

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	1
ILLINOIS			CONTRACT NO. 76K57	

FOR INDEX OF SHEETS, SEE SHEET NO. 2
FOR LIST OF HIGHWAY STANDARDS, SEE SHEET NO. 2

DESIGN DESIGNATION
FAP ROUTE 10 (IL RT 267)
FEDERAL AIDE
ADT 2,050 (2019)
77.9% PV
8.3% SU
13.8% MU
DESIGN SPEED: 55 MPH

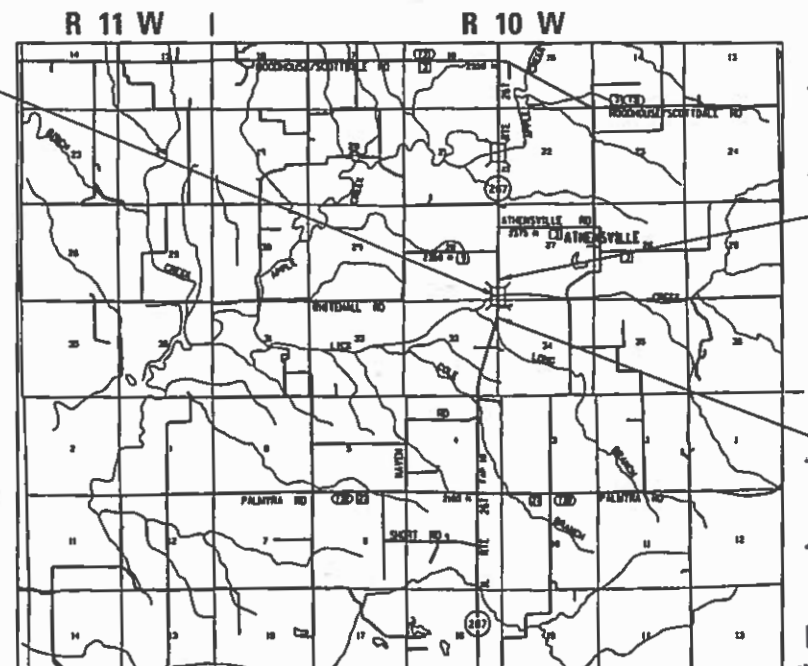
PROPOSED
HIGHWAY PLANS

FAP ROUTE 10 (IL RTE 267)
SECTION 3BR-1
PROJECT STP-BC9H(360)
BRIDGE DECK REPLACEMENT
GREENE COUNTY

C-98-277-18

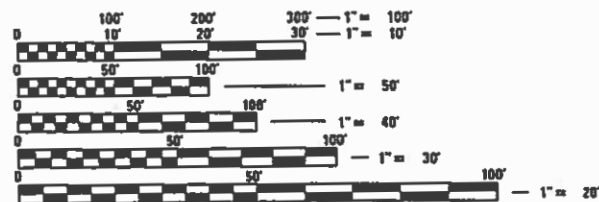


STA. 385 + 40.00
SN 031-0016
IL RT 267 OVER LICK CREEK
194'-5" BK TO BK ABUTMENTS
32"-6" 0-0
IMPROVEMENT INCLUDES
DECK REPLACEMENT



END SECTION
STA 388 + 58.42
LAT 39° 26' 58"
LON 90° 12' 28"

BEGIN SECTION
STA 382 + 21.25
LAT 39° 26' 52"
LON 90° 12' 28"



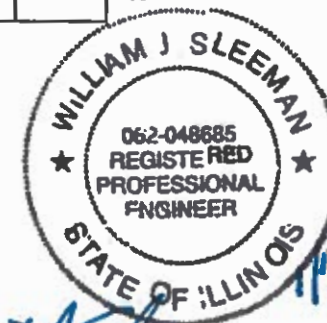
FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

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

PROJECT ENGINEER: TIM PADGETT (618) 346-3325
PROJECT MANAGER: PHIL FREIMUTH (618) 346-3194

CONTRACT NO. 76K57

GROSS LENGTH = 637.17 FT. = 0.121 MILE
NET LENGTH = 637.17 FT. = 0.121 MILE



STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED *Jan 18 2019*
Keith Roberts
REGIONAL ENGINEER

MAR 22 2019
[Signature]
ENGINEER OF DESIGN AND ENVIRONMENT

MAR 22 2019
[Signature]
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

[Signature]
EXPIRES 11-30-2019
BENTON & ASSOCIATES INC

INDEX OF SHEETS

1	COVER SHEET
2	INDEX OF SHEETS, GENERAL NOTES & HIGHWAY STANDARDS
3-8	SUMMARY OF QUANTITIES
9-10	TYPICAL SECTIONS
11	SCHEDULE OF QUANTITIES
12	ALIGNMENT, TIES & BENCHMARKS
13-14	PLAN AND PROFILE IL ROUTE 267
15	WIDE LOAD SIGNING PLAN
16-35	STRUCTURAL SHEETS

GENERAL NOTES

- ALL ELEVATIONS SHOWN ON THE PLANS ARE BASED ON NAVD 88 DATUM.
- ILLINOIS STATE LAW REQUIRES A 48-HOUR NOTICE BE GIVEN TO ALL UTILITIES WITHIN THE PROJECT AREA BEFORE DIGGING. FIELD MARKING OF FACILITIES MAY BE OBTAINED BY CONTACTING J.U.L.I.E. OR FOR NON-MEMBERS, THE UTILITY COMPANY DIRECTLY. AGENCIES KNOWN TO HAVE FACILITIES WITHIN THE PROJECT AREA ARE AS FOLLOWS:
 - *FRONTIER COMMUNICATIONS - COMMUNICATIONS (AERIAL & BURIED)
 - *GREENE COUNTY RURAL WATER DISTRICT - POTABLE WATER (BURIED)

MEMBERS OF J.U.L.I.E. CALL TOLL FREE (800) 892-0123 OR 811 AND ARE INDICATED BY AN *. NON-J.U.L.I.E. MEMBERS MUST BE NOTIFIED INDIVIDUALLY.
- THE THICKNESS OF THE HOT-MIX ASPHALT MIXTURE SHOWN ON THE PLANS IS THE NOMINAL THICKNESS. DEVIATIONS FROM THE NOMINAL THICKNESS WILL BE PERMITTED WHEN SUCH DEVIATIONS OCCUR DUE TO IRREGULARITIES IN THE EXISTING SURFACE OR BASE ON WHICH THE BITUMINOUS MIXTURE IS PLACED.
- PLAN DIMENSIONS AND DETAILS RELATIVE TO EXISTING PLANS ARE SUBJECT TO VARIATIONS FOUND IN THE FIELD. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS. ANY ADJUSTMENTS PROPOSED BY THE CONTRACTOR MUST BE APPROVED BY THE ENGINEER. SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION FOR A CHANGE IN THE SCOPE OF WORK, HOWEVER, THE CONTRACTOR WILL BE PAID FOR THE QUANTITY ACTUALLY FURNISHED BASED UPON THE UNIT PRICES.
- EXCEPT WHERE DESIGNATED OTHERWISE, THE LOCATIONS AND/OR DEPTHS OF UNDERGROUND UTILITIES SHOWN HAVE BEEN TAKEN FROM OFFICE RECORD INFORMATION FURNISHED BY THE UTILITY OWNERS AND MUST BE CONSIDERED APPROXIMATE.
- A QUANTITY OF 925 FEET OF TEMPORARY PAVEMENT MARKING LINE 6" YELLOW HAS BEEN INCLUDED IN THE PLANS FOR PAINTING THE BOTTOM VERTICAL 6" OF THE TEMPORARY CONCRETE BARRIER ON BOTH SIDES.
- TWO CHANGEABLE MESSAGE SIGNS SHALL BE PROVIDED ALONG IL ROUTE 267 TO ALERT DRIVERS OF THE ROAD CONSTRUCTION. CHANGEABLE MESSAGE SIGNS SHALL BE PLACED 14 DAYS PRIOR TO BEGINNING ANY WORK. EXACT LOCATIONS OF THE CHANGEABLE MESSAGE SIGN SHALL BE DETERMINED BY THE ENGINEER.
- THE INSTALLATION OF TEMPORARY BRIDGE SIGNALS, STOP BARS, TEMPORARY RUMBLE STRIPS, ADVANCE CONSTRUCTION AHEAD SIGNAGE, ETC. AS SHOWN ON HIGHWAY STANDARD 701321 SHALL BE INSTALLED ONCE TO ACCOMMODATE BOTH STAGE I AND II CONSTRUCTION.

HIGHWAY STANDARDS

000001-07	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF AN INCH AND OF A FOOT
280001-07	TEMPORARY EROSION CONTROL SYSTEMS
442101-09	CLASS B PATCHES
515001-03	NAME PLATE FOR BRIDGES
630001-12	STEEL PLATE BEAM GUARDRAIL
630301-09	SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
631032-09	TRAFFIC BARRIER TERMINAL, TYPE 6A
642006	SHOULDER RUMBLE STRIPS, 8 IN.
701001-02	OFF-RD OPERATIONS, 2L, 2W, MORE THAN 15' AWAY
701006-05	OFF-RD OPERATIONS, 2L, 2W, 15' TO 24" FROM PAVEMENT EDGE
701201-05	LANE CLOSURE, 2L, 2W, DAY ONLY FOR SPEEDS ≥ 45 MPH
701301-04	LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS
701321-17	LANE CLOSURE, 2L, 2W, BRIDGE REPAIR WITH BARRIER
701326-04	LANE CLOSURE, 2L, 2W, PAVEMENT WIDENING FOR SPEEDS ≥ 45 MPH
701901-08	TRAFFIC CONTROL DEVICES
704001-08	TEMPORARY CONCRETE BARRIER
725001-01	OBJECT AND TERMINAL MARKERS
780001-05	TYPICAL PAVEMENT MARKINGS
782006	GUARDRAIL AND BARRIER WALL REFLECTOR MOUNTING DETAILS

COMMITMENTS:

COMMITMENTS FOR THIS PROJECT ARE AS FOLLOWS:

NONE

MIXTURE REQUIREMENTS

ROUTE	FAP 10 (IL 267)
SECTION	3BR-1
COUNTY	GREENE
CONTRACT	76K57

DESCRIPTION:	DECK REPLACEMENT - IL 267 OVER LICK CREEK S OF CH 9 - SN 031-0016
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ADT (CONST YR):	2000
MUP%:	13
SUP%	8
20 YR ESAL'S:	1.59

MIXTURE USE	SHOULDERS ≥ 2.25"	SHOULDERS ≤ 2.25"
AC/PG	PG 64-22	PG 64-22
RAP % (MAX)	SEE SPECIAL PROVISION	SEE SPECIAL PROVISION
DESIGN AIR VOIDS	4.0% @ Ndes=30	4.0% @ Ndes=30
MIX COMPOSITION (GRADATION)	IL 19.0L	IL 9.5L
FRICTION AGG		
QUALITY MGMT PROGRAM	QC/QA	QC/QA

FILE NAME =	USER NAME = mmcevers	DESIGNED - W. SLEEMAN	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	INDEX OF SHEETS, GENERAL NOTES & HIGHWAY STANDARDS	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
P:\10E2166-29\FAP 10 IL 267 3BR-1 Lick Creek 76K57	D:\DD Sheets\10E2166-29\FAP 10 IL 267 3BR-1 Lick Creek 76K57	DRAWN - W. SLEEMAN	REVISED -			10	3BR-1	GREENE	35	2	
Default	PLOT SCALE = 100,0000' / in.	CHECKED - M. McEVERS	REVISED -			CONTRACT NO. 76K57					
	PLOT DATE = 1/11/2019	DATE - 1/2019	REVISED -			SCALE:	SHEET 1 OF 1 SHEETS	STA.	TO STA.	ILLINOIS FED. AID PROJECT	

MODEL D:\d46\it
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CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE	
				BRIDGE	
				0013	
				SN 031-0016	
20200100	EARTH EXCAVATION	CU YD	50	50	
28100109	STONE RIPRAP, CLASS A5	SQ YD	895	895	
28200200	FILTER FABRIC	SQ YD	915	915	
40600290	BITUMINOUS MATERIALS (TACK COAT)	POUND	157	157	
44000100	PAVEMENT REMOVAL	SQ YD	31	31	
44004250	PAVED SHOULDER REMOVAL	SQ YD	212	212	
44213200	SAW CUTS	FOOT	141	141	
44213208	TIE BARS 1¼"	EACH	40	40	
48101200	AGGREGATE SHOULDERS, TYPE B	TON	61	61	
48102100	AGGREGATE WEDGE SHOULDERS, TYPE B	TON	5	5	
48203037	HOT-MIX SHOULDERS, 10"	SQ YD	316	316	
50102400	CONCRETE REMOVAL	CU YD	6.7	6.7	
50104720	REMOVAL OF EXISTING CONCRETE DECK	EACH	1	1	
50200100	STRUCTURE EXCAVATION	CU YD	7.0	7.0	

USER NAME = mmcevers	DESIGNED - W. SLEEMAN	REVISED - 1/29/2019
PLOT SCALE = 100.0000 ' / in.	DRAWN - W. SLEEMAN	REVISED -
PLOT DATE = 1/29/2019	CHECKED - M. McEVERS	REVISED -
	DATE - 1/2019	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

SCALE: SHEET 1 OF 6 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	3
			CONTRACT NO. 76K57	
		ILLINOIS	FED. AID PROJECT	

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CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE	
				BRIDGE	
				0013	
				SN 031-0016	
50300225	CONCRETE STRUCTURES	CU YD	3.7	3.7	
50300255	CONCRETE SUPERSTRUCTURE	CU YD	175	175	
50300260	BRIDGE DECK GROOVING	SQ YD	470	470	
50300300	PROTECTIVE COAT	SQ YD	694	694	
50500405	FURNISHING AND ERECTING STRUCTURAL STEEL	POUND	4750	4750	
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	44,370	44,370	
50800515	BAR SPLICERS	EACH	565	565	
50901050	STEEL RAILING, TYPE SM	FOOT	386	386	
51500100	NAME PLATES	EACH	1	1	
52000110	PREFORMED JOINT STRIP SEAL	FOOT	65	65	
52100010	ELASTOMERIC BEARING ASSEMBLY, TYPE I	EACH	6	6	
52100020	ELASTOMERIC BEARING ASSEMBLY, TYPE II	EACH	6	6	
52100505	ANCHOR BOLTS 5/8"	EACH	24	24	
52200010	TEMPORARY SHEET PILING	SQ FT	103	103	

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

SUMMARY OF QUANTITIES

USER NAME = mmcevers	DESIGNED - W. SLEEMAN	REVISED - 1/29/2019
PLOT SCALE = 100.0000' / in.	DRAWN - W. SLEEMAN	REVISIONS -
PLOT DATE = 1/29/2019	CHECKED - M. McEVERS	REVISIONS -
	DATE - 1/2019	REVISIONS -

SCALE:	SHEET 2	OF 6	SHEETS	STA.	TO STA.
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	4
CONTRACT NO. 76K57				
ILLINOIS FED. AID PROJECT				

REV. - MS

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CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE	
				BRIDGE	
				0013	
				SN 031-0016	
* 78200011	BARRIER WALL REFLECTORS, TYPE C	EACH	8	8	
78300200	RAISED REFLECTOR PAVEMENT MARKER REMOVAL	EACH	6	6	
X0327979	PAVEMENT MARKING REMOVAL - GRINDING	SQ FT	982	982	
* X2700006	PREFORMED PLASTIC PAVEMENT MARKING, TYPE D - LINE 4"	FOOT	473	473	
X4420682	CLASS B PATCHES, TYPE II, 10 INCH (SPECIAL)	SQ YD	44	44	
X7040125	PINNING TEMPORARY CONCRETE BARRIER	EACH	18	18	
X7200200	WIDE LOAD SIGNING	L SUM	1	1	
* X7830070	GROOVING FOR RECESSED PAVEMENT MARKING 5"	FOOT	473	473	
Z0001899	JACK AND REMOVE EXISTING BEARINGS	EACH	12	12	
Z0001903	STRUCTURAL STEEL REMOVAL	POUND	2960	2960	
Z0001905	STRUCTURAL STEEL REPAIR	POUND	1340	1340	
Z0005900	BRIDGE CURB OR HUBGUARD REPAIR	FOOT	16	16	

*** SPECIALTY ITEM**

USER NAME = mmcevers	DESIGNED - W. SLEEMAN	REVISED - 1/29/2019
	DRAWN - W. SLEEMAN	REVISED -
PLOT SCALE = 100.0000' / in.	CHECKED - M. MCEVERS	REVISED -
PLOT DATE = 1/29/2019	DATE - 1/2019	REVISED -

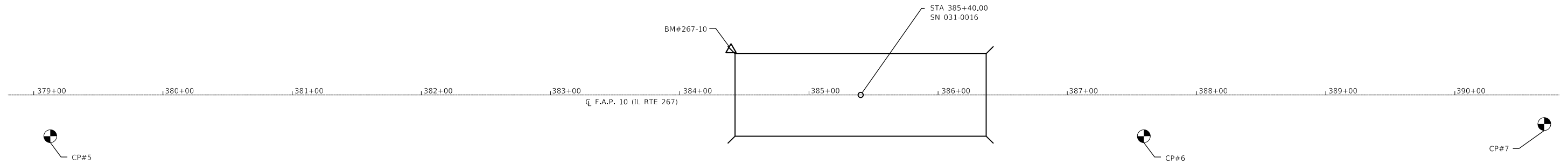
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

SUMMARY OF QUANTITIES

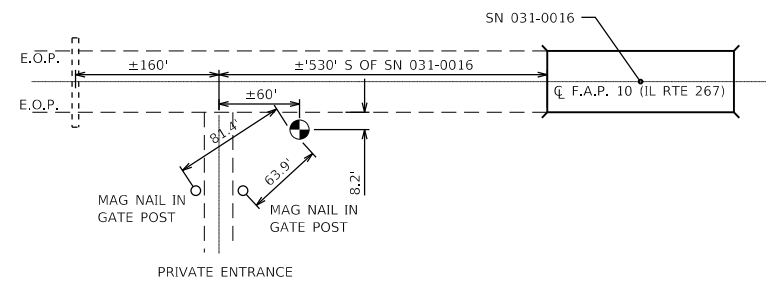
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10	3BR-1	GREENE	35	7
SCALE:			CONTRACT NO. 76K57	
SHEET 5	OF 6 SHEETS	STA.	TO STA.	
ILLINOIS FED. AID PROJECT				



NOT TO SCALE



NOT TO SCALE

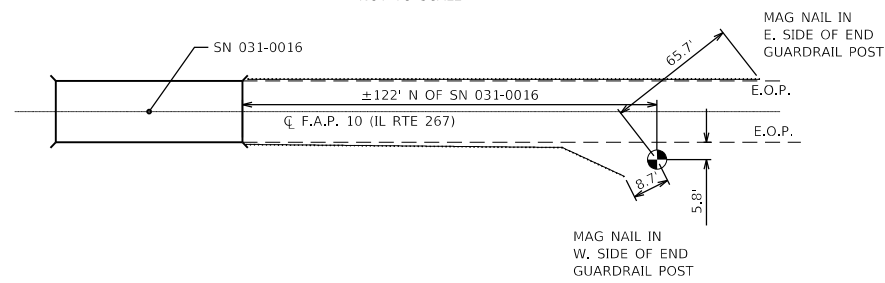


CP#5

5/8" REBAR
W/ IDOT CAP



NOT TO SCALE

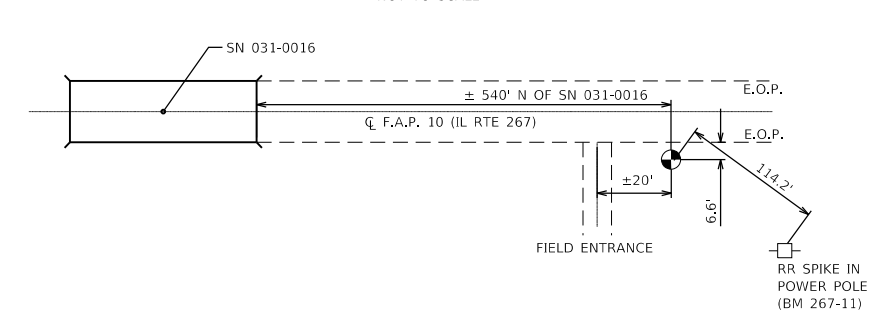


CP#6

5/8" REBAR
W/ IDOT CAP



NOT TO SCALE



CP#7

5/8" REBAR
W/ IDOT CAP

GROUND COORDINATES

DESCRIPTION	NORTHING	EASTING
FAP RTE. 10 (IL RT 267)		
CP#5	1012416.8690	285006.4365
CP#6	1013259.6846	285006.8238
CP#7	1013677.5719	285009.3205
POT STA 382+00.00	1012701.9849	284987.0892
POT STA 385+40.00	1013041.9839	284987.9208
POT STA 389+00.00	1013401.9829	284988.8012

BM-267-9 (NOT SHOWN ABOVE)
FOUND CUT "□", IN THE MIDDLE OF THE WEST SIDE OF A 4' x 4' BOX CULVERT, 0.5 MILES SOUTH OF LICK CREEK, 11' WEST OF E.O.P.
ELEV=523.886

BM-267-10
FOUND CUT "□", ON SW ABUTMENT WINGWALL OF SN 031-0016 ON IL 267 OVER LICK CREEK.
ELEV=524.94

BM-267-11 (NOT SHOWN ABOVE)
FOUND RR SPIKE IN WEST SIDE OF POWER POLE ON THE EAST SIDE OF IL 267, 650' OF THE NORTH END OF SN 031-0016, 70' EAST OF E.O.P.
ELEV=536.58

MODEL Dwg: ILL
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	DRAWN - W. SLEEMAN	REVISED -
PLOT SCALE = 200.0000' / in.	CHECKED - M. McEVERS	REVISED -
PLOT DATE = 1/11/2019	DATE - 1/2019	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

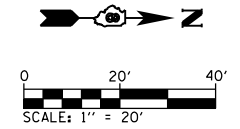
**ALIGNMENT, TIES
& BENCHMARKS**

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

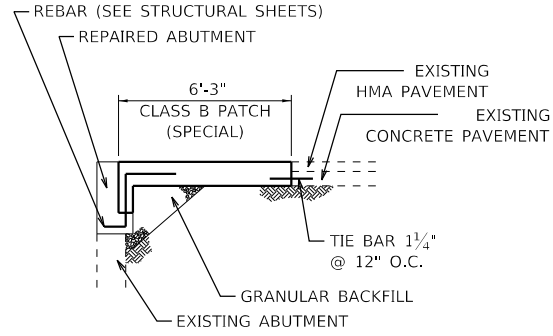
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	12
CONTRACT NO. 76K57				
ILLINOIS FED. AID PROJECT				

BM#9:
CHISELED SQUARE IN CENTER OF WEST SIDE
OF 4'x4' BOX CULVERT, 0.5 MILE SOUTH OF
LICK CREEK, 111' WEST OF EOP. ELEV=523.88

BM#10:
CHISELED SQUARE ON SOUTHWEST ABUTMENT
WINGWALL OF SN 031-0016 ON IL RTE 267
OVER LICK CREEK. ELEV=524.94

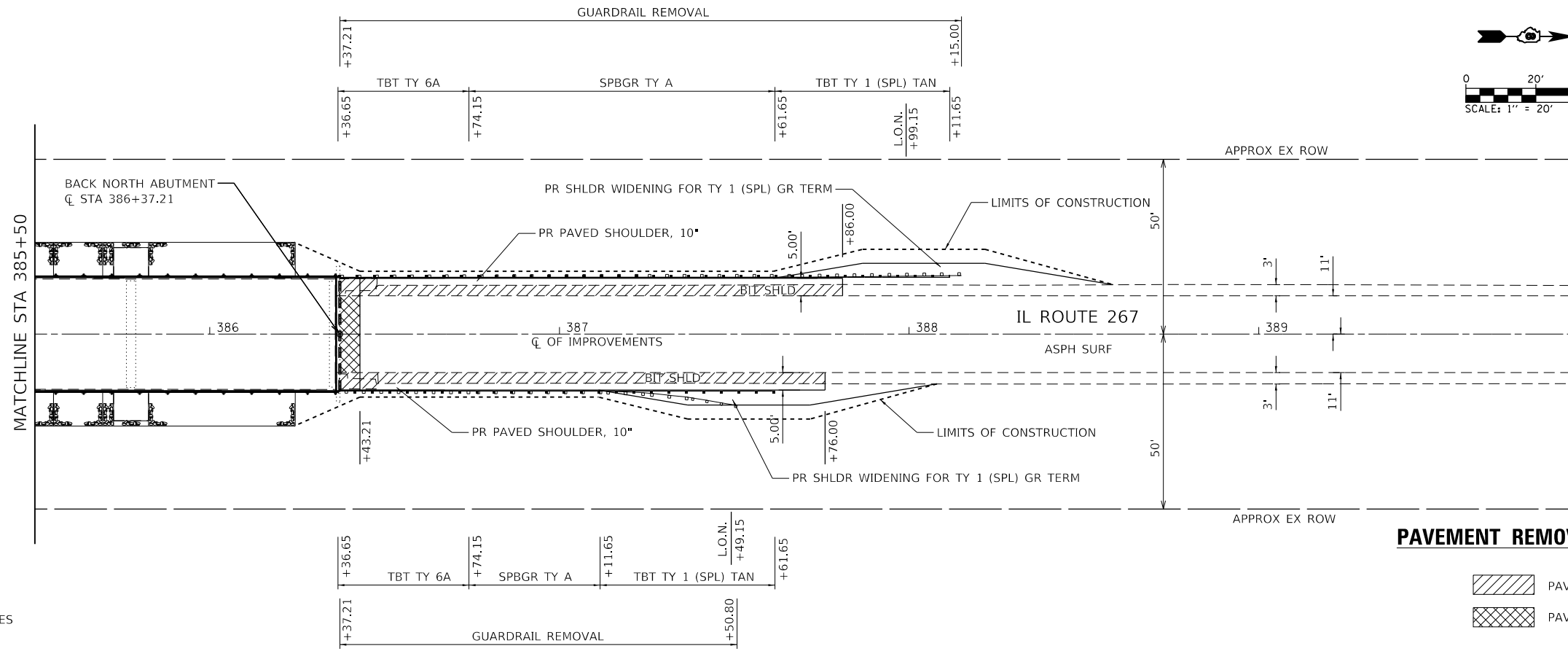


PLAN	SURVISED	DATE
	PLOTTED	
	ALIGNED	
	CHECKED	
	CADD FILE NAME	
	NO.	



**CLASS B PATCH
(SPECIAL) DETAIL - N. ABUT.**
N.T.S.

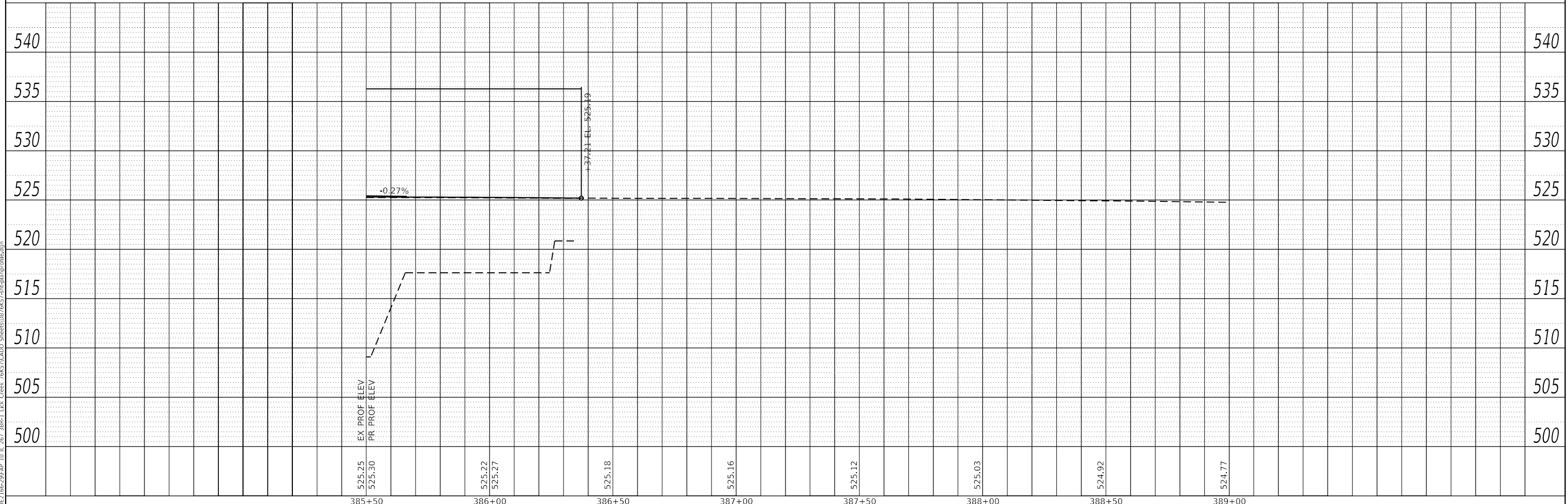
NOTE:
CONTRACTOR SHALL CONSTRUCT SHOULDER WIDENING TRANSITION
FOR TANGENT TERMINAL IN ACCORDANCE TO DIMENSIONS AND GRADES
SHOWN ON HWY STD 630301. THIS WORK WILL BE PAID FOR AT THE
CONTRACT UNIT BID PRICE FOR "AGGREGATE SHOULDERS, TYPE B".



PAVEMENT REMOVAL SCHEDULE

- PAVED SHOULDER REMOVAL
- PAVEMENT REMOVAL

PROFILE	SURVISED	DATE
	PLOTTED	
	GRADES CHECKED	
	STRUCTURE NOTATIONS CHECKED	
	NO.	



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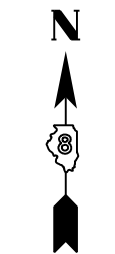
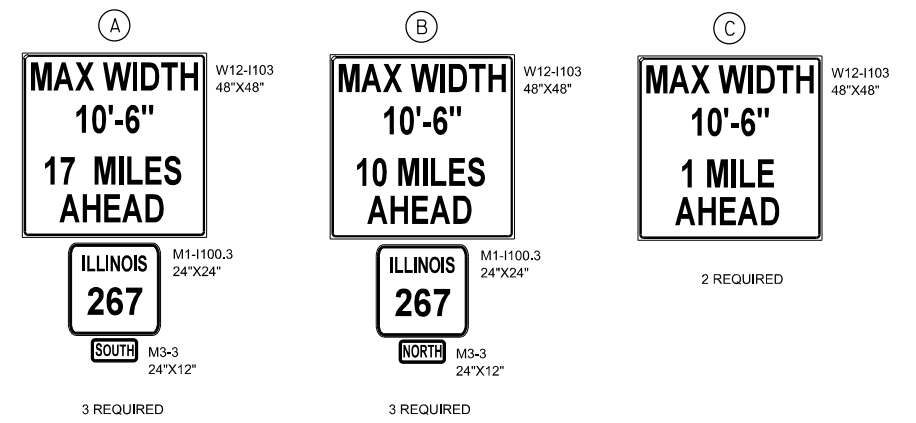
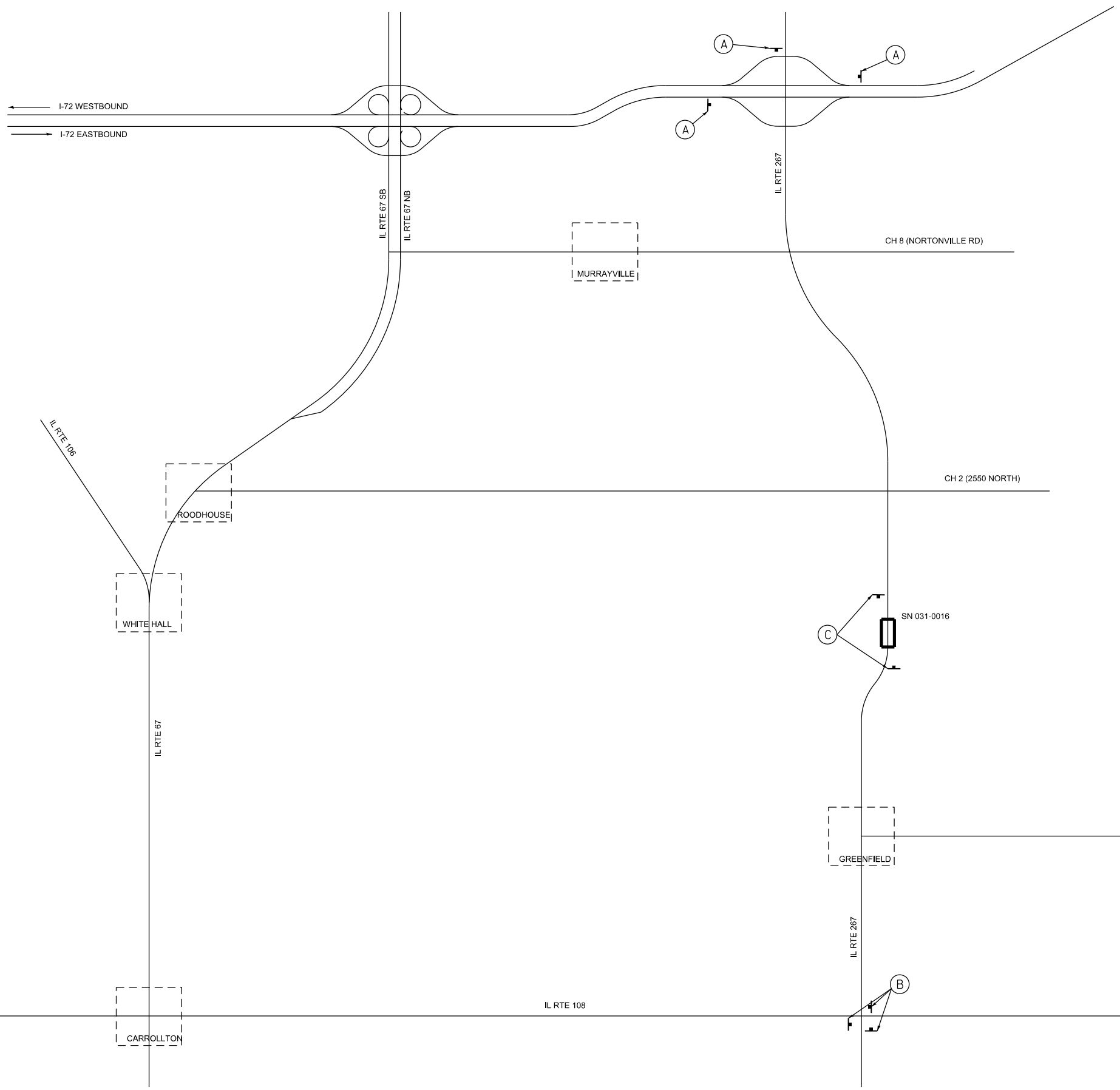
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	DRAWN - W. SLEEMAN	REVISED - 5/3/2019
PLOT SCALE = 40,0000 ' / in.	CHECKED - M. McEVERS	REVISED -
PLOT DATE = 5/3/2019	DATE - 1/2019	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

PLAN & PROFILE IL ROUTE 267



SCALE: SHEET 2 OF 2 SHEETS STA. 385+50 TO STA. 388+58.42

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	14
CONTRACT NO. 76K57				
ILLINOIS FED. AID PROJECT				



NOT TO SCALE

LEGEND

-  WIDTH RESTRICTION SIGN
-  PROPOSED WORK AREA

NOTES

1. ALL SIGNS REQUIRED WILL BE SUPPLIED TO THE CONTRACTOR BY I.D.O.T.
2. THE CONTRACTOR SHALL FURNISH THE POSTS AND ERECT SIGNS AT THE LOCATIONS SHOWN ON THIS SHEET, AS DIRECTED BY THE R.E./R.T. THE POSTS SHALL REMAIN THE PROPERTY OF THE CONTRACTOR.
3. THE CONTRACTOR SHALL GIVE ILLINOIS DEPARTMENT OF TRANSPORTATION, BUREAU OF OPERATIONS TWO WEEKS NOTICE FOR SIGNS. THE CONTRACTOR SHALL PICK UP THE SIGNS AT T.M. BUILDING IN FAIRVIEW HEIGHTS, AND RETURN THEM UPON COMPLETION OF THE CONTRACT. CONTACT JEAN SIPPÉ AT 618-394-2189.
4. SIGN SPACING WILL BE 400' OR TO FIT FIELD CONDITIONS.
5. THE HEIGHT TO THE BOTTOM OF THE LOWEST SIGN SHALL BE NOT LESS THAN 6'.

MODEL: D:\ch\1 FILE NAME: P:\1\2019\2019\1\11_2017_3BR-1_Lib_Cover_76K57.CADD Sheet\0376K57-48x48.tbl base signing plan.dgn

USER NAME = \$USERS	DESIGNED - W. SLEEMAN	REVISED - 1/25/2019
	DRAWN - W. SLEEMAN	REVISED -
PLOT SCALE = 20,000' / in.	CHECKED - M. McEVERS	REVISED -
PLOT DATE = 1/25/2019	DATE - 1/2019	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

WIDE LOAD SIGNING PLAN

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

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	15
CONTRACT NO. 76K57				
		ILLINOIS	FED. AID PROJECT	

B.M.: BM#9; Chiseled Square in center of west side of 4'x4' box culvert ±0.5 mi. South of Lick Creek, ±11' West of EOP, Elev. 523.88'
 BM#10; Chiseled Square on Southwest abut. wingwall of SN 031-0016 on IL 267 over Lick Creek, Elev. 524.94'

Traffic: Traffic shall be maintained during construction by Staged Construction.

Existing Structure: SN 031-0016, 3-span Reinforced concrete slab on wide flange steel beams, Reinforced concrete piers, Reinforced concrete abutments, Built as F.A.I. 64 Sec. 3-B-F-D Sta. 385+40.00 in 1938, Deck replacement and existing wide flange beams made composite 194'-5" long x 32'-6" wide as F.A.Rte. 164 Sec. 3BY-1 Sta. 385+40.00 in 1969, Deck Overlay & Joint/Bearing Replacement as F.A.Rte. 10 Sec. 3BI-1 in 1987.

Salvage: None.

STATION 385+40.00
 RE-BUILT 20__ BY
 STATE OF ILLINOIS
 F.A.P. RT. 10 SEC. 3BR-1
 LOADING HS20
 STRUCTURE NO. 031-0016

NAME PLATE
 See Std. 515001

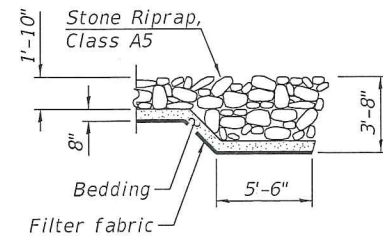
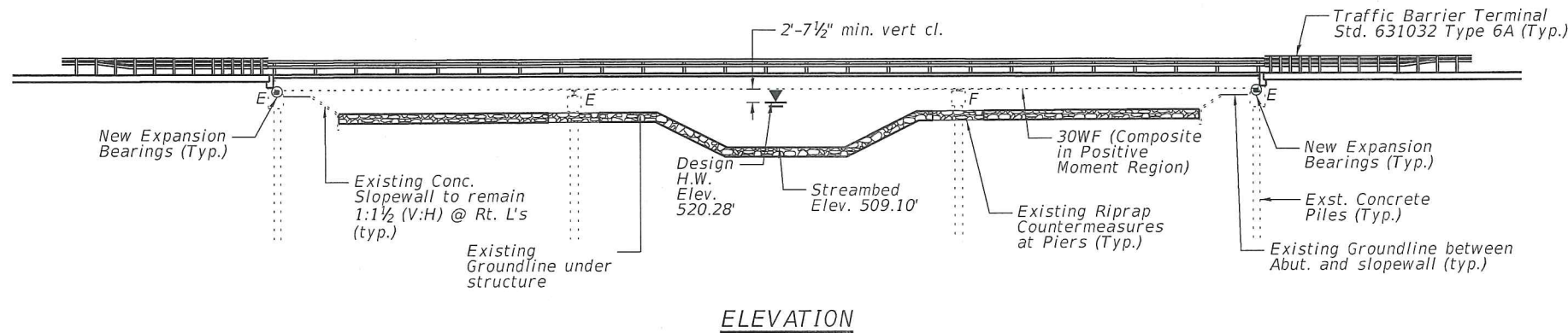
Existing Name Plate shall be cleaned and relocated next to new Name Plate. Cost included with Name Plates.

SCOPE OF WORK

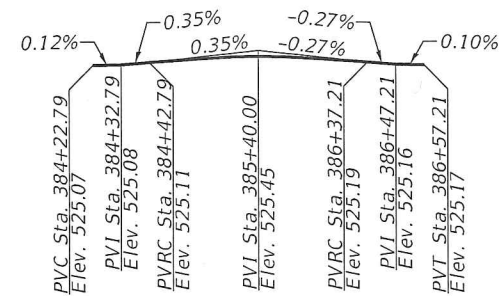
- 1) Pre-Stage Deck Repair, interior diaphragm replacement, and end beam repairs at abutments for Stage I Traffic.
- 2) Remove and replace concrete deck and steel railing.
- 3) Remove and replace deteriorated diaphragms & all end diaphragms.
- 4) Remove and replace all end bearings.
- 5) Repair all beam ends with steel plate retrofitting and adding galvanized angle bearing stiffeners.
- 6) Repair deteriorated parts of concrete substructures.
- 7) Clean Abut. & Pier seats.
- 8) Install Class A5 riprap from toe of slope wall to toe of slope wall and 10 ft. both upstream and downstream of the superstructure in accordance with Hydraulic Statement in the Bridge Condition Report.

SHEET INDEX

General Plan & Elevation	1
General Data	2
Pre-Stage Repairs	3
Staging	4
Temporary Concrete Barrier	5
Top of Slab Elevations	6-8
Superstructure	9
Superstructure Details	10
Steel Railing, Type SM	11
Preformed Joint Strip Seal	12
Abutment Backwall Replacement	13
Pier Concrete Repair	14
Structural Steel	15-16
Bearing Removal	17
Bearing Details	18-19
Bar Splicer Assembly	20

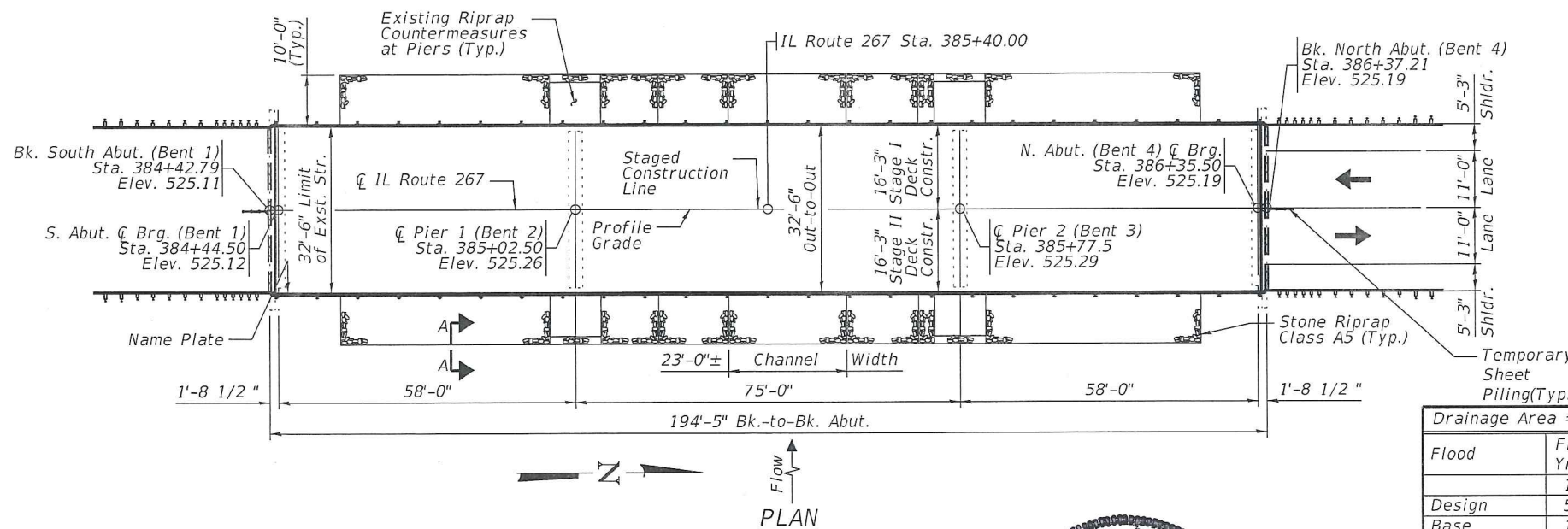


SECTION A-A



L.V.C. = 20.00' L.V.C. = 194.42' L.V.C. = 20.00'

PROFILE GRADE
 IL ROUTE 267



PLAN

DESIGN SCOUR ELEVATION TABLE

Event / Limit State	Design Scour Elevations (ft.)				Item 113
	S. Abut. (Bent 1)	Pier 1 (Bent 2)	Pier 2 (Bent 3)	N. Abut. (Bent 4)	
Q100	516.79	502.15	503.08	516.79	5
Q200	516.79	500.74	501.66	516.79	
Design	516.79	502.15	503.08	516.79	

WATERWAY INFORMATION

Drainage Area = 17.73 sq.mi. Low Grade Elev. 522.91 @ Sta. 381+00

Flood	Freq. Yr.	Q C.F.S.	Opening Ft ²		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	50	5778	834	834	518.61	1.67	1.67	520.28	520.28
Base	100	6682	864	864	518.78	1.94	1.94	520.72	520.72
Overtopping									
Max. Calc.	500	8869			519.24	2.57	2.57	521.81	521.81

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications for Highway Bridges

LOADING HS-20-44

Future wearing surface not allowed.

SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
 Design Spectral Acceleration at 1.0 sec. (S_{D1}) = .163
 Design Spectral Acceleration at 0.2 sec. (S_{D2}) = .309
 Soil Site Class = D

DESIGN STRESSES

FIELD UNITS

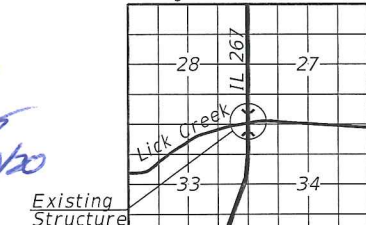
f'_c = 5,000 psi (Superstructure)
 f'_c = 3,500 psi (Substructure)
 f_y = 60,000 psi (Reinforcement)
 f_y = 36,000 psi (M270 Grade 36) (Misc. Steel)

FIELD UNITS (Exist. Const.)

f'_c superstructure = 2,400 psi
 f'_c substructure = 2,400 psi
 f_y substructure = 40,000 psi (Reinforcement)
 f_y = 33,000 psi (A7), Beam Strength limited to yield strength subject to bracing req.



Range 10W - 3rd P.M.



LOCATION SKETCH

GENERAL PLAN & ELEVATION
 IL ROUTE 267 OVER LICK CREEK
 F.A.P. RTE. 10 - SECTION 3BR-1
 GREENE COUNTY
 IL ROUTE 267 STA. 385+40.00
 STRUCTURE NO. 031-0016

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION
 STRUCTURE NO. 031-0016

SHEET 1 OF 20 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	16
CONTRACT NO. 76K57				
ILLINOIS FED. AID PROJECT				

BA
 BENTON & ASSOCIATES, INC.
 Consulting Engineers / Land Surveyors
 1970 West Lafayette Ave. Jacksonville, IL 62650
 Phone: 217-245-4146 Fax: 217-245-4149
 IL Design Firm Registration No. 184-000852

GENERAL NOTES

1. Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts 7/8" φ, holes 15/16" φ, unless otherwise noted.
2. No field welding is permitted except as specified in the contract documents.
3. The Contractor shall test the existing welds by non-destructive methods within 2 ft. of the end of the existing cover plates for cracks after removal of the existing concrete deck. After deck removal, the Contractor shall test all existing top coverplate welds for cracks using non-destructive methods. Dye penetrant (PT), magnetic particle (MT), or other approved testing method shall be performed by qualified personnel approved by the Engineer. If cracks are found, report them to the Bureau of Bridges and Structures for disposition. The cost of testing is included in the Removal of Existing Concrete Deck. The cost of crack repair, if necessary, will be paid for according to Article 109.04 of the Standard Specifications.
4. Reinforcement bars designated (E) shall be epoxy coated.
5. 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 included in the pay item covering removal of the existing concrete. As directed by the Engineer, existing construction accessories welded to the top flange of beams and girders shall be removed. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by qualified personnel and reported to the Bureau of Bridges and Structures for further disposition. The cost of removing welded accessories, grinding and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.
6. 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.
7. Concrete Sealer shall be applied to the designated areas of the Abutments.
8. The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.
9. Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
10. Structural Steel shall be galvanized, where noted in the plans, in accordance with Hot-Dip Galvanizing for Structural Steel Special Provision. Cost included with Furnishing and Erecting Structural Steel.
11. Existing structural steel that will be in contact with new structural steel shall be cleaned and painted prior to erection as required by the Special Provisions "Cleaning & Painting Contact Surface Areas of Existing Steel Structures".
12. "The Organic Zinc Rich Primer/Epoxy/Urethane" paint system shall be used for painting of new non-galvanized structural steel except where otherwise noted. The entire system shall be shop applied, masked off connection surfaces, and field installed fasteners, all of which shall be touched up and finish coated in the field. The color of the final finish coat for all interior steel surfaces shall be gray, Munsell No. 5B 7/1. Cost included with Furnishing and Erecting Structural Steel.

**SN 031-0016
TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Stone Riprap, Class A5	Sq. Yd.		895	895
Filter Fabric	Sq. Yd.		915	915
Concrete Removal	Cu. Yd.		6.7	6.7
Removal of Existing Concrete Deck	Each	1		1
Structure Excavation	Cu. Yd.		7.0	7.0
Concrete Structures	Cu. Yd.		3.7	3.7
Concrete Superstructure	Cu. Yd.	175		175
Bridge Deck Grooving	Sq. Yd.	470		470
Protective Coat	Sq. Yd.	694		694
Furnishing and Erecting Structural Steel	Pound	4,750		4,750
Reinforcement Bars, Epoxy Coated	Pound	43,080	1,290	44,370
Bar Splicers	Each	16	549	565
Steel Railing, Type SM	Foot	386		386
Name Plates	Each	1		1
Preformed Joint Strip Seal	Foot	65		65
Elastomeric Bearing Assembly, Type I	Each	6		6
Elastomeric Bearing Assembly, Type II	Each	6		6
Anchor Bolts, 5/8"	Each		24	24
Temporary Sheet Piling	Sq. Ft.		103	103
Concrete Sealer	Sq. Ft.		72	72
Granular Backfill for Structures	Cu. Yd.		7.0	7.0
Jack and Remove Existing Bearings	Each		12	12
Structural Steel Removal	Pound	2,960		2,960
Structural Steel Repair	Pound	1,340		1,340
Bridge Curb or Hubguard Repair	Foot	16		16
Structural Repair of Concrete (Depth <=5")	Sq. Ft.		9	9
Deck Slab Repair (Full Depth, Type I)	Sq. Yd.	1		1

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BENTON & ASSOCIATES, INC.

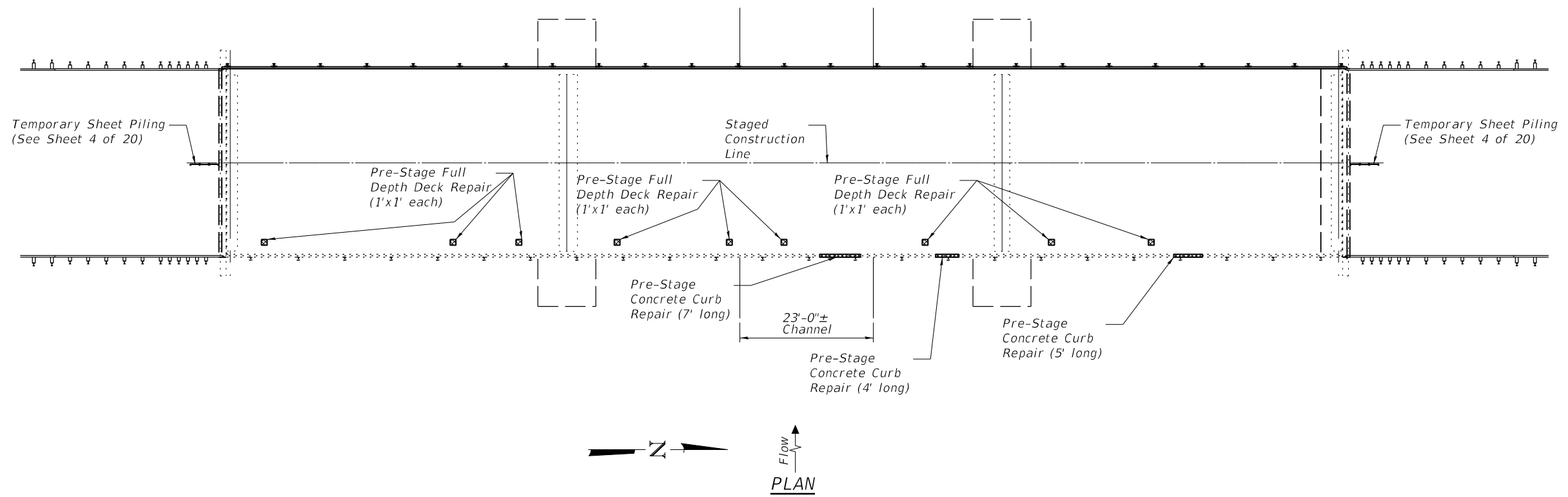
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**GENERAL DATA
STRUCTURE NO. 031-0016**

SHEET 2 OF 20 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	17
CONTRACT NO. 76K57				
		ILLINOIS	FED. AID PROJECT	



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BILL OF MATERIAL

Item	Unit	Total
Deck Slab Repair (Full Depth, Type I)	Sq. Yd.	1
Bridge Curb or Hubguard Repair	Ft.	16

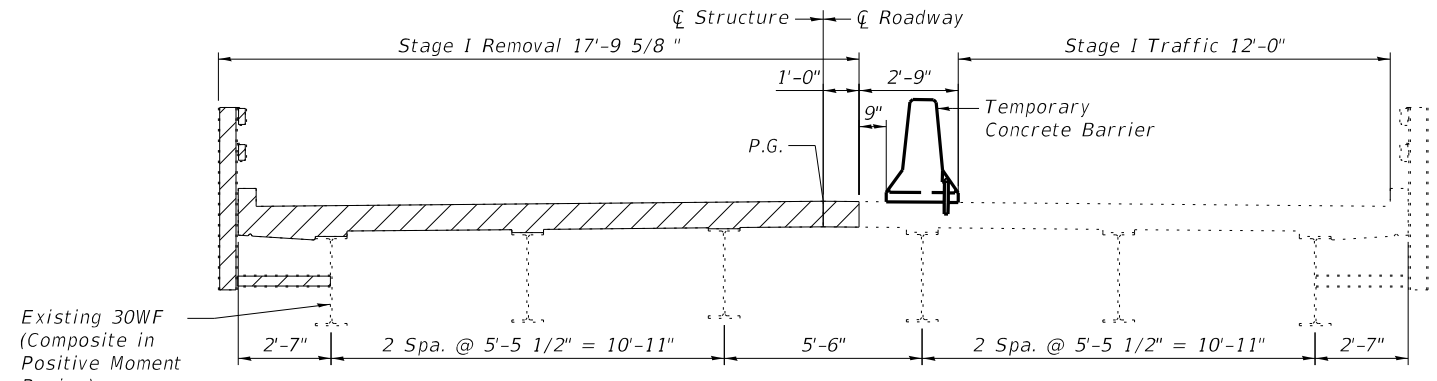
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

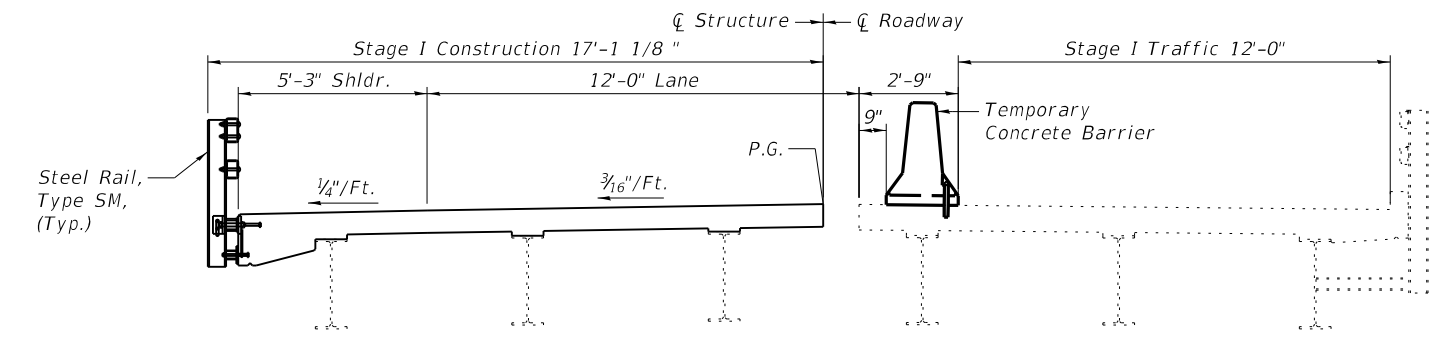
PRE-STAGE PLAN DECK & SUPERSTRUCTURE REPAIRS
STRUCTURE NO. 031-0016

SHEET 3 OF 20 SHEETS

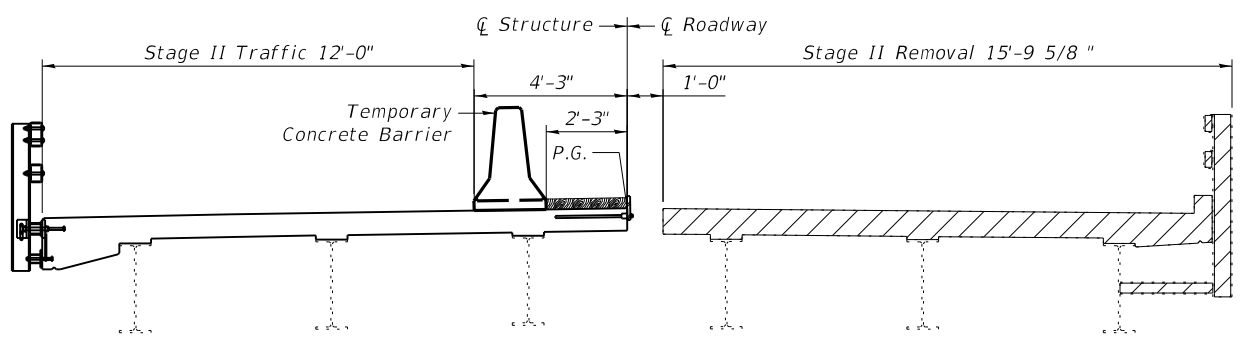
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CONTRACT NO. 76K57				
		ILLINOIS	FED. AID PROJECT	



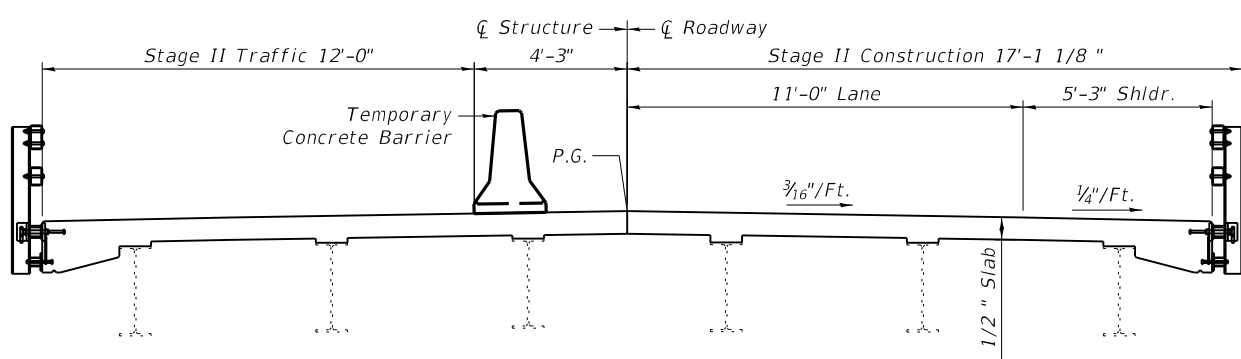
STAGE I REMOVAL
(Looking North)



STAGE I CONSTRUCTION
(Looking North)

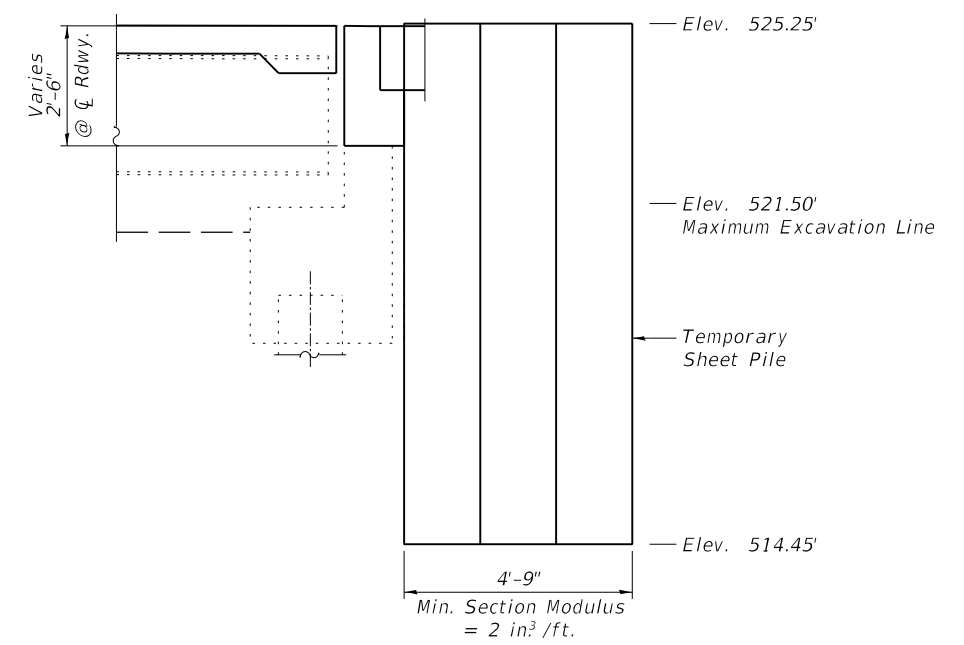


STAGE II REMOVAL
(Looking North)



STAGE II CONSTRUCTION
(Looking North)

- Notes:
 1. See Standard 704001 for details of Temporary Concrete Barrier.
 2. See Roadway Plans for quantity of Temporary Concrete Barrier.



SHEET PILING ELEVATION
(North Abut. shown: South Abut. similar)

- Notes:
 1. Minimum section modulus of temporary sheet piling shall be as shown in the Elevation View of this sheet.
 2. If the contractor chooses to alter the temporary cantilevered sheet pile design requirements shown on the plans for lesser design requirements, the full design calculations with the required seals shall be submitted to the Department for review and approval.
 3. The contractor shall connect the first sheet to the existing abutment wall to ensure stability of the sheets driven to the top of the footing. This connection shall be reviewed and accepted by the Engineer and included in the cost for Temporary Sheet Piling.

BILL OF MATERIAL

Item	Unit	Quantity
Temporary Sheet Piling	Sq. Ft.	103

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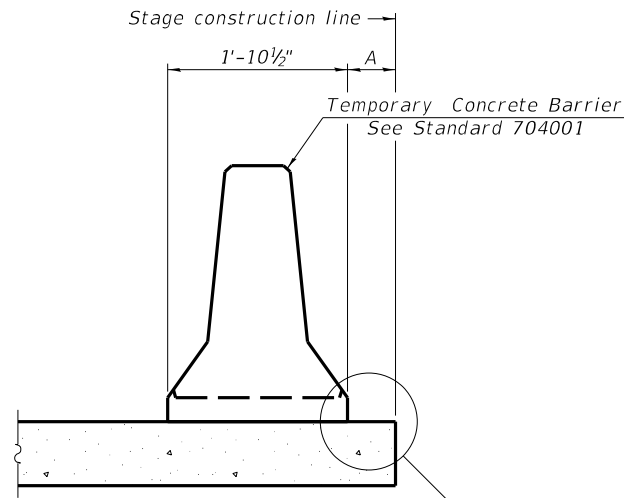
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**STAGING
STRUCTURE NO. 031-0016**

SHEET 4 OF 20 SHEETS

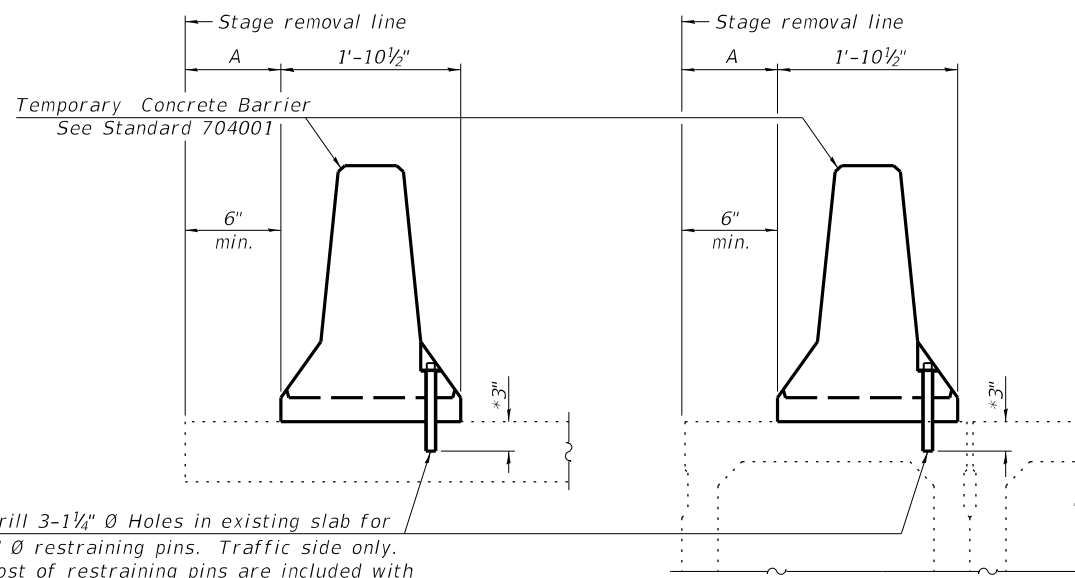
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	19
CONTRACT NO. 76K57				

ILLINOIS FED. AID PROJECT



When "A" is 3'-1" or less, the temporary concrete barrier shall be restrained to the new slab according to Detail I, II or III. No restraint is required when "A" is greater than 3'-1". See Detail I, II or III

NEW SLAB OR NEW DECK BEAM



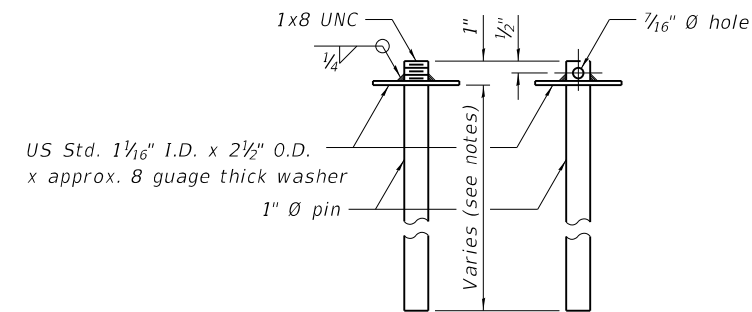
Drill 3-1/4" Ø Holes in existing slab for 1" Ø restraining pins. Traffic side only. Cost of restraining pins are included with Temporary Concrete Barrier. No restraint is required when "A" is greater than 3'-1".

EXISTING SLAB

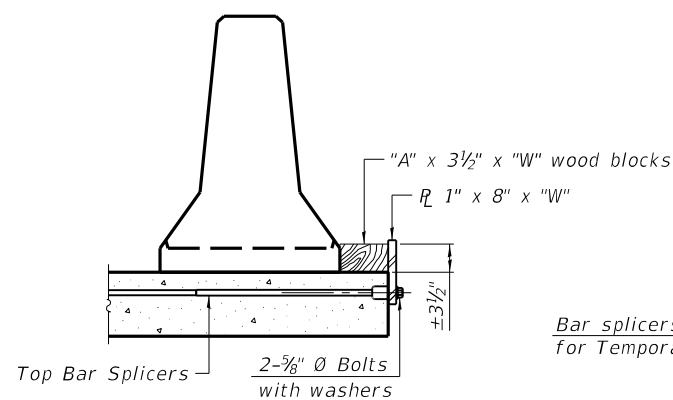
* When hot-mix asphalt wearing surface is present, embedment shall be 3" plus the wearing surface depth.

EXISTING DECK BEAM

SECTIONS THRU SLAB OR DECK BEAM

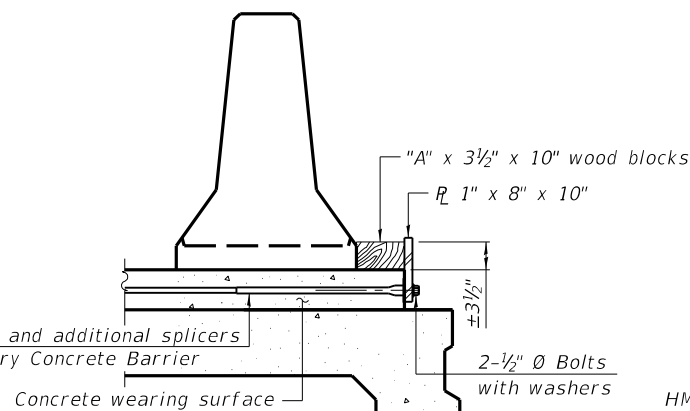


RESTRAINING PIN

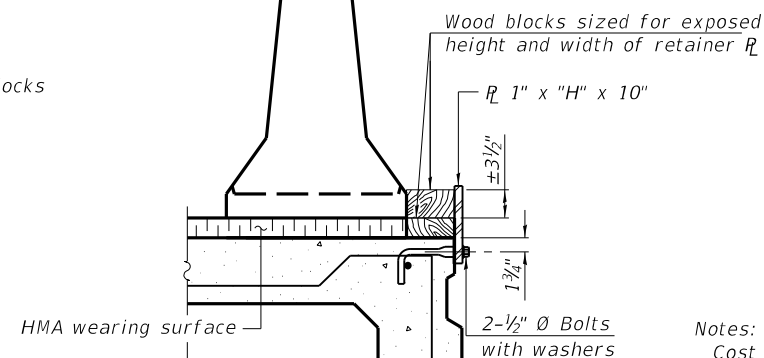


DETAIL I

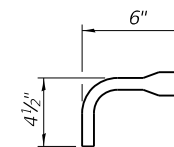
Bar splicers and additional splicers for Temporary Concrete Barrier



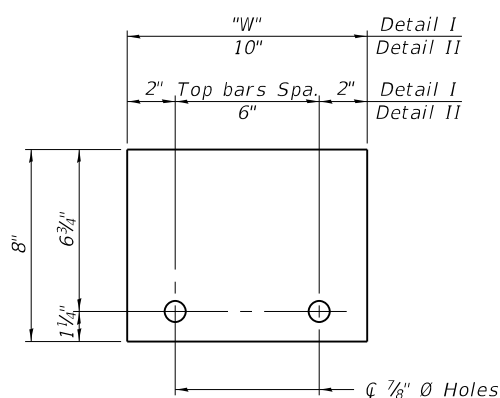
DETAIL II



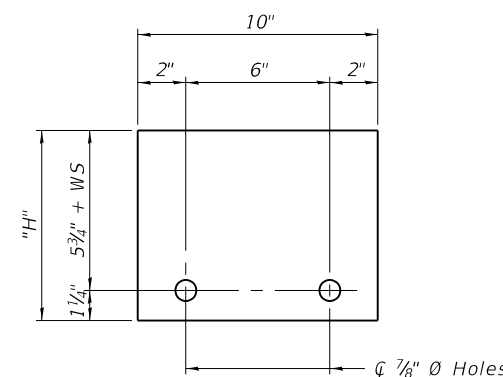
DETAIL III



BAR SPLICER FOR #4 BAR - DETAIL III



STEEL RETAINER R 1" x 8" x "W"
(Detail I and II)



STEEL RETAINER R 1" x "H" x 10"
(Detail III)

Notes:
 Cost of retainer assembly is included with Temporary Concrete Barrier.
 A retainer assembly shall be located at the approximate \bar{c} 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 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.

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R-27
 BENTON & ASSOCIATES, INC. 8-11-2017

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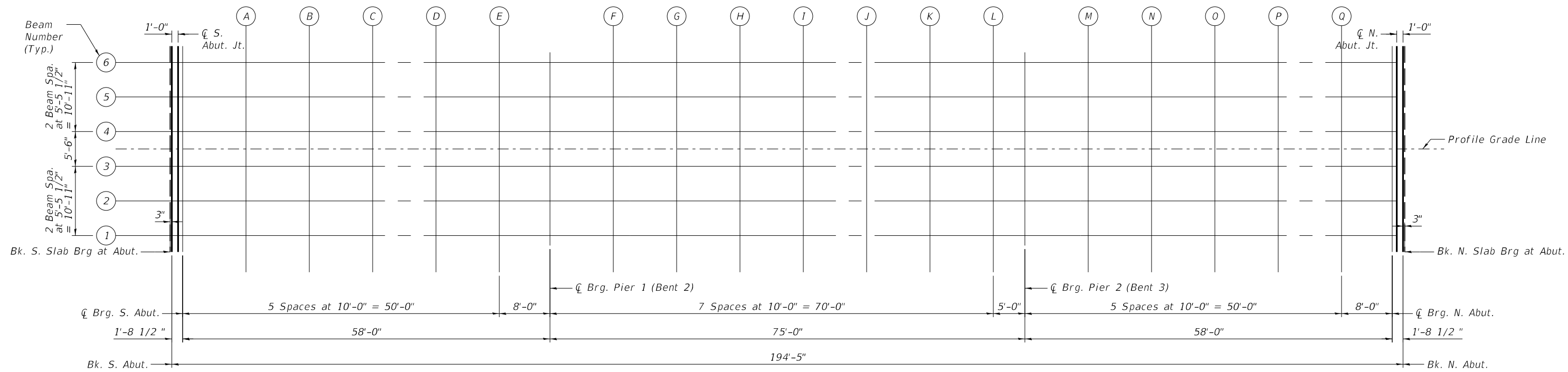
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
 STRUCTURE NO. 031-0016

SHEET 5 OF 20 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	20
CONTRACT NO. 76K57				
		ILLINOIS	FED. AID PROJECT	

MODEL: Layout1
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PLAN

BENTON & ASSOCIATES, INC.

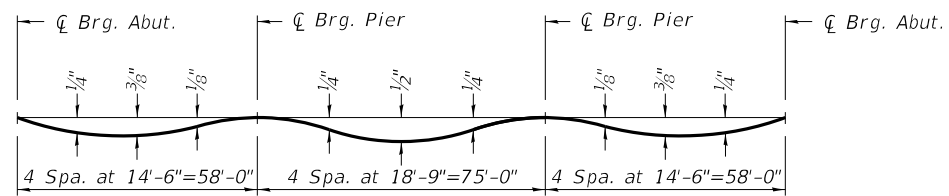
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**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**TOP OF SLAB ELEVATIONS
 STRUCTURE NO. 031-0016**

SHEET 6 OF 20 SHEETS

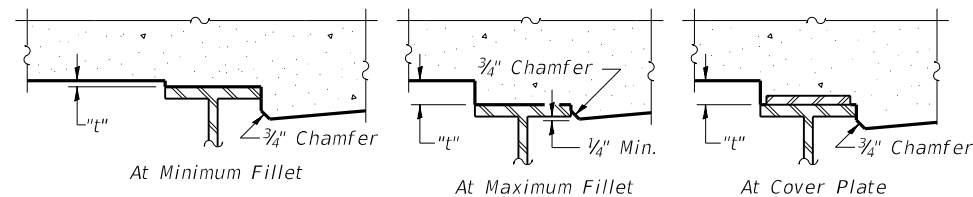
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	21
CONTRACT NO. 76K57				
		ILLINOIS	FED. AID PROJECT	



DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only.)

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



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

FILLET HEIGHTS

BEAM 1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	384+42.79	13.67'	524.88	524.88
☉ S. Abut. Jt.	384+43.79	13.67'	524.89	524.89
☉ Brg. S. Abut.	384+44.50	13.67'	524.89	524.89
A	384+54.50	13.67'	524.92	524.95
B	384+64.50	13.67'	524.95	524.99
C	384+74.50	13.67'	524.98	525.01
D	384+84.50	13.67'	525.00	525.02
E	384+94.50	13.67'	525.02	525.02
☉ Brg. PIER 1 (Bent 2)	385+02.50	13.67'	525.03	525.03
F	385+12.50	13.67'	525.05	525.06
G	385+22.50	13.67'	525.06	525.09
H	385+32.50	13.67'	525.07	525.12
I	385+42.50	13.67'	525.07	525.13
J	385+52.50	13.67'	525.07	525.12
K	385+62.50	13.67'	525.07	525.10
L	385+72.50	13.67'	525.07	525.07
☉ Brg. PIER 2 (Bent 3)	385+77.50	13.67'	525.06	525.06
M	385+87.50	13.67'	525.06	525.06
N	385+97.50	13.67'	525.04	525.07
O	386+07.50	13.67'	525.03	525.06
P	386+17.50	13.67'	525.01	525.05
Q	386+27.50	13.67'	524.99	525.01
☉ Brg. N. Abut.	386+35.50	13.67'	524.96	524.96
☉ N. Abut. Jt.	386+36.21	13.67'	524.96	524.96
Bk. N. Abut.	386+37.21	13.67'	524.96	524.96

BEAM 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	384+42.79	8.21'	524.98	524.98
☉ S. Abut. Jt.	384+43.79	8.21'	524.99	524.99
☉ Brg. S. Abut.	384+44.50	8.21'	524.99	524.99
A	384+54.50	8.21'	525.02	525.04
B	384+64.50	8.21'	525.05	525.08
C	384+74.50	8.21'	525.08	525.10
D	384+84.50	8.21'	525.10	525.11
E	384+94.50	8.21'	525.12	525.12
☉ Brg. PIER 1 (Bent 2)	385+02.50	8.21'	525.13	525.13
F	385+12.50	8.21'	525.15	525.16
G	385+22.50	8.21'	525.16	525.18
H	385+32.50	8.21'	525.17	525.20
I	385+42.50	8.21'	525.17	525.21
J	385+52.50	8.21'	525.17	525.20
K	385+62.50	8.21'	525.17	525.19
L	385+72.50	8.21'	525.17	525.17
☉ Brg. PIER 2 (Bent 3)	385+77.50	8.21'	525.16	525.16
M	385+87.50	8.21'	525.15	525.16
N	385+97.50	8.21'	525.14	525.16
O	386+07.50	8.21'	525.13	525.15
P	386+17.50	8.21'	525.11	525.13
Q	386+27.50	8.21'	525.08	525.10
☉ Brg. N. Abut.	386+35.50	8.21'	525.06	525.06
☉ N. Abut. Jt.	386+36.21	8.21'	525.06	525.06
Bk. N. Abut.	386+37.21	8.21'	525.06	525.06

BEAM 3

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	384+42.79	2.75'	525.07	525.07
☉ S. Abut. Jt.	384+43.79	2.75'	525.07	525.07
☉ Brg. S. Abut.	384+44.50	2.75'	525.07	525.07
A	384+54.50	2.75'	525.11	525.12
B	384+64.50	2.75'	525.14	525.16
C	384+74.50	2.75'	525.16	525.19
D	384+84.50	2.75'	525.19	525.20
E	384+94.50	2.75'	525.21	525.21
☉ Brg. PIER 1 (Bent 2)	385+02.50	2.75'	525.22	525.22
F	385+12.50	2.75'	525.23	525.24
G	385+22.50	2.75'	525.24	525.27
H	385+32.50	2.75'	525.25	525.29
I	385+42.50	2.75'	525.26	525.30
J	385+52.50	2.75'	525.26	525.29
K	385+62.50	2.75'	525.26	525.27
L	385+72.50	2.75'	525.25	525.26
☉ Brg. PIER 2 (Bent 3)	385+77.50	2.75'	525.25	525.25
M	385+87.50	2.75'	525.24	525.24
N	385+97.50	2.75'	525.23	525.24
O	386+07.50	2.75'	525.21	525.24
P	386+17.50	2.75'	525.19	525.22
Q	386+27.50	2.75'	525.17	525.18
☉ Brg. N. Abut.	386+35.50	2.75'	525.15	525.15
☉ N. Abut. Jt.	386+36.21	2.75'	525.15	525.15
Bk. N. Abut.	386+37.21	2.75'	525.14	525.14

MODEL: Layout1
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**TOP OF SLAB ELEVATIONS
STRUCTURE NO. 031-0016**

SHEET 7 OF 20 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	22
CONTRACT NO. 76K57				
ILLINOIS		FED. AID PROJECT		

PROFILE GRADE LINE

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	384+42.79	0.00'	525.11	525.11
☉ S. Abut. Jt.	384+43.79	0.00'	525.11	525.11
☉ Brg. S. Abut.	384+44.50	0.00'	525.12	525.12
A	384+54.50	0.00'	525.15	525.17
B	384+64.50	0.00'	525.18	525.21
C	384+74.50	0.00'	525.20	525.23
D	384+84.50	0.00'	525.23	525.24
E	384+94.50	0.00'	525.25	525.25
☉ Brg. PIER 1 (Bent 2)	385+02.50	0.00'	525.26	525.26
F	385+12.50	0.00'	525.28	525.28
G	385+22.50	0.00'	525.29	525.31
H	385+32.50	0.00'	525.30	525.33
I	385+42.50	0.00'	525.30	525.34
J	385+52.50	0.00'	525.30	525.33
K	385+62.50	0.00'	525.30	525.32
L	385+72.50	0.00'	525.30	525.30
☉ Brg. PIER 2 (Bent 3)	385+77.50	0.00'	525.29	525.29
M	385+87.50	0.00'	525.28	525.29
N	385+97.50	0.00'	525.27	525.29
O	386+07.50	0.00'	525.25	525.28
P	386+17.50	0.00'	525.23	525.26
Q	386+27.50	0.00'	525.21	525.23
☉ Brg. N. Abut.	386+35.50	0.00'	525.19	525.19
☉ N. Abut. Jt.	386+36.21	0.00'	525.19	525.19
Bk. N. Abut.	386+37.21	0.00'	525.19	525.19

BEAM 4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	384+42.79	-2.75'	525.07	525.07
☉ S. Abut. Jt.	384+43.79	-2.75'	525.07	525.07
☉ Brg. S. Abut.	384+44.50	-2.75'	525.07	525.07
A	384+54.50	-2.75'	525.11	525.12
B	384+64.50	-2.75'	525.14	525.16
C	384+74.50	-2.75'	525.16	525.19
D	384+84.50	-2.75'	525.19	525.20
E	384+94.50	-2.75'	525.21	525.21
☉ Brg. PIER 1 (Bent 2)	385+02.50	-2.75'	525.22	525.22
F	385+12.50	-2.75'	525.23	525.24
G	385+22.50	-2.75'	525.24	525.27
H	385+32.50	-2.75'	525.25	525.29
I	385+42.50	-2.75'	525.26	525.30
J	385+52.50	-2.75'	525.26	525.29
K	385+62.50	-2.75'	525.26	525.27
L	385+72.50	-2.75'	525.25	525.26
☉ Brg. PIER 2 (Bent 3)	385+77.50	-2.75'	525.25	525.25
M	385+87.50	-2.75'	525.24	525.24
N	385+97.50	-2.75'	525.23	525.24
O	386+07.50	-2.75'	525.21	525.24
P	386+17.50	-2.75'	525.19	525.22
Q	386+27.50	-2.75'	525.17	525.18
☉ Brg. N. Abut.	386+35.50	-2.75'	525.15	525.15
☉ N. Abut. Jt.	386+36.21	-2.75'	525.15	525.15
Bk. N. Abut.	386+37.21	-2.75'	525.14	525.14

BEAM 5

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	384+42.79	-8.21'	524.98	524.98
☉ S. Abut. Jt.	384+43.79	-8.21'	524.99	524.99
☉ Brg. S. Abut.	384+44.50	-8.21'	524.99	524.99
A	384+54.50	-8.21'	525.02	525.04
B	384+64.50	-8.21'	525.05	525.08
C	384+74.50	-8.21'	525.08	525.10
D	384+84.50	-8.21'	525.10	525.11
E	384+94.50	-8.21'	525.12	525.12
☉ Brg. PIER 1 (Bent 2)	385+02.50	-8.21'	525.13	525.13
F	385+12.50	-8.21'	525.15	525.16
G	385+22.50	-8.21'	525.16	525.18
H	385+32.50	-8.21'	525.17	525.20
I	385+42.50	-8.21'	525.17	525.21
J	385+52.50	-8.21'	525.17	525.20
K	385+62.50	-8.21'	525.17	525.19
L	385+72.50	-8.21'	525.17	525.17
☉ Brg. PIER 2 (Bent 3)	385+77.50	-8.21'	525.16	525.16
M	385+87.50	-8.21'	525.15	525.16
N	385+97.50	-8.21'	525.14	525.16
O	386+07.50	-8.21'	525.13	525.15
P	386+17.50	-8.21'	525.11	525.13
Q	386+27.50	-8.21'	525.08	525.10
☉ Brg. N. Abut.	386+35.50	-8.21'	525.06	525.06
☉ N. Abut. Jt.	386+36.21	-8.21'	525.06	525.06
Bk. N. Abut.	386+37.21	-8.21'	525.06	525.06

BEAM 6

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	384+42.79	-13.67'	524.88	524.88
☉ S. Abut. Jt.	384+43.79	-13.67'	524.89	524.89
☉ Brg. S. Abut.	384+44.50	-13.67'	524.89	524.89
A	384+54.50	-13.67'	524.92	524.95
B	384+64.50	-13.67'	524.95	524.99
C	384+74.50	-13.67'	524.98	525.01
D	384+84.50	-13.67'	525.00	525.02
E	384+94.50	-13.67'	525.02	525.02
☉ Brg. PIER 1 (Bent 2)	385+02.50	-13.67'	525.03	525.03
F	385+12.50	-13.67'	525.05	525.06
G	385+22.50	-13.67'	525.06	525.09
H	385+32.50	-13.67'	525.07	525.12
I	385+42.50	-13.67'	525.07	525.13
J	385+52.50	-13.67'	525.07	525.12
K	385+62.50	-13.67'	525.07	525.10
L	385+72.50	-13.67'	525.07	525.07
☉ Brg. PIER 2 (Bent 3)	385+77.50	-13.67'	525.06	525.06
M	385+87.50	-13.67'	525.06	525.06
N	385+97.50	-13.67'	525.04	525.07
O	386+07.50	-13.67'	525.03	525.06
P	386+17.50	-13.67'	525.01	525.05
Q	386+27.50	-13.67'	524.99	525.01
☉ Brg. N. Abut.	386+35.50	-13.67'	524.96	524.96
☉ N. Abut. Jt.	386+36.21	-13.67'	524.96	524.96
Bk. N. Abut.	386+37.21	-13.67'	524.96	524.96

E-S 2-17-2017
BENTON & ASSOCIATES, INC.

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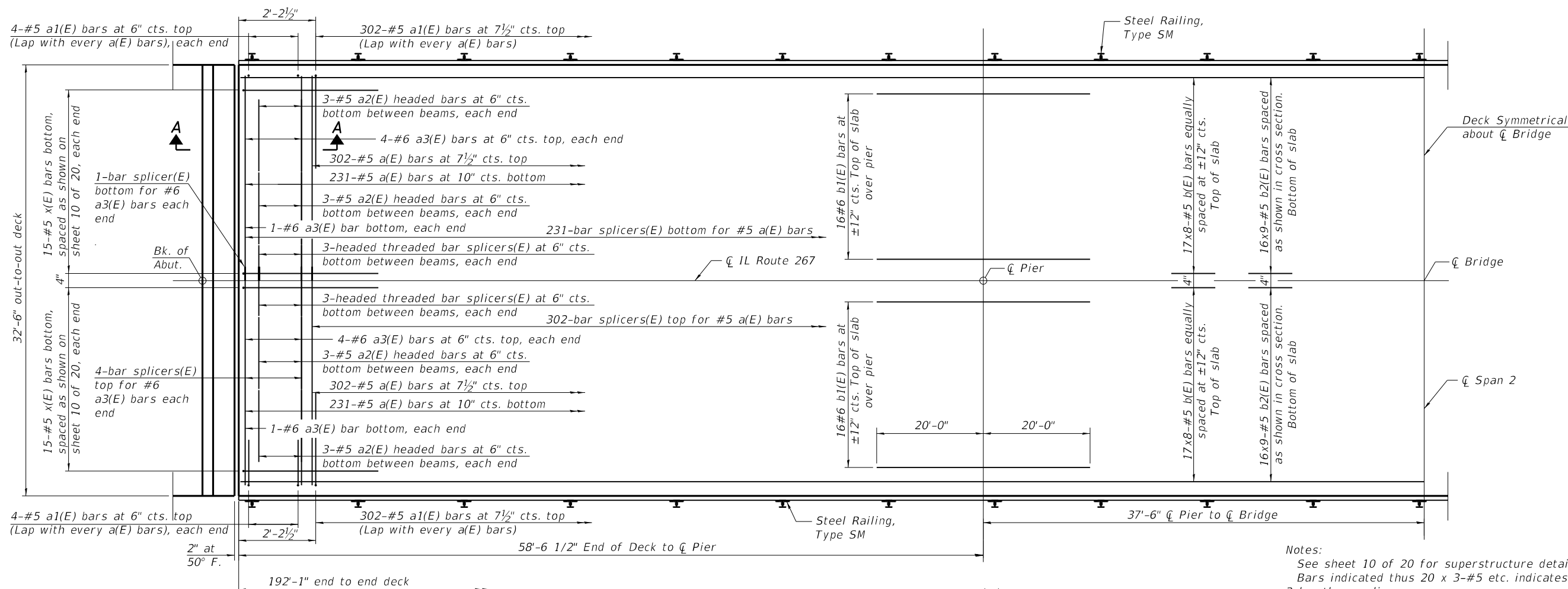
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CHECKED - RHB	CHECKED - RHB	REVISED -
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PLOT DATE =	CHECKED - RHB	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**TOP OF SLAB ELEVATIONS
 STRUCTURE NO. 031-0016**

SHEET 8 OF 20 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	23
CONTRACT NO. 76K57				
ILLINOIS		FED. AID PROJECT		

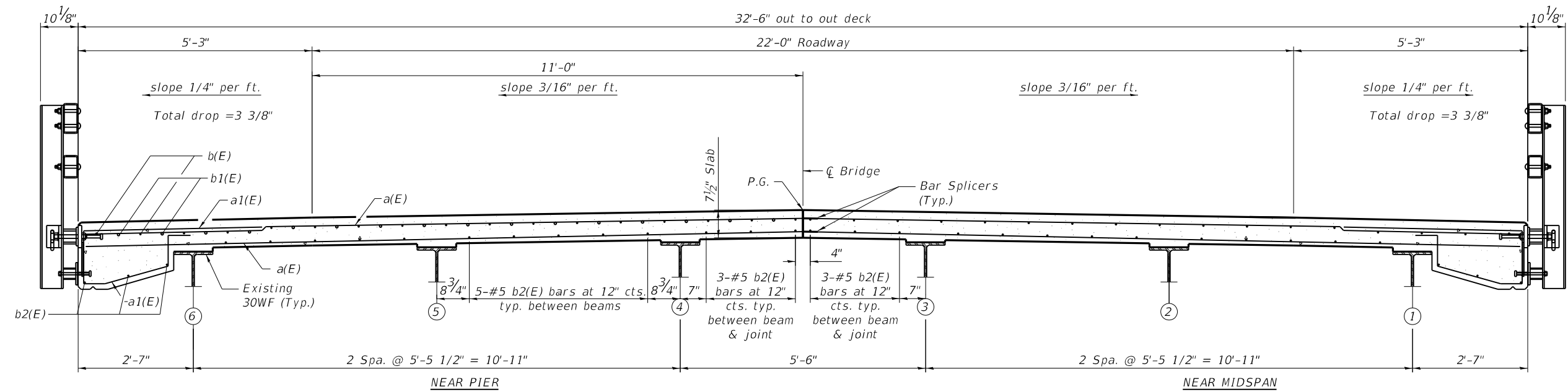


PARTIAL PLAN

Notes:
 See sheet 10 of 20 for superstructure details and Bill of Material. Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.
 Dimensions are based on a Rolled Rail Strip Seal Joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustments to satisfy the details on Sheet 12 of 20.

MINIMUM BAR LAP

#5 bar = 3'-6"
 #6 bar = 4'-2"



CROSS SECTION
 (Looking North)

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PLOT DATE =	DRAWN - MBH	REVISED -
	CHECKED - RHB	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE
 STRUCTURE NO. 031-0016

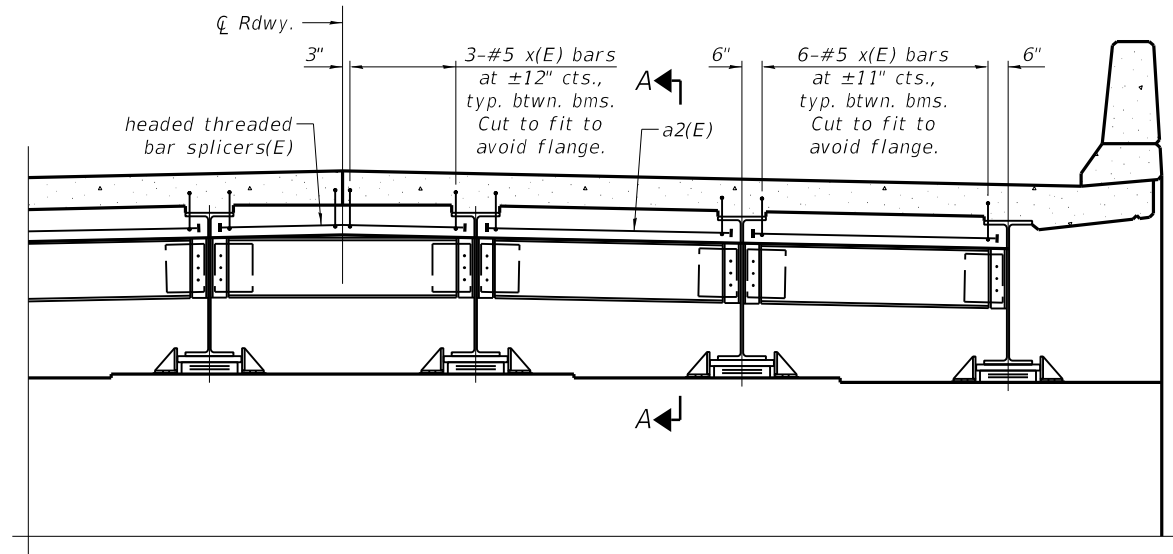
SHEET 9 OF 20 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	24
CONTRACT NO. 76K57				

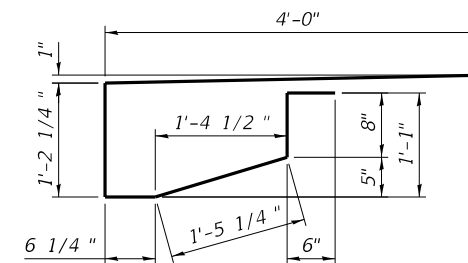
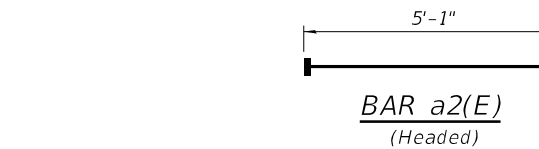
ILLINOIS FED. AID PROJECT

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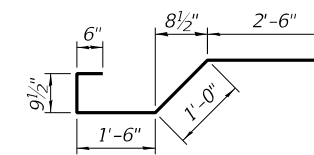
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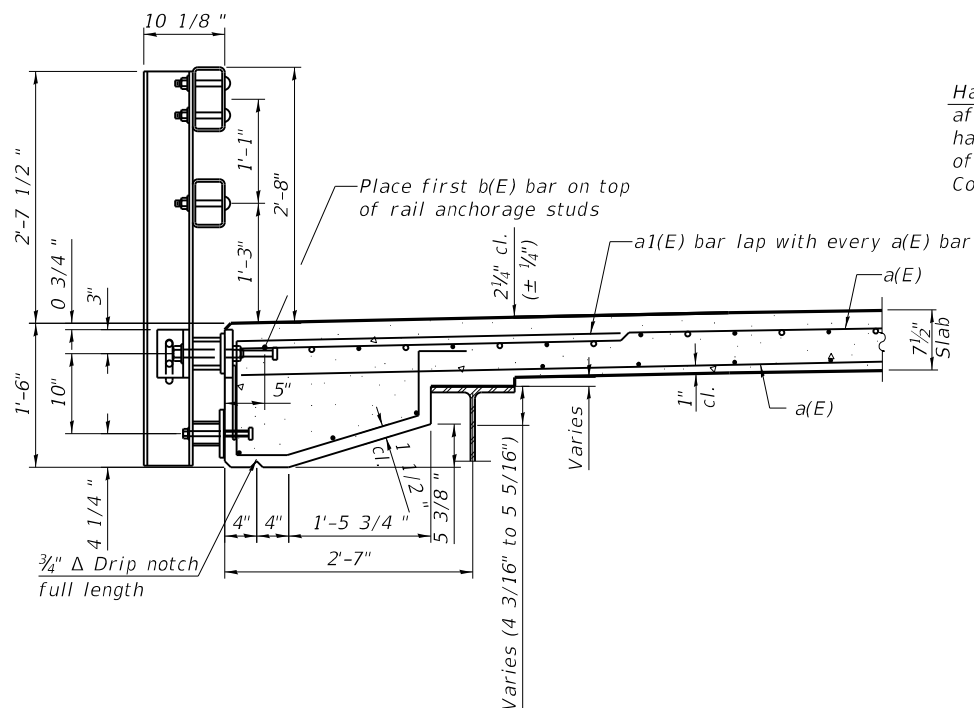
DIAPHRAGM AT ABUTMENT



BAR a1(E)

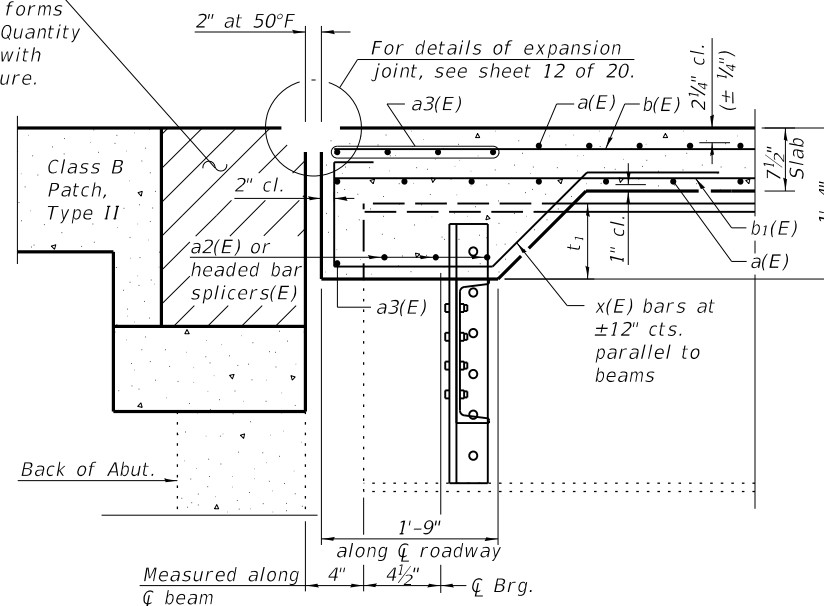


BAR x(E)



SECTION THRU GUARDRAIL

Hatched area to be poured after superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.



SECTION A-A

Table of t_1 Dimensions		
Bearing	S. Abut.	N. Abut.
Beam 1	6 1/16"	5 3/16"
Beam 2	5 9/16"	4 7/8"
Beam 3	4 1/8"	3 3/4"
Beam 4	3 9/16"	3 1/16"
Beam 5	5 11/16"	5 1/4"
Beam 6	6 1/16"	6 5/16"

SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	1066	#5	16'-0"	—
a1(E)	620	#5	8'-4"	↘
a2(E)	24	#5	5'-1"	→
a3(E)	20	#6	16'-0"	—
b(E)	272	#5	27'-1"	—
b1(E)	64	#6	40'-0"	—
b2(E)	288	#5	24'-6"	—
x(E)	60	#5	6'-4"	↘
Reinforcement Bars, Epoxy Coated			Lbs.	43,080
Bar Splicers			Each	549
Concrete Superstructure			Cu. Yds.	172

Bars indicated thus 1 x 2-#8 etc. indicates 1 line of bars with 2 lengths per line.

Note: Headed bars shall conform to ASTM A970 with threaded attachment; Class HA; and reinforcement bars conforming to ASTM A706. Cost included with Reinforcement Bars, Epoxy Coated.

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PLOT DATE =	CHECKED - RHB	REVISIONS -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

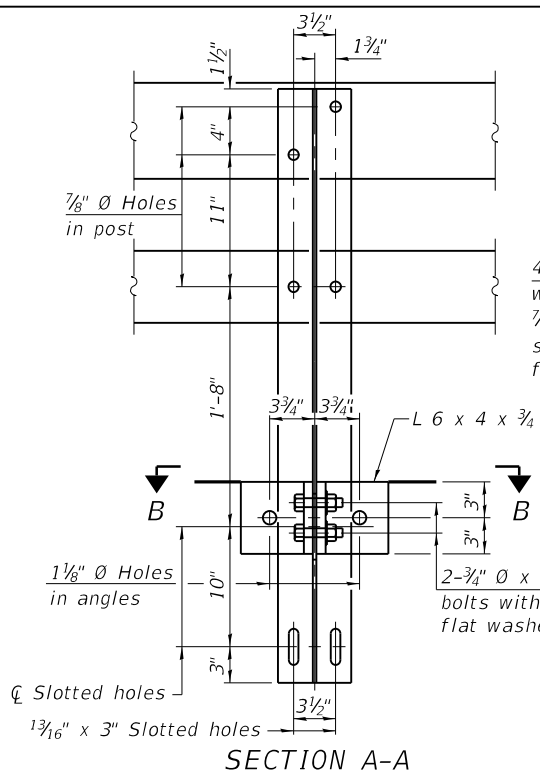
SUPERSTRUCTURE DETAILS
STRUCTURE NO. 031-0016

SHEET 10 OF 20 SHEETS

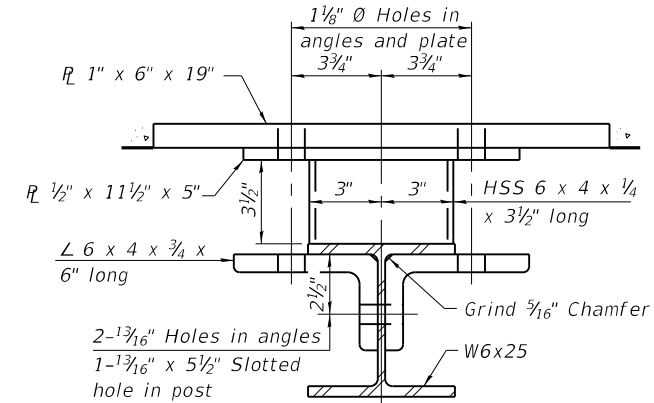
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	25
CONTRACT NO. 76K57				

ILLINOIS FED. AID PROJECT

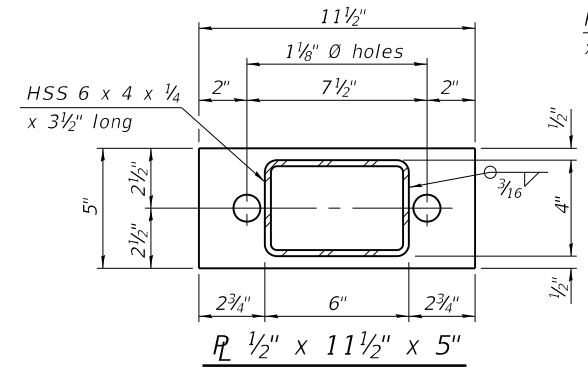
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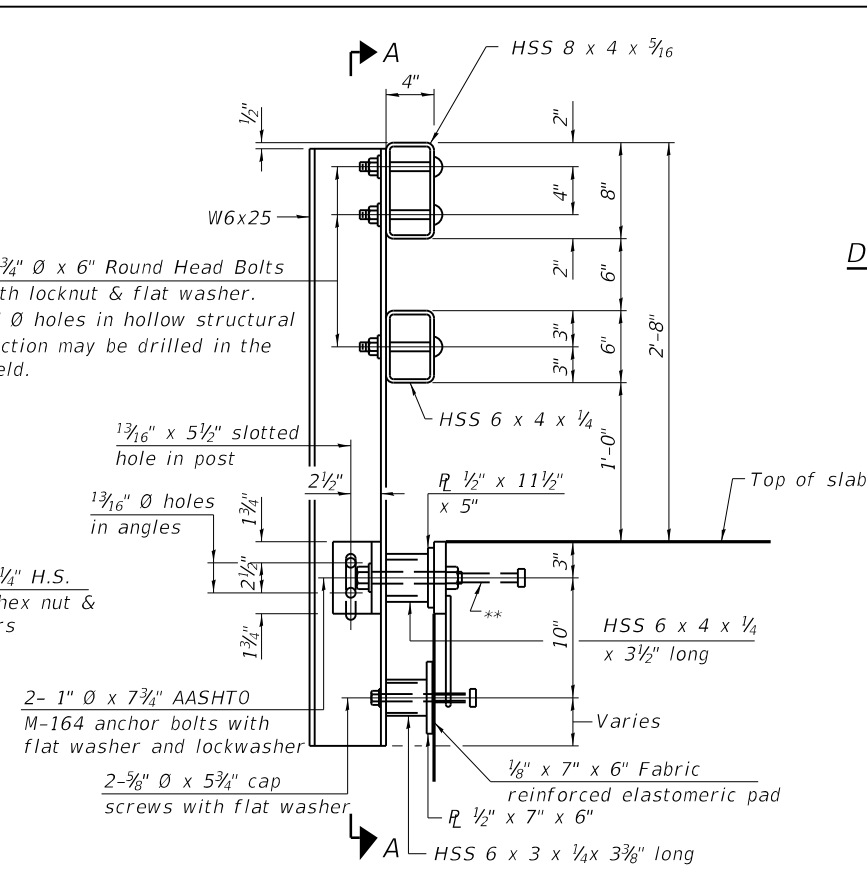
SECTION A-A



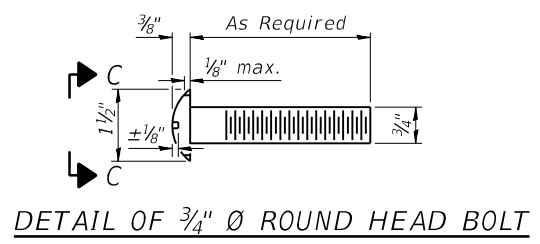
SECTION B-B



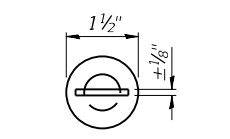
SECTION C-C



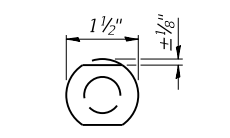
SECTION AT RAIL POST



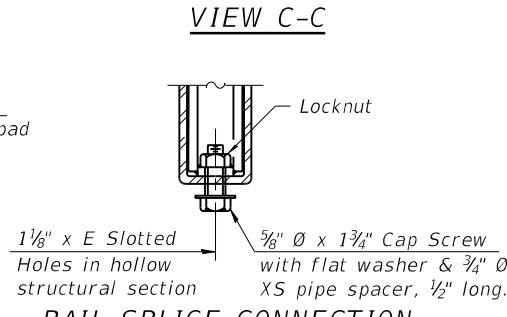
DETAIL OF 3/4" Ø ROUND HEAD BOLT



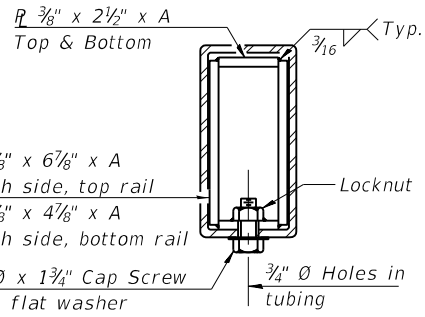
VIEW C-C



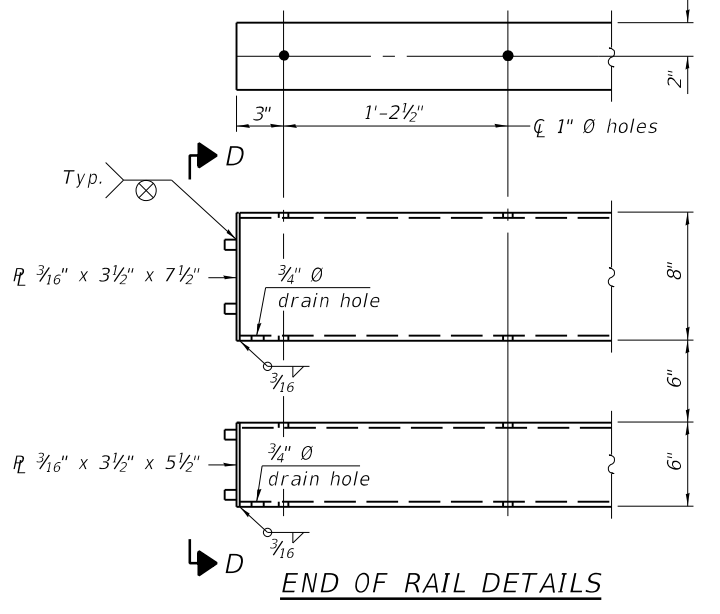
VIEW D-D



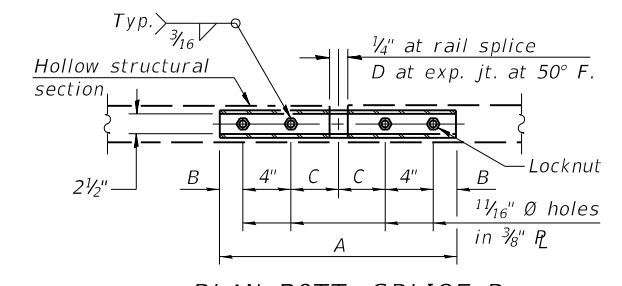
RAIL SPLICE CONNECTION AT EXPANSION JT.



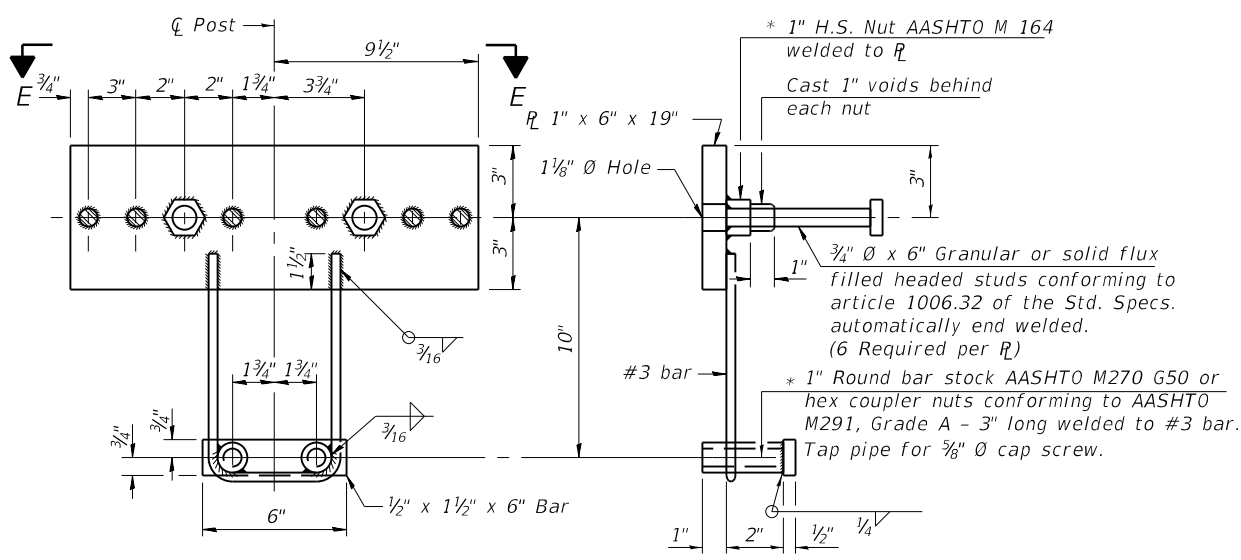
SECTION AT RAIL SPLICE



END OF RAIL DETAILS



PLAN-BOTT. SPLICE R TYPICAL



ANCHOR DEVICE

SPLICE DIMENSIONS

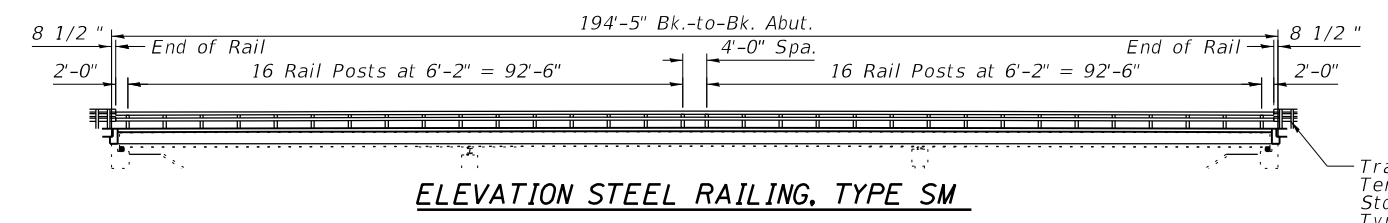
T	D	A	B	C	E
≤ 4"	2 1/2"	1'-8"	2"	4"	2 1/2"
> 4" ≤ 6 1/2"	3 3/4"	2'-0"	2 1/2"	5 1/2"	3 1/2"
> 6 1/2" ≤ 9"	5"	2'-4"	3 1/2"	6 1/2"	9"
> 9" ≤ 13"	7"	2'-10"	4 1/2"	8 1/2"	11"
Rail Splice	1/4"	1'-8"	2"	4"	—

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

Notes:
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.
All steel rail members shall be galvanized according to Article 509.05 of the Standard Specifications.
** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device. The anchorage studs may be bent down 1/2" to accommodate the top reinforcement bar placement.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type SM	Foot	386



ELEVATION STEEL RAILING, TYPE SM

(6'-3" Maximum Post Spacing)

BENTON & ASSOCIATES, INC.

USER NAME	DESIGNED	REVISION
= MBH	- MBH	4/11/2019
= RHB	- RHB	5/7/19
= MBH	- MBH	
= RHB	- RHB	

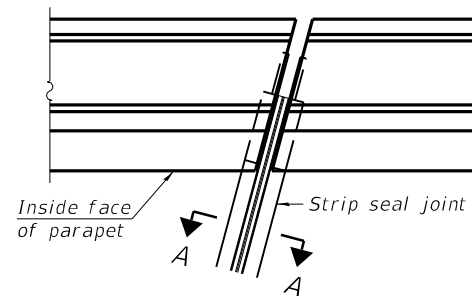
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

STEEL RAILING, TYPE SM STRUCTURE NO. 031-0016

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	26
CONTRACT NO. 76K57				

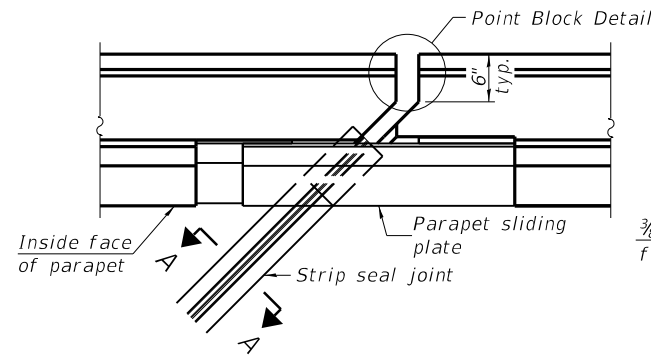
SHEET 11 OF 20 SHEETS

ILLINOIS FED. AID PROJECT

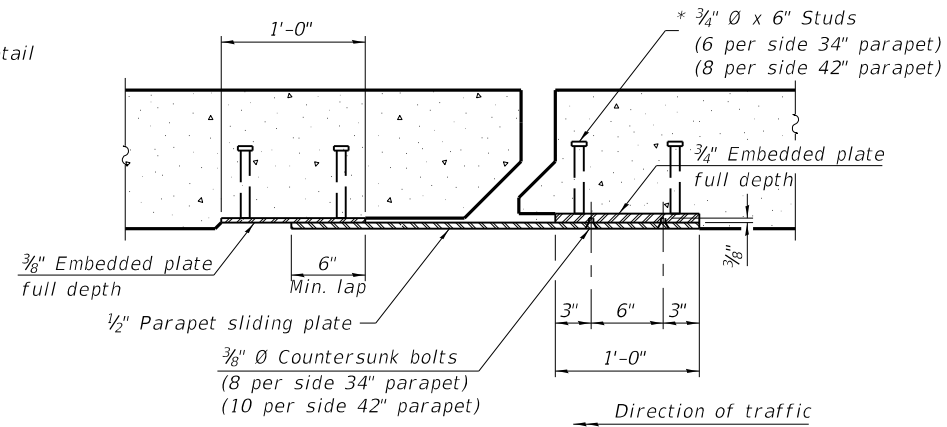


FOR SKEWS $\leq 30^\circ$

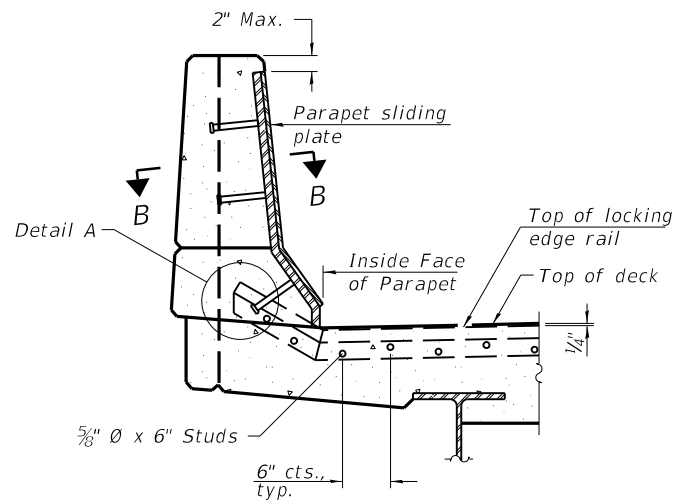
PLAN AT PARAPET



FOR SKEWS $> 30^\circ$

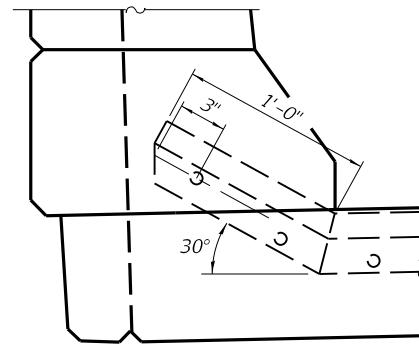


SECTION B-B

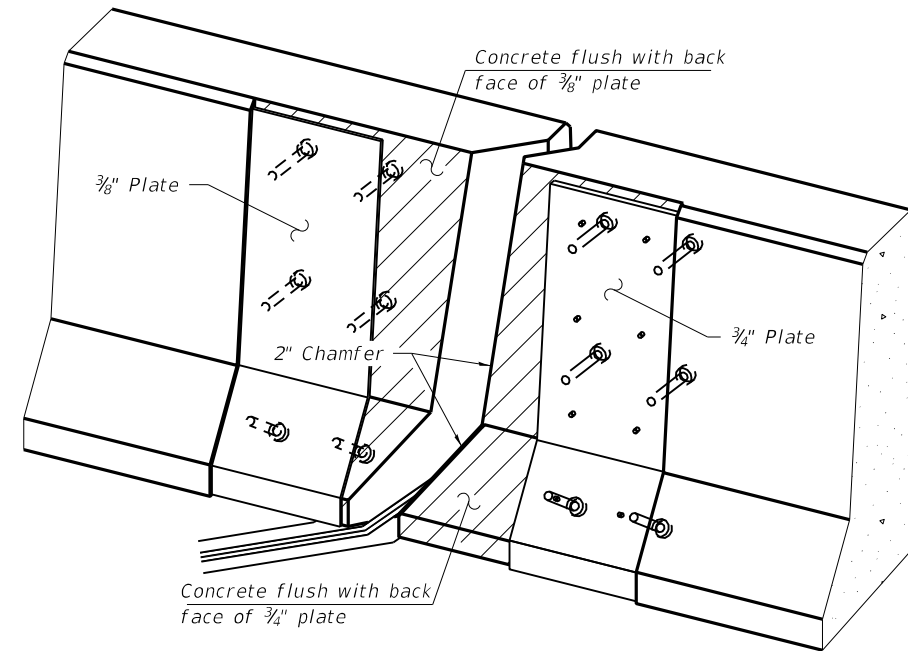


ELEVATION AT PARAPET

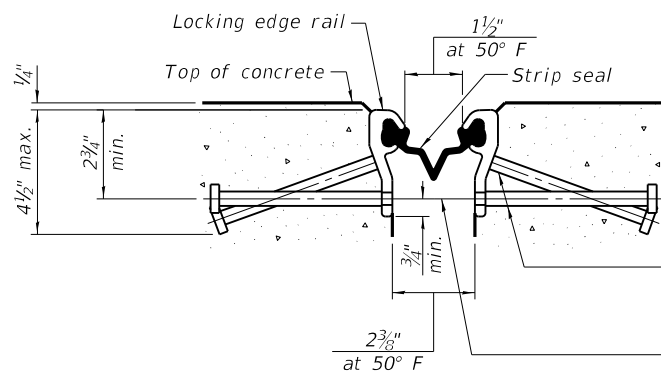
(Skews $> 30^\circ$ shown. Skews $\leq 30^\circ$ similar except as shown in plan view.)



DETAIL A



TRIMETRIC VIEW
(Showing embedded plates only)



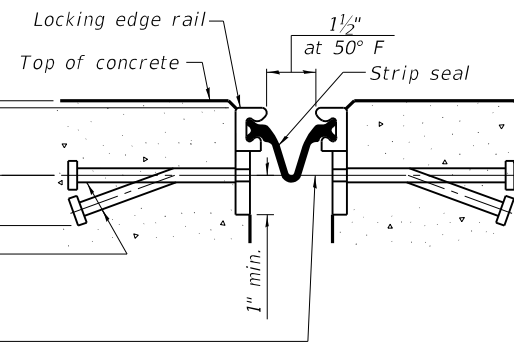
SHOWING ROLLED RAIL JOINT

* $5/8"$ ϕ x 6" studs @ 6" cts. (alternate angled/bent studs with horizontal studs)

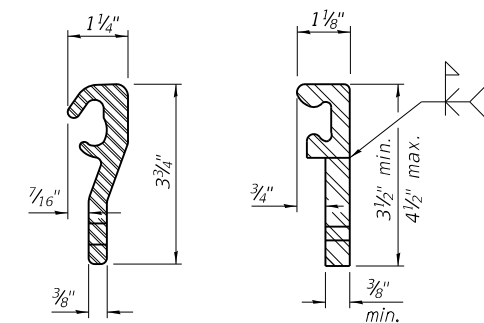
$3/8"$ ϕ threaded rods in $7/16"$ ϕ holes at $\pm 4"$ -0" cts. for holding the proper joint opening based on the temperature during the deck pour. Place to miss studs. All rods shall be burned, or sawed off flush with the plates after concrete is set.

SECTION A-A

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

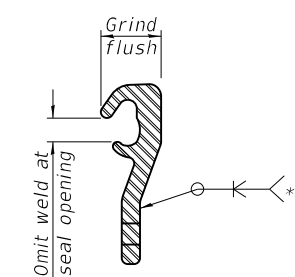


SHOWING WELDED RAIL JOINT



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	65

Notes:
 The strip seal shall be made continuous and shall have a minimum thickness of $1/4"$. 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 $4 1/2"$ 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.

MODEL: Layout1
 FILE NAME: P:\110E2166-29\Final Files to IDOT-76K57 Lick Creek\0310016-76K57-012-Joint.dgn

EJ-SS 8-11-17
 BENTON & ASSOCIATES, INC.

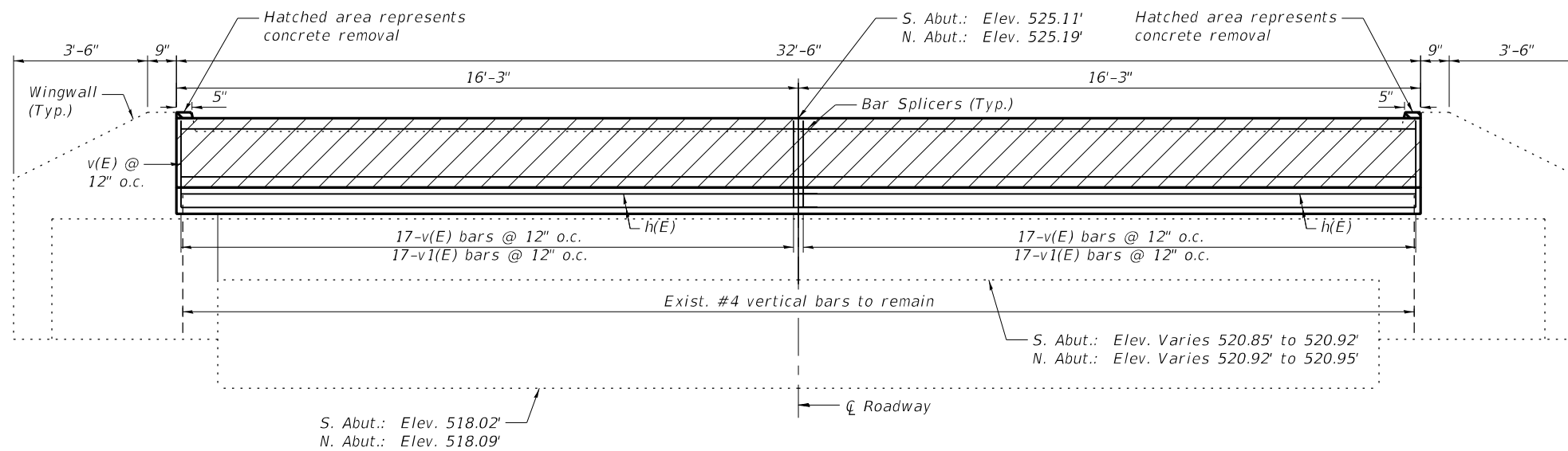
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PLOT SCALE =	CHECKED - RHB	REVISED -
PLOT DATE =	DRAWN - MBH	REVISED -
	CHECKED - RHB	REVISED -

STATE OF ILLINOIS
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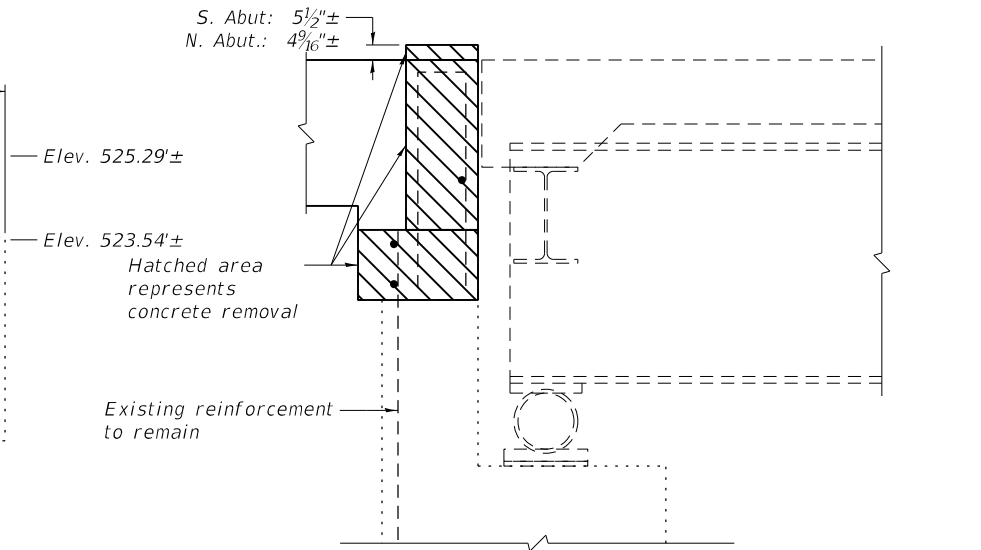
PREFORMED JOINT STRIP SEAL
 STRUCTURE NO. 031-0016

SHEET 12 OF 20 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	27
CONTRACT NO. 76K57				
ILLINOIS FED. AID PROJECT				

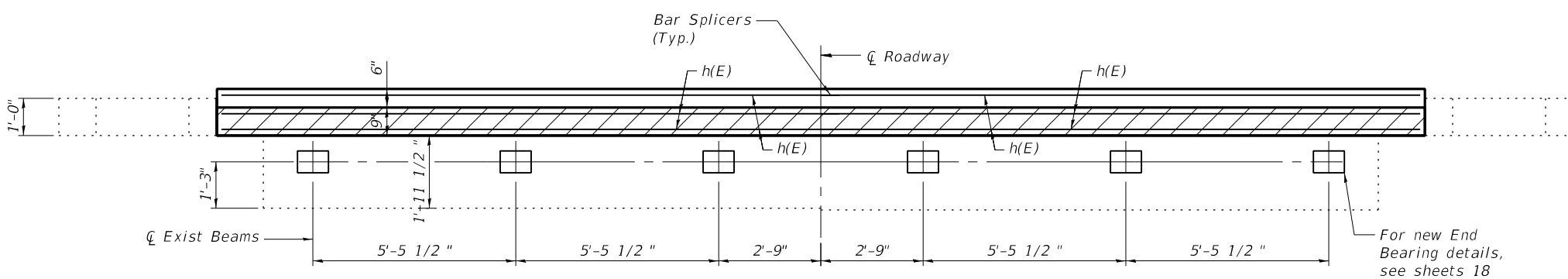


SN 031-0016 NORTH ABUTMENT ELEVATION
(Looking North)
(South Abutment Similar)

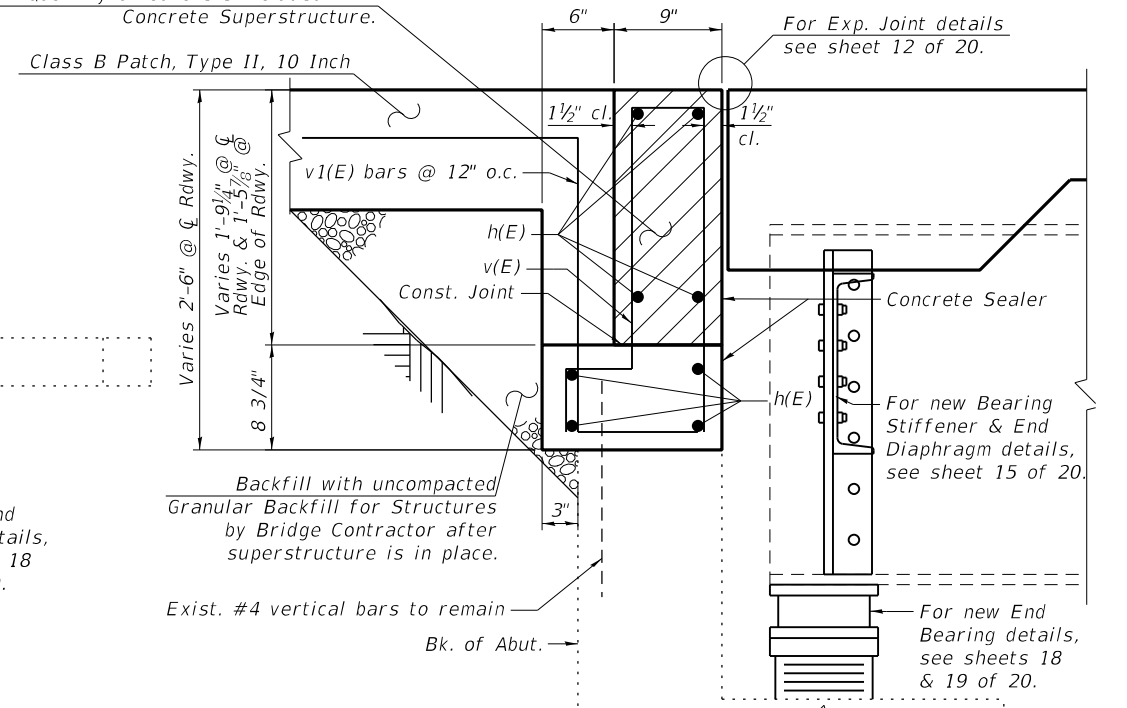


SECTION THRU ABUTMENT - CONCRETE REMOVAL
(Existing)

** Hatched area to be poured after superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.

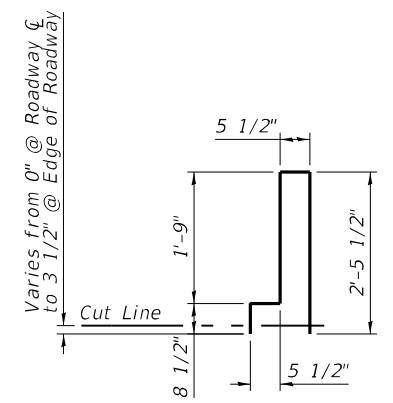


SN 031-0016 NORTH ABUTMENT PLAN
(Looking North)
(South Abutment Similar)



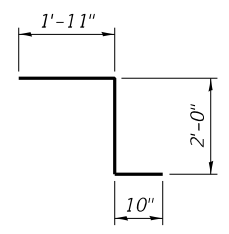
SECTION THRU ABUTMENT - REBAR LAYOUT
(Proposed)

MINIMUM BAR LAP
(Abut.)
#5 bar = 2'-6"



BAR v(E) & FIELD CUT DIAGRAM

Order v(E) full length. Cut as shown.



BAR v1(E)

LEGEND

- Area of Structural Concrete Removal
- Area of Concrete Superstructure poured after forms are removed

GENERAL NOTES

1. 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. Cost included with Concrete Removal.
2. Additional damage to the substructure may exist. Contractor to field verify amount of damage and repair what is needed. Engineer to confirm all related quantities.

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	32	#5	16'-0"	—
v(E)	68	#5	5'-10"	⊥
v1(E)	68	#5	4'-9"	⌋
Reinforcement Bars, Epoxy Coated			Pound	1,290
Bar Splicers			Each	16
Concrete Structures			Cu. Yds.	3.7
Concrete Superstructure			Cu. Yds.	3.0
Concrete Removal			Cu. Yds.	6.7
Structure Excavation			Cu. Yds.	7.0
Granular Backfill for Structures			Cu. Yds.	7.0
Concrete Sealer			Sq. Ft.	72

MODEL: SMODELNAMES
FILE NAME: SFILES

BENTON & ASSOCIATES, INC.

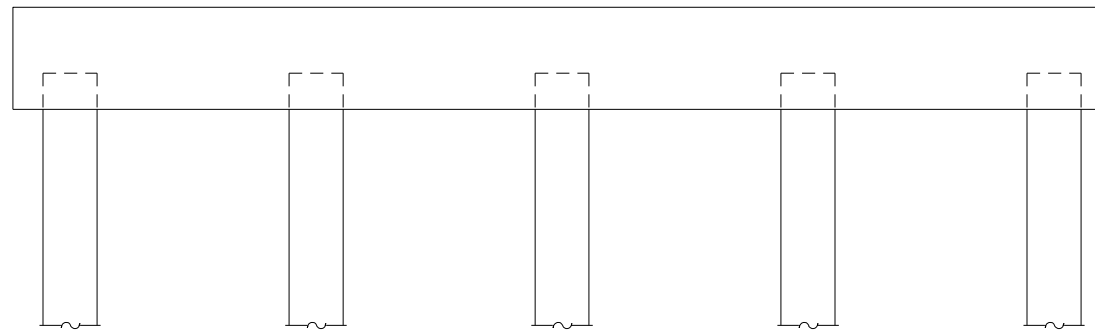
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PLOT SCALE =	DRAWN - MBH	REVISIONS -
PLOT DATE =	CHECKED - RHB	REVISIONS -

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DEPARTMENT OF TRANSPORTATION**

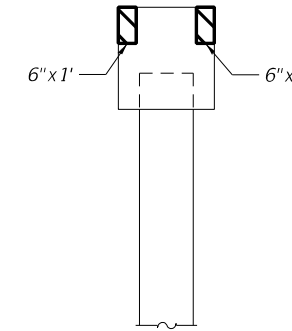
**ABUTMENT BACKWALL REPLACEMENT AND ABUTMENT REPAIR
STRUCTURE NO. 031-0016**

SHEET 13 OF 20 SHEETS

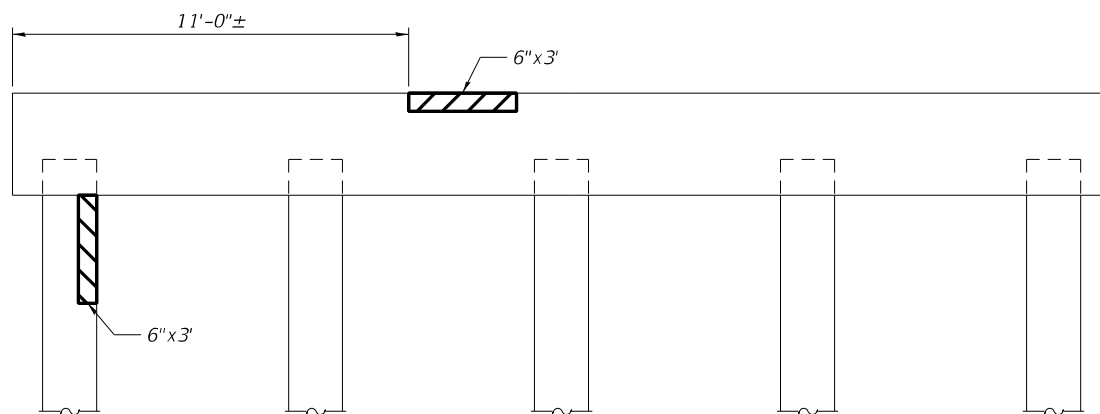
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	28
CONTRACT NO. 76K57				
		ILLINOIS	FED. AID PROJECT	



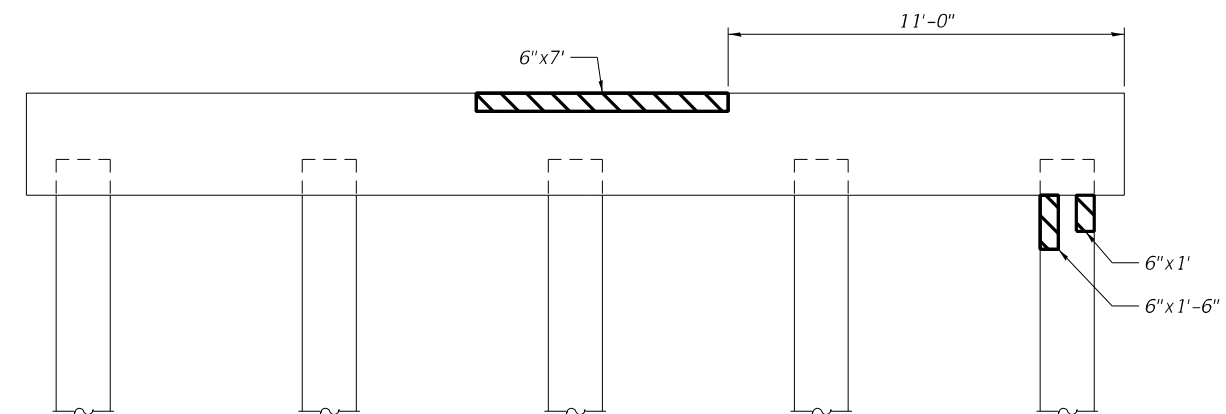
Pier 1 (Bent 2) - North Elevation
(Looking South)



Pier 1 (Bent 2) - West Elevation
(Looking East)



Pier 2 (Bent 3) - South Elevation
(Looking North)



Pier 2 (Bent 3) - North Elevation
(Looking South)

LEGEND

Area of Structural Concrete Repair

BILL OF MATERIAL

Item	Unit	Total
Structural Repair of Concrete (Depth <= 5")	Sq. Ft.	9

MODEL: Layout1
FILE NAME: P:\10E2166-29\Final Files to IDOT-76K57 Lick Creek\0310016-76K57-014-Pier.dgn

BENTON & ASSOCIATES, INC.

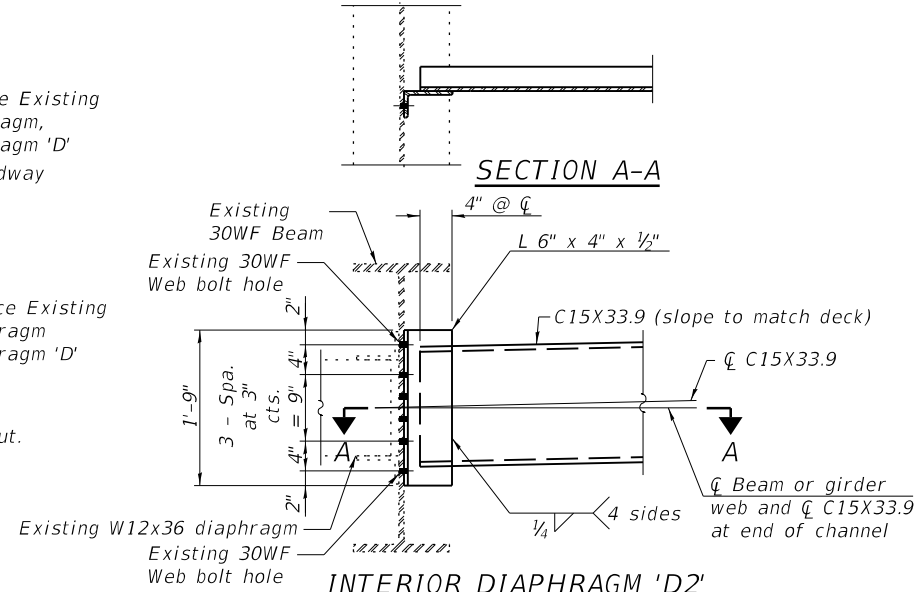
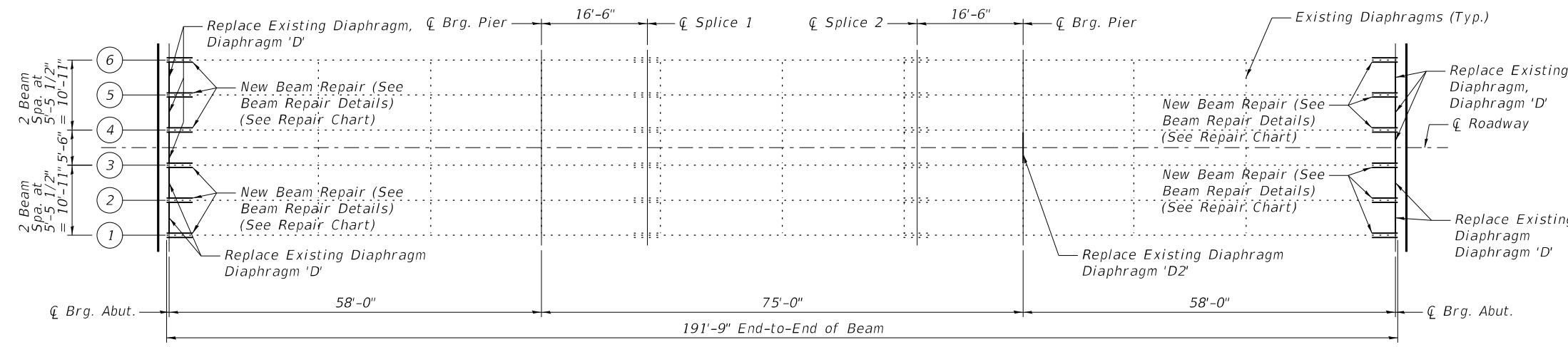
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STATE OF ILLINOIS
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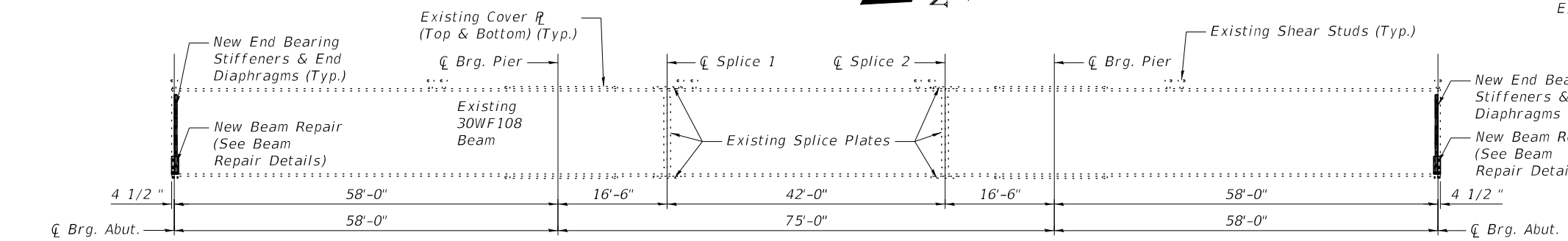
PIER REPAIR
STRUCTURE NO. 031-0016

SHEET 14 OF 20 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	29
CONTRACT NO. 76K57			ILLINOIS FED. AID PROJECT	

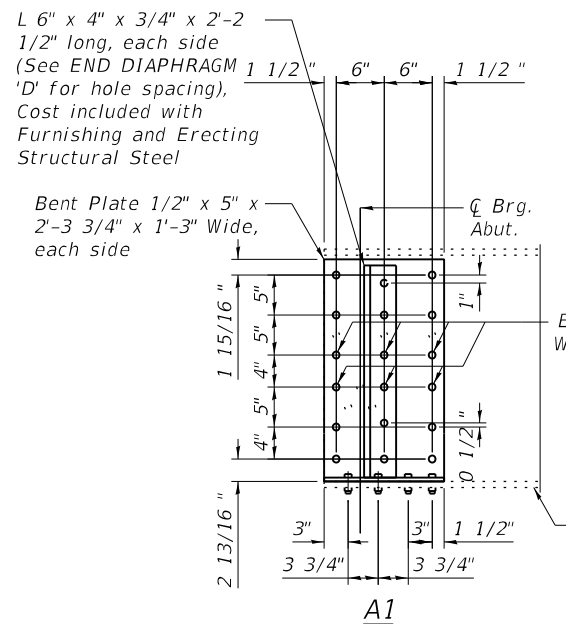


Notes:
 Two hardened washers required for each set of oversized holes.
 **3/4" Ø HS bolts, 1 1/16" Ø holes
 All Structural Steel included in this detail shall be Galvanized.
 Contractor shall field measure each existing beam's bolt hole layout prior to fabrication of bearing stiffener angles.
 Cost included with Furnishing and Erecting Structural Steel.

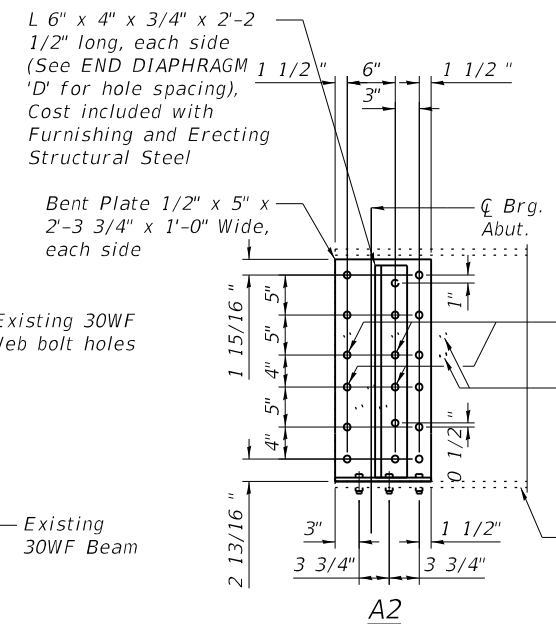


BEAM ELEVATION
 "CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.

Notes:
 All structural steel for end diaphragms and beam end repairs shall conform to the requirements of AASHTO M270, Grade 36.
 Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
 Any missing, loose, or deteriorated rivets found in existing connections during construction shall be replaced with high strength bolts.



BEAM REPAIR 'A' & BEARING STIFFENER

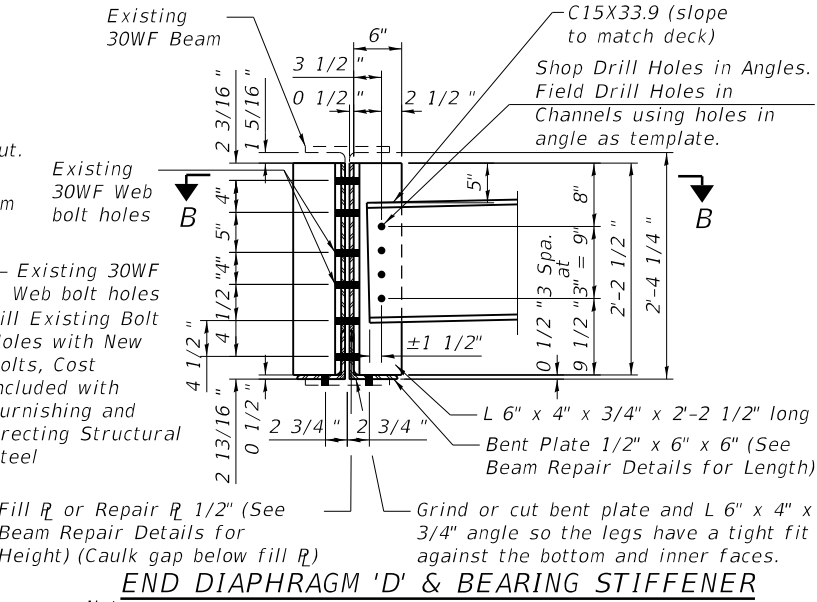


BEAM REPAIR 'B' & BEARING STIFFENER

BEAM REPAIR CHART

Beam	Beam Repair Detail No.	
	South End	North End
1	B1	B1
2	A2	A2
3	A2	A1
4	A2	A1
5	A2	A1
6	B2	B1

Notes:
 Two hardened washers required for each set of oversized holes.
 All Structural Steel included in this detail shall be Galvanized.
 Contractor shall field measure each existing beam's bolt hole layout prior to fabrication of bearing stiffener angles and bent plates.
 Grind or cut bent plate and L 6" x 4" x 3/4" angle so the legs have a tight fit against the bottom and inner faces.
 Cost included with Structural Steel Repair, unless noted otherwise.



Notes:
 Two hardened washers required for each set of oversized holes.
 All Structural Steel included in this detail shall be Galvanized.
 Contractor shall field measure each existing beam's bolt hole layout prior to fabrication of bearing stiffener angles.
 Cost included with Furnishing and Erecting Structural Steel.

BILL OF MATERIAL

Item	Unit	Total
Furnishing and Erecting Structural Steel	Pound	3500
Structural Steel Removal	Pound	2960
Structural Steel Repair	Pound	1340

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL
 STRUCTURE NO. 031-0016

SHEET 15 OF 20 SHEETS

USER NAME =	DESIGNED - MBH	REVISED - 3/14/19
PLOT SCALE =	CHECKED - RHB	REVISED -
PLOT DATE =	DRAWN - MBH	REVISED -
	CHECKED - RHB	REVISED -

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	30
CONTRACT NO. 76K57				
ILLINOIS FED. AID PROJECT				

MODEL: SMOELNAMES
 FILE NAME: SFILES

SDATES STIMES

MODEL: Layout1
 FILE NAME: P:\10E2166-29\Final Files to IDOT-76K57 Lick Creek\0310016-76K57-016-Steel.dgn

BENTON & ASSOCIATES, INC.

EXTERIOR GIRDER MOMENT TABLE				
		0.4 Sp. 1 or 0.6 Sp. 3	Pier	0.5 Sp. 2
<i>I_s</i>	(in ⁴)	4470	7800	4470
<i>I_c(n)</i>	(in ⁴)	13298	-	13298
<i>I_c(3n)</i>	(in ⁴)	9842	-	9842
<i>S_s</i>	(in ³)	299	512	299
<i>S_c(n)</i>	(in ³)	466	-	466
<i>S_c(3n)</i>	(in ³)	422	-	422
<i>Z</i>	(in ³)	-	559	-
<i>ϕ</i>	(k/')	0.87	0.92	0.87
<i>M_ϕ</i>	('k)	179.6	430.2	183.1
<i>s_ϕ</i>	(k/')	0.025	0.025	0.025
<i>M_{sϕ}</i>	('k)	5.9	10.6	7.0
<i>M_l</i>	('k)	357.7	259.3	401.8
<i>MIM</i>	('k)	97.7	70.8	100.5
<i>⁵/₃ [M_l + i]</i>	('k)	759.0	550.3	837.1
<i>Ma</i>	('k)	1227.9	1288.3	1335.4
<i>Mu</i>	('k)	1881	1537	1881
<i>fs_ϕ non-comp</i>	(ksi)	7.20	10.09	7.34
<i>fs_ϕ (comp)</i>	(ksi)	0.17	-	0.20
<i>fs⁵/₃ [M_l + M_I]</i>	(ksi)	19.54	12.90	21.55
<i>fs (Overload)</i>	(ksi)	26.91	22.99	29.09
<i>fs (Total)</i>	(ksi)	-	-	-
<i>VR</i>	(k)	60.1	-	47.9

EXTERIOR GIRDER REACTION TABLE			
		Abut.	Pier
<i>R_ϕ</i>	(k)	18.0	66.8
<i>R_l</i>	(k)	32.4	40.4
<i>R_i</i>	(k)	8.9	11.0
<i>R_{Total}</i>	(k)	59.3	118.2

* Compact section
 ** Braced non-compact and partially braced section

I_s, S_s: Non-composite moment of inertia and section modulus of the steel section used for computing *fs*(Total and Overload) due to non-composite dead loads (in.⁴ and in.³).
I_c(n), S_c(n): Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing *fs*(Total and Overload) due to short-term composite live loads (in.⁴ and in.³).
I_c(3n), S_c(3n): Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing *fs*(Total and Overload) due to long-term composite (superimposed) dead loads (in.⁴ and in.³).
Z: Plastic Section Modulus of the steel section in non-composite areas (in.³).
ϕ: Un-factored non-composite dead load (kips/ft.).
M_ϕ: Un-factored moment due to non-composite dead load (kip-ft.).
s_ϕ: Un-factored long-term composite (superimposed) dead load (kips/ft.).
M_{sϕ}: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
M_l: Un-factored live load moment (kip-ft.).
M_I: Un-factored moment due to impact (kip-ft.).
Ma: Factored design moment (kip-ft.).
 $1.3 [M_{\phi} + M_{s\phi} + \frac{5}{3} (M_l + M_I)]$
Mu: Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).
fs (Overload): Sum of stresses as computed from the moments below (ksi).
 $M_{\phi} + M_{s\phi} + \frac{5}{3} (M_l + M_I)$
fs (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
 $1.3 [M_{\phi} + M_{s\phi} + \frac{5}{3} (M_l + M_I)]$
VR: Maximum *l* + impact shear range within the composite portion of the span for stud shear connector design (kips).

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**STEEL DETAILS
 STRUCTURE NO. 031-0016**

SHEET 16 OF 20 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	31
CONTRACT NO. 76K57				
ILLINOIS		FED. AID PROJECT		

BEAM REACTION TABLE

Expansion Bearing Reactions	S. Abut. (kips)	N. Abut. (kips)
W30 Dead Load*	2.5	2.5

* Reactions for Dead Load are for dead load of steel only

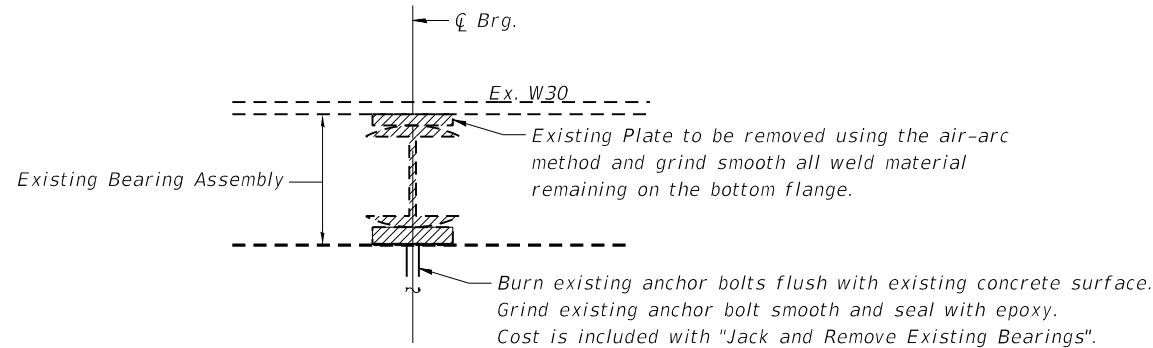
JACK & REMOVE EXISTING BEARING PROCEDURE

1. Removal of existing deck.
2. Jacking existing superstructure. Jack capacity provided should be between 50% and 100% greater than maximum expected loading. For reaction table see above.
3. Remove bearings.
4. Jack existing beams to proposed position and complete construction.

JACKING EXISTING SUPERSTRUCTURE & REMOVING BEARING NOTES

1. Jacking existing superstructure shall be done after the existing deck is removed.
2. The Contractor shall submit plans for jacking the existing superstructure for approval by the Engineer prior to commencing any work with the bearings. The submittal shall be prepared and sealed by a Licensed Structural Engineer in Illinois.
3. It shall be the Contractor's responsibility to verify beam elevations before and after the beams are jacked.
4. The lifting of the structure shall be controlled so that the relative elevation between adjacent beams does not vary more than 1/4 inch from their original elevation differential.
5. The relative elevations at adjacent substructure units shall not vary more than 3/4 inch from the original relative elevations.
6. A synchronous lifting system shall be used to control and equalize individual jack pressures to insure that the superstructure is lifted uniformly without exceeding the above stated relative elevation differentials.
7. The jack capacity provided shall be between 50% and 100% greater than the maximum expected loading. For reaction table see above.
8. The diaphragms shall not be used as load carrying members in the jacking and cribbing system.
9. When jacks are placed directly under a beam, the jack shall be centered under the web and a steel plate shall be placed between the top of the jack and the bottom flange of the beam. When web stiffeners bearing on the bottom flange do not exist directly over the location of the jack under a steel beam, hardwood timbers shall be installed tightly between the top and bottom flange to prevent flange rotation. Steel stiffening angles shall be attached to the web of the beam when the beam web thickness is not adequate to carry the jacking load. Steel plates shall be placed under jacks bearing directly on the existing substructure to distribute the jacking load and prevent damage to the existing concrete.
10. Jacks shall be placed in a manner and in locations that will ensure that the jacks will be equally loaded and the load will be uniformly distributed to the foundation of the jacking system.
11. The following maximum allowable pressures shall be used to determine the area of the timber mats supporting jacking systems.

Supporting Material	Max. Allowable Pressure
Natural Ground (Unsaturated).....	0.5 tons/sq. ft.
Conc. Slope walls & Bit. Shoulders.....	1.0 tons/sq. ft.
Bituminous Pavements.....	2.0 tons/sq. ft.
Concrete Pavements.....	4.0 tons/sq. ft.



EXISTING BEARING REMOVAL DETAIL

Note:
Prior to ordering any material the Contractor shall verify in the field all bearing height and shim thickness dimensions.

BILL OF MATERIAL

Item	Unit	Total
Jack and Remove Existing Bearings	Each	12

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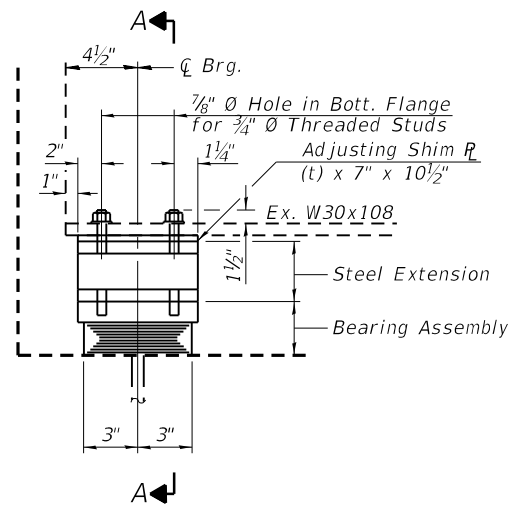
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**BEARING REMOVAL DETAILS
STRUCTURE NO. 031-0016**

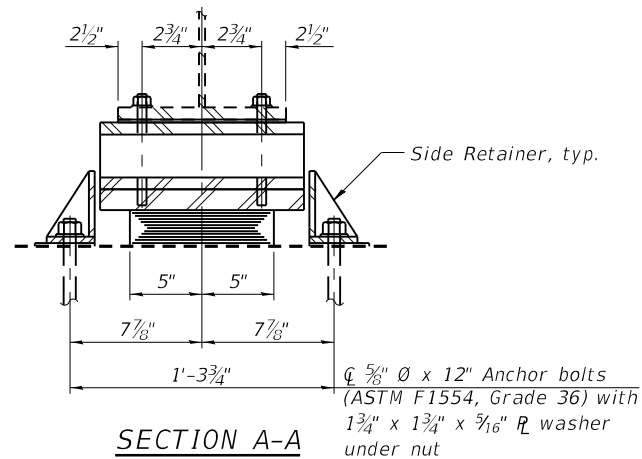
SHEET 17 OF 20 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	32
CONTRACT NO. 76K57				
		ILLINOIS	FED. AID PROJECT	

MODEL: Layout1
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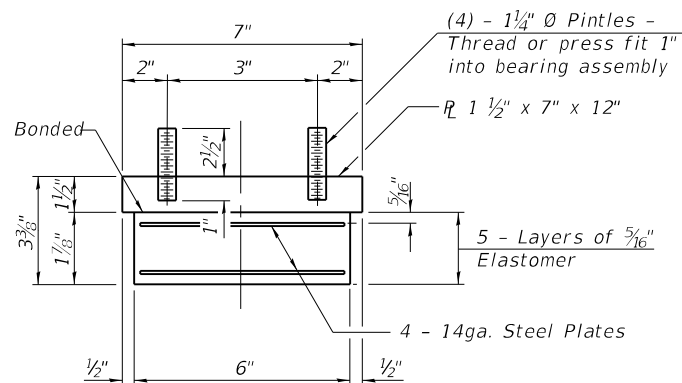


ELEVATION AT NORTH ABUT.



SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.



BEARING ASSEMBLY

Note:
Shim plates shall not be placed under Bearing Assembly.

Notes:

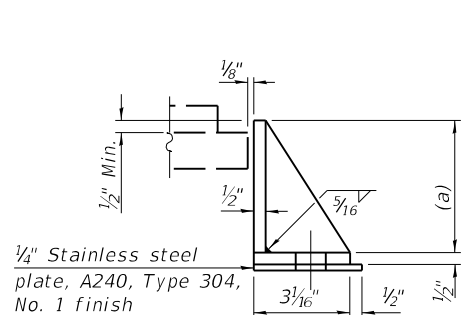
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.

Anchor bolts and side retainers at all supports shall be installed as each member is erected unless an equivalent temporary means of lateral restraint is used.

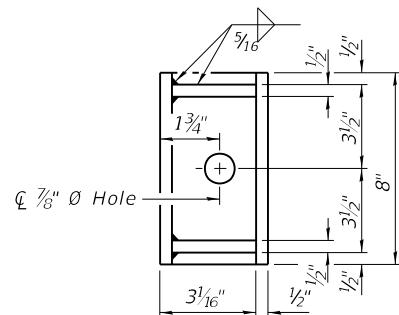
Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

Prior to ordering any material the Contractor shall verify in the field all bearing height and shim thickness dimensions.

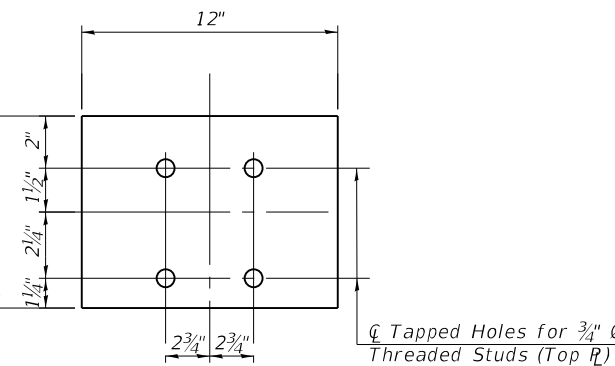
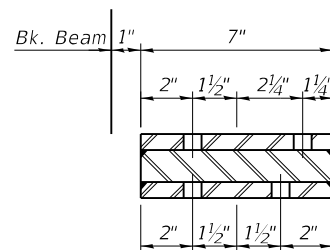


SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

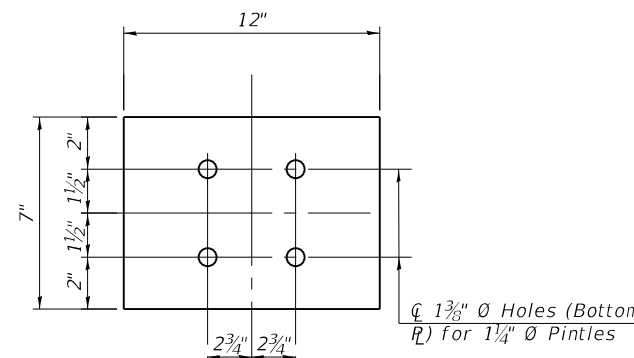


SECTION D-D



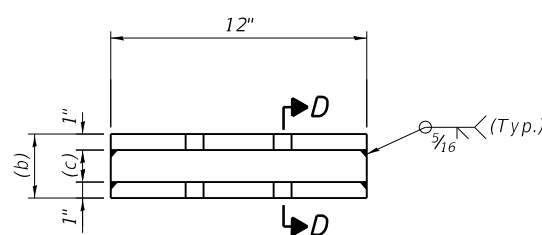
PLAN TOP PLATE

ϕ Tapped Holes for 3/4" ϕ Threaded Studs (Top R)



PLAN BOTTOM PLATE

ϕ 1 3/8" ϕ Holes (Bottom R) for 1 1/4" ϕ Pintles



STEEL EXTENSION DETAIL

Bearing Properties			
Dimensions	a	b	c
ϕ N. Abut. Brg.	3 1/8"	5 1/2"	3 1/2"

Bearing Shim R Thickness - t (inches)						
Beams	1	2	3	4	5	6
ϕ N. Abut. Brg.	1/8"	5/8"	5/8"	0	1 1/16"	15/16"

Existing Bearing Seat Elevation Table						
Beams	1	2	3	4	5	6
ϕ N. Abut. Brg.	520.95	520.93	520.93	520.92	520.92	520.92

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	6
Anchor Bolts, 5/8"	Each	12
Furnishing and Erecting Structural Steel	Pound	790

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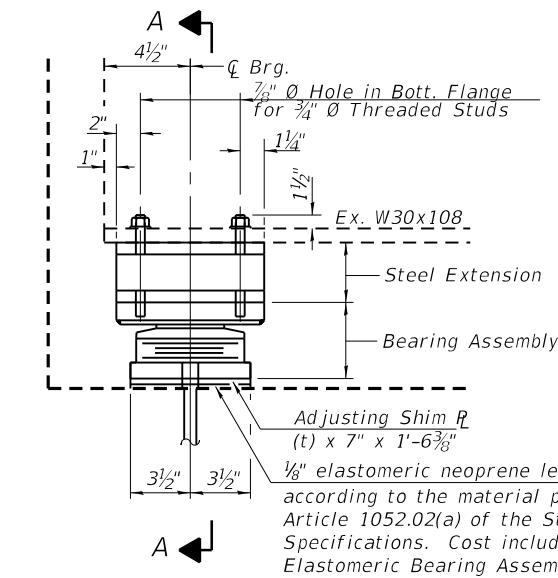
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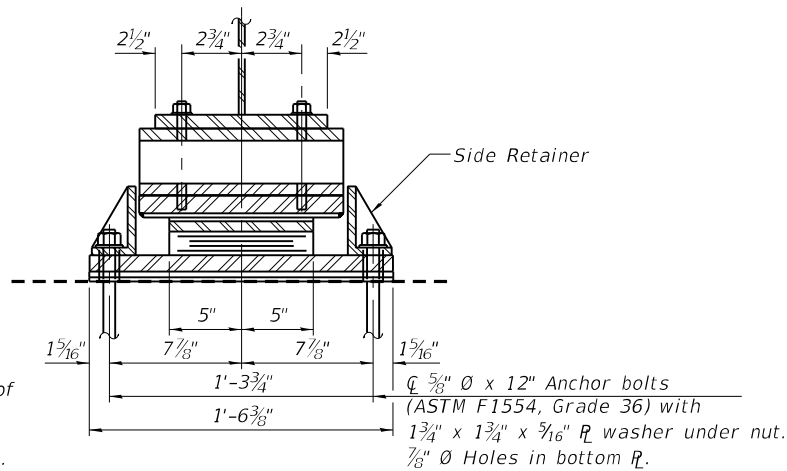
BEARING DETAILS
STRUCTURE NO. 031-0016

SHEET 18 OF 20 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	33
CONTRACT NO. 76K57				
ILLINOIS FED. AID PROJECT				

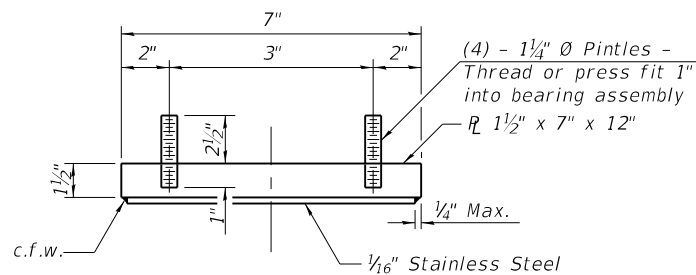


ELEVATION AT SOUTH ABUT.

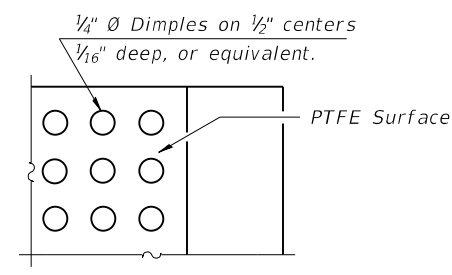


SECTION A-A

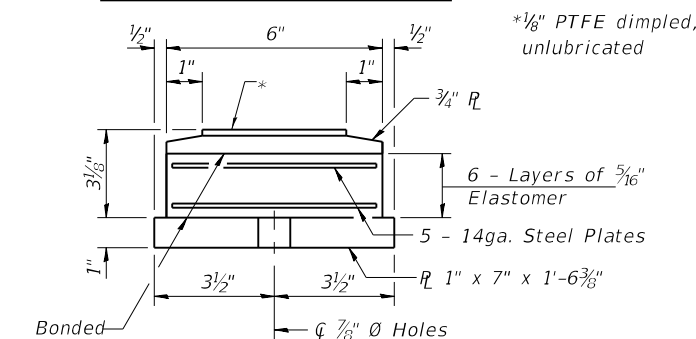
TYPE II ELASTOMERIC EXP. BRG.



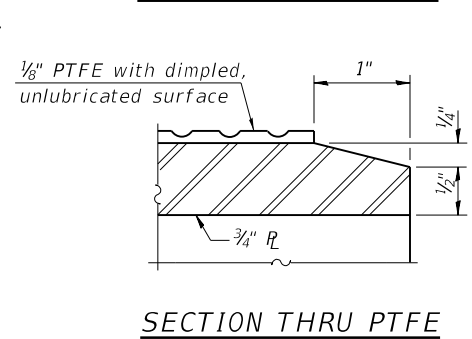
TOP BEARING ASSEMBLY



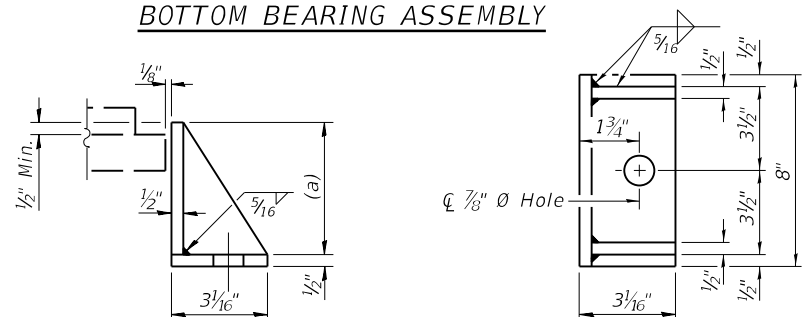
PLAN-PTFE SURFACE



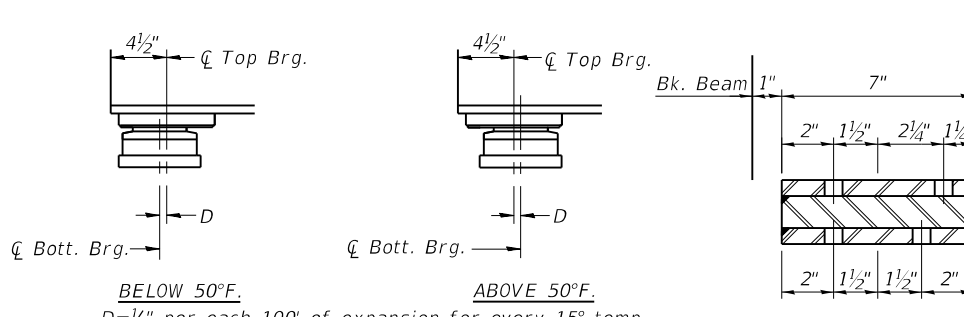
BOTTOM BEARING ASSEMBLY



SECTION THRU PTFE

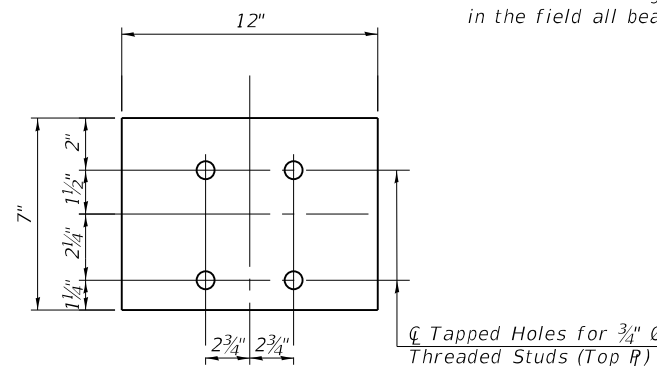


SIDE RETAINER
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



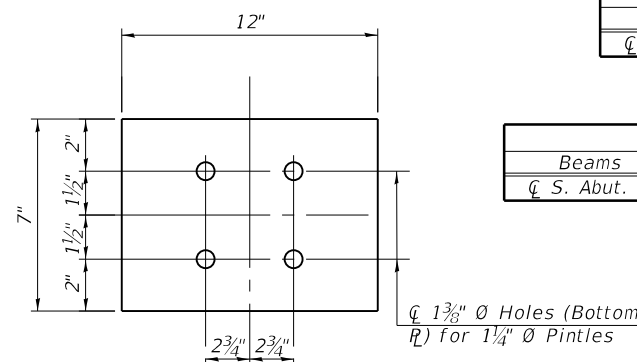
EXPANSION BEARING ORIENTATION
BELOW 50°F. D=1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.
ABOVE 50°F.

The above diagrams are for informational purposes only to show the amount of expected offset "D" for the current temperature in the field.



PLAN TOP PLATE

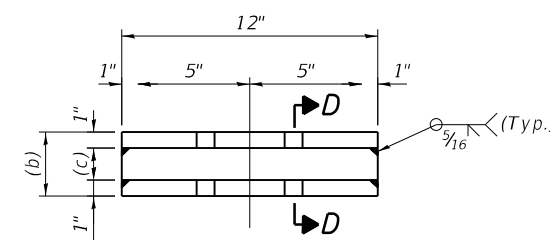
Bearing Properties			
Dimensions	a	b	c
∅ S. Abut. Brg.	3 1/8"	3 3/16"	1 3/16"



PLAN BOTTOM PLATE

Bearing Shim R Thickness - t (inches)						
Beams	1	2	3	4	5	6
∅ S. Abut. Brg.	0	15/16"	9/16"	1/2"	9/16"	7/16"

Existing Bearing Seat Elevation Table						
Beams	1	2	3	4	5	6
∅ S. Abut. Brg.	520.92	520.90	520.89	520.88	520.86	520.85



STEEL EXTENSION DETAIL

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type II	Each	6
Anchor Bolts, 5/8"	Each	12
Furnishing and Erecting Structural Steel	Pound	460

MODEL: Layout1
FILE NAME: P:\10E2166-29\FAP 10 IL 267 3BR-1 Lick Creek 76K57\CADD Sheets\Structure Sheets\0310016-76K57-019-Bearing2.dgn
5/8/2019 8:53:04 AM

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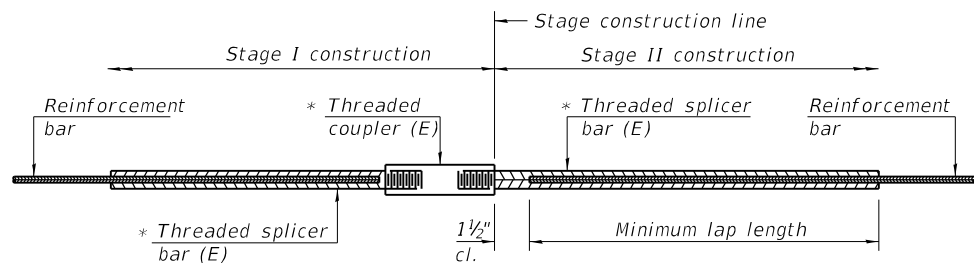
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BEARING DETAILS
STRUCTURE NO. 031-0016

SHEET 19 OF 20 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	34
CONTRACT NO. 76K57				
ILLINOIS FED. AID PROJECT				

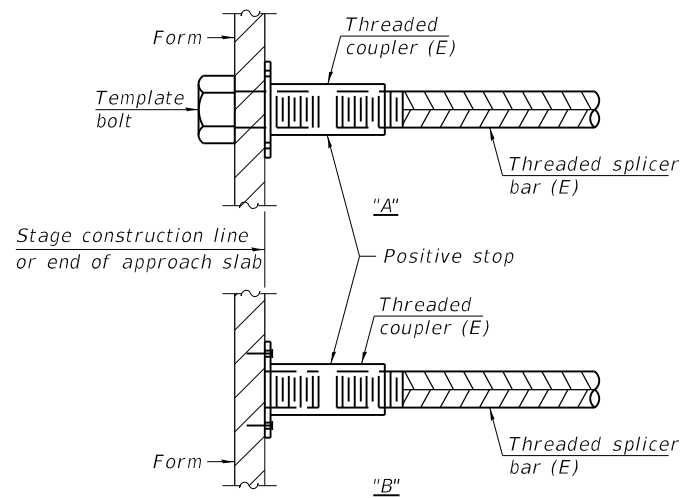


STANDARD BAR SPLICER ASSEMBLY

Threaded splicer bar length = min. lap length + 1 1/2" + 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
Superstructure	#5	533	3'-6"
Superstructure	#6	10	4'-2"
Abutments	#5	16	2'-6"

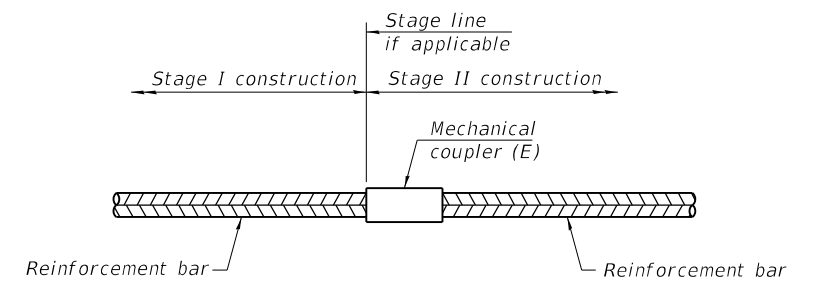


INSTALLATION AND SETTING METHODS

"A" : Set bar splicer assembly by means of a template bolt.

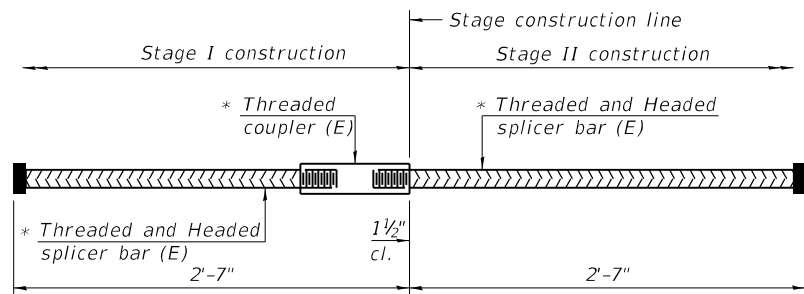
"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.

(E) : Indicates epoxy coating.



STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required

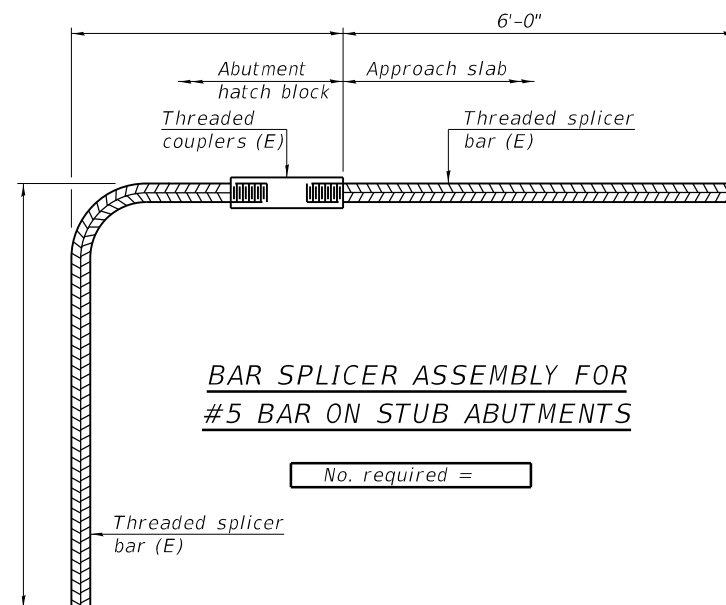


HEADED BAR SPLICER ASSEMBLY

Headed bars shall conform to ASTM A970 with threaded attachment; Class HA; and reinforcement bars conforming to ASTM A706.

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

Location	Bar size	No. assemblies required
Superstructure	#5	6



BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS

No. 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.

MODEL: Layout1
FILE NAME: P:\110E2166-29\Final Files to IDOT-76K57 Lick Creek\0310016-76K57-020-Splicer.dgn

BSD-1
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2-17-2017

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BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
STRUCTURE NO. 031-0016

SHEET 20 OF 20 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-1	GREENE	35	35
CONTRACT NO. 76K57				
ILLINOIS FED. AID PROJECT				