069

04-24-2020 LETTING ITEM 069

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D7 BRIDGE REPAIRS 2020-4	COLES	25	1
		CONTRACT NO. 74928		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROPOSED HIGHWAY PLANS

FAP ROUTE 91 (IL RTE 16)
SECTION D7 BRIDGE REPAIRS 2020-4

BRIDGE JOINT REPAIR AND PATCHING
COLES COUNTY

C-97-004-20

FOR INDEX OF SHEETS, SEE SHEET NO. 2

ADT = 15,200 (2017)

STATION EQUATIONS:

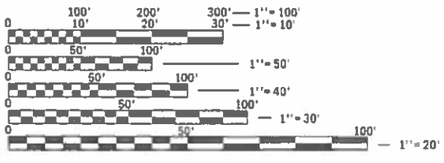
437+90.58 (BK) = 438+08.36 (AH)

D-97-004-20

LOCATION OF SECTION INDICATED THUS: -

SN 015-0015 (EB): STA 435+63.97
SN 015-0016 (WB): STA 434+05.53

SN 015-0018 (EB): STA 440+59.01
SN 015-0017 (WB): STA 440+24.99



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

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED January 31 20 20
Jeffrey P Myrick
REGIONAL ENGINEER
March 20 20 20
ENGINEER OF DESIGN AND ENVIRONMENT
March 20 20 20
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

PROJECT ENGINEER: DEBRA BARRETT
PROJECT MANAGER: BRIAN BIERMAN

CONTRACT NO. 74928

GROSS LENGTH = 1,141 FT. = 0.216 MILE
NET LENGTH = 1,141 FT. = 0.216 MILE

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

GENERAL NOTES

THIS PROJECT IS LOCATED APPROXIMATELY 0.5 MILE WEST OF CHARLESTON AT 4 DIFFERENT STRUCTURES ON FAP 91 (IL 16) IN COLES COUNTY. SN 015-0015 AND SN 015-0016 CROSS THE EASTERN IL RR, AND SN 015-0017 AND SN 015-0018 CROSS RILEY CREEK. THIS WORK CONSISTS OF BRIDGE DECK AND APPROACH PAVEMENT PATCHING AND NEW BRIDGE JOINTS ALONG WITH ANY OTHER WORK NECESSARY TO COMPLETE THIS SECTION.

THE LOCATIONS AND/OR DEPTHS OF UNDERGROUND UTILITIES SHOWN HAVE BEEN TAKEN FROM INFORMATION FURNISHED BY THE UTILITY OWNERS AND MUST BE CONSIDERED APPROXIMATE. FIELD MARKINGS OF FACILITIES IN CRITICAL AREAS MAY BE OBTAINED BY PROVIDING. MINIMUM OF NINETY-SIX (96) HOURS ADVANCE NOTICE THROUGH THE THE J.U.L.I.E. SYSTEM BY CALLING 800-892-0123.

THE CONTRACTOR SHALL COORDINATE ALL WORK WITH ADJACENT PROJECTS AS DIRECTED BY THE ENGINEER.

INDEX OF SHEETS

THE FOLLOWING STANDARDS ARE A PART OF THESE PLANS AND ARE INCLUDED FOLLOWING THE LAST NUMBERED SHEET OF THE PLANS.

STANDARD NO.	DESCRIPTION
000001-07	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF AN INCH AND OF A FOOT
701423-10	LANE CLOSURE, MULTILANE, WITH BARRIER, FOR SPEEDS >= 45 MPH TO 55 MPH
701426-09	LANE CLOSURE, MULTILANE, INTERMITTENT OR MOVING OPER., FOR SPEEDS >= 45 MPH
701901-08	TRAFFIC CONTROL DEVICES
704001-08	TEMPORARY CONCRETE BARRIER
780001-05	TYPICAL PAVEMENT MARKINGS
781001-04	TYPICAL APPLICATIONS RAISED REFLECTIVE PAVEMENT MARKERS

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PLOT DATE = 1/31/2020	DATE -	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES, INDEX OF SHEETS & LIST OF STANDARDS

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

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D7 BRIDGE REPAIRS 2020-4	COLES	25	2
		CONTRACT NO. 74928		
	ILLINOIS	FED. AID PROJECT		

SUMMARY OF QUANTITIES

100% STATE

CODE NO	ITEM	UNIT	TOTAL QUANTITIES	CONSTRUCTION TYPE CODE 0047		
50102400	CONCRETE REMOVAL	CU YD	40.5	40.5		
50157300	PROTECTIVE SHIELD	SQ YD	504	504		
50300255	CONCRETE SUPERSTRUCTURE	CU YD	39.7	39.7		
50300300	PROTECTIVE COAT	SQ YD	125	125		
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	5070	5070		
50800515	BAR SPLICERS	EACH	88	88		
52000110	PREFORMED JOINT STRIP SEAL	FOOT	334	334		
67100100	MOBILIZATION	L SUM	1	1		
70107005	PAVEMENT MARKING BLACKOUT TAPE, 5"	FOOT	5565	5565		
70107025	CHANGEABLE MESSAGE SIGN	CAL DA	28	28		
70400100	TEMPORARY CONCRETE BARRIER	FOOT	2224	2224		
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	2224	2224		
70600250	IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE), TEST LEVEL 3	EACH	2	2		

SUMMARY OF QUANTITIES

100% STATE

CODE NO	ITEM	UNIT	TOTAL QUANTITIES	CONSTRUCTION TYPE CODE 0047		
70600350	IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE), TEST LEVEL 3	EACH	2	2		
78100300	REPLACEMENT REFLECTOR	EACH	34	34		
X7010218	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	EACH	2	2		
X7040125	PINNING TEMPORARY CONCRETE BARRIER	EACH	483	483		
X7830050	RAISED REFLECTIVE PAVEMENT MARKER, REFLECTOR REMOVAL	EACH	34	34		
Z0001700	APPROACH SLAB REPAIR (FULL DEPTH)	SQ YD	4	4		
Z0001800	APPROACH SLAB REPAIR (PARTIAL DEPTH)	SQ YD	52	52		
Z0016200	DECK SLAB REPAIR (PARTIAL)	SQ YD	4	4		
Z0048665	RAILROAD PROTECTIVE LIABILITY INSURANCE	L SUM	1	1		
Z0073300	TEMPORARY SHORING AND CRIBBING	L SUM	1	1		

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PLOT DATE = 1/31/2020	DATE -	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

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

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D7 BRIDGE REPAIRS 2020-4	COLES	25	3
		CONTRACT NO. 74928		
	ILLINOIS FED. AID PROJECT			

STATION TO STATION					PAVEMENT MARKING BLACKOUT TAPE, 5"	RAISED REFLECTIVE PAVEMENT MARKER, REFLECTOR REMOVAL	RAISED PAVEMENT MARKER REFLECTOR REPLACEMENT
					FOOT	EACH	EACH
STAGE I: EB							
STA	418+52	TO	STA	425+12	165.0	17	-
STA	430+53	TO	STA	437+91	737.6	-	-
STA EQU: STA 437+90.58 BK = STA 438+08.36 AH							
STA	438+08	TO	STA	443+49	540.6	-	-
STAGE I: WB							
STA	431+85	TO	STA	437+91	605.6	-	-
STA EQU: STA 437+90.58 BK = STA 438+08.36 AH							
STA	438+08	TO	STA	443+77	568.6	-	-
STA	449+31	TO	STA	455+91	165.0	17	-
STAGE II: EB							
STA	418+80	TO	STA	425+40	165.0	-	17
STA	430+53	TO	STA	437+91	737.6	-	-
STA EQU: STA 437+90.58 BK = STA 438+08.36 AH							
STA	438+08	TO	STA	443+49	540.6	-	-
STAGE II: WB							
STA	431+85	TO	STA	437+91	605.6	-	-
STA EQU: STA 437+90.58 BK = STA 438+08.36 AH							
STA	438+08	TO	STA	443+77	568.6	-	-
STA	449+03	TO	STA	455+63	165.0	-	17
				TOTALS:	5565	34	34

STATION TO STATION					TEMPORARY CONCRETE BARRIER	RELOCATE TEMPORARY CONCRETE BARRIER	PINNING TEMPORARY CONCRETE BARRIER	IMPACT ATTENUATORS, TEMPORARY (NON- REDIRECTIVE), TEST LEVEL 3	IMPACT ATTENUATORS, RELOCATE (NON- REDIRECTIVE), TEST LEVEL 3
					FOOT	FOOT	EACH	EACH	EACH
STAGE I: EB									
STA	430+89	TO	STA	431+89	100.0	-	-	1	-
STA	431+89	TO	STA	432+64	75.0	-	15	-	-
STA	432+64	TO	STA	434+51	187.0	-	-	-	-
STA	434+51	TO	STA	437+91	339.6	-	81	-	-
STA EQU: STA 437+90.58 BK = STA 438+08.36 AH									
STA	438+08	TO	STA	439+07	98.6	-	24	-	-
STA	439+07	TO	STA	442+19	312.0	-	-	-	-
STA	442+19	TO	STA	442+57	38.0	-	9	-	-
STAGE I: WB									
STA	432+62	TO	STA	433+00	38.0	-	9	-	-
STA	433+00	TO	STA	434+87	187.0	-	-	-	-
STA	434+87	TO	STA	437+91	303.6	-	73	-	-
STA EQU: STA 437+90.58 BK = STA 438+08.36 AH									
STA	438+08	TO	STA	438+79	70.5	-	17	-	-
STA	438+79	TO	STA	441+91	312.1	-	-	-	-
STA	441+91	TO	STA	442+54	63.0	-	12	-	-
STA	442+54	TO	STA	443+54	100.0	-	-	1	-
STAGE II: EB									
STA	430+89	TO	STA	431+89	-	100.0	-	-	1
STA	431+89	TO	STA	432+64	-	75.0	15	-	-
STA	432+64	TO	STA	434+39	-	175.0	-	-	-
STA	434+39	TO	STA	437+91	-	351.6	84	-	-
STA EQU: STA 437+90.58 BK = STA 438+08.36 AH									
STA	438+08	TO	STA	439+07	-	98.6	24	-	-
STA	439+07	TO	STA	442+32	-	325.0	-	-	-
STA	442+32	TO	STA	442+57	-	25.0	6	-	-
STAGE II: WB									
STA	432+62	TO	STA	433+12	-	50.0	12	-	-
STA	433+12	TO	STA	434+87	-	175.0	-	-	-
STA	434+87	TO	STA	437+91	-	303.6	73	-	-
STA EQU: STA 437+90.58 BK = STA 438+08.36 AH									
STA	438+08	TO	STA	438+79	-	71.0	17	-	-
STA	438+79	TO	STA	441+91	-	311.6	-	-	-
STA	441+91	TO	STA	442+54	-	63.0	12	-	-
STA	442+54	TO	STA	443+54	-	100.0	-	-	1
				TOTALS:	2224	2224	483	2	2

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

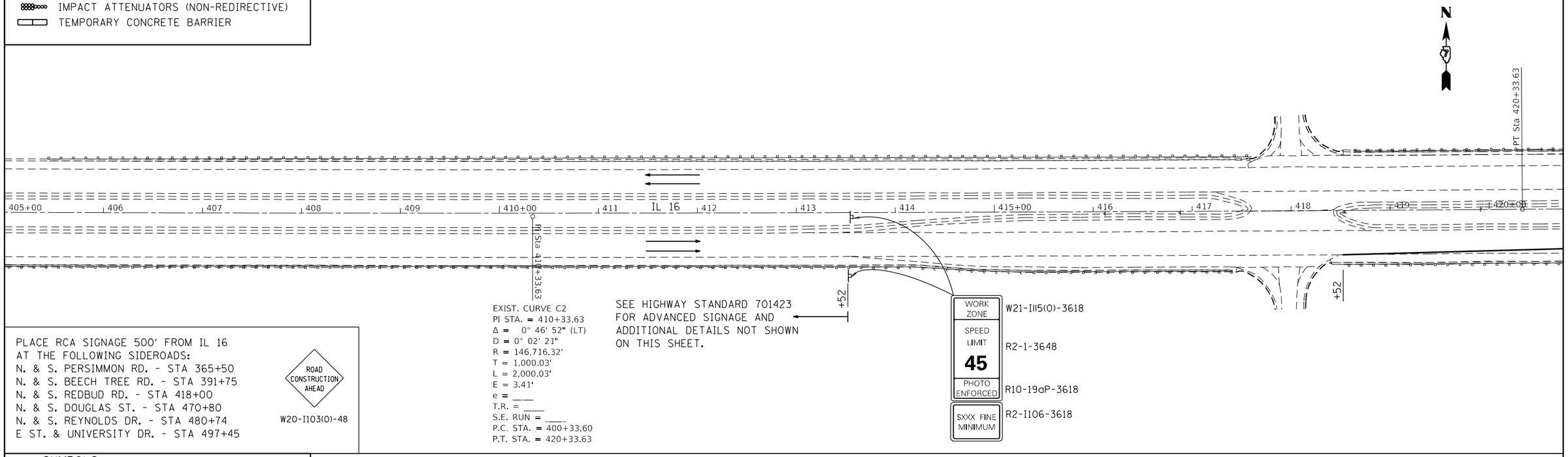
SCHEDULE OF QUANTITIES

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

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D7 BRIDGE REPAIRS 2020-4	COLES	25	4
		CONTRACT NO. 74928		
		ILLINOIS	FED. AID PROJECT	

SYMBOLS

- SIGN
- IMPACT ATTENUATORS (NON-REDIRECTIVE)
- TEMPORARY CONCRETE BARRIER



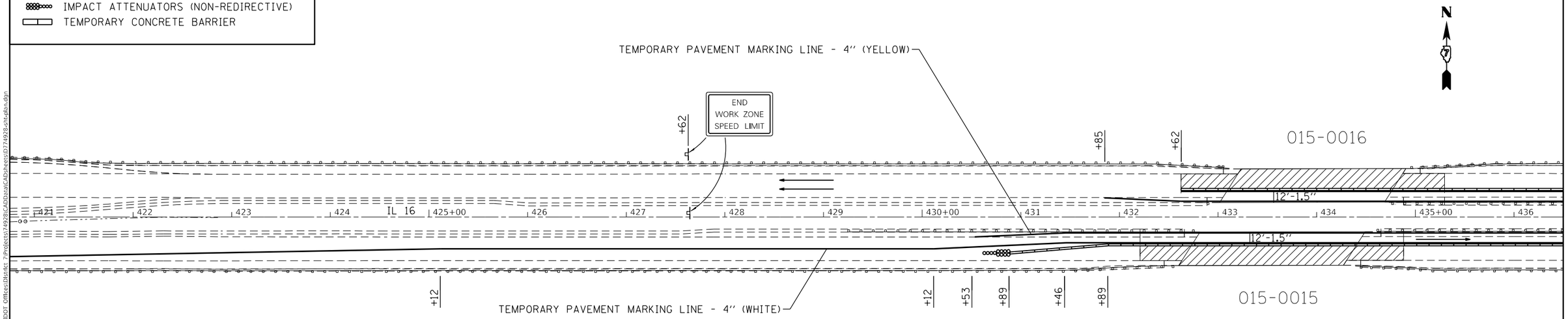
PLACE RCA SIGNAGE 500' FROM IL 16
AT THE FOLLOWING SIDEROADS:
N. & S. PERSIMMON RD. - STA 365+50
N. & S. BEECH TREE RD. - STA 391+75
N. & S. REDBUD RD. - STA 418+00
N. & S. DOUGLAS ST. - STA 470+80
N. & S. REYNOLDS DR. - STA 480+74
E ST. & UNIVERSITY DR. - STA 497+45

ROAD CONSTRUCTION AHEAD

W20-I103(O)-48

SYMBOLS

- SIGN
- IMPACT ATTENUATORS (NON-REDIRECTIVE)
- TEMPORARY CONCRETE BARRIER



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AT THE FOLLOWING SIDEROADS:
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N. & S. BEECH TREE RD. - STA 391+75
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N. & S. DOUGLAS ST. - STA 470+80
N. & S. REYNOLDS DR. - STA 480+74
E ST. & UNIVERSITY DR. - STA 497+45

ROAD CONSTRUCTION AHEAD

W20-I103(O)-48

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

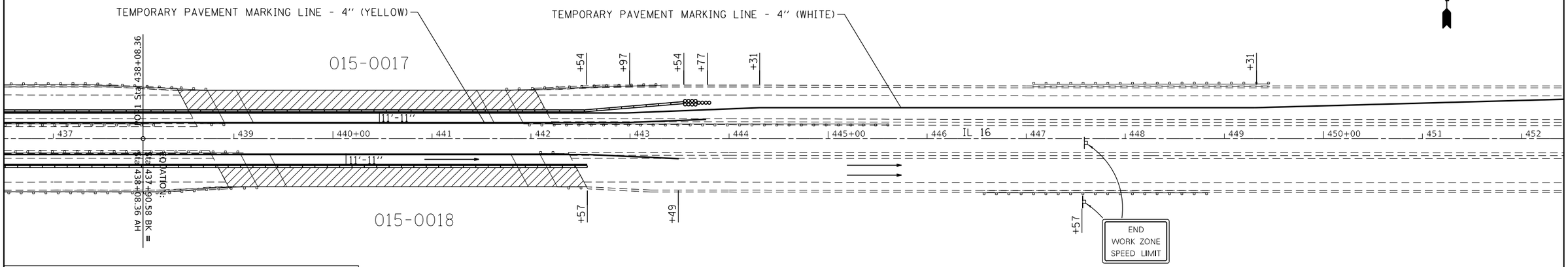
STAGE I CONSTRUCTION

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

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D7 BRIDGE REPAIRS 2020-4	COLES	25	5
		CONTRACT NO. 74928		
		ILLINOIS FED. AID PROJECT		

SYMBOLS

- SIGN
- IMPACT ATTENUATORS (NON-REDIRECTIVE)
- TEMPORARY CONCRETE BARRIER

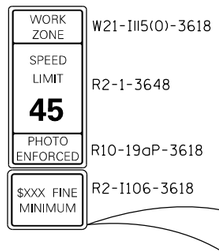


PLACE RCA SIGNAGE 500' FROM IL 16
AT THE FOLLOWING SIDEROADS:
N. & S. PERSIMMON RD. - STA 365+50
N. & S. BEECH TREE RD. - STA 391+75
N. & S. REDBUD RD. - STA 418+00
N. & S. DOUGLAS ST. - STA 470+80
N. & S. REYNOLDS DR. - STA 480+74
E ST. & UNIVERSITY DR. - STA 497+45

W20-I103(O)-48

SYMBOLS

- SIGN
- IMPACT ATTENUATORS (NON-REDIRECTIVE)
- TEMPORARY CONCRETE BARRIER



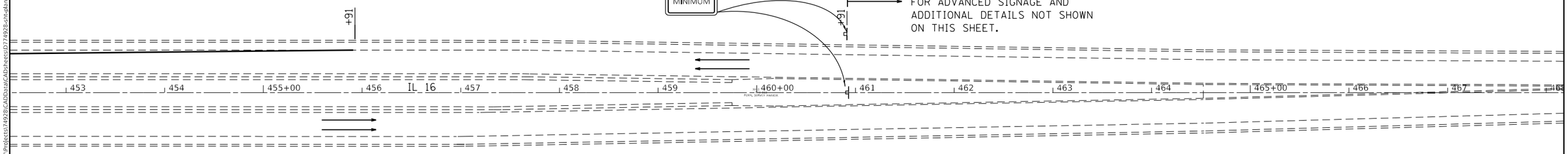
W21-III5(O)-3618

R2-1-3648

R10-19aP-3618

R2-I106-3618

SEE HIGHWAY STANDARD 701423
FOR ADVANCED SIGNAGE AND
ADDITIONAL DETAILS NOT SHOWN
ON THIS SHEET.



PLACE RCA SIGNAGE 500' FROM IL 16
AT THE FOLLOWING SIDEROADS:
N. & S. PERSIMMON RD. - STA 365+50
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N. & S. DOUGLAS ST. - STA 470+80
N. & S. REYNOLDS DR. - STA 480+74
E ST. & UNIVERSITY DR. - STA 497+45

W20-I103(O)-48

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

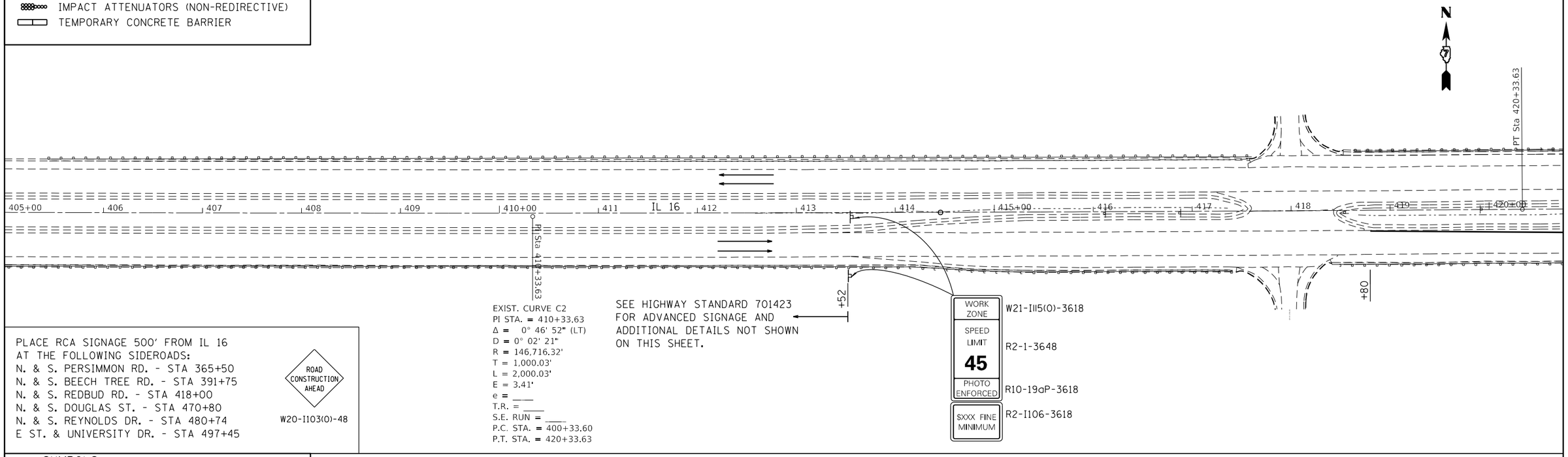
STAGE I CONSTRUCTION

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

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D7 BRIDGE REPAIRS 2020-4	COLES	25	6
		CONTRACT NO. 74928		
		ILLINOIS FED. AID PROJECT		

SYMBOLS

- SIGN
- IMPACT ATTENUATORS (NON-REDIRECTIVE)
- TEMPORARY CONCRETE BARRIER



PLACE RCA SIGNAGE 500' FROM IL 16
AT THE FOLLOWING SIDEROADS:
N. & S. PERSIMMON RD. - STA 365+50
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N. & S. DOUGLAS ST. - STA 470+80
N. & S. REYNOLDS DR. - STA 480+74
E ST. & UNIVERSITY DR. - STA 497+45

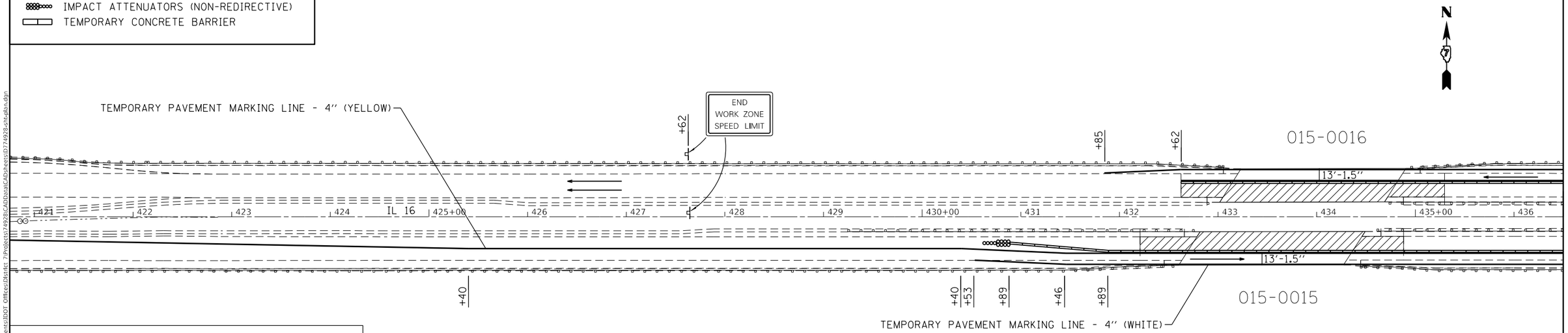
ROAD CONSTRUCTION AHEAD
W20-I103(O)-48

EXIST. CURVE C2
PI STA. = 410+33.63
Δ = 0° 46' 52" (LT)
D = 0° 02' 21"
R = 146,716.32'
T = 1,000.03'
L = 2,000.03'
E = 3.41'
e = ____
T.R. = ____
S.E. RUN = ____
P.C. STA. = 400+33.60
P.T. STA. = 420+33.63

SEE HIGHWAY STANDARD 701423 FOR ADVANCED SIGNAGE AND ADDITIONAL DETAILS NOT SHOWN ON THIS SHEET.

SYMBOLS

- SIGN
- IMPACT ATTENUATORS (NON-REDIRECTIVE)
- TEMPORARY CONCRETE BARRIER



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N. & S. DOUGLAS ST. - STA 470+80
N. & S. REYNOLDS DR. - STA 480+74
E ST. & UNIVERSITY DR. - STA 497+45

ROAD CONSTRUCTION AHEAD
W20-I103(O)-48

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

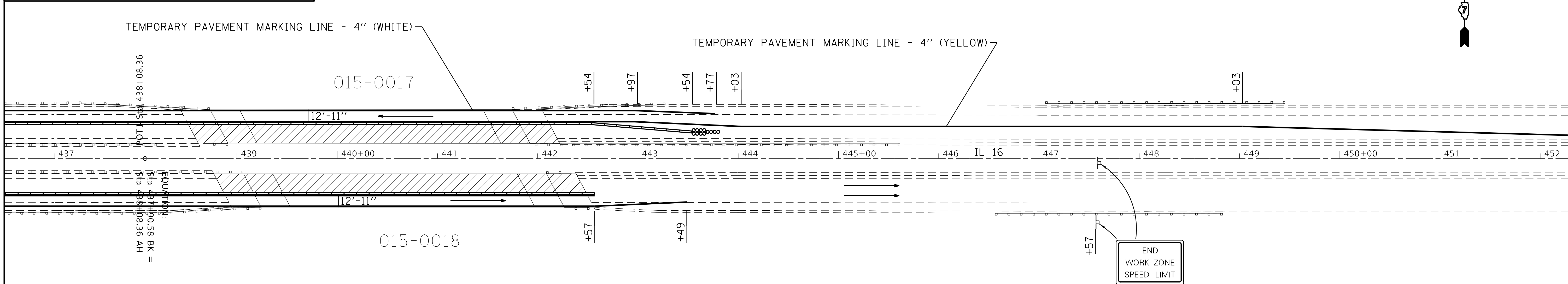
STAGE II CONSTRUCTION

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

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D7 BRIDGE REPAIRS 2020-4	COLES	25	7
		CONTRACT NO. 74928		
		ILLINOIS	FED. AID PROJECT	

SYMBOLS

- SIGN
- IMPACT ATTENUATORS (NON-REDIRECTIVE)
- TEMPORARY CONCRETE BARRIER



PLACE RCA SIGNAGE 500' FROM IL 16
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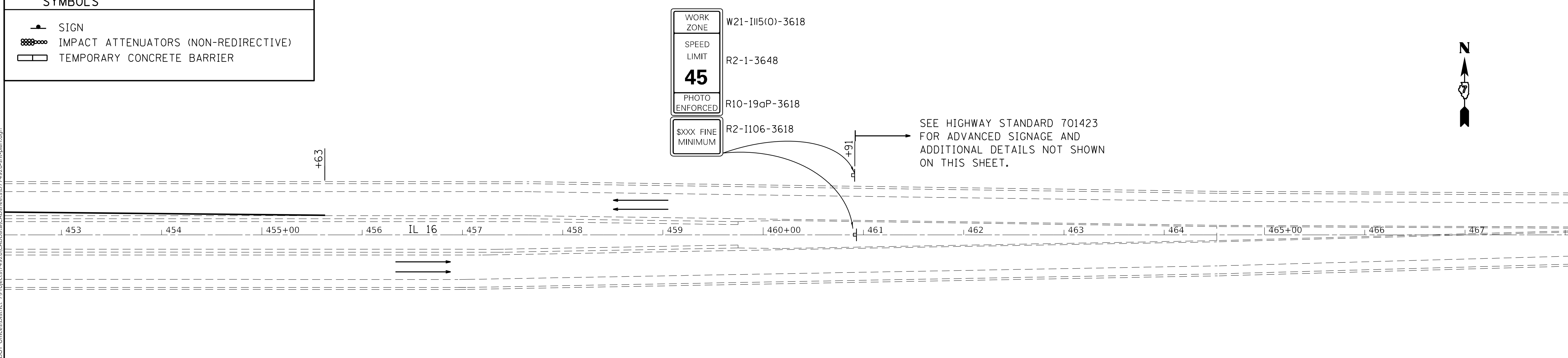
N. & S. DOUGLAS ST. - STA 470+80
N. & S. REYNOLDS DR. - STA 480+74
E ST. & UNIVERSITY DR. - STA 497+45

ROAD CONSTRUCTION AHEAD
W20-I103(0)-48

SYMBOLS

- SIGN
- IMPACT ATTENUATORS (NON-REDIRECTIVE)
- TEMPORARY CONCRETE BARRIER



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ROAD CONSTRUCTION AHEAD
W20-I103(0)-48

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGE II CONSTRUCTION

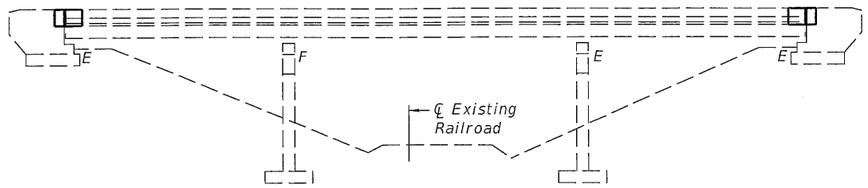
SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D7 BRIDGE REPAIRS 2020-4	COLES	25	8
		CONTRACT NO. 74928		
		ILLINOIS	FED. AID PROJECT	

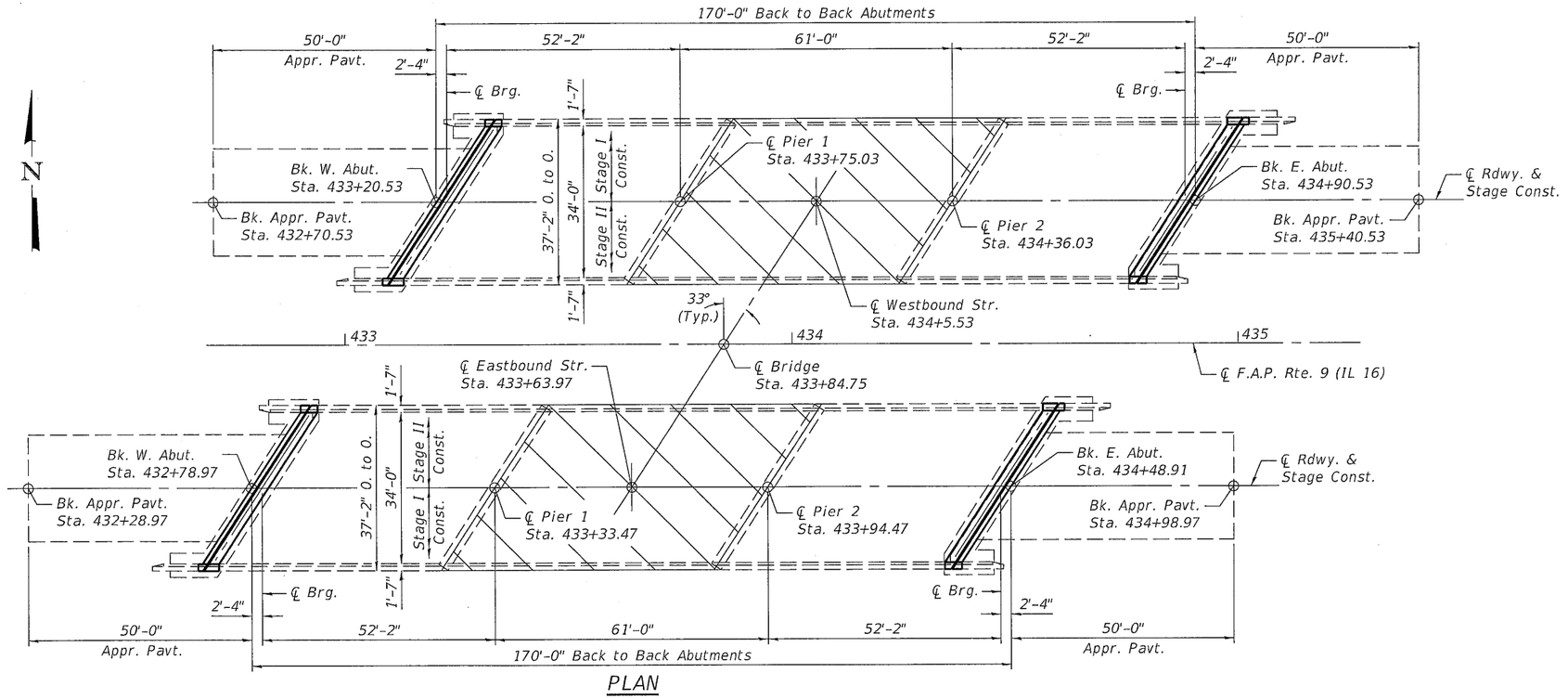
Existing Structures: S.N. 015-0015 and S.N. 015-0016 were originally constructed in 1961 as F.A. Rte. 17, Section 51 VB-VF. The decks were removed and replaced and the abutments were reconstructed in 1991. Each structure consists of a three span steel beam superstructure with a poured concrete deck on spill thru pile supported abutments and hammerhead piers. The existing structures are 170'-0' Bk. to Bk. of abutments, 37'-2" 0. to 0. of deck and 34'-0" Fc. to Fc. of parapets. Traffic is to be maintained under staged construction.

SCOPE OF WORK

1. Remove and replace expansion joints at both abutments.
2. Repair deck and approach slabs.



ELEVATION



PLAN

- Limits of Protective Shield

GENERAL NOTES

Reinforcement bars designated (E) shall be epoxy coated.

Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

Protective coat shall be applied to areas of new concrete.

Joint openings shall be adjusted according to Article 520.04 of the Standard Specifications when the deck is poured at an ambient temperature other than 50°F.

Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with new concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included with Concrete Removal.

Areas of deck repairs shown are estimated. The engineer shall show actual locations of deck repairs on as-built plans.

The deck surface shall have its final finish tined according to Article 420.09(e)(1) of the Standard Specifications. Cost included with Concrete Superstructure.

The deck surface shall have its final finish tined according to Article 420.09(e)(1) of the Standard Specifications. Cost included with Concrete Superstructure.

TOTAL BILL OF MATERIAL

	ITEM	UNIT	TOTAL
	Concrete Removal	Cu. Yd.	22.8
	Protective Shield	Sq. Yd.	504
	Concrete Superstructure	Cu. Yd.	22.5
	Reinforcement Bars, Epoxy Coated	Pound	1930
*	Protective Coat	Sq. Yd.	63
	Preformed Joint Strip Seal	Foot	172
	Approach Slab Repair (Full Depth)	Sq. Yd.	4
	Approach Slab Repair (Partial Depth)	Sq. Yd.	49
	Deck Slab Repair (Partial)	Sq. Yd.	4
	Bar Splicers	Each	48

* New concrete at joints only.

LICENSED STRUCTURAL ENGINEER
MICHAEL D. CUMMINS
4822
SPRINGFIELD
STATE OF ILLINOIS

Michael D. Cummins 1/31/20
(Expires 11/30/20)

GENERAL PLAN AND ELEVATION
F.A.P. RTE. 91 (IL 16)
OVER THE EASTERN IL RAILROAD
SECTION D-7 BRIDGE REPAIRS 2020-4
COLES COUNTY
STA 433+84.75
STRUCTURE NO. 015-0015 (EB), 0016 (WB)

MODEL: $MODELNAME$
FILE NAME: $FILEL$

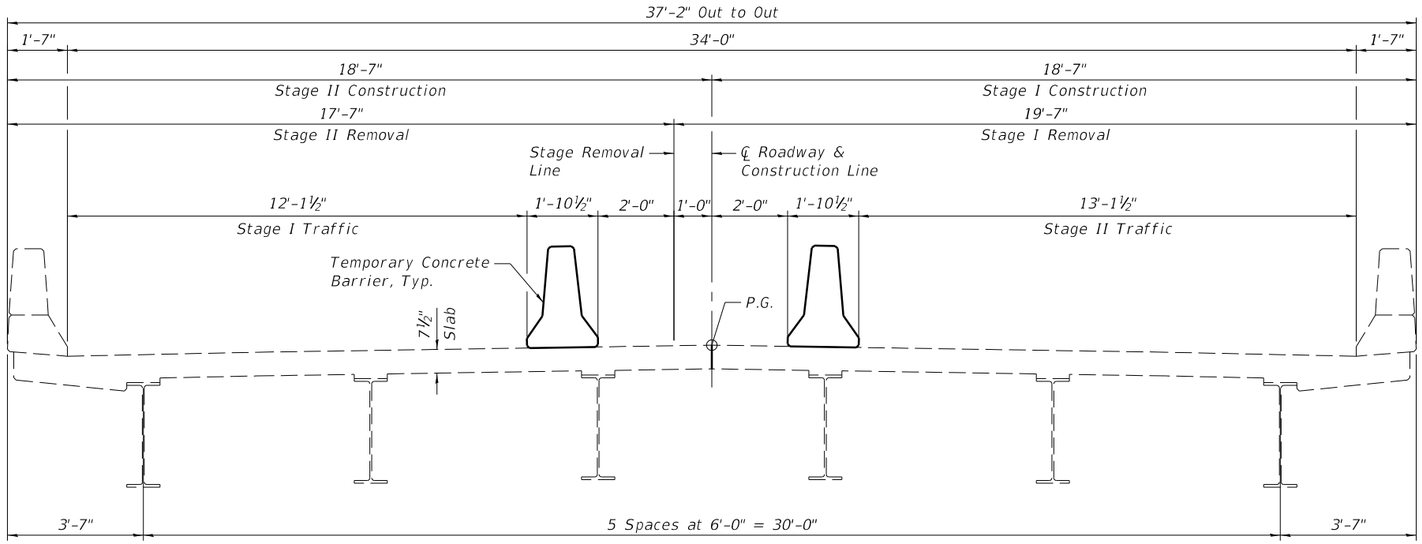
CEC Cummins Engineering Corporation
Civil and Structural Engineering

JOB = 2480.5	DESIGNED - AAN	REVISED -	
FILE NAME = $FILES$	CHECKED - MDC	REVISED -	
PLOT DATE = $DATE$	DRAWN - SJS	REVISED -	
	CHECKED - MDC	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 015-0015, 0016
SHEET 1 OF 9 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D-7 BRIDGE REPAIRS 2020-4	COLES	25	9
		CONTRACT NO. 74928		
	ILLINOIS	FED. AID PROJECT		



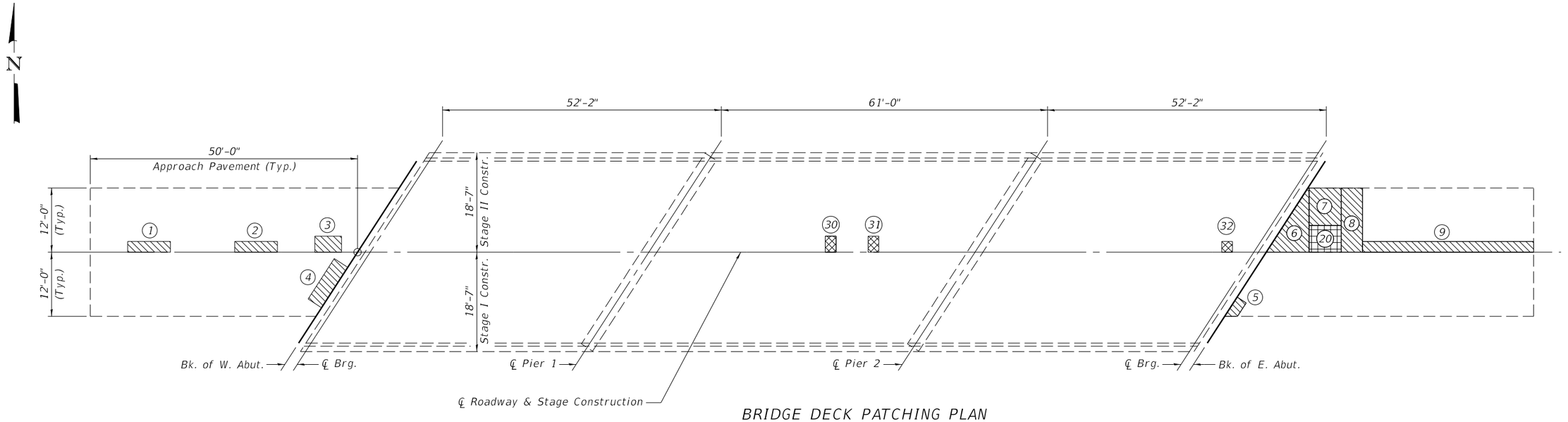
CROSS SECTION

(SN 015-0015 Eastbound looking East)
(SN 015-0016 Westbound Looking West)

MODEL: $MODELNAME$
FILE NAME: $FILE$

CEC Cummins Engineering Corporation Civil and Structural Engineering	JOB = 2480.5 FILE NAME = $FILE$ PLOT DATE = $DATE$	DESIGNED - AAN CHECKED - MDC DRAWN - SJS CHECKED - MDC	REVISED - REVISED - REVISED - REVISED -	**STATE OF ILLINOIS** **DEPARTMENT OF TRANSPORTATION**	**STAGE CONSTRUCTION DETAIL** **STRUCTURE NO. 015-0015, 0016** SHEET 2 OF 9 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D-7 BRIDGE REPAIRS 2020-4	COLES	25	10
		CONTRACT NO. 74928		
	ILLINOIS	FED. AID PROJECT		



BRIDGE DECK PATCHING PLAN

(SN 015-0015 - EB)

PATCH NO.	SIZE	DECK SLAB REPAIR (PARTIAL DEPTH)	APPROACH SLAB REPAIR (PARTIAL DEPTH)	APPROACH SLAB REPAIR (FULL DEPTH)	
		SQ. YD.	SQ. YD.	SQ. YD.	
1	8'x2'		1.78		
2	8'x2'		1.78		
3	5'x3'		1.67		
4	9'x3'		3.00		
5	3'x2'		0.67		
6	8'x12'		5.33		
7	6'x7'		4.67		
8	4'x12'		5.33		
9	32'x2'		7.11		
20	6'x5'			3.33	
30	2'x2'	0.44			
31	2'x2'	0.44			
32	2'x2'	0.44			
TOTAL		1.33	31.33	3.33	

PATCH NO.	SIZE	DECK SLAB REPAIR (PARTIAL DEPTH)	APPROACH SLAB REPAIR (PARTIAL DEPTH)	APPROACH SLAB REPAIR (FULL DEPTH)	
		SQ. YD.	SQ. YD.	SQ. YD.	
TOTAL					

LEGEND

- Approach Slab Repair (Partial Depth)
- Approach Slab Repair (Full Depth)
- Deck Slab Repair (Partial Depth)

BILL OF MATERIAL

Item	Unit	Total
Approach Slab Repair (Partial Depth)	Sq. Yd.	32
Approach Slab Repair (Full Depth)	Sq. Yd.	4
Deck Slab Repair (Partial Depth)	Sq. Yd.	2

Notes:
Deck Slab Repair (Partial Depth) is intended to be used to repair small areas of spalling or potholes.
If full depth repair is unavoidable, the work shall be paid for according to Article 109.04.

MODEL: $MODELNAME$
FILE NAME: $FILE1$

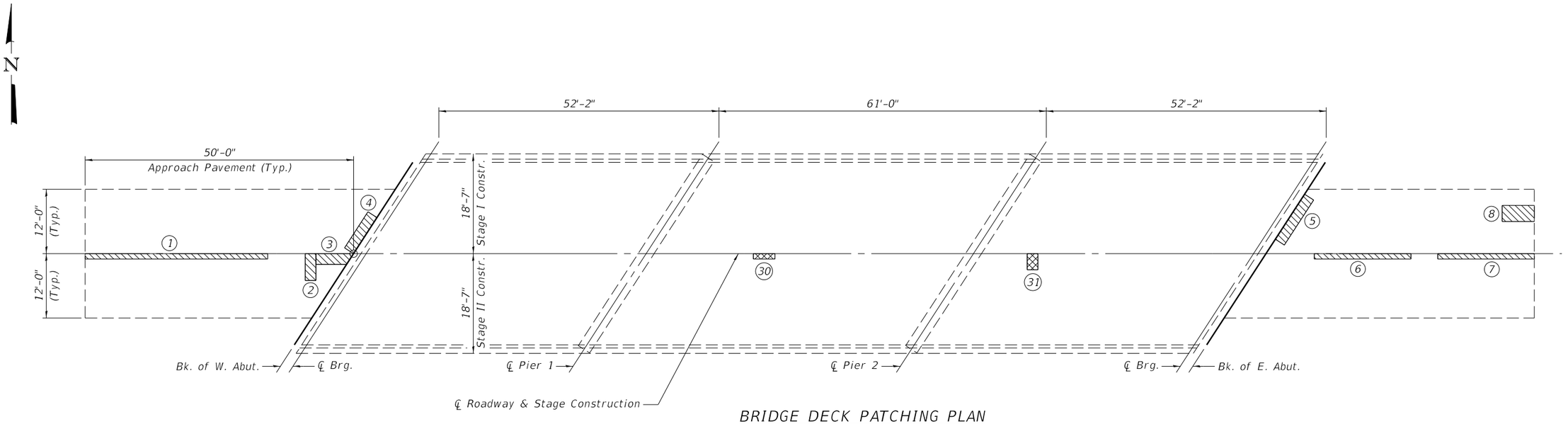
CEC Cummins Engineering Corporation
Civil and Structural Engineering

JOB = 2480.5	DESIGNED - AAN	REVISED -	
FILE NAME = $FILE$	CHECKED - MDC	REVISED -	
PLOT DATE = $DATE$	DRAWN - SJS	REVISED -	
	CHECKED - MDC	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE DECK PATCHING PLAN
STRUCTURE NO. 015-0015
SHEET 3 OF 9 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D-7 BRIDGE REPAIRS 2020-4	COLES	25	11
		CONTRACT NO. 74928		
	ILLINOIS	FED. AID PROJECT		



BRIDGE DECK PATCHING PLAN

(SN 015-0016 - WB)

PATCH NO.	SIZE	DECK SLAB REPAIR (PARTIAL DEPTH)	APPROACH SLAB REPAIR (PARTIAL DEPTH)	APPROACH SLAB REPAIR (FULL DEPTH)	
		SQ. YD.	SQ. YD.	SQ. YD.	
1	34'x1'		3.78		
2	2'x5'		1.11		
3	7'x2'		1.56		
4	8'x2'		1.78		
5	10'x2'		2.22		
6	18'x1'		2.00		
7	18'x1'		2.00		
8	6'x3'		2.00		
30	4'x1'	0.44			
31	2'x3'	0.67			
TOTAL		1.11	16.44		

PATCH NO.	SIZE	DECK SLAB REPAIR (PARTIAL DEPTH)	APPROACH SLAB REPAIR (PARTIAL DEPTH)	APPROACH SLAB REPAIR (FULL DEPTH)	
		SQ. YD.	SQ. YD.	SQ. YD.	
TOTAL					

LEGEND

- Approach Slab Repair (Partial Depth)
- Approach Slab Repair (Full Depth)
- Deck Slab Repair (Partial Depth)

BILL OF MATERIAL

Item	Unit	Total
Approach Slab Repair (Partial Depth)	Sq. Yd.	17
Approach Slab Repair (Full Depth)	Sq. Yd.	0
Deck Slab Repair (Partial Depth)	Sq. Yd.	2

Notes:
Deck Slab Repair (Partial Depth) is intended to be used to repair small areas of spalling or potholes.
If full depth repair is unavoidable, the work shall be paid for according to Article 109.04.

MODEL: $MODELNAME$
FILE NAME: $FILE1$

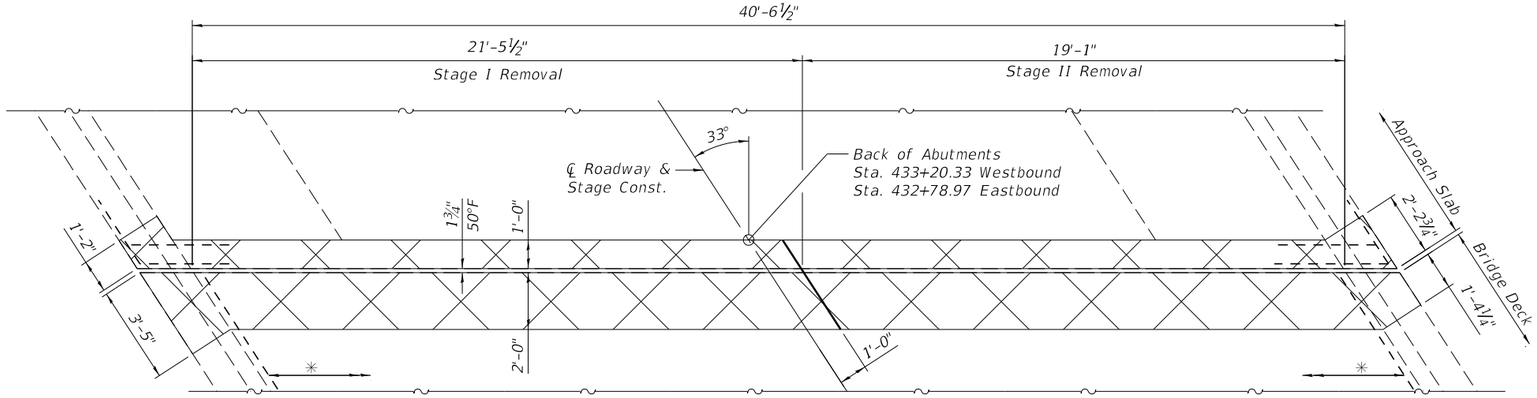
CEC Cummins Engineering Corporation
Civil and Structural Engineering

JOB = 2480.5	DESIGNED - AAN	REVISED -	
FILE NAME = $FILE$	CHECKED - MDC	REVISED -	
PLOT DATE = $DATE$	DRAWN - SJS	REVISED -	
	CHECKED - MDC	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE DECK PATCHING PLAN
STRUCTURE NO. 015-0016
SHEET 4 OF 9 SHEETS

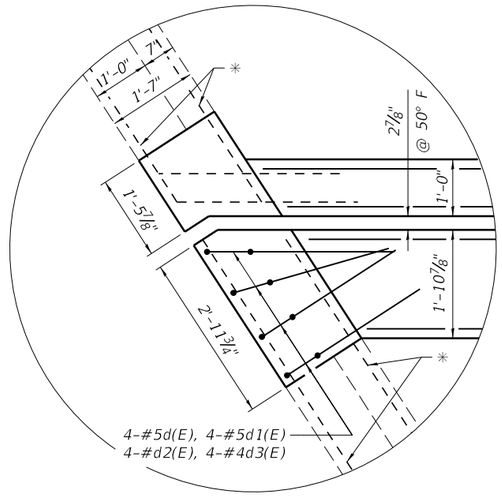
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D-7 BRIDGE REPAIRS 2020-4	COLES	25	12
		CONTRACT NO. 74928		
	ILLINOIS	FED. AID PROJECT		



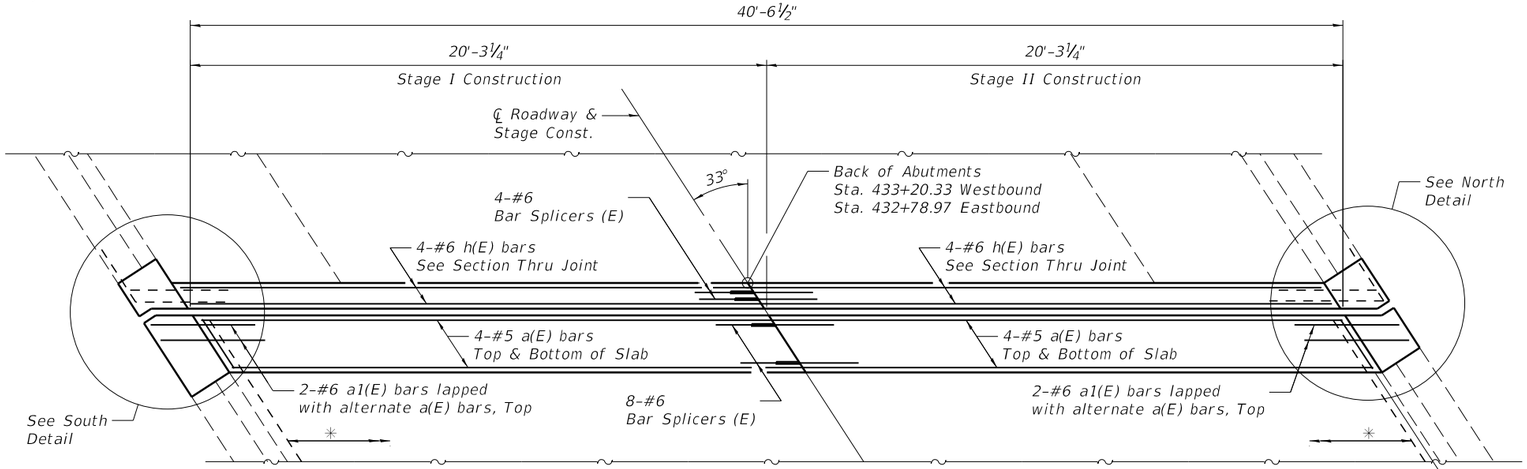
EXISTING PLAN AT EXPANSION JOINT

(E.B. Structure shown, W.B. Structure similar)

Cross-hatched area indicates limits of Concrete Removal.



SOUTH-DETAIL



PROPOSED PLAN AT EXPANSION JOINT

(E.B. Structure shown, W.B. Structure similar)

NORTH-DETAIL

✳ Existing reinforcement shall be cleaned and incorporated into the new construction. Cost included with Concrete Removal.

MODEL: $MODELNAME$
FILE NAME: $FILE$

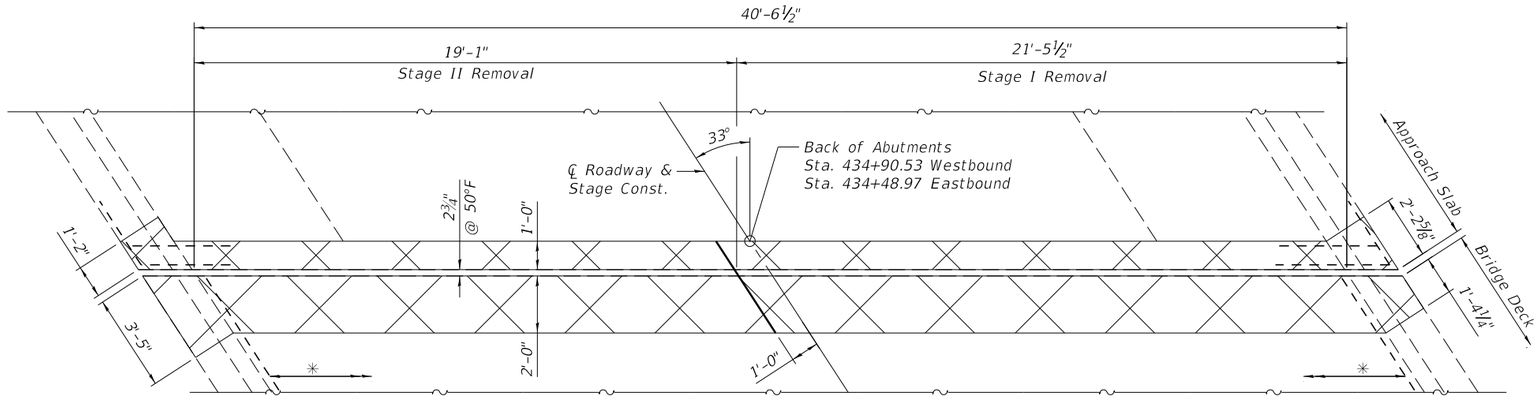
CEC Cummins Engineering Corporation — Civil and Structural Engineering	JOB = 2480.5	DESIGNED - AAN	REVISED -
	FILE NAME = $FILE$	CHECKED - MDC	REVISED -
	PLOT DATE = $DATE$	DRAWN - SJS	REVISED -
		CHECKED - MDC	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WEST ABUTMENTS JOINT REPLACEMENT DETAILS
STRUCTURE NO. 015-0015, 0016

SHEET 5 OF 9 SHEETS

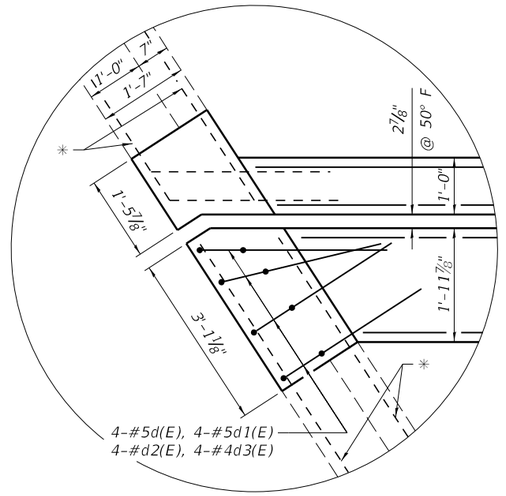
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D-7 BRIDGE REPAIRS 2020-4	COLES	25	13
		CONTRACT NO. 74928		
		ILLINOIS	FED. AID PROJECT	



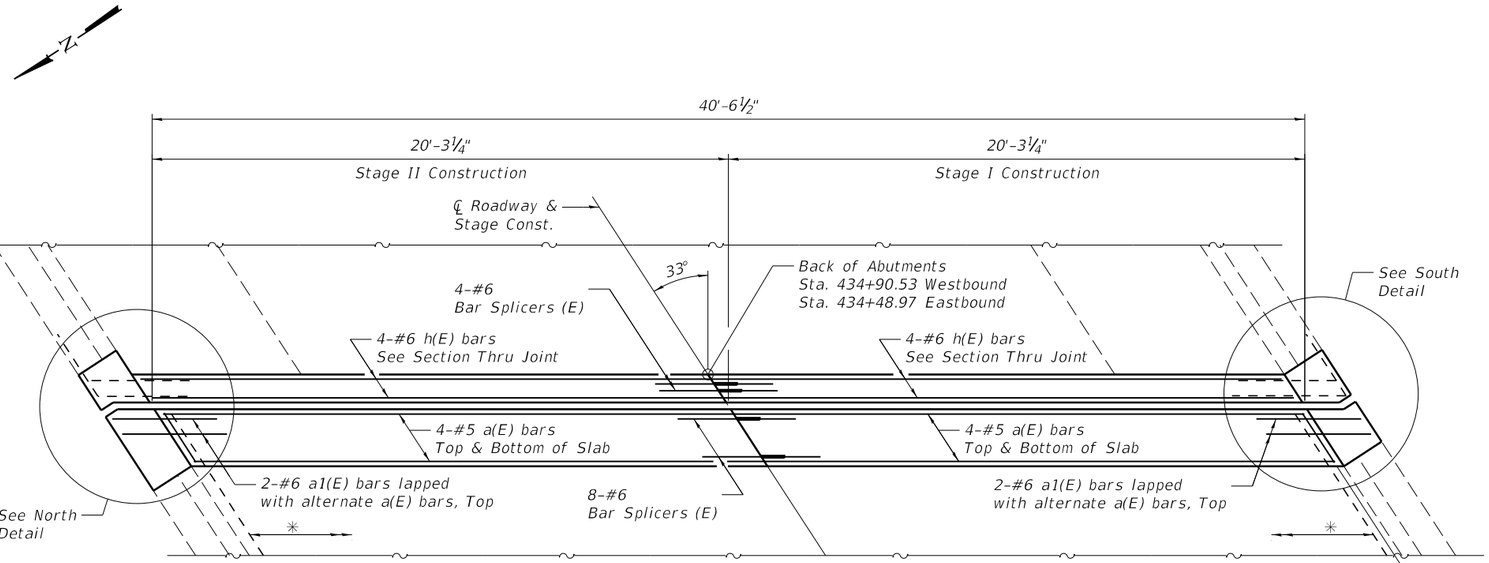
EXISTING PLAN AT EXPANSION JOINT

(E.B. Structure shown, W.B. Structure similar)

Cross-hatched area indicates limits of Concrete Removal.

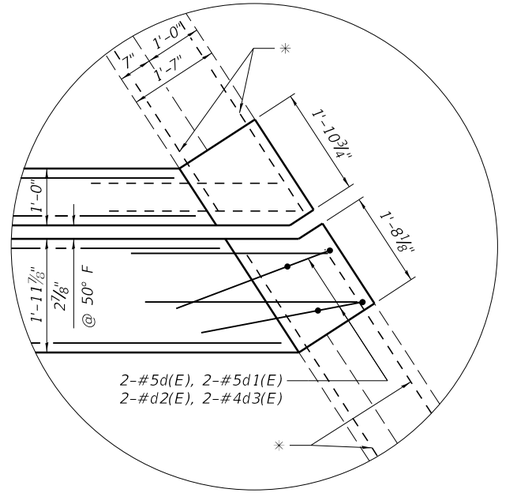


NORTH-DETAIL



PROPOSED PLAN AT EXPANSION JOINT

(E.B. Structure shown, W.B. Structure similar)



SOUTH-DETAIL

* Existing longitudinal reinforcement shall be cleaned and incorporated into the new construction. Cost included with Concrete Removal.

MODEL: $MODELNAMES
FILE NAME: $FILEL$

CEC Cummins Engineering Corporation
Civil and Structural Engineering

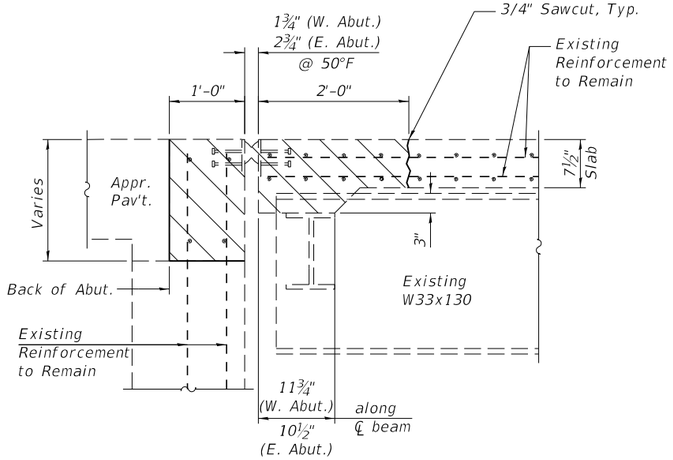
JOB = 2480.5	DESIGNED - AAN	REVISED -
FILE NAME = $FILE$$	CHECKED - MDC	REVISED -
PLOT DATE = $DATE$	DRAWN - SJS	REVISED -
	CHECKED - MDC	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

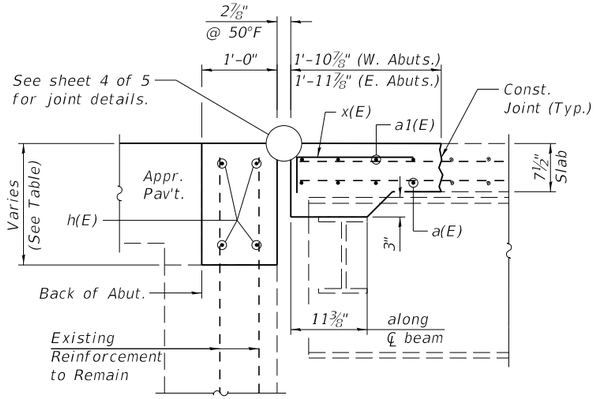
EAST ABUTMENTS JOINT REPLACEMENT DETAILS
STRUCTURE NO. 015-0015, 0016

SHEET 6 OF 9 SHEETS

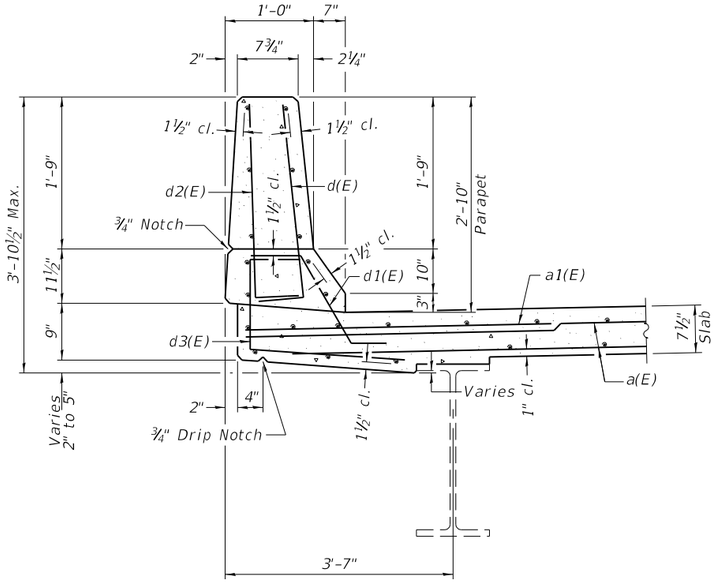
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D-7 BRIDGE REPAIRS 2020-4	COLES	25	14
		CONTRACT NO. 74928		
	ILLINOIS	FED. AID PROJECT		



SECTION THRU JOINT
(Showing Removal)
(Horiz. Dim. at Rt. ∠'s)



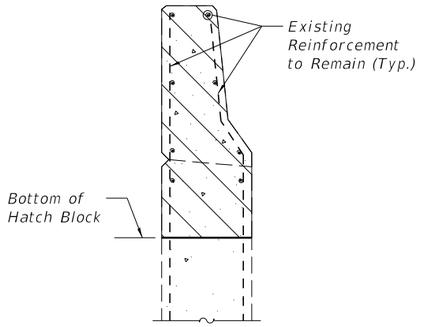
SECTION THRU JOINT
(Showing Proposed)
(Horiz. Dim. at Rt. ∠'s)



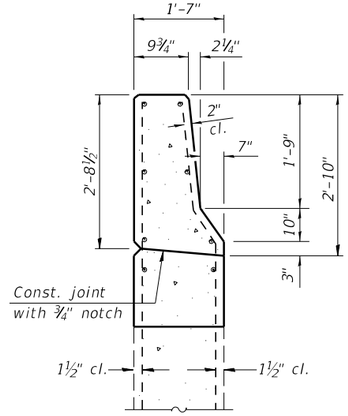
SECTION THRU PARAPET

HATCH BLOCK DIMENSIONS

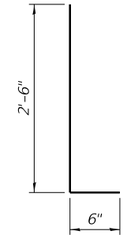
	Location		
Structure	S. Parapet	℄	N. Parapet
W. Abut. E.B.	1'-4"	1'-8¾"	1'-6½"
E. Abut. E.B.	1'-4½"	1'-8¼"	1'-4⅞"
W. Abut. W.B.	1'-4⅞"	1'-9⅜"	1'-6⅝"
W. Abut. W.B.	1'-5¼"	1'-8⅞"	1'-5⅜"



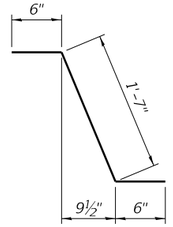
SECTION THRU APPROACH PARAPET
(Showing Removal)



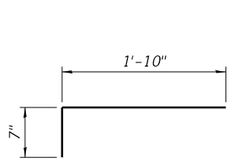
SECTION THRU APPROACH PARAPET
(Showing Proposed)



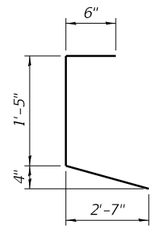
BAR d(E) & d2(E)



BAR d1(E)



BAR x(E)



BAR d3(E)

TWO SUPERSTRUCTURES
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	32	#5	20'-8"	———
a1(E)	16	#6	6'-6"	———
d(E)	24	#5	3'-0"	⌴
d1(E)	24	#5	2'-7"	⌞
d2(E)	24	#4	3'-0"	⌴
d3(E)	24	#4	4'-6'	⌞
h(E)	16	#6	20'-0"	———
x(E)	136	#5	2'-5"	⌐
Reinforcement Bars, Epoxy Coated		Pound	1930	
Concrete Superstructure		Cu. Yd.	22.5	
Concrete Removal		Cu. Yd.	22.8	

Notes:
Hatched areas indicate limits of Concrete Removal.

Existing reinforcement to remain shall be cleaned and incorporated into the new construction. Cost included with Concrete Removal.

Any reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost included with Concrete removal.

MODEL: $MODELNAME$
FILE NAME: $FILEL$

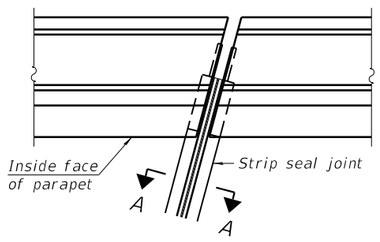
CEC Cummins Engineering Corporation
Civil and Structural Engineering

JOB = 2480.5	DESIGNED - AAN	REVISED -	
FILE NAME = $FILE$	CHECKED - MDC	REVISED -	
PLOT DATE = $DATE$	DRAWN - SJS	REVISED -	
	CHECKED - MDC	REVISED -	

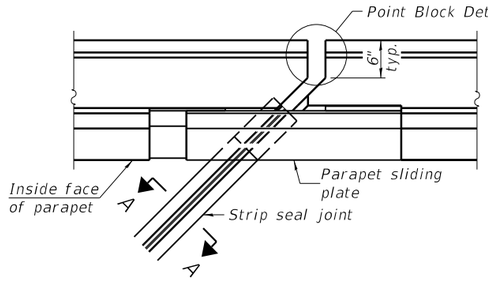
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

JOINT REPLACEMENT DETAILS
STRUCTURE NO. 015-0015, 0016
SHEET 7 OF 9 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D-7 BRIDGE REPAIRS 2020-4	COLES	25	15
		CONTRACT NO. 74928		
	ILLINOIS	FED. AID PROJECT		

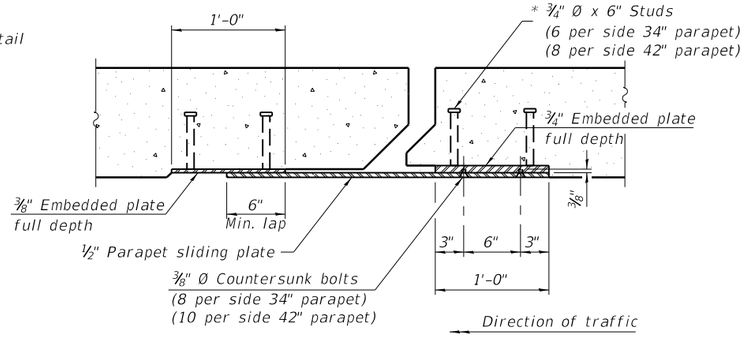


FOR SKEWS ≤ 30°



FOR SKEWS > 30°

PLAN AT PARAPET



SECTION B-B

Notes:

The strip seal shall be made continuous and shall have a minimum thickness of ¼". The configuration of the strip seal shall match the configuration of the locking edge rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.

The locking edge rails depicted are configured for typical applications and are conceptual only. The actual configuration of the locking edge rails and matching strip seal may vary from manufacturer to manufacturer provided they fit the application and meet the minimum anchorage shown. Flanged edge rails, however, will not be allowed. Locking edge rails may exceed the 4½" maximum depth provided the anchorage system is revised according to the manufacturer's recommendation.

The manufacturer's recommended installation methods shall be followed.

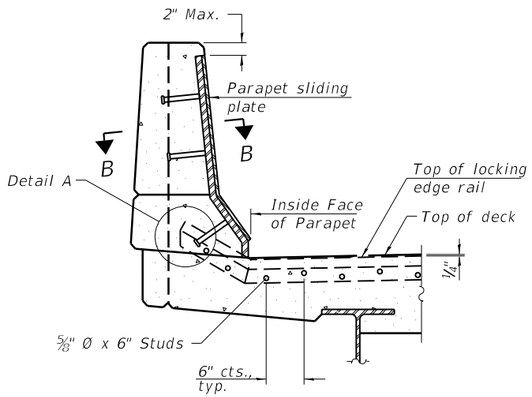
All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.

The Maximum space between locking edge rail segments shall be 3/16" and sealed with a suitable sealant; however, any rail joint within 10' measured perpendicular to the face of the curb or parapet shall be welded as shown in the locking edge rail splice detail.

Cost of parapet sliding plates, embedded plates, and anchorage studs included with Preformed Joint Strip Seal.

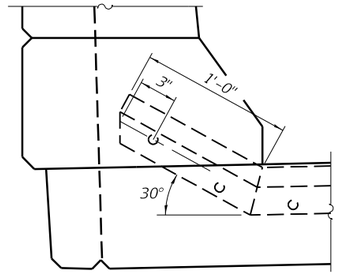
34" F-shape barrier shown, 42" F-shape similar as noted.

The concrete opening below the strip seal will vary based on the locking edge rail chosen by the Contractor. Deck and parapet lengths shown elsewhere in the plans are dimensioned to the concrete opening, not the joint opening, and are based on the rolled locking edge rail. If the Contractor elects to use a different locking edge rail, dimensional adjustments may be required. One exception to this would be the strip seal joint at the end of the precast bridge approach slab. For these cases the pavement connector length shall be adjusted, not the length of the bridge approach slab.

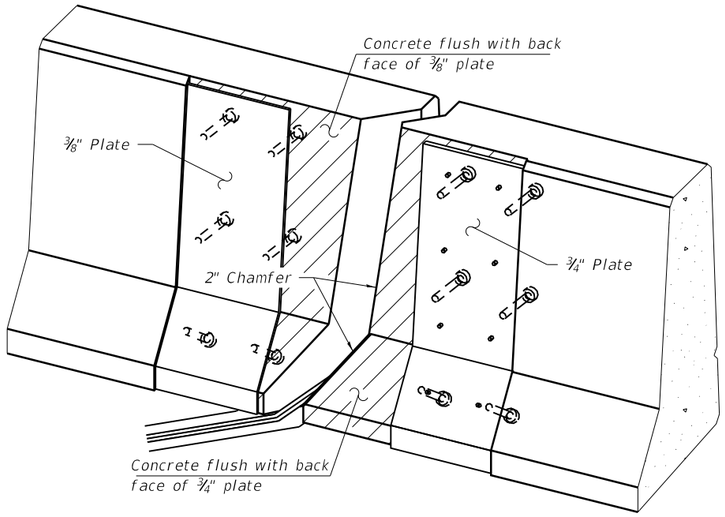


ELEVATION AT PARAPET

(Skews > 30° shown. Skews ≤ 30° similar except as shown in plan view.)

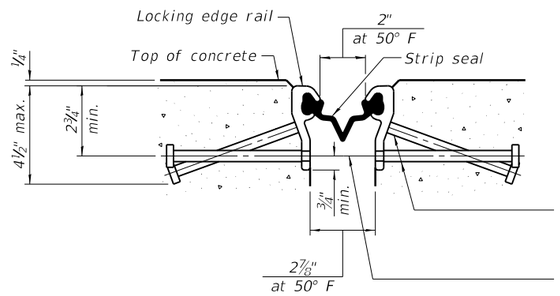


DETAIL A



TRIMETRIC VIEW

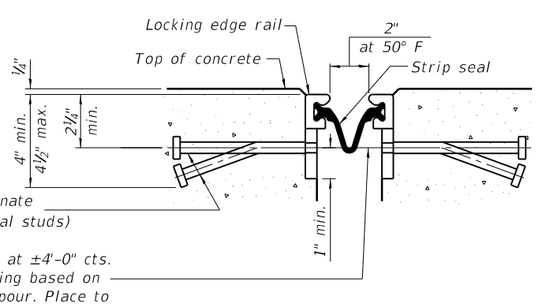
(Showing embedded plates only)



SHOWING ROLLED RAIL JOINT

* ⅝" Ø x 6" studs @ 6" cts. (alternate angled/bent studs with horizontal studs)

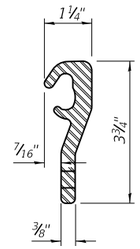
⅝" ϕ threaded rods in 7/16" ϕ holes at ±4'-0" cts. for holding the proper joint opening based on the temperature during the deck pour. Place to miss studs. All rods shall be burned, or sawed off flush with the plates after concrete is set.



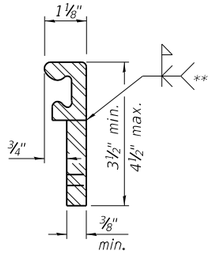
SHOWING WELDED RAIL JOINT

SECTION A-A

* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.



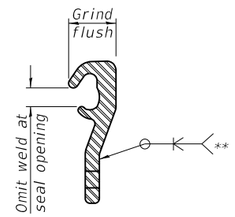
ROLLED (EXTRUDED) RAIL



WELDED RAIL

LOCKING EDGE RAILS

** Back gouge not required if complete joint penetration is verified by mock-up.



LOCKING EDGE RAIL SPLICE

The inside of the locking edge rail groove shall be free of weld residue. Rolled rail shown, welded rail similar.

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	172

EJ-SS

8-11-17

MODEL: $MODELNAMES
FILE NAME: $FILES

CEC Cummins Engineering Corporation
Civil and Structural Engineering

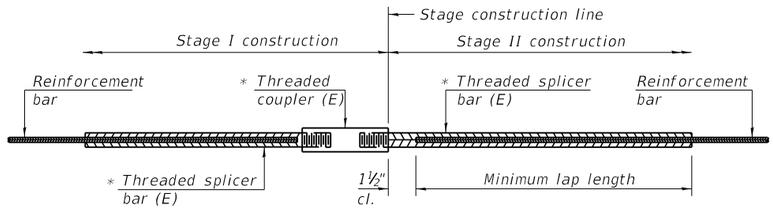
JOB = 2480.5		DESIGNED - AAN		REVISED -	
FILE NAME = $FILES$		CHECKED - MDC		REVISED -	
PLOT DATE = $DATE$		DRAWN - SJS		REVISED -	
		CHECKED - MDC		REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PREFORMED JOINT STRIP SEAL
STRUCTURE NO. 015-0015, 0016

SHEET 8 OF 9 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D-7 BRIDGE REPAIRS 2020-4	COLES	25	16
		CONTRACT NO. 74928		
	ILLINOIS FED. AID PROJECT			

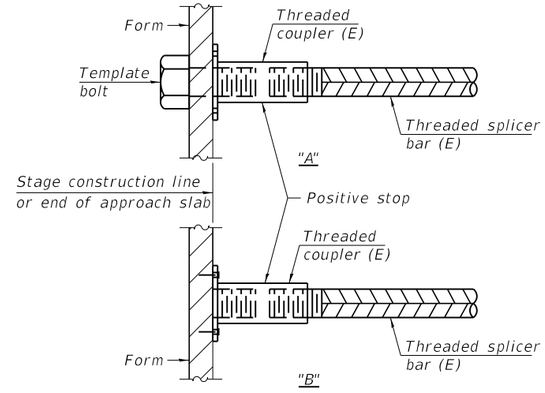


STANDARD BAR SPLICER ASSEMBLY

Threaded splicer bar length = min. lap length + 1½" + thread length

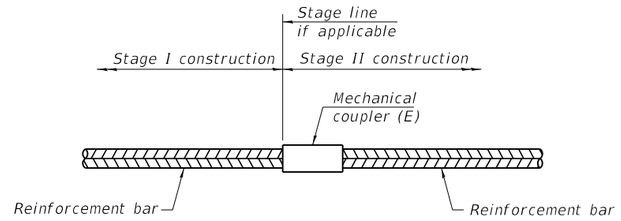
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Minimum lap length
Deck	5	24	3'-6"
Hatch Block	6	16	4'-0"



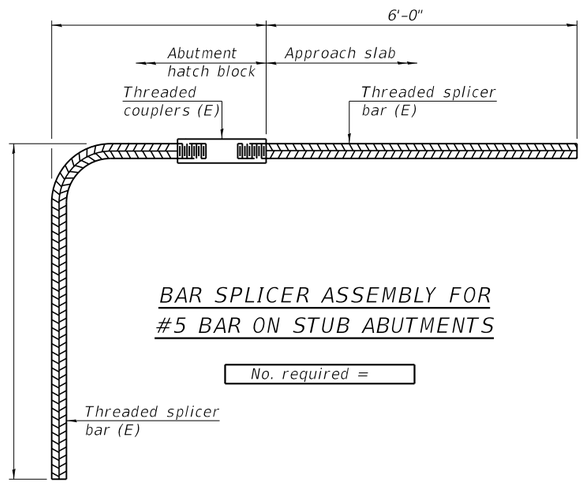
INSTALLATION AND SETTING METHODS

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



STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required



NOTES

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.

All reinforcement shall be lapped and tied to the splicer bars.

Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.

See approved list of bar splicer assemblies and mechanical splicers for alternatives.

BSD-1 2-17-2017

MODEL: $MODELNAME$
FILE NAME: $FILE$

CEC Cummins Engineering Corporation
Civil and Structural Engineering

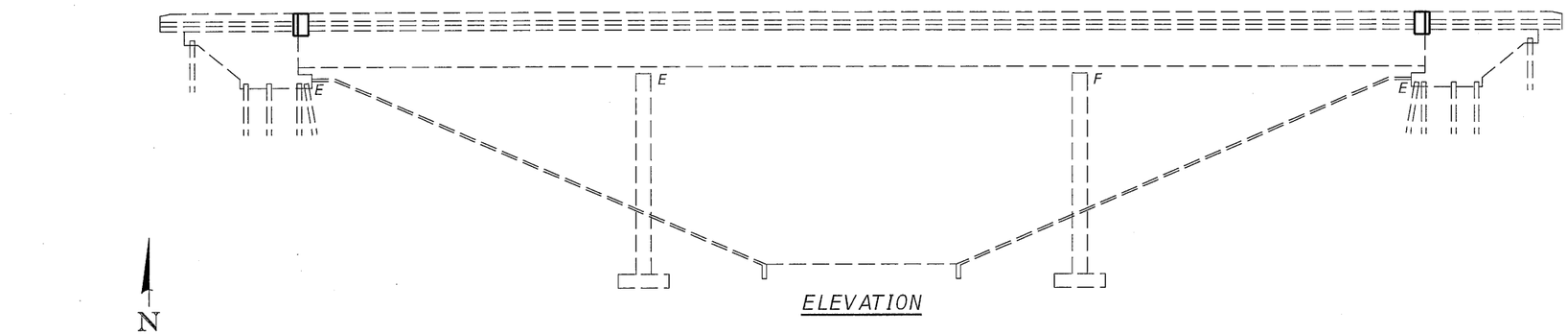
JOB = 2480,5	DESIGNED - AAN	REVISED -	
FILE NAME = $FILE$	CHECKED - MDC	REVISED -	
PLOT DATE = $DATE$	DRAWN - SJS	REVISED -	
	CHECKED - MDC	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

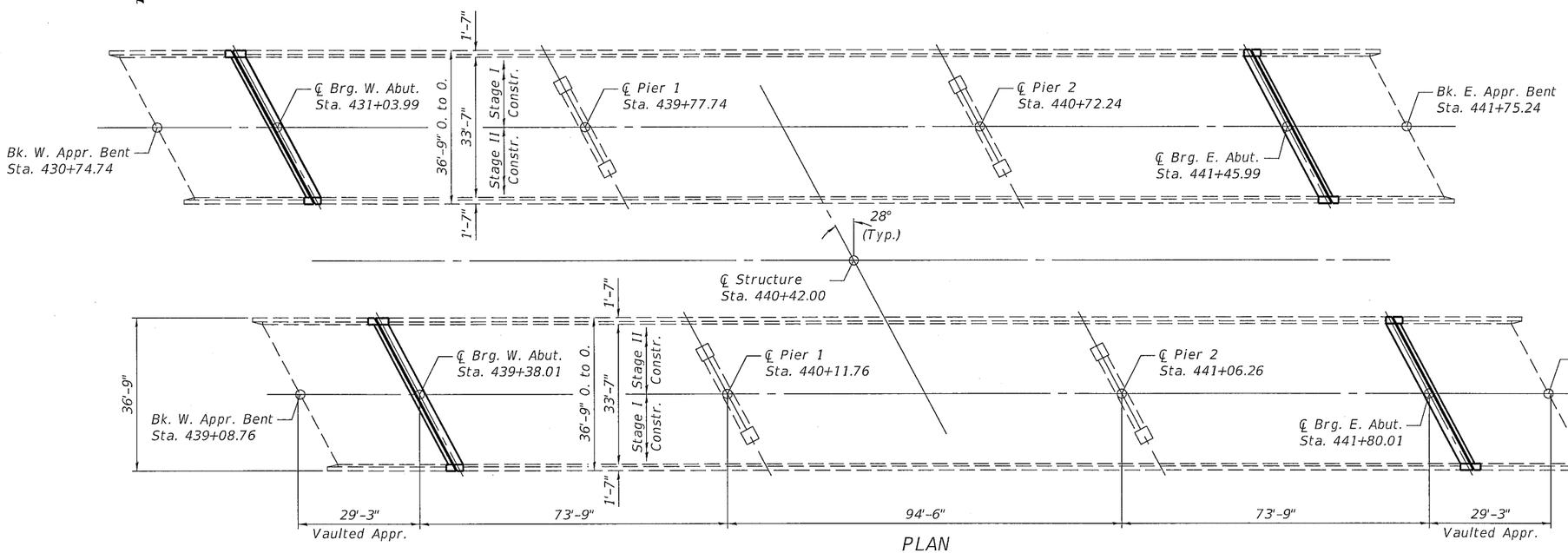
BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
STRUCTURE NO. 015-0015, 0016
SHEET 9 OF 9 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D-7 BRIDGE REPAIRS 2020-4	COLES	25	17
		CONTRACT NO. 74928		
	ILLINOIS	FED. AID PROJECT		

Existing Structures: S.N. 015-0017 and S.N. 015-0018 were originally constructed in 1961 as F.A. Rte. 17, Section 51B & 51F. The decks were removed and replaced in 1996 and bearings were replaced in 1989. Each structure consists of a three span steel plate girder superstructure with floor beams on reinforced concrete piers on spread footings and pile supported vaulted abutments. The existing structures are 300'-6" Bk. to Bk. of approach bents, 36'-9" O. to O. of deck and 33'-7" Fc. to Fc. of parapets. Traffic is to be maintained under staged construction.



ELEVATION



PLAN

SCOPE OF WORK

1. Remove and replace expansion joints at both abutments.

2. Repair approach slabs.

GENERAL NOTES

Reinforcement bars designated (E) shall be epoxy coated.

Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

Protective coat shall be applied to areas of new concrete.

Joint openings shall be adjusted according to Article 520.04 of the Standard Specifications when the deck is poured at an ambient temperature other than 50°F.

Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with new concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included with Concrete Removal.

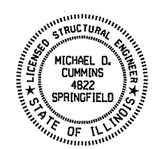
Areas of deck repairs shown are estimated. The engineer shall show actual locations of deck repairs on as-built plans.

The deck surface shall have its final finish tined according to Article 420.09(e)(1) of the Standard Specifications. Cost included with Concrete Superstructure.

TOTAL BILL OF MATERIAL

	ITEM	UNIT	TOTAL
	Concrete Removal	Cu. Yd.	17.7
	Concrete Superstructure	Cu. Yd.	17.2
	Reinforcement Bars, Epoxy Coated	Pound	3140
*	Protective Coat	Sq. Yd.	62
	Preformed Joint Strip Seal	Foot	162
	Approach Slab Repair (Partial Depth)	Sq. Yd.	3
	Bar Splicers	Each	40
**	Temporary Shoring and Cribbing	L. Sum	1

* New concrete at joints only.
** See Special Provisions



1/31/20
(Expires 11/30/20)

GENERAL PLAN AND ELEVATION
F.A.P. RTE. 91 (IL 16)
OVER RILEY CREEK
SECTION D-7 BRIDGE REPAIRS 2020-4
COLES COUNTY
STA 440+42
STRUCTURE NO. 015-0017 (WB), 0018 (EB)

MODEL: Default
FILE NAME: 015-0017-0018_74910_00_GPE.dgn

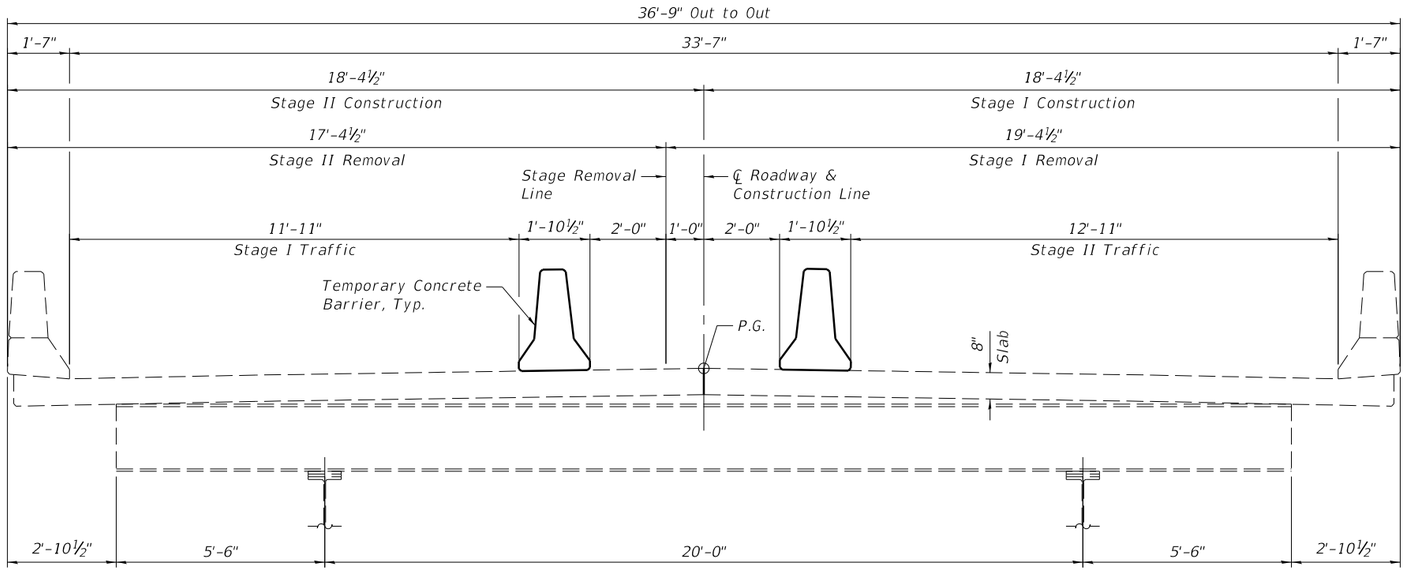
CEC Cummins Engineering Corporation
Civil and Structural Engineering

JOB = 2480.5	DESIGNED - AAN	REVISED -	
FILE NAME = 015-0017-0018_74910_00_GPE.dgn	CHECKED - MDC	REVISED -	
PLOT DATE = 1/30/2020	DRAWN - SJS	REVISED -	
	CHECKED - MDC	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 015-0017, 0018
SHEET 1 OF 8 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D-7 BRIDGE REPAIRS 2020-4	COLES	25	18
		CONTRACT NO. 74928		
	ILLINOIS FED. AID PROJECT			

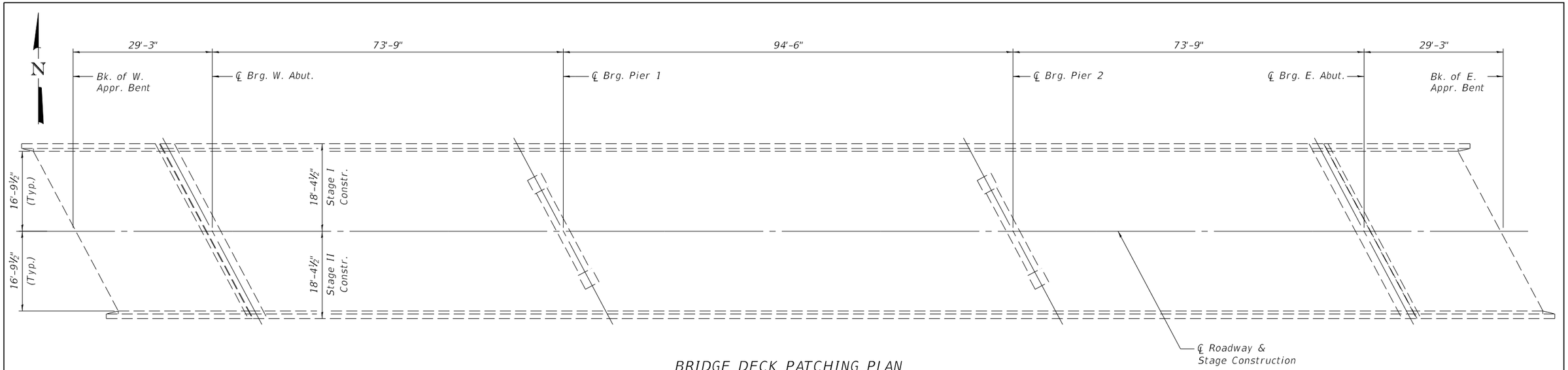


CROSS SECTION

(SN 015-0017 Westbound looking West)
(SN 015-0018 Eastbound Looking East)

MODEL: $MODELNAME$
FILE NAME: $FILE1$

CEC Cummins Engineering Corporation Civil and Structural Engineering	JOB = 2480.5 FILE NAME = $FILE$$ PLOT DATE = $DATE$	DESIGNED - AAN CHECKED - MDC DRAWN - SJS CHECKED - MDC	REVISED - REVISED - REVISED - REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STAGE CONSTRUCTION DETAIL STRUCTURE NO. 015-0017, 0018 SHEET 2 OF 8 SHEETS	F.A.P. RTE. 91	SECTION: D-7 BRIDGE REPAIRS 2020-4 COUNTY: COLES TOTAL SHEETS: 25 SHEET NO.: 19 CONTRACT NO. 74928 ILLINOIS | FED. AID PROJECT



BRIDGE DECK PATCHING PLAN

(SN 015-0017 – WB)

PATCH NO.	SIZE	DECK SLAB REPAIR (PARTIAL DEPTH) SQ. YD.	APPROACH SLAB REPAIR (PARTIAL DEPTH) SQ. YD.	APPROACH SLAB REPAIR (FULL DEPTH) SQ. YD.	
TOTAL					

PATCH NO.	SIZE	DECK SLAB REPAIR (PARTIAL DEPTH) SQ. YD.	APPROACH SLAB REPAIR (PARTIAL DEPTH) SQ. YD.	APPROACH SLAB REPAIR (FULL DEPTH) SQ. YD.	
TOTAL					

LEGEND

- Approach Slab Repair (Partial Depth)
- Approach Slab Repair (Full Depth)
- Deck Slab Repair (Partial Depth)

BILL OF MATERIAL

Item	Unit	Total
Approach Slab Repair (Partial Depth)	Sq. Yd.	
Approach Slab Repair (Full Depth)	Sq. Yd.	
Deck Slab Repair (Partial Depth)	Sq. Yd.	

MODEL: $MODELNAME$
FILE NAME: $FILE$

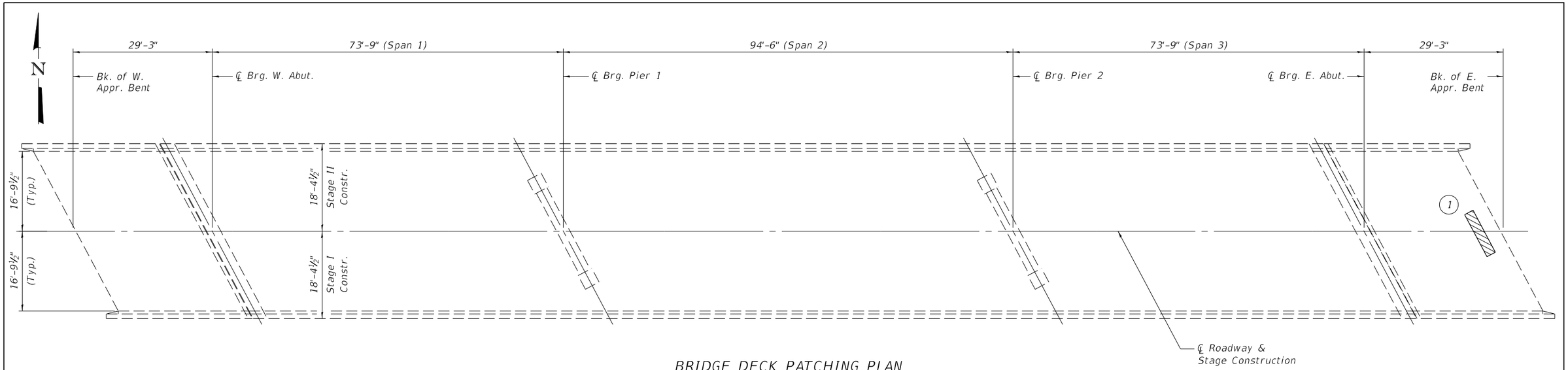
CEC Cummins Engineering Corporation
Civil and Structural Engineering

JOB = 2480.5	DESIGNED - AAN	REVISED -	
FILE NAME = $FILE$	CHECKED - MDC	REVISED -	
PLOT DATE = $DATE$	DRAWN - SJS	REVISED -	
	CHECKED - MDC	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE DECK PATCHING PLAN
STRUCTURE NO. 015-0017
SHEET 3 OF 8 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D-7 BRIDGE REPAIRS 2020-4	COLES	25	20
		CONTRACT NO. 74928		
	ILLINOIS	FED. AID PROJECT		



BRIDGE DECK PATCHING PLAN

(SN 015-0018 – EB)

PATCH NO.	SIZE	DECK SLAB REPAIR (PARTIAL DEPTH) SQ. YD.	APPROACH SLAB REPAIR (PARTIAL DEPTH) SQ. YD.	APPROACH SLAB REPAIR (FULL DEPTH) SQ. YD.	
1	10'x2'		2.22		
TOTAL			2.22		

PATCH NO.	SIZE	DECK SLAB REPAIR (PARTIAL DEPTH) SQ. YD.	APPROACH SLAB REPAIR (PARTIAL DEPTH) SQ. YD.	APPROACH SLAB REPAIR (FULL DEPTH) SQ. YD.	
TOTAL					

LEGEND

- Approach Slab Repair (Partial Depth)
- Approach Slab Repair (Full Depth)
- Deck Slab Repair (Partial Depth)

BILL OF MATERIAL

Item	Unit	Total
Approach Slab Repair (Partial Depth)	Sq. Yd.	3
Approach Slab Repair (Full Depth)	Sq. Yd.	
Deck Slab Repair (Partial Depth)	Sq. Yd.	

MODEL: $MODELNAME$
FILE NAME: $FILE$

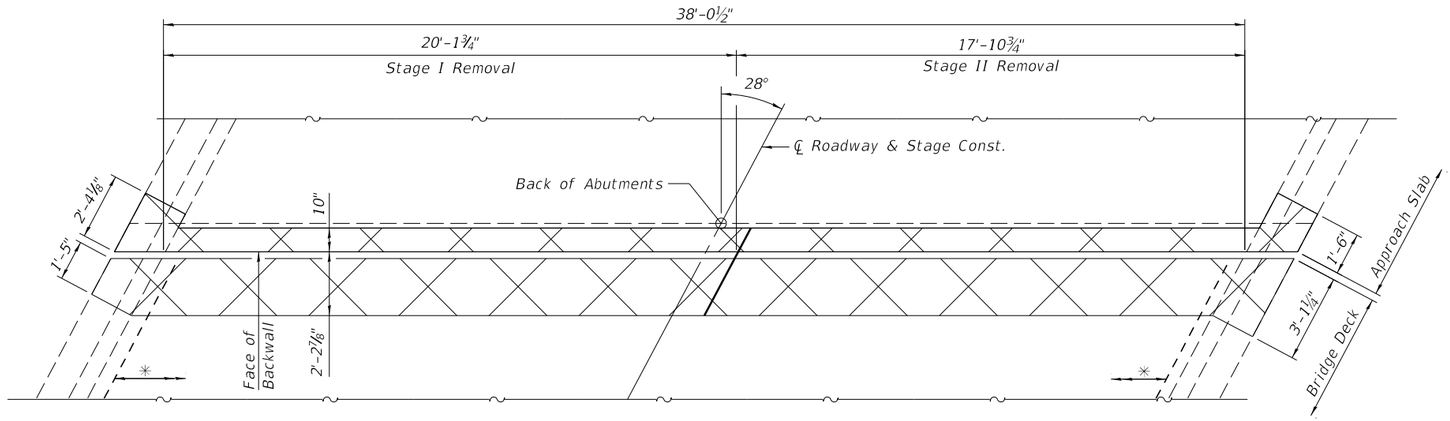
CEC Cummins Engineering Corporation
Civil and Structural Engineering

JOB = 2480.5	DESIGNED - AAN	REVISED -	
FILE NAME = $FILE$	CHECKED - MDC	REVISED -	
PLOT DATE = $DATE$	DRAWN - SJS	REVISED -	
	CHECKED - MDC	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

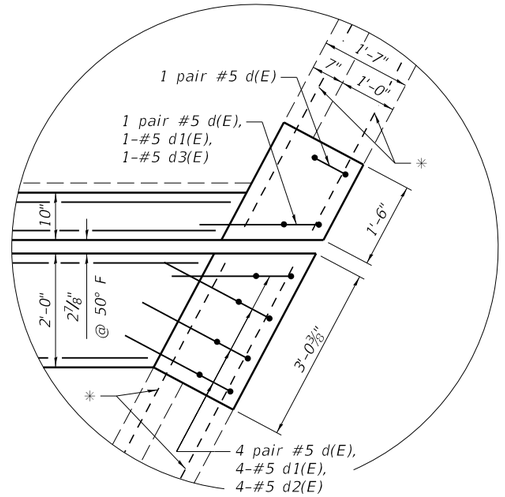
BRIDGE DECK PATCHING PLAN
STRUCTURE NO. 015-0018
SHEET 4 OF 8 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D-7 BRIDGE REPAIRS 2020-4	COLES	25	21
		CONTRACT NO. 74928		
	ILLINOIS FED. AID PROJECT			



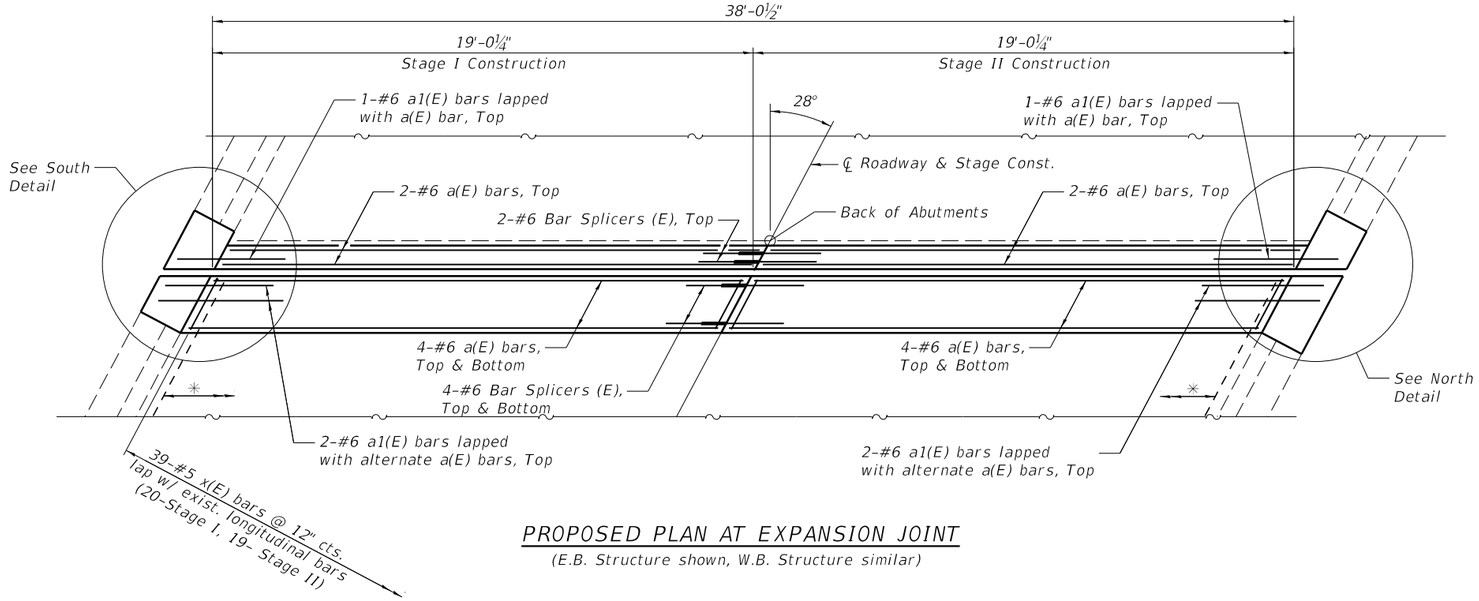
EXISTING PLAN AT EXPANSION JOINT

(E.B. Structure shown, W.B. Structure similar)



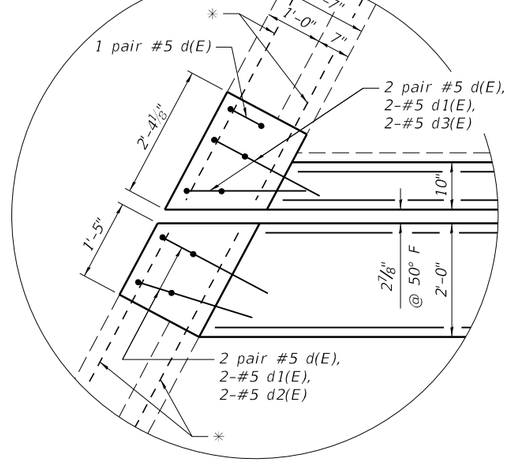
NORTH-DETAIL

Note:
All removal dimensions shown shall be measured from the face of the backwall below the existing expansion joint opening.
Cross-hatched area indicates limits of Concrete Removal.



PROPOSED PLAN AT EXPANSION JOINT

(E.B. Structure shown, W.B. Structure similar)



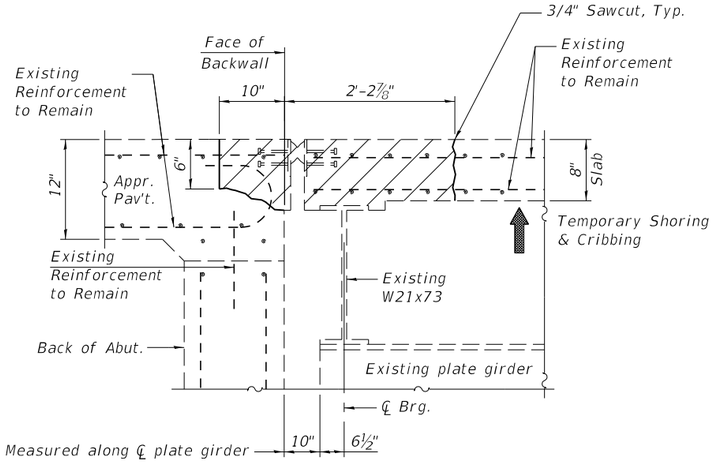
SOUTH-DETAIL

✳ Existing reinforcement shall be cleaned and incorporated into the new construction. Cost included with Concrete Removal.

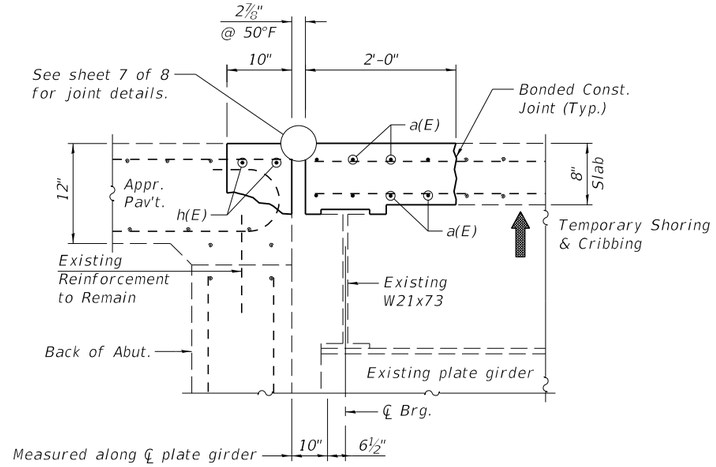
MODEL: $MODELNAME$
FILE NAME: $FILE$

CEC Cummins Engineering Corporation — Civil and Structural Engineering	JOB = 2480.5	DESIGNED - AAN	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	EXPANSION JOINT REPLACEMENT DETAILS STRUCTURE NO. 015-0017, 0018
	FILE NAME = $FILE$	CHECKED - MDC	REVISED -		
	PLOT DATE = $DATE$	DRAWN - SJS	REVISED -		SHEET 5 OF 8 SHEETS
		CHECKED - MDC	REVISED -		

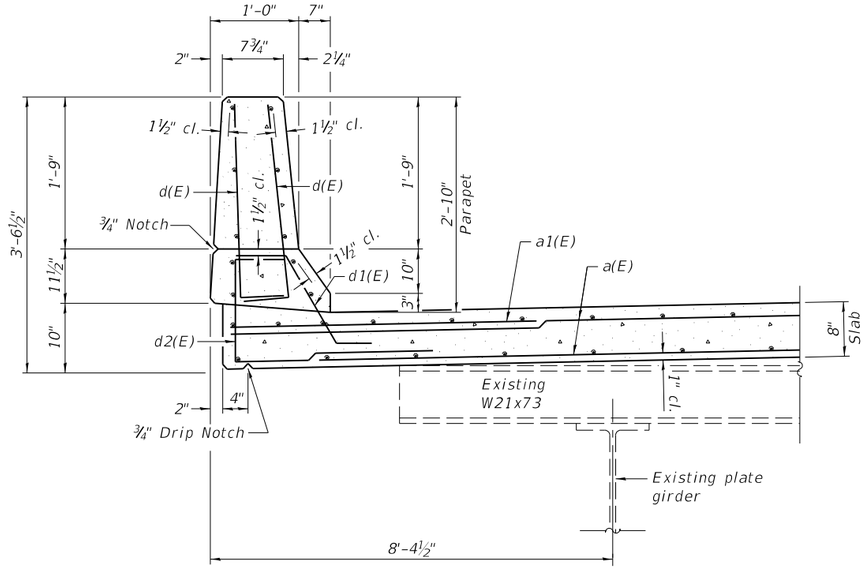
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D-7 BRIDGE REPAIRS 2020-4	COLES	25	22
		CONTRACT NO. 74928		
	ILLINOIS FED. AID PROJECT			



SECTION THRU JOINT
(Showing Removal)
(Horiz. Dim. at Rt. ℄'s)



SECTION THRU JOINT
(Showing Proposed)
(Horiz. Dim. at Rt. ℄'s)

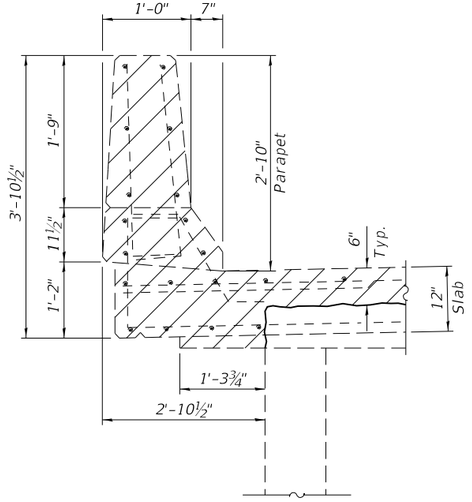


SECTION THRU PARAPET

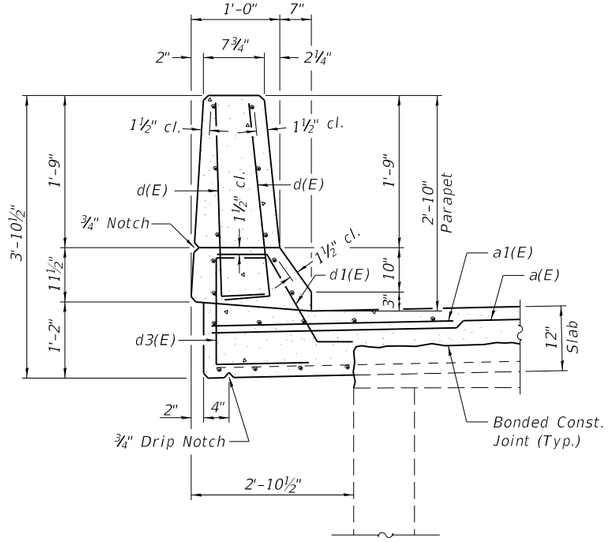
TEMPORARY SHORING AND CRIBBING

Location	Weight of deck to be supported
NW/SE corners of structures	29 kips
NW/SE corners of structures	12 kips

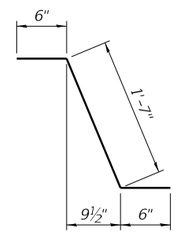
Note:
All removal dimensions shown shall be measured from the face of the backwall below the existing expansion joint opening.
Proposed expansion joints shall be constructed flush with the face of backwall.



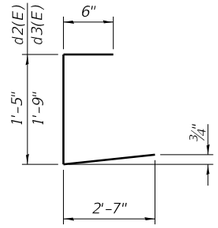
SECTION THRU APPROACH PARAPET
(Showing Removal)



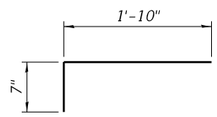
SECTION THRU APPROACH PARAPET
(Showing Proposed)



BAR d1(E)



BAR d2(E) & d3(E)



BAR x(E)

BAR d(E)

TWO SUPERSTRUCTURES BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	32	#5	20'-8"	———
a1(E)	16	#6	6'-6"	———
d(E)	24	#5	3'-0"	⌐¬
d1(E)	24	#5	2'-7"	⌐¬
d2(E)	24	#4	3'-0"	⌐
d3(E)	24	#4	4'-6"	⌐
h(E)	16	#6	20'-0"	———
x(E)	136	#5	2'-5"	⌐¬
Reinforcement Bars, Epoxy Coated			Pound	3140
Concrete Superstructure			Cu. Yd.	17.2
Concrete Removal			Cu. Yd.	17.7

Notes:
Hatched areas indicate limits of Concrete Removal.

Existing reinforcement to remain shall be cleaned and incorporated into the new construction. Cost included with Concrete Removal.

Any reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost included with Concrete removal.

MODEL: $MODELNAMES
FILE NAME: $FILES

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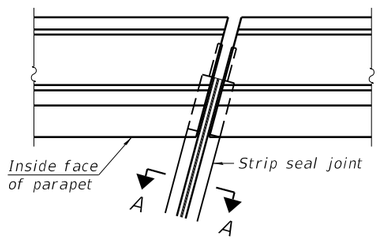
JOB = 2480.5	DESIGNED - AAN	REVISED -	
FILE NAME = $FILES$	CHECKED - MDC	REVISED -	
PLOT DATE = $DATE$	DRAWN - SJS	REVISED -	
	CHECKED - MDC	REVISED -	

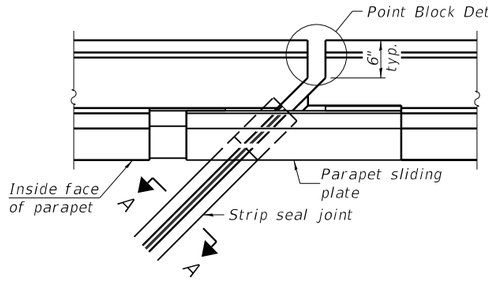
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

JOINT REPLACEMENT DETAILS
STRUCTURE NO. 015-0017, 0018
SHEET 6 OF 8 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D-7 BRIDGE REPAIRS 2020-4	COLES	25	23
		CONTRACT NO. 74928		
		ILLINOIS	FED. AID PROJECT	

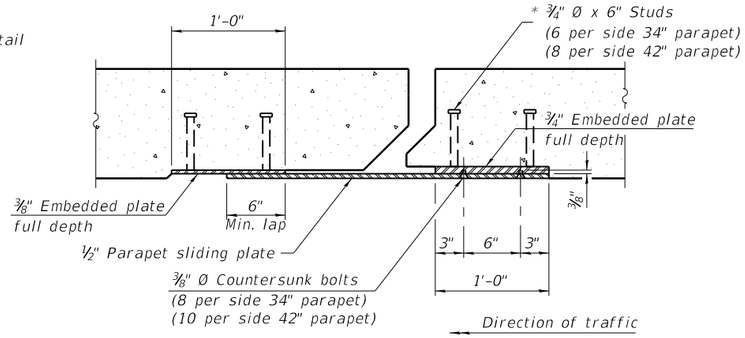


FOR SKEWS ≤ 30°



FOR SKEWS > 30°

PLAN AT PARAPET



SECTION B-B

Notes:

The strip seal shall be made continuous and shall have a minimum thickness of ¼". The configuration of the strip seal shall match the configuration of the locking edge rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.

The locking edge rails depicted are configured for typical applications and are conceptual only. The actual configuration of the locking edge rails and matching strip seal may vary from manufacturer to manufacturer provided they fit the application and meet the minimum anchorage shown. Flanged edge rails, however, will not be allowed. Locking edge rails may exceed the 4½" maximum depth provided the anchorage system is revised according to the manufacturer's recommendation.

The manufacturer's recommended installation methods shall be followed.

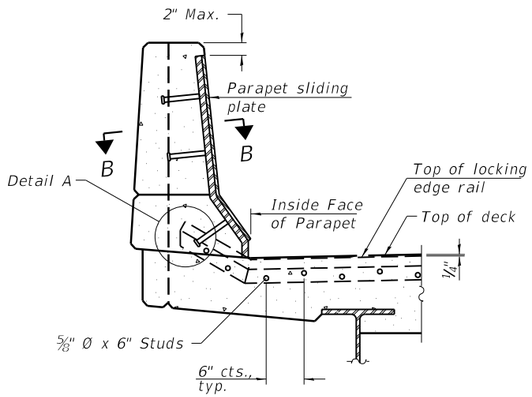
All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.

The Maximum space between locking edge rail segments shall be 3/16" and sealed with a suitable sealant; however, any rail joint within 10' measured perpendicular to the face of the curb or parapet shall be welded as shown in the locking edge rail splice detail.

Cost of parapet sliding plates, embedded plates, and anchorage studs included with Preformed Joint Strip Seal.

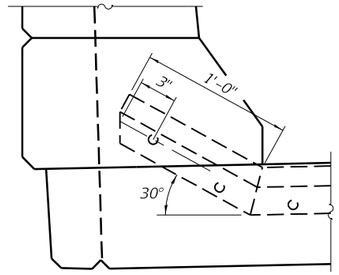
34" F-shape barrier shown, 42" F-shape similar as noted.

The concrete opening below the strip seal will vary based on the locking edge rail chosen by the Contractor. Deck and parapet lengths shown elsewhere in the plans are dimensioned to the concrete opening, not the joint opening, and are based on the rolled locking edge rail. If the Contractor elects to use a different locking edge rail, dimensional adjustments may be required. One exception to this would be the strip seal joint at the end of the precast bridge approach slab. For these cases the pavement connector length shall be adjusted, not the length of the bridge approach slab.

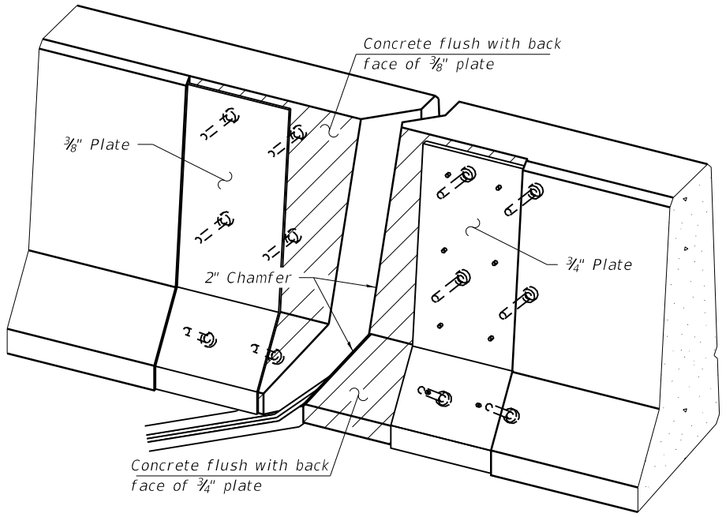


ELEVATION AT PARAPET

(Skews > 30° shown. Skews ≤ 30° similar except as shown in plan view.)

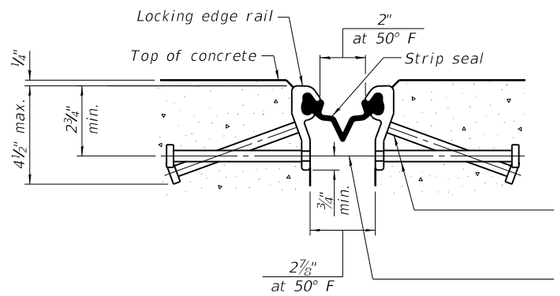


DETAIL A



TRIMETRIC VIEW

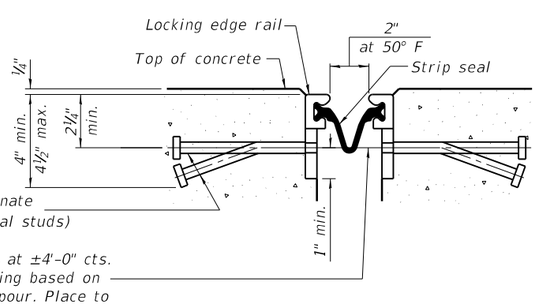
(Showing embedded plates only)



SHOWING ROLLED RAIL JOINT

* ⅝" Ø x 6" studs @ 6" cts. (alternate angled/bent studs with horizontal studs)

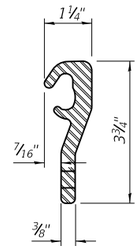
⅝" ϕ threaded rods in 7/16" ϕ holes at ±4'-0" cts. for holding the proper joint opening based on the temperature during the deck pour. Place to miss studs. All rods shall be burned, or sawed off flush with the plates after concrete is set.



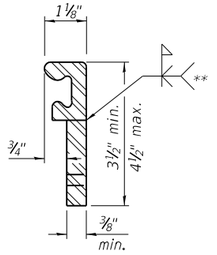
SHOWING WELDED RAIL JOINT

SECTION A-A

* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.



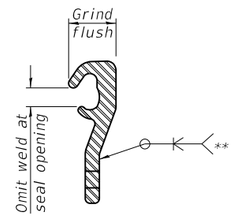
ROLLED (EXTRUDED) RAIL



WELDED RAIL

LOCKING EDGE RAILS

** Back gouge not required if complete joint penetration is verified by mock-up.



LOCKING EDGE RAIL SPLICE

The inside of the locking edge rail groove shall be free of weld residue. Rolled rail shown, welded rail similar.

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	162

EJ-SS

8-11-17

MODEL: $MODELNAMES
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PLOT DATE = $DATE$	DRAWN - SJS	REVISED -	
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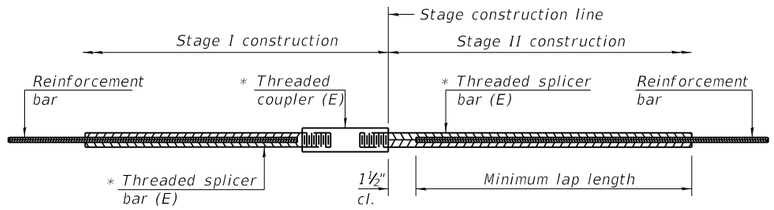
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PREFORMED JOINT STRIP SEAL
STRUCTURE NO. 015-0017, 0018

SHEET 7 OF 8 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D-7 BRIDGE REPAIRS 2020-4	COLES	25	24
		CONTRACT NO. 74928		
	ILLINOIS FED. AID PROJECT			

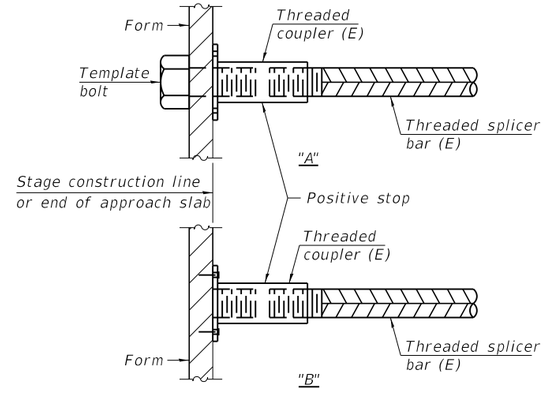


STANDARD BAR SPLICER ASSEMBLY

Threaded splicer bar length = min. lap length + 1½" + thread length

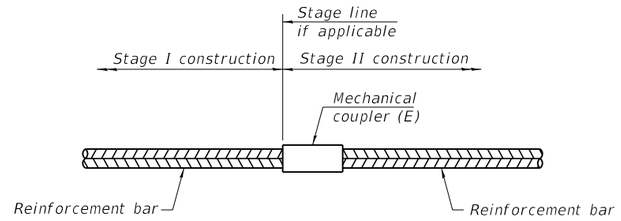
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Minimum lap length
Deck	5	32	3'-6"
Hatch Block	6	8	4'-0"



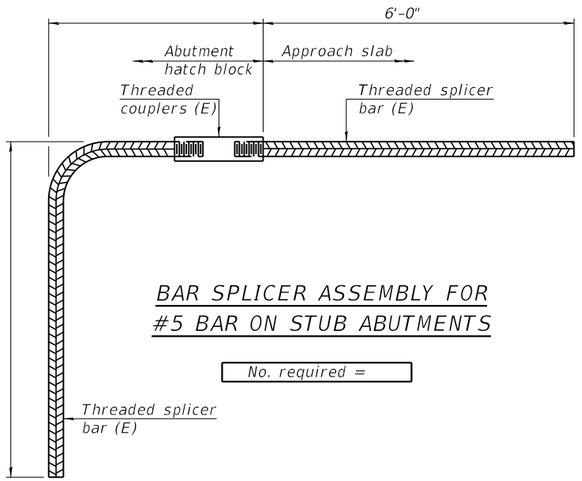
INSTALLATION AND SETTING METHODS

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



STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required



NOTES

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.

All reinforcement shall be lapped and tied to the splicer bars.

Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.

See approved list of bar splicer assemblies and mechanical splicers for alternatives.

BSD-1 2-17-2017

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BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
STRUCTURE NO. 015-0017, 0018
SHEET 8 OF 8 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
91	D-7 BRIDGE REPAIRS 2020-4	COLES	25	25
		CONTRACT NO. 74928		
	ILLINOIS	FED. AID PROJECT		