

03-08-13 LETTING ITEM 039

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 29	11-16105-05-BR	LIVINGSTON	21	1
FED. ROAD DIST. NO.		ILLINOIS CONTRACT NO. 87536		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**PLANS FOR PROPOSED
HIGHWAY BRIDGE PROGRAM**

**PROJECT BROS-0105(053)
SECTION 11-16105-05-BR
NEVADA ROAD DISTRICT
LIVINGSTON COUNTY
T.R. 29
PROPOSED STRUCTURE NO. 053-4207
C-93-097-12**

INDEX OF SHEETS

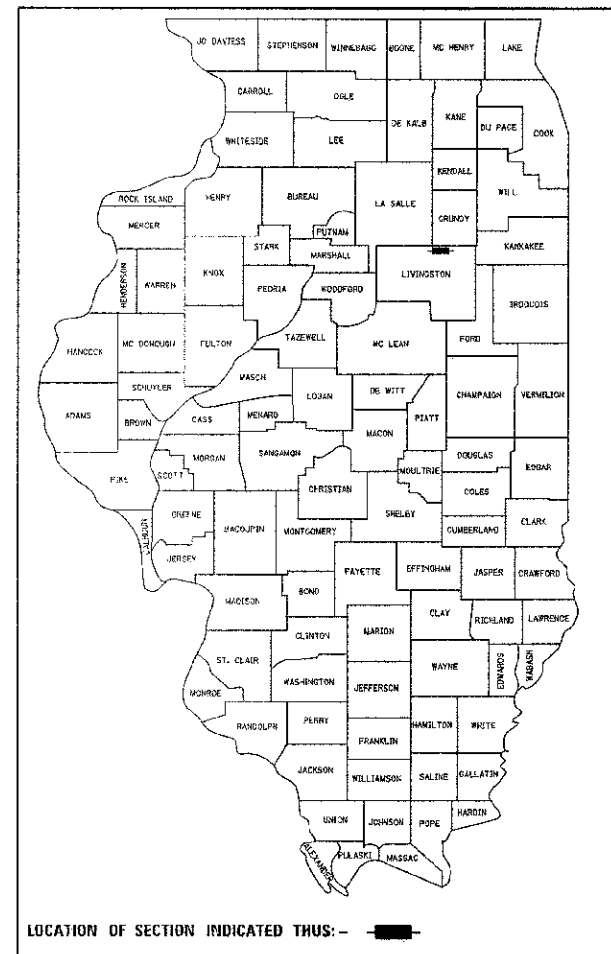
SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	SUMMARY OF QUANTITIES AND GENERAL NOTES
3.	TYPICAL CROSS SECTIONS
4.	PLAN AND PROFILE
5-9.	STATION CROSS SECTIONS
10-17.	BRIDGE PLANS
18-21.	BORINGS

HIGHWAY STANDARDS:

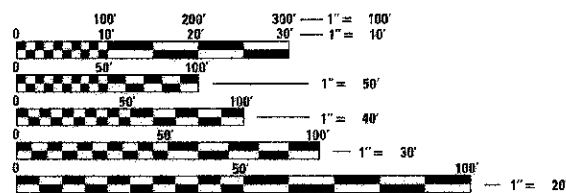
000001-06	STANDARD SYMBOLS ABBREVIATIONS AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF INCH AND FOOT
280001-07	TEMPORARY EROSION CONTROL SYSTEMS
515001-03	NAME PLATE FOR BRIDGES
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
701901-02	TRAFFIC CONTROL DEVICES
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

UTILITIES

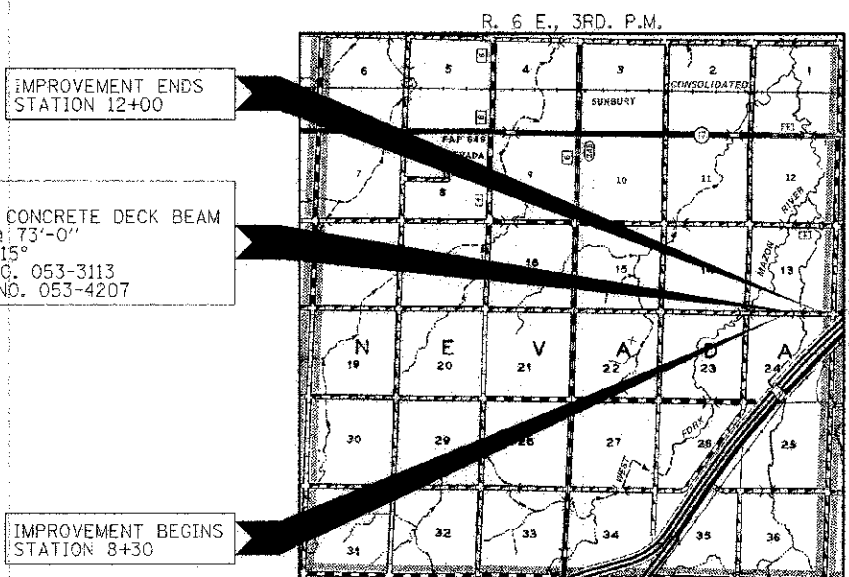
NONE



FUNCTIONAL CLASSIFICATION: LOCAL ROAD (NON-URBAN)
DESIGN SPEED: 30 MPH
DESIGN TRAFFIC: 75 ADT



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.

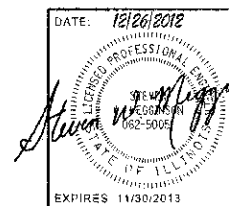


LOCATION MAP

APPROXIMATE SCALE: 1 MILE
NET LENGTH OF SECTION = 370 FEET = 0.070 MILES



ILLINOIS DEPARTMENT OF TRANSPORTATION	
APPROVED	12-27 2012 COUNTY ENGINEER
APPROVED	12-27 2012 TOWNSHIP COMMISSIONER
PASSED	1-2 2013 DISTRICT THREE ENGINEER OF LOCAL ROADS & STREETS
Released For Bid Based on Limited Review	1-8 2013 DEPUTY DIRECTOR OF HIGHWAYS REGION TWO ENGINEER STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION



HAMPTON, LENZINI AND RENWICK, INC.
CIVIL ENGINEERS - STRUCTURAL ENGINEERS - LAND SURVEYORS
3085 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
217.546.3400 www.hirengineering.com

SUMMARY OF QUANTITIES			
CODE NO.	ITEM	UNIT	TOTAL
			CONSTRUCTION TYPE CODE 0011
20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	91
20100210	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNIT	42
20200100	EARTH EXCAVATION	CU YD	90
20300100	CHANNEL EXCAVATION	CU YD	185
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	60
28000305	TEMPORARY DITCH CHECKS	FOOT	40
28000400	PERIMETER EROSION BARRIER	FOOT	375
A 28100107	STONE RIPRAP, CLASS A4	SQ YD	300
28200200	FILTER FABRIC	SQ YD	300
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	300
A 50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	28.6
A 50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1971
50800105	REINFORCEMENT BARS	POUND	2760
* 50900205	STEEL RAILING, TYPE S1	FOOT	144
51200957	FURNISHING METAL SHELL PILES 12" X 0.25"	FOOT	450
51202305	DRIVING PILES	FOOT	450
51203200	TEST PILE METAL SHELL	EACH	1
51500100	NAME PLATES	EACH	1
67100100	MOBILIZATION	L SUM	1
A 70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1
* 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
A X2070302	POROUS GRANULAR EMBANKMENT, SPECIAL	TON	120
A X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.3
A Z0046304	PIPE UNDERDRAINS FOR STRUCTURES 4"	FOOT	90

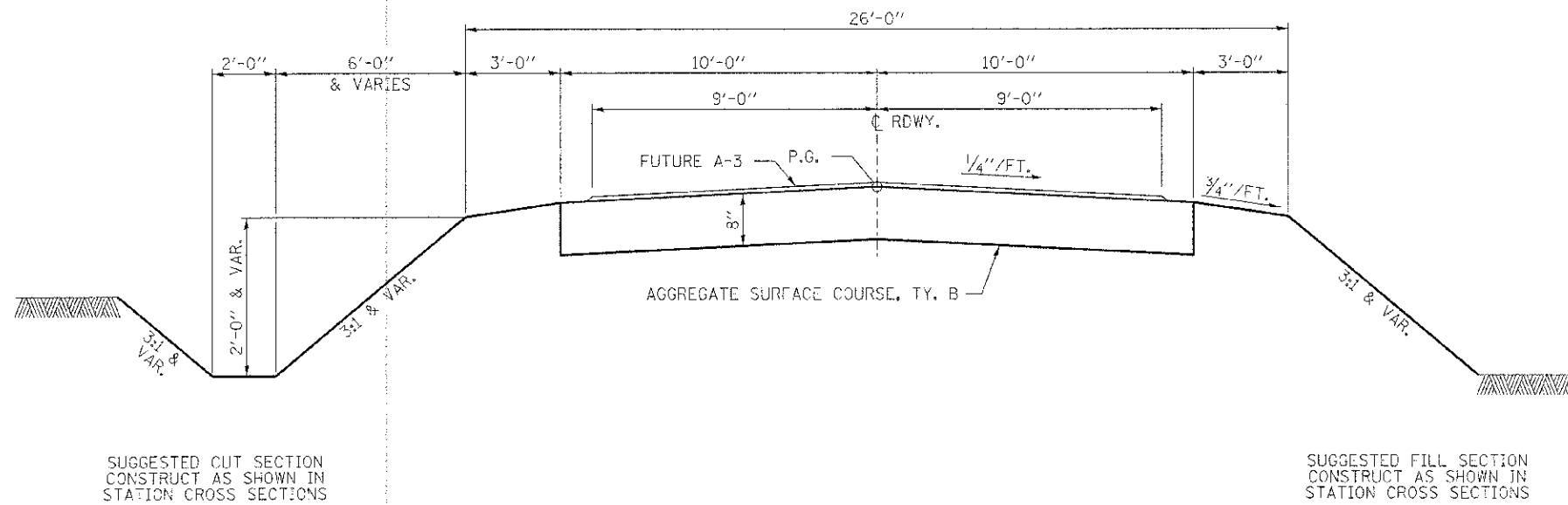
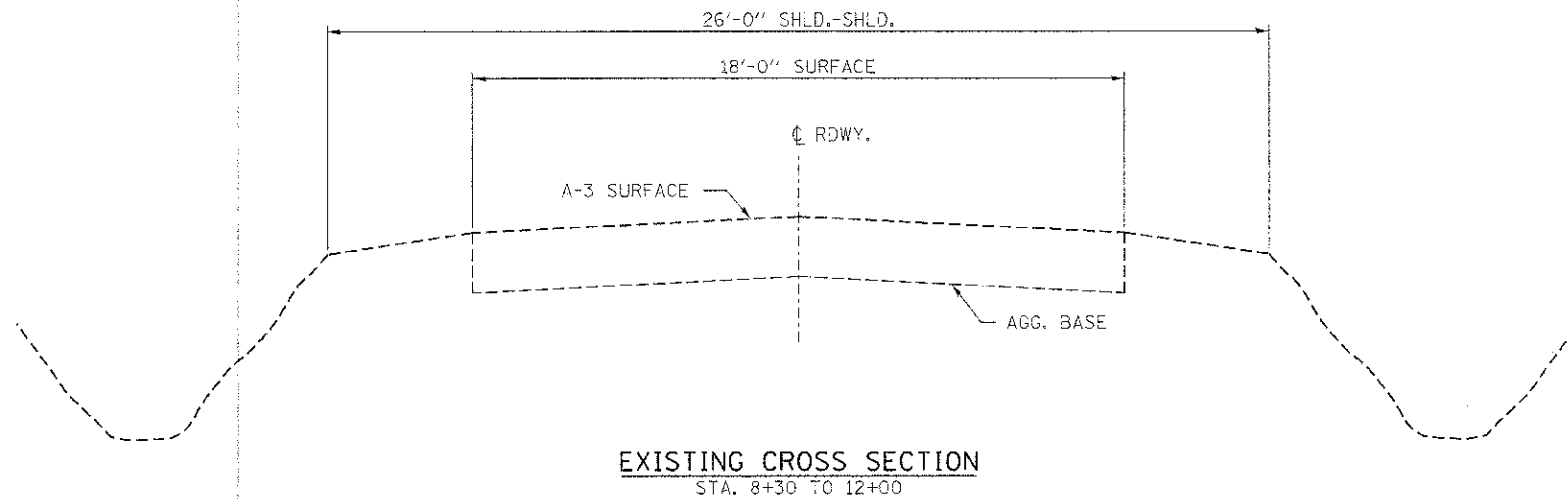
A SEE SPECIAL PROVISIONS * SPECIALTY ITEM

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.
- THE REVISION NUMBERS OF THE STANDARDS LISTED IN THE PLANS ARE TO BE USED FOR CONSTRUCTING THIS SECTION.
- ALL CLEARING AND GRUBBING, FENCE REMOVAL AND REMOVAL OF EXISTING DRAINAGE STRUCTURES SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION.
- THE LOCATION OF EXISTING GAS MAINS, ELECTRIC POWER LINES, TELEPHONE LINES AND OTHER UTILITIES AS SHOWN ON THE PLANS ARE BASED ON CAREFUL FIELD INVESTIGATIONS AND THE BEST INFORMATION AVAILABLE, BUT THE LOCATIONS ARE NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN THEIR EXACT LOCATION FROM THE INDIVIDUAL UTILITY COMPANIES AND BY FIELD INSPECTION. (None on this project.)
- 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 FOLLOWING RATES OF APPLICATION HAVE BEEN USED IN CALCULATING PLAN QUANTITIES:
 AGGREGATE SURFACE COURSE 2.05 TON/CU YD
 STONE RIPRAP 1.75 TON/CU YD
 STONE BEDDING 1.80 TON/CU YD
 POROUS GRANULAR EMBANKMENT, SPL 2.00 TON/CU YD
- THE AREA TO BE SEEDDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER.
ESTIMATED QUANTITY: SEEDING, CLASS 2 (SPECIAL) = 0.3 ACRES

EARTHWORK SCHEDULE							
LOCATION	EARTH EXCAVATION	CHANNEL EXCAVATION	SHRINKAGE FACTOR	PERCENT USED	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT REQUIRED	EARTHWORK BALANCE
	20200100 CU.YD.	20300100 CU.YD.			CU.YD.	CU.YD.	CU.YD.
TR 29 / 3000 N Road							
STA 8+30 TO STA 9+65.81	45		25.00%	100.00%	34	92	-58
STA 9+65.81 TO STA 10+40.19	0		25.00%	100.00%	0	0	0
STA 10+40.19 TO STA 12+00	46		25.00%	100.00%	35	57	22
CHANNEL EXCAVATION		185	25.00%	70.00%	97	0	97
ENTRANCE EMBANKMENT						11	-11
TOTAL	91	185			166	160	6
USE	90	185					6

WASTE 6 CU YDS



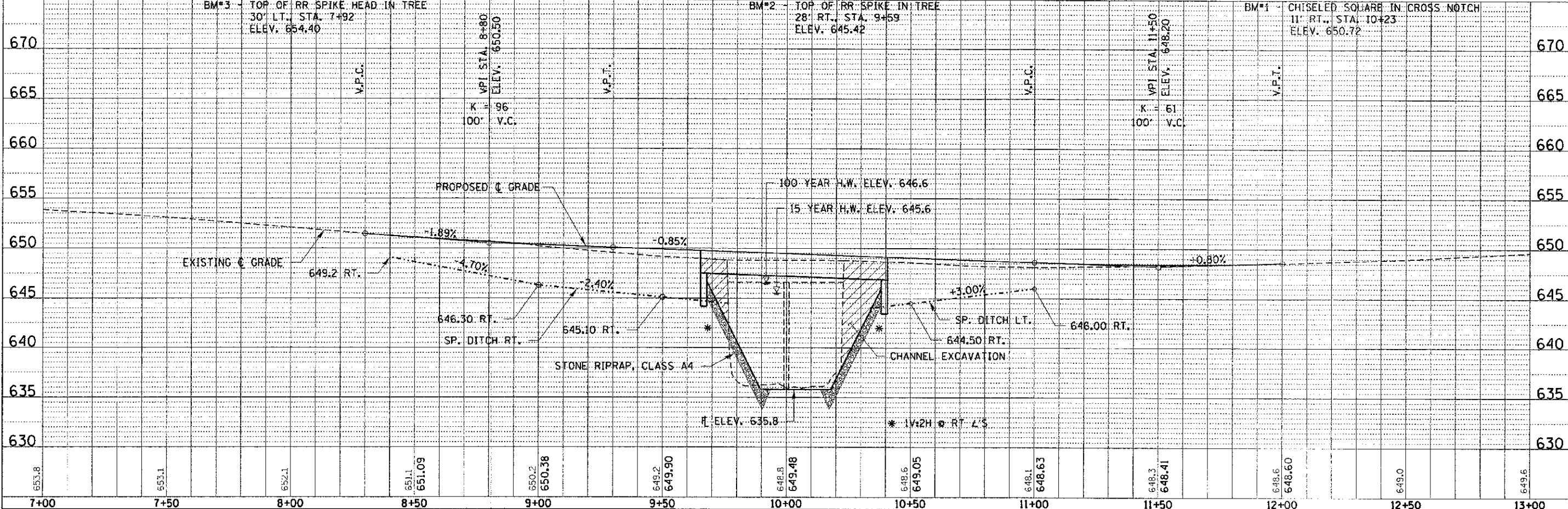
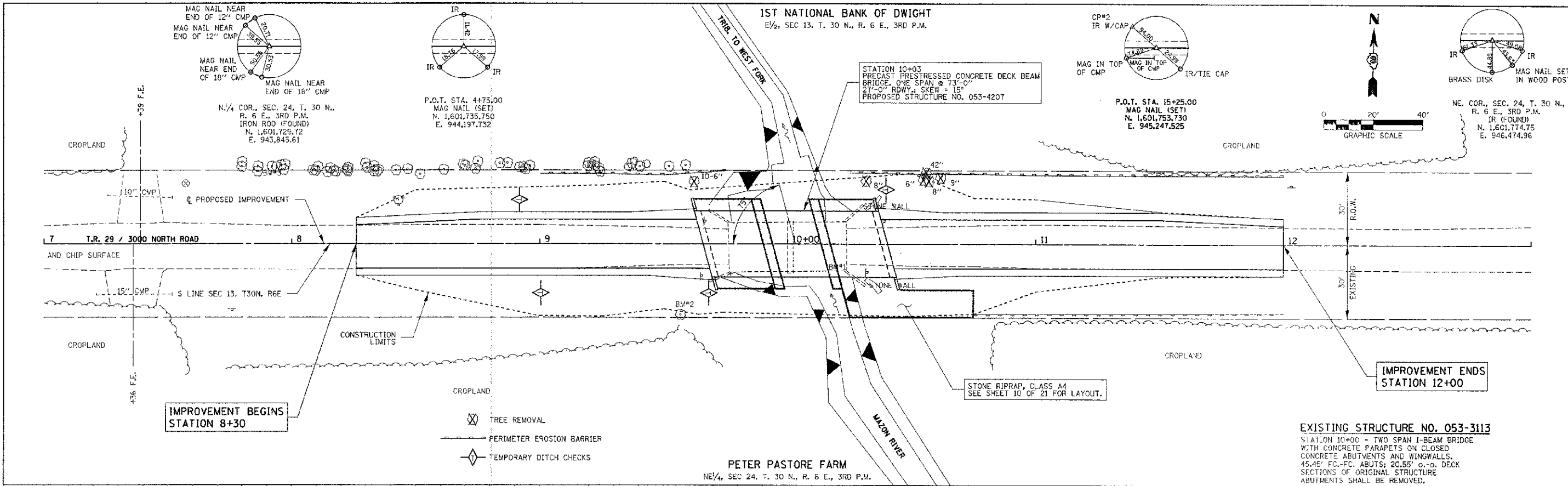
SUGGESTED CUT SECTION
CONSTRUCT AS SHOWN IN
STATION CROSS SECTIONS

SUGGESTED FILL SECTION
CONSTRUCT AS SHOWN IN
STATION CROSS SECTIONS

PROPOSED TYPICAL CROSS SECTION
STA. 8+30 TO 12+00

TRANSITIONS FROM THE PROPOSED ROADWAY TO THE EXISTING
ROADWAY ARE TO BE CONSTRUCTED FROM STA. 8+30 TO 8+80 AND
STA. 11+50 TO 12+00. SEE SHEET 10 FOR TRANSITION AT BRIDGE.

FILE NAME = 110246-ah-typosections.dgn	USER NAME =	DESIGNED - J.W.F.	REVISED -	STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT	TYPICAL CROSS SECTIONS			T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 290 S. SPRINGFIELD AVE., SUITE 200 SPRINGFIELD, ILLINOIS 62761	PLOT SCALE =	DRAWN - D.A.B.	REVISED -		29	11-16105-05-BR	LIVINGSTON	21	3			
ILLINOIS PROFESSIONAL ENGINEERING FIRM L31767-00-0000	PLOT DATE = 12/29/2012	CHECKED - S.W.M.	REVISED -		NEVADA ROAD DISTRICT			CONTRACT NO. 87536				
		DATE - 12/26/12	REVISED -		SCALE:	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.		ILLINOIS FED. AID PROJECT		



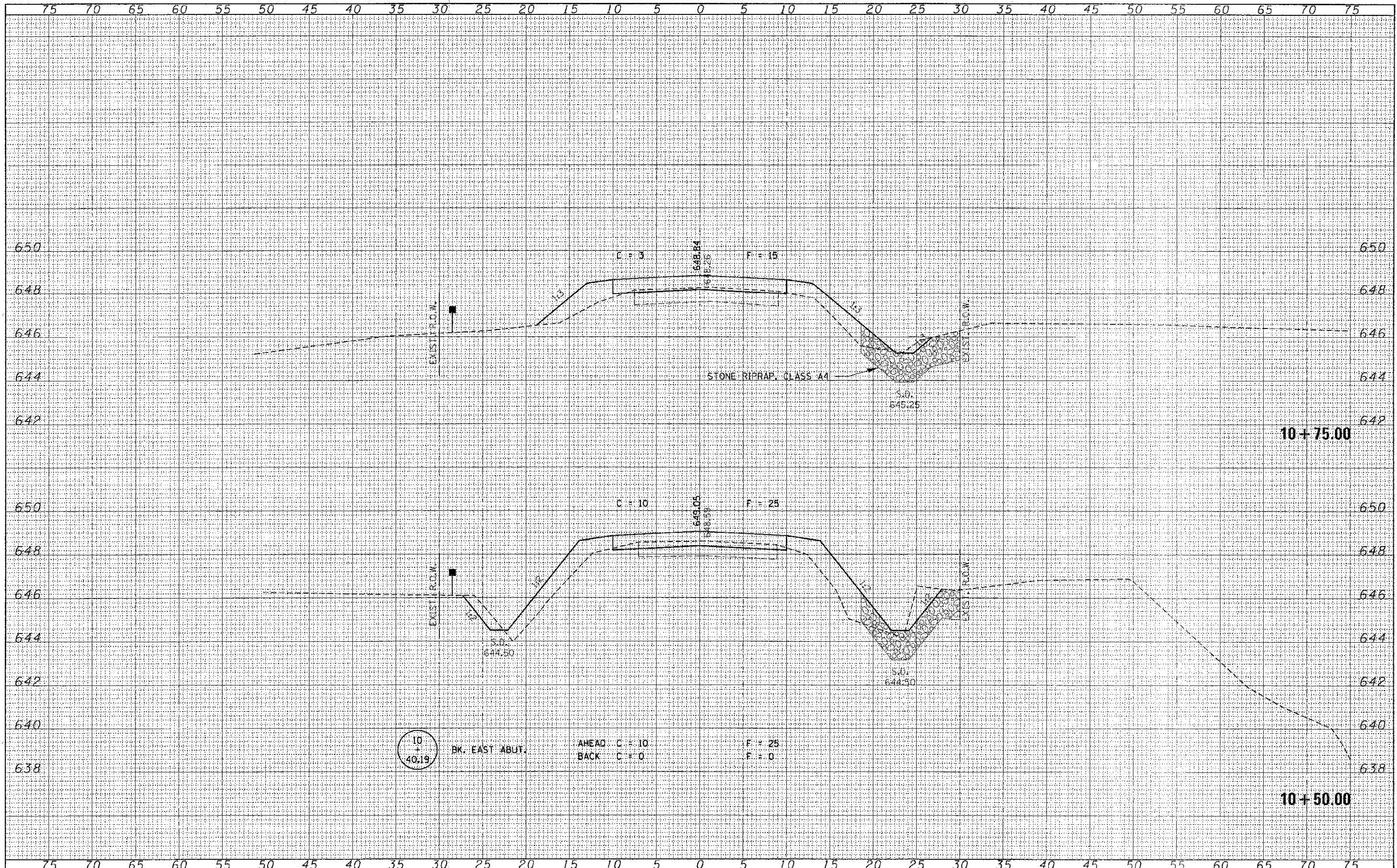
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BY	
REVISIONS	
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NO. 2	
NO. 3	
NO. 4	
NO. 5	
NO. 6	
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DATE	
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NO. 47	
NO. 48	
NO. 49	
NO. 50	

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HAMPTON, LENZINI AND RENWICK, INC.		DRAWN - L.G.C.	REVISED -						29	11-16105-05-BR	LIVINGSTON	21	4
3800 STE. WILSON DRIVE, SUITE 401 SPRINGFIELD, ILLINOIS 62769		CHECKED - S.W.M.	REVISED -						NEVADA ROAD DISTRICT				
ILLINOIS PROFESSIONAL DESIGN FIRM 2577 E. BE CONR. 184 00269		DATE - 12/26/12	REVISED -						CONTRACT NO. 87536				
										ILLINOIS FED. AID PROJECT			

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

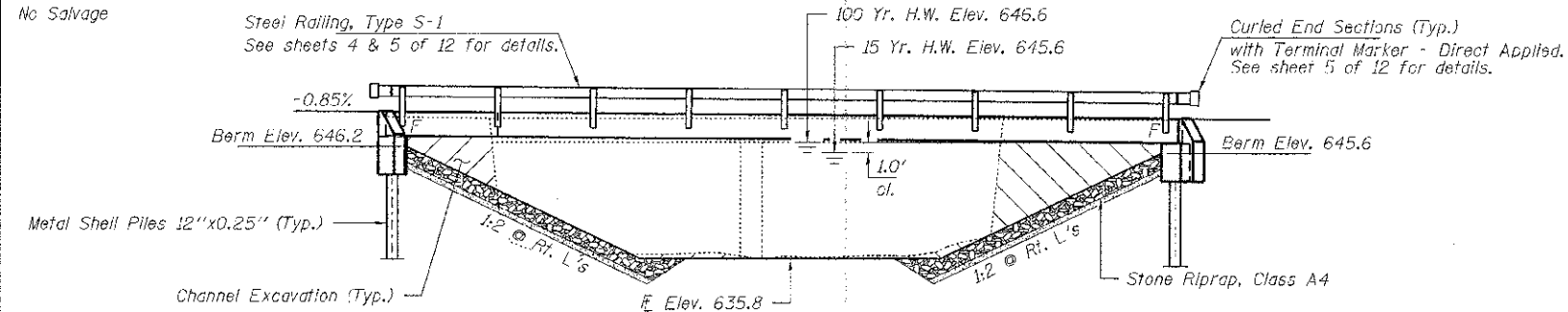
ORIGINAL SHEET	DATE
SURVEYED	BY
PLOTTED	
TEMPLATE	
NOTE BOOK	
NO.	
AREAS CHECKED	



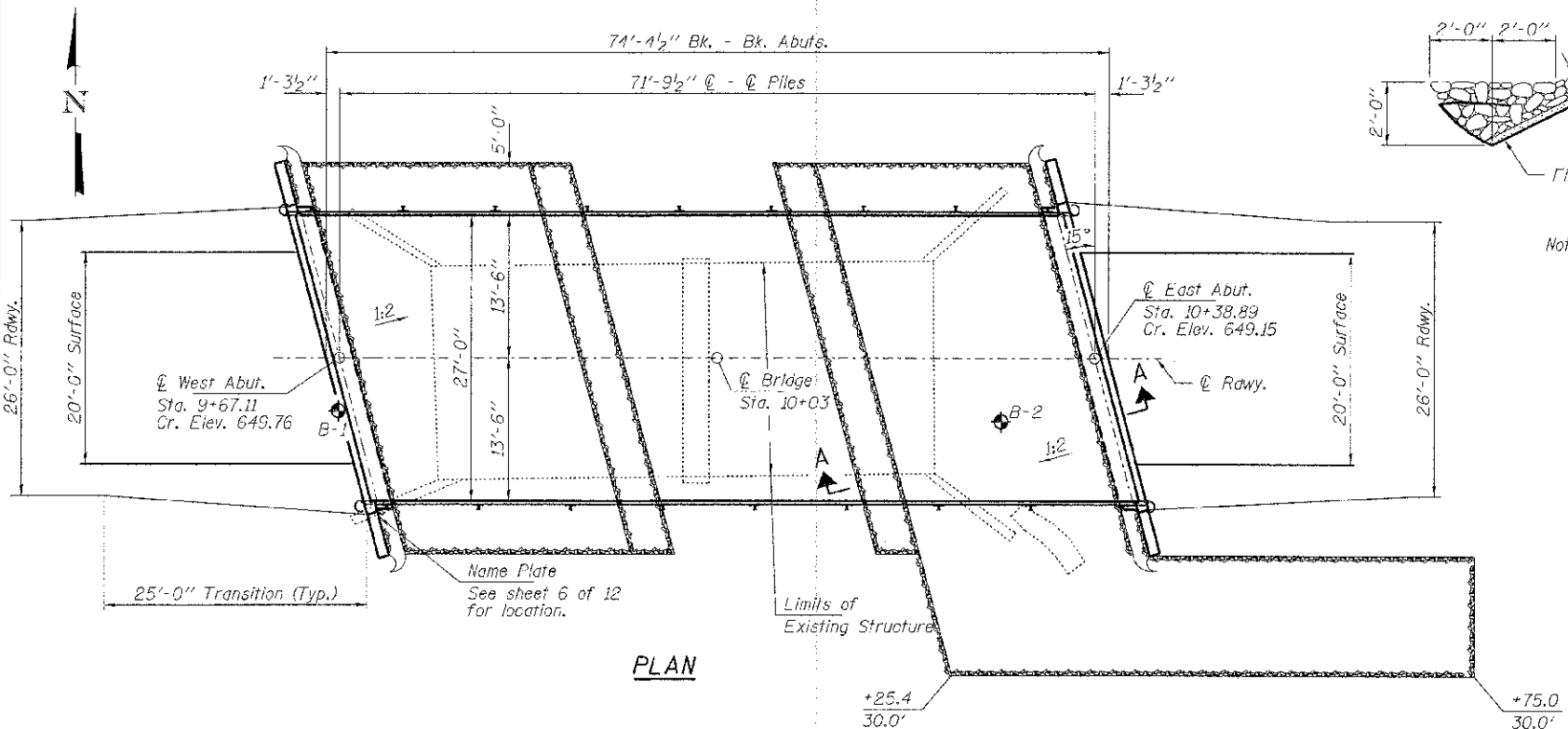
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HAMPTON, LENZINI AND RENWICK, INC.		DRAWN - L.G.C.	REVISED -		29	11-16105-05-BR	LIVINGSTON	21	9		
ILLINOIS PROFESSIONAL DESIGN P.M.	PLOT SCALE =	CHECKED - S.W.M.	REVISED -		NEVADA ROAD DISTRICT		CONTRACT NO. 87536				
ILLINOIS PROFESSIONAL DESIGN P.M.	PLOT DATE = 12/26/2012	DATE - 12/26/12	REVISED -		SCALE:		SHEET NO. 4 OF 5 SHEETS		STA. 10+50.00 TO STA. 10+75.00		ILLINOIS FED. AID PROJECT

BENCHMARK: Top of Railroad Spike in Tree. 28' Rt., Sta. 9+59, Elev. 645.42
 EXISTING STRUCTURE: Sta. 10+00 - Two span I-beam bridge with concrete parapets on closed concrete abutments and wingwalls. 45.45' Fc.-Fc. Abuts.; 20.55' o.-o. Deck.
 Structure closed to traffic during construction.

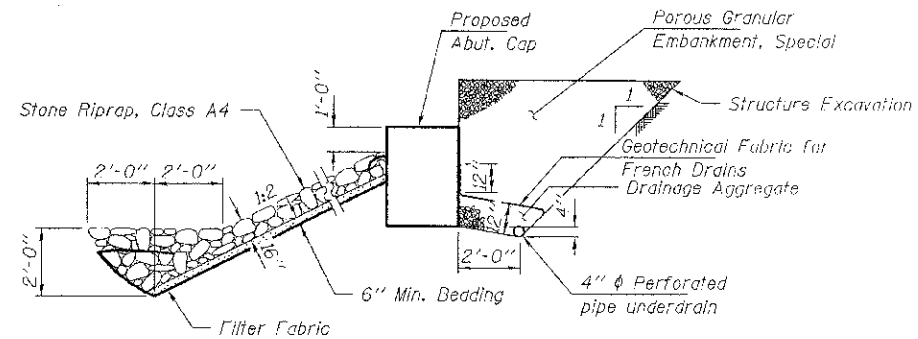
No Salvage



ELEVATION

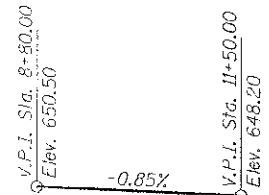


PLAN



SECTION A-A

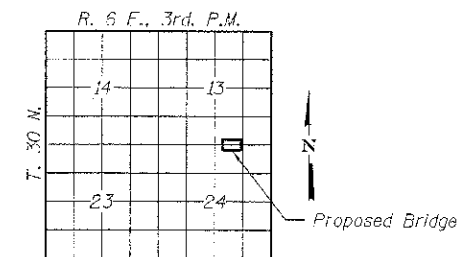
Note: See Special Provisions for Stone Riprap, Class A4.



PROFILE GRADE

INDEX OF STRUCTURE SHEETS

1. General Plan & Elevation
2. 27"x36" PPC Deck Beam
3. 27"x36" PPC Deck Beam Details
4. Superstructure Details
5. Steel Railing, Type S-1
6. West Abutment
7. East Abutment
8. Metal Shell Details
- 9-12. Borings



LOCATION SKETCH

BUILT 201 BY
 LIVINGSTON COUNTY
 SEC. 11-16105-05-BR
 NEVADA ROAD DISTRICT
 STR. NO. 053-4207
 LOADING HL-93

NAME PLATE
 See Std. 515001

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
 fy = 60,000 psi (Reinf.)

PRECAST PRESTRESSED UNITS

f'c = 6,000 psi
 f'ci = 5,000 psi
 fpu = 270,000 psi (1/2" φ low lax. strands)
 fpbt = 201,960 psi (1/2" φ low lax. strands)
 fy = 60,000 psi (Reinf.)

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. (S₁) = 0.130g
 Design Spectral Acceleration at 0.2 sec. (S_{0.2}) = 0.075g
 Soil Site Class = C

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	W. Abut.	E. Abut.
	643.6	643.0

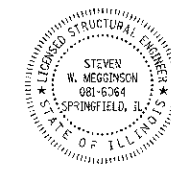
WATERWAY INFORMATION

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.	Natural Head - Ft.		Headwater El.	
				Exist.	Prop.	Exist.	Prop.
Design	10	845	400	645.31	0.05	0.05	645.36/645.36
Base	100	1370	450	646.63	0.21	0.16	646.84/646.79
Max. Calc.	500	1720	450	647.19	0.19	0.27	647.38/647.46

Drainage Area = 18.0 Sq. Mi. Existing Low Grade Elev. 648.1 @ Sta. 11+00
 Proposed Low Grade Elev. 648.4 @ Sta. 11+50

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 12/26/2012
 ILLINOIS STRUCTURAL ENGINEER NO. 081-6064

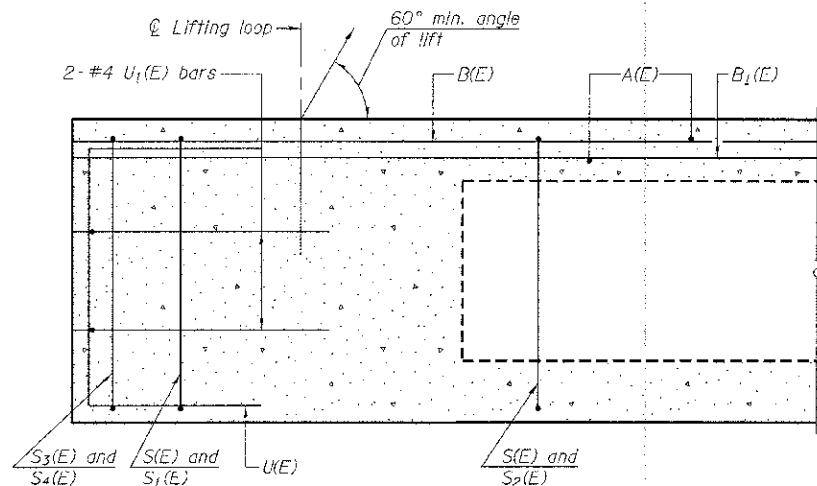


Expires 11-30-2014

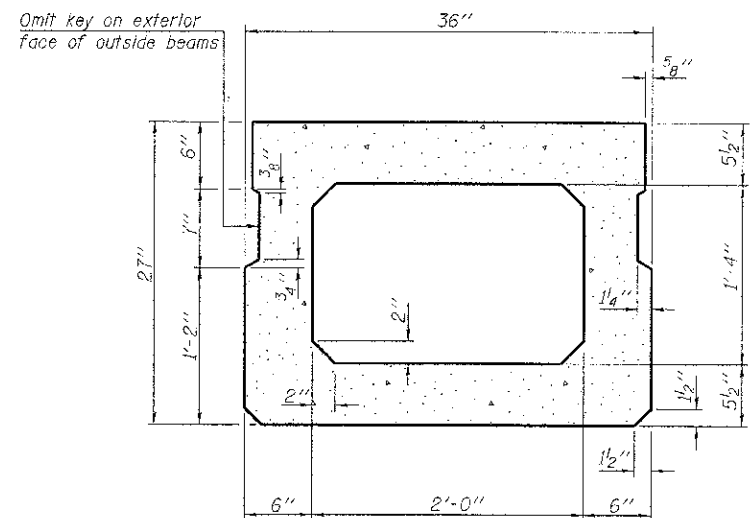
TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			185
Stone Riprap, Class A4	Sq. Yd.			300
Filter Fabric	Sq. Yd.			300
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		26.6	26.6
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1,971		1,971
Reinforcement Bars	Pound		2,760	2,760
Steel Railing, Type S1	Foot	144		144
Metal Shell Piles 12"x0.25"	Foot		450	450
Driving Piles	Foot		450	450
Test Pile Metal Shell 12"x0.25"	Each		1	1
Name Plates	Each		1	1
Porous Granular Embankment, Special	Ton		120	120
Pipe Underdrains for Structures 4"	Foot		90	90

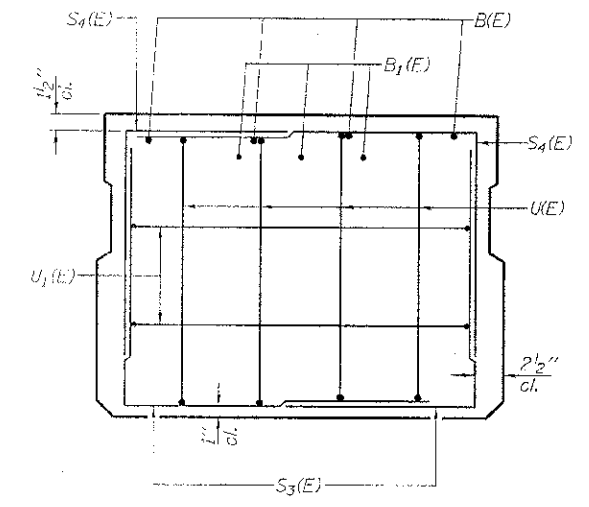
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HAMPTON, LENZINI AND RENWICK, INC.	PI OF SCALE =	CHECKED - S.W.M.	REVISD -			29	11-16105-05-BR	LIVINGSTON	21	10
1111 N. STATE ST. SUITE 201 SPRINGFIELD, ILLINOIS 62761	PILOT DATE = 12/26/2012	DRAWN - D.A.S.	REVISD -			NEVADA ROAD DISTRICT				
ILLINOIS PROFESSIONAL DESIGN FIRM 131/99-150-0000P 1A-00000A		CHECKED - S.W.M.	REVISD -			ILLINOIS FED. AID PROJECT				CONTRACT NO. 87536



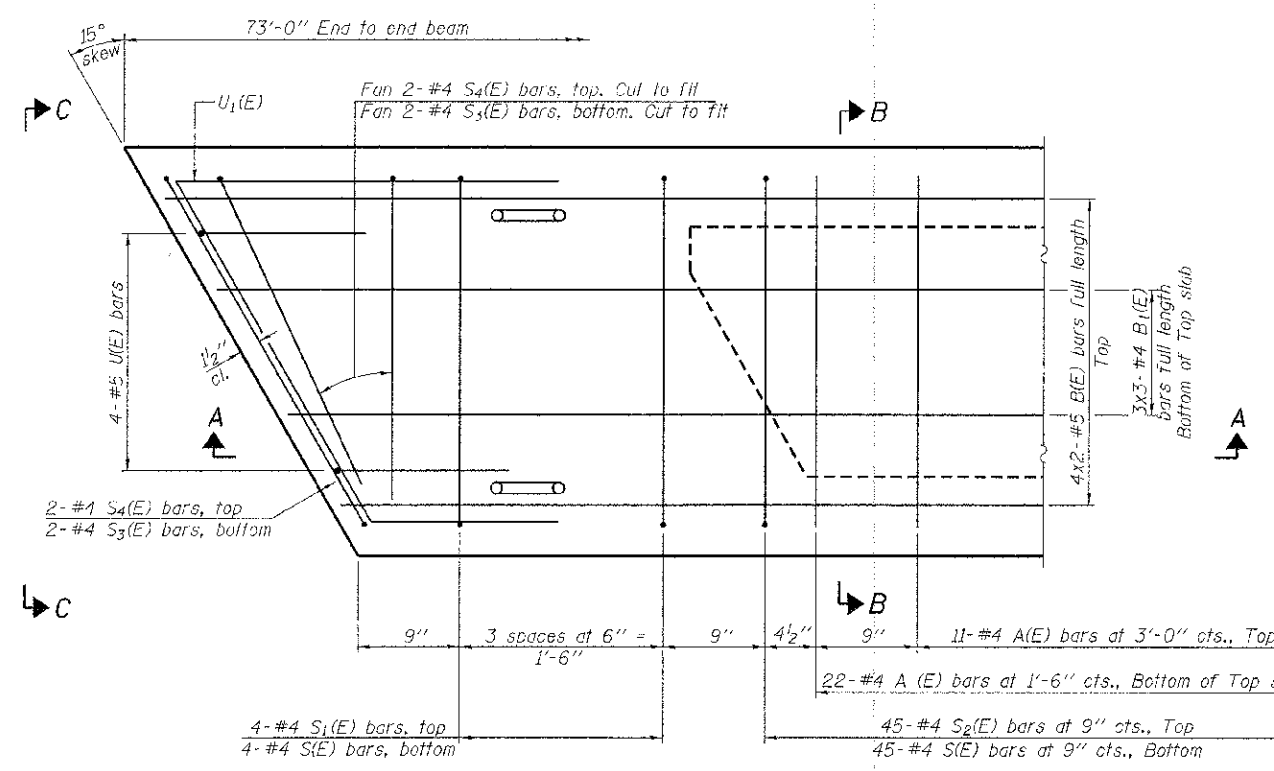
SECTION A-A



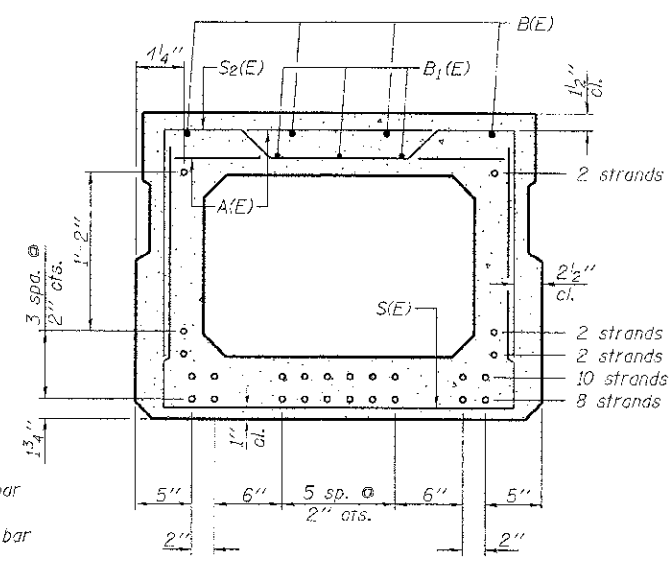
SECTION B-B
(Showing dimensions)



VIEW C-C



PLAN VIEW



SECTION B-B

(Showing reinforcement and permissible strand locations)
 Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

BAR LIST
 ONE BEAM ONLY
 (For information only)

Bar	No.	Size	Length	Shape
A(E)	68	#4	2'-7"	—
B(E)	8	#5	37'-8"	—
B1(E)	9	#4	25'-7"	—
S(E)	98	#4	6'-5"	U
S1(E)	8	#4	5'-11"	U
S2(E)	90	#4	6'-2"	U
S3(E)	8	#4	4'-2"	U
S4(E)	8	#4	3'-11"	U
UK(E)	8	#5	4'-6"	C
U1(E)	4	#4	5'-9"	C

Note: See sheet 3 & 4 of 12 for additional details and Bill of Material.

Notes:
 Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.
 Bars Indicated thus 4x2-#5 etc. Indicates 1 line of bars with 2 lengths per line.

MINIMUM BAR LAP

#4 bar = 2'-0"
 #5 bar = 2'-6"

PD-2736-R 7-1-10

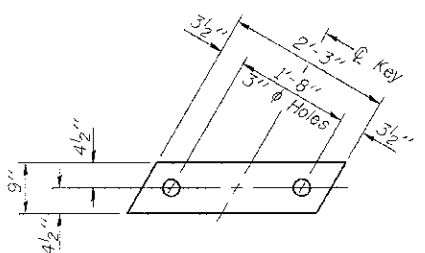
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3005 STEVENSON DRIVE, SUITE 201 2700 W. 116TH ST., NILES, IL 60562	PLOT SCALE =	DRAWN - D.A.B.	REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM LB-735 (66 GC) RP - 104.00000	PLOT DATE = 12/28/2012	CHECKED - S.W.M.	REVISED -

STATE OF ILLINOIS
 LIVINGSTON COUNTY HIGHWAY DEPARTMENT

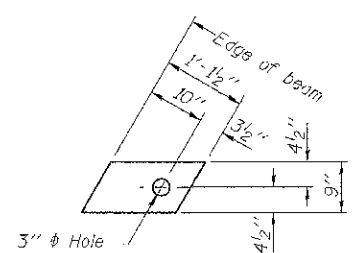
27" x 36" PPC DECK BEAM
 STRUCTURE NO. 053-4207

SHEET NO. 2 OF 12 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
28	11-16105-05-BR	LIVINGSTON	21	11
NEVADA ROAD DISTRICT		CONTRACT NO. 87536		
ILLINOIS FED. AID PROJECT				



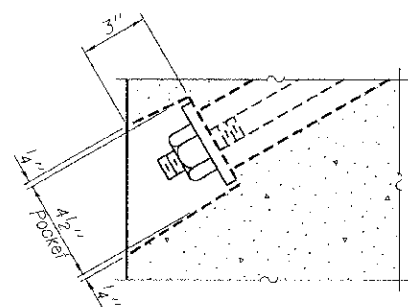
FABRIC BEARING PAD
(Interior - 16 Req'd)



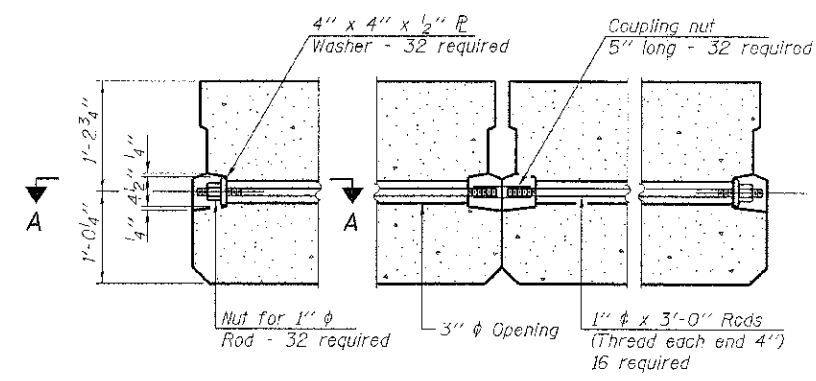
FABRIC BEARING PAD
(Exterior - 4 Req'd)

FIXED

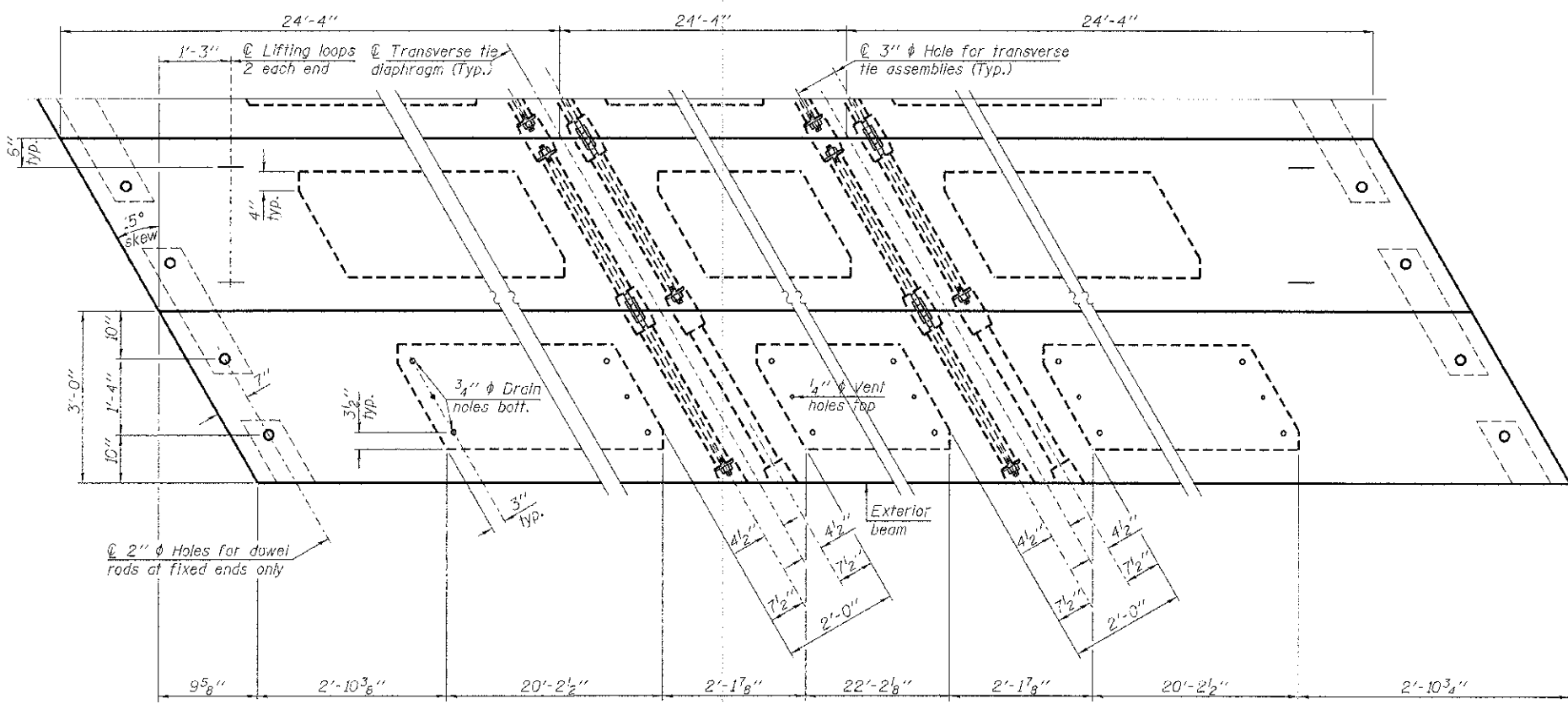
Notes:
All bearing pads shall be 1" thick.
Omit holes when using expansion bearings.
Expansion bearing pad shall be bonded to the substructure.



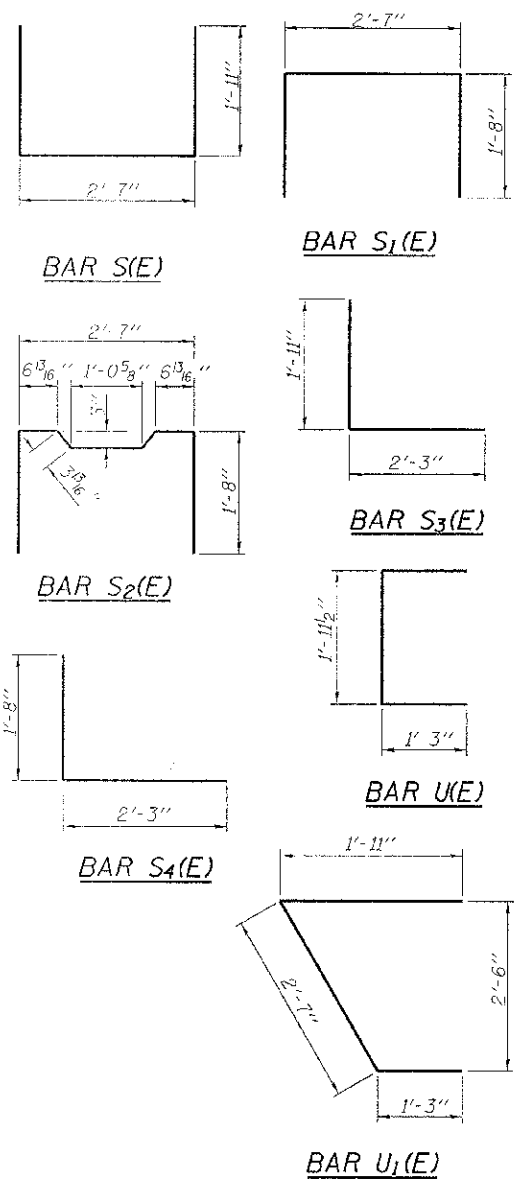
SECTION A-A



TYPICAL TRANSVERSE TIE ASSEMBLY

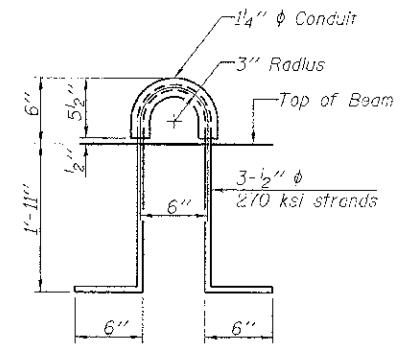


PLAN VIEW



BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1.971
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LIFTING LOOP DETAIL

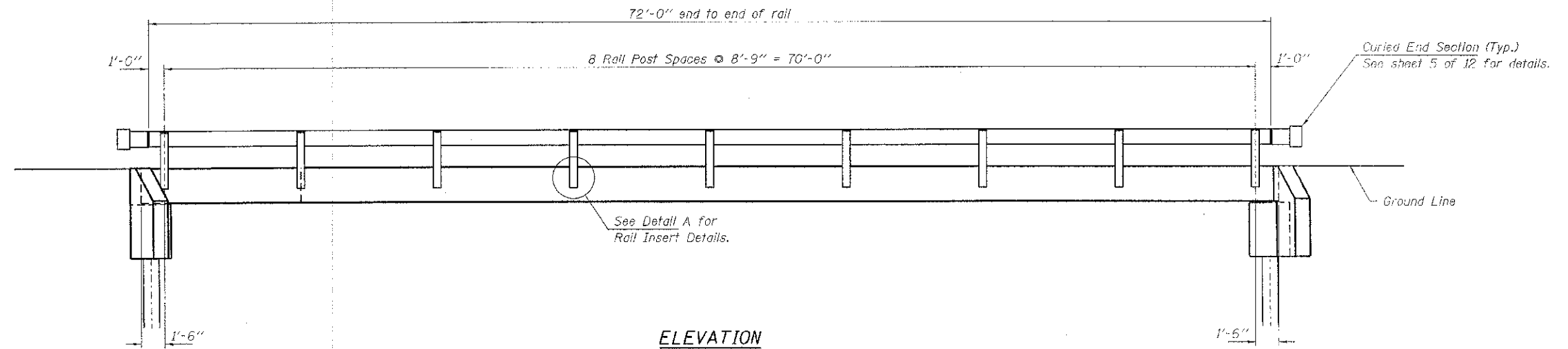
NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" diameter rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.
Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions).
Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.
A minimum 2 1/2" diameter lifting pin shall be used to engage the lifting loops during handling.
Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.07 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.
Compressive strength of prestressed concrete, f'c, shall be 6000 psi.
Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.
All reinforcement shall be epoxy coated.

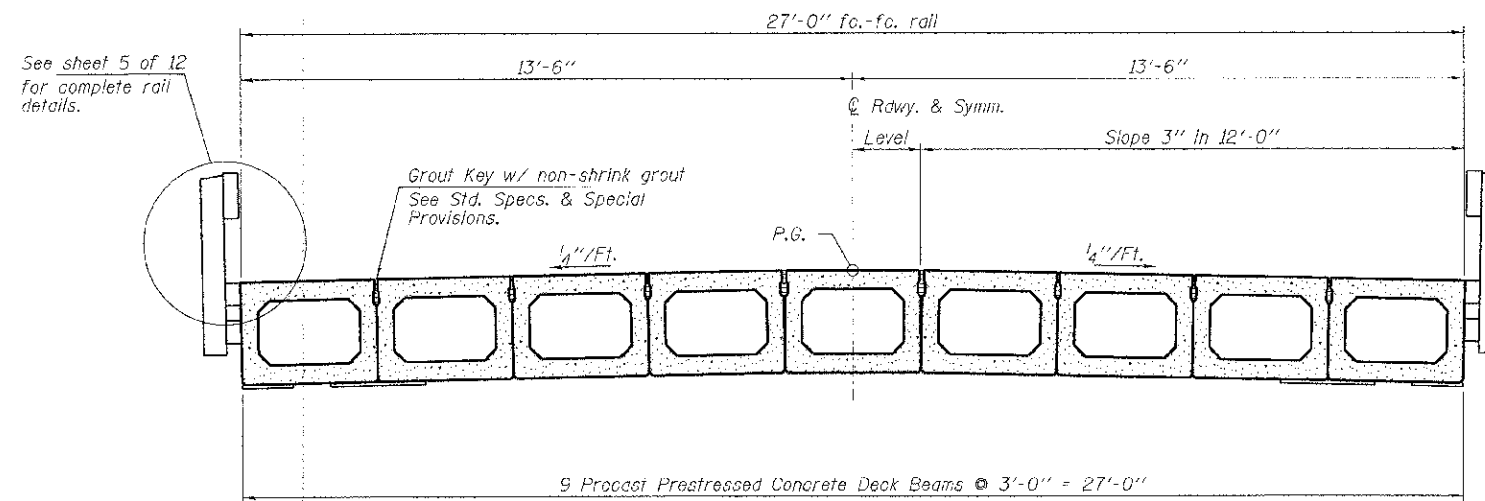
Note: Connect beams in pairs with the transverse tie configuration shown.

PD-2736-RD 7-1 10

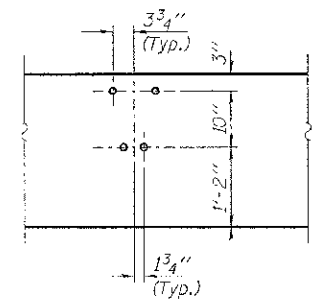
FILE NAME = 11R246-shc-bridge.dgn	USER NAME =	DESIGNED - D.A.B.	REVISED -	STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT	27" x 36" PPC DECK BEAM DETAILS STRUCTURE NO. 053-4207	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
HAMPTON, LENZINI AND RENWICK, INC. 200 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62761	PLOT SCALE =	CHECKED - S.W.M.	REVISED -			29	11-16105-05-BR	LIVINGSTON	21	12	
ILLINOIS PROFESSIONAL DESIGNER LS/PE/SE/CE/CP/EA/LS/CS/ES	PLOT DATE = 12/28/2012	DRAWN - D.A.B.	REVISED -			NEVADA ROAD DISTRICT	CONTRACT NO. 87536				
		CHECKED - S.W.M.	REVISED -			ILLINOIS FED. AID PROJECT					



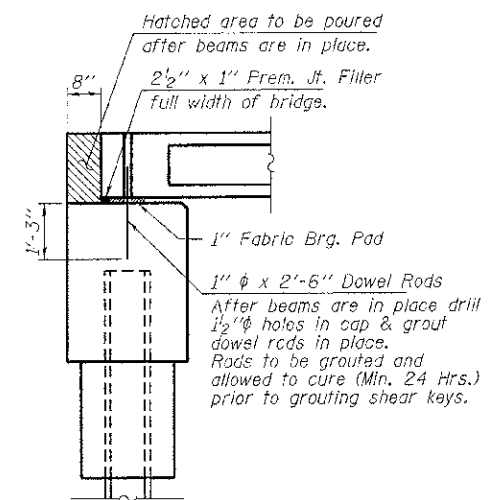
ELEVATION
Showing Rail Post Spaces
See sheet 5 of 12 for Railing Details.



CROSS SECTION
See sheets 2 & 3 of 12 for Superstructure.

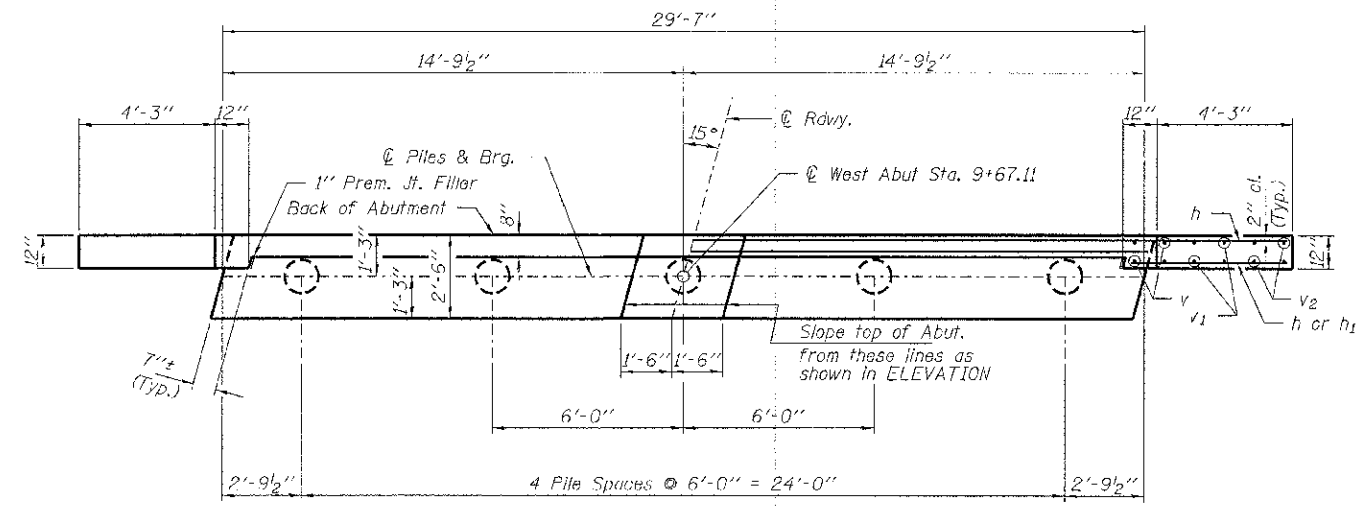


DETAIL A

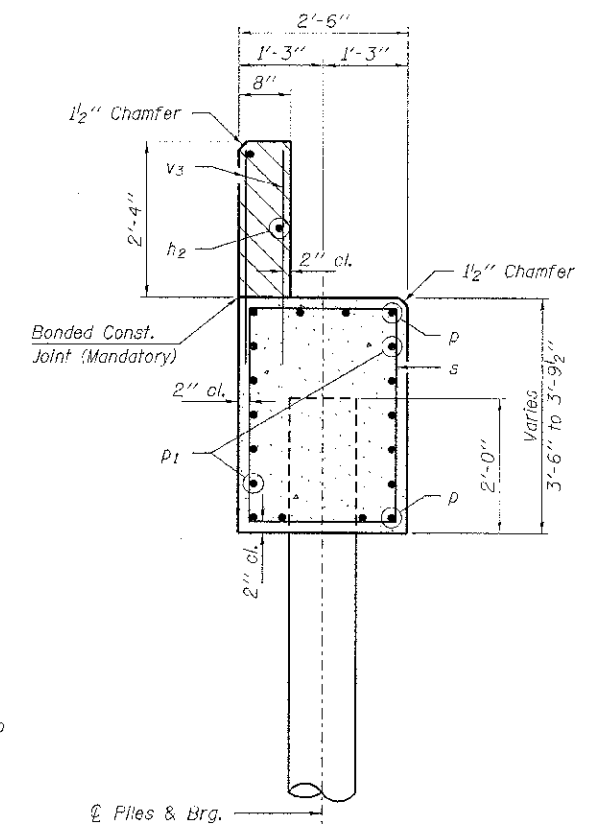


SECTION AT ABUTMENTS
@ Rt. L's

FILE NAME = 110245-shr-bridge.dgn	USER NAME =	DESIGNED - D.A.B.	REVISED -	STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT	SUPERSTRUCTURE DETAILS STRUCTURE NO. 053-4207	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
HAMPTON, LENZINI AND RENWICK, INC. 3943 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62705	PLOT SCALE =	CHECKED - S.W.M.	REVISED -			29	11-16105-05-89	LIVINGSTON	21	13	
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE, SEC. 184 & 185	PLOT DATE = 12/26/2012	DRAWN - D.A.B.	REVISED -			NEVADA ROAD DISTRICT	CONTRACT NO. 87536				
		CHECKED - S.W.M.	REVISED -			ILLINOIS FED. AID PROJECT					

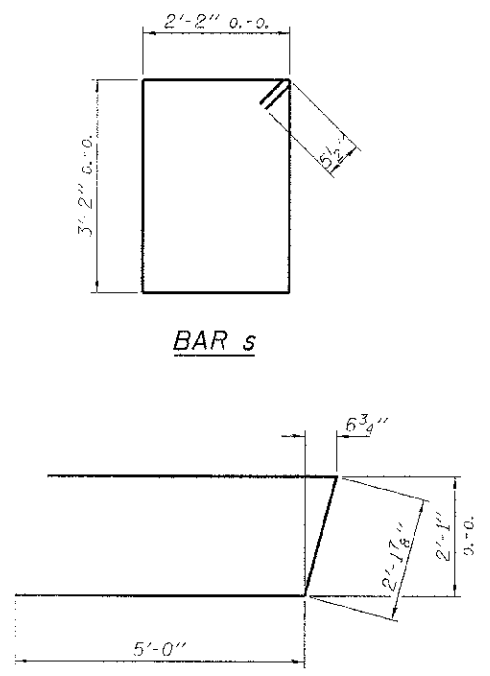


PLAN



SECTION A-A

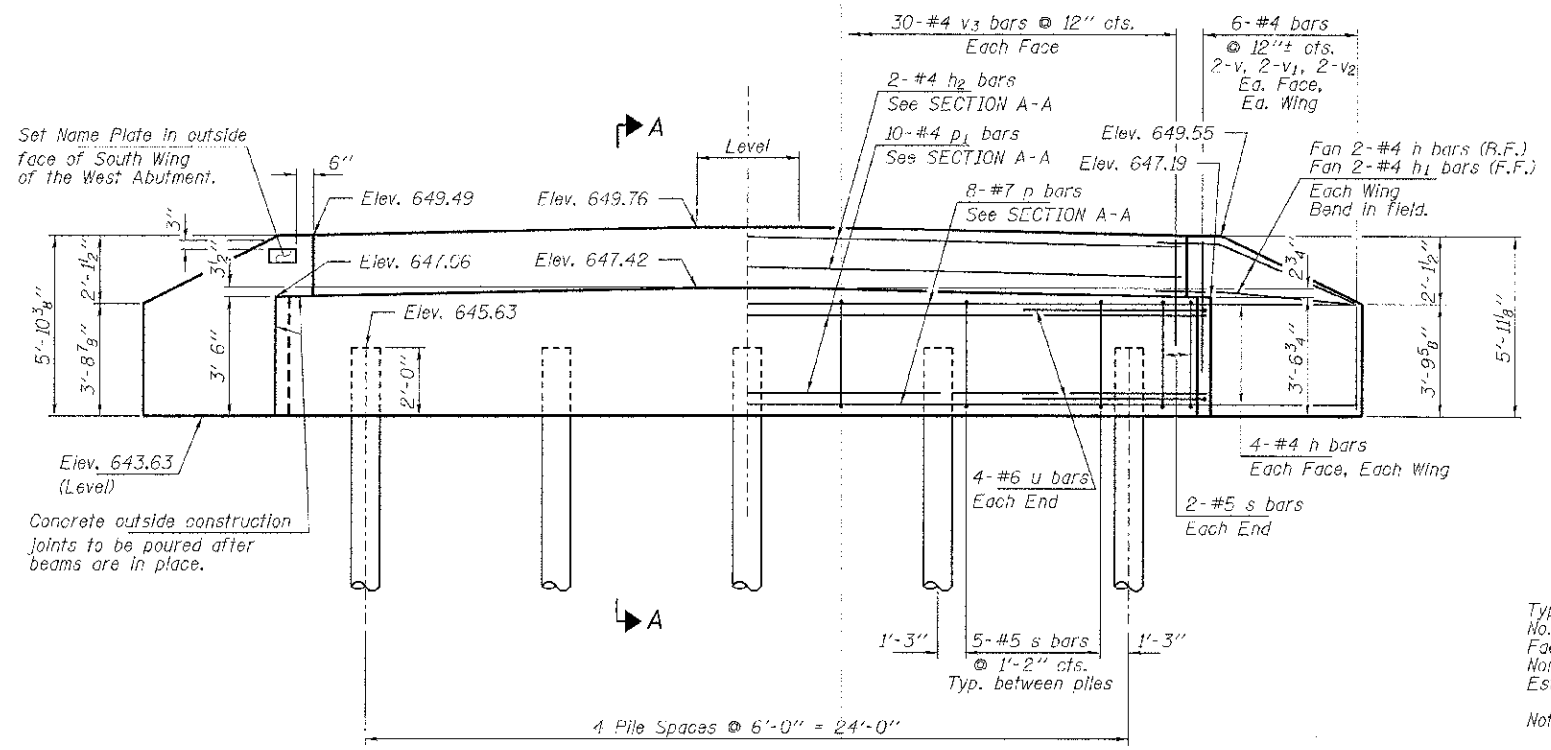
Hatched area to be poured after beams are in place.



BAR s

BAR u

Note: Extend h bars into abutment cap.



ELEVATION

(Looking West)

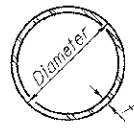
PILE DATA

Type ----- Metal Shells 12"x0.25"
 No. Req'd. (W. Abut.) ----- 5
 Factored Resistance Available (Rf) ----- 167 Kips/Pile
 Nominal Required Bearing (Rn) ----- 304 Kips/Pile
 Est. Length ----- 50 Ft/Pile

Notes * Includes one test pile to be driven in permanent location at the South Abutment.
 The test piles shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.

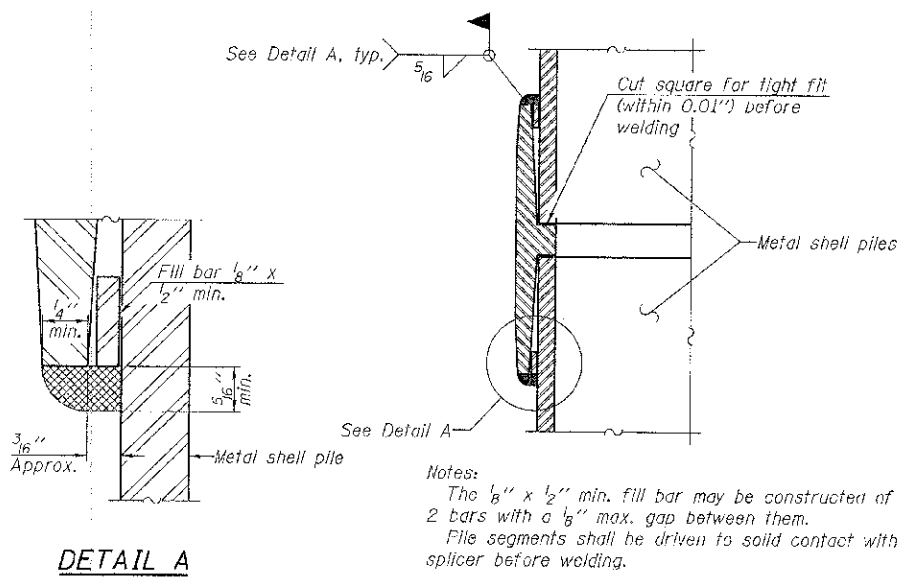
BILL OF MATERIAL - E. ABUT.

BAR	NO.	SIZE	LENGTH	SHAPE
h	20	#4	6'-6"	—
h1	4	#4	5'-0"	—
h2	2	#4	29'-3"	—
p	8	#7	29'-3"	—
p1	10	#4	29'-3"	—
s	24	#5	11'-7"	□
u	8	#6	12'-2"	U
v	8	#4	5'-5"	—
v1	8	#4	4'-5"	—
v2	8	#4	3'-5"	—
v3	60	#4	3'-2"	—
Concrete Structures			Cu. Yd.	13.3
Reinforcement Bars			Found	1,380
Metal Shell Piles 12"x0.25"			Foot	250
Test Pile Metal Shell			Each	1



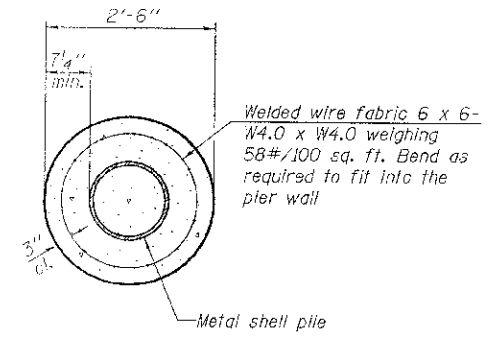
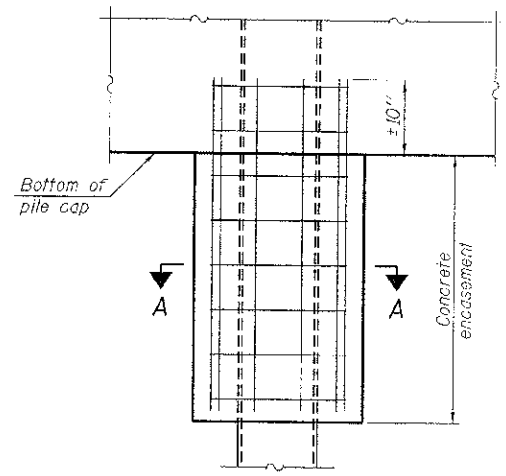
METAL SHELL PILE TABLE

Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd. ³ /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



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.

WELDED COMMERCIAL SPLICE

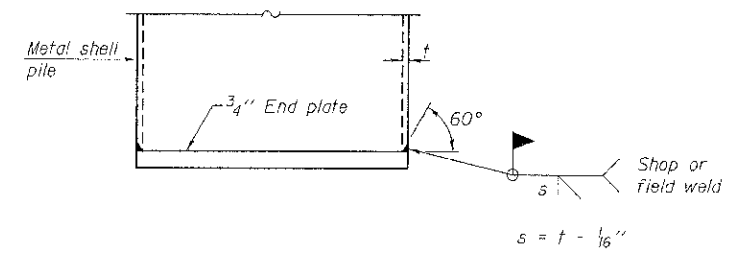


SECTION A-A

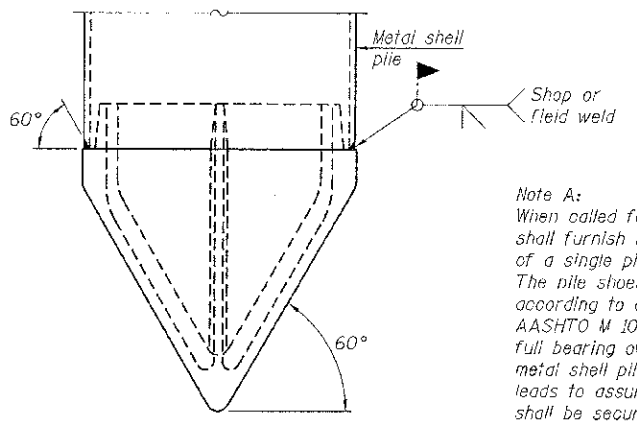
Note:
 Forms for encasement may be omitted when soft conditions permit.

ELEVATION

CONCRETE ENCASEMENT AT PIERS



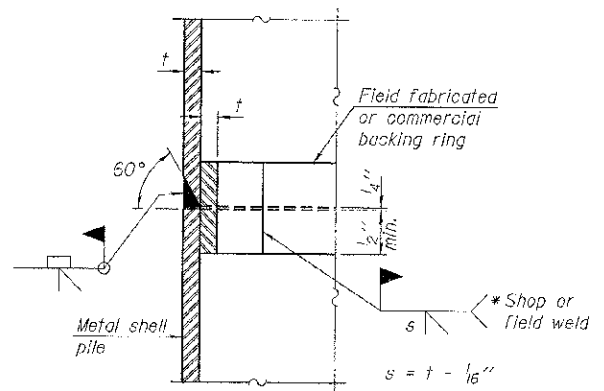
END PLATE ATTACHMENT



METAL SHELL PILE SHOE ATTACHMENT

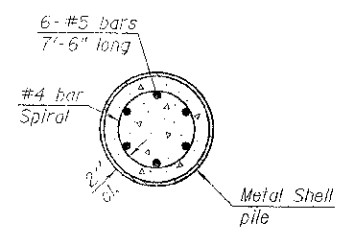
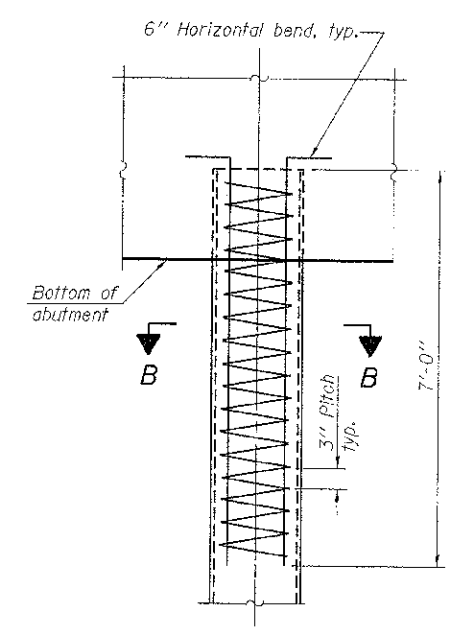
(See Note A)

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 shoes 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.



SECTION B-B

ELEVATION

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 = 110246-shc-bridge.dgn	USER NAME =	DESIGNED - D.A.B.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC.		CHECKED - S.W.M.	REVISED -
2010 B'VENUE DRIVE, SUITE 501		DRAWN - D.A.B.	REVISED -
SPRINGFIELD, ILLINOIS 62761	PLOT SCALE =	CHECKED - S.W.M.	REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM	PLOT DATE = 12/26/2012		
1517 E. STATE ST. #420			

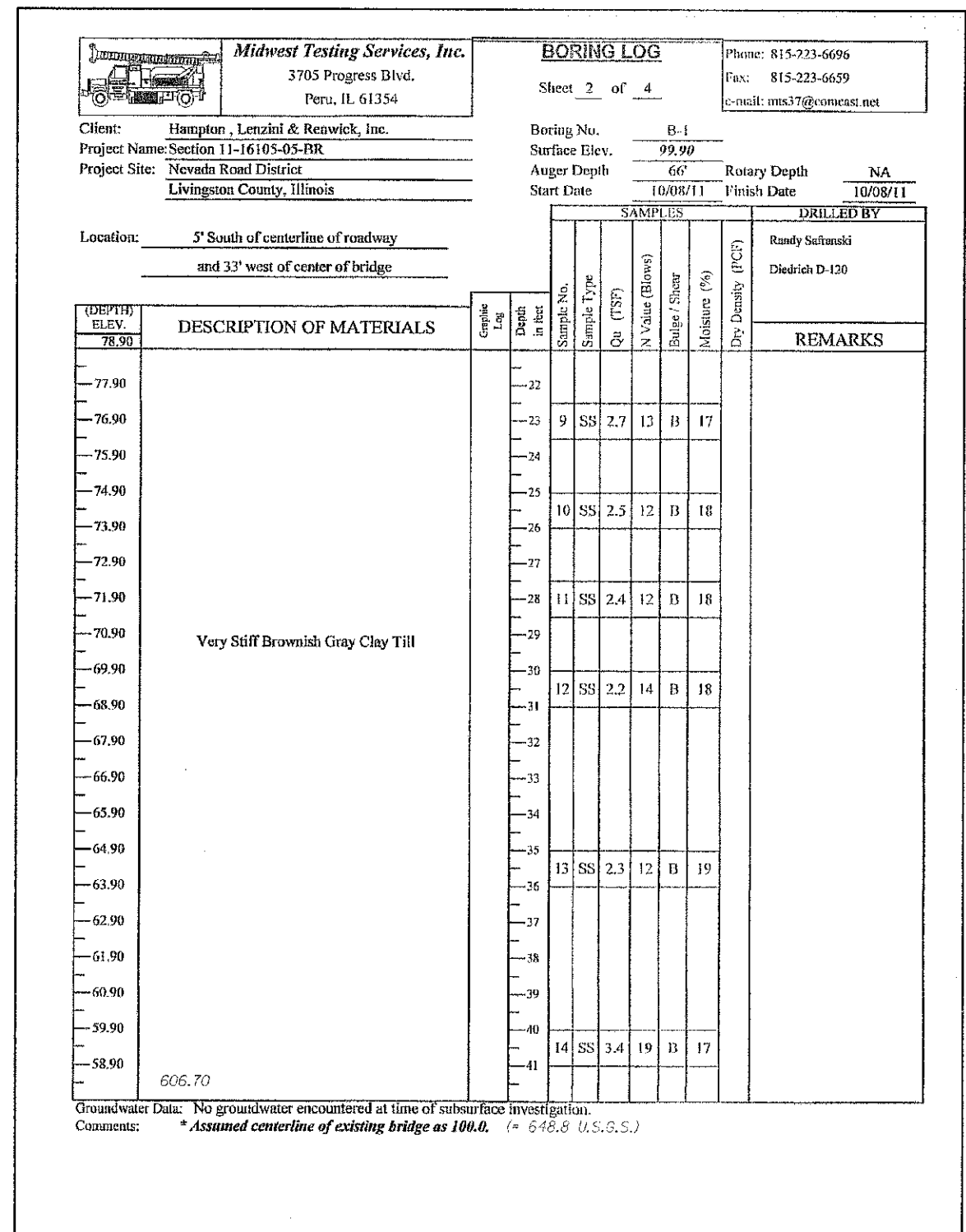
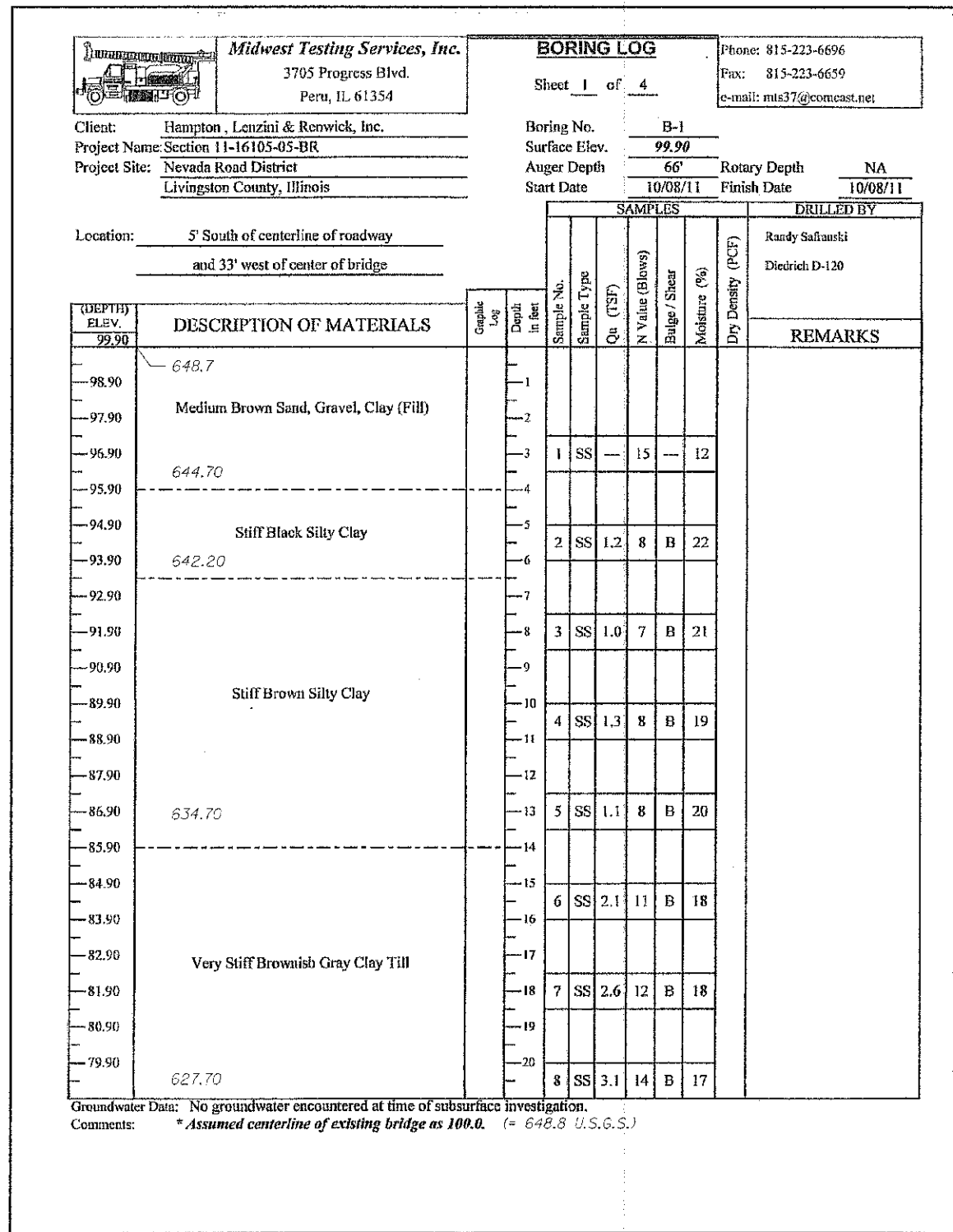
STATE OF ILLINOIS
 LIVINGSTON COUNTY HIGHWAY DEPARTMENT

METAL SHELL PILE DETAILS
 STRUCTURE NO. 4207

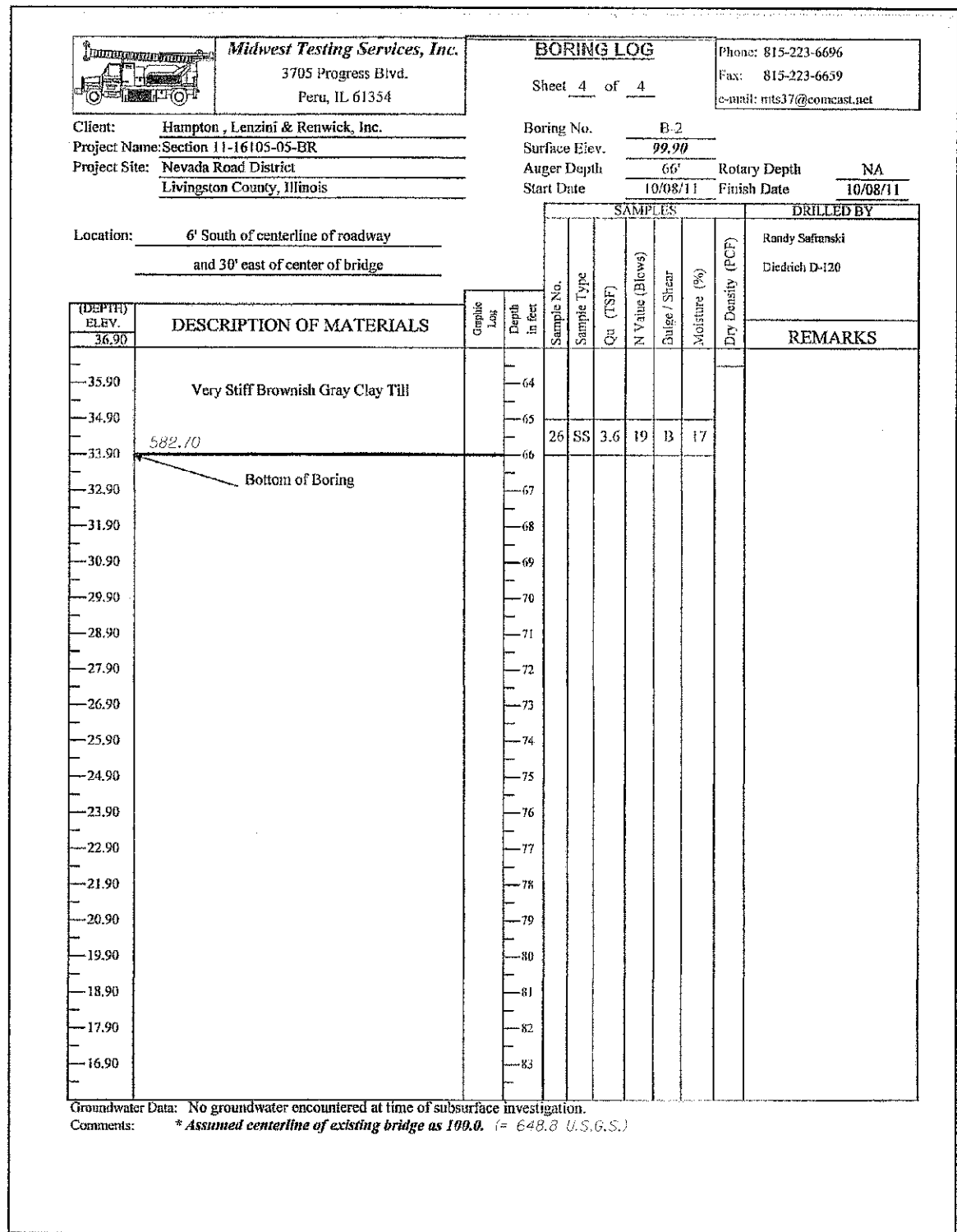
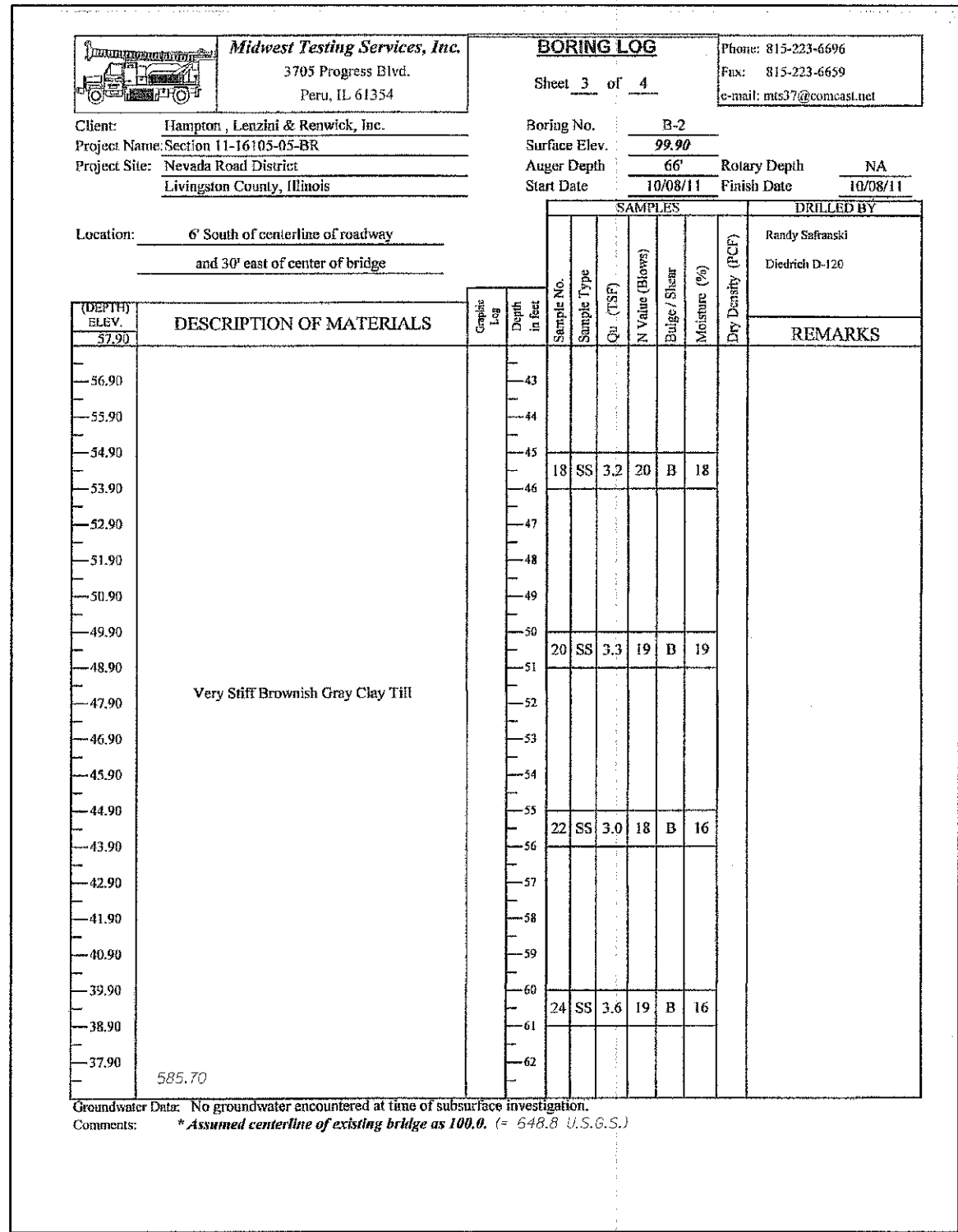
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
29	11-16105-05-99	LIVINGSTON	21	17
NEVADA ROAD DISTRICT		CONTRACT NO. 87536		

SHEET NO. 8 OF 12 SHEETS

ILLINOIS FED. AID PROJECT



B-1



B-2