1-15-10 Letting, Item 055

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 348	07-09101 -02-BR	SANGAMON	16	1
FED. ROAD DIST. NO. 6		ILLINOIS	CONTRACT NO. 93507	

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	SUMMARY OF QUANTITIES AND TYPICAL SECTIONS
3.	PLAN AND PROFILE
4.-8.	STATION CROSS SECTIONS
9.-15.	BRIDGE PLANS
16.	BORINGS

HIGHWAY STANDARDS:

000001-05	STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
515001-03	NAME PLATE FOR BRIDGES
630301-05	SHOULDER WIDENING FOR TYPE I (SPECIAL) GUARDRAIL TERMINALS
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
635011-02	REFLECTOR MARKER AND MOUNT DETAILS
701901-01	TRAFFIC CONTROL DEVICES
BLR 21-8	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
BLR 27-1	TRAFFIC BARRIER TERMINAL, TYPE 5

DESIGN DESIGNATION

FUNCTIONAL CLASSIFICATION: LOCAL ROAD (0-250 ADT)
DESIGN SPEED: 30 MPH
DESIGN TRAFFIC: 240 ADT (2009)
DESIGN GUIDELINES: 3R (APPROACHES)

UTILITIES

AT&T/DISTRIBUTION
529 S. SEVENTH ST.
SPRINGFIELD, IL 62703

COMCAST
711 S. DIRKSEN PARKWAY
SPRINGFIELD, IL 62703

AMEREN/CILCO
825 N. MACARTHUR
SPRINGFIELD, IL 62702

0 100' 200' 300' — 1" = 100'
0 10' 20' 30' — 1" = 10'
0 50' 100' — 1" = 50'
0 50' 100' — 1" = 40'
0 50' 100' — 1" = 30'
0 50' 100' — 1" = 20'

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.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLANS FOR PROPOSED HIGHWAY BRIDGE PROGRAM

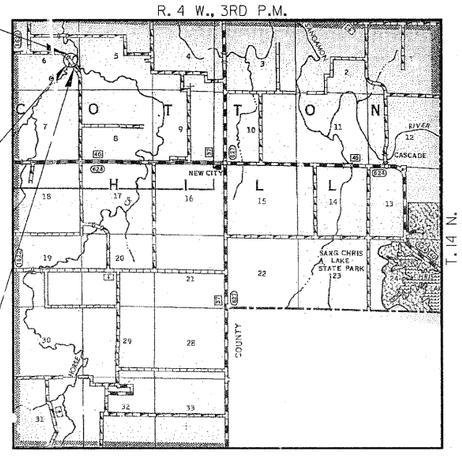
PROJECT BROS-167(061)
SECTION 07-09101-02-BR
COTTON HILL ROAD DISTRICT
SANGAMON COUNTY
T.R. 348 / VIGAL ROAD
PROPOSED STRUCTURE NO. 084-3556
JOB NUMBER C-96-220-09

LOCATION OF SECTION INDICATED THUS: –

IMPROVEMENT ENDS STATION 11+68

STA. 10+00
PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE. SINGLE SPAN 78'-0"
24'-0" RDWY.; SKEW = 15^
EXISTING STRUCTURE NO. 084-3156
PROPOSED STRUCTURE NO. 084-3556

IMPROVEMENT BEGINS STATION 8+23



LOCATION MAP

APPROXIMATE SCALE: 0 — 1 MILE

NET LENGTH OF SECTION = 345.00 FEET = 0.065 MILES

WARNING
CALL JULIE TOLL FREE 1-800-892-0123
CALL 811 BEFORE YOU DIG

SANGAMON COUNTY HIGHWAY DEPARTMENT

APPROVED FEBRUARY 20 20 09
COUNTY ENGINEER

APPROVED March 5 20 09
Madonna Shawn
ROAD COMMISSIONER

PASSED OCTOBER 27 20 09
DISTRICT SIX ENGINEER OF LOCAL ROADS & STREETS

PASSED October 26 20 09
Ron Ochsenbein
DISTRICT SIX ENGINEER OF CONSTRUCTION

Releasing For Bid Based on Limited Review OCTOBER 27 20 09
Roger A. Driskell
DEPUTY DIRECTOR OF HIGHWAYS
REGION FOUR ENGINEER
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DATE: 9/05/2009
LICENSED PROFESSIONAL ENGINEER
062-34227
STATE OF ILLINOIS
EXPIRES: 11/30/2009

HAMPTON, LENZINI & RENWICK, INC.
CIVIL & STRUCTURAL ENGINEERS
LAND SURVEYORS
3085 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
(217) 546-3400
ELGIN • SPRINGFIELD

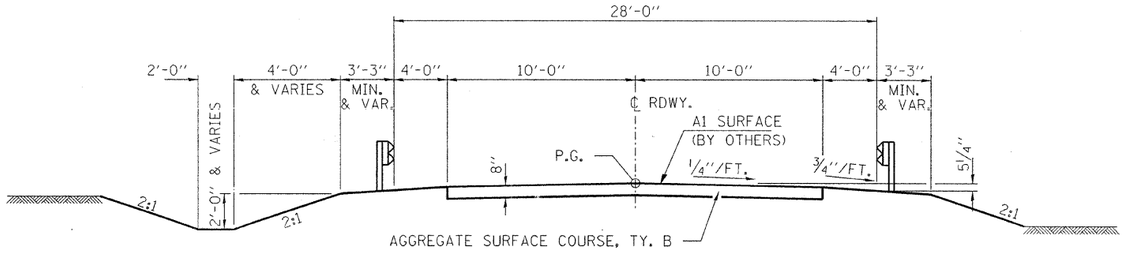
PROJECT NUMBER: 08.0042.130 | DATE: 08/22/08

CONTRACT NO. 93507

SUMMARY OF QUANTITIES

	CODE No.	ITEM	UNIT	TOTAL CONSTRUCTION TYPE CODE X081-2A
	20100500	TREE REMOVAL, ACRES	ACRE	0.1
	20200100	EARTH EXCAVATION	CU YD	85
	20300100	CHANNEL EXCAVATION	CU YD	345
^	20400800	FURNISHED EXCAVATION	CU YD	160
	20700110	POROUS GRANULAR EMBANKMENT	TON	130
^	25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.3
^	28100208	STONE RIPRAP, CLASS A4 (SPECIAL)	TON	240
	40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	269
	50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
	50300225	CONCRETE STRUCTURES	CU YD	26.2
	50300280	CONCRETE ENCASEMENT	CU YD	2.8
	50400605	PRECAST PRESTRESSED CONCRETE DECK BEAMS (33" DEPTH)	SQ FT	1872
	50800105	REINFORCEMENT BARS	POUND	2860
*	50900205	STEEL RAILING, TYPE S1	FOOT	155
	51201600	FURNISHING STEEL PILES HP12X53	FOOT	280
	51202305	DRIVING PILES	FOOT	280
	51203600	TEST PILE STEEL HP12X53	EACH	1
	51500100	NAME PLATES	EACH	1
*	63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	4
*	63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	4
	63200310	GUARDRAIL REMOVAL	FOOT	90
	67100100	MOBILIZATION	L SUM	1
^	70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1
* ^	78200405	GUARDRAIL MARKERS	EACH	6
* ^	78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4

^ SEE SPECIAL PROVISIONS
* SPECIALTY ITEMS



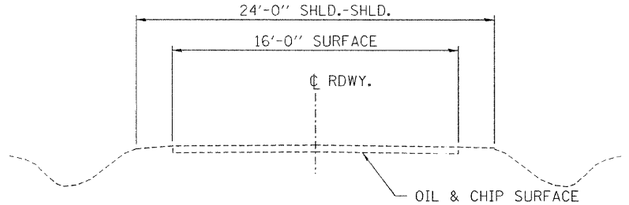
SUGGESTED CUT SECTION
CONSTRUCT AS SHOWN IN
STATION CROSS SECTIONS

SUGGESTED FILL SECTION
CONSTRUCT AS SHOWN IN
STATION CROSS SECTIONS

TYPICAL CROSS SECTION

STA. 8+23 TO STA. 9+60.31
STA. 10+39.69 TO STA. 11+68

6:1 SHOULDER TAPERS:
RT. STA. 8+23 TO RT. STA. 8+82
LT. STA. 8+49 TO LT. STA. 8+89
RT. STA. 11+11 TO RT. STA. 11+67
LT. STA. 11+17 TO LT. STA. 11+68



EXISTING CROSS SECTION

STA. 8+23 TO STA. 11+68

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION ADOPTED JANUARY 1, 2007," THESE PLANS AND THE SPECIAL PROVISIONS INCLUDED IN THE CONTRACT DOCUMENTS.

2. ALL CLEARING AND GRUBBING, FENCE REMOVAL AND REMOVAL OF EXISTING DRAINAGE STRUCTURES SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION. THE REMOVAL OF THE EXISTING BITUMINOUS SURFACE WILL BE PAID FOR AS EARTH EXCAVATION. ALL BITUMINOUS 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 THE COST OF EARTH EXCAVATION AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

3. 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 CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN THEIR EXACT LOCATION FROM THE INDIVIDUAL UTILITY COMPANIES AND BY FIELD INSPECTION.

4. 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.

5. THE FOLLOWING RATES OF APPLICATION HAVE BEEN USED IN CALCULATING PLAN QUANTITIES.

   AGGREGATE SURFACE COURSE 2.05 TON/CU YD
   STONE RIPRAP, CLASS A4 (SPECIAL) 1.50 TON/CU YD

6. THE AREA TO BE SEEDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE R.O.W. AS DIRECTED BY THE ENGINEER.

7. ALL TREES WITHIN THE RIGHT OF WAY ARE TO BE REMOVED UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
   ESTIMATED QUANTITY: SEEDING CLASS 2, SPECIAL = 0.3 ACRES

20100500 TREE REMOVAL ACRE

LOCATION	ACRE
LT. STA. 8+75 TO LT. STA. 10+00	0.03
RT. STA. 8+75 TO RT. STA. 10+00	0.03
LT. STA. 10+00 TO LT. STA. 11+25	0.02
RT. STA. 10+00 TO RT. STA. 11+25	0.04
TOTAL	0.12
USE	0.1

ROADWAY SCHEDULE

LOCATION	AGGREGATE SURFACE COURSE TYPE B 8"
	40200800
	TON
TR 348	
STA. 8+23 TO STA. 9+60.31	139
STA. 10+39.69 TO STA. 11+68	130
TOTAL	269

EARTHWORK SCHEDULE

LOCATION	EARTH EXCAVATION	CHANNEL EXCAVATION	SHRINKAGE FACTOR	PERCENT USED	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT REQUIRED	EARTHWORK BALANCE
	20200100	20300100					
	CU.YD.	CU.YD.			CU.YD.	CU.YD.	CU.YD.
TR 348							
STA 8+23 TO STA 9+60.31	46		25.00%	100.00%	35	174	-139
STA 9+60.31 TO STA 10+39.69	0		25.00%	100.00%	0	0	0
STA 10+39.69 TO STA 11+68	37		25.00%	100.00%	28	226	-198
							0
CHANNEL EXCAVATION		345	25.00%	70.00%	181	0	181
							0
TOTAL	83	345			244	400	-156
TOTAL USE	85	345					-160

20400800 FURNISHED EXCAVATION = 160 CU YDS

GUARDRAIL TABULATION

LOCATION	GUARDRAIL REMOVAL	TRAFFIC BARRIER TERMINAL TYPE 1 SPECIAL (TANGENT)	TRAFFIC BARRIER TERMINAL TYPE 5A	TERMINAL MARKER DIRECT APPLIED	GUARDRAIL MARKERS
	63200310	63100167	63100075	78201000	78200405
	FOOT	EACH	EACH	EACH	EACH
LT. STA. 8+98.85 TO LT. STA. 9+62.10	21	1	1	1	
RT. STA. 8+92.45 TO RT. STA. 9+55.70	22	1	1	1	
LT. STA. 10+44.30 TO LT. STA. 11+07.55	24	1	1	1	
RT. STA. 10+37.90 TO RT. STA. 11+01.15	23	1	1	1	
LT. STA. 8+98.85 TO LT. STA. 11+07.55					3
RT. STA. 8+92.45 TO RT. STA. 11+01.15					3
TOTAL	90	4	4	4	6

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	PLOT DATE = 2/4/2009	DATE - 08/22/08	REVISED -

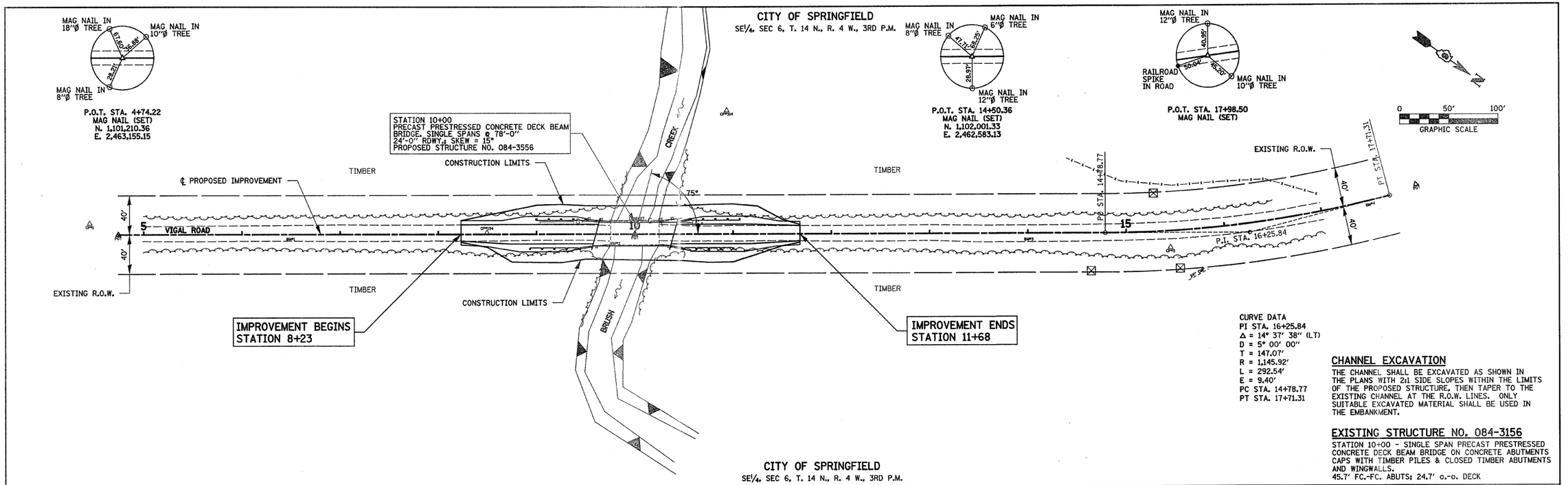
STATE OF ILLINOIS
SANGAMON COUNTY HIGHWAY DEPARTMENT

HAMPTON, LENZINI & RENWICK, INC.
CIVIL & STRUCTURAL ENGINEERS
LAND SURVEYORS

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

SUMMARY OF QUANTITIES AND GENERAL NOTES

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	07-09101-02-BR	SANGAMON	16	2
		CONTRACT NO. 93507		
FED. ROAD DIST. NO. 6	ILLINOIS	FED. AID PROJECT		



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	PLOT DATE = 2/4/2009	DATE - 04/07/08	REVISED -

STATE OF ILLINOIS
SANGAMON COUNTY HIGHWAY DEPARTMENT

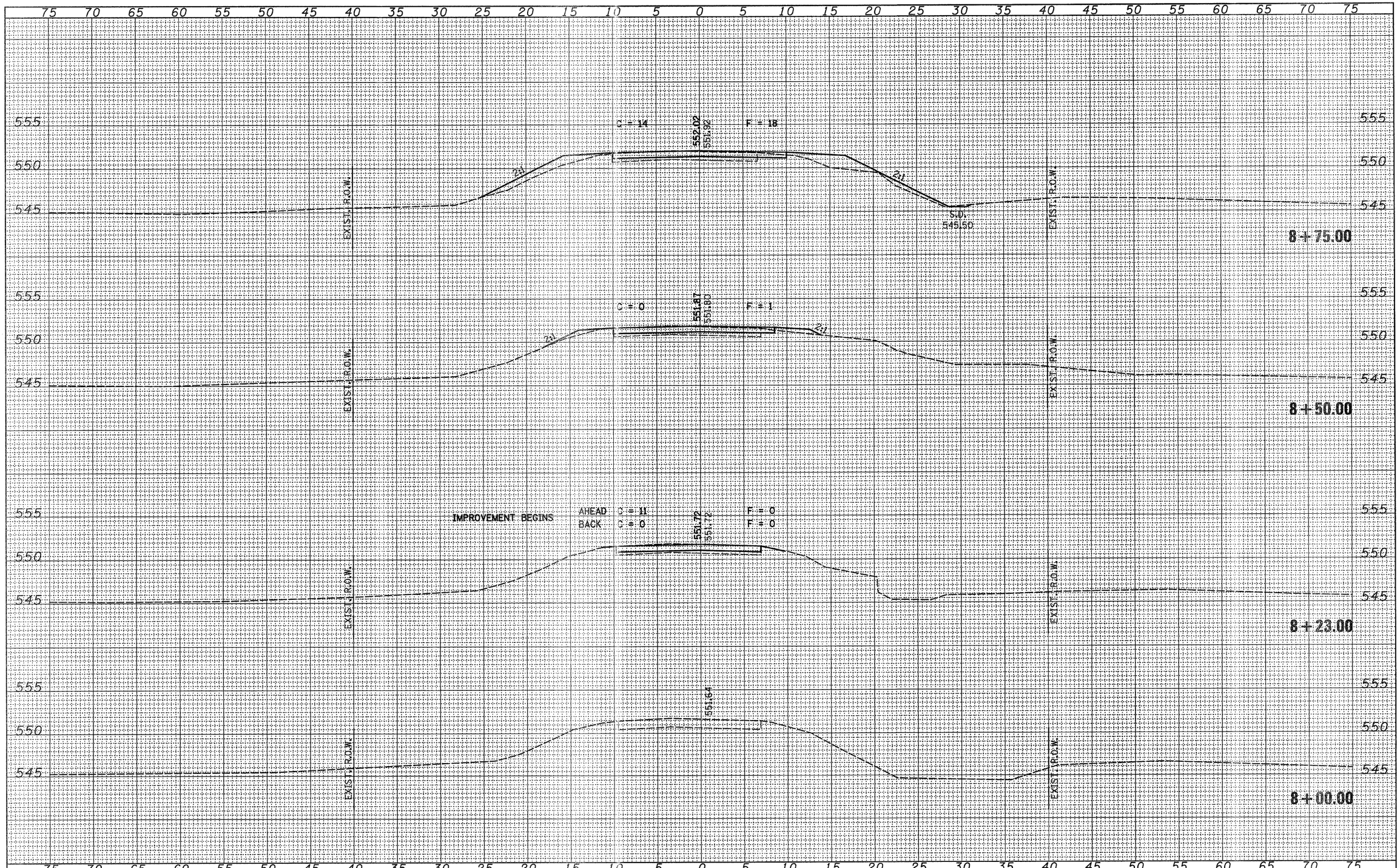
HAMPTON, LENZINI & RENWICK, INC.
CIVIL & STRUCTURAL ENGINEERS
LAND SURVEYORS

SCALE: 50 | SHEET NO. OF SHEETS

PLAN & PROFILE
VIGAL ROAD
STA. 4+74.22 TO STA. 17+98.50

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	07-09101-02-BR	SANGAMON	16	3
		CONTRACT NO. 93507		

FED. ROAD DIST. NO. 6 | ILLINOIS | FED. AID PROJECT



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NO.	TOPO PLOTTED		
	AREAS		
	AREAS CHECKED		

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NOTE BOOK	PLOTTED		
NO.	TOPO PLOTTED		
	AREAS		
	AREAS CHECKED		

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STATE OF ILLINOIS
SANGAMON COUNTY HIGHWAY DEPARTMENT

HLR HAMPTON, LENZINI & RENWICK, INC.
CIVIL & STRUCTURAL ENGINEERS
LAND SURVEYORS

SCALE: | SHEET NO. OF SHEETS

CROSS SECTIONS
VIGAL ROAD

STA. 8+00.00 TO STA. 8+75.00

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	07-09101-02-BR	SANGAMON	15	4
		CONTRACT NO. 93507		

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT

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PLOTTED		
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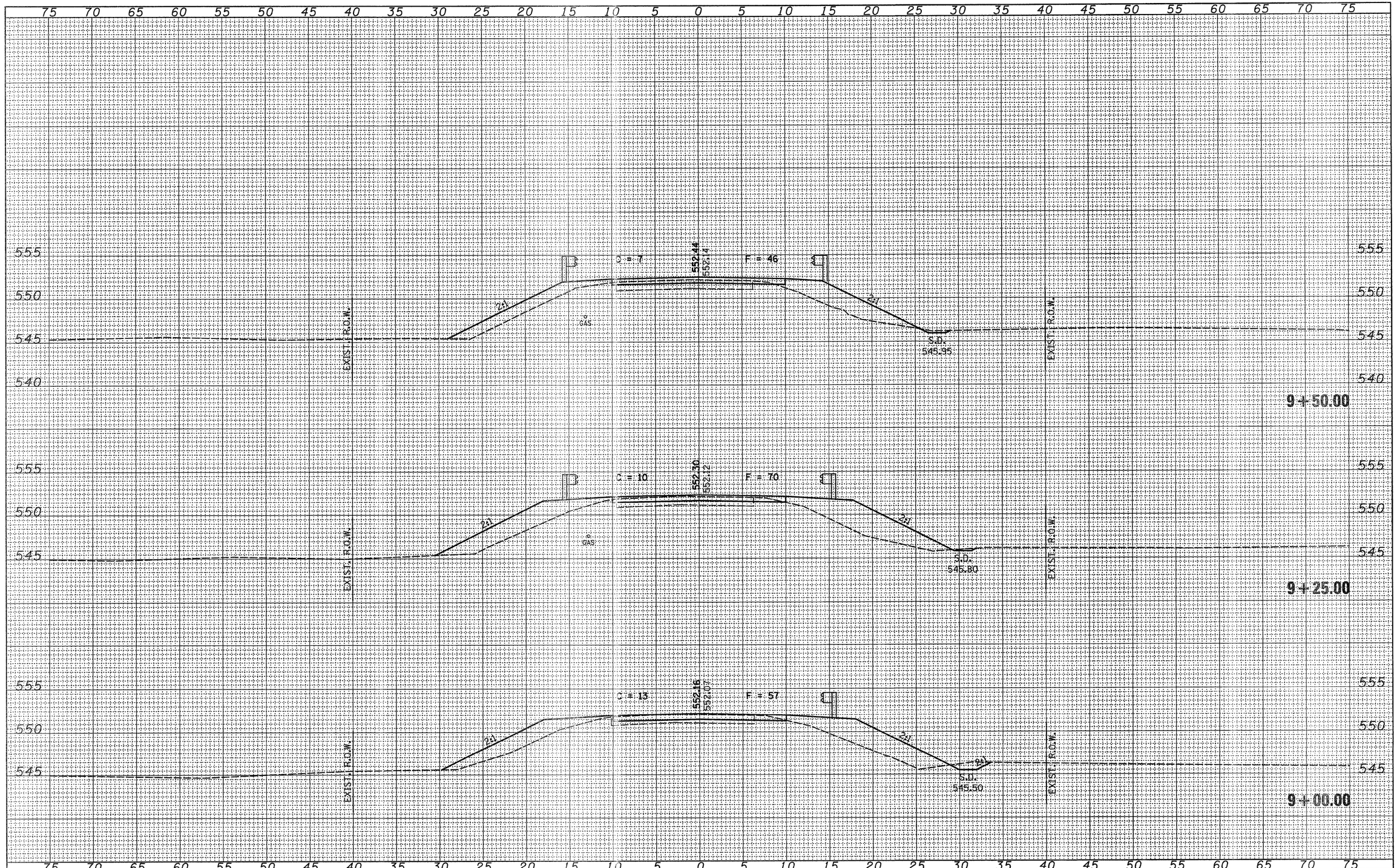
	AREAS CHECKED	



ORIGINAL SURVEY	BY	DATE
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PLOTTED		
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	AREAS CHECKED	

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STATE OF ILLINOIS
SANGAMON COUNTY HIGHWAY DEPARTMENT

HLR HAMPTON, LENZINI & RENWICK, INC.
CIVIL & STRUCTURAL ENGINEERS
LAND SURVEYORS

SCALE: | SHEET NO. OF SHEETS

CROSS SECTIONS
VIGAL ROAD

STA. 9+00.00 TO STA. 9+50.00

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	07-09101-02-BR	SANGAMON	15	5
		CONTRACT NO. 93507		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

FINAL SURVEY	BY	DATE
NOTE BOOK	SURVEYED	
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	TEMPLATE	
	TYPICALS	
	AREAS	
	AREAS CHECKED	

ORIGINAL SURVEY	BY	DATE
NOTE BOOK	SURVEYED	
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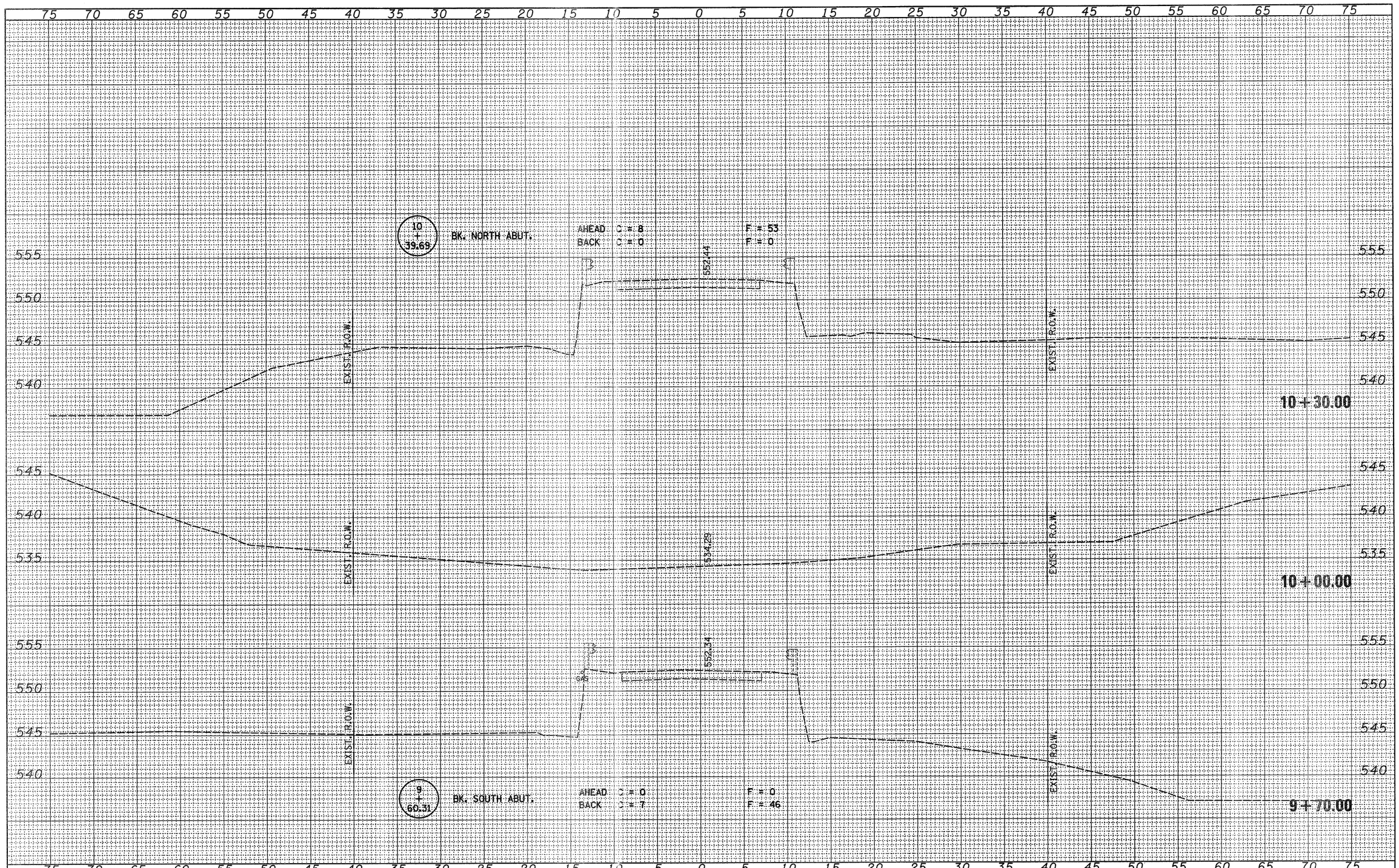
	TYPICALS	
	AREAS	
	AREAS CHECKED	



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	PLOT DATE = 2/4/2009	DATE - 04/07/08	REVISED -

STATE OF ILLINOIS
SANGAMON COUNTY HIGHWAY DEPARTMENT

HLR HAMPTON, LENZINI & RENWICK, INC.
CIVIL & STRUCTURAL ENGINEERS
LAND SURVEYORS

SCALE: | SHEET NO. OF SHEETS

CROSS SECTIONS
VIGAL ROAD

STA. 9+70.00 TO STA. 10+30.00

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	07-09101-02-BR	SANGAMON	15	6
		CONTRACT NO. 93507		

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT

FINAL SURVEY	BY	DATE
NOTE BOOK	SURVEYED	
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	TOPO PLATE	
	AREAS	
	AREAS CHECKED	

ORIGINAL SURVEY	BY	DATE
NOTE BOOK	SURVEYED	
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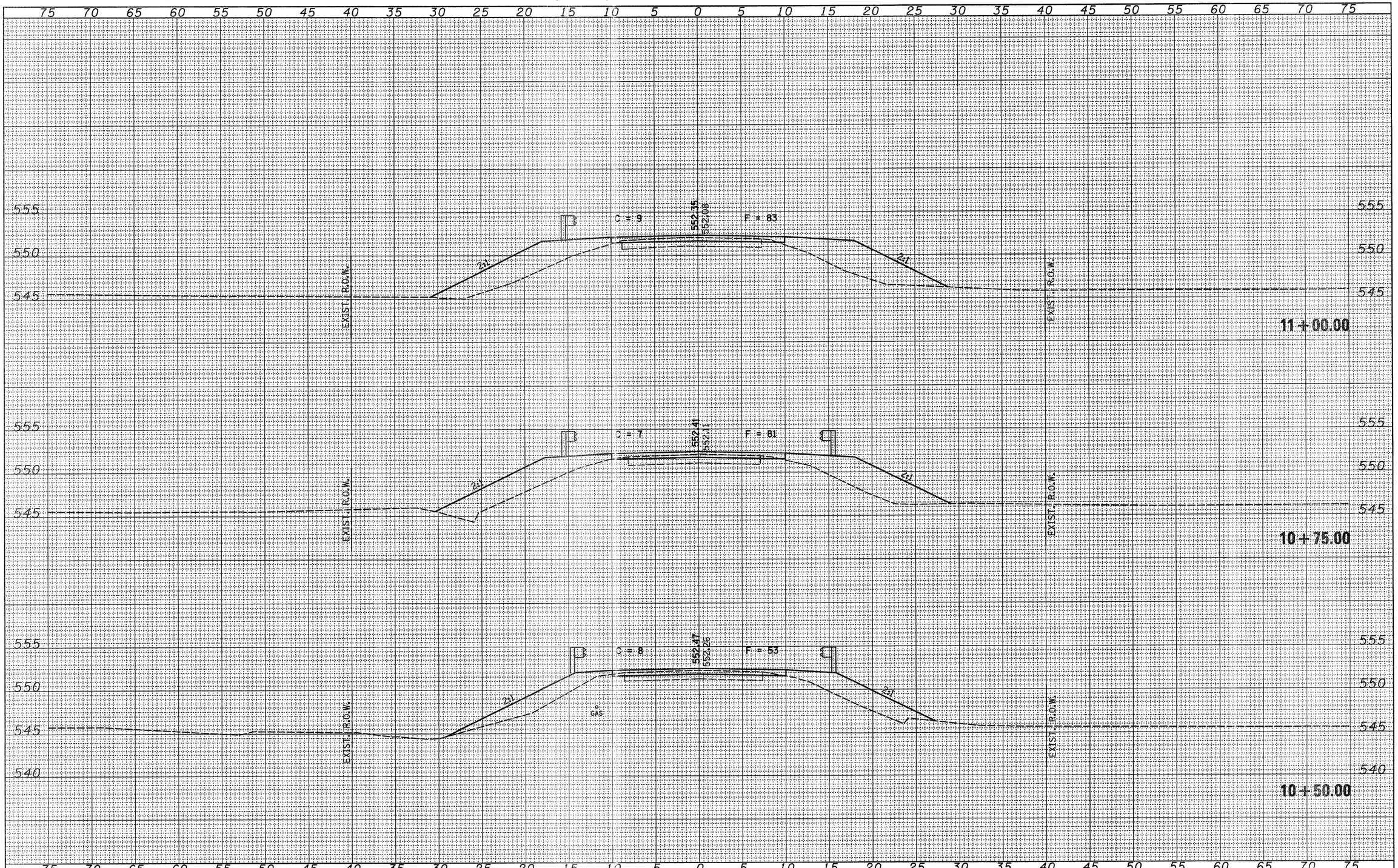

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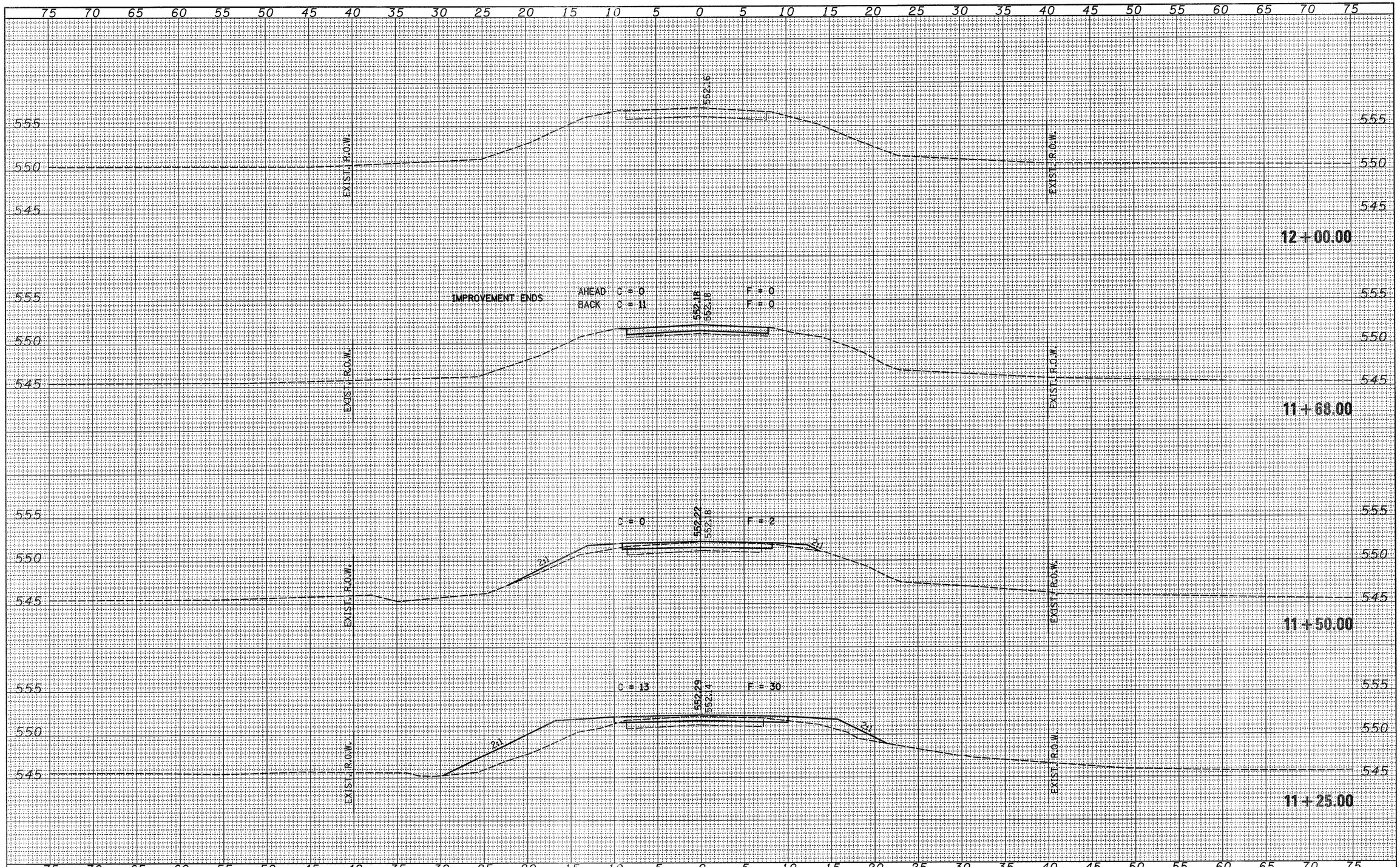
STATE OF ILLINOIS
SANGAMON COUNTY HIGHWAY DEPARTMENT

HLR HAMPTON, LENZINI & RENWICK, INC.
CIVIL & STRUCTURAL ENGINEERS
LAND SURVEYORS

SCALE: | SHEET NO. OF SHEETS | STA. 10+50.00 TO STA. 11+00.00

CROSS SECTIONS
VIGAL ROAD

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	07-09101-02-BR	SANGAMON	15	7
		CONTRACT NO. 93507		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



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SURVEYED		
PLOTTED		
NOTE BOOK TOPO. & I.E.		
NO. AREAS CHECKED		

ORIGINAL SURVEY	BY	DATE
SURVEYED		
PLOTTED		
NOTE BOOK TOPO. & I.E.		
NO. AREAS CHECKED		

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	PLOT DATE = 2/4/2009	DATE - 04/07/08	REVISED -

STATE OF ILLINOIS
SANGAMON COUNTY HIGHWAY DEPARTMENT

HLR HAMPTON, LENZINI & RENWICK, INC.
CIVIL & STRUCTURAL ENGINEERS
LAND SURVEYORS

SCALE: | SHEET NO. OF SHEETS

CROSS SECTIONS
VIGAL ROAD

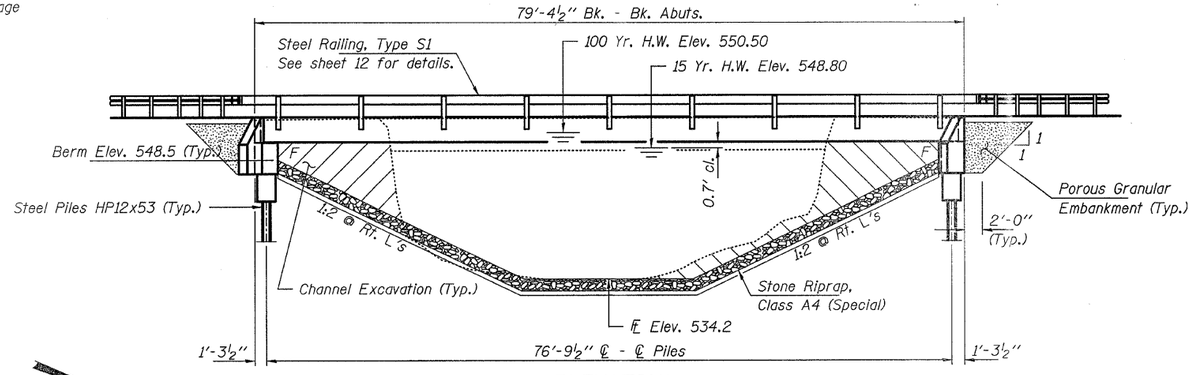
STA. 11+25.00 TO STA. 11+68.00

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	07-09101-02-BR	SANGAMON	15	8
		CONTRACT NO. 93507		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

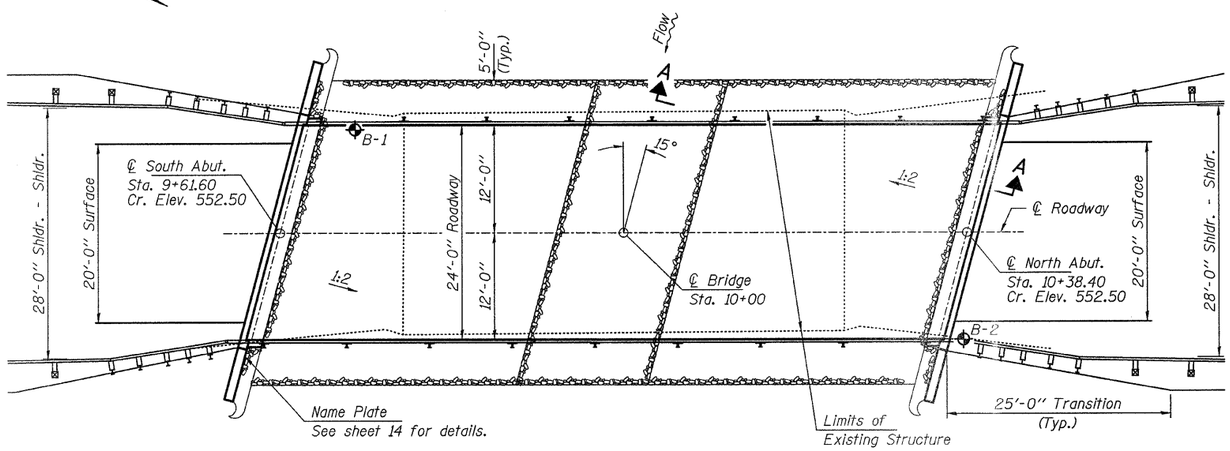
BENCHMARK: Sangamon County Highway Department Aluminum BM. 11' Rt., Sta. 9+77; Elev. 552.83

EXISTING STRUCTURE: Single span precast prestressed concrete deck beam bridge on concrete abutment caps with timber piles & closed timber abutments and wingwalls. 45.7' fc.-fc. abuts.; 24.7' o.-o. deck. Structure closed to traffic.

No Salvage



ELEVATION



PLAN

GENERAL NOTES

Layout of 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 location at South Abutment 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 shall be included in the cost of Concrete Structures. No additional compensation will be allowed for Structure Excavation.

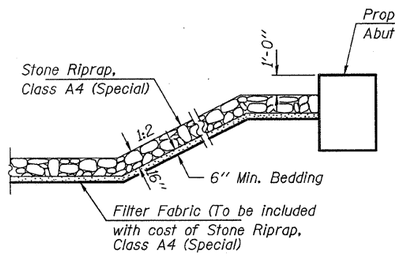
All proposed construction activities shall be in accordance with Nationwide Permit number 14 of the Department of the Army authorized under Section 404 of the Clean Water Act. The IEPA has issued Section 401 Water Quality Certification for this activity. See Special Provisions for conditions.

See sheet **16** for Borings.

BRUSH CREEK
BUILT 200_ BY
SANGAMON COUNTY
SEC. 07-09101-02-BR
COTTON HILL ROAD DISTRICT
STR. NO. 084-3556
LOADING HL-93

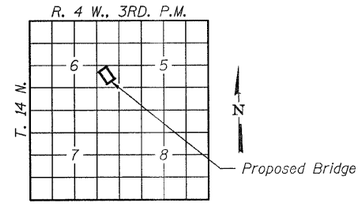
NAME PLATE

See Std. 515001



SECTION A-A

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



LOCATION SKETCH

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			345
Porous Granular Embankment	Ton			130
Stone Riprap, Class A4 (Special)	Ton			240
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		26.2	26.2
Concrete Encasement	Cu. Yd.		2.8	2.8
Precast Prestressed Concrete Deck Beams (33" Depth)	Sq. Ft.	1,872		1,872
Reinforcement Bars	Pound		2,860	2,860
Steel Railing, Type S1	Foot	165		165
Furnishing Steel Piles HP12x53	Foot		280	280
Driving Piles	Foot		280	280
Test Pile Steel HP12x53	Each		1	1
Name Plates	Each		1	1

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 (½"ϕ low lax. strands)
fpbt = 201,960 psi (½"ϕ low lax. strands)
fy = 60,000 psi (Reinf.)

LOADING HL-93

Design Specifications: 2007 AASHTO LRFD with all applicable interims.
50#/Sq. Ft. included in dead load for future wearing surface.

SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.232g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.460g
Soil Site Class = E

WATERWAY INFORMATION

Drainage Area = 48.3 Sq. Mi. Low Grade Elev. 551.6 @ Sta. 8+00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Natural H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
	10	3,442	520	660	548.42	1.59	0.75	550.01	549.17
Design	15	3,922	540	690	548.81	1.48	0.85	550.29	549.66
Overtopping	100	6,310	550	750	550.46	1.98	1.53	552.44	551.99
Max. Calc.	500	8,417	550	750	551.71	1.46	1.26	553.17	552.97

10 Year Velocity through Existing Bridge = 6.4 fps
10 Year Velocity through Proposed Bridge = 5.1 fps

Construction Permits: This project has been approved for construction under Statewide Permit No. 12, as issued by the Department of Natural Resources' Office of Water Resources.

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 Standard Specifications for Highway Bridges".

2-5-2009
ILLINOIS STRUCTURAL NO. 081-6529

LICENSED STRUCTURAL ENGINEER
SCOTT M. SNOUP
081-6529
SPRINGFIELD, IL
STATE OF ILLINOIS

Expires 11-30-10

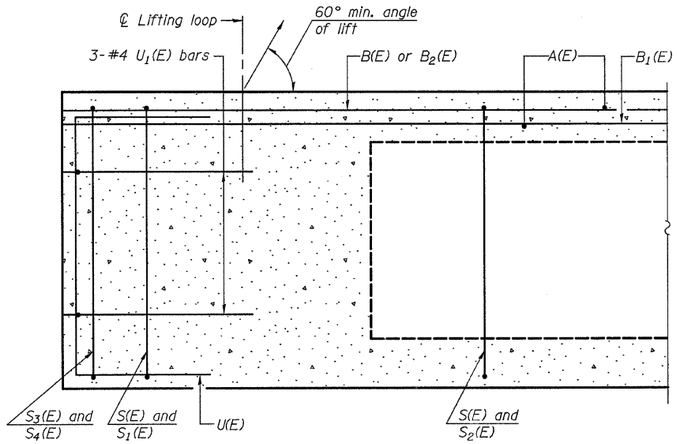
DESIGNED -	S.M.S
CHECKED -	S.W.M.
DRAWN -	D.A.B.
CHECKED -	D.T.M.

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 084-3556

HAMPTON, LENZINI & RENWICK, INC.
CIVIL & STRUCTURAL ENGINEERS
LAND SURVEYORS
HLR
3085 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
(217) 546-3400

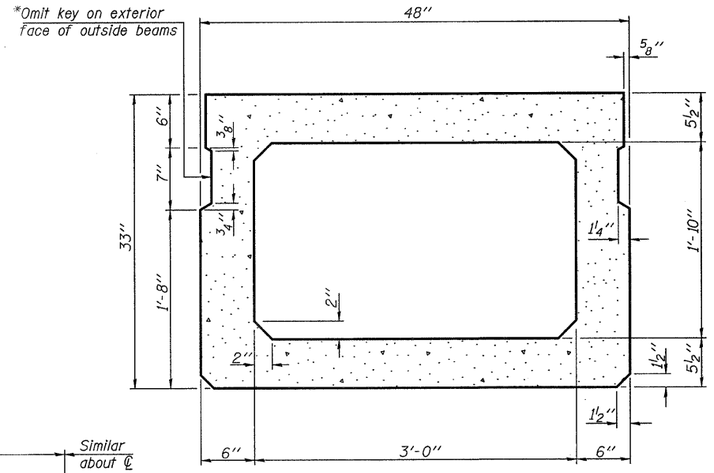
PROJECT NUMBER: 08.0042.130 | DATE: 10/03/08

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	07-09101-02-BR	SANGAMON	16	9
COTTON HILL ROAD DISTRICT		CONTRACT NO. 93507		
	ILLINOIS FED. AID PROJECT			

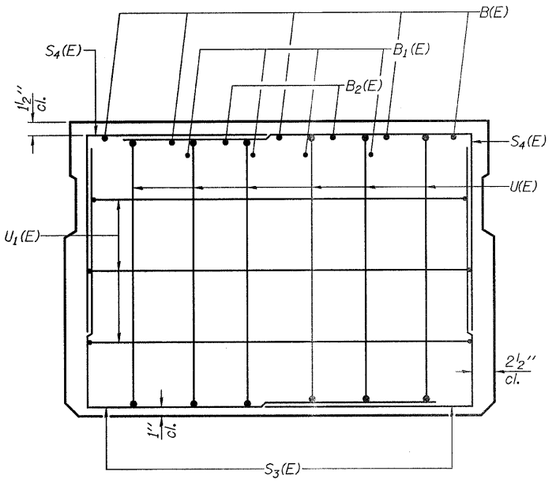


SECTION C-C

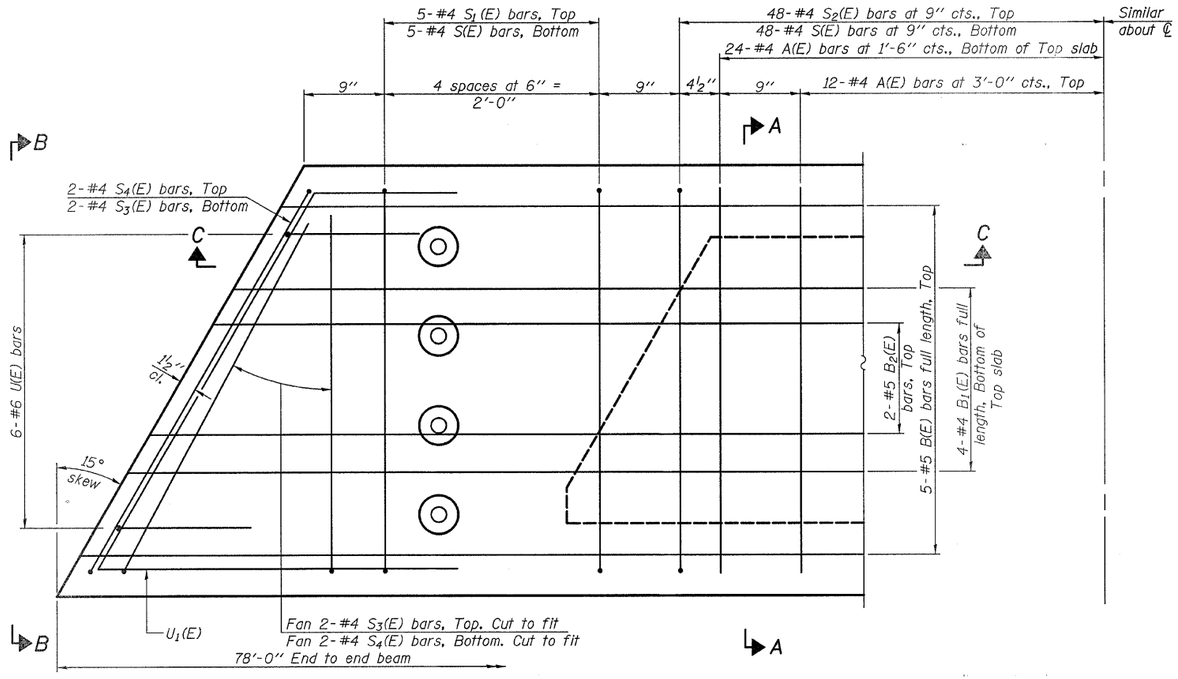
* Rail Post Anchor Devices (specified elsewhere) to be cast into exterior face of outside beams.



SECTION A-A
(Showing dimensions)

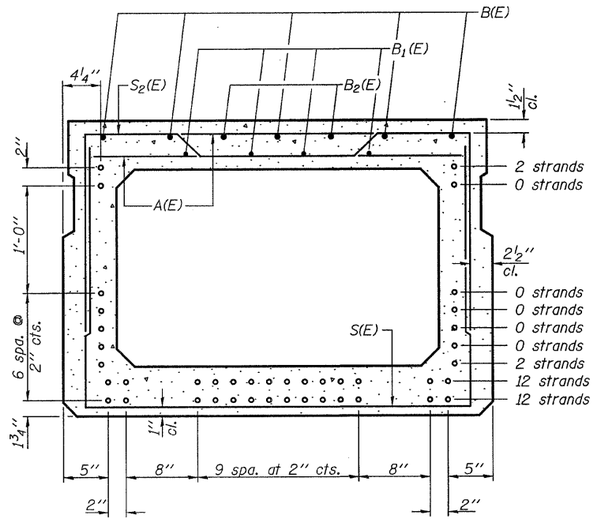


VIEW B-B



PLAN VIEW

Note: Spacing of S(E) and $S_2(E)$ 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.



SECTION A-A
(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)	72	#4	3'-7"	—
B(E)	10	#5	40'-0"	—
$B_1(E)$	12	#4	27'-0"	—
$B_2(E)$	4	#5	40'-0"	—
S(E)	106	#4	8'-5"	⌊⌋
$S_1(E)$	10	#4	7'-3"	⌐¬
$S_2(E)$	96	#4	7'-6"	⌐¬
$S_3(E)$	8	#4	5'-5"	⌊
$S_4(E)$	8	#4	4'-10"	⌊⌋
U(E)	12	#6	5'-0"	⊏⊐
$U_1(E)$	6	#4	7'-1"	⌐

Note: See sheets 11 & 12 for additional details and Bill of Material.

DESIGNED -	S.M.S
CHECKED -	S.W.M.
DRAWN -	D.A.B.
CHECKED -	D.T.M.

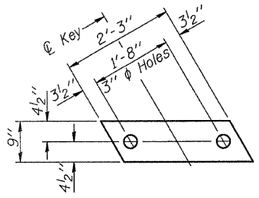
PD-3348-L 5-16-08

HAMPTON, LENZINI & RENWICK, INC.
CIVIL & STRUCTURAL ENGINEERS
LAND SURVEYORS
3085 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
(217) 546-3400

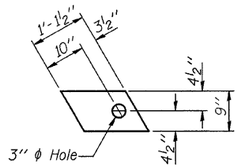
PROJECT NUMBER: 08.0042.130 DATE: 10/03/08

SUPERSTRUCTURE
33" X 48" PPC DECK BEAM
STRUCTURE NO. 084-3556

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	07-09101-02-BR	SANGAMON	16	10
COTTON HILL ROAD DISTRICT		CONTRACT NO. 93507		
	ILLINOIS FED. AID PROJECT			



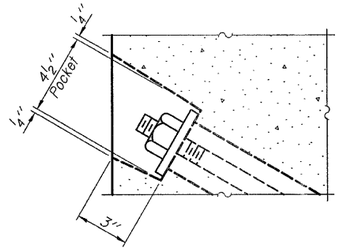
FABRIC BEARING PAD
(Interior - 10 Req'd)



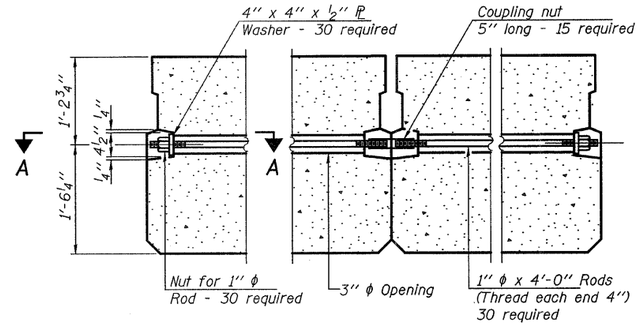
FABRIC BEARING PAD
(Exterior - 4 Req'd)

FIXED

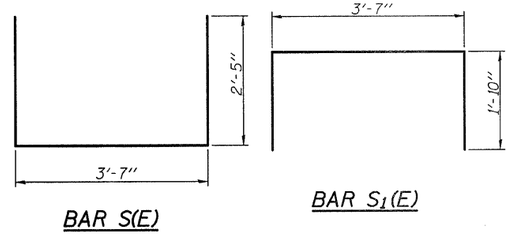
Note: Omit holes when using expansion bearings.



SECTION A-A

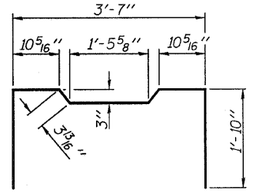


TYPICAL TRANSVERSE TIE ASSEMBLY

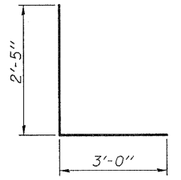


BAR S(E)

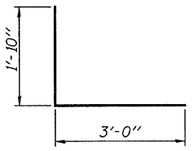
BAR S_1(E)



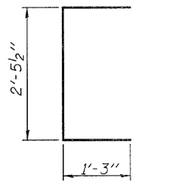
BAR S_2(E)



BAR S_3(E)

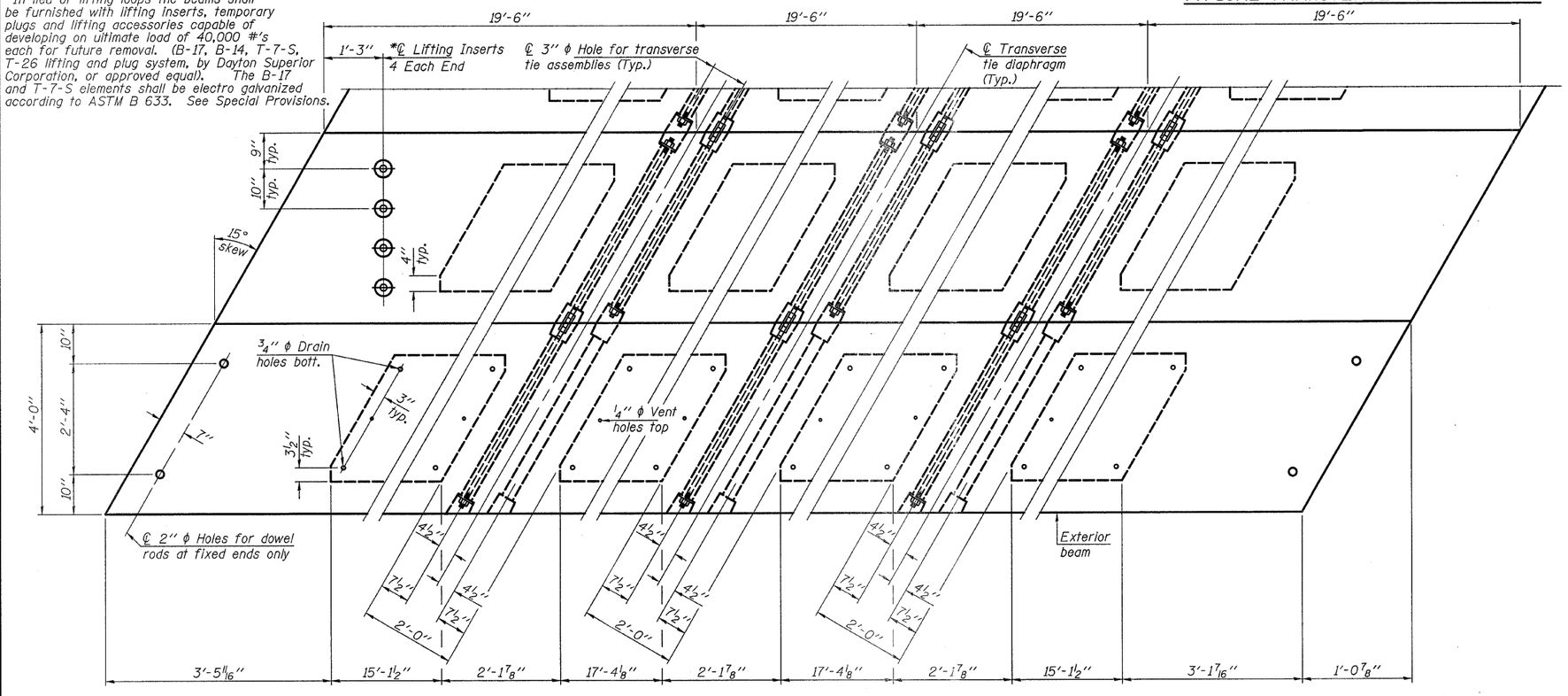


BAR S_4(E)



BAR U(E)

*In lieu of lifting loops the beams shall be furnished with lifting inserts, temporary plugs and lifting accessories capable of developing an ultimate load of 40,000 #'s each for future removal. (B-17, B-14, T-7-S, T-26 lifting and plug system, by Dayton Superior Corporation, or approved equal). The B-17 and T-7-S elements shall be electro galvanized according to ASTM B 633. See Special Provisions.



PLAN VIEW

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

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in.

The 1" ϕ 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).

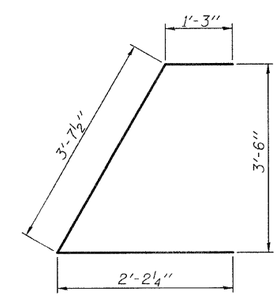
Two ⅛" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2½" ϕ lifting pin shall be used to engage the lifting loops during handling.

Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 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.



BAR U_1(E)

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (33" depth)	Sq. Ft.	1,872

DESIGNED - S.M.S	
CHECKED - S.W.M.	
DRAWN - D.A.B.	
CHECKED - D.T.M.	

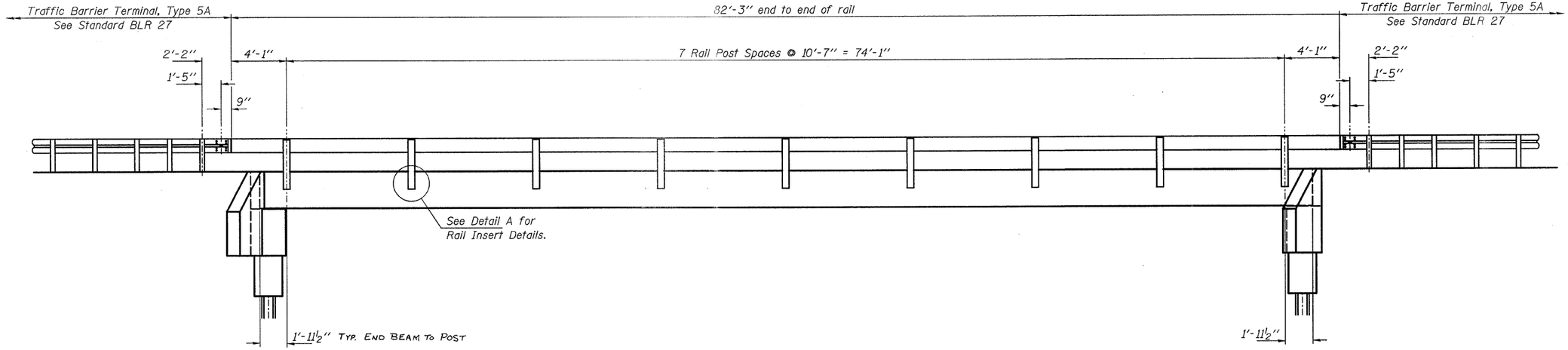
PD-3348-LD 5-16-08

HAMPTON, LENZINI & RENWICK, INC.
CIVIL & STRUCTURAL ENGINEERS
LAND SURVEYORS
HLR
3085 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
(217) 546-3400

PROJECT NUMBER: 08.0042.130 | DATE: 10/03/08

SUPERSTRUCTURE
33" X 48" PPC DECK BEAM DETAILS
STRUCTURE NO. 084-3556

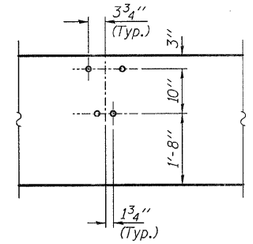
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	07-09101-02-BR	SANGAMON	16	11
COTTON HILL ROAD DISTRICT		CONTRACT NO. 93507		
	ILLINOIS	FED. AID PROJECT		



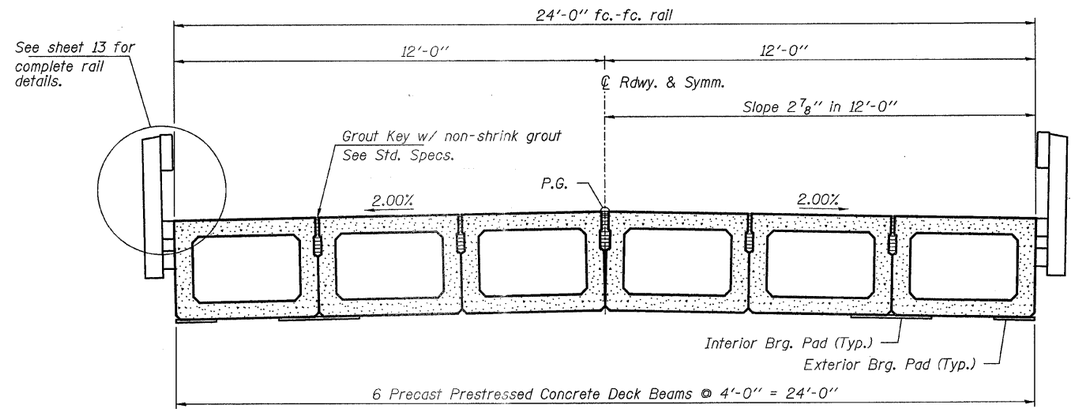
ELEVATION

Showing Rail Post Spaces

See sheet 13 for Railing Details.

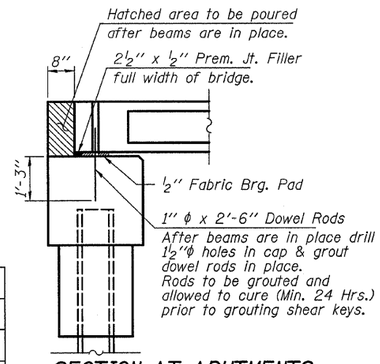


DETAIL A



CROSS SECTION

See sheets 10 & 11 for Superstructure.



SECTION AT ABUTMENTS

@ Rt. L's

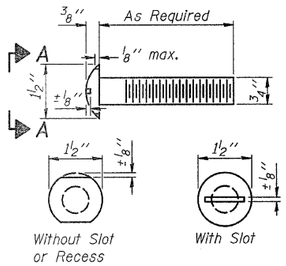
DESIGNED	S.M.S
CHECKED	S.W.M.
DRAWN	D.A.B.
CHECKED	D.T.M.

SUPERSTRUCTURE DETAILS
STRUCTURE NO. 084-3556

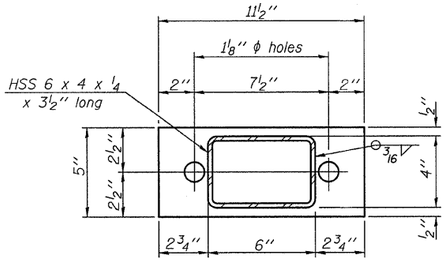
HAMPTON, LENZINI & RENWICK, INC.
CIVIL & STRUCTURAL ENGINEERS
LAND SURVEYORS
HLR
3085 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
(217) 546-3400

PROJECT NUMBER: 08.0042.130 | DATE: 10/03/08

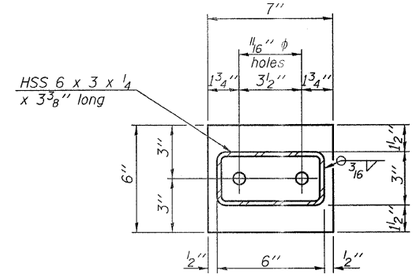
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	07-09101-02-BR	SANGAMON	16	12
COTTON HILL ROAD DISTRICT		CONTRACT NO. 93507		
		ILLINOIS	FED. AID PROJECT	



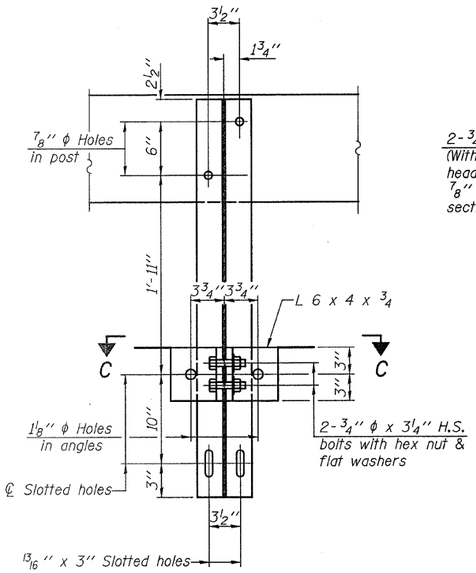
VIEW A-A ROUND HEAD BOLT



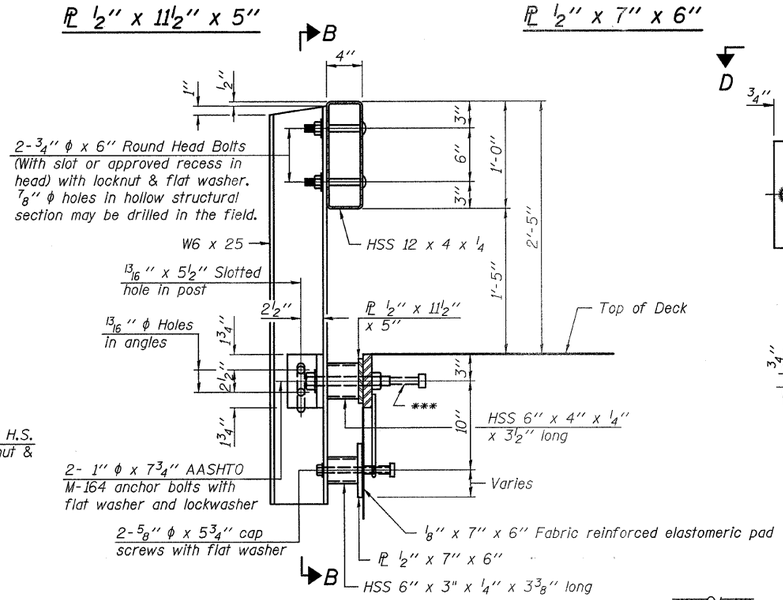
PL 1/2" x 11 1/2" x 5"



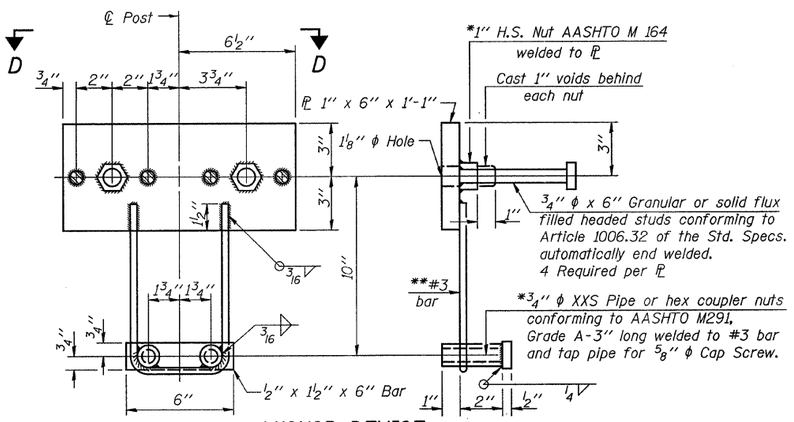
PL 1/2" x 7" x 6"



SECTION B-B



SECTION AT RAILING POST



ANCHOR DEVICE

*Threaded areas shall be plugged or blocked off during casting of beam.

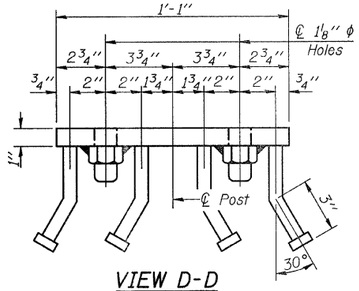
Notes:

All field drilled holes shall be coated with an approved zinc rich paint before erection.

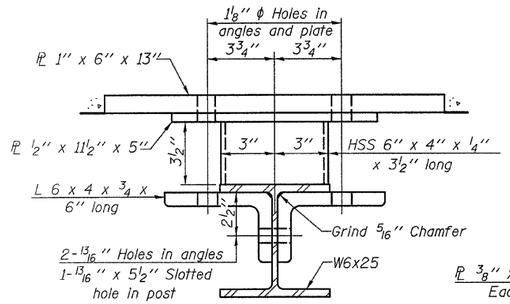
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.

All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

***The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

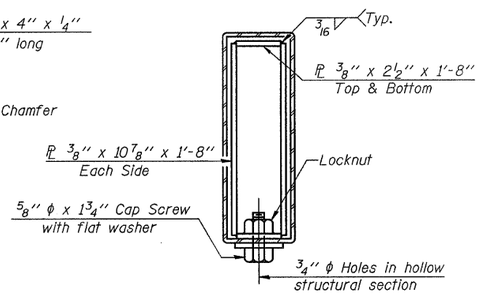


VIEW D-D

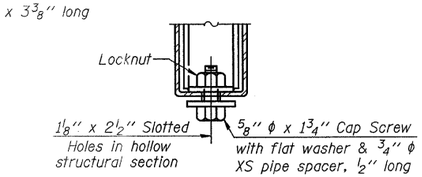


SECTION C-C

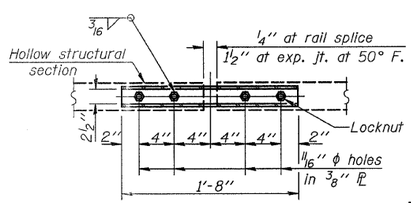
**Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



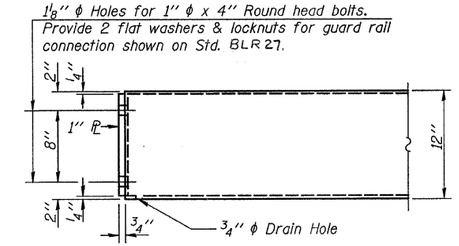
SECTIONS AT RAIL SPLICE

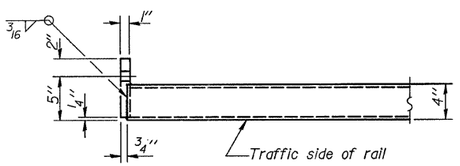


RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTTOM SPLICE PL TYPICAL





END OF RAIL DETAILS

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	165

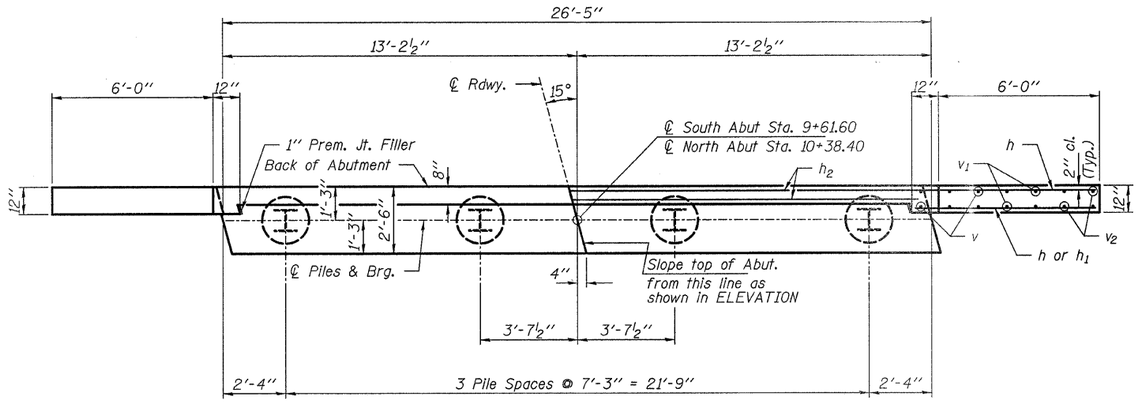
DESIGNED	S.M.S
CHECKED	S.W.M.
DRAWN	D.A.B.
CHECKED	D.T.M.

R-23A 5-16-08 (10'-9" Maximum Post Spacing)

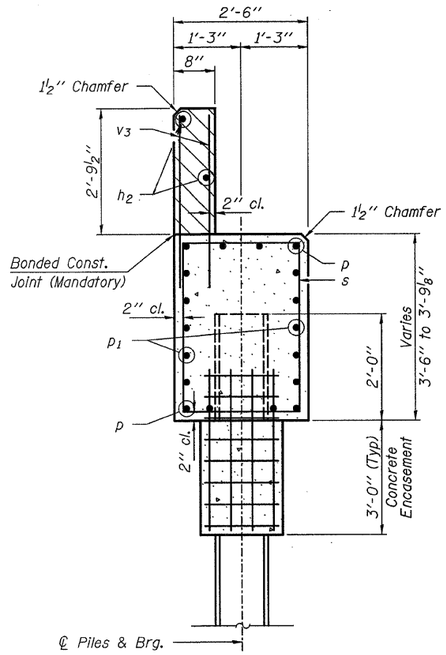
HAMPTON, LENZINI & RENWICK, INC.
CIVIL & STRUCTURAL ENGINEERS
LAND SURVEYORS
3085 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
(217) 546-3400
PROJECT NUMBER: 08.0042.130 DATE: 10/03/08

STEEL RAILING, TYPE S-1
STRUCTURE NO. 084-3556

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	07-09101-02-BR	SANGAMON	16	13
COTTON HILL ROAD DISTRICT		CONTRACT NO. 93507		
	ILLINOIS	FED. AID PROJECT		



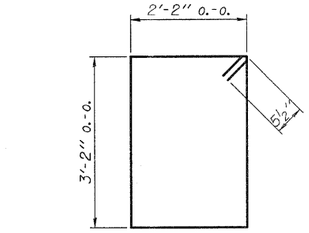
PLAN



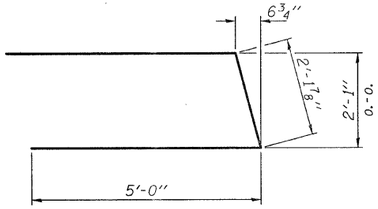
SECTION A-A

Hatched area to be poured after beams are in place.

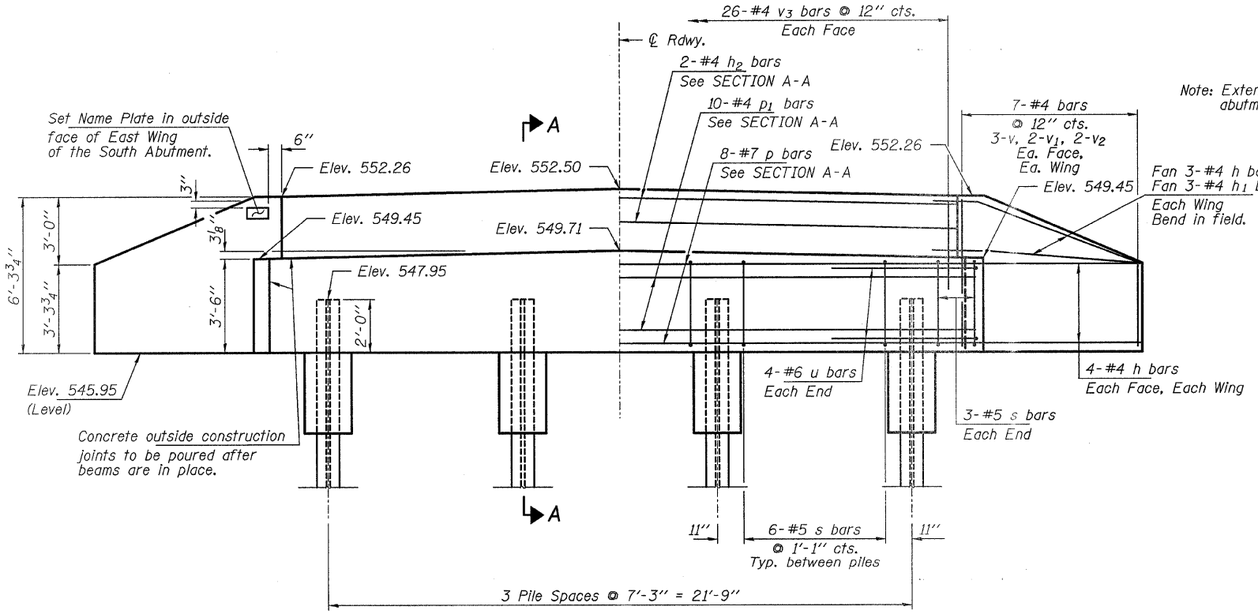
Note: Extend h bars into abutment cap.



BAR s



BAR u



ELEVATION

BILL OF MATERIAL - 2 ABUTS.

BAR	NO.	SIZE	LENGTH	SHAPE
h	44	#4	8'-3"	——
h1	12	#4	6'-9"	——
h2	4	#4	26'-1"	——
p	16	#7	26'-1"	——
p1	20	#4	26'-1"	——
s	48	#5	11'-7"	□
u	16	#6	12'-2"	▭
v	24	#4	5'-3"	——
v1	16	#4	4'-3"	——
v2	16	#4	3'-3"	——
v3	104	#4	3'-8"	——
Concrete Structures			Cu. Yd.	26.2
Concrete Encasement			Cu. Yd.	2.8
Reinforcement Bars			Pound	2,860
Steel Piles HP12x53			Foot	280
Test Pile Steel HP12x53			Each	1
Name Plates			Each	1

PILE DATA

Type _____ Steel HP12x53
No. Req'd. (2 Abuts.) _____ *8
Factored Resistance Available ____ 209 Kips/Pile
Nominal Req'd Bearing _____ 419 Kips/Pile
Est. Length _____ 40 Ft/Pile

Notes: * Includes one test pile to be driven in permanent location at the South Abutment.

The Steel H-Piles shall be according to AASHTO M270 Grade 50.

The test piles shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.

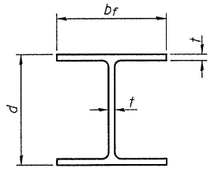
DESIGNED -	S.M.S
CHECKED -	S.W.M.
DRAWN -	D.A.B.
CHECKED -	D.T.M.

HAMPTON, LENZINI & RENWICK, INC.
CIVIL & STRUCTURAL ENGINEERS
LAND SURVEYORS
HLR
3085 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
(217) 546-3400

PROJECT NUMBER: 08.0042.130 | DATE: 10/03/08

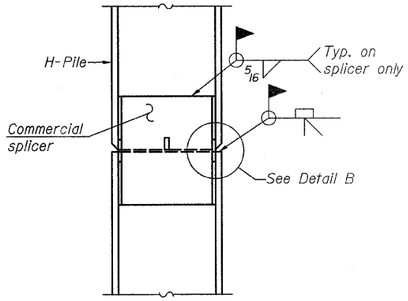
ABUTMENTS
STRUCTURE NO. 084-3556

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	07-09101-02-BR	SANGAMON	16	14
COTTON HILL ROAD DISTRICT		CONTRACT NO. 93507		
	ILLINOIS	FED. AID PROJECT		

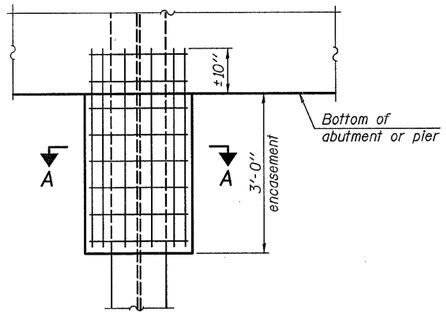


STEEL PILE TABLE

Designation	Depth d	Flange width b_f	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	11/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	11/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 1/8"	7/16"	18"



ELEVATION



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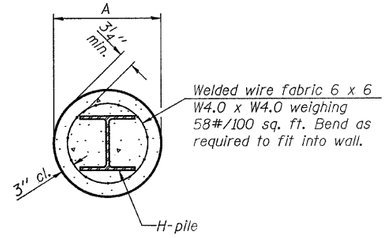
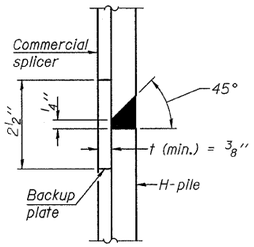


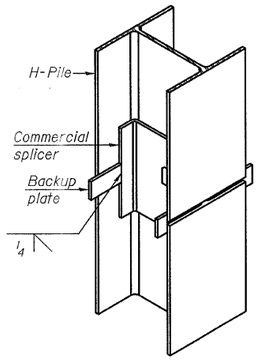
Note: Forms for encasement may be omitted when soil conditions permit.

SECTION A-A

PILE ENCASEMENT

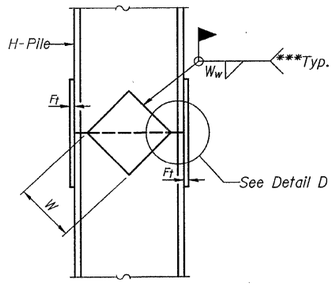


DETAIL "B"

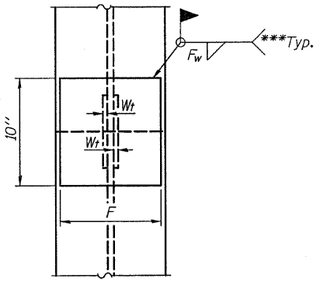


ISOMETRIC VIEW

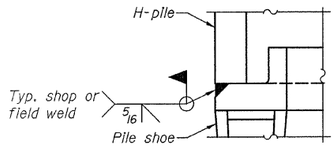
WELDED COMMERCIAL SPLICE



ELEVATION

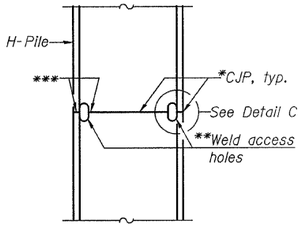


END VIEW



DETAIL A

H-PILE SHOE ATTACHMENT



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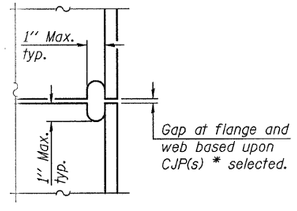
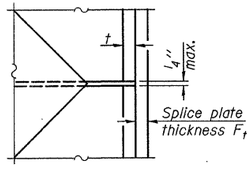


DETAIL C



DETAIL D

COMPLETE PENETRATION WELD SPLICE

*Use joint conforming to Figure 3.4 in AWS D1.1, Structure Welding Code-Steel.

**Preparation per Fig. 5.2 in AWS D1.1, Structure Welding Code-Steel.

***Interrupt welds 1/4" from end of each pile.

Designation	F	F_t	F_w	W	W_t	W_w
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	11/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

Note: The steel H-piles shall be according to AASHTO M270 Grade 50.

DESIGNED	S.M.S
CHECKED	S.W.M.
DRAWN	D.A.B.
CHECKED	D.T.M.

F-HP 5-16-08

HAMPTON, LENZINI & RENWICK, INC.
CIVIL & STRUCTURAL ENGINEERS
LAND SURVEYORS
HLR
3085 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
(217) 546-3400

PROJECT NUMBER: 08.0042.130 DATE: 10/03/08

STEEL H PILE DETAILS
STRUCTURE NO. 084-3556

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	07-09101-02-BR	SANGAMON	16	15
COTTON HILL ROAD DISTRICT		CONTRACT NO. 93507		
	ILLINOIS FED. AID PROJECT			

Professional Service Industries, Inc.
480 North Street
Springfield, IL 62704
Telephone: 217-544-6663
Fax: 217-544-6418

LOG OF BORING B-1

Sheet 1 of 1

PSI Job No.: 020-85005
Project: Cotton Hill Road District
Location: Section 07-09101-02-BR
Vigal Road
Sangamon County, Illinois

Drilling Method: 3 1/4" I.d. hollow stem auger
Sampling Method: Split Spoon
Hammer Type: Automatic
Boring Location: Sta. 78+62.4, 11.5' left

WATER LEVELS
While Drilling 21.5 feet
Upon Completion 19.5 feet
--- ---

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (or DCP Testing)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ● × Moisture ◪ PL ✱ LL (1 25 50) STRENGTH, tsf ▲ Qu ✱ Qp (0 2.0 4.0)	Additional Remarks
						Surface Elev.: 99.4 ft					
						0 to 4.5" - BITUMINOUS CONCRETE	BCC				
						Brown / dark gray silty CLAY, firm, slightly moist (FILL)	CL	7-5-3 N=8	16	×	Qu_r = 4.3 tsf
95	5			1	12						
				2	16	Brown silty CLAY, firm, moist (FILL)	CL	0-2-2 N=4	20	×	Qu_r = 1.6 tsf
				3	18			1-2-2 N=4	23	×	Qu_r = 0.8 tsf
90	10			4	18	Dark gray silty CLAY, firm, moist	CL	2-2-2 N=4	28	×	
				5	18			1-2-2 N=4	27	×	Qu_r = 1.4 tsf
85	15			6	18			0-2-1 N=3	26	×	Qu_r = 0.8 tsf
				7	18	Gray clayey SILT, some fine to medium sand, soft to firm, moist	ML	0-0-2 N=2	28	×	
80	20			8	18			0-0-1 N=1	27	×	Qu_r = 0.4 tsf
				9	18			0-0-1 N=1	23	×	
75	25			10	18			2-1-4 N=5	25	×	
				11	15	Gray fine to medium SAND, loose, slightly moist to moist	SP	0-0-1 N=1			
70	30			12	18			2-2-3 N=5	25	×	Qu_r = 1.0 tsf
				13	18			1-2-3 N=5	27	×	Qu_r = 0.6 tsf
65	35			14	18	Gray silty CLAY, some medium SAND, firm, moist	CL	0-2-2 N=4	26	×	Qu_r = 0.6 tsf
				15	18			0-2-2 N=4	25	×	Qu_r = 0.4 tsf
60	40			16	15	Gray SHALE, hard, slightly moist	CL	5-62-100/3"	12	×	
				17	4	Auger refusal at 40.5'		100/4"	13	>>◎	

Completion Depth: 40.5 ft
Date Boring Started: 2/6/08
Date Boring Completed: 2/6/08
Logged By: Harry Waters
Drilling Contractor: PSI, Inc.

Sample Types: Auger Cutting, Split-Spoon, Rock Core, Shelby Tube, Hand Auger, DCP

Latitude:
Longitude:
Remarks: Elevations are relative to the disk in the concrete curb at the northwest corner of the bridge (assumed to be 100.00')

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING 1

Professional Service Industries, Inc.
480 North Street
Springfield, IL 62704
Telephone: 217-544-6663
Fax: 217-544-6418

LOG OF BORING B-2

Sheet 1 of 1

PSI Job No.: 020-85005
Project: Cotton Hill Road District
Location: Section 07-09101-02-BR
Vigal Road
Sangamon County, Illinois

Drilling Method: 3 1/4" I.d. hollow stem auger
Sampling Method: Split Spoon
Hammer Type: Automatic
Boring Location: Sta. 10+62.4, 12' right

WATER LEVELS
While Drilling 23.5 feet
Upon Comp. Cave at 7'
--- ---

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (or DCP Testing)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ● × Moisture ◪ PL ✱ LL (1 25 50) STRENGTH, tsf ▲ Qu ✱ Qp (0 2.0 4.0)	Additional Remarks
						Surface Elev.: 99.4 ft					
						0 to 5" - BITUMINOUS CONCRETE	BCC				
				1	18	Dark gray silty CLAY, some medium sand, very stiff, slightly moist (FILL)	CL	6-7-9 N=16	15		>>×
95	5			2	18	Brown silty CLAY, trace organics, firm, moist (FILL)	CL	2-3-4 N=7	24	×	
				3	18			9-6-5 N=11	17	×	
90	10			4	18	Brown / gray silty CLAY, some crushed stone, hard, slightly moist (FILL)	CL	4-10-36 N=46	16	×	
				5	18	Dark gray silty CLAY, some organics, stiff, moist	CL	7-5-5 N=10	27	×	
85	15			6	10	Gray silty CLAY, some fine to medium sand, firm, moist	CL	1-2-2 N=4	29	×	
				7	8			0-1-2 N=3	30	×	
80	20			8	9	Gray clayey SILT, some fine to medium sand, soft to firm, moist	ML	1-2-2 N=4	30	×	Qu, = 1.0 tsf
				9	18			0-2-3 N=5	24	×	Qu, = 1.2 tsf
75	25			10	18			0-1-2 N=3	19	×	
				11	18	Gray medium to coarse SAND, some silty clay, loose, moist	SP	1-2-5 N=7			
70	30			12	18	Gray clayey SILT, trace fine sand, firm, moist	ML	1-1-3 N=4	26	×	
				13	18			0-0-2 N=2	24	×	Qu, = 0.8 tsf
65	35			14	18	Gray silty CLAY, some medium to fine sand, soft, moist	CL	0-0-2 N=2	23	×	Qu, = 0.6 tsf
				15	18			0-0-2 N=2	28	×	Qu, = 0.4 tsf
60	40			16	18	Gray SHALE, hard, slightly moist	CL	4-16-34 N=50	16	×	
				17	5	Auger refusal at 41.5'		100/5"	17	× >>◎	

Completion Depth: 41.5 ft
Date Boring Started: 2/6/08
Date Boring Completed: 2/6/08
Logged By: Harry Waters
Drilling Contractor: PSI, Inc.

Sample Types: Auger Cutting, Split-Spoon, Rock Core, Shelby Tube, Hand Auger, DCP

Latitude:
Longitude:
Remarks: Elevations are relative to the disk in the concrete curb at the northwest corner of the bridge (assumed to be 100.00')

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING 2

DESIGNED	S.M.S
CHECKED	S.W.M.
DRAWN	D.A.B.
CHECKED	D.T.M.

BORINGS
STRUCTURE NO. 084-3556

HAMPTON, LENZINI & RENWICK, INC.
CIVIL & STRUCTURAL ENGINEERS
LAND SURVEYORS
HLR
3085 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
(217) 546-3400
PROJECT NUMBER: 08.0042.130 DATE: 10/03/08

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	07-09101-02-BR	SANGAMON	16	16
COTTON HILL ROAD DISTRICT		CONTRACT NO. 93507		
		ILLINOIS	FED. AID PROJECT	