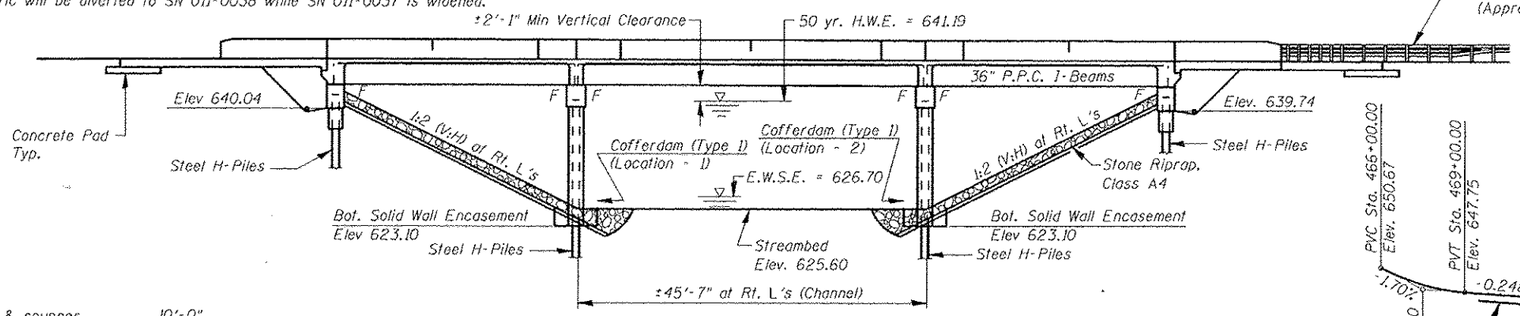
Existing Structure - Structure No. 011-0037, built as Section 44B-1 at Sta. 342+37.59 on F.A.P Rte. 322 (U.S. Rte. 51) in 2002. The structure has a three-span, P.P.C. I-beam superstructure on integral abutments and pile bent piers. 122'-7" back to back abutments, 43'-2" out to out of deck, and 15° skew Rt. Ah.

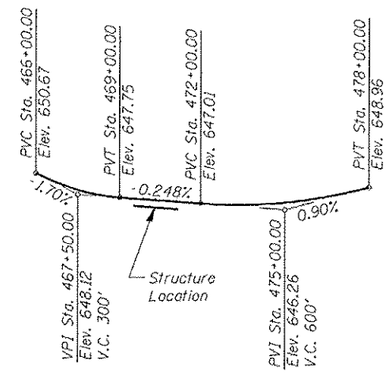
Two-way traffic will be diverted to SN 011-0038 while SN 011-0037 is widened.

No Salvage

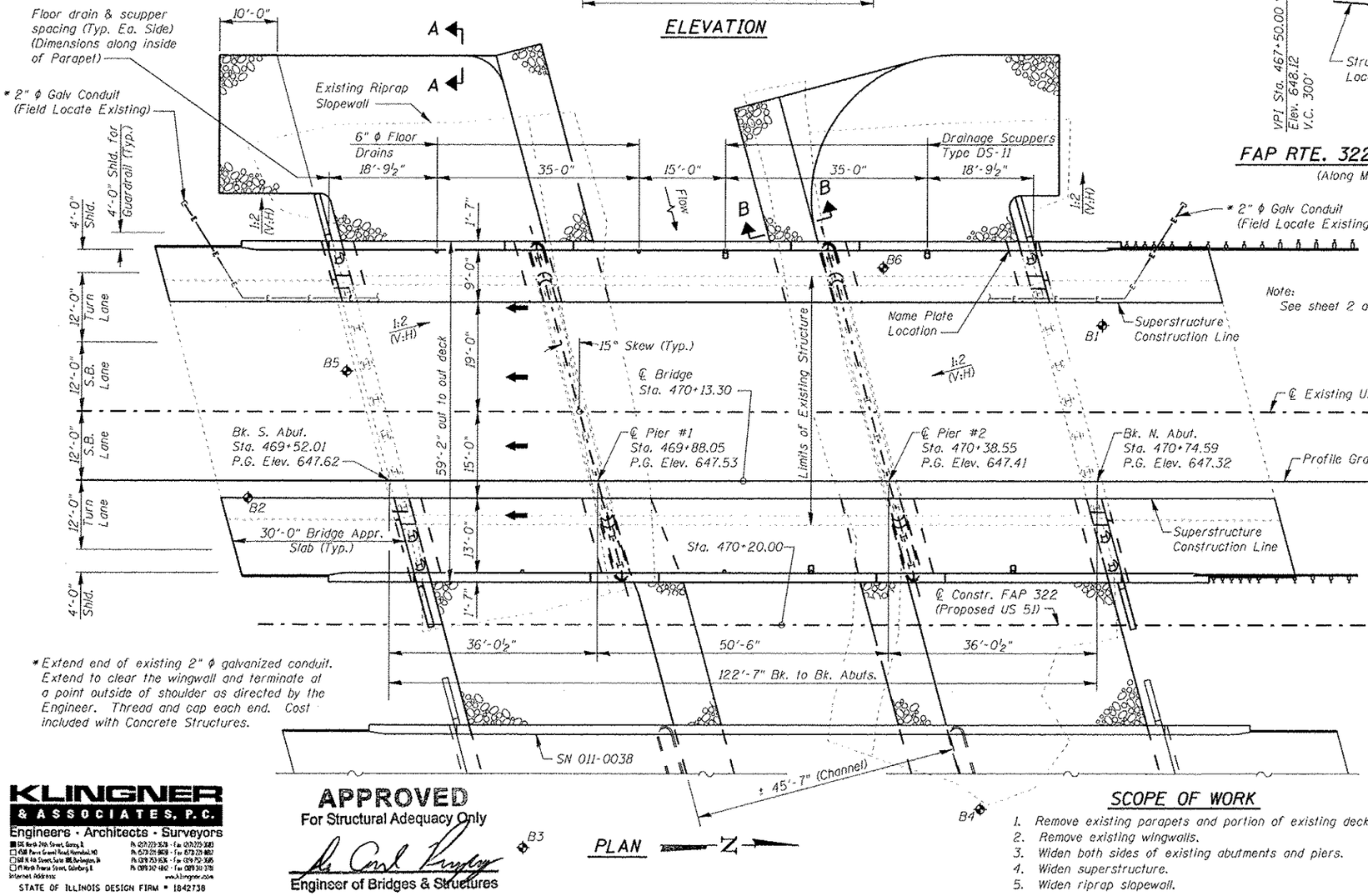
BM - Chisel "□" on Northeast Wingwall of SN 011-0037
Sta. 470+76.01, 17.0' Lt., Elev. 647.33



ELEVATION



FAP RTE. 322 PROFILE GRADE
(Along Median Edge)



Note:
See sheet 2 of 34 for Sections A-A and B-B.

* Extend end of existing 2" ϕ galvanized conduit. Extend to clear the wingwall and terminate at a point outside of shoulder as directed by the Engineer. Thread and cap each end. Cost included with Concrete Structures.

INDEX OF SHEETS

DESIGN SPECIFICATIONS

AASHTO 17th Edition, 2002

LOADING HS20-44

Allow 50#/sq. ft. for future wearing surface.

DESIGN STRESSES

FIELD UNITS
f'_c = 3,500 psi
f_y = 60,000 psi (Reinforcement)

PRECAST PRESTRESSED UNITS
f'_c = 6,000 psi
f'_{ci} = 5,000 psi
f'_s = 270,000 psi (½" ϕ Low Relaxation Strands)
f_{si} = 201,960 psi (½" ϕ Low Relaxation Strands)

SEISMIC DATA

Seismic Performance Category (SPC)= A
Bedrock Acceleration Coefficient (A)= 0.057g
Site Coefficient (S)= 1.0

STATE OF ILLINOIS
ALAN D. LUKENS
081-005167
LICENSED STRUCTURAL ENGINEER
QUINCY, ILLINOIS

8/9/12
Alan D. Lukens Date
Licensed Structural Engineer
State of Illinois No. 081-005167
License Expires 11/30/2012

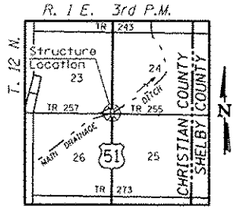
KLINGNER & ASSOCIATES, P.C.
Engineers · Architects · Surveyors
STATE OF ILLINOIS DESIGN FIRM # 184273B

APPROVED
For Structural Adequacy Only
Engineer of Bridges & Structures

PLAN

SCOPE OF WORK

1. Remove existing parapets and portion of existing deck.
2. Remove existing wingwalls.
3. Widen both sides of existing abutments and piers.
4. Widen superstructure.
5. Widen riprap slopewall.



LOCATION SKETCH

GENERAL PLAN & ELEVATION
FAP RTE 322 (US RTE 51) OVER
MAIN DRAINAGE DITCH
SECTION 11-10
CHRISTIAN COUNTY
STATION 470+20.00
STRUCTURE NO. 011-0037

FILE NAME =	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION
S.N. 011-0037
SHEET NO. 1 OF 34 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	201
		CONTRACT NO. 72961		
		ILLINOIS FED. AID PROJECT		

Klingner & Associates, P.C.

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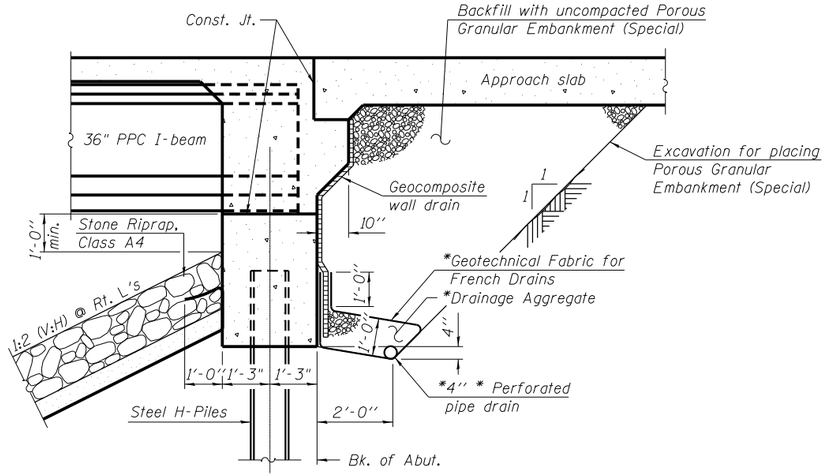


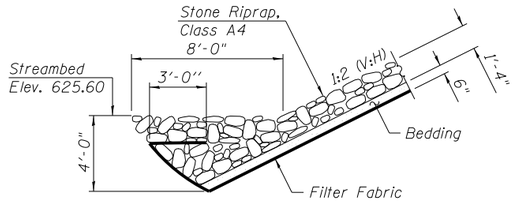
SECTION THRU INTEGRAL ABUTMENT

(Horiz. dim. @ Rt. *'s)

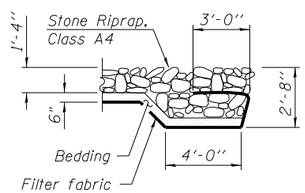
*Included in the cost of Pipe Underdrains for Structures.

Note:

All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).



SECTION B-B



SECTION A-A

WATERWAY INFORMATION

Drainage Area = 28.2 Sq. Mi. Low Grade Elev. 646.84 at Sta. 473+29.89

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head-Ft. Exist.	Head-Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	50	3580	980	1020	640.54	0.2	0.3	640.77	640.79
Base	100	4150	1010	1050	640.87	0.3	0.3	641.14	641.79
Overtopping	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Max. Calc.	500	5530	1080	1140	641.55	0.5	0.6	642.02	642.13

GENERAL NOTES

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.

Reinforcement bars designated (E) shall be epoxy coated.

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

Layout of slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.

Current Ratings on File for Existing Structure

Inventory - HS24.2
Operating - HS38.7
Live Load Restrictions: No

Inventory and Operating Ratings and Live Load Restrictions are provided for information only. Inventory and Operating Ratings are based on HS Loading and configuration. Live Load Restrictions are based on Illinois legal loads and configurations. The Ratings and Live Load Restrictions are not necessarily representative of capacities to support the Contractor's equipment.

TOTAL BILL OF MATERIAL

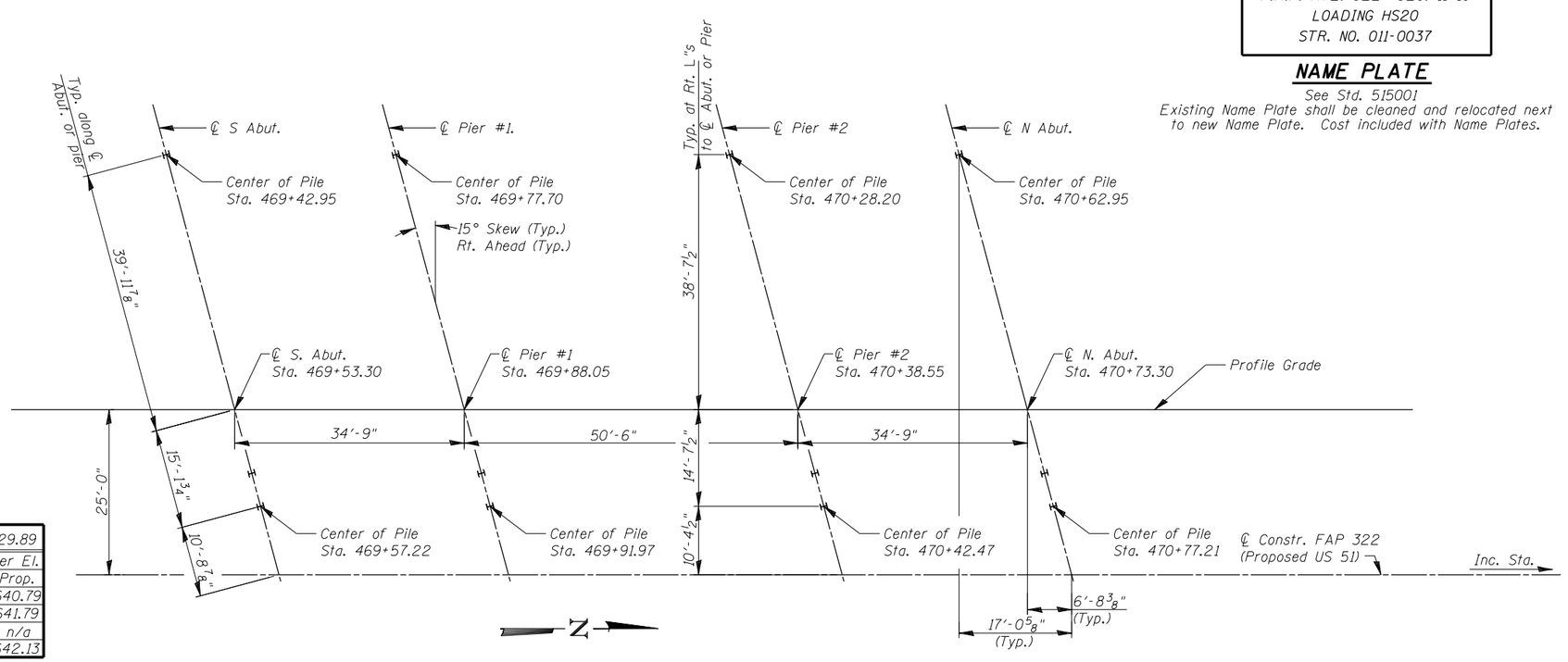
ITEM	UNIT	SUPER	SUB	TOTAL
Stone Riprap, Class A4	Sq. Yd.		652	652
Filter Fabric	Sq. Yd.		652	652
Concrete Removal	Cu. Yd.	77.1	7.0	84.1
Structure Excavation	Cu. Yd.		88	88
Cofferdam Excavation	Cu. Yd.		12	12
Floor Drains	Each	4		4
Concrete Structures	Cu. Yd.		103.8	103.8
Concrete Superstructure	Cu. Yd.	200.7		200.7
Bridge Deck Grooving	Sq. Yd.	406		406
Concrete Encasement	Cu. Yd.		2.0	2.0
Protective Coat	Sq. Yd.	583		583
Furnishing and Erecting Precast Prestressed Concrete I-Beams, 36"	Foot	358.0		358.0
Reinforcement Bars, Epoxy Coated	Pound	46,420	8,310	54,490
Bar Splicers	Each	44		44
Furnishing Steel Piles HP12x53	Foot		804	804
Driving Piles	Foot		804	804
Name Plates	Each	1		1
Geocomposite Wall Drain	Sq. Yd.		36	36
Porous Granular Embankment, Special	Cu. Yd.		58	58
Cofferdam (Type 1) (Location - 3)	Each		1	1
Cofferdam (Type 1) (Location - 4)	Each		1	1
Mechanical Splicers	Each	686		686
Drainage Scuppers, DS-11	Each	4		4
Pipe Underdrains For Structures 4"	Foot		136	136

STATION 470+20.00
REBUILT 201_ BY
STATE OF ILLINOIS
F.A.P. RTE. 322 SEC. 11-10
LOADING HS20
STR. NO. 011-0037

NAME PLATE

See Std. 515001

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



PILE PATTERN LAYOUT

FILE NAME =	USER NAME =	DESIGNED ADL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED RJP	REVISED -	GENERAL DATA S.N. 011-0037
	PLOT SCALE =	DRAWN RJP	REVISED -	SHEET NO. 2 OF 34 SHEETS
	PLOT DATE =	CHECKED ADL	REVISED -	

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	202
		CONTRACT NO. 72961		
	ILLINOIS FED. AID PROJECT			

Klingner & Associates, P.C.

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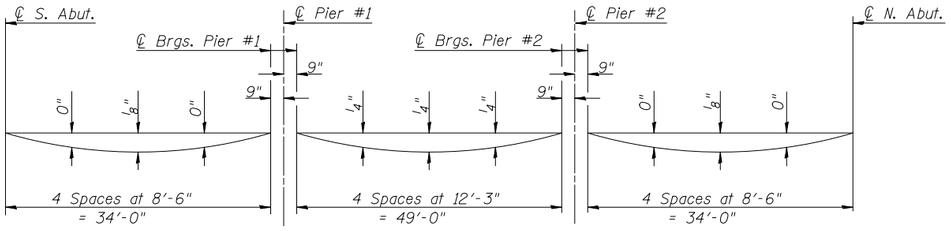
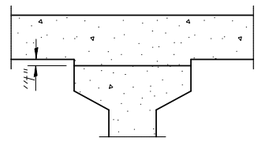


DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete, excluding beams).

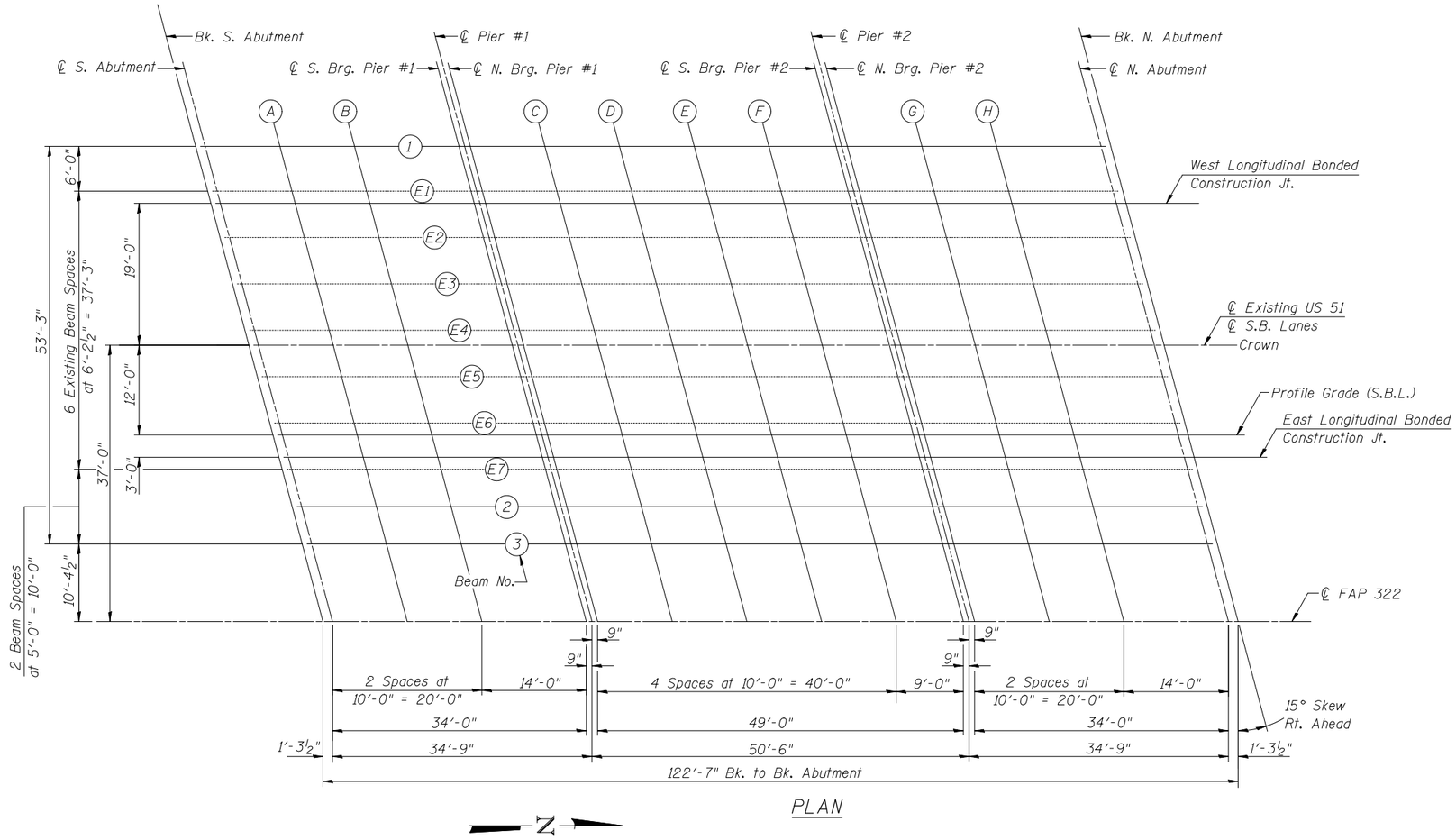
Notes:

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 on sheet 4 of 34.
See sheet 4 of 34 for Elevations.
All offsets are in feet.
Offsets are measured from ℄ FAP 322.
Offset to the left are negative.
Offset to the right are positive.



To determine "t": After all precast prestressed beams have 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 Deflections" minus slab thickness, equals the fillet heights "t" above top flanges of beams.

FILLET HEIGHTS



PLAN

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF SLAB ELEVATIONS
STRUCTURE NO. 011-0037
SHEET NO. 3 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	203
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

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BEAM 1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	469+41.66	-63.63	647.34	647.34
℄ S. Abut.	469+42.95	-63.63	647.34	647.34
A	469+52.95	-63.63	647.31	647.32
B	469+62.95	-63.63	647.29	647.29
℄ S. Brg. Pier 1	469+76.95	-63.63	647.25	647.25
℄ Pier 1	469+77.70	-63.63	647.25	647.25
℄ N. Brg. Pier 1	469+78.45	-63.63	647.25	647.25
C	469+88.45	-63.63	647.22	647.24
D	469+98.45	-63.63	647.20	647.22
E	470+08.45	-63.63	647.17	647.20
F	470+18.45	-63.63	647.15	647.16
℄ S. Brg. Pier 2	470+27.45	-63.63	647.13	647.13
℄ Pier 2	470+28.20	-63.63	647.13	647.13
℄ N. Brg. Pier 2	470+28.95	-63.63	647.12	647.12
G	470+38.95	-63.63	647.10	647.10
H	470+48.95	-63.63	647.07	647.08
℄ N. Abut.	470+62.95	-63.63	647.04	647.04
Bk. N. Abut.	470+64.24	-63.63	647.04	647.04

BEAM E1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	469+43.27	-57.63	647.46	647.46
℄ S. Abut.	469+44.56	-57.63	647.46	647.46
A	469+54.56	-57.63	647.43	647.44
B	469+64.56	-57.63	647.41	647.41
℄ S. Brg. Pier 1	469+78.56	-57.63	647.37	647.37
℄ Pier 1	469+79.31	-57.63	647.37	647.37
℄ N. Brg. Pier 1	469+80.06	-57.63	647.37	647.37
C	469+90.06	-57.63	647.34	647.36
D	470+00.06	-57.63	647.32	647.34
E	470+10.06	-57.63	647.30	647.32
F	470+20.06	-57.63	647.27	647.28
℄ S. Brg. Pier 2	470+29.06	-57.63	647.25	647.25
℄ Pier 2	470+29.81	-57.63	647.25	647.25
℄ N. Brg. Pier 2	470+30.56	-57.63	647.24	647.24
G	470+40.56	-57.63	647.22	647.22
H	470+50.56	-57.63	647.19	647.20
℄ N. Abut.	470+64.55	-57.63	647.16	647.16
Bk. N. Abut.	470+65.85	-57.63	647.16	647.16

WEST CONSTRUCTION JOINT

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	469+43.70	-56.00	647.49	647.49
℄ S. Abut.	469+45.00	-56.00	647.49	647.49
A	469+55.00	-56.00	647.47	647.47
B	469+65.00	-56.00	647.44	647.45
℄ S. Brg. Pier 1	469+78.99	-56.00	647.41	647.41
℄ Pier 1	469+79.74	-56.00	647.40	647.40
℄ N. Brg. Pier 1	469+80.49	-56.00	647.40	647.40
C	469+90.49	-56.00	647.38	647.39
D	470+00.49	-56.00	647.35	647.38
E	470+10.49	-56.00	647.33	647.35
F	470+20.49	-56.00	647.30	647.32
℄ S. Brg. Pier 2	470+29.49	-56.00	647.28	647.28
℄ Pier 2	470+30.24	-56.00	647.28	647.28
℄ N. Brg. Pier 2	470+30.99	-56.00	647.28	647.28
G	470+40.99	-56.00	647.25	647.26
H	470+50.99	-56.00	647.23	647.23
℄ N. Abut.	470+64.99	-56.00	647.19	647.19
Bk. N. Abut.	470+66.28	-56.00	647.19	647.19

PROFILE GRADE (S.B.L.)

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	469+52.01	-25.00	647.62	647.62
℄ S. Abut.	469+53.30	-25.00	647.62	647.62
A	469+63.30	-25.00	647.59	647.60
B	469+73.30	-25.00	647.57	647.57
℄ S. Brg. Pier 1	469+87.30	-25.00	647.53	647.53
℄ Pier 1	469+88.05	-25.00	647.53	647.53
℄ N. Brg. Pier 1	469+88.80	-25.00	647.53	647.53
C	469+98.80	-25.00	647.50	647.52
D	470+08.80	-25.00	647.48	647.50
E	470+18.80	-25.00	647.45	647.48
F	470+28.80	-25.00	647.43	647.44
℄ S. Brg. Pier 2	470+37.80	-25.00	647.41	647.41
℄ Pier 2	470+38.55	-25.00	647.40	647.40
℄ N. Brg. Pier 2	470+39.30	-25.00	647.40	647.40
G	470+49.30	-25.00	647.38	647.38
H	470+59.30	-25.00	647.35	647.36
℄ N. Abut.	470+73.30	-25.00	647.32	647.32
Bk. N. Abut.	470+74.59	-25.00	647.32	647.32

EAST CONSTRUCTION JOINT

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	469+52.81	-22.00	647.55	647.55
℄ S. Abut.	469+54.11	-22.00	647.55	647.55
A	469+64.11	-22.00	647.53	647.53
B	469+74.11	-22.00	647.50	647.51
℄ S. Brg. Pier 1	469+88.10	-22.00	647.47	647.47
℄ Pier 1	469+88.85	-22.00	647.47	647.47
℄ N. Brg. Pier 1	469+89.60	-22.00	647.46	647.46
C	469+99.60	-22.00	647.44	647.45
D	470+09.60	-22.00	647.41	647.44
E	470+19.60	-22.00	647.39	647.41
F	470+29.60	-22.00	647.36	647.38
℄ S. Brg. Pier 2	470+38.60	-22.00	647.34	647.34
℄ Pier 2	470+39.35	-22.00	647.34	647.34
℄ N. Brg. Pier 2	470+40.10	-22.00	647.34	647.34
G	470+50.10	-22.00	647.31	647.32
H	470+60.10	-22.00	647.29	647.29
℄ N. Abut.	470+74.10	-22.00	647.25	647.25
Bk. N. Abut.	470+75.39	-22.00	647.25	647.25

BEAM E7

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	469+53.25	-20.38	647.52	647.52
℄ S. Abut.	469+54.54	-20.38	647.52	647.52
A	469+64.54	-20.38	647.49	647.50
B	469+74.54	-20.38	647.47	647.47
℄ S. Brg. Pier 1	469+88.54	-20.38	647.43	647.43
℄ Pier 1	469+89.29	-20.38	647.43	647.43
℄ N. Brg. Pier 1	469+90.04	-20.38	647.43	647.43
C	470+00.04	-20.38	647.40	647.42
D	470+10.04	-20.38	647.38	647.40
E	470+20.04	-20.38	647.35	647.38
F	470+30.04	-20.38	647.33	647.34
℄ S. Brg. Pier 2	470+39.04	-20.38	647.31	647.31
℄ Pier 2	470+39.79	-20.38	647.30	647.30
℄ N. Brg. Pier 2	470+40.54	-20.38	647.30	647.30
G	470+50.54	-20.38	647.28	647.28
H	470+60.54	-20.38	647.25	647.26
℄ N. Abut.	470+74.54	-20.38	647.22	647.22
Bk. N. Abut.	470+75.83	-20.38	647.22	647.22

BEAM 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	469+54.59	-15.38	647.41	647.41
℄ S. Abut.	469+55.88	-15.38	647.41	647.41
A	469+65.88	-15.38	647.38	647.39
B	469+75.88	-15.38	647.36	647.36
℄ S. Brg. Pier 1	469+89.88	-15.38	647.32	647.32
℄ Pier 1	469+90.63	-15.38	647.32	647.32
℄ N. Brg. Pier 1	469+91.38	-15.38	647.32	647.32
C	470+01.38	-15.38	647.30	647.31
D	470+11.38	-15.38	647.27	647.30
E	470+21.38	-15.38	647.25	647.27
F	470+31.38	-15.38	647.22	647.24
℄ S. Brg. Pier 2	470+40.38	-15.38	647.20	647.20
℄ Pier 2	470+41.13	-15.38	647.20	647.20
℄ N. Brg. Pier 2	470+41.88	-15.38	647.20	647.20
G	470+51.88	-15.38	647.17	647.18
H	470+61.88	-15.38	647.15	647.15
℄ N. Abut.	470+75.88	-15.38	647.11	647.11
Bk. N. Abut.	470+77.17	-15.38	647.11	647.11

BEAM 3

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	469+55.93	-10.38	647.30	647.30
℄ S. Abut.	469+57.22	-10.38	647.30	647.30
A	469+67.22	-10.38	647.28	647.28
B	469+77.22	-10.38	647.25	647.26
℄ S. Brg. Pier 1	469+91.22	-10.38	647.22	647.22
℄ Pier 1	469+91.97	-10.38	647.22	647.22
℄ N. Brg. Pier 1	469+92.72	-10.38	647.21	647.21
C	470+02.72	-10.38	647.19	647.20
D	470+12.72	-10.38	647.16	647.19
E	470+22.72	-10.38	647.14	647.16
F	470+32.72	-10.38	647.11	647.13
℄ S. Brg. Pier 2	470+41.72	-10.38	647.09	647.09
℄ Pier 2	470+42.47	-10.38	647.09	647.09
℄ N. Brg. Pier 2	470+43.22	-10.38	647.09	647.09
G	470+53.22	-10.38	647.06	647.07
H	470+63.22	-10.38	647.04	647.04
℄ N. Abut.	470+77.21	-10.38	647.00	647.00
Bk. N. Abut.	470+78.51	-10.38	647.00	647.00

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FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF SLAB ELEVATIONS
STRUCTURE NO. 011-0037
SHEET NO. 4 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	204
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

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8/6/2012 8:02:23 AM

WEST EDGE OF SHOULDER

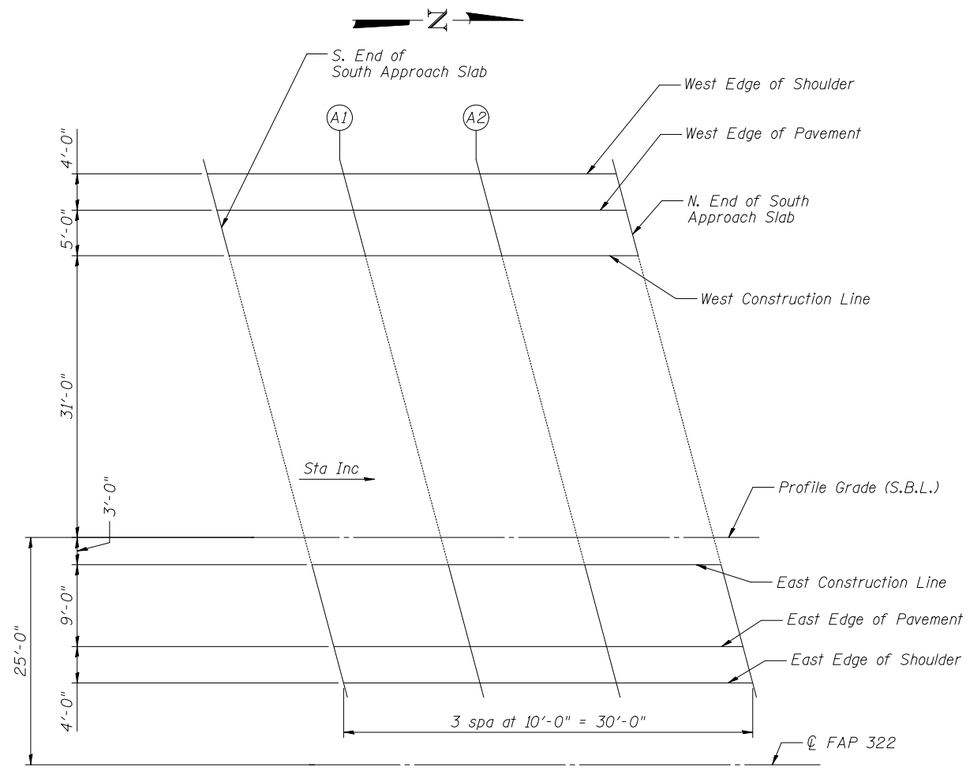
Location	Station	Offset	Theoretical Grade Elevations
S. End South Appr. Slab	469+11.29	-65.00	647.39
A1	469+21.29	-65.00	647.36
A2	469+31.29	-65.00	647.34
N. End South Appr. Slab	469+41.29	-65.00	647.31

WEST EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
S. End South Appr. Slab	469+12.36	-61.00	647.47
A1	469+22.36	-61.00	647.44
A2	469+32.36	-61.00	647.42
N. End South Appr. Slab	469+42.36	-61.00	647.39

WEST CONSTRUCTION LINE

Location	Station	Offset	Theoretical Grade Elevations
S. End South Appr. Slab	469+13.70	-56.00	647.57
A1	469+23.70	-56.00	647.54
A2	469+33.70	-56.00	647.52
N. End South Appr. Slab	469+43.70	-56.00	647.49



PLAN

PROFILE GRADE (S.B.L.)

Location	Station	Offset	Theoretical Grade Elevations
S. End South Appr. Slab	469+22.01	-25.00	647.69
A1	469+32.01	-25.00	647.67
A2	469+42.01	-25.00	647.64
N. End South Appr. Slab	469+52.01	-25.00	647.62

EAST CONSTRUCTION LINE

Location	Station	Offset	Theoretical Grade Elevations
S. End South Appr. Slab	469+22.81	-22.00	647.63
A1	469+32.81	-22.00	647.60
A2	469+42.81	-22.00	647.58
N. End South Appr. Slab	469+52.81	-22.00	647.56

EAST EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
S. End South Appr. Slab	469+25.23	-13.00	647.44
A1	469+35.23	-13.00	647.41
A2	469+45.23	-13.00	647.39
N. End South Appr. Slab	469+55.23	-13.00	647.36

EAST EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
S. End South Appr. Slab	469+26.30	-9.00	647.35
A1	469+36.30	-9.00	647.33
A2	469+46.30	-9.00	647.30
N. End South Appr. Slab	469+56.30	-9.00	647.28

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	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF SOUTH APPROACH SLAB ELEVATIONS
STRUCTURE NO. 011-0037
SHEET NO. 5 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	205
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

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WEST EDGE OF SHOULDER

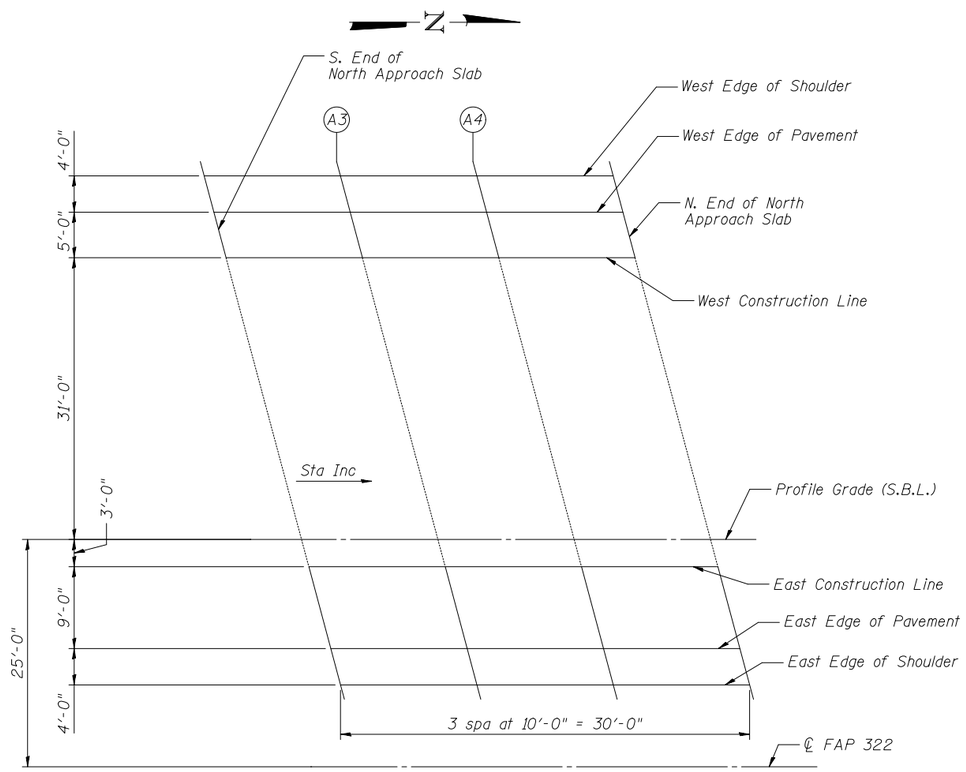
Location	Station	Offset	Theoretical Grade Elevations
S. End North Appr. Slab	470+63.87	-65.00	647.01
A3	470+73.87	-65.00	646.98
A4	470+83.87	-65.00	646.96
N. End North Appr. Slab	470+93.87	-65.00	646.93

WEST EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
S. End North Appr. Slab	470+64.94	-61.00	647.09
A3	470+74.94	-61.00	647.06
A4	470+84.94	-61.00	647.04
N. End North Appr. Slab	470+94.94	-61.00	647.01

WEST CONSTRUCTION LINE

Location	Station	Offset	Theoretical Grade Elevations
S. End North Appr. Slab	470+66.28	-56.00	647.19
A3	470+76.28	-56.00	647.17
A4	470+86.28	-56.00	647.14
N. End North Appr. Slab	470+96.28	-56.00	647.12



PLAN

PROFILE GRADE (S.B.L.)

Location	Station	Offset	Theoretical Grade Elevations
S. End North Appr. Slab	470+74.59	-25.00	647.32
A3	470+84.59	-25.00	647.29
A4	470+94.59	-25.00	647.27
N. End North Appr. Slab	471+04.59	-25.00	647.24

EAST CONSTRUCTION LINE

Location	Station	Offset	Theoretical Grade Elevations
S. End North Appr. Slab	470+75.39	-22.00	647.25
A3	470+85.39	-22.00	647.23
A4	470+95.39	-22.00	647.20
N. End North Appr. Slab	471+05.39	-22.00	647.18

EAST EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
S. End North Appr. Slab	470+77.81	-13.00	647.06
A3	470+87.81	-13.00	647.03
A4	470+97.81	-13.00	647.01
N. End North Appr. Slab	471+07.81	-13.00	646.98

EAST EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
S. End North Appr. Slab	470+78.88	-9.00	646.97
A3	470+88.88	-9.00	646.95
A4	470+98.88	-9.00	646.92
N. End North Appr. Slab	471+08.88	-9.00	646.90

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	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF NORTH APPROACH SLAB ELEVATIONS
STRUCTURE NO. 011-0037
SHEET NO. 6 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	206
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

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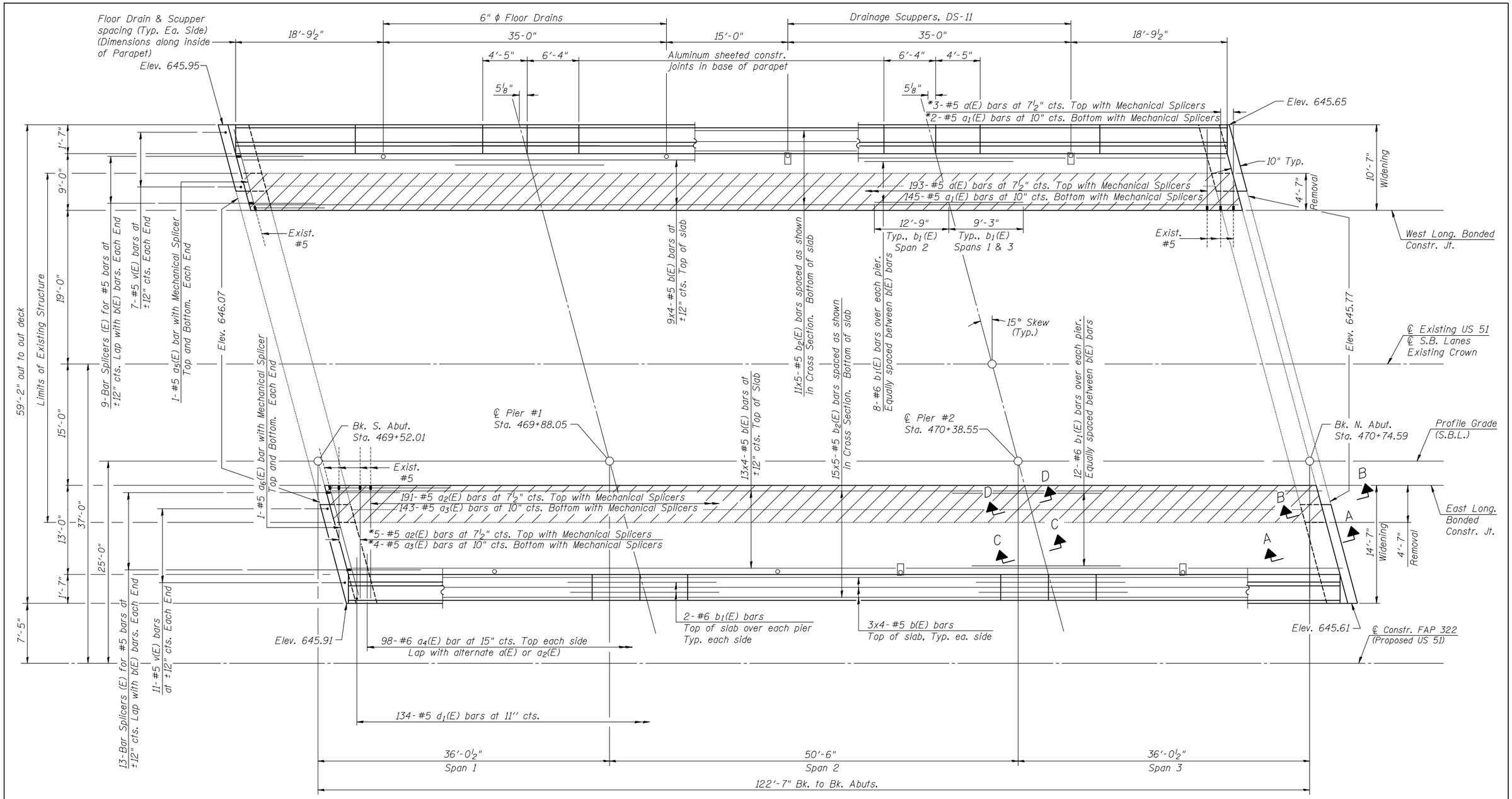

PLAN

* Order a(E), a_1(E), a_2(E), and a_3(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.

Notes:

See sheet 9 of 34 for superstructure details and Bill of Material.

See sheet 10 of 34 for Section A-A at abutments.

See sheet 10 of 34 for Section B-B at abutments.

See sheet 12 of 34 for Section C-C at piers.

See sheet 8 of 34 for Cross Section and for additional Reinforcement Bars at Drainage Scuppers.

Bars indicated thus 15 x 5-#5 etc. indicates 15 lines of bars with 5 lengths per line.

See sheet 9 of 34 for parapet reinforcement.

MIN. BAR LAP

#5 bar = 3'-3"

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DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE
STRUCTURE NO. 011-0037
SHEET NO. 7 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	207
		CONTRACT NO. 72961		
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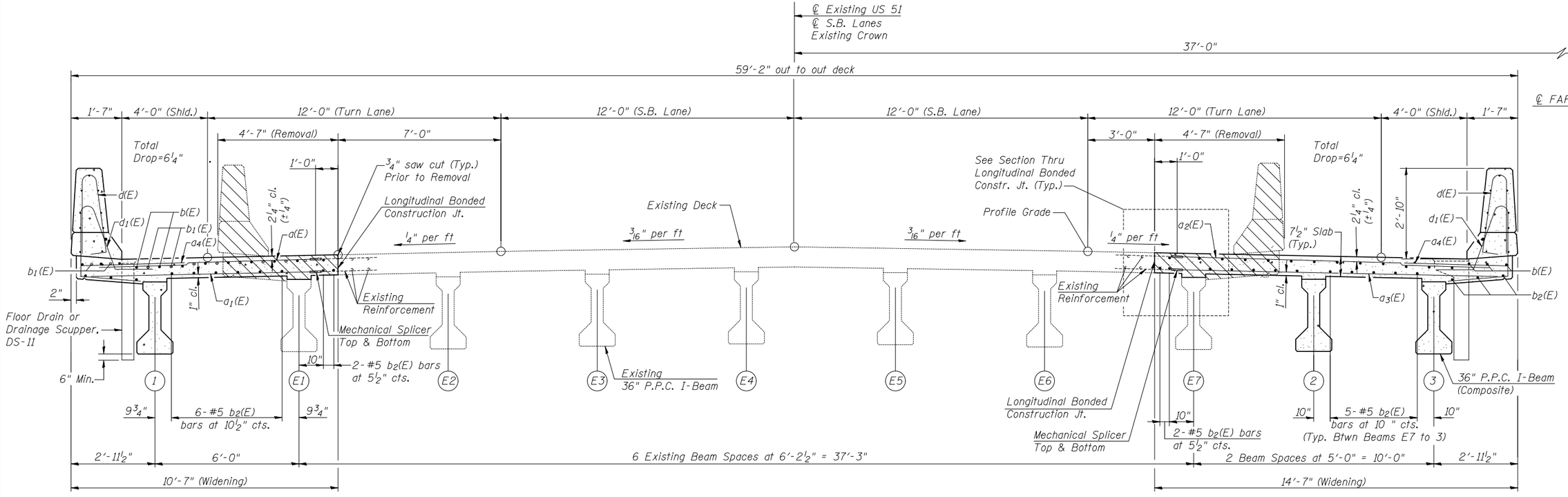
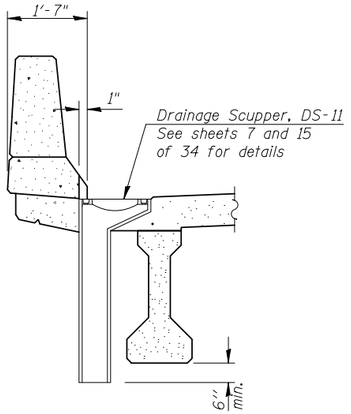
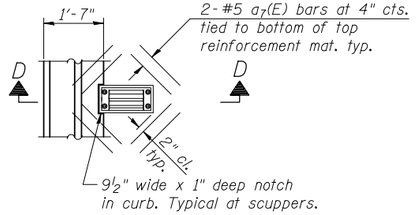


CROSS SECTION
(Looking North)

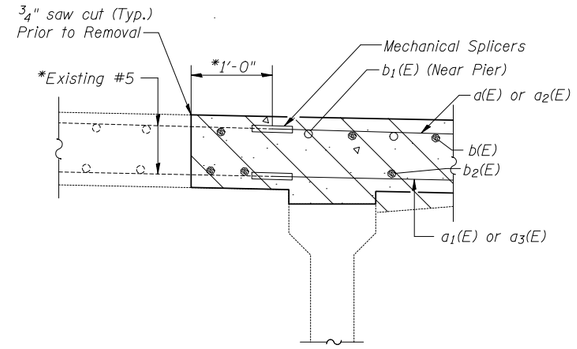


SECTION D-D



PLAN AT DRAINAGE SCUPPER

Note:
Cut longitudinal reinforcement to clear drainage scuppers.



SECTION THRU LONGITUDINAL BONDED CONST. JT.

* Existing reinforcement 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 shall be included with Concrete Removal.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS
STRUCTURE NO. 011-0037
SHEET NO. 8 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	208
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

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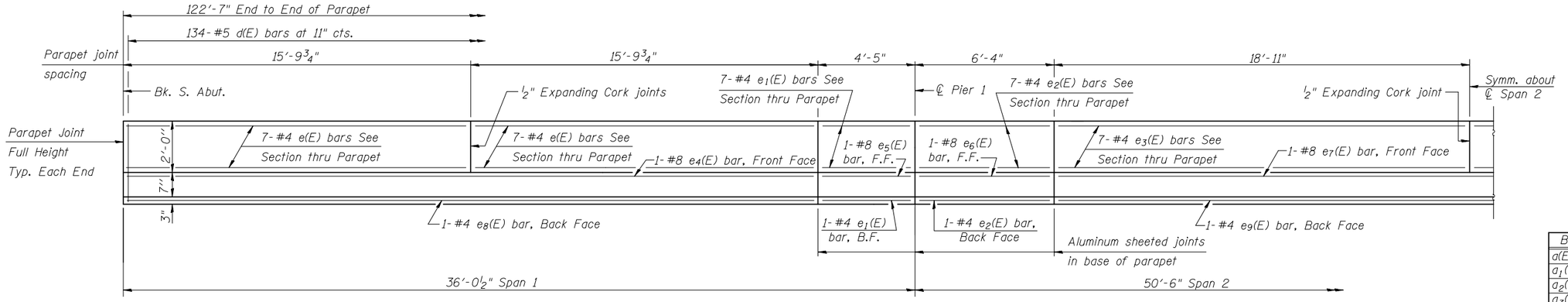
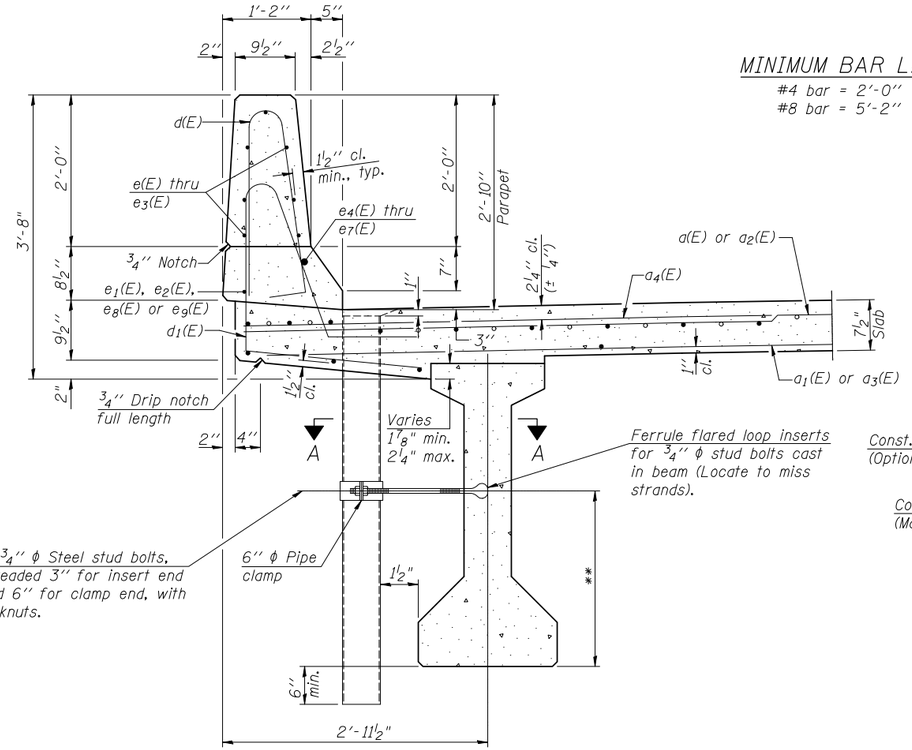




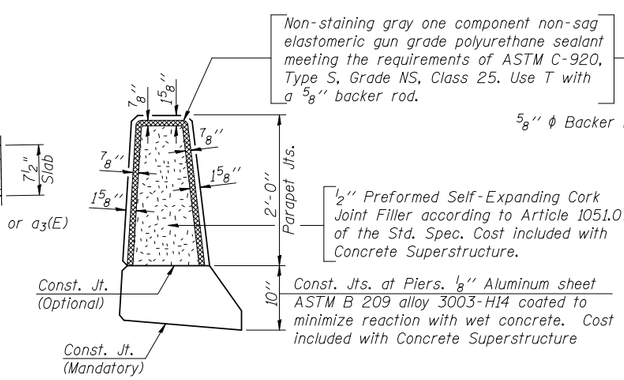
SECTION THRU PARAPET

**For insert locations See sheets 17 and 19 of 34.

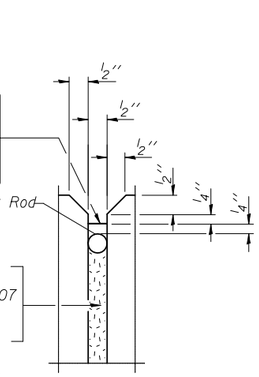
MINIMUM BAR LAP

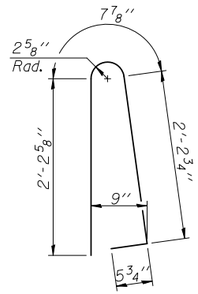
#4 bar = 2'-0"
#8 bar = 5'-2"

INSIDE ELEVATION OF PARAPET

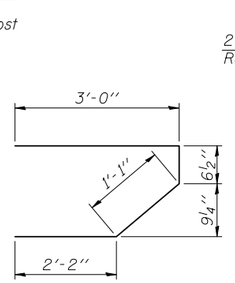


PARAPET JOINT DETAILS

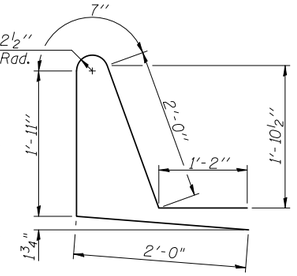




BAR d(E)

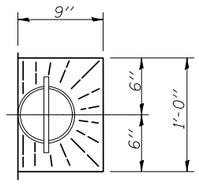


BAR s(E)

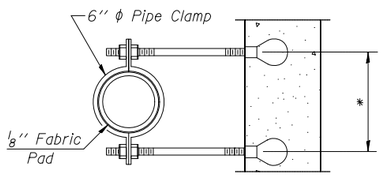


BAR d1(E)

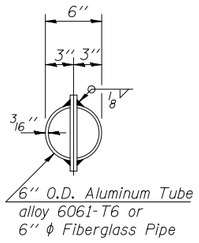
Notes:
Drains shall be located clear of all diaphragms.
The Floor Drains need not be painted.
Fiberglass pipe shall conform to ASTM D2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.
The exterior surfaces of the floor drains shall be coated or pigmented by the manufacturer with a color that matches the concrete.
The clamping device and inserts shall be galvanized according to AASHTO M 232. Cost of clamping device and galvanizing included with Floor Drains.



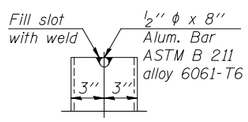
TOP PLAN



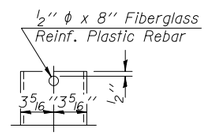
SECTION A-A
*Dimension as required by Pipe Clamp



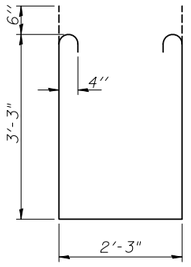
TOP PLAN
(Showing Aluminum Tube)



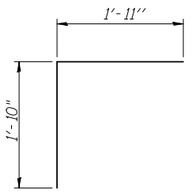
ALUMINUM TUBE



FIBERGLASS PIPE



BAR s1(E)



BAR v(E)

SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	196	#5	9'-3"	
a_1(E)	147	#5	8'-10"	
a_2(E)	196	#5	13'-3"	
a_3(E)	147	#5	12'-10"	
a_4(E)	196	#6	6'-6"	
a_5(E)	4	#5	9'-7"	
a_6(E)	4	#5	13'-7"	
a_7(E)	32	#5	1'-6"	
b(E)	112	#5	33'-1"	
b_1(E)	48	#6	22'-0"	
b_2(E)	130	#5	27'-1"	
d(E)	268	#5	5'-7"	
d_1(E)	268	#5	7'-8"	
e(E)	56	#4	15'-6"	
e_1(E)	32	#4	4'-2"	
e_2(E)	32	#4	6'-1"	
e_3(E)	28	#4	18'-8"	
e_4(E)	4	#8	31'-4"	
e_5(E)	4	#8	4'-2"	
e_6(E)	4	#8	6'-1"	
e_7(E)	2	#8	37'-7"	
e_8(E)	4	#4	31'-4"	
e_9(E)	2	#4	37'-7"	
m(E)	10	#6	6'-9"	
m_1(E)	6	#6	10'-11"	
m_2(E)	4	#6	7'-8"	
m_3(E)	2	#6	2'-9"	
m_4(E)	4	#6	1'-11"	
m_5(E)	2	#6	1'-10"	
m_6(E)	10	#6	3'-3"	
m_7(E)	8	#6	7'-2"	
m_8(E)	4	#6	11'-10"	
m_9(E)	16	#4	4'-3"	
m_{10}(E)	6	#8	5'-6"	
m_{11}(E)	4	#6	4'-3"	
m_{12}(E)	8	#4	5'-4"	
s(E)	34	#5	6'-10"	
s_1(E)	30	#4	9'-9"	
s_2(E)	26	#4	9'-9"	
v(E)	36	#5	3'-9"	
Reinforcement Bars (Epoxy Coated)		Lbs.	26,140	
Concrete Superstructure		Cu. Yds.	122.9	
Concrete Removal		Cu. Yds.	56.6	
Mechanical Splicers		Each	686	
Bar Splicers		Each	44	
Bridge Deck Grooving		Sq. Yds.	406	
Protective Coat		Sq. Yds.	583	
Floor Drains		Each	4	

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DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS
STRUCTURE NO. 011-0037
SHEET NO. 9 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	209
		CONTRACT NO. 72961		
		ILLINOIS FED. AID PROJECT		

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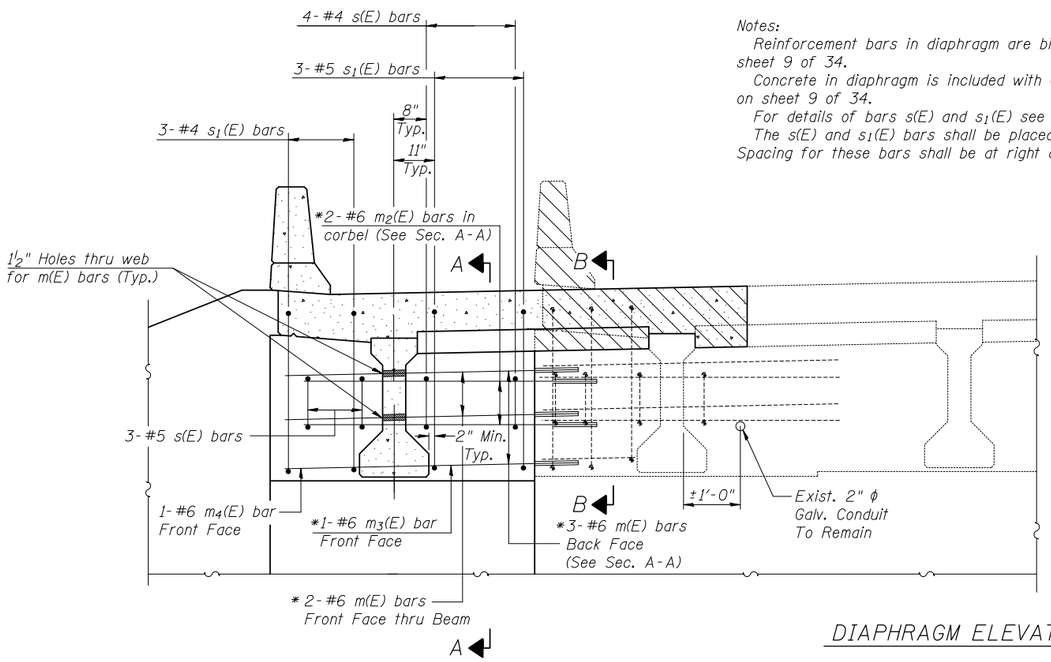
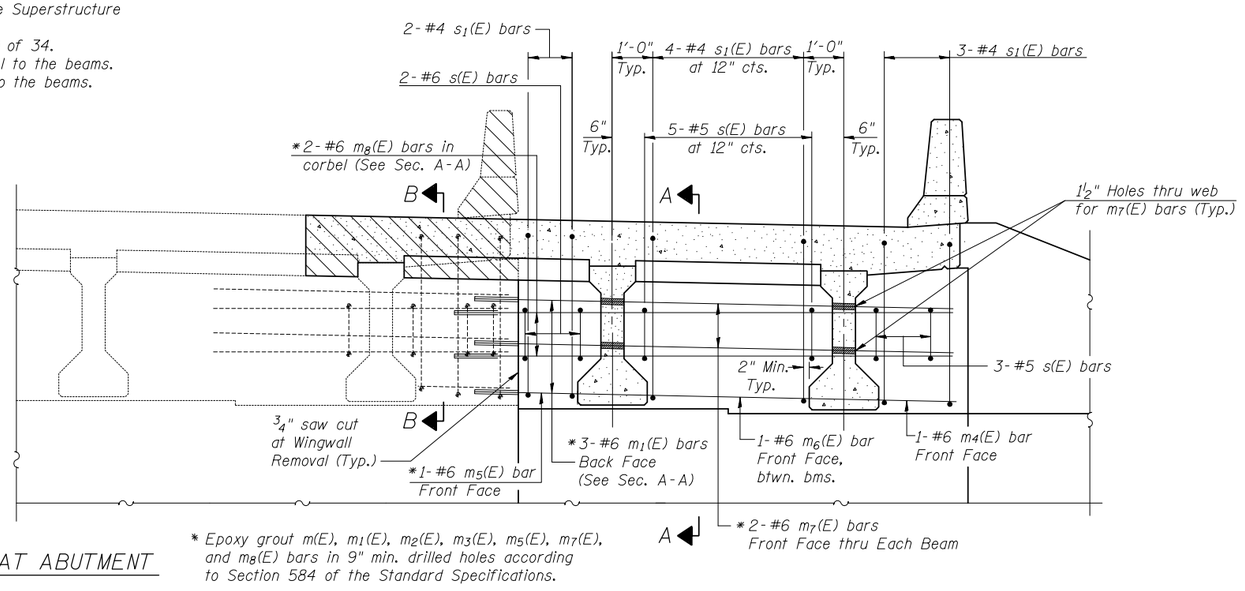
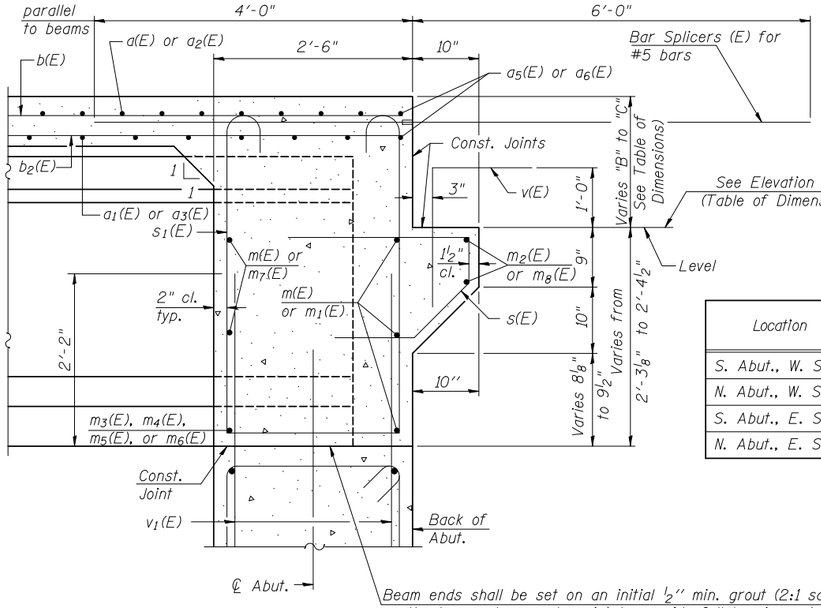


Notes:
Reinforcement bars in diaphragm are billed with superstructure on sheet 9 of 34.
Concrete in diaphragm is included with Concrete Superstructure on sheet 9 of 34.
For details of bars s(E) and s_1(E) see sheet 9 of 34.
The s(E) and s_1(E) bars shall be placed parallel to the beams. Spacing for these bars shall be at right angles to the beams.

DIAPHRAGM ELEVATION AT ABUTMENT



* Epoxy grout m(E), m_1(E), m_2(E), m_3(E), m_5(E), m_7(E), and m_8(E) bars in 9" min. drilled holes according to Section 584 of the Standard Specifications.



Beam ends shall be set on an initial ½" min. grout (2:1 sand and portland cement, very dry mix) to provide full bearing. Any excess grout squeezed out from under the beam shall be removed. Cost included with Concrete Structures.

SECTION A-A

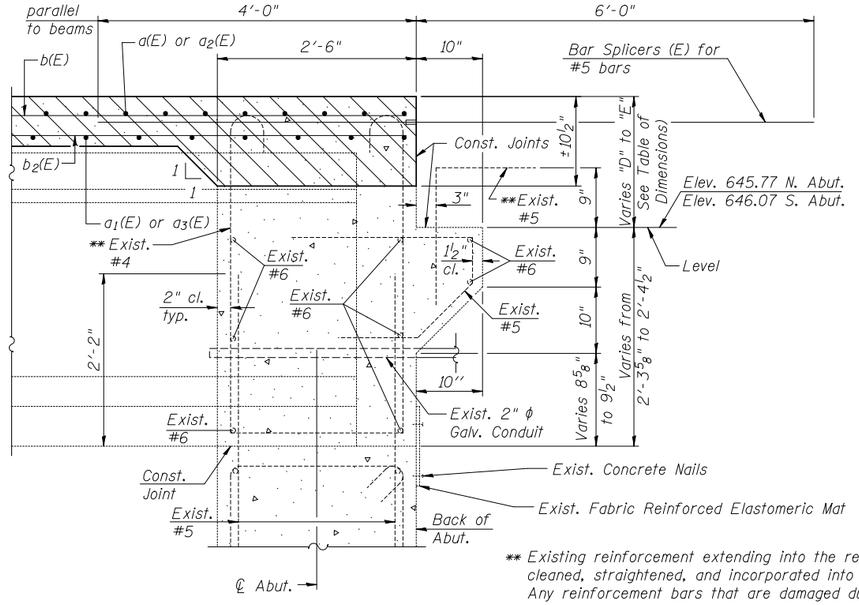
Dimensions at right angles to abutment, except as shown.

MIN. BAR LAP

#6 bar = 3'-4"

TABLE OF ELEVATIONS

Location	Elevation "A"	Distance "B"	Distance "C"	Distance "D"	Distance "E"
S. Abut., W. Side	645.95	1'-4 3/8"	1'-5 5/8"	1'-4 1/4"	1'-5"
N. Abut., W. Side	645.65	1'-4 3/8"	1'-5 5/8"	1'-4 1/4"	1'-5"
S. Abut., E. Side	645.91	1'-4 3/8"	1'-6 7/8"	1'-4 7/8"	1'-5 7/8"
N. Abut., E. Side	645.61	1'-4 3/8"	1'-6 3/4"	1'-4 3/4"	1'-5 3/4"



** Existing reinforcement 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 shall be included with Concrete Removal.

SECTION B-B

Dimensions at right angles to abutment, except as shown.

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS
STRUCTURE NO. 011-0037
SHEET NO. 10 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	210
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

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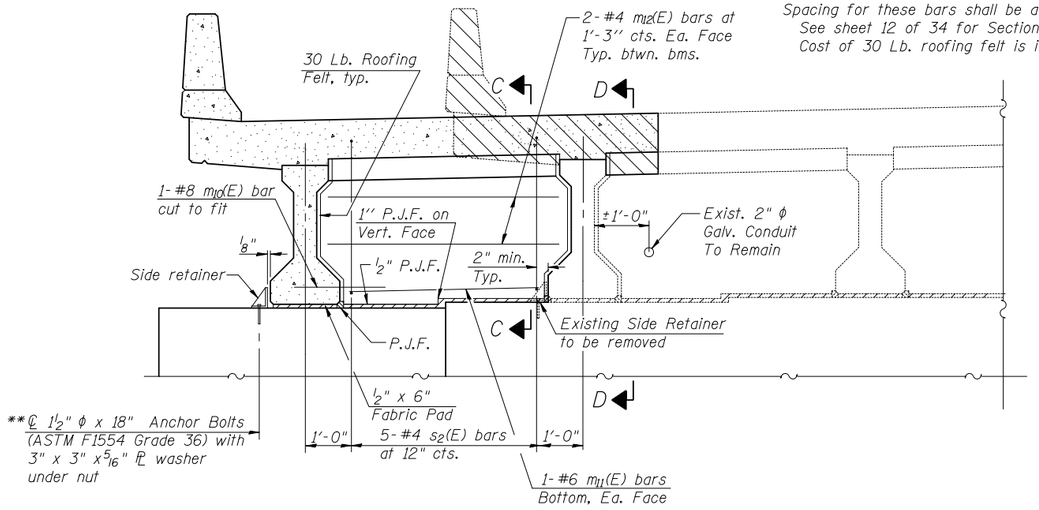
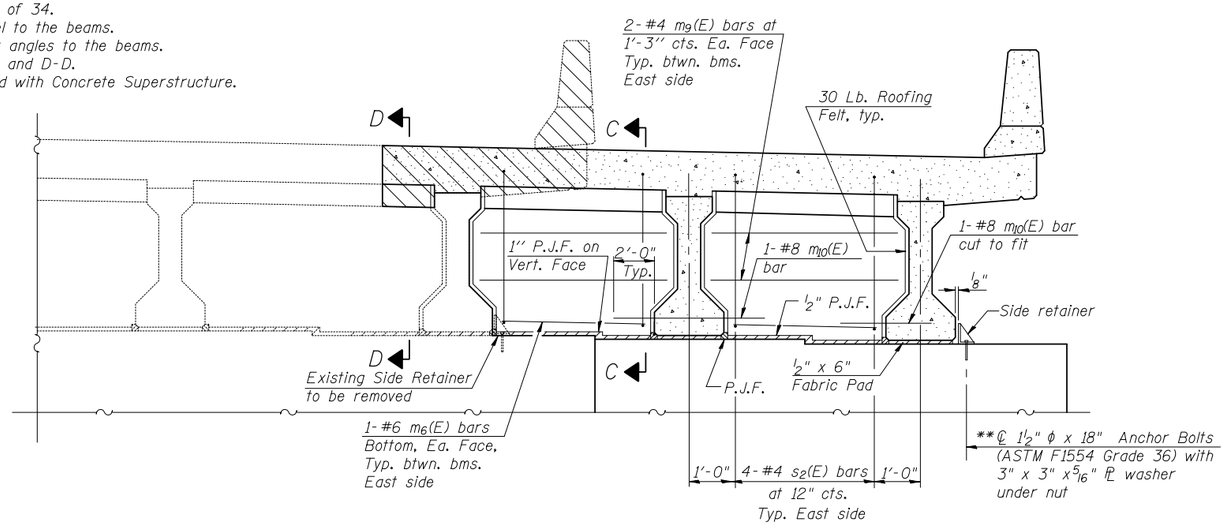
Notes:
Reinforcement bars in diaphragm are billed with superstructure on sheet 9 of 34.
Concrete in diaphragm is included with Concrete Superstructure on sheet 9 of 34.
For details of bar $s_2(E)$ see sheet 12 of 34.
The $s_2(E)$ bars shall be placed parallel to the beams.
Spacing for these bars shall be at right angles to the beams.
See sheet 12 of 34 for Sections C-C and D-D.
Cost of 30 Lb. roofing felt is included with Concrete Superstructure.

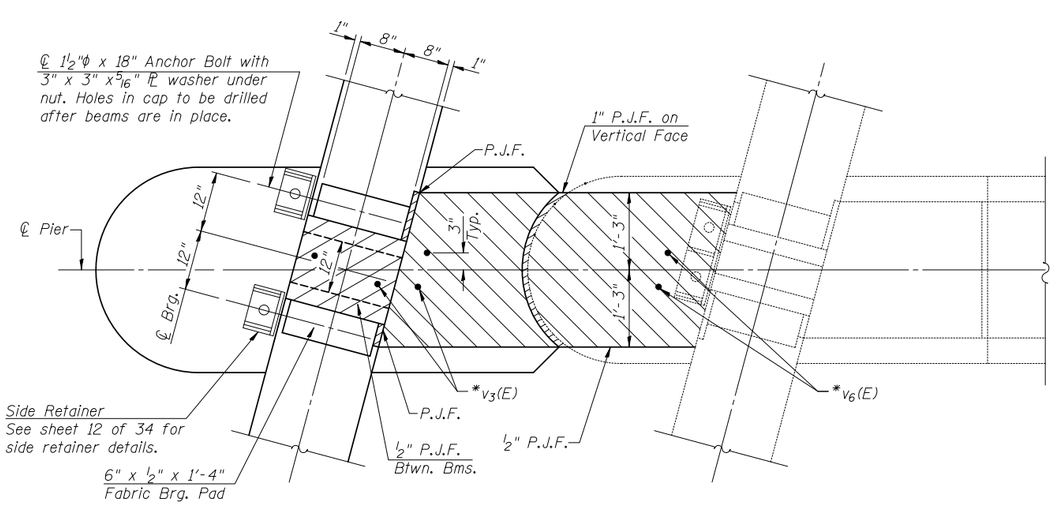


DIAPHRAGM AT PIER

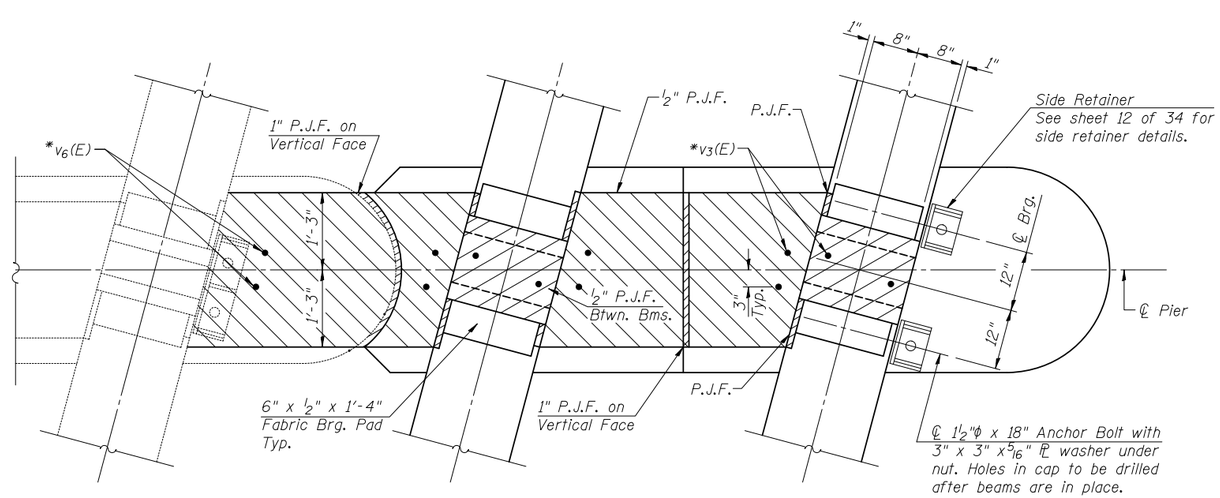


DIAPHRAGM AT PIER

**Holes in pier cap for anchor bolts are to be drilled after beams are in place.

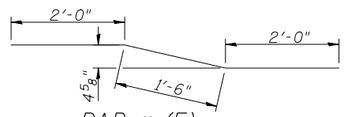


PLAN AT PIER (LEFT)
(Showing bearing pad and PJF details)



*$v_3(E)$ and $v_6(E)$ bars are billed with piers as shown on sheets 24 and 25 of 34

PLAN AT PIER (RIGHT)
(Showing bearing pad and PJF details)



BAR m10(E)

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS
STRUCTURE NO. 011-0037
SHEET NO. 11 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	211
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

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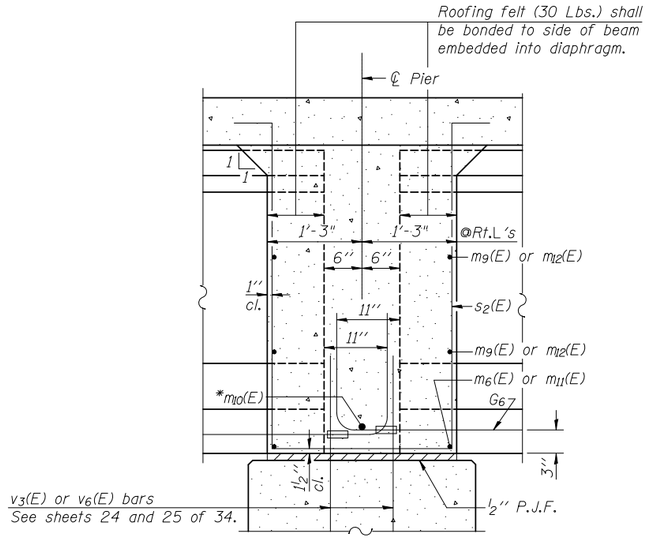
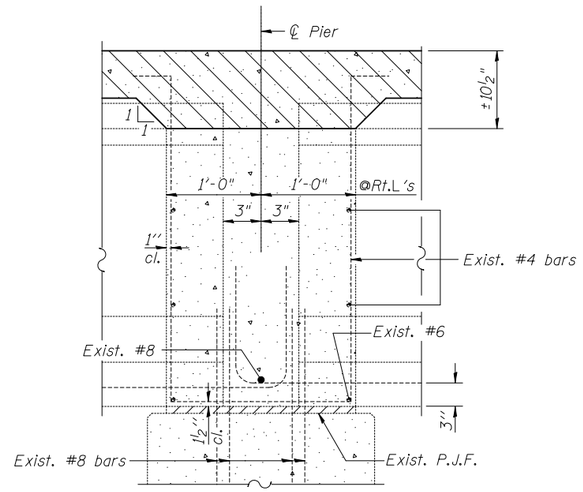


SECTION C-C

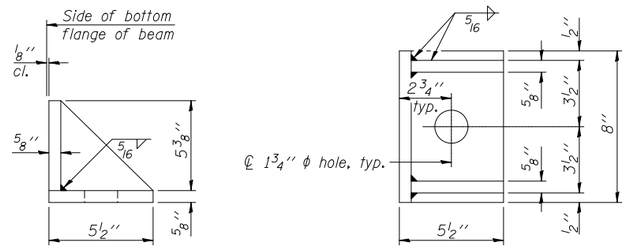
Dimensions along ℄ of beam, except as shown.

* Tightly fasten the #8 bars together with No. 9 wire ties.



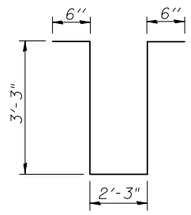
SECTION D-D

Dimensions along ℄ of beam, except as shown.



SIDE RETAINER

(2 required each side of pier).
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



BAR s2(E)

Notes:

Reinforcement bars in diaphragm are billed with superstructure on sheet 9 of 34.

Concrete in diaphragm is included with Concrete Superstructure on sheet 9 of 34.

The s2(E) bars shall be placed parallel to the beams. Spacing for these bars shall be at right angles to the beams.

The side retainer shall be galvanized after shop fabrication according to AASHTO M 111.

Anchor bolts for side retainers may be either cast in place or installed in holes drilled after the supporting member is in place and prior to pouring the deck.

Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

Cost of side retainer and anchor bolts shall be included with Concrete Structures.

See sheet 11 of 34 for location of Sections C-C and D-D.

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS
STRUCTURE NO. 011-0037
SHEET NO. 12 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	212
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

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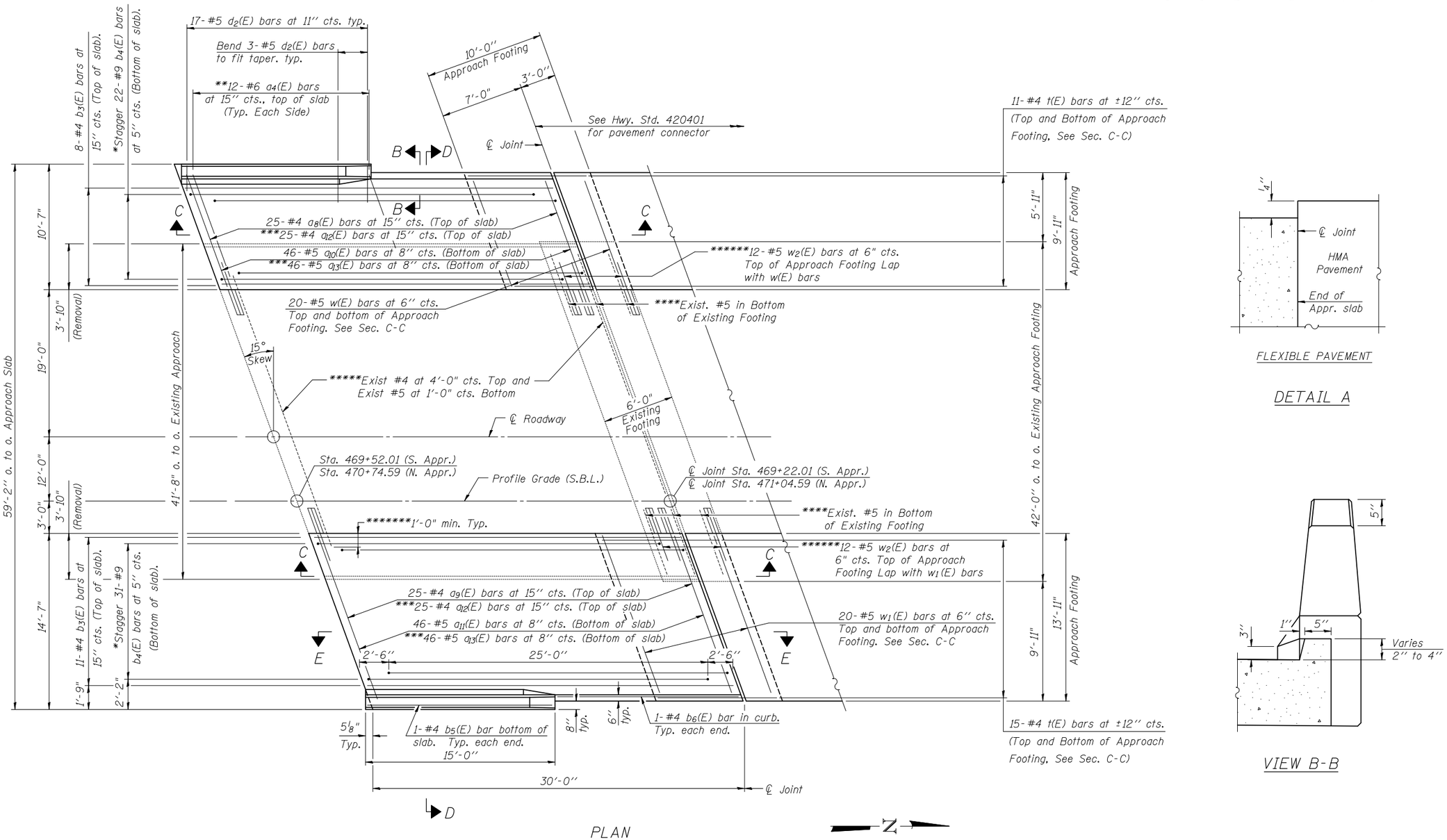
Notes:
See sheet 14 of 34 for Sections C-C & D-D and View E-E.
$a_8(E)$, $a_9(E)$, $a_{10}(E)$ and $a_{11}(E)$ bar spacings measured along ℄ Rdwy.



PLAN

FLEXIBLE PAVEMENT

DETAIL A

VIEW B-B

* Tilt #9 $b_4(E)$ bars as required to maintain clearance.
** Space between $a_8(E)$ or $a_9(E)$ bars.
*** Epoxy grout $a_{12}(E)$ and $a_{13}(E)$ bars in 9" min. drilled holes according to Section 584 of the Standard Specifications. Field adjust spacing to miss existing reinforcement. Lap with $a_8(E)$, $a_9(E)$, $a_{10}(E)$ and $a_{11}(E)$ bars.
**** Existing bottom layer of footing reinforcement extending into the removal area of the footing shall be cleaned, straightened, and incorporated into the new footing. Any reinforcement bars that are damaged during removal shall be replaced with an approved bar splicer or anchorage system. Cost included with Concrete Removal.
***** Existing top layer of footing reinforcement extending into the removal area of the footing shall be cut flush to the removal line.
****** Epoxy grout $w_2(E)$ bars in 9" min. drilled holes according to Section 584 of the Standard Specifications.
******* Existing slab reinforcement extending into the removal area of the slab shall be cleaned, straightened, and incorporated into the new slab. Any reinforcement bars that are damaged during removal shall be replaced with an approved bar splicer or anchorage system. Cost included with Concrete Removal.

(Sheet 1 of 2)

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 011-0037
SHEET NO. 13 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	213
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

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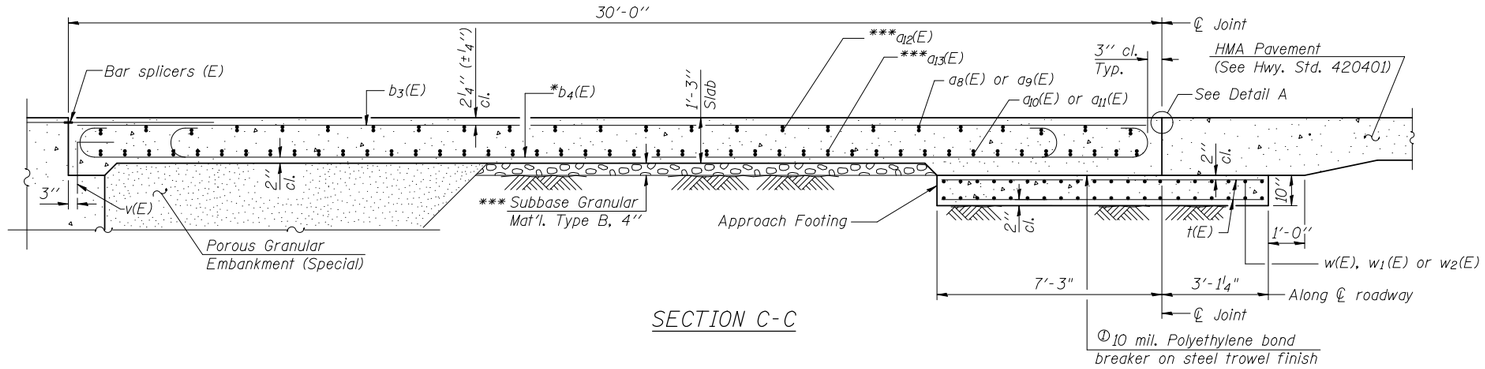
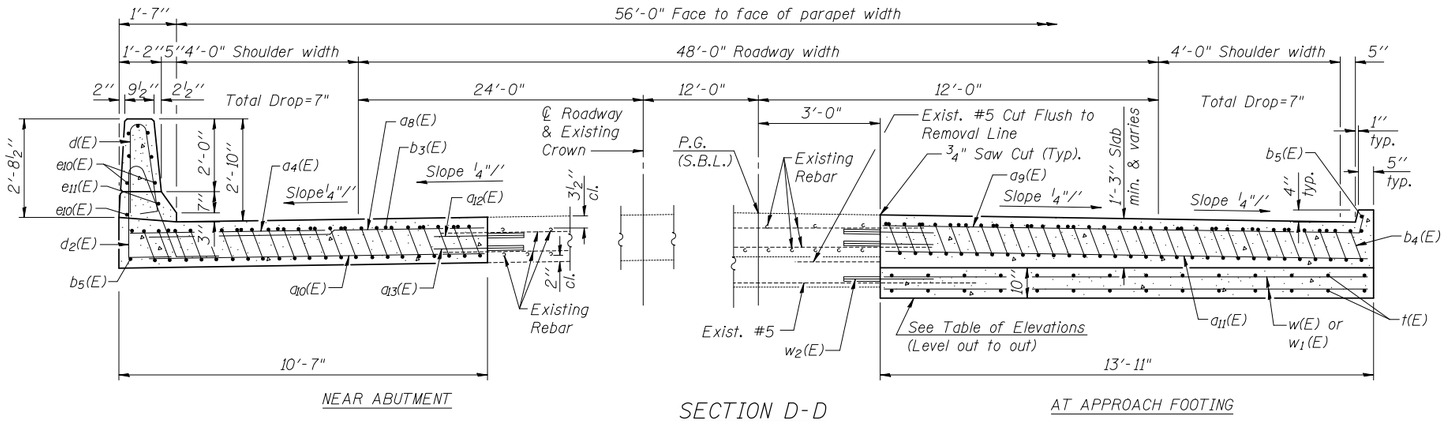


SECTION C-C

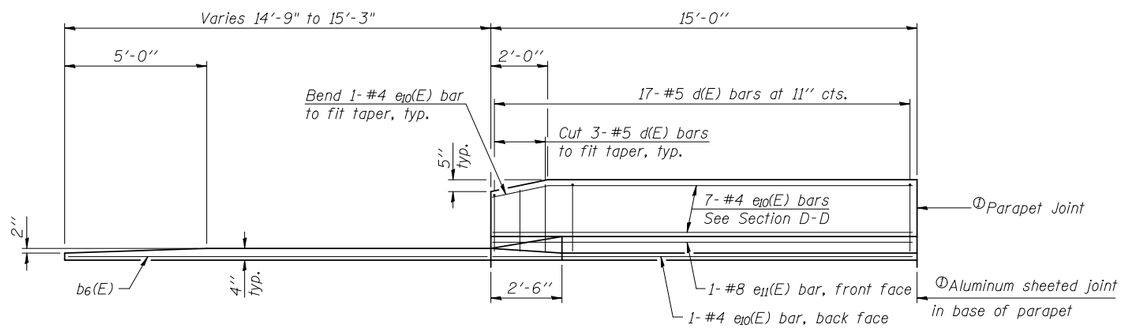


NEAR ABUTMENT

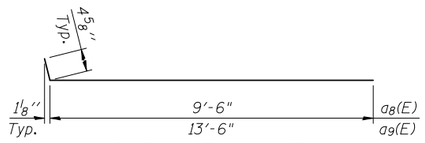
SECTION D-D

(See Plan for dimensions not shown)

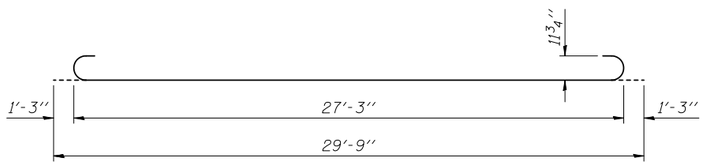
AT APPROACH FOOTING



VIEW E-E



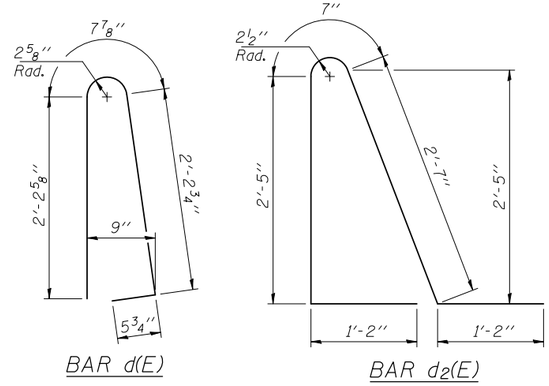
BAR a8(E) & a9(E)



BAR b4(E)

Notes:

See sheet 13 of 34 for Detail A and View B-B.
Approach slab and parapet concrete shall be paid for as Concrete Superstructure.
Approach footing concrete shall be paid for as Concrete Structures.
Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
For v(E) bar details, see sheet 9 of 34.
The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
For bar splicer details, see sheet 26 of 34.
Cost of excavation for approach footing included with Concrete Structures.
For Porous Granular Embankment (Special) and drainage treatment details, see sheet 2 of 34.
For additional parapet details, see sheet 9 of 34.



BAR d(E)

BAR d2(E)

*Tilt #9 b4(E) bars as required to maintain clearance.

*** Epoxy grout a12(E) and a13(E) bars in 9" min. drilled holes according to Section 584 of the Standard Specifications.

ⒹCost included with Concrete Superstructure.

TABLE OF ELEVATIONS

Location	Elevation
S. Approach, West Footing	645.18
S. Approach, East Footing	645.15
N. Approach, West Footing	644.74
N. Approach, East Footing	644.70

TWO APPROACHES BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a4(E)	48	#6	6'-6"	
a8(E)	50	#4	9'-11"	
a9(E)	50	#4	13'-11"	
a10(E)	92	#5	9'-8"	
a11(E)	92	#5	13'-8"	
a12(E)	100	#4	3'-4"	
a13(E)	184	#5	3'-7"	
b3(E)	38	#4	29'-8"	
b4(E)	106	#9	29'-9"	
b5(E)	4	#4	14'-8"	
b6(E)	4	#4	14'-6"	
d(E)	68	#5	5'-7"	
d2(E)	68	#5	7'-11"	
e10(E)	32	#4	14'-8"	
e11(E)	4	#8	14'-8"	
t(E)	104	#4	10'-1"	
w(E)	80	#5	10'-0"	
w1(E)	80	#5	14'-1"	
w2(E)	48	#5	3'-7"	
Concrete Superstructure		Cu. Yd.	77.8	
Concrete Structures		Cu. Yd.	15.2	
Reinforcement Bars, Epoxy Coated		Pound	20,280	
Concrete Removal		Cu. Yd.	20.5	

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 011-0037
SHEET NO. 14 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	214
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

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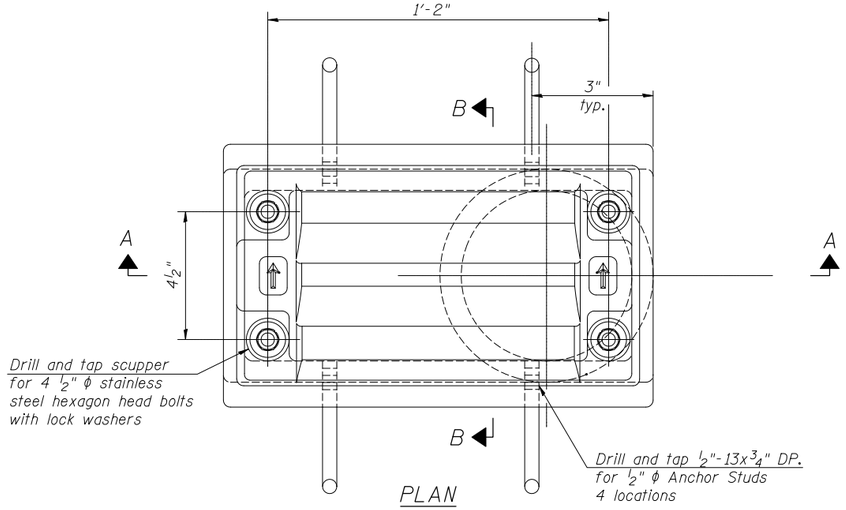
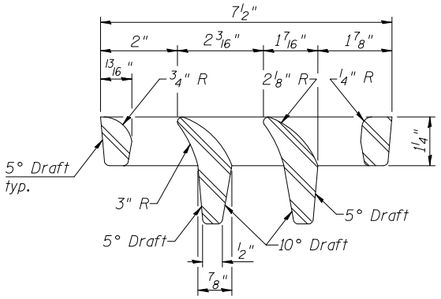
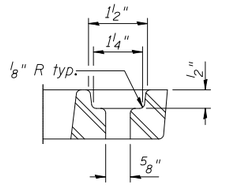


PLAN



VANE GRATE DETAIL



BOLT HOLE DETAIL

Notes:

All cast iron parts shall be gray iron conforming to the requirements of AASHTO M 105, Class 35B.

Bolts, anchor studs, washers and nuts shall conform to the requirements of ASTM A 307 and shall be galvanized according to AASHTO M 232.

Downspouts located on the exterior side of a painted steel fascia beam shall be painted with the finish coat specified for the exterior side of the fascia beam.

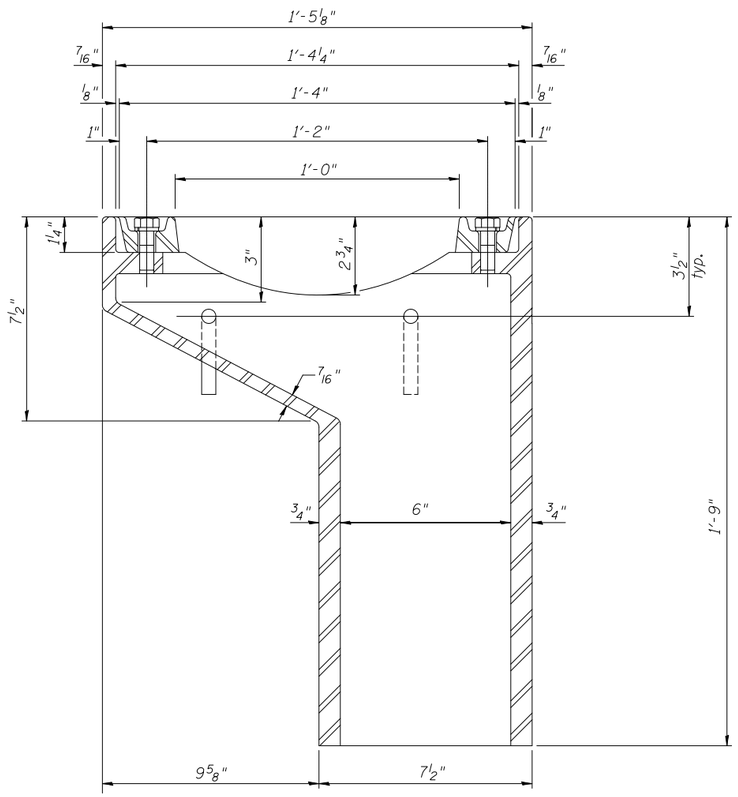
As an alternate, bolts, anchor studs, washers and nuts may be stainless steel according to Article 1006.29(d) of the Standard Specifications.

Structural steel weldments of equal sections and of the same configuration may be substituted for the cast iron scupper frame. Fillet or full penetration welds shall be used for the weldments. Details shall be submitted to the Engineer for approval. Structural steel weldments shall not be substituted for the cast iron scupper grate. Structural steel frames and downspouts shall be galvanized according to AASHTO M111.

The Contractor shall take appropriate measures to assure that Protective Coat is not applied to the scupper.

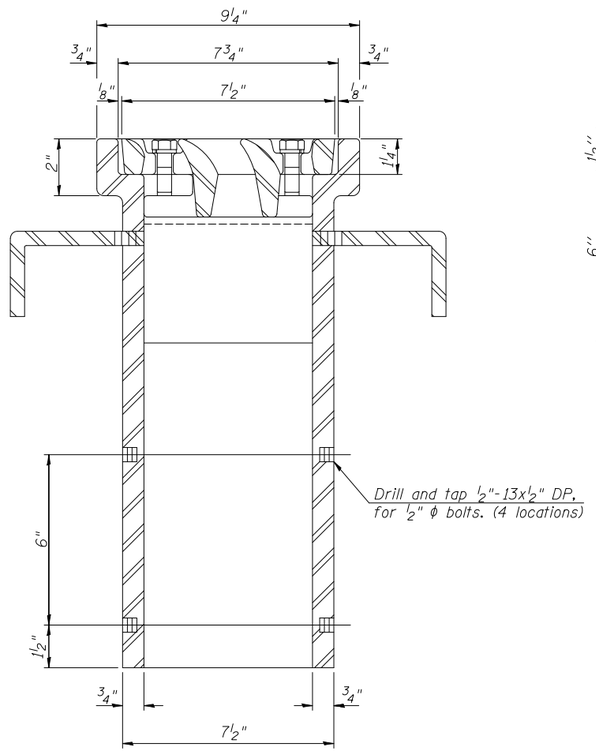
Cost of the Grate, Frame, Downspout, Anchor Studs, Bolts, Washers and Nuts including complete installation of the scupper shall be paid for at the contract unit price each for Drainage Scupper, DS-11.

Alternate fiberglass downspout conforming to ASTM D 2996 with a short-time rupture strength hoop tensile stress of 30,000 psi min. may be used in lieu of the cast iron or steel equivalent.

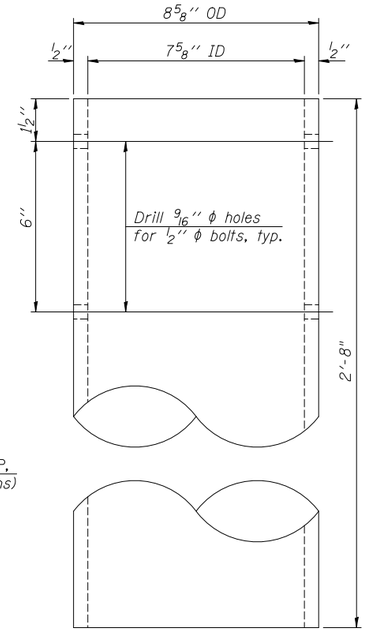


SECTION A-A

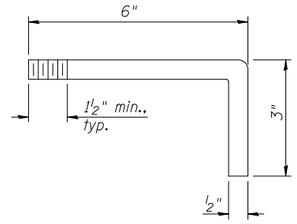
See sheet 8 of 33 for scupper location relative to parapet.



SECTION B-B



DOWNSPOUT



ANCHOR STUD DETAIL

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Drainage Scupper, DS-11	Each	4

DS-11 7-1-10

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DRAINAGE SCUPPER, DS-11
STRUCTURE NO. 011-0037
SHEET NO. 15 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	215
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

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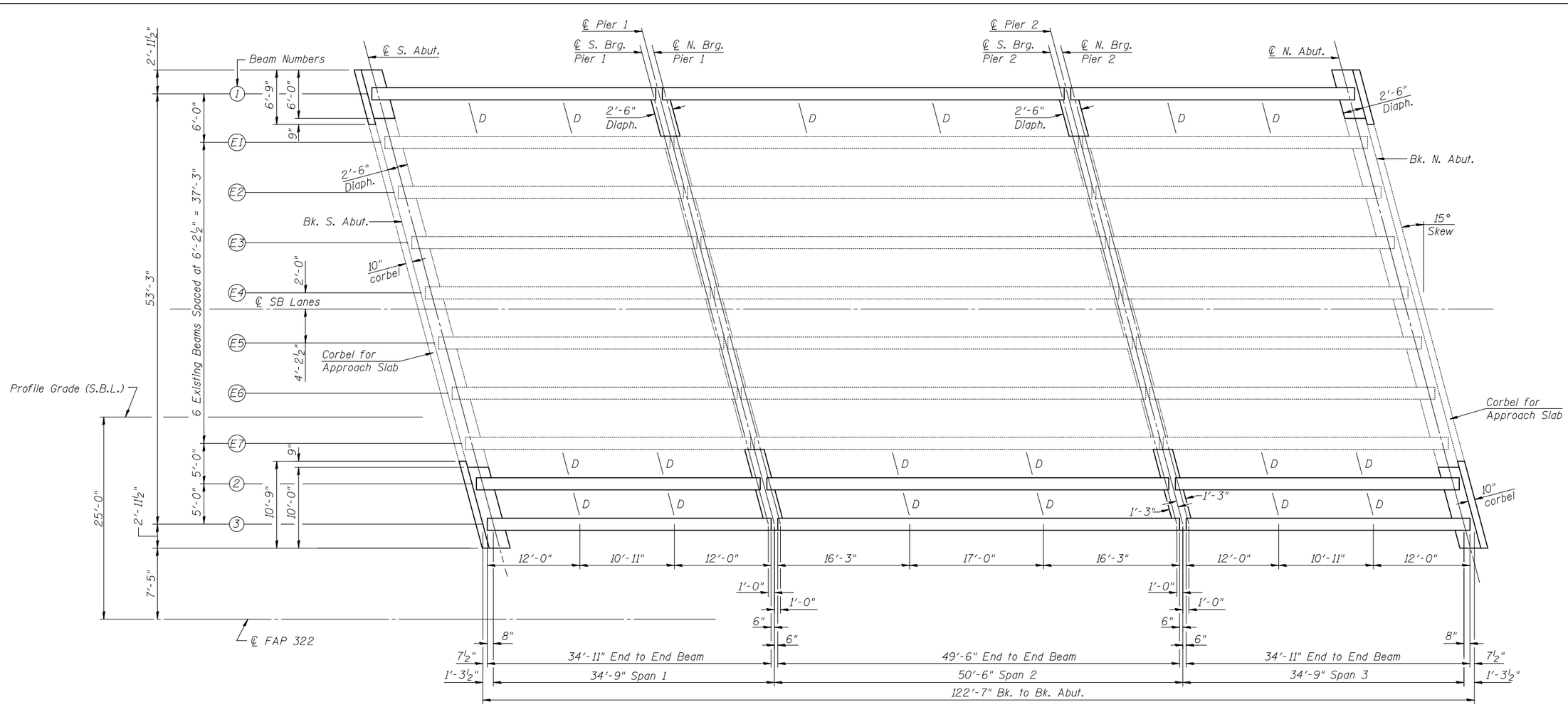


FRAMING PLAN

BEAM MOMENT TABLE (Beam 1)				
		0.4 Sp. 1 0.6 Sp. 3	Pier 1 or 2	0.5 Sp. 2
I	(in^4)	48,648		48,648
I'	(in^4)	164,321		164,321
S_b	(in^3)	3,165		3,165
S_b'	(in^3)	5,778		5,648
S_t	(in^3)	2,358		2,358
S_t'	(in^3)	21,730		21,730
ℓ	($k/'$)	0.96		0.96
M_ℓ	($'k$)	138		288
s_ℓ	($k/'$)	0.37	0.37	0.37
$M_{s\ell}$	($'k$)	25	71	46
M_L	($'k$)	160	154	202
M_I	($'k$)	48	46	58

BEAM MOMENT TABLE (Beams 2 & 3)				
		0.4 Sp. 1 0.6 Sp. 3	Pier 1 or 2	0.5 Sp. 2
I	(in^4)	48,648		48,648
I'	(in^4)	154,436		154,346
S_b	(in^3)	3,165		3,165
S_b'	(in^3)	5,648		5,648
S_t	(in^3)	2,358		2,358
S_t'	(in^3)	17,800		17,800
ℓ	($k/'$)	0.86		0.86
M_ℓ	($'k$)	125		259
s_ℓ	($k/'$)	0.37	0.37	0.37
$M_{s\ell}$	($'k$)	25	71	46
M_L	($'k$)	133	129	168
M_I	($'k$)	40	38	48

BEAM REACTION TABLE (Beam 1)				
		Abutments	Pier 1 Span 1 Pier 2 Span 3	Pier 1 Span 2 Pier 2 Span 2
	R_ℓ (k)	16.3	16.3	23.4
*	$R_{s\ell}$ (k)	4.4	8.5	9.3
*	R_L (k)	27.1	30.4	32.6
*	R_I (k)	8.1	9.0	9.7
	R_{Total} (k)	55.9	64.2	75.0

BEAM REACTION TABLE (Beams 2 & 3)				
		Abutments	Pier 1 Span 1 Pier 2 Span 3	Pier 1 Span 2 Pier 2 Span 2
	R_ℓ (k)	14.7	14.7	21.1
*	$R_{s\ell}$ (k)	4.4	8.5	9.3
*	R_L (k)	22.6	25.3	27.2
*	R_I (k)	6.8	7.6	8.1
	R_{Total} (k)	48.5	56.1	65.7

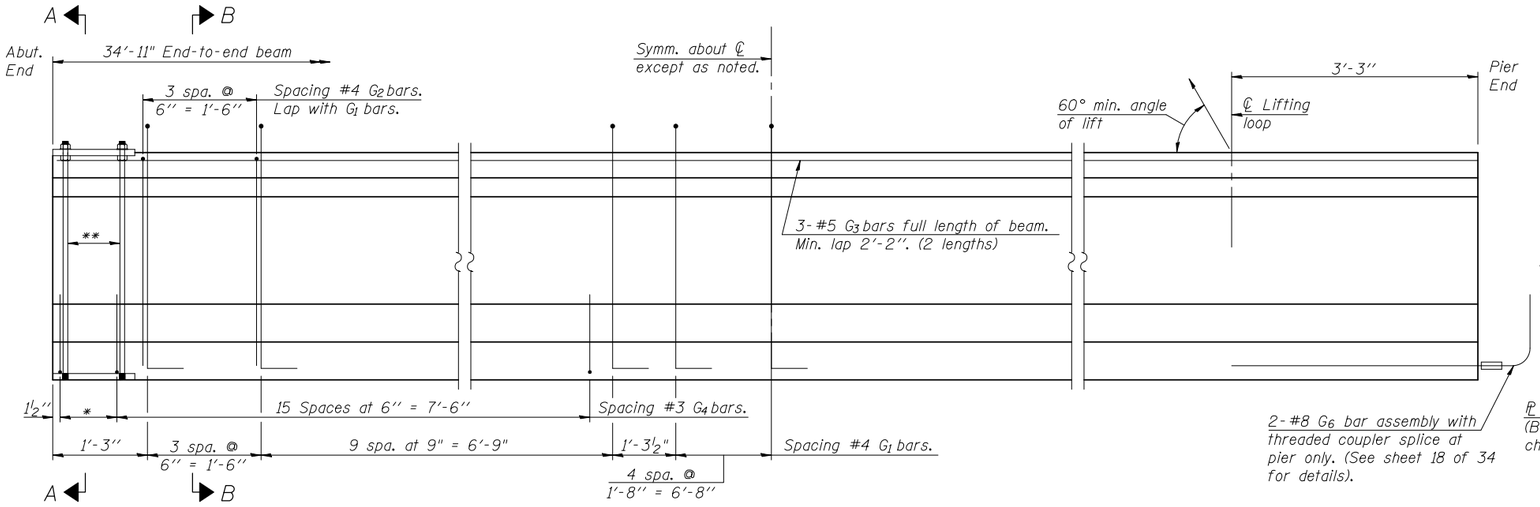
* *The total $R_{s\ell}$, R_L, and impact reactions are assumed to be distributed evenly to each bearing line at a pier regardless of the span ratios. The bearing design at a pier is based on the maximum reactions of either span.*

I: Non-composite moment of inertia of beam section ($in.^4$).
I': Composite moment of inertia of beam section ($in.^4$).
S_b: Non-composite section modulus for the bottom fiber of the prestressed beam ($in.^3$).
S_b': Composite section modulus for the bottom fiber of the prestressed beam ($in.^3$).
S_t: Non-composite section modulus for the top fiber of the prestressed beam ($in.^3$).
S_t': Composite section modulus for the top fiber of the prestressed beam ($in.^3$).
ℓ: Un-factored non-composite dead load (kips/ft.).
M_ℓ: Un-factored moment due to non-composite dead load conservatively taken at 0.5 of the span (kip-ft.).
s_ℓ: Un-factored long-term composite (superimposed) dead load (kips/ft.).
$M_{s\ell}$: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
M_L: Un-factored live load moment on the composite section (kip-ft.).
M_I: Un-factored moment due to impact on the composite section (kip-ft.).

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	FRAMING PLAN STRUCTURE NO. 011-0037	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED RJP	REVISED -			322	11-10	CHRISTIAN	437	216
	PLOT SCALE =	DRAWN RJP	REVISED -					CONTRACT NO. 72961		
	PLOT DATE =	CHECKED ADL	REVISED -		SHEET NO. 16 OF 34 SHEETS			ILLINOIS FED. AID PROJECT		

Klingner & Associates P.C.

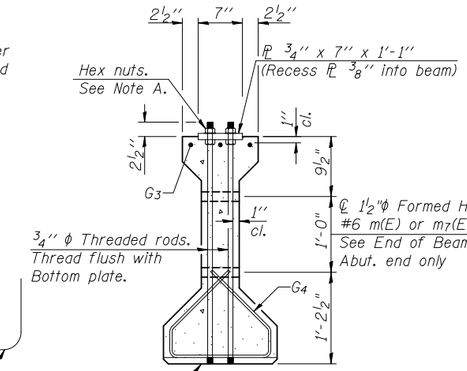
Q:\01FILES\010329\BRIDGE\011-0037 BEAM DETAILS.dgn
8/6/2012 7:57:30 AM



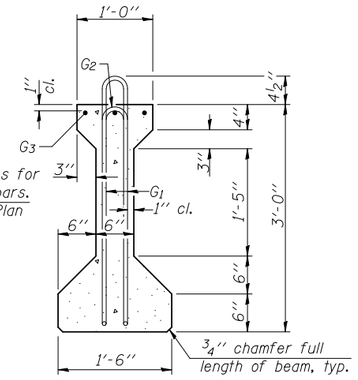
ELEVATION OF BEAM
(Showing reinforcement & dimensions)

* 3 spaces at 3" = 9".
** 4-¾" ϕ threaded dowel rods at 3" cts., Each Face

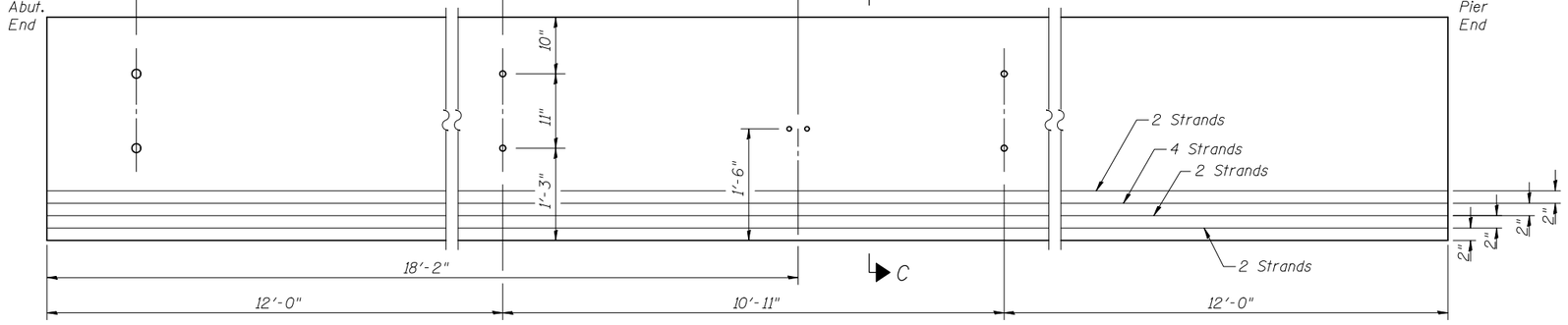
Note A:
Hex nuts (top and bottom) with lock washers (top). Only tighten sufficiently to compress lock washers.



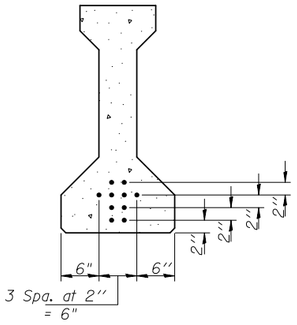
SECTION A-A



SECTION B-B



ELEVATION OF BEAM
(Showing prestressing steel)



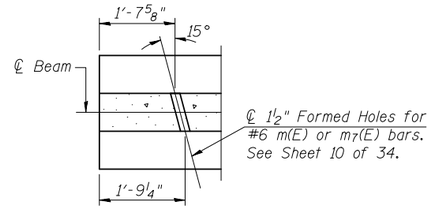
SECTION C-C

***BAR LIST
ONE BEAM ONLY

Bar	No.	Size	Length	Shape
G_1	35	#4	7'-5"	⊓L
G_2	8	#4	5'-8"	⊓
G_3	6	#5	18'-6"	——
G_4	38	#3	4'-1"	⌓
G_6	2	#8	6'-6"	⌒

***For information only

Notes:
See sheet 18 of 34 for additional details and Bill of Material.
Required release strength, f'ci, shall be 5,000 psi.



END OF BEAM PLAN
(At Abutments)

PI-4-36 7-1-10

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

36" PPC I-BEAM - SPANS 1 & 3
STRUCTURE NO. 011-0037
SHEET NO. 17 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	217
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

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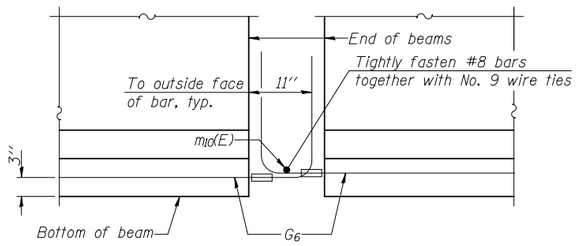
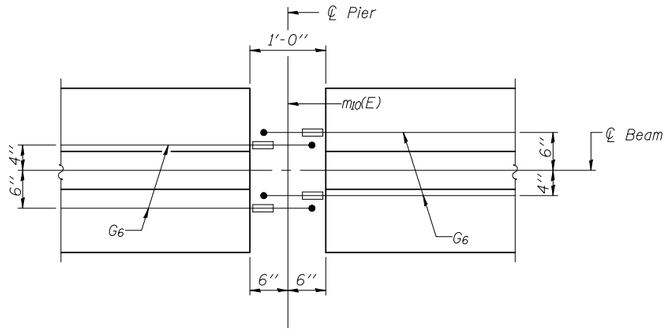
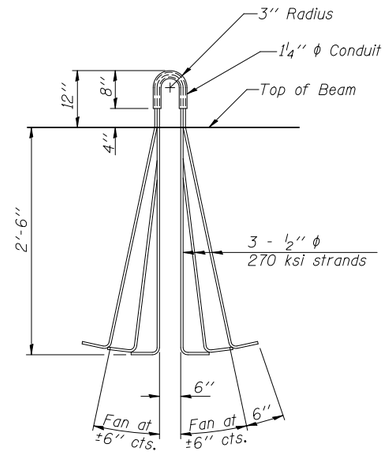


ELEVATION OF BEAM AT PIER



PLAN OF BEAM AT PIER



LIFTING LOOP DETAIL

NOTES

Inserts for ¾'' ϕ threaded dowel rods, when specified, are to be two strut, ferrule type for interior beams and single ferrule, flared loop type for exterior beams.

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be ½'' and the nominal cross-sectional area shall be 0.153 sq. in.

Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions).

A minimum 2½'' ϕ lifting pin shall be used to engage the lifting loops during handling.

Tilt G_6 bars when necessary to maintain 1½'' clearance.

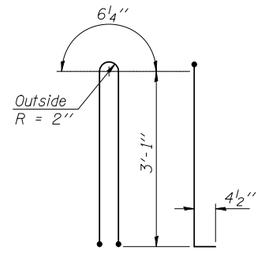
The top and bottom plates shall be AASHTO M270 Grade 50.

The bottom plates shall be galvanized according to AASHTO M111. Top plates and threaded rods need not be galvanized.

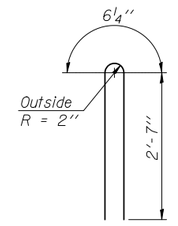
Threaded rods shall be ASTM F 1554 Grade 55.

The G_6 bar assembly shall have the threaded ends oversized to ensure no reduction in cross sectional area after threading. The coupler splice shall be capable of developing 125 percent of the yield strength of the reinforcement bar.

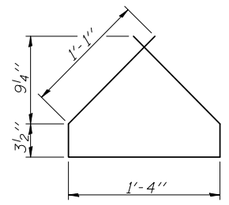
Beams requiring G_6 bar assemblies shall not be released from the fabricator until they have attained 45 days of age or older.



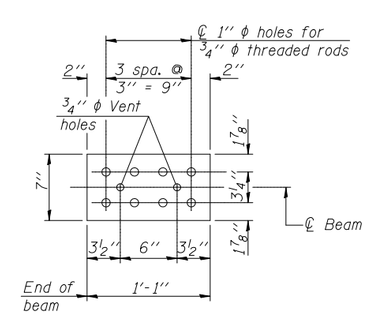
BAR G1



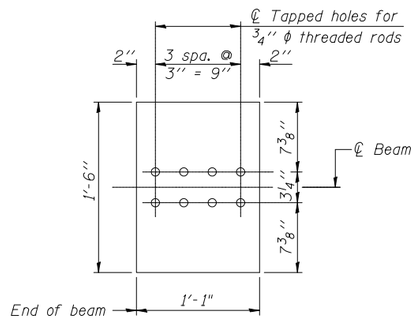
BAR G2



BAR G4

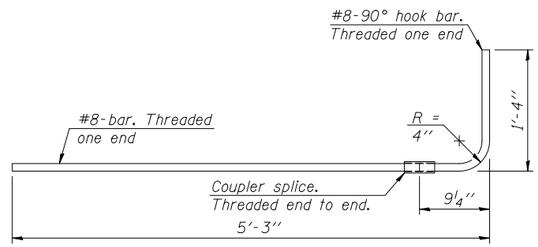


TOP PLATE



BOTTOM PLATE

See bearing details for pintle hole locations when required.



G6 BAR ASSEMBLY

BILL OF MATERIAL

Item	Unit	Total
Furnishing and Erecting Precast Prestressed Concrete I-Beams, 36''	Ft.	209.5

PI-4-36D 7-1-10

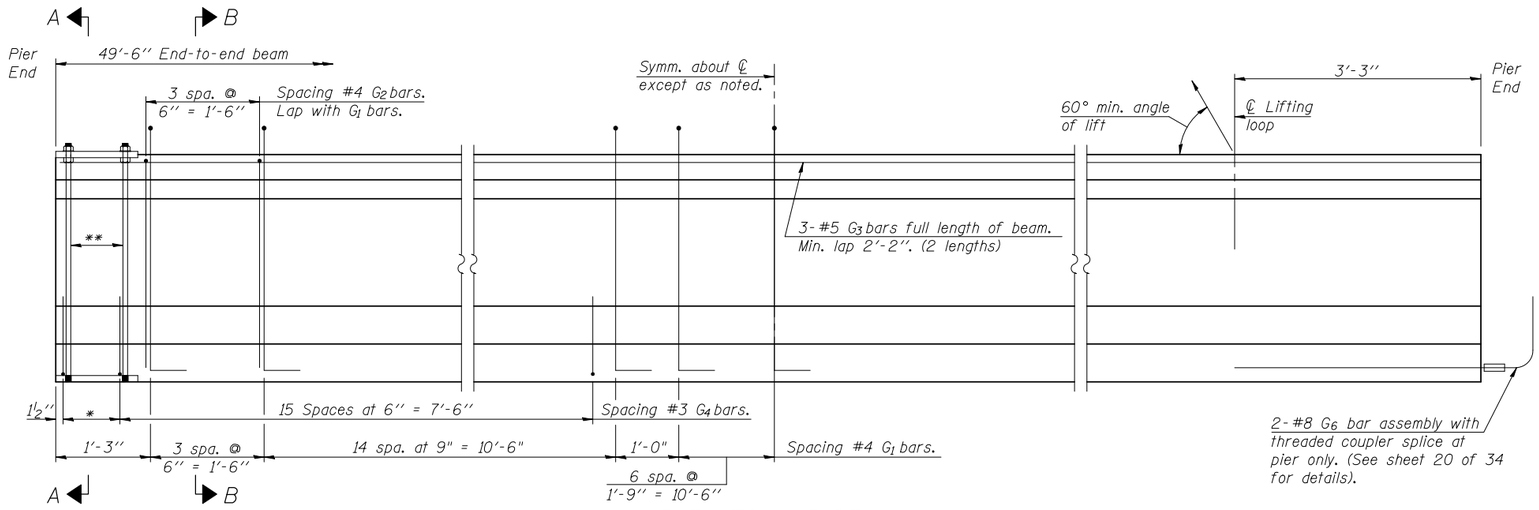
FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

36" PPC I-BEAM DETAILS – SPANS 1 & 3
STRUCTURE NO. 011-0037
SHEET NO. 18 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	218
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

Klingner & Associates P.C.

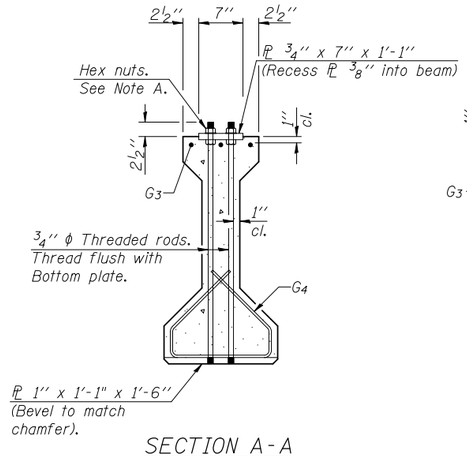


* 3 spaces at 3" = 9".
** 4-¾" ϕ threaded dowel rods at 3" cts., Each Face

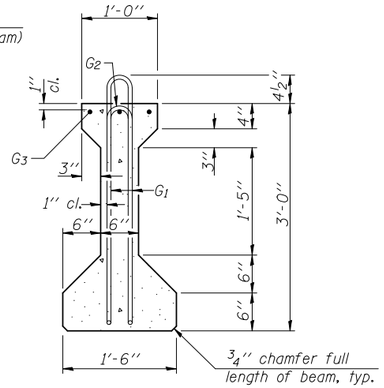
ELEVATION OF BEAM
(Showing reinforcement & dimensions)

2-#8 G_6 bar assembly with threaded coupler splice at pier only. (See sheet 20 of 34 for details).

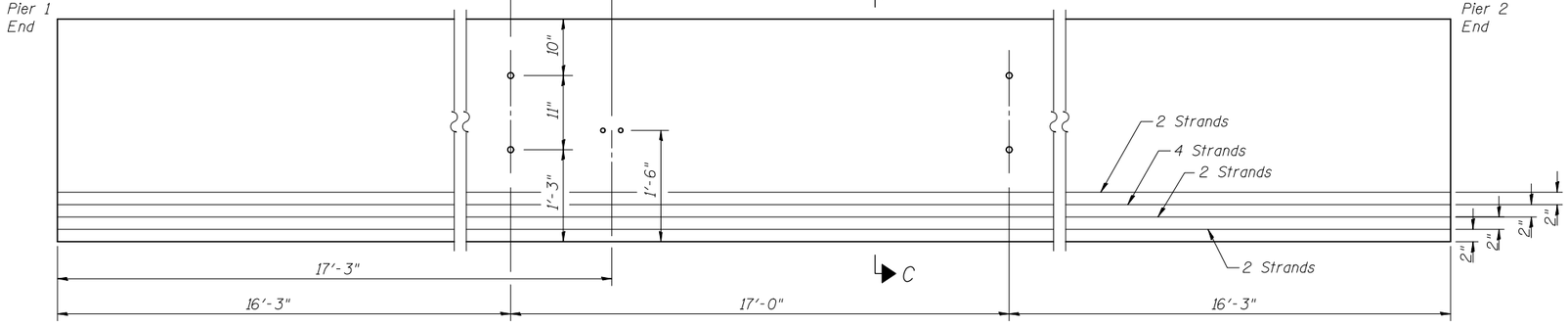
Note A:
Hex nuts (top and bottom) with lock washers (top). Only tighten sufficiently to compress lock washers.



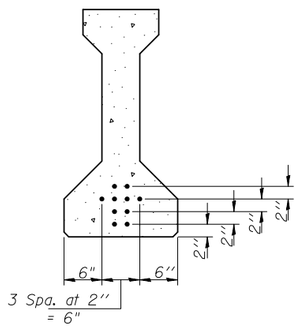
SECTION A-A



SECTION B-B



ELEVATION OF BEAM
(Showing prestressing steel)



SECTION C-C

***BAR LIST
ONE BEAM ONLY

Bar	No.	Size	Length	Shape
G_1	49	#4	7'-5"	
G_2	8	#4	5'-8"	
G_3	6	#5	25'-9"	
G_4	38	#3	4'-1"	
G_6	4	#8	6'-6"	

***For information only

Notes:
See sheet 20 of 34 for additional details and Bill of Material.
Required release strength, f'ci, shall be 5,000 psi.

PI-4-36 7-1-10

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

36" PPC I-BEAM - SPAN 2
STRUCTURE NO. 011-0037
SHEET NO. 19 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	219
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

Klingner & Associates P.C.

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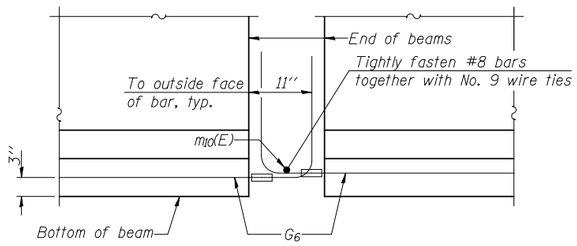
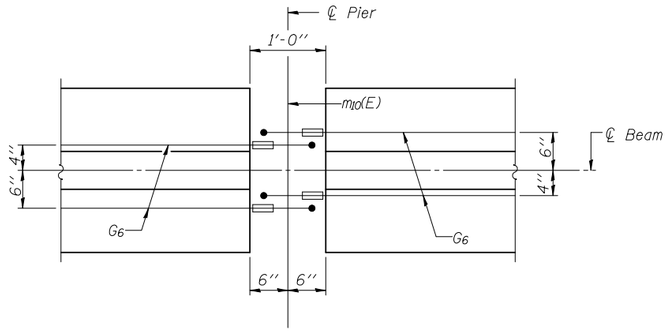
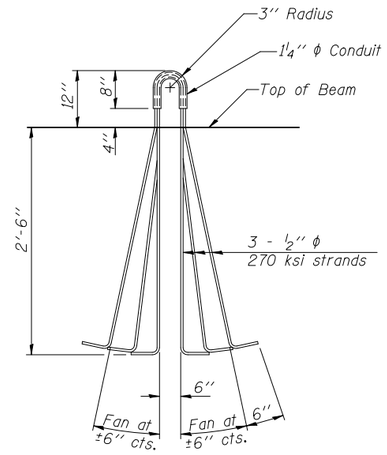


ELEVATION OF BEAM AT PIER



PLAN OF BEAM AT PIER



LIFTING LOOP DETAIL

NOTES

Inserts for ¾'' ϕ threaded dowel rods, when specified, are to be two strut, ferrule type for interior beams and single ferrule, flared loop type for exterior beams.

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be ½'' and the nominal cross-sectional area shall be 0.153 sq. in.

Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions).

A minimum 2½'' ϕ lifting pin shall be used to engage the lifting loops during handling.

Tilt G_6 bars when necessary to maintain 1½'' clearance.

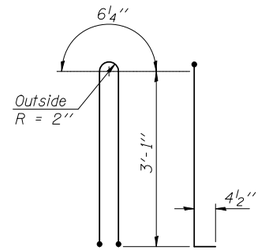
The top and bottom plates shall be AASHTO M270 Grade 50.

The bottom plates shall be galvanized according to AASHTO M111. Top plates and threaded rods need not be galvanized.

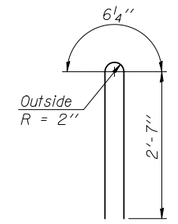
Threaded rods shall be ASTM F 1554 Grade 55.

The G_6 bar assembly shall have the threaded ends oversized to ensure no reduction in cross sectional area after threading. The coupler splice shall be capable of developing 125 percent of the yield strength of the reinforcement bar.

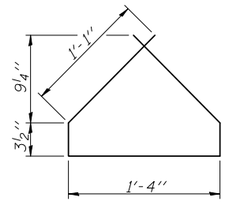
Beams requiring G_6 bar assemblies shall not be released from the fabricator until they have attained 45 days of age or older.



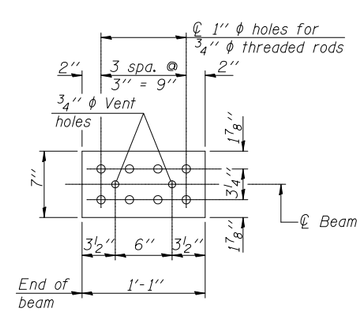
BAR G1



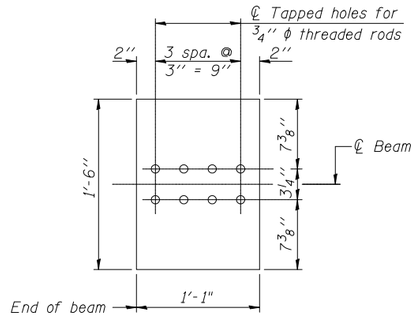
BAR G2



BAR G4

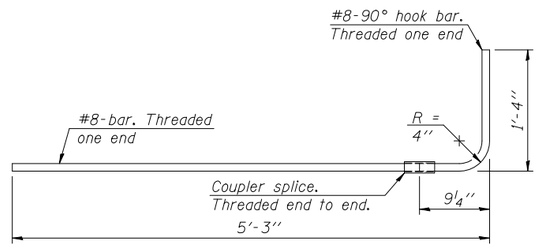


TOP PLATE



BOTTOM PLATE

See bearing details for pintle hole locations when required.



G6 BAR ASSEMBLY

BILL OF MATERIAL

Item	Unit	Total
Furnishing and Erecting Precast Prestressed Concrete I-Beams, 36''	Ft.	148.5

PI-4-36D 7-1-10

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

36" PPC I-BEAM DETAILS – SPAN 2
STRUCTURE NO. 011-0037
SHEET NO. 20 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	220
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

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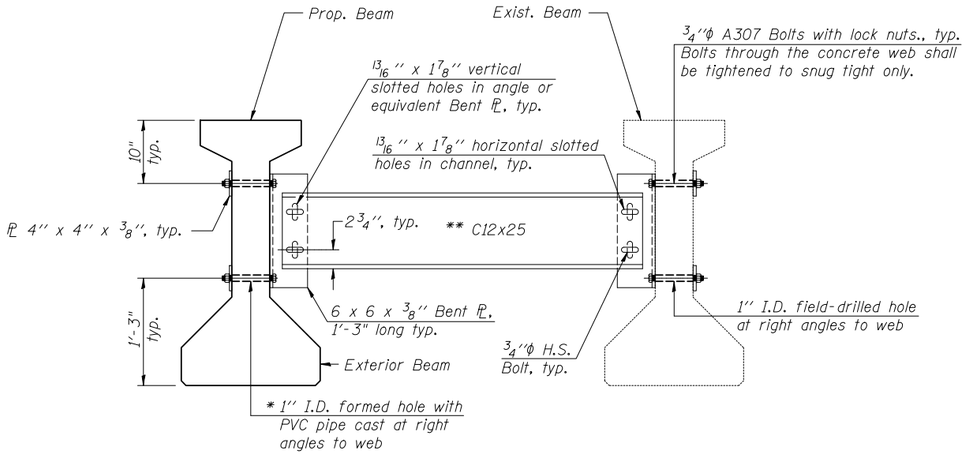


Notes:

All material for bracing shall be hot dip galvanized according to AASHTO M111 unless otherwise noted.

Two hardened washers are required for each set of oversized holes.

All holes shall be 15/16"ϕ unless otherwise noted.

5/16" x 3" x 3" plate washers are required over all slotted holes.

All bolts shall be galvanized according to AASHTO M232.

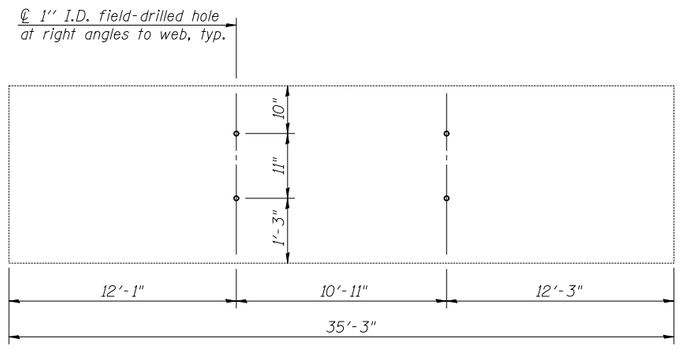
Bracing shall be installed as beams are erected and tightened as soon as possible during erection.

Permanent bracing shall not be paid for separately, but shall be included in the cost of Furnishing and Erecting Precast Prestressed Concrete I-Beams.

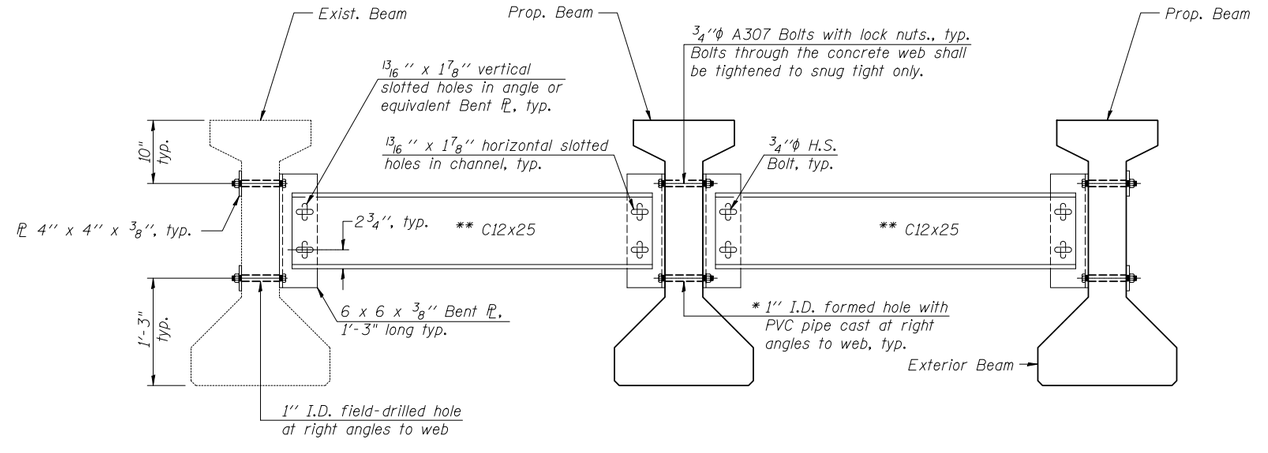
* Fabricator shall locate to miss strands within permissible tolerances.

** Alternate C12x30 channels are permitted to facilitate material acquisition.

PERMANENT BRACING DETAILS FOR 36" PPC I-BEAMS - WEST SIDE



PERMANENT BRACING HOLE LOCATIONS FOR EXISTING 36" PPC I-BEAMS - SPANS 1 & 3



Notes:

All material for bracing shall be hot dip galvanized according to AASHTO M111 unless otherwise noted.

Two hardened washers are required for each set of oversized holes.

All holes shall be 15/16"ϕ unless otherwise noted.

5/16" x 3" x 3" plate washers are required over all slotted holes.

All bolts shall be galvanized according to AASHTO M232.

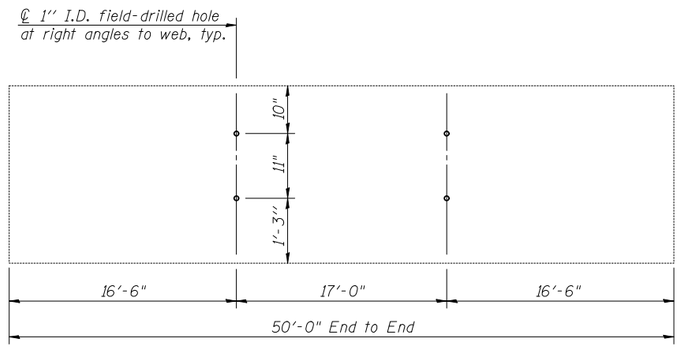
Bracing shall be installed as beams are erected and tightened as soon as possible during erection.

Permanent bracing shall not be paid for separately, but shall be included in the cost of Furnishing and Erecting Precast Prestressed Concrete I-Beams.

* Fabricator shall locate to miss strands within permissible tolerances.

** Alternate C12x30 channels are permitted to facilitate material acquisition.

PERMANENT BRACING DETAILS FOR 36" PPC I-BEAMS - EAST SIDE



PERMANENT BRACING HOLE LOCATIONS FOR EXISTING 36" PPC I-BEAMS - SPAN 2

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

36" PPC I-BEAM DETAILS
STRUCTURE NO. 011-0037
SHEET NO. 21 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	221
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

Klingner & Associates P.C.

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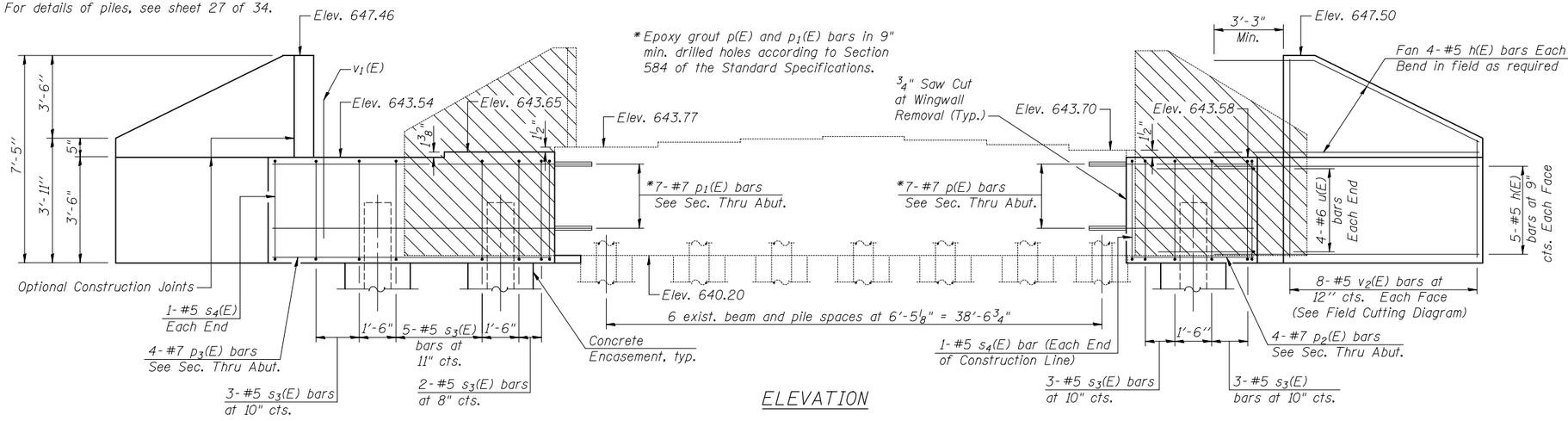
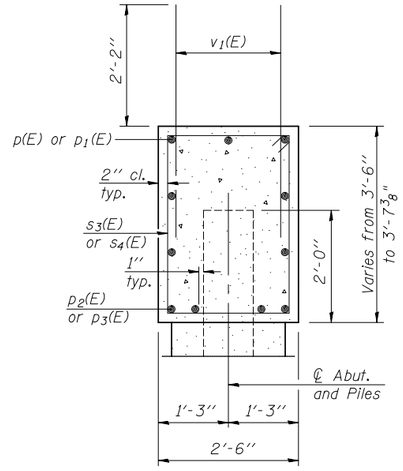
Notes:
Pour steps monolithically with cap.
For details of piles, see sheet 27 of 34.



ELEVATION



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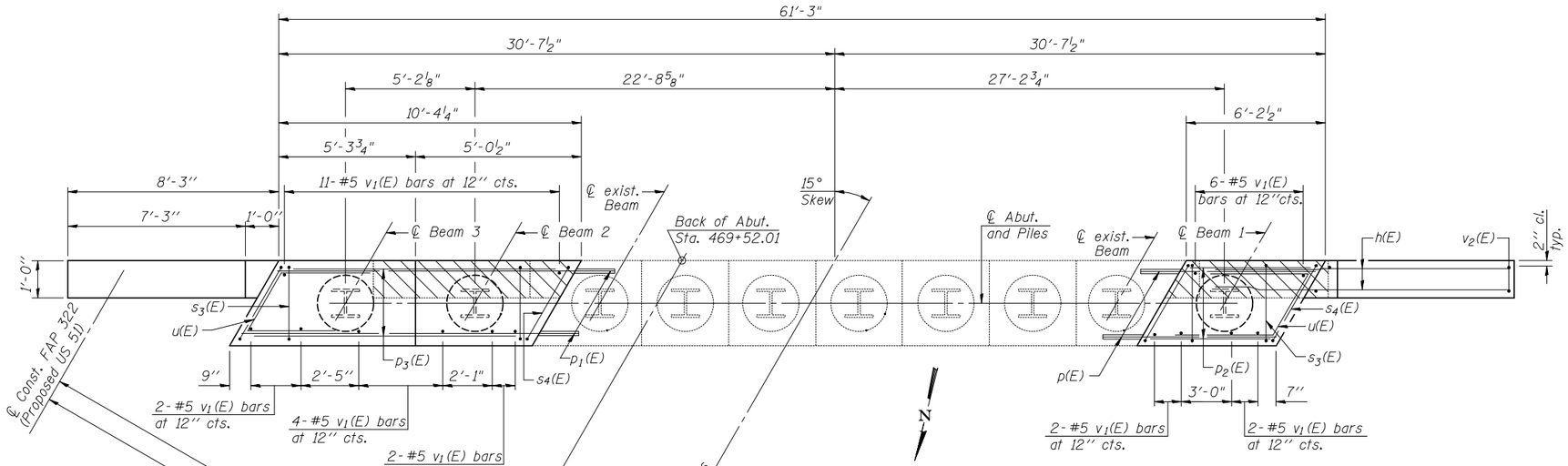


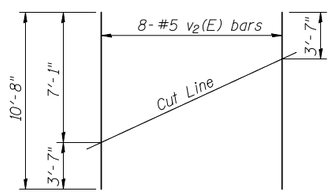
PLAN

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	36	#5	12'-3"	———
p(E)	7	#7	6'-9"	———
$p_1(E)$	7	#7	10'-11"	———
$p_2(E)$	4	#7	5'-10"	———
$p_3(E)$	4	#7	10'-0"	———
$s_3(E)$	16	#5	11'-7"	⌐¬
$s_4(E)$	4	#5	11'-9"	⌐¬
u(E)	8	#6	12'-2"	⌐_¬
$v_1(E)$	29	#5	4'-4"	———
$v_2(E)$	16	#5	10'-8"	———
Structure Excavation	Cu. Yd.		44	
Concrete Structures	Cu. Yd.		8.9	
Concrete Removal	Cu. Yd.		3.5	
Concrete Encasement	Cu. Yd.		1.0	
Reinforcement Bars, Epoxy Coated	Pound		1,540	
Furnishing Steel Piles HP12x53	Foot		207	
Driving Piles	Foot		207	

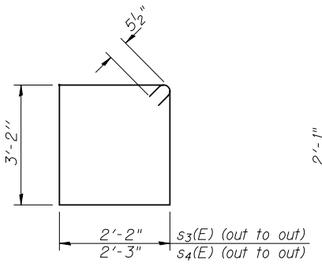
PILE DATA

Type: Steel HP 12x53
Nominal Required Bearing: 419 Kips/Pile
Factored Resistance Available: 209 Kips/Pile
Est. Length: 69 Ft./Pile
No. Production Piles: 3

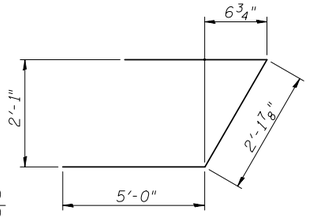


FIELD CUTTING DIAGRAM

Order $v_2(E)$ full length. Cut as shown and use remainder of bars in opposite face.



BARS $s_3(E)$ & $s_4(E)$



BAR u(E)

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH ABUTMENT
STRUCTURE NO. 011-0037
SHEET NO. 22 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	222
		CONTRACT NO. 72961		
		ILLINOIS FED. AID PROJECT		

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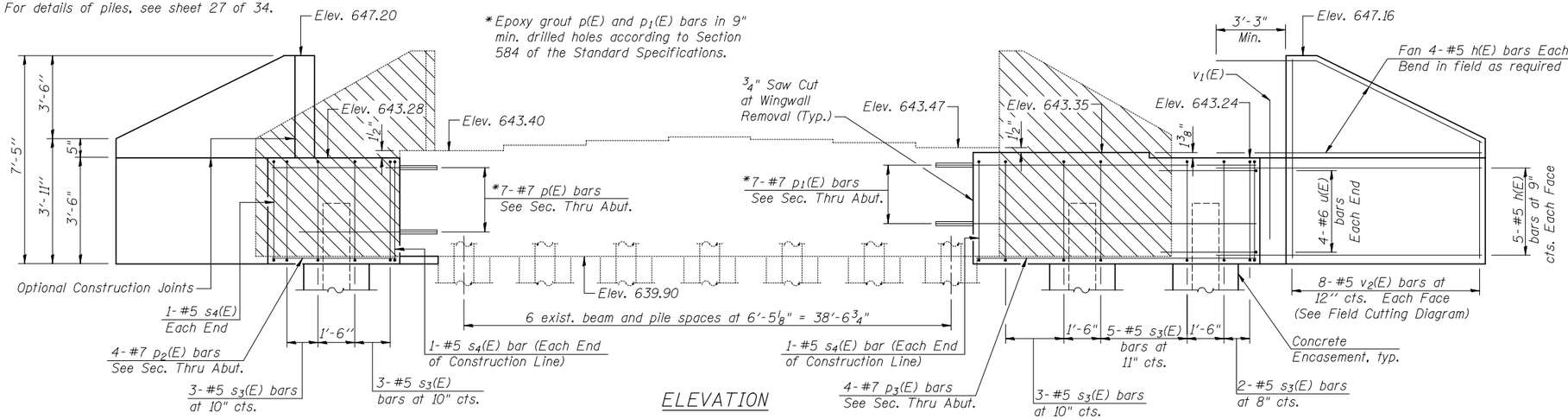
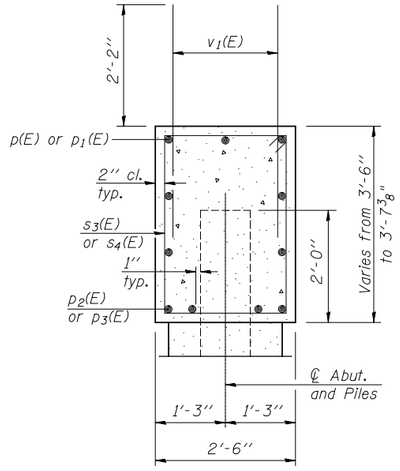
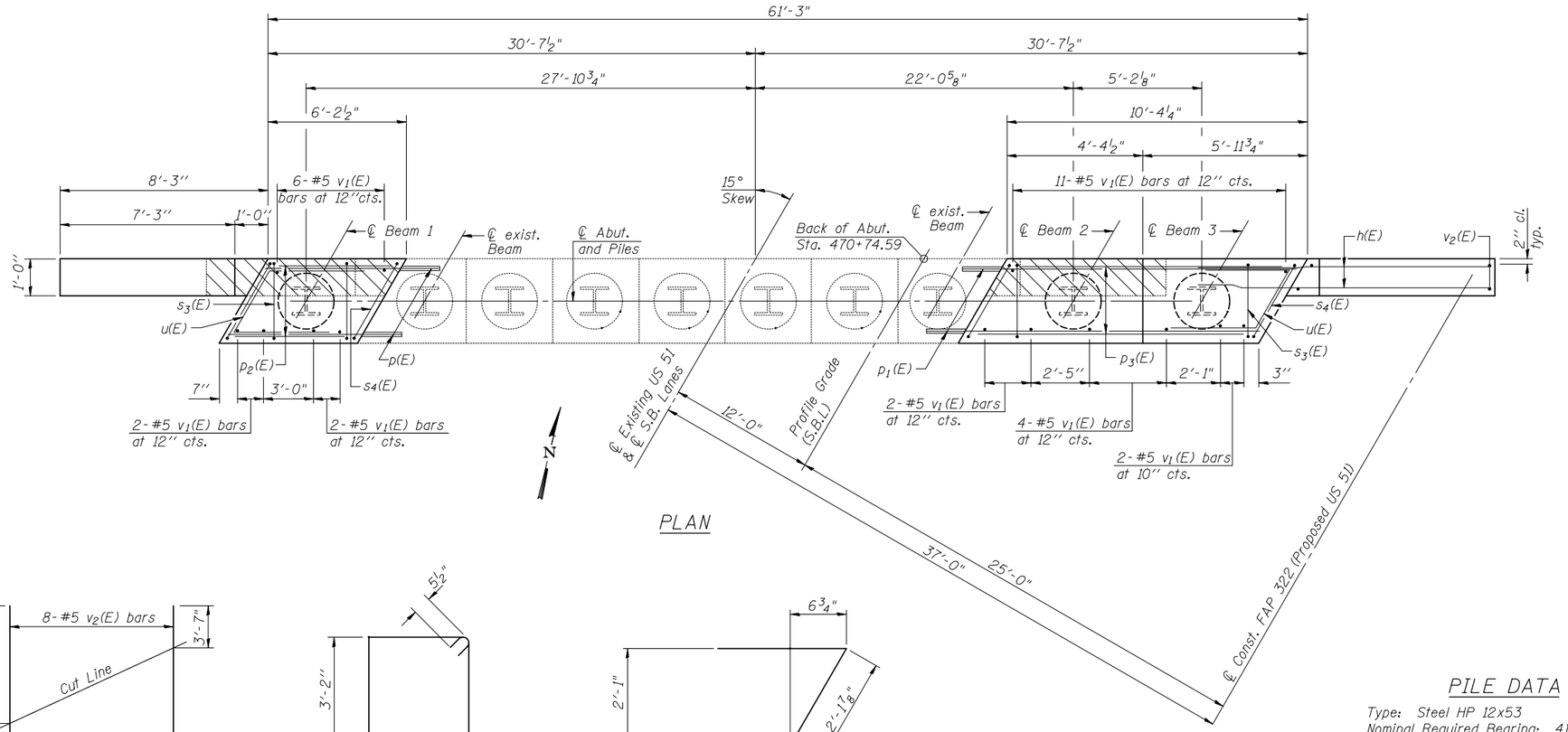
Notes:
Pour steps monolithically with cap.
For details of piles, see sheet 27 of 34.



ELEVATION



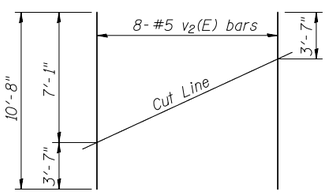
SEC. THRU ABUT.



PLAN

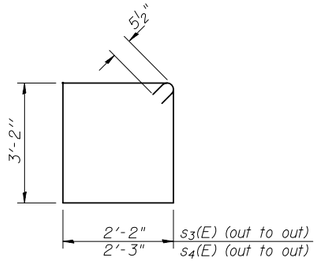
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	36	#5	12'-3"	———
p(E)	7	#7	6'-9"	———
p1(E)	7	#7	10'-11"	———
p2(E)	4	#7	5'-10"	———
p3(E)	4	#7	10'-0"	———
s3(E)	16	#5	11'-7"	⌐¬
s4(E)	4	#5	11'-9"	⌐¬
u(E)	8	#6	12'-2"	⌐⌐
v1(E)	29	#5	4'-4"	———
v2(E)	16	#5	10'-8"	———
Structure Excavation	Cu. Yd.	44		
Concrete Structures	Cu. Yd.	8.9		
Concrete Removal	Cu. Yd.	3.5		
Concrete Encasement	Cu. Yd.	1.0		
Reinforcement Bars, Epoxy Coated	Pound	1,540		
Furnishing Steel Piles HP12x53	Foot	195		
Driving Piles	Foot	195		

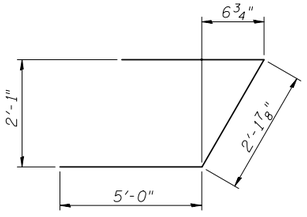


FIELD CUTTING DIAGRAM

Order v2(E) full length. Cut as shown and use remainder of bars in opposite face.



BARS s3(E) & s4(E)



BAR u(E)

PILE DATA

Type: Steel HP 12x53
Nominal Required Bearing: 419 Kips/Pile
Factored Resistance Available: 209 Kips/Pile
Est. Length: 65 Ft./Pile
No. Production Piles: 3

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NORTH ABUTMENT
STRUCTURE NO. 011-0037
SHEET NO. 23 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	223
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

Klingner & Associates P.C.

8/6/2012 8:03:20 AM

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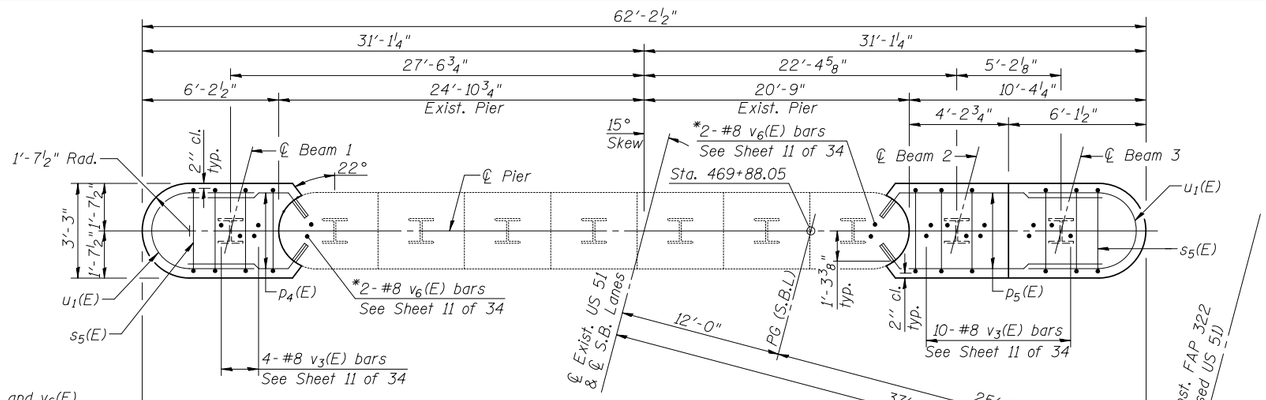
8/6/2012 8:03:32 AM

Notes:
Pour steps monolithically with cap.
For details of piles, see sheet 27 of 34.

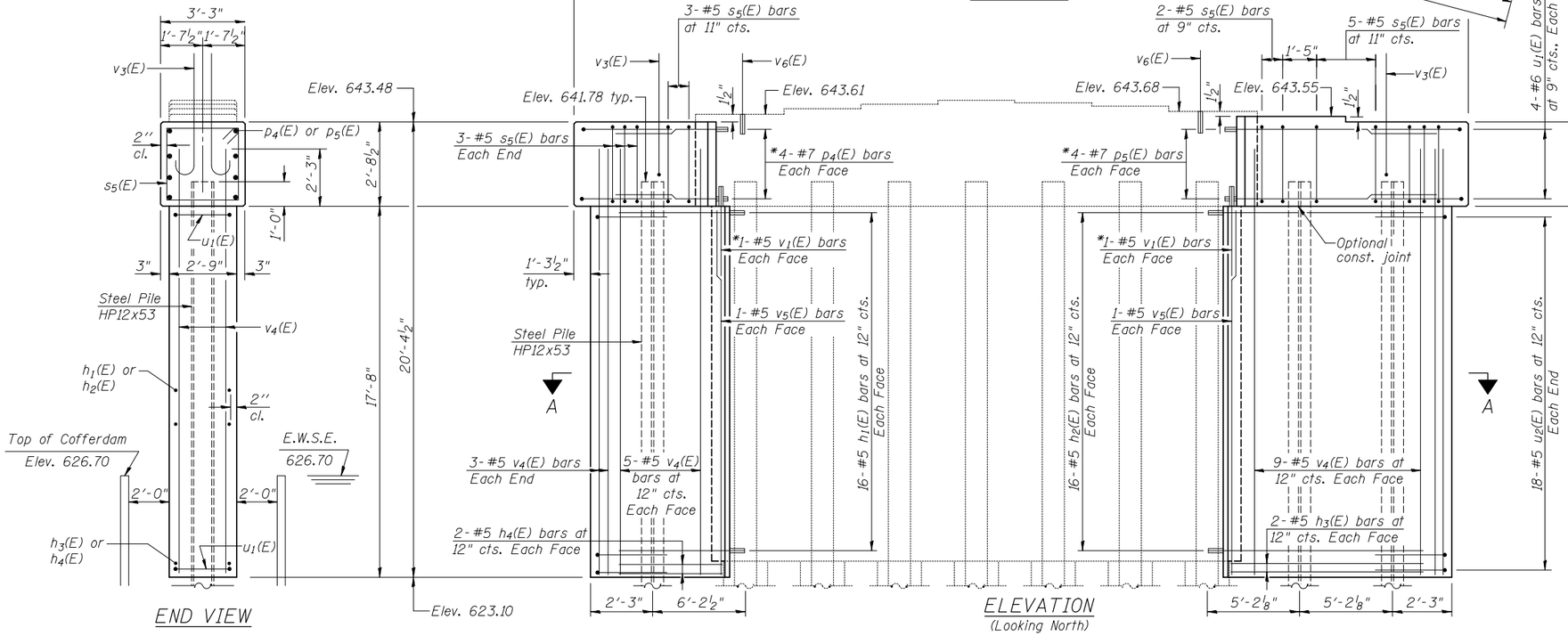
PILE DATA

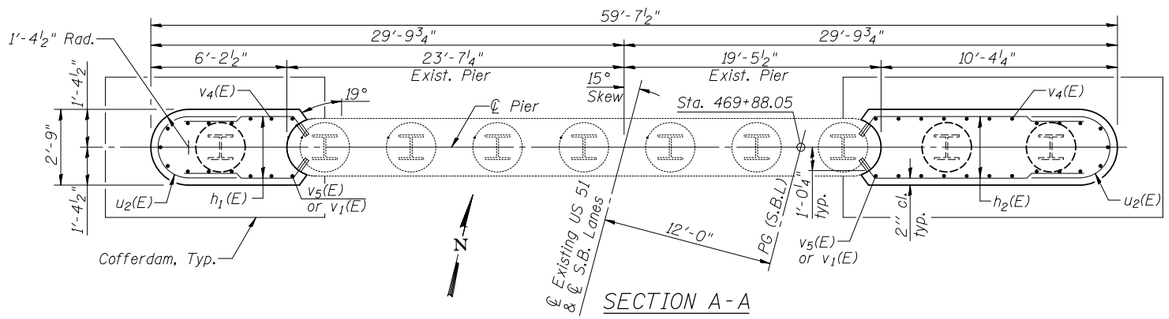
Type: Steel HP 12x53
Nominal Required Bearing: 419 Kips/Pile
Factored Resistance Available: 209 Kips/Pile
Est. Length: 69 Ft./Pile
No. Production Piles: 3



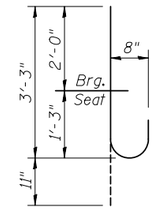
TOP PLAN

*Epoxy grout $p_4(E)$, $p_5(E)$, $v_1(E)$ and $v_6(E)$ bars in 9" min. drilled holes according to Section 584 of the Standard Specifications.

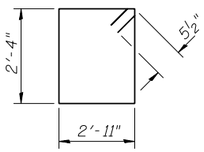




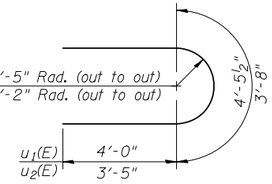
SECTION A-A



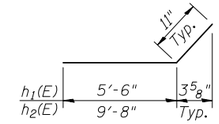
BAR $v_3(E)$



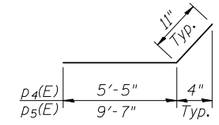
BAR $s_5(E)$



BARS $u_1(E)$ & $u_2(E)$



BARS $h_1(E)$ & $h_2(E)$



BARS $p_4(E)$ & $p_5(E)$

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
$h_1(E)$	32	#5	6'-5"	
$h_2(E)$	32	#5	10'-7"	
$h_3(E)$	4	#5	9'-8"	
$h_4(E)$	4	#5	5'-6"	
$p_4(E)$	8	#7	6'-4"	
$p_5(E)$	8	#7	10'-6"	
$s_5(E)$	16	#5	11'-5"	
$u_1(E)$	8	#6	12'-6"	
$u_2(E)$	36	#5	10'-6"	
$v_1(E)$	4	#5	4'-4"	
$v_3(E)$	14	#8	4'-2"	
$v_4(E)$	34	#5	19'-9"	
$v_5(E)$	4	#5	17'-4"	
$v_6(E)$	4	#8	2'-9"	
Structure Excavation			Cu. Yd.	6
Concrete Structures			Cu. Yd.	35.6
Reinforcement Bars, Epoxy Coated			Pound	2,620
Furnishing Steel Piles HP12x53			Foot	207
Driving Piles			Foot	207
Cofferdam (Type 1) (Location - 1)			Each	1

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FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER #1
STRUCTURE NO. 011-0037
SHEET NO. 24 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	224
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

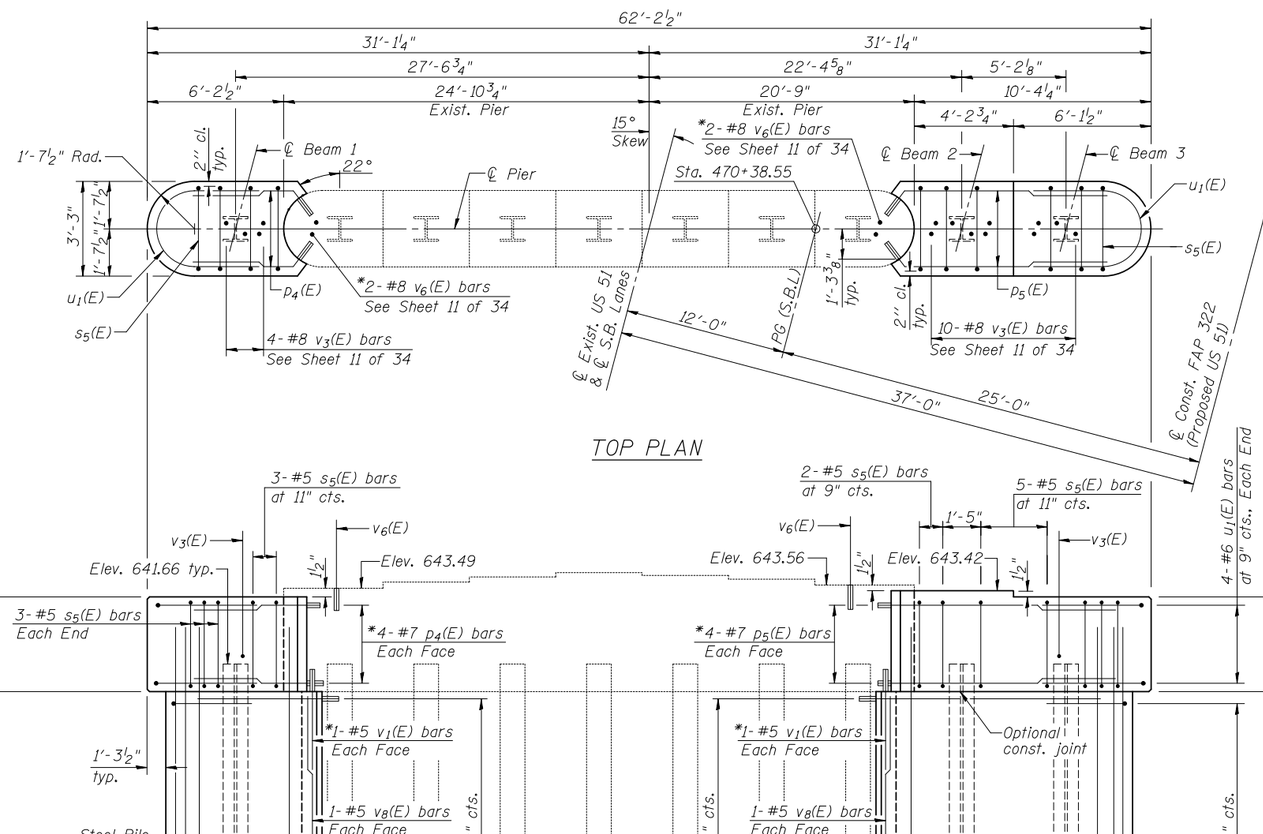
Klingner & Associates P.C.

8/6/2012 8:03:47 AM

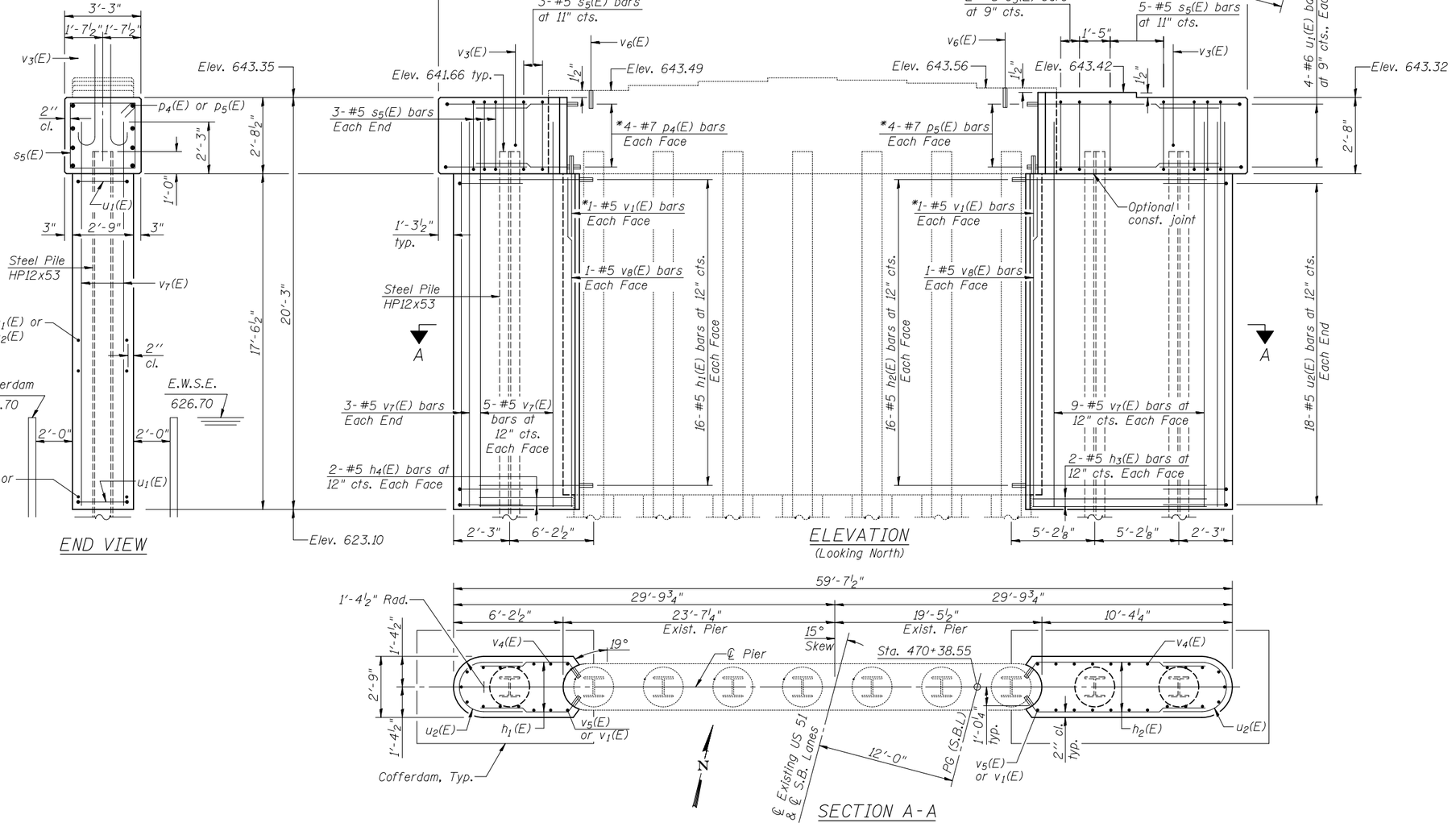
Notes:
Pour steps monolithically with cap.
For details of piles, see sheet 27 of 34.

PILE DATA

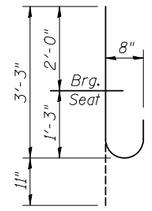
Type: Steel HP 12x53
Nominal Required Bearing: 419 Kips/Pile
Factored Resistance Available: 209 Kips/Pile
Est. Length: 65 Ft./Pile
No. Production Piles: 3



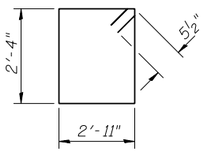
TOP PLAN



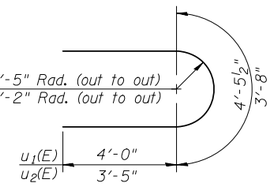
SECTION A-A



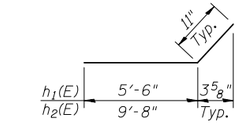
BAR v3(E)



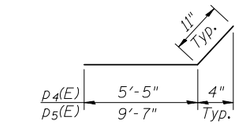
BAR s5(E)



BARS u1(E) & u2(E)



BARS h1(E) & h2(E)



BARS p4(E) & p5(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h1(E)	32	#5	6'-5"	
h2(E)	32	#5	10'-7"	
h3(E)	4	#5	9'-8"	
h4(E)	4	#5	5'-6"	
p4(E)	8	#7	6'-4"	
p5(E)	8	#7	10'-6"	
s5(E)	16	#5	11'-5"	
u1(E)	8	#6	12'-6"	
u2(E)	36	#5	10'-6"	
v1(E)	4	#5	4'-4"	
v3(E)	14	#8	4'-2"	
v6(E)	4	#8	2'-9"	
v7(E)	34	#5	19'-7"	
v8(E)	4	#5	17'-2"	
Cofferdam Excavation			Cu. Yd.	6
Concrete Structures			Cu. Yd.	35.2
Reinforcement Bars, Epoxy Coated			Pound	2,610
Furnishing Steel Piles HP12x53			Foot	195
Driving Piles			Foot	195
Cofferdam (Type 1) (Location - 2)			Each	1

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER #2
STRUCTURE NO. 011-0037
SHEET NO. 25 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	225
		CONTRACT NO. 72961		
		ILLINOIS FED. AID PROJECT		

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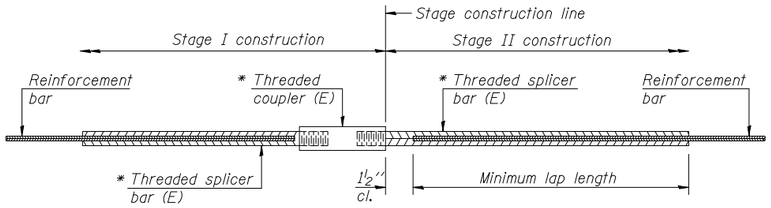


STANDARD BAR SPLICER ASSEMBLY

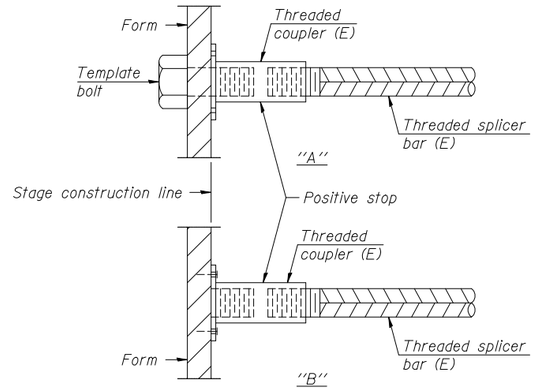
Minimum Lap Lengths					
Bar size to be spliced	Table 1	Table 2	Table 3	Table 4	Table 5
3, 4	1'-5"	1'-11"	2'-1"	2'-4"	2'-3"
5	1'-9"	2'-5"	2'-7"	2'-11"	2'-10"
6	2'-1"	2'-11"	3'-1"	3'-6"	3'-4"
7	2'-9"	3'-10"	4'-2"	4'-8"	4'-6"
8	3'-8"	5'-1"	5'-5"	6'-2"	5'-10"
9	4'-7"	6'-5"	6'-10"	7'-9"	7'-5"

Table 1: Black bar, 0.8 Class C
Table 2: Black bar, Top bar lap, 0.8 Class C
Table 3: Epoxy bar, 0.8 Class C
Table 4: Epoxy bar, Top bar lap, 0.8 Class C
Table 5: Epoxy bar, Top bar lap, Class B

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

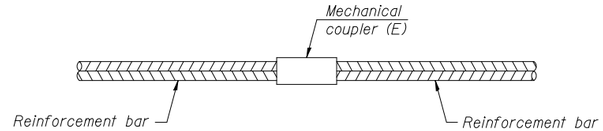
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Table for minimum lap length



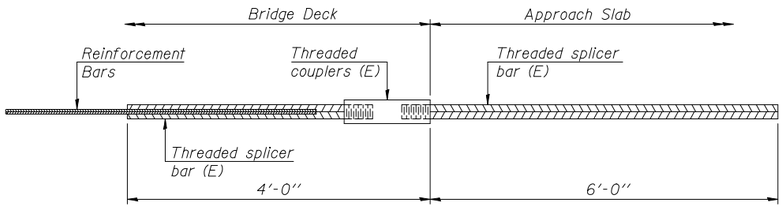
INSTALLATION AND SETTING METHODS

"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.



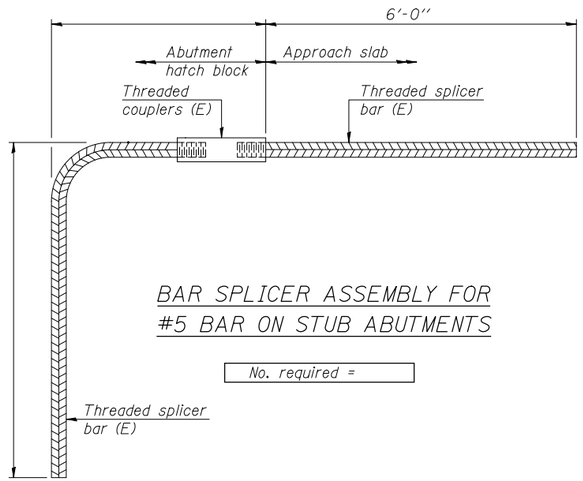
STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required
Bridge Deck	#5	686



BAR SPLICER ASSEMBLY FOR #5 BAR ON INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

No. required = 44



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 special provision for Mechanical Splicers.
See approved list of bar splicer assemblies and mechanical splicers for alternatives.

BSD-1 7-1-10

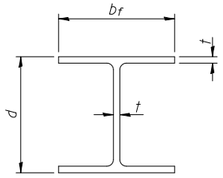
FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
STRUCTURE NO. 011-0037
SHEET NO. 26 OF 34 SHEETS

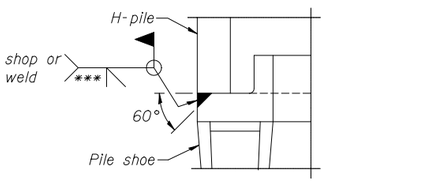
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	226
		CONTRACT NO. 72961		
		ILLINOIS FED. AID PROJECT		

Klingner & Associates P.C.



STEEL PILE TABLE

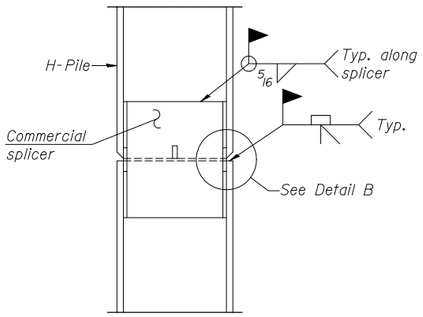
Designation	Depth d	Flange width b_f	Web and Flange thickness t	Encasement diameter A
HP 14x117	$14\frac{1}{4}''$	$14\frac{7}{8}''$	$\frac{13}{16}''$	30″
x102	14″	$14\frac{3}{4}''$	$\frac{11}{16}''$	30″
x89	$13\frac{7}{8}''$	$14\frac{3}{4}''$	$\frac{5}{8}''$	30″
x73	$13\frac{5}{8}''$	$14\frac{5}{8}''$	$\frac{1}{2}''$	30″
HP 12x84	$12\frac{1}{4}''$	$12\frac{1}{4}''$	$\frac{11}{16}''$	24″
x74	$12\frac{1}{8}''$	$12\frac{1}{4}''$	$\frac{5}{8}''$	24″
x63	12″	$12\frac{1}{8}''$	$\frac{1}{2}''$	24″
x53	$11\frac{3}{4}''$	12″	$\frac{7}{16}''$	24″
HP 10x57	10″	$10\frac{1}{4}''$	$\frac{9}{16}''$	24″
x42	$9\frac{3}{4}''$	$10\frac{1}{8}''$	$\frac{7}{16}''$	24″
HP 8x36	8″	$8\frac{1}{8}''$	$\frac{7}{16}''$	18″



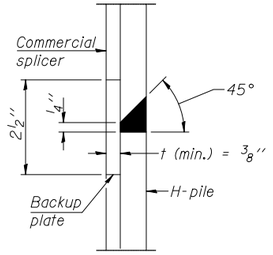
ELEVATION

DETAIL A

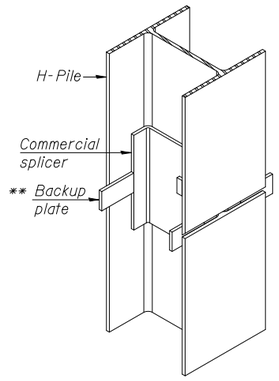
H-PILE SHOE ATTACHMENT



ELEVATION

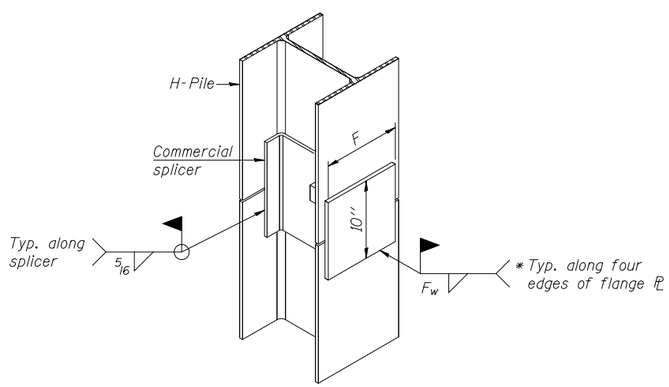


DETAIL "B"



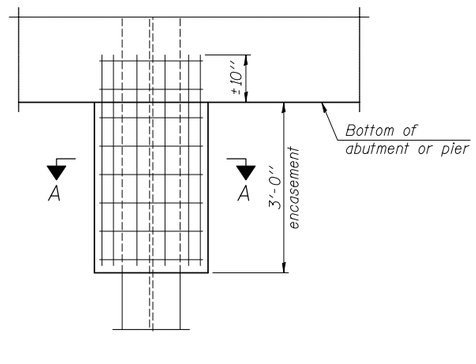
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE



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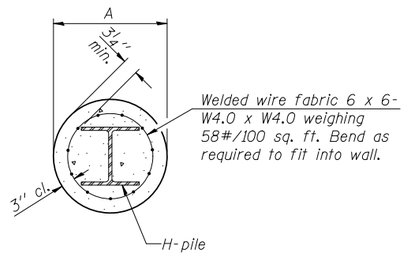
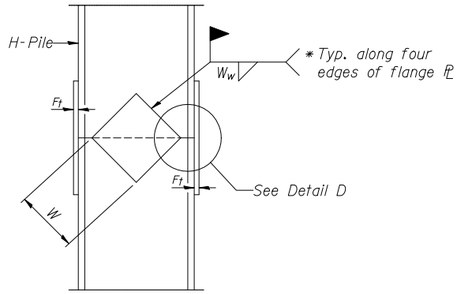


SECTION A-A

Note:
Forms for encasement may be omitted when soil conditions permit.

PILE ENCASEMENT



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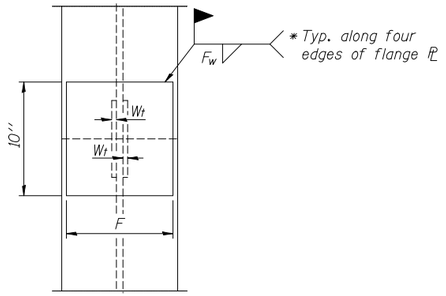
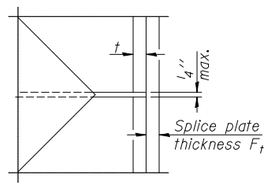


END VIEW



DETAIL D

Designation	F	F_t	F_w	W	W_t	W_w
HP 14x117	$12\frac{1}{2}''$	1″	$\frac{7}{8}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x102	$12\frac{1}{2}''$	$\frac{7}{8}''$	$\frac{3}{4}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x89	$12\frac{1}{2}''$	$\frac{3}{4}''$	$\frac{11}{16}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x73	$12\frac{1}{2}''$	$\frac{5}{8}''$	$\frac{9}{16}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
HP 12x84	10″	$\frac{7}{8}''$	$\frac{11}{16}''$	$6\frac{1}{2}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x74	10″	$\frac{7}{8}''$	$\frac{11}{16}''$	$6\frac{1}{2}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x63	10″	$\frac{5}{8}''$	$\frac{1}{2}''$	$6\frac{1}{2}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
x53	10″	$\frac{5}{8}''$	$\frac{1}{2}''$	$6\frac{1}{2}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
HP 10x57	8″	$\frac{3}{4}''$	$\frac{9}{16}''$	$5\frac{1}{4}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
x42	8″	$\frac{5}{8}''$	$\frac{9}{16}''$	$5\frac{1}{4}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
HP 8x36	7″	$\frac{5}{8}''$	$\frac{7}{16}''$	$4\frac{1}{4}''$	$\frac{1}{2}''$	$\frac{3}{8}''$

WELDED PLATE FIELD SPLICE

* Interrupt welds $\frac{1}{4}''$ from end of web and/or each flange.

** Remove portions of backup plates that extend outside the flanges.

*** Weld size per pile shoe manufacturer ($\frac{5}{16}''$ min.).

Note:
The steel H-piles shall be according to AASHTO M270 Grade 50.

F-HP 7-1-10

FILE NAME =	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

HP PILE DETAILS
STRUCTURE NO. 011-0037
SHEET NO. 27 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	227
		CONTRACT NO. 72961		
		ILLINOIS FED. AID PROJECT		

Klingner & Associates P.C.

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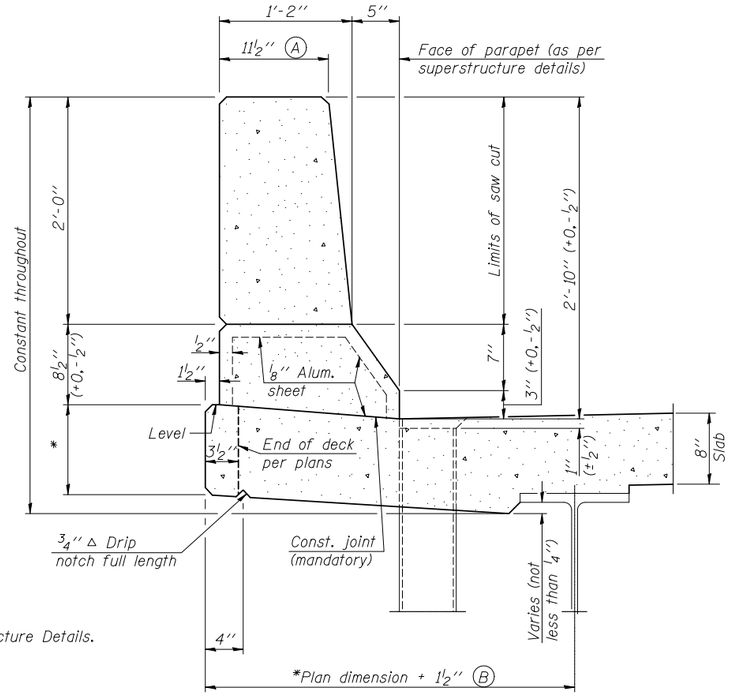
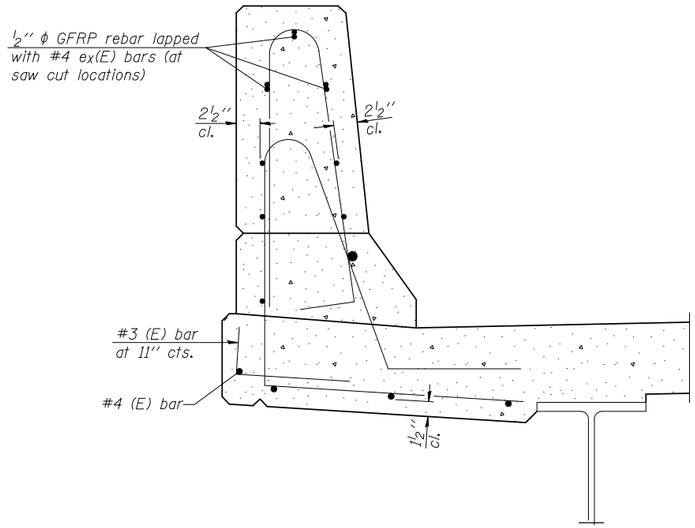


* See Superstructure Details.

SECTION
(Showing dimensions)



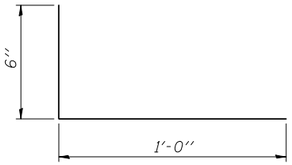
SECTION
(Showing reinforcement clearances for slip forming and additional reinforcement bars)

GENERAL NOTES

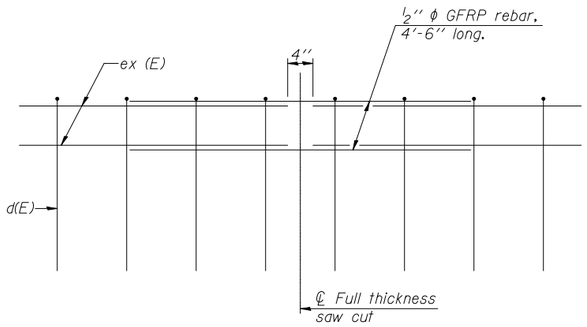
All dimensions shall remain the same as shown on superstructure details, except dimensions A and B which are to be revised as shown to provide additional clearance. Additional concrete needed to revise dimension A and B = 0.0165 cu. yds./ft. of parapet.

Place aluminum sheet in curb portion at and near piers. Full thickness saw cut at all joint locations in lieu of cork joint filler.

Steel superstructure shown. Other superstructure types similar.



#3 (E) BAR



GFRP REBAR STIFFENING DETAIL
(Place as shown in parapet section at each parapet joint location.)

SFP-34 7-1-10

FILE NAME =	USER NAME =	DESIGNED ADL	REVISED -	**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION**	**CONCRETE PARAPET SLIPFORMING OPTION STRUCTURE NO. 011-037**	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED RJP	REVISED -			322	11-10	CHRISTIAN	437	228
	PLOT SCALE =	DRAWN RJP	REVISED -						CONTRACT NO. 72961	
	PLOT DATE =	CHECKED ADL	REVISED -		SHEET NO. 28 OF 34 SHEETS			ILLINOIS	FED. AID PROJECT	

Illinois Department of Transportation
Division of Highways
Illinois Department of Transportation Dist-6

SOIL BORING LOG

Date 2/21/91

ROUTE FAP 322 (US 51) DESCRIPTION US 51 over Main Drainage Ditch LOGGED BY K. Winschief

SECTION 44 BR-1 LOCATION SW 1/4, SEC. 24, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140# Auto

STRUCT. NO. 011-0002
Station 342+37

BORING NO. 1
Station 343+03
Offset 15.00ft Left
Ground Surface Elev. 647.5 ft

Surface Water Elev. 627.2 ft
Stream Bed Elev. N/A ft

Groundwater Elev.:
First Encounter 628.0 ft
Upon Completion Washed ft
After ____ Hrs. Plugged ft

DEPTH (ft)	BLOWS N	UCS Qu (tsf)	MOIST (%)
Mixed Black and Brown SILTY CLAY and SILTY CLAY LOAM Embankment			
-5	15	5.0 B	16
-10	7	2.5 B	22
	5	1.2 B	18
633.50	5	1.2 B	17
Brown Grey Mottled SILTY CLAY			
-15	3	1.2 B	28
629.00	5	1.0 B	21
Fine SAND Free Water			
627.50 -20	7		
Grey SILT LOAM			
		B	
	6	1.2 S	21
-25	12	1.4 B	22
622.00 Medium Grey SAND			
619.50	19	1.3 B	9.3
Grey SANDY CLAY LOAM			
617.50 -30	10	1.7 B	11
Grey SANDY CLAY LOAM (Till)			
	25	3.9 S	8.6
-35	50	6.0 E	8.4
-40	35		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
Illinois Department of Transportation Dist-6

SOIL BORING LOG

Date 2/21/91

ROUTE FAP 322 (US 51) DESCRIPTION US 51 over Main Drainage Ditch LOGGED BY K. Winschief

SECTION 44 BR-1 LOCATION SW 1/4, SEC. 24, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140# Auto

STRUCT. NO. 011-0002
Station 342+37

BORING NO. 1
Station 343+03
Offset 15.00ft Left
Ground Surface Elev. 647.5 ft

Surface Water Elev. 627.2 ft
Stream Bed Elev. N/A ft

Groundwater Elev.:
First Encounter 628.0 ft
Upon Completion Washed ft
After ____ Hrs. Plugged ft

DEPTH (ft)	BLOWS N	UCS Qu (tsf)	MOIST (%)
Grey SANDY CLAY LOAM (Till) (continued)			
		5.0 B	8.9
604.50 Grey CLAY LOAM (Till)			
-45	16	5.2 B	14
600.50 Grey SANDY CLAY LOAM (Till)			
-50	16	3.5 S	10
597.00 Boring Completed Borings 1-4 Completed By District 5 Geotechnical Unit, Converted to gINT format 01/17/01 by District 6.			
-55			
-60			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

BORING 1

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS
STRUCTURE NO. 011-0037
SHEET NO. 29 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	229
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

Klingner & Associates P.C.

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Illinois Department of Transportation
Division of Highways
Illinois Department of Transportation Dist-6

SOIL BORING LOG

Date 2/21/91

ROUTE FAP 322 (US 51) DESCRIPTION US 51 over Main Drainage Ditch LOGGED BY K. Winschief

SECTION 44 BR-1 LOCATION SW 1/4, SEC. 24, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140# Auto

STRUCT. NO. 011-0002
Station 342+37

BORING NO. 2
Station 341+55
Offset 15.00ft Right
Ground Surface Elev. 648.2 ft

Surface Water Elev. 627.2 ft
Stream Bed Elev. N/A ft

Groundwater Elev.:
First Encounter 627.7 ft
Upon Completion Washed ft
After ____ Hrs. Plugged ft

DEPTH (ft)	BLOWS N	UCS Qu (tsf)	MOIST (%)
Mixed Brown SILTY CLAY and CLAY LOAM Embankment			
-5	6	1.2 B	19
	6	1.2 B	31
-10	8	1.0 B	32
636.70 Black SILTY CLAY			
	5	1.5 B	25
634.20 Dark Grey and Brown Mottled SILTY CLAY			
-15	6	2.1 B	19
	4	1.3 B	19
629.20 Coarse Grey SAND with Free Water			
-20	6		
Coarse Grey SAND with Free Water (continued)			
	13		
-25	13		
Medium Coarse SAND			
620.70 Grey SANDY CLAY LOAM (Till)			
-30	30	5.2 S	9
	27	4.0 B	8.9
-35	17	4.7 B	9.6
-40	6		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
Illinois Department of Transportation Dist-6

SOIL BORING LOG

Date 2/21/91

ROUTE FAP 322 (US 51) DESCRIPTION US 51 over Main Drainage Ditch LOGGED BY K. Winschief

SECTION 44 BR-1 LOCATION SW 1/4, SEC. 24, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140# Auto

STRUCT. NO. 011-0002
Station 342+37

BORING NO. 2
Station 341+55
Offset 15.00ft Right
Ground Surface Elev. 648.2 ft

Surface Water Elev. 627.2 ft
Stream Bed Elev. N/A ft

Groundwater Elev.:
First Encounter 627.7 ft
Upon Completion Washed ft
After ____ Hrs. Plugged ft

DEPTH (ft)	BLOWS N	UCS Qu (tsf)	MOIST (%)
Grey SANDY CLAY LOAM (Till) (continued)			
		2.9 B	11
-45	11	2.5 B	10
-50	14	2.5 B	11
597.70 Boring Completed			
Borings 1-4 Completed By District 5 Geotechnical Unit, Converted to gINT format 01/17/01 by District 6.			
-55			
-60			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

BORING 2

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BORING LOGS STRUCTURE NO. 011-0037	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED RJP	REVISED -			322	11-10	CHRISTIAN	437	230
	PLOT SCALE =	DRAWN RJP	REVISED -						CONTRACT NO. 72961	
	PLOT DATE =	CHECKED ADL	REVISED -		SHEET NO. 30 OF 34 SHEETS			ILLINOIS	FED. AID PROJECT	

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Illinois Department of Transportation
Division of Highways
Illinois Department of Transportation Dist-6

SOIL BORING LOG

Date 3/11/91

ROUTE FAP 322 (US 51) DESCRIPTION US 51 over Main Drainage Ditch LOGGED BY K. Winschief

SECTION 44 BR-1 LOCATION SW 1/4, SEC. 24, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140# Auto

STRUCT. NO. 011-0002
Station 342+37

BORING NO. 3
Station 342+19
Offset 86.50ft Right
Ground Surface Elev. 639.2 ft

Surface Water Elev. 627.3 ft
Stream Bed Elev. N/A ft

Groundwater Elev.:
First Encounter 626.2 ft
Upon Completion Washed ft
After ____ Hrs. Plugged ft

DEPTH (ft)	BLOWS N	UCS Qu (tsf)	MOIST (%)
Dark Brown Mottled SILTY CLAY			
	8	2.1 B	18
-5			
	6	1.4 B	20
632.20 Grey Brown Mottled CLAY LOAM			
	5	1.4 B	22
629.70 Brown Grey Mottled CLAY LOAM -10			
	4	1.2 S	23
627.20 Coarse Brown SAND Free Water			
	4		
624.70 Grey SILT -15			
	5	1.4 S	21
622.20 Medium to Coarse Brown SAND			
	12		
-20			
Medium to Coarse Brown SAND (continued)			
	22		
615.20 Grey SANDY CLAY LOAM (Till) -25			
	35	6.1 S	8.9
-30			
	25	6.1 S	9.1
-35			
	23	6.6 S	11
-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
Illinois Department of Transportation Dist-6

SOIL BORING LOG

Date 3/11/91

ROUTE FAP 322 (US 51) DESCRIPTION US 51 over Main Drainage Ditch LOGGED BY K. Winschief

SECTION 44 BR-1 LOCATION SW 1/4, SEC. 24, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140# Auto

STRUCT. NO. 011-0002
Station 342+37

BORING NO. 3
Station 342+19
Offset 86.50ft Right
Ground Surface Elev. 639.2 ft

Surface Water Elev. 627.3 ft
Stream Bed Elev. N/A ft

Groundwater Elev.:
First Encounter 626.2 ft
Upon Completion Washed ft
After ____ Hrs. Plugged ft

DEPTH (ft)	BLOWS N	UCS Qu (tsf)	MOIST (%)
Grey SANDY CLAY LOAM (Till) (continued)			
	17	5.8 S	10
-45			
	9	3.3 S	11
-50			
	5	1.2 B	12
586.20 Grey CLAY LOAM (Till) -55			
	38	10.9 S	14
583.20 Boring Completed			
Borings 1-4 Completed By District 5 Geotechnical Unit, Converted to gINT format 01/17/01 by District 6.			
-60			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

BORING 3

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -	**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION**	**BORING LOGS STRUCTURE NO. 011-0037**	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED RJP	REVISED -			322	11-10	CHRISTIAN	437	231
	PLOT SCALE =	DRAWN RJP	REVISED -						CONTRACT NO. 72961	
	PLOT DATE =	CHECKED ADL	REVISED -		SHEET NO. 31 OF 34 SHEETS			ILLINOIS	FED. AID PROJECT	

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8/6/2012 7:59:28 AM

Illinois Department of Transportation
Division of Highways
Illinois Department of Transportation Dist-6

SOIL BORING LOG

Date 3/11/91

ROUTE FAP 322 (US 51) DESCRIPTION US 51 over Main Drainage Ditch LOGGED BY K. Winschief

SECTION 44 BR-1 LOCATION SW 1/4, SEC. 24, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140# Auto

STRUCT. NO. 011-0002
Station 342+37

BORING NO. 4
Station 342+82
Offset 69.00ft Right
Ground Surface Elev. 636 ft

Surface Water Elev. 627.4 ft
Stream Bed Elev. N/A ft

Groundwater Elev.:
First Encounter No Encounter ft
Upon Completion No Data ft
After ____ Hrs. Plugged ft

DEPTH (ft)	BLOWS N	UCS Qu (tsf)	MOIST (%)
Brown SANDY CLAY LOAM - SAND LOAM Alluvium			
	3		
-5	5	1.1 S	13
629.50 Brown SILTY CLAY LOAM Alluvium			
	5	1.0 B	20
627.00 Brown Grey Mottled SANDY CLAY LOAM			
-10	4	1.0 B	22
624.50 Grey SILT LOAM			
	5	1.4 B	22
622.00 Medium - Coarse Brown SAND			
-15	8		
617.50 Grey SANDY CLAY LOAM (Till)			
-20	21		

DEPTH (ft)	BLOWS N	UCS Qu (tsf)	MOIST (%)
Grey SANDY CLAY LOAM (Till) (continued) Sampler Hit Boulder		1.0 B	12
	35	3.5 S	8.4
-25	33	6.1 S	8.8
	30	7.8 S	9.2
-30	28	7.0 B	9.3
-35	30	7.8 S	8.9
-40	20		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
Illinois Department of Transportation Dist-6

SOIL BORING LOG

Date 3/11/91

ROUTE FAP 322 (US 51) DESCRIPTION US 51 over Main Drainage Ditch LOGGED BY K. Winschief

SECTION 44 BR-1 LOCATION SW 1/4, SEC. 24, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140# Auto

STRUCT. NO. 011-0002
Station 342+37

BORING NO. 4
Station 342+82
Offset 69.00ft Right
Ground Surface Elev. 636 ft

Surface Water Elev. 627.4 ft
Stream Bed Elev. N/A ft

Groundwater Elev.:
First Encounter No Encounter ft
Upon Completion No Data ft
After ____ Hrs. Plugged ft

DEPTH (ft)	BLOWS N	UCS Qu (tsf)	MOIST (%)
Grey SANDY CLAY LOAM (Till) (continued)		5.2 B	8.6
-45	28	5.7 S	9.5
-50	25	4.1 S	10
585.50 Boring Completed Borings 1-4 Completed By District 5 Geotechnical Unit, Converted to gINT format 01/17/01 by District 6.			
-55			
-60			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

BORING 4

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS
STRUCTURE NO. 011-0037
SHEET NO. 32 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	232
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

Klingner & Associates P.C.

Q:\01FILES\010329\BRIDGE\011-0037 BORING LOGS.dgn

Illinois Department of Transportation
Division of Highways
Illinois Department of Transportation Dist-6

SOIL BORING LOG

Date 9/19/00

ROUTE FAP 322 (US 51) DESCRIPTION US 51 over Main Drainage Ditch LOGGED BY M. Tappan

SECTION 44 BR-1 LOCATION SW 1/4, SEC. 24, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140# Auto

STRUCT. NO. 011-0002
Station 342+37

BORING NO. 5 S. Abut
Station 341+72
Offset 7.00ft Left
Ground Surface Elev. 647.65 ft

Surface Water Elev. 626.16 ft
Stream Bed Elev. N/A ft

Groundwater Elev.:
First Encounter 626.2 ft
Upon Completion Washed ft
After ____ Hrs. Plugged ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Material
				Bituminous Concrete and Crushed Stone Material
646.15				
				Olive Brown and Dark Grey Moist SILTY CLAY (FILL)
	1			
	2	1.1	27	
-5	100 /3"	B		Layer of Bituminous Concrete and Concrete Material
	2			
	2	2.0	22	
	3	B		
	1			
	2	0.7	25	
-10	2	B		
	1			
				Dark Grey to Black
	1	0.4	23	
	2	B		
	1			
	2	1.4	22	
-15	3	B		
	1			
631.15				
	2	1.2	25	Dark Grey to Light Olive Grey Moist SILTY CLAY
	3	B		
628.65	0			
	2			Grey Wet Medium to Coarse Grained Dirty SAND
-20	3			
627.15				Grey V. Moist LOAM to SAND LOAM
	0			
	1	0.6	18	Free Water
	4	B		
624.65				Grey Medium Grained Clean SANDY GRAVEL
	1			
	6			
-25	10			
620.65				Brown Medium Grained
	10			Grey Moist CLAY LOAM (TILL)
	9			
	1			
	6	3.1	8	
-30	10	S-9		SANDY CLAY LOAM to CLAY LOAM (TILL)
	3			
	6	3.9	9	CLAY LOAM (TILL)
-35	10	S-14		
	1			
	4	2.4	10	
-40	8	B		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
Illinois Department of Transportation Dist-6

SOIL BORING LOG

Date 9/19/00

ROUTE FAP 322 (US 51) DESCRIPTION US 51 over Main Drainage Ditch LOGGED BY M. Tappan

SECTION 44 BR-1 LOCATION SW 1/4, SEC. 24, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140# Auto

STRUCT. NO. 011-0002
Station 342+37

BORING NO. 5 S. Abut
Station 341+72
Offset 7.00ft Left
Ground Surface Elev. 647.65 ft

Surface Water Elev. 626.16 ft
Stream Bed Elev. N/A ft

Groundwater Elev.:
First Encounter 626.2 ft
Upon Completion Washed ft
After ____ Hrs. Plugged ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Material
				Grey Moist CLAY LOAM (TILL) (continued)
	3			
	8	3.1	9	
-45	10	B		
	1			
	6	2.1	10	
-50	8	B		
	2			
	7	3.1	10	
-55	12	B		
	6			
	21	4.8	9	w/ 3" Fine to Medium Grained SAND Seam
-60	35	S-10		
587.15				Grey Moist CLAY LOAM (TILL) (continued)
				Grey Medium Grained Clean SAND
	0			
	2			
-65	8			
	4			
	12			Washed
577.65	30			
				Grey LIMESTONE w/ Light Grey Shaley MARL Seams
	100 /3"			
573.15				
-75				Auger Refusal - Boring Completed
-80				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

BORING 5

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -
		CHECKED RJP	REVISED -
	PLOT SCALE =	DRAWN RJP	REVISED -
	PLOT DATE =	CHECKED ADL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS
STRUCTURE NO. 011-0037
SHEET NO. 33 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	233
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

Klingner & Associates P.C.

8/6/2012 7:59:54 AM

Illinois Department of Transportation
Division of Highways
Illinois Department of Transportation Dist-6

SOIL BORING LOG

Date 9/20/00

ROUTE FAP 322 (US 51) DESCRIPTION US 51 over Main Drainage Ditch LOGGED BY M. Tappan

SECTION 44 BR-1 LOCATION SW 1/4, SEC. 24, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140# Auto

STRUCT. NO. 011-0002
Station 342+37

BORING NO. 6 N. Pier
Station 342+65
Offset 25.00ft Left
Ground Surface Elev. 635.91 ft

Surface Water Elev. 626.16 ft
Stream Bed Elev. N/A ft

Groundwater Elev.:
First Encounter 622.4 ft
Upon Completion Washed ft
After ____ Hrs. Plugged ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Grey Moist SILTY CLAY (Fill)
	1			
	2			Poor Recovery
	2			
630.91 -5				
	1			Brown and Grey Moist CLAY LOAM (Fill)
	2	0.4	24	
	2	B		
628.41				
	1			Grey Moist LOAM
	1	0.3	21	
	2	B		
625.91 -10				
	1			Olive Brown and Grey Moist SILT Interbedded with thin Fine Grained SAND
	1	0.6	29	
	2	S-12		
623.41				
	1			Grey Medium Grained Clean SANDY GRAVEL
	7			
	8			Free Water
-15				
	2			
	8			Washed
	12			
617.91				
	2			Grey Moist SANDY CLAY LOAM (Till)
	3	1.4	11	
	4	B		Washed
-20				
	10			Grey Moist SANDY CLAY LOAM (Till) (continued)
	20	7.0	8	
	23	E		
612.91				
	31			Grey Medium to Coarse Grained Dirty SAND
	55			
610.91 -25	45 /5"			
	9			Grey Moist CLAY LOAM (Till)
	12	5.2	8	
	15	S-9		
	3			
	9	5.1	9	
	12	S-13		
-30				
	2			
	8	4.7	10	
	12	B		
-35				
	3			
	3	3.8	10	w/ 2" Grey Medium Grained SANDY GRAVEL Seam
	9	B		
-40				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
Illinois Department of Transportation Dist-6

SOIL BORING LOG

Date 9/20/00

ROUTE FAP 322 (US 51) DESCRIPTION US 51 over Main Drainage Ditch LOGGED BY M. Tappan

SECTION 44 BR-1 LOCATION SW 1/4, SEC. 24, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140# Auto

STRUCT. NO. 011-0002
Station 342+37

BORING NO. 6 N. Pier
Station 342+65
Offset 25.00ft Left
Ground Surface Elev. 635.91 ft

Surface Water Elev. 626.16 ft
Stream Bed Elev. N/A ft

Groundwater Elev.:
First Encounter 622.4 ft
Upon Completion Washed ft
After ____ Hrs. Plugged ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Grey Moist CLAY LOAM (Till) (continued)
	1			
	6	2.8	10	
	10	B		
-45				
	11			
	23	4.9	9	w/ 4" Medium Grained SAND Seam
	35	S-5		
586.41				
-50				Grey Fine to Medium Grained SAND
	13			
	23			Washed
	34			
-55				
	14			
576.91	100			
	/2"			Grey Crystalline LIMESTONE
575.91 -60				
				Auger Refusal - Boring Completed
				Refer Elevation to BM # 102 Chisled Square on NW Headwall BM#102=647.95'
				Refer STA to Station 342+00 STA Increase to North
-65				
-70				
-75				
-80				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

BORING 6

FILE NAME	USER NAME =	DESIGNED ADL	REVISED -	**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION**	**BORING LOGS STRUCTURE NO. 011-0037**
		CHECKED RJP	REVISED -		
	PLOT SCALE =	DRAWN RJP	REVISED -		
	PLOT DATE =	CHECKED ADL	REVISED -		SHEET NO. 34 OF 34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-10	CHRISTIAN	437	234
		CONTRACT NO. 72961		
		ILLINOIS FED. AID PROJECT		

Klingner & Associates P.C.

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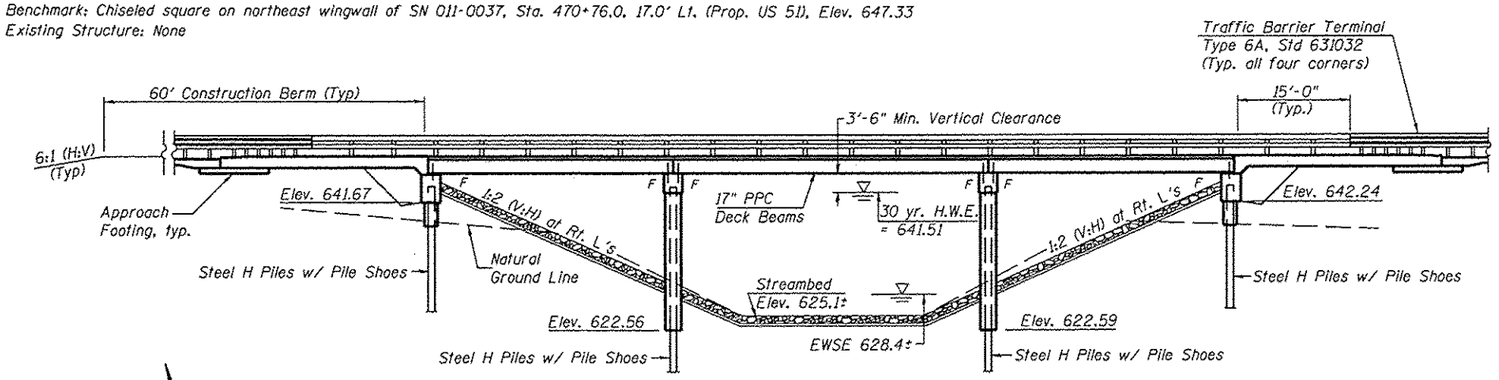
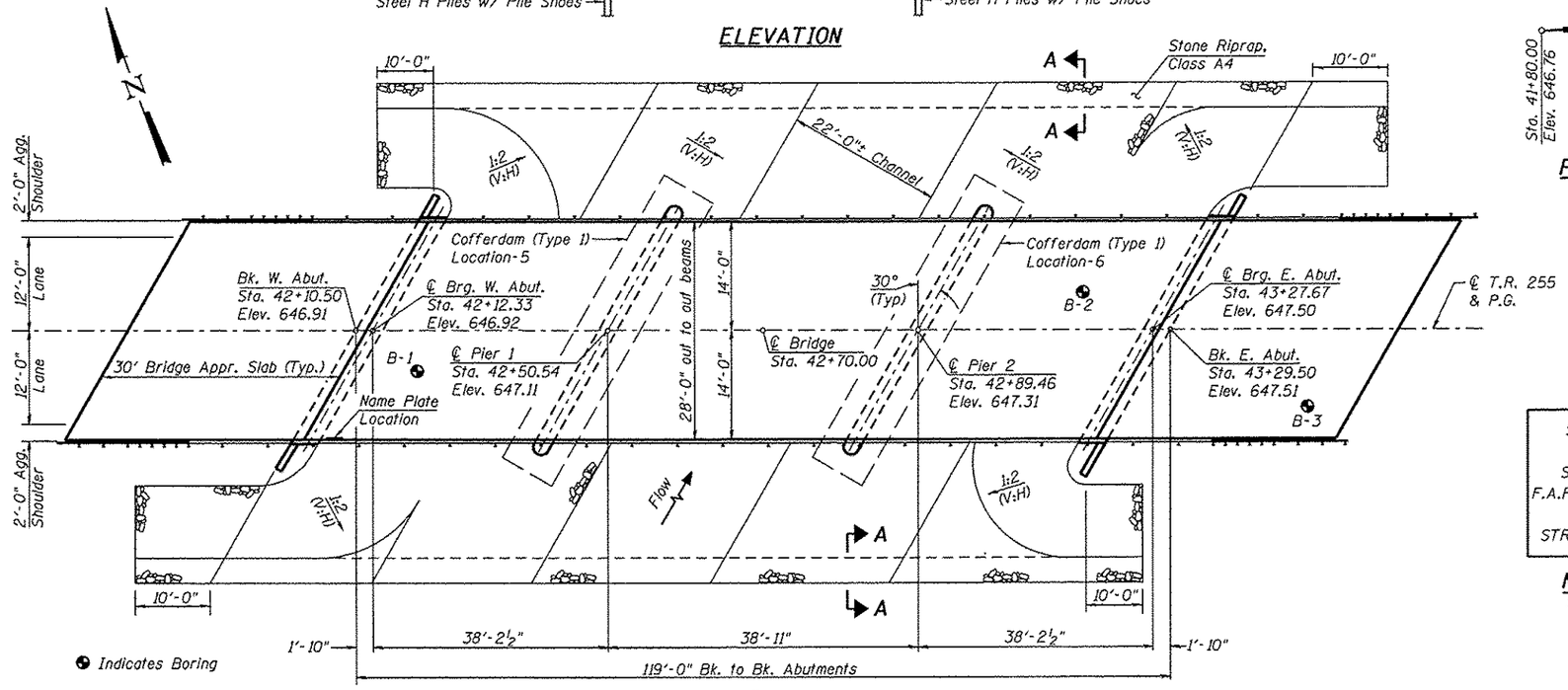
Benchmark: Chiseled square on northeast wingwall of SN 011-0037, Sta. 470+76.0, 17.0' Lt. (Prop. US 51), Elev. 647.33
Existing Structure: None



ELEVATION



● Indicates Boring

PLAN

DESIGN SCOUR ELEVATION TABLE

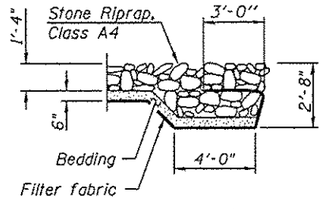
Design Scour Elevation (ft.)	W. Abut.	Pier 1	Pier 2	E. Abut.
	638.6	613.6	613.1	639.2

WATERWAY INFORMATION

Drainage Area = 28.2 Sq. Mi. Prop. Low Grade Elev. 643.20 @ Sta. 38+06.33

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Natural H.W.E.	Head-Ft. Exist.	Head-Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
	10	2270	-	680	640.50	-	0.2	-	640.68
Design	30	3080	-	760	641.51	-	0.5	-	641.96
Base	100	4150	-	800	642.07	-	0.6	-	642.65
Overtopping	-	-	-	-	-	-	-	-	-
Max. Calc.	500	5530	-	880	642.98	-	0.8	-	643.73

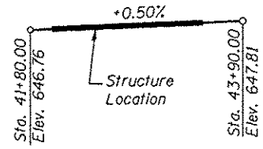
10 year velocity through proposed Structure = 3.5 fps



SECTION A-A

CURVE DATA

Δ = 33° 47' 56" RT.
D = 16° 22' 13"
T = 106.33'
L = 206.47'
E = 15.80'
R = 350.00'
S.E. = 3.9%
P.C. = Sta. 39+22.94
P.T. = Sta. 41+29.40
P.I. = Sta. 40+29.27
S.E. Attained Sta. 38+49 to Sta. 39+47
S.E. Removed Sta. 41+05 to Sta. 42+03



PROFILE GRADE
(Along ℄ Roadway)

STATION 42+70.00
BUILT 20___ BY
STATE OF ILLINOIS
F.A.P. RT. 322 SEC. 11-13
LOADING HL-93
STRUCTURE NO. 011-3362

NAME PLATE
See Std. 515001

INDEX OF SHEETS

LOADING HL-93

Allow 50 psf for future wearing surface.

DESIGN SPECIFICATIONS

2010 AASHTO LRFD Bridge Design Specifications with 2010 Interims

SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.18g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.37g
Soil Site Class = D

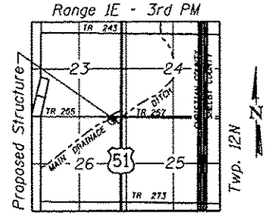
DESIGN STRESSES

FIELD UNITS

f'_c = 5,000 psi (Wearing Surface)
f'_c = 3,500 psi (Substructure)
f_y = 60,000 psi (Reinf.)

PRECAST PRESTRESSED UNITS

f'_c = 6,000 psi
f'_{ci} = 5,000 psi
f_{pu} = 270,000 psi (½"ϕ Low Relaxation Strands)
f_{pbt} = 201,960 psi (½"ϕ Low Relaxation Strands)



LOCATION SKETCH

Michael T. Haley 11-21-12
Michael T. Haley — Date
Licensed Structural Engineer
State of Illinois No. 81-5991
Expires 11/30/2012

APPROVED
For Structural Adequacy Only
Engineer of Bridges & Structures

GENERAL PLAN AND ELEVATION
T.R. 255 OVER MAIN DRAINAGE DITCH
FAP RTE 322 - SECTION 11-13
CHRISTIAN COUNTY
STA. 42+70.00
STRUCTURE NO. 011-3362

LIN ENGINEERING, LTD. Consulting Engineers, Springfield, Illinois

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PLOT DATE =	CHECKED - MTH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 011-3362
SHEET NO. 1 OF 16 SHEETS

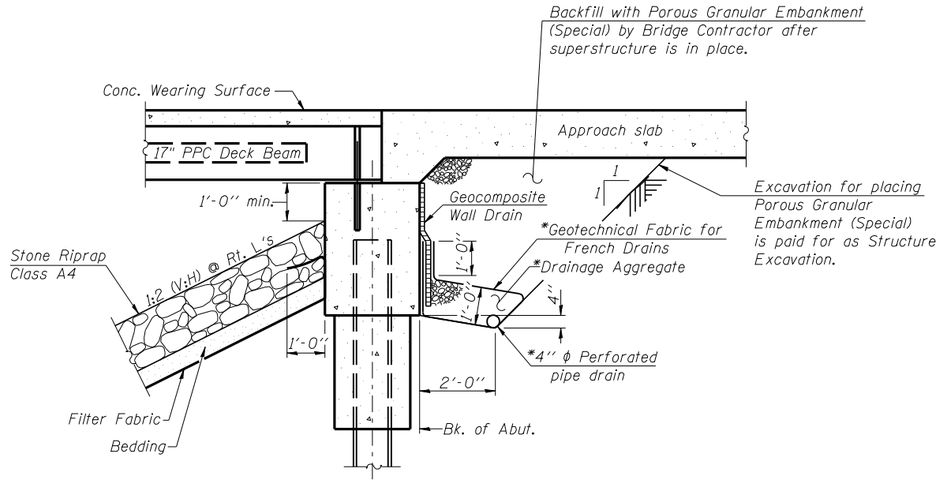
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	235
		CONTRACT NO. 72961		
		ILLINOIS FED. AID PROJECT		

GENERAL NOTES

Reinforcement bars designated (E) shall be epoxy coated.

Layout of slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.



SECTION THRU ABUTMENT

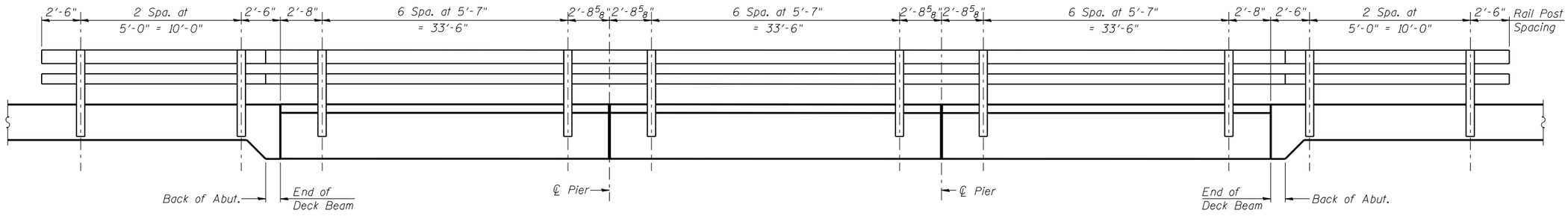
(Horiz. dim. @ Rt. L's)

*Included in the cost of Pipe Underdrains for Structures.

Note:
All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Stone Riprap, Class A4	Sq. Yd.	-	1009	1009
Filter Fabric	Sq. Yd.	-	1009	1009
Structure Excavation	Cu. Yd.	-	40	40
Cofferdam Excavation	Cu. Yd.	-	72	72
Cofferdam (Type 1) (Location-1)	Each	-	1	1
Cofferdam (Type 1) (Location-2)	Each	-	1	1
Concrete Structures	Cu. Yd.	-	222.2	222.2
Concrete Superstructure	Cu. Yd.	85.7	-	85.7
Bridge Deck Grooving	Sq. Yd.	544	-	544
Concrete Encasement	Cu. Yd.	-	3.5	3.5
Protective Coat	Sq. Yd.	565	-	565
Precast Prestressed Concrete Deck Beams (17" Depth)	Sq. Ft.	3262	-	3262
Reinforcement Bars, Epoxy Coated	Pound	23820	17980	41800
Steel Railing, Type SM	Foot	294	-	294
Furnishing Steel Piles HP12x53	Foot	-	1237	1237
Driving Piles	Foot	-	1237	1237
Test Pile Steel HP12x53	Each	-	2	2
Pile Shoes	Each	-	22	22
Name Plates	Each	1	-	1
Geocomposite Wall Drain	Sq. Yd.	-	28	28
Porous Granular Embankment, Special	Cu. Yd.	-	47	47
Concrete Wearing Surface, 5"	Sq. Yd.	363	-	363
Pipe Underdrains for Structures 4"	Foot	-	122	122



RAIL POST SPACING

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL DATA
STRUCTURE NO. 011-3362
SHEET NO. 2 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	236
		CONTRACT NO. 72961		
		ILLINOIS FED. AID PROJECT		

NORTH EDGE OF SHOULDER

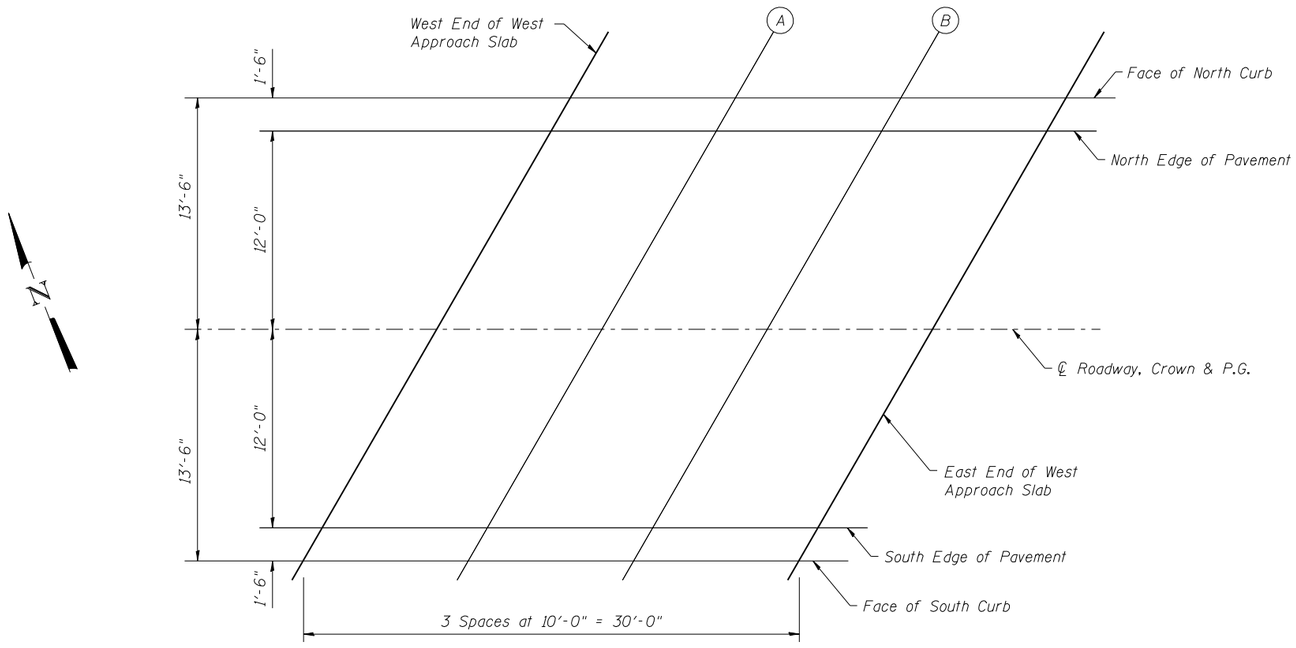
Location	Station	Offset (ft)	Theoretical Grade Elevations
W. End of W. App. Slab	41+89.45	-13.50	646.70
A	41+99.45	-13.50	646.67
B	42+09.45	-13.50	646.70
E. End of W. App. Slab	42+19.45	-13.50	646.75

NORTH EDGE OF PAVEMENT

Location	Station	Offset (ft)	Theoretical Grade Elevations
W. End of W. App. Slab	41+88.58	-12.00	646.71
A	41+98.58	-12.00	646.70
B	42+08.58	-12.00	646.72
E. End of W. App. Slab	42+18.58	-12.00	646.77

℄ ROADWAY, CROWN & P.G.

Location	Station	Offset (ft)	Theoretical Grade Elevations
W. End of W. App. Slab	41+81.65	0.00	646.77
A	41+91.65	0.00	646.82
B	42+01.65	0.00	646.87
E. End of W. App. Slab	42+11.65	0.00	646.92



PLAN - WEST APPROACH

SOUTH EDGE OF PAVEMENT

Location	Station	Offset (ft)	Theoretical Grade Elevations
W. End of W. App. Slab	41+74.73	12.00	646.55
A	41+84.73	12.00	646.60
B	41+94.73	12.00	646.65
E. End of W. App. Slab	42+04.73	12.00	646.70

SOUTH EDGE OF SHOULDER

Location	Station	Offset (ft)	Theoretical Grade Elevations
W. End of W. App. Slab	41+73.86	13.50	646.52
A	41+83.86	13.50	646.57
B	41+93.86	13.50	646.62
E. End of W. App. Slab	42+03.86	13.50	646.67

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Consulting Engineers
Springfield, Illinois

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PLOT DATE =	CHECKED - MTH	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF APPROACH SLAB ELEVATIONS
STRUCTURE NO. 011-3362
SHEET NO. 3 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	237
		CONTRACT NO. 72961		
ILLINOIS	FED. AID PROJECT			

NORTH EDGE OF SHOULDER

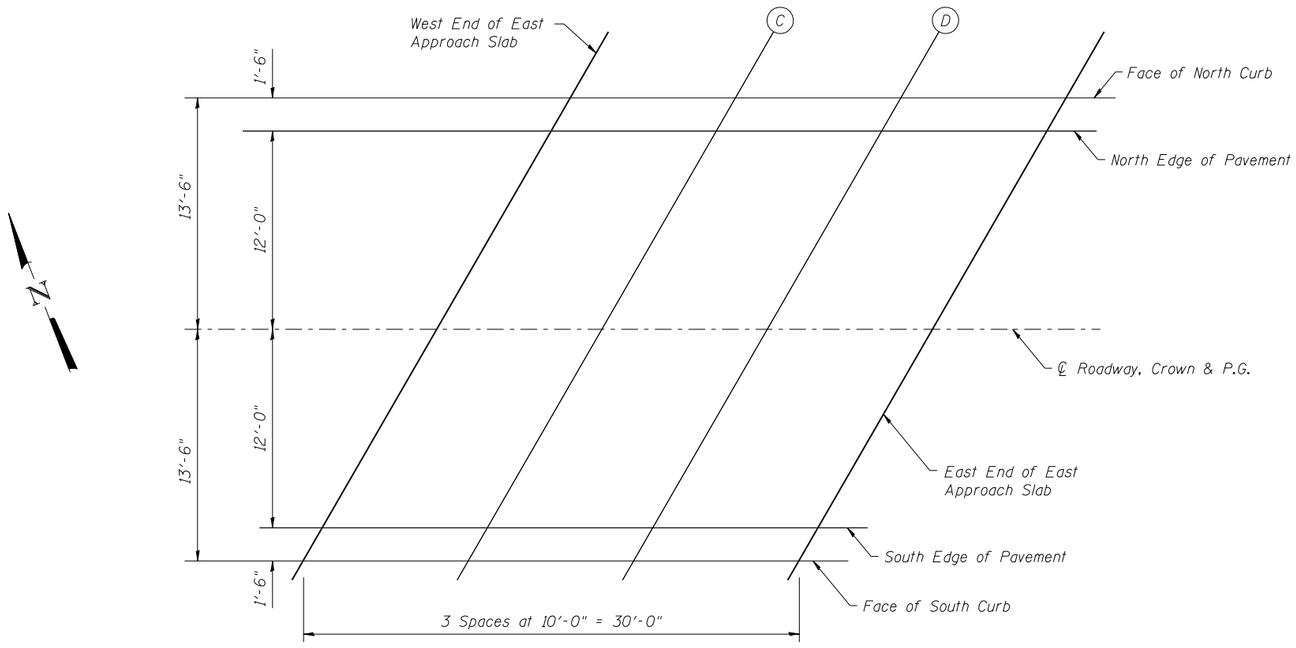
Location	Station	Offset (ft)	Theoretical Grade Elevations
W. End of E. App. Slab	43+36.14	-13.50	647.33
C	43+46.14	-13.50	647.38
D	43+56.14	-13.50	647.43
E. End of E. App. Slab	43+66.14	-13.50	647.48

NORTH EDGE OF PAVEMENT

Location	Station	Offset (ft)	Theoretical Grade Elevations
W. End of E. App. Slab	43+35.27	-12.00	647.35
C	43+45.27	-12.00	647.40
D	43+55.27	-12.00	647.45
E. End of E. App. Slab	43+65.27	-12.00	647.50

℄ ROADWAY, CROWN & P.G.

Location	Station	Offset (ft)	Theoretical Grade Elevations
W. End of E. App. Slab	43+28.35	0.00	647.50
C	43+38.35	0.00	647.55
D	43+48.35	0.00	647.60
E. End of E. App. Slab	43+58.35	0.00	647.65



PLAN - EAST APPROACH

SOUTH EDGE OF PAVEMENT

Location	Station	Offset (ft)	Theoretical Grade Elevations
W. End of E. App. Slab	43+21.42	12.00	647.28
C	43+31.42	12.00	647.33
D	43+41.42	12.00	647.38
E. End of E. App. Slab	43+51.42	12.00	647.43

SOUTH EDGE OF SHOULDER

Location	Station	Offset (ft)	Theoretical Grade Elevations
W. End of E. App. Slab	43+20.55	13.50	647.25
C	43+30.55	13.50	647.30
D	43+40.55	13.50	647.35
E. End of E. App. Slab	43+50.55	13.50	647.40

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Consulting Engineers
Springfield, Illinois

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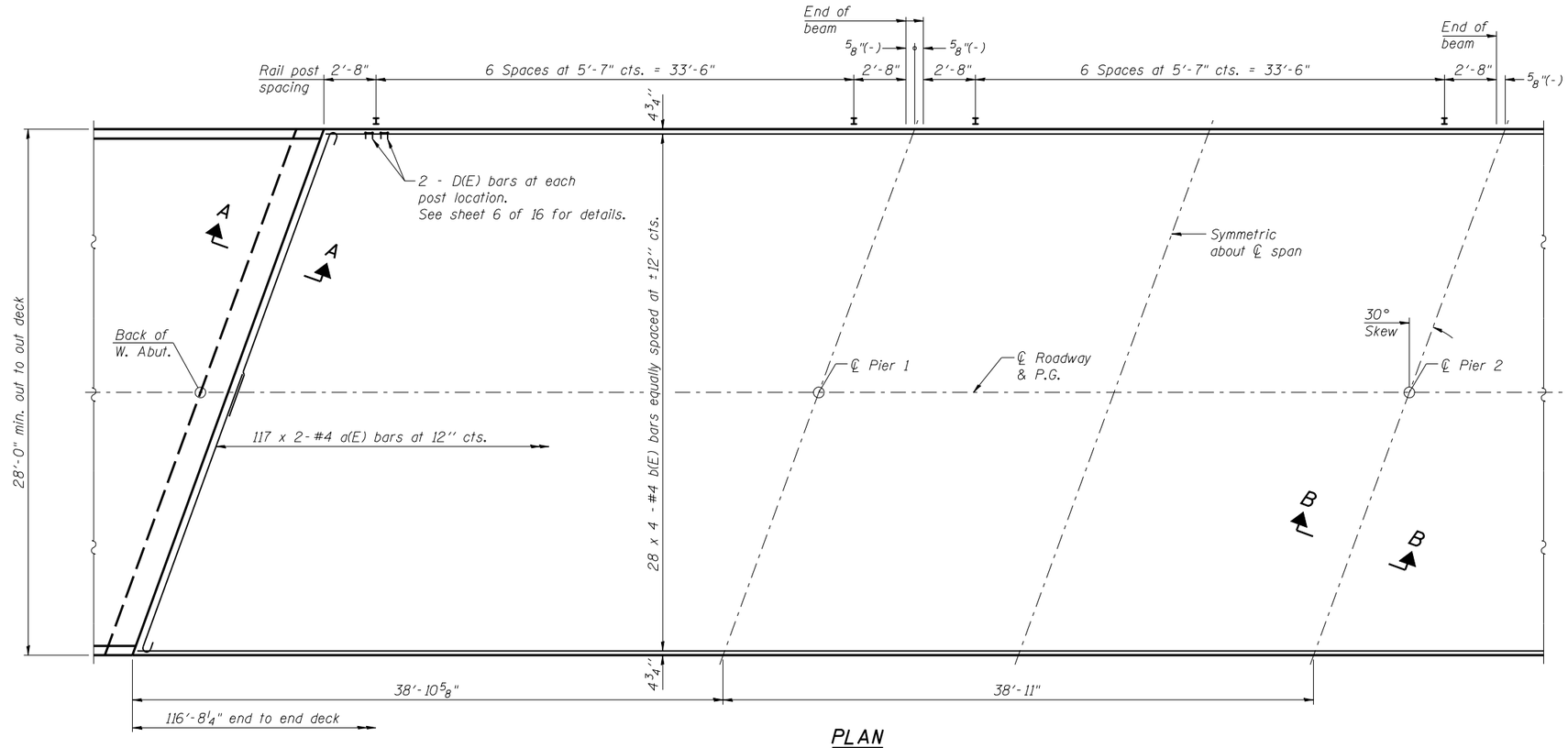
FILE NAME =	CHECKED - TBP	REVISED -
PLOT SCALE =	DRAWN - AJF	REVISED -
PLOT DATE =	CHECKED - MTH	REVISED -

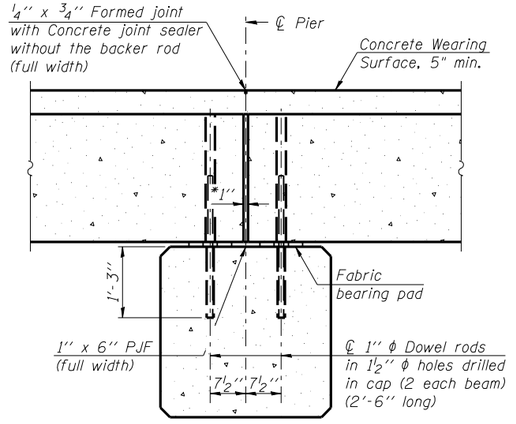
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF APPROACH SLAB ELEVATIONS
STRUCTURE NO. 011-3362
SHEET NO. 4 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	238
		CONTRACT NO. 72961		
ILLINOIS	FED. AID PROJECT			



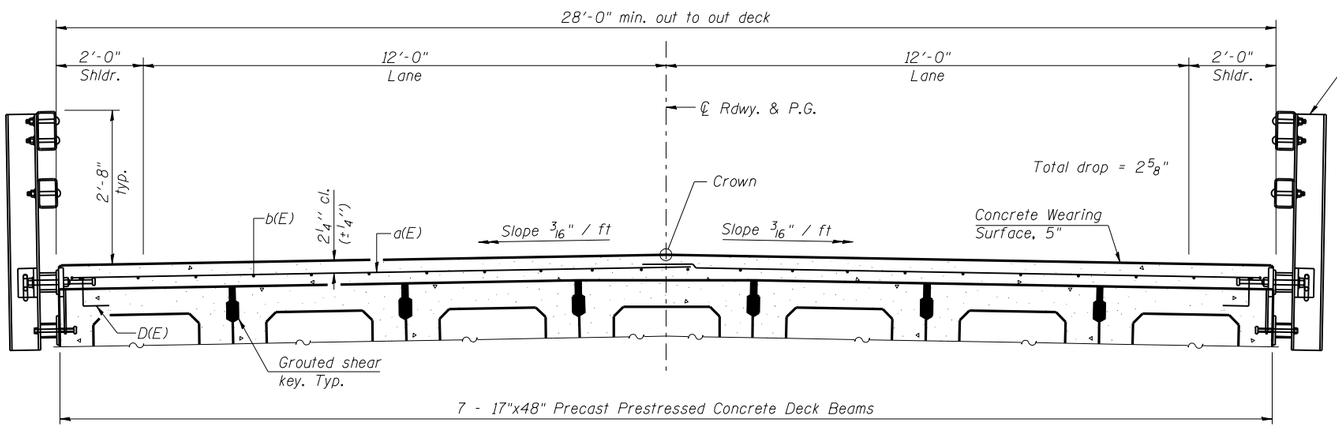
PLAN



SECTION B-B

(Dimensions are at Rt. L's)

*1" Jt. shall be filled with non-shrink grout. 1" dimension may vary to accommodate tolerance in beam lengths.

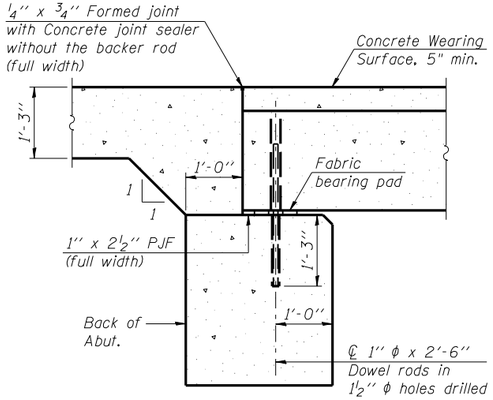


CROSS SECTION

(Looking East)

MINIMUM BAR LAP

#4 bar = 2'-7"



SECTION A-A

(Dimensions are at Rt. L's)

Notes:

See sheet 6 of 16 for Superstructure Details and Bill of Material.

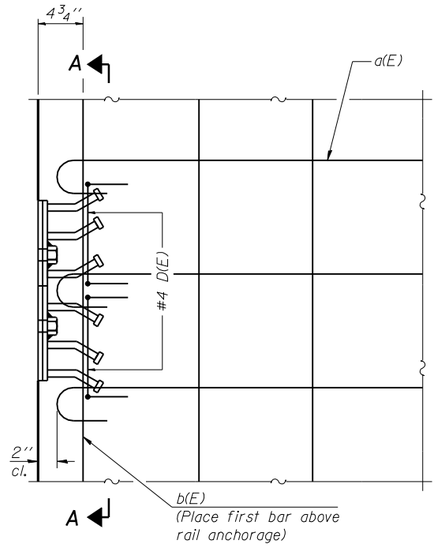
Bars indicated thus 28 x 4 - #4 etc. indicates 28 lines of bars with 4 lengths per line.

Spacing of a(E) bars shall be measured along the ℄ of structure.

All concrete wearing surfaces shall be placed prior to casting approach slab.

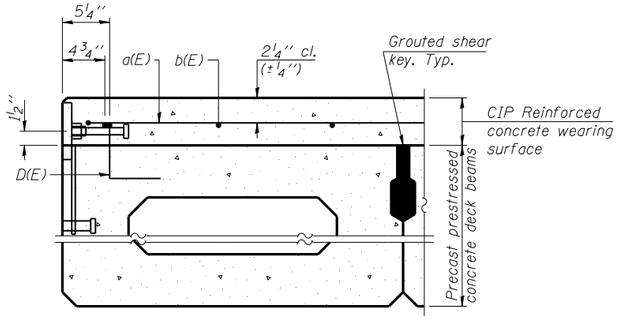
See sheet 11 of 16 for fabric bearing pad details.

See sheet 7 of 16 for details of Steel Railing, Type SM.

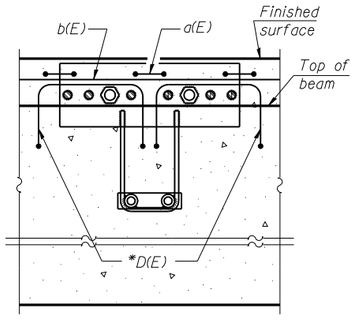


PLAN

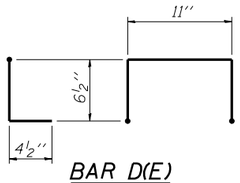
Notes:
Formwork necessary for the wearing surface may be secured utilizing the bottom rail anchorage inserts and/or additional inserts cast into the beam.



SECTION THRU FASCIA BEAM

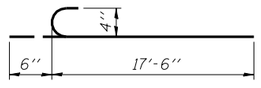


SECTION A-A

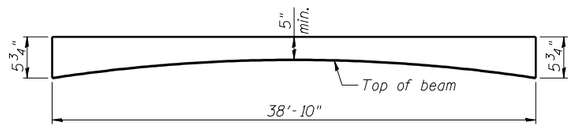


BAR D(E)

* Place 2-#4 D(E) bars in beam at each post location as shown. D(E) bar included in cost of beam.



BAR a(E)

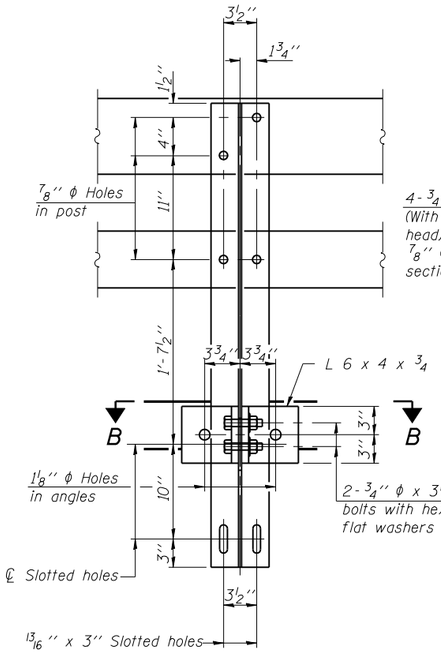


**ANTICIPATED CONCRETE WEARING SURFACE PROFILE
(For information only)

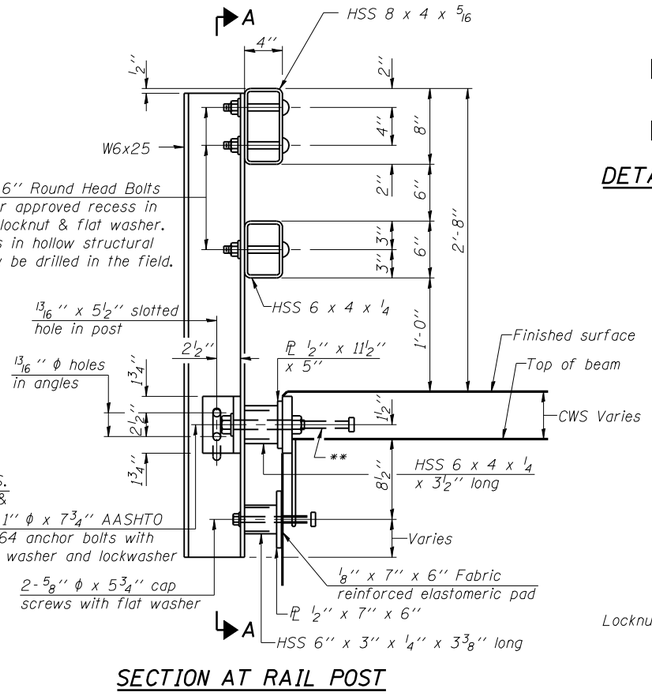
**Add 3/8" over center beam at ℄ roadway.

SUPERSTRUCTURE BILL OF MATERIAL

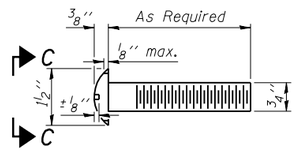
Bar	No.	Size	Length	Shape
a(E)	234	#4	18'-0"	⊂——⊃
b(E)	112	#4	31'-1"	——
Reinforcement Bars, Epoxy Coated			Pound	5140
Concrete Wearing Surface, 5''			Sq. Yd.	363
Bridge Deck Grooving			Sq. Yd.	363
Protective Coat			Sq. Yd.	374



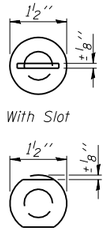
SECTION A-A



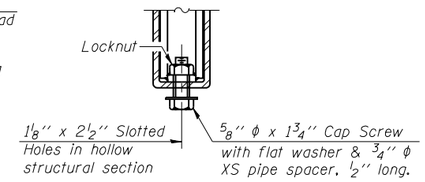
SECTION AT RAIL POST



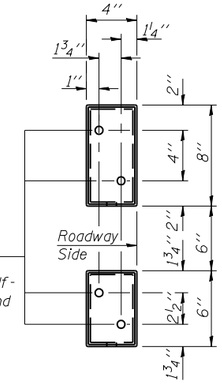
DETAIL OF ¾'' ϕ ROUND HEAD BOLT



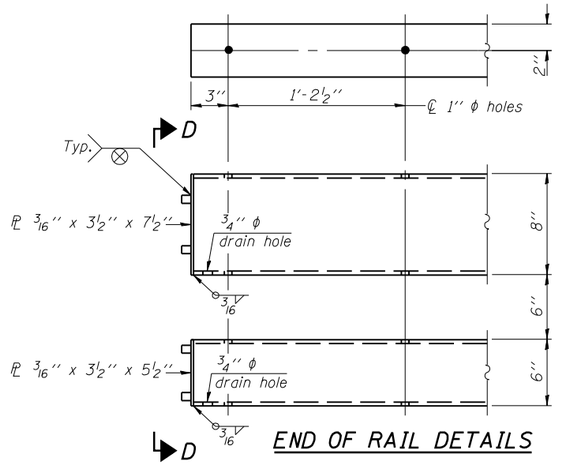
VIEW C-C



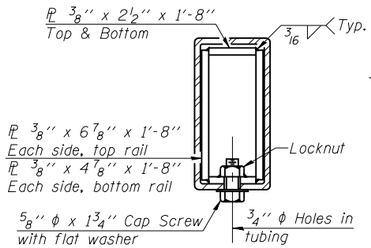
RAIL SPLICE CONNECTION AT EXPANSION JT.



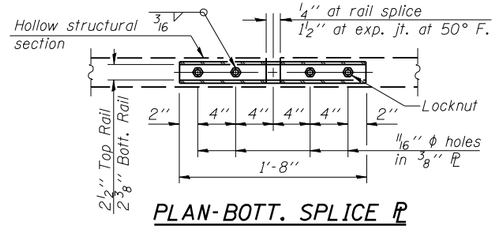
VIEW D-D



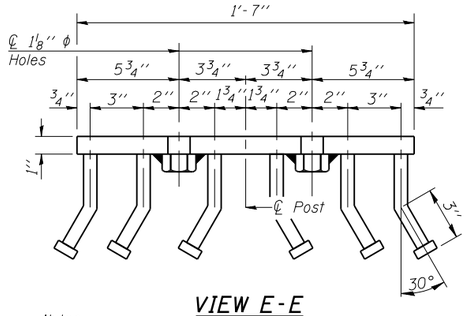
END OF RAIL DETAILS



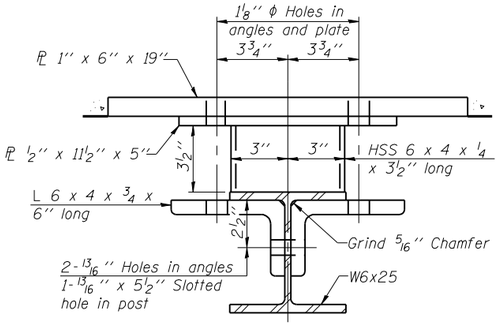
SECTION AT RAIL SPLICE



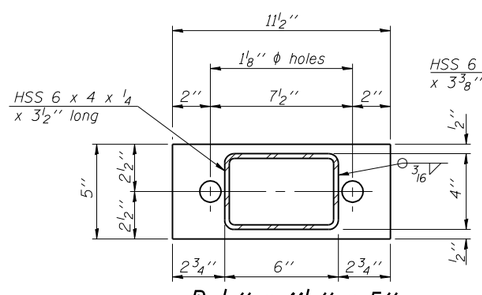
PLAN-BOTT. SPLICE PL TYPICAL



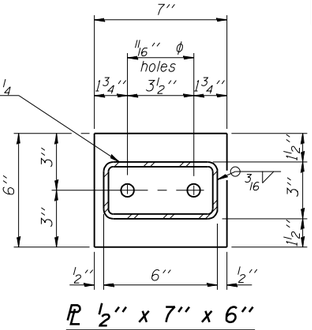
VIEW E-E



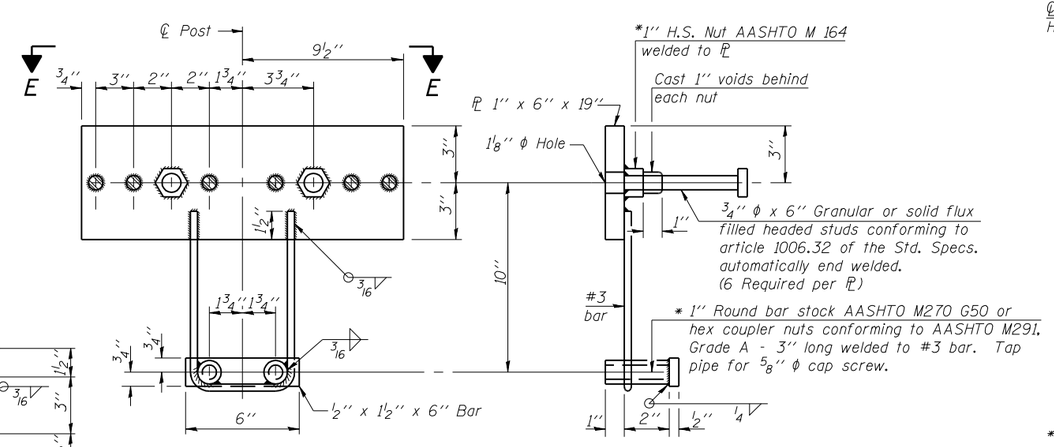
SECTION B-B



PL ½'' x 11½'' x 5''



PL ½'' x 7'' x 6''



ANCHOR DEVICE

*Threaded areas shall be plugged or blocked off during casting of beam. Galvanized after fabrication.

Notes:

All field drilled holes shall be coated with an approved zinc rich paint before erection.

For multi-span bridges, sufficient ¼'' x 6'' x 1'-2'' galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.

Steel rail elements 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.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type SM	Foot	294

R-34CWS 7-1-10 (6'-3'' Maximum Post Spacing) (5'' minimum to 7⅛'' maximum CWS thickness)

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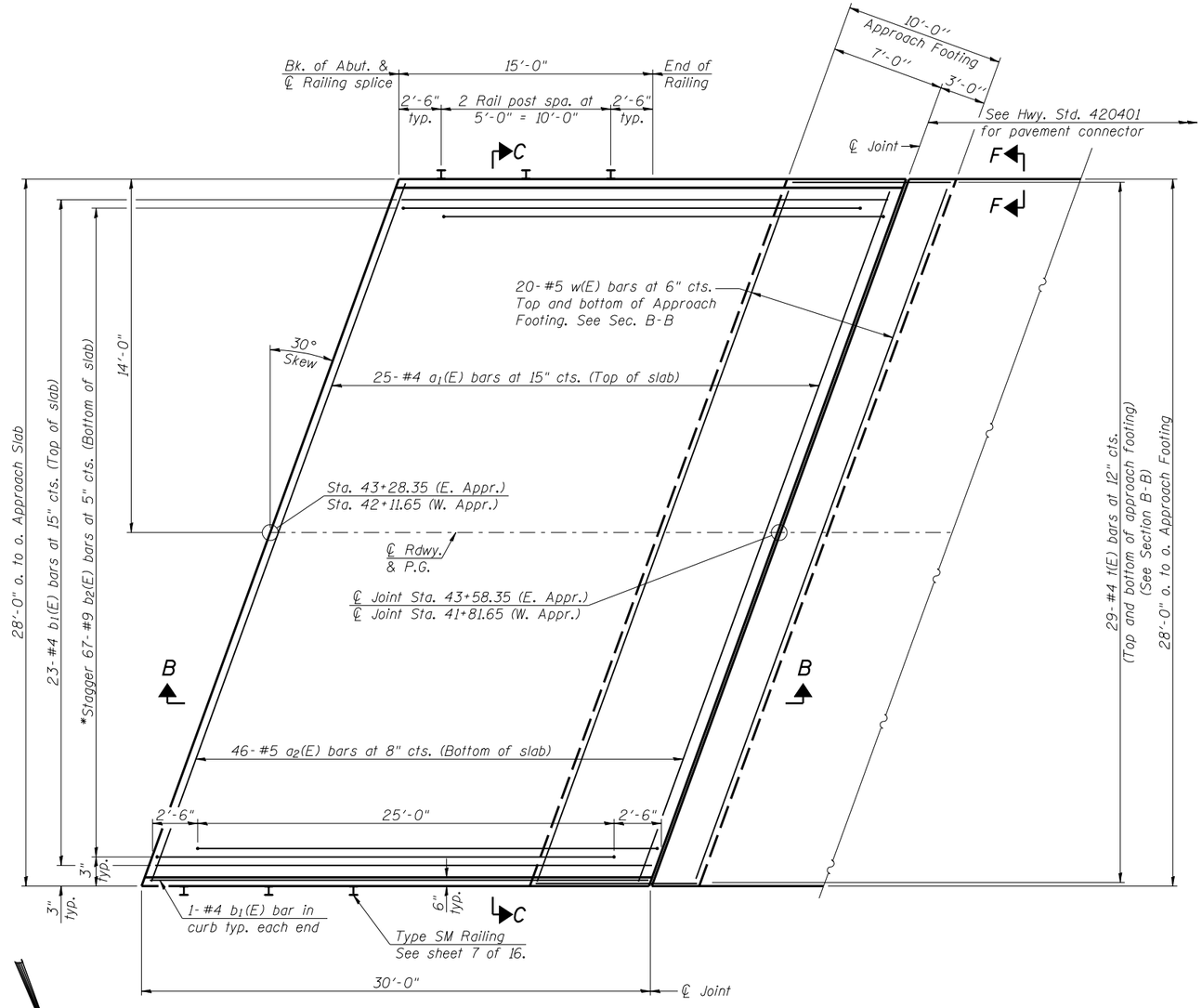
PLOT DATE =	CHECKED - MTH	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL RAILING, TYPE SM WITH CONCRETE WEARING SURFACE
STRUCTURE NO. 011-3362
SHEET NO. 7 OF 16 SHEETS

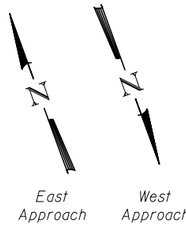
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	241
		CONTRACT NO. 72961		
	ILLINOIS FED. AID PROJECT			

Notes:
See sheet 9 of 16 for Sections B-B & C-C.
See sheet 7 of 16 for Railing and Railing Connection details.
Anchor assembly in approach slab is included with the cost of Steel Railing, Type SM.
a_1(E) and a_2(E) bar spacings measured along ℄ Rdwy.

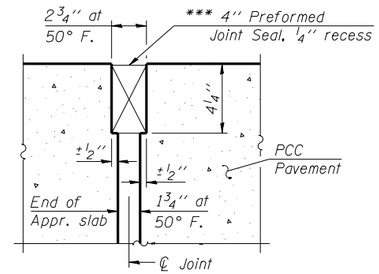


PLAN

* Tilt #9 b_2(E) bars as required to maintain clearance.

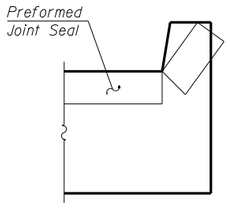


*** Cost included with Concrete Superstructure.



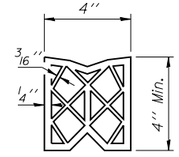
RIGID PAVEMENT

DETAIL A



VIEW F-F

Angle Preformed Joint Seal at 45° at curbs when req'd for drainage.



PREFORMED JOINT SEAL

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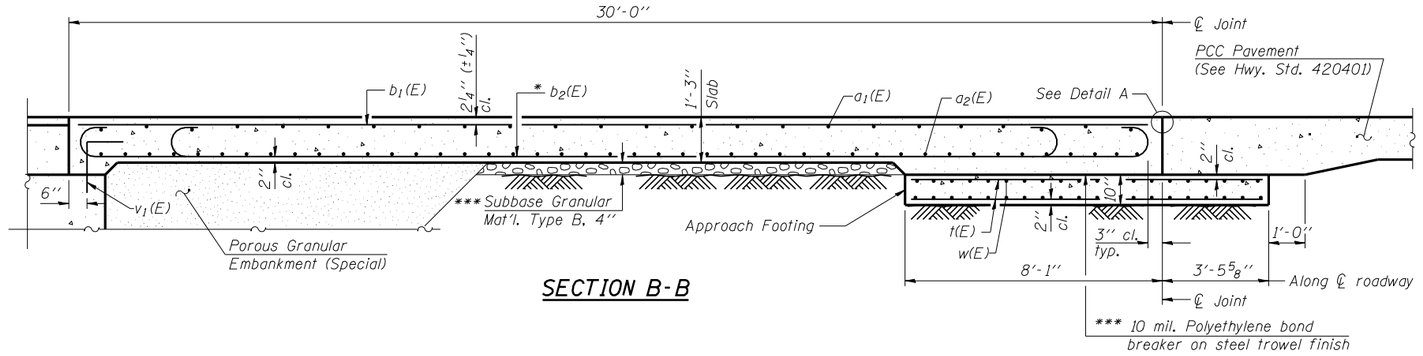
	PLOT DATE =	CHECKED - MTH	REVISED -

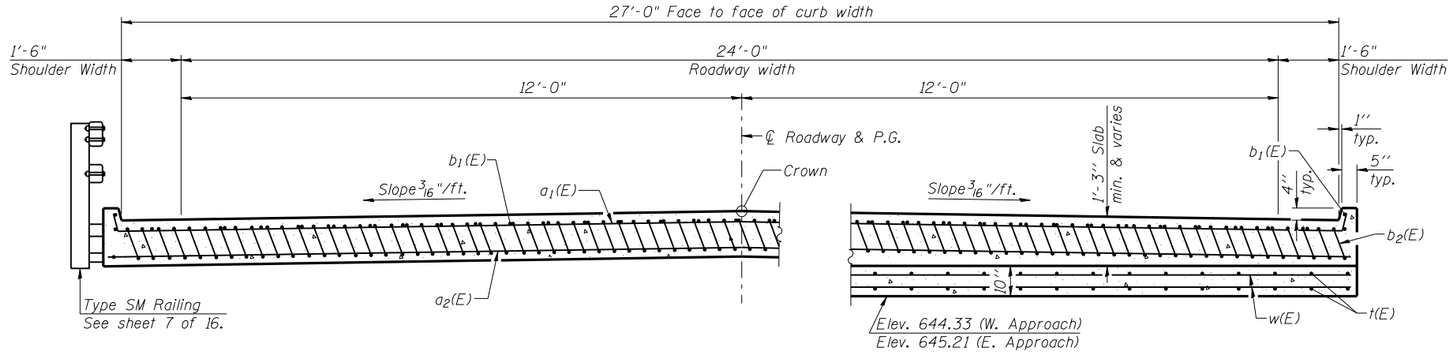
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 011-3362
SHEET NO. 8 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	242
		CONTRACT NO. 72961		
	ILLINOIS FED. AID PROJECT			



SECTION B-B



NEAR ABUTMENT

SECTION C-C

(See Plan for dimensions not shown)

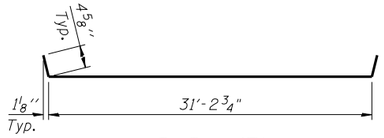
AT APPROACH FOOTING

Notes:

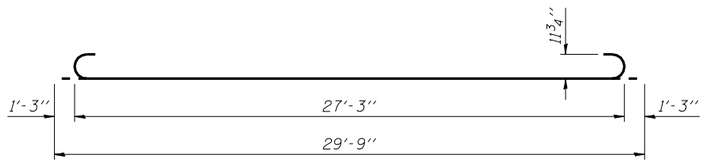
See sheet 8 of 16 for Detail A.
Approach slab shall be paid for as Concrete Superstructure.
Approach footing concrete shall be paid for as Concrete Structures.
Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
For $v_1(E)$ bar details, see sheet 12 of 16.
The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
Cost of excavation for approach footing included with Concrete Structures.
For Porous Granular Embankment (Special) and drainage treatment details, see sheet 2 of 16.

* Tilt #9 $b_2(E)$ bars as required to maintain clearance.

*** Cost included with Concrete Superstructure.



BAR $a_1(E)$



BAR $b_2(E)$

TWO APPROACHES BILL OF MATERIAL

Bar	No.	Size	Length	Shape
$a_1(E)$	50	#4	32'-0"	
$a_2(E)$	92	#5	32'-0"	
$b_1(E)$	50	#4	29'-8"	
$b_2(E)$	134	#9	29'-9"	
t(E)	116	#4	11'-2"	
w(E)	80	#5	32'-0"	
Concrete Superstructure		Cu. Yd.	85.7	
Concrete Structures		Cu. Yd.	20.0	
Reinforcement Bars, Epoxy Coated		Pound	22220	
Bridge Deck Grooving		Sq. Yd.	181	
Protective Coat		Sq. Yd.	191	

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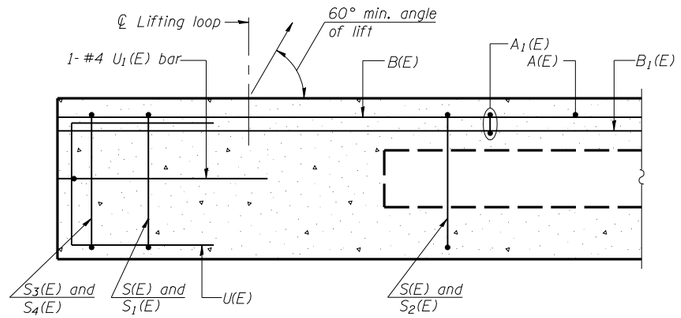
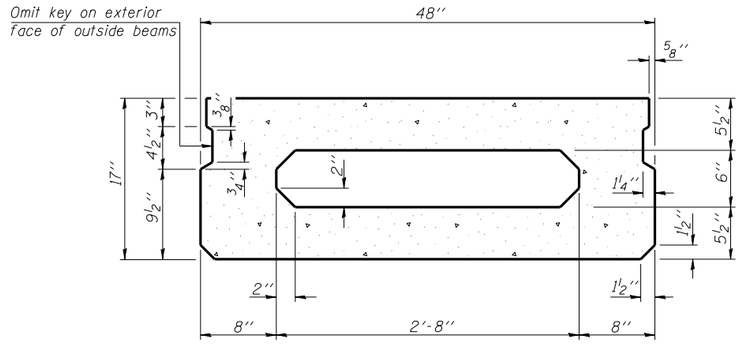
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 011-3362
SHEET NO. 9 OF 16 SHEETS

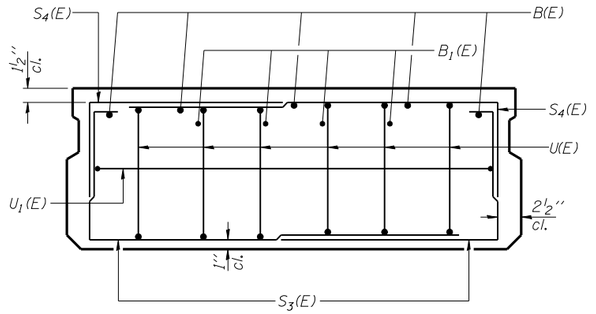
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	243
		CONTRACT NO. 72961		
	ILLINOIS FED. AID PROJECT			



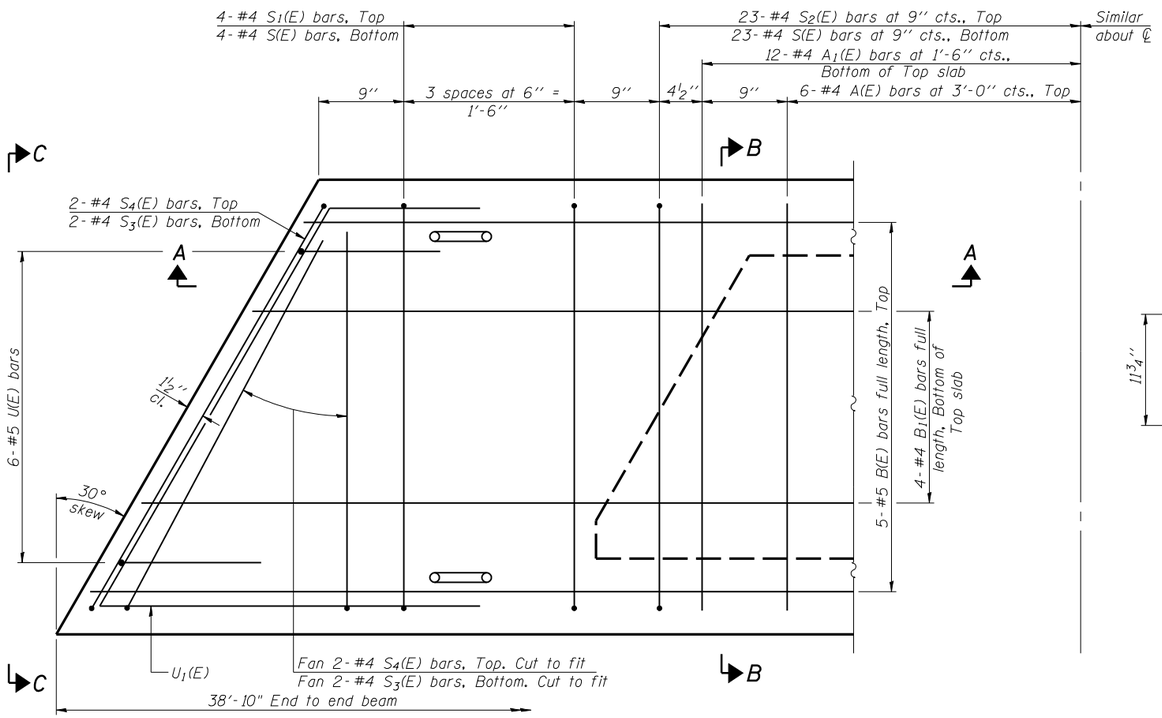
SECTION A-A



SECTION B-B
(Showing dimensions)

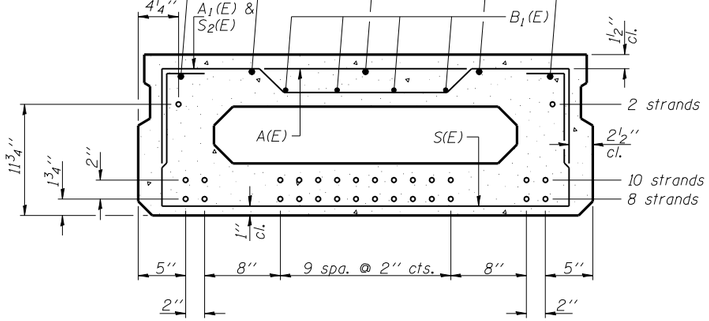


VIEW C-C



PLAN VIEW

Note: Spacing of S(E) and $S_2(E)$ bars may be adjusted up to 4'' in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.



SECTION B-B
(Showing reinforcement and permissible strand locations)

Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

MINIMUM BAR LAP
#4 bar = 2'-0''
#5 bar = 2'-6''

BAR LIST
ONE BEAM ONLY
(For information only)

	Bar	No.	Size	Length	Shape
	A(E)	12	#4	3'-7"	—
	$A_1(E)$	24	#4	3'-10"	⌒
	B(E)	5	#5	38'-7"	—
	$B_1(E)$	4	#4	38'-7"	—
*	D(E)	42	#4	2'-9"	⊓
	S(E)	54	#4	6'-9"	⊔
	$S_1(E)$	8	#4	5'-3'	⊏⊐
	$S_2(E)$	46	#4	5'-6"	⊐⊐
	$S_3(E)$	8	#4	4'-10"	⌋
	$S_4(E)$	8	#4	4'-1"	⌊
	U(E)	12	#5	3'-8"	⊏
	$U_1(E)$	2	#4	8'-7"	⊏

Note: See sheet 11 of 16 for additional details and Bill of Material.

*Required for exterior beams only. See sheet 6 of 16 for details.

PD-1748-L 7-1-10

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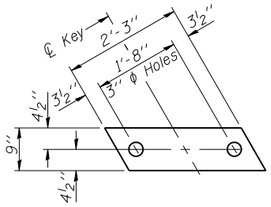
PLOT DATE =	CHECKED - MTH	REVISED -	

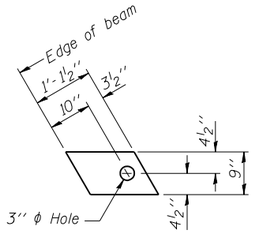
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

17" x 48" PPC DECK BEAM
STRUCTURE NO. 011-3362
SHEET NO. 10 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	244
		CONTRACT NO. 72961		
	ILLINOIS FED. AID PROJECT			

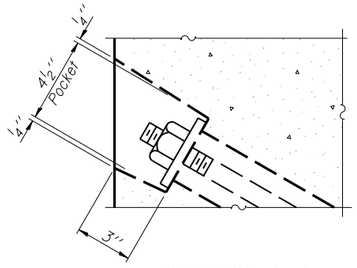


FABRIC BEARING PAD
(Interior)



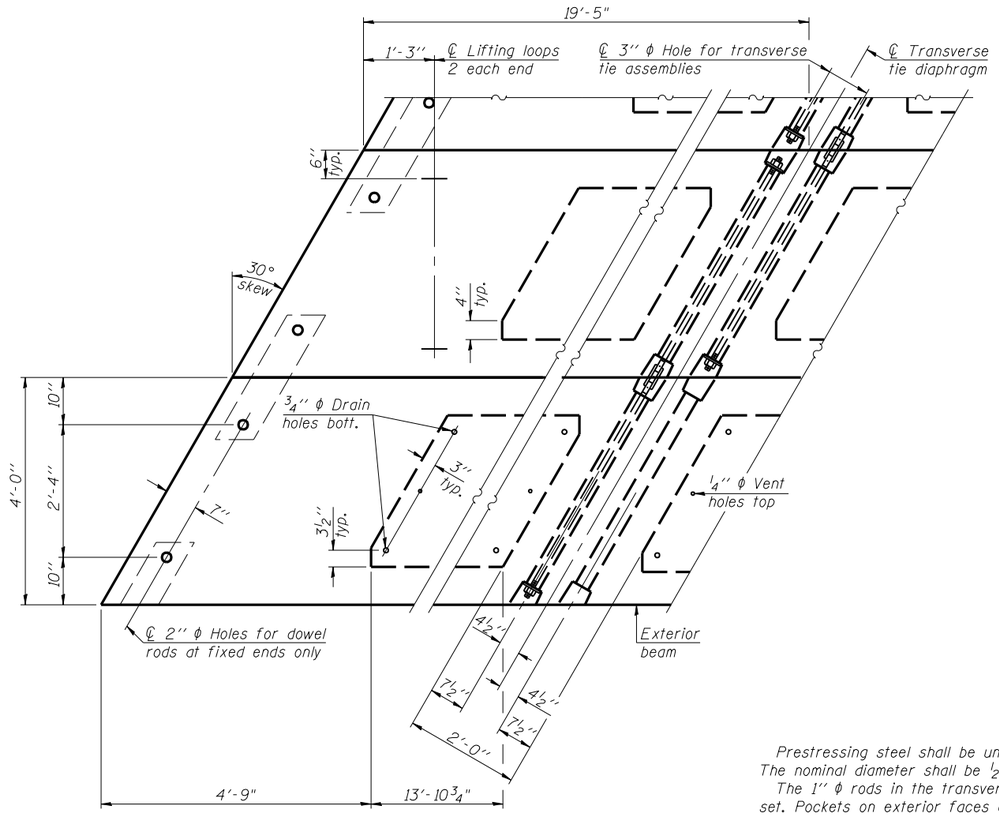
FABRIC BEARING PAD
(Exterior)

FIXED



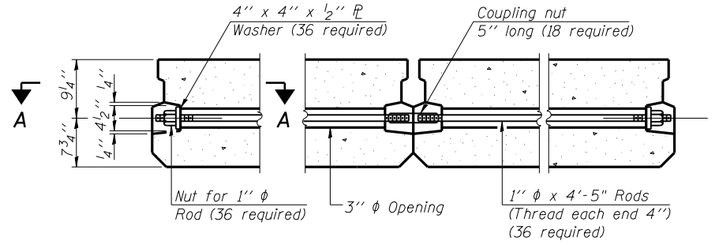
SECTION A-A

Note:
All bearing pads shall be 1" thick.

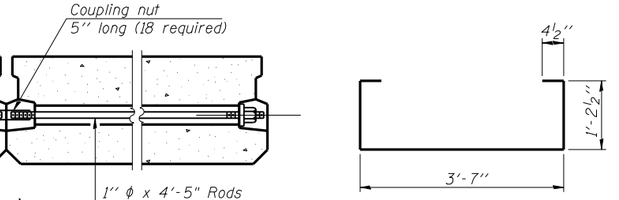


PLAN VIEW

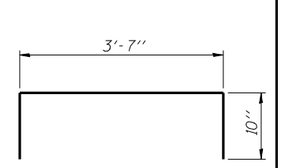
Note: Connect beams in pairs with the
transverse tie configuration shown.



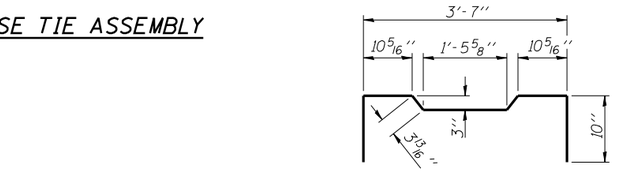
TYPICAL TRANSVERSE TIE ASSEMBLY



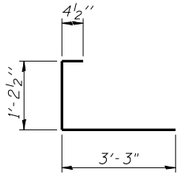
BAR S(E)



BAR S_1(E)

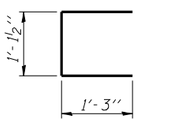


BAR S_2(E)

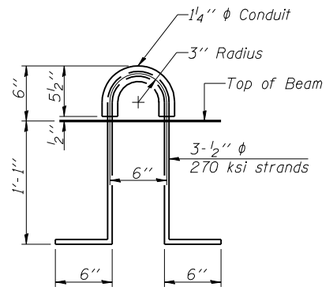


BAR S_3(E)

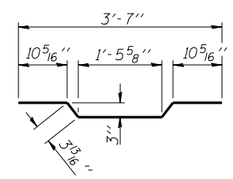
BAR S_4(E)



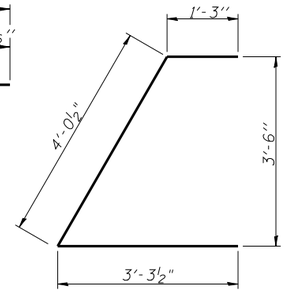
BAR U(E)



LIFTING LOOP DETAIL



BAR A_1(E)



BAR U_1(E)

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in.

The 1" ϕ rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.

Two ⅛" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2½" ϕ lifting pin shall be used to engage the lifting loops during handling.

Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

Compressive strength of prestressed concrete, f'c, shall be 6000 psi.

Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

See sheet 6 of 16 for Rail Anchor details.

See sheet 2 of 16 for location of Rail Anchors.

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (17" depth)	Sq. Ft.	3262

PD-1748-LD 7-1-10

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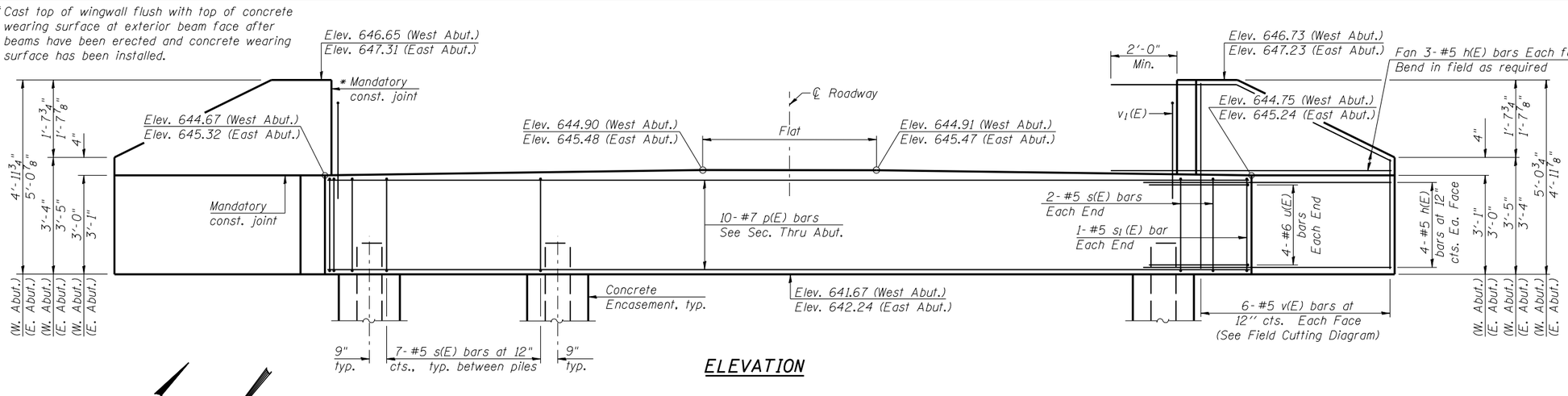
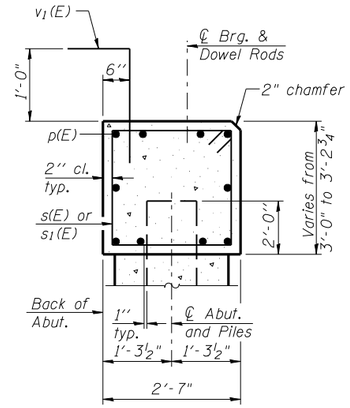
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

17" x 48" PPC DECK BEAM DETAILS
STRUCTURE NO. 011-3362
SHEET NO. 11 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	245
		CONTRACT NO. 72961		
	ILLINOIS FED. AID PROJECT			

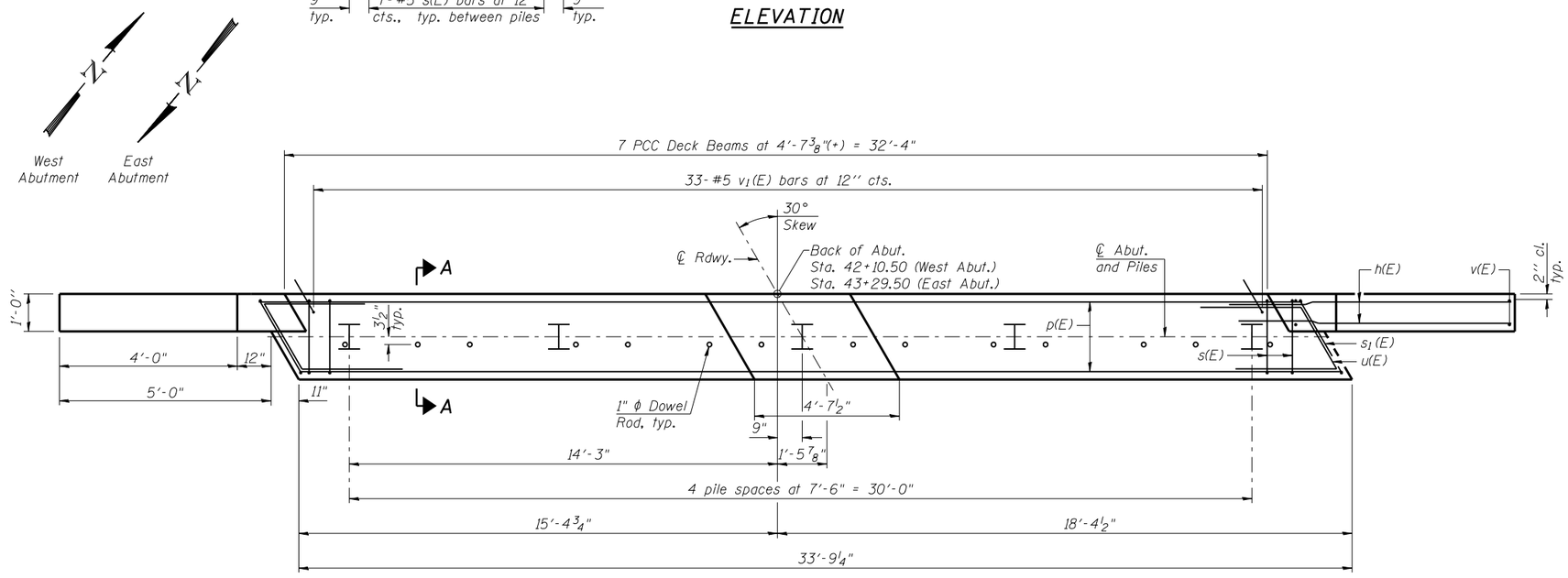


ELEVATION



SECTION A-A

(Dimensions are at Rt. L's)



PLAN

BILL OF MATERIAL

(Both Abutments)

Bar	No.	Size	Length	Shape
h(E)	56	#5	7'-0"	
p(E)	20	#7	33'-6"	
s(E)	64	#5	10'-9"	
s1(E)	4	#5	11'-5"	
u(E)	16	#6	7'-6"	
v(E)	24	#5	7'-10"	
v1(E)	66	#5	3'-6"	
Structure Excavation		Cu. Yd.	40	
Concrete Structures		Cu. Yd.	23.6	
Reinforcement Bars, Epoxy Coated		Pound	3170	
Furnishing Steel Piles HP 12x53		Foot	546	
Driving Piles		Foot	546	
Test Pile, Steel HP 12x53		Each	1	
Pile Shoes		Each	10	
Concrete Encasement		Cu. Yd.	3.5	

For details of piles and Concrete Encasement, see sheet 14 of 16.

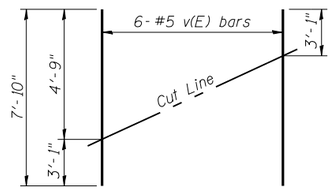
Space reinforcement in cap to miss dowel rods.

W. ABUT. PILE DATA

Type: HP 12x53 w/Pile Shoes
Nominal Required Bearing: 336 kips
Factored Resistance Available: 185 kips
Est. Length: 62 Ft.
No. Production Piles: 5
No. Test Piles: 0

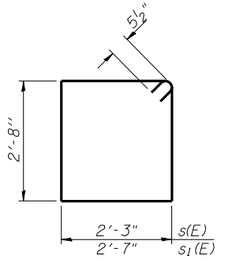
E. ABUT. PILE DATA

Type: HP 12x53 w/Pile Shoes
Nominal Required Bearing: 366 kips
Factored Resistance Available: 201 kips
Est. Length: 59 Ft.
No. Production Piles: 4
No. Test Piles: 1

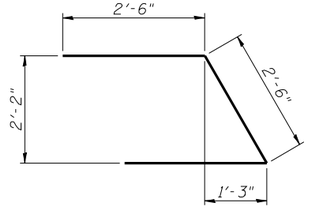


FIELD CUTTING DIAGRAM

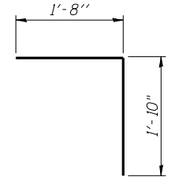
Order v(E) full length. Cut as shown and use remainder of bars in opposite face.



BARS s(E) & s1(E)



BAR u(E)



BAR v1(E)

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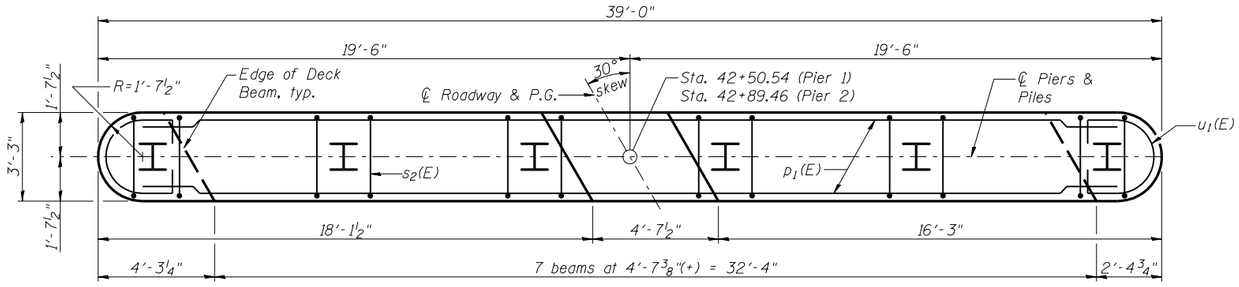
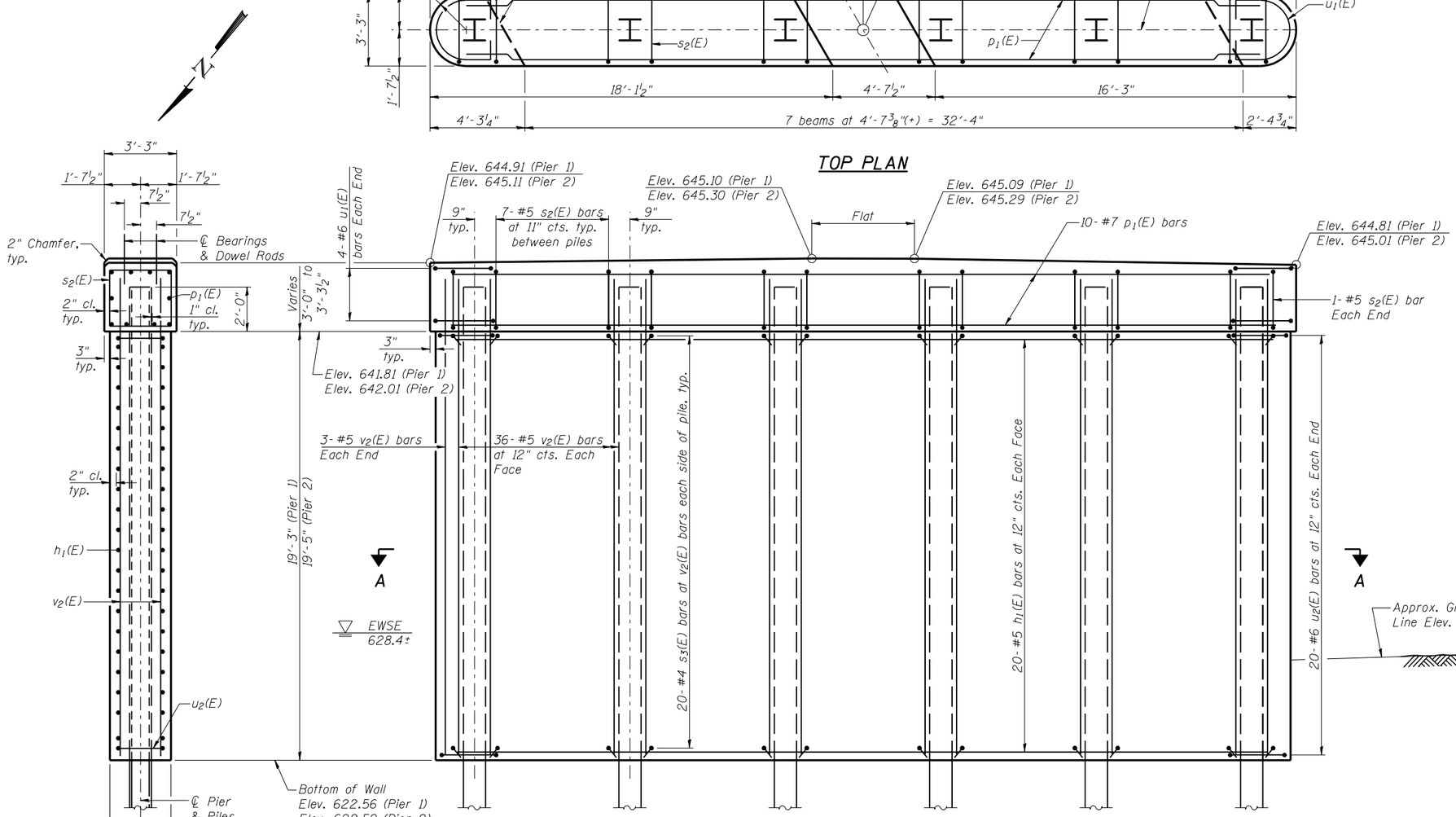
ABUTMENTS
STRUCTURE NO. 011-3362
SHEET NO. 12 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	246
		CONTRACT NO. 72961		
		ILLINOIS FED. AID PROJECT		

Notes:
Space reinforcement in cap to miss Dowel Rods.
See sheet 11 of 16 for layout of Dowel Rods.
For details of piles, see sheet 14 of 16.

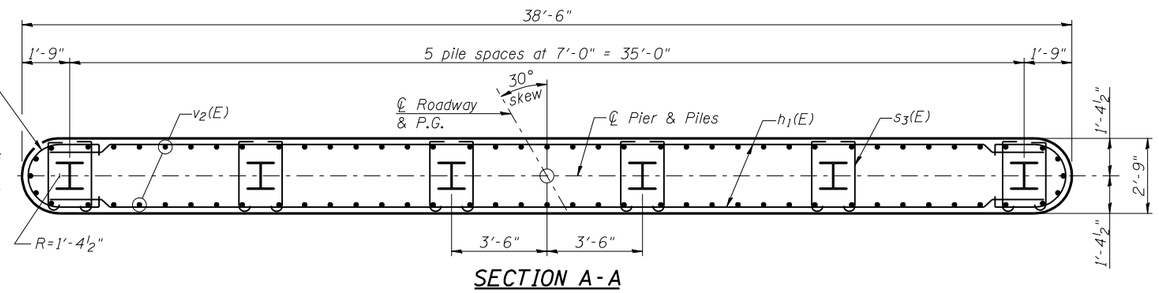


TOP PLAN

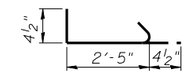


ELEVATION
(Looking East)

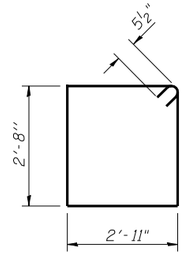
END VIEW



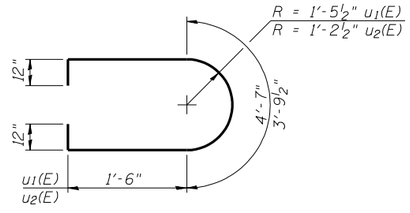
SECTION A-A



BAR $s_3(E)$



BAR $s_2(E)$



BARS $u_1(E)$ & $u_2(E)$

BILL OF MATERIAL
(Two Piers)

Bar	No.	Size	Length	Shape
$h_1(E)$	80	#5	35'-9"	——
$p_1(E)$	20	#7	35'-9"	——
$s_2(E)$	74	#5	12'-1"	⊏
$s_3(E)$	480	#4	3'-2"	⊏
$u_1(E)$	16	#6	9'-7"	⊐
$u_2(E)$	80	#6	8'-10"	⊐
$v_2(E)$	156	#5	22'-0"	——
Cofferdam Excavation		Cu. Yd.	72	
Concrete Structures		Cu. Yd.	178.6	
Reinforcement Bars, Epoxy Coated		Pound	11270	
Furnishing Steel Piles, HP 12x53		Foot	691	
Driving Piles		Foot	691	
Test Pile Steel HP 12x53		Each	1	
Pile Shoes		Each	12	
Cofferdam (Type I) (Location-1)		Each	1	
Cofferdam (Type I) (Location-2)		Each	1	

PIER 1 PILE DATA
Type: Steel HP 12x53 w/Pile Shoes
Nominal Required Bearing: 387k
Factored Resistance Available: 213k
Est. Length: 65 Ft
No. Production Piles: 5
No. Test Piles: 1

PIER 2 PILE DATA
Type: Steel HP 12x53 w/Pile Shoes
Nominal Required Bearing: 365k
Factored Resistance Available: 201k
Est. Length: 61 Ft
No. Production Piles: 6
No. Test Piles: 0

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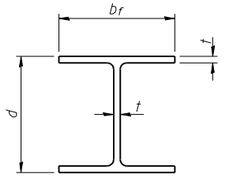
DEPARTMENT OF TRANSPORTATION

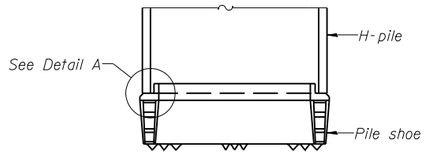
PIER DETAILS
STRUCTURE NO. 011-3362
SHEET NO. 13 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	247
		CONTRACT NO. 72961		
	ILLINOIS FED. AID PROJECT			

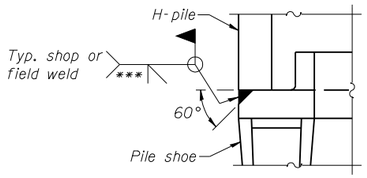


STEEL PILE TABLE

Designation	Depth d	Flange width b_f	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	11/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	11/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 1/8"	7/16"	18"

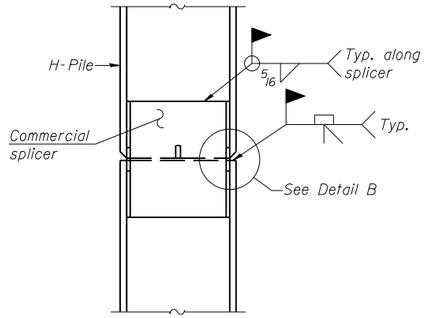


ELEVATION

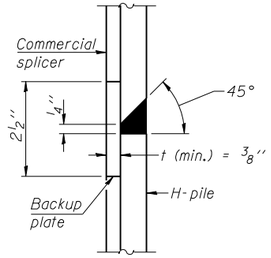


DETAIL A

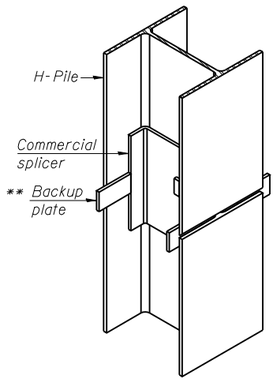
H-PILE SHOE ATTACHMENT



ELEVATION

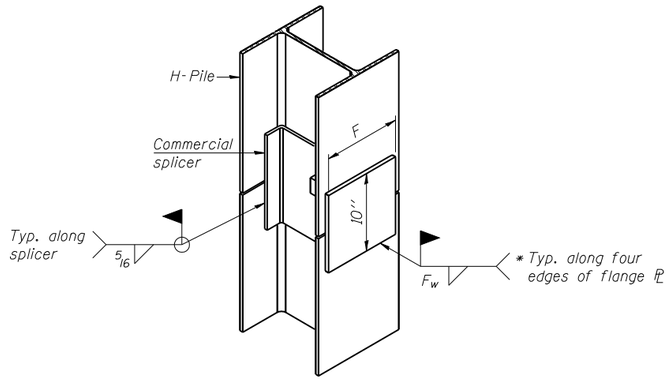


DETAIL "B"



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



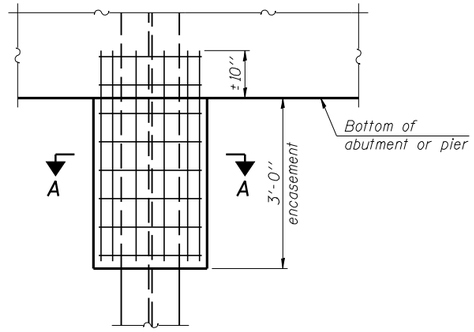
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

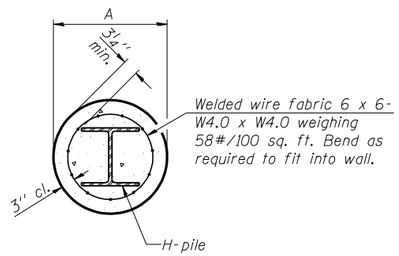
* Interrupt welds 1/4" from end of web and/or each flange.

** Remove portions of backup plates that extend outside the flanges.

*** Weld size per pile shoe manufacturer (5/16" min.).



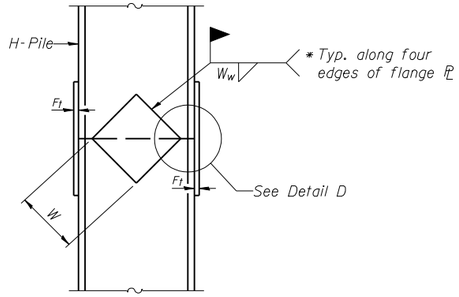
ELEVATION



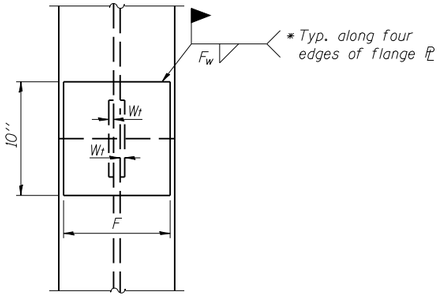
Note:
Forms for encasement may be omitted when soil conditions permit.

SECTION A-A

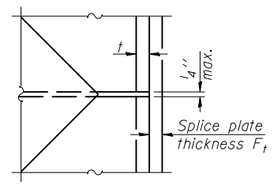
PILE ENCASEMENT



ELEVATION



END VIEW



DETAIL D

Designation	F	F_t	F_w	W	W_t	W_w
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	11/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

WELDED PLATE FIELD SPLICE

Note:
The steel H-piles shall be according to AASHTO M270 Grade 50.

F-HP 7-1-10

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DEPARTMENT OF TRANSPORTATION

HP PILE DETAILS
STRUCTURE NO. 011-3362
SHEET NO. 14 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	248
		CONTRACT NO. 72961		
		ILLINOIS FED. AID PROJECT		

Illinois Department of Transportation
Division of Highways
IDOT District 6

SOIL BORING LOG

Date 7/30/03

ROUTE TR 255 DESCRIPTION over Main Drainage Ditch LOGGED BY M. Tappan

SECTION 11-10 LOCATION NE 1/4, SEC. 26, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140 # Auto

STRUCT. NO. 011-3362 Pr
Station 42+70 +/-

BORING NO. 1 W. Abut
Station 42+25
Offset 5.00ft Rt
Ground Surface Elev. 636.8 ft

Surface Water Elev. 626.3 ft
Stream Bed Elev. 626.0 ft

Groundwater Elev.:
First Encounter 620.3 ft
Upon Completion Washed ft
After 48 Hrs. 629.8 ft

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
Grey Moist SILTY CLAY LOAM			
	1		
-5	2 3	0.8 B	23
	1		
w/ Thin Medium Grained SAND Seam	1 1	0.5 B	26
628.80			
Brown and Dark Grey Moist LOAM	1		
626.80 -10	2 2	0.7 B	30
Grey V. Moist CLAY LOAM (Till)	0		
	2 3	0.5 B	11
623.80			
Grey Medium to Coarse Grained SAND w/ Some 1/4" Gravel	0		
Free Water -15	0 2		
620.80			
Grey Moist CLAY LOAM (Till)	1		
Washed	2 6	1.5 B	11
618.80			
Grey Medium Grained SAND	4		
Washed -20	7 12		

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
Grey Medium Grained SAND (continued)			
	4		
Washed	7 9		
	3		
Washed -25	5 9		
	3		
Washed -30	5 8		
603.80			
Grey Moist CLAY LOAM (Till)	2		
Washed -35	9 15	5.6 S-13	8
	2		
Washed -40	5 10	4.1 B	10

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

Date 7/30/03

ROUTE TR 255 DESCRIPTION over Main Drainage Ditch LOGGED BY M. Tappan

SECTION 11-10 LOCATION NE 1/4, SEC. 26, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140 # Auto

STRUCT. NO. 011-3362 Pr
Station 42+70 +/-

BORING NO. 1 W. Abut
Station 42+25
Offset 5.00ft Rt
Ground Surface Elev. 636.8 ft

Surface Water Elev. 626.3 ft
Stream Bed Elev. 626.0 ft

Groundwater Elev.:
First Encounter 620.3 ft
Upon Completion Washed ft
After 48 Hrs. 629.8 ft

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
Grey Moist CLAY LOAM (Till) (continued)			
	1		
Washed -45	4 6	2.4 B	11
	1		
Washed -50	3 4	2.0 B	10
583.80			
Grey Medium to Coarse Grained SAND w/ Some 1/4" Gravel	15		
Washed -55	19 29		
Grey Medium Grained SANDY GRAVEL 577.80	13		
Washed -60	41 59		

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
Grey Well Indurated Crystalline LIMESTONE	/6"		
Washed (continued) 575.80	100		
Auger Refusal - Boring Completed	/3"		
-65			
-70			
-75			
-80			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
IDOT District 6

SOIL BORING LOG

Date 7/29/03

ROUTE TR 255 DESCRIPTION over Main Drainage Ditch LOGGED BY M. Tappan

SECTION 11-10 LOCATION NE 1/4, SEC. 26, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140 # Auto

STRUCT. NO. 011-3362 Pr
Station 42+70 +/-

BORING NO. 2 E. Pier
Station 43+10
Offset 5.00ft Lt
Ground Surface Elev. 635.3 ft

Surface Water Elev. 626.3 ft
Stream Bed Elev. 626.0 ft

Groundwater Elev.:
First Encounter 621.3 ft
Upon Completion Washed ft
After 72 Hrs. 630.3 ft

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
Dark Grey Moist SILTY CLAY			
	1		
-5	2 2	0.8 B	18
	2		
Brown and Grey	2 3	1.2 B	18
627.30			
Brown and Grey Moist LOAM	1		
-10	2 2	0.7 B	17
623.80	1		
Grey Medium Grained Dirty SAND	2		
622.30	2		
Grey V. Moist SILT	0		
Free Water -15	2 3	0.5 B	21
	1		
Tannish Grey Moist Varved SILT	2 3	0.9 B	22
617.30			
Grey Medium to Coarse Grained SAND	0		
w/ Some 1/4" Gravel -20	0 2		

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
Grey Medium to Coarse Grained SAND (continued)			
	8		
Washed	12 13		
	3		
Washed -25	4 6		
609.30			
Grey Moist CLAY LOAM (Till)			
	3		
Washed -30	8 12	4.3 S-11	10
602.80			
Grey Medium to Coarse Grained SAND	1		
Washed -35	3 6		
597.80			
Grey Moist CLAY LOAM (Till)	12		
Washed -40	12 22	8.2 S-9	9

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME =		DESIGNED - MTH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SOIL BORINGS STRUCTURE NO. 011-3362
FILE NAME =		CHECKED - TBP	REVISED -		SHEET NO. 15 OF 16 SHEETS
PLOT SCALE =		DRAWN - AJF	REVISED -		
PLOT DATE =		CHECKED - MTH	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	249
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

Illinois Department of Transportation
Division of Highways
IDOT District 6

SOIL BORING LOG

Date 7/29/03

ROUTE TR 255 DESCRIPTION over Main Drainage Ditch LOGGED BY M. Tappan

SECTION 11-10 LOCATION NE 1/4, SEC. 26, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140 # Auto

STRUCT. NO. 011-3362 Pr
Station 42+70 +/-

BORING NO. 2 E. Pier
Station 43+10
Offset 5.00ft Lt
Ground Surface Elev. 635.3 ft

Surface Water Elev. 626.3 ft
Stream Bed Elev. 626.0 ft

Groundwater Elev.:
First Encounter 621.3 ft
Upon Completion Washed ft
After 72 Hrs. 630.3 ft

	DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
Grey Moist CLAY LOAM (Till) (continued)				
		5		
Washed		13	7.4	9
	-45	17	S-10	
		21		
Washed w/ 3" Seam of Medium Grained SAND		40	+10	10
	-50	60 /5"	S-10	
		17		
Washed		37	+10	10
	580.30 -55	63 /6"	S-8	
Boring Completed				
	-60			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
IDOT District 6

SOIL BORING LOG

Date 7/25/03

ROUTE TR 255 DESCRIPTION over Main Drainage Ditch LOGGED BY M. Tappan

SECTION 11-10 LOCATION NE 1/4, SEC. 26, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140 # Auto

STRUCT. NO. 011-3362 Pr
Station 42+70 +/-

BORING NO. 3 E. Abut
Station 43+40
Offset 10.00ft Rt
Ground Surface Elev. 633.5 ft

Surface Water Elev. 626.3 ft
Stream Bed Elev. 626.0 ft

Groundwater Elev.:
First Encounter 622.0 ft
Upon Completion Washed ft
After 168 Hrs. 623.5 ft

	DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
Brown and Grey Moist SILTY CLAY				
		1		
		3	1.5	16
	-5	5	B	
	628.00			
Brown and Grey Moist SILTY CLAY LOAM		1		
		2	1.4	17
		3	B	
	625.50			
Dark Grey Moist LOAM		2		
		2	0.7	17
	-10	2	B	
	623.00			
Tan and Light Grey V. Moist SILT		1		
Free Water		2	0.5	23
		2	B	
	619.50	1		
Tan Medium to Coarse SAND		3		
	-15	7		
		1		
w/ Some 1/4" Gravel		6		
		10		
Medium Grained SANDY GRAVEL w/ LS Cobble @ 19.5'-20'		13		
		12		
	-20	43		

	DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
Washed Tan Medium to Coarse SAND (continued)				
		2		
Grey Medium Grained SAND Washed		6		
		18		
		11		
Washed		12		
	-25	11		
	607.50			
Grey Moist CLAY LOAM (Till)				
		8		
Washed		15	5.2	8
	-30	13	B	
		2		
Washed		13	5.3	9
	-35	18	B	
		9		
Washed		18	7.8	10
	-40	31	S-10	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
IDOT District 6

SOIL BORING LOG

Date 7/25/03

ROUTE TR 255 DESCRIPTION over Main Drainage Ditch LOGGED BY M. Tappan

SECTION 11-10 LOCATION NE 1/4, SEC. 26, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140 # Auto

STRUCT. NO. 011-3362 Pr
Station 42+70 +/-

BORING NO. 3 E. Abut
Station 43+40
Offset 10.00ft Rt
Ground Surface Elev. 633.5 ft

Surface Water Elev. 626.3 ft
Stream Bed Elev. 626.0 ft

Groundwater Elev.:
First Encounter 622.0 ft
Upon Completion Washed ft
After 168 Hrs. 623.5 ft

	DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
Grey Moist CLAY LOAM (Till) (continued)				
	590.50			
Grey Medium Grained SAND Washed		9		
		18		
	-45	29		
	588.00			
Grey Moist CLAY LOAM (Till)				
		15		
Washed		24	9.0	11
	583.50 -50	35	S-8	
Boring Completed				
Refer STA, Elevation to Survey Crew Lath				
	-55			
	-60			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

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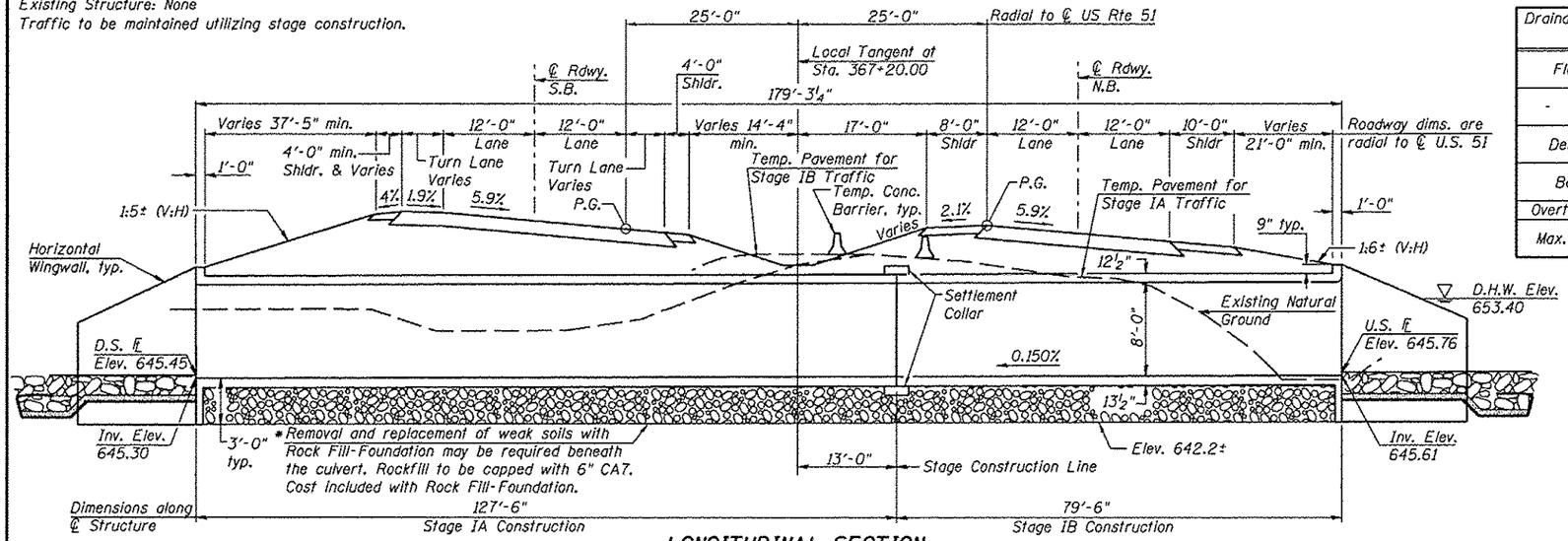
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORINGS
STRUCTURE NO. 011-3362
SHEET NO. 16 OF 16 SHEETS

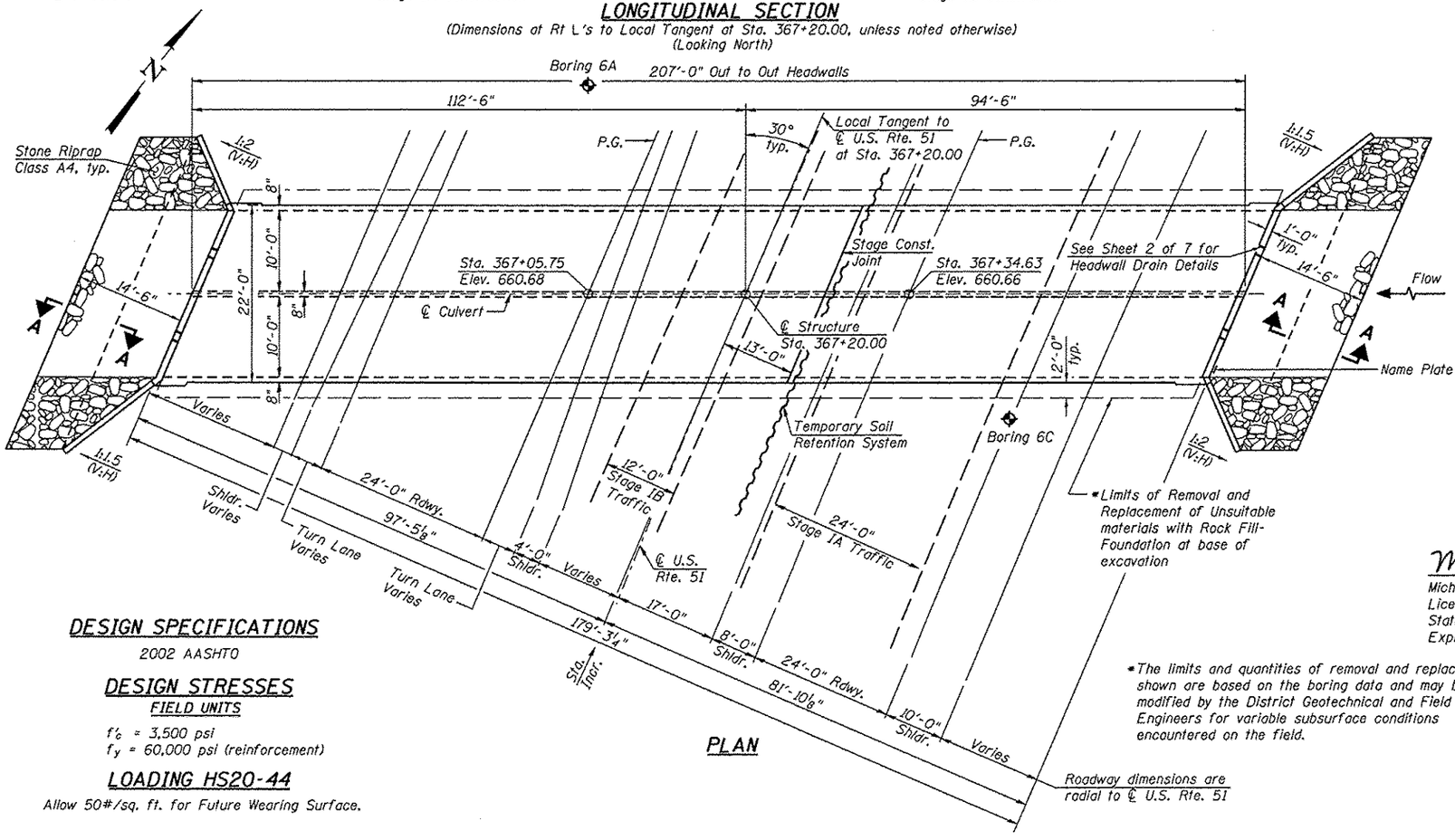
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	250
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

Benchmark: Chiseled square in west end of south wingwall of Existing S.N. 011-2008, Elev. 653.52.
Existing Structure: None
Traffic to be maintained utilizing stage construction.



LONGITUDINAL SECTION

(Dimensions at Rt L's to Local Tangent at Sta. 367+20.00, unless noted otherwise)
(Looking North)



PLAN

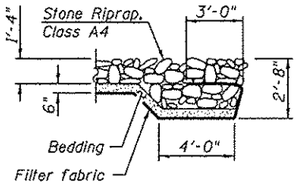
*The limits and quantities of removal and replacement shown are based on the boring data and may be modified by the District Geotechnical and Field Engineers for variable subsurface conditions encountered on the field.

WATERWAY INFORMATION

Drainage Area = 3.5 sq. mi. (SN 011-2504)
3.6 sq. mi. (SN 011-3413)
Exist. Low Grade Elev. 655.24 @ Sta. 1237+83
Prop. Low Grade Elev. 658.20 @ Sta. 367+00

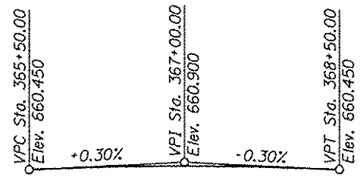
Flood	Freq. Yr.		Q (C.F.S.) Exist.	Q (C.F.S.) Prop.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E. Exist.	Nat. H.W.E. Prop.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
-	10	011-2504	490	460	150	130	652.41	652.31	0.1	0.4	652.53	652.71
		011-3413	40	490	40	150	652.30	652.13	0.1	0.3	652.43	652.45
Design	50	011-2504	770	730	160	150	653.41	653.40	0.5	1.1	653.90	654.45
		011-3413	60	780	40	160	653.27	653.23	0.2	0.8	653.50	654.05
Base	100	011-2504	900	850	160	160	653.65	653.65	0.7	1.4	654.32	655.03
		011-3413	70	900	40	160	653.49	653.45	0.3	1.0	653.78	654.49
Overtopping	-	-	-	-	-	-	-	-	-	-	-	-
Max. Calc.	500	011-2504	1200	1140	160	160	654.06	654.09	0.9	2.4	654.99	656.49
		011-3413	100	1210	40	160	653.83	653.81	0.3	1.6	654.17	655.39

10 year velocity through existing Structure = 3.22 fps
10 year velocity through proposed Structure = 3.39 fps (SN 011-2504), 3.23 fps (SN 011-3413)



SECTION A-A

INDEX OF SHEETS



PROPOSED PROFILE GRADE

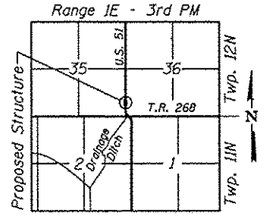
(Along U.S. Rte. 51)

PROPOSED CURVE DATA

PI Sta. = 366+64.75
Δ = 21° 21' 09" (RT)
D = 02° 36' 16"
R = 2,200.00'
T = 414.75'
L = 819.87'
E = 38.75'
P.C. Sta. = 362+50.01
P.T. Sta. = 370+69.88
Superelevation = 5.9%

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	D.S. Invert	U.S. Invert
	642.20	642.51



LOCATION SKETCH

DESIGN SPECIFICATIONS

2002 AASHTO

DESIGN STRESSES

FIELD UNITS

f'_c = 3,500 psi
f_y = 60,000 psi (reinforcement)

LOADING HS20-44

Allow 50#/sq. ft. for Future Wearing Surface.

LICENSED STRUCTURAL ENGINEER * MICHAEL T. HALEY 81-5991 CHATHAM * STATE OF ILLINOIS

Michael T. Haley 8-10-12
Michael T. Haley — Date
Licensed Structural Engineer
State of Illinois No. 81-5991
Expires 11/30/2012

APPROVED
For Structural Adequacy Only
Engineer of Bridges & Structures

GENERAL PLAN & ELEVATION
U.S. ROUTE 51
OVER DRAINAGE DITCH
F.A.P. RTE 322 SECTION 11-13
CHRISTIAN COUNTY
STA. 367+20.00
S.N. 011-2504

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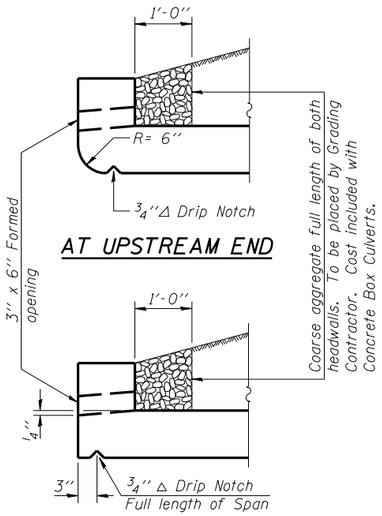
	PLOT SCALE =	DRAWN - AJF	REVISED -	
	PLOT DATE =	CHECKED - MTH	REVISED -	

GENERAL PLAN & ELEVATION
STRUCTURE NO. 011-2504
SHEET NO. 1 OF 7 SHEETS

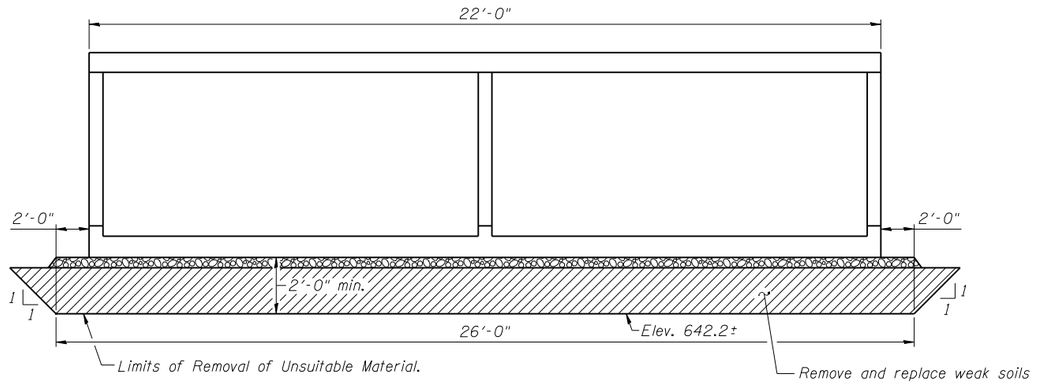
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	251
		CONTRACT NO. 72961		
		ILLINOIS FED. AID PROJECT		



AT UPSTREAM END

AT DOWNSTREAM END

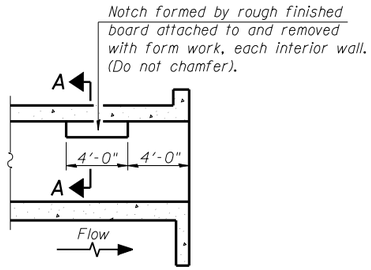
DRAIN DETAIL



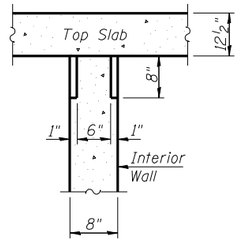
FILL DETAILS

(Dimensions at Rt. L's to ℄ Structure)

Note:
Backfill within the limits of the paved surface to the top of culvert elevation shall be performed according to the special provision for Granular Culvert Backfill.



LONGITUDINAL SECTION



SECTION A-A

PHOEBE NESTING SITE DETAILS

(Downstream End Only)

GENERAL NOTES

Layout of slope protection system may be varied to suit ground conditions in the field as directed by the Engineer. Precast alternate is not allowed.

STATION 367+20.00
BUILT 20 BY
STATE OF ILLINOIS
F.A.P. RT. 322 SEC. 11-13
LOADING HS20-44
STRUCTURE NO. 011-2504

NAME PLATE

See Std. 515001

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Stone Riprap, Class A4	Sq. Yd.	117
Filter Fabric	Sq. Yd.	117
Reinforcement Bars	Pound	91150
Name Plates	Each	1
Concrete Box Culverts	Cu. Yd.	523.7
Granular Culvert Backfill	Cu. Yd.	1537
Rock Fill-Foundation	Ton	739
Temporary Soil Retention System	Sq. Ft.	879

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Springfield, Illinois

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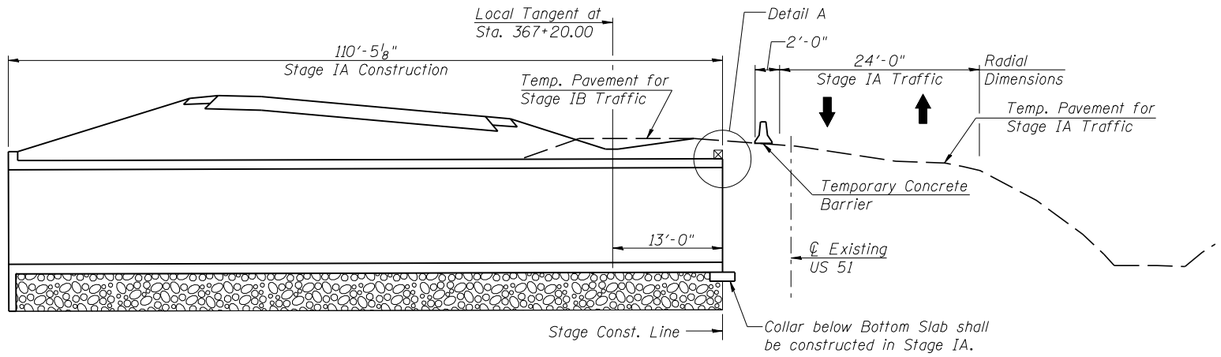
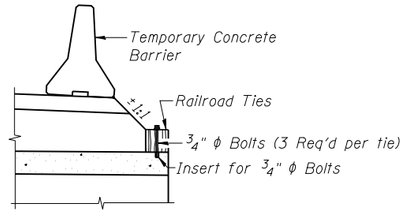
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL DATA
STRUCTURE NO. 011-2504
SHEET NO. 2 OF 7 SHEETS

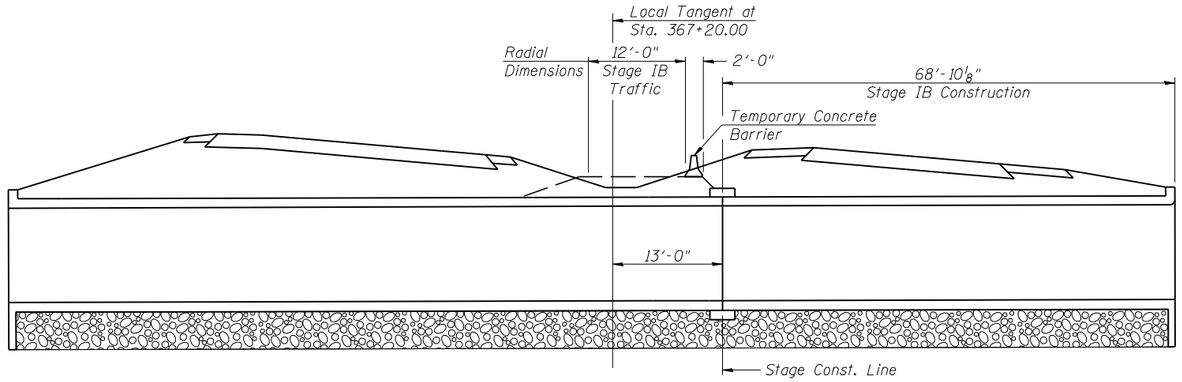
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	252
		CONTRACT NO. 72961		
	ILLINOIS FED. AID PROJECT			



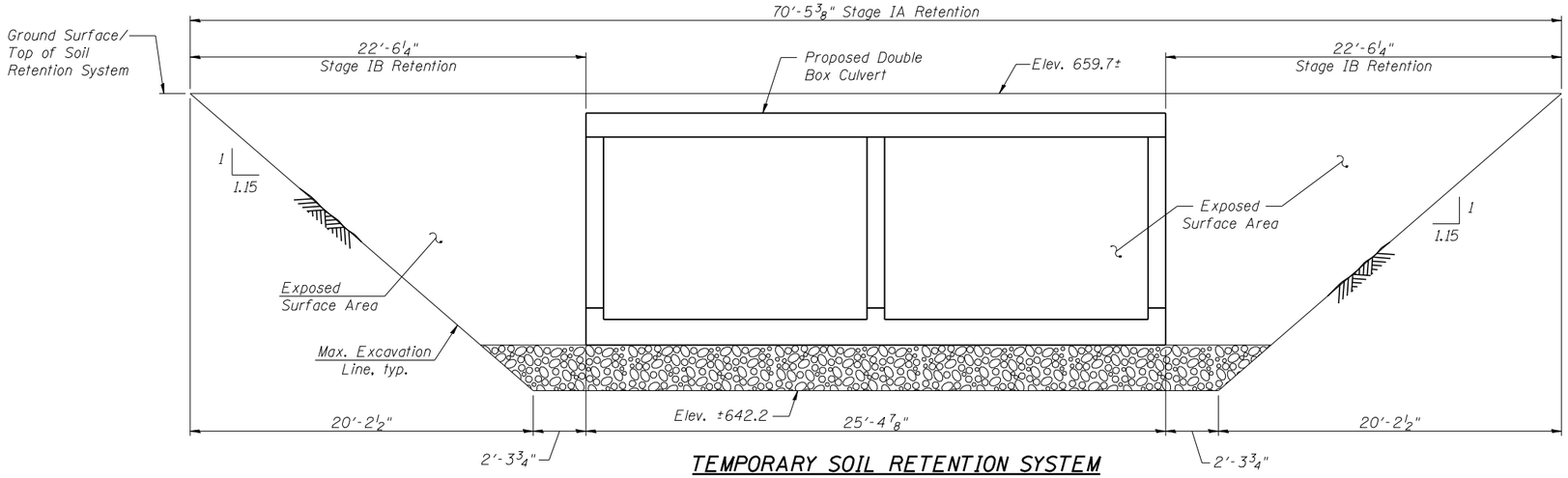
STAGE IA CONSTRUCTION



DETAIL A



STAGE IB CONSTRUCTION



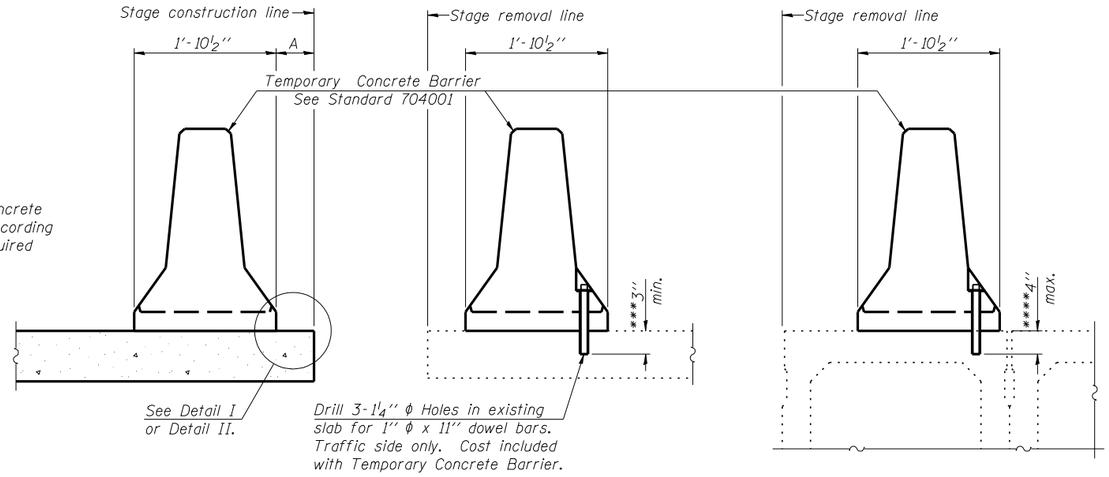
TEMPORARY SOIL RETENTION SYSTEM

(Looking West - Dimensions along Stage Construction Line)

Notes:

1. All staging cross sections are looking north.
2. All dimensions are perpendicular to Local Tangent unless noted otherwise.
3. For details of Temporary Concrete Barrier, see Sheet 4 of 7.
4. For quantity of Temporary Concrete Barrier, see Roadway Plans.
5. The Contractor shall brace the Rock Fill-Foundation if required during excavation for Stage IB Construction. Cost included with Rock Fill-Foundation.
6. A cantilevered sheet piling design does not appear feasible and additional members or other retention systems may be necessary. The Contractor shall submit a temporary soil retention system design including plan details and calculations for review and acceptance by the Engineer.

When "A" is 3'-6" or less, the temporary concrete barrier shall be anchored to the new slab according to Detail I or Detail II. No anchorage is required when "A" is greater than 3'-6".



NEW SLAB

EXISTING SLAB

EXISTING DECK BEAM

NOTES

Detail I - With Bar Splicer or Couplers:
Connect one (1) 1'' x 7' 'x ''W'' steel ℙ to the top layer of couplers with 2-⅝'' ϕ bolts screwed to coupler at approximate ℄ of each barrier panel.

Detail II - With Extended Reinforcement Bars:
Connect one (1) 1'' x 7'' x ''W'' steel ℙ to the concrete slab or concrete wearing surface with 2-⅝'' ϕ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate ℄ of each barrier panel.

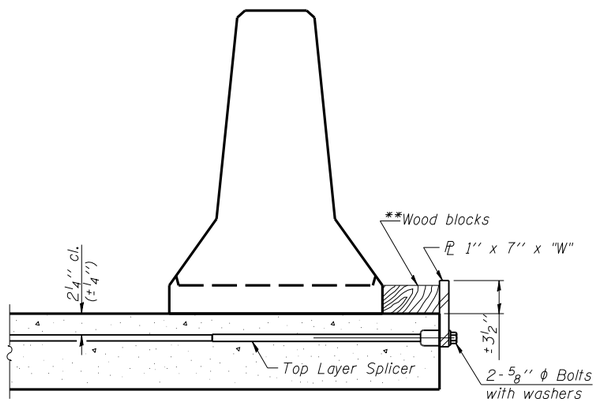
Cost of anchorage is included with Temporary Concrete Barrier.

The 1'' x 7'' x ''W'' plate shall not be removed until stage II construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

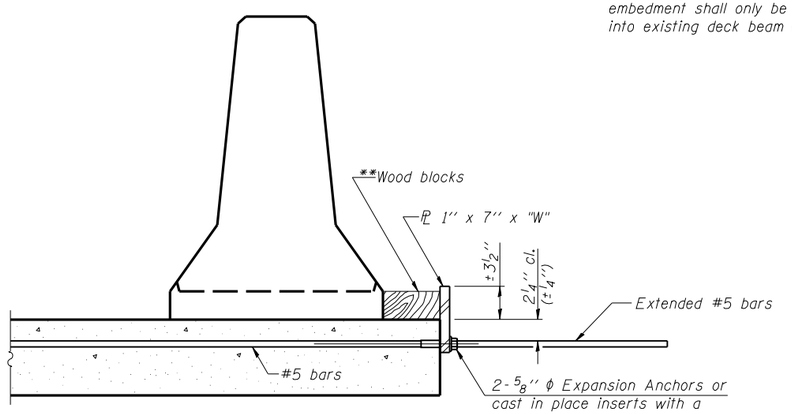
SECTIONS THRU SLAB OR DECK BEAM

*** Dimension shown is minimum required embedment into concrete. If hot-mix asphalt wearing surface is present, minimum embedment shall be in addition to wearing surface depth.

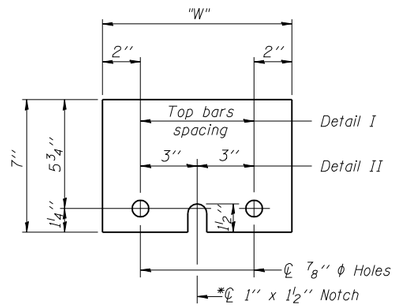
**** If existing deck beam is to remain in place after stage construction, embedment shall only be into wearing surface and not into existing deck beam concrete.



DETAIL I



DETAIL II



STEEL RETAINER ℙ 1'' x 7'' x ''W''

* Required only with Detail II

** Wood blocks may be omitted when required to provide minimum stage traffic lane width. When the wood blocks are omitted, the concrete barrier shall be in direct contact with the steel retainer plate.

"W" = Top bars spacing + 4''

R-27

7-1-10

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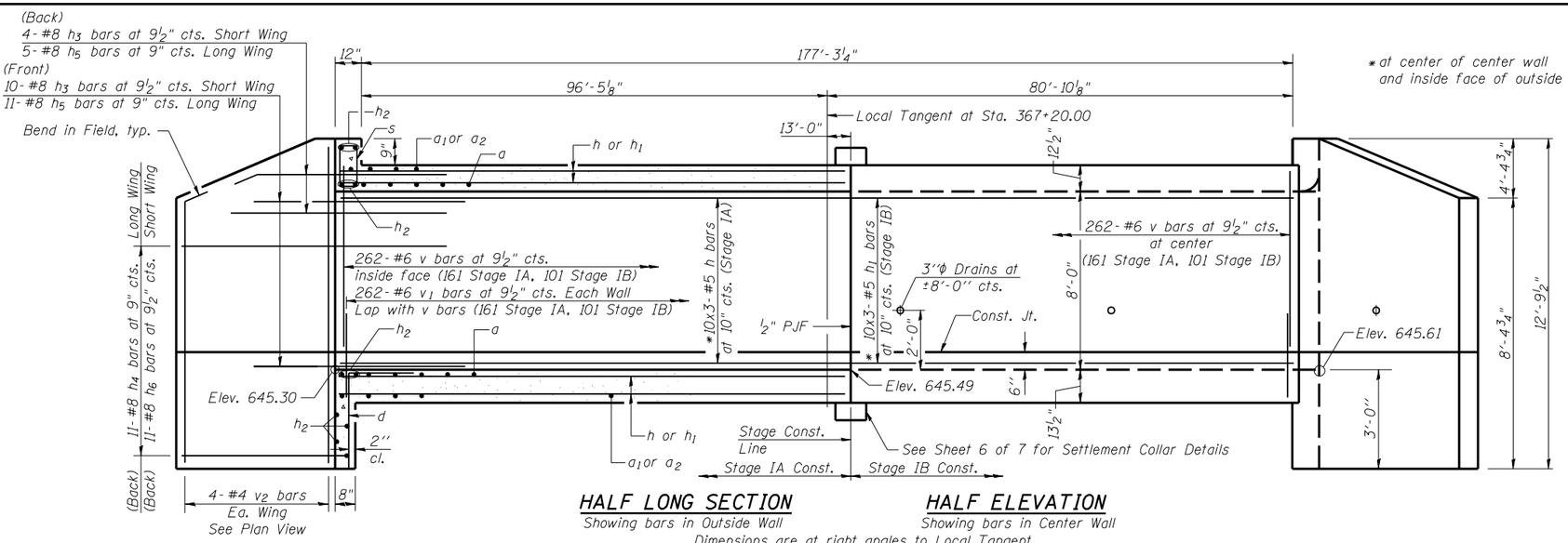
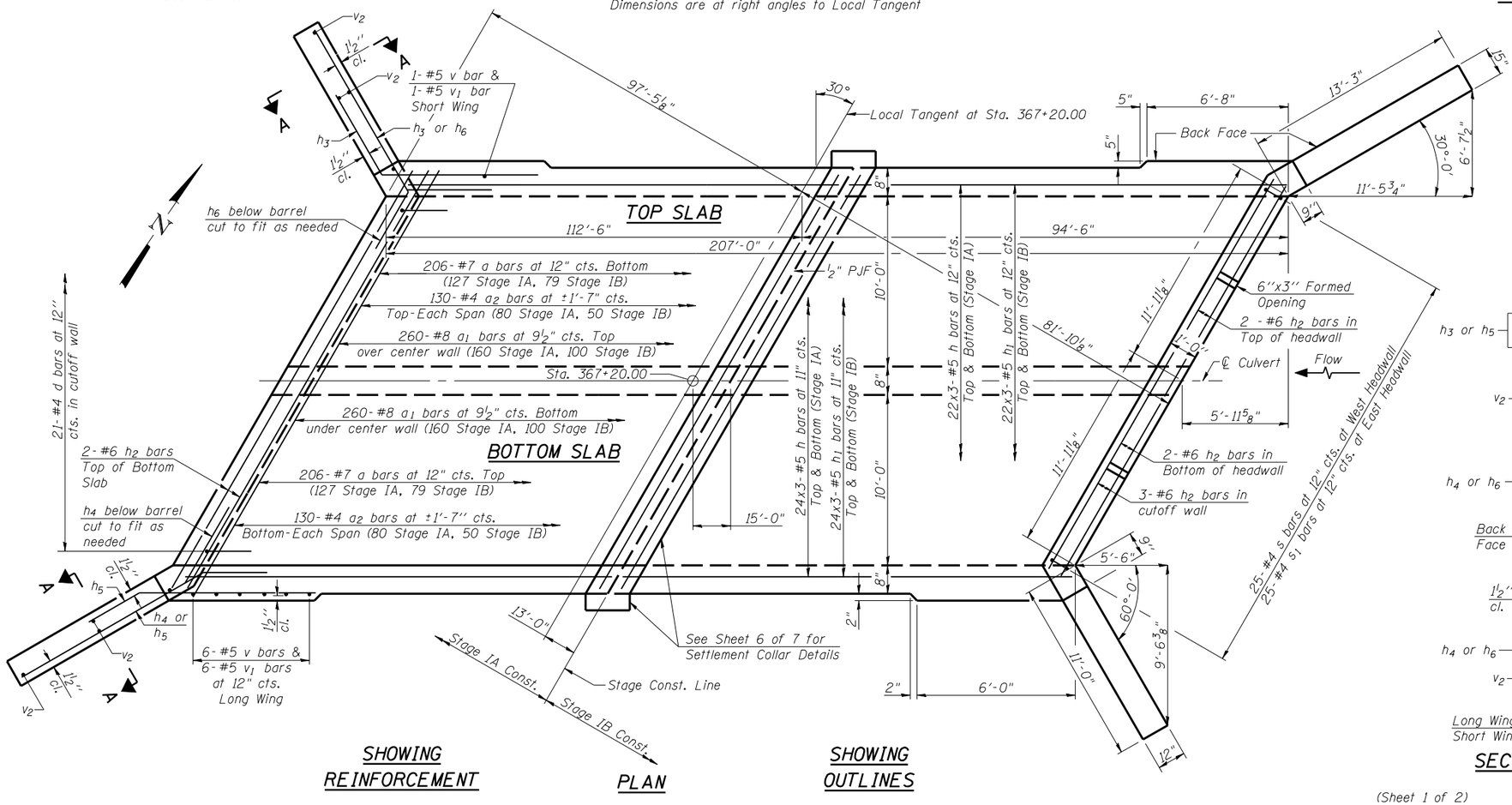
	PLOT SCALE =	DRAWN - AJF	REVISED -
	PLOT DATE =	CHECKED - MTH	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
STRUCTURE NO. 011-2504
SHEET NO. 4 OF 7 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	254
		CONTRACT NO. 72961		
	ILLINOIS FED. AID PROJECT			





Notes:
A distance of half the length of the wingwall but not less than six feet of the barrel shall be poured monolithically with the wingwalls.
Bars indicated thus 24x3-#5 etc. indicates 24 lines of bars with 3 lengths per line.

MIN. BAR LAP

#5 Bar = 1'-9"
#8 Bar = 3'-8"

(Sheet 1 of 2)

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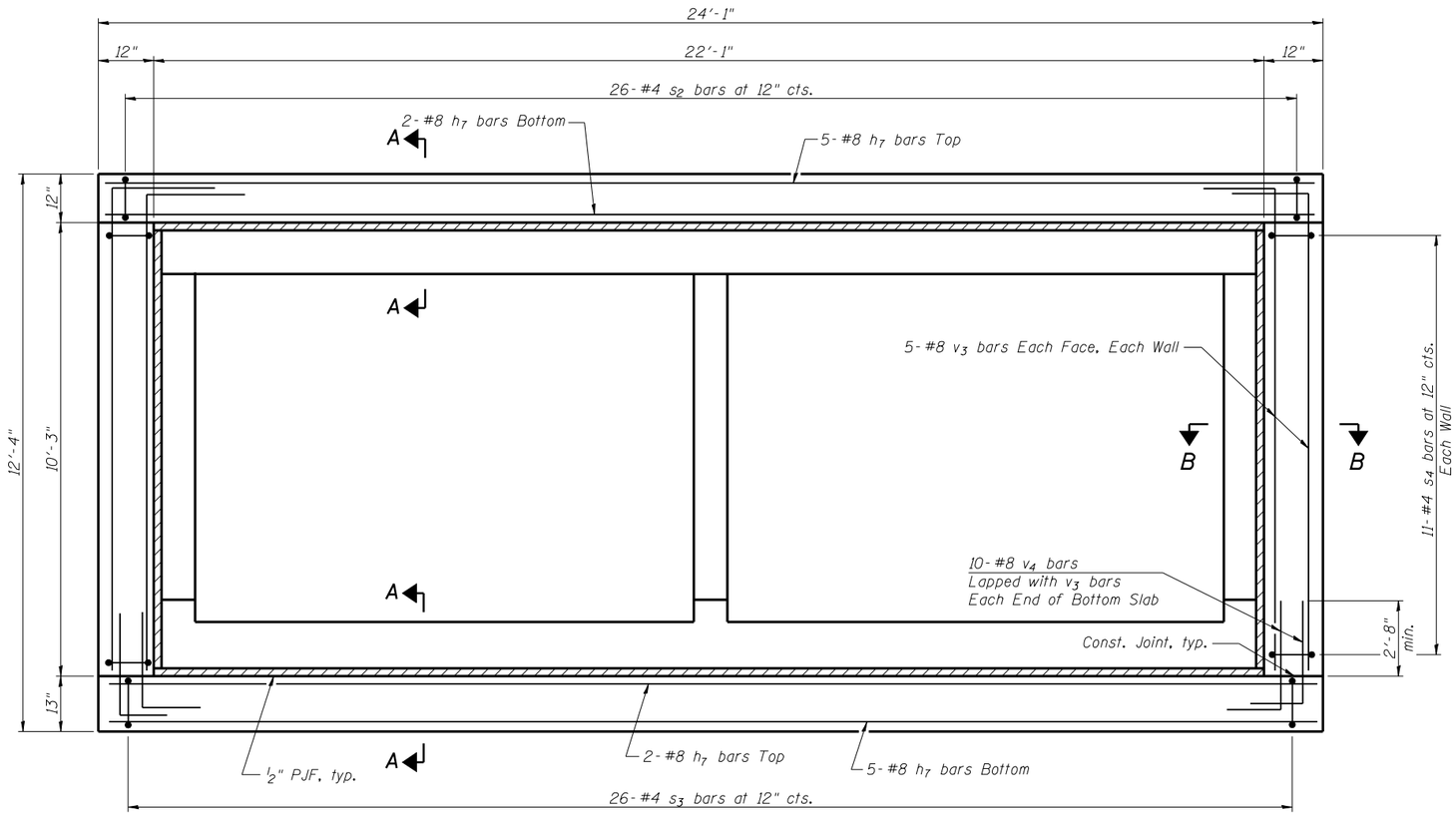
	PLOT SCALE =	DRAWN - AJF	REVISED -
	PLOT DATE =	CHECKED - MTH	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

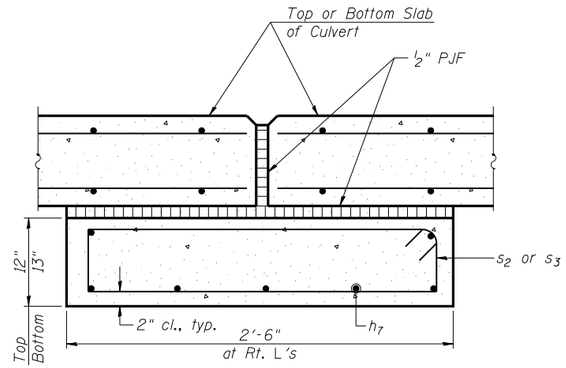
CULVERT DETAILS
STRUCTURE NO. 011-2504
SHEET NO. 5 OF 7 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	255
		CONTRACT NO. 72961		
	ILLINOIS FED. AID PROJECT			



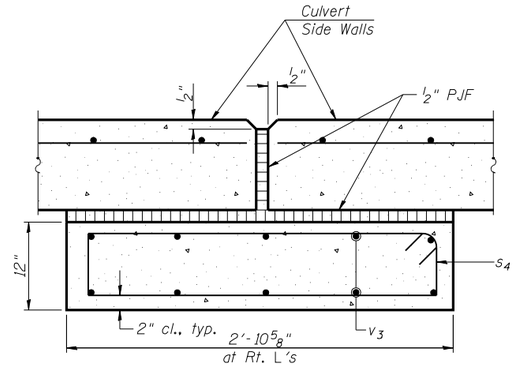
SECTION THRU BOX AT SETTLEMENT COLLAR

(Horizontal Dimensions at right angles to ℄ Culvert)

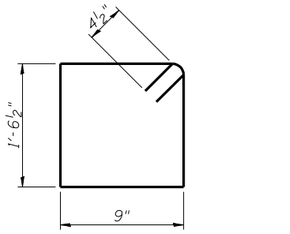


SECTION A-A

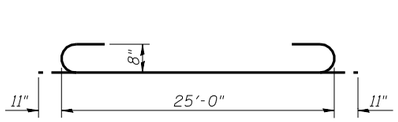
(Bottom Shown, Top Similar)



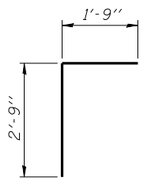
SECTION B-B



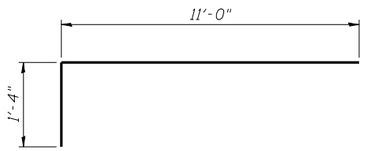
BAR s



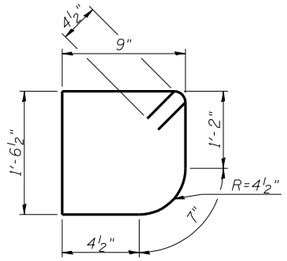
BAR a



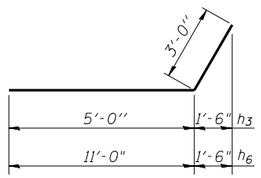
BAR d



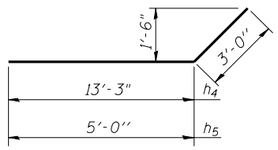
BAR v_3



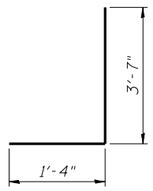
BAR s_1



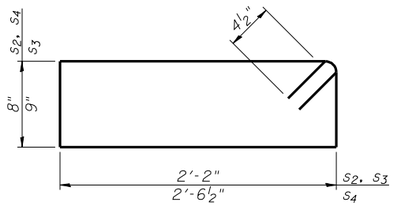
BARS h_3 & h_6



BARS h_4 & h_5



BAR v_4



BAR s_2, s_3 & s_4

Notes:
Cost of ½" PJF and concrete for Settlement Collar is included with Concrete Box Culverts.
Portion of Settlement Collar below bottom slab shall be constructed in Stage IA.

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a	412	#7	26'-10"	
a_1	520	#8	12'-4"	
a_2	520	#4	8'-3"	
d	42	#4	4'-6"	
h	366	#5	38'-8"	
h_1	366	#5	32'-8"	
h_2	18	#6	25'-0"	
h_3	28	#8	8'-0"	
h_4	22	#8	16'-3"	
h_5	32	#8	8'-0"	
h_6	22	#8	14'-0"	
h_7	14	#8	26'-6"	
v	800	#6	8'-2"	
v_1	800	#6	4'-3"	
v_2	16	#4	12'-6"	
v_3	20	#8	12'-4"	
v_4	20	#8	4'-11"	
s	25	#4	5'-4"	
s_1	25	#4	5'-2"	
s_2	26	#4	6'-5"	
s_3	26	#4	6'-7"	
s_4	22	#4	7'-2"	
Concrete Box Culverts			Cu. Yd.	523.7
Reinforcement Bars			Pound	91150

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PLOT DATE =	CHECKED - MTH	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CULVERT DETAILS
STRUCTURE NO. 011-2504
SHEET NO. 6 OF 7 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	256
		CONTRACT NO. 72961		
	ILLINOIS	FED. AID PROJECT		

Illinois Department of Transportation
Division of Highways
District 6

SOIL BORING LOG

Page 1 of 1

Date 5/24/06

ROUTE FAP 322 DESCRIPTION US-51 box culvert over draiange ditch LOGGED BY M. Tappan

SECTION 11-13 LOCATION SW 1/4, SEC. 36, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140# Auto

STRUCT. NO. 011-2504
Station 367+20

BORING NO. 6C
Station 367+15
Offset 47.0ft RT
Ground Surface Elev. 653.8 ft

Surface Water Elev. 645.2 ft
Stream Bed Elev. 644.8 ft

Groundwater Elev.:
First Encounter 634.8 ft
Upon Completion Plugged ft
After 19 Days Hrs. 646.8 ft

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Brown and Dk Gray Moist SILTY CLAY (Fill)			1 4 5	2.1 B	20
Lt Brown		-5	1 2 3	0.8 B	24
Dk Gray	645.80		1 3 4	1.2 B	22
Dk Gray Moist SILTY CLAY		-10	1 1 1	0.5 B	29
			0 1 1	0.4 B	38
		-15	0 1 2	0.7 B	35
Lt Gray V. Moist SILTY CLAY w/ Gastropod Shells	635.80		0 1 1	0.3 B	31
Dk Brownish Gray Moist Slightly to Moderately Organic SILTY CLAY LOAM FREE WATER		-20	0 1 2	0.5 B	60
	633.30				
Lt Gray Moist Slightly Organic SILT LOAM w/ Gastropod Shells			0 1 1	0.7 S-12	72
	630.30				
Lt Gray Wet SILTY CLAY		-25	0 0 0	0 B	33
	623.80	-30	0 0 0	0 B	28
Boring Completed		-35			
		-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer, E-Estimated)
Abbreviations W.O.H - Sampler Advanced By Weight of Hammer, W.O.P - Advanced by Weight of Pipe, B.S. - Before Seating
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)

File Name S:\SOILS\GINT FILES\CHRISTIAN\011-2504 US 51 BOX CULVERT AT DRAINAGE DITCH.GPJ Data Template D6TEMPLT.GDT Date Printed 11/19/09
Latitude 39D 26.214N Longitude 89D 2.696W Datum NAD83 Job Number

Illinois Department of Transportation
Division of Highways
District 6

SOIL BORING LOG

Page 1 of 1

Date 5/23/06

ROUTE FAP 322 DESCRIPTION US-51 box culvert over draiange ditch LOGGED BY M. Tappan

SECTION 11-13 LOCATION SE 1/4, SEC. 35, TWP. 12 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140# Auto

STRUCT. NO. 011-2504
Station 367+20

BORING NO. 6A
Station 367+37
Offset 38.0ft LT
Ground Surface Elev. 648.9 ft

Surface Water Elev. 645.2 ft
Stream Bed Elev. 644.8 ft

Groundwater Elev.:
First Encounter 637.4 ft
Upon Completion 642.9 ft
After 20 Days Hrs. 646.9 ft

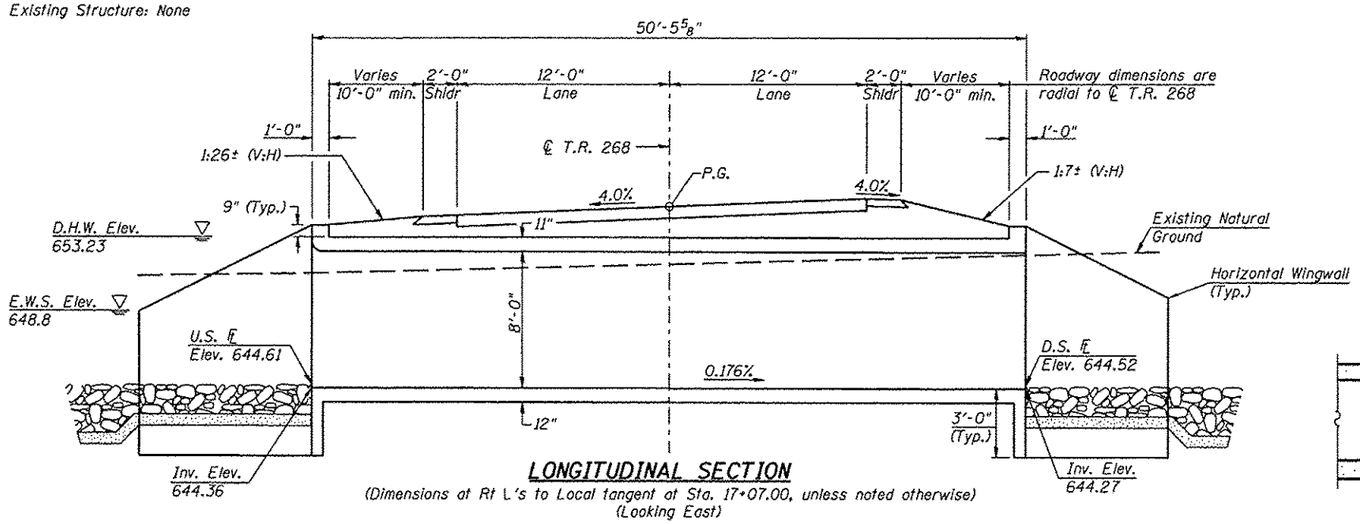
Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Brown and Gray Moist SILTY CLAY			1 3 4	1.8 B	25
Lt Brown and Dark Gray		-5	0 1 1	0.4 B	27
Lt Brown and Gray			1 1 2	0.6 B	31
Black Moist Slightly Organic SILTY CLAY		-10	1 1 2	0.4 B	64
FREE WATER			0 1 1	0.6 B	41
Gray V. Moist SILTY CLAY w/ Gastropod Shells	633.40	-15	0 1 1	0.4 B	31
Lt Gray V. Moist SILT LOAM w/ Gastropod Shells and some Woody Organics			0 1 1	0.2 B	51
Varved	628.90	-20	0 1 1	0.6 B	89
Boring Completed		-25			
		-30			
		-35			
		-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer, E-Estimated)
Abbreviations W.O.H - Sampler Advanced By Weight of Hammer, W.O.P - Advanced by Weight of Pipe, B.S. - Before Seating
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)

File Name S:\SOILS\GINT FILES\CHRISTIAN\011-2504 US 51 BOX CULVERT AT DRAINAGE DITCH.GPJ Data Template D6TEMPLT.GDT Date Printed 11/19/09
Latitude 39D 26.204N Longitude 89D 2.712W Datum NAD83 Job Number

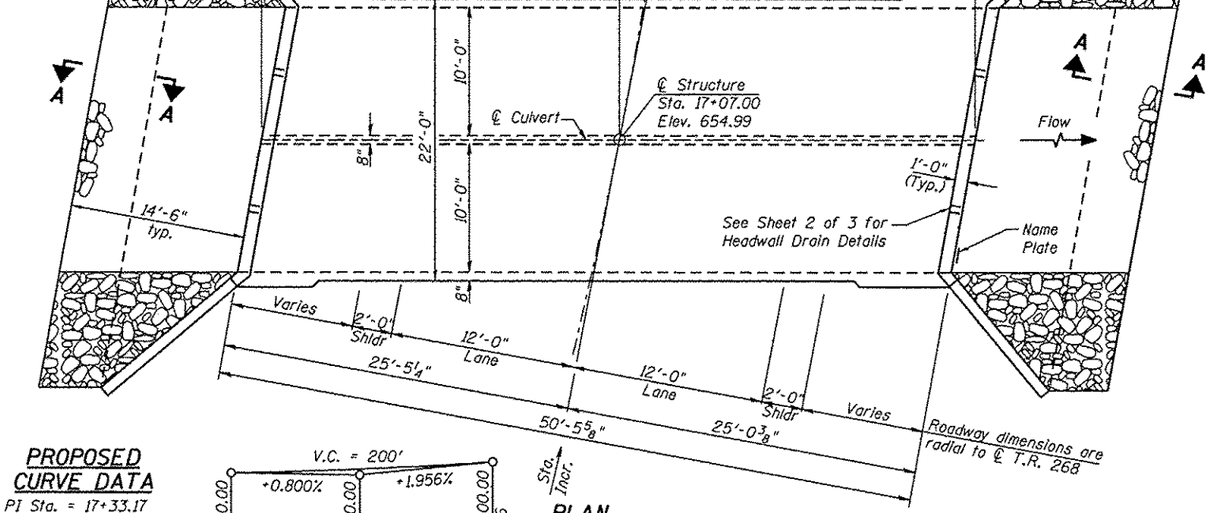
Benchmark: Chiseled square in west end of south wingwall of Existing S.N. 011-2008, Elev. 653.52.

Existing Structure: None



LONGITUDINAL SECTION

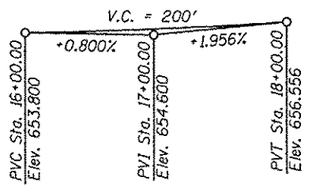
(Dimensions at Rt ℄'s to Local tangent at Sta. 17+07.00, unless noted otherwise)
(Looking East)



PLAN

PROPOSED CURVE DATA

PI Sta. = 17+33.17
Δ = 47° 33' 31" (LT)
D = 19° 05' 55"
R = 300.00'
T = 132.19'
L = 249.02'
E = 27.83'
P.C. Sta. = 16+00.98
P.T. Sta. = 18+50.00
Superelevation = 4.0%



PROFILE GRADE

(Along ℄ Roadway)

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	D.S. Invert	U.S. Invert
	641.27	641.36

WATERWAY INFORMATION

Drainage Area = 0.06 sq. mi. (Exist.)
3.20 sq. mi. (Prop.)
Exist. Low Grade Elev. 651.77 @ Sta. 16+50
Prop. Low Grade Elev. 654.60 @ Sta. 17+00

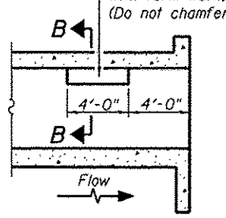
Flood	Freq. Yr.	Q (C.F.S.) Exist.	Q (C.F.S.) Prop.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E. Exist.	Nat. H.W.E. Prop.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
	10	38	470	40.0	155.6	652.31	652.14	0.10	0.29	652.41	652.43
Design	50	63	747	40.0	160.0	653.28	653.23	0.24	0.78	653.52	654.01
Base	100	74	869	40.0	160.0	653.50	653.47	0.29	0.99	653.79	654.46
Overtopping**	500	-	1160	-	160.0	-	653.80	-	1.47	-	655.27
Max. Calc.	500	102	1160	40.0	160.0	653.83	653.80	0.35	1.47	654.18	655.27

** Overtopping occurs under 10-year Flood Event for existing conditions

10 year velocity through existing Structure = 0.95 fps
10 year velocity through proposed Structure = 3.00 fps

GENERAL NOTES

Layout of slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
Precast alternate is not allowed.
See Roadway Plans for channel excavation.
Backfill within the limits of the paved surface to the top of culvert elevation shall be performed according to the special provision for Granular Culvert Backfill.

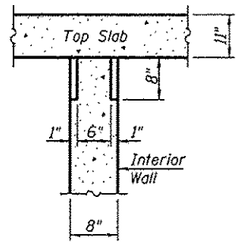


LONGITUDINAL SECTION

INDEX OF SHEETS

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Stone Riprap, Class A4	Sq. Yd.	108
Filter Fabric	Sq. Yd.	108
Reinforcement Bars	Pound	21820
Name Plates	Each	1
Concrete Box Culverts	Cu. Yd.	142.2
Granular Culvert Backfill	Cu. Yd.	183



SECTION B-B

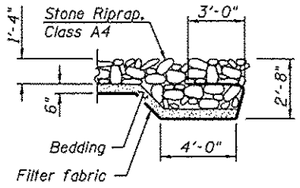
PHOEBE NESTING SITE DETAILS

(Downstream End Only)

STATION 17+07.00
BUILT 20 BY
STATE OF ILLINOIS
F.A.P. RT. 322 SEC. 11-13
LOADING HS20-44
STRUCTURE NO. 011-3413

NAME PLATE

See Std. 515001



SECTION A-A

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications for Highway Bridges, 17th Edition

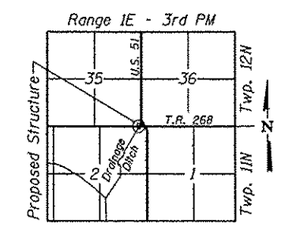
DESIGN STRESSES

FIELD UNITS

f'_c = 3,500 psi
f_y = 60,000 psi (reinforcement)

LOADING HS20-44

Allow 50#/sq. ft. for Future Wearing Surface.



LOCATION SKETCH

APPROVED
For Structural Adequacy Only
Engineer of Bridges & Structures

LICENSED STRUCTURAL ENGINEER * MICHAEL T. HALEY 81-5991 CHATHAM * STATE OF ILLINOIS

Michael T. Haley 8-10-12
Michael T. Haley — Date
Licensed Structural Engineer
State of Illinois No. 81-5991
Expires 11/30/2012

GENERAL PLAN & ELEVATION
T.R. 268 OVER DRAINAGE DITCH
F.A.P. 322-SECTION 11-13
CHRISTIAN COUNTY
STA. 17+07.00
STRUCTURE NO. 011-3413

LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME =	DESIGNED - MTH	REVISED -	
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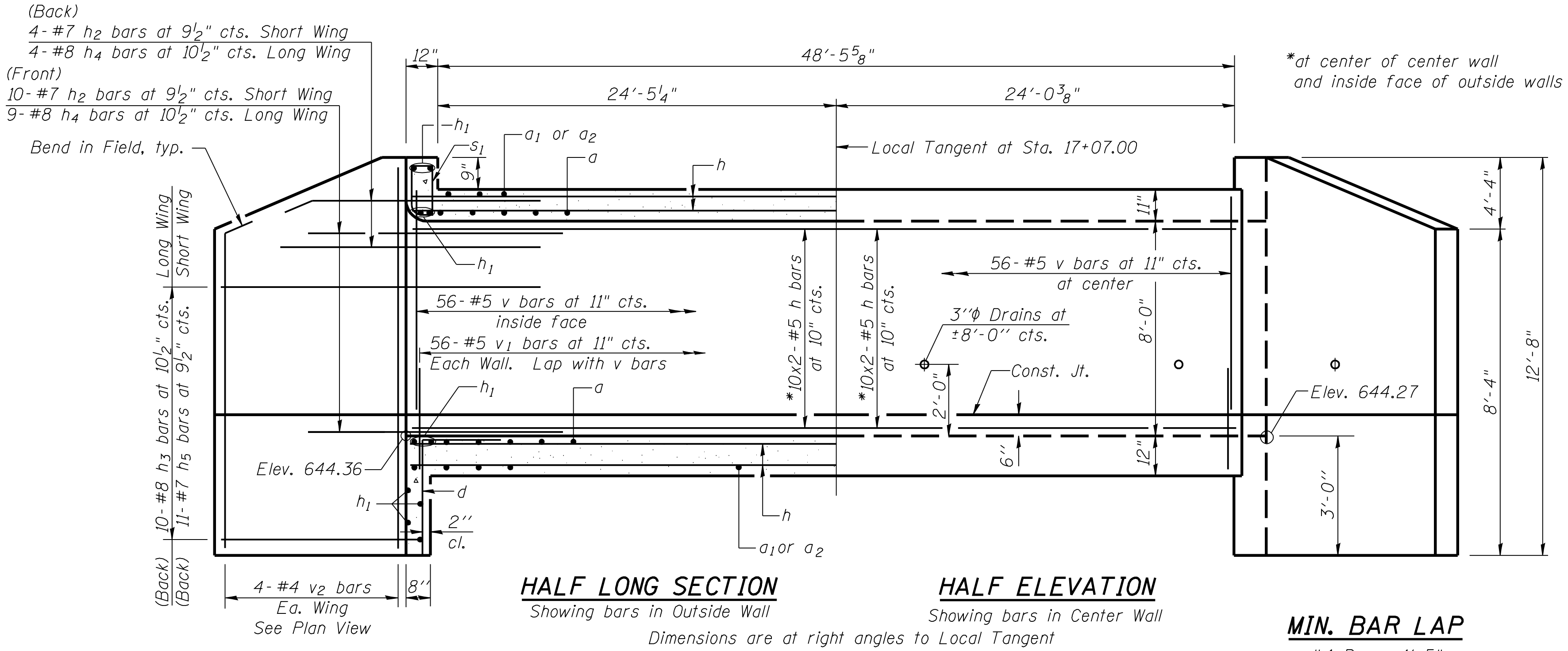
PLOT SCALE =	DRAWN - AJF	REVISED -	
PLOT DATE =	CHECKED - MTH	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION
STRUCTURE NO. 011-3413
SHEET NO. 1 OF 3 SHEETS

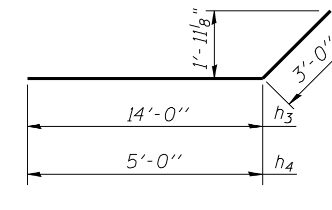
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	258
		CONTRACT NO. 72961		
	ILLINOIS FED. AID PROJECT			


(Back)
4-#7 h2 bars at 9½" cts. Short Wing
4-#8 h4 bars at 10½" cts. Long Wing
(Front)
10-#7 h2 bars at 9½" cts. Short Wing
9-#8 h4 bars at 10½" cts. Long Wing
Bend in Field, typ.
48'-5⅝"
24'-5¼"
24'-0⅜"
Local Tangent at Sta. 17+07.00
56-#5 v bars at 11" cts. inside face
56-#5 v1 bars at 11" cts. Each Wall. Lap with v bars
*10x2-#5 h bars at 10" cts.
56-#5 v bars at 11" cts. at center
3"φ Drains at ±8'-0" cts.
Const. Jt.
Elev. 644.36
Elev. 644.27
10-#8 h3 bars at 10½" cts. Long Wing
11-#7 h5 bars at 9½" cts. Short Wing
4-#4 v2 bars Ea. Wing See Plan View
*at center of center wall and inside face of outside walls

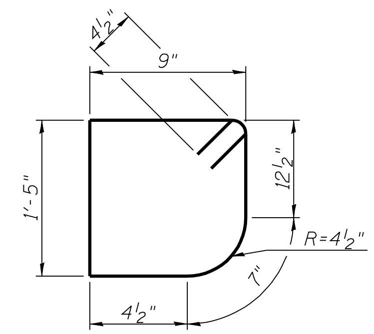
HALF LONG SECTION
Showing bars in Outside Wall

HALF ELEVATION
Showing bars in Center Wall

Dimensions are at right angles to Local Tangent

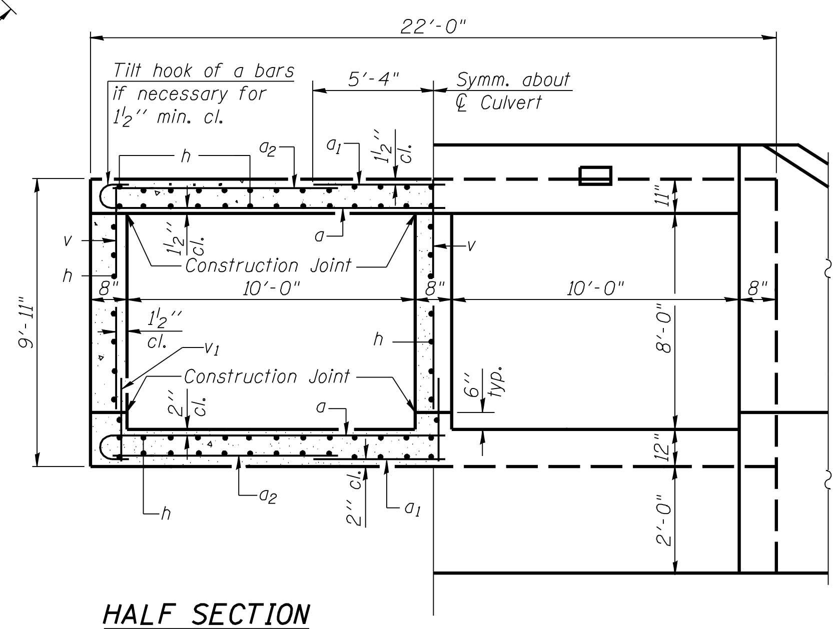


BARS h3 & h4



BAR s1

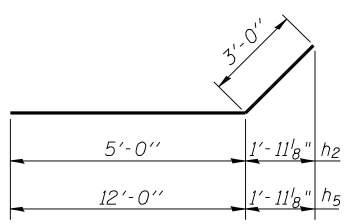
MIN. BAR LAP
#4 Bar = 1'-5"
#5 Bar = 1'-9"



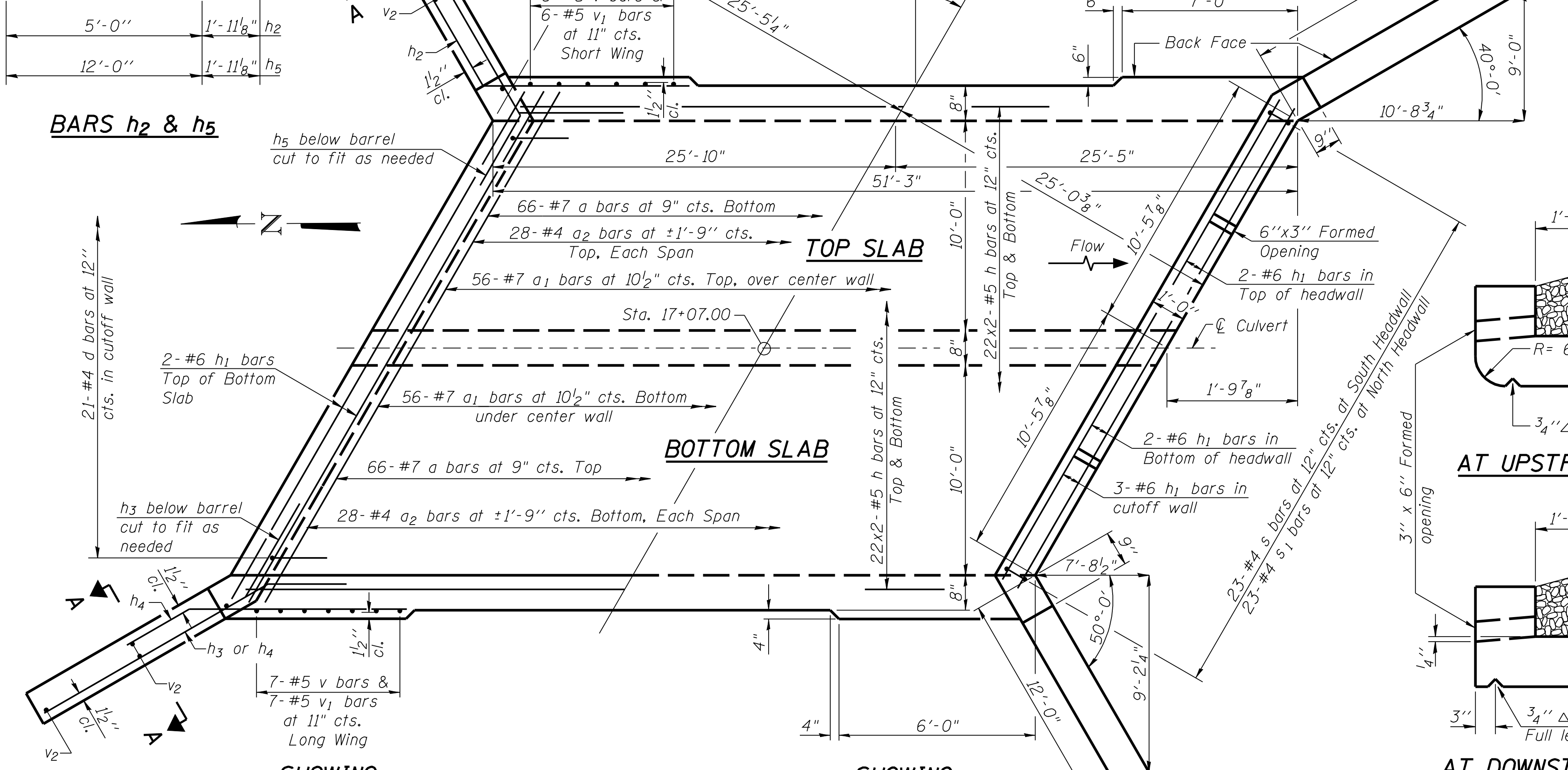
HALF SECTION THRU BARREL

HALF END ELEVATION

(Dimensions at right angles to Local Tangent)



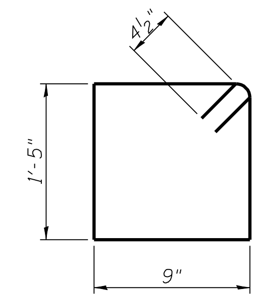
BARS h2 & h5


Local Tangent at Sta. 17+07.00
25'-5¼"
6-#5 v bars & 6-#5 v1 bars at 11" cts. Short Wing
Back Face
14'-0"
40°-0'
10'-8¾"
h5 below barrel cut to fit as needed
25'-10"
51'-3"
25'-5"
25'-0⅜"
66-#7 a bars at 9" cts. Bottom
28-#4 a2 bars at ±1'-9" cts. Top, Each Span
56-#7 a1 bars at 10½" cts. Top, over center wall
TOP SLAB
22x2-#5 h bars at 12" cts. Top & Bottom
6"x3" Formed Opening
2-#6 h1 bars in Top of headwall
Flow
Sta. 17+07.00
℄ Culvert
21-#4 d bars at 12" cts. in cutoff wall
2-#6 h1 bars Top of Bottom Slab
56-#7 a1 bars at 10½" cts. Bottom under center wall
BOTTOM SLAB
66-#7 a bars at 9" cts. Top
28-#4 a2 bars at ±1'-9" cts. Bottom, Each Span
2-#6 h1 bars in Bottom of headwall
3-#6 h1 bars in cutoff wall
h3 below barrel cut to fit as needed
23-#4 s bars at 12" cts. at South Headwall
23-#4 s1 bars at 12" cts. at North Headwall
7-#5 v bars & 7-#5 v1 bars at 11" cts. Long Wing
7'-8½"
50°-0'
9'-2¼"
12'-0"
6'-0"
3" x 6" Formed opening

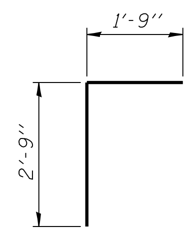
SHOWING REINFORCEMENT

SHOWING OUTLINES

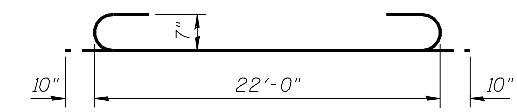
PLAN



BAR s

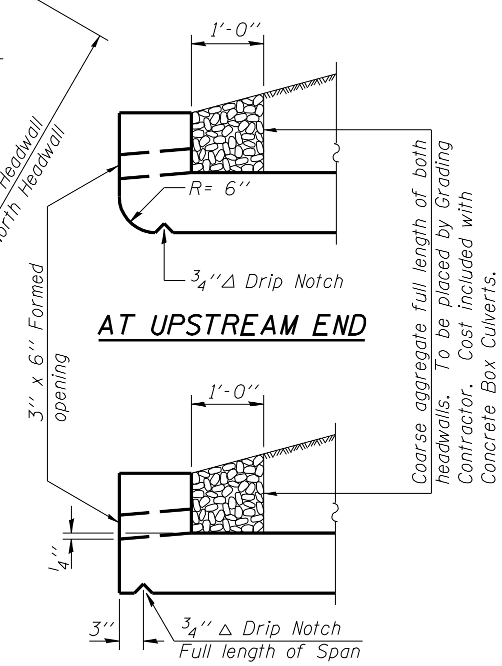


BAR d



BAR a

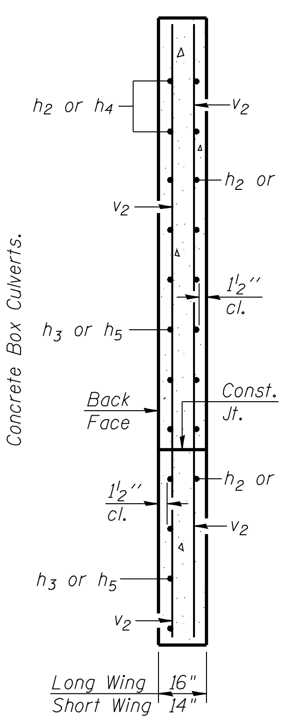
Notes:
A distance of half the length of the wingwall but not less than six feet of the barrel shall be poured monolithically with the wingwalls.
Bars indicated thus 22x2-#5 etc. indicates 22 lines of bars with 2 lengths per line.



AT UPSTREAM END

AT DOWNSTREAM END

DRAIN DETAIL



SECTION A-A

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a	132	#7	23'-8"	
a_1	112	#7	10'-10"	
a_2	112	#4	7'-4"	
d	42	#4	4'-6"	
h	236	#5	26'-5"	
h_1	18	#6	22'-3"	
h_2	28	#7	8'-0"	
h_3	20	#8	17'-0"	
h_4	26	#8	8'-0"	
h_5	22	#7	15'-0"	
s	23	#4	5'-1"	
s_1	23	#4	4'-11"	
v	194	#5	8'-1"	
v_1	194	#5	3'-3"	
v_2	16	#4	12'-4"	
Concrete Box Culverts			Cu. Yd.	142.2
Reinforcement Bars			Pound	21820

LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME =	DESIGNED - MTH	REVISED -
FILE NAME =	CHECKED - ZTB	REVISED -
PLOT SCALE =	DRAWN - AJF	REVISED -
PLOT DATE =	CHECKED - MTH	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CULVERT DETAILS
STRUCTURE NO. 011-3413
SHEET NO. 2 OF 3 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	259

CONTRACT NO. 72961
ILLINOIS FED. AID PROJECT

Illinois Department of Transportation — SOIL BORING LOG (Page 1 of 2)

Division of Highways
Illinois department of tranportation

Page 1 of 2 · Date 7/21/03

ROUTE FAP 322 (US 51) DESCRIPTION over Tributary to Main Drainage Ditch LOGGED BY M. Tappan

SECTION 11-10 LOCATION NE 1/4, SEC. 2, TWP. 11 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140 # Auto

STRUCT. NO. 011-2008 Ex
Station 361+55 +/-

BORING NO. 4 West End
Station 361+00
Offset 110.0ft Lt
Ground Surface Elev. 652.2 ft

Surface Water Elev. 646.5 ft
Stream Bed Elev. 646.5 ft

Groundwater Elev.:
▽ First Encounter 638.2 ft
▼ Upon Completion Washed ft
▼ After 96 Hrs. 647.2 ft

Description	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Brown and Dark Grey Moist SILTY CLAY				
		0		
		1	0.7	27
▼	-5	2	B	
		0		
Grey		1	0.5	32
		1	B	
		0		
		1	0.7	32
	-10	2	B	
		0		
V. Dark Grey V. Moist SILTY CLAY w/ Organic Material		1	0.5	61
		1	B	
▽		0		
Grey Free Water		0	0.4	37
	-15	1	B	
		0		
Grey w/ Gastropod Shells Sampler Advanced by Weight of Hammer		0	0.3	31
634.20		0	B	
Tan and Grey V. Moist SILT w/ Organic Material, Gastropod Shells		0		
		1	0.6	91
	-20	1	B	

Description	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Tan and Grey V. Moist SILT w/ Organic Material, Gastropod Shells *(continued)*				
630.70		0		
V. Light Grey Wet SILT w/ Gastropod Shells		0	0.1	51
Sampler Advanced by Weight of Hammer		0	B	
		0		
Tannish Grey Moist SILT w/ Gastropod Shells		0	0.7	82
	-25	1	B	
624.70				
Grey Wet SILTY CLAY		0		
Sampler Advanced by Weight of Pipe		0	0.0	28
	-30	0	Slump	
		0		
Sampler Advanced by Weight of Hammer		0	0.0	26
	-35	0	Slump	
614.20				
Grey V. Moist SANDY CLAY LOAM (Till)		0		
		1	0.5	10
	-40	1	B	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer, E-Estimated)
Abbreviations W.O.H - Sampler Advanced By Weight of Hammer, W.O.P - Advanced by Weight of Pipe, B.S. - Before Seating
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)

File Name S:\SOILS\GINT FILES\CHRISTIAN\D96-533-01 US 51 MOWEQUA TO 2 MI N PANA.GPJ Data Template DBTEMPLT.GDT Date Printed 5/21/11
Latitude Longitude Datum Job Number

Illinois Department of Transportation — SOIL BORING LOG (Page 2 of 2)

Division of Highways
Illinois department of tranportation

Page 2 of 2 · Date 7/21/03

ROUTE FAP 322 (US 51) DESCRIPTION over Tributary to Main Drainage Ditch LOGGED BY M. Tappan

SECTION 11-10 LOCATION NE 1/4, SEC. 2, TWP. 11 N, RNG. 1 E, 3 PM

COUNTY Christian DRILLING METHOD HSA HAMMER TYPE 140 # Auto

STRUCT. NO. 011-2008 Ex
Station 361+55 +/-

BORING NO. 4 West End
Station 361+00
Offset 110.0ft Lt
Ground Surface Elev. 652.2 ft

Surface Water Elev. 646.5 ft
Stream Bed Elev. 646.5 ft

Groundwater Elev.:
▽ First Encounter 638.2 ft
▼ Upon Completion Washed ft
▼ After 96 Hrs. 647.2 ft

Description	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Grey V. Moist SANDY CLAY LOAM (Till) *(continued)*				
609.70				
Grey Medium to Coarse Grained SAND		3		
Washed		8		
	-45	12		
604.70				
Grey Moist SANDY CLAY LOAM (Till)		3		
Washed		8	4.1	11
	-50	11	S-12	
600.20				
Grey Moist CLAY LOAM (Till)		7		
Washed		11	6.9	11
	-55	18	S-12	
		3		
Washed		8	5.2	11
	-60	12	B	

Description	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Grey Moist CLAY LOAM (Till) *(continued)*				
		6		
Washed		9	4.9	11
587.20	-65	11	B	
Boring Completed				
	-70			
	-75			
	-80			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer, E-Estimated)
Abbreviations W.O.H - Sampler Advanced By Weight of Hammer, W.O.P - Advanced by Weight of Pipe, B.S. - Before Seating
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)

File Name S:\SOILS\GINT FILES\CHRISTIAN\D96-533-01 US 51 MOWEQUA TO 2 MI N PANA.GPJ Data Template DBTEMPLT.GDT Date Printed 5/21/11
Latitude Longitude Datum Job Number

LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME =	DESIGNED - MTH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SOIL BORING LOGS STRUCTURE NO. 011-3413
	FILE NAME =	CHECKED - ZTB	REVISED -		
	PLOT SCALE =	DRAWN - AJF	REVISED -		
	PLOT DATE =	CHECKED - MTH	REVISED -		SHEET NO. 3 OF 3 SHEETS

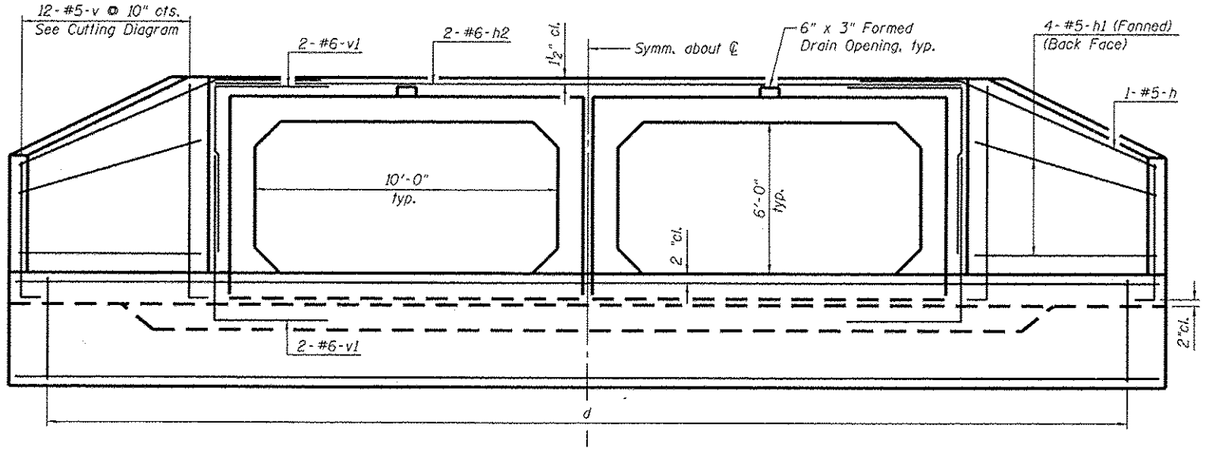
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	260

CONTRACT NO. 72961

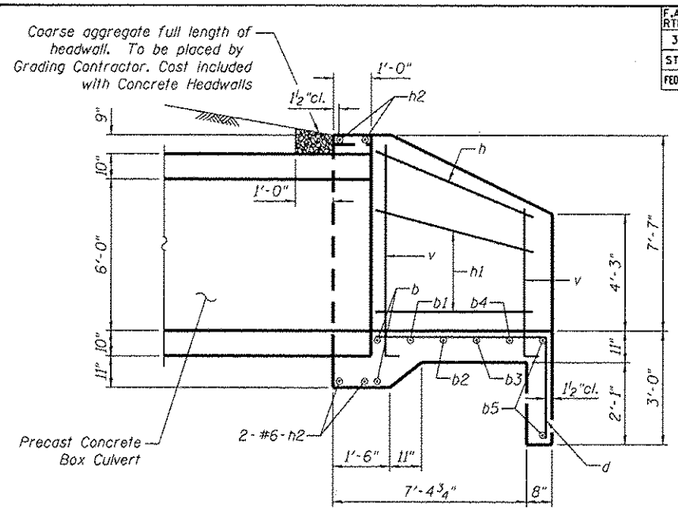
ILLINOIS FED. AID PROJECT

72961

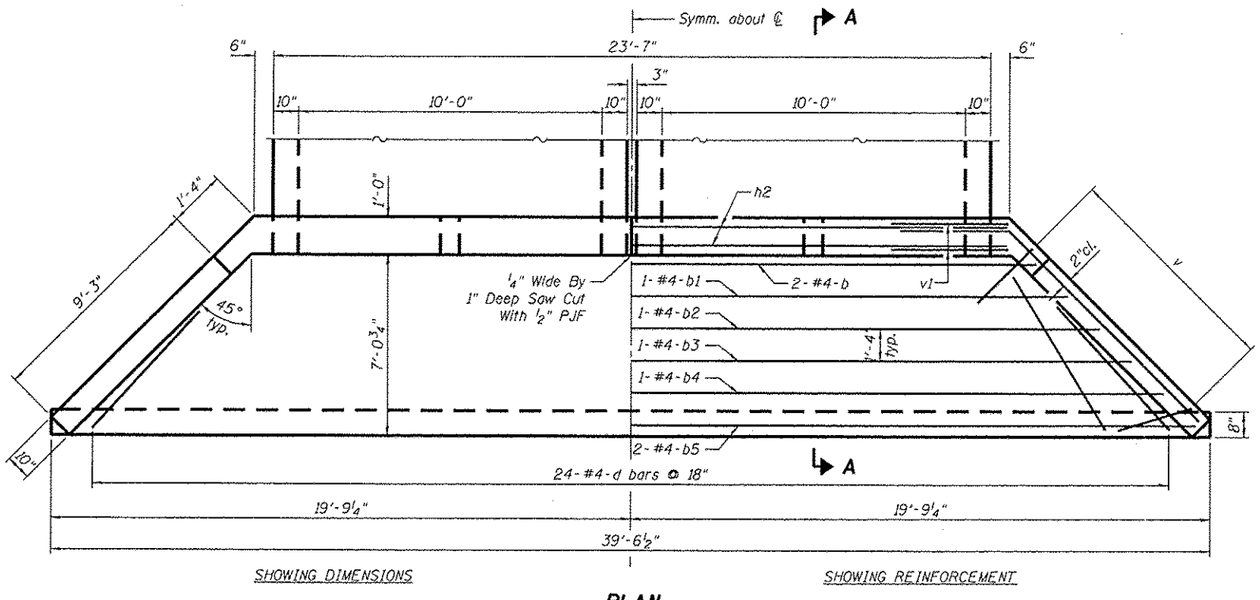
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	261
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



END ELEVATION



SECTION A-A



PLAN

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
b	4	#4	26'-5"	
b1	2	#4	29'-2"	
b2	2	#4	31'-10"	
b3	2	#4	34'-6"	
b4	2	#4	37'-3"	
b5	4	#4	39'-2"	
d	48	#4	9'-5"	
h	4	#5	13'-3"	
h1	16	#5	10'-5"	
h2	8	#6	25'-5"	
v	24	#5	17'-3"	
v1	16	#6	9'-10"	
Reinforcement Bars			Pound	1,860
Concrete Structures			Cu. Yd.	33.2

NOTES:

Bill of Material for two headwalls, each end similar.

Bar dimensions are out to out.

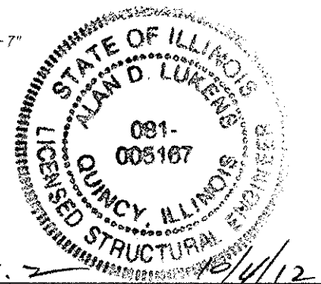
Not to scale or proper orientation.

Exposed edges shall be beveled ¾".

Reinforcement bars shall conform to the requirements of ASTM A706 Gr 60. See Special Provisions.

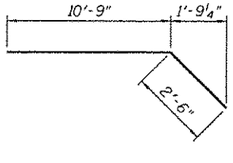
Headwall at 0° skew to culvert ℄.

Minimum bar laps:
#6 bar = 2'-7"

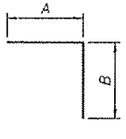


8/4/12
Date

Alan D. Lukens
Licensed Structural Engineer
State of Illinois No. 081-005167
License Expires 11/30/2012

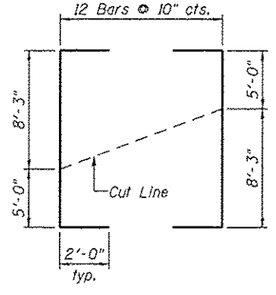


BAR h
(Bend in field)



Bar	A	B
d	6'-9"	2'-8"
v1	3'-0"	6'-10"

BARS d & v1



FIELD CUTTING DIAGRAM
BAR v

US 51 (STA 381+65 RT)

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

CAST-IN-PLACE END SECTIONS
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: DRAWN BY EBB
DATE CHECKED BY RJP

10/3/2012
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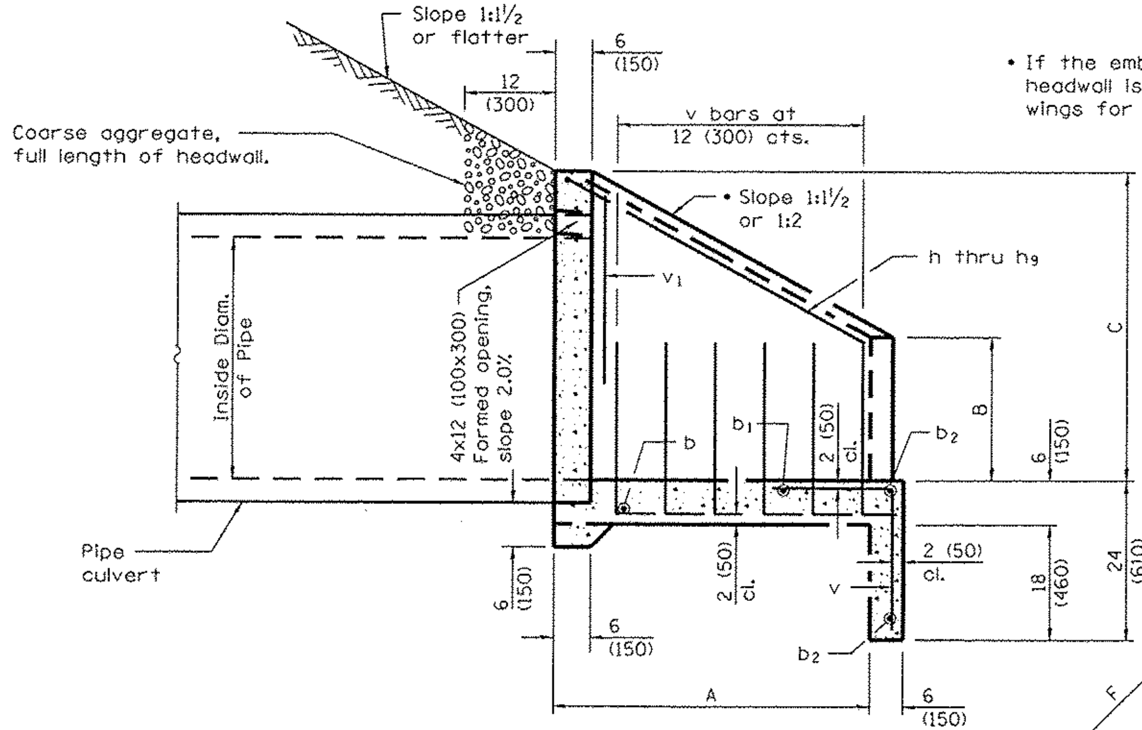
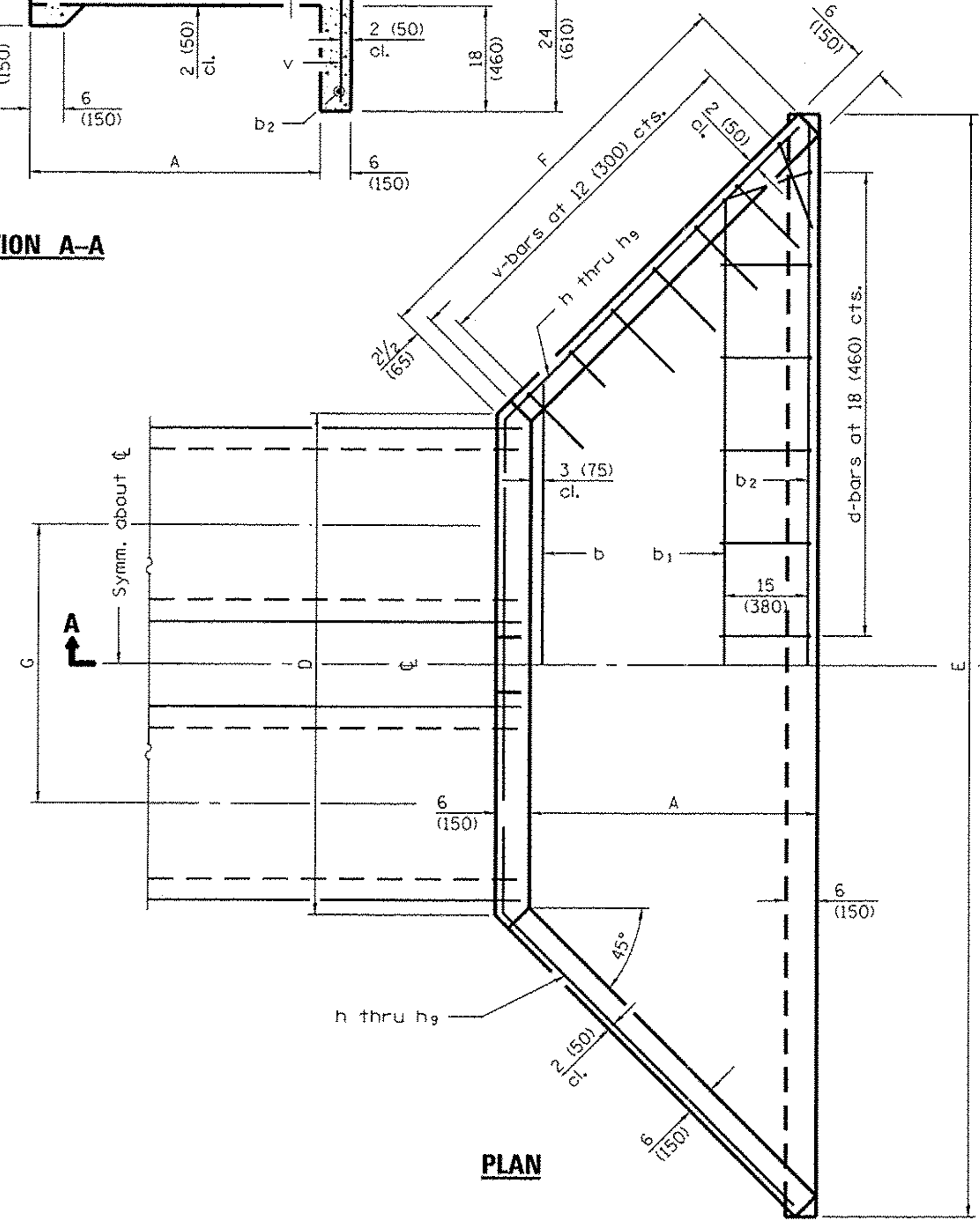
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	261a
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

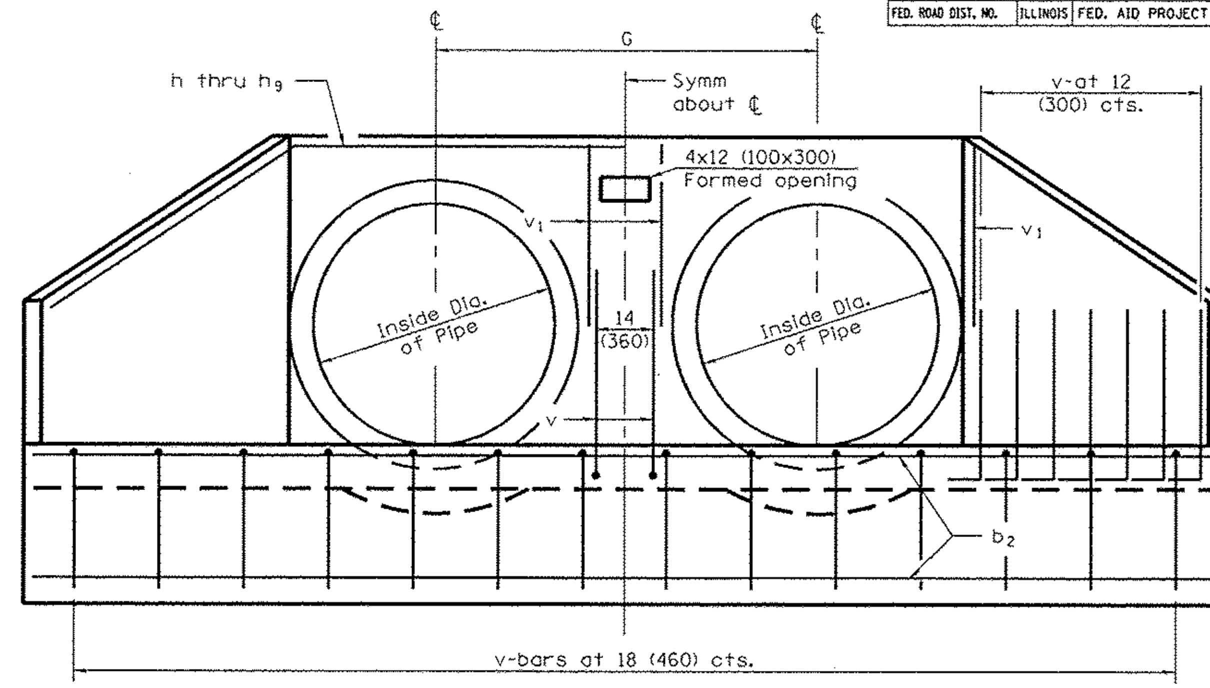


SECTION A–A

• If the embankment slope above the headwall is flatter than 1:2, provide wings for a 1:2 slope.



PLAN



END ELEVATION

STATE OF ILLINOIS
ALAN D. LUKENS
081-005167
QUINCY, ILLINOIS
LICENSED STRUCTURAL ENGINEER

Alan D. Lukens
Licensed Structural Engineer
State of Illinois No. 081-005167
License Expires 11/30/2012

10/4/12
Date

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

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

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
CAST-IN-PLACE END SECTIONS
MULTIPLE PIPE CULVERTS 15"-36"
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

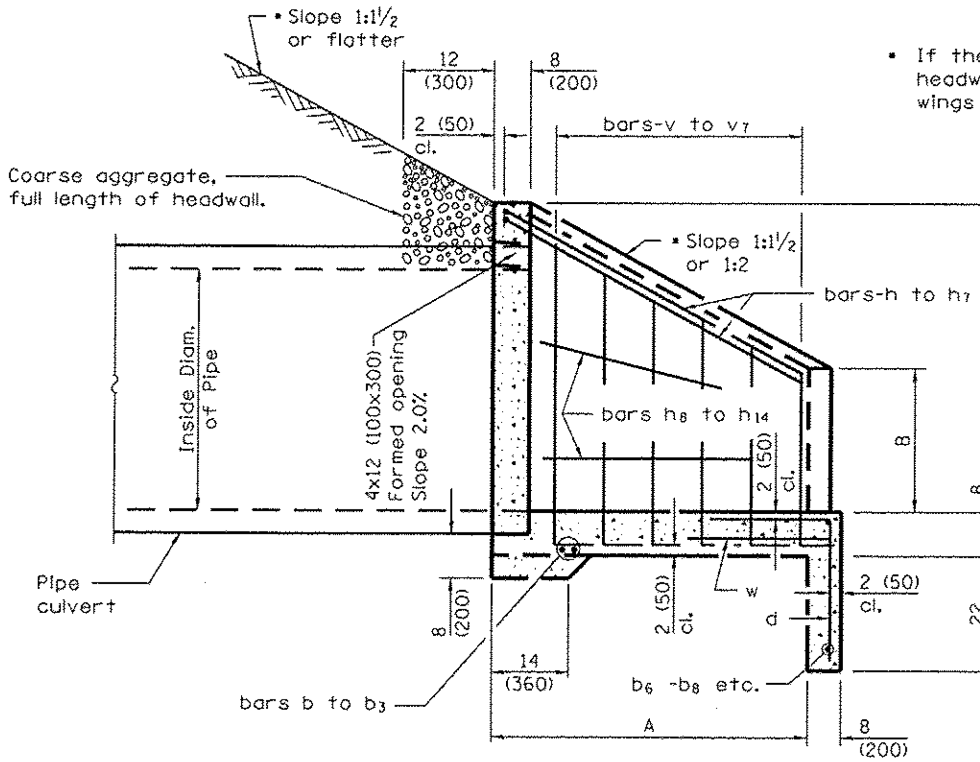
SCALE: | DRAWN BY SEB
DATE 10/2/12 | CHECKED BY ADL

SHEET 1 OF 2

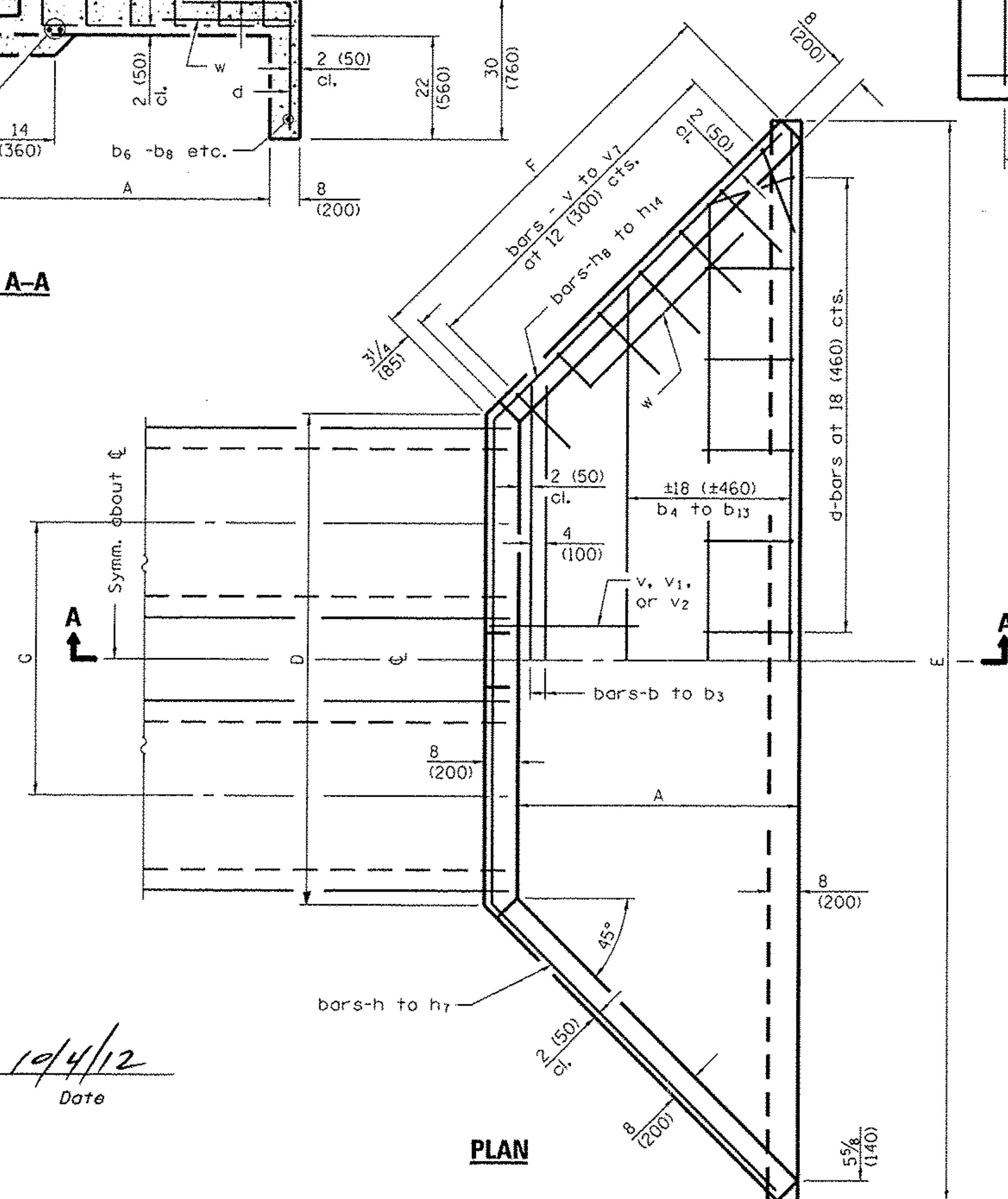
72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	261c
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

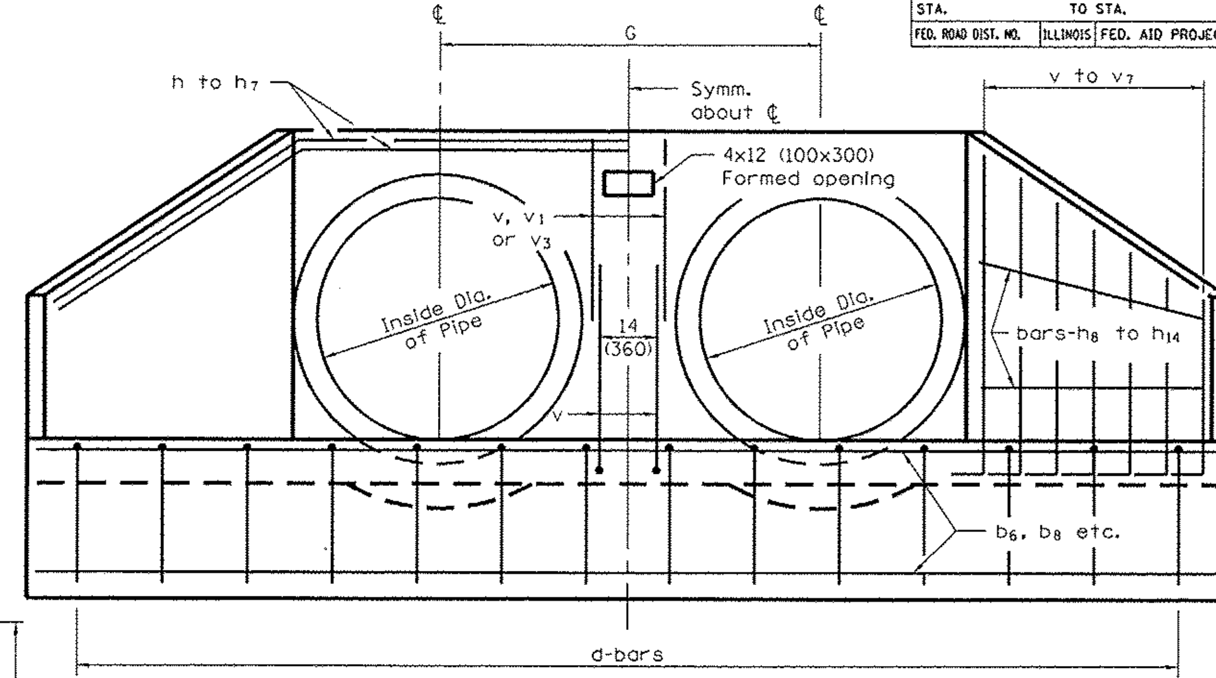
- If the embankment slope above the headwall is flatter than 1:2, provide wings for a 1:2 slope.



SECTION A-A



PLAN



END ELEVATION

STATE OF ILLINOIS
ALAN D. LUKENS
081-005167
LICENSED STRUCTURAL ENGINEER
QUINCY, ILLINOIS

Alan D. Lukens 10/4/12
Licensed Structural Engineer
State of Illinois No. 081-005167
License Expires 11/30/2012
Date

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

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

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
CAST-IN-PLACE END SECTIONS
MULTIPLE PIPE CULVERTS 42"-60"
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: DRAWN BY SEB
DATE 10/2/12 CHECKED BY ADL

SHEET 1 OF 2

72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	261b
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

DIMENSIONS OF BARS–h to h_9

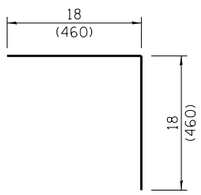
Bars	For 2 Pipes	
	a	b
h	4′-11″ (1.5 m)	29 (740)
h_1	4′-11″ (1.5 m)	3′-3½″ (1.0 m)
h_2	5′-5″ (1.65 m)	29 (740)
h_3	5′-5″ (1.65 m)	3′-3½″ (1.0 m)
h_4	6′-9″ (2.06 m)	39 (990)
h_5	6′-9″ (2.06 m)	4′-3″ (1.3 m)
h_6	7′-9″ (2.36 m)	3′-10½″ (1.18 m)
h_7	7′-9″ (2.36 m)	4′-10½″ (1.49 m)
h_8	9′-0″ (2.75 m)	4′-9″ (1.45 m)
h_9	9′-0″ (2.75 m)	5′-9″ (1.75 m)

TABLE OF DIMENSIONS

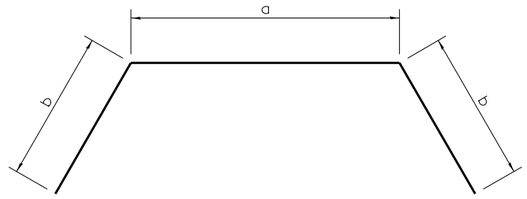
Design No.	Nominal Inside Dia. of Pipe	Slope of Wing Walls	Dimensions						
			For all Multiples of Pipes					For 2 Pipes	
			A	B	C	F	G	D	E
D15-1½ (D375-1½)	15 (375)	1:1½	19 (495)	10 (260)	23 (590)	29½ (750)	37 (940)	5′-1″ (1.55 m)	8′-6½″ (2.61 m)
D15-2 (D375-2)	15 (375)	1:2	26 (660)	10 (260)	23 (590)	3′-3¼″ (1.0 m)	37 (940)	5′-1″ (1.55 m)	9′-8½″ (2.96 m)
D18-1½ (D450-1½)	18 (450)	1:1½	19 (495)	13 (330)	26 (660)	29½ (750)	3′-4″ (1.02 m)	5′-7″ (1.71 m)	9′-0½″ (2.77 m)
D18-2 (D450-2)	18 (450)	1:2	26 (660)	13 (330)	26 (660)	3′-3¼″ (1.0 m)	3′-4″ (1.02 m)	5′-7″ (1.71 m)	10′-2½″ (3.12 m)
D24-1½ (D600-1½)	24 (600)	1:1½	25 (640)	16 (410)	33 (840)	38 (965)	4′-0″ (1.22 m)	6′-11″ (2.11 m)	11′-4½″ (3.47 m)
D24-2 (D600-2)	24 (600)	1:2	34 (860)	16 (410)	33 (840)	4′-2½″ (1.28 m)	4′-0″ (1.22 m)	6′-11″ (2.11 m)	12′-10½″ (3.92 m)
D30-1½ (D750-1½)	30 (750)	1:1½	30 (760)	19 (485)	39 (990)	3′-9″ (1.14 m)	4′-6″ (1.37 m)	7′-11″ (2.41 m)	13′-2½″ (4.02 m)
D30-2 (D750-2)	30 (750)	1:2	3′-4″ (1.01 m)	19 (485)	39 (990)	4′-11″ (1.5 m)	4′-6″ (1.37 m)	7′-11″ (2.41 m)	14′-10½″ (4.53 m)
D36-1½ (D900-1½)	36 (900)	1:1½	36 (915)	22 (560)	3′-10″ (1.17 m)	4′-5½″ (1.36 m)	5′-2″ (1.57 m)	9′-0″ (2.75 m)	15′-6½″ (4.67 m)
D36-2 (D900-2)	36 (900)	1:2	4′-0″ (1.22 m)	22 (560)	3′-10″ (1.17 m)	5′-10½″ (1.79 m)	5′-2″ (1.57 m)	9′-0″ (2.75 m)	17′-6½″ (5.28 m)

TABLE OF QUANTITIES

Design No.	For 2 Pipes												
	Concrete 2 End Secs. cu. yds. (m^3)	Reinforcement Bars in One End Section											Total Quantity 2 End Secs. lbs. (kg)
		No. 4 (No. 13)-h Bars		No. 4 (No. 13)-b_2 Bars		No. 4 (No. 13)-b_1 Bars		No. 4 (No. 13)-b Bars		No. 4 (No. 13)-v_1 Bars		No. 4 (No. 13)-v Bars	
		Bar	Length	Qty.	Length	Qty.	Length	Qty.	Length	Qty.	Length	Qty.	
D15-1½ (D375-1½)	1.4 (1.1)	h	9′-9″ (2.98 m)	2	8′-3″ (2.5 m)			1	6′-3″ (1.9 m)			14	100 (45.4)
D15-2 (D375-2)	1.8 (1.4)	h_1	11′-6″ (3.5 m)	2	9′-3″ (2.82 m)	1	7′-3″ (2.21 m)	1	6′-3″ (1.9 m)			17	130 (59.0)
D18-1½ (D450-1½)	1.7 (1.3)	h_2	10′-3″ (3.13 m)	2	8′-6″ (2.59 m)			1	6′-9″ (2.06 m)			14	100 (45.4)
D18-2 (D450-2)	2.0 (1.5)	h_3	12′-0″ (3.65 m)	2	9′-9″ (2.97 m)	1	7′-9″ (2.36 m)	1	6′-9″ (2.06 m)			17	130 (59.0)
D24-1½ (D600-1½)	2.4 (1.8)	h_4	13′-3″ (4.04 m)	2	11′-0″ (3.35 m)	1	9′-0″ (2.74 m)	1	8′-0″ (2.44 m)	4	31 (790)	18	160 (72.6)
D24-2 (D600-2)	3.0 (2.3)	h_5	15′-3″ (4.66 m)	2	12′-6″ (3.81 m)	1	10′-6″ (3.2 m)	1	8′-0″ (2.44 m)	4	31 (790)	21	180 (81.6)
D30-1½ (D750-1½)	3.0 (2.3)	h_6	15′-6″ (4.72 m)	2	12′-9″ (3.89 m)	1	10′-3″ (3.12 m)	1	8′-3″ (2.51 m)	4	31 (790)	19	170 (77.1)
D30-2 (D750-2)	3.8 (2.9)	h_7	17′-6 ″ (5.34 m)	2	14′-6″ (4.42 m)	1	12′-3″ (3.73 m)	1	8′-3″ (2.51 m)	4	31 (790)	22	190 (86.2)
D36-1½ (D900-1½)	3.9 (3.0)	h_8	18′-6″ (5.65 m)	2	15′-0″ (4.57 m)	1	12′-6″ (3.81 m)	1	9′-9″ (2.97 m)	4	3′-6″ (1.07 m)	22	200 (90.7)
D36-2 (D900-2)	5.0 (3.8)	h_9	20′-6″ (6.25 m)	2	17′-0″ (5.18 m)	1	14′-6″ (4.42 m)	1	9′-9″ (2.97 m)	4	3′-6″ (1.07 m)	26	230 (104)



BAR v



BARS – h to h_9

Bend in field
One required in each headwall

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
CAST-IN-PLACE END SECTIONS
MULTIPLE PIPE CULVERTS 15″-36″
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: DRAWN BY SEB
DATE 10/2/12 CHECKED BY ADL

SHEET 2 OF 2

10/5/2012

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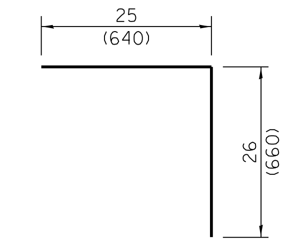
DIMENSIONS OF STRAIGHT BARS

Bar	Size	Length 2-Pipes	Length 3-Pipes
b	No. 5 (No. 16)	11′-9″ (3.58 m)	17′-6″ (5.33 m)
b_1	No. 5 (No. 16)	13′-0″ (3.96 m)	19′-3″ (5.87 m)
b_2	No. 5 (No. 16)	14′-0″ (4.27 m)	20′-9″ (6.32 m)
b_3	No. 5 (No. 16)	15′-3″ (4.65 m)	22′-9″ (6.94 m)
b_4	No. 4 (No. 13)	14′-6″ (4.42 m)	20′-6″ (6.25 m)
b_5	No. 4 (No. 13)	16′-3″ (4.95 m)	23′-0″ (7.01 m)
b_6	No. 4 (No. 13)	17′-3″ (5.26 m)	24′-0″ (7.32 m)
b_7	No. 4 (No. 13)	18′-0″ (5.49 m)	24′-6″ (7.47 m)
b_8	No. 4 (No. 13)	19′-0″ (5.79 m)	25′-3″ (7.7 m)
b_9	No. 4 (No. 13)	20′-6″ (6.25 m)	26′-0″ (7.92 m)
b_{10}	No. 4 (No. 13)	21′-3″ (6.48 m)	27′-0″ (8.23 m)
b_{11}	No. 4 (No. 13)	23′-0″ (7.01 m)	27′-9″ (8.46 m)
b_{12}	No. 4 (No. 13)	24′-0″ (7.32 m)	30′-6″ (9.3 m)
b_{13}	No. 4 (No. 13)	26′-0″ (7.92 m)	34′-0″ (10.36 m)

Bar	Size	Length 2-Pipes	Length 3-Pipes
h_8	No. 4 (No. 13)	4′-9″ (1.45 m)	4′-9″ (1.45 m)
h_9	No. 4 (No. 13)	5′-3″ (1.6 m)	5′-3″ (1.6 m)
h_{10}	No. 4 (No. 13)	6′-0″ (1.83 m)	6′-0″ (1.83 m)
h_{11}	No. 4 (No. 13)	6′-6″ (1.98 m)	6′-6″ (1.98 m)
h_{12}	No. 4 (No. 13)	7′-3″ (2.21 m)	7′-3″ (2.21 m)
h_{13}	No. 4 (No. 13)	8′-0″ (2.44 m)	8′-0″ (2.44 m)
h_{14}	No. 4 (No. 13)	8′-9″ (2.67 m)	8′-9″ (2.67 m)
w	No. 4 (No. 13)	4′-0″ (1.22 m)	4′-0″ (1.22 m)

DIMENSIONS AND QUANTITIES

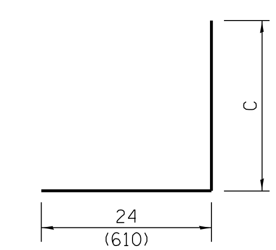
Design No.	Nominal Inside Dia. of Pipe	Slope of Wing Walls	Dimensions – For all Multiples of Pipes A	B	C	F	G	2 Pipes D	2 Pipes E	3 Pipes D	3 Pipes E	Quantities 2 Pipes Concrete 2 End Secs. cu. yds. (m^3)	2 Pipes Reinf. Bars 2 End Secs. lbs. (kgs)	3 Pipes Concrete 2 End Secs. cu. yds. (m^3)	3 Pipes Reinf. Bars 2 End Secs. lbs. (kgs)
D42-1½ (D1.05-1½)	42 (1050)	1:1½	3′-4″ (1.01 m)	26 (660)	4′-4½″ (1.33 m)	5′-0″ (1.52 m)	5′-9″ (1.75 m)	10′-7″ (3.23 m)	17′-8″ (5.38 m)	16′-4″ (4.98 m)	23′-5″ (7.13 m)	7.1 (5.4)	440 (200)	9.3 (7.1)	540 (245)
D42-2 (D1.05-2)	42 (1050)	1:2	4′-5″ (1.35 m)	26 (660)	4′-4½″ (1.33 m)	6′-6¼″ (1.99 m)	5′-9″ (1.75 m)	10′-7″ (3.23 m)	19′-10″ (6.04 m)	16′-4″ (4.98 m)	25′-7″ (7.8 m)	8.8 (6.7)	540 (245)	11.4 (8.7)	640 (290)
D48-1½ (D1.2-1½)	48 (1200)	1:1½	3′-9″ (1.12 m)	29 (740)	4′-11″ (1.5 m)	5′-7″ (1.7 m)	6′-4″ (1.93 m)	11′-9″ (3.58 m)	19′-8″ (5.98 m)	18′-1″ (5.51 m)	26′-0″ (7.91 m)	8.4 (6.4)	510 (231)	11.1 (8.5)	610 (277)
D48-2 (D1.2-2)	48 (1200)	1:2	5′-0″ (1.52 m)	29 (740)	4′-11″ (1.5 m)	7′-4¼″ (2.24 m)	6′-4″ (1.93 m)	11′-9″ (3.58 m)	22′-2″ (6.75 m)	18′-1″ (5.51 m)	28′-6″ (8.68 m)	10.7 (8.2)	630 (286)	13.7 (10.5)	740 (336)
D54-1½ (D1.35-1½)	54 (1350)	1:1½	4′-2″ (1.27 m)	32 (810)	5′-5½″ (1.66 m)	6′-2″ (1.88 m)	6′-11″ (2.11 m)	12′-11″ (3.94 m)	21′-8″ (6.6 m)	19′-10″ (6.05 m)	28′-7″ (8.71 m)	10.0 (7.6)	580 (263)	13.1 (10.0)	700 (318)
D54-2 (D1.35-2)	54 (1350)	1:2	5′-7″ (1.7 m)	32 (810)	5′-5½″ (1.66 m)	8′-2″ (2.49 m)	6′-11″ (2.11 m)	12′-11″ (3.94 m)	24′-6″ (7.46 m)	19′-10″ (6.05 m)	31′-5″ (9.57 m)	12.8 (9.8)	670 (304)	16.3 (12.5)	800 (363)
D60-1½ (D1/5-1½)	60 (1500)	1:1½	4′-7″ (1.4 m)	35 (890)	6′-0″ (1.83 m)	6′-9″ (2.06 m)	7′-6″ (2.29 m)	14′-1″ (4.29 m)	23′-8″ (7.2 m)	21′-7″ (6.58 m)	31′-2″ (9.49 m)	11.7 (8.9)	650 (295)	15.3 (11.7)	790 (358)
D60-2 (D1.5-2)	60 (1500)	1:2	6′-2″ (1.88 m)	35 (890)	6′-0″ (1.83 m)	9′-0″ (2.74 m)	7′-6″ (2.29 m)	14′-11″ (4.29 m)	26′-10″ (8.16 m)	21′-7″ (6.58 m)	34′-4″ (10.45 m)	15.0 (11.5)	780 (354)	19.2 (14.7)	930 (422)



No. 4 (No. 13) BAR–d

BARS IN ONE END SECTION – 2 PIPES

42 (1050) Pipe: D42-1½ (D1.05-1½) BARS	No.	D42-2 (D1.05-2) BARS	No.	48 (1200) Pipe: D48-1½ (D1.2-1½) BARS	No.	D48-2 (D1.2-2) BARS	No.	54 (1350) Pipe: D54-1½ (D1.35-1½) BARS	No.	D54-2 (D1.35-2) BARS	No.	60 (1500) Pipe: D60-1½ (D1.5-1½) BARS	No.	D60-2 (D1.5-2) BARS	No.
d	12	d	13	d	13	d	15	d	14	d	16	d	16	d	18
b	2	b	2	b_1	2	b_1	2	b_2	2	b_2	2	b_3	2	b_3	2
b_4	1	b_4	1	b_5	1	b_5	1	b_6	1	b_6	1	b_7	1	b_7	1
b_6	2	b_6	1	b_8	2	b_8	1	b_8	1	b_9	1	b_9	1	b_9	1
		b_8	2			b_{10}	2	b_{10}	2	b_{12}	2	b_{11}	2	b_{12}	1
														b_{13}	2
h	2	h_1	2	h_2	2	h_3	2	h_4	2	h_5	2	h_6	2	h_7	2
h_8	4	h_{10}	4	h_9	4	h_{12}	4	h_{10}	4	h_{13}	4	h_{11}	4	h_{14}	4
v_7	6	v_7	8	v_7	4	v_7	4	v_6	4	v_6	6	v_5	6	v_5	8
v_4	4	v_4	6	v_5	4	v_5	8	v_4	4	v_4	6	v_3	4	v_3	6
v_3	2	v_3	2	v_3	4	v_2	4	v_1	4	v_1	4	v	6	v	6
				v_1	2	v_1	2	v	2	v	2				
w	2	w	2	w	2	w	2	w	2	w	2	w	2	w	2



BARS – v to v_7

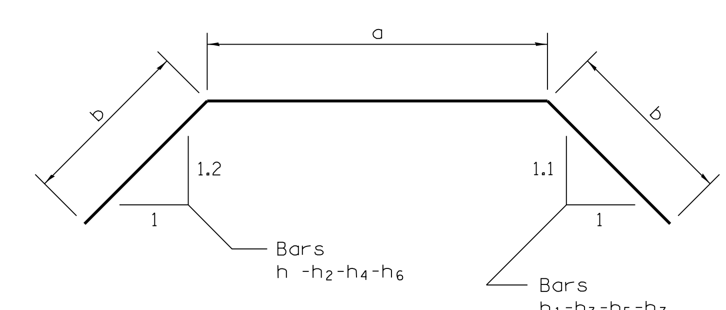
DIMENSIONS OF BENT BARS

No. 5 (No. 16)- bars v to v_7: Bars	c	Total Length
v	6′-0″ (1.83 m)	8′-0″ (2.44 m)
v_1	5′-6″ (1.68 m)	7′-6″ (2.29 m)
v_2	5′-0″ (1.52 m)	7′-0″ (2.13 m)
v_3	4′-6″ (1.37 m)	6′-6″ (1.98 m)
v_4	4′-0″ (1.22 m)	6′-0″ (1.83 m)
v_5	3′-6″ (1.07 m)	5′-6″ (1.68 m)
v_6	36 (910)	5′-0″ (1.52 m)
v_7	30 (760)	4′-6″ (1.37 m)

No. 5 (No. 16)- bars h to h_7: Bars	2-Pipes a	2-Pipes b	2-Pipes Total Length	3-Pipes a	3-Pipes b	3-Pipes Total Length
h	10′-5″ (3.18 m)	5′-2″ (1.57 m)	20′-9″ (6.32 m)	16′-2″ (4.93 m)	5′-2″ (1.57 m)	26′-6″ (8.07 m)
h_1	10′-5″ (3.18 m)	6′-8″ (2.03 m)	23′-9″ (7.24 m)	16′-2″ (4.93 m)	6′-8″ (2.03 m)	29′-6″ (8.99 m)
h_2	11′-7″ (3.53 m)	5′-10″ (1.78 m)	23′-3″ (7.09 m)	17′-11″ (5.46 m)	5′-11″ (1.80 m)	29′-9″ (9.06 m)
h_3	11′-7″ (3.53 m)	7′-7″ (2.31 m)	26′-9″ (8.15 m)	17′-11″ (5.46 m)	7′-6½″ (2.3 m)	33′-0″ (10.06 m)
h_4	12′-9″ (3.87 m)	6′-6″ (1.98 m)	25′-9″ (7.83 m)	19′-8″ (6.0 m)	6′-6½″ (2.0 m)	32′-9″ (10.0 m)
h_5	12′-9″ (3.87 m)	8′-3″ (2.51 m)	29′-0″ (8.89 m)	19′-8″ (6.0 m)	8′-3½″ (2.53 m)	36′-3″ (11.06 m)
h_6	12′-11″ (4.24 m)	7′-2″ (2.18 m)	28′-3″ (8.60 m)	21′-5″ (6.53 m)	7′-2″ (2.18 m)	35′-9″ (10.89 m)
h_7	13′-11″ (4.24 m)	9′-2″ (2.79 m)	32′-3″ (9.82 m)	21′-5″ (6.53 m)	9′-3½″ (2.83 m)	40′-0″ (12.19 m)

BARS IN ONE END SECTION – 3 PIPES

42 (1050) Pipe: D42-1½ (D1.05-1½) BARS	No.	D42-2 (D1.05-2) BARS	No.	48 (1200) Pipe: D48-1½ (D1.2-1½) BARS	No.	D48-2 (D1.2-2) BARS	No.	54 (1350) Pipe: D54-1½ (D1.35-1½) BARS	No.	D54-2 (D1.35-2) BARS	No.	60 (1500) Pipe: D60-1½ (D1.5-1½) BARS	No.	D60-2 (D1.5-2) BARS	No.
d	15	d	17	d	17	d	19	d	19	d	21	d	21	d	23
b	2	b	2	b_1	2	b_1	2	b_2	2	b_2	2	b_3	2	b_3	2
b_4	1	b_4	1	b_5	1	b_5	1	b_6	1	b_7	1	b_8	1	b_8	1
b_5	2	b_5	1	b_8	2	b_8	1	b_9	1	b_{11}	1	b_{11}	1	b_{10}	1
		b_8	2			b_{11}	2	b_{11}	2	b_{12}	2	b_{12}	2	b_{12}	1
														b_{13}	2
h	2	h_1	2	h_2	2	h_3	2	h_4	2	h_5	2	h_6	2	h_7	2
h_8	4	h_{10}	4	h_9	4	h_{12}	4	h_{10}	4	h_{13}	4	h_{11}	4	h_{14}	4
v_7	6	v_7	8	v_7	4	v_7	4	v_6	4	v_6	6	v_5	6	v_5	8
v_4	4	v_4	6	v_5	4	v_5	8	v_4	4	v_4	6	v_3	4	v_3	6
v_3	2	v_3	2	v_3	4	v_2	4	v_1	4	v_1	4	v	6	v	6
				v_1	2	v_1	2	v	2	v	2				
w	2	w	2	w	2	w	2	w	2	w	2	w	2	w	2



BARS – h to h_7

Bend in field
One Required in each headwall

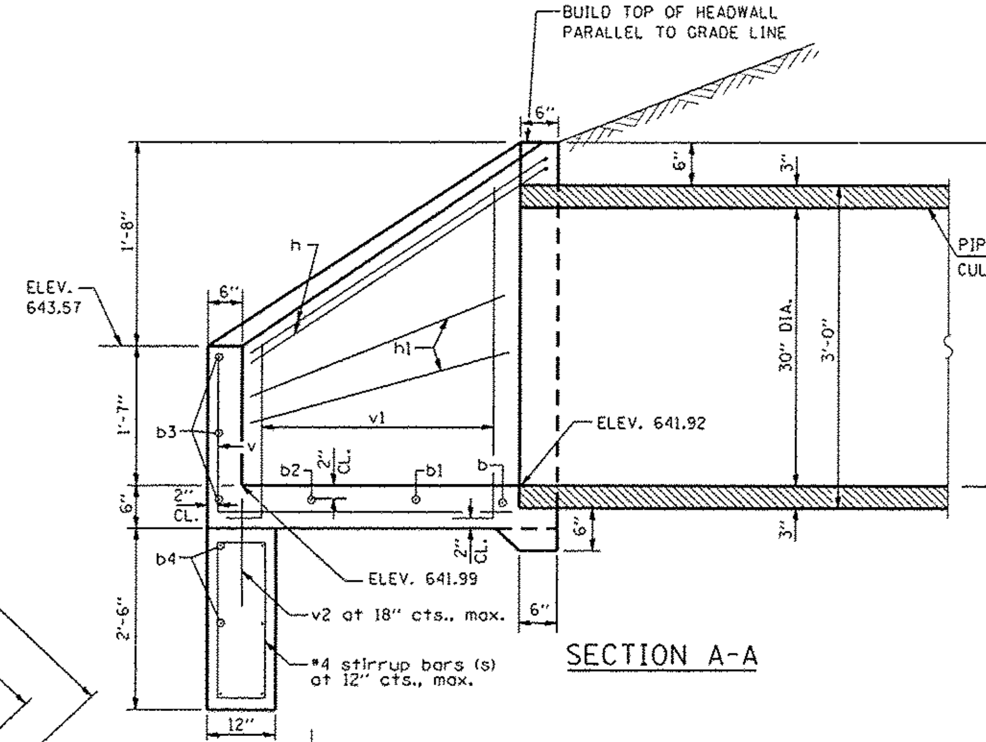
REVISIONS NAME	DATE

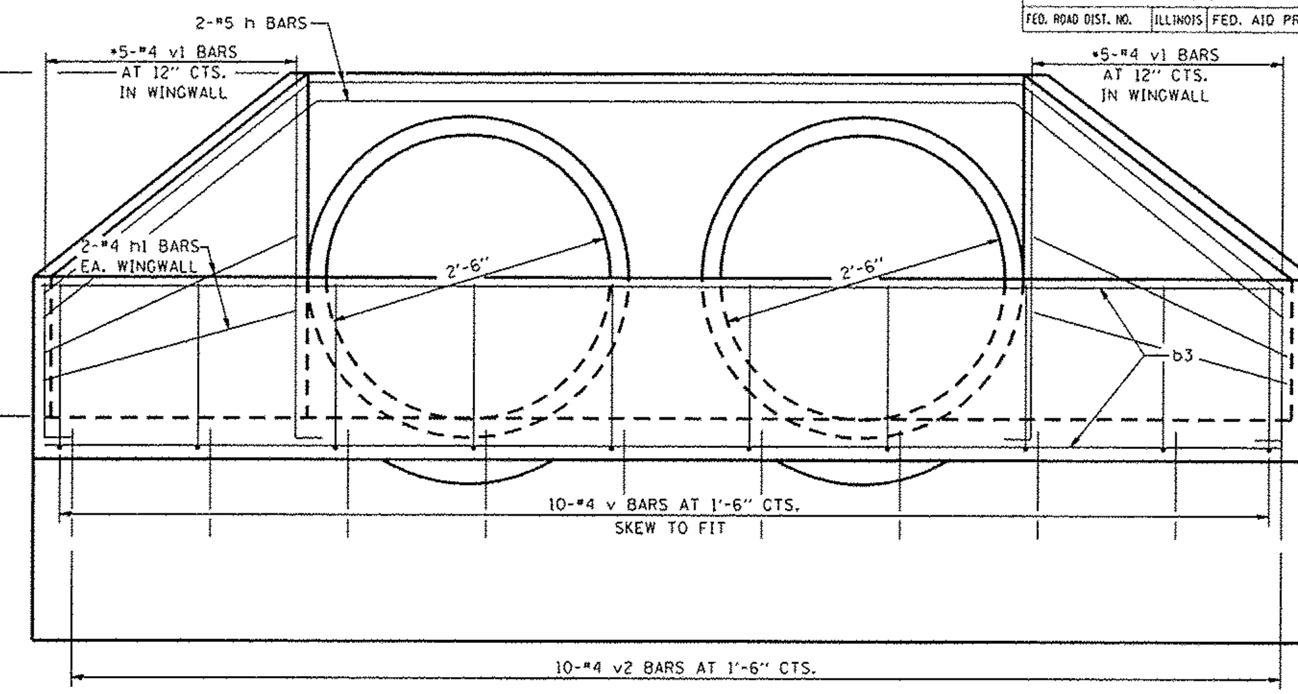
ILLINOIS DEPARTMENT OF TRANSPORTATION
CAST-IN-PLACE END SECTIONS
MULTIPLE PIPE CULVERTS 42″-60″
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: DRAWN BY SEB
DATE 10/2/12 CHECKED BY ADL

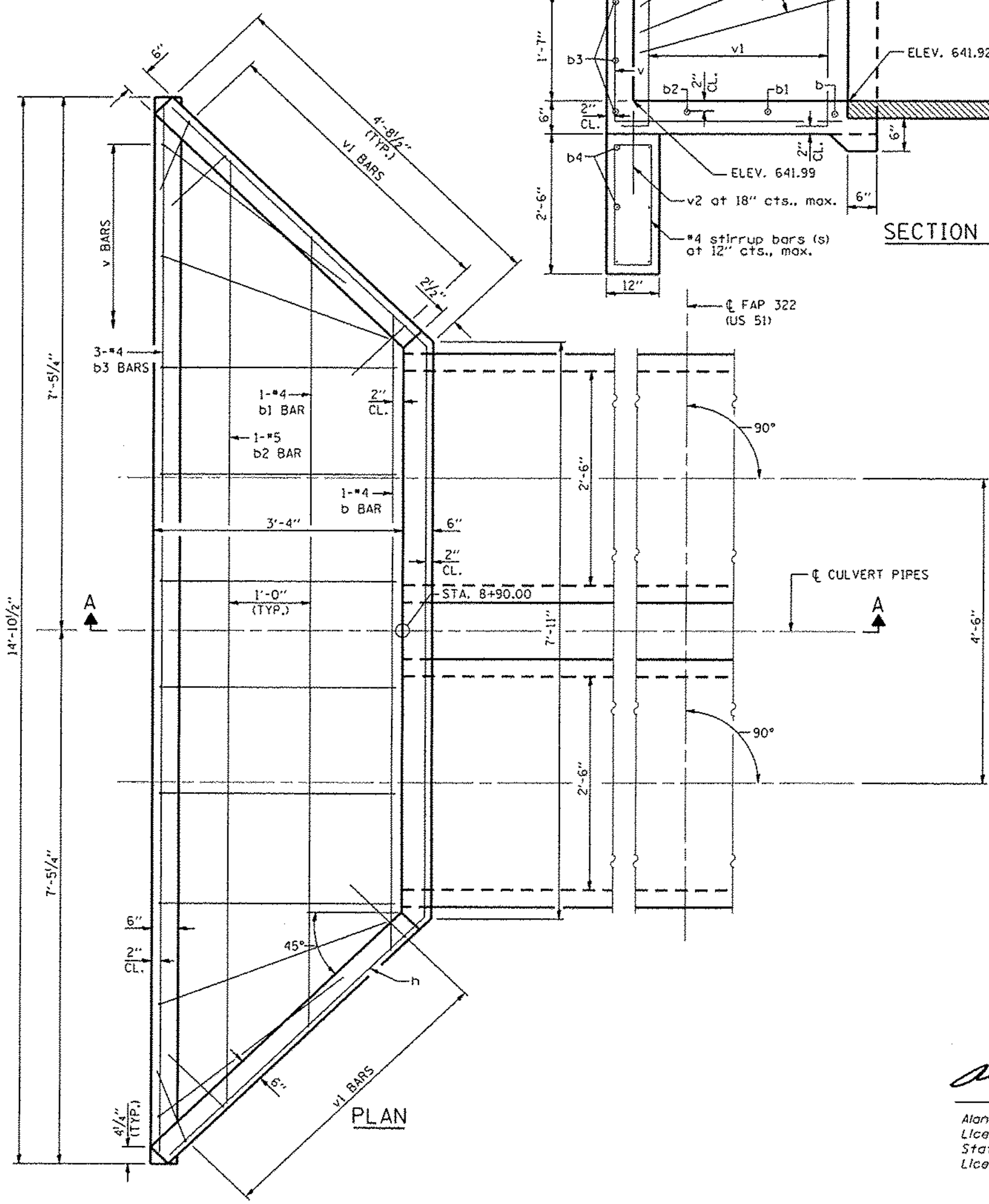
72961

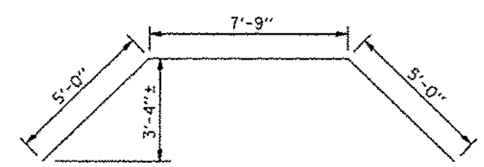
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	262
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



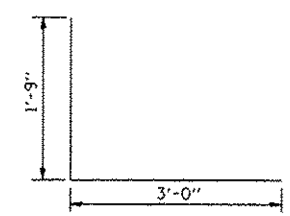


* SEE FIELD CUTTING DIAGRAM

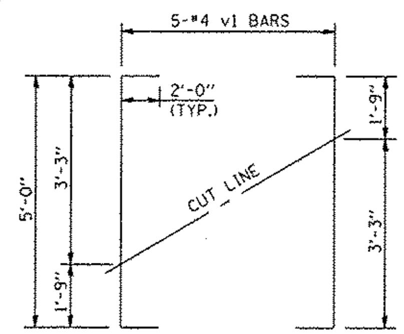




BAR h
(BEND IN FIELD)



BAR v



FIELD CUTTING DIAGRAM
ORDER v1 BARS FULL LENGTH

BILL OF MATERIAL
(1 END SECTION)

BAR	NO.	SIZE	LENGTH	SHAPE
b	1	#4	8'-9"	——
b1	1	#4	10'-9"	——
b2	1	#4	12'-9"	——
b3	3	#4	14'-6"	——
b4	6	#5	14'-6"	——
h	2	#5	17'-9"	/‾‾\
h1	4	#4	4'-6"	——
v	10	#4	4'-9"	‾‾|
v1	5	#4	9'-0"	|‾‾|
v2	10	#4	1'-2"	——
s	15	#4	6'-0"	▭
CONCRETE STRUCTURES			3.8 CU. YD.	
REINFORCEMENT BARS			160 LBS	

STATE OF ILLINOIS
ALAN D. LUKENS
081-005167
QUINCY, ILLINOIS
LICENSED STRUCTURAL ENGINEER

Alan D. Lukens
Licensed Structural Engineer
State of Illinois No. 081-005167
License Expires 11/30/2012

10/4/12
Date

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

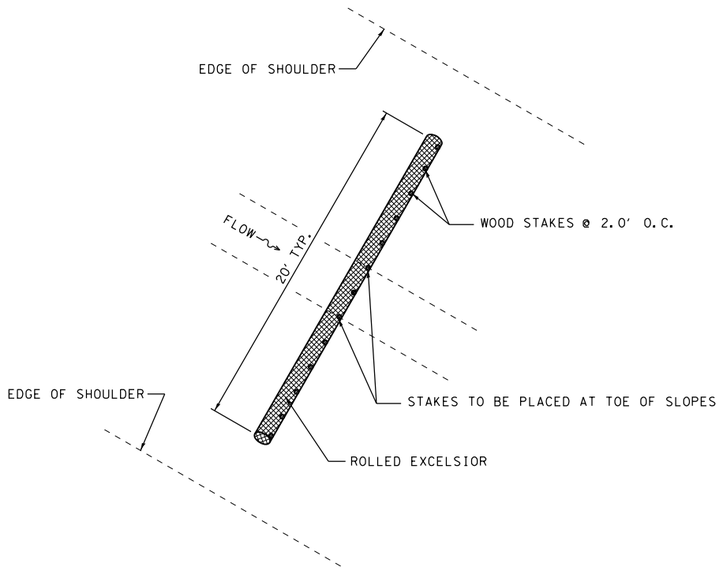
CAST-IN-PLACE END SECTION
SD 547 (STA 8+90.0 LT)
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: DRAWN BY RJP
DATE CHECKED BY EBB

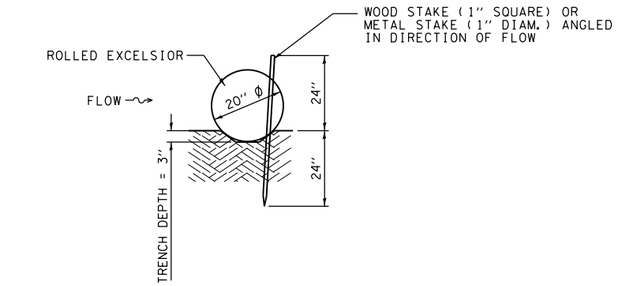
12/3/2012

72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	263
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

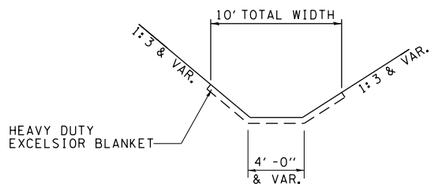


PLAN VIEW



SECTION VIEW

TEMPORARY DITCH CHECKS, ROLLED EXCELSIOR
(TYPICAL)



HEAVY DUTY EXCELSIOR BLANKET LIMITS
(TYPICAL)

SEE STANDARD 280001 FOR EROSION CONTROL DETAILS NOT SHOWN.

LEGEND

(FOR THE STORM WATER POLLUTION PREVENTION PLAN SHEETS)

ITEM	SYMBOL
TEMPORARY DITCH CHECKS, AGGREGATE (STD 280001) (AGGREGATE DITCH CHECKS, 3.0 TONS PER EACH)	
TEMPORARY DITCH CHECKS, ROLLED EXCELSIOR	T
INLET AND PIPE PROTECTION (STD 280001) [HAY BALES NOT ALLOWED]	
PERIMETER EROSION BARRIER	
EARTH EXCAVATION FOR EROSION CONTROL (SEDIMENT BASINS)	
PRESERVE EXISTING TREES, WOODLANDS, AND UNDERSTORY (OUTSIDE CONSTRUCTION LIMITS)	
ITEM PLACED AT BEGINNING OF CONSTRUCTION (Requirement)	* ITEM *
ITEM PLACED AS DIRECTED BY ENGINEER (When required by situation)	ITEM
DIRECTION OF OVERLAND FLOW	
EXCELSIOR / EROSION CONTROL BLANKET	
ITEM PLACED DURING STAGE 1 CONSTRUCTION	(1)

GENERAL NOTES:

All items shall be constructed as shown on this sheet, on Standard 280001, and as directed by the Engineer.

Mulch shall be method 2, unless otherwise noted.

Rolled excelsior ditch checks shall be paid for as "TEMPORARY DITCH CHECKS".

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

STORM WATER POLLUTION PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: NONE DRAWN BY BGJ
DATE . CHECKED BY .

10/5/2012

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STORM WATER POLLUTION PREVENTION PLAN

Route: FAP 322 Marked: US 51

Section: 11-13 Project No.: NA

County: CHRISTIAN Contract No. 72961

This plan has been prepared to comply with the provision of the NPDES Permit Number ILR10__________ issued by the Illinois Environmental Protection Agency for storm water discharges from construction site activities.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel gathered and evaluated the information submitted. Based on my inquire of the person or persons who manage the system, or those persons directly responsible for gathering the information submitted, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

(Signature) 10-16-12 (Date)

Region 4 Engr (Title)

Note: The above boxed in area will be filled out by IDOT - Construction after the award of the contract to obtain the required NPDES permit.

The following plan was established and included in these plans to direct the Contractor in the placement of temporary erosion control systems and to provide a storm water pollution prevention plan for compliance under NPDES. The Contractor shall abide to all requirements within this plan as part of the contract.

The purpose of this plan is to prevent / minimize siltation within the construction zone and to eliminate sediments from entering and leaving the construction zone by utilizing proper temporary erosion control systems and providing ground cover within a reasonable time.

Certain items, as shown in this plan and referenced by the legend, shall be placed by the Contractor at the beginning of construction. Other items shall be placed by the Contractor as directed by the Engineer on a case by case situation resulting from the Contractor's sequence of activities, time of the year, and expected weather conditions.

The Contractor shall place permanent erosion control systems and seeding within a reasonable amount of time; therefore, reducing the amount of area being open to the possibility of erosion and reducing the amount of temporary erosion control systems and temporary seeding. The Resident Engineer will determine if temporary erosion control systems shown in the plan can be deleted, the size of the proposed ditch checks, the proper method of installation, and if any additional temporary erosion control systems shall be added which are not included in this plan. The Contractor shall perform all work as directed by the Engineer and as shown in special details and in Standard 280001 of the plans.

All disturbed areas having high potential for erosion, as determined by the Engineer, shall be temporarily seeded or permanently seeded by October 1, and shall not be reopened until after the winter shutdown period.

SITE DESCRIPTION

Description of Construction Activity:

1. The proposed project consists of new construction of a new four-lane expressway from 2.5 miles northeast of Pana northernly to 1.5 miles south of Assumption in Christian County, Illinois.
2. This contract involves 4.4 miles of grading & paving of the four lane expressway.
3. A 122'-7" three span, 43' wide bridge will be constructed to carry the northbound lanes of US 51 over the Main Drainage Ditch and the existing bridge carrying US 51 over the Main Drainage Ditch will be widened. A new 110' three span, 28' wide bridge will be constructed to carry TR 255 over the Main Drainage Ditch. Two double 10' x 8' box culverts will be constructed to carry US 51 and TR 268 over a tributary of the Main Drainage Ditch. Several additional small drainage structures will be constructed through the limits of the project.

Description of Intended Sequence of Major Construction Activities Which Will Disturb Earth and Lead to Possible Erosion for Major Portions of the Construction Site:

1. Excavation will be completed to grade out for proposed roadway ditches and waterways, and to lower the existing ground elevation to meet the proposed roadway grade/vertical alignment.
2. Embankment will be completed in fill areas to raise the existing ground elevation to meet the proposed roadway grade/vertical alignment.
3. Drainage structures will be installed before and/or during the construction of the excavation and embankment to allow proper drainage across the proposed four lane facility.
4. Placement, maintenance, removal and proper clean-up of temporary erosion control, such as erosion control fence, hay or straw bale ditch checks, riprap ditch checks, sediment basins, temporary seeding, etc.
5. Placement of permanent erosion control, such as riprap ditch lining, riprap stilling basins, riprap dry dams, excelsior blanket, seeding, etc.
6. Final grading, paving and other miscellaneous items.
7. Stage construction of the above items will be required to maintain traffic as discussed previously herein.

Area of Construction Site:

The total drainage area entering and including the construction site is estimated to be 3140 acres (4.9 square miles) in which 160 acres will be disturbed by excavation, grading or other activities.

Other Reports, Studies and Plans which Aid in the Development of this Storm Water Pollution Prevention Plan as Referenced Documents:

1. Estimated run-off coefficients are contained in the project drainage study which were utilized for proposed placement of the temporary erosion control systems.*
2. Information on the soils within the site was obtained from field reviews which were utilized for proposed placement of the temporary erosion control systems.*
3. Site maps indicating drainage patterns and approximate slopes were contained in the project design report, USGS drainage maps, project drainage study, and project plan documents were all utilized for proposed placement of the temporary erosion control systems.

Drainage Tributaries Receiving Water from this Construction Site:

1. Flat Branch of the Sagamon River
2. Main Drainage Ditch / Lake Fork of the Sagamon River
3. Minor tributaries of the above

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	265
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

CONTROLS - EROSION CONTROLS AND SEDIMENT CONTROLS

Description of Stabilization Practices at the Beginning of Construction:

1. The area between the existing and proposed right-of-way/temporary easement boundaries and limits of the project will be improved and managed for the purposes of controlling erosion within the area, reducing water flow by temporary diversion and minimizing siltation into the construction zone, and establishing vegetative cover which will become permanent vegetation and act as an erosion barrier. Work at the beginning of construction will consist of the following:

   (a) Areas of existing vegetation (woods and grasslands) outside the proposed construction slope limits shall be identified for preserving and shall be protected from mowing, brush cutting, tree removal and other activities which would be detrimental to their maintenance and development.

   (b) Dead, diseased, or unsuitable vegetation within the site shall be removed as directed by the Engineer, along with required tree removal.

   (c) As soon as reasonable access is available (such as trees cleared) to all locations where water drains away from the project, sediment basins, riprap ditch checks, temporary ditch checks, and/or erosion control fence shall be installed as called out in this plan and directed by the Engineer.

   (d) Bare and sparsely vegetated ground in highly erodable areas as determined by the Engineer shall be temporarily seeded at the beginning of construction where no construction activities are immediately expected as stated in the special provision "Temporary Erosion Control Seeding".

   (e) Immediately after tree removal is completed in certain areas which are highly erodable areas as determined by the Engineer, the areas shall be temporarily seeded where no construction activities are immediately expected as stated in the special provision •Temporary Erosion Control Seeding•.

   (f) At locations where a significant amount of water drains into the construction zone from outside areas (adjacent landowners), erosion control fence, temporary ditch checks, or riprap ditch checks will be utilized to locally divert water, reduce flow rates, and collect outside siltation inside the right-of-way line. Erosion control items will not be allowed to be installed to cause flooding to upstream private property which could cause crop damages or other undesirable conditions.

2. Establishment of these temporary erosion control measures will have additional benefits to the project. Desirable grass seed will become established in these areas and will spread seeds onto the construction site until permanent seeding/mowing and overseeding can be complete.

3. A third benefit of these filter areas is that they will begin to provide a screen and buffer. They will help protect the construction site from winds and excess sun and mitigate construction noise and dust.

Description of Stabilization Practices During Construction:

1. During roadway construction, areas outside the construction slope limits as outlined previously herein shall be protected from damaging effects of construction. The Contractor shall not use this area for staging (except as designated on the plans or directed by the Engineer), parking of vehicles or construction equipment, storage of materials, or other construction related activities.
   (a) Within the construction zone, critical areas which have high flows of water as determined by the Engineer shall remain undisturbed until full scale construction is underway to prevent unnecessary soil erosion.
   (b) Top soil and earth stockpiles shall be temporarily seeded if they are to remain unused for more than fourteen days.
   (c) As the Contractor constructs a portion of roadway in a fill section, he/she shall follow the following steps as directed by the Engineer:

   i. Place temporary erosion control systems at locations where water leaves and enters the construction zone
   ii. Temporarily seed highly erodable areas outside the construction slope limits
   iii. Construct roadside ditches and provide temporary erosion control systems
   iv. TemporarILy divert water around proposed culvert locations
   v. Build necessary embankment at culvert locations and then excavate and place culvert
   vi. Continue building up the embankment to the proposed grade while at the same time place permanent erosion control such as riprap ditch lining and conduct final shaping to the slopes

   (d) The Contractor shall immediately follow major earth moving operations with final grading equipment. After the major earth spread operation has moved to a new location, final grading shall be completed within fourteen days. If grading is not completed within fourteen days, all major earth moving operations will be stopped, as directed by the Engineer, until disturbed areas are final graded and seeded.

   (e) Excavated areas and embankments shall be permanently seeded when final graded. If not, they shall be temporarily seeded as stated in the special provision "Temporary Erosion Control Seeding".

   (f) Construction equipment shall be stored and fueled only at designated locations. All necessary measures shall be taken to contain any fuel or pollution run-off in compliance with EPA water quality regulations. Leaking equipment or supplies shall be immediately repaired or removed from the site.

   (g) Qualified personnel shall inspect the project at least every 7 calendar days and within 24 hours of the end of a storm that is 0.5 inches or greated as noted in BDE 2342.

   (h) Sediment collected during construction by the various temporary erosion control systems shall be disposed of on the site on a regular basis as directed by the Engineer.

   (i) The temporary erosion control systems shall be removed as directed by the Engineer after use is no longer needed or no longer functioning. The costs of this removal shall be included in the unit bid price for the various temporary erosion control pay iytems. No additional compensation will be allowed.

Description of Structural Practices After Final Grading:

1. Temporary erosion control systems shall be left in place with proper maintenance until permanent erosion control is in place and working properly and all proposed turf areas seeded and established with a proper stand.

2. Once permanent erosion control systems as proposed in the plans are functional and established, temporary items shall be removed, cleaned up, and disturbed turf reseeded. Temporary riprap ditch checks will be allowed to remain in place where approved by the Engineer.

Maintenance after Construction:

1. Construction is complete after acceptance is received at the final inspection.

2. Areas will be inspected on a regular basis by IDOT District 6 Bureau of Operations.

3. Maintenance crews will perform regular mowings to aid in keeping weeds down and establishing a good roadside seed stand.

4. Maintenance crews will also aid in any ditch lining maintenance or in any drainage problems.

5. All maintenance will be conducted at times when weather conditions will not cause site damage.

DOCUMENTATION

1. A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, date(s) of the inspection, major observations relating to the implementation of this storm water pollution prevention plan, and actions taken in accordance with Section 4.b. shall be made and retained as part of the plan for at least three years after the date of inspection. The report shall be signed in accordance with part VI.G of the general permit.

2. If any violation of the provisions of this plan is identified during the conduct of the construction work covered by this plan, the Resident Engineer or Resident Technician shall complete and file an "Incident of Noncompliance (ION)" report for the identified violation. The Resident Engineer or Resident Technician shall use forms provided by the Illinois Environmental Protection Agency and shall include specific information on the noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance. All reports of noncompliance shall be signed by a responsible authority in accordance with Part VI.G. of the general permit. The report of noncompliance shall be mailed to the following address:

   Illinois Environmental Protection Agency
   Division of Water Pollution Control
   2200 Churchill Road, P.O. Box 19276
   Springfield, IL 62794-9276
   Attn: Compliance Assurance Section

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

STORM WATER POLLUTION PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: NONE DRAWN BY BGJ

DATE . CHECKED BY .

10/5/2012

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	266
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

CONTRACTOR CERTIFICATION STATEMENT

This certification statement is part of the Storm Water Pollution Plan for the project described below in accordance with NPDES Permit No. ILR10_____, issued by the Illinois Environmental Protection Agency on _____.

Route: FAP 322 Marked: US 51

Section: 11-13 Project No.: NA

County: Christian Contract # 72961

I certify under penalty of law that I understand the terms of the general National Pollutant Discharge Elimination System (NPDES) permit that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

In addition, I have read and understand all of the information and requirements stated in the SWPPP for the above mentioned project: I have received copies of all appropriate maintenance procedures; and, I have provided all documentation required to be in compliance with Permit ILR10 and SWPPP and will provide timely updates to these documents as necessary.

Signature_____ Date_____

Title_____

Name of Firm_____

Street Address_____

City, State, Zip_____

Phone Number_____

Note: The above boxed in area shall be filled out by the Contractor after the award of the contract to obtain the required NPDES Permit from IEPA. This is a requirement for this contract.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

STORM WATER POLLUTION PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: NONE DRAWN BY BGJ

DATE . CHECKED BY .

10/5/2012

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	267
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

PERIMETER EROSION BARRIER
* ITEM *

BEGIN SECTION 11-13
BEGIN GRADING
SB LANES
STA 329+00.00

BEGIN PAVING
SB LANES
STA 331+00.00

HEAVY DUTY EROSION
CONTROL BLANKET
12.0' WIDTH

CONSTRUCTION LIMITS

STA 341+85.0
24.0" ACG FE

MATCH LINE STA 343+00

AC

330+00 335+00 340+00
55+00 60+00
200+00 50+00 ℄ EX US 51 205+00 210+00
℄ CONSTRUCTION, FAP 322 (US 51)

* ITEM *

BEGIN CROSSOVER "A"
PC STA 50+00.00 CROSSOVER "A" =
POT STA 200+31.86 EX US 51 =
POT STA 328+62.95 37.00' RT FAP 322

BEGIN IMPROVEMENT
STA 328+42.95 37.00' RT

CONSTRUCTION LIMITS

HEAVY DUTY EROSION
CONTROL BLANKET
12.0' WIDTH

BEGIN FULL DEPTH PAVEMENT
FAP 322 NB LANES
STA 340+50.00

100 50 0 100
GRAPHIC SCALE (IN FEET)

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
STORM WATER POLLUTION
PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: 1"=50' DRAWN BY SEB
DATE CHECKED BY

FAP 322 (US 51) STA 327+00 TO STA 343+00

10/5/2012
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	268
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

END CROSSOVER "A"
PT STA 65+39.42 CROSSOVER "A" =
POC STA 344+00.00 37.00' LT FAP 322

CONSTRUCTION LIMITS

PC STA 344+96.72

STA 347+73.0
24.0' AGG FE

FAP 322 CURVE SC01 DATA
PI STA = 351+06.45
Δ = 22° 58' 38" (LT)
D = 1° 54' 35"
R = 3,000.00'
T = 609.73'
L = 1,203.08'
E = 61.34'
SE = 5.3%
PC STA = 344+96.72
PT STA = 356+99.80
SE ATTAINED STA 342+99 TO STA 345+77
(TR STA 342+99 TO STA 343+38)
SE REMOVED STA 356+21 TO STA 358+99
(TR STA 358+60 TO STA 358+99)

HEAVY DUTY EROSION
CONTROL BLANKET
12.0' WIDTH

STA 356+99.80

MATCH LINE STA 343+00

MATCH LINE STA 358+00

L 65+00
L 215+00
345+00
℄ CONSTRUCTION FAP 322 (US 51)
L 350+00
L 355+00
L 220+00
℄ EX US 51
L 225+00
+60
+98

HEAVY DUTY EROSION
CONTROL BLANKET
12.0' WIDTH

HEAVY DUTY EROSION
CONTROL BLANKET
12.0' WIDTH

STA 347+72.0
6.0" HMA PE

PI STA 351+06.45

CONSTRUCTION LIMITS

L 15+00

AC

N

100 50 0 100
GRAPHIC SCALE (IN FEET)

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
STORM WATER POLLUTION
PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: 1"=50' DRAWN BY SEB
DATE CHECKED BY

FAP 322 (US 51) STA 343+00TO STA 358+00

10/5/2012

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	269
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

TR 268 CURVE #2 DATA
PI STA. = 17+33.17
Δ = 47° 33′ 31″ (LT)
D = 19° 05′ 55″
R = 300.00′
T = 132.19′
L = 249.02′
E = 27.83′
SE=4.0%
PC STA. = 16+00.98
PT STA. = 18+50.00
SE ATTAINED STA 15+48 TO STA 16+21
SE REMOVED STA 18+26 TO STA 19+26
(TR STA 18+99 TO STA 19+26)

FAP 322 CURVE #SCO2 DATA
PI STA = 366+64.75
Δ = 21° 21′ 09″ (RT)
D = 2° 36′ 16″
R = 2,200.00′
T = 414.75′
L = 819.87′
E = 38.75′
SE = 5.9%
PC STA = 362+50.01
PT STA = 370+69.88
SE ATTAINED STA 360+34 TO 363+39
(TR STA 360+34 TO STA 360+73)
SE REMOVED STA 369+80 TO STA 372+85
(TR STA 372+46 TO STA 372+85)

MATCH LINE STA 16+00
ITEM
CONSTRUCTION LIMITS
HEAVY DUTY EROSION CONTROL BLANKET 12.0′ WIDTH
PC STA 362+50.01
PI STA 366+64.75
℄ CONSTRUCTION FAP 322 (US 51)
PT STA 370+69.88
℄ EX US 51
MATCH LINE STA 373+00
MATCH LINE STA 358+00
HEAVY DUTY EROSION CONTROL BLANKET 12.0′ WIDTH
FILL EXISTING CHANNEL
STA 21+79.0
24.0′ AGG CE
CONSTRUCTION LIMITS
POT STA 360+98.92 FAP 322 =
POT STA 20+02.85 TR 268
TR 268 CURVE #3 DATA
PI STA. = 23+42.88
Δ = 11° 03′ 06″ (RT)
D = 5° 43′ 46″
R = 1000.00′
T = 96.74′
L = 192.89′
E = 4.67′
SE = 2.6%
PC STA. = 22+46.14
PT STA. = 23+39.03
SE ATTAINED STA 21+87 TO STA 22+62
(TR STA 21+87 TO STA 22+14)
SE REMOVED STA 23+23 TO STA 23+98
(TR STA 23+71 TO STA 23+98)
HEAVY DUTY EROSION CONTROL BLANKET 12.0′ WIDTH
HEAVY DUTY EROSION CONTROL BLANKET 12.0′ WIDTH
STA 24+02.0
24.0′ AGG FE
℄ TR 268
CONSTRUCTION LIMITS
END CONSTRUCTION
STA 25+50.00 PROPOSED TR 268=
STA 25+77.41 EXISTING TR 268

100 50 0 100
GRAPHIC SCALE (IN FEET)

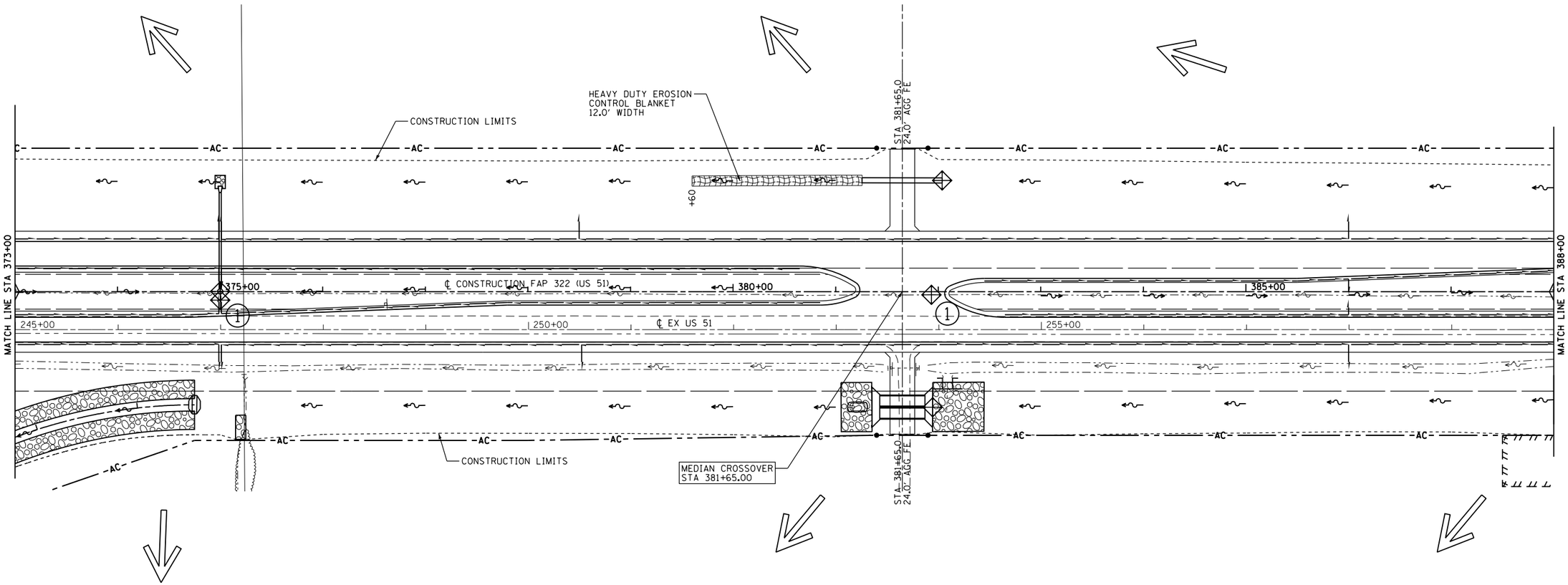
REVISIONS	
NAME	DATE
SEB	10/10/12
SEB	11/7/12

ILLINOIS DEPARTMENT OF TRANSPORTATION
STORM WATER POLLUTION PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY
SCALE: 1″=50′ DRAWN BY SEB
DATE CHECKED BY
FAP 322 (US 51) STA 358+00 TO STA 373+00

11/7/2012
#FILE#

72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	270
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



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GRAPHIC SCALE (IN FEET)

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

STORM WATER POLLUTION PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: 1"=50' DRAWN BY SEB

DATE CHECKED BY

FAP 322 (US 51) STA 373+00 TO STA 388+00

10/5/2012

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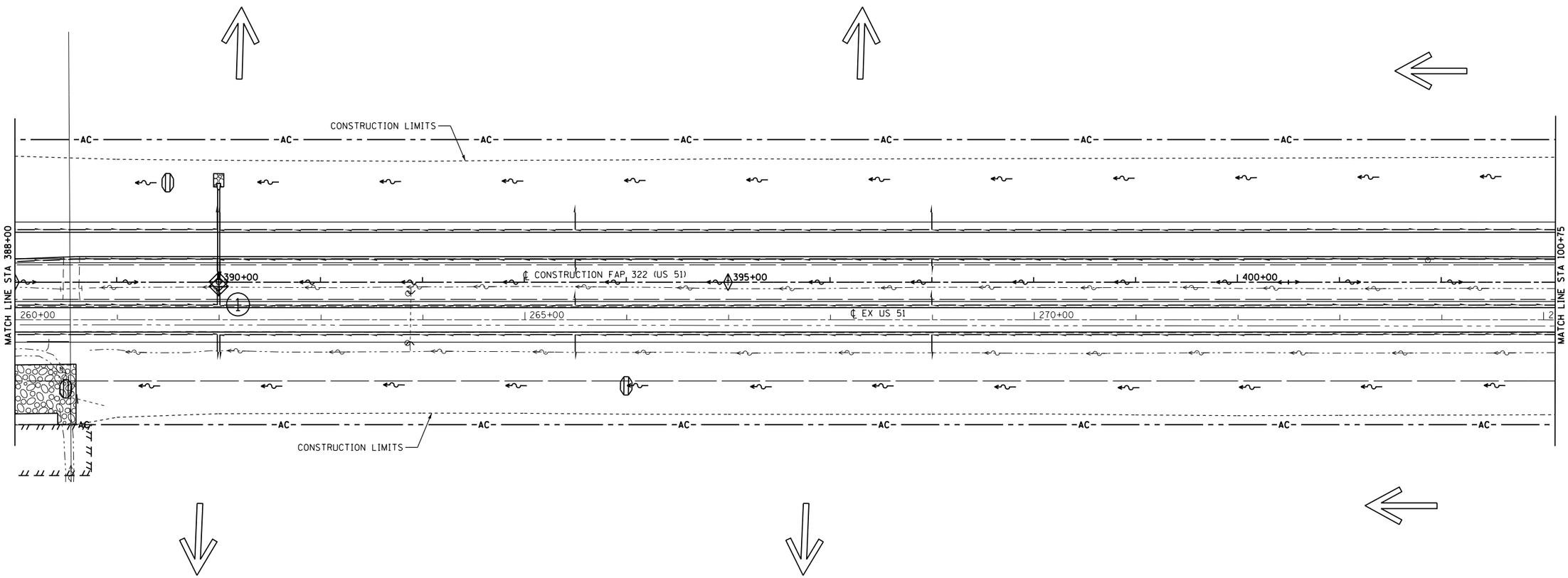
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	271
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



100 50 0 100
GRAPHIC SCALE (IN FEET)

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

STORM WATER POLLUTION PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: 1"=50' DRAWN BY SEB

DATE CHECKED BY

FAP 322 (US 51) STA 388+00 TO STA 100+75

10/5/2012

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72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	272
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

10/5/2012

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BEGIN CONSTRUCTION
STA 15+10.00

HEAVY DUTY EROSION CONTROL BLANKET 12.0' WIDTH

HEAVY DUTY EROSION CONTROL BLANKET 12.0' WIDTH

HEAVY DUTY EROSION CONTROL BLANKET 12.0' WIDTH

HEAVY DUTY EROSION CONTROL BLANKET 12.0' WIDTH

CONSTRUCTION LIMITS

POC STA 414+94.06 FAP 322 =
POT STA 20+00.00 TR 273

PC STA 412+40.42

PI STA 417+55.62

MATCH LINE STA 100+75

MATCH LINE STA 418+00

405+00 | 410+00 | 415+00 | 420+00

℄ CONSTRUCTION FAP 322 (US 51)

75+00 | 280+00 | 285+00 | 290+

℄ EX US 51

STATION EQUATION:
PT STA 101+20.13 BK =
PT STA 103+28.42 AH

FAP 322 CURVE "SC03 DATA
PI STA = 100+60.06
△ = 0° 8' 16" (RT)
D = 0° 6' 53"
R = 50,000.00'
T = 60.07'
L = 120.13'
E = 0.04'
SE = NONE
PC STA = 100+00.00
PT STA = 101+20.13

CONSTRUCTION LIMITS

HEAVY DUTY EROSION CONTROL BLANKET 20.0' WIDTH

HEAVY DUTY EROSION CONTROL BLANKET 12.0' WIDTH

HEAVY DUTY EROSION CONTROL BLANKET 12.0' WIDTH

CONSTRUCTION LIMITS

HEAVY DUTY EROSION CONTROL BLANKET 12.0' WIDTH

FAP 322 CURVE "SC04 DATA
PI STA = 417+55.62
△ = 1° 58' 04" (RT)
D = 0° 11' 28"
R = 30,000.00'
T = 515.20'
L = 1,030.29'
E = 4.42'
SE = NONE
PC STA = 412+40.42
PT STA = 422+70.71

℄ TR 273

END CONSTRUCTION
STA 25+00.00

100 50 0 100
GRAPHIC SCALE (IN FEET)

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

STORM WATER POLLUTION PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

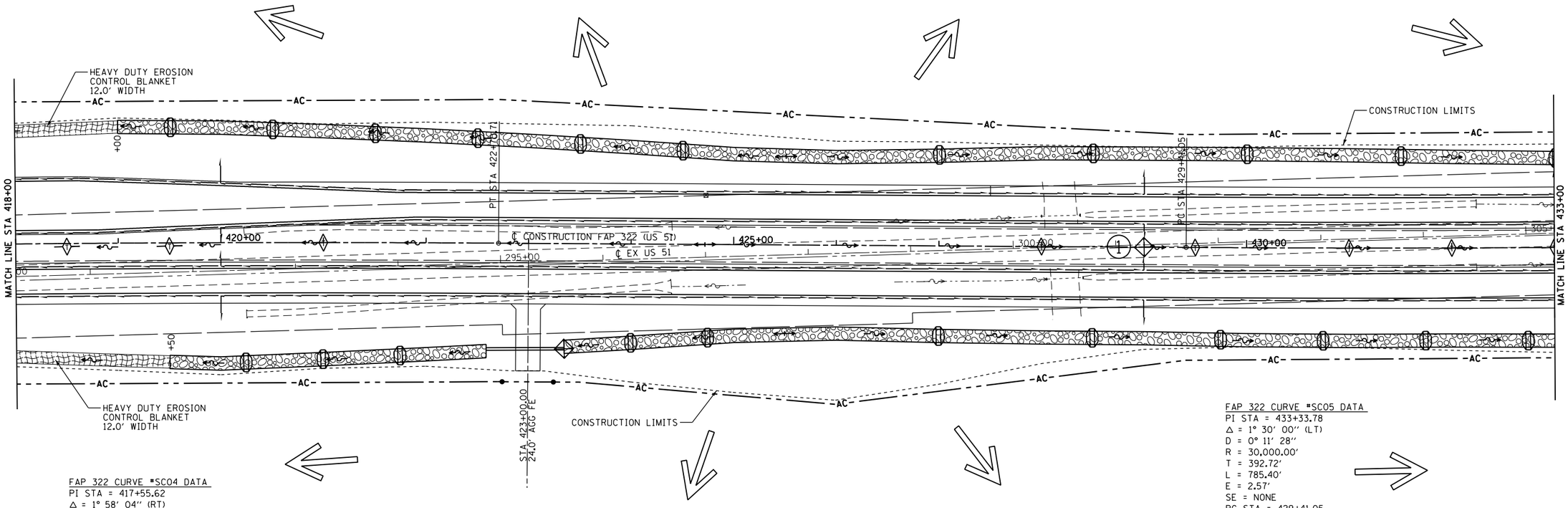
SCALE: 1"=50' DRAWN BY SEB

DATE CHECKED BY

FAP 322 (US 51) STA 100+75 TO STA 418+00

72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	273
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



FAP 322 CURVE "SC04 DATA
PI STA = 417+55.62
Δ = 1° 58' 04" (RT)
D = 0° 11' 28"
R = 30,000.00'
T = 515.20'
L = 1,030.29'
E = 4.42'
SE = NONE
PC STA = 412+40.42
PT STA = 422+70.71

FAP 322 CURVE "SC05 DATA
PI STA = 433+33.78
Δ = 1° 30' 00" (LT)
D = 0° 11' 28"
R = 30,000.00'
T = 392.72'
L = 785.40'
E = 2.57'
SE = NONE
PC STA = 429+41.05
PT STA = 437+26.45

100 50 0 100
GRAPHIC SCALE (IN FEET)

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
STORM WATER POLLUTION PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: 1"=50' DRAWN BY SEB
DATE CHECKED BY

FAP 322 (US 51) STA 418+00 TO STA 433+00

10/5/2012
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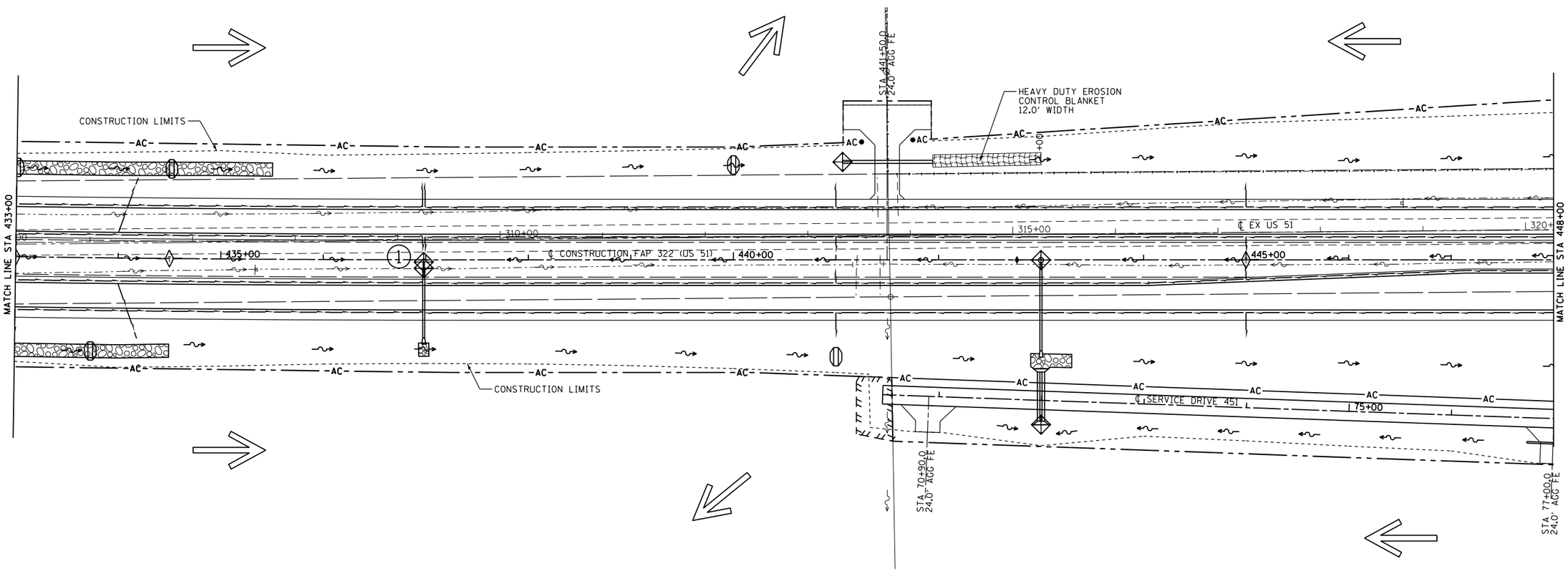
72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	274
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



100 50 0 100
GRAPHIC SCALE (IN FEET)

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

STORM WATER POLLUTION PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: 1"=50' DRAWN BY SEB

DATE CHECKED BY

FAP 322 (US 51) STA 433+00 TO STA 448+00

10/5/2012

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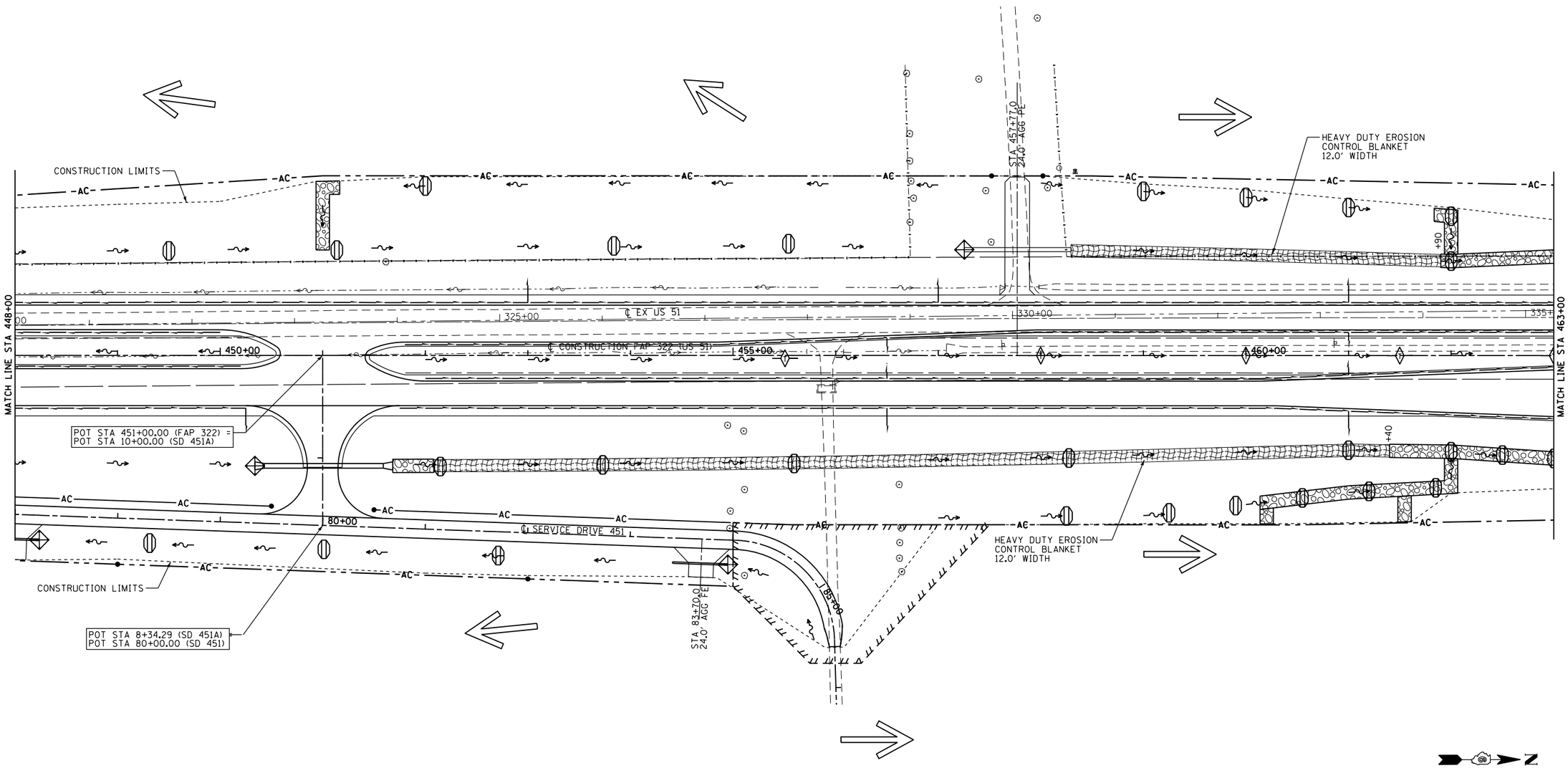
72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	275
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

STORM WATER POLLUTION PREVENTION PLAN FAP 322 (US 51) SECTION 11-13 CHRISTIAN COUNTY

SCALE: 1"=50' DRAWN BY SEB

DATE CHECKED BY

FAP 322 (US 51) STA 448+00 TO STA 463+00

10/5/2012

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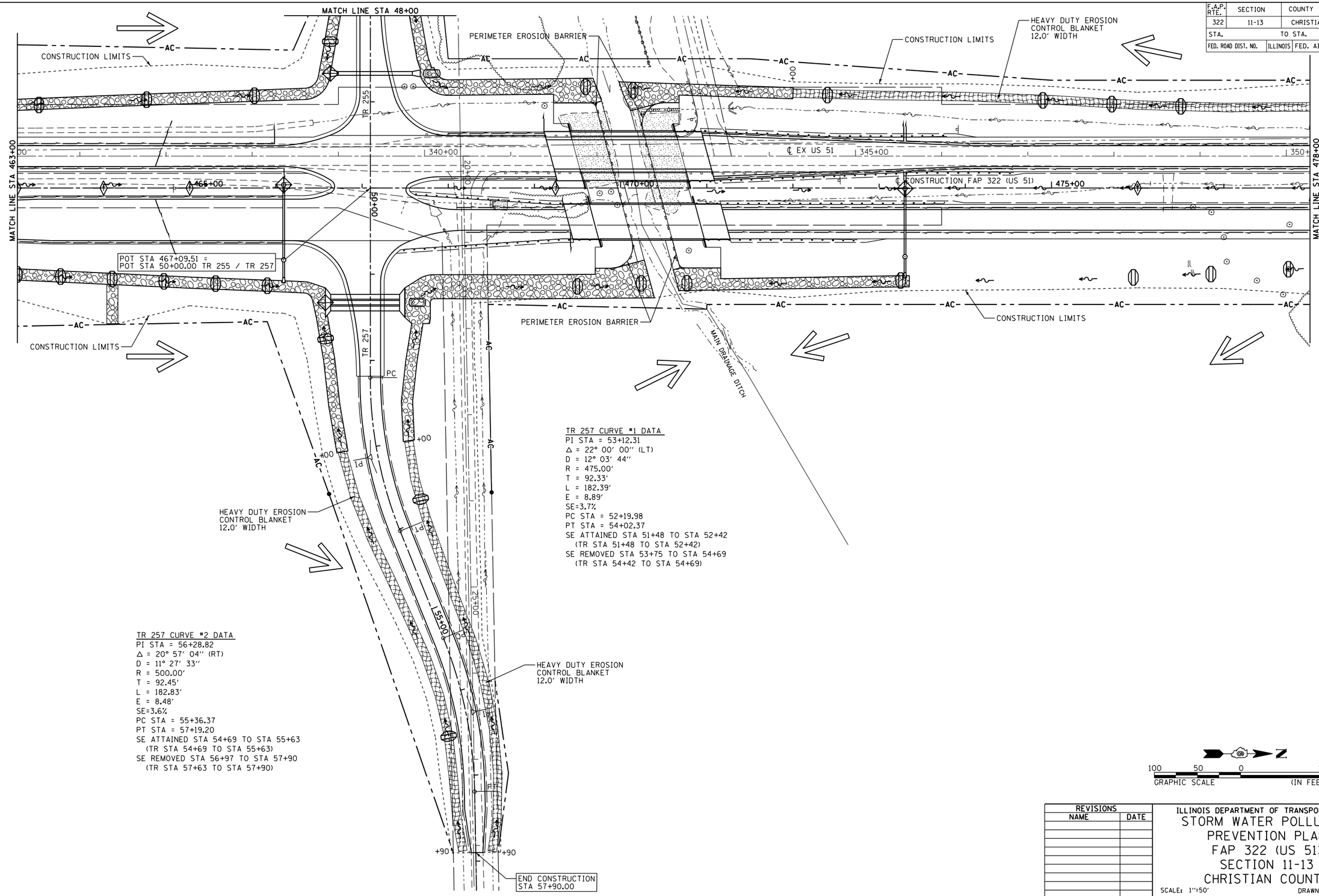
72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	276
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



TR 257 CURVE #1 DATA
PI STA = 53+12.31
Δ = 22° 00′ 00″ (LT)
D = 12° 03′ 44″
R = 475.00′
T = 92.33′
L = 182.39′
E = 8.89′
SE=3.7%
PC STA = 52+19.98
PT STA = 54+02.37
SE ATTAINED STA 51+48 TO STA 52+42
(TR STA 51+48 TO STA 52+42)
SE REMOVED STA 53+75 TO STA 54+69
(TR STA 54+42 TO STA 54+69)

TR 257 CURVE #2 DATA
PI STA = 56+28.82
Δ = 20° 57′ 04″ (RT)
D = 11° 27′ 33″
R = 500.00′
T = 92.45′
L = 182.83′
E = 8.48′
SE=3.6%
PC STA = 55+36.37
PT STA = 57+19.20
SE ATTAINED STA 54+69 TO STA 55+63
(TR STA 54+69 TO STA 55+63)
SE REMOVED STA 56+97 TO STA 57+90
(TR STA 57+63 TO STA 57+90)

100 50 0 100
GRAPHIC SCALE (IN FEET)

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
STORM WATER POLLUTION PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: 1″=50′ DRAWN BY SEB
DATE CHECKED BY

FAP 322 (US 51) STA 463+00 TO STA 478+00

10/5/2012
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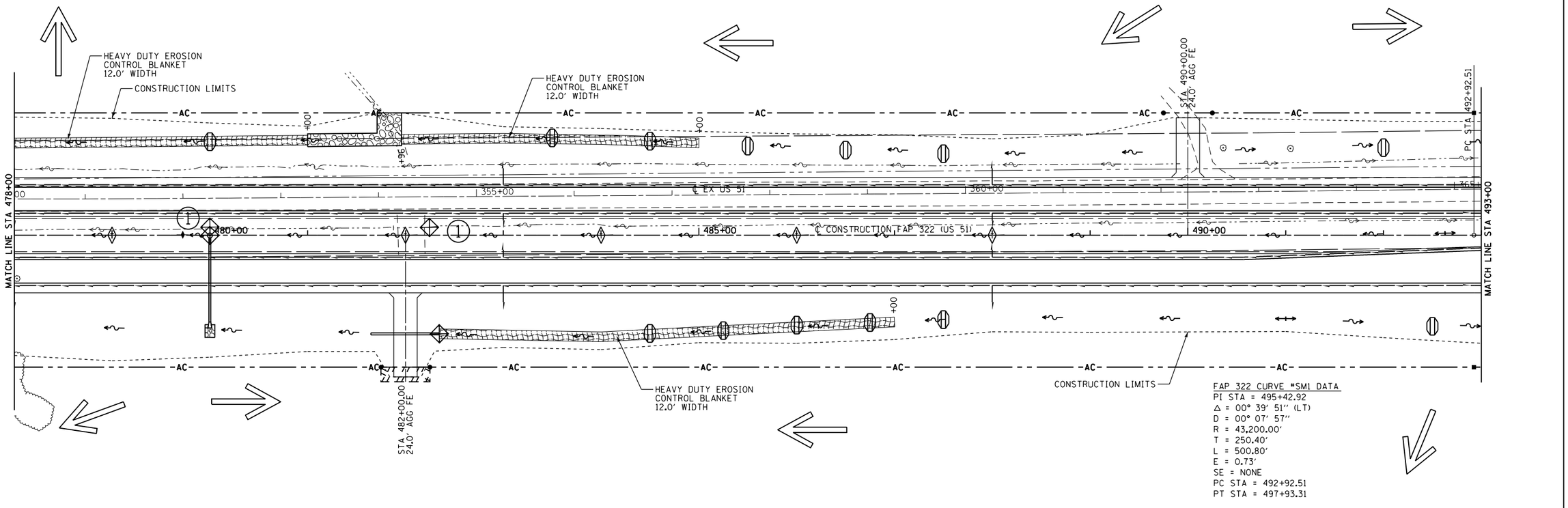
72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	277
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



FAP 322 CURVE "SMI DATA
PI STA = 495+42.92
Δ = 00° 39' 51" (LT)
D = 00° 07' 57"
R = 43,200.00'
T = 250.40'
L = 500.80'
E = 0.73'
SE = NONE
PC STA = 492+92.51
PT STA = 497+93.31

N

100 50 0 100
GRAPHIC SCALE (IN FEET)

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
STORM WATER POLLUTION PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: 1"=50' DRAWN BY SEB
DATE CHECKED BY

FAP 322 (US 51) STA 478+00 TO STA 493+00

10/5/2012

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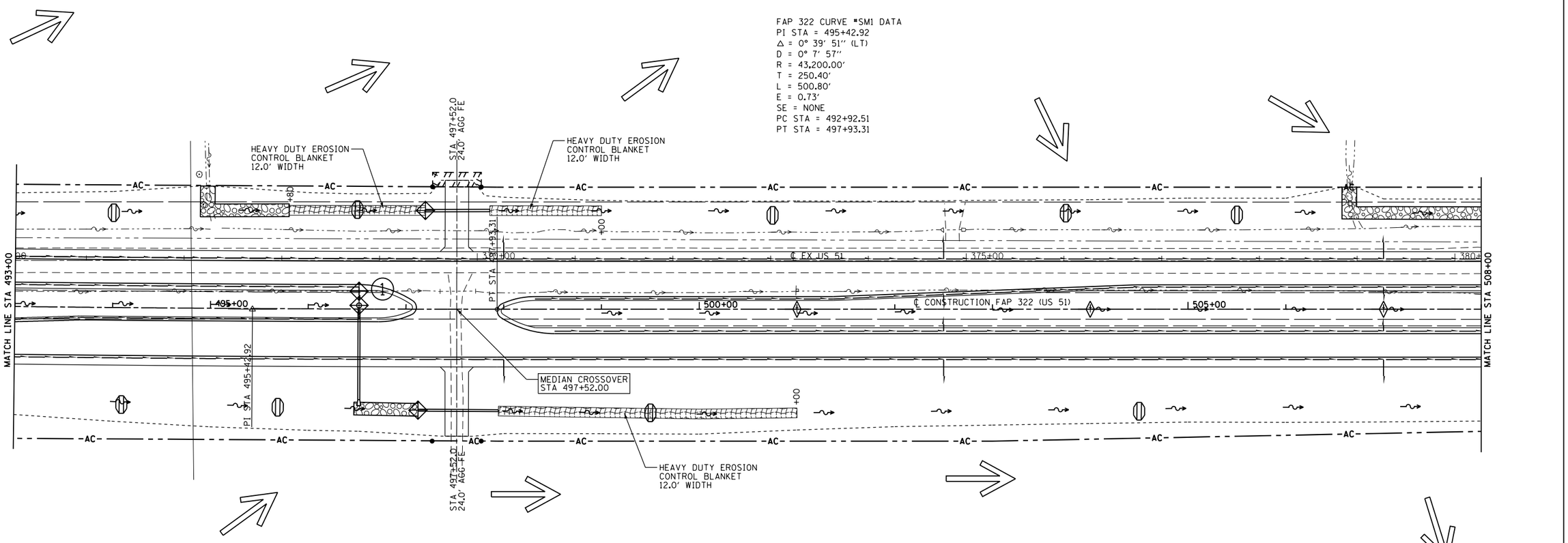
72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	278
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

FAP 322 CURVE #SM1 DATA
PI STA = 495+42.92
Δ = 0° 39' 51" (LT)
D = 0° 7' 57"
R = 43,200.00'
T = 250.40'
L = 500.80'
E = 0.73'
SE = NONE
PC STA = 492+92.51
PT STA = 497+93.31



100 50 0 100
GRAPHIC SCALE (IN FEET)

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
STORM WATER POLLUTION PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: 1"=50' DRAWN BY SEB
DATE CHECKED BY

FAP 322 (US 51) STA 493+00 TO STA 508+00

10/5/2012
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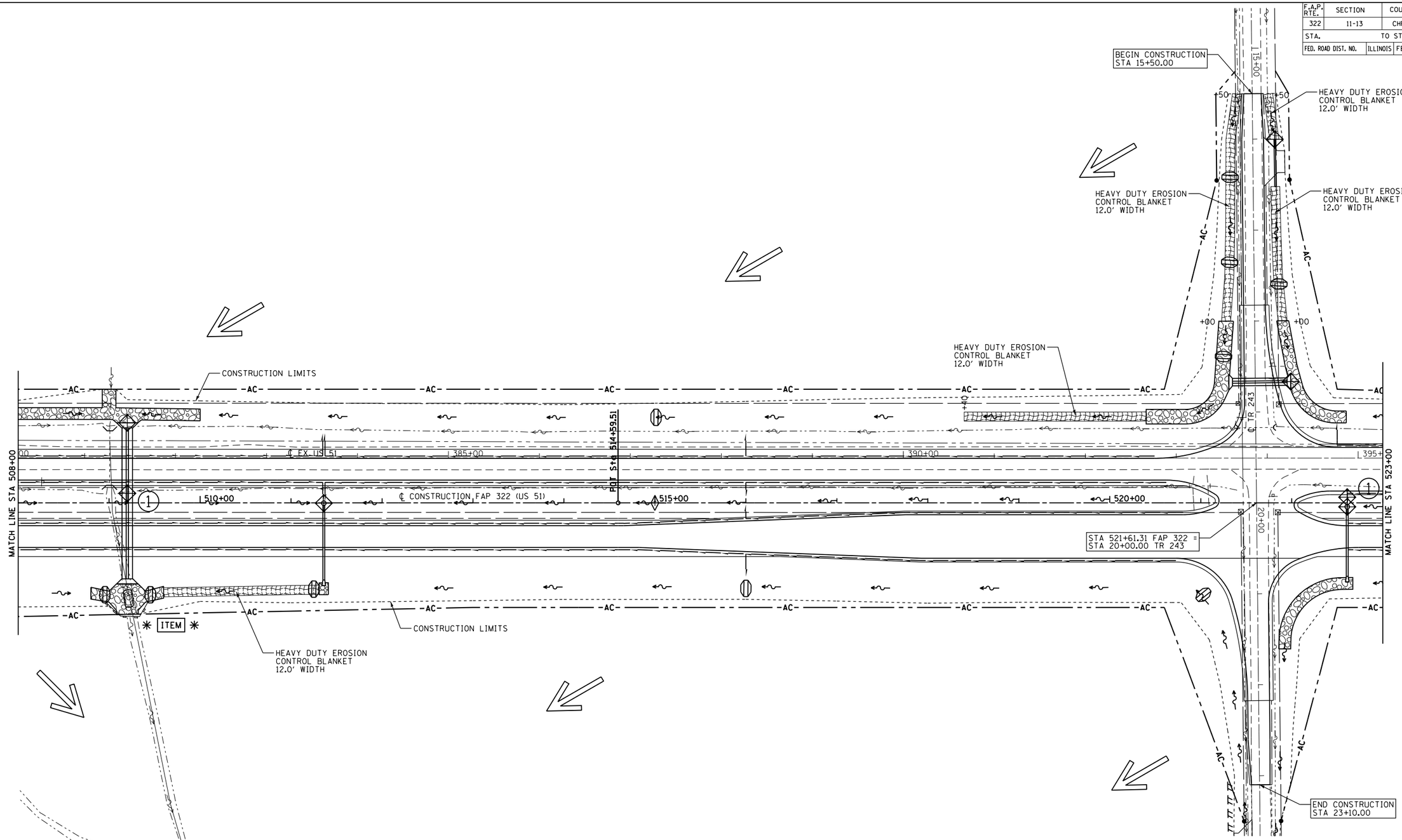
72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	279
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



REVISIONS	
NAME	DATE

100 50 0 100
GRAPHIC SCALE (IN FEET)

ILLINOIS DEPARTMENT OF TRANSPORTATION

STORM WATER POLLUTION PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: 1"=50' DRAWN BY SEB

DATE CHECKED BY

FAP 322 (US 51) STA 508+00 TO STA 523+00

10/5/2012

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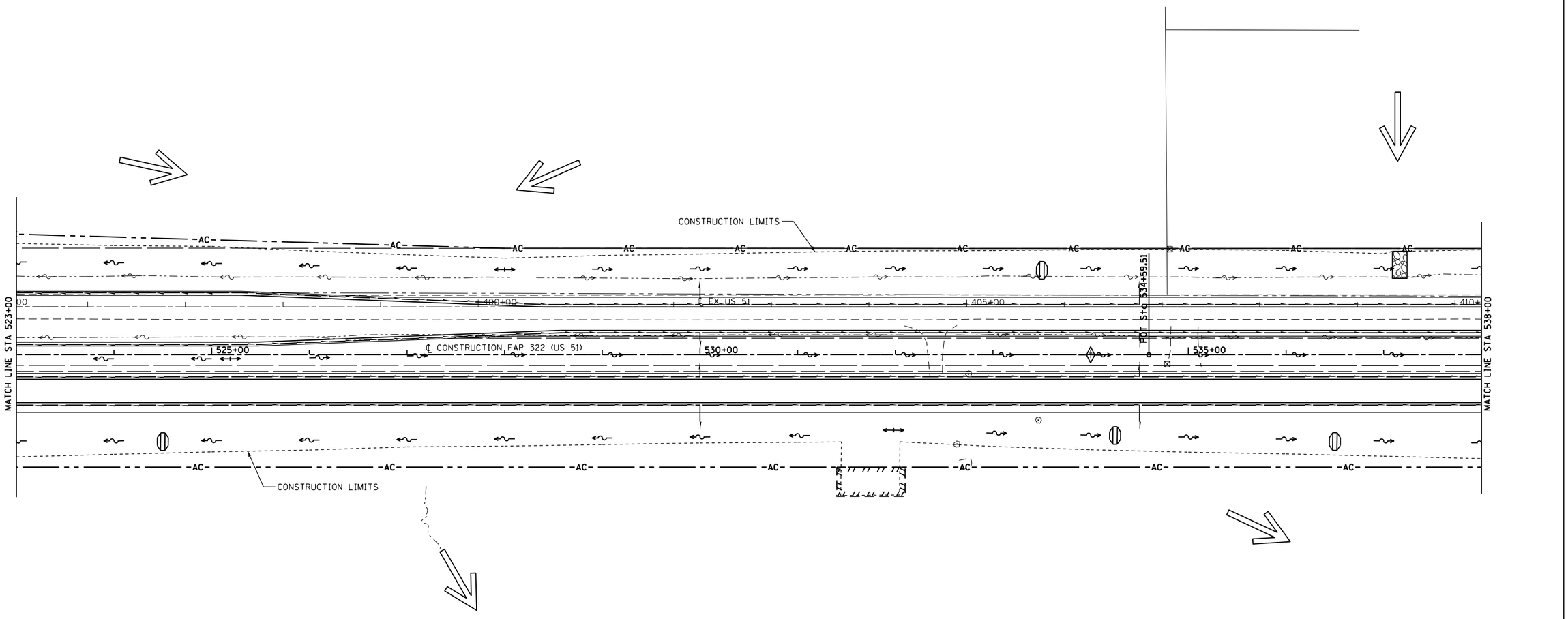
72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	280
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



100 50 0 100
GRAPHIC SCALE (IN FEET)

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

STORM WATER POLLUTION PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: 1"=50' DRAWN BY SEB

DATE CHECKED BY

FAP 322 (US 51) STA 523+00 TO STA 538+00

10/5/2012

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72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	281
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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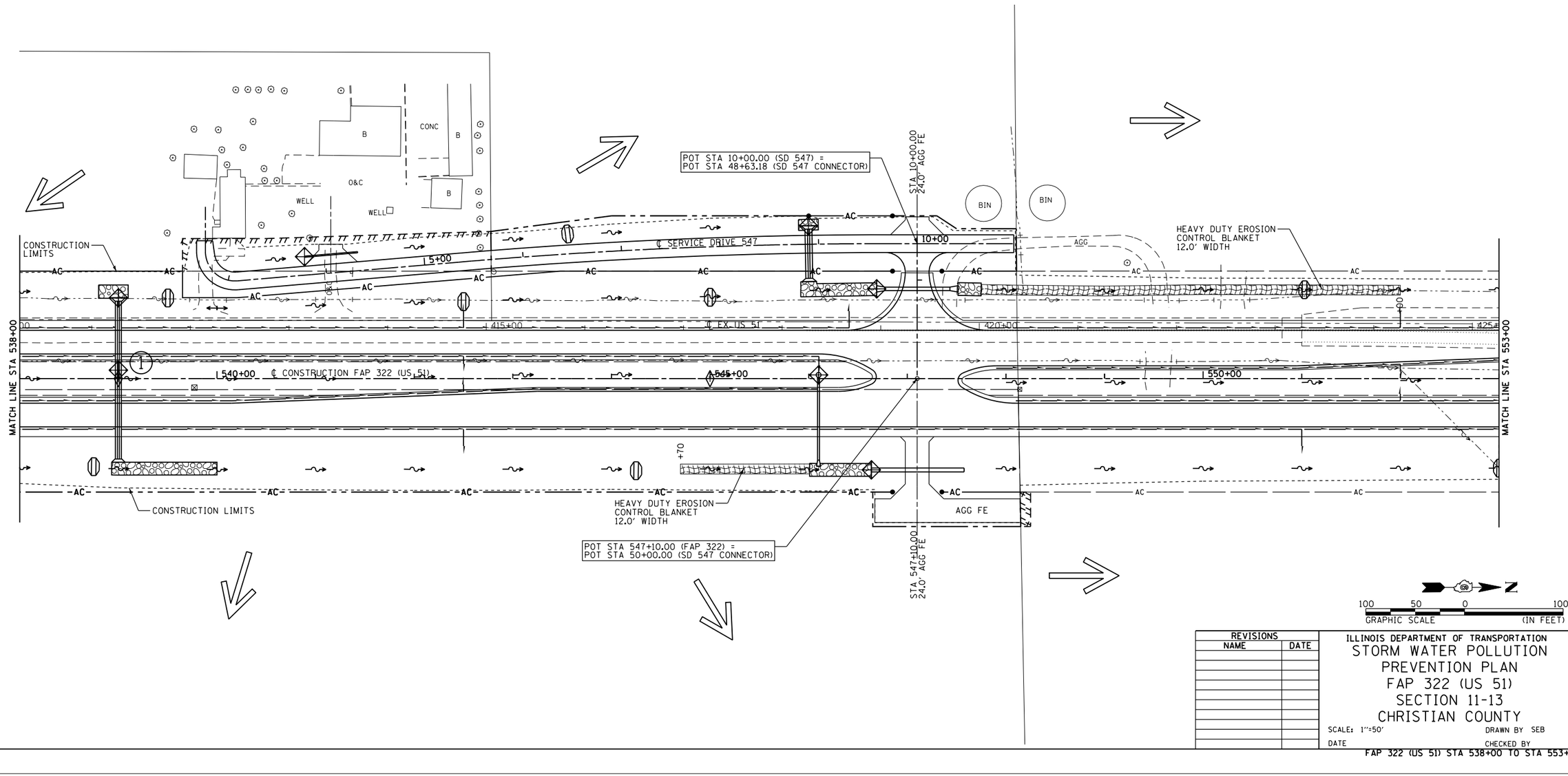


REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

STORM WATER POLLUTION PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

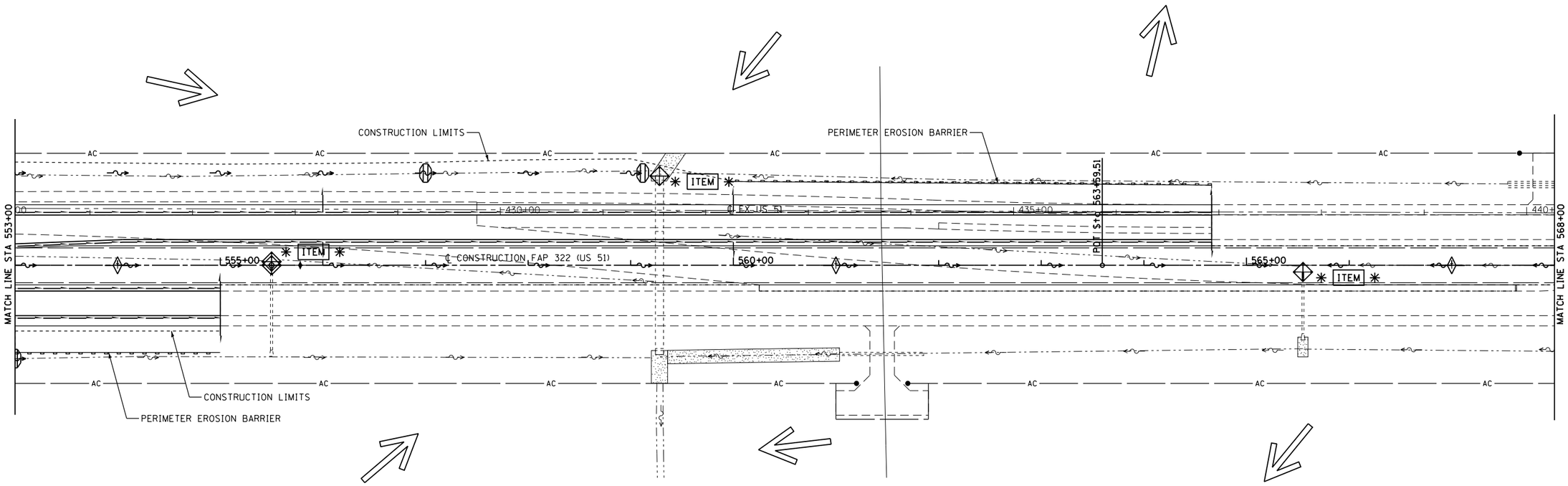
SCALE: 1"=50' DRAWN BY SEB

DATE CHECKED BY

FAP 322 (US 51) STA 538+00 TO STA 553+00

72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	282
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



100 50 0 100
GRAPHIC SCALE (IN FEET)

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

STORM WATER POLLUTION PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: 1"=50' DRAWN BY SEB

DATE CHECKED BY

FAP 322 (US 51) STA 553+00 TO STA 568+00

10/5/2012

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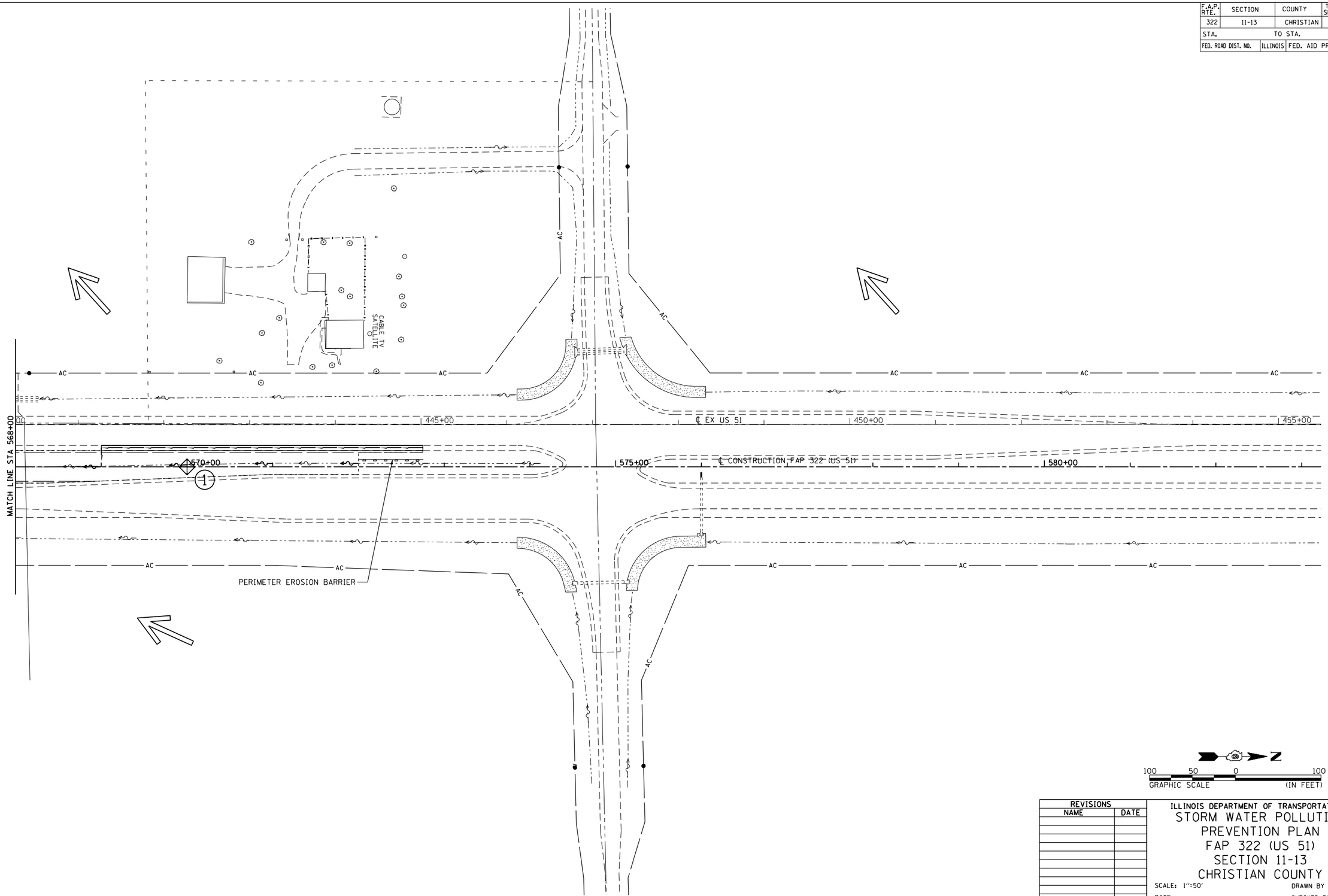
72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	283
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



100 50 0 100
GRAPHIC SCALE (IN FEET)

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

STORM WATER POLLUTION PREVENTION PLAN FAP 322 (US 51) SECTION 11-13 CHRISTIAN COUNTY

SCALE: 1"=50' DRAWN BY SEB

DATE CHECKED BY

FAP 322 (US 51) STA 568+00 TO STA 583+00

10/5/2012

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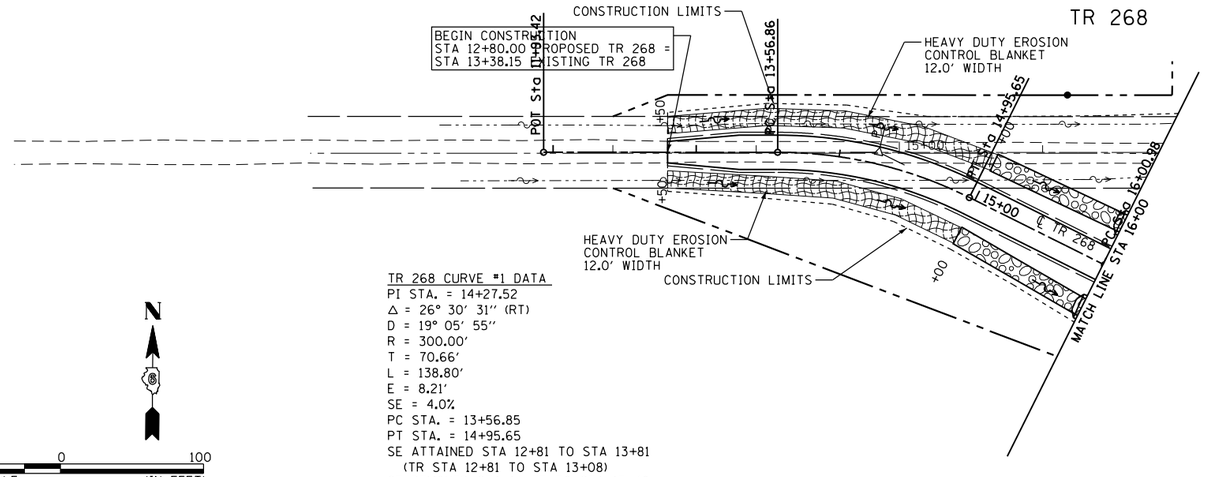
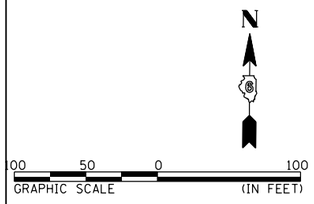
72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	284
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

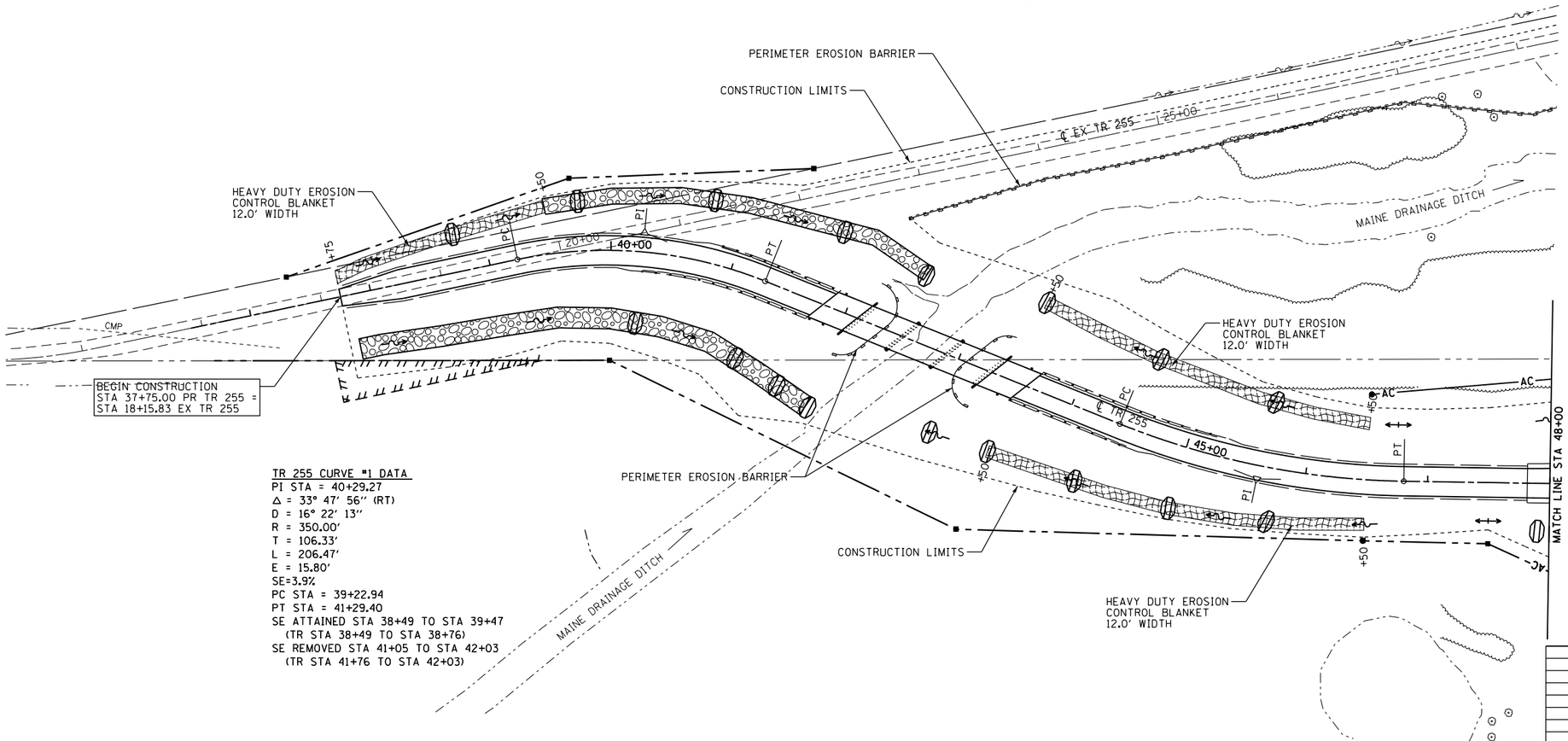
TR 268



TR 268 CURVE #1 DATA
PI STA. = 14+27.52
Δ = 26° 30' 31" (RT)
D = 19° 05' 55"
R = 300.00'
T = 70.66'
L = 138.80'
E = 8.21'
SE = 4.0%
PC STA. = 13+56.85
PT STA. = 14+95.65
SE ATTAINED STA 12+81 TO STA 13+81
(TR STA 12+81 TO STA 13+08)
SE REMOVED STA 14+75 TO STA 15+48

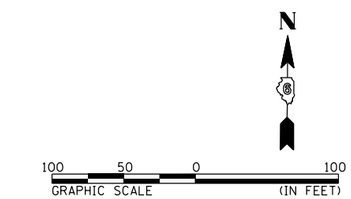


TR 255



TR 255 CURVE #1 DATA
PI STA = 40+29.27
Δ = 33° 47' 56" (RT)
D = 16° 22' 13"
R = 350.00'
T = 106.33'
L = 206.47'
E = 15.80'
SE=3.9%
PC STA = 39+22.94
PT STA = 41+29.40
SE ATTAINED STA 38+49 TO STA 39+47
(TR STA 38+49 TO STA 38+76)
SE REMOVED STA 41+05 TO STA 42+03
(TR STA 41+76 TO STA 42+03)

TR 255 CURVE #2 DATA
PI STA = 45+62.70
Δ = 21° 00' 00" (LT)
D = 8° 48' 53"
R = 650.00'
T = 120.47'
L = 238.24'
E = 11.07'
SE=3.3%
PC STA = 44+42.23
PT STA = 46+80.47
SE ATTAINED STA 43+75 TO STA 44+62
(TR STA 43+75 TO STA 44+02)
SE REMOVED STA 46+60 TO STA 47+47
(TR STA 47+20 TO STA 47+47)



REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

STORM WATER POLLUTION PREVENTION PLAN
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: 1"=50' DRAWN BY SEB

DATE CHECKED BY

TR 268 & TR 255

10/5/2012

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72961

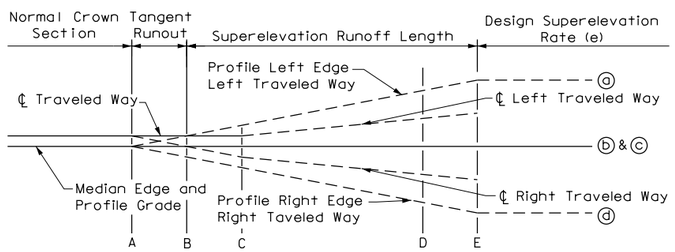
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	285
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

FAP 322 CURVE #SCA01 (PI STA 351+06.45)

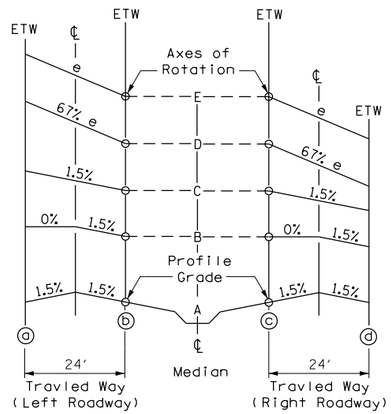
SECTION	STATION	OUTSIDE EDGE	SLOPE %	CL	SLOPE %	MEDIAN EDGE	MEDIAN EDGE	SLOPE %	CL	SLOPE %	OUTSIDE EDGE
A	342+99.00	657.80	-1.50	657.98	1.50	657.80	657.80	1.50	657.98	-1.50	657.80
	343+00.00	657.80	-1.50	657.98	1.46	657.80	657.80	1.50	657.98	-1.46	657.81
	343+25.00	657.76	-1.50	657.94	0.50	657.88	657.88	1.50	658.06	-0.50	658.00
B	343+38.00	657.73	-1.50	657.91	0.00	657.91	657.91	1.50	658.09	0.00	658.09
	343+50.00	657.72	-1.50	657.90	-0.46	657.95	657.95	1.50	658.13	0.46	658.19
	343+75.00	657.68	-1.50	657.86	-1.41	658.03	658.03	1.50	658.21	1.41	658.37
C	343+77.40	657.67	-1.50	657.85	-1.50	658.03	658.03	1.50	658.21	1.50	658.39
	344+00.00	657.64	-1.93	657.87	-1.93	658.10	658.10	1.93	658.33	1.93	658.56
	344+25.00	657.60	-2.41	657.89	-2.41	658.18	658.18	2.41	658.46	2.41	658.75
	344+50.00	657.56	-2.88	657.90	-2.88	658.25	658.25	2.88	658.60	2.88	658.94
	344+75.00	657.52	-3.36	657.92	-3.36	658.33	658.33	3.36	658.73	3.36	659.13
D	344+84.20	657.51	-3.53	657.93	-3.53	658.35	658.35	3.53	658.78	3.53	659.20
	345+00.00	657.48	-3.83	657.94	-3.83	658.40	658.40	3.83	658.86	3.83	659.32
	345+25.00	657.44	-4.31	657.96	-4.31	658.48	658.48	4.31	658.99	4.31	659.51
	345+50.00	657.40	-4.79	657.98	-4.79	658.55	658.55	4.79	659.12	4.79	659.70
	345+75.00	657.36	-5.26	657.99	-5.26	658.63	658.63	5.26	659.26	5.26	659.89
E	345+77.00	657.36	-5.30	658.00	-5.30	658.63	658.63	5.30	659.27	5.30	659.90
MAXIMUM SUPERELEVATION											
E	356+21.00	657.11	-5.30	657.75	-5.30	658.39	658.39	5.30	659.02	5.30	659.66
	356+25.00	657.13	-5.22	657.76	-5.23	658.38	658.38	5.23	659.01	5.22	659.64
	356+50.00	657.23	-4.75	657.80	-4.75	658.37	658.37	4.75	658.94	4.75	659.51
	356+75.00	657.33	-4.27	657.84	-4.27	658.36	658.36	4.27	658.87	4.27	659.38
	357+00.00	657.44	-3.80	657.90	-3.80	658.35	658.35	3.80	658.81	3.80	659.26
D	357+13.80	657.51	-3.53	657.93	-3.53	658.35	658.35	3.53	658.78	3.53	659.20
	357+25.00	657.56	-3.32	657.96	-3.32	658.36	658.36	3.32	658.75	3.32	659.15
	357+50.00	657.68	-2.85	658.02	-2.85	658.36	658.36	2.85	658.71	2.85	659.05
	357+75.00	657.81	-2.37	658.10	-2.37	658.38	658.38	2.37	658.66	2.37	658.95
	358+00.00	657.95	-1.89	658.17	-1.89	658.40	658.40	1.89	658.63	1.89	658.86
C	358+20.60	658.06	-1.50	658.24	-1.50	658.42	658.42	1.50	658.60	1.50	658.78
	358+25.00	658.09	-1.50	658.27	-1.33	658.43	658.43	1.50	658.61	1.33	658.77
	358+50.00	658.24	-1.50	658.42	-0.38	658.46	658.46	1.50	658.64	0.38	658.69
B	358+60.00	658.30	-1.50	658.48	0.00	658.48	658.48	1.50	658.66	0.00	658.66
	358+75.00	658.39	-1.50	658.57	0.57	658.50	658.50	1.50	658.68	-0.57	658.62
A	358+99.00	658.55	-1.50	658.73	1.50	658.55	658.55	1.50	658.73	-1.50	658.55

FAP 322 CURVE #SCA02 (PI STA 366+64.75)

SECTION	STATION	OUTSIDE EDGE	SLOPE %	CL	SLOPE %	MEDIAN EDGE	MEDIAN EDGE	SLOPE %	CL	SLOPE %	OUTSIDE EDGE
A	360+34.00	658.90	-1.50	659.08	1.50	658.90	658.90	1.50	659.08	-1.50	658.90
	360+50.00	659.02	-0.88	659.13	1.50	658.95	658.95	0.88	659.06	-1.50	658.88
B	360+73.00	659.20	0.00	659.20	1.50	659.02	659.02	0.00	659.02	-1.50	658.84
	360+75.00	659.21	0.08	659.21	1.50	659.03	659.03	-0.08	659.02	-1.50	658.84
	361+00.00	659.41	1.04	659.28	1.50	659.10	659.10	-1.04	658.98	-1.50	658.80
C	361+11.74	659.50	1.50	659.32	1.50	659.14	659.14	-1.50	658.96	-1.50	658.78
	361+25.00	659.60	1.76	659.39	1.76	659.18	659.18	-1.76	658.96	-1.76	658.75
	361+50.00	659.79	2.24	659.52	2.24	659.25	659.25	-2.24	658.98	-2.24	658.71
	361+75.00	659.98	2.72	659.65	2.72	659.33	659.33	-2.72	659.00	-2.72	658.67
	362+00.00	660.17	3.21	659.79	3.21	659.40	659.40	-3.21	659.02	-3.21	658.63
	362+25.00	660.36	3.69	659.92	3.69	659.48	659.48	-3.69	659.03	-3.69	658.59
D	362+37.42	660.46	3.93	659.98	3.93	659.51	659.51	-3.93	659.04	-3.93	658.57
	362+50.00	660.55	4.17	660.05	4.17	659.55	659.55	-4.17	659.05	-4.17	658.55
	362+75.00	660.74	4.66	660.18	4.66	659.63	659.63	-4.66	659.07	-4.66	658.51
	363+00.00	660.94	5.15	660.32	5.15	659.70	659.70	-5.15	659.08	-5.15	658.47
	363+25.00	661.13	5.63	660.45	5.63	659.78	659.78	-5.63	659.10	-5.63	658.42
E	363+39.00	661.23	5.90	660.53	5.90	659.82	659.82	-5.90	659.11	-5.90	658.40
MAXIMUM SUPERELEVATION											
E	369+80.00	661.48	5.90	660.77	5.90	660.06	660.06	-5.90	659.35	-5.90	658.64
	370+00.00	661.32	5.51	660.66	5.51	660.00	660.00	-5.51	659.34	-5.51	658.68
	370+25.00	661.13	5.03	660.53	5.03	659.93	659.93	-5.03	659.32	-5.03	658.72
	370+50.00	660.94	4.55	660.40	4.55	659.85	659.85	-4.55	659.30	-4.55	658.76
	370+75.00	660.75	4.06	660.26	4.06	659.78	659.78	-4.06	659.29	-4.06	658.80
D	370+81.58	660.70	3.93	660.23	3.93	659.76	659.76	-3.93	659.28	-3.93	658.81
	371+00.00	660.56	3.57	660.13	3.57	659.70	659.70	-3.57	659.27	-3.57	658.84
	371+25.00	660.37	3.09	660.00	3.09	659.63	659.63	-3.09	659.25	-3.09	658.88
	371+50.00	660.18	2.61	659.86	2.61	659.55	659.55	-2.61	659.24	-2.61	658.92
	371+75.00	659.99	2.12	659.73	2.12	659.48	659.48	-2.12	659.22	-2.12	658.97
	372+00.00	659.79	1.64	659.60	1.64	659.40	659.40	-1.64	659.20	-1.64	659.01
C	372+07.26	659.74	1.50	659.56	1.50	659.38	659.38	-1.50	659.20	-1.50	659.02
	372+25.00	659.61	0.82	659.51	1.50	659.33	659.33	0.82	659.43	-1.50	659.25
B	372+46.00	659.45	0.00	659.45	1.50	659.27	659.27	0.00	659.27	-1.50	659.09
	372+50.00	659.43	-0.15	659.44	1.50	659.26	659.26	0.15	659.28	-1.50	659.10
	372+75.00	659.25	-1.12	659.38	1.50	659.20	659.20	1.12	659.34	-1.50	659.16
A	372+85.00	659.18	-1.50	659.36	1.50	659.18	659.18	1.50	659.36	-1.50	659.18



AXIS OF ROTATION ABOUT MEDIAN EDGES OF TRAVELED WAY



NOTES:

1. ELEVATIONS GIVEN ARE FOR FINAL PAVING.
2. TURN LANE ELEVATIONS ARE NOT GIVEN.

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

SUPERELEVATION RUNOFF TABLES
4 LANE EXPRESSWAY
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: NONE DRAWN BY EBB

DATE 8/12 CHECKED BY

10/5/2012

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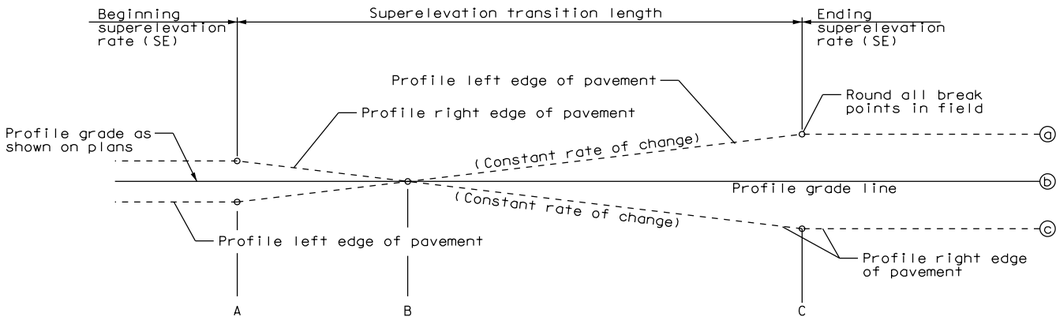
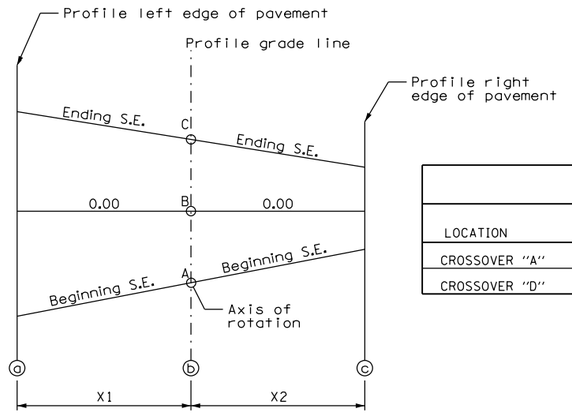
72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	286
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

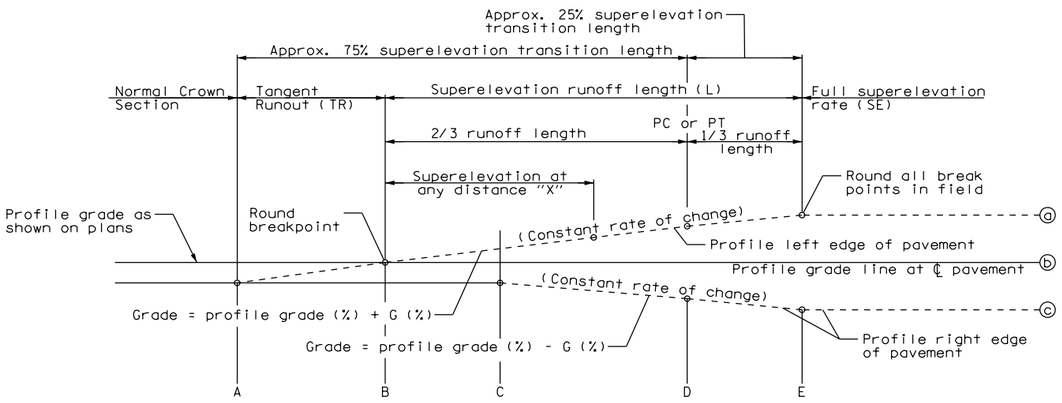


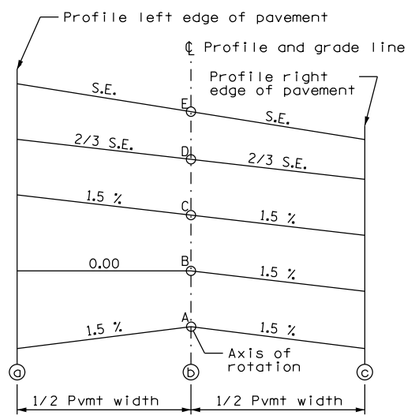


Note: Right or left edge of pavement may be located on profile grade line

AXIS OF ROTATION ABOUT PROFILE GRADE BASELINE

SUPERELEVATION TRANSITION CURVE DATA							
					PROFILE BREAK POINTS		
LOCATION	X1	X2	BEGINNING S.E.	ENDING S.E.	A	B	C
CROSSOVER "A"	12'	12'	-1.50%	-0.64%	61+03.00	n/a	61+59.14
CROSSOVER "D"	12'	12'	+1.50%	-1.50%	83+78.00	84+20.00	84+62.00





SUPERELEVATION TRANSITION CURVE DATA							
		PROFILE BREAK POINTS					
LOCATION	S.E.	A	B	C	D	E
TR 268	4.0%	12+81.00	13+08.00	13+35.38	13+56.67	13+81.00
	4.0%	n/a	15+48.00•	15+20.63	14+99.33	14+75.00
	4.0%	n/a	15+48.00•	15+75.37	15+96.67	16+21.00
	4.0%	18+74.00	18+47.00	18+19.63	17+98.33	17+74.00
	2.6%	21+87.00	22+14.00	22+41.69	22+46.00	22+62.00
	2.6%	23+98.00	23+71.00	23+43.31	23+39.00	23+23.00
TR 255	3.9%	38+49.00	38+76.00	39+03.31	39+23.33	39+47.00
	3.9%	42+03.00	41+76.00	41+48.69	41+28.67	41+05.00
	3.3%	43+75.00	44+02.00	44+29.27	44+42.00	44+62.00
	3.3%	47+47.00	47+20.00	46+92.73	46+80.00	46+60.00
TR 257	3.7%	51+48.00	51+75.00	52+02.16	52+19.67	52+42.00
	3.7%	54+69.00	54+42.00	54+14.84	53+97.33	53+75.00
	3.6%	54+69.00	54+97.00	55+24.50	55+41.00	55+63.00
	3.6%	57+91.00	57+63.00	57+35.50	57+19.00	56+97.00

• 0% CROSS SLOPE BOTH LANES

AXIS OF ROTATION ABOUT CENTERLINE OF TRAVELED WAY

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

SUPERELEVATION RUNOFF TABLES 2 LANE & CROSSOVERS FAP 322 (US 51) SECTION 11-13 CHRISTIAN COUNTY

SCALE: NONE DRAWN BY EBB

DATE 8/24/07 CHECKED BY

10/5/2012

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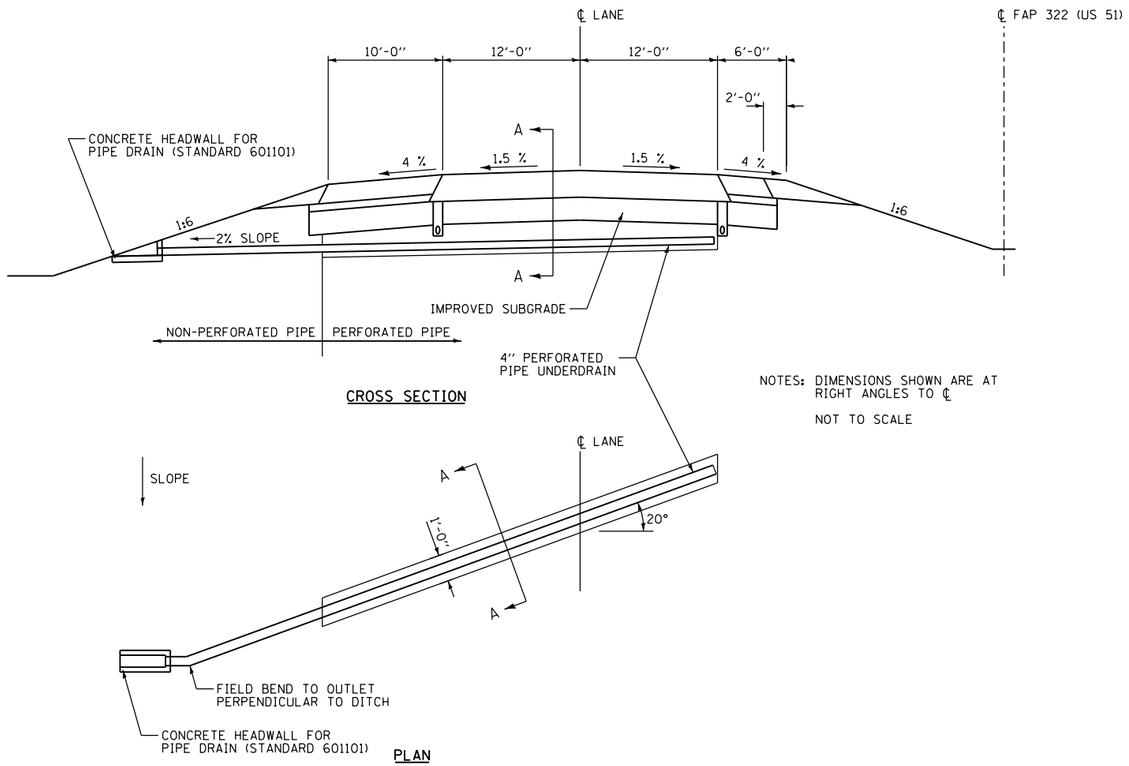
72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	287
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

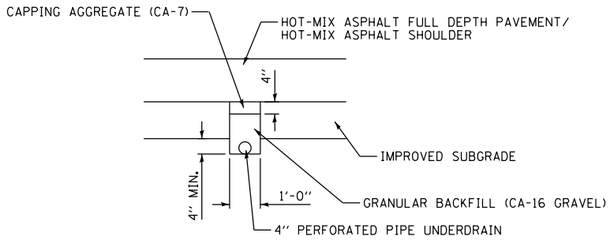


CROSS SECTION

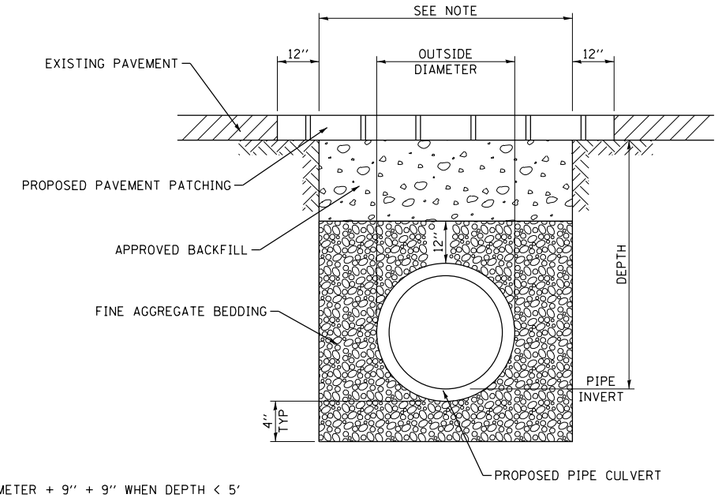
NOTES: DIMENSIONS SHOWN ARE AT RIGHT ANGLES TO ℄

NOT TO SCALE

PLAN



SECTION A-A



NOTE:
WIDTH = OUTSIDE DIAMETER + 9" + 9" WHEN DEPTH < 5'
WIDTH = OUTSIDE DIAMETER + 18" + 18" WHEN DEPTH > 5'

DETAIL OF TRENCH EXCAVATION, PAVEMENT REMOVAL, PAVEMENT PATCHING, AND BACKFILL UNDER EXISTING PAVEMENT

GENERAL NOTES

TRANSVERSE DRAIN MATERIALS AND CONSTRUCTION SHALL CONFORM TO SECTION 601 OF THE STANDARD SPECIFICATIONS EXCEPT THAT NO FABRIC ENVELOPE IS REQUIRED ON PERFORATED PIPE AND THE GRANULAR BACKFILL GRADATION SHALL BE CA-16 GRAVEL.

ALL MATERIALS WILL NOT BE MEASURED SEPERATELY, BUT WILL BE INCLUDED IN THE COST PER FOOT FOR THE PAY ITEM "PIPE UNDERDRAINS 4" (SPECIAL)".

SKEW THE TRANSVERSE DRAIN 20° FORWARD IN THE DIRECTION OF FLOW.

PIPE UNDERDRAINS MAY BE DELETED WITHIN ROCKFILL AREAS WHERE TRASVERSE DRAINS ARE INSTALLED.

TRANSVERSE DRAIN - TANGENT PAVEMENT

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS - TRANSVERSE DRAINS
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: None DRAWN BY SEB

DATE CHECKED BY

10/5/2012

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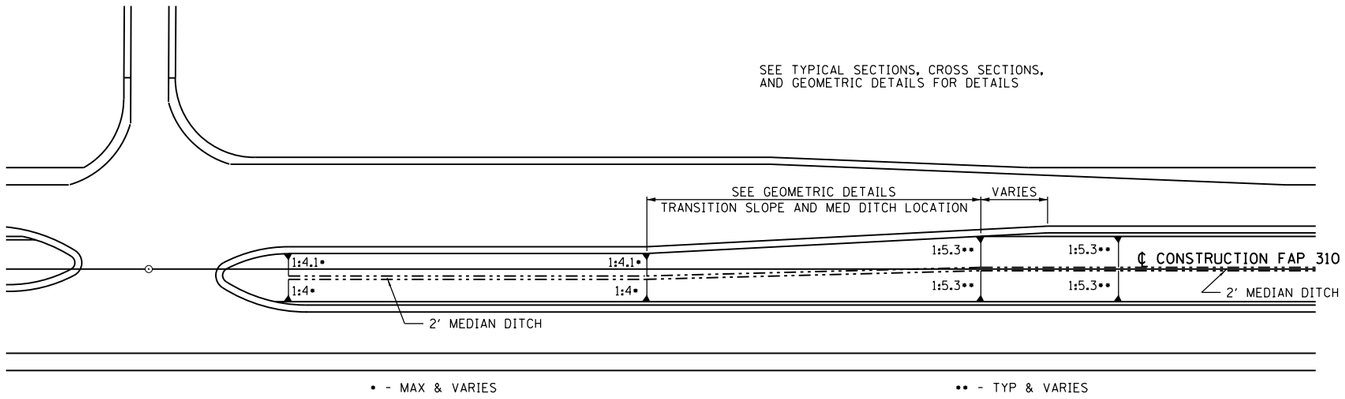
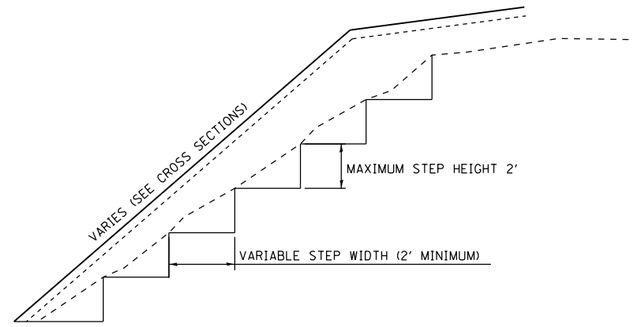
72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	288
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



MEDIAN DITCH TRANSITION

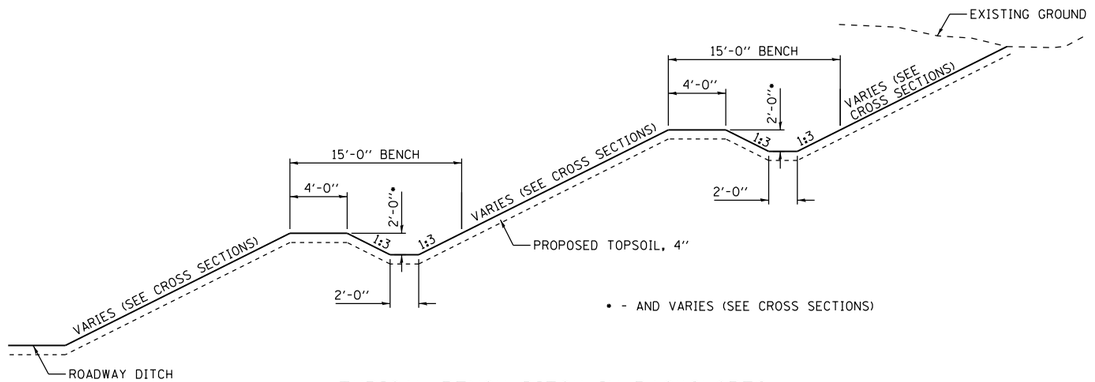
NOT TO SCALE



NOTE: THIS DETAIL SHALL BE APPLIED TO SIDESLOPE FILLS WHERE THE EXISTING SLOPE IS STEEPER THAN 1:3.

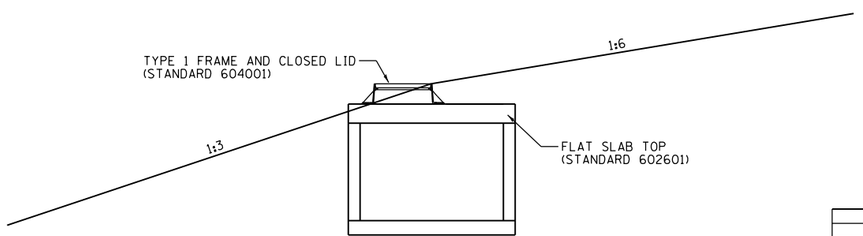
TYPICAL FILLSLOPE STEPPING DETAIL

NOT TO SCALE



TYPICAL BENCH DITCH IN BACKSLOPES

NOT TO SCALE
SEE CROSS SECTIONS & PROFILES FOR EXACT LOCATIONS



TYPICAL GRADING FOR MANHOLE WITH TYPE 1 FRAME & CLOSED LID

NOT TO SCALE
SEE CROSS SECTIONS & PROFILES FOR EXACT LOCATIONS

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

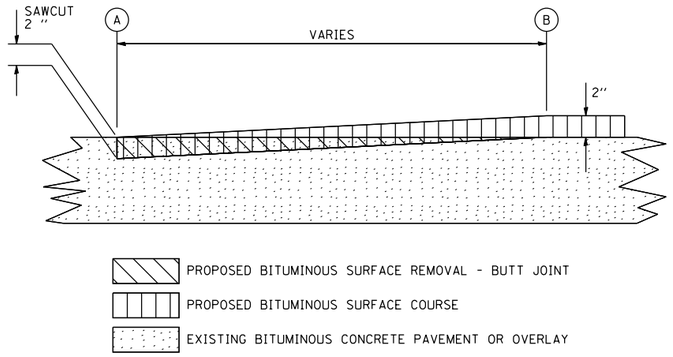
MISCELLANEOUS DETAILS -
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: None DRAWN BY EBB
DATE CHECKED BY

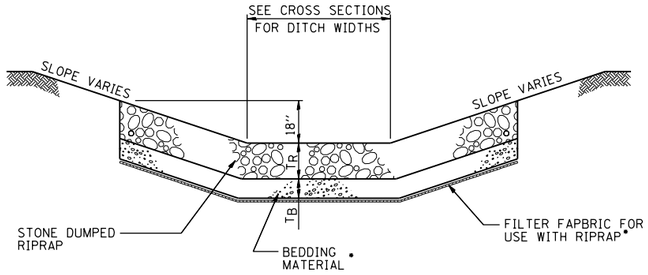
D:\01files\01032\SOUTH PLANS NEW\CADD Sheets\072961-sht-details05.dgn 10/5/2012

72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	289
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



BUTT JOINT DETAIL

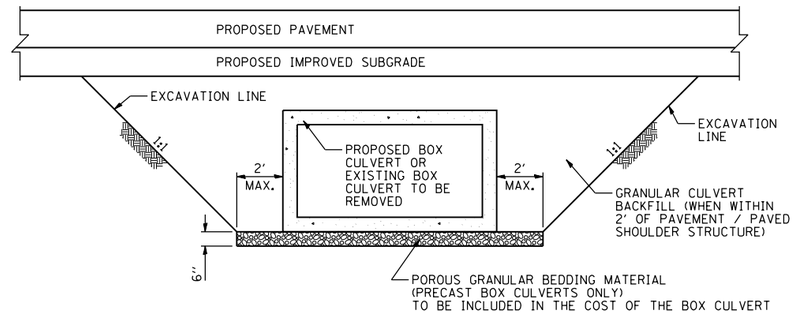


RIPRAP CLASS	RIPRAP THICKNESS (T_R)	BEDDING THICKNESS (T_B)
B3	12''	•
A4	16''	6''
A5	22''	8''

• STONE DUMP RIPRAP CLASS B-3 HAS NO BEDDING MATERIAL OR FILTER FABRIC UNLESS IN SANDY SOILS.

TYPICAL STONE RIPRAP DITCH LINING

SEE SCHEDULE FOR INSTALLATION LOCATIONS

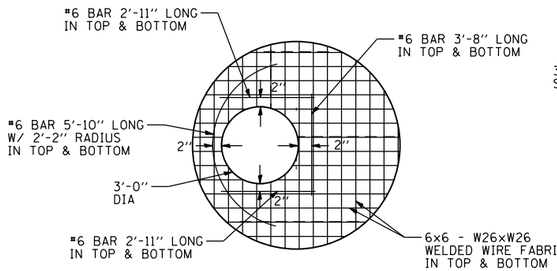


BOX CULVERT EXCAVATION LIMITS

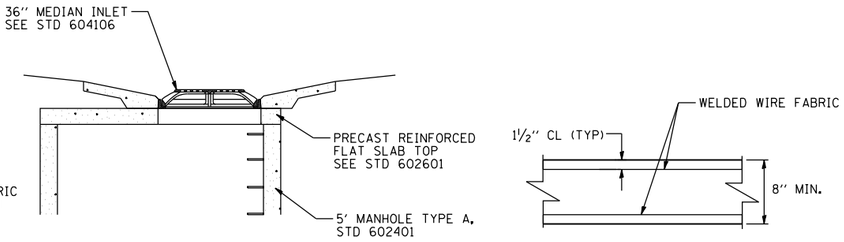
SEE SCHEDULE FOR INSTALLATION LOCATIONS

NOTE:

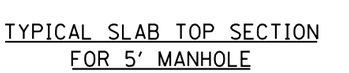
1) EARTH EXCAVATION INCLUDED IN THE CONTRACT UNIT PRICE PER FOOT FOR PRECAST BOX CULVERTS.



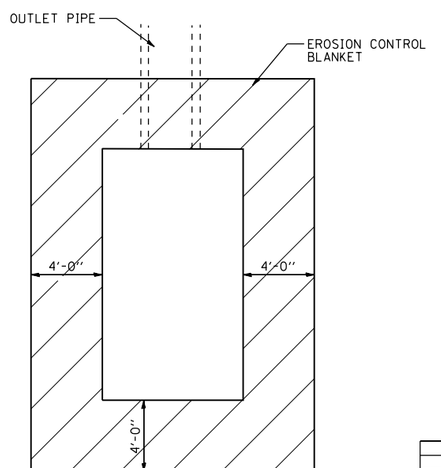
5' FLAT SLAB TOP DETAIL WITH 36'' OPENING



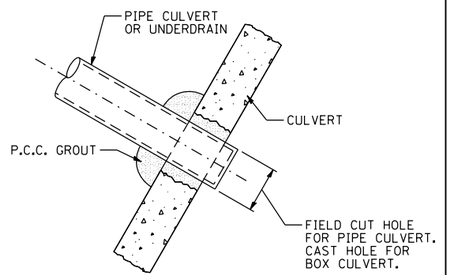
DETAIL OF STANDARD 36'' MEDIAN INLET OF FLAT SLAB TOP



TYPICAL SLAB TOP SECTION FOR 5' MANHOLE

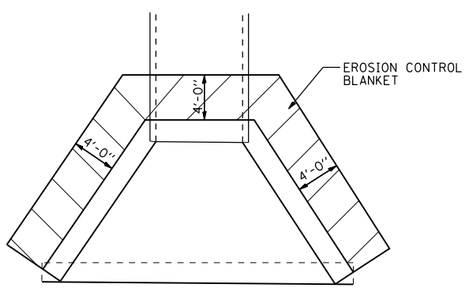


EROSION CONTROL BLANKET AROUND HEADWALL FOR PIPE UNDERDRAIN STD. 601101

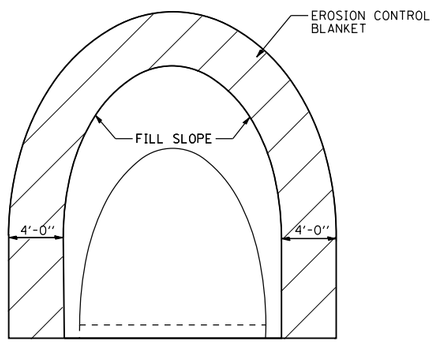


DETAIL OF PLACING PIPE IN CULVERT

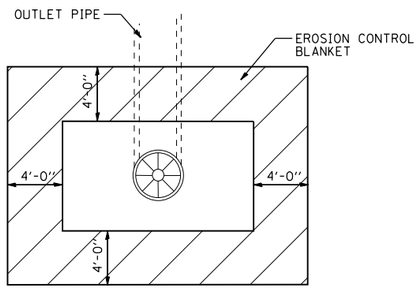
NOTE: COST OF PLACING PIPE IN THE CULVERT SHALL BE INCLUDED IN THE PAY ITEM FOR THE CULVERT OR UNDERDRAIN.



EROSION CONTROL BLANKET AROUND HEADWALLS & CULVERT WINGWALLS



EROSION CONTROL BLANKET AROUND FLARED END SECTION STD. 542301



EROSION CONTROL BLANKET AROUND MEDIAN INLETS STD. 604101 & STD. 604106

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: None DRAWN BY SEB

DATE 8/22/06 CHECKED BY TLD

10/5/2012

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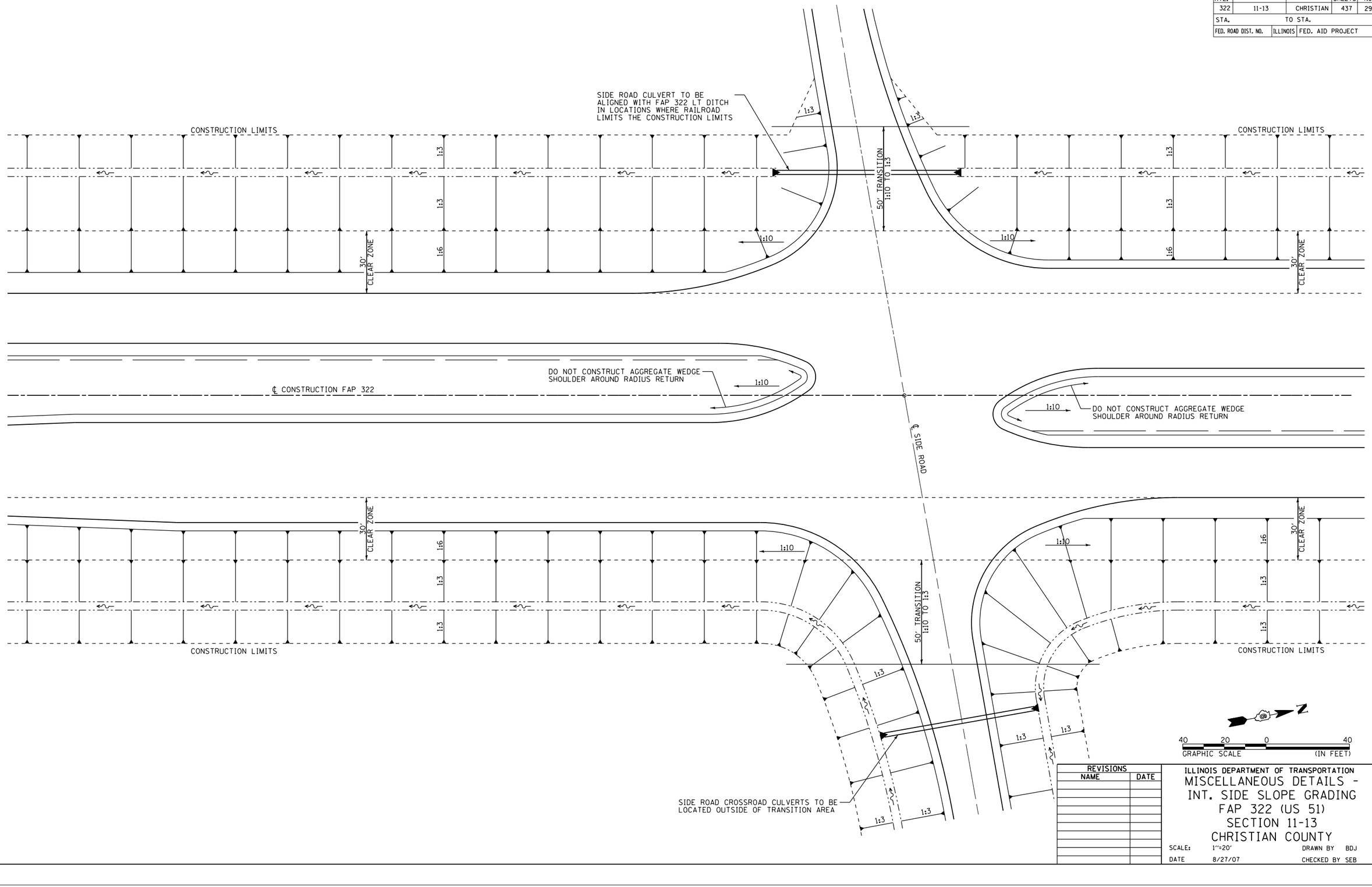
72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	290
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS - INT. SIDE SLOPE GRADING FAP 322 (US 51) SECTION 11-13 CHRISTIAN COUNTY

SCALE: 1"=20' DRAWN BY BDJ

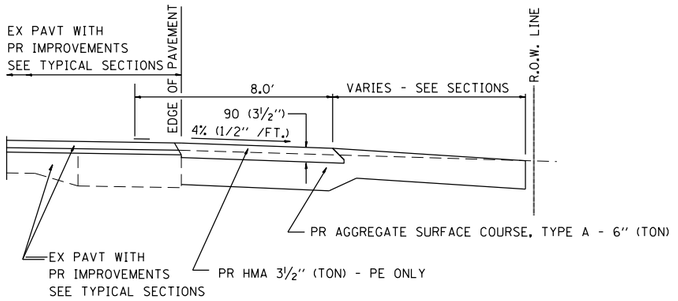
DATE 8/27/07 CHECKED BY SEB

10/5/2012

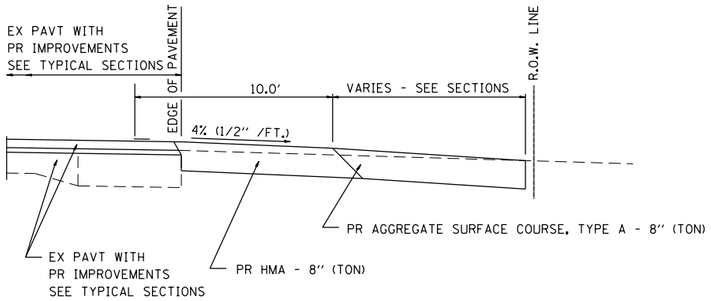
D:\0files\010329\SOUTH PLANS NEW\CADD Sheets\D672961-sht-details07.dgn

72961

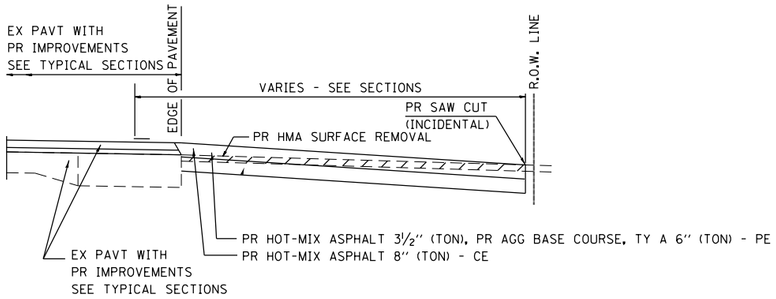
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	291
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



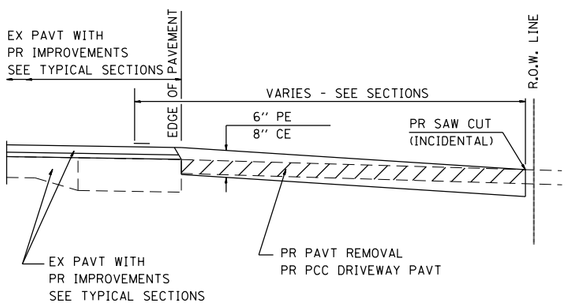
SECTION A-A FOR EX EARTH/AGGREGATE FE & PE



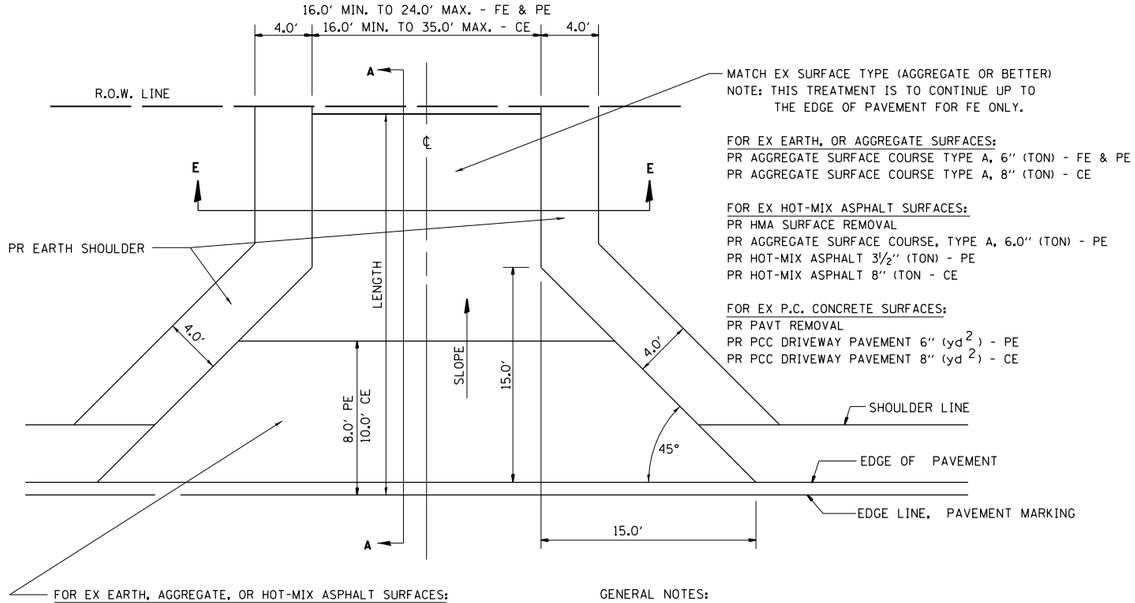
SECTION A-A FOR EX EARTH/AGGREGATE CE



SECTION A-A FOR EX HOT-MIX ASPHALT PE & CE



SECTION A-A FOR EX P.C. CONC. PE & CE



MATCH EX SURFACE TYPE (AGGREGATE OR BETTER)
NOTE: THIS TREATMENT IS TO CONTINUE UP TO THE EDGE OF PAVEMENT FOR FE ONLY.

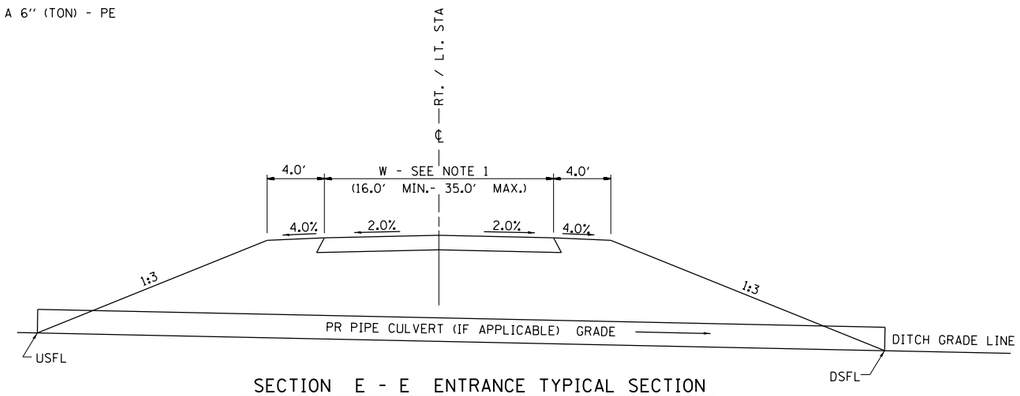
FOR EX EARTH, OR AGGREGATE SURFACES:
PR AGGREGATE SURFACE COURSE TYPE A, 6" (TON) - FE & PE
PR AGGREGATE SURFACE COURSE TYPE A, 8" (TON) - CE

FOR EX HOT-MIX ASPHALT SURFACES:
PR HMA SURFACE REMOVAL
PR AGGREGATE SURFACE COURSE, TYPE A, 6.0" (TON) - PE
PR HOT-MIX ASPHALT 3½" (TON) - PE
PR HOT-MIX ASPHALT 8" (TON - CE

FOR EX P.C. CONCRETE SURFACES:
PR PAVT REMOVAL
PR PCC DRIVEWAY PAVEMENT 6" (yd^2) - PE
PR PCC DRIVEWAY PAVEMENT 8" (yd^2) - CE

FOR EX EARTH, AGGREGATE, OR HOT-MIX ASPHALT SURFACES:
PR HMA SURFACE REMOVAL (IF APPLICABLE)
PR AGGREGATE SURFACE COURSE TYPE A 6" (TON) - FE
PR AGGREGATE SURFACE COURSE TYPE A, 6" (TON) &
PR HOT-MIX ASPHALT 3½" (TON) - PE
PR HOT-MIX ASPHALT 8" (TON) - CE

FOR P.C. CONCRETE SURFACES:
PR PAVT REMOVAL
PR PCC DRIVEWAY PAVT 6" (yd^2) - PE
PR PCC DRIVEWAY PAVT 8" (yd^2) - CE



SECTION E - E ENTRANCE TYPICAL SECTION

NOTE 1: WIDTH OF ENTRANCE MAY BE INCREASED AT THE PIPE CULVERT DUE TO THE DITCHLINE BEING LOCATED IN THE ENTRANCE FLARE AREA.

GENERAL NOTES:

THE RESIDENT ENGINEER WILL DETERMINE THE EXACT TYPE OF IMPROVEMENT TO BE COMPLETED FOR ALL ENTRANCES, SIDEROADS AND MAILBOX TURNOUTS ON THIS PROJECT.

THE PLAN DETAILS AND SCHEDULES SHOULD BE USED AS A GUIDE FOR THE ENGINEER TO IMPLEMENT THE FINAL DESIGN. THE ENGINEER MAY DECIDE TO SALVAGE PORTIONS OF THE EXISTING ENTRANCE PAVEMENT STRUCTURE; THEREFORE, REDUCING PAY ITEM QUANTITIES. NO ADDITIONAL PAYMENT WILL BE ALLOWED FOR THIS REDUCTION IN QUANTITIES.

ANY WORK THE ENGINEER REQUIRES WHICH IS NOT COVERED BY A PAY ITEM CONTAINED IN THE PLANS WILL BE PAID FOR IN ACCORDANCE WITH ARTICLE 109.04 OF THE STANDARD SPECIFICATIONS.

HOT-MIX ASPHALT REQUIRED TO CONSTRUCT THE ENTRANCES SHALL BE IN ACCORDANCE WITH THE APPLICABLE PORTIONS OF SECTION 406 AND 408 OF THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.

WHEN THE HOT-MIX ASPHALT PROPOSED FOR THE IMPROVEMENT IS THICKER THAN 3 INCHES AND REQUIRE PLACEMENT IN MORE THAN ONE LIFT. THE BOTTOM LIFT(S) SHALL MEET THE REQUIREMENTS OF HOT-MIX ASPHALT BASE COURSE IN SECTION 406 OF THE STANDARD SPECIFICATIONS AND THE TOP LIFT OF 2 INCHES SHALL MEET THE APPLICABLE REQUIREMENTS OF HOT-MIX ASPHALT SURFACE COURSE OF SECTION 406 OF THE STANDARD SPECIFICATIONS. SURFACE COURSE MIXTURE SHALL BE MIX "C".

THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER TON FOR "INCIDENTAL HOT-MIX ASPHALT SURFACING" WHICH SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR INVOLVED.

SIDE ROADS

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS - ENTRANCES - SIDE ROADS FAP 322 (US 51) SECTION 11-13 CHRISTIAN COUNTY

SCALE: NONE DRAWN BY SEB

DATE 8/27/07 CHECKED BY EBB

10/5/2012

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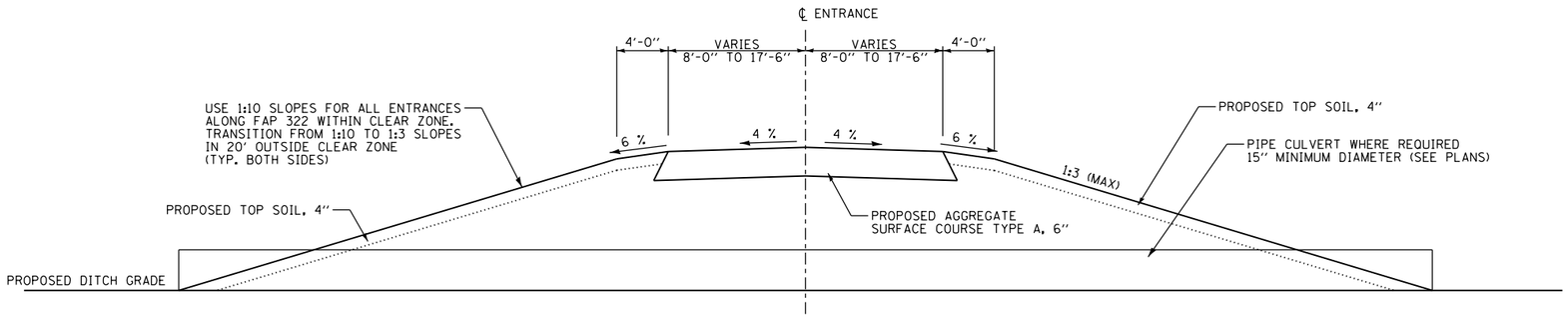
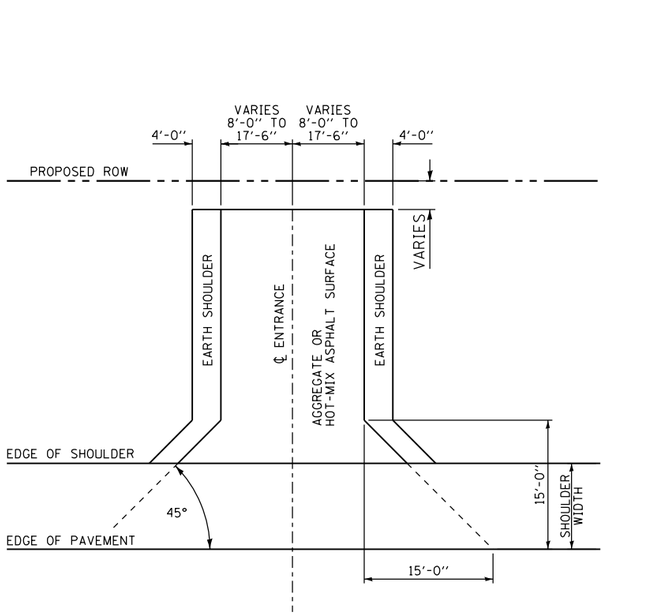
72961

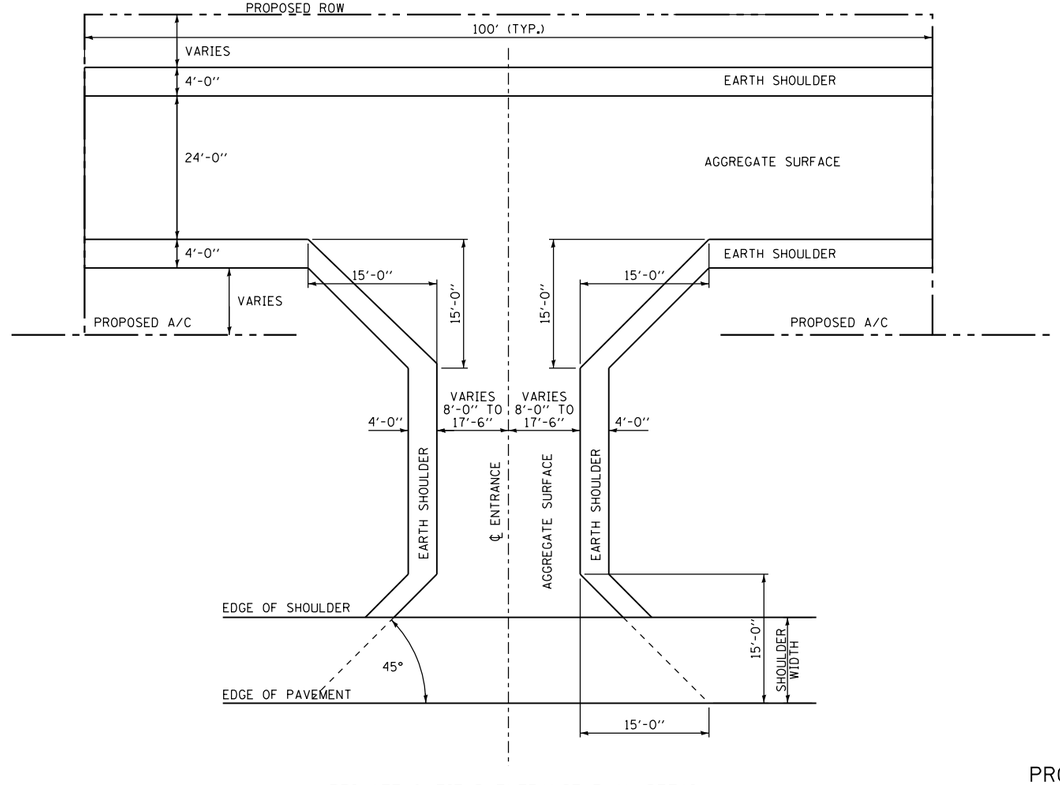
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	292
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



TYPICAL SECTION (PRIVATE / FIELD ENTRANCE)



PRIVATE & FIELD ENTRANCE PLAN DETAIL
SINGLE ENTRANCE



PRIVATE & FIELD ENTRANCE PLAN DETAIL
DUAL ENTRANCE

PROPOSED FAP 322

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS - ENTRANCES - EXPRESSWAY
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: None DRAWN BY SEB
DATE 8/27/07 CHECKED BY EBB

10/5/2012

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72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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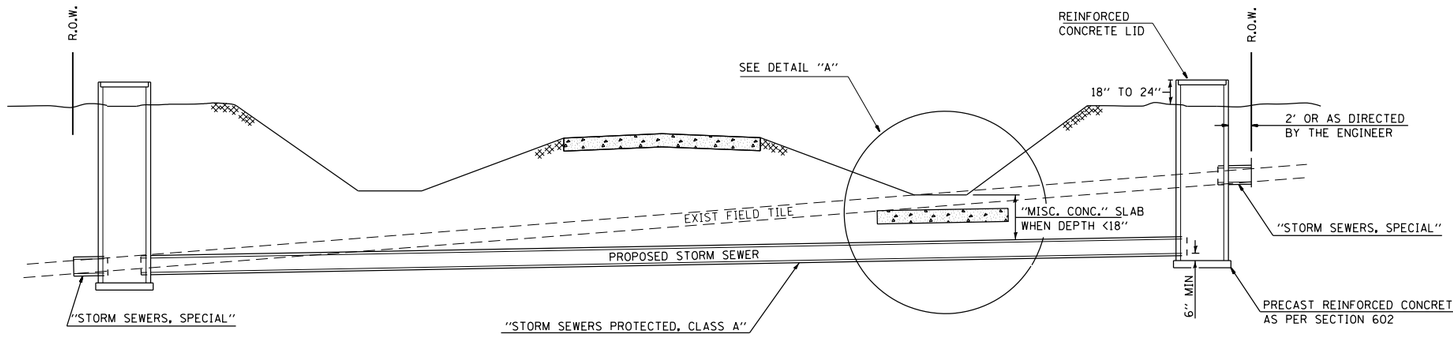
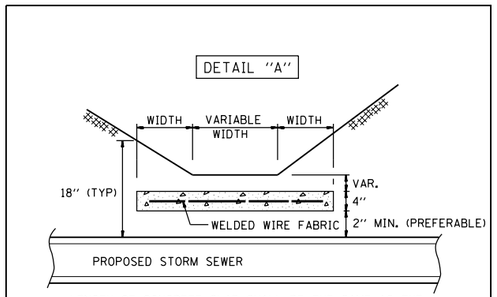
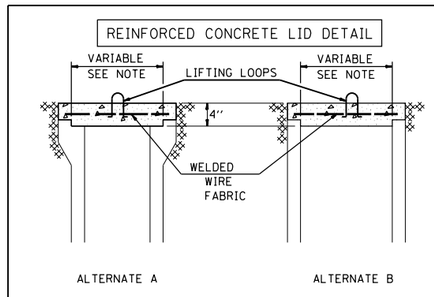
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		





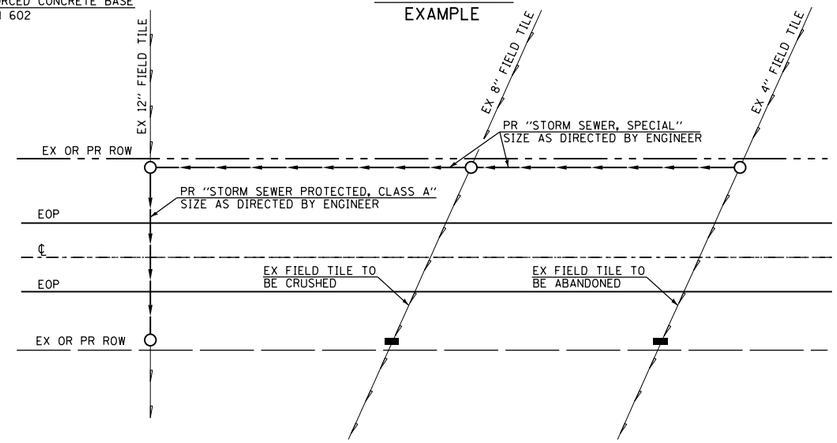
LENGTH OF CONCRETE SLAB SHALL BE THE SAME AS THE TRENCH WIDTH OF STORM SEWER IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

NOTE
WELDED WIRE FABRIC
(58 LBS/100 SQ. FT.)



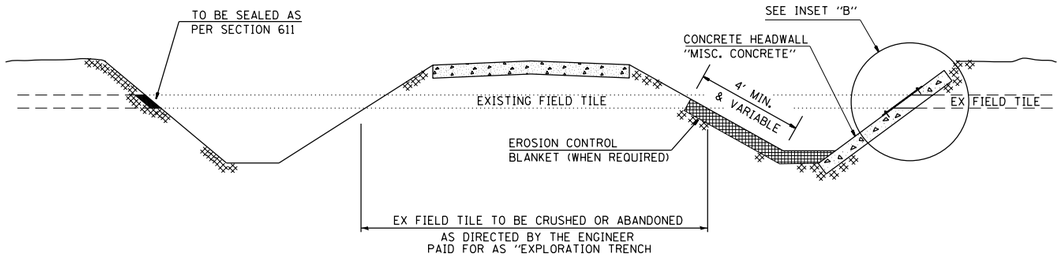
NOTE : DIMENSIONS WILL VARY TO MATCH NOMINAL SIZE OF PROPOSED STORM SEWER

PLAN VIEW
EXAMPLE

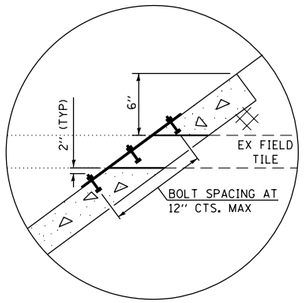


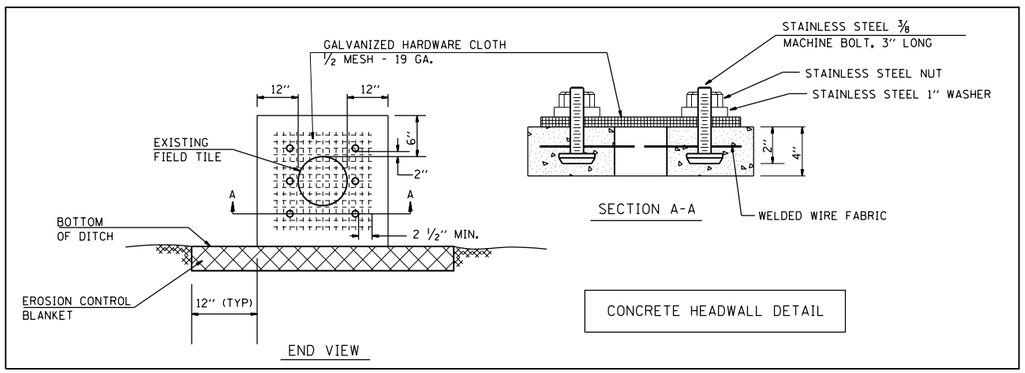
○ PR "FIELD TILE JUNCTION VAULT" SIZE AS DIRECTED BY ENGINEER

▬ EX FIELD TILE END TO BE SEALED AS PER SECTION 611.



INSET "B"





CONCRETE HEADWALL DETAIL

GENERAL NOTES

1. FIELD TILE SHALL BE REPLACED IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS. THE COST PER CONTRACT UNIT PRICE OF ITEMS INCLUDED IN THIS CONTRACT SHALL BE PAID FOR AS STATED IN SECTION 611 OF THE STANDARD SPECIFICATIONS. IF THE CONTRACT UNIT PRICE IS NOT INCLUDED IN THIS CONTRACT, PAYMENT FOR THIS WORK WILL BE IN ACCORDANCE WITH ARTICLE 109.04 OF THE STANDARD SPECIFICATIONS.
2. THE DIAMETER OF THE PROPOSED STORM SEWER SHALL BE EQUAL TO OR GREATER THAN THE EXISTING FIELD TILE.
3. THE REINFORCED CONCRETE LID SHALL BE CLASS SI CONCRETE (MISCELLANEOUS) OR PRECAST REINFORCED CONCRETE.
4. FIELD TILES LESS THAN 7" DIAMETER INTERCEPTED BY THE BACKSLOPE SHALL BE CRUSHED AND REMAIN IN PLACE UNDER THE ROADBED. INTERCEPTED FIELD TILES 7" OR LARGER IN DIAMETER SHALL BE REMOVED AND BACKFILLED IN ACCORDANCE WITH ARTICLE 611.03.
5. FOR DIAMETERS LESS THAN 12" OF "STORM SEWERS PROTECTED, CLASS A", MATERIALS OTHER THAN CONCRETE MAY BE USED WITH APPROVAL BY THE ENGINEER.
6. WHEN USING FLEXIBLE PIPE AS LISTED IN THE FIRST TABLE OF ARTICLE 550.03, THE TRENCH SHALL BE BACKFILLED ACCORDING TO ARTICLE 550.07. ALL "BELLED" PIPE WILL REQUIRE AT LEAST 4" OF AGGREGATE BELOW THE PIPE COVERING THE FULL WIDTH OF THE TRENCH.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SHOWN.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS - FIELD TILE & PIPE TEE PLUG
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: None DRAWN BY DIST. 6

DATE CHECKED BY

10/5/2012

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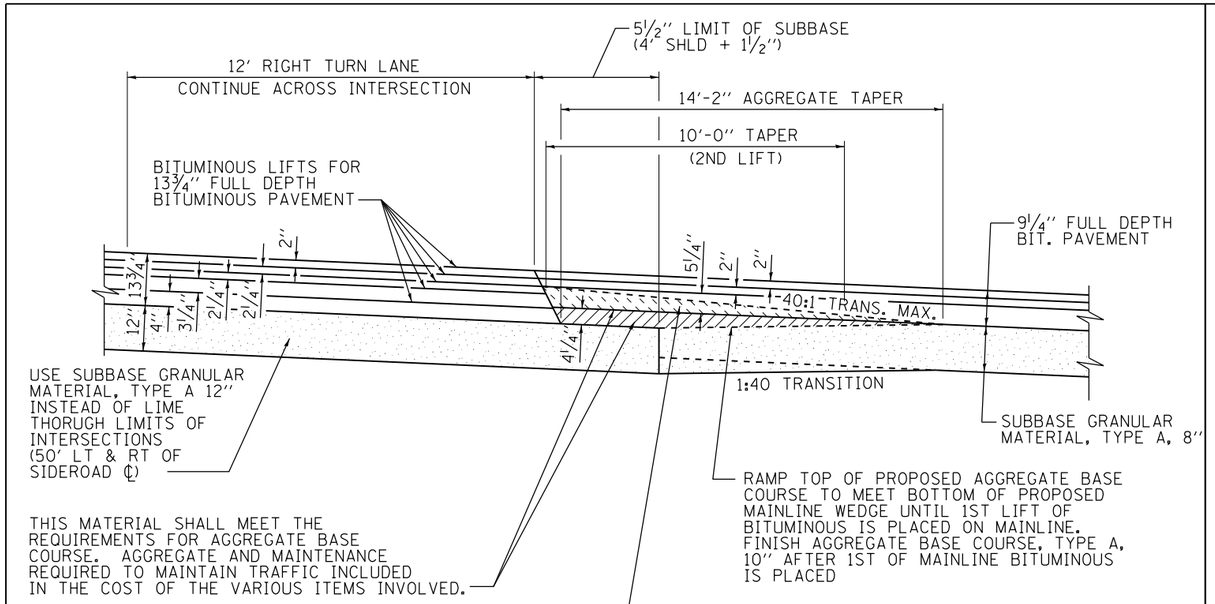
72961

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	294
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

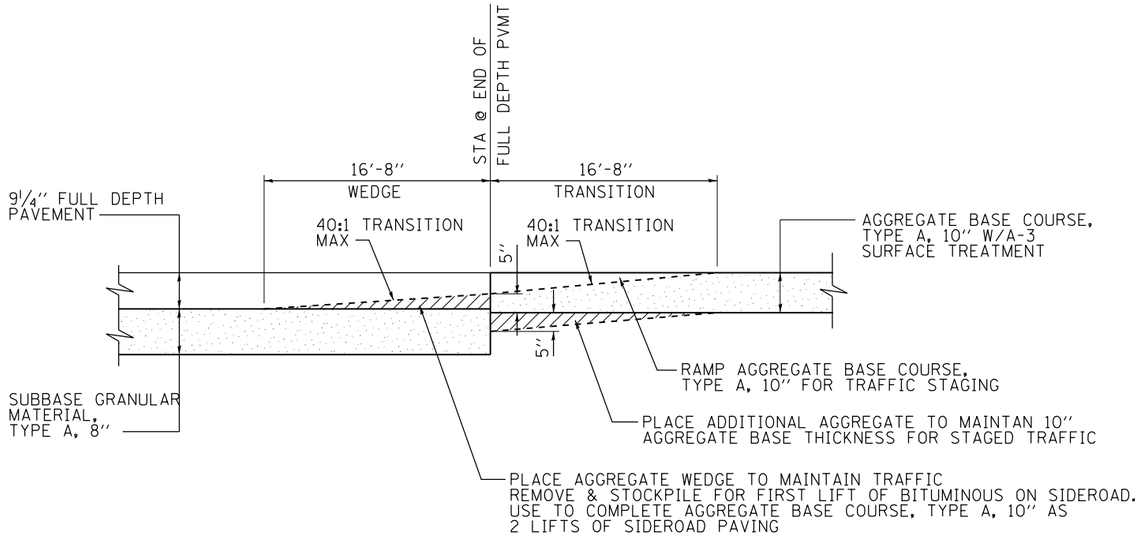


NOTE: THE FIRST LIFT OF BITUMINOUS ON SIDEROAD MUST BE PLACED BEFORE PLACING 3 RD LIFT OF BITUMINOUS ON MAINLINE.

MAINTENANCE OF AGGREGATE BASE COURSE INCLUDED IN COST FOR BITUMINOUS PAVEMENT 13¾''

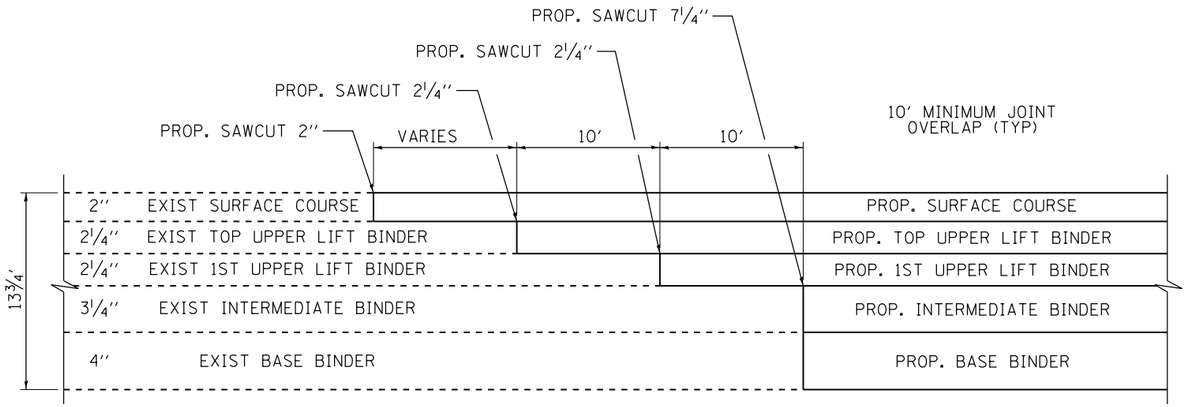
MAINLINE/SIDEROAD STAGED CONSTRUCTION TRANSITION

N.T.S.



SIDEROAD BITUMINOUS / A-3 SURFACE STAGED CONSTRUCTION TRANSITION

N.T.S.



BUTT JOINT AT FULL-DEPTH PAVEMENT STUBS

LOCATIONS: STA 555+00.00 NORTHBOUND
STA 564+66.00 SOUTHBOUND

NOTE: COST FOR SAW CUTS AND ADDITIONAL BITUMINOUS MATERIALS NECESSARY TO COMPLETE THE BUTT JOINT SHALL BE CONSIDERED INCLUDED IN THE COST OF THE PAVING ITEMS THIS WORK IS ASSOCIATED WITH.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS -
FIELD TILE & PIPE TEE PLUG
FAP 322 (US 51)
SECTION 11-13
CHRISTIAN COUNTY

SCALE: None DRAWN BY DIST. 6
DATE CHECKED BY

10/5/2012

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72961

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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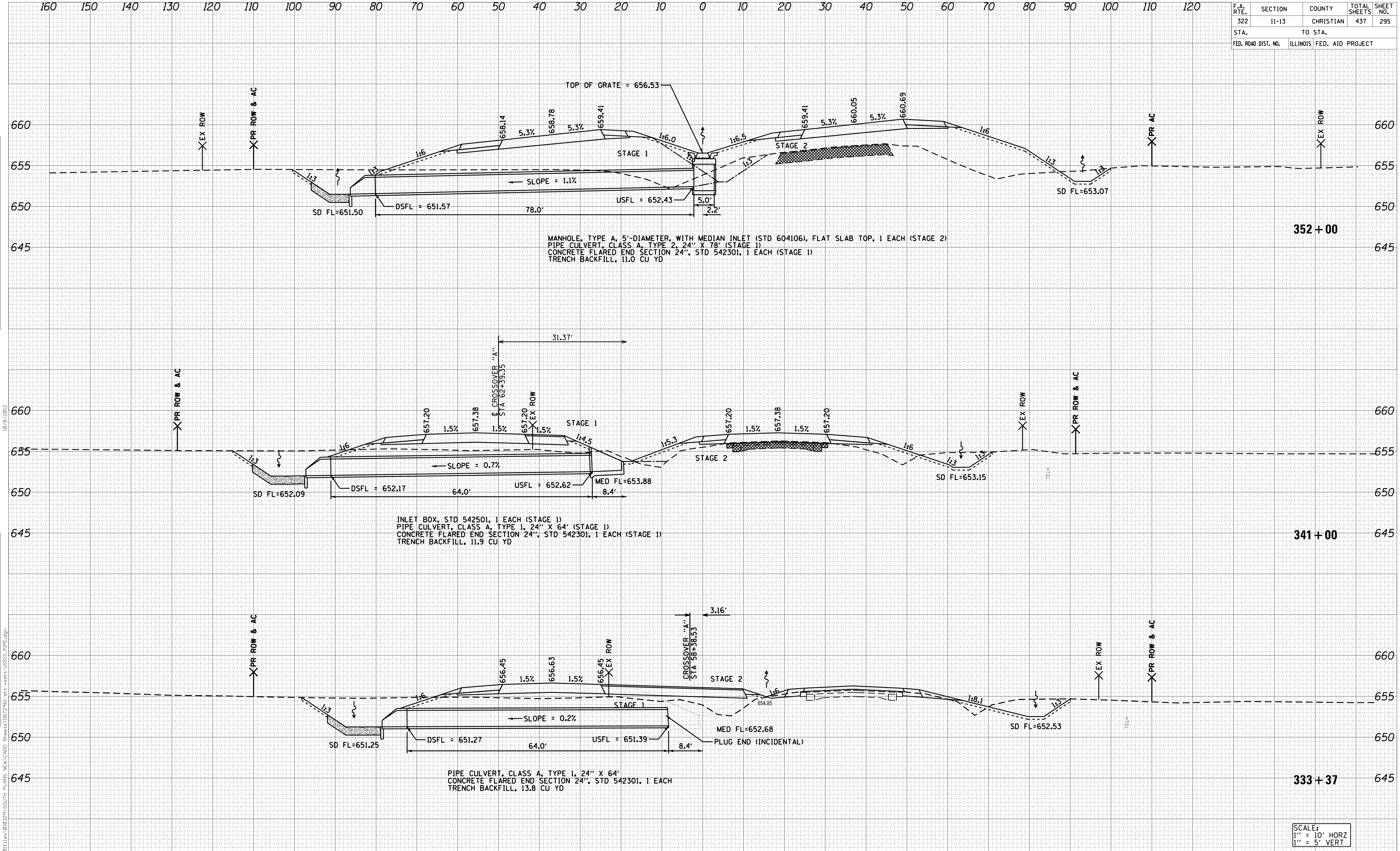
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



MANHOLE, TYPE A, 5'-DIAMETER, WITH MEDIAN INLET (STD 604106), FLAT SLAB TOP, 1 EACH (STAGE 2)
PIPE CULVERT, CLASS A, TYPE 2, 24" X 78' (STAGE 1)
CONCRETE FLARED END SECTION 24", STD 542301, 1 EACH (STAGE 1)
TRENCH BACKFILL, 11.0 CU YD

INLET BOX, STD 542501, 1 EACH (STAGE 1)
PIPE CULVERT, CLASS A, TYPE 1, 24" X 64' (STAGE 1)
CONCRETE FLARED END SECTION 24", STD 542301, 1 EACH (STAGE 1)
TRENCH BACKFILL, 11.9 CU YD

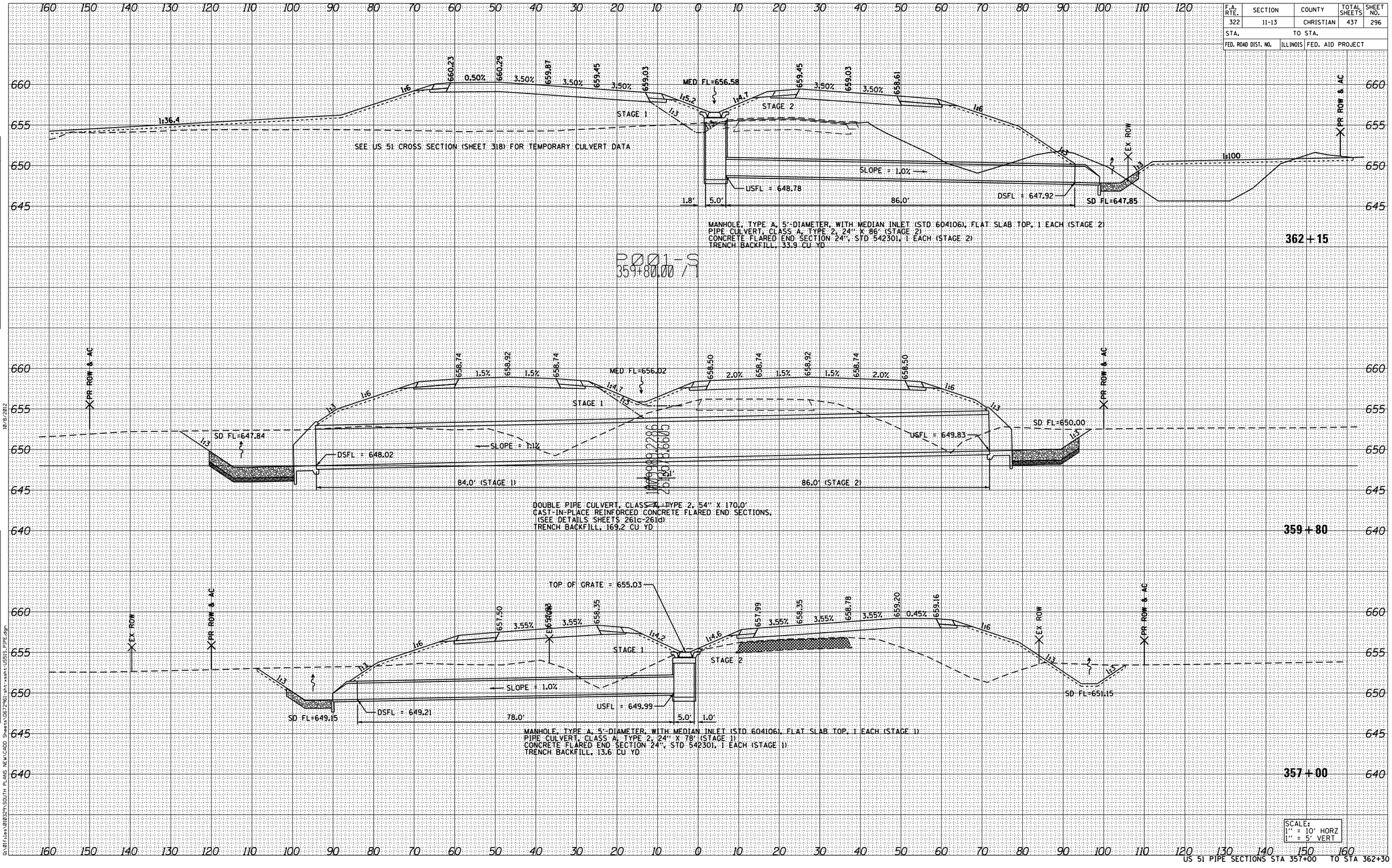
PIPE CULVERT, CLASS A, TYPE 1, 24" X 64'
CONCRETE FLARED END SECTION 24", STD 542301, 1 EACH
TRENCH BACKFILL, 13.8 CU YD

SCALE:
1" = 10' HORZ
1" = 5' VERT

US 51 PIPE SECTIONS STA 333+37 TO STA 352+00

72961

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	296
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



FINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

ORIGINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

10/8/2012

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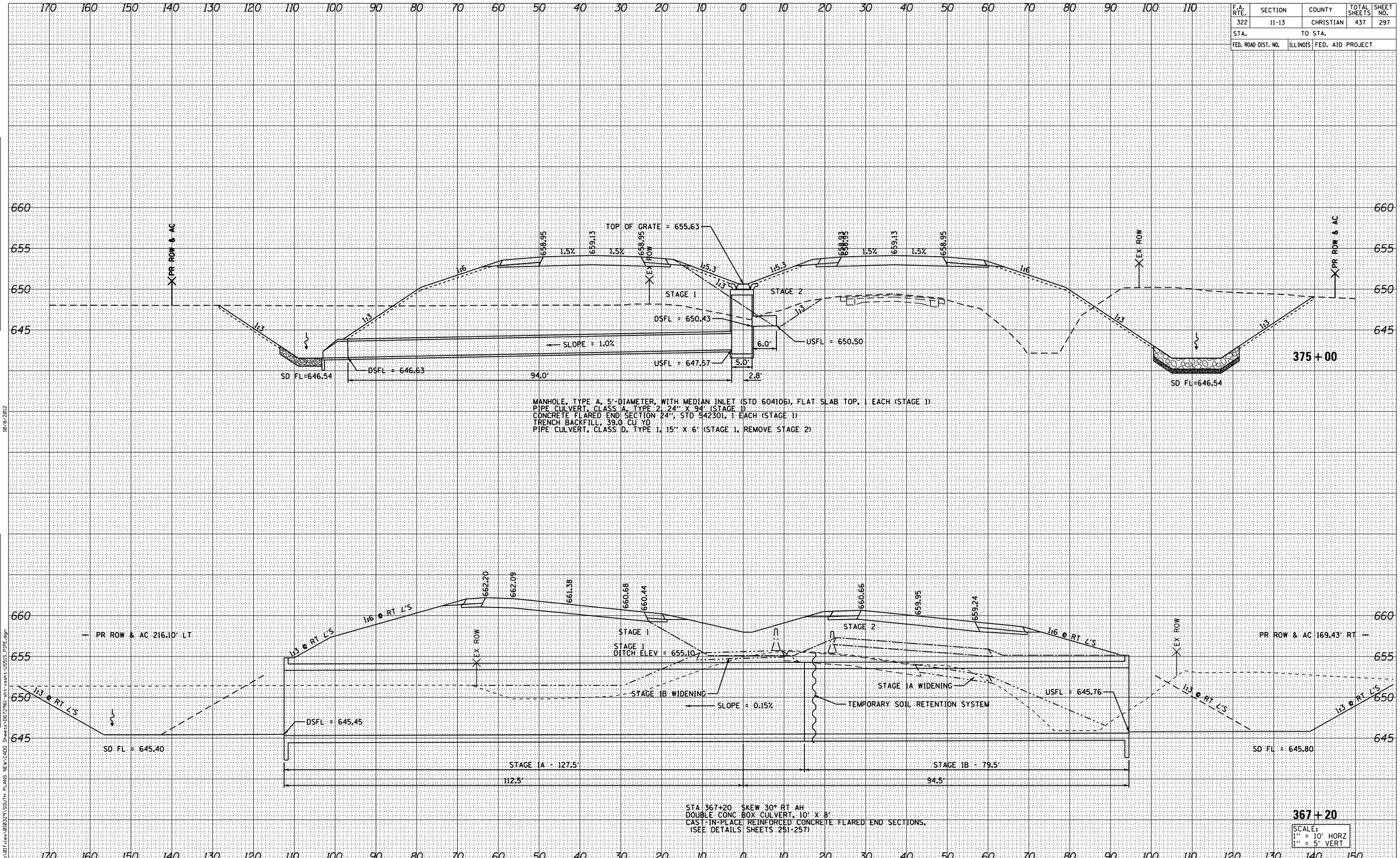
US 51 PIPE SECTIONS STA 357+00 TO STA 362+30

72961

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	297
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

FINAL SURVEY	BY	DATE
NOTE BOOK	SURVEYED	
NO.	PLOTTED	
	TEMPLATE	
	AREAS	
	AREAS CHECKED	



ORIGINAL SURVEY	BY	DATE
NOTE BOOK	SURVEYED	
NO.	PLOTTED	
	TEMPLATE	
	AREAS	
	AREAS CHECKED	

10/8/2012
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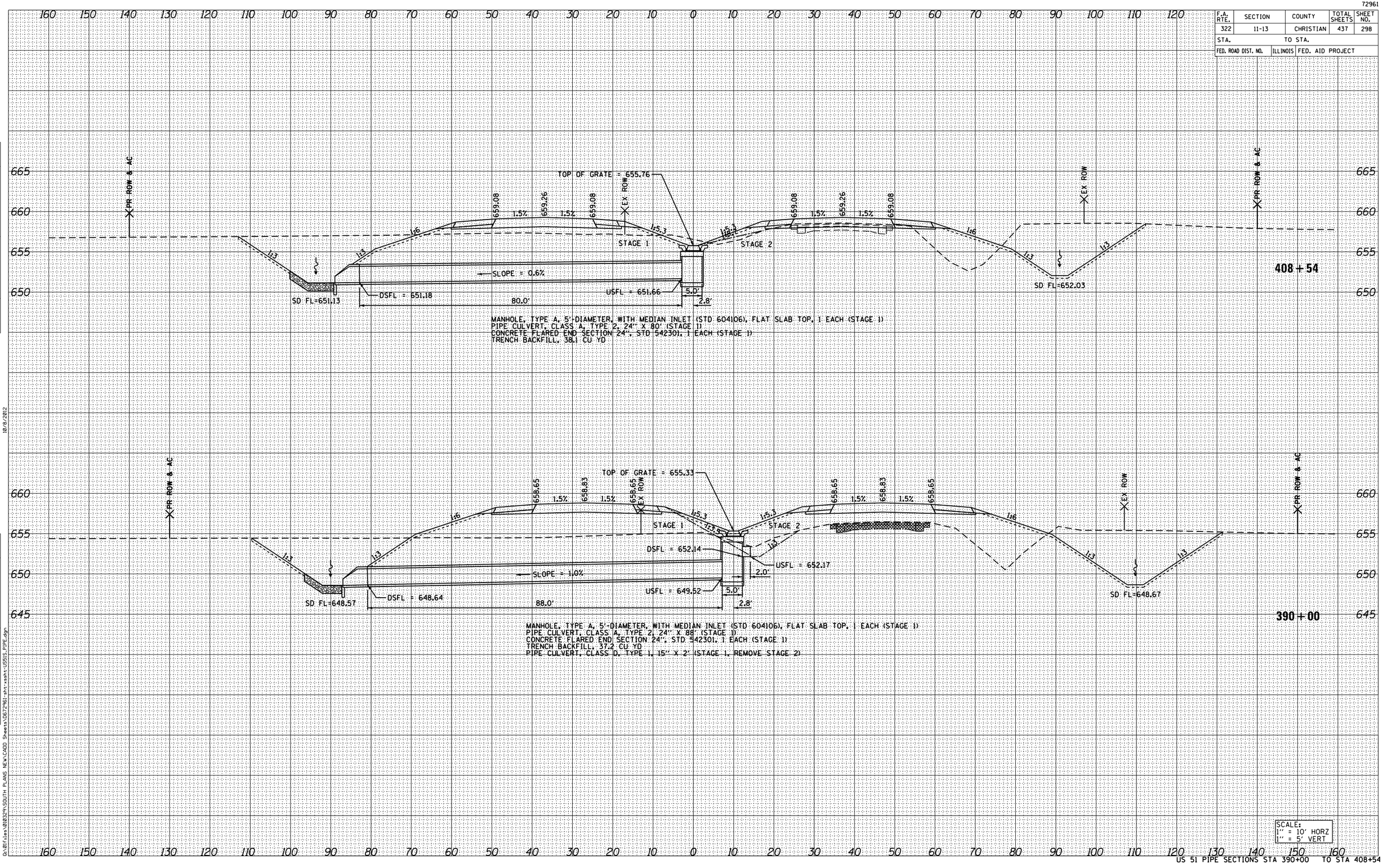
US 51 PIPE SECTIONS STA 367+20 TO STA 375+00

72961

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	298
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



FINAL SURVEY	NOTE BOOK	NO.
	SURVEYED	BY
	PLOTTED	DATE
	TEMPLATE	
	AREAS	
	AREAS CHECKED	

ORIGINAL SURVEY	NOTE BOOK	NO.
	SURVEYED	BY
	PLOTTED	DATE
	TEMPLATE	
	AREAS	
	AREAS CHECKED	

10/8/2012

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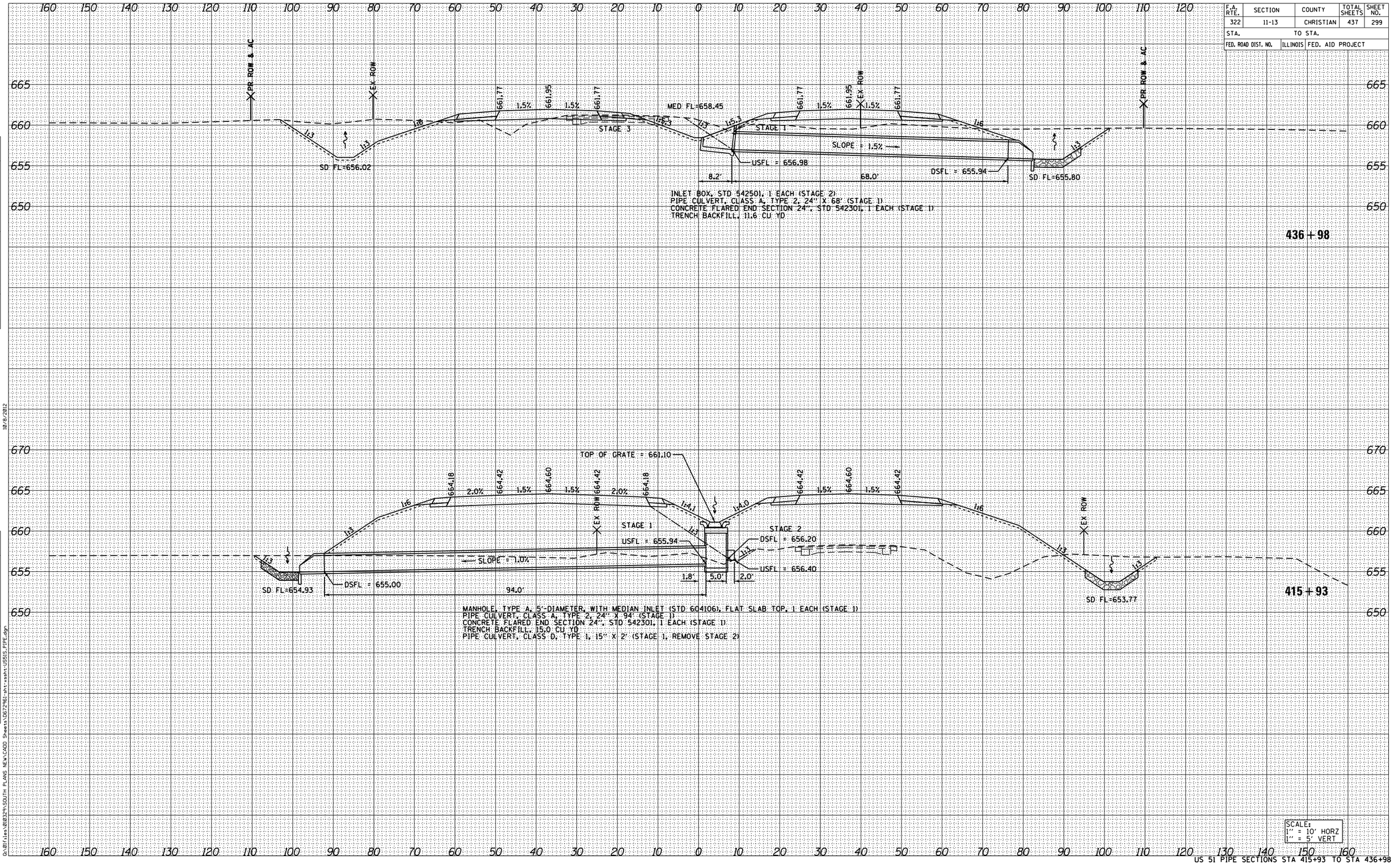
US 51 PIPE SECTIONS STA 390+00 TO STA 408+54

72961

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	299
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



FINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

ORIGINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

10/8/2012

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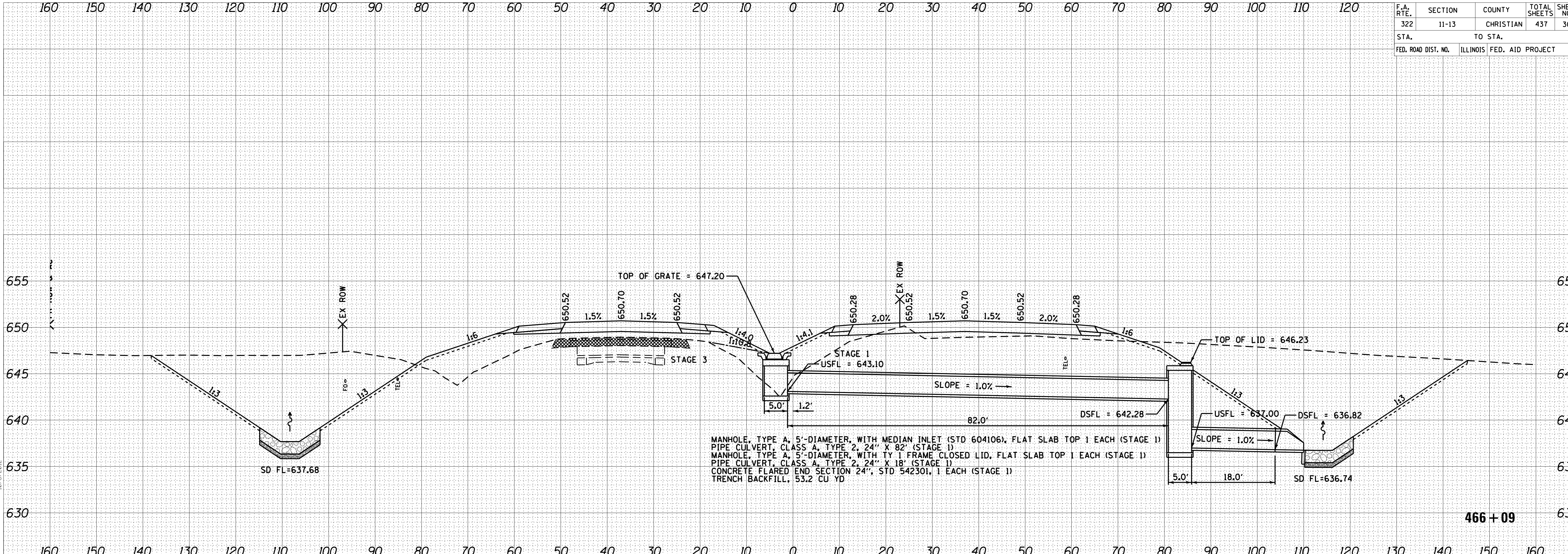
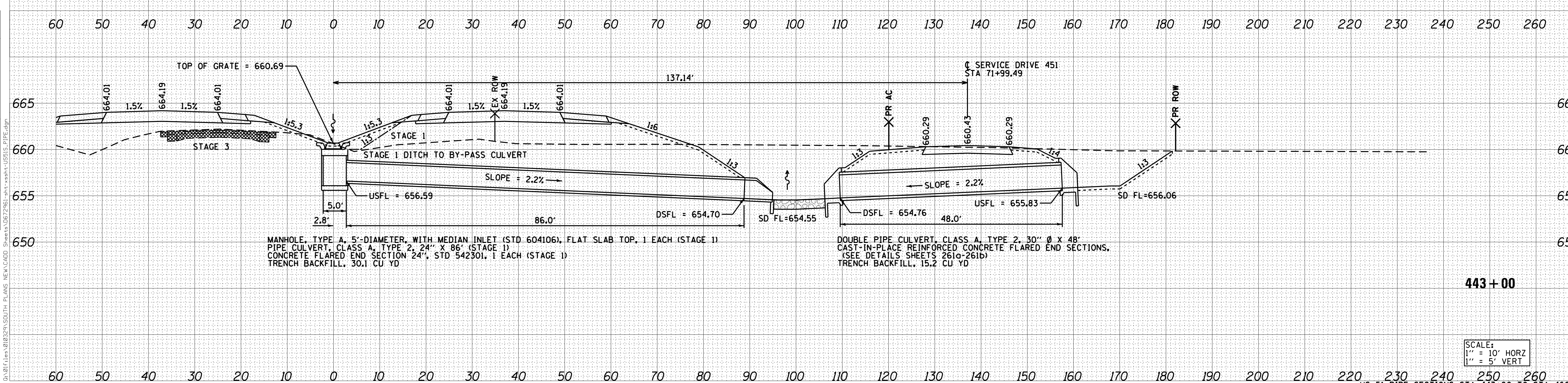
US 51 PIPE SECTIONS STA 415+93 TO STA 436+98

72961

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	11-13	CHRISTIAN	437	300
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



TOP OF GRATE = 647.20
EX ROW
650.52
1.5%
650.70
1.5%
650.52
650.28
2.0%
650.52
1.5%
650.70
1.5%
650.52
2.0%
650.28
1:6
1:4.0
1:10.8
1:4.1
1:6
TOP OF LID = 646.23
STAGE 3
STAGE 1
USFL = 643.10
SLOPE = 1.0%
1:3
1:3
1:3
1:3
5.0'
1.2'
82.0'
DSFL = 642.28
USFL = 637.00
DSFL = 636.82
SLOPE = 1.0%
SD FL=637.68
5.0'
18.0'
SD FL=636.74
MANHOLE, TYPE A, 5'-DIAMETER, WITH MEDIAN INLET (STD 604106), FLAT SLAB TOP 1 EACH (STAGE 1)
PIPE CULVERT, CLASS A, TYPE 2, 24" X 82' (STAGE 1)
MANHOLE, TYPE A, 5'-DIAMETER, WITH TY 1 FRAME CLOSED LID, FLAT SLAB TOP 1 EACH (STAGE 1)
PIPE CULVERT, CLASS A, TYPE 2, 24" X 18' (STAGE 1)
CONCRETE FLARED END SECTION 24", STD 542301, 1 EACH (STAGE 1)
TRENCH BACKFILL, 53.2 CU YD
466+09



TOP OF GRATE = 660.69
137.14'
℄ SERVICE DRIVE 451
STA 71+99.49
664.01
1.5%
664.19
1.5%
664.01
1:5.3
1:5.3
STAGE 1
664.01
1.5%
EX ROW
664.19
1.5%
664.01
1:6
PR AC
660.29
660.43
660.29
PR ROW
STAGE 3
STAGE 1 DITCH TO BY-PASS CULVERT
SLOPE = 2.2%
SLOPE = 2.2%
1:3
1:3
1:4
1:3
USFL = 656.59
DSFL = 654.70
SD FL=654.55
DSFL = 654.76
USFL = 655.83
SD FL=656.06
2.8'
5.0'
86.0'
48.0'
MANHOLE, TYPE A, 5'-DIAMETER, WITH MEDIAN INLET (STD 604106), FLAT SLAB TOP, 1 EACH (STAGE 1)
PIPE CULVERT, CLASS A, TYPE 2, 24" X 86' (STAGE 1)
CONCRETE FLARED END SECTION 24", STD 542301, 1 EACH (STAGE 1)
TRENCH BACKFILL, 30.1 CU YD
DOUBLE PIPE CULVERT, CLASS A, TYPE 2, 30" Ø X 48'
CAST-IN-PLACE REINFORCED CONCRETE FLARED END SECTIONS,
(SEE DETAILS SHEETS 261a-261b)
TRENCH BACKFILL, 15.2 CU YD
443+00
SCALE:
1" = 10' HORZ
1" = 5' VERT

US 51 PIPE SECTIONS STA 443+00 TO STA 466+09