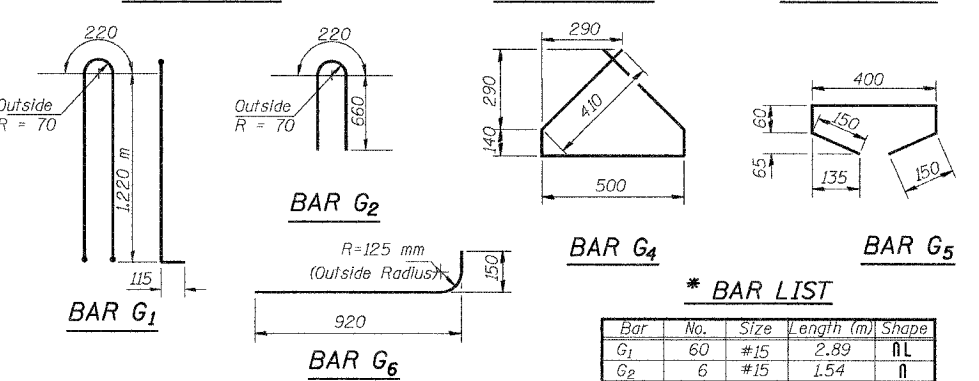
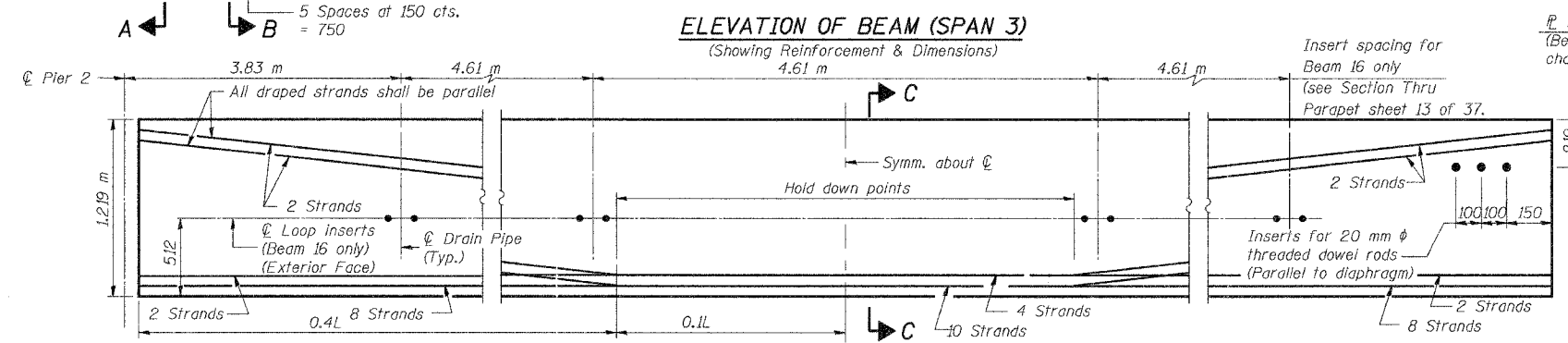
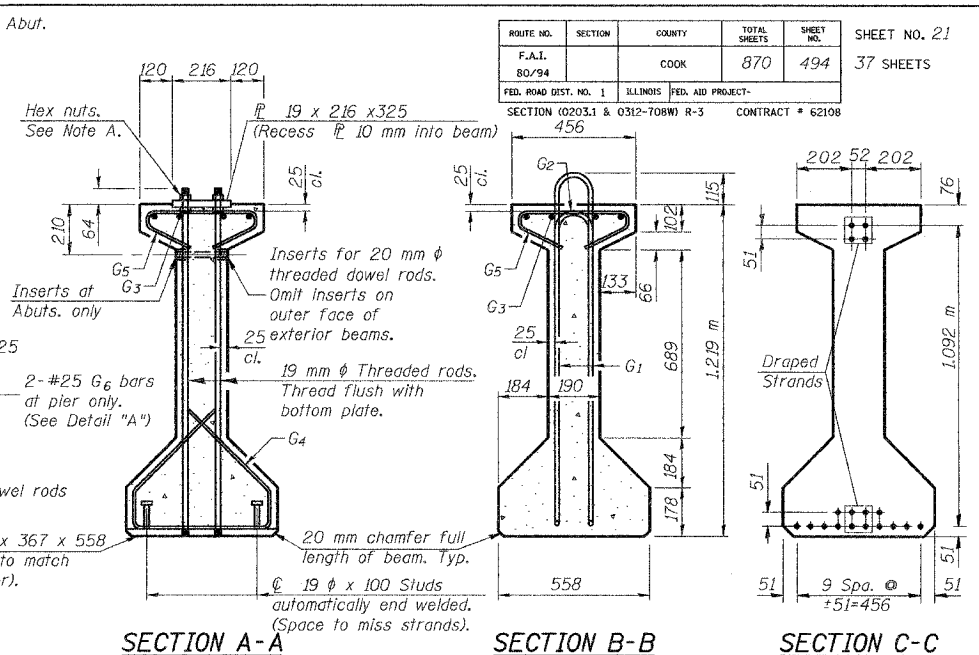
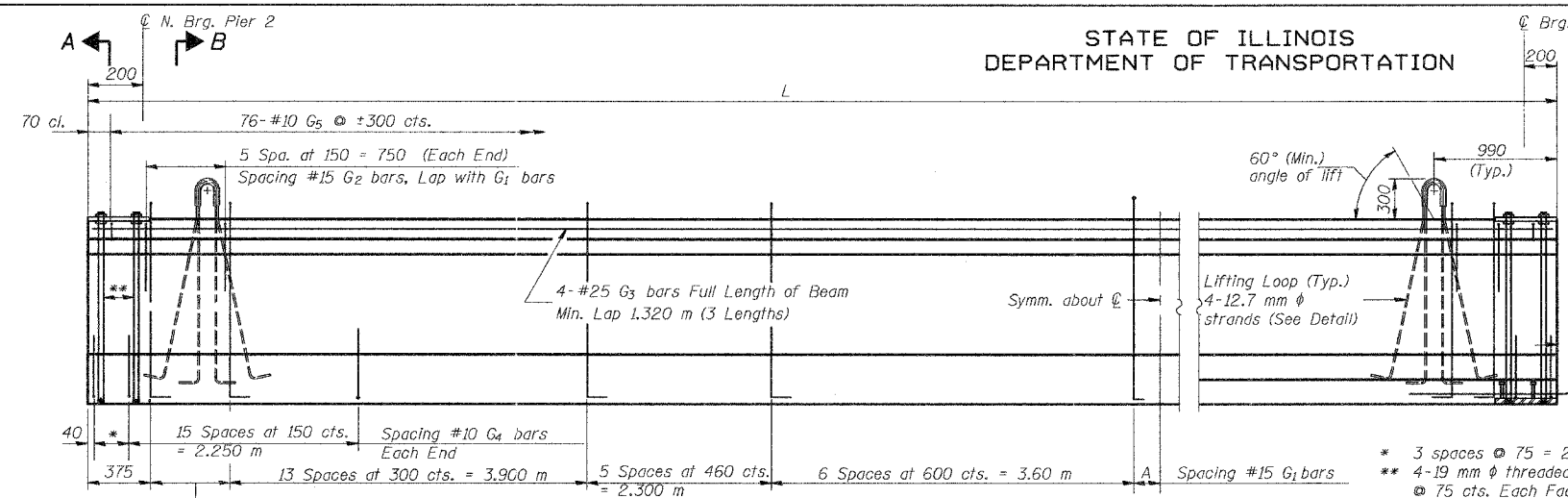
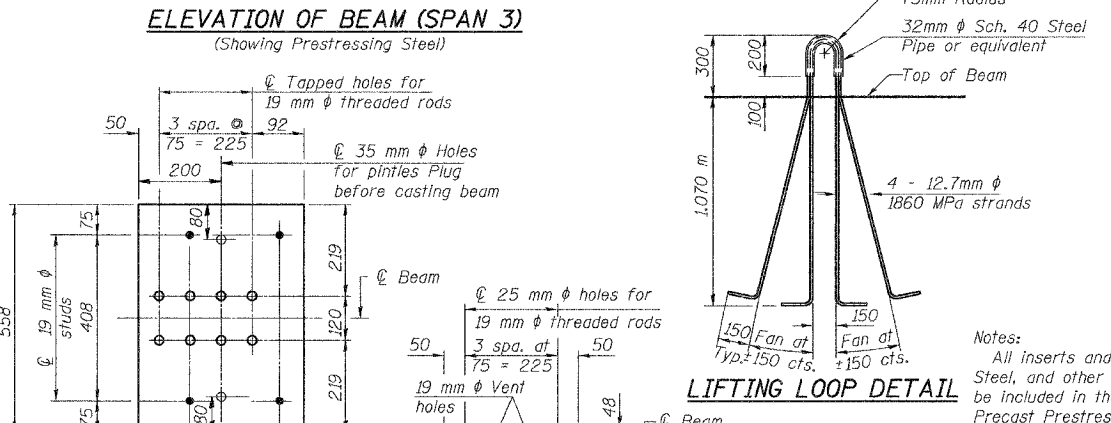


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 21
F.A.I. 80/94		COOK	870	494	37 SHEETS
FED. ROAD DIST. NO. 1	ILLINOIS FED. AID PROJECT-		SECTION (0203.1 & 0312-708M) R-3 CONTRACT # 62108		



	0.4 Sp. #1	Pier 1 or 2	0.5 Sp. #2
Strand Pattern	14 A		24 B
I	(10 ⁶ mm ⁴) 59,986	59,986	59,986
I'	(10 ⁶ mm ⁴) 154,415	-	154,415
S _b	(10 ³ mm ³) 111,998	111,998	111,998
S _b '	(10 ³ mm ³) 181,310	-	181,310
S _t	(10 ³ mm ³) 87,750	87,750	87,750
S _t '	(10 ³ mm ³) 420,133	-	420,133
Q	(kN/m) 17.19	17.19	17.19
M _Q	(kN-m) 1055.2	-	1768.1
s _Q	(kN/m) 6.06	6.06	6.06
M _{sQ}	(kN-m) 201.1	412.4	239.6
M _t	(kN-m) 609.0	554.0	619.0
M (Imp)	(kN-m) 154.0	133.5	139.9



Bar	No.	Size	Length (m)	Shape
G ₁	60	#15	2.89	∩
G ₂	6	#15	1.54	∩
G ₃	12	#25	8.48	∩
G ₄	38	#10	1.60	∩
G ₅	76	#10	0.82	∩
G ₆	2	#25	1.07	∩

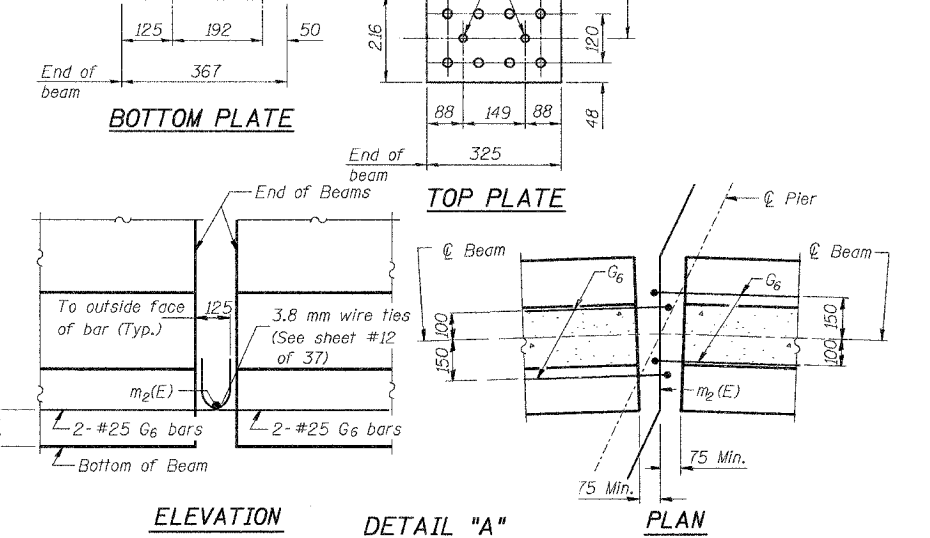
* For one beam only.

Beam	L (m)	0.4L (m)	0.1L (m)	A
9	22.057	8.823	2.206	103
10	22.031	8.812	2.203	90
11	22.004	8.802	2.200	77
12	21.978	8.791	2.198	64
13	21.952	8.781	2.195	51
14	21.925	8.770	2.193	37
15	21.900	8.760	2.190	25
16	21.874	8.750	2.187	12

I and I' are the moment of inertia and composite moment of inertia of the beam section.
S_b and S_b' are the non-composite and composite section modulus for the bottom fiber of the prestressed beam.
S_t and S_t' are the non-composite and composite section modulus for the top fiber of the prestressed beam.

	Abut.	Pier 1 Span 1	Pier 1 Span 2
R _Q	(kN) 197.5	222.0	278.0
R _{sQ}	(kN) 49.4	86.3	89.0
R _t	(kN) 142.3	105.4	105.4
Imp.	(kN) 36.0	26.7	24.0
R (Total)	(kN) 425.2	440.4	496.4

DESIGNED	M.R./ H.T.
CHECKED	H.T.
DRAWN	J.B./ J.S.
CHECKED	H.T./ M.R.



Notes:
All inserts and threaded dowel rods for inserts, reinforcing and Prestressing Steel, and other items which are cast into the Precast Concrete I-Beams shall be included in the contract unit price per meter of "Furnishing and Erecting Precast Prestressed Concrete I-Beams, 1219 mm."
Inserts for 20 mm threaded dowel rods are to be two strut, coil type for interior I-Beams and single coil, flared loop type for exterior I-Beams.
Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand (F_u=1860 MPa).
The nominal diameter shall be 12.7 mm and the nominal cross-sectional area shall be 98.71 sq. mm.
Non-prestressing steel shall conform to AASHTO designation M-31M or M-322M Grade 400.
Lifting loops shall be 4-12.7 mm φ strands (F_u=1860 MPa), as shown. Required release strength, f_{cl}, shall be 35 MPa.
A minimum 64mm φ lifting pin shall be used to engage the lifting loops during handling.
Cut G₆ bars when necessary to maintain 40 mm clearance. The bottom plates and studs shall be galvanized according to AASHTO M111 and ASTM A385.
Threaded rods shall be ASTM F 1554 Grade 370.
The cut strands at each beam end shall be given two coats of zinc dust spray or paint meeting the requirements of ASTM A 780. The zinc dust spray or paint shall be applied before corrosion appears and allowed to dry according to the manufacturer's specifications prior to another coat of zinc.
A concrete sealer meeting the requirements of Section 587 of the Standard Specifications shall be applied to all portions of the beams, except the top surface of the top flange and the bottom surface of the bottom flange, starting at each beam end and extending out a distance of 1.219 m. The sealer shall be applied after visible crack growth has subsided. This work shall be performed by the producer and included with the cost of the beam.
Reinforcement bars designated (E) shall be epoxy coated.
All dimensions are in millimeters (mm) except as noted.

Item	Unit	Total
Furnishing and Erecting Precast Prestressed Concrete I-Beams, 1219 mm	m	175.7

ILLINOIS DEPARTMENT OF TRANSPORTATION
I-94/IL 394 SOUTH BOUND

BEAM DETAILS 3 OF 3

SB IL. ROUTE 394 OVER CANADIAN NATIONAL RR
F.A.P. 332 SECTION (0203.1 & 0312-708M) R-3
COOK COUNTY

STA. 39+752.246 S.N. 016-2798 (INSIDE LANES)

DATE: July 18, 2005
SCALE: NONE

Soodan

Soodan & Associates, Inc.
100 North LaSalle Street, Suite 1800
Chicago, Illinois 60602