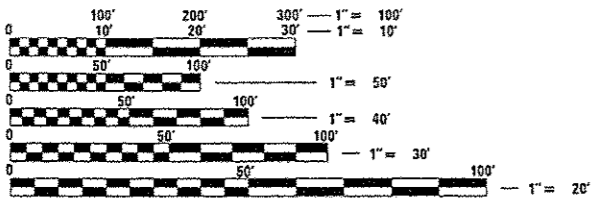


INDEX OF SHEETS 1-17-14 LETTING ITEM 119

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2 = SUMMARY OF QUANTITIES
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9-10 = EROSION CONTROL PLAN
11 = GENERAL PLAN AND ELEVATION
12 = RIPRAP AND PILE LAYOUT
13 = TOP OF SLAB ELEVATIONS
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STANDARDS

- 000001-06 STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
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420401-10 BRIDGE APPROACH PAVEMENT CONNECTOR
515001-03 NAME PLATE FOR BRIDGES
542401-01 METAL END SECTION FOR PIPE CULVERTS
601101-01 CONCRETE HEADWALL FOR PIPE DRAIN
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630301-06 SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
631032-08 TRAFFIC BARRIER TERMINAL, TYPE 6A
635006-03 REFLECTOR AND TERMINAL MARKER PLACEMENT
635011-02 REFLECTOR MARKER AND MOUNTING DETAILS
665001-02 WOVEN WIRE FENCE
701006-05 OFF-RD OPERATIONS, 2L, 2W, 15' (4.5m) TO 24" (600 mm) FROM PAVEMENT EDGE
701301-04 LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS
701901-03 TRAFFIC CONTROL DEVICES
720011-01 METAL POSTS FOR SIGNS, MARKERS & DELINEATORS
728001-01 TELESCOPING STEEL SIGN SUPPORT
729001-01 APPLICATIONS OF TYPE A & B METAL POSTS (FOR SIGNS & MARKERS)
780001-04 TYPICAL PAVEMENT MARKINGS
B.L.R. 21-9 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS



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

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

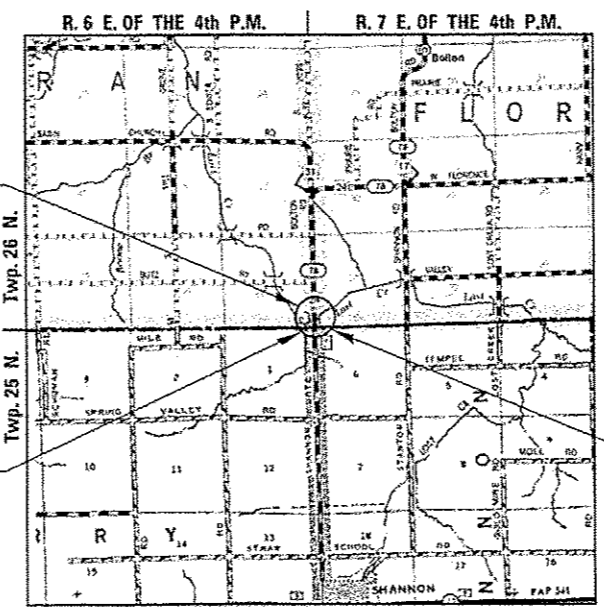
PROJECT ENGINEER - BSK
PROJECT MANAGER - BKC
CONTRACT NO. 85578

MAJOR COLLECTOR (NON-URBAN)
DESIGN SPEED 50 MPH
2013 ADT = 1,167 (2% TRUCKS)
NEW CONSTRUCTION/RECONSTRUCTION GUIDELINES

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLANS FOR PROPOSED
FEDERAL AID PROJECT
HIGHWAY BRIDGE PROGRAM

FAS ROUTE 78 (BOLTON ROAD)
SECTION 12-00179-00-BR
PROJECT BRS-0078(111)
STRUCTURE REPLACEMENT
STEPHENSON COUNTY
2013
C-92-106-12



PROPOSED STRUCTURE: S.N. 089-3285
A SINGLE SPAN (75'-11") PRECAST PRESTRESSED CONCRETE I-BEAM BRIDGE WITH REINFORCED CONCRETE DECK ON SPILL-THRU ABUTMENTS AT STATION 19+85. SKEWED 10° RIGHT AHEAD.

GROSS LENGTH = 630 FT. = 0.119 MILE
NET LENGTH = 630 FT. = 0.119 MILE

UTILITIES:

- FRONTIER COMMUNICATIONS
112 ELM STREET
SYCAMORE, IL 60178
PH: 815-895-1538
ATTN: MR. GARRETT BURT
COMED
123 ENERGY AVE.
ROCKFORD, IL 61109
PH: 815-262-6953
ATTN: MS. NORA FERNANDEZ

Table with columns: F.A.S. RTE., SECTION, COUNTY, TOTAL SHEETS, SHEET NO., CONTRACT NO. 85578



LOCATION OF SECTION INDICATED THUS: - - -

STEPHENSON COUNTY HIGHWAY DEPARTMENT
APPROVED OCTOBER 16 2013
PASSED OCT 28 2013
RELEASING FOR BID BASED ON LIMITED REVIEW OCT 28 2013



DATE: 10/19/13
EXPIRES 11/30/13

WILLETT HOFMANN & ASSOCIATES INC
ENGINEERING ARCHITECTURE LAND SURVEYING
809 EAST 2ND STREET, OXFORD, IL 61021-0327
T: 815-284-3381 DESIGN FIRM: #184-000918

SUMMARY OF QUANTITIES

CONSTRUCTION TYPE CODE: 0011

PAY CODE	DESCRIPTION	UNIT	QUANTITY
20300100	Channel Excavation	Cu. Yd.	811
20400800	Furnished Excavation	Cu. Yd.	908
25100630	Erosion Control Blanket	Sq. Yd.	5,771
*28000250	Temporary Erosion Control Seeding	Pound	119
28000305	Temporary Ditch Checks	Foot	80
28000400	Perimeter Erosion Barrier	Foot	1,285
28000500	Inlet and Pipe Protection	Each	1
28100207	Stone Riprap, Class A4	Ton	805
28200200	Filter Fabric	Sq. Yd.	916
*35101400	Aggregate Base Course, Type B	Ton	886
*40200800	Aggregate Surface Course, Type B	Ton	53
*40600100	Bituminous Materials (Prime Coat)	Gallon	758
40603080	Hot-Mix Asphalt Binder Course, IL-19.0, N50	Ton	320
40603310	Hot-Mix Asphalt Surface Course, Mix "C", N50	Ton	96
42001430	Bridge Approach Pavement Connector (Flexible)	Sq. Yd.	58
*48101200	Aggregate Shoulders, Type B	Ton	201
50100100	Removal of Existing Structures	Each	1
50200100	Structure Excavation	Cu. Yd.	218
50300225	Concrete Structures	Cu. Yd.	54.3
50300255	Concrete Superstructure	Cu. Yd.	179.9
50300260	Bridge Deck Grooving	Sq. Yd.	427
50300300	Protective Coat	Sq. Yd.	459
50400905	Furnishing and Erecting Precast Prestressed Concrete I-Beams, 42 IN.	Foot	385
50800205	Reinforcement Bars, Epoxy Coated	Pound	45,390
Δ 50901050	Steel Railing, Type SM	Foot	160
51200958	Furnishing Metal Shell Piles 14"x0.250"	Foot	412
51202305	Driving Piles	Foot	412
51203200	Test Pile Metal Shells	Each	2
51204650	Pile Shoes	Each	5
51500100	Name Plates	Each	1
54200220	Pipe Culverts, Class D, Type 1 15"	Foot	36
54213870	Steel End Sections 15"	Each	2
59100100	Geocomposite Wall Drain	Sq. Yd.	66
Δ 63000001	Steel Plate Beam Guardrail, Type A, 6 Foot Posts	Foot	250
Δ 63100087	Traffic Barrier Terminal, Type 6A	Each	4
Δ 63100167	Traffic Barrier Terminal, Type 1 (Special) Tangent	Each	4
*63200310	Guardrail Removal	Foot	552
67100100	Mobilization	L. Sum	1
Δ 78001110	Paint Pavement Marking - Line 4"	Foot	1,418
Δ 78200410	Guardrail Markers, Type A	Each	16
Δ 78201000	Terminal Marker - Direct Applied	Each	4
*Z0046304	Pipe Underdrains for Structures, 4"	Foot	140
Δ *X0323013	Tubular Steel Gate	Each	1
*X2020410	Earth Excavation (Special)	Cu. Yd.	1,480
*X2501000	Seeding, Class 2 (Special)	Acre	1.19
*X5860110	Granular Backfill for Structures	Cu. Yd.	124
Δ *X6650200	Woven Wire Fence (Special)	Foot	600
*X7010216	Traffic Control and Protection, (Special)	L. Sum	1

*See the contract documents for Special Provisions.

Δ Specialty Items



DESIGNED - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19 + 85

SUMMARY OF QUANTITIES
STRUCTURE NO. 089-3285

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
78	12-00179-00-BR	STEPHENSON	32	2
WHA* 1365011		CONTRACT NO. 85578		
ILLINOIS FED. AID PROJECT BR5-00781111				

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GENERAL NOTES

Existing structures (including foundations, walls, cisterns, wells, or other underground structures) within the right of way shall be removed in accordance with Article 501.04 and 501.05 of the Standard Specifications, without additional compensation, unless otherwise noted in the Plans or Special Provisions.

The Contractor shall seed all disturbed areas within the project limits.

The final top four inches of soil in any right of way area disturbed by the Contractor must be a cohesive soil capable of supporting vegetation and approved by the Engineer.

No overhaul has been computed and none shall be paid for from any source.

All Borrow/Waste/Use sites must be approved by the Department prior to removing any material from the project or initiating any earthmoving activities, including temporary stockpiling outside the limits of construction.

The Contractor shall be responsible for protecting utility property during construction operations as outlined in Article 107.31 of the Standard Specifications.

All telephone and electric poles, gas pipes, etc. in the way of the improvements shall be moved by the utilities prior to construction and shall not be included in the contract. The Contractor shall notify the respective utilities to make the necessary adjustments prior to this construction.

The location and elevation of the various underground utilities as shown on the plans are not to be taken as exact. The Contractor shall use special care when conducting construction operations near them to prevent damage.

The utilities located within the project limits or immediately adjacent to the project construction limits include:

Frontier Communications	ComEd
Attn: Mr. Garrett Burt	Attn: Ms. Nora Fernandez
112 Elm Street	123 Energy Ave.
Sycamore, IL 60178	Rockford, IL 61109
Ph: (815) 895-1538	Ph: (815) 262-6953

A minimum of 48 hours advance notice is required for non-emergency work.

A Nationwide 404 Permit has been issued for this project and the conditions of that Permit must be adhered to.

Where section or subsection monuments are encountered, the Engineer shall be notified before such monuments are removed. The Contractor shall protect and carefully preserve all property markers, monuments, and right of way pins until the Owner, an Authorized Surveyor, or Agent has witnessed or otherwise referenced their location. Any property markers, section or subsection monuments unless referenced, damaged by the Contractor shall be replaced at the expense of the Contractor.

Existing mail boxes, street signs, and traffic signs that are within the construction limits shall be removed and reset by the Contractor unless otherwise noted. Cost of removing and resetting to be included in the contract unit price bid per Cubic Yard for Earth Excavation (Special).

Where the proposed construction meets an existing bituminous surface, or where sawing is stated on the plans, the existing shall be sawed in a neat, straight line. Cost of sawing to be included in the contract unit price bid per Cubic Yard for Earth Excavation (Special).

EARTHWORK SCHEDULE			
EARTH EXCAVATION (SPECIAL) *X2020410 (CU YD)	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE 25% (CU YD)	EMBANKMENT (CU YD)	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-) (CU YD)
1,480	1,110	2,322	-908

SCHEDULE OF QUANTITIES

EROSION CONTROL BLANKET

LOCATION	SO YD	REMARKS
LT. STA. 16+70 - 23+00	2,876	
RT. STA. 16+70 - 23+00	2,895	
TOTAL	5,771 SO YD	25100630

TEMPORARY EROSION CONTROL SEEDING

LOCATION	POUND	REMARKS
LT. STA. 16+70 - 23+00	59	
RT. STA. 16+70 - 23+00	60	
TOTAL	119 POUND	*28000250

TEMPORARY DITCH CHECKS

LOCATION	FOOT	REMARKS
LT. STA. 17+50	10	
RT. STA. 17+50	10	
LT. STA. 18+50	10	
RT. STA. 18+50	10	
LT. STA. 21+00	10	
RT. STA. 21+00	10	
LT. STA. 22+00	10	
RT. STA. 22+00	10	
TOTAL	80 FOOT	28000305

PERIMETER EROSION BARRIER

LOCATION	FOOT	REMARKS
LT. STA. 16+70 - 17+00	42	
RT. STA. 16+70 - 19+96	352	
LT. STA. 17+16 - 19+66	266	
LT. STA. 19+91 - 23+00	329	
RT. STA. 20+16 - 23+00	296	
TOTAL	1,285 FOOT	28000400

INLET AND PIPE PROTECTION

LOCATION	EACH	REMARKS
LT. STA. 16+88	1	
TOTAL	1 EACH	28000500

AGGREGATE BASE COURSE, TYPE B

LOCATION	TON	REMARKS
STA. 16+70.00 - 19+13.15	443	12"
STA. 20+56.85 - 23+00.00	443	12"
TOTAL	886 TON	*35101400

AGGREGATE SURFACE COURSE, TYPE B

LOCATION	TON	REMARKS
LT. STA. 17+08	53	8" THICK FIELD ENTRANCE
TOTAL	53 TON	*40200800

BITUMINOUS MATERIALS (PRIME COAT)

LOCATION	GALLON	REMARKS
STA. 16+70.00 - 19+16.20	120	2 @ 0.1 GAL/SY (ON BIT)
STA. 20+53.80 - 23+00.00	120	2 @ 0.1 GAL/SY (ON BIT)
STA. 16+70.00 - 19+13.15	259	1 @ 0.4 GAL/SY (ON AGG)
STA. 20+56.85 - 23+00.00	259	1 @ 0.4 GAL/SY (ON AGG)
TOTAL	758 GALLON	*40600100

HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50

LOCATION	TON	REMARKS
STA. 16+70.00 - 19+04.26	160	2 - 2 1/2" LIFTS = 5"
STA. 20+65.74 - 23+00.00	160	2 - 2 1/2" LIFTS = 5"
TOTAL	320 TON	40603080

HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50

LOCATION	TON	REMARKS
STA. 16+70.00 - 19+04.26	48	1 - 1 1/2" LIFT
STA. 20+65.74 - 23+00.00	48	1 - 1 1/2" LIFT
TOTAL	96 TON	40603310

BRIDGE APPROACH PAVEMENT CONNECTOR (FLEXIBLE)

LOCATION	SO YD	REMARKS
STA. 19+04.26 - 19+16.20	29	
STA. 20+53.80 - 20+65.74	29	
TOTAL	58 SO YD	42001430

AGGREGATE SHOULDERS, TYPE B

LOCATION	TON	REMARKS
LT. STA. 16+70.00 - 16+96.00	3	4"
RT. STA. 16+70.00 - 19+48.40	53	4"
LT. STA. 17+20.00 - 19+42.50	43	4"
LT. STA. 20+21.50 - 23+00.00	52	4"
RT. STA. 20+27.50 - 23+00.00	50	4"
TOTAL	201 TON	*48101200

PIPE CULVERTS, CLASS D, TYPE 1 15"

LOCATION	FOOT	REMARKS
LT. STA. 16+90.00 - 17+26.00	36	
TOTAL	36 FOOT	542D0220

STEEL END SECTIONS 15"

LOCATION	EACH	REMARKS
LT. STA. 16+90.00	1	
LT. STA. 17+26.00	1	
TOTAL	2 EACH	54213870

STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS

LOCATION	FOOT	REMARKS
RT. STA. 18+29.73 - 19+04.68	75	4 sections flared at 22:1
LT. STA. 18+49.44 - 18+99.39	50	4 sections flared at 22:1
LT. STA. 20+65.32 - 21+40.27	75	4 sections flared at 22:1
RT. STA. 20+70.61 - 21+20.56	50	4 sections flared at 22:1
TOTAL	250 FOOT	63000001

TRAFFIC BARRIER TERMINAL, TYPE 6A

LOCATION	EACH	REMARKS
LT. STA. 18+99.39 - 19+42.54	1	
RT. STA. 19+04.68 - 19+47.82	1	
LT. STA. 20+22.18 - 20+65.32	1	
RT. STA. 20+27.46 - 20+70.61	1	
TOTAL	4 EACH	63100087

TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT

LOCATION	EACH	REMARKS
RT. STA. 17+78.24 - 18+29.73	1	
LT. STA. 17+97.95 - 18+49.44	1	
RT. STA. 21+20.56 - 21+72.05	1	
LT. STA. 21+40.27 - 21+91.76	1	
TOTAL	4 EACH	63100167

GUARDRAIL REMOVAL

LOCATION	FOOT	REMARKS
RT. STA. 18+61.67 - 21+37.86	276	
LT. STA. 18+61.76 - 21+37.74	276	
TOTAL	552 FOOT	*63200310

PAINT PAVEMENT MARKING - LINE 4"

LOCATION	FOOT	REMARKS
LT. STA. 16+70.00 - 23+00.00	630	SOLID WHITE EDGELINE
STA. 16+70.00 - 23+00.00	158	YELLOW 10-30 SKIP DASH
RT. STA. 16+70.00 - 23+00.00	630	SOLID WHITE EDGELINE
TOTAL	1,418 FOOT	78001110

GUARDRAIL MARKERS, TYPE A

LOCATION	EACH	REMARKS
RT. STA. 18+20.63 - 19+47.82	4	
LT. STA. 18+34.09 - 19+42.54	4	
LT. STA. 20+22.18 - 21+49.38	4	
RT. STA. 20+27.46 - 21+35.91	4	
TOTAL	16 EACH	78200410



DESIGNED - BRAD KLEINMAIER
 CHECKED - BRIAN CONVERSE
 DRAWN - RON ALLEN
 CHECKED - BRIAN CONVERSE

REVISED -
 REVISED -
 REVISED -
 REVISED -

STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19+85

GENERAL NOTES AND SCHEDULE OF QUANTITIES
STRUCTURE NO. 089-3285

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
78	12-00179-00-BR	STEPHENSON	32	3
	WHA# 1365D11	CONTRACT NO. 85578		

SCHEDULE OF QUANTITIES (CONT.)

TERMINAL MARKER - DIRECT APPLIED

LOCATION	EACH	REMARKS	
RT. STA. 17+78.24	1		
LT. STA. 17+97.95	1		
RT. STA. 21+72.05	1		
LT. STA. 21+91.76	1		
TOTAL	4 EACH		78201000

TUBULAR STEEL GATE

LOCATION	EACH	REMARKS	
LT. STA. 17+00.00 - 17+16.00	1	FIELD ENTRANCE	
TOTAL	1 EACH		*X0323013

SEEDING, CLASS 2 (SPECIAL)

LOCATION	ACRE	REMARKS	
LT. STA. 16+70.00 - 23+00.00	0.59		
RT. STA. 16+70.00 - 23+00.00	0.60		
TOTAL	1.19 ACRE		*X2501000

WOVEN WIRE FENCE (SPECIAL)

LOCATION	FOOT	REMARKS	
LT. STA. 16+71.60 - 17+00.00	40		
LT. STA. 17+16.00 - 19+65.60	250		
LT. STA. 19+91.50 - 22+96.90	310		
TOTAL	600 FOOT		*X6650200

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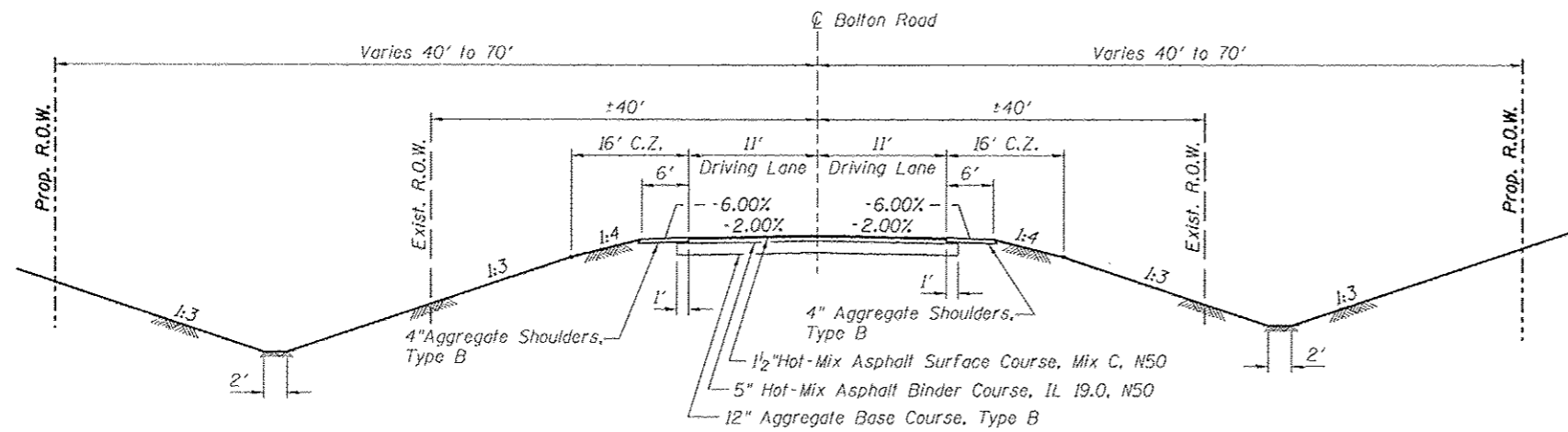
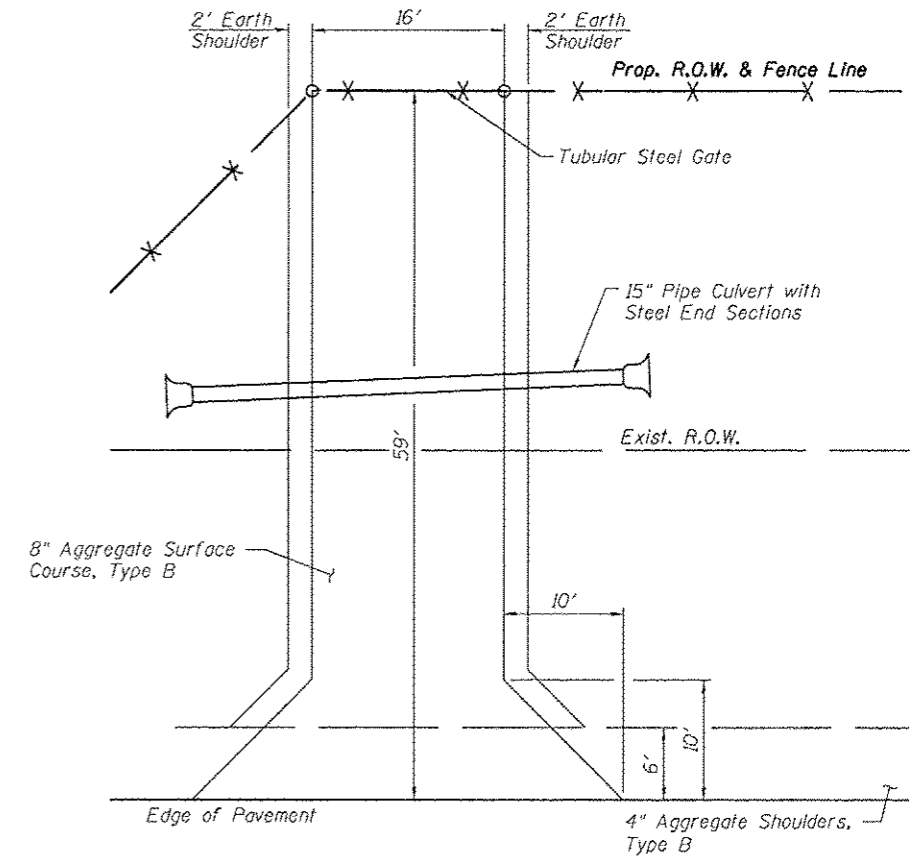
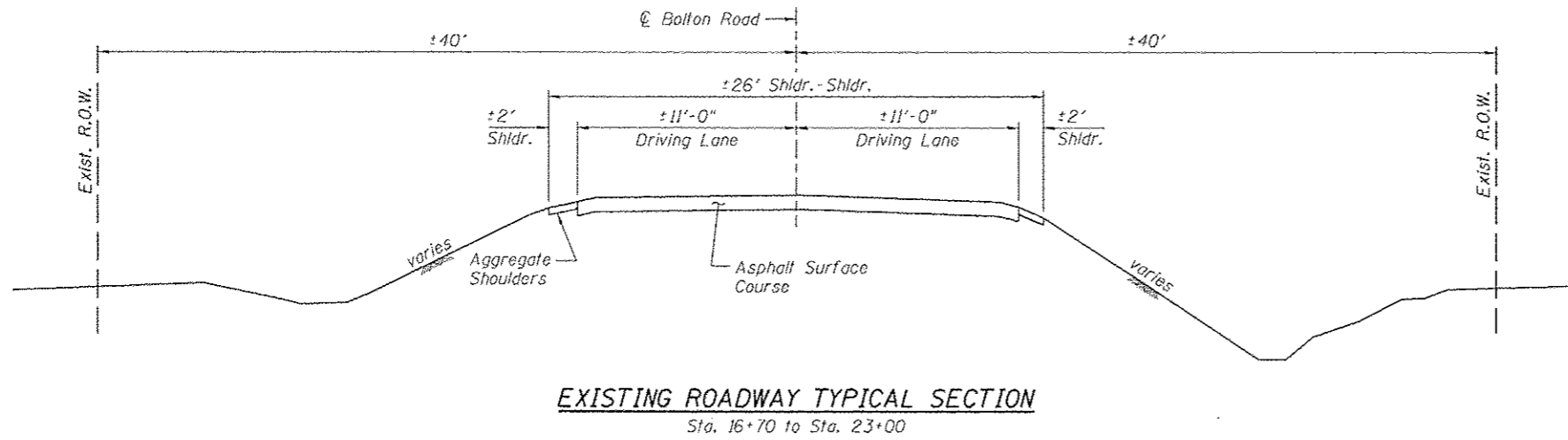


DESIGNED - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19 + 85

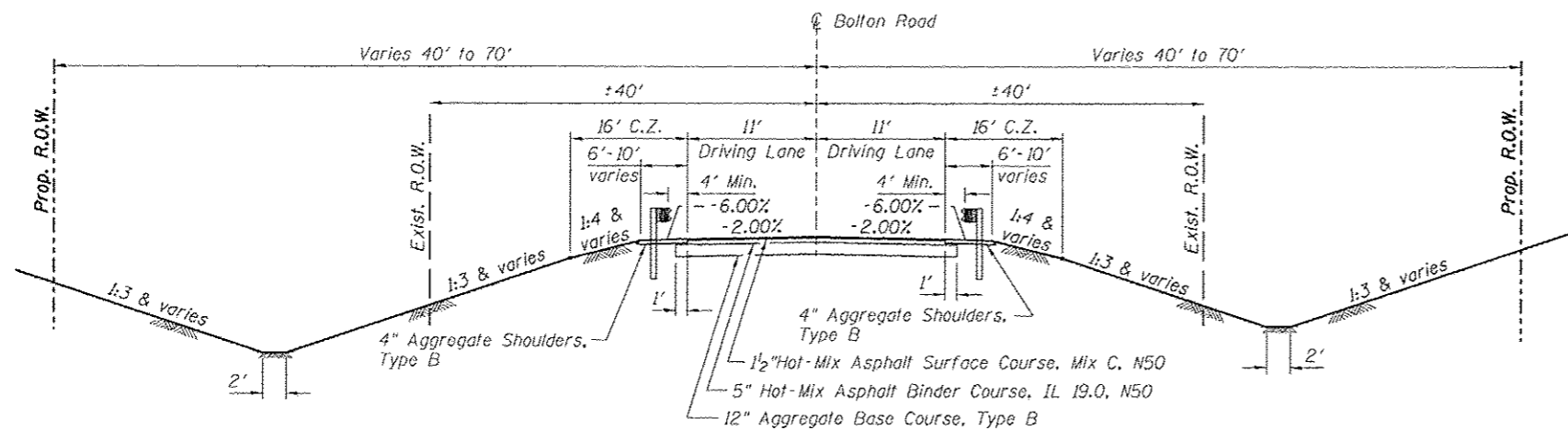
GENERAL NOTES AND SCHEDULE OF QUANTITIES
STRUCTURE NO. 089-3285

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
78	12-00179-00-BR	STEPHENSON	32	4
WHA* 1365011		CONTRACT NO. 85578		
ILLINOIS FED. AID PROJECT BR5-0076(111)				



* Dimensions and Cross-Slopes vary from Stations 16+70.00 to 16+88.56 and 22+69.40 to 23+00.00 due to transition to match existing roadway.

PROPOSED ROADWAY TYPICAL SECTION
Sta. 16+88.56 to Sta. 17+44.25
Sta. 22+25.75 to Sta. 22+69.40



PROPOSED ROADWAY TYPICAL SECTION
Sta. 17+44.25 to Sta. 19+46.26
Sta. 20+65.74 to Sta. 22+25.75

PAVEMENT MIXTURE REQUIREMENTS

	Construction	
	Binder	Surface
PG:	PG 64-22	PG 64-22
Design Air Voids	4.0 @ N50	4.0 @ N50
Mixture Composition (Gradation Mixture)	IL 19.0	IL 12.5 or 9.5
Friction Aggregate	—	C
ESALS	0.5	0.5

**PAVEMENT STRUCTURAL DESIGN
BOLTON ROAD**

Structural Design Traffic (S.D.T.) = Year 2023 (New Construction/Reconstruction)
Class III Street
80,000# Truck Design
Eri : (Assumed) 2 ksi
TF = 0.33
HMA Mix Temp. 77°F
HMA E_{ac} = 630 ksi
HMA Design Strain 200 microstrain

P.V. 1.064
S.U. 85
M.U. 60 } 1,209 ADT

USE:
1 1/2" Hot-Mix Asphalt Surface Course, Mix "C", N50
5" Hot-Mix Asphalt Binder Course, IL-19.0, N50
12" Aggregate Base Course, Type B



DESIGNED - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

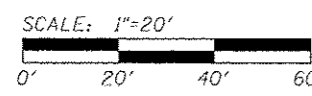
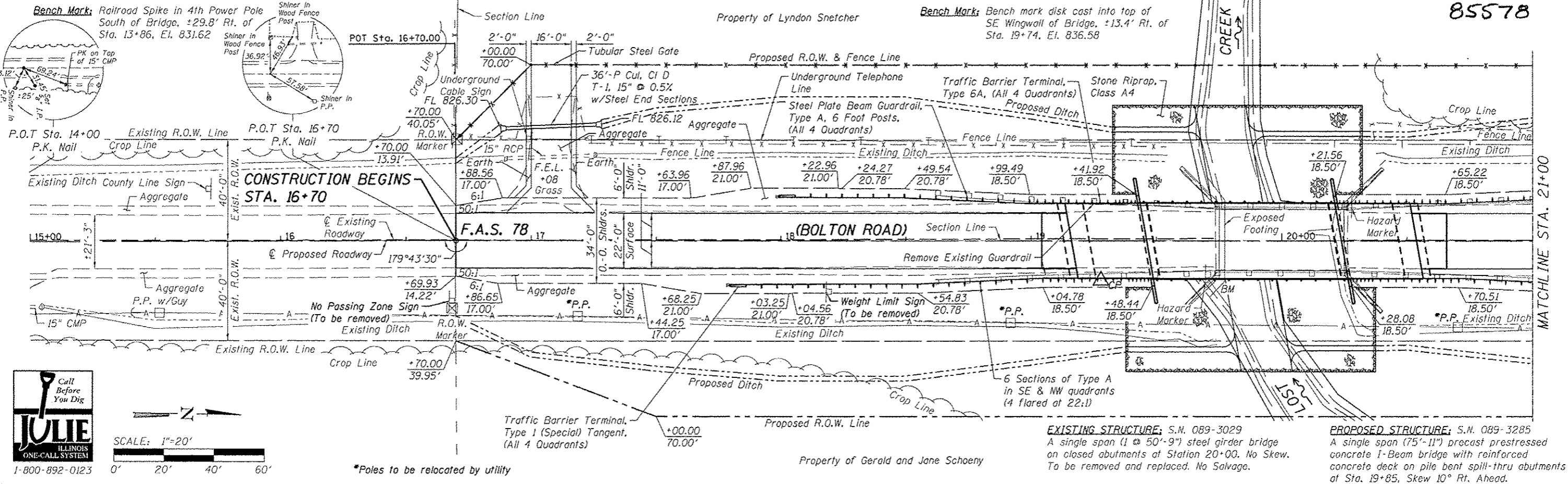
STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19+85

TYPICAL SECTIONS
STRUCTURE NO. 089-3285

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
78	12-00179-00-BR	STEPHENSON	32	5
WHA# 1365D11			CONTRACT NO. 8557B	
[ILLINOIS] FED. AID PROJECT BR5-0078(11)				

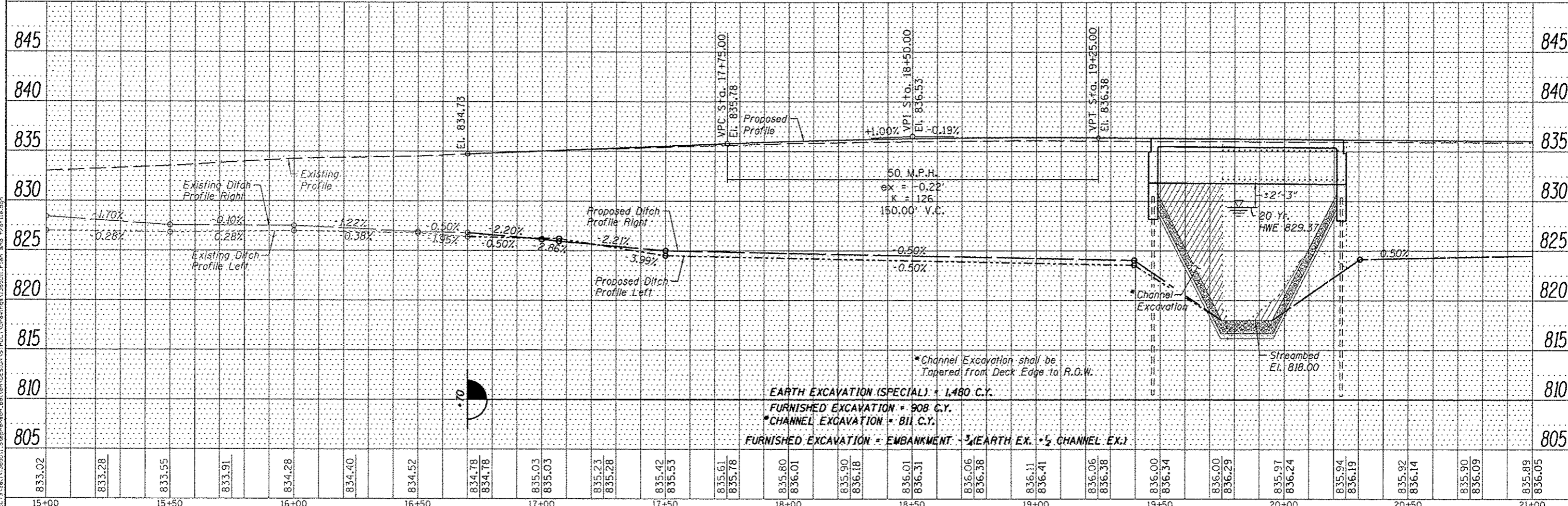
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EXISTING STRUCTURE; S.N. 089-3029
A single span (1 @ 50'-9") steel girder bridge on closed abutments at Station 20+00. No Skew. To be removed and replaced. No Salvage.

PROPOSED STRUCTURE; S.N. 089-3285
A single span (75'-11") precast prestressed concrete I-Beam bridge with reinforced concrete deck on pile bent spill-thru abutments at Sta. 19+85, Skew 10° Rt. Ahead.



EARTH EXCAVATION (SPECIAL) = 1,480 C.Y.
FURNISHED EXCAVATION = 908 C.Y.
CHANNEL EXCAVATION = 811 C.Y.
FURNISHED EXCAVATION = EMBANKMENT = 3/4 (EARTH EX.) + 1/4 (CHANNEL EX.)

WILLET HOFMANN ASSOCIATES INC.
ENGINEERING ARCHITECTURE LANDSCAPE ARCHITECTURE
309 EAST 2ND STREET, DECATUR, IL 62521-0307
T: 312-254-3351 DESIGN FIRM #124 0099-B

DESIGNED	BRAD KLEINMAIER	REVISED	
CHECKED	BRIAN CONVERSE	REVISED	
DRAWN	RON ALLEN	REVISED	
CHECKED	BRIAN CONVERSE	REVISED	

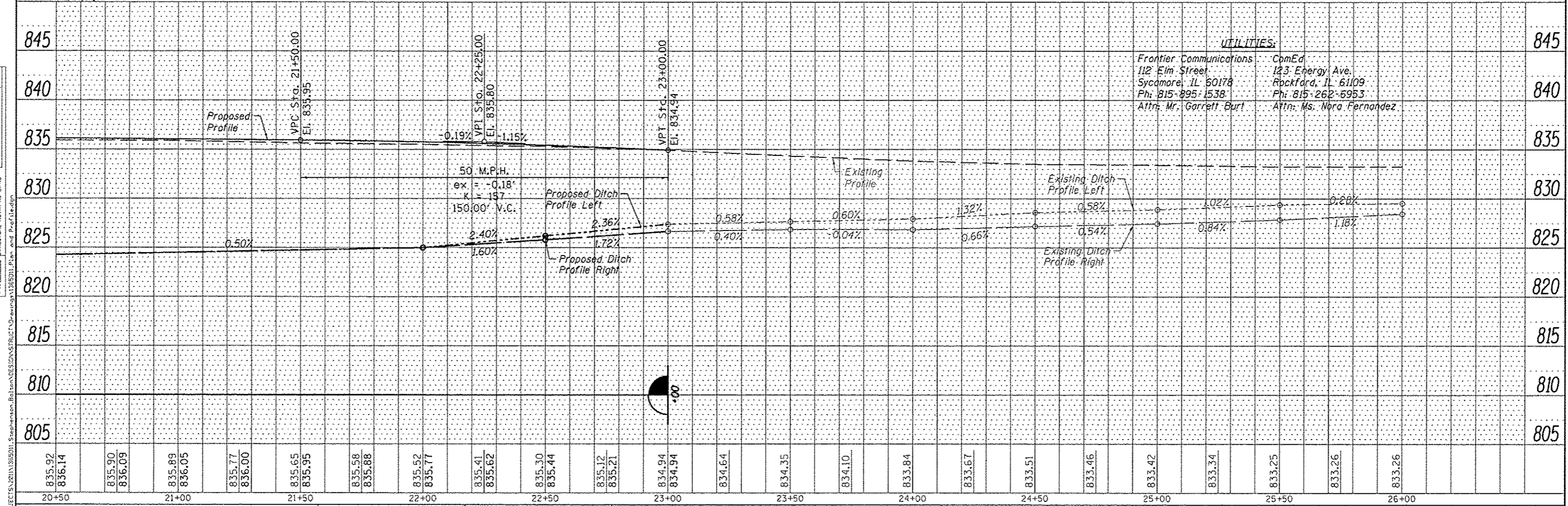
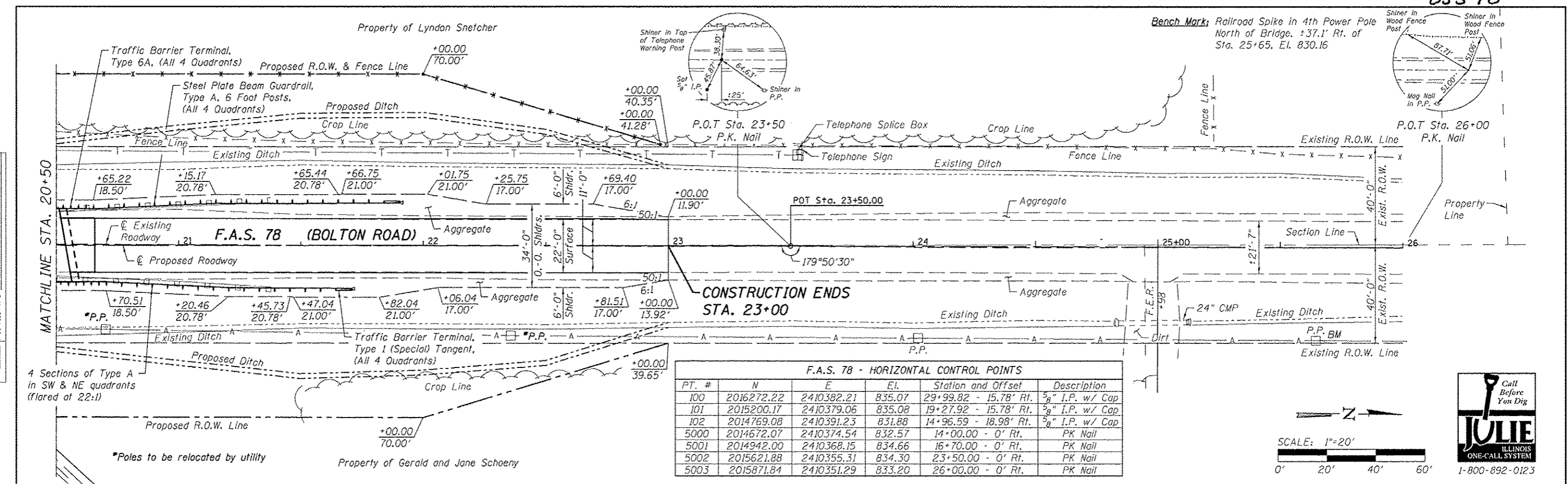
STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19 + 85

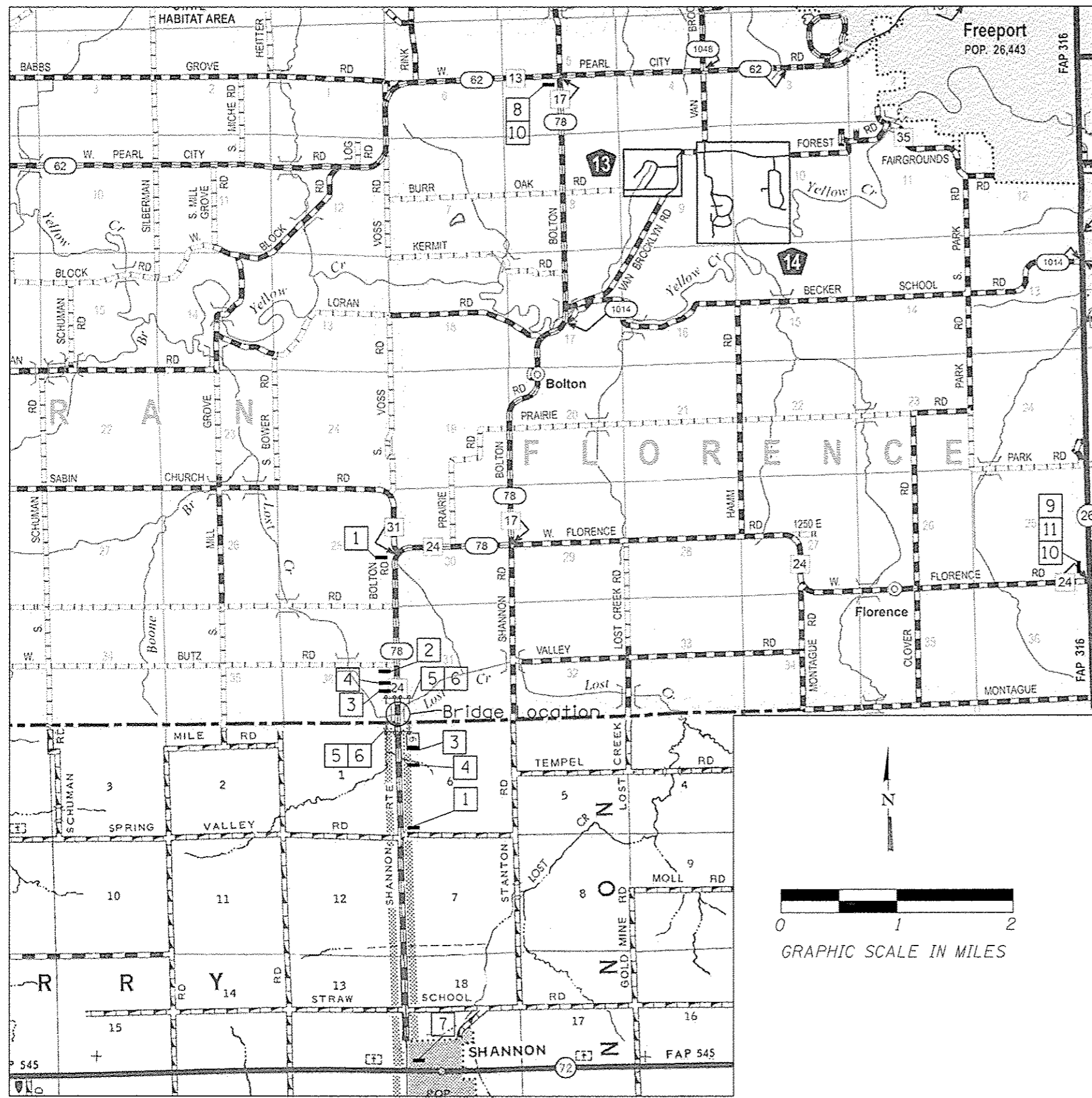
PLAN AND PROFILE
STRUCTURE NO. 089-3285
SCALE: 1" = 20'-0" SHEET NO. 1 OF 2 SHEETS STA. 15+00.00 TO STA. 21+00.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
78	12-00179-00-BR	STEPHENSON	32	6
WHA# 1365011			CONTRACT NO. 85578	
ILLINOIS FED. AID PROJECT BR5-0078(11)				

DATE: _____
BY: _____
SHEET NO.: _____
PROJECT NO.: _____
DRAWN BY: _____
CHECKED BY: _____

DATE: _____
BY: _____
SHEET NO.: _____
PROJECT NO.: _____
DRAWN BY: _____
CHECKED BY: _____





SIGN LEGEND

- 1 ROAD CLOSED 1 MILE AHEAD LOCAL TRAFFIC ONLY (R11-3a, 60" X 30" (2 REQ'D) (MOUNTED ON A TYPE III BARRICADE))
- 2 ROAD CLOSED 1/2 MILE AHEAD LOCAL TRAFFIC ONLY (R11-3a, 60" X 30" (1 REQ'D) (MOUNTED ON A TYPE III BARRICADE))
- 3 ROAD CLOSED 500 FT (W20-3, 48" X 48" * (2 REQ'D))
- 4 ROAD CLOSED AHEAD (W20-3, 48" X 48" * (2 REQ'D))
- 5 ROAD CLOSED (R11-2, 48" X 30" (2 REQ'D) (MOUNTED ON A TYPE III BARRICADE))
- 6 TYPE III BARRICADES WITH TWO FLASHING LIGHTS EACH. HIGHWAY STANDARD 701901
- 7 ROAD CLOSED 3 MILES AHEAD LOCAL TRAFFIC ONLY (R11-3a, 60" X 30" (1 REQ'D) (MOUNTED ON A TYPE III BARRICADE))
- 8 ROAD CLOSED 7 MILES (W20-3, 48" X 48" * (1 REQ'D))
- 9 ROAD CLOSED 8 MILES (W20-3, 48" X 48" * (1 REQ'D))
- 10 BOLTON RD (W16-8P, 24" X 8" (2 REQ'D))
- 11 SOUTH (M3-4, 24" X 12" (1 REQ'D))

NOTES:

*See the applicable standards for use of flags and flashing lights.

STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19+85

TRAFFIC CONTROL PLAN
STRUCTURE NO. 089-3285

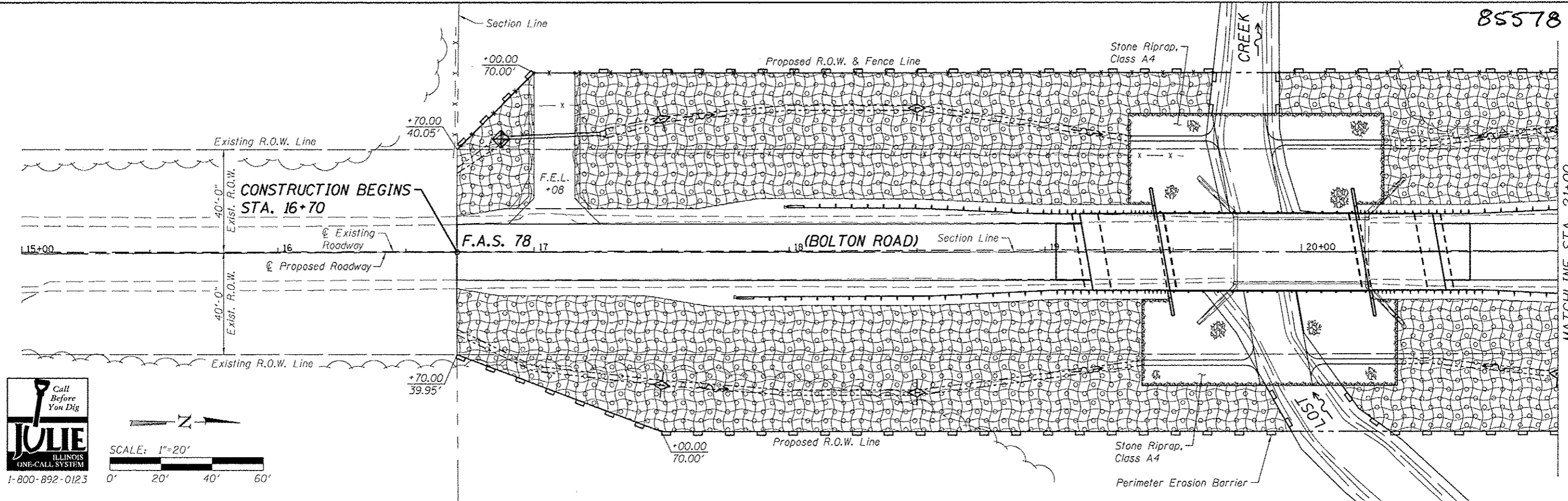
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
78	12-00179-00-0R	STEPHENSON	32	8
	WHA* 1365011			CONTRACT NO. 85578

WILETT HOFMANN ASSOCIATES INC.
 ENGINEERING ARCHITECTURE LAND SURVEYING
 209 EAST 2ND STREET, CHICAGO, IL 60677-0367
 T: 815-264-5351 DESIGN FAX: 815-264-5316

DESIGNED - BRAD KLEINMAIER
 CHECKED - BRIAN CONVERSE
 DRAWN - RON ALLEN
 CHECKED - BRIAN CONVERSE

REVISED -
 REVISED -
 REVISED -
 REVISED -

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EROSION CONTROL NOTES

The soil erosion and sediment control practices will be inspected weekly and after 1/2" of rain or more by the individual on site in charge of soil erosion and sediment control during the construction of the project.

Perimeter erosion barrier shall comply with Section 280 of the Standard Specifications and shall be placed as shown on the Erosion Control Plan and in accordance with stations shown on the Schedule of Quantities sheet or as directed by the Engineer.

Silt fence shall be installed following the completion and stabilization of all areas adjacent to the on-site drainages. The silt fence will remain in place until the contributing area is stabilized.

For Seeding, Class 2 (Special) see Special Provisions.

Erosion control blanket shall be placed in ditches and to all disturbed areas as shown on this Erosion Control Plan sheet and in accordance with Section 251 of the Standard Specifications for Road and Bridge Construction.

The use of green dye in the erosion control blanket is not acceptable.

The use of asphalt as a binder is not acceptable.

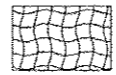




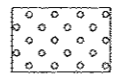

Temporary ditch checks shall comply with Section 280 of the Standard Specifications for Road and Bridge Construction and Standard 280001-07.

Temporary ditch checks shall be placed at stations called out in the Schedule of Quantities or as directed by the Engineer.

Stockpiles of soil and other building materials to remain in place more than 3 days shall be furnished with erosion and sediment control measures (i.e. perimeter silt fence). Stockpiles to remain in place for 14 days or more shall receive temporary seeding.

All adjacent streets must be kept clear of debris, inspected daily, and cleaned when necessary.

LEGEND

-  Erosion Control Blanket
-  Temporary Aggregate Ditch Checks
-  Perimeter Erosion Barrier
-  Inlet & Pipe Protection
-  Stone Riprap, Class A4
-  Seeding, Class 2 (Special)
-  Drainage Flow

BILL OF MATERIAL

Item	Unit	Quantity
Erosion Control Blanket	Sq. Yd.	5,771
Temporary Erosion Control Seeding	Pound	119
Temporary Ditch Checks	Foot	80
Perimeter Erosion Barrier	Foot	1,285
Inlet and Pipe Protection	Each	1
Seeding, Class 2 (Special)	Acre	1.19



DESIGNED - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

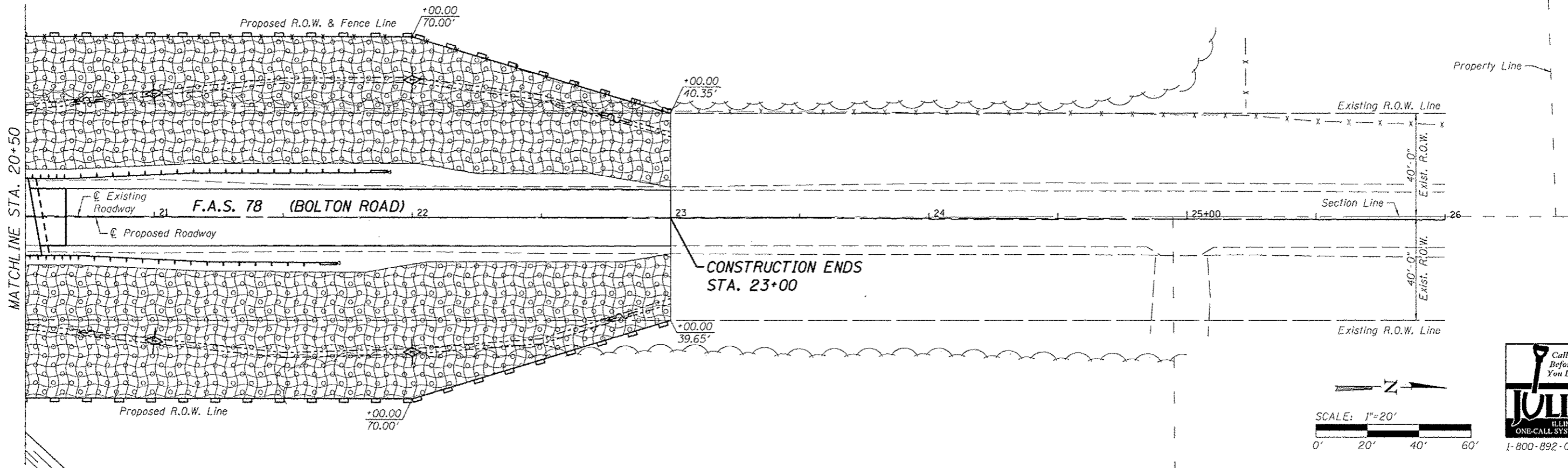
STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19 + 85

EROSION CONTROL PLAN
STRUCTURE NO. 089-3285

SCALE: 1" = 20'-0" SHEET NO. 1 OF 2 SHEETS STA. 15+00.00 TO STA. 21+00.00

F.A.S. RTE. 78	SECTION 12-00179-00-BR	COUNTY STEPHENSON	TOTAL SHEETS 32	SHEET NO. 9
WHA# 1365D11			CONTRACT NO. 85578	
ILLINOIS FED. AID PROJECT BR5-0078(11)				

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STORM WATER POLLUTION PREVENTION PLAN

The following plan is established and incorporated in the project to direct the Contractor in the placement of temporary erosion control systems and to provide a storm sewer water pollution prevention plan for compliance under NPDES.

The purpose of this plan is to minimize erosion within the construction site and to limit sediments from leaving the construction site by utilizing proper temporary erosion control systems and providing ground cover within a reasonable amount of time.

Certain erosion control facilities shall be installed by the Contractor at the beginning of construction. Other items shall be installed by the Contractor as directed by the Engineer on a case by case situation depending on the Contractor's sequence of activities, time of year, and expected weather conditions.

The Contractor shall install permanent erosion control systems and seeding within a time frame specified herein and as directed by the Engineer. Therefore minimizing the amount of area susceptible to erosion and reducing the amount of temporary seeding. The Engineer will determine if any temporary erosion control systems shown in the plan can be deleted and if any additional temporary erosion control systems, which are not included in this plan, shall be added. The Contractor shall perform all work as directed by the Engineer and as shown in Standard 280001-07 of the plans.

Section 280, Temporary Erosion Control, of the Standard Specifications additionally supplements this plan.

SITE DESCRIPTION

DESCRIPTION OF CONSTRUCTION ACTIVITY:

- The project consists of bridge replacement on FAS Rte. 78 (Bolton Rd.) over Lost Creek & approach roadway work thereto.
- Construction includes pavement removal, earth excavation, entrances, channel excavation, various pavement items, bridge items and other miscellaneous items of construction.

DESCRIPTION OF INTENDED SEQUENCE FOR MAJOR CONSTRUCTION ACTIVITIES WHICH WILL DISTURB SOILS FOR MAJOR PORTIONS OF THE CONSTRUCTION SITE:

- Pavement removal and earth excavation
- Channel excavation
- Bridge construction
- Furnished excavation
- Aggregate base, bituminous surface and related appurtenances
- Placement of permanent erosion control, including seeding

AREA OF CONSTRUCTION SITE:

The total area of the construction site is estimated to be 1.92 acres of which 1.61 acres will be disturbed by excavation, grading, and other activities.

OTHER REPORTS, STUDIES AND PLANS WHICH AID IN THE DEVELOPMENT OF THE STORM WATER POLLUTION PREVENTION PLAN AS REFERENCED DOCUMENTS:

- Information of the soils and terrain within the site was obtained from soil borings that were utilized for the development of the proposed temporary erosion control systems.
- Project plan documents, specifications and special provisions, and plan drawings indicating drainage patterns and approximate slopes anticipated after grading activities were utilized for the proposed placement of the temporary erosion control systems.

CONTROLS - EROSION CONTROLS AND SEDIMENT CONTROL DESCRIPTION OF STABILIZATION PRACTICES AT THE BEGINNING OF CONSTRUCTION:

- The drawings, specifications and special provisions will ensure that existing vegetation is preserved where attainable and disturbed portions of the site will be stabilized. Stabilization practices include: temporary seeding, permanent seeding, perimeter erosion barrier, and other appropriate measures as directed by the Engineer. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 7 days after the construction activity in that portion of the site has temporarily or permanently ceased.
 - Areas of existing vegetation (wood and grasslands) outside the proposed construction limits shall be identified by the Engineer for preserving and shall be protected from construction activities.
 - Dead, diseased, or unsuitable vegetation within the site shall be removed as directed by the Engineer, along with required tree removal.
 - As soon as reasonable access is available to all locations where water drains away from the project, temporary ditch checks and perimeter erosion barrier shall be installed as called out in this plan and directed by the Engineer.
 - Bare and sparsely vegetated ground in highly erodible areas as determined by the Engineer shall be temporarily seeded at the beginning of construction where no construction activities are expected within 7 days.
 - At locations where a significant amount of water drains into the construction zone from outside areas (adjacent landowners), temporary ditch checks will be utilized to locally divert water, reduce flow rates, and collect outside siltation inside the right-of-way line.
- Establishment of these temporary erosion control measures will have additional benefits to the project. Desirable grass seed will become established in these areas and will spread seeds onto the construction site until permanent seeding/mowing and over seeding can be completed.

DESCRIPTION OF STABILIZATION PRACTICES DURING CONSTRUCTION:

- During construction, areas outside the construction limits as outlined previously herein shall be protected. The Contractor shall not use this area for staging (except as described on the plans and directed by the Engineer), parking of vehicles or construction equipment, storage of materials, or other construction related activities.
 - Within the construction limits, areas which may be susceptible to erosion as determined by the Engineer shall remain undisturbed until full scale construction is underway to prevent unnecessary soil erosion.
 - Earth stockpiles shall be temporarily seeded if they are to remain unused for more than 14 days.
 - As construction proceeds, the Contractor shall institute the following as directed by the Engineer:
 - Place temporary erosion control facilities at locations shown on the plans.
 - Temporarily seed erodible bare earth on a weekly basis to minimize the amount of erodible surface area within the contract limits.
 - Excavated areas and embankment shall be permanently seeded immediately after final grading. If not, they shall be temporarily seeded if no construction activity in the area is planned for 7 days.
 - Construction equipment shall be stored and fueled only at designated locations. All necessary measures shall be taken to contain any fuel or other pollutant in accordance with EPA water quality regulations. Leaking equipment or supplies shall be immediately repaired or removed from the site.
 - The Resident Engineer shall inspect the project daily during construction activities. Inspection shall also be done weekly and after rains of 1/2 inch or greater or equivalent snowfall and during the winter shutdown period. The project shall additionally be inspected by the construction Field Engineer on a bi-weekly basis to determine that erosion control efforts are in place and effective, and if other erosion control work is necessary.

- Sediment collected during construction of the various temporary erosion control systems shall be disposed of on the site on a regular basis as directed by the Engineer. The cost of this maintenance shall be included in the unit bid price for earth excavation.
- The temporary erosion control systems shall be removed as directed by the Engineer after use is no longer needed or no longer functioning. The cost of this removal shall be included in the unit bid price for various temporary erosion control pay items.

DESCRIPTION OF STRUCTURAL PRACTICES AFTER FINAL GRADING:

- Temporary erosion control systems shall be left in place with proper maintenance until permanent erosion control is in place and working properly and all proposed turf areas seeded and established.
- Once permanent erosion control systems as proposed in the plans are functional and established, temporary items shall be removed, cleaned up, and disturbed turf reseeded.

MAINTENANCE AFTER CONSTRUCTION:

- Construction is complete after acceptance by IDOT final inspection. Maintenance up to this date will be by the Contractor.

MISCELLANEOUS:

- Temporary erosion control seeding shall be applied at a rate of 100 lbs./acres.
- Temporary ditch checks shall comply with section 280 of the Standard Specifications for Road and Bridge Construction and Standard 280001-07. Temporary ditch checks shall be aggregate.
- All erosion control products furnished shall be specifically recommended by the manufacturer for the use specified in the erosion control plan, prior to the approval and use of the product, the Contractor shall submit to the Engineer a notarized certification by the producer stating the intended use of the product and that the physical properties required for this application are met or exceeded. The Contractor shall provide manufacturer installation procedures to facilitate the Engineer in construction inspection.

This plan has been prepared to comply with the provisions of the NPDES permit number ILR10, issued by the Illinois Environmental Protection Agency for storm water discharges from construction site activities.



DESIGNED -- BRAD KLEINMAIER	REVISED --
CHECKED -- BRIAN CONVERSE	REVISED --
DRAWN -- RON ALLEN	REVISED --
CHECKED -- BRIAN CONVERSE	REVISED --

STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19+85

EROSION CONTROL PLAN
STRUCTURE NO. 089-3285
SCALE: 1" = 20'-0" SHEET NO. 2 OF 2 SHEETS STA. 20+50.00 TO STA. 26+00.00

F.A.S. RTE. 78	SECTION 12-00179-00-BR	COUNTY STEPHENSON	TOTAL SHEETS 32	SHEET NO. 10
WHA* 1365011		CONTRACT NO. 85578		ILLINOIS FED. AID PROJECT BRS-0078(111)

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EXISTING STRUCTURE: S.N. 089-3029

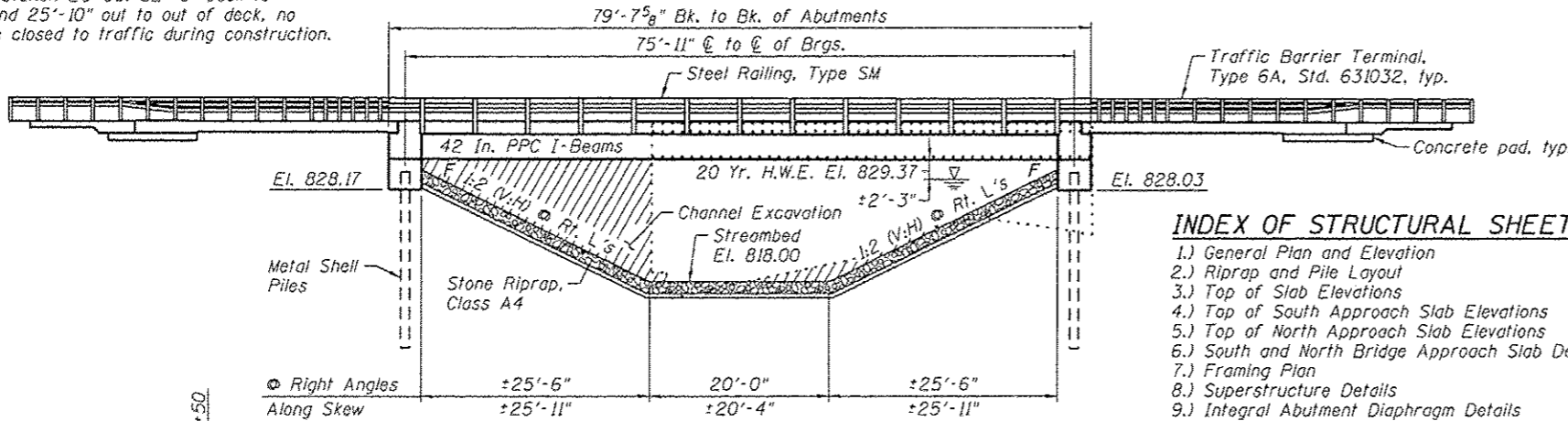
A single span (1 @ 50'-9") steel girder bridge on closed abutments at Station 20+00. 52'-8" back to back of abutments and 25'-10" out to out of deck, no skew. Road shall be closed to traffic during construction.

No Salvage.

Bench Mark: Bench mark disk cast into top of SE Wingwall of Bridge, 13.43' Rt. of Sta. 19+74, El. 836.58

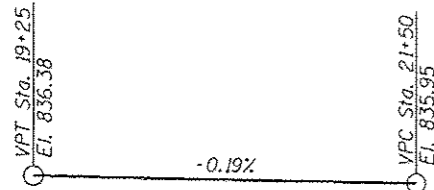
BILL OF MATERIAL - BRIDGE

ITEM	UNIT	SUB.	SUPER.	TOTAL
Channel Excavation	Cu. Yd.	811	---	811
Stone Riprap, Class A4	Ton	805	---	805
Filter Fabric	Sq. Yd.	916	---	916
Removal Of Existing Structures	Each	---	---	1
Structure Excavation	Cu. Yd.	218	---	218
Concrete Structures	Cu. Yd.	54.3	---	54.3
Concrete Superstructure	Cu. Yd.	---	179.9	179.9
Bridge Deck Grooving	Sq. Yd.	---	427	427
Protective Coat	Sq. Yd.	---	459	459
Furnishing & Erecting Precast Prestressed Concrete I-Beams, 42 In.	Foot	---	385	385
Reinforcement Bars, Epoxy Coated	Pound	10,310	35,080	45,390
Steel Railing, Type SM	Foot	---	160	160
Furnishing Metal Shell Piles 14"x0.250"	Foot	412	---	412
Driving Piles	Foot	412	---	412
Test Pile Metal Shells	Each	2	---	2
Pile Shoes	Each	5	---	5
Name Plates	Each	1	---	1
Geocomposite Wall Drain	Sq. Yd.	66	---	66
Pipe Underdrains for Structures, 4"	Foot	140	---	140
Granular Backfill for Structures	Cu. Yd.	124	---	124



INDEX OF STRUCTURAL SHEETS

- 1.) General Plan and Elevation
- 2.) Riprap and Pile Layout
- 3.) Top of Slab Elevations
- 4.) Top of South Approach Slab Elevations
- 5.) Top of North Approach Slab Elevations
- 6.) South and North Bridge Approach Slab Details
- 7.) Framing Plan
- 8.) Superstructure Details
- 9.) Integral Abutment Diaphragm Details
- 10.) 42 In. PPC I-Beam
- 11.) 42 In. PPC I-Beam Details
- 12.) South Abutment Details
- 13.) North Abutment Details
- 14.) Steel Railing, Type SM Details
- 15.) Metal Shell Pile Details
- 16.) Boring Logs

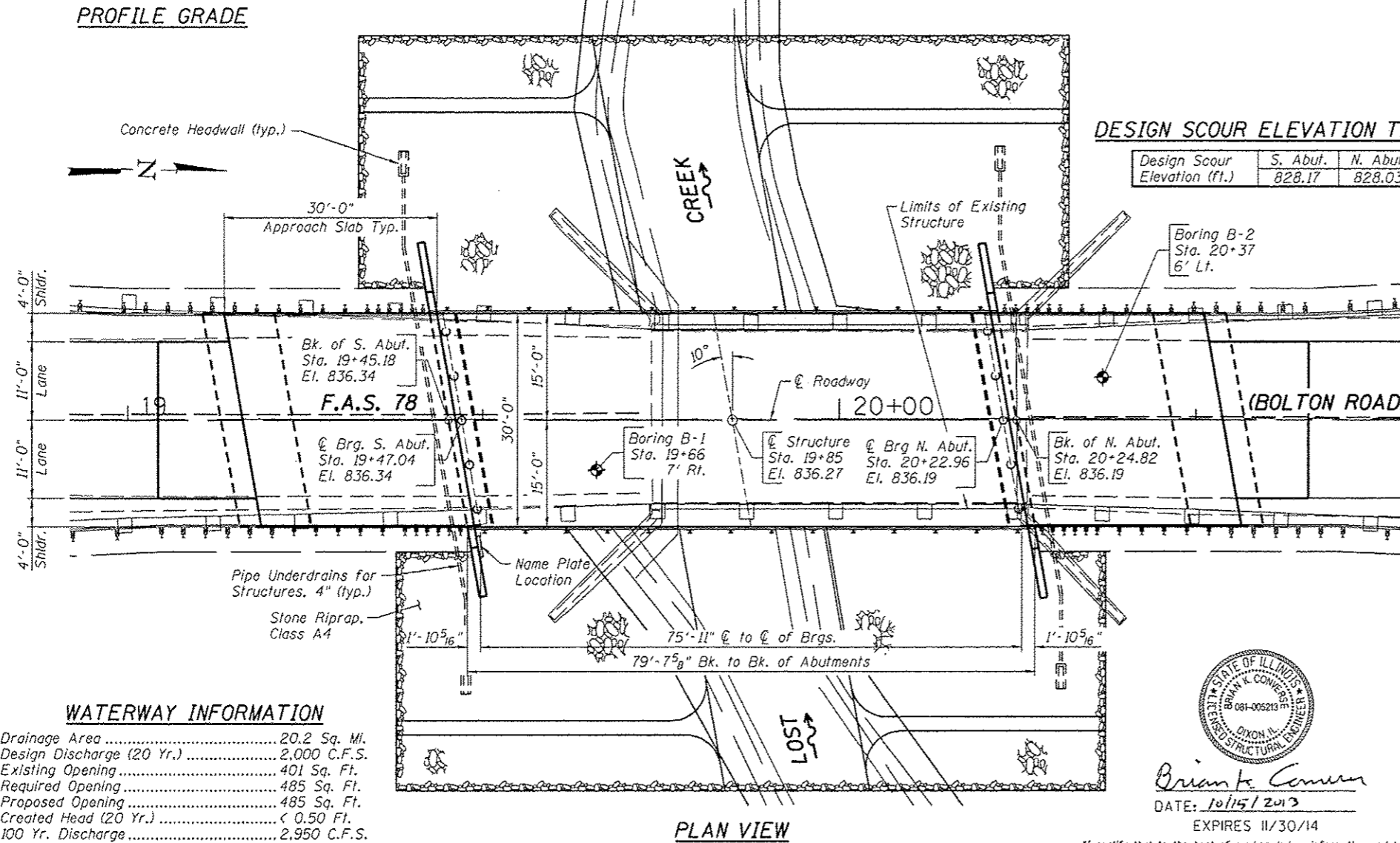


DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	S. Abut.	N. Abut.
	828.17	828.03

GENERAL NOTES:

- See Structural Sheet 16 of 16 for Boring Data.
- Reinforcement bars designated (E) shall be epoxy coated.
- Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure.
- Channel to be transitioned to fit Proposed Structure inside Right of Way. Cost included in the unit price per Cu. Yd. for Channel Excavation. See Roadway Plans.
- Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.
- * Includes 30' Bridge Approach Pavements.
- ** See Special Provisions.



DESIGN SPECIFICATIONS

Design in accordance with 2012 AASHTO LRF Bridge Design Specifications, 6th Edition & 2012 Interims.

LOADING HL-93

Allow 50#/Sq. Ft. for Future Wearing Surface.

DESIGN STRESSES

FIELD UNITS

$f'_c = 3,500$ psi
 $f_y = 60,000$ psi (Reinforcement)
 $f_y = 50,000$ psi (M270 Grade 50)

PRECAST PRESTRESSED UNITS

$f'_c = 7,000$ psi
 $f'_{ci} = 6,000$ psi
 $f_{pu} = 270,000$ psi (1/2" ϕ Low Lax Strands)
 $f_{pb} = 201,960$ psi (1/2" ϕ Low Lax Strands)

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.055g
Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 0.091g
Soil Site Class = C

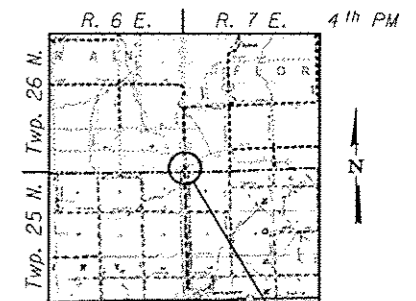
WATERWAY INFORMATION

Drainage Area	20.2 Sq. Mi.
Design Discharge (20 Yr.)	2,000 C.F.S.
Existing Opening	401 Sq. Ft.
Required Opening	485 Sq. Ft.
Proposed Opening	485 Sq. Ft.
Created Head (20 Yr.)	< 0.50 Ft.
100 Yr. Discharge	2,950 C.F.S.
Created Head (100 Yr.)	< 1.00 Ft.
High Water El. (100 Yr.)	830.17 Ft.
Backwater 1,000' Upstream (100 Yr.)	80.50 Ft.

LOST CREEK
BUILT 2014 BY
STEPHENSON COUNTY
SECTION 12-00179-00-BR
F.A.S. ROUTE 78 STATION 19+85
STR. NO. 089-3285 LOADING HL-93

NAME PLATE LETTERING

REFER TO STD. 515001-03



LOCATION SKETCH



Brian K. Converse

DATE: 10/15/2013
EXPIRES 11/30/14

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

STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19 + 85

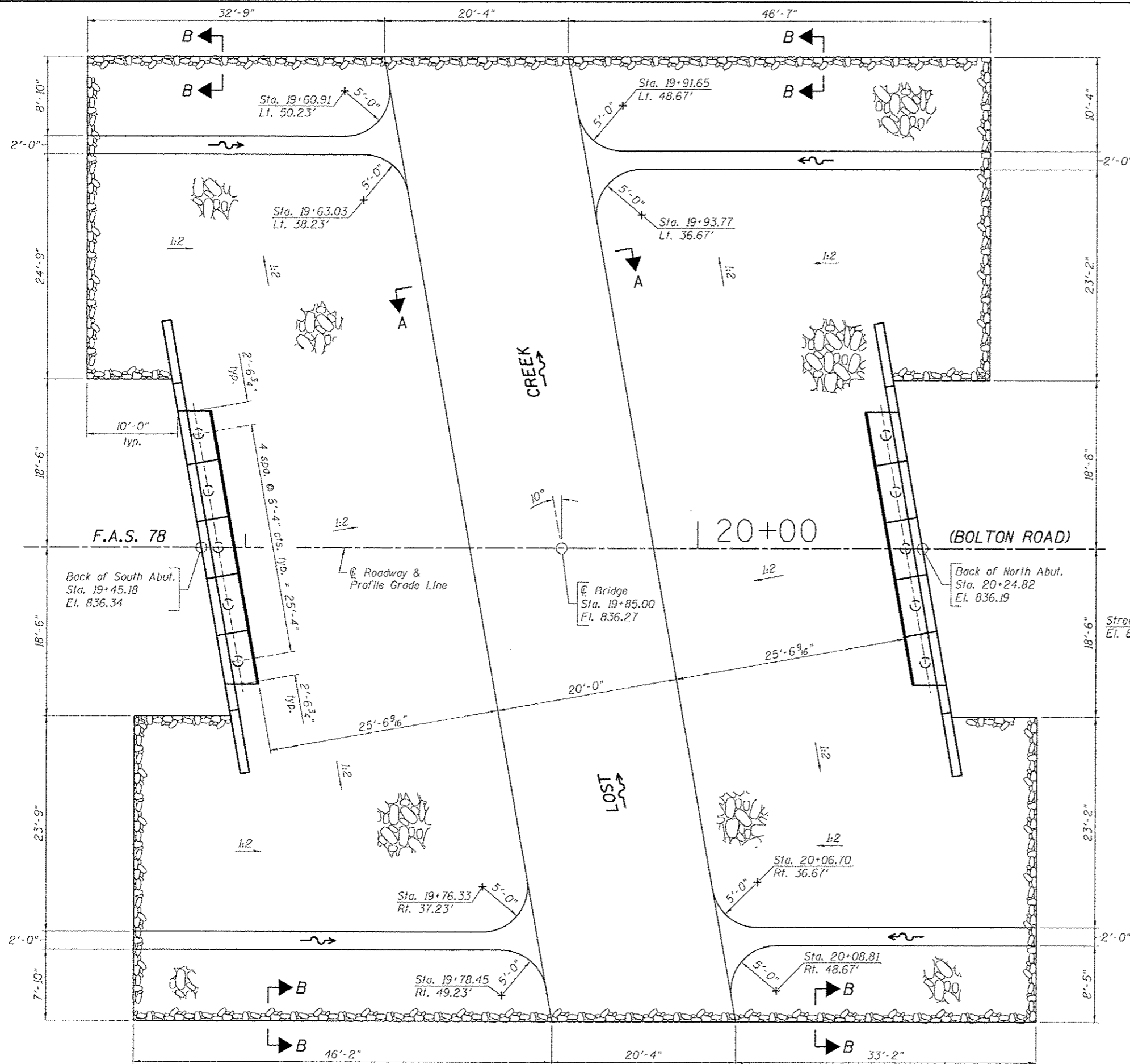
GENERAL PLAN AND ELEVATION
STRUCTURE NO. 089-3285

STRUCTURAL SHEET NO. 1 OF 16 SHEETS

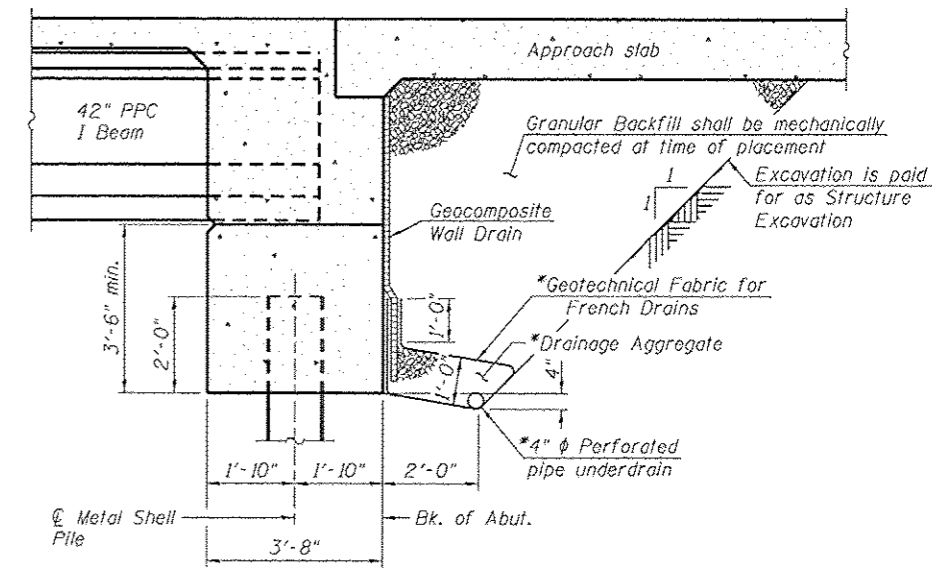
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
78	12-00179-00-BR	STEPHENSON	32	11
	WHA* 1365011			CONTRACT NO. 85578

WILLET HOFMANN ASSOCIATES INC.
ENGINEERING ARCHITECTURE LAND SURVEYING
400 EAST 2ND STREET, CHICAGO, IL 60601-2417
TEL: 312.254.3300 FAX: 312.254.3302

DESIGNED - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

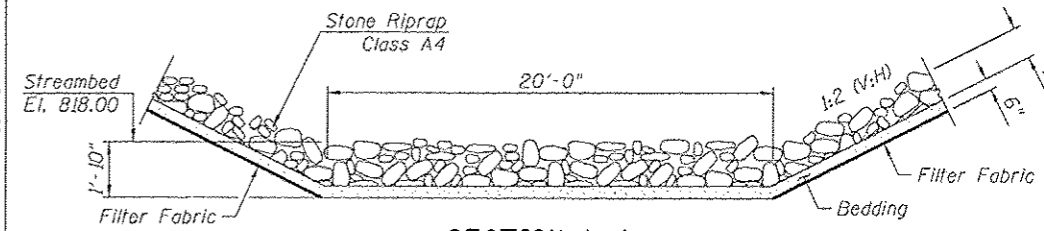


PLAN VIEW

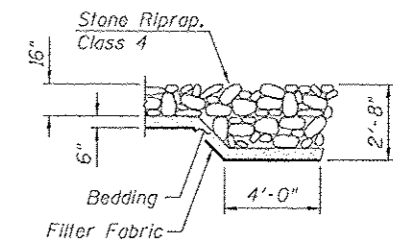
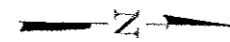


SECTION THRU INTEGRAL ABUTMENT
(Horiz. dim. @ Rt. L's)

NOTE:
All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).



SECTION A-A



SECTION B-B

BILL OF MATERIAL

Item	Unit	Quantity
Stone Riprap, Class A4	Ton	805
Filter Fabric	Sq. Yd.	916

* Included in the cost of Pipe Underdrains for Structures.
(See Special Provisions)

WILLET HOFMANN ASSOCIATES INC.
ENGINEERING ARCHITECTURE LAND SURVEYING
804 EAST 2ND STREET, DIXON, IL 61021-0267
T. 815-284-3344 DESIGN FIRM: A164-000918

DESIGNED - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

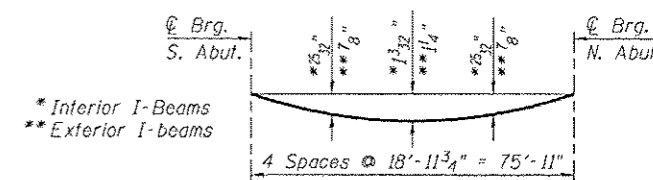
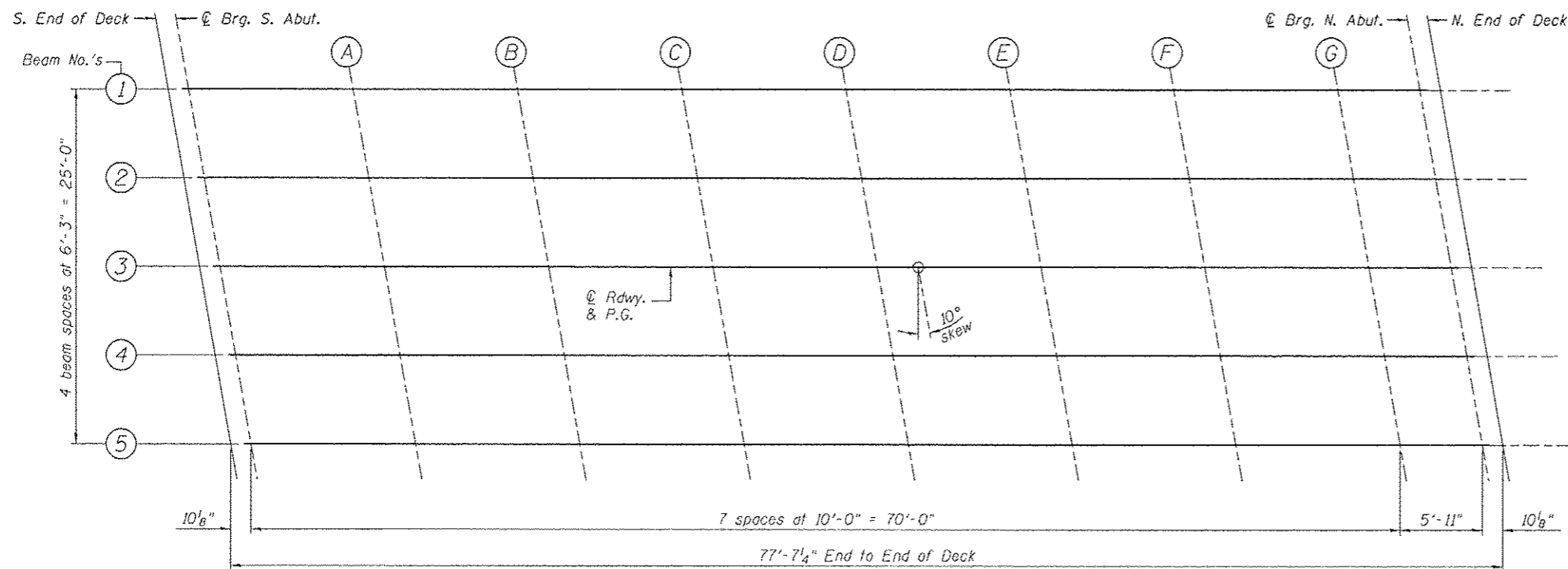
STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19 + 85

RIPRAP AND PILE LAYOUT
STRUCTURE NO. 089-3285

STRUCTURAL SHEET NO. 2 OF 16 SHEETS

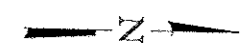
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
78	12-00179-00-BR	STEPHENSON	32	12
WHA# 1365D11		CONTRACT NO. 85578		
ILLINOISIFIED AID PROJECT 085-0078(111)				

FILE : S:\PROJECTS\2011\1365D11_Stephenson_Bolton\SECTION STRUCT\089-3285\1365D11_Riprap and Pile Layout.dwg



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

Note:
The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown below.



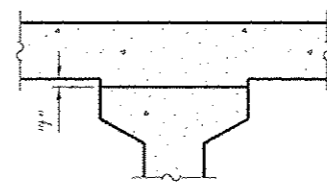
PLAN

BEAM 1

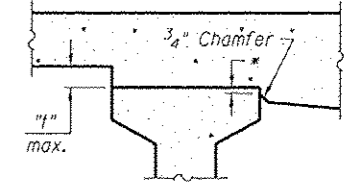
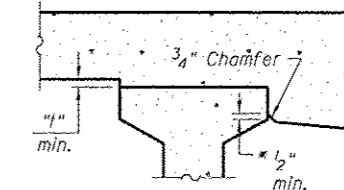
Location	Station	Offset Lt.	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
S. End of Deck	19+43.99	12.50	836.14	836.14
☉ Brg. S. Abut.	19+44.84	12.50	836.14	836.14
A	19+54.84	12.50	836.12	836.17
B	19+64.84	12.50	836.10	836.18
C	19+74.84	12.50	836.08	836.18
D	19+84.84	12.50	836.07	836.17
E	19+94.84	12.50	836.05	836.14
F	20+04.84	12.50	836.03	836.09
G	20+14.84	12.50	836.01	836.03
☉ Brg. N. Abut.	20+20.75	12.50	836.00	836.00
N. End of Deck	20+21.60	12.50	836.00	836.00

BEAM 2

Location	Station	Offset Lt.	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
S. End of Deck	19+45.09	6.25	836.24	836.24
☉ Brg. S. Abut.	19+45.94	6.25	836.24	836.24
A	19+55.94	6.25	836.22	836.26
B	19+65.94	6.25	836.20	836.27
C	19+75.94	6.25	836.18	836.27
D	19+85.94	6.25	836.16	836.26
E	19+95.94	6.25	836.14	836.23
F	20+05.94	6.25	836.13	836.18
G	20+15.94	6.25	836.11	836.13
☉ Brg. N. Abut.	20+21.85	6.25	836.10	836.10
N. End of Deck	20+22.70	6.25	836.09	836.09



INTERIOR BEAMS



EXTERIOR BEAMS

*Variable (not less than 1/2")
At Minimum Fillet At Maximum Fillet

To determine "f": After all beams have been erected, elevations of the top flanges of the beams shall be taken at intervals shown. These elevations subtracted from the "Theoretical Grade Elevations Adjusted For Dead Load Deflection", minus slab thickness, equals the fillet heights "f" above top flange of beams.

FILLET HEIGHTS

BEAM 3

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
S. End of Deck	19+46.20	0.00	836.34	836.34
☉ Brg. S. Abut.	19+47.05	0.00	836.34	836.34
A	19+57.05	0.00	836.32	836.35
B	19+67.05	0.00	836.30	836.37
C	19+77.05	0.00	836.28	836.37
D	19+87.05	0.00	836.26	836.35
E	19+97.05	0.00	836.24	836.32
F	20+07.05	0.00	836.22	836.28
G	20+17.05	0.00	836.20	836.22
☉ Brg. N. Abut.	20+22.95	0.00	836.19	836.19
N. End of Deck	20+23.80	0.00	836.19	836.19

BEAM 4

Location	Station	Offset Rt.	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
S. End of Deck	19+47.30	6.25	836.24	836.24
☉ Brg. S. Abut.	19+48.15	6.25	836.24	836.24
A	19+58.15	6.25	836.22	836.25
B	19+68.15	6.25	836.20	836.27
C	19+78.15	6.25	836.18	836.27
D	19+88.15	6.25	836.16	836.25
E	19+98.15	6.25	836.14	836.22
F	20+08.15	6.25	836.12	836.18
G	20+18.15	6.25	836.10	836.12
☉ Brg. N. Abut.	20+24.06	6.25	836.09	836.09
N. End of Deck	20+24.91	6.25	836.09	836.09

BEAM 5

Location	Station	Offset Rt.	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
S. End of Deck	19+48.40	12.50	836.13	836.13
☉ Brg. S. Abut.	19+49.25	12.50	836.13	836.13
A	19+59.25	12.50	836.11	836.16
B	19+69.25	12.50	836.10	836.17
C	19+79.25	12.50	836.08	836.18
D	19+89.25	12.50	836.06	836.16
E	19+99.25	12.50	836.04	836.13
F	20+09.25	12.50	836.02	836.08
G	20+19.25	12.50	836.00	836.03
☉ Brg. N. Abut.	20+25.16	12.50	835.99	835.99
N. End of Deck	20+26.01	12.50	835.99	835.99



DESIGNED	BRAD KLEINMAIER	REVISED	-
CHECKED	BRIAN CONVERSE	REVISED	-
DRAWN	RON ALLEN	REVISED	-
CHECKED	BRIAN CONVERSE	REVISED	-

STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19 + 85

TOP OF SLAB ELEVATIONS
STRUCTURE NO. 089-3285

STRUCTURAL SHEET NO. 3 OF 16 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
78	12-00179-00-BR	STEPHENSON	32	13
WHA# 1365011		CONTRACT NO. 85578		
ILLINOIS FED. AID PROJECT BR5-0078(111)				

LEFT EDGE OF APPROACH PAVEMENT

Location	Station	Offset Lt.	Theoretical Grade Elevations
A	19+13.55	15.00'	836.15
B	19+23.55	15.00'	836.14
C	19+33.55	15.00'	836.12
D	19+43.55	15.00'	836.10

LEFT EDGE OF TRAFFIC LANE

Location	Station	Offset Lt.	Theoretical Grade Elevations
A	19+14.08	12.00'	836.21
B	19+24.08	12.00'	836.20
C	19+34.08	12.00'	836.18
D	19+44.08	12.00'	836.16

CENTERLINE

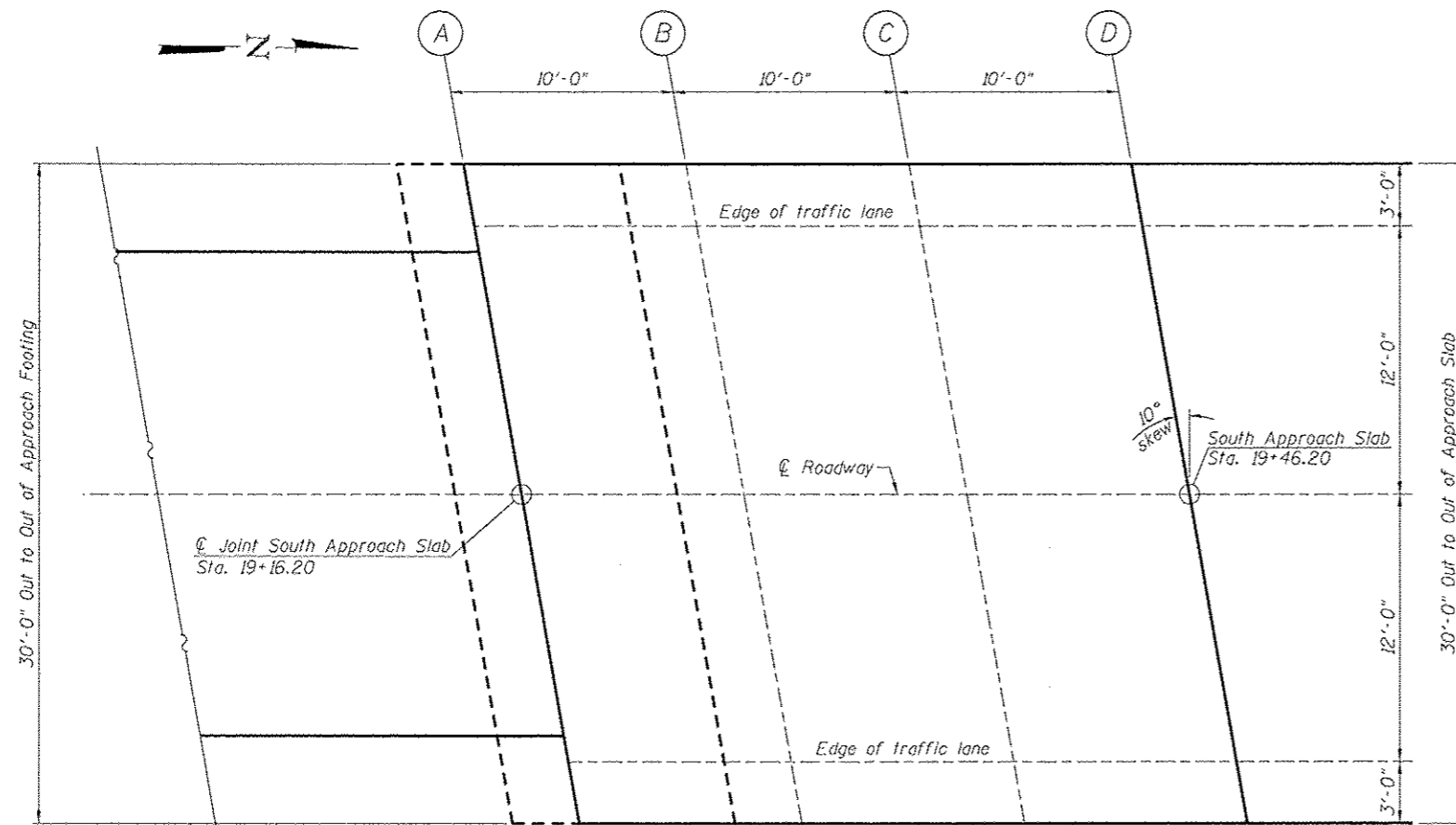
Location	Station	Offset	Theoretical Grade Elevations
A	19+16.20	0.00'	836.40
B	19+26.20	0.00'	836.38
C	19+36.20	0.00'	836.36
D	19+46.20	0.00'	836.34

RIGHT EDGE OF TRAFFIC LANE

Location	Station	Offset Rt.	Theoretical Grade Elevations
A	19+18.31	12.00'	836.21
B	19+28.31	12.00'	836.19
C	19+38.31	12.00'	836.17
D	19+48.31	12.00'	836.15

RIGHT EDGE OF APPROACH PAVEMENT

Location	Station	Offset Rt.	Theoretical Grade Elevations
A	19+18.84	15.00'	836.15
B	19+28.84	15.00'	836.13
C	19+38.84	15.00'	836.11
D	19+48.84	15.00'	836.09



LEFT EDGE OF APPROACH PAVEMENT

Location	Station	Offset Lt.	Theoretical Grade Elevations
A	20+21.16	15.00'	835.95
B	20+31.16	15.00'	835.93
C	20+41.16	15.00'	835.91
D	20+51.16	15.00'	835.89

LEFT EDGE OF TRAFFIC LANE

Location	Station	Offset Lt.	Theoretical Grade Elevations
A	20+21.69	12.00'	836.01
B	20+31.69	12.00'	835.99
C	20+41.69	12.00'	835.97
D	20+51.69	12.00'	835.95

CENTERLINE

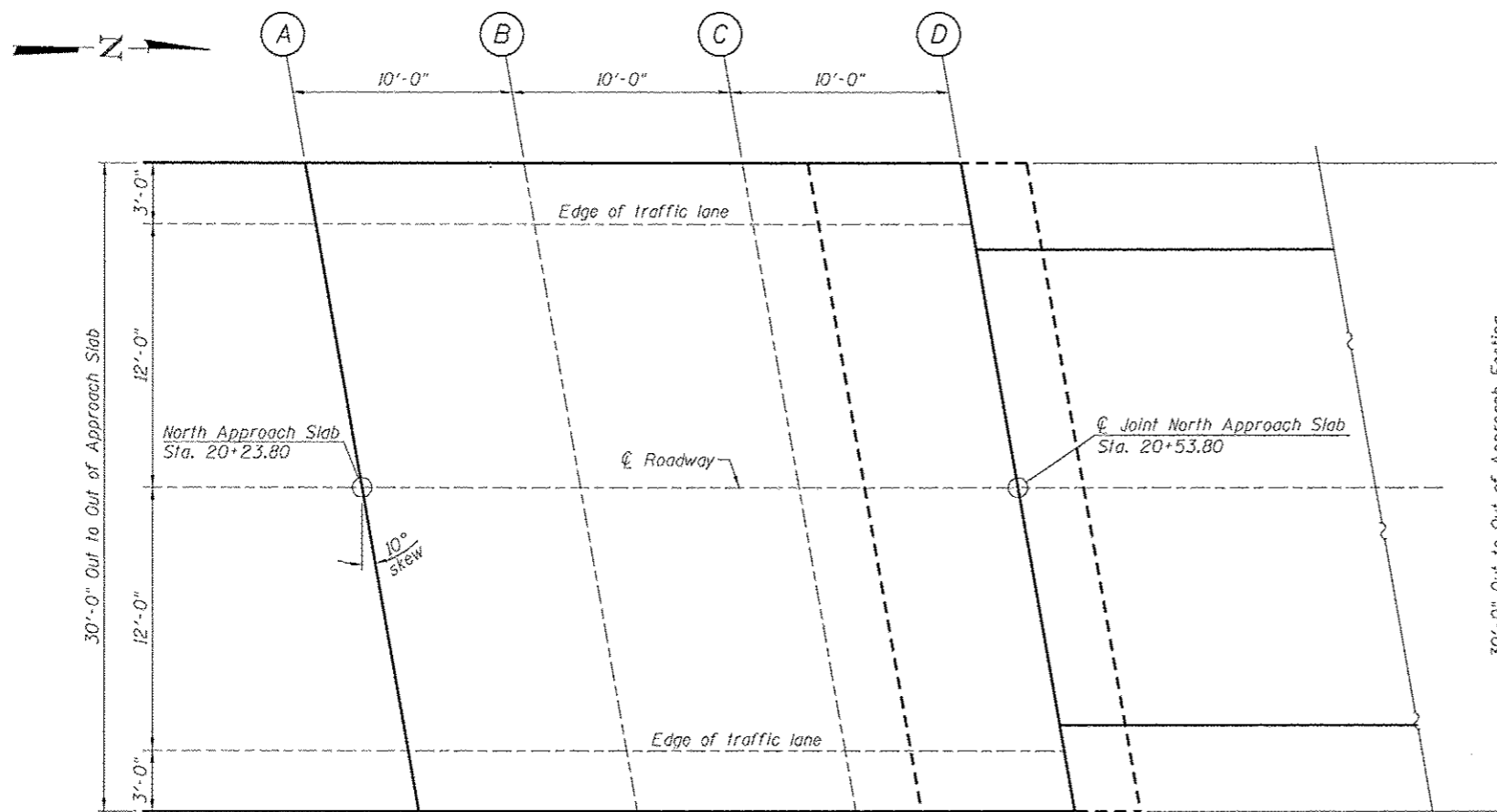
Location	Station	Offset	Theoretical Grade Elevations
A	20+23.80	0.00'	836.19
B	20+33.80	0.00'	836.17
C	20+43.80	0.00'	836.15
D	20+53.80	0.00'	836.13

RIGHT EDGE OF TRAFFIC LANE

Location	Station	Offset Rt.	Theoretical Grade Elevations
A	20+25.92	12.00'	836.00
B	20+35.92	12.00'	835.98
C	20+45.92	12.00'	835.96
D	20+55.92	12.00'	835.94

RIGHT EDGE OF APPROACH PAVEMENT

Location	Station	Offset Rt.	Theoretical Grade Elevations
A	20+26.45	15.00'	835.94
B	20+36.45	15.00'	835.92
C	20+46.45	15.00'	835.90
D	20+56.45	15.00'	835.88



PLAN

FILE: S:\PROJECTS\221N1389011_Stephenson_Bolton\DESIGN\STRUCT\Drawings\1385011_Top of North Approach Slab Elevations.dgn



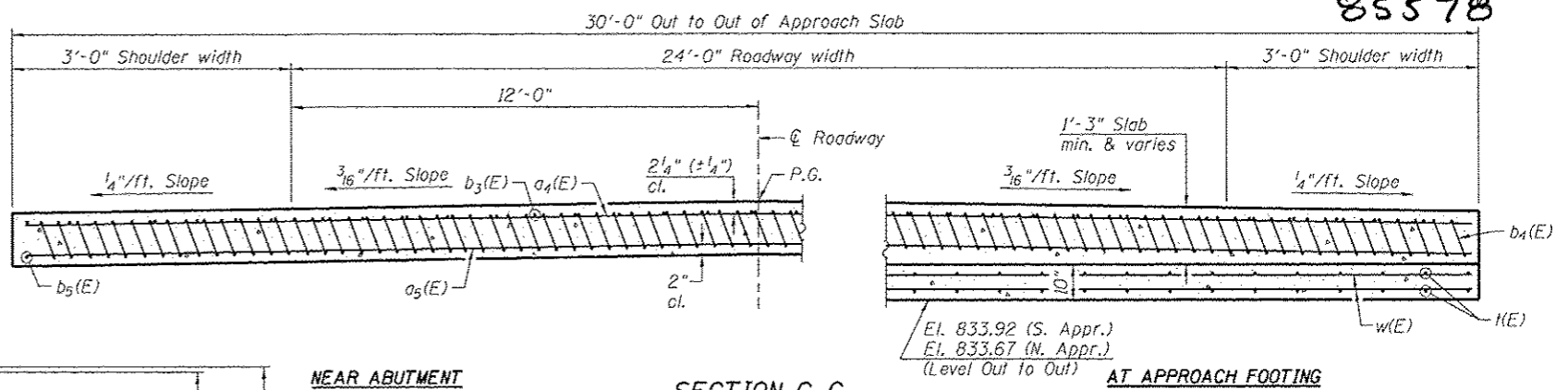
DESIGNED - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19 + 85

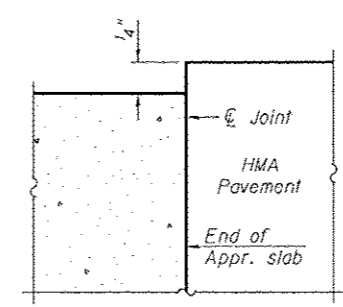
TOP OF NORTH APPROACH SLAB ELEVATIONS
STRUCTURE NO. 089-3285

STRUCTURAL SHEET NO. 5 OF 16 SHEETS

F.A.S. RTE. 78	SECTION 12-00179-00-BR	COUNTY STEPHENSON	TOTAL SHEETS 32	SHEET NO. 15
WHA# 1365D11		CONTRACT NO. 85578		
ILLINOIS FED. AID PROJECT BR5-0078(11)				



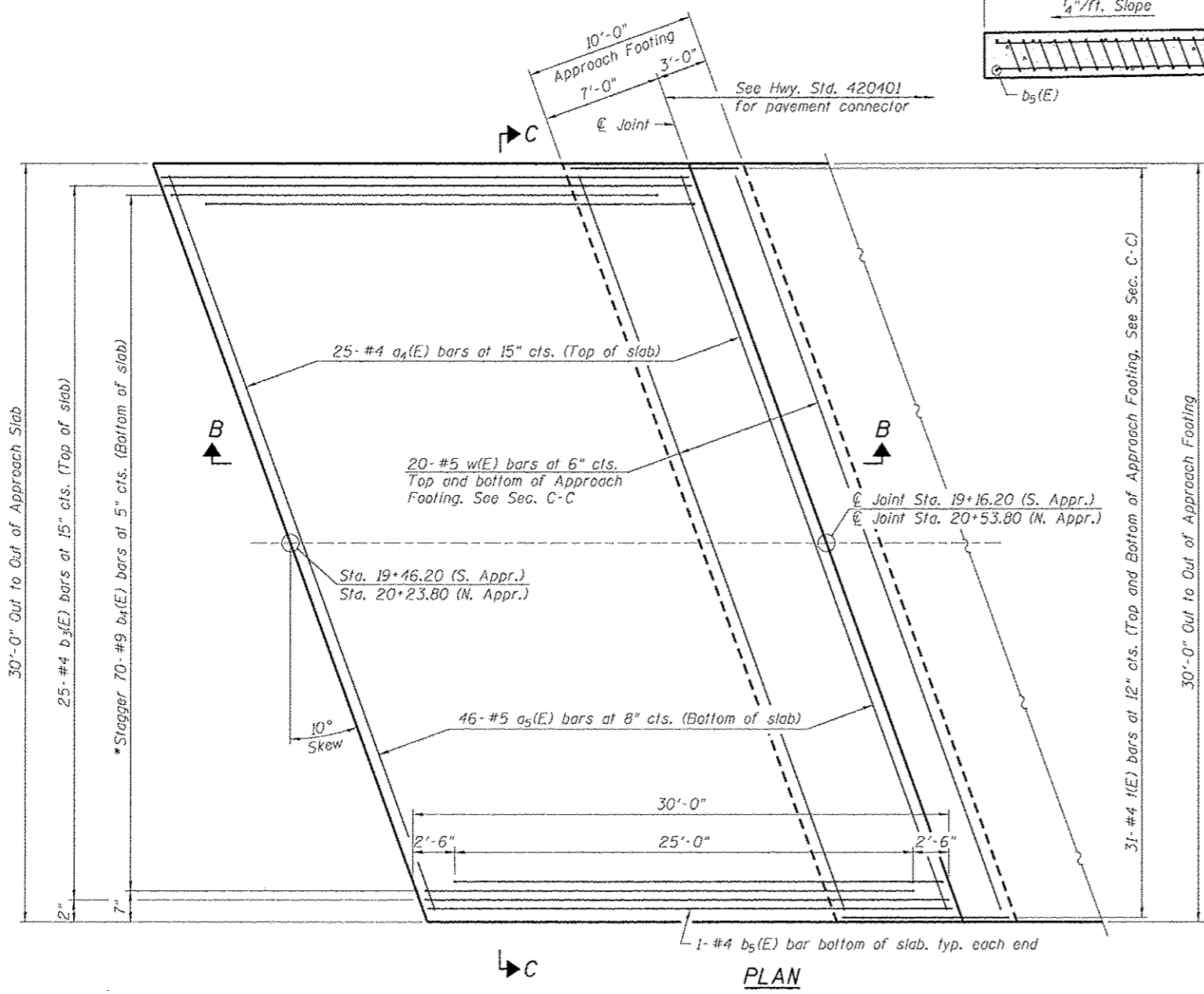
NEAR ABUTMENT



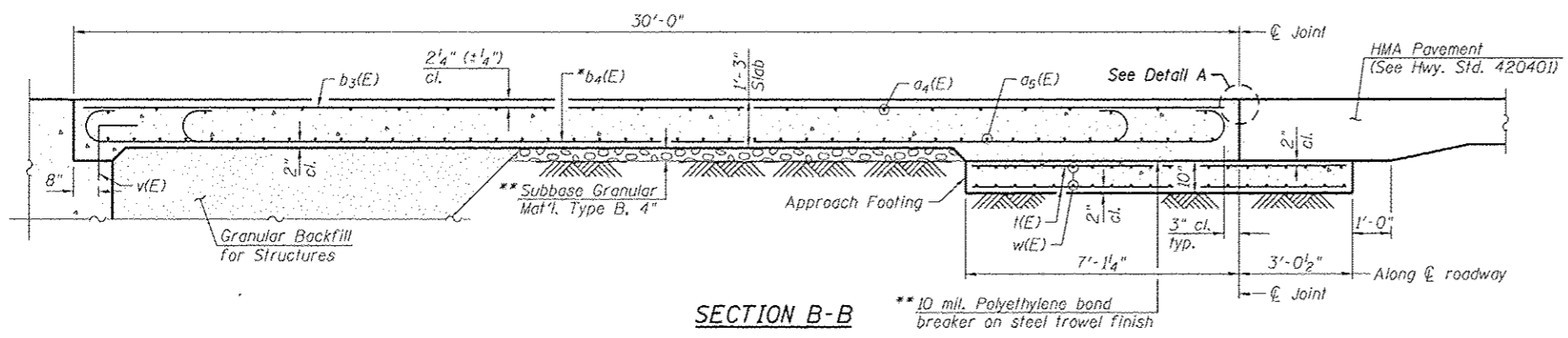
DETAIL A

TWO APPROACHES
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a ₄ (E)	50	#4	30'-1"	—
a ₅ (E)	92	#5	30'-1"	—
b ₃ (E)	50	#4	29'-8"	—
b ₄ (E)	140	#9	29'-9"	—
b ₅ (E)	4	#4	29'-8"	—
*** I(E)	124	#4	9'-10"	—
*** w(E)	80	#5	30'-1"	—
Concrete Structures			Cu. Yd.	18.7
Concrete Superstructure			Cu. Yd.	88.0
Bridge Deck Grooving			Sq. Yd.	186
Protective Coat			Sq. Yd.	200
*** Reinforcement Bars, Epoxy Coated			Pound	22,450



PLAN



SECTION B-B

NOTES:

- a₄(E) and a₅(E) bar spacings measured along \hat{C} Rdwy.
- Tilt #9 b₄(E) bars as required to maintain clearance.
- *** Cost included with Concrete Superstructure.
- *** Reinforcement Bars I(E) and w(E) (total of 3,330 pounds) are part of substructure reinforcement. For breakdown of substructure and superstructure reinforcement see Bill of Materials on Structural Sheet 1 of 16.
- Approach slab concrete shall be paid for as Concrete Superstructure.
- Approach footing concrete shall be paid for as Concrete Structures.
- Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
- For v(E) bar details, see Structural Sheet 8 of 16.
- The approach footing maximum applied service bearing pressure (Q_{max}) = 2.0 ksf.
- Cost of excavation for approach footing included with Concrete Structures.
- For Granular Backfill for Structures and drainage treatment details, see Structural Sheet 2 of 16.

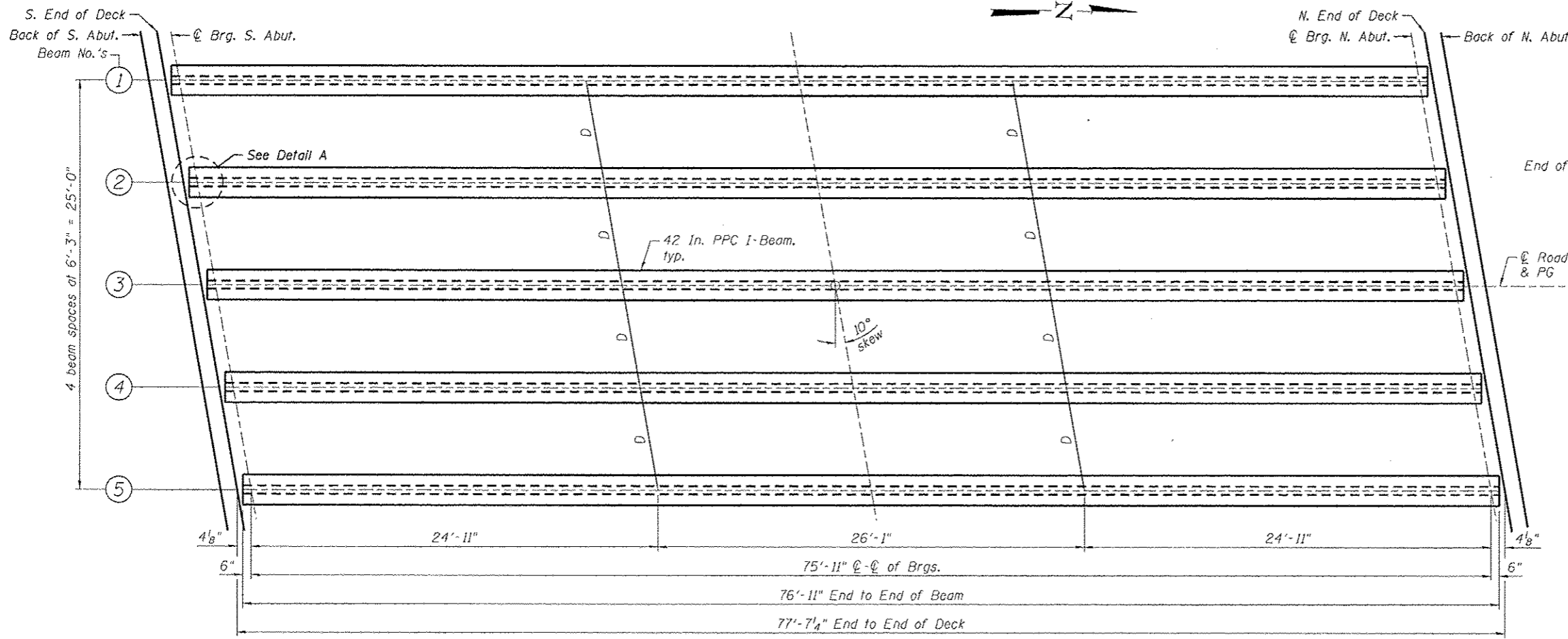
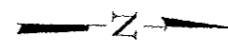


DESIGNED - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

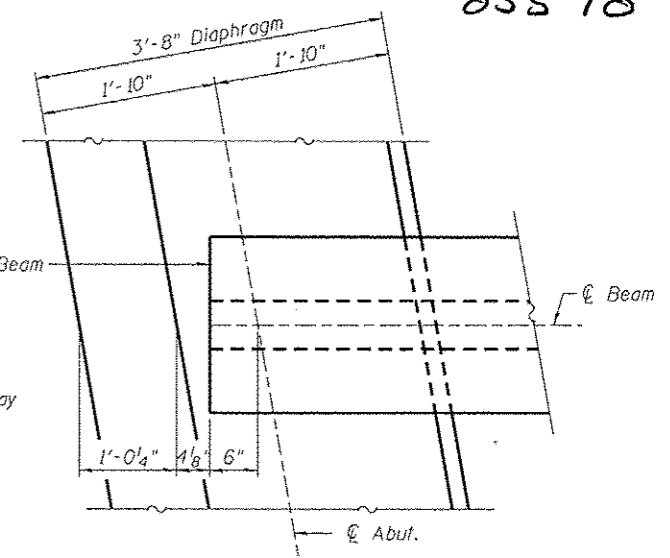
STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19 + 85

SOUTH AND NORTH BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 089-3285
STRUCTURAL SHEET NO. 6 OF 16 SHEETS

F.A.S. RTE. 78	SECTION 12-00179-00-BR	COUNTY STEPHENSON	TOTAL SHEETS 32	SHEET NO. 16
WHA* 1365011		CONTRACT NO. 85578		
ILLINOIS FED. AID PROJECT BRS-0078(111)				



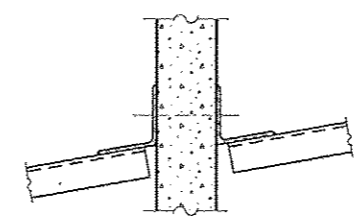
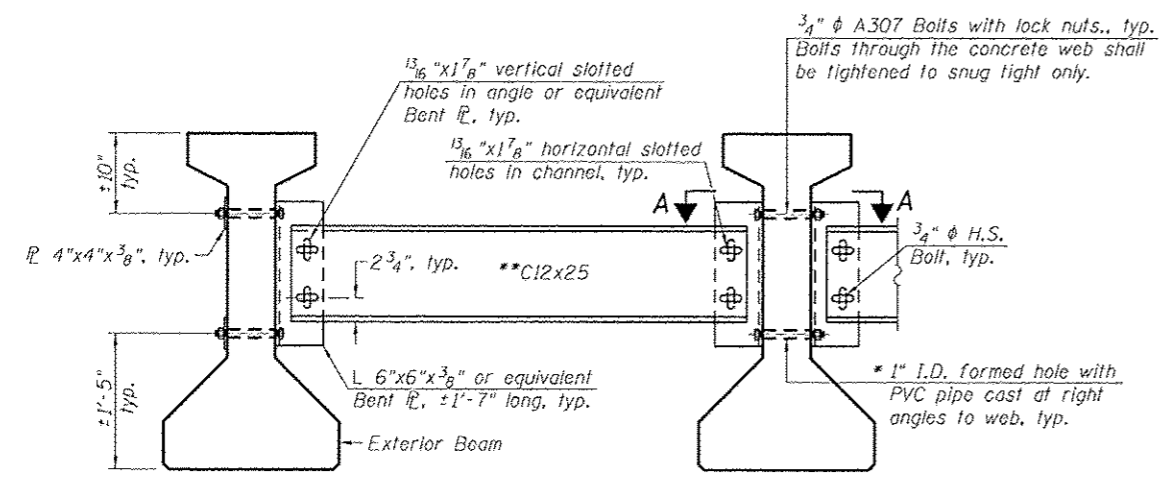
PLAN



DETAIL A

	Interior 0.5 Span	Exterior 0.5 Span
I	(in ⁴) 90,956	90,956
I'	(in ⁴) 271,822	268,270
S _b	(in ³) 5,152.7	5,152.7
S _b '	(in ³) 8,709	8,560
S ₁	(in ³) 3,735.6	3,735.6
S ₁ '	(in ³) 25,192	25,166
DC1	(k/ft) 1.143	1.231
M _{oc1}	(k) 823.4	886.8
DC2	(k/ft) 0.040	0.040
M _{oc2}	(k) 28.8	28.8
DW	(k/ft) 0.300	0.300
M _{DW}	(k) 216.1	216.1
M _k - IM	(k) 1,132.2	1,132.2

	Interior at Abutment	Exterior at Abutment
R _{DC1}	(k) 43.4	46.7
R _{DC2}	(k) 1.5	1.5
R _{DW}	(k) 11.4	11.4
R _k - IM	(k) 77.2	77.2
R _{Total}	(k) 133.5	136.8



SECTION A-A

* Fabricator shall locate to miss strands within permissible tolerances.
 ** Alternate C12x30 channels are permitted to facilitate material acquisition.

PERMANENT BRACING DETAILS

NOTES:
 All material for bracing shall be hot dip galvanized according to AASHTO M111 unless otherwise noted.
 Two hardened washers are required for each set of oversized holes.
 All holes shall be 1/16" φ unless otherwise noted.
 3/16" x 3" x 3" L washers are required over all slotted holes.
 All bolts shall be galvanized according to AASHTO M232.
 Bracing shall be installed as beams are erected and tightened as soon as possible during erection.
 Permanent bracing shall not be paid for separately, but shall be included in the cost of Furnishing and Erecting Precast Prestressed Concrete I-Beams, 42 In.

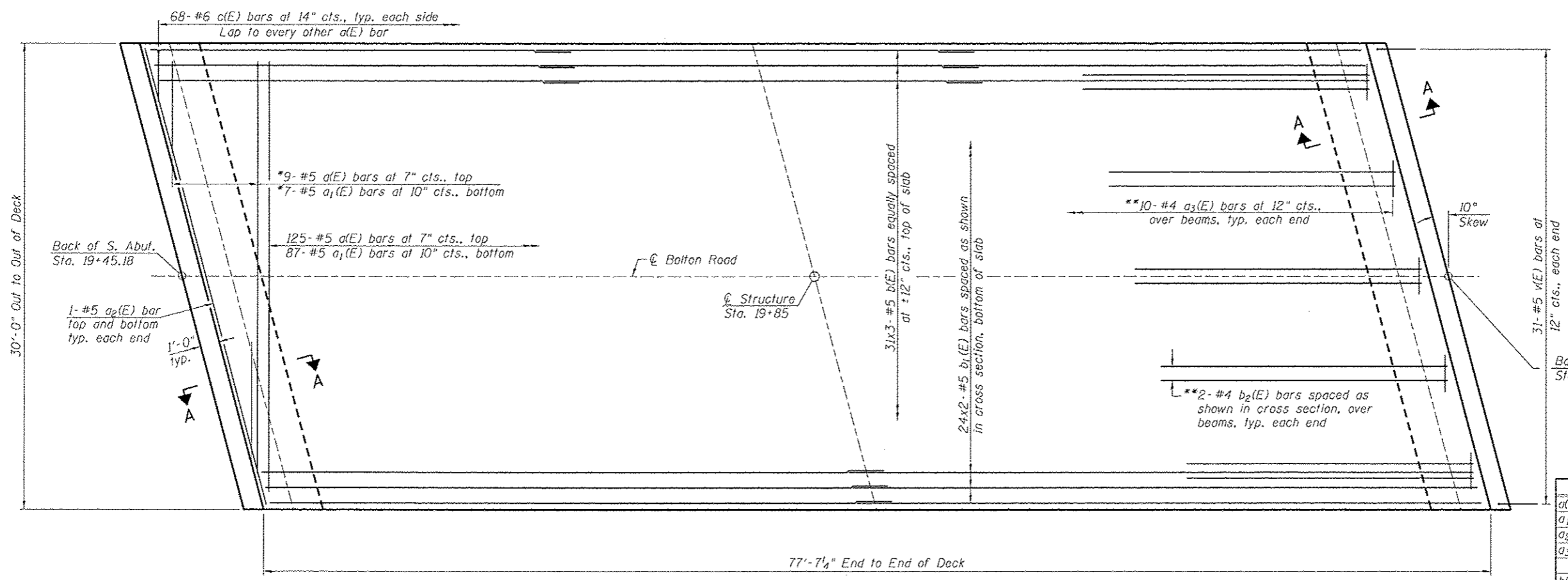
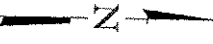


DESIGNED - BRAD KLEINMAIER	REVISED -
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DRAWN - RON ALLEN	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

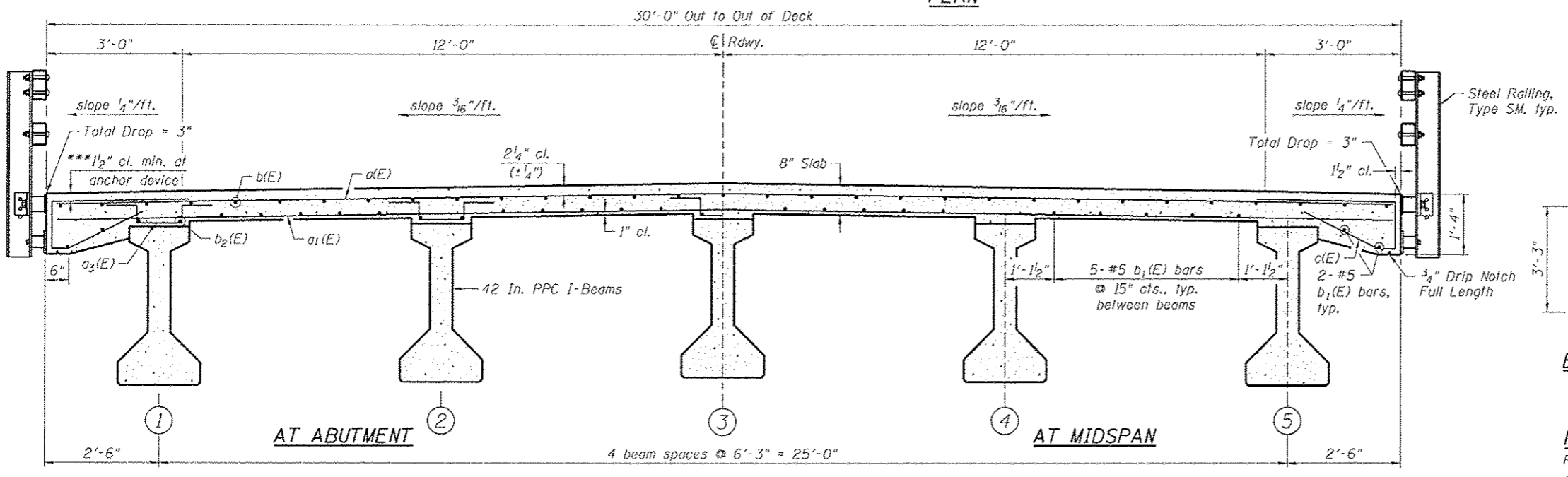
STEPHENSON COUNTY
 F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
 STATION 19 + 85

FRAMING PLAN
 STRUCTURE NO. 089-3285
 STRUCTURAL SHEET NO. 7 OF 16 SHEETS

F.A.S. RTE. 78	SECTION 12-00179-00-8R	COUNTY STEPHENSON	TOTAL SHEETS 32	SHEET NO. 17
WHA# 1365011			CONTRACT NO. 85578	
ILLINOIS FED. AID PROJECT BRS-0078(11)				



PLAN



CROSS SECTION
(Looking North)

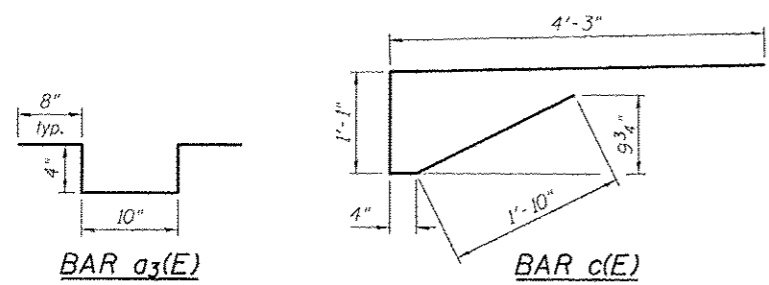
**SUPERSTRUCTURE
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a(E)	134	#5	29'-8"	—
a ₁ (E)	94	#5	29'-8"	—
a ₂ (E)	4	#5	30'-1"	—
a ₃ (E)	100	#4	2'-10"	⊏
b(E)	93	#5	27'-11"	—
b ₁ (E)	48	#5	40'-4"	—
b ₂ (E)	20	#4	10'-0"	—
c(E)	136	#6	7'-6"	⊏
m(E)	10	#6	30'-1"	—
m ₁ (E)	24	#6	5'-0"	—
m ₂ (E)	12	#6	1'-8"	—
m ₃ (E)	8	#6	4'-1"	—
m ₄ (E)	4	#6	1'-3"	—
m ₅ (E)	20	#5	4'-0"	—
s(E)	48	#5	9'-5"	⊏
s ₁ (E)	48	#5	11'-6"	⊏
u(E)	16	#6	5'-10"	⊏
v(E)	62	#5	3'-1"	⊏
Concrete Superstructure		Cu. Yd.	91.9	
Bridge Deck Grooving		Sq. Yd.	241	
Protective Coat		Sq. Yd.	259	
Reinforcement Bars, Epoxy Coated		Pound	15,960	

BAR u(E)

NOTES:

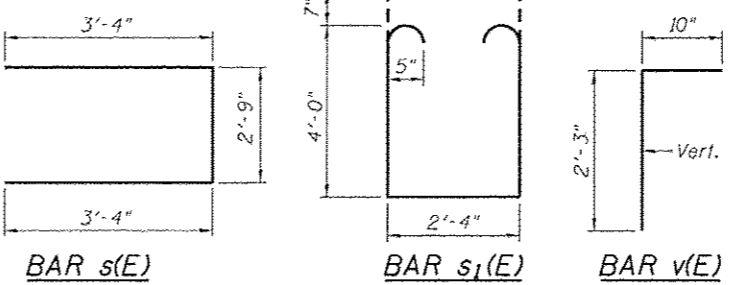
- For Section A-A and Diaphragm Details, see Structural Sheet 9 of 16. See Structural Sheet 14 of 16 for Steel Railing Details.
- Bars indicated thus 31x3-#5 etc. indicates 31 lines of bars with 3 lengths per line.
- * Order a(E) and a₁(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.
- ** Required where fillet exceeds 2 1/2", exact number of a₃(E) bars & length of b₂(E) bars to be determined during construction.
- *** Reinforcement bars in the top of the deck may be placed with a 1 1/2" min. cl. in the area of the rail post anchor devices. The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.



BAR a₃(E)

BAR c(E)

BAR	LAP
#4	2'-7"
#5	3'-3"
#6	3'-10"



BAR s(E)

BAR s₁(E)

BAR v(E)



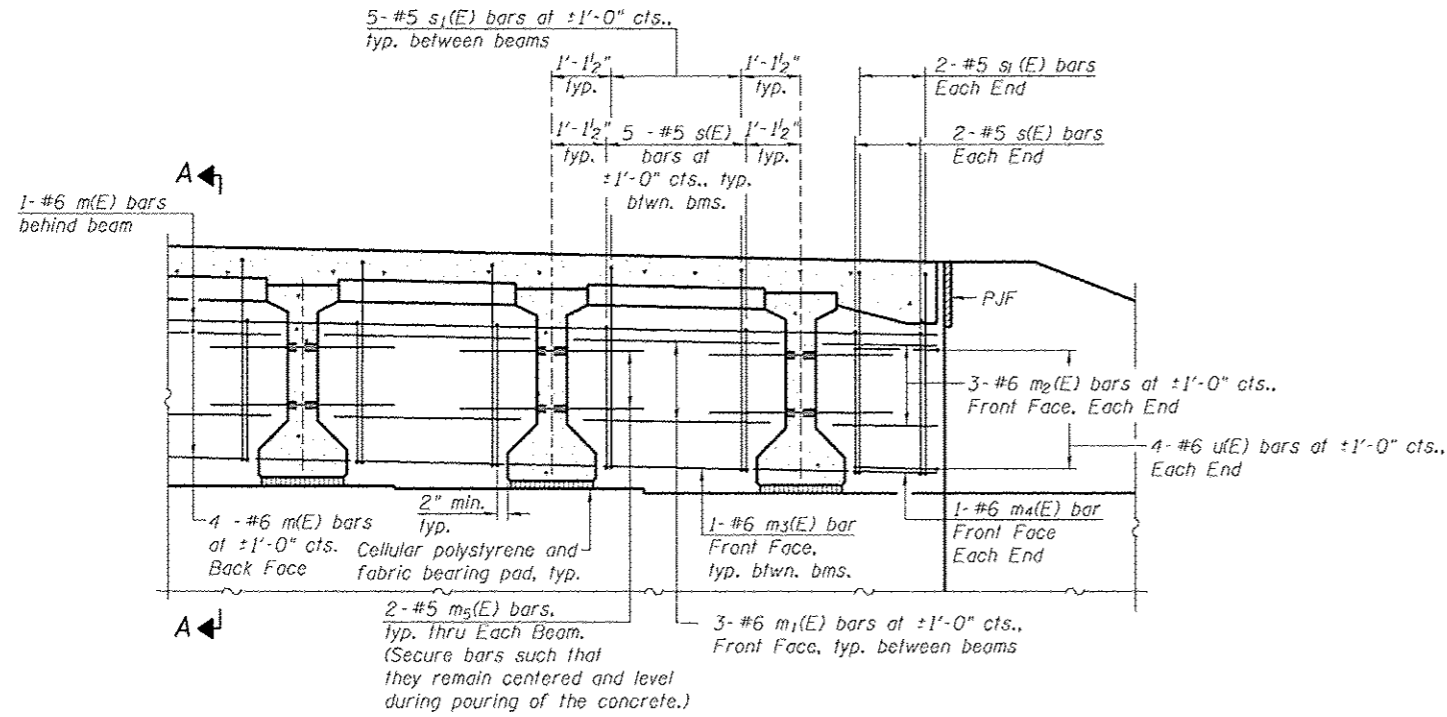
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CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19+85

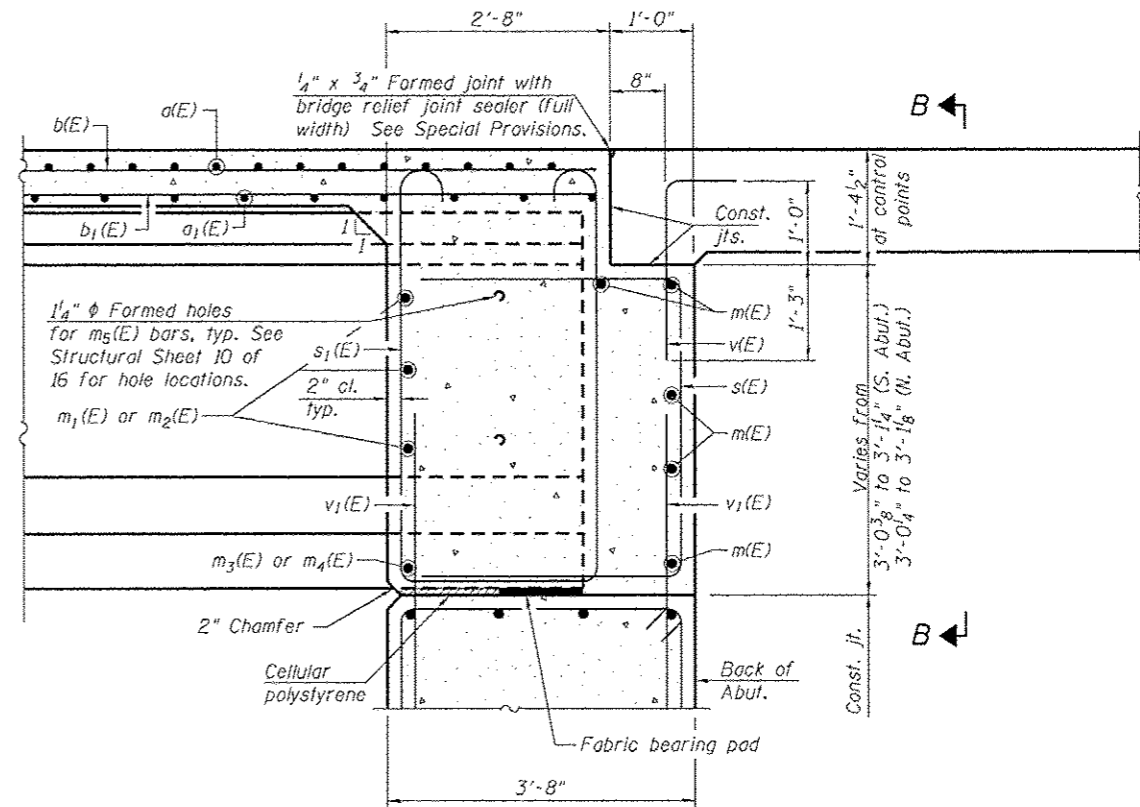
SUPERSTRUCTURE DETAILS
STRUCTURE NO. 089-3285

STRUCTURAL SHEET NO. 8 OF 16 SHEETS

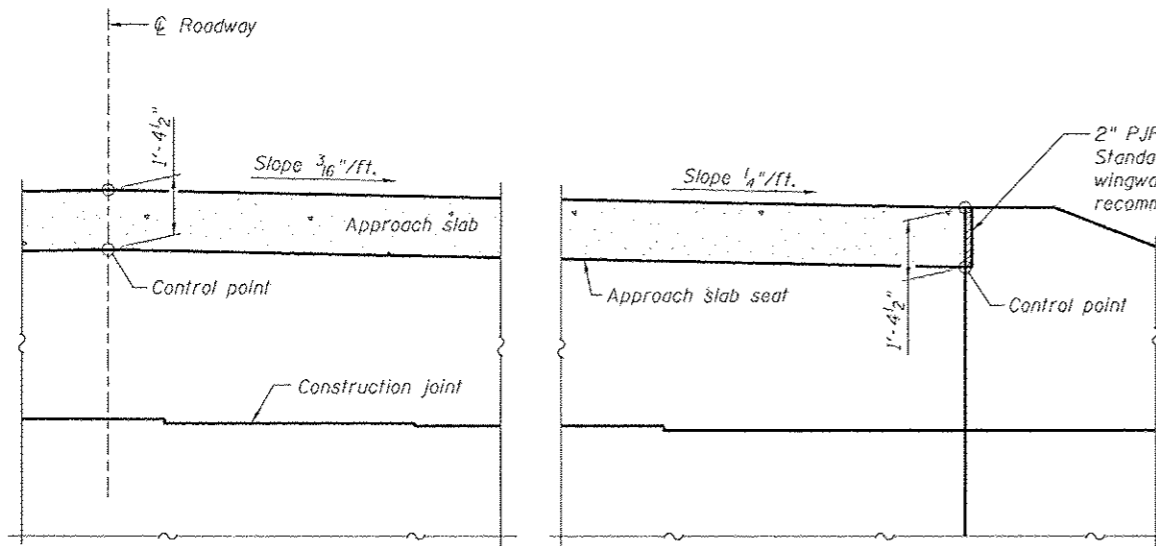
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
78	12-00179-00-BR	STEPHENSON	32	18
WHA# 1365D11		CONTRACT NO. 85578		



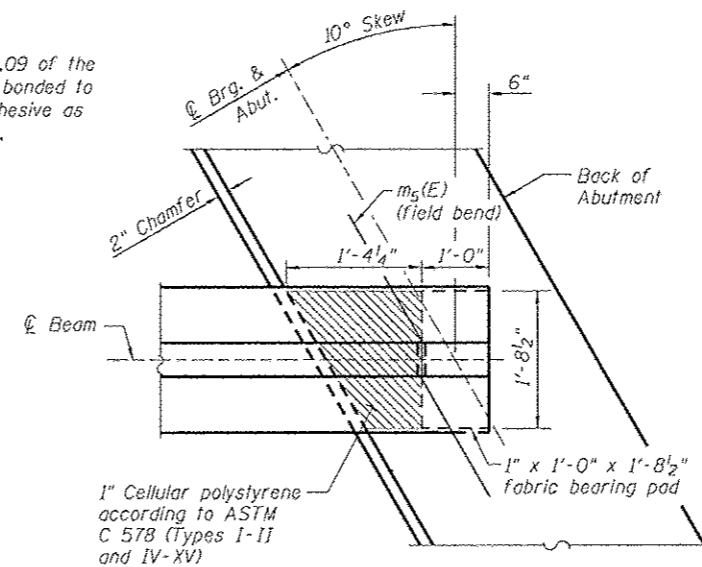
DIAPHRAGM ELEVATION AT ABUTMENT



SECTION A-A
(at Rt. L's)



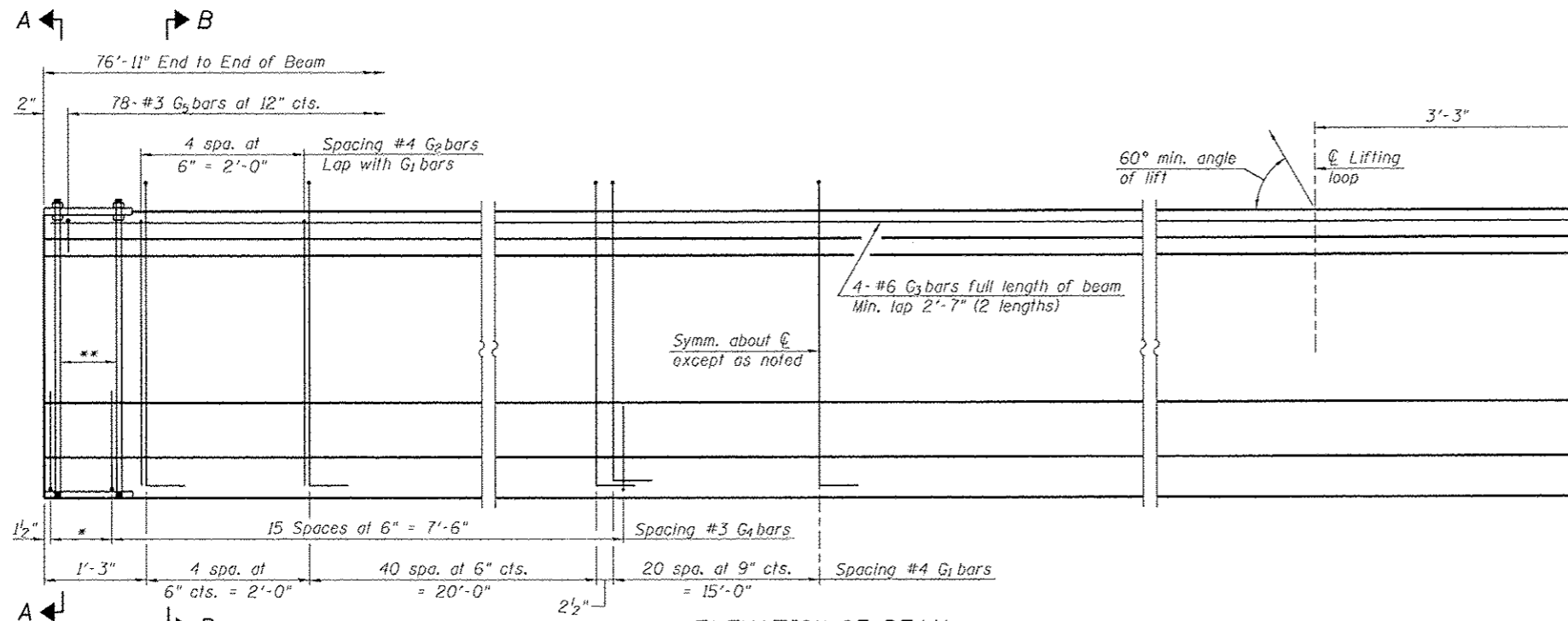
SECTION B-B



PARTIAL PLAN AT ABUTMENT
(Showing bottom flange of beam)

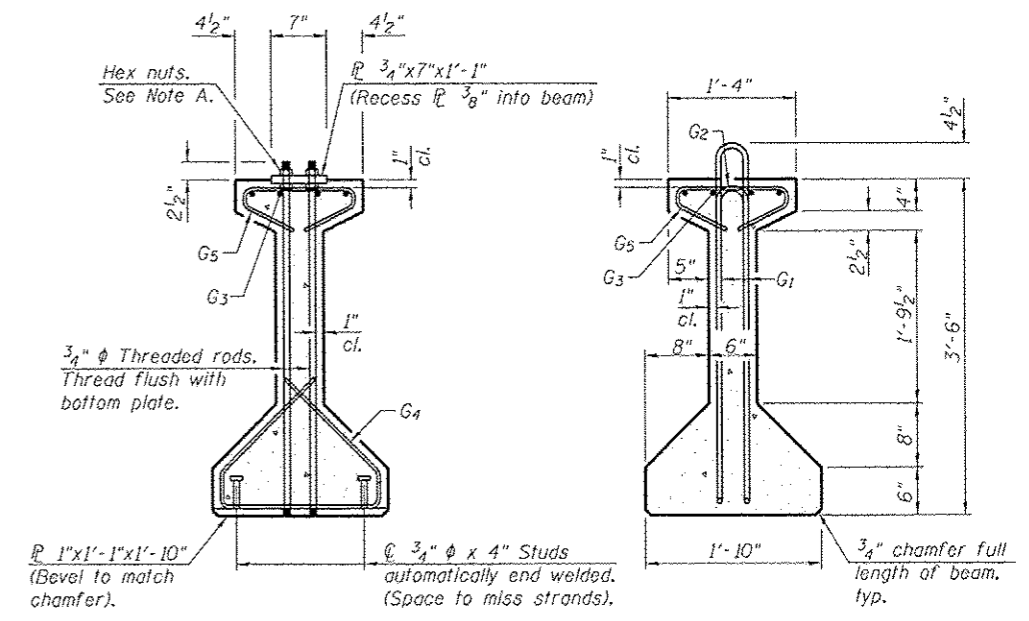
NOTES:

- Reinforcement bars in diaphragm are billed with superstructure on Structural Sheet 8 of 16.
- Concrete in diaphragm is included with Concrete Superstructure on Structural Sheet 8 of 16.
- For details of bars s(E), s1(E), u(E), and v(E) see Structural Sheet 8 of 16.
- The s(E) and s1(E) bars shall be placed parallel to the beams. Spacing for these bars shall be at right angles to the beams.
- The approach slab seat shall have a constant slope determined from the control points shown.
- Cost of cellular polystyrene is included with Concrete Superstructure.



ELEVATION OF BEAM
(Showing reinforcement & dimensions)

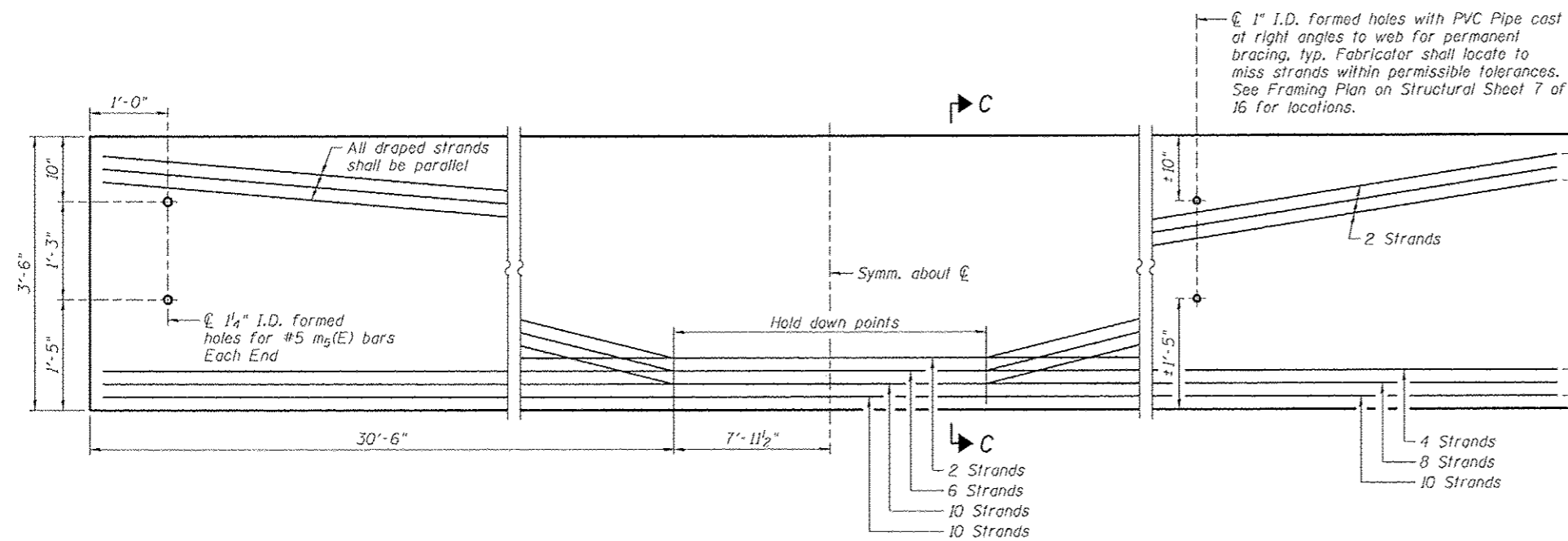
* 3 spaces at 3" = 9"
** 4- 3/4" ϕ threaded dowel rods at 3" cts., Each Face



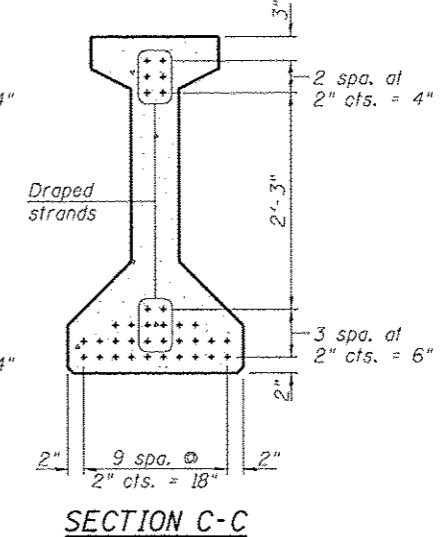
SECTION A-A

SECTION B-B

NOTE A:
Hex nuts (top and bottom) with lock washers (top). Only tighten sufficiently to compress lock washers.



ELEVATION OF BEAM
(Showing prestressing steel)



SECTION C-C

*****BAR LIST
ONE BEAM ONLY**

Bar	No.	Size	Length	Shape
G ₁	131	#4	8'-5"	U
G ₂	10	#4	6'-8"	U
G ₃	8	#6	39'-7"	—
G ₄	38	#3	4'-11"	U
G ₅	78	#3	2'-6"	U

*** For information only

NOTES:
See Structural Sheet 11 of 16 for additional details and Bill of Material.
Required release strength, f'_{ci}, shall be 6,000 psi.

WILLET HOFMANN ASSOCIATES INC.
ENGINEERING ARCHITECTURE LAND SURVEYING
209 EAST JND STREET, DISCO, IL 61021-0367
T. 815-254-3381 DESIGN FIRM: #184-000978

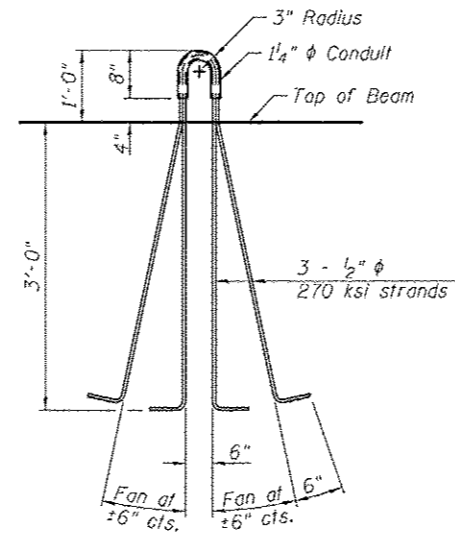
DESIGNED - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19 + 85

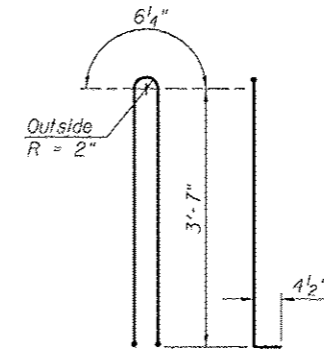
42" PPC I-BEAM
STRUCTURE NO. 089-3285
STRUCTURAL SHEET NO. 10 OF 16 SHEETS

F.A.S. RTE. 78	SECTION 12-00179-00-BR	COUNTY STEPHENSON	TOTAL SHEETS 32	SHEET NO. 20
WHA# 1365D11		CONTRACT NO. 85578		
ILLINOISIFIED, AID PROJECT BR5-00TR111				

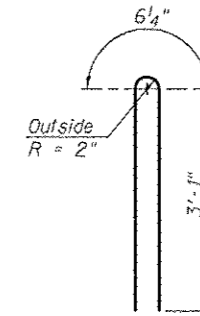
FILE: S:\PROJECTS\2811\365D11\STEPHENSON_BOLTON\DESIGN\STRUCT\DRWG\1286201.dwg in: PPC I-Beam.dgn



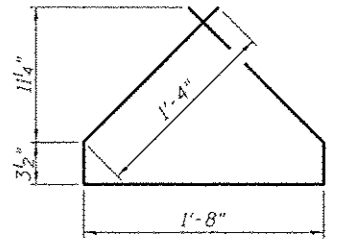
LIFTING LOOP DETAIL



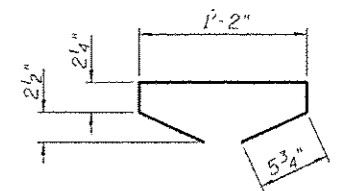
BAR G1



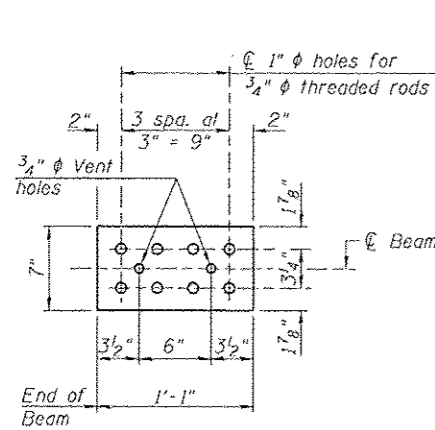
BAR G2



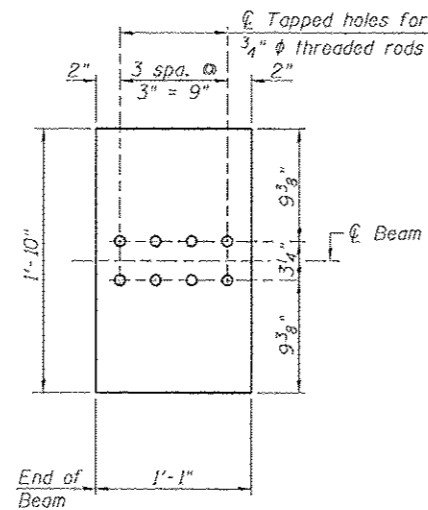
BAR G4



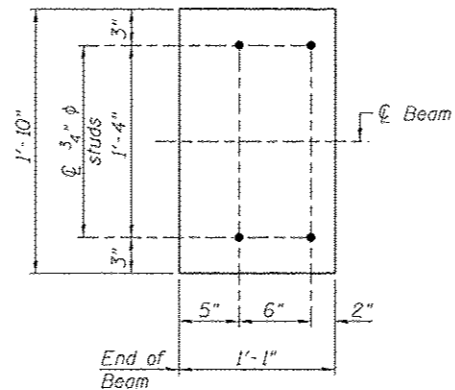
BAR G5



TOP PLATE



BOTTOM PLATE
(Showing threaded rods)



BOTTOM PLATE
(Showing studs)

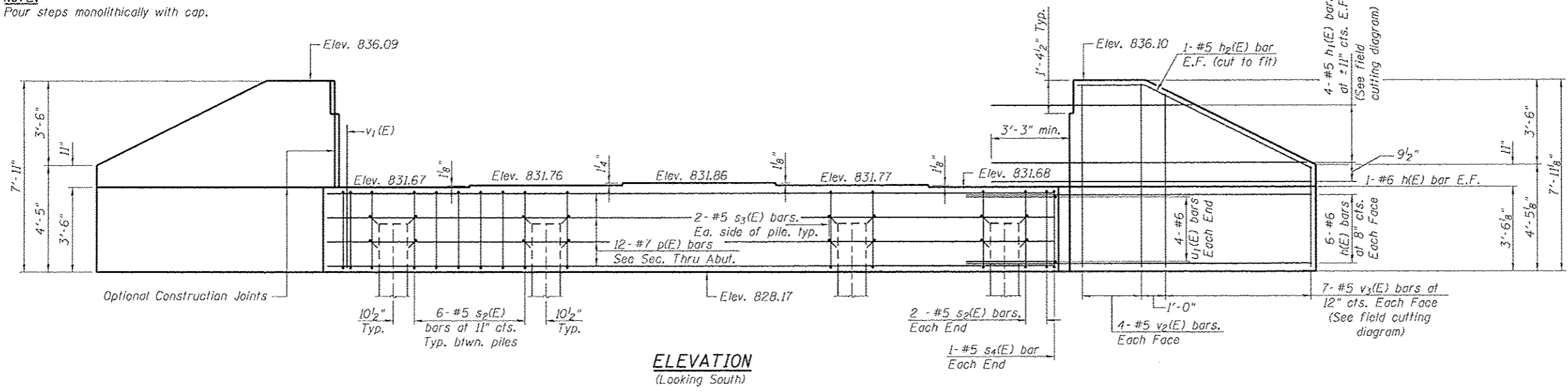
BILL OF MATERIAL

Item	Unit	Total
Furnishing and Erecting Precast Prestressed Concrete I-Beams, 42 In.	Foot	385

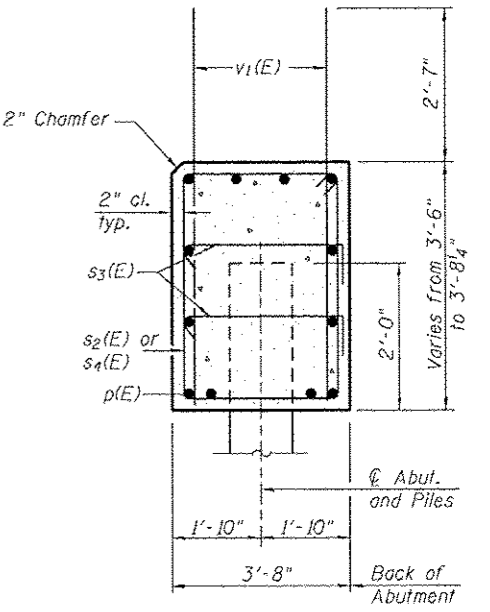
NOTES:

- Inserts for 3/4" ϕ threaded dowel rods, when specified, are to be two strut, ferrule type for interior beams and single ferrule, flared loop type for exterior beams.
- 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.
- Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions)
- A minimum 2 1/2" ϕ lifting pin shall be used to engage the lifting loops during handling.
- The top and bottom \bar{r} 's shall be AASHTO M270 Grade 50.
- The bottom \bar{r} 's and studs shall be galvanized according to AASHTO M111. Top \bar{r} 's and threaded rods need not be galvanized.
- Threaded rods shall be ASTM F 1554 Grade 55.

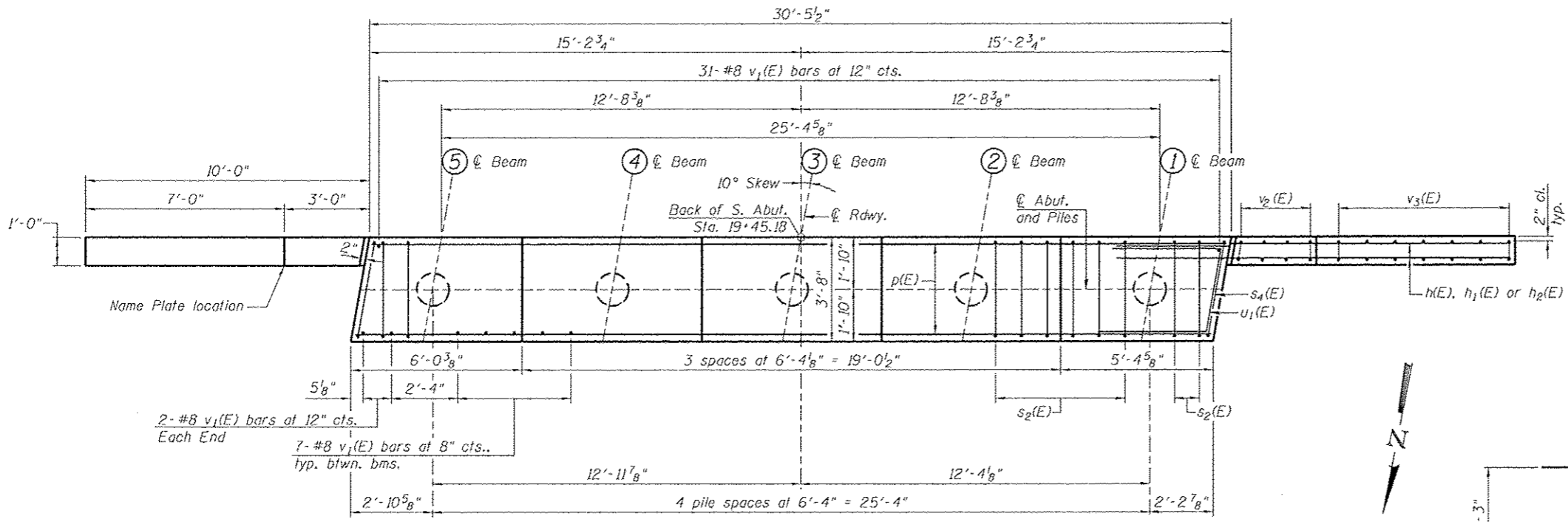
NOTE:
Pour steps monolithically with cap.



ELEVATION
(Looking South)



SEC. THRU ABUT.
Dimensions at right angles to abutment.



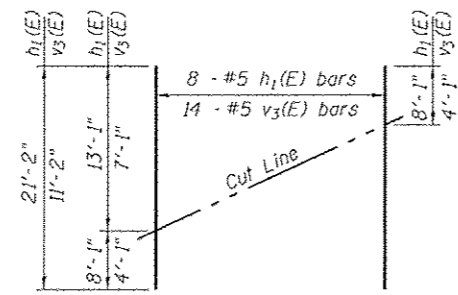
PLAN

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	28	#6	13'-10"	—
h1(E)	8	#5	21'-2"	—
h2(E)	4	#5	10'-5"	—
p(E)	12	#7	30'-1"	—
s2(E)	28	#5	13'-11"	□
s3(E)	20	#5	4'-4"	□
s4(E)	2	#5	14'-1"	□
u1(E)	8	#6	11'-0"	—
v1(E)	63	#8	5'-11"	—
v2(E)	16	#5	7'-7"	—
v3(E)	14	#5	11'-2"	—
Structure Excavation		Cu. Yd.	148	
Concrete Structures		Cu. Yd.	17.8	
Reinforcement Bars, Epoxy Coated		Pound	3,490	
Furnishing Metal Shell Piles 14" x 0.250"		Foot	192	
Driving Piles		Foot	192	
Test Pile Metal Shells		Each	1	
Pile Shoes		Each	5	
Geocomposite Wall Drain		Sq. Yd.	33	
Pipe Underdrains for Structures, 4"		Foot	70	
Granular Backfill for Structures		Cu. Yd.	63	

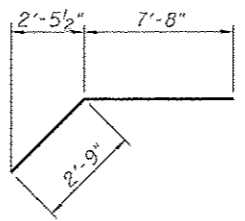
For drainage details see Structural Sheet 2 of 16.
For details of piles see Structural Sheet 15 of 16.

PILE DATA
Type: Metal Shell 14" φ x 0.250" Walls w/Pile Shoes
Nominal Required Bearing: 390 Kips
Factored Resistance Available: 215 Kips
Est. Length: 48'
No. Production Piles: 4
No. Test Piles: 1
Piles must be driven through a ±2.5' layer of dense limestone fragments ±6.5' below bottom of cap.

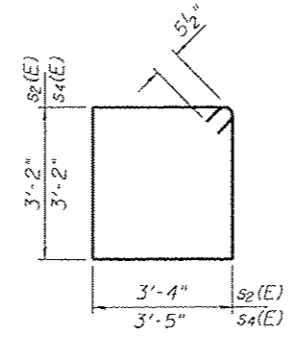


FIELD CUTTING DIAGRAM

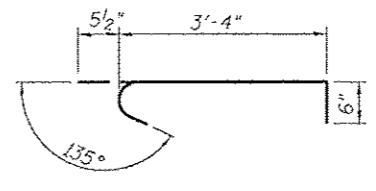
Order h1(E) and v3(E) full length. Cut as shown and use remainder of bars in opposite face.



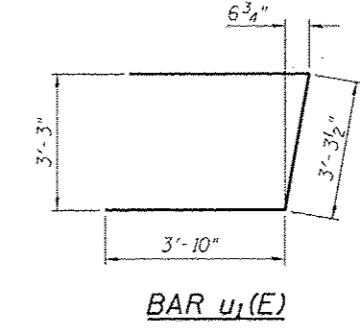
BAR h2(E)



BAR s2(E) & s4(E)



BAR s3(E)



BAR u1(E)



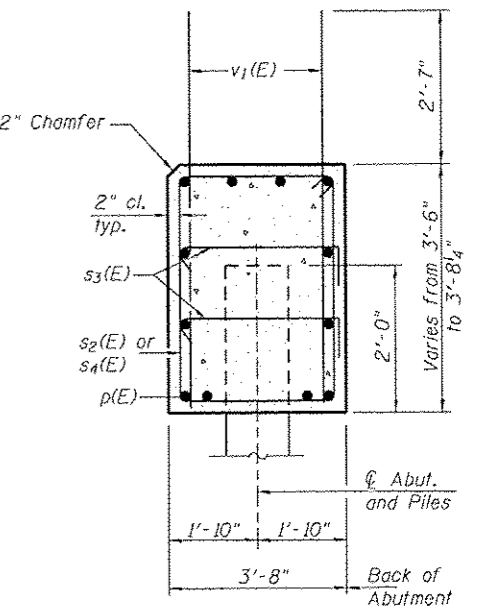
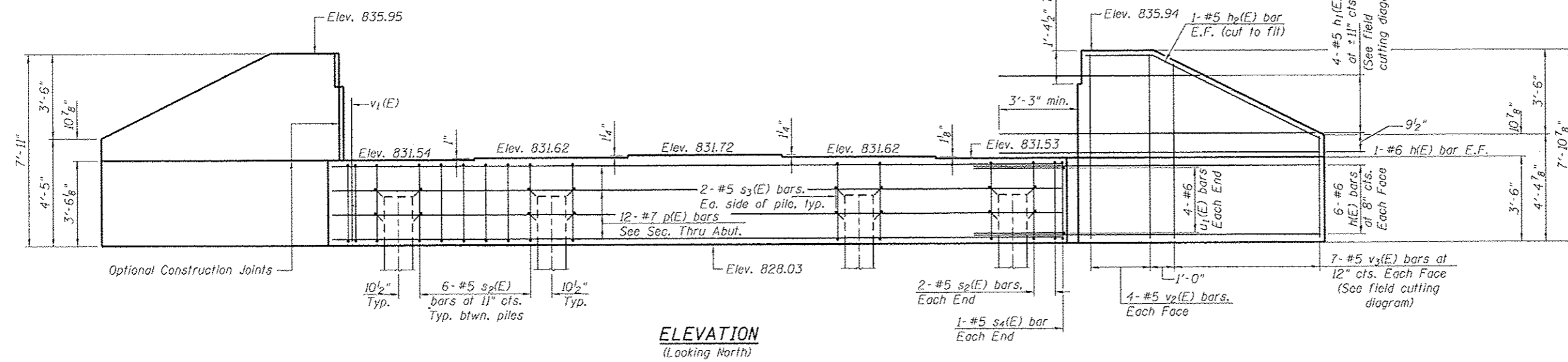
DESIGNED - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19 + 85

SOUTH ABUTMENT DETAILS
STRUCTURE NO. 089-3285
STRUCTURAL SHEET NO. 12 OF 16 SHEETS

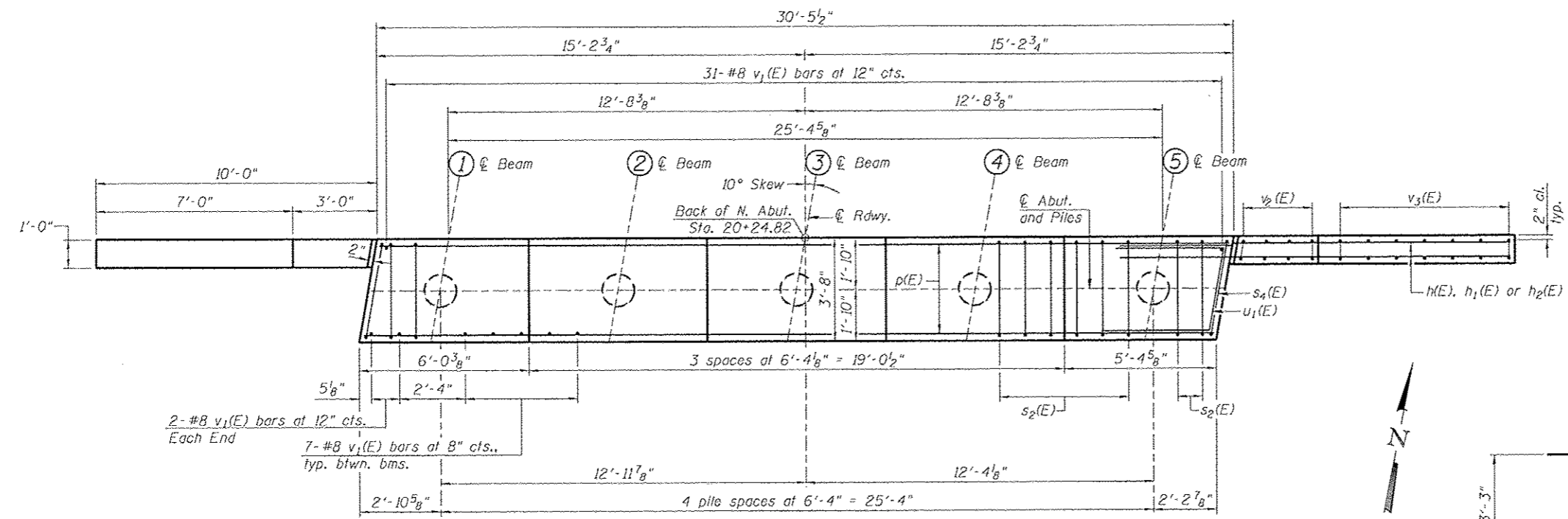
F.A.S. RTE. 78	SECTION 12-00179-00-BR	COUNTY STEPHENSON	TOTAL SHEETS 32	SHEET NO. 22
WHA* 1365011		CONTRACT NO. 85578		
ILLINOISIFIED, AID PROJECT BRS-00780111				

NOTE:
Pour steps monolithically with cap.



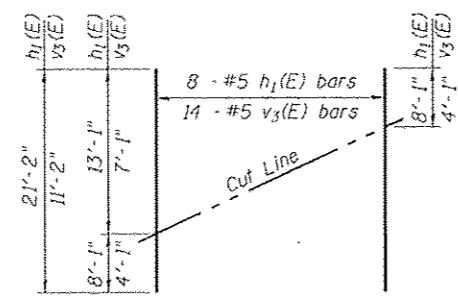
SEC. THRU ABUT.
Dimensions at right angles to abutment.

ELEVATION
(Looking North)



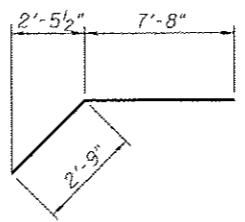
PLAN

PILE DATA
Type: Metal Shell 14" ϕ x 0.250" Walls
Nominal Required Bearing: 390 Kips
Factored Resistance Available: 215 Kips
Est. Length: 55'
No. Production Piles: 4
No. Test Piles: 1

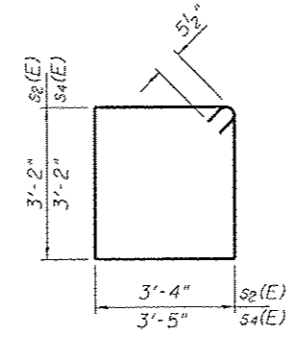


FIELD CUTTING DIAGRAM

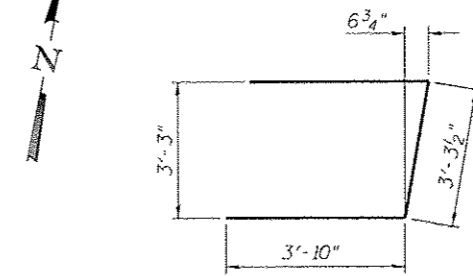
Order h1(E) and v3(E) full length. Cut as shown and use remainder of bars in opposite face.



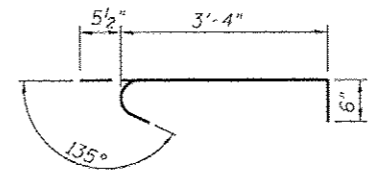
BAR h2(E)



BAR s2(E) & s4(E)



BAR u1(E)



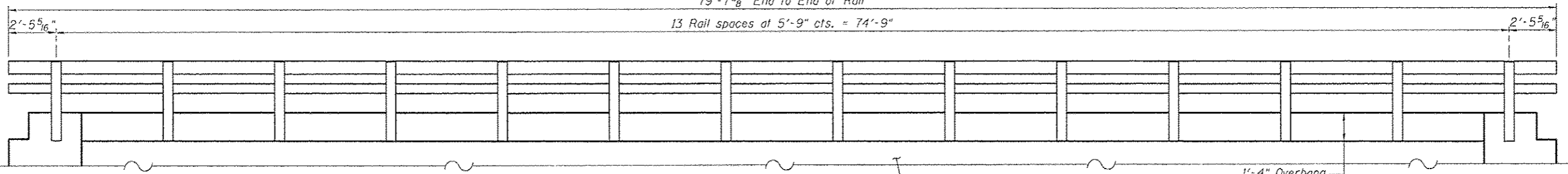
BAR s3(E)

BILL OF MATERIAL

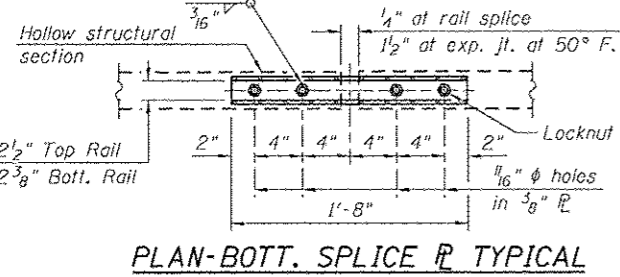
Bar	No.	Size	Length	Shape
h(E)	28	#6	13'-10"	—
h1(E)	8	#5	21'-2"	—
h2(E)	4	#5	10'-5"	—
p(E)	12	#7	30'-1"	—
s2(E)	28	#5	13'-11"	□
s3(E)	20	#5	4'-4"	□
s4(E)	2	#5	14'-1"	□
u1(E)	8	#6	11'-0"	—
v1(E)	63	#8	5'-11"	—
v2(E)	16	#5	7'-7"	—
v3(E)	14	#5	11'-2"	—
Structure Excavation		Cu. Yd.	70	
Concrete Structures		Cu. Yd.	17.8	
Reinforcement Bars, Epoxy Coated		Pound	3,490	
Furnishing Metal Shell Piles 14" x 0.250"		Foot	220	
Driving Piles		Foot	220	
Test Pile Metal Shells		Each	1	
Geocomposite Wall Drain		Sq. Yd.	33	
Pipe Underdrains for Structures, 4"		Foot	70	
Granular Backfill for Structures		Cu. Yd.	61	

For drainage details see Structural Sheet 2 of 16.
For details of piles see Structural Sheet 15 of 16.

79'-7⁵/₈" End to End of Rail
13 Rail spaces at 5'-9" cts. = 74'-9"

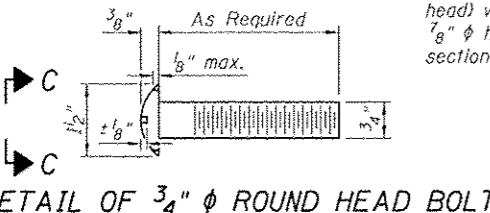


ELEVATION VIEW

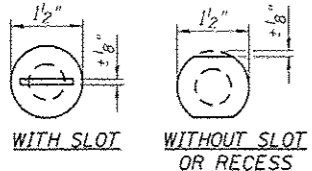


PLAN-BOTT. SPLICE R TYPICAL

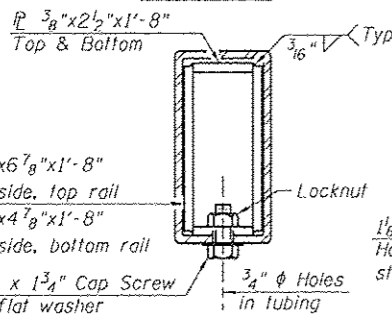
4- 3/4" φ x 6" Round Head Bolts (With slot or approved recess in head) with locknut & flat washer. 7/8" φ holes in hollow structural section may be drilled in the field.



DETAIL OF 3/4" φ ROUND HEAD BOLT

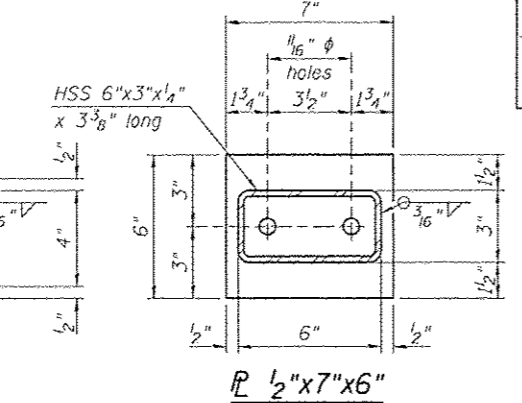


VIEW C-C

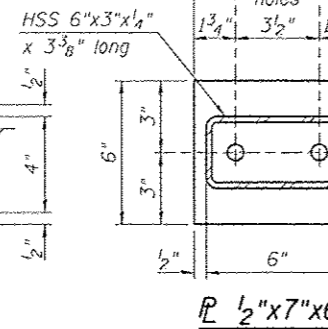


SECTION AT RAIL SPLICE

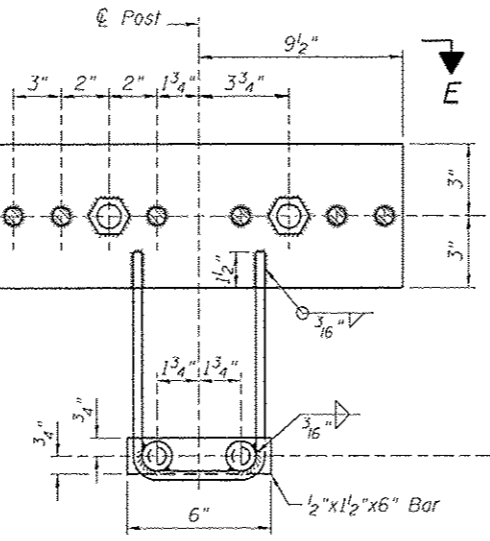
RAIL SPLICE CONNECTION AT EXPANSION JT.



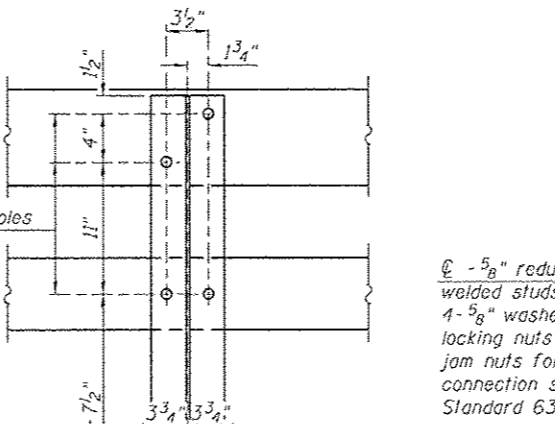
SECTION AT RAIL POST



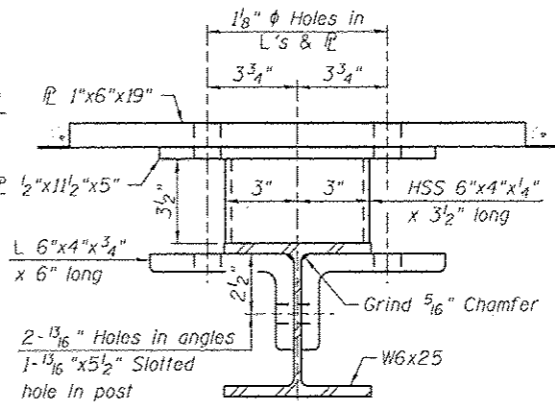
SECTION AT RAIL SPLICE CONNECTION AT EXPANSION JT.



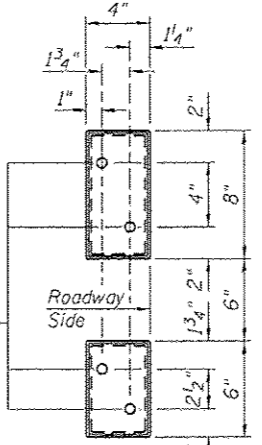
ANCHOR DEVICE



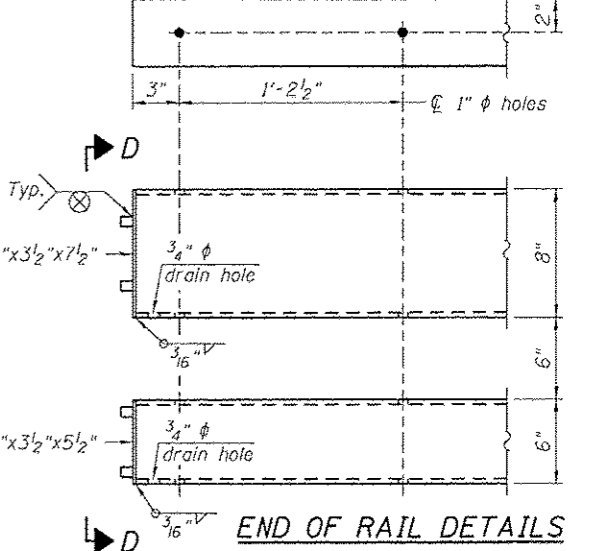
SECTION A-A



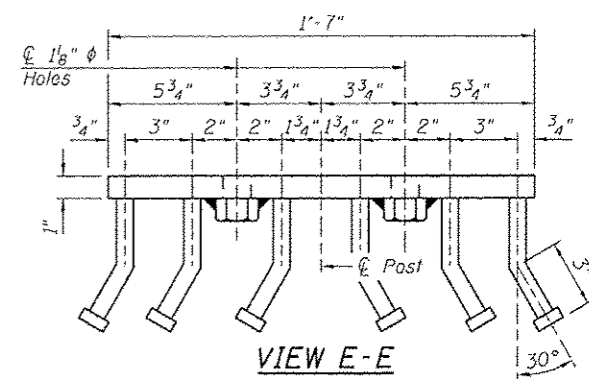
SECTION B-B



VIEW D-D



END OF RAIL DETAILS



VIEW E-E

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type SM	Foot	160

NOTES:
All field drilled holes shall be coated with an approved zinc rich paint before erection.
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.
Steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.
* Threaded areas shall be plugged or blocked off during casting of beam. Galvanized after fabrication.
** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

WILLETT HOFMANN ASSOCIATES INC.
ENGINEERING, ARCHITECTURAL AND SURVEYING
202 EAST 2ND STREET, DIVISION, IL 61021-2347
7.815-284-3311 DESIGN FIRM: 814-000918

DESIGNED - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19 + 85

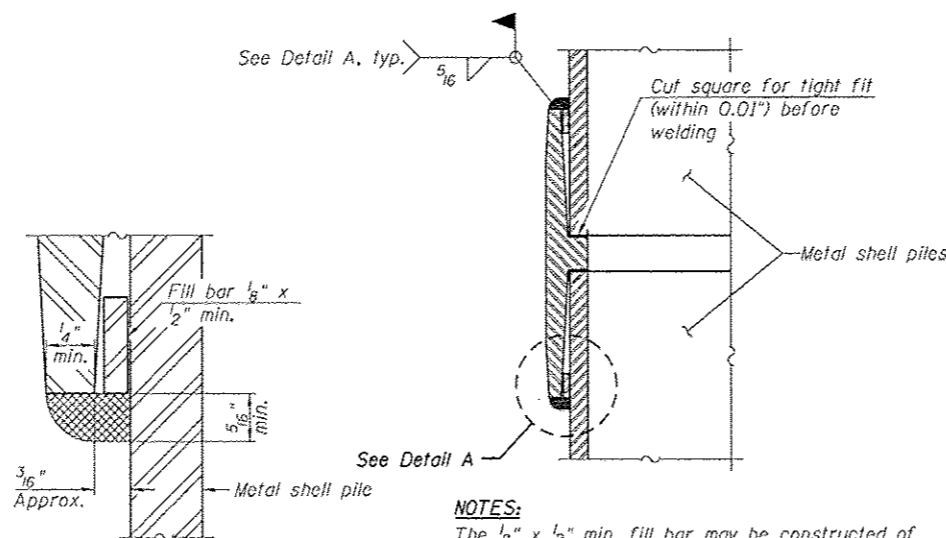
STEEL RAILING, TYPE SM DETAILS
STRUCTURE NO. 089-3285
STRUCTURAL SHEET NO. 14 OF 16 SHEETS

F.A.S. RTE. 78	SECTION 12-00179-00-BR	COUNTY STEPHENSON	TOTAL SHEETS 32	SHEET NO. 24
WHA* 1365011		CONTRACT NO. 85578		ILLINOIS FID. AID PROJECT BRS-00781111



METAL SHELL PILE TABLE

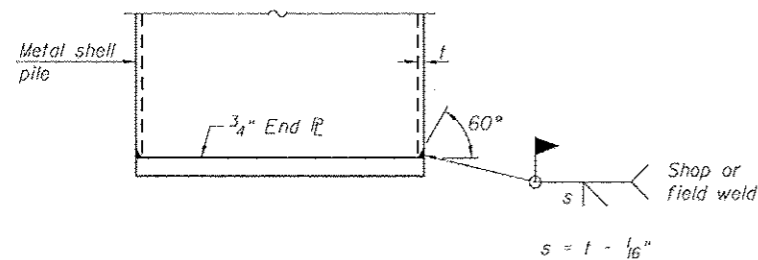
Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd. ³ /ft.)
PP12	0.179"	22.60	0.0274
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361



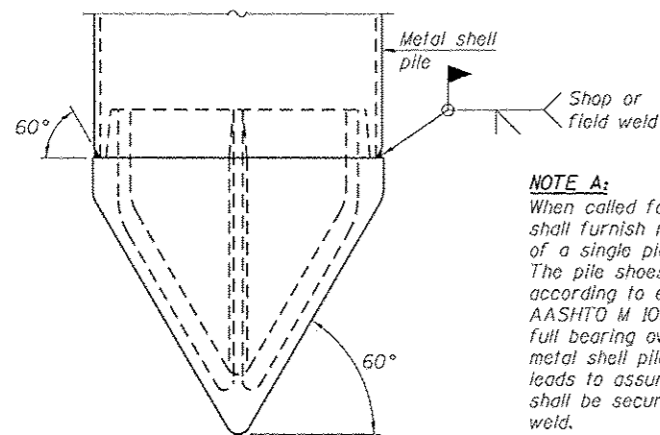
DETAIL A

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

WELDED COMMERCIAL SPLICE



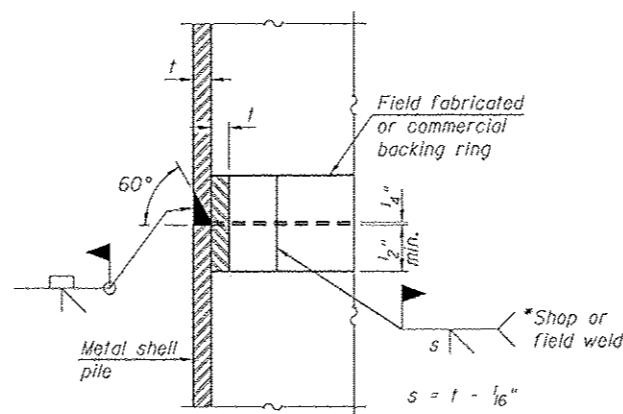
END PLATE ATTACHMENT



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

METAL SHELL PILE SHOE ATTACHMENT

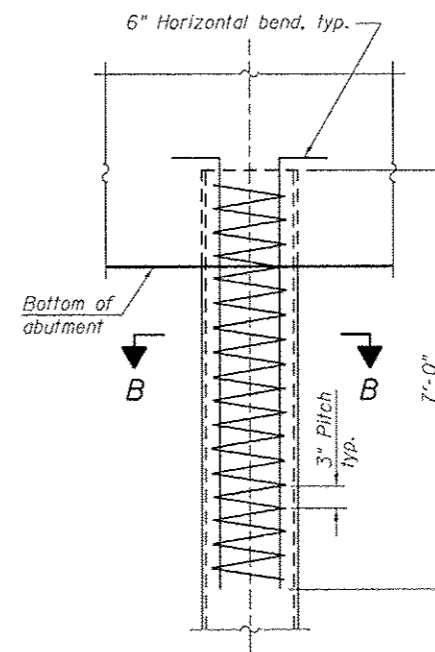
(See Note A)



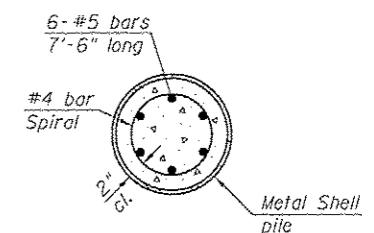
COMPLETE PENETRATION WELD SPLICE

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

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



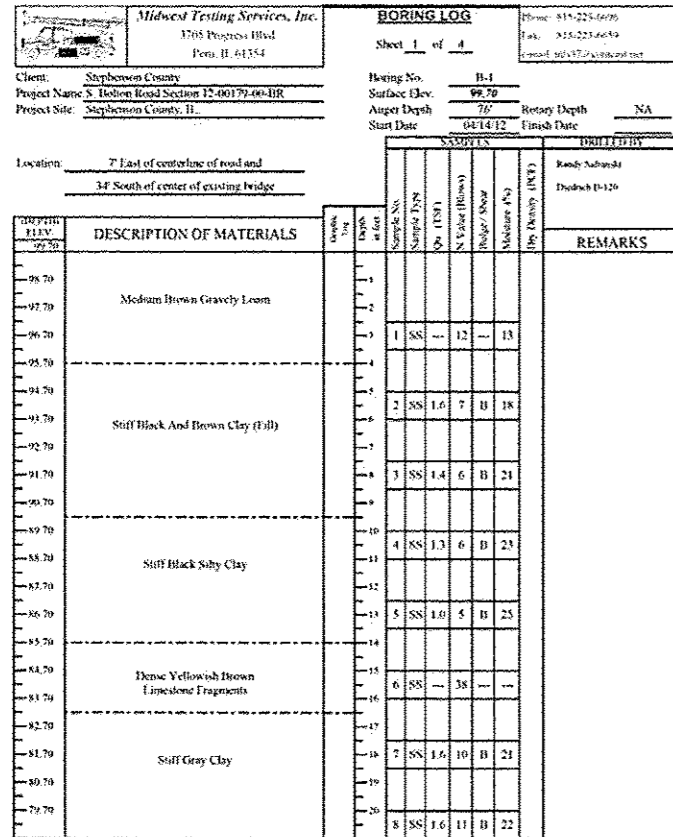
ELEVATION



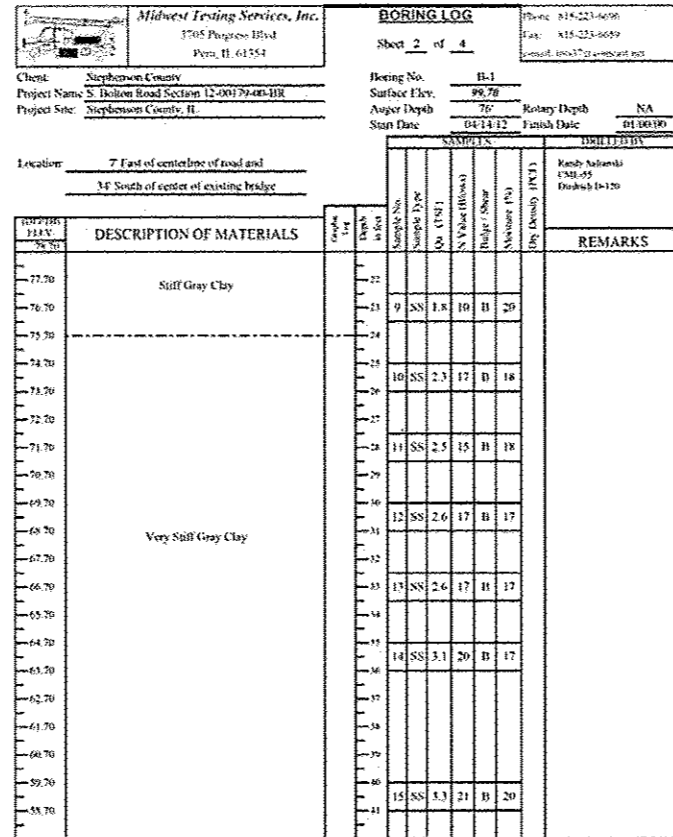
SECTION B-B

METAL SHELL REINFORCEMENT AT ABUTMENTS

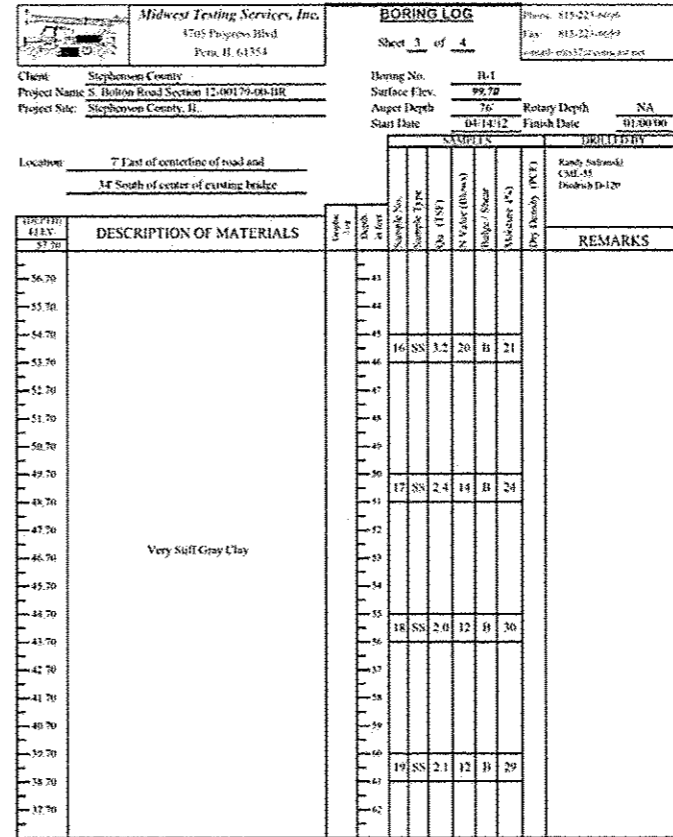
B-1: Station 19+66. 7' Right



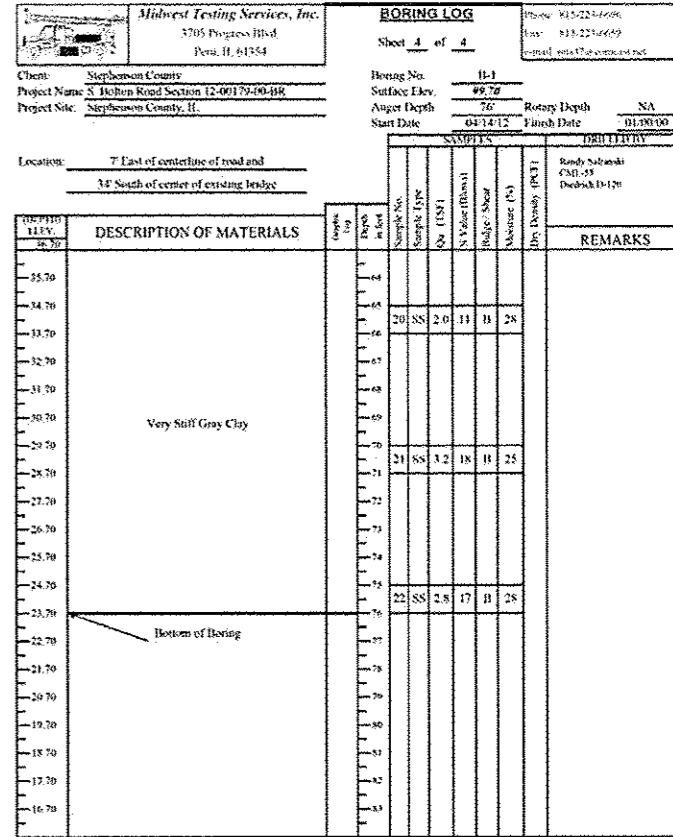
Groundwater Data: Static water level at time of investigation - Elevation 84.0
 Comments: Assumed center of existing bridge deck as Elevation 100.0.



Groundwater Data: Static water level at time of investigation - Elevation 84.0
 Comments: Assumed center of existing bridge deck as Elevation 100.0.

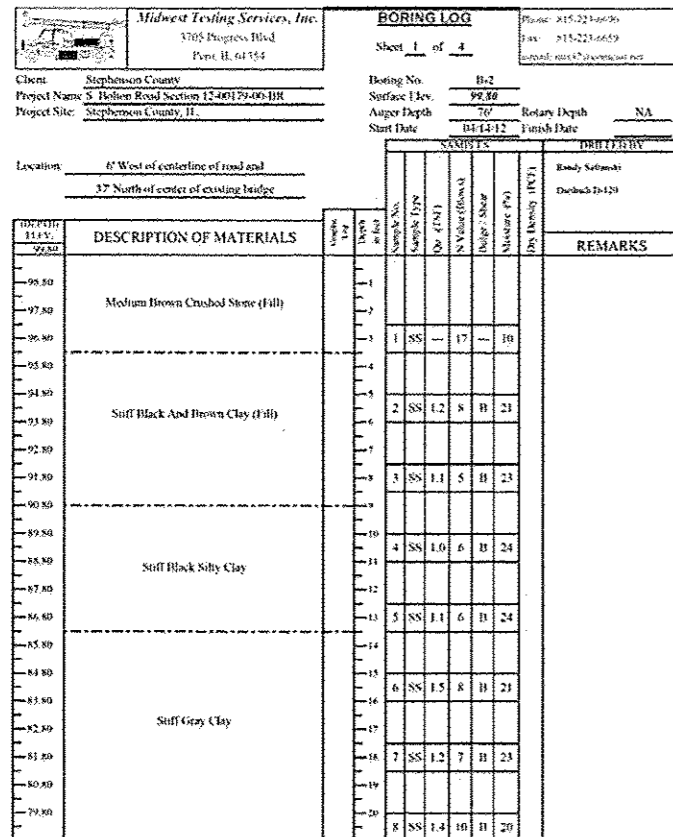


Groundwater Data: Static water level at time of investigation - Elevation 84.0
 Comments: Assumed center of existing bridge deck as Elevation 100.0.

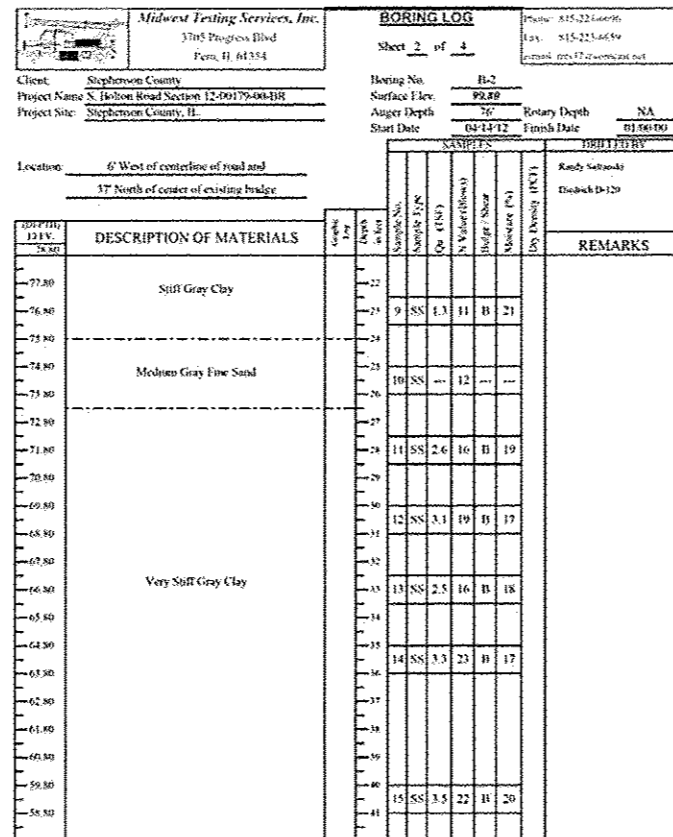


Groundwater Data: Static water level at time of investigation - Elevation 84.0
 Comments: Assumed center of existing bridge deck as Elevation 100.0.

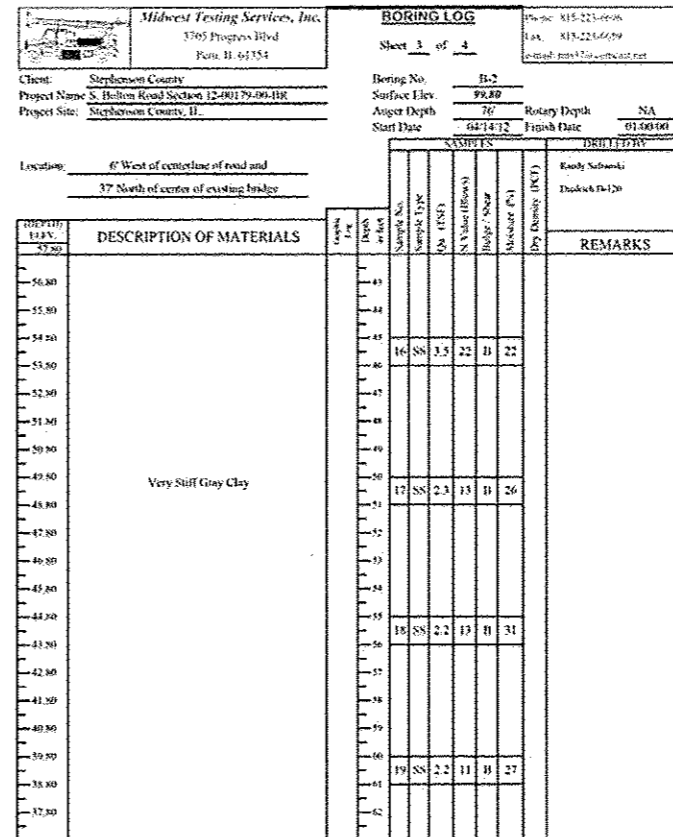
B-2: Station 20+37. 6' Left



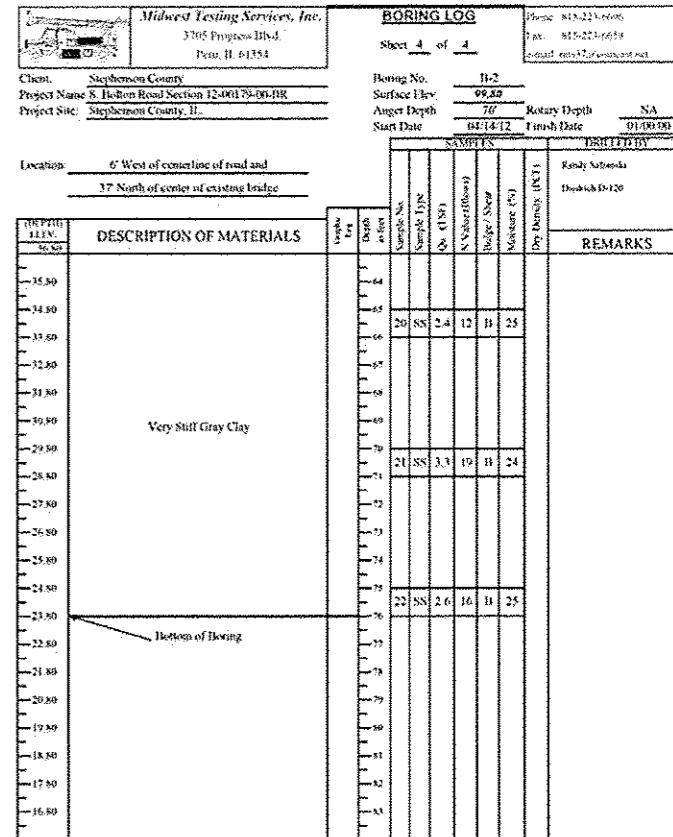
Groundwater Data: Static water level at time of investigation - Elevation 84.0
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Groundwater Data: Static water level at time of investigation - Elevation 84.0
 Comments: Assumed center of existing bridge deck as Elevation 100.0.

NOTE:
 Reference Elevation 100.00 equal to ±835.97.



DESIGNED - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

STEPHENSON COUNTY
 F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
 STATION 19+85

BORING LOGS
 STRUCTURE NO. 089-3285
 STRUCTURAL SHEET NO. 16 OF 16 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
78	12-00179-00-BR	STEPHENSON	32	26
WHA* 1365011		CONTRACT NO. 85578		
ILLINOIS FED. AID PROJECT BR5-0078011				

FILE # S:\PROJECTS\2011\365011_Stephenson_Bolton\DESIGN\STRUCT\CD\encl\1365011_Boring_Logs.dwg

DOUBLE END AREA
Fill Area = 52 Sq. Ft.
Cut Area = 4 Sq. Ft.

FIELD ENTRANCE

DESIGN EARTHWORK
FILL AREA = 65 Sq. Ft.
CUT AREA = 72 Sq. Ft.

DESIGN EARTHWORK
FILL AREA = 70 Sq. Ft.
CUT AREA = 59 Sq. Ft.

Match Existing Cross Slopes
El. 834.73

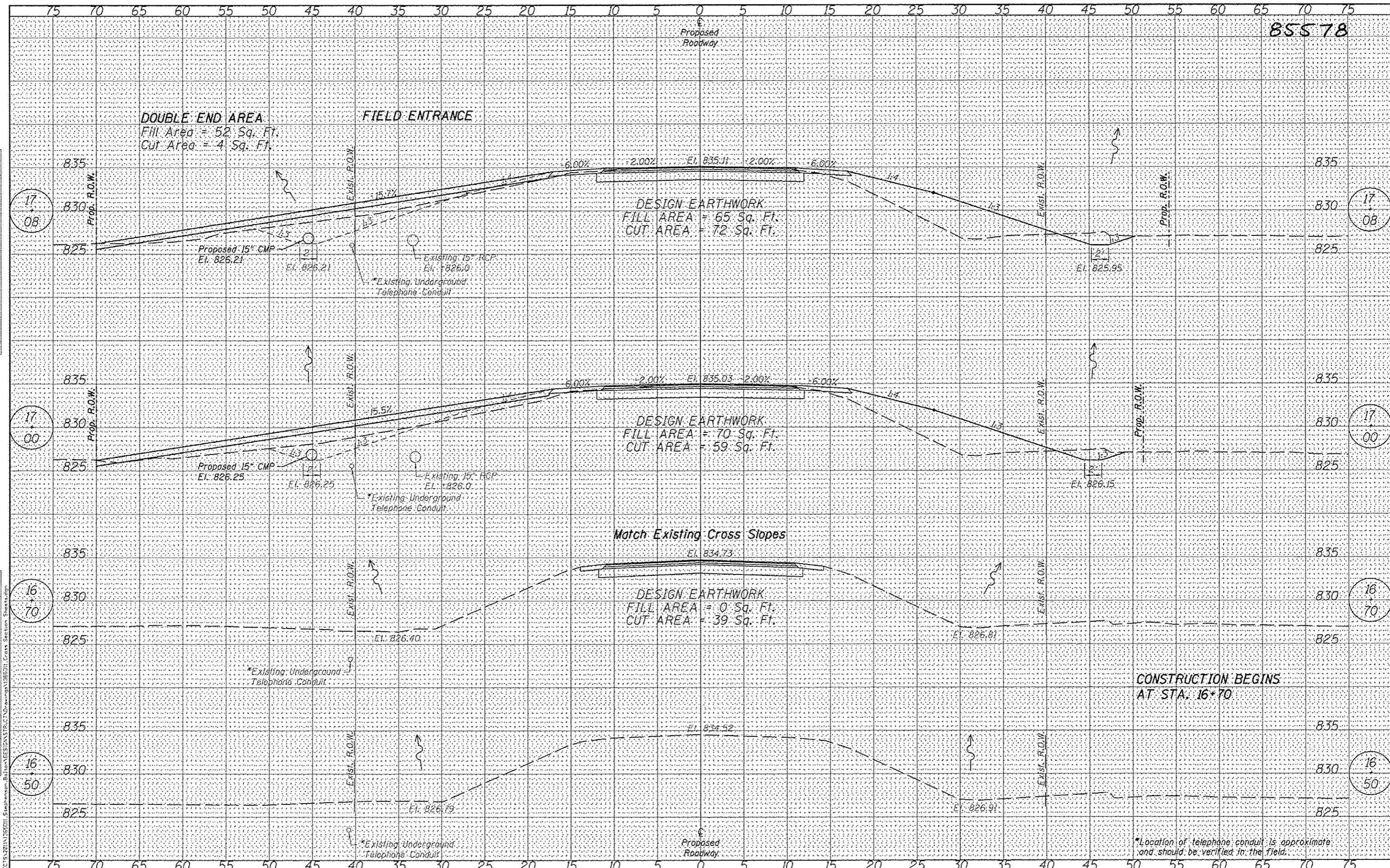
DESIGN EARTHWORK
FILL AREA = 0 Sq. Ft.
CUT AREA = 39 Sq. Ft.

CONSTRUCTION BEGINS
AT STA. 16+70

*Location of telephone conduit is approximate
and should be verified in the field.

DATE	
BY	
REVISIONS	
NO.	
DATE	
BY	
REVISIONS	
NO.	
DATE	
BY	
REVISIONS	
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DATE	
BY	
REVISIONS	
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DATE	
BY	
REVISIONS	
NO.	
DATE	
BY	
REVISIONS	
NO.	



WILLETT HOFMANN ASSOCIATES INC.
ENGINEERING ARCHITECTURE AND SURVEYING
600 EAST 2ND STREET, OROQUO, IL 61021-0167
TEL: 815-284-3381 DESIGN: 815-284-0097

DESIGNED -	BRAD KLEINMAIER	REVISED -	
CHECKED -	BRIAN CONVERSE	REVISED -	
DRAWN -	BRAD KLEINMAIER	REVISED -	
CHECKED -	BRIAN CONVERSE	REVISED -	

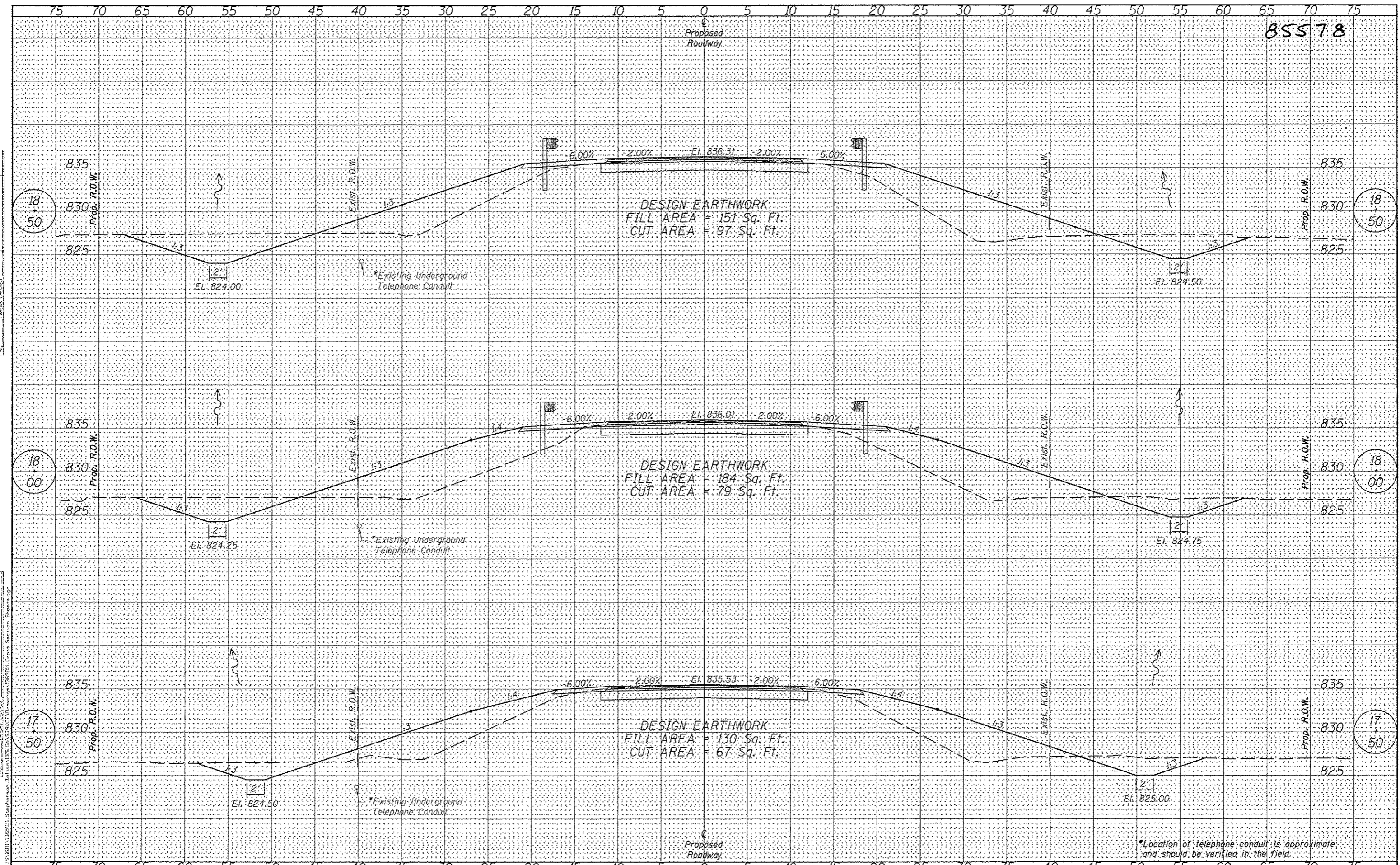
STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19+85

CROSS SECTIONS
STRUCTURE NO. 089-3285
SCALE: 1" = 5'-0" SHEET NO. 1 OF 6 SHEETS STA. 16+50.00 TO STA. 17+08.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
78	12-00179-00-BR	STEPHENSON	32	27
WHA# 1365011		CONTRACT NO. 85578		
[ILLINOIS] FED. AID PROJECT BR5-00781111				

DATE	
BY	
FINI	
SAVED	
PLOTTED	
NOTE BOOK	
AREAS CHECKED	

DATE	
BY	
FINI	
SAVED	
PLOTTED	
NOTE BOOK	
AREAS CHECKED	



*Location of telephone conduit is approximate and should be verified in the field.



DESIGNED - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

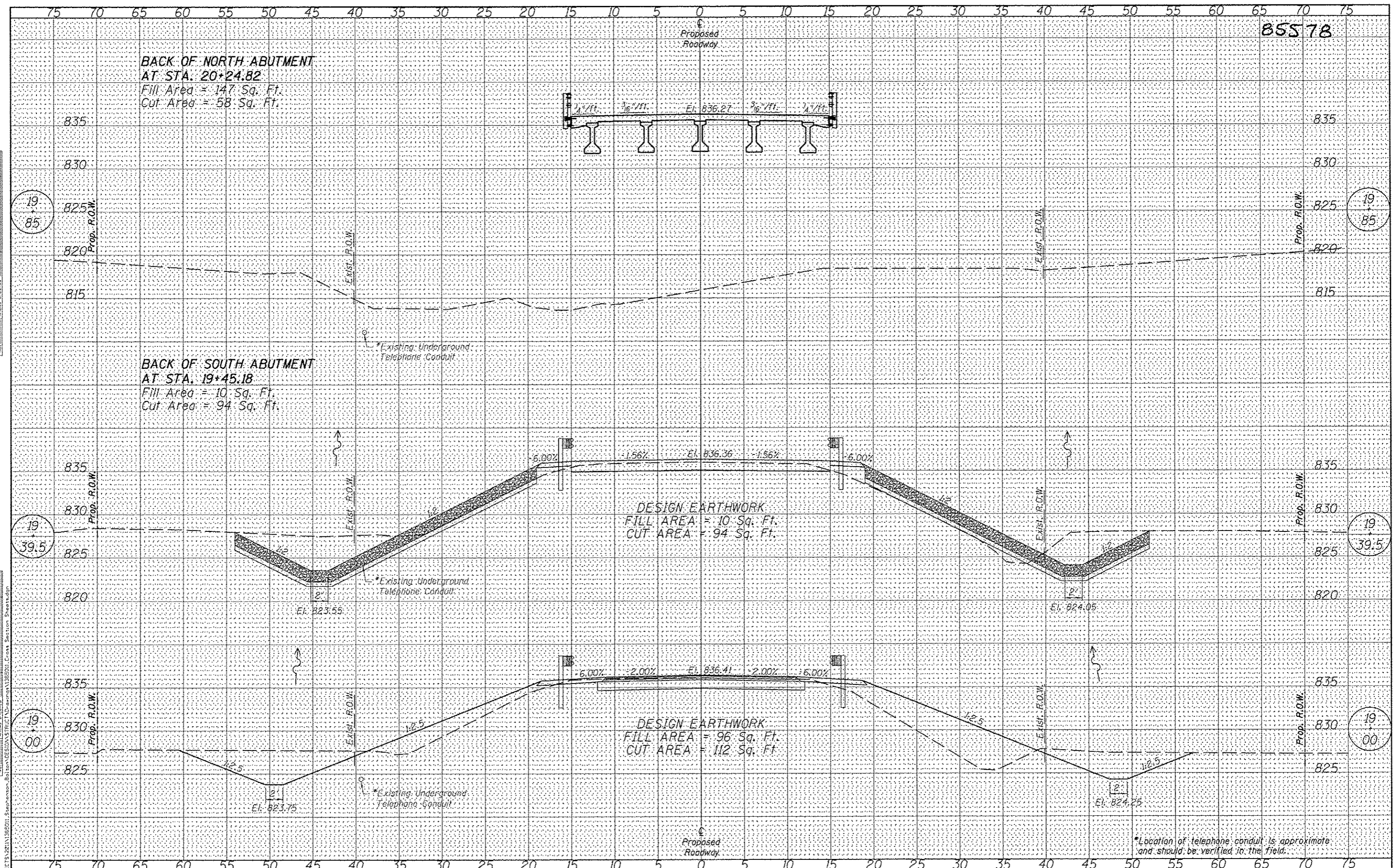
STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19+85

CROSS SECTIONS
STRUCTURE NO. 089-3285
 SCALE: 1" = 5'-0" SHEET NO. 2 OF 6 SHEETS STA. 17+50.00 TO STA. 18+50.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
78	12-00179-00-BR	STEPHENSON	32	28
WHA* 1365D11		CONTRACT NO. 85578		
[ILLINOIS] FED. AID PROJECT BR5-0078(111)				

DATE	
BY	
STARTED	
PLOTTED	
NOTE BOOK	
AREAS CHECKED	

DATE	
BY	
STARTED	
PLOTTED	
NOTE BOOK	
AREAS CHECKED	



85578

BACK OF NORTH ABUTMENT
AT STA. 20+24.82
Fill Area = 147 Sq. Ft.
Cut Area = 58 Sq. Ft.

BACK OF SOUTH ABUTMENT
AT STA. 19+45.18
Fill Area = 10 Sq. Ft.
Cut Area = 94 Sq. Ft.

DESIGN EARTHWORK
FILL AREA = 10 Sq. Ft.
CUT AREA = 94 Sq. Ft.

DESIGN EARTHWORK
FILL AREA = 96 Sq. Ft.
CUT AREA = 112 Sq. Ft.

*Location of telephone conduit is approximate and should be verified in the field.



WILLET HOFMANN ASSOCIATES INC.
ENGINEERING ARCHITECTURE AND SURVEYING
809 EAST 2ND STREET, DEPT. 11, CHICAGO, ILL. 60611-2517
T. 312-264-3381 DESIGN FIRM #184 0009-8

DESIGNED - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

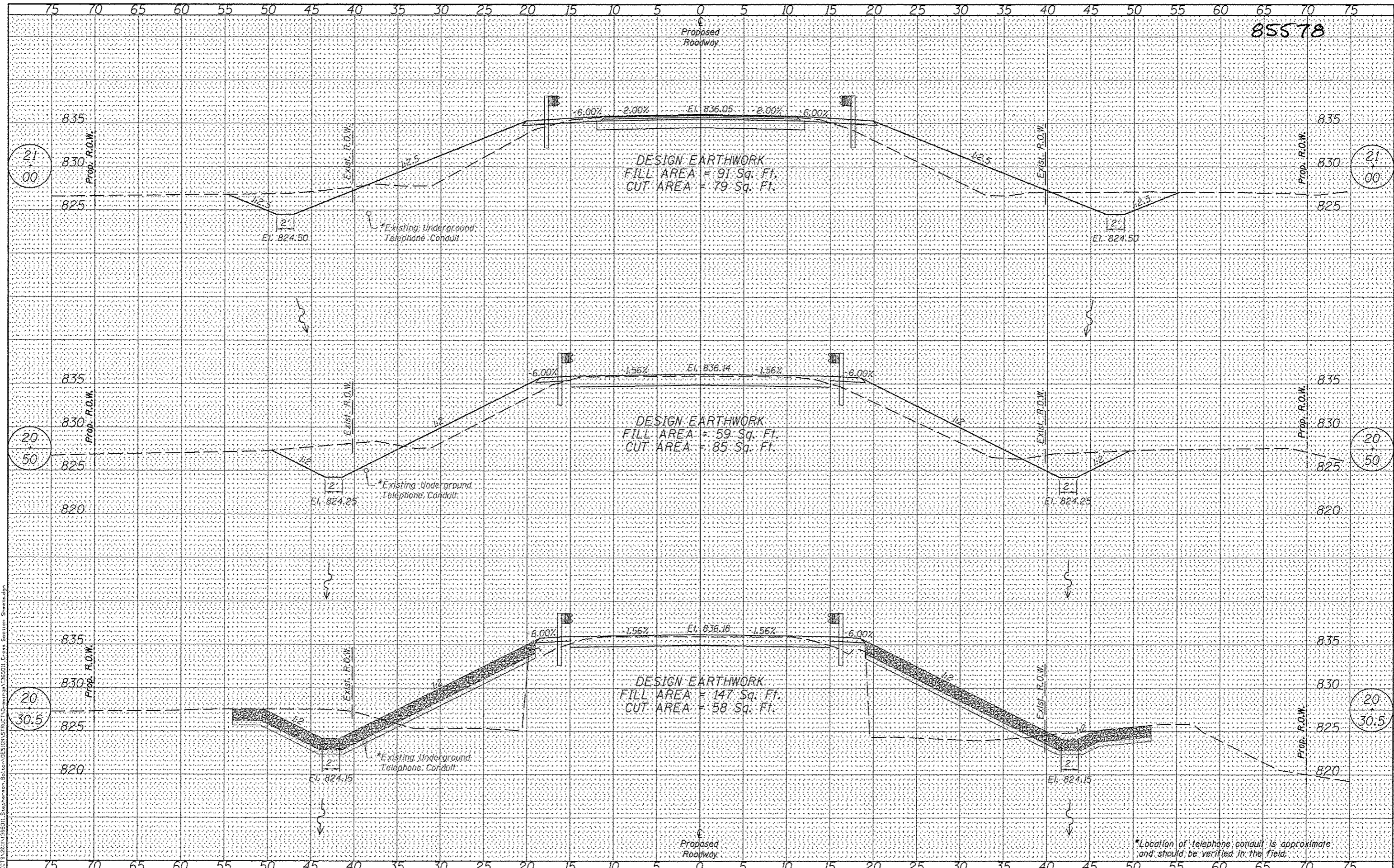
STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19 + 85

CROSS SECTIONS
STRUCTURE NO. 089-3285
SCALE: 1" = 5'-0"
SHEET NO. 3 OF 6 SHEETS
STA. 19+00.00 TO STA. 19+85.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
78	12-00179-00-BR	STEPHENSON	32	29
WHA* 1365D11			CONTRACT NO. 85578	
[ILLINOIS] FED. AID PROJECT BR5-0078(111)				

DATE	
BY	
FINISHED	
DATE	
BY	
REVISIONS	
NO.	

DATE	
BY	
FINISHED	
DATE	
BY	
REVISIONS	
NO.	



85578

STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19+85

CROSS SECTIONS
STRUCTURE NO. 089-3285

DESIGNED - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
78	12-00179-00-BR	STEPHENSON	32	30
WHA* 1365011		CONTRACT NO. 85578		
[ILLINOIS] FED. AID PROJECT B95-0078(111)				

SCALE: 1" = 5'-0" SHEET NO. 4 OF 6 SHEETS STA. 20+30.50 TO STA. 21+00.00

WILLET HOFMANN ASSOCIATES INC.
 ENGINEERING ARCHITECTURE LAND SURVEYING
 829 EAST 2ND STREET, CHICAGO, ILL. 60611-2397
 T: 312.284.3351 DESIGN FIRM #184-0009-8

FILE: S:\PROJ\15\221N\085011_Stephenson_Bolton\DESIGN\STRUCT\A\Drawings\1365011_Cross Section Sheets.dgn

*Location of telephone conduit is approximate and should be verified in the field.

85578

Proposed Roadway

DESIGN EARTHWORK
FILL AREA = 111 Sq. Ft.
CUT AREA = 46 Sq. Ft.

DESIGN EARTHWORK
FILL AREA = 157 Sq. Ft.
CUT AREA = 60 Sq. Ft.

DESIGN EARTHWORK
FILL AREA = 150 Sq. Ft.
CUT AREA = 66 Sq. Ft.

Existing Underground Telephone Conduit

Existing Underground Telephone Conduit

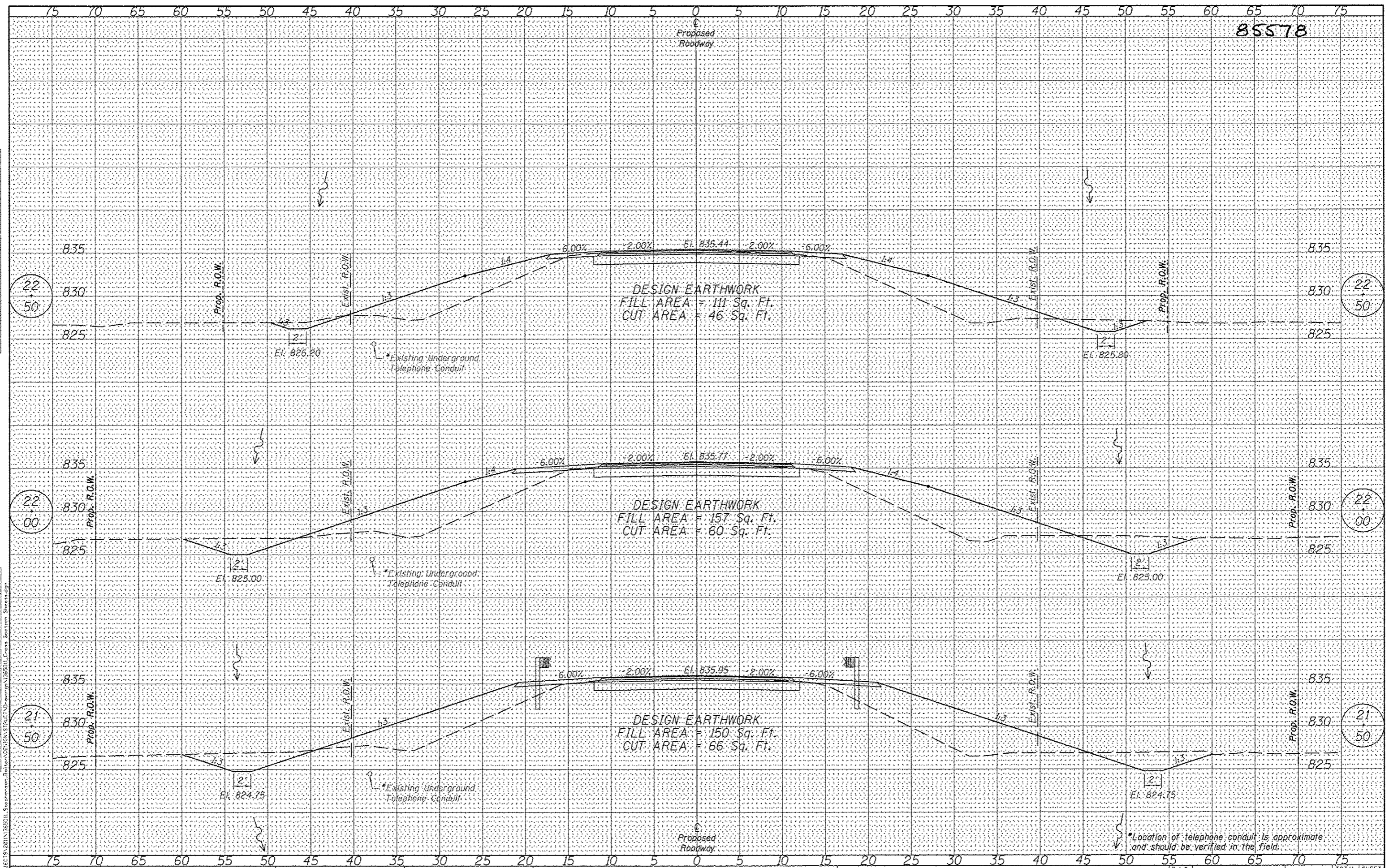
Existing Underground Telephone Conduit

Proposed Roadway

*Location of telephone conduit is approximate and should be verified in the field.

DATE	
BY	
ORIGINAL SURVEY	
SAVED SURVEY	
TEMPLATE	
NOTE BOOK	
AREAS	
AREAS CHECKED	

DATE	
BY	
ORIGINAL SURVEY	
SAVED SURVEY	
TEMPLATE	
NOTE BOOK	
AREAS	
AREAS CHECKED	



WILLET HOFMANN ASSOCIATES INC.
ENGINEERING ARCHITECTURE LAND SURVEYING
529 EAST 2ND STREET, OMAHA, NE 68102-0527
TEL: 402-441-3351 FAX: 402-441-3358

DESIGNED - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

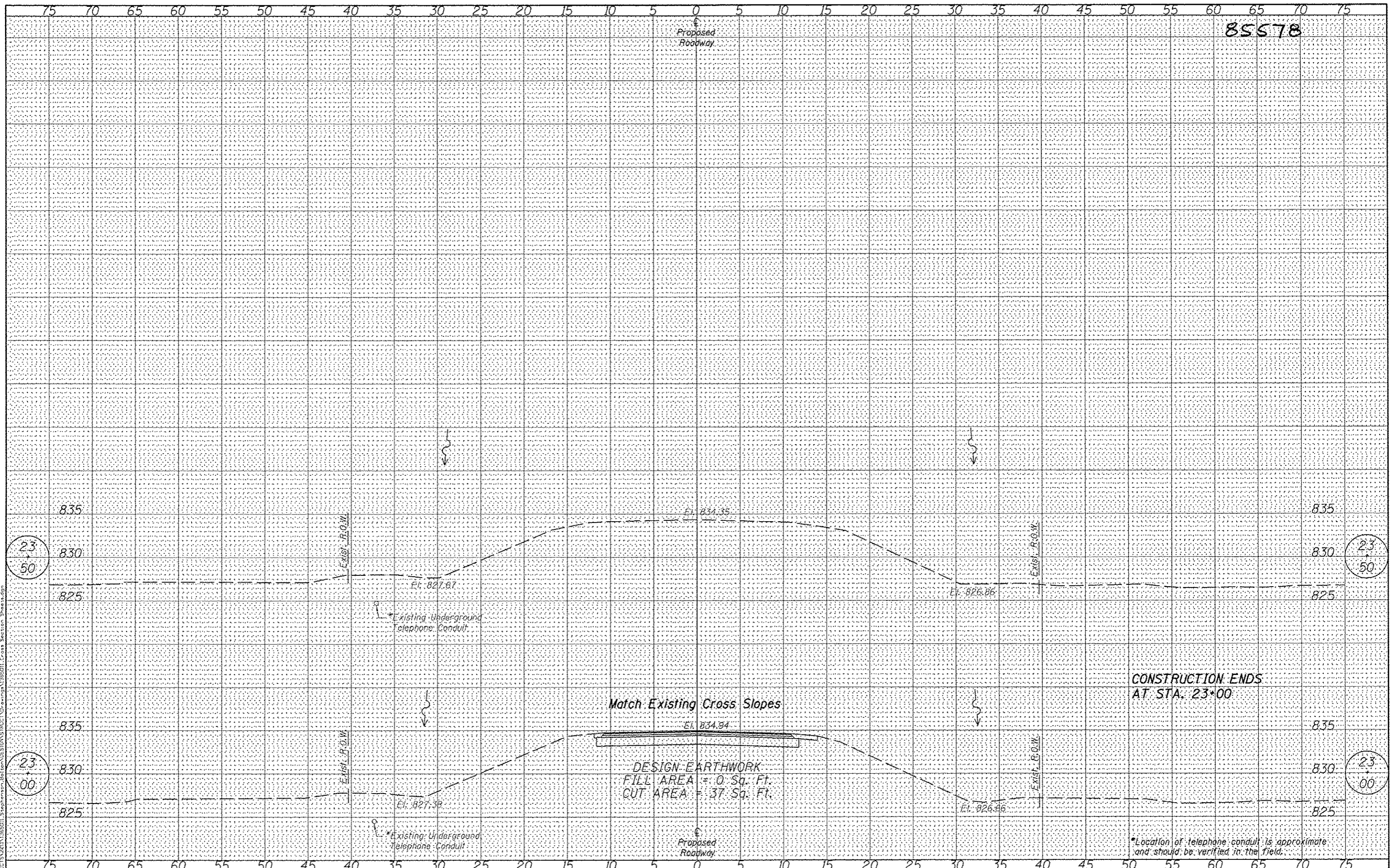
STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19 + 85

CROSS SECTIONS
STRUCTURE NO. 089-3285
SCALE: 1" = 5'-0" SHEET NO. 5 OF 6 SHEETS STA. 21+50.00 TO STA. 22+50.00

F.A.S. RITE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
78	12-00179-00-BR	STEPHENSON	32	31
WHA# 1365D11		CONTRACT NO. 85578		
[ILLINOIS] FED. AID PROJECT BR5-00781111				

FINAL SHEET	DATE
NO.	
DESIGNED	BY
CHECKED	DATE
PLOTTED	
TEMPLATE	
ASSEMBLED	
NO.	

ORIGINAL SHEET	DATE
NO.	
DESIGNED	BY
CHECKED	DATE
PLOTTED	
TEMPLATE	
ASSEMBLED	
NO.	



FILE # 849012152011082801 Stephenson, B...

WILLET HOFMANN ASSOCIATES INC
 ENGINEERING, ARCHITECTURE, AND SURVEYING
 809 EAST 2ND STREET, DODD, IL 61021-2367
 T: 815-254-3331 FAX: 815-254-3332

DESIGNED - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - BRAD KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -

STEPHENSON COUNTY
F.A.S. 78 (BOLTON ROAD) OVER LOST CREEK
STATION 19+85

CROSS SECTIONS	
STRUCTURE NO. 089-3285	
SCALE: 1" = 5'-0"	SHEET NO. 6 OF 6 SHEETS
STA. 23+00.00 TO STA. 23+50.00	

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
78	12-00179-00-8R	STEPHENSON	32	32
WHA# 1365011		CONTRACT NO. 85578		
[ILLINOIS] FED. AID PROJECT BR5-0078(11)				