STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BENCH MARK:

#25 Chiseled "X" on existing sidewalk Sta. 42+59.19, 21.11' Rt., Elevation = 709.61
#28 Iron Pin (5/8") on west side of RR track Sta. 51+52.10, 43.04' Lt., Elevation = 710.40

EXISTING STRUCTURE:

S.N. 101-6132 . originally built in 1916 and rehabilitated in 1959, 1983 and 1993. The existing structure is an eight span open spandrel reinforced concrete arch bridge. West approach is a single span with prestressed precast concrete box beams. East approach is a two span structure with prestressed precast concrete box beams. Substructure consists of concrete abutments and piers supported on timber piles. Back to back of approach-abutment measures 797'-7 5/8" and out to out width of deck is 50'-0". Structure is to be removed and replaced using road closure. Traffic is to be detoured.

PROPOSED IMPROVEMENTS:

Existing structure to be removed and replaced with a three span bridge with composite welded plate girder end spans and a steel tied arch middle span supported on concrete abutments and piers. The proposed structure is 503'-0" back to back of abutments and 73'-2" out to out of deck.

Salvage name plate, metal pedestrian railing along southside of bridge, entire length.

DESIGN SCOUR ELEVATION TABLE

Freq. Yr.	W. Abut.	Pier 1	Pier 2	E. Abut.
100	696.40	683.57	696.73	726.71
500	690.11	682.93	696.09	726.71

WATERWAY INFORMATION

Drainage Area = 6535 sq. mi. Low Grade Elev. 721.3 @ Sta. - 47+30

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	50	39500	4610	6384	702.7	0	0	702.7	702.7
Base	100	44500	5090	6672	703.6	0	0	703.6	703.6
Overtopping	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Max. Calc.	500	56500	7200	7824	707.2	0	0	707.2	707.2

SEISMIC DATA

Seismic Performance Category (SPC) = A
Horiz. Bedrock Acceleration Coefficient (A) = 0.033g
Site Coefficient (S) = 1.2

HIGHWAY CLASSIFICATION

F.A.U. Route 5077 (MORGAN STREET)
Functional Class: Urban Minor Arterial
ADT: 9,060 (2002); 16,000 (2031)
ADTT: Posted No Trucks (2002); 1,600 (2031)
DHV: 906 (2002); 1,600 (2031)
Design Speed: 30 m.p.h.
Posted Speed: 30 m.p.h.
Two Way Traffic
Directional Distribution: 50/50

DESIGN SPECIFICATIONS

2002 AASHTO "Standard Specifications for Highway Bridges" and interims through 2005

7-05 SEI/ASCE "Minimum Design Loads for Buildings and Other Structures", wind load on arch rib only

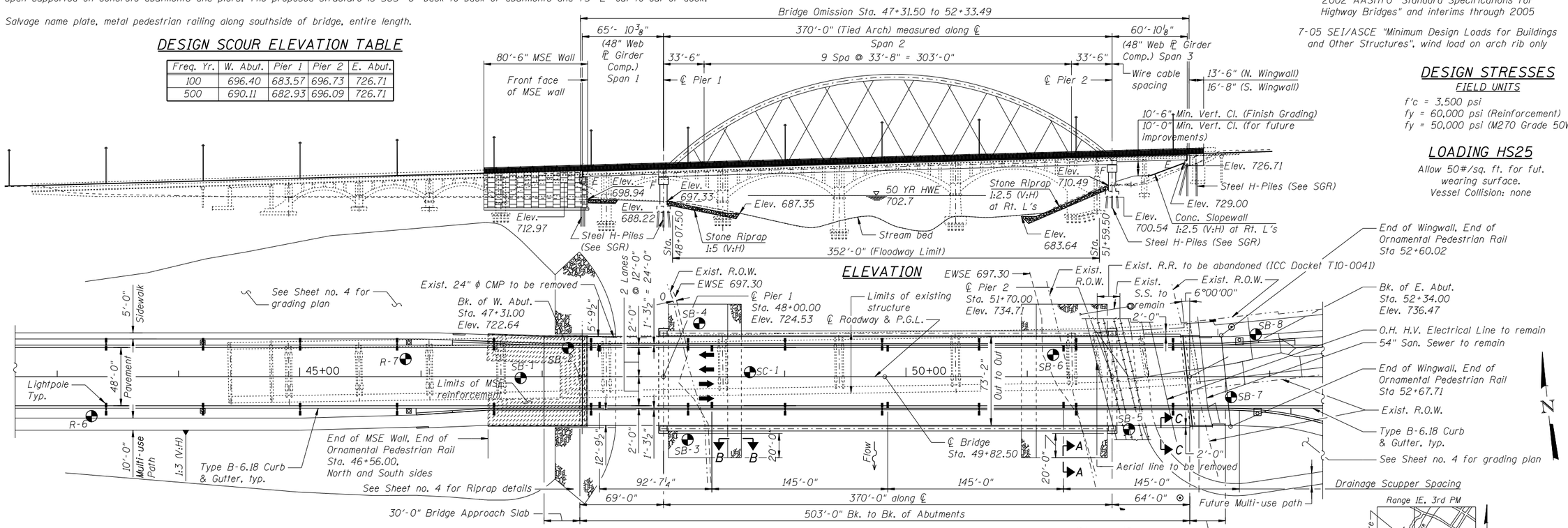
DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50W)

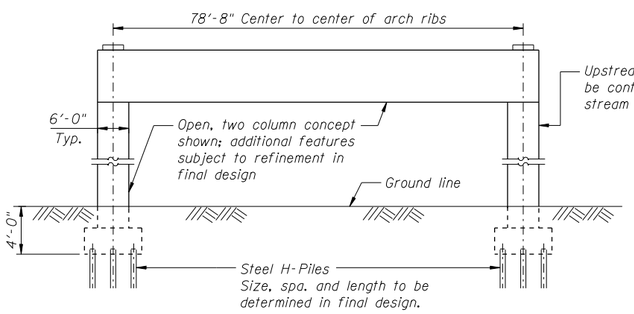
LOADING HS25

Allow 50#/sq. ft. for fut. wearing surface.
Vessel Collision: none

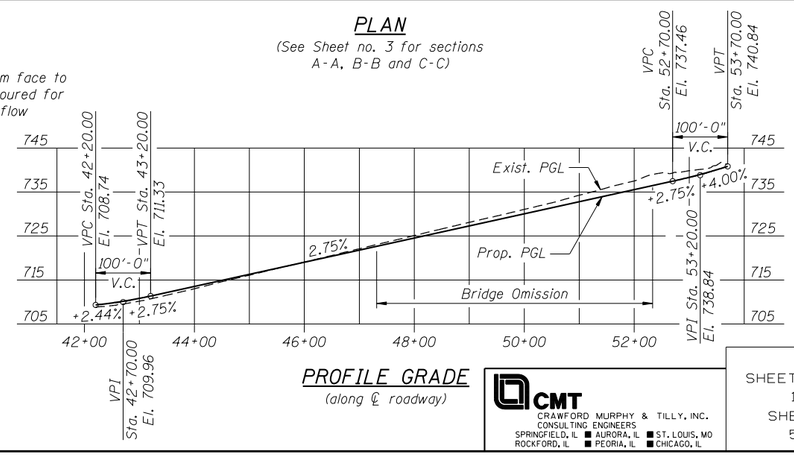


BORING DATA

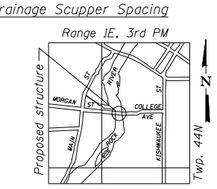
Boring No.	Station	Offset
R-6	43+28.32	32.55' RT.
R-7	45+87.33	14.61' LT.
SB-1	46+82.22	1.02' RT.
SB-2	47+21.39	23.72' LT.
SB-3	48+19.89	51.94' RT.
SB-4	48+29.52	44.00' LT.
SC-1	48+71.26	3.72' LT.
SB-5	51+83.95	43.36' RT.
SB-6	51+21.36	18.06' LT.
SB-7	52+68.13	16.92' RT.
SB-8	52+88.48	34.95' LT.



PIER SKETCH



PROFILE GRADE
(along ℄ roadway)



LOCATION SKETCH

GENERAL PLAN & ELEVATION
MORGAN STREET OVER ROCK RIVER
F.A.U. ROUTE 5077 - SEC. 99-00493-00-BR
WINNEBAGO COUNTY
STATION 49+82.50
STRUCTURE NO. 101-6108 (NEW)

DESIGNED	PA
CHECKED	RJK
DRAWN	PA
CHECKED	RJK

CMT
CRAWFORD MURPHY & TILLY, INC.
CONSULTING ENGINEERS
SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

SHEET NO. 1 SHEETS 5

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
5077	99-00493-00-BR	WINNEBAGO	4	1

DATE: 11.22.2010 CONTRACT NO.
FED. ROAD DIST. NO. 2 ILLINOIS FED. AID PROJECT BRM-5099 (65)

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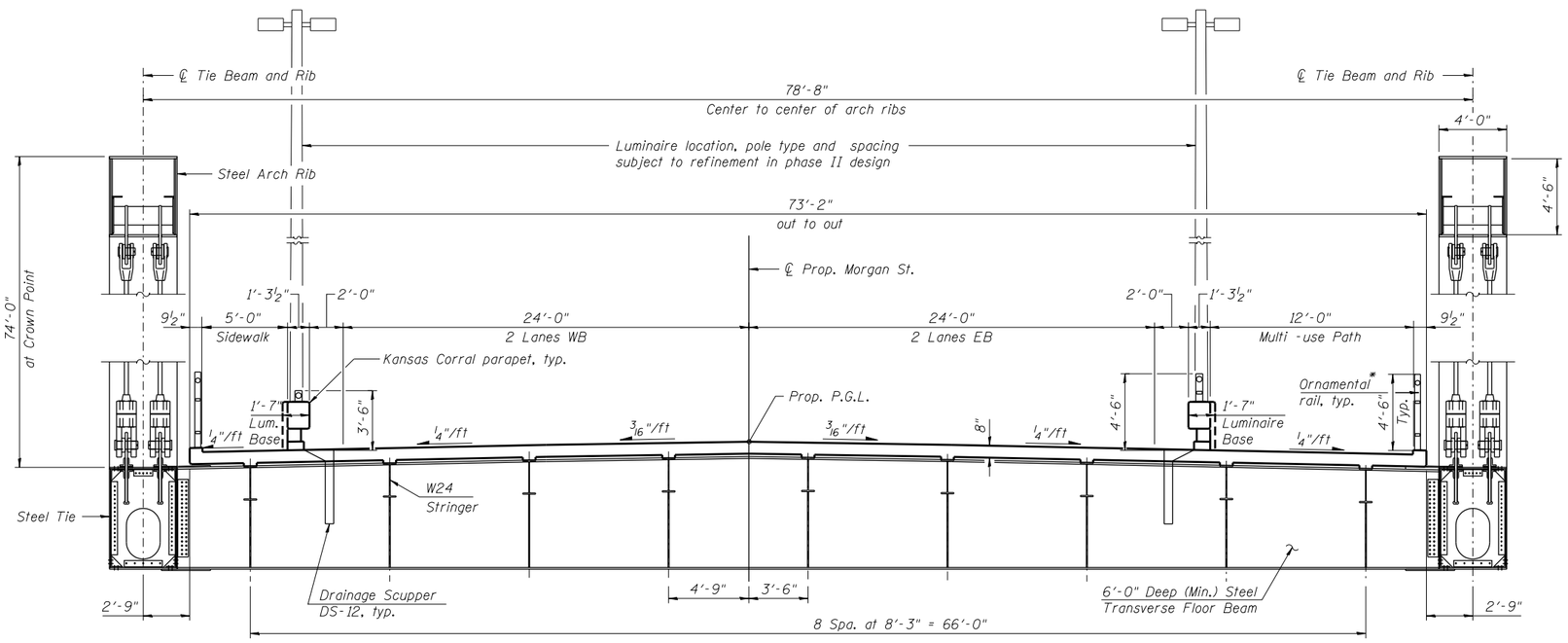
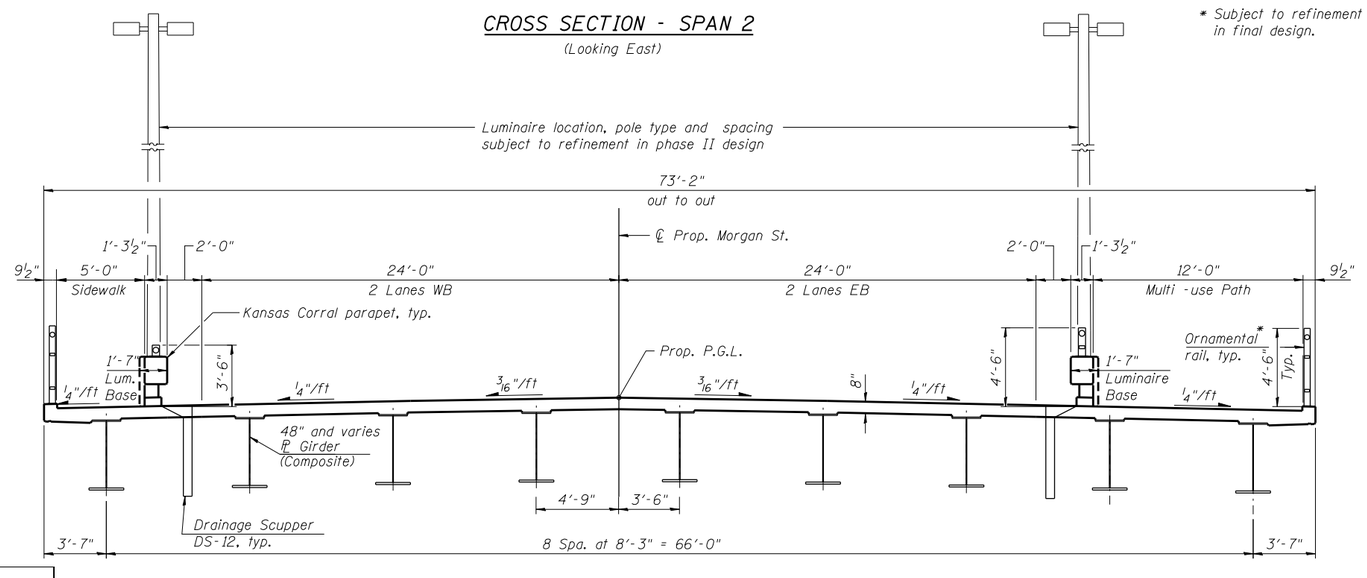
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



CROSS SECTION - SPAN 2

(Looking East)

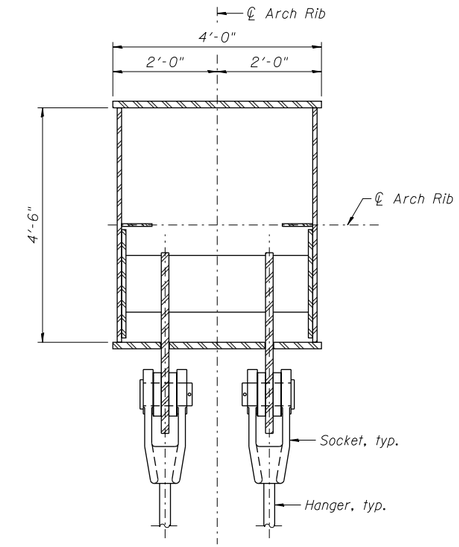
* Subject to refinement in final design.



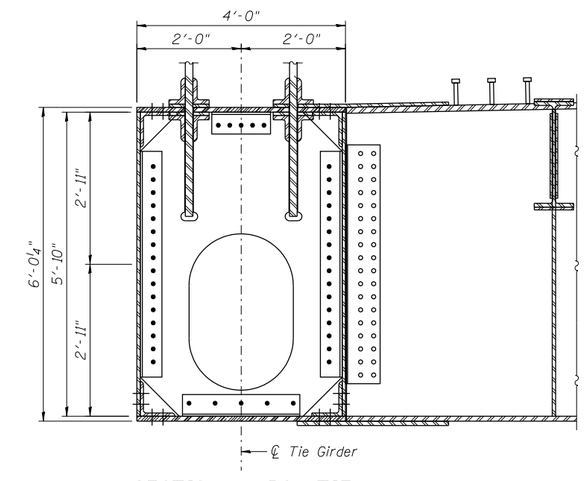
CROSS SECTION - SPANS 1 & 3

(Looking East)

* Subject to refinement in final design.



SECTION - ARCH RIB



SECTION - ARCH TIE

DETAILS - I
MORGAN STREET OVER ROCK RIVER
F.A.U. ROUTE 5077 - SEC. 99-00493-00-BR
WINNEBAGO COUNTY
STATION 49+82.50
STRUCTURE NO. 101-6108 (NEW)

DESIGNED	PA
CHECKED	RJK
DRAWN	PA
CHECKED	RJK

CMT
CRAWFORD MURPHY & TILLY, INC.
CONSULTING ENGINEERS
SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

SHEET NO. 2 SHEETS 5

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
5077	99-00493-00-BR	WINNEBAGO	4	2
DATE: 11.22.2010		CONTRACT NO.		
FED. ROAD DIST. NO. 2	ILLINOIS	FED. AID PROJECT	BRM-5099 (65)	

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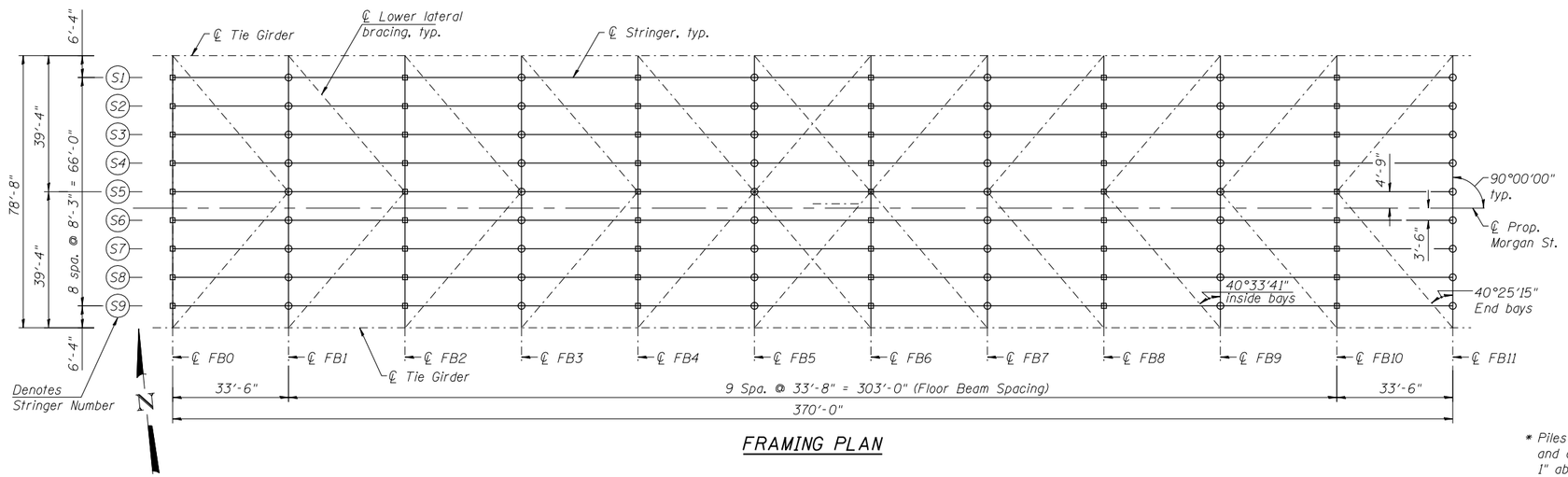
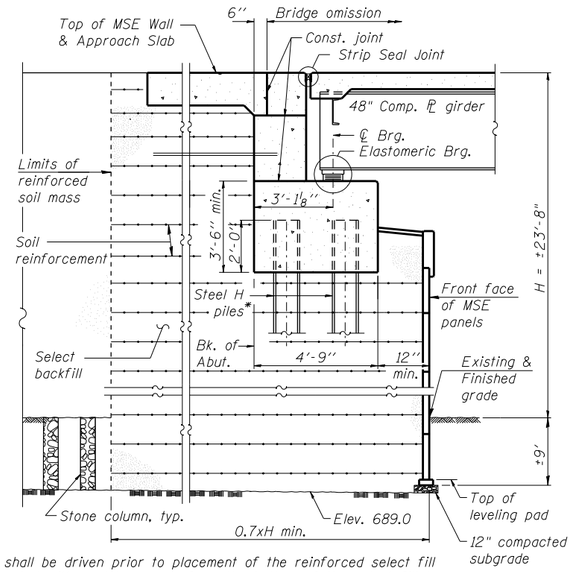
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

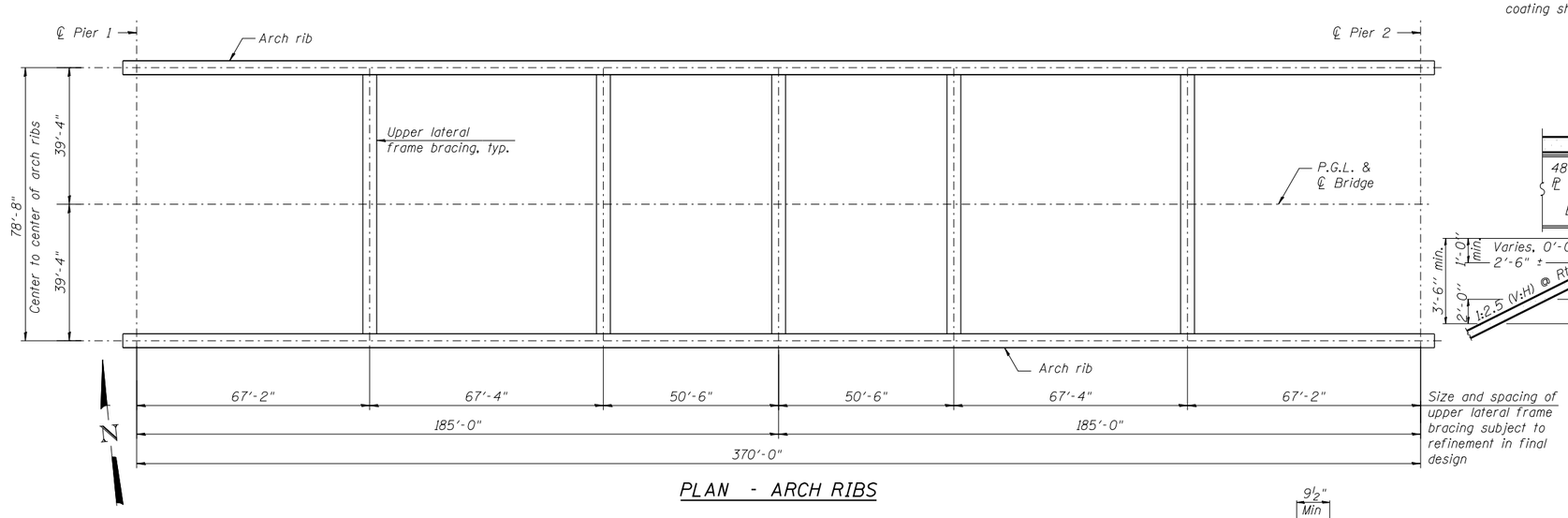


FRAMING PLAN

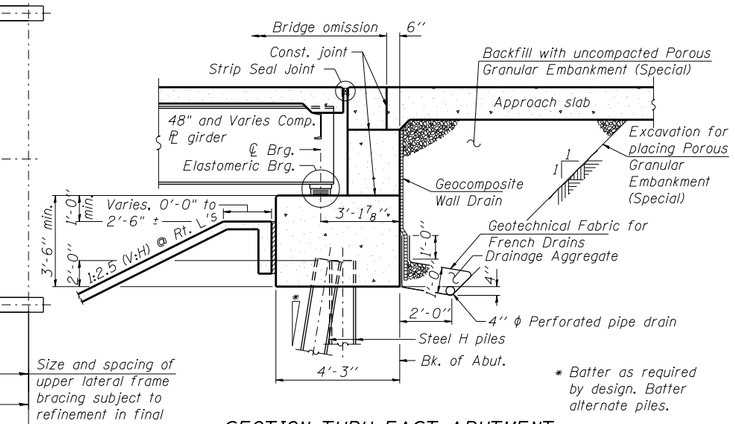


* Piles shall be driven prior to placement of the reinforced select fill and coated with coal tar epoxy from the bottom of the select fill to 1" above the base of the abutment. The cost of the coal tar epoxy coating shall be included with the cost of the Furnishing Piles.

SECTION THRU WEST ABUTMENT

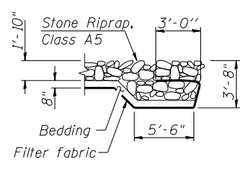


PLAN - ARCH RIBS

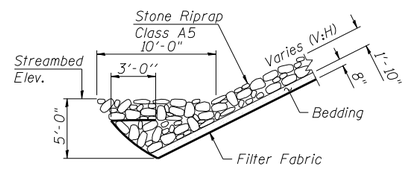


* Batter as required by design. Batter alternate piles.

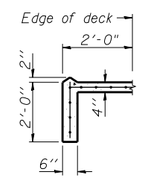
SECTION THRU EAST ABUTMENT
(Horiz. dim. @ Rt. L's)



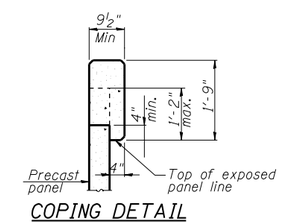
SECTION A-A



SECTION B-B



SECTION C-C



COPING DETAIL

DETAILS - II
MORGAN STREET OVER ROCK RIVER
F.A.U. ROUTE 5077 - SEC. 99-00493-00-BR
WINNEBAGO COUNTY
STATION 49+82.50
STRUCTURE NO. 101-6108 (NEW)

DESIGNED	PA
CHECKED	RJK
DRAWN	PA
CHECKED	RJK

CMT
CRAWFORD MURPHY & TILLY, INC.
CONSULTING ENGINEERS
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ROCKFORD, IL ■ PEORIA, IL ■ CHICAGO, IL

SHEET NO. 3 SHEETS 5

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
5077	99-00493-00-BR	WINNEBAGO	4	3
DATE: 11.22.2010		CONTRACT NO.		
FED. ROAD DIST. NO. 2	ILLINOIS	FED. AID PROJECT	BRM-5099 (65)	

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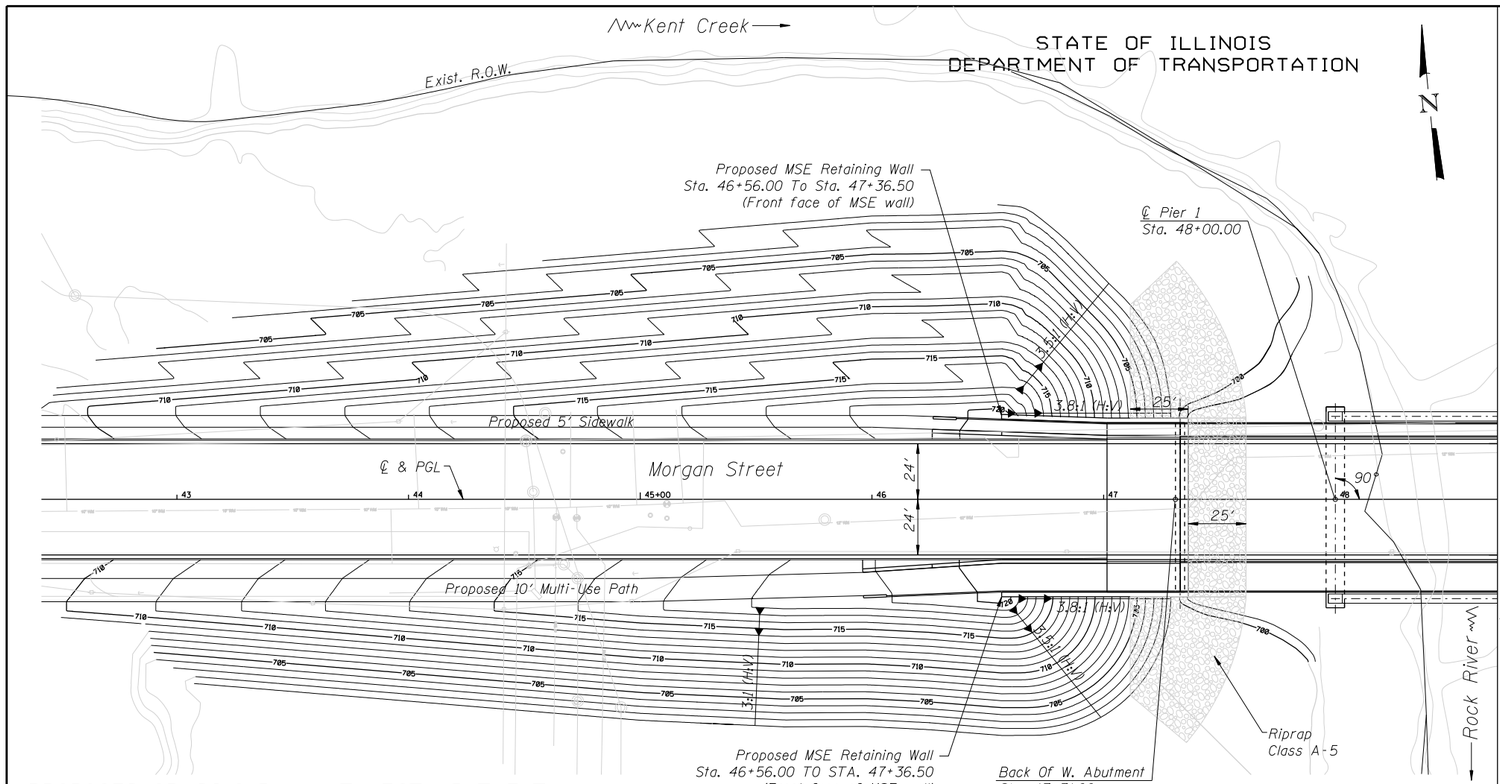
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

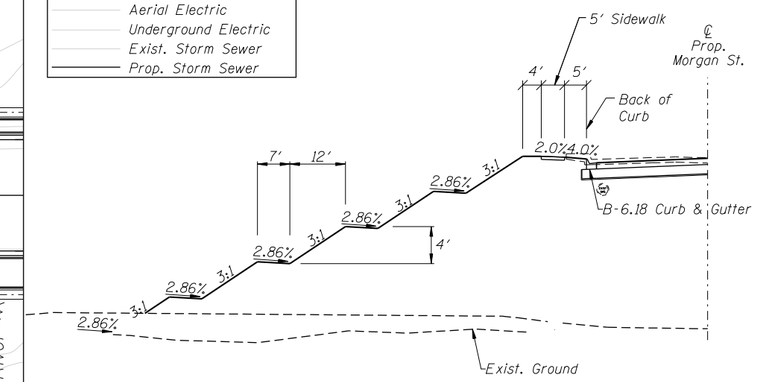
DETAILS - III
MORGAN STREET OVER ROCK RIVER
F.A.U. ROUTE 5077 - SEC. 99-00493-00-BR
WINNEBAGO COUNTY
STATION 49+82.50
STRUCTURE NO. 101-6108 (NEW)



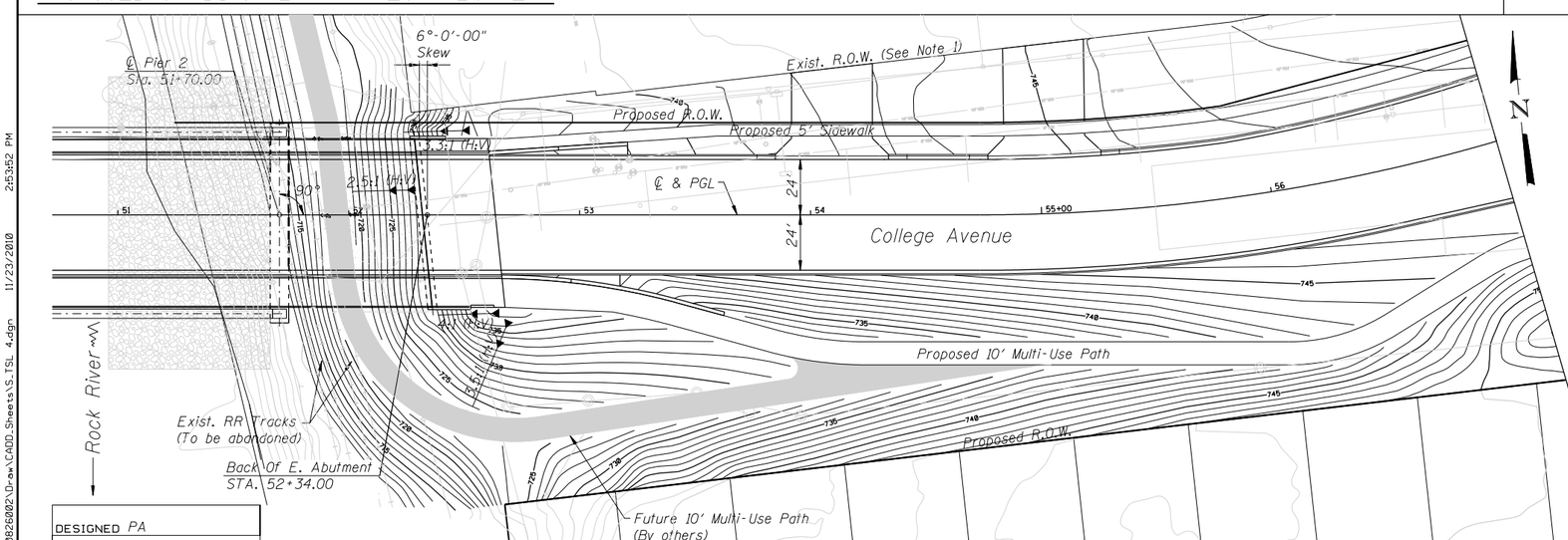
PROPOSED GRADING PLAN AT WEST ABUTMENT

LEGEND

- Riprap
- 705 Major Contour
- Minor Contour
- Exist. Water Edge
- Exist. Railroad
- Future Multi-Use Path (By Others)
- Proposed Road ℄
- Existing R.O.W.
- Proposed R.O.W.
- Gas
- Water
- Sanitary
- Aerial Electric
- Underground Electric
- Exist. Storm Sewer
- Prop. Storm Sewer

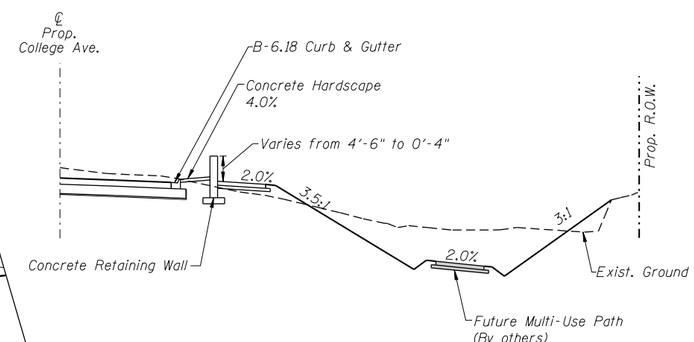


PROPOSED GRADING CROSS-SECTION
(STA. 46+00)



PROPOSED GRADING PLAN AT EAST ABUTMENT

Note 1: Area between existing and proposed R.O.W. to be vacated following completion of the project.



PROPOSED GRADING CROSS-SECTION
(STA. 53+25)

DESIGNED	PA
CHECKED	RJK
DRAWN	PA
CHECKED	RJK

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SHEET NO. 4 SHEETS 5

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
5077	99-00493-00-BR	WINNEBAGO	5	4
DATE: 11.22.2010		CONTRACT NO.		
FED. ROAD DIST. NO. 2	ILLINOIS	FED. AID PROJECT	BRM-5099 (65)	

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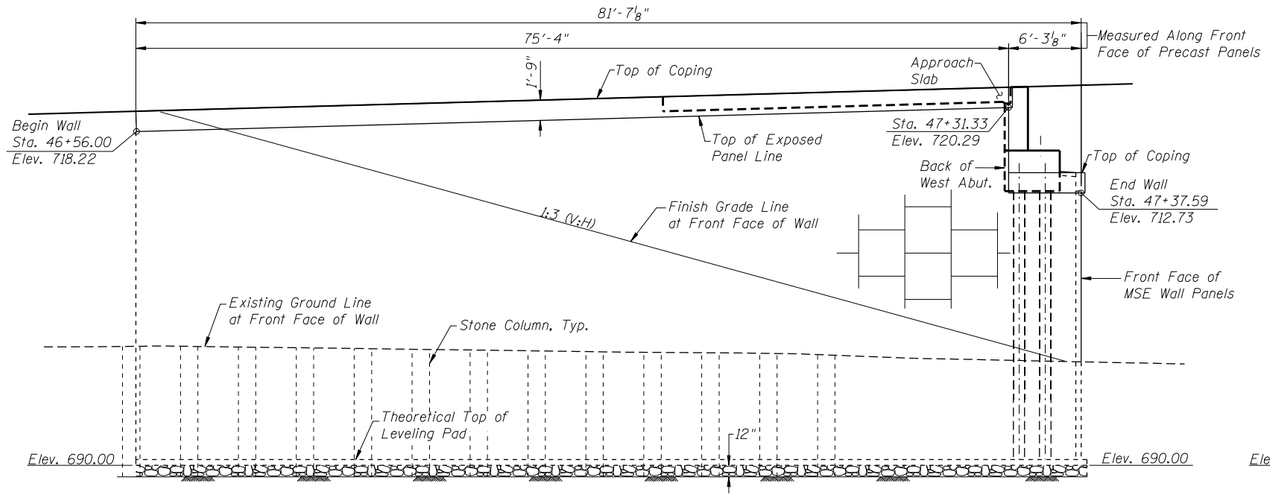
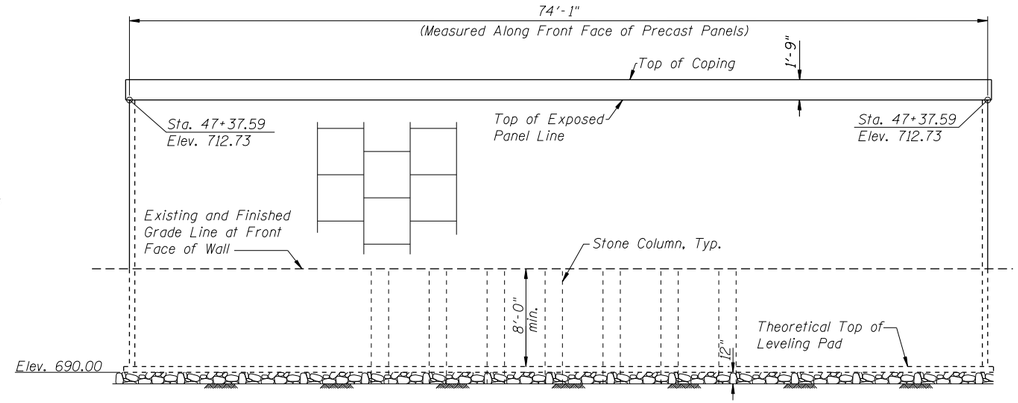
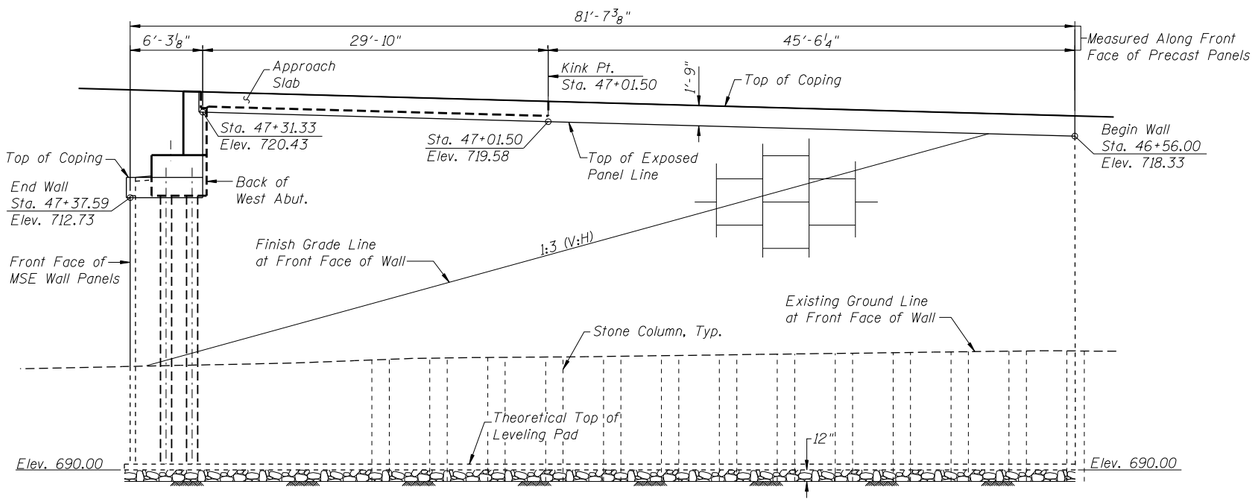
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



SOUTH WALL ELEVATION
(Looking North)



WALL AT ABUTMENT ELEVATION
(Looking West)



NORTH WALL ELEVATION
(Looking South)

DESIGNED	PA
CHECKED	RJK
DRAWN	PA
CHECKED	RJK

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SHEET NO. 5
SHEETS 5

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
5077	99-00493-00-BR	WINNEBAGO	4	5
DATE: 11.22.2010		CONTRACT NO.		
FED. ROAD DIST. NO. 2	ILLINOIS	FED. AID PROJECT	BRM-5099 (65)	

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