

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

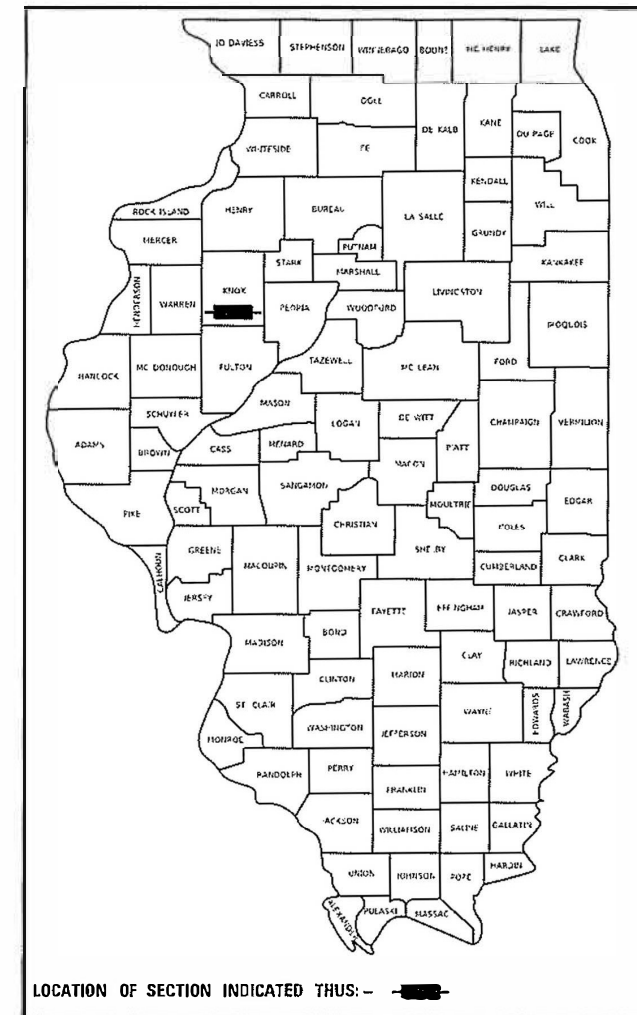
**PROPOSED  
HIGHWAY PLANS**

FAP 574 ROUTE IL 41  
SECTION 13-CLV  
PROJECT STP-I6KD(245)  
TYPE of IMPROVEMENT: CULVERT REPAIR  
KNOX COUNTY

F A P / RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
574 / IL 41	13-CLV	KNOX	*24	1
		ILLINOIS	CONTRACT NO. 68E18	

\*24 + 2 = 26 TOTAL SHEETS

D-94-031-18



CULVERT REPAIR TO CULVERT EAST SIDE OF  
IL 41, 0.57 MILES SOUTH OF IL 116

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SUBMITTED May 08 20 20  
Kennel A Barnett KSD  
REGION THREE ENGINEER

June 26, 2020 [Signature]  
ENGINEER OF DESIGN AND ENVIRONMENT

June 26, 2020 [Signature]  
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

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OF THE STATE OF ILLINOIS

INDEX OF SHEETS

- COVER SHEET
- GENERAL NOTES AND COMMITMENTS
- 5 SUMMARY OF QUANTITIES
- 6 TYPICAL SECTION
- 7-8 SCHEDULE OF QUANTITIES
- 9-10 PLAN VIEWS
11. LINE DIAGRAM
12. BENCHMARKS AND TIES SHEET
- 13-18 DIST CADD SHEETS
- 19-24 CROSS SECTION SHEETS
- 25-26 DETAIL SHEETS

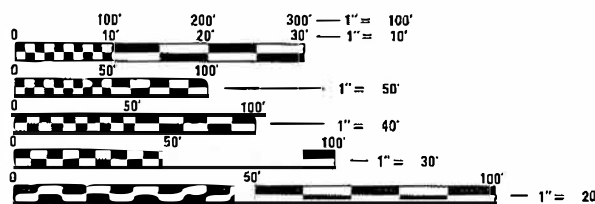
HIGHWAY STANDARDS

280001-07	701006-05	780001-05
630001-12	701201-05	782006-01
630301-09	701901-08	
701001-02	725001-01	

CADD STANDARDS

540002-D4
606101-D4
630101-D4

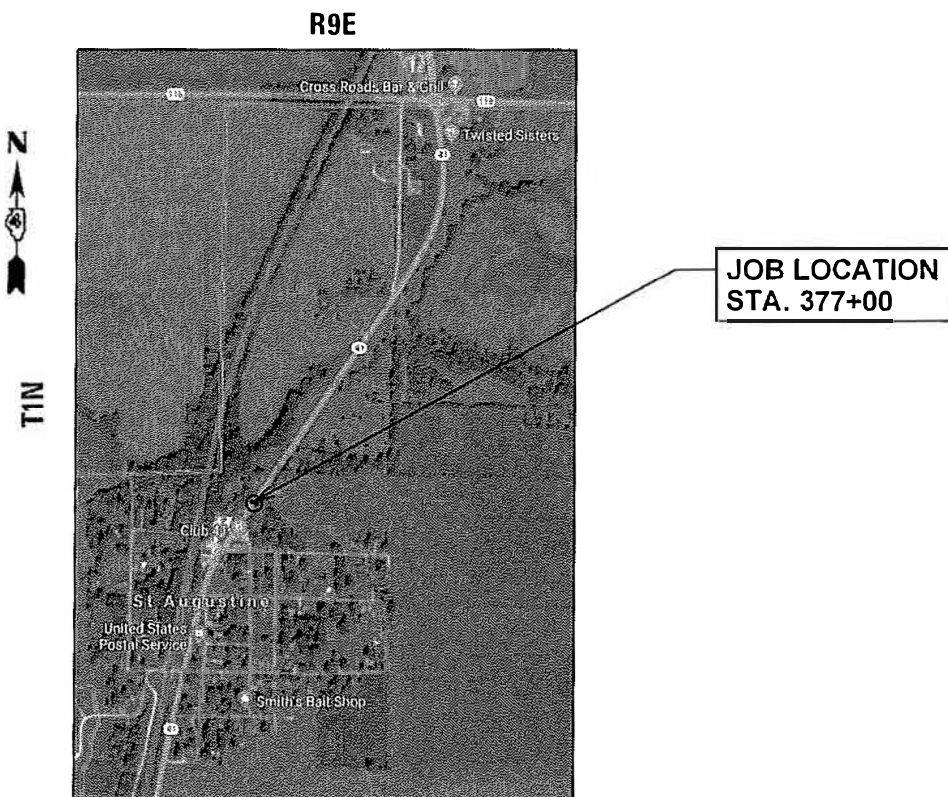
AADT: 2400 /2017  
MU: 6.67%  
SU: 7.30%



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: Michael Lewis 309-671-3454  
PROJECT MANAGER: Sampson Adade 309-671-3467  
C-94-052-18  
CONTRACT NO. 68E18  
CATALOG NO. 035596-00D



GROSS LENGTH = 100 FT. = 0.02 MILE  
NET LENGTH = 100 FT. = 0.02 MILE

**ORDERING LENGTH CONFIRMATION – DRAINAGE ITEMS**

The Contractor shall consult with the Engineer in regards the exact length of the box/pipe culverts, storm sewers, and/or pipe prior to ordering these items.

**ENVIRONMENTAL REVIEWS**

Prior to the use of any proposed borrow areas, use areas (temporary access roads, detours, run-arounds, etc.) and/or waste areas, the Contractor shall file the required environmental resource request surveys according to Section 107.22 of the Standard Specifications. These surveys are required in order for the Department to conduct cultural and biological resource surveys for the proposed site.

Prior to any waste materials being removed from the construction site the required environmental resource surveys will need to be obtained and filed by the Contractor. Excess waste products removed from the construction site shall be disposed of as required in Section 202.03 of the Standard Specifications.

Any protruding metal bars shall be removed prior to the disposal of broken concrete at approved disposal sites.

The required environmental resource documentation shall include the following:

- \* BDE Form 2289 (Environmental Survey Request)
- \* BDE Form 2290 (Waste/Use Area Review)
- \* A location map showing the size limits and location of the use area
- \* Color photographs depicting the use area
- \* Borrow Area Entry Agreement form–D4 PI0101

Please note that a minimum of four weeks shall be allowed for the District to obtain the required environmental clearances and six weeks for the required borrow site environmental clearances.

**AVAILABILITY OF ELECTRONIC FILES**

Micro Station and Geopak files of this project will be made available to the contractor after contract award. If there is a conflict between the electronic files and the printed contract plans and documents, the printed contract and documents shall take precedence over the electronic files. The contractor shall accept all risk associated with electronic files and shall hold the department harmless for any errors or omissions in the electronic files and the data contained therein. Errors or delays resulting from use of electronic files by the Contractor shall not result in extension of time for any interim or final completion date or shall not be considered cause for additional compensation. The contractor shall not use, share, or distribute these electronic files except for the purpose of constructing this contract. Any claims by the third parties due to use or errors shall be the responsibility of the Contractor. The Contractor shall include this disclaimer with the transfer of these electronic files to any other parties and shall include appropriate language binding them to similar responsibilities.

	Surface Lift of Shoulder	Lower Lifts of Shoulder
AC =	PG 64-22	PG 64-22
Mix Comp =	IL 9.5	IL 19.0
Voids =	4.0% @ N=50	4.0% @ N=50
Friction Agg =	Mix C	N.A.
Quality Man. =	QCQA	QCQA

**COMMITMENTS**

Commitment are not to be altered without a written approval of all parties to which the commitment was made.

**NO COMMITMENT HAVE BEEN MADE ON THIS PROJECT.**

**JOB SPECIFIC NOTES**

If the EOP is broken 12" or less saw cut full depth at that distance and replace the pavement full depth as the shoulder.  
 On the other hand, if the EOP is broken more than 12", mill the mainline pavement to the depth of the shoulder surface lift, and then pave into the mainline when you place the shoulder surface lift.

Embarkment shall be CA7

**STATUS OF UTILITIES**

FOR AMEREN GAS CONTACT: DEREK TRAPP, W. JACKSON STREET, ABINGDON, IL 61410  
 CELL: (309) 351-5934

ROUTE	OFFSET	LOCATION	TYPE OF CONFLICT	DISPOSITION
IL 41	RT 29'	RT STA. 375+67 TO 378+62	BURIED GAS LINE	RELOCATE

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	DRAWN -	REVISED -
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PLOT DATE = 5/18/2020	DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**GENERAL NOTES**

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P./RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
574/IL 41	13-CLV	KNOX	24	2
			CONTRACT NO. 68E18	
		ILLINOIS	FED. AID PROJECT	

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CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONST. CODE	
				80% FED 20% STATE	0006 ROADWAY KNOX CO RURAL 90% FD 10% ST
20100500	TREE REMOVAL, ACRES	ACRE	0.4		0.4
20200100	EARTH EXCAVATION	CU YD	151.5		151.5
20201200	REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL	CU YD	13.9		13.9
20400800	FURNISHED EXCAVATION	CU YD	458		458
20700220	POROUS GRANULAR EMBANKMENT	CU YD	13.9		13.9
21001000	GEOTECHNICAL FABRIC FOR GROUND STABILIZATION	SQ YD	21.7		21.7
21101615	TOPSOIL FURNISH & PLACE, 4"	SQ YD	685		685
25000210	SEEDING, CLASS 2A	ACRE	0.14		0.14
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	12.8		12.8
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	12.8		12.8
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	12.8		12.8
25100115	MULCH, METHOD 2	ACRE	0.14		0.14
25100630	EROSION CONTROL BLANKET	SQ YD	685		685
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	14.2		14.2

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PLOT DATE = 5/8/2020	DATE -	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**SUMMARY OF QUANTITIES**

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
574	13-CLV	KNOX	24	3
CONTRACT NO. 68E18				
ILLINOIS FED. AID PROJECT				

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CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONST. CODE	
				80% FED 20% STATE	0006 ROADWAY KNOX CO RURAL 90% FD 10% ST
28000400	PERIMETER EROSION BARRIER	FOOT	350		350
28100825	STONE DUMPED RIPRAP, CLASS B3	TON	24.7		24.7
28200200	FILTER FABRIC	SQ YD	62.1		62.1
44000400	GUTTER REMOVAL	FOOT	12		12
48203029	HOT - MIX ASPHALT SHOULDERS, 8"	SQ YD	536		536
50104400	CONCRETE HEADWALL REMOVAL	EACH	1		1
50800105	REINFORCEMENT BARS	POUND	26.5		26.5
54001001	BOX CULVERT END SECTIONS, CULVERT NO. 1	EACH	1		1
54002020	EXPANSION BOLTS 3/4 INCH	EACH	4		4
54010303	PRECAST CONCRETE BOX CULVERT 3' X 3'	FOOT	30		30
54248510	CONCRETE COLLAR	CU YD	0.36		0.36
60600095	CLASS SI CONCRETE (OUTLET)	CU YD	2.81		2.81
* 63000001	STEEL PLATE BEAM GUARD RAIL, TYPE A, 6 FOOT POSTS	FOOT	50		50
* 63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	2		2

\*= SPECIALTY ITEM

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	DATE -	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**SUMMARY OF QUANTITIES**

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
574	13-CLV	KNOX	24	4
CONTRACT NO. 68E18				
ILLINOIS FED. AID PROJECT				

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CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONST. CODE	
				80% FED 20% STATE	0006 ROADWAY KNOX CO RURAL 90% FD 10% ST
63200310	GUARDRAIL REMOVAL	FOOT	330		330
67100100	MOBILIZATION	L SUM	1		1
70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	L SUM	1		1
* 72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	2		2
* 78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	556		556
78200005	GUARDRAIL REFLECTORS, TYPE A	EACH	5		5
X1200050	BOX CULVERT REMOVAL	FOOT	23		23
X6062700	CONCRETE GUTTER, TYPE A (SPECIAL)	FOOT	12		12
Z0001002	GUARDRAIL AGGREGATE EROSION CONTROL	TON	14.2		14.2
Z0005300	BOX CULVERTS TO BE CLEANED	EACH	1		1

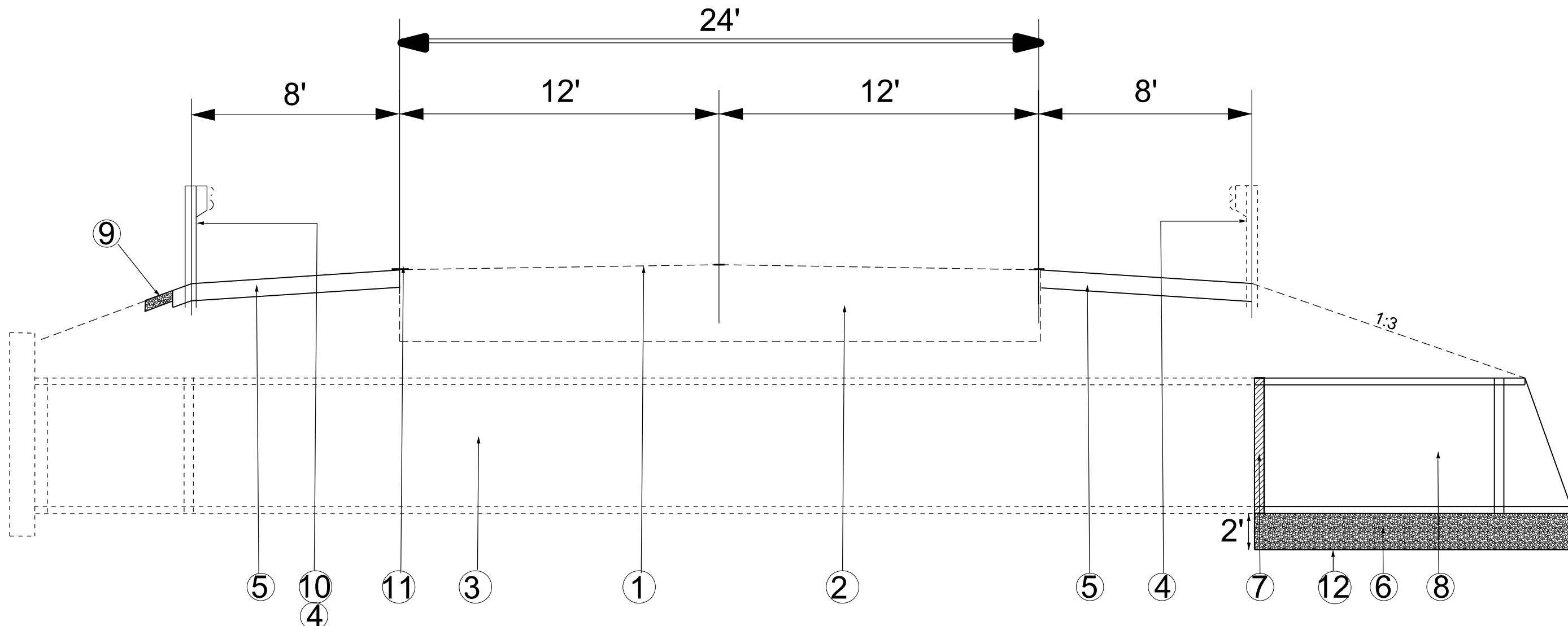
\*= SPECIALTY ITEM

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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**SUMMARY OF QUANTITIES**

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
574	13-CLV	KNOX	24	5
				CONTRACT NO. 68E18



## LEGEND

1. EX. HMA OVERLAY
2. EX. PCC PAVEMENT
3. EX. 3'X3' BOX CULVERT
4. EX. GUADRAIL TO BE REMOVED
5. PROPOSED 8' HMA SHOULDER
6. PROPOSED POROUS GRANULAR EMBANKMENT
7. PROPOSED CONCRETE COLLAR
8. PROPOSED 3'X3' PRECAST BOX CULVERT
9. GUADRAIL AGGREGATE EROSION CONTROL
10. PROPOSED GUADRAIL
11. PROPOSED PAINT PAVEMENT MARKING
12. GEOTECH FABRIC

## TYPICAL SECTION IL 41

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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION IL 41

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
574	13-CLV	KNOX	24	6
CONTRACT NO. 68E18				
ILLINOIS FED. AID PROJECT				

POROUS GRANULAR EMBANKMENT	
LOCATION	CU YD
RT & LT STA 376+75 TO 378+50	13.9
TOTAL	13.9

EXPANSION BOLTS 3/4 INCH	
LOCATION	EACH
STA 377+25	4.0
TOTAL	4.0

FILTER FABRIC	
LOCATION	SQ YD
RT STA 376+75 TO 377+50	62.1
TOTAL	62.1

TOPSOIL FURNISH AND PLACE, 4"	
LOCATION	SQ YD
RT & LT STA 376+75 TO 378+50	685.0
TOTAL	685.0

GUARDRAIL REMOVAL	
LOCATION	FOOT
RT STA 376+50-378+55 LT377+13-378+38	330.0
TOTAL	330.0

EROSION CONTROL BLANKET	
LOCATION	SQ YD
RT & LT STA 376+75 TO 378+50	685.0
TOTAL	685.0

STONE DUMPED RIPRAP RR3 CLASS B3	
LOCATION	TON
STA 376+50 TO 377+50	24.7
TOTAL	24.7

TERMINAL MARKER - DIRECT APPLIED	
LOCATION	EACH
LT STA 377+13 TO 378+38	2.0
TOTAL	2.0

BOX CULVERT REMOVAL	
LOCATION	FOOT
STA 377+25	23.0
TOTAL	23.0

REINFORCEMENT BARS	
LOCATION	LBS
STA 377+25	26.5
TOTAL	26.5

PRECAST CONCRETE BOX CULVERTS 3' X 3' (ASTM C 1577)	
LOCATION	FOOT
STA 377+25	30.0
TOTAL	30.0

CONCRETE COLLAR	
LOCATION	CU YD
STA 377+25	0.4
TOTAL	0.4

MOBILIZATION	
LOCATION	L SUM
JOBSITE	1.0
TOTAL	1.0

TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	
LOCATION	LSUM
STA 377+25	1.0
TOTAL	2.0

BOX CULVERTS TO BE CLEANED	
LOCATION	EACH
STA 377+25	1.0
TOTAL	2.0

FURNISHED EXCAVATION	
LOCATION	CUYD
LT STA 377+13 TO 378+38	458.0
TOTAL	458.0

TREE REMOVAL ACRES	
LOCATION	ACRE
PROJECT LOCATION	0.4
TOTAL	0.4

EARTH EXCAVATION	
LOCATION	CU YD
RT & LT STA 376+75 TO 378+50	151.1
TOTAL	151.1

GUTTER REMOVAL	
LOCATION	FOOT
RT STA 376+20 TO 376+32	12.0
TOTAL	12.0

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	DATE -	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SCHEDULE OF QUANTITIES

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P./ RTE. 5747 IL 41	SECTION 13-CLV	COUNTY KNOX	TOTAL SHEETS 24	SHEET NO. 7
CONTRACT NO. 68E18			ILLINOIS FED. AID PROJECT	

GUARDRAIL EROSION CONTROL AGGREGATE		MULCH, METHOD 2		CLASS SI CONCRETE OUTLET		CONCRETE HEADWALL REMOVAL	
LOCATION	TONS	LOCATION	ACRES	LOCATION	CU YDS	LOCATION	EACH
LT STA 376+75 TO 378+50	14.2	RT & LT STA 376+75 TO 378+50	0.14	RT STA 376+50 TO 377+50	2.8	RT STA 377+35	1.0
TOTAL	14.2	TOTAL	0.14	TOTAL	2.8	TOTAL	1.0

REM. AND DISPOSAL OF UNSUITABLE MAT.		NITROGEN FERTILIZER NUTRIENT		PHOSPHORUS FERTILIZER NUTRIENT		POTASSIUM FERTILIZER NUTRIENT	
LOCATION	CU YD	LOCATION	POUNDS	LOCATION	POUNDS	LOCATION	POUNDS
STA 377+25	13.9	RT & LT STA 376+75 TO 378+50	12.8	RT & LT STA 376+75 TO 378+50	12.8	RT & LT STA 376+75 TO 378+50	12.8
TOTAL	13.9	TOTAL	12.8	TOTAL	12.8	TOTAL	12.8

PERIMETER EROSION BARRIER		PAINT PAVEMENT MARKING - 4" LINE		TEMPORARY EROSION CONTROL SEEDING		SEEDING, CLASS 2A	
LOCATION	FOOT	LOCATION	FOOT	LOCATION	POUNDS	LOCATION	ACRES
RT & LT STA 376+75 TO 378+50	350.0	RT STA 376+81 TO 378+62	181.0	RT & LT STA 376+75 TO 378+50	14.2	RT & LT STA 376+75 TO 378+50	0.14
TOTAL	350.0	LT STA 375+67 TO 379+42	375.0	TOTAL	14.2	TOTAL	0.14
		TOTAL	556.0				

GEOTECHNICAL FABRIC FOR GROUND STABILIZATION		HOT - MIX ASPHALT SHLDS, 8"		CONCRETE GUTTER, TY A (SPECIAL)		GUARDRAIL REFLECTORS, TYPE A	
LOCATION	SQ YDS	LOCATION	SQ YDS	LOCATION	EACH	LOCATION	EACH
STA. 377+25	21.7	RT STA 376+81 TO 378+62	161.0	RT STA 376+20 TO 376+32	12.0	LT STA 377+13 TO 378+38	5.0
TOTAL	21.7	LT STA 375+67 TO 379+42	375.0	TOTAL	12.0	TOTAL	5.0
		TOTAL	536.0				

BOX CULVERT END SECTIONS, CULVERT NO. 1		STEEL PLATE BEAM GUARDRAIL, TYA, 6 FOOT POST		TRAFFIC BARRIER TERM. TY 1(SPECIAL) TANGENT	
LOCATION	EACH	LOCATION	FOOT	LOCATION	EACH
PROJECT LOCATION	1.0	RT STA 377+25	50.0	RT STA 376+75 TO 377+50	2.0
TOTAL	1.0	TOTAL	50.0	TOTAL	2.0

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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

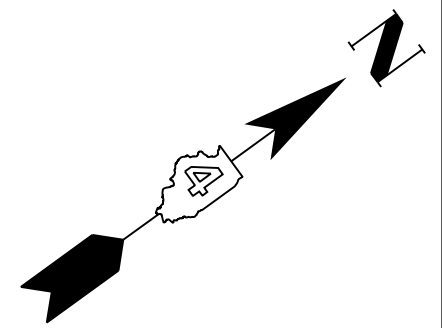
SCHEDULE OF QUANTITIES

SCALE: SHEET OF SHEETS STA. TO STA.

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			CONTRACT NO. 68E18	
		ILLINOIS FED. AID PROJECT		



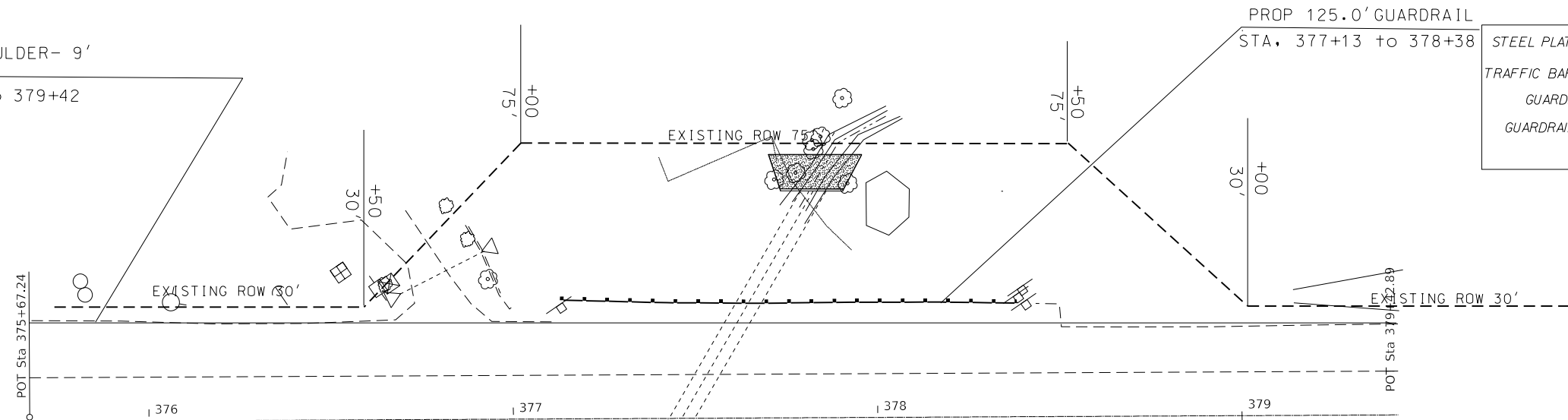




PROP HMA SHOULDER- 9'  
STA. 375+67 to 379+42

PROP 125.0' GUARDRAIL  
STA. 377+13 to 378+38

STEEL PLATE BEAM RAILTY A POST + 50.0 FEET  
TRAFFIC BARRIER TERM.TY I (SPECIAL) TANGENT + 4.0 EA  
GUARDRAIL REFLECTORS, TY A + 5.0 EA  
GUARDRAIL EROSION CONTROL AGG. + 14.2 TONS



CONCRETE GUTTER TYPE A (SPECIAL)  
STA. 376+20 to 376+32

CLASS SI CONCRETE (OUTLET)  
STA. 376+32 to 376+80 (2.81 CU. YD)

STONE DUMPED RIPRAP, CLASS B RR3  
(4' x 47.5' x .67' x 1.5) / 27 = 4.7 TONS

STONE DUMPED RIPRAP, CLASS B RR3  
(5' x 72' x .67' x 1.5) / 27 = 20.0 TONS

PROP HMA SHOULDER- 8'  
STA. 376+81 to 378+62

PROP ROW 100'

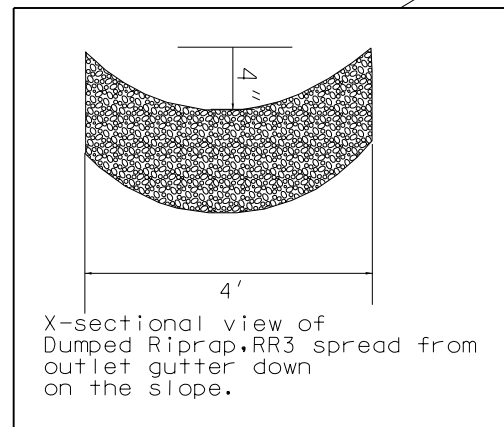
CONCRETE COLLAR = .36 CU YD  
REINFORCEMENT BARS = 26.5 LBS

SEE 540002-D4

REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL = 13.9 CUYD  
GEOTECHNICAL FABRIC FOR GROUND STABILIZATION = 21.7 SQYD

3' X 3' PRECAST CONCRETE BOX CULVERT  
30.0 FEET

BOX CULVERT END SECTION  
1.0 EACH



NOT TO SCALE

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	DATE -	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PLAN VIEW - PROPOSED

SCALE: SHEET OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
574	13-CLV	KNOX	24	10
CONTRACT NO. 68E18				
ILLINOIS FED. AID PROJECT				

IL 116



OLD ROUTE 41

IL 41

CULVERT REPAIR LOCATION



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PLOT SCALE = 100,0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 5/8/2020	DATE -	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

### LINE DIAGRAM

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
574	13-CLV	KNOX	24	11
CONTRACT NO. 68E18				
ILLINOIS FED. AID PROJECT				

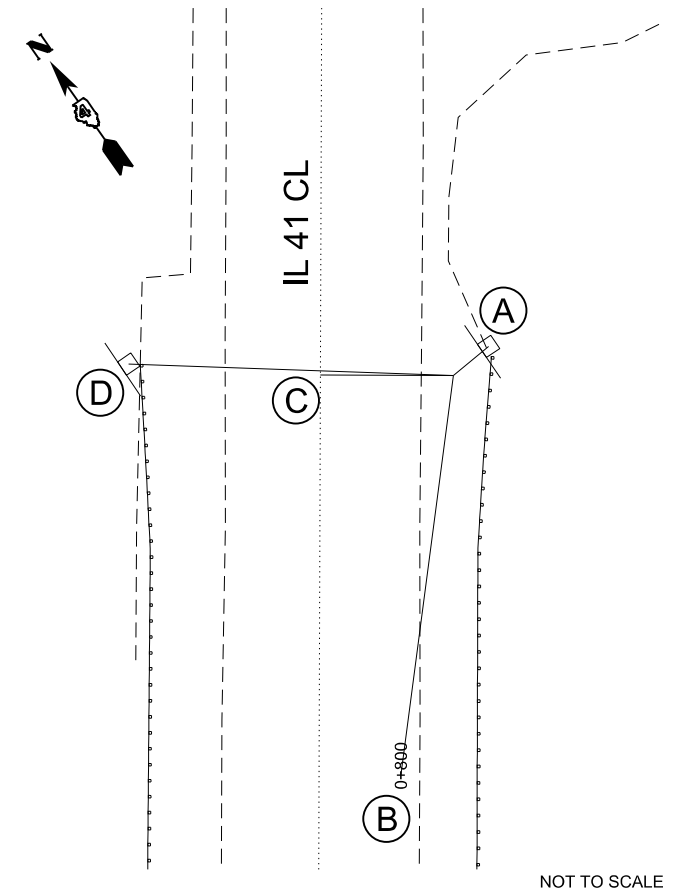
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 NAVD88  
 GEOID12A  
 COMB FACT 0.999920

BM 901 CHIS "□" ON W. END 30" RCCP 25' LT STA 377+65 +/- ELEV. 620.820

BM 902 CHIS "□" ON CENTER HEADWALL RT @ STA 387+68

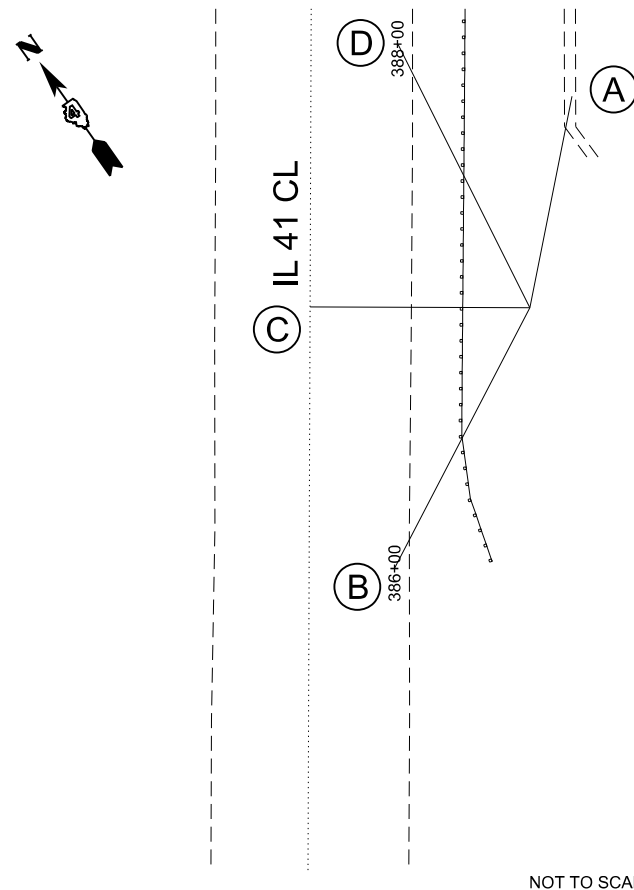
TIES TO POINT 10  
 30" X #5 W/IDOT CAP  
 N 1476916.011  
 E 2229552.235  
 ELEV. 630.912

POINT A - (5.96 FT FROM POINT 10)  
 P.K. & WASH. IN WOOD SIGN POST  
 POINT B - (52.15 FT FROM POINT 10)  
 "+" IN METRIC PAV'T STATION  
 POINT C - (17.2 FT FROM POINT 10)  
 IL 41 CENTERLINE  
 POINT D - (42.40 FT FROM POINT 10)  
 P.K. & WASH IN WOOD SIGN POST



TIES TO POINT 11  
 30" X #5 W/IDOT CAP  
 N 1477636.554  
 E 2230052.001  
 ELEV. 620.445

POINT A - (65.30 FT FROM POINT 11)  
 CHIS "□" ON CENTER HEADWALL (BM 902)  
 POINT B - (101.71 FT FROM POINT 11)  
 "+" IN PAV'T STATION  
 POINT C - (25.3 FT FROM POINT 11)  
 IL 41 CENTERLINE  
 POINT D - (100.55 FT FROM POINT 11)  
 "+" IN PAV'T STATION



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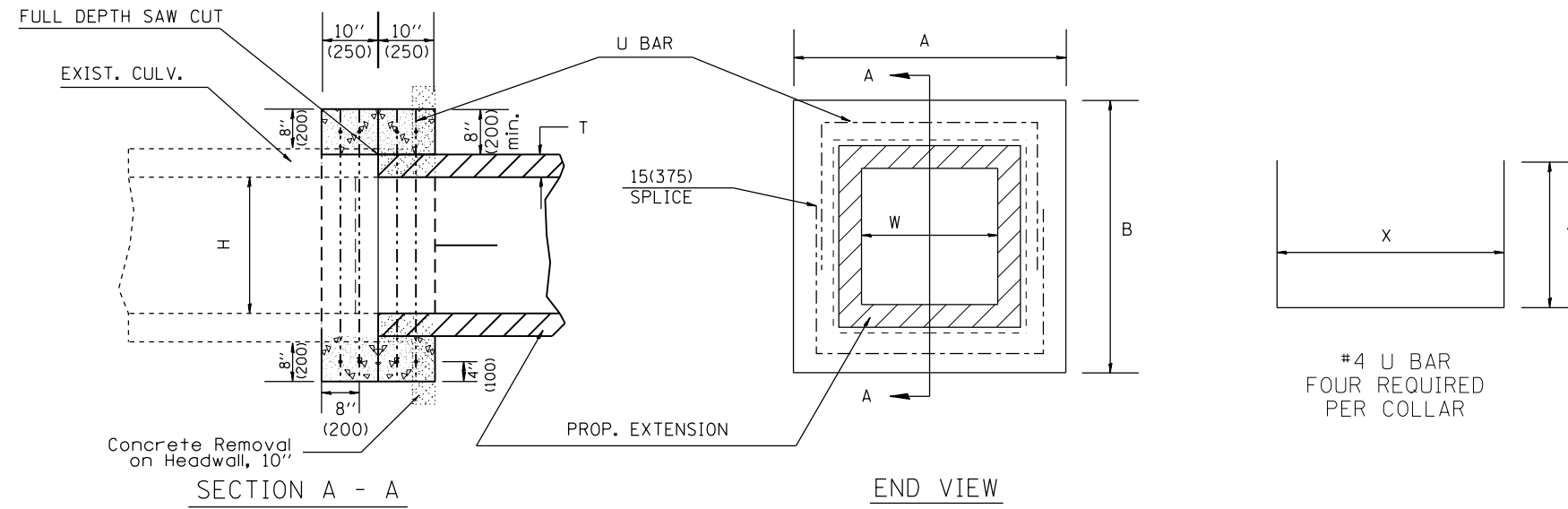
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**BENCHMARKS & TIES**

SCALE: SHEET 1 OF 3 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
574	13-CLV	KNOX	24	12
CONTRACT NO. 68E18				
ILLINOIS FED. AID PROJECT				

• MINIMUM 1' LAP ON U BARS



GENERAL NOTES

1. The collar shall be constructed entirely of class SI concrete and in accordance with the applicable portions of section 503 of the Standard Specifications. Reinforcement bars shall conform to section 508.
2. Expansion bolts shall consist of approved expansions anchors, and  $\frac{3}{4}$ " (M20) hook bolts which conform to Section 1006.09. These bolts shall extend at least 8"(200) into the new concrete.
3. This work will be paid for by the cubic yard (cubic meter) for CONCRETE COLLAR, by the pound (kg) for REINFORCEMENT BARS, and by Each for EXPANSION BOLTS of the size indicated.
4. Class SI quantity is only an estimate. Revise based on thickness of existing box wall thickness.

Existing Headwall Removal

DIMENSIONS

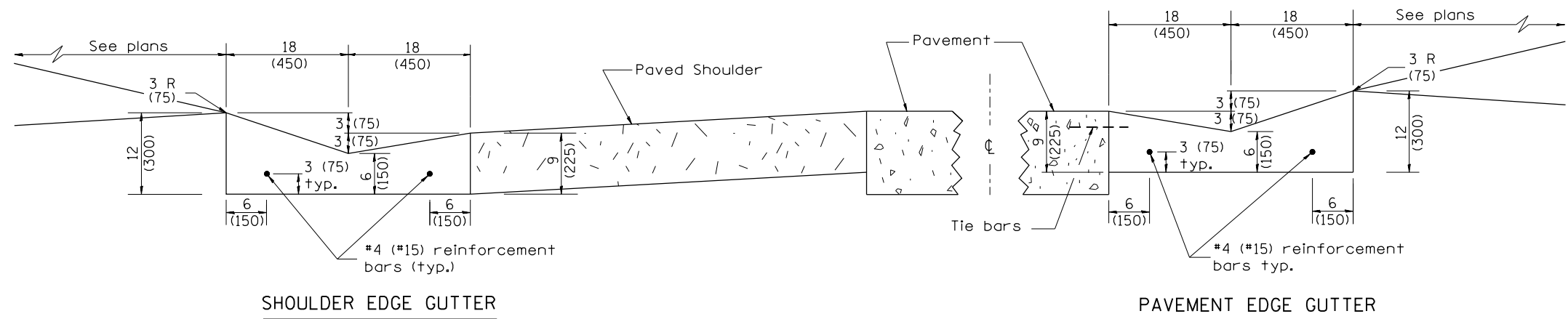
EXISTING BOX		A	B	T	EACH COLLAR			
W ft (mm)	H ft (mm)				CL SI CU YD (m <sup>3</sup> )	REINFORCEMENT X	BARS Y	POUNDS (kg)
2 (600)	2 (600)	4'-0" (1.22m)	4'-0" (1.22m)	4(100)	0.27(0.21)	3'-4" (1.02m)	27.5(698)	21 (9.5)
3 (900)	2 (600)	5'-0" (1.52m)	4'-0" (1.22m)	4(100)	0.32(0.24)	4'-4" (1.32m)	27.5(698)	24 (11)
3 (900)	2.5 (750)	5'-0" (1.52m)	4'-6" (1.37m)	4(100)	0.34(0.26)	4'-4" (1.32m)	30.5(774)	25 (11.5)
3 (900)	3 (900)	5'-0" (1.52m)	5'-0" (1.52m)	4(100)	0.36(0.28)	4'-4" (1.32m)	33.5(850)	26.5 (12)
3 (900)	4 (1200)	5'-2" (1.57m)	6'-2" (1.88m)	5(125)	0.41(0.31)	4'-6" (1.37m)	40.5(1.03m)	30 (13.5)
4 (1200)	3 (900)	6'-2" (1.88m)	5'-2" (1.57m)	5(125)	0.41(0.31)	5'-6" (1.68m)	34.5(876)	30 (13.5)
4 (1200)	4 (1200)	6'-2" (1.88m)	6'-2" (1.88m)	5(125)	0.45(0.34)	5'-6" (1.68m)	40.5(1.03m)	33 (15)
4 (1200)	5 (1500)	6'-4" (1.93m)	7'-4" (2.24m)	6(150)	0.51(0.39)	5'-8" (1.73m)	3'-11.5"(1.21m)	36 (16.5)
5 (1500)	4 (1200)	7'-4" (2.24m)	6'-4" (1.93m)	6(150)	0.51(0.39)	6'-8" (2.03m)	3'-4.5"(1.05m)	36 (16.5)
5 (1500)	5 (1500)	7'-4" (2.24m)	7'-4" (2.24m)	6(150)	0.55(0.42)	6'-8" (2.03m)	3'-11.5"(1.21m)	39 (17.5)
5 (1500)	6 (1800)	7'-6" (2.29m)	8'-6" (2.59m)	7(175)	0.60(0.46)	6'-10" (2.08m)	4'-6.5"(1.38m)	42.5 (19)
6 (1800)	4 (1200)	8'-6" (2.59m)	6'-6" (1.98m)	7(175)	0.56(0.43)	7'-10" (2.39m)	3'-6.5"(1.08m)	40 (18)
6 (1800)	5 (1500)	8'-6" (2.59m)	7'-6" (2.29m)	7(175)	0.60(0.46)	7'-10" (2.39m)	4'-0.5"(1.23m)	42.5 (19)
6 (1800)	6 (1800)	8'-6" (2.59m)	8'-6" (2.59m)	7(175)	0.64(0.49)	7'-10" (2.39m)	4'-6.5"(1.38m)	45 (20.5)
6 (1800)	8 (2400)	8'-8" (2.64m)	10'-8" (3.25m)	8(200)	0.74(0.57)	8'-0" (2.44m)	5'-7.5"(1.71m)	51.5 (23)
8 (2400)	8 (2400)	10'-8" (3.25m)	10'-8" (3.25m)	8(200)	0.82(0.63)	10'-0" (3.05m)	5'-7.5"(1.71m)	57 (26)

QUANTITIES

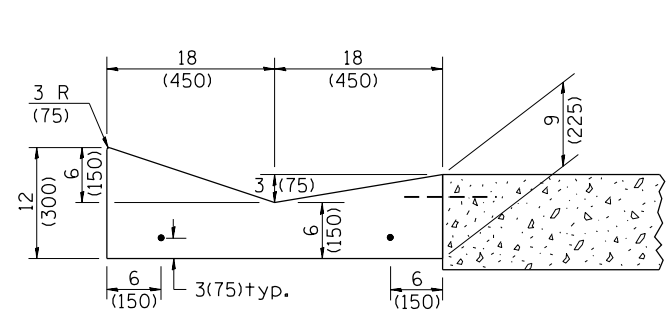
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QUANTITY CALCULATIONS ARE ON FILE AT THE DISTRICT 4 OFFICE; BUREAU OF PROJECT IMPLEMENTATION; DOCUMENTATION SECTION

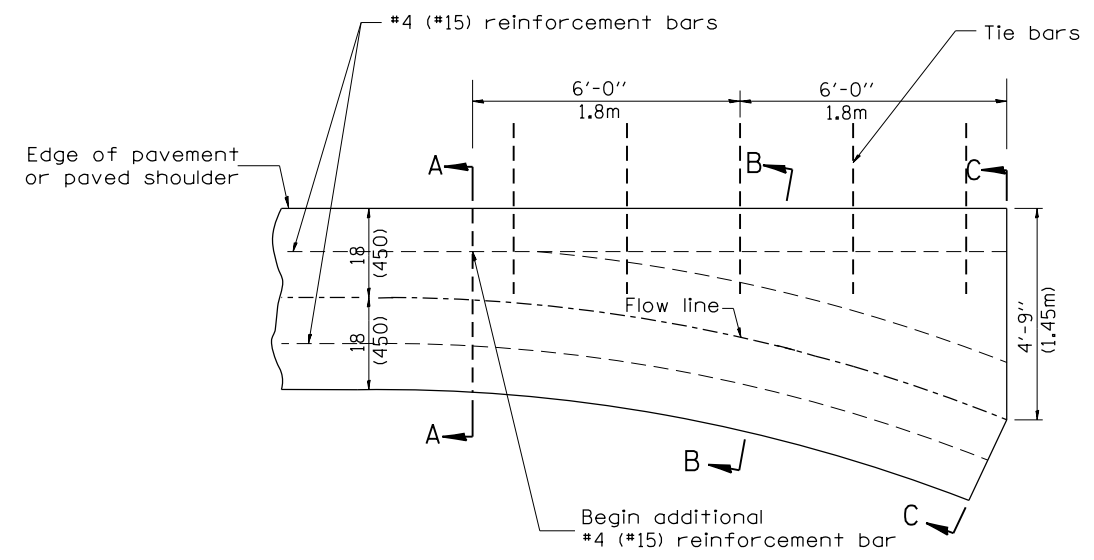
All dimensions are in inches (millimeters) unless otherwise noted.



**CONCRETE GUTTER, TYPE A, (SPECIAL)**

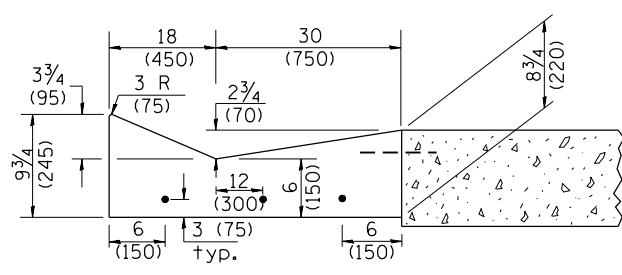


**SECTION A-A**

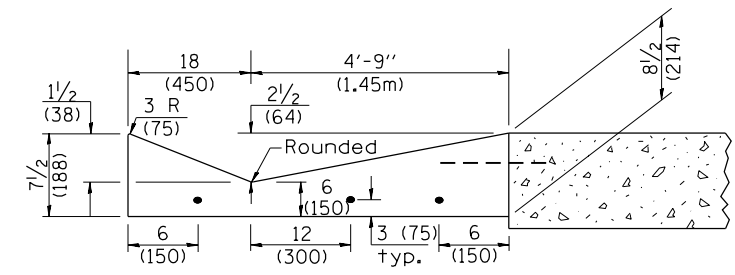


**PLAN**

**QUANTITY**  
Section C-C to A-A= 1.2 cu. yd.  
(0.92 m<sup>3</sup>) concrete.



**SECTION B-B**



**SECTION C-C**

**INLET**

**GENERAL NOTES:**

1. CONCRETE GUTTER, TYPE A, (SPECIAL) shall conform to the applicable portions of Section 606.
2. Tie bars shall be No. 6x24 (No. 19x600) at 36" (900mm) centers unless otherwise shown.
3. Gutter, gutter inlets, gutter outlets, and gutter entrances shall be tied to rigid pavement in accordance with details shown on Standard 420001.
4. Joints shall be constructed in accordance with Article 606.06.
5. Welded wire fabric shall conform to Article 1006.10(c)(1), and shall not be less than 58 lbs/100 sq.ft. (2.83 kg/m<sup>2</sup>).

**QUANTITIES**

CALC. BY: \_\_\_\_\_ DATE: \_\_\_\_\_

CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

QUANTITY CALCULATIONS ARE ON FILE AT THE DISTRICT 4 OFFICE; BUREAU OF PROJECT IMPLEMENTATION; DOCUMENTATION SECTION

01-01-97	RENUM. A-1.02, NEW REVISION BOX, ELIMINATED	T.P.	01-10-07	REVISED QUANTITY	M.A.
	EXPANSION ANCHOR TIES		11-16-07	REVISED QUANTITY	M.A.
02-28-02	ENTRANCE TYPICALS REVISED	M.A.	02-15-11	CHANGED MODIFIED TO SPECIAL	R.D.
10-16-06	REVISED TO 2007 SPEC.	M.A.	01-31-18	REVISED TIE BAR SIZE & SPACING	R.D.

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

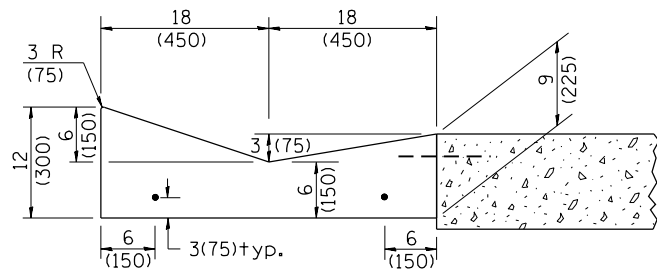
**CONCRETE GUTTER, TYPE A, (SPECIAL)  
(INLET, OUTLET & ENTRANCE)**

NOT TO SCALE

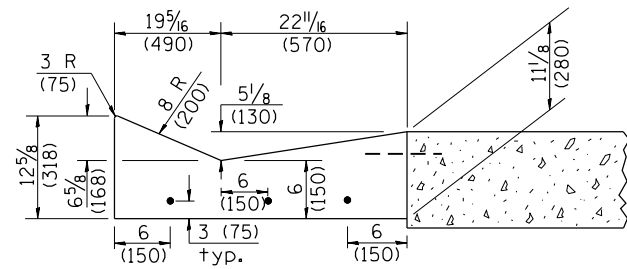
SHT. 1 OF 3  
CADD STD. 606101-D4

All dimensions are in inches (millimeters) unless otherwise noted.

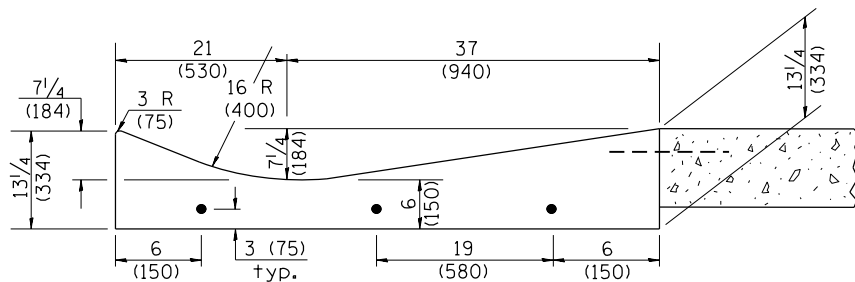
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
574	13-CLV	KNOX	24	14
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT			CONTRACT NO. 68E18	



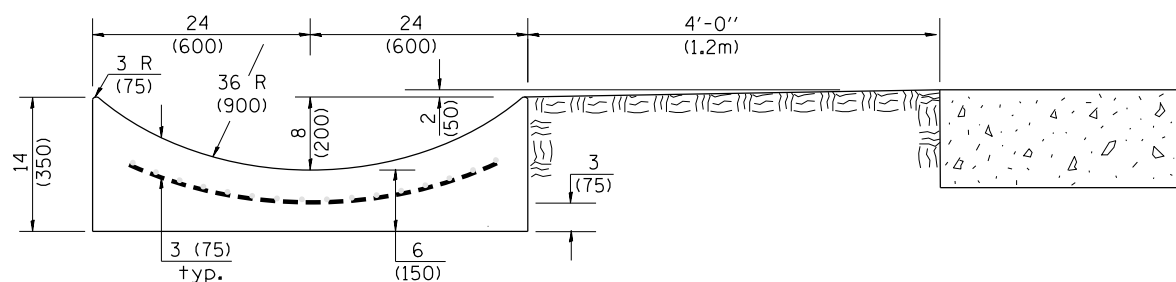
SECTION A-A



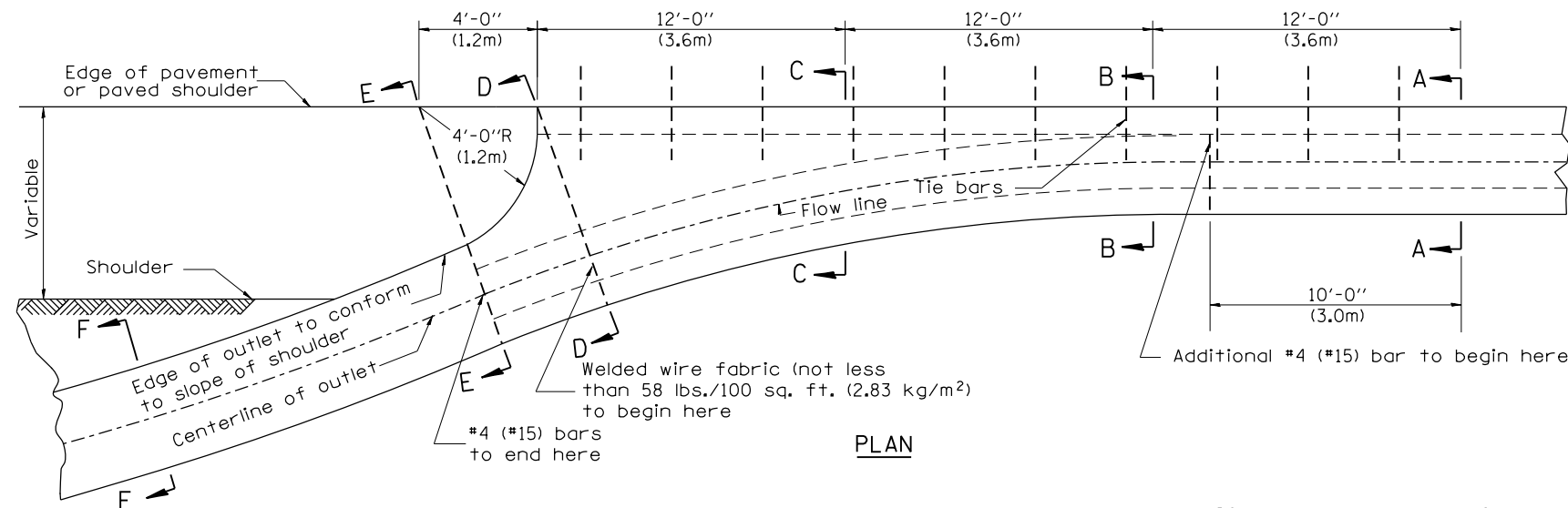
SECTION B-B



SECTION C-C



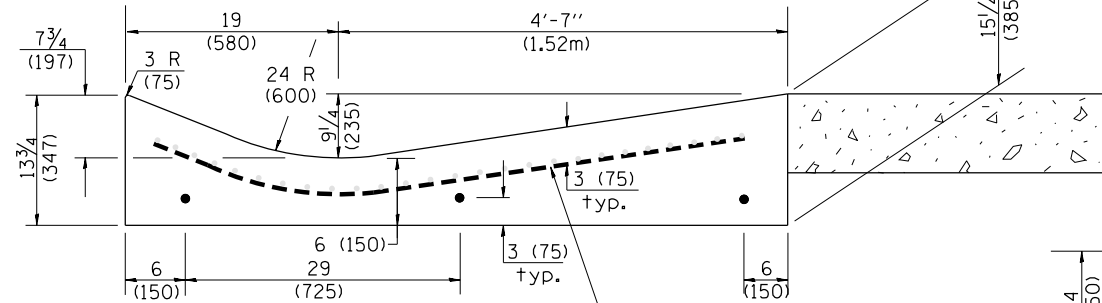
SECTION E-E



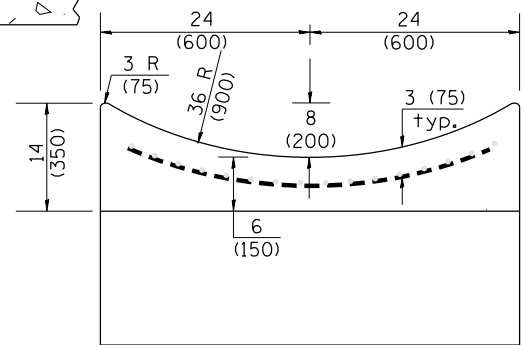
PLAN

**QUANTITY**  
 Section A-A to E-E = 4.5 cu. yd. (3.36 m<sup>3</sup>) concrete.  
 Section E-E to F-F = 0.10 cu. yd./ft. (0.26 m<sup>3</sup>/m) concrete.

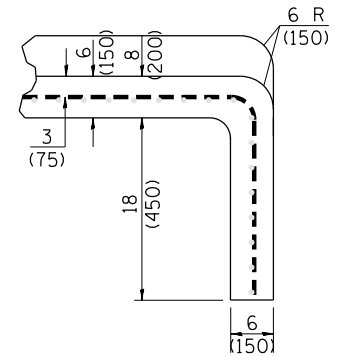
If the average grade of pavement for the distance from section A-A to section D-D exceeds 2%, this distance shall be increased 6 ft. (1.8 m) for each 1% increase in grade. A quantity adjustment is required.



SECTION D-D



SECTION F-F



SECTIONS AT END OF OUTLET (CURTAIN WALL)

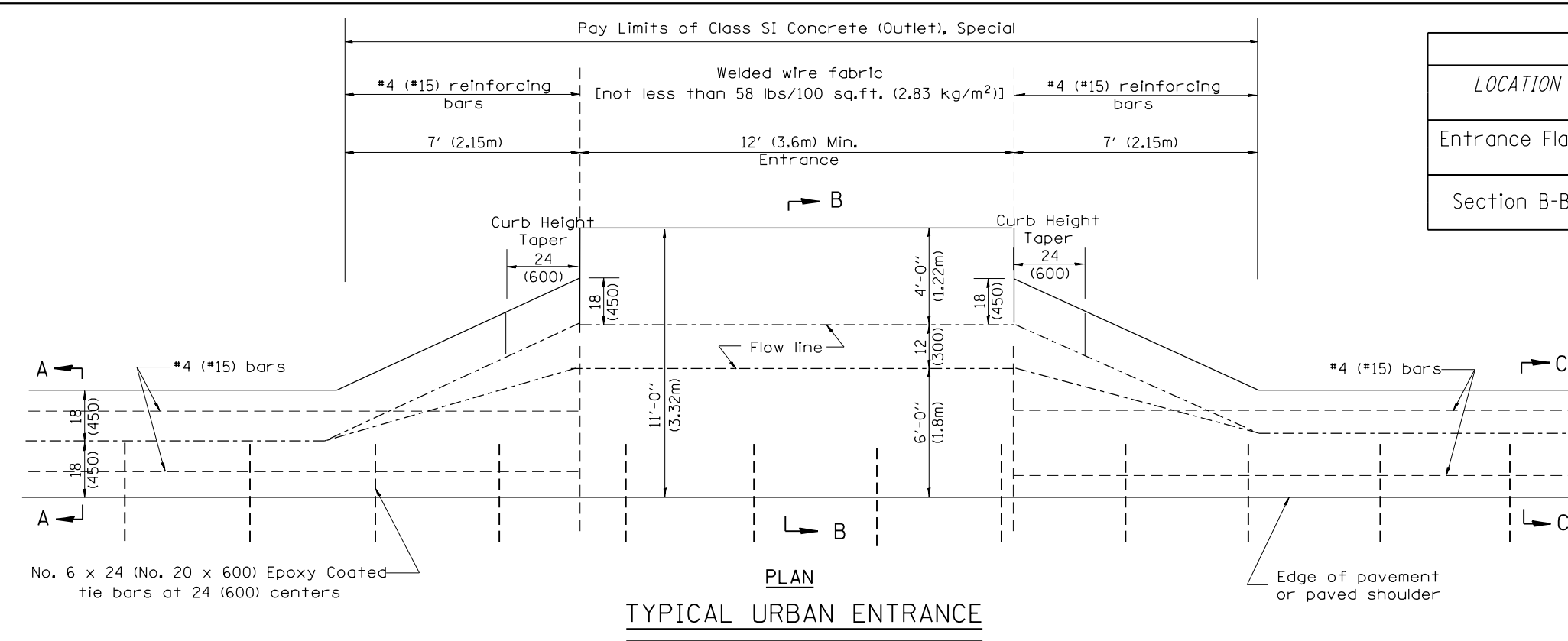
**QUANTITY**  
 Curtain Wall = 0.1 cu. yd. (0.08 m<sup>3</sup>) concrete.

**QUANTITIES**  
 CALC. BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 QUANTITY CALCULATIONS ARE ON FILE AT THE DISTRICT 4 OFFICE; BUREAU OF PROJECT IMPLEMENTATION; DOCUMENTATION SECTION

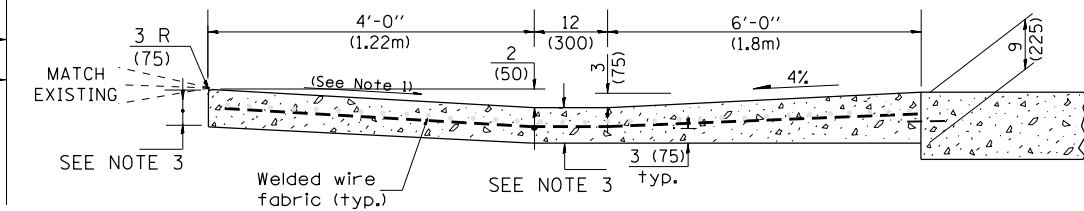
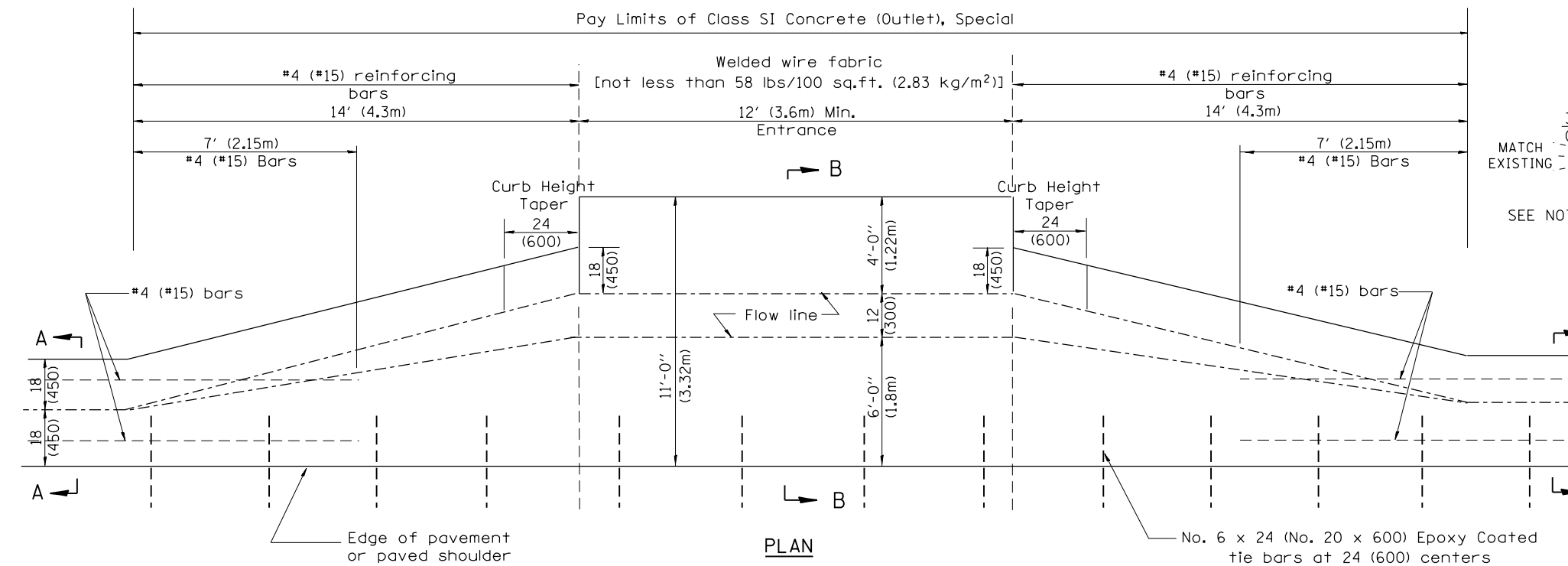
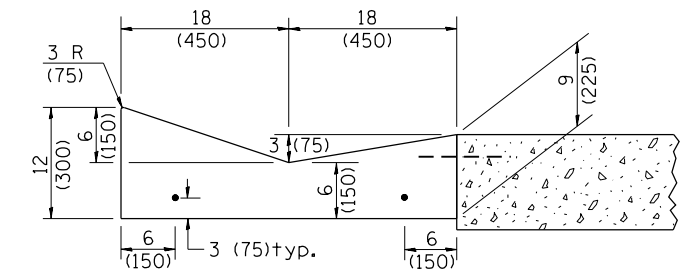
OUTLET

All dimensions are in inches (millimeters) unless otherwise noted.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
574	13-CLV	KNOX	24	15
CONTRACT NO. 68E18				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



QUANTITY CALCULATION			
LOCATION	LENGTH	NON-COMMERCIAL 6 (150)	COMMERCIAL ENTRANCE 8 (200)
Entrance Flare	7 Ft (2.15 m) Urban 14 Ft (4.30 m) Rural	0.15 Cu Yd / Ft (0.37 Cu M / M)	0.18 Cu Yd / Ft (0.45 Cu M / M)
Section B-B	See Plans	0.23 Cu Yd / Ft (0.57 Cu M / M)	0.28 Cu Yd / Ft (0.70 Cu M / M)



- GENERAL NOTES
- Slope may be increased from 4% (min.) to 6% (max.) in order to match the existing.
  - The cross-slope is to be constructed as given in the plans from back turnout to where driveway matches existing.
  - For Non-Commercial Entrances the driveway thickness shall be 6 (150). For Commercial Entrances the driveway thickness shall be 8 (200).

QUANTITIES

CALC. BY: \_\_\_\_\_ DATE: \_\_\_\_\_

CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

QUANTITY CALCULATIONS ARE ON FILE AT THE DISTRICT 4 OFFICE; BUREAU OF PROJECT IMPLEMENTATION; DOCUMENTATION SECTION

All dimensions are in inches (millimeters) unless otherwise noted.

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

CONCRETE GUTTER, TYPE A, (SPECIAL)  
(INLET, OUTLET & ENTRANCE)

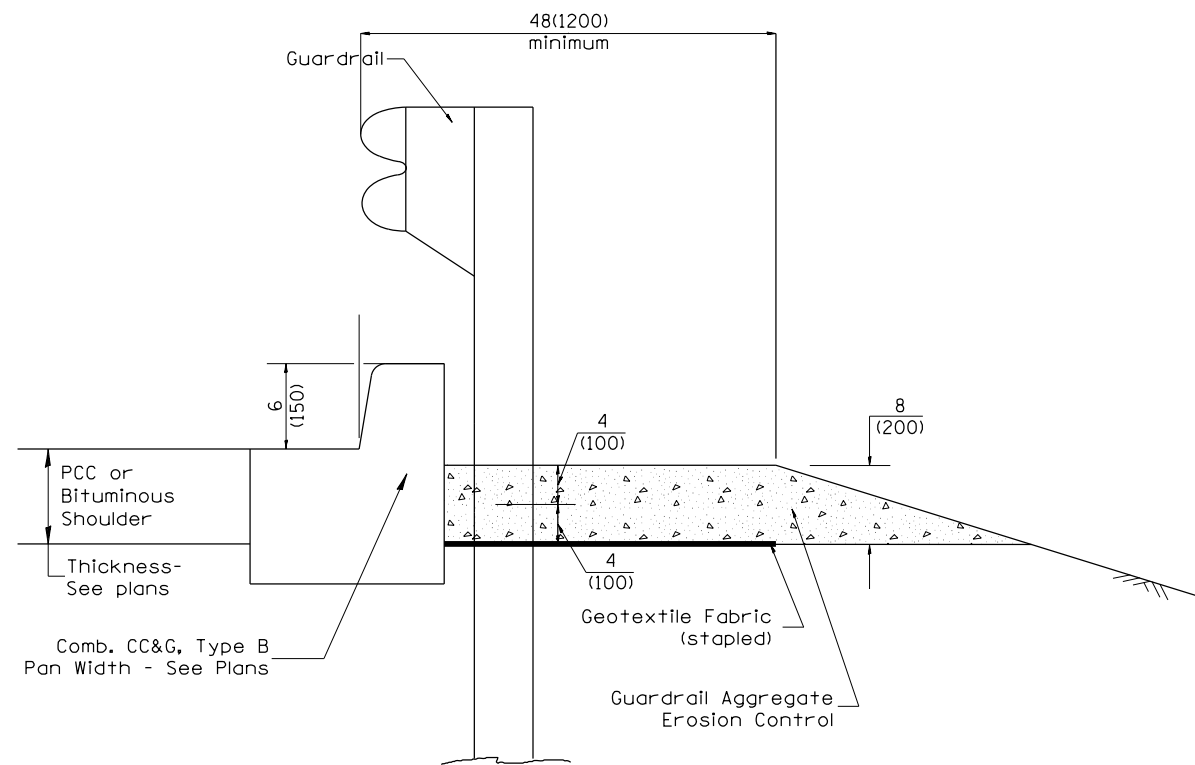
SHT. 3 OF 3  
CADD STD. 606101-D4

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
574	13-CLV	KNOX	24	16
CONTRACT NO. 68E18				

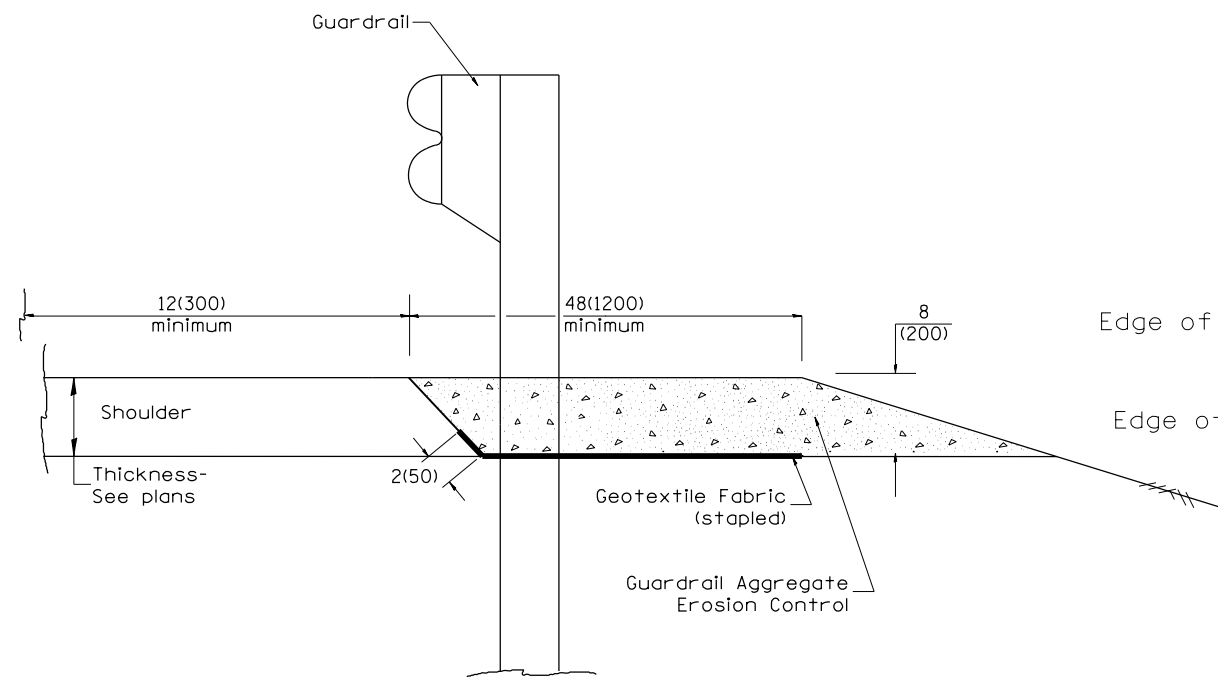
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NOT TO SCALE





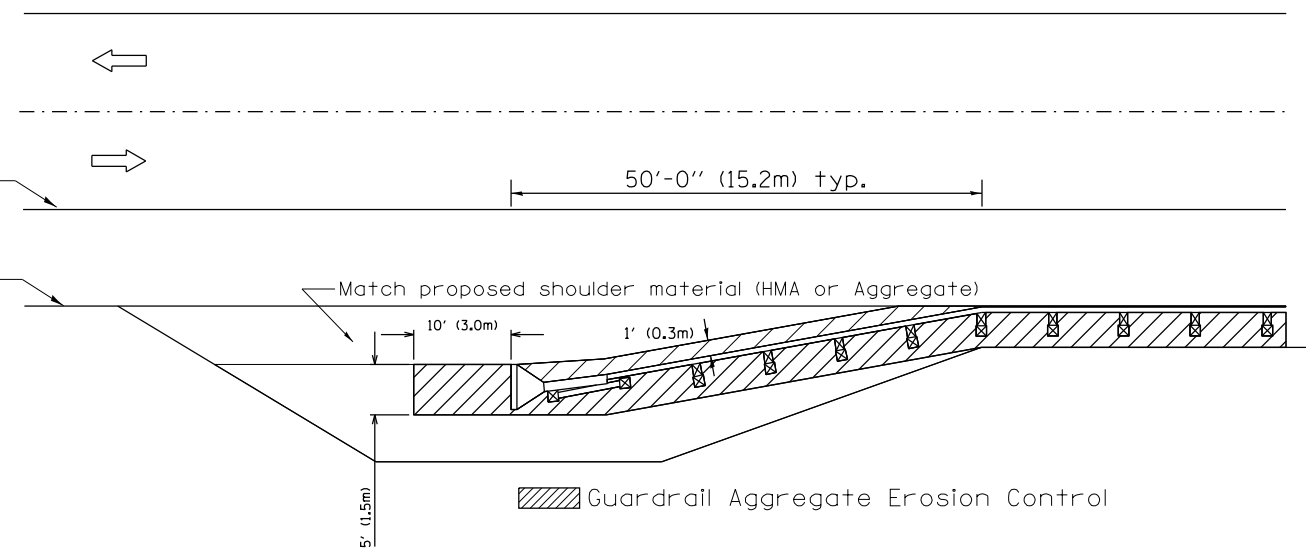
**TYPICAL SECTION WITH COMBINATION CONCRETE CURB & GUTTER**



**TYPICAL SECTION WITHOUT EROSION CONTROL CURB**

**GENERAL NOTES: GUARDRAIL AGGREGATE EROSION CONTROL**

1. This work shall consist of grading as needed, furnishing and installing geotextile fabric and staples, and furnishing, placing and shaping crushed aggregate around and behind Steel Plate Beam Guardrail posts in accordance with Plan Details.
2. Before placing the aggregate and the Geotextile Fabric, weeds and grass shall be removed from the area to be covered.
3. After the area has been prepared, and in a dry condition, the Geotextile fabric shall be placed with a 12(300) minimum overlap. A knife cut for guardrail post installation is necessary.
4. The aggregate shall be deposited, compacted and shaped by either mechanical or hand methods, in a manner reasonably true to line and grade.
5. The Contractor shall have the option of placing the guardrail before or after the Geotextile Fabric and Aggregate are in place. If the guardrail is placed after the Geotextile Fabric and Aggregate, then any voids must be filled and the aggregate returned to line and grade.
6. Materials shall meet the following requirements:
  - A. The crushed aggregate shall be CA1 gradation in accordance with Article 1004.01(c) of the Standard Specifications.
  - B. The Geotextile Fabric shall be nonwoven fabric in accordance with Article 1080.02 of the Standard Specifications.



All dimensions are in inches (millimeters) unless otherwise noted.

03-07-11	ADDED DETAIL SHOWING PLAN VIEW	R.D.	5-30-18	CHANGE B CURB TO CC&G	R.D.
08-10-12	REVISED CURB "B" AND AGGREGATE	R.D.	07-16-19	SPELLING CORRECTIONS	R.D.
07-15-15	ADDRESSED SHOULDER INLET CURB	R.D.			
01-26-17	REVISED	R.D.			

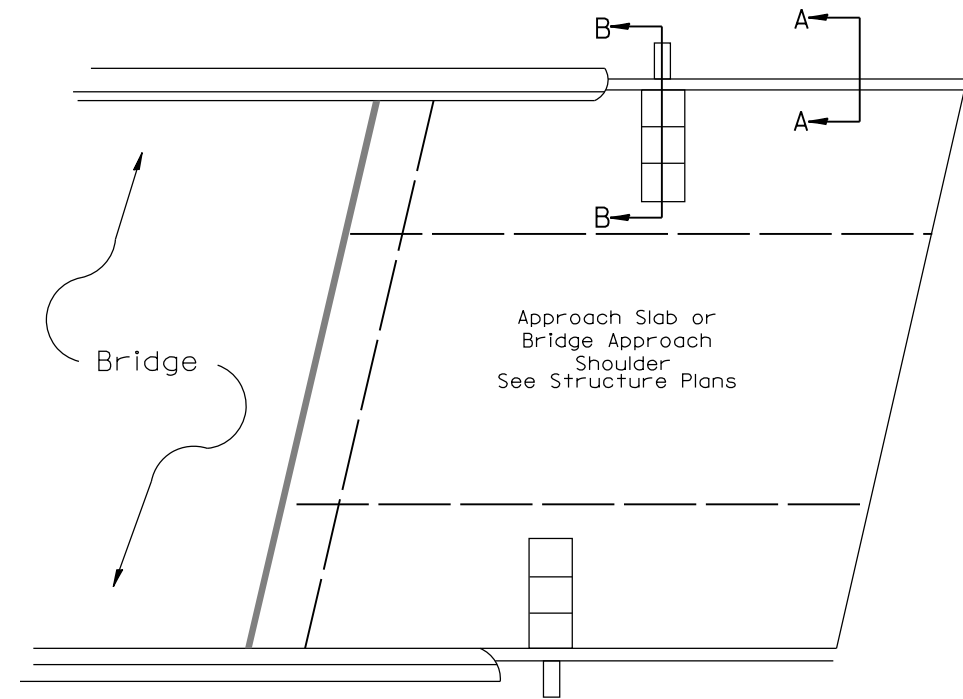
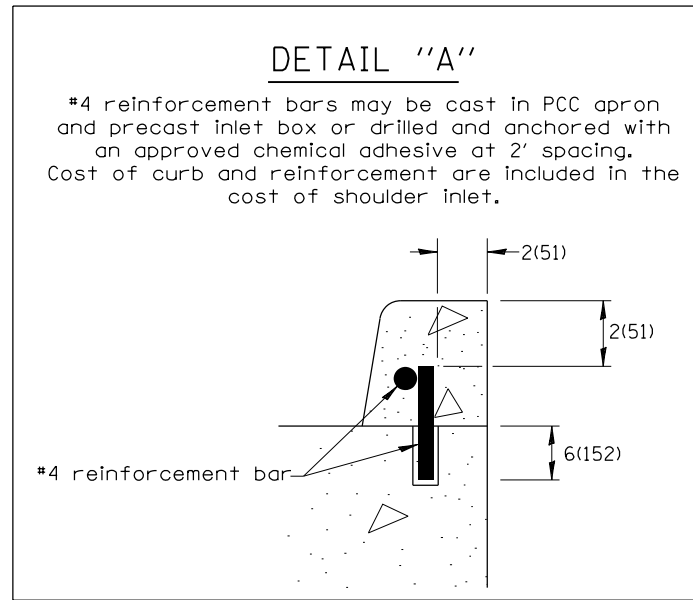
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

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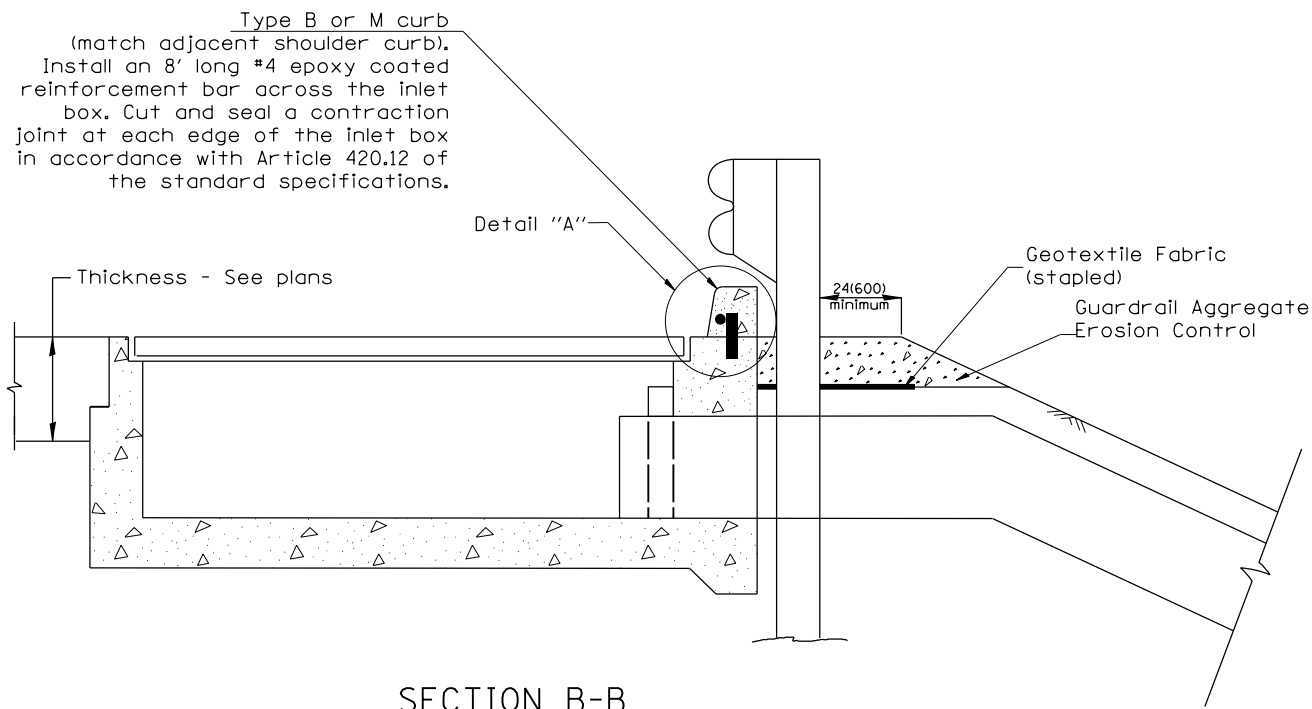
**GUARDRAIL EROSION CONTROL TREATMENTS**

SHT. 1 OF 2  
CADD STD. 630101-D4

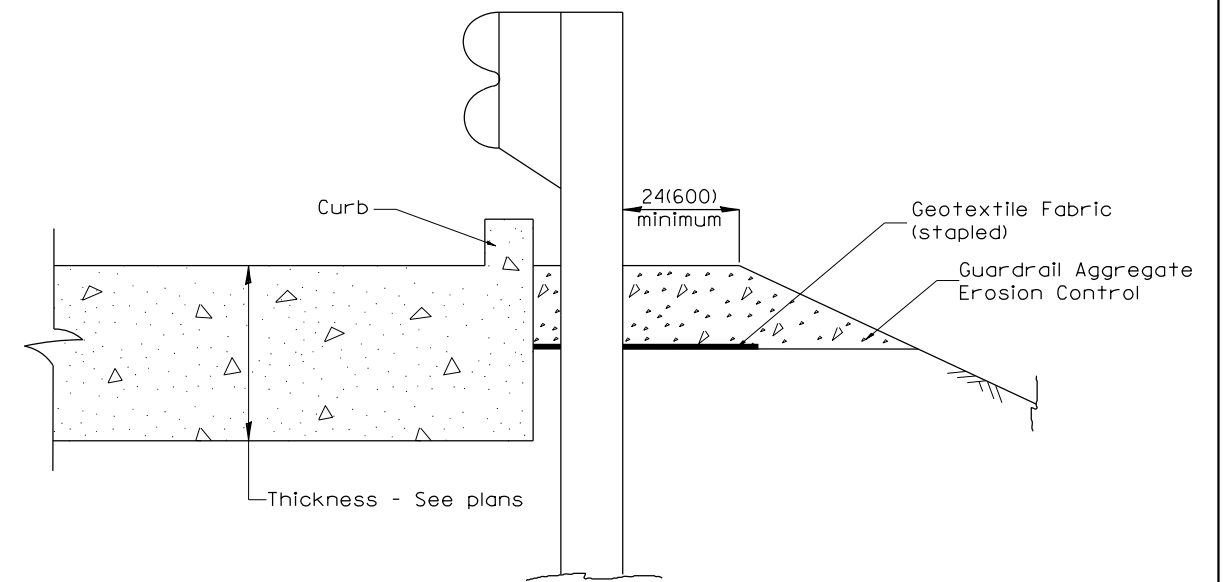
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574	13-CLV	KNOX	24	17
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT			CONTRACT NO. 68E18	



**PLAN VIEW**  
**APPROACH SLAB OR SHOULDER PLACEMENT**



**SECTION B-B**  
**TYPICAL SECTION AT INLETS**  
**TYPE E, F & G (HIGHWAY STANDARD 610001)**



**SECTION A-A**  
**TYPICAL SECTION WITH BRIDGE APPROACH CURB**

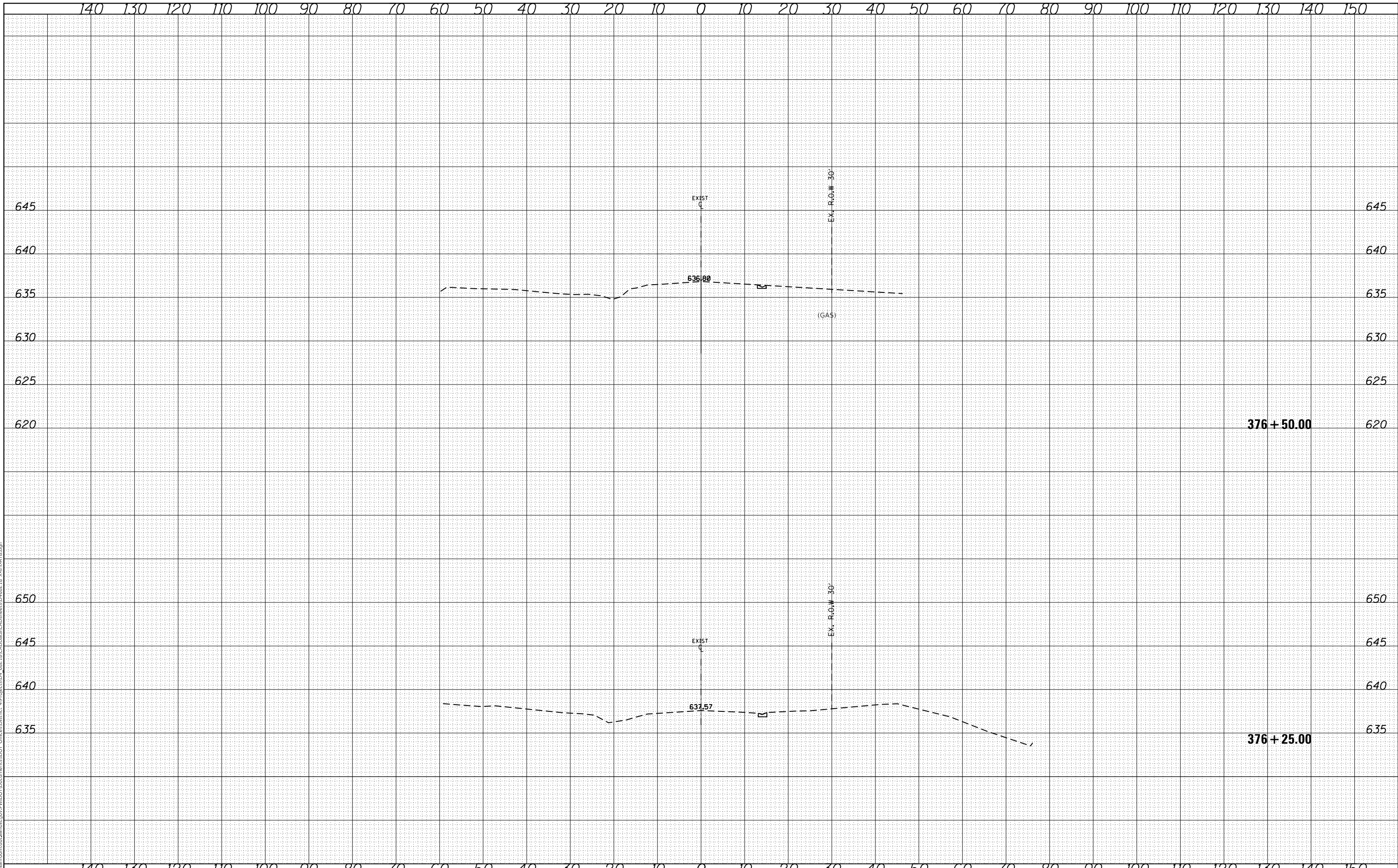
All dimensions are in inches (millimeters) unless otherwise noted.

<b>STATE OF ILLINOIS</b>				<b>GUARDRAIL EROSION CONTROL TREATMENTS</b>				F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
<b>DEPARTMENT OF TRANSPORTATION</b>				NOT TO SCALE				574	13-CLV	KNOX	24	18
SHT. 2 OF 2								CONTRACT NO. 68E18				
CADD STD. 630101-D4								ILLINOIS FED. AID PROJECT				

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AREAS CHECKED	TEMPLATE		
	AREAS CHECKED		

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AREAS CHECKED	TEMPLATE		
	AREAS CHECKED		

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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

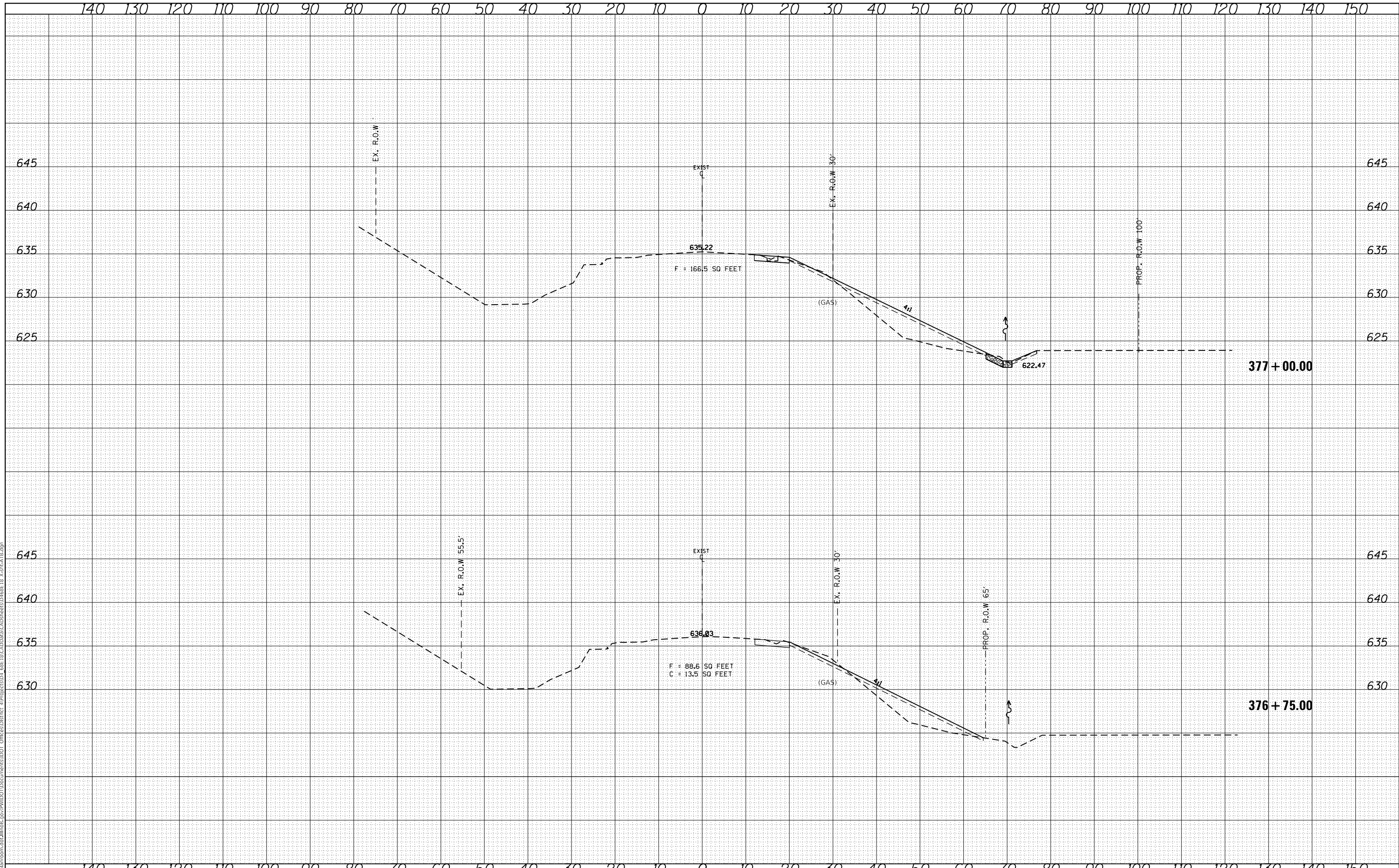
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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
IL 41	13-CLV	KNOX	24	19
CONTRACT NO. 68E18				
ILLINOIS		FED. AID PROJECT		

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BY	DATE

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NO.	TEMPLATE
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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

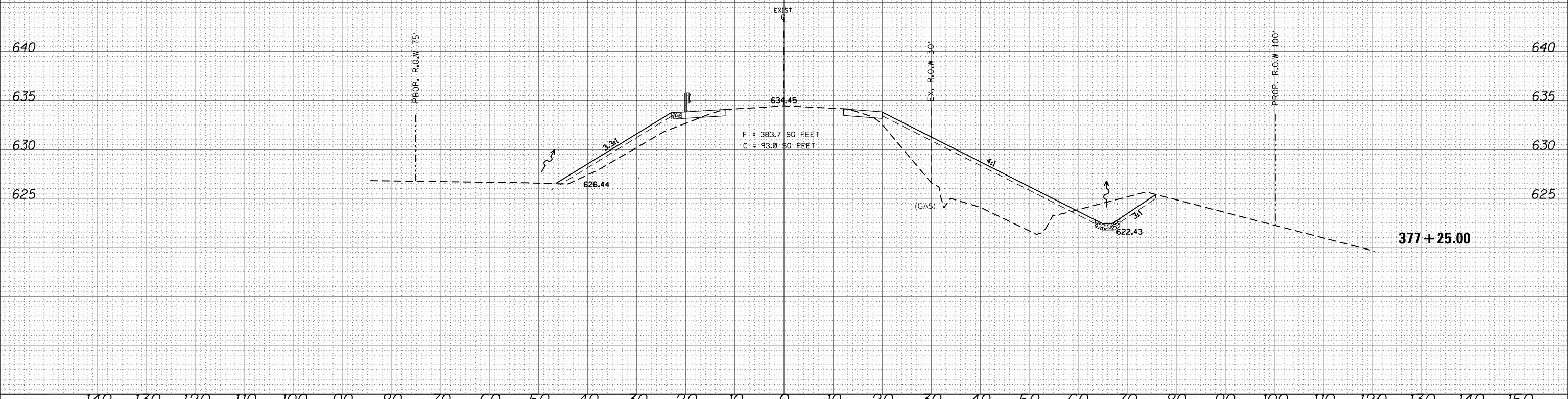
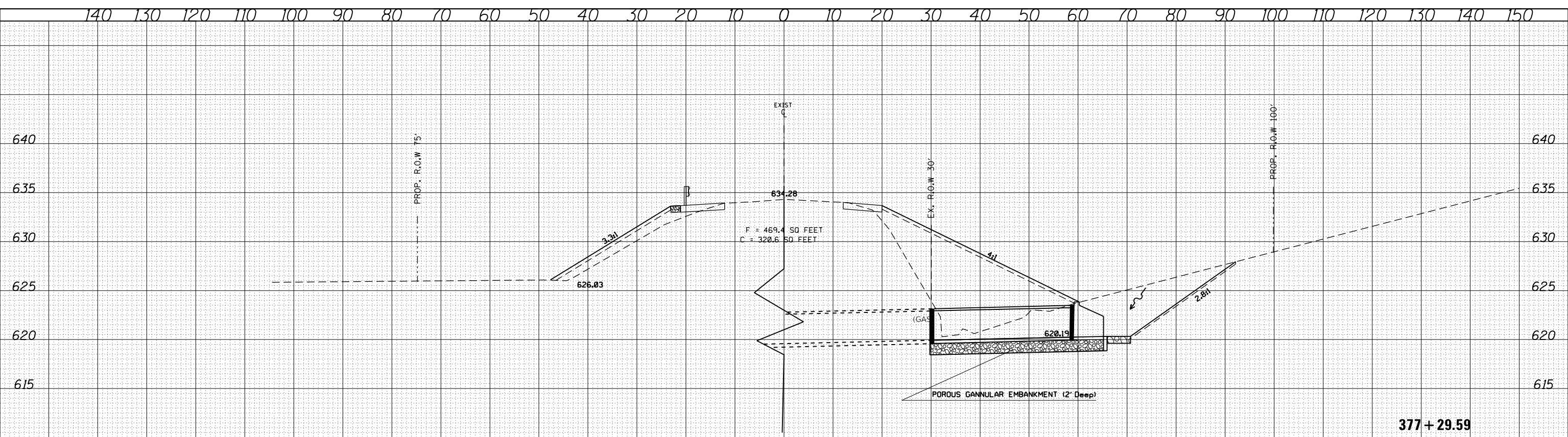
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
IL 41	13-CLV	KNOX	24	20
CONTRACT NO. 68E18				
ILLINOIS FED. AID PROJECT				

FINAL SURVEY NO.	SURVEYED	DATE
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ORIGINAL SURVEY NO.	SURVEYED	DATE
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	DATE -	REVISED -	SCALE:	SHEET	OF	SHEETS	STA. 377+25.00 TO STA. 377+29.59

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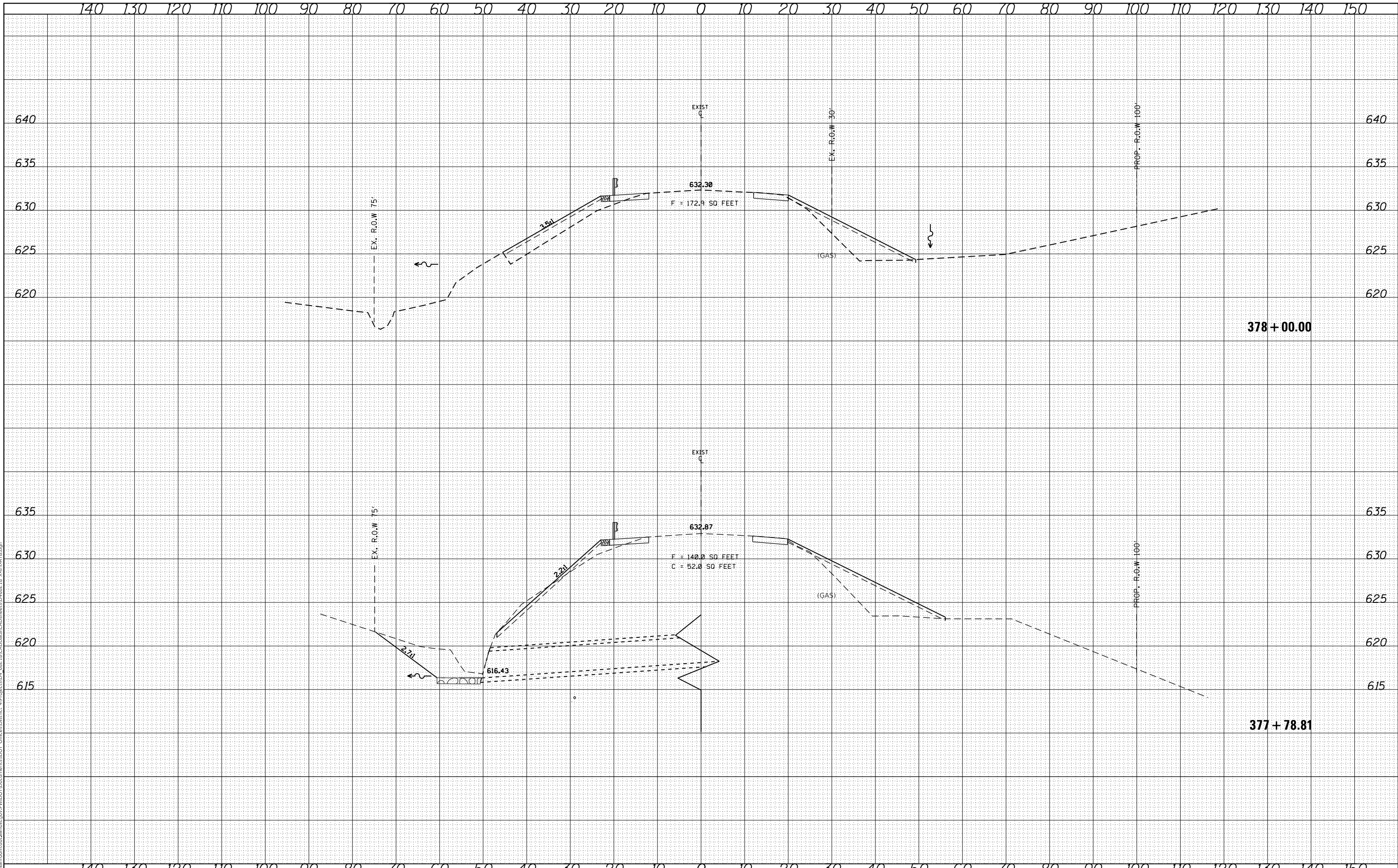
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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

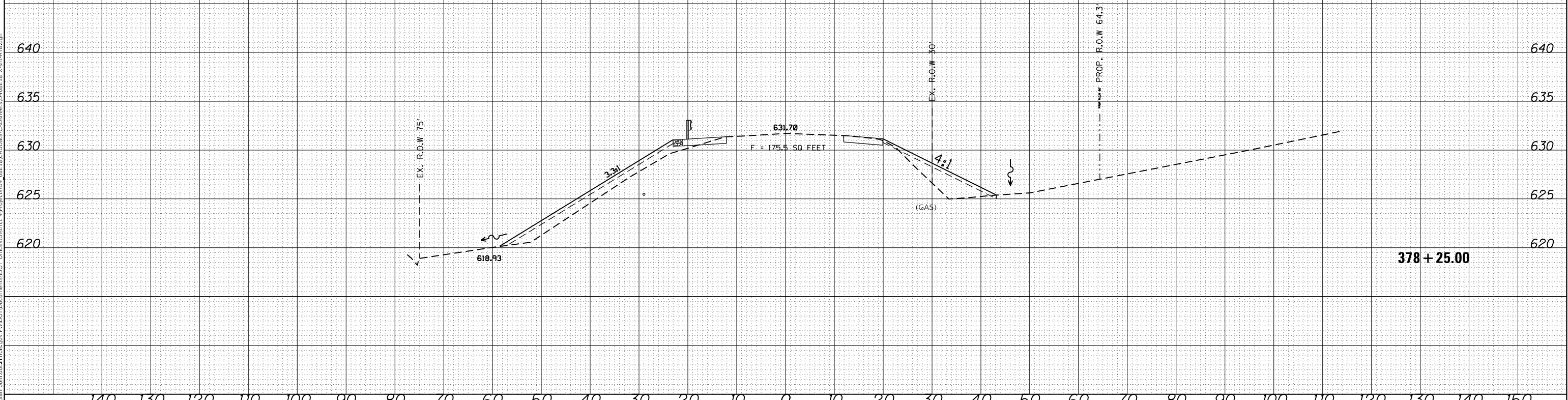
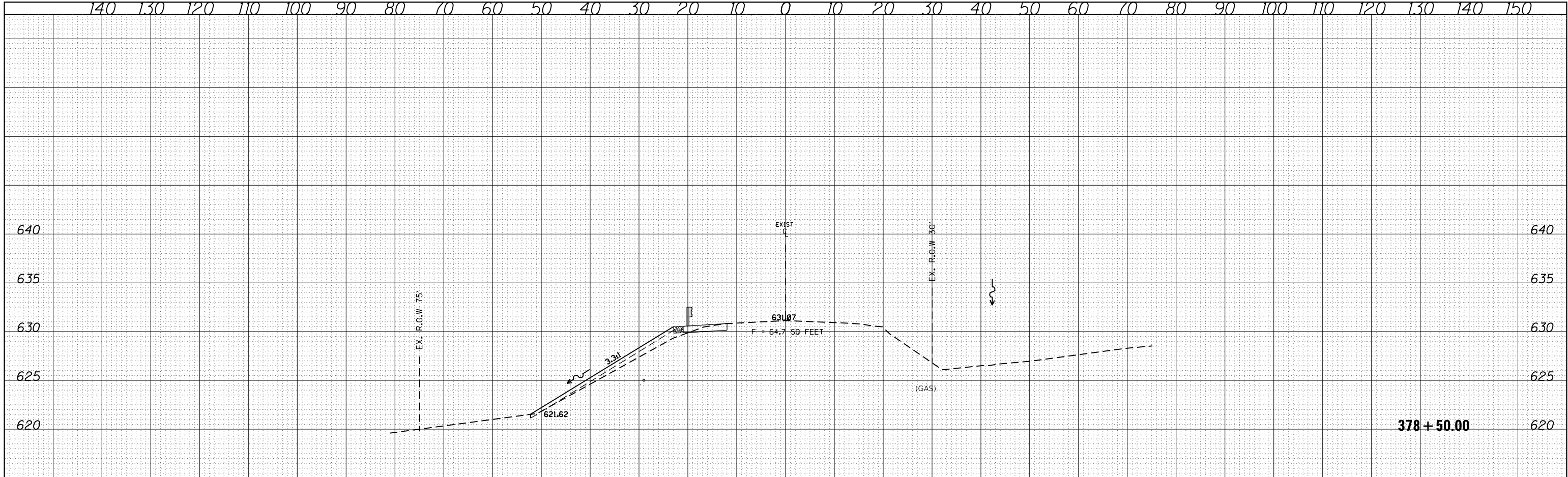
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		CONTRACT NO. 68E18	
ILLINOIS		FED. AID PROJECT	

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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

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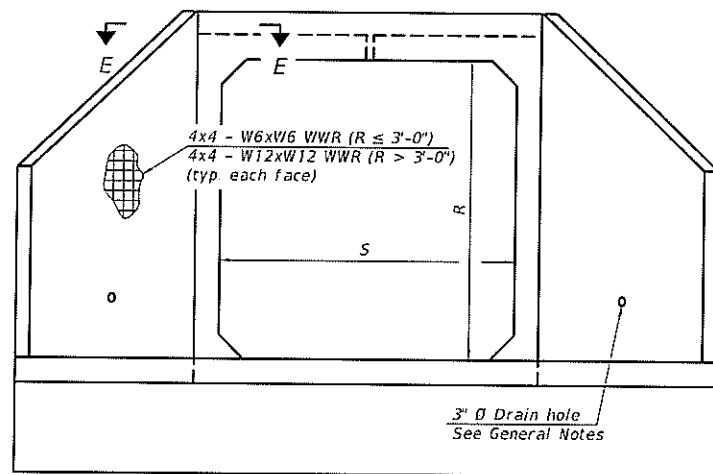
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IL 41	13-CLV	KNOX	24	24
		CONTRACT NO. 68E18		

378 + 50.00

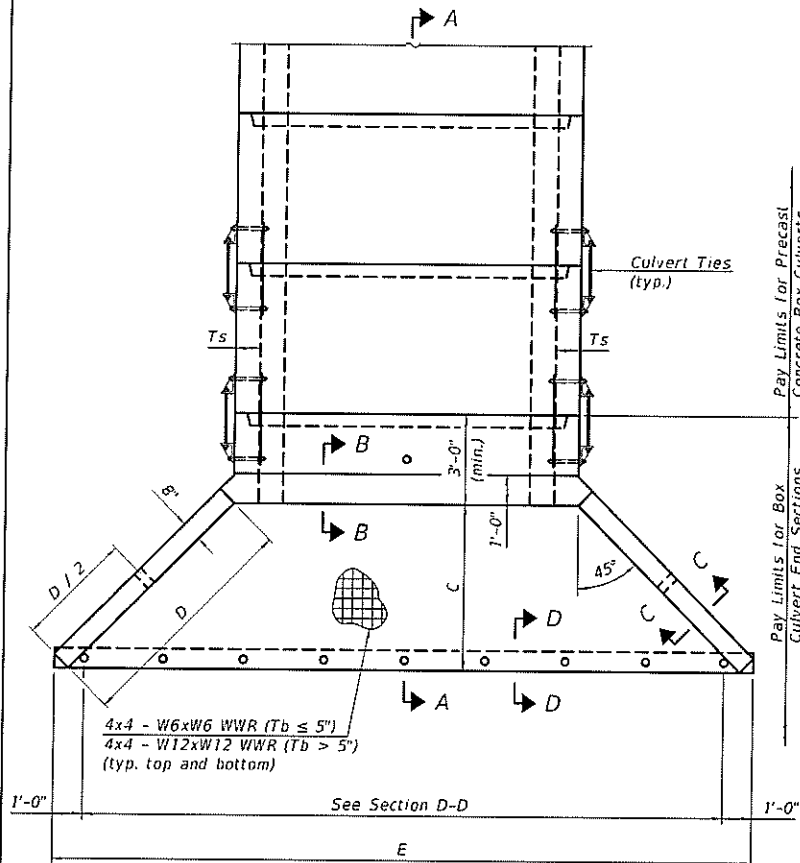
378 + 25.00

ILLINOIS FED. AID PROJECT

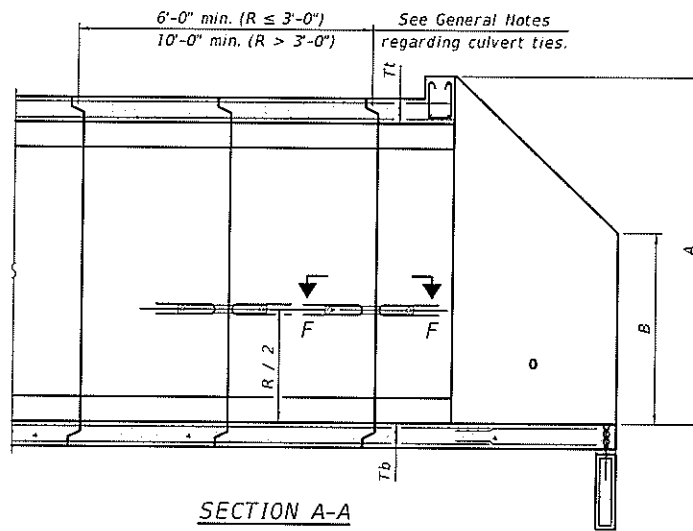




END VIEW



PLAN



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 on 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 1/8"	4'-1"	10'-4 1/8"	2.8	Yes
3'-0"	2'-0"	4"	4"	4"	3'-1"	2'-1"	2'-7 1/8"	3'-9"	9'-11"	2.3	Yes
3'-0"	3'-0"	7"	6"	4"	4'-4"	2'-8"	3'-10 1/8"	5'-6"	12'-4 1/8"	3.7	Yes
3'-0"	3'-0"	4"	4"	4"	4'-1"	2'-7"	3'-7 1/8"	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 1/8"	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 1/8"	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 1/8"	7'-0"	15'-8 1/8"	5.3	Yes
4'-0"	4'-0"	5"	5"	5"	5'-2"	3'-1"	4'-8 1/8"	6'-8"	15'-2 1/2"	4.7	Yes
5'-0"	2'-0"	8"	7"	6"	3'-5"	2'-3"	2'-11 1/8"	4'-2"	12'-10"	3.9	Yes
5'-0"	2'-0"	6"	6"	6"	3'-3"	2'-2"	2'-10"	4'-0"	12'-7 1/2"	3.5	Yes
5'-0"	3'-0"	8"	7"	6"	4'-5"	2'-9"	3'-11 1/8"	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 1/2"	4.5	Yes
5'-0"	4'-0"	8"	7"	6"	5'-5"	3'-3"	4'-11 1/8"	7'-0"	16'-10 1/8"	6.1	Yes
5'-0"	4'-0"	6"	6"	6"	5'-3"	3'-2"	4'-9 1/2"	6'-9"	16'-5 1/8"	5.5	Yes
5'-0"	5'-0"	8"	7"	6"	6'-5"	3'-9"	5'-11 1/8"	8'-5"	18'-10 1/8"	7.4	Yes
5'-0"	5'-0"	6"	6"	6"	6'-3"	3'-8"	5'-9 1/2"	8'-2"	18'-5 1/8"	6.8	Yes
6'-0"	2'-0"	8"	7"	7"	3'-5"	2'-3"	2'-11 1/8"	4'-2"	14'-0"	4.3	Yes
6'-0"	2'-0"	7"	7"	7"	3'-4"	2'-2"	2'-10 1/8"	4'-1"	13'-10 1/8"	4.2	Yes
6'-0"	3'-0"	8"	7"	7"	4'-5"	2'-9"	3'-11 1/8"	5'-7"	16'-0 1/8"	5.4	Yes
6'-0"	3'-0"	7"	7"	7"	4'-4"	2'-8"	3'-10 1/8"	5'-6"	15'-10 1/8"	5.2	Yes
6'-0"	4'-0"	8"	7"	7"	5'-5"	3'-3"	4'-11 1/8"	7'-0"	18'-0 1/8"	6.5	Yes
6'-0"	4'-0"	7"	7"	7"	5'-4"	3'-2"	4'-10 1/8"	6'-11"	17'-10 1/8"	6.5	Yes
6'-0"	5'-0"	8"	7"	7"	6'-5"	3'-9"	5'-11 1/8"	8'-5"	20'-0 1/8"	8.0	Yes
6'-0"	5'-0"	7"	7"	7"	6'-4"	3'-8"	5'-10 1/8"	8'-4"	19'-10 1/8"	7.8	Yes
6'-0"	6'-0"	8"	7"	7"	7'-5"	4'-3"	6'-11 1/2"	9'-10"	22'-0 1/2"	9.5	Yes
6'-0"	6'-0"	7"	7"	7"	7'-4"	4'-2"	6'-10 1/2"	9'-9"	21'-10 1/2"	9.3	Yes
7'-0"	2'-0"	8"	8"	8"	3'-5"	2'-3"	2'-11 1/8"	4'-2"	15'-2"	4.9	Yes
7'-0"	3'-0"	8"	8"	8"	4'-5"	2'-9"	3'-11 1/8"	5'-7"	17'-2 1/8"	6.1	Yes
7'-0"	4'-0"	8"	8"	8"	5'-5"	3'-3"	4'-11 1/8"	7'-0"	19'-2 1/8"	7.4	Yes
7'-0"	5'-0"	8"	8"	8"	6'-5"	3'-9"	5'-11 1/8"	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 1/8"	4'-2"	16'-2"	5.3	Yes
8'-0"	3'-0"	8"	8"	8"	4'-5"	2'-9"	3'-11 1/8"	5'-7"	18'-2 1/8"	6.5	Yes
8'-0"	4'-0"	8"	8"	8"	5'-5"	3'-3"	4'-11 1/8"	7'-0"	20'-2 1/8"	7.8	Yes
8'-0"	5'-0"	8"	8"	8"	6'-5"	3'-9"	5'-11 1/8"	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 1/2"	4'-4"	17'-6 1/8"	6.2	Yes
9'-0"	3'-0"	9"	9"	9"	4'-6"	2'-9"	4'-0 1/2"	5'-9"	19'-6 1/8"	7.5	Yes
9'-0"	4'-0"	9"	9"	9"	5'-6"	3'-3"	5'-0 1/2"	7'-2"	21'-6 1/8"	9.0	Yes
9'-0"	5'-0"	9"	9"	9"	6'-6"	3'-9"	6'-0 1/2"	8'-7"	23'-7"	10.6	Yes
9'-0"	6'-0"	9"	9"	9"	7'-6"	4'-3"	7'-0 1/2"	9'-11"	25'-5 3/8"	12.4	Yes
10'-0"	2'-0"	10"	10"	10"	3'-7"	2'-4"	3'-1 1/2"	4'-5"	18'-10 1/2"	7.1	No
10'-0"	3'-0"	10"	10"	10"	4'-7"	2'-10"	4'-1 1/2"	5'-10"	20'-10 1/2"	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 1/8"	4'-7"	20'-3 1/8"	8.2	No
11'-0"	3'-0"	11"	11"	11"	4'-8"	2'-10"	4'-2 1/8"	6'-0"	22'-3 1/8"	9.8	No
11'-0"	4'-0"	11"	11"	11"	5'-8"	3'-4"	5'-2 1/8"	7'-4"	24'-1 1/2"	11.5	Yes
11'-0"	5'-0"	11"	11"	11"	6'-8"	3'-10"	6'-2 1/8"	8'-9"	26'-1 1/2"	13.3	Yes
11'-0"	6'-0"	11"	11"	11"	7'-8"	4'-4"	7'-2 1/8"	10'-2"	28'-1 1/2"	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 3/8"	6'-1"	23'-6 1/2"	11.1	No
12'-0"	4'-0"	12"	12"	12"	5'-9"	3'-5"	5'-3 3/8"	7'-6"	25'-6 1/2"	13.0	Yes
12'-0"	5'-0"	12"	12"	12"	6'-9"	3'-11"	6'-3 3/8"	8'-11"	27'-6 1/2"	14.1	Yes
12'-0"	6'-0"	12"	12"	12"	7'-9"	4'-5"	7'-3 3/8"	10'-4"	29'-6 1/2"	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)

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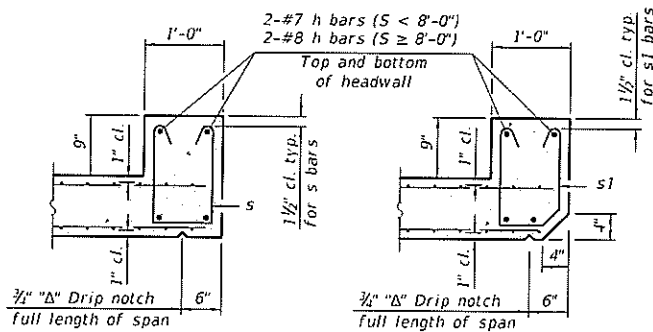
2-17-2017

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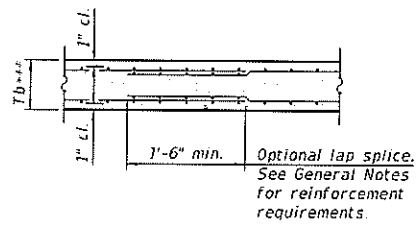
PRECAST CONCRETE BOX CULVERT APRON END  
SECTION DETAILS - STRUCTURE NO.

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ILLINOIS FED. AID PROJECT			CONTRACT NO.	68E18

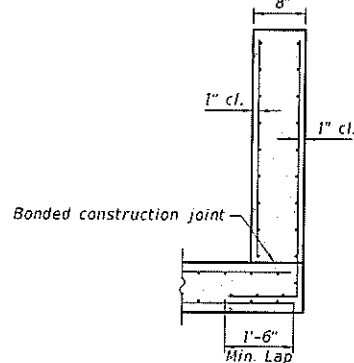


**SECTION B-B**  
(Top slab at downstream end)

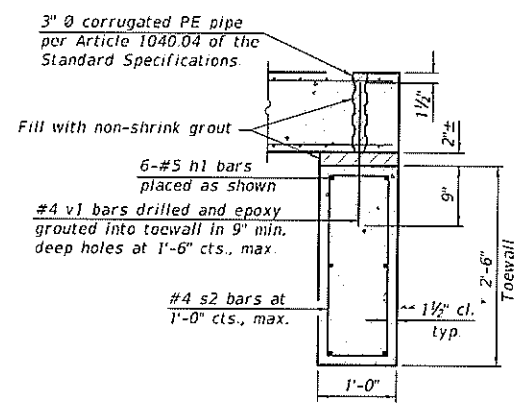
**SECTION B-B**  
(Top slab at upstream end)



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

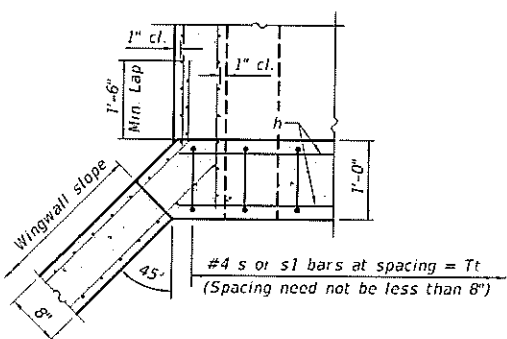


**SECTION C-C**

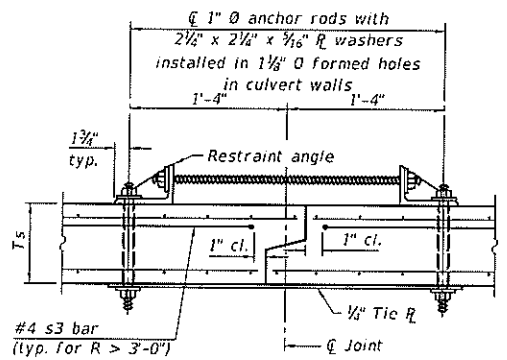


**SECTION D-D**

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



**SECTION E-E**



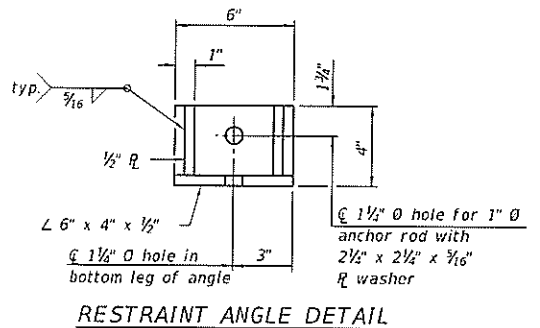
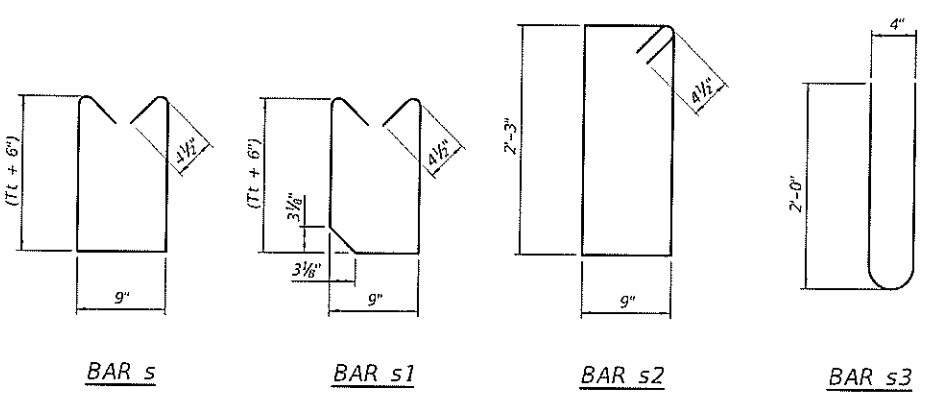
**SECTION F-F**  
(Showing culvert tie details)

**TOEWALL CONSTRUCTION SEQUENCE**

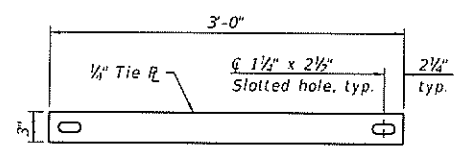
1. Perform excavation and construct toewall.
2. Backfill accordingly and place bedding for precast box culvert end sections.
3. Set precast box culvert end section.
4. Drill and epoxy grout reinforcement in toewall in accordance with Section 584 of the Standard Specifications.
5. Pressure grout voids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



**RESTRAINT ANGLE DETAIL**



**TIE PLATE DETAIL**

**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 1/2" x 2 1/2" x 1/8" 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.

SCB-AES 2-17-2017

FILE NAME *	USER NAME *	DESIGNED -	REVISD -
		CHECKED -	REVISD -
PLOT SCALE *		DRAWN -	REVISD -
PLOT DATE *		CHECKED -	REVISD -

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PRECAST CONCRETE BOX CULVERT APRON END  
SECTION DETAILS - STRUCTURE NO.

F.A. RATE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			26	26
			CONTRACT NO.	68E18
ILLINOIS FED. AID PROJECT				

(Sheet 2 of 2)