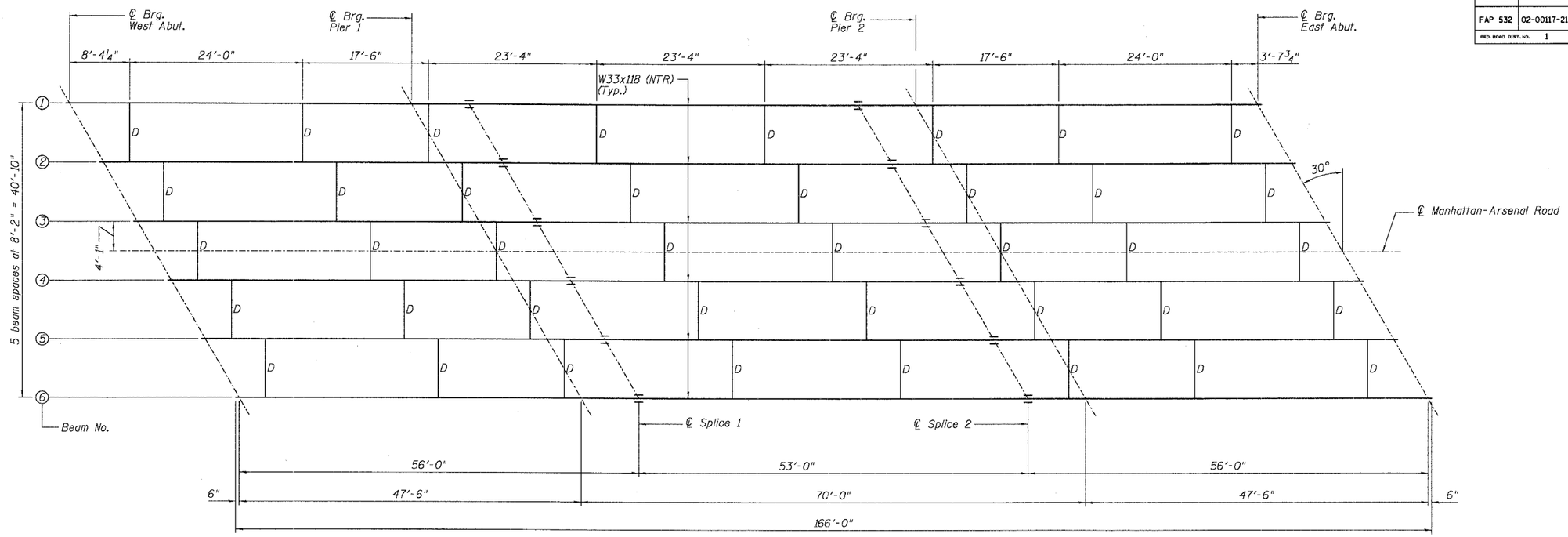
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 532	02-00117-21-BR	WILL	35	18
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT-		

SHEET NO. S-9

S-19 SHEETS

CONTRACT #: 83885



FRAMING PLAN

All beams are W33x118 AASHTO M270, Grade 50 (NTR)

INTERIOR BEAM MOMENT TABLE				
		0.4 Sp. 1	Pier	0.5 Sp. 2
Is	(in⁴)	5,900	5,900	5,900
Ic (n)	(in⁴)	15,932	---	15,932
Ic (3n)	(in⁴)	11,946	---	11,946
Ss	(in³)	359	359	359
Sc (n)	(in³)	527	---	527
Sc (3n)	(in³)	480	---	480
Z	(in³)	---	---	---
wℓ	(k/ft.)	0.92	1.44	0.92
Mℓ	('k)	113	499	224
sℓ	(k/ft.)	0.517	---	0.517
Msℓ	('k)	76	---	157
Mt	('k)	369	252	524
M (Imp)	('k)	107	68	136
⅝[Mt+M(Imp)]	('k)	793	533	1,100
Ma	('k)	1,277	1,342	1,925
* Mu	('k)	2,118	---	2,040
fsℓ non-comp	(k.s.i.)	3.8	16.7	7.5
fsℓ (comp)	(k.s.i.)	1.9	---	3.9
fs⅝(L+Imp)	(k.s.i.)	18.1	17.8	25.0
fs (Overload)	(k.s.i.)	23.8	34.5	36.4
** fs (Total)	(k.s.i.)	---	44.9	---
VR	(k)	66.1	---	57.3

* Compact section

** Braced non-compact section

INTERIOR BEAM REACTION TABLE			
		Abut.	Pier
Rℓ	(k)	23.6	94.9
Rt	(k)	46.2	55.4
Imp.	(k)	13.4	11.6
R (Total)	(k)	83.2	161.9

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

$Ic_{(n)}$ and $Sc_{(n)}$ are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.

$Ic_{(3n)}$ and $Sc_{(3n)}$ are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead loads. (see AASHTO 10.38)

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[Mℓ + Msℓ + ⅝(Mt + M(Imp))].

The Plastic Moment capacity (Mu) is computed according to AASHTO 10.48.1 and 10.50.1.1.

fs (Overload) is the sum of the stresses due to Mℓ + Msℓ + ⅝(Mt + M(Imp)).

fs (Total) (Non-compact section) is the sum of the stresses due to 1.3[Mℓ + Msℓ + ⅝(Mt + M(Imp))].

TOP OF BEAM ELEVATIONS (FOR FABRICATION USE ONLY)						
LOCATION	WEST ABUT.	EAST ABUT.	PIER 1	PIER 2	SPLICE 1	SPLICE 2
BEAM 1	608.26	605.96	607.54	606.57	607.42	606.68
BEAM 2	608.37	606.07	607.65	606.68	607.53	606.79
BEAM 3	608.43	606.13	607.71	606.74	607.59	606.85
BEAM 4	608.37	606.07	607.65	606.68	607.53	606.79
BEAM 5	608.17	605.87	607.45	606.48	607.33	606.59
BEAM 6	607.94	605.64	607.22	606.25	607.10	606.36

NOTES:

All materials shall be AASHTO M270 Grade 50.
"NTR" denotes members to which Notch Toughness Requirements are applicable.
See Sheet S-10 for beam elevation and framing details.

DESIGNED	KMA
CHECKED	AEU
DRAWN	MDJ
CHECKED	RGD

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WILL COUNTY DEPARTMENT OF HIGHWAYS

STRUCTURAL STEEL
MANHATTAN-ARSENAL ROAD
OVER JACKSON CREEK
WILL COUNTY
SECTION NO. 02-00117-21-BR
STRUCTURE NO. 099-3395

DATE 12-8-2006

COMPANY NAME: SEC Inc.
PROJECT DIRECTORY: M:\PROJECT\2006\21
CLIENT: WILL DEPT
FILE NAME: 099-3395.dgn
M:\2006\WILL\099-3395 manhattan arsenal road village hwy dept\structural\dgns\099-3395-S19.dgn