BENCH MARK: Standard Disc. Stamped R47-1934 on Bridge No. 245 0.4 Mile Northwest Along the Chicago & North Western Transportation Co. from the Station at Union Grove, 9 feet Northeast of the Centerline of the Northeast Track, Near the Center of the top of the North Concrete Retaining Wall, and Level with the Track.

EXISTING STRUCTURE: 3-Span Continuous Steel I-Beam Structure Built in 1949 as F.A. Route 7, Section 17 R-1, 17R-IVB & 17R-IVF.
2-77'-3½" End Spans and 1-100'-0" Center Span.
261'-0" Back to Back of Spill through Abutments on Piles.
2- Intermediate Piers on Piles. 34'-4" Out-to-Out Width of Structure. 28'-0" Roadway Width.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DESIGN SPECIFICATIONS

A.A.S.H.T.O. 1983 Standard Specification for Highway Bridges & 1984, 1985 & 1986 Interims Specifications. Standard Specifications for Road & Bridge Construction, State of Illinois (Adopted July 1, 1988).

DESIGN CRITERIA

H.S. 20-44
25#/Sq. Ft. Future Wearing Surface

DESIGN STRESSES

Structural Steel : $f_s = 20{,}000$ psi (M183)
Concrete : $f_c = 3{,}500$ psi
Reinforcement : $f_y = 60{,}000$ psi

*Existing Name Plate shall be cleaned and relocated next to new Name Plate. Cost incidental to "Name Plates."

STATION 118+73.21
REBUILT 198 BY
STATE OF ILLINOIS
FA 25, SEC. 17R-IVBR
FA PROJ. BHF-25(50)
LOADING HS-20
BRIDGE NO. 098-0005

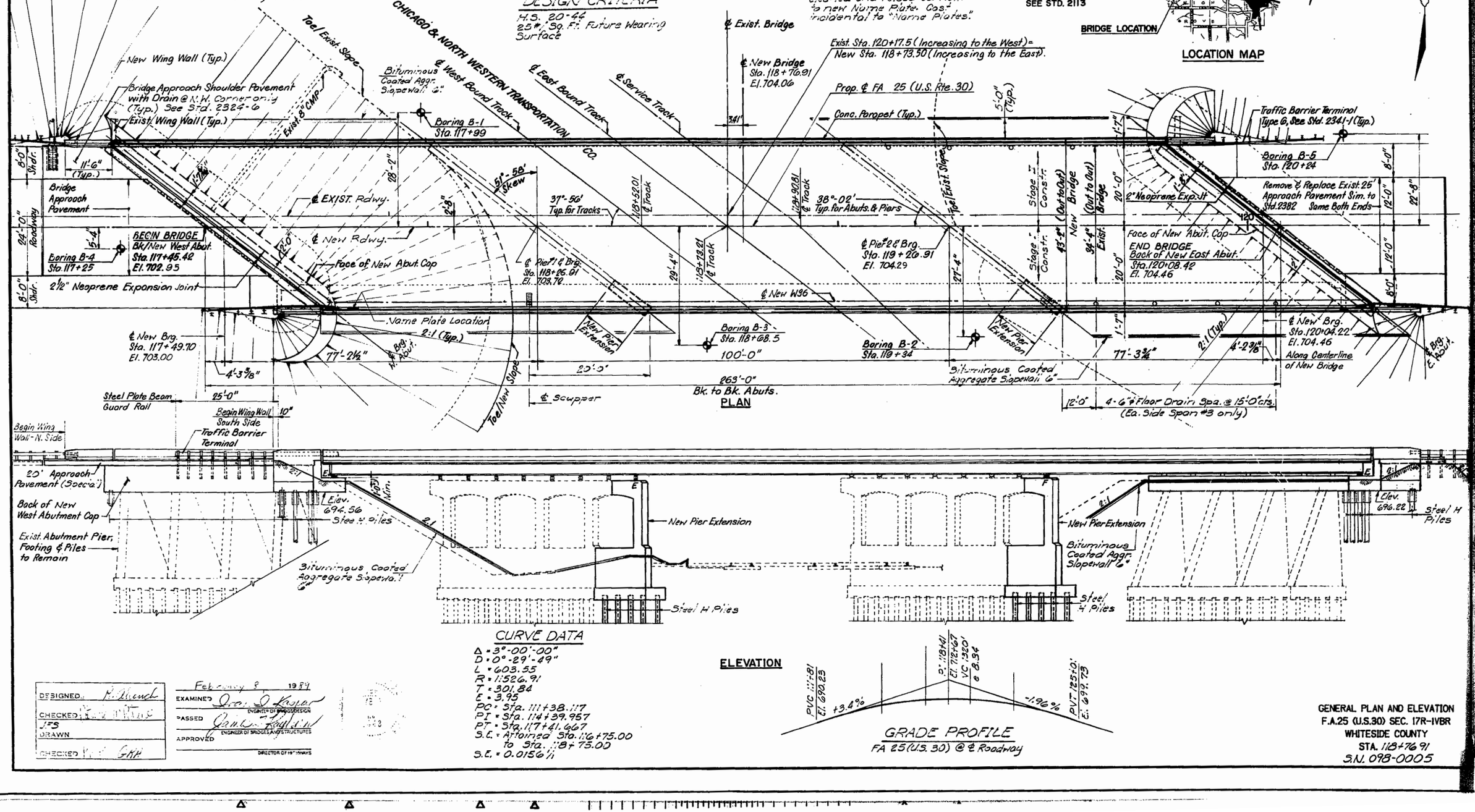
NAME PLATE
SEE STD. 2113

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA ROUTE 25 (US ROUTE 30)	17R - IVBR	WHITESIDE	47	18
FED. ROAD DIV. NO.	ILLINOIS	PROJECT NO. F-92-083-84		

SHEET NO. 1
23 SHEETS

BRIDGE LOCATION

LOCATION MAP



PLAN

CURVE DATA

Δ = 3°-00'-00"
D = 0°-29'-49"
L = 603.55
R = 1:526.91
T = 301.84
E = 3.95
PC = Sta. 111+38.17
PI = Sta. 114+39.957
PT = Sta. 117+41.667
S.E. = Attained Sta. 116+75.00 to Sta. 118+75.00
S.E. = 0.0156 ft

ELEVATION

GRADE PROFILE
FA 25 (U.S. 30) @ ℄ Roadway

DESIGNED	P. Blanck	
CHECKED	[illegible]	
DRAWN	JFS	
CHECKED	GKH	

February 8, 1989

EXAMINED Orri D. Kaspar
ENGINEER OF BRIDGE DESIGN

PASSED [illegible]

APPROVED [illegible]
ENGINEER OF BRIDGES AND STRUCTURES

DIRECTOR OF HIGHWAYS

GENERAL PLAN AND ELEVATION
F.A.25 (U.S.30) SEC. 17R-IVBR
WHITESIDE COUNTY
STA. 118+76.91
S.N. 098-0005

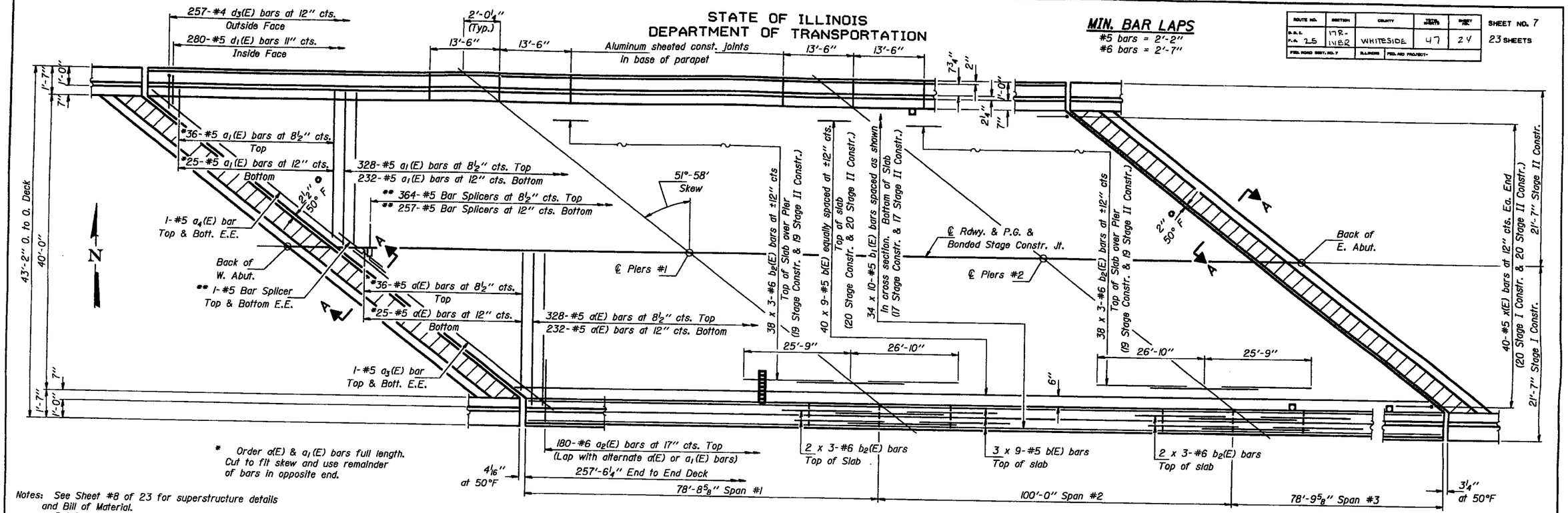
FOR INFORMATION ONLY

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 25	17R-1NBR	WHITESIDE	47	24
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 7
23 SHEETS

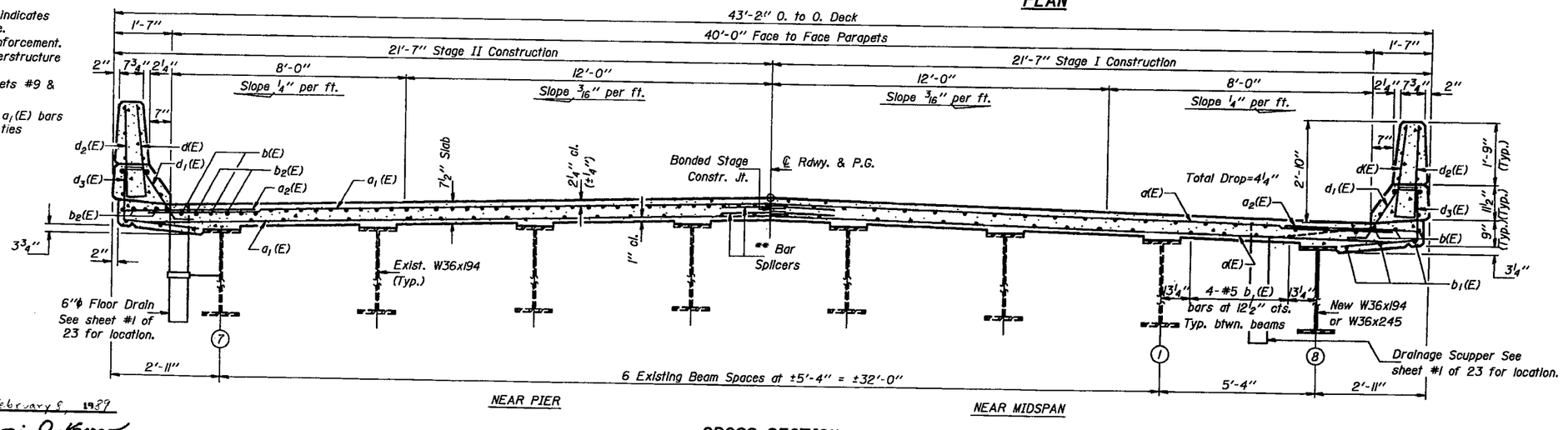
MIN. BAR LAPS
#5 bars = 2'-2"
#6 bars = 2'-7"



* Order a(E) & a1(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.

Notes: See Sheet #8 of 23 for superstructure details and Bill of Material.
Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.
See Sheet #8 of 23 for parapet reinforcement.
Hatched area to be poured after Superstructure forms have been removed.
For Drainage Scupper details see sheets #9 & #10 of 23.
** Bar splicers lapped with a(E) and a1(E) bars shall be tied with double the number of ties normally used.

PLAN



CROSS SECTION
(Looking East at Normal Cross Section)

DESIGNED	Geo. H. Albrecht
CHECKED	Patrick M. Petroni
DRAWN	John F. Schaeller Jr.
CHECKED	PMP ERA

February 5, 1989
EXAMINED Engineer of Bridge Design
PASSED James T. Graham Engineer of Bridges and Structures
APPROVED Director of Highways

S-1-R(>15°) 12-31-87

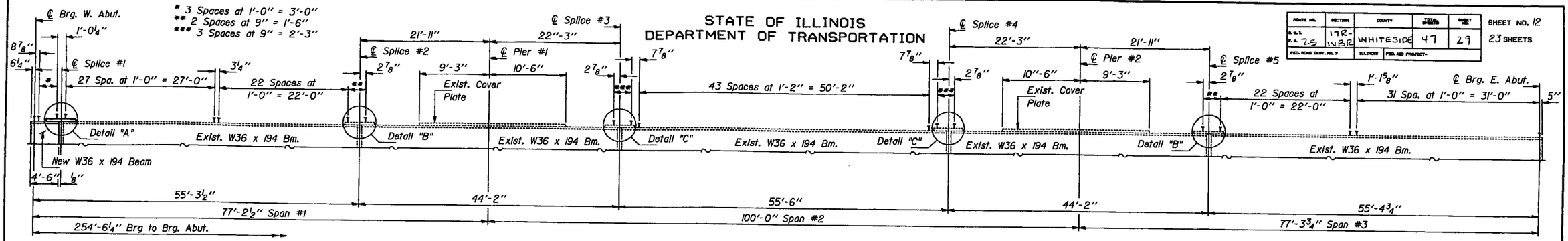
SUPERSTRUCTURE
F.A. RT. 25 SEC. 17R-1NBR
WHITESIDE COUNTY
STA. 118+76.91

FOR INFORMATION ONLY

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

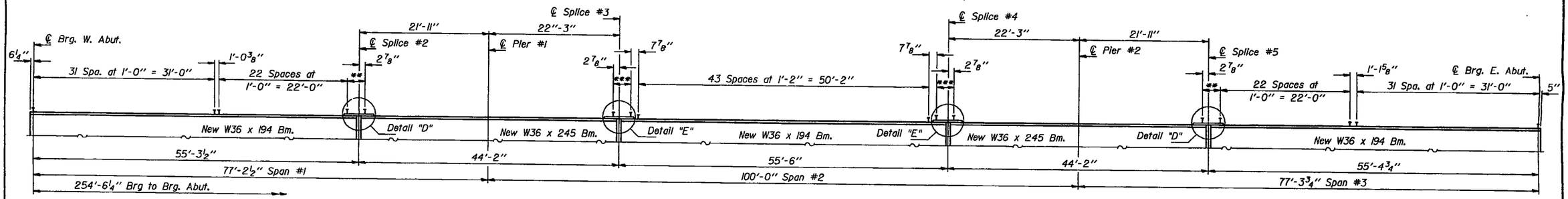
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 25	17R-1VBR	WHITESIDE	47	29
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 12
23 SHEETS



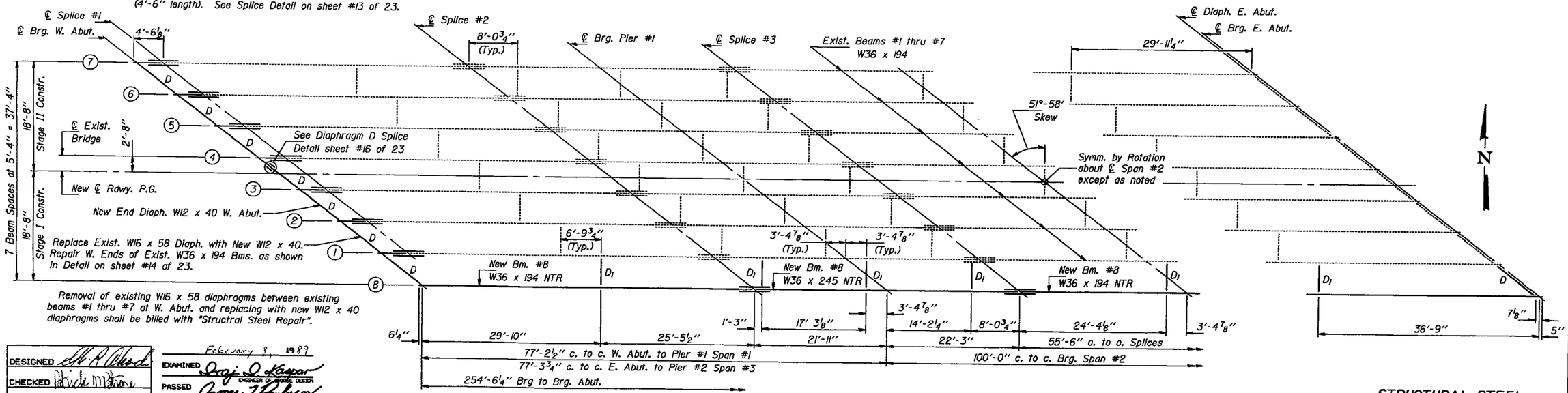
ELEVATION EXISTING BEAMS #1 THRU #7
(Showing Stud Shear Connector Spacing)

For Details "A" thru "E" see sheet #13 of 23.



ELEVATION NEW BEAM #8
(Showing Stud Shear Connector Spacing)

Note:
Cut 4'-6¼" from Ends of Existing W36 x 194 of Beams No. #1 thru #7 at West Abutment only. Replace with New W36 x 194 (4'-6" length). See Splice Detail on sheet #13 of 23.



FRAMING PLAN

DESIGNED	M. R. Abed
CHECKED	Patrick McManus
DRAWN	John F. Schneller Jr.
CHECKED	GRA DMP

February 8, 1989

EXAMINED Engineer of Bridge Design
PASSED James T. Roburn Engineer of Bridges and Structures
APPROVED Director of Highways

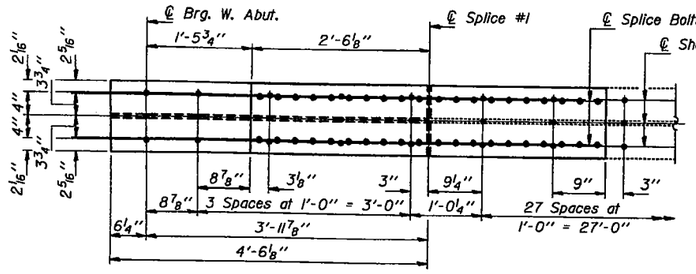
STRUCTURAL STEEL
F.A. RT. 25 SEC. 17R-1VBR
WHITESIDE COUNTY
STA. 118+76.91

FOR INFORMATION ONLY

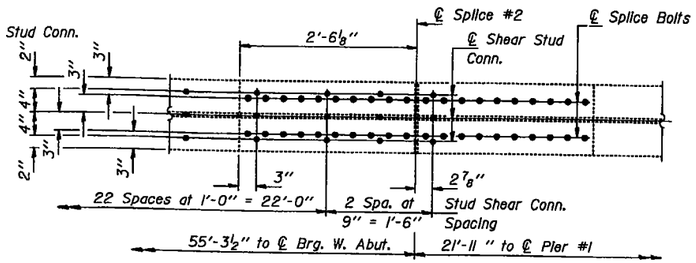
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 25	17R-IVBR.	WHITESIDE	47	30
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 13
23 SHEETS

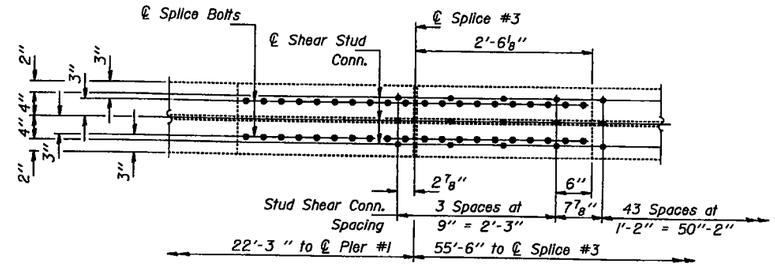


DETAIL "A"



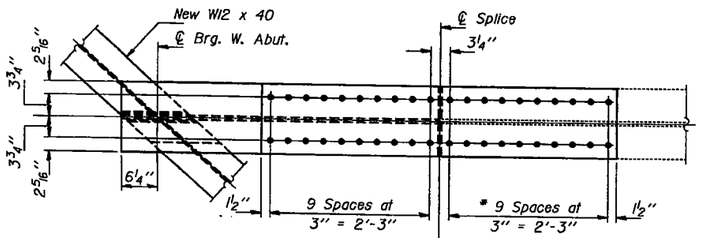
DETAIL "B"

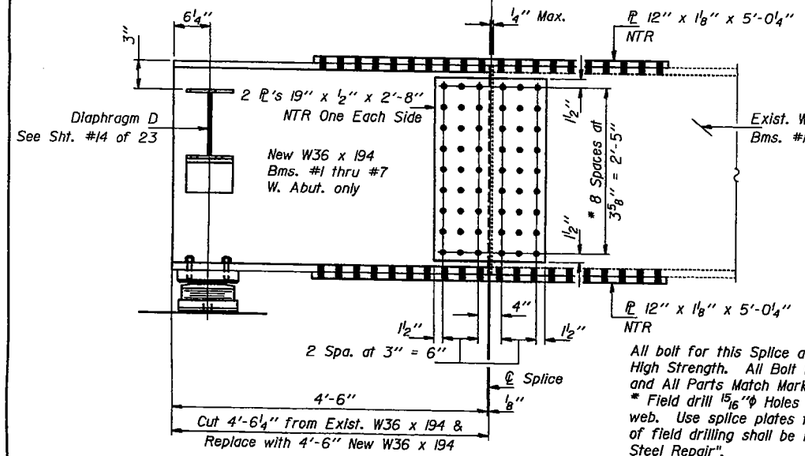
(Splice #2 is shown, Splice #5 similar by 180° rotation)



DETAIL "C"

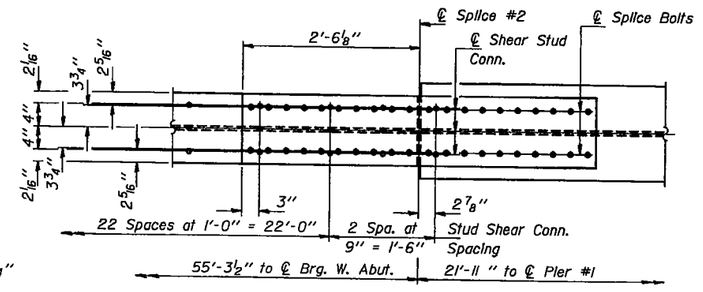
(Splice #3 is shown, Splice #4 similar by 180° rotation)





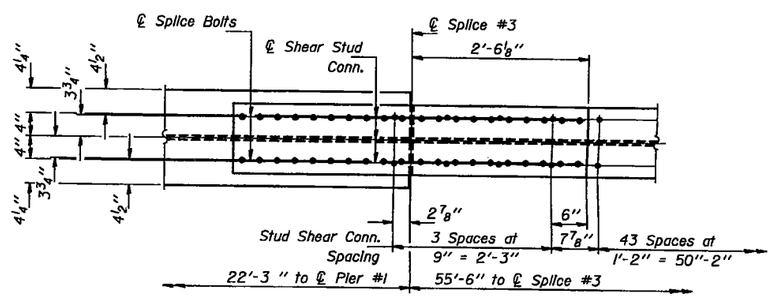
All bolt for this Splice are to be 7/8"ϕ M253 High Strength. All Bolt Holes to be Reamed and All Parts Match Marked.
* Field drill 15/16"ϕ Holes in existing flange & web. Use splice plates for template. Cost of field drilling shall be incidental to "Structural Steel Repair".

DETAIL OF REPAIR OF BEAMS AT WEST ABUTMENT



DETAIL "D"

(Splice #2 is shown, Splice #5 similar by 180° rotation)



DETAIL "E"

(Splice #3 is shown, Splice #4 similar by 180° rotation)

NEW BEAM MOMENT TABLE

		0.4 Sp. #1	Pier #1	0.5 Sp. #2	Pier #2	0.6 Sp. #3
Is	(in4)	12,100	16,100	12,100	16,100	12,100
Ic	(in4)	26,310	——	26,310	——	26,310
Ss	(in3)	664	895	664	895	664
Sc	(in3)	904	——	904	——	904
℘	(K/ft.)	0.756	1.002	0.756	1.002	0.756
MℓL	('K)	281	822	305	822	281
sℓL	(K/ft.)	0.236	——	0.236	——	0.236
MsℓL	('K)	102	——	127	——	102
Mℓ	('K)	455	363	504	363	455
M (Imp)	('K)	112	84	112	84	112
Total	('K)	669	447	743	447	669
fsℓ non-comp	(k.s.i.)	5.1	11.0	5.5	11.0	5.1
fs(ℓ+I) non-comp	(k.s.i.)	——	6.0	——	6.0	——
fs (comp)	(k.s.i.)	8.9	——	9.9	——	8.9
fs (Total)	(k.s.i.)	14.0	17.0	15.4	17.0	14.0
VR	(K)	41.4	——	36.2	——	41.4

NEW BEAM REACTION TABLE

		W. Abut.	Pier #1	Pier #2	E. Abut.
RℓL	(K)	27.7	99.1	99.1	27.7
Rℓ	(K)	30.0	44.5	44.5	30.0
Imp.	(K)	7.4	10.4	10.4	7.4
R (Total)	(K)	65.1	154.0	154.0	65.1

Is and Ss are the moment of inertia and section modulus of the steel section used in computing fs Total.
Ic and Sc are the moment of inertia and section modulus of the composite section used in computing fs Total.
VR is the maximum live Load + Impact shear range in span.

DESIGNED	J. K. Ahmad
CHECKED	Farhad Mehrai
DRAWN	John F. Schneller Jr.
CHECKED	GKA PMP

February 8, 1989
EXAMINED Iraj O. Kaspar — ENGINEER OF BRIDGE DESIGN
PASSED James T. Rakburn — ENGINEER OF BRIDGES AND STRUCTURES
APPROVED — DIRECTOR OF HIGHWAYS

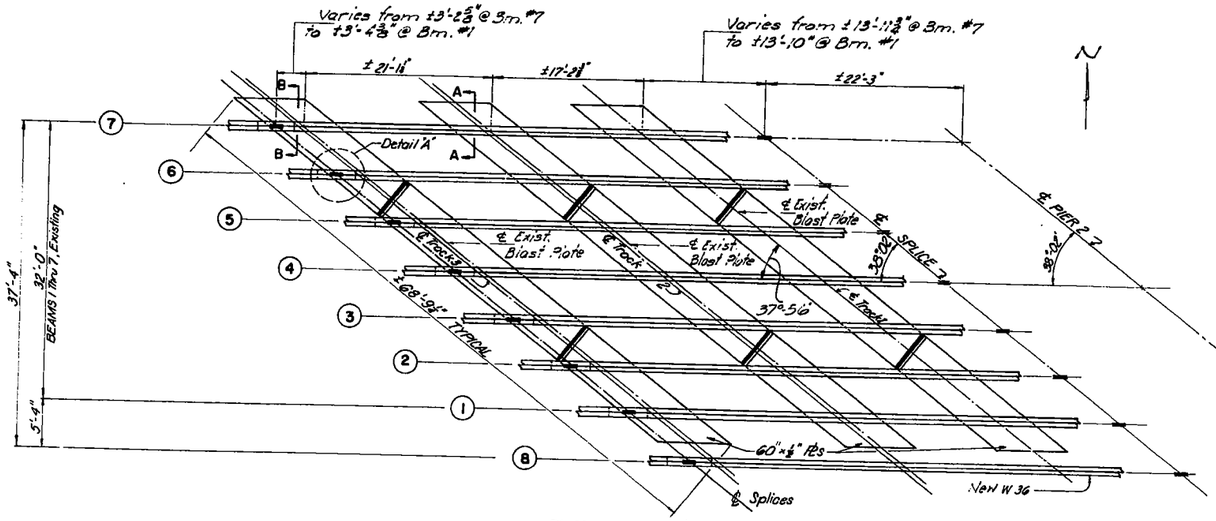
NOTES:
"NTR" denotes plates to which Notch Toughness Requirements are applicable.

STRUCTURAL STEEL
F.A. RT. 25 SEC. 17R-IVBR
WHITESIDE COUNTY
STA. 118+76.91

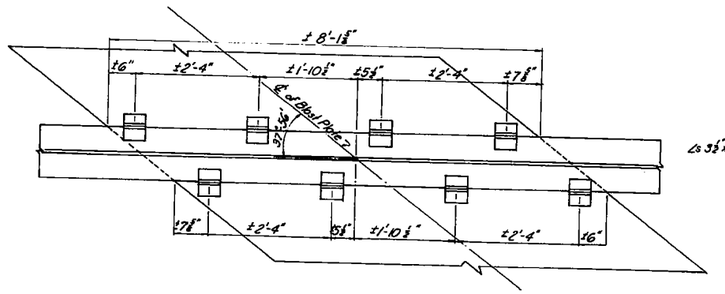
FOR INFORMATION ONLY

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA ROUTE 25 / FAS ROUTE 30	17R-1VBR	WHITESIDE	47	31
FED. ROAD DIV. NO.	ILLINOIS	PROJ. NO. P-92-083-84		

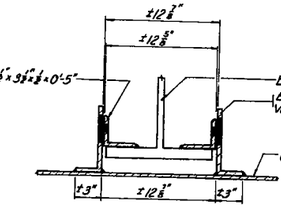
SHEET NO. 14
23 SHEETS



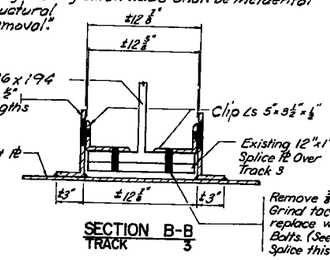
PLAN OF EXISTING BLAST PLATES TO BE REMOVED



EXISTING BLAST PLATE HANGERS OVER TRACKS 1&2
(TYPICAL FOR BEAMS 1 THRU 7)

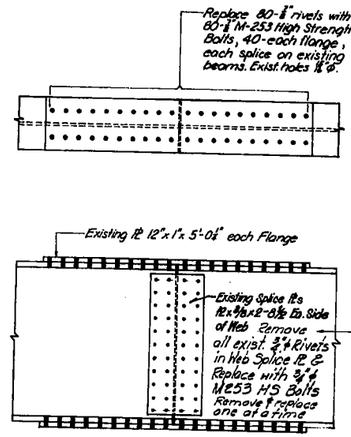


SECTION A-A
TRACK 1 and 2



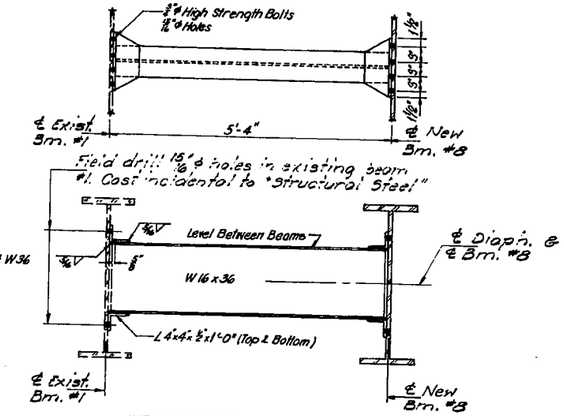
SECTION B-B
TRACK 3

NOTES:
Hatched area indicates "Structural Steel Removal." Remove Blast Plates and Clip Angles and grind welds smooth. All existing welds are ⅜" ℄ Bolts are ⅞"x 2⅝" Machine Bolts. See Special Provisions for grinding of existing welds. Cost of grinding exist. welds shall be incidental to "Structural Steel Removal."



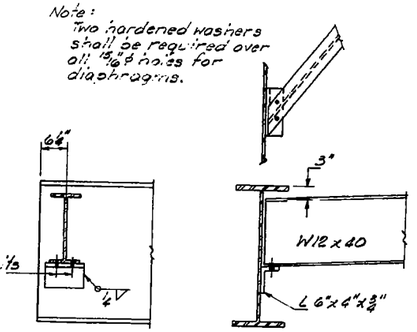
EXISTING BEAM SPLICE
(28 Locations)

NOTE:
Replace all ⅞" rivets in existing 12"x1"x 5'-0½" flange Plts with ⅞" ℄ M 253 High Strength Bolts. Remove and replace rivets with bolts one at a time after existing deck is removed. Each bolt shall be torqued before next rivet is removed.
All rivets holding an individual blast Plt clip angle over track 3 may be removed at one time to remove the angle. (See section B-B and Detail 'A' this sheet.). After removing angle immediately place bolts and torque before removing additional bolts.

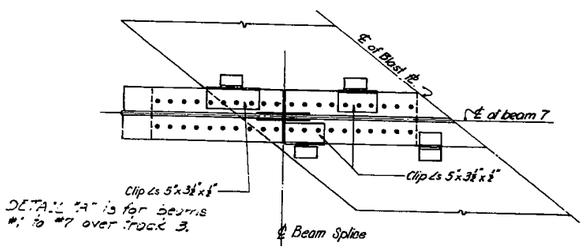


INTERMEDIATE DIAPHRAGMS D
9 (Reqd.)

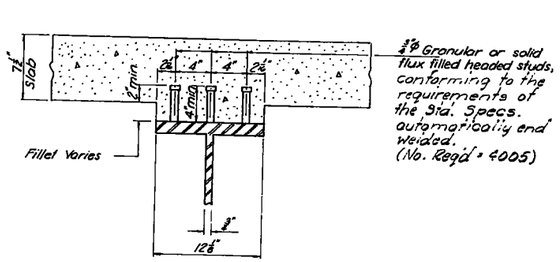
Note:
Two hardened washers shall be required over all 15/16" ℄ holes for diaphragms.



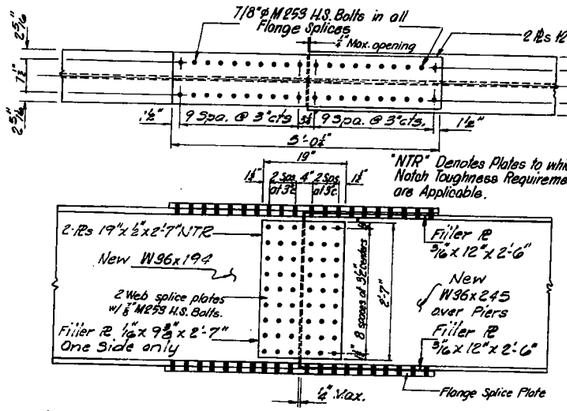
END DIAPHRAGMS D
7 Req'd at N. Abut. only



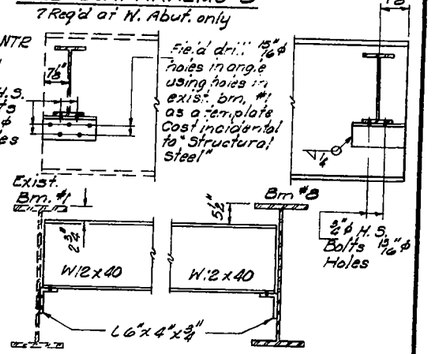
DETAIL "A"



SHEAR STUDS



NEW BEAM No. 8 SPLICE



END DIAPHRAGM D
1 Req'd at E. Abut.

DESIGNED	M. R. Zahnaugh	February 8, 1989
CHECKED	E. M. Phillips	EXAMINED Craig J. Kapsi, ENGINEER OF BRIDGE DESIGN
DRAWN	JFS	PASSED James J. Kaupuzn, ENGINEER OF BRIDGES AND STRUCTURES
CHECKED	GRA	APPROVED DIRECTOR OF HIGHWAYS

STEEL GIRDER & FRAMING DETAILS
F.A.25 (U.S.30) SEC. 17R-1VBR
WHITESIDE COUNTY
STA. 118+76.91