

FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	123-BR-1	IROQUOIS	39	1

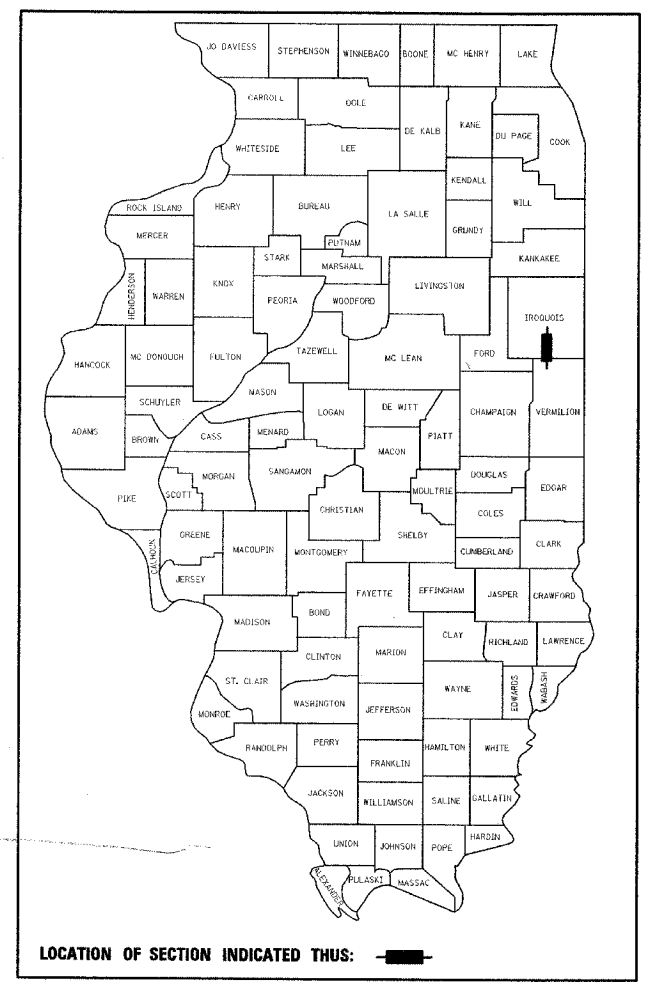
P-96-049-05  
D-93-039-06

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
**PROPOSED  
HIGHWAY PLANS**

FAP ROUTE 840 (IL 49)  
SECTION 123-BR-1  
PROJECT BHF-0840(054)  
IROQUOIS COUNTY

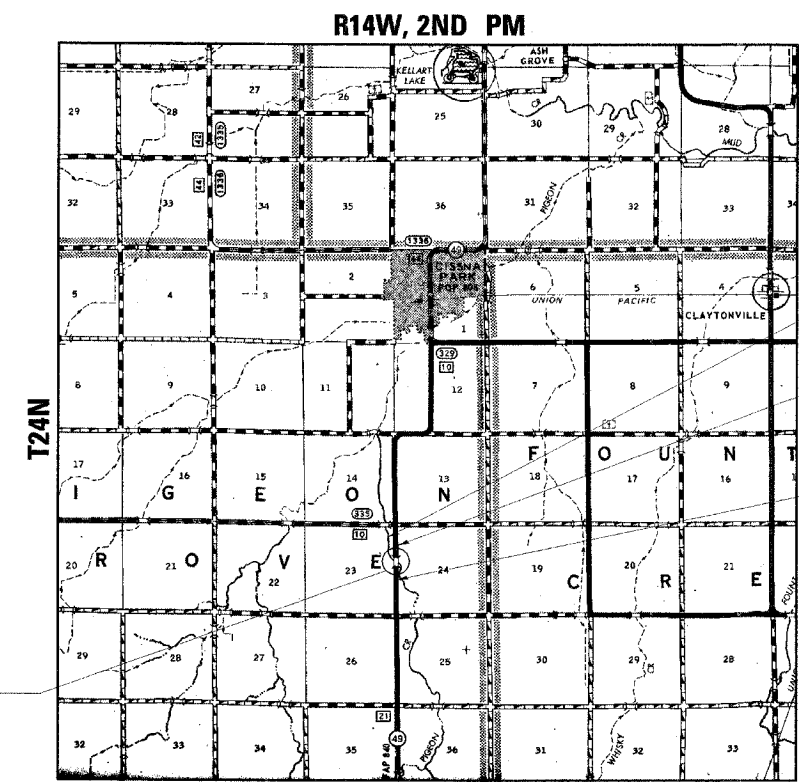
C-93-065-06

IL ROUTE 49 OVER PIGEON CREEK  
SUPERSTRUCTURE REPLACEMENT



**INDEX OF SHEETS**

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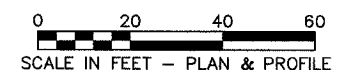
LOCATION MAP



GROSS LENGTH = 270 FT. = 0.05 MI.  
NET LENGTH = 270 FT. = 0.05 MI.

**DESIGN DESIGNATION  
N.A.**

**FUNCTIONAL CLASSIFICATION: RURAL MINOR ARTERIAL**  
**DESIGN SPEED: 55 mph**  
**POSTED SPEED: 55 mph**  
**ADT: 1000 (2007)**  
**PV: 79.5%**  
**SU: 7.4%**  
**MU: 13.1%**



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.

MICROFILMED \_\_\_\_\_  
 REEL NUMBER \_\_\_\_\_  
 AWARDED \_\_\_\_\_  
 RESIDENT ENGINEER \_\_\_\_\_  
 AS BUILT CHANGES WERE MADE ON THE FOLLOWING SHEETS \_\_\_\_\_

STATION 135+74  
 S.N. 038-0174  
 TWO SPAN PPC DECK BEAMS  
 93'-6" BK TO BK ABUTMENTS



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

DISTRICT 3 NO. (815) 434-6131  
 PROJECT ENGINEER: DAVE BROVIK  
 UNIT CHIEF: BRAD DUNCAN  
 TOWNSHIP: PIGEON GROVE  
 CONTRACT NO.: 66647

**RICHARD D. PAYE**  
 37421  
 LICENSED PROFESSIONAL ENGINEER  
 OF  
 STATE OF ILLINOIS  
 DATE: 10/06/06  
 ILLINOIS PROFESSIONAL LICENSE NO. 37421  
 (EXPIRATION DATE: 11-30-06)

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS

SUBMITTED October 20, 2006  
Dean O'Keefe  
 DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

December 8, 2006  
Eric E. Harner  
 INTERIM ENGINEER OF DESIGN AND ENVIRONMENT

December 8, 2006  
Wilton R. Seale  
 DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

**PRINTED BY THE AUTHORITY  
OF THE STATE OF ILLINOIS**



CONTRACT NO. 66647				
FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	123-BR-1	IROQUOIS	39	2
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT AID		

**LIST OF ILLINOIS DOT HIGHWAY STANDARDS**

STANDARD NO.	DESCRIPTION
000001-04	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
001001-01	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF AN INCH AND OF A FOOT
280001-03	TEMPORARY EROSION CONTROL SYSTEMS
420001-06	PAVEMENT JOINTS
420401-05	BRIDGE APPROACH PAVEMENT
421001-01	BAR REINFORCEMENT FOR CRC PAVEMENT
482011-02	HMA, SHLD. STRIPS/SHLDS. WITH RESURFACING OR WIDENING AND RESURFACING PROJECTS
515001-02	NAME PLATE FOR BRIDGES
630001-07	STEEL PLATE BEAM GUARDRAIL
630301-04	SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
631032-03	TRAFFIC BARRIER TERMINAL, TYPE 6A
635001	DELINEATORS
635006-02	REFLECTOR AND TERMINAL MARKER PLACEMENT
635011-01	REFLECTOR MARKER AND MOUNTING DETAILS
701001-01	OFF-RD OPERATIONS, 2L, 2W, MORE THAN 4.5m (15') AWAY
701006-02	OFF-RD OPERATIONS, 2L, 2W, 4.5m (15') TO 600mm (24") FROM PAVEMENT EDGE
701011-01	OFF-RD MOVING OPERATIONS, 2L, 2W, DAY ONLY
701301-02	LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS
701306-01	LANE CLOSURE, 2L, 2W, SLOW MOVING OPERATIONS DAY ONLY, FOR SPEEDS ≥ 45 MPH
701311-02	LANE CLOSURE, 2L, 2W, MOVING OPERATIONS - DAY ONLY
702001-06	TRAFFIC CONTROL DEVICES
720001	SIGN PANEL MOUNTING DETAILS
720006-01	SIGN PANEL ERECTION DETAILS
720011	METAL POSTS FOR SIGNS, MARKERS & DELINEATORS
729001	APPLICATIONS OF TYPES A & B METAL POSTS (FOR SIGNS & MARKERS)
780001-01	TYPICAL PAVEMENT MARKINGS
781001-02	TYPICAL APPLICATIONS RAISED REFLECTIVE PAVEMENT MARKERS

**GENERAL NOTES**

- THE TOP 6" OF TOPSOIL SHALL BE STRIPPED FROM ALL AREAS WITHIN THE CONSTRUCTION LIMITS OUTSIDE OF THE PROPOSED ABUTMENTS. THIS MATERIAL SHALL BE STOCKPILED AT A LOCATION APPROVED BY THE ENGINEER AND REPLACED AFTER MAJOR GRADING OPERATIONS ARE COMPLETE. THIS WORK WILL BE PAID FOR AS TOPSOIL EXCAVATION AND PLACEMENT.
- THE ENGINEER SHALL BE THE SOLE JUDGE CONCERNING CURING TIME FOR THE VARIOUS HMA LIFTS.
- EXCEPT AS NOTED ON THE PLANS, PAVEMENT GRADES SHOWN ARE AT THE TOP OF PAVEMENT SURFACES.
- ALL SAWCUTTING OF EXISTING PAVEMENT SHALL BE CONSIDERED INCLUDED IN THE PAY ITEMS INVOLVED. THE MINIMUM SAW DEPTH IN THE PAVEMENT SHALL BE 1/2" UNLESS OTHERWISE NOTED.
- 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 REESTABLISH ANY SECTION OR SUBSECTION MONUMENTS DESTROYED BY HIS OPERATIONS.
- THE THICKNESS OF HMA SHOWN ON THE PLANS IS THE NOMINAL THICKNESS. DEVIATIONS FROM THE NOMINAL THICKNESS WILL BE PERMITTED WHEN SUCH DEVIATIONS OCCUR DUE TO IRREGULARITIES IN THE EXISTING SURFACE OR BASE ON WHICH THE HMA IS PLACED.
- ANY REFERENCE TO A STANDARD IN THESE PLANS SHALL BE INTERPRETED TO MEAN THE EDITION AS INDICATED BY THE SUBNUMBER LISTED ON THE INDEX OF SHEETS OR THE COPY OF THE STANDARD INCLUDED IN THESE PLANS.
- THE FOLLOWING RATES OF APPLICATION HAVE BEEN USED IN CALCULATING PLAN QUANTITIES:
 

GRANULAR MATERIALS	2.05 TON/CU YD
BITUMINOUS MATERIALS PRIME COAT	0.08 GAL/SQ YD
HOT-MIX ASPHALT RESURFACING	112 LBS/SQ YD/INCH
SHORT TERM PAVEMENT MARKING	10 FT/100 FT OF APPLICATION
- 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.
- ALL DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE FERTILIZED AND SEEDED. SEEDING SHALL BE CLASS 2A ACCORDING TO THE APPLICABLE ARTICLES OF SECTION 250 OF THE STANDARD SPECIFICATIONS. SEEDING SHALL NOT BE PERMITTED AT ANY TIME WHEN THE GROUND IS FROZEN, WET, OR IN AN UNTILLABLE CONDITION. LOCATIONS TO BE SEEDED WILL BE DETERMINED BY THE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING UTILITY PROPERTY FROM CONSTRUCTION OPERATIONS AS OUTLINED IN ARTICLE 107.31 OF THE STANDARD SPECIFICATIONS. THE JULIE NUMBER IS 800-892-0123. A MINIMUM OF 48 HOURS ADVANCE NOTICE IS REQUIRED.
- EXISTING TRAFFIC BARRIER TERMINALS TO BE REMOVED SHALL BE PAID FOR AS GUARDRAIL REMOVAL.
- FOR STABILIZATION, ALL TYPE III BARRICADES SHALL REQUIRE A MINIMUM OF FOUR SANDBAGS PER BARRICADE.
- ALL ELEVATIONS REFERRING TO U.S.G.S. MEAN SEA LEVEL DATUM.
- SKIP-DASH LINES FOR PAINT PAVEMENT MARKING SHALL BE 6" WIDE.
- EXCELSIOR BLANKET SHALL BE USED AT ALL EROSION CONTROL BLANKET LOCATIONS.
- THE CURBS SHOWN ON STANDARD 420401 ARE NOT REQUIRED AND SHALL NOT BE CONSTRUCTED.
- THE CONTRACTOR SHALL CONTACT J.U.L.I.E. AT LEAST 48 HOURS PRIOR TO EXCAVATION TO DETERMINE WHICH UTILITIES ARE IN THE AREA.
- NO IN STREAM WORK WILL BE ALLOWED.

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DISTRICT THREE

REVIEWED BY: Rich Powell  
DISTRICT STUDIES & PLANS ENGINEER

DATE: 10-20-06

EXAMINED BY: Herbert J. ...  
DISTRICT CONSTRUCTION ENGINEER

James A. ...  
DISTRICT OPERATIONS ENGINEER

...  
DISTRICT MATERIALS ENGINEER

**GENERAL NOTES  
AND STANDARDS**  
FAP RTE 840 (IL 49)  
SECTION 123-BR-1  
IROQUOIS COUNTY

<b>ESCA</b>		
CONSULTANTS, INC.		
DESIGNED BY:	ELH	08/06
DRAWN BY:	HAG	08/06
CHECKED BY:	ELH	10/06
APPROVED BY:	RDP	10/06



**SUMMARY OF QUANTITIES**

CODE NO.	ITEM	UNIT	80% FED. 20% ST. CONSTRUCTION TYPE CODE
			X080-2A
20200100	EARTH EXCAVATION	CU YD	126
20400800	FURNISHED EXCAVATION	CU YD	72
21101505	TOPSOIL EXCAVATION AND PLACEMENT	CU YD	112
21101625	TOPSOIL FURNISH AND PLACE, 6"	SQ YD	48
* 25000210	SEEDING, CLASS 2A	ACRE	0.13
* 25000350	SEEDING, CLASS 7	ACRE	0.13
* 25000400	NITROGEN FERTILIZER NUTRIENT	POUND	13
* 25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	13
* 25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	13
* 25100115	MULCH, METHOD 2	ACRE	0.26
* 25100630	EROSION CONTROL BLANKET	SQ YD	160
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	26
28000300	TEMPORARY DITCH CHECKS	EACH	1
28000400	PERIMETER EROSION BARRIER	FOOT	370
28000500	INLET AND PIPE PROTECTION	EACH	1
28100105	STONE RIPRAP, CLASS A3	SQ YD	22
40600100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	31
40603310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	TON	60
42001165	BRIDGE APPROACH PAVEMENT	SQ YD	220
42001300	PROTECTIVE COAT	SQ YD	220
42001430	BRIDGE APPROACH PAVEMENT CONNECTOR (FLEXIBLE)	SQ YD	44
44000100	PAVEMENT REMOVAL	SQ YD	263
44000198	HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH	SQ YD	248
48101200	AGGREGATE SHOULDERS, TYPE B	TON	64
50101500	REMOVAL OF EXISTING SUPERSTRUCTURES	EACH	1
50102400	CONCRETE REMOVAL	CU YD	5.4
50200100	STRUCTURE EXCAVATION	CU YD	12
50300225	CONCRETE STRUCTURES	CU YD	7.6
50300260	BRIDGE DECK GROOVING	SQ YD	310
50300300	PROTECTIVE COAT	SQ YD	330
50400405	PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SQ FT	2962
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	5360
50800515	BAR SPLICES	EACH	66
* 50901005	STEEL BRIDGE RAIL, TYPE SM	FOOT	180
51500100	NAME PLATES	EACH	1
58700300	CONCRETE SEALER	SQ FT	30
59000200	EPOXY CRACK INJECTION	FOOT	76
* 63100087	TRAFFIC BARRIER TERMINAL, TYPE 6A	EACH	4
* 63100167	TRAFFIC BARRIER TERMINAL TYPE 1, (SPECIAL) TANGENT	EACH	2

**SUMMARY OF QUANTITIES**

CODE NO.	ITEM	UNIT	80% FED. 20% ST. CONSTRUCTION TYPE CODE
			X080-2A
63200310	GUARDRAIL REMOVAL	FOOT	267
* 63301210	REMOVE AND RE-FLECT STEEL PLATE BEAM GUARDRAIL, TYPE A	FOOT	150
67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	4
67100100	MOBILIZATION	L SUM	1
70100460	TRAFFIC CONTROL AND PROTECTION, STANDARD 701306	L SUM	1
70300100	SHORT-TERM PAVEMENT MARKING	FOOT	64
70301000	WORK ZONE PAVEMENT MARKING REMOVAL	SQ FT	22
* 78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	540
* 78001130	PAINT PAVEMENT MARKING - LINE 6"	FOOT	80
* 78100100	RAISED REFLECTIVE PAVEMENT MARKER	EACH	3
* 78100105	RAISED REFLECTIVE PAVEMENT MARKER (BRIDGE)	EACH	1
* 78200410	GUARDRAIL MARKERS, TYPE A	EACH	6
* 78200520	BARRIER WALL MARKERS, TYPE B	EACH	2
78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	2
78300200	RAISED REFLECTIVE PAVEMENT MARKER REMOVAL	EACH	3
X0325305	STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5")	SQ FT	57
X5030305	CONCRETE WEARING SURFACE, 5"	SQ YD	330
X7011005	TRAFFIC CONTROL AND PROTECTION FOR TEMPORARY DETOUR	L SUM	1
X0325294	PREFORMED JOINT STRIP SEAL	FOOT	82
Z0001900	ASBESTOS BEARING PAD REMOVAL	EACH	44

\* SPECIALTY ITEM

CONTRACT NO. 66647				
FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	123-BR-1	IROQUOIS	39	3
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT AID		

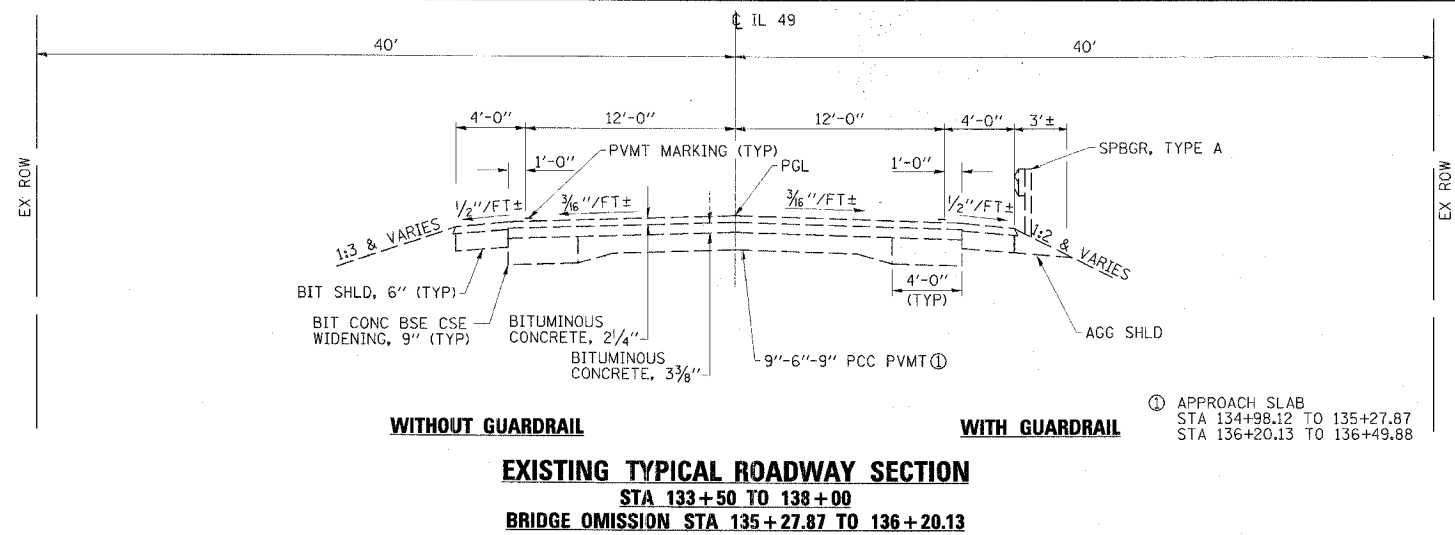
**ESCA**  
CONSULTANTS, INC.

DESIGNED BY:	ELH	08/06
DRAWN BY:	HAG	08/06
CHECKED BY:	ELH	10/06
APPROVED BY:	RDP	10/06

**SUMMARY OF QUANTITIES**  
FAP RTE 840 (IL 49)  
SECTION 123-BR-1  
IROQUOIS COUNTY



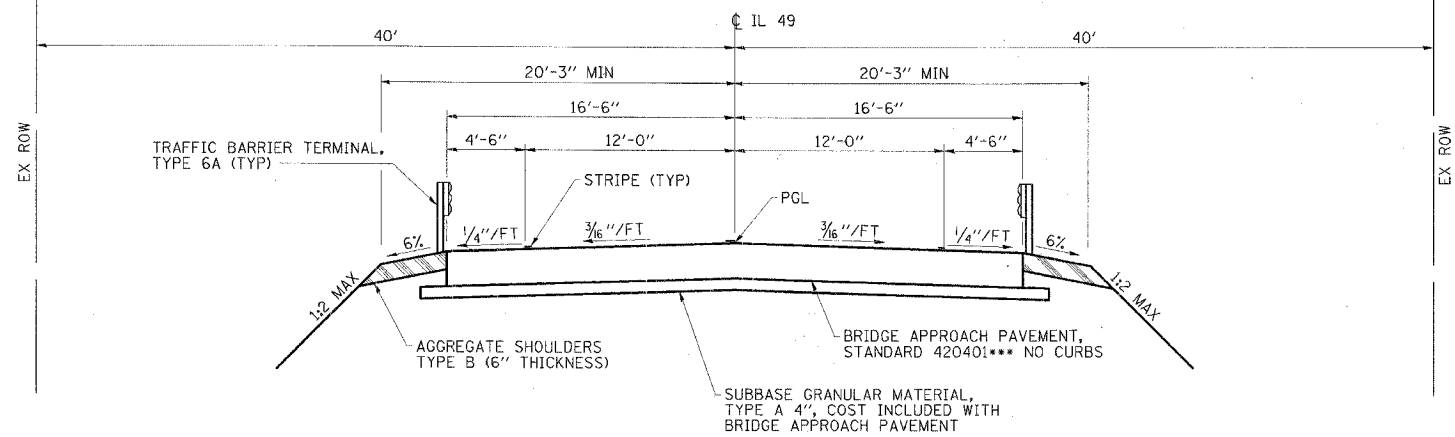
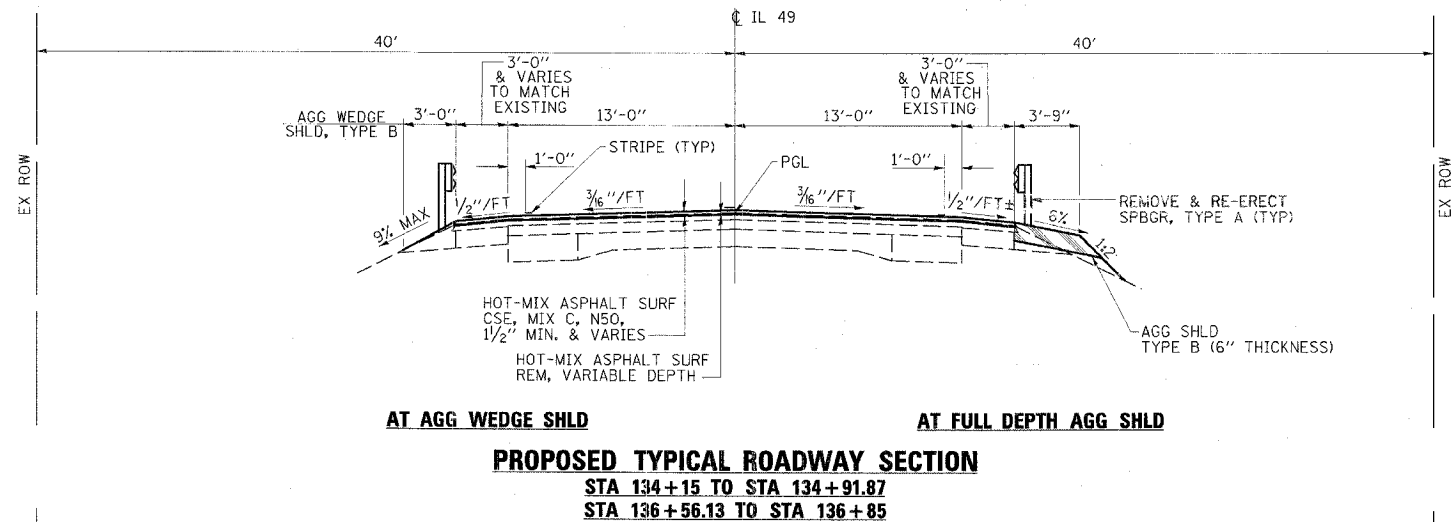
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840	123-BR-1	IROQUOIS	39	4
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID	PROJECT AID	



**HOT-MIX ASPHALT MIXTURES REQUIREMENTS\***

	SURFACE
PG GRADE	PG64-22
MAX % RAP ALLOWABLE **	15%
DESIGN AIR VOIDS	4.0% @ N50
MIXTURE COMPOSITION	IL 12.5 OR IL 9.5
FRICTION AGGREGATE	MIXTURE C
PLANT CONTROL LIMITS	CLASS I
DENSITY TEST METHOD	CORES/NUCLEAR

- SEE SPECIAL PROVISIONS
- \*\* IF RAP OPTION IS SELECTED, THE ASPHALT CEMENT GRADE MAY NEED TO BE ADJUSTED. THIS WILL BE DETERMINED BY THE ENGINEER.



\*\*\* WITH BRIDGE APPROACH PAVEMENT CONNECTOR (FLEXIBLE)

NOTE: TRANSITION CROSS SLOPES AS REQUIRED TO MATCH MAINLINE PAVING CROSS SLOPES

**ESCA**  
CONSULTANTS, INC.

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DRAWN BY:	HAG	08/06
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APPROVED BY:	RDP	10/06

**AT BRIDGE APPROACH PAVEMENT**  
**PROPOSED TYPICAL ROADWAY SECTION**  
STA 134+91.87 TO 136+56.13  
BRIDGE OMISSION STA 135+27.87 TO 136+20.13

*TYPICAL SECTIONS*  
*FAP RTE 840 (IL 49)*  
*SECTION 123-BR-1*  
*IROQUOIS COUNTY*



FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	123-BR-1	IROQUOIS	39	5
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT AID		

**EARTHWORK SCHEDULE**

LOCATION	SUITABLE EARTH EXCAVATION	SUITABLE EARTH EXCAVATION ADJUSTED FOR SHRINKAGE	SUITABLE INCIDENTAL EXCAVATION MATERIAL	SUITABLE INCIDENTAL EXC. MATERIAL ADJUSTED FOR SHRINKAGE	EMBANKMENT (NOT A PAY ITEM)	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
	CU YD	CU YD	CU YD	CU YD	CU YD	CU YD
NORTHWEST QUADRANT	22	16			17	-1
NORTHEAST QUADRANT	45	34			51	-17
SOUTHWEST QUADRANT	31	23			59	-36
SOUTHEAST QUADRANT	29	21			48	-27
STRUCTURE EXCAVATION			12	9		+9
TOTALS	126	94	12	9	175	-72

**NOTES:**

- EXCAVATION USED AS EMBANKMENT = (SUITABLE EARTH EXCAVATION + SUITABLE INCIDENTAL EXCAVATION)\*0.75
- TOPSOIL EXCAVATION AND PLACEMENT NOT INCLUDED IN THE ABOVE NUMBERS

**EROSION CONTROL SCHEDULE**

LOCATION	EROSION CONTROL BLANKET	PERIMETER EROSION BARRIER	TEMPORARY EROSION CONTROL SEEDING (2 APPLICATIONS)	INLET & PIPE PROTECTION	TEMPORARY DITCH CHECKS
	SQ YD	FOOT	POUND	EACH	EACH
STA 133+90 TO BRIDGE, LI		165			
STA 135+90 TO BRIDGE, RT		135			
BRIDGE TO STA 137+06, LI		70			
STA 136+05.4, RT					1
STA 136+10.4, RT				1	
NORTHWEST QUADRANT	28		4		
NORTHEAST QUADRANT	59		10		
SOUTHWEST QUADRANT	39		8		
SOUTHEAST QUADRANT	34		4		
TOTALS	160	370	26	1	1

**SEEDING SCHEDULE**

LOCATION	SEEDING, CLASS 2A	SEEDING, CLASS 7	NITROGEN FERTILIZER NUTRIENT	PHOSPHORUS FERTILIZER NUTRIENT	POTASSIUM FERTILIZER NUTRIENT	MULCH, METHOD 2
	ACRE	ACRE	POUND	POUND	POUND	ACRE
NORTHWEST QUADRANT	0.02	0.02	2	2	2	0.04
NORTHEAST QUADRANT	0.05	0.05	5	5	5	0.10
SOUTHWEST QUADRANT	0.04	0.04	4	4	4	0.08
SOUTHEAST QUADRANT	0.02	0.02	2	2	2	0.04
TOTALS	0.13	0.13	13	13	13	0.26

**PAVEMENT REMOVAL SCHEDULE**

LOCATION	PAVEMENT REMOVAL
	SQ YD
NORTH OF BRIDGE	132
SOUTH OF BRIDGE	131
TOTALS	263

**PAVEMENT MARKING SCHEDULE**

LOCATION	DESCRIPTION	SHORT-TERM PAVEMENT MARKING (2 APPLICATIONS)	PAINT PAVEMENT MARKING - LINE	
			4" FOOT	6" FOOT
STA 134+15 TO STA 136+85	YELLOW SKP DASH C	64		80
STA 134+15 TO STA 136+85	WHITE EDGE LINES		540	
TOTALS		64	540	80

**PAVEMENT MARKERS AND REMOVAL SCHEDULE**

LOCATION	RRPM	RRPM (BRIDGE)	RRPM REMOVAL
	EACH	EACH	EACH
STA 134+15 TO STA 136+85	3	1	3
TOTALS	3	1	3

**WORK ZONE PAVEMENT MARKING REMOVAL SCHEDULE**

LOCATION	PAVEMENT MARKING DESCRIPTION	WORK ZONE PAVEMENT MARKING REMOVAL
		SQ FT
CENTERLINE	SHORT-TERM	22
TOTAL		22

**BRIDGE APPROACH PAVEMENT SCHEDULE**

LOCATION	BRIDGE APPROACH PAVEMENT	PROTECTIVE COAT	CONNECTOR (FLEXIBLE)
	SQ YD	SQ YD	SQ YD
NORTH APPROACH	110	110	22
SOUTH APPROACH	110	110	22
TOTALS	220	220	44

**AGGREGATE SHOULDERS SCHEDULE**

LOCATION	AGGREGATE SHOULDERS, TYPE B
	TON
NORTHWEST QUADRANT	9
NORTHEAST QUADRANT	17
SOUTHWEST QUADRANT	22
SOUTHEAST QUADRANT	16
TOTAL	64

**GUARDRAIL SCHEDULE**

LOCATION	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	REMOVE & RE-ERECT SPBGR, TYPE A	TRAFFIC BARRIER TERMINAL, TYPE 6A	GUARDRAIL MARKERS, TYPE A	BARRIER WALL MARKERS, TYPE B	TERMINAL MARKER-DIRECT APPLIED	STEEL BRIDGE RAIL, TYPE SM
	EACH	FOOT	EACH	EACH	EACH	EACH	FOOT
NORTHWEST QUADRANT	1	25	1	1			
NORTHEAST QUADRANT	1	12.5	1	1		1	
SOUTHWEST QUADRANT	1	37.5	1	2		1	
SOUTHEAST QUADRANT	1	75	1	2			
BRIDGE					2		180
TOTALS	2	150	4	6	2	2	180

**GUARDRAIL REMOVAL SCHEDULE**

LOCATION	FOOT
NORTHWEST QUADRANT	44
NORTHEAST QUADRANT	88
SOUTHWEST QUADRANT	91
SOUTHEAST QUADRANT	44
TOTAL	267

**HMA SURF REMOVAL, VARIABLE DEPTH SCHEDULE**

LOCATION	SQ YD
STA 134+15 TO STA 134+54.1	143
STA 136+56.13 TO STA 136+85	105
TOTAL	248

**PAVING SCHEDULE**

LOCATION	BITUMINOUS MATERIALS (PRIME COAT)	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50
	GALLON	TON
STA 134+15 TO BRIDGE	22	45
BRIDGE TO 136+85	9	15
TOTALS	31	60

**SCHEDULES OF QUANTITIES**

FAP RTE 840 (IL 49)

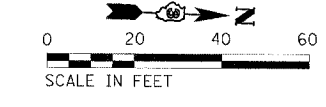
SECTION 123-BR-1

IROQUOIS COUNTY

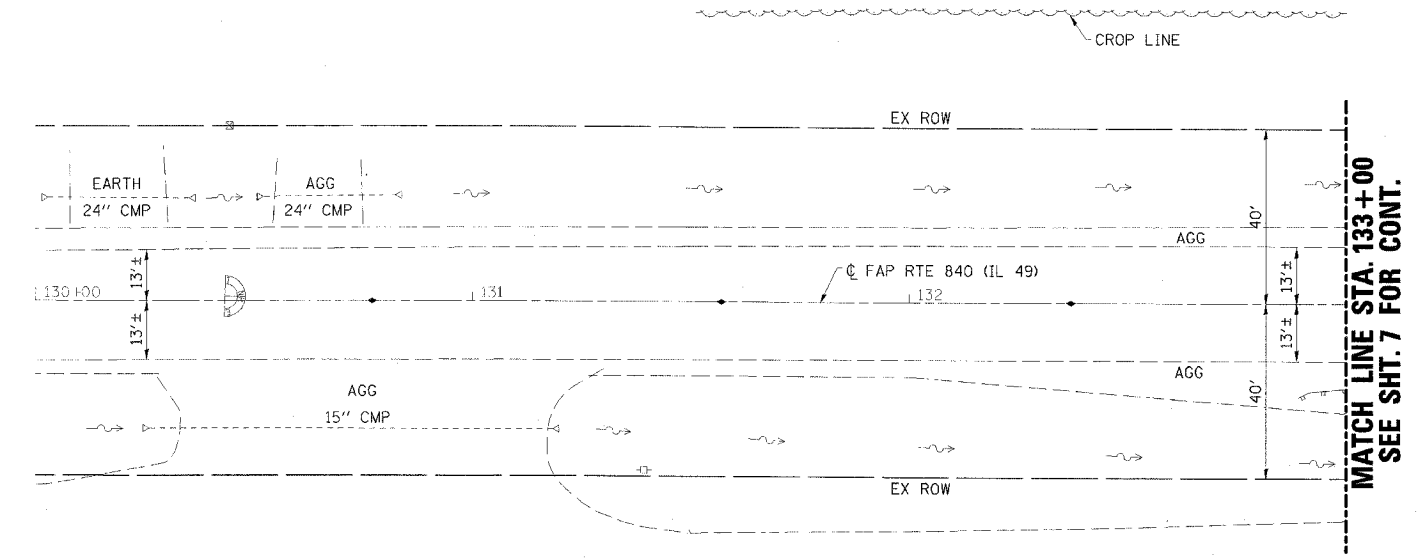
**ESCA**  
CONSULTANTS, INC.

DESIGNED BY: ELH 08/06  
DRAWN BY: HAG 08/06  
CHECKED BY: ELH 10/06  
APPROVED BY: RDP 10/06

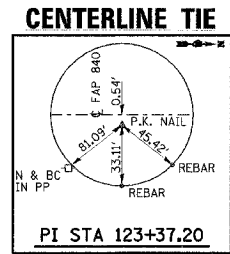
SECTION 23, T24N, R14W, 2ND P.M.



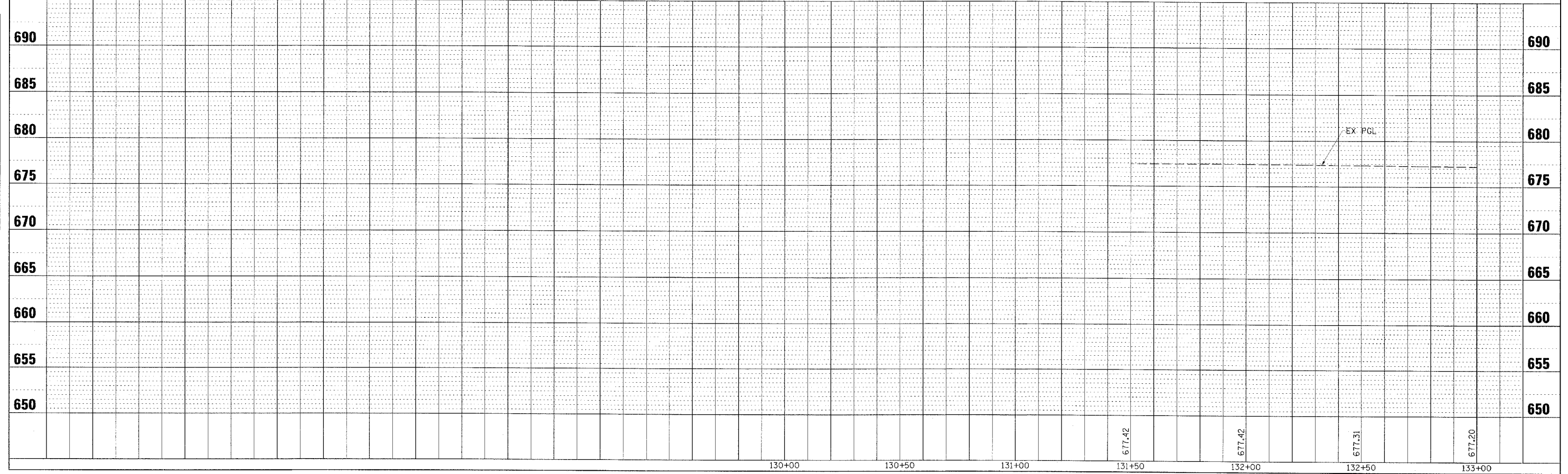
FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	123-BR-1	IRROUOIS	39	6
STA. 130+00		TO STA. 133+00		
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	



MATCH LINE STA. 133+00  
SEE SHT. 7 FOR CONT.



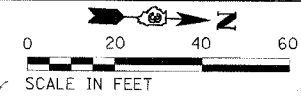
SECTION 24, T24N, R14W, 2ND P.M.



DATE  
BY  
CHECKED  
DATE  
NO.  
NO.  
NO.

PROFILE  
DATE  
BY  
CHECKED  
DATE  
NO.  
NO.  
NO.

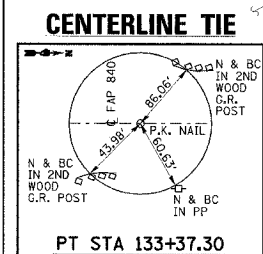
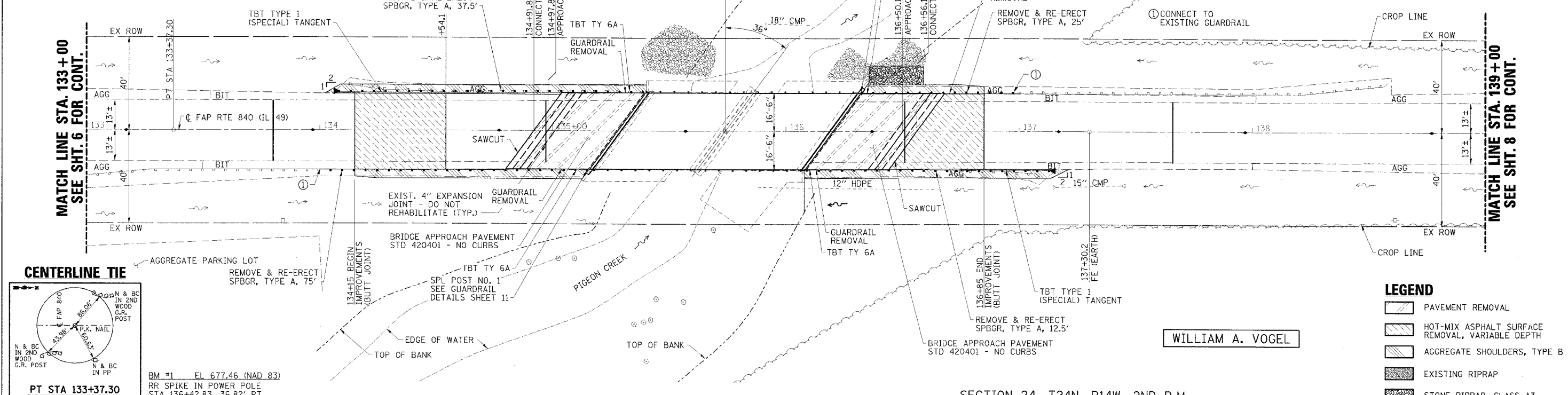
FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	123-BR-1	ILLINOIS	39	7
STA. 133+00		TO STA. 139+00		
FED. ROAD DIST. NO.		ILLINOIS		FED. AID PROJECT



JOHN G. LAUBSCHER, ET AL

SECTION 23, T24N, R14W, 2ND P.M.

**CURVE DATA**  
 PI STA 123+37.20  
 $\Delta = 0^\circ-11'-04.63''$   
 $T = 1000.10'$   
 $L = 2000.20'$   
 $R = 620755.47'$   
 $E = 0.81'$   
 PC STA = 113+37.10  
 PT STA = 133+37.30

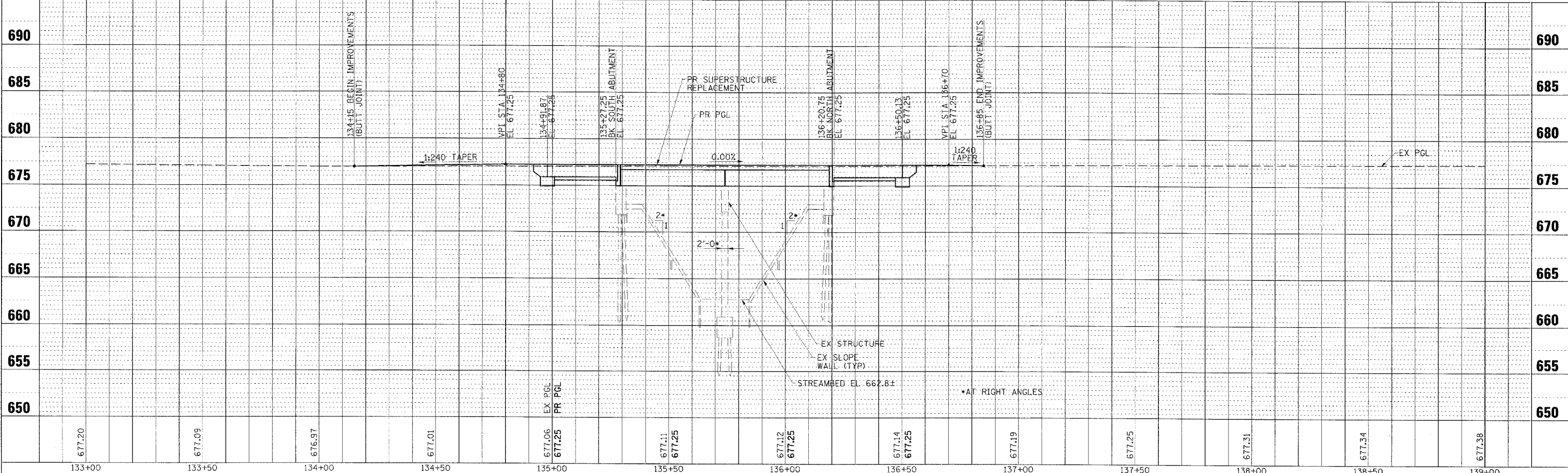


**LEGEND**

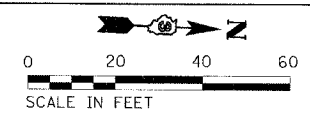
- PAVEMENT REMOVAL
- HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH
- AGGREGATE SHOULDERS, TYPE B
- EXISTING RIPRAP
- STONE RIPRAP, CLASS A3

WILLIAM A. VOGEL

SECTION 24, T24N, R14W, 2ND P.M.

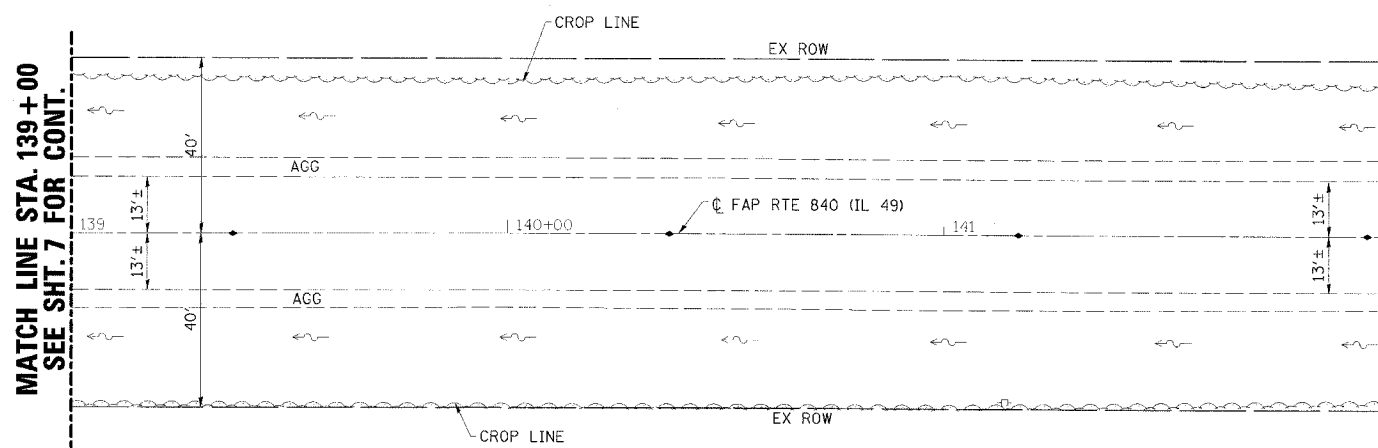


SECTION 23, T24N, R14W, 2ND P.M.

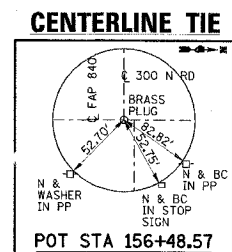


FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	123-BR-1	IROQUOIS	39	8
STA. 139+00		TO STA. 142+00		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

PLAN  
 DRAWN BY \_\_\_\_\_  
 DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_  
 DATE \_\_\_\_\_  
 NO. \_\_\_\_\_

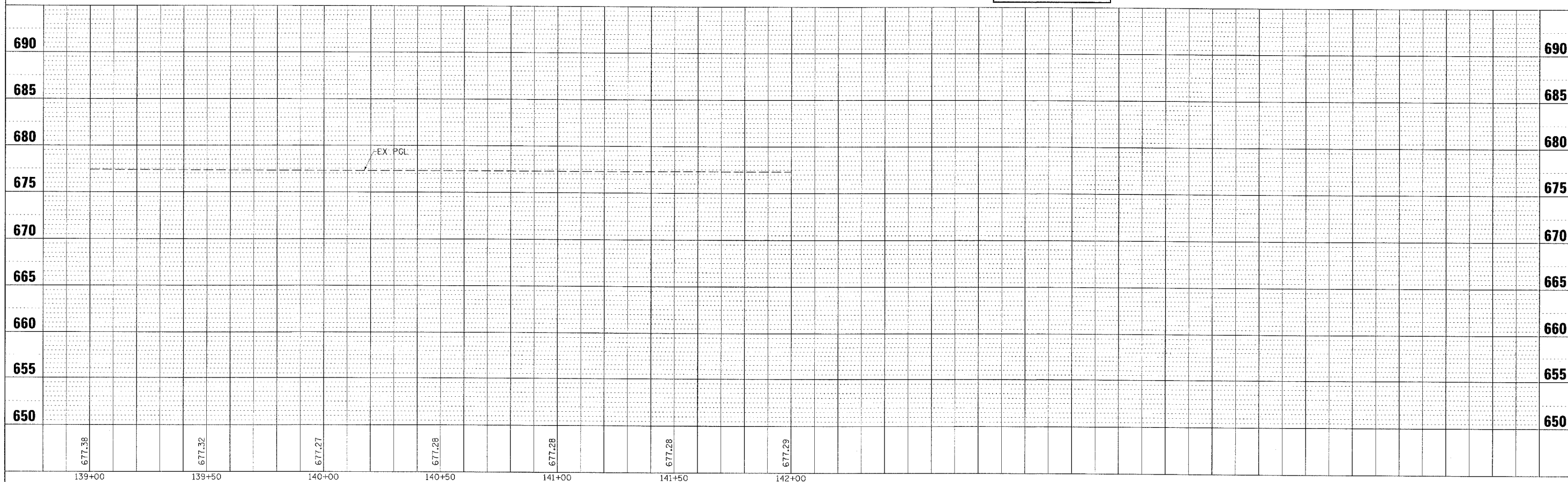


MATCH LINE STA. 139+00  
 SEE SHT. 7 FOR CONT.



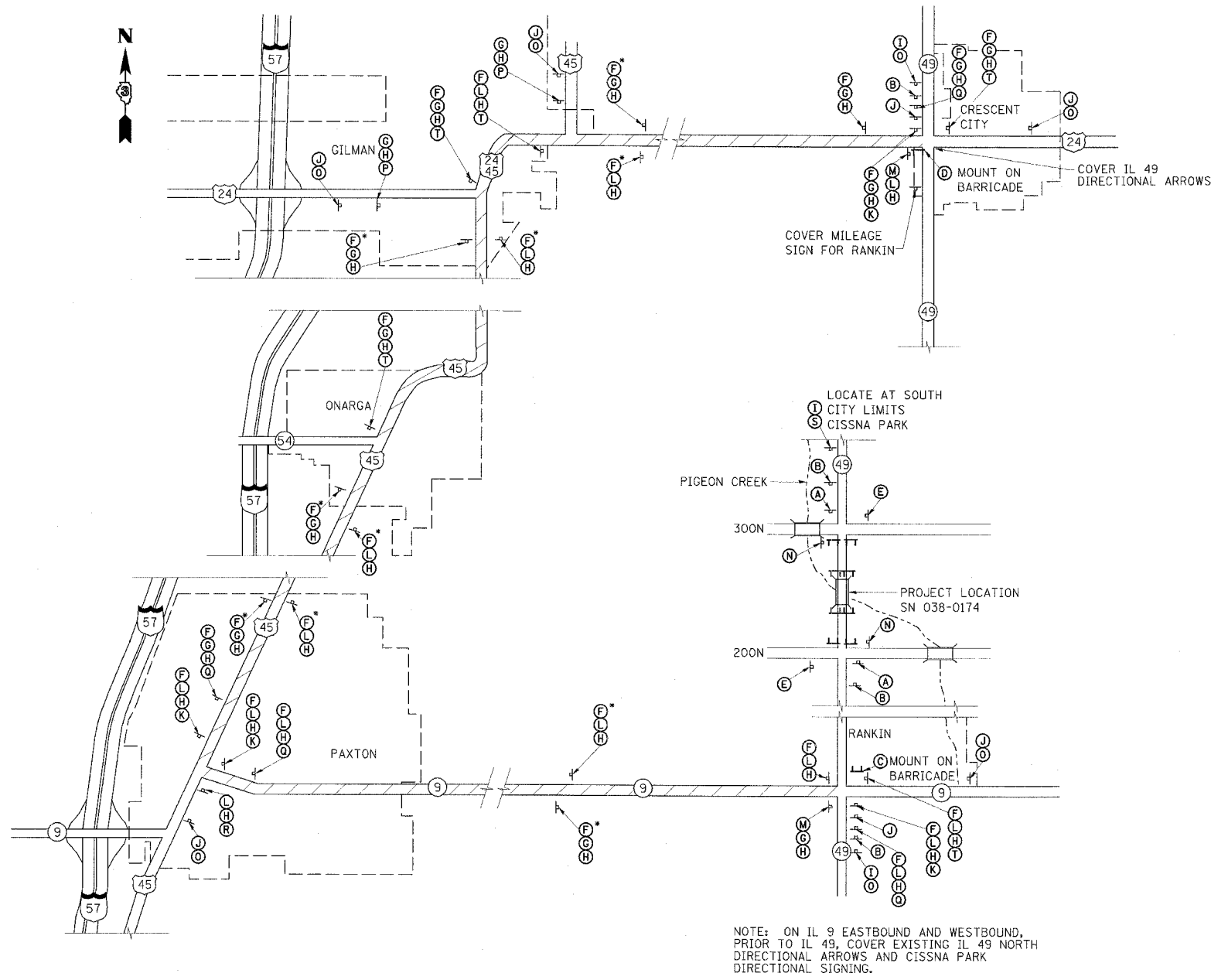
SECTION 24, T24N, R14W, 2ND P.M.

PROFILE  
 DRAWN BY \_\_\_\_\_  
 DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_  
 DATE \_\_\_\_\_  
 NO. \_\_\_\_\_





FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	123-BR-1	IROQUOIS	39	9
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID	PROJECT AID	



NOTE: ON IL 9 EASTBOUND AND WESTBOUND, PRIOR TO IL 49, COVER EXISTING IL 49 NORTH DIRECTIONAL ARROWS AND CISSNA PARK DIRECTIONAL SIGNING.

DETOUR ROUTE

**TEMPORARY DETOUR PLAN**

NO SCALE

\* TO BE LOCATED AS DIRECTED BY THE ENGINEER

**LEGEND**

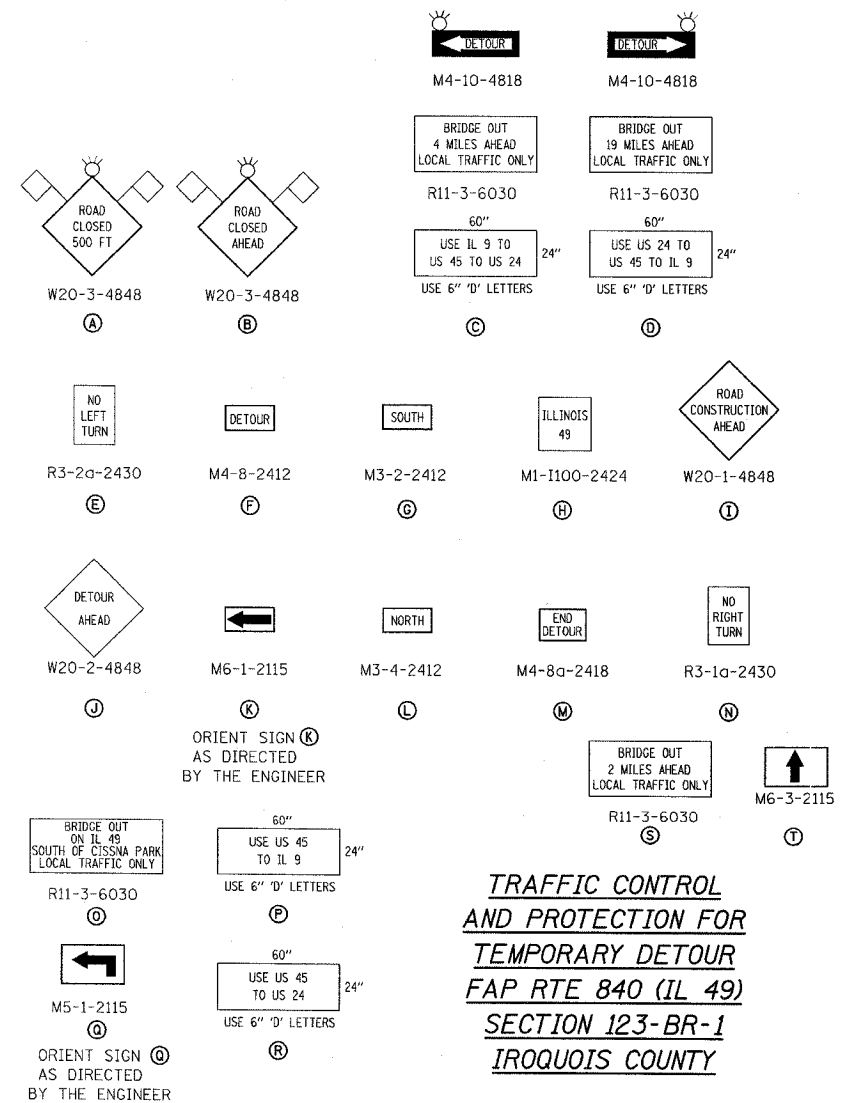
- TYPE III BARRICADE WITH 2 FLASHING LIGHTS PER BARRICADE
- SIGNS ON PERMANENT SUPPORTS
- FLASHING LIGHT ABOVE SIGN
- 18"x18" ORANGE FLAG
- STANDARD 702001 "ROAD CLOSED TO ALL TRAFFIC" APPLICATION
- STANDARD 702001 "ROAD CLOSED TO THRU TRAFFIC" APPLICATION

**GENERAL NOTES**

1. ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED AND MAINTAINED BY THE CONTRACTOR, UNLESS NOTED OTHERWISE.
2. ALL SIGNS NOT ATTACHED TO BARRICADES SHALL BE POST MOUNTED.
3. LOCATIONS OF TRAFFIC CONTROL DEVICES MAY BE ADJUSTED BY THE ENGINEER.
4. ALL TRAFFIC CONTROL SHOWN ON THIS SHEET SHALL BE PAID FOR PER LUMP SUM FOR TRAFFIC CONTROL AND PROTECTION FOR TEMPORARY DETOUR. OTHER ITEMS REQUIRED BY THE ENGINEER AND NOT SHOWN ON THIS DRAWING SHALL BE INCLUDED IN THE PAY ITEM AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
5. INSTALL "ROAD CLOSED TO ALL TRAFFIC" APPLICATION PER STANDARD 702001 ON BOTH SIDES OF THE PROPOSED WORK.

**SIGN MOUNTING LOCATIONS**

- ⓐ 500' IN ADVANCE OF ⓐ OR ⓑ
- ⓑ 500' IN ADVANCE OF ⓐ AND 1000' IN ADVANCE OF ⓐ
- ⓒ 1000' IN ADVANCE OF ⓑ
- ⓓ 500' IN ADVANCE OF "ROAD CLOSED TO THRU TRAFFIC"



**TRAFFIC CONTROL AND PROTECTION FOR TEMPORARY DETOUR FAP RTE 840 (IL 49) SECTION 123-BR-1 IROQUOIS COUNTY**

**ESCA**  
CONSULTANTS, INC.

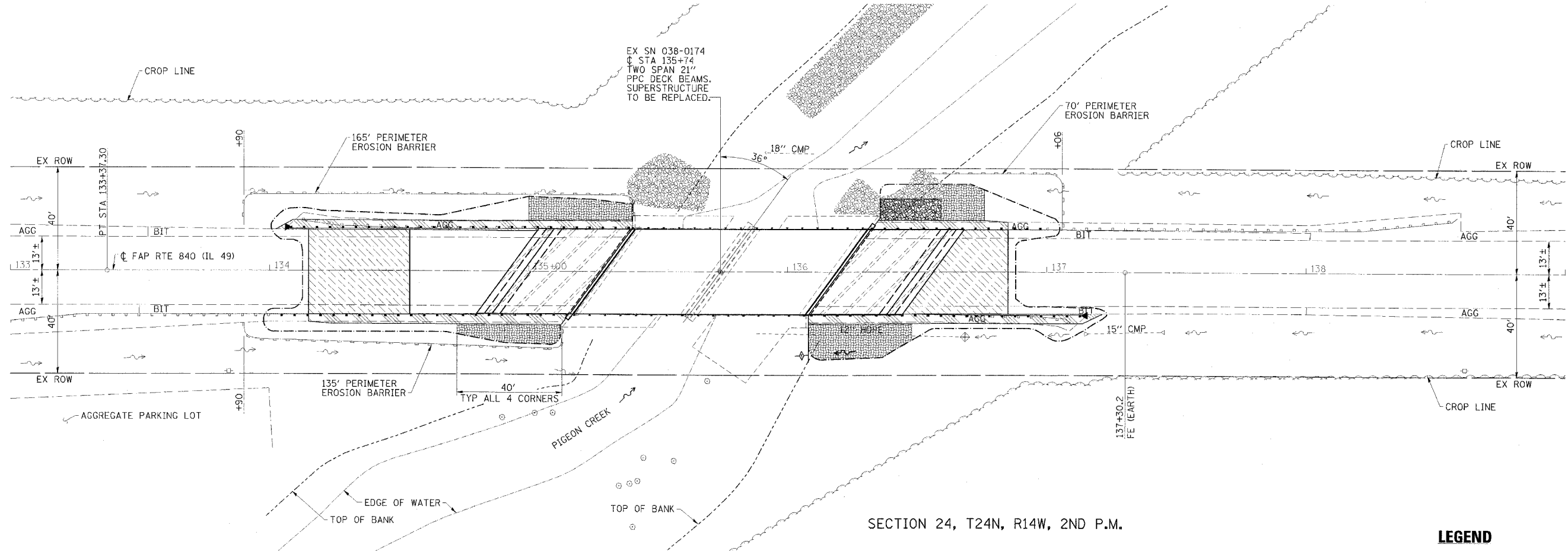
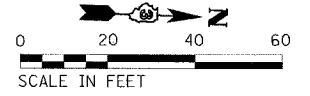
DESIGNED BY:	ELH	8/06
DRAWN BY:	HAG	8/06
CHECKED BY:	ELH	10/06
APPROVED BY:	RDP	10/06



CONTRACT NO. 66647

FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	123-BR-1	IROQUOIS	39	10
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT AID		

SECTION 23, T24N, R14W, 2ND P.M.



SECTION 24, T24N, R14W, 2ND P.M.

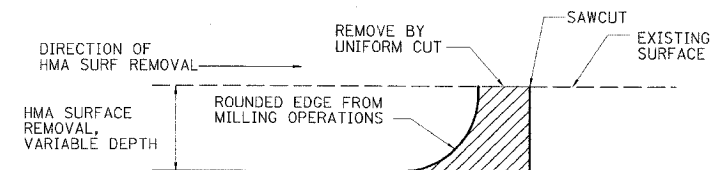
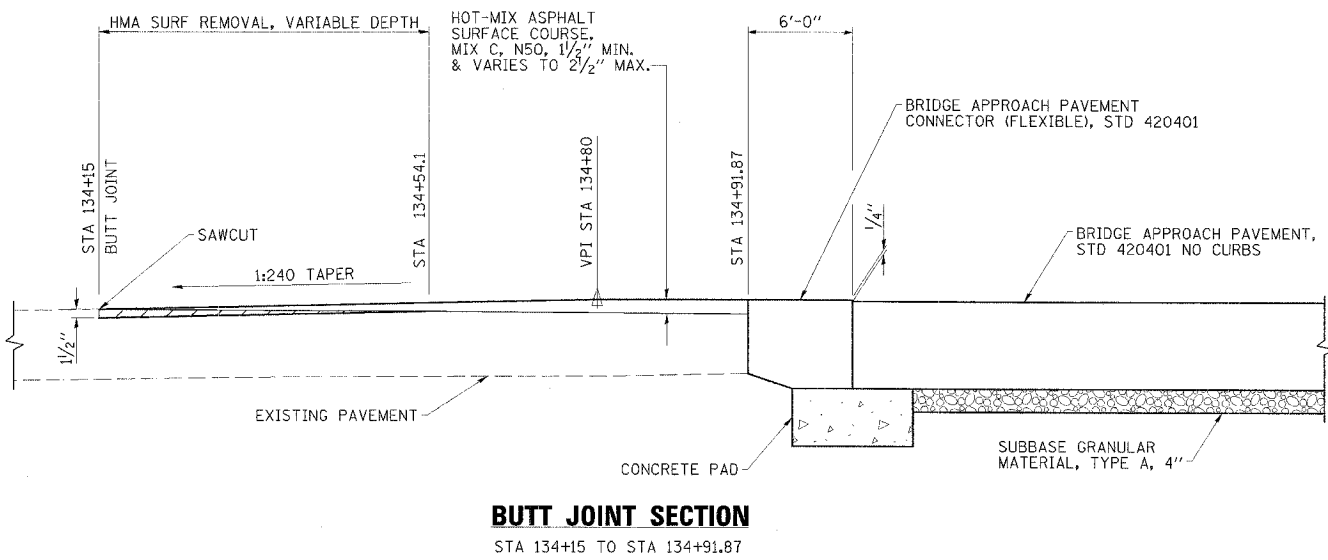
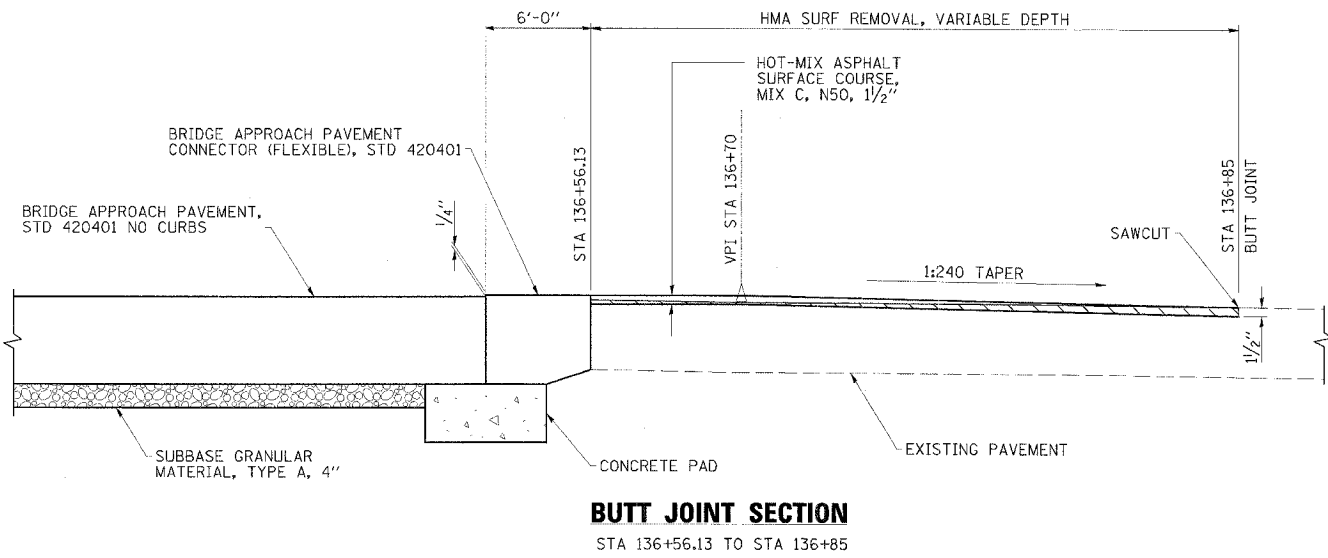
**LEGEND**

- PERIMETER EROSION BARRIER
- EROSION CONTROL BLANKET
- EXISTING DITCH FLOW
- PROPOSED DITCH FLOW
- INLET & PIPE PROTECTION
- TEMPORARY DITCH CHECK
- CONSTRUCTION LIMITS

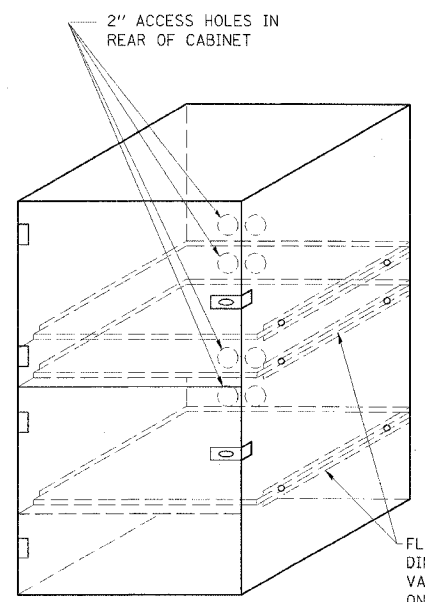
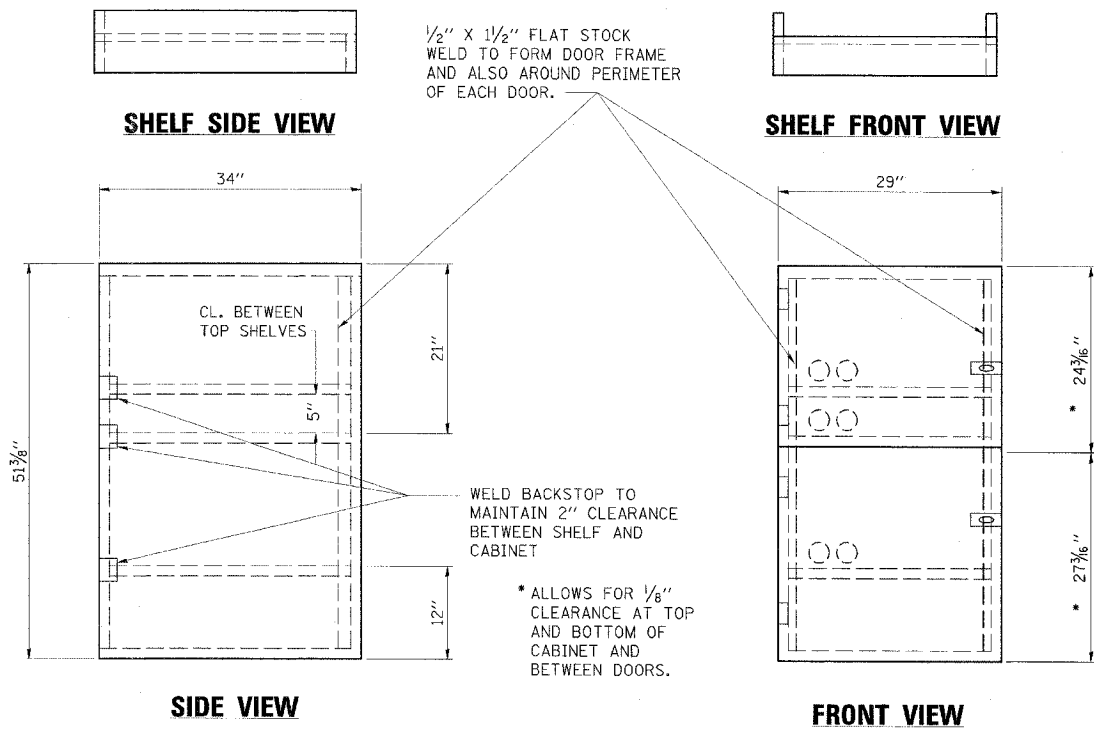
**ESCA**  
CONSULTANTS, INC.

DESIGNED BY:	ELH	08/06
DRAWN BY:	DWH	08/06
CHECKED BY:	ELH	10/06
APPROVED BY:	RDP	10/06

**EROSION CONTROL  
AND DRAINAGE PLAN**  
FAP RTE 840 (IL 49)  
SECTION 123-BR-1  
IROQUOIS COUNTY



NOTE: WHEN MILLING OPERATIONS PRODUCE A ROUNDED EDGE, THEN A SAWCUT SHALL BE USED TO MANUFACTURE A PERPENDICULAR EDGE AS SHOWN IN THE DETAIL. THE COST OF ALL WORK SHOWN IN THE DETAIL IS INCLUDED IN HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH. THE ENGINEER SHALL BE THE SOLE JUDGE CONCERNING THE USE OF THIS DETAIL.



- NOTES:
1. USE 16 GAUGE STEEL FOR CABINET.
  2. THE TOP SHELF SHALL SLIDE IN OR OUT WITH THE TOP DOOR OPEN.
  3. ALL HINGES AND HASPS WILL BE WELDED TO THE CABINET.
  4. ALL EDGES SHALL BE GROUND SMOOTH.
  5. TWO (2" DIA.) ACCESS HOLES WILL BE REQUIRED FOR EACH SHELF.
  6. CABINET SHALL BE PAINTED WITH TWO COATS OF FLAT PAINT.
  7. 2 EACH MATCHING KEY PADLOCKS, WITH 3 KEYS PROVIDED, MASTER MODEL 3 T OR EQUIVALENT.
  8. 4 EACH PLAIN STEEL, NON-REMOVABLE PIN, NO HOLE 4"X4" SQUARE CORNER HINGES TO BE WELDED ON.
  9. 2 EACH EXTRA HEAVY, PLAIN STEEL, FIXED STAPLE, NO HOLE, 7/4" HASPS TO BE WELDED ON.

**LOCKABLE COMPUTER CABINET**

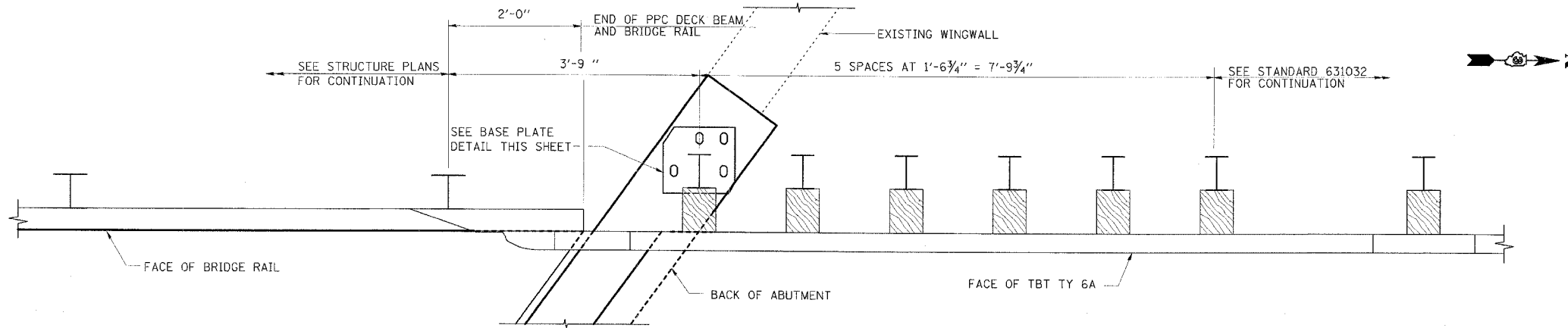
**ESCA**  
CONSULTANTS, INC.

DESIGNED BY:	ELH	08/06
DRAWN BY:	HAG	08/06
CHECKED BY:	ELH	10/06
APPROVED BY:	RDP	10/06

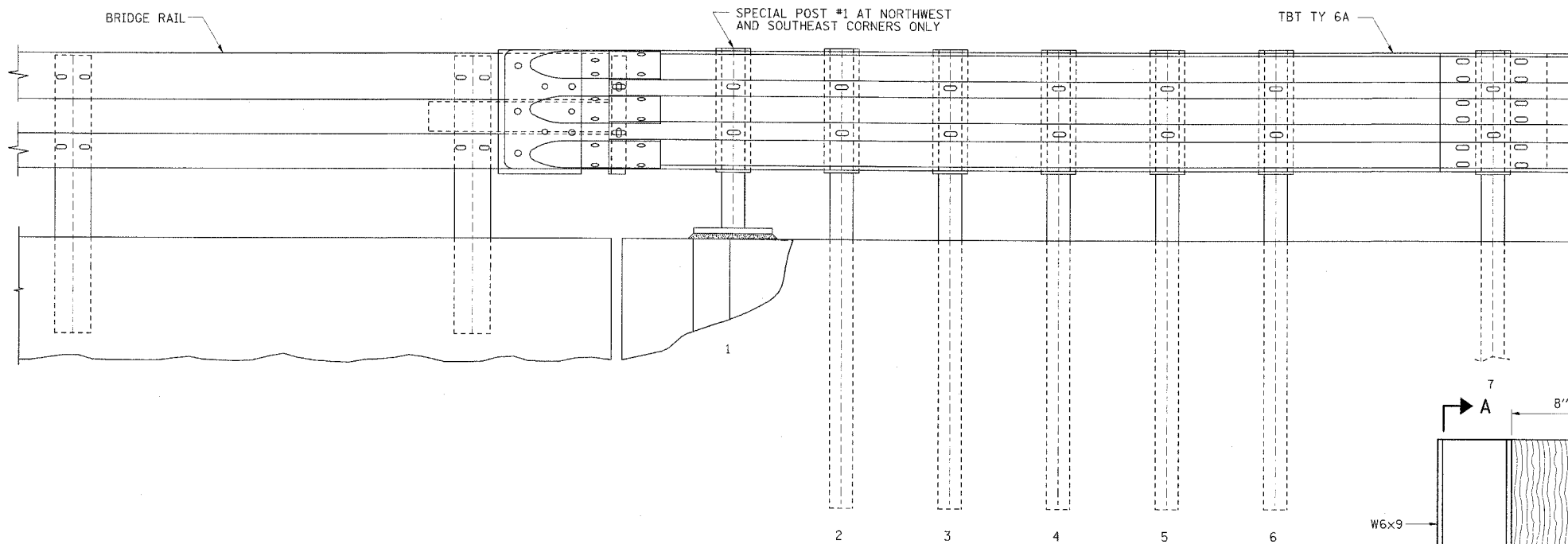
MISCELLANEOUS DETAILS  
 FAP RTE 840 (IL 49)  
 SECTION 123-BR-1  
 IROQUOIS COUNTY



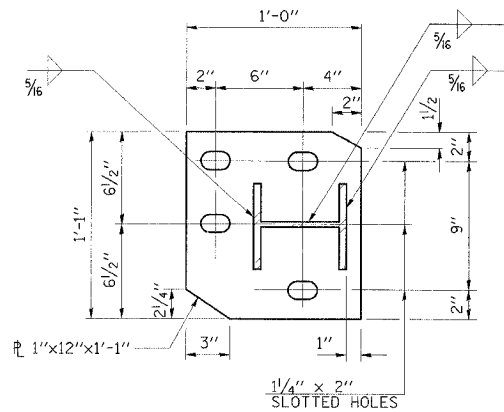
FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	123-BR-1	IROQUOIS	39	12
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT AID		



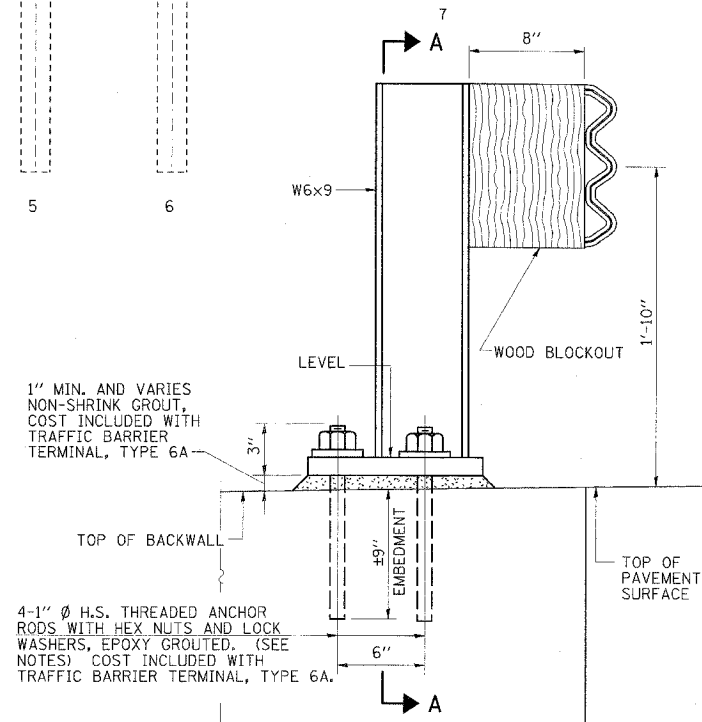
**PLAN**  
(NORTHWEST CORNER SHOWN, SOUTHEAST CORNER SIMILAR)



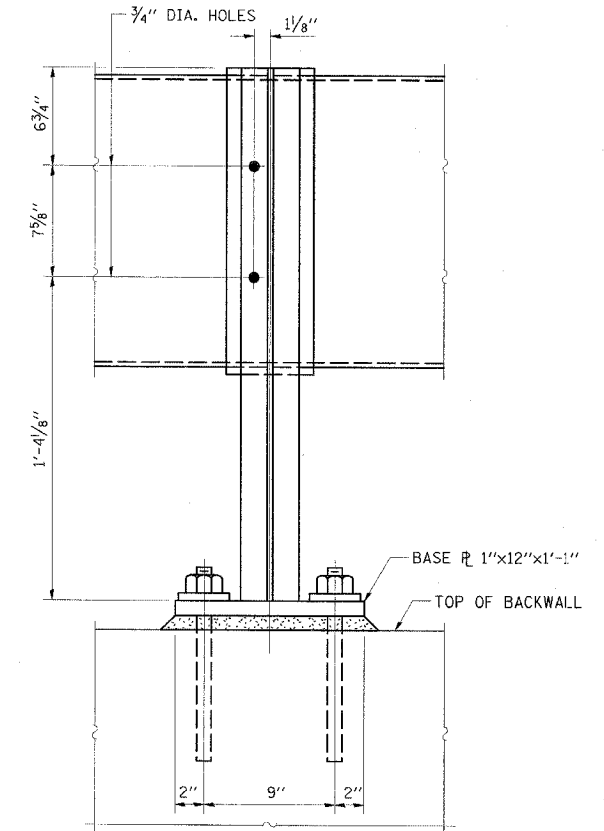
**ELEVATION**



**BASE PLATE DETAIL**



**SECTION AT SPECIAL RAIL POST #1**



**SECTION A-A**

**NOTES**

1. BOLTS, CAP SCREWS AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION A 307 EXCEPT THAT THREADED RODS, NUTS AND WASHERS SHALL CONFORM TO AASHTO M 164.
2. ALL BOLTS, NUTS, CAP SCREWS, WASHERS AND LOCK WASHERS SHALL BE GALVANIZED ACCORDING TO AASHTO M 232.
3. ALL POSTS, RAILING, RAIL SPLICES AND ANCHOR RODS SHALL BE GALVANIZED AFTER SHOP FABRICATION ACCORDING TO AASHTO M 111 AND ASTM A 385. GALVANIZED RAIL SHALL NOT BE PAINTED.
4. THE CONTRACTOR SHALL USE THE CAPSULE OR THE ADHESIVE CARTRIDGE TYPE ANCHOR RODS THAT HAVE BEEN PREVIOUSLY TESTED AND GIVEN A PRIOR APPROVAL BY THE DEPARTMENT. THE CONTRACTOR SHALL INSTALL THESE ANCHOR RODS IN PRE-DRILLED HOLES ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES. THE CAPSULE OR THE ADHESIVE CARTRIDGE SHALL BE SEALED WITH PRE-MEASURED AMOUNTS OF THE ADHESIVE CHEMICAL.
5. NUTS FOR 1" Ø THREADED ANCHOR RODS CONNECTING THE BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
6. SEE STANDARD 631032 FOR DETAILS OF TRAFFIC BARRIER TERMINAL, TYPE 6A NOT SHOWN. ALL MATERIAL AND WORK ASSOCIATED WITH THE FABRICATION AND INSTALLATION OF THE SPECIAL RAIL POST SHALL BE INCLUDED WITH THE COST OF TRAFFIC BARRIER TERMINAL, TYPE 6A.

**ESCA**  
CONSULTANTS, INC.

DESIGNED BY:	ELH	08/06
DRAWN BY:	HAG	08/06
CHECKED BY:	ELH	08/06
APPROVED BY:	RDP	08/06

**GUARDRAIL DETAILS**  
FAP RTE 840 (IL 49)  
SECTION 123-BR-1  
IROQUOIS COUNTY

BENCHMARK: Railroad spike in power pole, Sta. 136+42.83, 36.8' rt.  
Elev. 677.46

EXISTING STRUCTURE: SN 038-0174 was originally built in 1974. The bituminous overlay and expansion joints were removed and replaced in 1994. Concrete repairs and crack sealing were also performed in 1994. The superstructure consists of 2 simple spans of 21" PPC deck beams on pile bent abutments and a solid shaft pier on piles. The back-to-back abutments dimension measures 93'-6" while the out-to-out width measures 33'-5". The existing superstructure shall be removed and replaced. A road closure shall be used during construction of the bridge.

No salvage

STATION 135+74  
BUILT 200\_ BY  
STATE OF ILLINOIS  
F.A.P. RT. 840 SEC. 123-BR-1  
LOADING HS20  
STR. NO. 038-0174

**NAME PLATE**

See Std. 515001

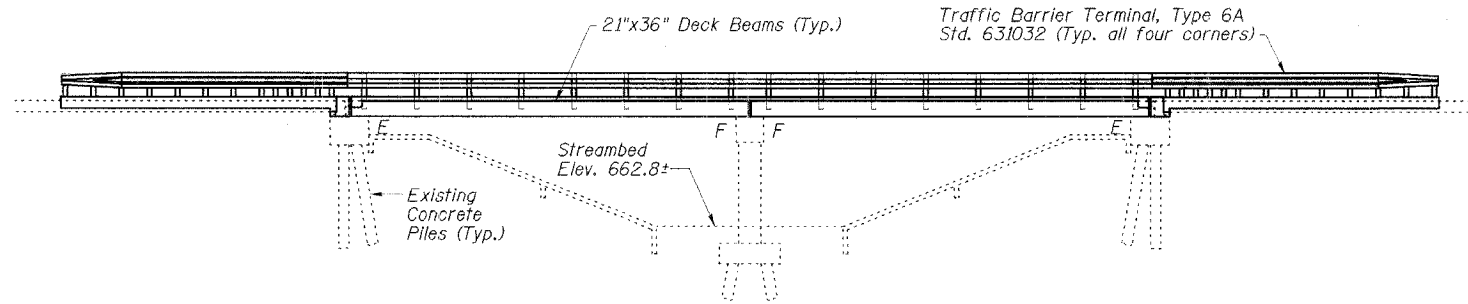
Note: Existing Name Plate shall be cleaned and relocated adjacent to the new plate. Cost included with Name Plates.

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

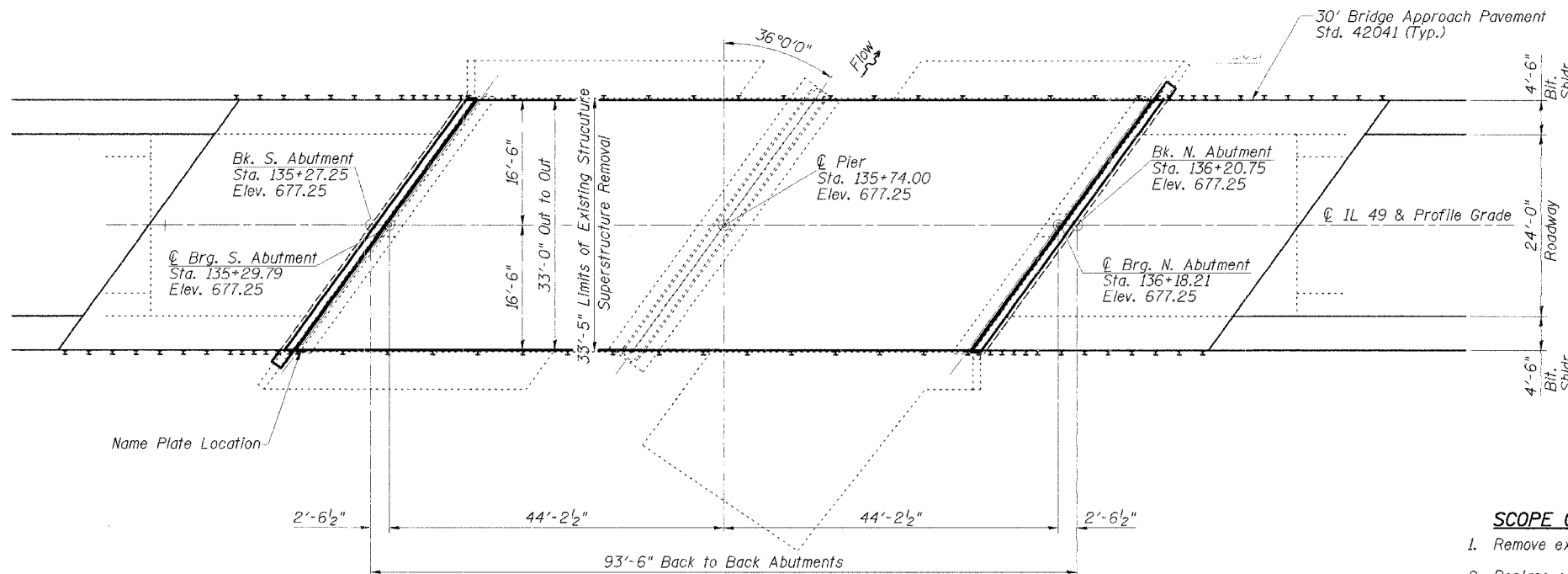
ROUTE NO.	SECTION	COUNTY	SHEET NO.	TOTAL SHEETS
FAP 840		IROQUOIS	39	13
FED. ROAD DIST. NO.		BLDG. NO.	FED. AID PROJECT NO.	
66647			123-BR-1	

**STRUCTURE INDEX OF SHEETS**

General Plan	Dwg. No. 1 of 14
General Data	Dwg. No. 2 of 14
Superstructure	Dwg. No. 3 of 14
Superstructure Details	Dwg. No. 4-5 of 14
Type SM Steel Bridge Rail	Dwg. No. 6 of 14
Strip Seal Expansion Joint	Dwg. No. 7 of 14
Anchor Bolt Details	Dwg. No. 8 of 14
North Abutment	Dwg. No. 9 of 14
South Abutment	Dwg. No. 10 of 14
Abutment Details	Dwg. No. 11 of 14
Pier	Dwg. No. 12 of 14
Pier Details	Dwg. No. 13 of 14
Bar Splicer Assembly Details	Dwg. No. 14 of 14



**ELEVATION**



**PLAN**

**SCOPE OF WORK**

1. Remove existing surfacing, steel railing, and deck beams.
2. Replace existing abutment backwalls.
3. Repair beam bearing seats at abutments and pier as required.
4. Reconstruct a two-span PPCD beam superstructure with concrete wearing surface and Steel Bridge Rail Type SM, and new bridge approach pavements.

**DESIGN SPECIFICATION**

2002 AASHTO

**LOADING HS20-44**

Allow 50 psf future wearing surface

**DESIGN STRESSES**

**FIELD UNITS**

$f'_c = 5,000$  psi (Concrete Wearing Surface)

$f'_c = 3,500$  psi (All concrete except CWS)

$f_y = 60,000$  psi (reinf.)

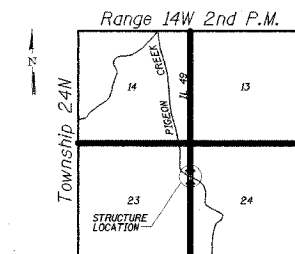
**PRECAST PRESTRESSED UNITS**

$f'_c = 5,000$  psi

$f'_{ci} = 4,000$  psi

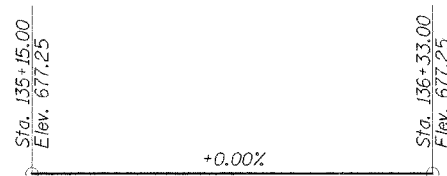
$f'_s = 270,000$  psi ( $1/2$ " low lax strands)

$f_{si} = 201,960$  psi ( $1/2$ " low lax strands)



**LOCATION SKETCH**

GENERAL PLAN  
IL 49 OVER PIGEON CREEK  
FAP ROUTE 840 - SECTION 123-BR-1  
IROQUOIS COUNTY  
STATION 135+74.00  
STRUCTURE NO. 038-0174



**PROFILE GRADE**  
(Along  $\phi$  Roadway)

**ESCA**  
CONSULTANTS, INC.

DESIGNED BY:	FMA	04/06
DRAWN BY:	cj	04/06
CHECKED BY:	ELH/MTD	10/06
APPROVED BY:	RDP	10/06



EXPIRES 11-30-06  
SIGNATURE  
10-06-06  
DATE

**APPROVED**  
FOR STRUCTURAL ADEQUACY ONLY

Ralph E. Anderson (EIT)  
ENGINEER OF BRIDGES AND STRUCTURES

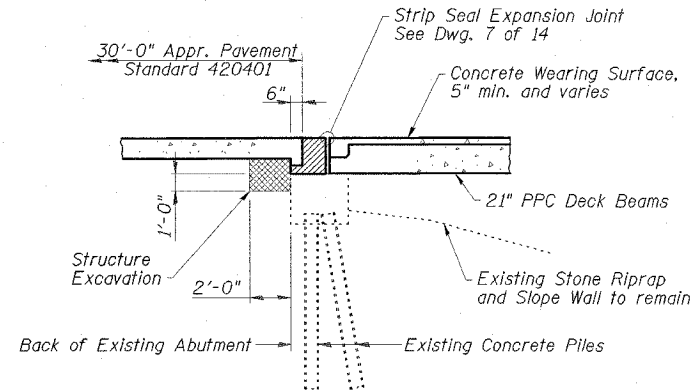
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	QUANTITY	DATE	PROJECT	SHEET NO. 2 14 SHEETS
FAP 840	*	IROQUOIS	39	14	
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	123-BR-1		
66647					

**GENERAL NOTES**

- Reinforcement bars shall conform to the requirements of AASHTO M31 or M322 Grade 60.
- Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price for the work.
- All construction joints shall be bonded.
- Concrete Sealer shall be applied to abutment bearing seats where formed concrete repairs are performed.
- All new structural steel shall be shop painted with an inorganic zinc rich primer per AASHTO M300 Type 1 unless noted otherwise.
- Side retainers shall be AASHTO M270 Grade 36 minimum.
- No work will be allowed in the stream.
- The Contractor is advised that the existing PPC Deck Beams are in a deteriorated condition with reduced load carrying capacity. It is the Contractor's responsibility to account for the condition of the beams when developing construction procedures for removal and replacement of the superstructure.
- If the Contractor's procedure for existing beam removal or placement of new beams involves placement of cranes or other heavy equipment on new beams, a detailed procedure shall be submitted to the Engineer for approval. The procedure shall include calculations, prepared and sealed by an Illinois Licensed Structural Engineer, verifying that the equipment and procedure used will not overstress the new beams. To distribute load to multiple beams and protect the concrete, in all cases a double layer mat of heavy timbers shall be used at all times under the crane tracks or wheels and any outriggers in the down position. If necessary, shims shall be used under the crane mat to ensure uniform contact with the underlying beams. Prior to placement of the timber mats the following shall be done: placement and tightening of transverse tie assemblies, grouting and curing the dowel rods 24 hours minimum and grouting and curing the shear keys. A temporary means of lateral restraint will be required for fascia beams at expansion ends of beams to prevent movement of the beams. This work shall be considered included in the cost of Precast Prestressed Concrete Deck Beams.

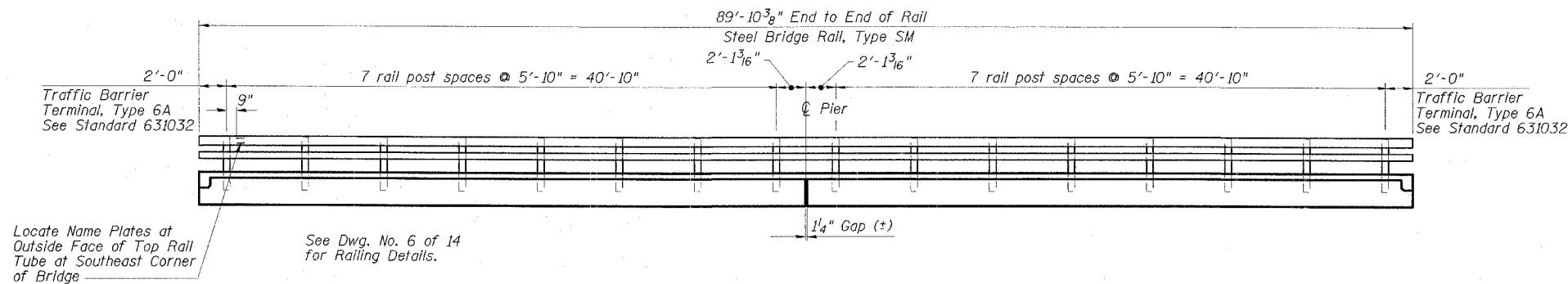
- Existing reinforcement bars extending into the removal area shall be cleaned, straightened, and incorporated into the new construction. Any reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost included with Concrete Removal.
- The cut strands at each beam end shall be given two coats of zinc dust spray or paint meeting the requirements of ASTM A780. The zinc dust spray or paint shall be applied before corrosion appears and allowed to dry according to the manufacturer's specifications prior to another coat of zinc. A concrete sealer meeting the requirements of Section 587 of the Standard Specifications shall be applied to the exterior face and 9" in on the underside of the fascia beams. The sealer shall be applied after visible crack growth has subsided. This work shall be performed by the producer and included with the cost of the beam.
- The minimum thickness of the concrete overlay shall be 5" and varies as required to adjust for the new profile grade and beam camber.
- Repair of the substructure shall be completed prior to placement of the new deck beams.



**SECTION THRU ABUTMENTS**  
(© Rt. Angles)

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Superstructures	Each	1		1
Concrete Removal	Cu. Yd.		5.4	5.4
Structure Excavation	Cu. Yd.		12	12
Concrete Structures	Cu. Yd.		7.6	7.6
Bridge Deck Grooving	Sq. Yd.	310		310
Concrete Wearing Surface, 5"	Sq. Yd.	330		330
Concrete Sealer	Sq. Ft.		30	30
Structural Repair of Concrete (Depth Equal to or Less Than 5")	Sq. Ft.		57	57
Precast Prestressed Concrete Deck Beams (21" Depth)	Sq. Ft.	2962		2962
Reinforcement Bars, Epoxy Coated	Pound	4060	1300	5360
Steel Bridge Rail, Type SM	Foot	180		180
Name Plates	Each	1		1
Epoxy Crack Injection	Foot		76	76
Asbestos Bearing Pad Removal	Each		44	44
Bar Splicers	Each		66	66
Protective Coat	Sq. Yd.	330		330
Preformed Joint Strip Seal	Foot	82		82



**RAIL ELEVATION**

(Showing Inside Face of West Railing;  
East Railing Similar)

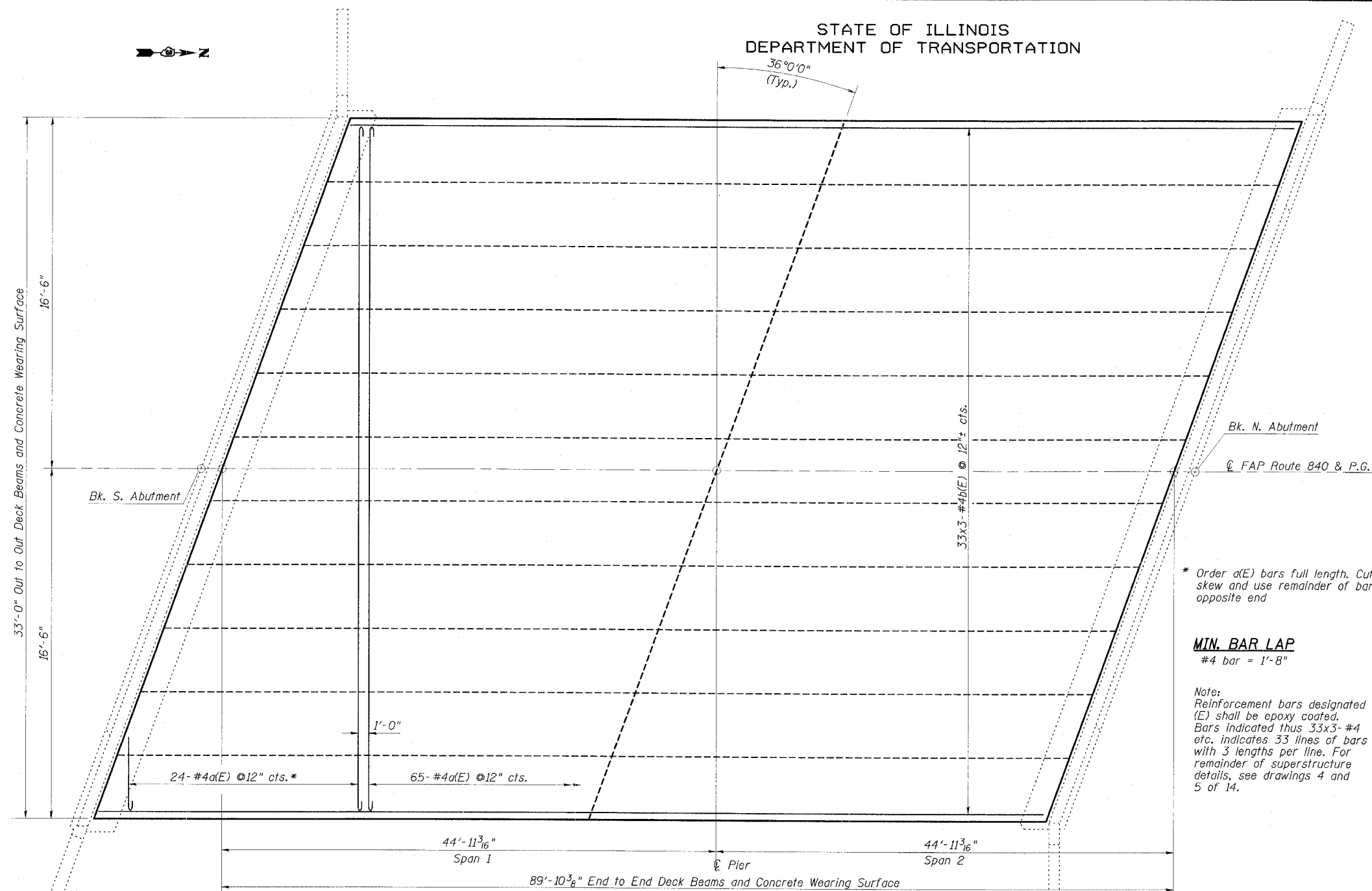
**GENERAL DATA**  
**IL 49 OVER PIGEON CREEK**  
**FAP ROUTE 840 - SECTION 123-BR-1**  
**IROQUOIS COUNTY**  
**STATION 135+74.00**  
**STRUCTURE NO. 038-0174**

**ESCA**  
CONSULTANTS, INC.

DESIGNED BY:	FMA	04/06
DRAWN BY:	HAG/cj	04/06
CHECKED BY:	ELH/MTD	10/06
APPROVED BY:	RDP	10/06

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	JOB SHEETS	SHEET NO.	SHEET NO. 3 14 SHEETS
FAP 840	#	IROQUOIS	39	15	
FED. ROAD DIST. NO.	ALIGNMENT	FED. AID PROJECT			
66647		123-BR-1			



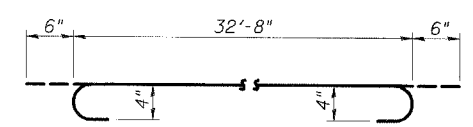
\* Order a(E) bars full length. Cut to fit skew and use remainder of bars in opposite end

**MIN. BAR LAP**  
#4 bar = 1'-8"

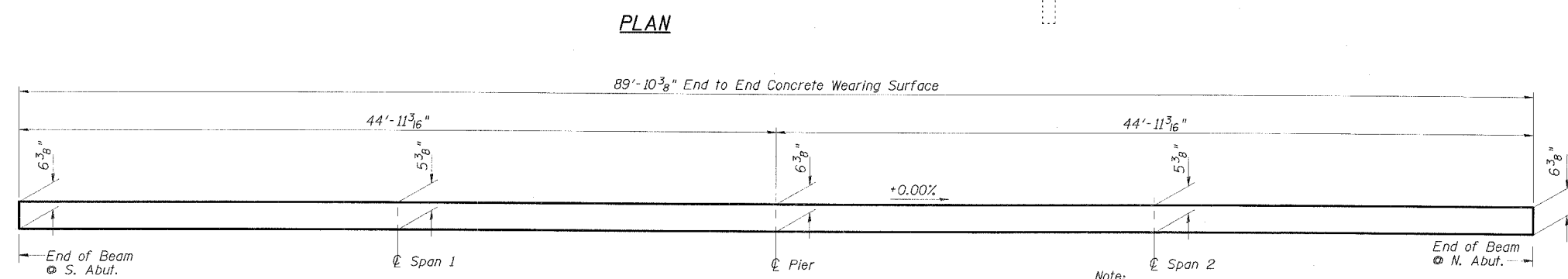
Note:  
Reinforcement bars designated (E) shall be epoxy coated.  
Bars indicated thus 33x3-#4 etc. indicates 33 lines of bars with 3 lengths per line. For remainder of superstructure details, see drawings 4 and 5 of 14.

**CONCRETE WEARING SURFACE  
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a(E)	89	#4	33'-8"	
b(E)	99	#4	31'-0"	
Reinforcement Bars, Epoxy Coated			Pound	4060
Concrete Wearing Surface, 5"			Sq. Yd.	330
Bridge Deck Grooving			Sq. Yd.	310
Protective Coat			Sq. Yd.	330



BAR a(E)



**REINFORCED CONCRETE WEARING SURFACE PROFILE**  
(At centerline of roadway)

Note:  
Greater thickness is required at centerline of superstructure to conform to cross section slopes shown on Dwg. 4 of 14.

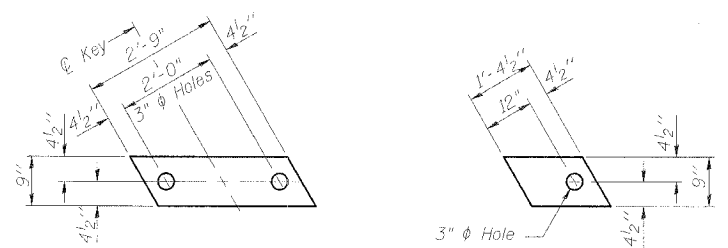
**SUPERSTRUCTURE**  
**IL 49 OVER PIGEON CREEK**  
**FAP ROUTE 840 - SECTION 123-BR-1**  
**IROQUOIS COUNTY**  
**STATION 135+74.00**  
**STRUCTURE NO. 038-0174**

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CHECKED BY:	ELH/MTD	09/06
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

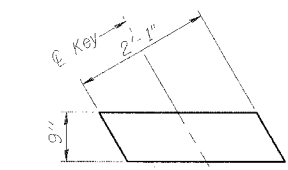
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FED. ROAD DIST. NO.	ALIGNMENT	FED. AID PROJECT			
66647		123-BR-1			



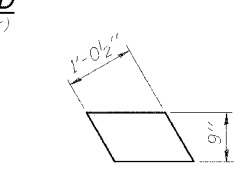
FABRIC BEARING PAD  
(Interior)

FABRIC BEARING PAD  
(Exterior)

FIXED  
(At Pier)

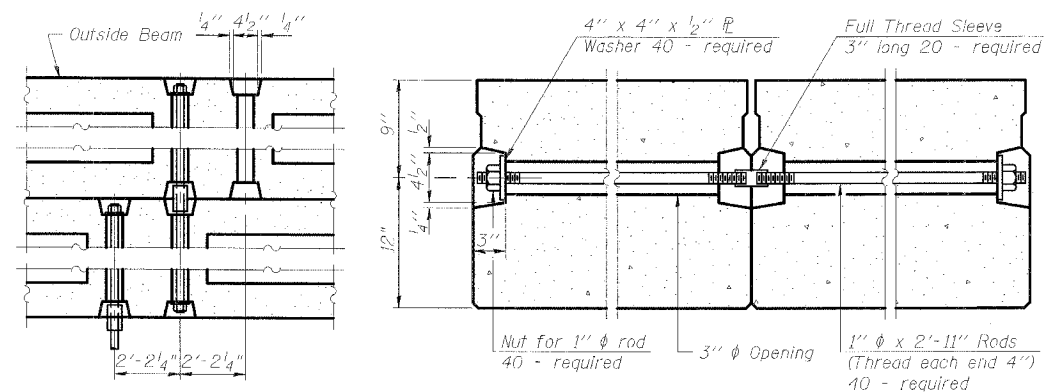


FABRIC BEARING PAD  
(Interior)

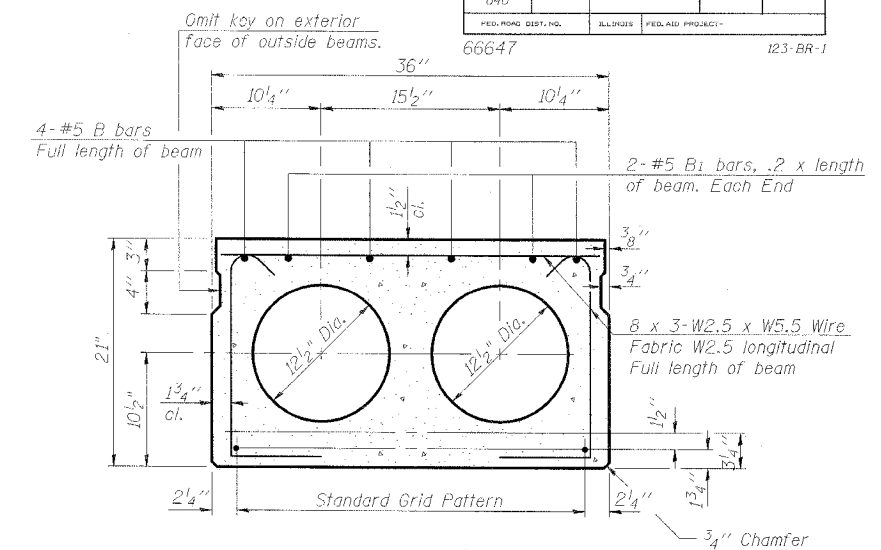


FABRIC BEARING PAD  
(Exterior)

EXPANSION  
(At Abutments)



TYPICAL TRANSVERSE TIE ASSEMBLY



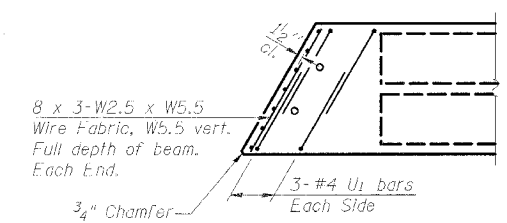
TYPICAL SECTION-INTERIOR BEAMS

12-1/2"  $\phi$  Strands, Each Strand Stressed to 30,900 Lbs.  
4-Strands 1 3/4" up, 8-Strands 3 1/4" up

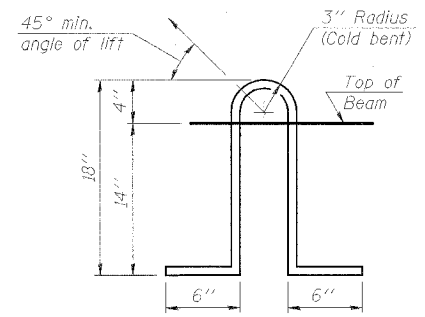
Note:  
Place strands symmetrically  
about  $\phi$  of beam.

NOTES

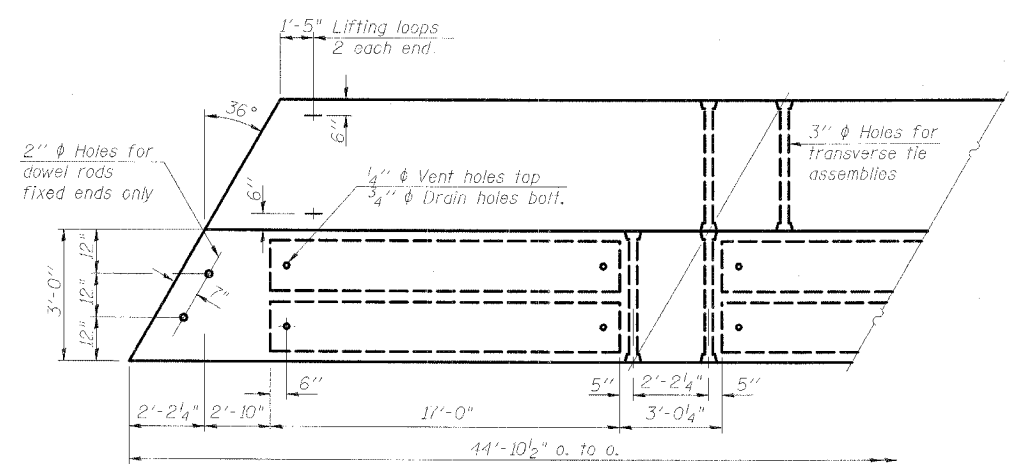
Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. Lifting loops shall be 2-1/2"  $\phi$  270 ksi strands, as shown. The 1"  $\phi$  rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar on outside shall be filled with grout after transverse tie assembly is in place.  
Non prestressing steel shall conform to AASHTO M-31 or M-322 Grade 60. The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two 1/8" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing.  
Keyway surfaces shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between top of the beam and the bottom edge of the key.  
Corrosion inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.  
Required Release Strength, f'ci, shall be 4,000 p.s.i.  
See drawing 2 of 14 for location of rail anchors and additional notes.



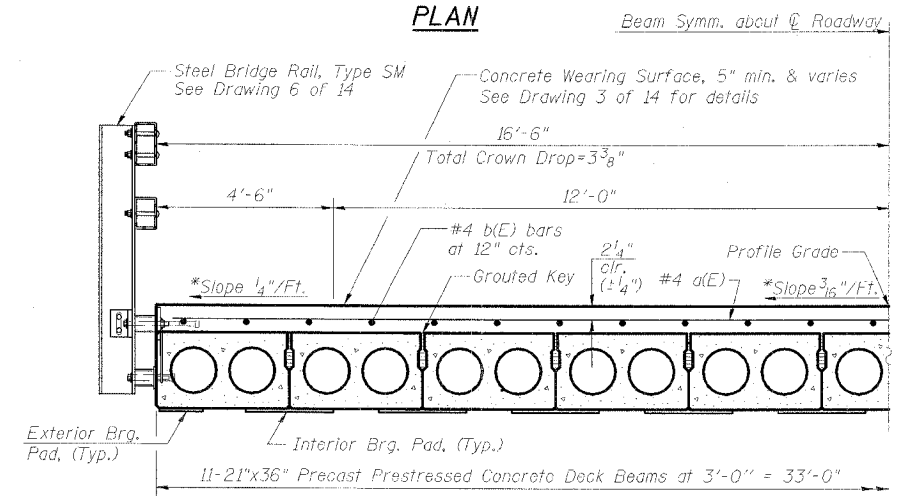
END PLAN AT FIXED END  
(EXPANSION END SIMILAR)



LIFTING LOOP DETAIL



PLAN



HALF CROSS SECTION

\*Cross slopes shown are applicable  
to Concrete Wearing Surface.

**ESCA**  
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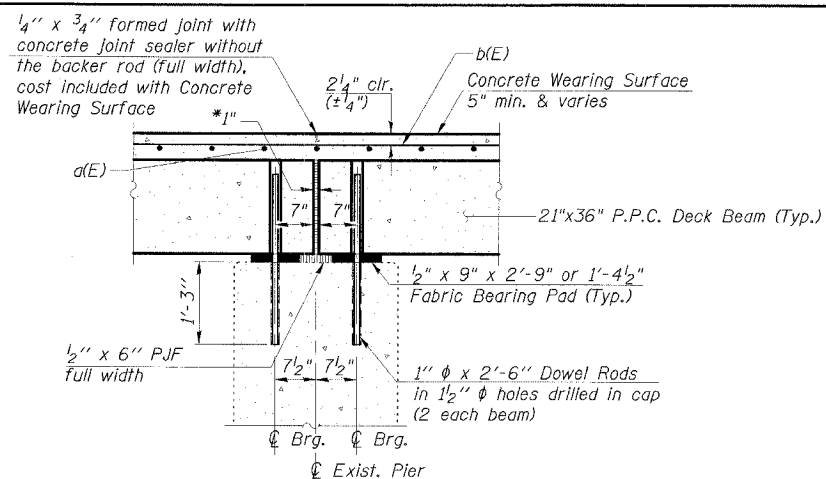
DESIGNED BY:	FMA	04/06
DRAWN BY:	cj	04/06
CHECKED BY:	ELH/MTD	09/06
APPROVED BY:	RDP	09/06

SUPERSTRUCTURE DETAILS  
IL 49 OVER PIGEON CREEK  
FAP ROUTE 840 - SECTION 123-BR-1  
IROQUOIS COUNTY  
STATION 135+74.00  
STRUCTURE NO. 038-0174



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET NO.
FAP 840	*	IROQUOIS	39	17
FED. ROAD DIST. NO.		ILLINOIS PROJECT NO.		
66647		123-BR-1		

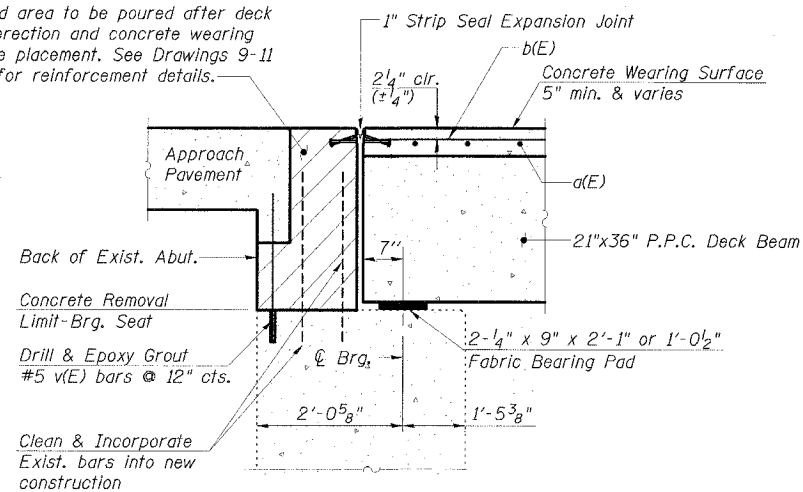


**SECTION THRU PIER**

(Horizontal dimensions are at right angles to beam ends)

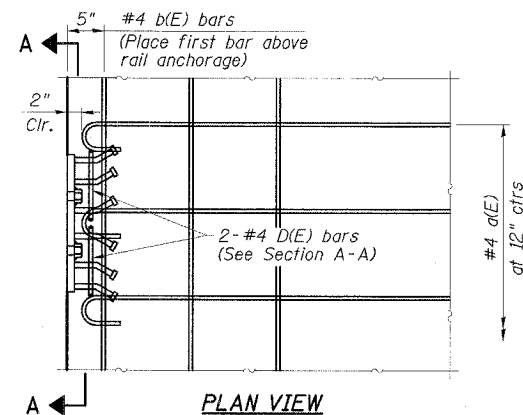
\*1" Jt. shall be filled with non-shrink grout. 1" dimension may vary to accommodate tolerance in beam lengths.

Hatched area to be poured after deck beam erection and concrete wearing surface placement. See Drawings 9-11 of 14 for reinforcement details.

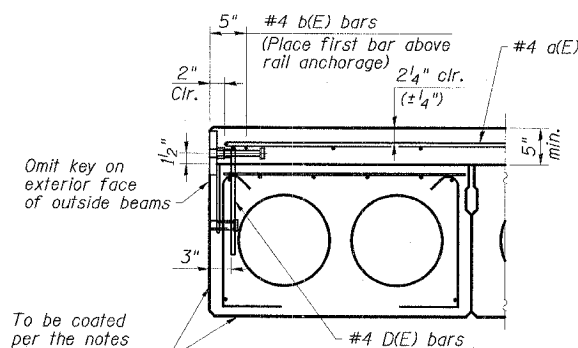


**SECTION THRU ABUTMENT**

(Dimensions at right angles)

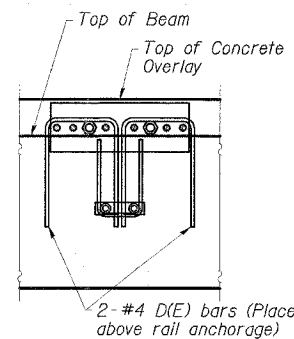


**PLAN VIEW**



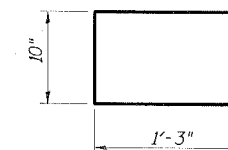
**FASCIA BEAM CROSS SECTION**

See Section Thru Interior Beams on Dwg. 4 of 14 for strand pattern, dimensions and bar call outs.



**SECTION A-A**

**CONCRETE OVERLAY MODIFICATIONS FOR RAIL ANCHORAGE**



**BAR D(E)**

**NOTES**

After beams have been erected, holes shall be drilled into substructure and dowels rods placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.

Concrete wearing surface to be poured after grouting the shear keys.

Dowel rods drilled in cap are included in the cost of Precast Prestressed Concrete Deck Beams (21" depth).

The rail anchorage shall be cast with the beam and the wearing surface shall be cast in the field. Formwork necessary for the wearing surface may be secured utilizing the bottom rail anchorage inserts and/or additional inserts cast into the beam. Drilling into the beam will not be permitted.

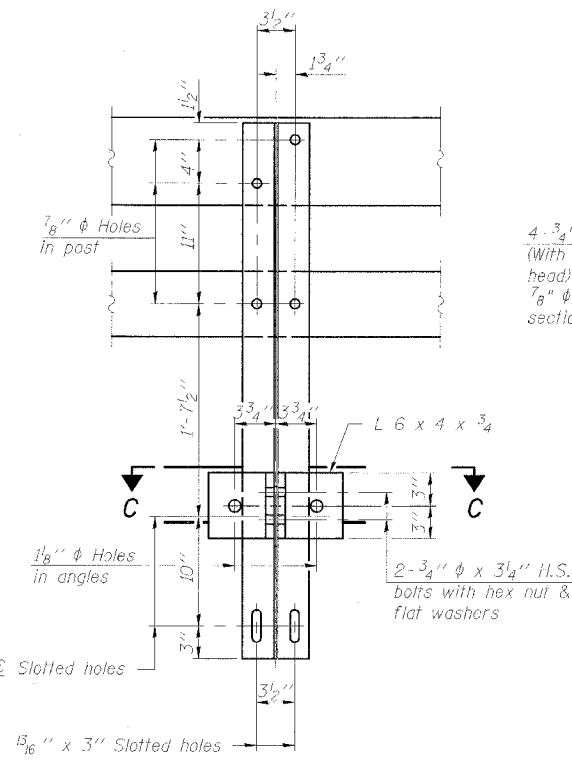
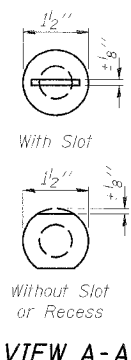
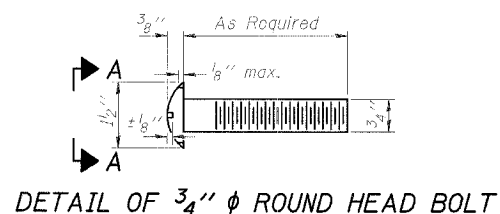
**ESCA**  
CONSULTANTS, INC.

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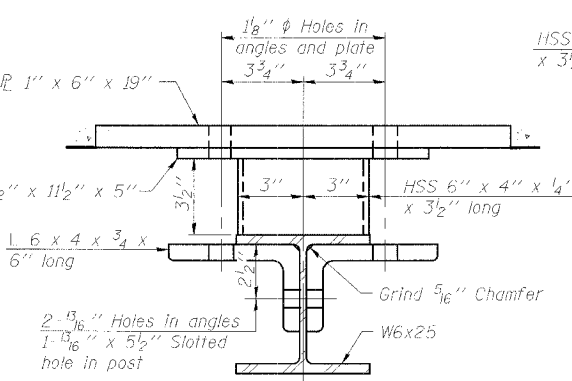
**SUPERSTRUCTURE DETAILS**  
**IL 49 OVER PIGEON CREEK**  
**FAP ROUTE 840 - SECTION 123-BR-1**  
**IROQUOIS COUNTY**  
**STATION 135+74.00**  
**STRUCTURE NO. 038-0174**

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

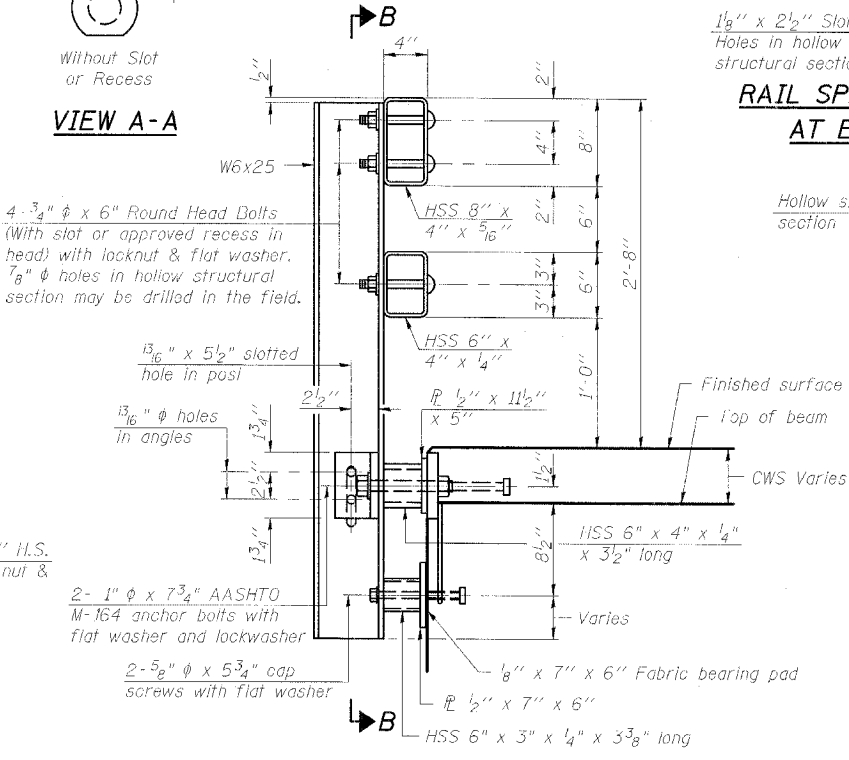
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FED. ROAD DIST. NO.	ALTITUDE	FED. AID PROJECT-		
66647		123-BR-1		



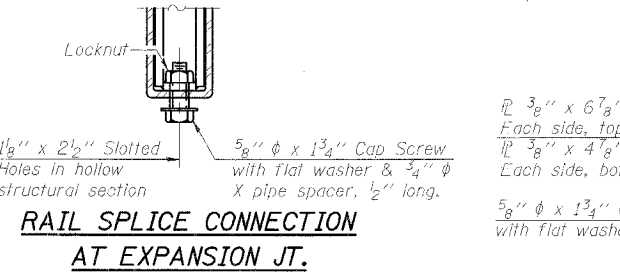
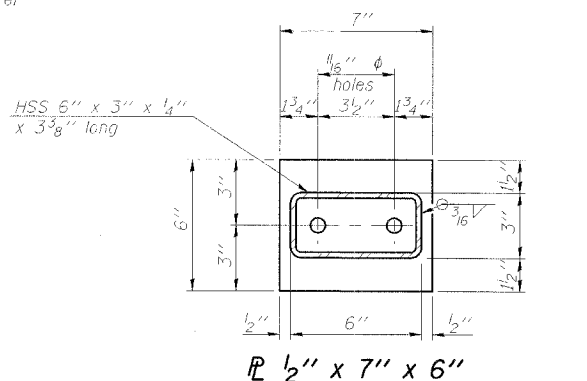
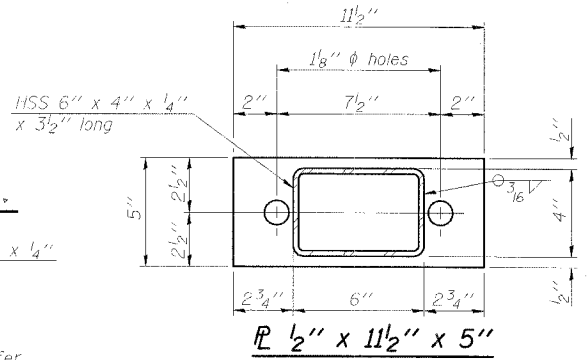
SECTION B-B



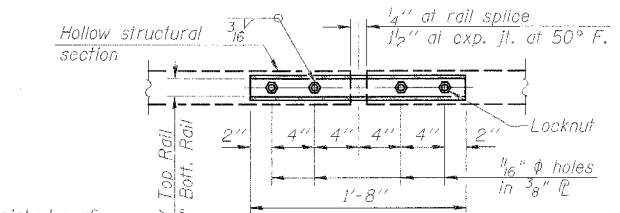
SECTION C-C



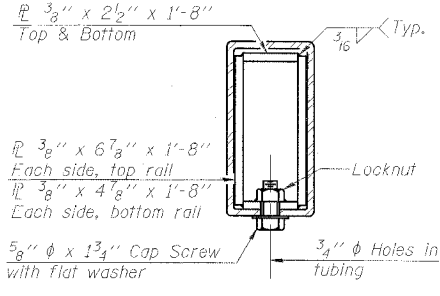
SECTION AT RAIL POST



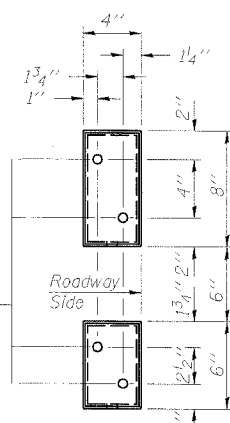
RAIL SPLICE CONNECTION  
AT EXPANSION JT.



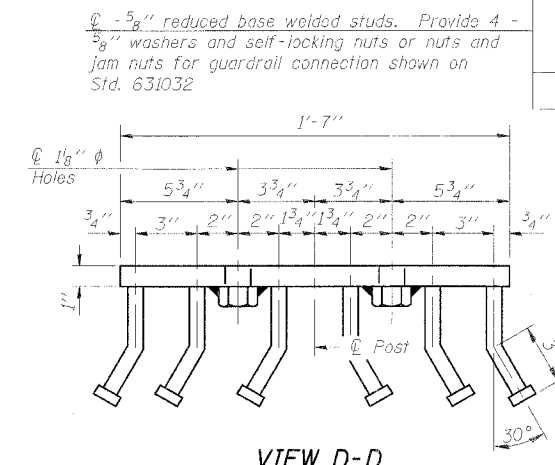
PLAN-BOTT. SPLICE R.  
TYPICAL



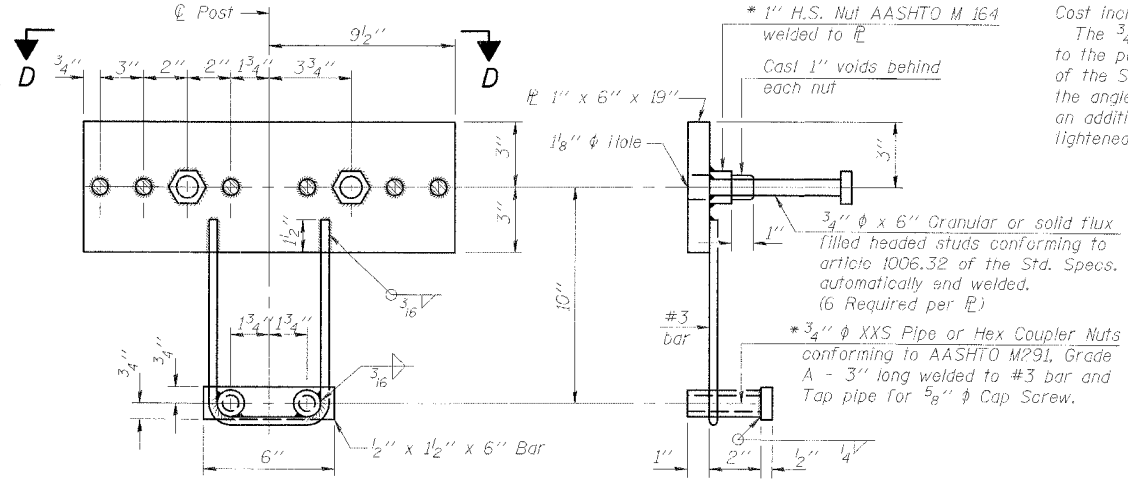
SECTION AT  
RAIL SPLICE



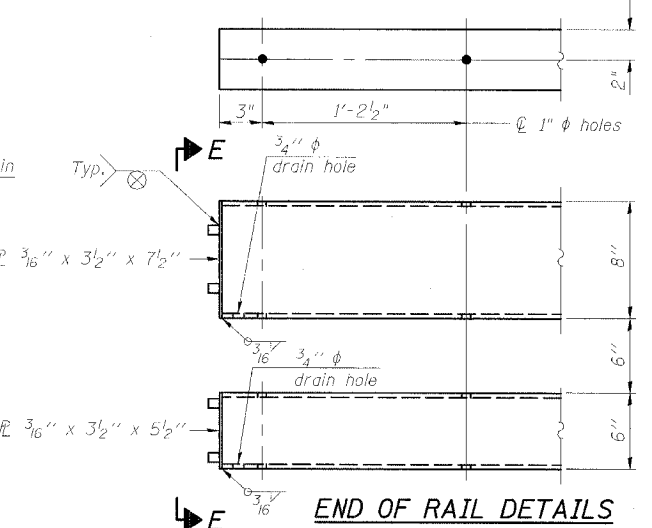
VIEW E-E



VIEW D-D



ANCHOR DEVICE



END OF RAIL DETAILS

NOTES

- Hollow structural sections shall conform to the requirements of ASTM designation A 500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft-lbs at 0° F.
- All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36 except posts and angles shall conform to AASHTO M 270, Grade 50.
- Bolts, cap screws, and nuts shall conform to the requirements of ASTM designation A 307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M 164.
- All bolts, nuts, cap screws, washers and lock washers shall be galvanized according to AASHTO M 232.
- All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication according to AASHTO M 111 and ASTM A 385. Galvanized rail shall not be painted.
- Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for Steel Bridge Rail, Type SM.
- 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 Bridge Rail, Type SM.
- The 3/4" high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04(FXP) of the Standard Specifications. The 1" high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/2 turn. The 5/8" cap screws in bottom of posts shall be tightened to a snug fit only.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Bridge Rail, Type SM	Foot	180

**TYPE SM**  
**STEEL BRIDGE RAIL**  
**IL 49 OVER PIGEON CREEK**  
**FAP ROUTE 840 - SECTION 123-BR-1**  
**IROQUOIS COUNTY**  
**STATION 135+74.00**  
**STRUCTURE NO. 038-0174**

**ESCA**  
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(6'-3" Maximum Post Spacing) (5" minimum to 1/8" maximum CWS thickness)

\* Threaded areas shall be plugged or blocked off during casing of beam. Galvanized after fabrication.

STATE OF ILLINOIS  
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ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET NO.
FAP 840	#	IROQUOIS	39	19
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	
66647		123-BR-1		

**GENERAL NOTES**

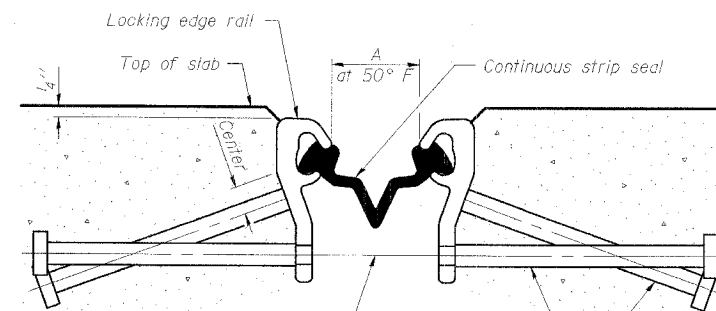
The strip seal shall be made continuous and shall have a minimum thickness of  $\frac{1}{4}$ ". The configuration of the strip seal shall match the configuration of the Locking Edge Rails.

The height and thickness of the Locking Edge Rails shown are minimum dimensions. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed.

Locking Edge Rails may be spliced at slope discontinuities and stage construction joints.

The manufacturer's recommended installation methods shall be followed.

\* Omit weld at seal opening.

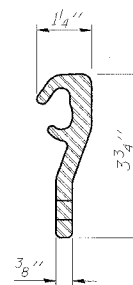


$\frac{7}{16}$ "  $\phi$  holes at 4'-0" cts. for  $\frac{3}{8}$ "  $\phi$  bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

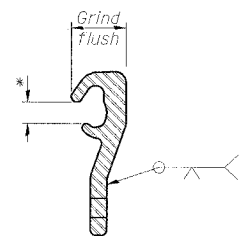
Place  $\frac{1}{2}$ "  $\phi$  x 6" granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded at 1'-0" alt. cts.

**SECTION THRU STRIP SEAL JOINT  
FOR OVERLAY OVER DECK BEAMS**

Required Strip Seal rated movement	"A"
1"	$1\frac{1}{8}$ "
2"	$1\frac{3}{4}$ "



**LOCKING EDGE RAIL**



**LOCKING EDGE RAIL SPLICE**

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CHECKED BY:	ELH/MTD	09/06
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**STRIP SEAL EXPANSION JOINT  
IL 49 OVER PIGEON CREEK  
FAP ROUTE 840 - SECTION 123-BR-1  
IROQUOIS COUNTY  
STATION 135+74.00  
STRUCTURE NO. 038-0174**

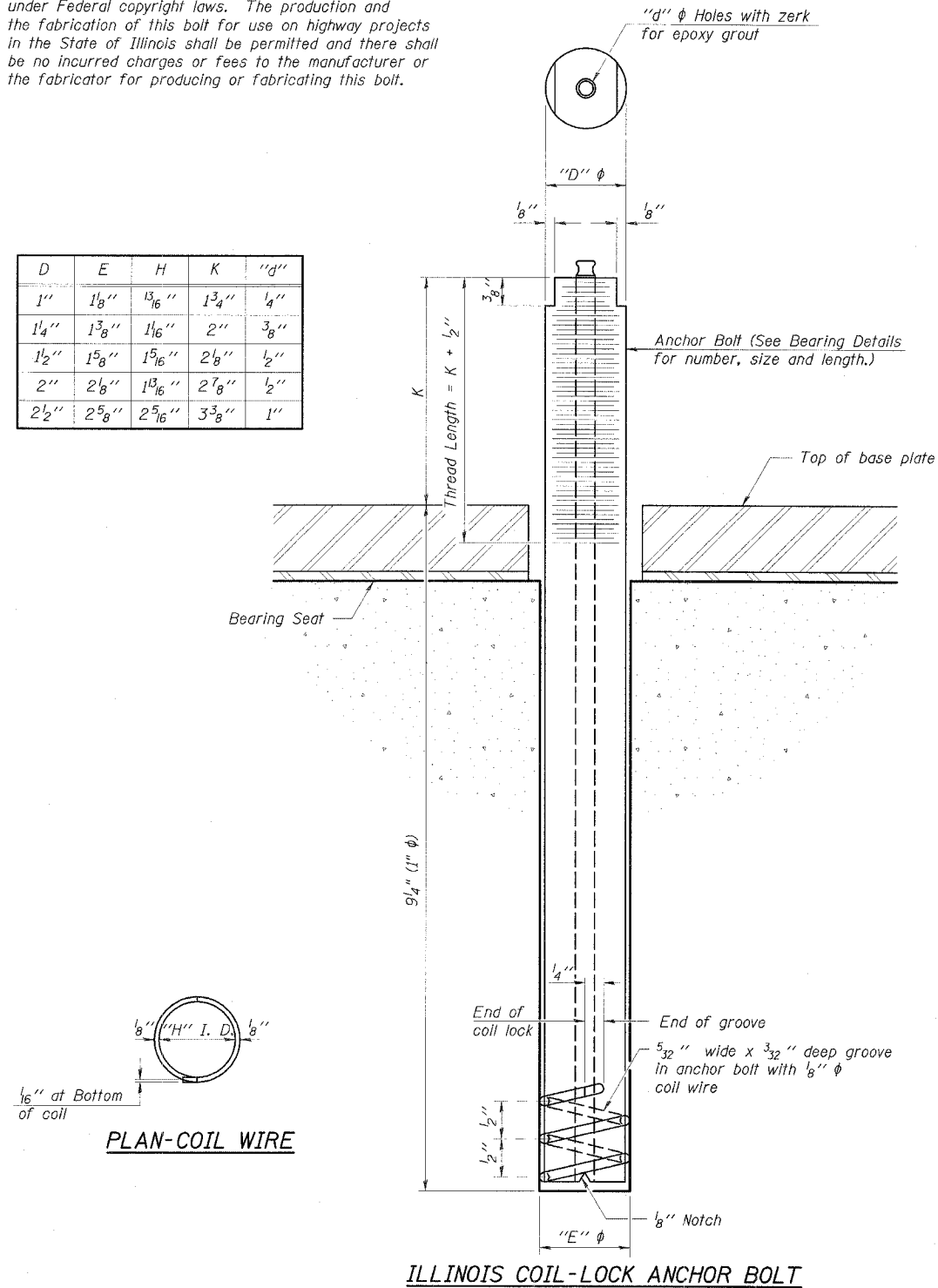
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET NO. 8
FAP 840	#	IROQUOIS	39	20
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		14 SHEETS

66647 123-BR-1

The Illinois Coil-Lock Anchor Bolt is a proprietary item which is the property of the Illinois Department of Transportation. Use, reproduction or disclosure without express written permission is prohibited and protected under Federal copyright laws. The production and the fabrication of this bolt for use on highway projects in the State of Illinois shall be permitted and there shall be no incurred charges or fees to the manufacturer or the fabricator for producing or fabricating this bolt.

D	E	H	K	"d"
1"	1 1/8"	1 3/16"	1 3/4"	1/4"
1 1/4"	1 3/8"	1 1/16"	2"	3/8"
1 1/2"	1 5/8"	1 5/16"	2 1/8"	1/2"
2"	2 1/8"	1 13/16"	2 7/8"	1/2"
2 1/2"	2 5/8"	2 5/16"	3 3/8"	1"



**MATERIALS FOR ILLINOIS COIL-LOCK ANCHOR BOLT**

The anchor bolt shall be fabricated from cold drawn or hot finished seamless carbon steel mechanical tubing conforming to ASTM A 519, Grade 1026, CW and supplied with hexagonal nuts and cut washers. The coil wire shall be made of any suitable soft steel wire. The finished anchor bolt shall be cleaned of rust and other foreign materials and wrapped or packaged to prevent contamination until they are installed. The epoxy grout shall be a two-component, epoxy resin bonding system conforming to ASTM C 881, Type I, Grade 1 and of a Class suitable for the temperature at installation.

**INSTALLATION PROCEDURE for the ILLINOIS COIL-LOCK ANCHOR BOLT**

1. With the coil wire in place, the bolt shall be inserted into the hole and turned clockwise to a snug fit in the hole. Nut and washer shall be placed on the bolt. The nut shall be tensioned until the steel base plates are held securely to the concrete bearing seat.
2. Epoxy grout shall be pumped through the zerk fitting with a pressure gun. Pumping shall continue until the epoxy overflows the hole around the bolt shank. After pumping is discontinued, excess epoxy shall be immediately wiped off.

**ALTERNATE ANCHOR BOLTS**

The Contractor may use, at his option, the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes according to the manufacturer's recommendations and procedures. The capsule or the adhesive cartridge type anchor rods shall be a two part system composed of:

1. A threaded rod stud with nut and washer of the type specified.
2. A sealed glass capsule or a sealed glass adhesive cartridge containing premeasured amounts of the adhesive chemical.

Location	Type
Abutments	A-307 (Side Retainers)

ASTM F 1554 Grade 105, ASTM A 449 and AASHTO M 314 Grade 105 anchor bolts may be substituted for the anchor bolts shown above.

**GENERAL NOTES**

Holes in the masonry for anchor bolts shall be drilled through the base plates to the diameter and depth shown or according to the manufacturer's recommendation after beams or girders have been erected and adjusted. Prior to setting the bolts, the holes shall be dry and all dust and loose particles shall be removed by the use of compressed air or vacuuming. The anchor bolts, furnished and installed including the epoxy grout or capsules shall not be paid for separately but shall be included in the unit bid price for Precast Prestressed Concrete Deck Beams.

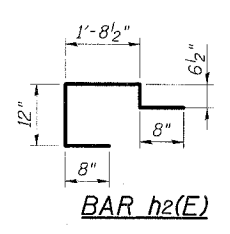
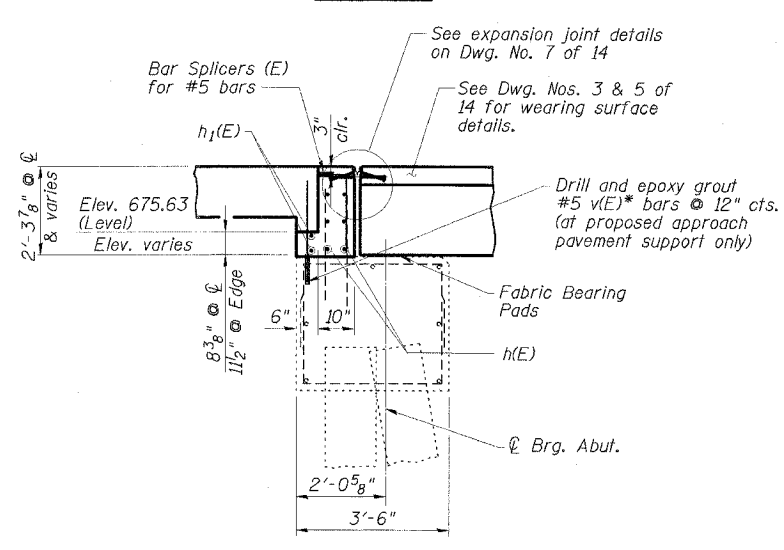
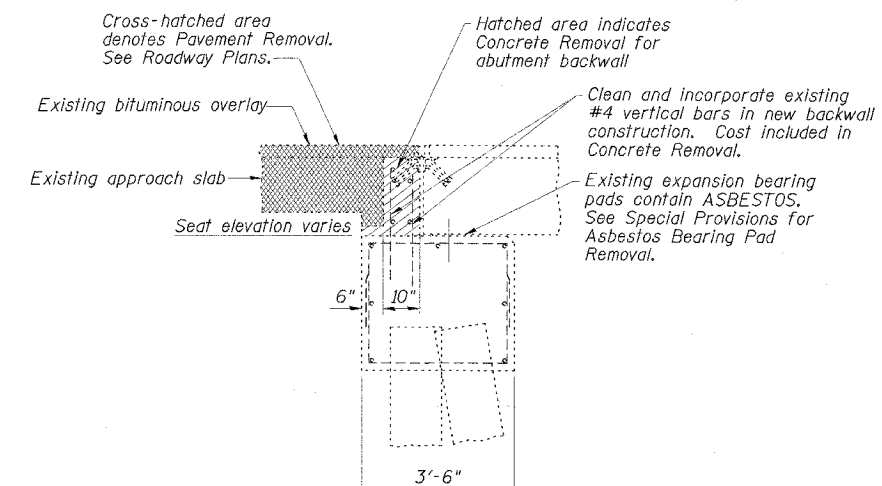
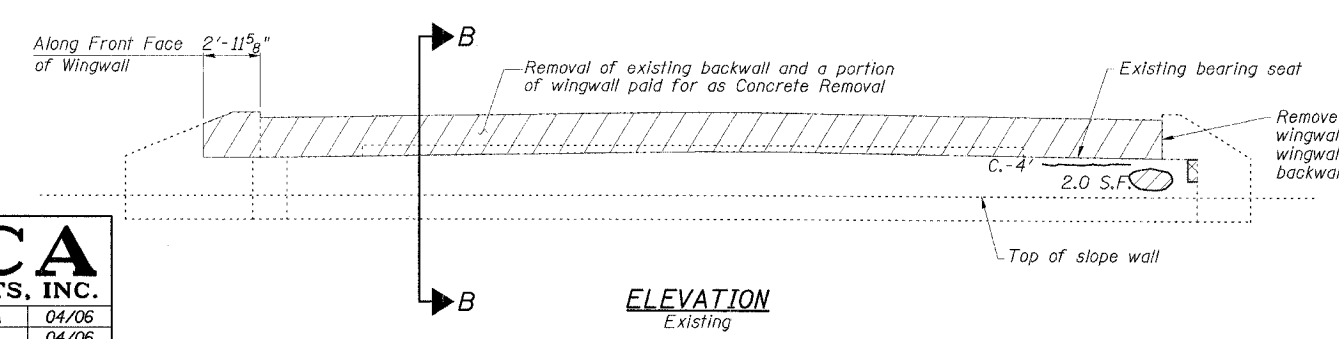
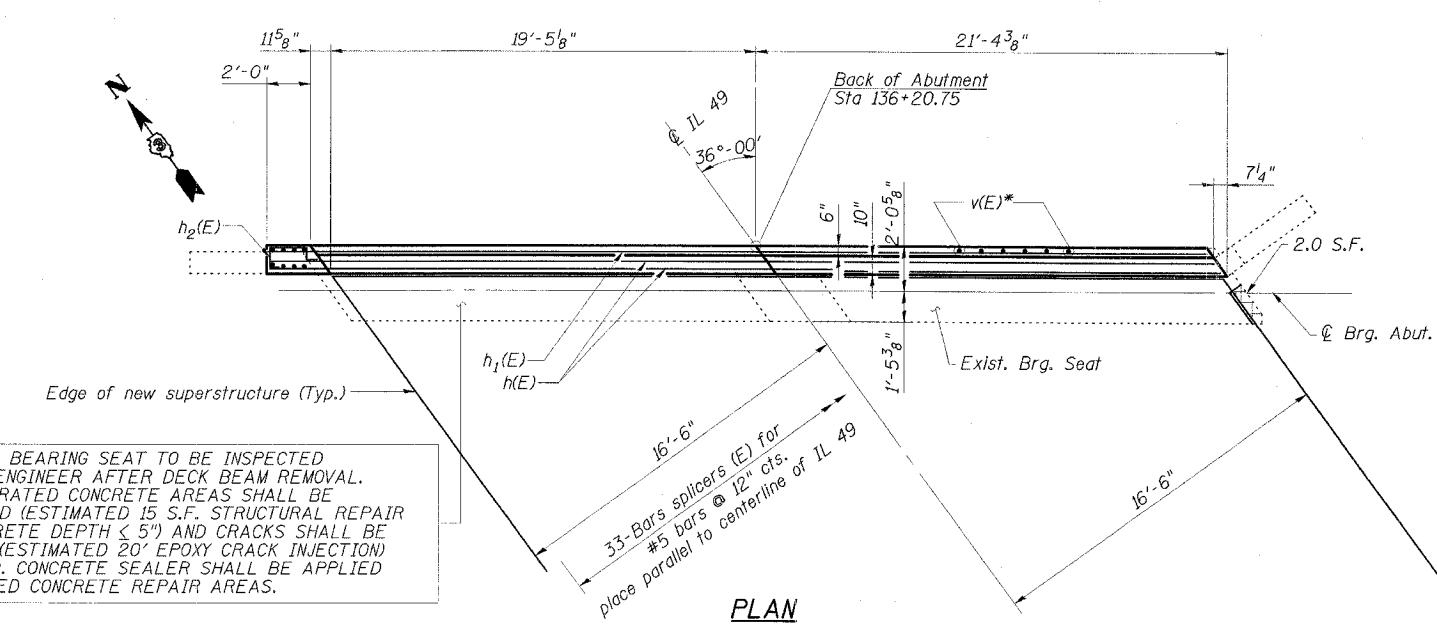
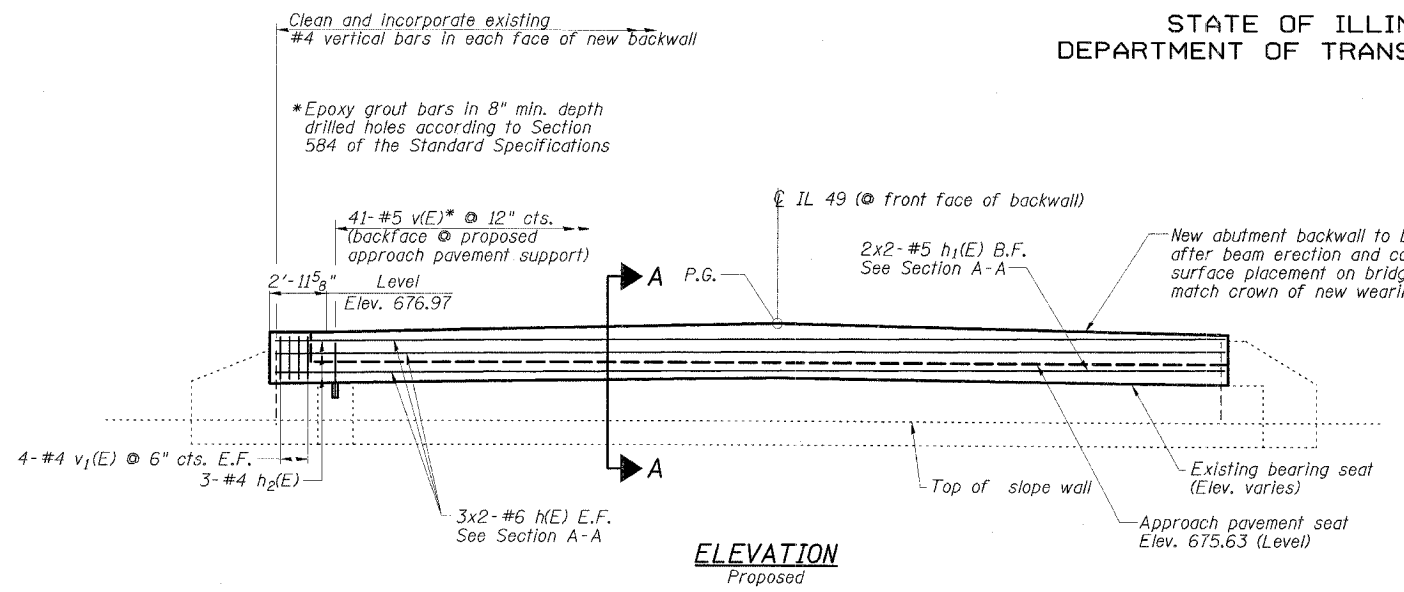
**ESCA**  
CONSULTANTS, INC.

DESIGNED BY:	FMA	04/06
DRAWN BY:	HAG/cj	04/06
CHECKED BY:	ELH/MTD	09/06
APPROVED BY:	RDP	09/06

**ANCHOR BOLT DETAILS**  
IL 49 OVER PIGEON CREEK  
FAP ROUTE 840 - SECTION 123-BR-1  
IROQUOIS COUNTY  
STATION 135+74.00  
STRUCTURE NO. 038-0174

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	JOBS	SHEET NO.	SHEET NO. 9
FAP 840	*	IROQUOIS	39	21	14 SHEETS
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT			
66647				123-BR-1	



**NORTH ABUTMENT  
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h(E)	12	#6	23'-6"	—
h1(E)	4	#5	22'-6"	—
h2(E)	3	#4	4'-7"	⌊
v(E)	41	#5	2'-6"	—
v1(E)	8	#4	1'-11"	—
Concrete Removal			Cu. Yd.	2.7
Concrete Structures			Cu. Yd.	3.8
Reinforcement Bars, Epoxy Coated			Pound	650
Asbestos Bearing Pad Removal			Each	22
Concrete Sealer			Sq. Ft.	15
Epoxy Crack Injection			Foot	24
Structural Repair of Concrete (Depth Equal to or Less Than 5")			Sq. Ft.	19

Bars indicated thus: 3x2 - #6 etc, indicates 3 lines of bars with 2 lengths per line.  
Reinforcement bars designated (E) shall be epoxy coated.

**REPAIR LEGEND**

- C.-6' Crack to be epoxy injected
- S.F. Delaminated Area
- S.F. Spalled Area
- Use Structural Repair of Concrete

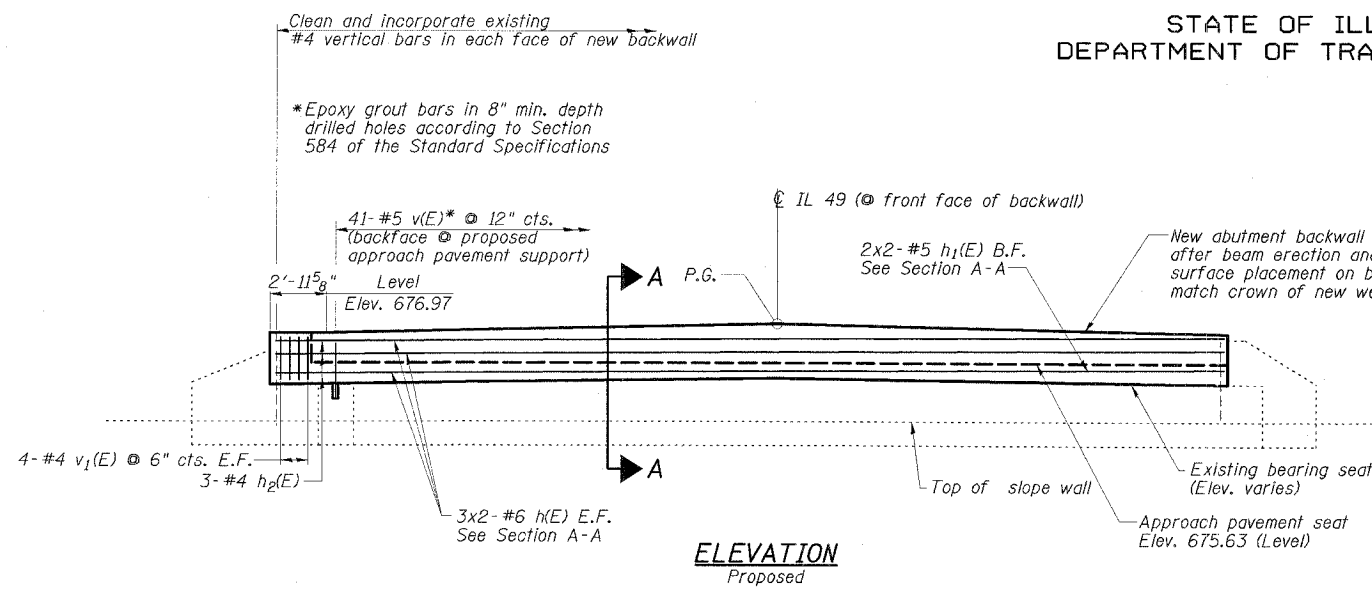
**ESCA**  
CONSULTANTS, INC.

DESIGNED BY:	FMA	04/06
DRAWN BY:	cj	04/06
CHECKED BY:	ELH/MTD	10/06
APPROVED BY:	RDP	10/06

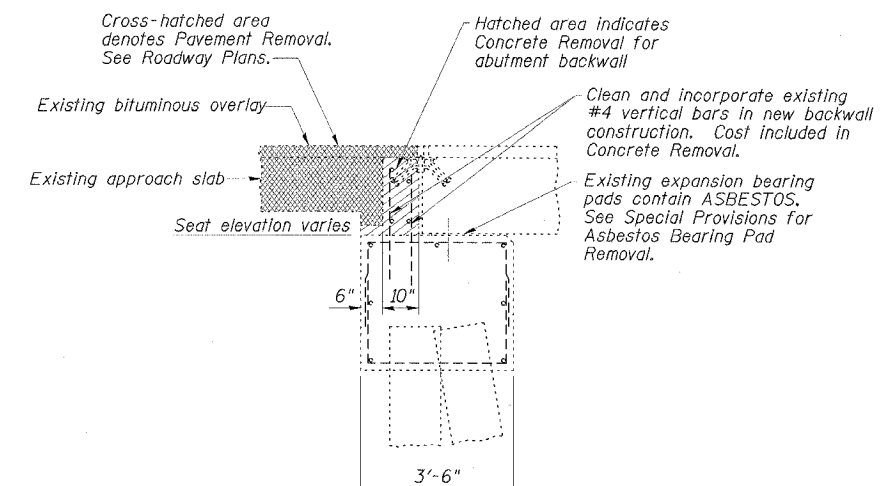
**NORTH ABUTMENT  
IL 49 OVER PIGEON CREEK  
FAP ROUTE 840 - SECTION 123-BR-1  
IROQUOIS COUNTY  
STATION 135+74.00  
STRUCTURE NO. 038-0174**

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

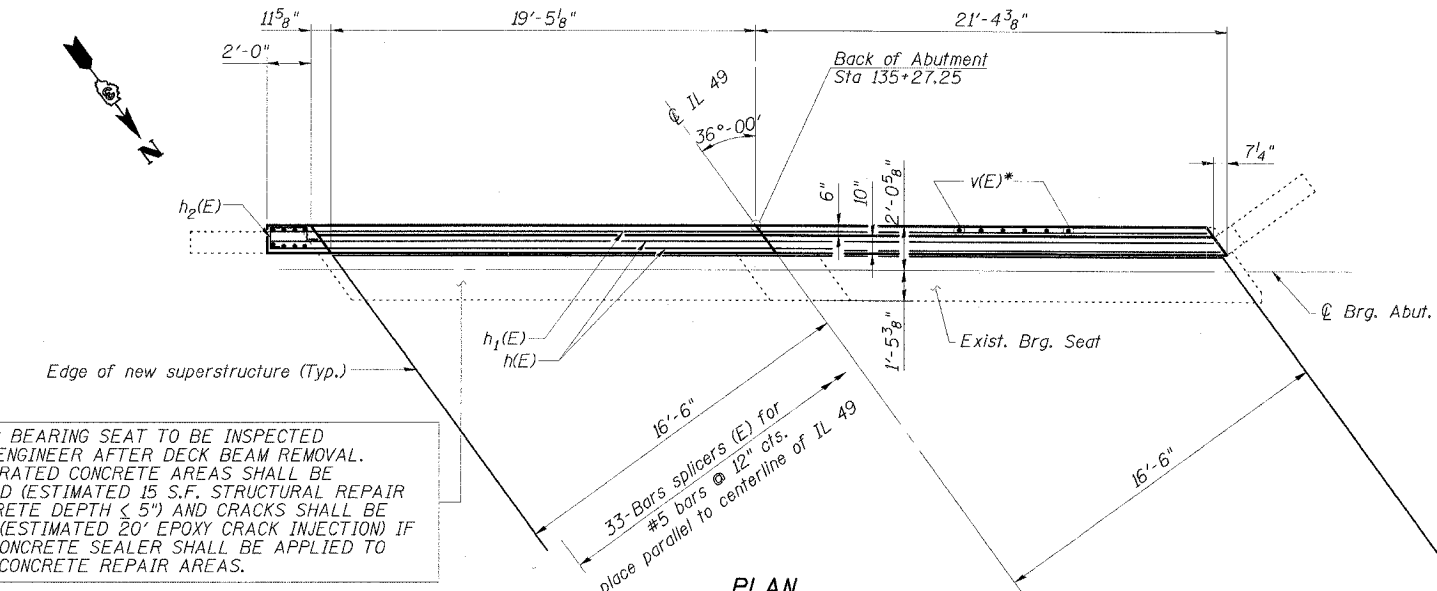
ROUTE NO.	SECTION	COUNTY	SHEET	SHEET NO.
FAP 840	*	IROQUOIS	39	22
FED. ROAD DIST. NO.	SUBDIVISION	FED. AID PROJECT		
66647			123-BR-1	



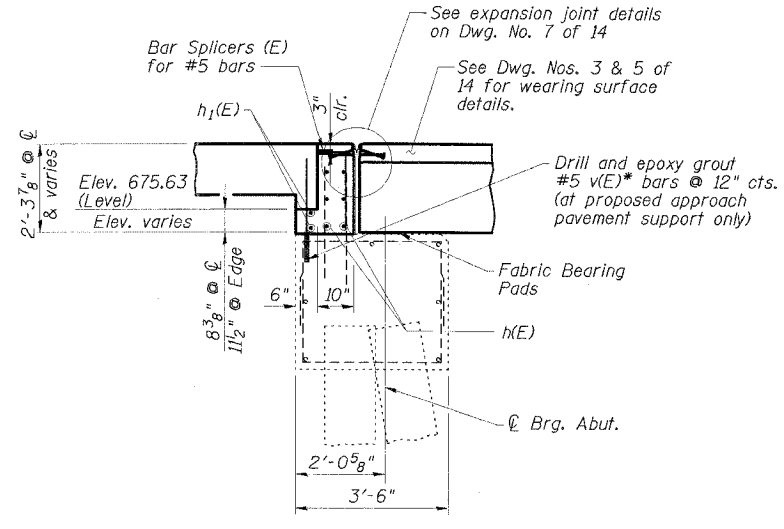
**ELEVATION**  
Proposed



**SECTION B-B**  
EXISTING

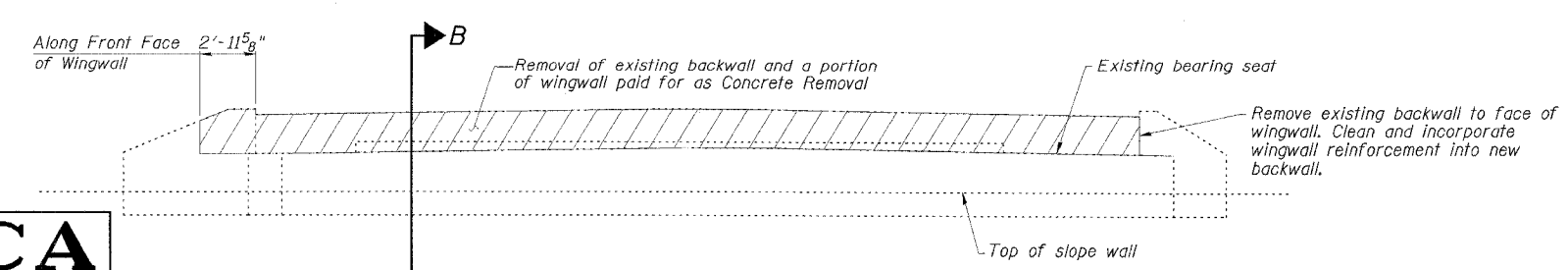


**PLAN**

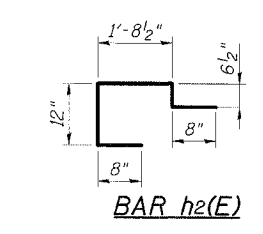


**SECTION A-A**  
PROPOSED

EXISTING BEARING SEAT TO BE INSPECTED BY THE ENGINEER AFTER DECK BEAM REMOVAL. DETERIORATED CONCRETE AREAS SHALL BE REPAIRED (ESTIMATED 15 S.F. STRUCTURAL REPAIR OF CONCRETE DEPTH < 5") AND CRACKS SHALL BE SEALED (ESTIMATED 20" EPOXY CRACK INJECTION) IF FOUND. CONCRETE SEALER SHALL BE APPLIED TO FORMED CONCRETE REPAIR AREAS.



**ELEVATION**  
Existing



**BAR h2(E)**

**SOUTH ABUTMENT**  
**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h(E)	12	#6	23'-6"	—
h1(E)	4	#5	22'-6"	—
h2(E)	3	#4	4'-7"	—
v(E)	41	#5	2'-6"	—
v1(E)	8	#4	1'-11"	—
Concrete Removal		Cu. Yd.	2.7	
Concrete Structures		Cu. Yd.	3.8	
Reinforcement Bars, Epoxy Coated		Pound	650	
Asbestos Bearing Pad Removal		Each	22	
Concrete Sealer		Sq. Ft.	15	
Epoxy Crack Injection		Foot	20	
Structural Repair of Concrete (Depth Equal to or Less Than 5")		Sq. Ft.	15	

Bars indicated thus: 3x2 - #6 etc, indicates 3 lines of bars with 2 lengths per line.  
Reinforcement bars designated (E) shall be epoxy coated.

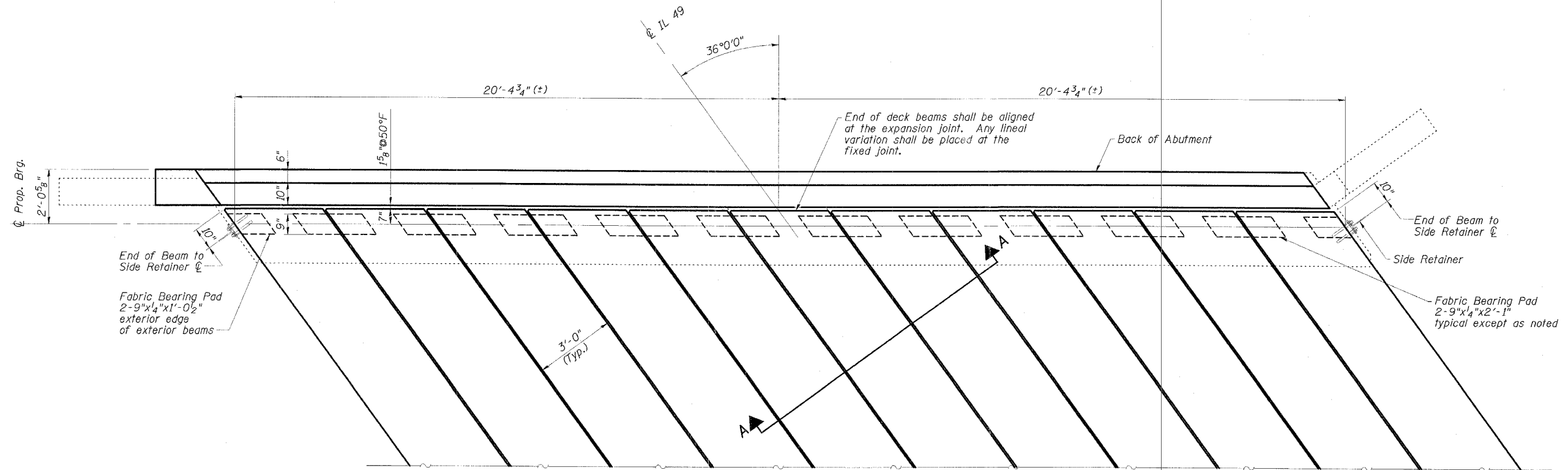
**ESCA**  
CONSULTANTS, INC.

DESIGNED BY:	FMA	04/06
DRAWN BY:	cj	04/06
CHECKED BY:	ELH/MTD	10/06
APPROVED BY:	RDP	10/06

**SOUTH ABUTMENT**  
**IL 49 OVER PIGEON CREEK**  
**FAP ROUTE 840 - SECTION 123-BR-1**  
**IROQUOIS COUNTY**  
**STATION 135+74.00**  
**STRUCTURE NO. 038-0174**

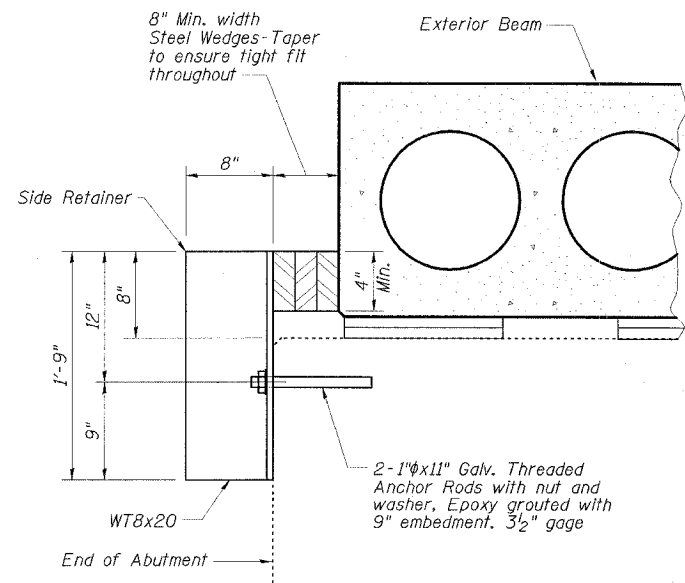
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET NO. 11
FAP 840	*	IROQUOIS	39	23
14 SHEETS				
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
66647		123-BR-1		



**ABUTMENT BEARING SEAT PLAN**

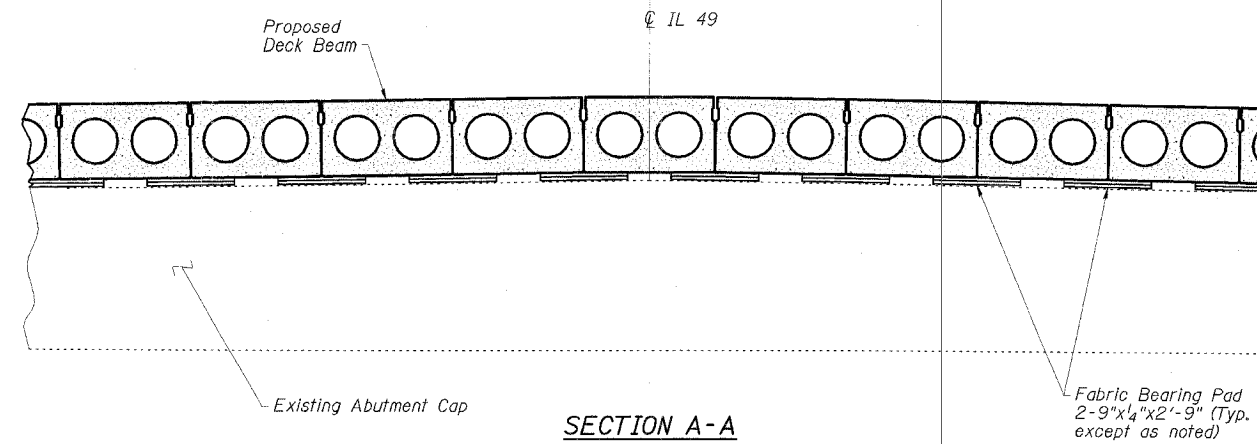
(Concrete wearing surface, expansion joint and approach pavement not shown)



**EXTERIOR BEAM SIDE RETAINER DETAILS**

(4 Required)

Cost of Retainer & accessories are included with Precast Prestressed Concrete Deck Beams.



**SECTION A-A**

(Concrete wearing surface not shown)

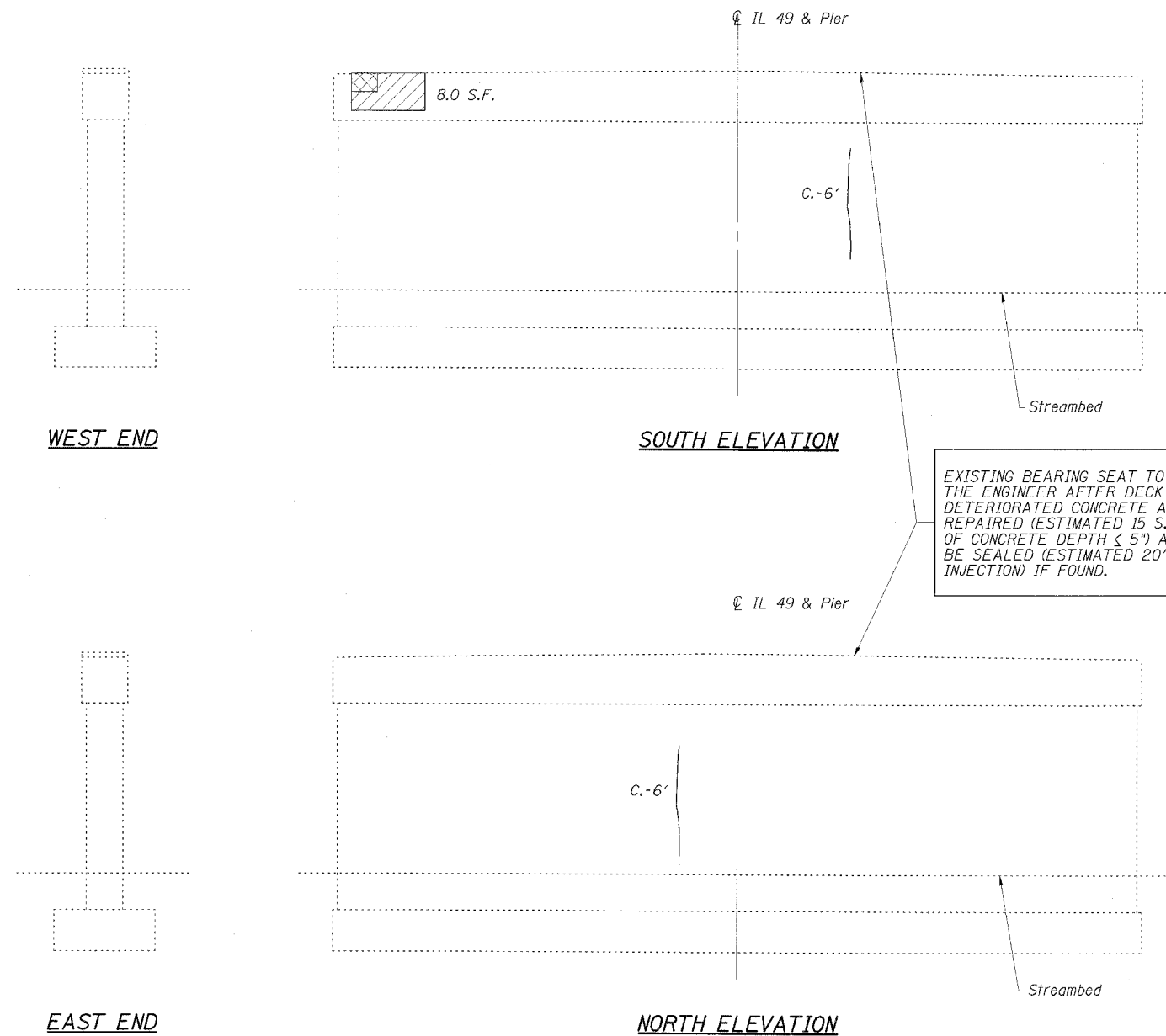
**ABUTMENT DETAILS**  
**IL 49 OVER PIGEON CREEK**  
**FAP ROUTE 840 - SECTION 123-BR-1**  
**IROQUOIS COUNTY**  
**STATION 135+74.00**  
**STRUCTURE NO. 038-0174**

**ESCA**  
CONSULTANTS, INC.

DESIGNED BY:	FMA	04/06
DRAWN BY:	cj	04/06
CHECKED BY:	ELH/MTD	09/06
APPROVED BY:	RDP	09/06

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET	SHEET NO. 12
FAP 840	*	IROQUOIS	39	24	14 SHEETS
FED. ROAD DIST. NO.	ILL. ROAD DIST. NO.	FED. AID PROJECT			
			66647 123-BR-1		



EXISTING BEARING SEAT TO BE INSPECTED BY THE ENGINEER AFTER DECK BEAM REMOVAL. DETERIORATED CONCRETE AREAS SHALL BE REPAIRED (ESTIMATED 15 S.F. STRUCTURAL REPAIR OF CONCRETE DEPTH < 5") AND CRACKS SHALL BE SEALED (ESTIMATED 20' EPOXY CRACK INJECTION) IF FOUND.

**PIER**  
**BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Epoxy Crack Injection	Foot	32
Structural Repair of Concrete (Depth Equal to or Less Than 5")	Sq. Ft.	23

**REPAIR LEGEND**

- C.-6' Crack to be epoxy injected
- S.F. Delaminated Area Use Structural Repair of Concrete
- S.F. Spalled Area Use Structural Repair of Concrete

**ESCA**  
CONSULTANTS, INC.

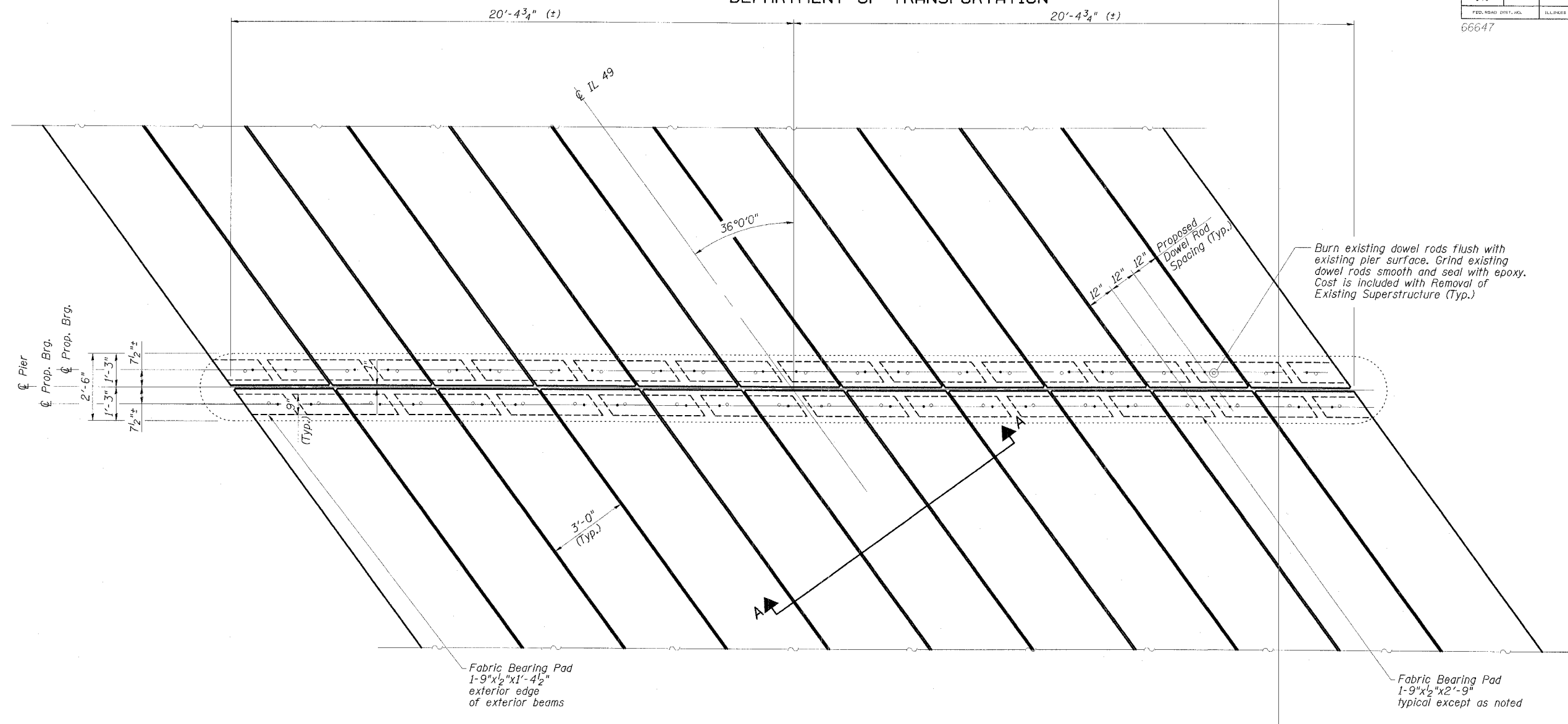
DESIGNED BY:	FMA	04/06
DRAWN BY:	cj	04/06
CHECKED BY:	ELH/MTD	09/06
APPROVED BY:	RDP	09/06

**PIER**  
**IL 49 OVER PIGEON CREEK**  
**FAP ROUTE 840 - SECTION 123-BR-1**  
**IROQUOIS COUNTY**  
**STATION 135+74.00**  
**STRUCTURE NO. 038-0174**

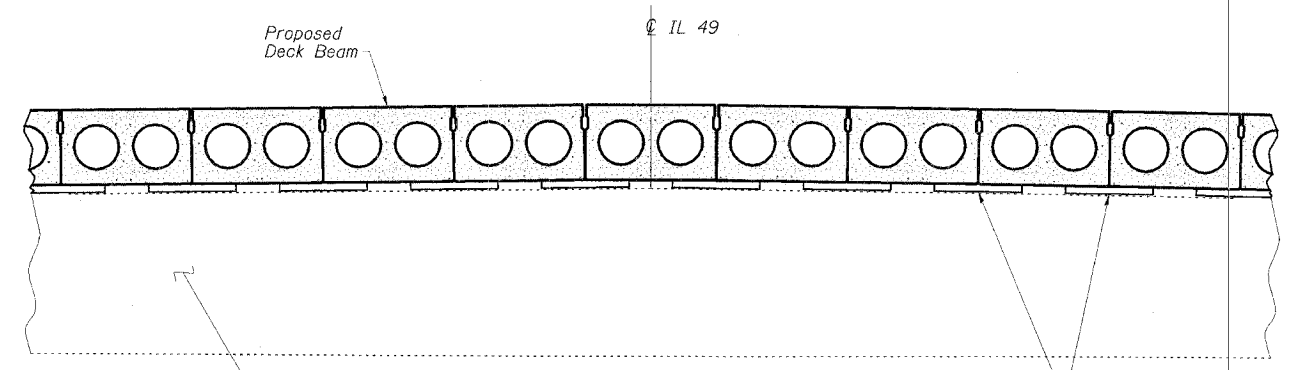


STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	SHEET	SHEET NO. 13
FAP 840	#	IROQUOIS	39 25	14 SHEETS
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
66647		123-BR-1		



**PIER BEARING SEAT PLAN**  
(Concrete wearing surface not shown)



**SECTION A-A**  
(Concrete wearing surface not shown)

**PIER DETAILS**  
IL 49 OVER PIGEON CREEK  
FAP ROUTE 840 - SECTION 123-BR-1  
IROQUOIS COUNTY  
STATION 135+74.00  
STRUCTURE NO. 038-0174

**ESCA**  
CONSULTANTS, INC.

DESIGNED BY:	FMA	04/06
DRAWN BY:	cj	04/06
CHECKED BY:	ELH/MTD	09/06
APPROVED BY:	RDP	09/06

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	SHEETS	SHEET NO.
FAP 840	*	IROQUOIS	39	26
FED. ROAD DIST. NO.	TOLLING	FED. AID PROJECT		
			123-BR-1	14 SHEETS

NOTES

Bar splicer assemblies shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.  
Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length.  
All reinforcement bars shall be lapped and tied to the splicer rods or dowel bars.  
Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars.

Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed bar splicer assembly satisfies the following requirements:

- ① Minimum Capacity =  $1.25 \times f_y \times A_s$   
(Tension in kips)
- ② Minimum \*Pull-out Strength =  $1.25 \times f_{s_{allow}} \times A_s$   
(Tension in kips)

Where  $f_y$  = Yield strength of lapped reinforcement bars in ksi.  
 $f_{s_{allow}}$  = Allowable tensile stress in lapped reinforcement bars in ksi (Service Load)  
 $A_s$  = Tensile stress area of lapped reinforcement bars.  
\* = 28 day concrete

Bar Size to be Spliced	Splicer Rod or Dowel Bar Length	Strength Requirements	
		Min. Capacity kips - tension	Min. Pull-Out Strength kips - tension
#4	1'-8"	14.7	5.9
#5	2'-0"	23.0	9.2
#6	2'-7"	33.1	13.3
#7	3'-5"	45.1	18.0
#8	4'-6"	58.9	23.6
#9	5'-9"	75.0	30.0
#10	7'-3"	95.0	38.0
#11	9'-0"	117.4	46.8

Bar splicer assemblies shall be according to Section 508 of the Standard Specifications, except as noted. The furnishing and installation of bar splicer assemblies will be measured and paid for at the contract unit price each for "BAR SPLICERS."

The diameter of this part is the same as the diameter of the bar spliced.

The diameter of this part is equal or larger than the diameter of bar spliced.

ROLLED THREAD DOWEL BAR



\*\* ONE PIECE

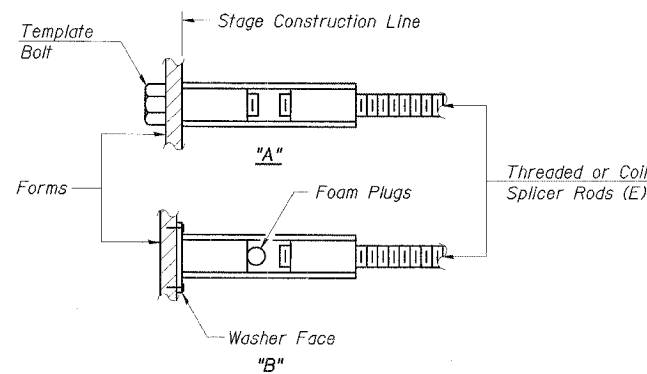
Wire Connector



WELDED SECTIONS

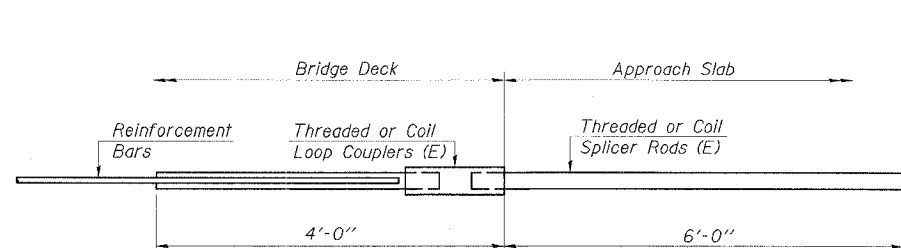
BAR SPLICER ASSEMBLY ALTERNATIVES

\*\* Heavy Hex Nuts conforming to ASTM A 563, Grade C, D or DH may be used.



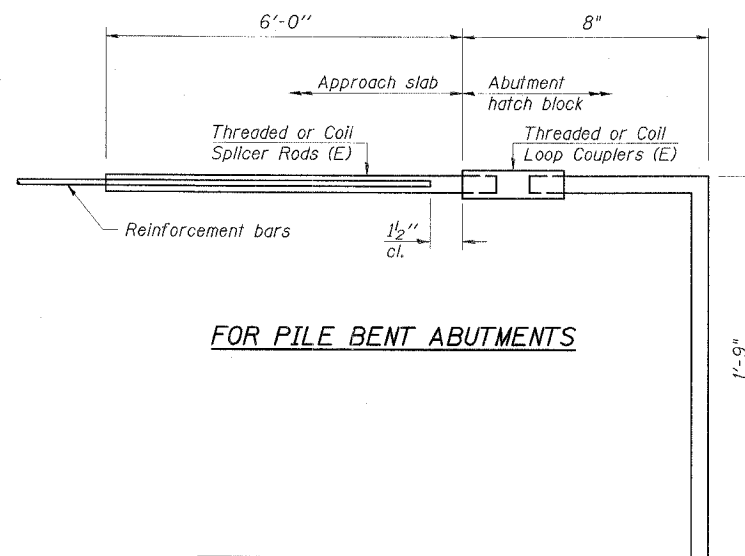
INSTALLATION AND SETTING METHODS

"A": Set bar splicer assembly by means of a template bolt.  
"B": Set bar splicer assembly by nailing to wood forms or cementing to steel forms.  
(E) : Indicates epoxy coating.



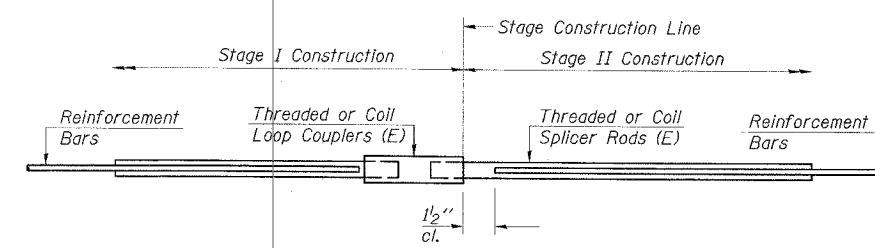
FOR INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

Bar Splicer for #5 bar
Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 9.2 kips - tension
No. Required =



FOR PILE BENT ABUTMENTS

Bar Splicer for #5 bar
Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 9.2 kips - tension
No. Required = 66



STANDARD

Bar Size	No. Assemblies Required	Location

BAR SPLICER ASSEMBLY DETAILS  
IL 49 OVER PIGEON CREEK  
FAP ROUTE 840 - SECTION 123-BR-1  
IROQUOIS COUNTY  
STATION 135+74.00  
STRUCTURE NO. 038-0174

**ESCA**  
CONSULTANTS, INC.

DESIGNED BY: FMA 04/06  
DRAWN BY: HAG/cj 04/06  
CHECKED BY: ELH/MTD 09/06  
APPROVED BY: RDP 09/06

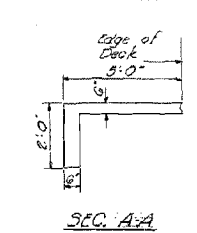
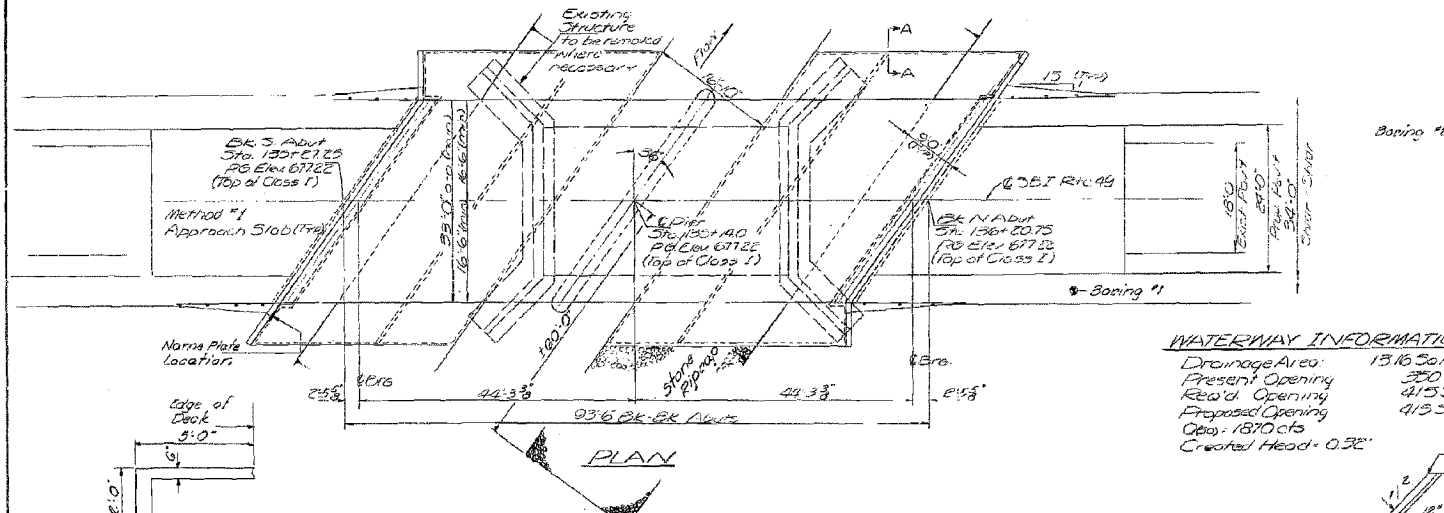
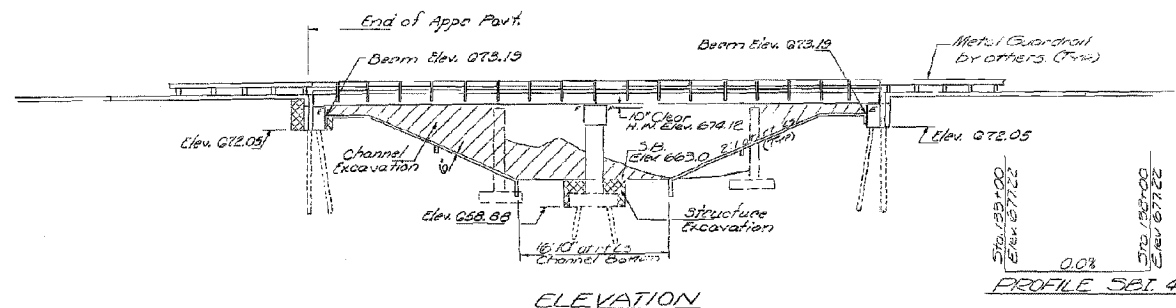
BSD-1 10-22-04



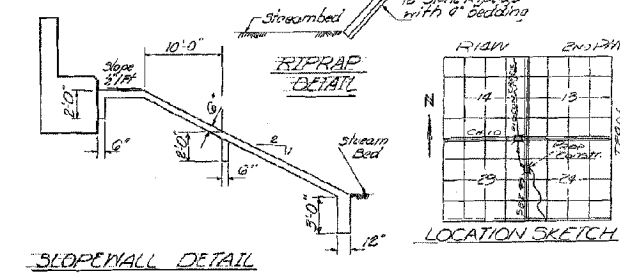
CONTRACT NO. 66647			
FAP RTE	SECTION	COUNTY	TOTAL SHEETS NO.
840	123-BR-1	IROQUOIS	39 27
STA.	TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	

E.M. 2.0 on NW Wingwall of Bridge 123 BR 49 Sta. 126+07  
 Elev. 616.65  
 Existing Structure. Built in 1954 on Bridge #2 Superstr. R.C. Thru Girder, 43'0" long  
 with Closed Abutts to be removed by Bridge Contractor  
 No Salvage Traffic will be maintained on run-around  
 on West side.

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION



**WATERWAY INFORMATION**  
 Drainage Area 13.16 Sq Miles  
 Present Opening 370 Sq Ft  
 Road Opening 415 Sq Ft  
 Proposed Opening 415 Sq Ft  
 Obs. 1870 cfs  
 Created Head 0.32'



**TOTAL BILL OF MATERIAL**

Item	Unit	Super	Sub	Total
Bit Concrete Surf Course Class I	Tons	59		59
Removal of Existing Structures	Each			1
Class X Concrete	Cu Yds		105.0	105.0
RPC Deck Beams (21')	Sq Ft	2908		2908
Structural Steel	Lbs	3350		3350
Steel Railing Type S	Lin Ft	100		100
Reinforcement Bars	Lbs		7050	7050
Name Plates	Each	1		1
Coal Tar Interlayer Protective Coat	Sq Yds	5.5		5.5
Signeval "G"	Sq Yds		656	656
Preformed Joint Sealer (2 1/2")	Lin Ft	22		22
Pavement Removal	Sq Yds	81		81
Channel Excavation	Cu Yds		380	380
Structure Excavation	Cu Yds		209	209
Concrete Piles	Lin Ft		380	380
Test Piles Concrete	Each		2	2
Stone Riprap	Sq Yds		101	101

STATION 125+70.0  
 BUILT 19 54  
 STATE OF ILLINOIS  
 S.B.I. RT. 49 SEC. 123 BR  
 LOADING HS 20  
 NAME PLATES  
 (See Std. 213.1)

GENERAL PLAN and ELEVATION  
 SBI 49 OVER PIGEON CREEK  
 STA. 125+70.0 SEC. 123 BR  
 IROQUOIS COUNTY  
 STATION 125+70.0

DESIGNED D.A. Rye  
 CHECKED J.M. Patel  
 DRAWN J. SCHWELER  
 CHECKED J.M.P.  
 EXAMINED  
 PASSED  
 APPROVED  
 DECEMBER 14 1972

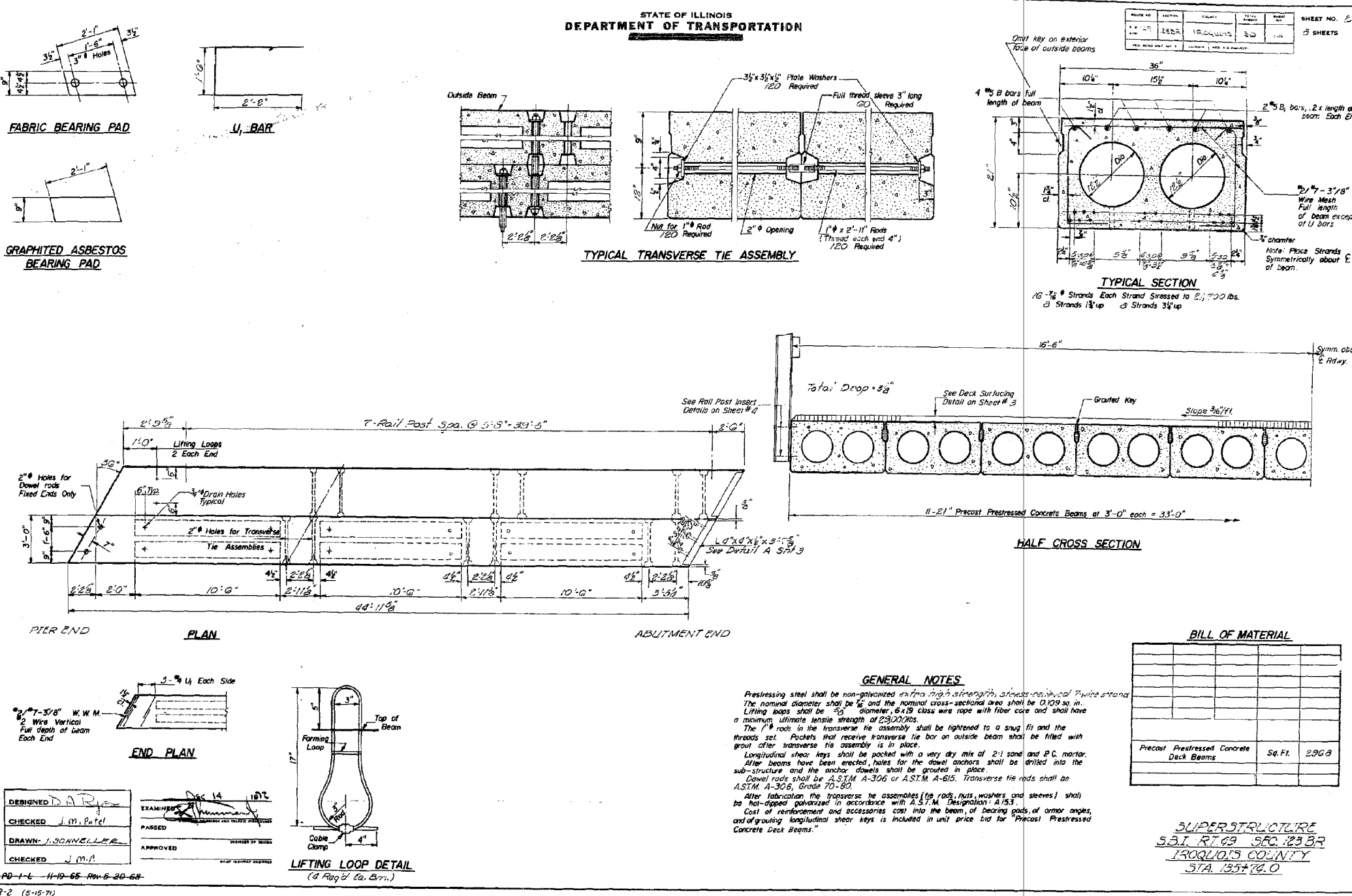
**DESIGN STRESSED PRECAST PRESTRESSED UNITS**  
 FIELD UNITS  
 Fc: 4000 psi Sub  
 Fc: 20000 psi Reinf  
 n: 10  
 Allow 25% ball for fut WS  
 Design Specifications 1969  
 AASHTO (as applicable)  
 PRESTRESSED UNITS  
 Fc: 5000 psi  
 Fc: 4000 psi  
 Fc: 27000 psi 1/2" Strands  
 Fc: 183700 psi 7/8" Strands  
 Initial jacking force per strand shall be 21,700 lbs

LOADING HS20-44

<b>ESCA CONSULTANTS, INC.</b>		
DESIGNED BY:	MTD	08/06
DRAWN BY:	HAG	08/06
CHECKED BY:	ELH	08/06
APPROVED BY:	RDP	08/06

FOR INFORMATION ONLY

EXISTING STRUCTURE PLANS  
 FAP RTE 840 (IL 49)  
 SECTION 123-BR-1  
 IROQUOIS COUNTY

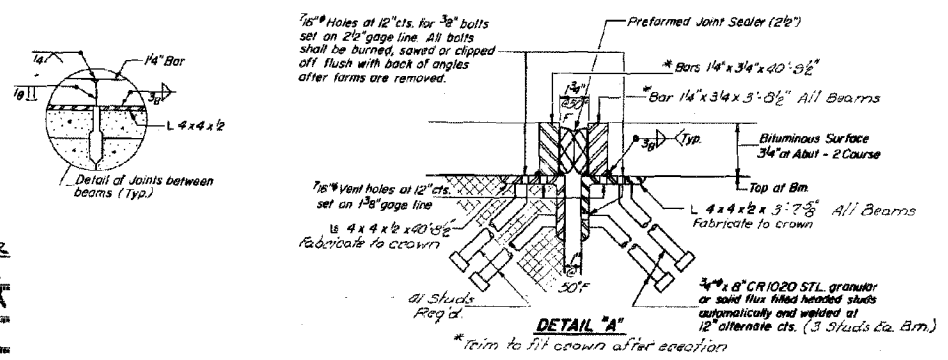
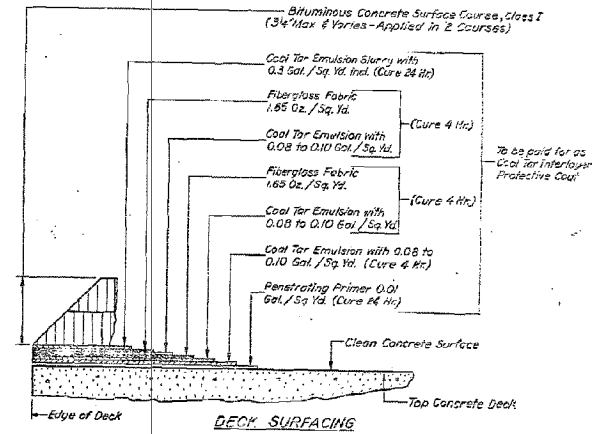
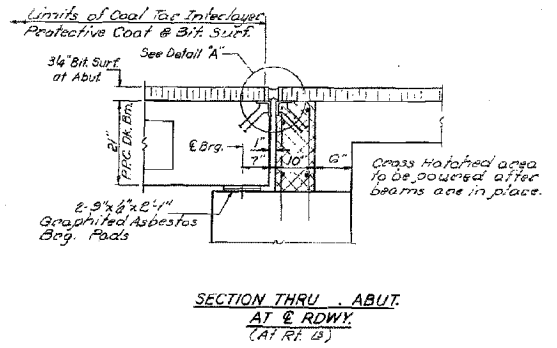
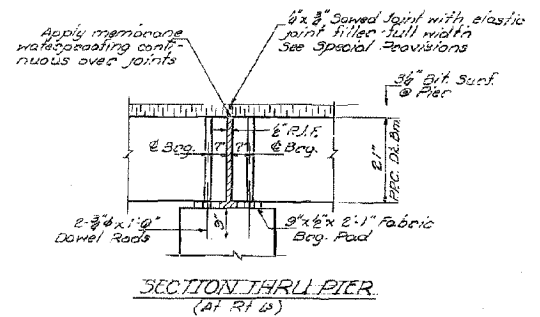




CONTRACT NO. 66647				
FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	123-BR-1	IROQUOIS	39	29
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

DATE	NO.	COUNTY	DATE	NO.
12/19/82	12382	IROQUOIS	82	-
SHEET NO. 6 SHEETS				

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION



DESIGNED D.R.P.

CHECKED J.M. Patel

DRAWN J. SCHNELLER

CHECKED J.M.P.

EXAMINED [Signature]

PASSED

APPROVED

Dec 14 1982

SR-D (5-15-77)

GENERAL DETAILS  
S.B.T. RT 49 -- SEQ. 123 BR  
IROQUOIS COUNTY  
STA. 135 FT 4.0

**ESCA**  
CONSULTANTS, INC.

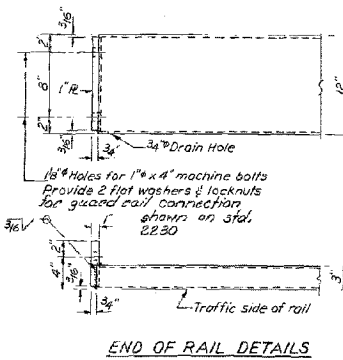
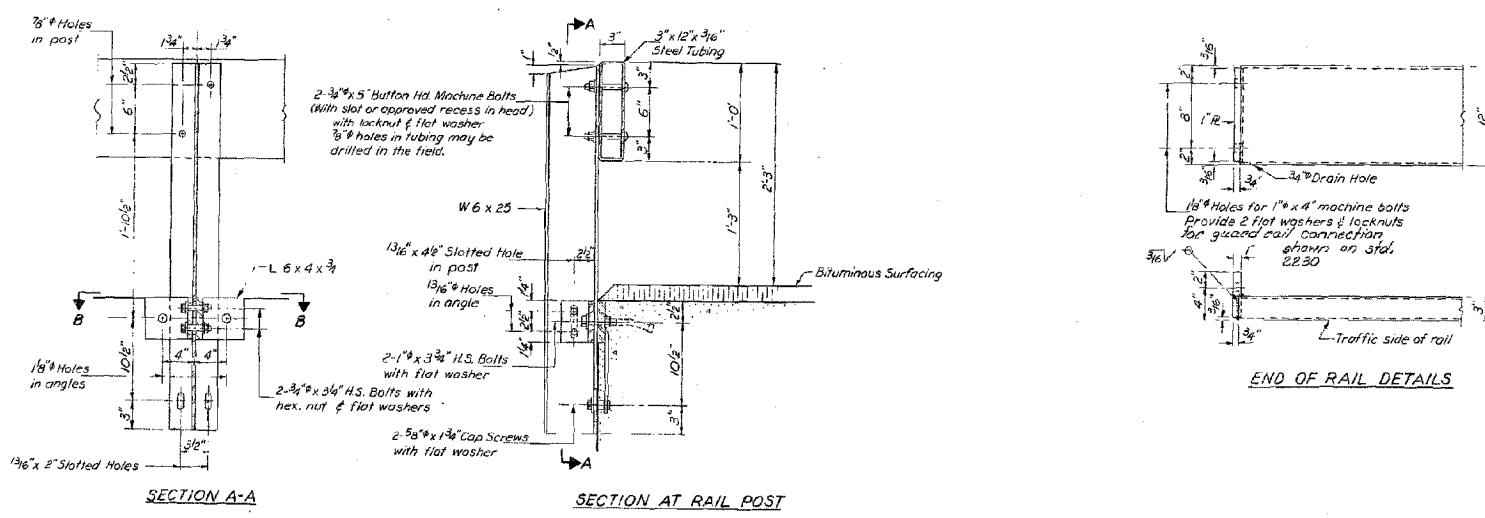
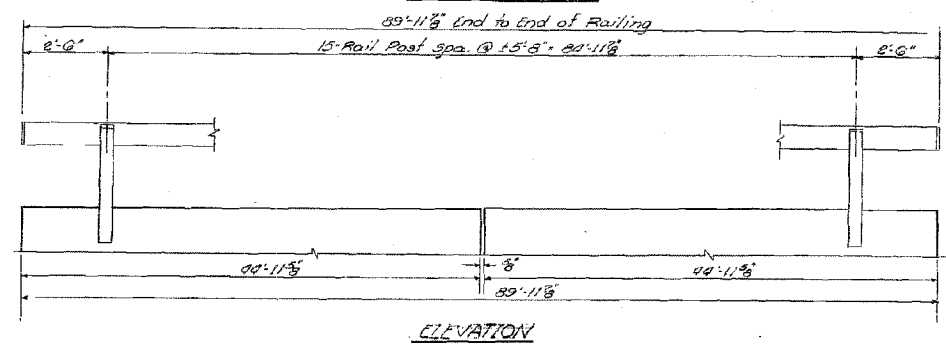
DESIGNED BY:	MTD	08/06
DRAWN BY:	HAG	08/06
CHECKED BY:	ELH	08/06
APPROVED BY:	RDP	08/06

EXISTING STRUCTURE PLANS  
FAP RTE 840 (IL 49)  
SECTION 123-BR-1  
IROQUOIS COUNTY

FOR INFORMATION ONLY

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

DATE	REVISION	BY	NO.	DATE	SHEET NO.
11/19	2182	RDR/GRD	30	8	8 SHEETS



**NOTES**

Hollow structural steel tubing shall conform to the requirements of A.S.T.M. designation A-500 grade B or A-501 Structural Steel Tubing.

All other steel shapes and plates shall conform to the requirements of A.S.T.M. designation A-36 except posts shall conform to A.S.T.M. A-441.

Bolts, cap screws, and nuts shall conform to the requirement of A.S.T.M. designation A-307 except for high strength bolts, nuts and washers noted which shall conform to A.S.T.M. designation A-325.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized in accordance with A.S.T.M. designation A-153.

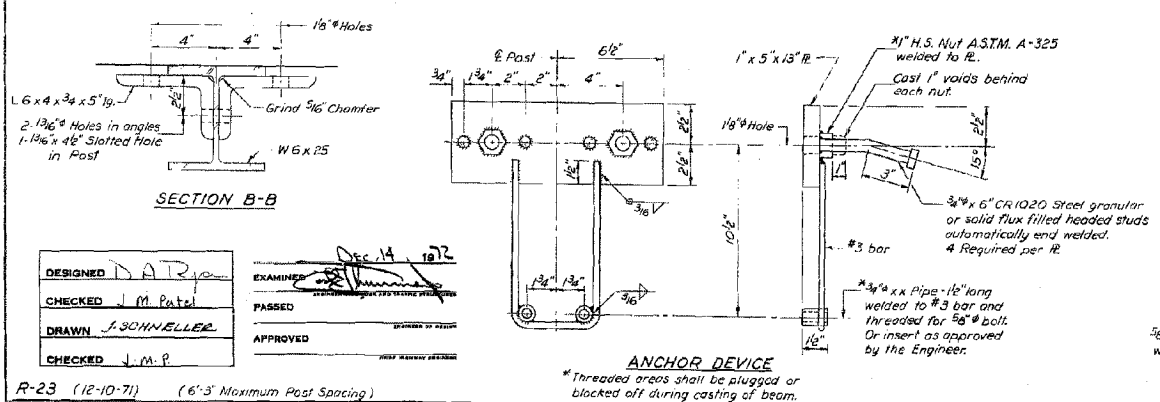
All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication in accordance with A.S.T.M. designation A-123 and A-385. Galvanized rail shall not be painted.

Railing shall be in accordance with Section 5D15 of the Standard Specifications, except as noted, and shall be paid for at the contract unit price per linear foot for STEEL RAILING, TYPE S.

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

The lower portion of the post flange in contact with concrete shall receive two coats of asphalt paint conforming to Section 714.05. Type B or place 6" fabric bearing pad between the post and concrete.

The 3/8" high strength bolts used to connect the 6 x 3 1/4 angles to the post shall be tightened in accordance with Article 710.11 of the Standard Specifications. The 1" high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn.



DESIGNED: D.A.R. (12-10-71) (6'-3" Maximum Post Spacing)

CHECKED: J.M. Patel

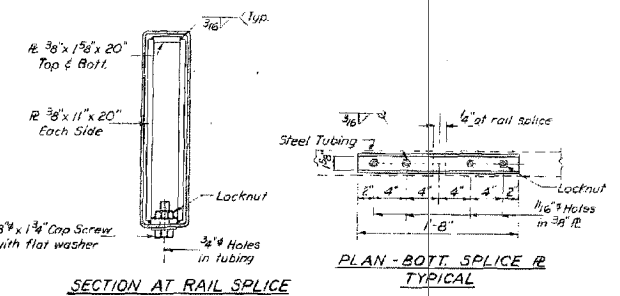
DRAWN: J. SCHNEIDER

CHECKED: J.M.P.

EXAMINED: [Signature] (12-14-71)

PASSED: [Signature]

APPROVED: [Signature]



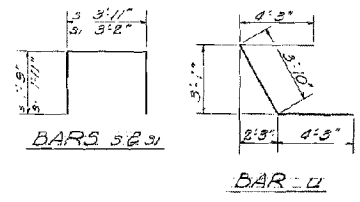
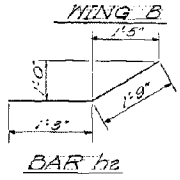
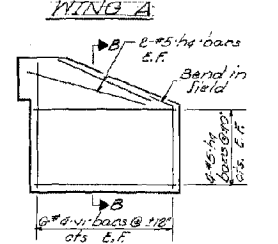
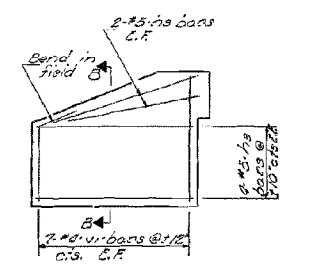
**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type S	Lin Ft.	180

**TYPE S  
STEEL RAILING**  
S.B.I. R. 119 SEC. 123.5R  
IROQUOIS COUNTY  
STA. 135170.0

Notes:  
Hatched area indicates areas to be poured after deck beams are in place.  
All edges shall have standard 5" chamfers except as noted.

**PILE DATA**  
Type: Concrete  
Capacity: 40 tons  
Lg. Length: 35 ft  
No. Req'd: 18 including 1 test pile

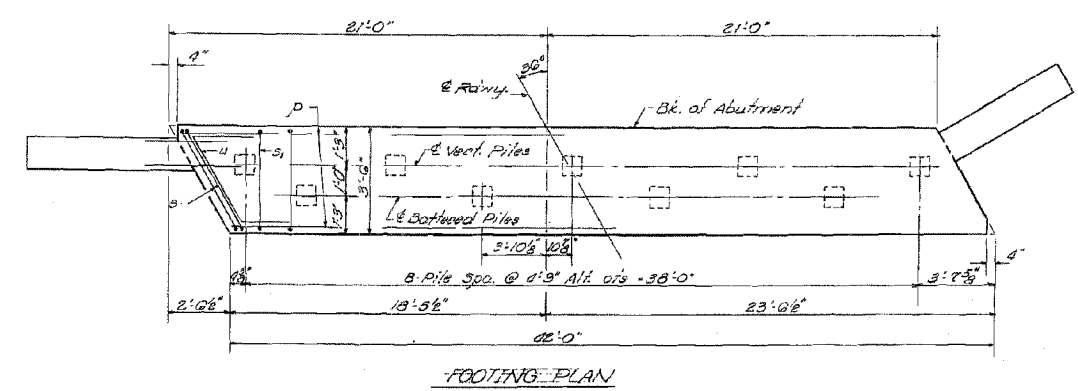
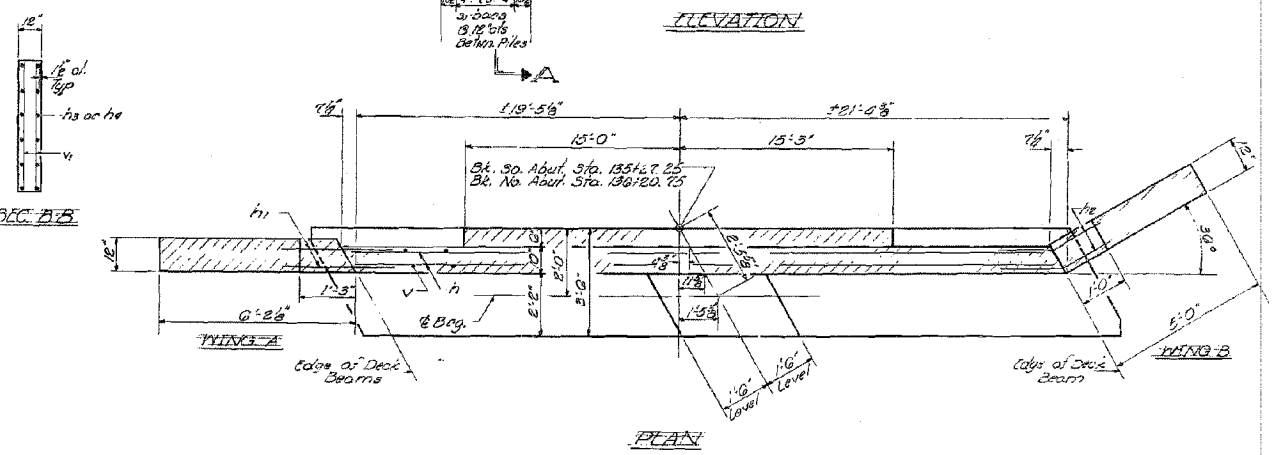
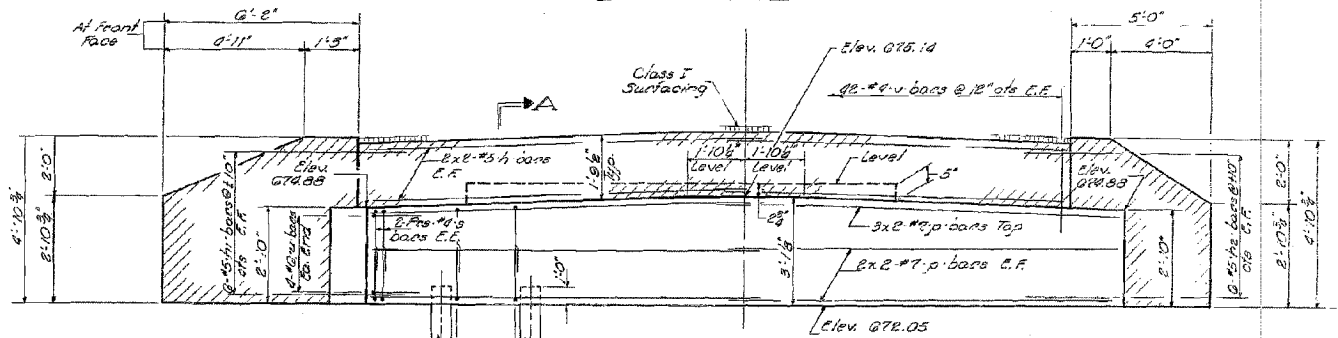


DESIGNED: D.A.R.P.  
CHECKED: J.M.P.  
DRAWN: J. SCHWALLER  
CHECKED: J.M.P.

EXAMINED: [Signature]  
PASSED: [Signature]  
APPROVED: [Signature]

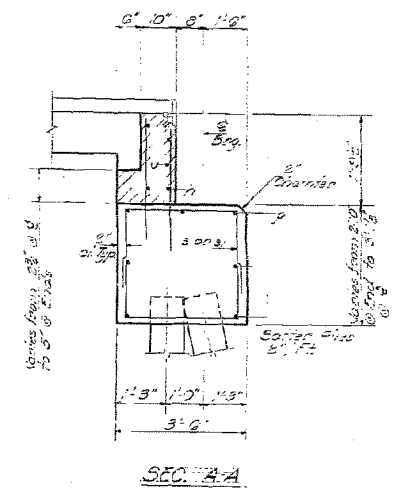
Dec 14 1973

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION



NO.	DATE	BY	REVISION
1	12/14/73	ROQUOIS	30
2			14

SHEET NO. 5  
19 SHEETS



**TWO ABUTMENTS  
BILL OF MATERIAL**

Bar	No.	Size	Length	Splice
A	10	#5	81'-0"	
A1	27	#5	81'-0"	
A2	27	#5	31'-0"	
A3	28	#5	61'-0"	
A4	28	#5	51'-6"	
B	28	#7	21'-9"	
C	10	#5	71'-5"	
D	128	#4	71'-0"	
E	10	#9	15'-4"	
F	108	#4	81'-8"	
G	52	#4	61'-0"	
Class X Concrete				
			Cu 12.5	39.8
Reinforcement Bars			Lbs	2610
Concrete Piles			Lins. ft	535
Test Piles (Concrete)			Each	1

ABUTMENTS  
S.B.I. RT. 49 SEC. 123-BR  
IROQUOIS COUNTY  
STA. 1351.71-0



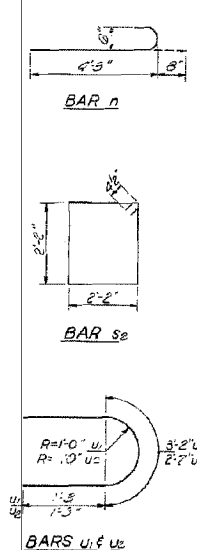
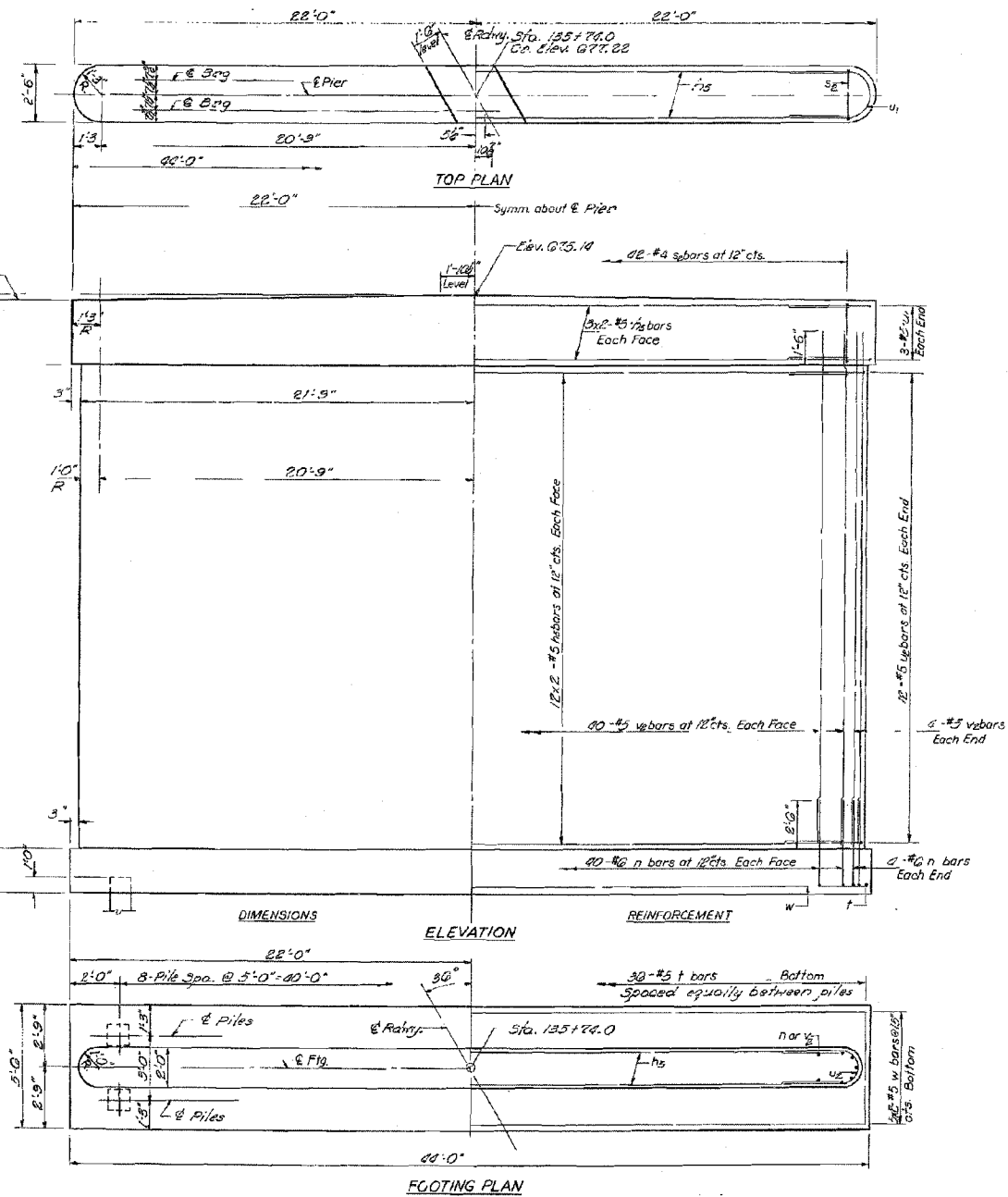
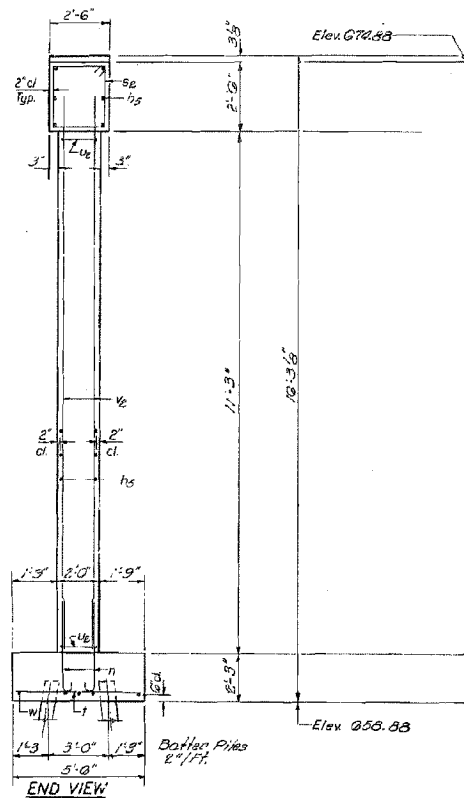
CONTRACT NO. 66647				
FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	123-BR-1	IROQUOIS	39	32
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT			

NOTE:  
All edges shall have standard 3/4" chamfer.  
Min. bar size - #4 unless otherwise shown.

**FILE DATA**  
Type: Concrete  
Capacity: 25 Tons  
Est. Length: 23 FT.  
No. Piles: 18 including 1 test pile

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

ROUTE NO.	SECTION	COUNTY	PROJECT	SHEET NO.
840	123-BR-1	IROQUOIS	EC	32
SHEETS				



**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
hs	60	#5	21'-5"	—
n	35	#6	6'-11"	—
se	42	#4	5'-5"	□
t	30	#5	5'-5"	—
w	6	#5	5'-8"	—
ue	24	#5	5'-11"	—
ve	28	#5	13'-0"	—
w	10	#5	22'-6"	—
Class X Concrete		Cu Yds.	125.8	
Reinforcement Bars		Lbs.	2000	
Concrete Piles		Lbs.	3.91	
Test Piles (Conc)		Each	1	

PIER  
S.B.I. RT 49 SEC. 123-BR  
IROQUOIS COUNTY  
STA. 155+74.0

DESIGNED: J.M.P.  
CHECKED: J.M.P.  
DRAWN: J. SCHNEIDER  
CHECKED: J.M.P.

EXAMINED: [Signature]  
PASSED: [Signature]  
APPROVED: [Signature]

DEC 14 72

**ESCA**  
CONSULTANTS, INC.

DESIGNED BY: MTD 08/06  
DRAWN BY: HAG 08/06  
CHECKED BY: ELH 08/06  
APPROVED BY: RDP 08/06

FOR INFORMATION ONLY

EXISTING STRUCTURE PLANS  
FAP RTE 840 (IL 49)  
SECTION 123-BR-1  
IROQUOIS COUNTY





CONTRACT NO. 66647			
FAP RTE	SECTION	COUNTY	TOTAL SHEETS NO.
840	123-BR-1	IROQUOIS	39 33
STA.		TO STA.	
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PROJECT NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
12388	123-BR-1	IROQUOIS	39	33
SHEET NO. 13				

COUNTY IROQUOIS		Elevation		Surface Water El. 666.8		Groundwater El. at Completion		After Hours	
Boring No. 1	Station 135+47	N	Q <sub>u</sub> (ft)	Completion	Station	N	Q <sub>u</sub> (ft)	Completion	Station
	Ground Surface	0							
	VERY SOFT GRAY CLAY	19	0.3	19	0.3	25			
671.95		19	0.2	19	0.5	26			
	VERY STIFF BROWNISH GRAY CLAY TILL	20	2.3	20	1.2	26			
666.95		27	3.1	27	0.6	20			
	VERY STIFF BROWN GRAY TILL	31	3.2	31	1.0	34			
659.45		33	5.4	33	2.7	34			
	HARD GRAY CLAY TILL	26	1200	26	3.3	8			
656.55		26	4.5	26	1.1	26			
	MEDIUM GRAY CLAY TILL - WITH SILT SEAMS THROUGHOUT SAMPLE	16	1.6	16	1.1	26			
	VERY DENSE GRAY BROWN FINE TO COARSE SAND AND FINE GRAVEL	53		53					
	VERY DENSE GRAY BROWN FINE TO COARSE SAND AND FINE GRAVEL	67		67					
	VERY DENSE GRAY BROWN FINE TO COARSE SAND AND FINE GRAVEL	80		80					

COUNTY IROQUOIS		Elevation		Surface Water El. 666.8		Groundwater El. at Completion		After Hours	
Boring No. 2	Station 137+19	N	Q <sub>u</sub> (ft)	Completion	Station	N	Q <sub>u</sub> (ft)	Completion	Station
	Ground Surface	0							
	STIFF BROWNISH BLACK SILTY CLAY	12	1.2	12	1.1	22			
671.85		12	1.2	12	1.1	22			
	MEDIUM BROWNISH BLACK CLAY	11	0.7	11	0.7	31			
669.25		11	0.7	11	0.7	27			
	SOFT BROWNISH BLACK CLAY (OCCASIONAL ROTTEN FRAGMENTS)	6	0.25	6	0.25	17			
666.85		6	0.25	6	0.25	17			
	STIFF TO VERY STIFF BROWNISH GRAY	11	1.5	11	1.5	25			
661.85		11	1.5	11	1.5	25			
	VERY STIFF GRAY CLAY TILL	16	2.5	16	2.5	23			
656.85		16	2.5	16	2.5	23			
	VERY STIFF GRAY CLAY TILL	14	1.5	14	1.5	23			
656.85		14	1.5	14	1.5	23			
	MEDIUM BROWN FINE TO COARSE SAND	53		53		28			
651.35		53		53		28			
	VERY DENSE BROWN FINE TO COARSE SAND & GRAVEL	80		80		24			
627.35		80		80		24			

N-Standard Penetration Test-Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with 140 # hammer falling 30".  
 Qu-Unconfined Compressive Strength-Msf  
 w-Water Content - percentage of oven dry weight-%  
 T-True Failure  
 B-Bulge Failure  
 S-Shear Failure  
 E-Estimated Value  
 P-Penetrometer

DESIGNED: D.A.P.  
 CHECKED: J.M.P.  
 DRAWN: J.S.M.  
 CHECKED: J.M.P.  
 EXAMINED: [Signature]  
 PASSED:  
 APPROVED: [Signature]

BORING DATA  
 SBT RT 89 SEC 23 BR  
 IROQUOIS COUNTY  
 STA: 135+47.00

**ESCA**  
CONSULTANTS, INC.

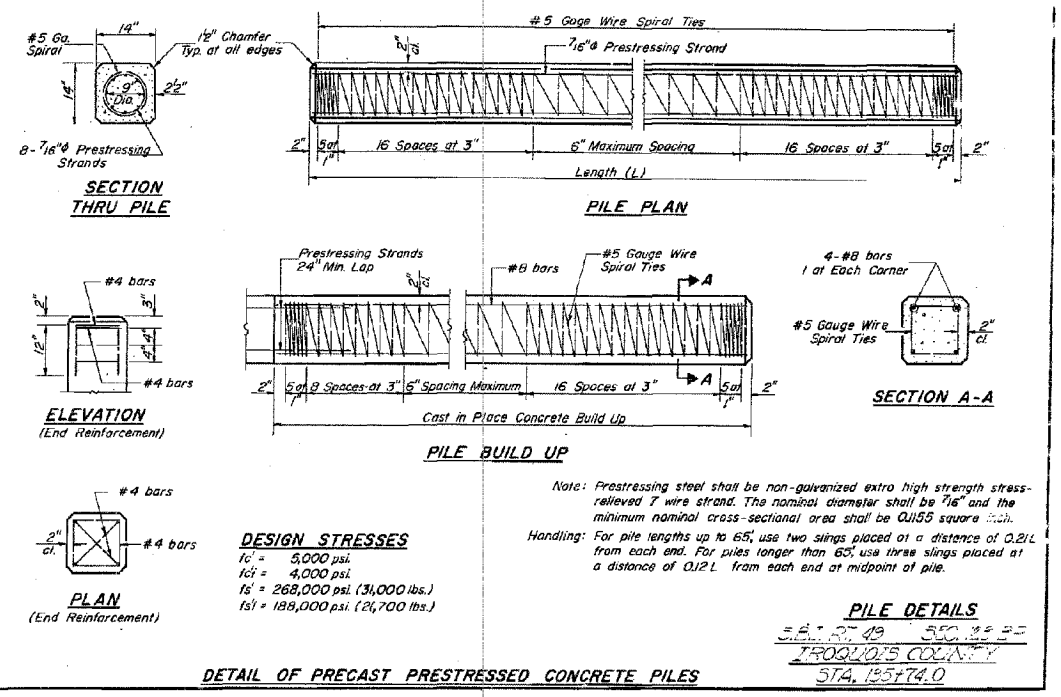
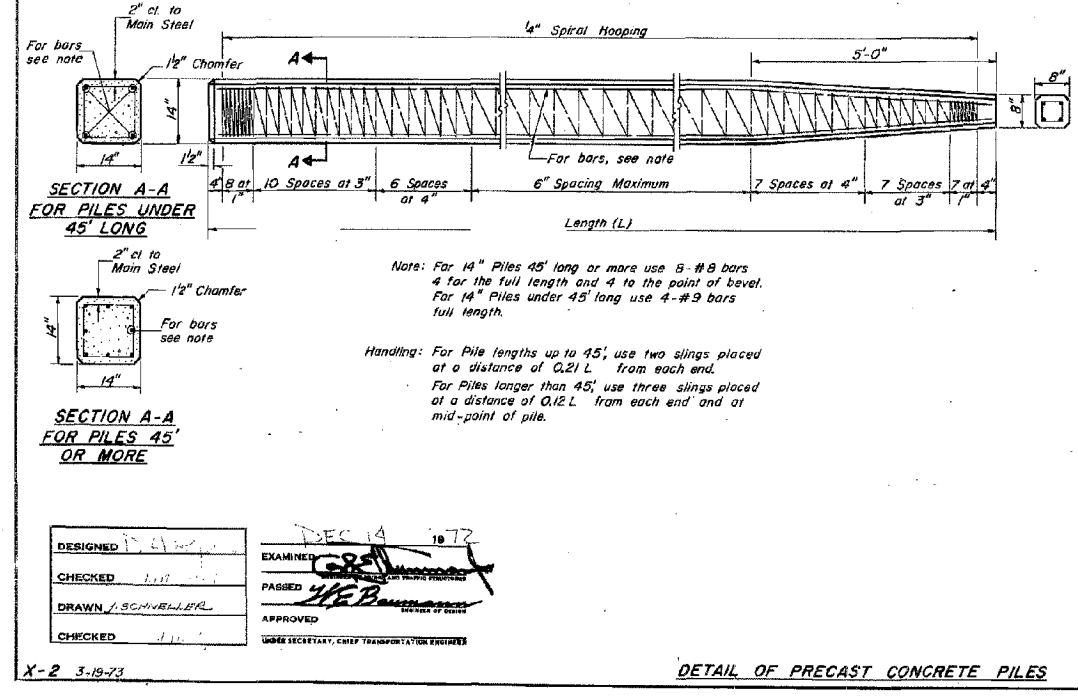
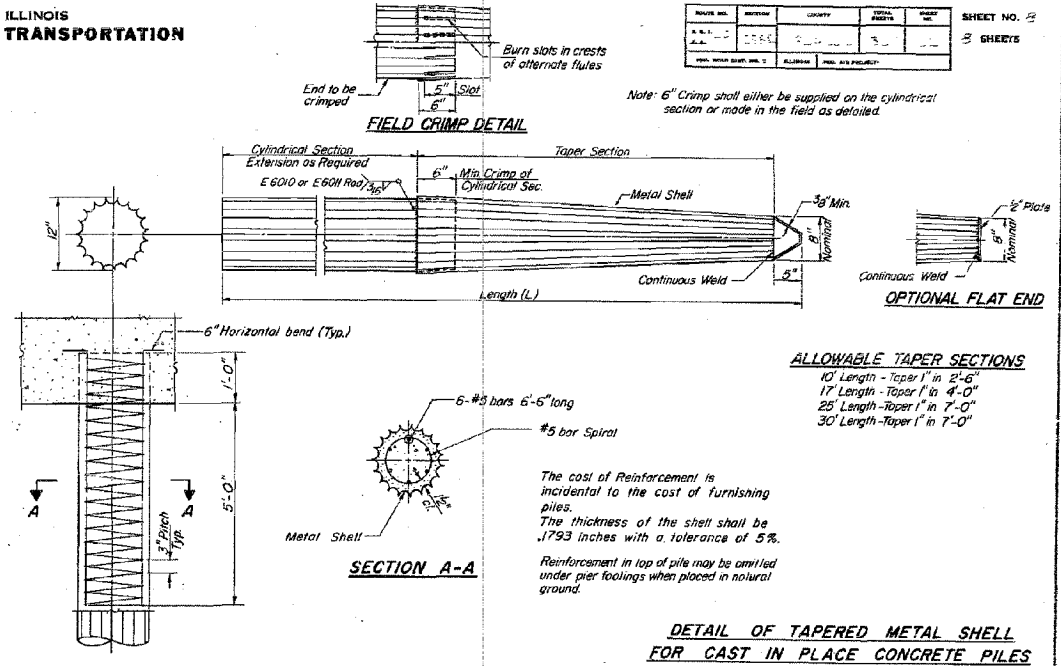
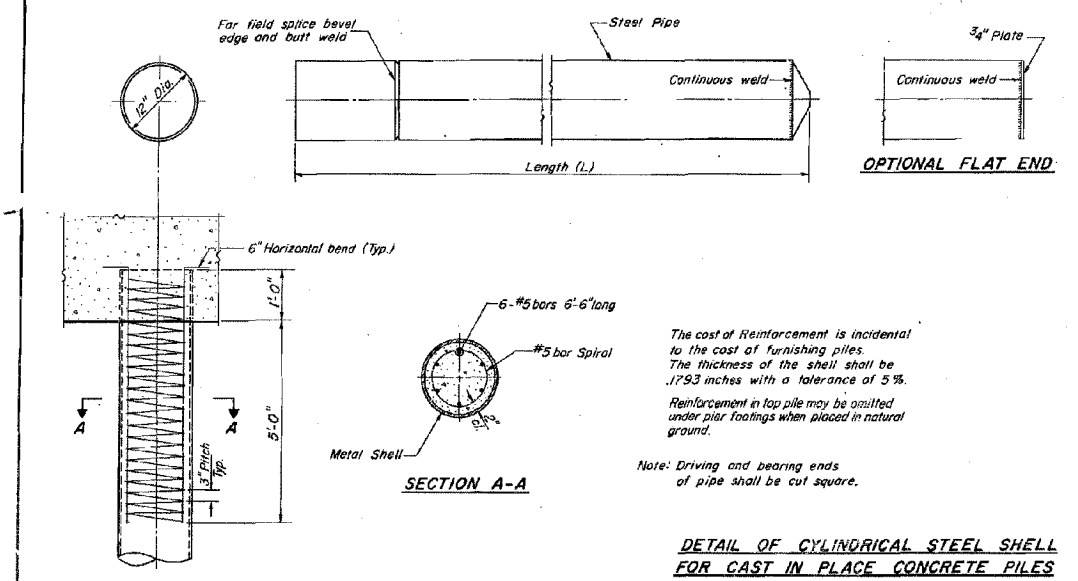
DESIGNED BY:	MTD	08/06
DRAWN BY:	HAG	08/06
CHECKED BY:	ELH	08/06
APPROVED BY:	RDP	08/06

FOR INFORMATION ONLY

EXISTING STRUCTURE PLANS  
 FAP RTE 840 (IL 49)  
 SECTION 123-BR-1  
 IROQUOIS COUNTY

FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	123-BR-1	IROQUOIS	39	34
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

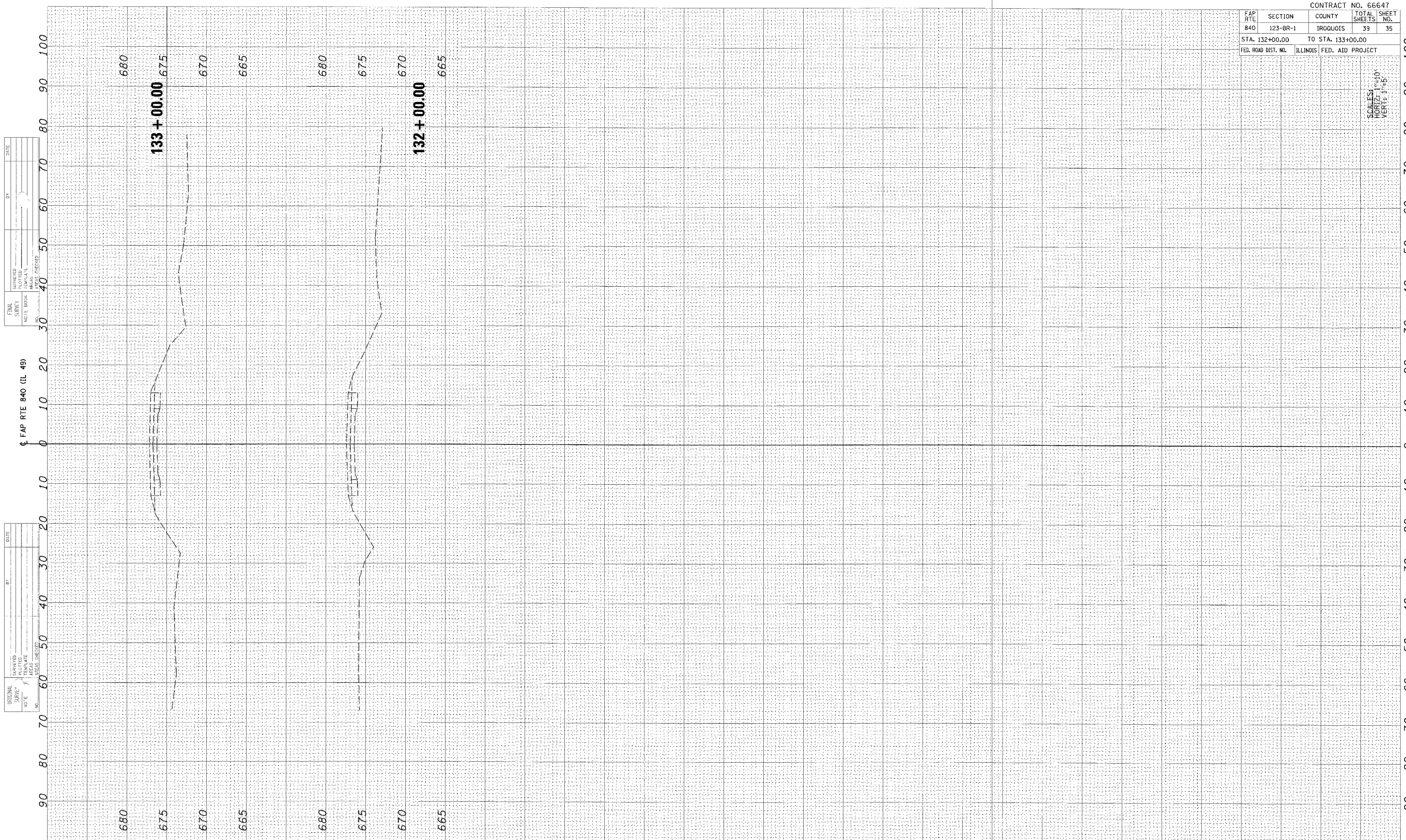
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION



FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	123-BR-1	IROQUOIS	39	35
STA. 132+00.00		TO STA. 133+00.00		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

ORIGINAL SURVEY	SKETCHED	BY	DATE
NOTE	PLOTTED		
	TEMPLATE		
	AREAS CHECKED		

FINAL SURVEY	SKETCHED	BY	DATE
NOTE BOOK	PLOTTED		
	TEMPLATE		
	AREAS CHECKED		



SCALES  
 HORIZ: 1"=10'  
 VERT: 1"=5'

FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	123-BR-1	TROQUOIS	39	36
STA. 134+00.00		TO STA. 135+74.00		
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	

SCALES  
HORIZ. 1"=10'  
VERT. 1"=5'

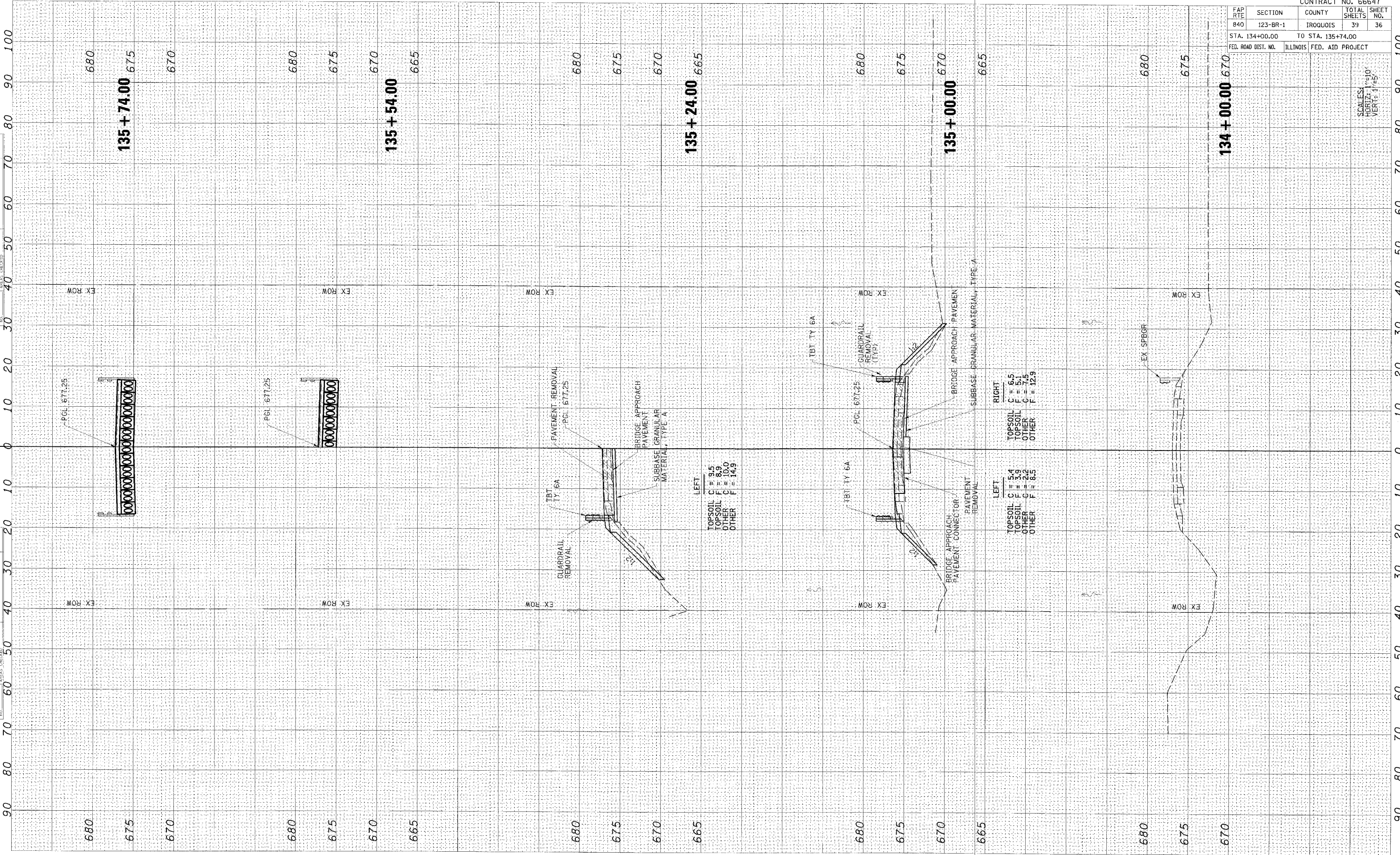
DATE: \_\_\_\_\_ BY: \_\_\_\_\_

FINISHED SURVEYED  
SHEET PLOTTED  
NOTE BOOK TEMPLATE  
NO. \_\_\_\_\_ AREAS CHECKED

DATE: \_\_\_\_\_ BY: \_\_\_\_\_

ORIGINAL SURVEYED  
SHEET PLOTTED  
NOTE BOOK TEMPLATE  
NO. \_\_\_\_\_ AREAS CHECKED

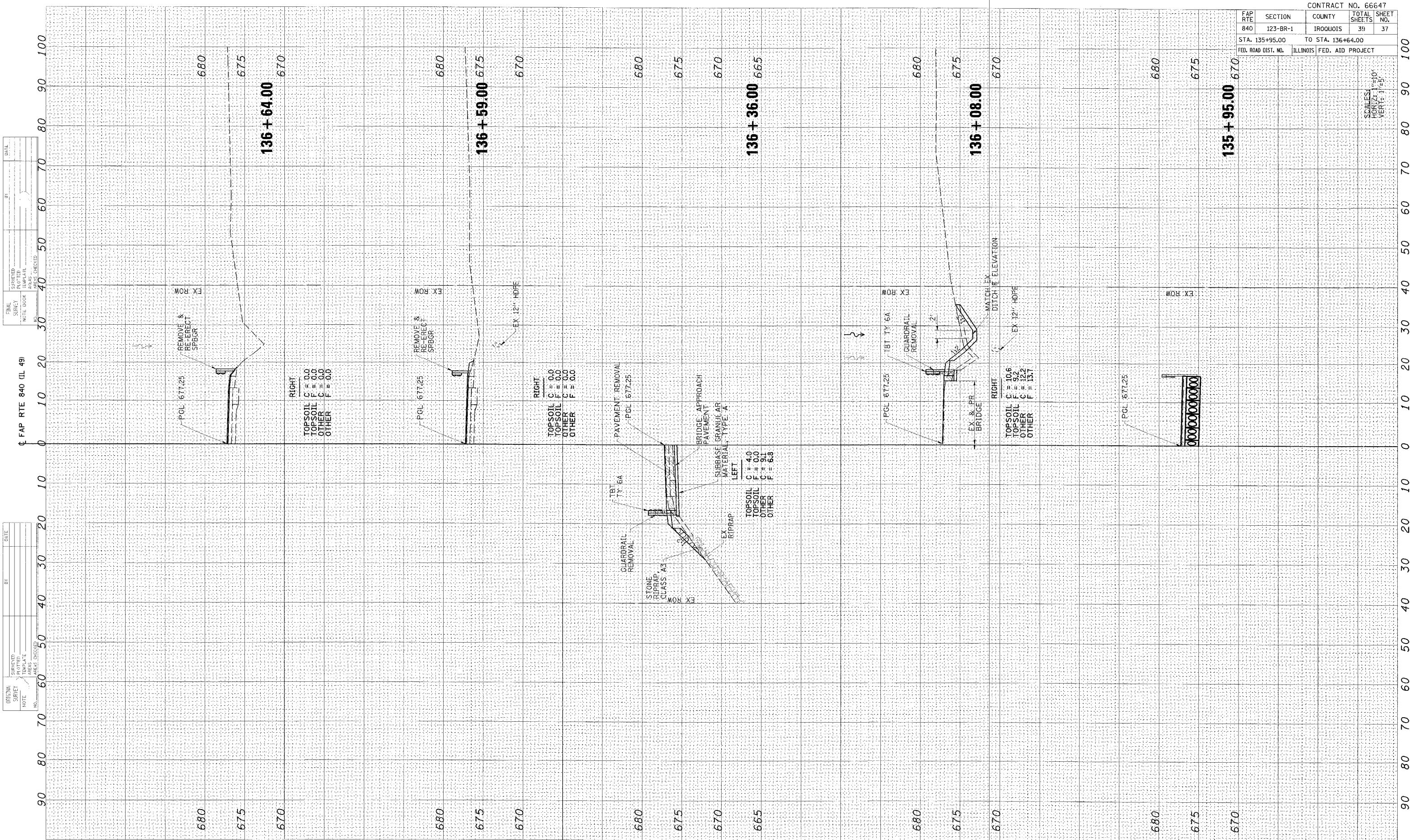
CL FAP RTE 840 (IL 49)



FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	123-BR-1	IRROQUOIS	39	37

STA. 135+95.00 TO STA. 136+64.00  
 FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT

SCALES:  
 HORIZ. 1"=50'  
 VERT. 1"=5'



FINAL SURVEY

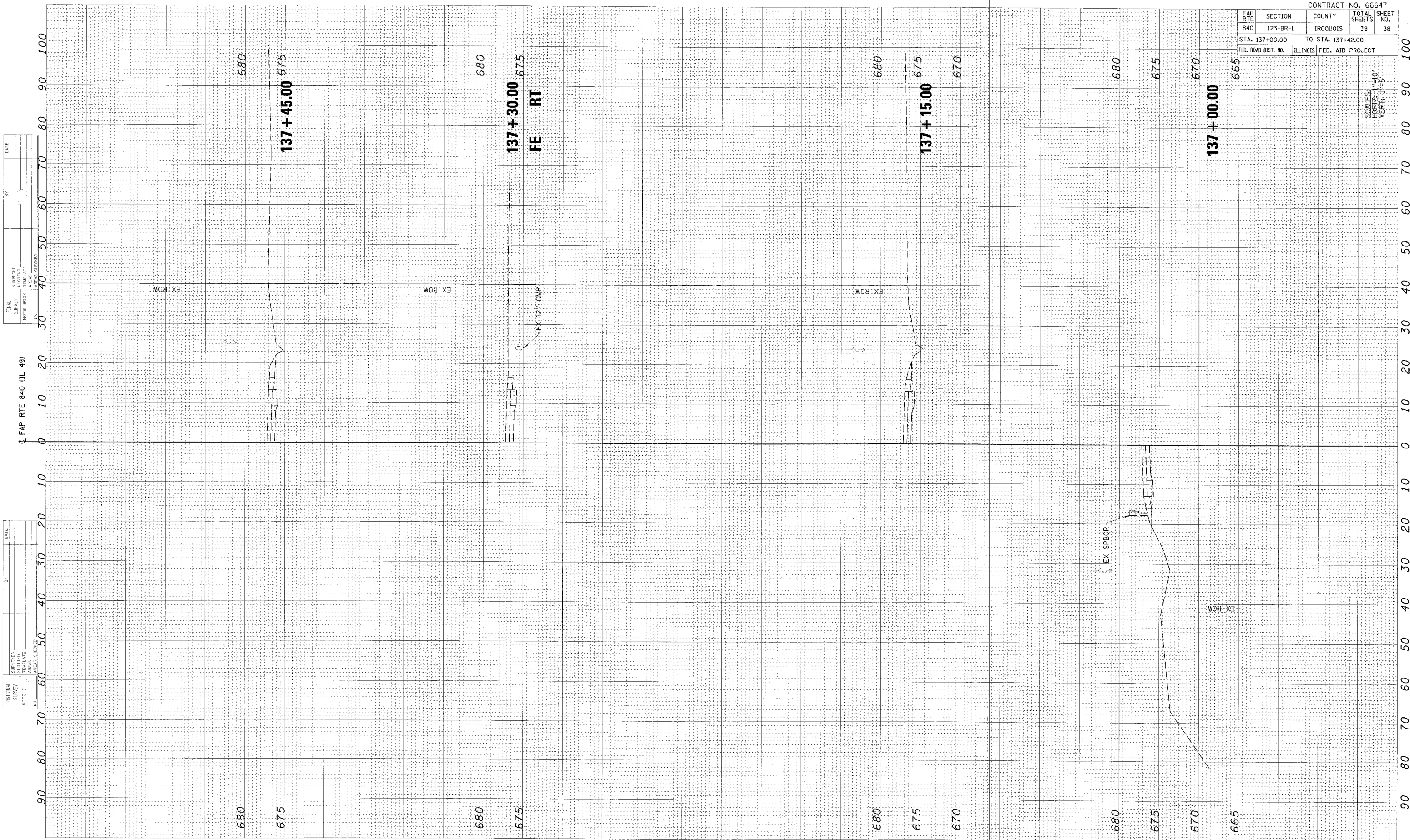
DATE	
BY	
NO.	
AREAS CHECKED	

ORIGINAL SURVEY

DATE	
BY	
NO.	
AREAS CHECKED	

FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	123-BR-1	IROQUOIS	39	38
STA. 137+00.00		TO STA. 137+42.00		
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	

SCALES:  
HORIZ. 1"=10'  
VERT. 1"=5'



REGIONAL SURVEY  
DATE  
BY  
SUPERVISOR  
CHECKED  
DATE  
NOTE NO.  
AREAS CHECKED

REGIONAL SURVEY  
DATE  
BY  
SUPERVISOR  
CHECKED  
DATE  
NOTE NO.  
AREAS CHECKED

FAP RTE 840 (IL 49) CROSS SECTIONS  
STA 137+00 TO STA 137+45

FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	123-BR-1	IROQUOIS	39	39
STA. 138+00.00		TO STA. 142+00.00		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



DATE	BY
NO.	NO.
AREAS CHECKED	AREAS CHECKED
PLOTTED	PLOTTED
SURVEYED	SURVEYED
FINAL SURVEY	FINAL SURVEY
NOTE FROM	NOTE FROM

DATE	BY
NO.	NO.
AREAS CHECKED	AREAS CHECKED
PLOTTED	PLOTTED
SURVEYED	SURVEYED
ORIGINAL SURVEY	ORIGINAL SURVEY
NOTE FROM	NOTE FROM

FAP RTE 840 (IL 49) CROSS SECTIONS  
 STA 138+00 TO STA 142+00

SCALES:  
 HORIZ: 1"=5'  
 VERT: 1"=10'