

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

**PLANS FOR PROPOSED  
SURFACE TRANSPORTATION PROGRAM – BRIDGE**

PROJECT BROS-0113(035)  
SECTION 12-15129-00-BR  
DRY GROVE ROAD DISTRICT  
McLEAN COUNTY

T.R. 134  
PROPOSED STRUCTURE NO. 057-4308  
LILIENTHAL BRIDGE  
JOB NO. C-95-314-13

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 134	12-15129-00-BR	McLEAN	22	1
FED. ROAD DIST. NO.		ILLINOIS CONTRACT NO. 91487		

**INDEX OF SHEETS**

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	SUMMARY OF QUANTITIES AND GENERAL NOTES
3.	TYPICAL CROSS SECTIONS
4.	PLAN & PROFILE
5.	GUARDRAIL AND SHOULDER LAYOUT SHEET
6-13.	STATION CROSS SECTIONS
14-20.	BRIDGE PLANS
21-22.	BORINGS

HIGHWAY STANDARDS:

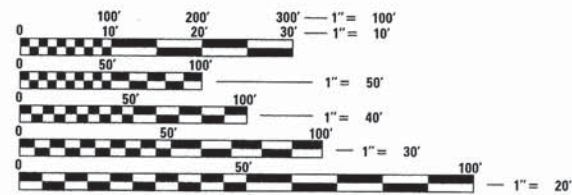
000001-06	STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
280001-07	TEMPORARY EROSION CONTROL SYSTEMS
515001-03	NAME PLATE FOR BRIDGES
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
701901-02	TRAFFIC CONTROL DEVICES
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
BLR 23-4	TRAFFIC BARRIER TERMINAL TYPE 1
BLR 27-1	TRAFFIC BARRIER TERMINAL TYPE 5A

**UTILITIES**

CORN BELT ENERGY  
ONE ENERGY PLACE  
P.O. BOX 815  
BLOOMINGTON, IL 61702

FRONTIER COMMUNICATIONS  
104 MULBERRY STREET  
NORMAL, IL 61761  
ATTN: BOB SMITH

MEDIACOM  
903 EAST HOWARD STREET  
PONTIAC, IL 61764

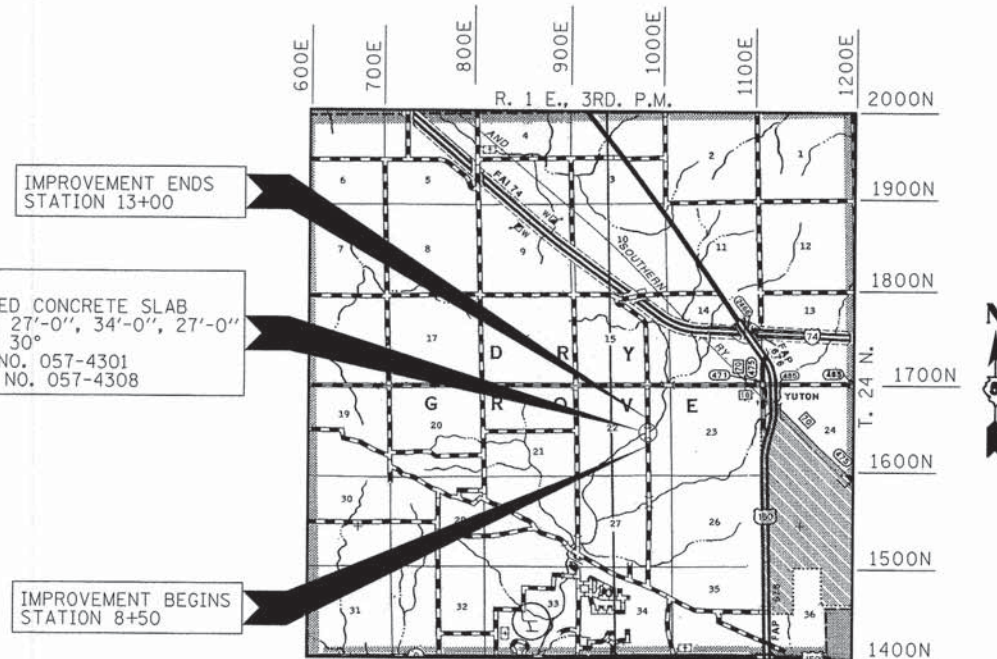


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.



LOCATION OF SECTION INDICATED THUS: —

FUNCTIONAL CLASSIFICATION: LOCAL ROAD (0-250 ADT)  
DESIGN SPEED: 30 MPH  
DESIGN TRAFFIC: 75 ADT



STA. 10+00  
CONTINUOUS REINFORCED CONCRETE SLAB BRIDGE. THREE SPANS: 27'-0", 34'-0", 27'-0" 28'-0" RDWY.; SKEW = 30°  
EXISTING STRUCTURE NO. 057-4301  
PROPOSED STRUCTURE NO. 057-4308

IMPROVEMENT ENDS STATION 13+00

IMPROVEMENT BEGINS STATION 8+50

**LOCATION MAP**

APPROXIMATE SCALE: 0 1 MILE  
NET LENGTH OF SECTION = 450 FEET = 0.085 MILES



ILLINOIS DEPARTMENT OF TRANSPORTATION	
APPROVED	APR 18 2013 COUNTY ENGINEER
APPROVED	APR 18 2013 TOWNSHIP COMMISSIONER
PASSED	20
Releasing For Bid Based on Limited Review	APR 24 2013 DISTRICT FIVE ENGINEER OF LOCAL ROADS & STREETS DEPUTY DIRECTOR OF HIGHWAYS REGION THREE ENGINEER STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

CONTRACT NO. 91487



HAMPTON, LENZINI AND RENWICK, INC.  
CIVIL ENGINEERS - STRUCTURAL ENGINEERS - LAND SURVEYORS  
3085 STEVENSON DRIVE, SUITE 201  
SPRINGFIELD, ILLINOIS 62703  
217.546.3400 www.hlrengineering.com  
194.000959  
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORPORATION

EXPIRES: 11/30/2013

PROJECT NUMBER: 12.0202.130

DATE: 04/16/13



SUMMARY OF QUANTITIES			
CODE NO.	ITEM	CONSTRUCTION CODE 0011	
		UNIT	TOTAL QUANTITY
20200100	EARTH EXCAVATION	CU YD	140
20300100	CHANNEL EXCAVATION	CU YD	550
20400800	FURNISHED EXCAVATION	CU YD	110
20700110	POROUS GRANULAR EMBANKMENT	TON	90
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	50
28000400	PERIMETER EROSION BARRIER	FOOT	340
28000500	INLET AND PIPE PROTECTION	EACH	1
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	635
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50201101	COFFERDAM (TYPE 1) (LOCATION - 1)	EACH	1
50201102	COFFERDAM (TYPE 1) (LOCATION - 2)	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	37.1
50300255	CONCRETE SUPERSTRUCTURE	CU YD	119.5
50300280	CONCRETE ENCASEMENT	CU YD	18.3
50300300	PROTECTIVE COAT	SQ YD	300
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	51,250
50900205	STEEL RAILING, TYPE S1	FOOT	189
51200957	FURNISHING METAL SHELL PILES 12" X 0.250"	FOOT	955
51202305	DRIVING PILES	FOOT	955
51203200	TEST PILE METAL SHELLS	EACH	2
51500100	NAME PLATES	EACH	1
542D0229	PIPE CULVERTS, CLASS D, TYPE 1 24"	FOOT	140
59100100	GEOCOMPOSITE WALL DRAIN	SQ YD	35
63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	4
67100100	MOBILIZATION	L SUM	1
70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1
78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
LR631020	TRAFFIC BARRIER TERMINAL, TYPE 1	EACH	4.0
X2810208	STONE RIPRAP, CLASS A4 (SPECIAL)	TON	320
Z0046304	PIPE UNDERDRAINS FOR STRUCTURES 4"	FOOT	114

^ SEE SPECIAL PROVISIONS

\* SPECIALTY ITEMS

PERIMETER EROSION BARRIER	
LOCATION	28000400 FOOT
TR 134	
LT STA 8+50 TO STA 9+50	100
LT STA 10+30 TO STA 11+50	120
RT STA 8+50 TO 9+70	120
TOTAL	340

ROADWAY SCHEDULE	
LOCATION	AGGREGATE SURFACE COURSE TYPE B 40200800 TON
TR 134	
STA 8+50 TO STA 9+54.55	163
STA 10+45.44 TO STA 13+00	472
TOTAL	635
USE	635

GUARDRAIL SCHEDULE			
LOCATION	TRAFFIC BARRIER TERMINAL TYPE 5A	TRAFFIC BARRIER TYPE 1	TERMINAL MARKER DIRECT APPLIED
	63100075 EACH	LR631020 EACH	78201000 EACH
TR 134			
RT STA 9+22.59 TO RT STA 9+60.84	1	1	1
LT STA 9+06.41 TO LT STA 9+44.66	1	1	1
RT STA 10+55.34 TO RT STA 10+93.59	1	1	1
LT STA 10+39.17 TO LT STA 10+77.42	1	1	1
TOTAL	4	4	4

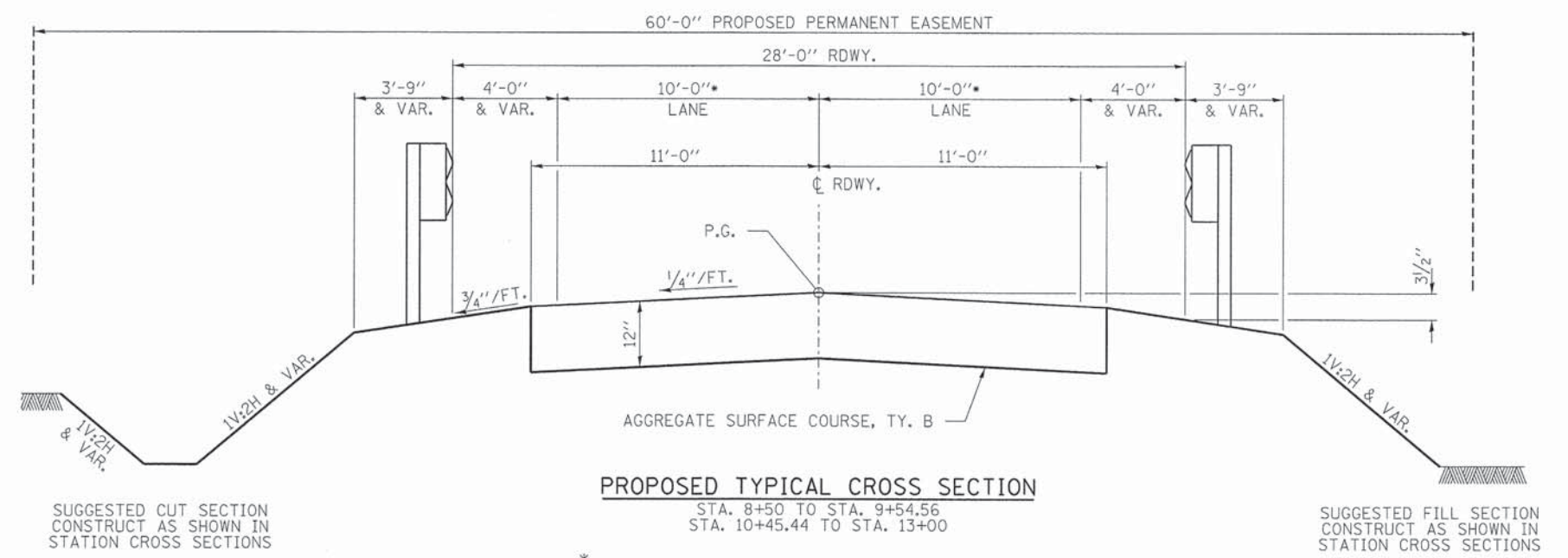
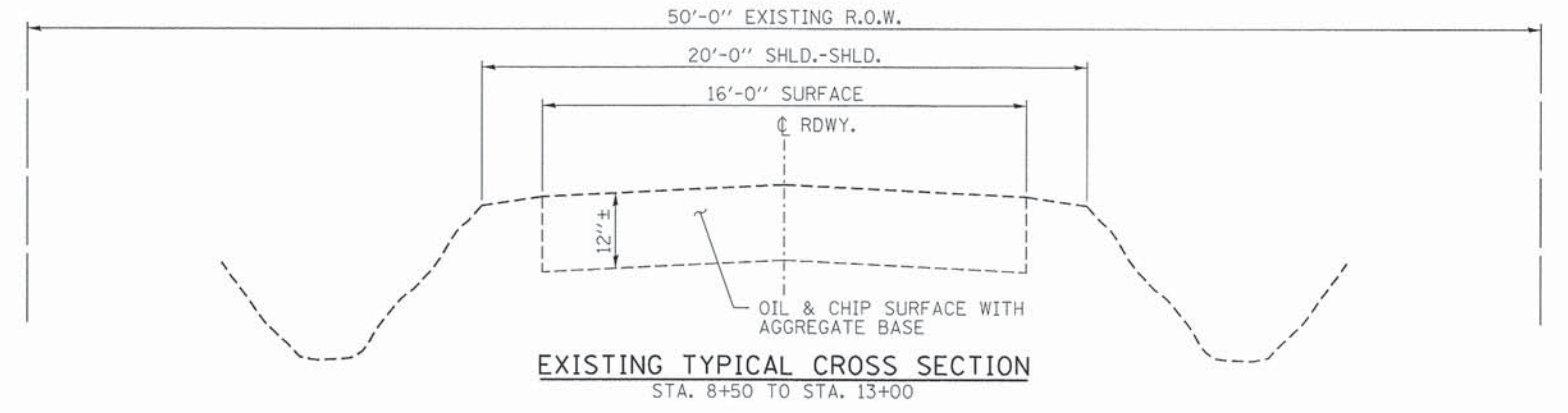
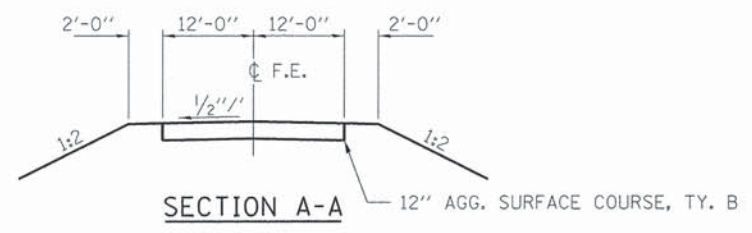
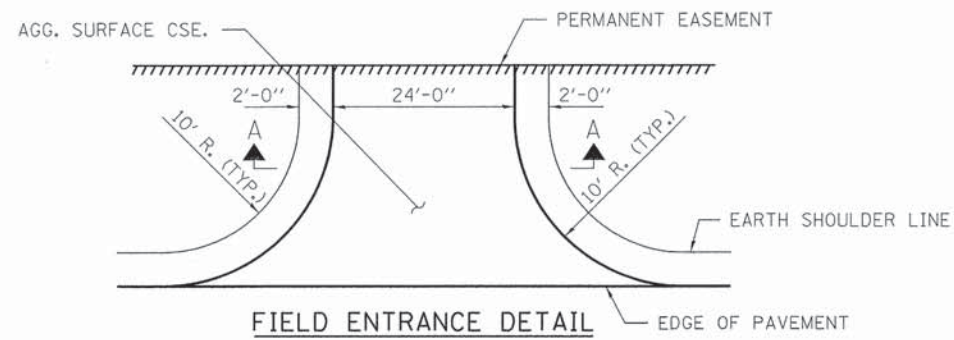
- GENERAL NOTES**
- ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, ADOPTED JANUARY 1, 2012". THESE PLANS AND THE SPECIAL PROVISIONS INCLUDED IN THE CONTRACT DOCUMENTS.
  - ALL CLEARING, GRUBBING, AND REMOVAL OF EXISTING DRAINAGE STRUCTURES SHALL BE INCLUDED IN EARTH EXCAVATION. ALL MATERIAL SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR IN A METHOD APPROVED BY THE ENGINEER. PROPER DISPOSAL OF BITUMINOUS MATERIAL SHALL BE INCLUDED IN EARTH EXCAVATION AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
  - THE LOCATION OF EXISTING GAS MAINS, ELECTRIC POWER LINES, TELEPHONE LINES AND OTHER UTILITIES AS SHOWN ON THE PLANS ARE BASED ON CAREFUL FIELD INVESTIGATION AND THE BEST INFORMATION AVAILABLE, BUT THE LOCATIONS ARE NOT GUARANTEED. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO ASCERTAIN THEIR EXACT LOCATION FROM THE INDIVIDUAL UTILITY COMPANIES AND BY FIELD INSPECTIONS.
  - WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.
  - THE FINAL SURFACE OF ALL EMBANKMENT AREAS SHALL BE SEEDED. THE TOP 4 INCHES OF THE SEEDED AREAS SHALL BE VEGETATIVE SUSTAINING SOIL SUBJECT TO THE APPROVAL OF THE ENGINEER. THE COST OF SHAPING THE SLOPES AND PROVIDING VEGETATION SUSTAINING SOIL WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF FURNISHED EXCAVATION
  - PAVEMENT REMOVAL SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED TO BE INCLUDED WITH EARTH EXCAVATION
  - THE FOLLOWING RATES OF APPLICATION HAVE BEEN USED IN CALCULATING PLAN QUANTITIES
 

<b>POROUS GRANULAR EMBANKMENT</b>	<b>2.00 TON/CU.YD.</b>
<b>STONE RIPRAP, CLASS A4 (SPECIAL)</b>	<b>1.75 TON/CU.YD.</b>
<b>AGGREGATE SURFACE COURSE, TYPE B</b>	<b>2.05 TON/CU.YD.</b>
<b>TEMPORARY EROSION CONTROL SEEDING</b>	<b>100 lb/ACRE</b>
  - PERMANENT SEEDING AT THE PROJECT SITE IS TO BE COMPLETED BY THE MCLEAN COUNTY HIGHWAY DEPARTMENT
  - GUARDRAIL REMOVAL AT THE PROJECT SITE IS TO BE COMPLETED BY THE MCLEAN COUNTY HIGHWAY DEPARTMENT
  - TEMPORARY AND PERMANENT PAVEMENT MARKING ARE TO BE COMPLETED BY THE MCLEAN COUNTY HIGHWAY DEPARTMENT
  - FURNISHED EXCAVATION WILL BE PROVIDED BY MCLEAN COUNTY AND COMPACTED BY THE CONTRACTOR. SEE SPECIAL PROVISIONS.

EARTHWORK SUMMARY							
LOCATION	EARTH EXCAVATION	CHANNEL EXCAVATION	SHRINKAGE FACTOR	% USED	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE( 25%)	EMBANKMENT REQUIRED	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
	20200100 CUBIC YARD	20300100 CUBIC YARD			CUBIC YARD	CUBIC YARD	CUBIC YARD
TR 134							
STA 8+50 TO STA 9+54.55	65		25.00%	100.00%	49	137	-88
STA 9+54.55 TO STA 10+45.44		550	25.00%	70.00%	289		289
STA 10+45.44 TO STA 13+00	73		25.00%	100.00%	55	350	-295
ENTRANCES							-13
TOTAL	138	550			393	487	-107
USE	140	550					-110

FURNISHED EXCAVATION 110 CU.YD.





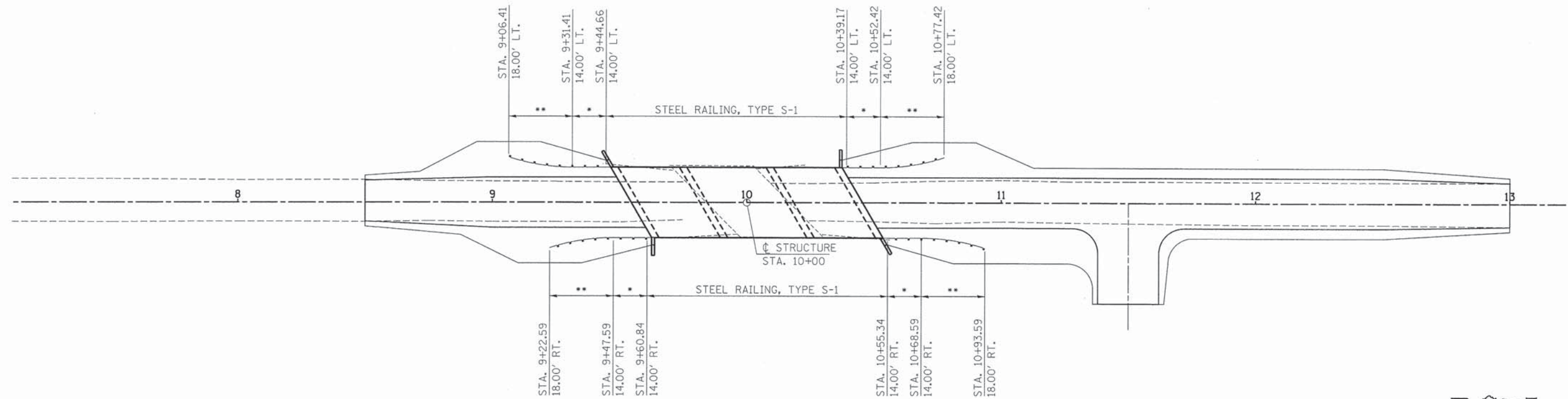
\* TRANSITION PAVEMENT FROM STA. 8+50 TO STA. 9+00 AND FROM STA. 12+50 TO STA. 13+00.

FILE NAME = 120202-sht-typsections.dgn	USER NAME =	DESIGNED - L.A.P.	REVISED -	<b>STATE OF ILLINOIS McLEAN COUNTY HIGHWAY DEPARTMENT</b>	<b>TYPICAL CROSS SECTIONS</b>			T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
HAMPTON, LENZINI AND RENWICK, INC. 5008 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703	PLOT SCALE =	DRAWN - D.A.B.	REVISED -		SCALE:	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	134	12-15129-00-BR	McLEAN	22	3
ILLINOIS PROFESSIONAL DESIGN FIRM L.S./P.E./S.E. CORP. 184-000959	PLOT DATE = 4/16/2013	CHECKED - S.W.M.	REVISED -					LILLIENTHAL BRIDGE	CONTRACT NO. 91487				
		DATE - 04/16/13	REVISED -					ILLINOIS FED. AID PROJECT					



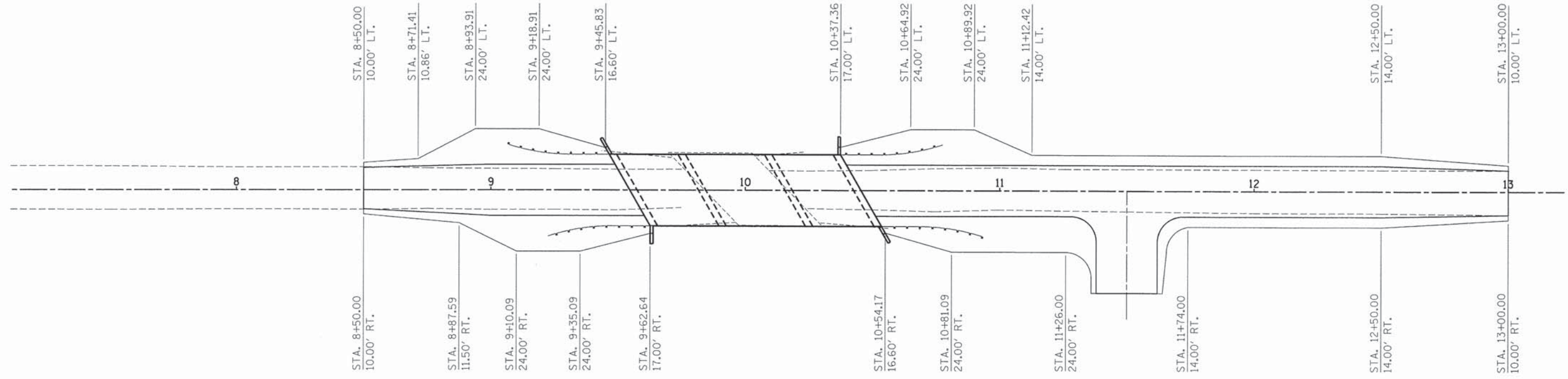






GUARDRAIL LAYOUT

- TRAFFIC BARRIER TERMINAL, TYPE 5A
- TRAFFIC BARRIER TERMINAL, TYPE 1



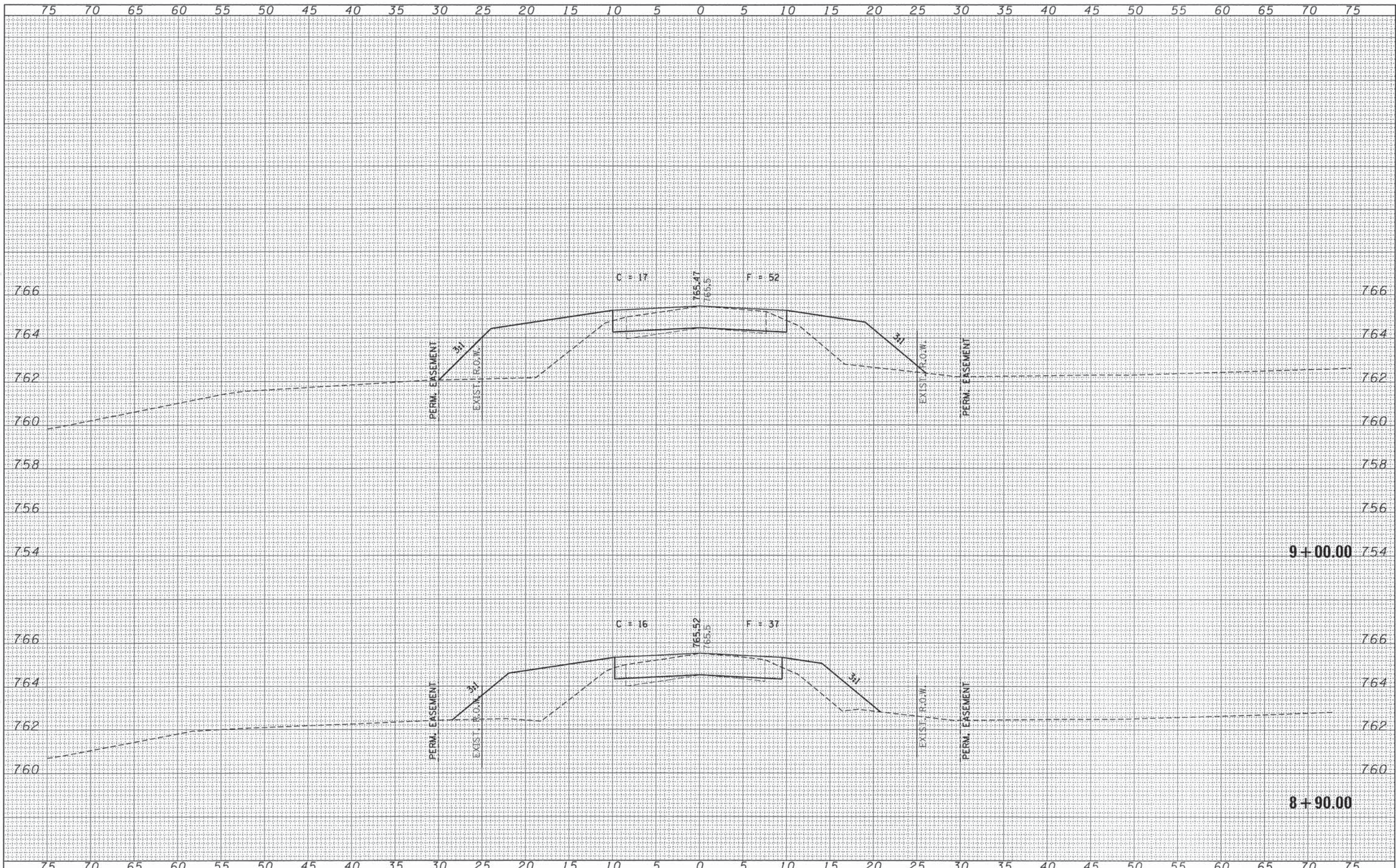
SHOULDER LAYOUT

FILE NAME = 12222-shl-shoulder-guardra	LAYER NAME =	DESIGNED - L.A.P.	REVISED -	<b>STATE OF ILLINOIS</b> <b>McLEAN COUNTY HIGHWAY DEPARTMENT</b>	<b>CENTERLINE, GUARDRAIL AND SHOULDER LAYOUT</b>	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
 HAMPTON, LENZINI AND RENWICK, INC. <small>3045 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703</small>	PLOT SCALE =	DRAWN - D.A.B.	REVISED -			134	12-15129-00-BR	McLEAN	22	5
 ILLINOIS PROFESSIONAL DESIGN FIRM <small>LS / PE / SE CORP. 184.00559</small>	PLOT DATE = 4/16/2013	CHECKED - S.W.M.	REVISED -			SCALE: SHEET NO. 1 OF 1 SHEETS STA. TO STA.		CONTRACT NO. 91487		
		DATE - 04/16/13	REVISED -			<small>ILLINOIS FED. AID PROJECT</small>				









DATE	
BY	
NO.	
AREAS CHECKED	
TEMPLATE	
NOTE BOOK	
SURVEYED	
PLOTTED	
FINAL SURVEY	

DATE	
BY	
NO.	
AREAS CHECKED	
TEMPLATE	
NOTE BOOK	
SURVEYED	
PLOTTED	
ORIGINAL SURVEY	

FILE NAME = 122222-ht-xxx.dgn  
 HAMPSON, LENZINI AND RENWICK, INC.  
 3080 STEVENSON DRIVE, SUITE 201  
 SPRINGFIELD, ILLINOIS 62709  
 ILLINOIS PROFESSIONAL DESIGN FIRM  
 LS / PE / SE CORP. 184.000898

USER NAME =  
 PLOT SCALE =  
 PLOT DATE = 4/16/2013

DESIGNED - J.W.F.  
 DRAWN - L.G.C.  
 CHECKED - S.W.M.  
 DATE - 04/16/13

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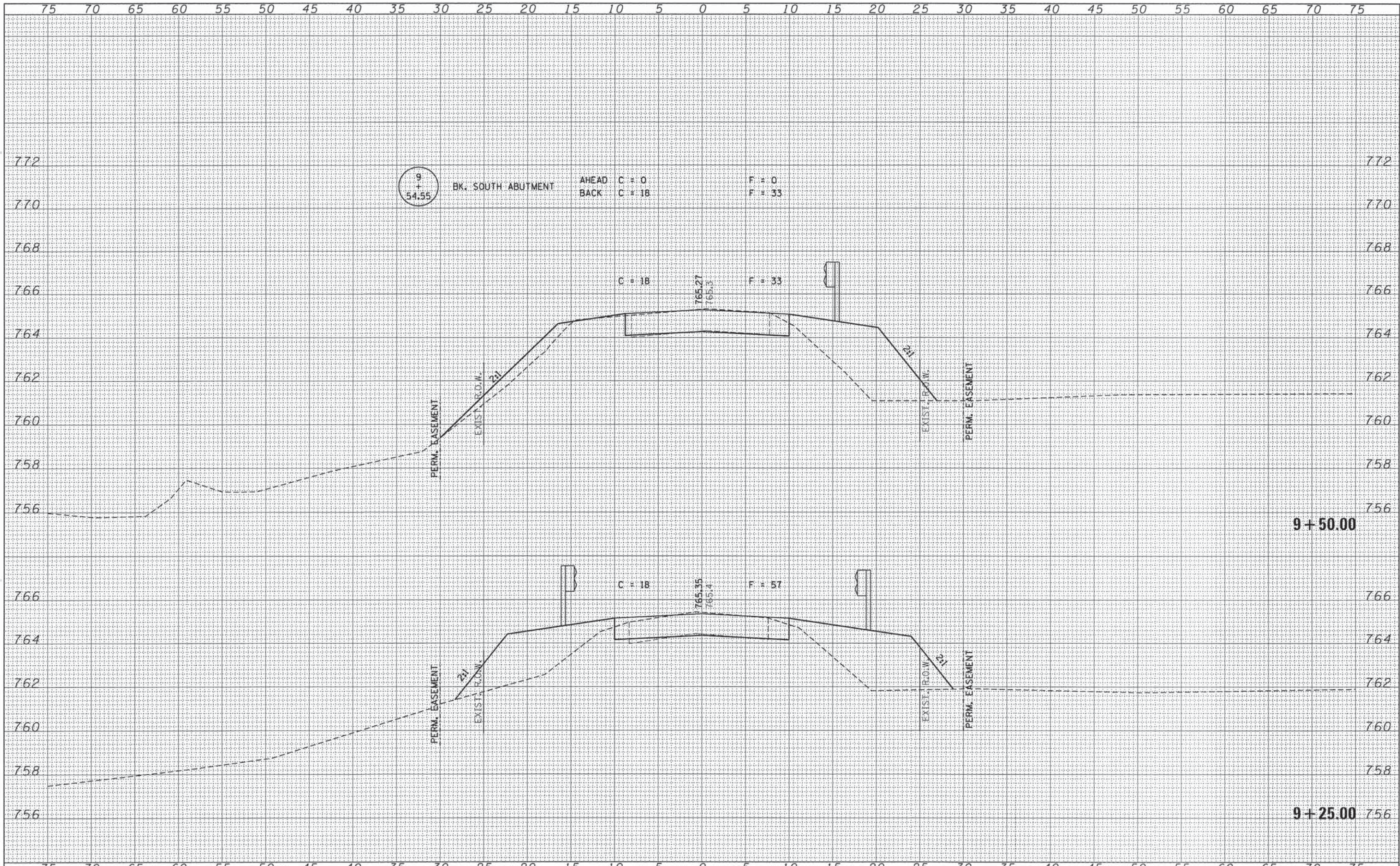
STATE OF ILLINOIS  
 McLEAN COUNTY HIGHWAY DEPARTMENT

SCALE: H5:V2  
 SHEET NO. 2 OF 8 SHEETS  
 STA. 8+90.00 TO STA. 9+00.00

STATION CROSS SECTIONS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
134	12-15129-00-BR	McLEAN	22	7
LILIENTHAL BRIDGE			CONTRACT NO. 91487	
ILLINOIS FED. AID PROJECT				





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FINISH SURVEY	
PLOTTED	
TEMPLATE	
NOTE BOOK	
AREAS CHECKED	

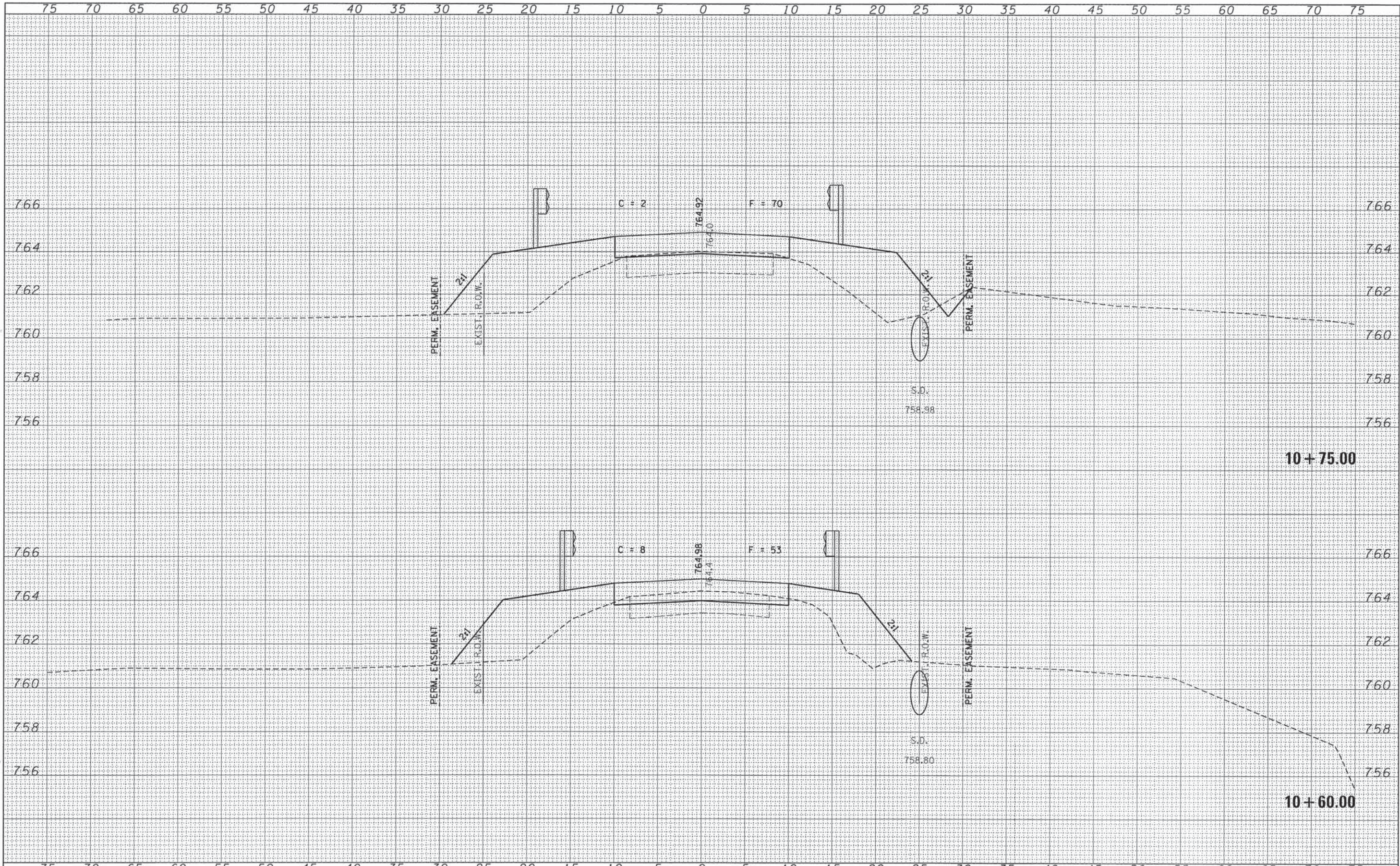
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TEMPLATE	
NOTE BOOK	
AREAS CHECKED	

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<b>HAMPTON, LENZINI AND RENWICK, INC.</b>		DRAWN - L.G.C.	REVISED -		134	12-15129-00-BR	McLEAN	22	8			
2001 STEVENS DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703	PLOT SCALE =	CHECKED - S.W.M.	REVISED -		SCALE: H5:V2			SHEET NO. 3 OF 8 SHEETS	STA. 9+25.00 TO STA. 9+25.00	LILIENTHAL BRIDGE	CONTRACT NO. 91487	
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE COMP. 184.000000	PLOT DATE = 4/16/2013	DATE - 04/16/13	REVISED -		ILLINOIS FED. AID PROJECT							







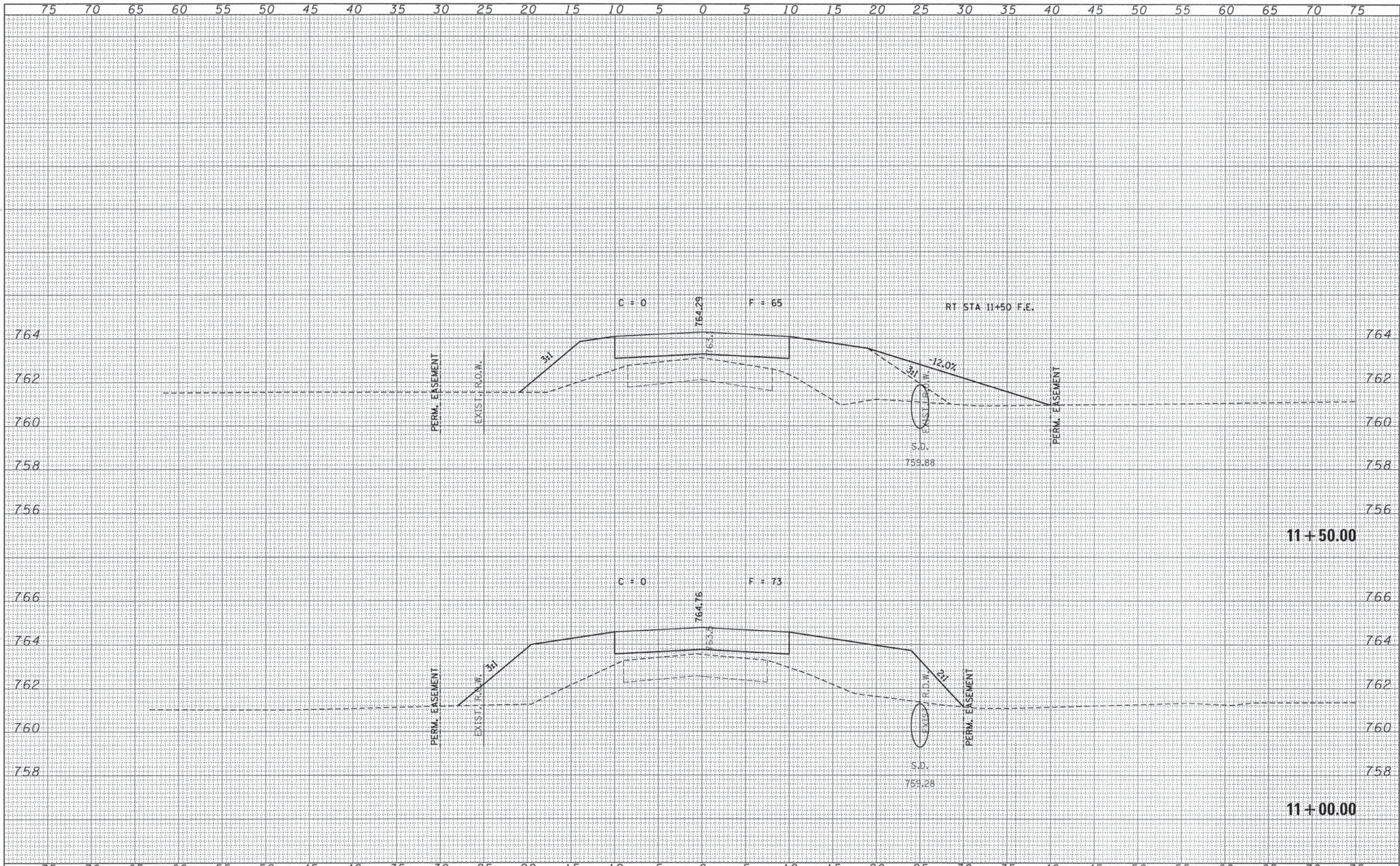


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TEMPLATE	
NOTE BOOK	
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SURVEYED	
ORIGINAL SURVEY	

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<b>HAMPTON, LENZINI AND RENWICK, INC.</b> 3005 STEVENSON DRIVE, SUITE 207 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000059		DRAWN - L.G.C.	REVISED -	134	12-15129-00-BR	McLEAN	22	10
<b>McLEAN COUNTY HIGHWAY DEPARTMENT</b>		CHECKED - S.W.M.	REVISED -	LILIENTHAL BRIDGE		CONTRACT NO. 91487		ILLINOIS FED. AID PROJECT
PLOT SCALE = PLOT DATE = 4/16/2013		DATE - 04/16/13	REVISED -	SCALE: H5:V2		SHEET NO. 5 OF 8 SHEETS		STA. 10+45.00 TO STA. 10+50.00



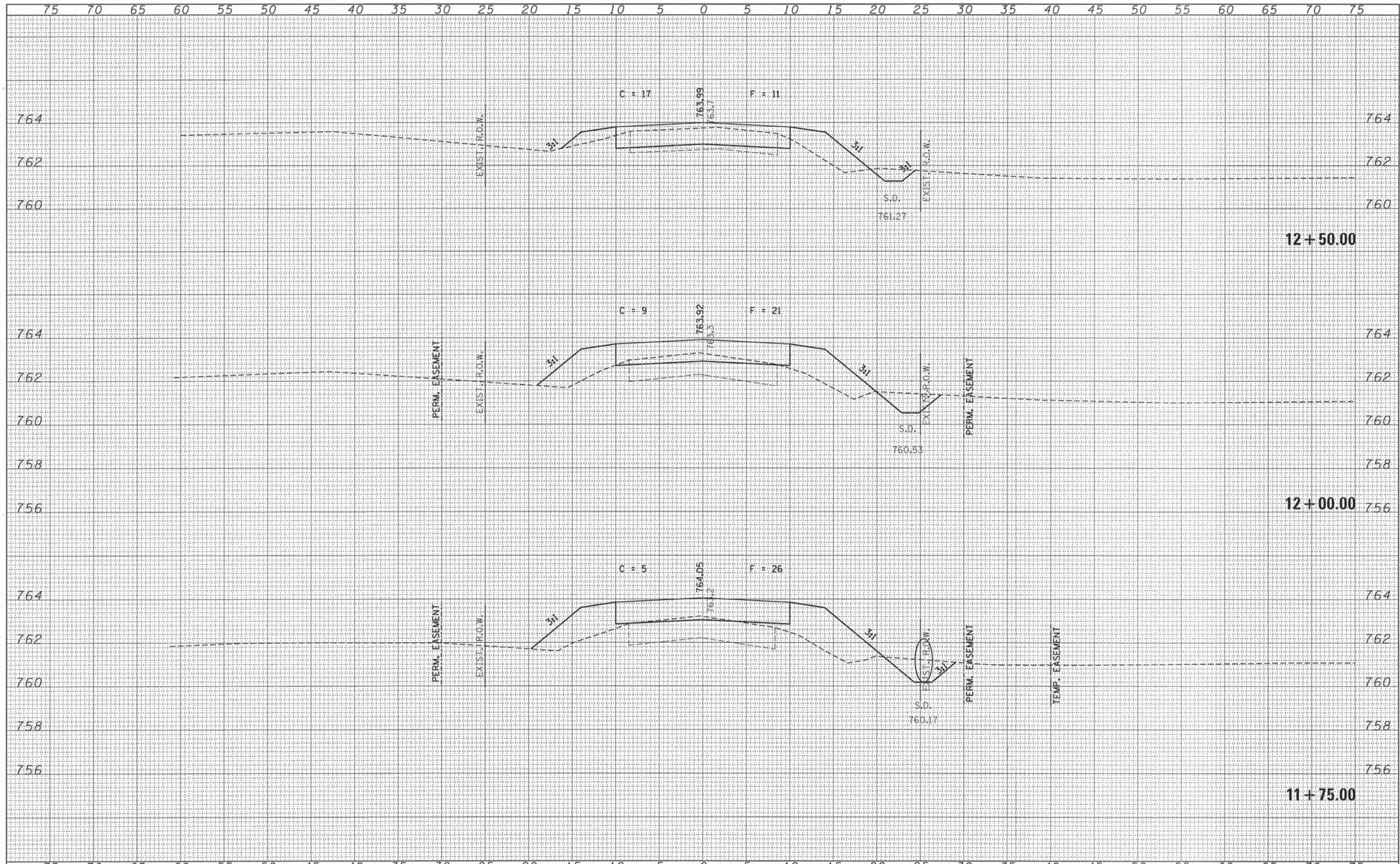


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FINISHED SURVEY	
NOTED SURVEY	
NOTE BOOK	
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DATE	
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ORIGINAL SURVEY	
NOTED SURVEY	
NOTE BOOK	
AREAS CHECKED	

FILE NAME = 120202-ah-xxx.dgn	USER NAME =	DESIGNED - J.W.F.	REVISED -	<b>STATE OF ILLINOIS</b> <b>McLEAN COUNTY HIGHWAY DEPARTMENT</b>	<b>STATION CROSS SECTIONS</b>		T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
<b>HAMPTON, LENZINI AND RENWICK, INC.</b>	PLOT SCALE =	DRAWN - L.G.C.	REVISED -		134	12-15129-00-BR	McLEAN	22	11		
<b>ILR</b>	PLOT DATE = 4/16/2013	CHECKED - S.W.M.	REVISED -		SCALE: H5+V2	SHEET NO. 6 OF 8 SHEETS	STA. 10+60.00 TO STA. 10+75.00	CONTRACT NO. 91487			
ILLINOIS PROFESSIONAL DESIGN FIRM	DATE = 04/16/13	DATE = 04/16/13	REVISED -					ILLINOIS FED. AID PROJECT			





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FINAL SURVEY	

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TEMPLATE	
NOTE BOOK	
SURVEYED	
PLOTTED	
ORIGINAL SURVEY	

FILE NAME = 122222-ht+ss.dgn	USER NAME =	DESIGNED - J.W.F.	REVISED -	STATE OF ILLINOIS McLEAN COUNTY HIGHWAY DEPARTMENT				STATION CROSS SECTIONS				T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 2005 BREVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62783	PLOT SCALE =	DRAWN - L.G.C.	REVISED -	SCALE: H5:V2				SHEET NO. 7 OF 8 SHEETS				134	12-15129-00-BR	McLEAN	22	12
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184-000899	PLOT DATE = 4/16/2013	CHECKED - S.W.M.	REVISED -	STA. 11+00.00 TO STA. 11+50.00				LILIENTHAL BRIDGE				CONTRACT NO. 91487				
		DATE - 04/16/13	REVISED -									ILLINOIS FED. AID PROJECT				



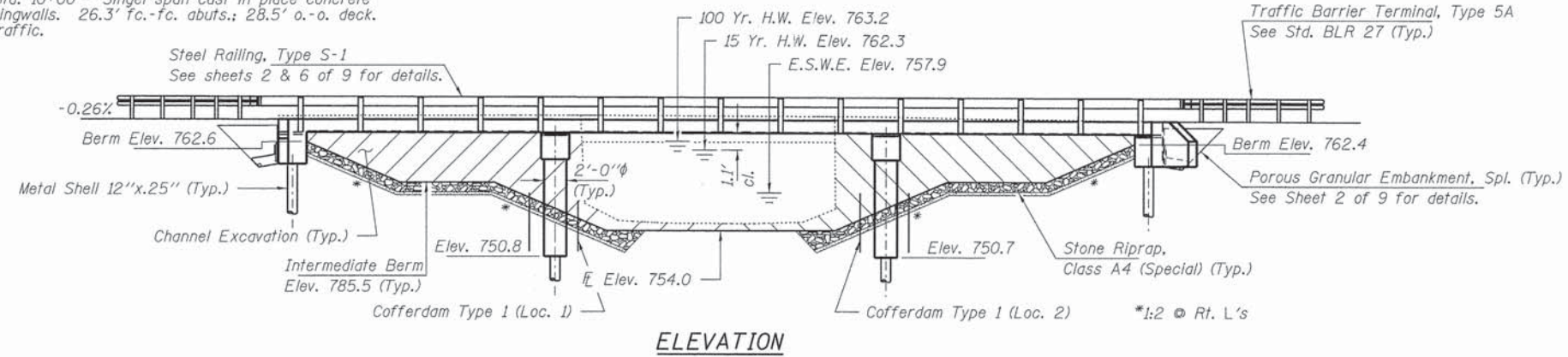




BENCHMARK: Chiseled "□" on SW corner of bridge. 13' Lt., Sta. 9+72, Elev. 765.26

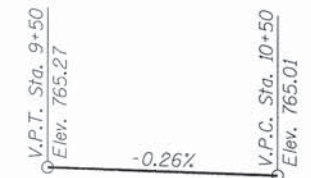
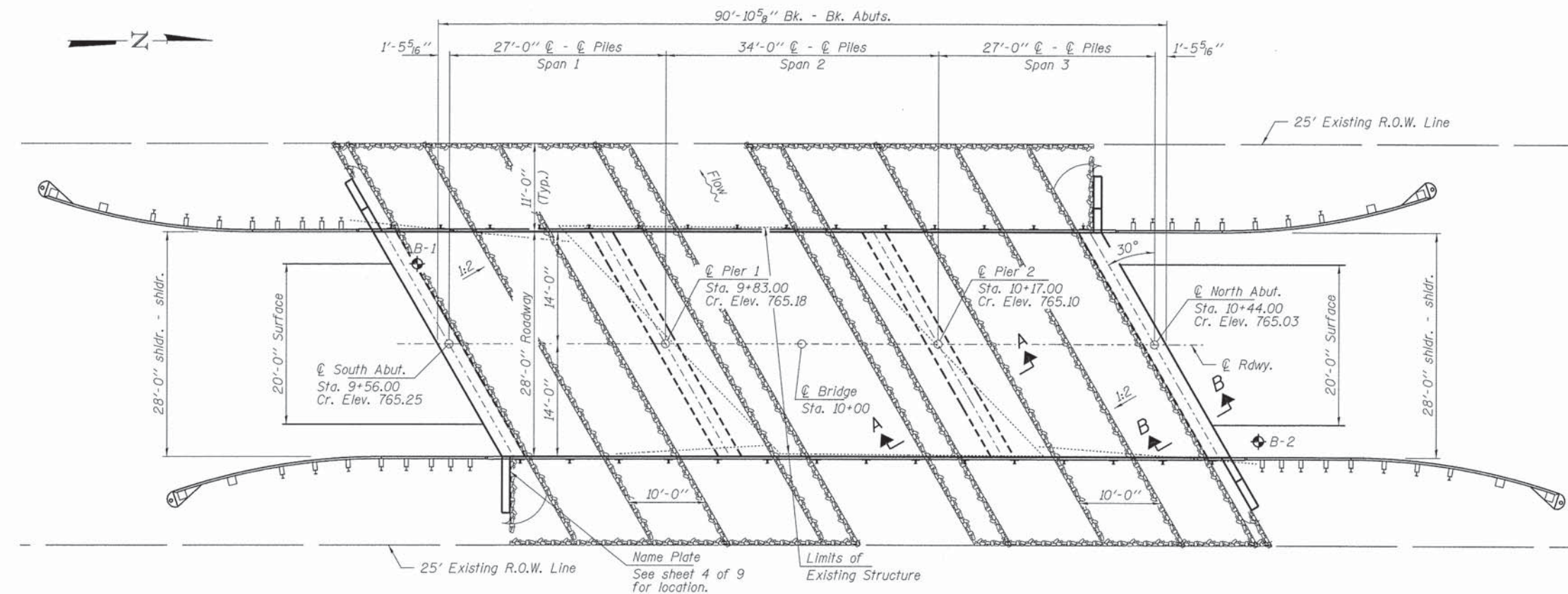
EXISTING STRUCTURE NO. 057-4301: Sta. 10+00 - Singel span cast in place concrete bridge on closed timber abutments and wingwalls. 26.3' fc.-fc. abuts.; 28.5' o.-o. deck. Structure will be constructed closed to traffic.

No Salvage



**INDEX OF STRUCTURE SHEETS**

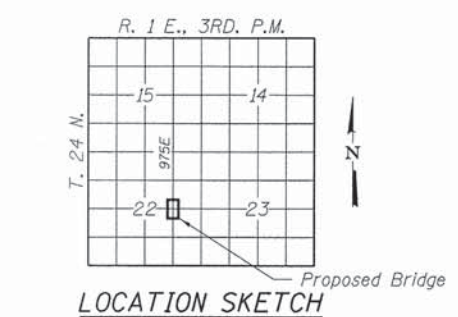
1. General Plan & Elevation
2. General Details
3. Slab Elevations
4. Superstructure
5. Superstructure Details
6. Steel Railing, Type S-1
7. Metal Shell Pile Details
- 8-9. Borings



PROFILE GRADE

LILIENTHAL BRIDGE  
KINGS MILL CREEK  
BUILT 201 BY  
McLEAN COUNTY  
SEC. 12-15129-00-BR  
STR. NO. 057-4308  
LOADING HL-93

NAME PLATE  
See Std. 515001



**DESIGN STRESSES**

FIELD UNITS  
f'c = 3,500 psi Load Resistance  
fy = 60,000 psi (Reinf.) Factor Design

**LOADING HL-93**

Design Specifications: 2012 AASHTO LRFD with all applicable interims.  
50#/Sq. Ft. Included in dead load for future wearing surface.

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 1  
Design Spectral Acceleration at 1.0 sec. (S<sub>D1</sub>) = 0.12g  
Design Spectral Acceleration at 0.2 sec. (S<sub>D5</sub>) = 0.195g  
Soil Site Class = D

**DESIGN SCOUR ELEVATION TABLE**

Design Scour Elevation (ft.)	S. Abut.	Pier 1	Pier 2	N. Abut.
	756.9	745.2	745.2	756.6

**WATERWAY INFORMATION**

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Natural H.W.E.		Head - Ft.		Headwater El.	
			Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
Design	10	1231	150	320	762.06	762.28	1.42	0.24	763.48	762.30
Base	100	2440	170	400	763.19	763.91	1.32	0.72	765.51	763.91
Overtop	500	3380	170	420	763.85	765.17	1.32	0.72	765.17	764.57
Max. Calc.	500	3380	170	420	763.85	765.17	1.32	1.26	765.17	765.11

Drainage Area = 5.49 Sq. Mi. Existing Low Grade Elev. 763.1 @ Sta. 11+50 Proposed Low Grade Elev. 763.9 @ Sta. 12+20  
10 Year Velocity through Existing Bridge = 8.2 Fps 10 Year Velocity through Proposed Bridge = 3.8 Fps

I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current "AASHTO LRFD Specifications."

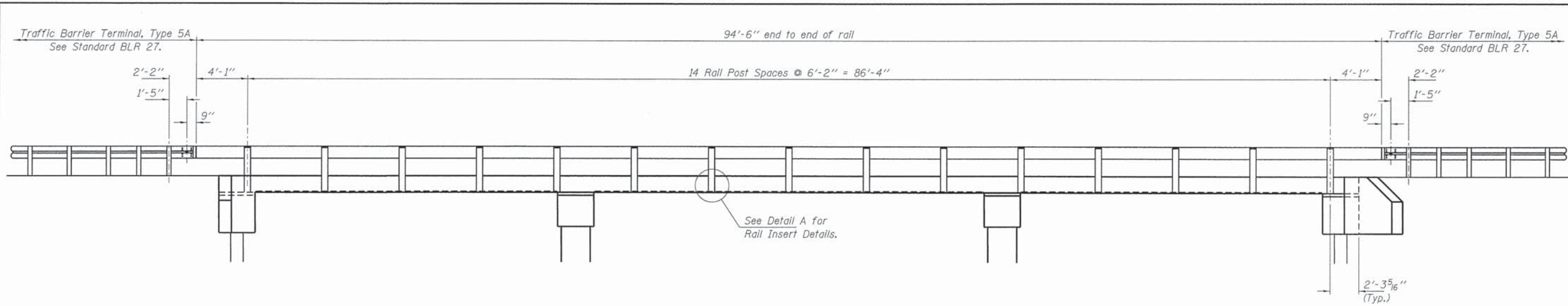
Steven W. Megginson 04/16/2013  
ILLINOIS STRUCTURAL ENGINEER NO. 081-6064



Expires 11-30-2014

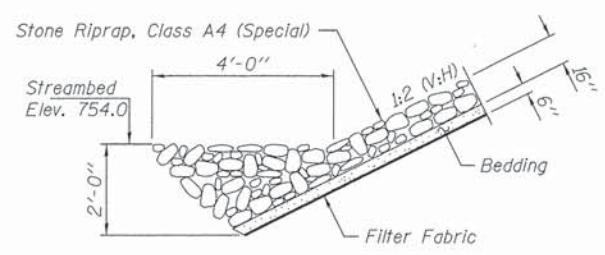
FILE NAME = 128282-shr+bridge.dgn	USER NAME =	DESIGNED - L.A.P.	REVISED -	STATE OF ILLINOIS McLEAN COUNTY HIGHWAY DEPARTMENT	GENERAL PLAN & ELEVATION STRUCTURE NO. 057-4308 SHEET NO. 1 OF 9 SHEETS	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 3348 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703	PLOT SCALE =	CHECKED - S.W.M.	REVISED -			134	12-15129-00-BR	McLEAN	22	14
ILLINOIS PROFESSIONAL DESIGN FIRM L.S./P.E./S.E. CORP. 184-000959	PLOT DATE = 4/18/2013	DRAWN - D.A.B.	REVISED -			LILIENTHAL BRIDGE				CONTRACT NO. 91487
		CHECKED - S.W.M.	REVISED -							ILLINOIS FED. AID PROJECT





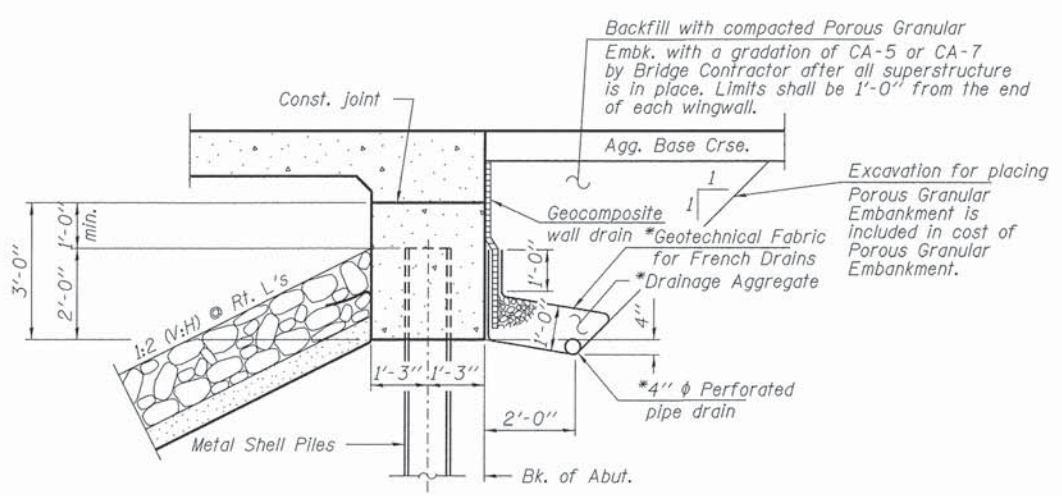
**RAILING ELEVATION**  
Showing Rail Post Spaces

See sheet 6 of 9 for Railing Details.



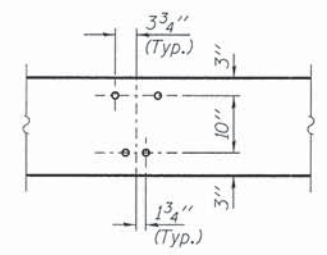
**SECTION A-A**

Note: See Special Provisions  
Stone Riprap, Class A4 (Special).



**SECTION B-B**  
(Horiz. dim. @ Rt. L's)

\*Included in the cost of Pipe Underdrains for Structures, 4".  
Note:  
All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 60110).



**DETAIL A**

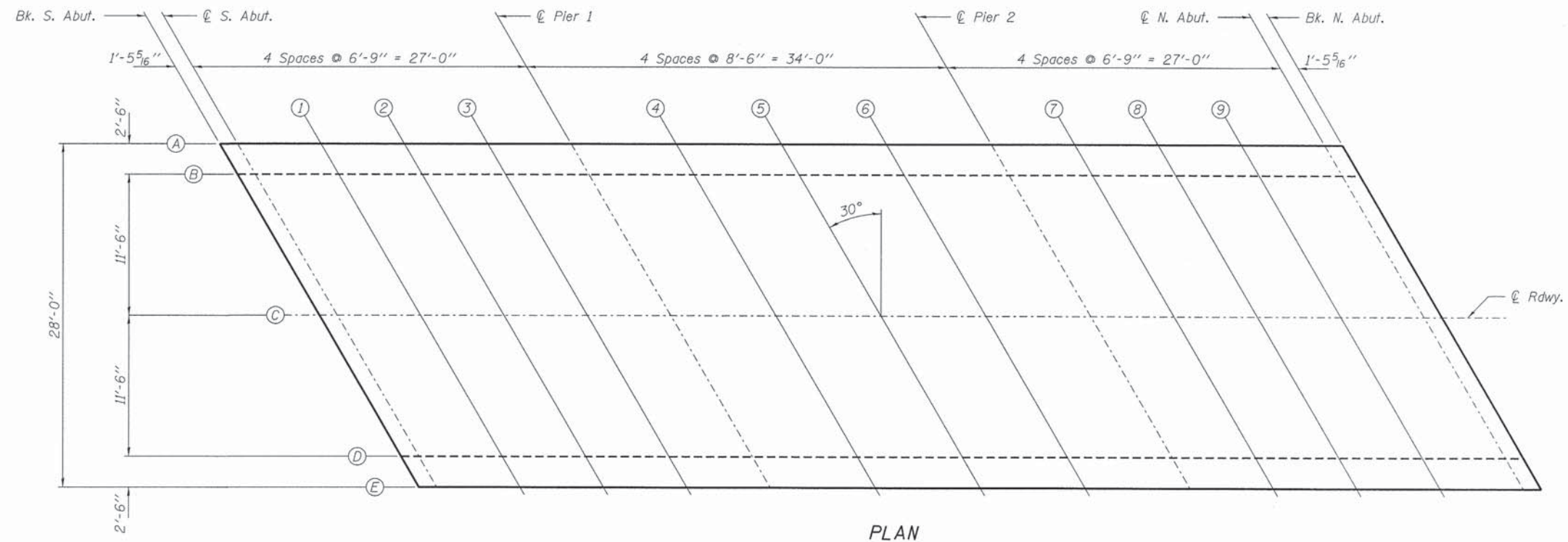
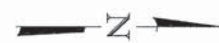
**GENERAL NOTES**

Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.  
The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at North Abutment and Pier 1 or approved by the Engineer before ordering the remainder of piles.  
Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.  
Excavation required to construct the Abutments and Piers shall be included in the cost of Concrete Structures. No additional compensation will be allowed for Structure Excavation.  
All proposed construction activities shall be in accordance with Nationwide Permit number 14 of the Department of the Army authorized under Section 404 of the Clean Water Act.  
The IEPA has issued Section 401 Water Quality Certification for this activity. See Special Provisions for conditions.  
The top surface of the deck shall be screeded with a straight edge and then finished with a wooden hand float. Further finishing shall be delayed until the water sheen appears, but not to the point of rendering further manipulation ineffective. The surface then shall be roughened with a suitable stiff-bristled broom or wire brush drawn in transverse direction removing any laitance present and breaking up the water sheen. The corrugations formed shall be uniform in appearance and in no case more than 1/4" in depth.  
The Contractor shall make allowance for the deflection of forms, shrinkage, and settlement of falsework, in addition to allowance for dead load deflection.  
All construction joints shall be bonded.  
Protective Coat shall be applied to the top surface and the sides of the concrete deck, wingwalls and Bridge Approach Slab.

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			550
Porous Granular Embankment	Ton		90	90
Removal of Existing Structures	Each			1
Cofferdam (Type 1) (Location - 1)	Each			1
Cofferdam (Type 1) (Location - 2)	Each			1
Concrete Structures	Cu. Yd.		37.1	37.1
Concrete Superstructure	Cu. Yd.	119.5		119.5
Concrete Encasement	Cu. Yd.		18.3	18.3
Protective Coat	Sq. Yd.	300		300
Reinforcement Bars, Epoxy Coated	Pound	45,370	5,880	51,250
Steel Railing, Type S-1	Foot	189		189
Furnishing Metal Shell Piles 12"x0.25"	Foot		955	955
Driving Piles	Foot		955	955
Test Pile Metal Shell 12"x0.25"	Each		2	2
Name Plates	Each		1	1
Geocomposite Wall Drain	Sq. Yd.			35
Stone Riprap, Class A4 (Special)	Ton			320
Pipe Underdrains for Structures, 4"	Foot			114





PLAN

TABLE OF ELEVATIONS

LINE A	14	BK ABT 1	ABUT 1	1	2	3	PIER 1	4	5	6	PIER 2	7	8	9	ABUT 2	BK ABT 2
LT. STATION	9+46.47	9+47.92	9+54.67	9+61.42	9+68.17	9+74.92	9+83.42	9+91.92	10+00.42	10+08.92	10+16.67	10+22.42	10+29.17	10+35.92	10+37.36	
THEO. CR ELEV	764.988	764.984	764.966	764.949	764.931	764.914	764.891	764.869	764.847	764.825	764.808	764.790	764.772	764.755	764.751	
ADJ. FOR DL DEFL	764.988	764.984	764.987	764.973	764.942	764.914	764.911	764.904	764.867	764.825	764.818	764.814	764.793	764.755	764.751	
BOTTOM OF SLAB	763.655	763.651	763.654	763.639	763.609	763.580	763.578	763.570	763.534	763.492	763.485	763.481	763.460	763.422	763.418	

LINE B	11.5	BK ABT 1	ABUT 1	1	2	3	PIER 1	4	5	6	PIER 2	7	8	9	ABUT 2	BK ABT 2
LT. STATION	9+47.92	9+49.36	9+56.11	9+62.86	9+69.61	9+76.36	9+84.86	9+93.36	10+01.86	10+10.36	10+17.11	10+23.86	10+30.61	10+37.36	10+38.80	
THEO. CR ELEV	765.036	765.032	765.015	764.997	764.979	764.962	764.940	764.918	764.896	764.873	764.856	764.838	764.821	764.803	764.800	
ADJ. FOR DL DEFL	765.036	765.032	765.035	765.021	764.990	764.962	764.960	764.952	764.916	764.873	764.867	764.863	764.842	764.803	764.800	
BOTTOM OF SLAB	763.869	763.865	763.869	763.854	763.824	763.795	763.793	763.785	763.749	763.707	763.700	763.696	763.675	763.637	763.633	

CL RDWY	0	BK ABT 1	ABUT 1	1	2	3	PIER 1	4	5	6	PIER 2	7	8	9	ABUT 2	BK ABT 2
CL STATION	9+54.56	9+56.00	9+62.75	9+69.50	9+76.25	9+83.00	9+91.50	10+00.00	10+08.50	10+17.00	10+23.75	10+30.50	10+37.25	10+44.00	10+45.44	
THEO. CR ELEV	765.258	765.254	765.237	765.219	765.202	765.184	765.162	765.140	765.118	765.096	765.078	765.061	765.043	765.026	765.022	
ADJ. FOR DL DEFL	765.258	765.254	765.258	765.243	765.213	765.184	765.182	765.174	765.138	765.096	765.089	765.085	765.064	765.026	765.022	
BOTTOM OF SLAB	764.091	764.088	764.091	764.077	764.046	764.018	764.015	764.008	763.971	763.929	763.922	763.918	763.897	763.859	763.855	

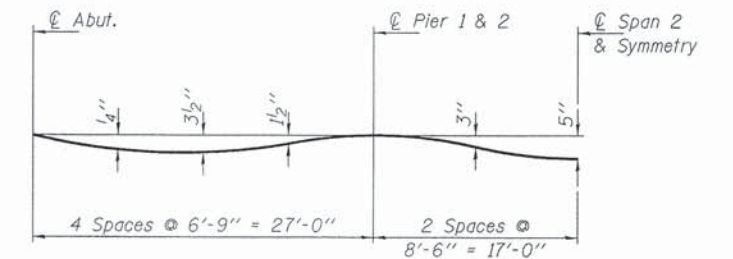
  

LINE D	11.5	BK ABT 1	ABUT 1	1	2	3	PIER 1	4	5	6	PIER 2	7	8	9	ABUT 2	BK ABT 2
RT. STATION	9+61.20	9+62.64	9+69.39	9+76.14	9+82.89	9+89.64	9+98.14	10+06.64	10+15.14	10+23.64	10+30.39	10+37.14	10+43.89	10+50.64	10+52.08	
THEO. CR ELEV	765.001	764.998	764.980	764.962	764.945	764.927	764.905	764.883	764.861	764.839	764.821	764.804	764.786	764.769	764.765	
ADJ. FOR DL DEFL	765.001	764.998	765.001	764.987	764.956	764.927	764.925	764.917	764.881	764.839	764.832	764.828	764.807	764.769	764.765	
BOTTOM OF SLAB	763.835	763.831	763.834	763.820	763.789	763.761	763.759	763.751	763.714	763.672	763.666	763.661	763.640	763.602	763.598	

LINE E	14	BK ABT 1	ABUT 1	1	2	3	PIER 1	4	5	6	PIER 2	7	8	9	ABUT 2	BK ABT 2
RT. STATION	9+62.64	9+64.08	9+70.83	9+77.58	9+84.33	9+91.08	9+99.58	10+08.08	10+16.58	10+25.08	10+31.83	10+38.58	10+45.33	10+52.08	10+53.53	
THEO. CR ELEV	764.945	764.942	764.924	764.907	764.889	764.872	764.849	764.827	764.805	764.783	764.766	764.748	764.730	764.713	764.709	
ADJ. FOR DL DEFL	764.945	764.942	764.945	764.931	764.900	764.872	764.869	764.861	764.825	764.783	764.776	764.772	764.751	764.713	764.709	
BOTTOM OF SLAB	763.612	763.608	763.612	763.597	763.567	763.538	763.536	763.528	763.492	763.450	763.443	763.439	763.418	763.380	763.376	

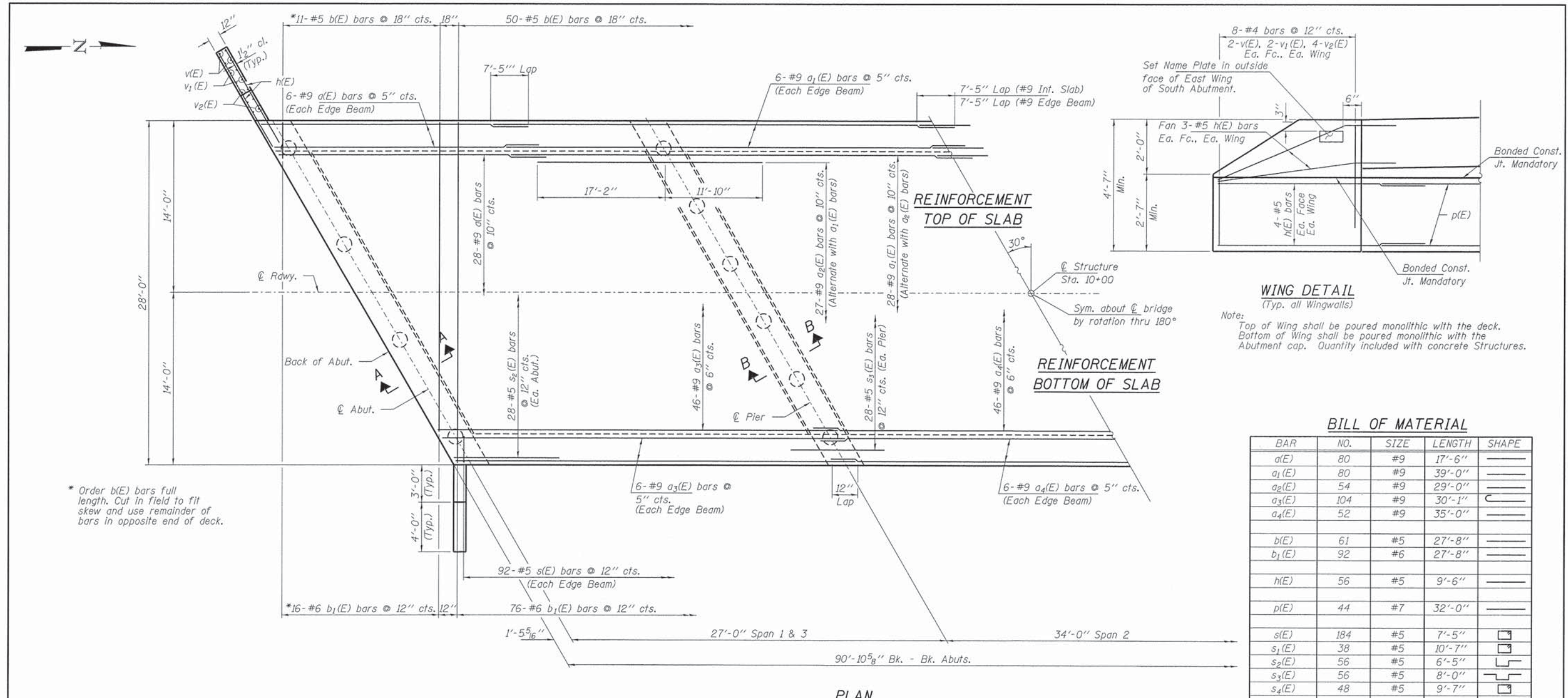
\* Bottom of slab elevation equals bottom of edge beam



DEAD LOAD DEFLECTION DIAGRAM  
(Includes weight of concrete only.)

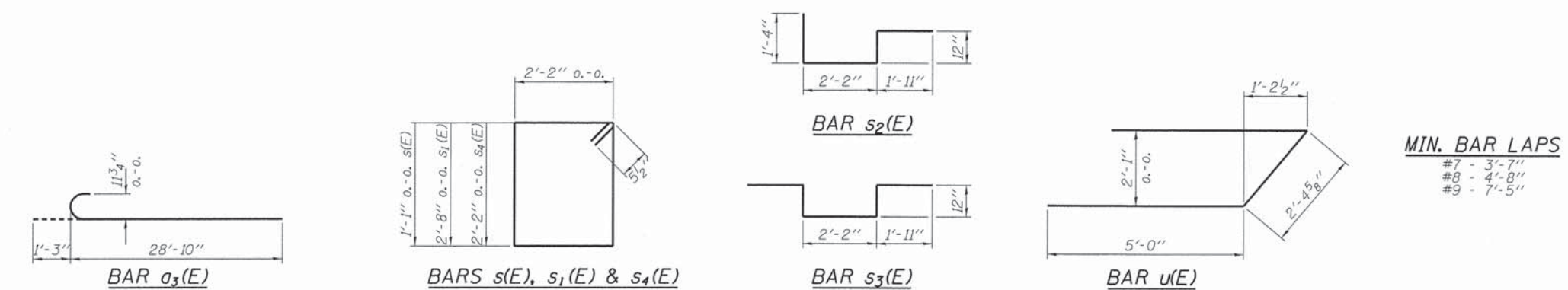
Notes:  
The deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown.  
The Contractor shall make allowance for the deflection of forms, shrinkage and settlement of falsework in addition to allowance for dead load deflection.



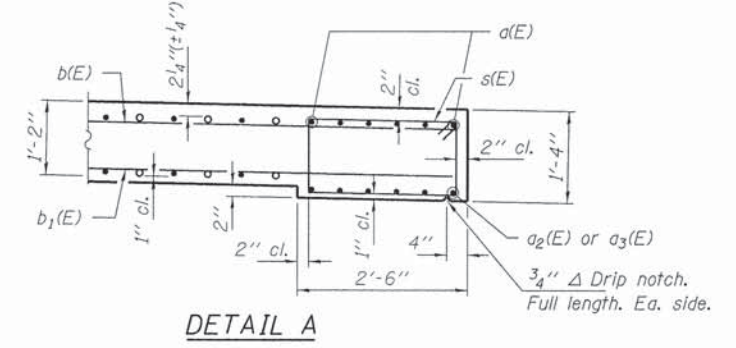
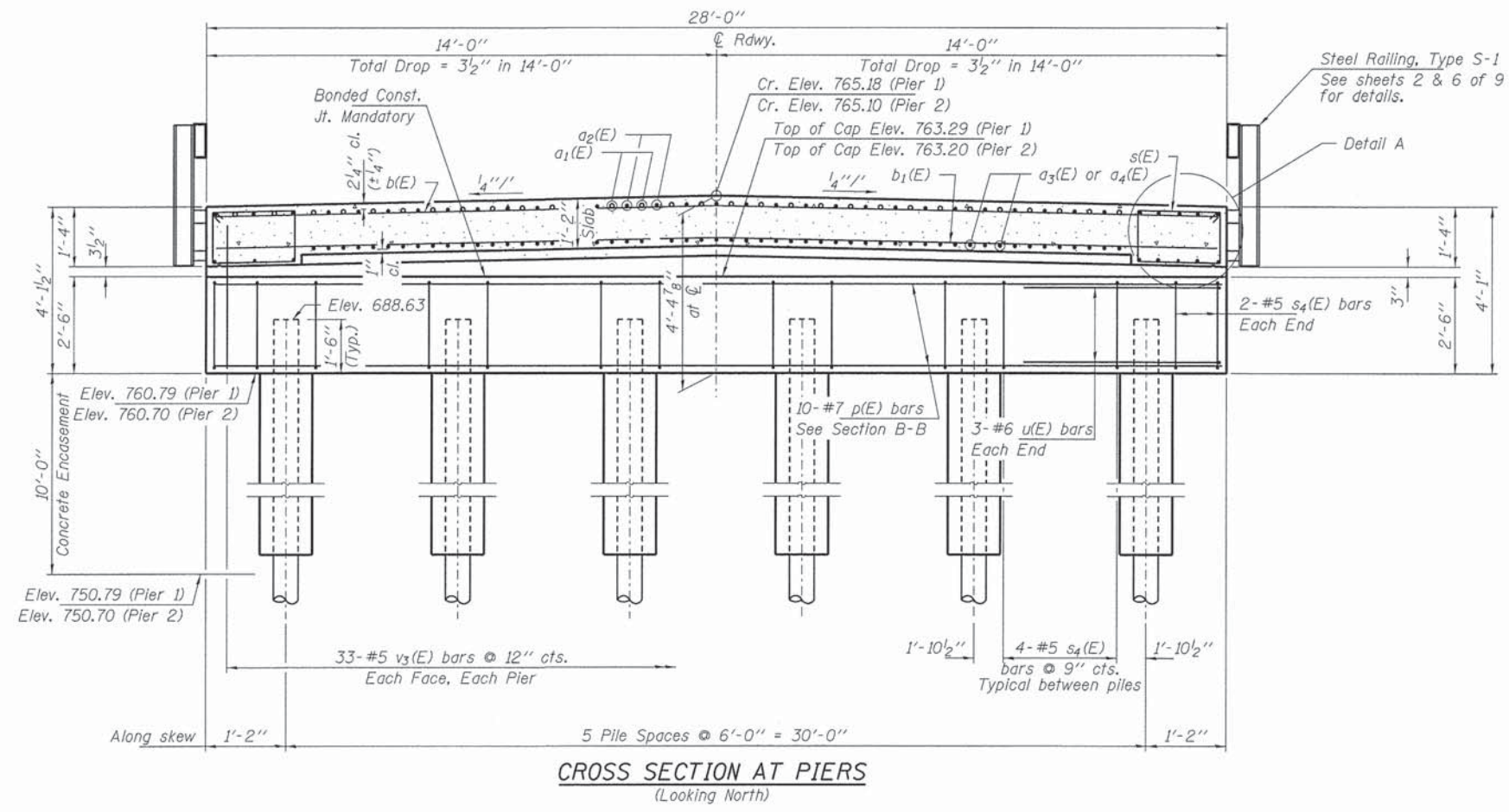
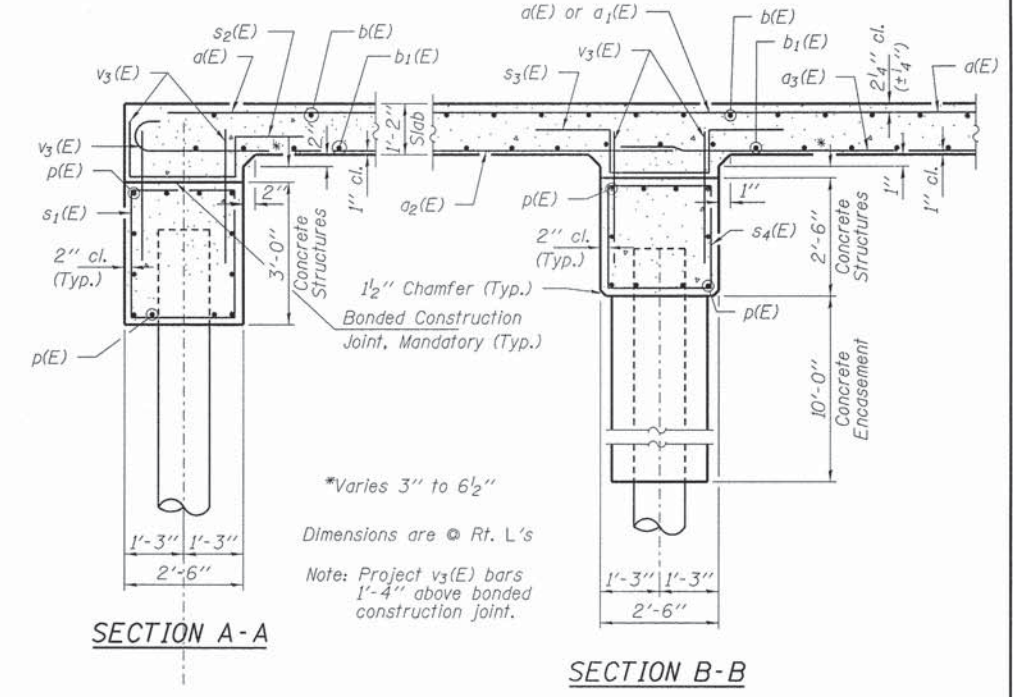
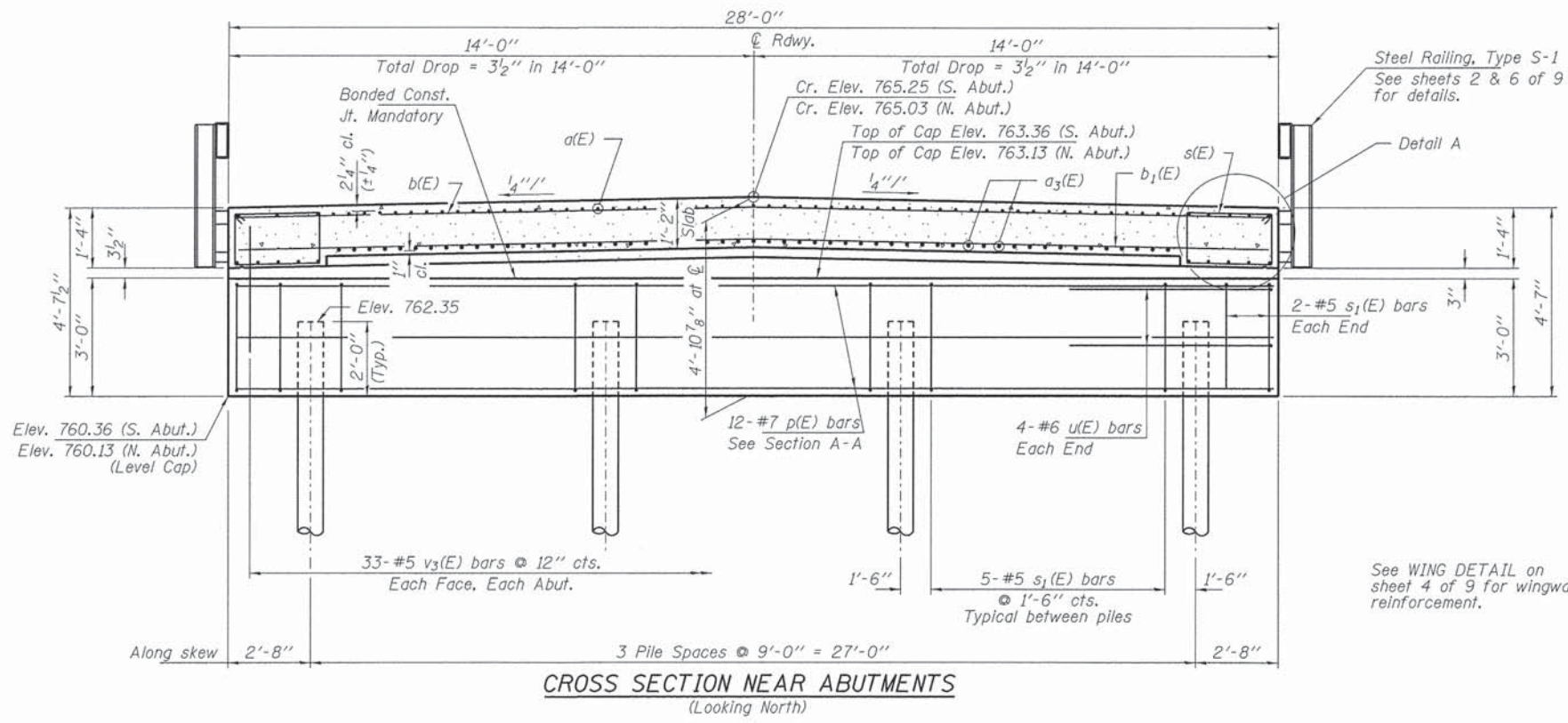


**BILL OF MATERIAL**

BAR	NO.	SIZE	LENGTH	SHAPE
a(E)	80	#9	17'-6"	—
a <sub>1</sub> (E)	80	#9	39'-0"	—
a <sub>2</sub> (E)	54	#9	29'-0"	—
a <sub>3</sub> (E)	104	#9	30'-1"	—
a <sub>4</sub> (E)	52	#9	35'-0"	—
b(E)	61	#5	27'-8"	—
b <sub>1</sub> (E)	92	#6	27'-8"	—
h(E)	56	#5	9'-6"	—
p(E)	44	#7	32'-0"	—
s(E)	184	#5	7'-5"	□
s <sub>1</sub> (E)	38	#5	10'-7"	□
s <sub>2</sub> (E)	56	#5	6'-5"	□
s <sub>3</sub> (E)	56	#5	8'-0"	□
s <sub>4</sub> (E)	48	#5	9'-7"	□
u(E)	28	#6	12'-5"	—
v(E)	16	#4	2'-4"	—
v <sub>1</sub> (E)	16	#4	3'-4"	—
v <sub>2</sub> (E)	32	#4	4'-4"	—
v <sub>3</sub> (E)	264	#5	3'-2"	—
Concrete Structures		Cu. Yd.	37.1	
Concrete Superstructure		Cu. Yd.	119.5	
Concrete Encasement		Cu. Yd.	18.3	
Reinforcement Bars, Epoxy Coated		Pound	51,250	
Metal Shell Piles 12"x0.25"		Foot	955	
Test Pile Metal Shell 12"x0.25"		Each	2	
Name Plates		Each	1	







**PILE DATA**

Type and Size	Metal Shell Piles 12"x0.25"
No. Req'd.	*20
Factored Resistance Available (Rf)	107 Kips/Pile (Abuts.) 141 Kips/Pile (Piers)
Nominal Required Bearing (Rn)	214 Kips/Pile (Abuts.) 282 Kips/Pile (Piers)
Est. Lengths	50' Ft/Pile (Abuts.) 55' Ft/Pile (Piers)

Notes: \* The test piles shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information

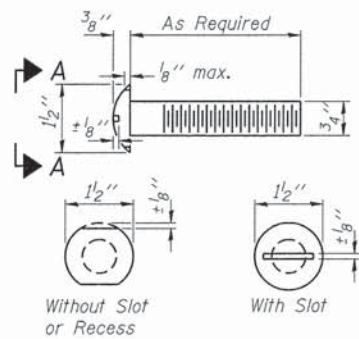
Includes two test piles to be driven in permanent locations, one at the North Abutment and one at Pier 1.

See sheet 10 of 12 for Pile Encasement details.

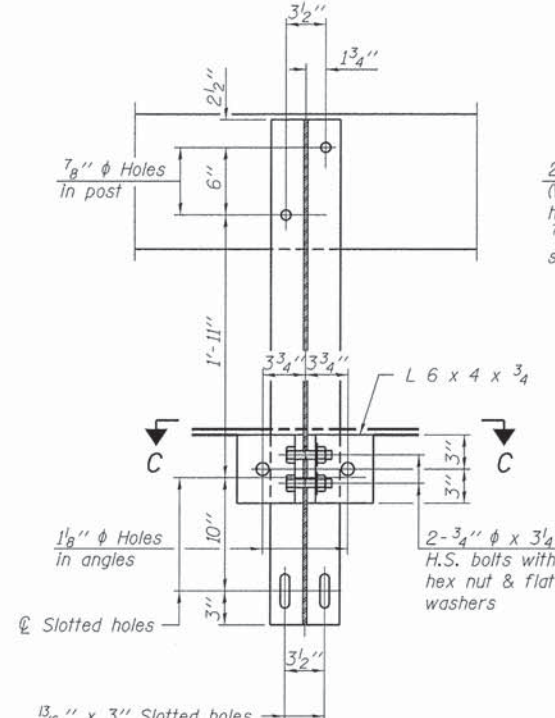
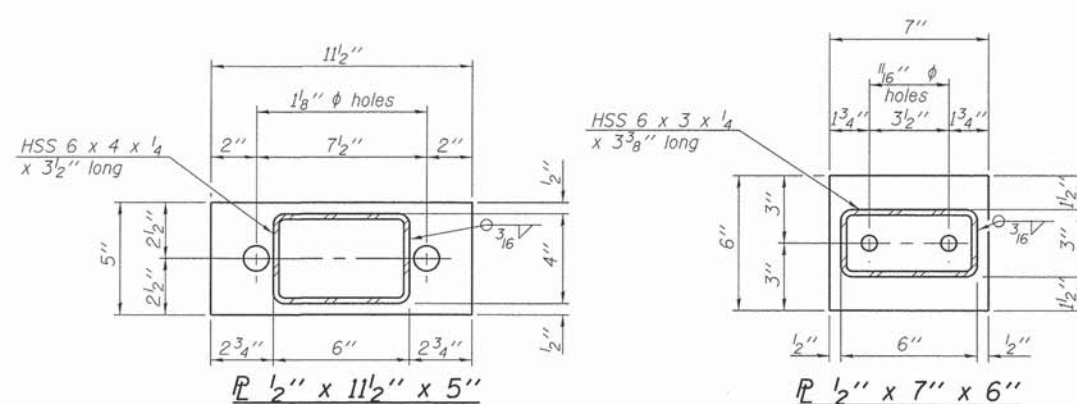
Use Cofferdam (Type 1) (Location - 1) at Pier 1.  
Use Cofferdam (Type 1) (Location - 2) at Pier 2.

Concrete Encasement shall be cast in a monolithic pour.

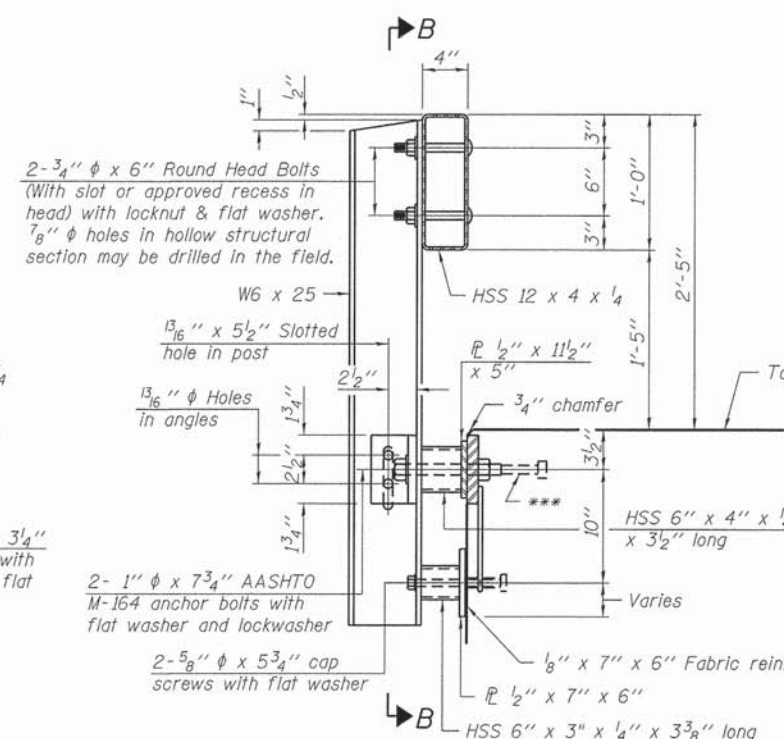




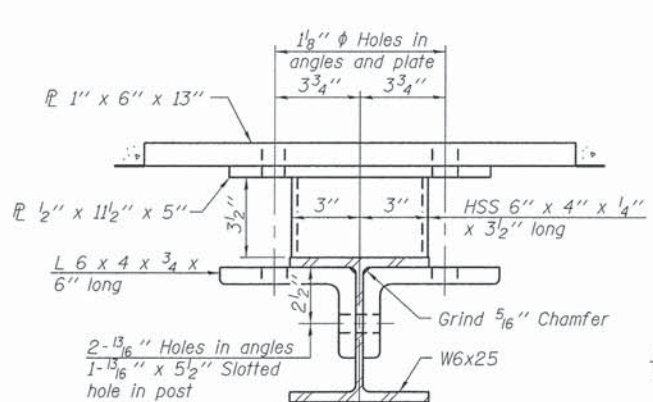
**VIEW A-A  
ROUND HEAD BOLT**



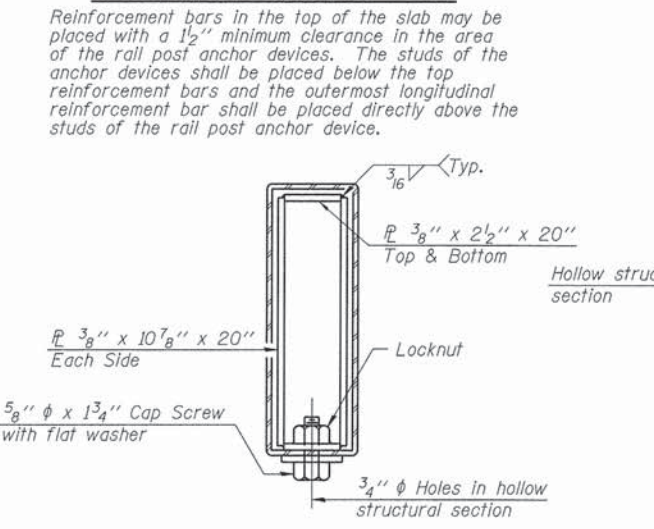
**SECTION B-B**



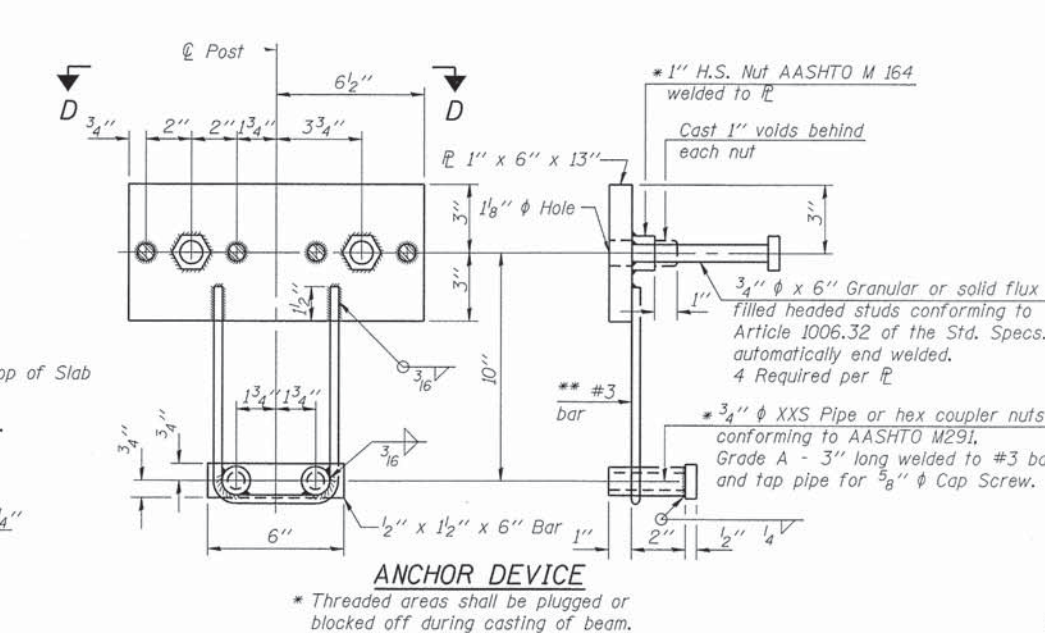
**SECTION AT RAILING POST**



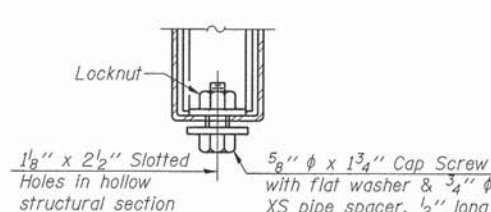
**SECTION C-C**



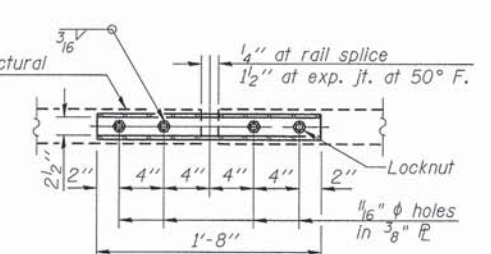
**SECTIONS AT RAIL SPLICE**



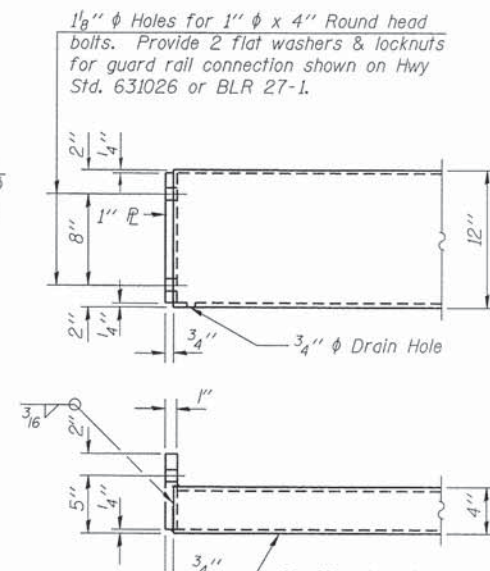
**ANCHOR DEVICE**



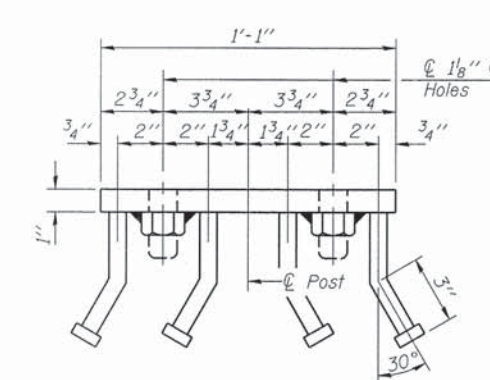
**RAIL SPLICE CONNECTION  
AT EXPANSION JT.**



**PLAN-BOTT. SPLICE R  
TYPICAL**



**END OF RAIL DETAILS**



**VIEW D-D**

**Notes:**  
 All field drilled holes shall be coated with an approved zinc rich paint before erection.  
 For multi-span bridges, sufficient 1/4\"/>

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	189

R-23A 7-1-10 (10'-9" Maximum Post Spacing)

FILE NAME = 128202-shr-bridge.dgn	USER NAME =	DESIGNED - L.A.P.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC.		CHECKED - S.W.M.	REVISED -
3088 STEVENSON DRIVE, SUITE 201		DRAWN - D.A.B.	REVISED -
SPRINGFIELD, ILLINOIS 62765		CHECKED - S.W.M.	REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM			
LS/P/E/SE CORP. 184 000099			

**STATE OF ILLINOIS  
McLEAN COUNTY HIGHWAY DEPARTMENT**

**STEEL RAILING, TYPE S-1  
STRUCTURE NO. 057-4308**  
SHEET NO. 6 OF 9 SHEETS

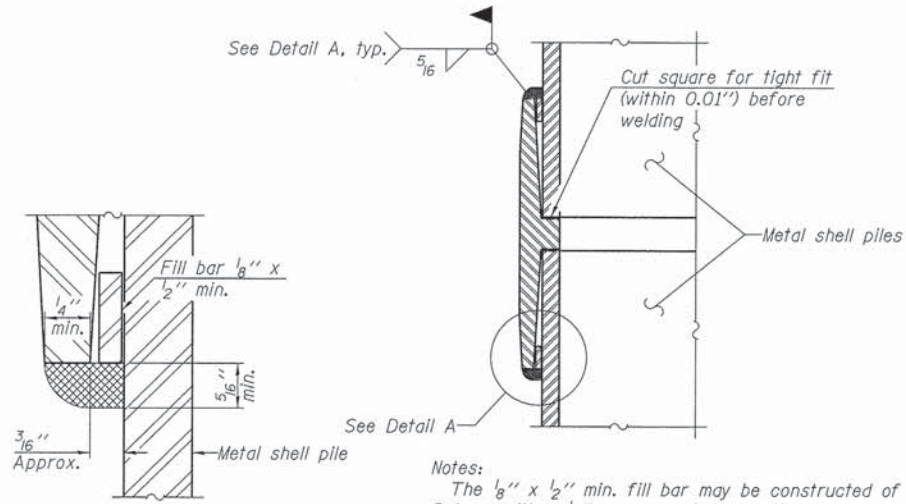
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
134	12-15129-00-BR	McLEAN	22	19
L.L. LENTHAL BRIDGE			CONTRACT NO. 91487	
ILLINOIS FED. AID PROJECT				





**METAL SHELL PILE TABLE**

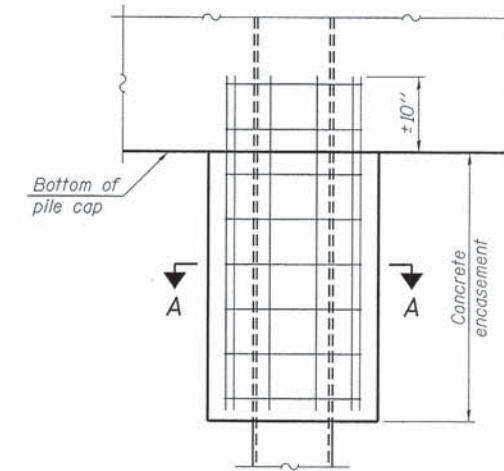
Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd. <sup>3</sup> /ft.)
PP12	0.179"	22.60	0.0274
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361



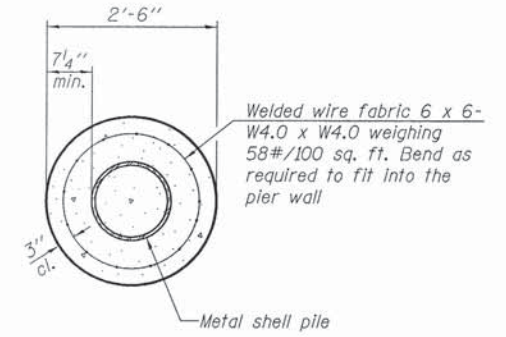
**DETAIL A**

**WELDED COMMERCIAL SPLICE**

Notes:  
 The 1/8" x 1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.  
 Pile segments shall be driven to solid contact with splicer before welding.



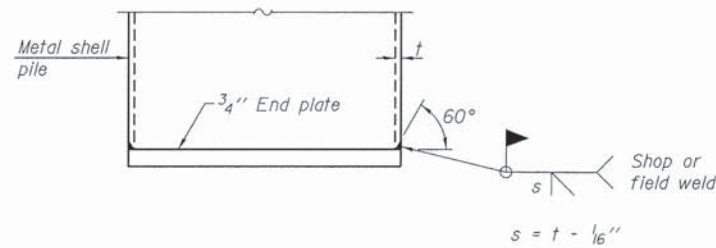
**ELEVATION**



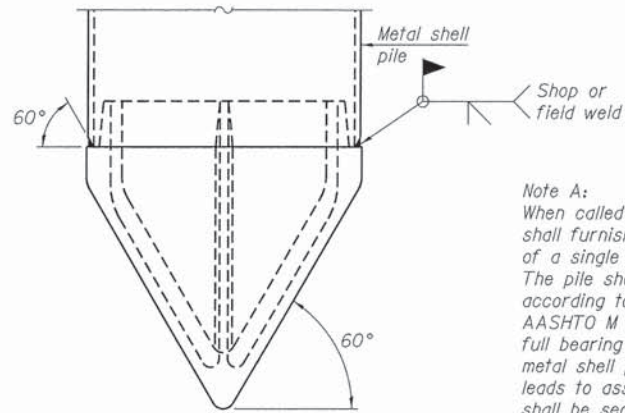
**SECTION A-A**

Note:  
 Forms for encasement may be omitted when soil conditions permit.

**CONCRETE ENCASEMENT AT PIERS**



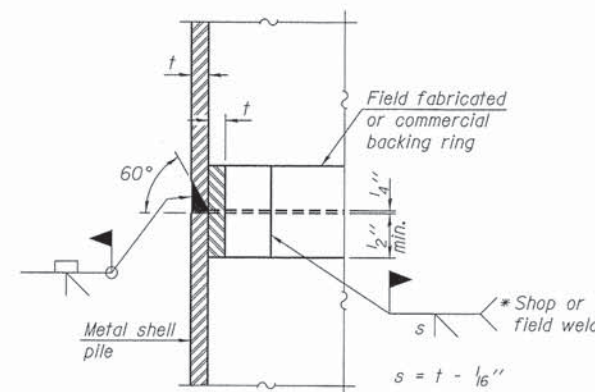
**END PLATE ATTACHMENT**



**METAL SHELL PILE SHOE ATTACHMENT**

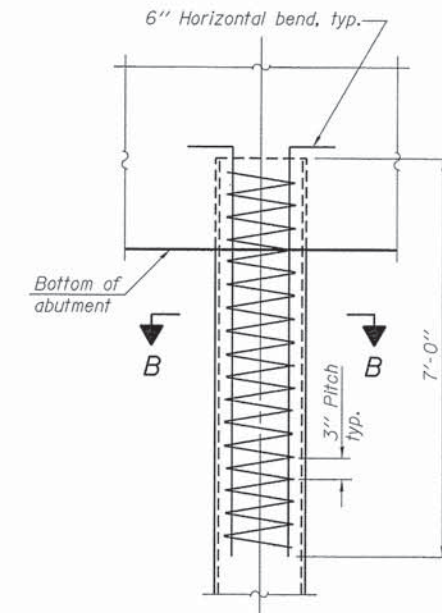
(See Note A)

Note A:  
 When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld.

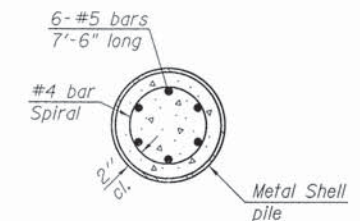


**COMPLETE PENETRATION WELD SPLICE**

\* Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.



**ELEVATION**



**SECTION B-B**

**METAL SHELL REINFORCEMENT AT ABUTMENTS**

Note:  
 The metal shell piles shall be according to ASTM A 252 Grade 3.

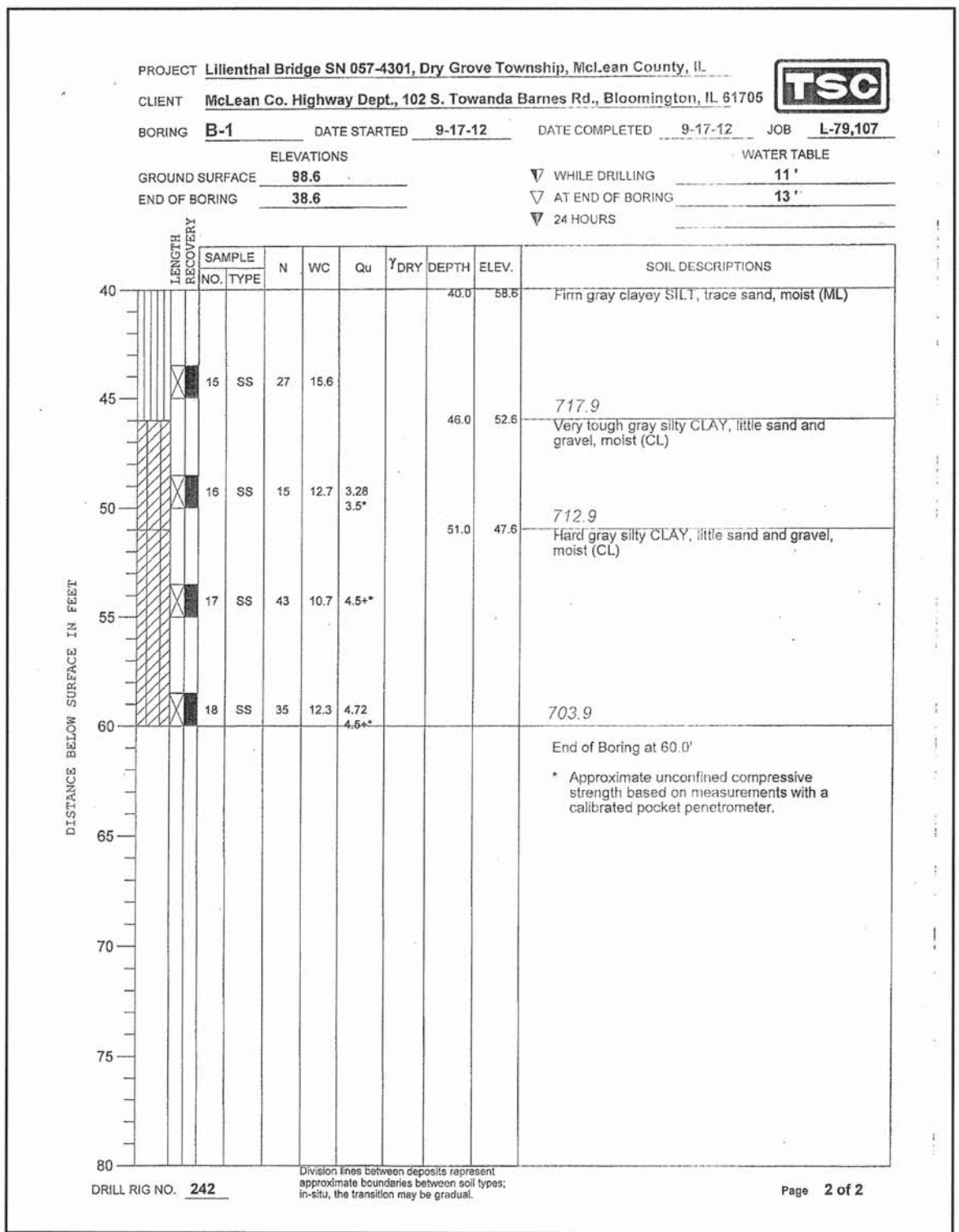
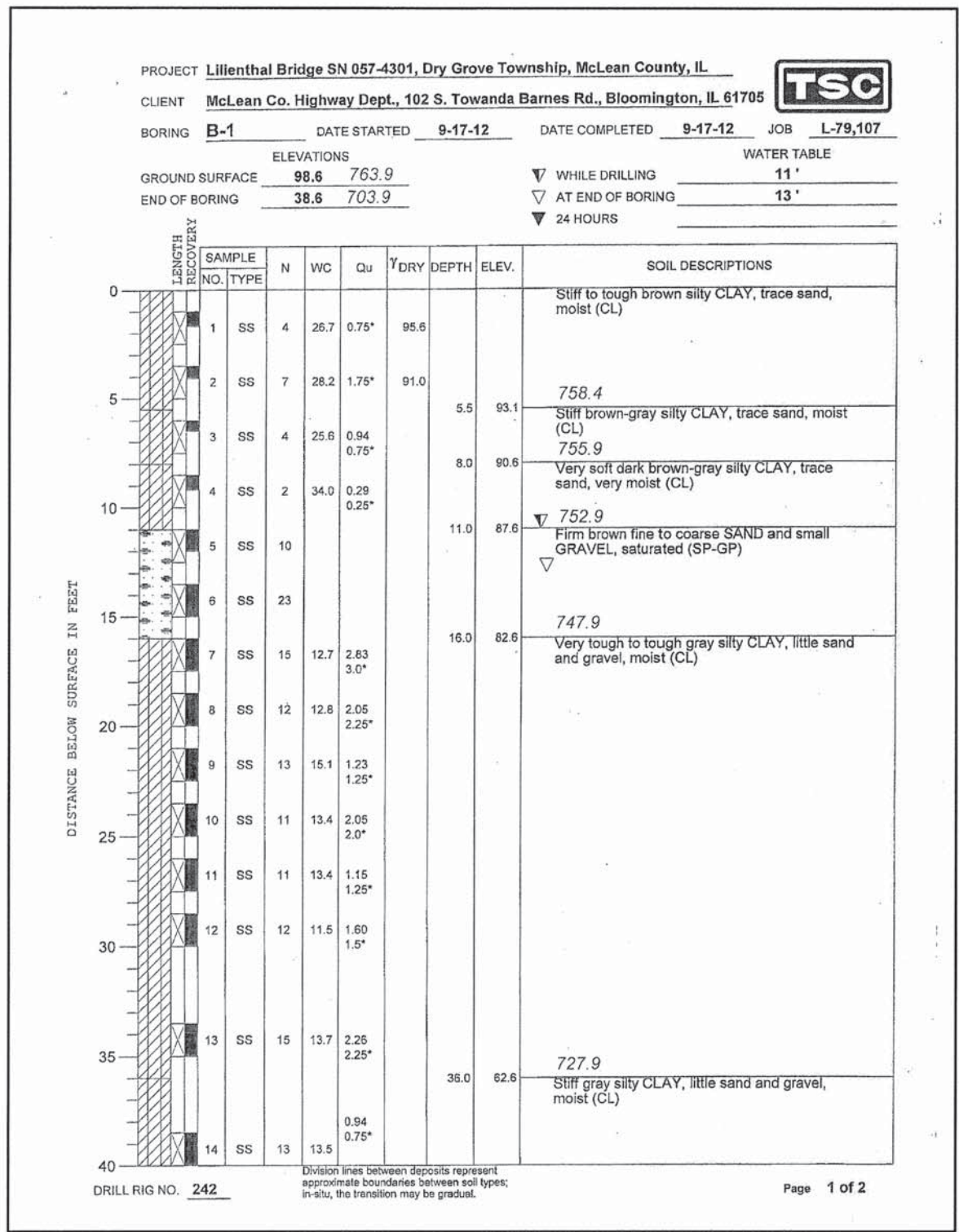
F-MS

1-27-12

FILE NAME = 120202-shr-bridge.dgn	USER NAME =	DESIGNED - L.A.P.	REVISED -	<b>STATE OF ILLINOIS McLEAN COUNTY HIGHWAY DEPARTMENT</b>	<b>METAL SHELL PILE DETAILS STRUCTURE NO. 057-4308</b>	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62709		CHECKED - S.W.M.	REVISED -			134	12-15129-00-BR	McLEAN	22	20
ILLINOIS PROFESSIONAL DESIGN FIRM L.S./P.E./S.E. CORP. 184-000889	PLOT SCALE =	DRAWN - D.A.B.	REVISED -			L.I.LIENHART BRIDGE				CONTRACT NO. 91487
	PLOT DATE = 4/16/2013	CHECKED - S.W.M.	REVISED -							ILLINOIS FED. AID PROJECT

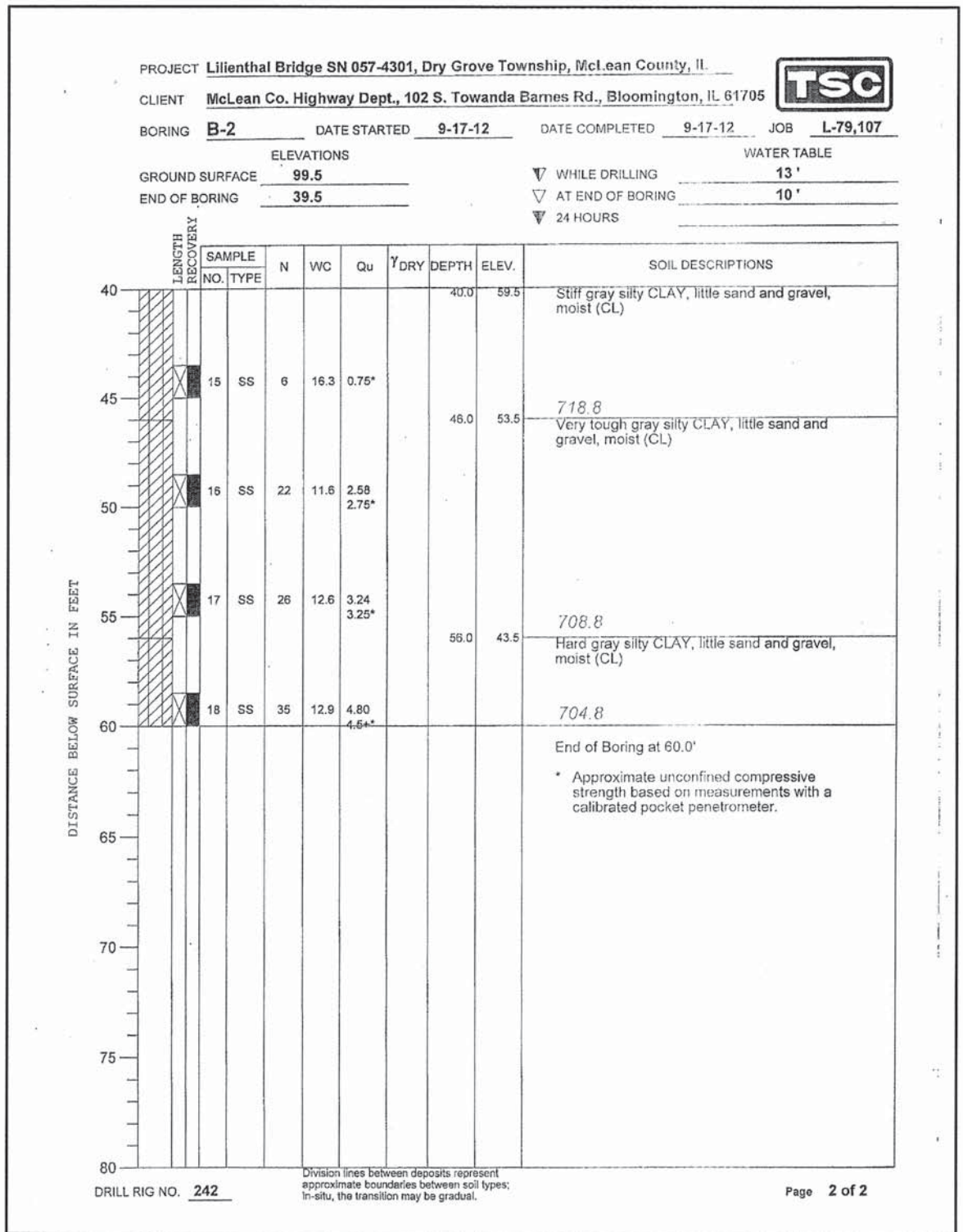
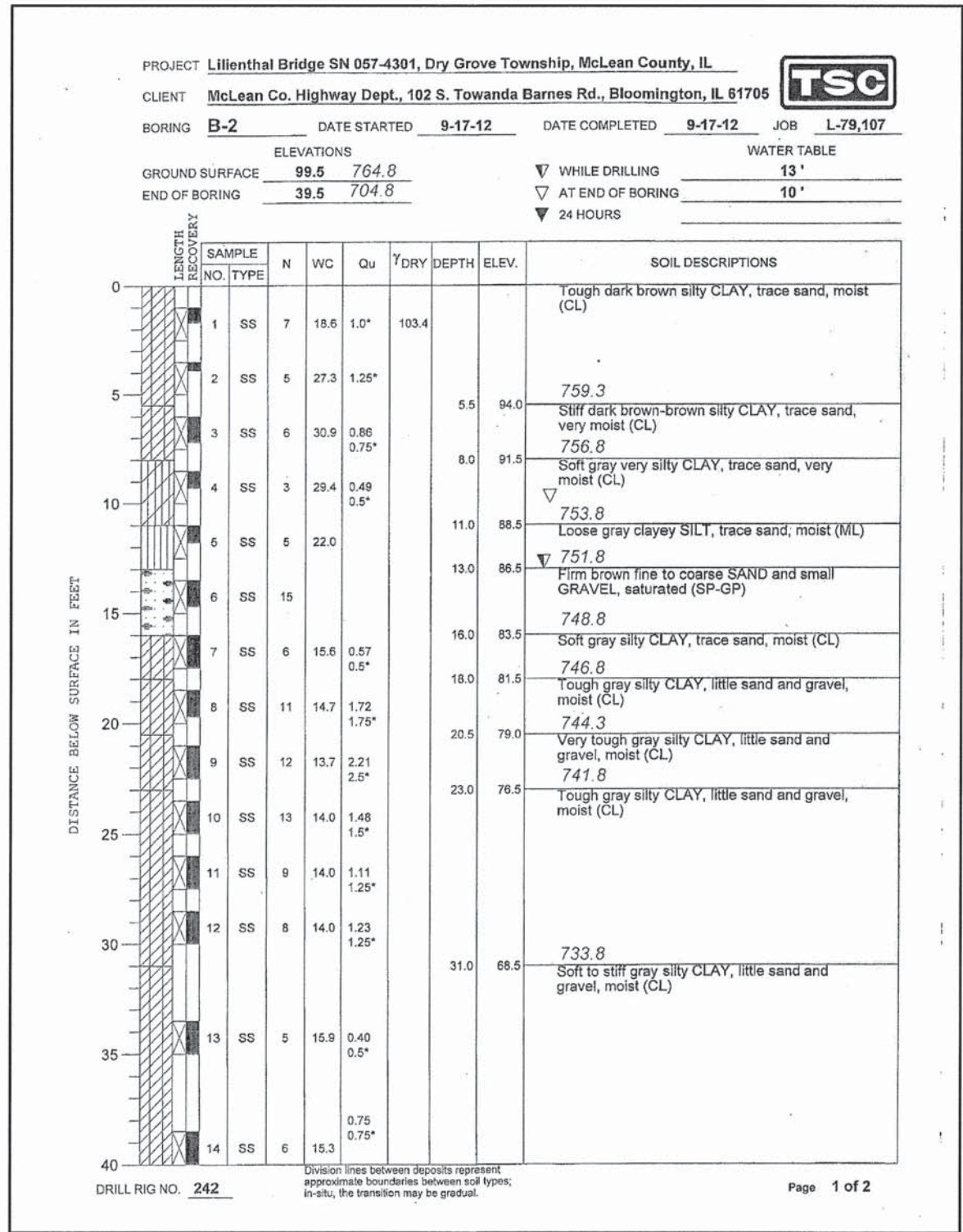
SHEET NO. 7 OF 9 SHEETS





BORING B-1





BORING B-2