

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
782	110B-1	GALLATIN	11	1
		ILLINOIS	CONTRACT NO. 78392	

FOR INDEX OF SHEETS, SEE SHEET NO. 2  
FOR SUMMARY OF QUANTITIES, SEE SHEET NO. 4 - 6

# PROPOSED HIGHWAY PLANS

F.A.P. ROUTE 782 (IL 1)  
SECTION 110B-1  
PROJECT STP-WX9B(939)  
BOX CULVERT REPLACEMENT  
GALLATIN COUNTY

C-99-013-14

**TRAFFIC DATA**  
2015 ADT = 1600  
WITH 33.8% TRUCKS  
SPEED LIMIT: 55 MPH

**TOWNSHIP**  
OMAHA

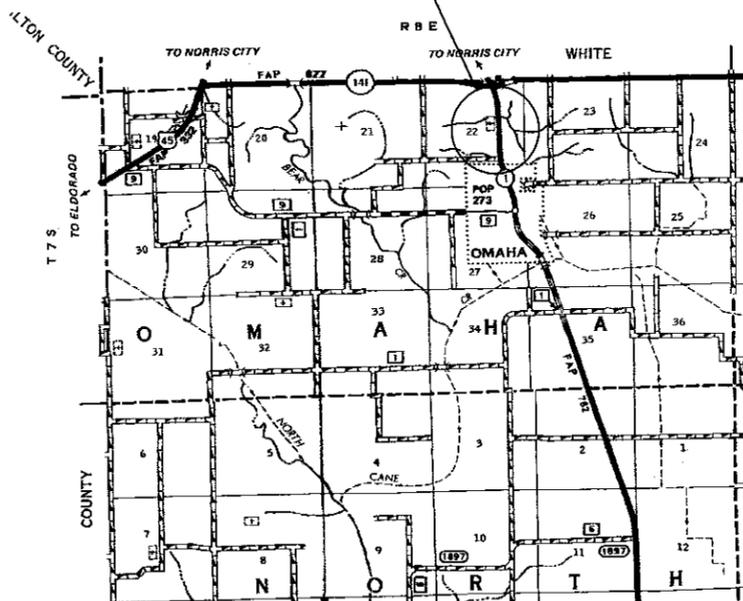
DESIGN DESIGNATION: N/A  
COORDINATE SYSTEM: EAST ZONE  
POSTED SPEED: 55 MPH

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

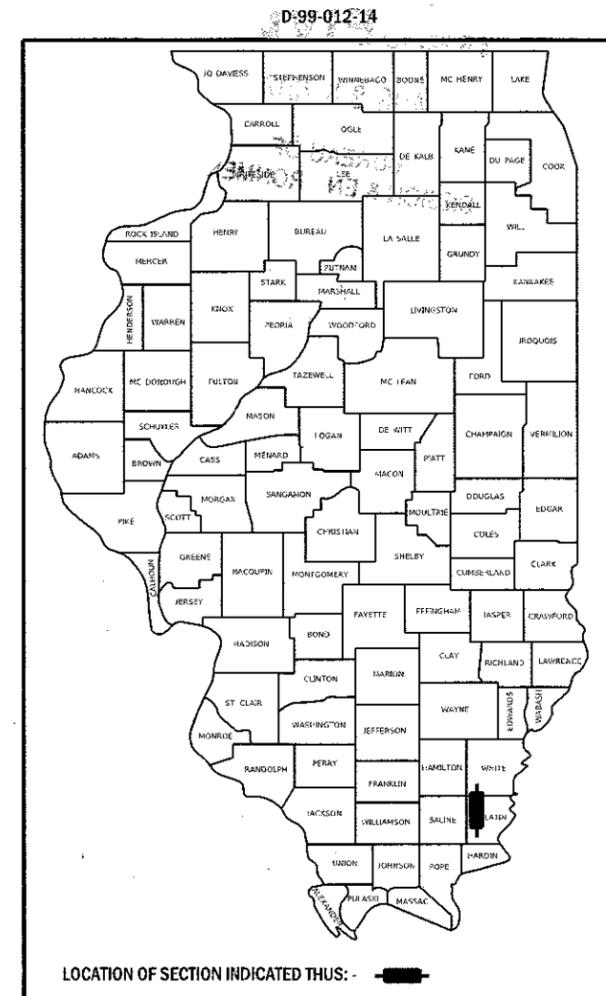
PROJECT ENGINEER: DAVID PICHE 618-351-5227  
DESIGN ENGINEER: ADRIAN ADAMS 618-351-5262

CONTRACT NO. 78392

IMPROVEMENT LOCATION  
STRUCTURE 030-7007 (E)  
STRUCTURE 030-7027 (P)  
IL 1 OVER UNNAMED CREEK



GROSS LENGTH = 50 FT. = 0.010 MILE  
NET LENGTH = 50 FT. = 0.010 MILE



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SUBMITTED August 10 2017  
Jeffrey K. Klein  
REGIONAL ENGINEER

Oct 13 2017  
Maureen M. Adams PE/PS  
ENGINEER OF DESIGN AND ENVIRONMENT

Oct 13 2017  
[Signature]  
DIRECTOR OF PROGRAM DEVELOPMENT

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OF THE STATE OF ILLINOIS

## GENERAL NOTES

- 1) THE THICKNESS OF 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 HOT-MIX ASPHALT MIXTURE IS PLACED.
- 2) FACTORS USED FOR ESTIMATING PLAN QUANTITIES ARE AS FOLLOWS AND SHALL NOT BE USED FOR THE BASIS OF FINAL QUANTITIES:
- |                              |                  |
|------------------------------|------------------|
| ALL HOT MIX ASPHALT          | 2.016 TONS/CU YD |
| ALL AGGREGATE                | 2.05 TONS/CU YD  |
| BITUMINOUS MATERIALS:        |                  |
| (TACK COAT) ON PAVEMENT      | 0.05 LBS/SQ FT   |
| HMA LIFTS                    | 0.025 LBS/SQ FT  |
| (PRIME COAT) AGGREGATE BASES | 0.25 LBS/SQ FT   |
| RIPRAP                       | 1.50 TONS/CU YD  |
| EARTH                        | 110 LBS/CU FT    |
- 3) AT ALL LOCATIONS WHERE EXISTING HOT-MIX ASPHALT OR CONCRETE PAVEMENT JOINS AN EXISTING HOT-MIX ASPHALT OR CONCRETE PAVEMENT, A FULL DEPTH SAWED JOINT SHALL BE CONSTRUCTED. THE COST OF THIS JOINT WILL BE INCLUDED IN THE COST OF THE TYPE OF PAVEMENT BEING CONSTRUCTED.
- 4) A CALCIUM CHLORIDE ACCELERATOR WILL BE ALLOWED FOR THE PCC PAVEMENT, 10", AND PCC SHOULDERS, 8". THE CONCRETE SHALL BE CLASS PP-1 OR PP-2 PER ARTICLE 1020 OF THE STANDARD SPECS.
- 5) REMOVAL OF EXISTING AGGREGATE SHOULDERS SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION.
- 6) EARTHWORK COMPACTION SHALL BE TO THE SATISFACTION OF THE ENGINEER.
- 7) COMMITMENTS: NONE AS OF AUGUST 25, 2017.

## INDEX OF SHEETS

1	COVER SHEET
2	GENERAL NOTES, INDEX OF SHEETS, AND STANDARDS
3	SIGNATURE SHEET
4-5	SUMMARY OF QUANTITIES
6	SUMMARY OF QUANTITIES AND DETAILS
7	GENERAL PLAN SN 030-7027 (P)
8	FINAL SECTION SN 030-7027 (P)
9	LIMITS OF POROUS GRANULAR EMBANKMENT AND TYPICAL SECTION WITHIN PAVEMENT REMOVAL SN 030-7027 (P)
10-11	PRECAST CONCRETE BOX CULVERT APRON END SECTION DETAILS SN 030-7027 (P)

## STANDARDS

000001-06	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF AN INCH AND OF A FOOT
420001-08	PAVEMENT JOINTS
420601-06	24' PCC PAVEMENT
420701-03	PAVEMENT FABRIC
701001-02	OFF-RD OPERATIONS, 2L, 2W, MORE THAN 15' AWAY
701006-05	OFF-RD OPERATIONS, 2L, 2W, 15' TO 24" FROM PAVEMENT EDGE
701201-04	LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS > 45 MPH
701901-06	TRAFFIC CONTROL DEVICES
780001-05	TYPICAL PAVEMENT MARKINGS
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

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		DRAWN -	REVISED -				110B-1	GALLATIN	11	2		
	PLOT SCALE = 100,0000 ' / in.	CHECKED -	REVISED -			CONTRACT NO. 78392						
	PLOT DATE = 8/24/2017	DATE -	REVISED -			SCALE:	SHEET	OF	SHEETS	STA.	TO	STA.

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	DRAWN - _____	REVISED - _____
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PLOT DATE = 8/10/2017	DATE - _____	REVISED - _____

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**SIGNATURE SHEET**

SCALE: \_\_\_\_\_ SHEET \_\_\_\_\_ OF \_\_\_\_\_ SHEETS STA. \_\_\_\_\_ TO STA. \_\_\_\_\_

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
782	110B-1	GALLATIN	11	3
CONTRACT NO. 78392				
ILLINOIS FED. AID PROJECT				

Prepared By:   
DISTRICT STUDIES & PLANS ENGINEER

Examined By:   
DISTRICT LAND ACQUISITION ENGINEER

Examined By:   
DISTRICT PROGRAM DEVELOPMENT ENGINEER

Examined By:   
DISTRICT OPERATIONS ENGINEER

Examined By:   
DISTRICT PROJECT IMPLEMENTATION ENGINEER

Examined By:   
DISTRICT CONSTRUCTION ENGINEER

Examined By:   
DISTRICT MATERIALS ENGINEER

# SUMMARY OF QUANTITIES

COUNTY:	GALLATIN
ROUTE:	FAP 782 (IL1)
FUNDING:	80% STATE, 20% FED ✓
LOCATION:	RURAL ✓
	ROADWAY
	0004

CODE NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY
20200100	EARTH EXCAVATION	CU YD	1026
20201200	REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL	CU YD	50
20700220	POROUS GRANULAR EMBANKMENT	CU YD	510
25000200	SEEDING, CLASS 2	ACRE	0.25
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	23
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	23
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	23
25000700	AGRICULTURAL GROUND LIMESTONE	TON	0.5
25100630	EROSION CONTROL BLANKET	SQ YD	390
28100107	STONE RIPRAP, CLASS A4	SQ YD	66
28200200	FILTER FABRIC	SQ YD	66
42000060	WELDED WIRE REINFORCEMENT	SQ YD	134

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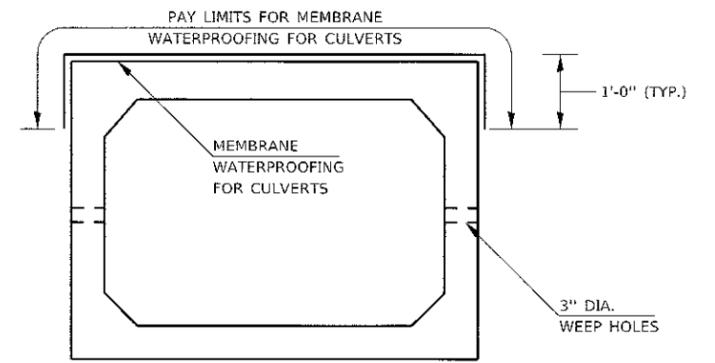
# SUMMARY OF QUANTITIES - CONT

COUNTY:	GALLATIN
ROUTE:	FAP 782 (IL1)
FUNDING:	80% STATE, 20% FED
LOCATION:	RURAL
	ROADWAY
	0004

CODE NUMBER	ITEM DESCRIPTION	UNIT	
X0327979	PAVEMENT MARKING REMOVAL - GRINDING	SQ FT	37
X7015005	CHANGEABLE MESSAGE SIGN	CAL DA	34
* Z0054517	ROCK FILL - FOUNDATION	TON	103

3  
\* SPECIALTY ITEM

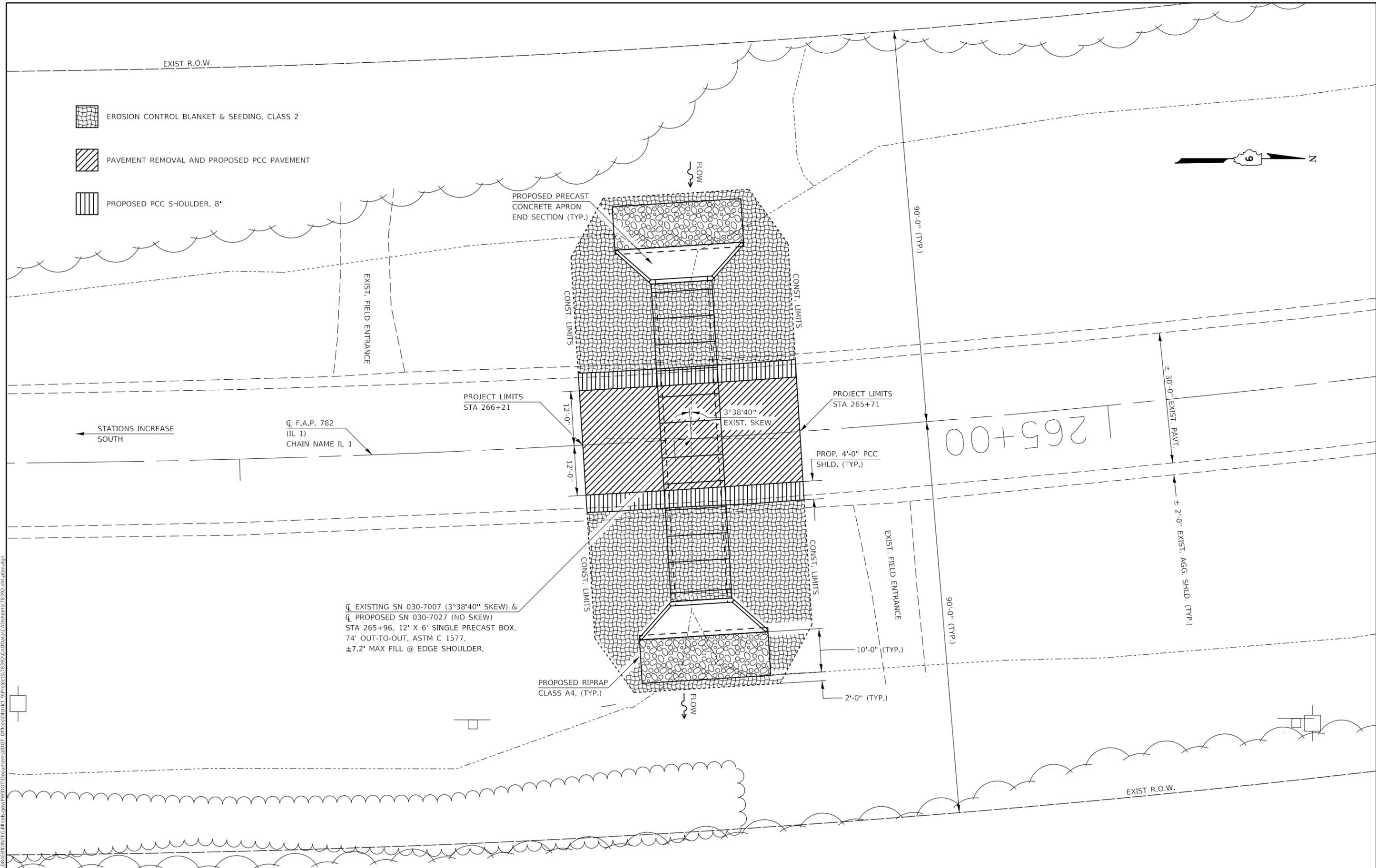
STATION	SIZE	SKEW	DESIGN FILL (FT.)		PGE BACKFILL REQUIRED
			EDGE OF SHLD. (MIN)	MAXIMUM	
265+71 TO 266+21	12' X 6'	0	• 5.9'	• 7.2'	510 CU YD



**PRECAST CONCRETE  
BOX CULVERT**

MODEL: DMSAUR  
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-  EROSION CONTROL BLANKET & SEEDING, CLASS 2
-  PAVEMENT REMOVAL AND PROPOSED PCC PAVEMENT
-  PROPOSED PCC SHOULDER, 8"



C F.A.P. 782  
 (IL 1)  
 CHAIN NAME IL 1

PROJECT LIMITS  
 STA 266+21

PROJECT LIMITS  
 STA 265+71

3°38'40"  
 EXIST. SKEW

PROP. 4'-0" PCC  
 SHLD. (TYP.)

± 30'-0" EXIST. PAVT.  
 ± 2'-0" EXIST. AGG. SHLD. (TYP.)

C EXISTING SN 030-7007 (3°38'40" SKEW) &  
 C PROPOSED SN 030-7027 (NO SKEW)  
 STA 265+96, 12' X 6' SINGLE PRECAST BOX,  
 74' OUT-TO-OUT, ASTM C 1577,  
 ±7.2' MAX FILL @ EDGE SHOULDER.

PROPOSED RIPRAP  
 CLASS A4, (TYP.)

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DRAWN -	REVISED -	
PLOT SCALE = 20.0000' / in.	CHECKED -	REVISED -
PLOT DATE = 8/24/2017	DATE -	REVISED -

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

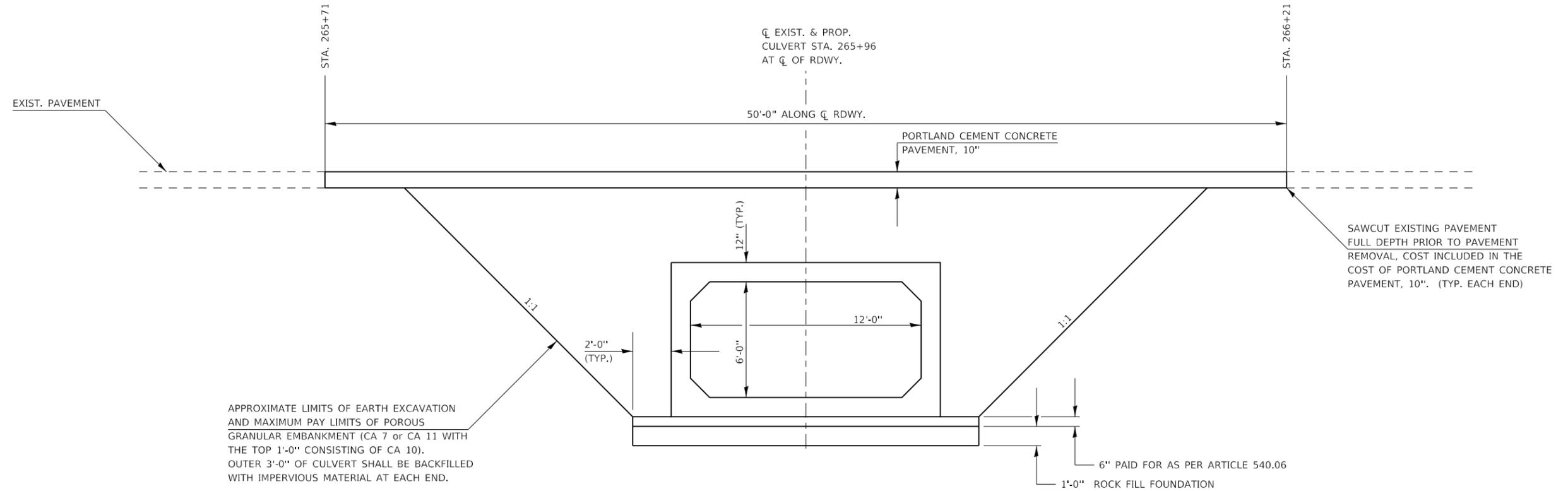
**GENERAL PLAN**  
**SN 030-7027 (P)**

SCALE: SHEET OF SHEETS STA. TO STA.

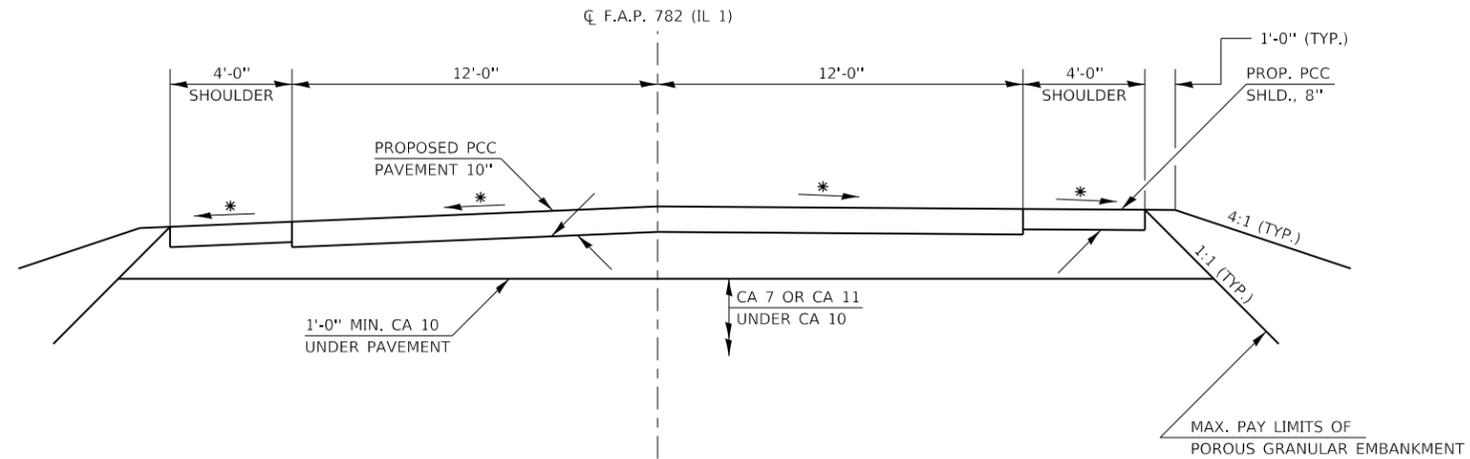
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
782	110B-1	GALLATIN	11	7
CONTRACT NO. 78392				
ILLINOIS FED. AID PROJECT				



## LIMITS OF POROUS GRANULAR EMBANKMENT

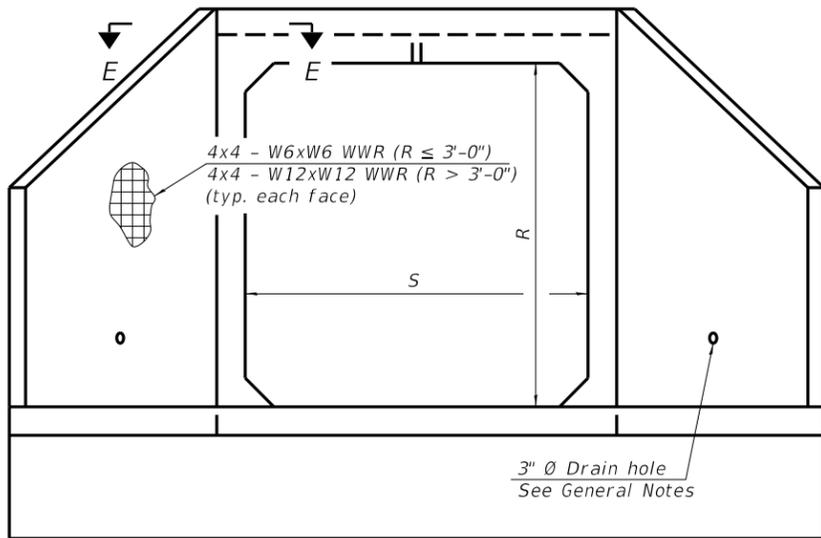


## SECTION WITHIN PAVEMENT REMOVAL

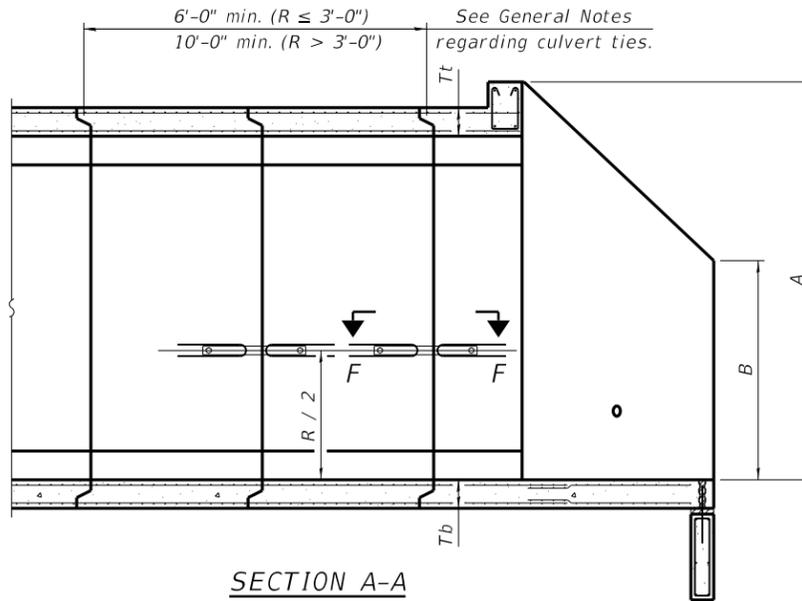


\* MATCH EXISTING CROSS SLOPES

FILE NAME =	USER NAME = adamsam	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>LIMITS OF POROUS GRANULAR EMBANKMENT AND SECTION WITHIN PAVEMENT REMOVAL SN 030-7027 (P)</b>	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
						782	110B-1	GALLATIN	11	9	
						CONTRACT NO. 78392					
						ILLINOIS FED. AID PROJECT					
				SCALE:		SHEET OF SHEETS		STA. TO STA.			



END VIEW



SECTION A-A

GENERAL NOTES

Box Culvert End Sections shall be constructed according to the requirements of Section 540 of the Standard Specifications except as modified herein. End sections will be paid for at the contract unit price per each for Box Culvert End Sections.

The Contractor may furnish the end section as a single precast concrete piece or construct the end section in the field using cast-in-place (CIP) construction. For CIP construction, the bottom slab thickness shall be increased by 2" and the clear cover to the bottom mat of reinforcement shall be increased to 3".

Box section dimensions, materials, and reinforcement details for Box Culvert End Sections shall be according to the requirements for ASTM C 1577 as required for the design of the portion of the culvert within the limits of Precast Concrete Box Culverts except as modified herein.

The number of culvert ties shall be sufficient to engage the minimum length of culvert barrel shown within the pay limits for Precast Concrete Box Culverts and will be dependent upon the length of box culvert segments furnished by the Contractor. Culvert ties are not required for box culverts having a rise (R) less than or equal to 3 ft and a span (S) greater than or equal to 10 ft.

All costs associated with furnishing and installing or constructing the toewall and culvert ties will not be measured for payment but shall be included in the unit price for Box Culvert End Sections of the culvert number specified.

Shop drawings that detail slab thickness and reinforcement layout for the Box Culvert End Sections shall be provided to the Engineer for review and approval. Reinforcement bars not detailed herein shall be detailed with a clear distance at the end of the reinforcement not less than 1/2" nor more than 2". For the precast option, it shall be the Contractor's responsibility for determining a method of handling and a construction procedure shall be included in the shop drawings. The Contractor shall determine and detail in the shop drawings any necessary strengthening or stiffening provisions necessary to handle the precast segment. Any required modifications shall be at no extra charge.

The Contractor may use reinforcement bars in lieu of welded wire reinforcement (WWR). Reinforcement bars shall be limited to the sizes of #3 through #5 bars, a maximum spacing of the lesser of 8" or the member thickness, and shall result in an area of reinforcement equal to or greater than that provided by the WWR. Minimum lap lengths detailed herein are applicable to WWR and reinforcement bars.

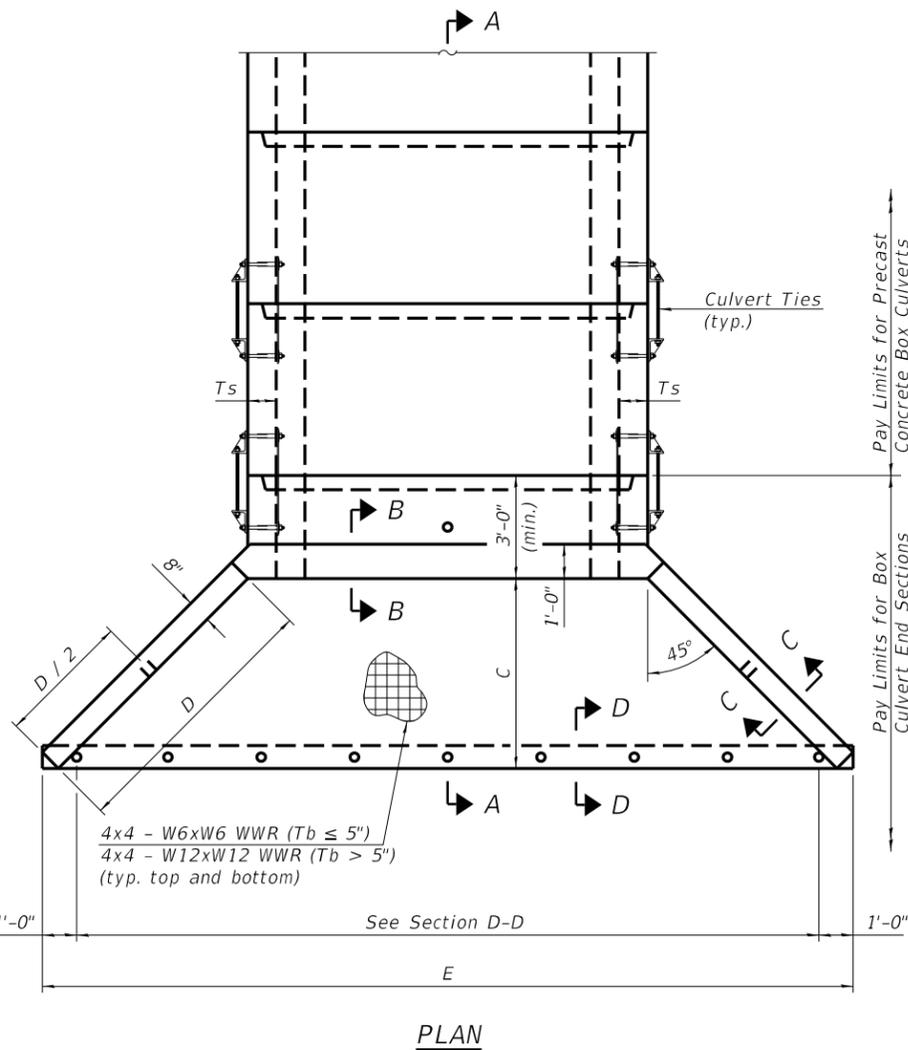
Reinforcement (circumferential and longitudinal) in the culvert barrel portion of the end section being lapped with reinforcement from the wingwalls or bottom slab of the end section shall not be less than that required by ASTM C 1577 for the design fill height or the reinforcement detailed for the end section, whichever is greater.

One drain hole shall be provided in each wingwall for end sections of box culverts having an opening with a clear rise greater than 3 ft. The drain hole shall be located within the lower 1/3 of the clear rise of the box culvert and shall conform to the requirements of Article 503.11 of the Standard Specifications.

APRON END SECTION DIMENSIONS

Span (S)	Rise (R)	Tt	Tb	Ts	A	B	C	D	E	Concrete Cu. Yd.	Culvert Ties Required
3'-0"	2'-0"	7"	6"	4"	3'-4"	2'-2"	2'-10 3/8"	4'-1"	10'-4 5/8"	2.8	Yes
3'-0"	2'-0"	4"	4"	4"	3'-1"	2'-1"	2'-7 7/8"	3'-9"	9'-11"	2.3	Yes
3'-0"	3'-0"	7"	6"	4"	4'-4"	2'-8"	3'-10 3/8"	5'-6"	12'-4 5/8"	3.7	Yes
3'-0"	3'-0"	4"	4"	4"	4'-1"	2'-7"	3'-7 7/8"	5'-2"	11'-11"	3.1	Yes
4'-0"	2'-0"	7.5"	6"	5"	3'-4 1/2"	2'-2 1/2"	2'-11 3/8"	4'-2"	11'-8"	3.3	Yes
4'-0"	2'-0"	5"	5"	5"	3'-2"	2'-1"	2'-8 1/2"	3'-10"	11'-2 3/8"	2.8	Yes
4'-0"	3'-0"	7.5"	6"	5"	4'-4 1/2"	2'-8 1/2"	3'-11 3/8"	5'-7"	13'-8 1/8"	4.2	Yes
4'-0"	3'-0"	5"	5"	5"	4'-2"	2'-7"	3'-8 1/2"	5'-3"	13'-2 3/8"	3.7	Yes
4'-0"	4'-0"	7.5"	6"	5"	5'-4 1/2"	3'-2 1/2"	4'-11 3/8"	7'-0"	15'-8 1/8"	5.3	Yes
4'-0"	4'-0"	5"	5"	5"	5'-2"	3'-1"	4'-8 3/8"	6'-8"	15'-2 1/2"	4.7	Yes
5'-0"	2'-0"	8"	7"	6"	3'-5"	2'-3"	2'-11 3/8"	4'-2"	12'-10"	3.9	Yes
5'-0"	2'-0"	6"	6"	6"	3'-3"	2'-2"	2'-10"	4'-0"	12'-7 1/4"	3.5	Yes
5'-0"	3'-0"	8"	7"	6"	4'-5"	2'-9"	3'-11 3/8"	5'-7"	14'-10 1/8"	4.9	Yes
5'-0"	3'-0"	6"	6"	6"	4'-3"	2'-8"	3'-10"	5'-5"	14'-7 1/4"	4.5	Yes
5'-0"	4'-0"	8"	7"	6"	5'-5"	3'-3"	4'-11 3/8"	7'-0"	16'-10 1/8"	6.1	Yes
5'-0"	4'-0"	6"	6"	6"	5'-3"	3'-2"	4'-9 1/4"	6'-9"	16'-5 1/8"	5.5	Yes
5'-0"	5'-0"	8"	7"	6"	6'-5"	3'-9"	5'-11 3/8"	8'-5"	18'-10 1/8"	7.4	Yes
5'-0"	5'-0"	6"	6"	6"	6'-3"	3'-8"	5'-9 1/4"	8'-2"	18'-5 1/8"	6.8	Yes
6'-0"	2'-0"	7"	7"	7"	3'-5"	2'-3"	2'-11 3/8"	4'-2"	14'-0"	4.3	Yes
6'-0"	2'-0"	7"	7"	7"	3'-4"	2'-2"	2'-10 3/8"	4'-1"	13'-10 3/8"	4.2	Yes
6'-0"	3'-0"	8"	7"	7"	4'-5"	2'-9"	3'-11 3/8"	5'-7"	16'-0 1/8"	5.4	Yes
6'-0"	3'-0"	7"	7"	7"	4'-4"	2'-8"	3'-10 3/8"	5'-6"	15'-10 3/8"	5.2	Yes
6'-0"	4'-0"	8"	7"	7"	5'-5"	3'-3"	4'-11 3/8"	7'-0"	18'-0 1/8"	6.5	Yes
6'-0"	4'-0"	7"	7"	7"	5'-4"	3'-2"	4'-10 3/4"	6'-11"	17'-10 3/4"	6.5	Yes
6'-0"	5'-0"	8"	7"	7"	6'-5"	3'-9"	5'-11 3/8"	8'-5"	20'-0 1/8"	8.0	Yes
6'-0"	5'-0"	7"	7"	7"	6'-4"	3'-8"	5'-10 3/4"	8'-4"	19'-10 3/4"	7.8	Yes
6'-0"	6'-0"	8"	7"	7"	7'-5"	4'-3"	6'-11 1/2"	9'-10"	22'-0 1/4"	9.5	Yes
6'-0"	6'-0"	7"	7"	7"	7'-4"	4'-2"	6'-10 3/4"	9'-9"	21'-10 3/4"	9.3	Yes
7'-0"	2'-0"	8"	8"	8"	3'-5"	2'-3"	2'-11 3/8"	4'-2"	15'-2"	4.9	Yes
7'-0"	3'-0"	8"	8"	8"	4'-5"	2'-9"	3'-11 3/8"	5'-7"	17'-2 1/8"	6.1	Yes
7'-0"	4'-0"	8"	8"	8"	5'-5"	3'-3"	4'-11 3/8"	7'-0"	19'-2 1/8"	7.4	Yes
7'-0"	5'-0"	8"	8"	8"	6'-5"	3'-9"	5'-11 3/8"	8'-5"	21'-2 1/8"	8.9	Yes
7'-0"	6'-0"	8"	8"	8"	7'-5"	4'-3"	6'-11 1/2"	9'-10"	23'-2 1/4"	10.6	Yes
8'-0"	2'-0"	8"	8"	8"	3'-5"	2'-3"	2'-11 3/8"	4'-2"	16'-2"	5.3	Yes
8'-0"	3'-0"	8"	8"	8"	4'-5"	2'-9"	3'-11 3/8"	5'-7"	18'-2 1/8"	6.5	Yes
8'-0"	4'-0"	8"	8"	8"	5'-5"	3'-3"	4'-11 3/8"	7'-0"	20'-2 1/8"	7.8	Yes
8'-0"	5'-0"	8"	8"	8"	6'-5"	3'-9"	5'-11 3/8"	8'-5"	22'-2 1/8"	9.3	Yes
8'-0"	6'-0"	8"	8"	8"	7'-5"	4'-3"	6'-11 1/2"	9'-10"	24'-2 1/4"	11.0	Yes
9'-0"	2'-0"	9"	9"	9"	3'-6"	2'-3"	3'-0 3/4"	4'-4"	17'-6 1/8"	6.2	Yes
9'-0"	3'-0"	9"	9"	9"	4'-6"	2'-9"	4'-0 3/4"	5'-9"	19'-6 1/8"	7.5	Yes
9'-0"	4'-0"	9"	9"	9"	5'-6"	3'-3"	5'-0 3/4"	7'-2"	21'-6 7/8"	9.0	Yes
9'-0"	5'-0"	9"	9"	9"	6'-6"	3'-9"	6'-0 7/8"	8'-7"	23'-7"	10.6	Yes
9'-0"	6'-0"	9"	9"	9"	7'-6"	4'-3"	7'-0 1/8"	9'-11"	25'-5 5/8"	12.4	Yes
10'-0"	2'-0"	10"	10"	10"	3'-7"	2'-4"	3'-1 1/2"	4'-5"	18'-10 1/4"	7.1	No
10'-0"	3'-0"	10"	10"	10"	4'-7"	2'-10"	4'-1 1/2"	5'-10"	20'-10 1/4"	8.6	No
10'-0"	4'-0"	10"	10"	10"	5'-7"	3'-4"	5'-1 1/2"	7'-3"	22'-10 3/8"	10.2	Yes
10'-0"	5'-0"	10"	10"	10"	6'-7"	3'-10"	6'-1 1/2"	8'-8"	24'-10 3/8"	12.0	Yes
10'-0"	6'-0"	10"	10"	10"	7'-7"	4'-4"	7'-1 1/2"	10'-1"	26'-10 3/8"	13.9	Yes
11'-0"	2'-0"	11"	11"	11"	3'-8"	2'-4"	3'-2 7/8"	4'-7"	20'-3 1/8"	8.2	No
11'-0"	3'-0"	11"	11"	11"	4'-8"	2'-10"	4'-2 7/8"	6'-0"	22'-3 1/8"	9.8	No
11'-0"	4'-0"	11"	11"	11"	5'-8"	3'-4"	5'-2 1/4"	7'-4"	24'-1 3/4"	11.5	Yes
11'-0"	5'-0"	11"	11"	11"	6'-8"	3'-10"	6'-2 1/4"	8'-9"	26'-1 3/4"	13.3	Yes
11'-0"	6'-0"	11"	11"	11"	7'-8"	4'-4"	7'-2 1/4"	10'-2"	28'-1 1/8"	15.5	Yes
12'-0"	2'-0"	12"	12"	12"	3'-9"	2'-5"	3'-3 3/8"	4'-8"	21'-6 1/2"	9.3	No
12'-0"	3'-0"	12"	12"	12"	4'-9"	2'-11"	4'-3 5/8"	6'-1"	23'-6 1/2"	11.1	No
12'-0"	4'-0"	12"	12"	12"	5'-9"	3'-5"	5'-3 5/8"	7'-6"	25'-6 3/8"	13.0	Yes
12'-0"	5'-0"	12"	12"	12"	6'-9"	3'-11"	6'-3 5/8"	8'-11"	27'-6 3/8"	14.1	Yes
12'-0"	6'-0"	12"	12"	12"	7'-9"	4'-5"	7'-3 5/8"	10'-4"	29'-6 3/8"	17.4	Yes

Note:  
Two sets of apron end section dimensions are shown above for some box culvert sizes due to the top and bottom slabs having different thicknesses per ASTM C 1577 for design fill heights less than 2 ft.  
(Sheet 1 of 2)

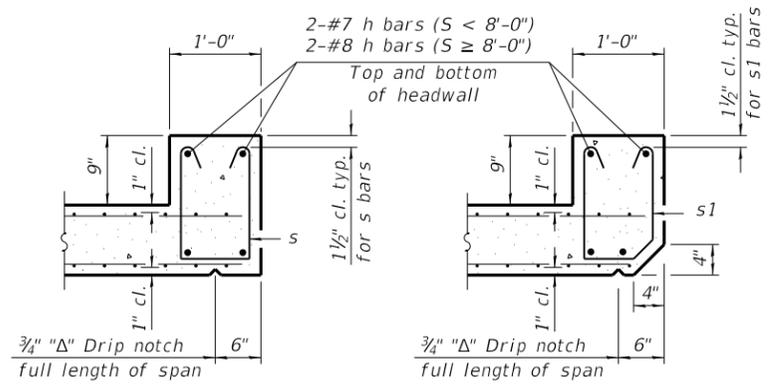


PLAN

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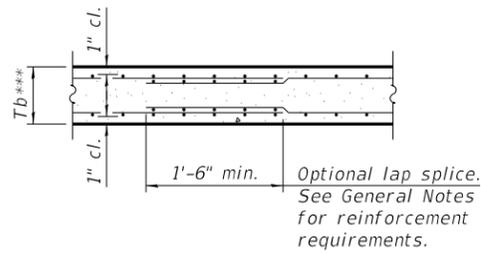
2-17-2017

MODEL: Default FILE: \\msc\p\proj\808\B&E\ID\ITC\Illinois.gov\PRJ\DOT\Documents\DOT_Offices\Director_9\Projects\78392\CADD\data\CAD\sheet\78392-shc-aes.dwg	USER NAME = adamam	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>PRECAST CONCRETE BOX CULVERT APRON END SECTION DETAILS</b>				F.A.P. RTE. = 782	SECTION = 1108-1	COUNTY = GALLATIN	TOTAL SHEETS = 11	SHEET NO. = 10
PLOT SCALE = 100.0000' / in.	CHECKED -	REVISED -	CONTRACT NO. = 78392										
PLOT DATE = 8/24/2017	DATE -	REVISED -	ILLINOIS FED. AID PROJECT										
SCALE: SHEET OF SHEETS STA. TO STA.													

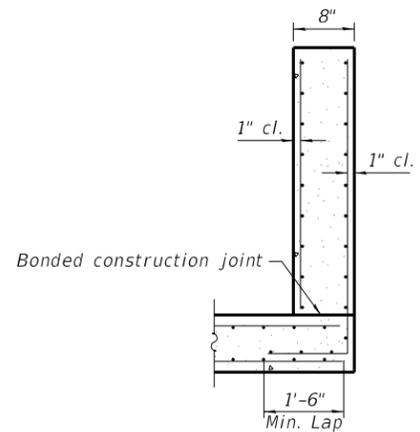


**SECTION B-B**  
(Top slab at downstream end)

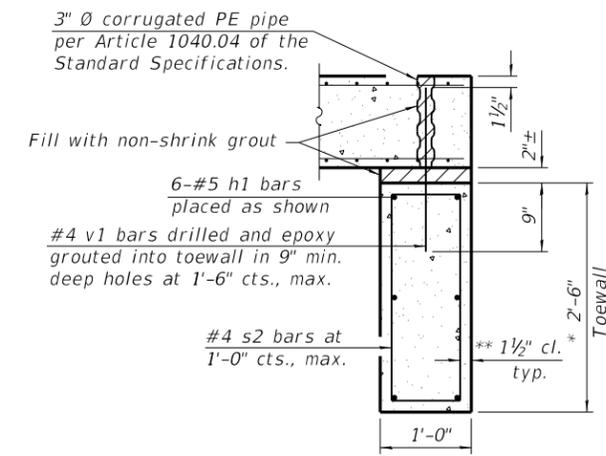
**SECTION B-B**  
(Top slab at upstream end)



**SECTION B-B**  
(Bottom Slab)

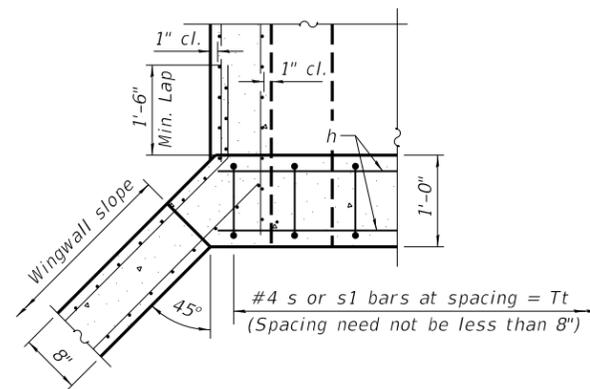


**SECTION C-C**

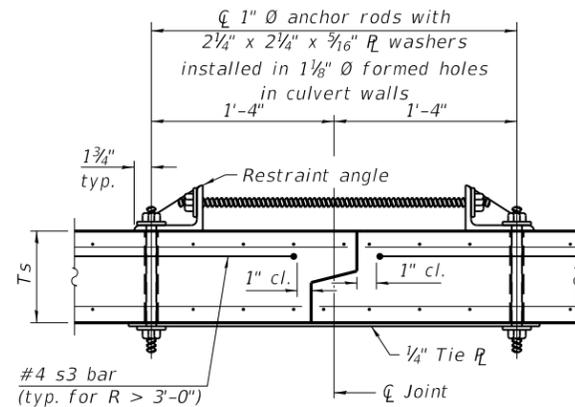


**SECTION D-D**

\*\*\* This dimension shall be increased by 2" for CIP construction.



**SECTION E-E**



**SECTION F-F**  
(Showing culvert tie details)

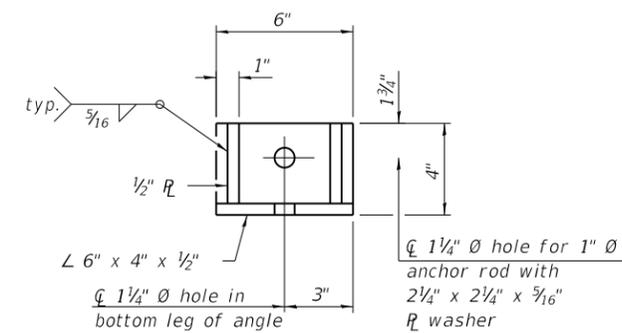
**TOEWALL CONSTRUCTION SEQUENCE**

1. Perform excavation and construct toewall.
2. Backfill accordingly and place bedding for precast box culvert end sections.
3. Set precast box culvert end section.
4. Drill and epoxy grout reinforcement in toewall in accordance with Section 584 of the Standard Specifications.
5. Pressure grout voids using non-shrink grout conforming to Section 1024 of the Standard Specifications.

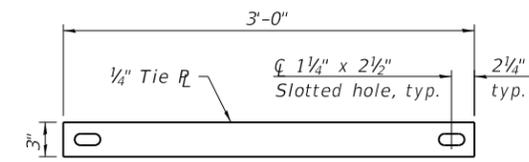
\* The Contractor may furnish a precast or cast-in-place toewall. The Contractor shall be responsible for the strength and stability of the precast toewall during handling. Additional lifting points may be required depending upon the length of the toewall or the Contractor may need to modify the design of the toewall for the proposed handling method.

\*\* If soil conditions permit, the sides of the toewall may be poured directly against the soil. The clear cover on the sides of the toewall shall be increased to 3" by increasing the thickness of the toewall.

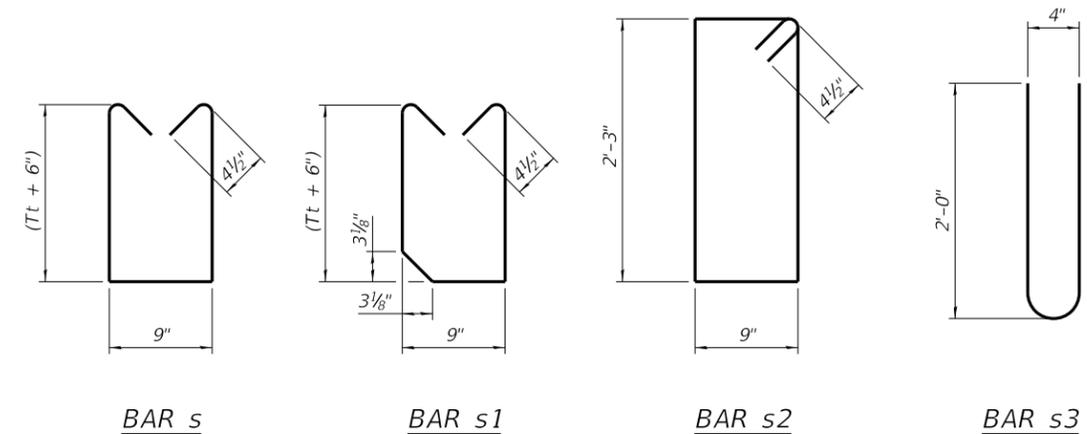
Notes:  
1" Ø anchor rods for the culvert ties shall conform to the requirements of ASTM F1554, Grade 105. Structural steel for the tie plate and restraint angle shall conform to the requirements of Article 1006.04 of the Standard Specifications. All components of the culvert tie detail shall be galvanized according to the requirements of AASHTO M 111 or M 232 as applicable. 2 1/4" x 2 1/4" x 3/16" plate washers shall be provided under each nut required for the anchor rods. Anchor rods connecting precast sections shall be brought to a snug tight condition followed by an additional 1/2 turn on one of the nuts for anchor rods installed in the walls. Match marks shall be provided on the bolt and nut to verify relative rotation between the bolt and the nut. Holes in the walls for the culvert tie assembly may be drilled using core bits in lieu of using formed holes.



**RESTRAINT ANGLE DETAIL**



**TIE PLATE DETAIL**



**BAR s**

**BAR s1**

**BAR s2**

**BAR s3**

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2-17-2017

(Sheet 2 of 2)

FILE NAME =	USER NAME = adamsam	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>PRECAST CONCRETE BOX CULVERT APRON END SECTION DETAILS</b>	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
pw:\IL084EBIDINTEG\Illinois.gov\PWIDOT\Documents\DOT Offices\District 9\Projects\78392\CADD\CAD\Sheets\78392-01-01-01.dwg		DRAWN -	REVISED -			782	110B-1	GALLATIN	11	11
PLOT SCALE = 100.0000 / in.		CHECKED -	REVISED -			CONTRACT NO. 78392				
Default	PLOT DATE = 8/24/2017	DATE -	REVISED -			SCALE:	SHEET	OF	SHEETS	STA.