11-08-2024 LETTING ITEM 098

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### **STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION**

D9 Bridge Repair 2025-2 Pulaski 22 1 CONTRACT NO. 78A77

D-99-056-24



# **DEPARTMENT OF TRANSPORTATION** SUBMITTED July 24 20 24 Kirk H. Brown REGION FIVE ENGINEER

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

# **PROPOSED**

FAI ROUTE 57 (I-57) OVER CACHE RIVER D9 BRIDGE REPAIR 2025-2 **CONTRACT MAINTENANCE BRIDGE REPAIR PULASKI COUNTY** 

C-99-103-24

#### TRAFFIC DATA

FOR INDEX OF SHEETS, SEE SHEET NO. 3

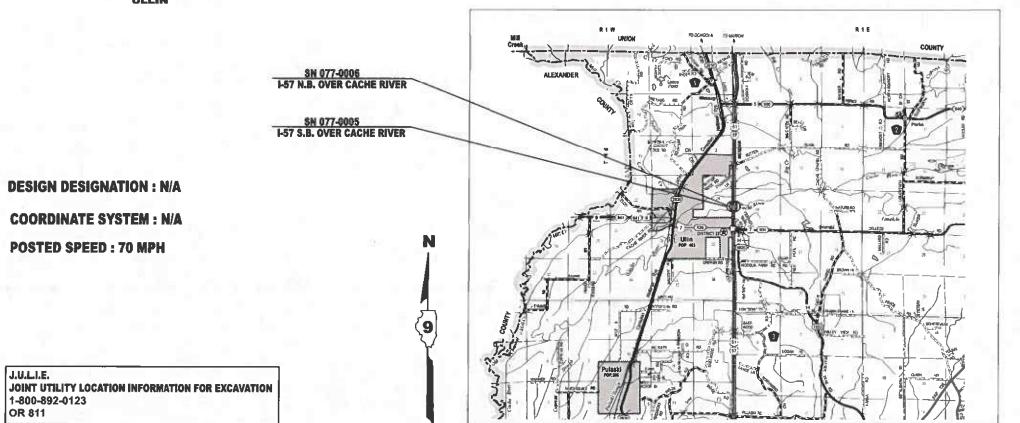
FOR SUMMARY OF QUANTITIES, SEE SHEETS NO. 4-5

STRUCTURE NO. 077-0006 2023 ADT = 7000 WITH 50.36% TRUCKS

STRUCTURE NO. 077-0005 2023 ADT = 6800 WITH 61.40% TRUCKS

#### **TOWNSHIP**

ULLIN



**PROJECT ENGINEER: EHREN KIRBY PROJECT DESIGNER: STEPHEN DILLARD** 

GROSS LENGTH = 363.66 FT. = 0.068 MILE NET LENGTH = 363.66 FT. = 0.068 MILE

CONTRACT NO. 78A77

**HIGHWAY PLANS** 

**LOCATION OF SECTION INDICATED THUS: -**

STATE OF ILLINOIS

Prepared By: Susan

Examined By: Multiple DISTRICT LAND ACQUISITION ENGINEER

Examined By: Contact PROGRAM DEVELOPMENT ENGINEER

Examined By: 2

DISTRICT OPERATIONS ENGINEER

Examined By:

DISTRICT PROJECT IMPLEMENTATION ENGINEER

Examined By:

DISTRICT CONSTRUCTION ENGINEER

Examined By: A and Park

REVISED -DRAWN . REVISED CHECKED -

STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION**  SIGNATURE SHEET OF 22 SHEETS STA.

D9 Bridge Repair 2025-2 CONTRACT NO. 78A77 **INDEX OF SHEETS** 

**COMMITMENTS** 

NONE

COVER SHEET 2

SIGNATURES

INDEX OF SHEETS, STANDARDS SUMMARY OF QUANTITIES

4-5 SN 077-0006 REPAIR DETAILS 6-12

13-15 SN 077-0006 & SN 077-0005 DETAIL SHEETS

16-22 SN 077-0005 REPAIR DETAILS

#### **STANDARDS**

000001-08 STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS 001001-02 AREAS OF REINFORCEMENT BARS DECIMAL OF AN INCH AND OF A FOOT 001006 701101-05 OFF-RD OPERATIONS, MULTILANE, 15' TO 24" FROM PAVEMENT EDGE 701106-02 OFF-RD OPERATIONS, MULTILANE, MORE THAN 15' AWAY 701400-12 APPROACH TO LANE CLOSURE FREEWAY EXPRESSWAY 701402-12 LANE CLOSURE FREEWAY EXPRESSWAY WITH BARRIER 701901-09 TRAFFIC CONTROL DEVICES 704001-08 TEMPORARY CONCRETE BARRIER 780001-05 TYPICAL PAVEMENT MARKINGS GUARDRAIL AND BARRIER WALL REFLECTOR MOUNTING DETAILS 782006-01

REV - MS

USER NAME = stephen.dillard	DESIGNED -	REVISED -		INI	INDEX OF SHEETS, STANDARDS, COMMITMENTS		F.A.I RTE		SECTION	COUNTY	TOTAL	SHEET			
	DRAWN -	REVISED -	STATE OF ILLINOIS	""	PEX OI OI	, 0.	AIIDAI	too, oomin	THE PARTY OF THE P	57	1	D9 Bridge Repair 2025-2	Pulaski	22	3
	CHECKED -	REVISED -	DEPARTMENT OF TRANSPORTATION					VI					CONTRAC		A77
PLOT DATE = 7/24/2024	DATE -	REVISED -		SCALE:	SHEET	OF 22	SHEETS	STA.	TO STA.			ILLINOIS FED. AID	PROJECT		

### SUMMARY OF QUANTITIES

ITEM DESCRIPTION

CODE

NUMBER

50102400

50300255

50300300

50800205

50800515

52000110

63300575

67100100

70100207

/010/025

70300100

70300150

70400100

CONCRETE REMOVAL

PROTECTIVE COAT

BAR SPLICERS

MOBILIZATION

CONCRETE SUPERSTRUCTURE

PREFORMED JOINT STRIP SEAL

CHANGEABLE MESSAGE SIGN

SHORT TERM PAVEMENT MARKING

TEMPORARY CONCRETE BARRIER

SHORT TERM PAVEMENT MARKING REMOVAL

REINFORCEMENT BARS, EPOXY COATED

REMOVE AND REERECT RAIL ELEMENT OF EXISTING GUARDRAIL

TRAFFIC CONTROL AND PROTECTION, STANDARD 701402

	COUNTY:	PULASKI CO	PULASKI CO
	ROUTE:	FAI 57	FAI 57
	FUNDING:	100% STATE	100% STATE
	LOCATION:	BRIDGE	BRIDGE
UNIT	TOTAL	SN 077-0006	SN 077-0005
ONT	QUANTITY	0013	0013
CU YD	67.7	33.2	34.5
CU YD	66.6	32.6	34.0
SQ YD	234	104	130
POUND	9,540	4,770	4,770
EACH	136	68	68
FOOT	360	180	180
FOOT	12.5	12.5	0.0
L SUM	1	0.5	0.5
EACH	2	1	1
CAL DA	28	14	14
FOOT	400	200	200
SQ FT	134	67	67
FOOT	825	412.5	412.5

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USER NAME = stephen.dillard	DESIGNED -	REVISED -
	DRAWN -	REVISED -
	CHECKED -	REVISED -
PLOT DATE = 7/24/2024	DATE -	REVISED -

SCALE:

SUMMARY OF QUANTITIES						SECTION		COUNTY	TOTAL SHEETS	SHEET NO.
						D9 Bridge Repair 2025	Pu <b>l</b> aski	22	4	
•								CONTRACT	NO. 78	١77
HEET OF 22 SHEETS STA. TO STA.						ILLINOIS	FED. AID	PROJECT		

## SUMMARY OF QUANTITIES - CONT

IMPACT ATTENUATORS, TEMPORARY (NON- REDIRECTIVE, NARROW), IESI LEVEL 3

IMPACT ATTENUATORS, RELOCATE (NON- REDIRECTIVE, NARROW), TEST LEVEL 3

STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 INCHES)

RELOCATE TEMPORARY CONCRETE BARRIER

DECK SLAB REPAIR (FULL DEPTH, TYPE II)

ITEM DESCRIPTION

CODE

NUMBER

70400200

70600251

70600352

Z0012754

Z0016002

	COUNTY:	PULASKI CO	PULASKI CO
	ROUTE:	FAI 57	FAI 57
	FUNDING:	100% STATE	100% STATE
	LOCATION:	BRIDGE	BRIDGE
UNIT	TOTAL	SN 077-0006	SN 077-0005
ONTI	QUANTITY	0013	0013
FOOT	700	350	350
EACH	2	1	1
EACH	2	1	1
SQ FT	14	9	5
SQ YD	52	13	39

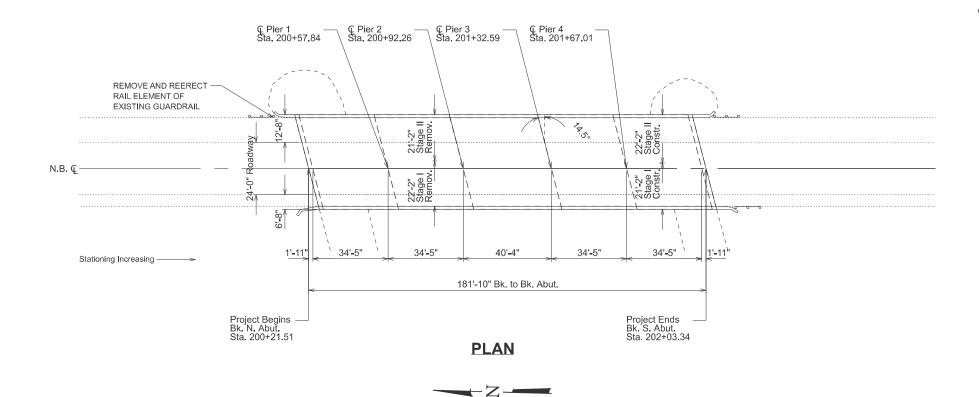
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USER NAME = stephen.dillard	DESIGNED -	REVISED -	
	DRAWN -	REVISED -	
	CHECKED -	REVISED -	
PLOT DATE = 7/24/2024	DATE -	REVISED -	

SCALE:

		SUMMAR	RY OI	F QUA	NTITIES		F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
_						57	D9 Bridge Repair 2025-2	Pulaski	22	5	
-									CONTRAC	T NO. 78.	A77
SHEET OF 22 SHEETS S		STA.	TO STA.		ILLINOIS FED. AID PF						

## ELEVATION



#### **DESIGN STRESSES**

(From Existing Plans)

Design Loading HS 20-44 Design Stresses fc=3,500 psi fy=60,000psi (Reinf.)

(New)

f'c=4,000 psi fy=60,000psi (Reinf.) JAYME E SCHIFF OSI-005540

EXPIRES 11-30-2024

SHEET

SCALE:

WARUCTUD ...

#### **GENERAL NOTES**

Reinforcement bars designated (E) shall be epoxy coated.

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 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 paid for according to Article 109.04 of the Standard Specifications.

Plan dimensions and details relative to the existing structure have been taken from the existing plans and 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.

Existing reinforcement bars extending into the removal area shall be cleaned, straightened and incorporated into the new construction. Any reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system at the contractor's expense.

Joint openings shall be adjusted according to Article 520.04 of the Std. Specs. when the deck is poured at an ambient temperature other than  $50^\circ F$ .

#### TOTAL BILL OF MATERIAL

UNIT	TOTAL
Each	68
Cu. Yd.	33.2
Cu. Yd.	32.6
Sq. Yd.	13
Foot	180
Sq. Yd.	104
Pound	4770
Foot	350
Foot	12.5
Sq. Ft.	9
Foot	412.5
	Each Cu. Yd. Cu. Yd. Sq. Yd. Foot Sq. Yd. Pound Foot Foot Sq. Ft.

# GENERAL PLAN & ELEVATION I-57 N.B. OVER CACHE RIVER FAI ROUTE 57 - D9 BRIDGE REPAIR 2025-2 PULASKI COUNTY STRUCTURE NO. 077-0006

#### **SCOPE OF WORK**

Concrete Removal
Concrete Superstructure
Deck Slab Repair (Full Depth)
Structural Repair of Concrete
Preformed Joint Strip Seal

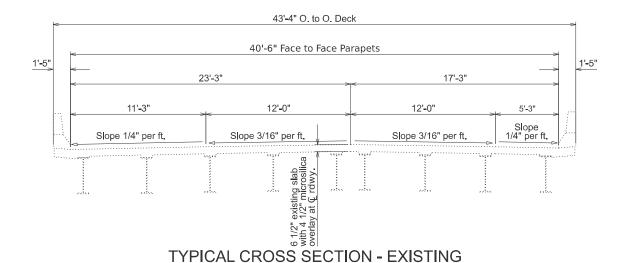
 USER NAME
 = stephen.dillard
 DESIGNED
 REVISED

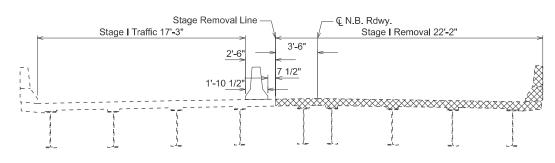
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 REVISED

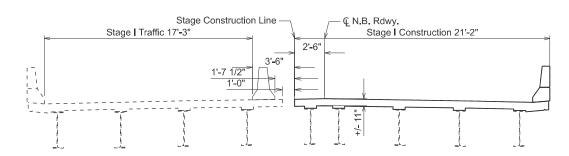
 PLOT DATE
 = 7/24/2024
 DATE
 REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



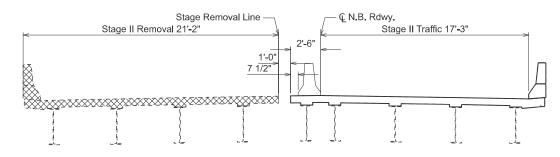


## STAGE I REMOVAL (AT JOINT LOCATIONS ONLY)



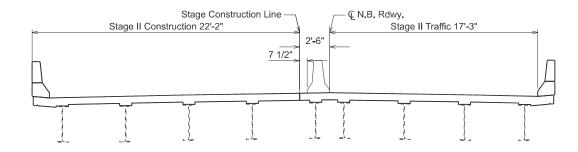
#### **STAGE I CONSTRUCTION**

(AT JOINT LOCATIONS ONLY)



#### STAGE II REMOVAL

(AT JOINT LOCATIONS ONLY)



#### STAGE II CONSTRUCTION

(AT JOINT LOCATIONS ONLY)

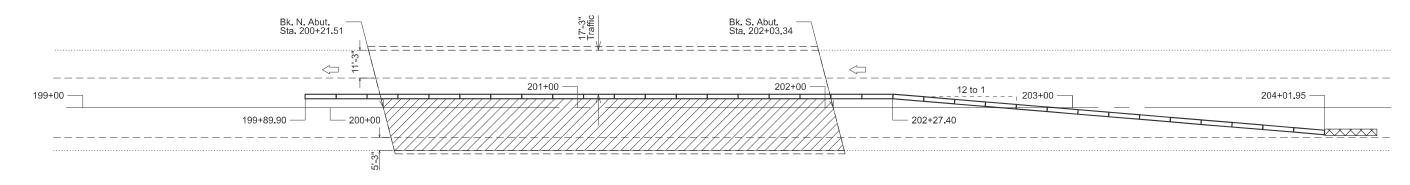
Notes:

All Sections Looking South

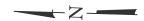
As built microsilica overlay varies up to approx. 60% thicker than the thickness shown in existing plans

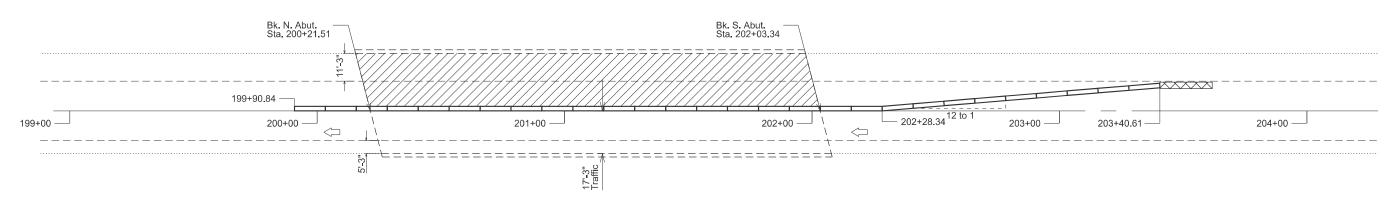


USER NAME = stephen.dillard	DESIGNED -	REVISED -				TYPICAL SECTIONS		F.A.I RTE	SECTION	COUNTY	TOTAL	SHEET
	DRAWN -	REVISED -	STATE OF ILLINOIS					57	D9 Bridge Repair 2025-2	Pulaski	22	7
	CHECKED -	REVISED -	DEPARTMENT OF TRANSPORTATION			SN 077-0006				CONTRAC	T NO. 78A	77
PLOT DATE = 7/24/2024	DATE -	REVISED -		SCALE:	SHEET	OF 22 SHEETS STA.	TO STA.	1	ILLINOIS FED AL	PROJECT		



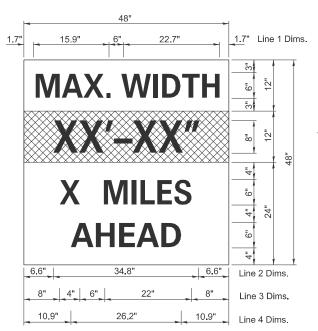
#### **STAGE I TRAFFIC**





#### **STAGE II TRAFFIC**





#### W12-I103

W12-I103, No Border
"MAX WIDTH" 6D, No Border, Black on White
"XX"-XX"" 8D, No Border, Black on Orange
"X MILES" 6D, No Border, Black on White
"AHEAD" 6D, No Border, Black on White

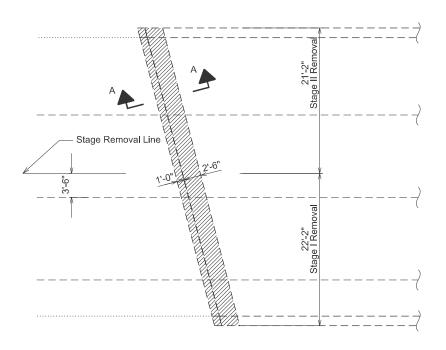
#### **Notes for Max Width Sign:**

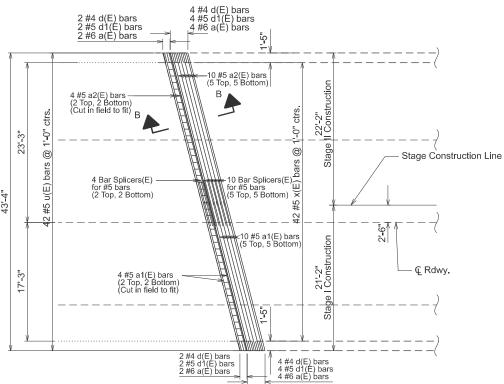
- 1. Install a Max Width Sign each direction on I 57 to give traffic approaching work zone enough advance notice to change routes if needed. Exact locations as directed by engineer.
- 2. The contractor shall furnish the posts and erect the signs at the locations directed by the engineer. All signs shall be post mounted.
- 3. The noted work, including signs, posts, hardware and labor shall be included in the contract unit price, each, for Traffic Control and Protection, Std. 701402; no other compensation will be allowed.
- 4. The width shown on the W12-I103 sign shall be 18" less than what is shown in the staged lane widths or as directed by
- 5. The "X" MILES AHEAD will be determined by the engineer.



Impact Attenuator

 USER NAME = stephen.dillard	DESIGNED -	REVISED -				STAGING PLAN	_	F.A.I	SECTION	COUNTY	TOTAL S	HEET
	DRAWN -	REVISED -	STATE OF ILLINOIS					57	D9 Bridge Repair 2025-2	Pulaski	22	8
	CHECKED -	REVISED -	DEPARTMENT OF TRANSPORTATION			SN 077-0006				CONTRAC	T NO. 78A	77
PLOT DATE = 7/24/2024	DATE -	REVISED -		SCALE:	SHEET	OF 22 SHEETS STA.	TO STA.		ILLINOIS FED. AI	D PROJECT		



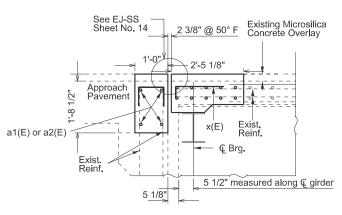


# SECTION A-A

(Dimensions are at Right Angles)

Approach Pavement

±1 1/2" @ 50° F Existing Microsilica Concrete Overlay



#### **SECTION B-B**

(Dimensions are at Right Angles)

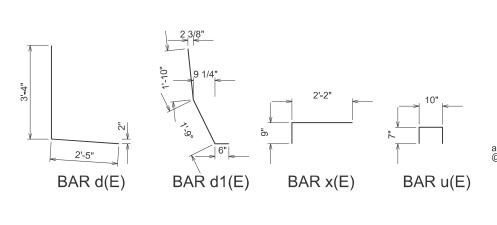
**BILL OF MATERIAL** 

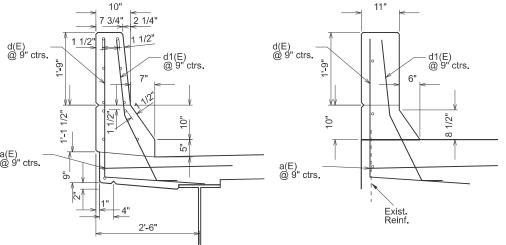
Bar	No.	Size	Length/Unit	Shape/Quantity
a(E)	12	#6	3'-1"	-
a1(E)	14	#5	21'-5"	
a2(E)	14	#5	22'-6"	
d(E)	12	#4	5'-9"	
d1(E)	12	#5	4'-1"	
u(E)	42	#5	2'-0"	п
x(E)	42	#5	2'-11"	_
Bar Splicer			Each	14
Concrete R	emoval		Cu. Yd.	7.5
Concrete S	uperstructure	)	Cu. Yd.	7.4
Reinforcem	ent Bars, Ep	oxy Coated	Pound	1010

#### **JOINT AT NORTH ABUTMENT** SHOWING CONCRETE REMOVAL

#### **JOINT AT NORTH ABUTMENT** SHOWING CONCRETE PLACEMENT





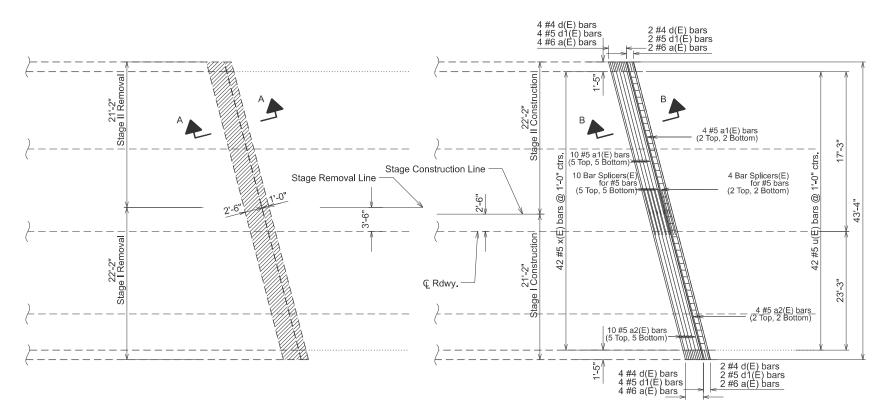


#### SECTION THROUGH PARAPET SECTION THROUGH WINGWALL (S. side of abut.) (N. side of abut.)

Notes:

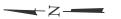
As built microsilica overlay varies up to approx. 60% thicker than the thickness shown in existing plans

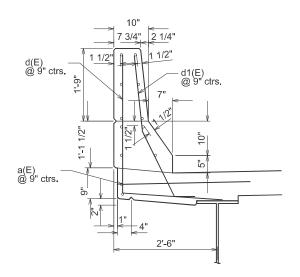
USER NAME = stephen.dillard	DESIGNED -	REVISED -		JOINT RECONSTRUCTION DETAILS				RTE.	SECTION	COUNTY	SHEETS	NO.
	DRAWN -	REVISED -	STATE OF ILLINOIS					57	D9 Bridge Repair 2025-2	Pulaski	22	9
	CHECKED -	REVISED -	DEPARTMENT OF TRANSPORTATION	SN 077-0006				CONTRAC	T NO. 78A	7		
PLOT DATE = 7/24/2024	DATE -	REVISED -		SCALE:	SHEET	OF 22 SHEETS STA.	TO STA.		ILLINOIS FED. AI	D PROJECT		



JOINT AT SOUTH ABUTMENT
SHOWING CONCRETE REMOVAL

JOINT AT SOUTH ABUTMENT
SHOWING CONCRETE PLACEMENT





#### **SECTION THROUGH PARAPET**

#### **BILL OF MATERIAL**

(South Abutment Only)

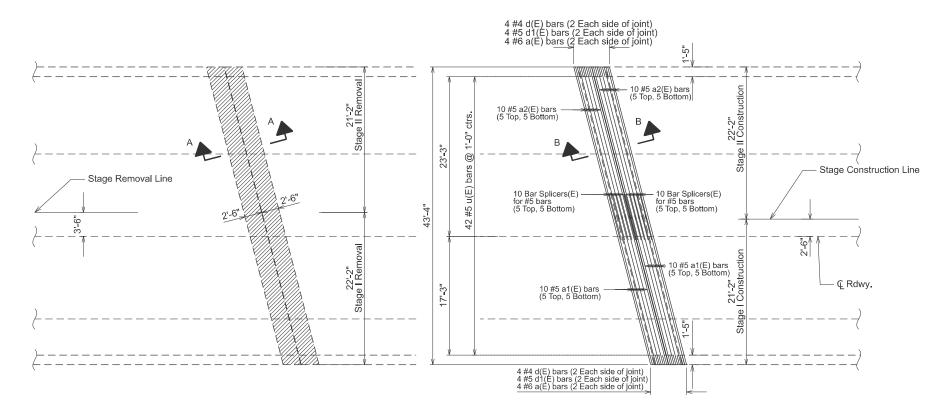
(County to different County)							
Bar	No.	Size	Length/Unit	Shape/Quantity			
a(E)	12	#6	3'-1"	-			
a1(E)	14	#5	21'-5"				
a2(E)	14	#5	22'-6"				
d(E)	12	#4	5'-9"				
d1(E)	12	#5	4'-1"	_			
u(E)	42	#5	2'-0"	п			
x(E)	42	#5	2'-11"	_			
Bar Splicer		Each	14				
Concrete R	emoval	Cu. Yd.	7.8				
Concrete St	uperstructure	Cu. Yd.	7.6				
Reinforcem	ent Bars, Ep	oxy Coated	Pound	1010			

Notes:

As built microsilica overlay varies up to approx. 60% thicker than the thickness shown in existing plans

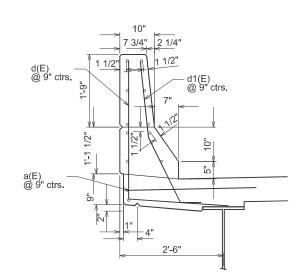
Concrete Remova
-----------------

TOTAL SHEET NO. SER NAME = stephen.dillard DESIGNED -REVISED **JOINT RECONSTRUCTION DETAILS** SECTION STATE OF ILLINOIS DRAWN REVISED Pulaski D9 Bridge Repair 2025-2 SN 077-0006 **DEPARTMENT OF TRANSPORTATION** CHECKED . REVISED CONTRACT NO. 78A77 PLOT DATE = 7/24/2024 DATE SHEET OF 22 SHEETS STA. TO STA.

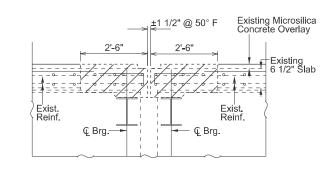


# PIER 4 SHOWING CONCRETE REMOVAL (PIER 1 SIMILAR)

PIER 1
SHOWING CONCRETE PLACEMENT
(PIER 4 SIMILAR)

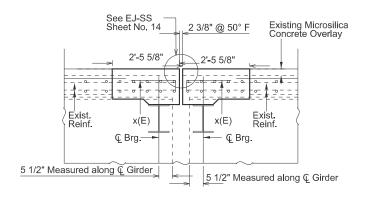


**SECTION THROUGH PARAPET** 



#### SECTION A-A

(Dimensions are at Right Angles)



#### **SECTION B-B**

(Dimensions are at Right Angles)

#### **BILL OF MATERIAL**

(Pier 1 and Pier 4)

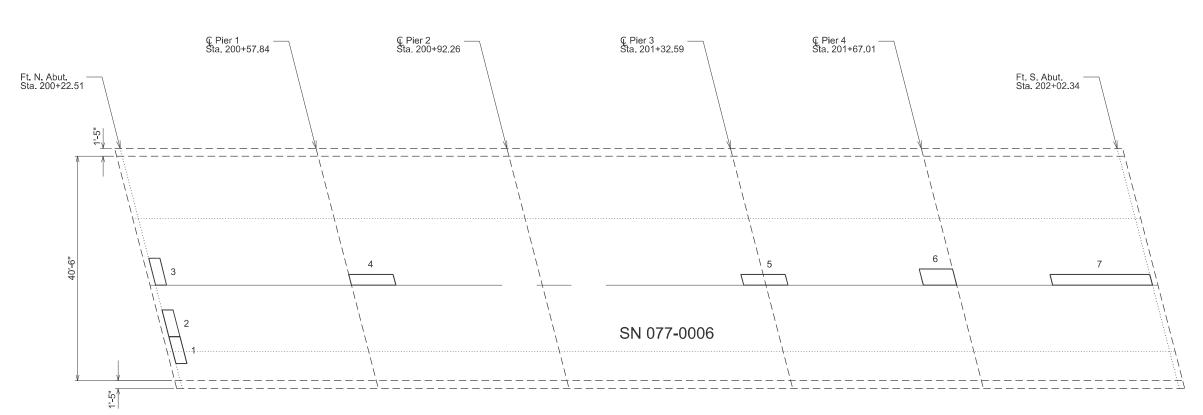
Bar	No.	Size Length/Unit		Shape/Quantity
a(E)	32	#6	3'-1"	-
a1(E)	40	#5	21'-5"	
a2(E)	40	#5	22'-6"	
d(E)	32	#4	5'-9"	
d1(E)	32	#5	4'-1"	
x(E)	168	#5	2'-11"	_
Bar Splicer	Bar Splicer			40
Concrete Removal			Cu. Yd.	17.9
Concrete Superstructure			Cu. Yd.	17.6
Reinforceme	Reinforcement Bars, Epoxy Coated			2750

Notes:

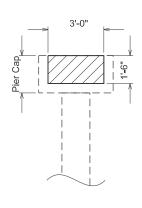
As built microsilica overlay varies up to approx. 60% thicker than the thickness shown in existing plans



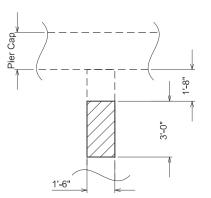
SER NAME = stephen.dillard DESIGNED -REVISED **JOINT RECONSTRUCTION DETAILS** SECTION COUNTY STATE OF ILLINOIS DRAWN REVISED Pulaski D9 Bridge Repair 2025-2 22 11 SN 077-0006 **DEPARTMENT OF TRANSPORTATION** CHECKED REVISED CONTRACT NO. 78A77 PLOT DATE = 7/24/2024 SCALE: SHEET OF 22 SHEETS STA. TO STA. DATE REVISED



#### **DECK SLAB REPAIR**







PIER 1, PILE 3 REPAIR

Looking North

(Third Pile, Going W to E)

#### North Bound Repair

Number	Length (Ft.)	Width (Ft.)	Area (Sq. Yd.
1	2	5	1.1
2	2	5	1.1
3	2	5	1.1
4	8	2	1.8
5	8	2	1.8
6	6	3	2.0
7	18	2	4.0
١	12.9		

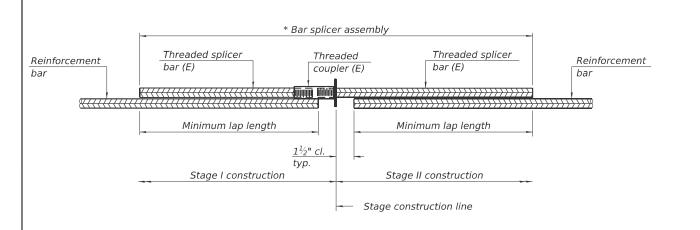
#### **BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Deck Slab Repair (Full Depth, Type II)	Sq. Yd.	13
Structural Repair of Concrete < 5"	Sq. Ft.	9

Notes:
The Engineer will determine final patch locations and quantities in the field before bridge deck patching operations begin As built microsilica overlay varies up to approx. 60% thicker than the thickness shown in existing plans



USER NAME = stephen.dillard	DESIGNED -	REVISED -			DECK SLAB AND SUBSTRUCTURE REPAIR		F.A.I RTE	SECTION	COUNTY	TOTAL S	HEET
	DRAWN -	REVISED -	STATE OF ILLINOIS				57	D9 Bridge Repair 2025-2	Pulaski	22	12
	CHECKED -	REVISED -	DEPARTMENT OF TRANSPORTATION	SN 077-0006				CONTRAC	T NO. 78A7	7	
PLOT DATE = 7/24/2024	DATE -	REVISED -		SCALE: SHEET OF 22 SHEETS STA, TO STA.			ILLINOIS FED. AI	D PROJECT			



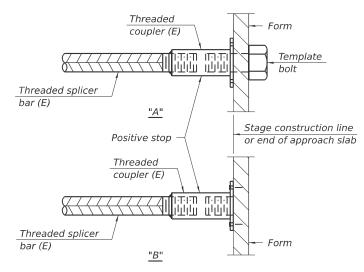
#### STANDARD BAR SPLICER ASSEMBLY PLAN

Only bar splicer assemblies as presented on the approved QPL list may be used.

Threaded splicer bar length = min. lap length +  $1\frac{1}{2}$ " + thread length

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

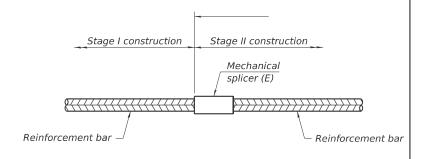
Location	Bar	No. assemblies	Minimum
Location	size	required	lap length
S.N. 077-0005 Deck	#5	60	3'-6"
S.N. 077-0005 Hatchblock	#5	8	3'-6"
S.N. 077-0006 Deck	#5	60	3'-6"
S.N. 077-0006 Hatchblock	#5	8	3'-6"



#### **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

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.

TO STA.

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

5-15-2023

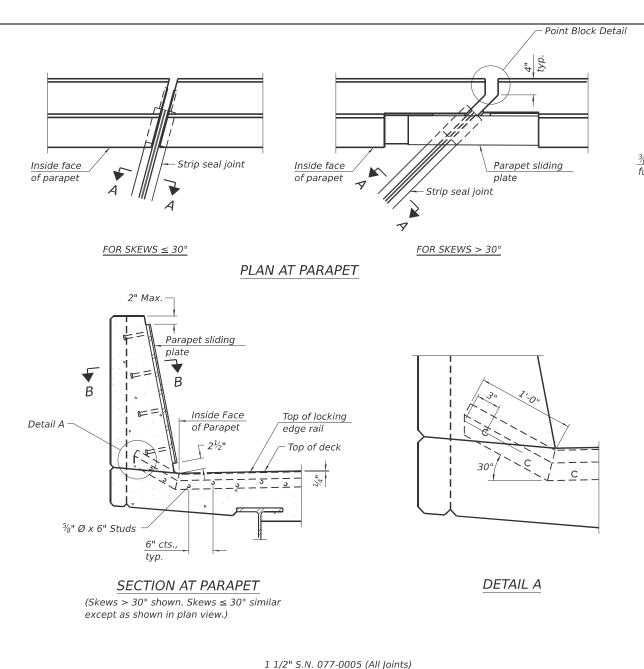
USER NAME = stephen.dillard	DESIGNED -	REVISED -
	DRAWN -	REVISED -
	CHECKED -	REVISED -
PLOT DATE = 7/24/2024	DATE -	REVISED -

STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION** 

			ASSEME 06 & SN		
SHEET	OF	22	SHEETS	STA.	

SCALE:

SECTION COUNTY D9 Bridge Repair 2025-2 Pulaski 22 13 CONTRACT NO. 78A77



1 1/2" S.N. 077-0006 (All Joints)

- Strip seal

at 50° F

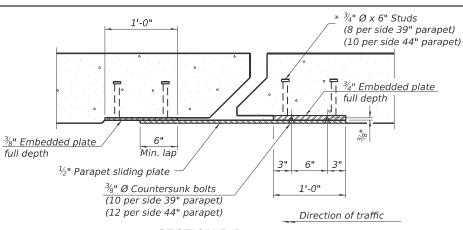
2 3/8" S.N. 077-0005 (All Joints)

2 3/8" S.N. 077-0006 (All Joints)

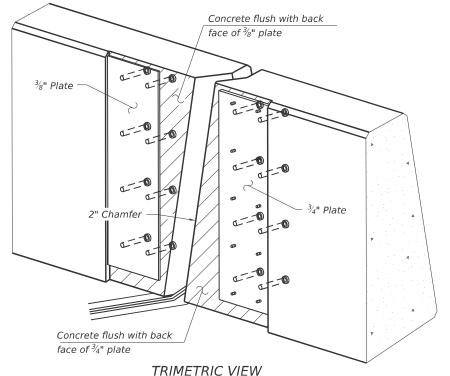
SHOWING ROLLED RAIL JOINT

at 50° F

5-15-2023



#### SECTION B-B



#### Notes:

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

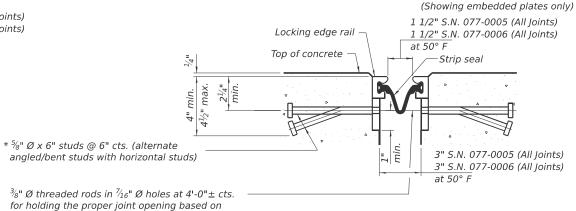
The Maximum space between locking edge rail segments shall be c" and sealed with a suitable sealant; however, any rail joint within 10' measured perpendicular to the face of the curb or parapet shall be welded as shown in the locking edge rail splice detail.

Cost of parapet sliding plates, embedded plates, and anchorage studs included with Preformed Joint Strip Seal. 39" constant slope barrier shown, 44" constant slope barrier

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.

#### TRIMETRIC VIEW

SCALE:



# 3/8"

11/4"

<u>ROLLED</u>

# (EXTRUDED) RAIL

LOCKING EDGE RAILS

\*\* Back gouge not required if complete joint

penetration is verified by mock-up.

#### WELDED RAIL

TO STA.

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

LOCKING EDGE RAIL SPLICE

#### BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	360

#### miss studs. All rods shall be burned, or sawed off flush with the plates after concrete is set.

\* Granular or solid flux filled headed studs

the temperature during the deck pour. Place to

#### SECTION A-A

conforming to Article 1006.32 of the Std. Specs., automatically end welded.

REVISED

REVISED

REVISED

REVISED

#### **STATE OF ILLINOIS**

SHOWING WELDED RAIL JOINT

#### PREFORMED JOINT STRIP SEALS SN 077-0006 & SN 077-0005

OF 22 SHEETS STA.

F.A.I RTE.	SEC <sup>-</sup>	TION		COUNTY	TOTAL SHEETS	SHEE NO.
57	D9 Bridge Repair 2025-2		Pulaski	22	14	
				CONTRACT	NO. 78	477
		ILLINOIS	FED. AII	PROJECT		

EJ-SS

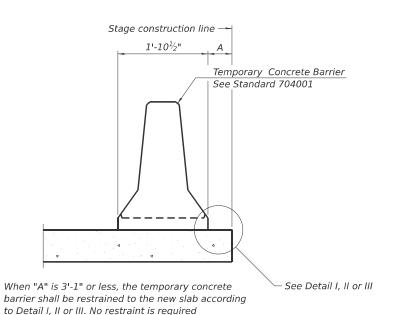
JSER NAME = stephen.dillard DESIGNED . DRAWN HECKED PLOT DATE = 7/24/2024

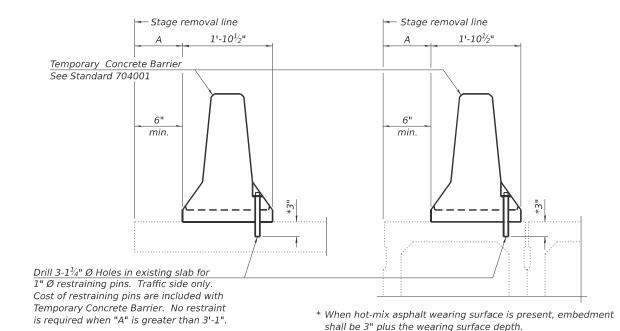
DATE

Locking edge rail

Top of concrete

**DEPARTMENT OF TRANSPORTATION** 





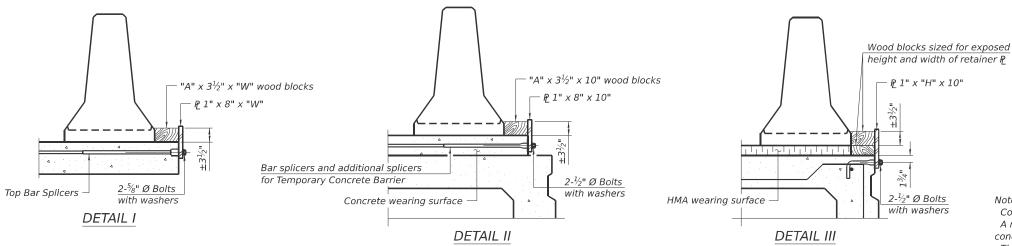
 $7/_{16}$ " Ø hole US Std.  $1\frac{1}{16}$ " I.D.  $\times 2\frac{1}{2}$ " O.D. x approx. 8 gauge thick washer RESTRAINING PIN

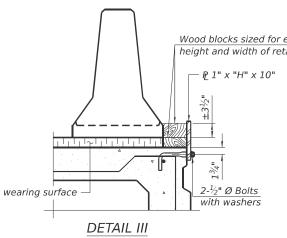
#### NEW SLAB OR NEW DECK BEAM

when "A" is greater than 3'-1".

#### EXISTING DECK BEAM

#### SECTIONS THRU SLAB OR DECK BEAM







Cost of retainer assembly is included with Temporary Concrete Barrier. A retainer assembly shall be located at the approximate  $\mathcal Q$  of each temporary concrete barrier.

The retainer plate shall not be removed until the concrete on the adjacent stage is ready to be poured. For Detail III applications the retainer plate shall not be removed until just prior to placing the adjacent beam.

When the 'A' dimension is less than  $1\frac{1}{2}$ ", the wood block shall be omitted and the barrier shall be placed in direct contact with the steel retainer plate. For deck beam applications the minimum required 'A' distance is 6" to accommodate the shear key clamping device.

Detail I - Installation for a new bridge deck or bridge slab.

Detail II - Installation for a new deck beam with an initial concrete wearing surface. Additional bar splicers shall be provided at 6'-0" centers and paired with the bar splicers of the concrete wearing surface reinforcement to accommodate the installation of the retainer assemblies. The cost of the additional bar splicers is included with the concrete wearing surface.

Detail III - Installation for a new deck beam with no initial wearing surface or with an initial hot-mix asphalt (HMA) wearing surface present. The deck beam directly beneath the temporary concrete barrier shall be fabricated with bar splicer inserts in the side of the beam, as detailed, to accommodate the installation of the retainer assemblies. A pair of bar splicers, 6" apart, shall be placed at 6'-0" centers along the length of the beam. The cost of the bar splicers is included with the deck beam.

	"W"	_ Detail I
	10"	Detail II
	2" Top bars Spa. 2'	-
	6"	Detail II
+ +		┪
8""		
17/4"	$\bigcirc$	
		<del></del>
	-	- € %" Ø Holes

#### RAILING CRITERIA

10 1121110 0111121	
NCHRP 350 Test Level	3
Railing Weight (plf)	440

R-27 5-15-2023



#### STEEL RETAINER P 1" x "H" x 10" (Detail III)

← Ç ¾" Ø Holes

SCALE:

SHEET

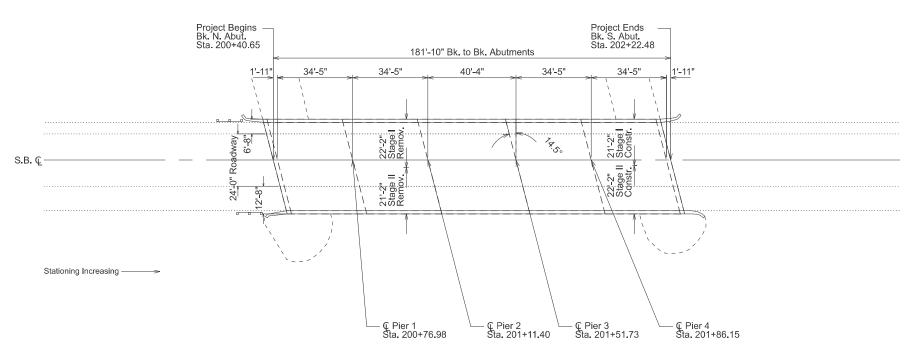
10"

USER NAME = stephen.dillard	DESIGNED -	REVISED -
	DRAWN -	REVISED -
	CHECKED -	REVISED -
PLOT DATE = 7/24/2024	DATE -	REVISED -

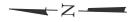
**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION** 

TEMPORARY CONCRETE BARRIER					F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
SN 077-0006 & SN 077-0005				57	D9 Bridge Repair 2025-2	Pulaski 22		15	
				1			CONTRAC	ΓNO. 78	477
HEET	OF 22	SHEETS	STA.	TO STA.		ILLINOIS FED AL	D PROJECT		

#### **ELEVATION**



**PLAN** 



#### **DESIGN STRESSES**

(From Existing Plans)

Design Loading HS 20-44 Design Stresses fc=3,500 psi fy=60,000psi (Reinf.)

(New)

f'c=4,000 psi fy=60,000psi (Reinf.)



EXPIRES 11-30-2024

SCALE:

SHEET

#### SCOPE OF WORK

Concrete Removal Concrete Superstructure Deck Slab Repair (Full Depth) Structural Repair of Concrete Preformed Joint Strip Seal

 USER NAME
 = stephen.dillard
 DESIGNED
 REVISED

 DRAWN
 REVISED

 CHECKED
 REVISED

 PLOT DATE
 = 7/24/2024
 DATE
 REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

 GENERAL PLAN & ELEVATION
 F.A.I. RTE.
 SECTION

 SN 077-0005
 57
 D9 Bridge Repair 2025-2

#### **GENERAL NOTES**

Reinforcement bars designated (E) shall be epoxy coated.

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 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 paid for according to Article 109.04 of the Standard Specifications.

Plan dimensions and details relative to the existing structure have been taken from the existing plans and 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.

Existing reinforcement bars extending into the removal area shall be cleaned, straightened and incorporated into the new construction. Any reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system at the contractor's expense.

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

#### **TOTAL BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Bar Splicers	Each	68
Concrete Removal	Cu. Yd.	34.5
Concrete Superstructure	Cu. Yd.	34.0
Deck Slab Repair (Full Depth, Type II)	Sq. Yd.	39
Preformed Joint Strip Seal	Foot	180
Protective Coat	Sq. Yd.	130
Reinforcement Bars, Epoxy Coated	Pound	4770
Relocate Temporary Concrete Barrier	Foot	350
Structural Repair of Concrete (Depth < 5")	Sq. Ft.	5
Temporary Concrete Barrier	Foot	412.5

GENERAL PLAN & ELEVATION

I-57 S.B. OVER CACHE RIVER

FAI ROUTE 57 - D9 BRIDGE REPAIR 2025-2

PULASKI COUNTY

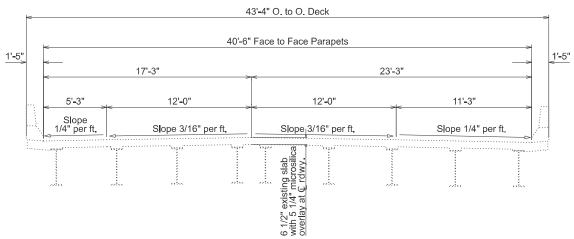
STRUCTURE NO. 077-0005

COUNTY

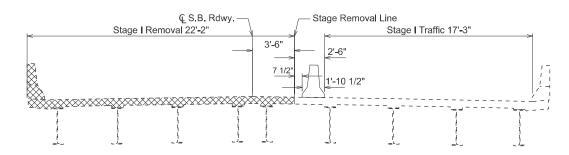
Pulaski

22

CONTRACT NO. 78A77

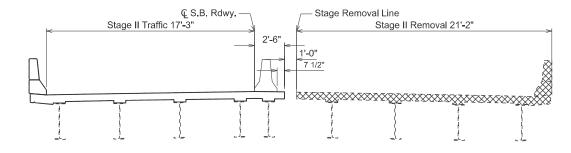


#### TYPICAL CROSS SECTION - EXISTING



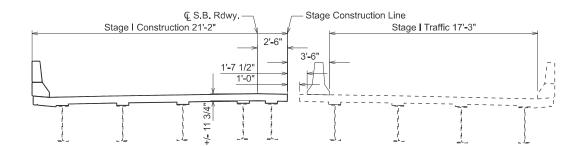
#### **STAGE I REMOVAL**

(AT JOINT LOCATIONS ONLY)



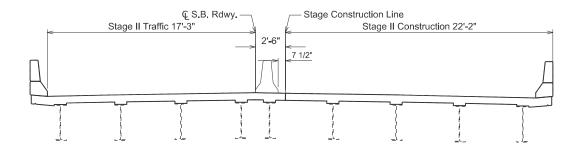
#### **STAGE II REMOVAL**

(AT JOINT LOCATIONS ONLY)



#### **STAGE I CONSTRUCTION**

(AT JOINT LOCATIONS ONLY)



#### STAGE II CONSTRUCTION

(AT JOINT LOCATIONS ONLY)

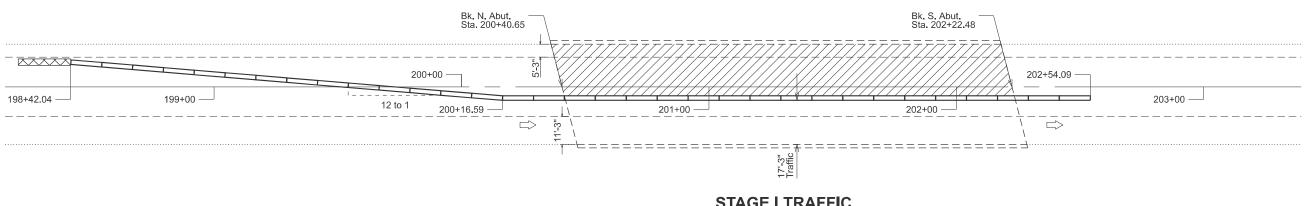
Notes:

All Sections Looking South

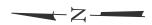
As built microsilica overlay varies up to approx. 80% thicker than the thickness shown in existing plans

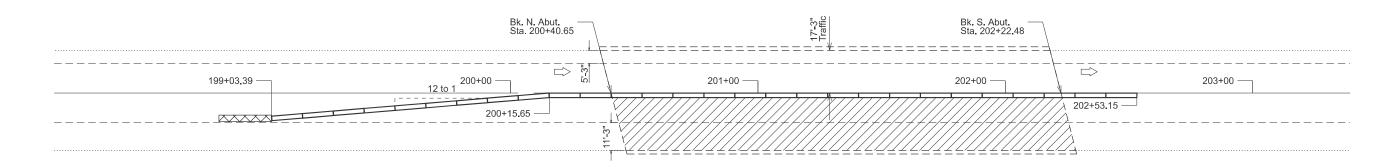


JSER NAME = stephen.dillard DESIGNED -REVISED SECTION TYPICAL SECTIONS STATE OF ILLINOIS DRAWN REVISED D9 Bridge Repair 2025-2 Pulaski 22 17 SN 077-0005 CHECKED . REVISED **DEPARTMENT OF TRANSPORTATION** CONTRACT NO. 78A77 PLOT DATE = 7/24/2024 SCALE: SHEET OF 22 SHEETS STA. TO STA. DATE REVISED

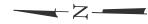


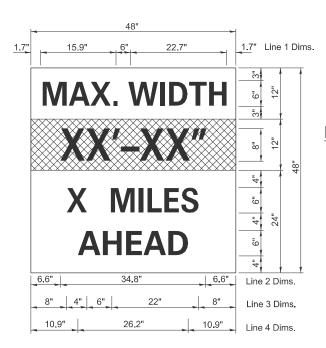
#### **STAGE I TRAFFIC**





#### **STAGE II TRAFFIC**





#### W12-I103

W12-I103, No Border "MAX WIDTH" 6D, No Border, Black on White "XX'-XX"" 8D, No Border, Black on Orange "X MILES" 6D, No Border, Black on White "AHEAD" 6D, No Border, Black on White

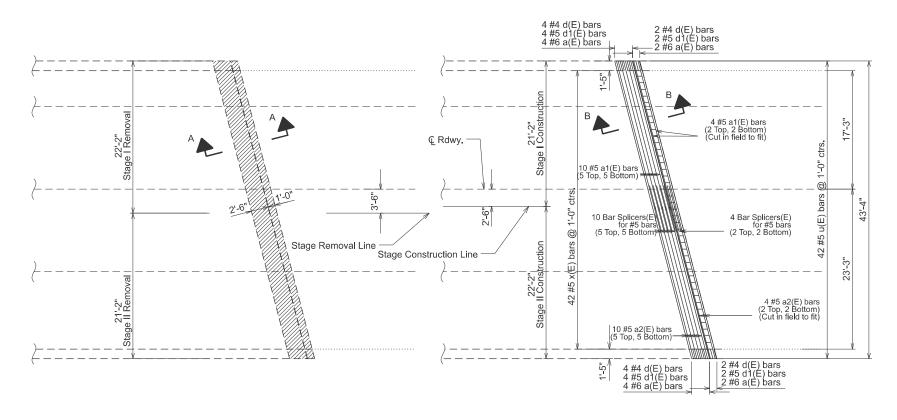
#### **Notes for Max Width Sign:**

- 1. Install a Max Width Sign each direction on I 57 to give traffic approaching work zone enough advance notice to change routes if needed. Exact locations as directed by engineer.
- 2. The contractor shall furnish the posts and erect the signs at the locations directed by the engineer. All signs shall be post mounted.
- 3. The noted work, including signs, posts, hardware and labor shall be included in the contract unit price, each, for Traffic Control and Protection, Std. 701402, no other compensation will be allowed.
- 4. The width shown on the W12-I103 sign shall be 18" less than what is shown in the staged lane widths or as directed by
- 5. The "X" MILES AHEAD will be determined by the engineer.



Impact Attenuator

USER NAME = stephen.dillard	DESIGNED -	REVISED -				ST	ΓΔGIN	IG PLAN		F.A.I RTF	SECTION	COUNTY	TOTAL	SHEET
	DRAWN -	REVISED -	STATE OF ILLINOIS							57	D9 Bridge Repair 2025-2	Pulaski	22	18
	CHECKED -	REVISED -	DEPARTMENT OF TRANSPORTATION			2	N U/	7-0005			<u> </u>	CONTRACT	「NO. 78₽	477
PLOT DATE = 7/24/2024	DATE -	REVISED -		SCALE:	SHEET	OF 2	22 SI	HEETS ST	A. TO STA		ILLINOIS FED. AI	D PROJECT		



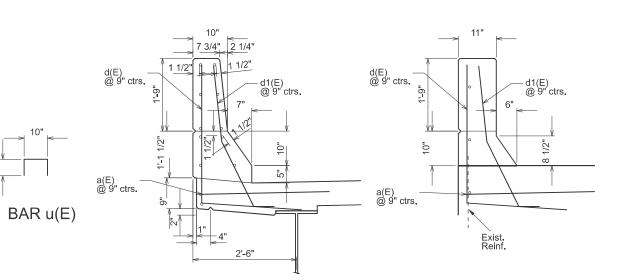
**JOINT AT SOUTH ABUTMENT** 

SHOWING CONCRETE REMOVAL

BAR d1(E)

BARx(E)

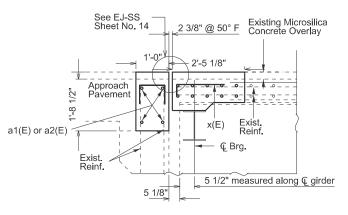
# JOINT AT SOUTH ABUTMENT SHOWING CONCRETE PLACEMENT



# Approach Pavement Exist. 3" Exist. Reinf. Existing Microsilica Concrete Overlay Existing 6 1/2" Slai

#### SECTION A-A

(Dimensions are at Right Angles)



#### **SECTION B-B**

(Dimensions are at Right Angles)

#### **BILL OF MATERIAL**

(South Abutment Only)

(County to different only)									
Bar	No.	Size	Length/Unit	Shape/Quantity					
a(E)	12	#6	3'-1"	-					
a1(E)	14	#5	21'-5"						
a2(E)	14	#5	22'-6"						
d(E)	12	#4	5'-9"						
d1(E)	12	#5	4'-1"	_					
u(E)	42	#5	2'-0"	п					
x(E)	42	#5	2'-11"	٦					
Bar Splicer			Each	14					
-		Cu. Yd.	7.8						
Concrete Superstructure			Cu. Yd.	7.7					
Reinforcement Bars, Epoxy Coated			Pound	1010					

#### SECTION THROUGH PARAPET SECTION THROUGH WINGWALL

(N. side of abut.) (S. side of abut.)

Notes:

As built microsilica overlay varies up to approx. 80% thicker than the thickness shown in existing plans

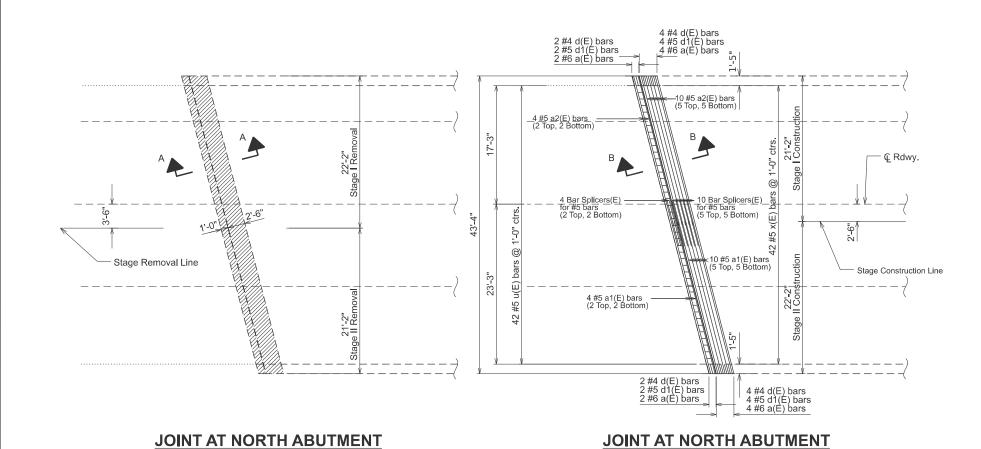
Concrete Removal
Concrete Removal

USER NAME = stephen.dillard	DESIGNED -	REVISED -			JOINT	RECONSTRUCT	<b>ION DETAILS</b>		RTE.	SECTION	COUNTY	SHEETS	NO.
	DRAWN -	REVISED -	STATE OF ILLINOIS						57	D9 Bridge Repair 2025-2	Pulaski	22	19
	CHECKED -	REVISED -	DEPARTMENT OF TRANSPORTATION			SN 077-000	Jo				CONTRACT	NO. 78A7	7
PLOT DATE = 7/24/2024	DATE -	REVISED -		SCALE:	SHEET	OF 22 SHEETS	STA.	TO STA.		ILLINOIS FED. AID	D PROJECT		

:: C:\pw\_work\pwidot\lillinols.gov\_stepnen.dlilafd@illinols.gov\du963:

2'-5"

BAR d(E)



\_\_\_Z\_\_\_

**SHOWING CONCRETE REMOVAL** 

# 

SHOWING CONCRETE PLACEMENT

#### **SECTION THROUGH PARAPET**

#### **BILL OF MATERIAL**

(North Abutment Only)

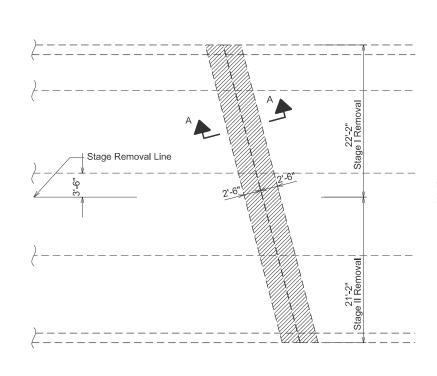
(vorum)								
Bar	No.	Size	Length/Unit	Shape/Quantity				
a(E)	12	#6	3'-1"	-				
a1(E)	14	#5	21'-5"					
a2(E)	14	#5	22'-6"					
d(E)	12	#4	5'-9"					
d1(E)	12	#5	4'-1"					
u(E)	42	#5	2'-0"	п				
x(E)	42	#5	2'-11"	٦				
Bar Splicer			Each	14				
Concrete Removal			Cu. Yd.	8.0				
Concrete Su	uperstructure	Cu. Yd.	7.9					
Reinforceme	ent Bars, Ep	oxy Coated	Pound	1010				

Notes:

As built microsilica overlay varies up to approx. 80% thicker than the thickness shown in existing plans

Concrete Remova
-----------------

USER NAME = stephen.dillard	DESIGNED -	REVISED -			JOINT	<b>RECONSTRUCTION DETAILS</b>		RTE.	SECTION	COUNTY	SHEETS	NO.
	DRAWN -	REVISED -	STATE OF ILLINOIS			SN 077-0005		57	D9 Bridge Repair 2025-2	Pulaski	22	20
	CHECKED -	REVISED -	DEPARTMENT OF TRANSPORTATION			3N 077-0003				CONTRAC	T NO. 78	477
PLOT DATE = 7/24/2024	DATE -	REVISED -		SCALE:	SHEET	OF 22 SHEETS STA.	TO STA.		ILLINOIS FED. A	D PROJECT		



4 #4 d(E) bars (2 Each side of joint)
4 #5 d1(E) bars (2 Each side of joint)
4 #6 a(E) bars (2 Each side of joint)

10 #5 a2(E) bars
(5 Top, 5 Bottom)

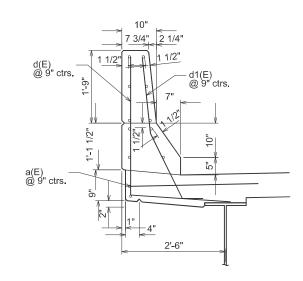
B

10 Bar Splicers(E)

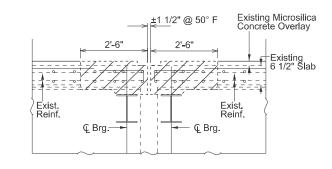
10 Bar Spli

PIER 4
SHOWING CONCRETE REMOVAL
(PIER 1 SIMILAR)

PIER 1
SHOWING CONCRETE PLACEMENT
(PIER 4 SIMILAR)

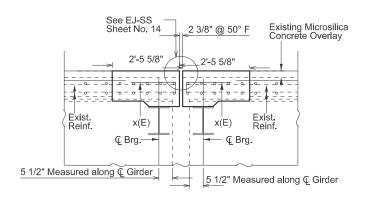


**SECTION THROUGH PARAPET** 



#### SECTION A-A

(Dimensions are at Right Angles)



#### **SECTION B-B**

(Dimensions are at Right Angles)

#### **BILL OF MATERIAL**

(Pier 1 and Pier 4)

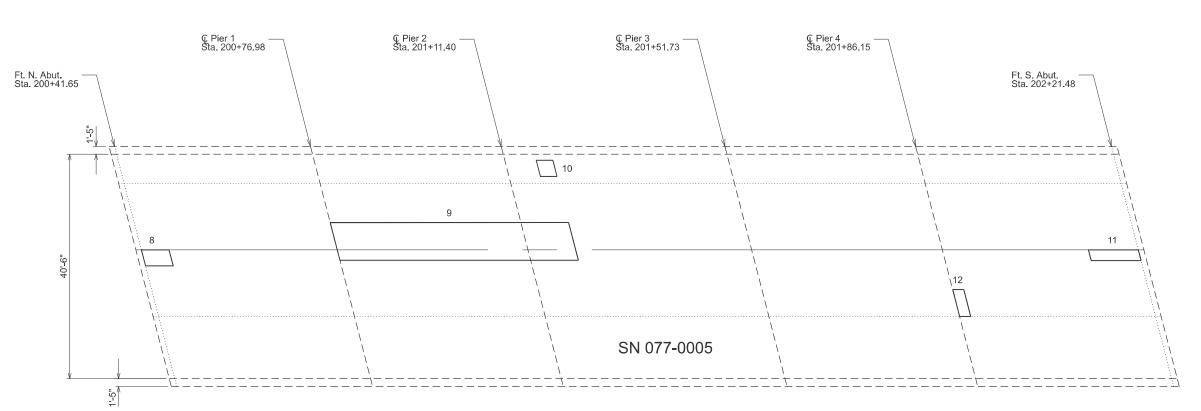
(Fig. 1 and Fig. 1)									
Bar No.		Size	Length/Unit	Shape/Quantity					
a(E)	a(E) 32 #6		3'-1"	-					
a1(E)	40	#5	21'-5"						
a2(E)	40	#5	22'-6"						
d(E) 32		#4	5'-9"						
d1(E) 32		#5	4'-1"	1					
x(E)	168	#5	2'-11"	٦					
Bar Splicer		Each	40						
Concrete R	emova <b>l</b>	Cu. Yd.	18.7						
Concrete Si	uperstructure	Cu. Yd.	18.4						
Reinforcem	ent Bars, Ep	Pound	2750						

Notes:

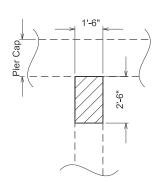
As built microsilica overlay varies up to approx. 80% thicker than the thickness shown in existing plans



SER NAME = stephen.dillard DESIGNED -REVISED **JOINT RECONSTRUCTION DETAILS** SECTION COUNTY STATE OF ILLINOIS DRAWN REVISED Pulaski 22 21 D9 Bridge Repair 2025-2 SN 077-0005 **DEPARTMENT OF TRANSPORTATION** CHECKED REVISED CONTRACT NO. 78A77 PLOT DATE = 7/24/2024 SCALE: SHEET OF 22 SHEETS STA. TO STA. DATE REVISED



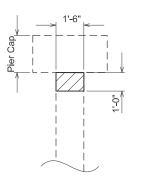
#### **DECK SLAB REPAIR**



PIER 4, PILE 3 REPAIR

Looking North

(Third Pile, Going W to E)



PIER 1, PILE 1 REPAIR

Looking East
(First Pile, Going W to E)

#### South Bound Repair

Number	Length (Ft.)	Width (Ft.)	Area (Sq. Yd.				
8	5	3	1.7				
9	43	7	33.4 1.0 2.0 1.1				
10	3	3					
11	9	2					
12	2	5					
S	39.2						

#### **BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Deck Slab Repair (Full Depth, Type II)	Sq. Yd.	39
Structural Repair of Concrete < 5"	Sq. Ft.	5

Notes:

The Engineer will determine final patch locations and quantities in the field before bridge deck patching operations begin

deck patching operations begin

The top flange of the beams within full depth patch #9
shall be sandblasted clean prior to placement
of new concrete and cost shall be included
in Concrete Removal

As built microsilica overlay varies up to approx. 60% thicker than the thickness shown in existing plans

/////	Structural Repair of Concrete < 5"
	of Concrete < 5"

USER NAME = stephen.dillard	DESIGNED -	REVISED -	DECI		DECK SLAB AND SUBSTRUCTURE REPAIR			F.A.I	SECTION	COUNTY	TOTAL	SHEET
	DRAWN -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ON ONE OFFI			57	D9 Bridge Repair 2025-2	Pulaski	22	22	
	CHECKED -	REVISED -		2M 0//-0002			-	CONTRACT			77	
PLOT DATE = 7/24/2024	DATE -	REVISED -		SCALE:	SHEET	OF 22 SHEETS	STA. TO STA.	_	ILLINOIS FED A	D PROJECT		