

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	201

STA.	TO STA.
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT

- (205,57,105)RS-2
- ** CHAMPAIGN & DOUGLAS

**FREDERICK MAX FRANKS AND THE
MARGARETH A. GORDON REVOCABLE TRUST**
5527048

MILDRED V. KLOCKENBRINK, ET. AL.
5527050

PIPE CULVERT, TYPE 1, RCCP, 18"x50.0'
WITH PRECAST REINFORCED CONCRETE FLARED
END SECTIONS, 18" - 2.0 EACH (SEE STD. 542301)
31.0' LT., STA. 2274+76.19, D.S.F.L. = 707.59
31.0' LT., STA. 2275+26.19, U.S.F.L. = 707.96

PIPE CULVERT REMOVAL - 54.0'
15"x54.0' CMP

STA. 800+00.00/ROOSEVELT RD (800N)
STA. 2275+02.19/F.A.P. 808

2274+71.43
40.00' LT.

2274+81.43
60.00' LT.

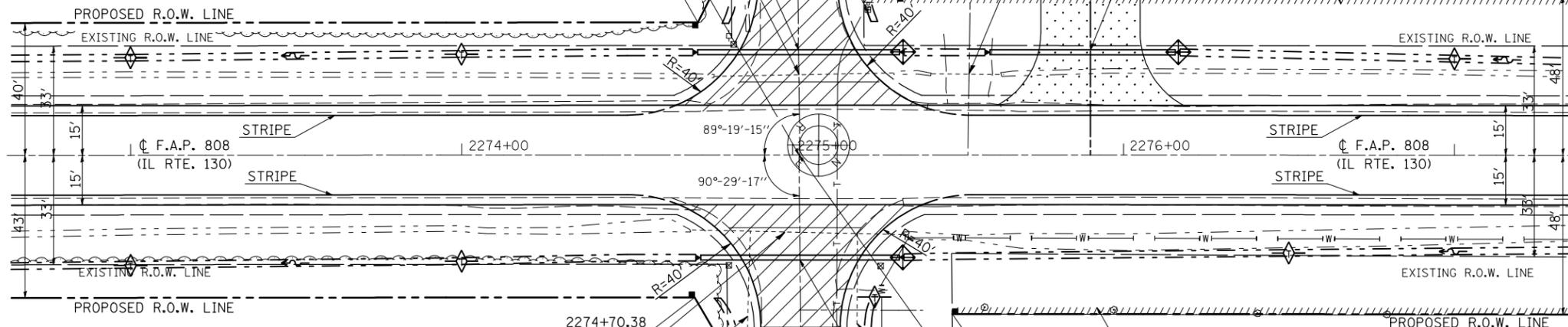
REMOVE EXISTING ENTRANCE

PIPE CULVERT REMOVAL - 21.0'
12"x21.0' RCCP

PIPE CULVERT, CLASS D, TYPE 1, 18"x56.0'
WITH END SECTIONS, 18" - 2.0 EACH
31.0' LT., STA. 2275+59.60, D.S.F.L. = 708.99
31.0' LT., STA. 2276+15.60, U.S.F.L. = 710.11

EXISTING SLOPE EASEMENT
OFFSET: 33.00' LT. TO 48.00' LT.

PROPOSED R.O.W. LINE



**THE HEIRS OF FRANCES
BRAND, DECEASED**
5527047

PIPE CULVERT, CLASS D, TYPE 1, 12"x44.0'
WITH END SECTIONS, 12" - 2.0 EACH
20.0' RT., STA. 800+55.00, D.S.F.L. = 709.15
19.0' RT., STA. 800+99.00, U.S.F.L. = 709.59

PIPE CULVERT REMOVAL - 63.6'
15"x63.6' RCCP

PIPE CULVERT REMOVAL - 32.0'
12"x32.0' RCCP

2274+80.38
60.00' RT.

PAUL A. BOATMAN
5527052

PIPE CULVERT, TYPE 1, RCCP, 18"x48.0'
WITH PRECAST REINFORCED CONCRETE FLARED
END SECTIONS, 18" - 2.0 EACH (SEE STD. 542301)
31.0' RT., STA. 2274+76.46, D.S.F.L. = 707.60
30.5' RT., STA. 2275+24.46, U.S.F.L. = 708.14

2275+48.25
48.00' RT.

STA. 800+00.00/ROOSEVELT RD (800N)
STA. 2275+01.96/F.A.P. 808

PIPE CULVERT REMOVAL - 32.0'
12"x32.0' RCCP

REMOVE EXISTING ENTRANCE

INCIDENTAL HOT-MIX ASPHALT SURFACING

AGGREGATE SURFACE COURSE, TYPE B

HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT

DRIVEWAY PAVEMENT REMOVAL

ILLINOIS DEPARTMENT OF TRANSPORTATION
INTERSECTION PLAN SHEET
ROOSEVELT RD./800N &
F.A.P. 808 (IL. RTE. 130)
F.A.P. 808 (IL. RTE. 130)
SECTION (205,57,105)RS-2
CHAMPAIGN & DOUGLAS COUNTIES
SCALE: 1" = 20'
DATE: 07/10/09
DRAWN BY: B.B.P.
CHECKED BY: G.A.E.

PLOT DATE = 8/12/2009
FILE NAME = G:\DWG\WORK\PROJECTS\CEARLOCK\DWG\010445\70623-sht-inter.sec.dgn
USER NAME = ceartock\j

ROOSEVELT RD. (800N)

(EAST SIDE OF IL RTE. 130)

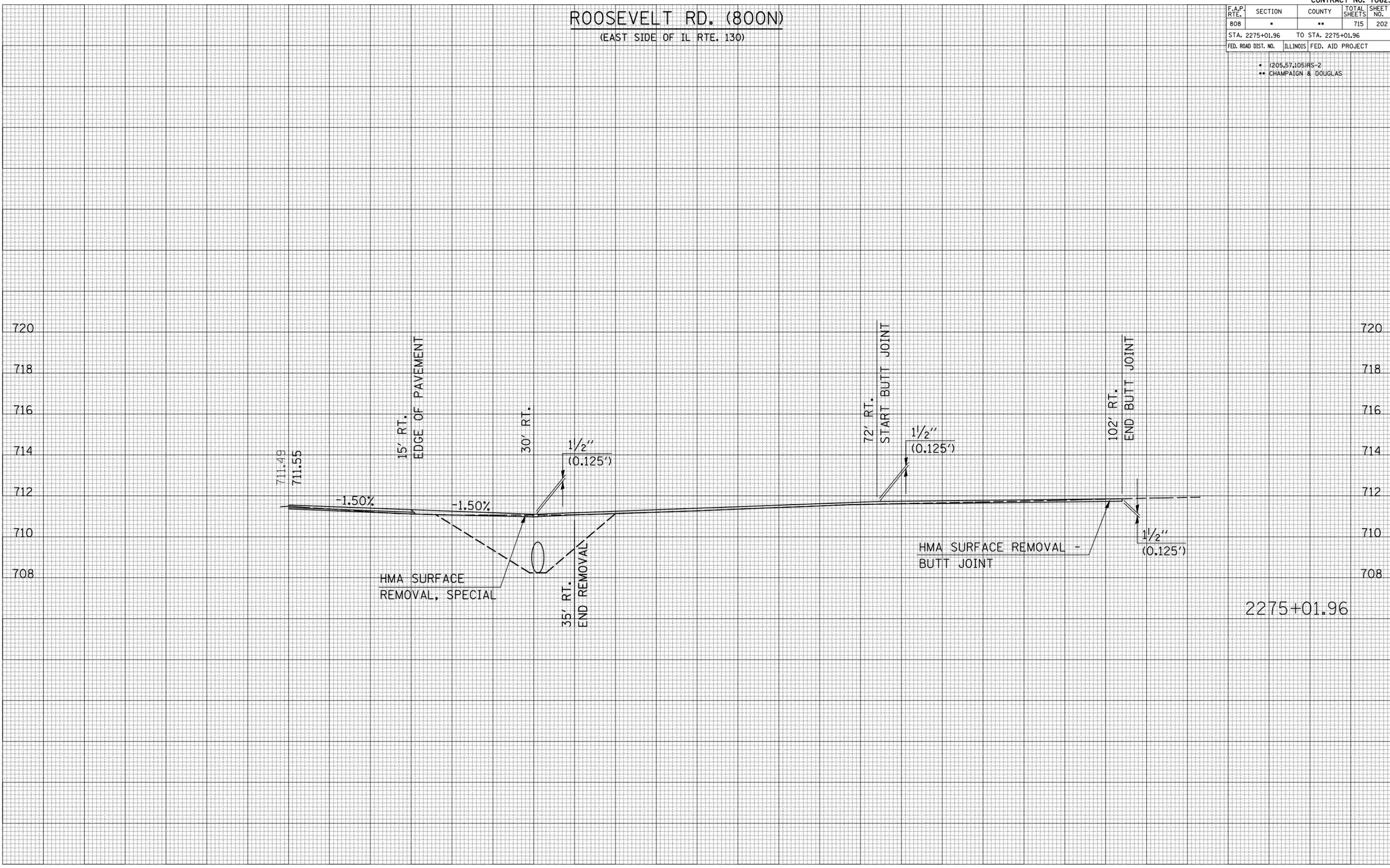
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808		**	715	202
STA. 2275+01.96		TO STA. 2275+01.96		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

BY	DATE

BY	DATE

PLOT DATE = 8/12/2005
 FILE NAME = I:\105682\PROJECTS\808\202\808-202.dgn
 PLOT SCALE = 1/8" = 1' IN.
 USER NAME = ceer-lock,fd



2275+01.96

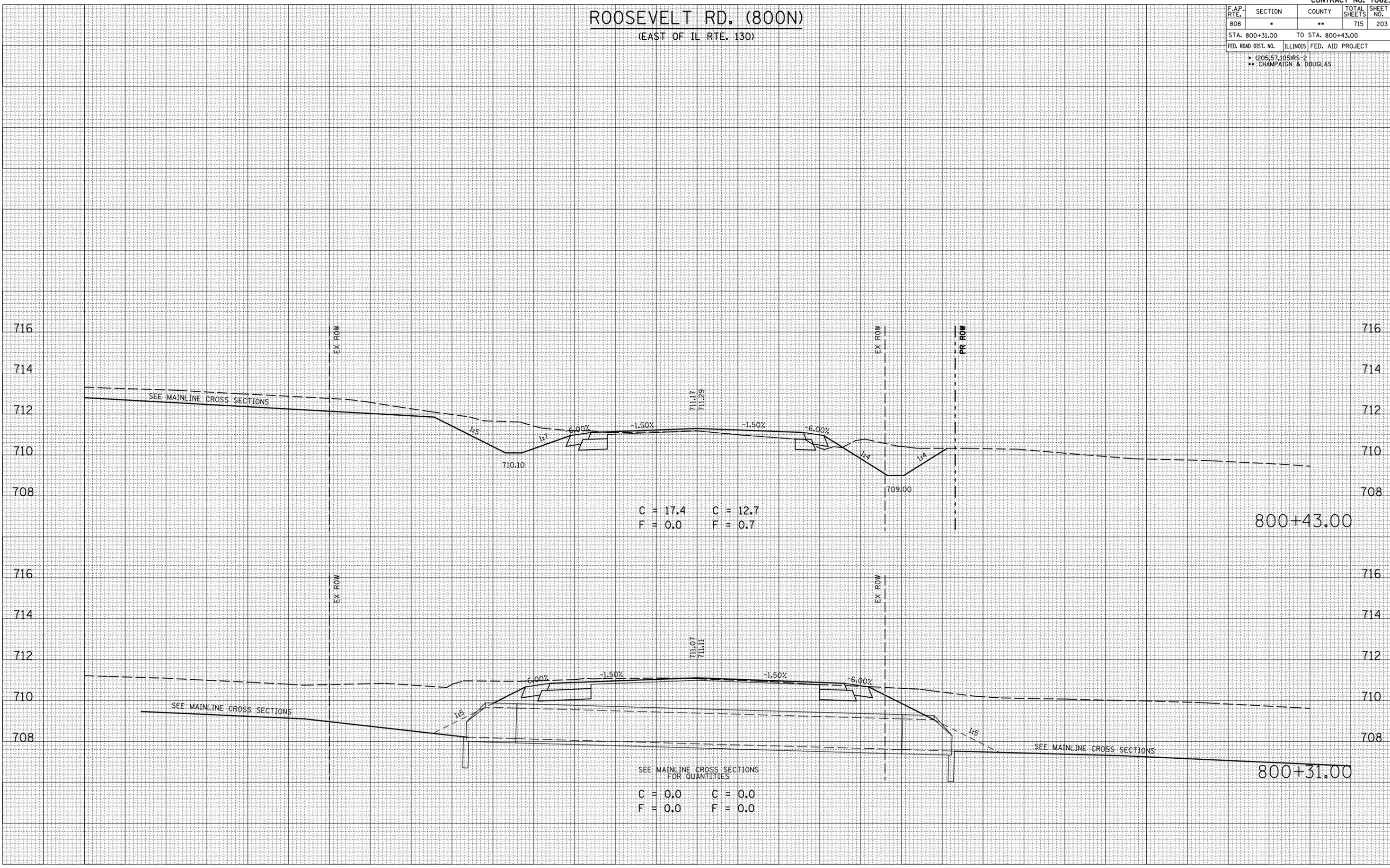
Roosevelt Rd. (800N)
(EAST OF IL RTE. 130)

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	203
STA. 800+31.00		TO STA. 800+43.00		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		
* (205.57, 105)RS-2 ** CHAMPAIGN & DOUGLAS				

BY	DATE

BY	DATE

PLOT DATE = 8/12/2005
 FILE NAME = I:\PROJECTS\800N\800N.DWG
 PLOT SCALE = 1/8" = 10.000'
 USER NAME = ceer-lock,fd



Roosevelt Rd. (800N)

(WEST OF IL RTE. 130)

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	207
STA. 798+75.00		TO STA. 799+00.00		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

• (205)57,105)RS-2
** CHAMPAIGN & DOUGLAS

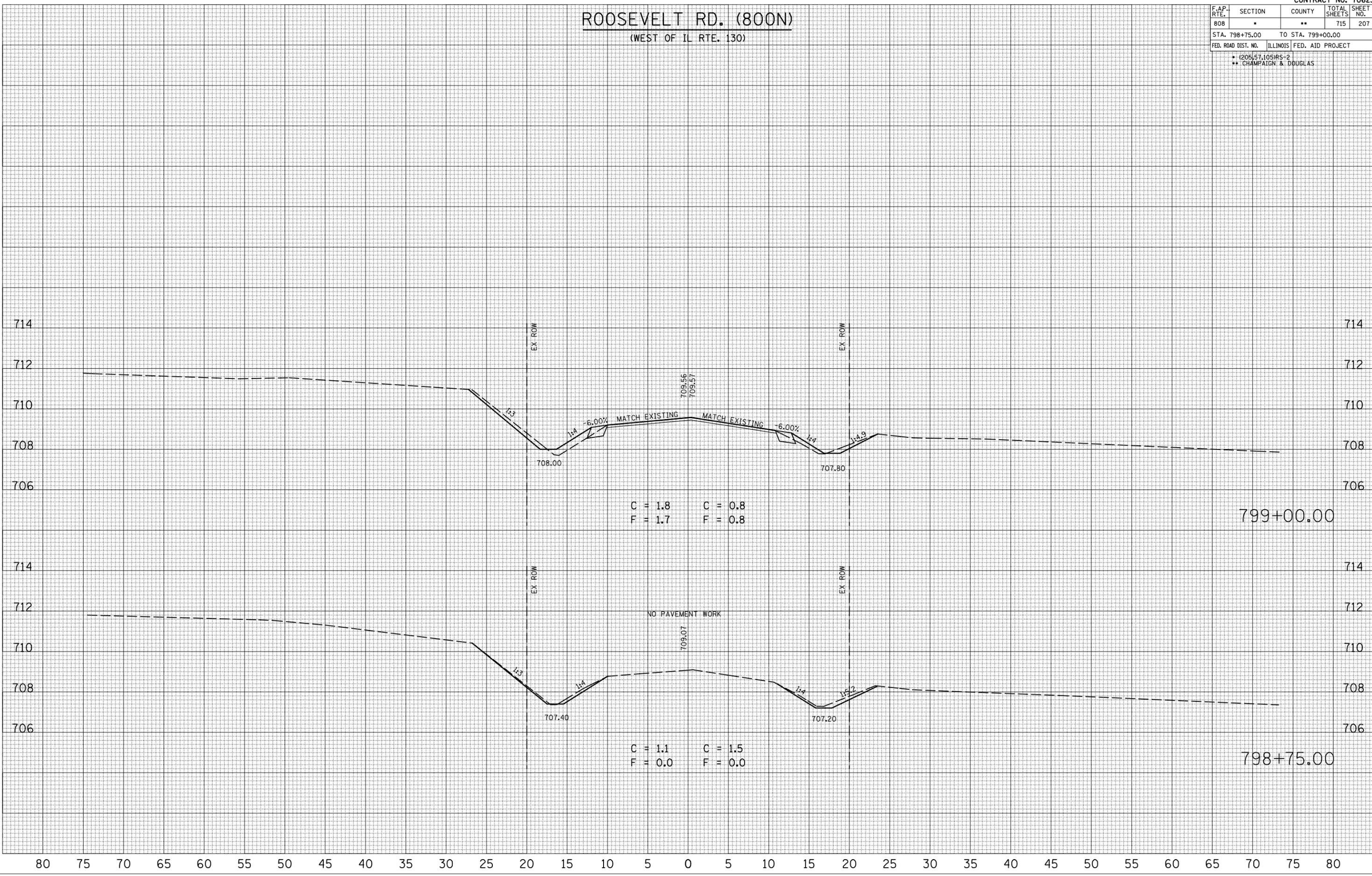
BY	DATE

NO.	AREAS CHECKED

BY	DATE

NO.	AREAS CHECKED

PLOT DATE = 8/12/2005
 FILE NAME = I:\105682\PROJECT\CEMLOCK\JOB\800N\800N.DWG
 PLOT SCALE = 1/8" = 10.0000'
 USER NAME = cemlock



F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	210

STA.	TO STA.
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT

- (205,57,105)RS-2
- ** CHAMPAIGN & DOUGLAS

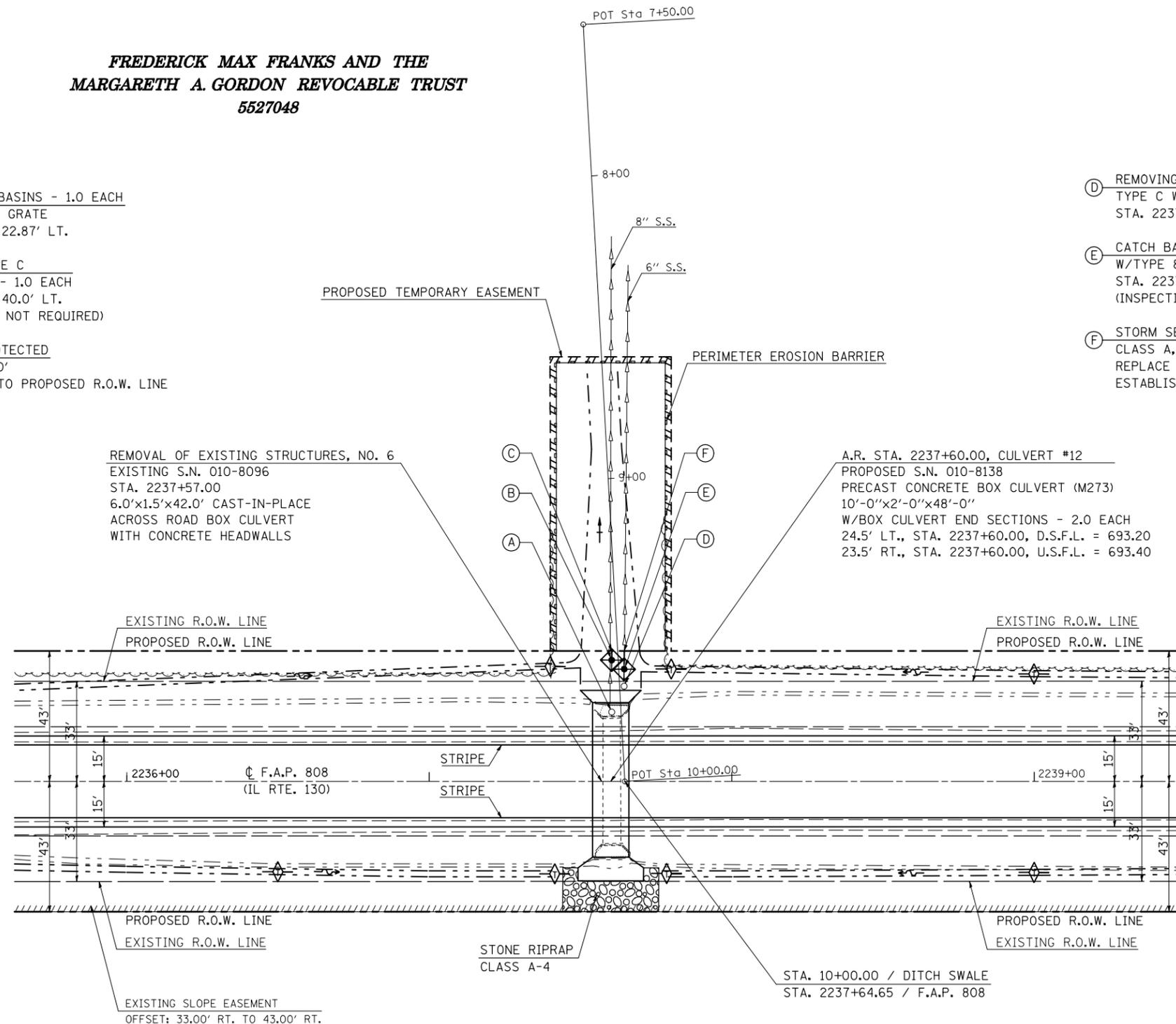


BOX CULVERT SWALE DETAIL STATION 2237 + 60.00, S.N. 010-8138

**FREDERICK MAX FRANKS AND THE
MARGARETH A. GORDON REVOCABLE TRUST
5527048**

- (A) REMOVING CATCH BASINS - 1.0 EACH
TYPE C W/TYPE 8 GRATE
STA. 2237+60.33, 22.87' LT.
- (B) CATCH BASIN, TYPE C
W/TYPE 8 GRATE - 1.0 EACH
STA. 2237+60.33, 40.0' LT.
(INSPECTION WELL NOT REQUIRED)
- (C) STORM SEWER PROTECTED
CLASS A, 8" - 4.0'
REPLACE 8" S.S. TO PROPOSED R.O.W. LINE

- (D) REMOVING CATCH BASINS - 1.0 EACH
TYPE C W/TYPE 8 GRATE
STA. 2237+64.45, 31.40' LT.
- (E) CATCH BASIN, TYPE C
W/TYPE 8 GRATE - 1.0 EACH
STA. 2237+64.45, 37.0' LT.
(INSPECTION WELL NOT REQUIRED)
- (F) STORM SEWER PROTECTED
CLASS A, 6" - 12.0'
REPLACE 6" S.S. AS NEEDED TO
ESTABLISH PROPOSED INVERT



REMOVAL OF EXISTING STRUCTURES, NO. 6
EXISTING S.N. 010-8096
STA. 2237+57.00
6.0'x1.5'x42.0' CAST-IN-PLACE
ACROSS ROAD BOX CULVERT
WITH CONCRETE HEADWALLS

A.R. STA. 2237+60.00, CULVERT #12
PROPOSED S.N. 010-8138
PRECAST CONCRETE BOX CULVERT (M273)
10'-0" x 2'-0" x 48'-0"
W/BOX CULVERT END SECTIONS - 2.0 EACH
24.5' LT., STA. 2237+60.00, D.S.F.L. = 693.20
23.5' RT., STA. 2237+60.00, U.S.F.L. = 693.40

**STEVEN W. GRINKMEYER
5527046**

ILLINOIS DEPARTMENT OF TRANSPORTATION
**BOX CULVERT SWALE DETAIL
STATION 2237+60.00**

SCALE: 1" = 20'
DATE: 07/09/09

DRAWN BY: B.B.P.
CHECKED BY: G.A.E.

SWALE AT STATION 2237+60.00

(WEST OF IL RTE. 130)

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	212
STA. 9+15.00		TO STA. 9+40.00		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
* (205,57,105)RS-2 ** CHAMPAIGN & DOUGLAS				

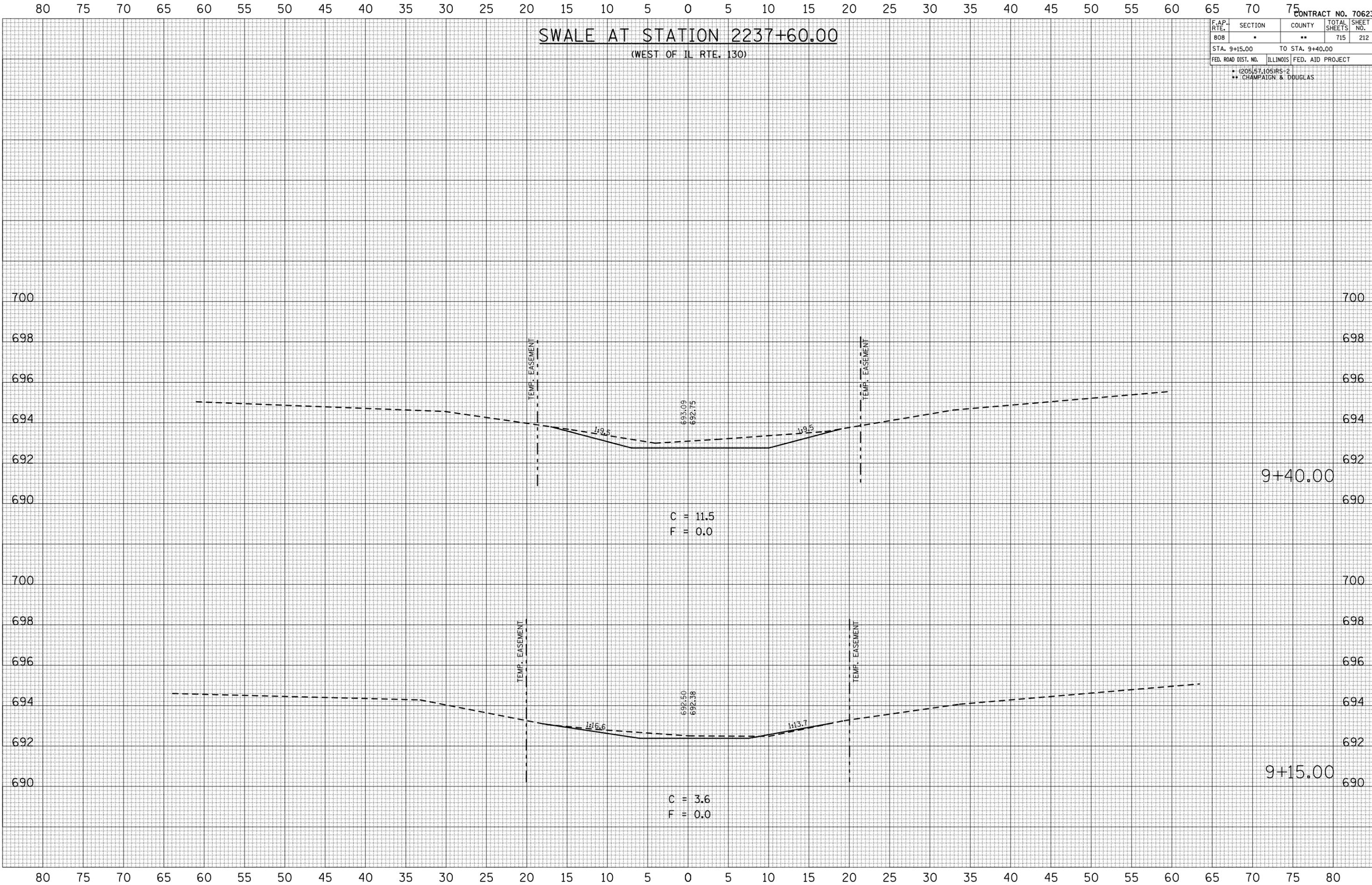
BY	DATE

FINAL SURVEY	SURVEYED	PLOTTED	DATE

BY	DATE

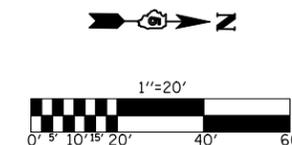
ORIGINAL SURVEY	SURVEYED	PLOTTED	DATE

PLOT DATE = 8/12/2005
 FILE NAME = 1015682
 PLOT SCALE = 1/8" = 10.00'
 USER NAME = ceer-lock,fd



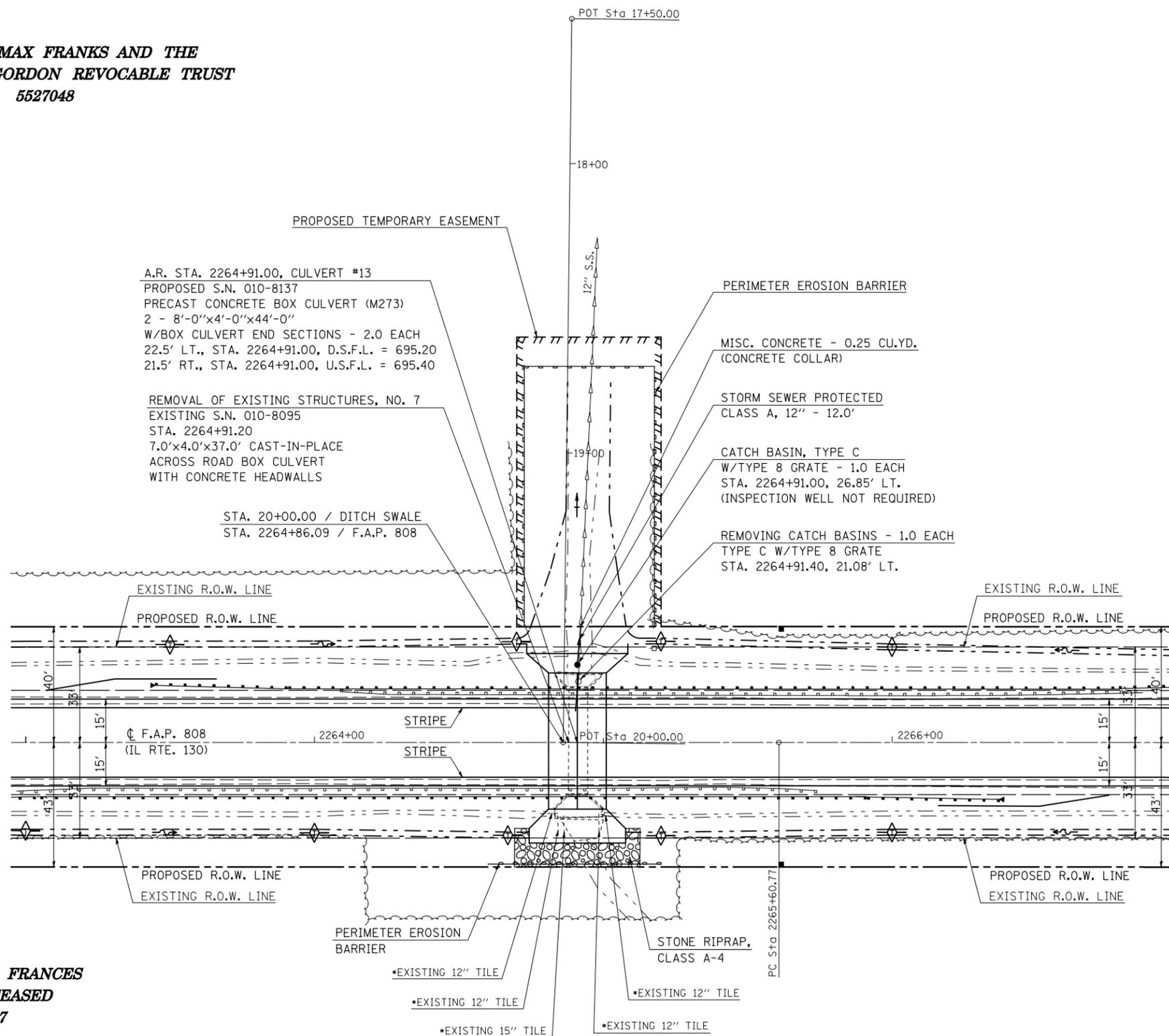
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	214
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS



BOX CULVERT SWALE DETAIL STATION 2264 + 91.00, S.N. 010-8137

**FREDERICK MAX FRANKS AND THE
MARGARETH A. GORDON REVOCABLE TRUST**
5527048



A.R. STA. 2264+91.00, CULVERT #13
PROPOSED S.N. 010-8137
PRECAST CONCRETE BOX CULVERT (M273)
2 - 8'-0" x 4'-0" x 44'-0"
W/BOX CULVERT END SECTIONS - 2.0 EACH
22.5' LT., STA. 2264+91.00, D.S.F.L. = 695.20
21.5' RT., STA. 2264+91.00, U.S.F.L. = 695.40

REMOVAL OF EXISTING STRUCTURES, NO. 7
EXISTING S.N. 010-8095
STA. 2264+91.20
7.0' x 4.0' x 37.0' CAST-IN-PLACE
ACROSS ROAD BOX CULVERT
WITH CONCRETE HEADWALLS

STA. 20+00.00 / DITCH SWALE
STA. 2264+86.09 / F.A.P. 808

PERIMETER EROSION BARRIER

MISC. CONCRETE - 0.25 CU.YD.
(CONCRETE COLLAR)

STORM SEWER PROTECTED
CLASS A, 12" - 12.0'

CATCH BASIN, TYPE C
W/TYPE 8 GRATE - 1.0 EACH
STA. 2264+91.00, 26.85' LT.
(INSPECTION WELL NOT REQUIRED)

REMOVING CATCH BASINS - 1.0 EACH
TYPE C W/TYPE 8 GRATE
STA. 2264+91.40, 21.08' LT.

**THE HEIRS OF FRANCES
BRAND, DECEASED**
5527047

ILLINOIS DEPARTMENT OF TRANSPORTATION
BOX CULVERT SWALE DETAIL
STATION 2264+91.00

SCALE: 1" = 20'
DATE: 07/09/09

DRAWN BY: B.B.P.
CHECKED BY: G.A.E.

PLOT DATE = 8/12/2009
 FILE NAME = G:\DWG\WORK\X\PIWDOT\CEARLOCK\JD\010445\70623-sht-detailed.dgn
 USER NAME = ceartock/jd

*NOTE: NO INSPECTION WELLS REQUIRED

SWALE AT STATION 2264+91.00

(WEST OF IL RTE. 130)

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	215
STA. 18+75.00		TO STA. 18+90.00		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
* (205)57,105)RS-2 ** CHAMPAIGN & DOUGLAS				

BY	DATE

FINAL SURVEY	SURVEYED	PLOTTED	DATE

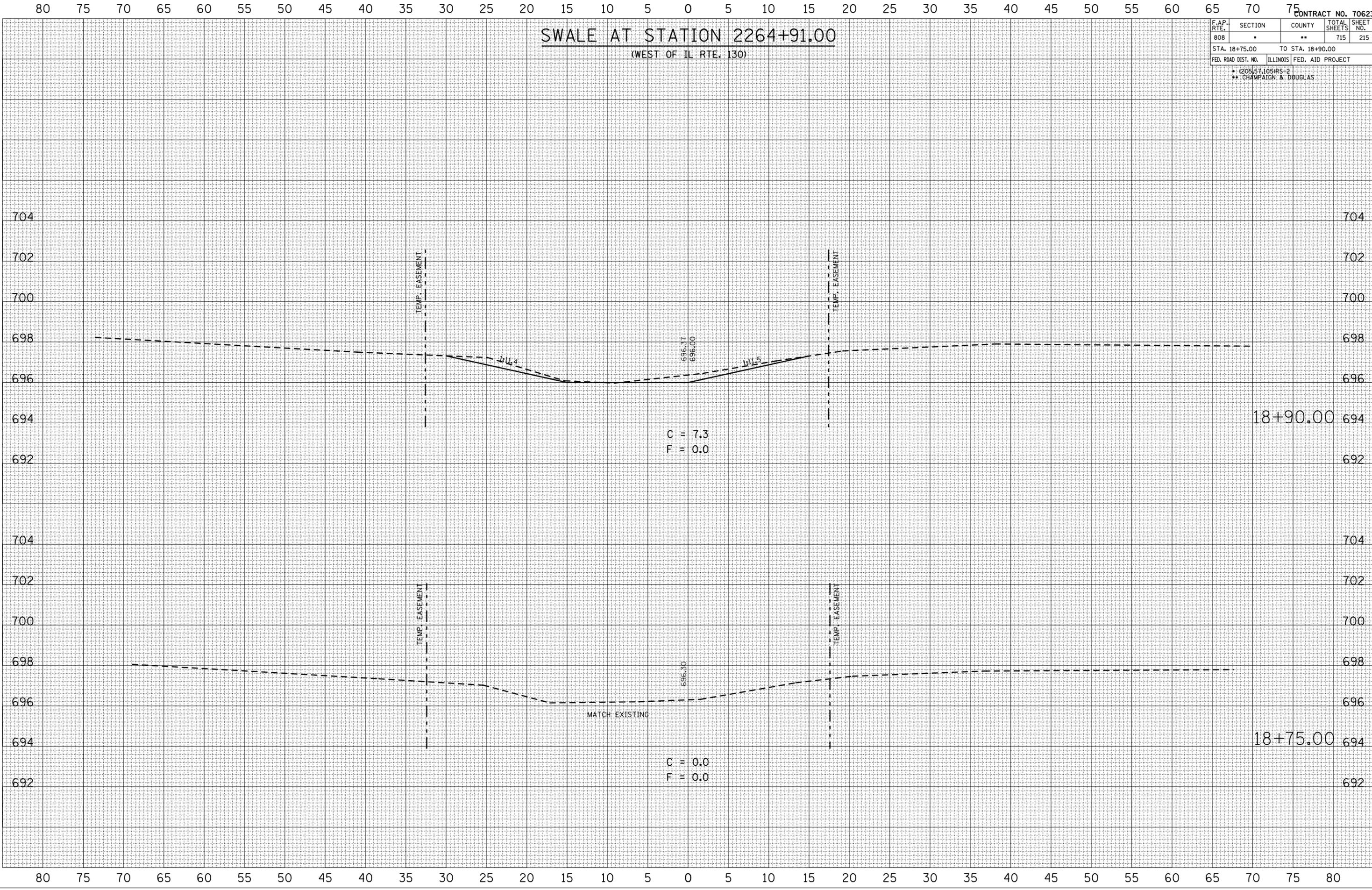
NO.	AREAS CHECKED

BY	DATE

ORIGINAL SURVEY	PLOTTED	DATE

NO.	AREAS CHECKED

PLOT DATE = 8/12/2005
 FILE NAME = 1815682.DWG
 PLOT SCALE = 1/8" = 10.0000'
 USER NAME = ceer-lock,fd



SWALE AT STATION 2264+91.00
(WEST OF IL RTE. 130)

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	216
STA. 19+20.00		TO STA. 19+40.00		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
* (205,57,105)RS-2 ** CHAMPAIGN & DOUGLAS				

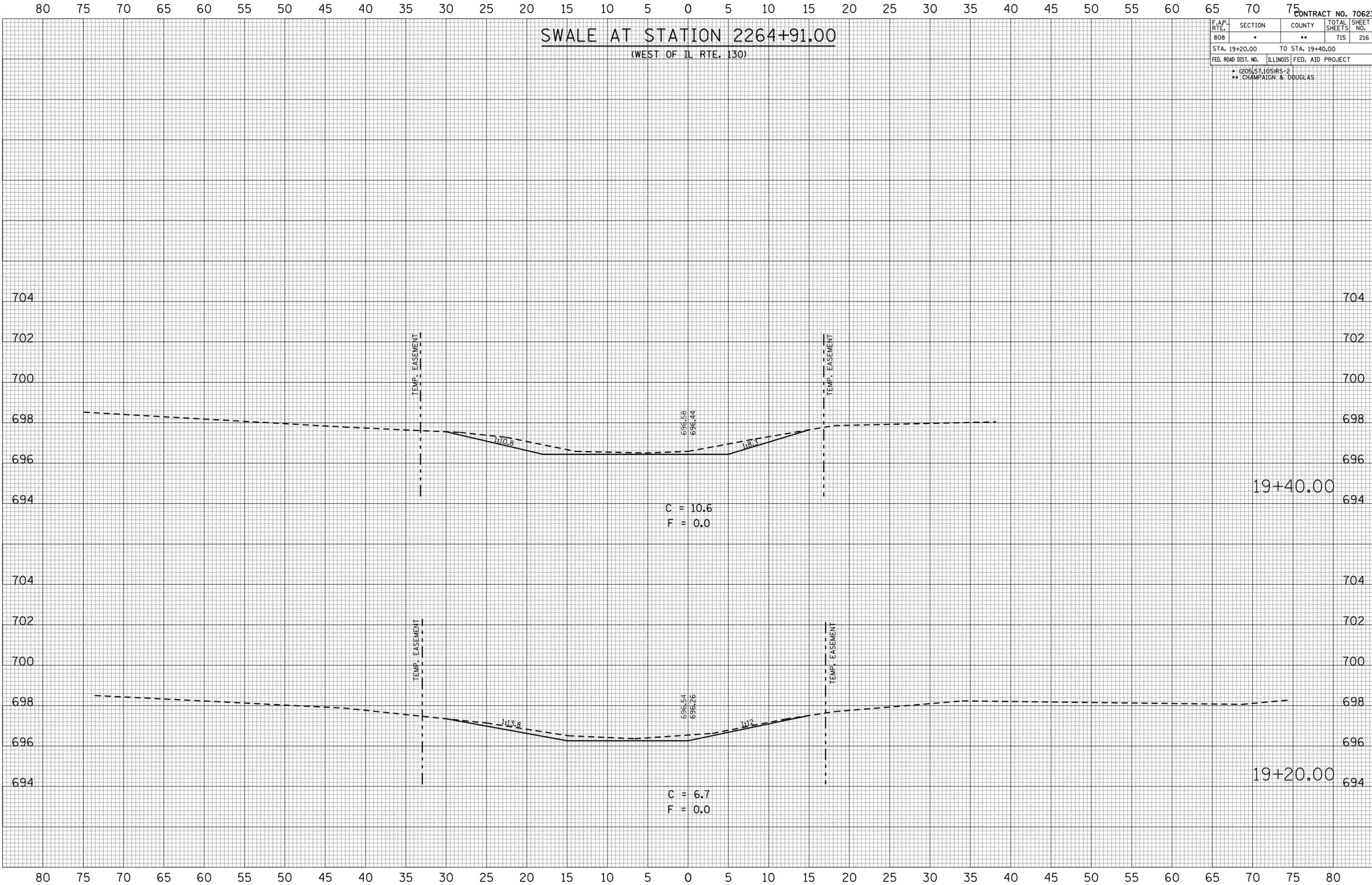
BY	DATE

FINAL SURVEY	SURVEYED	PLOTTED	NO. OF AREAS CHECKED

BY	DATE

ORIGINAL SURVEY	SURVEYED	PLOTTED	NO. OF AREAS CHECKED

PLOT DATE = 8/12/2005
 FILE NAME = 110150205
 PLOT SCALE = 1/8" = 10.000'
 USER NAME = ceer-lock,fd



F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	217

- (205,57,105)RS-2
- ** CHAMPAIGN & DOUGLAS

EXISTING STRUCTURE: The existing structure was built in the 1947 at station 109+00 as a 24" R.C.C.P. as FAS 524, Section 105 in Champaign County. The existing structure is to be completely removed and replaced. Stage Construction will be utilized.

General Notes

Build tops of headwalls parallel to the grade lines.

All construction joints shall be bonded according to Article 503.09 of the Standard Specifications.

Reinforcement bars shall conform to the requirements of ASTM A706 Gr. (IL Modified). See Special Provisions.

All bars should be rounded and conform to the requirements of Article 1006.10 of the Standard Specifications.

When lapping sheets of welded wire fabric, the overlap measured between the outermost cross wires of each fabric sheet shall not be less than 8"

End Sections will be paid for at the contract unit price per each for BOX CULVERT END SECTIONS, as outlined in Section 540 of the Standard Specifications.

Class SI Concrete shall be used throughout.

Concrete, Rebar, and Welded Wire Fabric quantities and lengths calculated for the cast-in-place End Sections may vary based on the precast box culverts supplied.

Drain holes shall be provided in accordance with Article 503.11 of the Standard Specifications.

The precast manufacturer shall design and detail a connection/construction joint between the precast concrete box sections and the cast-in-place apron and wingwall. The minimum area of reinforcement passing through these construction joints shall be 0.20 sq. in./lineal ft. of welded wire fabric. The design shall be detailed in the shop drawings. The cost of the connection is included in the cost of the end section.

The box culvert end section shall be built in the field and a precast option is not allowed except the cut-off wall may be precast. If the contractor elects to use a precast cut-off wall, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval.

The ends of the precast box sections adjacent to the end section shall be formed without the male and female shapes specified in Article 8.1 of AASHTO M259. See Section D-D on Sheet 2.

The design fill height for this box is more than 2 feet. The Precast Concrete Box Culvert Sections shall conform to the requirements of AASHTO M 259.

The joints between precast box sections shall be sealed, all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the backfilling process.

All dimensions are in FEET (') - INCHES (") unless otherwise noted.

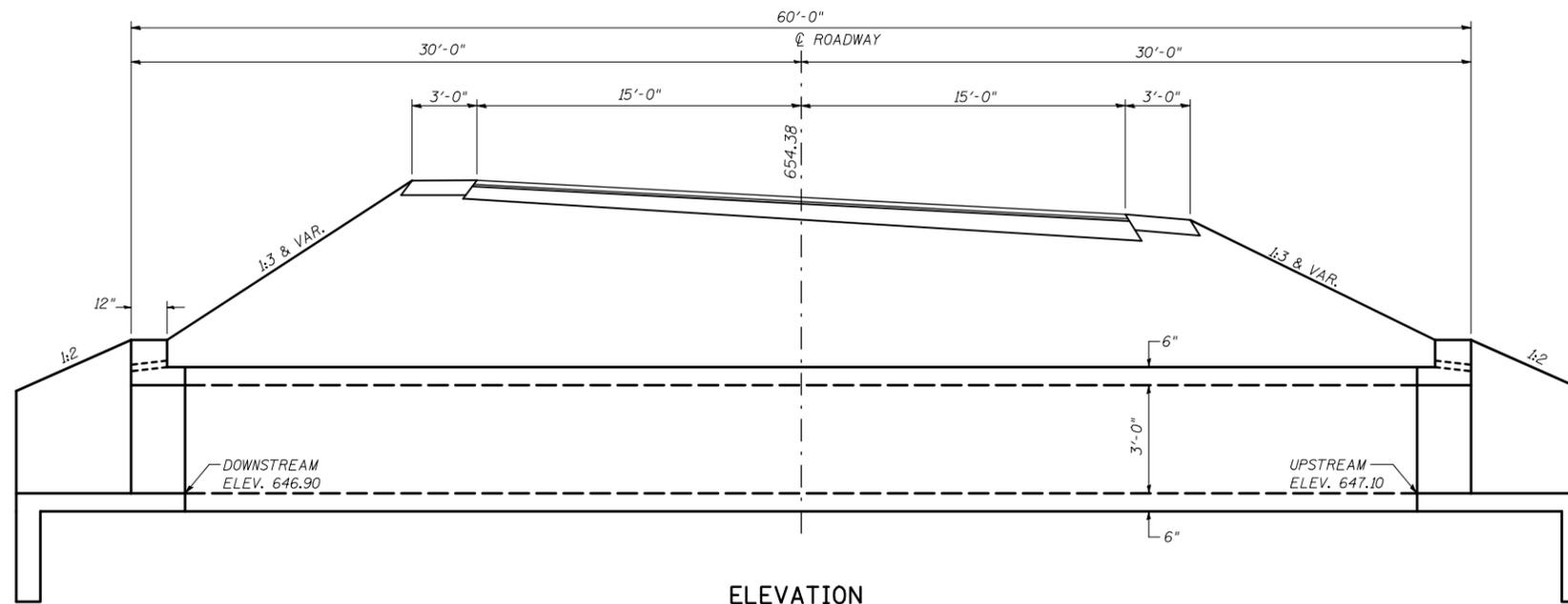
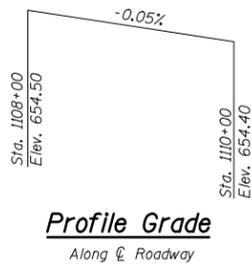
Drawings not to scale.

TOTAL BILL OF MATERIAL

Item	Unit	Total
Pipe Culvert Removal	Foot	71
Precast Concrete Box Culverts 5'x3'	Foot	57
Box Culvert End Sections	Each	2

SHEET 1 OF 5

GENERAL PLAN AND ELEVATION
SINGLE 5'x3' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 1109+00.00
CULVERT NO. 1



ELEVATION
(DIMENSIONS AT RIGHT ANGLES TO ϕ OF ROADWAY)

INDEX OF SHEETS

1. General Plan and Elevation
2. Box Culvert End Section Details
3. Staging Details
4. Porous Granular Detail
5. Soil Boring Logs

DESIGN SPECIFICATIONS

2002 AASHTO

LOADING HS20-44

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

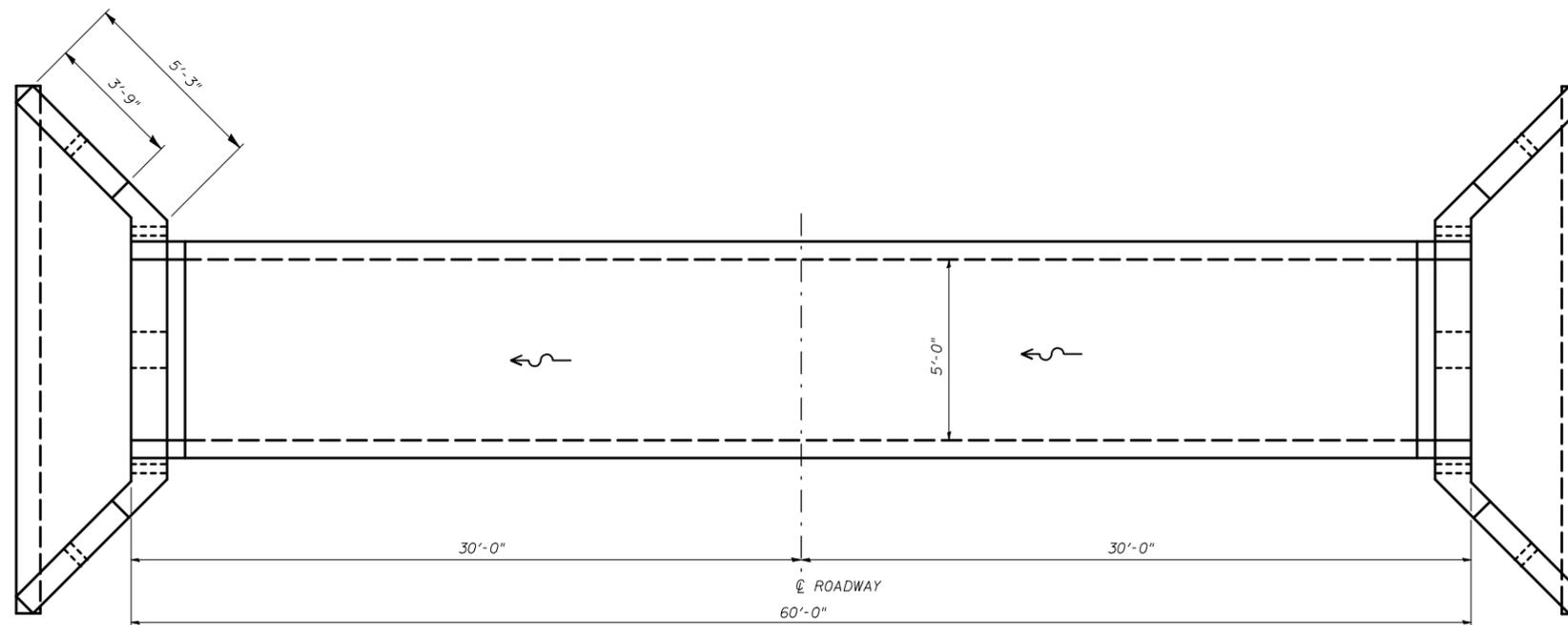
DESIGN STRESSES

FIELD UNITS

- $f'_c = 3,500$ psi
- $f_y = 60,000$ psi (reinforcement)
- $f_y = 65,000$ psi (welded wire fabric)

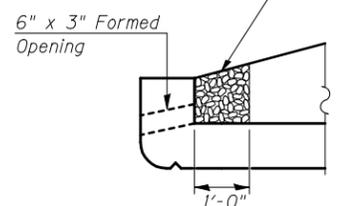
PRECAST UNITS

- $f'_c = 5,000$ psi
- $f_y = 65,000$ psi (welded wire fabric)



PLAN

Coarse aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Concrete Box Culverts.

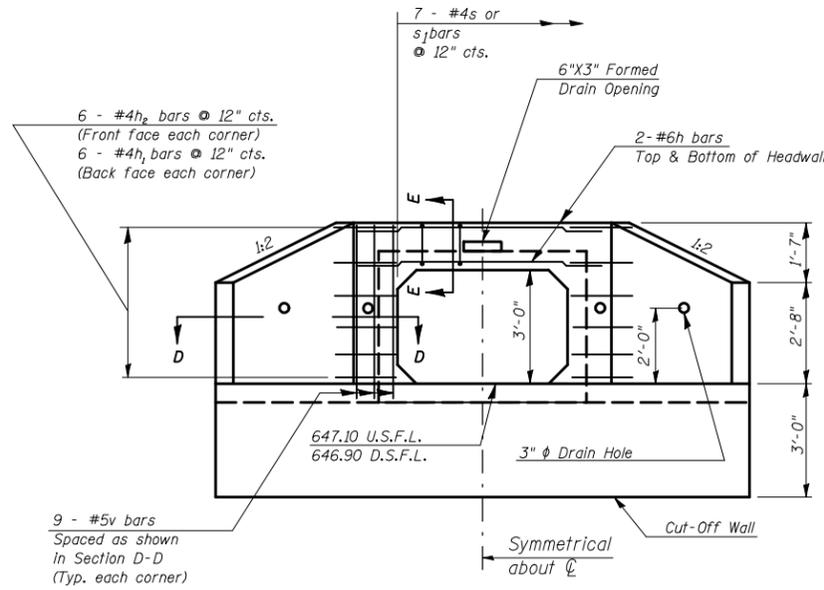


DRAIN DETAIL

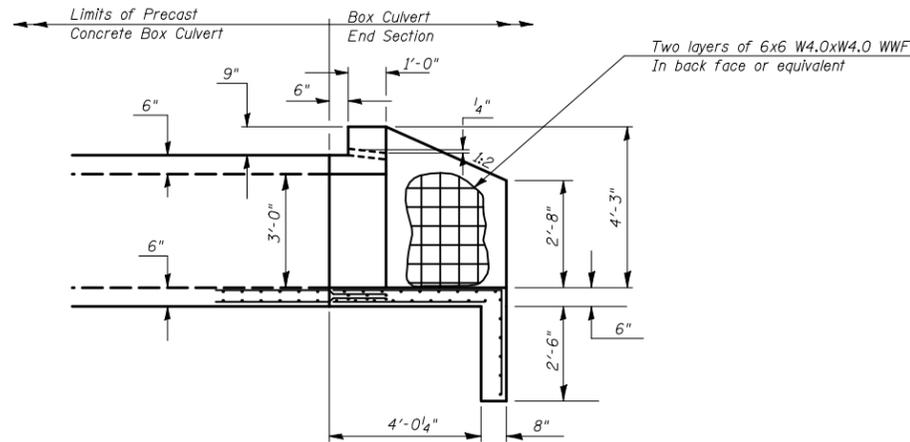
PLOT DATE = 8/12/2009
 FILE NAME = c:\pvc\work\p11001\CEARL\CD\480181445\70623-shr-culvert-detail.dgn
 PLOT SCALE = 42,362% / IN.
 USER NAME = ceerlockjd

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	218

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

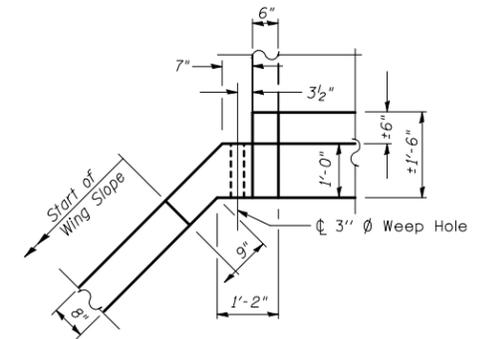


END ELEVATION



HALF SIDE ELEVATION

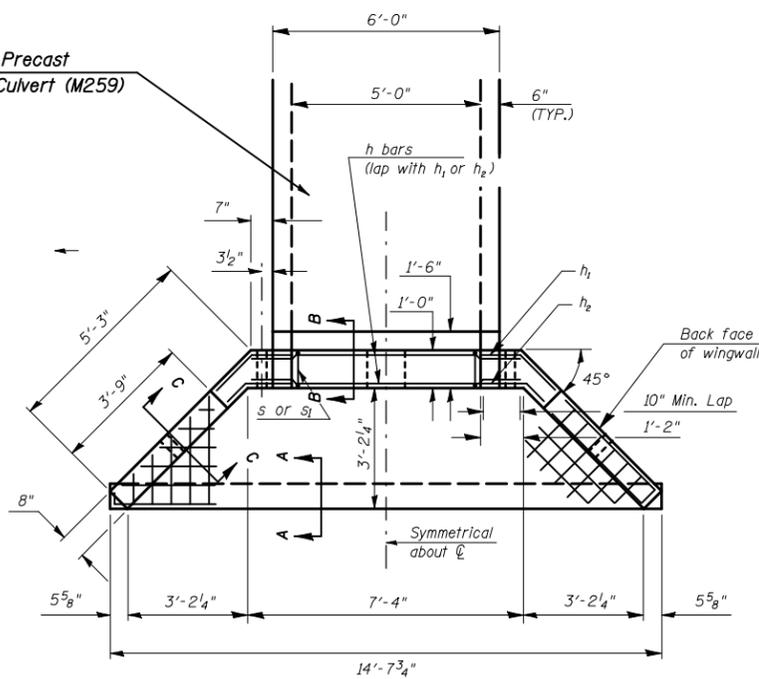
(DIMENSIONS AT RIGHT ANGLES TO CL OF ROADWAY)



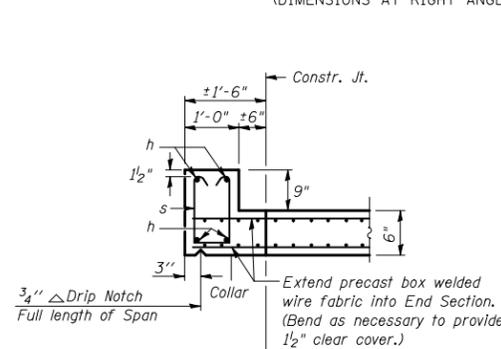
CORNER DETAIL

(Showing dimensions and weep hole)

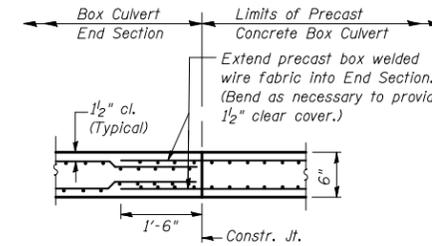
5'-0" x 3'-0" Precast Concrete Box Culvert (M259)



PLAN

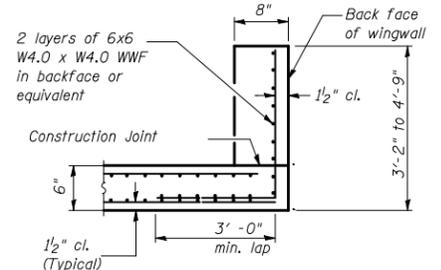


SECTION A-A



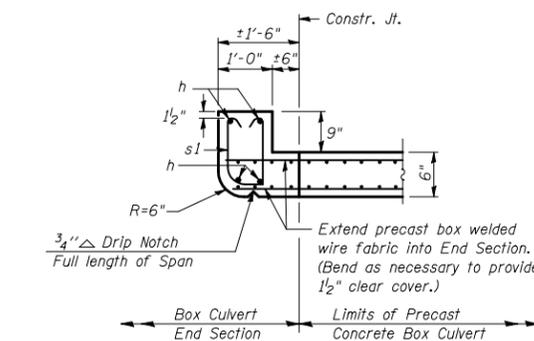
SECTION B-B

BOTTOM SLAB

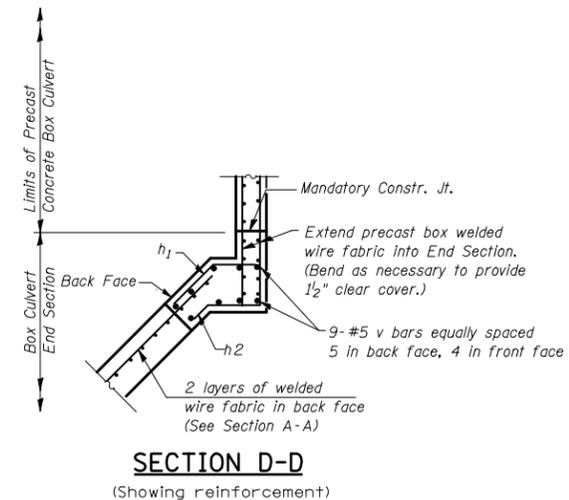


SECTION C-C

SECTION E-E
TOP SLAB / HEADWALL DOWNSTREAM END



SECTION E-E
TOP SLAB / HEADWALL UPSTREAM END



SECTION D-D

(Showing reinforcement)

BILL OF MATERIAL

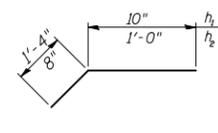
For Information Only
(One End Section)

Bar	No.	Size	Length	Shape
h	4	#6	7'-2"	
h1	12	#4	1'-11"	
h2	12	#4	1'-5"	
s or s1	7	#4	3'-4"	
v	18	#5	4'-6"	
Item			Unit	Total
Class SI Concrete			Cu. Yd.	3.3
Reinforcement Bars			Pound	171.0
Welded Wire Fabric			Sq. Ft.	275.0

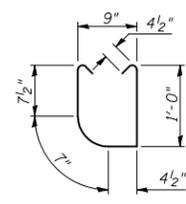
SHEET 2 OF 5

END SECTION DETAIL
SINGLE 5'x3' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 1109+00.00
CULVERT NO. 1

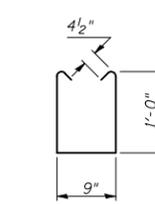
h1 & h2 BARS



s1 BARS



s BARS



F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	219
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

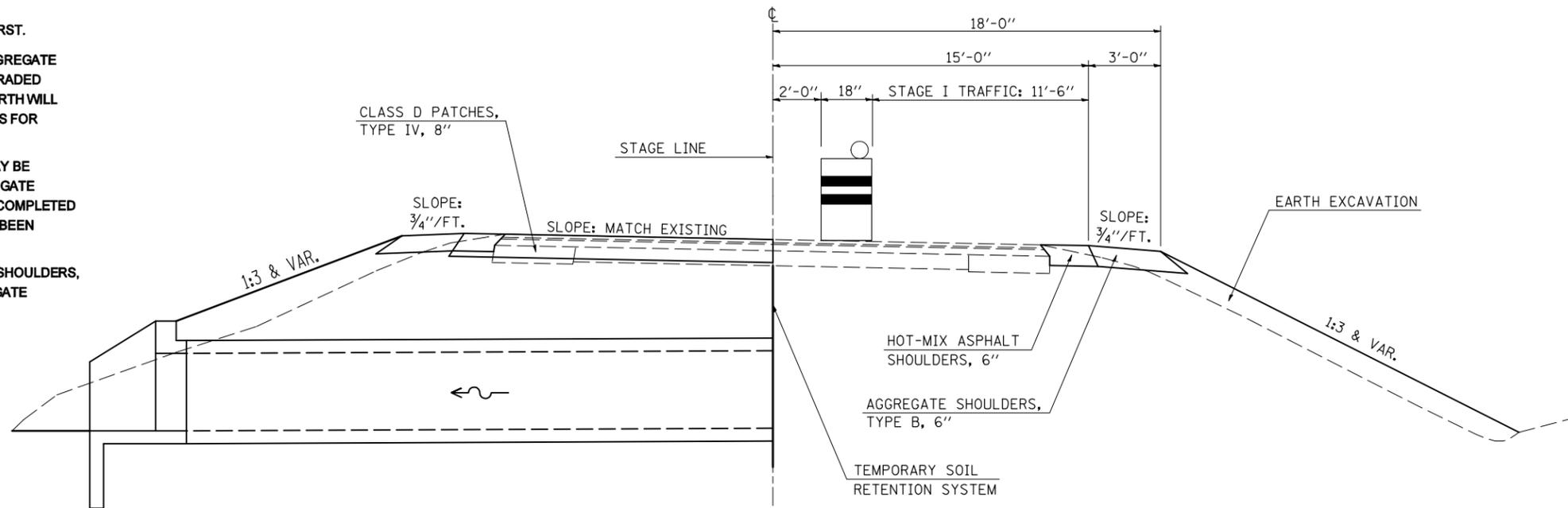
- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

GENERAL NOTES

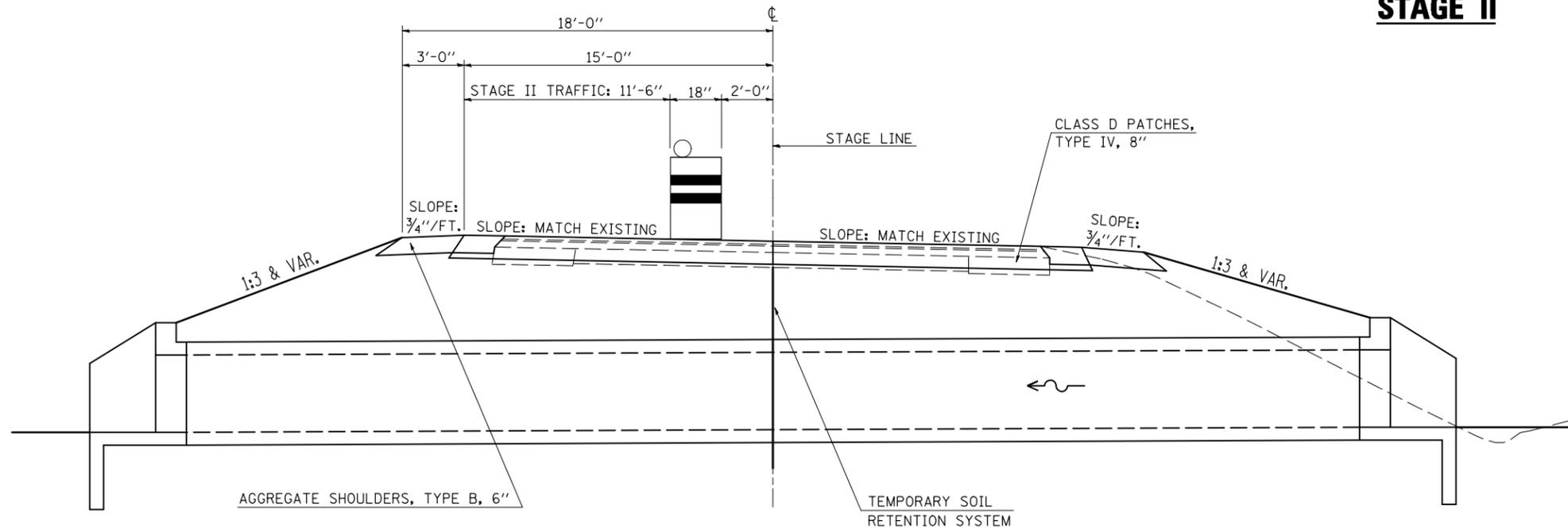
- REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL AND PROTECTION, STANDARD 701206 AND STAGE CONSTRUCTION ACROSS ROAD CULVERTS FOR ADDITIONAL INFORMATION.
- THE ENGINEER MAY REDUCE OR ELIMINATE LENGTHS OR LOCATIONS OF AGGREGATE, TYPE B, 6" AND EARTH EXCAVATION BASED ON FIELD CONDITIONS.
- CONSTRUCT DOWNSTREAM END OF A.R. CULVERT FIRST.
- EARTH EXCAVATED FOR THE CONSTRUCTION OF AGGREGATE SHOULDERS, TYPE B, 6" SHALL BE DEPOSITED AND GRADED TO SMOOTH THE FORESLOPES. THIS EXCAVATED EARTH WILL BE INCLUDED IN THE FINAL CROSS-SECTION VOLUMES FOR EARTHWORK BALANCE / WASTE CALCULATIONS.
- AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE I MAY BE COMPLETED AT ANY TIME PRIOR TO STAGE I. AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE II SHALL NOT BE COMPLETED UNTIL THE HALF-WIDTH CULVERT FROM STAGE I HAS BEEN CONSTRUCTED.
- REPLACE PREVIOUSLY CONSTRUCTED AGGREGATE SHOULDERS, TYPE B, 6" AS NEEDED WHEN PLACING FINAL AGGREGATE SHOULDERS, TYPE B.

STAGING DETAIL, CULVERT NO. 1
STATION 1109+00.00

STAGE I



STAGE II



PLOT DATE = 8/14/2009
 FILE NAME = G:\DWG\WORK\K\PIWIDOT\PERSONNEL\DO01445\70623-sht-staging.dgn
 USER NAME = piersombt

A.R. CULVERT LOCATION	TRAFFIC CONTROL STANDARD	ESTIMATED TIME	CHANGEABLE MESSAGE SIGN
STA. 1109+00.00	701206	84 HRS / NON-STOP (4) - 12 HR DAY SHIFTS (3) - 12 HR NIGHT SHIFTS	2.0 EACH AT 4.0 CAL DAY = 8.0 CAL DAY

SHEET 3 OF 5

ILLINOIS DEPARTMENT OF TRANSPORTATION
STAGING DETAIL, CULVERT NO. 1
STA. 1109+00.00

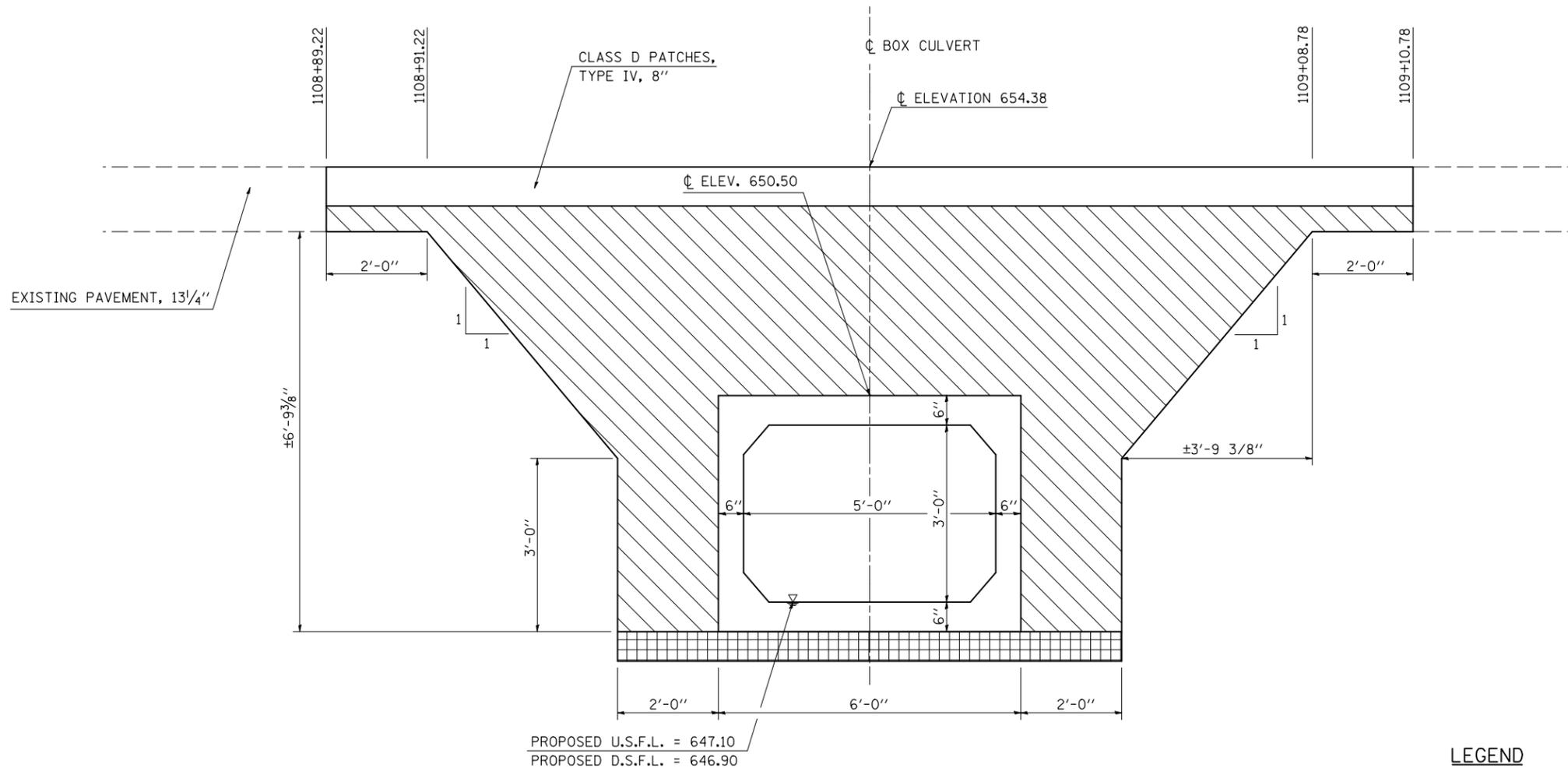
SCALE: N/A
DATE: 08/01/09

DRAWN BY: B.B.P.
CHECKED BY: G.A.E.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	220
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

DETAIL OF POROUS GRANULAR EMBANKMENT PAY LIMITS CULVERT NO. 1, STATION 1109+00.00



LEGEND

- PAY LIMITS OF POROUS GRANULAR EMBANKMENT - CA-6
- POROUS GRANULAR MATERIAL - CA-7 (6") INCLUDED IN PAY ITEM FOR BOX CULVERT

DRAWING NOT TO SCALE

GENERAL NOTES

- 1) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 207 AND SECTION 540 OF THE STANDARD SPECIFICATIONS.
- 2) POROUS GRANULAR EMBANKMENT SHALL EXTEND 2 FT. BEYOND THE AGGREGATE SHOULDER.
- 3) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR EMBANKMENT.
- 4) THE AREA TO BE EXCAVATED FOR THE PROPOSED BOX CULVERT SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR STRUCTURE EXCAVATION. THE QUANTITY CALCULATED WILL BE THE AREA FOR THE PROPOSED STRUCTURE LESS THE AREA REQUIRED TO REMOVE THE EXISTING PIPE CULVERT. THE EXISTING PIPE CULVERT AREA IS CONSIDERED TO BE THE AREA CONTAINED BETWEEN THE BOTTOM OF THE PAVEMENT TO THE BOTTOM OF THE PIPE CULVERT TIMES THE OUTSIDE DIAMETER OF THE PIPE.

SHEET 4 OF 5

ILLINOIS DEPARTMENT OF TRANSPORTATION
**DETAIL OF POROUS GRANULAR EMBANKMENT
PAY LIMITS, STA. 1109+00.00
CULVERT NO. 1**

SCALE: N/A
DATE: 07/14/09

DRAWN BY: B.B.P.
CHECKED BY: G.A.E.

PLOT DATE = 8/19/2009
 FILE NAME = G:\pwworkspace\pwworkspace\1109+00.00\1109+00.00.dgn
 USER NAME = ceartocskj

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	222

- (205,57,105)RS-2
- ** CHAMPAIGN & DOUGLAS

EXISTING STRUCTURE: The existing structure was built in the 1947 at station 114+90 as a 24" R.C.C.P. as FAS 524, Section 105 in Champaign County. The existing structure is to be completely removed and replaced. Stage Construction will be utilized.

General Notes

Build tops of headwalls parallel to the grade lines.

All construction joints shall be bonded according to Article 503.09 of the Standard Specifications.

Reinforcement bars shall conform to the requirements of ASTM A706 Gr. (IL Modified). See Special Provisions.

All bars should be rounded and conform to the requirements of Article 1006.10 of the Standard Specifications.

When lapping sheets of welded wire fabric, the overlap measured between the outermost cross wires of each fabric sheet shall not be less than 8"

End Sections will be paid for at the contract unit price per each for BOX CULVERT END SECTIONS, as outlined in Section 540 of the Standard Specifications.

Class SI Concrete shall be used throughout.

Concrete, Rebar, and Welded Wire Fabric quantities and lengths calculated for the cast-in-place End Sections may vary based on the precast box culverts supplied.

Drain holes shall be provided in accordance with Article 503.11 of the Standard Specifications.

The precast manufacturer shall design and detail a connection/construction joint between the precast concrete box sections and the cast-in-place apron and wingwall. The minimum area of reinforcement passing through these construction joints shall be 0.20 sq. in./lineal ft. of welded wire fabric. The design shall be detailed in the shop drawings. The cost of the connection is included in the cost of the end section.

The box culvert end section shall be built in the field and a precast option is not allowed except the cut-off wall may be precast. If the contractor elects to use a precast cut-off wall, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval.

The ends of the precast box sections adjacent to the end section shall be formed without the male and female shapes specified in Article 8.1 of AASHTO M259. See Section D-D on Sheet 2.

The design fill height for this box is more than 2 feet. The Precast Concrete Box Culvert Sections shall conform to the requirements of AASHTO M 259.

The joints between precast box sections shall be sealed, all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the backfilling process.

All dimensions are in FEET (') - INCHES (") unless otherwise noted.

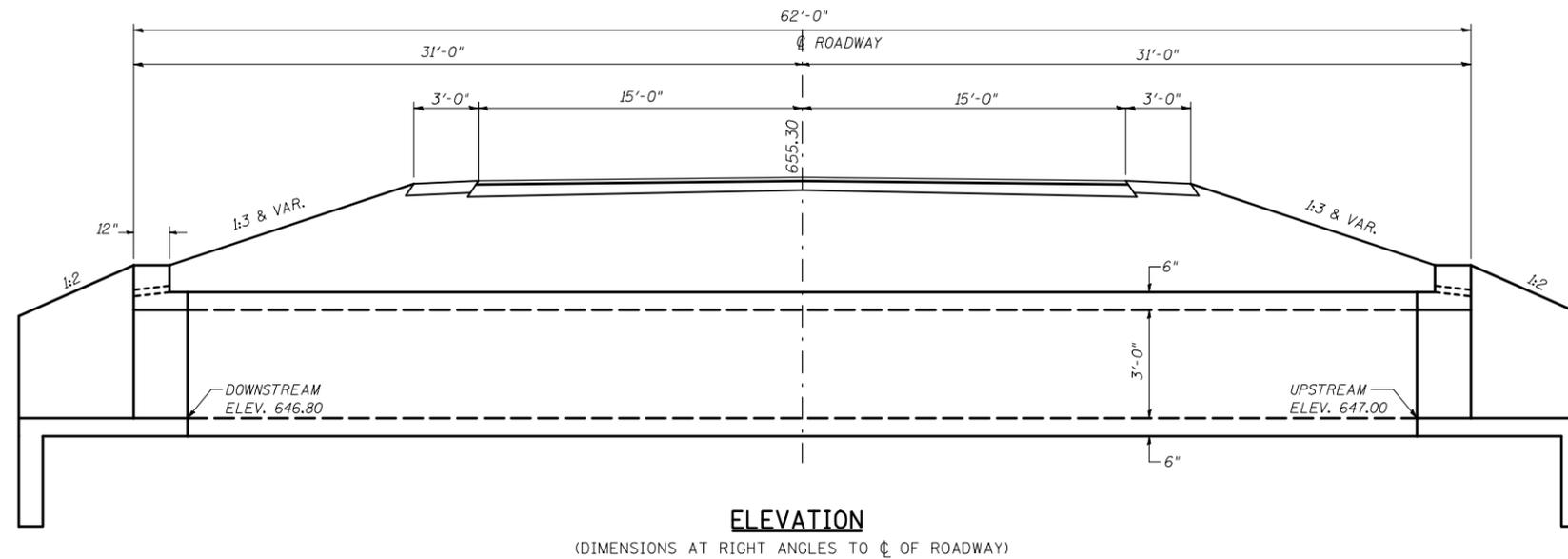
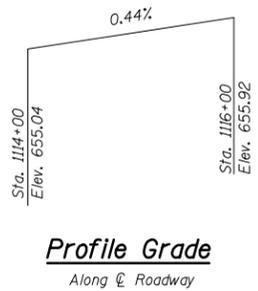
Drawings not to scale.

TOTAL BILL OF MATERIAL

Item	Unit	Total
Pipe Culvert Removal	Foot	80
Precast Concrete Box Culverts 5'x3'	Foot	59
Box Culvert End Sections	Each	2

SHEET 1 OF 5

GENERAL PLAN AND ELEVATION
SINGLE 5'x3' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 114+71.00
CULVERT NO. 2



ELEVATION

(DIMENSIONS AT RIGHT ANGLES TO ϕ OF ROADWAY)

INDEX OF SHEETS

1. General Plan and Elevation
2. Box Culvert End Section Details
3. Staging Details
4. Porous Granular Detail
5. Soil Boring Logs

DESIGN SPECIFICATIONS

2002 AASHTO

LOADING HS20-44

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

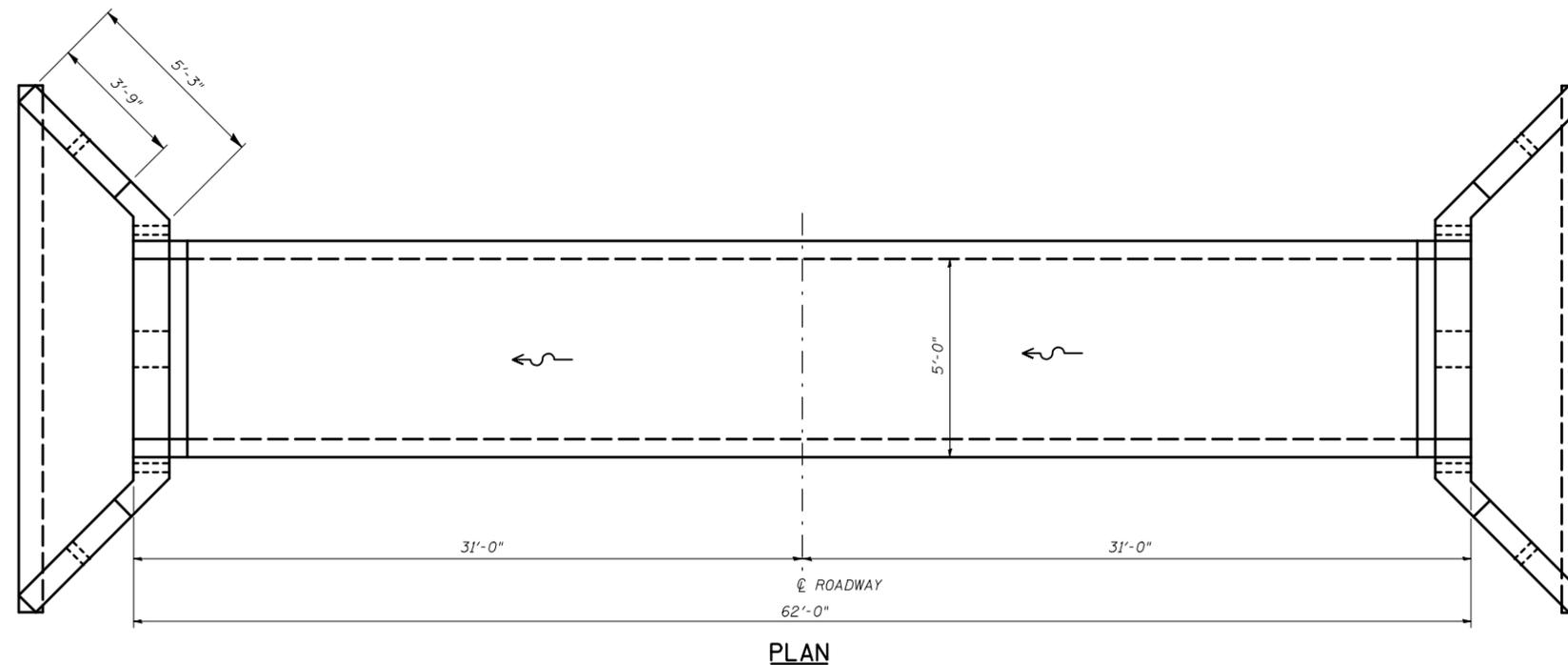
DESIGN STRESSES

FIELD UNITS

- $f'_c = 3,500$ psi
- $f_y = 60,000$ psi (reinforcement)
- $f_y = 65,000$ psi (welded wire fabric)

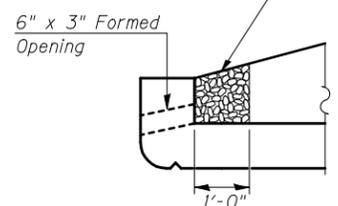
PRECAST UNITS

- $f'_c = 5,000$ psi
- $f_y = 65,000$ psi (welded wire fabric)



PLAN

Coarse aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Concrete Box Culverts.

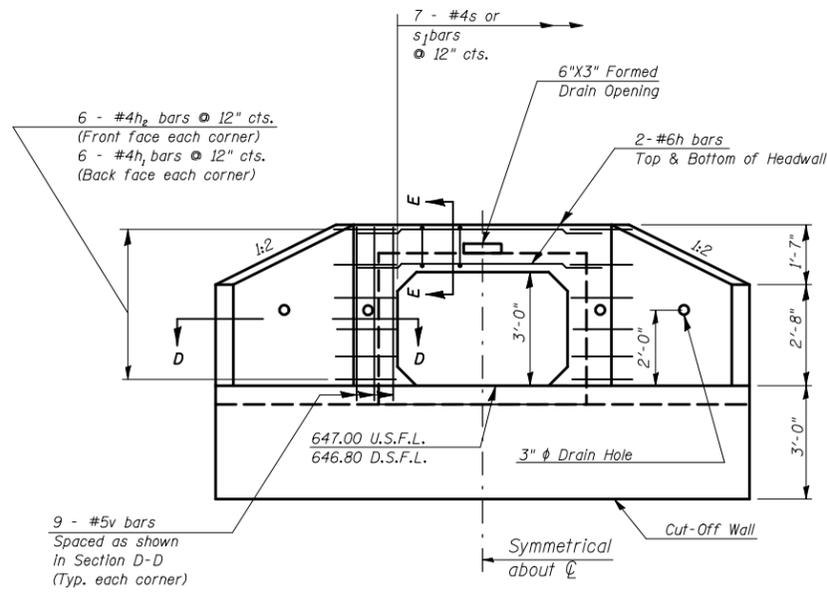


DRAIN DETAIL

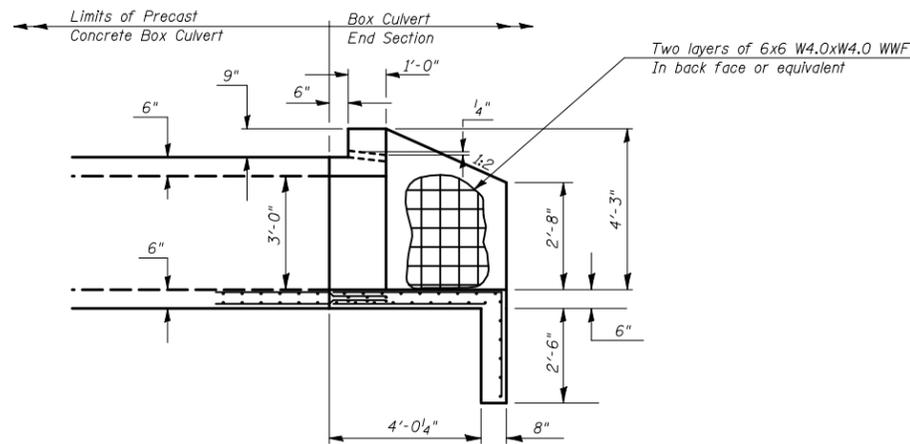
PLOT DATE = 8/12/2009
 FILE NAME = c:\pvc\work\70623\ht-culvert.dwg
 PLOT SCALE = 42,362% / IN.
 USER NAME = ceerlock_jd

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	223

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

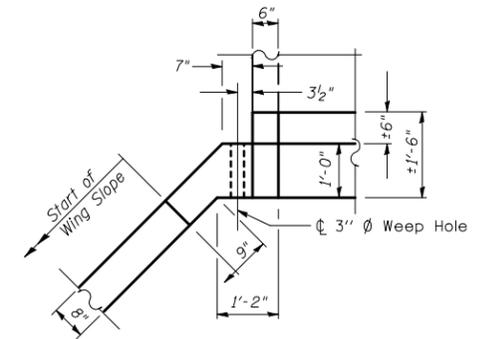


END ELEVATION



HALF SIDE ELEVATION

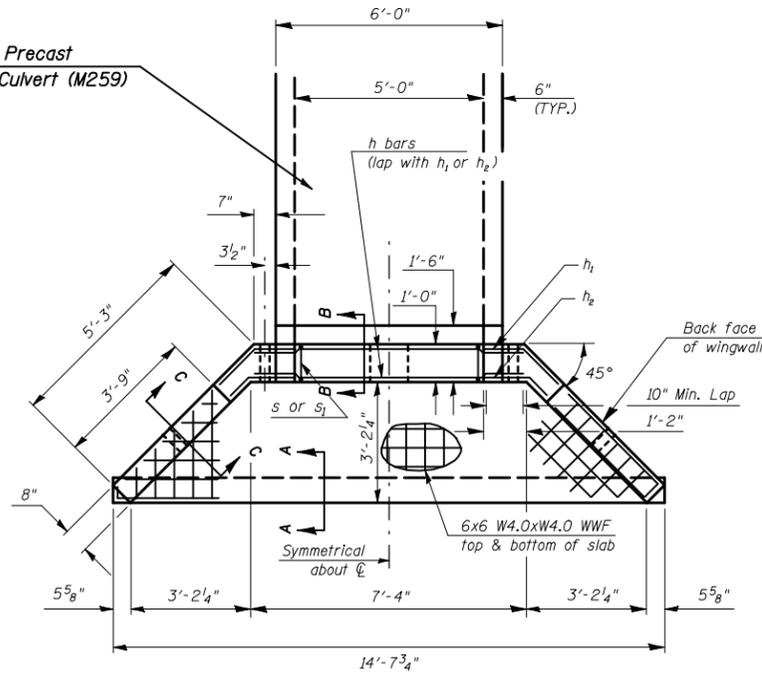
(DIMENSIONS AT RIGHT ANGLES TO CL OF ROADWAY)



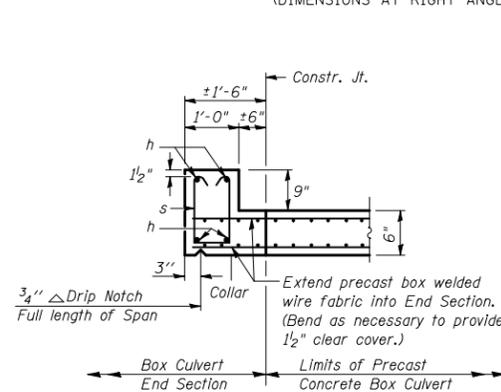
CORNER DETAIL

(Showing dimensions and weep hole)

5'-0" x 3'-0" Precast Concrete Box Culvert (M259)



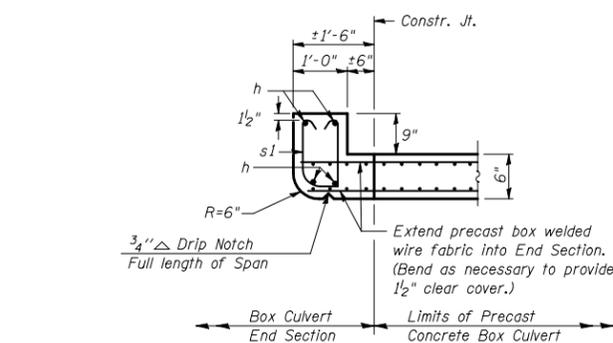
PLAN



SECTION A-A

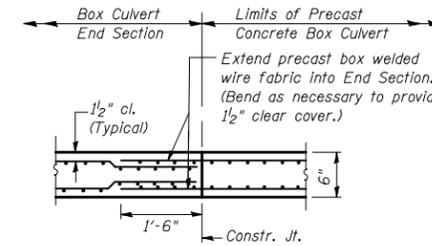
SECTION E-E

TOP SLAB / HEADWALL DOWNSTREAM END



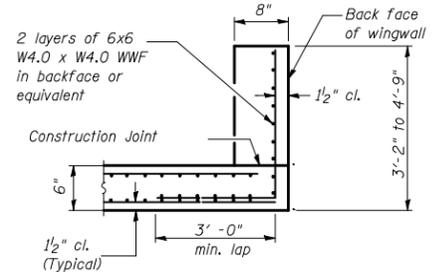
SECTION E-E

TOP SLAB / HEADWALL UPSTREAM END



SECTION B-B

BOTTOM SLAB

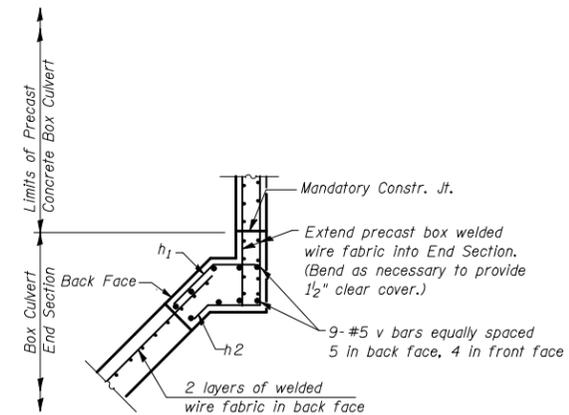


SECTION C-C

BILL OF MATERIAL

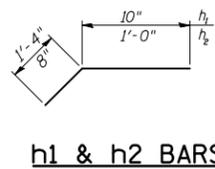
For Information Only
(One End Section)

Bar	No.	Size	Length	Shape
h	4	#6	7'-2"	
h1	12	#4	2'-2"	
h2	12	#4	1'-8"	
s or s1	7	#4	3'-4"	
v	18	#5	4'-6"	
Item			Unit	Total
Class SI Concrete			Cu. Yd.	3.3
Reinforcement Bars			Pound	175.0
Welded Wire Fabric			Sq. Ft.	275.0

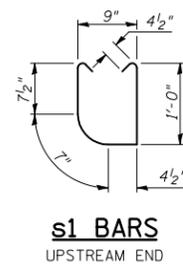


SECTION D-D

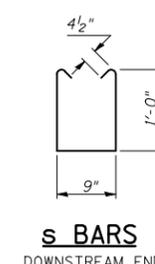
(Showing reinforcement)



h1 & h2 BARS



s1 BARS
UPSTREAM END



s BARS
DOWNSTREAM END

SHEET 2 OF 5

END SECTION DETAIL
SINGLE 5'x3' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 1114+71.00
CULVERT NO. 2

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	224
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

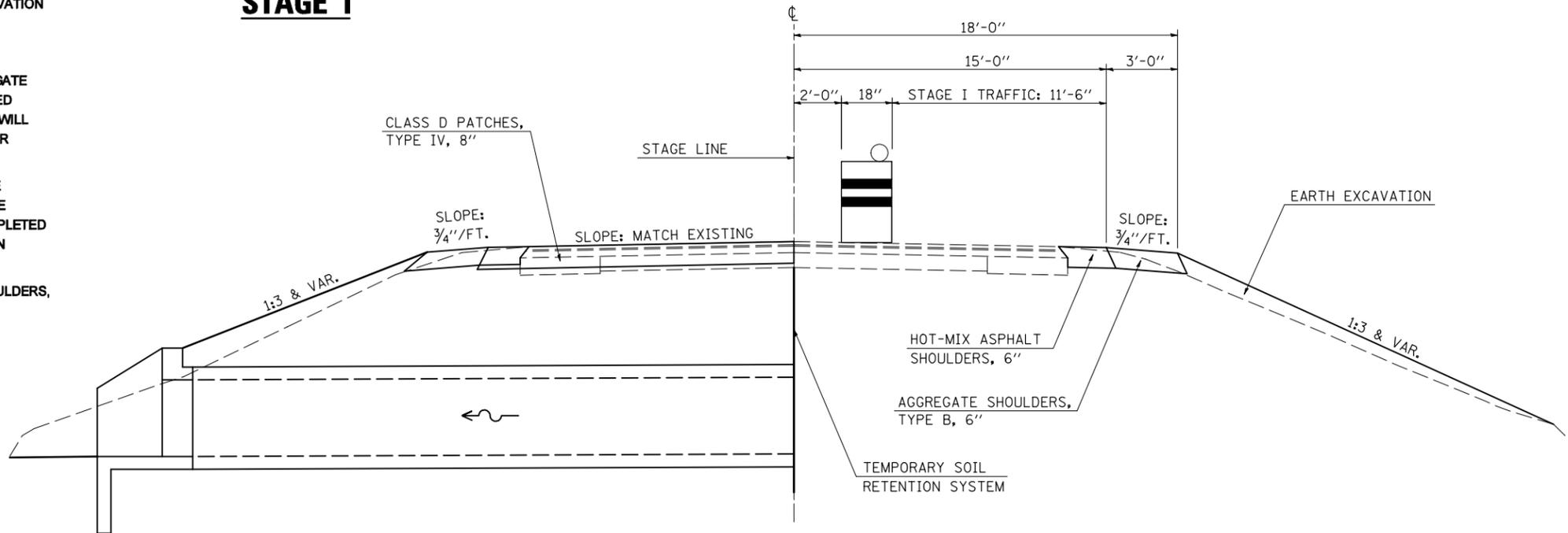
- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

GENERAL NOTES

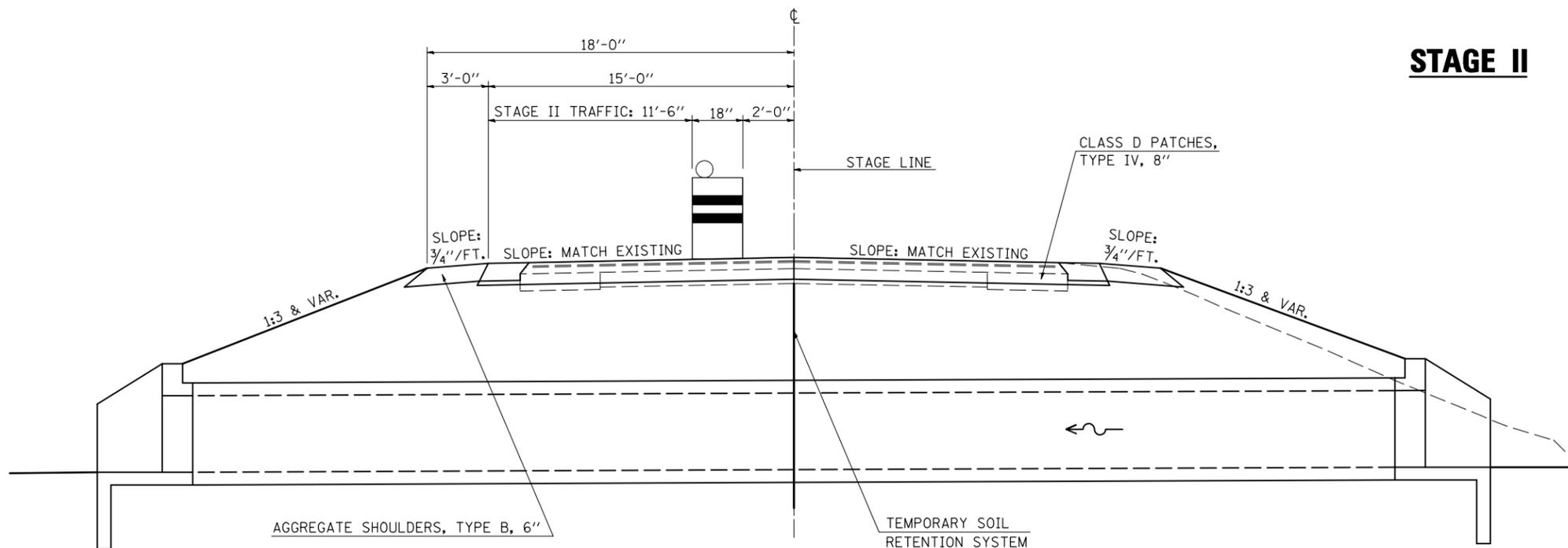
- REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL AND PROTECTION, STANDARD 701206 AND STAGE CONSTRUCTION ACROSS ROAD CULVERTS FOR ADDITIONAL INFORMATION.
- THE ENGINEER MAY REDUCE OR ELIMINATE LENGTHS OR LOCATIONS OF AGGREGATE, TYPE B, 6" AND EARTH EXCAVATION BASED ON FIELD CONDITIONS.
- CONSTRUCT DOWNSTREAM END OF A.R. CULVERT FIRST.
- EARTH EXCAVATED FOR THE CONSTRUCTION OF AGGREGATE SHOULDERS, TYPE B, 6" SHALL BE DEPOSITED AND GRADED TO SMOOTH THE FORESLOPES. THIS EXCAVATED EARTH WILL BE INCLUDED IN THE FINAL CROSS-SECTION VOLUMES FOR EARTHWORK BALANCE / WASTE CALCULATIONS.
- AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE I MAY BE COMPLETED AT ANY TIME PRIOR TO STAGE I. AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE II SHALL NOT BE COMPLETED UNTIL THE HALF-WIDTH CULVERT FROM STAGE I HAS BEEN CONSTRUCTED.
- REPLACE PREVIOUSLY CONSTRUCTED AGGREGATE SHOULDERS, TYPE B, 6" AS NEEDED WHEN PLACING FINAL AGGREGATE SHOULDERS, TYPE B.

STAGING DETAIL, CULVERT NO. 2
STATION 1114 + 71.00

STAGE I



STAGE II



SHEET 3 OF 5

A.R. CULVERT LOCATION	TRAFFIC CONTROL STANDARD	ESTIMATED TIME	CHANGEABLE MESSAGE SIGN
STA. 1114+71.00	701206	84 HRS / NON-STOP (4) - 12 HR DAY SHIFTS (3) - 12 HR NIGHT SHIFTS	2.0 EACH AT 4.0 CAL DAY = 8.0 CAL DAY

ILLINOIS DEPARTMENT OF TRANSPORTATION
STAGING DETAIL, CULVERT NO. 2
STATION 1114+71.00

SCALE: N/A
DATE: 08/01/09

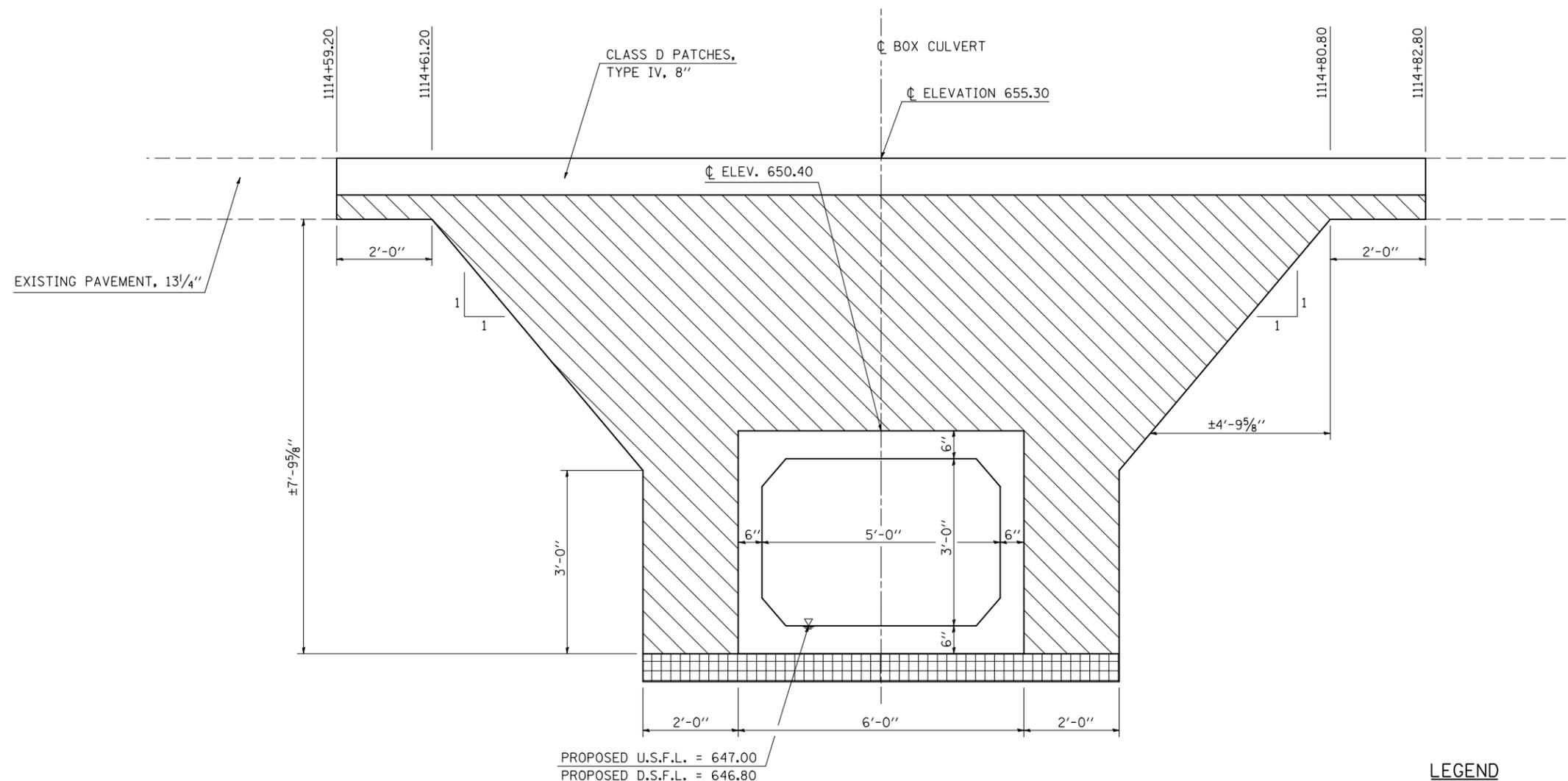
DRAWN BY: B.B.P.
CHECKED BY: G.A.E.

PLOT DATE = 8/14/2009
 FILE NAME = G:\DWG\WORK\PIWIDOT\PERSONNEL\DOUGLAS\70623-sht-staging.dgn
 USER NAME = pier_sombir

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	225
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

DETAIL OF POROUS GRANULAR EMBANKMENT PAY LIMITS CULVERT NO. 2, STATION 1114 + 71.00



LEGEND

- PAY LIMITS OF POROUS GRANULAR EMBANKMENT - CA-6
- POROUS GRANULAR MATERIAL - CA-7 (6") INCLUDED IN PAY ITEM FOR BOX CULVERT

DRAWING NOT TO SCALE

GENERAL NOTES

- 1) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 207 AND SECTION 540 OF THE STANDARD SPECIFICATIONS.
- 2) POROUS GRANULAR EMBANKMENT SHALL EXTEND 2 FT. BEYOND THE AGGREGATE SHOULDER.
- 3) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR EMBANKMENT.
- 4) THE AREA TO BE EXCAVATED FOR THE PROPOSED BOX CULVERT SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR STRUCTURE EXCAVATION. THE QUANTITY CALCULATED WILL BE THE AREA FOR THE PROPOSED STRUCTURE LESS THE AREA REQUIRED TO REMOVE THE EXISTING PIPE CULVERT. THE EXISTING PIPE CULVERT AREA IS CONSIDERED TO BE THE AREA CONTAINED BETWEEN THE BOTTOM OF THE PAVEMENT TO THE BOTTOM OF THE PIPE CULVERT TIMES THE OUTSIDE DIAMETER OF THE PIPE.

SHEET 4 OF 5

ILLINOIS DEPARTMENT OF TRANSPORTATION
**DETAIL OF POROUS GRANULAR EMBANKMENT
PAY LIMITS, STA. 1114+71.00
CULVERT NO. 2**

SCALE: N/A
DATE: 07/14/09

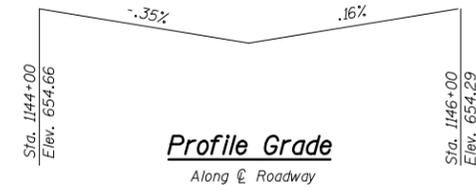
DRAWN BY: B.B.P.
CHECKED BY: G.A.E.

PLOT DATE = 8/19/2009
 FILE NAME = G:\pwwork\KAPWIDOT\CEARLOCK\1114+71.00\1114+71.00-detailed.dgn
 USER NAME = cearlock\j

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808		**	715	227

BENCHMARK ELEV. = 652.745 Chiseled square on the N. end of the E. headwall of S.N. 010-8098.

EXISTING STRUCTURE: S.N. 010-8098 was constructed in the 1920's at station 145+26 as a 8'x4' cast-in-place box culvert with concrete headwalls. In 1953 the structure was extended as FAS 524, Section 205 in Champaign County. The existing structure is to be completely removed and replaced. Stage Construction will be utilized.



STATION 1145+38.00
BUILT 20__ BY
STATE OF ILLINOIS
F.A.P. RT. 808 SEC. (205,57,105)RS-2
LOADING HS 20
STRUCTURE NO. 010-2036

NAME PLATE
See Std. 515001

INDEX OF SHEETS

1. General Plan and Elevation
2. Box Culvert End Section Details
3. Staging Details
4. Porous Granular Detail
5. Soil Boring Logs
6. Existing Structure Information

DESIGN SPECIFICATIONS
2002 AASHTO

LOADING HS20-44

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

DESIGN STRESSES

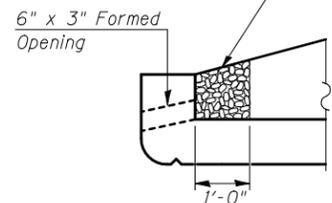
FIELD UNITS

f'c = 3,500 psi
fy = 60,000 psi (reinforcement)
fy = 65,000 psi (welded wire fabric)

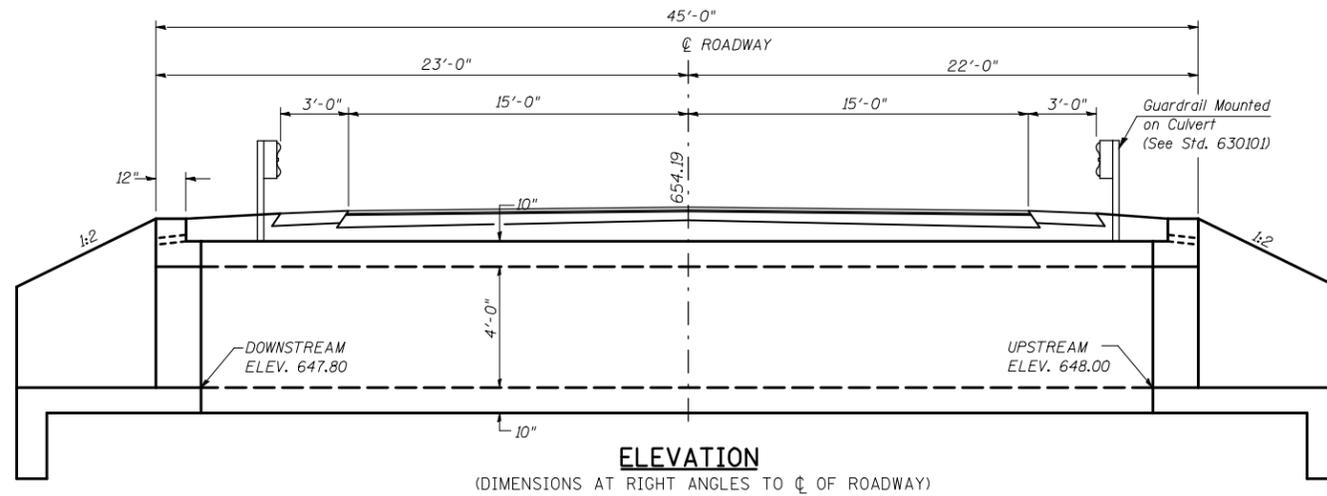
PRECAST UNITS

f'c = 5,000 psi
fy = 65,000 psi (welded wire fabric)

Coarse aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Concrete Box Culverts.

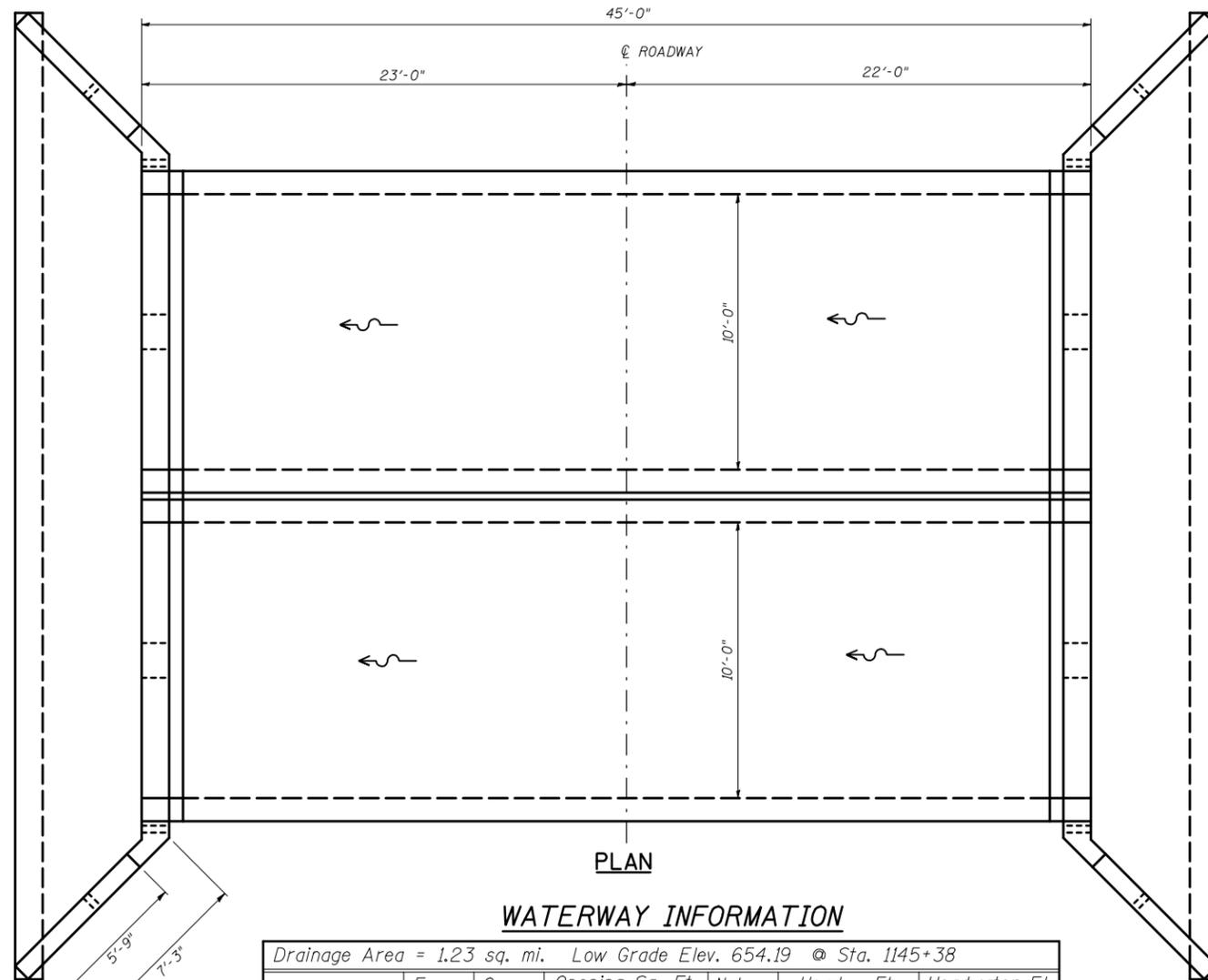


DRAIN DETAIL



ELEVATION

(DIMENSIONS AT RIGHT ANGLES TO CL OF ROADWAY)



PLAN

WATERWAY INFORMATION

Drainage Area = 1.23 sq. mi. Low Grade Elev. 654.19 @ Sta. 1145+38

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
	10	237	32	80				652.68	651.05
Design	50	386	32	80				Over	651.87
Base	100	453	32	80				Over	652.24
Overtopping									
Max. Calc.	500	616	32	80				Over	653.19

Note: Information provided using the USGS Regression Method.

General Notes

Build tops of headwalls parallel to the grade lines.

All construction joints shall be bonded according to Article 503.09 of the Standard Specifications.

Reinforcement bars shall conform to the requirements of ASTM A706 Gr. (IL Modified). See Special Provisions.

All bars should be rounded and conform to the requirements of Article 1006.10 of the Standard Specifications.

When lapping sheets of welded wire fabric, the overlap measured between the outermost cross wires of each fabric sheet shall not be less than 8"

End Sections will be paid for at the contract unit price per each for BOX CULVERT END SECTIONS, as outlined in Section 540 of the Standard Specifications.

Class SI Concrete shall be used throughout.

Concrete, Rebar, and Welded Wire Fabric quantities and lengths calculated for the cast-in-place End Sections may vary based on the precast box culverts supplied.

Drain holes shall be provided in accordance with Article 503.11 of the Standard Specifications.

The precast manufacturer shall design and detail a connection/construction joint between the precast concrete box sections and the cast-in-place apron and wingwall. The minimum area of reinforcement passing through these construction joints shall be 0.20 sq. in./lineal ft. of welded wire fabric. The design shall be detailed in the shop drawings. The cost of the connection is included in the cost of the end section.

The box culvert end section shall be built in the field and a precast option is not allowed except the cut-off wall may be precast. If the contractor elects to use a precast cut-off wall, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval.

The ends of the precast box sections adjacent to the end section shall be formed without the male and female shapes specified in Article 8.1 of AASHTO M273. See Section D-D on Sheet 2.

The design fill height for this box is less than 2 feet. The Precast Concrete Box Culvert Sections shall conform to the requirements of AASHTO M 273.

The joints between precast box sections shall be sealed, all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the backfilling process.

All dimensions are in FEET (') - INCHES (") unless otherwise noted.

Drawings not to scale.

TOTAL BILL OF MATERIAL

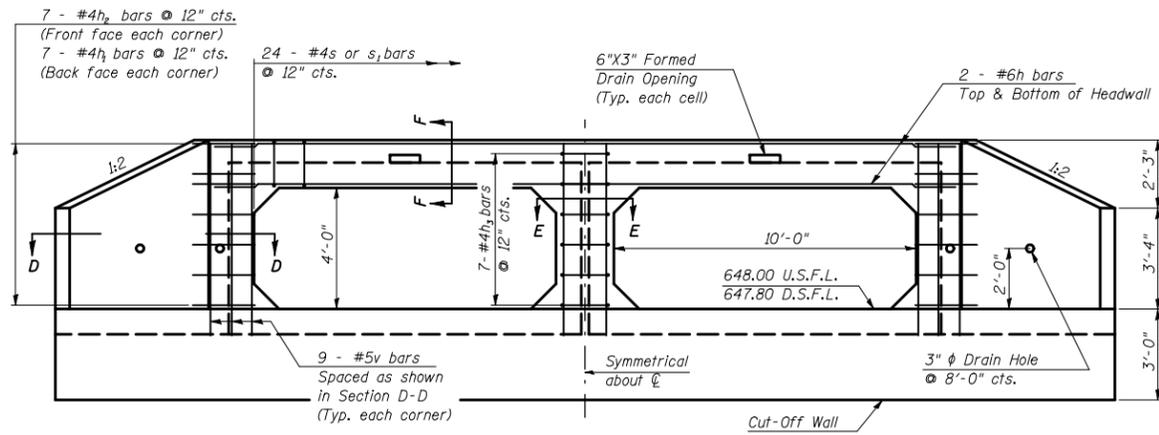
Item	Unit	Total
Removal of Existing Structures	Each	1
Precast Concrete Box Culverts 10'x4'	Foot	84
Box Culvert End Sections	Each	2
Name Plates	Each	1

SHEET 1 OF 6

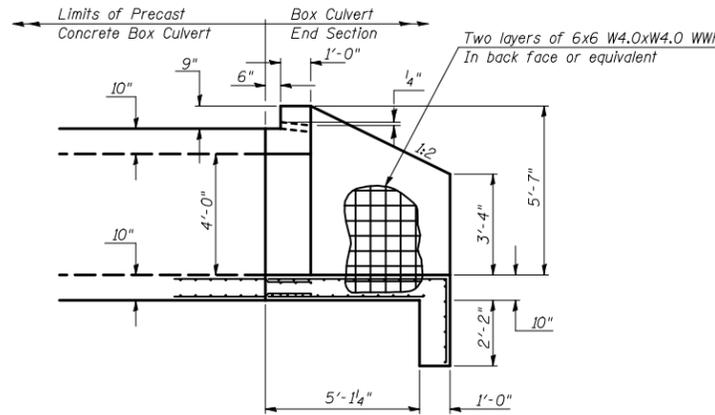
GENERAL PLAN AND ELEVATION
DOUBLE 10'x4' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 1145+38.00, S.N. 010-2036
CULVERT NO. 3

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	228

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

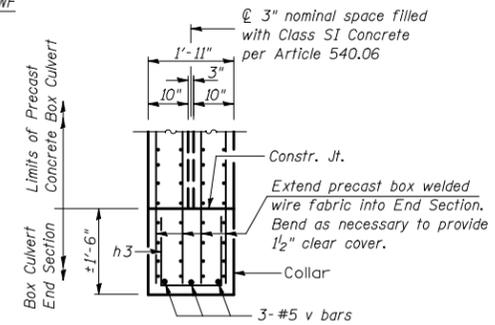


END ELEVATION



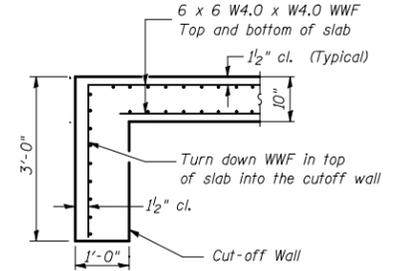
HALF SIDE ELEVATION

(DIMENSIONS AT RIGHT ANGLES TO C OF ROADWAY)

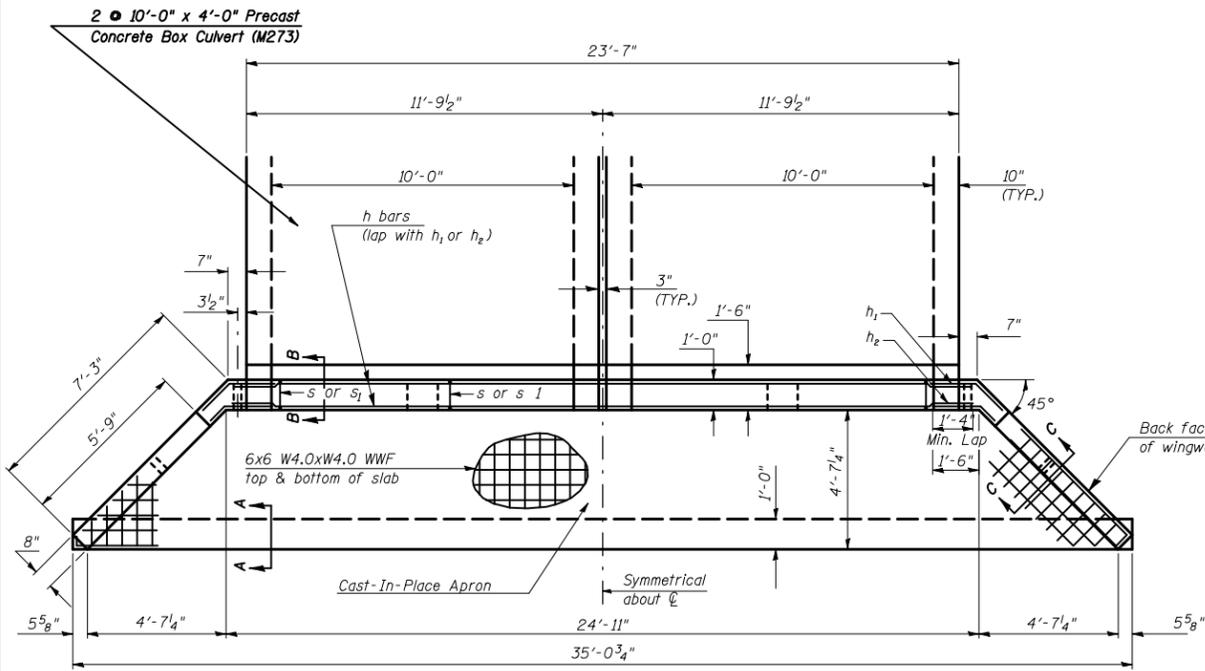


SECTION E-E

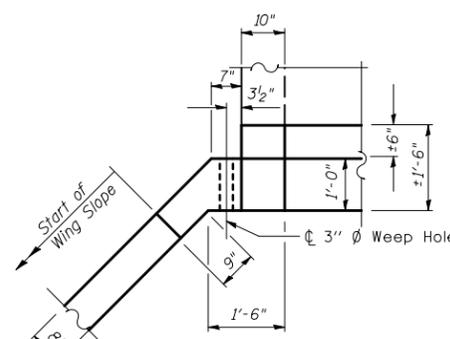
Tilt or adjust h3 bar as necessary to fit



SECTION A-A

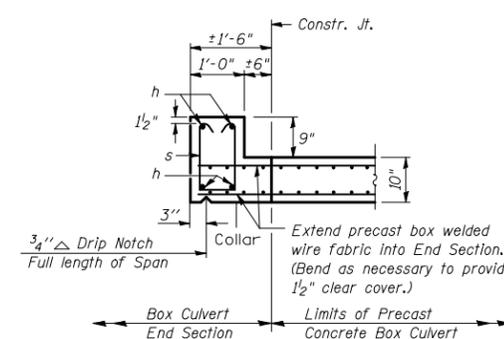


PLAN



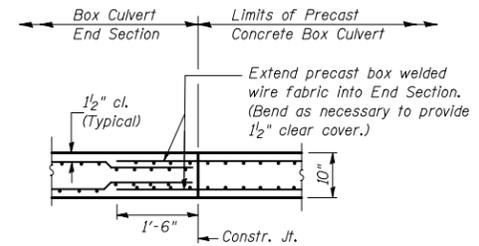
CORNER DETAIL

(Showing dimensions and weep hole)



SECTION F-F

TOP SLAB / HEADWALL DOWNSTREAM END



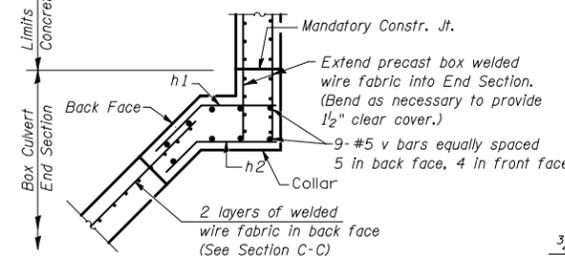
SECTION B-B

BOTTOM SLAB

BILL OF MATERIAL

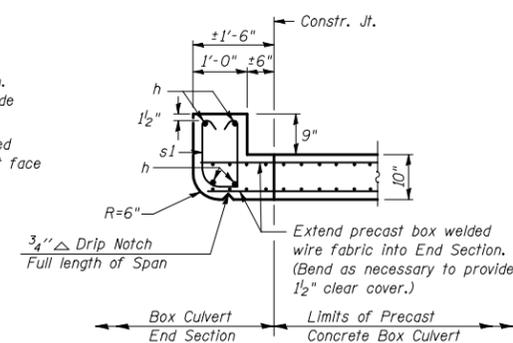
For Information Only
(One End Section)

Bar	No.	Size	Length	Shape
h	4	#6	24'-10"	—
h1	14	#4	2'-10"	—
h2	14	#4	2'-3"	—
h3	7	#4	4'-1"	—
s or s1	24	#4	4'-2"	—
v	21	#5	6'-2"	—
Item		Unit	Total	
Class SI Concrete		Cu. Yd.	12.6	
Reinforcement Bars		Pound	418.0	
Welded Wire Fabric		Sq. Ft.	647.0	



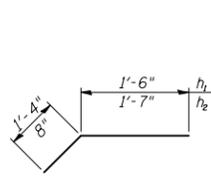
SECTION D-D

(Showing reinforcement)



SECTION F-F

TOP SLAB / HEADWALL UPSTREAM END

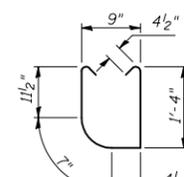


h1 & h2 BARS



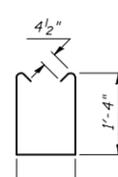
h3 BARS

DOWNSTREAM END



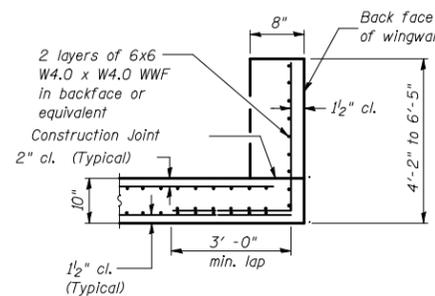
s1 BARS

UPSTREAM END



s BARS

DOWNSTREAM END



SECTION C-C

SHEET 2 OF 6

END SECTION DETAIL
DOUBLE 10'x4' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 1145+38.00, S.N. 010-2036
CULVERT NO. 3

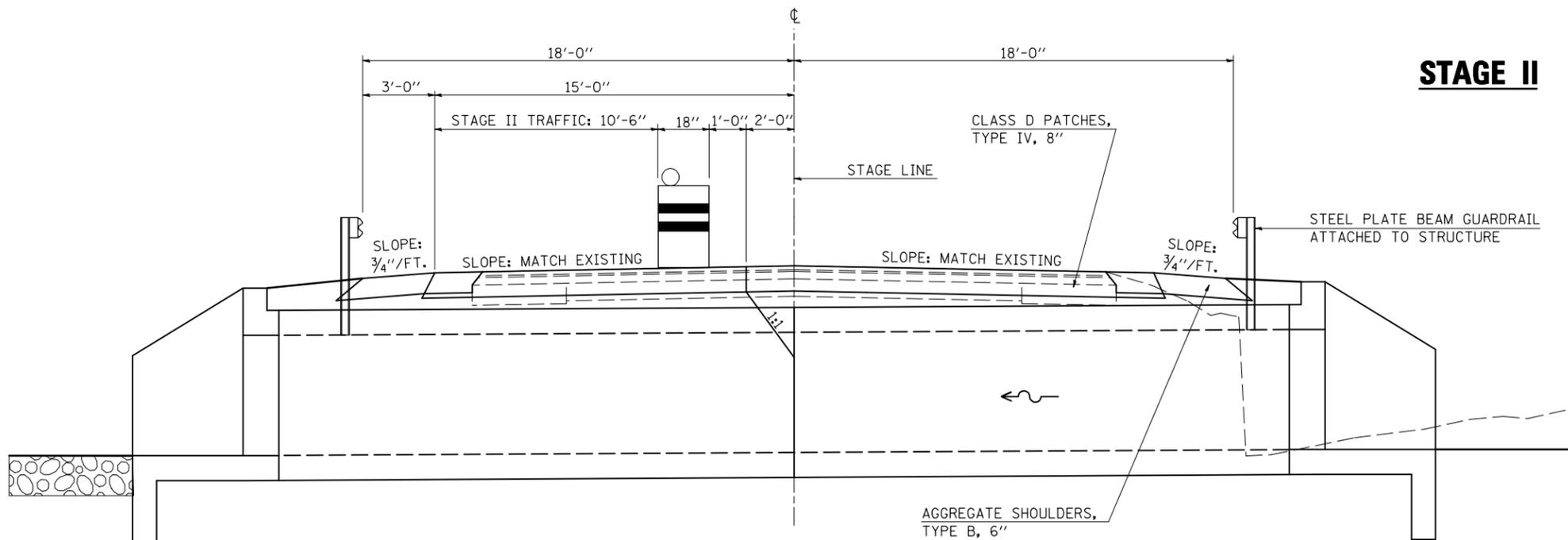
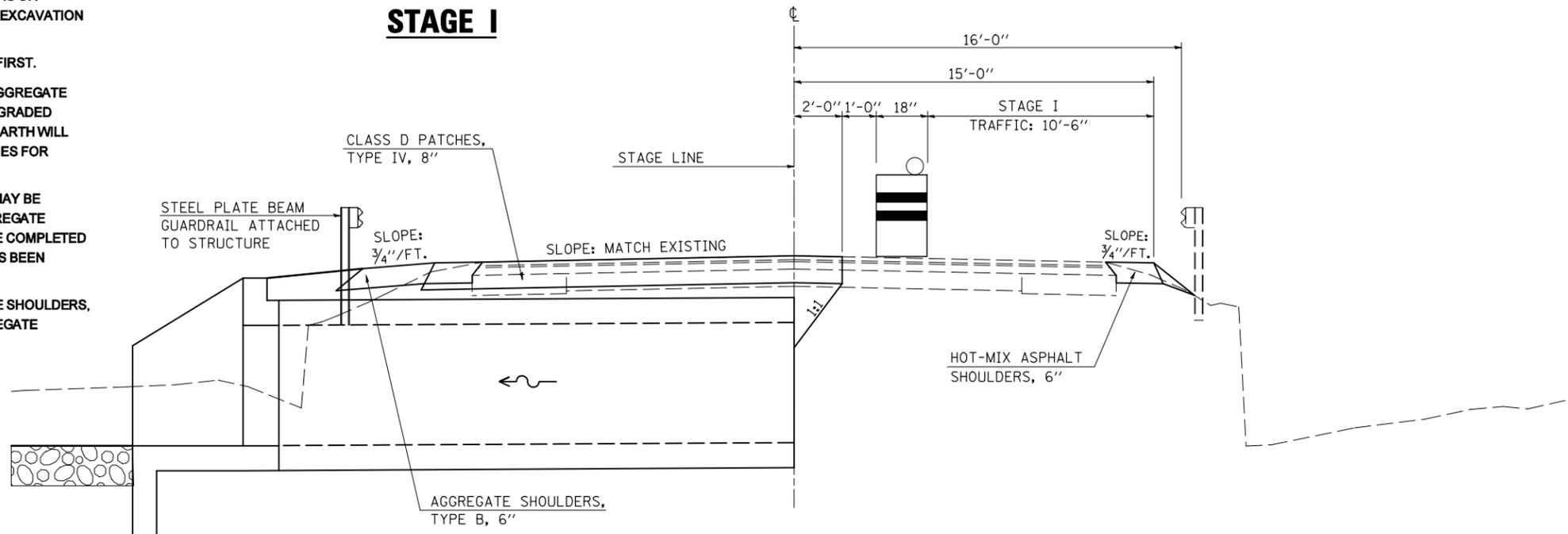
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	229
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

GENERAL NOTES

- REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL AND PROTECTION, STANDARD 701206 AND STAGE CONSTRUCTION ACROSS ROAD CULVERTS FOR ADDITIONAL INFORMATION.
- THE ENGINEER MAY REDUCE OR ELIMINATE LENGTHS OR LOCATIONS OF AGGREGATE, TYPE B, 6" AND EARTH EXCAVATION BASED ON FIELD CONDITIONS.
- CONSTRUCT DOWNSTREAM END OF A.R. CULVERT FIRST.
- EARTH EXCAVATED FOR THE CONSTRUCTION OF AGGREGATE SHOULDERS, TYPE B, 6" SHALL BE DEPOSITED AND GRADED TO SMOOTH THE FORESLOPES. THIS EXCAVATED EARTH WILL BE INCLUDED IN THE FINAL CROSS-SECTION VOLUMES FOR EARTHWORK BALANCE / WASTE CALCULATIONS.
- AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE I MAY BE COMPLETED AT ANY TIME PRIOR TO STAGE I. AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE II SHALL NOT BE COMPLETED UNTIL THE HALF-WIDTH CULVERT FROM STAGE I HAS BEEN CONSTRUCTED.
- REPLACE PREVIOUSLY CONSTRUCTED AGGREGATE SHOULDERS, TYPE B, 6" AS NEEDED WHEN PLACING FINAL AGGREGATE SHOULDERS, TYPE B.

STAGING DETAIL, CULVERT NO. 3
STATION 1145 + 38.00, S.N. 010-2036



SHEET 3 OF 6

A.R. CULVERT LOCATION	TRAFFIC CONTROL STANDARD	ESTIMATED TIME	CHANGEABLE MESSAGE SIGN
STA. 1145+38.00	701206	84 HRS / NON-STOP (4) - 12 HR DAY SHIFTS (3) - 12 HR NIGHT SHIFTS	2.0 EACH AT 4.0 CAL DAY = 8.0 CAL DAY

ILLINOIS DEPARTMENT OF TRANSPORTATION
STAGING DETAIL, CULVERT NO. 3
STATION 1145+38.00
S.N. 010-2036

SCALE: N/A
DATE: 08/01/09

DRAWN BY: B.B.P.
CHECKED BY: G.A.E.

PLOT DATE = 8/14/2009
FILE NAME = G:\DWG\WORK\K\PIWIDOT\PERSONNEL\0010445\70623-sht-staging.dgn
USER NAME = pier_sombir

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	230

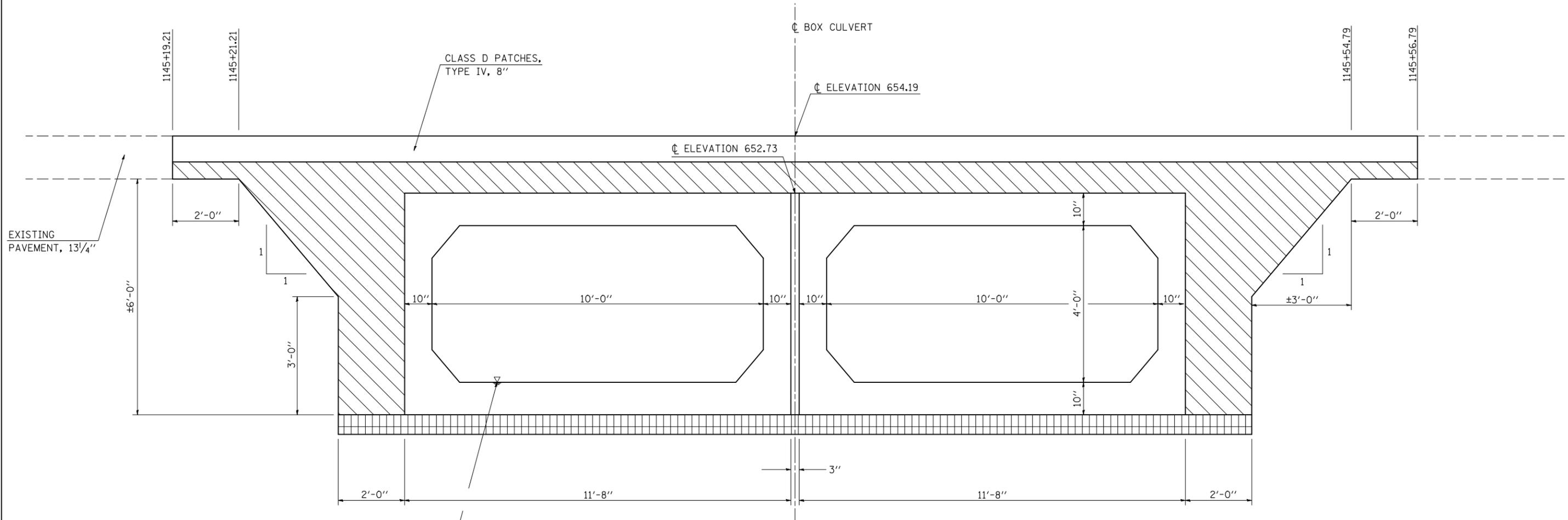
STA.	TO STA.
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

DETAIL OF POROUS GRANULAR EMBANKMENT PAY LIMITS

CULVERT NO. 3, STATION 1145 + 38.00

S.N. 010-2036



PROPOSED U.S.F.L. = 648.00
 PROPOSED D.S.F.L. = 647.80

- PAY LIMITS OF POROUS GRANULAR EMBANKMENT - CA-6
- POROUS GRANULAR MATERIAL - CA-7 (6") INCLUDED IN PAY ITEM FOR BOX CULVERT

DRAWING NOT TO SCALE

GENERAL NOTES

- 1) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 207 AND SECTION 540 OF THE STANDARD SPECIFICATIONS.
- 2) POROUS GRANULAR EMBANKMENT SHALL EXTEND 2 FT BEYOND THE AGGREGATE SHOULDER.
- 3) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR EMBANKMENT.
- 4) THE AREA TO BE EXCAVATED FOR THE PROPOSED BOX CULVERT SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR STRUCTURE EXCAVATION. THE QUANTITY CALCULATED WILL BE THE AREA FOR THE PROPOSED STRUCTURE LESS THE AREA REQUIRED TO REMOVE THE EXISTING STRUCTURE. THE EXISTING STRUCTURE AREA IS CONSIDERED TO BE THE AREA CONTAINED BETWEEN THE BOTTOM OF THE PAVEMENT TO THE BOTTOM OF THE STRUCTURE TIMES THE OUTSIDE DIAMETER OF THE STRUCTURE.
- 5) THE SPACE BETWEEN MULTI-CELL BOXES SHALL BE FILLED ACCORDING TO ARTICLE 540.06 AND SHALL NOT BE PAID FOR SEPERATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS ASSOCIATED WITH BOX CULVERT CONSTRUCTION.

SHEET 4 OF 6

ILLINOIS DEPARTMENT OF TRANSPORTATION
**DETAIL OF POROUS GRANULAR EMBANKMENT
 PAY LIMITS, STA. 1145+38.00
 CULVERT NO. 3**

SCALE: N/A
 DATE: 07/14/09

DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

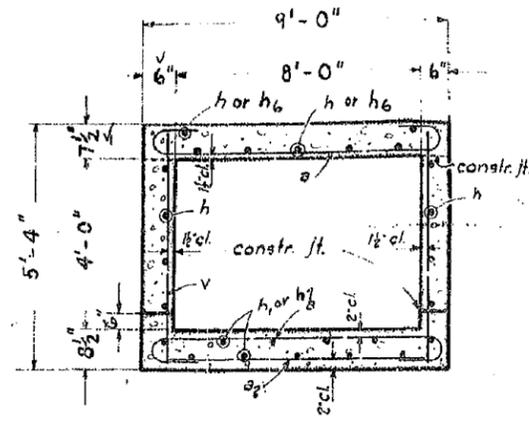
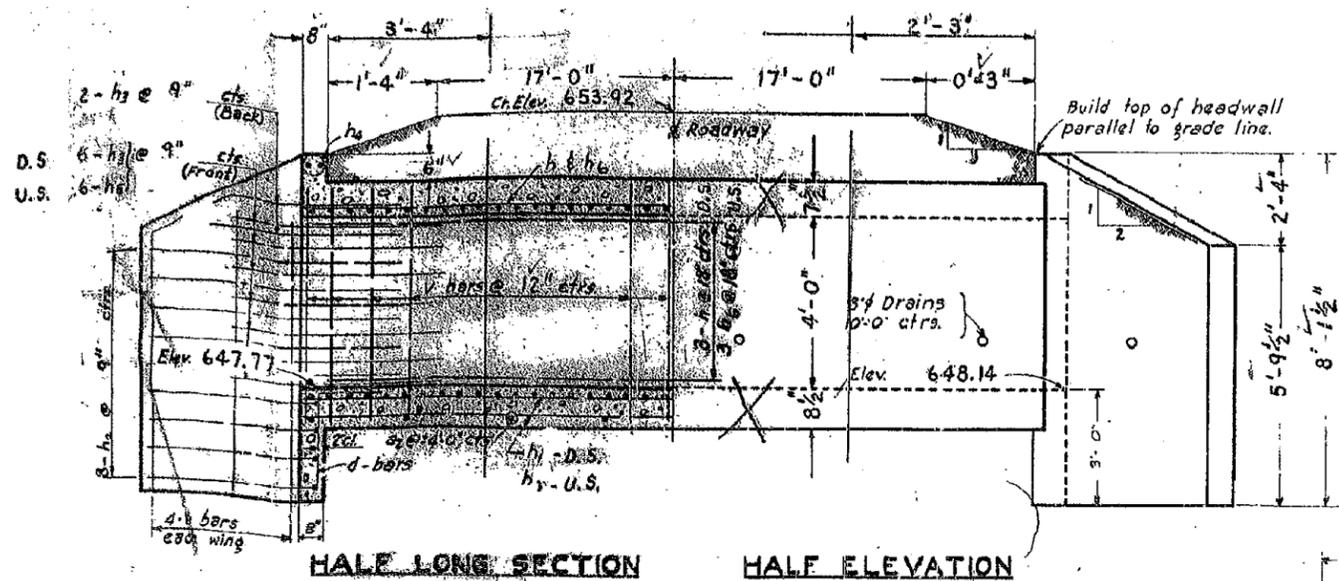
PLOT DATE = 8/19/2009
 FILE NAME = G:\DWG\WORK\K\PIWIDOT\CEARLOCK\DWG\010445\70623-sht-detailed.dgn
 USER NAME = ceartock\j

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	232
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

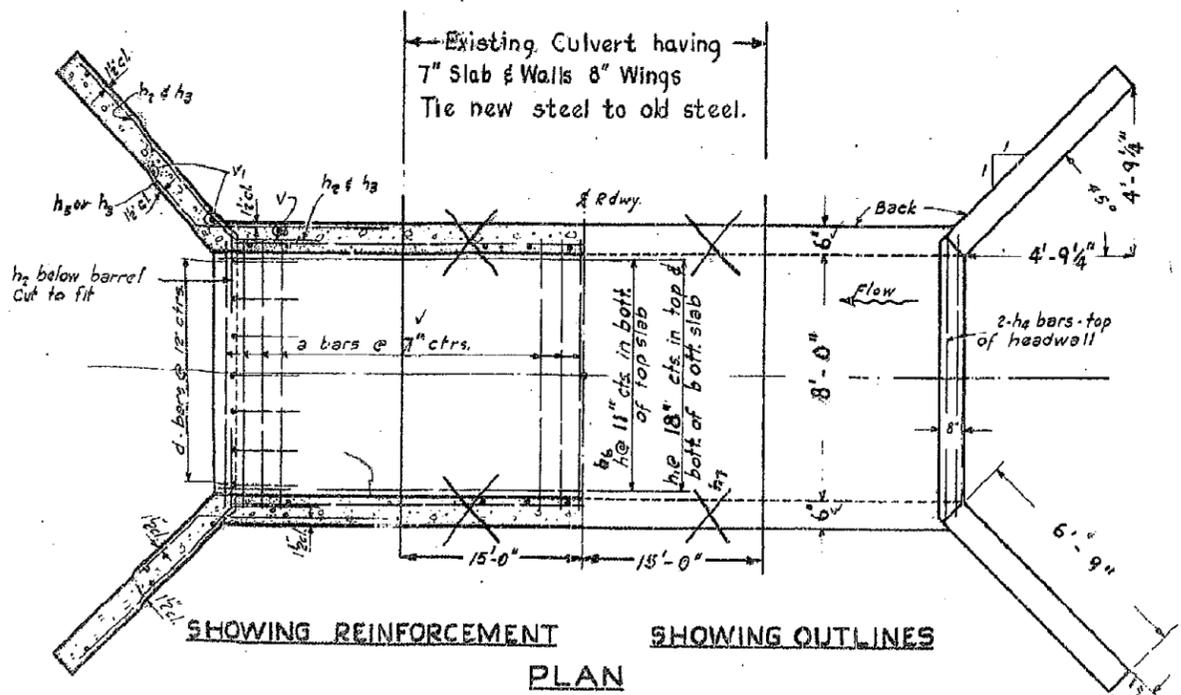
- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

EXISTING STRUCTURE INFORMATION

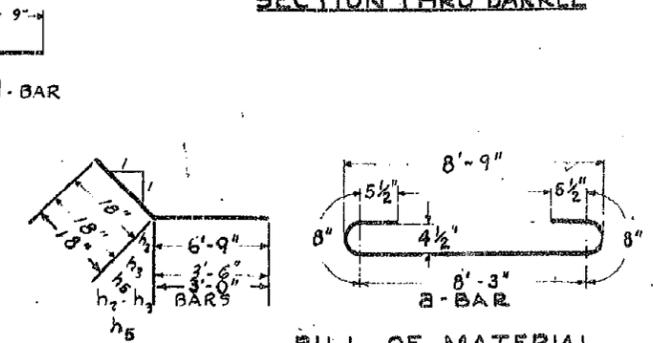
STATION 1145+38.00



SECTION THRU BARREL



SHOWING REINFORCEMENT PLAN SHOWING OUTLINES



BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH
a	24	#6	10'-6"
a2	4	#4	8'-3"
h6	18	#4	2'-9"
h	18	#4	3'-9"
h1	13	#4	3'-9"
h2	32	#4	8'-3"
h3	20	#4	5'-0"
h4	4	#6	8'-6"
h5	12	#4	4'-6"
v	22	#4	5'-0"
v1	16	#4	7'-0"
d	16	#4	4'-6"
h7	13	#4	2'-9"
Class X Concrete Curbs			9.8
Reinforcement bars			Lbs. 1060

NOTE: All bars shall be round ASTM A305-49. The size number is the number of 1/8 inches in the nominal diameter.

GENERAL NOTES

Class X concrete shall be used throughout.
 Barrel shall be poured monolithically with wing walls.
 Exposed edges shall be beveled 3/4".
 For backfilling & embankments see std. Spec's.
 Tilt hook of "a" bars, if necessary, to obtain 1/4" minimum clearance at top of hook.

$f_s = 20,000 \text{ psi}$
 $f_c = 1200 \text{ psi}$
 $n = 10$
 Hfg LOADING

EXISTING STRUCTURE:
 S.N. 010-8098 WAS CONSTRUCTED IN THE 1920'S AT STATION 1145+26 AS A 8' X 4' CAST-IN-PLACE BOX CULVERT WITH CONCRETE HEADWALLS.
 EXISTING PLAN STATION: 1145+32.90

SHEET 6 OF 6

ILLINOIS DEPARTMENT OF TRANSPORTATION
EXISTING STRUCTURE INFORMATION
STATION 1145+38.00
CULVERT NO. 3

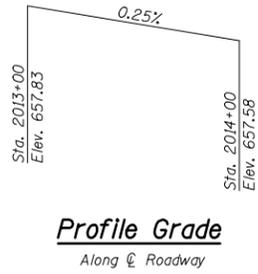
SCALE: 1" = 20'
 DATE: 07/14/09
 DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

PLOT DATE = 8/12/2009
 FILE NAME = G:\work\K:\P\W\DOT\CEARLOCK\1145+38\70623-sht-culvert-detailed.dgn
 USER NAME = ceartock\jld

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	233

BENCHMARK ELEV. = 656.878 Chiseled square on the S. end of the W. headwall of S.N. 010-8097.

EXISTING STRUCTURE: S.N. 010-8097 was constructed in 1938 at station 13+50 as a 6'x6' cast-in-place box culvert with concrete headwalls as S.A. 15, Section 94A-MFT in Champaign County. The existing structure is to be completely removed and replaced. Stage Construction will be utilized.



Profile Grade
Along ϕ Roadway

STATION 2013+50.00
BUILT 20__ BY
STATE OF ILLINOIS
F.A.P. RT. 808 SEC. (205,57,105)RS-2
LOADING HS 20
STRUCTURE NO. 010-8145

NAME PLATE
See Std. 515001

INDEX OF SHEETS

1. General Plan and Elevation
- 2,3 Box Culvert End Section Details
4. Staging Details
5. Porous Granular Detail
6. Existing Structure Information

DESIGN SPECIFICATIONS

2002 AASHTO

LOADING HS20-44

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

DESIGN STRESSES

FIELD UNITS

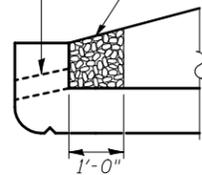
$f'_c = 3,500$ psi
 $f_y = 60,000$ psi (reinforcement)
 $f_y = 65,000$ psi (welded wire fabric)

PRECAST UNITS

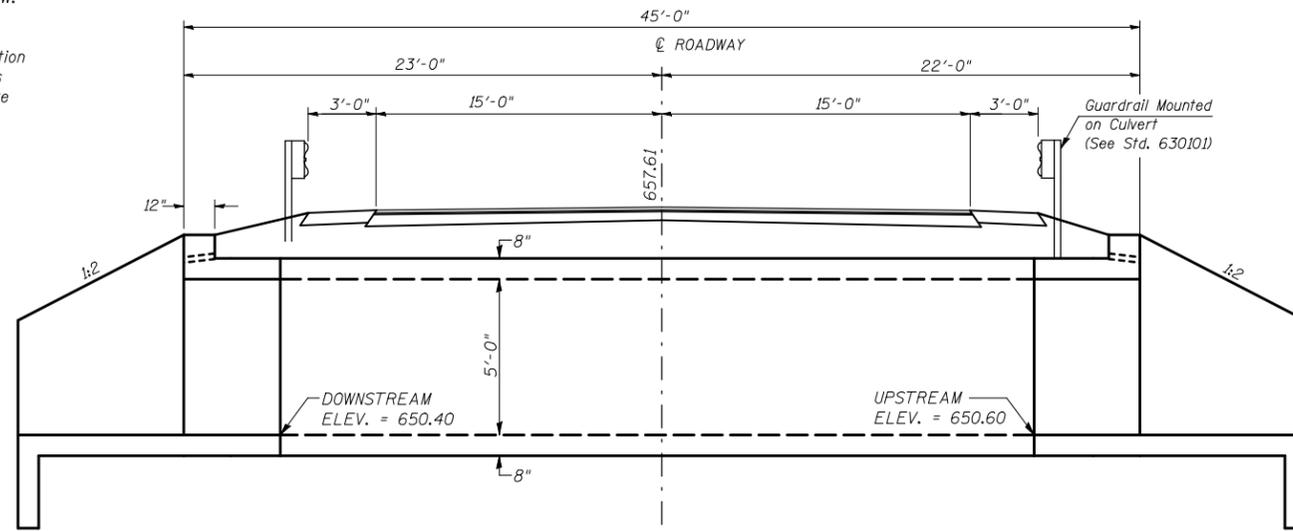
$f'_c = 5,000$ psi
 $f_y = 65,000$ psi (welded wire fabric)

Coarse aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Concrete Box Culverts.

6" x 3" Formed Opening

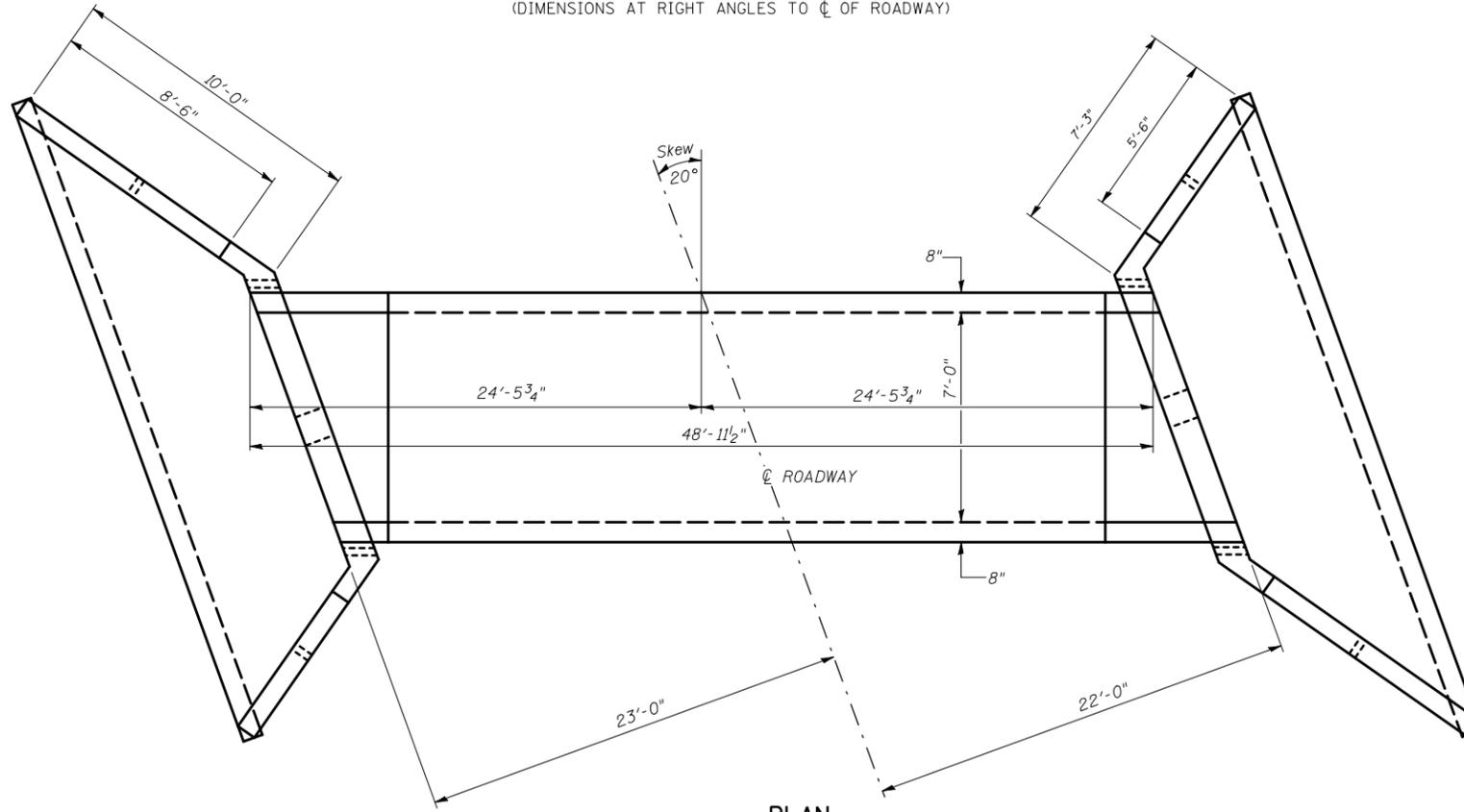


DRAIN DETAIL



ELEVATION

(DIMENSIONS AT RIGHT ANGLES TO ϕ OF ROADWAY)



PLAN

WATERWAY INFORMATION

Drainage Area = 0.23 sq. mi. Low Grade Elev. 657.61 @ Sta. 2013+50

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
	10	78	36	35			654.64	653.97	
Design	50	129	36	35			655.35	654.65	
Base	100	153	36	35			655.70	654.98	
Overtopping									
Max. Calc.	500	210	36	35			656.55	655.79	

Note: Information provided using the USGS Regression Method.

General Notes

Build tops of headwalls parallel to the grade lines.

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

All construction joints shall be bonded according to Article 503.09 of the Standard Specifications.

Reinforcement bars shall conform to the requirements of ASTM A706 Gr. (IL Modified). See Special Provisions.

All bars should be rounded and conform to the requirements of Article 1006.10 of the Standard Specifications.

When lapping sheets of welded wire fabric, the overlap measured between the outermost cross wires of each fabric sheet shall not be less than 8"

End Sections will be paid for at the contract unit price per each for BOX CULVERT END SECTIONS, as outlined in Section 540 of the Standard Specifications.

Class SI Concrete shall be used throughout.

Concrete, Rebar, and Welded Wire Fabric quantities and lengths calculated for the cast-in-place End Sections may vary based on the precast box culverts supplied.

Drain holes shall be provided in accordance with Article 503.11 of the Standard Specifications.

The precast manufacturer shall design and detail a connection/construction joint between the precast concrete box sections and the cast-in-place apron and wingwall. The minimum area of reinforcement passing through these construction joints shall be 0.20 sq. in./lineal ft. of welded wire fabric. The design shall be detailed in the shop drawings. The cost of the connection is included in the cost of the end section.

The box culvert end section shall be built in the field and a precast option is not allowed except the cut-off wall may be precast. If the contractor elects to use a precast cut-off wall, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval.

The ends of the precast box sections adjacent to the end section shall be formed without the male and female shapes specified in Article 8.1 of AASHTO M273. See Section D-D on Sheet 2 and 3.

The design fill height for this box is less than 2 feet. The Precast Concrete Box Culvert Sections shall conform to the requirements of AASHTO M 273.

The joints between precast box sections shall be sealed, all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the backfilling process.

All dimensions are in FEET (') - INCHES (") unless otherwise noted.

Drawings not to scale.

TOTAL BILL OF MATERIAL

Item	Unit	Total
Removal of Existing Structures	Each	1
Precast Concrete Box Culverts 7'x 5'	Foot	42
Box Culvert End Sections	Each	2
Name Plates	Each	1

SHEET 1 OF 6

**GENERAL PLAN AND ELEVATION
SINGLE 7'x5' PRECAST BOX CULVERT**

AT SKEW = 20° LT. FWD.

F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2

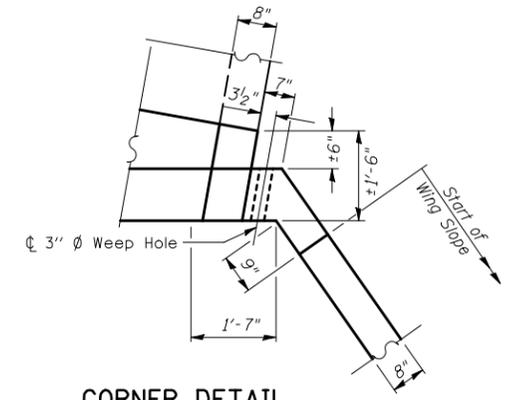
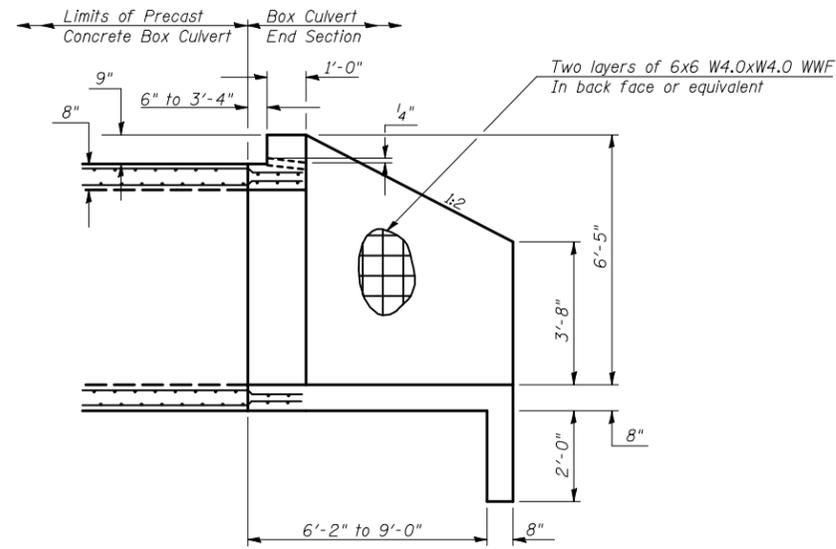
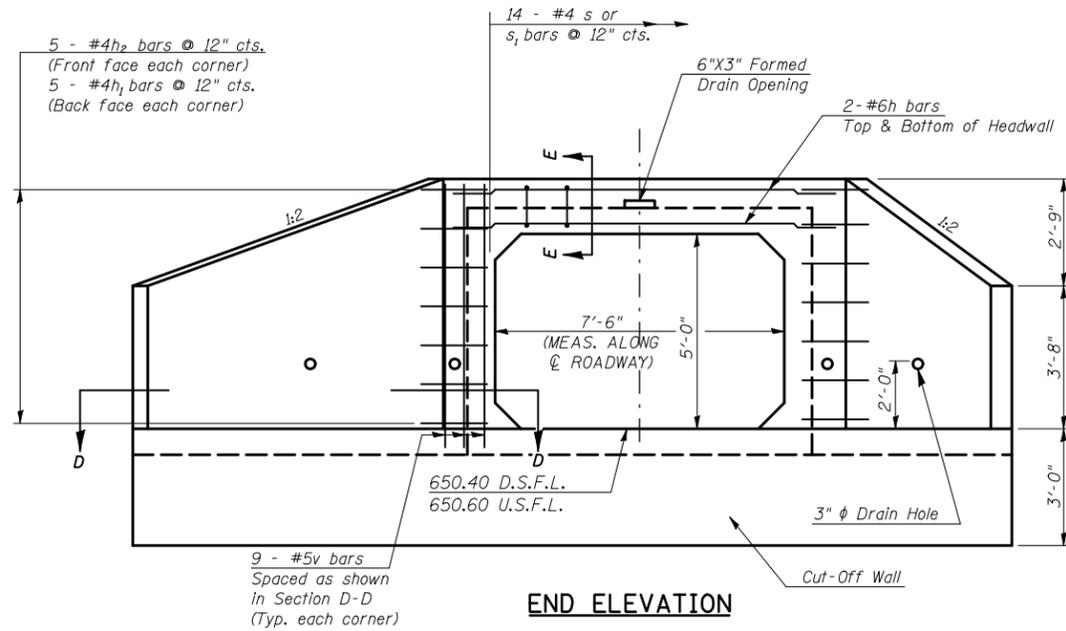
CHAMPAIGN COUNTY

STATION 2013+50.00, S.N. 010-8145

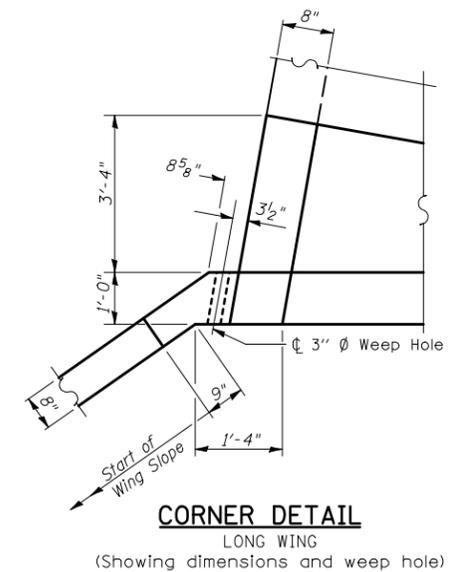
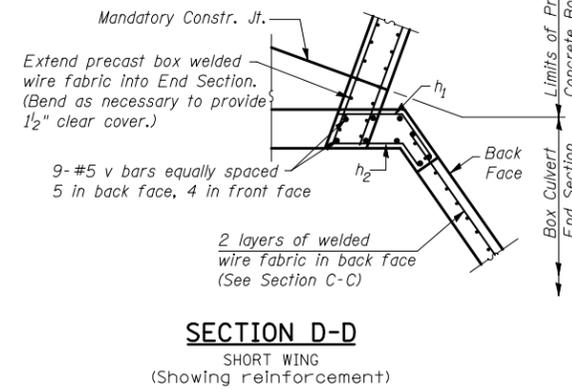
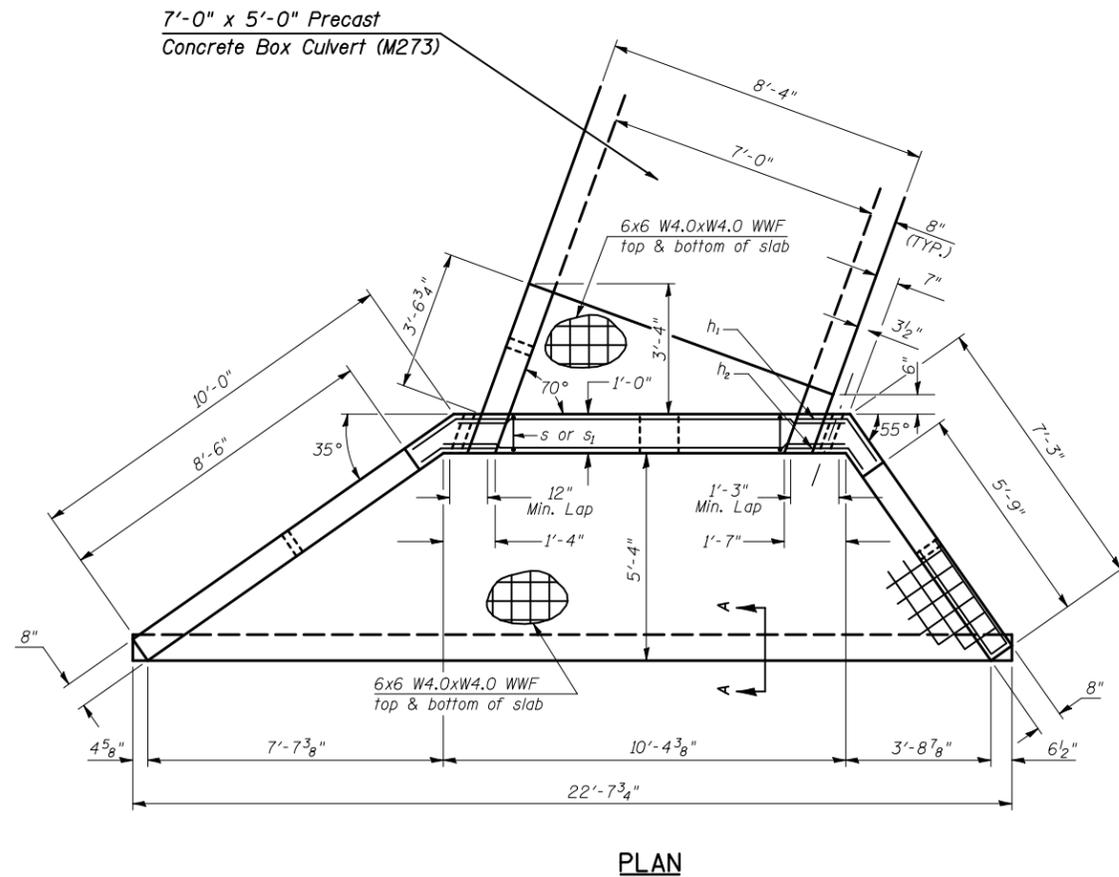
CULVERT NO. 4

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	234

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS



(DIMENSIONS AT RIGHT ANGLES TO CL ROADWAY)

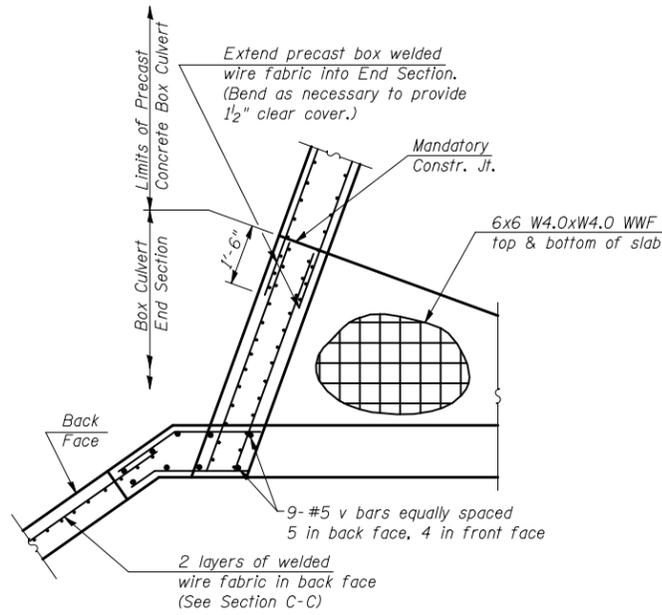


SHEET 2 OF 6

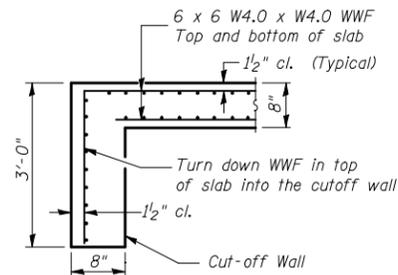
END SECTION DETAILS
SINGLE 7'x5' PRECAST BOX CULVERT
AT SKEW = 20° LT. FWD.
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 2013+50.00, S.N. 010-8145
CULVERT NO. 4

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	235

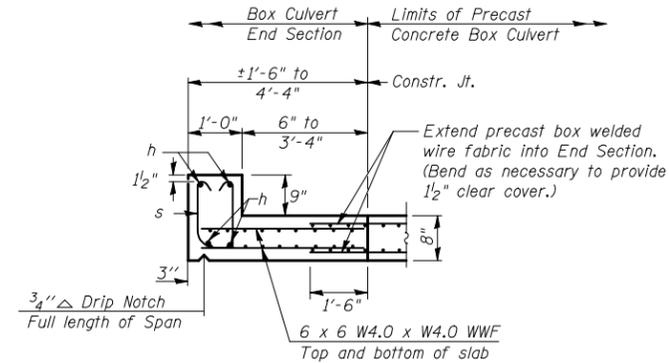
(205,57,105)RS-2
 ** CHAMPAIGN & DOUGLAS



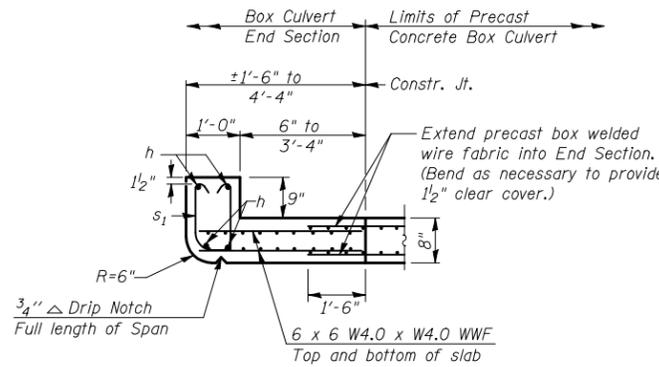
SECTION D-D
 LONG WING
 (Showing reinforcement)



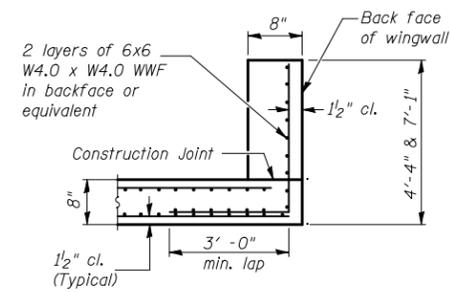
SECTION A-A
 DOWNSTREAM END



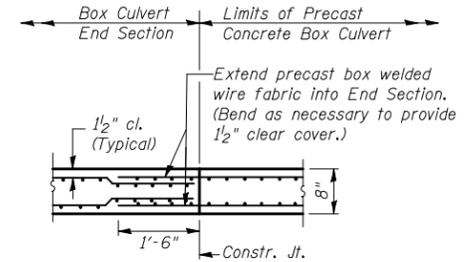
SECTION E-E
 TOP SLAB / HEADWALL DOWNSTREAM END
 (DIMENSIONS AT RIGHT ANGLES TO CL ROADWAY)



SECTION E-E
 TOP SLAB / HEADWALL UPSTREAM END
 (DIMENSIONS AT RIGHT ANGLES TO CL ROADWAY)



SECTION C-C
 WINGWALLS

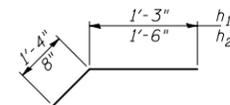


SECTION B-B
 BOTTOM SLAB

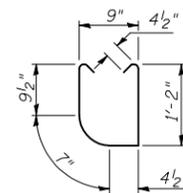
BILL OF MATERIAL

For Information Only
 (One End Section)

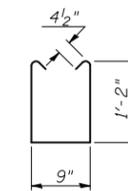
Bar	No.	Size	Length	Shape
h	4	#6	10'-4"	—
h ₁	14	#4	2'-7"	—
h ₂	14	#4	2'-2"	—
s or s ₁	8	#4	3'-10"	U
v	18	#5	6'-10"	—
Item		Unit	Total	
Class SI Concrete		Cu. Yd.	8.4	
Reinforcement Bars		Pound	256.0	
Welded Wire Fabric		Sq. Ft.	794.0	



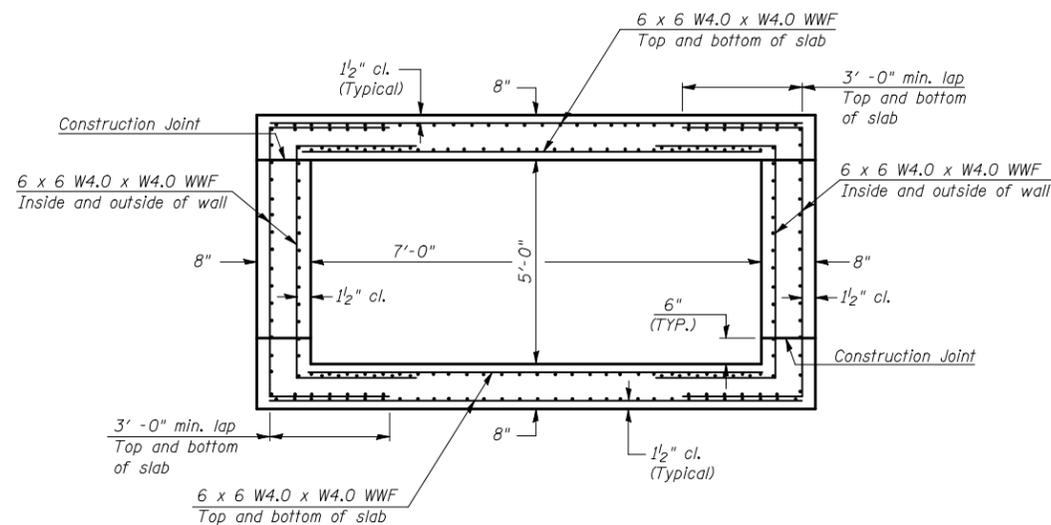
h1 & h2 BARS



s1 BARS
 UPSTREAM END



s BARS
 DOWNSTREAM END



CAST-IN-PLACE SECTION OF BOX CULVERT TO BE BUILT IN FIELD

SHEET 3 OF 6

END SECTION DETAILS
SINGLE 7'x5' PRECAST BOX CULVERT
AT SKEW = 20° LT. FWD.
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 2013+50.00, S.N. 010-8145
CULVERT NO. 4

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	236
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

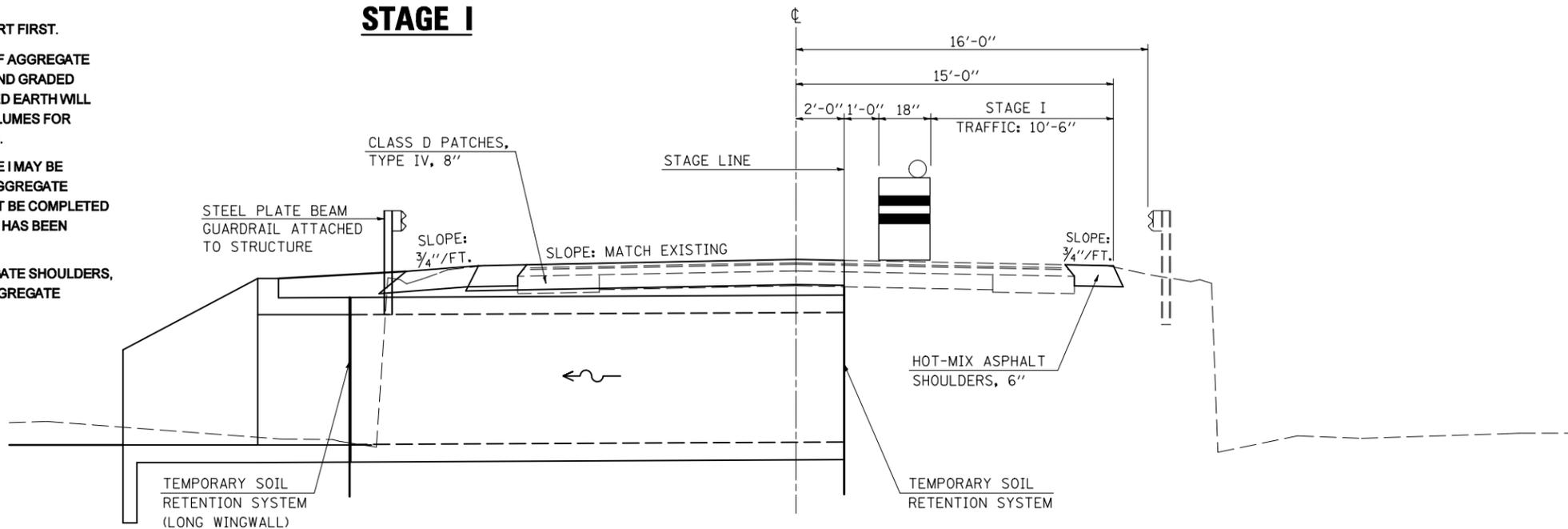
- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

GENERAL NOTES

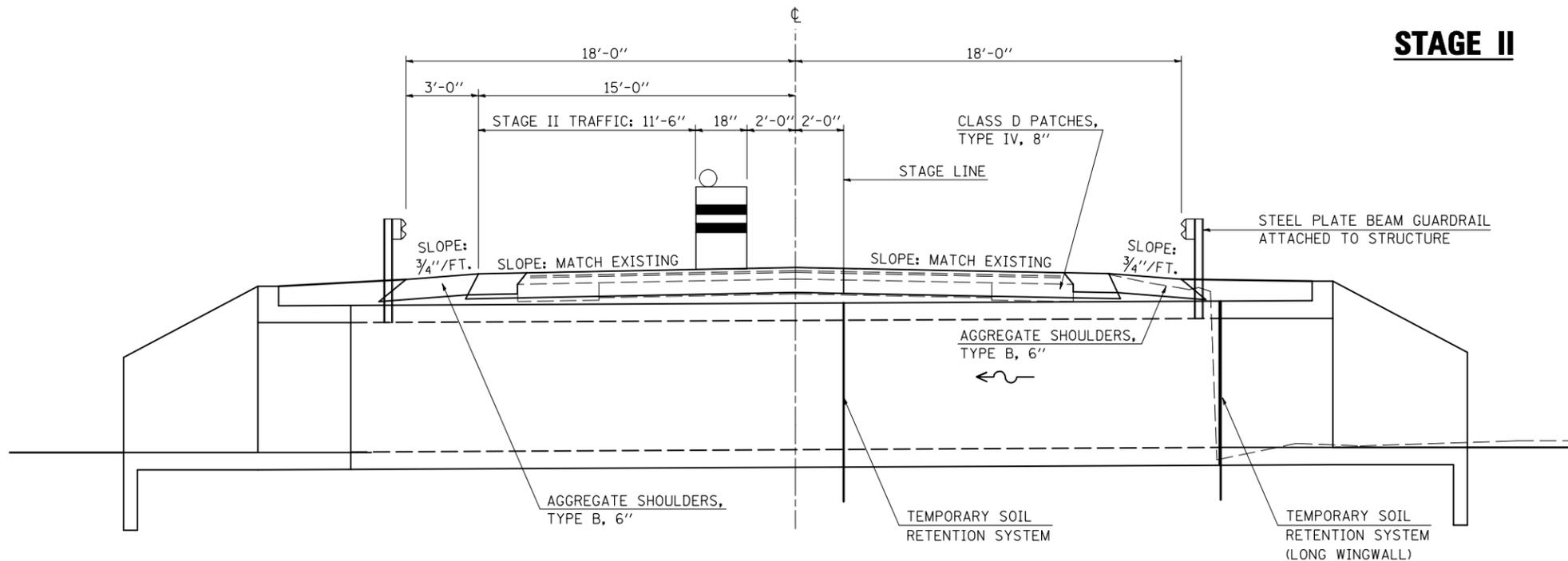
- REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL AND PROTECTION, STANDARD 701206 AND STAGE CONSTRUCTION ACROSS ROAD CULVERTS FOR ADDITIONAL INFORMATION.
- THE ENGINEER MAY REDUCE OR ELIMINATE LENGTHS OR LOCATIONS OF AGGREGATE, TYPE B, 6" AND EARTH EXCAVATION BASED ON FIELD CONDITIONS.
- CONSTRUCT DOWNSTREAM END OF A.R. CULVERT FIRST.
- EARTH EXCAVATED FOR THE CONSTRUCTION OF AGGREGATE SHOULDERS, TYPE B, 6" SHALL BE DEPOSITED AND GRADED TO SMOOTH THE FORESLOPES. THIS EXCAVATED EARTH WILL BE INCLUDED IN THE FINAL CROSS-SECTION VOLUMES FOR EARTHWORK BALANCE / WASTE CALCULATIONS.
- AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE I MAY BE COMPLETED AT ANY TIME PRIOR TO STAGE I. AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE II SHALL NOT BE COMPLETED UNTIL THE HALF-WIDTH CULVERT FROM STAGE I HAS BEEN CONSTRUCTED.
- REPLACE PREVIOUSLY CONSTRUCTED AGGREGATE SHOULDERS, TYPE B, 6" AS NEEDED WHEN PLACING FINAL AGGREGATE SHOULDERS, TYPE B.

STAGING DETAIL, CULVERT NO. 4
STATION 2013+50.00, S.N. 010-8145

STAGE I



STAGE II



PLOT DATE = 8/14/2009
 FILE NAME = c:\pwworkspace\PIERSONBR\0010445\70623-sht-staging.dgn
 USER NAME = piersonbr

A.R. CULVERT LOCATION	TRAFFIC CONTROL STANDARD	ESTIMATED TIME	CHANGEABLE MESSAGE SIGN
STA. 2013+50.00	701206	84 HRS / NON-STOP (4) - 12 HR DAY SHIFTS (3) - 12 HR NIGHT SHIFTS	2.0 EACH AT 4.0 CAL DAY = 8.0 CAL DAY

SHEET 4 OF 6

ILLINOIS DEPARTMENT OF TRANSPORTATION
STAGING DETAIL, CULVERT NO. 4
STA. 2013+50.00
S.N. 010-8145

SCALE: N/A
DATE: 08/01/09

DRAWN BY: B.B.P.
CHECKED BY: G.A.E.

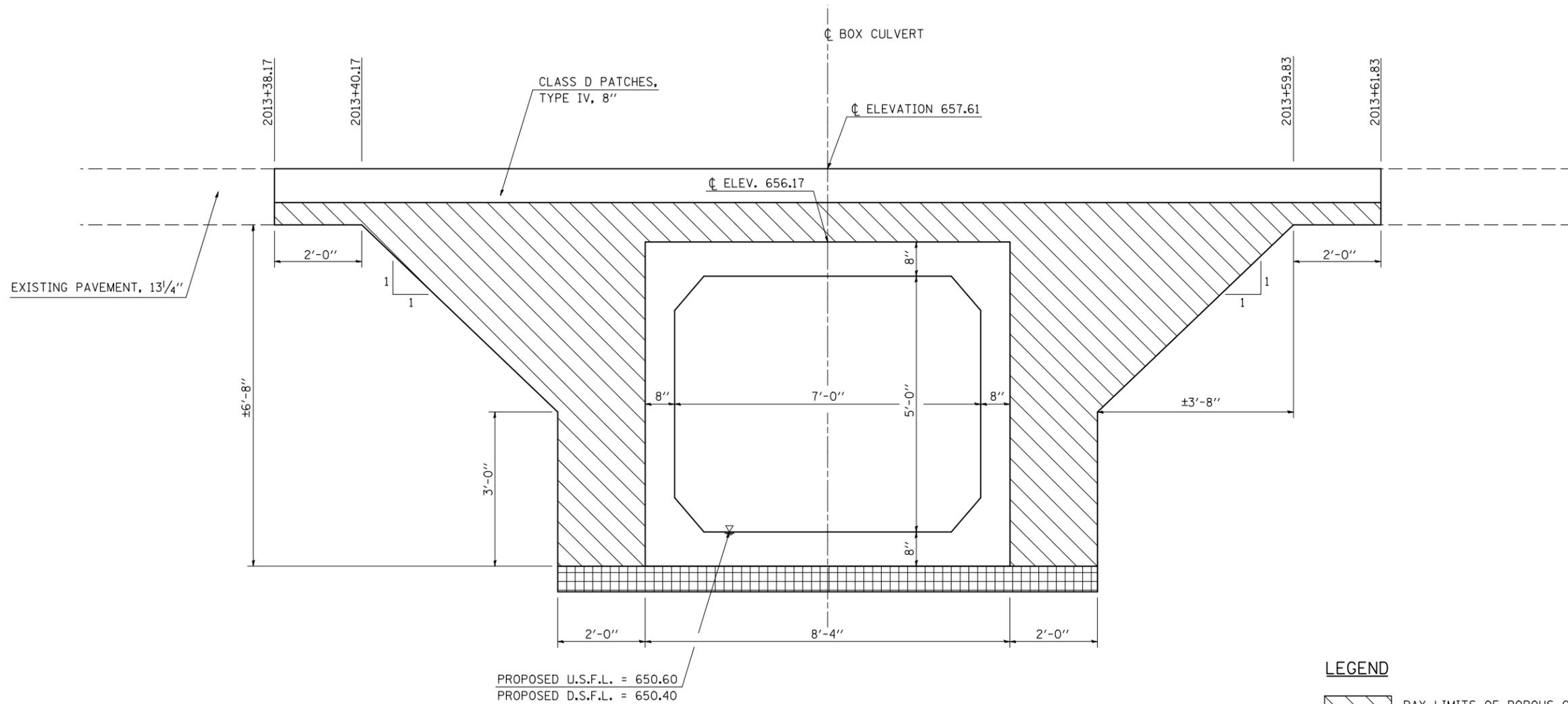
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	237
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

DETAIL OF POROUS GRANULAR EMBANKMENT PAY LIMITS

CULVERT NO. 4, STATION 2013+50.00

S.N. 010-8145



LEGEND

- PAY LIMITS OF POROUS GRANULAR EMBANKMENT - CA-6
- POROUS GRANULAR MATERIAL - CA-7 (6") INCLUDED IN PAY ITEM FOR BOX CULVERT

DRAWING NOT TO SCALE

GENERAL NOTES

- 1) CULVERT NO. 4 SHALL BE CONSTRUCTED ON A 20 DEGREE SKEW LEFT. THE DIMENSIONS SHOWN IN THIS DETAIL ARE PERPENDICULAR TO THE CENTERLINE OF THE BOX CULVERT. THE STATIONS ALONG THE CENTERLINE OF ROUTE 130 WILL VARY.
- 2) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 207 AND SECTION 540 OF THE STANDARD SPECIFICATIONS.
- 3) POROUS GRANULAR EMBANKMENT SHALL EXTEND 2 FT. BEYOND THE AGGREGATE SHOULDER.
- 4) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR EMBANKMENT.
- 5) THE AREA TO BE EXCAVATED FOR THE PROPOSED BOX CULVERT SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR STRUCTURE EXCAVATION. THE QUANTITY CALCULATED WILL BE THE AREA FOR THE PROPOSED STRUCTURE LESS THE AREA REQUIRED TO REMOVE THE EXISTING STRUCTURE. THE EXISTING STRUCTURE AREA IS CONSIDERED TO BE THE AREA CONTAINED BETWEEN THE BOTTOM OF THE PAVEMENT TO THE BOTTOM OF THE STRUCTURE TIMES THE OUTSIDE DIAMETER OF THE STRUCTURE.

SHEET 5 OF 6

ILLINOIS DEPARTMENT OF TRANSPORTATION
DETAIL OF POROUS GRANULAR EMBANKMENT
PAY LIMITS, STA. 2013+50.00
CULVERT NO. 4

SCALE: N/A
 DATE: 07/15/09

DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

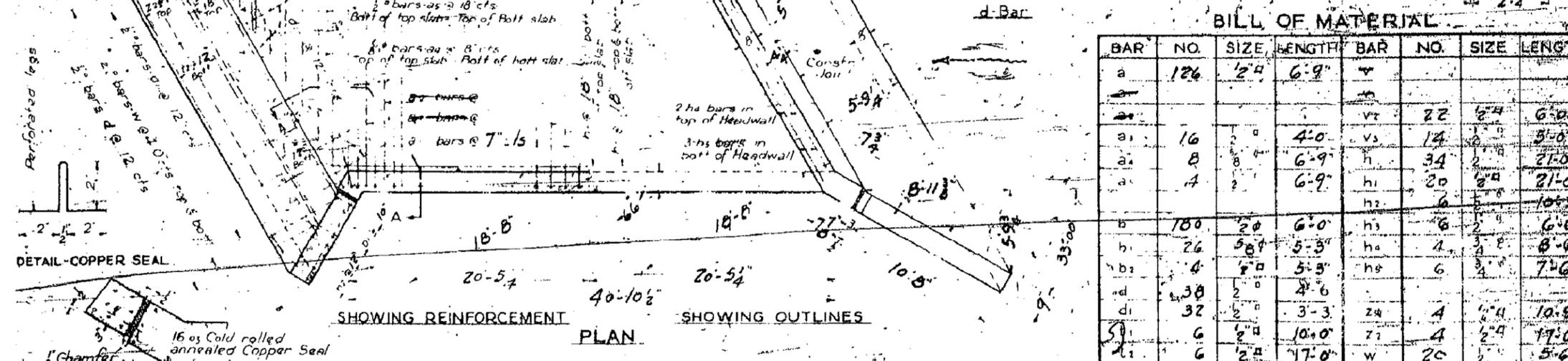
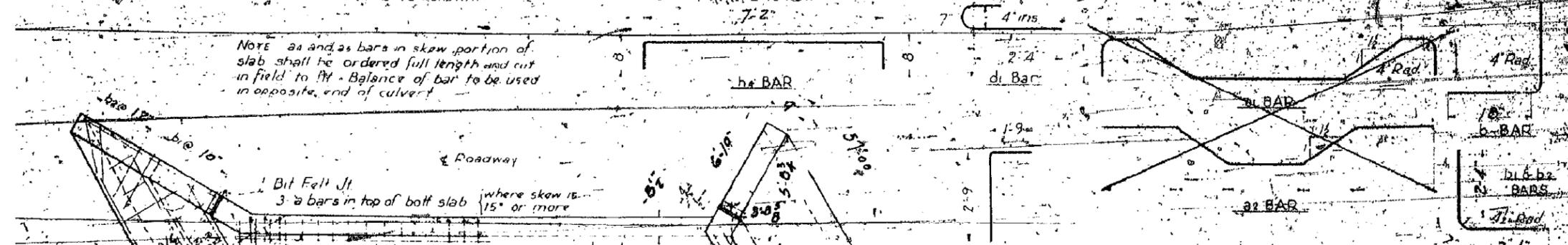
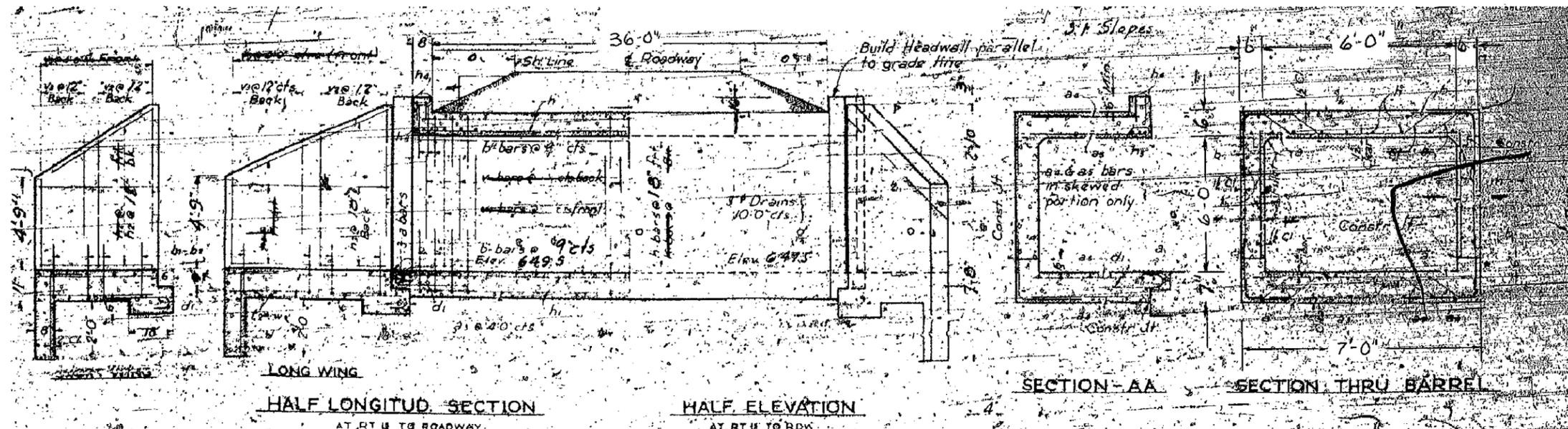
PLOT DATE = 8/19/2009
 FILE NAME = G:\pwworking\PIWIDOT\CEARLOCK\JD\0101445\70623-sht-detailed.dgn
 PLOT NAME = 12.05.03
 USER NAME = ceartockjd

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	238
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

EXISTING STRUCTURE INFORMATION

STATION 2013+50.00

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS



BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	BAR	NO.	SIZE	LENGTH	
a	126	1/2"	6'-9"	v				
a1	16	2"	4'-0"	v2	22	1/2"	6'-0"	
a2	8	2"	6'-9"	v3	14	1/2"	5'-0"	
a3	4	2"	6'-9"	h	34	2"	21'-0"	
b	100	2#	6'-0"	h1	20	2"	21'-0"	
b1	26	5/8"	5'-3"	h2	6	2"	10'-0"	
b2	4	2"	5'-3"	h3	6	2"	6'-6"	
b3	4	2"	5'-3"	h4	4	2"	6'-6"	
d	38	2"	4'-6"	h5	6	2"	7'-6"	
d1	32	2"	3'-3"	h6	4	2"	10'-9"	
e	6	2"	10'-0"	z4	4	1/2"	10'-9"	
f	6	2"	17'-0"	z1	4	1/2"	17'-6"	
				w	20	1/2"	5'-6"	
Class X Concrete				Cu Yds				33.8
Reinforcing Steel				Lbs				3680

GENERAL NOTES
 Class X Concrete shall be used thru-out.
 Culvert walls and slab may be poured monolithically.
 Exposed edges shall be beveled.
 Subsoil of approximately uniform bearing capacity is assumed.

EXISTING STRUCTURE:
 S.N. 010-8097 WAS CONSTRUCTED IN 1938 AT STATION 13+50 AS A 6' X 6' CAST-IN-PLACE BOX CULVERT WITH CONCRETE HEADWALLS. (SKEWED 24 DEGREES LEFT)
 EXISTING PLAN STATION: 2013+49.90

SHEET 6 OF 6

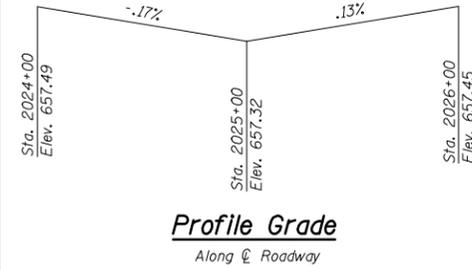
ILLINOIS DEPARTMENT OF TRANSPORTATION
EXISTING STRUCTURE INFORMATION
 STATION 2013+50.00
 CULVERT NO. 4

SCALE: 1" = 20'
 DATE: 07/16/09
 DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

PLOT DATE = 8/12/2009
 FILE NAME = G:\dwg\work\CHAMPAIGN\CEARLOCK\ID\0101445\70623-sht-culvert-detailed.dgn
 USER NAME = ceartock\j

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	239

EXISTING STRUCTURE: The existing structure is a 30" R.C. Pipe Culvert that was built in 1938. The culvert was extended in 1981. The existing structure is to be completely removed and replaced. Stage Construction will be utilized.



STATION 2025+00.00
BUILT 20__ BY
STATE OF ILLINOIS
F.A.P. RT. 808 SEC. (205,57,105)RS-2
LOADING HS 20
STRUCTURE NO. 010-8144

NAME PLATE
See Std. 515001

INDEX OF SHEETS

1. General Plan and Elevation
2. Box Culvert End Section Details
3. Staging Details
4. Porous Granular Detail
5. Soil Boring Logs
6. Grating Detail

DESIGN SPECIFICATIONS
2002 AASHTO

LOADING HS20-44

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

DESIGN STRESSES

FIELD UNITS

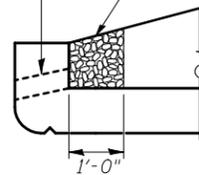
$f'_c = 3,500$ psi
 $f_y = 60,000$ psi (reinforcement)
 $f_y = 65,000$ psi (welded wire fabric)

PRECAST UNITS

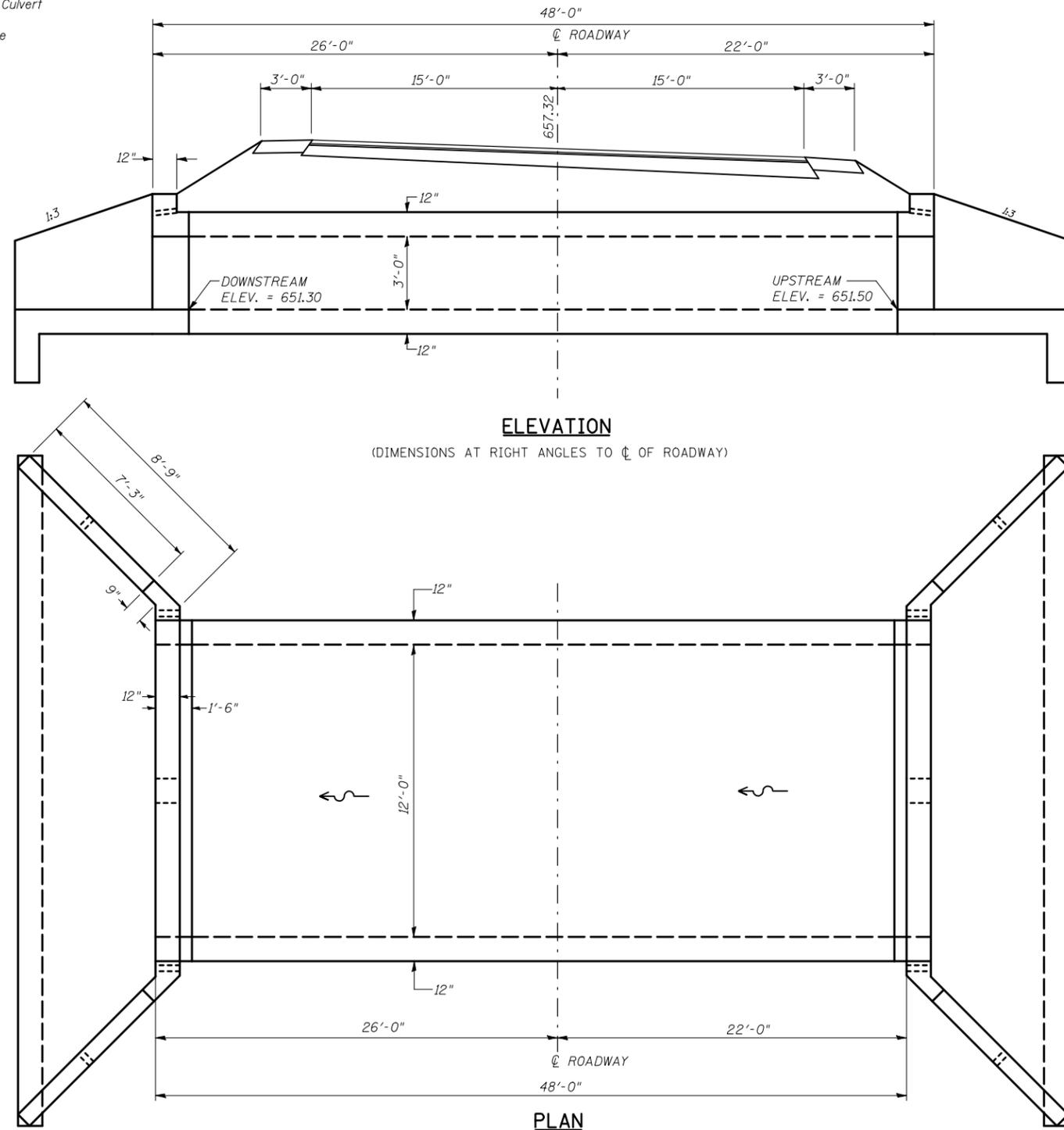
$f'_c = 5,000$ psi
 $f_y = 65,000$ psi (welded wire fabric)

Coarse aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Concrete Box Culverts.

6" x 3" Formed Opening



DRAIN DETAIL



WATERWAY INFORMATION

Drainage Area = 0.379 sq. mi. Low Grade Elev. 657.32 @ Sta. 2025+00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	113	5	36			Over	653.96	
Base	50	187	5	36			Over	654.76	
Overtopping	100	221	5	36			Over	655.15	
Max. Calc.	500	303	5	36			Over	656.08	

Note: Information provided using the Regression Method.

General Notes

Build tops of headwalls parallel to the grade lines.

All construction joints shall be bonded according to Article 503.09 of the Standard Specifications.

Reinforcement bars shall conform to the requirements of ASTM A706 Gr. (IL Modified). See Special Provisions.

All bars should be rounded and conform to the requirements of Article 1006.10 of the Standard Specifications.

When lapping sheets of welded wire fabric, the overlap measured between the outermost cross wires of each fabric sheet shall not be less than 8"

End Sections will be paid for at the contract unit price per each for BOX CULVERT END SECTIONS, as outlined in Section 540 of the Standard Specifications.

Class SI Concrete shall be used throughout.

Concrete, Rebar, and Welded Wire Fabric quantities and lengths calculated for the cast-in-place End Sections may vary based on the precast box culverts supplied.

Drain holes shall be provided in accordance with Article 503.11 of the Standard Specifications.

The precast manufacturer shall design and detail a connection/construction joint between the precast concrete box sections and the cast-in-place apron and wingwall. The minimum area of reinforcement passing through these construction joints shall be 0.20 sq. in./lineal ft. of welded wire fabric. The design shall be detailed in the shop drawings. The cost of the connection is included in the cost of the end section.

The box culvert end section shall be built in the field and a precast option is not allowed except the cut-off wall may be precast. If the contractor elects to use a precast cut-off wall, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval.

The ends of the precast box sections adjacent to the end section shall be formed without the male and female shapes specified in Article 8.1 of AASHTO M273. See Section D-D on Sheet 2.

The design fill height for this box is less than 2 feet. The Precast Concrete Box Culvert Sections shall conform to the requirements of AASHTO M 273.

The joints between precast box sections shall be sealed, all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the backfilling process.

All dimensions are in FEET (') - INCHES (") unless otherwise noted.

Drawings not to scale.

TOTAL BILL OF MATERIAL

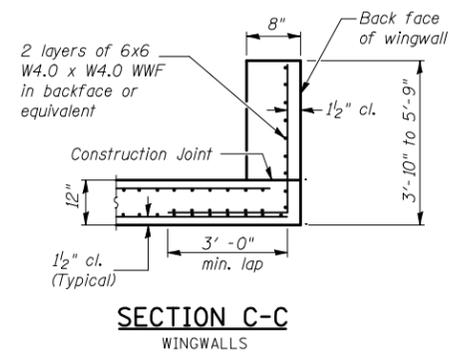
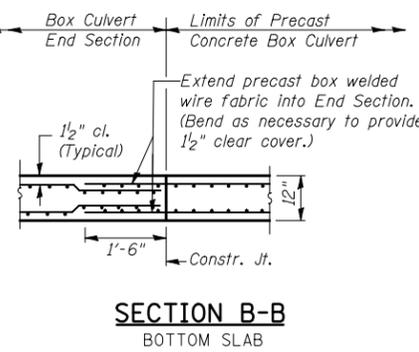
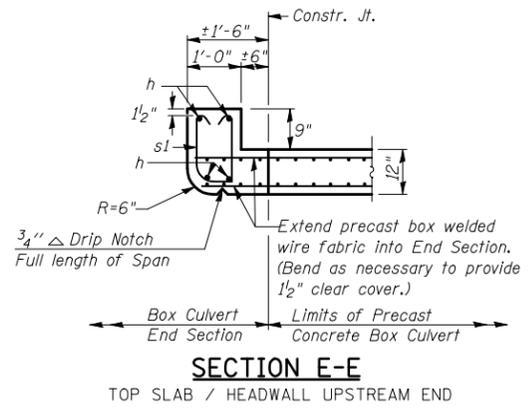
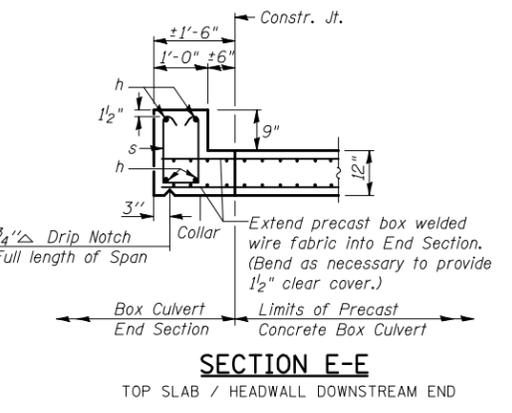
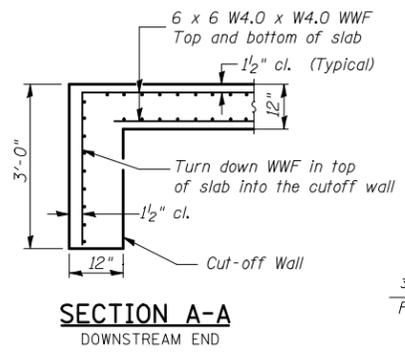
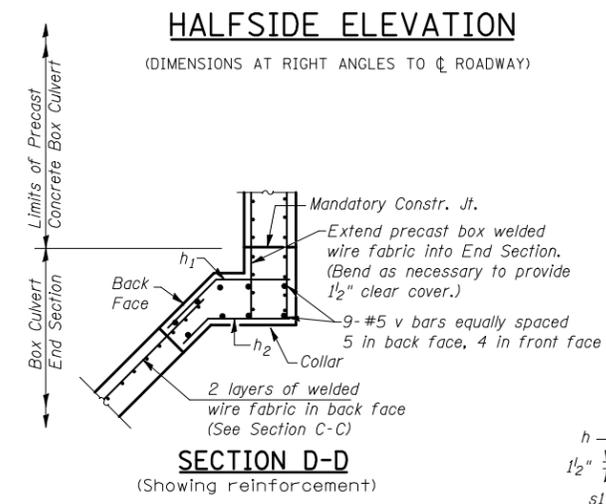
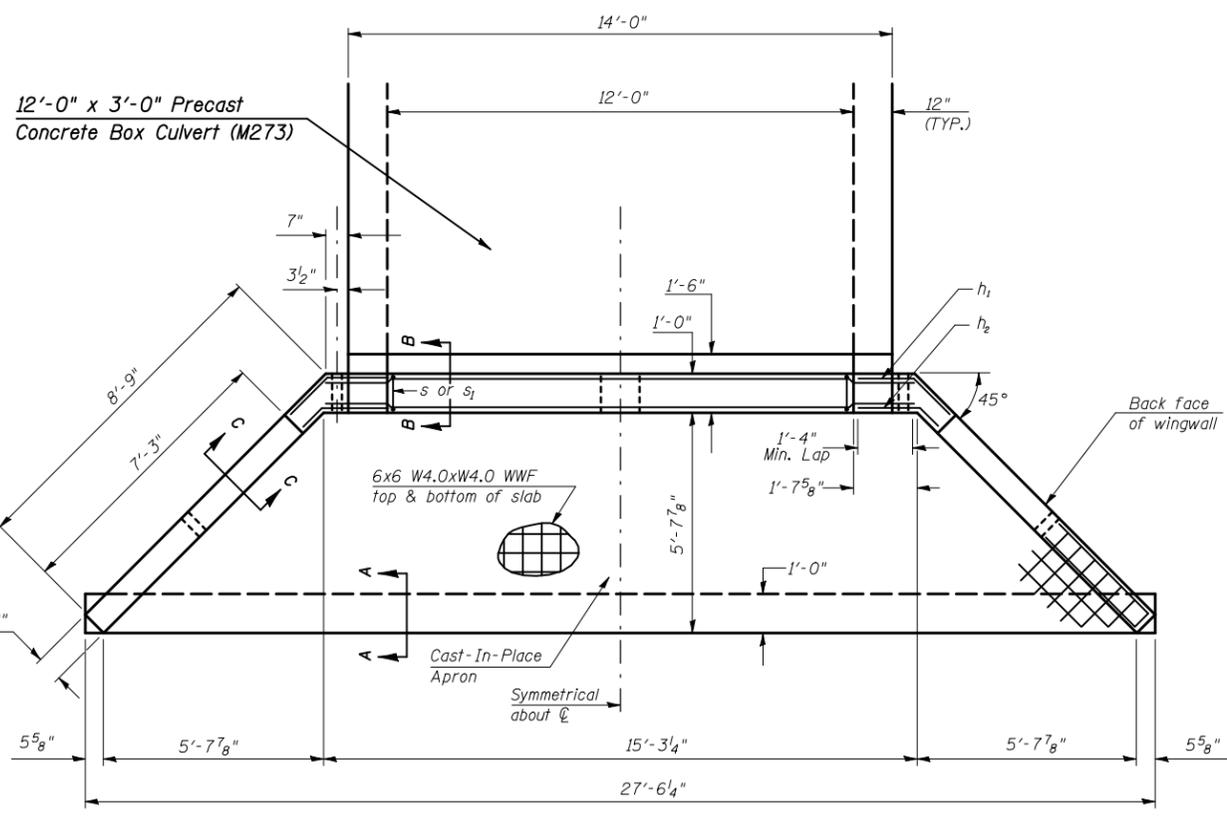
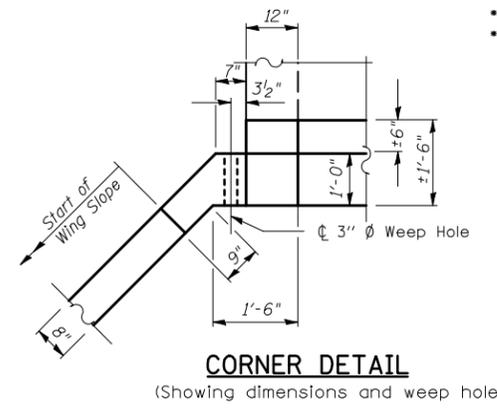
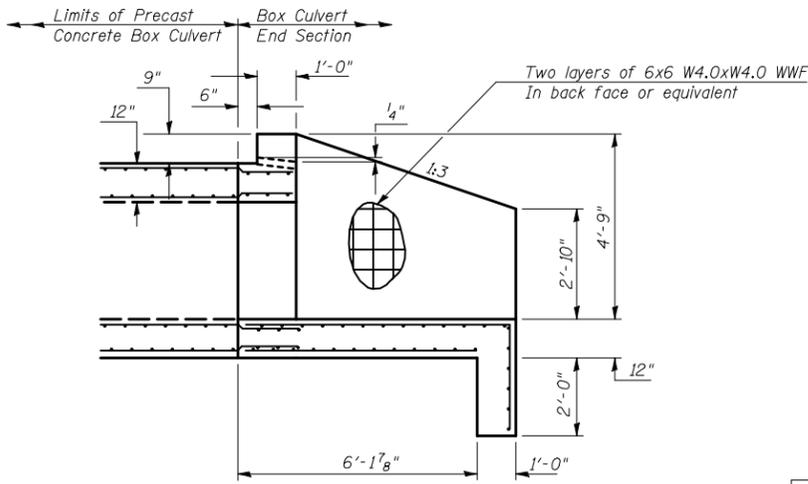
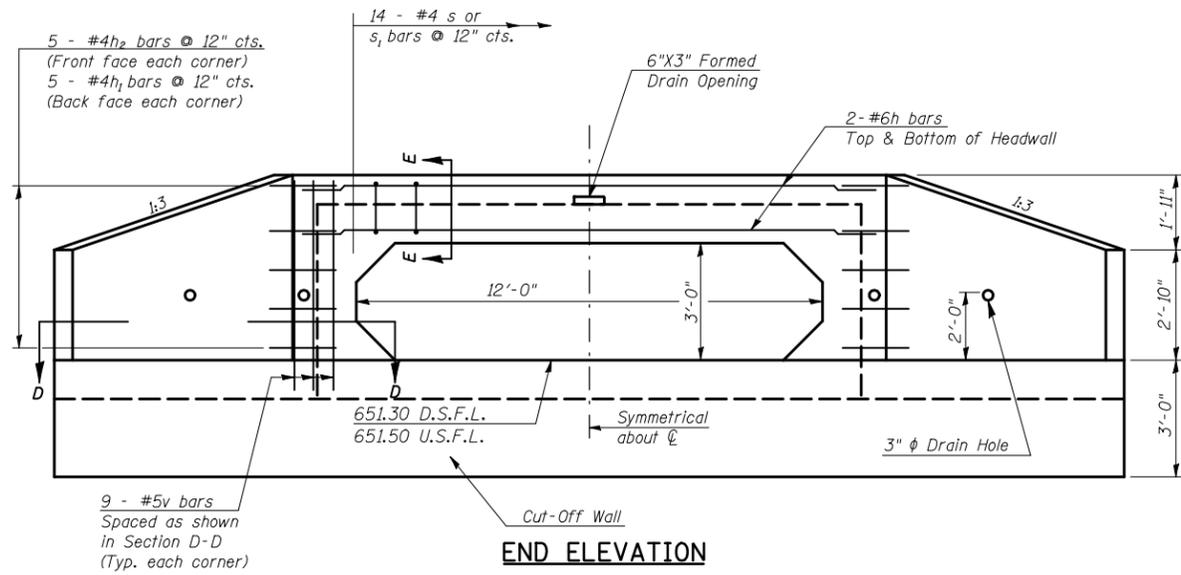
Item	Unit	Total
Pipe Culvert Removal	Foot	58
Concrete Headwall Removal	Each	2
Precast Concrete Box Culverts 12'x 3'	Foot	45
Box Culvert End Sections	Each	2
Name Plates	Each	1
Grating for Box Culvert	Each	2

SHEET 1 OF 6

GENERAL PLAN AND ELEVATION
SINGLE 12'x3' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 2025+00.00, S.N. 010-8144
CULVERT NO. 5

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	240

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS



BILL OF MATERIAL

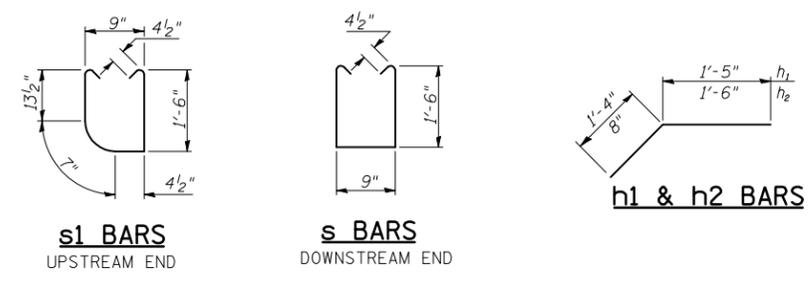
For Information Only
(One End Section)

Bar	No.	Size	Length	Shape
h	4	#6	15'-2"	—
h ₁	10	#4	2'-9"	—
h ₂	10	#4	2'-2"	—
s or s ₁	14	#4	4'-6"	□ □
v	18	#5	5'-6"	—
Item	Unit	Total		
Class SI Concrete	Cu. Yd.	10.6		
Reinforcement Bars	Pound	270.0		
Welded Wire Fabric	Sq. Ft.	628.0		

SHEET 2 OF 6

END SECTION DETAILS
SINGLE 12'x3' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 2025+00.00, S.N. 010-8144
CULVERT NO. 5

PLOT DATE = 8/12/2009
 FILE NAME = c:\pwworkspace\70623-ahc-culvert.dwg
 PLOT SCALE = 42,3529 / IN.
 USER NAME = ceerlockjd



F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	241
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

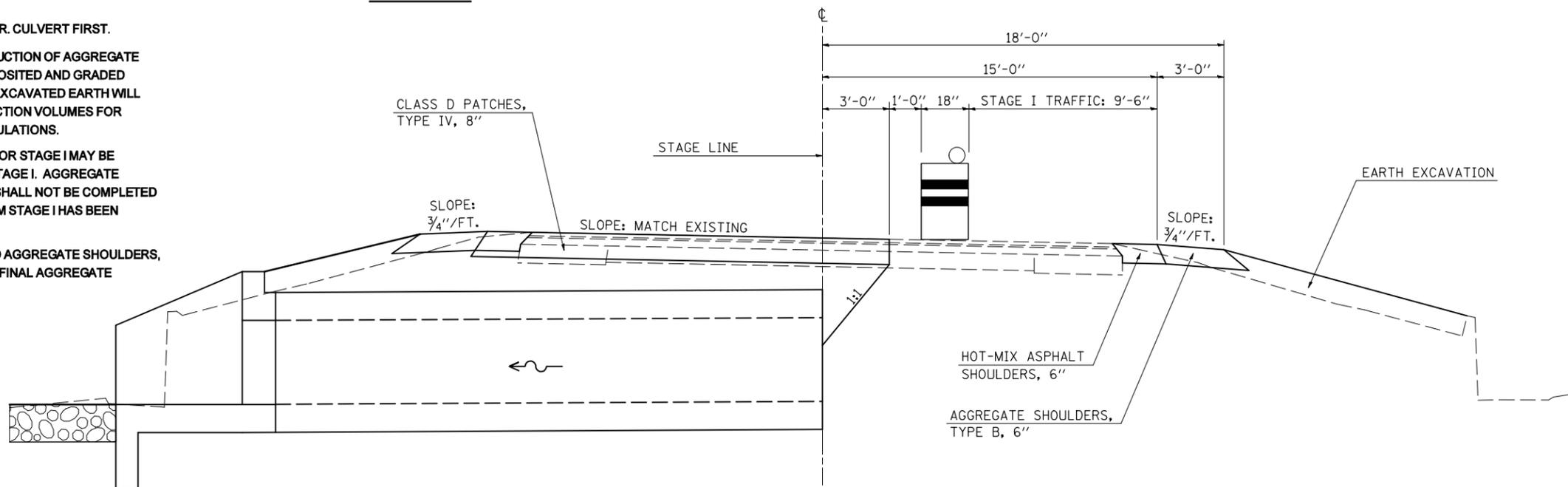
STAGING DETAIL, CULVERT NO. 5

STATION 2025 + 00.00, S.N. 010-8144

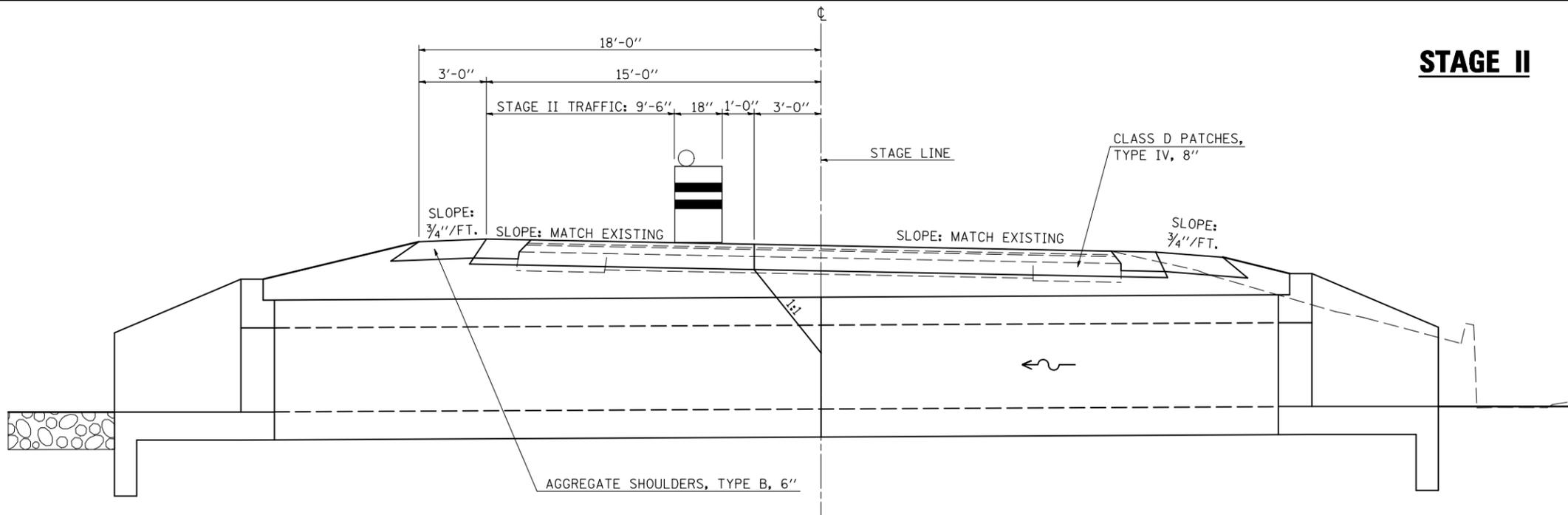
GENERAL NOTES

- REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL AND PROTECTION, STANDARD 701206 AND STAGE CONSTRUCTION ACROSS ROAD CULVERTS FOR ADDITIONAL INFORMATION.
- THE ENGINEER MAY REDUCE OR ELIMINATE LENGTHS OR LOCATIONS OF AGGREGATE, TYPE B, 6" AND EARTH EXCAVATION BASED ON FIELD CONDITIONS.
- CONSTRUCT DOWNSTREAM END OF A.R. CULVERT FIRST.
- EARTH EXCAVATED FOR THE CONSTRUCTION OF AGGREGATE SHOULDERS, TYPE B, 6" SHALL BE DEPOSITED AND GRADED TO SMOOTH THE FORESLOPES. THIS EXCAVATED EARTH WILL BE INCLUDED IN THE FINAL CROSS-SECTION VOLUMES FOR EARTHWORK BALANCE / WASTE CALCULATIONS.
- AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE I MAY BE COMPLETED AT ANY TIME PRIOR TO STAGE I. AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE II SHALL NOT BE COMPLETED UNTIL THE HALF-WIDTH CULVERT FROM STAGE I HAS BEEN CONSTRUCTED.
- REPLACE PREVIOUSLY CONSTRUCTED AGGREGATE SHOULDERS, TYPE B, 6" AS NEEDED WHEN PLACING FINAL AGGREGATE SHOULDERS, TYPE B.

STAGE I



STAGE II



SHEET 3 OF 6

A.R. CULVERT LOCATION	TRAFFIC CONTROL STANDARD	ESTIMATED TIME	CHANGEABLE MESSAGE SIGN
STA. 2025+00.00	701206	84 HRS / NON-STOP (4) - 12 HR DAY SHIFTS (3) - 12 HR NIGHT SHIFTS	2.0 EACH AT 4.0 CAL DAY = 8.0 CAL DAY

ILLINOIS DEPARTMENT OF TRANSPORTATION
STAGING DETAIL, CULVERT NO. 5
STATION 2025+00.00
S.N. 010-8144

SCALE: N/A
 DATE: 08/01/09

DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

PLOT DATE = 8/14/2009
 FILE NAME = G:\DWG\WORK\K\PIWIDOT\PERSONNEL\DO01445\70623-sht+staging.dgn
 USER NAME = pier_sombir

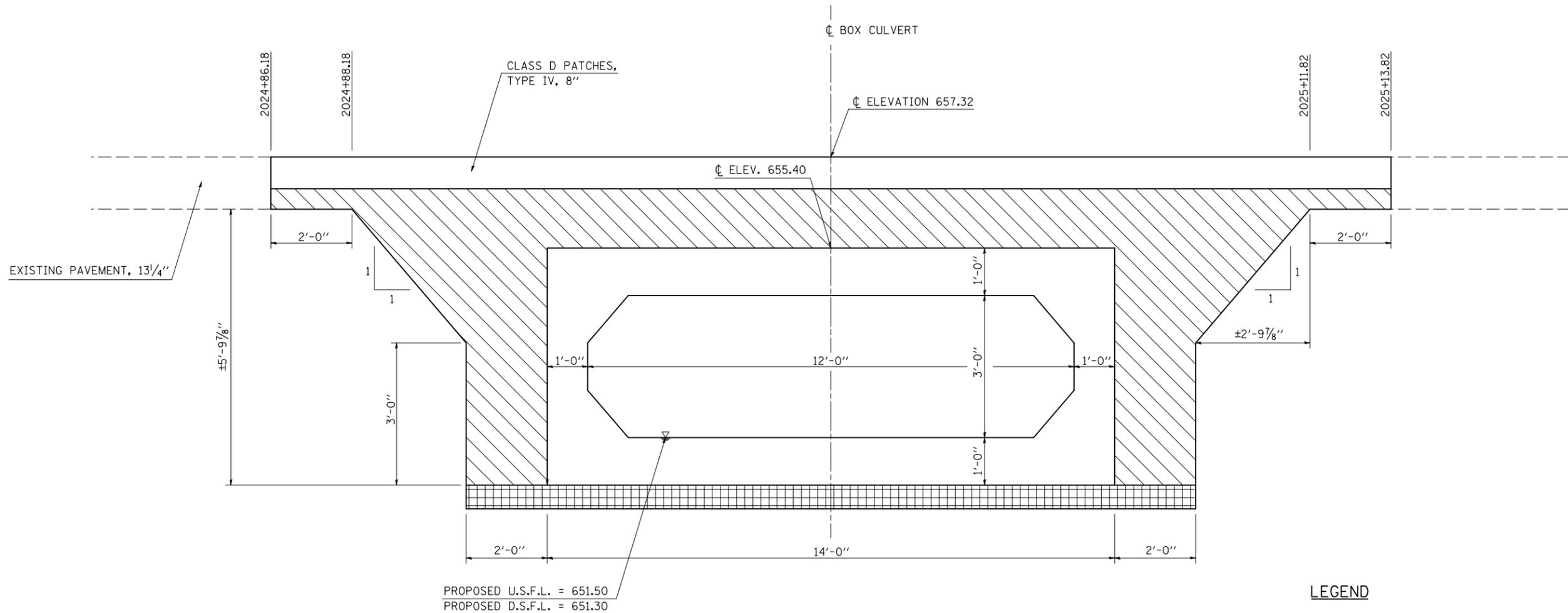
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	242
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

DETAIL OF POROUS GRANULAR EMBANKMENT PAY LIMITS

CULVERT NO. 5, STATION 2025 + 00.00

S.N. 010-8144



PROPOSED U.S.F.L. = 651.50
 PROPOSED D.S.F.L. = 651.30

LEGEND

- PAY LIMITS OF POROUS GRANULAR EMBANKMENT - CA-6
- POROUS GRANULAR MATERIAL - CA-7 (6") INCLUDED IN PAY ITEM FOR BOX CULVERT

DRAWING NOT TO SCALE

GENERAL NOTES

- 1) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 207 AND SECTION 540 OF THE STANDARD SPECIFICATIONS.
- 2) POROUS GRANULAR EMBANKMENT SHALL EXTEND 2 FT. BEYOND THE AGGREGATE SHOULDER.
- 3) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR EMBANKMENT.
- 4) THE AREA TO BE EXCAVATED FOR THE PROPOSED BOX CULVERT SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR STRUCTURE EXCAVATION. THE QUANTITY CALCULATED WILL BE THE AREA FOR THE PROPOSED STRUCTURE LESS THE AREA REQUIRED TO REMOVE THE EXISTING STRUCTURE. THE EXISTING STRUCTURE AREA IS CONSIDERED TO BE THE AREA CONTAINED BETWEEN THE BOTTOM OF THE PAVEMENT TO THE BOTTOM OF THE STRUCTURE TIMES THE OUTSIDE DIAMETER OF THE STRUCTURE.

SHEET 4 OF 6

ILLINOIS DEPARTMENT OF TRANSPORTATION
DETAIL OF POROUS GRANULAR EMBANKMENT
PAY LIMITS, STA. 2025+00.00
CULVERT NO. 5

SCALE: N/A
 DATE: 07/16/09

DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

PLOT DATE = 8/19/2009
 FILE NAME = G:\pwworkspace\pwworkspace\20250716\11\70623-sht-detailed.dgn
 PLOT DATE = 8/19/2009
 USER NAME = ceartock\jld

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	243

- (205,57,105)RS-2
- ** CHAMPAIGN & DOUGLAS

SOIL BORING LOGS



Illinois Department of Transportation
Division of Highways
IDOT - Region 5 Dist 5

SOIL BORING LOG

Page 1 of 1

Date 4/9/08

ROUTE FAP 808 (IL 130) DESCRIPTION IL Rt. 130 - 1350' North of 300N LOGGED BY RRW

SECTION (205,57,105) RS-2 LOCATION SW, SEC. 14, TWP. 17N, RNG. 9E, 3rd PM

COUNTY Champaign DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO.	Station	D E P T H	B L O S S	U L C S	M O I S T U R E	Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.:	First Encounter	Upon Completion	After	Hrs.
		(ft)	(6")	(pcf)	(%)							
	2025+00						651.6					
BORING NO. <u>8 Box Culvert</u>	Station <u>2024+95</u>											
	Offset <u>14.0 ft Rt.</u>											
	Ground Surface Elev. <u>657.6</u>											
Brown Sandy Clay Loam (Embankment)												
		2										
		2			21							
		-5										
	651.6											
Black Sandy Clay Loam												
		2		1.0	28							
		2		B								
		1										
	647.6	3			24							
		5										
End of Boring												
		-10										
		-15										
		-20										

4/14/2008 9:01:10 AM S:\SOILS\BORING LOGS\CHAMPAIGN CNTY\70623.GPJ

An assumed centerline elevation of 100.00 and station of 10+00 is used when this information is not available.
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 - Region 5 Dist 5

SOIL BORING LOG

Page 1 of 1

Date 4/9/08

ROUTE FAP 808 (IL 130) DESCRIPTION IL Rt. 130 - 1350' North of 300N LOGGED BY RRW

SECTION (205,57,105) RS-2 LOCATION SW, SEC. 14, TWP. 17N, RNG. 9E, 3rd PM

COUNTY Champaign DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO.	Station	D E P T H	B L O S S	U L C S	M O I S T U R E	Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.:	First Encounter	Upon Completion	After	Hrs.
		(ft)	(6")	(pcf)	(%)							
	2025+00						652.0					
BORING NO. <u>7 Box Culvert</u>	Station <u>2025+05</u>											
	Offset <u>14.0 ft Lt.</u>											
	Ground Surface Elev. <u>658.0</u>											
Brown Clay Loam (Embankment)												
		2										
	654.0											
Black/Gray Sandy Clay Loam												
		2	1.2	19								
		2		B								
		2			21							
		0										
	648.0	1	0.4	39								
		2		B								
End of Boring												
		-10										
		-15										
		-20										

4/14/2008 9:01:10 AM S:\SOILS\BORING LOGS\CHAMPAIGN CNTY\70623.GPJ

An assumed centerline elevation of 100.00 and station of 10+00 is used when this information is not available.
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)

SHEET 5 OF 6

ILLINOIS DEPARTMENT OF TRANSPORTATION
SOIL BORING LOGS
STATION 2025+00.00
CULVERT NO. 5

SCALE: N/A
DATE: 07/14/09
DRAWN BY: B.B.P.
CHECKED BY: G.A.E.

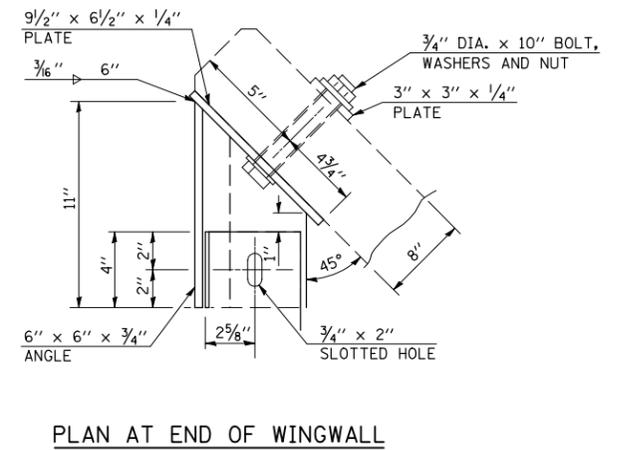
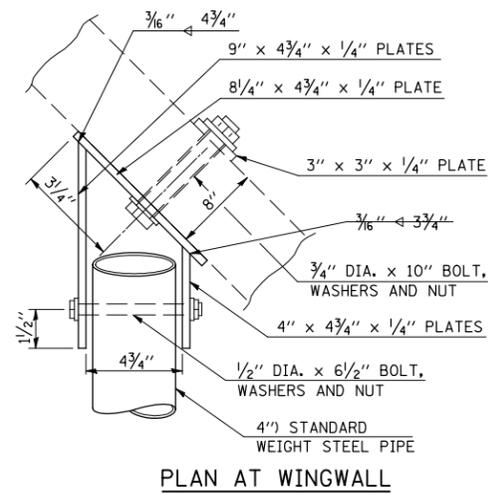
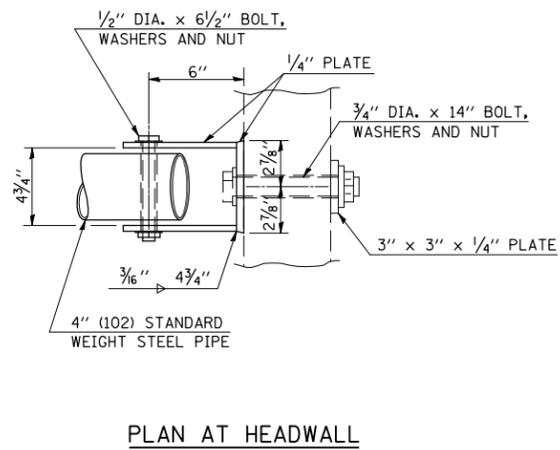
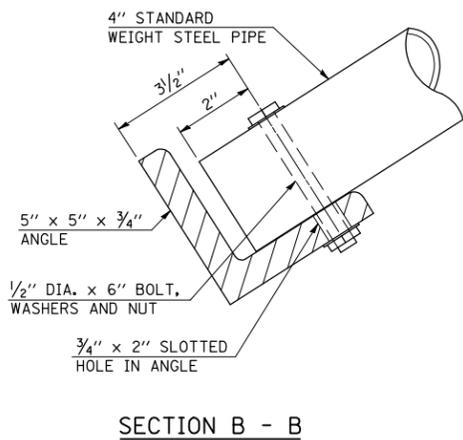
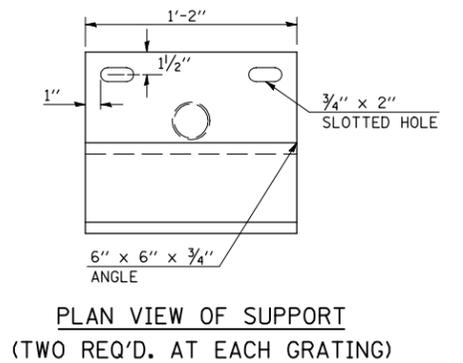
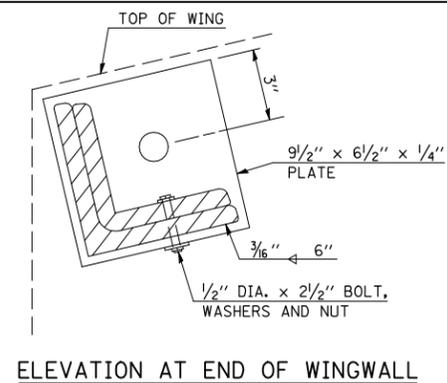
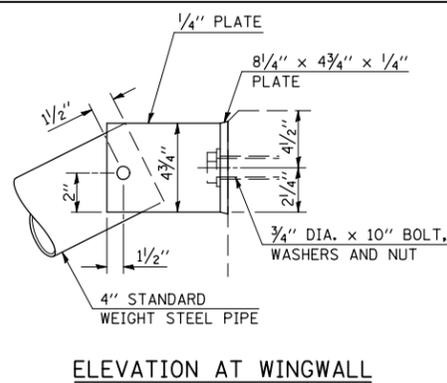
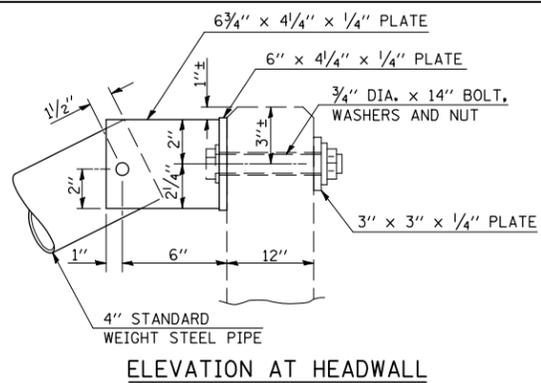
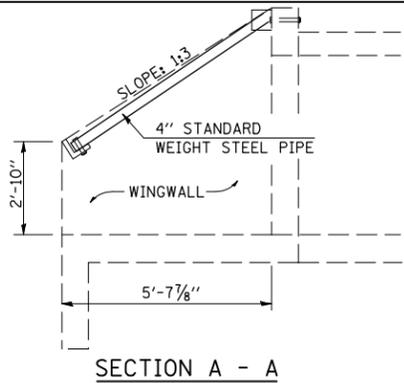
PLOT DATE = 8/12/2009
FILE NAME = c:\pnt\work\p1\idot\cearlock\id\80181445\70623-shr-blog1.dgn
PLOT SCALE = 4.23629 / IN.
USER NAME = ceerlock.jd

DETAIL OF GRATING FOR CONCRETE HEADWALL

CULVERT NO. 5, STATION 2025+00.00

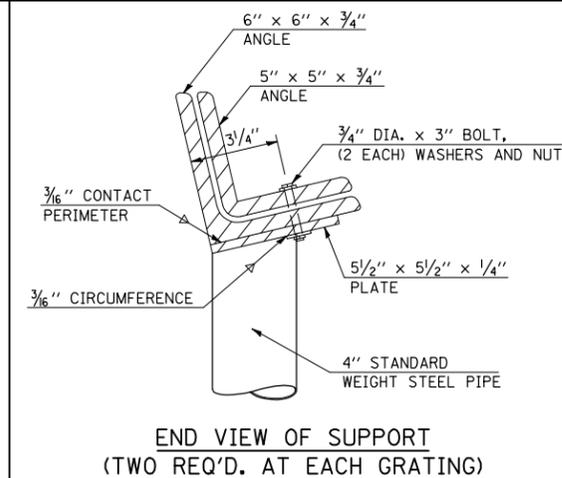
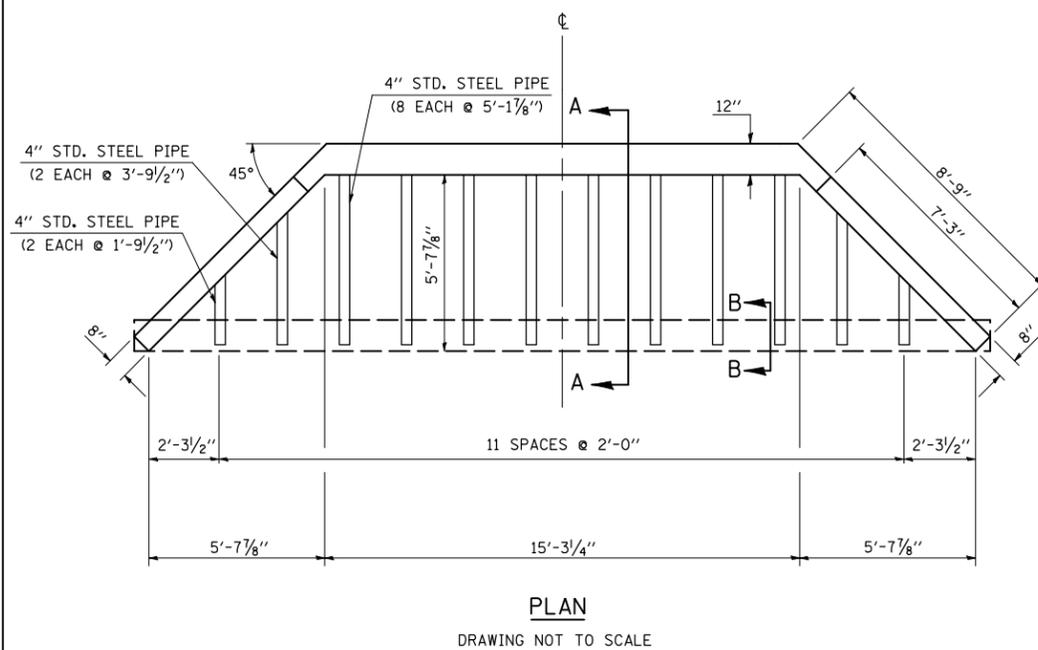
S.N. 010-8144

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	244
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
• (205,57,105)RS-2 ** CHAMPAIGN & DOUGLAS				

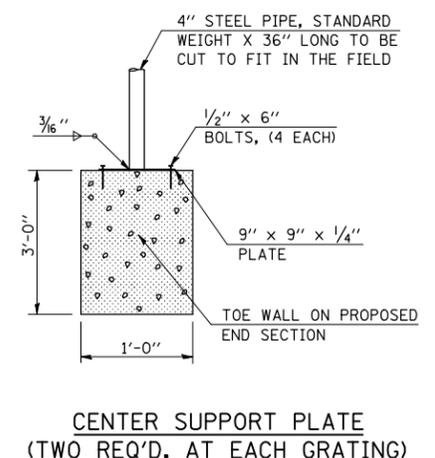


GENERAL NOTES

- BOLTS AND NUTS SHALL CONFORM TO A.S.T.M. A 307. ALL BOLTS SHALL HAVE WASHERS AT EACH END. HOLES SHALL BE 1/16" OVERSIZED UNLESS OTHERWISE NOTED EXCEPT IN CONCRETE WHICH SHALL BE 1/8" OVERSIZED.
- ANGLES AND STEEL PLATES SHALL CONFORM TO A.A.S.H.T.O. M 183. STEEL PIPES SHALL CONFORM TO A.S.T.M. A 53, GRADE B OR A.S.T.M. A 501.
- STEEL PIPES, ANGLES AND PLATES SHALL BE HOT DIPPED GALVANIZED CONFORMING TO THE REQUIREMENTS OF A.A.S.H.T.O. M 111.
- BOLTS, NUTS AND WASHERS SHALL BE HOT DIPPED GALVANIZED CONFORMING TO THE REQUIREMENTS OF A.A.S.H.T.O. M 232.
- THE APPROXIMATE WEIGHT OF THE STEEL IS 1494 POUNDS. THIS TOTAL INCLUDES PLATES, ANGLES AND PIPES. BOLTS, NUTS AND WASHERS ARE NOT INCLUDED.
- ALL DIMENSIONS ARE TO BE VERIFIED IN THE FIELD. CUTTING OF THE STANDARD WEIGHT PIPE AND ANGLES TO THE EXACT LENGTH AND DRILLING HOLES IS TO BE DONE IN THE FIELD.
- THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH FOR "GRATING FOR BOX CULVERT" WHICH PRICE SHALL INCLUDE ALL MATERIAL AND LABOR TO COMPLETE THE INSTALLATION AS SHOWN.



W.W. SPAN (TIP-TIP)	NUMBER REQUIRED	SPACING
0' TO 12'-6"	0	-
12'-6" TO 18'-0"	1	CENTER OF W.W. SPAN
OVER 18'-0"	(1 CENTER SUPPORT EVERY ADDITIONAL 6'-0" OF W.W. SPAN)	



SHEET 6 OF 6

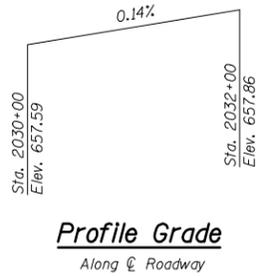
ILLINOIS DEPARTMENT OF TRANSPORTATION
GRATING FOR CONCRETE HEADWALLS
STATION 2025+00.00
CULVERT NO. 5

SCALE: N/A
DATE: 07/23/09
DRAWN BY: BBP/MLB
CHECKED BY: G.A.E.

PLOT DATE = 8/12/2009
 FILE NAME = C:\pwwork\pwwork\VPWIDOT\CEARLOCK\JD\0101445\70623-sht-grating-det-alls.dgn
 PLOT SCALE = 42.3523 / IN.
 USER NAME = ceurlockj

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	245

EXISTING STRUCTURE: The existing structure is a 2 1/2' x 2 1/2' R.C. Box Culvert that was built in 1938 as Route 15 Section 94A-MFT at Sta. 30+85. The existing structure is to be completely removed and replaced. Stage Construction will be utilized.



Profile Grade
Along ϕ Roadway

STATION 2030+82.00
BUILT 20__ BY
STATE OF ILLINOIS
F.A.P. RT. 808 SEC. (205,57,105)RS-2
LOADING HS 20
STRUCTURE NO. 010-8143

NAME PLATE
See Std. 515001

INDEX OF SHEETS

1. General Plan and Elevation
- 2,3 Box Culvert End Section Details
4. Staging Details
5. Porous Granular Detail
6. Undercutting Detail
7. Soil Boring Logs
8. Existing Structure Information
9. Grating Detail

DESIGN SPECIFICATIONS
2002 AASHTO

LOADING HS20-44

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

DESIGN STRESSES

FIELD UNITS

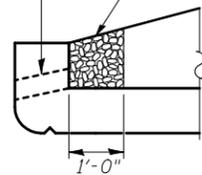
$f'_c = 3,500$ psi
 $f_y = 60,000$ psi (reinforcement)
 $f_y = 65,000$ psi (welded wire fabric)

PRECAST UNITS

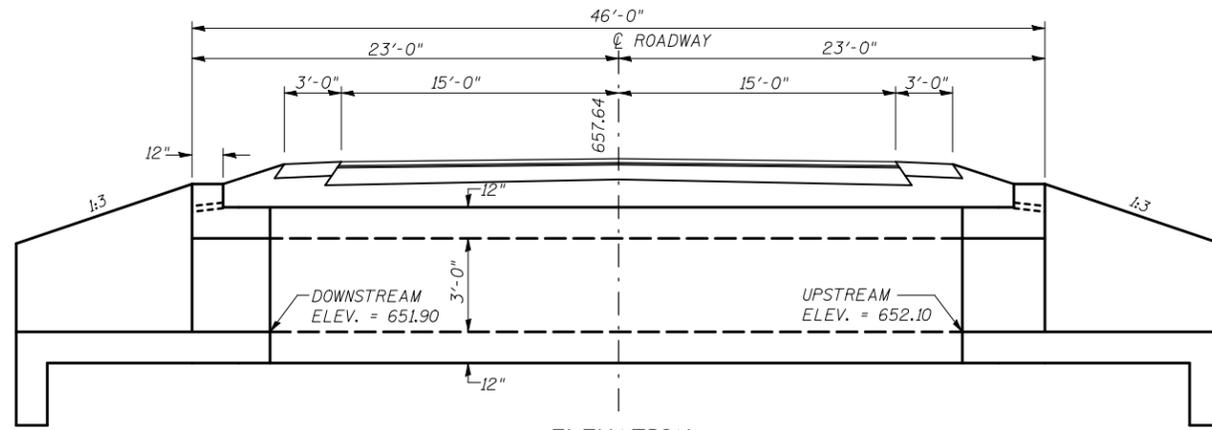
$f'_c = 5,000$ psi
 $f_y = 65,000$ psi (welded wire fabric)

Coarse aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Concrete Box Culverts.

6" x 3" Formed Opening

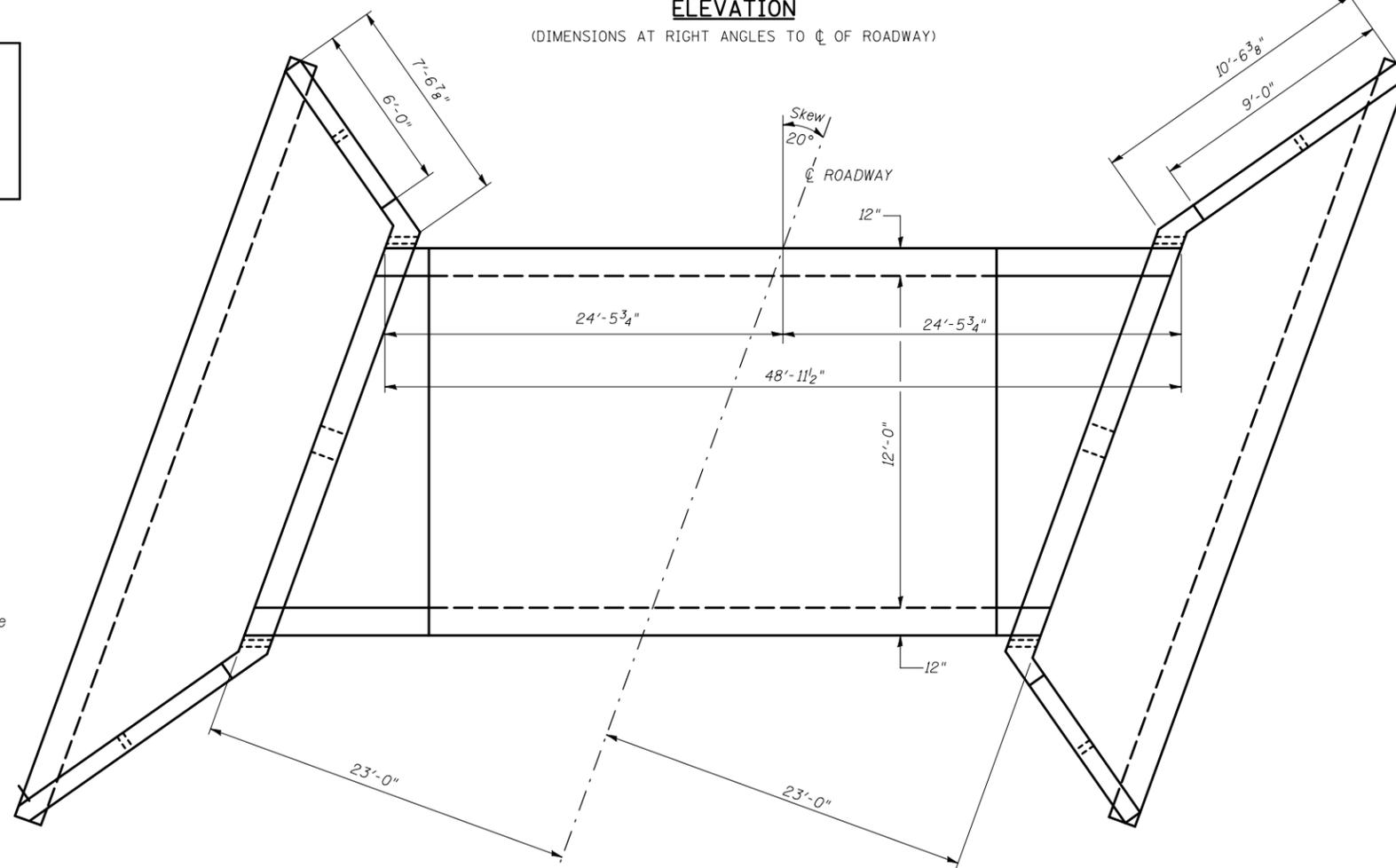


DRAIN DETAIL



ELEVATION

(DIMENSIONS AT RIGHT ANGLES TO ϕ OF ROADWAY)



PLAN

WATERWAY INFORMATION

Drainage Area = 0.379 sq. mi. Low Grade Elev. 657.46 @ Sta. 2030+82

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
	10	119	6.25	36			Over	654.62	
Design	50	197	6.25	36			Over	655.47	
Base	100	233	6.25	36			Over	655.87	
Overtopping									
Max. Calc.	500	321	6.25	36			Over	656.88	

Note: Information provided using the USGS Regression Method.

General Notes

Build tops of headwalls parallel to the grade lines.

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

All construction joints shall be bonded according to Article 503.09 of the Standard Specifications.

Reinforcement bars shall conform to the requirements of ASTM A706 Gr. (IL Modified). See Special Provisions.

All bars should be rounded and conform to the requirements of Article 1006.10 of the Standard Specifications.

When lapping sheets of welded wire fabric, the overlap measured between the outermost cross wires of each fabric sheet shall not be less than 8"

End Sections will be paid for at the contract unit price per each for BOX CULVERT END SECTIONS, as outlined in Section 540 of the Standard Specifications.

Class SI Concrete shall be used throughout.

Concrete, Rebar, and Welded Wire Fabric quantities and lengths calculated for the cast-in-place End Sections may vary based on the precast box culverts supplied.

Drain holes shall be provided in accordance with Article 503.11 of the Standard Specifications.

The precast manufacturer shall design and detail a connection/construction joint between the precast concrete box sections and the cast-in-place apron and wingwall. The minimum area of reinforcement passing through these construction joints shall be 0.20 sq. in./lineal ft. of welded wire fabric. The design shall be detailed in the shop drawings. The cost of the connection is included in the cost of the end section.

The box culvert end section shall be built in the field and a precast option is not allowed except the cut-off wall may be precast. If the contractor elects to use a precast cut-off wall, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval.

The ends of the precast box sections adjacent to the end section shall be formed without the male and female shapes specified in Article 8.1 of AASHTO M273. See Section D-D on Sheet 2 and 3.

The design fill height for this box is less than 2 feet. The Precast Concrete Box Culvert Sections shall conform to the requirements of AASHTO M 273.

The joints between precast box sections shall be sealed, all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the backfilling process.

All dimensions are in FEET (') - INCHES (") unless otherwise noted.

Drawings not to scale.

TOTAL BILL OF MATERIAL

Item	Unit	Total
Removal of Existing Structures	Each	1
Precast Concrete Box Culverts 12'x3'	Foot	43
Box Culvert End Sections	Each	2
Name Plates	Each	1
Grating for Box Culverts	Each	2

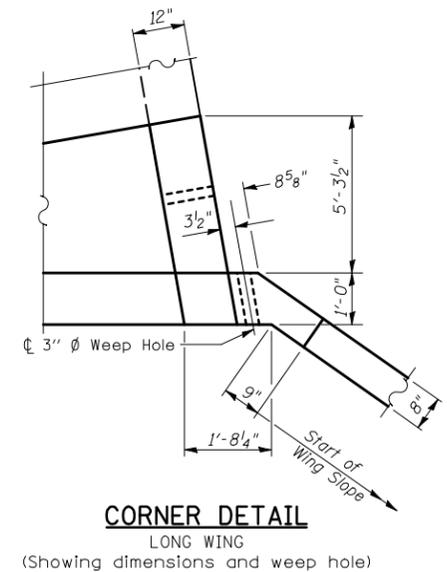
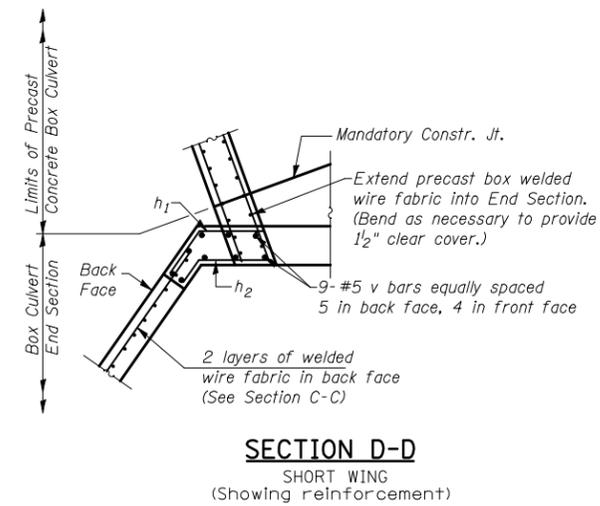
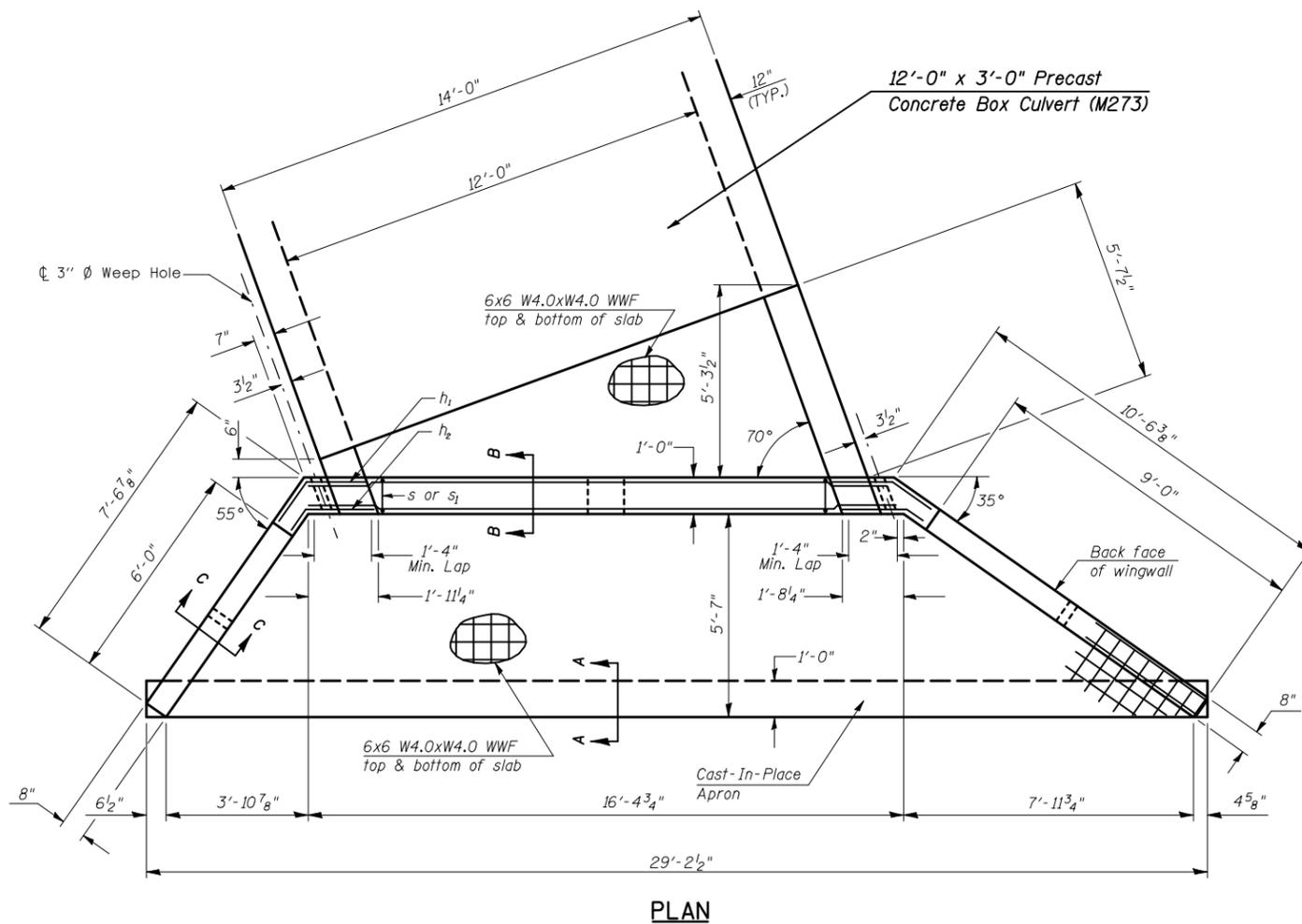
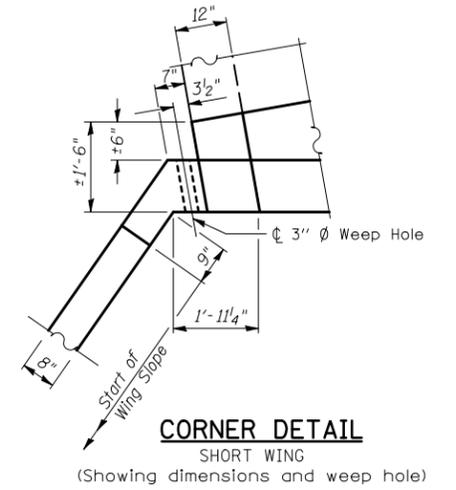
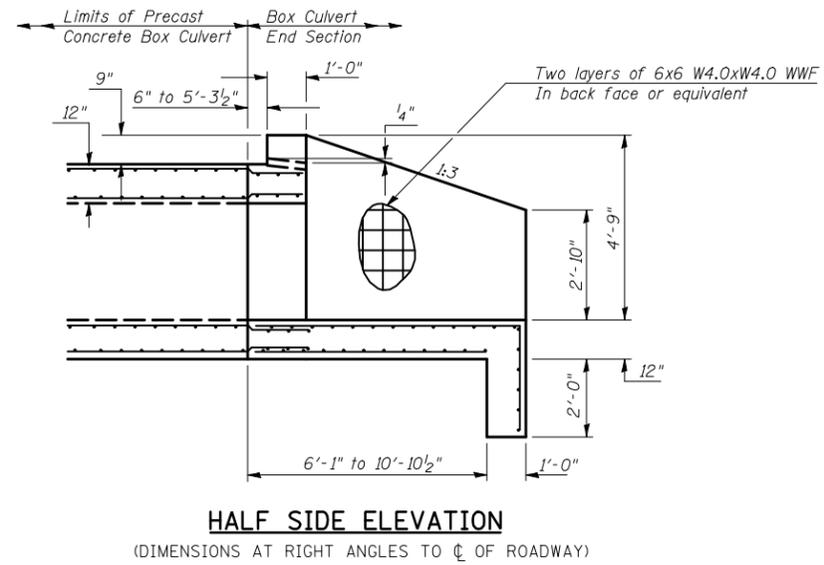
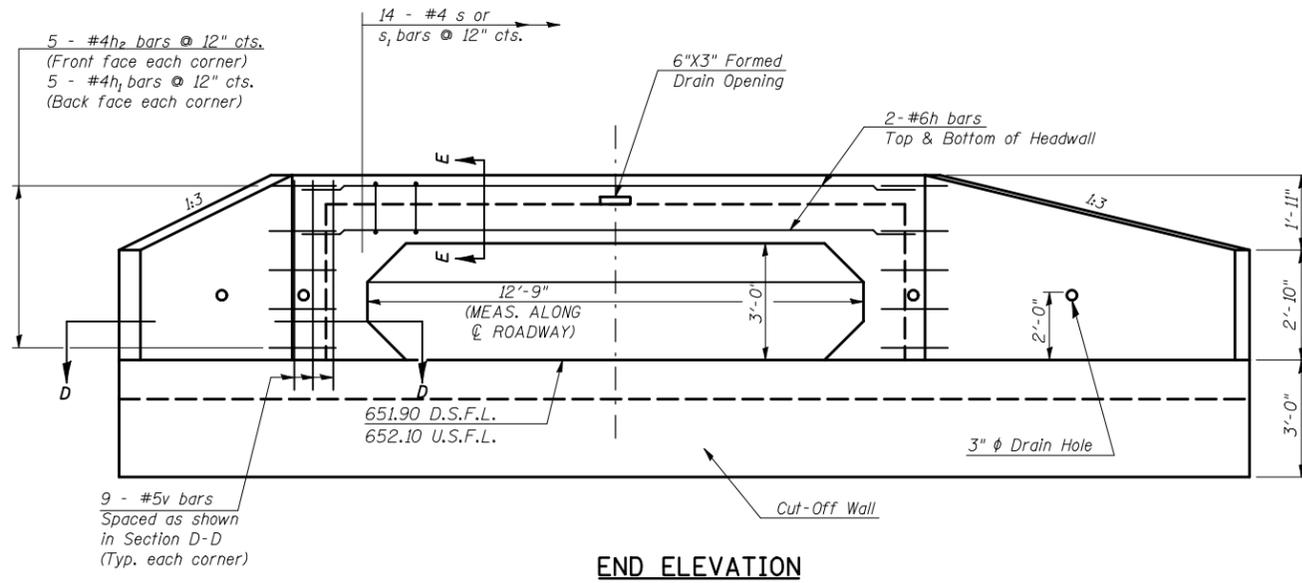
SHEET 1 OF 9

GENERAL PLAN AND ELEVATION
SINGLE 12'x3' PRECAST BOX CULVERT

AT SKEW = 20° RT. FWD.
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 2030+82.00, S.N. 010-8143
CULVERT NO. 6

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	246

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

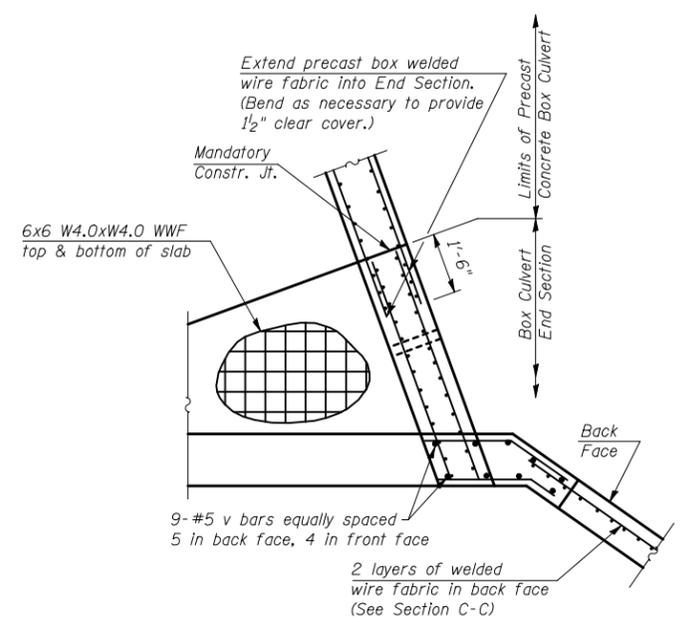


SHEET 2 OF 9

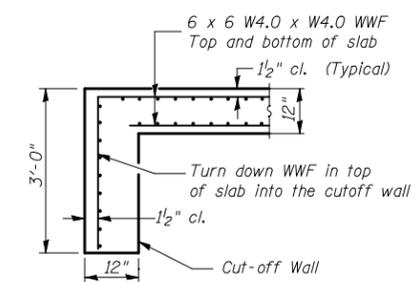
END SECTION DETAILS
SINGLE 12'x3' PRECAST BOX CULVERT
AT SKEW = 20° RT. FWD.
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 2030+82.00, S.N. 010-8143
CULVERT NO. 6

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	247

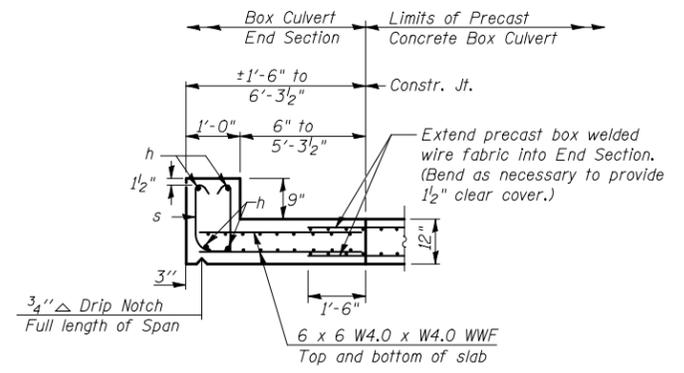
(205,57,105)RS-2
 ** CHAMPAIGN & DOUGLAS



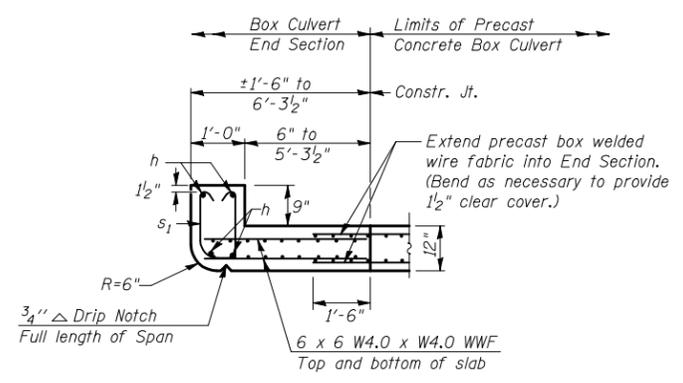
SECTION D-D
 LONG WING
 (Showing reinforcement)



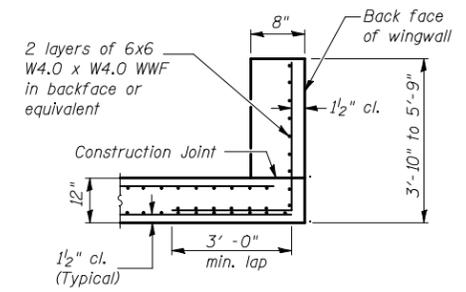
SECTION A-A
 DOWNSTREAM END



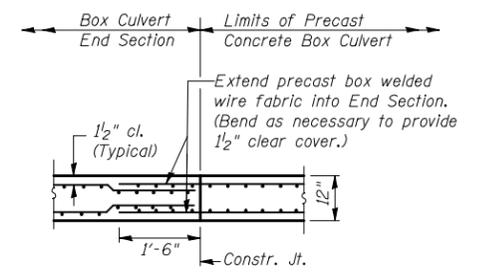
SECTION E-E
 TOP SLAB / HEADWALL DOWNSTREAM END
 (DIMENSIONS AT RIGHT ANGLES TO CL ROADWAY)



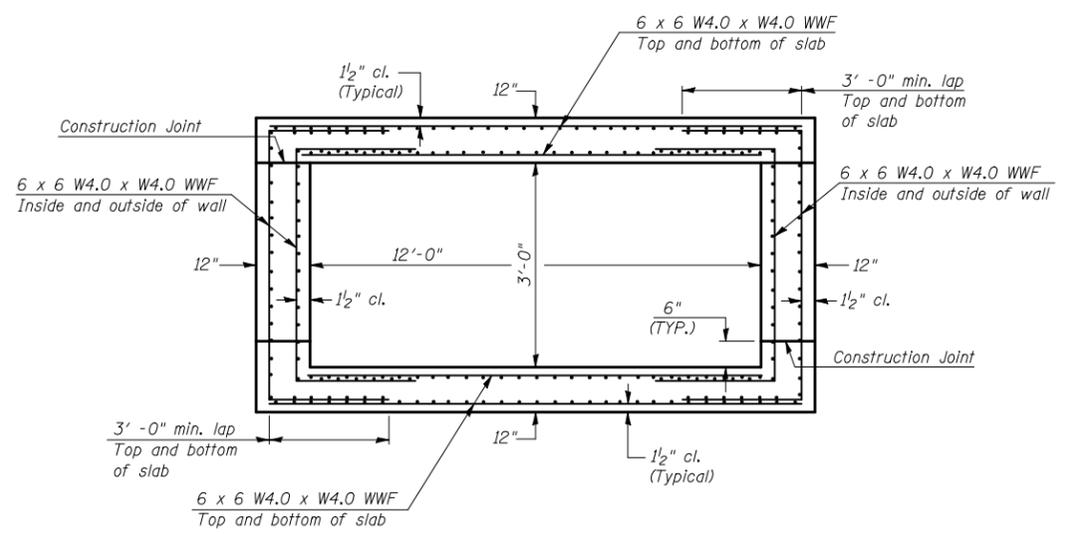
SECTION E-E
 TOP SLAB / HEADWALL UPSTREAM END
 (DIMENSIONS AT RIGHT ANGLES TO CL ROADWAY)



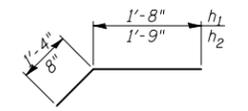
SECTION C-C
 WINGWALLS



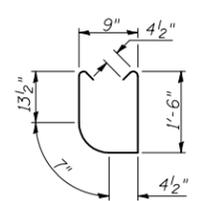
SECTION B-B
 BOTTOM SLAB



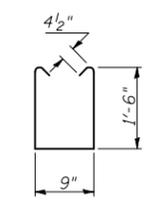
CAST-IN-PLACE SECTION OF BOX CULVERT TO BE BUILT IN FIELD



h1 & h2 BARS



s1 BARS
 UPSTREAM END



s BARS
 DOWNSTREAM END

BILL OF MATERIAL

For Information Only
 (One End Section)

Bar	No.	Size	Length	Shape
h	4	#6	16'-5"	—
h ₁	10	#4	3'-0"	—
h ₂	10	#4	2'-5"	—
s or s ₁	14	#4	4'-6"	⌈ ⌋
v	18	#5	5'-6"	—
Item			Unit	Total
Class SI Concrete			Cu. Yd.	13.4
Reinforcement Bars			Pound	281.0
Welded Wire Fabric			Sq. Ft.	167.0

SHEET 3 OF 9

END SECTION DETAILS
SINGLE 12'x3' PRECAST BOX CULVERT

AT SKEW = 20° RT. FWD.
 F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
 CHAMPAIGN COUNTY
 STATION 2030+82.00, S.N. 010-8143
 CULVERT NO. 6

PLOT DATE = 8/12/2009
 FILE NAME = c:\pwworkspace\70623-8ht-culvert.dwg
 PLOT SCALE = 4:23525 / IN.
 USER NAME = ceerlock_jd

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	248
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

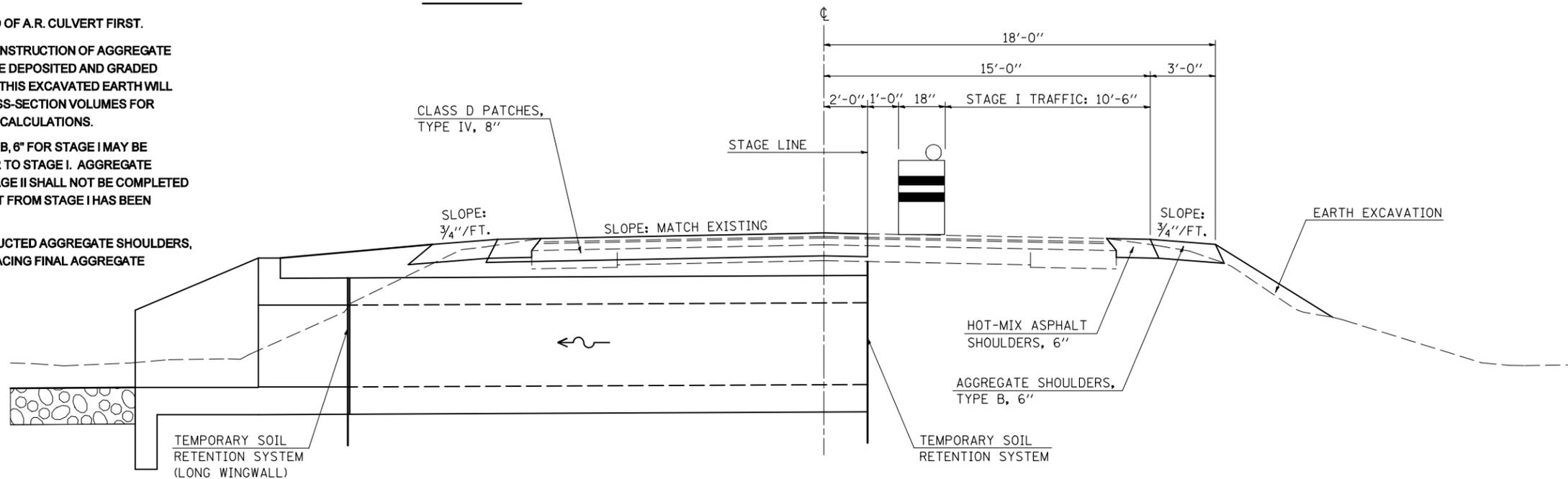
- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

GENERAL NOTES

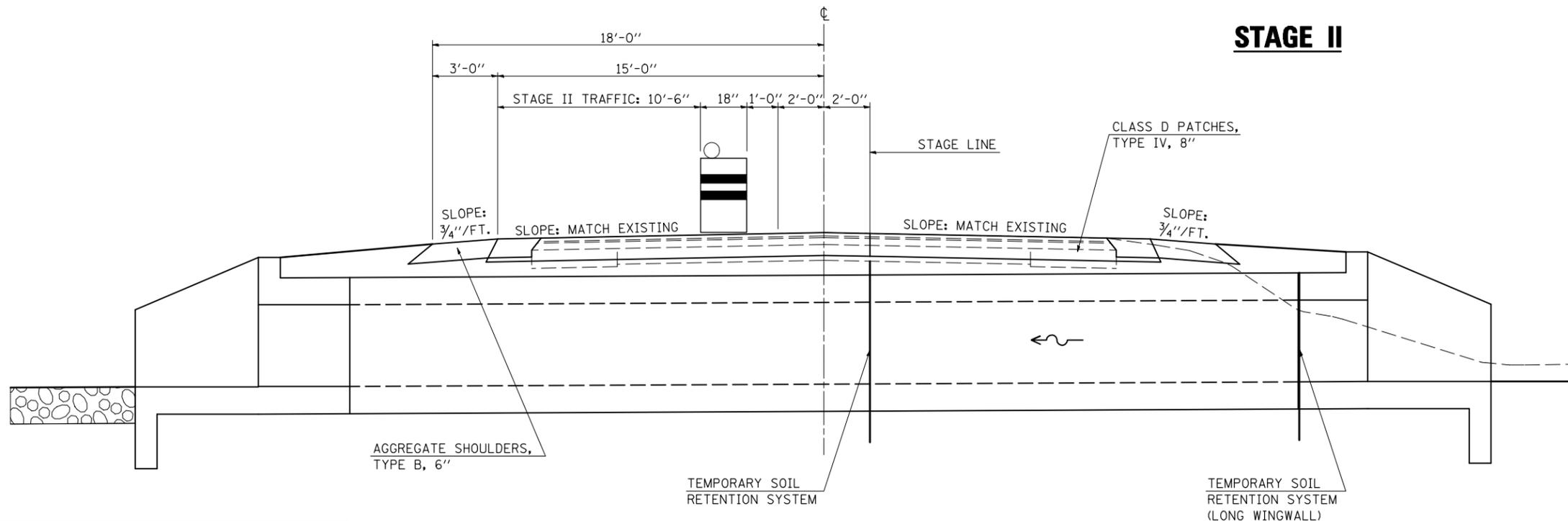
- REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL AND PROTECTION, STANDARD 701206 AND STAGE CONSTRUCTION ACROSS ROAD CULVERTS FOR ADDITIONAL INFORMATION.
- THE ENGINEER MAY REDUCE OR ELIMINATE LENGTHS OR LOCATIONS OF AGGREGATE, TYPE B, 6" AND EARTH EXCAVATION BASED ON FIELD CONDITIONS.
- CONSTRUCT DOWNSTREAM END OF A.R. CULVERT FIRST.
- EARTH EXCAVATED FOR THE CONSTRUCTION OF AGGREGATE SHOULDERS, TYPE B, 6" SHALL BE DEPOSITED AND GRADED TO SMOOTH THE FORESLOPES. THIS EXCAVATED EARTH WILL BE INCLUDED IN THE FINAL CROSS-SECTION VOLUMES FOR EARTHWORK BALANCE / WASTE CALCULATIONS.
- AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE I MAY BE COMPLETED AT ANY TIME PRIOR TO STAGE I. AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE II SHALL NOT BE COMPLETED UNTIL THE HALF-WIDTH CULVERT FROM STAGE I HAS BEEN CONSTRUCTED.
- REPLACE PREVIOUSLY CONSTRUCTED AGGREGATE SHOULDERS, TYPE B, 6" AS NEEDED WHEN PLACING FINAL AGGREGATE SHOULDERS, TYPE B.

STAGING DETAIL, CULVERT NO. 6
STATION 2030 + 82.00, S.N. 010-8143

STAGE I



STAGE II



PLOT DATE = 8/14/2009
 FILE NAME = G:\DWG\WORK\PIWIDOT\PERSONNEL\DO01445\70623-sht-staging.dgn
 USER NAME = pier_sombir

A.R. CULVERT LOCATION	TRAFFIC CONTROL STANDARD	ESTIMATED TIME	CHANGEABLE MESSAGE SIGN
STA. 2030+82.00	701206	84 HRS / NON-STOP (4) - 12 HR DAY SHIFTS (3) - 12 HR NIGHT SHIFTS	2.0 EACH AT 4.0 CAL DAY = 8.0 CAL DAY

SHEET 4 OF 9

ILLINOIS DEPARTMENT OF TRANSPORTATION
STAGING DETAIL, CULVERT NO. 6
STA. 2030+82.00
S.N. 010-8143

SCALE: N/A
DATE: 08/01/09

DRAWN BY: B.B.P.
CHECKED BY: G.A.E.

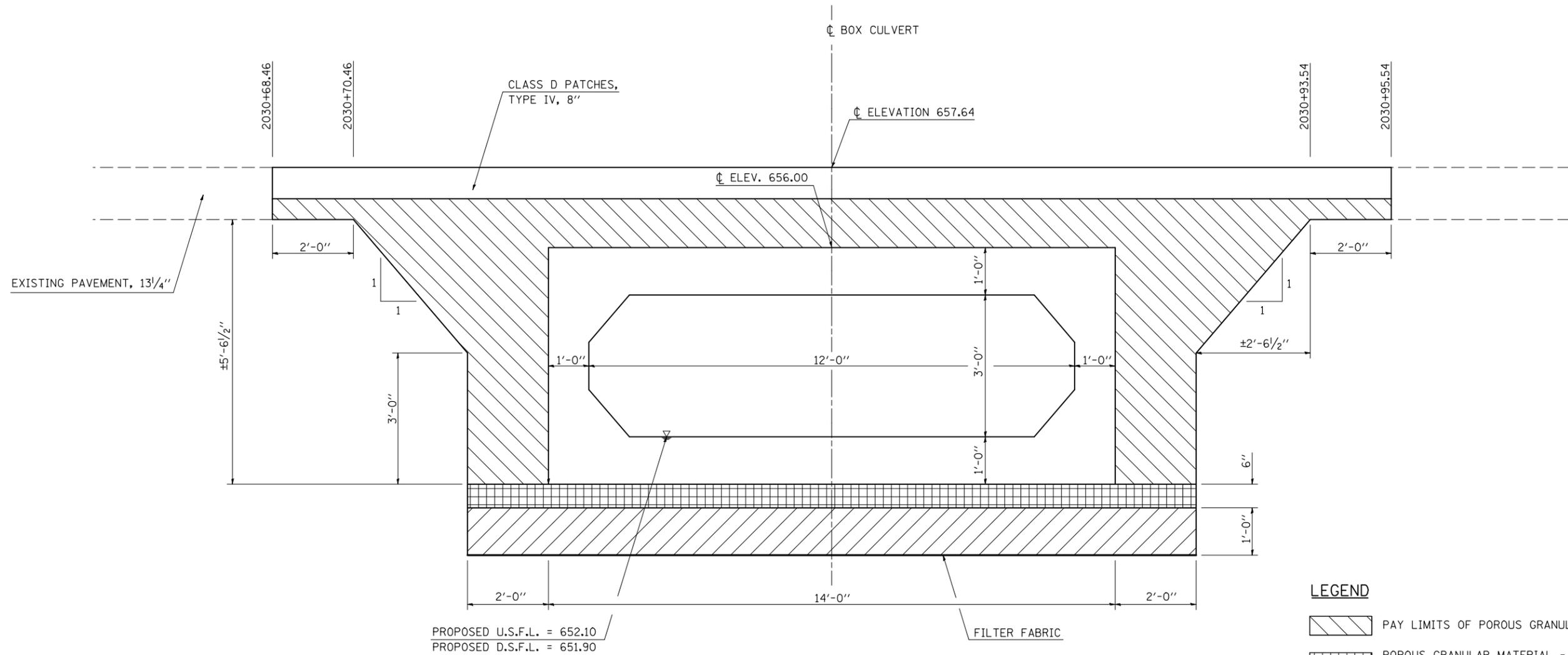
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	249
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

DETAIL OF POROUS GRANULAR EMBANKMENT PAY LIMITS

CULVERT NO. 6, STATION 2030 + 82.00

S.N. 010-8143



PROPOSED U.S.F.L. = 652.10
 PROPOSED D.S.F.L. = 651.90

LEGEND

- PAY LIMITS OF POROUS GRANULAR EMBANKMENT - CA-6
- POROUS GRANULAR MATERIAL - CA-7 (6") INCLUDED IN PAY ITEM FOR BOX CULVERT
- STONE RIPRAP, CLASS A-1 (12") (SEE SHEET 6 FOR DETAIL)

DRAWING NOT TO SCALE

GENERAL NOTES

- 1) CULVERT NO. 6 SHALL BE CONSTRUCTED ON A 20 DEGREE SKEW RIGHT. THE DIMENSIONS SHOWN IN THIS DETAIL ARE PERPENDICULAR TO THE CENTERLINE OF THE BOX CULVERT. THE STATIONS ALONG THE CENTERLINE OF ROUTE 130 WILL VARY.
- 2) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 207 AND SECTION 540 OF THE STANDARD SPECIFICATIONS.
- 3) POROUS GRANULAR EMBANKMENT SHALL EXTEND 2 FT. BEYOND THE AGGREGATE SHOULDER.
- 4) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR EMBANKMENT.
- 5) THE AREA TO BE EXCAVATED FOR THE PROPOSED BOX CULVERT SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR STRUCTURE EXCAVATION. THE QUANTITY CALCULATED WILL BE THE AREA FOR THE PROPOSED STRUCTURE LESS THE AREA REQUIRED TO REMOVE THE EXISTING STRUCTURE. THE EXISTING STRUCTURE AREA IS CONSIDERED TO BE THE AREA CONTAINED BETWEEN THE BOTTOM OF THE PAVEMENT TO THE BOTTOM OF THE STRUCTURE TIMES THE OUTSIDE DIAMETER OF THE STRUCTURE.

SHEET 5 OF 9

ILLINOIS DEPARTMENT OF TRANSPORTATION
DETAIL OF POROUS GRANULAR EMBANKMENT
PAY LIMITS, STA. 2030+82.00
CULVERT NO. 6

SCALE: N/A
 DATE: 07/16/09

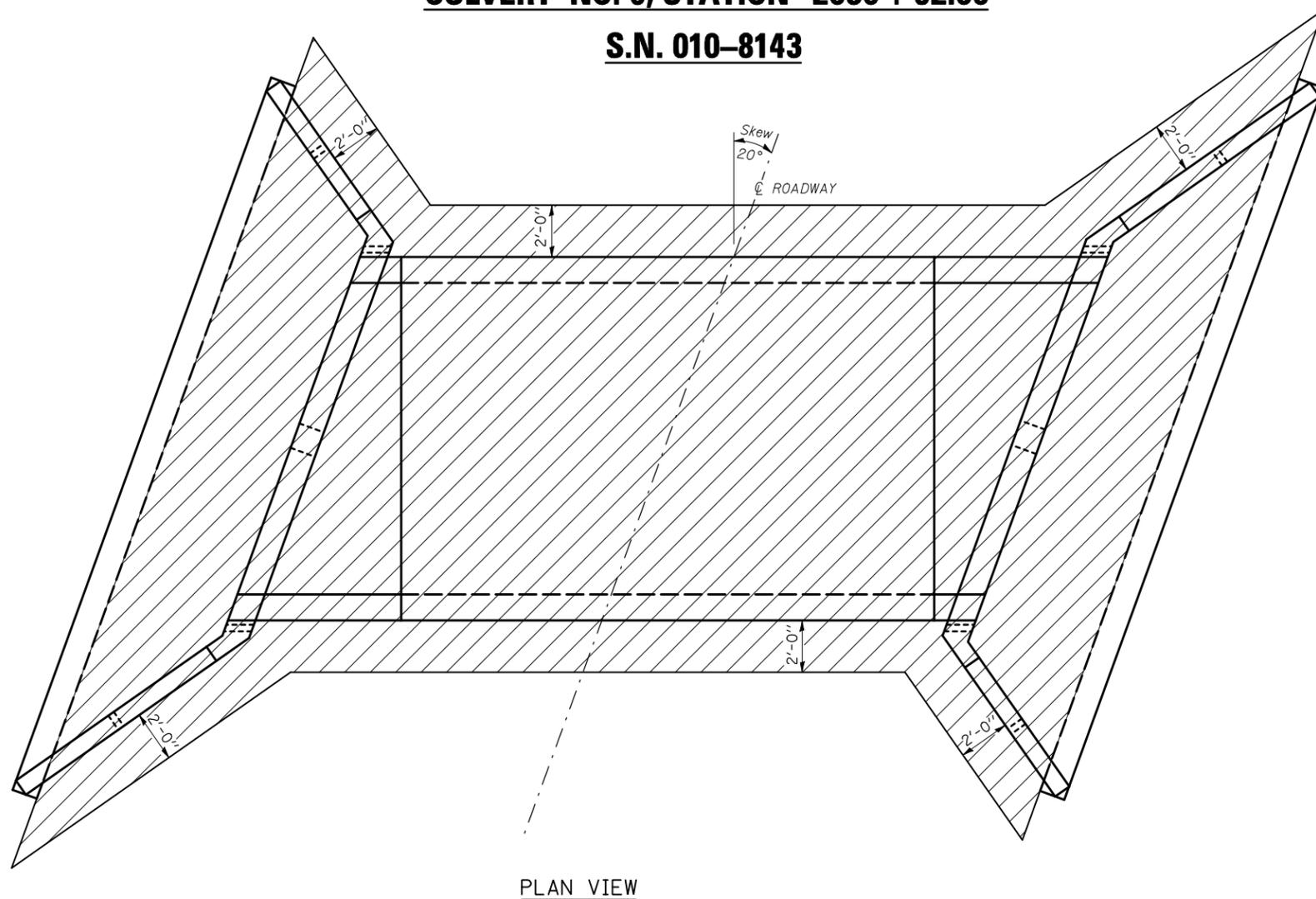
DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

PLOT DATE = 8/19/2009
 FILE NAME = G:\pwworkspace\pwworkspace\10623-sht-detailed.dgn
 PLOT DATE = 8/23/09
 USER NAME = ceartocskj

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	250
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- ** CHAMPAIGN & DOUGLAS

BOX CULVERT UNDERCUTTING DETAIL
CULVERT NO. 6, STATION 2030+82.00
S.N. 010-8143



LEGEND

STONE RIPRAP, CLASS A-1 (12")

* SEE SHEET 1 & 2 FOR OVERALL DIMENSIONS

DRAWING NOT TO SCALE

PAY ITEM	DESCRIPTION	QUANTITY
28100201	STONE RIPRAP, CLASS A1	90.00 TON
28200200	FILTER FABRIC	137.00 SQ YD

GENERAL NOTES

- 1) STONE RIPRAP, CLASS A-1 SHALL BE USED WHERE A.R. CULVERTS ARE REQUIRED TO BE UNDERCUT DUE TO UNSTABLE SOIL CONDITIONS.
- 2) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 281 AND SECTION 282 OF THE STANDARD SPECIFICATIONS.
- 3) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER TON FOR STONE RIPRAP, CLASS A-1 AND PER SQUARE YARD FOR FILTER FABRIC.
- 4) THE EXCAVATION AND REMOVAL OF THE UNSUITABLE MATERIAL WILL NOT BE PAID FOR SEPERATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE PAY ITEM FOR STONE RIPRAP, CLASS A-1.

SHEET 6 OF 9

ILLINOIS DEPARTMENT OF TRANSPORTATION
BOX CULVERT UNDERCUTTING DETAIL
STA. 2030+82.00
CULVERT NO. 6

SCALE: N/A
 DATE: 07/15/09
 DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

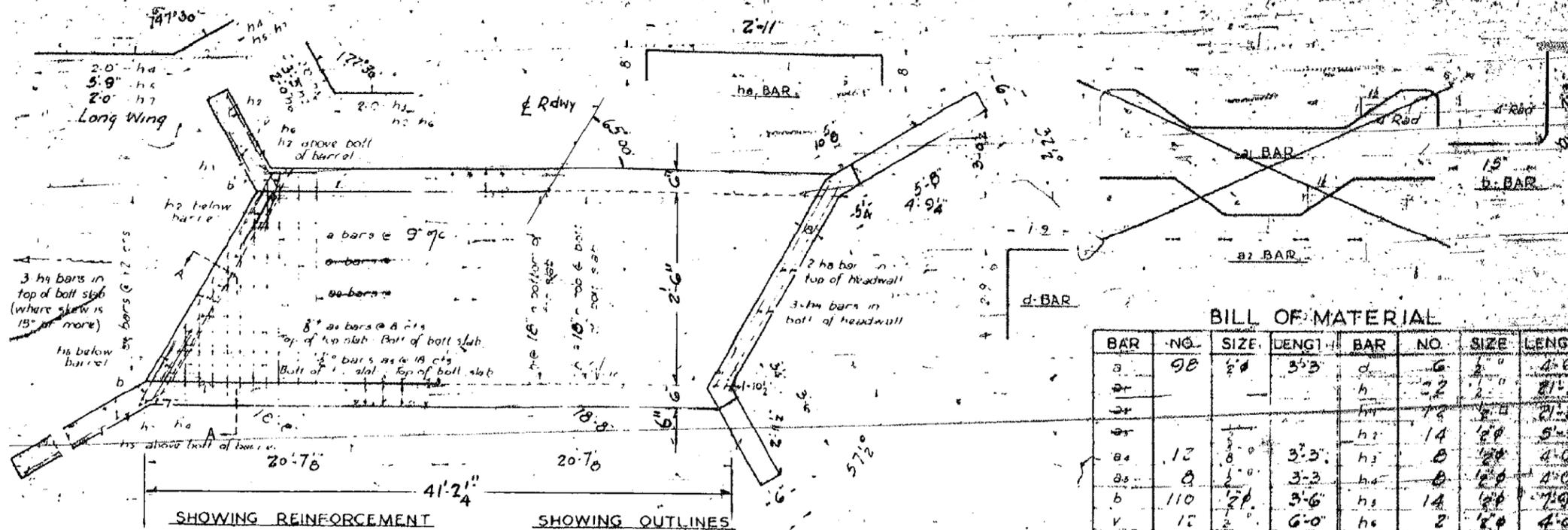
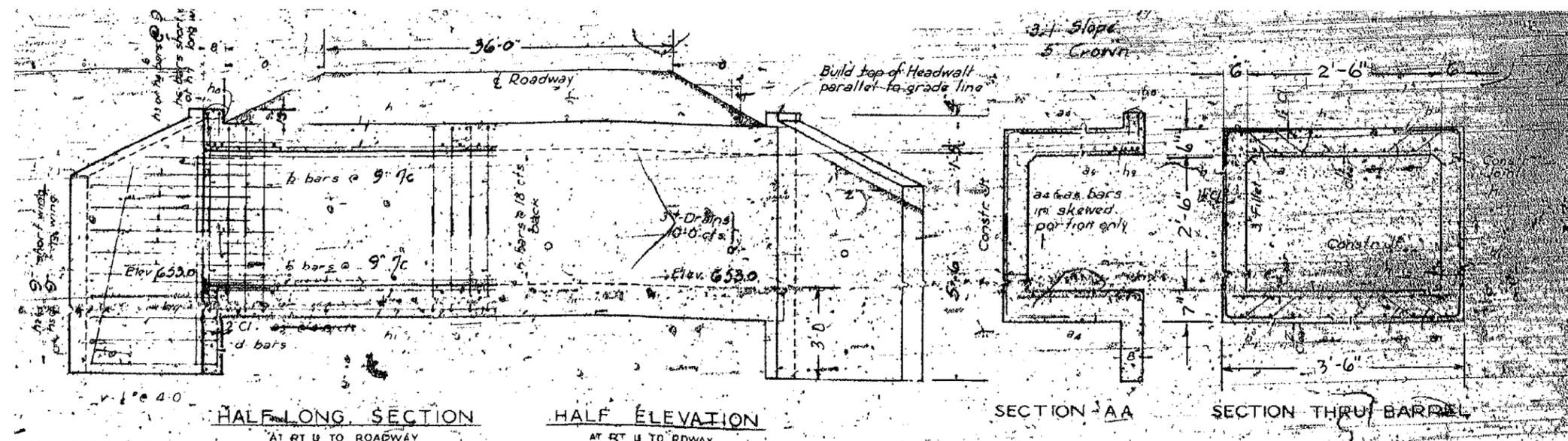
PLOT DATE = 8/12/2009
 FILE NAME = G:\DWG\WORK\PROJECTS\70623-SHT-CULVERT-DETAILS.DGN
 PLOT DATE = 02/25/09
 USER NAME = ceartock\j

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	252
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

EXISTING STRUCTURE INFORMATION

STATION 2030 + 82.00

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS



BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	BAR	NO.	SIZE	LENGTH
a	98	2"	3'-3"	d	6	1"	4'-6"
a1				e	2	1"	8'-5"
a2				f	2	1"	21'-8"
a3				g	14	1"	5'-3"
a4	12	3"	3'-3"	h1	8	1"	4'-0"
a5	8	1"	3'-3"	h2	8	1"	4'-0"
b	110	2"	3'-6"	h3	14	1"	7'-0"
c	15	2"	6'-0"	h4	2	1"	4'-0"
d	110	2"	4'-0"	h5	2	1"	4'-0"
				h6	1	3"	4'-0"
				h7	9	3"	3'-3"
Class X Concrete				Cu. Yds. 17.8			
Reinforcing Steel				Lbs. 1160			

NOTE
 a4 and a5 bars in skew portion of slab shall be ordered full length and cut to fit in field. Balance of bar to be used in opposite end of culvert.

GENERAL NOTES
 Class X Concrete shall be used throughout. Culvert walls and slab may be poured monolithically. Exposed edges shall be beveled. The wing walls shall be poured monolithically with barrel for a distance of six feet along the barrel. Subsoil of approximately uniform bearing capacity is assumed.

EXISTING STRUCTURE:
 THE EXISTING STRUCTURE WAS CONSTRUCTED IN 1938 AT STATION 30+85 AS A 2.5' X 2.5' CAST-IN-PLACE BOX CULVERT WITH CONCRETE HEADWALLS. (SKEWED 25 DEGREE RIGHT) EXISTING PLAN STATION: 2030+81.60

SHEET 8 OF 9

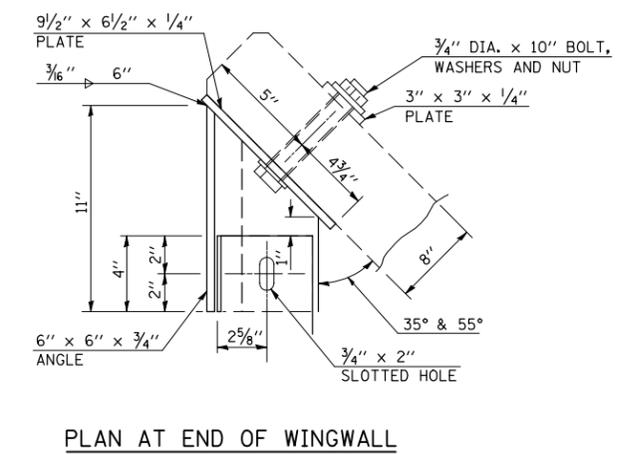
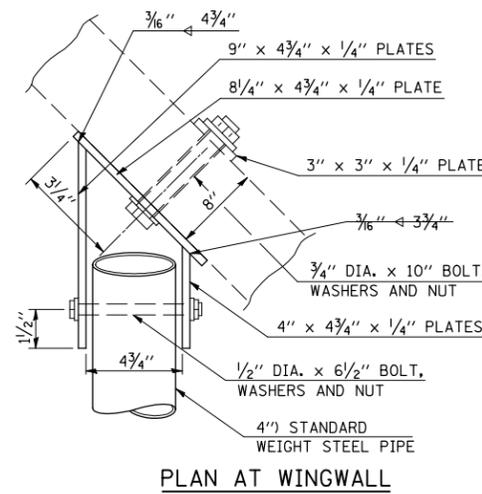
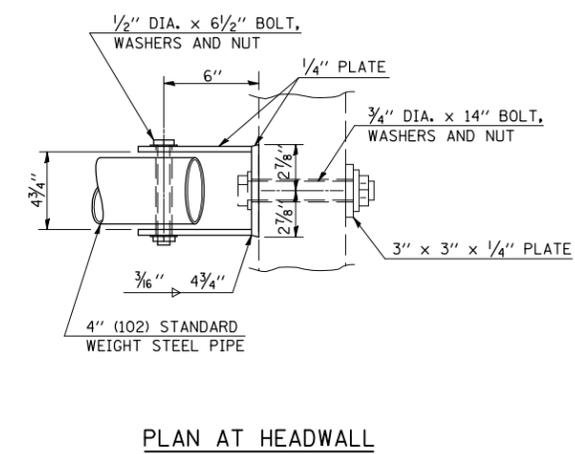
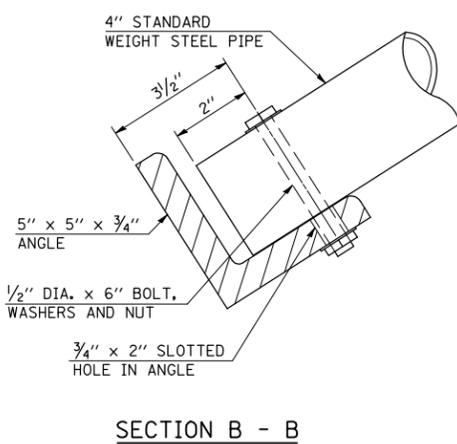
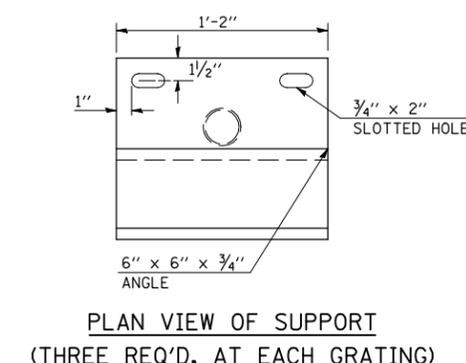
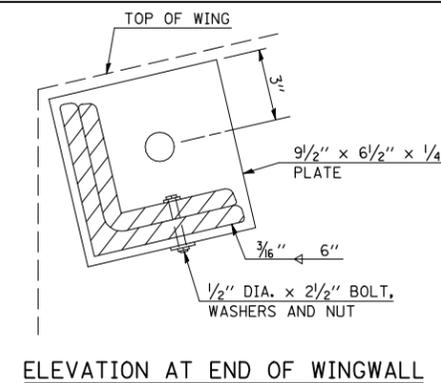
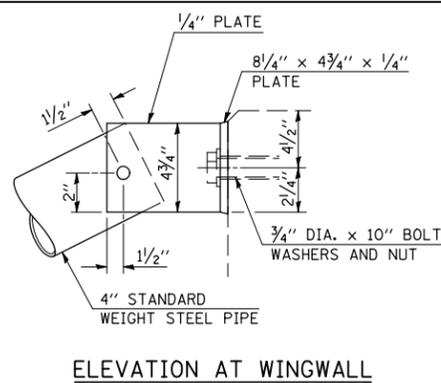
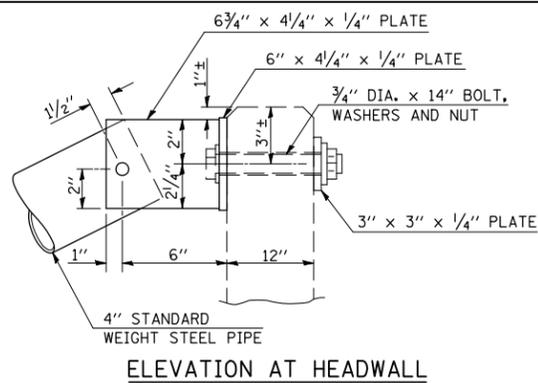
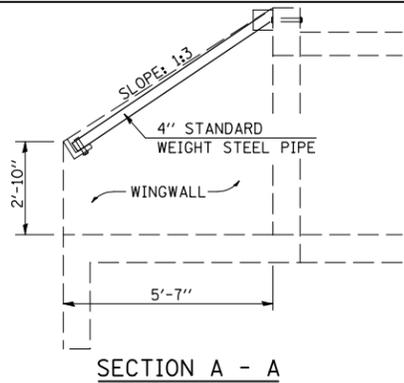
ILLINOIS DEPARTMENT OF TRANSPORTATION
EXISTING STRUCTURE INFORMATION
 STATION 2030+82.00
 CULVERT NO. 6

SCALE: 1" = 20'
 DATE: 07/18/09
 DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

PLOT DATE = 8/12/2009
 FILE NAME = G:\DWG\WORK\K\PROJECT\CEARLOCK\DWG\010445\70623-sht-culvert-detailed.dgn
 USER NAME = ceartock\jg

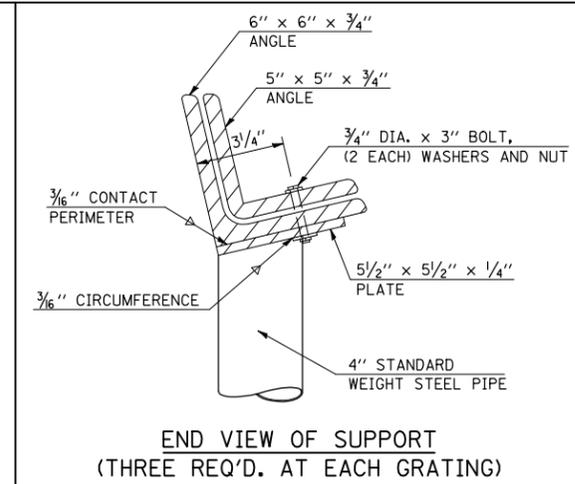
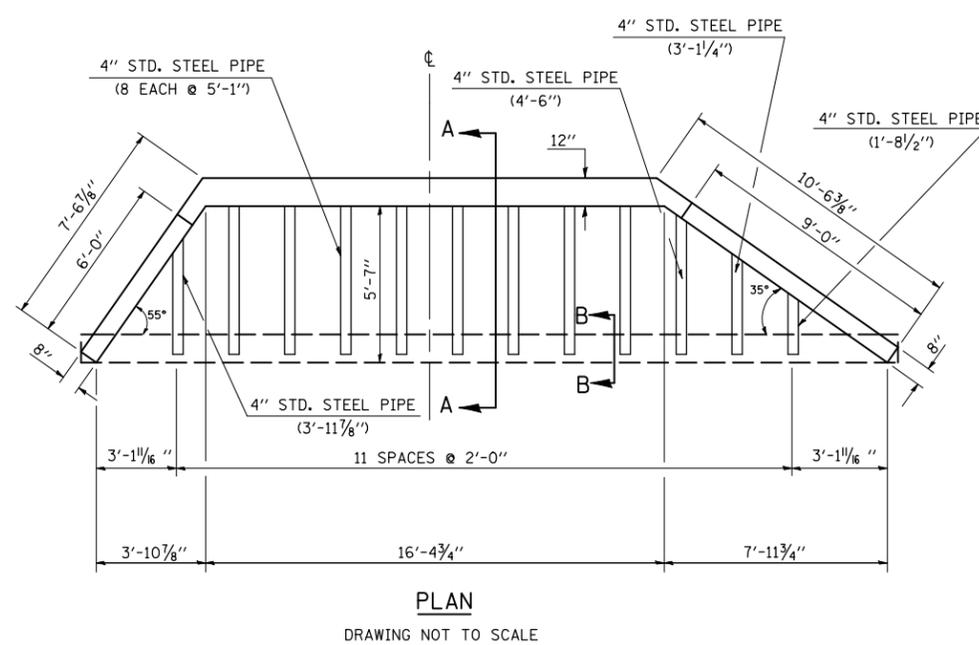
DETAIL OF GRATING FOR CONCRETE HEADWALL CULVERT NO. 6, STATION 2030+82.00 S.N. 010-8143

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	253
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
		(205,57,105)RS-2		
		CHAMPAIGN & DOUGLAS		

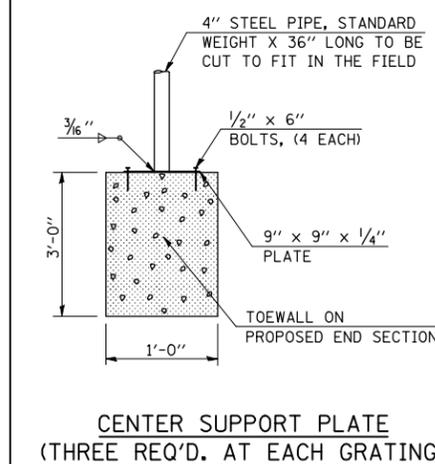


GENERAL NOTES

- BOLTS AND NUTS SHALL CONFORM TO A.S.T.M. A 307. ALL BOLTS SHALL HAVE WASHERS AT EACH END. HOLES SHALL BE 1/16" OVERSIZED UNLESS OTHERWISE NOTED EXCEPT IN CONCRETE WHICH SHALL BE 1/8" OVERSIZED.
- ANGLES AND STEEL PLATES SHALL CONFORM TO A.A.S.H.T.O. M 183. STEEL PIPES SHALL CONFORM TO A.S.T.M. A 53, GRADE B OR A.S.T.M. A 501.
- STEEL PIPES, ANGLES AND PLATES SHALL BE HOT DIPPED GALVANIZED CONFORMING TO THE REQUIREMENTS OF A.A.S.H.T.O. M 111.
- BOLTS, NUTS AND WASHERS SHALL BE HOT DIPPED GALVANIZED CONFORMING TO THE REQUIREMENTS OF A.A.S.H.T.O. M 232.
- THE APPROXIMATE WEIGHT OF THE STEEL IS 1485 POUNDS. THIS TOTAL INCLUDES PLATES, ANGLES AND PIPES. BOLTS, NUTS AND WASHERS ARE NOT INCLUDED.
- ALL DIMENSIONS ARE TO BE VERIFIED IN THE FIELD. CUTTING OF THE STANDARD WEIGHT PIPE AND ANGLES TO THE EXACT LENGTH AND DRILLING HOLES IS TO BE DONE IN THE FIELD.
- THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH FOR "GRATING FOR BOX CULVERT" WHICH PRICE SHALL INCLUDE ALL MATERIAL AND LABOR TO COMPLETE THE INSTALLATION AS SHOWN.



W.W. SPAN (TIP-TIP)	NUMBER REQUIRED	SPACING
0' TO 12'-6"	0	-
12'-6" TO 18'-0"	1	CENTER OF W.W. SPAN
OVER 18'-0"	(1 CENTER SUPPORT EVERY ADDITIONAL 6'-0" OF W.W. SPAN)	



SHEET 9 OF 9

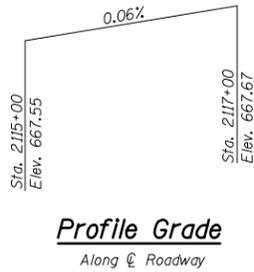
ILLINOIS DEPARTMENT OF TRANSPORTATION
**GRATING FOR CONCRETE HEADWALLS
STATION 2030+82.00
CULVERT NO. 6**

SCALE: N/A
DATE: 07/27/09
DRAWN BY: BBP/MLB
CHECKED BY: G.A.E.

PLOT DATE = 8/12/2009
 FILE NAME = C:\pwwork\pwwork\VPWIDOT\CEARLOCK\JD\0101445\70623-sht-grating-det-alls.dgn
 PLOT SCALE = 42.3529 / IN.
 USER NAME = ceurlockj

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	254

EXISTING STRUCTURE: The existing structure is a single 15" R.C.C.P. culvert constructed at Sta. 115+80 as S.A. 15, Section 94A-MFT in Champaign County. The existing structure shall be filled with controlled low strength material after the proposed culvert is constructed. The proposed structure will be built 36' to the north of the existing structure. Stage Construction will be utilized.



Profile Grade
Along ϕ Roadway

STATION 2116+20.00
BUILT 20__ BY
STATE OF ILLINOIS
F.A.P. RT. 808 SEC. (205,57,105)RS-2
LOADING HS 20
STRUCTURE NO. 010-8142

NAME PLATE
See Std. 515001

INDEX OF SHEETS

1. General Plan and Elevation
2. Box Culvert End Section Details
3. Staging Detail
4. Porous Granular Detail

DESIGN SPECIFICATIONS

2002 AASHTO

LOADING HS20-44

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

DESIGN STRESSES

FIELD UNITS

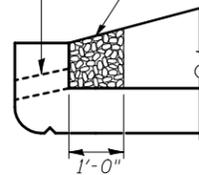
$f'_c = 3,500$ psi
 $f_y = 60,000$ psi (reinforcement)
 $f_y = 65,000$ psi (welded wire fabric)

PRECAST UNITS

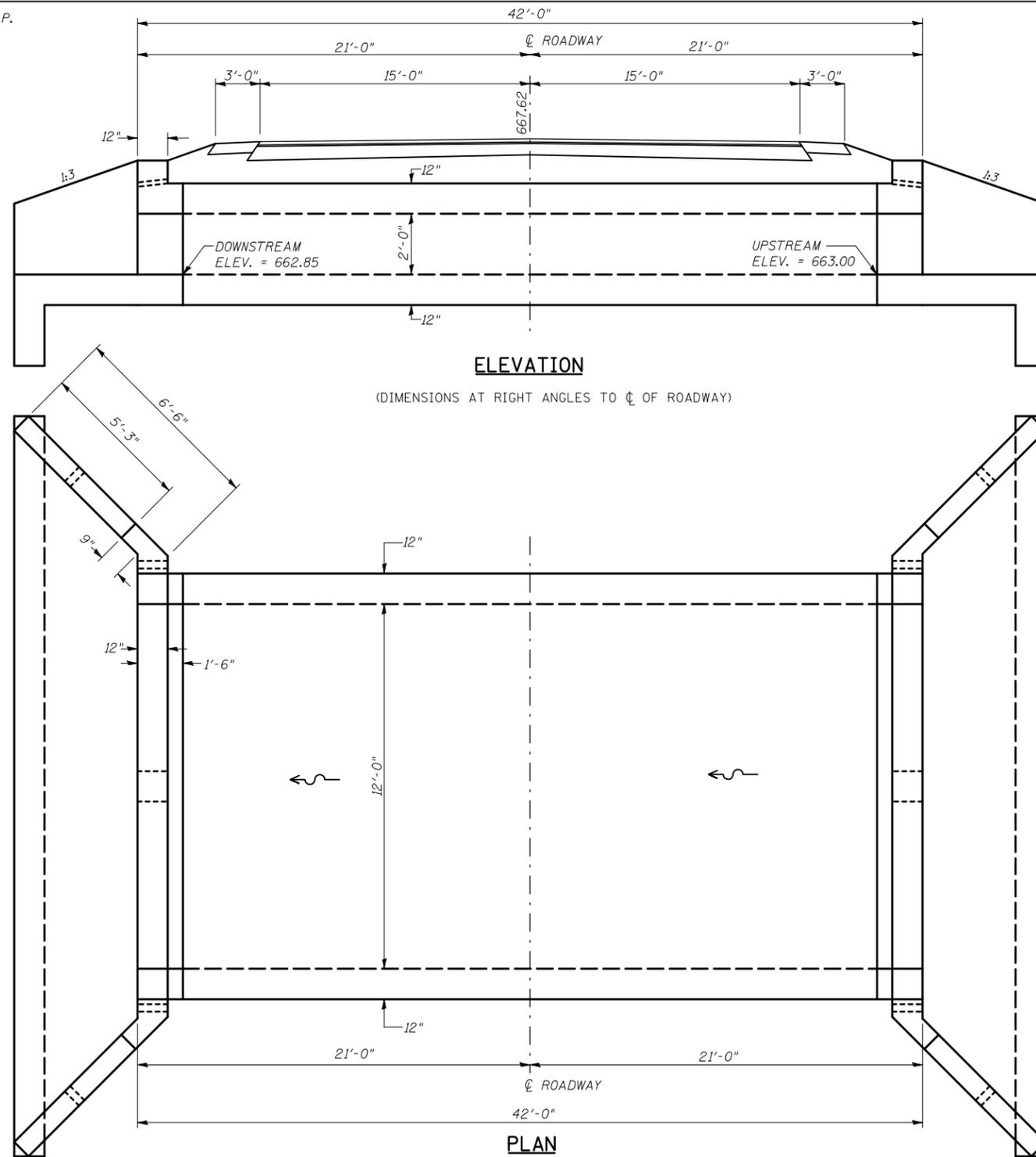
$f'_c = 5,000$ psi
 $f_y = 65,000$ psi (welded wire fabric)

Coarse aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Concrete Box Culverts.

6" x 3" Formed Opening



DRAIN DETAIL



ELEVATION

(DIMENSIONS AT RIGHT ANGLES TO ϕ OF ROADWAY)

PLAN

WATERWAY INFORMATION

Drainage Area = 0.25 sq. mi. Low Grade Elev. 667.62 @ Sta. 2116+20

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	67	1.2	24			Over	664.70	
Base	50	108	1.2	24			Over	665.25	
Overtopping	100	127	1.2	24			Over	665.54	
Max. Calc.	500	172	1.2	24			Over	666.40	

Note: Information provided using the USGS Regression Method.

General Notes

Build tops of headwalls parallel to the grade lines.

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

All construction joints shall be bonded according to Article 503.09 of the Standard Specifications.

Reinforcement bars shall conform to the requirements of ASTM A706 Gr. (IL Modified). See Special Provisions.

All bars should be rounded and conform to the requirements of Article 1006.10 of the Standard Specifications.

When lapping sheets of welded wire fabric, the overlap measured between the outermost cross wires of each fabric sheet shall not be less than 8"

End Sections will be paid for at the contract unit price per each for BOX CULVERT END SECTIONS, as outlined in Section 540 of the Standard Specifications.

Class SI Concrete shall be used throughout.

Concrete, Rebar, and Welded Wire Fabric quantities and lengths calculated for the cast-in-place End Sections may vary based on the precast box culverts supplied.

Drain holes shall be provided in accordance with Article 503.11 of the Standard Specifications.

The precast manufacturer shall design and detail a connection/construction joint between the precast concrete box sections and the cast-in-place apron and wingwall. The minimum area of reinforcement passing through these construction joints shall be 0.20 sq. in./lineal ft. of welded wire fabric. The design shall be detailed in the shop drawings. The cost of the connection is included in the cost of the end section.

The box culvert end section shall be built in the field and a precast option is not allowed except the cut-off wall may be precast. If the contractor elects to use a precast cut-off wall, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval.

The ends of the precast box sections adjacent to the end section shall be formed without the male and female shapes specified in Article 8.1 of AASHTO M273. See Section D-D on Sheet 2.

The design fill height for this box is less than 2 feet. The Precast Concrete Box Culvert Sections shall conform to the requirements of AASHTO M 273.

The joints between precast box sections shall be sealed, all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the backfilling process.

All dimensions are in FEET (') - INCHES (") unless otherwise noted.

Drawings not to scale.

TOTAL BILL OF MATERIAL

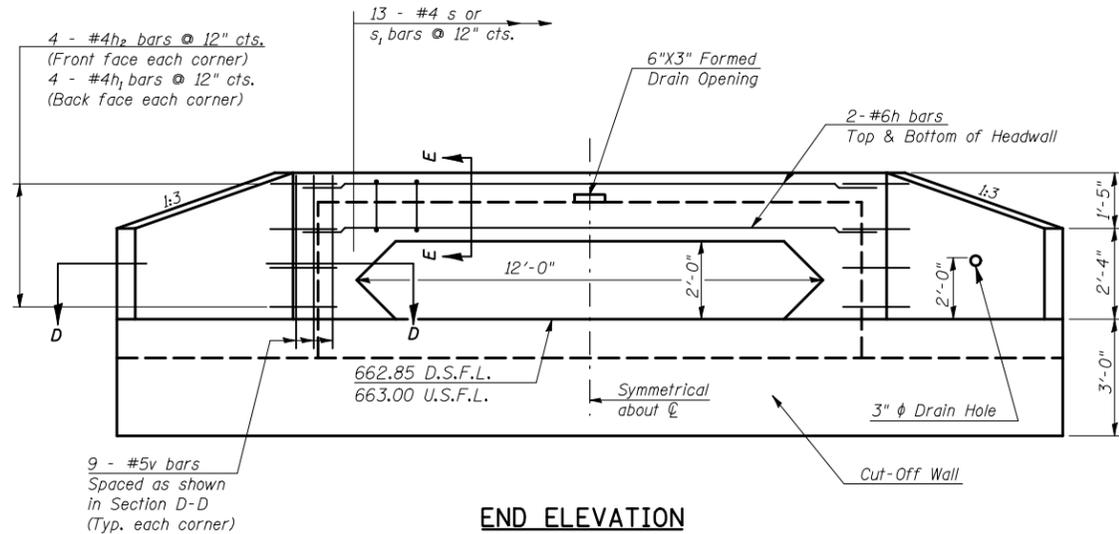
Item	Unit	Total
Precast Concrete Box Culverts 12'x2'	Foot	39
Box Culvert End Sections	Each	2
Name Plates	Each	1

SHEET 1 OF 4

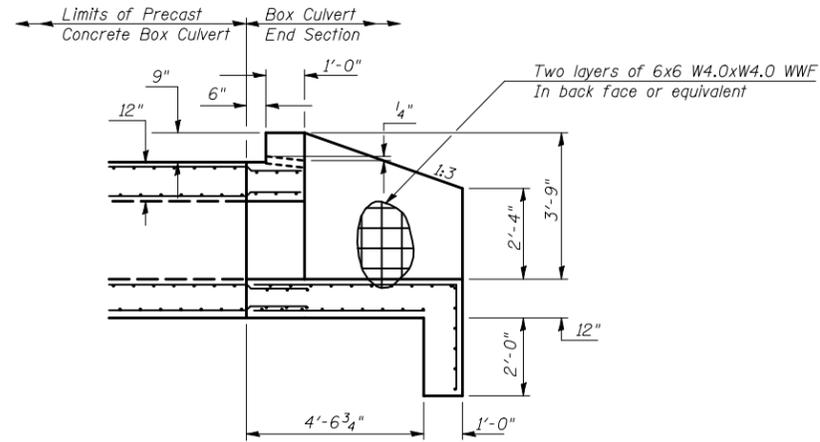
GENERAL PLAN AND ELEVATION
SINGLE 12'x2' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 2116+20.00, S.N. 010-8142
CULVERT NO. 7

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	255

(205,57,105)RS-2
 CHAMPAIGN & DOUGLAS

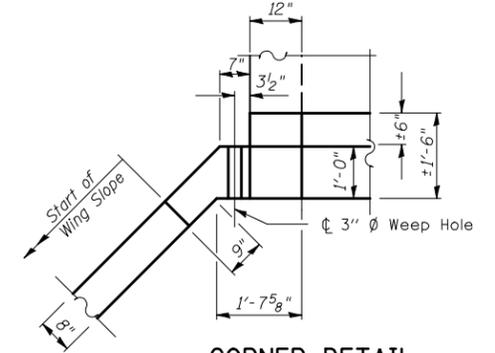


END ELEVATION



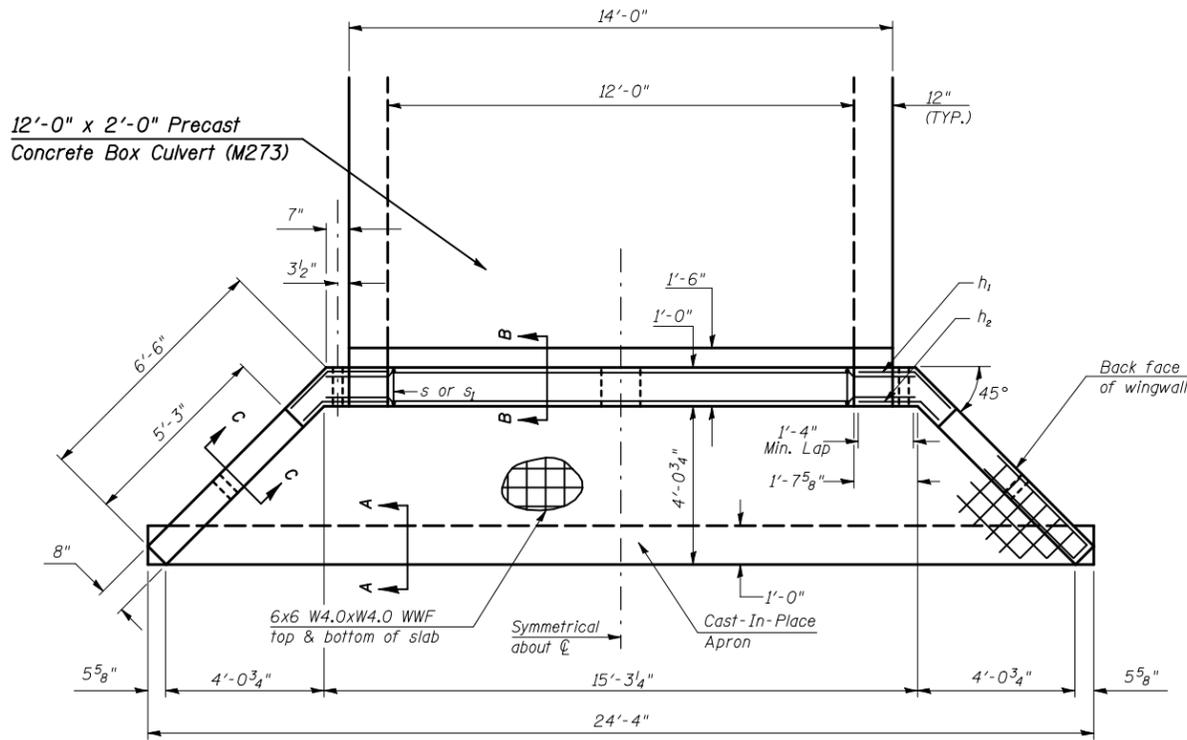
HALFSIDE ELEVATION

(DIMENSIONS AT RIGHT ANGLES TO \bar{C} ROADWAY)

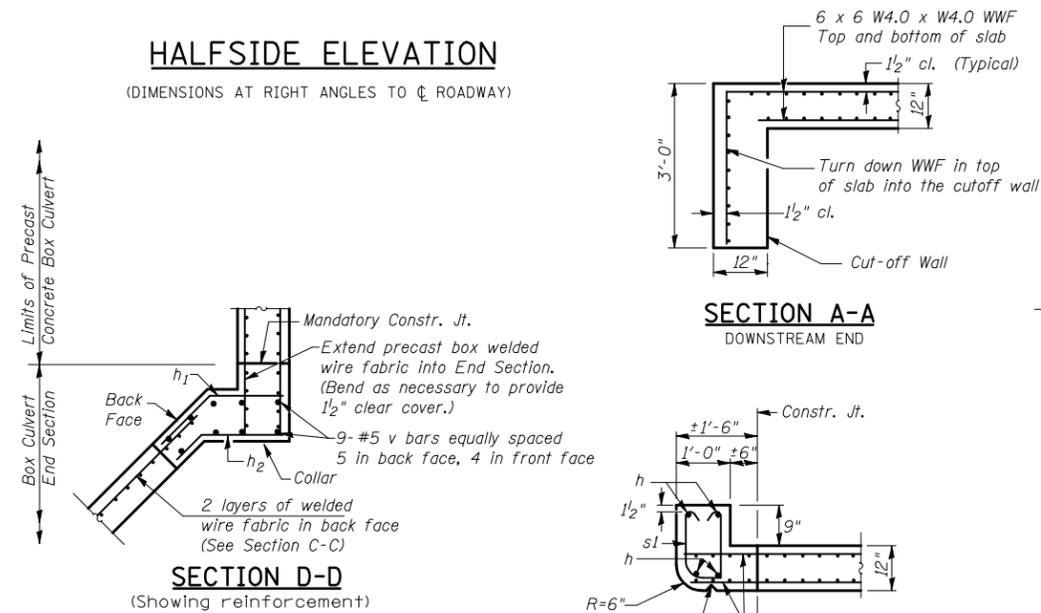


CORNER DETAIL

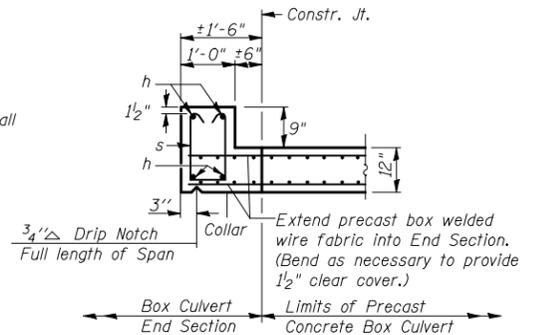
(Showing dimensions and weep hole)



PLAN

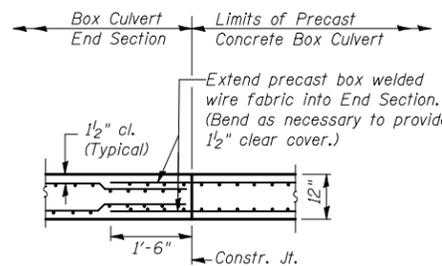


SECTION A-A
DOWNSTREAM END

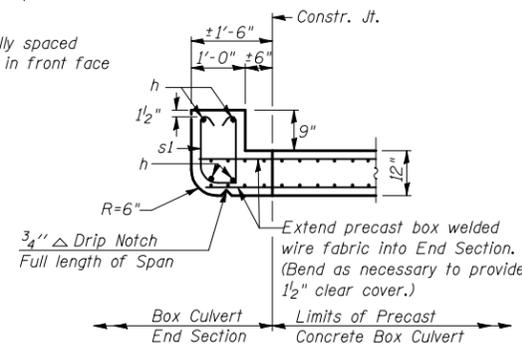


SECTION E-E

TOP SLAB / HEADWALL DOWNSTREAM END



SECTION D-D
(Showing reinforcement)

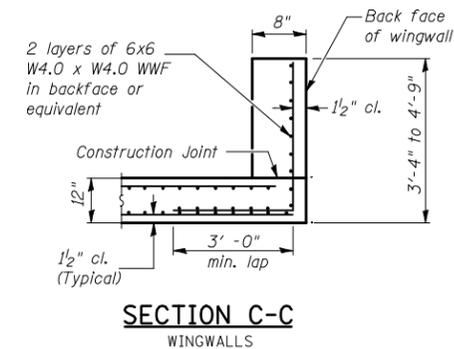


SECTION E-E

TOP SLAB / HEADWALL UPSTREAM END



SECTION B-B
BOTTOM SLAB



SECTION C-C
WINGWALLS

BILL OF MATERIAL

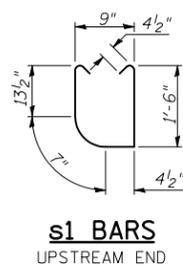
For Information Only
(One End Section)

Bar	No.	Size	Length	Shape
h	4	#6	15'-3"	—
h ₁	10	#4	2'-9"	—
h ₂	10	#4	2'-2"	—
s or s ₁	14	#4	4'-6"	□ □
v	18	#5	4'-6"	—
Item	Unit	Total		
Class SI Concrete	Cu. Yd.	9.1		
Reinforcement Bars	Pound	242.0		
Welded Wire Fabric	Sq. Ft.	519.0		

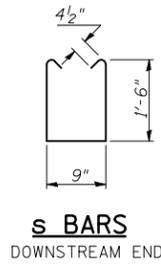
SHEET 2 OF 4

END SECTION DETAILS
SINGLE 12'x2' PRECAST BOX CULVERT
 F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
 CHAMPAIGN COUNTY
 STATION 2116+20.00, S.N. 010-8142
 CULVERT NO. 7

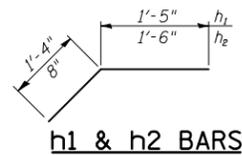
PLOT DATE = 8/12/2009
 FILE NAME = c:\pvc\work\70623\shc\culvert_details.dgn
 PLOT SCALE = 4.23529 / IN.
 USER NAME = ceerlockjd



s1 BARS
UPSTREAM END



s BARS
DOWNSTREAM END



h1 & h2 BARS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	256
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

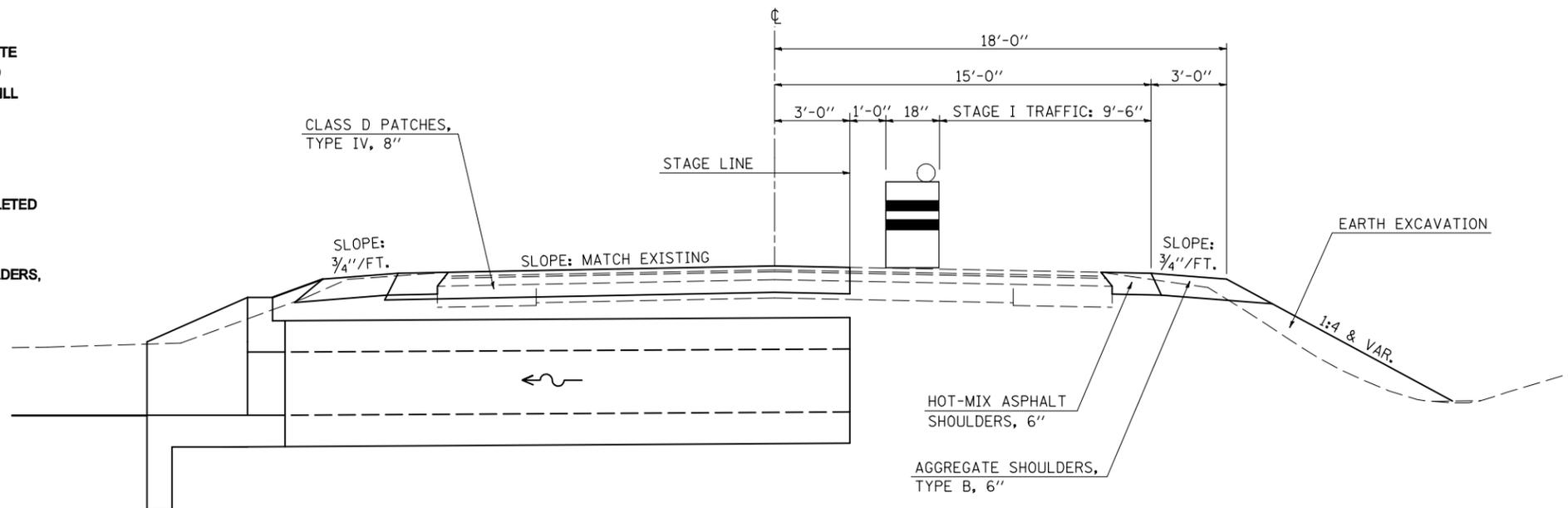
- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

GENERAL NOTES

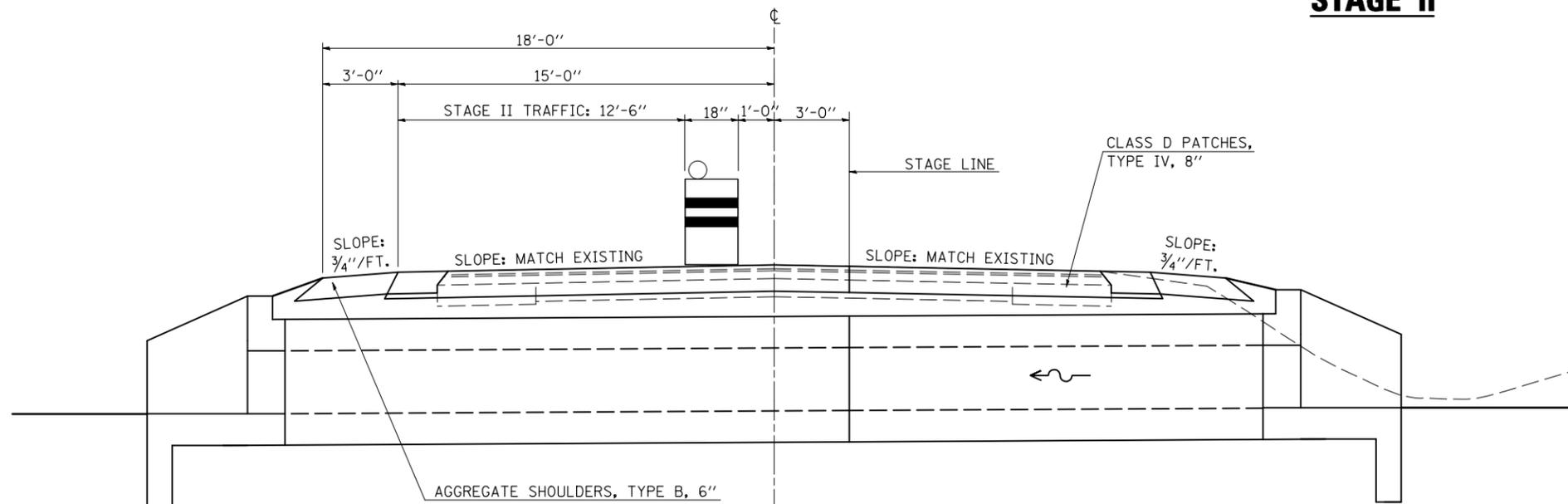
- 1) REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL AND PROTECTION, STANDARD 701201 AND STAGE CONSTRUCTION ACROSS ROAD CULVERTS FOR ADDITIONAL INFORMATION.
- 2) THE ENGINEER MAY REDUCE OR ELIMINATE LENGTHS OR LOCATIONS OF AGGREGATE, TYPE B, 6" AND EARTH EXCAVATION BASED ON FIELD CONDITIONS.
- 3) CONSTRUCT DOWNSTREAM END OF A.R. CULVERT FIRST.
- 4) EARTH EXCAVATED FOR THE CONSTRUCTION OF AGGREGATE SHOULDERS, TYPE B, 6" SHALL BE DEPOSITED AND GRADED TO SMOOTH THE FORESLOPES. THIS EXCAVATED EARTH WILL BE INCLUDED IN THE FINAL CROSS-SECTION VOLUMES FOR EARTHWORK BALANCE / WASTE CALCULATIONS.
- 5) AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE I MAY BE COMPLETED AT ANY TIME PRIOR TO STAGE I. AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE II SHALL NOT BE COMPLETED UNTIL THE HALF-WIDTH CULVERT FROM STAGE I HAS BEEN CONSTRUCTED.
- 6) REPLACE PREVIOUSLY CONSTRUCTED AGGREGATE SHOULDERS, TYPE B, 6" AS NEEDED WHEN PLACING FINAL AGGREGATE SHOULDERS, TYPE B.

STAGING DETAIL, CULVERT NO. 7
STATION 2116 + 20.00, S.N. 010-8142

STAGE I



STAGE II



SHEET 3 OF 4

A.R. CULVERT LOCATION	TRAFFIC CONTROL STANDARD	ESTIMATED TIME	CHANGEABLE MESSAGE SIGN
STA. 2116+20.00	701201	24 HRS (2) - 12 HR DAY SHIFTS	N/A

ILLINOIS DEPARTMENT OF TRANSPORTATION
STAGING DETAIL, CULVERT NO. 7
STA. 2116+20.00
S.N. 010-8142

SCALE: N/A
 DATE: 08/01/09

DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

PLOT DATE = 8/14/2009
 FILE NAME = G:\DWG\WORK\K\PIWIDOT\PIERSONBR\0010445\70623-sht-staging.dgn
 USER NAME = pier_sonbr

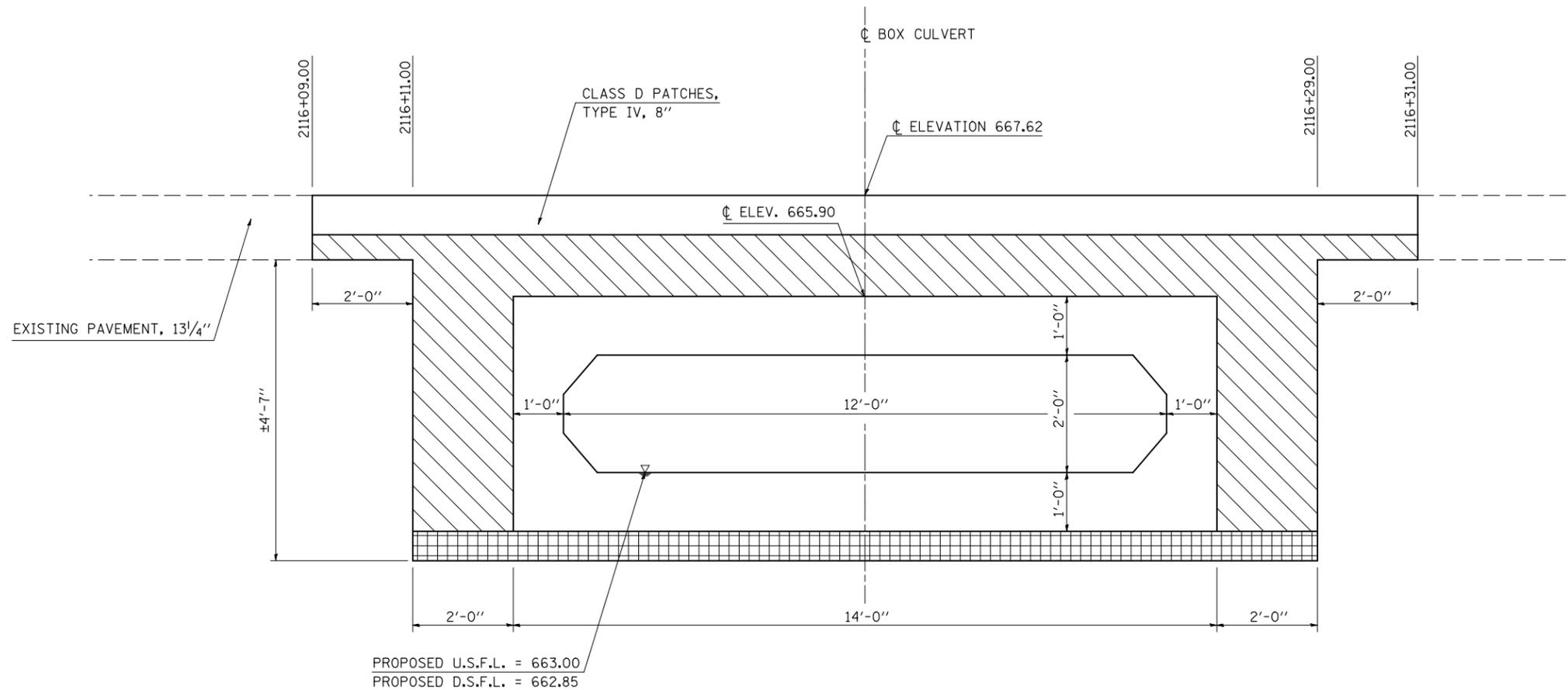
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	257
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- ** CHAMPAIGN & DOUGLAS

DETAIL OF POROUS GRANULAR EMBANKMENT PAY LIMITS

CULVERT NO. 7, STATION 2116 + 20.00

S.N. 010-8142



LEGEND

- PAY LIMITS OF POROUS GRANULAR EMBANKMENT - CA-6
- POROUS GRANULAR MATERIAL - CA-7 (6") INCLUDED IN PAY ITEM FOR BOX CULVERT

DRAWING NOT TO SCALE

GENERAL NOTES

- 1) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 207 AND SECTION 540 OF THE STANDARD SPECIFICATIONS.
- 2) POROUS GRANULAR EMBANKMENT SHALL EXTEND 2 FT. BEYOND THE AGGREGATE SHOULDER.
- 3) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR EMBANKMENT.
- 4) THE AREA TO BE EXCAVATED FOR THE PROPOSED BOX CULVERT SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR STRUCTURE EXCAVATION.

SHEET 4 OF 4

ILLINOIS DEPARTMENT OF TRANSPORTATION
DETAIL OF POROUS GRANULAR EMBANKMENT
PAY LIMITS, STA. 2116+20.00
CULVERT NO. 7

SCALE: N/A
 DATE: 07/14/09

DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

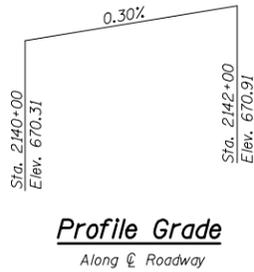
PLOT DATE = 8/19/2009
 FILE NAME = G:\DWG\WORK\PROJECTS\70623-SHT-DETAILS.DGN
 USER NAME = cearlrock\j

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	258

EXISTING STRUCTURE: A structure does not exist at this location. Stage Construction will be utilized.

General Notes

- Build tops of headwalls parallel to the grade lines.
- All construction joints shall be bonded according to Article 503.09 of the Standard Specifications.
- Reinforcement bars shall conform to the requirements of ASTM A706 Gr. (IL Modified). See Special Provisions.
- All bars should be rounded and conform to the requirements of Article 1006.10 of the Standard Specifications.
- When lapping sheets of welded wire fabric, the overlap measured between the outermost cross wires of each fabric sheet shall not be less than 8"
- End Sections will be paid for at the contract unit price per each for BOX CULVERT END SECTIONS, as outlined in Section 540 of the Standard Specifications.
- Class SI Concrete shall be used throughout.
- Concrete, Rebar, and Welded Wire Fabric quantities and lengths calculated for the cast-in-place End Sections may vary based on the precast box culverts supplied.
- Drain holes shall be provided in accordance with Article 503.11 of the Standard Specifications.
- The precast manufacturer shall design and detail a connection/construction joint between the precast concrete box sections and the cast-in-place apron and wingwall. The minimum area of reinforcement passing through these construction joints shall be 0.20 sq. in./lineal ft. of welded wire fabric. The design shall be detailed in the shop drawings. The cost of the connection is included in the cost of the end section.
- The box culvert end section shall be built in the field and a precast option is not allowed except the cut-off wall may be precast. If the contractor elects to use a precast cut-off wall, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval.
- The ends of the precast box sections adjacent to the end section shall be formed without the male and female shapes specified in Article 8.1 of AASHTO M273. See Section D-D on Sheet 2.
- The design fill height for this box is less than 2 feet. The Precast Concrete Box Culvert Sections shall conform to the requirements of AASHTO M 273.
- The joints between precast box sections shall be sealed, all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the backfilling process.
- All dimensions are in FEET (') - INCHES (") unless otherwise noted.
- Drawings not to scale.



STATION 2140+90.00
BUILT 20__ BY
STATE OF ILLINOIS
F.A.P. RT. 808 SEC. (205,57,105)RS-2
LOADING HS 20
STRUCTURE NO. 010-8141

NAME PLATE
See Std. 515001

INDEX OF SHEETS

1. General Plan and Elevation
2. Box Culvert End Section Details
3. Staging Details
4. Porous Granular Detail

DESIGN SPECIFICATIONS
2002 AASHTO

LOADING HS20-44

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

DESIGN STRESSES

FIELD UNITS

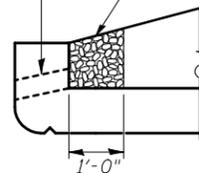
$f'_c = 3,500$ psi
 $f_y = 60,000$ psi (reinforcement)
 $f_y = 65,000$ psi (welded wire fabric)

PRECAST UNITS

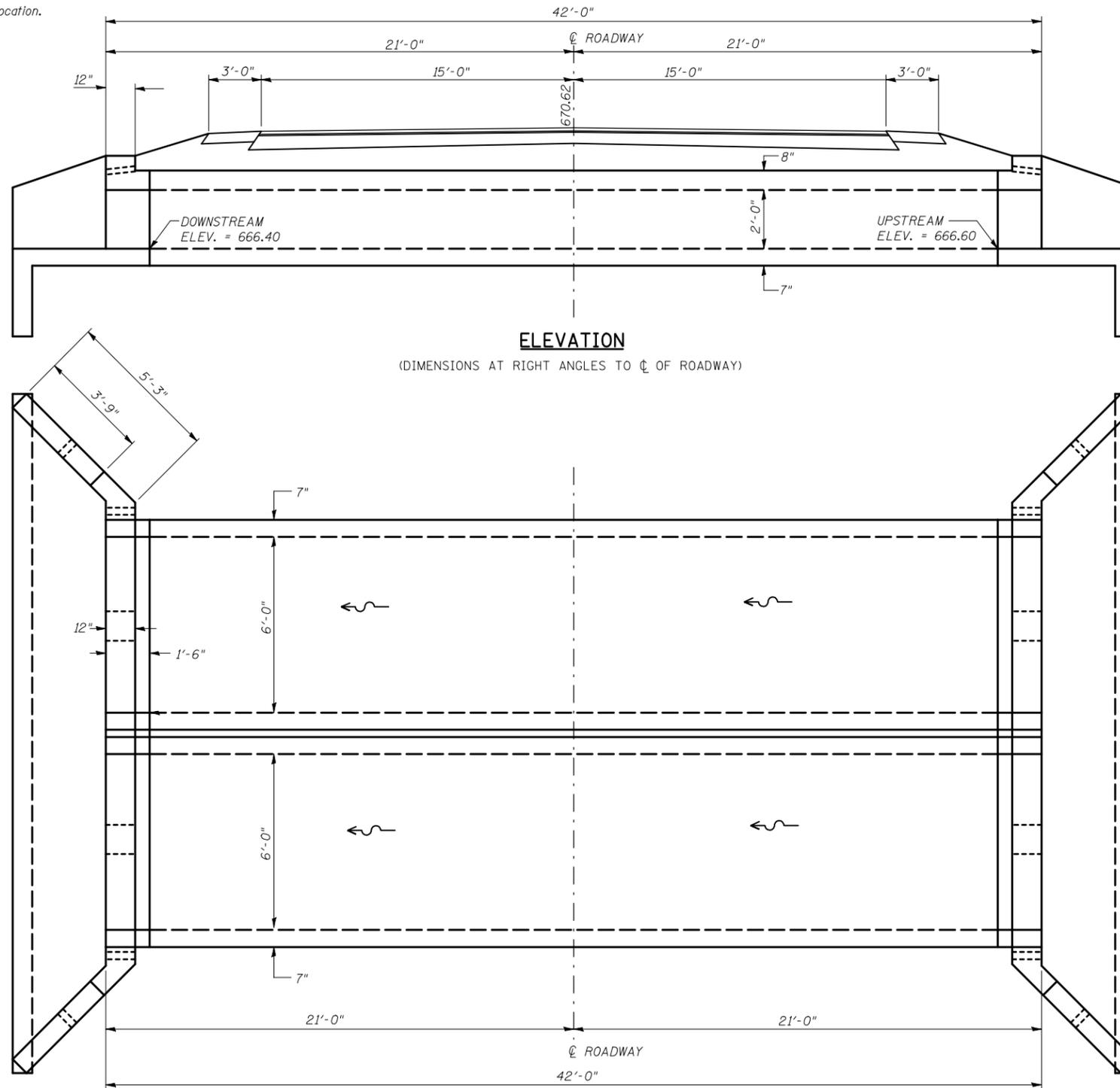
$f'_c = 5,000$ psi
 $f_y = 65,000$ psi (welded wire fabric)

Coarse aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Concrete Box Culverts.

6" x 3" Formed Opening



DRAIN DETAIL



ELEVATION
(DIMENSIONS AT RIGHT ANGLES TO CL OF ROADWAY)

PLAN

WATERWAY INFORMATION

Drainage Area = 0.272 sq. mi. Low Grade Elev. 670.62 @ Sta. 2140+90

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	72	N/A	25			N/A	668.32	
Base	50	117	N/A	25			N/A	668.95	
Overtopping	100	138	N/A	25			N/A	669.32	
Max. Calc.	500	187	N/A	25			N/A	670.40	

Note: Information provided using the USGS Regression Method.

TOTAL BILL OF MATERIAL

Item	Unit	Total
Precast Concrete Box Culverts 6'x2'	Foot	78
Box Culvert End Sections	Each	2
Name Plates	Each	1

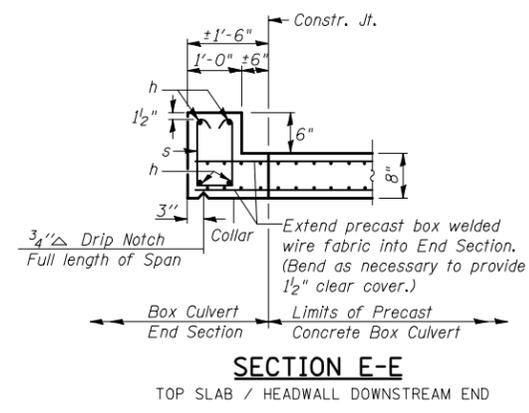
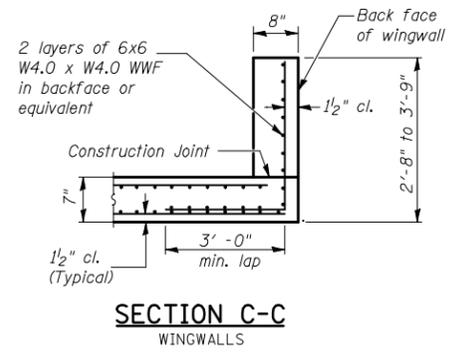
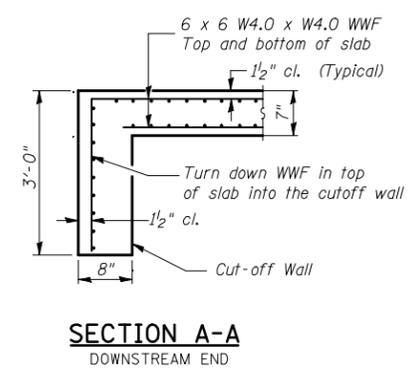
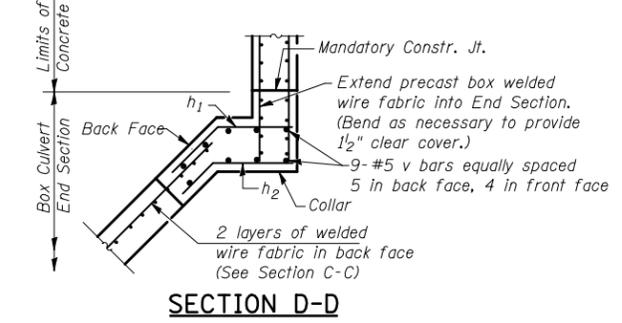
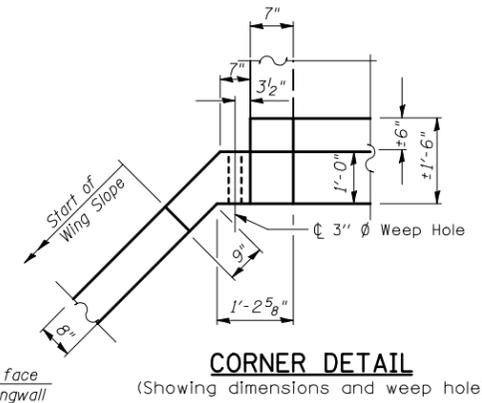
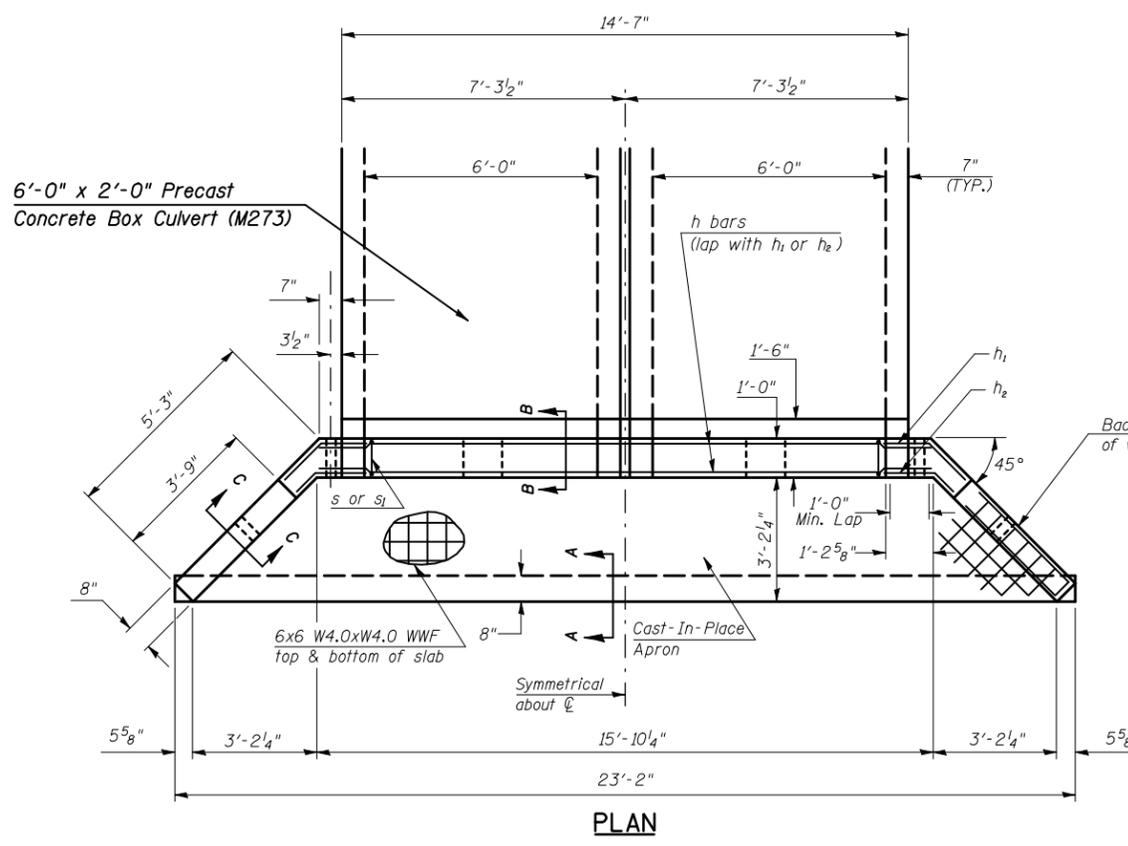
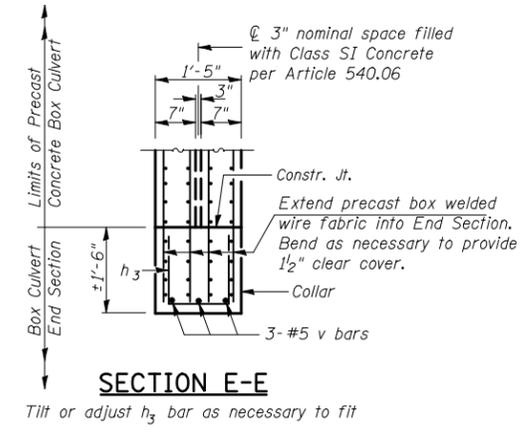
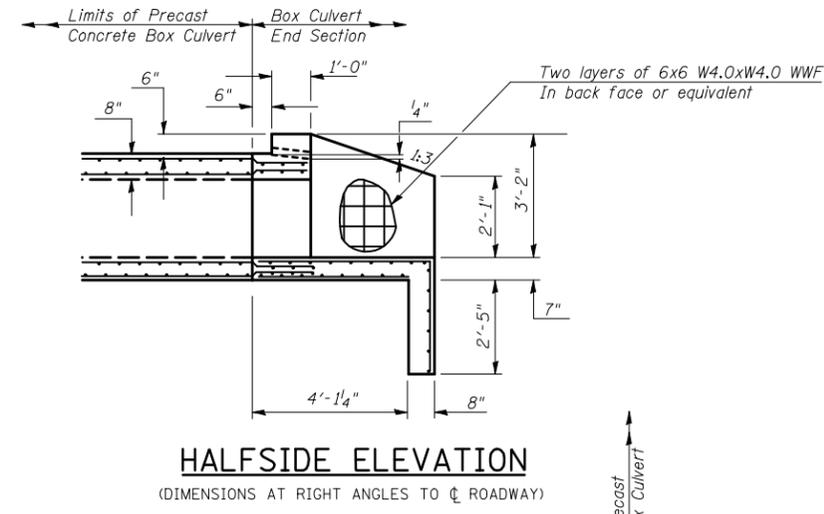
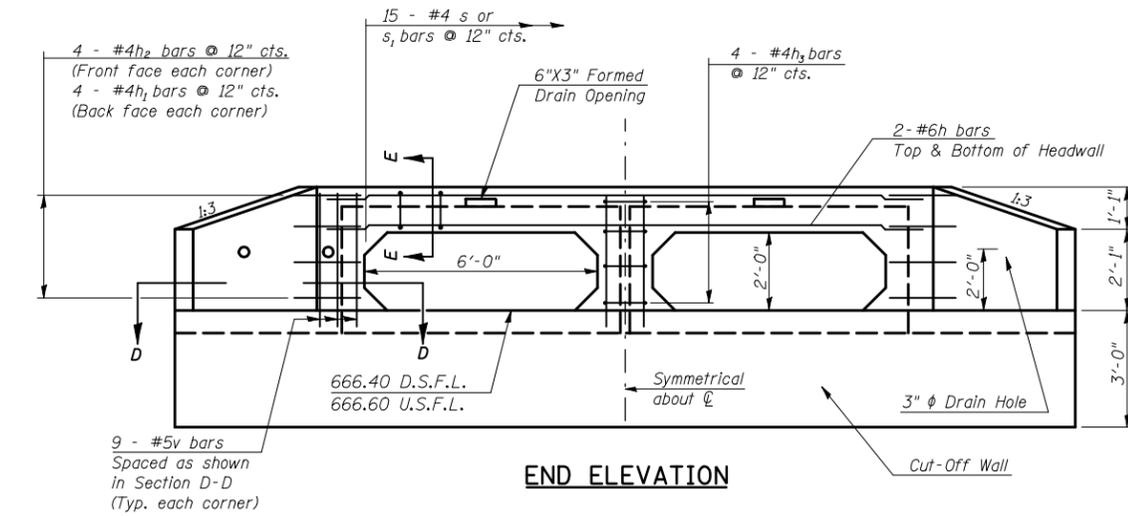
SHEET 1 OF 4

GENERAL PLAN AND ELEVATION
DOUBLE 6'x2' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 2140+90.00, S.N. 010-8141
CULVERT NO. 8

PLOT DATE = 8/12/2009
FILE NAME = c:\pvc\work\p1001\CEARL\CD\08101445\70623-shr-culvert.dwg
PLOT SCALE = 42,362% / IN.
USER NAME = ceerlockjd

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	259

(205,57,105)RS-2
 CHAMPAIGN & DOUGLAS

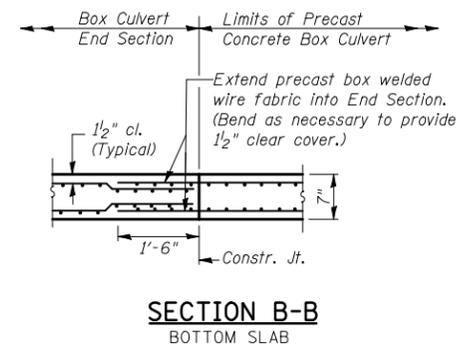
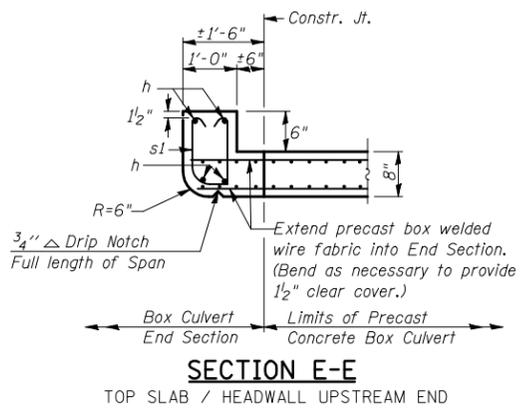


BILL OF MATERIAL
 For Information Only
 (One End Section)

Bar	No.	Size	Length	Shape
h	4	#6	15'-10"	—
h1	8	#4	2'-6"	—
h2	8	#4	2'-0"	—
h3	4	#4	3'-8"	—
s or s1	15	#4	3'-8"	—
v	21	#5	3'-9"	—
Item			Unit	Total
Class SI Concrete			Cu. Yd.	5.4
Reinforcement Bars			Pound	248.0
Welded Wire Fabric			Sq. Ft.	381.0

SHEET 2 OF 4

END SECTION DETAILS
DOUBLE 6'x2' PRECAST BOX CULVERT
 F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
 CHAMPAIGN COUNTY
 STATION 2140+90.00, S.N. 010-8141
 CULVERT NO. 8



PLOT DATE = 8/12/2009
 FILE NAME = c:\pwworkspace\10101445\70623-shc-culvert.dwg
 PLOT SCALE = 42,3525 / IN.
 USER NAME = ceerlock,jd

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	260
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

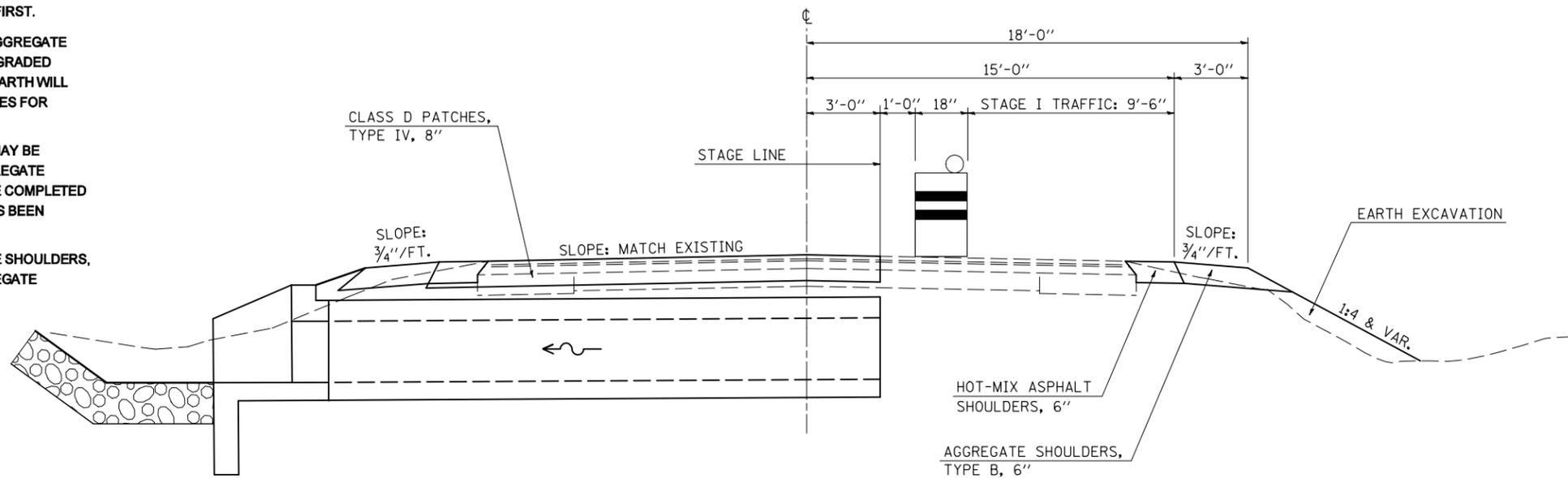
- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

GENERAL NOTES

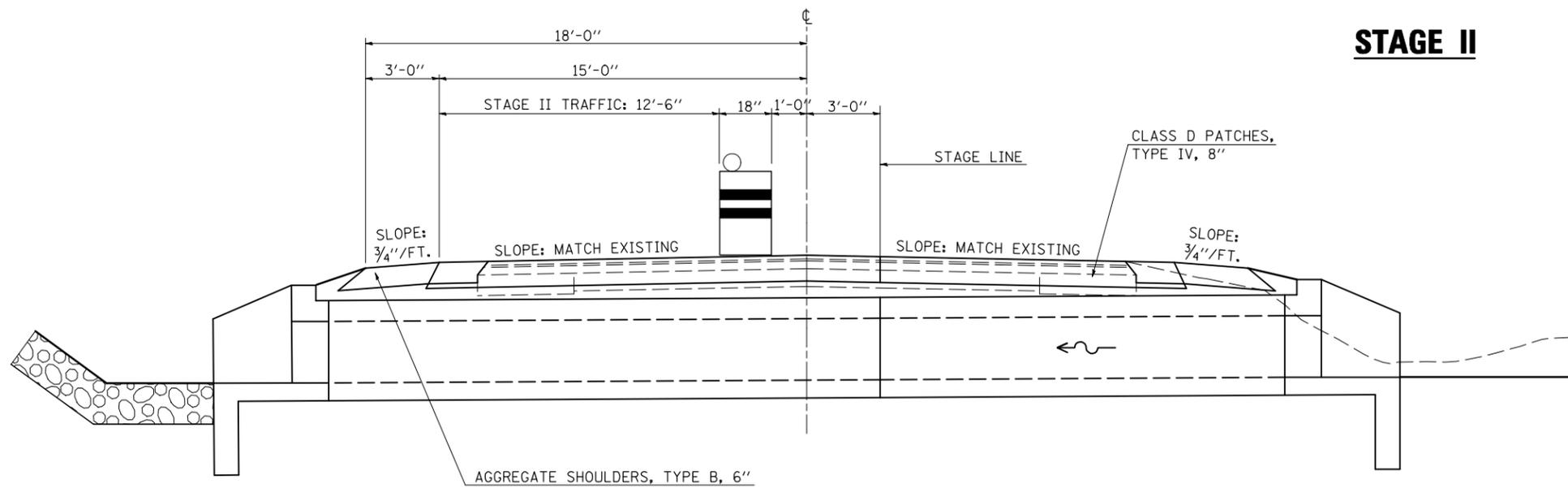
- REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL AND PROTECTION, STANDARD 701201 AND STAGE CONSTRUCTION ACROSS ROAD CULVERTS FOR ADDITIONAL INFORMATION.
- THE ENGINEER MAY REDUCE OR ELIMINATE LENGTHS OR LOCATIONS OF AGGREGATE, TYPE B, 6" AND EARTH EXCAVATION BASED ON FIELD CONDITIONS.
- CONSTRUCT DOWNSTREAM END OF A.R. CULVERT FIRST.
- EARTH EXCAVATED FOR THE CONSTRUCTION OF AGGREGATE SHOULDERS, TYPE B, 6" SHALL BE DEPOSITED AND GRADED TO SMOOTH THE FORESLOPES. THIS EXCAVATED EARTH WILL BE INCLUDED IN THE FINAL CROSS-SECTION VOLUMES FOR EARTHWORK BALANCE / WASTE CALCULATIONS.
- AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE I MAY BE COMPLETED AT ANY TIME PRIOR TO STAGE I. AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE II SHALL NOT BE COMPLETED UNTIL THE HALF-WIDTH CULVERT FROM STAGE I HAS BEEN CONSTRUCTED.
- REPLACE PREVIOUSLY CONSTRUCTED AGGREGATE SHOULDERS, TYPE B, 6" AS NEEDED WHEN PLACING FINAL AGGREGATE SHOULDERS, TYPE B.

STAGING DETAIL, CULVERT NO. 8
STATION 2140 + 90.00, S.N. 010-8141

STAGE I



STAGE II



PLOT DATE = 8/14/2009
 FILE NAME = G:\DWG\WORK\K\PIWIDOT\PERSONNEL\DOUGLAS\70623-sht-staging.dgn
 USER NAME = pier_sombir

A.R. CULVERT LOCATION	TRAFFIC CONTROL STANDARD	ESTIMATED TIME	CHANGEABLE MESSAGE SIGN
STA. 2140+90.00	701201	24 HRS (2) - 12 HR DAY SHIFTS	N/A

SHEET 3 OF 4

ILLINOIS DEPARTMENT OF TRANSPORTATION
STAGING DETAIL, CULVERT NO. 8
STATION 2140+90.00
S.N. 010-8141

SCALE: N/A
 DATE: 08/01/09

DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

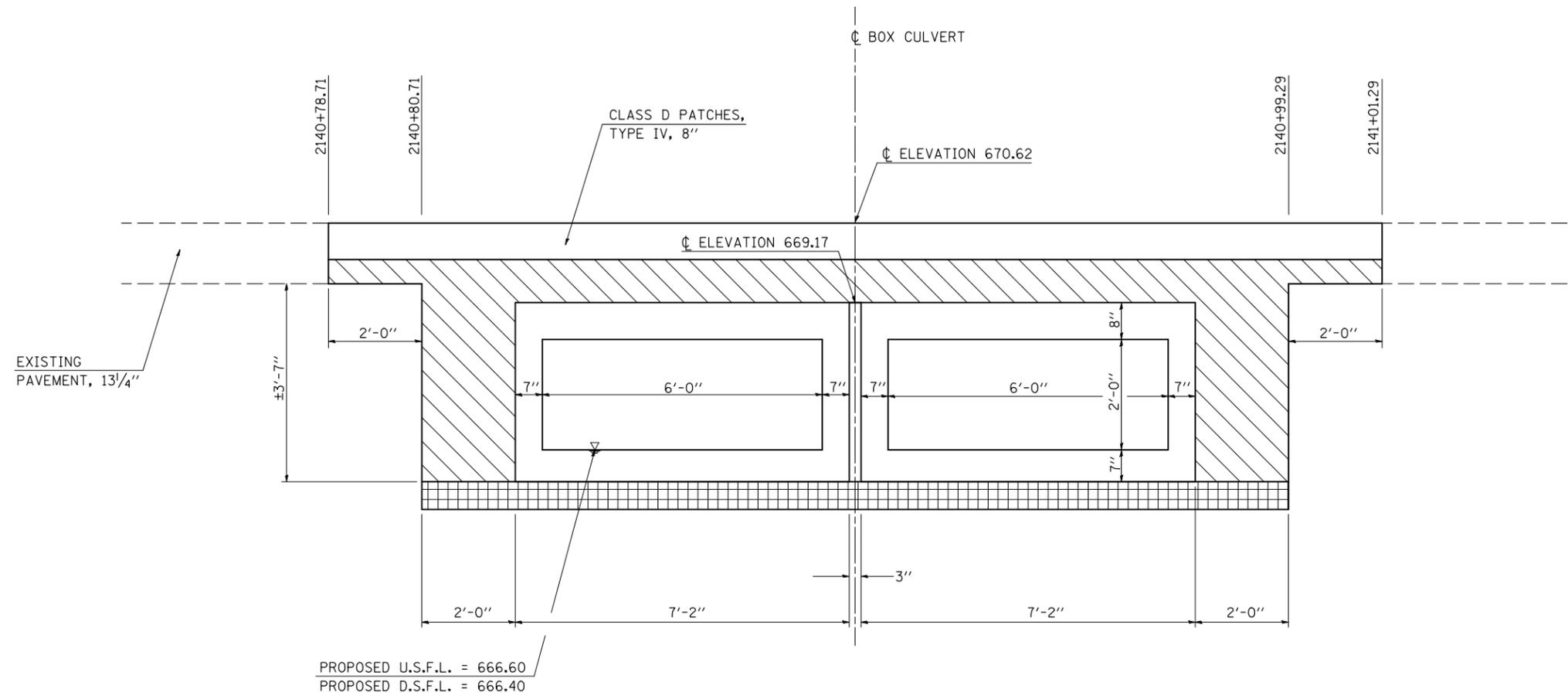
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	261
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

DETAIL OF POROUS GRANULAR EMBANKMENT PAY LIMITS

CULVERT NO. 8, STATION 2140 + 90.00

S.N. 010-8141



LEGEND

- PAY LIMITS OF POROUS GRANULAR EMBANKMENT - CA-6
- POROUS GRANULAR MATERIAL - CA-7 (6") INCLUDED IN PAY ITEM FOR BOX CULVERT

DRAWING NOT TO SCALE

GENERAL NOTES

- 1) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 207 AND SECTION 540 OF THE STANDARD SPECIFICATIONS.
- 2) POROUS GRANULAR EMBANKMENT SHALL EXTEND 2 FT. BEYOND THE AGGREGATE SHOULDER.
- 3) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR EMBANKMENT.
- 4) THE AREA TO BE EXCAVATED FOR THE PROPOSED BOX CULVERT SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR STRUCTURE EXCAVATION.
- 5) THE SPACE BETWEEN MULTI-CELL BOXES SHALL BE FILLED ACCORDING TO ARTICLE 540.06 AND SHALL NOT BE PAID FOR SEPERATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS ASSOCIATED WITH BOX CULVERT CONSTRUCTION.

SHEET 4 OF 4

ILLINOIS DEPARTMENT OF TRANSPORTATION
DETAIL OF POROUS GRANULAR EMBANKMENT
PAY LIMITS STA. 2140+90.00
CULVERT NO. 8

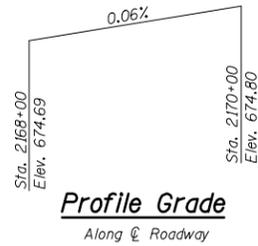
SCALE: N/A
 DATE: 07/27/09
 DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

PLOT DATE = 8/19/2009
 FILE NAME = G:\pwworkspace\pwworkspace\10623-sht-detailed.dgn
 USER NAME = ceartock\j

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	262

BENCHMARK ELEV. = 673.029 Chiseled square on the S. end of a concrete pipe culvert under a private entrance 150' S. of CR 600N.

EXISTING STRUCTURE: The existing structure is a double 24" R.C.C.P. culvert constructed at Sta. 171+00 as S.A. 15, Section 94A-MFT in Champaign County. The existing structure shall be filled with controlled low strength material after the proposed culvert is constructed. The proposed structure will be built 30' to the north of the existing structure. Stage Construction will be utilized.



Profile Grade
Along ϕ Roadway

STATION 2169+55.00
BUILT 20__ BY
STATE OF ILLINOIS
F.A.P. RT. 808 SEC. (205,57,105)RS-2
LOADING HS 20
STRUCTURE NO. 010-8140

NAME PLATE
See Std. 515001

INDEX OF SHEETS

1. General Plan and Elevation
2. Box Culvert End Section Details
3. Staging Details
4. Porous Granular Detail

DESIGN SPECIFICATIONS

2002 AASHTO

LOADING HS20-44

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

DESIGN STRESSES

FIELD UNITS

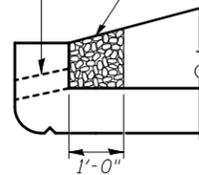
$f'_c = 3,500$ psi
 $f_y = 60,000$ psi (reinforcement)
 $f_y = 65,000$ psi (welded wire fabric)

PRECAST UNITS

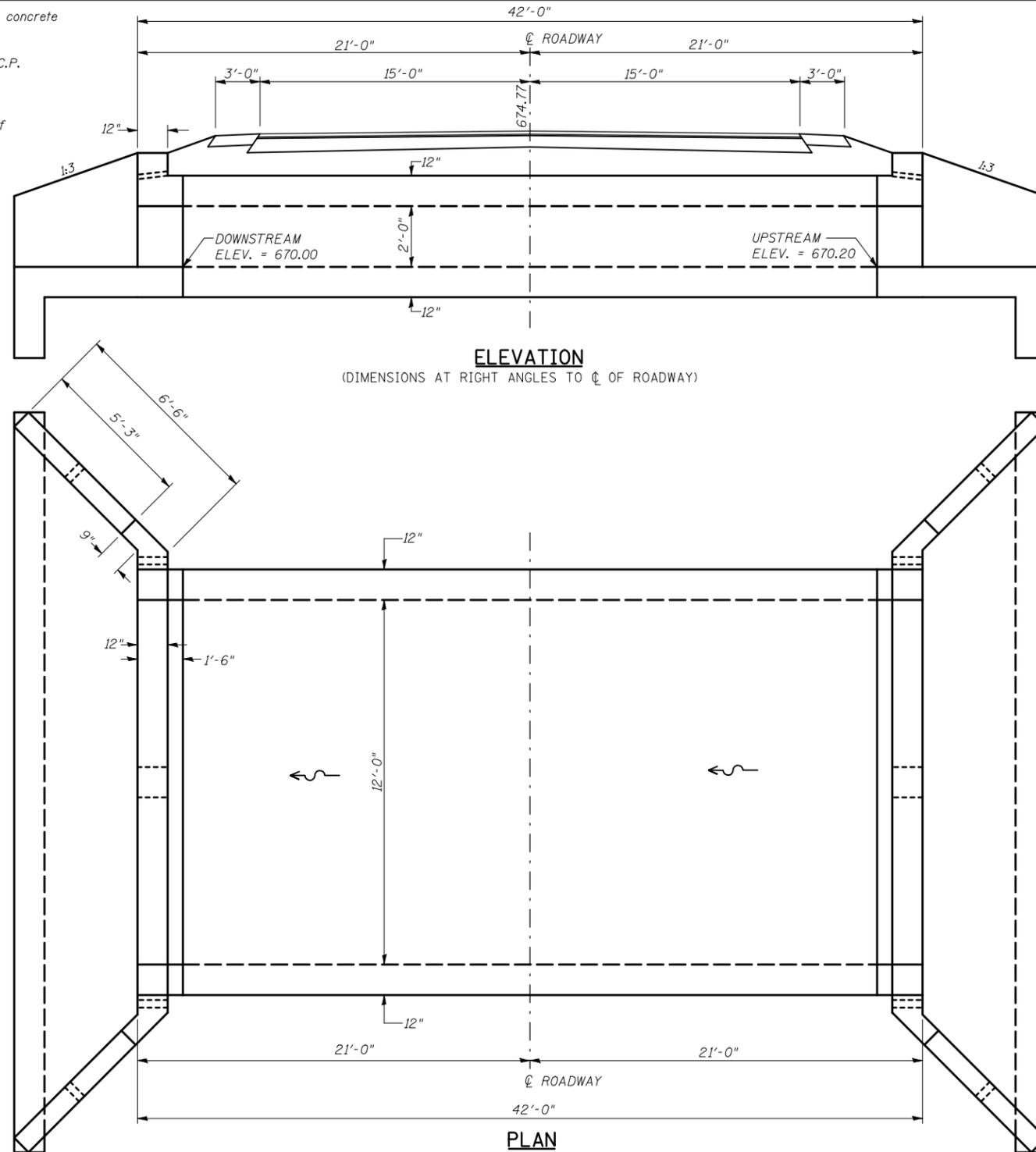
$f'_c = 5,000$ psi
 $f_y = 65,000$ psi (welded wire fabric)

Coarse aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Concrete Box Culverts.

6" x 3" Formed Opening



DRAIN DETAIL



ELEVATION

(DIMENSIONS AT RIGHT ANGLES TO ϕ OF ROADWAY)

PLAN

WATERWAY INFORMATION

Drainage Area = 0.302 sq. mi. Low Grade Elev. 674.77 @ Sta. 2169+55

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	134	6.3	48			Over	671.85	
Base	50	227	6.3	48			Over	672.48	
Overtopping	100	270	6.3	48			Over	672.86	
Max. Calc.	500	377	6.3	48			Over	674.00	

Note: Information provided using the USGS Regression Method. The proposed opening area includes the opening of the proposed 12'x2' box culvert located at Sta. 2169+55.

General Notes

Build tops of headwalls parallel to the grade lines.

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

All construction joints shall be bonded according to Article 503.09 of the Standard Specifications.

Reinforcement bars shall conform to the requirements of ASTM A706 Gr. (IL Modified). See Special Provisions.

All bars should be rounded and conform to the requirements of Article 1006.10 of the Standard Specifications.

When lapping sheets of welded wire fabric, the overlap measured between the outermost cross wires of each fabric sheet shall not be less than 8"

End Sections will be paid for at the contract unit price per each for BOX CULVERT END SECTIONS, as outlined in Section 540 of the Standard Specifications.

Class SI Concrete shall be used throughout.

Concrete, Rebar, and Welded Wire Fabric quantities and lengths calculated for the cast-in-place End Sections may vary based on the precast box culverts supplied.

Drain holes shall be provided in accordance with Article 503.11 of the Standard Specifications.

The precast manufacturer shall design and detail a connection/construction joint between the precast concrete box sections and the cast-in-place apron and wingwall. The minimum area of reinforcement passing through these construction joints shall be 0.20 sq. in./lineal ft. of welded wire fabric. The design shall be detailed in the shop drawings. The cost of the connection is included in the cost of the end section.

The box culvert end section shall be built in the field and a precast option is not allowed except the cut-off wall may be precast. If the contractor elects to use a precast cut-off wall, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval.

The ends of the precast box sections adjacent to the end section shall be formed without the male and female shapes specified in Article 8.1 of AASHTO M273. See Section D-D on Sheet 2.

The design fill height for this box is less than 2 feet. The Precast Concrete Box Culvert Sections shall conform to the requirements of AASHTO M 273.

The joints between precast box sections shall be sealed, all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the backfilling process.

All dimensions are in FEET (') - INCHES (") unless otherwise noted.

Drawings not to scale.

TOTAL BILL OF MATERIAL

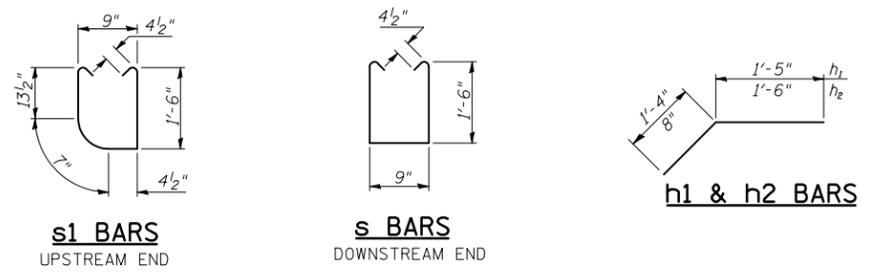
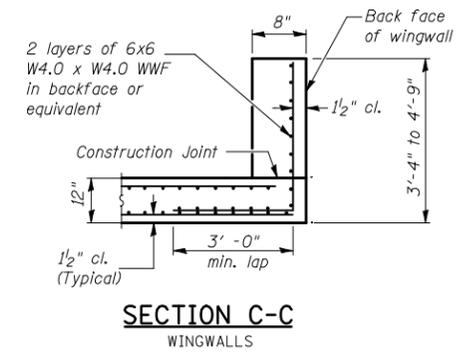
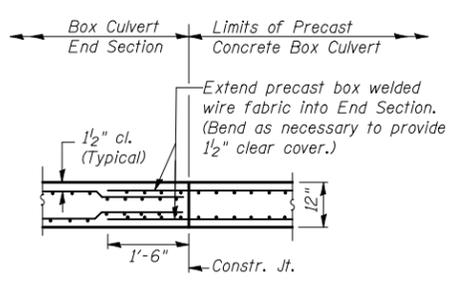
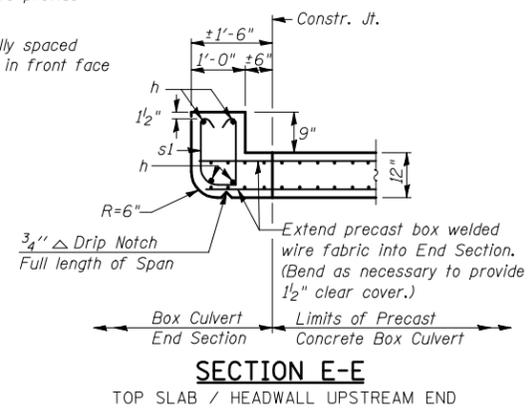
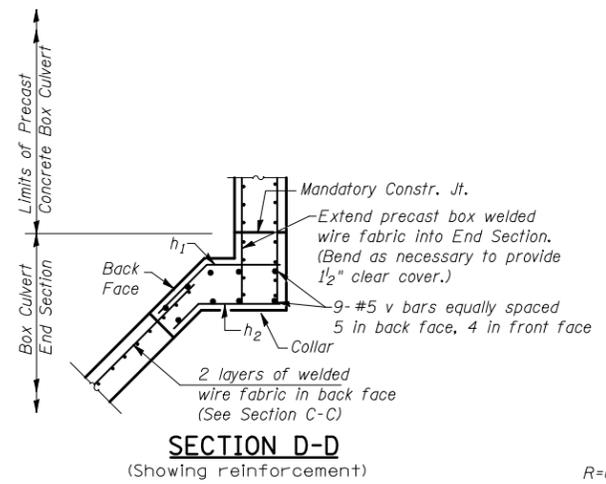
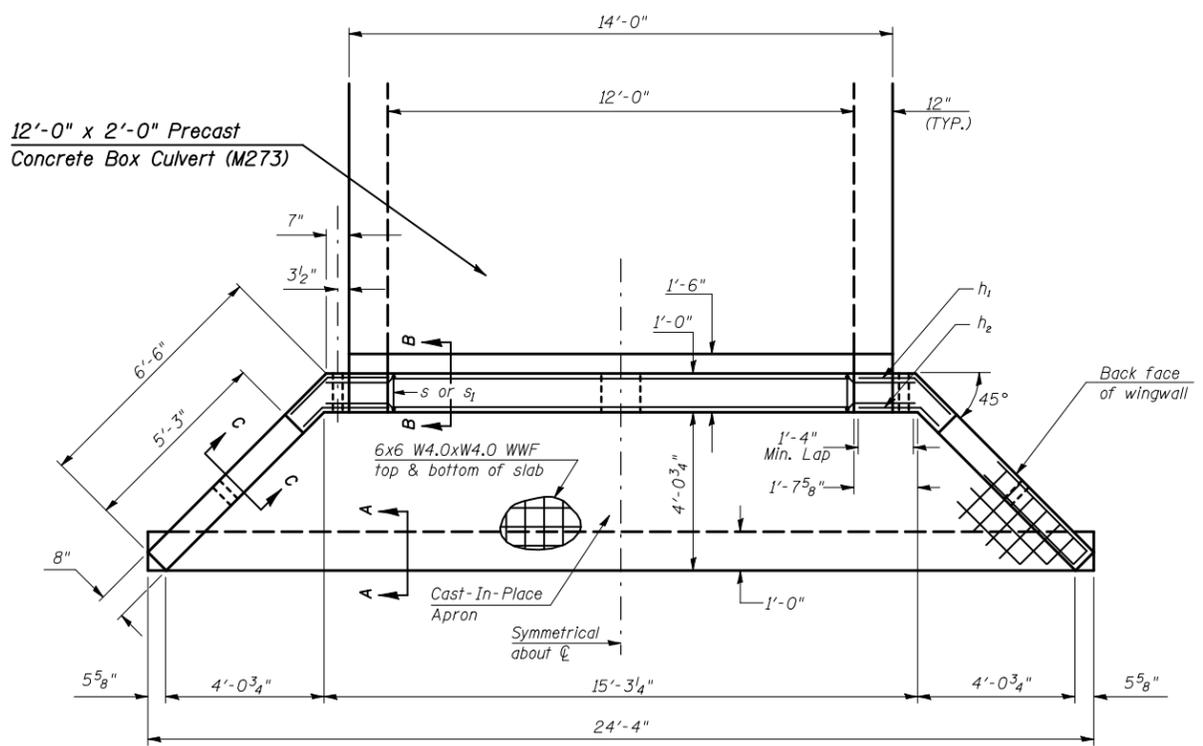
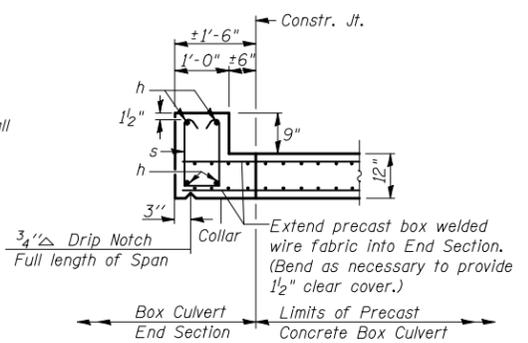
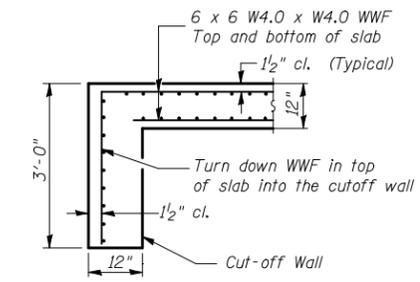
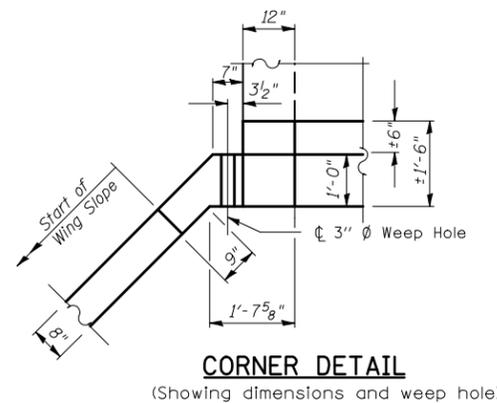
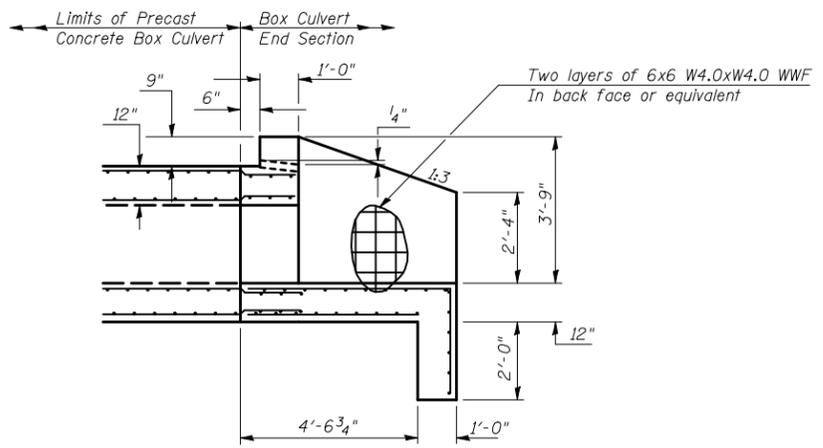
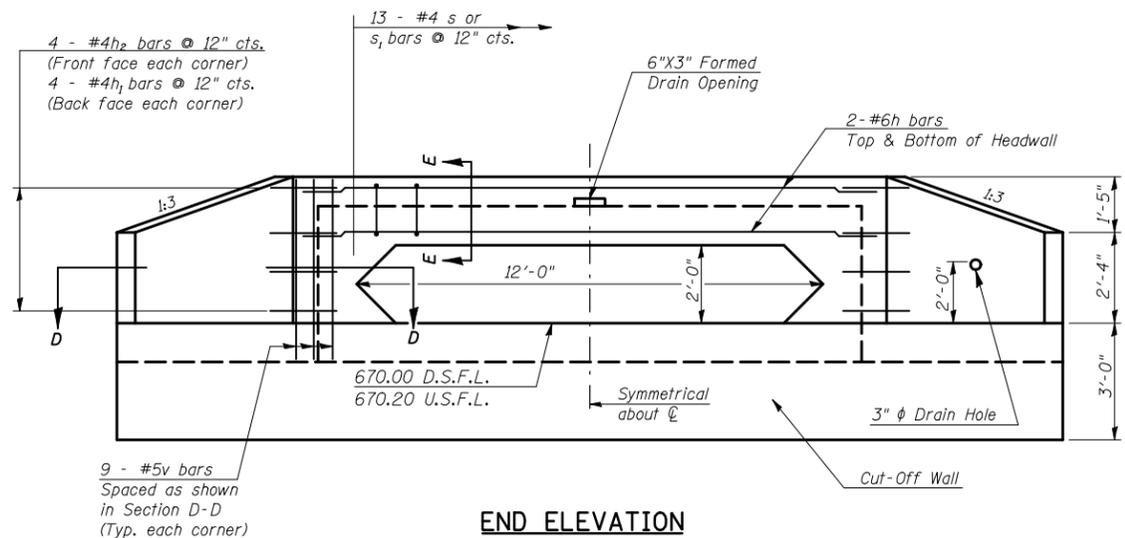
Item	Unit	Total
Precast Concrete Box Culverts 12'x2'	Foot	39
Box Culvert End Sections	Each	2
Name Plates	Each	1

SHEET 1 OF 4

GENERAL PLAN AND ELEVATION
SINGLE 12'x2' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 2169+55.00, S.N. 010-8140
CULVERT NO. 9

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	263

(205,57,105)RS-2
 CHAMPAIGN & DOUGLAS



BILL OF MATERIAL

For Information Only
 (One End Section)

Bar	No.	Size	Length	Shape
h	4	#6	15'-3"	—
h ₁	10	#4	2'-9"	—
h ₂	10	#4	2'-2"	—
s or s ₁	14	#4	4'-6"	□ □
v	18	#5	4'-6"	—
Item	Unit	Total		
Class SI Concrete	Cu. Yd.	9.1		
Reinforcement Bars	Pound	242.0		
Welded Wire Fabric	Sq. Ft.	519.0		

SHEET 2 OF 4

END SECTION DETAILS
SINGLE 12'x2' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 2169+55.00, S.N. 010-8140
CULVERT NO. 9

PLOT DATE = 8/12/2009
 FILE NAME = c:\pvc\work\p1001\CEARL\CD\480181445\70623-shr-culvert_details.dgn
 PLOT SCALE = 4.23525 / IN.
 USER NAME = ceerlockjd

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	264
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

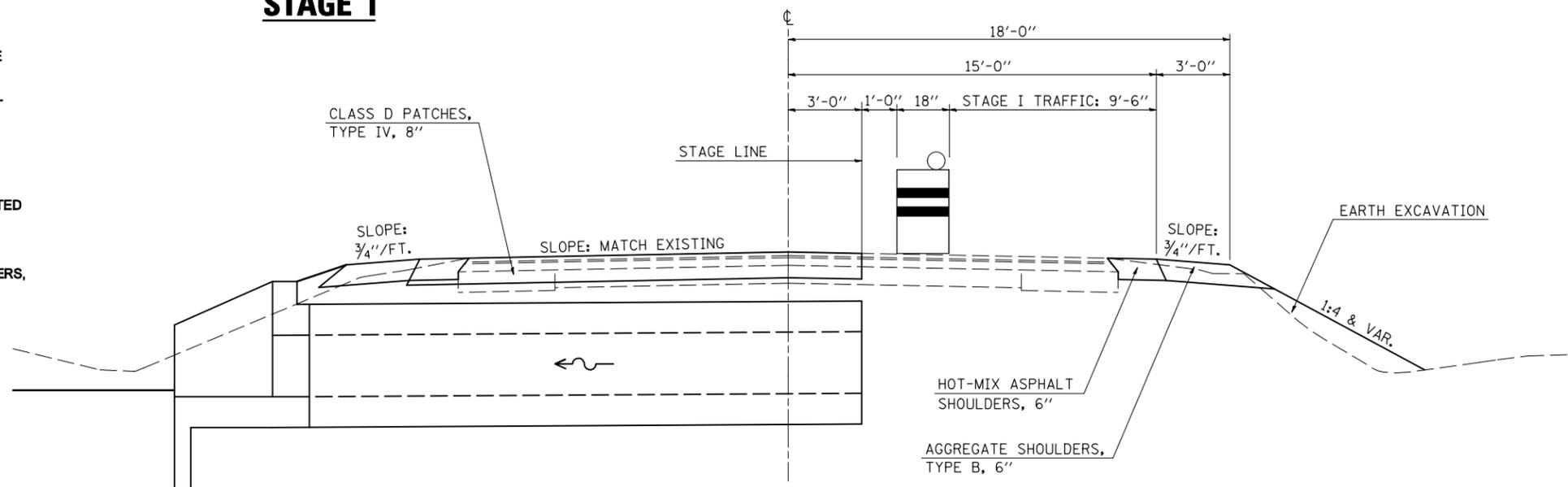
- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

GENERAL NOTES

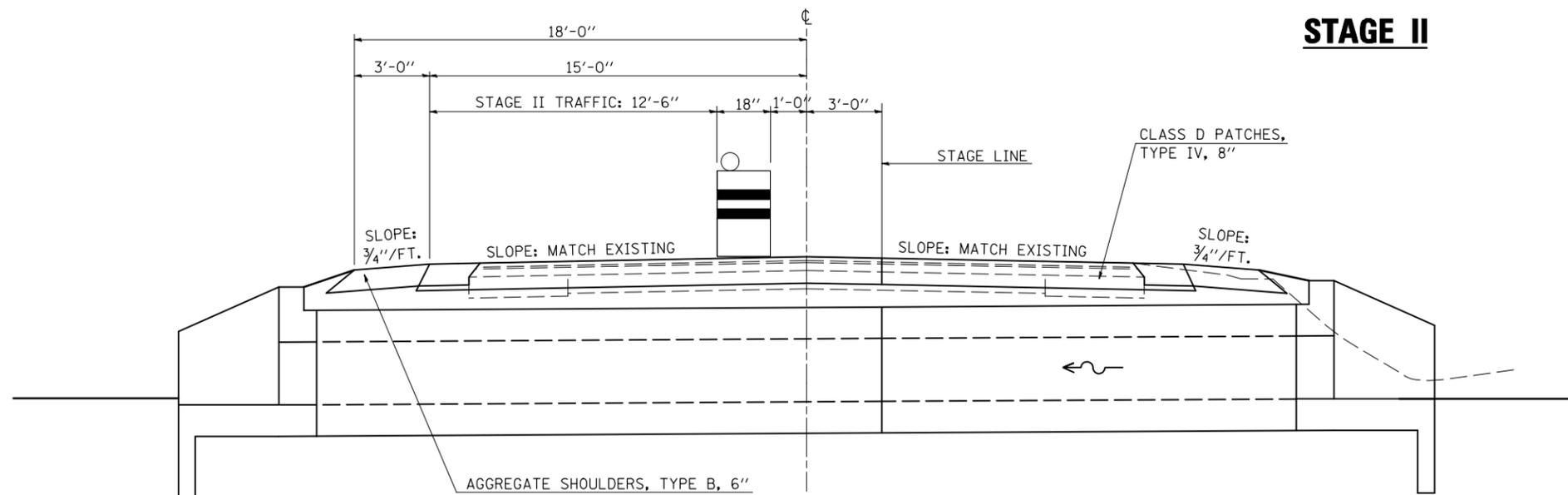
- REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL AND PROTECTION, STANDARD 701201 AND STAGE CONSTRUCTION ACROSS ROAD CULVERTS FOR ADDITIONAL INFORMATION.
- THE ENGINEER MAY REDUCE OR ELIMINATE LENGTHS OR LOCATIONS OF AGGREGATE, TYPE B, 6" AND EARTH EXCAVATION BASED ON FIELD CONDITIONS.
- CONSTRUCT DOWNSTREAM END OF A.R. CULVERT FIRST.
- EARTH EXCAVATED FOR THE CONSTRUCTION OF AGGREGATE SHOULDERS, TYPE B, 6" SHALL BE DEPOSITED AND GRADED TO SMOOTH THE FORESLOPES. THIS EXCAVATED EARTH WILL BE INCLUDED IN THE FINAL CROSS-SECTION VOLUMES FOR EARTHWORK BALANCE / WASTE CALCULATIONS.
- AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE I MAY BE COMPLETED AT ANY TIME PRIOR TO STAGE I. AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE II SHALL NOT BE COMPLETED UNTIL THE HALF-WIDTH CULVERT FROM STAGE I HAS BEEN CONSTRUCTED.
- REPLACE PREVIOUSLY CONSTRUCTED AGGREGATE SHOULDERS, TYPE B, 6" AS NEEDED WHEN PLACING FINAL AGGREGATE SHOULDERS, TYPE B.

STAGING DETAIL, CULVERT NO. 9
STATION 2169 + 55.00, S.N. 010-8140

STAGE I



STAGE II



SHEET 3 OF 4

A.R. CULVERT LOCATION	TRAFFIC CONTROL STANDARD	ESTIMATED TIME	CHANGEABLE MESSAGE SIGN
STA. 2169+55.00	701201	24 HRS (2) - 12 HR DAY SHIFTS	N/A

ILLINOIS DEPARTMENT OF TRANSPORTATION
STAGING DETAIL, CULVERT NO. 9
STATION 2169+55.00
S.N. 010-8140

SCALE: N/A
DATE: 08/01/09

DRAWN BY: B.B.P.
CHECKED BY: G.A.E.

PLOT DATE = 8/14/2009
 FILE NAME = g:\dwg\work\K\PIWIDOT\PERSONNEL\0010445\70623-sht-staging.dgn
 USER NAME = pier_sombir

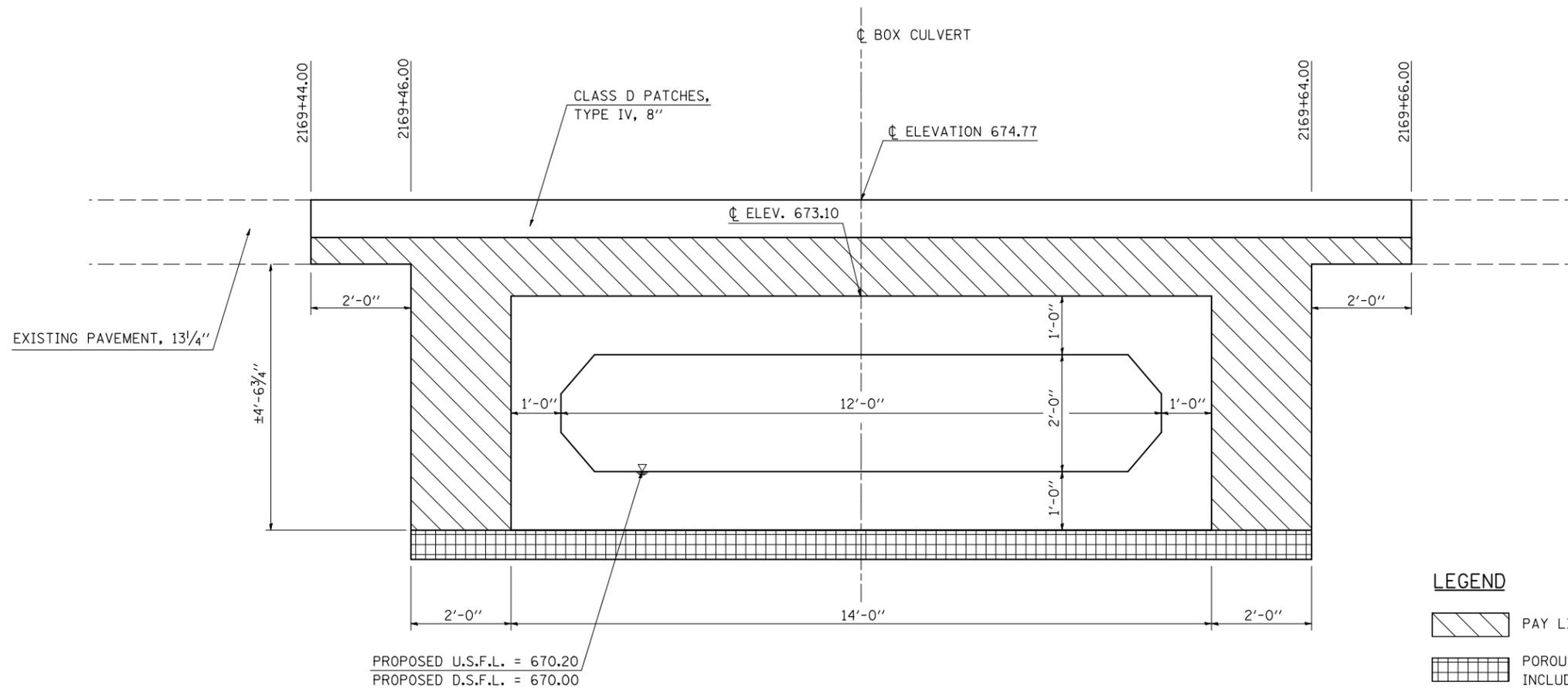
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	265
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- ** CHAMPAIGN & DOUGLAS

DETAIL OF POROUS GRANULAR EMBANKMENT PAY LIMITS

CULVERT NO. 9, STATION 2169+55.00

S.N. 010-8140



LEGEND

- PAY LIMITS OF POROUS GRANULAR EMBANKMENT - CA-6
- POROUS GRANULAR MATERIAL - CA-7 (6") INCLUDED IN PAY ITEM FOR BOX CULVERT

DRAWING NOT TO SCALE

GENERAL NOTES

- 1) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 207 AND SECTION 540 OF THE STANDARD SPECIFICATIONS.
- 2) POROUS GRANULAR EMBANKMENT SHALL EXTEND 2 FT. BEYOND THE AGGREGATE SHOULDER.
- 3) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR EMBANKMENT
- 4) THE AREA TO BE EXCAVATED FOR THE PROPOSED BOX CULVERT SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR STRUCTURE EXCAVATION.

SHEET 4 OF 4

ILLINOIS DEPARTMENT OF TRANSPORTATION
**DETAIL OF POROUS GRANULAR EMBANKMENT
 PAY LIMITS, STA. 2169+55.00
 CULVERT NO. 9**

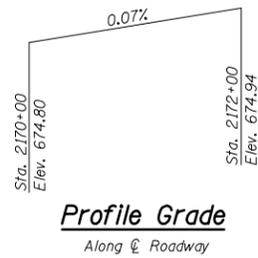
SCALE: N/A DRAWN BY: B.B.P.
 DATE: 07/14/09 CHECKED BY: G.A.E.

PLOT DATE = 8/19/2009
 FILE NAME = G:\pwwork\K\PIWIDOT\CEARLOCK\JD\0101445\70623-sht-detailed.dgn
 USER NAME = ceartock\j

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	266

BENCHMARK ELEV. = 673.029 Chiseled square on the S. end of a concrete pipe culvert under a private entrance 150' S. of CR 600N.

EXISTING STRUCTURE: The existing structure is a double 24" R.C.C.P. culvert constructed at Sta. 171+00 as S.A. 15, Section 94A-MFT in Champaign County. The existing structure shall be filled with controlled low strength material after the proposed culvert is constructed. The proposed structure will be built 145' to the north of the existing structure. Stage Construction will be utilized.



STATION 2171+00.00
BUILT 20__ BY
STATE OF ILLINOIS
F.A.P. RT. 808 SEC. (205,57,105)RS-2
LOADING HS 20
STRUCTURE NO. 010-8139

NAME PLATE
See Std. 515001

INDEX OF SHEETS

1. General Plan and Elevation
2. Box Culvert End Section Details
3. Staging Details
4. Porous Granular Detail

DESIGN SPECIFICATIONS
2002 AASHTO

LOADING HS20-44

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

DESIGN STRESSES

FIELD UNITS

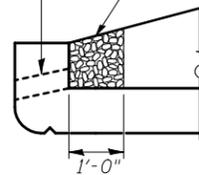
$f'c = 3,500$ psi
 $f_y = 60,000$ psi (reinforcement)
 $f_y = 65,000$ psi (welded wire fabric)

PRECAST UNITS

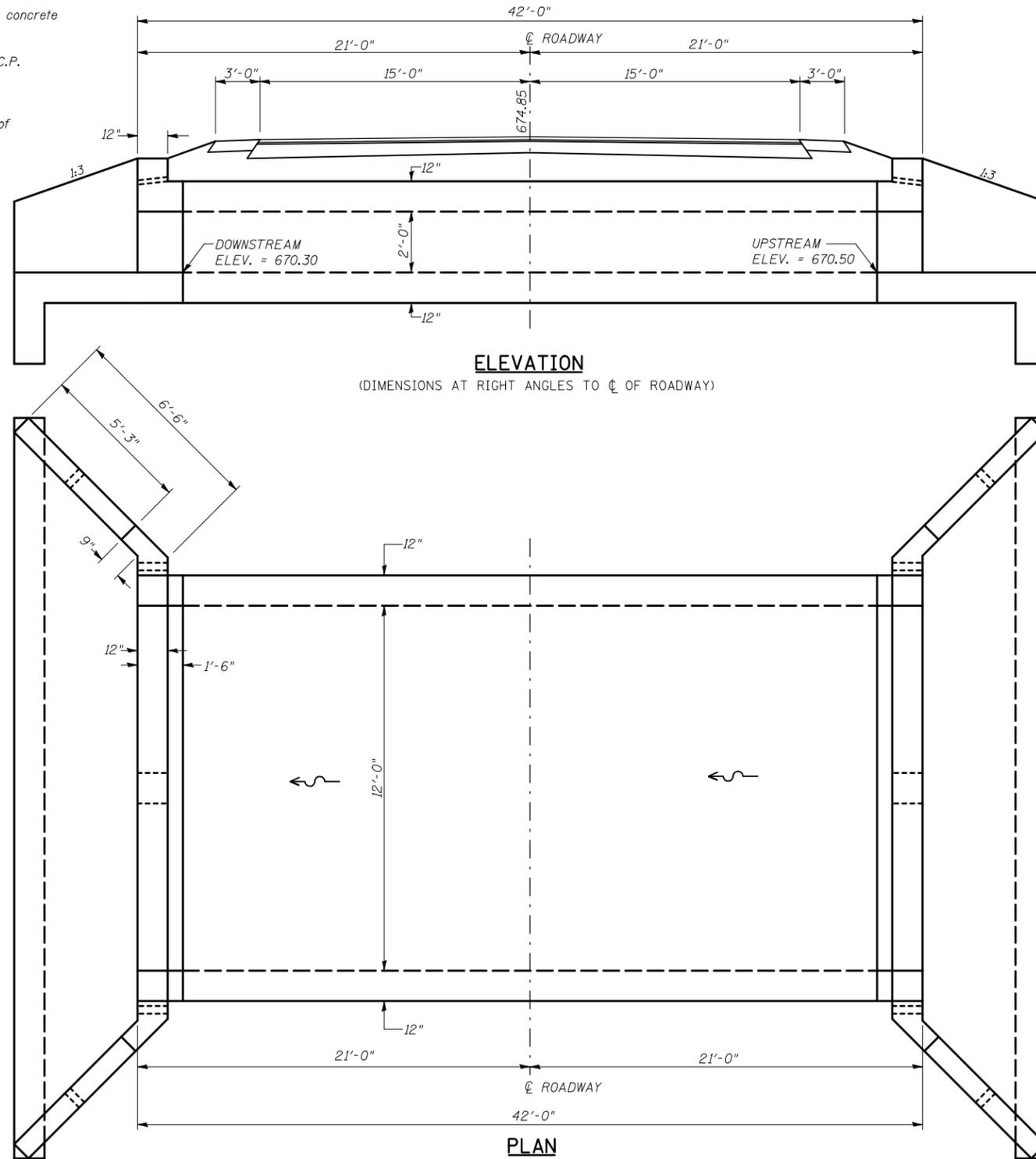
$f'c = 5,000$ psi
 $f_y = 65,000$ psi (welded wire fabric)

Coarse aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Concrete Box Culverts.

6" x 3" Formed Opening



DRAIN DETAIL



WATERWAY INFORMATION

Drainage Area = 0.302 sq. mi. Low Grade Elev. 674.77 @ Sta. 2169+55

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	134	6.3	48				Over	671.85
Base	50	227	6.3	48				Over	672.48
Overtopping	100	270	6.3	48				Over	672.86
Max. Calc.	500	377	6.3	48				Over	674.00

Note: Information provided using the USGS Regression Method. The proposed opening includes the opening of the proposed 12'x2' box culvert located at Sta. 2169+55.

General Notes

Build tops of headwalls parallel to the grade lines.

All construction joints shall be bonded according to Article 503.09 of the Standard Specifications.

Reinforcement bars shall conform to the requirements of ASTM A706 Gr. (IL Modified). See Special Provisions.

All bars should be rounded and conform to the requirements of Article 1006.10 of the Standard Specifications.

When lapping sheets of welded wire fabric, the overlap measured between the outermost cross wires of each fabric sheet shall not be less than 8"

End Sections will be paid for at the contract unit price per each for BOX CULVERT END SECTIONS, as outlined in Section 540 of the Standard Specifications.

Class SI Concrete shall be used throughout.

Concrete, Rebar, and Welded Wire Fabric quantities and lengths calculated for the cast-in-place End Sections may vary based on the precast box culverts supplied.

Drain holes shall be provided in accordance with Article 503.11 of the Standard Specifications.

The precast manufacturer shall design and detail a connection/construction joint between the precast concrete box sections and the cast-in-place apron and wingwall. The minimum area of reinforcement passing through these construction joints shall be 0.20 sq. in./lineal ft. of welded wire fabric. The design shall be detailed in the shop drawings. The cost of the connection is included in the cost of the end section.

The box culvert end section shall be built in the field and a precast option is not allowed except the cut-off wall may be precast. If the contractor elects to use a precast cut-off wall, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval.

The ends of the precast box sections adjacent to the end section shall be formed without the male and female shapes specified in Article 8.1 of AASHTO M273. See Section D-D on Sheet 2.

The design fill height for this box is less than 2 feet. The Precast Concrete Box Culvert Sections shall conform to the requirements of AASHTO M 273.

The joints between precast box sections shall be sealed, all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the backfilling process.

All dimensions are in FEET (') - INCHES (") unless otherwise noted.

Drawings not to scale.

TOTAL BILL OF MATERIAL

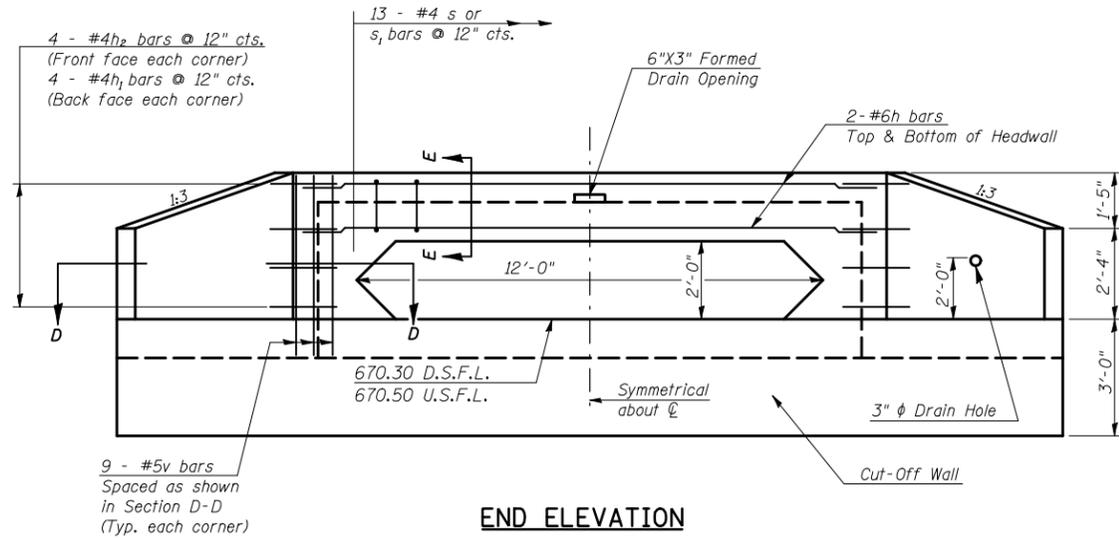
Item	Unit	Total
Precast Concrete Box Culverts 12'x2'	Foot	39
Box Culvert End Sections	Each	2
Name Plates	Each	1

SHEET 1 OF 4

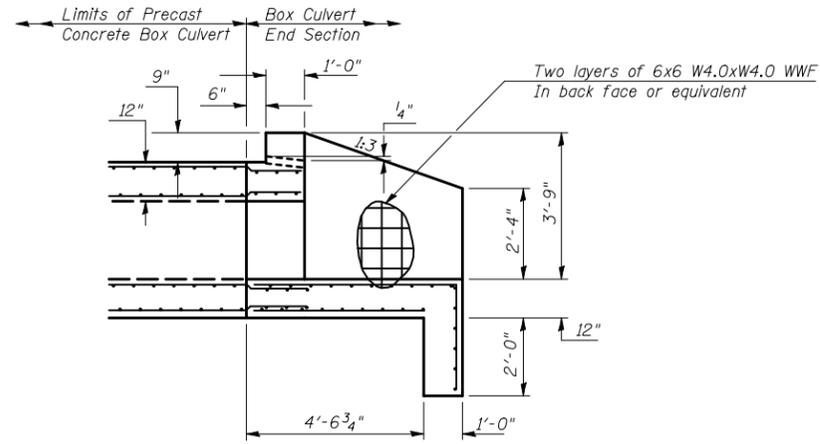
GENERAL PLAN AND ELEVATION
SINGLE 12'x2' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 2171+00.00, S.N. 010-8139
CULVERT NO. 10

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	267

(205,57,105)RS-2
 CHAMPAIGN & DOUGLAS

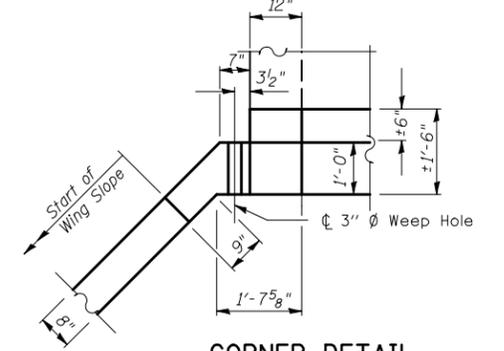


END ELEVATION

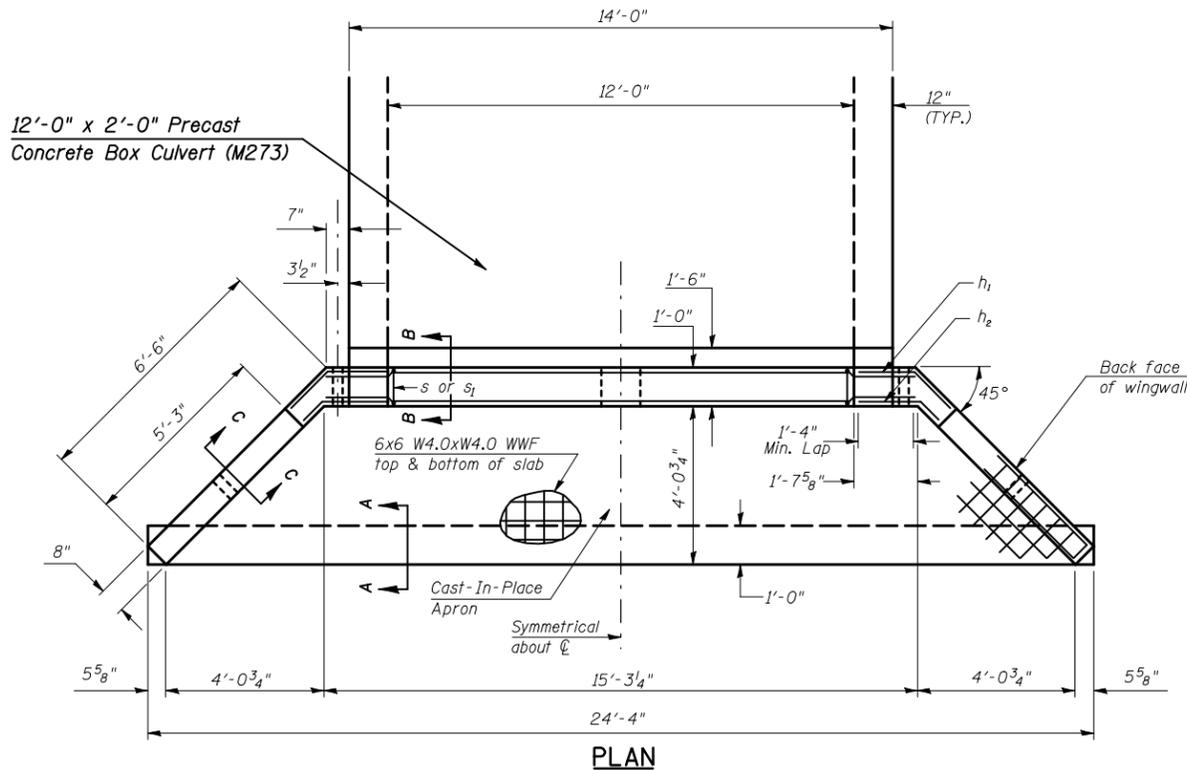


HALFSIDE ELEVATION

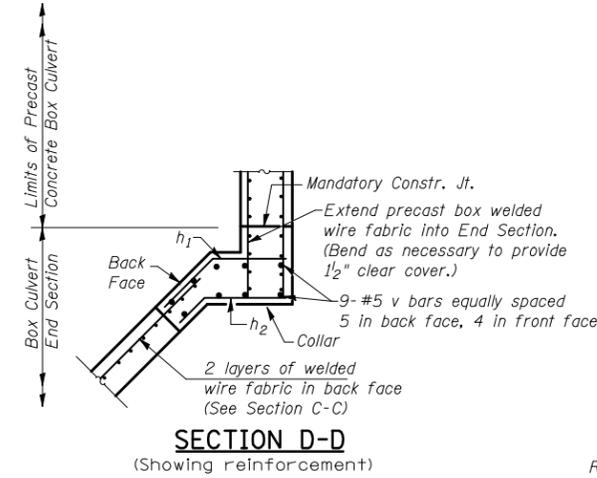
(DIMENSIONS AT RIGHT ANGLES TO CL ROADWAY)



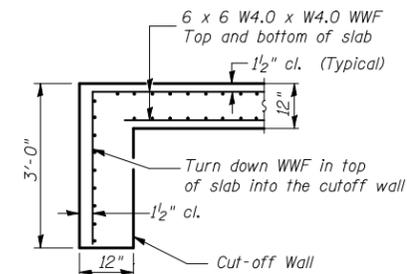
CORNER DETAIL
 (Showing dimensions and weep hole)



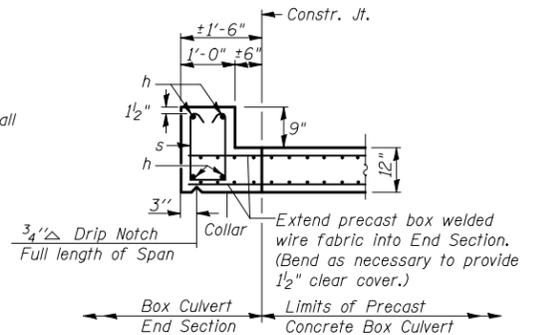
PLAN



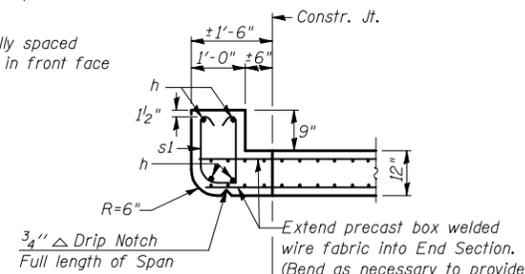
SECTION D-D
 (Showing reinforcement)



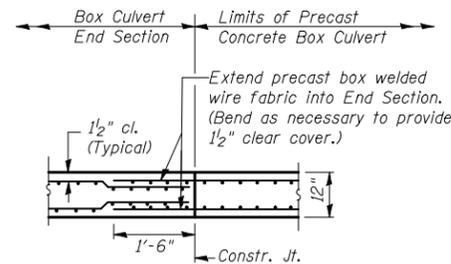
SECTION A-A
 DOWNSTREAM END



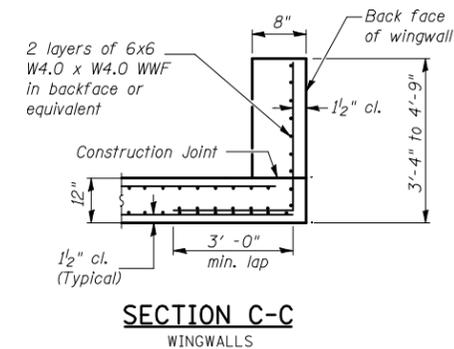
SECTION E-E
 TOP SLAB / HEADWALL DOWNSTREAM END



SECTION E-E
 TOP SLAB / HEADWALL UPSTREAM END



SECTION B-B
 BOTTOM SLAB



SECTION C-C
 WINGWALLS

BILL OF MATERIAL

For Information Only
 (One End Section)

Bar	No.	Size	Length	Shape
h	4	#6	15'-3"	—
h ₁	10	#4	2'-9"	—
h ₂	10	#4	2'-2"	—
s or s ₁	14	#4	4'-6"	□ □
v	18	#5	4'-6"	—
Item	Unit	Total		
Class SI Concrete	Cu. Yd.	9.1		
Reinforcement Bars	Pound	242.0		
Welded Wire Fabric	Sq. Ft.	519.0		

SHEET 2 OF 4

END SECTION DETAILS
 SINGLE 12'x2' PRECAST BOX CULVERT
 F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
 CHAMPAIGN COUNTY
 STATION 2171+00.00, S.N. 010-8139
 CULVERT NO. 10

PLOT DATE = 8/12/2009
 FILE NAME = c:\pvc\work\p1001\CEARL\CD\4801845\70623-shr-culvert_details.dgn
 PLOT SCALE = 4.23529 / IN.
 USER NAME = ceerlockjd

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	268
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

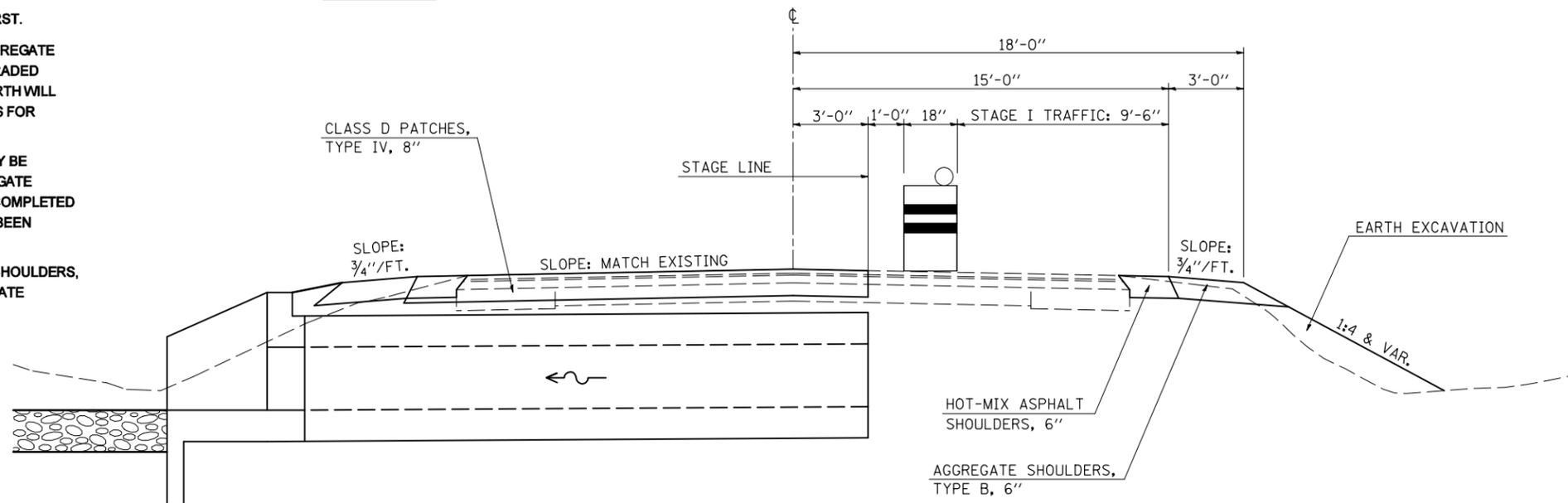
- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

GENERAL NOTES

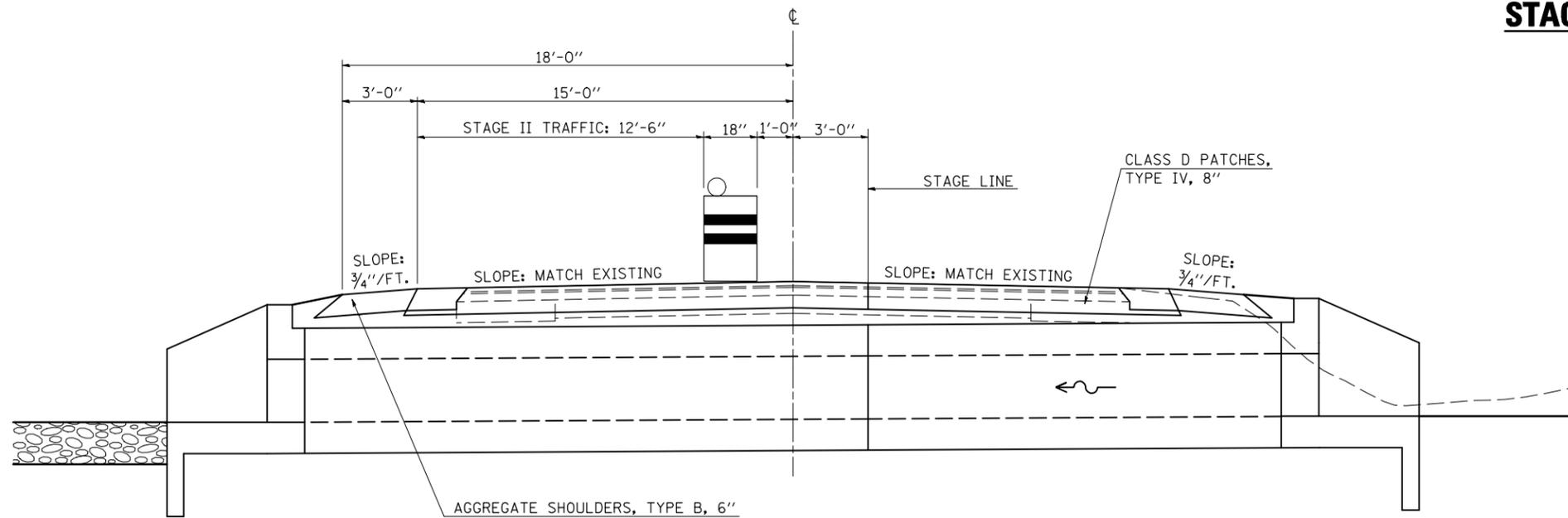
- REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL AND PROTECTION, STANDARD 701201 AND STAGE CONSTRUCTION ACROSS ROAD CULVERTS FOR ADDITIONAL INFORMATION.
- THE ENGINEER MAY REDUCE OR ELIMINATE LENGTHS OR LOCATIONS OF AGGREGATE, TYPE B, 6" AND EARTH EXCAVATION BASED ON FIELD CONDITIONS.
- CONSTRUCT DOWNSTREAM END OF A.R. CULVERT FIRST.
- EARTH EXCAVATED FOR THE CONSTRUCTION OF AGGREGATE SHOULDERS, TYPE B, 6" SHALL BE DEPOSITED AND GRADED TO SMOOTH THE FORESLOPES. THIS EXCAVATED EARTH WILL BE INCLUDED IN THE FINAL CROSS-SECTION VOLUMES FOR EARTHWORK BALANCE / WASTE CALCULATIONS.
- AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE I MAY BE COMPLETED AT ANY TIME PRIOR TO STAGE I. AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE II SHALL NOT BE COMPLETED UNTIL THE HALF-WIDTH CULVERT FROM STAGE I HAS BEEN CONSTRUCTED.
- REPLACE PREVIOUSLY CONSTRUCTED AGGREGATE SHOULDERS, TYPE B, 6" AS NEEDED WHEN PLACING FINAL AGGREGATE SHOULDERS, TYPE B.

STAGING DETAIL, CULVERT NO. 10
STATION 2171 + 00.00, S.N. 010-8139

STAGE I



STAGE II



SHEET 3 OF 4

A.R. CULVERT LOCATION	TRAFFIC CONTROL STANDARD	ESTIMATED TIME	CHANGEABLE MESSAGE SIGN
STA. 2171+00.00	701201	24 HRS (2) - 12 HR DAY SHIFTS	N/A

ILLINOIS DEPARTMENT OF TRANSPORTATION
STAGING DETAIL, CULVERT NO. 10
STA. 2171+00.00
S.N. 010-8139

SCALE: N/A
 DATE: 08/01/09
 DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

PLOT DATE = 8/14/2009
 FILE NAME = G:\DWG\WORK\PIWIDOT\PERSONNEL\DOUGLAS\70623-sht-staging.dgn
 USER NAME = piersonbr

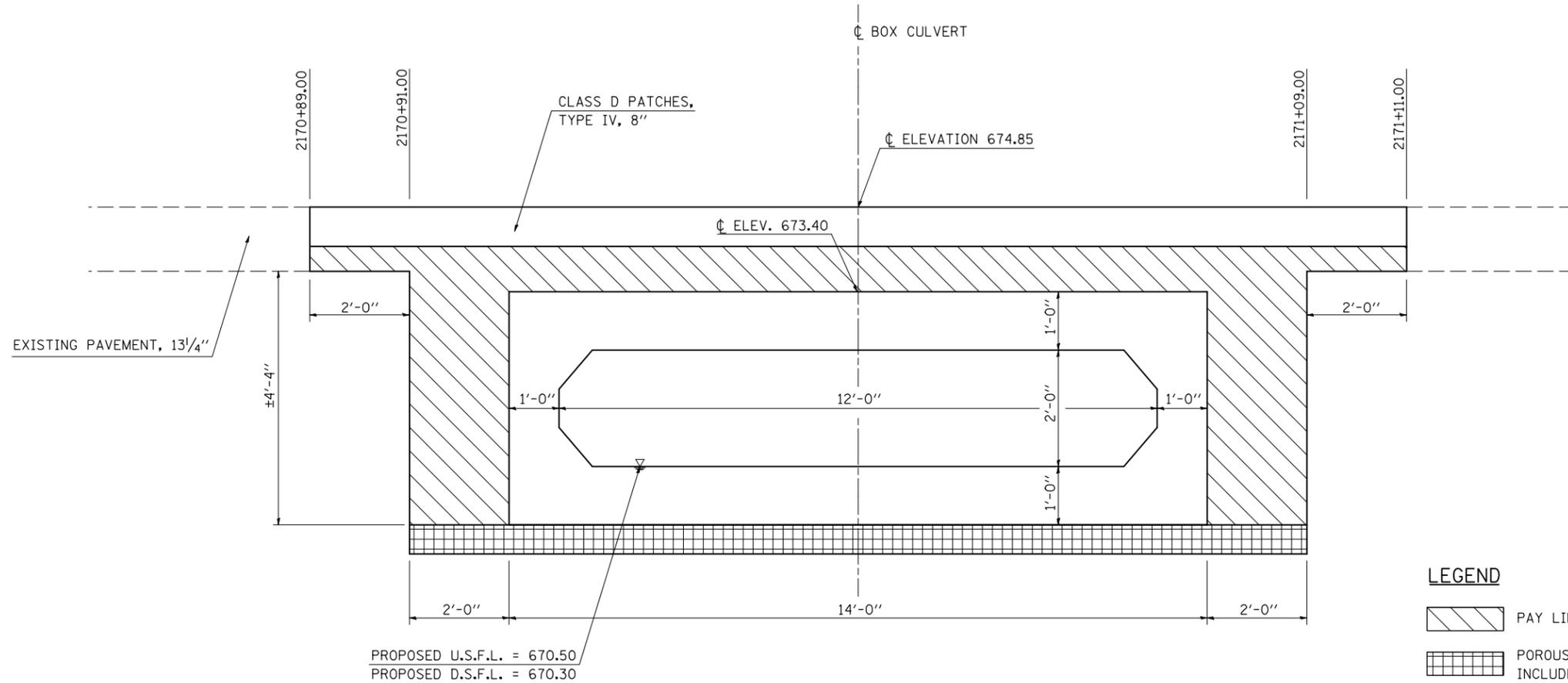
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	269
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

DETAIL OF POROUS GRANULAR EMBANKMENT PAY LIMITS

CULVERT NO. 10, STATION 2171 + 00.00

S.N. 010-8139



- LEGEND**
- PAY LIMITS OF POROUS GRANULAR EMBANKMENT - CA-6
 - POROUS GRANULAR MATERIAL - CA-7 (6") INCLUDED IN PAY ITEM FOR BOX CULVERT

DRAWING NOT TO SCALE

GENERAL NOTES

- 1) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 207 AND SECTION 540 OF THE STANDARD SPECIFICATIONS.
- 2) POROUS GRANULAR EMBANKMENT SHALL EXTEND 2 FT. BEYOND THE AGGREGATE SHOULDER.
- 3) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR EMBANKMENT.
- 4) THE AREA TO BE EXCAVATED FOR THE PROPOSED BOX CULVERT SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR STRUCTURE EXCAVATION.

SHEET 4 OF 4

ILLINOIS DEPARTMENT OF TRANSPORTATION
DETAIL OF POROUS GRANULAR EMBANKMENT
PAY LIMITS, STA. 2171+00.00
CULVERT NO. 10

SCALE: N/A
 DATE: 07/14/09

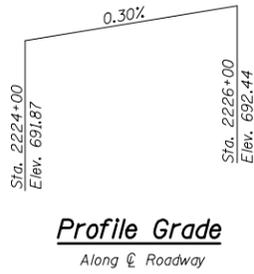
DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

PLOT DATE = 8/19/2009
 FILE NAME = G:\pwwork\K:\P\WIDOT\CEARLOCK\JD\0101445\70623-sht-detailed.dgn
 USER NAME = ceartock\jd

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	270

BENCHMARK ELEV. = 691.316 Chiseled square in the center of the E. headwall of box culvert.

EXISTING STRUCTURE: The existing structure is a 4'x1 1/2' R.C. box culvert constructed at Sta. 225+00 as S.A. 15, Section 94A-MFT in Champaign County. The existing structure is to be completely removed. Stage Construction will be utilized.



STATION 2224+94.00
BUILT 20__ BY
STATE OF ILLINOIS
F.A.P. RT. 808 SEC. (205,57,105)RS-2
LOADING HS 20
STRUCTURE NO. 010-2035

NAME PLATE
See Std. 515001

INDEX OF SHEETS

1. General Plan and Elevation
2. Box Culvert End Section Details
3. Staging Details
4. Porous Granular Detail
5. Existing Structure Information

DESIGN SPECIFICATIONS
2002 AASHTO

LOADING HS20-44

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

DESIGN STRESSES

FIELD UNITS

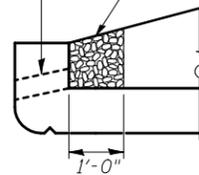
f'c = 3,500 psi
fy = 60,000 psi (reinforcement)
fy = 65,000 psi (welded wire fabric)

PRECAST UNITS

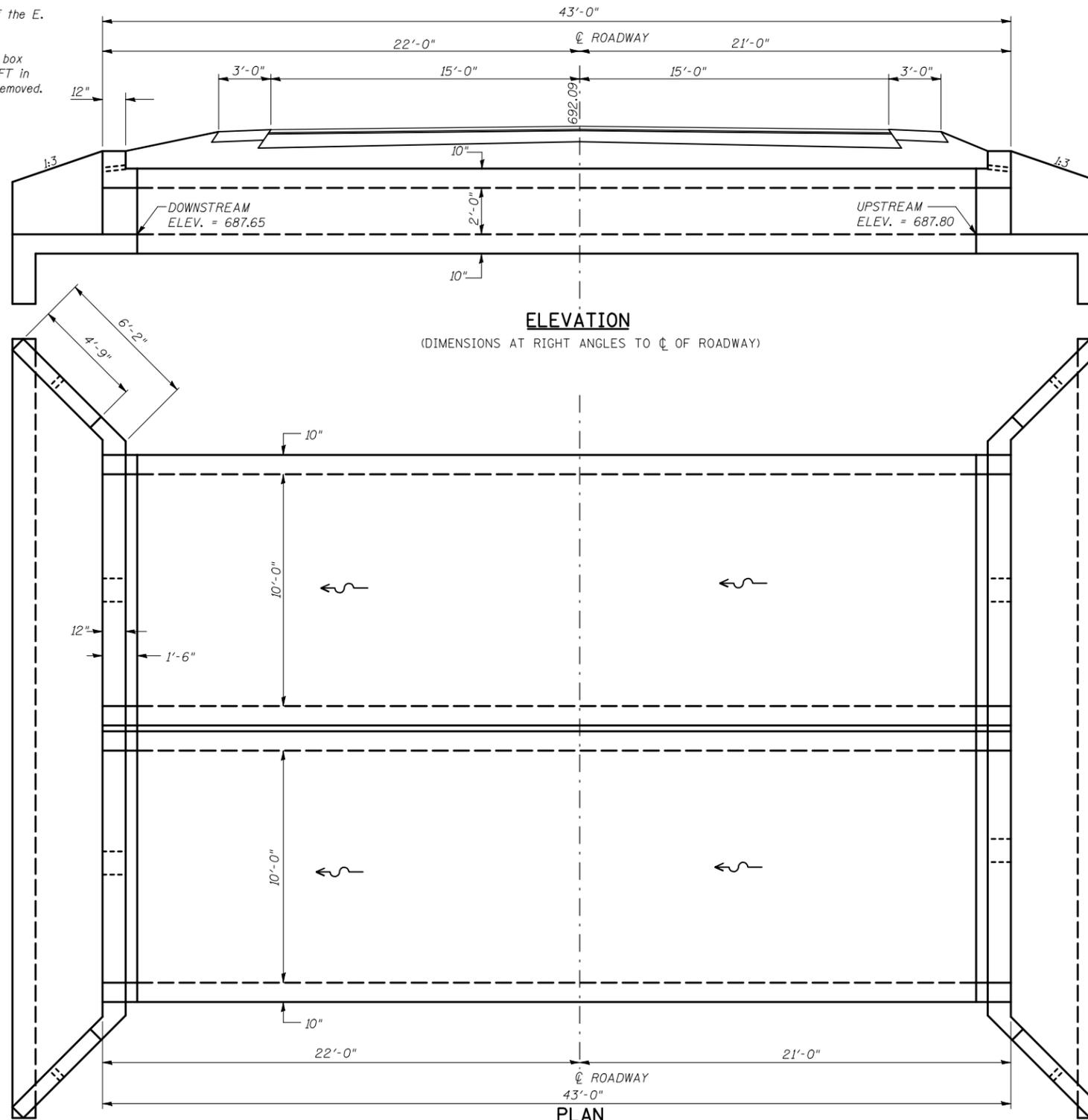
f'c = 5,000 psi
fy = 65,000 psi (welded wire fabric)

Coarse aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Concrete Box Culverts.

6" x 3" Formed Opening



DRAIN DETAIL



WATERWAY INFORMATION

Drainage Area = 0.147 sq. mi. Low Grade Elev. 692.09 @ Sta. 2224+94

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
	10	119	6	40			Over	689.56	
Design	50	208	6	40			Over	690.00	
Base	100	251	6	40			Over	690.70	
Overtopping									
Max. Calc.	500	358	6	40			Over	Over	

Note: Information provided using the USGS Regression Method.

General Notes

Build tops of headwalls parallel to the grade lines.

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

All construction joints shall be bonded according to Article 503.09 of the Standard Specifications.

Reinforcement bars shall conform to the requirements of ASTM A706 Gr. (IL Modified). See Special Provisions.

All bars should be rounded and conform to the requirements of Article 1006.10 of the Standard Specifications.

When lapping sheets of welded wire fabric, the overlap measured between the outermost cross wires of each fabric sheet shall not be less than 8"

End Sections will be paid for at the contract unit price per each for BOX CULVERT END SECTIONS, as outlined in Section 540 of the Standard Specifications.

Class SI Concrete shall be used throughout.

Concrete, Rebar, and Welded Wire Fabric quantities and lengths calculated for the cast-in-place End Sections may vary based on the precast box culverts supplied.

Drain holes shall be provided in accordance with Article 503.11 of the Standard Specifications.

The precast manufacturer shall design and detail a connection/construction joint between the precast concrete box sections and the cast-in-place apron and wingwall. The minimum area of reinforcement passing through these construction joints shall be 0.20 sq. in./lineal ft. of welded wire fabric. The design shall be detailed in the shop drawings. The cost of the connection is included in the cost of the end section.

The box culvert end section shall be built in the field and a precast option is not allowed except the cut-off wall may be precast. If the contractor elects to use a precast cut-off wall, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval.

The ends of the precast box sections adjacent to the end section shall be formed without the male and female shapes specified in Article 8.1 of AASHTO M273. See Section D-D on Sheet 2.

The design fill height for this box is less than 2 feet. The Precast Concrete Box Culvert Sections shall conform to the requirements of AASHTO M 273.

The joints between precast box sections shall be sealed, all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the backfilling process.

All dimensions are in FEET (') - INCHES (") unless otherwise noted.

Drawings not to scale.

TOTAL BILL OF MATERIAL

Item	Unit	Total
Removal of Existing Structures	Each	1
Precast Concrete Box Culverts 10'x2'	Foot	80
Box Culvert End Sections	Each	2
Name Plates	Each	1

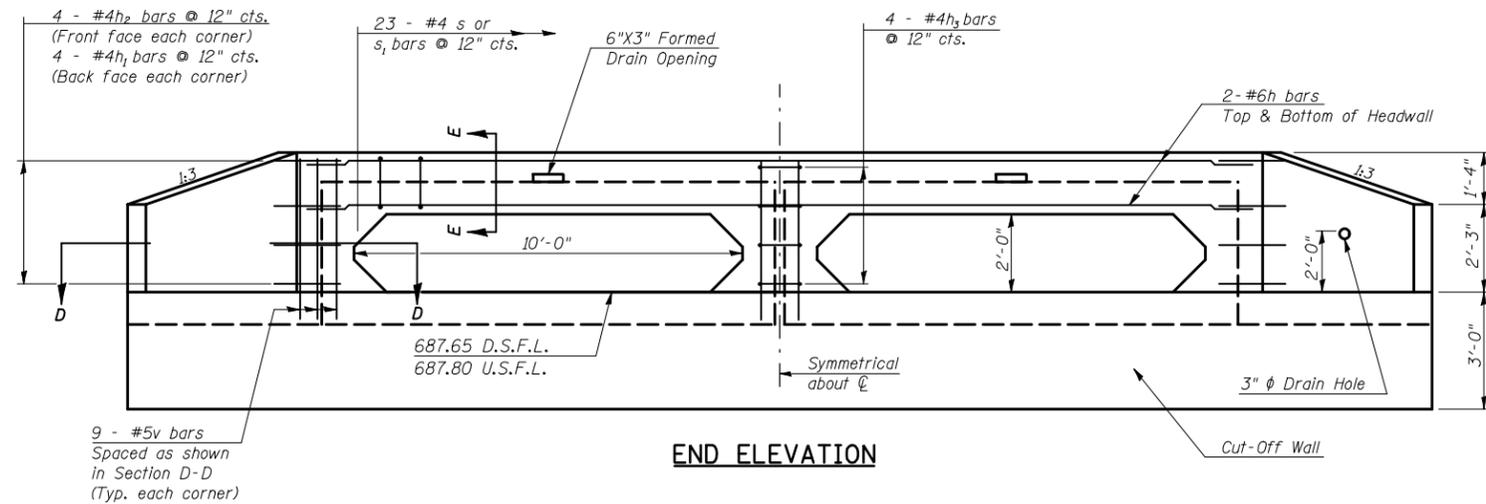
SHEET 1 OF 5

GENERAL PLAN AND ELEVATION
DOUBLE 10'x2' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 2224+94.00, S.N. 010-2035
CULVERT NO. 11

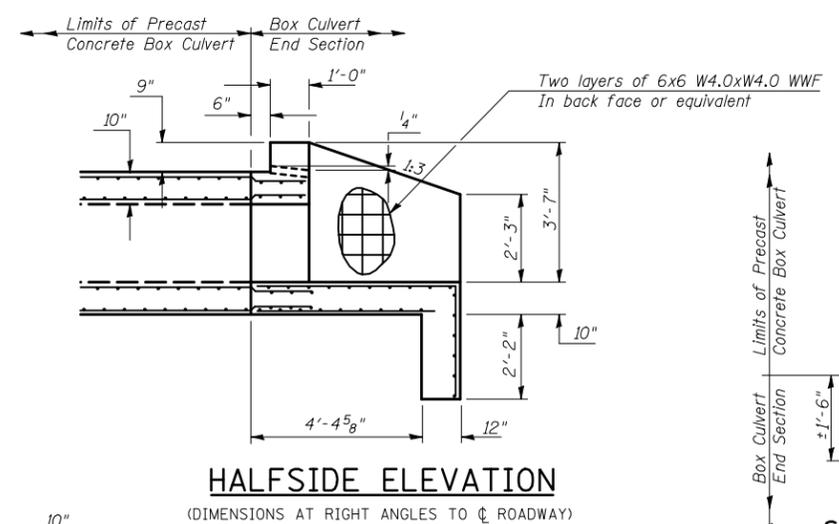
PLOT DATE = 8/12/2009
 FILE NAME = c:\pvc\work\p10101\CEARL\CD\48101445\70623-shr-culvert_details.dgn
 PLOT SCALE = 4.23629 / IN.
 USER NAME = ceerlockjd

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	271

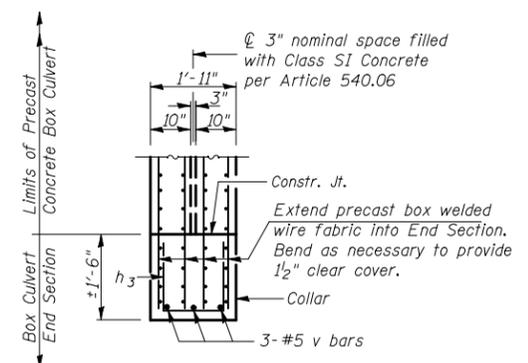
(205,57,105)RS-2
 CHAMPAIGN & DOUGLAS



END ELEVATION

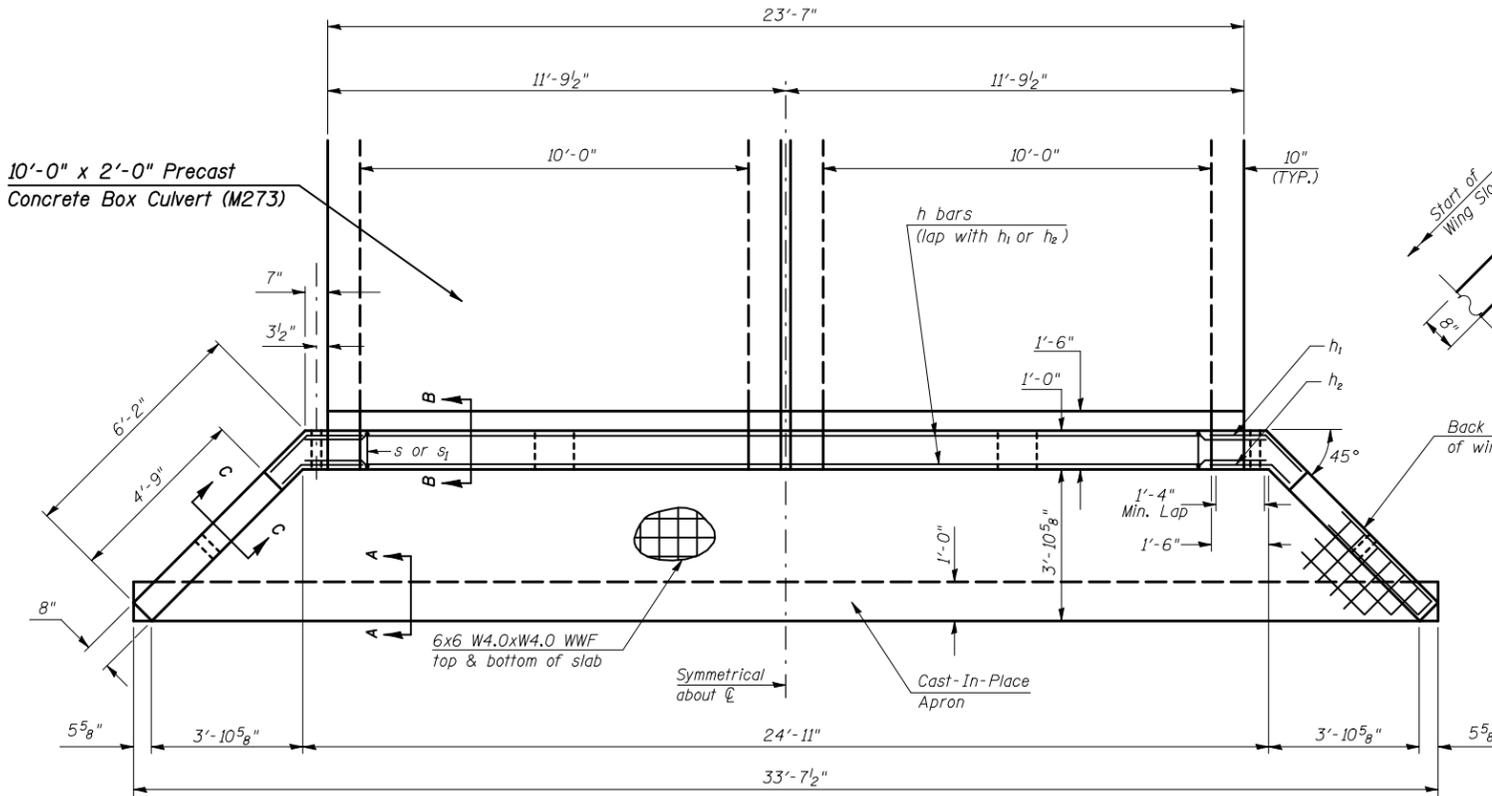


HALFSIDE ELEVATION
 (DIMENSIONS AT RIGHT ANGLES TO CL ROADWAY)

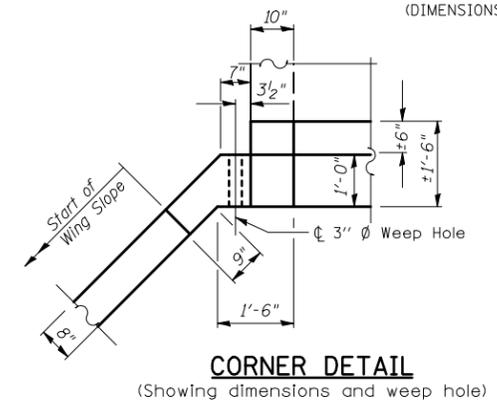


SECTION E-E

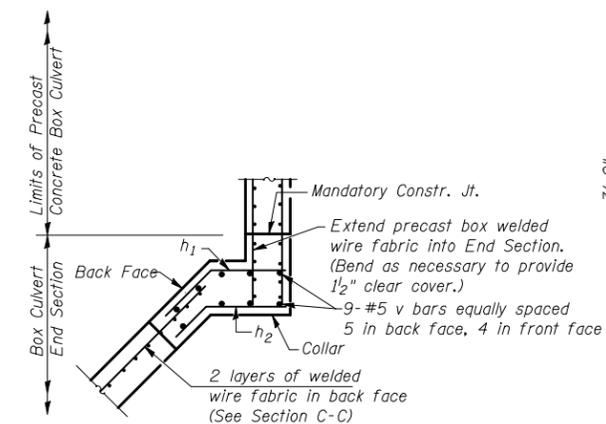
Tilt or adjust h3 bar as necessary to fit



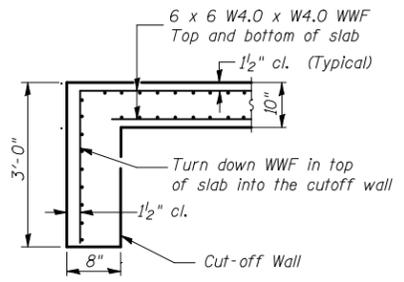
PLAN



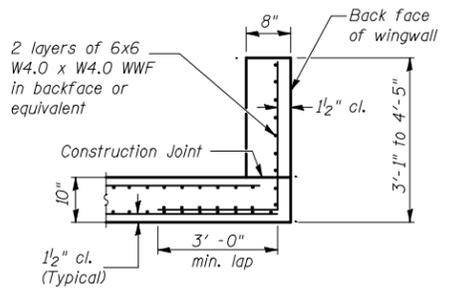
CORNER DETAIL
 (Showing dimensions and weep hole)



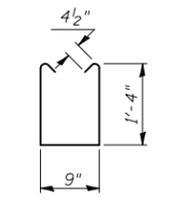
SECTION D-D
 (Showing reinforcement)



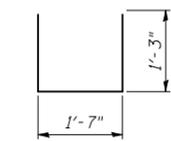
SECTION A-A
 DOWNSTREAM END



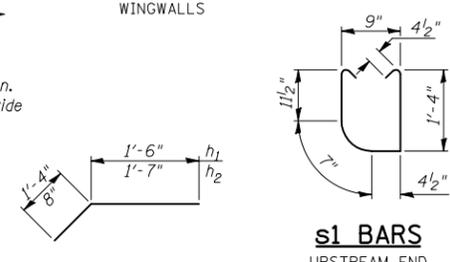
SECTION C-C
 WINGWALLS



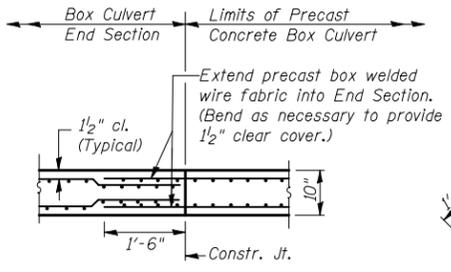
s BARS
 DOWNSTREAM END



h3 BARS
 DOWNSTREAM END



h1 & h2 BARS
 UPSTREAM END



SECTION B-B
 BOTTOM SLAB

BILL OF MATERIAL
 For Information Only
 (One End Section)

Bar	No.	Size	Length	Shape	
h	4	#6	24'-11"	—	
h1	8	#4	2'-10"	—	
h2	8	#4	2'-3"	—	
h3	4	#4	4'-1"	—	
s or s1	23	#4	4'-2"	—	
v	21	#5	4'-2"	—	
Item				Unit	Total
Class SI Concrete				Cu. Yd.	11.4
Reinforcement Bars				Pound	344.0
Welded Wire Fabric				Sq. Ft.	523.0

SHEET 2 OF 5

END SECTION DETAILS
DOUBLE 10'x2' PRECAST BOX CULVERT
 F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
 CHAMPAIGN COUNTY
 STATION 2224+94.00, S.N. 010-2035
 CULVERT NO. 11

PLOT DATE = 8/12/2009
 FILE NAME = c:\pvc\work\p10101\CEARL\CKD\4801445\70623-shr-culvert.dwg
 PLOT SCALE = 4:23525 / IN.
 USER NAME = cee1ackjd

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	272
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

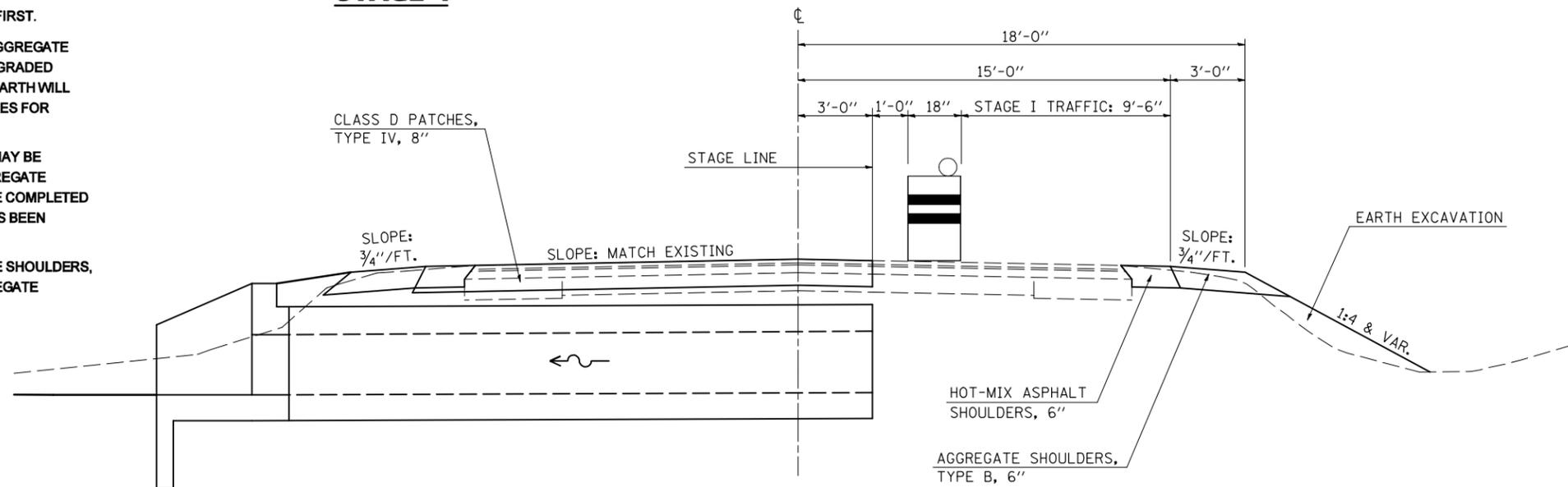
- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

GENERAL NOTES

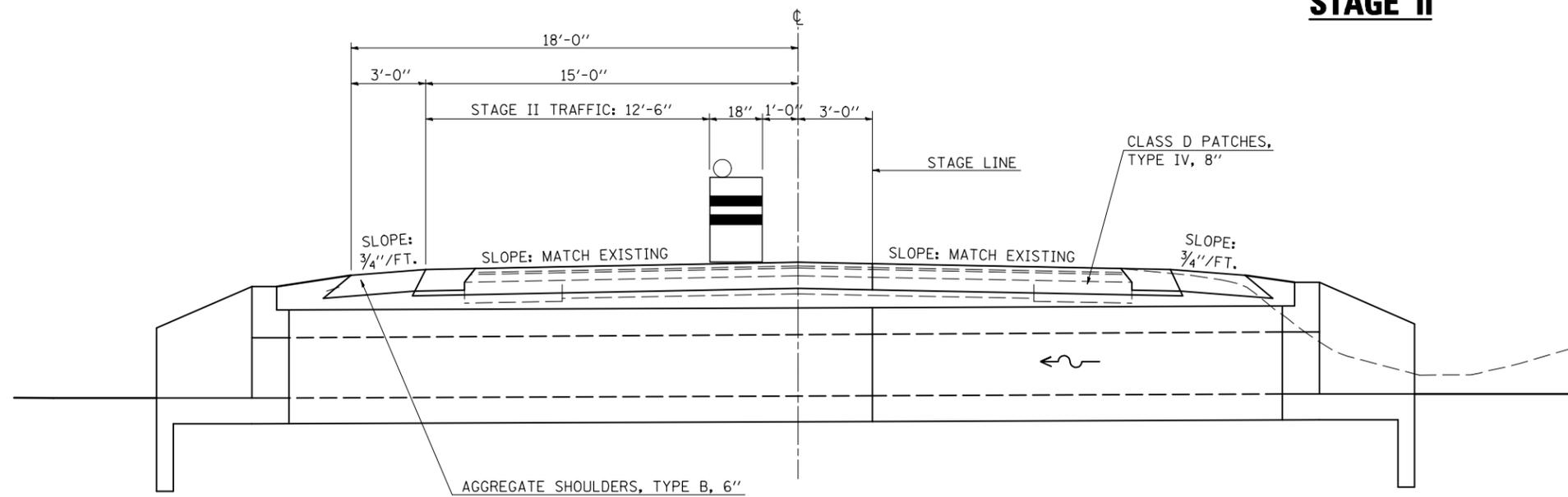
- REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL AND PROTECTION, STANDARD 701206 AND STAGE CONSTRUCTION ACROSS ROAD CULVERTS FOR ADDITIONAL INFORMATION.
- THE ENGINEER MAY REDUCE OR ELIMINATE LENGTHS OR LOCATIONS OF AGGREGATE, TYPE B, 6" AND EARTH EXCAVATION BASED ON FIELD CONDITIONS.
- CONSTRUCT DOWNSTREAM END OF A.R. CULVERT FIRST.
- EARTH EXCAVATED FOR THE CONSTRUCTION OF AGGREGATE SHOULDERS, TYPE B, 6" SHALL BE DEPOSITED AND GRADED TO SMOOTH THE FORESLOPES. THIS EXCAVATED EARTH WILL BE INCLUDED IN THE FINAL CROSS-SECTION VOLUMES FOR EARTHWORK BALANCE / WASTE CALCULATIONS.
- AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE I MAY BE COMPLETED AT ANY TIME PRIOR TO STAGE I. AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE II SHALL NOT BE COMPLETED UNTIL THE HALF-WIDTH CULVERT FROM STAGE I HAS BEEN CONSTRUCTED.
- REPLACE PREVIOUSLY CONSTRUCTED AGGREGATE SHOULDERS, TYPE B, 6" AS NEEDED WHEN PLACING FINAL AGGREGATE SHOULDERS, TYPE B.

STAGING DETAIL, CULVERT NO. 11
STATION 2224 + 94.00, S.N. 010-2035

STAGE I



STAGE II



PLOT DATE = 8/14/2009
 FILE NAME = G:\DWG\WORK\PIWIDOT\PERSONNEL\DOUGLAS\70623-sht-staging.dgn
 USER NAME = piersonbr

A.R. CULVERT LOCATION	TRAFFIC CONTROL STANDARD	ESTIMATED TIME	CHANGEABLE MESSAGE SIGN
STA. 2224+94.00	701206	84 HRS / NON-STOP (4) - 12 HR DAY SHIFTS (3) - 12 HR NIGHT SHIFTS	2.0 EACH AT 4.0 CAL DAY = 8.0 CAL DAY

SHEET 3 OF 5

ILLINOIS DEPARTMENT OF TRANSPORTATION
STAGING DETAIL, CULVERT NO. 11
STA. 2224+94.00
S.N. 010-2035

SCALE: N/A
 DATE: 08/01/09

DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

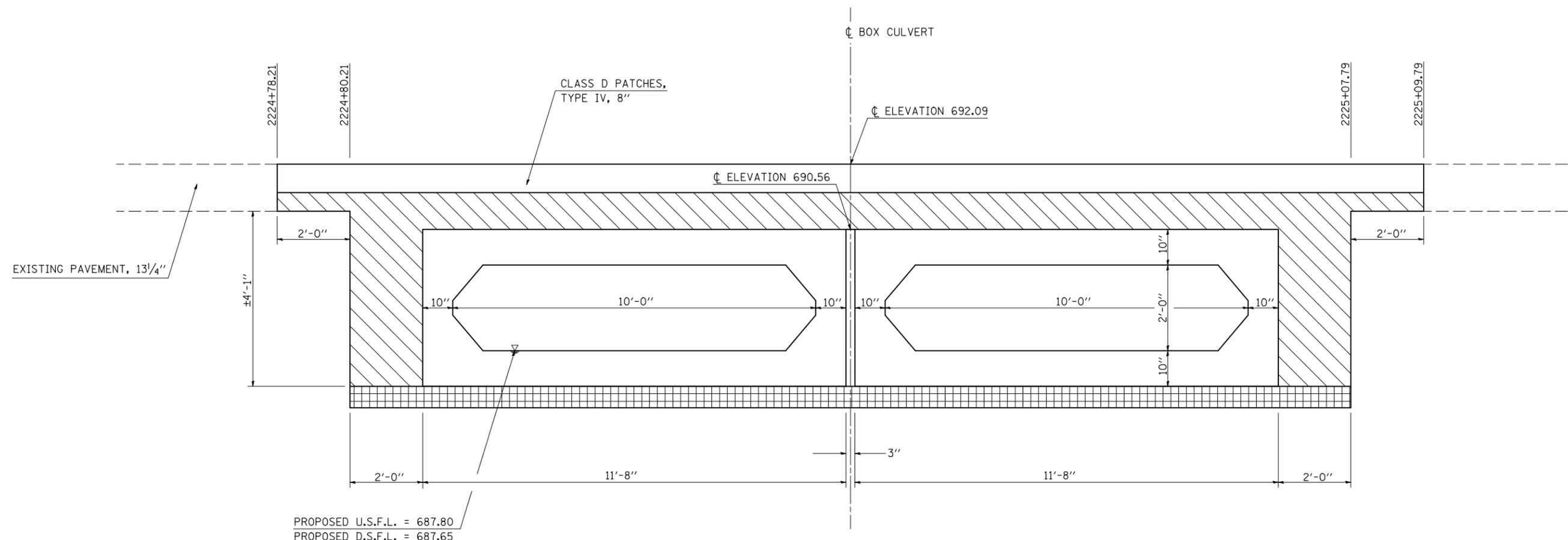
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	273
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- ** CHAMPAIGN & DOUGLAS

DETAIL OF POROUS GRANULAR EMBANKMENT PAY LIMITS

CULVERT NO. 11, STATION 2224 + 94.00

S.N. 010-2035



LEGEND

- PAY LIMITS OF POROUS GRANULAR EMBANKMENT - CA-6
- POROUS GRANULAR MATERIAL - CA-7 (6") INCLUDED IN PAY ITEM FOR BOX CULVERT

DRAWING NOT TO SCALE

GENERAL NOTES

- 1) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 207 AND SECTION 540 OF THE STANDARD SPECIFICATIONS.
- 2) POROUS GRANULAR EMBANKMENT SHALL EXTEND 2 FT BEYOND THE AGGREGATE SHOULDER.
- 3) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR EMBANKMENT.
- 4) THE AREA TO BE EXCAVATED FOR THE PROPOSED BOX CULVERT SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR STRUCTURE EXCAVATION. THE QUANTITY CALCULATED WILL BE THE AREA FOR THE PROPOSED STRUCTURE LESS THE AREA REQUIRED TO REMOVE THE EXISTING STRUCTURE. THE EXISTING STRUCTURE AREA IS CONSIDERED TO BE THE AREA CONTAINED BETWEEN THE BOTTOM OF THE PAVEMENT TO THE BOTTOM OF THE STRUCTURE TIMES THE OUTSIDE DIAMETER OF THE STRUCTURE.
- 5) THE SPACE BETWEEN MULTI-CELL BOXES SHALL BE FILLED ACCORDING TO ARTICLE 540.06 AND SHALL NOT BE PAID FOR SEPERATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS ASSOCIATED WITH BOX CULVERT CONSTRUCTION.

SHEET 4 OF 5

ILLINOIS DEPARTMENT OF TRANSPORTATION
DETAIL OF POROUS GRANULAR EMBANKMENT
PAY LIMITS, STA. 2224+94.00
CULVERT NO. 11

SCALE: N/A
 DATE: 07/17/09

DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

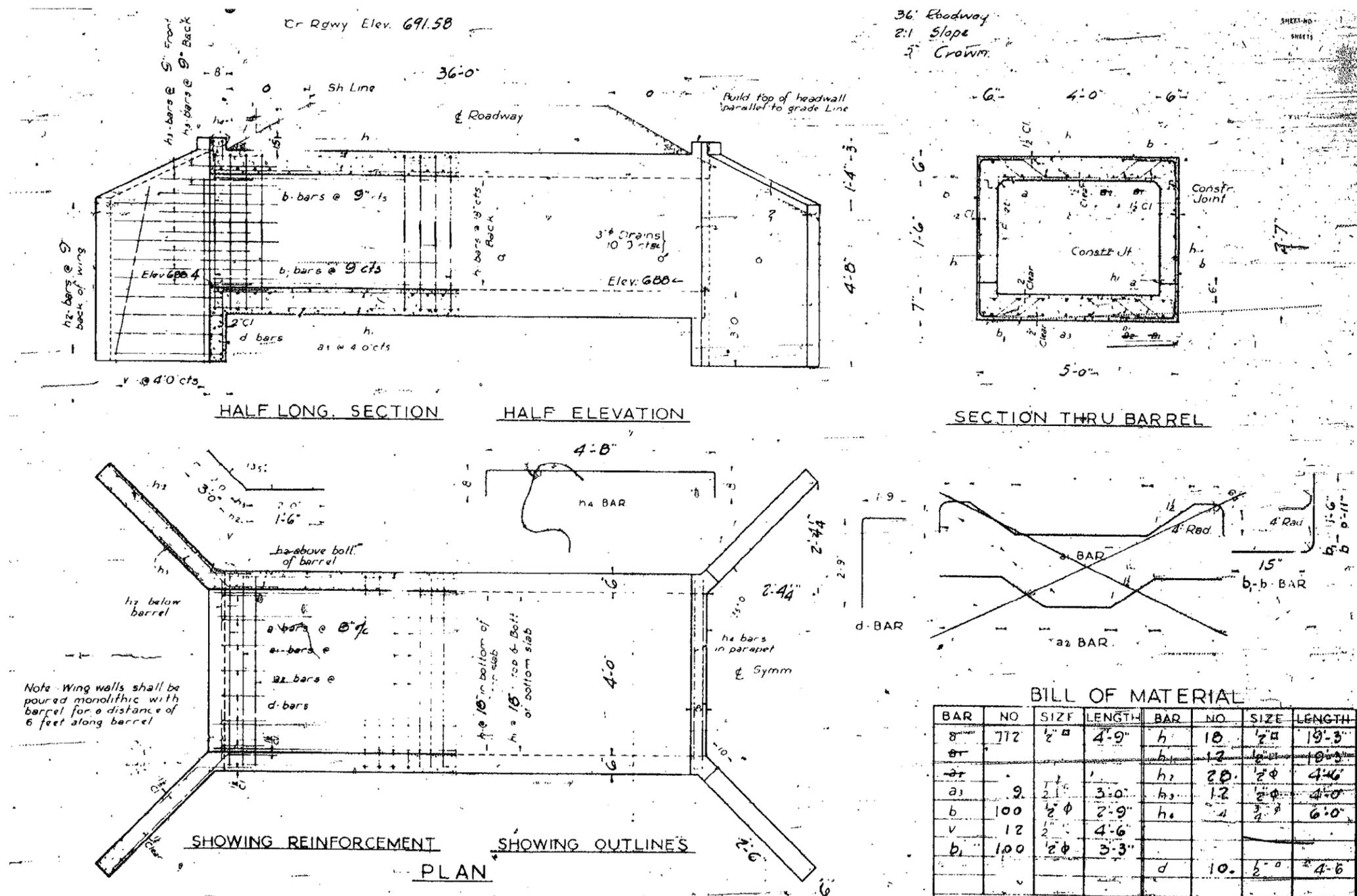
PLOT DATE = 8/19/2009
 FILE NAME = G:\DWG\WORK\K\PIWIDOT\CEARLOCK\DWG\010445\70623-sht-detailed.dgn
 USER NAME = ceartock\j

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	274
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

EXISTING STRUCTURE INFORMATION

STATION 2224+94.00



BILL OF MATERIAL

BAR	NO	SIZE	LENGTH	BAR	NO	SIZE	LENGTH
a	72	1/2"	4'-9"	h	10	1/2"	19'-3"
b	100	1/2"	2'-9"	h ₁	12	1/2"	19'-3"
v	12	2"	4'-6"	h ₂	20	2"	4'-6"
b ₁	100	2"	3'-3"	h ₃	12	2"	4'-0"
				h ₄	4	2"	6'-0"
				d	10	1/2"	4'-6"
Class X Concrete			Cu Yds	11.4			
Reinforcing Steel			Lbs	1600			

GENERAL NOTES
 Class X Concrete shall be used thruout
 Culvert walls and slab may be poured monolithically.
 Exposed edges shall be beveled.
 Subsoil of approximately uniform bearing capacity is assumed.

EXISTING STRUCTURE:
 THE EXISTING STRUCTURE WAS CONSTRUCTED IN 1938 AT STATION 225+00 AS A 4' X 1.5' CAST-IN-PLACE BOX CULVERT WITH CONCRETE HEADWALLS.
 EXISTING PLAN STATION: 2225+01.80

SHEET 5 OF 5

ILLINOIS DEPARTMENT OF TRANSPORTATION
EXISTING STRUCTURE INFORMATION
 STATION 2224+94.00
 CULVERT NO. 11

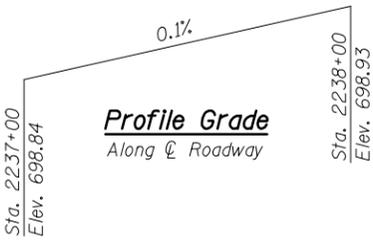
SCALE: 1" = 20'
 DATE: 07/17/09
 DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

PLOT DATE = 8/12/2009
 FILE NAME = G:\DWG\WORK\K\PIWIDOT\CEARLOCK\DWG\010445\70623-sht-culvert-detailed.dgn
 USER NAME = ceartock\jg

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	275

BENCHMARK ELEV. = 696.990 Chiseled square on the S. end of the W. headwall of S.N. 010-8096.

EXISTING STRUCTURE: S.N. 010-8096 was constructed in 1938 at station 237+57 as a 6'x1.5' cast-in-place box culvert with concrete headwalls as S.A. 15, Section 94A-MFT in Champaign County. The existing structure is to be completely removed and replaced. Stage Construction will be utilized.



STATION 2237+60.00
BUILT 20__ BY
STATE OF ILLINOIS
F.A.P. RT. 808 SEC. (205,57,105)RS-2
LOADING HS 20
STRUCTURE NO. 010-8138

NAME PLATE
See Std. 515001

INDEX OF SHEETS

1. General Plan and Elevation
- 2, 3. Box Culvert End Section Details
4. Staging Details
5. Porous Granular Detail
6. Existing Structure Information

DESIGN SPECIFICATIONS

2002 AASHTO

LOADING HS20-44

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

DESIGN STRESSES

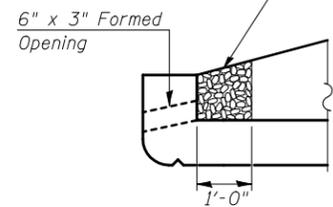
FIELD UNITS

- f'c = 3,500 psi
- fy = 60,000 psi (reinforcement)
- fy = 65,000 psi (welded wire fabric)

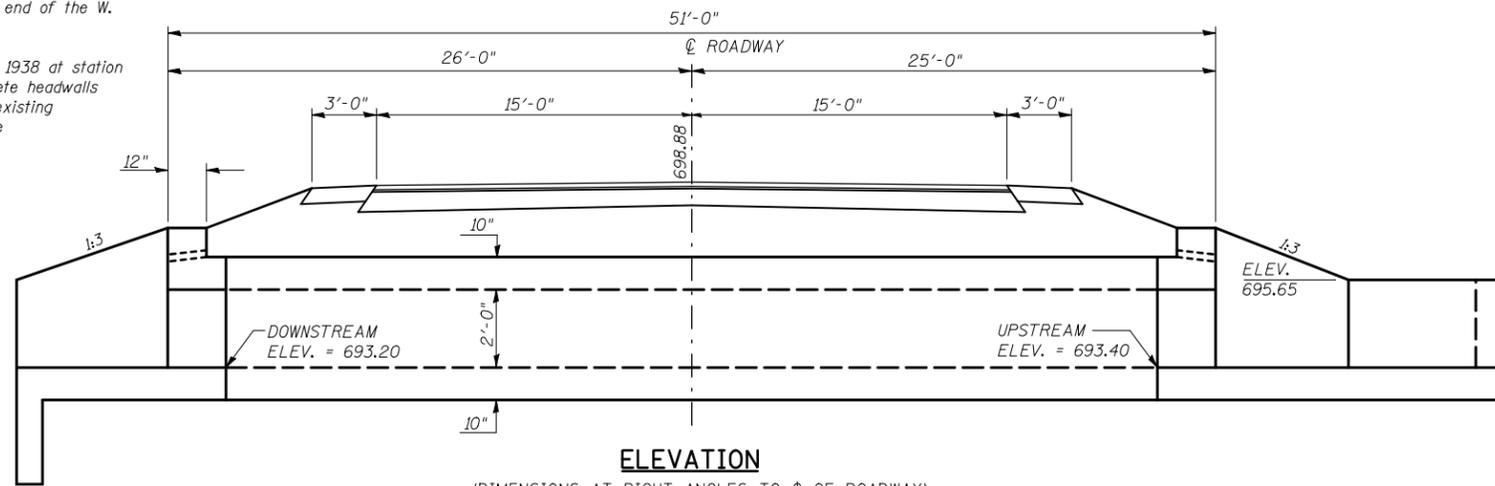
PRECAST UNITS

- f'c = 5,000 psi
- fy = 65,000 psi (welded wire fabric)

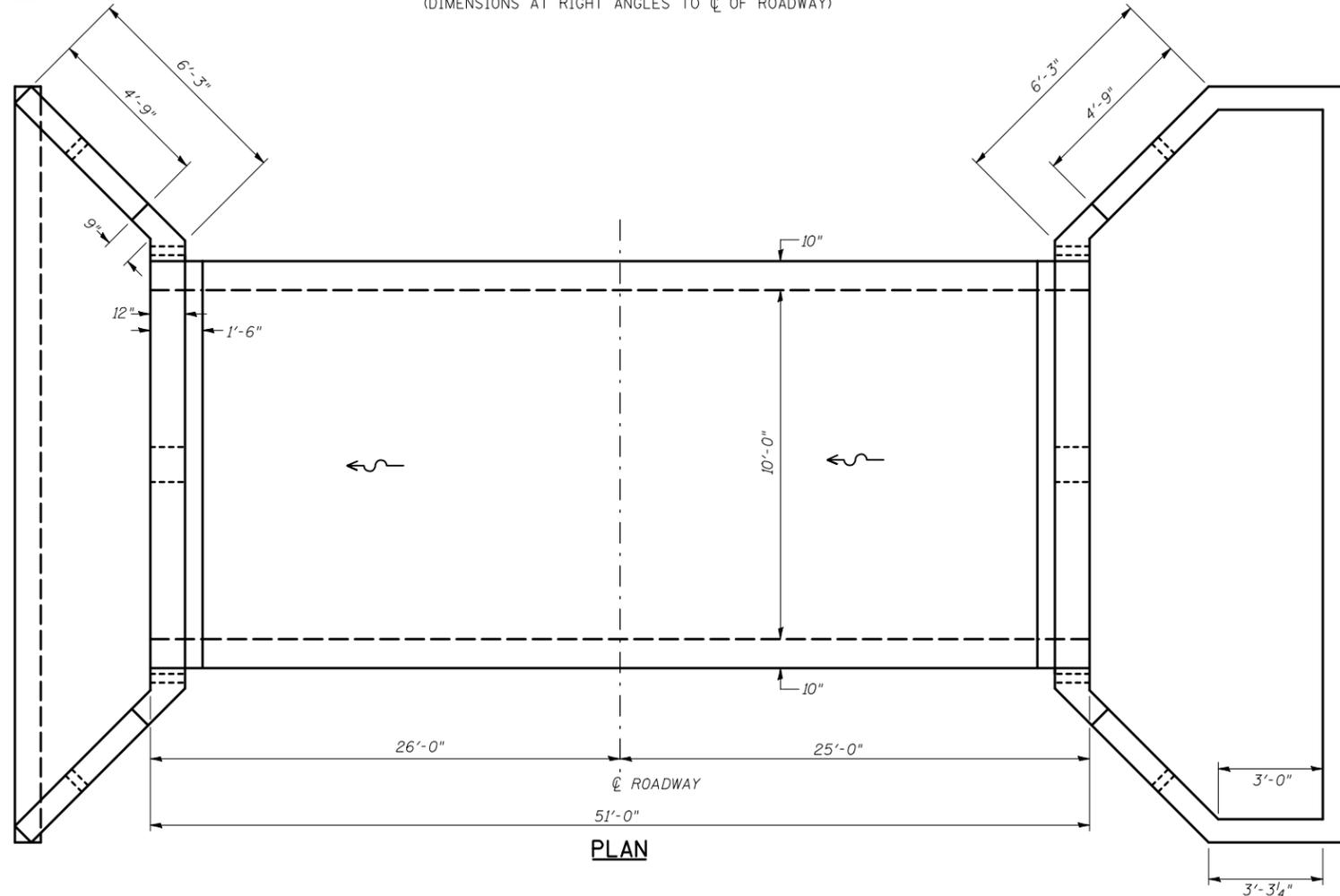
Coarse aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Concrete Box Culverts.



DRAIN DETAIL



ELEVATION
(DIMENSIONS AT RIGHT ANGLES TO CL OF ROADWAY)



PLAN

WATERWAY INFORMATION

Drainage Area = 0.080 sq. mi. Low Grade Elev. 698.88 @ Sta. 2237+60

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	67	9	20			697.40	695.24	
Base	50	95	9	20			Over	695.70	
Overtopping	100	110	9	20			Over	696.02	
Max. Calc.	500	153	9	20			Over	697.00	

Note: Information provided using the Rational Method.

General Notes

- Build tops of headwalls parallel to the grade lines.
- All construction joints shall be bonded according to Article 503.09 of the Standard Specifications.
- Reinforcement bars shall conform to the requirements of ASTM A706 Gr. (IL Modified). See Special Provisions.
- All bars should be rounded and conform to the requirements of Article 1006.10 of the Standard Specifications.
- When lapping sheets of welded wire fabric, the overlap measured between the outermost cross wires of each fabric sheet shall not be less than 8"
- End Sections will be paid for at the contract unit price per each for BOX CULVERT END SECTIONS, as outlined in Section 540 of the Standard Specifications.
- Class SI Concrete shall be used throughout.
- Concrete, Rebar, and Welded Wire Fabric quantities and lengths calculated for the cast-in-place End Sections may vary based on the precast box culverts supplied.
- Drain holes shall be provided in accordance with Article 503.11 of the Standard Specifications.
- The precast manufacturer shall design and detail a connection/construction joint between the precast concrete box sections and the cast-in-place apron and wingwall. The minimum area of reinforcement passing through these construction joints shall be 0.20 sq. in./lineal ft. of welded wire fabric. The design shall be detailed in the shop drawings. The cost of the connection is included in the cost of the end section.
- The box culvert end section shall be built in the field and a precast option is not allowed except the cut-off wall may be precast. If the contractor elects to use a precast cut-off wall, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval.
- The ends of the precast box sections adjacent to the end section shall be formed without the male and female shapes specified in Article 8.1 of AASHTO M273. See Section D-D on Sheet 3.
- The design fill height for this box is less than 2 feet. The Precast Concrete Box Culvert Sections shall conform to the requirements of AASHTO M 273.
- The joints between precast box sections shall be sealed, all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the backfilling process.
- All dimensions are in FEET (') - INCHES (") unless otherwise noted.

Drawings not to scale.

TOTAL BILL OF MATERIAL

Item	Unit	Total
Removal of Existing Structures	Each	1
Precast Concrete Box Culverts 10'x2'	Foot	48
Box Culvert End Sections	Each	2
Name Plates	Each	1

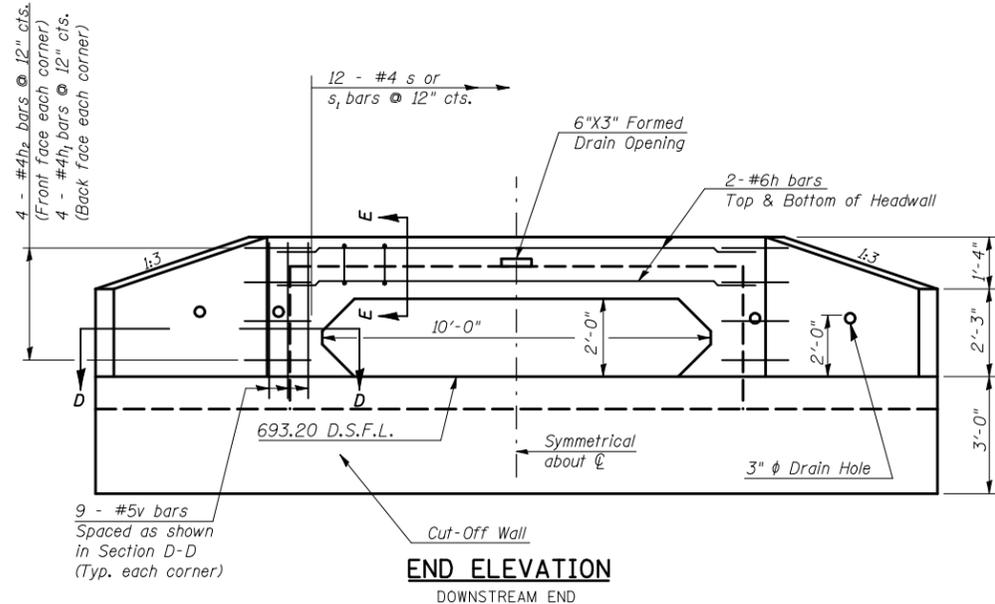
SHEET 1 OF 6

GENERAL PLAN AND ELEVATION
SINGLE 10'x2' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 2237+60.00, S.N. 010-8138
CULVERT NO. 12

PLOT DATE = 8/12/2009
FILE NAME = c:\pvc\work\p1001\CEARL\CD\48101445\70623-shr-culvert.dwg
PLOT SCALE = 4.23629 / IN.
USER NAME = ceerlockjd

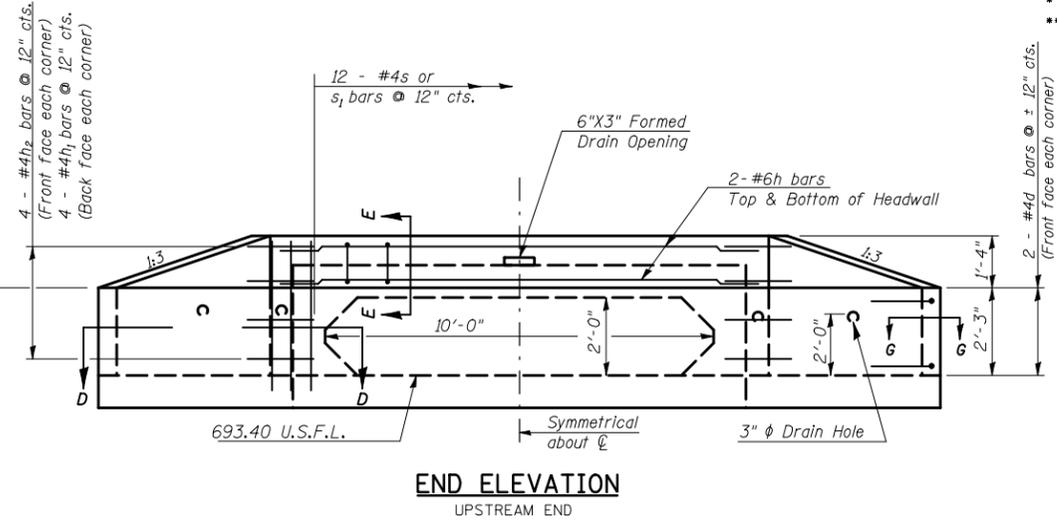
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	276

(205,57,105)RS-2
 ** CHAMPAIGN & DOUGLAS

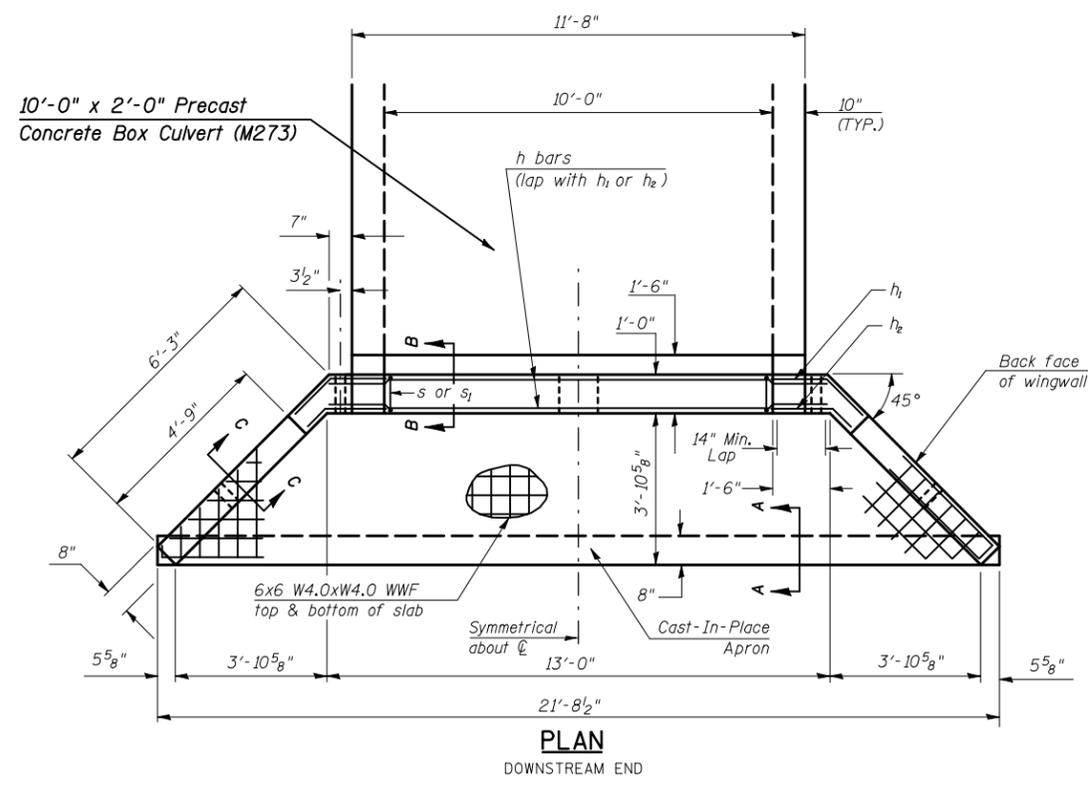


END ELEVATION
DOWNSTREAM END

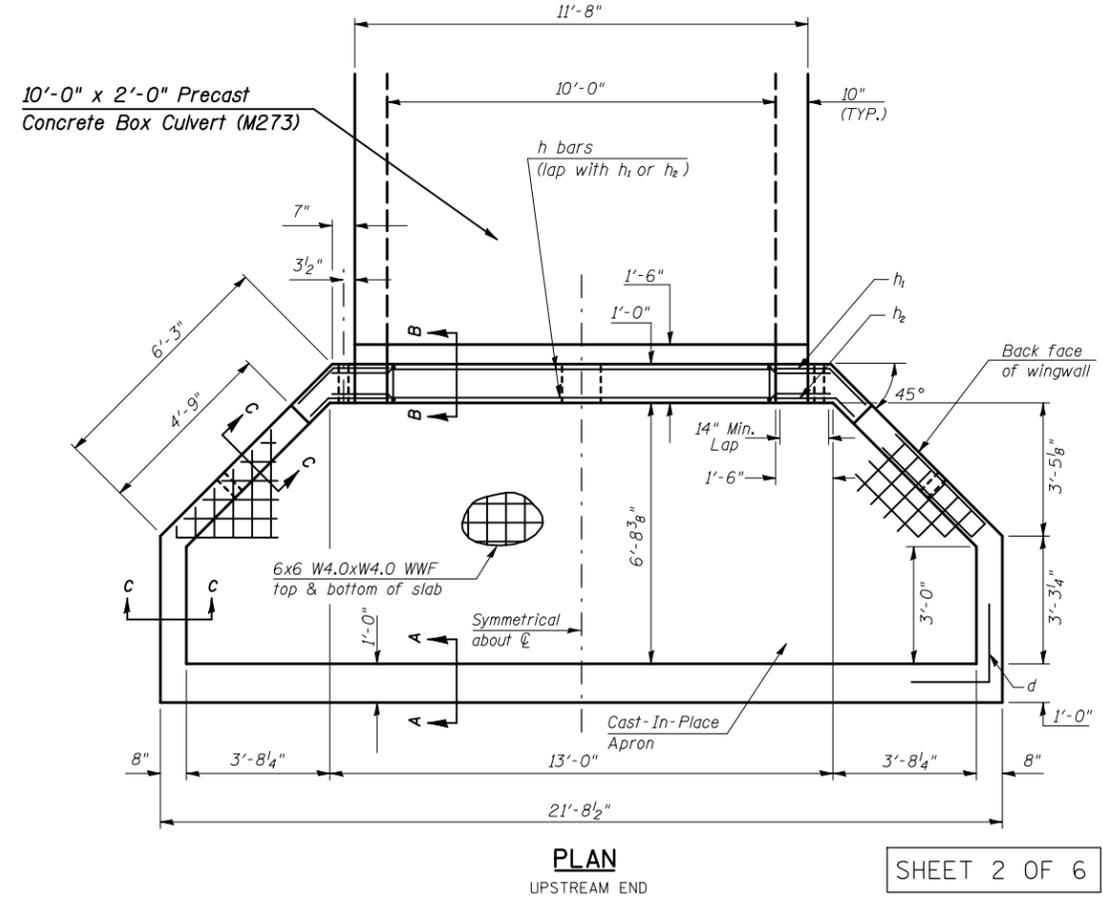
UPSTREAM DROP STRUCTURE
 ELEVATION = 695.65



END ELEVATION
UPSTREAM END



PLAN
DOWNSTREAM END



PLAN
UPSTREAM END

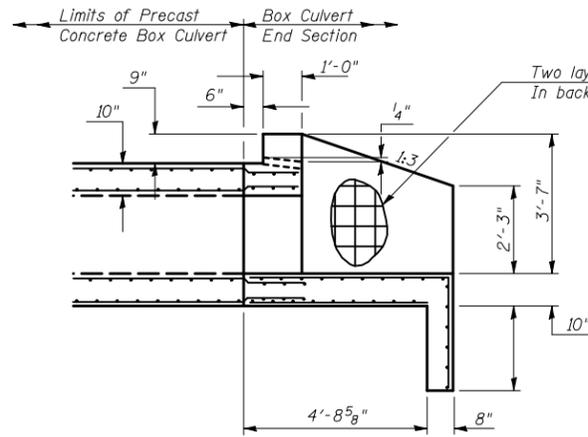
SHEET 2 OF 6

END SECTION DETAIL
SINGLE 10'x2' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 2237+60.00, S.N. 010-8138
CULVERT NO. 12

PLOT DATE = 8/12/2009
 FILE NAME = c:\p\work\70623\70623-shr-culvert.dwg
 PLOT SCALE = 4:23625 / IN.
 USER NAME = ceerlockjd

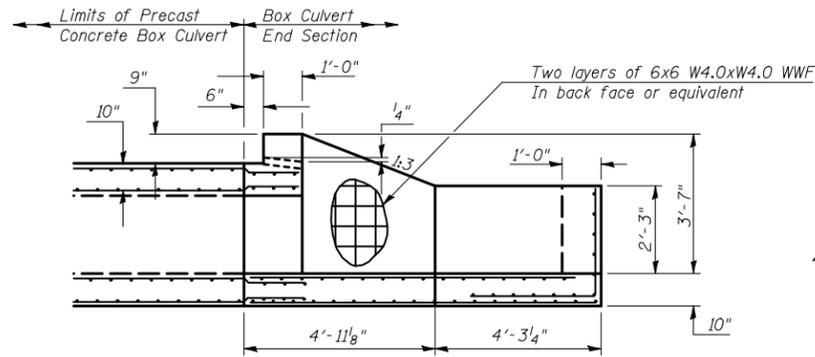
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	277

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS



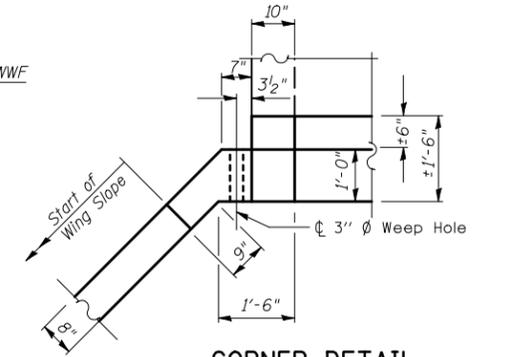
HALFSIDE ELEVATION

DOWNSTREAM END
(DIMENSIONS AT RIGHT ANGLES TO ϕ OF ROADWAY)



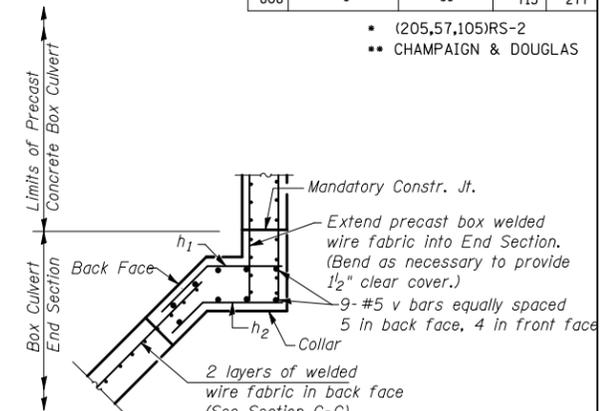
HALFSIDE ELEVATION

UPSTREAM END
(DIMENSIONS AT RIGHT ANGLES TO ϕ ROADWAY)



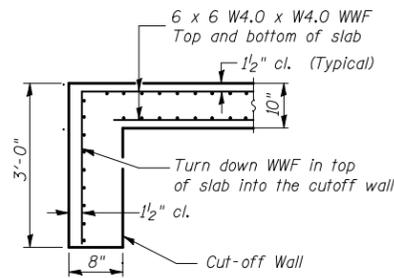
CORNER DETAIL

(Showing dimensions and weep hole)



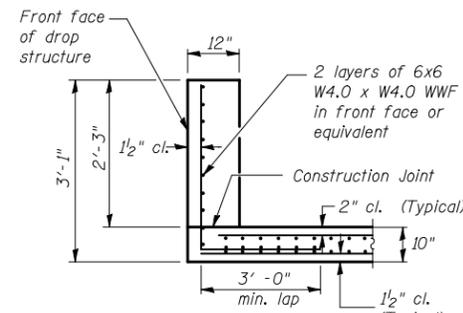
SECTION D-D

(Showing reinforcement)



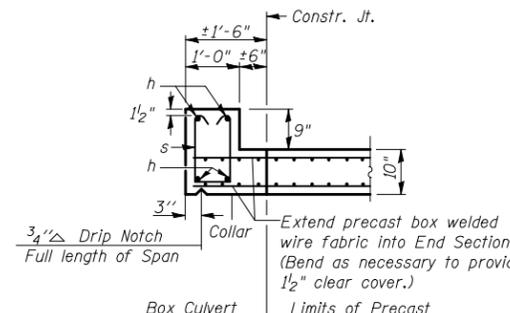
SECTION A-A

DOWNSTREAM END



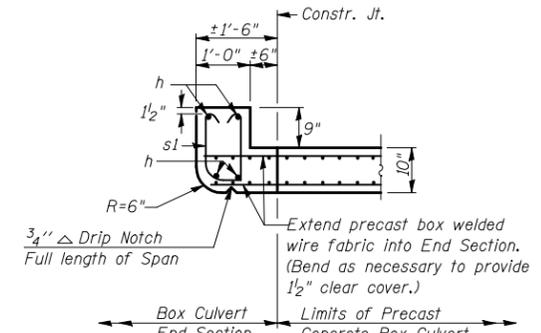
SECTION A-A

UPSTREAM END



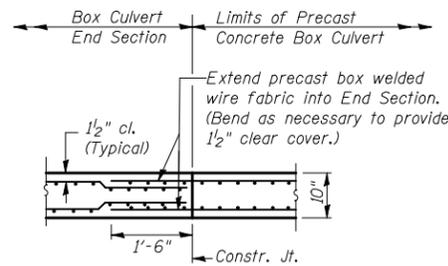
SECTION E-E

TOP SLAB / HEADWALL DOWNSTREAM END



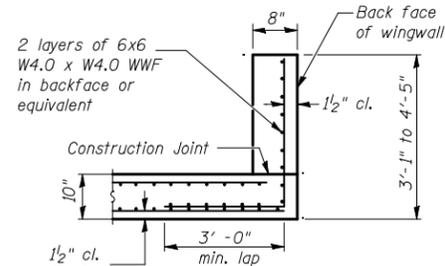
SECTION E-E

TOP SLAB / HEADWALL UPSTREAM END



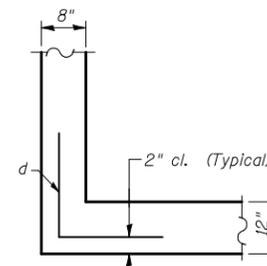
SECTION B-B

BOTTOM SLAB



SECTION C-C

WINGWALLS AND UPSTREAM DROP BOX



SECTION G-G

CORNER OF UPSTREAM DROP STRUCTURE

BILL OF MATERIAL (UPSTREAM END)

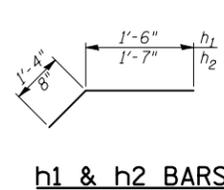
For Information Only
(One End Section)

Bar	No.	Size	Length	Shape
d	4	#4	4'-0"	┌
h	4	#6	12'-10"	—
h ₁	8	#4	2'-10"	┌
h ₂	8	#4	2'-3"	┌
s ₁	12	#4	4'-0"	┌
v	18	#5	4'-5"	—
Item		Unit	Total	
Class SI Concrete		Cu. Yd.	9.4	
Reinforcement Bars		Pound	231.0	
Welded Wire Fabric		Sq. Ft.	703.0	

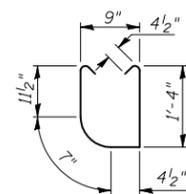
BILL OF MATERIAL (DOWNSTREAM END)

For Information Only
(One End Section)

Bar	No.	Size	Length	Shape
h	4	#6	12'-10"	—
h ₁	8	#4	2'-10"	┌
h ₂	8	#4	2'-3"	┌
s	12	#4	4'-2"	┌
v	18	#5	4'-5"	—
Item		Unit	Total	
Class SI Concrete		Cu. Yd.	6.3	
Reinforcement Bars		Pound	221.0	
Welded Wire Fabric		Sq. Ft.	333.0	

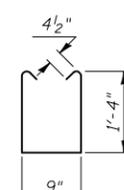


h1 & h2 BARS



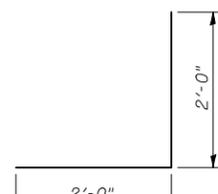
s1 BARS

UPSTREAM END



s BARS

DOWNSTREAM END



d BARS

UPSTREAM END

PLOT DATE = 8/12/2009
FILE NAME = c:\pvc\work\p1001\CEARL\CD\480181445\70623-shr-culvert_details.dgn
PLOT SCALE = 42,352% / IN.
USER NAME = ceerlockjd

SHEET 3 OF 6

END SECTION DETAIL
SINGLE 10'x2' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 2237+60.00, S.N. 010-8138
CULVERT NO. 12

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	278
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

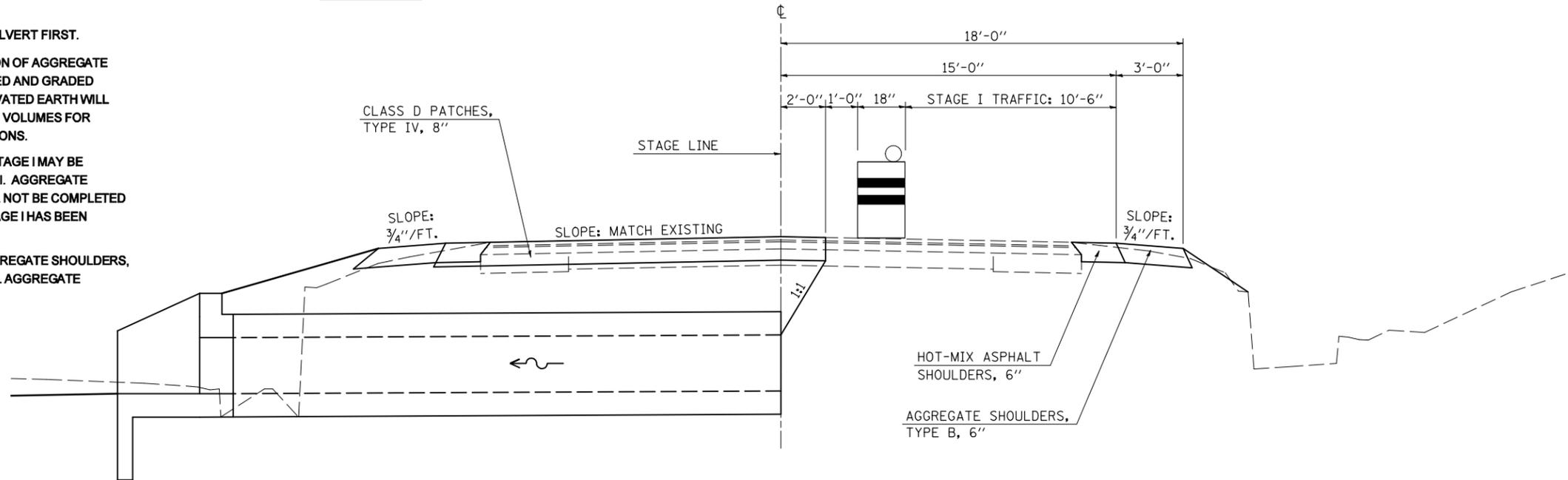
- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

GENERAL NOTES

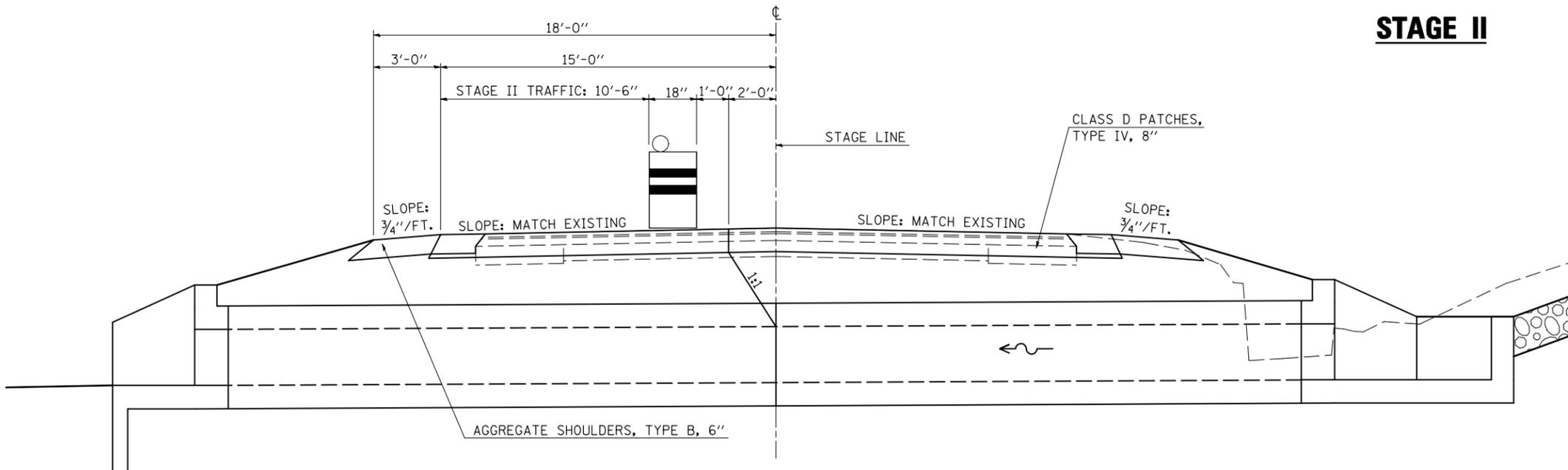
- REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL AND PROTECTION, STANDARD 701206 AND STAGE CONSTRUCTION ACROSS ROAD CULVERTS FOR ADDITIONAL INFORMATION.
- THE ENGINEER MAY REDUCE OR ELIMINATE LENGTHS OR LOCATIONS OF AGGREGATE, TYPE B, 6" AND EARTH EXCAVATION BASED ON FIELD CONDITIONS.
- CONSTRUCT DOWNSTREAM END OF A.R. CULVERT FIRST.
- EARTH EXCAVATED FOR THE CONSTRUCTION OF AGGREGATE SHOULDERS, TYPE B, 6" SHALL BE DEPOSITED AND GRADED TO SMOOTH THE FORESLOPES. THIS EXCAVATED EARTH WILL BE INCLUDED IN THE FINAL CROSS-SECTION VOLUMES FOR EARTHWORK BALANCE / WASTE CALCULATIONS.
- AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE I MAY BE COMPLETED AT ANY TIME PRIOR TO STAGE I. AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE II SHALL NOT BE COMPLETED UNTIL THE HALF-WIDTH CULVERT FROM STAGE I HAS BEEN CONSTRUCTED.
- REPLACE PREVIOUSLY CONSTRUCTED AGGREGATE SHOULDERS, TYPE B, 6" AS NEEDED WHEN PLACING FINAL AGGREGATE SHOULDERS, TYPE B.

STAGING DETAIL, CULVERT NO. 12
STATION 2237 + 60.00, S.N. 010-8138

STAGE I



STAGE II



SHEET 4 OF 6

A.R. CULVERT LOCATION	TRAFFIC CONTROL STANDARD	ESTIMATED TIME	CHANGEABLE MESSAGE SIGN
STA. 2237+60.00	701206	84 HRS / NON-STOP (4) - 12 HR DAY SHIFTS (3) - 12 HR NIGHT SHIFTS	2.0 EACH AT 4.0 CAL DAY = 8.0 CAL DAY

ILLINOIS DEPARTMENT OF TRANSPORTATION
STAGING DETAIL, CULVERT NO. 12
STA. 2237+60.00
S.N. 010-8138
 SCALE: N/A
 DATE: 08/01/09
 DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

PLOT DATE = 8/14/2009
 FILE NAME = G:\DWG\WORK\K\PIWIDOT\PERSONNEL\0001445\70623-sht-staging.dgn
 USER NAME = pier_sombir

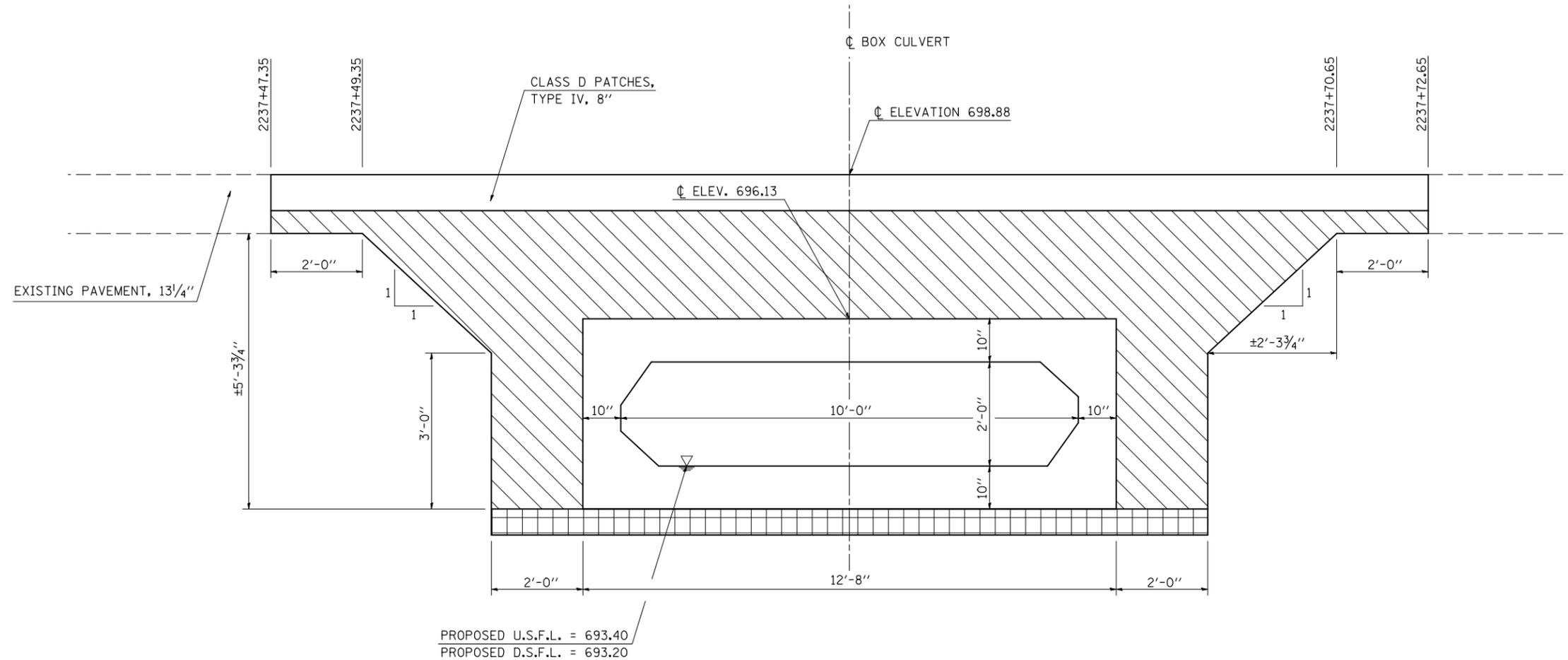
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	279
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

DETAIL OF POROUS GRANULAR EMBANKMENT PAY LIMITS

CULVERT NO. 12, STATION 2237 + 60.00

S.N. 010-8138



LEGEND

- PAY LIMITS OF POROUS GRANULAR EMBANKMENT - CA-6
- POROUS GRANULAR MATERIAL - CA-7 (6") INCLUDED IN PAY ITEM FOR BOX CULVERT

DRAWING NOT TO SCALE

GENERAL NOTES

- 1) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 207 AND SECTION 540 OF THE STANDARD SPECIFICATIONS.
- 2) POROUS GRANULAR EMBANKMENT SHALL EXTEND 2 FT. BEYOND THE AGGREGATE SHOULDER.
- 3) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR EMBANKMENT.
- 4) THE AREA TO BE EXCAVATED FOR THE PROPOSED BOX CULVERT SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR STRUCTURE EXCAVATION. THE QUANTITY CALCULATED WILL BE THE AREA FOR THE PROPOSED STRUCTURE LESS THE AREA REQUIRED TO REMOVE THE EXISTING STRUCTURE. THE EXISTING STRUCTURE AREA IS CONSIDERED TO BE THE AREA CONTAINED BETWEEN THE BOTTOM OF THE PAVEMENT TO THE BOTTOM OF THE STRUCTURE TIMES THE OUTSIDE DIAMETER OF THE STRUCTURE.

SHEET 5 OF 6

ILLINOIS DEPARTMENT OF TRANSPORTATION
DETAIL OF POROUS GRANULAR EMBANKMENT
PAY LIMITS, STA. 2237+60.00
CULVERT NO. 12

SCALE: N/A
 DATE: 07/13/09

DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

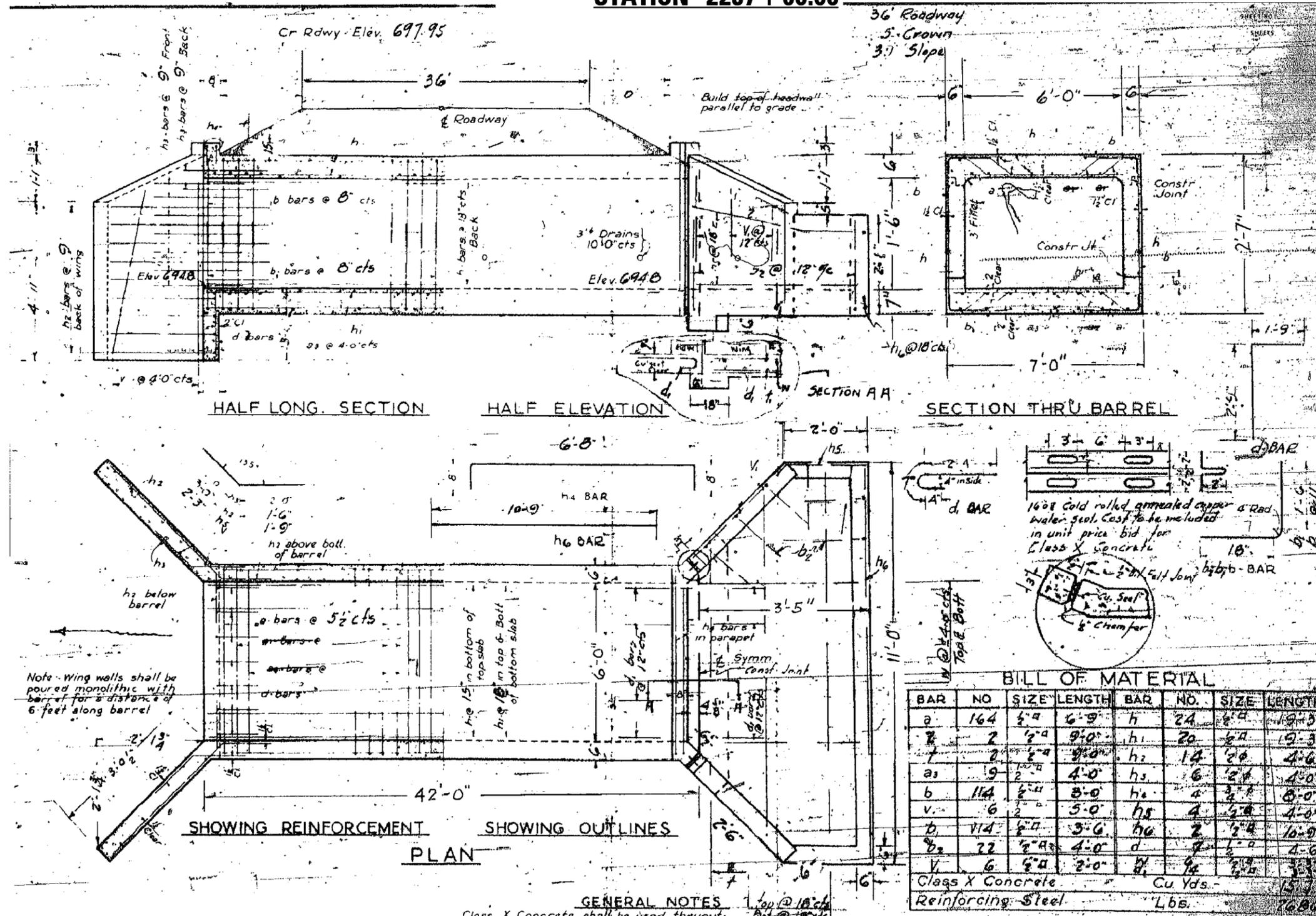
PLOT DATE = 8/19/2009
 FILE NAME = G:\pwworkspace\pwworkspace\2237+60.00\70623-sht-detailed.dgn
 USER NAME = ceartock\j

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	280
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

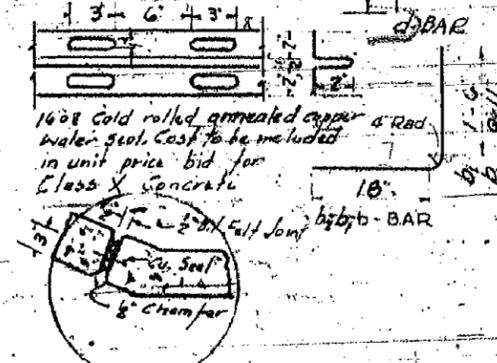
EXISTING STRUCTURE INFORMATION

STATION 2237+60.00

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS



Note: Wing walls shall be poured monolithic with barrel for a distance of 6 feet along barrel.



GENERAL NOTES
 Class X Concrete shall be used thruout.
 Culvert walls and slab may be poured monolithically.
 Exposed edges shall be beveled.
 Subsoil of approximately uniform bearing capacity is assumed.

EXISTING STRUCTURE:
 S.N. 010-8096 WAS CONSTRUCTED IN 1938 AT STATION 237+57 AS A 6' X 1.5' CAST-IN-PLACE BOX CULVERT WITH CONCRETE HEADWALLS. EXISTING PLAN STATION: 2237+60.00

SHEET 6 OF 6

ILLINOIS DEPARTMENT OF TRANSPORTATION
EXISTING STRUCTURE INFORMATION
 STATION 2237+60.00
 CULVERT NO. 12

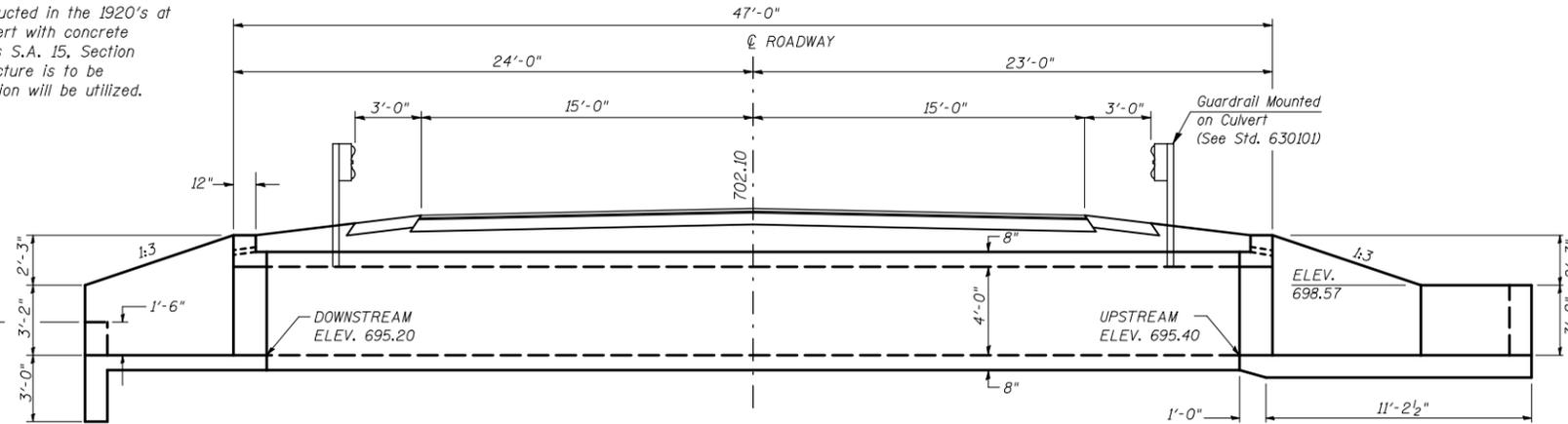
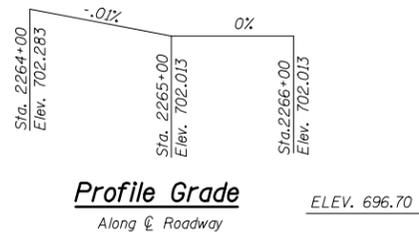
SCALE: 1" = 20'
 DATE: 07/18/09
 DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

PLOT DATE = 8/12/2009
 FILE NAME = G:\DWG\WORK\K\PROJECT\CEARLOCK\DWG\010445\70623-sht-culvert-detailed.dgn
 USER NAME = ceartock\j

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	281

BENCHMARK ELEV. = 701.350 Chiseled square on the N. end of the E. headwall of S.N. 010-8095.

EXISTING STRUCTURE: S.N. 010-8095 was constructed in the 1920's at station 264+90 as a 7'x4' cast-in-place box culvert with concrete headwalls. In 1953 the structure was extended as S.A. 15, Section 94A-MFT in Champaign County. The existing structure is to be completely removed and replaced. Stage Construction will be utilized.



STATION 2264+91.00
BUILT 20__ BY
STATE OF ILLINOIS
F.A.P. RT. 808 SEC. (205,57,105)RS-2
LOADING HS 20
STRUCTURE NO. 010-8137

NAME PLATE
See Std. 515001

INDEX OF SHEETS

- General Plan and Elevation
- 3 Box Culvert End Section Details
- Staging Details
- Porous Granular Detail
- Existing Structure Information

DESIGN SPECIFICATIONS
2002 AASHTO

LOADING HS20-44

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

DESIGN STRESSES

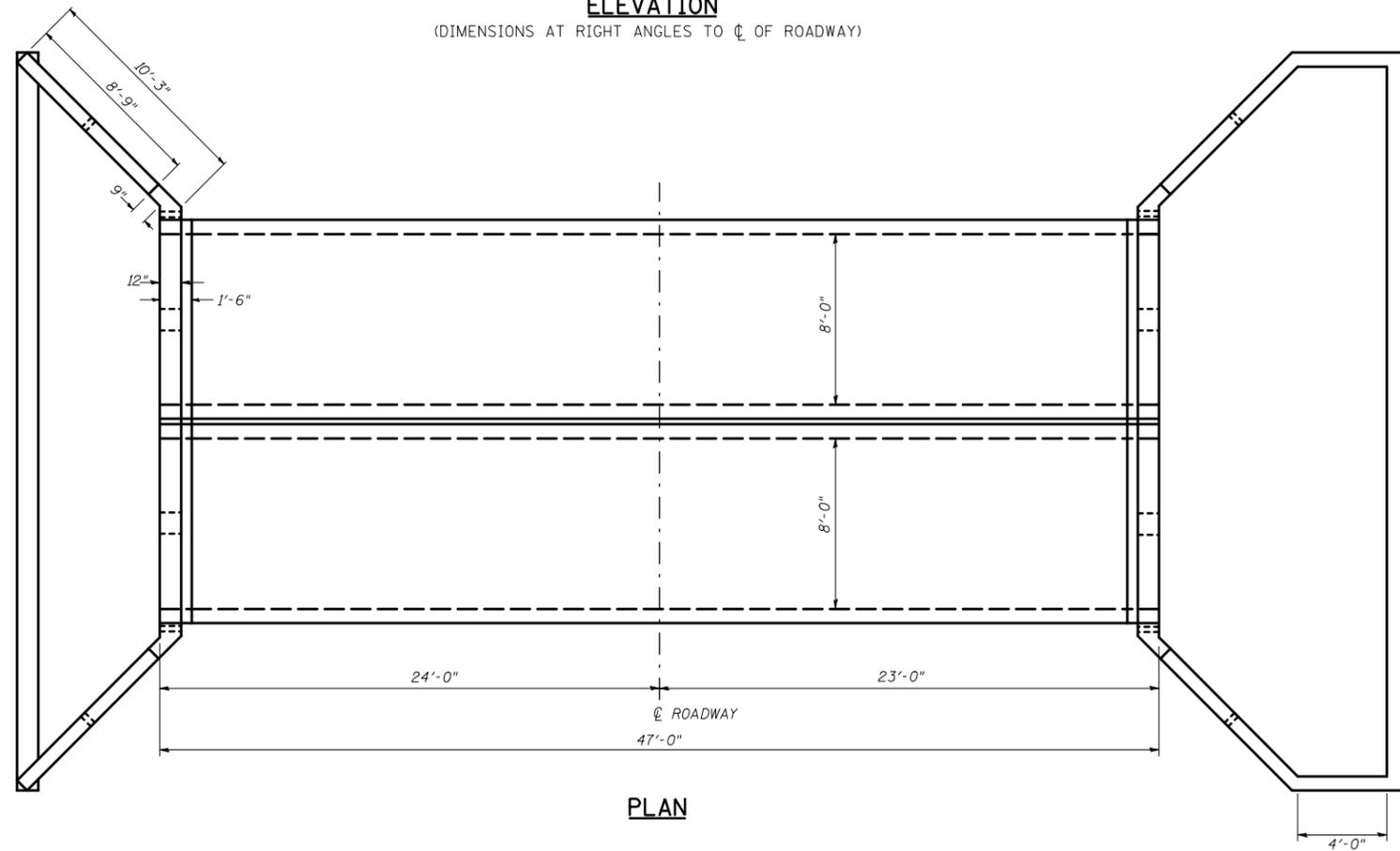
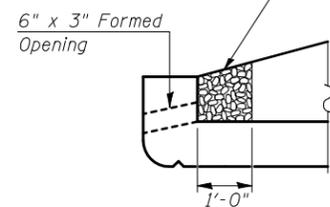
FIELD UNITS

f'_c = 3,500 psi
 f_y = 60,000 psi (reinforcement)
 f_y = 65,000 psi (welded wire fabric)

PRECAST UNITS

f'_c = 5,000 psi
 f_y = 65,000 psi (welded wire fabric)

Coarse aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Concrete Box Culverts.



WATERWAY INFORMATION

Drainage Area = 0.361 sq. mi. Low Grade Elev. 702.10 @ Sta. 2264+91

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	166	28	48			699.89	698.30	
Base	50	282	28	48			702.10	699.09	
Overtopping	100	337	28	48			Over	699.47	
Max. Calc.	500	472	28	48			Over	700.45	

Note: Information provided using the USGS 2004-5103 Method.

General Notes

Build tops of headwalls parallel to the grade lines.

All construction joints shall be bonded according to Article 503.09 of the Standard Specifications.

Reinforcement bars shall conform to the requirements of ASTM A706 Gr. (IL Modified). See Special Provisions.

All bars should be rounded and conform to the requirements of Article 1006.10 of the Standard Specifications.

When lapping sheets of welded wire fabric, the overlap measured between the outermost cross wires of each fabric sheet shall not be less than 8"

End Sections will be paid for at the contract unit price per each for BOX CULVERT END SECTIONS, as outlined in Section 540 of the Standard Specifications.

Class SI Concrete shall be used throughout.

Concrete, Rebar, and Welded Wire Fabric quantities and lengths calculated for the cast-in-place End Sections may vary based on the precast box culverts supplied.

Drain holes shall be provided in accordance with Article 503.11 of the Standard Specifications.

The precast manufacturer shall design and detail a connection/construction joint between the precast concrete box sections and the cast-in-place apron and wingwall. The minimum area of reinforcement passing through these construction joints shall be 0.20 sq. in./lineal ft. of welded wire fabric. The design shall be detailed in the shop drawings. The cost of the connection is included in the cost of the end section.

The box culvert end section shall be built in the field and a precast option is not allowed except the cut-off wall may be precast. If the contractor elects to use a precast cut-off wall, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval.

The ends of the precast box sections adjacent to the end section shall be formed without the male and female shapes specified in Article 8.1 of AASHTO M273. See Section D-D on Sheet 3.

The design fill height for this box is less than 2 feet. The Precast Concrete Box Culvert Sections shall conform to the requirements of AASHTO M 273.

The joints between precast box sections shall be sealed, all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the backfilling process.

All dimensions are in FEET (') - INCHES (") unless otherwise noted.

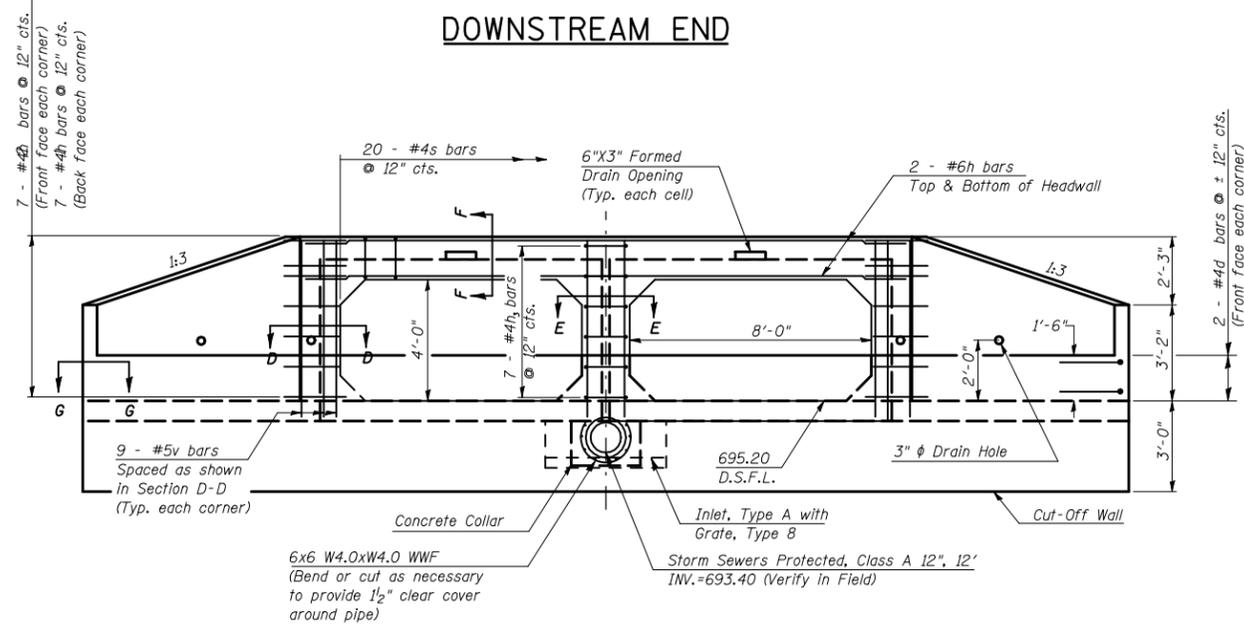
Drawings not to scale.

TOTAL BILL OF MATERIAL

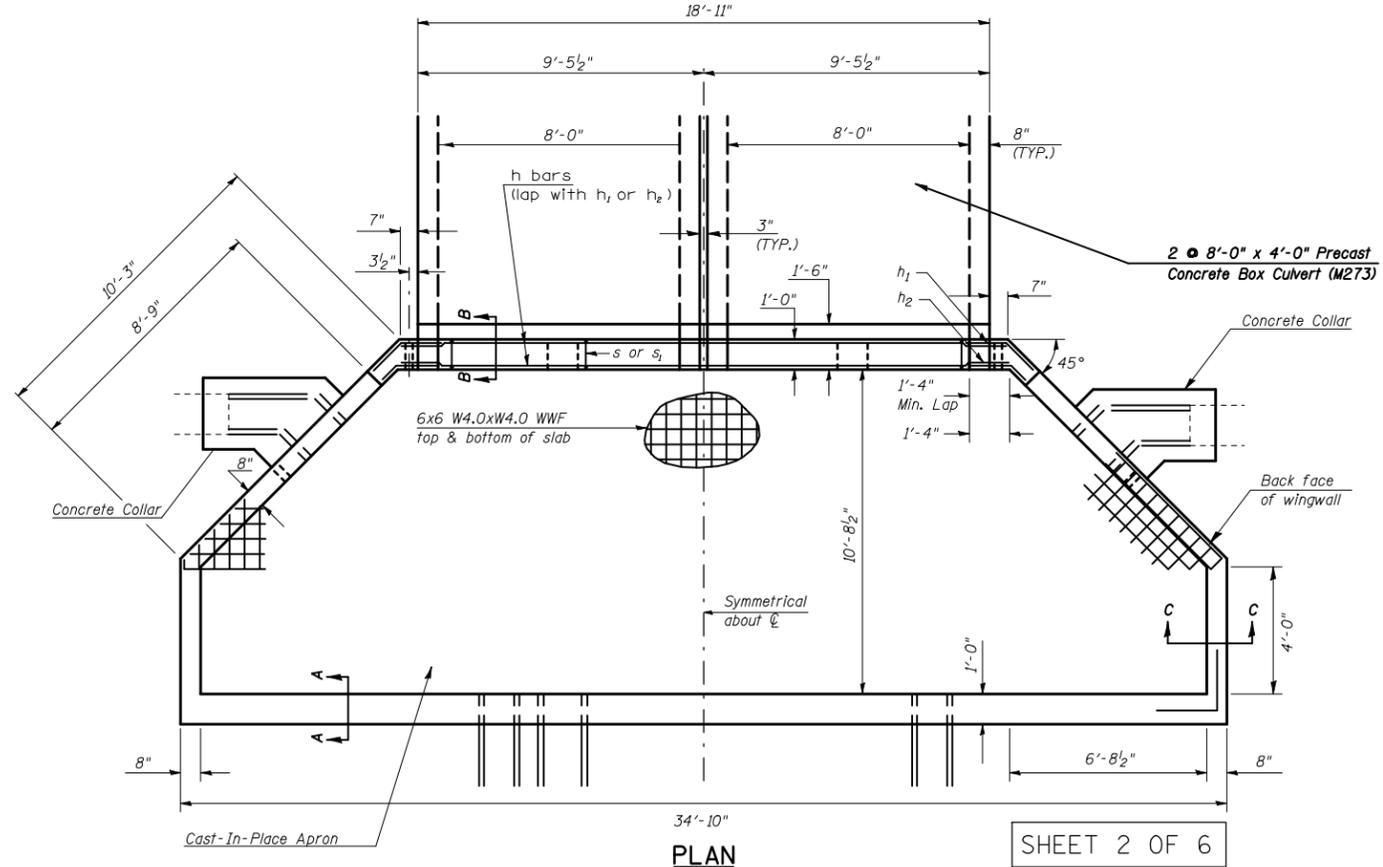
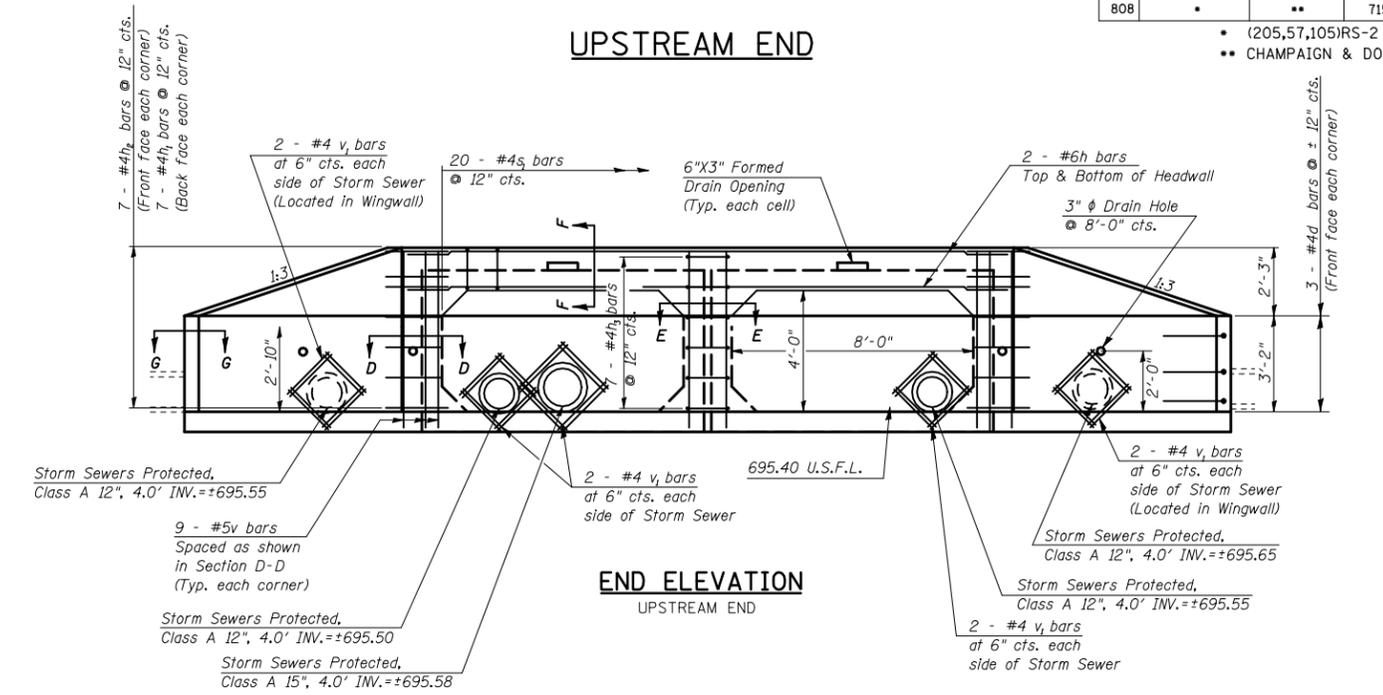
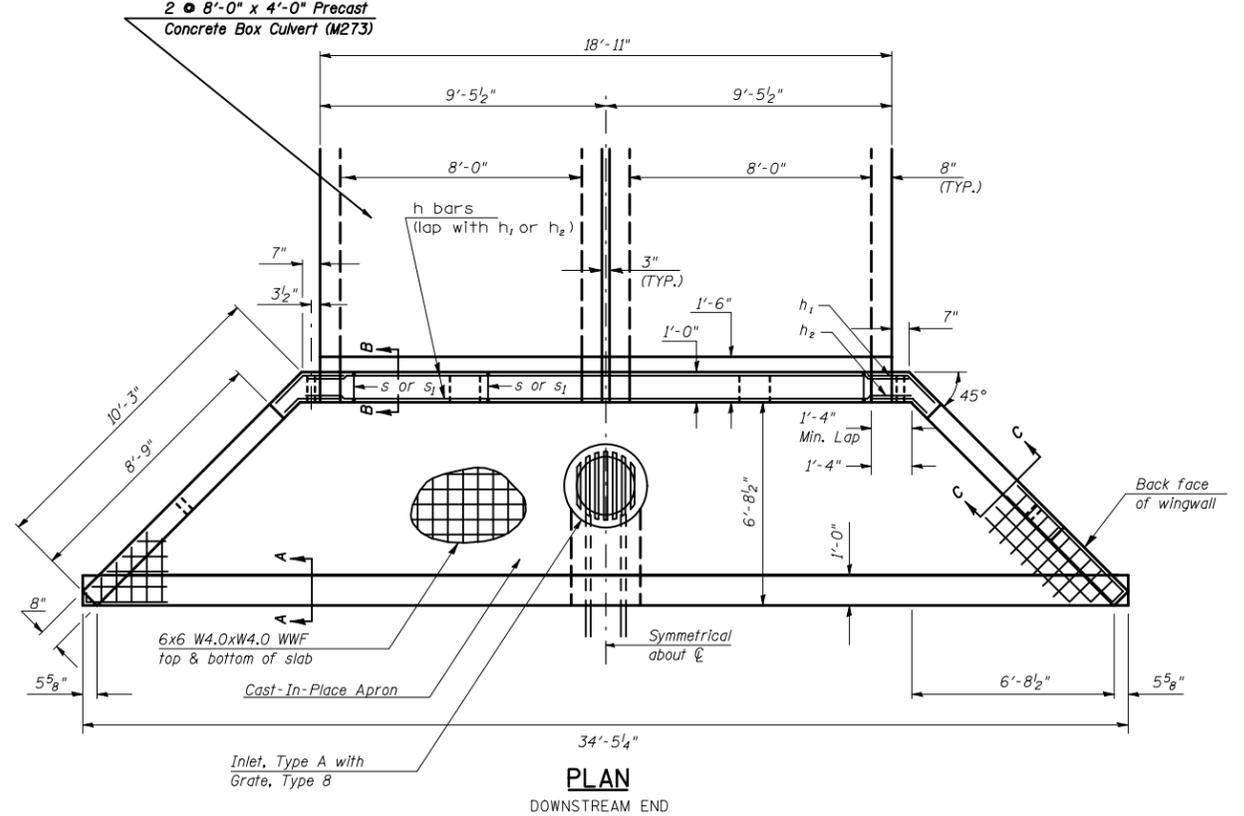
Item	Unit	Total
Removal of Existing Structures	Each	1
Precast Concrete Box Culverts 8'x4'	Foot	88
Box Culvert End Sections	Each	2
Name Plates	Each	1
Storm Sewer Protected, Class A 12"	Foot	28
Storm Sewer Protected, Class A 15"	Foot	4
Concrete Collar	Cu Yd	0.5

SHEET 1 OF 6

GENERAL PLAN AND ELEVATION
DOUBLE 8'x4' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 2264+91.00, S.N. 010-8137
CULVERT NO. 13



END ELEVATION
DOWNSTREAM END



PLOT DATE = 8/12/2009
 FILE NAME = c:\pva\work\70623\ht-culvert.dwg
 PLOT SCALE = 4:3625 / IN.
 USER NAME = ceerlockjd

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	284
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

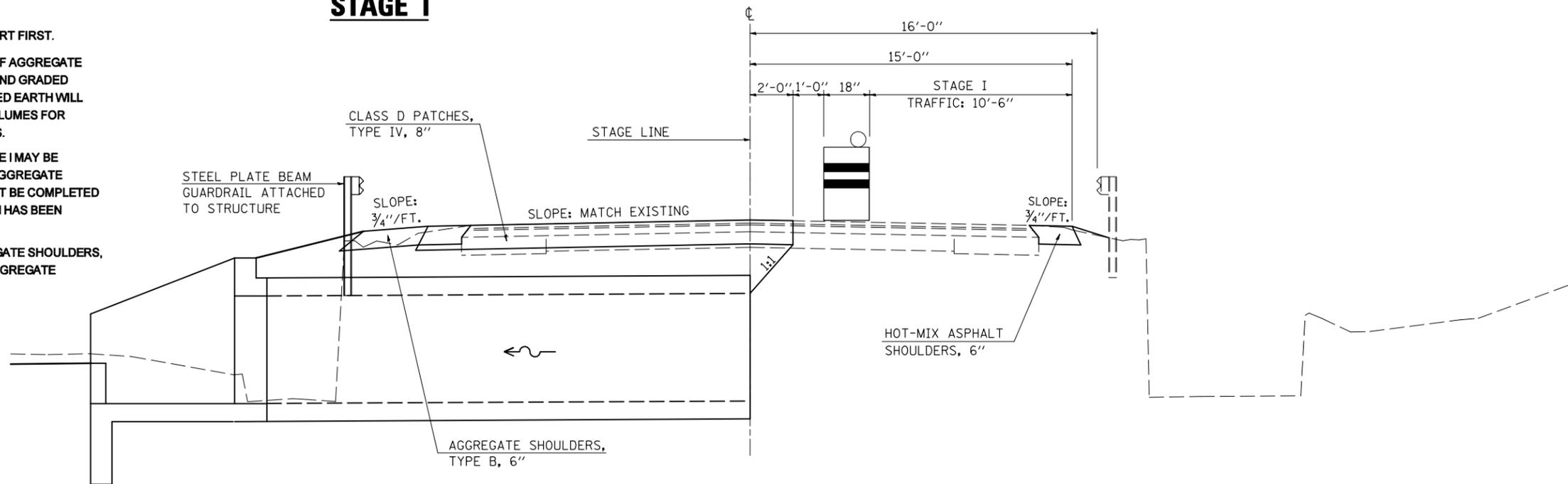
- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

GENERAL NOTES

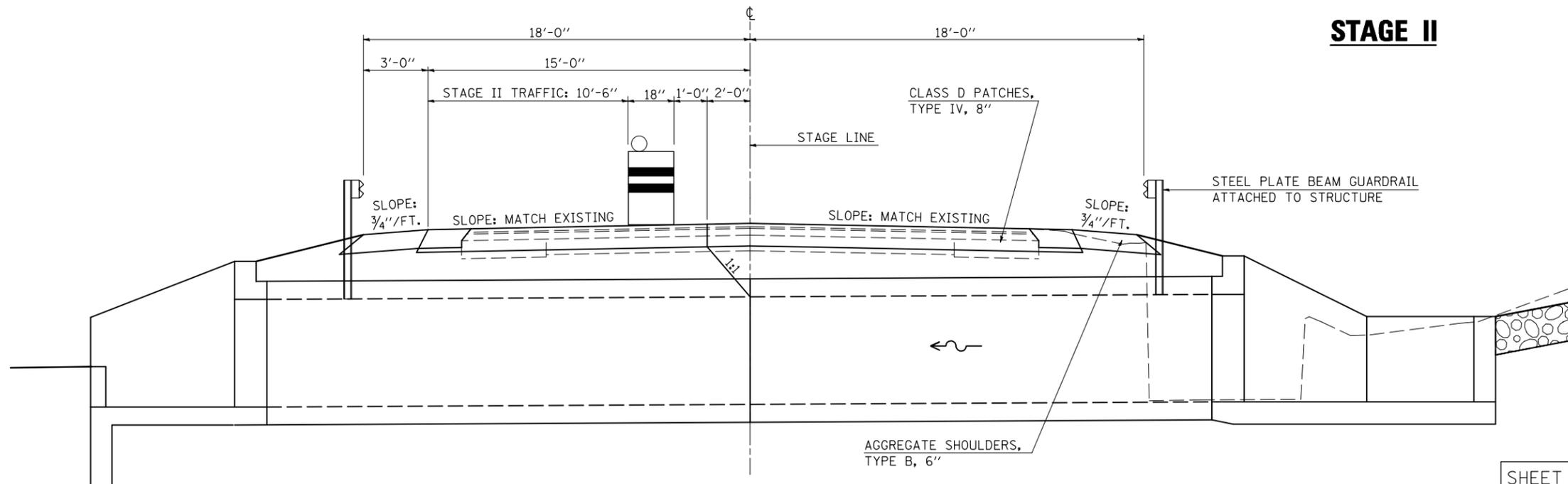
- 1) REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL AND PROTECTION, STANDARD 701206 AND STAGE CONSTRUCTION ACROSS ROAD CULVERTS FOR ADDITIONAL INFORMATION.
- 2) THE ENGINEER MAY REDUCE OR ELIMINATE LENGTHS OR LOCATIONS OF AGGREGATE, TYPE B, 6" AND EARTH EXCAVATION BASED ON FIELD CONDITIONS.
- 3) CONSTRUCT DOWNSTREAM END OF A.R. CULVERT FIRST.
- 4) EARTH EXCAVATED FOR THE CONSTRUCTION OF AGGREGATE SHOULDERS, TYPE B, 6" SHALL BE DEPOSITED AND GRADED TO SMOOTH THE FORESLOPES. THIS EXCAVATED EARTH WILL BE INCLUDED IN THE FINAL CROSS-SECTION VOLUMES FOR EARTHWORK BALANCE / WASTE CALCULATIONS.
- 5) AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE I MAY BE COMPLETED AT ANY TIME PRIOR TO STAGE I. AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE II SHALL NOT BE COMPLETED UNTIL THE HALF-WIDTH CULVERT FROM STAGE I HAS BEEN CONSTRUCTED.
- 6) REPLACE PREVIOUSLY CONSTRUCTED AGGREGATE SHOULDERS, TYPE B, 6" AS NEEDED WHEN PLACING FINAL AGGREGATE SHOULDERS, TYPE B.

STAGING DETAIL, CULVERT NO. 13
STATION 2264 + 91.00, S.N. 010- 8137

STAGE I



STAGE II



PLOT DATE = 8/14/2009
 FILE NAME = G:\DWG\WORK\PIWIDOT\PERSONNEL\0010445\70623-sht-staging.dgn
 USER NAME = pier_sombir

A.R. CULVERT LOCATION	TRAFFIC CONTROL STANDARD	ESTIMATED TIME	CHANGEABLE MESSAGE SIGN
STA. 2264+91.00	701206	84 HRS / NON-STOP (4) - 12 HR DAY SHIFTS (3) - 12 HR NIGHT SHIFTS	2.0 EACH AT 4.0 CAL DAY = 8.0 CAL DAY

SHEET 4 OF 6

ILLINOIS DEPARTMENT OF TRANSPORTATION
STAGING DETAIL, CULVERT NO. 13
STA. 2264+91.00
S.N. 010-8137

SCALE: N/A
 DATE: 08/01/09

DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	285

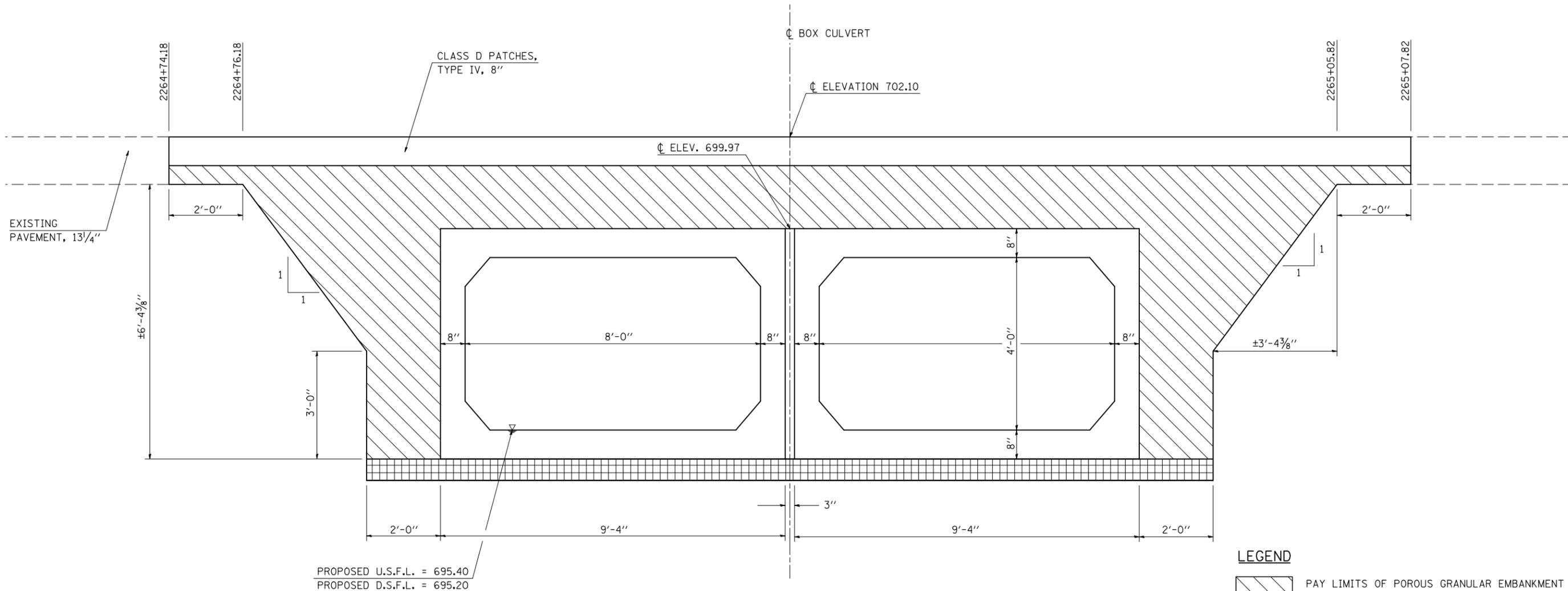
STA.	TO STA.
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

DETAIL OF POROUS GRANULAR EMBANKMENT PAY LIMITS

CULVERT NO. 13, STATION 2264 + 91.00

S.N. 010-8137



LEGEND

	PAY LIMITS OF POROUS GRANULAR EMBANKMENT - CA-6
	POROUS GRANULAR MATERIAL - CA-7 (6\") INCLUDED IN PAY ITEM FOR BOX CULVERT

DRAWING NOT TO SCALE

GENERAL NOTES

- 1) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 207 AND SECTION 540 OF THE STANDARD SPECIFICATIONS.
- 2) POROUS GRANULAR EMBANKMENT SHALL EXTEND 2 FT. BEYOND THE AGGREGATE SHOULDER.
- 3) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR EMBANKMENT.
- 4) THE AREA TO BE EXCAVATED FOR THE PROPOSED BOX CULVERT SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR STRUCTURE EXCAVATION. THE QUANTITY CALCULATED WILL BE THE AREA FOR THE PROPOSED STRUCTURE LESS THE AREA REQUIRED TO REMOVE THE EXISTING STRUCTURE. THE EXISTING STRUCTURE AREA IS CONSIDERED TO BE THE AREA CONTAINED BETWEEN THE BOTTOM OF THE PAVEMENT TO THE BOTTOM OF THE STRUCTURE TIMES THE OUTSIDE DIAMETER OF THE STRUCTURE.
- 5) THE SPACE BETWEEN MULTI-CELL BOXES SHALL BE FILLED ACCORDING TO ARTICLE 540.06 AND SHALL NOT BE PAID FOR SEPERATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS ASSOCIATED WITH BOX CULVERT CONSTRUCTION.

SHEET 5 OF 6

ILLINOIS DEPARTMENT OF TRANSPORTATION
**DETAIL OF POROUS GRANULAR EMBANKMENT
 PAY LIMITS, STA. 2264+91.00
 CULVERT NO. 13**

SCALE: N/A
 DATE: 07/13/09
 DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

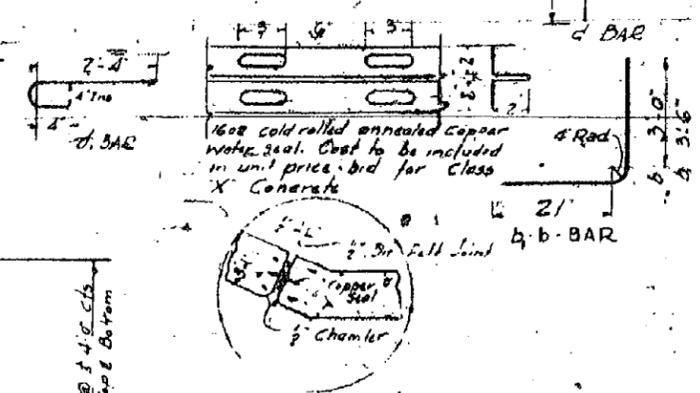
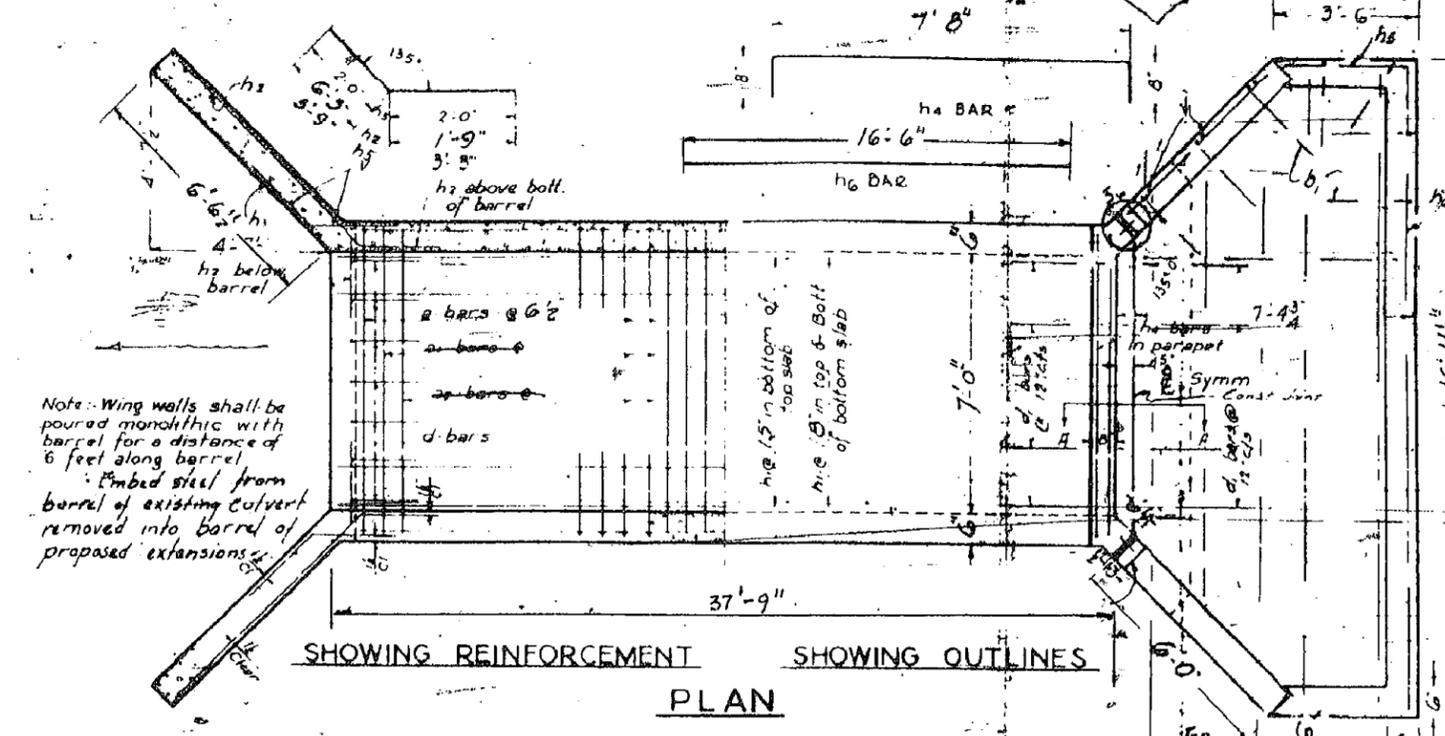
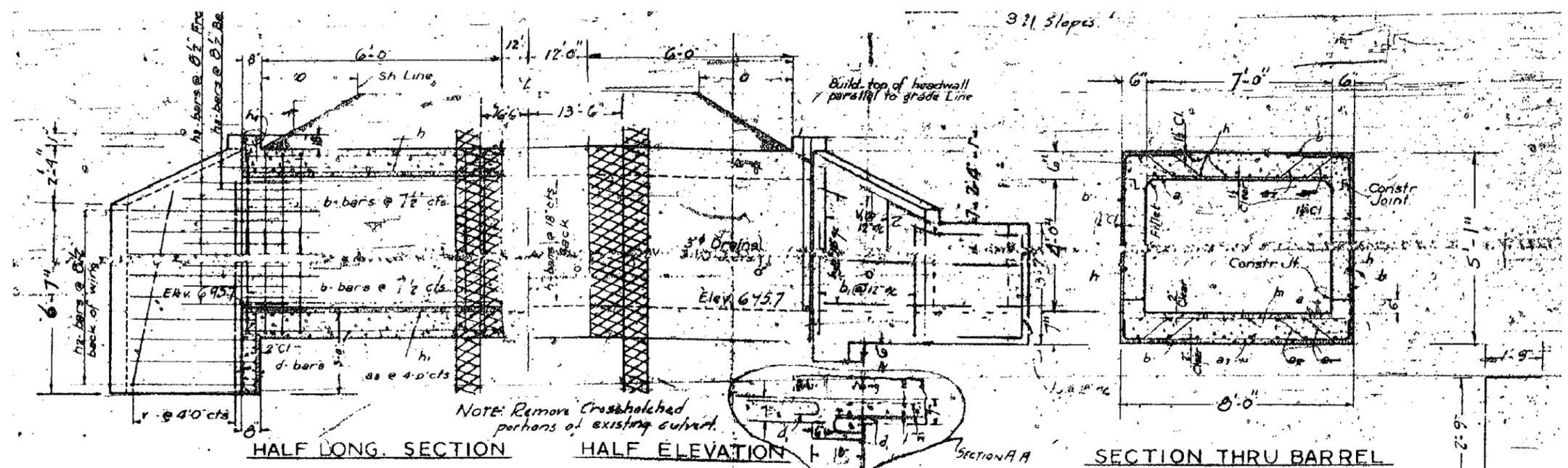
PLOT DATE = 8/19/2009
 FILE NAME = G:\DWG\WORK\X\PIWDOT\CEARLOCK\JD\0101445\70623-sht-detailed.dgn
 USER NAME = ceartock/jd

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	286
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

EXISTING STRUCTURE INFORMATION

STATION 2264 + 91.00



BILL OF MATERIAL

BAR	NO	SIZE	LENGTH	BAR	NO	SIZE	LENGTH
h1	50	5/8"	7'-6"	h4	34	1/2"	6'-3"
h2	5	3/4"	10'-0"	h5	24	1/2"	6'-3"
h3	3	3/4"	10'-0"	h6	20	3/8"	8'-0"
a1	4	2"	5'-0"	h7	16	5/8"	4'-0"
b	20	1/2"	5'-3"	h8	4	3/8"	8'-0"
v	6	1/2"	7'-6"	h9	6	1/2"	9'-0"
h	34	1/2"	5'-9"	h10	3	1/2"	16'-6"
v	8	1/2"	3'-6"	d	8	1/2"	4'-6"
w	6	1/2"	7'-3"	d	16	1/2"	3'-3"
Class X Concrete				Cu Yds 14.2			
Reinforcing Steel				Lbs. 1960			

Note: Wing walls shall be poured monolithic with barrel for a distance of 6 feet along barrel. Embed steel from barrel of existing culvert removed into barrel of proposed extensions.

GENERAL NOTES
 Class X Concrete shall be used thruout
 Culvert walls and slab may be poured monolithically
 Exposed edges shall be beveled 3"
 Subsoil of approximately uniform bearing capacity is assumed.

EXISTING STRUCTURE:
 S.N. 010-8095 WAS CONSTRUCTED IN THE 1920'S
 AT STATION 264+90 AS A 7' X 4' CAST-IN-PLACE
 BOX CULVERT WITH CONCRETE HEADWALLS.
 EXISTING PLAN STATION: 2264+91.20

SHEET 6 OF 6

ILLINOIS DEPARTMENT OF TRANSPORTATION
EXISTING STRUCTURE INFORMATION
 STATION 2264+91.00
 CULVERT NO. 13

SCALE: 1" = 20'
 DATE: 07/18/09
 DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

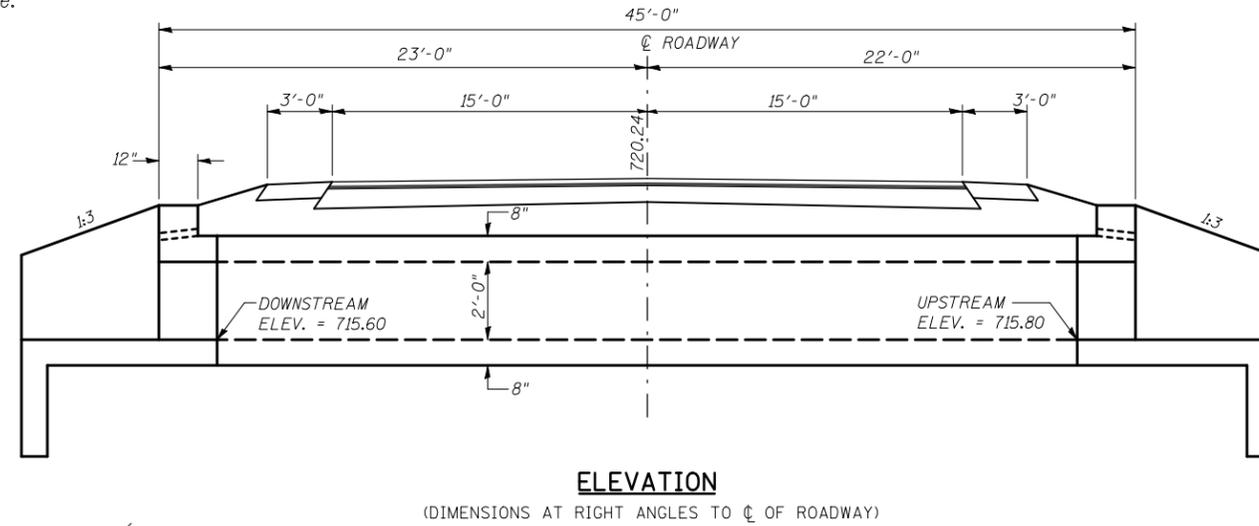
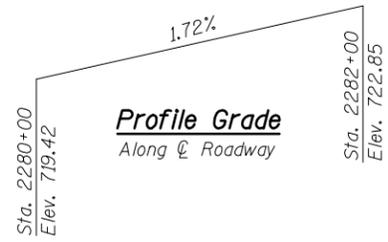
PLOT DATE = 8/12/2009
 FILE NAME = G:\work\K\PROJECTS\CEARLOCK\200623-sht-culvert-detailed.dgn
 USER = ceartock\jg

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	287

EXISTING STRUCTURE: A structure does not exist at this location. Stage Construction will be utilized to construct the new structure.

General Notes

- Build tops of headwalls parallel to the grade lines.
- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS
- All construction joints shall be bonded according to Article 503.09 of the Standard Specifications.
- Reinforcement bars shall conform to the requirements of ASTM A706 Gr. (IL Modified). See Special Provisions.
- All bars should be rounded and conform to the requirements of Article 1006.10 of the Standard Specifications.
- When lapping sheets of welded wire fabric, the overlap measured between the outermost cross wires of each fabric sheet shall not be less than 8"
- End Sections will be paid for at the contract unit price per each for BOX CULVERT END SECTIONS, as outlined in Section 540 of the Standard Specifications.
- Class SI Concrete shall be used throughout.
- Concrete, Rebar, and Welded Wire Fabric quantities and lengths calculated for the cast-in-place End Sections may vary based on the precast box culverts supplied.
- Drain holes shall be provided in accordance with Article 503.11 of the Standard Specifications.
- The precast manufacturer shall design and detail a connection/construction joint between the precast concrete box sections and the cast-in-place apron and wingwall. The minimum area of reinforcement passing through these construction joints shall be 0.20 sq. in./lineal ft. of welded wire fabric. The design shall be detailed in the shop drawings. The cost of the connection is included in the cost of the end section.
- The box culvert end section shall be built in the field and a precast option is not allowed except the cut-off wall may be precast. If the contractor elects to use a precast cut-off wall, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval.
- The ends of the precast box sections adjacent to the end section shall be formed without the male and female shapes specified in Article 8.1 of AASHTO M273. See Section D-D on Sheet 2.
- The design fill height for this box is less than 2 feet. The Precast Concrete Box Culvert Sections shall conform to the requirements of AASHTO M 273.
- The joints between precast box sections shall be sealed, all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the backfilling process.
- All dimensions are in FEET (') - INCHES (") unless otherwise noted.
- Drawings not to scale.



STATION 2280+50.00
 BUILT 20__ BY
 STATE OF ILLINOIS
 F.A.P. RT. 808 SEC. (205,57,105)RS-2
 LOADING HS 20
 STRUCTURE NO. 010-8136

NAME PLATE
 See Std. 515001

INDEX OF SHEETS

1. General Plan and Elevation
2. Box Culvert End Section Details
3. Staging Details
4. Porous Granular Details

DESIGN SPECIFICATIONS

2002 AASHTO

LOADING HS20-44

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

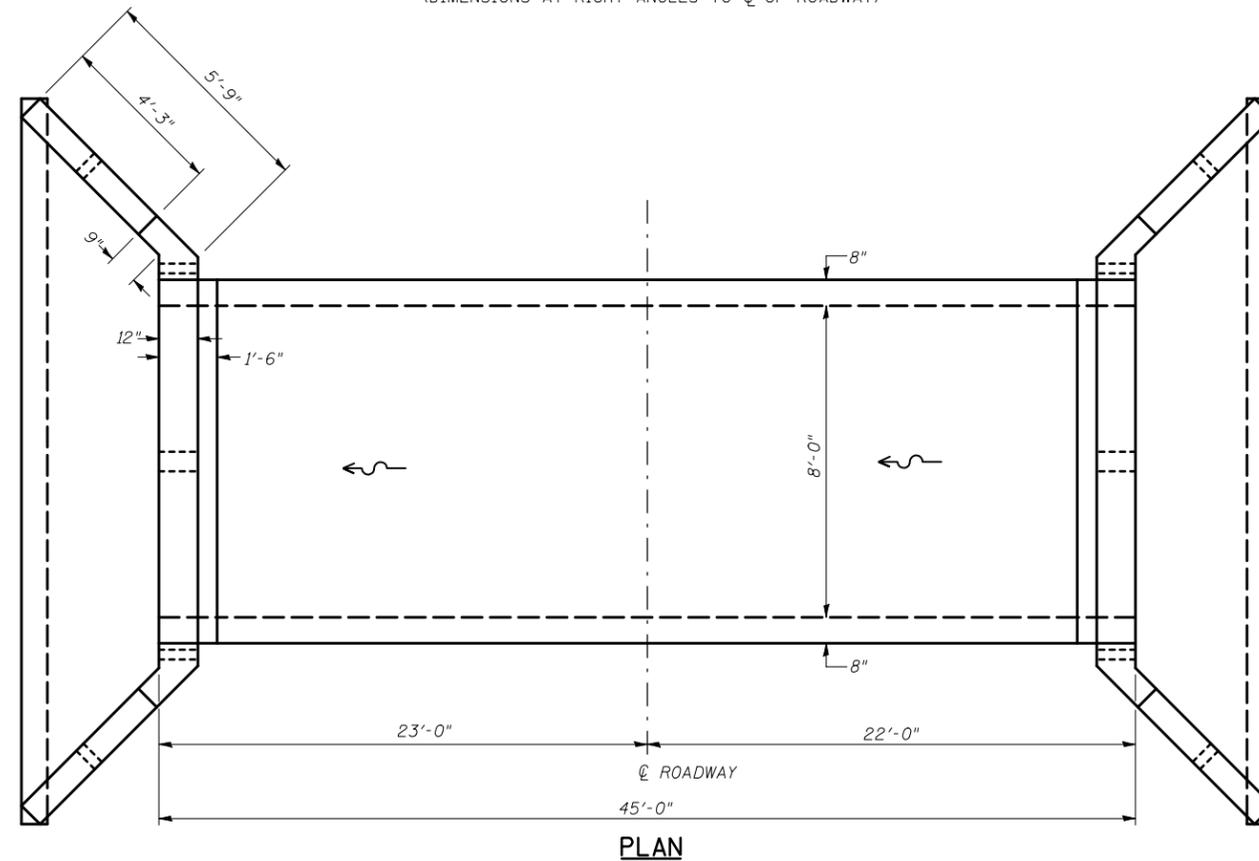
DESIGN STRESSES

FIELD UNITS

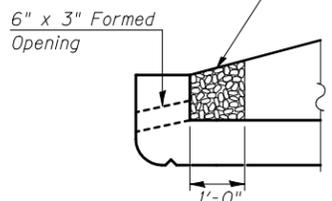
- f'c = 3,500 psi
- fy = 60,000 psi (reinforcement)
- fy = 65,000 psi (welded wire fabric)

PRECAST UNITS

- f'c = 5,000 psi
- fy = 65,000 psi (welded wire fabric)



Coarse aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Concrete Box Culverts.



DRAIN DETAIL

WATERWAY INFORMATION

Drainage Area = 0.036 sq. mi. Low Grade Elev. 720.24 @ Sta. 2280+50

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
	10	54	N/A	16				N/A	717.65
Design	50	77	N/A	16				N/A	718.12
Base	100	89	N/A	16				N/A	718.40
Overtopping									
Max. Calc.	500	125	N/A	16				N/A	719.30

Note: Information provided using the Rational Method.

TOTAL BILL OF MATERIAL

Item	Unit	Total
Precast Concrete Box Culverts 8'x2'	Foot	42
Box Culvert End Sections	Each	2
Name Plates	Each	1

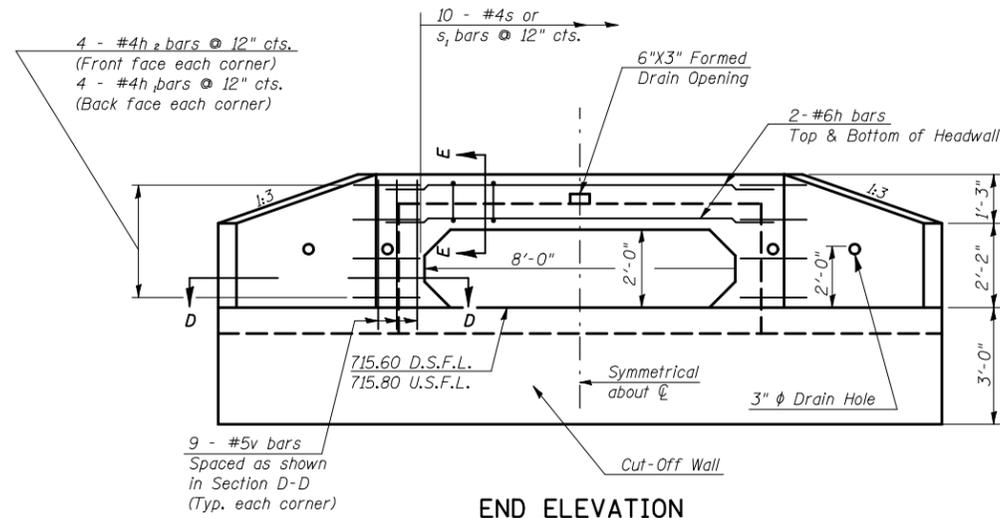
SHEET 1 OF 4

GENERAL PLAN AND ELEVATION
SINGLE 8'x2' PRECAST BOX CULVERT
F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
CHAMPAIGN COUNTY
STATION 2280+50.00, S.N. 010-8136
CULVERT NO. 14

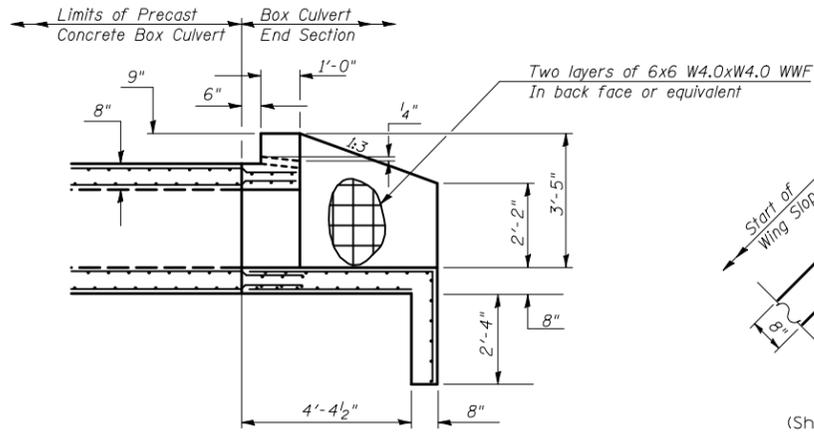
PLOT DATE = 8/12/2009
 FILE NAME = c:\pvc\work\p1001\CEARLOCK\01081445\70623-shr-culvert_details.dgn
 PLOT SCALE = 4.23625' / IN.
 USER NAME = ceerlock_jd

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	**	715	288

(205,57,105)RS-2
 ** CHAMPAIGN & DOUGLAS

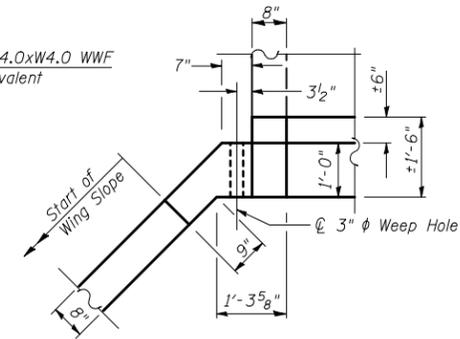


END ELEVATION

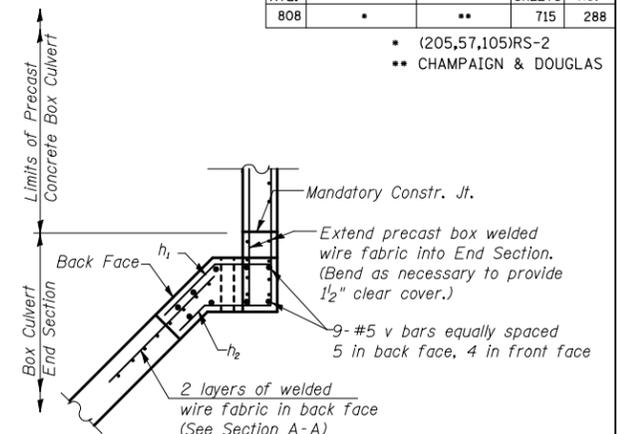


HALFSIDE ELEVATION

DIMENSIONS AT RIGHT ANGLES TO C OF ROADWAY

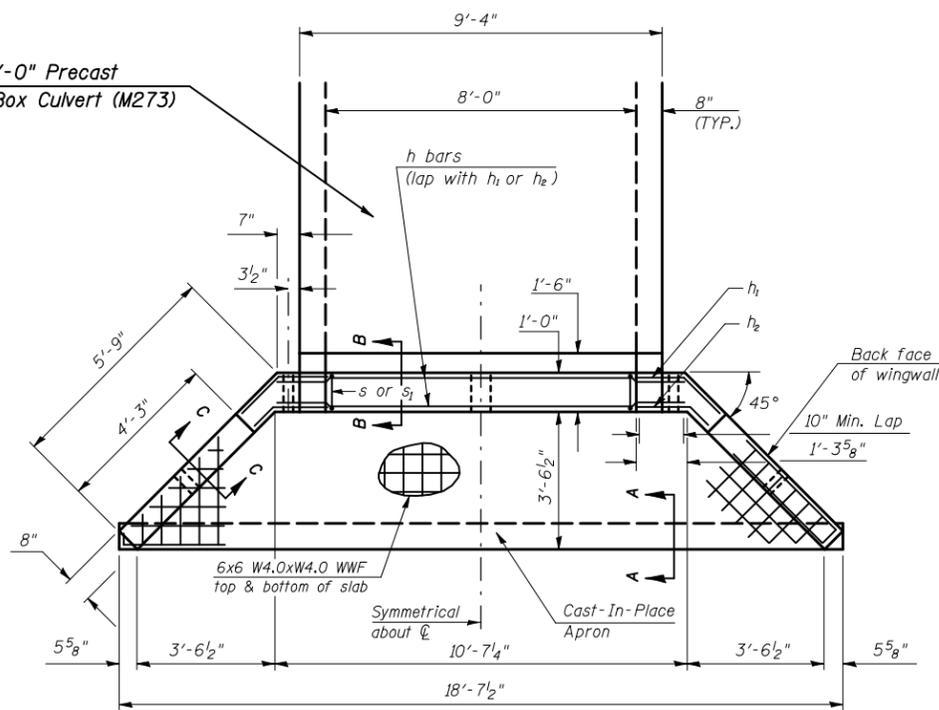


CORNER DETAIL
 (Showing dimensions and weep hole)

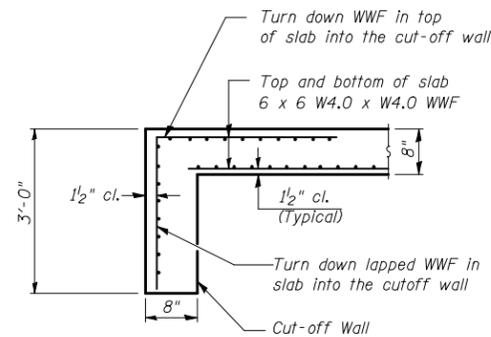


SECTION D-D
 (Showing reinforcement)

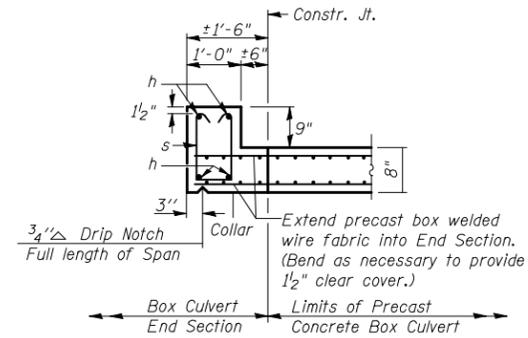
8'-0" x 2'-0" Precast Concrete Box Culvert (M273)



PLAN

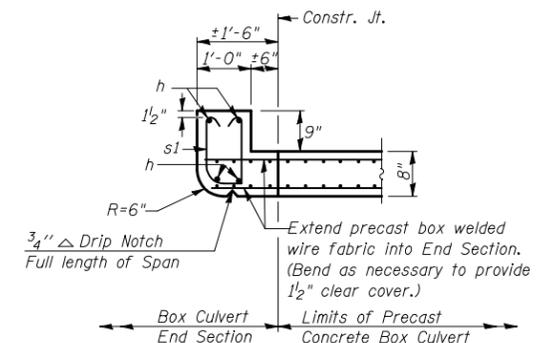


SECTION A-A



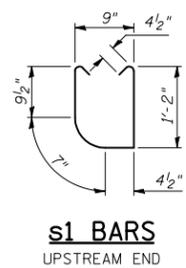
SECTION E-E

TOP SLAB / HEADWALL DOWNSTREAM END

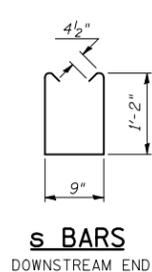


SECTION E-E

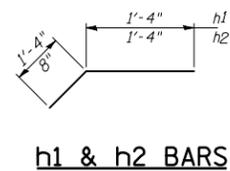
TOP SLAB / HEADWALL UPSTREAM END



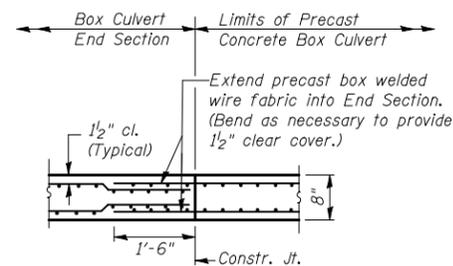
s1 BARS
 UPSTREAM END



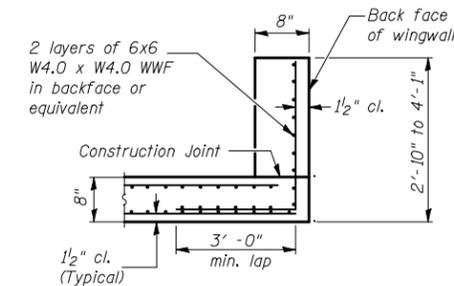
s BARS
 DOWNSTREAM END



h1 & h2 BARS



SECTION B-B
 BOTTOM SLAB



SECTION C-C

WINGWALLS AND UPSTREAM DROP BOX

BILL OF MATERIAL

For Information Only
 (One End Section)

Bar	No.	Size	Length	Shape
h	4	#6	10'-8"	—
h1	8	#4	2'-9"	—
h2	8	#4	1'-11"	—
s or s1	10	#4	3'-10"	—
v	18	#5	3'-10"	—
Item	Unit	Total		
Class SI Concrete	Cu. Yd.	4.5		
Reinforcement Bars	Pound	187.0		
Welded Wire Fabric	Sq. Ft.	303.0		

SHEET 2 OF 4

END SECTION DETAILS
SINGLE 8'x2' PRECAST BOX CULVERT
 F.A.P. ROUTE 808 - SECTION (205,57,105)RS-2
 CHAMPAIGN COUNTY
 STATION 2280+50.00, S.N. 010-8136
 CULVERT NO. 14

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	289

STA.	TO STA.
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT

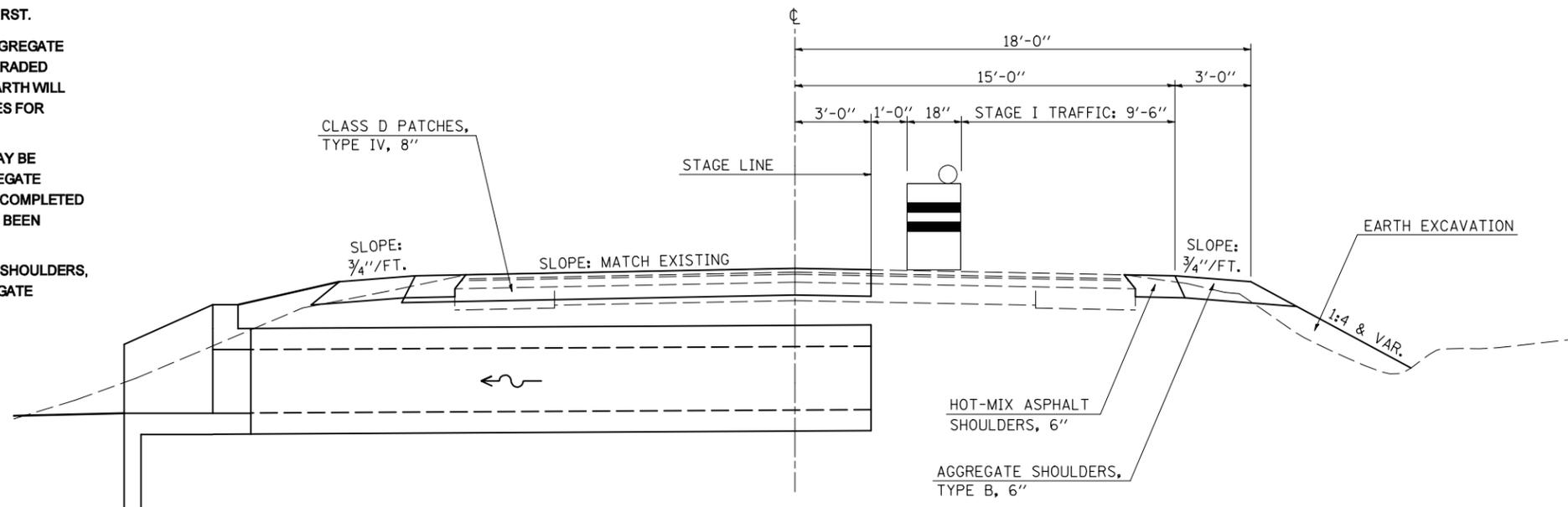
- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

GENERAL NOTES

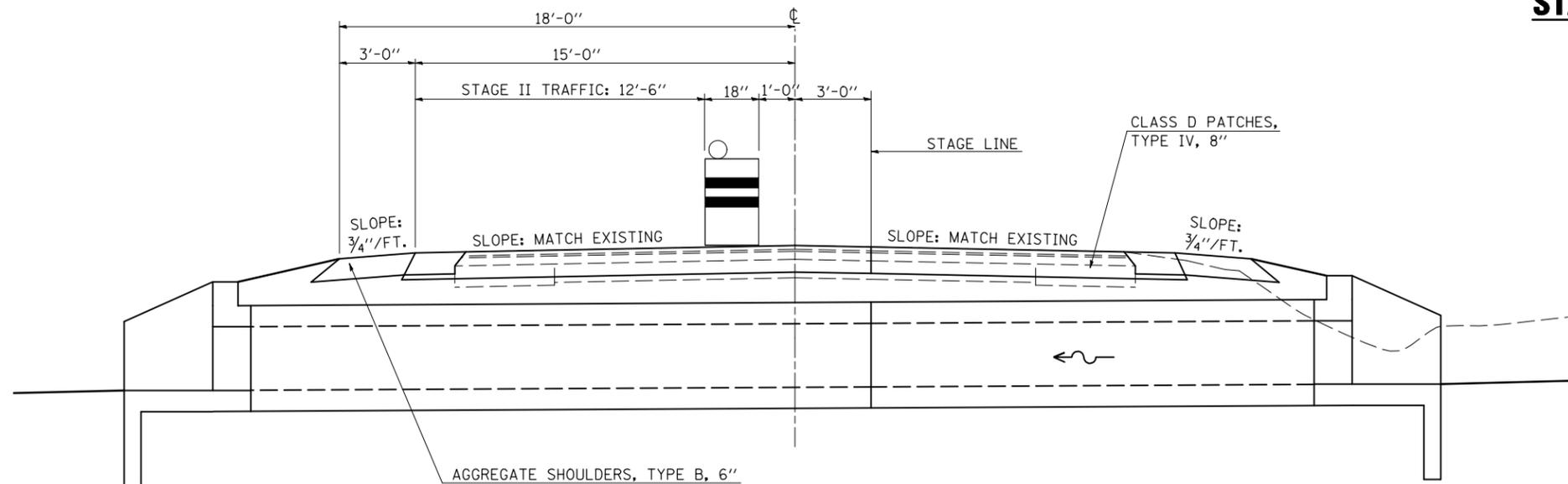
- 1) REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL AND PROTECTION, STANDARD 701201 AND STAGE CONSTRUCTION ACROSS ROAD CULVERTS FOR ADDITIONAL INFORMATION.
- 2) THE ENGINEER MAY REDUCE OR ELIMINATE LENGTHS OR LOCATIONS OF AGGREGATE, TYPE B, 6" AND EARTH EXCAVATION BASED ON FIELD CONDITIONS.
- 3) CONSTRUCT DOWNSTREAM END OF A.R. CULVERT FIRST.
- 4) EARTH EXCAVATED FOR THE CONSTRUCTION OF AGGREGATE SHOULDERS, TYPE B, 6" SHALL BE DEPOSITED AND GRADED TO SMOOTH THE FORESLOPES. THIS EXCAVATED EARTH WILL BE INCLUDED IN THE FINAL CROSS-SECTION VOLUMES FOR EARTHWORK BALANCE / WASTE CALCULATIONS.
- 5) AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE I MAY BE COMPLETED AT ANY TIME PRIOR TO STAGE I. AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE II SHALL NOT BE COMPLETED UNTIL THE HALF-WIDTH CULVERT FROM STAGE I HAS BEEN CONSTRUCTED.
- 6) REPLACE PREVIOUSLY CONSTRUCTED AGGREGATE SHOULDERS, TYPE B, 6" AS NEEDED WHEN PLACING FINAL AGGREGATE SHOULDERS, TYPE B.

STAGING DETAIL, CULVERT NO. 14
STATION 2280 + 50.00, S.N. 010-8136

STAGE I



STAGE II



PLOT DATE = 8/14/2009
 FILE NAME = G:\DWG\WORK\K\PIWIDOT\PERSONNEL\0001445\70623-sht-staging.dgn
 USER NAME = pier_sombir

A.R. CULVERT LOCATION	TRAFFIC CONTROL STANDARD	ESTIMATED TIME	CHANGEABLE MESSAGE SIGN
STA. 2280+50.00	701201	24 HRS (2) - 12 HR DAY SHIFTS	N/A

SHEET 3 OF 4

ILLINOIS DEPARTMENT OF TRANSPORTATION
STAGING DETAIL, CULVERT NO. 14
STA. 2280+50.00
S.N. 010-8136

SCALE: N/A
 DATE: 08/01/09

DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

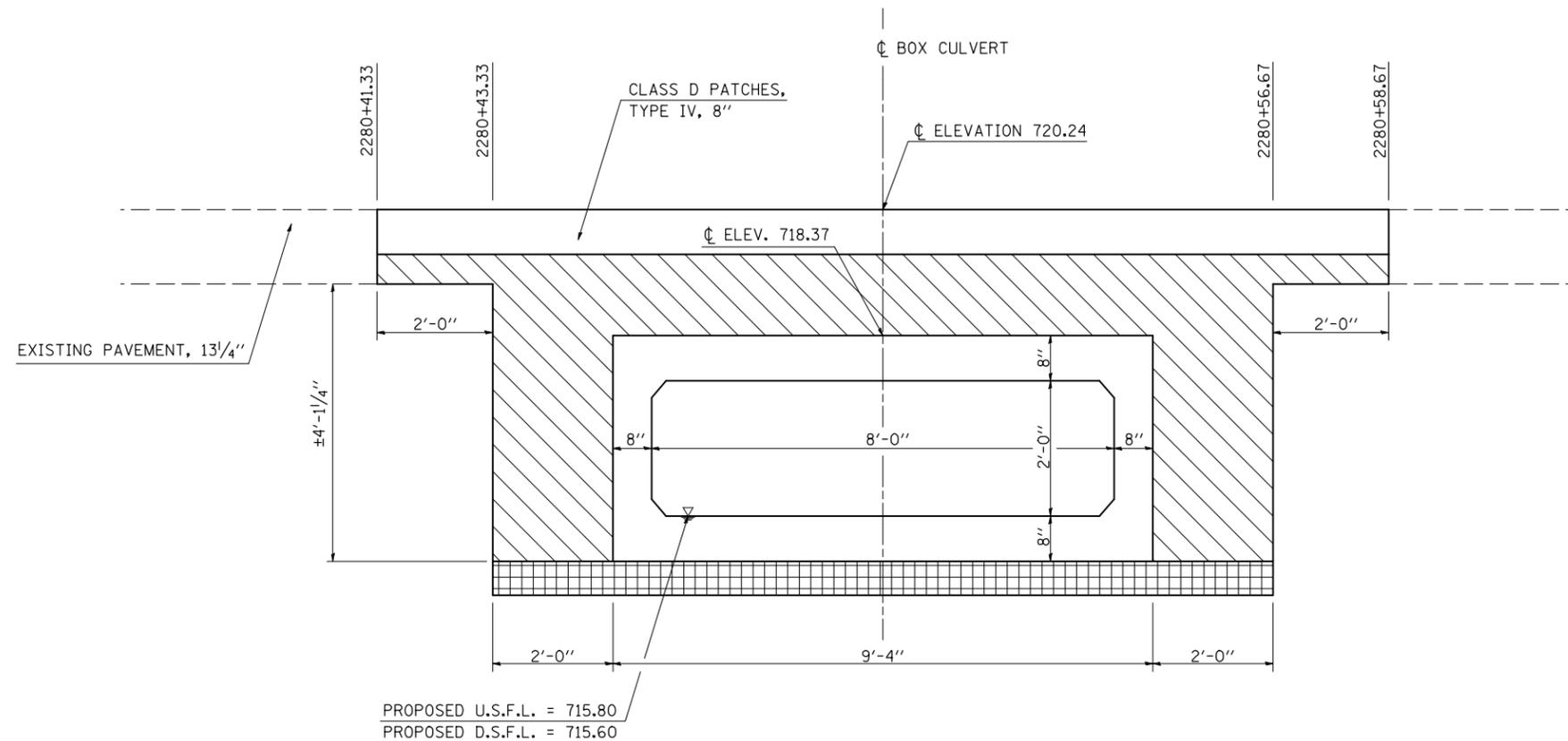
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	290
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- ** CHAMPAIGN & DOUGLAS

DETAIL OF POROUS GRANULAR EMBANKMENT PAY LIMITS

CULVERT NO. 14, STATION 2280 + 50.00

S.N. 010-8136



LEGEND

- PAY LIMITS OF POROUS GRANULAR EMBANKMENT - CA-6
- POROUS GRANULAR MATERIAL - CA-7 (6") INCLUDED IN PAY ITEM FOR BOX CULVERT

DRAWING NOT TO SCALE

GENERAL NOTES

- 1) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 207 AND SECTION 540 OF THE STANDARD SPECIFICATIONS.
- 2) POROUS GRANULAR EMBANKMENT SHALL EXTEND 2 FT. BEYOND THE AGGREGATE SHOULDER.
- 3) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR EMBANKMENT.
- 4) THE AREA TO BE EXCAVATED FOR THE PROPOSED BOX CULVERT SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR STRUCTURE EXCAVATION.

SHEET 4 OF 4

ILLINOIS DEPARTMENT OF TRANSPORTATION
DETAIL OF POROUS GRANULAR EMBANKMENT
PAY LIMITS, STA. 2280+50.00
CULVERT NO. 14

SCALE: N/A
DATE: 07/14/09

DRAWN BY: B.B.P.
CHECKED BY: G.A.E.

PLOT DATE = 8/19/2009
 FILE NAME = G:\pwworkspace\PI\PWDOT\CEARLOCK\JD\0101445\70623-sht-detailed.dgn
 PLOT NAME = 12.3523
 USER NAME = cearlockj

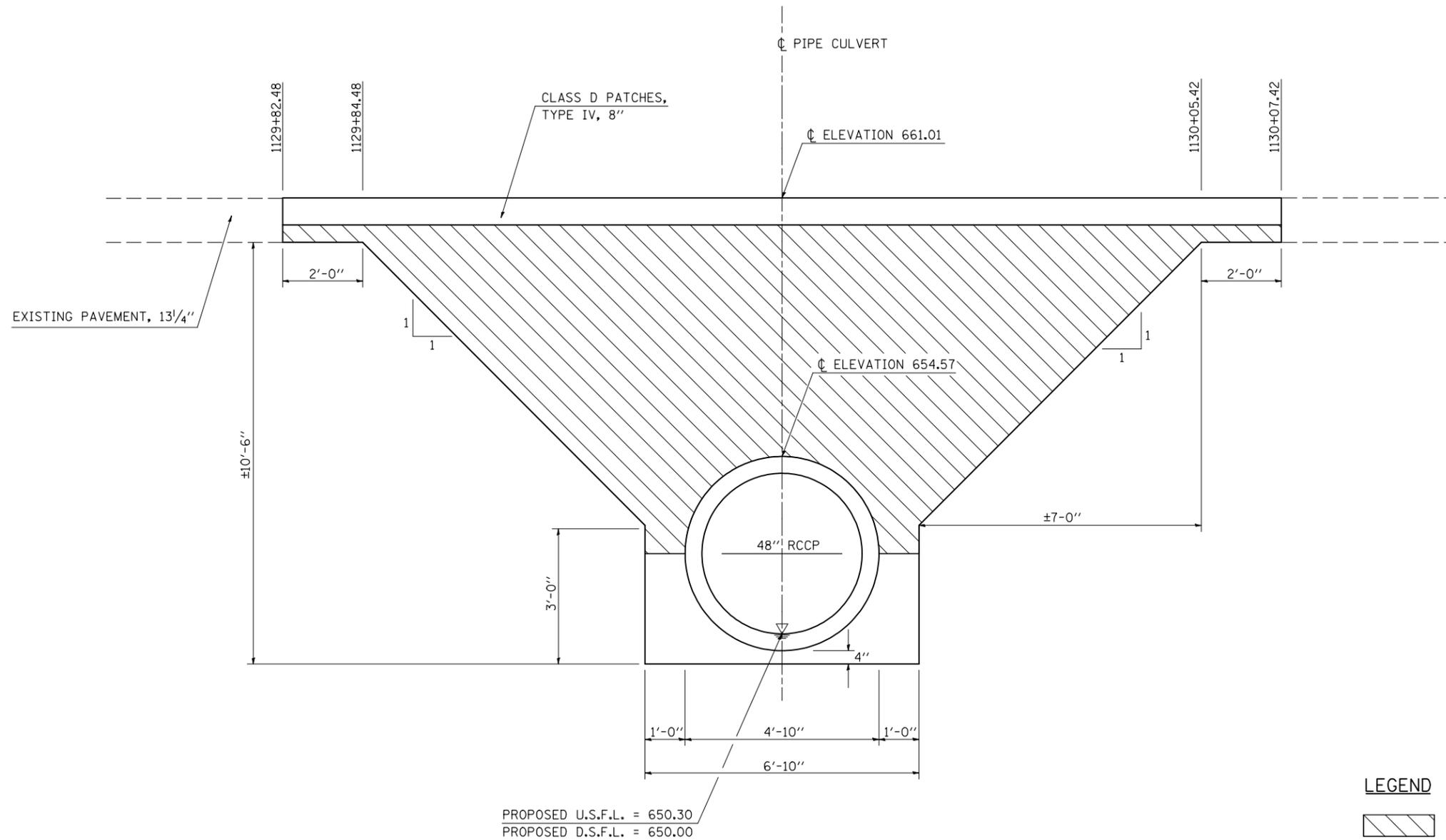
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	291

STA.	TO STA.
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

DETAIL OF POROUS GRANULAR BACKFILL PAY LIMITS

48" RCCP, STATION 1129+95.00



LEGEND

PAY LIMITS OF POROUS GRANULAR BACKFILL - CA-6

DRAWING NOT TO SCALE

GENERAL NOTES

- 1) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 209 AND SECTION 542 OF THE STANDARD SPECIFICATIONS.
- 2) POROUS GRANULAR EMBANKMENT SHALL EXTEND 2 FT. BEYOND THE AGGREGATE SHOULDER.
- 3) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR EMBANKMENT.
- 4) THE REMOVAL OF THE EXISTING 4' X 3' CAST-IN-PLACE BOX CULVERT WITH CONCRETE HEADWALLS SHALL BE MEASURED AND PAID FOR AS REMOVAL OF EXISTING STRUCTURES.
- 5) THE EXCAVATION FOR THE PROPOSED PIPE CULVERT WILL NOT BE PAID FOR SEPERATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE PIPE CULVERT OF THE TYPE AND SIZE SPECIFIED.

SHEET 1 OF 4

ILLINOIS DEPARTMENT OF TRANSPORTATION
DETAIL OF POROUS GRANULAR BACKFILL
PAY LIMITS, STA. 1129+95.00
48" RCCP

SCALE: N/A
 DATE: 07/16/09

DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

PLOT DATE = 8/12/2009
 FILE NAME = G:\DWG\WORK\K\PIWIDOT\CEARLOCK\JD\0101445\70623-sht1-detail.dgn
 PLOT DATE = 12/25/03
 USER NAME = ceartock\jd

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	292
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

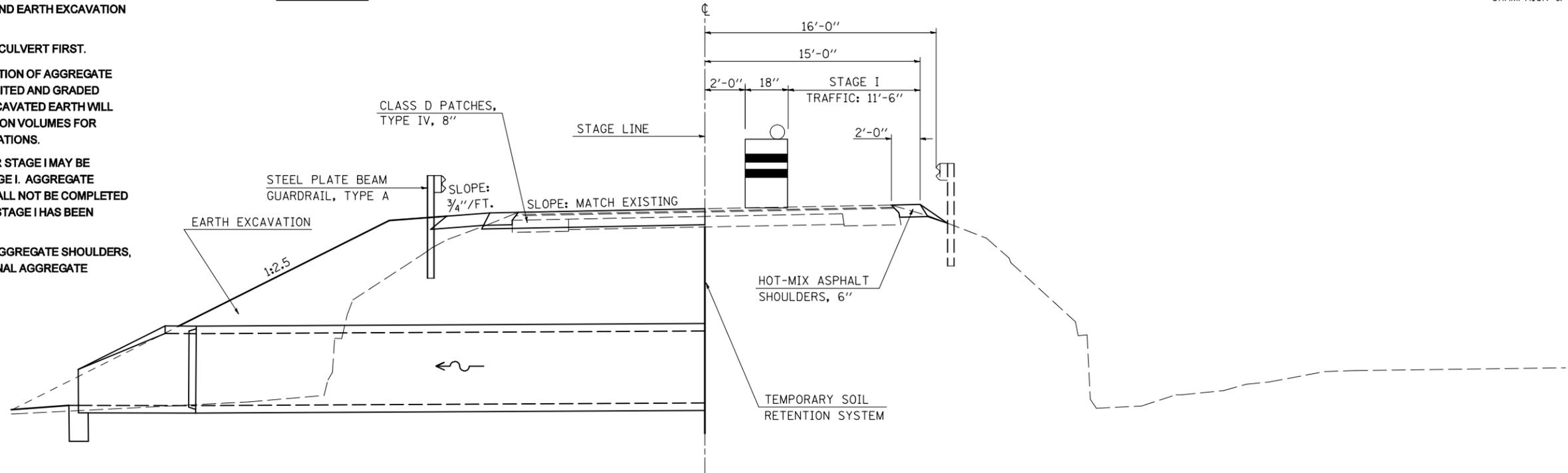
- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

GENERAL NOTES

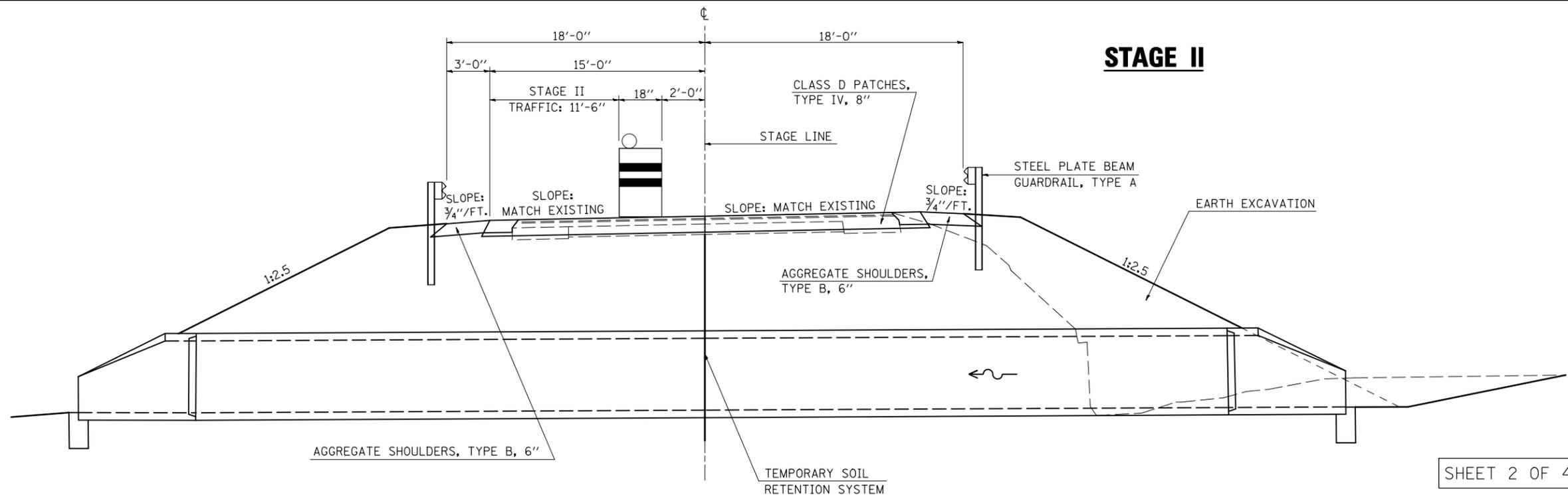
- REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL AND PROTECTION, STANDARD 701206 AND STAGE CONSTRUCTION ACROSS ROAD CULVERTS FOR ADDITIONAL INFORMATION.
- THE ENGINEER MAY REDUCE OR ELIMINATE LENGTHS OR LOCATIONS OF AGGREGATE, TYPE B, 6" AND EARTH EXCAVATION BASED ON FIELD CONDITIONS.
- CONSTRUCT DOWNSTREAM END OF A.R. CULVERT FIRST.
- EARTH EXCAVATED FOR THE CONSTRUCTION OF AGGREGATE SHOULDERS, TYPE B, 6" SHALL BE DEPOSITED AND GRADED TO SMOOTH THE FORESLOPES. THIS EXCAVATED EARTH WILL BE INCLUDED IN THE FINAL CROSS-SECTION VOLUMES FOR EARTHWORK BALANCE / WASTE CALCULATIONS.
- AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE I MAY BE COMPLETED AT ANY TIME PRIOR TO STAGE I. AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE II SHALL NOT BE COMPLETED UNTIL THE HALF-WIDTH CULVERT FROM STAGE I HAS BEEN CONSTRUCTED.
- REPLACE PREVIOUSLY CONSTRUCTED AGGREGATE SHOULDERS, TYPE B, 6" AS NEEDED WHEN PLACING FINAL AGGREGATE SHOULDERS, TYPE B.

STAGING DETAIL, 48" RCCP
STATION 1129+95.00

STAGE I



STAGE II



SHEET 2 OF 4

A.R. CULVERT LOCATION	TRAFFIC CONTROL STANDARD	ESTIMATED TIME	CHANGEABLE MESSAGE SIGN
STA. 1129+95.00	701206	84 HRS / NON-STOP (4) - 12 HR DAY SHIFTS (3) - 12 HR NIGHT SHIFTS	2.0 EACH AT 4.0 CAL DAY = 8.0 CAL DAY

ILLINOIS DEPARTMENT OF TRANSPORTATION
STAGING DETAIL, 48" RCCP
STATION 1129+95.00

SCALE: N/A
DATE: 08/01/09

DRAWN BY: B.B.P.
CHECKED BY: G.A.E.

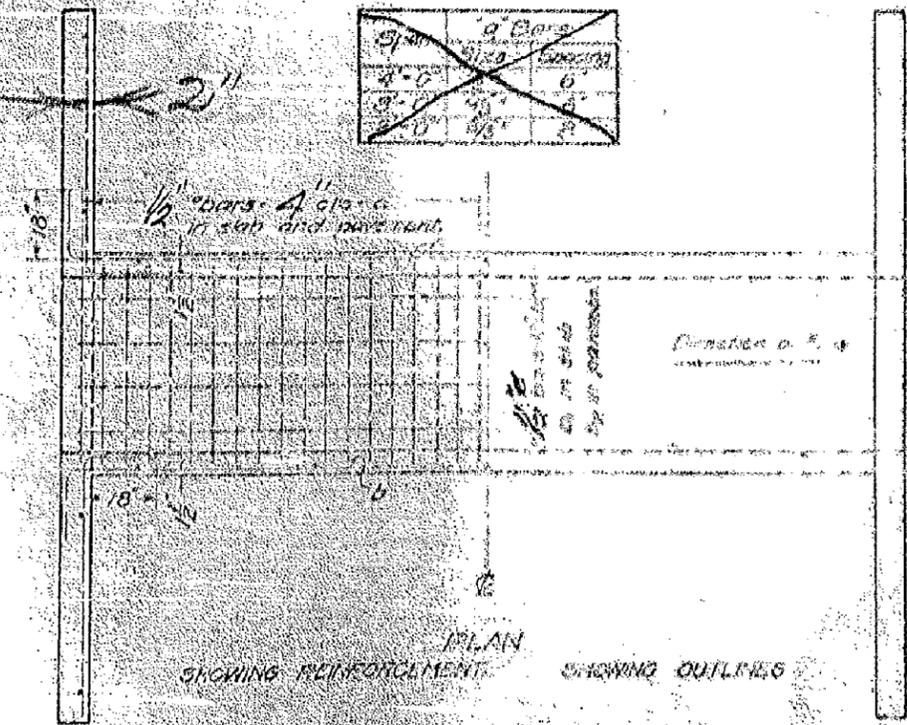
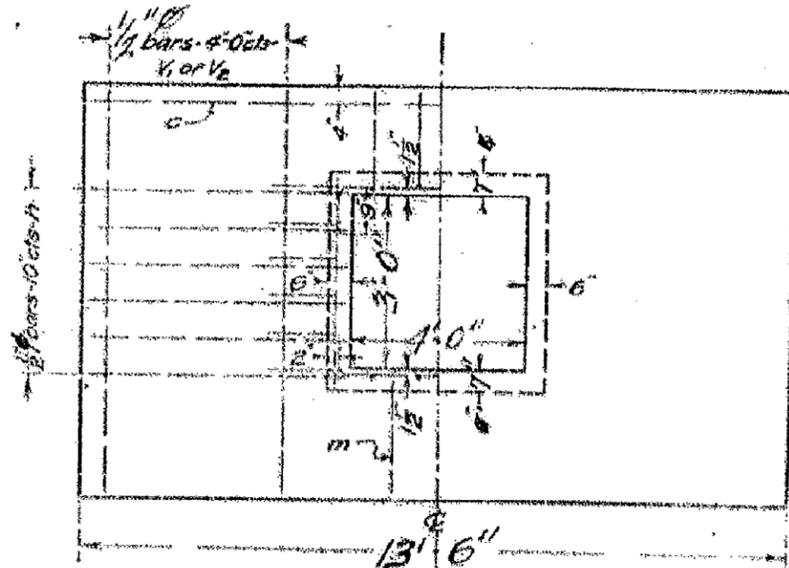
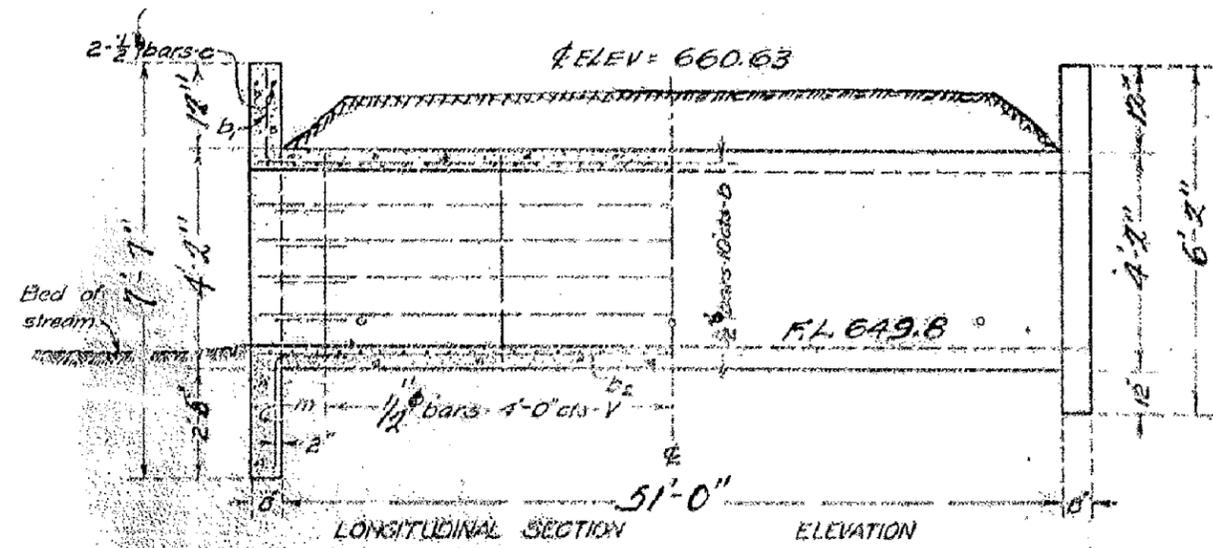
PLOT DATE = 8/14/2009
FILE NAME = G:\DWG\WORK\K\PIWDOT\PERSONNEL\DOUGLAS\70623-sht-staging.dgn
USER NAME = pier_sombir

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	294
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

EXISTING STRUCTURE INFORMATION

STATION 1129+95.00



Note.
 Fill over box should be limited to 4'-0".
 Maximum Clearance = 4'-0"
 Use 'm' bars in downstream headwall only.

BILL OF MATERIAL

Bars	No	Size	Length
v	26	1/2"	2'-0"
v	7	1/2"	7'-3"
v	4	1/2"	6'-0"
v	20	1/2"	6'-0"
a	314	1/2"	6'-3"
b	30	1/2"	20'-0"
b1	12	1/2"	17'-6"
b2	12	1/2"	19'-0"
c	2	1/2"	13'-0"
m	2	1/2"	5'-0"
Steel - Lvs			3600
Concrete - Cu Yds			20.7

EXISTING STRUCTURE:
 THE EXISTING STRUCTURE WAS CONSTRUCTED IN 1931 AT STATION 25+21 AS A 4' X 3' CAST-IN-PLACE BOX CULVERT WITH CONCRETE HEADWALLS.
 EXISTING PLAN STATION: 1129+95.30

*ORIGINAL CULVERT DESIGN
 S.A. ROUTE 15 SEC 57 MET.
 STA 2521 CHAMPAIGN CO.*

PLOT DATE = 8/12/2009
 FILE NAME = G:\work\K\PIWIDOT\CEARLOCK\1129+95\70623-sht-culvert-details.dgn
 USER NAME = ceartlockj

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	295
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

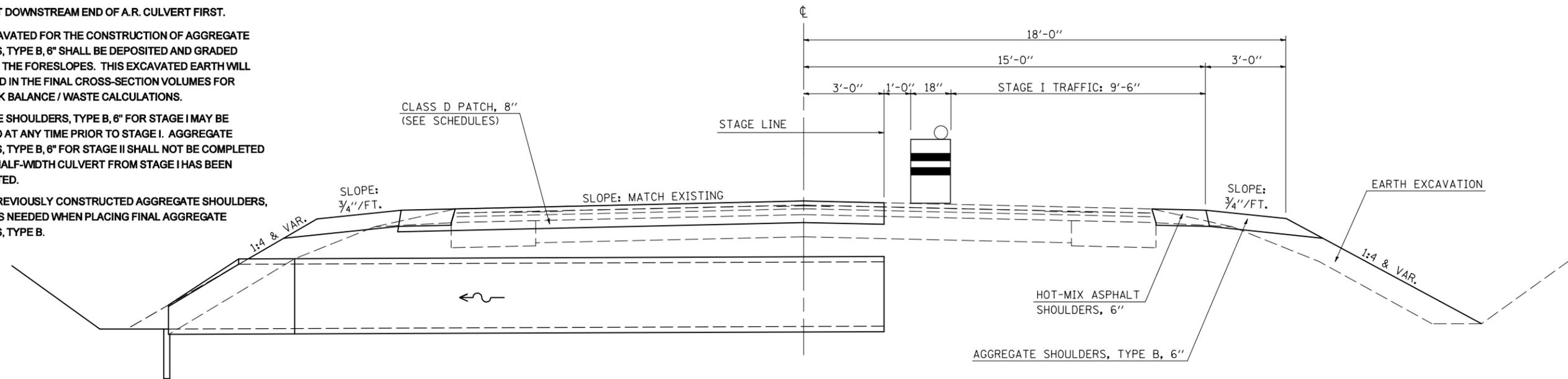
- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

GENERAL NOTES

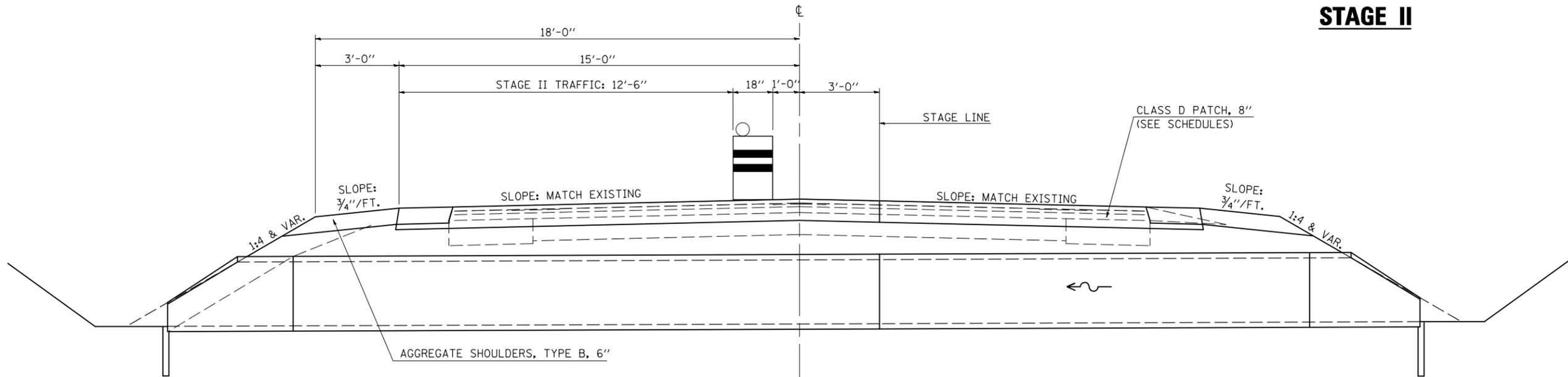
- REFER TO SPECIAL PROVISIONS FOR TRAFFIC CONTROL AND PROTECTION, STANDARD 701201 AND STAGE CONSTRUCTION ACROSS ROAD CULVERTS FOR ADDITIONAL INFORMATION.
- THE ENGINEER MAY REDUCE OR ELIMINATE LENGTHS OR LOCATIONS OF AGGREGATE, TYPE B, 6" AND EARTH EXCAVATION BASED ON FIELD CONDITIONS.
- CONSTRUCT DOWNSTREAM END OF A.R. CULVERT FIRST.
- EARTH EXCAVATED FOR THE CONSTRUCTION OF AGGREGATE SHOULDERS, TYPE B, 6" SHALL BE DEPOSITED AND GRADED TO SMOOTH THE FORESLOPES. THIS EXCAVATED EARTH WILL BE INCLUDED IN THE FINAL CROSS-SECTION VOLUMES FOR EARTHWORK BALANCE / WASTE CALCULATIONS.
- AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE I MAY BE COMPLETED AT ANY TIME PRIOR TO STAGE I. AGGREGATE SHOULDERS, TYPE B, 6" FOR STAGE II SHALL NOT BE COMPLETED UNTIL THE HALF-WIDTH CULVERT FROM STAGE I HAS BEEN CONSTRUCTED.
- REPLACE PREVIOUSLY CONSTRUCTED AGGREGATE SHOULDERS, TYPE B, 6" AS NEEDED WHEN PLACING FINAL AGGREGATE SHOULDERS, TYPE B.

TYPICAL STAGING DETAILS AT 24" & 24" EQRS A.R. PIPE CULVERTS

STAGE I



STAGE II



24" A.R. CULV. LOCATION	24" EQRS A.R. CULV. LOCATION	TRAFFIC CONTROL STANDARD	ESTIMATED TIME (EACH CULVERT)	CHANGEABLE MESSAGE SIGN
STA. 1000+60.00	STA. 2163+90.00	701201	24 HRS (2) - 12 HR DAY SHIFTS	N/A
STA. 1016+00.00	STA. 2164+00.00			
STA. 1052+50.00	STA. 2189+85.00			
STA. 1053+70.00	STA. 2190+00.00			
STA. 1066+20.00	STA. 2194+75.00			
	STA. 2194+80.00			

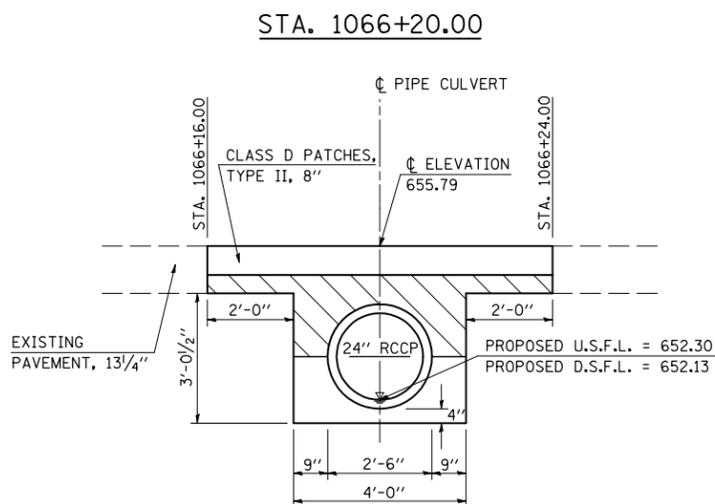
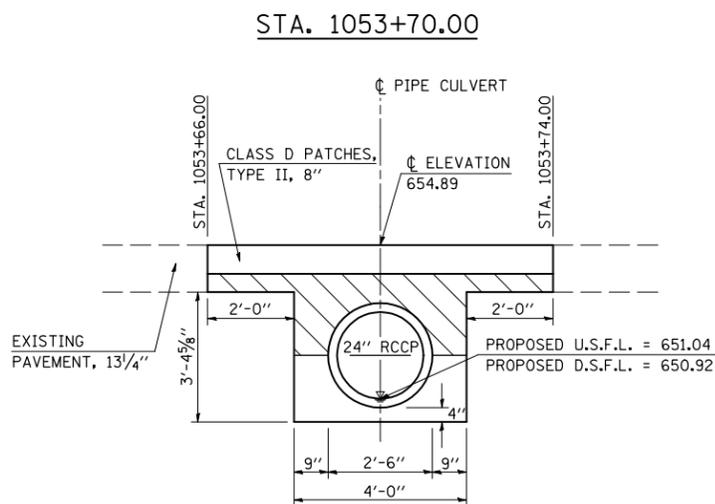
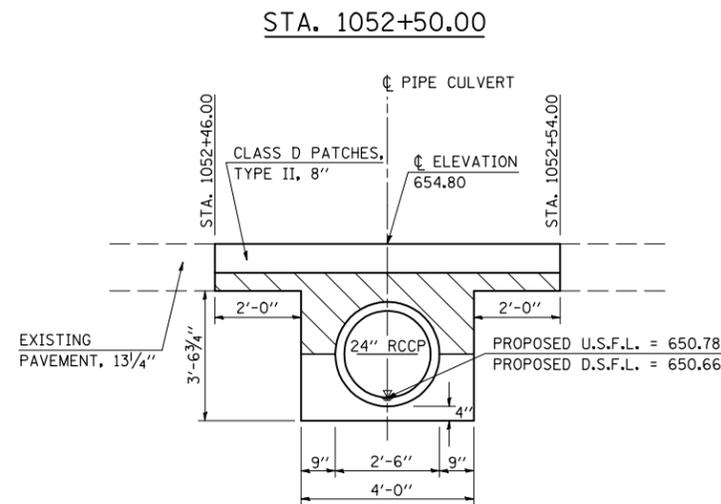
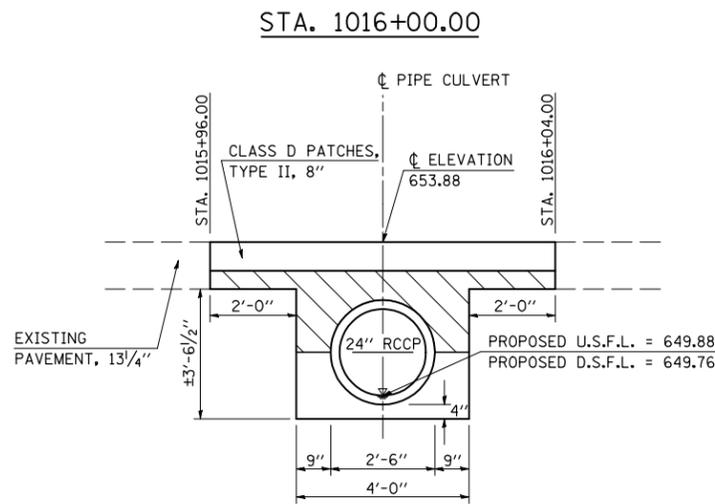
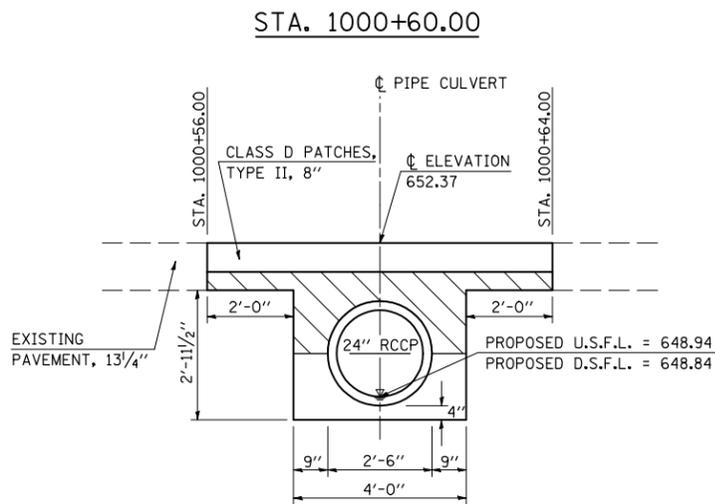
ILLINOIS DEPARTMENT OF TRANSPORTATION
**TYPICAL STAGING DETAILS AT
 24" & 24" EQRS A.R. PIPE CULVERTS**
 SCALE: N/A
 DATE: 08/12/09
 DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

PLOT DATE = 8/14/2009
 FILE NAME = G:\DWGWORK\PIPIDOT\PERSONNEL\0001445\70623-sht-staging.dgn
 USER NAME = piersonbr

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	296
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

DETAIL OF POROUS GRANULAR BACKFILL PAY LIMITS 24" RCCP ACROSS ROAD PIPE CULVERTS



LEGEND

PAY LIMITS OF POROUS GRANULAR BACKFILL - CA-6

DRAWING NOT TO SCALE

GENERAL NOTES

- 1) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 209 AND SECTION 542 OF THE STANDARD SPECIFICATIONS.
- 2) POROUS GRANULAR BACKFILL SHALL EXTEND 20 FT. LEFT AND 20 FT. RIGHT OF THE PAVEMENT CENTERLINE
- 3) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR BACKFILL.
- 4) THE EXCAVATION FOR THE PROPOSED PIPE CULVERT WILL NOT BE PAID FOR SEPERATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE PIPE CULVERT OF THE TYPE AND SIZE SPECIFIED.

ILLINOIS DEPARTMENT OF TRANSPORTATION
**DETAIL OF POROUS GRANULAR
BACKFILL PAY LIMITS
24" RCCP A.R. PIPE CULVERTS**

SCALE: N/A
DATE: 07/27/09

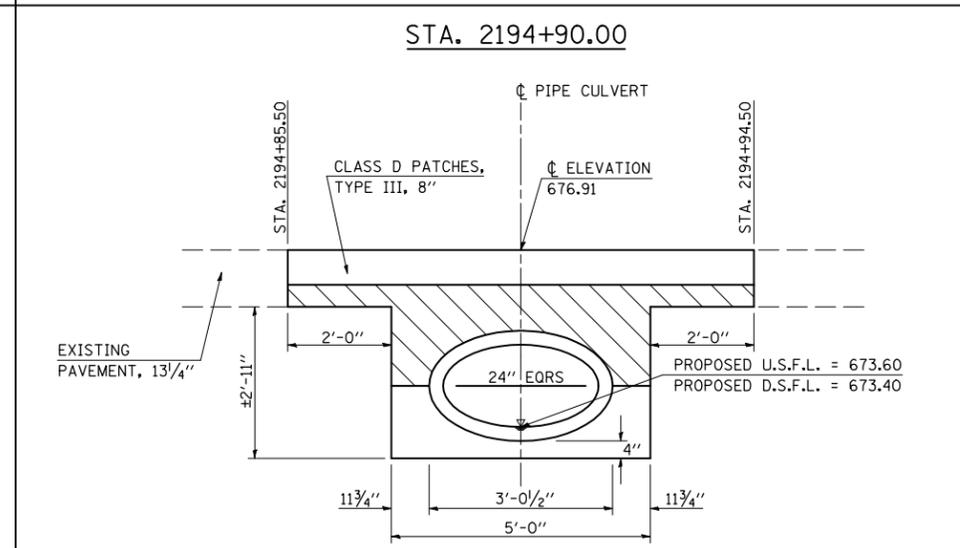
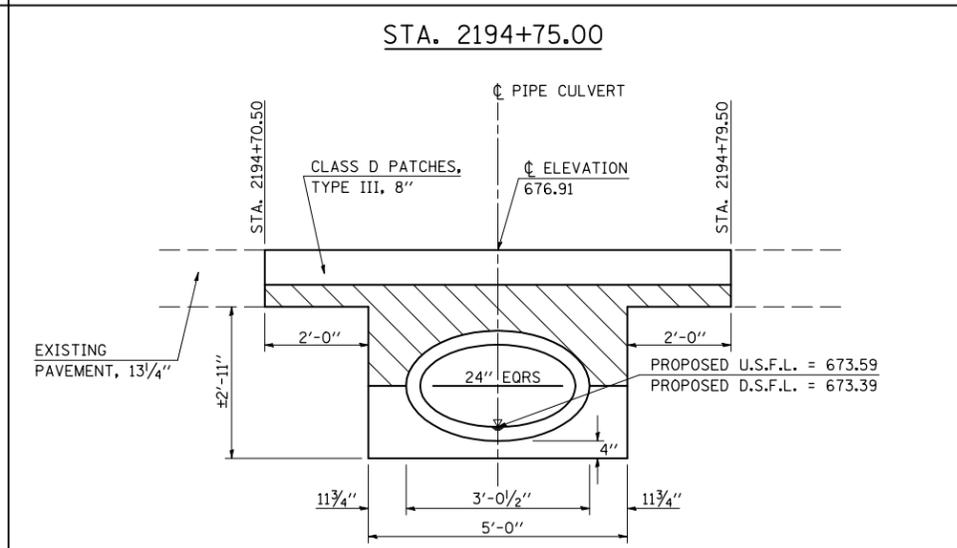
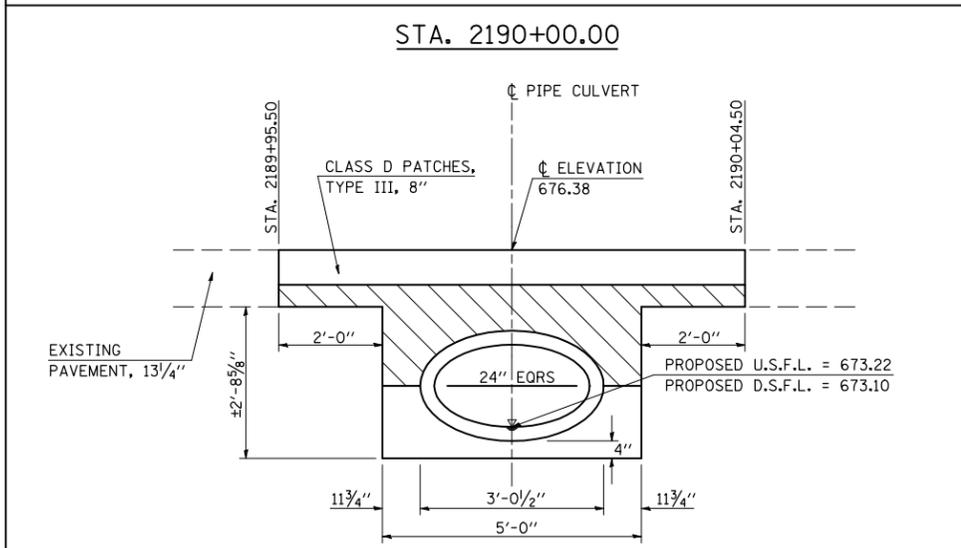
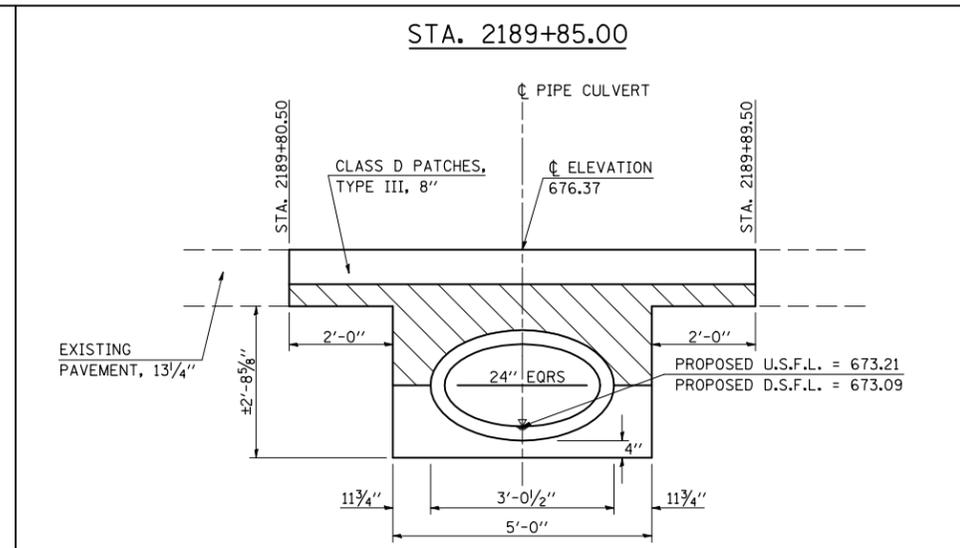
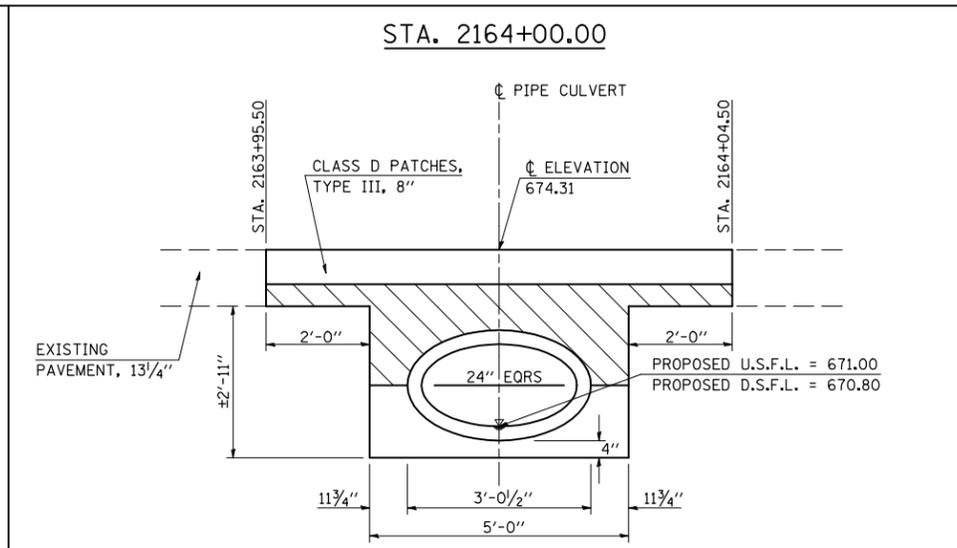
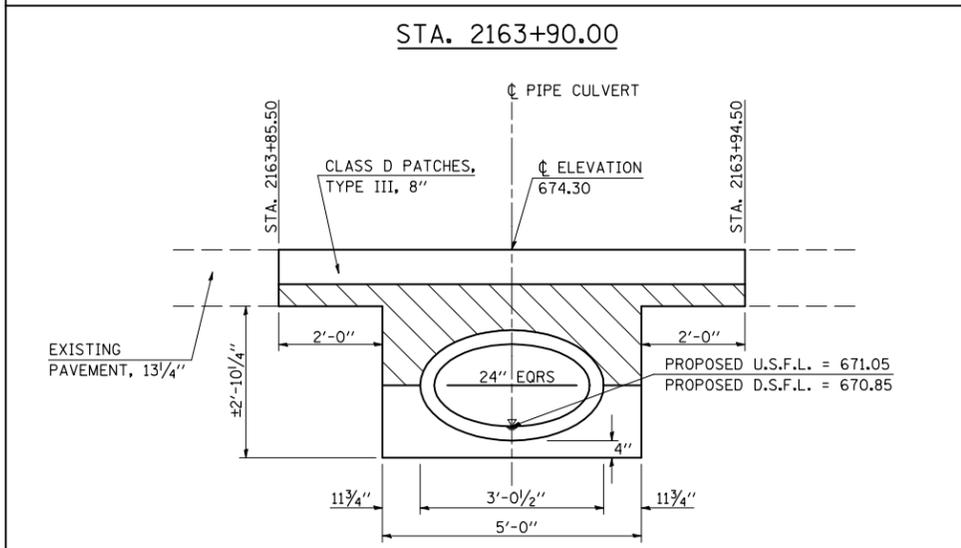
DRAWN BY: B.B.P.
CHECKED BY: G.A.E.

PLOT DATE = 8/12/2009
 FILE NAME = G:\DWG\WORK\K\PIWIDOT\CEARLOCK\DWG\010445\70623-sht-detailed.dgn
 USER NAME = ceartlockj

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	297
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

DETAIL OF POROUS GRANULAR BACKFILL PAY LIMITS 24" EQRS ACROSS ROAD PIPE CULVERTS

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS



GENERAL NOTES

- 1) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 209 AND SECTION 542 OF THE STANDARD SPECIFICATIONS.
- 2) POROUS GRANULAR BACKFILL SHALL EXTEND 20 FT. LEFT AND 20 FT. RIGHT OF THE PAVEMENT CENTERLINE.
- 3) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR BACKFILL.
- 4) THE EXCAVATION FOR THE PROPOSED PIPE CULVERT WILL NOT BE PAID FOR SEPERATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE PIPE CULVERT OF THE TYPE AND SIZE SPECIFIED.

LEGEND

PAY LIMITS OF POROUS GRANULAR BACKFILL - CA-6

DRAWING NOT TO SCALE

PLOT DATE = 8/12/2009
 FILE NAME = G:\pwworkspace\pwworkspace\70623-sht-detailed.dgn
 USER NAME = ceartocskj

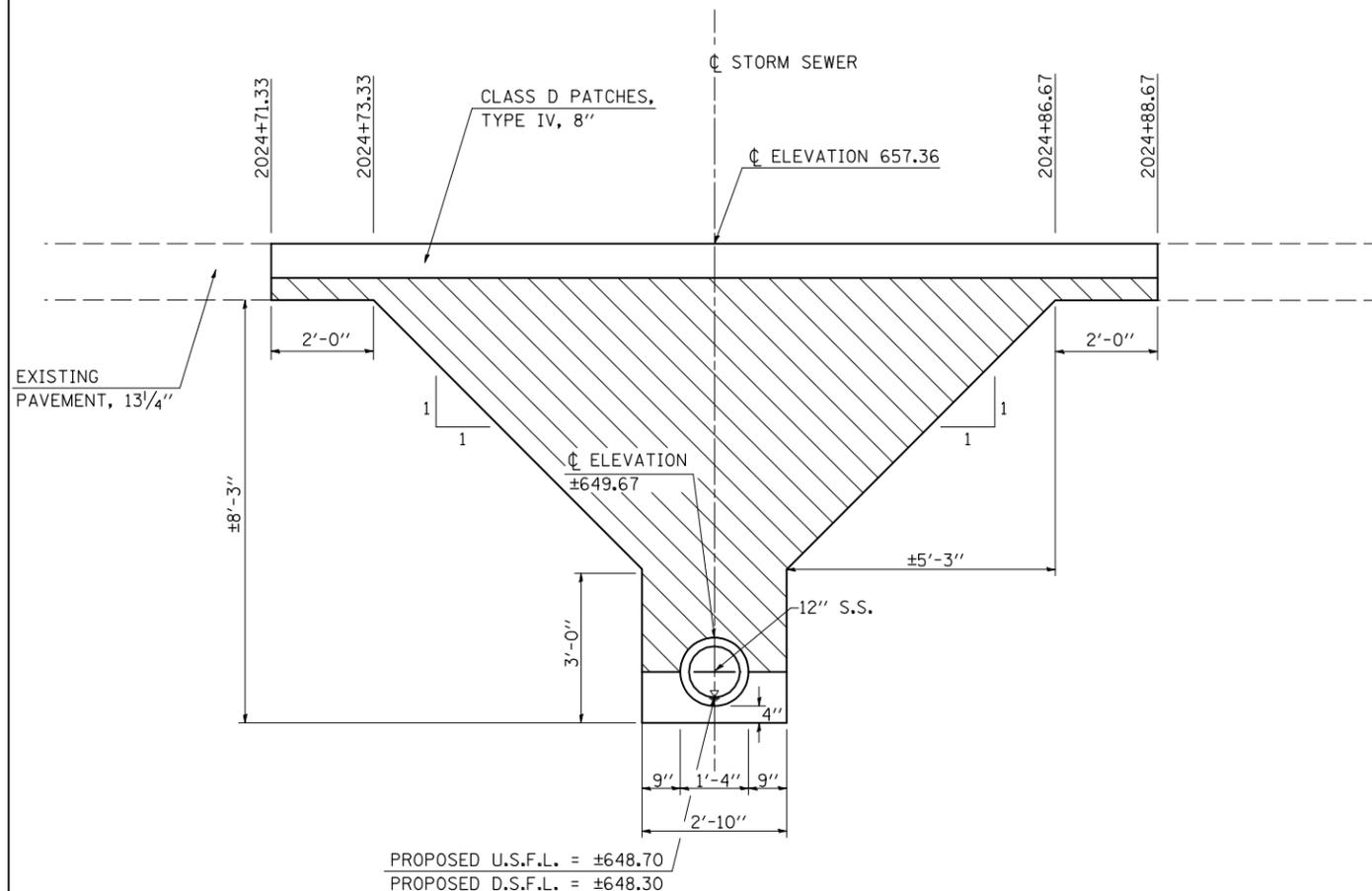
ILLINOIS DEPARTMENT OF TRANSPORTATION
**DETAIL OF POROUS GRANULAR
 BACKFILL PAY LIMITS
 24" EQRS A.R. PIPE CULVERTS**
 SCALE: N/A
 DATE: 07/27/09
 DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	.	..	715	298
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

- (205,57,105)RS-2
- CHAMPAIGN & DOUGLAS

DETAIL OF POROUS GRANULAR BACKFILL PAY LIMITS

12" S.S., STATION 2024+80.00



PROPOSED U.S.F.L. = ±648.70
 PROPOSED D.S.F.L. = ±648.30

LEGEND

PAY LIMITS OF POROUS GRANULAR BACKFILL - CA-6

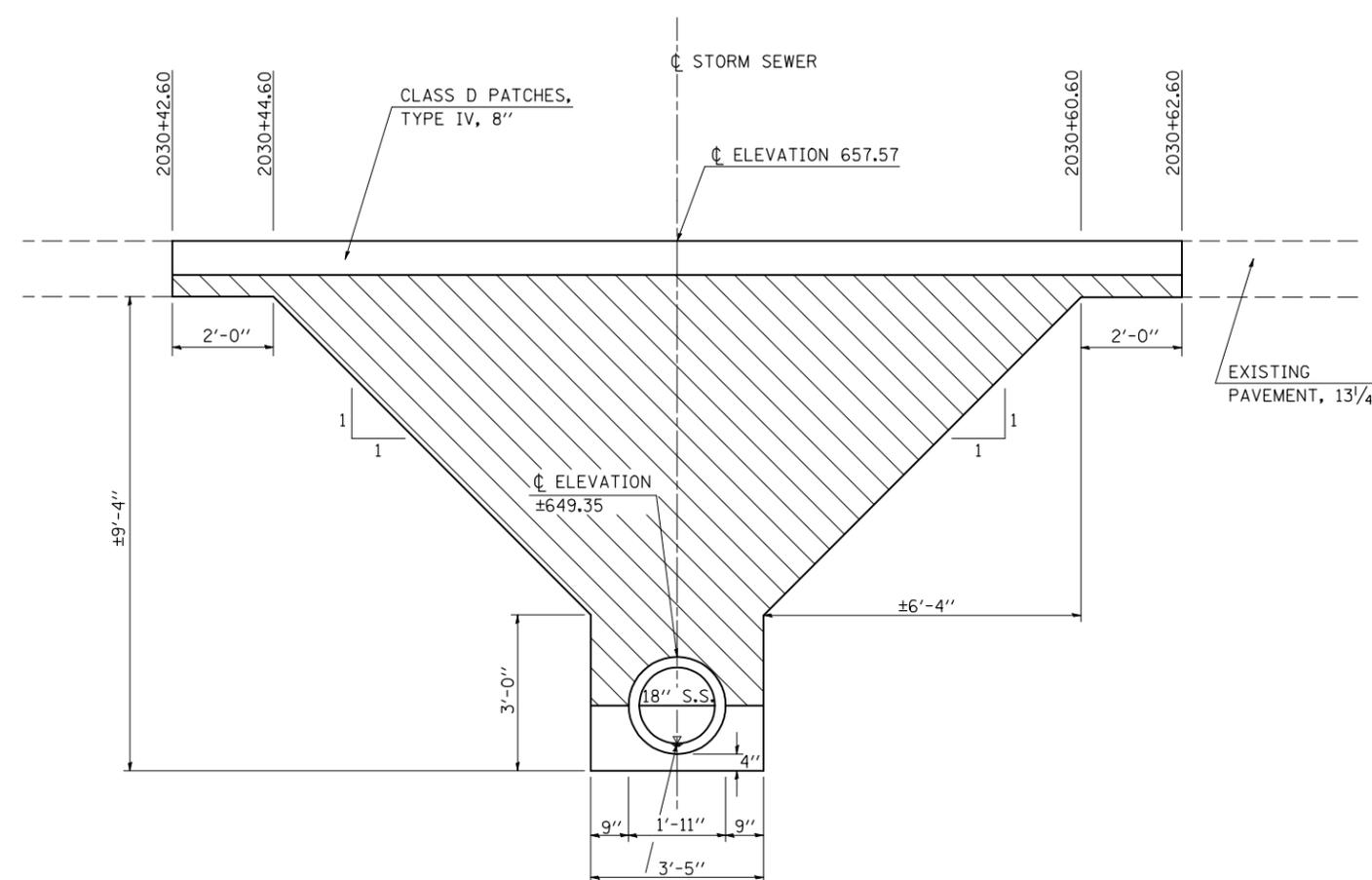
DRAWING NOT TO SCALE

GENERAL NOTES

- 1) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 209 AND SECTION 611 OF THE STANDARD SPECIFICATIONS.
- 2) POROUS GRANULAR BACKFILL SHALL EXTEND 2 FT. BEYOND THE AGGREGATE SHOULDER.
- 3) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR BACKFILL.
- 4) THE EXCAVATION FOR THE PROPOSED STORM SEWER WILL NOT BE PAID FOR SEPERATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE STORM SEWER OF THE TYPE AND SIZE SPECIFIED.

DETAIL OF POROUS GRANULAR BACKFILL PAY LIMITS

18" S.S., STATION 2030+52.60



PROPOSED U.S.F.L. = ±647.79
 PROPOSED D.S.F.L. = ±647.50

LEGEND

PAY LIMITS OF POROUS GRANULAR BACKFILL - CA-6

DRAWING NOT TO SCALE

GENERAL NOTES

- 1) WORK SHOWN IN THE DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 209 AND SECTION 611 OF THE STANDARD SPECIFICATIONS.
- 2) POROUS GRANULAR BACKFILL SHALL EXTEND 2 FT. BEYOND THE AGGREGATE SHOULDER.
- 3) THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR POROUS GRANULAR BACKFILL.
- 4) THE EXCAVATION FOR THE PROPOSED STORM SEWER WILL NOT BE PAID FOR SEPERATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE STORM SEWER OF THE TYPE AND SIZE SPECIFIED.

ILLINOIS DEPARTMENT OF TRANSPORTATION

DETAIL OF POROUS GRANULAR BACKFILL PAY LIMITS

SCALE: N/A
 DATE: 07/22/09

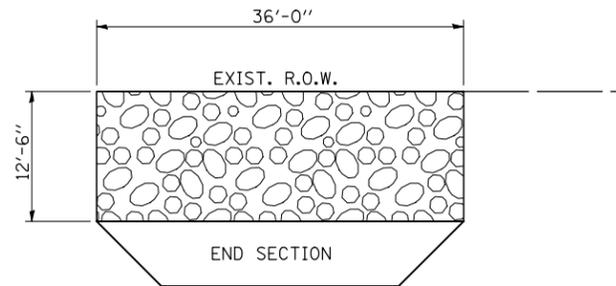
DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

RIP-RAP DETAILS, PAY LIMITS & QUANTITIES

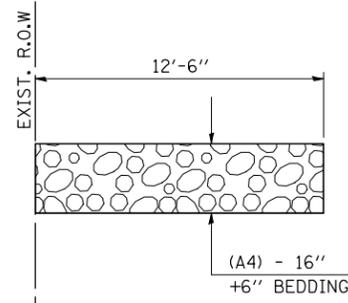
SHEET 1 OF 2

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	299
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
• (205,57,105)RS-2 ** CHAMPAIGN & DOUGLAS				

LT. STATION 1145+38.00
CULVERT NO. 3



PLAN VIEW



END ELEVATION

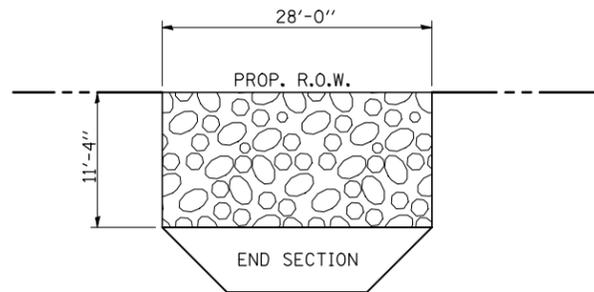
28100107 STONE RIPRAP, CLASS A4

STATION	LENGTH (FT)	WIDTH (FT)	AREA (SQ YD)
LT. 1145+38.00	36.00	12.50	50.00
TOTAL =			50.00 SQ YD

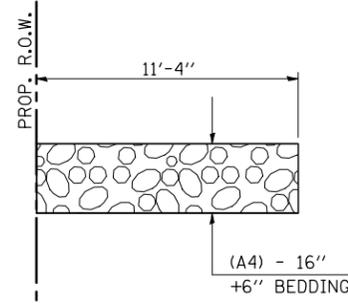
28200200 FILTER FABRIC

STATION	LENGTH (FT)	WIDTH (FT)	AREA (SQ YD)
LT. 1145+38.00	36.00	12.50	50.00
TOTAL =			50.00 SQ YD

LT. STATION 2025+00.00
CULVERT NO. 5



PLAN VIEW



END ELEVATION

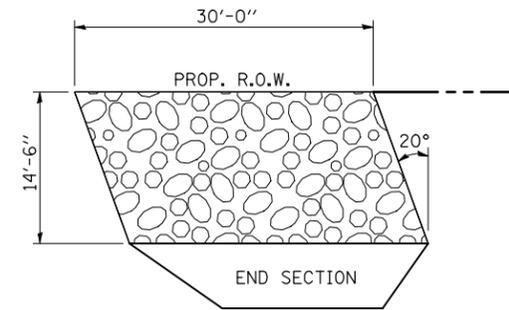
28100107 STONE RIPRAP, CLASS A4

STATION	LENGTH (FT)	WIDTH (FT)	AREA (SQ YD)
LT. 2025+00.00	28.00	11.33	35.25
TOTAL =			35.25 SQ YD
USE =			36.00 SQ YD

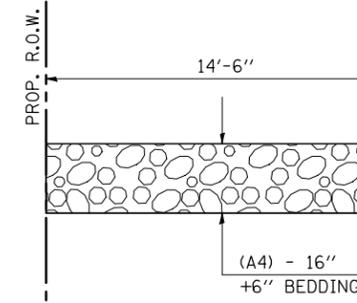
28200200 FILTER FABRIC

STATION	LENGTH (FT)	WIDTH (FT)	AREA (SQ YD)
LT. 2025+00.00	28.00	11.33	35.25
TOTAL =			35.25 SQ YD
USE =			36.00 SQ YD

LT. STATION 2030+82.00
CULVERT NO. 6



PLAN VIEW



END ELEVATION

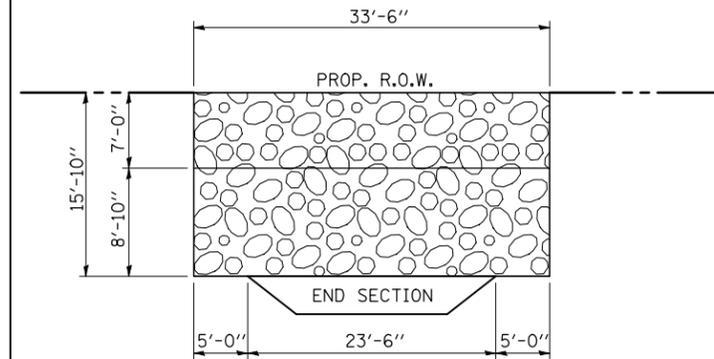
28100107 STONE RIPRAP, CLASS A4

STATION	LENGTH (FT)	WIDTH (FT)	AREA (SQ YD)
LT. 2030+82.00	30.00	14.50	48.33
TOTAL =			48.33 SQ YD
USE =			49.00 SQ YD

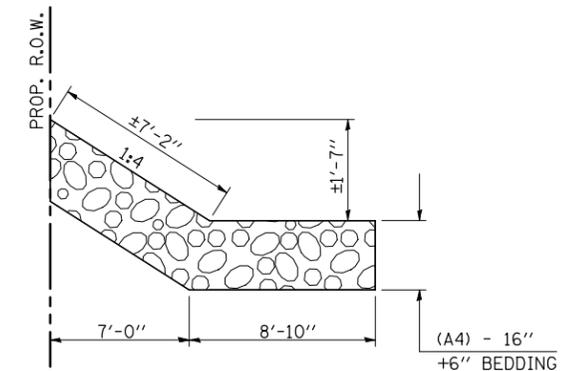
28200200 FILTER FABRIC

STATION	LENGTH (FT)	WIDTH (FT)	AREA (SQ YD)
LT. 2030+82.00	30.00	14.50	48.33
TOTAL =			48.33 SQ YD
USE =			49.00 SQ YD

LT. STATION 2140+90.00
CULVERT NO. 8



PLAN VIEW



END ELEVATION

28100107 STONE RIPRAP, CLASS A4

STATION	LENGTH (FT)	WIDTH (FT)	AREA (SQ YD)
LT. 2140+90.00	33.50	16.00	59.56
TOTAL =			59.56 SQ YD
USE =			60.00 SQ YD

28200200 FILTER FABRIC

STATION	LENGTH (FT)	WIDTH (FT)	AREA (SQ YD)
LT. 2140+90.00	33.50	16.00	59.56
TOTAL =			59.56 SQ YD
USE =			60.00 SQ YD

ILLINOIS DEPARTMENT OF TRANSPORTATION
RIP-RAP DETAILS, PAY LIMITS & QUANTITIES
SHEET 1 OF 2

SCALE: N/A
DATE: 07/31/09

DRAWN BY: B.B.P.
CHECKED BY: G.A.E.

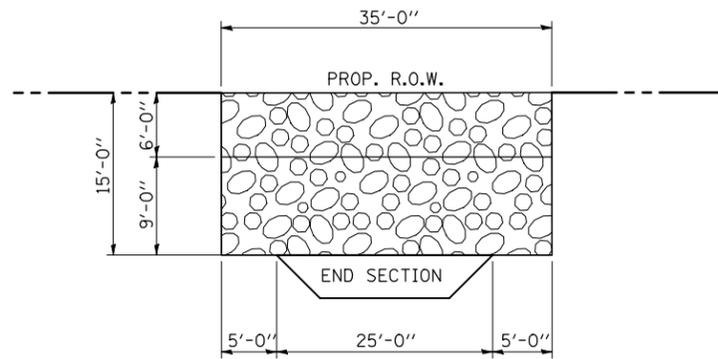
PLOT DATE = 8/12/2009
FILE NAME = G:\DWG\WORK\KIP\WIDOT\CEARLOCK\JD\0101445\70623-sht1-detailed.dgn
USER NAME = ceartock/jd

RIP-RAP DETAILS, PAY LIMITS & QUANTITIES

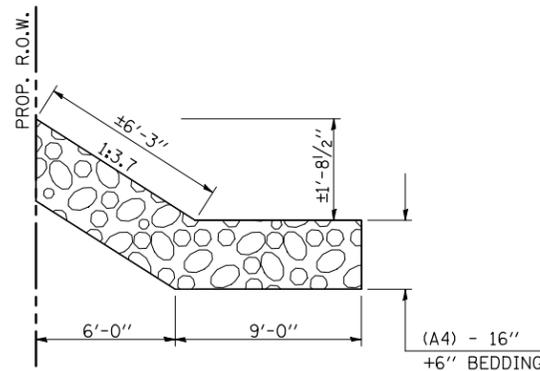
SHEET 2 OF 2

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
808	*	**	715	300
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
• (205,57,105)RS-2 •• CHAMPAIGN & DOUGLAS				

**LT. STATION 2171+00.00
CULVERT NO. 10**



PLAN VIEW



END ELEVATION

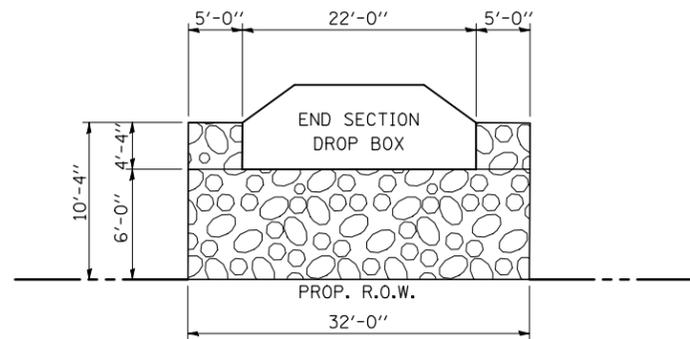
28100107 STONE RIPRAP, CLASS A4

STATION	LENGTH (FT)	WIDTH (FT)	AREA (SQ YD)
LT. 2171+00.00	35.00	15.25	59.31
TOTAL =			59.31 SQ YD
USE =			60.00 SQ YD

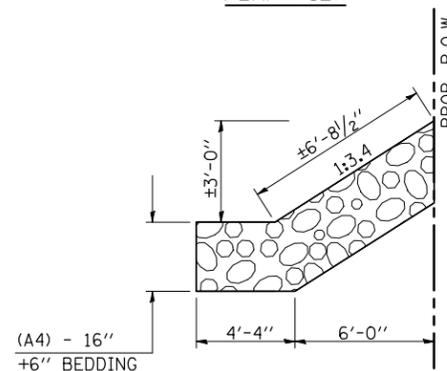
28200200 FILTER FABRIC

STATION	LENGTH (FT)	WIDTH (FT)	AREA (SQ YD)
LT. 2171+00.00	35.00	15.25	59.31
TOTAL =			59.31 SQ YD
USE =			60.00 SQ YD

**RT. STATION 2237+60.00
CULVERT NO. 12**



PLAN VIEW



END ELEVATION

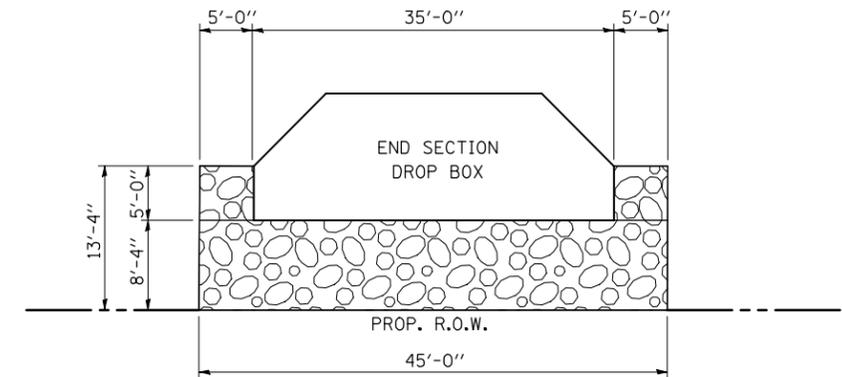
28100107 STONE RIPRAP, CLASS A4

STATION	LENGTH (FT)	WIDTH (FT)	AREA (SQ YD)
RT. 2237+60.00	10.00	4.33	4.81
RT. 2237+60.00	32.00	6.71	23.86
TOTAL =			28.67 SQ YD
USE =			29.00 SQ YD

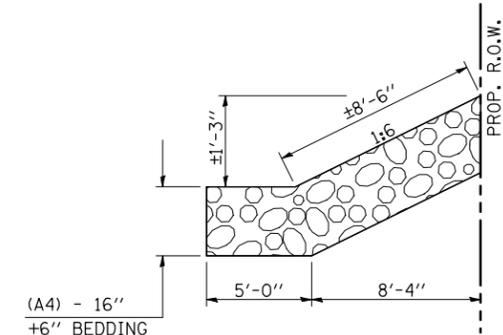
28200200 FILTER FABRIC

STATION	LENGTH (FT)	WIDTH (FT)	AREA (SQ YD)
RT. 2237+60.00	10.00	4.33	4.81
RT. 2237+60.00	32.00	6.71	23.86
TOTAL =			28.67 SQ YD
USE =			29.00 SQ YD

**RT. STATION 2264+91.00
CULVERT NO. 13**



PLAN VIEW



END ELEVATION

28100107 STONE RIPRAP, CLASS A4

STATION	LENGTH (FT)	WIDTH (FT)	AREA (SQ YD)
RT. 2264+91.00	10.00	5.00	5.56
RT. 2264+91.00	45.00	8.50	42.50
TOTAL =			48.06 SQ YD
USE =			48.00 SQ YD

28200200 FILTER FABRIC

STATION	LENGTH (FT)	WIDTH (FT)	AREA (SQ YD)
RT. 2264+91.00	10.00	5.00	5.56
RT. 2264+91.00	45.00	8.50	42.50
TOTAL =			48.06 SQ YD
USE =			48.00 SQ YD

ILLINOIS DEPARTMENT OF TRANSPORTATION
RIP-RAP DETAILS, PAY LIMITS & QUANTITIES
 SHEET 2 OF 2

SCALE: N/A
 DATE: 07/31/09

DRAWN BY: B.B.P.
 CHECKED BY: G.A.E.

PLOT DATE = 8/12/2009
 FILE NAME = G:\DWG\WORK\K\PIWDOT\CEARLOCK\DWG\010445\70623-sht-detailed.dgn
 USER NAME = ceartock\j