01-19-2024 LETTING ITEM 097

INDEX OF SHEETS

STANDARDS: 515001-04
701901-09
725001-01
BLR 21-9

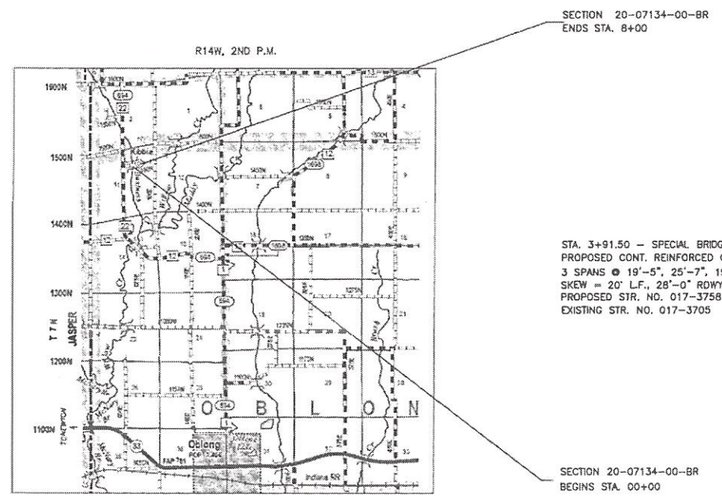
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM–OFF SYSTEM BRIDGE

CRAWFORD COUNTY
SECTION 20–07134–00–BR
STRUCTURE NO. 017–3758
TR 93 OVER NO BUSINESS CREEK
PROJECT NO. TT08(650)
JOB NO. C–97–061–22
CONTRACT NO. 95933

SCALES

PLAN	1 INCH = 50 FEET
CROSS SECTIONS	1 INCH = 5 FEET
PROFILE HORZ.	1 INCH = 50 FEET
PROFILE VERT.	1 INCH = 10 FEET



STA. 3+91.50 – SPECIAL BRIDGE DESIGN
PROPOSED CONT. REINFORCED CONCRETE DECK BRIDGE
3 SPANS @ 19'–5", 25'–7", 19'–5"
SKEW = 20° L.F., 28'–0" ROWY.
PROPOSED STR. NO. 017–3758
EXISTING STR. NO. 017–3705

CLASS – LOCAL ROAD
ADT = 50
DESIGN SPEED = 30 MPH

LOCATION MAP

APPROXIMATE SCALE: 1 INCH = 1 MILE
NET LENGTH = 800.00 FT. = 0.15 MILES

JOHN A. STONE
062-055012
LICENSED PROFESSIONAL ENGINEER
STATE OF ILLINOIS

02/10/2023
ILLINOIS REGISTERED PROFESSIONAL ENGINEER # 55012
LICENSE EXPIRES NOVEMBER 30, 2023
PROFESSIONAL DESIGN FIRM #184–000832

ILLINOIS DEPARTMENT OF TRANSPORTATION

APPROVED: February 14, 2023
Justin R. Cole
CRAWFORD COUNTY ENGINEER

PASSED: 11/01/23
DISTRICT SEVEN ENGINEER
OF LOCAL ROADS & STREETS

RELEASING FOR BID
BASED ON LIMITED
REVIEW 11/6/23
REGION FOUR ENGINEER

TOLL FREE JOINT UTILITY LOCATING
INFORMATION FOR EXCAVATORS (J.U.L.I.E.)
TELEPHONE NO. 1–800–892–0123

Connor & Connor, Inc.
210 East Locust Street
P.O. Box 618
Robinson, Illinois 62454

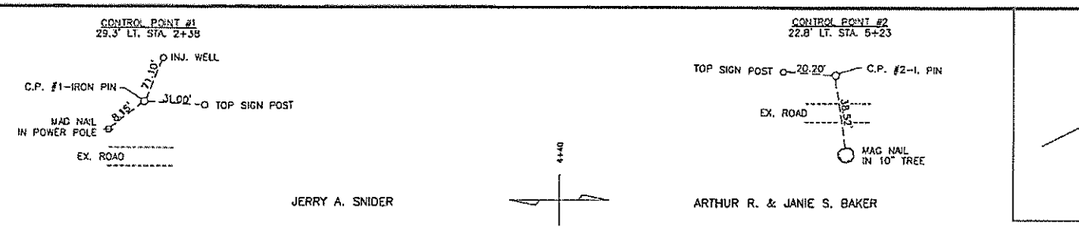
CONNOR & CONNOR
Consulting Engineers
Land Surveyors

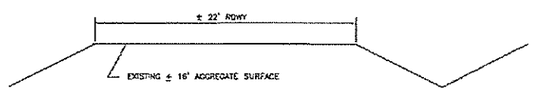
Phone: (618) 544–8623
Fax: (618) 544–3012
Design Firm #: 184–000832
www.connorengineers.com

PROJECT NAME: CRAWFORD COUNTY
SECTION 20–07134–00–BR
OBLONG ROAD DISTRICT
TR 93

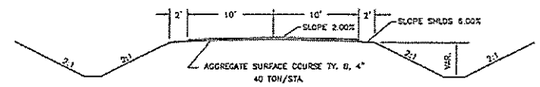
COVER SHEET

SHEET NUMBER: 1 OF 15
CONTRACT NUMBER: 95933



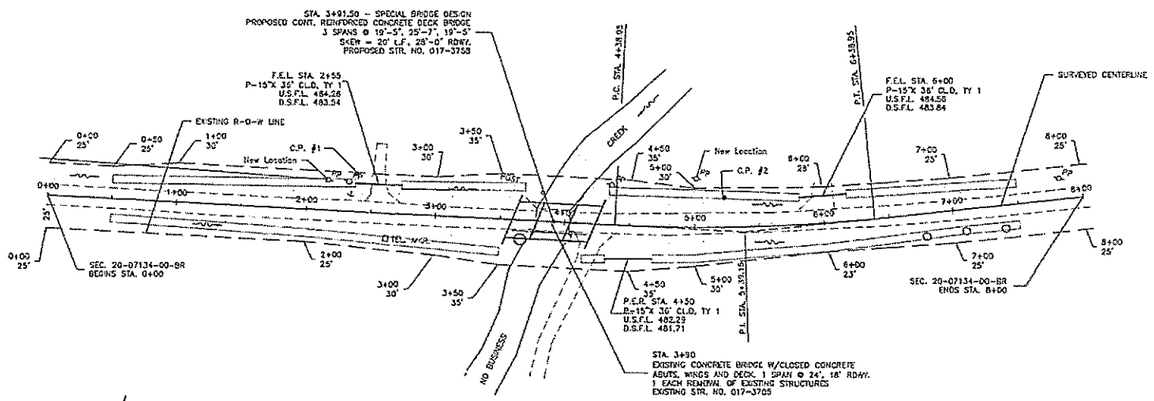


TYPICAL CROSS SECTION OF EXISTING ROADWAY



TYPICAL CROSS SECTION OF PROPOSED IMPROVEMENT

CURVE DATA
PI STA. 5+39.15
Δ = 8° 59' 18" (LT)
D = 4° 29' 33"
R = 1,274.93'
T = 100.20'
L = 200.00'
E = 3.93'



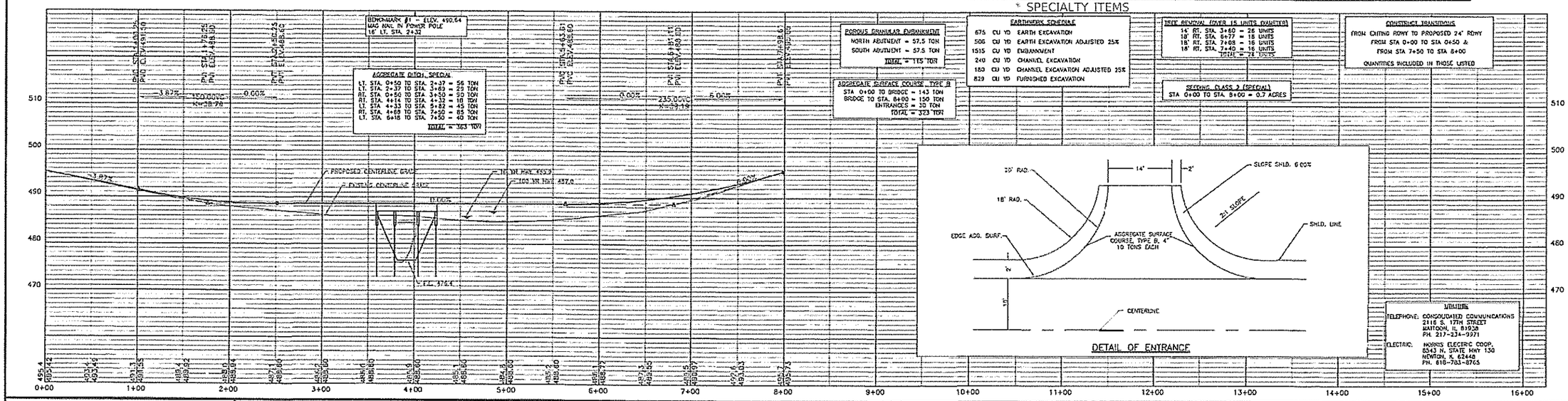
NOTE: WHEN THE PLANS OR SPECIAL PROVISIONS INCLUDE INFORMATION PERTAINING TO THE LOCATION OF UNDERGROUND UTILITY FACILITIES, SUCH INFORMATION REPRESENTS ONLY THE OPINION OF THE CRAWFORD COUNTY HIGHWAY DEPARTMENT AS TO THE LOCATION OF SUCH UTILITIES AND IS ONLY INCLUDED FOR THE CONVENIENCE OF THE BIDDER.

ROBERT E. WALKER

SUMMARY OF QUANTITIES

	CODE NO.	ITEM	UNIT	TOTAL QUANTITY
	X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.7
	X2850495	AGGREGATE DITCH (SPECIAL)	TON	363
	X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L SUM	1
*	2310O210	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNIT	74
	2020010C	EARTH EXCAVATION	CU YD	675
	2030O100	CHANNEL EXCAVATION	CU YD	240
	2040O800	FURNISHED EXCAVATION	CU YD	829
	2070011C	POROUS GRANULAR EMBANKMENT	TON	115
	2810O807	STONE DUMPED RIPRAP, CLASS A4	TON	330
	4020O800	AGGREGATE SURFACE COURSE, TYPE B	TON	323
	5010O100	REMOVAL OF EXISTING STRUCTURES	EACH	1
	5030O225	CONCRETE STRUCTURES	CU YD	43.4
	5030O255	CONCRETE SUPERSTRUCTURE	CU YD	84.5
	5030O260	BRIDGE DECK GROOVING	SQ YD	210
	5030O280	CONCRETE ENCASEMENT	CU YD	12.2
	5030O300	PROTECTIVE COAT	SQ YD	247
	5080O205	REINFORCEMENT BARS, EPOXY COATED	POUND	49,520
*	5090O205	STEEL RAILING, TYPE S1	FOOT	131
	5120O400	FURNISHING STEEL PILES HP 10X42	FOOT	820
	5120O305	DRIVING PILES	FOOT	820
	5120O400	TEST PILES STEEL HP 10X42	EACH	2
	5120O650	PILE SHOES	EACH	18
	5150O100	NAME PLATES	EACH	1
	5420O220	PIPE CULVERTS, CLASS D, TYPE 1 15"	FOOT	108
	6710O100	MOBILIZATION	L SUM	1
	7250O1000	TERMINAL MARKER - DIRECT APPLIED	EACH	4

* SPECIALTY ITEMS



DETAIL OF ENTRANCE

UTILITIES

TELEPHONE: CONSOLIDATED COMMUNICATIONS
2116 S. 17TH STREET
MATTOON, IL 61938
PH. 217-234-9371

ELECTRIC: NORRIS ELECTRIC COOP.
8543 N. STATE HWY 130
NEWTON, IL 62448
PH. 618-783-8765

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210 East Locust Street
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Robinson, Illinois 62454

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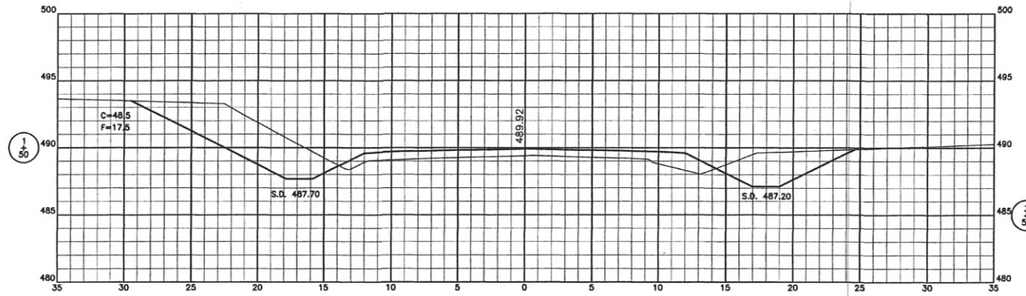
PROJECT NAME: CRAWFORD COUNTY
SECTION 20-07134-00-BR
OBLONG ROAD DISTRICT
TR 93

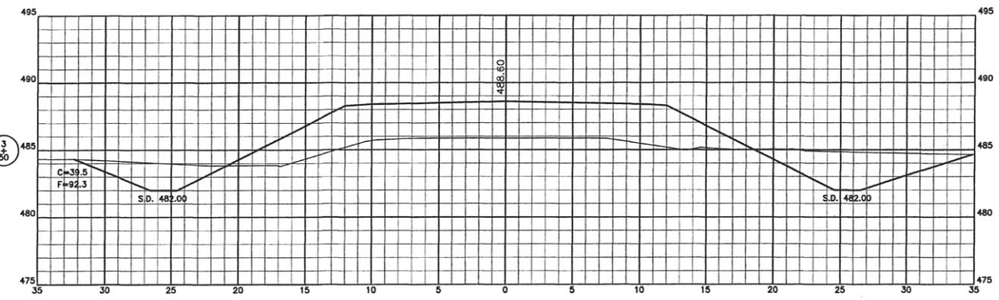
PLAN PROFILE

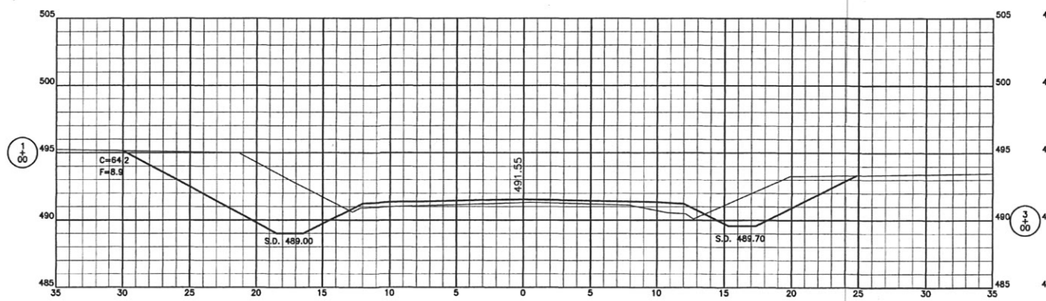
SHEET NUMBER: 2 OF 15

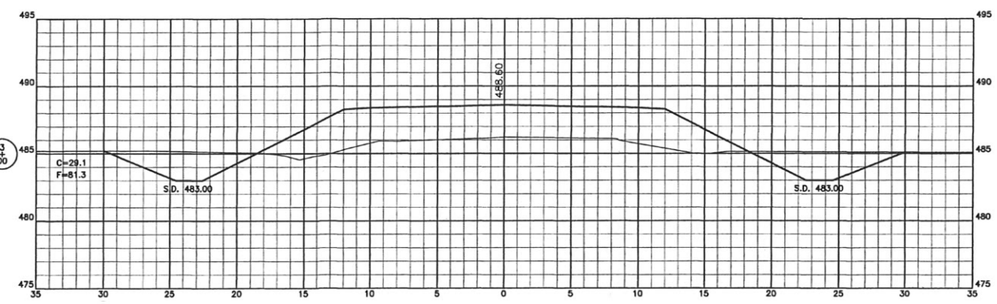
CONTRACT NO. 95933

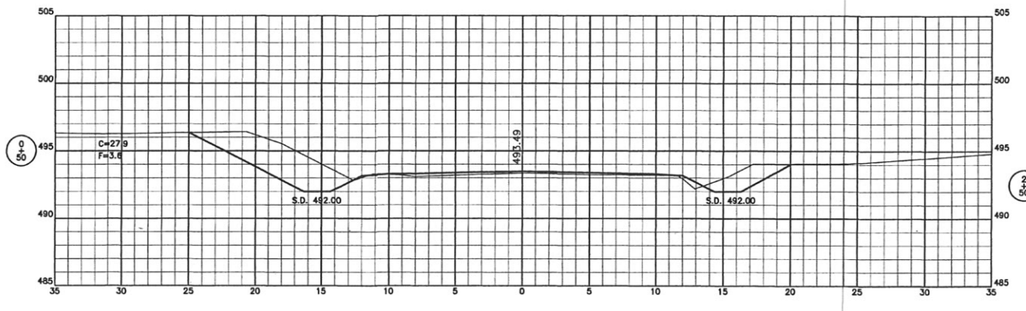
BRIDGE

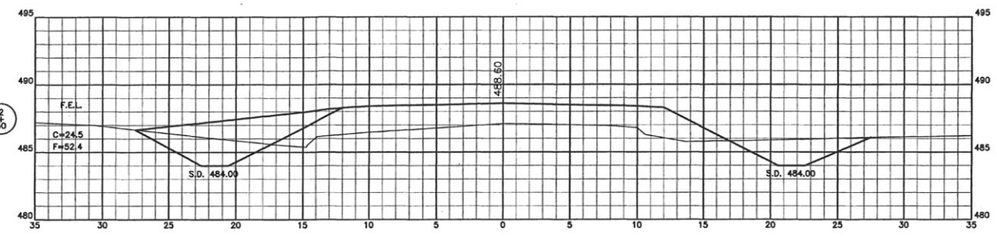


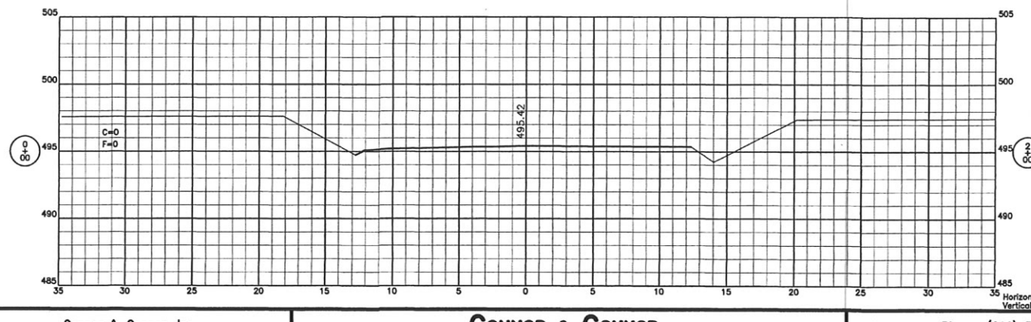


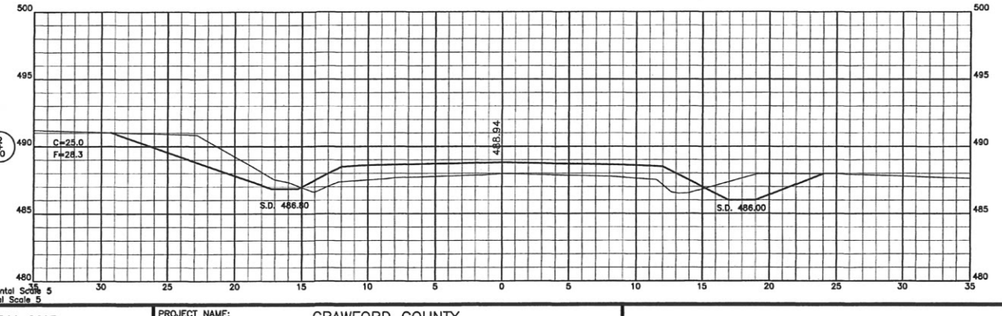












Horizontal Scale 5
Vertical Scale 5

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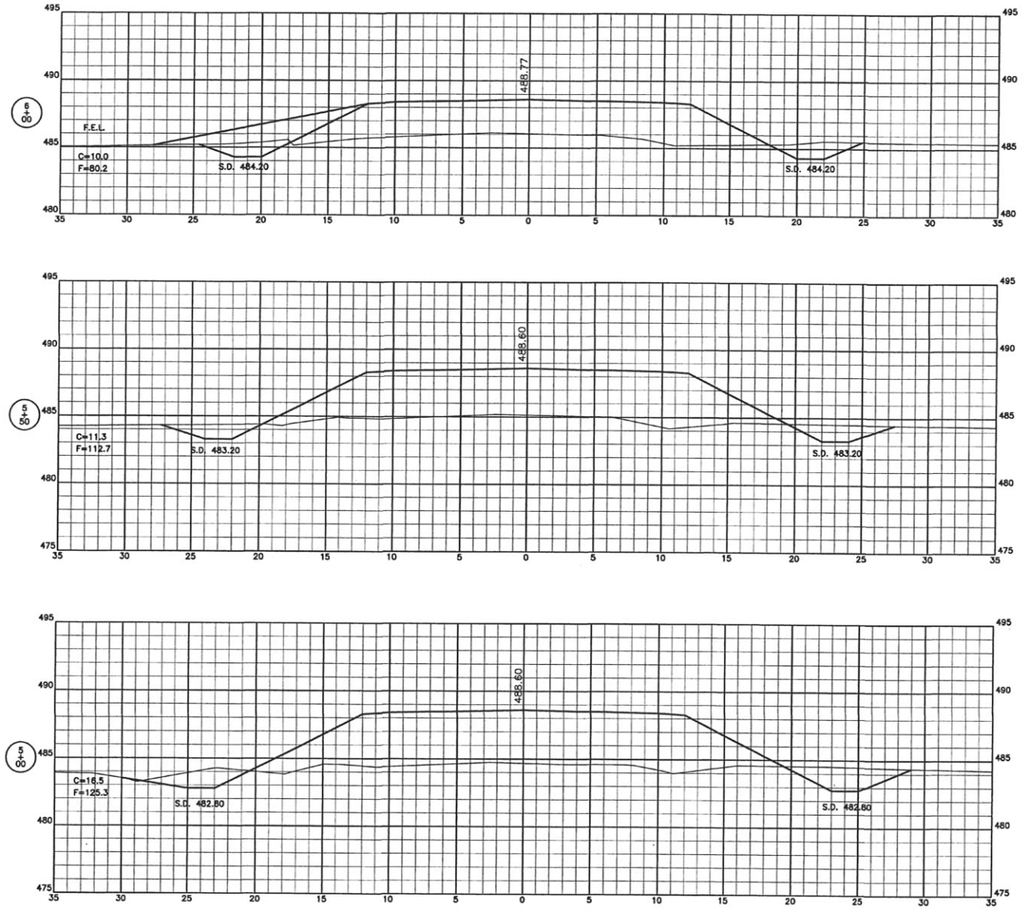
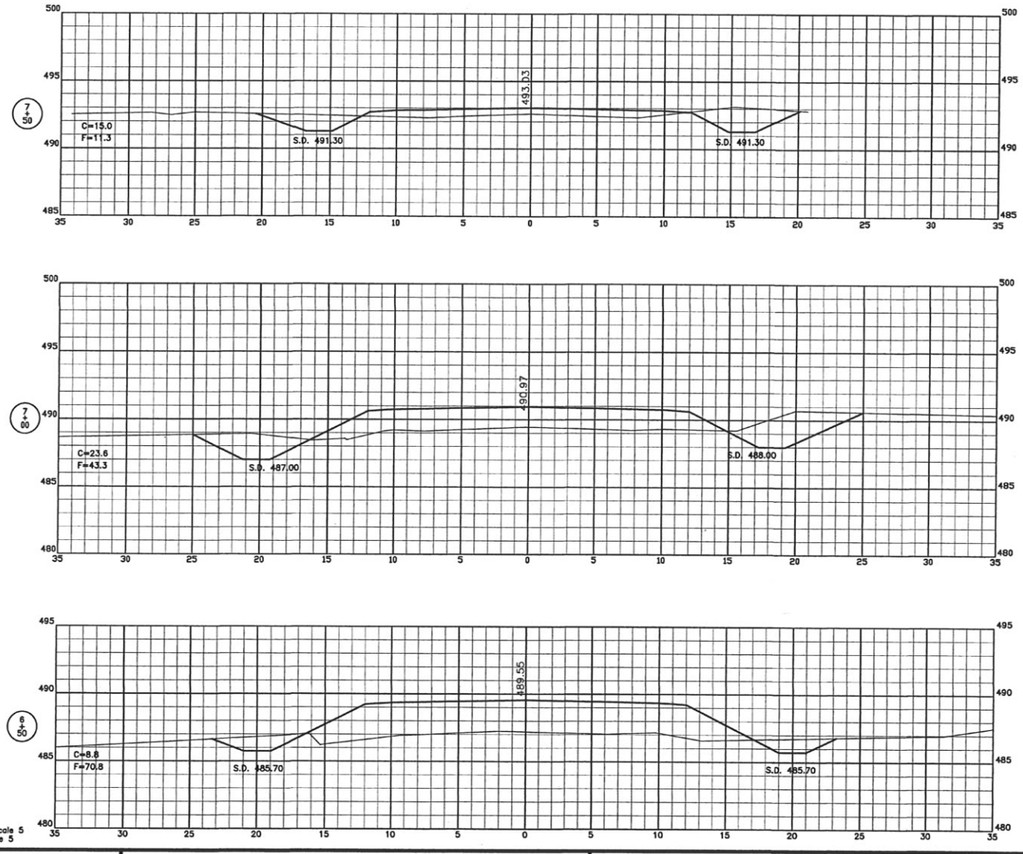
PROJECT NAME:
CRAWFORD COUNTY
SECTION 20-07134-00-BR
OBLONG ROAD DISTRICT
TR 93

CROSS SECTIONS

SHEET NUMBER:
3 OF 15

CONTRACT NO.
95933





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PROJECT NAME:
CRAWFORD COUNTY
SECTION 20-07134-00-BR
OBLONG ROAD DISTRICT
TR 93

CROSS SECTIONS

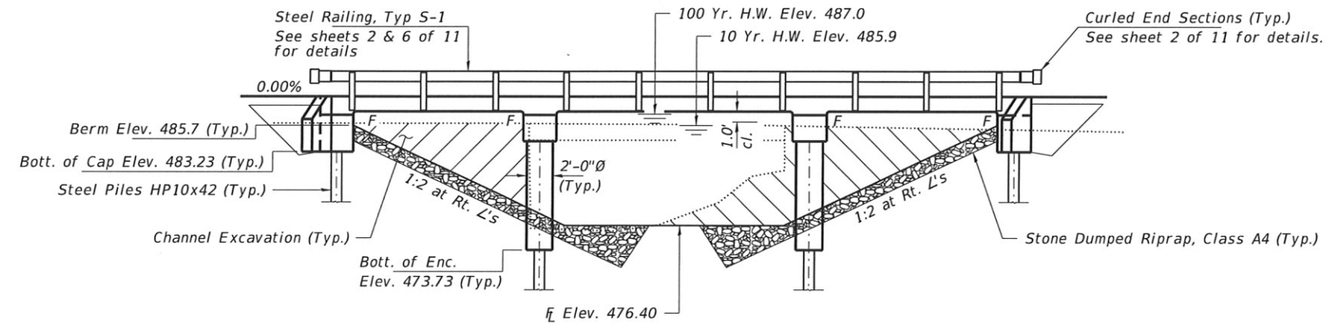
SHEET NUMBER:
4 OF 15

CONTRACT NO.
95933

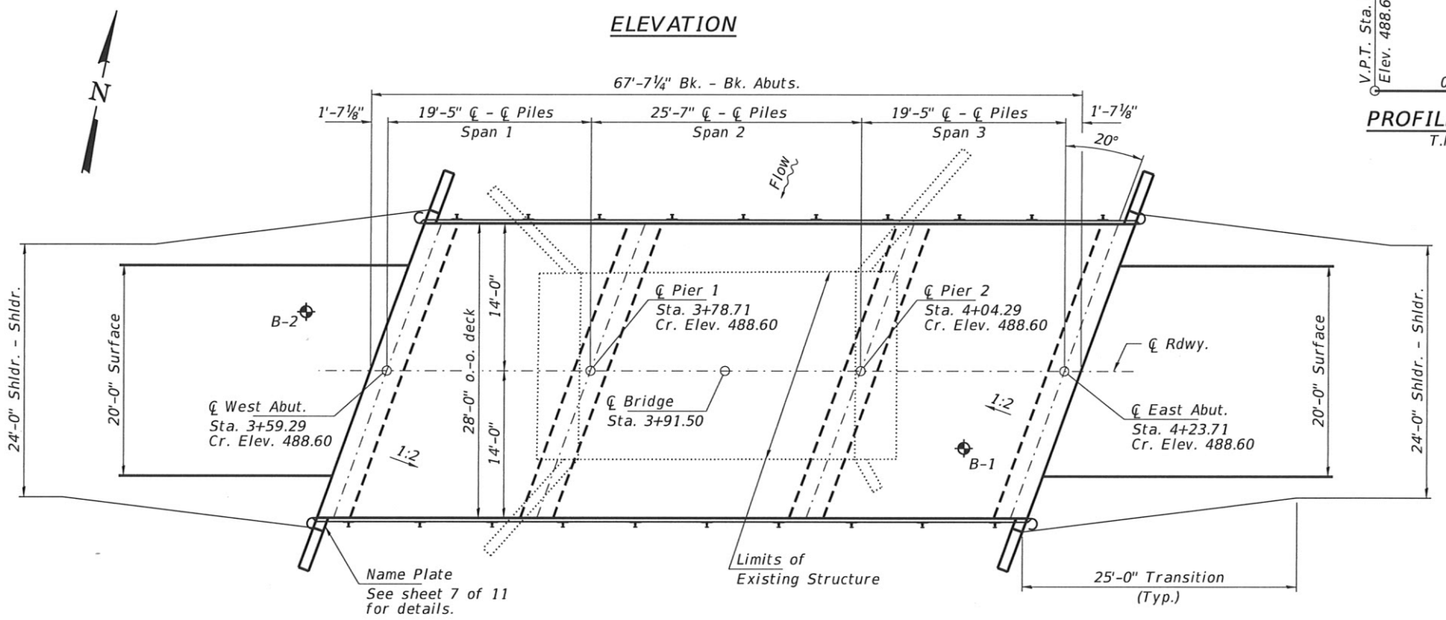
EXISTING STRUCTURE NO. 017-3705: Single span RC slab bridge with concrete deck on closed concrete abutments and wings. Single span at 26.0', 13.0' Rdwy., Skew = 0°

Road closed to traffic during construction.

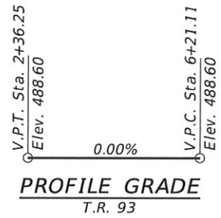
No Salvage



ELEVATION



PLAN



PROFILE GRADE

T.R. 93

GENERAL NOTES

Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at East Abutment and Pier 1 or approved by the Engineer before ordering the remainder of piles.

All proposed construction activities shall be in accordance with Nationwide Permit number 14 of the Department of the Army authorized under Section 404 of the Clean Water Act.

The Contractor shall make allowance for the deflection of forms, shrinkage, and settlement of falsework, in addition to allowance for dead load deflection. Forms for deck slab shall be removed prior to placement of bridge approach slab.

Protective Coat shall be applied to the top surface and the fascia of the concrete deck and exposed face of the wingwalls.

Reinforcement bars designated (E) shall be epoxy coated.

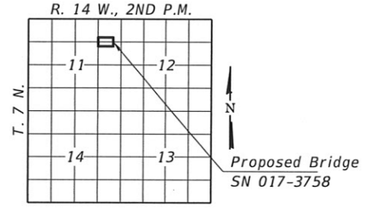
Excavation required to construct the Abutments and Piers shall be included in the cost of Concrete Structures. No additional compensation will be allowed for Structure Excavation or Cofferdam Excavation.

INDEX OF STRUCTURE SHEETS

BUILT 202_ BY
CRAWFORD COUNTY
SEC. 20-07134-00-BR
OBLONG ROAD DISTRICT
STR. NO. 017-3758
LOADING HL-93

NAME PLATE

See Std. 515001



LOCATION SKETCH

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.146g
Design Spectral Acceleration at 0.2 sec. (SDS) = 0.357g
Soil Site Class = c

DESIGN SPECIFICATIONS

2020 AASHTO LRFD Bridge Design Specifications, 9th Edition with all interims.

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

DESIGN STRESSES

FIELD UNITS

f'c = 5,000 psi (Superstructure)
f'c = 3,500 psi (Substructure)
fy = 60,000 psi (Reinf.)
fy = 50,000 psi (Steel H-Pile) (M270 Gr. 50)

OVER-THE-ROAD FLOW AREA

Freq. Yr.	Exist.	Prop.
10	155	0
100	402	0

WATERWAY INFORMATION

Drainage Area = 5.61 Mi²
Existing Low Grade Elev. 484.4 at Sta. 3+90
Proposed Low Grade Elev. 486.9 at Sta. 8+40.5

Flood	Freq. Yr.	Q C.F.S.	Opening Ft²		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	1210	165	331	485.9	-	-	485.9	485.9
Base	100	2270	165	390	487.0	0.0	0.8	487.0	487.0

DESIGN SCOUR ELEVATION TABLE

Event/Limit State	Design Scour Elevations (ft.)				Item 113
	W. Abut.	Pier 1	Pier 2	E. Abut.	
Q100	483.23	473.73	473.73	483.23	5
Q200	483.23	473.73	473.73	483.23	
Design	483.23	473.73	473.73	483.23	
Check	483.23	473.73	473.73	483.23	

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

Steven W. Megginson 02/09/2023
ILLINOIS STRUCTURAL ENGINEER NO. 081-6064

LICENSED STRUCTURAL ENGINEER
STEVEN W. MEGGINSON
081-6064
SPRINGFIELD, IL
STATE OF ILLINOIS

Expires 11-30-2024

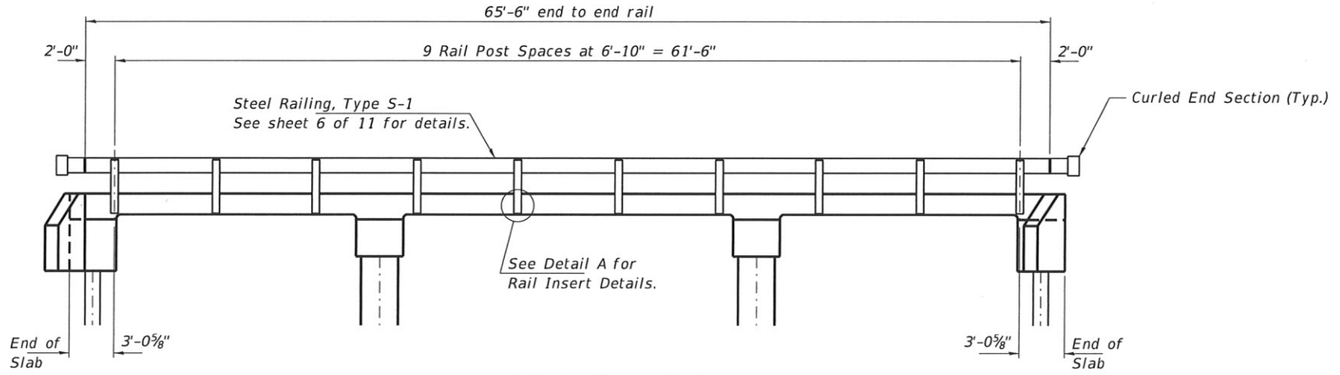
GENERAL PLAN & ELEVATION
T.R. 93
OVER NO BUSINESS CREEK
SECTION 20-07134-00-BR
CRAWFORD COUNTY
STATION 3+91.50
STRUCTURE NO. 017-3758

FILE NAME = 210076-sht-bridge.dgn	USER NAME = rhosick	DESIGNED - J.R.B.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959		CHECKED - S.T.M./S.W.M.	REVISED -
	PLOT SCALE =	DRAWN - R.D.H.	REVISED -
	PLOT DATE = 2/9/2023	CHECKED - S.T.M./S.W.M.	REVISED -

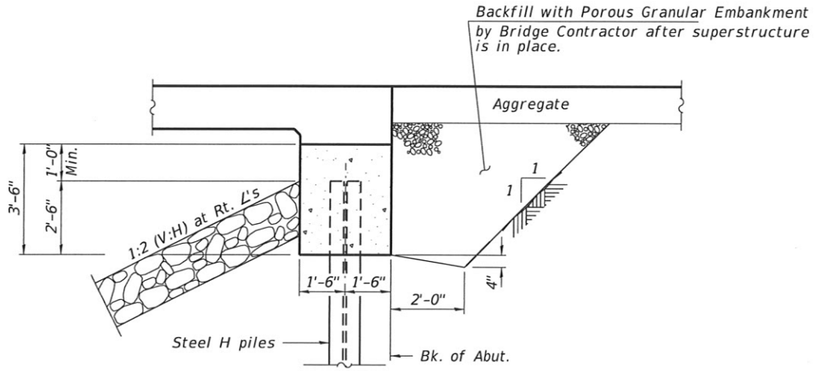
STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 017-3758
SHEET NO. 1 OF 11 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
93	20-07134-00-BR	CRAWFORD	15	5
OBLONG ROAD DISTRICT		CONTRACT NO. 95933		
C-97-061-22	ILLINOIS	FED. AID PROJECT TT08(650)		



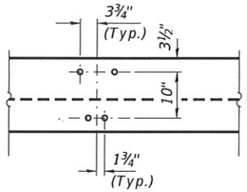
RAILING ELEVATION



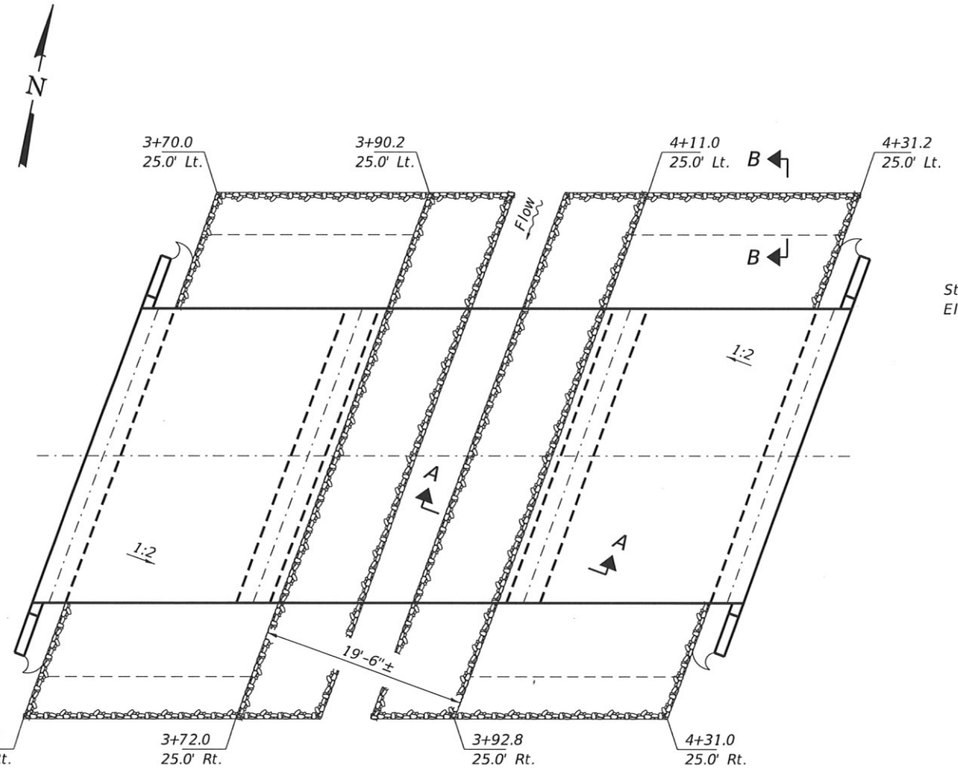
SECTION THRU INTEGRAL ABUTMENT

(Horiz. dim. at Rt. L's)

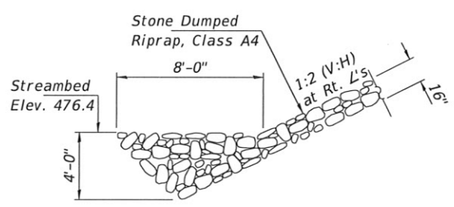
Porous Granular Embankment shall extend the width of the abutment to 2'-0" from the end of wingwalls.



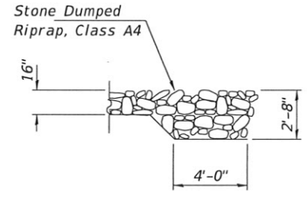
DETAIL A



RIPRAP PLAN

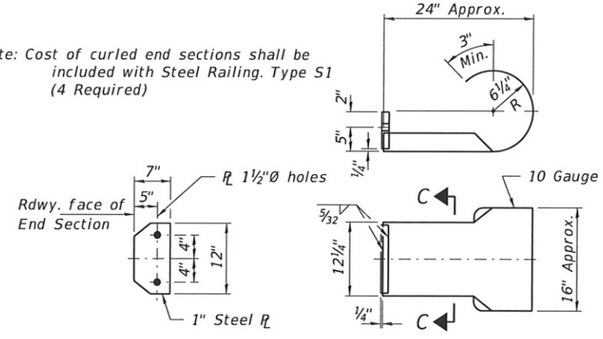


SECTION A-A



SECTION B-B

Note: Cost of curled end sections shall be included with Steel Railing. Type S1 (4 Required)



SECTION C-C

CURLED END SECTION DETAILS

TOTAL BILL OF MATERIAL

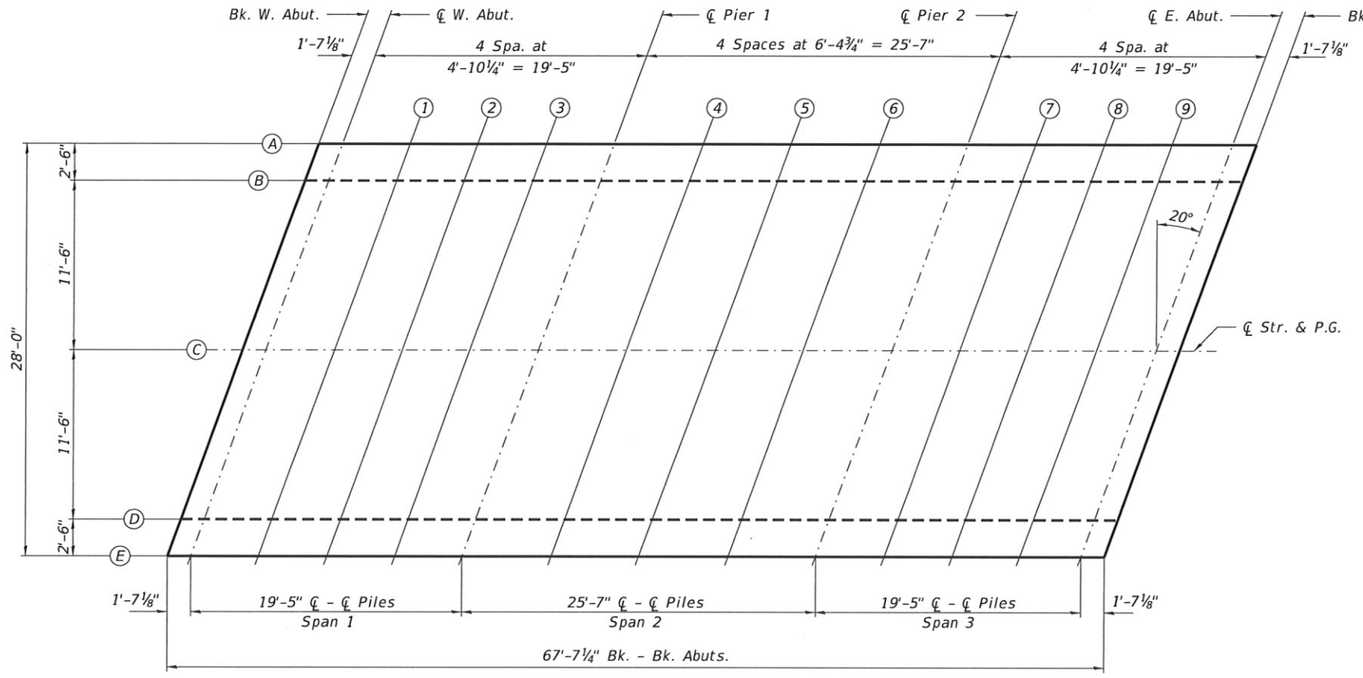
ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			240
Porous Granular Embankment	Ton			115
Stone Dumped Riprap, Class A4	Ton			330
Protective Coat	Sq. Yd.	232	15	247
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		43.4	43.4
Concrete Superstructure	Cu. Yd.	84.5		84.5
Bridge Deck Grooving	Sq. Yd.	210		210
Concrete Encasement	Cu. Yd.		12.2	12.2
Reinforcement Bars, Epoxy Coated	Pound	43,800	5,720	49,520
Steel Railing, Type S-1	Foot	131		131
Furnishing Steel Piles HP10x42	Foot		820	820
Driving Piles	Foot		820	820
Test Pile Steel HP10x42	Each		2	2
Pile Shoes	Each		18	18
Name Plates	Each		1	1
Terminal Marker - Direct Applied	Each	4		4

FILE NAME = 210076-sht-bridge.dgn	USER NAME = rhosick	DESIGNED - J.R.B.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959		CHECKED - S.T.M./S.W.M.	REVISED -
	PLOT SCALE =	DRAWN - R.D.H.	REVISED -
	PLOT DATE = 2/9/2023	CHECKED - S.T.M./S.W.M.	REVISED -

STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

GENERAL DETAILS
STRUCTURE NO. 017-3758
SHEET NO. 2 OF 11 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
93	20-07134-00-BR	CRAWFORD	15	6
OBLONG ROAD DISTRICT		CONTRACT NO. 95933		
C-97-061-22	ILLINOIS FED. AID PROJECT TT08(650)			



PLAN

LOCATION		BK. W. ABUT.	CL W. ABUT.	SPAN 1			CL PIER 1	SPAN 2			CL PIER 2	SPAN 3			CL E. ABUT.	BK. E. ABUT.
				1	2	3		4	5	6		7	8	9		
LINE	T.	488.308	488.308	488.308	488.308	488.308	488.308	488.308	488.308	488.308	488.308	488.308	488.308	488.308	488.308	488.308
A	ADJ.	488.308	488.308	488.329	488.329	488.319	488.308	488.340	488.360	488.340	488.308	488.319	488.329	488.329	488.308	488.308
* Bott. of Slab		486.892	486.892	486.913	486.913	486.902	486.892	486.923	486.944	486.923	486.892	486.902	486.913	486.913	486.892	486.892

LOCATION		BK. W. ABUT.	CL W. ABUT.	SPAN 1			CL PIER 1	SPAN 2			CL PIER 2	SPAN 3			CL E. ABUT.	BK. E. ABUT.
				1	2	3		4	5	6		7	8	9		
LINE	T.	488.360	488.360	488.360	488.360	488.360	488.360	488.360	488.360	488.360	488.360	488.360	488.360	488.360	488.360	488.360
B	ADJ.	488.360	488.360	488.381	488.381	488.371	488.360	488.392	488.413	488.392	488.360	488.371	488.381	488.381	488.360	488.360
Bott. of Slab		487.360	487.360	487.381	487.381	487.371	487.360	487.392	487.413	487.392	487.360	487.371	487.381	487.381	487.360	487.360

LOCATION		BK. W. ABUT.	CL W. ABUT.	SPAN 1			CL PIER 1	SPAN 2			CL PIER 2	SPAN 3			CL E. ABUT.	BK. E. ABUT.
				1	2	3		4	5	6		7	8	9		
LINE	T.	488.600	488.600	488.600	488.600	488.600	488.600	488.600	488.600	488.600	488.600	488.600	488.600	488.600	488.600	488.600
C	ADJ.	488.600	488.600	488.621	488.621	488.610	488.600	488.631	488.652	488.631	488.600	488.610	488.621	488.621	488.600	488.600
Bott. of Slab		487.600	487.600	487.621	487.621	487.610	487.600	487.631	487.652	487.631	487.600	487.610	487.621	487.621	487.600	487.600

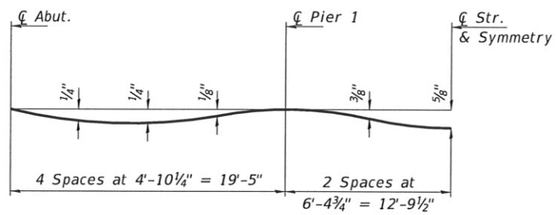
LOCATION		BK. W. ABUT.	CL W. ABUT.	SPAN 1			CL PIER 1	SPAN 2			CL PIER 2	SPAN 3			CL E. ABUT.	BK. E. ABUT.
				1	2	3		4	5	6		7	8	9		
LINE	T.	488.360	488.360	488.360	488.360	488.360	488.360	488.360	488.360	488.360	488.360	488.360	488.360	488.360	488.360	488.360
D	ADJ.	488.360	488.360	488.381	488.381	488.371	488.360	488.392	488.413	488.392	488.360	488.371	488.381	488.381	488.360	488.360
Bott. of Slab		487.360	487.360	487.381	487.381	487.371	487.360	487.392	487.413	487.392	487.360	487.371	487.381	487.381	487.360	487.360

LOCATION		BK. W. ABUT.	CL W. ABUT.	SPAN 1			CL PIER 1	SPAN 2			CL PIER 2	SPAN 3			CL E. ABUT.	BK. E. ABUT.
				1	2	3		4	5	6		7	8	9		
LINE	T.	488.308	488.308	488.308	488.308	488.308	488.308	488.308	488.308	488.308	488.308	488.308	488.308	488.308	488.308	488.308
E	ADJ.	488.308	488.308	488.329	488.329	488.319	488.308	488.340	488.360	488.340	488.308	488.319	488.329	488.329	488.308	488.308
* Bott. of Slab		486.892	486.892	486.913	486.913	486.902	486.892	486.923	486.944	486.923	486.892	486.902	486.913	486.913	486.892	486.892

T. - Theoretical elevation at top of slab

Adj. - T adjusted for dead load deflection

* *Bottom of slab elevation equals bottom of edge beam*



DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only.)

Notes:

The 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.

The Contractor shall make allowance for the deflection of forms, shrinkage and settlement of falsework in addition to allowance for dead load deflection.

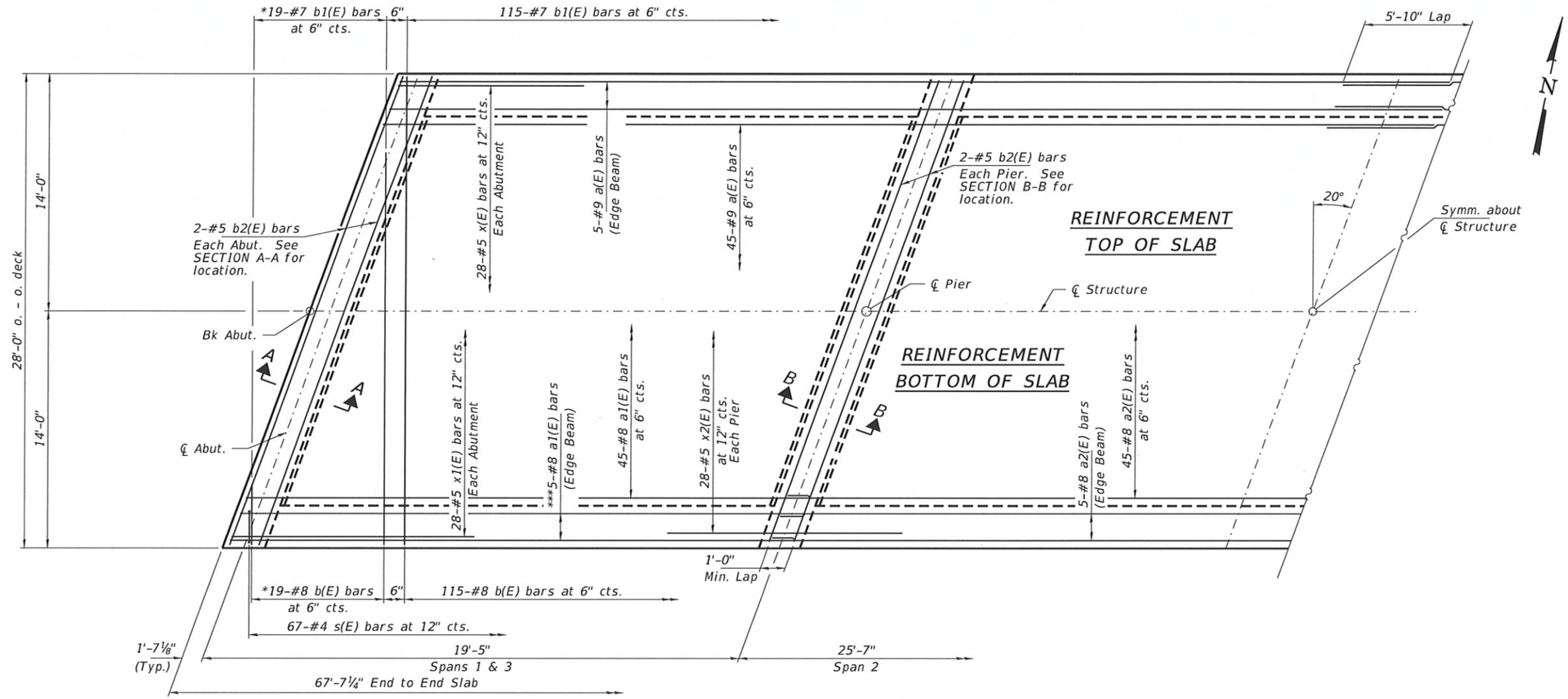
FILE NAME = 210076-sht-bridge.dgn	USER NAME = rhosick	DESIGNED - J.R.B.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959		CHECKED - S.T.M./S.W.M.	REVISED -
	PLOT SCALE =	DRAWN - R.D.H.	REVISED -
	PLOT DATE = 2/9/2023	CHECKED - S.T.M./S.W.M.	REVISED -

STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

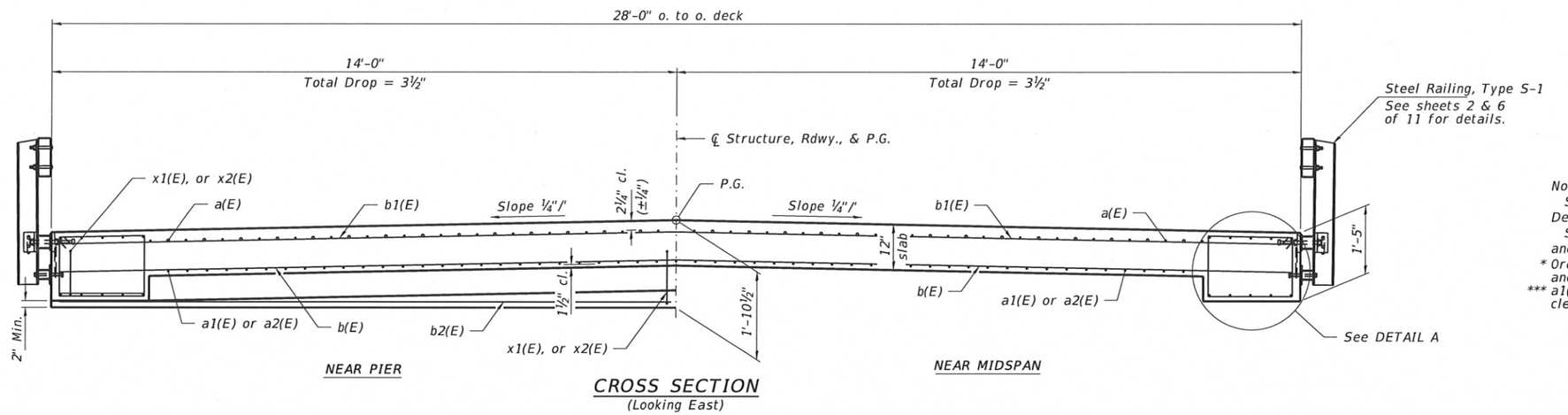
TOP OF SLAB ELEVATIONS
STRUCTURE NO. 017-3758

SHEET NO. 3 OF 11 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
93	20-07134-00-BR	CRAWFORD	15	7
OBLONG ROAD DISTRICT		CONTRACT NO. 95933		
C-97-061-22	ILLINOIS FED. AID PROJECT TT08(650)			



HALF PLAN



CROSS SECTION
(Looking East)

Notes:
See sheets 5 of 11 for Superstructure Details and Bill of Material.
See sheet 5 of 11 for SECTION A-A, SECTION B-B and DETAIL A.
* Order b(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.
*** a1(E) bars may be rotated to provide clearance for hooked ends.

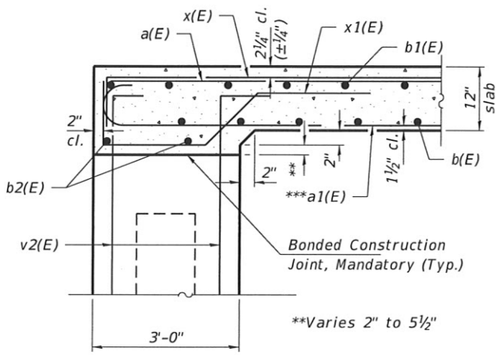
MIN. BAR LAP
#9 = 5'-10"
#8 = 1'-0"

FILE NAME = 210076-shl-bridge.dgn	USER NAME = rhosick	DESIGNED - J.R.B.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM I.B. / PE / SE CORP. 184.000959		CHECKED - S.T.M./S.W.M.	REVISED -
	PLOT SCALE =	DRAWN - R.D.H.	REVISED -
	PLOT DATE = 2/9/2023	CHECKED - S.T.M./S.W.M.	REVISED -

STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

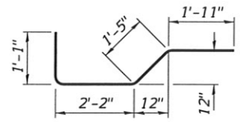
SUPERSTRUCTURE
STRUCTURE NO. 017-3758
SHEET NO. 4 OF 11 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
93	20-07134-00-BR	CRAWFORD	15	8
OBLONG ROAD DISTRICT		CONTRACT NO. 95933		
C-97-061-22	ILLINOIS FED. AID PROJECT TT08(650)			

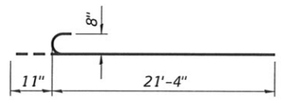


SECTION A-A

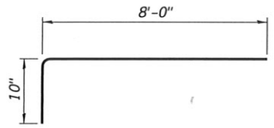
Dimensions at right ∠'s to Abutments.



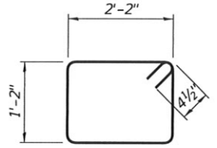
BAR x1(E)



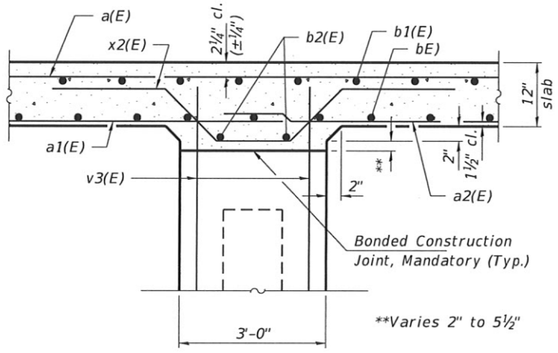
BAR a1(E)



BAR x(E)

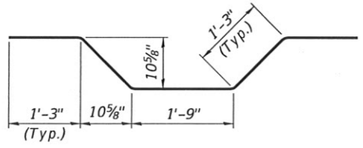


BAR s(E)

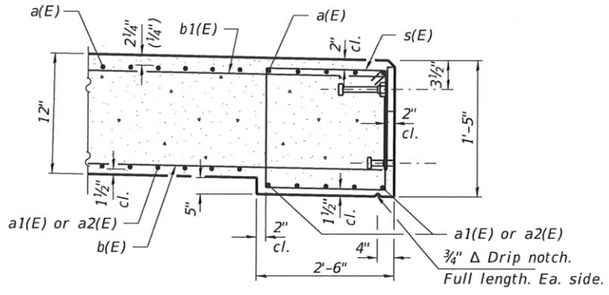


SECTION B-B

Dimensions at right ∠'s to Piers.



BAR x2(E)



DETAIL A

SUPERSTRUCTURE BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
a(E)	110	#9	36'-7"	
a1(E)	110	#8	22'-3"	
a2(E)	55	#8	26'-7"	
b(E)	134	#8	27'-8"	
b1(E)	134	#7	27'-8"	
b2(E)	8	#5	29'-6"	
s(E)	134	#4	7'-5"	
x(E)	56	#5	8'-10"	
x1(E)	56	#5	6'-7"	
x2(E)	56	#5	6'-9"	
Protective Coat			Sq. Yd.	232
Concrete Superstructure			Cu. Yd.	84.5
Bridge Deck Grooving			Sq. Yd.	210
Reinforcement Bars, Epoxy Coated			Pound	43,800

Notes:

See Sheet 7 of 11 for v2(E) placement.

See Sheet 8 of 11 for v3(E) placement.

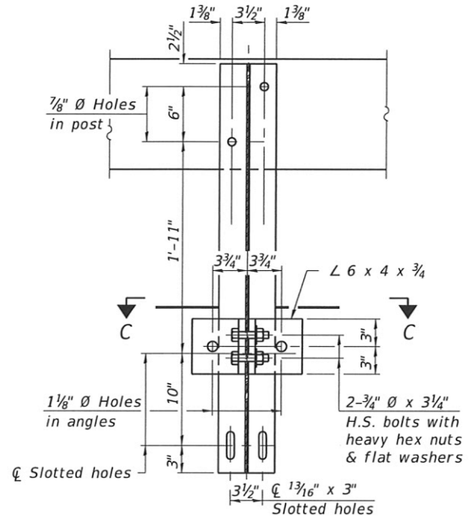
*** a1(E) bars may be rotated to provide clearance for hooked ends.

FILE NAME = 210076-sht-bridge.dgn	USER NAME = rhosick	DESIGNED - J.R.B.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC. 3065 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L9 / PE / SE CORP. 184.000969		CHECKED - S.T.M./S.W.M.	REVISED -
	PLOT SCALE =	DRAWN - R.D.H.	REVISED -
	PLOT DATE = 2/9/2023	CHECKED - S.T.M./S.W.M.	REVISED -

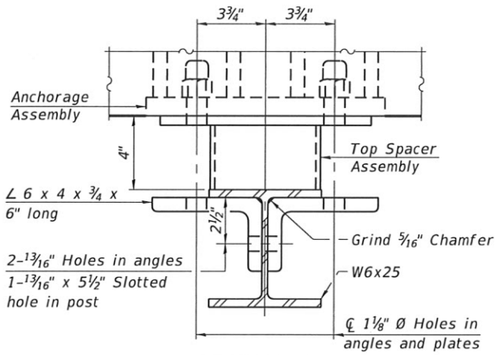
STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS
STRUCTURE NO. 017-3758
SHEET NO. 5 OF 11 SHEETS

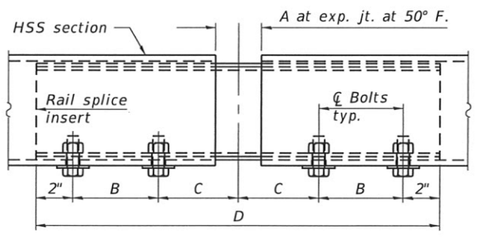
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
93	20-07134-00-BR	CRAWFORD	15	9
OBLONG ROAD DISTRICT		CONTRACT NO. 95933		
C-97-061-22	ILLINOIS FED. AID PROJECT TT08(650)			



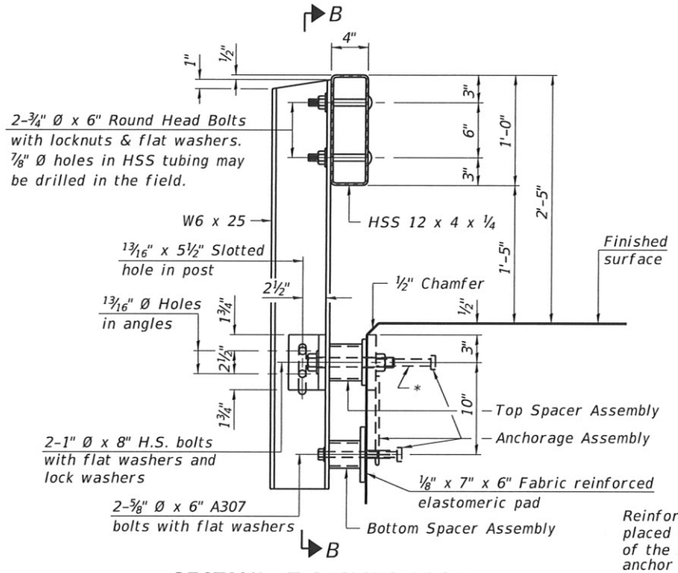
SECTION B-B



SECTION C-C

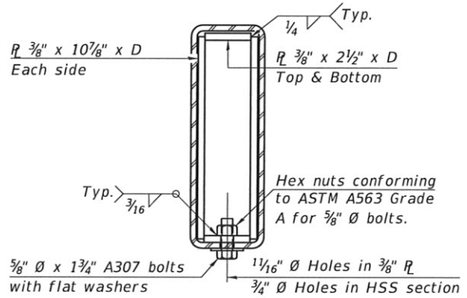


RAIL SPLICE ELEVATION

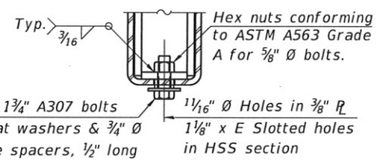


SECTION AT RAILING POST

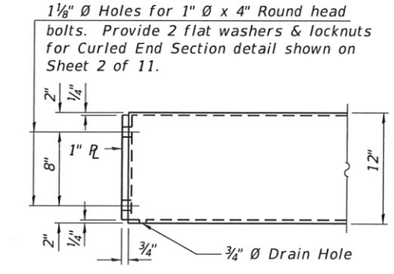
* The outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchorage assembly. The anchorage studs may be bent down ½" to accommodate the top reinforcement bar placement.



SECTION AT RAIL SPLICE

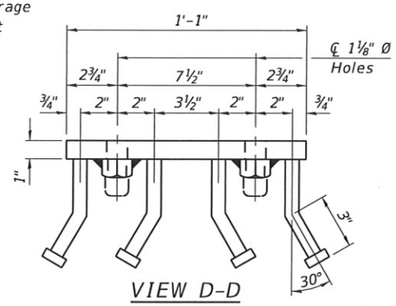


RAIL SPLICE CONNECTION AT EXPANSION JT.

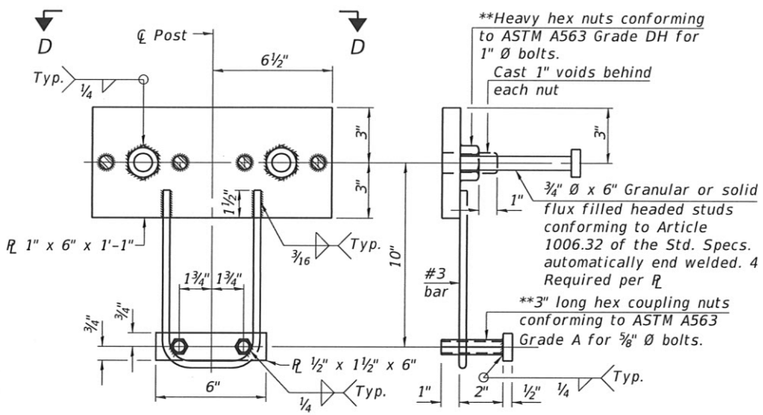


END OF RAIL DETAILS

Reinforcement bars in the top of the slab may be placed with a 1½" minimum clearance 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.



VIEW D-D



ANCHORAGE ASSEMBLY

** Threaded areas shall be plugged or blocked off during pouring of deck.

Notes:

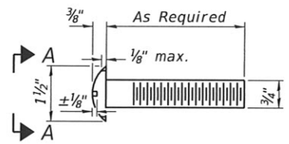
A sufficient number of shims of various thicknesses, sized to fit behind the top spacer assembly, 5" x 11½", and bottom spacer assembly, 6" x 7", shall be provided to adjust posts for proper alignment. If the summation of shims is greater than ¼" (top) or ½" (bottom), longer bolts are required. Cost included with Steel Railing, Type S-1.

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

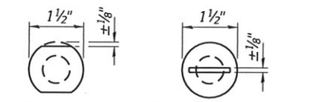
All HSS tubing serving as railing shall be CVN tested according to Article 1006.34(b) of the Standard Specifications.

Rail splice inserts may be built out of 2 -⅜" bent plates in lieu of the 4 plate rail splice inserts shown, provided the outside dimensions are matched.

All round head bolts shall be ASTM A307 with locknuts according to ASTM A563 grade A.



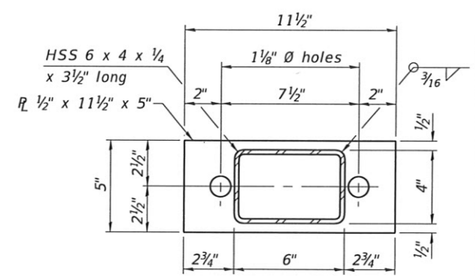
ROUND HEAD BOLT DETAIL



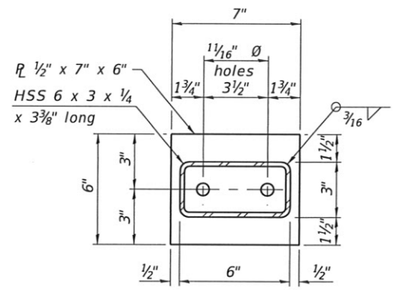
Without Slot or Recess

With Slot (shown) or Approved Recess

VIEW A-A



TOP SPACER ASSEMBLY



BOTTOM SPACER ASSEMBLY

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	131
Terminal Marker, Direct Applied	Each	4

RAILING CRITERIA

NCHRP 350 Test Level	2
Railing Weight (plf)	50
Max Post Spacing	10'-9"
HMA thickness range (in)	1¼ - 3⅛

SPLICE DIMENSIONS

Location	T	A	B	C	D	E
All locs. not over exp. jts.	0	¼"	4"	4"	1'-8"	-
Over Strip Seal Jt.	≤4"	2½"	4⅝"	4⅜"	1'-10"	3 1⁄16"
Over Finger or Modular Jt.	≤9½"	5½"	7⅜"	7¼"	2'-9¼"	5 13⁄16"
Over Finger or Modular Jt.	≤15"	8¼"	10⅛"	10"	3'-8¼"	8 1⁄16"

T = ; total movement along centerline of roadway at expansion joint.

R-23A

10-12-2021

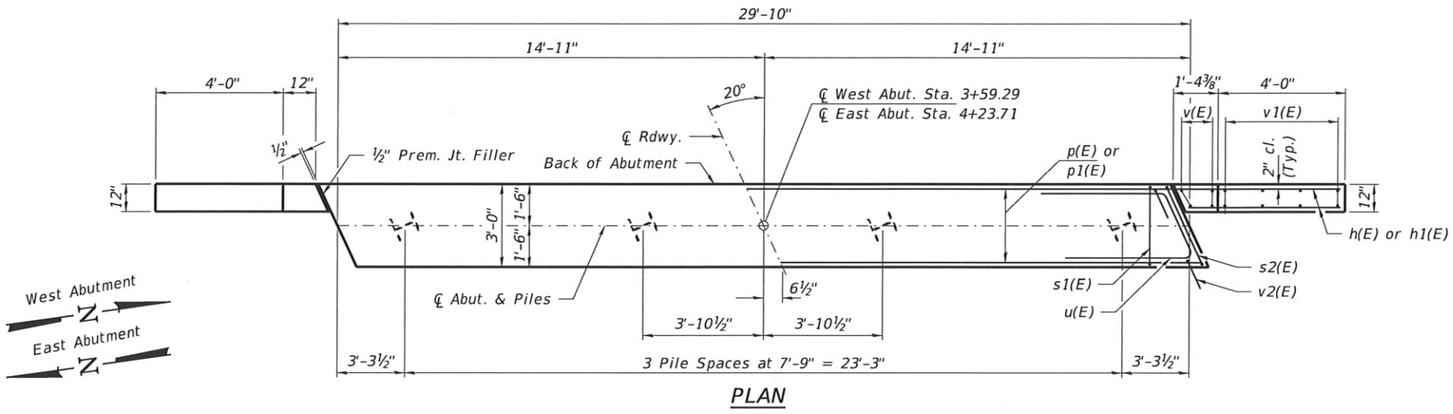
FILE NAME = 210076-sht-bridge.dgn | USER NAME = rhosick | DESIGNED - J.R.B. | REVISED -
HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000969 | CHECKED - S.T.M./S.W.M. | REVISED -
PLOT SCALE = | DRAWN - R.D.H. | REVISED -
PLOT DATE = 2/9/2023 | CHECKED - S.T.M./S.W.M. | REVISED -

STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

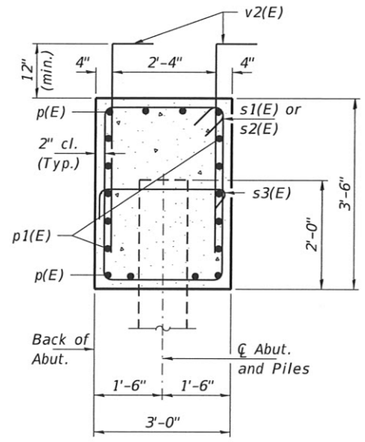
STEEL RAILING, TYPE S-1
STRUCTURE NO. 017-3758

SHEET NO. 6 OF 11 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
93	20-07134-00-BR	CRAWFORD	15	10
OBLONG ROAD DISTRICT		CONTRACT NO. 95933		
C-97-061-22	ILLINOIS FED. AID PROJECT TT08(650)			



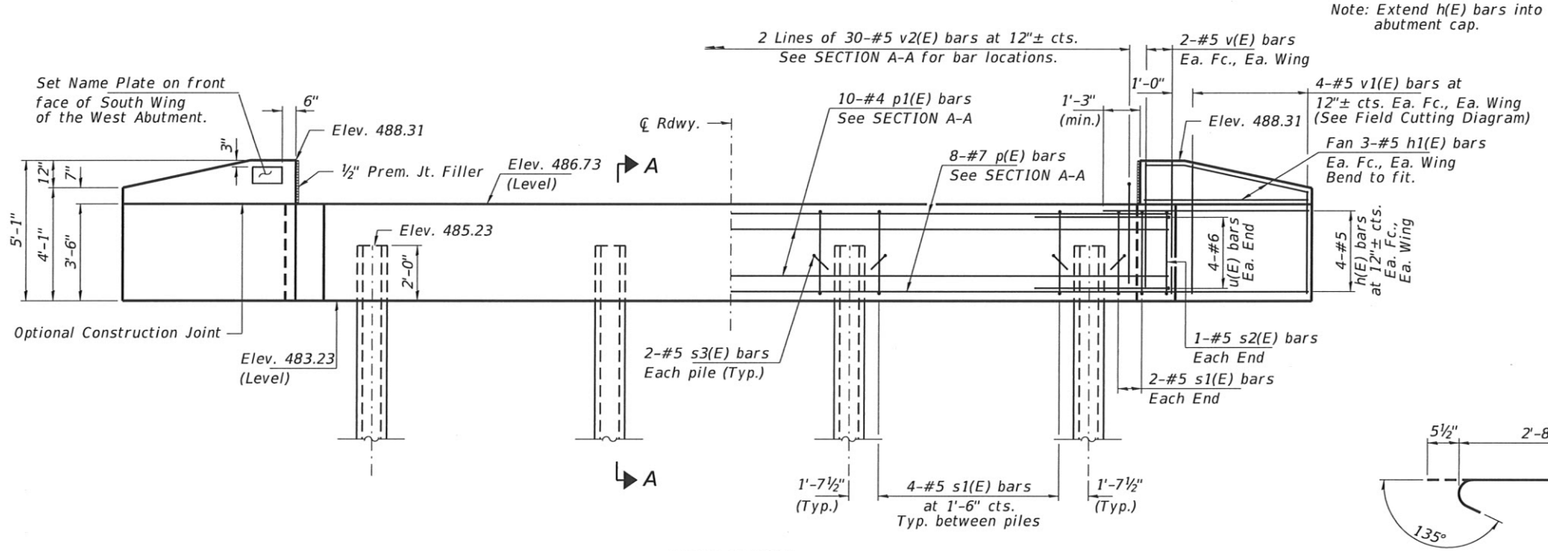
PLAN



SECTION A-A

Dimensions at right ∠'s to Abutment.

Note: Extend h(E) bars into abutment cap.

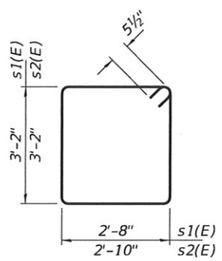


ELEVATION

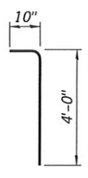
PILE DATA

Type:	Steel HP10x42 w/ pile shoes
Nominal Required Bearing:	335 Kips/Pile
Factored Resistance Available:	184 Kips/Pile
Est. Length:	40 Ft/Pile
No. Production Piles:	7
No. Test Piles:	1

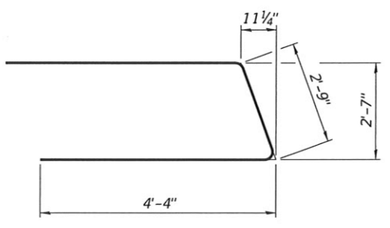
Notes: Includes one test pile to be driven in a permanent location at the East Abutment.



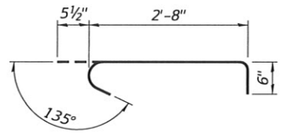
BAR s1(E) & s2(E)



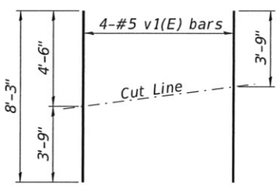
BAR v2(E)



BAR u(E)



BAR s3(E)



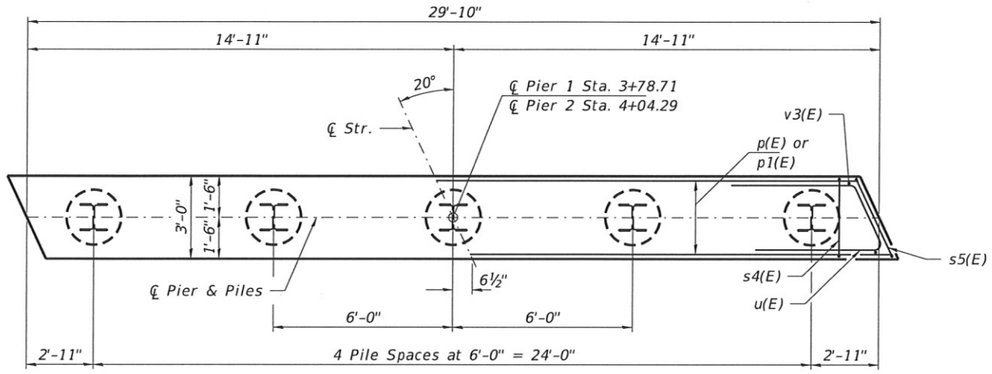
FIELD CUTTING DIAGRAM

Order v1(E) bars full length. Cut as shown and use remainder of bars in opposite face.

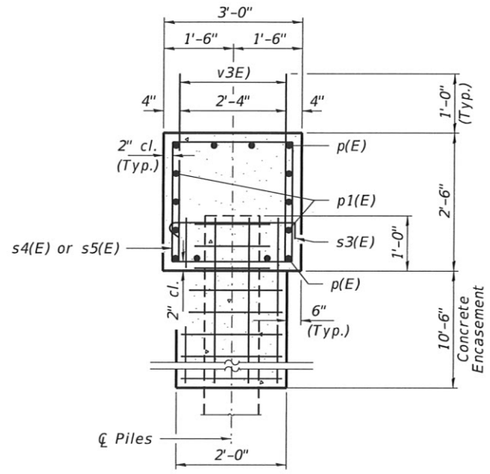
BILL OF MATERIAL - 2 ABUTS.

BAR	NO.	SIZE	LENGTH	SHAPE
h(E)	32	#5	6'-6"	
h1(E)	24	#5	4'-11"	
p(E)	16	#7	29'-6"	
p1(E)	20	#4	29'-6"	
s1(E)	32	#5	12'-7"	
s2(E)	4	#5	12'-11"	
s3(E)	16	#5	3'-8"	
u(E)	16	#6	11'-5"	
v(E)	16	#5	4'-10"	
v1(E)	16	#5	8'-3"	
v2(E)	120	#5	4'-10"	
Protective Coat			Sq. Yd.	15
Concrete Structures			Cu. Yd.	26.8
Reinf. Bars, Epoxy Coated			Pound	3,330
Furnishing Steel Piles HP10x42			Foot	280
Driving Piles			Foot	280
Test Pile Steel HP10x42			Each	1
Pile Shoes			Each	8
Name Plates			Each	1

Notes:
For details of piles, see Sheet 9 of 11.
All edges shall have standard ¾" chamfer.

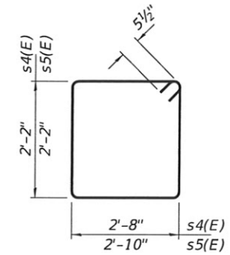


PLAN

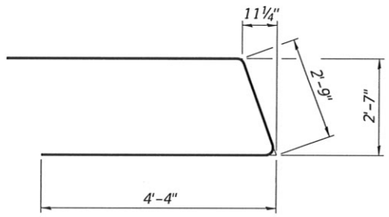


SECTION B-B

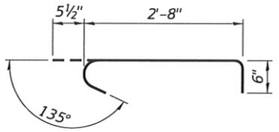
Dimensions at right ℄'s to Pier.



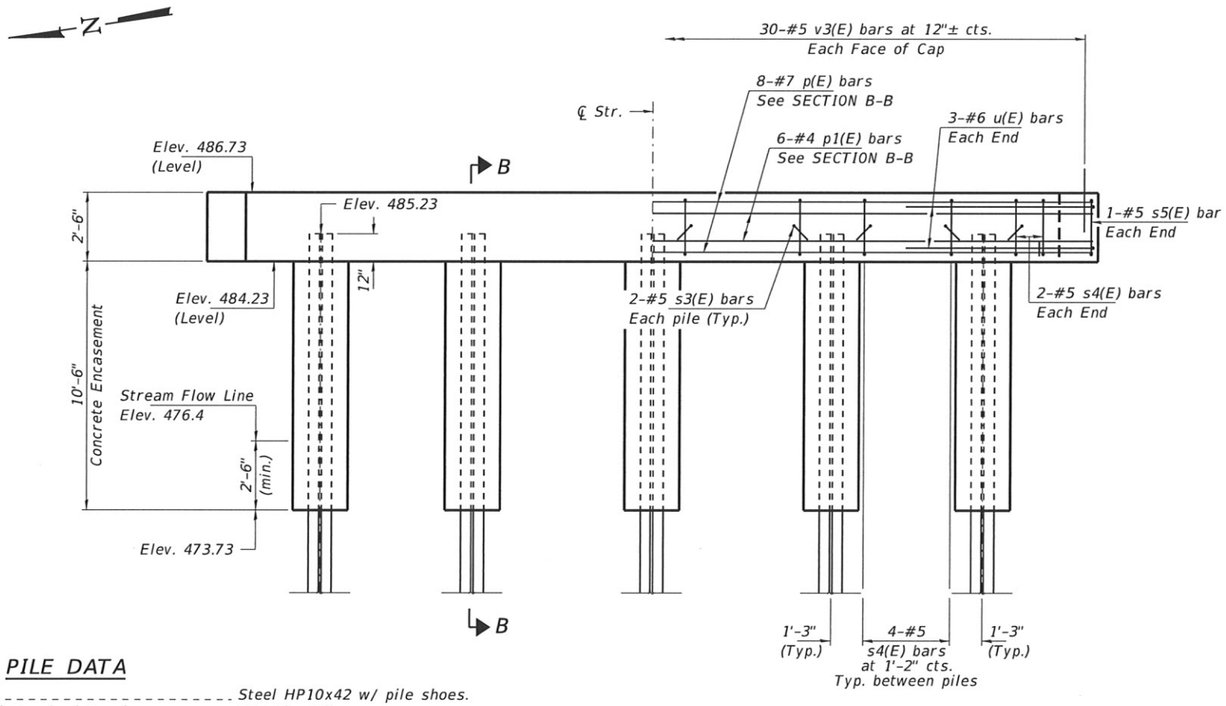
BAR s4(E) & s5(E)



BAR u(E)



BAR s3(E)



ELEVATION

(Looking East)

PILE DATA

Type: _____ Steel HP10x42 w/ pile shoes.
Nominal Required Bearing: _____ 335 Kips/Pile
Factored Resistance Available: _____ 184 Kips/Pile
Est. Length: _____ 60 Ft/Pile
No. Production Piles: _____ 9
No. Test Piles: _____ 1

Notes: Includes one test pile to be driven in a permanent location at Pier 1.

BILL OF MATERIAL - 2 PIERS

BAR	NO.	SIZE	LENGTH	SHAPE
p(E)	16	#7	29'-6"	
p1(E)	12	#4	29'-6"	
s3(E)	20	#5	3'-8"	
s4(E)	40	#5	10'-7"	
s5(E)	4	#5	10'-11"	
u(E)	12	#6	11'-5"	
v3(E)	120	#5	3'-4"	

Concrete Structures	Cu. Yd.	16.6
Concrete Encasement	Cu. Yd.	12.2
Reinf. Bars, Epoxy Coated	Pound	2,390
Furnishing Steel Piles HP10x42	Foot	540
Driving Piles	Foot	540
Test Pile Steel HP10x42	Each	1
Pile Shoes	Each	10

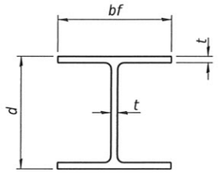
Notes:
For details of piles, see Sheet 9 of 11.
For details of concrete encasement reinforcement, see Sheet 9 of 11.
All edges shall have standard ¾" chamfer.
Pile spacing can be varied up to 1'-0" to avoid existing footings.

FILE NAME = 210078-sht-bridge.dgn | USER NAME = rhosick | DESIGNED - J.R.B. | REVISED -
HAMPTON, LENZINI AND RENWICK, INC. | CHECKED - S.T.M./S.W.M. | REVISED -
3046 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 | PLOT SCALE = | DRAWN - R.D.H. | REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM LB / PE / SE CORP. 184.000969 | PLOT DATE = 2/9/2023 | CHECKED - S.T.M./S.W.M. | REVISED -

STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

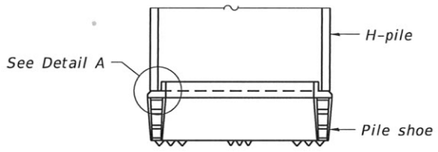
PIERS
STRUCTURE NO. 017-3758
SHEET NO. 8 OF 11 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
93	20-07134-00-BR	CRAWFORD	15	12
OBLONG ROAD DISTRICT		CONTRACT NO. 95933		
C-97-061-22	ILLINOIS FED. AID PROJECT TT08(650)			

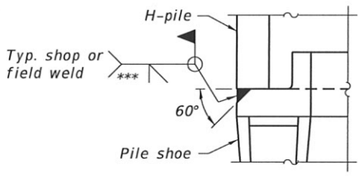


STEEL PILE TABLE

Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 14x117	14¼"	14⅞"	13/16"	30"
x102	14"	14¾"	11/16"	30"
x89	13⅞"	14¾"	⅝"	30"
x73	13⅝"	14⅝"	½"	30"
HP 12x84	12¼"	12¼"	11/16"	24"
x74	12⅛"	12¼"	⅝"	24"
x63	12"	12⅛"	½"	24"
x53	11¾"	12"	7/16"	24"
HP 10x57	10"	10¼"	9/16"	24"
x42	9¾"	10⅛"	7/16"	24"
HP 8x36	8"	8⅛"	7/16"	18"



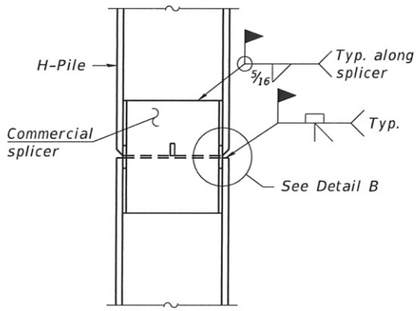
ELEVATION



DETAIL A

SHOE ATTACHMENT

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



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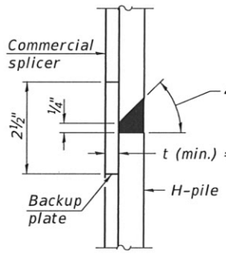
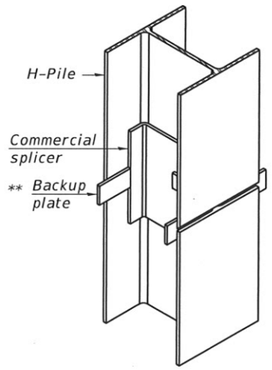
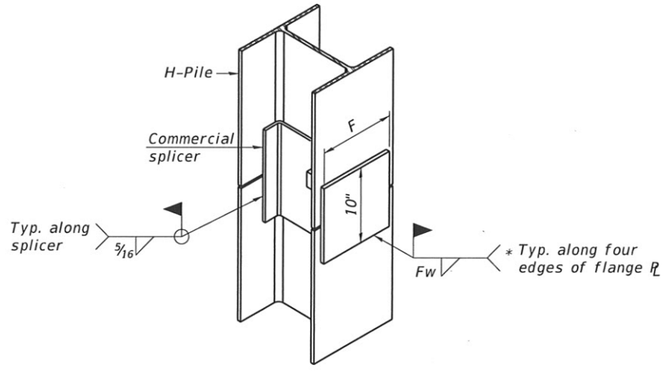


DETAIL "B"



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



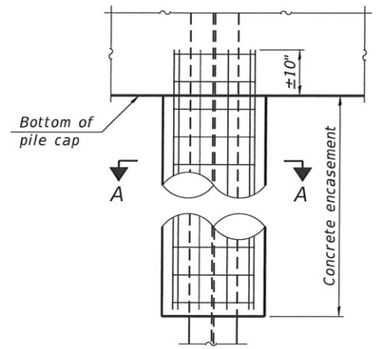
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

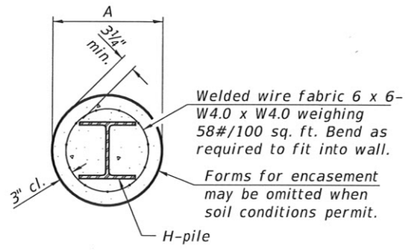
* Interrupt welds ¼" from end of web and/or each flange.

** Remove portions of backup plates that extend outside the flanges.

*** Weld size per pile shoe manufacturer (5/16" min.).



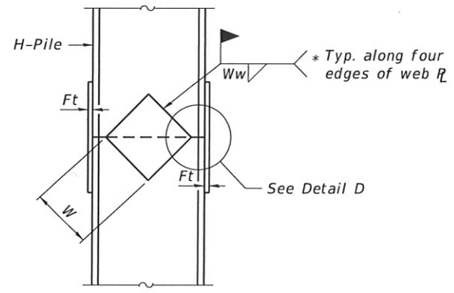
ELEVATION



SECTION A-A

INDIVIDUAL PILE CONCRETE ENCASEMENT

(when specified)



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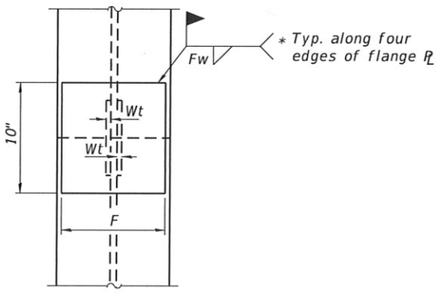
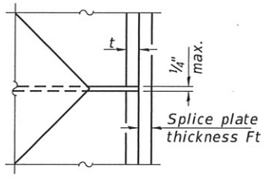


END VIEW



DETAIL D

Designation	F	Ft	Fw	W	Wt	Ww
HP 14x117	12½"	1"	⅞"	7¾"	⅝"	½"
x102	12½"	⅞"	¾"	7¾"	⅝"	½"
x89	12½"	¾"	11/16"	7¾"	⅝"	½"
x73	12½"	⅝"	9/16"	7¾"	⅝"	½"
HP 12x84	10"	⅞"	11/16"	6½"	⅝"	½"
x74	10"	⅞"	11/16"	6½"	⅝"	½"
x63	10"	⅝"	½"	6½"	½"	⅜"
x53	10"	⅝"	½"	6½"	½"	⅜"
HP 10x57	8"	¾"	9/16"	5¼"	½"	⅜"
x42	8"	⅝"	9/16"	5¼"	½"	⅜"
HP 8x36	7"	⅝"	7/16"	4¼"	½"	⅜"

WELDED PLATE FIELD SPLICE

F-HP 1-1-2020

FILE NAME = 210076-sht-bridge.dgn	USER NAME = rhosick	DESIGNED - J.R.B.	REVISED -	STATE OF ILLINOIS CRAWFORD COUNTY HIGHWAY DEPARTMENT	HP PILE DETAILS STRUCTURE NO. 017-3758	T.R. 93	SECTION 20-07134-00-BR	COUNTY CRAWFORD	TOTAL SHEETS 15	SHEET NO. 13
HAMPTON, LENZINI AND RENWICK, INC. 3065 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703		CHECKED - S.T.M./S.W.M.	REVISED -			OBLONG ROAD DISTRICT		CONTRACT NO. 95933		
H&LR ILLINOIS PROFESSIONAL DESIGN FIRM L.B / PE / SE CORP. 184.000969	PLOT SCALE =	DRAWN - R.D.H.	REVISED -		SHEET NO. 9 OF 11 SHEETS	C-97-081-22	ILLINOIS	FED. AID PROJECT TT08(650)		
	PLOT DATE = 2/9/2023	CHECKED - S.T.M./S.W.M.	REVISED -							

HOLCOMB FOUNDATION ENGINEERING INC. Page 1 of 2
393 Wood Road 618-529-5262
Carbondale, Il. 62901 618-457-8991 fax

Bridge Foundation Boring Log

Project: H-20087 Bridge E 1480th Ave Over Business Creek Date: 4/15/20
Section: 20-07134-00-BR Station
Structure: 017-3705 Bored by: D. Plucker
County: Crawford Checked By: T. Holcomb

Boring No: 1
Station:
Offset:

Surface Water Elev.
Ground Water Elev. During Drilling 469.5
Upon Completion 475.5

Elevation	N	Qu tsf	w %	Elevation	N	Qu tsf	w %
Ground Surface 485.5 0				silty clay with sand and gravel (continued)			
8" Crushed Stone				-25	25	--	26
Brown Sandy CLAY (A-6)	3	1.6S	23		13	2.5S	11
482.0				-30	52	5.2S	7
Gray Mottled Brown Silty CLAY (A-6)	4	1.4S	18				
-5	5	1.1S	17				
-10	5	1.2B	19				
474.5				451.5			
Gray Mottled Brown Silty CLAY (A-6) with gravel	5	1.0S	20	LIMESTONE	123	2.0S	10
471.5				-35			
Gray CLAY (A-6)	3	0.4S	20	447.0			
-15				Gray Silty CLAY (A-6) with sand and gravel	96	2.5S	10
	4	1.0B	27	-40			
467.0							
Gray Silty CLAY (A-6) with sand and gravel							
-20	6	0.5S	22				
	26	--	14		41	8.5S	11

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"
Qu-Unconfined Compressive Strength in tons/sq.ft.
w-Water Content-percentage of oven dry weight-%
B = Bulge Failure
S = Shear Failure
E = Estimated Value
P = Penetrometer

HOLCOMB FOUNDATION ENGINEERING INC. Page 2 of 2
393 Wood Road 618-529-5262
Carbondale, Il. 62901 618-457-8991 fax

Bridge Foundation Boring Log

Project: H-20087 Bridge E 1480th Ave Over Business Creek Date: 4/15/20
Section: 20-07134-00-BR Station
Structure: 017-3705 Bored by: D. Plucker
County: Crawford Checked By: T. Holcomb

Boring No: 1
Station:
Offset:

Surface Water Elev.
Ground Water Elev. During Drilling 469.5
Upon Completion 475.5

Elevation	N	Qu tsf	w %	Elevation	N	Qu tsf	w %
silty clay with sand and gravel (continued) 45				sandy gravel (continued)			
-50	41	6.6S	12	-70	23	--	15
-55	44	7.0S	14	411.0			
				Gray Silty CLAY (A-6) with sand and gravel	31	5.9S	16
				-75			
				407.0			
				Gray SAND (A-2-4) and gravel			
				405.5 -80	23	--	12
				End of Boring @ -80.0'			
427.0							
Sandy GRAVEL							
-60	57	0.6S	11	-85			
-65	41	--	12				

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"
Qu-Unconfined Compressive Strength in tons/sq.ft.
w-Water Content-percentage of oven dry weight-%
B = Bulge Failure
S = Shear Failure
E = Estimated Value
P = Penetrometer

BORING-1

FILE NAME = 210076-sht-bridge.dgn	USER NAME = rhosick	DESIGNED - J.R.B.	REVISED -	STATE OF ILLINOIS CRAWFORD COUNTY HIGHWAY DEPARTMENT	BORINGS STRUCTURE NO. 017-3758	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959		CHECKED - S.T.M./S.W.M.	REVISED -		SHEET NO. 10 OF 11 SHEETS	93	20-07134-00-BR	CRAWFORD	15	14
	PLOT SCALE =	DRAWN - R.D.H.	REVISED -			OBLONG ROAD DISTRICT		CONTRACT NO. 95933		
	PLOT DATE = 2/9/2023	CHECKED - S.T.M./S.W.M.	REVISED -			C-97-061-22	ILLINOIS	FED. AID PROJECT TT08(650)		

HOLCOMB FOUNDATION ENGINEERING INC. Page 1 of 2
393 Wood Road 618-529-5262
Carbondale, Il. 62901 618-457-8991 fax

Bridge Foundation Boring Log

Project: H-20087 Bridge E 1480th Ave Over Business Creek Date: 4/15/20
Section: 20-07134-00-BR Station
Structure: 017-3705 Bored by: D. Plucker
County: Crawford Checked By: T. Holcomb

Boring No: 2
Station:
Offset:

Surface Water Elev.
Ground Water Elev. During Drilling 471.8
Upon Completion 471.8

Elevation	N	Qu tsf	w %	Description
485.8				Ground Surface
				8" Crushed Stone
				Brown Mottled Gray Silty CLAY (A-6) with organics and sand
	5	1.3S	19	
482.3				
				Gray Mottled Brown Silty CLAY (A-6) with sand
-5	5	1.7S	23	
	7	2.1S	21	
-10	6	1.5B	21	
474.8				
				Gray Sandy CLAY (A-6)
	6	0.8S	20	
471.3				
-15				Gray Mottled Brown Silty CLAY (A-6) with sand and gravel
	4	0.4S	19	
	27	7.4S	9	
-20	63	4.8B	10	
	75	4.9S	7	
				silty clay with sand and gravel (continued)
462.3				
				Gray SAND (A-2-4) with gravel
-25	42	--	20	
459.8				
				Gray Silty CLAY (A-6) with sand and gravel
	69	7.7S	7	
-30	49	5.7S	8	
454.8				
				Gray Silty CLAY (A-6) with limestone
453.8				
				Gray Silty CLAY (A-6) with sand and gravel
	120	2.7S	8	
-35				
-40	39	9.9S	11	
	34	5.9S	11	

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"
Qu-Unconfined Compressive Strength in tons/sq.ft. w-Water Content-percentage of oven dry weight-%
B = Bulge Failure S = Shear Failure E = Estimated Value P = Penetrometer

HOLCOMB FOUNDATION ENGINEERING INC. Page 2 of 2
393 Wood Road 618-529-5262
Carbondale, Il. 62901 618-457-8991 fax

Bridge Foundation Boring Log

Project: H-20087 Bridge E 1480th Ave Over Business Creek Date: 4/15/20
Section: 20-07134-00-BR Station
Structure: 017-3705 Bored by: D. Plucker
County: Crawford Checked By: T. Holcomb

Boring No: 2
Station:
Offset:

Surface Water Elev.
Ground Water Elev. During Drilling 471.8
Upon Completion 471.8

Elevation	N	Qu tsf	w %	Description
				silty clay with sand and gravel (continued)
-45				
435.8	32	6.1S	12	
-50				End of Boring @ -50.0'
-55				
-60				
-65				
-70				
-75				
-80				
-85				

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"
Qu-Unconfined Compressive Strength in tons/sq.ft. w-Water Content-percentage of oven dry weight-%
B = Bulge Failure S = Shear Failure E = Estimated Value P = Penetrometer

BORING-2

FILE NAME = 210076-sht-bridge.dgn	USER NAME = rhosick	DESIGNED - J.R.B.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959		CHECKED - S.T.M./S.W.M.	REVISED -
	PLOT SCALE =	DRAWN - R.D.H.	REVISED -
	PLOT DATE = 2/9/2023	CHECKED - S.T.M./S.W.M.	REVISED -

STATE OF ILLINOIS
CRAWFORD COUNTY HIGHWAY DEPARTMENT

BORINGS
STRUCTURE NO. 017-3758
SHEET NO. 11 OF 11 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
93	20-07134-00-BR	CRAWFORD	15	15
OBLONG ROAD DISTRICT		CONTRACT NO. 95933		
C-97-061-22	ILLINOIS	FED. AID PROJECT TT08(650)		