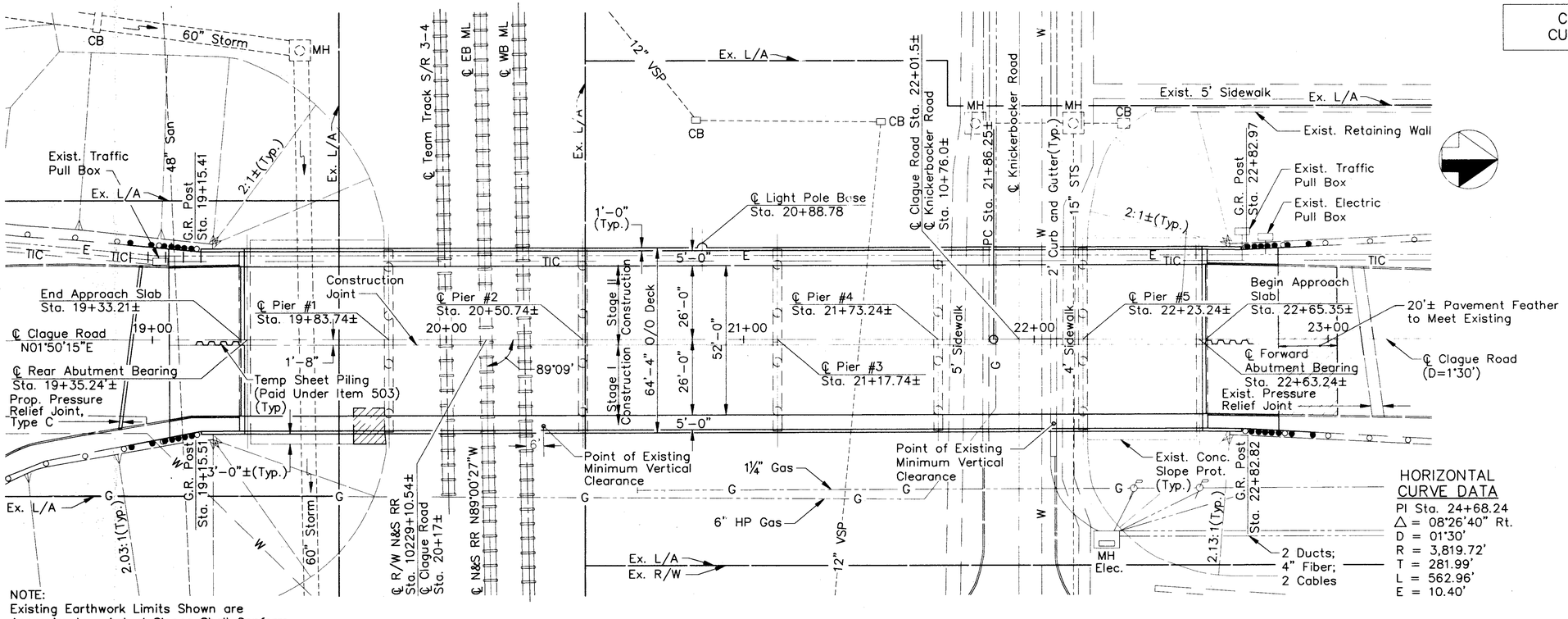
CUYAHOGA COUNTY CUY-90-(4.58)(4.58N)	OHIO FHWA REGION 5	48 60



NOTE:
Existing Earthwork Limits Shown are Approximate. Actual Slopes Shall Conform to Plan Cross Sections.

PLAN

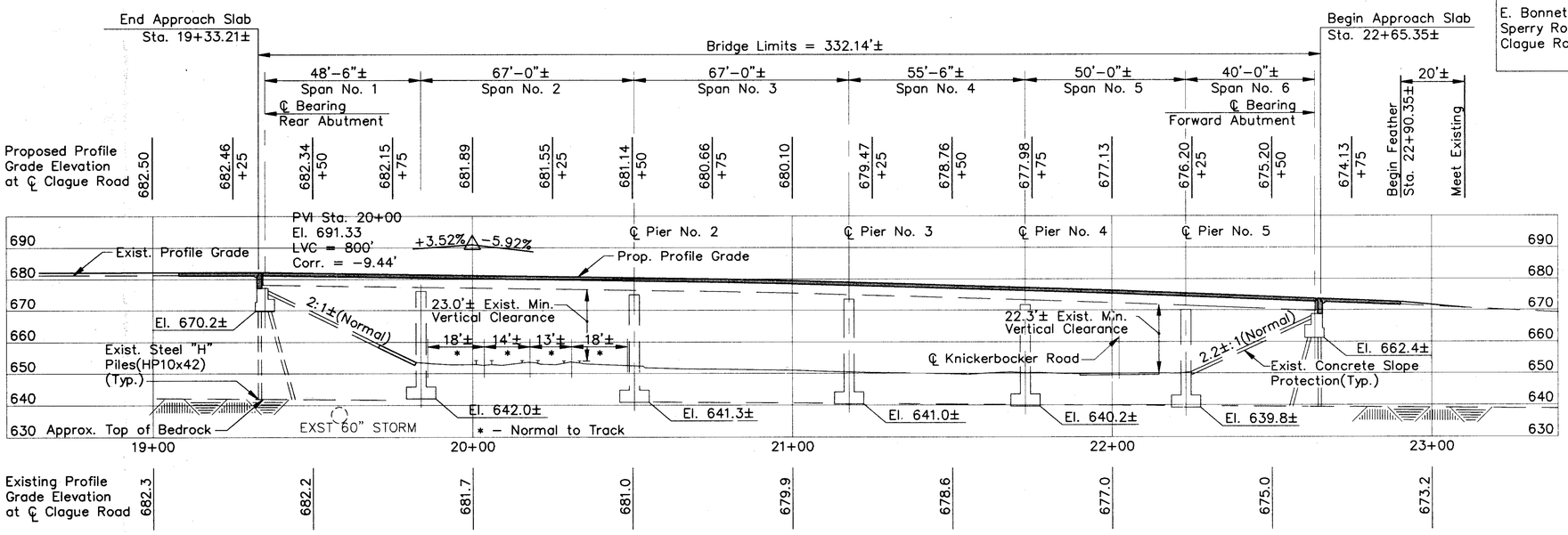
HORIZONTAL CURVE DATA

PI Sta. 24+68.24
Δ = 08°26'40" Rt.
D = 01°30'
R = 3,819.72'
T = 281.99'
L = 562.96'
E = 10.40'

SITE BENCH MARK

E. Bonnet Bolt of Hydrant on Sperry Road, 125'± West of Clague Road.

Elev. 681.66



PROFILE

TRAFFIC DATA

EXISTING ADT (1992):	13,690
DESIGN YEAR ADT (2012):	20,350
DESIGN YEAR ADTT (2012):	204

EXISTING STRUCTURE

TYPE: Continuous Steel Beam with Reinforced Concrete Deck and Substructure: A36 Structural Steel

YEAR BUILT: 1977

SPANS: 48.5'±, 67.0'±, 67.0'±, 55.5'±, 50.0'±, 40.0'± C/C Bearings

ROADWAY: 52'-0"± F/F Curbs of 5'-0"± Sidewalks, Both Sides

LOAD: AASHO HS20-44

ALIGNMENT: Tangent, 1°30' Curve to Right

SKEW: 0°±

SURFACE COURSE: 1½"± Asphalt Concrete

APPROACH SLABS: AS-1-72 (25' Long)

S.F.N.: 1807587

PROP. REHABILITATED STRUCTURE

TYPE: Exist. Six Span Continuous Steel Beam with New Composite Reinforced Superplasticized Concrete Deck.

PROPOSED WORK: (2 Stage Construction)
1. Replace Existing Deck with a New Composite Deck, Vandal Protection Fence, and Structure Lighting.
2. Reconstruct Existing Abutment Back-wall.
3. Install New Structural Steel Exp. Joints w/Elastomeric Strip Seal at Abutments.
4. Replace Existing Approach Slabs
5. Reset Bridge Bearings.
6. Install Pressure Relief Joint. (Rear Only)
7. Seal Exist./Prop. Concrete Surfaces.
8. Replace Abutment Drainage System

SPANS: 48.5'±, 67.0'±, 67.0'±, 55.5'±, 50.0'±, 40.0'± C/C Bearings (Meas. Along ℄ & Back Tangent)

ROADWAY: 52'-0" F/F Curbs of 5'-0" Sidewalks on Both Sides

DESIGN LOADING: HS20-44 Case III and Alternate Military Loading

SKEW ANGLE: 0°±

ALIGNMENT: Tangent, 1°30' Curve to Right

APPROACH SLAB: AS-1-81 (25' Long)

WEARING SURFACE: Monolithic Concrete

SUPERELEVATION: VARIES

CROWN: 3/16"/Ft. BK STA. 20+86.25

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Engineers and Architects

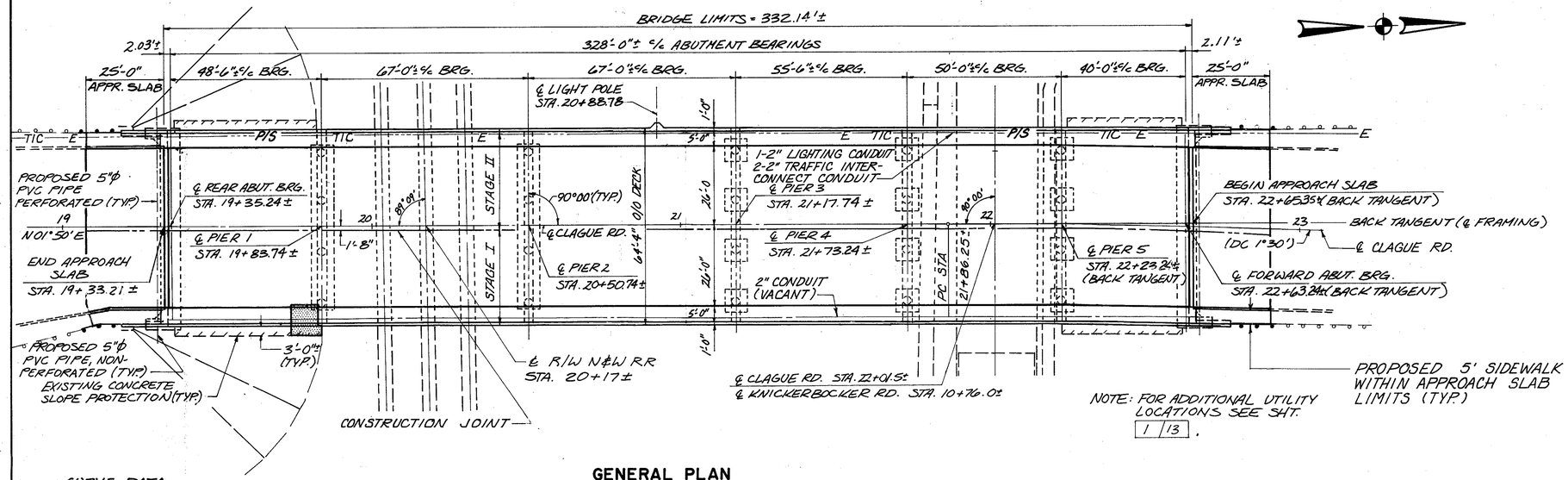
1/13

SITE PLAN
BRIDGE NO. CUY-90-0458N
CLAGUE ROAD OVER N&S R.R. AND KNICKERBOCKER ROAD

CUYAHOGA COUNTY — STA. 19+33.21± TO STA. 22+65.35±

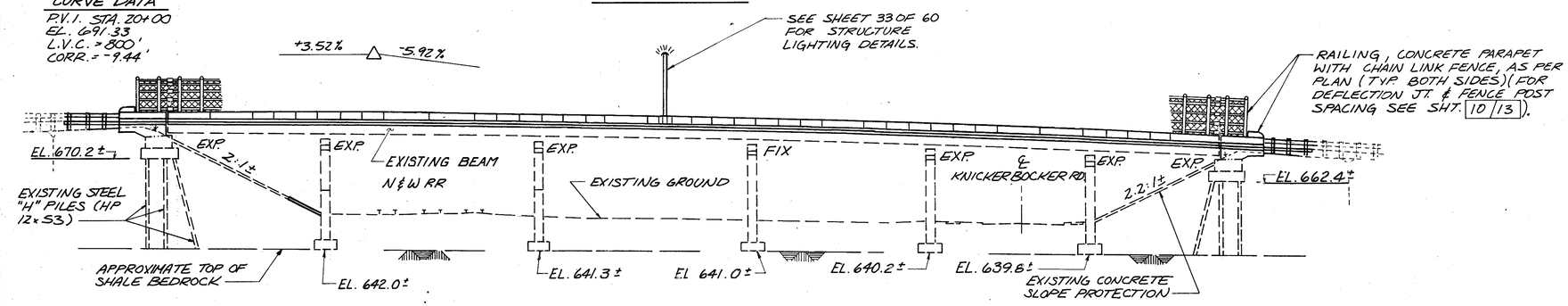
PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED DATE
Record Plans	B&N	KBP	KK	MLS	RJ 3-12-93

N:\PROJECTS\PR12133\CADD\TSL0458N.DGN 03-09-93

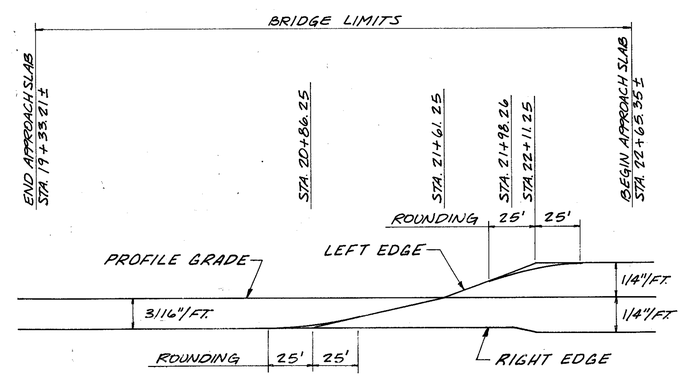


GENERAL PLAN

CURVE DATA
P.V.I. STA. 20+00
EL. 691.33
L.V.C. = 800'
CORR. = -1.44'



GENERAL ELEVATION



SUPERELEVATION TRANSITION DIAGRAM

PROPOSED SLOPE PROTECTION REPLACEMENT (PAID FOR UNDER ITEM 601)

GENERAL NOTES

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO), 1992, AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

STANDARD DRAWINGS:

REFERENCE SHALL BE MADE TO THE FOLLOWING STANDARD DRAWINGS:

RB-1-55	DATED 2-2-59
PCB-91	DATED 4-24-92
AS-1-81	DATED 11-27-81
EXJ-4-87	DATED 1-5-89
A-1-69	DATED 6-12-69
VPF-1-90	DATED 2-1-92
HL-30.31	DATED 5-1-87
GR-3.1	DATED 5-6-91

AND SUPPLEMENTAL SPECIFICATION 852, DATED 6-10-87

DESIGN DATA:

DESIGN LOADING: HS20-44 CASE III AND ALTERNATE MILITARY LOADING
CONCRETE CLASS S - COMPRESSIVE STRENGTH - 4,500 PSI
CONCRETE CLASS C - COMPRESSIVE STRENGTH - 4,000 PSI
REINFORCING STEEL- ASTM A615, A616, A617, GRADE 60 MINIMUM YIELD STRENGTH 60,000 PSI.
STRUCTURAL STEEL- ASTM A36, YIELD STRENGTH 36,000 PSI.

DECK PROTECTION METHOD:

EPOXY COATED REINFORCING STEEL, TOP AND BOTTOM MATS, AND SEALING OF CONCRETE SURFACES.

MONOLITHIC WEARING SURFACE:

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

SEALING OF CONCRETE SURFACES:

A CONCRETE SEALER SHALL BE APPLIED TO THOSE SURFACES SHOWN ON SHEETS 7/14, 8/14, 9/14 AND 12/14. SEE PROPOSAL NOTE FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL SPECIFICATIONS, AND APPLICATION PROCEDURES.

UTILITY LINES:

ALL EXPENSES INVOLVED IN RELOCATING THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE OWNERS. THE CONTRACTOR AND OWNERS ARE REQUESTED TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

EXISTING STRUCTURE PLANS:

THE ORIGINAL DESIGN PLANS MAY BE EXAMINED BY PROSPECTIVE BIDDERS AT THE DEPARTMENT OF TRANSPORTATION, DISTRICT 12 OFFICE, 5500 TRANSPORTATION BOULEVARD, GARFIELD HEIGHTS, OHIO. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE DRAWINGS.

HIGH PERFORMANCE CONCRETE:

ALL REFERENCES TO ITEM 511-CLASS S CONCRETE AND TO ITEM SPECIAL-SUPERPLASTICIZED CONCRETE SHALL BE CONSIDERED TO READ ITEM SPECIAL HIGH PERFORMANCE CONCRETE, SUPERSTRUCTURE.

Burgess & Niple, Limited
Engineers and Architects
2/13

GENERAL PLAN, ELEVATION

BRIDGE NO. CUY-90-0458N
CLAGUE ROAD OVER N&S R.R. AND KNICKERBOCKER ROAD

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RBP	JNV		ALE	RBP	3-12-93	

GENERAL NOTES (CONT'D)

THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED ON THE DECK SLAB DEPTH OF 8 1/2 INCHES.

MECHANICAL CONNECTORS FOR REINFORCING STEEL IN APPROACH SLABS:

AN APPROVED TYPE OF MECHANICAL CONNECTOR FOR REINFORCING BARS IN APPROACH SLABS SHALL BE PROVIDED IF REQUIRED. INSTALLATION OF CONNECTORS SHALL CONFORM WITH MANUFACTURER'S RECOMMENDED PROCEDURES. IF A DOWEL BAR SPLICE TYPE OF CONNECTOR IS FURNISHED, THE MINIMUM DOWEL BAR LENGTH TO BE INCLUDED WITH THE CONNECTOR SHALL BE AS GIVEN BY DIMENSION "L" SHOWN ON THE PLANS.

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

CONNECTORS AND DOWEL BAR EXTENSIONS SHALL CONFORM WITH ITEM 509 AND BE INCLUDED WITH ROADWAY ITEM 611 – APPROACH SLABS FOR PAYMENT.

~~**TREATING CONCRETE BRIDGE DECKS WITH HMWM RESIN:**~~

~~AFTER THE CONCRETE DECK HAS BEEN DRY AIR CURED FOR NOT LESS THAN 28 DAYS, VERTICAL CONSTRUCTION JOINTS IN THE DECK SLAB, BUTT JOINTS BETWEEN DECK CONCRETE AND METAL DECK ELEMENTS (END DAMS, ETC.), CRACKS IN THE ROADWAY SURFACE THAT ARE VISIBLE TO THE UNAIDED EYE, AND HORIZONTAL JOINTS AT AND ADJACENT TO THE ROADWAY SURFACE (AT THE BASE OF SIDEWALKS, CURBS, BARRIERS, ETC.) SHALL BE SEALED WITH A HIGH MOLECULAR WEIGHT METHACRYLATE (HMWM) SEALER PER THE HMWM PROPOSAL NOTE. SEALANT APPLICATION WIDTH SHALL BE 6 INCHES CENTERED ON JOINTS OR CRACKS. THE COST OF SEALING "JOINTS" INCLUDING ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY TO PROVIDE COMPLETE AND ACCEPTABLE WORK SHALL BE INCLUDED WITH ITEM SPECIAL, TREATING CONCRETE BRIDGE DECKS WITH HMWM RESIN FOR PAYMENT. THE COST FOR SEALING "CRACKS" SHALL BE INCLUDED WITH THE DECK CONCRETE FOR PAYMENT.~~

REPLACEMENT OF EXISTING REINFORCING STEEL:

ANY EXISTING REINFORCING BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND WHICH ARE MADE UNUSABLE BY THE

CONTRACTOR'S CONCRETE REMOVAL OPERATION SHALL BE REPLACED WITH NEW STEEL AT HIS EXPENSE. ANY EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION SHALL BE REPLACED. REPLACEMENT BARS SHALL BE DRILLED AND GROUTED 1'-0" MINIMUM INTO THE SEAT. AN ALLOWANCE OF 200 POUNDS IS INCLUDED IN ITEM 509, AND 75 LINEAR FEET INCLUDE IN ITEM 510 FOR THIS PURPOSE.

RAILING, CONCRETE PARAPET WITH CHAIN LINK FENCE:

REINFORCED CONCRETE PARAPETS SHALL BE BUILT TO THE DIMENSIONS SHOWN ON THE PLANS IN ACCORDANCE WITH CMS 517. THE CHAIN LINK FENCE SHALL BE 12'-0" CURVED VANDAL PROTECTION FENCE AS SHOWN ON THE PLANS AND DETAILED IN STANDARD DRAWING VPF 1-90. ALL QUANTITIES OF CONCRETE AND REINFORCING STEEL FOR THE DECK AND WINGWALL PARAPETS AND ALL MATERIALS NECESSARY TO INSTALL THE 12'-0" CURVED VANDAL PROTECTION FENCE, ARE INCLUDED WITH ITEM 517 – CONCRETE PARAPET WITH CHAIN LINK FENCE. **THE CONCRETE USED IN THE DECK PARAPETS SHALL BE HIGH PERFORMANCE CONCRETE (SEE PROPOSAL NOTE).**

STRUCTURE DRAINAGE; MISC, AS PER PLAN:

A 5" DIA. PVC PIPE SHALL BE PLACED BEHIND EACH ABUTMENT FOR DRAINAGE. THE OUTLET PIPE SHALL BE PLACED AT A 1/8"/FT. SLOPE. THE OUTLETS SHALL FOLLOW SIDE SLOPES TO THE TOE OF THE SLOPE (SEE SHEET 10 / 13 FOR DETAILS). DURING STAGED CONSTRUCTION THE PIPES SHALL BE SPLICED AS DIRECTED BY THE ENGINEER. PVC PIPE AND OUTLETS SHALL BE INCLUDED UNDER ITEM 518 – STRUCTURAL DRAINAGE, MISC., FOR PAYMENT.

RESET BEARING, AS PER PLAN:

THIS WORK SHALL INCLUDE FURNISHING ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY TO RESET THE EXISTING EXPANSION BEARING DEVICES IN THE CORRECT LOCATION, AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL PERFORM THE WORK IN SUCH A MANNER AS NOT TO ENDANGER THE STABILITY OF THE STRUCTURE DURING RESETTING OPERATIONS. MAJOR RESETTING OPERATIONS INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:

1. JACKING AND BLOCKING BEAMS TO RESET BEARING ASSEMBLY.
2. REPAIR OR REPLACE EXISTING 1/2" KEEPER PLATE AS REQUIRED. (SEE SHEET 11 / 13)
3. RESET EACH BEARING BY SHIFTING THE MASONRY PLATE SO THE PLATE IS CENTERED UNDER THE SOLE PLATE AT 60°F.
4. REMOVE JACKS AND BLOCKING.
5. CHECK ALL BEARINGS ON A SUBSTRUCTURE UNIT TO INSURE TOTAL CONTACT OF BEARING SURFACES.
6. PAINT ALL NEW KEEPER PLATES. PAINTING SHALL CONFORM TO ITEM 514 – FIELD PAINTING OF NEW STEEL AND THE IZEU PAINT SYSTEM PROPOSAL NOTE.

REQUIREMENTS: THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF AN ADEQUATE SUPPORT AND JACKING SYSTEM CAPABLE OF RAISING THE STRUCTURE AND WILL BE RESPONSIBLE FOR PROPERLY ARRANGING ALL TEMPORARY SUPPORTS SO AS NOT TO DAMAGE OR INDUCE OVERSTRESS IN ANY EXISTING BRIDGE MEMBERS AND DIAPHRAGMS. PLANS FOR TEMPORARY FALSEWALK NECESSARY TO LIFT AND SUPPORT THE SUPERSTRUCTURE DURING RESETTING OPERATIONS SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER AND BE SUBMITTED TO THE DIRECTOR FOR APPROVAL AT LEAST 3 WEEKS PRIOR TO FALSE WORK CONSTRUCTION.

ALL BEAMS AT A GIVEN SUBSTRUCTURE UNIT DURING STAGED CONSTRUCTION SHALL BE RAISED SIMULTANEOUSLY (E.G. BEAM LINES 5-8 SHALL BE RAISED SIMULTANEOUSLY DURING STAGE I CONSTRUCTION WHEN RESETTING THE ABUTMENT BEARINGS). THE STRUCTURE SHALL NOT BE RAISED MORE THAN 1/4" AT ANY ONE SUPPORT.

ANY DAMAGE TO STRUCTURAL MEMBERS, CONNECTIONS OR PARTS THAT ARE TO REMAIN AS PART OF THE PERMANENT CONSTRUCTION DUE TO THE CONTRACTORS OPERATION SHALL BE CORRECTED AND/OR REPAIRED BY THE CONTRACTOR AT HIS EXPENSE TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR'S DETAILED PROCEDURES FOR SETTING THE BEARINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. THE SUBMITTAL SHALL INCLUDE DETAILS OF THE PROPOSED TEMPORARY SUPPORT AND JACKING SYSTEM, INCICATING MATERIALS, MEMBER SIZES, SPACINGS, SUPPORT LOCATIONS, JACKING, POINTS, REACTION, INDUCED STRESSES AND REMOVAL PROCEDURES.

BASIS OF PAYMENT: WORK UNDER RESETTING EXPANSION BEARING DEVICES WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH BEARING RESET, AND SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO PERFORM THE WORK, COMPLETE AND ACCEPTED.

DECK JOINT PAINTING:

AFTER CLEANING IN THE FIELD AS DIRECTED, AND PREFERABLY AFTER INSTALLATION OF JOINT SEALS, ALL UPPER EXPOSED STEEL SURFACES EXCLUDING ROADWAY SURFACES IN TRAVELED LANES SHALL BE PAINTED WITH A SYSTEM IZEU.

DECK JOINT MATERIALS:

STEEL FOR DECK JOINTS THAT IS TO BE FULLY ENCASED IN CONCRETE MAY BE UNPAINTED ASTM A36 OR A588. ALL OTHER STEEL PORTIONS OF THE JOINTS SHALL BE ASTM A588. STEEL SHALL BE ABRASIVELY CLEANED IN THE SHOP PRIOR TO FINAL ASSEMBLY. SHOP PAINTING IS NOT REQUIRED. STRIP SEAL GLAND SHALL HAVE A SEAL MOVEMENT RATING OF 3" AND BE SPLICED AT THE CONSTRUCTION JOINT OF EACH DECK UNIT. COMPLETED SPLICES SHALL HAVE NO OFFSETS ON EXTERIOR SURFACES, AND AFTER INSTALLATION, THERE SHALL BE NO EVIDENCE OF BOND FAILURE AT THE SPLICES..

ESTIMATED QUANTITIES

CALC BY RBP DATE 3/93 CHKD BY ALS DATE 3-93

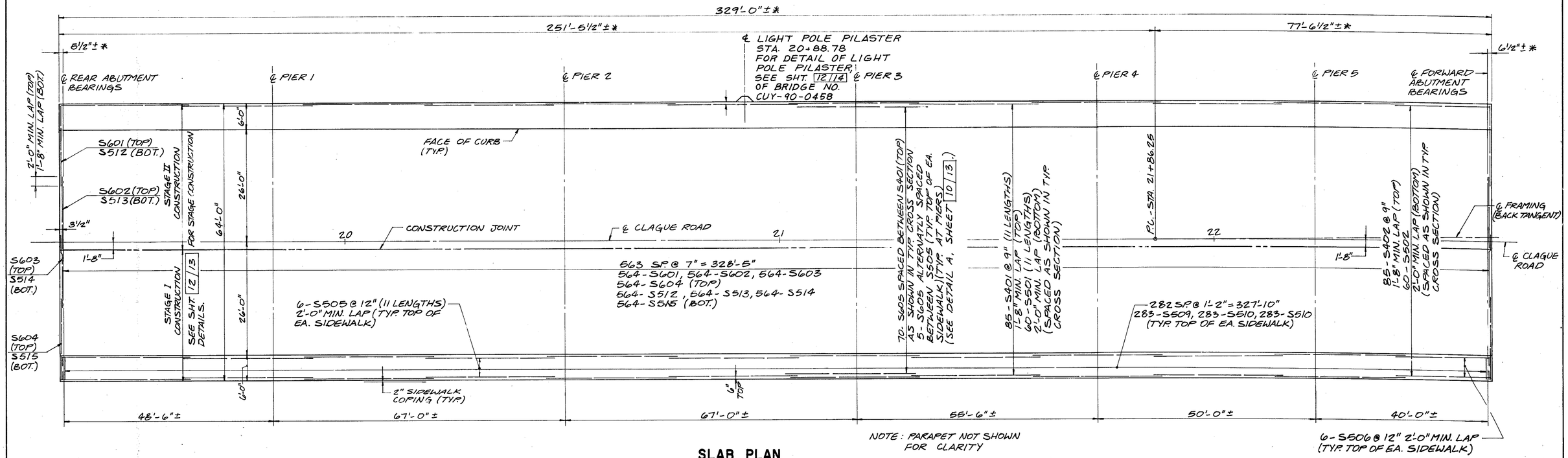
ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIERS	GEN'L.
202	11203	LUMP	LUMP	PORTIONS OF STRUCTURE REMOVED, OVER 20				LUMP
				FOOT SPAN, AS PER PLAN (See Sheet 50)				
503	21300	LUMP		UNCLASSIFIED EXCAVATION				LUMP
503	11100	LUMP		COFFERDAMS, CRIBS AND SHEETING				LUMP
509	15830	163931	LB.	EPOXY COATED REINFORCING STEEL, GRADE 60	157535	6196		200
510	12200	75	LIN. FT.	DOWEL HOLES				75
SPECIAL	51148000	731	CU. YD.	HIGH PERFORMANCE CONCRETE, SUPERSTRUCTURE (DECK)*	731			
SPECIAL	51149000	LUMP		HIGH PERFORMANCE CONCRETE, TRIAL MIX*				
511	45700	55	CU. YD.	CLASS C CONCRETE, ABUTMENT		55		
SPECIAL	51267502	190	SQ. YD.	SEALING CONCRETE SURFACES (EPOXY) *		190		
SPECIAL	51267504	1105	SQ. YD.	SEALING CONCRETE SURFACES (NON-EPOXY)*	1105			
513	16590	8000	LB.	STRUCTURAL STEEL, MISC., (A36, AISC CATEGORY III),	8000			
				AS PER PLAN * (See sheet 50)				
513	20000	9072	EACH	WELDED STUD SHEAR CONNECTOR	9072			
514	00610	8000	LB.	FIELD PAINTING OF NEW STEEL, SYSTEM IZEU *	8000			
516	11210	130	LIN. FT.	STRUCTURAL EXPANSION JOINT INCLUDING	130			
				ELASTOMERIC STRIP SEAL				
516	46701	16	EACH	RESET BEARING, AS PER PLAN (See Sheet 51)	16			
517	75300	718	LIN. FT.	RAILING, CONCRETE PARAPET WITH CHAIN LINK FENCE	659	59		
518	21200	86	CU. YD.	POROUS BACKFILL WITH FILTER FABRIC		86		
518	62100	230	LIN. FT.	STRUCTURE DRAINAGE, MISC., 5-INCH CONDUIT,		230		
				TYPE F, 707.17, NON-PERFORATED,				
				ASTM 3034 SDR35 OR SS931, AS PER PLAN (See Sh. 51)				
518	62100	112	LIN. FT.	STRUCTURE DRAINAGE, MISC., 5-INCH CONDUIT,		112		
				INCLUDING SPECIALS, TYPE F, 707.17 OR ASTM				
				3034 SDR35 OR SS931, PERFORATED PER 707.15				
601	21001	15	SQ. YD.	CONCRETE SLOPE PROTECTION, AS PER PLAN (See sh. 50)		15		

* SEE PROPOSAL NOTE

STRUCTURE EXCAVATION:

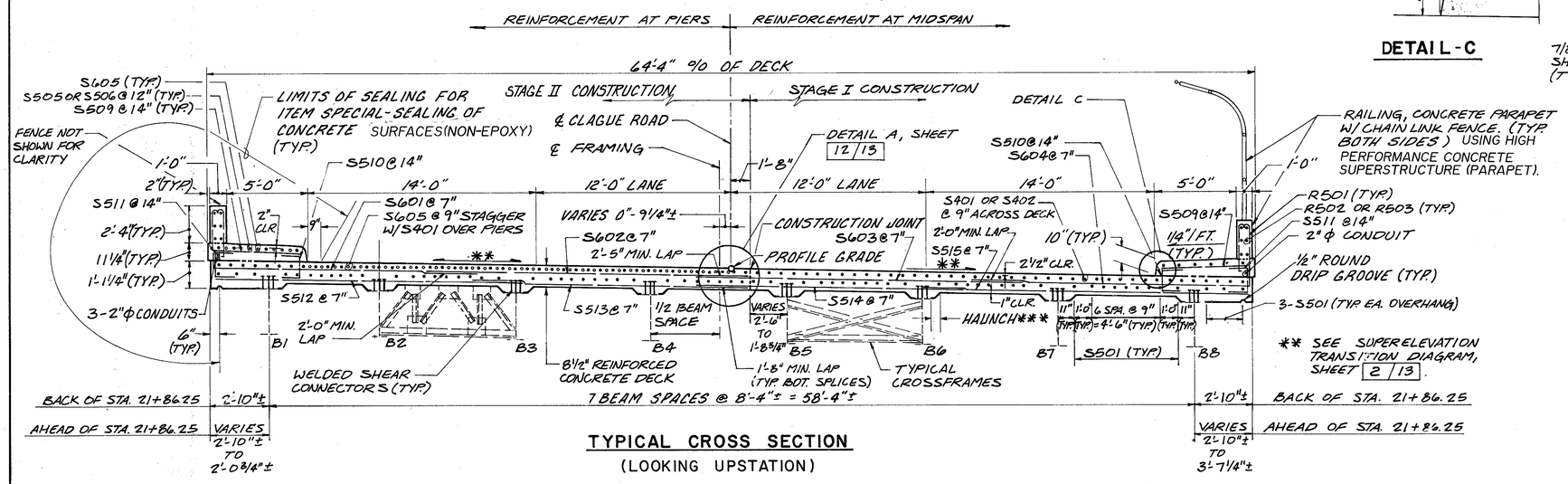
IN ADDITION TO THAT NECESSARY TO REMOVE PORTIONS OF THE EXISTING STRUCTURE, INSTALL NEW STRUCTURE DRAINAGE, AND ALL NECESSARY BACKFILL, IS INCLUDED IN THE LUMP SUM BID ITEM, "UNCLASSIFIED EXCAVATION," FOR PAYMENT.

* DIMENSION BASED ON 1 1/4" WIDE EXPANSION JOINT RETAINERS AT 60°F. SEE TYPICAL SECTION THRU EXPANSION JOINT, SHEET 11/13.



NOTE: PARAPET NOT SHOWN FOR CLARITY

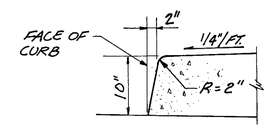
SLAB PLAN



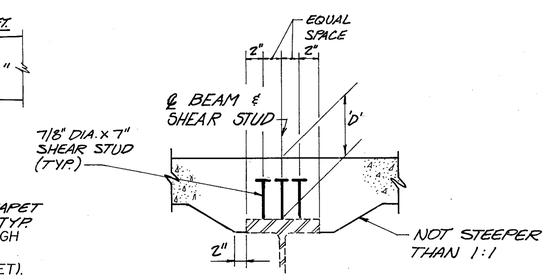
TYPICAL CROSS SECTION

(LOOKING UPSTATION)

** SEE SUPERELEVATION TRANSITION DIAGRAM, SHEET 2/13.



DETAIL-C



LOCATION	'D'
REAR ABUT.	12"±
MIDSPAN	12"±
PIER-1	11 3/4"±
MIDSPAN	12"±
PIER-2	12"±
MIDSPAN	12"±
PIER-3	12 1/8"±
MIDSPAN	12 1/8"±
PIER-4	11"±
MIDSPAN	12 3/4"±
PIER-5	12"±
MIDSPAN	12 1/4"±
FWD. ABUT.	11"±

*** A HAUNCH WIDTH BASED ON A SLOPE OF 1:1 SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. THE SLOPE OF THE HAUNCH MAY BE LESS AT THE CONTRACTORS OPTION. SEE GENERAL NOTE, DECK SLAB DEPTH, SHEET 3/13.

NOTES:

1. SEE SHEET 10/13 FOR SCREED ELEVATIONS.
2. SEE GENERAL NOTE, TREATING CONCRETE BRIDGE DECKS WITH HMWM RESIN, FOR LIMITS OF HMWM RESIN APPLICATION.

Burgess & Niple, Limited
Engineers and Architects
bn 1962

9/13

DECK PLAN AND TYPICAL CROSS SECTION
BRIDGE NO. CUY-90-0458N
CLAGUE ROAD OVER N & S R.R. AND KNICKERBOCKER ROAD

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RBP	JNV		ALE		3-12-93	