

04-26-13 LETTING ITEM 164

STATE OF ILLINOIS

DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

PLANS FOR PROPOSED SURFACE TRANSPORTATION PROGRAM - BRIDGE

LIVINGSTON COUNTY
 NEWTOWN ROAD DISTRICT
 SECTION 11-17129-01-BR
 ROUTE: T.R. 54 (800E)
 FEDERAL PROJECT BROS-0105(052)

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
54	11-17129-01-BR	LIVINGSTON	16	1
FED. ROAD DIST. NO.		ILLINOIS	CONTRACT NO. 87503	

INDEX OF SHEETS

- 1 COVER SHEET
- 2 GENERAL NOTES, COMMITMENTS AND MISCELLANEOUS DETAILS
- 3 SUMMARY OF QUANTITIES AND SCHEDULE OF QUANTITIES
- 4 ALIGNMENT, SURVEY TIES AND BENCHMARKS
- 5 PLAN AND PROFILE SHEET
- 6-14 STRUCTURE PLANS S.N. 053-4204
- 15-16 CROSS SECTIONS

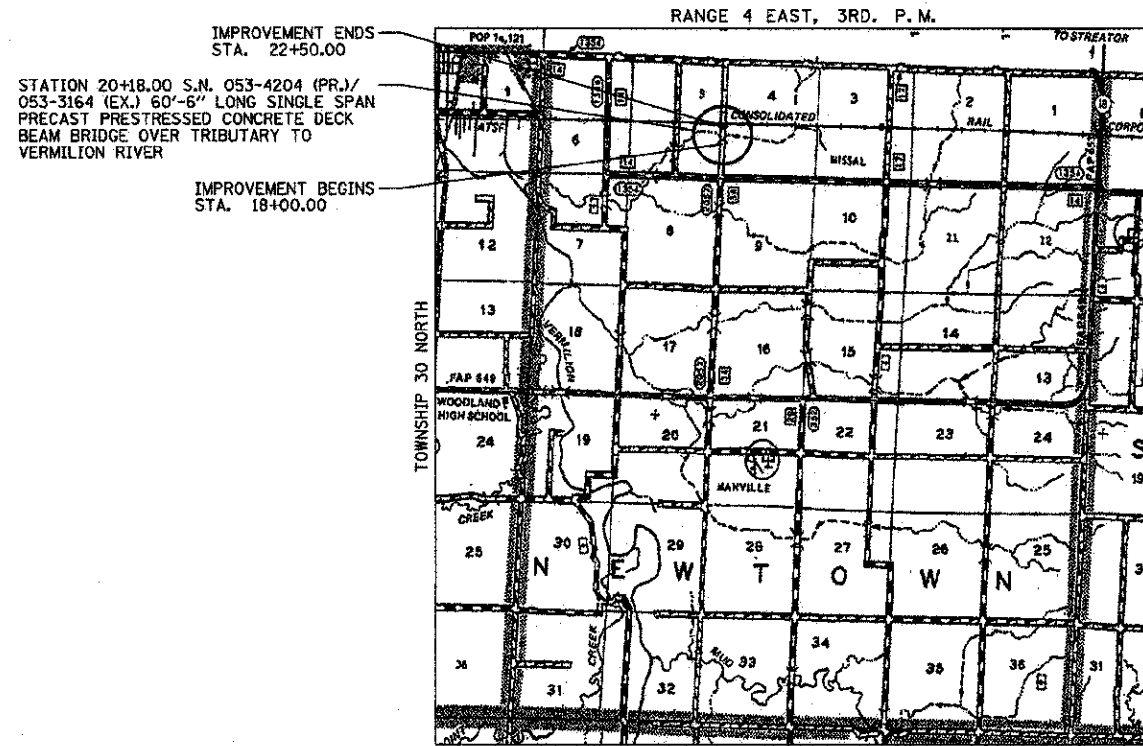
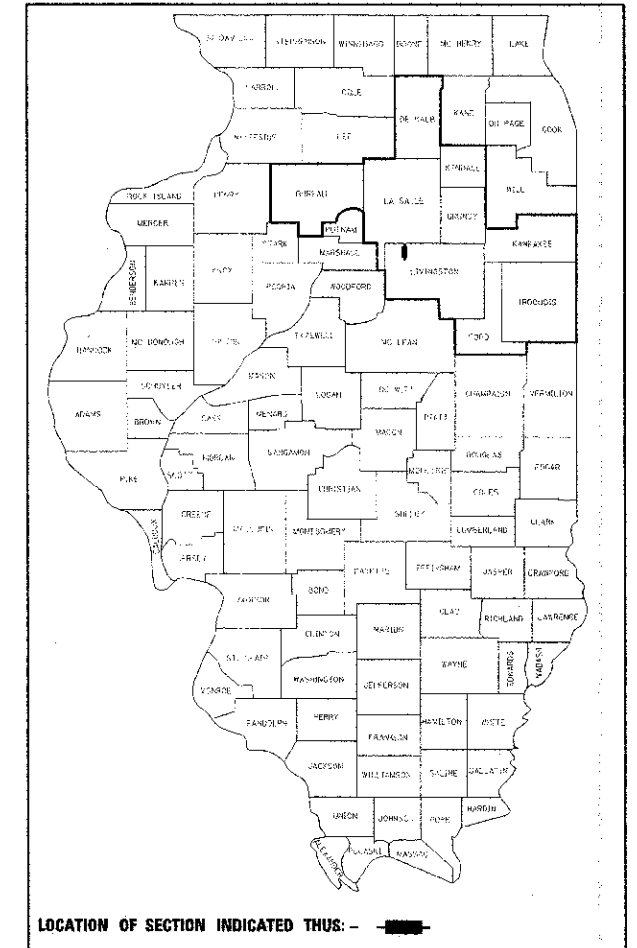
HIGHWAY STANDARD DETAILS

- 000001-06 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
- 001001-02 AREAS OF REINFORCEMENT BARS
- 001006 DECIMAL OF AN INCH AND OF A FOOT
- 280001-07 TEMPORARY EROSION CONTROL SYSTEMS
- 515001-03 NAME PLATE FOR BRIDGES
- 601101-01 CONCRETE HEADWALL FOR PIPE DRAIN
- 635006-03 REFLECTOR AND TERMINAL MARKER PLACEMENT
- 635011-02 REFLECTOR MARKER AND MOUNTING DETAILS
- 701901-02 TRAFFIC CONTROL DEVICES
- B.L.R. 21-9 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

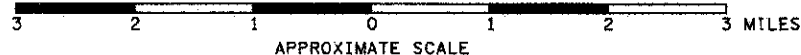
UTILITIES:

TELEPHONE - VERIZON

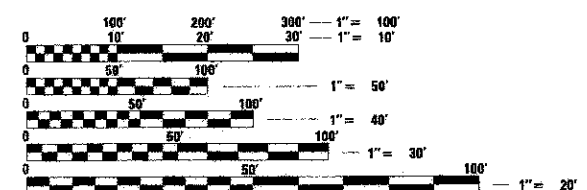
C-93-023-12



LOCATION MAP



GROSS LENGTH OF PROJECT = 450.00 FT = 0.085 MILE
 NET LENGTH OF PROJECT = 450.00 FT = 0.085 MILE

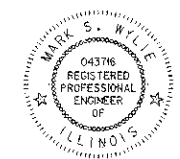


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
 JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
 1-800-892-0123
 OR 811

JOB NUMBER C-93-023-12
 CONTRACT NUMBER 87503
 CONSTRUCTION TYPE CODE: ROADWAY: 0004
 BRIDGE: 0011

FUNCTIONAL CLASSIFICATION: LOCAL ROAD (NON-URBAN)
 DESIGN SPEED: 30 MPH
 DESIGN TRAFFIC: 0-250
 % TRUCKS: 0.0
 % PASSENGER VEHICLES: 100.0



Mark S. Wylie Date 1/18/13
 MARK S. WYLIE
 ILLINOIS PROFESSIONAL ENGINEER
 NO. 062-043716
 EXPIRATION 11/30/13



STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

SUBMITTED 01-31 20 13
 [Signature] TOWNSHIP COMMISSIONER OF HIGHWAYS

SUBMITTED 01-31 20 13
 [Signature] COUNTY HIGHWAY ENGINEER

PASSED 2-14 20 13
 [Signature] DISTRICT 3 LOCAL ROADS AND STREETS ENGINEER

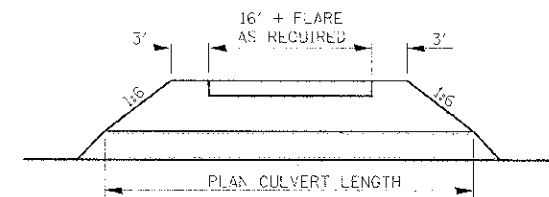
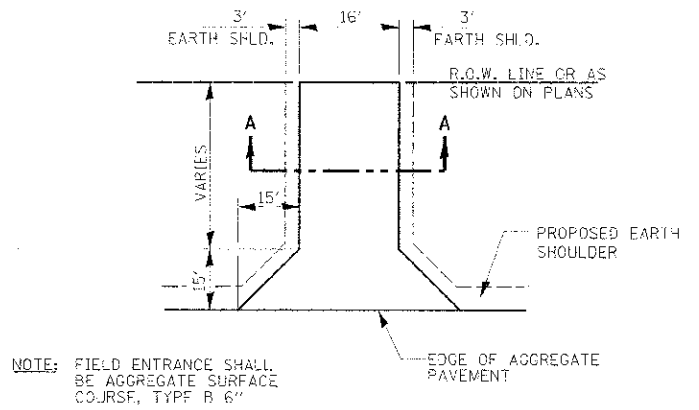
RELEASING FOR BID BASED ON LIMITED REVIEW 2-14 20 13
 [Signature] DEPUTY DIRECTOR OF HIGHWAYS, REGION 2 ENGINEER

GENERAL NOTES

EXCEPT AS NOTED ON THE PLANS, PAVEMENT GRADES SHOWN ARE AT THE TOP OF PAVEMENT SURFACES.
 FOR STABILIZATION, ALL TYPE III BARRICADES SHALL REQUIRE A MINIMUM OF FOUR SAND BAGS PER BARRICADE.
 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 MONUMENTS UNTIL AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING AN AUTHORIZED SURVEYOR RE-ESTABLISH ANY SECTION OR SUBSECTION MONUMENTS DESTROYED BY HIS OPERATIONS.
 SEEDING SHALL NOT BE PERMITTED AT ANY TIME WHEN THE GROUND IS FROZEN, WET, OR IN AN UNTILLABLE CONDITION. LOCATIONS TO BE SEEDDED WILL BE DETERMINED BY THE ENGINEER.
 THE FINISHED EARTHWORK SHALL HAVE A VEGETATION SUSTAINING SOIL COVERING THE TOP FOUR INCHES IN AREAS TO BE SEEDDED OR SODDED. THE VEGETATION SUSTAINING SOIL REQUIRED WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION.
 ALL ELEVATIONS REFER TO U.S.G.S. MEAN SEA LEVEL DATUM.
 ABANDONED UNDERGROUND UTILITIES THAT CONFLICT WITH CONSTRUCTION SHALL BE DISPOSED OF OUTSIDE THE LIMITS OF THE RIGHT OF WAY ACCORDING TO ARTICLE 202.03 OF THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION.
 ANY REFERENCE TO A STANDARD IN THESE PLANS SHALL BE INTERPRETED TO MEAN THE EDITION AS INDICATED BY THE SUBNUMBER SHOWN IN THE LIST OF STANDARDS INCLUDED IN THESE PLANS.
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING UTILITY PROPERTY FROM CONSTRUCTION OPERATIONS AS OUTLINED IN ARTICLE 107.31 OF THE STANDARD SPECIFICATIONS.

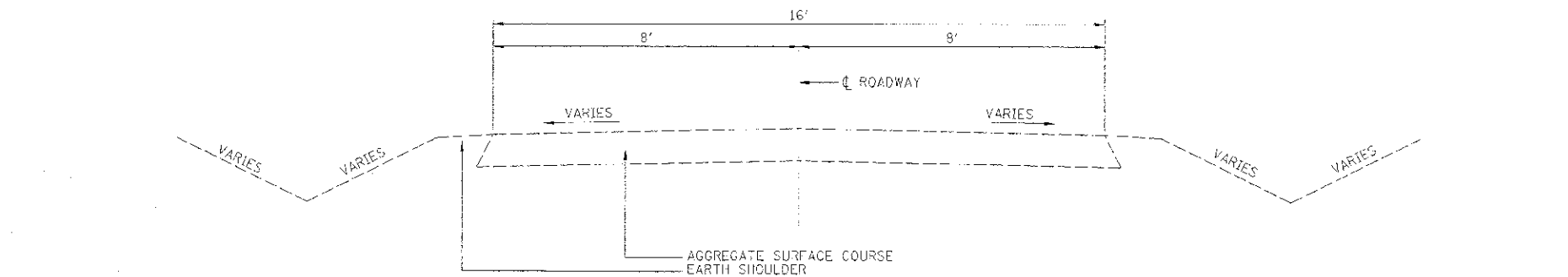
COMMITMENTS

NONE

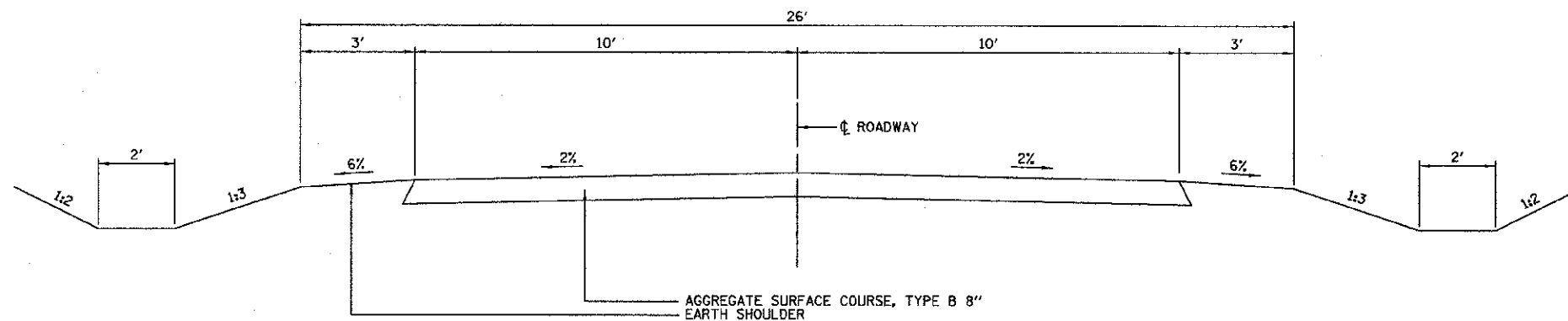


SECTION A-A

FIELD ENTRANCE DETAIL



EXISTING TYPICAL CROSS SECTION



PROPOSED TYPICAL CROSS SECTION

NOTE:

HEAVY DUTY EROSION CONTROL BLANKET SHALL BE PLACED ON 1:2 (V:H) BACK SLOPES AND ALL DITCH SLOPES GREATER THAN OR EQUAL TO 2.0%.

<p>7709 McDerm Drive Springfield, Illinois 61104 309623-8435, 309663-1571 fax</p>	DESIGNED - JJO CHECKED - JML DRAWN - JJO CHECKED - MSW	REVISED REVISED REVISED REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL NOTES, COMMITMENTS AND MISCELLANEOUS DETAILS	I.P. 54 SECTION 11-17129-01-BR COUNTY LIVINGSTON TOTAL SHEETS 16 SHEET NO. 2 CONTRACT NO. 87503
	DATE - 01/18/13	SCALE: SHEET NO. OF SHEETS STA. TO STA.			ILLINOIS FED. AID PROJECT

SUMMARY OF QUANTITIES

CODE NUMBER	ITEM	UNIT	TOTAL	STRUCTURE NO. 053-4204	
				ROADWAY 0004	STRUCTURE 0011
20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	48	48	
* 20200100	EARTH EXCAVATION	CU YD	430	430	
20300100	CHANNEL EXCAVATION	CU YD	228		228
20400800	FURNISHED EXCAVATION	CU YD	355	355	
* / 25000200	SEEDING, CLASS 2	ACRE	0.49	0.49	
25100635	HEAVY DUTY EROSION CONTROL BLANKET	SQ YD	538	538	
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	294	294	
* / 28000305	TEMPORARY DITCH CHECKS	FOOT	36	36	
28000500	INLET AND PIPE PROTECTION	EACH	2	2	
28100107	STONE RIPRAP, CLASS A4	SQ YD	386		386
28200200	FILTER FABRIC	SQ YD	386		386
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	426	426	
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1		1
50200100	STRUCTURE EXCAVATION	CU YD	58		58
50300225	CONCRETE STRUCTURES	CU YD	25.2		25.2
50300280	CONCRETE ENCASEMENT	CU YD	3.6		3.6
* 50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1,580		1,580
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	3,270		3,270
* * 50900205	STEEL RAILING, TYPE S1	FOOT	122		122
51201400	FURNISHING STEEL PILES HP10X42	FOOT	305		305
51202305	DRIVING PILES	FOOT	305		305
51203400	TEST PILE STEEL HP10X42	EACH	1		1
51500100	NAME PLATES	EACH	1		1
54200229	PIPE CULVERTS, CLASS D, TYPE 1 24"	FOOT	76	76	
67100100	MOBILIZATION	L SUM	1	1	
70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1	1	
* * 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4	4	
* Z0046304	PIPE UNDERDRAINS FOR STRUCTURES 4"	FOOT	120		120
* X2070304	POROUS GRANULAR EMBANKMENT, SPECIAL	CU YD	58		58

* SPECIAL PROVISION
* * SPECIALTY ITEM

SCHEDULE OF QUANTITIES

LOCATION	EARTHWORK			
	EARTH EXCAVATION	TOTAL EXCAVATION ADJUSTED FOR 25% SHRINKAGE	EMBANKMENT	BALANCE WASTE (+) SHORTAGE (-)
	CU YD	CU YD	CU YD	CU YD
STA 18+00 TO 22+50	430	325	680	-355

TOTALS
EARTH EXCAVATION = 430 C.Y.
FURNISHED EXCAVATION = 355 C.Y.

TREE REMOVAL (6 TO 15 UNITS DIAMETER) - 20100110	
STATION	UNIT
STA 20+39, 20' RT	8
STA 20+40, 21' RT	8
STA 20+54, 23' RT	12
STA 20+77, 34' RT	8
STA 20+99, 27' RT	12
TOTAL	48

AGGREGATE SURFACE COURSE, TYPE B - 40200800		
STATION TO	STATION	TON
STA 18+00	STA 19+87.75	179
STA 19+55.4 RT		26
STA 20+48.25	STA 22+50	200
STA 22+23.6 LT		21
TOTAL		426

SEEDING, CLASS 2 - 25000200		
STATION TO	STATION	ACRE
STA 18+00 LT	STA 22+70 LT	0.21
STA 18+00 RT	STA 22+50 RT	0.28
TOTAL		0.49

PIPE CULVERTS, CLASS D, TYPE 1 24" - 54200229		
STATION TO	STATION	FOOT
STA 19+29 RT	STA 19+75 RT	46
STA 22+08.5 LT	STA 22+38.5 LT	30
TOTAL		76

HEAVY DUTY EROSION CONTROL BLANKET - 25100635		
STATION TO	STATION	SQ YD
STA 18+00 LT	STA 22+70 LT	198
STA 18+00 RT	STA 22+50 RT	340
TOTAL		538

MOBILIZATION - 67100100	
STATION	L SUM
THROUGHOUT PROJECT	1
TOTAL	1

TEMPORARY EROSION CONTROL SEEDING - 28000250		
STATION TO	STATION	POUND
STA 18+00 LT	STA 22+70 LT	126
STA 18+00 RT	STA 22+50 RT	168
TOTAL		294

TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21 - 70101830	
STATION	L SUM
THROUGHOUT PROJECT	1
TOTAL	1

TEMPORARY DITCH CHECKS - 28000305	
STATION	FOOT
STA 19+90 LT	12
STA 19+90 RT	12
STA 20+50 LT	12
TOTAL	36

TERMINAL MARKER - DIRECT APPLIED - 78201000	
STATION	EACH
STA 19+85.5 LT	1
STA 19+85.5 RT	1
STA 20+50.5 LT	1
STA 20+50.5 RT	1
TOTAL	4

INLET AND PIPE PROTECTION - 28000500	
STATION	EACH
STA 19+29 RT	1
STA 22+39 LT	1
TOTAL	2



DESIGNED - JJO
CHECKED - JML
DRAWN - JJO
CHECKED - MSW

REVISOR
REVISOR
REVISOR
REVISOR

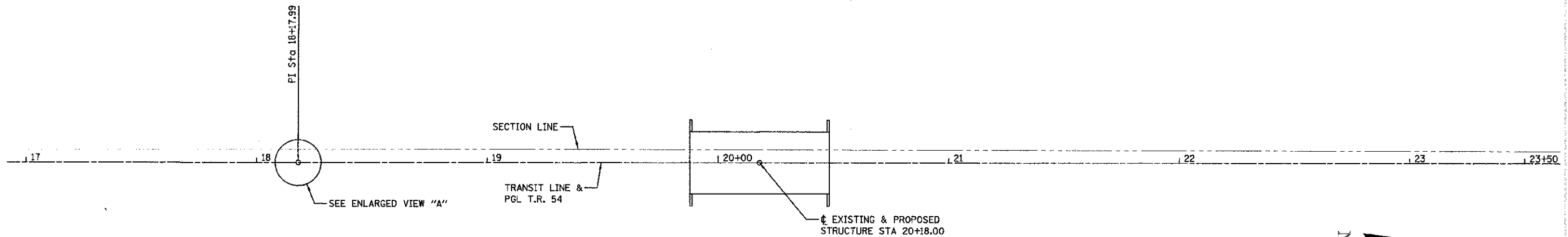
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES AND
SCHEDULE OF QUANTITIES

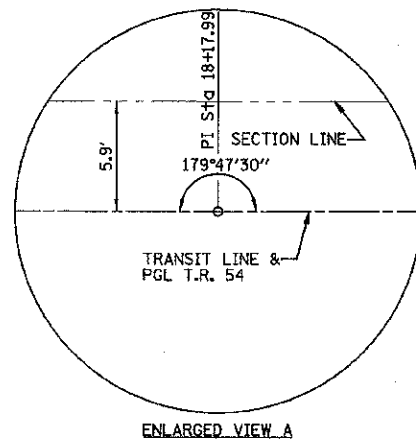
T.R. SECTION COUNTY TOTAL SHEET
54 11-17129-01-BR LIVINGSTON 16 3
CONTRACT NO. 87503
ILLINOIS FED. AID PROJECT

DATE - 01/19/13

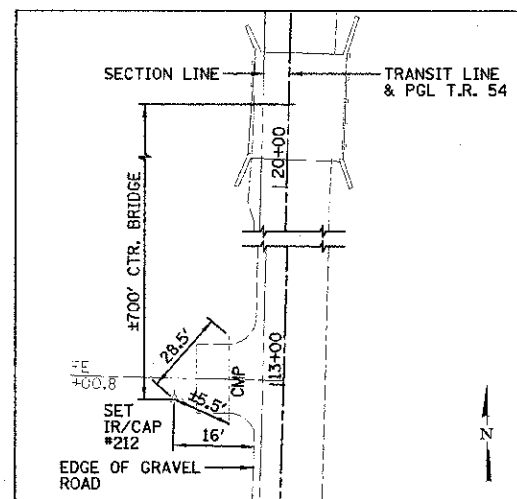
SCALE: SHEET NO. OF SHEETS STA. TO STA.



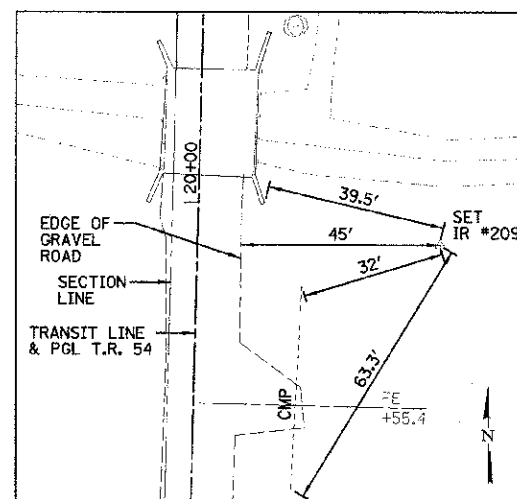
STATION	NORTHING	EASTING
17+00.00	1613509.479	862399.564
18+17.99	1613627.426	862402.755
20+18.00	1613827.381	862407.437
23+50.00	1614159.290	862415.210



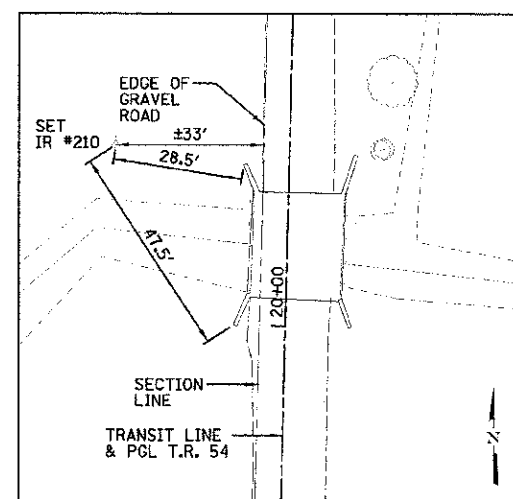
- BENCHMARK:**
 #501, S.W. FACE OF WOOD POST @ S.E. CORNER OF RAILROAD & ROAD 800E (520± N. OF BRIDGE)
 STA 25+55.33/30.69' RT.
 ELEVATION = 620.86
- BENCHMARK:**
 #502, TOP W. END 30" CONC. PIPE E. SIDE ROAD 800E 280' N. OF BRIDGE
 STA 23+03.05/35.75' RT.
 ELEVATION = 616.15
- BENCHMARK:**
 #503, TOP S.W. WINGWALL NEAR S.W. CORNER BRIDGE DECK
 STA 20+05.98/8.58' LT.
 ELEVATION = 620.56



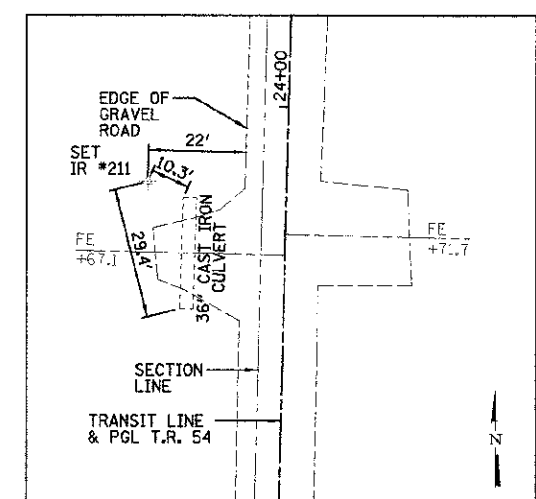
SET IR #212
 STA 12+96.09/23.97' LT.
 N=1613106.366
 E=862364.679
 ELEV=619.240



SET IR #209
 STA 19+92.00/53.46' RT
 N=1613800.138
 E=862460.279
 ELEV=617.640



SET IR #210
 STA 20+39.26/58.35' LT
 N=1613849.531
 E=862369.596
 ELEV=617.420



SET IR #211
 STA 23+82.73/30.71' LT
 N=1614192.732
 E=862385.277
 ELEV=618.800



DESIGNED - JJC
 CHECKED - JME
 DRAWN - JJO
 DATE - 01/18/13

REVISED -
 REVISED -
 REVISED -
 REVISED -

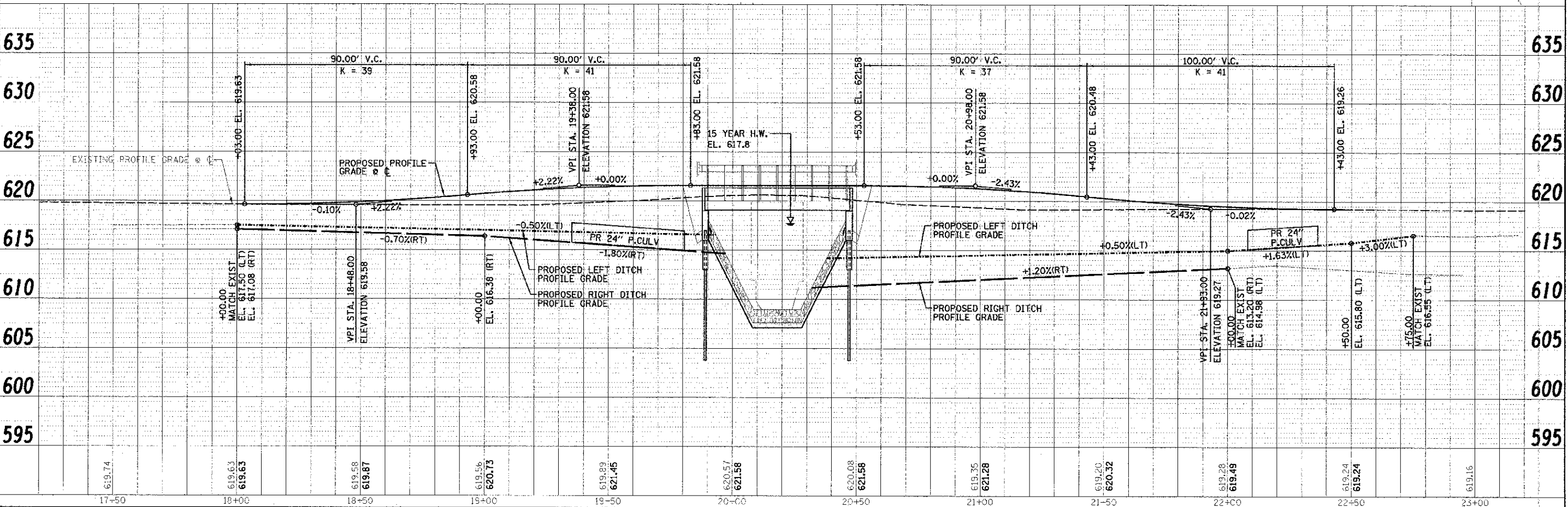
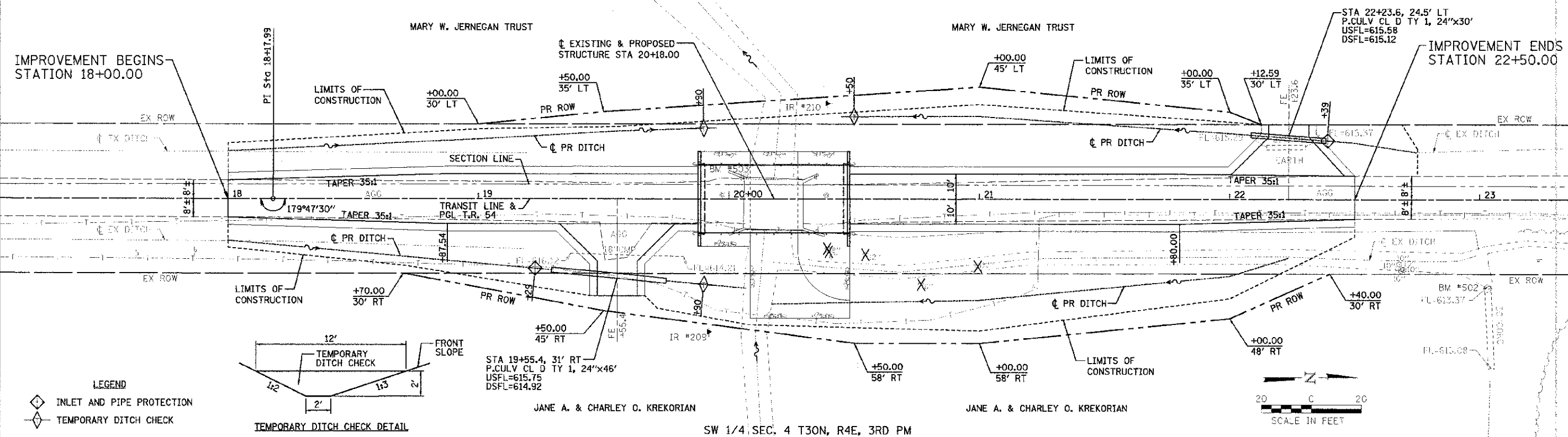
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

ALIGNMENT, SURVEY TIES AND BENCHMARKS

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

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
54	11-17129-01-BR	LIVINGSTON	16	4
CONTRACT NO. 87503			ILLINOIS FED. AID PROJECT	

SE 1/4 SEC. 5 T30N, R4E, 3RD PM



DATE	01/18/13
DESIGNED BY	JJO
CHECKED BY	JML
DRAWN BY	JJC
DATE	01/18/13

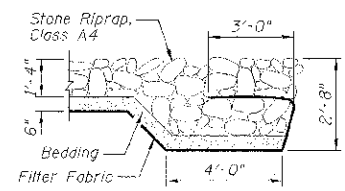
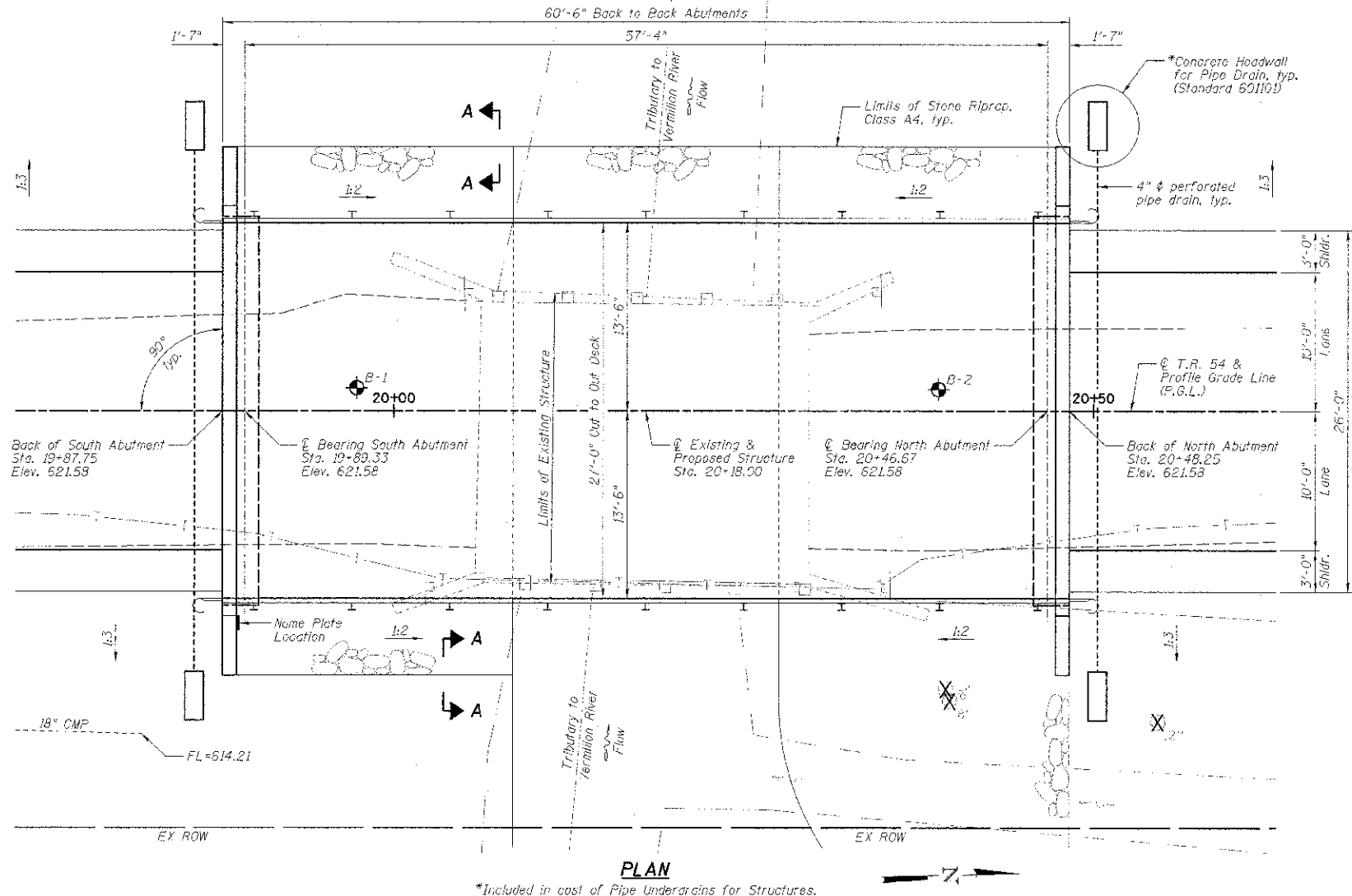
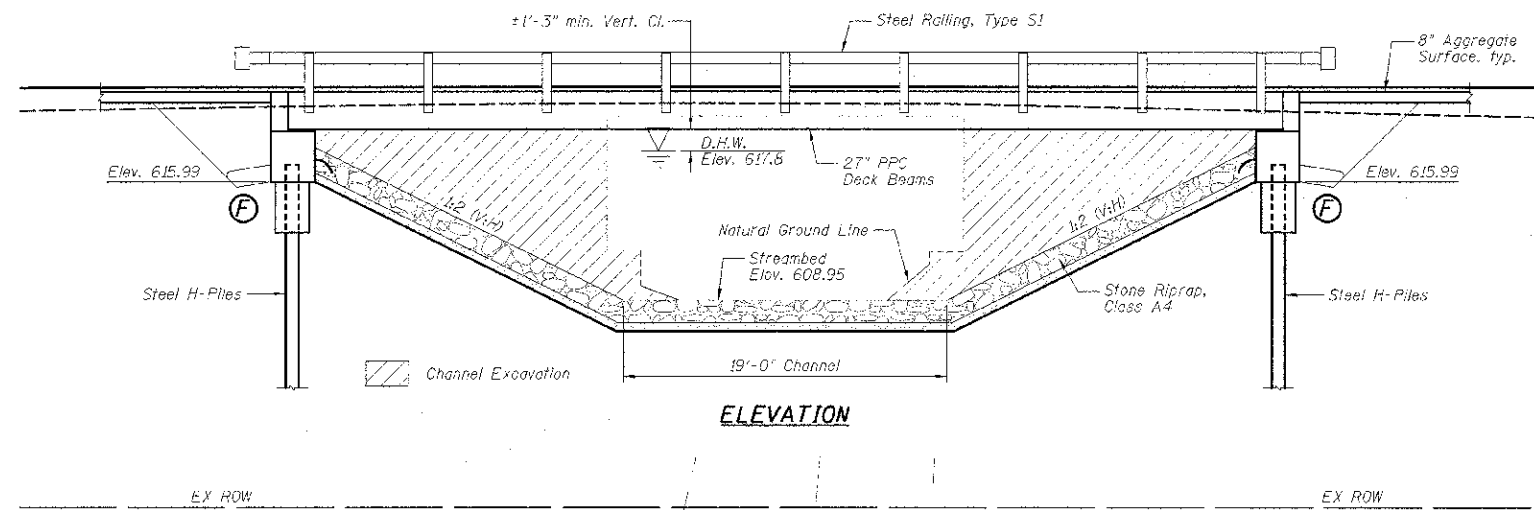
DATE	01/18/13
DESIGNED BY	JJO
CHECKED BY	JML
DRAWN BY	JJC
DATE	01/18/13

<p>Farnsworth GROUP, INC. 2709 Midway Drive Bloomington, Illinois 61704 309.633.9100, 309.663.1871 fax</p>	DESIGNED - JJO CHECKED - JML DRAWN - JJC CHECKED - MSW	REVISIONS REVISIONS REVISIONS REVISIONS	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PLAN & PROFILE SCALE: _____ SHEET NO. _____ OF _____ SHEETS STA. _____ TO STA. _____	T.R. 54 SECTION 11 17129 OF BR COUNTY LIVINGSTON CONTRACT NO. 87503	TOTAL SHEET NO. 3 SHEETS 16 CONTRACT NO. 87503
	DATE - 01/18/13					ILLINOIS REG. AID PROJ. ECT

Benchmarks: BM #501 Cotton Picker Spindle set in Southwest face of wood post @ Southeast corner of Railroad & Road 800E, ±520' North of bridge,
 Station 25+55.33/30.69 RT., Elevation 620.96,
 BM #502 Cut "□" in top of West end of 30" concrete pipe East side of Road 800E, ±290' North of bridge, Station 23+03.05/35.75' RT., Elevation 616.15,
 BM #503 Cut "□" in top of Southwest wingwall near Southwest corner of bridge deck, Station 20+05.98/8.58' LT., Elevation 620.56.

Existing Structure: S.N. 053-3164 was originally constructed in 1950. The structure consists of a single span steel beam superstructure with closed concrete abutments.
 The back to back abutment dimension measures ±24'-0" and the width measures ±21'-0". The structure is to be replaced during road closure.

No Salvage.



SECTION A-A

WATERWAY INFORMATION

Flood	Freq. Yr.	C.F.S.	Opening Sq. Ft.		Nat. Head - Ft.		Headwater El.		
			Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	
Design	15	1032	200	394	617.8	0.7	0.1	618.3	617.8
Base	100	1890	200	394	618.4	1.5	0.4	619.9	618.7
Overtopping									
Max. Calc.									

10 Yr. Velocity = 3.10 ft/sec. (Proposed)
 10 Yr. Velocity = 6.16 ft/sec. (Existing)

DESIGN SPECIFICATIONS

AASHTO LRFD Bridge Design Specifications, Customary U.S. Units, 5th Edition

DESIGN STRESSES

FIELD UNITS

$f'_c = 3,500$ psi (Cast-In-Place Concrete)
 $f_y = 60,000$ psi (Reinforcement)

PRECAST PRESTRESSED UNITS

$f'_c = 6,000$ psi
 $f'_{ci} = 5,000$ psi
 $f_{pu} = 270,000$ psi ($1/2$ " ϕ low relaxation strands)
 $f_{pst} = 201,960$ psi ($1/2$ " ϕ low relaxation strands)

LOADING HL-93

Allow 25#/sq. ft. for future wearing surface.

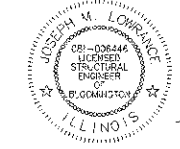
SEISMIC DATA

Seismic Performance Zone (SPZ) - 1
 Design Spectral Acceleration at 1.0 sec. (SD1) - 0.071g
 Design Spectral Acceleration at 0.2 sec. (SD2) - 0.128g
 Soil Site Class = C

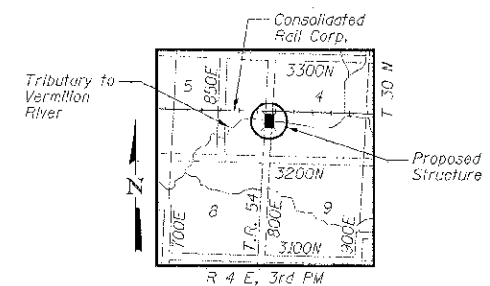
INDEX OF SHEETS

SHEET NO.	TITLE
B1	GENERAL PLAN AND ELEVATION
B2	GENERAL DATA
B3	27" x 36" PPC DECK BEAM
B4	27" x 36" PPC DECK BEAM DETAILS
B5	STEEL RAILING, TYPE S1
B6	ABUTMENTS
B7	HP FILE DETAILS
B8-B9	SOIL BORING LOGS

I certify that to the best of my knowledge, 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.



Joseph M. Lowrance
 JOSEPH M. LOWRANCE
 ILLINOIS STRUCTURAL ENGINEER
 NO. 081-006446
 Exp. Date 11/30/14



LOCATION SKETCH

GENERAL PLAN AND ELEVATION
T.R. 54 OVER TRIBUTARY
TO VERMILION RIVER
SECTION 11-17129-01-BR
LIVINGSTON COUNTY
STA. 20+18.00
STRUCTURE NO. 053-4204



DESIGNED - CEE	REVISOR
CHECKED - JML	REVISOR
DRAWN - DJM	REVISOR
CHECKED - MSW	REVISOR

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SHEET NO. 6 OF 9 SHEETS

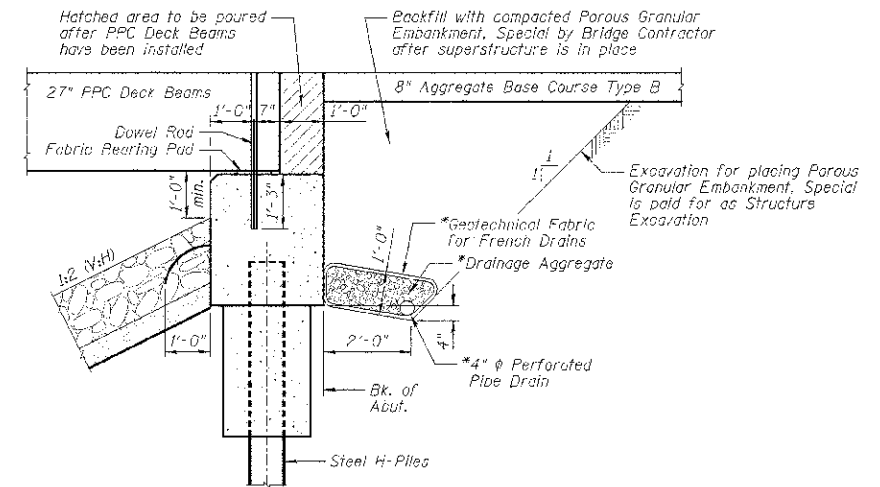
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
54	11-17129-01-BR	LIVINGSTON	16	6
CONTRACT NO. 87503			ILLINOIS-REC. AID PROJECT	

TOTAL BILL OF MATERIAL

ITEMS	UNITS	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.		228	228
Stone Riprap, Class A4	Sq. Yd.		386	386
Filter Fabric	Sq. Yd.		386	386
Removal of Existing Structures	Each	1		1
Structure Excavation	Cu. Yd.		58	58
Concrete Structures	Cu. Yd.		25.2	25.2
Concrete Encasement	Cu. Yd.		3.6	3.6
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1,580		1,580
Reinforcement Bars, Epoxy Coated	Pound		3,270	3,270
Steel Rolling, Type S1	Foot	122		122
Furnishing Steel Piles HP10x42	Foot		305	305
Driving Piles	Foot		305	305
Test Pile HP10x42	Each		1	1
Name Plates	Each	1		1
Pipe Underdrains For Structures 4"	Foot		120	120
Parous Granular Embankment, Special	Cu. Yd.		58	58

TRIBUTARY TO VERMILION RIVER
 BUILT 20__ BY
 LIVINGSTON COUNTY
 SECTION 11-17129-01-BR
 STATION 20+15.00
 STR. NO. 053-4204 LOADING HL-93

NAME PLATE
 See Standard 515001



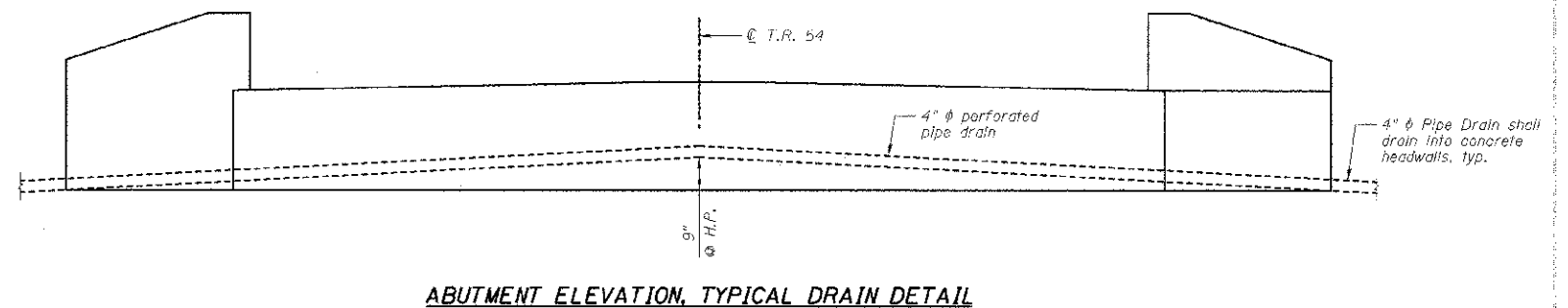
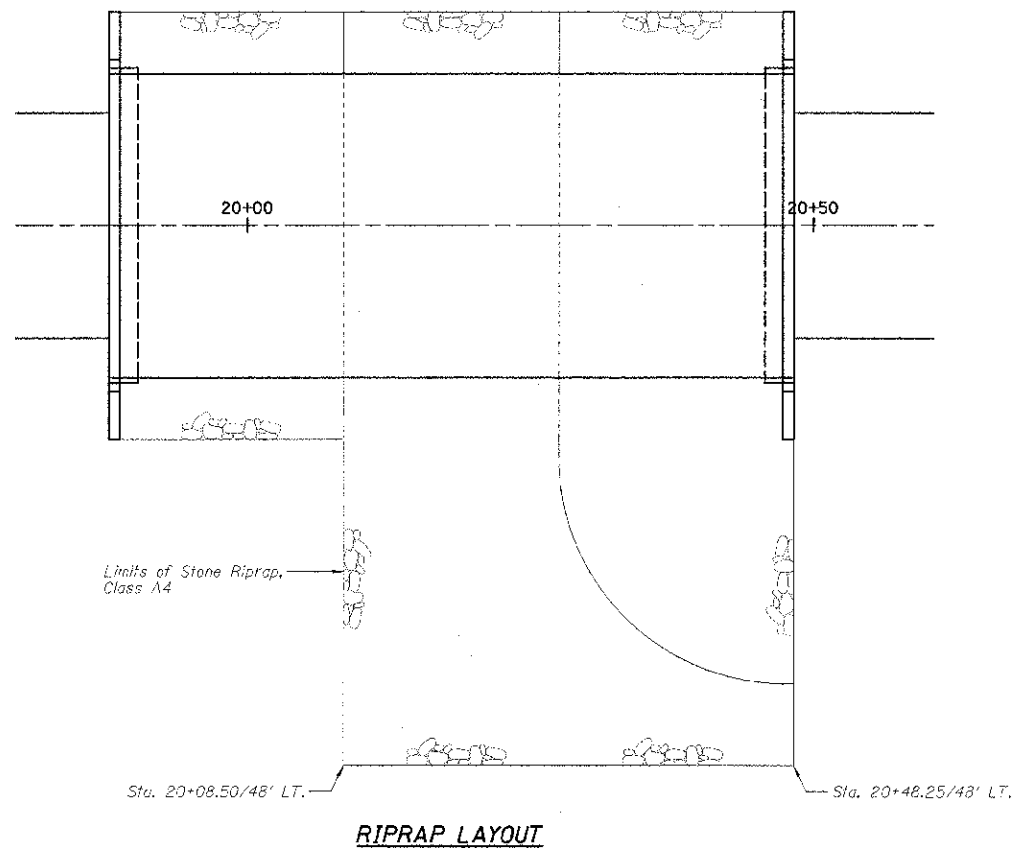
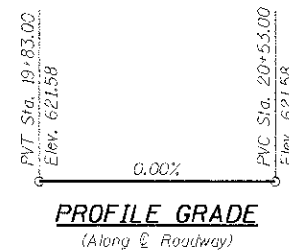
SECTION THRU NORTH ABUTMENT
 (Similar for South Abutment)

NOTES:

- *Included in cost of Pipe Underdrains For Structures.
- 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 601101).

GENERAL NOTES:

- Reinforcement bars designated (E) shall be epoxy coated.
- Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
- The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.
- Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure.



Farnsworth GROUP, INC.
 2709 McGraw Drive
 Bloomington, Illinois 61704
 309/883-9433, 309/883-1871 fax

DATE - 01/18/13

DESIGNED - CEE
 CHECKED - JML
 DRAWN - DJM
 CHECKED - MSW

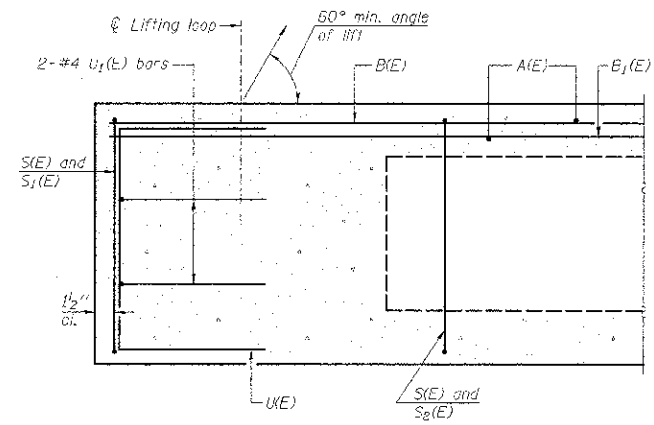
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**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

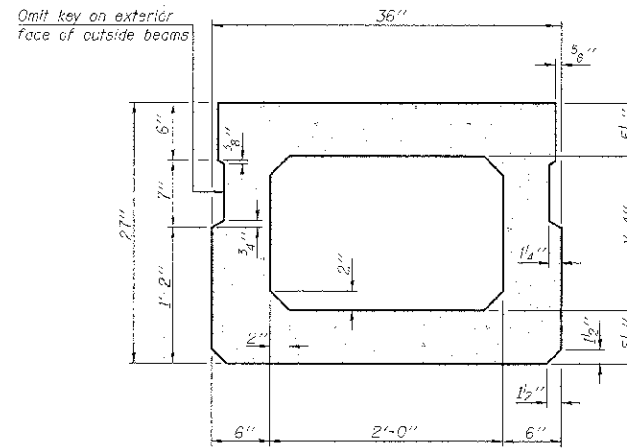
**GENERAL DATA
 STRUCTURE NO. 053-4204**

SHEET NO. B2 OF 9 SHEETS

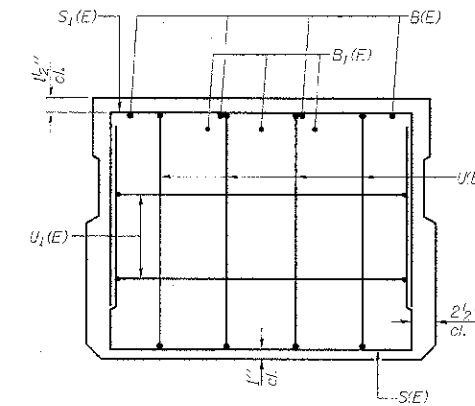
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
54	11-17129-01-BR	LIVINGSTON	16	7
CONTRACT NO. 87503				
ILLINOIS FED. AID PROJECT				



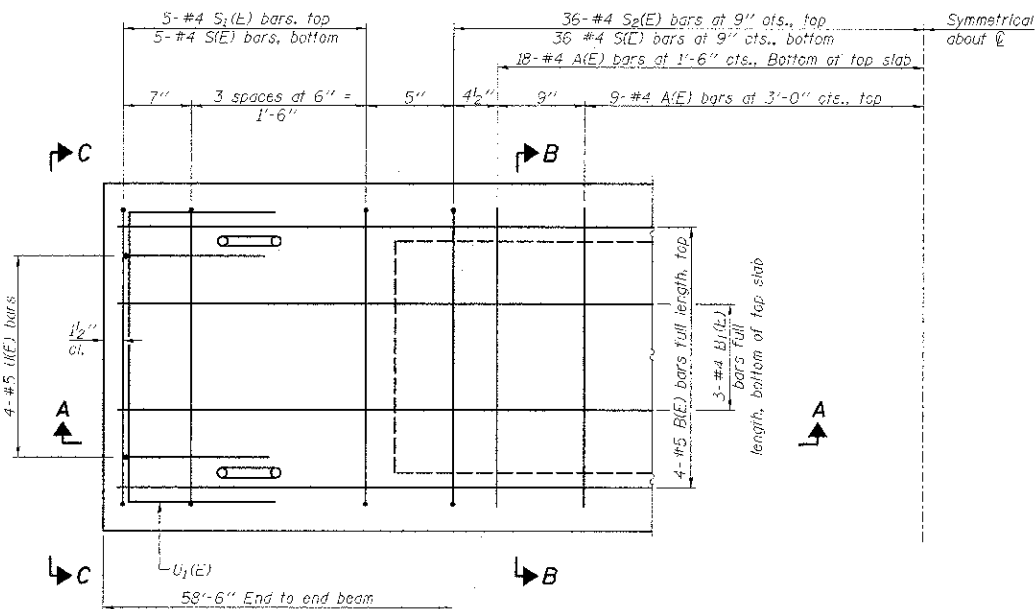
SECTION A-A



SECTION B-B
(Showing dimensions)

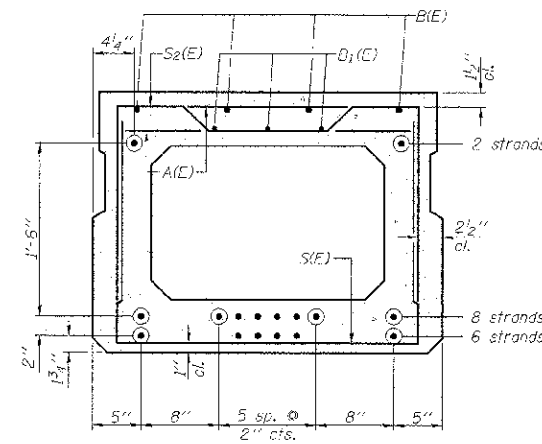


VIEW C-C



PLAN VIEW

Note: Spacing of S1(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.



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.

MINIMUM BAR LAP

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

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(C)	54	#4	2'-7"	—
B1(E)	8	#5	30'-5"	—
B(E)	9	#4	20'-9"	—
S1(E)	82	#4	6'-5"	—
S2(E)	10	#4	5'-11"	—
S0(E)	72	#4	6'-2"	—
U1(E)	9	#5	4'-6"	—
U2(E)	4	#4	5'-0"	—

Note: See Sheet B4 for additional details and Bill of Material.

PD-2736-0

7-1-10

Farnsworth
GROUP, INC.
2700 McGraw Drive
Bloomington, Illinois 61704
318/695-8435, 318/663-1571 fax

DESIGNED - CEE
CHECKED - JML
DRAWN - DJM
CHECKED - MSW
DATE - 01/18/13

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REVISED
REVISED

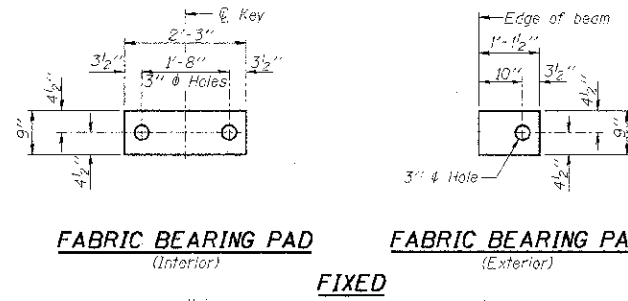
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

27" x 36" PPC DECK BEAM
STRUCTURE NO. 053-4204

SHEET NO. B3 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
54	11-17129-01-BR	LIVINGSTON	16	8
				CONTRACT NO. 87503

ILLINOIS FED. AID PROJECT

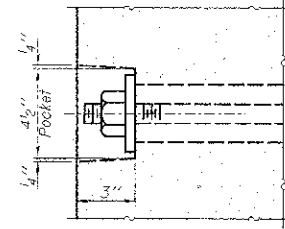


FABRIC BEARING PAD
(Interior)

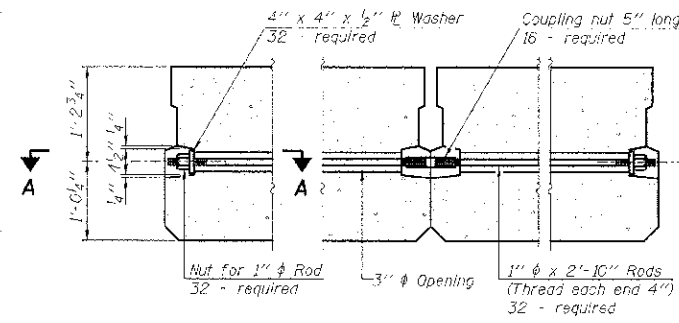
FABRIC BEARING PAD
(Exterior)

FIXED

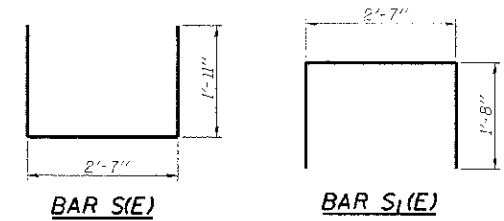
Notes:
All bearing pads shall be 1" thick.
Omit holes when using expansion bearings.
Expansion bearing pad shall be bonded to the substructure.



SECTION A-A

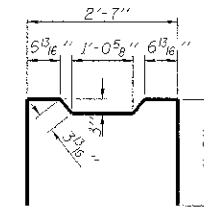


TYPICAL TRANSVERSE TIE ASSEMBLY

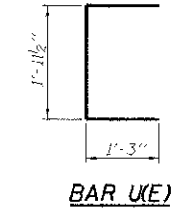


BAR S(E)

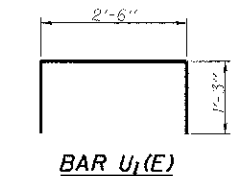
BAR S1(E)



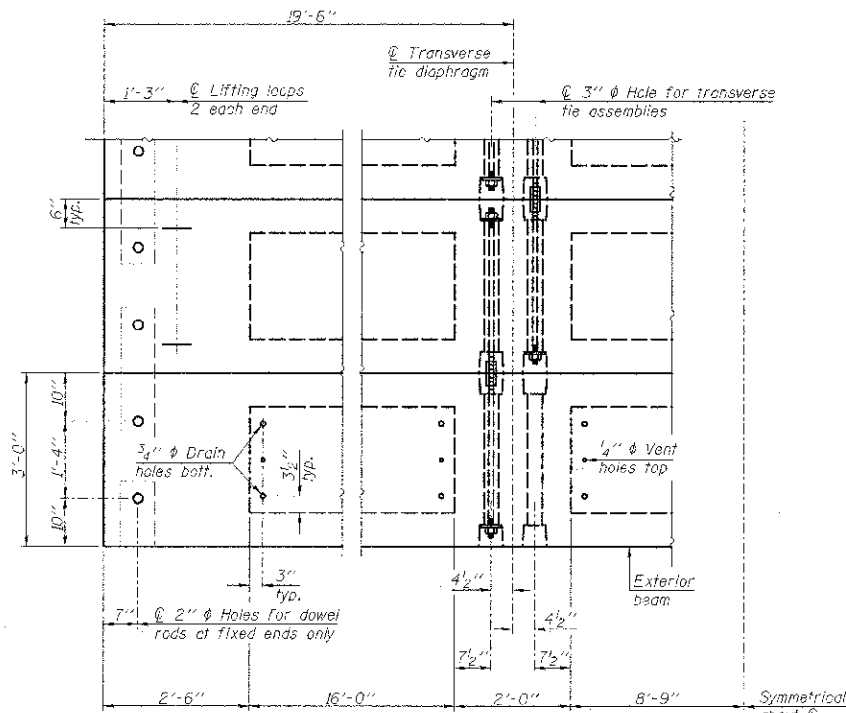
BAR S2(E)



BAR U(E)

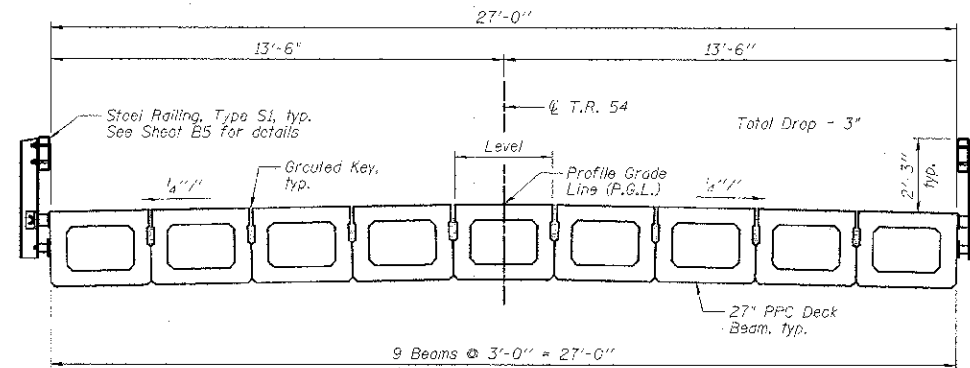


BAR U1(E)

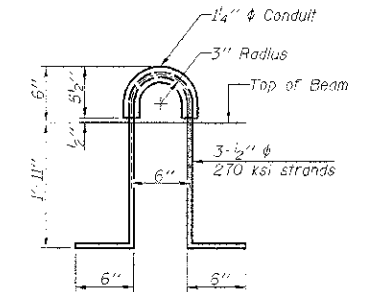


PLAN VIEW

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



CROSS SECTION
(Looking North @ ϕ of Bridge)



LIFTING LOOP DETAIL

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1,580
---	---------	-------

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" 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 1/2" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.
A minimum 2 1/2" 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.

PD-2736-0D 7-1-10

Farnsworth GROUP, INC.
2709 McGraw Drive
Schaumburg, Illinois 60194
309.663-4436, 309.663-1574 fax

DESIGNED - CSE
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DATE - 01/18/13
CHECKED - MSW

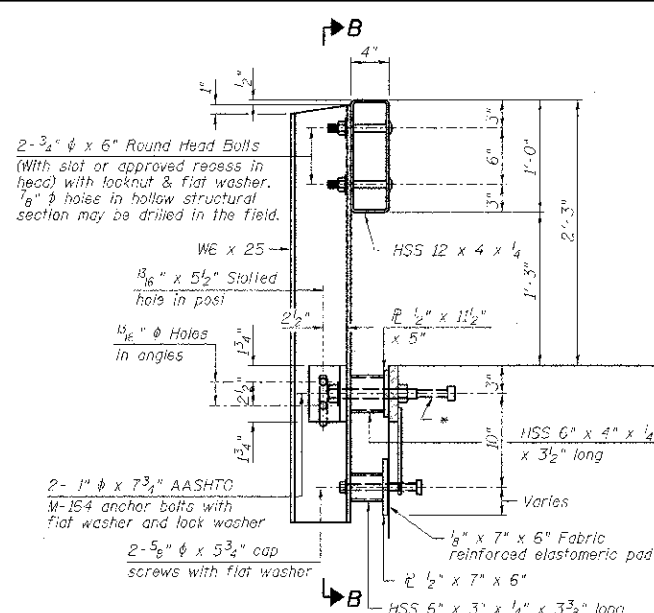
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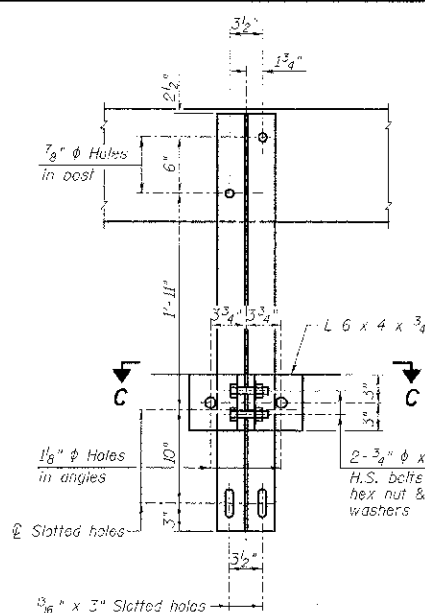
**27" x 36" PPC DECK BEAM DETAILS
STRUCTURE NO. 053-4204**

SHEET NO. 54 OF 9 SHEETS

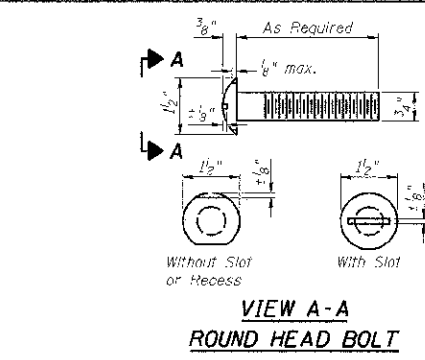
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
54	11-17129-01-BR	LIVINGSTON	16	9
CONTRACT NO. 87503			ILLINOIS FED. AID PROJECT	



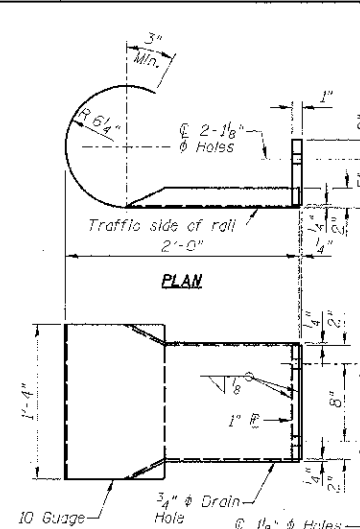
SECTION AT RAILING POST



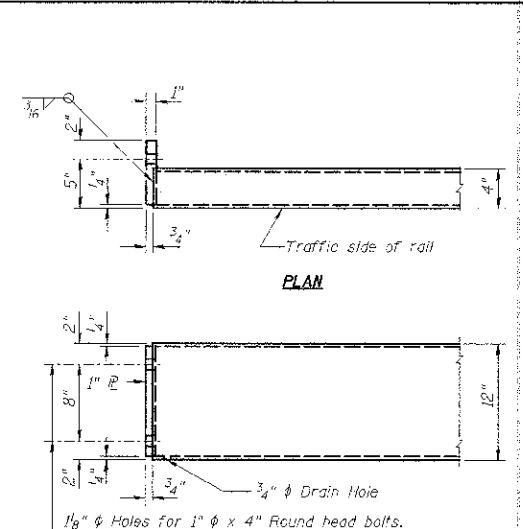
SECTION B-B



VIEW A-A ROUND HEAD BOLT

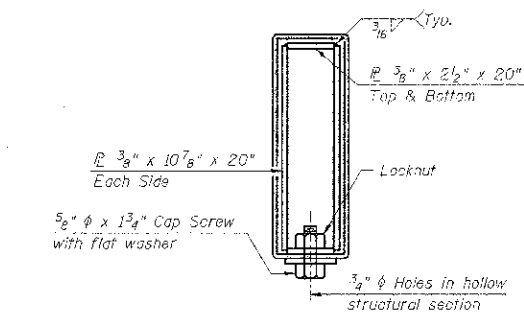


ELEVATION CURLED END SECTION

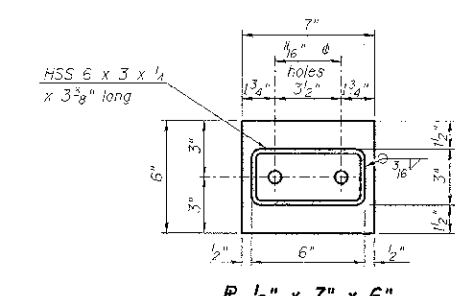


ELEVATION END OF RAIL DETAILS

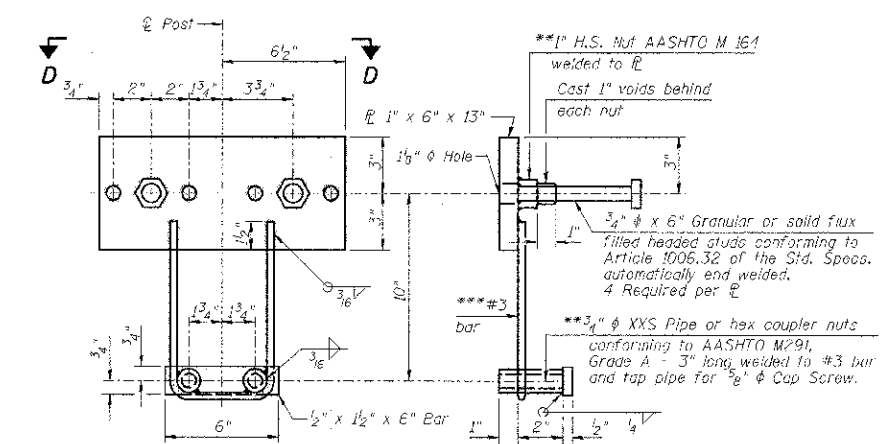
NOTE: The cost of the curled end sections shall be included in the cost of Steel Railing, Type S1.



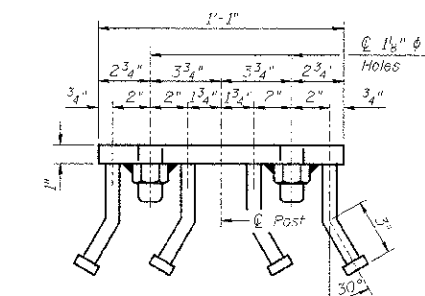
SECTIONS AT RAIL SPLICE



SECTION C-C

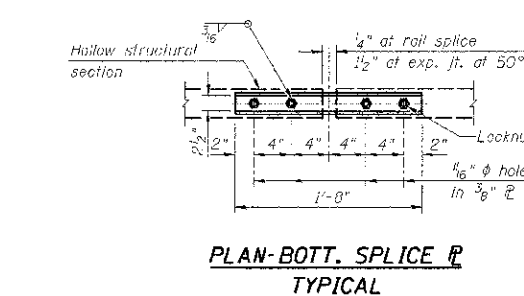


ANCHOR DEVICE

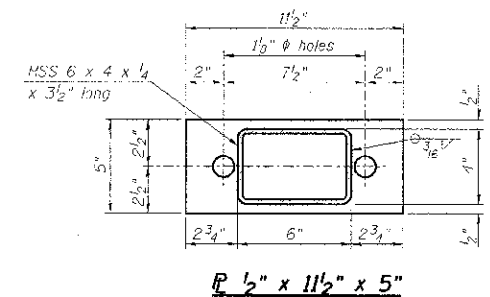


VIEW D-D

- NOTES:
- 1.) All field drilled holes shall be coated with an approved zinc rich paint before erection.
 - 2.) All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.
 - 3.) *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.

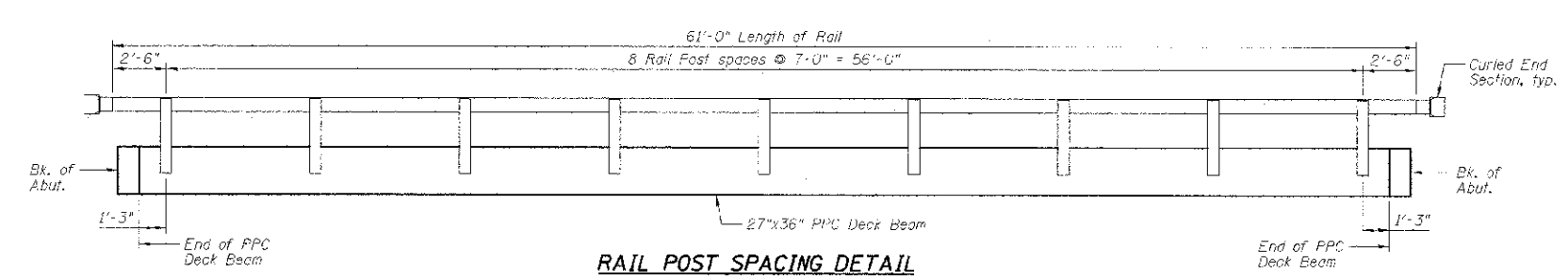


PLAN-BOTT. SPLICE R TYPICAL



SECTION C-C

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



RAIL POST SPACING DETAIL

(10'-9" Maximum Post Spacing)

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S1	Foot	122

Farnsworth GROUP, INC.
 2709 McGraw Drive
 Skokie, Illinois 60074
 308663-8435, 308662-1571 fax

DESIGNED - CEE
 CHECKED - JML
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 CHECKED - MSW
 DATE - 01/18/13

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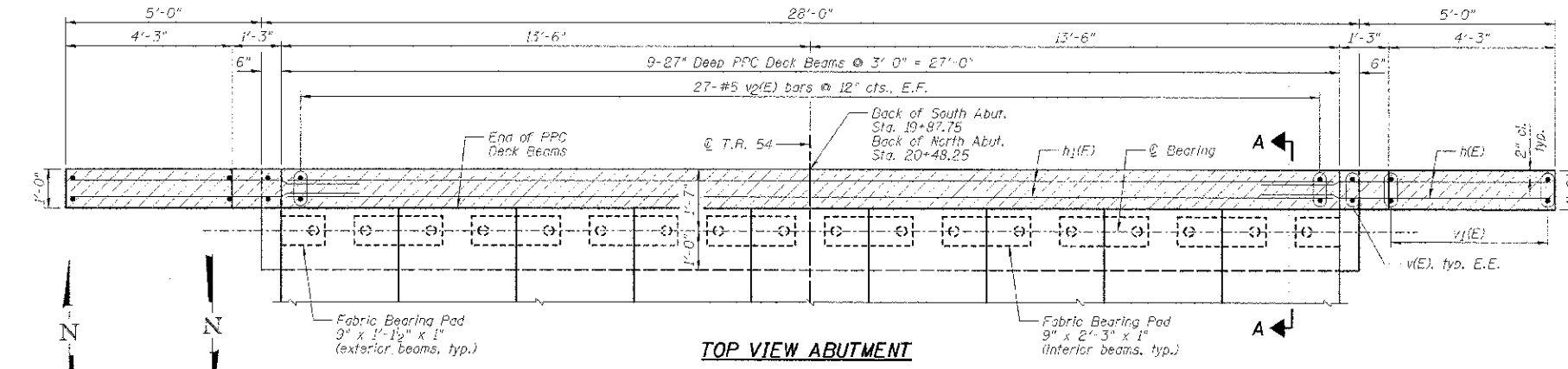
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

STEEL RAILING, TYPE S1
 STRUCTURE NO. 053-4204

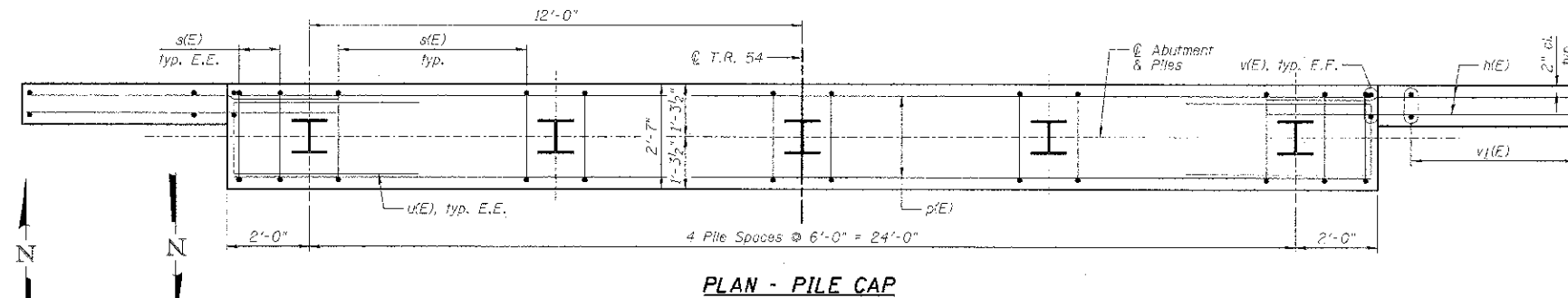
SHEET NO. 05 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
54	11-17129-01-BR	LIVINGSTON	16	12 IC
				CONTRACT NO. 87503

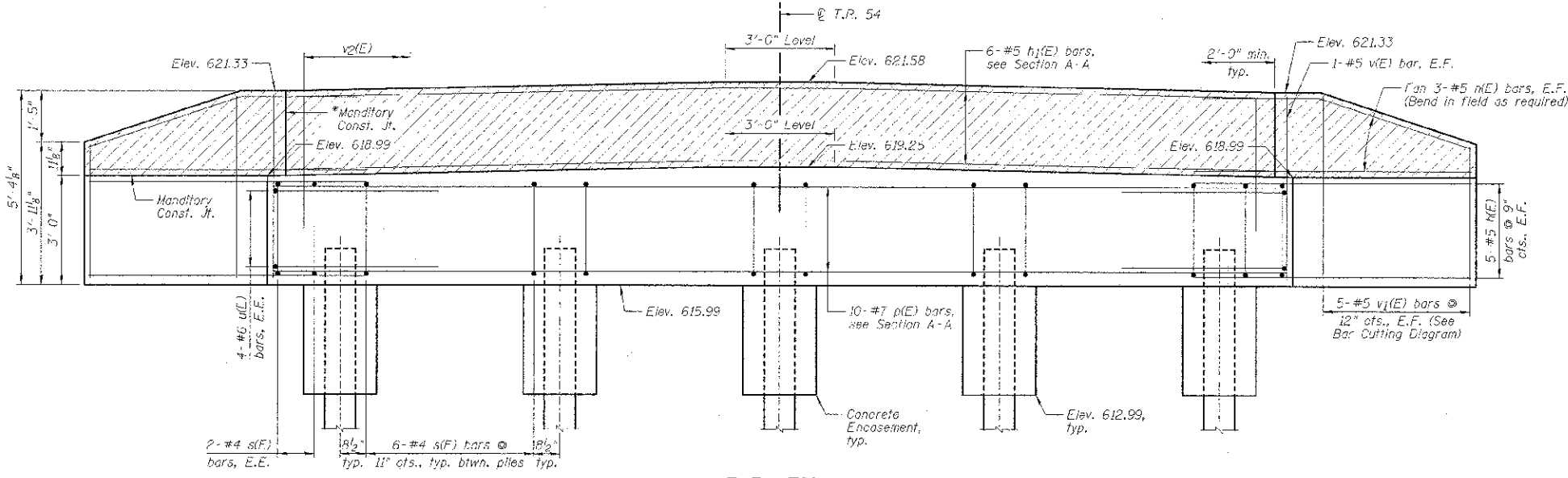
ILLINOIS FED. AID PROJECT



NORTH ABUTMENT SOUTH ABUTMENT



NORTH ABUTMENT SOUTH ABUTMENT

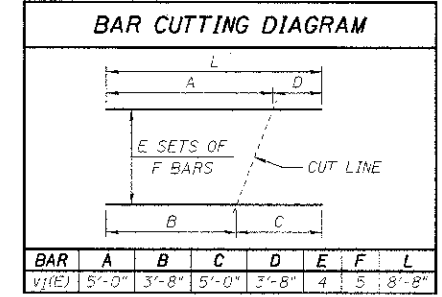
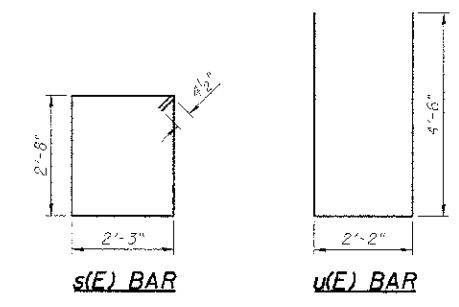


ELEVATION

*Cast top of wingwall flush with exterior beam face after beams have been erected.

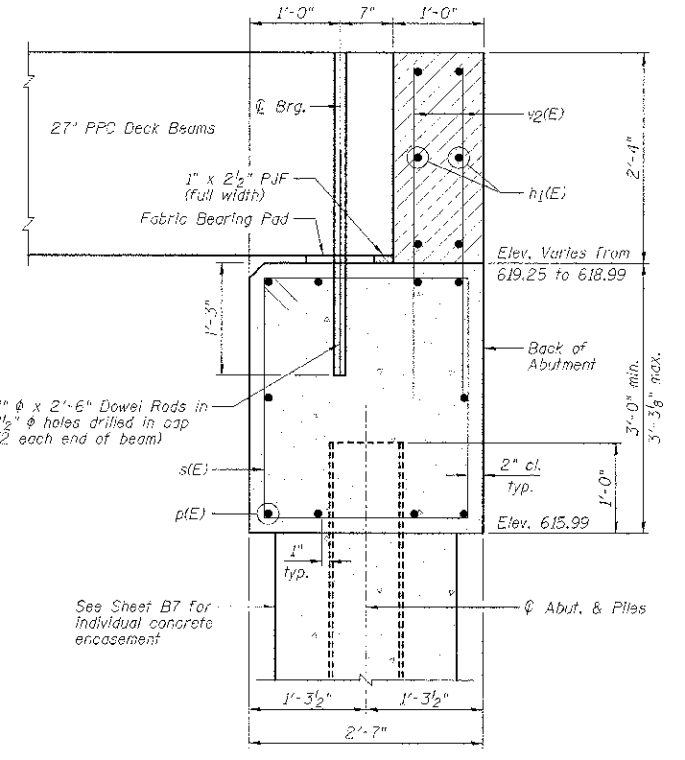
LEGEND

Hatched area to be poured after PPC Deck Beams have been installed



**TWO ABUTMENTS
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h1(E)	64	#5	7'-7"	
h2(E)	12	#5	25'-8"	
p(E)	20	#7	27'-8"	
s(E)	96	#4	10'-7"	
u(E)	16	#6	11'-2"	
v(E)	8	#5	5'-0"	
v1(E)	20	#5	8'-8"	
v2(E)	108	#5	3'-8"	
Item	Unit	Quantity		
Concrete Structures	Cu. Yd.	25.2		
Concrete Encasement	Cu. Yd.	3.6		
Reinforcement Bars, Epoxy Coated	Pound	3,270		
Furnishing Steel Piles HP10x42	Foot	305		
Drying Piles	Foot	305		
Test Pile Steel HP10x42	Each	1		
Pipe Underdrains For Structures 4"	Foot	120		
Porous Granular Embankment, Special	Cu. Yd.	58		



SECTION A-A

SOUTH ABUTMENT PILE DATA:

Type	HP10x42 Steel
No. Req'd.	4+1 Test Pile
Est. Length	35 feet
Nominal Required Bearing	335 kips
Factored Resistance Available	184 kips

NORTH ABUTMENT PILE DATA:

Type	HP10x42 Steel
No. Req'd.	5
Est. Length	33 feet
Nominal Required Bearing	335 kips
Factored Resistance Available	184 kips

NOTES:

- 1.) E.E. denotes Each End & E.F. denotes Each Face.
- 2.) Order v1(E) bars full length. Cut according to Bar Cutting Diagram. Use remainder of v1(E) bars in opposite face of wingwall.

Farnsworth GROUP, INC.
2700 McDermott Drive
Evanston, Illinois 61124
309.663.6435, 309.963.1574 fax

DESIGNED - CEE
CHECKED - JML
DRAWN - DJM
DATE - 01/18/13

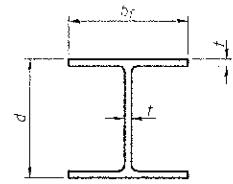
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REVISED
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**ABUTMENTS
STRUCTURE NO. 053-4204**

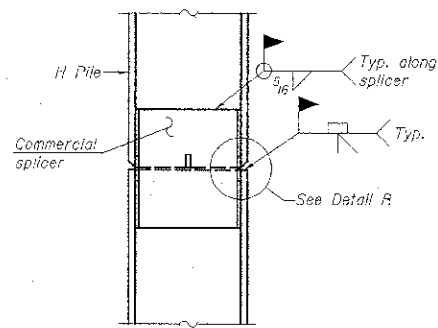
SHEET NO. 66 OF 9 SHEETS

T.R. SECTION COUNTY TOTAL SHEETS
54 3-17129-01-BR LIVINGSTON 16 21
CONTRACT NO. 87503
ILLINOIS FED. AID PROJECT

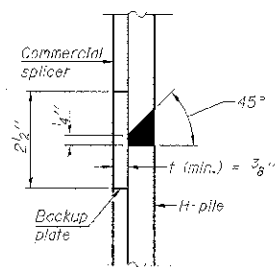


STEEL PILE TABLE

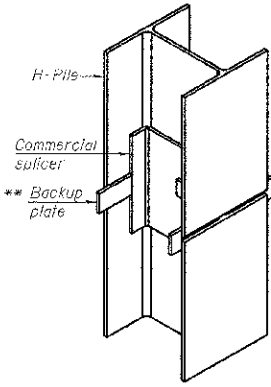
Designation	Depth d	Flange width b _f	Web and Flange thickness t	Encasement diameter A
HP 14x17	14 1/4"	14 7/8"	5/8"	30"
x102	14"	14 3/4"	5/8"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	5/8"	24"
x74	12 5/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 5/8"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	5/8"	24"
x42	9 3/4"	10 1/8"	5/8"	24"
HP 8x36	8"	8 1/8"	7/16"	18"



ELEVATION

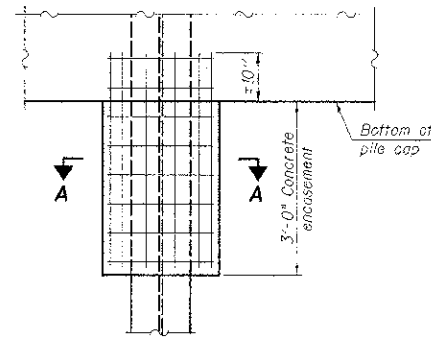


DETAIL "B"



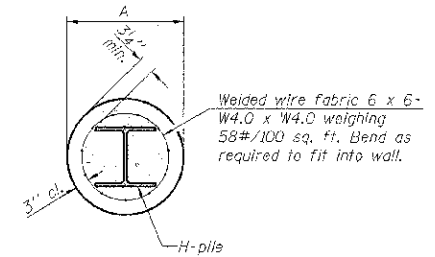
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



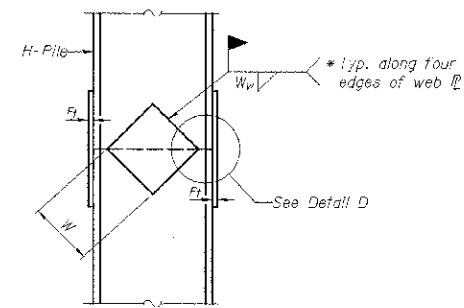
ELEVATION

PILE ENCASEMENT

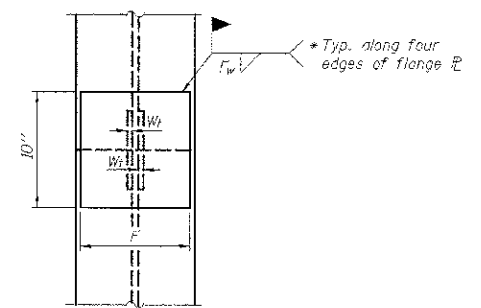


SECTION A-A

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

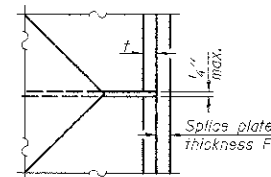


ELEVATION



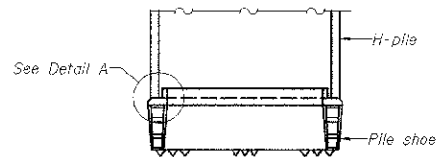
END VIEW

Designation	F	t _f	F _w	W	W _t	W _w
HP 14x17	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"	3/8"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	3/8"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	5/8"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	1/2"	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"

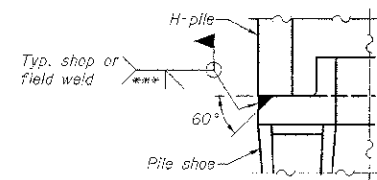


DETAIL D

WELDED PLATE FIELD SPLICE

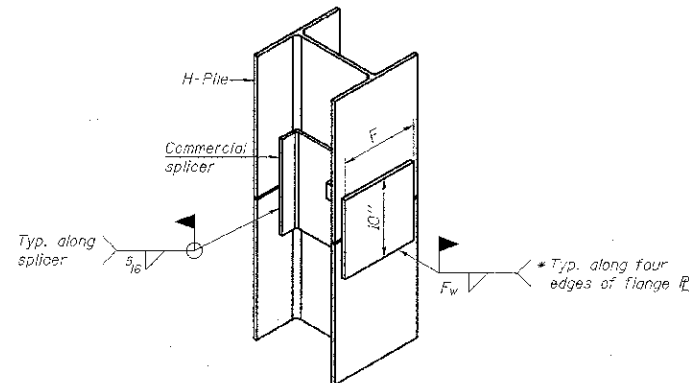


ELEVATION



DETAIL A

H-PILE SHOE ATTACHMENT



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

- * Interrupt welds 1/4" from end of web and/or each flange.
- ** Remove portions of backup plates that extend outside the flanges.
- *** Weld size per pile shoe manufacturer (5/16" min.).

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

F-HP

1-27-12

Farnsworth GROUP, INC.
2708 McDraw Drive
Bloomington, Illinois 61704
309/663-3433, 309/663-1071 fax

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DRAWN - DJM
DATE 01/16/13
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DEPARTMENT OF TRANSPORTATION**

**HP PILE DETAILS
STRUCTURE NO. 053-4204**

T.R. 54 SECTION 11-7129-01-9R COUNTY LIVINGSTON TOTAL SHEET NO. 12 CONTRACT NO. 87503 ILLINOIS FED. AID PROJECT

SHEET NO. 07 OF 9 SHEETS

Midwest Testing Services, Inc.
3705 Progress Blvd.
Peru, IL 61354
Phone: 815-223-6696
Fax: 815-223-6659
e-mail: mts37@comcast.net

BORING LOG
Sheet 1 of 2

Client: Farnsworth Group, Inc.
Project Name: Section 11-17129-01-BR Newton Twp.
Project Site: Livingston County, Illinois

Boring No. B-1
Surface Elev. 620.36
Auger Depth 42' Rotary Depth NA
Start Date 05/21/11 Finish Date 05/21/11

Location: 5' West of Centerline of Roadway
and 22' South of Center of Existing Bridge

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Sample No.	Sample Type	Q _u (TSF)	N Value (Blows)	Bulge / Shear	Moisture (%)	Dry Density (PCF)	DRILLED BY
									REMARKS
620.36									Randy Satrianski Diedrich D-120
619.36	Stiff Yellowish Brown And Gray Silty Clay	1	SS	1.3	7	S	16		
618.36									
617.36									
616.36									
615.36			2	SS	1.3	6	B	23	
614.36									
613.36									
612.36			3	SS	1.5	6	B	22	
611.36	Stiff Brownish Gray Clay	4	SS	1.9	8	B	20		
610.36									
609.36	Very Stiff Brownish Gray Clay	5	SS	2.1	11	B	21		
608.36									
607.36									
606.36									
605.36	Medium Gray Fine Sand	6	SS	2.6	13	B	18		
604.36									
603.36	Very Stiff Gray Clay	7	SS	---	12	---	---		
602.36									
601.36		8	SS	3.8	21	B	15		
600.36									

Groundwater Data: Static water level after auger removal - elevation 610.2.
Comments:

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BORING LOG
Sheet 2 of 2

Client: Farnsworth Group, Inc.
Project Name: Section 11-17129-01-BR Newton Twp.
Project Site: Livingston County, Illinois

Boring No. B-1
Surface Elev. 620.36
Auger Depth 42' Rotary Depth NA
Start Date 05/21/11 Finish Date 05/21/11

Location: 5' West of Centerline of Roadway
and 22' South of Center of Existing Bridge

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Sample No.	Sample Type	Q _u (TSF)	N Value (Blows)	Bulge / Shear	Moisture (%)	Dry Density (PCF)	DRILLED BY
									REMARKS
599.36									Randy Satrianski Diedrich D-120
598.36	Hard Gray Clay With Sand Seams	9	SS	4.3	22	B	13		
597.36									
596.36									
595.36			10	SS	5.2	28	S	11	
594.36	Medium Gray Fine Sand	11	SS	---	20	---	---		
593.36									
592.36									
591.36	Dense Gray Weathered Sandy Shale	12	SS	---	39	---	---		
590.36									
589.36									
588.36									
587.36	Very Dense Gray Sandy Shale	13	SS	---	100	---	---		
586.36									
585.36									
584.36									
583.36									
582.36									
581.36									
580.36									
579.36	Auger Refusal								

Groundwater Data: Static water level after auger removal - elevation 610.2.
Comments:

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BORING LOG
Sheet 1 of 2

Client: Farnsworth Group, Inc.
Project Name: Section 11-17129-01-BR Newton Twp.
Project Site: Livingston County, Illinois

Boring No. B-2
Surface Elev. 620.26
Auger Depth 41'
Start Date 05/21/11
Rotary Depth NA
Finish Date 05/21/11

Location: 6' West of Centerline of Roadway
and 22' North of Center of Existing Bridge

DEPTH ELEV.	DESCRIPTION OF MATERIALS	Sample Log Depth in feet	SAMPLES					DRILLED BY Randy Safanski Diedrich D-120	REMARKS
			Sample No.	Sample Type	Q _u (TSF)	N Value (Blows)	Bulge / Shear		
620.26									
619.26		1							
618.26		2							
617.26	Stiff Yellowish Brown And Gray Silty Clay	3	1	SS	1.4	6	B	18	
616.26		4							
615.26		5	2	SS	1.6	7	B	21	
614.26		6							
613.26		7							
612.26		8	3	SS	1.2	5	B	24	
611.26	Hard Brownish Gray Clay	9							
610.26		10	4	SS	4.2	20	B	19	
609.26		11							
608.26	Very Stiff Brownish Gray Clay	12							
607.26		13	5	SS	2.4	12	B	19	
606.26		14							
605.26		15	6	SS	2.6	12	B	20	
604.26		16							
603.26		17							
602.26		18	7	SS	2.6	15	B	22	
601.26	Hard Gray Clay	19							
600.26		20	8	SS	4.0	24	B	14	

Groundwater Data: Static water level after auger removal - elevation 610.2.
Comments:

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Fax: 815-223-6659
e-mail: mts37@comcast.net

BORING LOG
Sheet 2 of 2

Client: Farnsworth Group, Inc.
Project Name: Section 11-17129-01-BR Newton Twp.
Project Site: Livingston County, Illinois

Boring No. B-2
Surface Elev. 620.26
Auger Depth 41'
Start Date 05/21/11
Rotary Depth NA
Finish Date 05/21/11

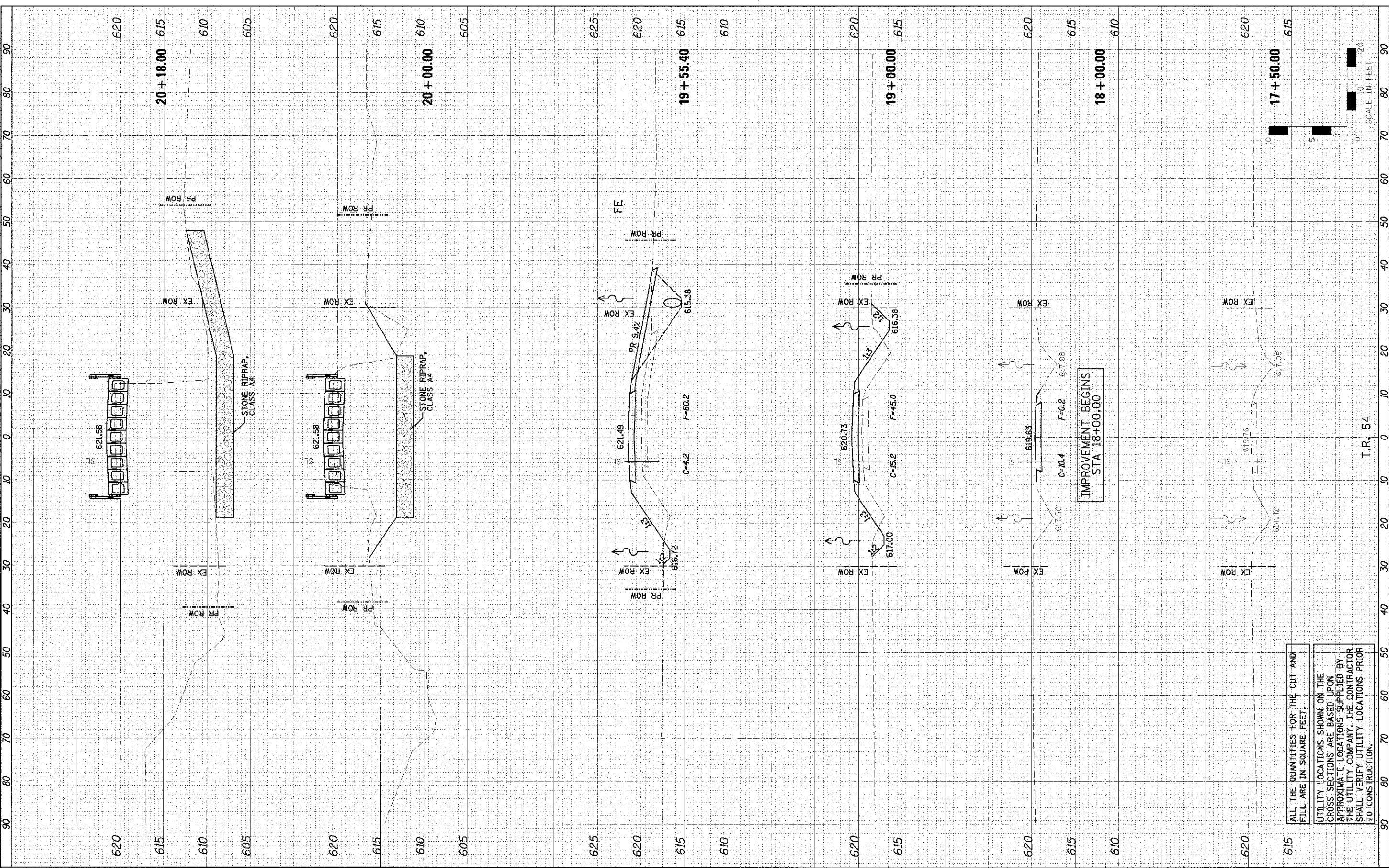
Location: 6' West of Centerline of Roadway
and 22' North of Center of Existing Bridge

DEPTH ELEV.	DESCRIPTION OF MATERIALS	Sample Log Depth in feet	SAMPLES					DRILLED BY Randy Safanski Diedrich D-120	REMARKS
			Sample No.	Sample Type	Q _u (TSF)	N Value (Blows)	Bulge / Shear		
599.26									
598.26	Hard Gray Clay With Sand Seams	22							
597.26		23	9	SS	5.2	27	S	12	
596.26		24							
595.26		25							
594.26		26	10	SS	5.8	32	S	11	
593.26		27							
592.26		28							
591.26	Medium Gray Fine Sand	29							
590.26		30	11	SS	---	19	---	---	
589.26		31							
588.26		32							
587.26		33							
586.26	Very Dense Gray Sandy Shale	34							
585.26		35	12	SS	---	100	---	---	
584.26		36				5"			
583.26		37							
582.26		38							
581.26		39							
580.26		40							
579.26		41	13	SS	---	100	---	---	
						2"			

Auger Refusal
Groundwater Data: Static water level after auger removal - elevation 610.2.
Comments:

DATE	01/18/13
DESIGNED	JJO
CHECKED	LML
DRAWN	JJO
CHECKED	MSW

PROJECT	STATE ROUTE 154
SHEET	54
SECTION	11-1/123-01-BR
COUNTY	LIVINGSTON
CONTRACT NO.	87503



ALL THE QUANTITIES FOR THE CUT AND FILL ARE IN SQUARE FEET.

UTILITY LOCATIONS SHOWN ON THE CROSS SECTIONS ARE BASED UPON APPROXIMATE LOCATIONS SUPPLIED BY THE UTILITY COMPANY. THE CONTRACTOR SHALL VERIFY UTILITY LOCATIONS PRIOR TO CONSTRUCTION.

IMPROVEMENT BEGINS STA 18+00.00

T.R. 54

SCALE IN FEET

Farnsworth GROUP, INC.
2708 McGraw Drive
Bloomington, Illinois 61704
309/668-8425, 309/668-1871 fax

DATE - 01/18/13

DESIGNED - JJO
CHECKED - LML
DRAWN - JJO
CHECKED - MSW

REVISED -
REVISED -
REVISED -
REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

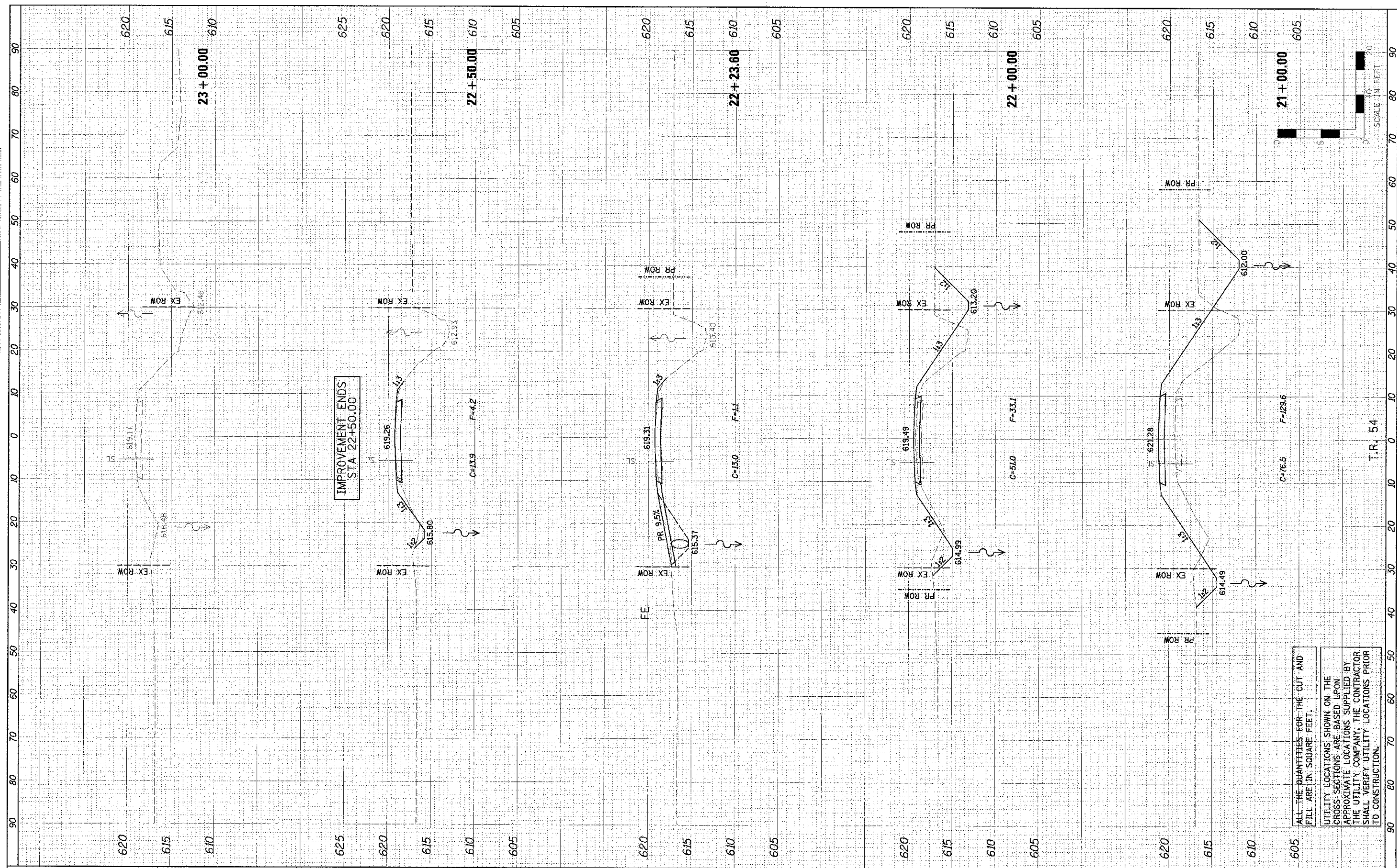
CROSS SECTIONS

SCALE: 1"=10' SHEET NO. OF SHEETS STA. 17+50.00 TO STA. 20+18.00

T.R.	SECTION	COUNTY	TOTAL SHEETS
54	11-1/123-01-BR	LIVINGSTON	16
CONTRACT NO. 87503			15
ILLINOIS FED. AID PROJECT			

DATE	01/18/13
DESIGNED	JJO
CHECKED	JML
DRAWN	JJO
CHECKED	MSW

DATE	01/18/13
DESIGNED	JJO
CHECKED	JML
DRAWN	JJO
CHECKED	MSW



IMPROVEMENT ENDS
STA 22+50.00

ALL THE QUANTITIES FOR THE CUT AND FILL ARE IN SQUARE FEET.
UTILITY LOCATIONS SHOWN ON THE CROSS SECTIONS ARE BASED UPON APPROXIMATE LOCATIONS SUPPLIED BY THE UTILITY COMPANY. THE CONTRACTOR SHALL VERIFY UTILITY LOCATIONS PRIOR TO CONSTRUCTION.

T.R. 54

Farnsworth GROUP, INC.
2709 MacDrow Drive
Bloomington, Illinois 61704
309/883-8435, 309/663-1571 fax

DATE - 01/18/13

DESIGNED	- JJO	REVISED	
CHECKED	- JML	REVISED	
DRAWN	- JJO	REVISED	
CHECKED	- MSW	REVISED	

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

CROSS SECTIONS

SCALE: 1"=10'
SHEET NO. OF SHEETS STA. 21+00.00 TO STA. 23+00.00

T.R.	SECTION	COUNTY	TOTAL SHEETS
54	11-17129-01-3P	LIVINGSTON	16
CONTRACT NO. 87503			NO.
			16