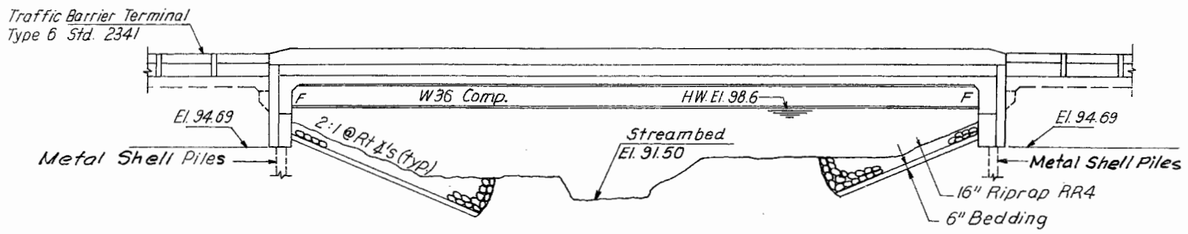
Bench Mark:
60 d nail on south side of power pole 40' left of Sta. 616+23, El. 100.00
Existing Structure No. 047-0013 consist of a one span reinforced concrete girder bridge, supported on closed abutments, the overall width of the bridge is 26'-3" and 43'-0" Bk. to Bk. of Abutments.
Proposed Improvement
Existing structure to be removed and replaced with a one span I-beam structure. Traffic to be detoured.
No Salvage

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

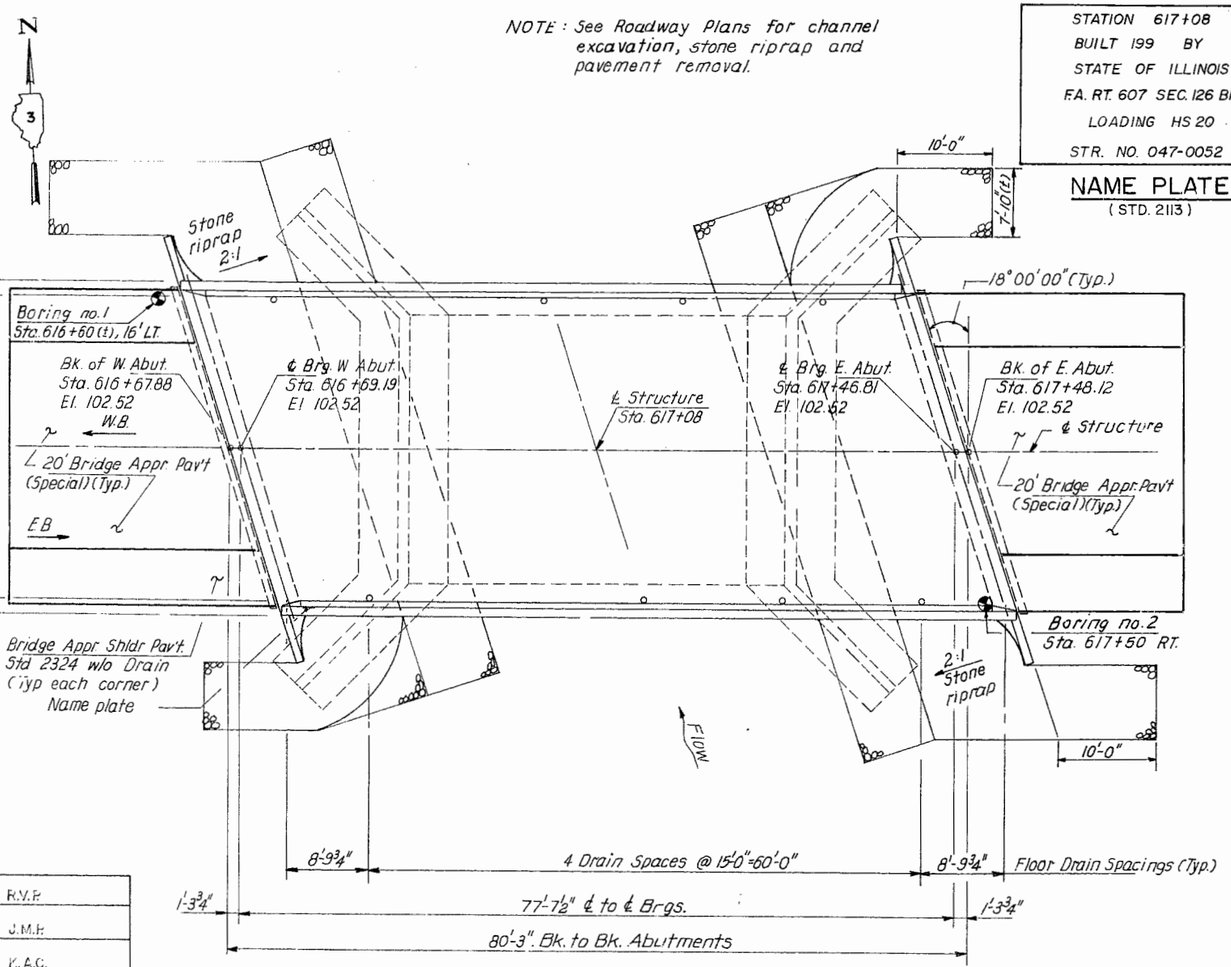
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 607 (U.S. 52)	126 BR	KENDALL	20	10
FED. ROAD DIST. NO. 3	ILLINOIS	FED. AID PROJECT		

SHEET NO. 1
SHEETS 10



ELEVATION

NOTE: See Roadway Plans for channel excavation, stone riprap and pavement removal.



PLAN

STATION 617+08
BUILT 199 BY
STATE OF ILLINOIS
F.A. RT. 607 SEC. 126 BR
LOADING HS 20
STR. NO. 047-0052

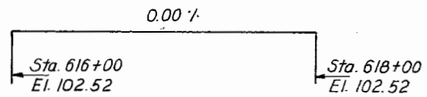
NAME PLATE
(STD. 2113)

DESIGNED	R.V.P.
CHECKED	J.M.H.
DRAWN	K.A.C.
CHECKED	R.V.P.

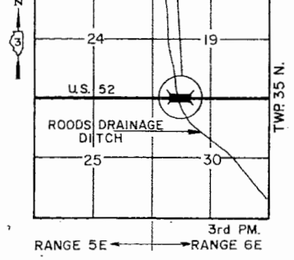
WATERWAY INFORMATION

DRAINAGE AREA 5.8 Sq. Mi. LOW GRADE ELEV. 102.15 @ Sta. 618+00

FLOOD	FREQ. YR.	Q C.F.S.	OPNG. SQ. FT. EXIST.	OPNG. SQ. FT. PROP.	NAT. H.W.E.	HEAD FT. EXIST.	HEAD FT. PROP.	HEADWATER EL. EXIST.	HEADWATER EL. PROP.
DESIGN	50	700	195	315	98.6	0.3	0.1	98.9	98.7
BASE	100	800	195	315	98.8	0.4	0.2	99.2	99.0
OVERTOPPING									
MAX. CALC.	500	1050	195	315	99.1	0.7	0.3	99.8	99.4



PROPOSED PROFILE ROUTE 52



LOCATION MAP

DESIGN NOTES

DESIGN SPECIFICATIONS

AASHTO 1989 Standard Specifications for Highway Bridges with 1990 interims as applicable and 1983 Guide Specifications for seismic design of Highway Bridges.

LOADING HS20-44

Allow 25 #/Sq. Ft. for future wearing surface.

DESIGN STRESSES

f'c = 3,500 psi
fy = 60,000 psi (Reinf.)
fy = 50,000 psi (M 223, GR. 50) (Struct.)

GENERAL NOTES

See Proposal for Boring Data.

Fasteners shall be high strength bolts. Bolts 7/8 inch ø, open holes 15/16 inch ø, unless otherwise noted.

Calculated weight of structural steel=76830 lbs for M223 (Grade 50) and 3975 lbs for M183 steel.

The zinc-silicate and vinyl paint system shall be used for shop and field painting of Structural Steel except where otherwise noted. The color of the vinyl finish coat shall be Munsell NO. 7.5G 4/8 interstate Green.

All structural steel shall be AASHTO M 223 (Grade 50) except diaphragms and connection angles which shall be AASHTO M 183.

Field welding of construction accessories will not be permitted to the bottom flange of beams or girders nor to the top flange for a distance equal to one-fourth the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.

Anchor bolts shall be set before bolting diaphragms over supports.

The main load carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone 2. These components are the wide flange beams.

Reinforcement bars shall conform to the requirements of AASHTO M-31, M-42 or M-53 Grade 60.

Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

The contractor shall drive One Metal Shell (14" ø) Test Pile in a permanent location at West Abutment and East Abutment as directed by the Engineer before ordering the remainder of piles.

TOTAL BILL OF MATERIALS

	ITEM	UNIT	SUPER STRUCT.	SUB STRUCT.	TOTAL
	Porous Granular Embankment	CU. YD.	—	124	124
	Removal of Existing Structures	Each	—	—	1
	Floor drains	Each	10	—	10
	Class X Concrete Superstructure	CU. YD.	111.3	—	111.3
*	Protective coat	Sq. YD.	350	—	350
	Class X Concrete	CU. YD.	—	30.2	30.2
	Furnishing & Erecting Structural Steel	L Sum.	1	—	1
	Stud Shear Connectors	Each	1020	—	1020
	Reinforcement bars (Epoxy coated)	Pound	22430	3980	26410
	Driving and Filling Shells	L. Ft.	—	558	558
	Test Pile **Metal Shell (14" ø)**	Each	—	2	2
**	Bridge deck Grooving	Sq. YD.	285	—	285
	Name Plates	Each	1	—	1
	Stone Riprap Class A-4	Sq. YD.	—	311	311
	Filter fabric for use with Riprap	Sq. YD.	—	311	311
	Furnishing Metal Pile Shells (14" ø)	Lin. Ft.		558	558
	Structure excavation	CU. YD.	—	32	32

*Quantity is for deck and parapets.
**See special provision.

APPROVED
FOR STRUCTURAL CAPACITY ONLY
Engineer — Date

REVISIONS	
NAME	DATE

P.G. ENGINEERING ASSOCIATES, INC.
600 WEST JACKSON BLVD.
CHICAGO ILLINOIS, 60606

GENERAL PLAN & ELEVATION

U.S. 52 OVER ROODS DRAINAGE DITCH
FA ROUTE 607 (U.S. 52) SEC. 126 BR
STA. 617+08
KENDALL COUNTY
STRUCTURE NUMBER 047-0052

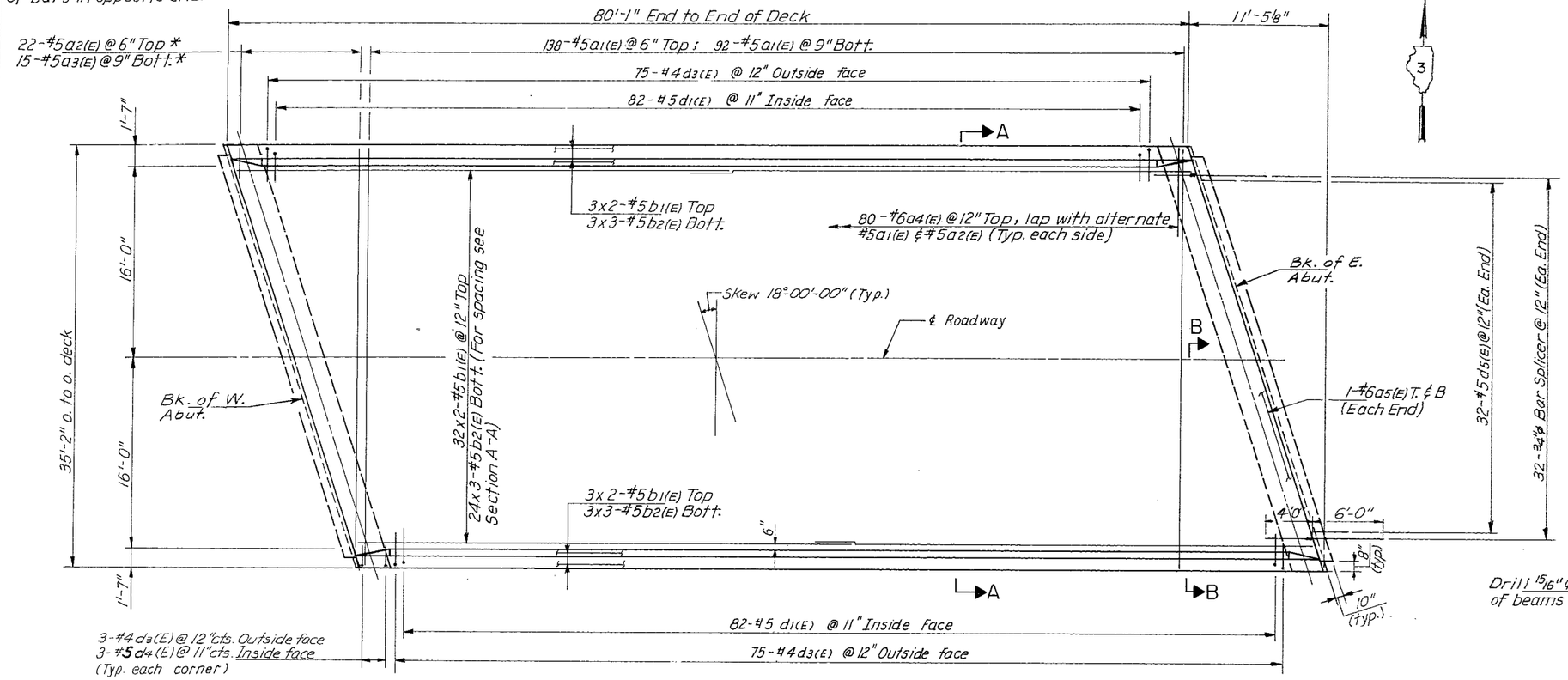
SCALE: VERT.
HORIZ.
DATE

* Order a2(E) & a3(E) bars full length
Cut to fit skew and use remainder
of bars in opposite end.

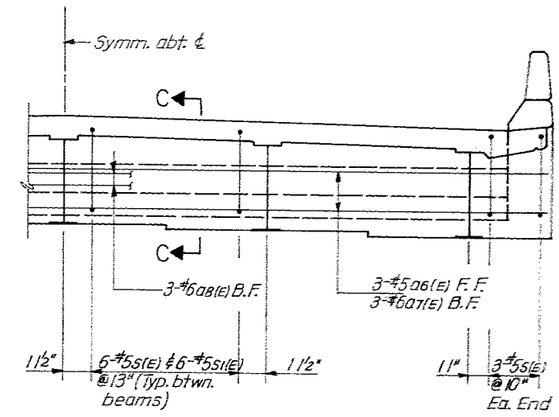
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.607 (U.S.52)	126 BR	KENDALL	20	12
FED ROAD DIST. NO. 3	CLIM. S	FED. AID PROJECT		

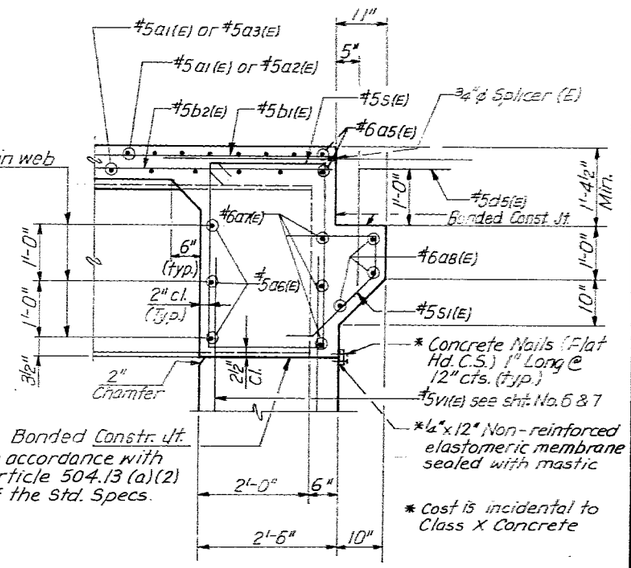
SHEET NO. 3
SHEETS 10



PLAN



SECTION B-B



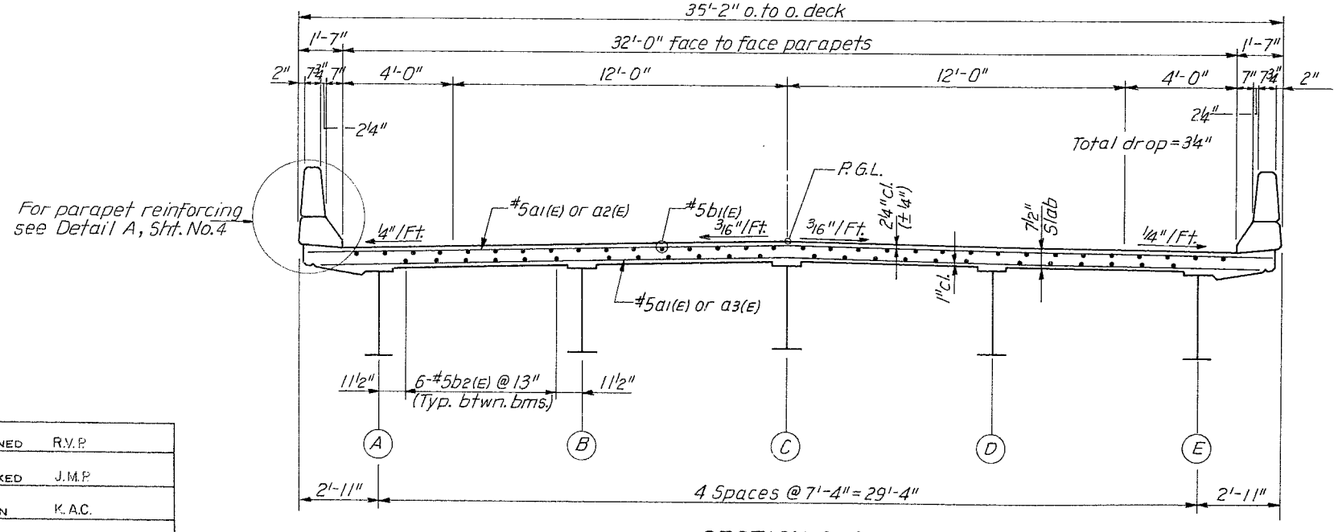
Drill 15/16" ϕ Holes in web of beams

Bonded Constr. Jt. in accordance with Article 504.13 (a)(2) of the Std. Specs.

* Cost is incidental to Class X Concrete

SECTION C-C
(Dimension @ Rt. ℄s)

MIN. BAR LAP
#5 bars = 1'-8"



SECTION A-A

Notes:
For Superstructure Details and Bill of Materials see Sht. No. 4
Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 20x3-#5 etc. indicates 20 lines of bars with 3 lengths per line.
See sheet #1 of 10 for floor drain spacing.
See sheet #10 of 10 for bar splicer details.

DESIGNED	R.V.P.
CHECKED	J.M.P.
DRAWN	K. A.C.
CHECKED	R.V.P.

REVISIONS	
NAME	DATE

P.G. ENGINEERING ASSOCIATES, INC.
600 WEST JACKSON BLVD.
CHICAGO ILLINOIS, 60606

DECK DETAILS I

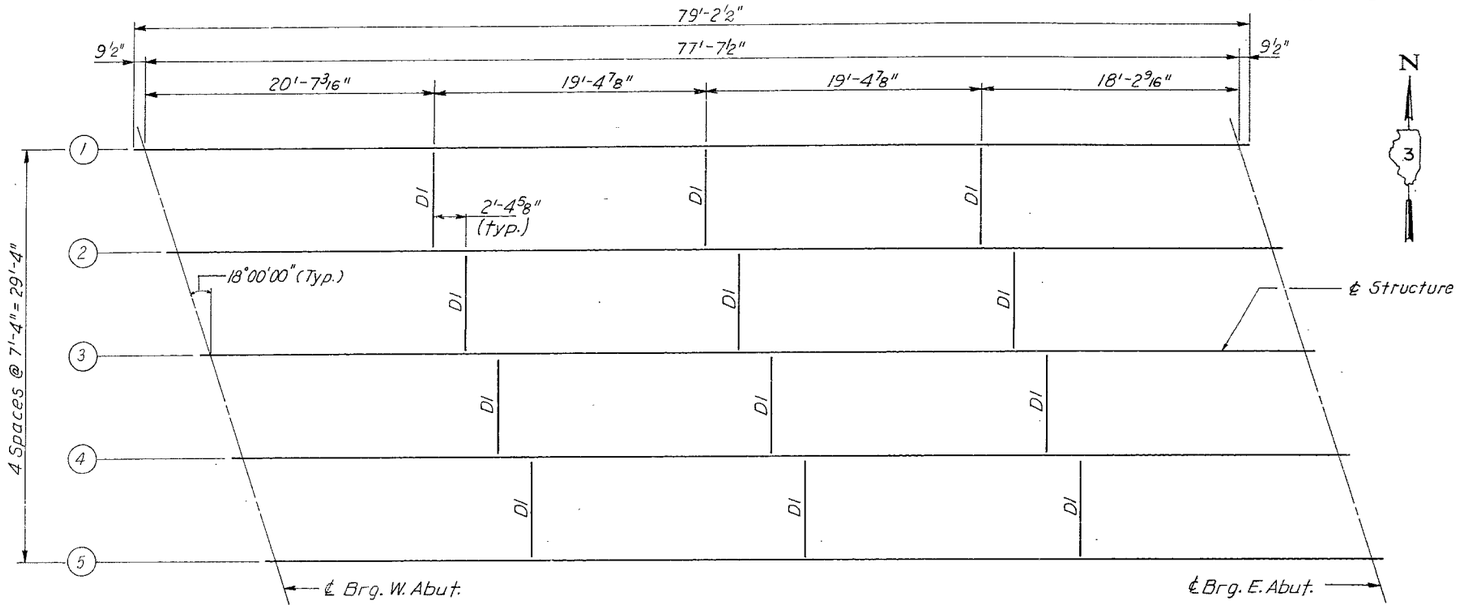
U.S. 52 OVER ROODS DRAINAGE DITCH
FA ROUTE 607 (U.S. 52) SEC. 126 BR
STA 617+08
KENDALL COUNTY
STRUCTURE NUMBER 047-0052

SCALE: VERT.
HORIZ
DATE

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

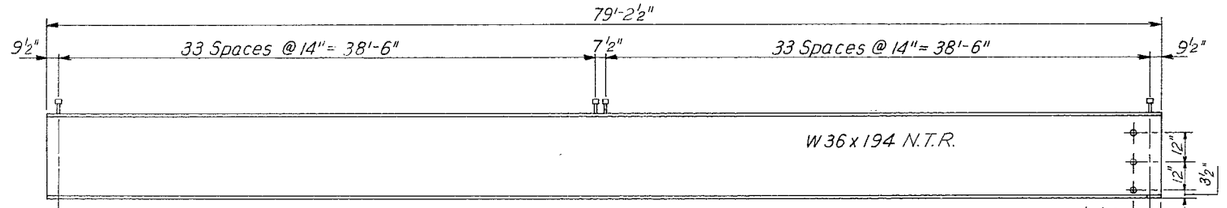
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA.607 (U.S.52)	126 BR	KENDALL	20	14
FED. ROAD DIST. NO. 3	ILLINOIS	FED. AID PROJECT		

SHEET NO. 5
SHEETS 10

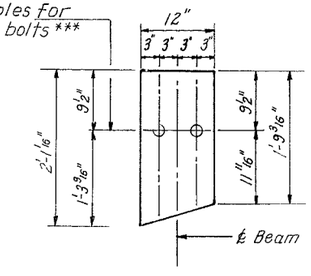


FRAMING PLAN

All Beams (W36 x 194 N.T.R. M223 Struc. Steel, Gr. 50)



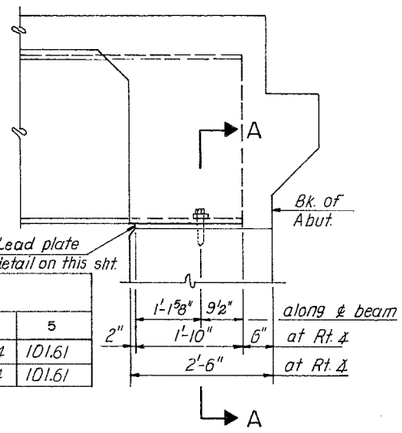
BEAM ELEVATION



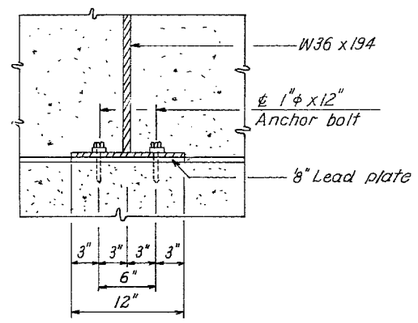
DETAIL 1⅛" LEAD PLATE

TOP OF FLANGE ELEVATIONS					
	1	2	3	4	5
℄ Brg. W. Abut.	101.61	101.74	101.85	101.74	101.61
℄ Brg. E. Abut.	101.61	101.74	101.85	101.74	101.61

*** For Anchor bolt details see sheet no. 9

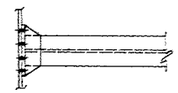


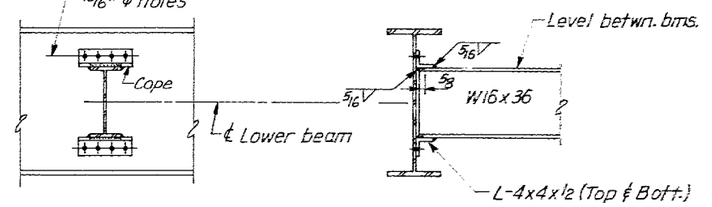
SECTION AT EAST ABUTMENT



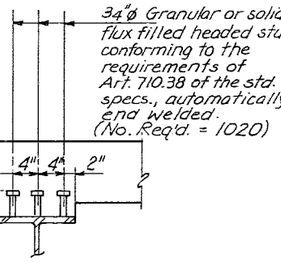
SECTION A-A

Note:
Hardened washers shall be required over all 15/16" ϕ holes.





DIAPHRAGMS D1



SHEAR STUDS

INTERIOR BEAM REACTION TABLE		
		ABUTMENT
RD	(k)	52.2
RL	(k)	42.2
Imp	(k)	10.5
RTOTAL	(k)	104.9

INTERIOR BEAM MOMENT TABLE		
		CENTER OF SPAN
Is	(in4)	12100
Ic	(in4)	27959.8
Ss	(in3)	664
Sc	(in3)	913.1
Z	(in3)	767
D	(K/i)	0.95
MD	(iK)	715.5
SD	(K/i)	0.39
Ms D	(ik)	296
ML	(ik)	744.8
MImp.	(ik)	186.2
S3(ML+I)	(ik)	1551.7
Ma.	(iK)	3332
Mu.	(iK)	4967
fs D non comp(ksi)		12.93
fs D comp. (ksi)		3.89
fs S3(L+I) (ksi)		20.40
fs (Over load)(ksi)		37.22
fs (TOTAL) (Ksi)		—
VR	(K)	52.7

Is and Ss are the moment of Inertia and section modulus of the steel section used in computing fs (Total & Overload).

Ic and Sc are the moment of Inertia and section modulus of the composite section used in computing fs (Total & Overload).

VR is the maximum Live Load + Impact shear range in span.

Z is the plastic section modulus used to determine the fully plastic moments in the non-composite areas.

Ma (Applied Moment) = 1.3 [MD + Ms D + S3(ML+I)].

Mu is the Full Plastic Moment Capacity for Compact, Braced section.

fs (Overload) is the sum of the stresses due to MD + Ms D + S3(ML+I).

fs (Total)(Non-compact section) is the sum of the stresses due to 1.3[MD + Ms D + S3(ML+I)].

DESIGNED	R.V.P.
CHECKED	J.M.P.
DRAWN	K.A.C.
CHECKED	R.V.P.

REVISIONS	
NAME	DATE

P.G. ENGINEERING ASSOCIATES, INC.
600 WEST JACKSON BLVD.
CHICAGO ILLINOIS, 60606

FRAMING PLAN & DETAILS

U.S. 52 - OVER ROODS DRAINAGE DITCH
FA ROUTE 607 (U.S. 52) SEC. 126 BR
STA. 617 + 08
KENDALL COUNTY
STRUCTURE NUMBER 047-0052

SCALE: VERT.
HORIZ
DATE