

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

VERMILION COUNTY  
HIGHWAY DEPARTMENT

PLANS FOR PROPOSED  
BRIDGE

OAKWOOD TOWNSHIP ROAD DISTRICT  
TR 243 (1850 NORTH) OVER STONY CREEK  
SECTION 18-14144-00-BR

FEDERAL AID: STP BRIDGE  
PROJECT: D196(056)  
C-95-003-23

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
243	18-14144-00-BR	VERMILION	22	1
		ILLINOIS	CONTRACT NO. 91618	

INDEX OF SHEETS

- 1 COVER SHEET
- 2 GENERAL NOTES AND DETAILS
- 3 SUMMARY OF QUANTITIES
- 4 TYPICAL SECTIONS
- 5 ALIGNMENT, TIES AND BENCHMARKS
- 6-7 PLAN AND PROFILE
- 8-18 STRUCTURE PLANS
- 19-22 CROSS SECTIONS

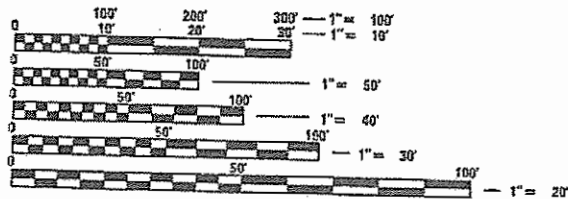
HIGHWAY STANDARDS

- 000001-08 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
- 001001-02 AREAS OF REINFORCEMENT BARS
- 001006 DECIMAL OF AN INCH AND OF A FOOT
- 280001-07 TEMPORARY EROSION CONTROL SYSTEMS
- 515001-04 NAME PLATE FOR BRIDGES
- 542401-04 METAL FLARED END SECTIONS FOR PIPE CULVERTS
- 701901-04 TRAFFIC CONTROL DEVICES
- 725001-01 OBJECT AND TERMINAL MARKERS
- BLR 21-9 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
- BLR 22-7 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS (TWO LANE TWO WAY RURAL TRAFFIC) (ROAD CLOSED TO THRU TRAFFIC)

UTILITIES

TELEPHONE: AT&T DISTRIBUTION  
ATTDSA  
ATTN: G11629@att.com

ELECTRIC: AMEREN ILLINOIS  
AICNOA  
ATTN: NATHAN HILL  
(618) 301-5305  
nhill2@ameren.com

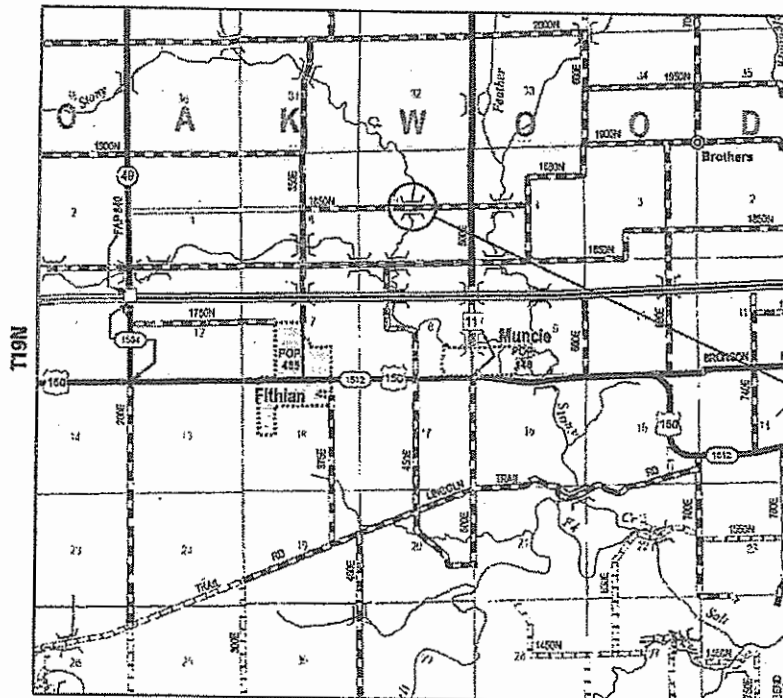


FULL-SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

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

**CHASTAIN & ASSOCIATES LLC**  
CONSULTING ENGINEERS  
DECATUR (317) 422-8544  
SCHAUMBURG (773) 714-0050  
ROCKFORD (815) 489-0050  
184-001397

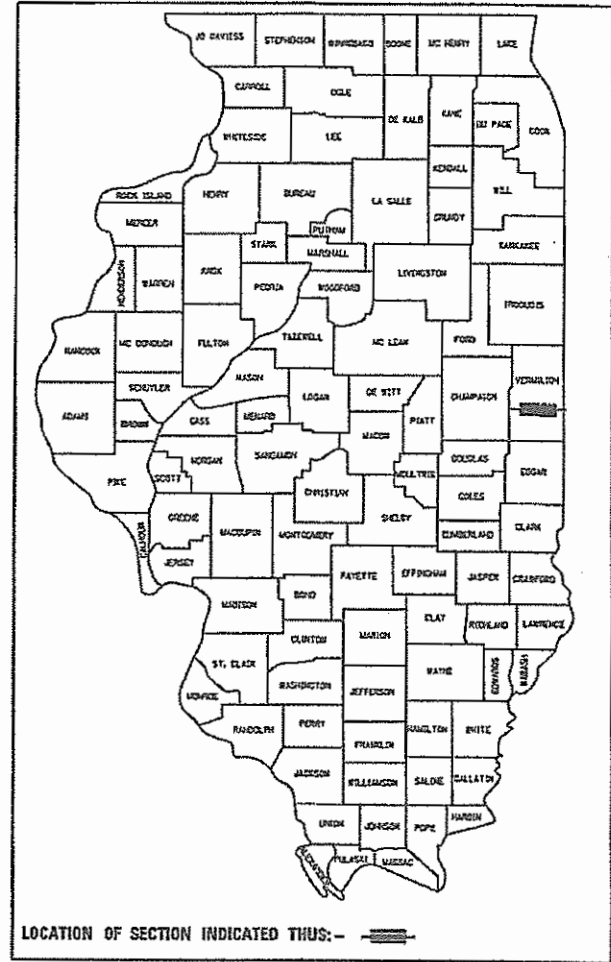
CHASTAIN PROJECT NO. 8122  
CHASTAIN FIELD BOOK NO. 551



2ND PM  
LOCATION MAP

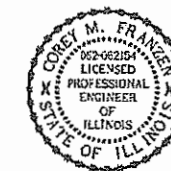
THE PROPOSED IMPROVEMENT CONSISTS OF REPLACING THE EXISTING CONCRETE THRU-GIRDER BRIDGE WITH A 3-SPAN PPC DECK BEAM BRIDGE AND ASSOCIATED ROADWAY APPROACH WORK.

GROSS LENGTH = 783.48 FT. = 0.148 MILE  
NET LENGTH = 783.48 FT. = 0.148 MILE



FUNCTIONAL CLASSIFICATION - LOCAL ROAD  
ADT = 50  
DESIGN SPEED = 30 MPH

PROPOSED SN 092-3542  
SECTION 18-14144-00-BR  
BEGINS STATION 12+16.52  
ENDS STATION 20+00.00  
EXISTING SN 092-3163



COREY M. FRANZEN, P.E. DATE  
LICENSE EXPIRES 11/30/23

APPROVED 10/25/23  
William J. Greenwell  
COUNTY ENGINEER

APPROVED 10-24  
D. R. [Signature]  
TOWNSHIP COMMISSIONER

PASSED October 31/23  
Brian K. Trygg  
DISTRICT FIVE ENGINEER OF  
LOCAL ROADS AND STREETS

Releasing For Bid Based on Limited Review October 31/23  
Kensil A. Garnott  
REGION THREE ENGINEER

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

## GENERAL NOTES

1. THE DESIGN ENGINEER SHALL NOT GUARANTEE THE WORK OF ANY CONTRACTOR OR SUBCONTRACTOR, SHALL HAVE NO AUTHORITY TO STOP WORK, SHALL HAVE NO SUPERVISION OR CONTROL AS TO THE WORK OR PERSONS DOING THE WORK, SHALL NOT BE RESPONSIBLE FOR SAFETY IN, ON, OR ABOUT THE JOB SITE OR HAVE ANY CONTROL OF THE SAFETY OR ADEQUACY OF ANY EQUIPMENT, BUILDING COMPONENT, SCAFFOLDING, SUPPORTS, FORMS OR OTHER WORK AIDS, AND SHALL HAVE NO DUTIES OR RESPONSIBILITIES IMPOSED BY ACTS GOVERNING THE WORKPLACE. IN ADDITION, THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SHALL BE MODIFIED AS FOLLOWS:

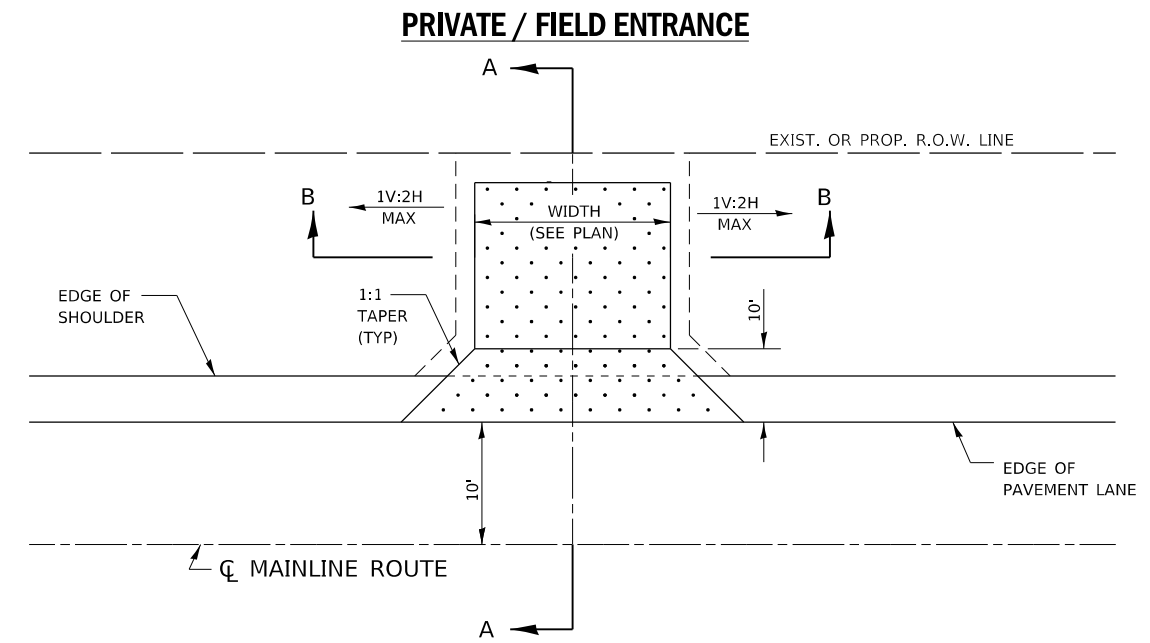
UNDER ARTICLE 105.01, ADD THE FOLLOWING SENTENCE: NOTHING CONTAINED HEREIN SHALL RELIEVE THE CONTRACTOR OF HIS/HER DUTY TO OBSERVE AND COMPLY WITH ALL APPLICABLE LAWS, NOR SHALL THE ENGINEER BE RESPONSIBLE FOR THE CONTRACTOR'S COMPLIANCE OR NON-COMPLIANCE WITH SUCH LAWS.

UNDER ARTICLE 107.01, ADD THE FOLLOWING SENTENCE: THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S DUTY TO OBSERVE AND COMPLY WITH THE PROVISIONS OF THIS SECTION, OR FOR THE CONTRACTOR'S FAILURE TO DO SO.

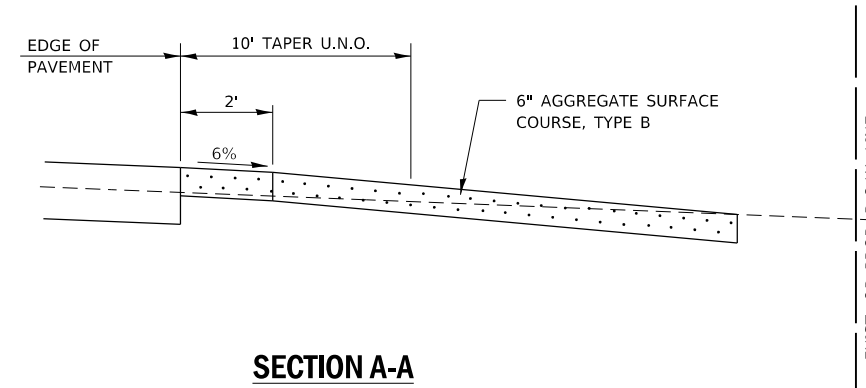
2. THE CONTRACTOR AGREES THAT HE/SHE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT. THIS INCLUDES SAFETY OF ALL PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE COUNTY AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.
3. THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, THE SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS INDICATED ON THE CHECK SHEET, AND ALL OTHER SPECIAL PROVISIONS. WHEREVER IN THE PLANS OR SPECIFICATIONS THE TERM STANDARD SPECIFICATIONS IS USED, IT SHALL BE UNDERSTOOD BY THE CONTRACTOR TO MEAN THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AS PREPARED BY THE DEPARTMENT OF TRANSPORTATION OF THE STATE OF ILLINOIS AND ADOPTED JANUARY 1, 2022.
4. ALL ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). THE PROPOSED GRADE ELEVATIONS SHOWN ON THE PLAN AND PROFILE SHEETS AND STATION CROSS-SECTIONS ARE THE ELEVATIONS FOR THE FINISHED SURFACE AT LOCATIONS AS INDICATED.
5. HORIZONTAL CONTROL AND BEARINGS ARE BASED ON THE ILLINOIS COORDINATE SYSTEM, EAST ZONE, NORTH AMERICAN DATUM OF 1983 (NAD 83), ADJUSTMENT OF 2011.
6. EXISTING ROAD SIGNS THAT CONFLICT WITH CONSTRUCTION OPERATIONS SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER. ALL REMOVED SIGNS SHALL REMAIN THE PROPERTY OF THE TOWNSHIP, AND SHALL BE SECURELY STORED AND RETURNED TO THE HIGHWAY COMMISSIONER. THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE CONTRACT PAY ITEMS AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR.
7. EXCEPT WHERE DESIGNATED OTHERWISE, THE LOCATIONS AND/OR DEPTHS OF UTILITIES SHOWN HAVE BEEN TAKEN FROM FIELD INVESTIGATION AND INFORMATION FURNISHED BY THE UTILITY OWNERS & MUST BE CONSIDERED APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES AND COORDINATING WORK WITH ALL UTILITY OWNERS, INCLUDING UTILITY ADJUSTMENTS OR RELOCATIONS. CONTACT I.U.L.I.E., PHONE 800-892-0123 OR 811, AND ALL UTILITY COMPANIES PRIOR TO DIGGING.
8. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES 48 HOURS PRIOR TO EXCAVATION OPERATIONS.
9. THE CONTRACTOR SHALL TAKE REASONABLE PRECAUTIONS TO PROTECT PUBLIC AND PRIVATE PROPERTY. IF AT ANY TIME THE CONTRACTOR DAMAGES OR DESTROYS PUBLIC OR PRIVATE PROPERTY, THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, RESTORE SUCH PROPERTY TO A CONDITION EQUAL TO THAT EXISTING BEFORE SUCH DAMAGE.
10. THE CONTRACTOR SHALL NOTIFY THE VERMILION COUNTY HIGHWAY DEPARTMENT RESIDENT ENGINEER AND THE COUNTY ENGINEER 72 HOURS IN ADVANCE OF CONSTRUCTION WORK.
11. GRADING SHALL BE DONE BY HAND AROUND LIGHT POLES, UTILITY POLES, SIGN POSTS, SHRUBS, TREES OR OTHER NATURAL OR MAN-MADE OBJECTS WHERE SHALLOW FILLS OR CUTS ARE ADJACENT TO THE ITEMS. THE ENGINEER WILL HAVE SOLE DISCRETION IN DETERMINING WHETHER INDIVIDUAL ITEMS REMAIN IN PLACE. THIS WORK WILL NOT BE PAID FOR SEPARATELY, AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
12. TEMPORARY EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS SHOWN IN THE PLANS AND AS DIRECTED BY THE ENGINEER.
13. SEEDING SHALL BE DONE ON ALL AREAS THAT ARE DISTURBED BY CONSTRUCTION OPERATIONS AS DIRECTED BY THE ENGINEER. SEEDING SHALL BE PAID FOR ONLY WITHIN THE PROPOSED RIGHT-OF-WAY LIMITS. ALL AREAS DISTURBED BY THE CONTRACTOR OUTSIDE THE PROPOSED CONSTRUCTION LIMIT SHALL BE SEEDDED AS DIRECTED BY THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.
14. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS EXISTING IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING MATERIALS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL DISCREPANCIES AND COOPERATE TO RESOLVE DIFFERENCES BETWEEN THE EXISTING FIELD CONDITIONS AND THE PLANS. SPECIAL ATTENTION IS CALLED TO ARTICLE 105.06 OF THE STANDARD SPECIFICATIONS.
15. WHERE SECTION OR SUB-SECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKERS AND/OR MONUMENTS UNTIL THE OWNER, AUTHORIZED SURVEYOR, OR AGENT HAS WITNESSED OR REFERENCED THEIR LOCATION. THE CONTRACTOR WILL BE RESPONSIBLE FOR HAVING AN AUTHORIZED SURVEYOR RE-ESTABLISH ANY SECTION OR SUB-SECTION MONUMENTS DESTROYED BY THEIR OPERATIONS.
16. ACCESS TO ALL ENTRANCES AND SIDE ROADS SHALL BE MAINTAINED AT ALL TIMES, UNLESS SHOWN ON THE PLANS.
17. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MEANS, METHODS, TECHNIQUES, SEQUENCE AND PROCEDURES OF THE CONSTRUCTION.
18. WASTE MATERIAL FROM CHANNEL EXCAVATION SHALL BE HAULED OFF SITE. SEE THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION REGARDING CHANNEL EXCAVATION.
19. PRIOR TO ORDERING CULVERTS, COORDINATE WITH THE ENGINEER TO DETERMINE THE INSTALLED LENGTH OF EACH. END SECTIONS TO BE INSTALLED ON ALL NEW CULVERTS EXCEPT WHERE NOTED OTHERWISE.

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

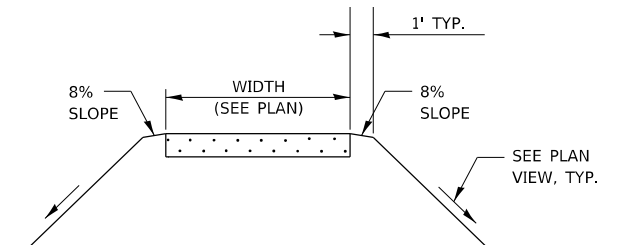
TEMPORARY EROSION CONTROL SEEDING	-	100 LBS/ACRE	APPLICATIONS TO BE DETERMINED
NITROGEN FERTILIZER NUTRIENT	-	90 LBS/ACRE	
PHOSPHOROUS FERTILIZER NUTRIENT	-	90 LBS/ACRE	
POTASSIUM FERTILIZER NUTRIENT	-	90 LBS/ACRE	
AGGREGATE MATERIALS TYPE A	-	2.05 TON/CU YD	
AGGREGATE MATERIALS TYPE B	-	1.8 TON/CU YD	
RIPRAP	-	1.6 TON/CU YD	



**TYPICAL APPLICATION  
PLAN VIEW**



**SECTION A-A**



**SECTION B-B**

### LEGEND

	CONTROL POINT		DITCH FLOW LINE		PAVEMENT REMOVAL
	EX ROW		STREAM		HEAVY DUTY EROSION CONTROL BLANKET
	PR ROW		AERIAL / ELECTRIC		EROSION CONTROL BLANKET
	TEMPORARY EASEMENT		FIBER OPTIC		EX RIPRAP
	EOP		PR CULVERT & END SECTION		RIPRAP
	CL-PVMT		EX GUARDRAIL		POWER POLE
	FENCE		PROPERTY LINE		MAILBOX
	EX PIPE CULVERT		PERIMETER EROSION BARRIER		INLET AND PIPE PROTECTION
	LIMITS OF CONSTRUCTION		DIRECTION OF FLOW		TEMPORARY DITCH CHECK
	VEGETATION LINE		GUY WIRE		TREE
				U.N.O.	UNLESS NOTED OTHERWISE

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USER NAME = switt	DESIGNED - CMF	REVISED -
PLOT SCALE = 40.0000' / in.	DRAWN - RLK	REVISED -
PLOT DATE = 10/12/2023	CHECKED - CMF	REVISED -
	DATE - 2/28/2023	REVISED -

**STATE OF ILLINOIS  
VERMILION COUNTY HIGHWAY DEPARTMENT**

**GENERAL NOTES AND DETAILS  
TR 243 OVER STONY CREEK**

SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
243	18-14144-00-BR	VERMILION	22	2
CONTRACT NO. 91618				
ILLINOIS FED. AID PROJECT				

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTR. CODE
				0010
				BRIDGE
				S.N. 092-3542
20200100	EARTH EXCAVATION	CU YD	464	464
20300100	CHANNEL EXCAVATION	CU YD	900	900
20400800	FURNISHED EXCAVATION	CU YD	895	895
25000200	SEEDING, CLASS 2	ACRE	0.75	0.75
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	55	55
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	55	55
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	55	55
25100115	MULCH, METHOD 2	ACRE	0.75	0.75
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	181	181
28000305	TEMPORARY DITCH CHECKS	FOOT	120	120
28000500	INLET AND PIPE PROTECTION	EACH	3	3
35100100	AGGREGATE BASE COURSE, TYPE A	TON	545	545
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	367	367
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1	1
50105220	PIPE CULVERT REMOVAL	FOOT	32	32
50200100	STRUCTURE EXCAVATION	CU YD	141	141
50300225	CONCRETE STRUCTURES	CU YD	91.9	91.9
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	4856	4856

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTR. CODE
				0010
				BRIDGE
				S.N. 092-3542
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	9020	9020
* 50900205	STEEL RAILING, TYPE S1	FOOT	364	364
51201400	FURNISHING STEEL PILES HP10X42	FOOT	736	736
51202305	DRIVING PILES	FOOT	736	736
51203400	TEST PILE STEEL HP10X42	EACH	4	4
51204650	PILE SHOES	EACH	28	28
51500100	NAME PLATES	EACH	1	1
54205053	PIPE CULVERTS, SPECIAL 18"	FOOT	115	115
59300100	CONTROLLED LOW-STRENGTH MATERIAL	CU YD	82	82
67100100	MOBILIZATION	L SUM	1	1
* 72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4	4
X2010400	STUMP REMOVAL ONLY	UNIT	180	180
X2810210	STONE RIPRAP, CLASS A5 (SPECIAL)	TON	522	522
Z0013798	CONSTRUCTION LAYOUT	L SUM	1	1
XX004566	CONCRETE CUT-OFF WALL	CU YD	6.4	6.4
XX004633	FIELD TILE ADJUSTMENT	EACH	1	1
XX009289	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1	1

\* SPECIALTY ITEMS

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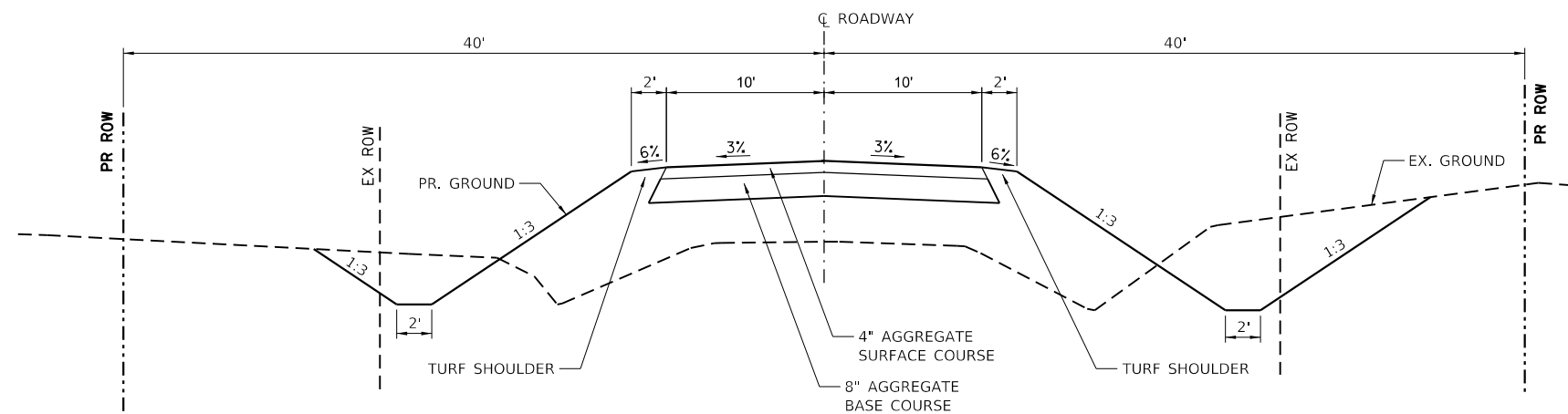
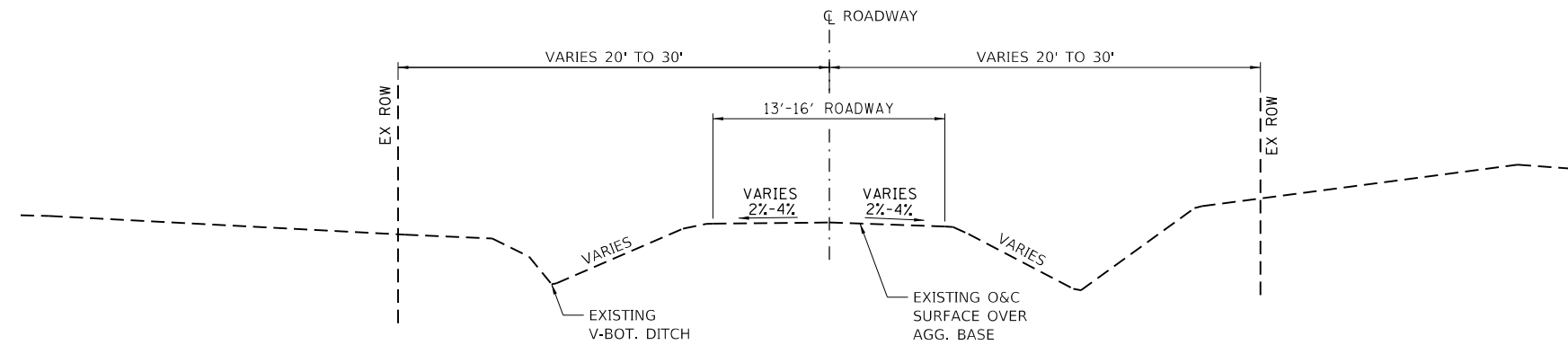
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PLOT DATE = 10/12/2023	CHECKED - CMF	REVISED -
	DATE - 7/17/2023	REVISED -

STATE OF ILLINOIS  
VERMILION COUNTY HIGHWAY DEPARTMENT

SUMMARY OF QUANTITIES  
TR 243 OVER STONY CREEK

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
243	18-14144-00-BR	VERMILION	22	3
CONTRACT NO. 91618				
ILLINOIS FED. AID PROJECT				

SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.



EARTHWORK SCHEDULE						
ALIGNMENT	LOCATION	1	2	3	4	5
		20200100 EARTH EXCAVATION ( CU YD)	20300100 CHANNEL EXCAVATION ( CU YD)	*EXCAVATION TO BE USED IN EMBANKMENT ( ADJUSTED FOR SHRINKAGE ) ( COL 1 + COL 2 ) X 0.75 ( CU YD)	*EMBANKMENT ( FILL ) ( CU YD)	20400800 EARTHWORK BALANCE WASTE ( + ) OR FURNISHED EXCAVATION ( - ) ( COL 3 - COL 4 ) ( CU YD)
TR 243	12+16.52 TO 20+00.00	464	-	348	1171	-823
	ENTRANCES	0	-	0	72	-72
	CHANNEL @ BRIDGE STA. 16+00.00	0	900	0	0	900 ( WASTE )
SECTION 18-14144-00-BR TOTAL		464	900	348	1243	-895

EARTH EXCAVATION SHRINKAGE FACTOR ASSUMED TO BE 25%

ITEMS MARKED WITH AN ASTERISK ( • ) ARE FOR INFORMATIONAL PURPOSES ONLY

CHANNEL EXCAVATION ASSUMED TO BE UNSUITABLE FOR EMBANKMENT, BUT COUNTY MAY DETERMINE SUITABILITY IN THE FIELD

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PLOT SCALE = 40.0000' / in.	CHECKED - CMF	REVISED -
PLOT DATE = 9/28/2023	DATE - 6/12/2023	REVISED -

STATE OF ILLINOIS  
 VERMILION COUNTY HIGHWAY DEPARTMENT

TYPICAL SECTIONS TR 243 OVER STONY CREEK	
SCALE: N.T.S.	SHEET 1 OF 1 SHEETS
STA.	TO STA.

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
243	18-14144-00-BR	VERMILION	22	4
CONTRACT NO. 91618				
ILLINOIS FED. AID PROJECT				

**ALIGNMENT**

POT N 1,263,722.4050 E 1,117,439.0566 STA 10+00.00  
 COURSE FROM POT TO POT N 87° 57' 59.9" E DIST 1,200.00'  
 POT N 1,263,764.9824 E 1,118,638.3010 STA 22+00.00

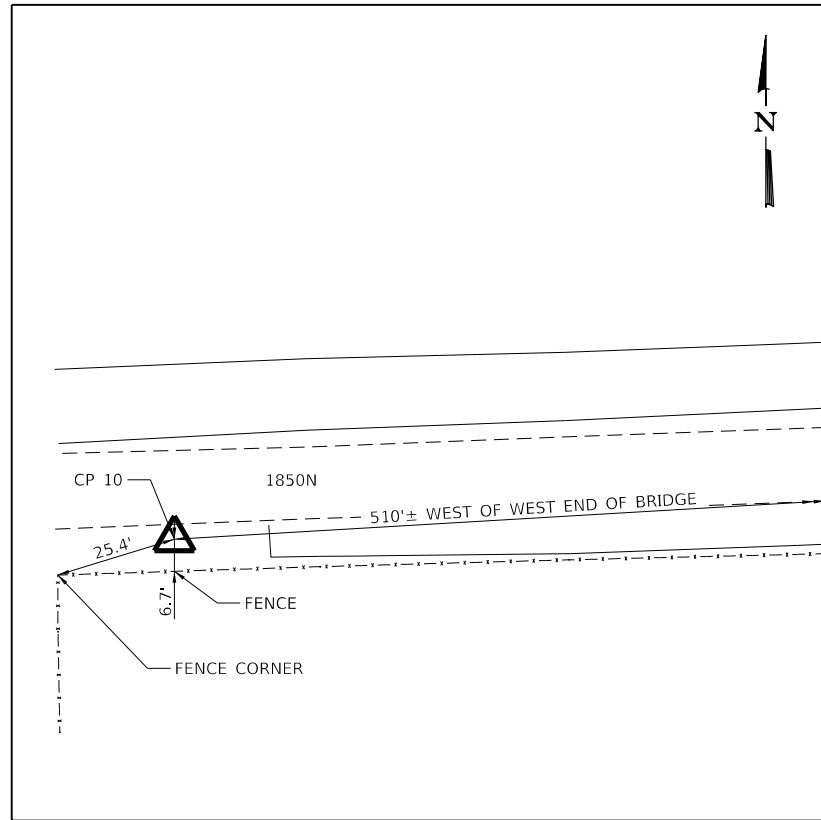
**BENCHMARKS**

**BENCHMARK 1**  
 RR SPIKE IN SOUTH SIDE OF POWER POLE, NORTH SIDE OF 1850N, 75'± EAST OF EAST END OF BRIDGE.  
 ELEVATION = 644.61

**BENCHMARK 2**  
 RR SPIKE IN SOUTH SIDE OF POWER POLE, NORTH SIDE OF 1850N, 25'± EAST OF EAST ENTRANCE TO HOUSE #4560.  
 ELEVATION = 651.44

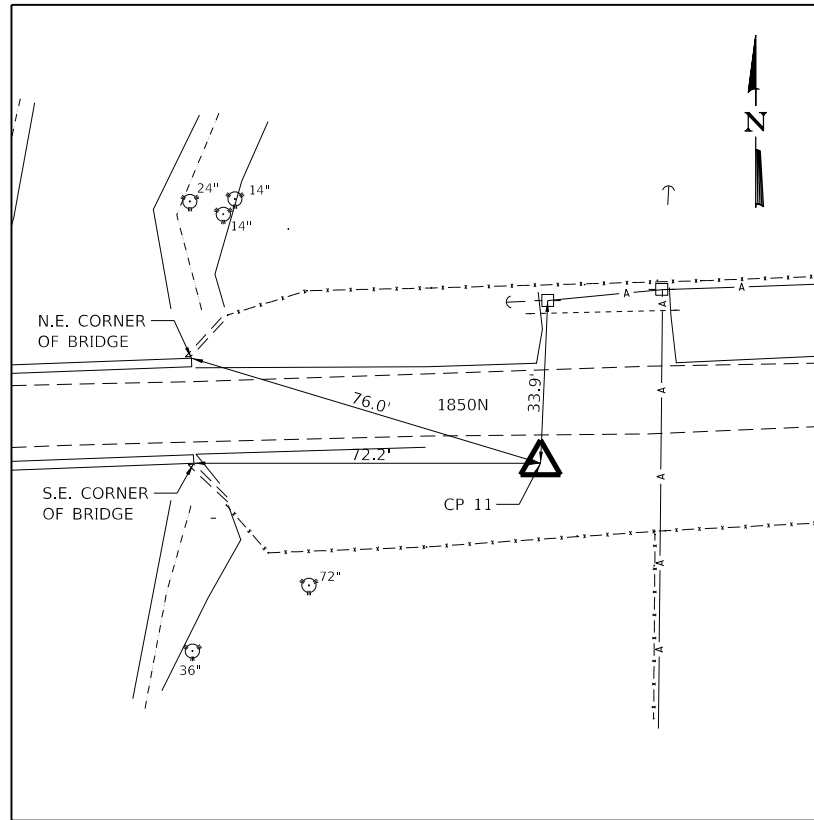
**BENCHMARK 3**  
 TOP OF NORTHEAST WINGWALL (EAST SIDE) OF EXISTING SN 092-3163, STATION 16+26.96, 11.80' LT.  
 ELEVATION = 644.37

NOTE THAT BENCHMARK 3 IS NOT FORMALLY SCRIBED, BUT MAY BE USED AS AN ADDITIONAL ELEVATION CHECK



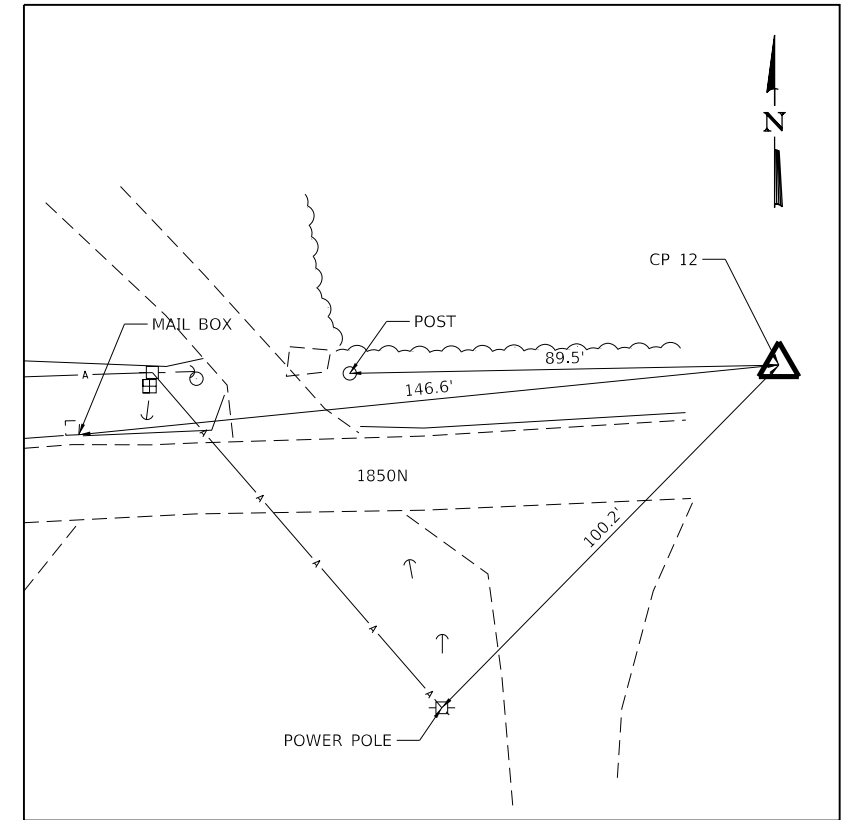
**CONTROL POINT 10**

1/2" IRON PIN WITH PINK CAP  
 N 1,263,712.4280  
 E 1,117,502.0830



**CONTROL POINT 11**

1/2" IRON PIN WITH PINK CAP  
 N 1,263,733.7250  
 E 1,118,137.5510



**CONTROL POINT 12**

1/2" IRON PIN WITH PINK CAP  
 N 1,263,781.7600  
 E 1,118,593.8630

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PLOT DATE = 10/12/2023	DATE - 2/28/2023	REVISED -

STATE OF ILLINOIS  
 VERMILION COUNTY HIGHWAY DEPARTMENT

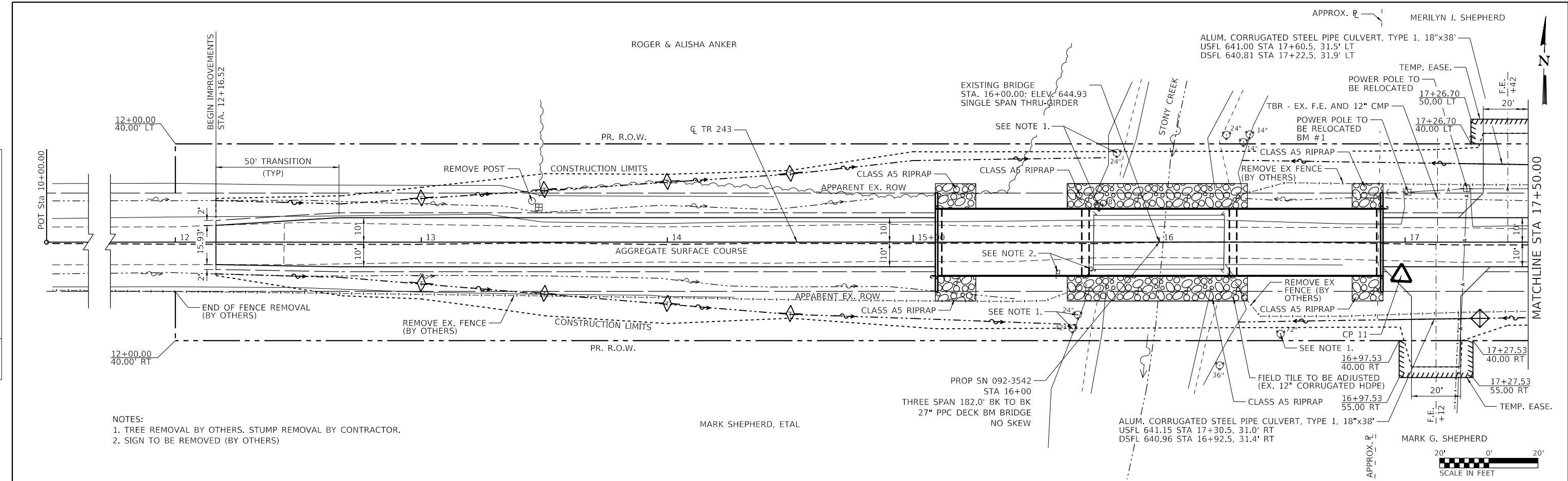
ALIGNMENT, TIES AND BENCHMARKS  
 TR 243 OVER STONY CREEK

SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

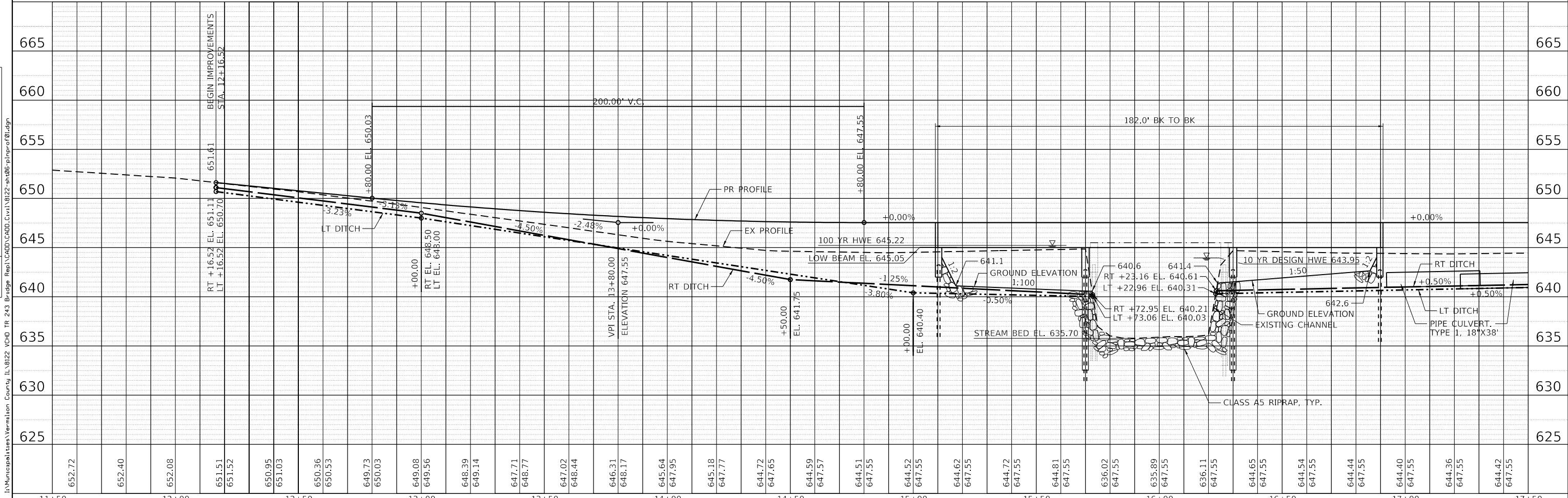
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243	18-14144-00-BR	VERMILION	22	5
CONTRACT NO. 91618				
ILLINOIS FED. AID PROJECT				

PLAN	SURVEYED	DATE
	PLOTTED	BY
	CHECKED	
	NO. _____	
	FILE NAME	

PROFILE	SURVEYED	DATE
	PLOTTED	BY
	CHECKED	
	NO. _____	
	FILE NAME	



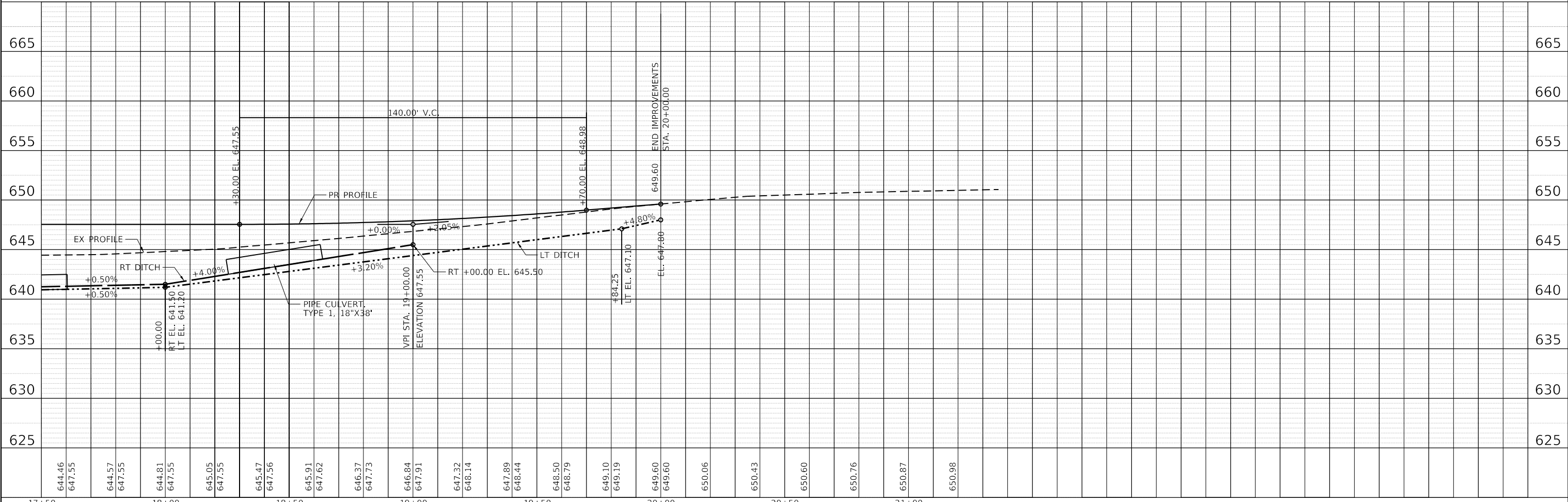
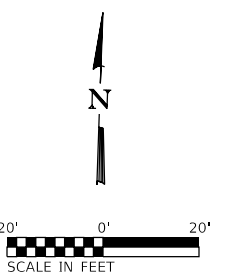
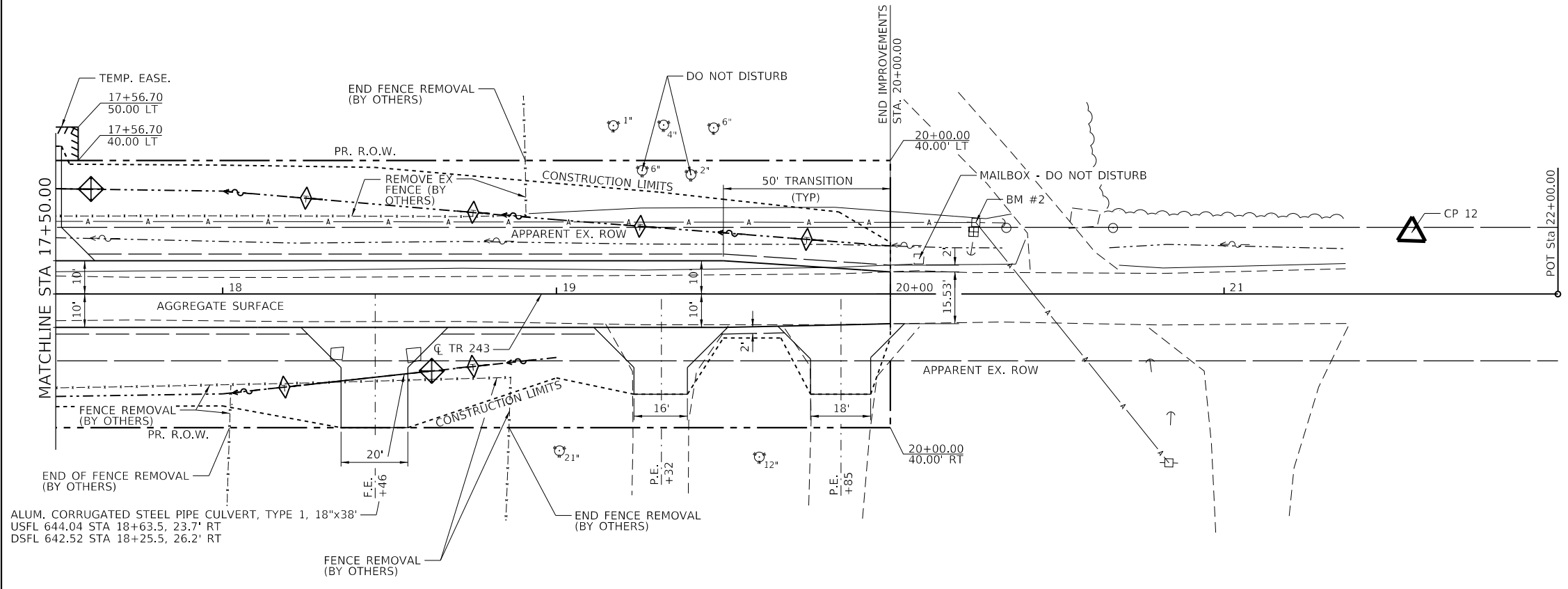
- NOTES:  
 1. TREE REMOVAL BY OTHERS, STUMP REMOVAL BY CONTRACTOR.  
 2. SIGN TO BE REMOVED (BY OTHERS)



<b>CHASTAIN &amp; ASSOCIATES LLC</b> CONSULTING ENGINEERS	USER NAME = switt	DESIGNED - CMF	REVISED -	<b>STATE OF ILLINOIS</b> <b>VERMILION COUNTY HIGHWAY DEPARTMENT</b>	<b>PLAN AND PROFILE</b> <b>TR 243 OVER STONY CREEK</b>	T.R. RTE. 243	SECTION 18-14144-00-BR	COUNTY VERMILION	TOTAL SHEETS 22	SHEET NO. 6
	PLOT SCALE = 40.0000' / in.	CHECKED - CMF	REVISED -			SCALE: 1" = 40.0000'	SHEET NO. 1 OF 2 SHEETS	STA. 12+16.52 TO STA. 17+50.00	CONTRACT NO. 91618	
	PLOT DATE = 9/29/2023	DATE = 2/10/2023	REVISED -							

PLAN	SURVEYED	DATE
	PLOTTED	BY
	GRADES CHECKED	
	STRUCTURE NOTATIONS CHECKED	
	NOTE BOOK NO.	
	CADD FILE NAME	

PROFILE	SURVEYED	DATE
	PLOTTED	BY
	GRADES CHECKED	
	STRUCTURE NOTATIONS CHECKED	
	NOTE BOOK NO.	
	CADD FILE NAME	



**CHASTAIN & ASSOCIATES LLC**  
CONSULTING ENGINEERS

USER NAME = switt	DESIGNED - CMF	REVISED -
PLOT SCALE = 40.0000' / in.	DRAWN - RLK	REVISED -
PLOT DATE = 9/29/2023	CHECKED - CMF	REVISED -
	DATE - 2/10/2023	REVISED -

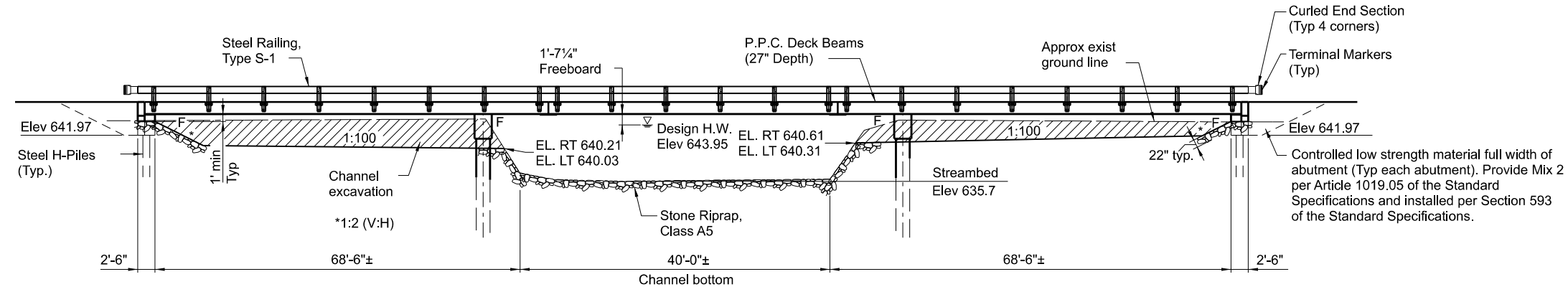
**STATE OF ILLINOIS**  
**VERMILION COUNTY HIGHWAY DEPARTMENT**

**PLAN AND PROFILE**  
**TR 243 OVER STONY CREEK**

SCALE: SHEET NO. 2 OF 2 SHEETS STA. 17+50.00 TO STA. 20+00.00

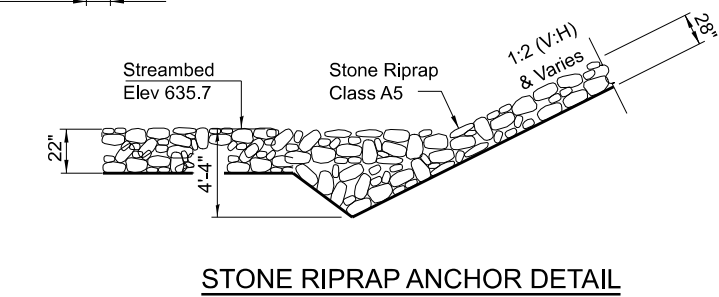
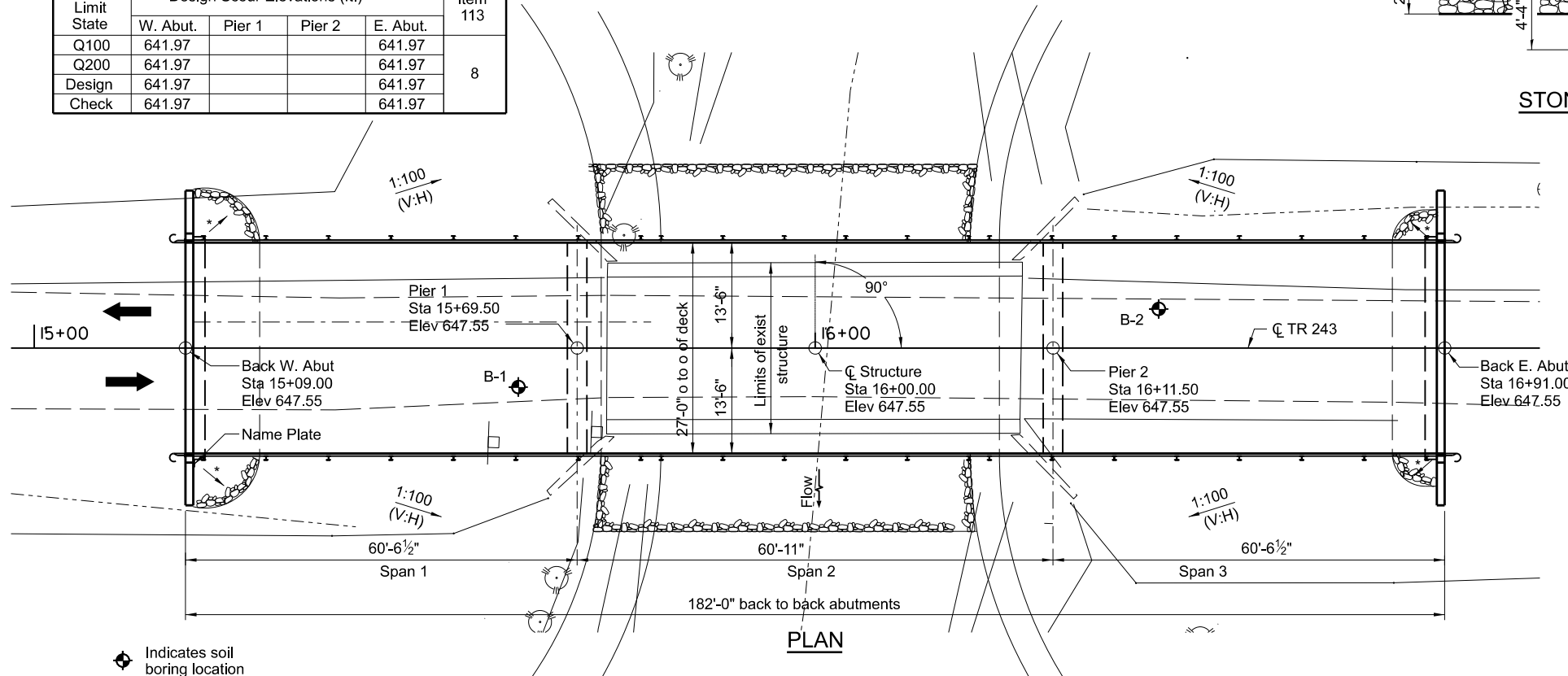
T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
243	18-14144-00-BR	VERMILION	22	7
CONTRACT NO. 91618			ILLINOIS FED. AID PROJECT	

Existing Structure:  
 The existing structure 092-3163 is a single span, reinforced concrete thru girder bridge, no skew.  
 Road to be closed during construction.  
 No salvage.  
 BM 8122-1:



**DESIGN SCOUR ELEVATION TABLE**

Event/ Limit State	Design Scour Elevations (ft.)				Item 113
	W. Abut.	Pier 1	Pier 2	E. Abut.	
Q100	641.97			641.97	8
Q200	641.97			641.97	
Design	641.97			641.97	
Check	641.97			641.97	



**TOTAL BILL OF MATERIAL**

Item	Unit	Quantity
Removal of Existing Structures	Each	1
Structure Excavation	Cu Yd	141
Concrete Structures	Cu Yd	91.9
Pile Shoes	Each	28
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq Ft	4856
Reinforcement Bars, Epoxy Coated	Pound	9020
Steel Railing, Type S-1	Foot	364
Furnishing Steel Piles HP 10X42	Foot	736
Driving Piles	Foot	736
Test Pile Steel HP 10x42	Each	4
Concrete Cut-Off Wall	Cu Yd	6.4
Name Plates	Each	1
Controlled Low-Strength Material	Cu Yd	82
Terminal Marker - Direct Applied	Each	4
Stone Riprap, Class A5 (Special)	Ton	522
Channel Excavation	Cu Yd	900

**LOADING HL-93**

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

**DESIGN SPECIFICATIONS**

2017 AASHTO LRFD Bridge Design Specifications, 8th Edition with 2018 Interims

**DESIGN STRESSES**

FIELD UNITS

f<sub>c</sub> = 3,500 psi  
 f<sub>y</sub> = 60,000 psi (reinforcement)

**PRECAST PRESTRESSED UNITS**

f<sub>c</sub> = 6,000 psi  
 f<sub>ci</sub> = 5,000 psi  
 f<sub>s</sub> = 270,000 psi (1/2" Ø low-relaxation strands)  
 f<sub>si</sub> = 202,000 psi (1/2" Ø low-relaxation strands)

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 1  
 Design Spectral Acceleration at 1.0 sec (S<sub>D1</sub>) = 0.133g  
 Design Spectral Acceleration at 0.2 sec (S<sub>D0.2</sub>) = 0.225g  
 Soil Site Class = D

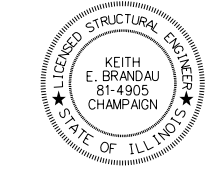
**STRUCTURE INDEX OF SHEETS**

- 1 General Plan and Elevation
- 2 Superstructure
- 3 27"x36" PPC Deck Beam (Spans 1 & 3)
- 4 27"x36" PPC Deck Beam Details (Spans 1 & 3)
- 5 27"x36" PPC Deck Beam (Span 2)
- 6 27"x36" PPC Deck Beam Details (Span 2)
- 7 Abutment Details
- 8 Pier Details
- 9 Steel H Pile Details
- 10 Steel Railing, Type S-1
- 11 Soil Boring Logs

TR 243 OVER STONY CREEK  
 BUILT 20 BY  
 OAKWOOD TOWNSHIP  
 VERMILION COUNTY  
 SEC. 18-14144-00-BR STA. 16+00.00  
 STR. NO. 092-3542 LOADING HL-93

**NAME PLATE**

See Std. 515001



*Keith E. Brandau*  
 Keith Brandau, P.E., S.E. Date 10/12/2023  
 License Expires 11/30/24

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

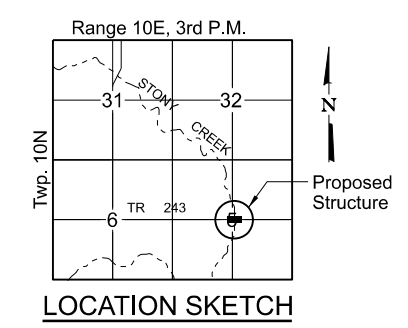
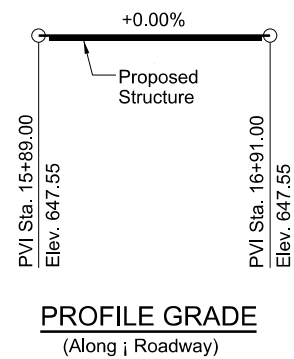
**WATERWAY INFORMATION**

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Existing Overtopping Elev. 644.4 at Sta. 17+20 Proposed Overtopping Elev. 647.6 at Sta. 16+00									
Overtop exist	8	1,845	318	-	643.77	0.51	-	644.28	-
Design	10	2,038	318	566	643.95	0.59	0.34	644.54	644.29
Base	100	3,719	318	757	645.22	0.62	0.58	645.84	645.80
Scour	200	4,248	318	806	645.55	0.59	0.96	646.14	646.51
Max. Calc.	500	4,954	318	806	645.97	0.55	1.26	645.52	647.23
Overtop prop	954	5,400	-	806	646.21	-	1.44	-	647.65

10 year velocity through existing bridge = 6.4 ft/s  
 10 year velocity through proposed bridge = 3.0 ft/s

**GENERAL NOTES:**

Layout of slope protection system may be varied in the field to suit ground conditions as directed by the ENGINEER.  
 All Construction joints shall be bonded.  
 See Roadway Plans for channel excavation limits and quantities.  
 See Roadway Plans for additional riprap limits and quantities.  
 Reinforcement bars designated (E) shall be epoxy coated.  
 The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.



STATE OF ILLINOIS  
 VERMILION COUNTY HIGHWAY DEPARTMENT

GENERAL PLAN AND ELEVATION  
 STRUCTURE NO. 092-3542

SHEET NO. 80F 22 SHEETS

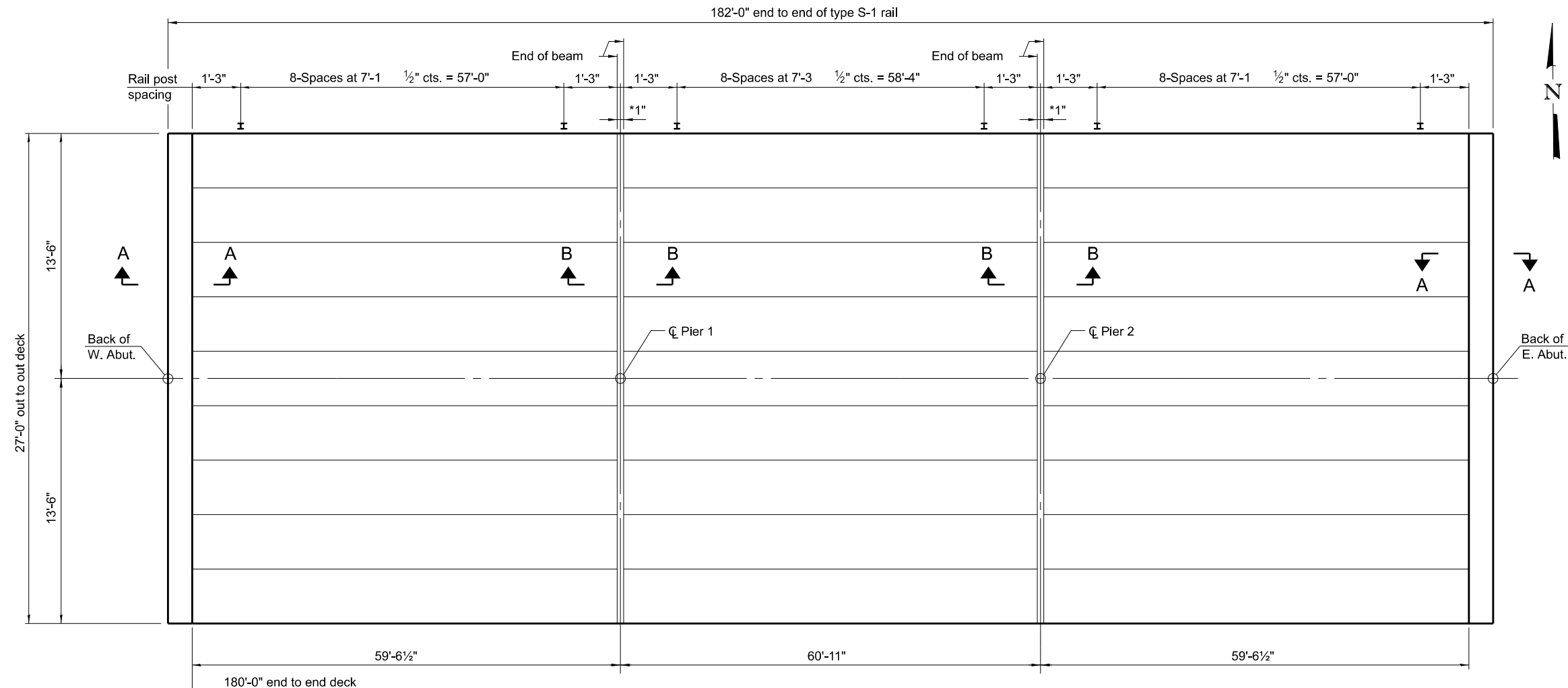
FAS RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 243	18-14144-00-BR	VERMILION	22	8
STRUCTURE NO. 092-3542		CONTRACT NO. 91618		

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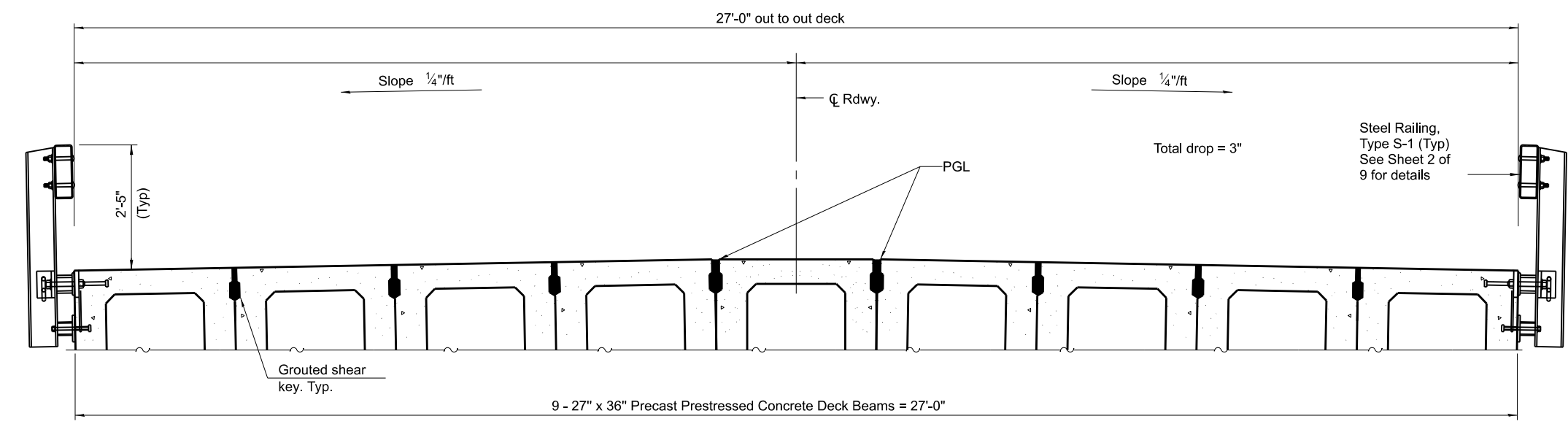
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PLOT SCALE = 20.0000' / 1"	CHECKED BCG	REVISED -
PLOT DATE = 10/12/2023	DATE 11/1/2021	REVISED -



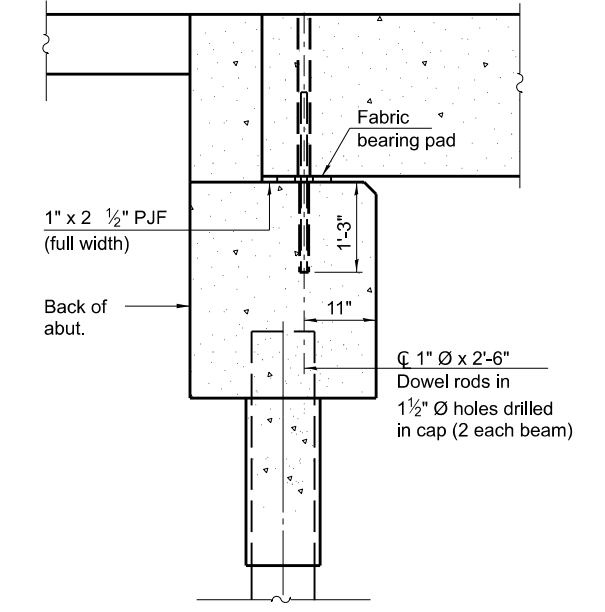


PLAN

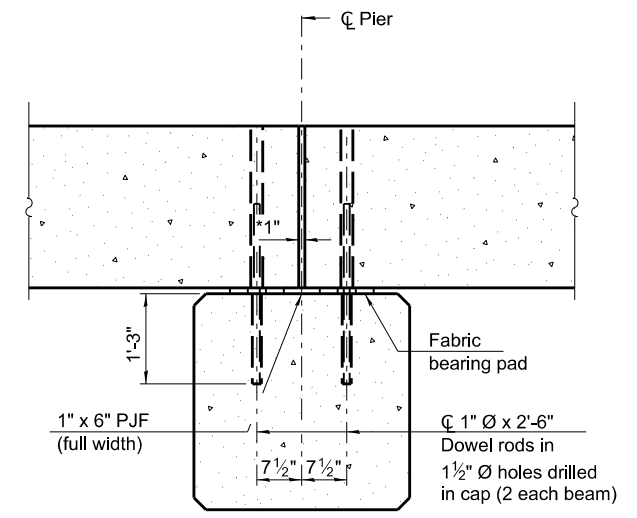
\*1" Jt. shall be filled with non-shrink grout. 1" dimension may vary to accommodate tolerance in beam lengths.



CROSS SECTION  
(Looking East)



SECTION A-A



SECTION B-B

Notes:  
See sheet 4 of 11 for fabric bearing pad details.

FILE NAME = I:\Municipalities\Verillion County\_IL\B122\_VCHD\_TR\_243\_Bridge\_Repl\CADD\CADD\_Structural\superstructure.dgn

SF-DB1742-BWS-R34-2-0 1-1-2020

Sheet 2 of 11



USER NAME = switt  
PLOT TIME = 11:19:18 AM  
PLOT SCALE = 8,0000' / in.  
PLOT DATE = 9/29/2023

DESIGNED KEB  
DRAWN RLK  
CHECKED BCG  
DATE 11/1/2021

REVISED -  
REVISED -  
REVISED -  
REVISED -

STATE OF ILLINOIS  
VERMILION COUNTY HIGHWAY DEPARTMENT

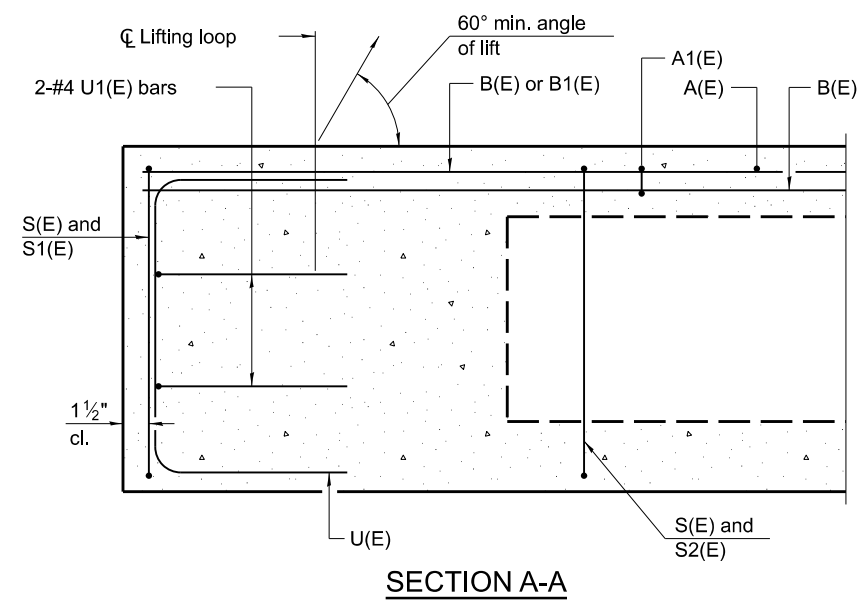
SUPERSTRUCTURE  
STRUCTURE NO. 092-3542

SHEET NO. 9 OF 22 SHEETS

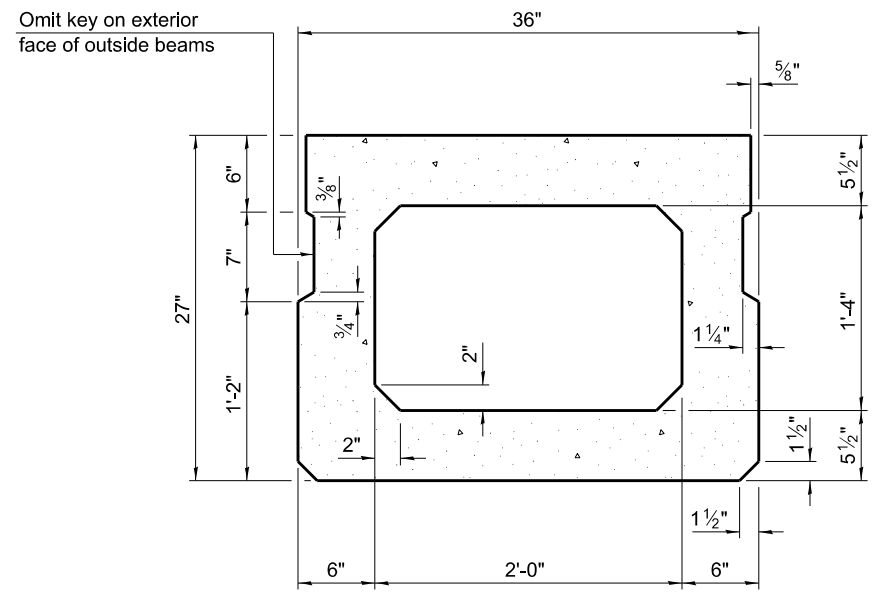
FAS RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 243	18-14144-00-BR	VERMILION	22	9
STRUCTURE NO. 092-3542		CONTRACT NO. 91618		

ILLINOIS FED. AID PROJECT

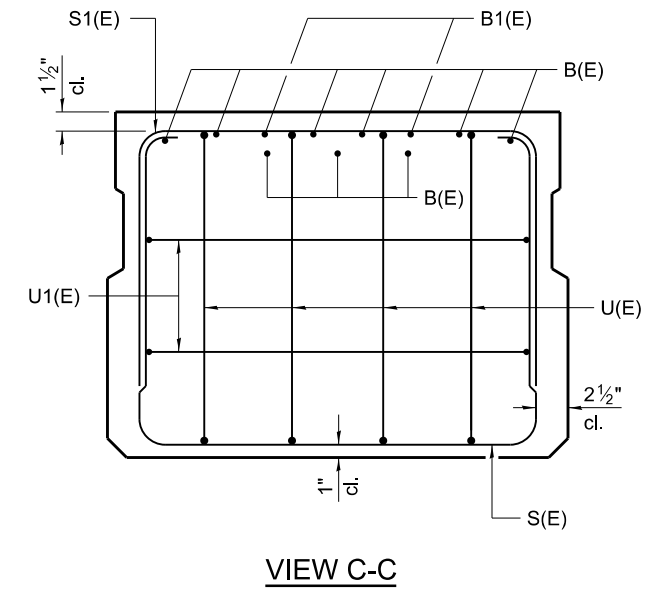
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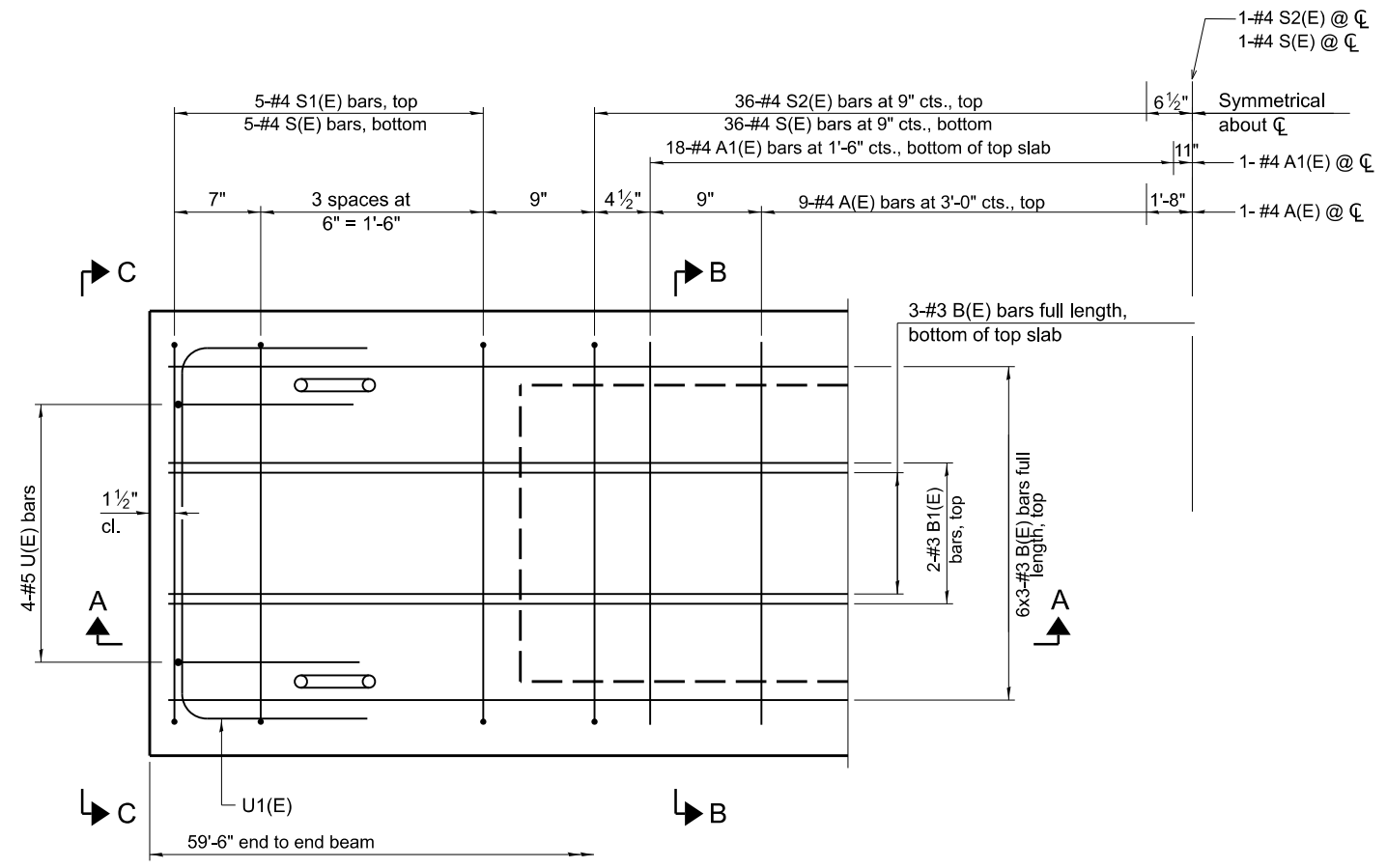
SECTION A-A



SECTION B-B  
(Showing dimensions)

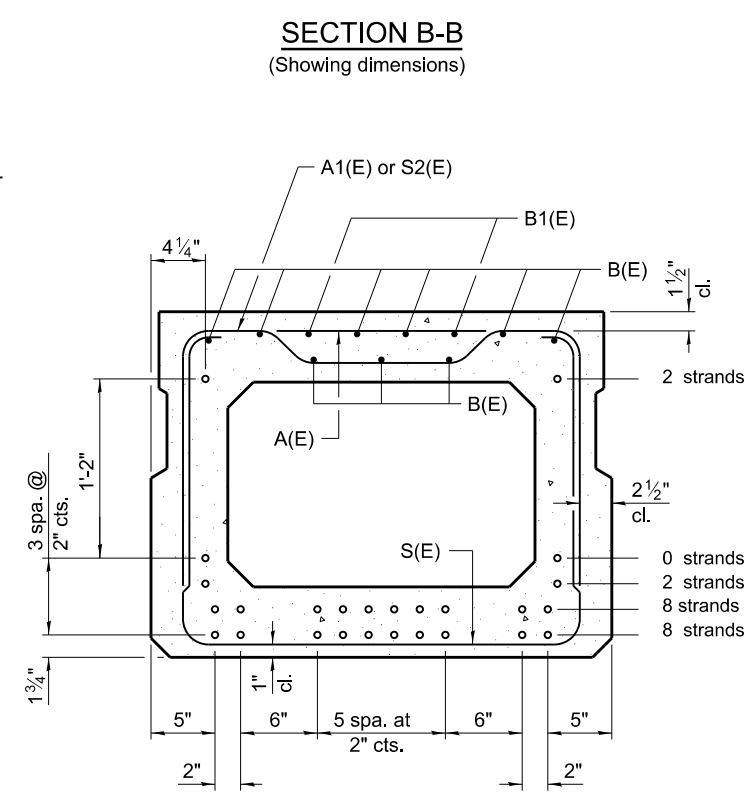


VIEW C-C



PLAN VIEW

Note:  
Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.



SECTION B-B  
(Showing reinforcement and permissible strand locations)

Note:  
Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

MINIMUM BAR LAP  
#3 bar = 1'-6"

BAR LIST  
ONE BEAM ONLY  
(For information only)

Bar	No.	Size	Length	Shape
A(E)	18	#4	2'-7"	—
A1(E)	37	#4	2'-10"	—
B(E)	27	#3	21'-3"	—
B1(E)	4	#3	10'-0"	—
S(E)	83	#4	7'-5"	□
S1(E)	10	#4	5'-11"	□
S2(E)	73	#4	6'-2"	□
U(E)	8	#5	4'-0"	□
U1(E)	4	#4	5'-0"	□

Note:  
See sheet 4 of 11 for additional details and Bill of Material.

PD-2736-0

1-1-2020



USER NAME = switt  
PLOT TIME = 10:20:24 AM  
PLOT SCALE = 2# 1/2" / in.  
PLOT DATE = 9/29/2023

DESIGNED KEB  
DRAWN RLK  
CHECKED BCG  
DATE 11/1/2021

REVISED -  
REVISED -  
REVISED -  
REVISED -

STATE OF ILLINOIS  
VERMILION COUNTY HIGHWAY DEPARTMENT

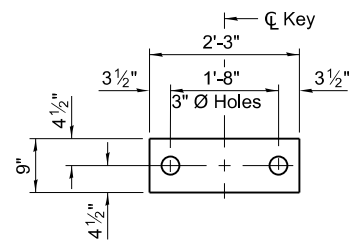
27" x 36" PPC DECK BEAM (SPANS 1 & 3)  
STRUCTURE NO. 092-3542

SHEET NO. 10 OF 22 SHEETS

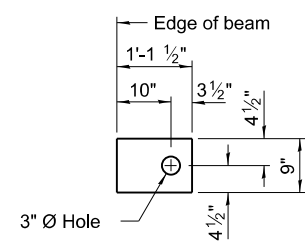
Sheet 3 of 11

FAS RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 243	18-14144-00-BR	VERMILION	22	10
STRUCTURE NO. 092-3542		CONTRACT NO. 91618		

ILLINOIS FED. AID PROJECT



**FABRIC BEARING PAD**  
(Interior)

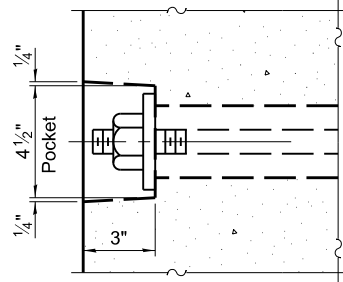


**FABRIC BEARING PAD**  
(Exterior)

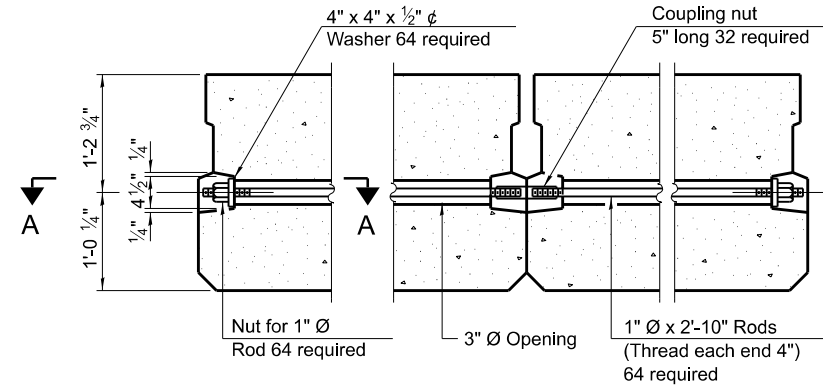
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Notes:

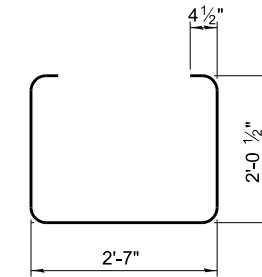
- All bearing pads shall be 1" thick.
- Omit holes when using expansion bearings.
- Expansion bearing pads shall be bonded to the substructure.



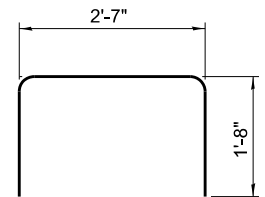
**SECTION A-A**



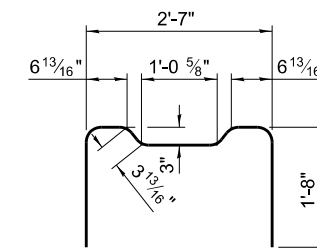
**TYPICAL TRANSVERSE TIE ASSEMBLY**



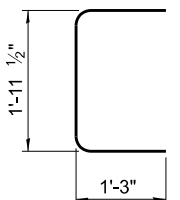
**BAR S(E)**



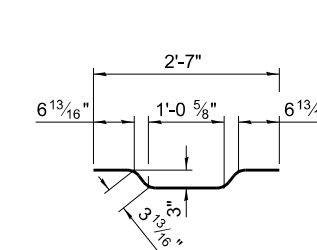
**BAR S1(E)**



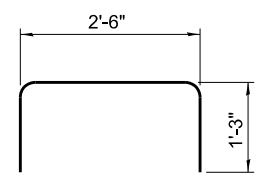
**BAR S2(E)**



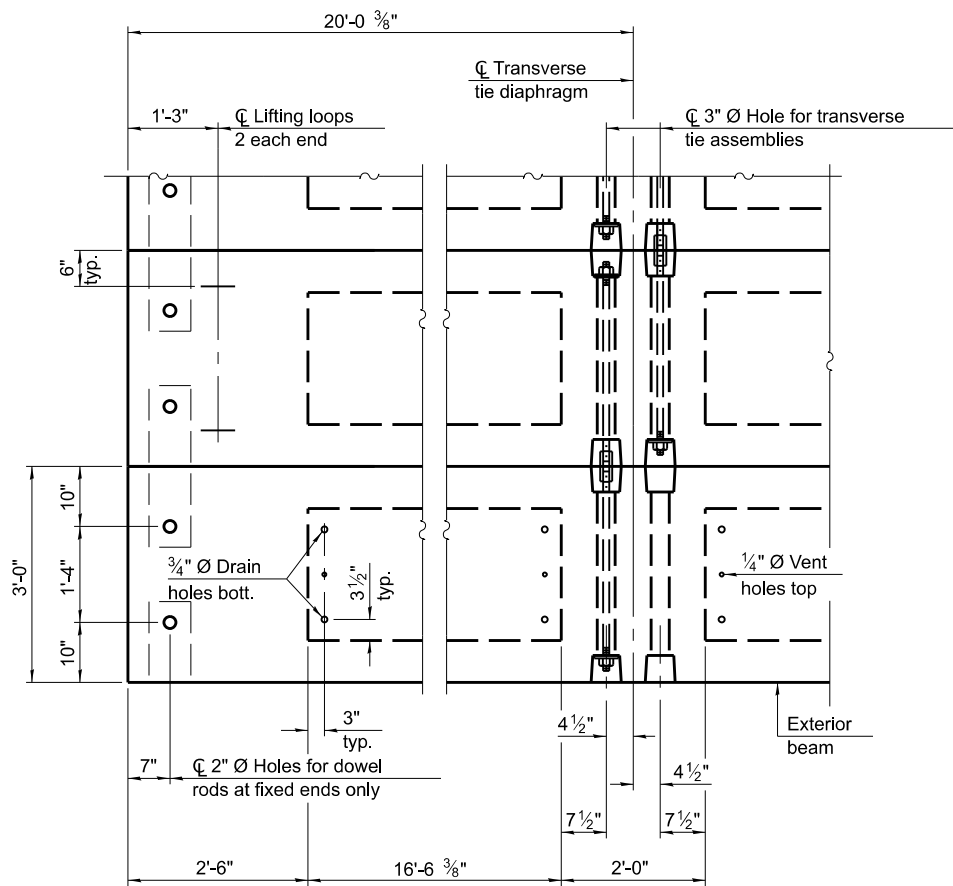
**BAR U(E)**



**BAR A1(E)**



**BAR U1(E)**

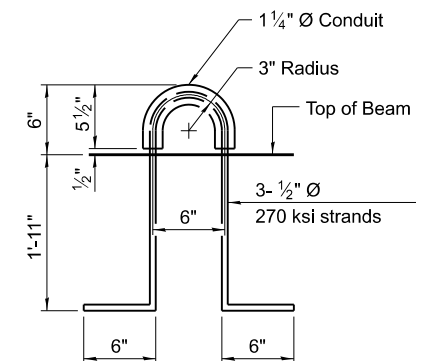


**PLAN VIEW**

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

**NOTES**

- Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" diameter rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.
- Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.
- A minimum 2 1/2" diameter lifting pin shall be used to engage the lifting loops during handling.
- Corrosion Inhibitor, per Article 1020.05(b)(10) and 1021.07 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.
- Compressive strength of prestressed concrete, f<sub>c</sub>, shall be 6000 psi.
- Compressive strength of prestressed concrete at release, f<sub>ci</sub>, shall be 5000 psi.



**LIFTING LOOP DETAIL**

**BILL OF MATERIAL**

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	3213
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FILE NAME = I:\Municipalities\Vermon County\_IL\B122\_VCHD\_TR\_243\_Bridge\_Repl\CADD\CADD\_Structural\beamp1&3.dgn

PDD-2736-0 1-1-2020



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PLOT SCALE = 2# 1' / in.	CHECKED BCG	REVISED -
PLOT DATE = 9/29/2023	DATE 11/1/2021	REVISED -

**STATE OF ILLINOIS**  
**VERMILION COUNTY HIGHWAY DEPARTMENT**

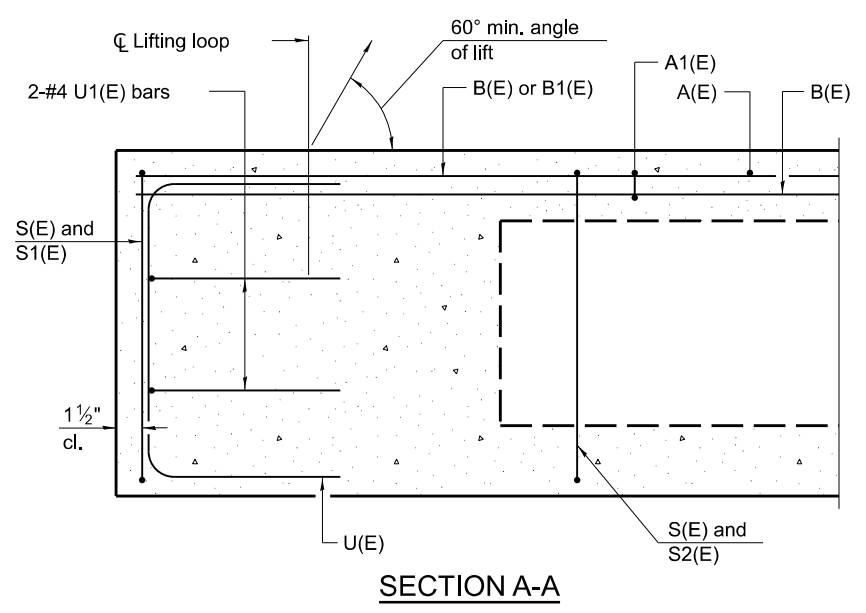
**27" x 36" PPC DECK BEAM DETAILS (SPANS 1 & 3)**  
**STRUCTURE NO. 092-3542**

SHEET NO. 11 OF 22 SHEETS

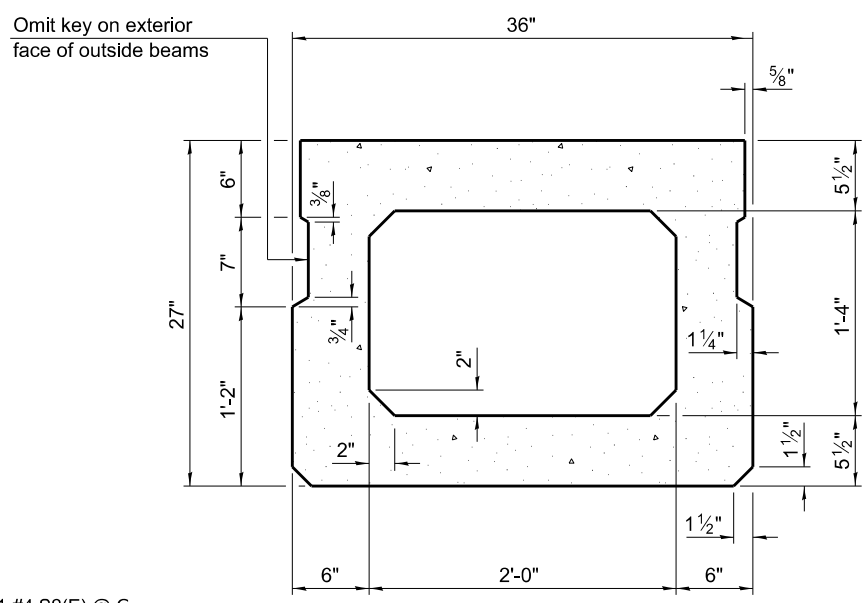
FAS RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 243	18-14144-00-BR	VERMILION	22	11
STRUCTURE NO. 092-3542		CONTRACT NO. 91618		

ILLINOIS FED. AID PROJECT

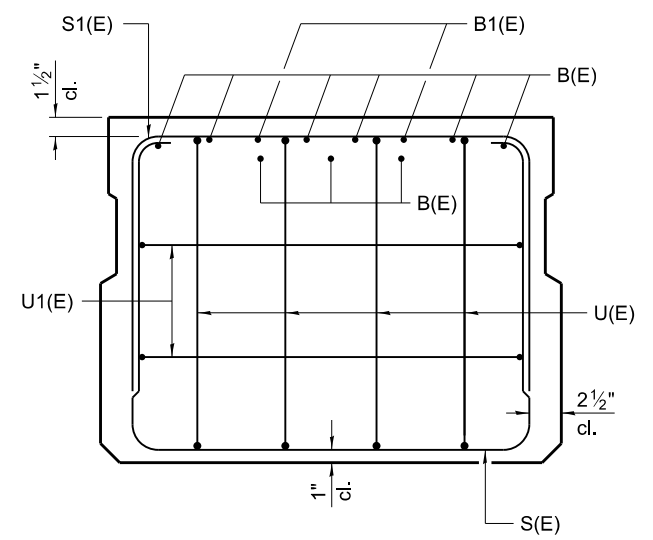
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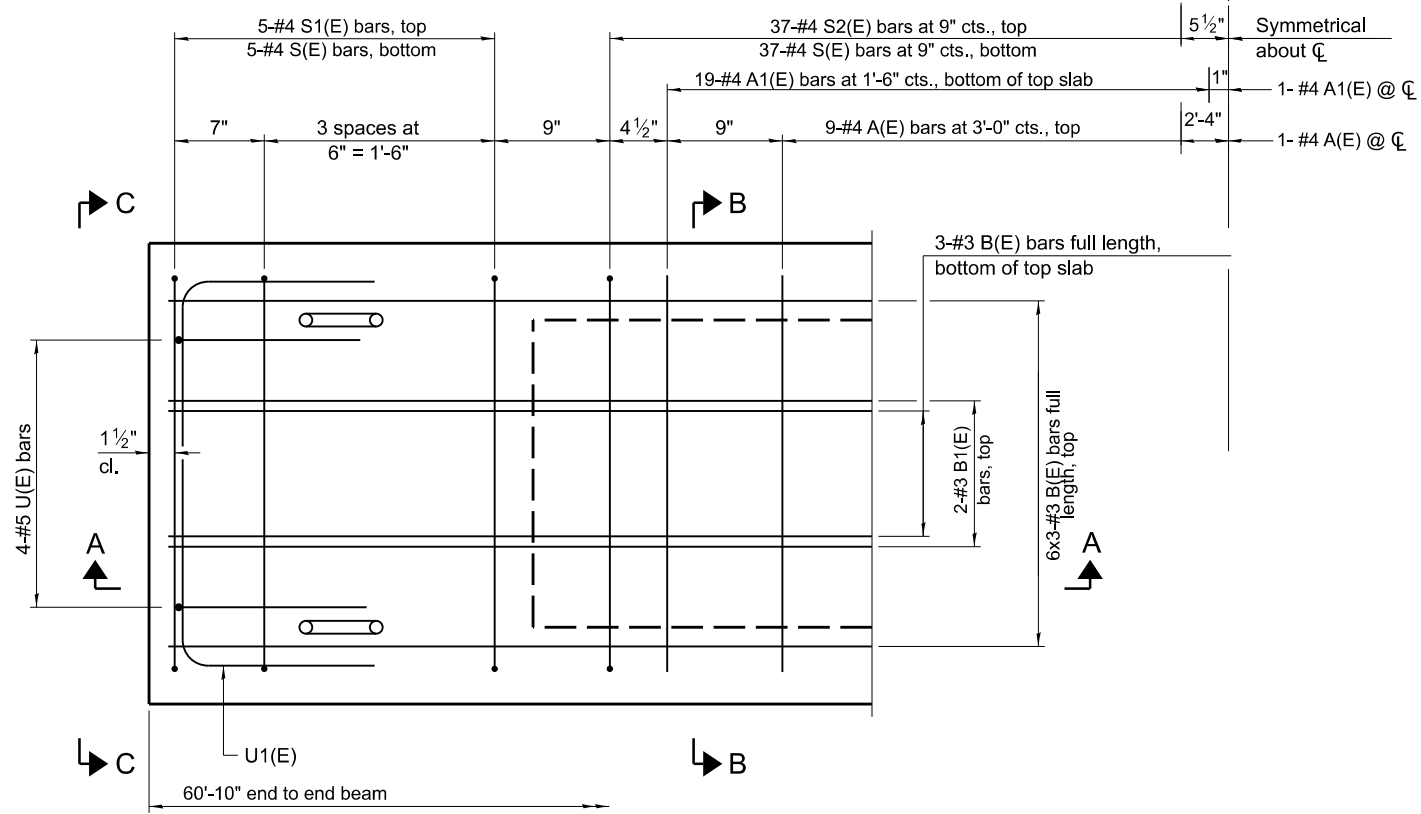
SECTION A-A



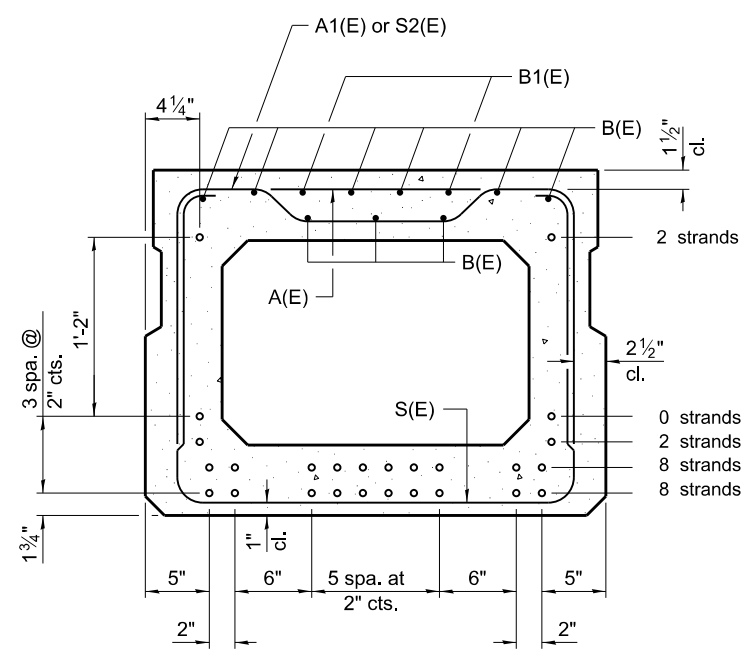
SECTION B-B  
(Showing dimensions)



VIEW C-C



PLAN VIEW



SECTION B-B  
(Showing reinforcement and permissible strand locations)

Note:  
Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

**BAR LIST**  
**ONE BEAM ONLY**  
(For information only)

Bar	No.	Size	Length	Shape
A(E)	18	#4	2'-7"	—
A1(E)	37	#4	2'-10"	—
B(E)	27	#3	21'-3"	—
B1(E)	4	#3	10'-0"	—
S(E)	83	#4	7'-5"	⌈
S1(E)	10	#4	5'-11"	⌈
S2(E)	73	#4	6'-2"	⌈
U(E)	8	#5	4'-0"	⌈
U1(E)	4	#4	5'-0"	⌈

Note:  
See sheet 4 of 11 for additional details and Bill of Material.

**MINIMUM BAR LAP**  
#3 bar = 1'-6"

PD-2136-0

1-1-2020



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PLOT DATE = 9/29/2023

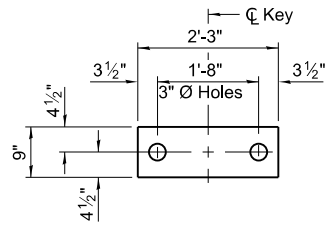
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DRAWN RLK  
CHECKED BCG  
DATE 11/1/2021

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REVISED -  
REVISED -

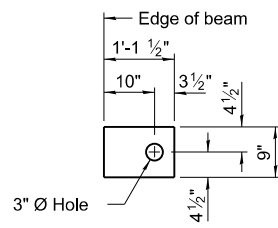
STATE OF ILLINOIS  
VERMILION COUNTY HIGHWAY DEPARTMENT

27" x 36" PPC DECK BEAM (SPAN 2)  
STRUCTURE NO. 092-3542

FAS RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 243	18-14144-00-BR	VERMILION	22	12
STRUCTURE NO. 092-3542		CONTRACT NO. 91618		



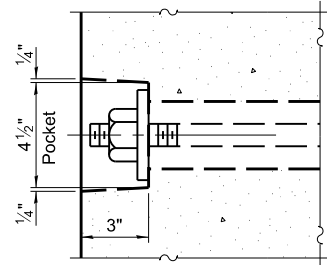
**FABRIC BEARING PAD**  
(Interior)



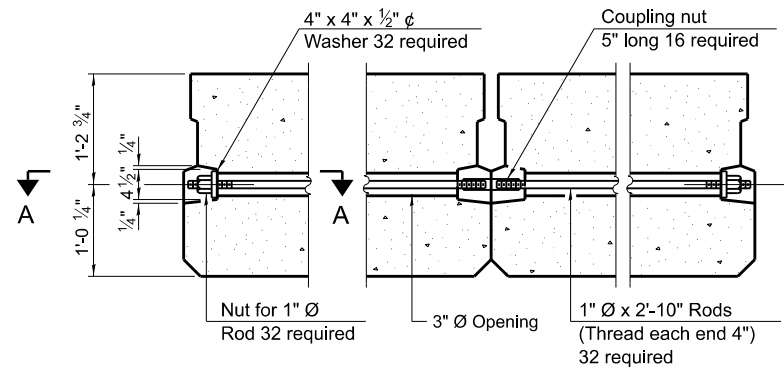
**FABRIC BEARING PAD**  
(Exterior)

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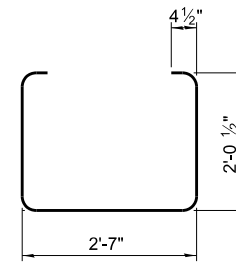
Notes:  
All bearing pads shall be 1" thick.  
Omit holes when using expansion bearings.  
Expansion bearing pads shall be bonded to the substructure.



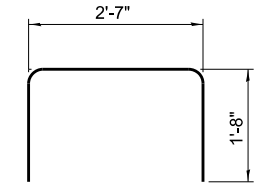
**SECTION A-A**



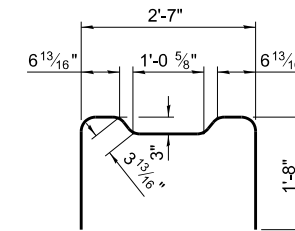
**TYPICAL TRANSVERSE TIE ASSEMBLY**



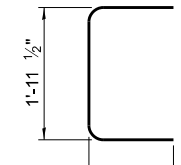
**BAR S(E)**



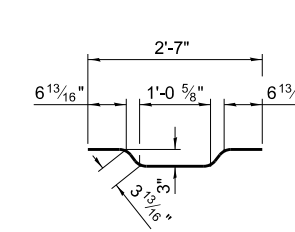
**BAR S1(E)**



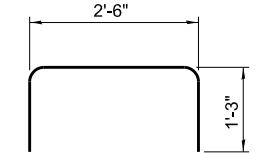
**BAR S2(E)**



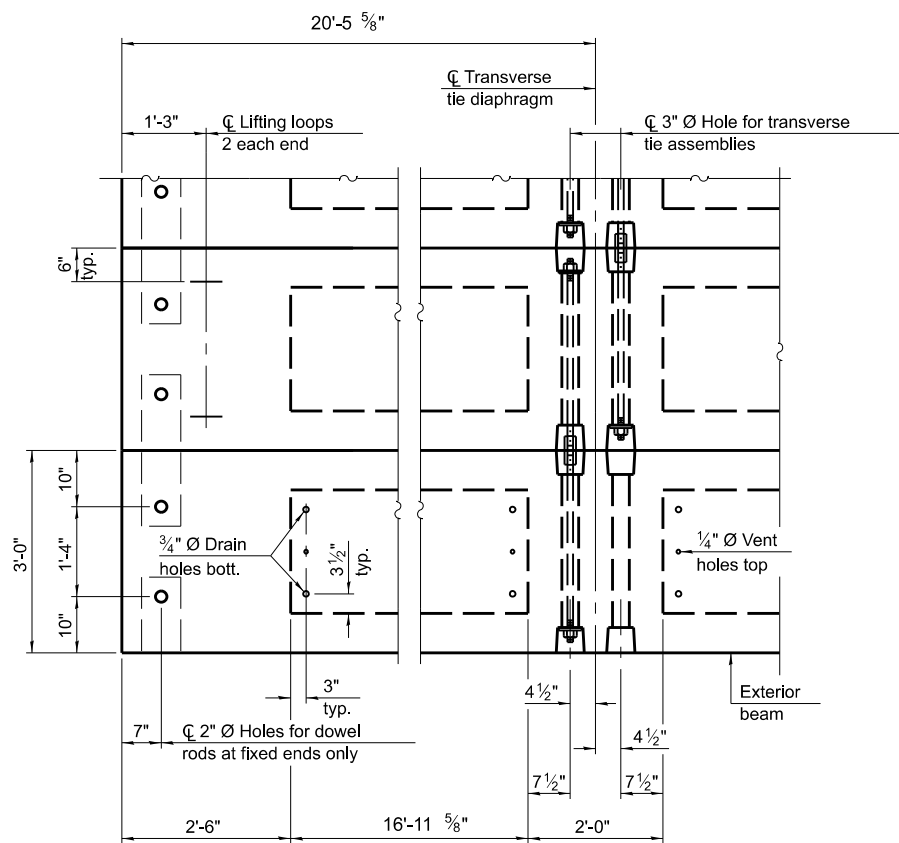
**BAR U(E)**



**BAR A1(E)**



**BAR U1(E)**

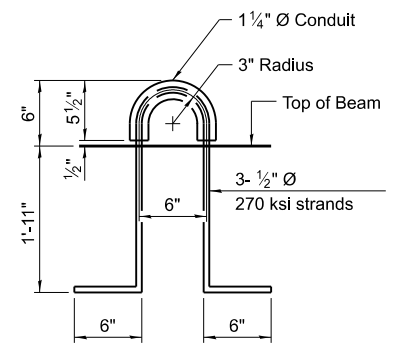


**PLAN VIEW**

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

**NOTES**

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place. Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location. A minimum 2 1/2" diameter lifting pin shall be used to engage the lifting loops during handling. Corrosion Inhibitor, per Article 1020.05(b)(10) and 1021.07 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams. Compressive strength of prestressed concrete, f<sub>c</sub>, shall be 6000 psi. Compressive strength of prestressed concrete at release, f<sub>ci</sub>, shall be 5000 psi.



**LIFTING LOOP DETAIL**

**BILL OF MATERIAL**

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1643
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FILE NAME = I:\Municipalities\Vermon County\_IL\B122 VCHD TR 243 Bridge Repl\CADD\CADD\_Structural\beams2.dgn

PDD-2136-0

1-1-2020



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PLOT DATE = 9/29/2023	DATE 11/1/2021	REVISED -

**STATE OF ILLINOIS**  
**VERMILION COUNTY HIGHWAY DEPARTMENT**

**27" x 36" PPC DECK BEAM DETAILS (SPAN 2)**  
**STRUCTURE NO. 092-3542**

SHEET NO.13OF 22 SHEETS

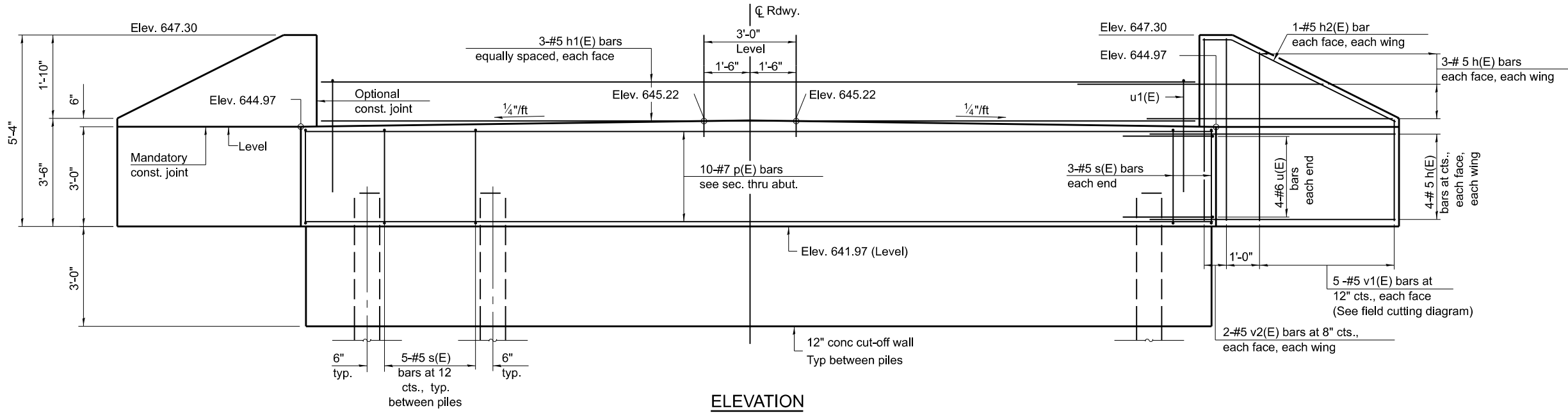
FAS RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 243	18-14144-00-BR	VERMILION	22	13
STRUCTURE NO. 092-3542		CONTRACT NO. 91618		
ILLINOIS FED. AID PROJECT				

Sheet 6 of 11

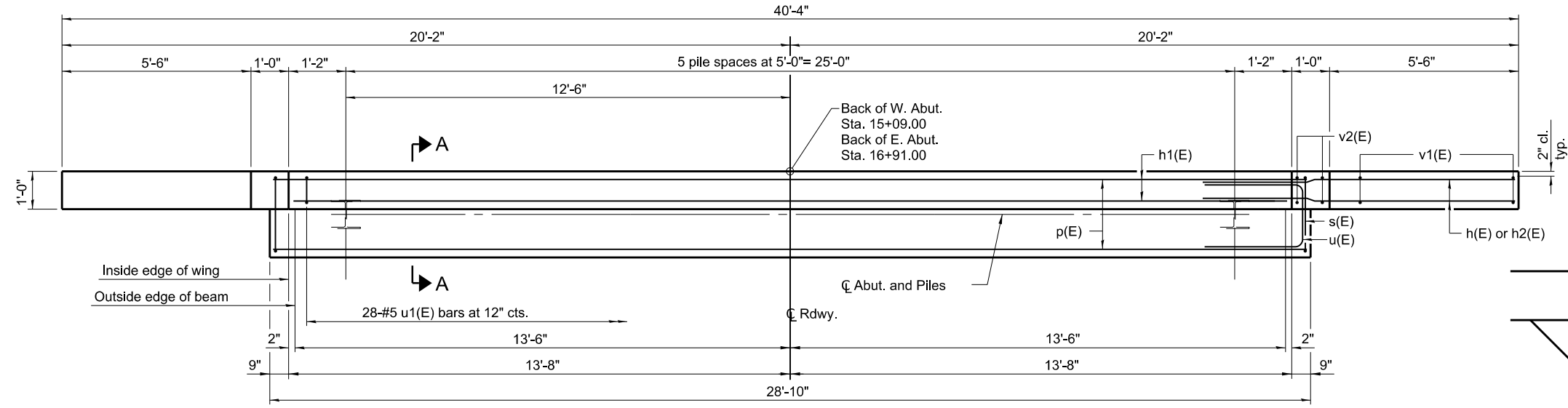
**BILL OF MATERIAL (2 ABUTMENTS)**

Bar	No.	Size	Length	Shape
h(E)	56	#5	8'-6"	
h1(E)	12	#5	27'-0"	
h2(E)	8	#5	6'-5"	
p(E)	20	#7	28'-6"	
s(E)	62	#5	10'-7"	
u(E)	16	#6	10'-8"	
u1(E)	56	#5	9'-4"	
v1(E)	20	#5	7'-10"	
v2(E)	16	#5	5'-0"	
Structure Excavation			Cu. Yd.	53
Concrete Structures			Cu. Yd.	25.5
Reinforcement Bars, Epoxy Coated			Pound	3790
Furnishing - Piles, Steel HP 10x42			Foot	295
Driving Piles			Foot	295
Test Pile, HP 10x42			Each	2
Concrete Cut-Off Wall			Cu. Yd.	6.4
Pile Shoes			Each	12

Notes:  
 For details of piles and Concrete Cut-Off Wall, see sheet 7 of 11.  
 Cast backwall and tops of wingwalls after beams have been erected.

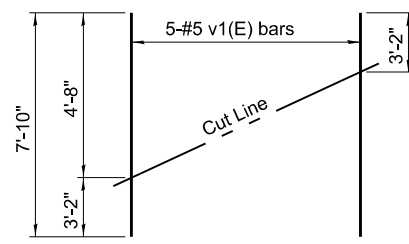


**ELEVATION**



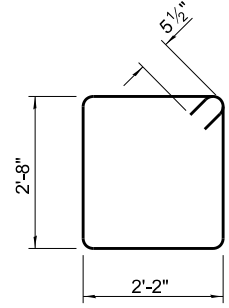
**PLAN**

**PILE DATA:**  
 Type: HP10x42  
 Nominal Required Bearing: 200 k  
 Factored Resistance Available: 110 k  
 Est. Length: 26' (W. Abut), 33' (E. Abut)  
 No. Production Piles: 10  
 No. Test Piles: 2 (1 W. Abut, 1 E. Abut)

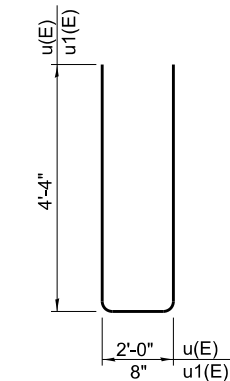


**FIELD CUTTING DIAGRAM**

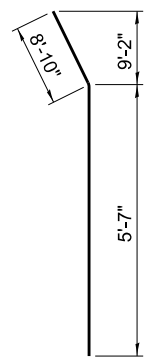
Order v1(E) bars full length. Cut as shown and use remainder of bars in opposite face.



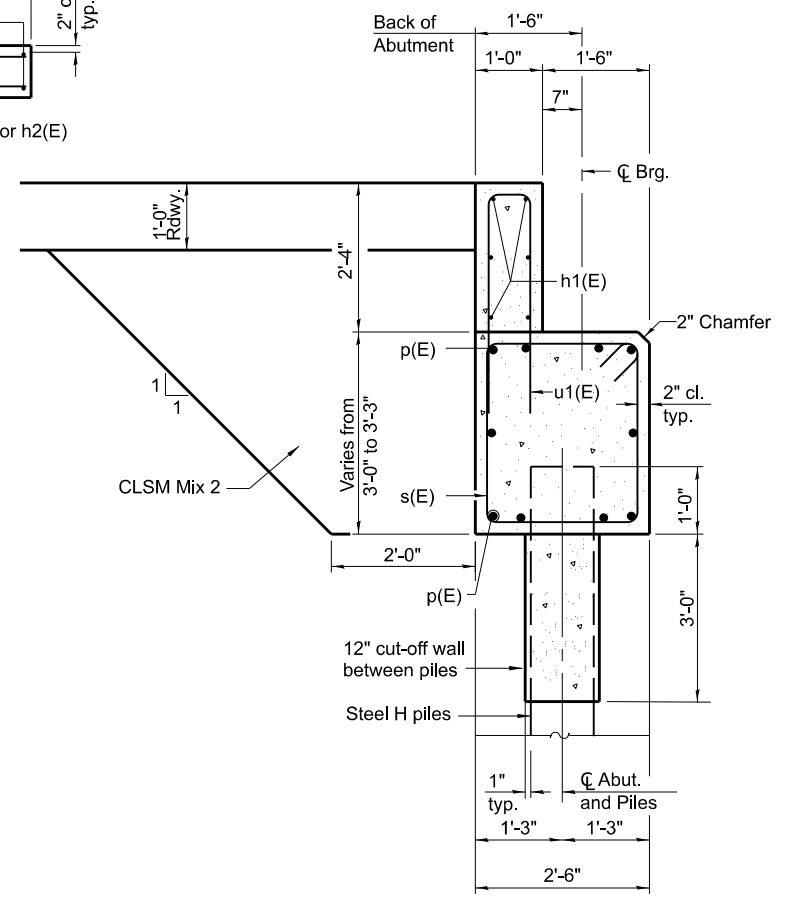
**BAR s(E)**



**BARS u(E) & u1(E)**



**BAR h2(E)**



**SECTION A-A**

FILE NAME = I:\Municipalities\Vermlion County\_IL\B122 VCHD TR 243 Bridge Repl\CADD\CADD\_Structural\abut.dgn

AD-SB-0

6-15-2019



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DESIGNED KEB	REVISED -
DRAWN RLK	REVISED -
CHECKED BCG	REVISED -
DATE 11/1/2021	REVISED -

**STATE OF ILLINOIS**  
**VERMILION COUNTY HIGHWAY DEPARTMENT**

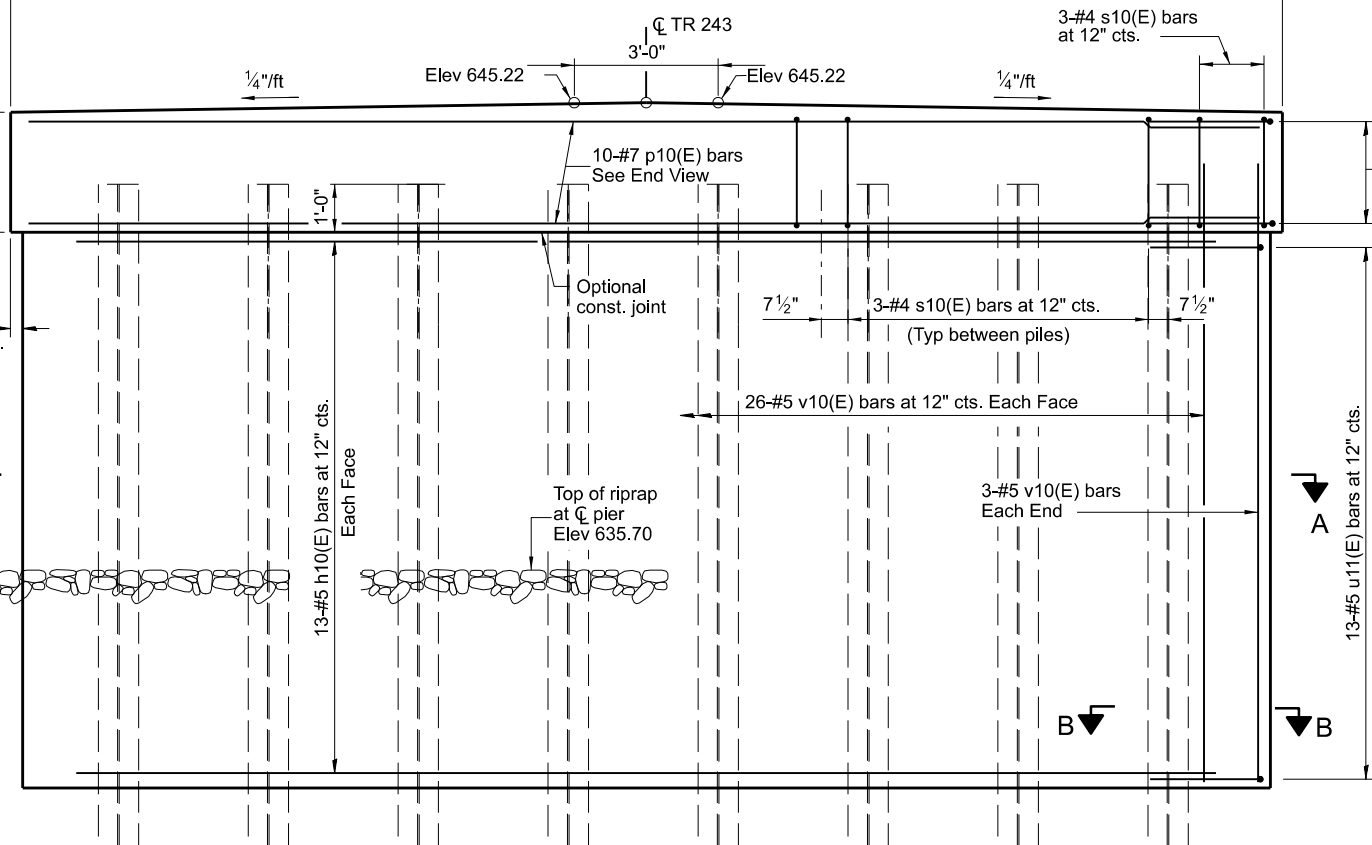
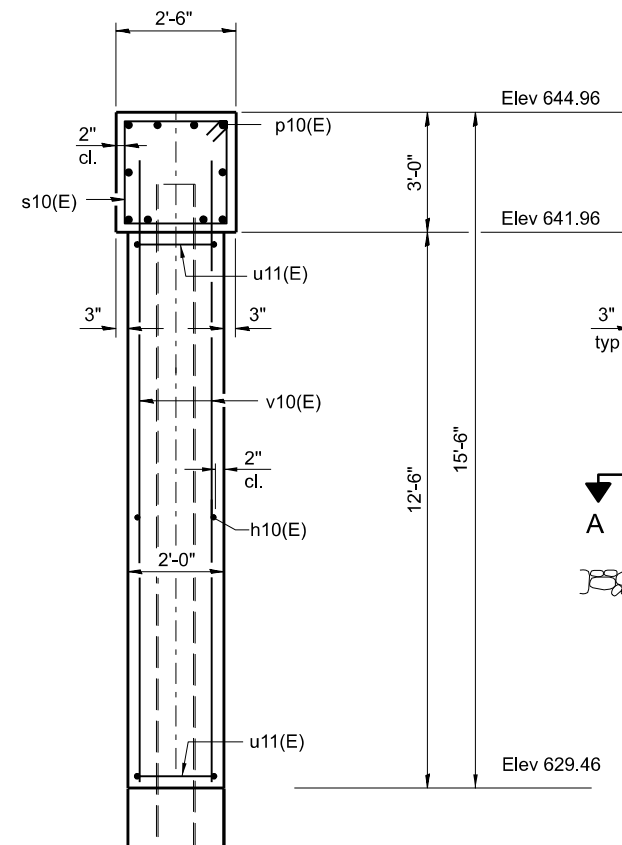
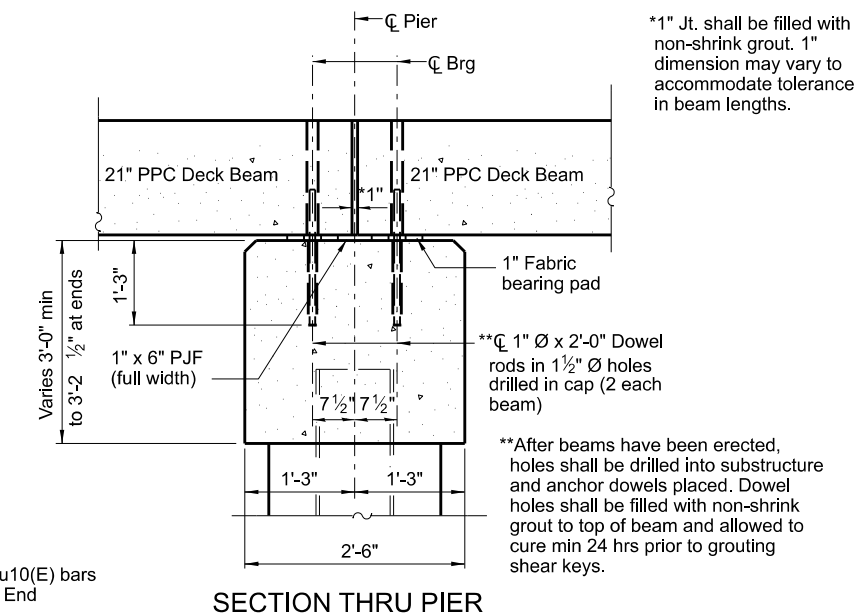
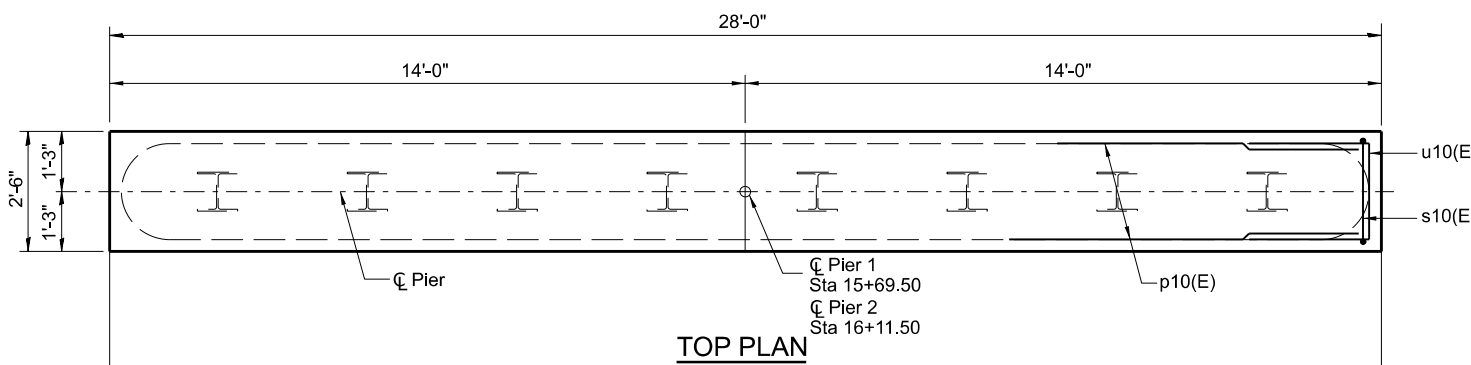
**ABUTMENTS**  
**STRUCTURE NO. 092-3542**

SHEET NO. 14 OF 22 SHEETS

Sheet 7 of 11

FAS RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 243	18-14144-00-BR	VERMILION	22	14
STRUCTURE NO. 092-3542		CONTRACT NO. 91618		

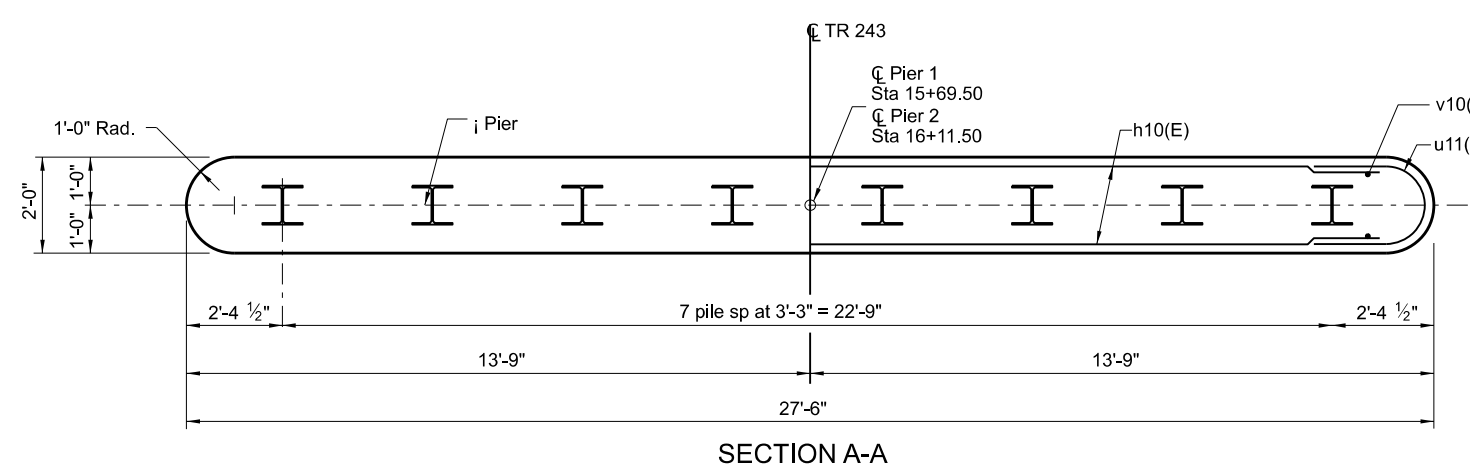
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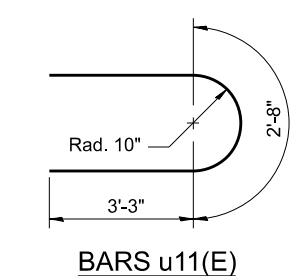
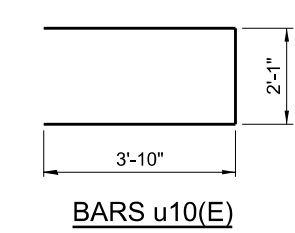
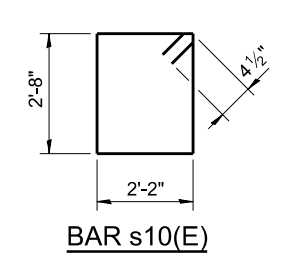
**END VIEW**

**ELEVATION**

**PILE DATA:**  
 Type: HP10x42  
 Nominal Required Bearing: 238 k  
 Factored Resistance Available: 131 k  
 Est. Length: 29' (W) 34' (E)  
 No. Production Piles: 14  
 No. Test Piles: 2



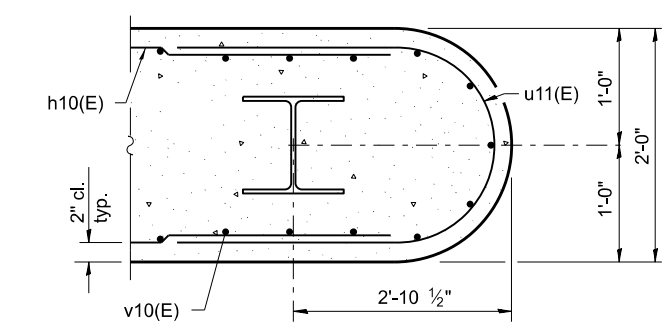
**SECTION A-A**



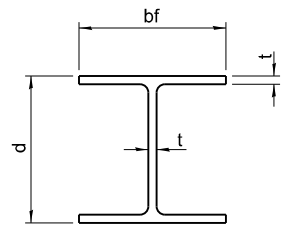
**BILL OF MATERIAL (2 PIERS)**

Bar	No.	Size	Length	Shape
h10(E)	52	#5	25'-0"	—
p10(E)	20	#7	27'-8"	—
s10(E)	54	#4	10'-5"	□
u10(E)	16	#6	9'-9"	U
u11(E)	52	#5	9'-2"	U
v10(E)	116	#5	13'-6"	—
Concrete Structures		Cu. Yd.	66.4	
Reinforcement Bars, Epoxy Coated		Pound	5230	
Furnishing Steel Piles HP10x42		Foot	441	
Driving Piles		Each	441	
Cof f erdam (Type 1) (Location-1)		Each	1	
Cof f erdam (Type 1) (Location-2)		Each	1	
Structure Excavation		Cu. Yd.	88	
Pile Shoes		Each	16	
Test Piles		Each	2	

Notes:  
 For details of piles, see sheet 9 of 11.  
 Space reinforcement in pier cap to miss beam anchor dowels.

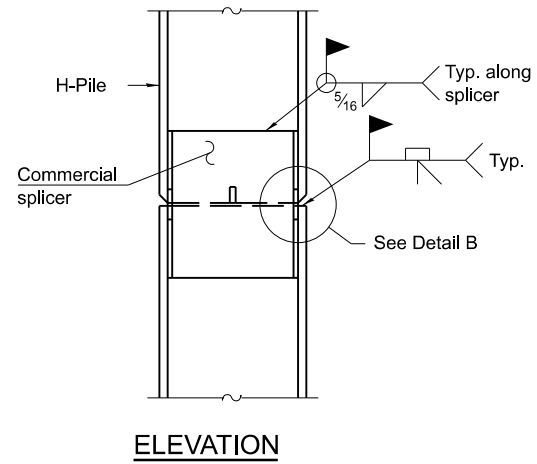


**SECTION B-B**

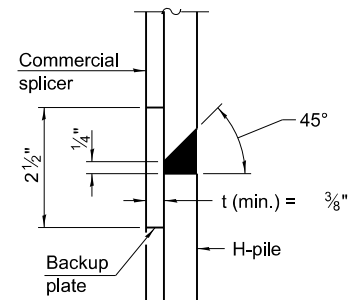


**STEEL PILE TABLE**

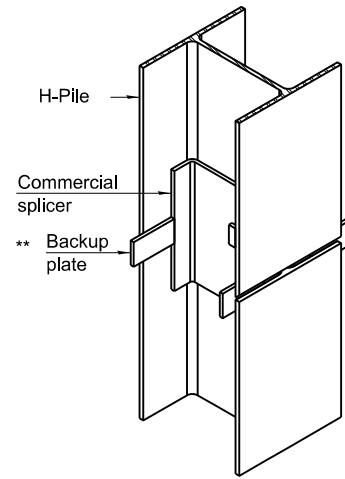
Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	11/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	11/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53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



**ELEVATION**

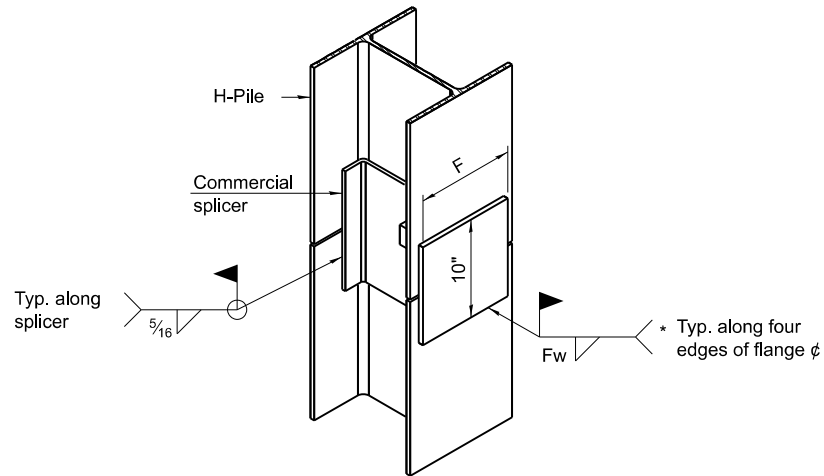


**DETAIL "B"**



**ISOMETRIC VIEW**

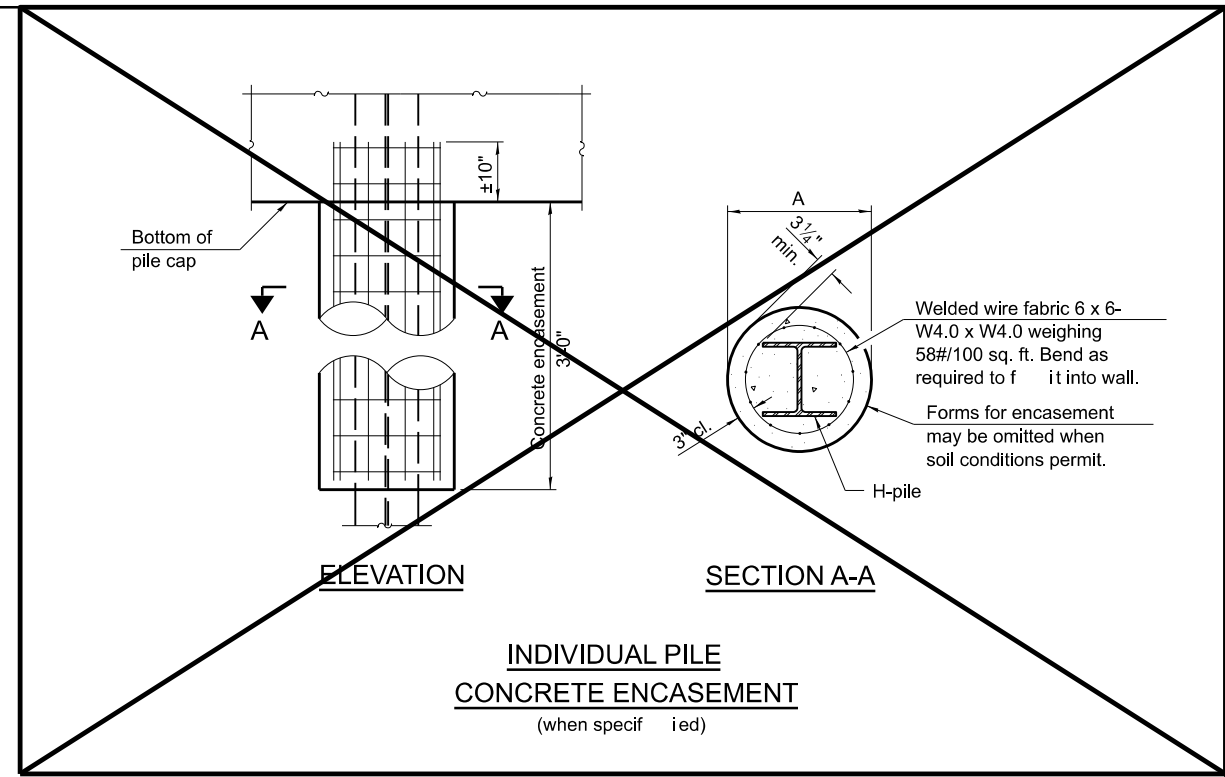
**WELDED COMMERCIAL SPLICE**



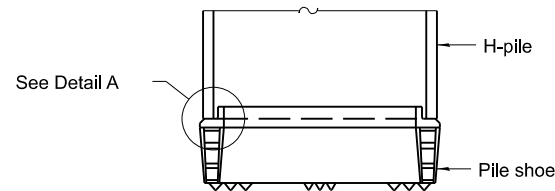
**ISOMETRIC VIEW**

**WELDED COMMERCIAL SPLICE ALTERNATE**

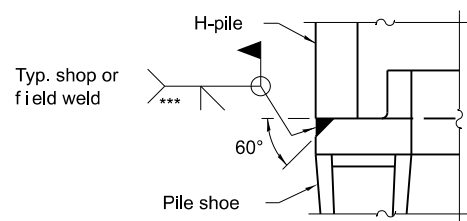
- \* Interrupt welds 1/4" from end of web and/or each flange.
- \*\* Remove portions of backup plates that extend outside the flanges.
- \*\*\* Weld size per pile shoe manufacturer (5/16" min.).



**INDIVIDUAL PILE CONCRETE ENCASUREMENT (when specified)**



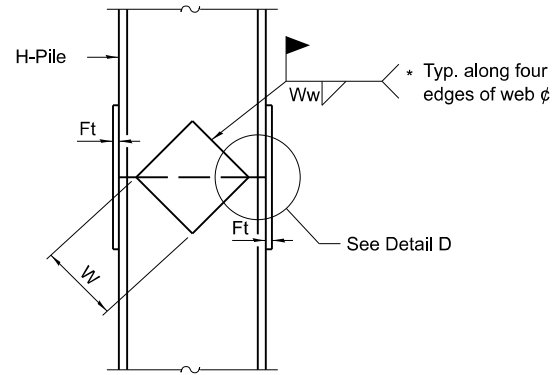
**ELEVATION**



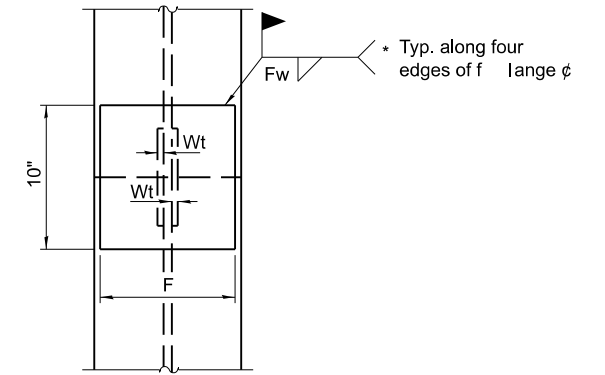
**DETAIL A**

**SHOE ATTACHMENT**

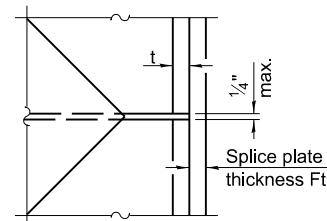
Note:  
The steel H-piles shall be according to AASHTO M270 Grade 50.



**ELEVATION**



**END VIEW**



**DETAIL D**

**WELDED PLATE FIELD SPLICE**

Designation	F	Ft	Fw	W	Wt	Ww
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	11/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

FILE NAME = I:\Municipalities\Vermon County\_IL\B122 VCHD TR 243 Bridge Repl\CADD\CADD\_Structural\piles.dgn

**F-HP**  
  
 CHASTAIN & ASSOCIATES LLC  
 CONSULTING ENGINEERS  
 184-001397

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PLOT DATE = 10/12/2023	DATE 11/1/2021	REVISED -

DESIGNED KEB	REVISED -
DRAWN RLK	REVISED -
CHECKED BCG	REVISED -
DATE 11/1/2021	REVISED -

**STATE OF ILLINOIS**  
**VERMILION COUNTY HIGHWAY DEPARTMENT**

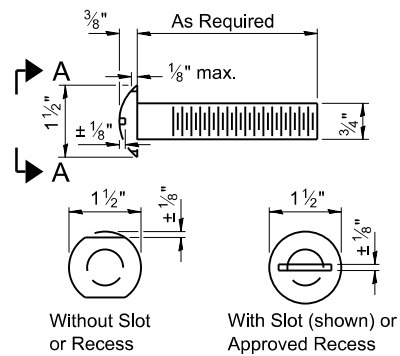
**HP PILE DETAILS**  
**STRUCTURE NO. 092-3542**

SHEET NO. 16 OF 22 SHEETS

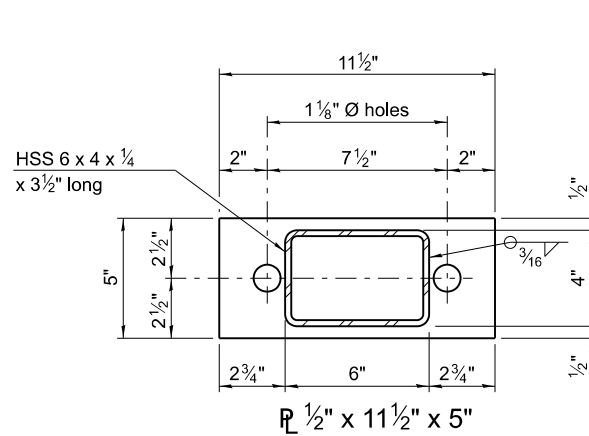
FAS RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 243	18-14144-00-BR	VERMILION	22	16
STRUCTURE NO. 092-3542		CONTRACT NO. 91618		

ILLINOIS FED. AID PROJECT





VIEW A-A  
ROUND HEAD BOLT



2-3/4" Ø x 6" Round Head Bolts with locknut & flat washer.  
7/8" Ø holes in hollow structural section may be drilled in the field.

2- 1" Ø x 7 3/4" AASHTO M-164 anchor bolts with flat washer and lock washer

2-5/8" Ø x 5 3/4" cap screws with flat washer

2-3/4" Ø x 3 3/4" H.S. bolts with hex nut & flat washers

1 1/8" Ø Holes in angles

7/8" Ø Holes in post

1 1/8" Ø Holes in angles

1 1/8" Ø Holes in angles and plate

2-13/16" Holes in angles

1-13/16" x 5 1/2" Slotted hole in post

1 1/8" Ø Holes in angles

1 1/8" Ø Holes in angles and plate

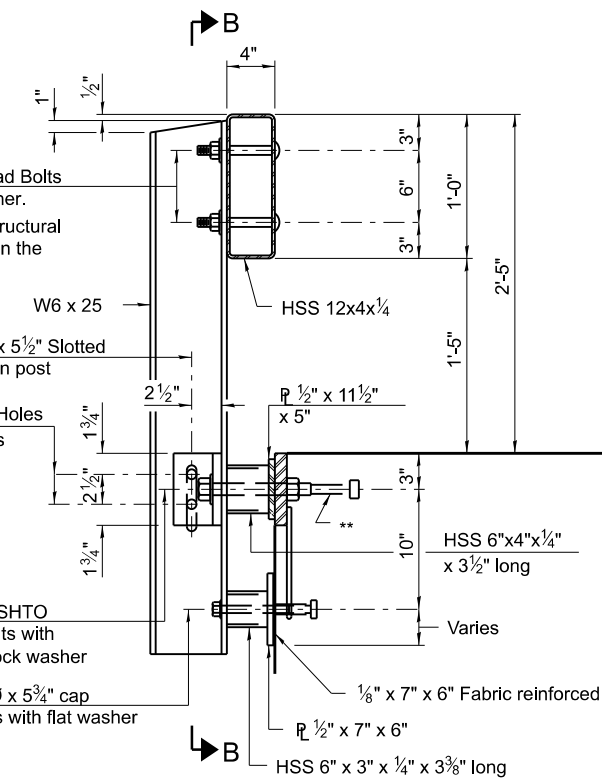
1 1/8" Ø Holes in angles

1 1/8" Ø Holes in angles

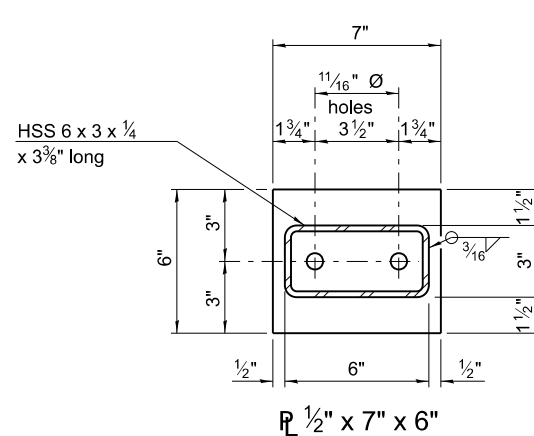
1 1/8" Ø Holes in angles

1 1/8" Ø Holes in angles

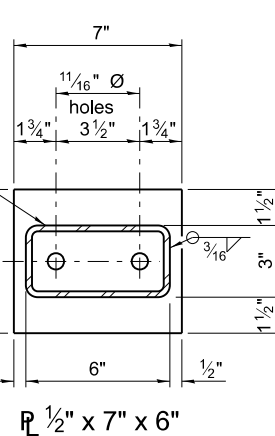
SECTION B-B



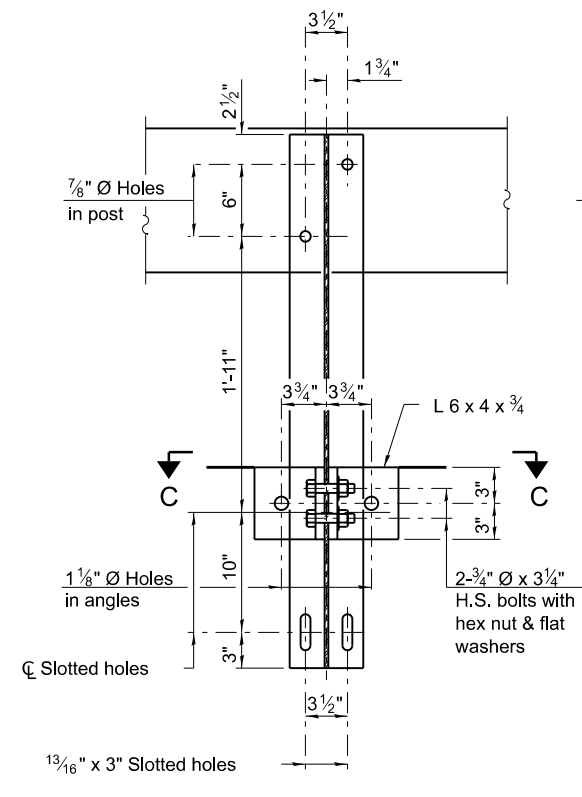
SECTION AT RAILING POST



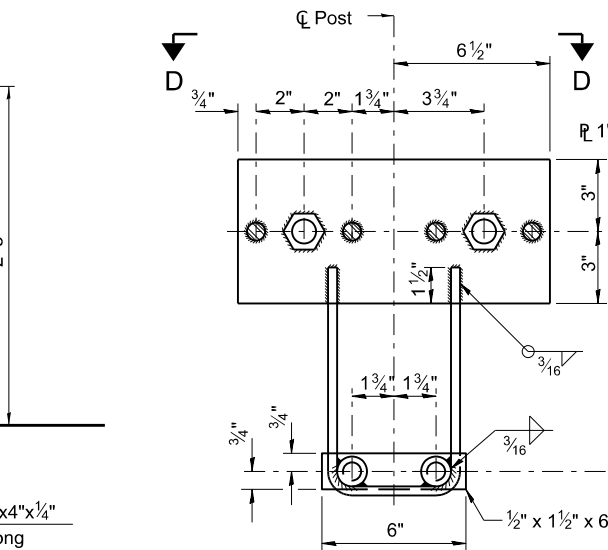
SECTION C-C



SECTION D-D

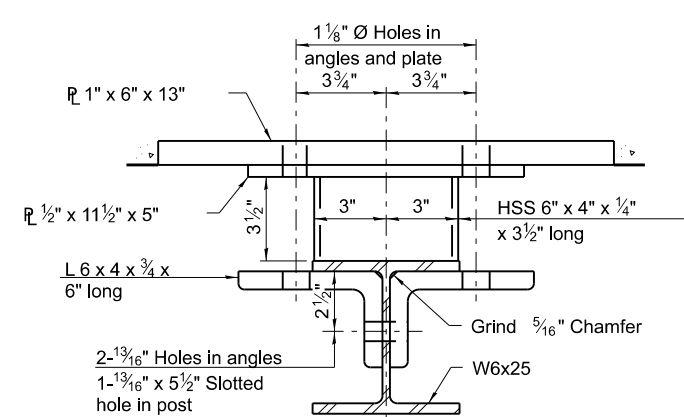


SECTIONS AT RAIL SPLICE

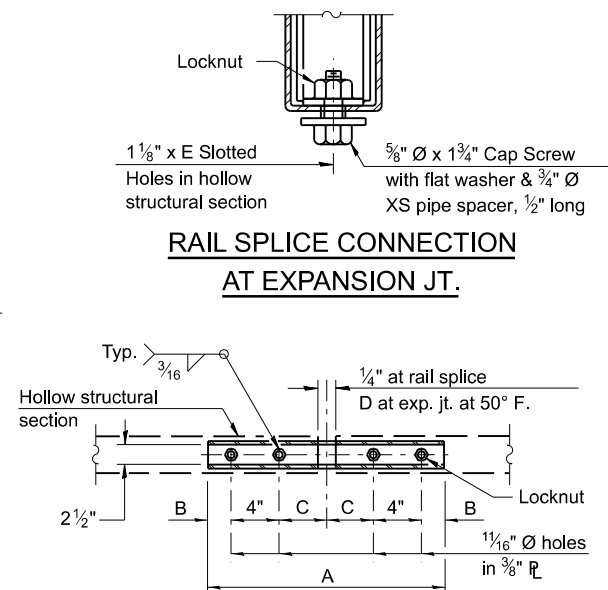


ANCHOR DEVICE

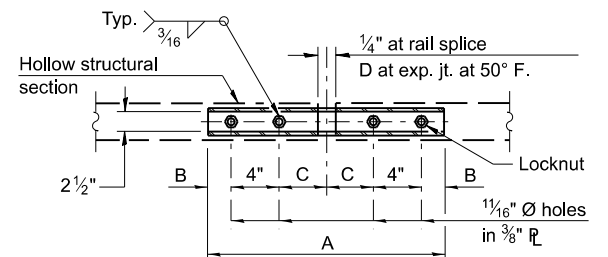
\* Threaded areas shall be plugged or blocked off during casting of beam.



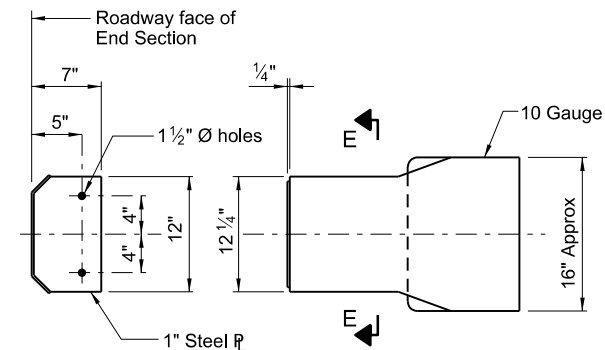
SECTION C-C



RAIL SPLICE CONNECTION AT EXPANSION JT.

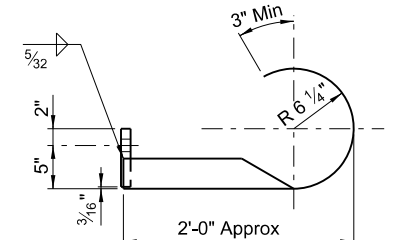


PLAN-BOTT. SPLICE TYPICAL



SECTION E-E

DETAILS OF CURLED END SECTION - 4 EACH  
(Cost included with Steel Railing, Type S-1)



VIEW D-D

SPLICE DIMENSIONS

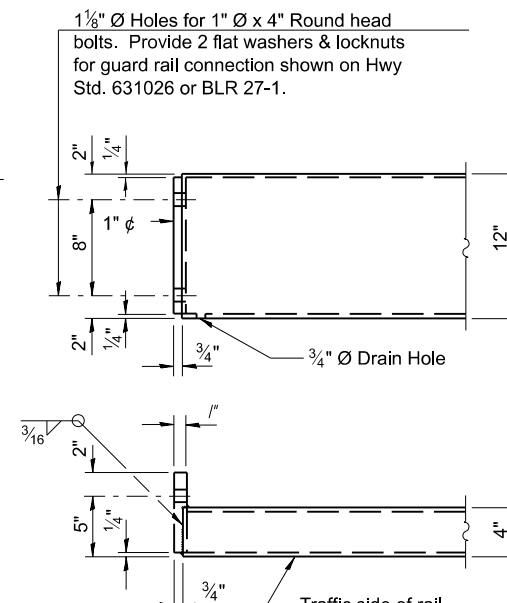
T	D	A	B	C	E
≤ 4"	2 1/2"	1'-8"	2"	4"	2 1/2"
> 4" ≤ 6 1/2"	3 3/4"	2'-0"	2 1/2"	5 1/2"	3 1/2"
> 6 1/2" ≤ 9"	5"	2'-4"	3 1/2"	6 1/2"	9"
> 9" ≤ 13"	7"	2'-10"	4 1/2"	8 1/2"	11"
Rail Splice	1/4"	1'-8"	2"	4"	

T = Total movement at expansion joint as shown on the design plans.

Notes:

For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1. All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

\*\* The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device. The anchorage studs may be bent down 1/2" to accommodate the top reinforcement bar placement.



END OF RAIL DETAILS

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	364

FILE NAME = I:\Municipalities\Vermilion County\_IL\B122 VCHD TR 243 Bridge Repl\CADD\CADD\_Structural\Steel.dgn

R-23A 8-11-2017 (10'-9" Maximum Post Spacing)

Sheet 10 of 11

**CHASTAIN & ASSOCIATES LLC**  
CONSULTING ENGINEERS  
184-001397

USER NAME = switt  
PLOT TIME = 11:49:23 AM  
PLOT SCALE = 8.0000' / in.  
PLOT DATE = 9/29/2023

DESIGNED KEB  
DRAWN RLK  
CHECKED BCG  
DATE 11/1/2021

REVISED -  
REVISED -  
REVISED -  
REVISED -

STATE OF ILLINOIS  
VERMILION COUNTY HIGHWAY DEPARTMENT

STEEL RAILING, TYPE S-1  
STRUCTURE NO. 092-3542

SHEET NO. 17 OF 22 SHEETS

FAS RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 243	IB-14144-00-BR	VERMILION	22	17
STRUCTURE NO. 092-3542			CONTRACT NO. 91618	

ILLINOIS FED. AID PROJECT

FILE NAME = I:\Municipalities\Vermlion County\_IL\B122 VCHD TR 243 Bridge Repl\CADD\CADD\_Structural\borings.dgn

**BRIDGE FOUNDATION SOIL BORING LOG**      **MET Midwest Engineering and Testing, Inc.**

Route: East 1850 North Road over Conkey Branch      Boring: B-1  
 Section: 18-14144-00-BR      Page: Page 1 of 1  
 County: Vermilion      Date of Boring: September 24, 2021  
 Structure No.      Drilled By: Zach Wilcoxon  
 Station: 9+82      Checked By: Nick Wendling  
 Offset: 5 Rt      MET Project No: 213110

Description	D E P T H		Q <sub>u</sub>	MC	Center of Bridge @ CL: STA 10+00, Elev: 100.00	D E P T H		Q <sub>u</sub>	MC
	(ft.)	(6")				(ft.)	(6")		
Surface Water Elevation: 92.50 Ground Water Elevation: when drilling: 85.0 at completion: Caved									
Ground Surface Elevation: 99.98 3.5" Oil and Chip over 8" Crushed Stone				16					
Black silty CLAY (OH)						50/3"			17
Brown silty CLAY (CL) - Fill	4		4.5P	15		30			
Dark brown silty CLAY (CL)	4		3.0P	22		46			12
Brown medium SAND (SP)	4			7		50/2"			
Brown and gray sandy CLAY (CL)	11		4.5P	10					
Gray silty CLAY (CL) with sand and small gravel - Till	18		3.9B	10					
Gray clayey SILT (ML)	18		3.5P	20					
Gray clayey SAND (SC)	18			12					
Gray soft SHALE	18			18					
	20			16					

End of Boring @ Elev: 58.5

N - Standard Penetration Test (SPT) = Sum of last two blow values in sample      Type Failure      B-Bulge  
 MC - Moisture Content - Percent of dry weight      Qu test      S-Shear  
 Qu - Unconfined Compressive Strength- tons per square foot (tsf)      P-Penetrometer

**BRIDGE FOUNDATION SOIL BORING LOG**      **MET Midwest Engineering and Testing, Inc.**

Route: East 1850 North Road over Conkey Branch      Boring: B-2  
 Section: 18-14144-00-BR      Page: Page 1 of 1  
 County: Vermilion      Date of Boring: September 26, 2021  
 Structure No.      Drilled By: Zach Wilcoxon  
 Station: 10+44      Checked By: Nick Wendling  
 Offset: 5 Lt      MET Project No: 213110

Description	D E P T H		Q <sub>u</sub>	MC	Center of Bridge @ CL: STA 10+00, Elev: 100.00	D E P T H		Q <sub>u</sub>	MC
	(ft.)	(6")				(ft.)	(6")		
Surface Water Elevation: 92.50 Ground Water Elevation: when drilling: 85.0 at completion: Caved									
Ground Surface Elevation: 99.70 4" Oil and Chip over 8" Crushed Stone				16					
Black silty CLAY (OH)						16			12
Brown silty CLAY (CL) with sand - Fill	3			19		30			
Black silty CLAY (OH)	5					38			11
Brown and gray sandy CLAY (CL)	1		0.5B	19		35			
Gray silty CLAY (CL) with sand and small gravel - Till	5		7.1B	11					
Gray clayey SILT (ML) with sand	8		3.0P	14					
Gray fine silty SAND (SM)	9			12					
Gray soft SHALE	18			16					
	20			20					
	18			17					
	25			17					

End of Boring @ Elev: 58.2

N - Standard Penetration Test (SPT) = Sum of last two blow values in sample      Type Failure      B-Bulge  
 MC - Moisture Content - Percent of dry weight      Qu test      S-Shear  
 Qu - Unconfined Compressive Strength- tons per square foot (tsf)      P-Penetrometer



USER NAME = switt  
 PLOT TIME = 10:22:18 AM  
 PLOT SCALE = 2# ' / in.  
 PLOT DATE = 9/29/2023

DESIGNED KEB  
 DRAWN RLK  
 CHECKED BCG  
 DATE 11/1/2021

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

**STATE OF ILLINOIS  
 VERMILION COUNTY HIGHWAY DEPARTMENT**

**SOIL BORING LOGS  
 STRUCTURE NO. 092-3542**

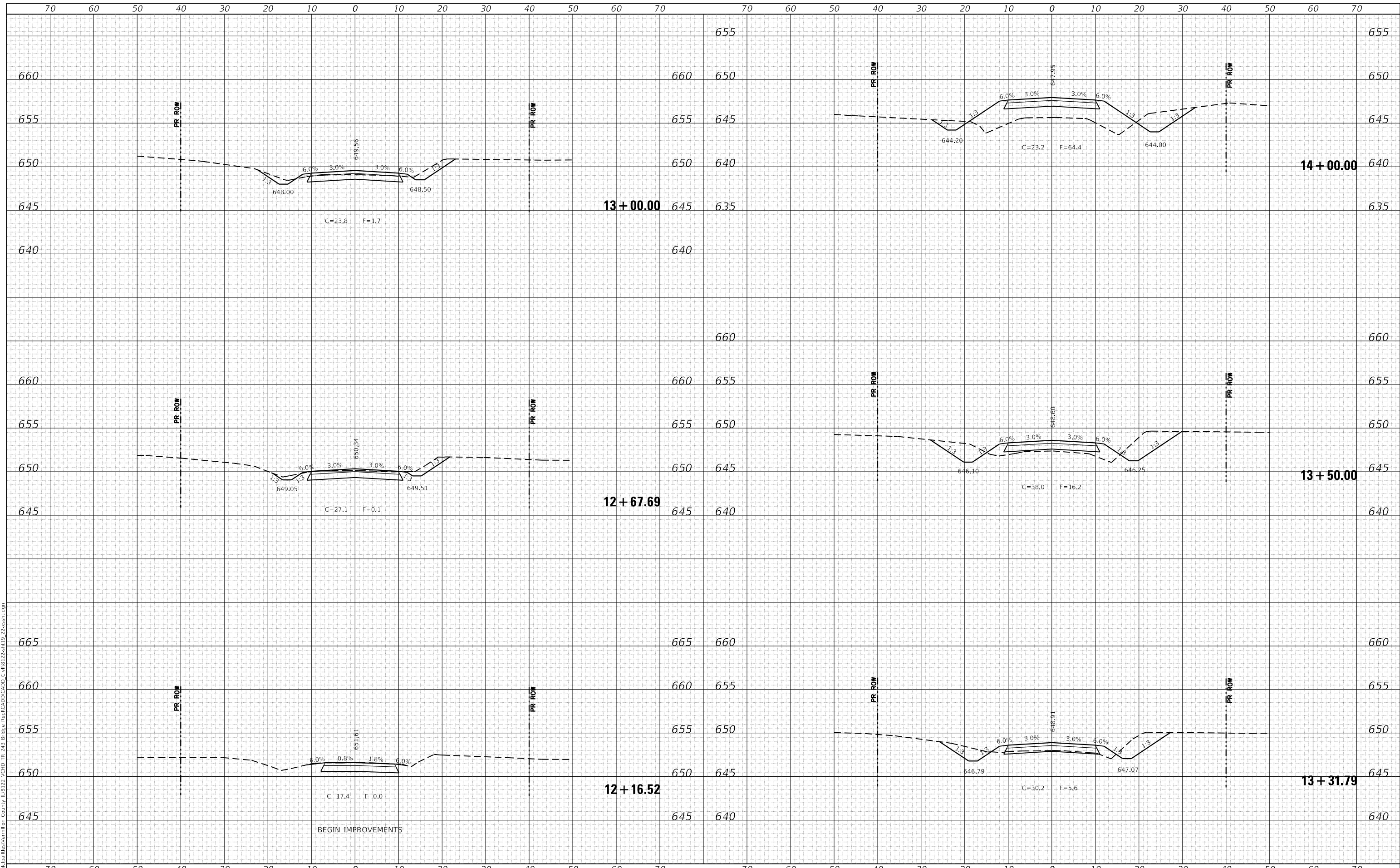
SHEET NO. 18 OF 22 SHEETS

FAS RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 243	18-14144-00-BR	VERMILION	22	18
STRUCTURE NO. 092-3542		CONTRACT NO. 91618		
ILLINOIS FED. AID PROJECT				

DATE	
BY	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS CHECKED	
FINAL SURVEY	
NOTE BOOK	
NO.	

DATE	
BY	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS CHECKED	
ORIGINAL SURVEY	
NOTE BOOK	
NO.	

MODEL: Definit  
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**CHASTAIN & ASSOCIATES LLC**  
 CONSULTING ENGINEERS

USER NAME = switt	DESIGNED - CMF	REVISED -
PLOT SCALE = 20.0000' / in.	DRAWN - RLK	REVISED -
PLOT DATE = 9/28/2023	CHECKED - CMF	REVISED -
	DATE - 2/10/2023	REVISED -

**STATE OF ILLINOIS**  
**VERMILION COUNTY HIGHWAY DEPARTMENT**

**CROSS SECTIONS**  
**TR 243 OVER STONY CREEK**

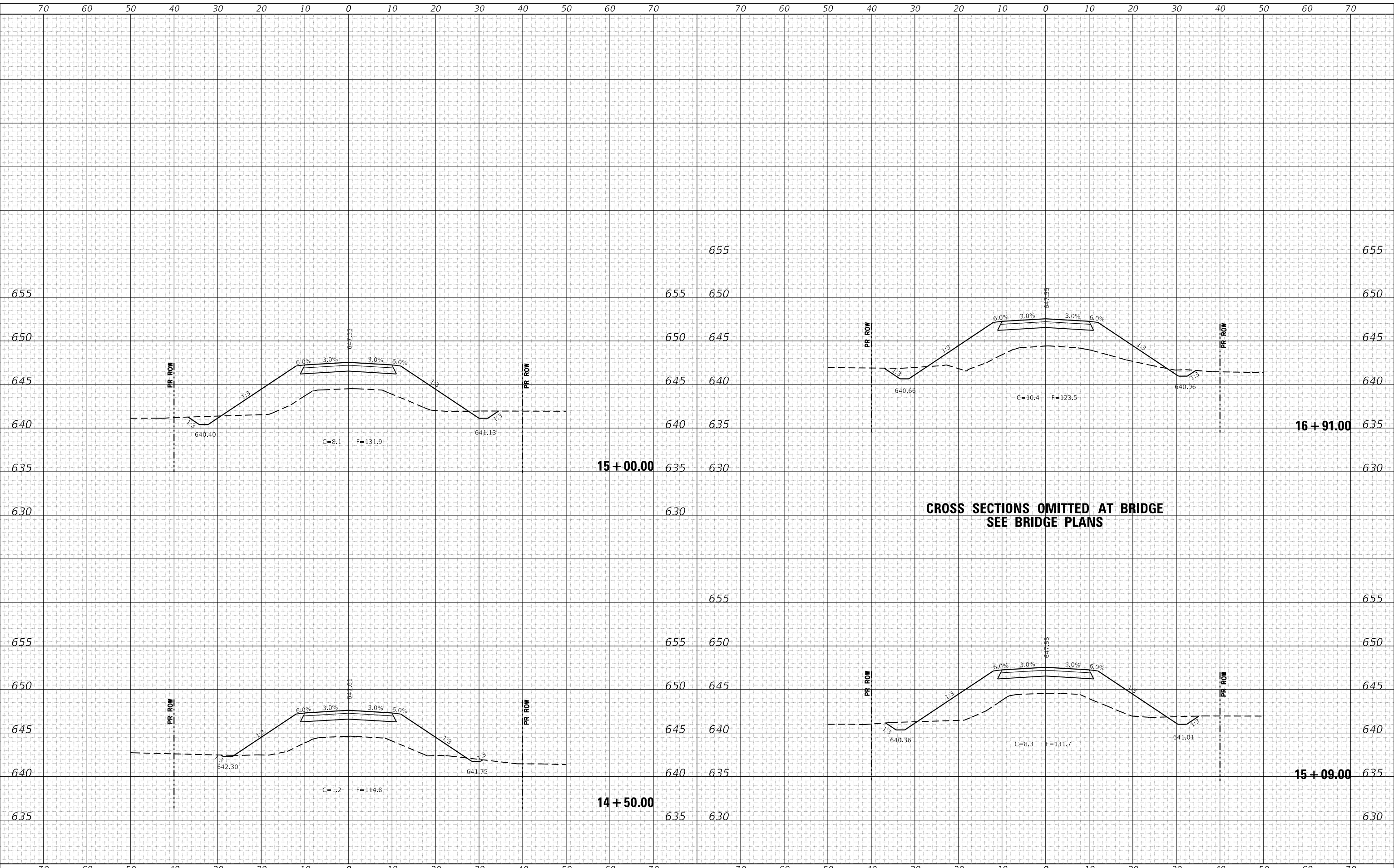
SCALE: SHEET 1 OF 4 SHEETS STA. 12+16.52 TO STA. 14+00.00

T.R. RTE. 243	SECTION 18-14144-00-BR	COUNTY VERMILION	TOTAL SHEETS 22	SHEET NO. 19
ILLINOIS FED. AID PROJECT			CONTRACT NO. 91618	

FINAL SURVEY	SURVEYED	DATE
NOTE BOOK	PLOTTED	BY
NO.	TEMPLATE	
	AREAS CHECKED	

ORIGINAL SURVEY	SURVEYED	DATE
NOTE BOOK	PLOTTED	BY
NO.	TEMPLATE	
	AREAS CHECKED	

MODEL: Definit  
FILE NAME: I:\v\un\p\stl\st\vermilion County IL18122 VCHD TR 243 Bridge Rev1\CADD\CADD\_Civil\18122-sta19-22-xx-sct.dgn



**CHASTAIN & ASSOCIATES LLC**  
CONSULTING ENGINEERS

USER NAME = switt	DESIGNED - CMF	REvised -
PLOT SCALE = 20.0000' / in.	DRAWN - RLK	REvised -
PLOT DATE = 9/28/2023	CHECKED - CMF	REvised -
	DATE - 2/10/2023	REvised -

**STATE OF ILLINOIS**  
**VERMILION COUNTY HIGHWAY DEPARTMENT**

**CROSS SECTIONS**  
**TR 243 OVER STONY CREEK**

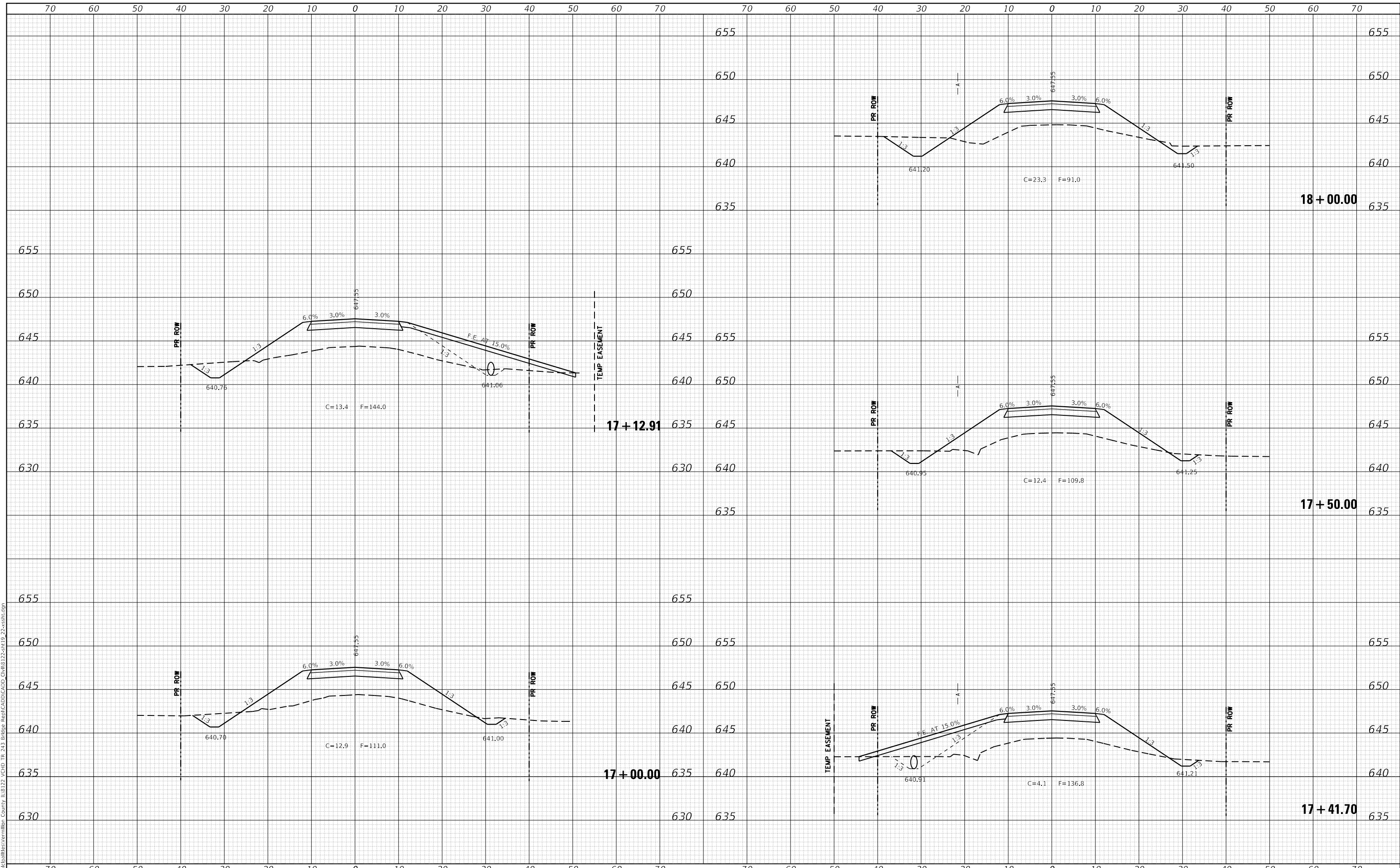
SCALE: SHEET 2 OF 4 SHEETS STA. 14+50.00 TO STA. 16+91.00

T.R. RTE. 243	SECTION 18-14144-00-BR	COUNTY VERMILION	TOTAL SHEETS 22	SHEET NO. 20
			CONTRACT NO. 91618	
			ILLINOIS FED. AID PROJECT	

DATE	
BY	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS CHECKED	
FINAL SURVEY NO.	
NOTE BOOK NO.	
AREAS CHECKED	

DATE	
BY	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS CHECKED	
ORIGINAL SURVEY NO.	
NOTE BOOK NO.	
AREAS CHECKED	

MODEL: Definit  
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**CHASTAIN & ASSOCIATES LLC**  
 CONSULTING ENGINEERS

USER NAME	= svitt
DESIGNED	- CMF
DRAWN	- RLK
CHECKED	- CMF
DATE	- 2/10/2023
REVISIONS	
REVISED	-
REVISED	-
REVISED	-
REVISED	-

SCALE	= 20.0000 ' / in.
PLOT DATE	= 9/28/2023

**STATE OF ILLINOIS  
 VERMILION COUNTY HIGHWAY DEPARTMENT**

**CROSS SECTIONS  
 TR 243 OVER STONY CREEK**

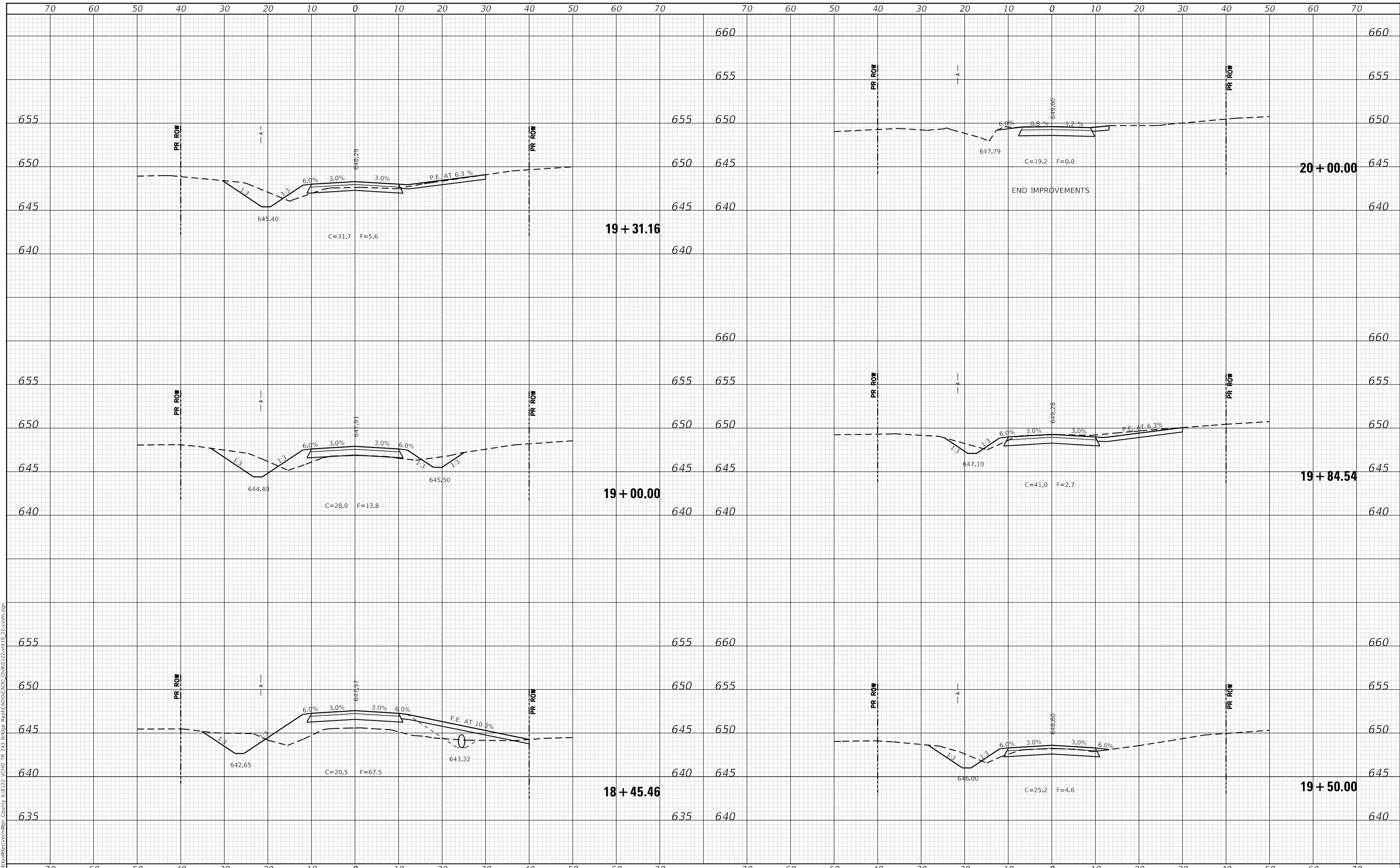
SCALE:                  SHEET 3 OF 4 SHEETS          STA. 17+00.00 TO STA. 18+00.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
243	18-14144-00-BR	VERMILION	22	21
ILLINOIS FED. AID PROJECT			CONTRACT NO. 91618	

DATE	
BY	
SURVEYED	
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AREAS CHECKED	
FINAL SURVEY	
NOTE BOOK	
NO.	

DATE	
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SURVEYED	
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AREAS CHECKED	
ORIGINAL SURVEY	
NOTE BOOK	
NO.	

MODEL: Definit  
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**CHASTAIN & ASSOCIATES LLC**  
 CONSULTING ENGINEERS

USER NAME = switt	DESIGNED - CMF	REVISED -
PLOT SCALE = 20.0000' / in.	DRAWN - RLK	REVISED -
PLOT DATE = 9/28/2023	CHECKED - CMF	REVISED -
	DATE - 2/10/2023	REVISED -

**STATE OF ILLINOIS**  
**VERMILION COUNTY HIGHWAY DEPARTMENT**

**CROSS SECTIONS**  
**TR 243 OVER STONY CREEK**

SCALE: SHEET 4 OF 4 SHEETS STA. 18+45.46 TO STA. 20+00.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
243	18-14144-00-BR	VERMILION	22	22
				CONTRACT NO. 91618
				ILLINOIS FED. AID PROJECT