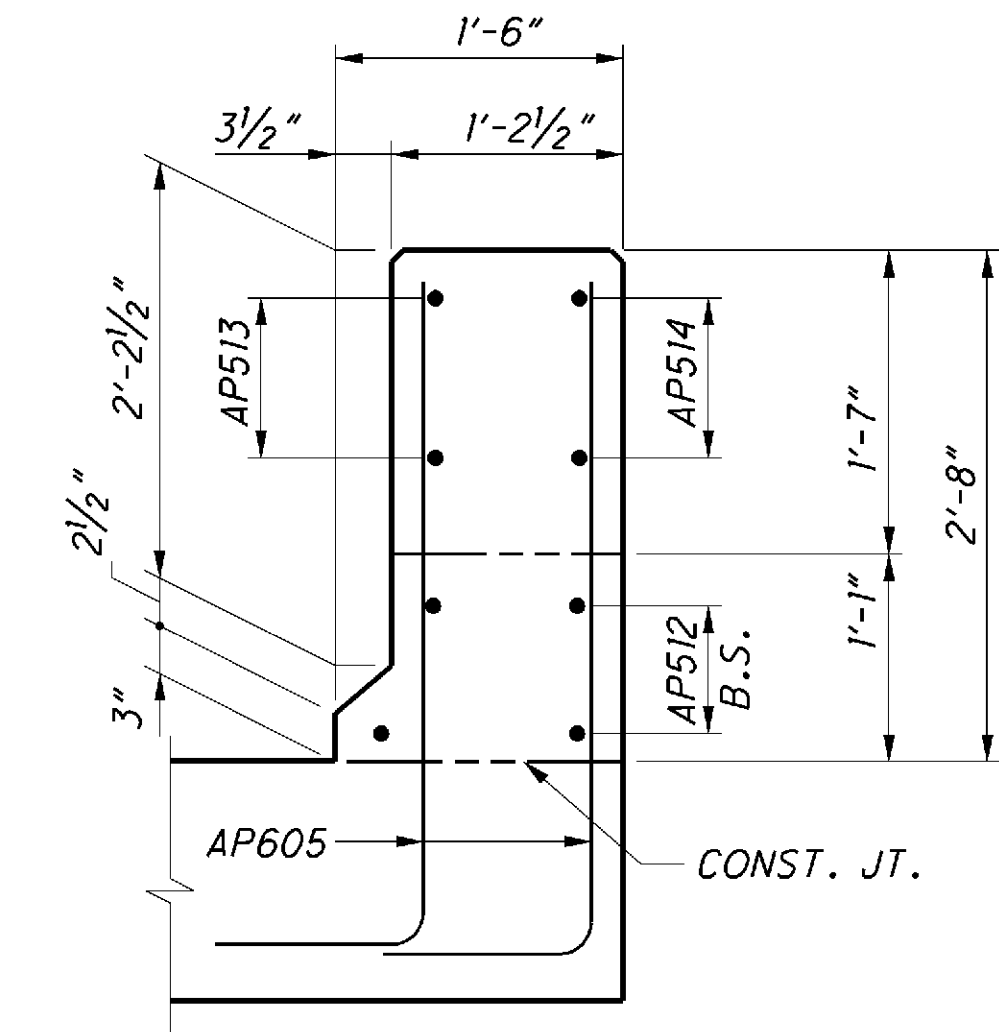
LEGEND

▲ LIMITS OF ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE).



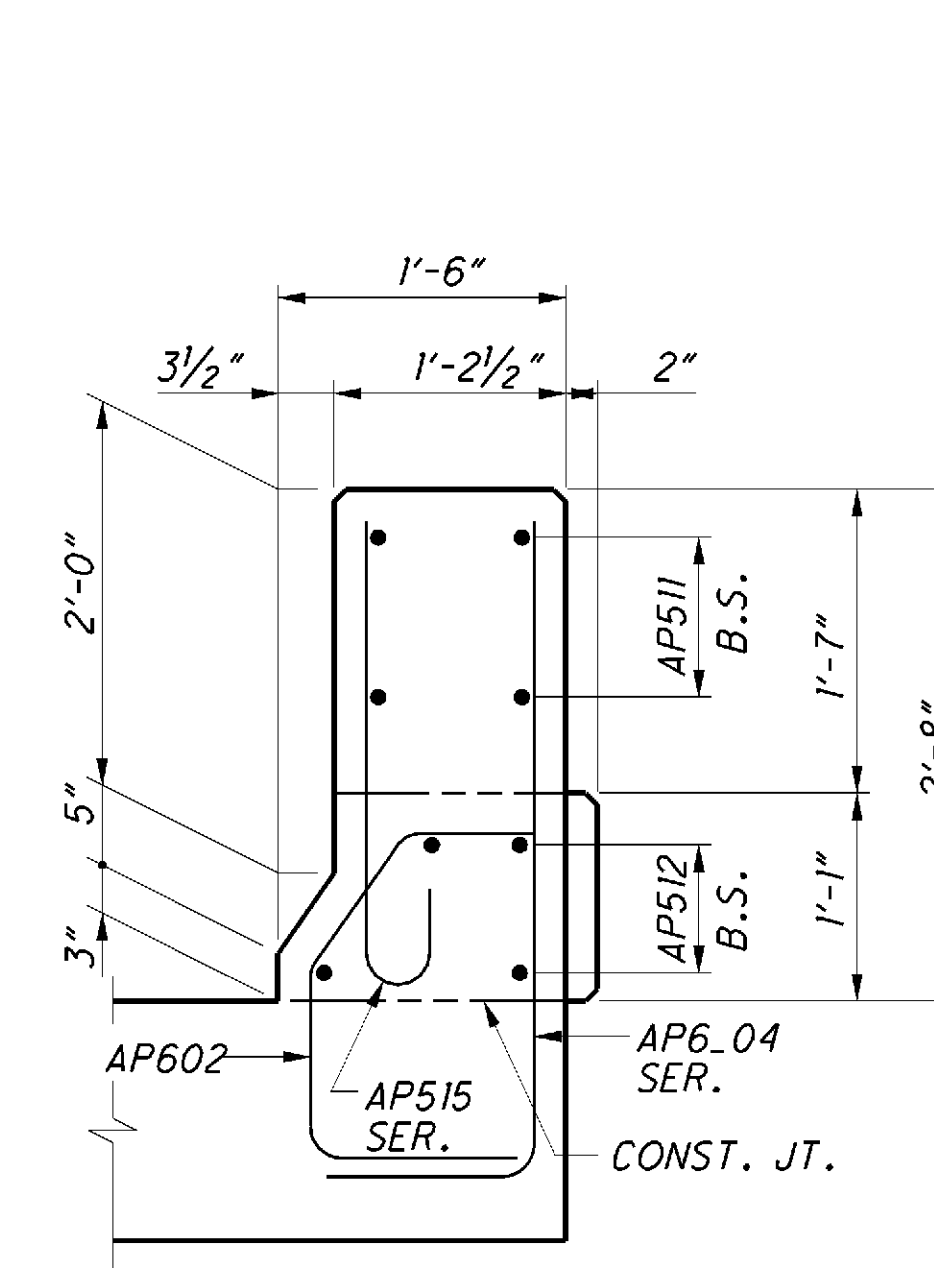
SECTION B

SLAB REINFORCING NOT SHOWN FOR CLARITY



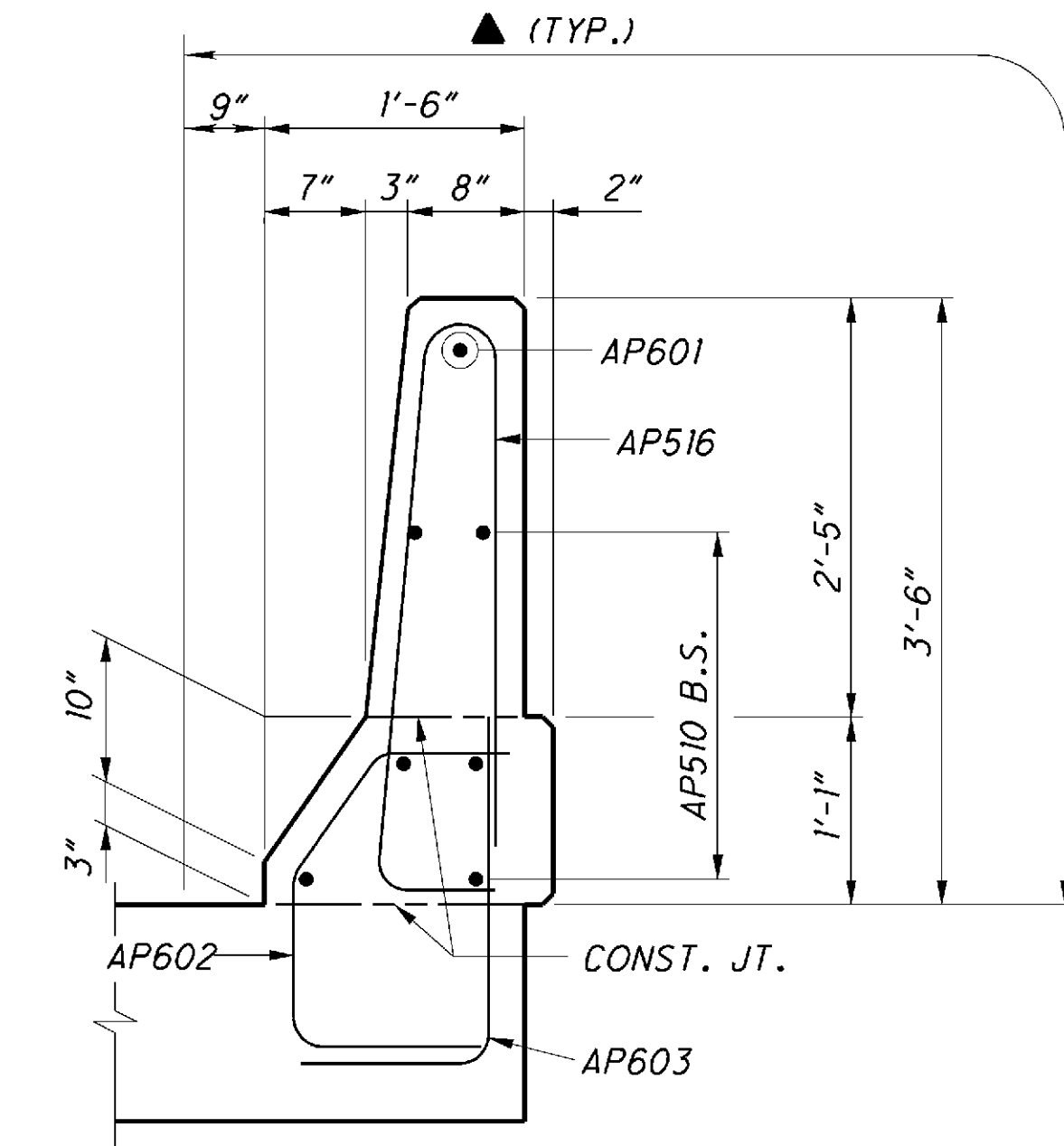
SECTION C

SLAB REINFORCING NOT SHOWN FOR CLARITY



SECTION D

SLAB REINFORCING NOT SHOWN FOR CLARITY



SECTION E

SLAB REINFORCING NOT SHOWN FOR CLARITY

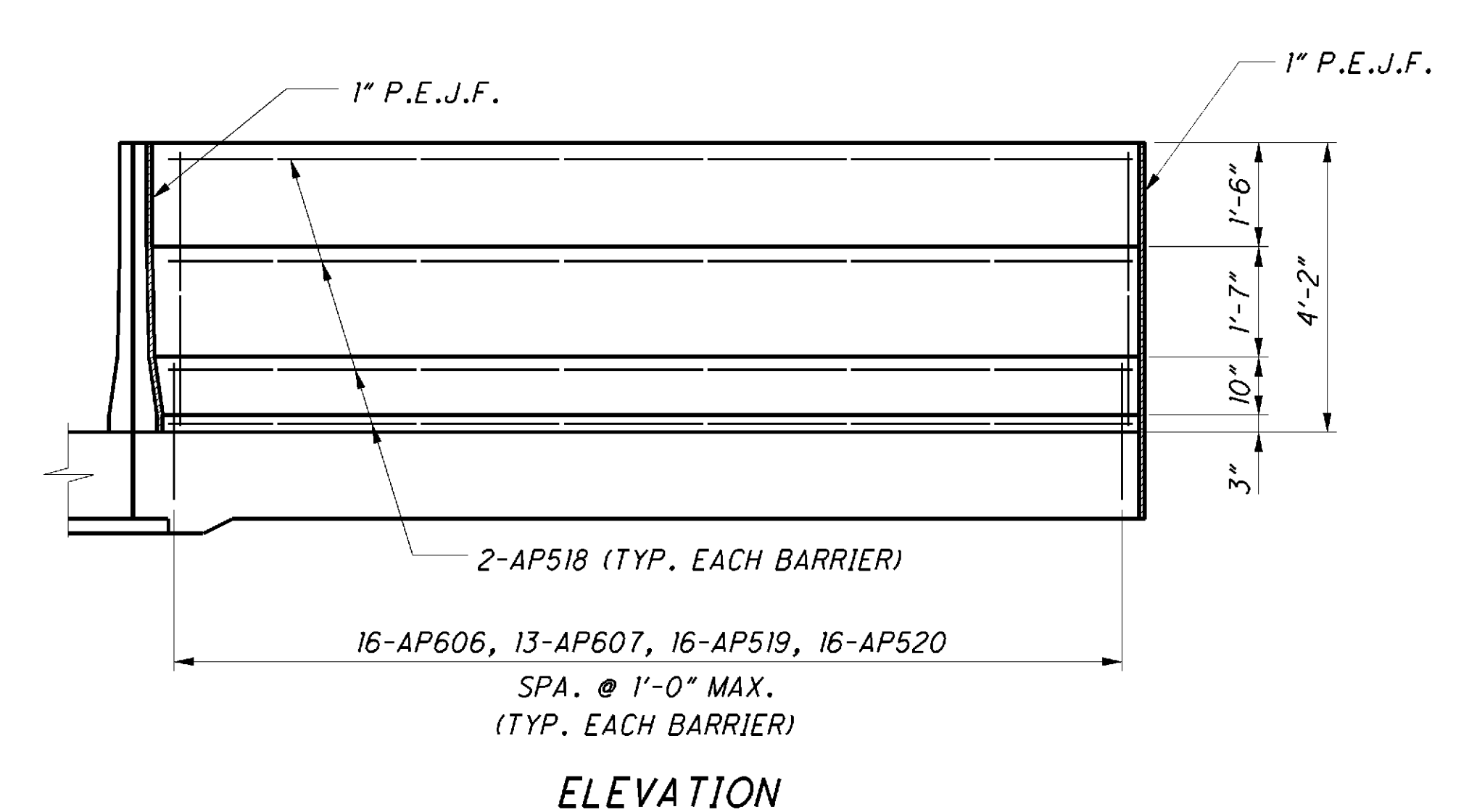
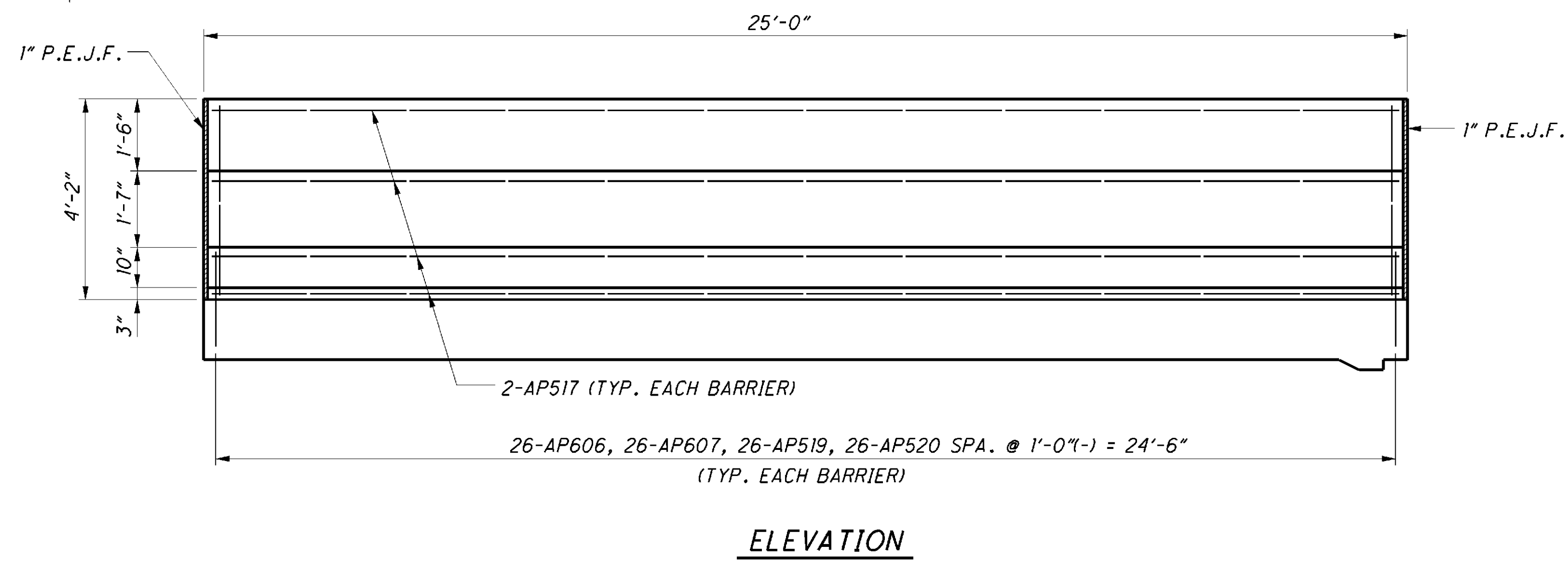
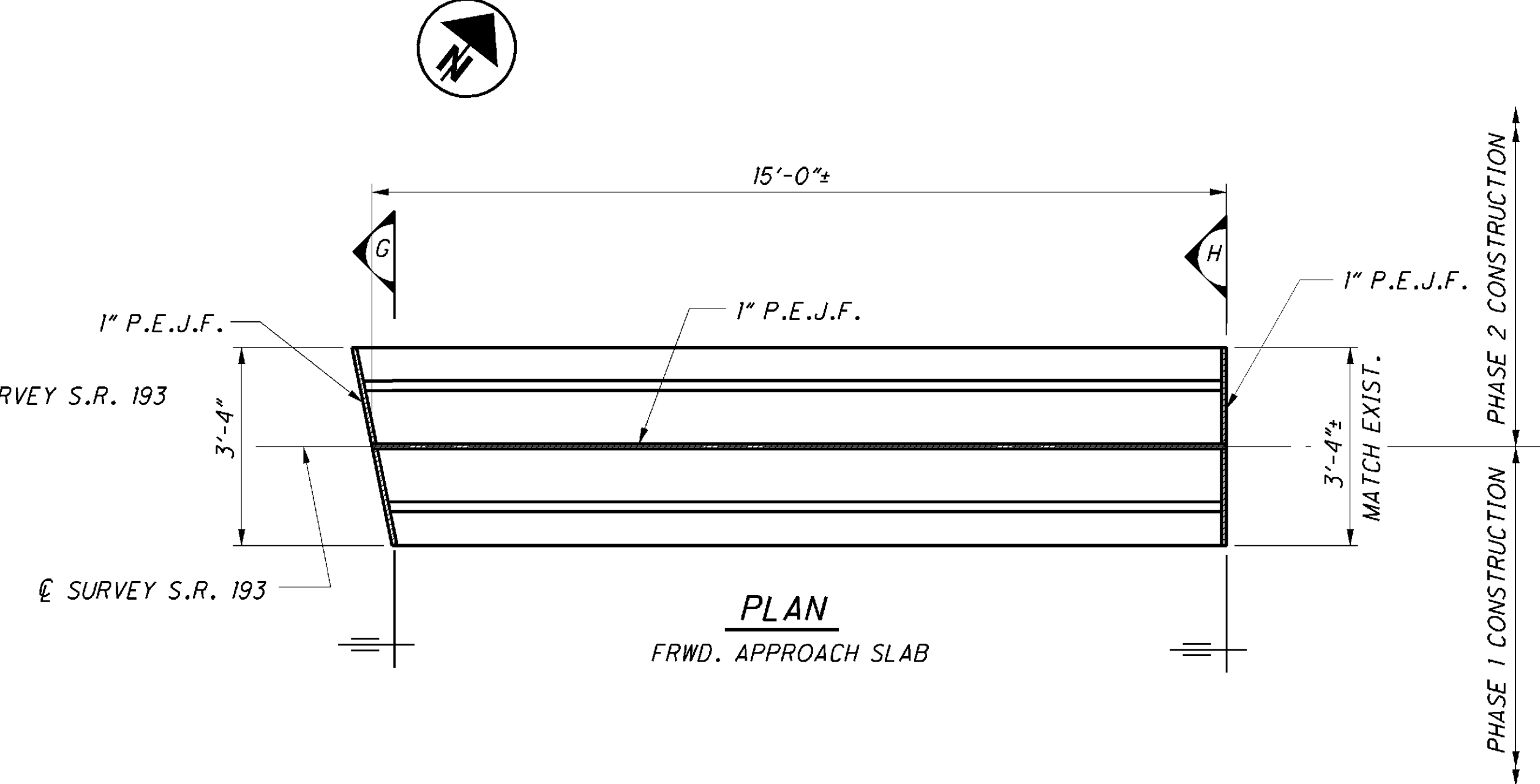
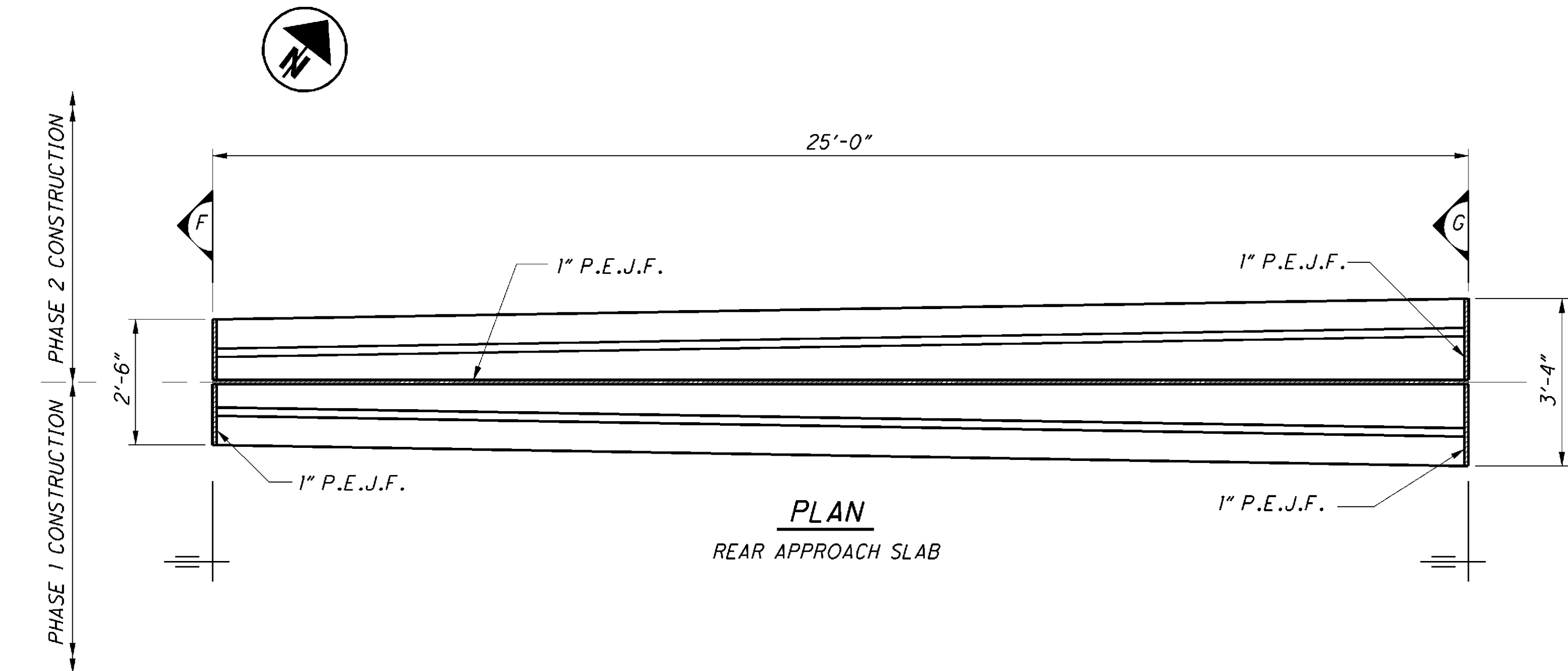
NOTE:

PARAPETS MOUNTED TO APPROACH SLABS, INCLUDING ALL ASSOCIATED REINFORCING STEEL, SHALL BE INCLUDED FOR PAYMENT WITH ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T-15%), AS PER PLAN.

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DESIGN AGENCY CLAYTON SCHROEDER BURNS & CREW, INC.		DATE 9-26-08	
DRAWN RPR		REVIEWED CGN	
DESIGNED RPR		STRUCTURE FILE NUMBER 5004470	
CHECKED RHC		REVISED	
APPROACH SLAB PARAPET DETAILS BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR			
MAH-193/422 -0.46/1.85 PID No. 25235		44 / 52 	
DESIGN AGENCY GPD ASSOCIATES 570 South Main Street, Suite 2337, Akron, Ohio 44311 330.927.2100, Fax: 330.927.2101			

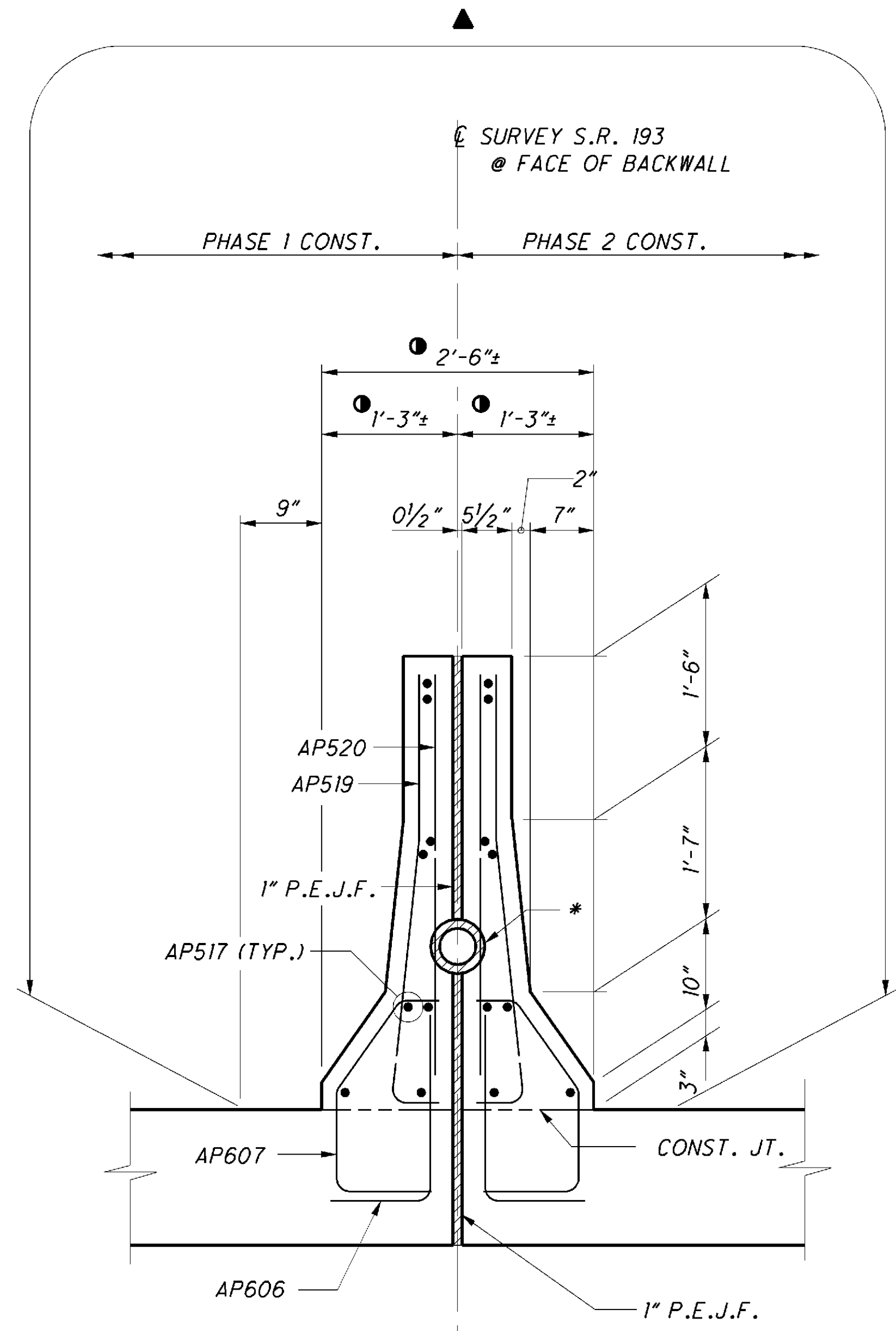
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- NOTES:**
- FOR SECTIONS F, G, AND H, SEE SHT. NO. 46/52.
 - MEDIAN BARRIER MOUNTED TO APPROACH SLABS, INCLUDING ALL ASSOCIATED REINFORCING STEEL, SHALL BE INCLUDED FOR PAYMENT WITH ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=15"), AS PER PLAN.

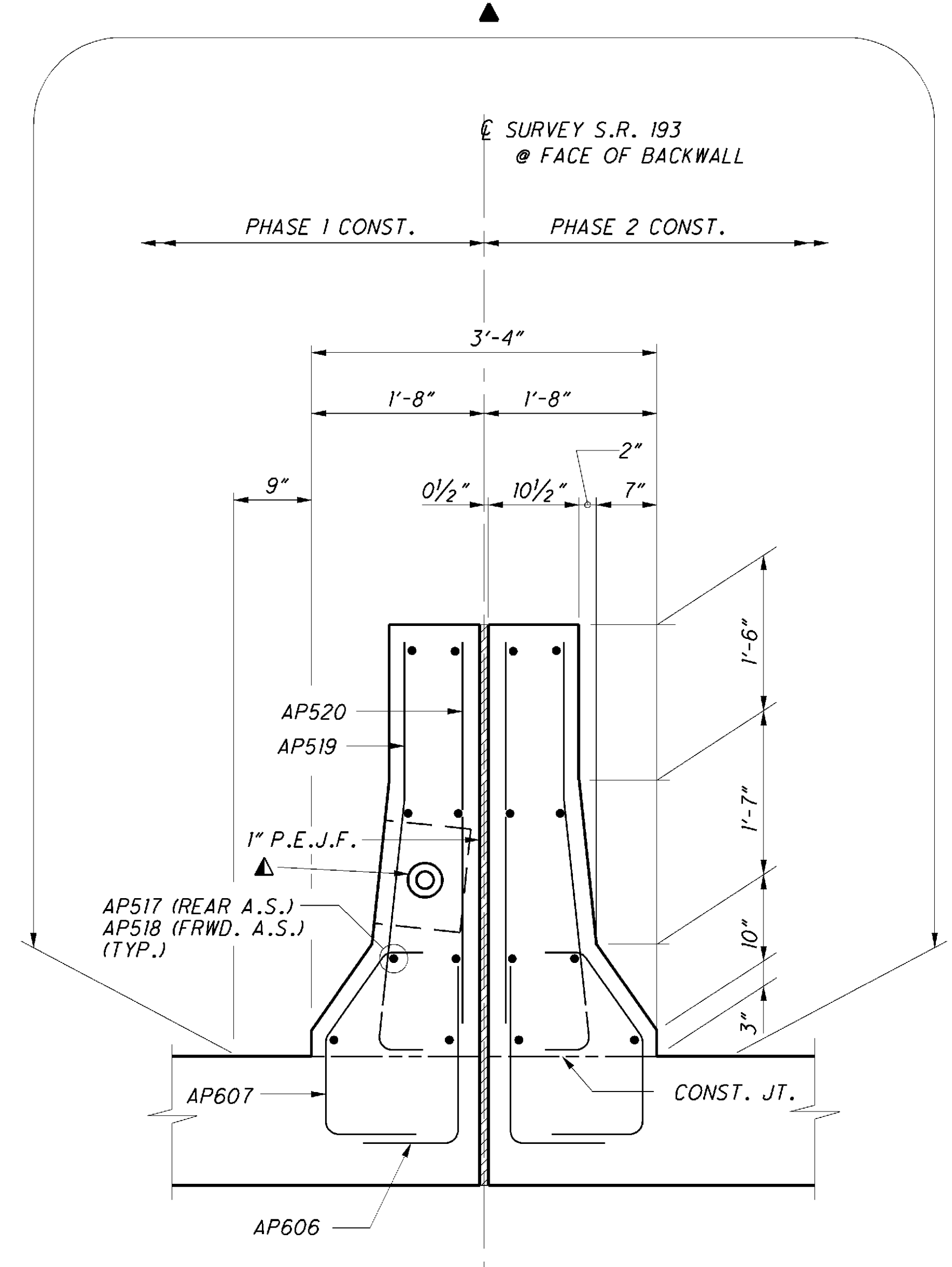
DESIGN AGENCY CLAVIS PYLE SCHUBERT BURNS & CREW, INC. GPD ASSOCIATES 520 South Main Street, Suite 2317, Akron, Ohio 44311 330.972.5100 • Fax: 330.972.5101			
DESIGNED	RPR	CHECKED	RHC
DRAWN	RPR	REVIEWED	GGN
DATE	9-26-08	STRUCTURE FILE NUMBER	5004470
APPROACH SLAB MEDIAN BARRIER DETAILS BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR			
MAH-193/422 -0.46/1.85 PID No. 25235		45 / 52 207 / 260	

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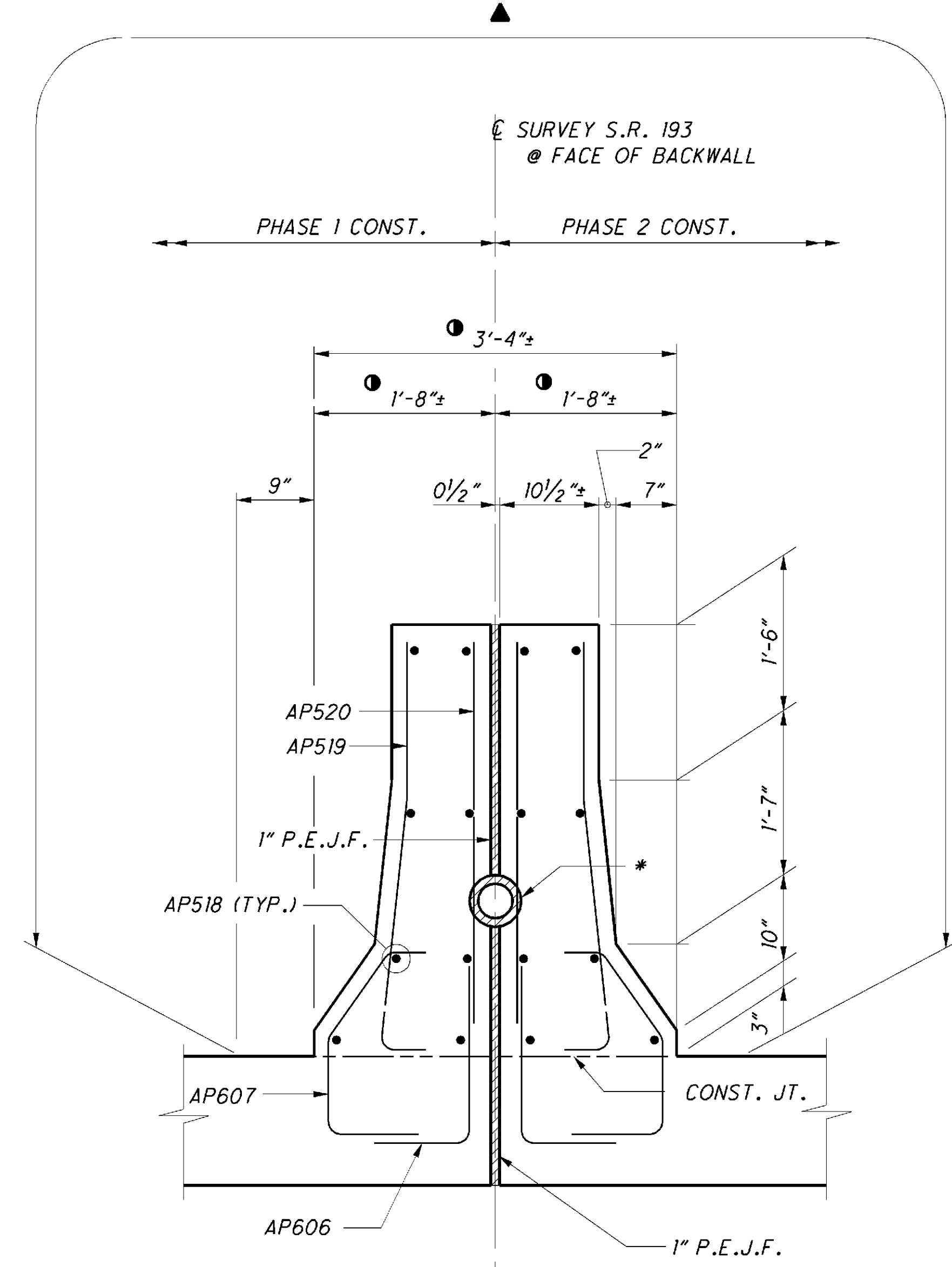
SECTION F
 ALL CALLOUTS AND DIMENSIONS
 ARE SYMETRICAL ABOUT CL

* 4" RACEWAY WITHIN PROPOSED APPROACH SLAB BARRIER MATCHING EXISTING MEDIAN BARRIER RACEWAY. WRAP 4" PVC RACEWAY CONDUIT WITH 1" SPONGE RUBBER EXPANSION MATERIAL WHEN ANY PORTION OF THE 4" CONDUIT IS LOCATED WITHIN THE JOINT BETWEEN THE EASTBOUND & WESTBOUND APPROACH SLAB BARRIERS. INCLUDE FLEXIBLE SPONGE RUBBER EXPANSION MATERIAL WITH 1" P.E.J.F. FOR PAYMENT.



SECTION G
 ALL CALLOUTS AND DIMENSIONS
 ARE SYMETRICAL ABOUT CL

- ▲ LIMITS OF ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
- MATCH EXSTING BARRIER
- ▲ 2" LIGHTING CONDUIT AND TRANSITION JUNCTION BOX WITHIN APPROACH SLAB BARRIER.

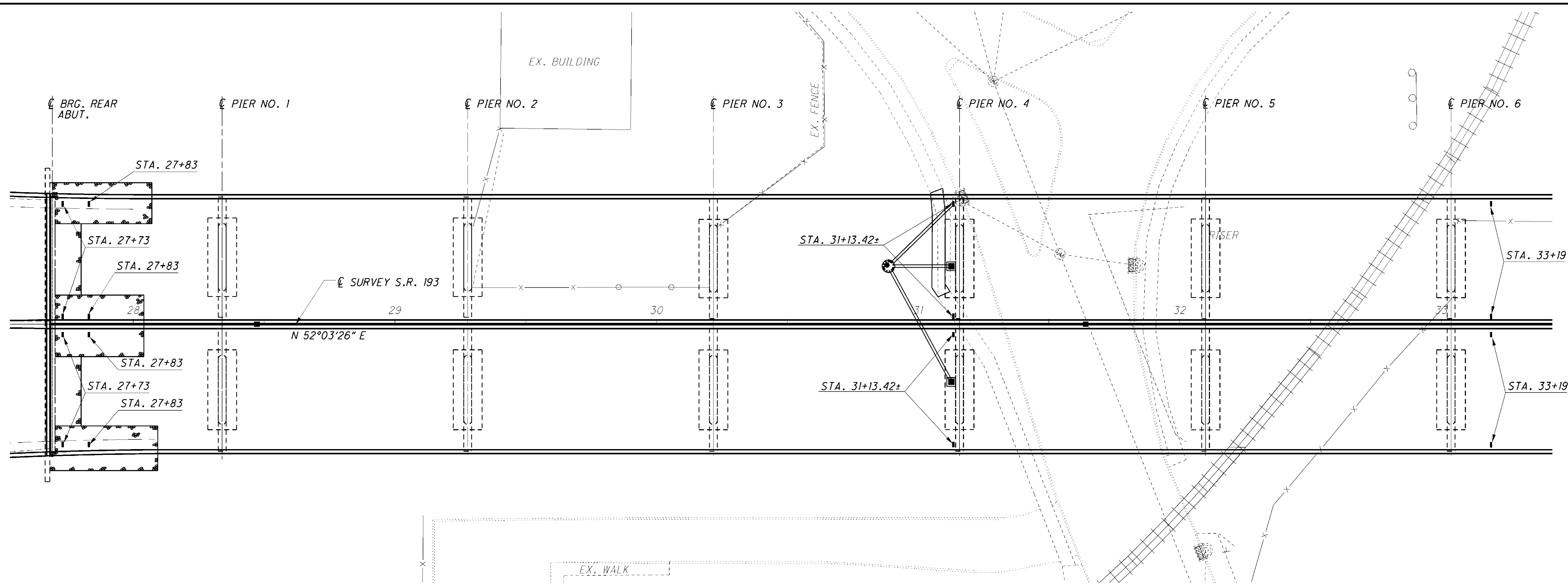


SECTION H
 ALL CALLOUTS AND DIMENSIONS
 ARE SYMETRICAL ABOUT CL

- NOTES**
1. FOR LOCATIONS OF SECTIONS F, G, & H, SEE SHEET 45/52
 2. ALL LIGHTING CONDUIT, RACEWAYS AND JUNCTION BOXES WITHIN THE APPROACH SLAB BARRIER SHALL BE INCLUDED FOR PAYMENT WITH THE LIGHTING ITEMS. FOR LIGHTING PLANS, SEE SHEETS 140 - 147.

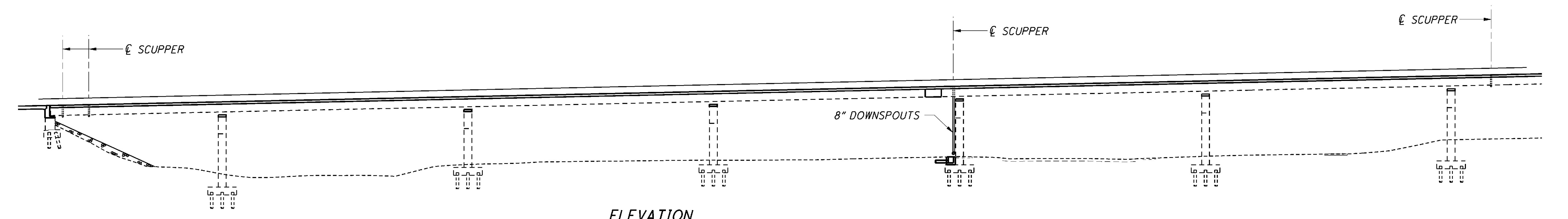
MAH-193/422 -0.46/1.85 PID No. 25235	APPROACH SLAB MEDIAN BARRIER SECTIONS BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR	DESIGNED RPR CHECKED RHC	DRAWN RPR REVISED	REVIEWED CGN STRUCTURE FILE NUMBER 5004470	DATE 9-26-08	DESIGN AGENCY CLAVIS PYLE SCHUBERT BURNS & CREWVAPE, INC. GPD ASSOCIATES 570 South Main Street, Suite 2337, Akron, Ohio 44311 330.974.2100, Fax 330.974.2101
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PLAN

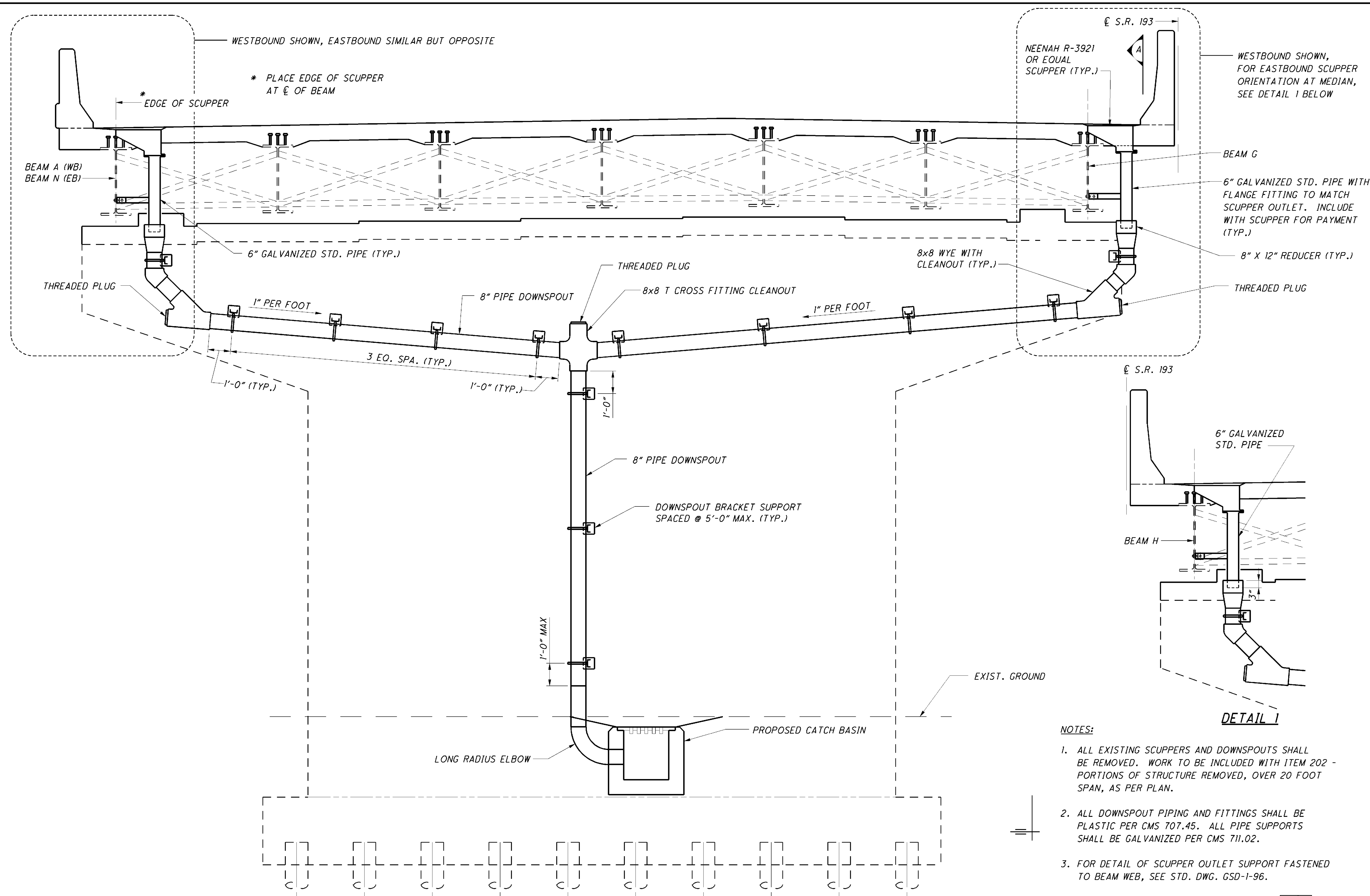
NOTE: SEE SHEET 117 FOR CATCH BASIN,
 MANHOLE AND STORM SEWER DETAILS.



ELEVATION

DESIGN AGENCY CLAYTON SCHWABER BURNS & CRONIN, INC. 930 South Main Street, Suite 337, Akron, Ohio 44311 330.252.1200, Fax: 330.252.1201	
DATE 9-26-08	REVIEWED CGN
DRAWN RPR	REVISION STRUCTURE FILE NUMBER 5004470
DESIGNED RPR	CHECKED TJW
DRAINAGE GENERAL PLAN BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR	
MAH-193/422 -0.46/1.85 PID No. 25235	
47 / 52	
209 260	

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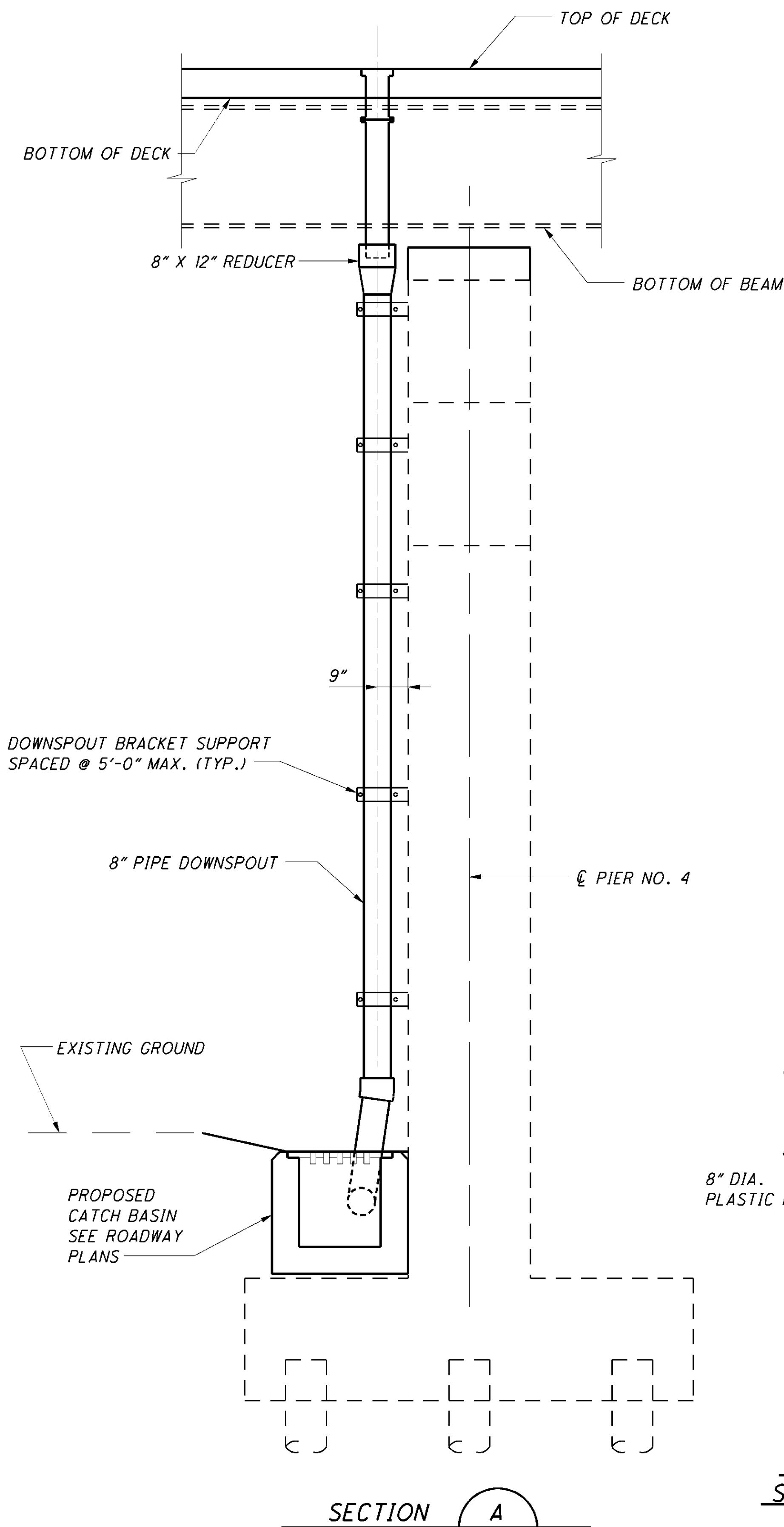
ELEVATION PIER 4
WESTBOUND SHOWN

- NOTES:**
1. ALL EXISTING SCUPPERS AND DOWNSPOUTS SHALL BE REMOVED. WORK TO BE INCLUDED WITH ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.
 2. ALL DOWNSPOUT PIPING AND FITTINGS SHALL BE PLASTIC PER CMS 707.45. ALL PIPE SUPPORTS SHALL BE GALVANIZED PER CMS 711.02.
 3. FOR DETAIL OF SCUPPER OUTLET SUPPORT FASTENED TO BEAM WEB, SEE STD. DWG. GSD-1-96.
 4. FOR DRAINAGE GENERAL PLAN, SEE SHEET 47/52.
 5. FOR SECTION A AND ADDITIONAL DETAILS, SEE SHEET 49/52.

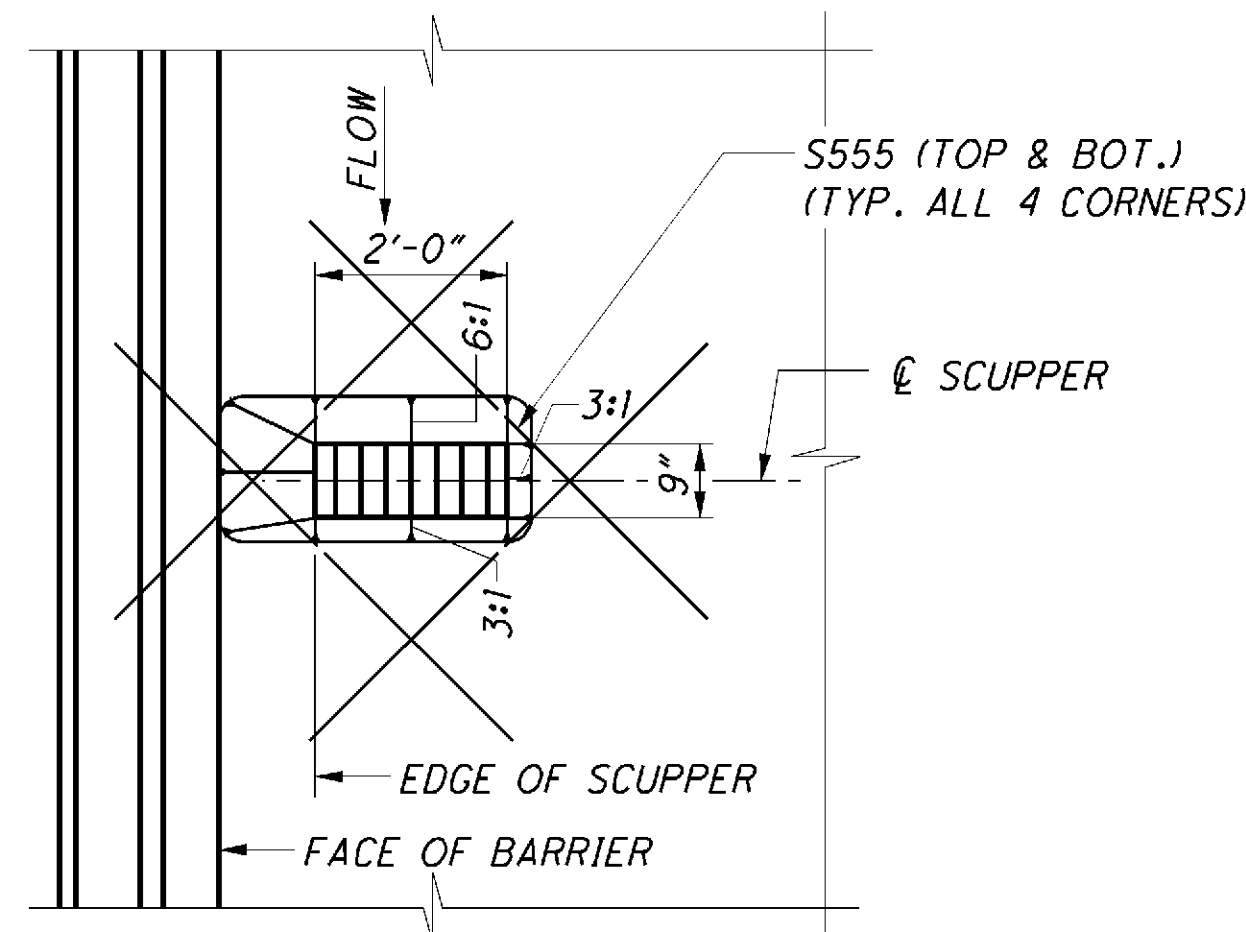
DRAINAGE & SCUPPER SECTION BRIDGE NO. MAH-193-0072 MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR	
DESIGNED RPR CHECKED TJW	DATE 9-26-08 REVIEWED CGN STRUCTURE FILE NUMBER 5004470
MAH-193/422 -0.46 / 1.85 PID No. 25235	
48 / 52	
210 260	

DESIGN AGENCY
 CLAYTON SCHOENBERG BURNS & CREW, INC.
GPD ASSOCIATES
 570 South Main Street, Suite 1331, Akron, Ohio 44311
 330.975.2100 • FAX 330.975.2101

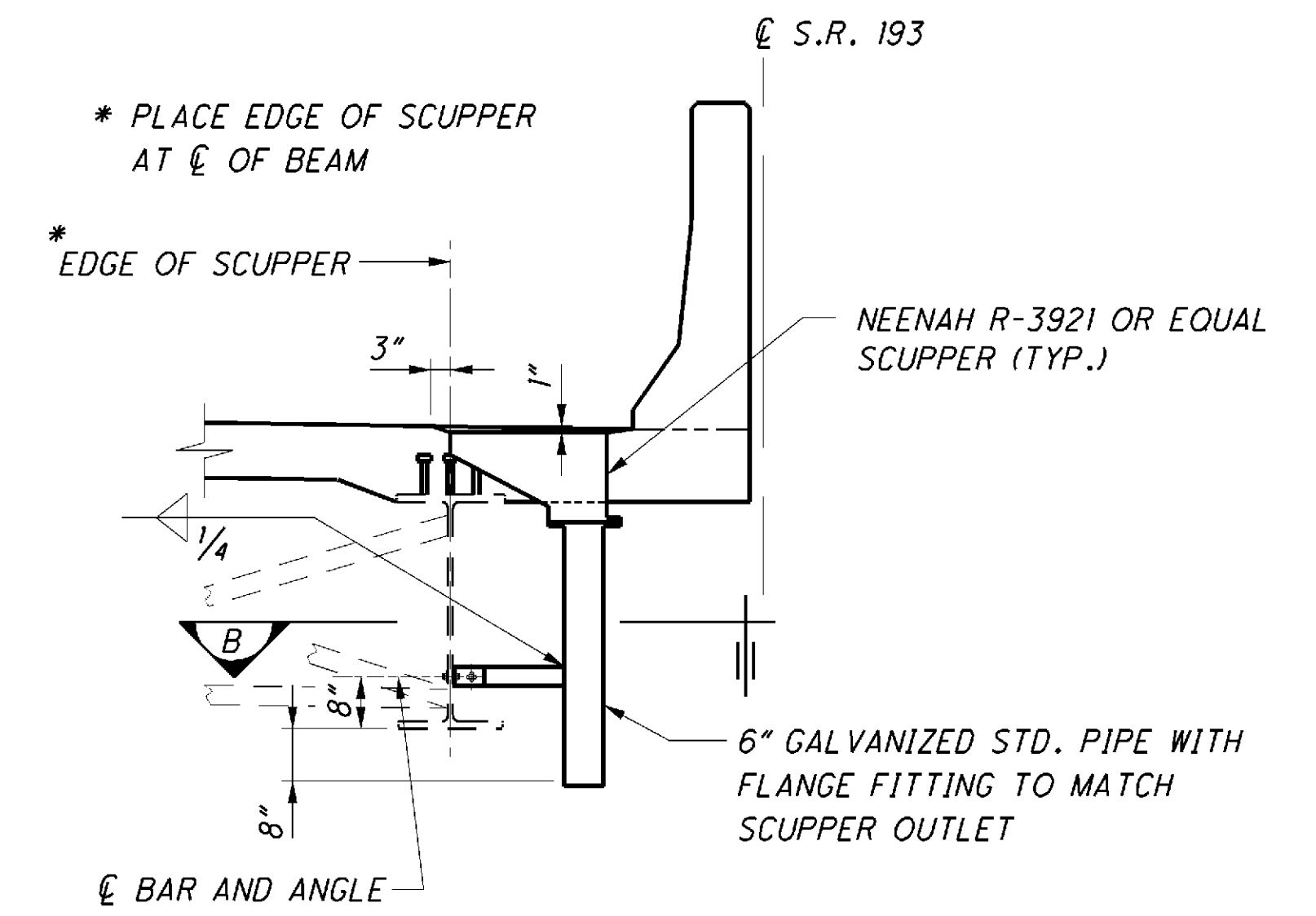
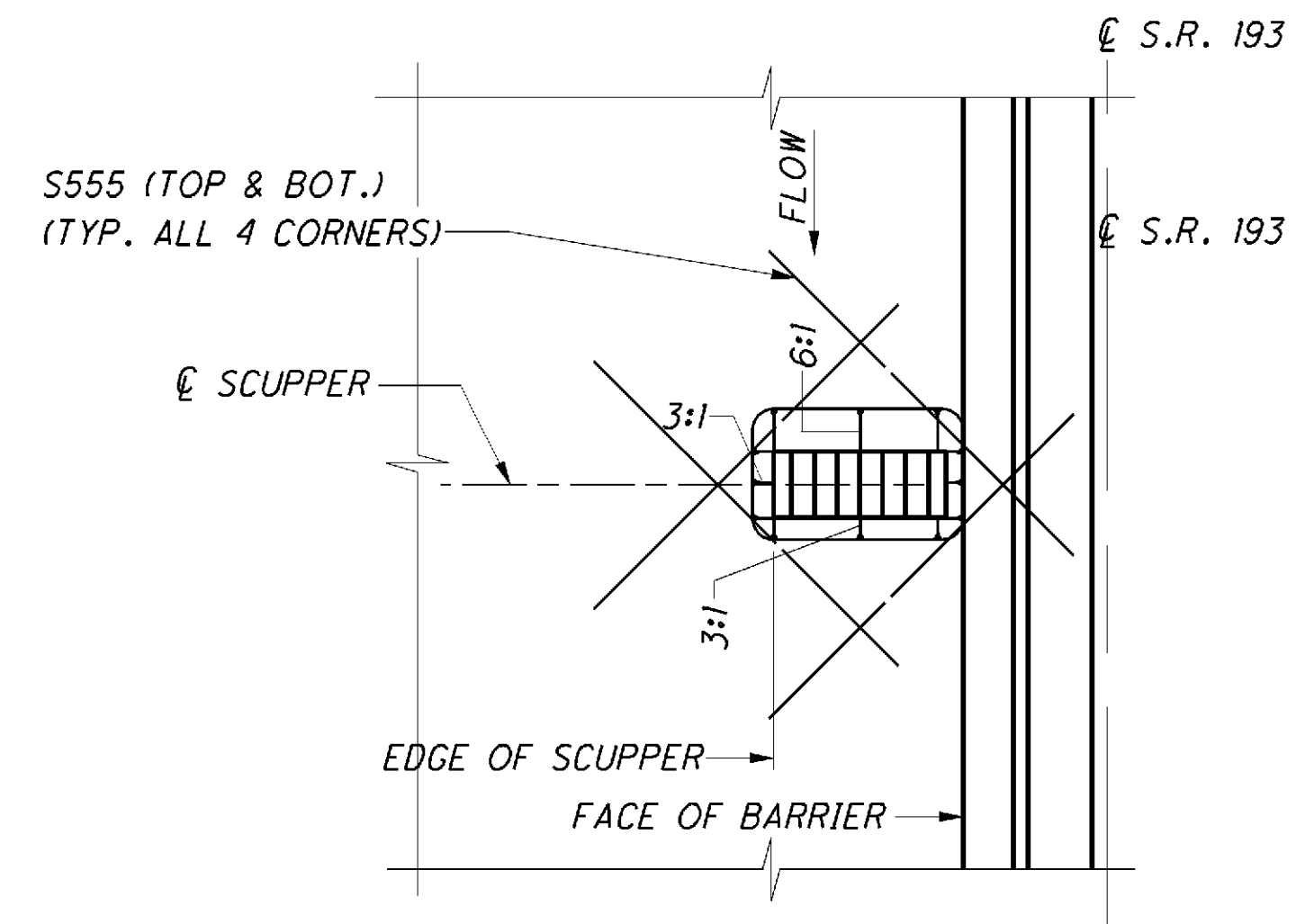
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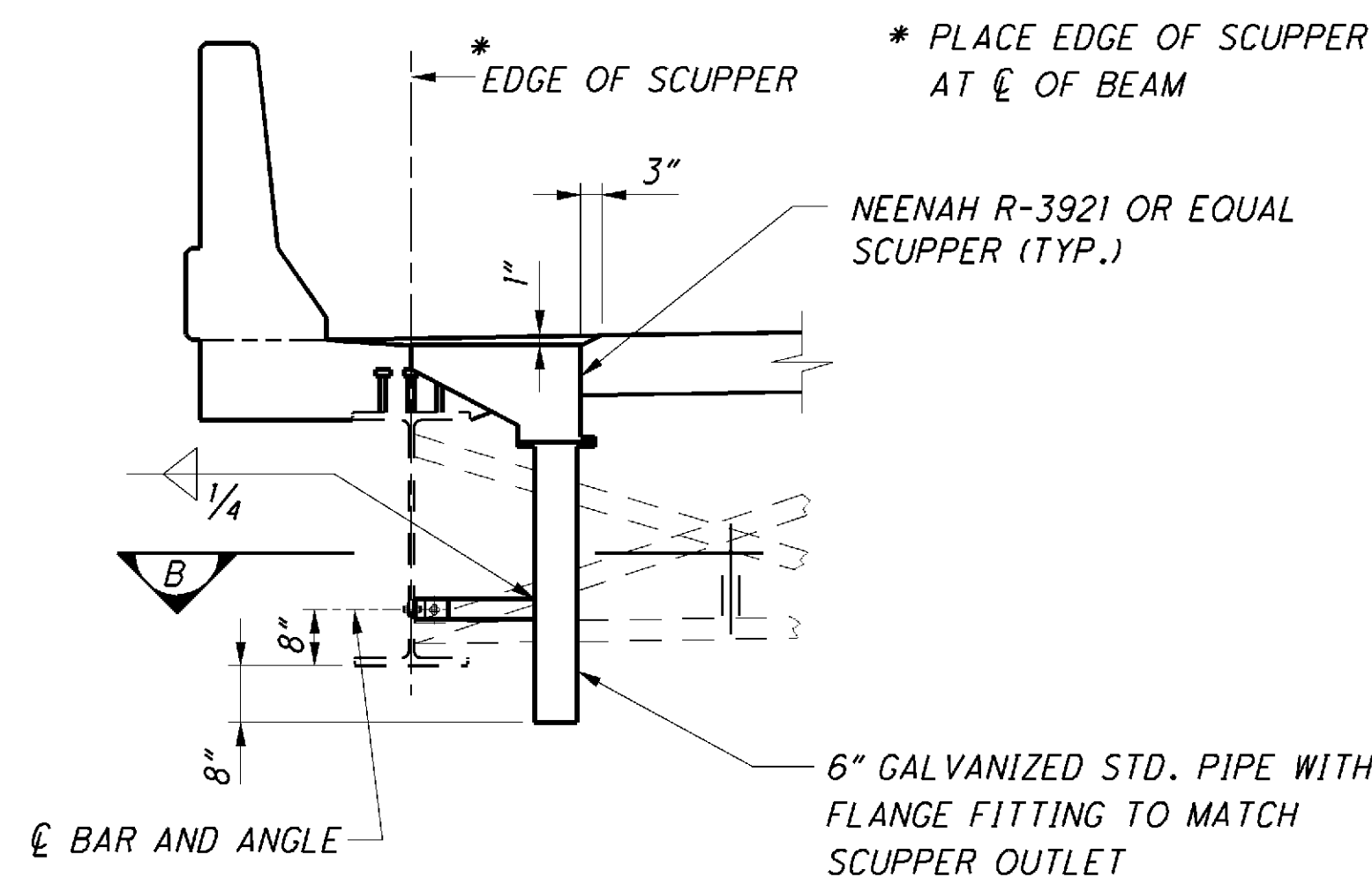
SECTION A



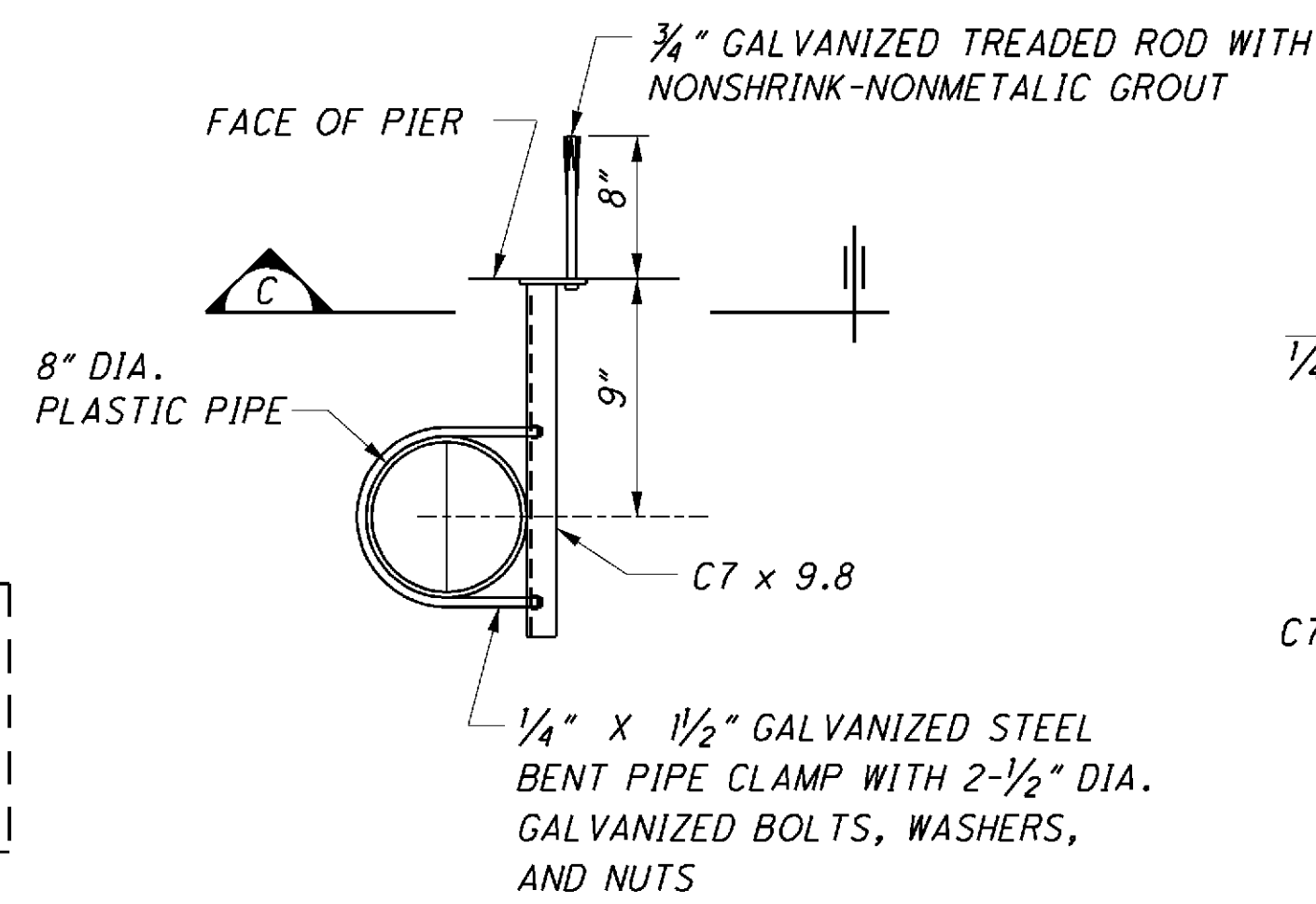
TYPICAL SCUPPER PLAN
 DETAIL AT OUTSIDE PARAPET SHOWN, DETAIL AT EASTBOUND MEDIAN BARRIER SIMILAR



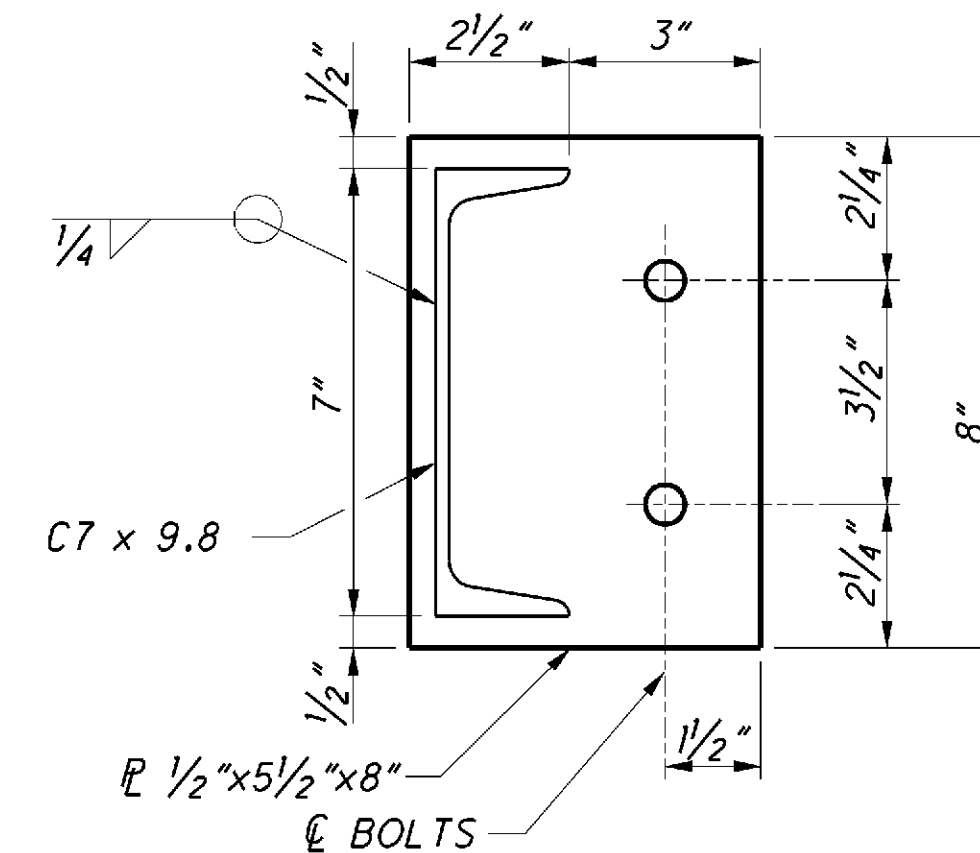
TYPICAL SCUPPER DETAIL
 AT WESTBOUND MEDIAN BARRIER



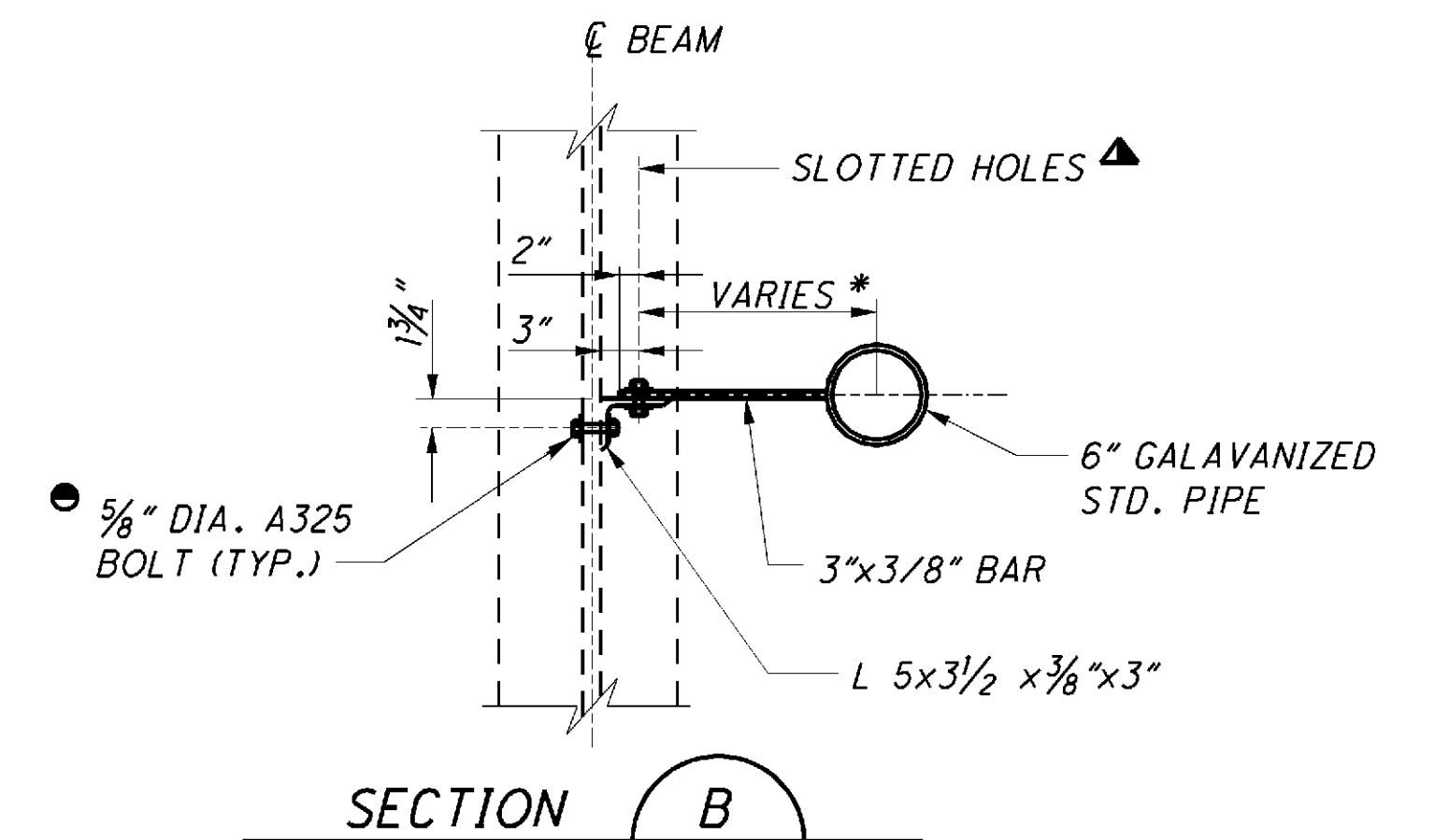
TYPICAL SCUPPER DETAIL
 DETAIL AT OUTSIDE PARAPET SHOWN, DETAIL AT EASTBOUND MEDIAN BARRIER SIMILAR



DOWNSPOUT BRACKET SUPPORT AT PIER NO. 4
 (SPACED AT 5'-0" CENTERS MAX.)



SECTION C



SECTION B

- ▲ SEE FASTENER NOTE NO. 1 ON SDT. DWG. GSD-I-96.
- SEE FASTENER NOTE NO. 2 ON SDT. DWG. GSD-I-96.
- * CONTRACTOR SHALL VERIFY THE LENGTH OF THE BAR PRIOR TO FABRICATION

NOTE: SEE SHEET 48/52 FOR ADDITIONAL NOTES.

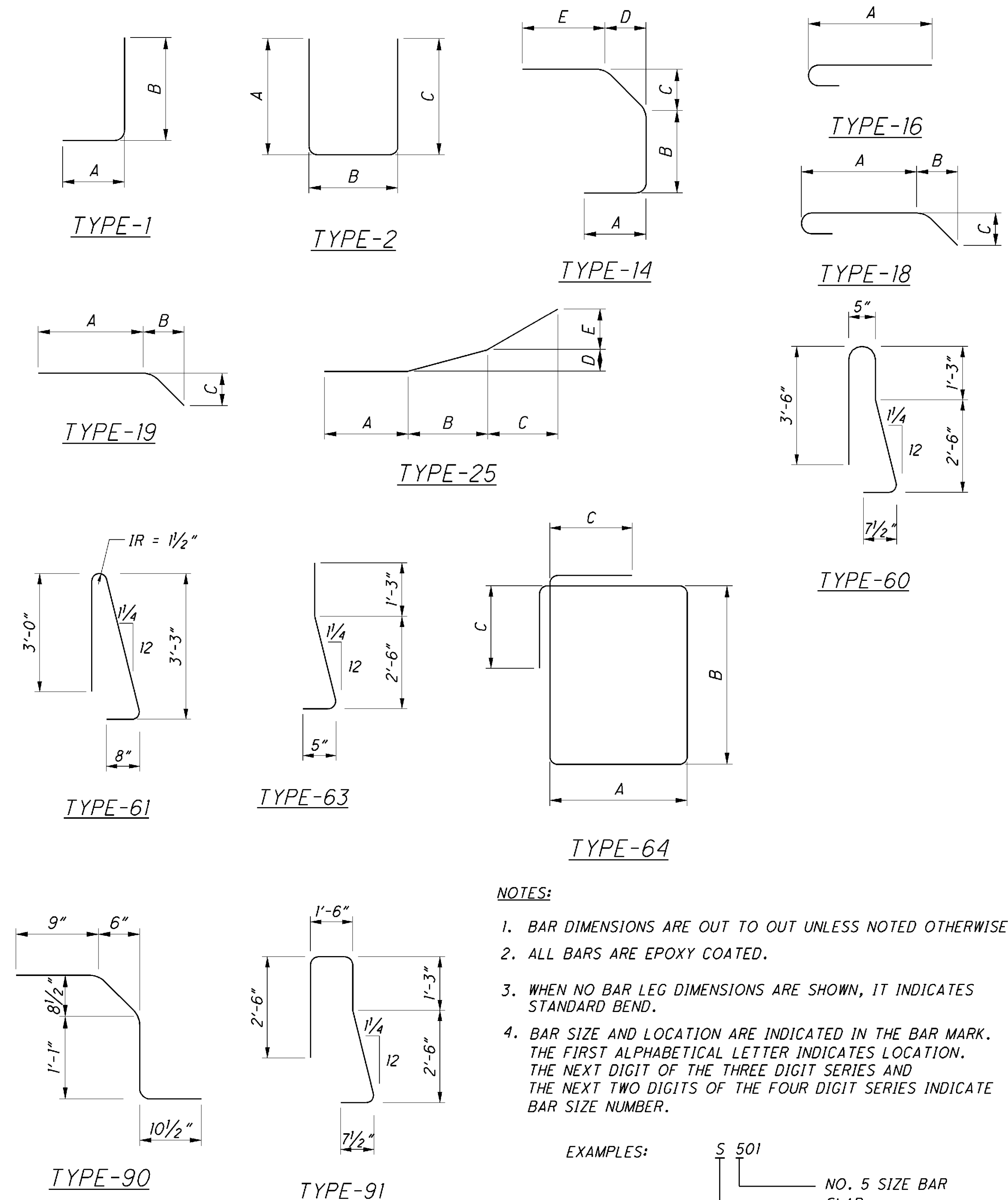
DESIGN AGENCY CLAYTON SCHROEDER BURNS & EDWARDS, INC. GPD ASSOCIATES <small>520 South Main Street, Suite 2337, Akron, Ohio 44311 330.927.2100 • Fax: 330.927.2101</small>	
REVIEWED CGN DATE 9-26-08 STRUCTURE FILE NUMBER 5004470	DRAWN RPR CHECKED T.J.W. DESIGNED D.J.C.
MAH-193/422 -0.46/1.85 PID No. 25235	
MAHONING W. FEDERAL EXPRESSWAY OVER W. RAYEN AVE. & THE OHIO CENTRAL RR BRIDGE NO. MAH-193-0072	
DRAINAGE DETAILS	
49/52	
211 260	

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MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS						INC.
	REAR	FORWARD	TOTAL				A	B	C	D	E	R	
ABUTMENTS													
A501	196	266	462	2'-0"	964	1	10"	1'-4"					
A502	65	65	130	3'-10"	520	STR							
A503	65	83	148	5'-7"	862	1	2'-0"	3'-9"					
A504	140	176	316	2'-6"	824	1	10"	1'-10"					
A505	70	88	158	3'-10"	632	2	9"	2'-7"	9"				
A506	40	57	97	30'-0"	3035	STR							
A507	3		3	25'-6"	80	STR							
A508	9		9	22'-3"	209	STR							
A509	2 SR OF 3		2 SR OF 3	29'-8" TO 34'-11"	202	STR						2'-7 1/2"	
A510	1		1	24'-6"	26	STR							
A511	1		1	26'-8"	28	STR							
A512	4	4	8	10'-0"	83	19	7'-6"	2'-3"	1'-2"				
A513	3		3	23'-3"	73	STR							
A514	9		9	20'-7"	193	STR							
A515	2 SR OF 3		2 SR OF 3	27'-9" TO 32'-11"	190	STR						2'-7"	
A516	1		1	23'-0"	24	STR							
A517	1		1	25'-2"	26	STR							
A518		3	3	16'-3"	51	STR							
A519		9	9	39'-4"	369	STR							
A520		2 SR OF 3	2 SR OF 3	2'-0" TO 25'-9"	87	STR						11'-10 1/2"	
A521	1		1	17'-0"	18	STR							
A522	1		1	15'-6"	16	STR							
A523		18	18	4'-5"	83	STR							
A524		3	3	31'-4"	98	STR							
A525		9	9	28'-5"	267	STR							
A526		2 SR OF 3	2 SR OF 3	8'-10" TO 14'-6"	73	STR						2'-10"	
A527		1	1	32'-5"	34	STR							
A528		1	1	30'-3"	32	STR							
A529	4	4	8	7'-1"	59	61							
A530	28	28	56	1'-5"	83	STR							
A531	4	4	8	7'-11"	66	60							
A601	228	280	508	4'-0"	3052	STR							
A602	12	12	24	3'-0"	108	STR							
A603	2 SR OF 7	2 SR OF 7	4 SR OF 7	3'-7" TO 9'-7"	277	2	1'-3" TO 4'-3"	1'-5" TO 4'-3"	1'-3" TO 4'-3"			1'-0"	
A604	6	6	12	10'-1"	182	2	4'-6"	1'-5"	4'-6"				
A605	101	126	227	7'-7"	2586	2	3'-3"	1'-5"	3'-3"				
A606	101	126	227	6'-7"	2245	2	3'-0"	11"	3'-0"				
A607	12	12	24	2'-7"	93	1	11"	1'-10"					
A608	12	12	24	3'-4"	120	14	10 1/2"	1'-1"	8 1/2"	6"	9"		
A609	2	2	4	3'-4"	20	90							
A610	2	2	4	3'-11"	94	1	1'-8"	2'-5"					
A611	8	8	16	6'-9"	324	2	11"	3'-9"	2'-5"				
A801	68		68	4'-9"	862	18	2'-7"	1'-0"	1'-0"				
A802		85	85	4'-10"	1097	18	2'-8"	1'-0"	1'-0"				

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS						INC.
	REAR	FORWARD	TOTAL				A	B	C	D	E	R	
ABUTMENTS - CONT'D													
A901	2	2	4	3'-10"	104	1	1'-8"	2'-5"					
A902	8	8	16	2'-5"	263	STR							
TOTAL					20,734								

STANDARD BAR TYPES



DESIGN AGENCY: CLAVIS PETER SCHNEIDER BUSINESS & DEVELOPMENT, INC.
 GPD ASSOCIATES
 570 South Main Street, Suite 331A, Akron, Ohio 44311
 (330) 925-1200 • Fax: (330) 925-1201

DATE: 5-07-08
 REVIEWED: CGN
 STRUCTURE FILE NUMBER: 5004470

DRAWN: RPP
 REVISIONS: RHC

DESIGNED: RPP
 CHECKED: RHC

REINFORCING STEEL LIST
 BRIDGE NO. MAH-193-0072
 MAHONING W. FEDERAL EXPRESSWAY OVER W. REYEN AVE. & THE OHIO CENTRAL RR

MAH-193/422
 -0.46/1.85
 PID No. 25235

50/52
 212
 260

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MARK	NUMBER									LENGTH	WEIGHT	TYPE	DIMENSIONS						INC.
	PIER 1	PIER 2	PIER 3	PIER 4	PIER 5	PIER 6	PIER 7	PIER 8	TOTAL				A	B	C	D	E	R	
PIERS																			
P501	4	4	4	4	4	4	4	4	32	30'-0"	1001	STR							
P502	152	152	152	152	152	152	154	172	1238	2'-4"	3013	1	10"	1'-8"					
P503	93	93	93	93	93	93	94	105	757	3'-8"	2961	2	7 1/2"	2'-8"	7 1/2"				
P504	2	2	2	2	2	2	2		14	18'-1"	264	STR							
P505							2		2	20'-0"	42	STR							
P506								2	2	28'-0"	58	STR							
P507	2	2	2	2	2	2	2		12	19'-1"	239	STR							
P508								2	2	21'-3"	44	STR							
P601	12	12	12	12		12	12	12	84	4'-11"	620	2	1'-6"	1'-3"	2'-6"				
P602	12	12	12	12		12	12	12	84	9'-2"	1157	64	2'-8"	1'-4"	1'-0"				
P801	16	16	16	16	16	16	16	16	128	30'-0"	10253	STR							
P802	8	8	8	8	8	8	8	8	56	22'-0"	3289	STR							
P803							8		8	23'-10"	509	STR							
P804								8	8	32'-0"	684	STR							
P805	8	8	8	8	8	8			48	23'-0"	2948	STR							
P806							8		8	25'-1"	536	STR							
P901	36	36	36	36		36	36	36	252	3'-6"	2999	1	1'-3 1/2"	2'-6"					
TOTAL											30,617								

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS						INC.
	REAR	FORWARD	TOTAL				A	B	C	D	E	R	
APPROACH SLABS													
AP501	68	83	151	24'-6"	3859	STR							
AP502	2	2	4	20'-0"	83	STR							
AP503		1	1	15'-10"	17	STR							
AP504		1	1	7'-2"	7	STR							
AP505	110	55	165	30'-0"	5163	STR							
AP506	55		55	23'-0"	1319	STR							
AP507	55		55	22'-6"	1291	STR							
AP508		110	110	32'-0"	3671	STR							
AP509		55	55	40'-0"	2295	STR							
AP510	12	12	24	12'-0"	300	STR							
AP511	8	8	16	10'-0"	167	STR							
AP512	8	8	16	13'-10"	231	STR							
AP513	4	4	8	5'-9"	48	25	1'-10"	2'-5"	1'-5"	1 1/2"	5"		
AP514	4	4	8	5'-8"	47	STR							
AP515	2 SR OF 11	2 SR OF 11	4 SR OF 11	3'-0" TO 3'-10"	157	16	2'-5" TO 3'-3"					1"	
AP516	22	22	44	7'-1"	325	61							
AP517	16		16	24'-6"	409	STR							
AP518		16	16	14'-6"	242	STR							
AP519	52	32	84	4'-1"	358	63							
AP520	52	32	84	3'-11"	343	STR							
AP601	2	2	4	12'-0"	72	STR							
AP602	44	44	88	3'-2"	419	14	10 1/2"	11"	8 1/2"	6"	9"		
AP603	22	22	44	2'-5"	160	1	11"	1'-8"					
AP604	2 SR OF 11	2 SR OF 11	4 SR OF 11	4'-0" TO 4'-10"	292	1	11"	3'-3" TO 4'-1"				1"	
AP605	16	16	32	3'-3"	156	1	0'-11"	2'-6"					
AP606	52	32	84	2'-6"	315	1	0'-11"	1'-9"					
AP607	52	32	84	3'-5"	431	14	0'-10 1/2"	1'-2"	8 1/2"	6"	9"		

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS						INC.
	REAR	FORWARD	TOTAL				A	B	C	D	E	R	
APPROACH SLABS - CONT'D													
API001	172	210	382	25'-11"	42600	16	24'-6"						
API002	3		3	24'-6"	316	STR							
API003		1 SR OF 4	1 SR OF 4	7'-6" TO 24'-0"	271	STR						5'-6"	
API004		1 SR OF 6	1 SR OF 6	4'-1" TO 21'-9"	333	STR						3'-6 1/2"	
TOTAL(SEE NOTES)					65,697								

NOTES:

- FOR STANDARD BAR TYPES AND ADDITIONAL NOTES, SEE SHT. NO. 50/52.
- APPROACH SLAB REINFORCING IS INCLUDED WITH ITEM 526 FOR PAYMENT.

