

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

**PLANS FOR PROPOSED
STP-BRIDGE**

**CH 11 (FAS 788) BOX CULVERT
OVER BRANCH OF NORTH CREEK
SECTION 11-00089-00-BR
PROJECT NO. BRS-0788(113)
WASHINGTON COUNTY
JOB NO. C-98-327-12**

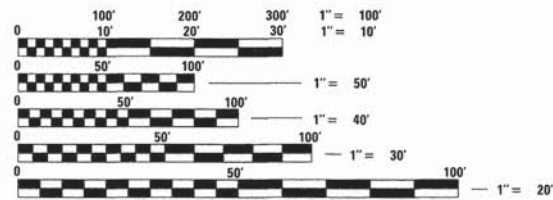
- INDEX OF SHEETS**
- COVER SHEET
 - SUMMARY OF QUANTITIES, GENERAL NOTES, AND TYPICAL SECTIONS
 - PLAN AND PROFILE OF ROADWAY
 - GENERAL PLAN AND ELEVATION
 - 5.-6. CULVERT DETAILS
 - CROSS SECTIONS OF ROADWAY

- HIGHWAY STANDARDS (SEE SPECIFICATIONS)
- 000001-06 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
 - 280001-07 TEMPORARY EROSION CONTROL SYSTEMS
 - 515001-03 NAME PLATE FOR BRIDGES
 - 542401-01 METAL END SECTION FOR PIPE CULVERTS
 - 701901-04 TRAFFIC CONTROL DEVICES
 - BLR 21-9 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

DESIGN CLASSIFICATION: RURAL MAJOR COLLECTOR

ADT₂₀₁₃ : 550
ADT₂₀₃₃ : 591

DESIGN SPEED: 50 MPH

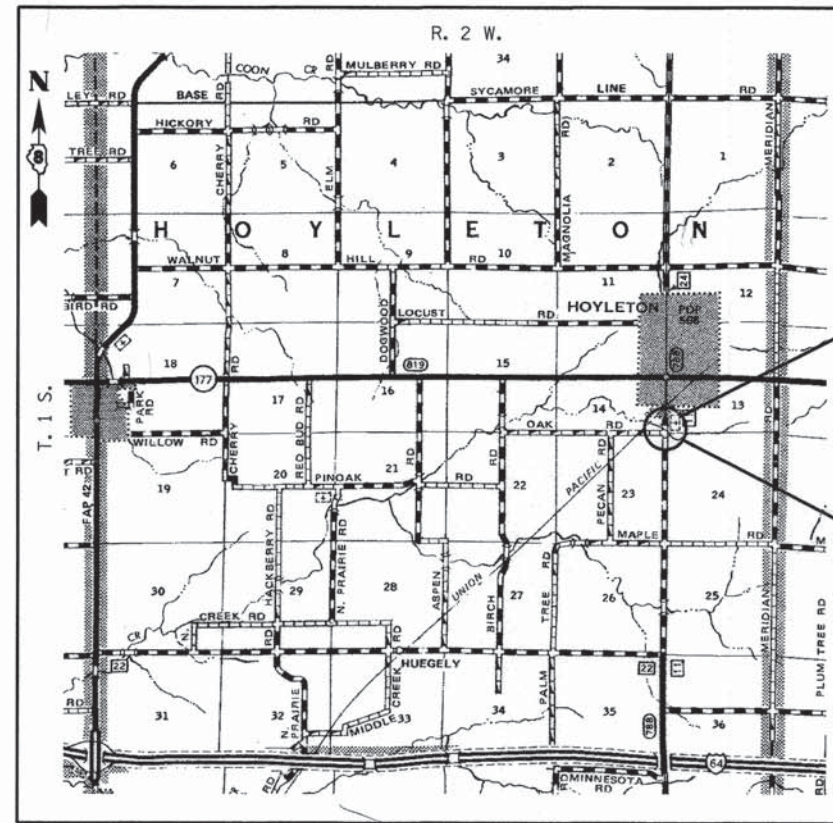


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES, IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATING INFORMATION FOR EXCAVATORS
1-800-892-0123 or 811 Website: <http://www.illinois1call.com>



Gary L. Hahn 08-07-2014
GARY L. HAHN
CENTRALIA, ILLINOIS
ILLINOIS LICENSED PROFESSIONAL
ENGINEER NO. 62-42606
EXPIRES NOV. 30, 2015



SECTION ENDS
STA. 51+10.00

SECTION 11-00089-00-BR INCLUDES THE CONSTRUCTION OF A DOUBLE 12' SPAN x 6' RISE REINFORCED CONCRETE BOX CULVERT CARRYING CH 11 OVER BRANCH TO NORTH CREEK 45° AHEAD LEFT SKEW. EXISTING STRUCTURE NO. 095-3141 PROPOSED STRUCTURE NO. 095-3267

SECTION BEGINS
STA. 47+60.00

LOCATION: NEAR THE SW CORNER OF SECTION 13, T. 1 S., R. 2 W., 3rd P.M.
NET LENGTH OF PROJECT: 350.00 FT. = 0.066 MI.



LOCATION OF SECTION INDICATED THUS: -

WASHINGTON COUNTY
HIGHWAY DEPARTMENT

APPROVED *August 11, 2014*
WASHINGTON COUNTY, COUNTY ENGINEER

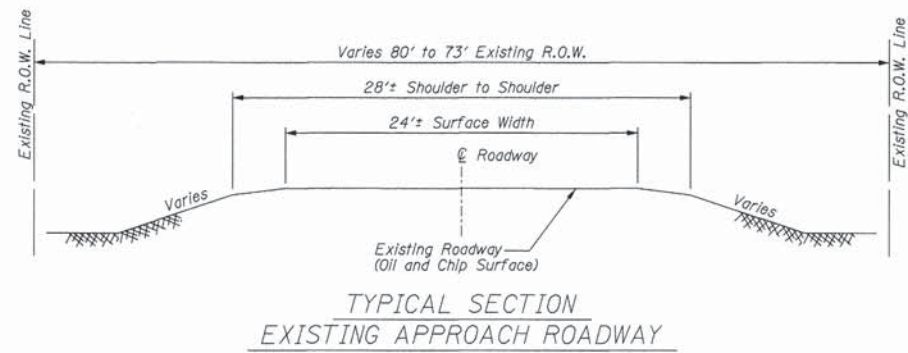
PASSED *September 2, 2014*
DISTRICT EIGHT ENGINEER OF LOCAL ROADS & STREETS

RELEASING FOR BID
BASED ON LIMITED
REVIEW *September 2, 2014*
DEPUTY DIRECTOR OF HIGHWAYS, REGION FIVE ENGINEER

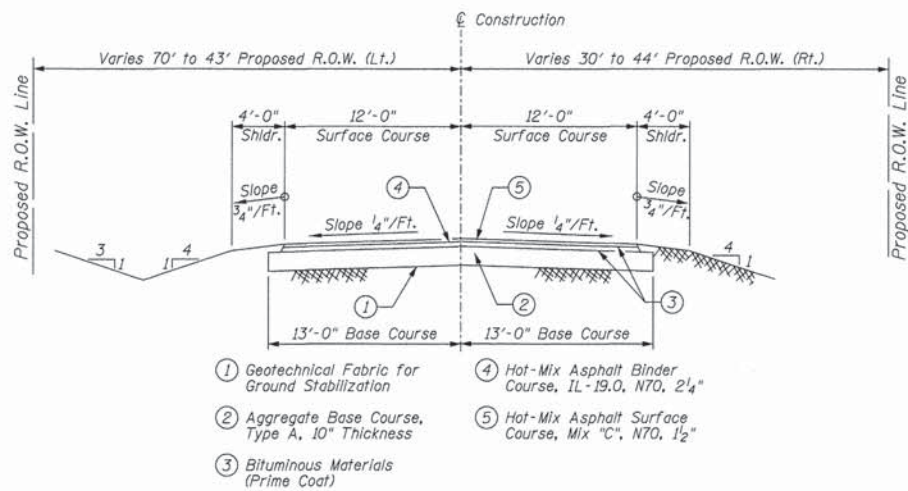
**PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS**

CONTRACT NO. 97564

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 11	11-00089-00-BR	WASHINGTON	7	1
RAI JOB NO. 51213 ILLINOIS FED. AID PROJECT			CONTRACT NO. 97564	



TYPICAL SECTION
EXISTING APPROACH ROADWAY



- ① Geotechnical Fabric for Ground Stabilization
- ② Aggregate Base Course, Type A, 10" Thickness
- ③ Bituminous Materials (Prime Coat)
- ④ Hot-Mix Asphalt Binder Course, IL-19.0, N70, 2 1/4"
- ⑤ Hot-Mix Asphalt Surface Course, Mix "C", N70, 1 1/2"

TYPICAL SECTION
PROPOSED APPROACH ROADWAY

UTILITIES

- J.U.L.I.E.: Design Phase Locate
Dig No.: A2951298
- Telephone: Frontier Communications
Contact: Ron Bishop
Phone: 618-566-9815
- Water: Hoyleton Rural Water Company
Contact: Jim Green
Phone: 618-532-8569
- Municipal: Village of Hoyleton
Contact: Lucas Grote
Phone: 618-493-6100
- Electric/Gas: Ameren IP - (South)
Contact: Martin Fuller
Phone: 618-236-6281
Attn: Mike Tatlock
Phone: 618-244-8271
- Electric: Tri-County Electric Coop
Contact: Dennis Ivers
Phone: 618-244-5151

SUMMARY OF QUANTITIES

Code No.	Item	Unit	Quantity
20200100	EARTH EXCAVATION	CU YD	368
20201200	REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL	CU YD	180
20300100	CHANNEL EXCAVATION	CU YD	745
20700110	POROUS GRANULAR EMBANKMENT	TON	704
20800150	TRENCH BACKFILL	CU YD	12.7
21001000	GEOTECHNICAL FABRIC FOR GROUND STABILIZATION	SQ YD	911
28000305	TEMPORARY DITCH CHECKS	FOOT	50
28000500	INLET AND PIPE PROTECTION	EACH	1
28100201	STONE RIPRAP, CLASS A1	TON	237
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	152
35100100	AGGREGATE BASE COURSE, TYPE A	TON	685
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	102
40600275	BITUMINOUS MATERIALS (PRIME COAT)	POUND	2310
40603085	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N70	TON	118
40603315	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N70	TON	78
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50105220	PIPE CULVERT REMOVAL	FOOT	45
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	34,920
51500100	NAME PLATES	EACH	1
54003000	CONCRETE BOX CULVERTS	CU YD	283.2
542C0241	PIPE CULVERTS, CLASS C, TYPE 1 36"	FOOT	45
54213891	STEEL END SECTIONS 36"	EACH	1
67100100	MOBILIZATION	L SUM	1
X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.3
X7010216	TRAFFIC CONTROL AND PROTECTION (SPECIAL)	L SUM	1

* Specialty Item

GENERAL NOTES

- This section shall be constructed according to the plans, the Special Provisions, and the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2012.
- Any reference to a Standard in these plans shall be interpreted to mean the edition as indicated by the sub-number listed in the Index of Sheets or the copy of the Standard included in these plans.
- Roadway Centerline profiles refer to the finished surface.
- Existing utilities shown are located from surface observations or information provided by the respective utilities and must be considered approximate. There may be others, the exact location of which are unknown and not shown. The Contractor will be responsible for notifying the respective utilities before work is begun. Field marking of underground utilities may be obtained by providing a minimum of 48 hours advance notice through the J.U.L.I.E. system by calling 1-800-892-0123, 811, or by direct contact with non-members of J.U.L.I.E.
- The Aggregate Surface Course, Type B gradation shall be CA 6 or CA 10. Only crushed stone will be approved for use on this project.
- Factors used for quantity calculations are as follows:
 Porous Granular Embankment 2.1 ton/cu. yd.
 Stone Dumped Riprap 130 pound/cu. ft.
 Aggregate Base or Surface Course 2.1 ton/cu. yd.
 All Hot-Mix Asphalt 0.056 ton/sq yd/inch
 Bituminous Materials (Prime Coat) 0.25 pound/sq. ft. (on Agg.)
 0.025 pound/sq.ft. (between HMA lifts)
- Commitments: None as of August 11, 2014.

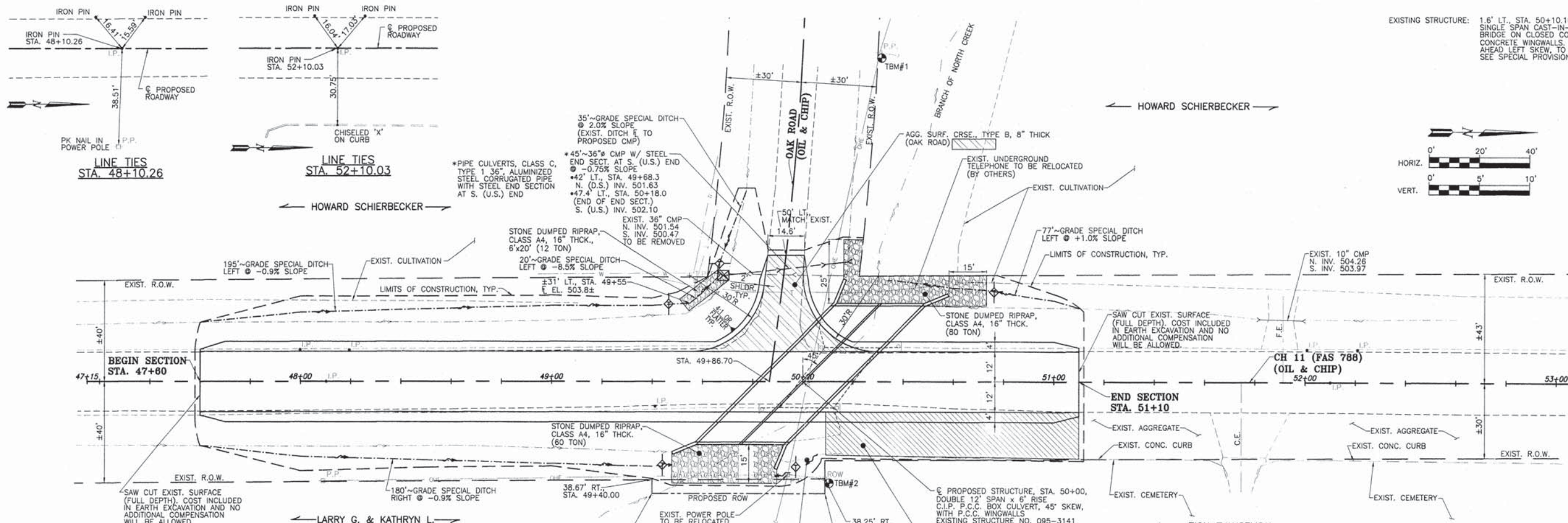
RHUTASEL and ASSOCIATES, INC.
 CONSULTING ENGINEERS • LAND SURVEYORS
 CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
 ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT	REVISED -
DRAWN - JN	REVISED -
CHECKED - GLH	REVISED -
DATE - 08/11/2014	REVISED -

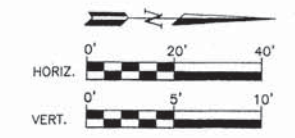
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**SUMMARY OF QUANTITIES, GENERAL NOTES, AND TYPICAL SECTIONS
STRUCTURE NO. 095-3267**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 11	11-00089-00-BR	WASHINGTON	7	2
RAA1 JOB NO. 51213 ILLINOIS FED. AID PROJECT			CONTRACT NO. 97564	



EXISTING STRUCTURE: 1.6' LT., STA. 50+10.16, S.N. 095-3141, SINGLE SPAN CAST-IN-PLACE CONCRETE SLAB BRIDGE ON CLOSED CONCRETE ABUTMENTS WITH CONCRETE WINGWALLS, ±20' L X ±24' W, ±30' AHEAD LEFT SKEW, TO BE REMOVED. SEE SPECIAL PROVISIONS FOR SALVAGE.



LOCATION	EARTH EXCAVATION CU. YD.	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE* CU. YD.	EMBANKMENT CU. YD.	EARTHWORK BALANCE** WASTE (+) OR SHORTAGE (-) CU. YD.
STA. 47+60 TO STA. 49+40	203	153	215	-62
STA. 49+40 TO STA. 50+60	106	79	83	-4
STA. 50+60 TO STA. 51+10	59	44	30	14
TOTAL	368	276	328	-52

*25% SHRINKAGE
**FURNISHED EXCAVATION

** IT IS ASSUMED THAT THERE ARE SUFFICIENT AMOUNTS OF EXCAVATED MATERIAL AVAILABLE FROM THE CHANNEL EXCAVATION THAT WILL BE SUITABLE TO SUPPLY THE 52 CU. YD. OF FURNISHED EXCAVATION REQUIRED, ALL EXCESS EXCAVATION SHALL BE DISPOSED OF OFF-SITE.

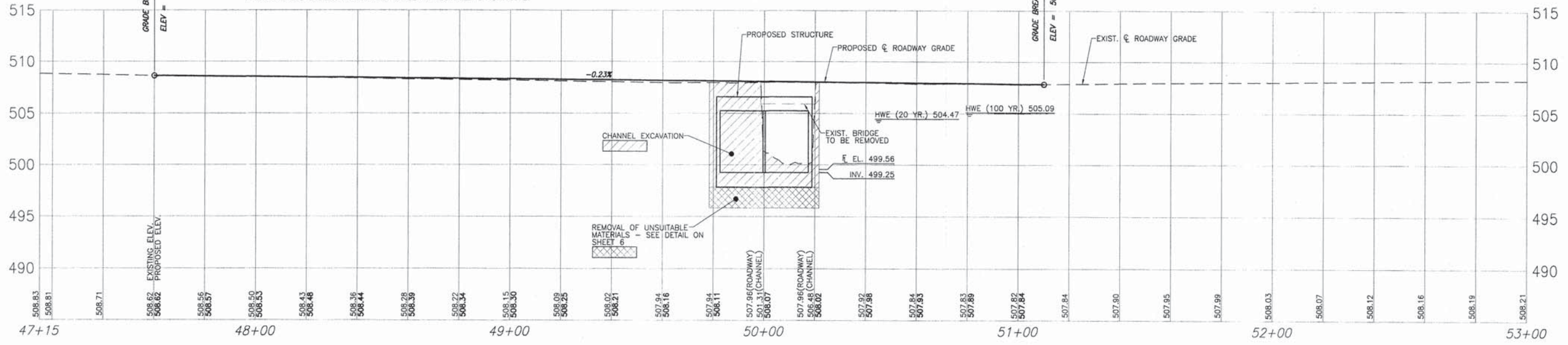
THE EXISTING RIGHT OF WAY SHOWN HEREON HAS BEEN PROTRACTED FROM EXISTING RECORDS AND IS TO BE USED FOR REFERENCE PURPOSES ONLY. FURTHERMORE, NO COMPLETE SURVEY OF SAID R.O.W. IS IMPLIED BY THIS DRAWING.

TBM#1 - 130.5' LT., STA. 50+30.4
RR SPIKE IN POWER POLE
EL. 505.61

TBM#2 - 38.2' RT., STA. 50+09.0
TOP OF R.O.W. MARKER
EL. 507.70

ALL TRAFFIC SIGNAGE WITHIN THE PROJECT LIMITS SHALL BE REMOVED BY THE CONTRACTOR AND STORED FOR PICKUP BY THE COUNTY, THE COUNTY SHALL RE-INSTALL THE SIGNS AFTER COMPLETION OF THE PROJECT.

- LEGEND
- ⊕ P.P. EXISTING POWER POLE
 - O.H.E. EXISTING OVERHEAD ELECTRIC LINE
 - G.W. EXISTING GUY WIRE
 - ⊕ T.P.E.D. EXISTING TELEPHONE PEDESTAL
 - W.W. EXISTING WATER LINE
 - T.T.L. EXISTING TELEPHONE LINE
 - D.F. EXISTING DITCH FLOWLINE
 - C.F. EXISTING CREEK FLOWLINE
 - R.O.W. EXISTING RIGHT-OF-WAY MARKER
 - I.P. EXISTING IRON PIN
 - ⊕ EXISTING SIGN
 - ⊕ TBM#2 EXISTING TEMPORARY BENCH MARK
 - ⊕ OR ⊕ PROPOSED TEMPORARY DITCH CHECK
 - ⊕ PROPOSED INLET AND PIPE PROTECTION
 - — — PROPOSED DITCH FLOWLINE
 - — — PROPOSED LIMITS OF CONSTRUCTION



RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT	REVISED - 11/19/2014
DRAWN - BLT/JSD	REVISED -
CHECKED - GLH	REVISED -
DATE - 08/11/2014	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**PLAN AND PROFILE OF ROADWAY
STRUCTURE NO. 095-3267**

STA. 47+15 TO STA. 53+00

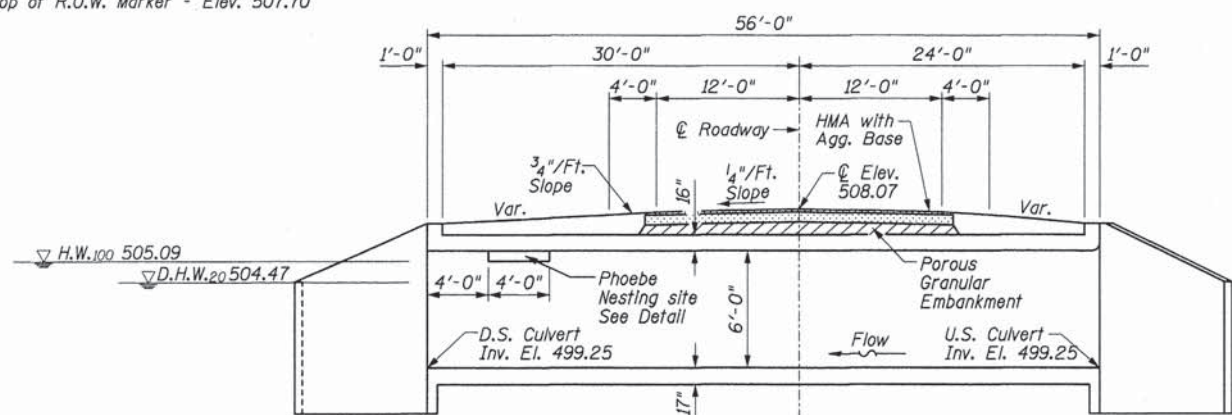
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 11	11-00089-00-BR	WASHINGTON	7	3
RAAI JOB NO. 51213		ILLINOIS FED. AID PROJECT		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

T.B.M. #1: 130.5' Lt., Sta. 50+30.4
RR Spike in Power Pole - Elev. 505.61

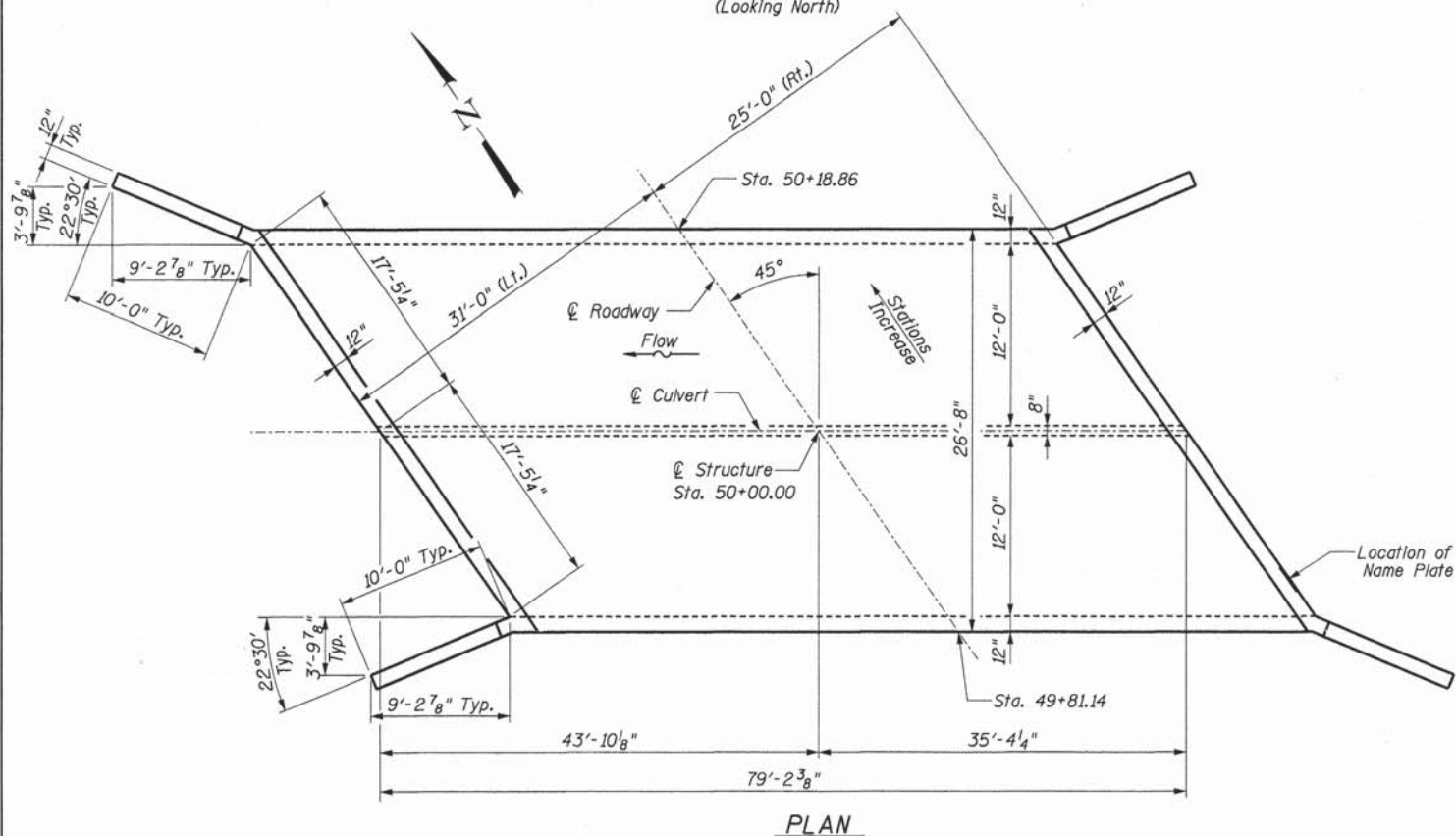
T.B.M. #2: 38.2' Rt., Sta. 50+09.0
Top of R.O.W. Marker - Elev. 507.70

Existing Structure: 1.6' Lt., Sta. 50+10.16, S.N. 095-3141. Single span cast-in-place concrete slab bridge on closed concrete abutments with concrete wingwalls. 20'± L. x 24'± W. 30'± ahead left skew. To be removed.



LONGITUDINAL SECTION

(Horizontal dimensions
Rt. L's to C Roadway
(Looking North)



PLAN

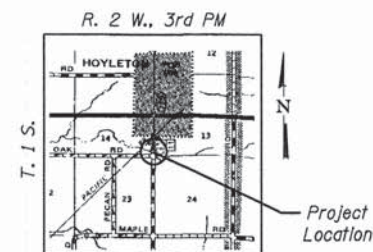
WATERWAY INFORMATION

Drainage Area = 0.52 sq. mi. Existing Low Grade Elev. 507.82 at Sta. 51+10
Proposed Low Grade Elev. 507.82 at Sta. 51+10

Flood Yr.	Freq.	Q	Opening Sq. Ft.	Nat. H.W.E.	Head - Ft.	Headwater El.			
	C.F.S.	Exlst.	Prop.	Exlst.	Prop.	Exlst.			
Design	20	365	66	125	504.47	0.28	0.07	504.75	504.54
Base	100	552	76	140	505.09	0.46	0.22	505.55	505.31
Max. Calc.	500	759	84	144	505.57	0.75	0.50	506.32	506.07

STATION 50+00.00
BUILT 201 BY
WASHINGTON COUNTY
SEC. 11-00089-00-BR
LOADING HL-93
STRUCTURE NO. 095-3267

NAME PLATE
See Std. 515001



LOCATION SKETCH

LOADING AASHTO HL-93

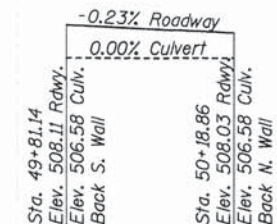
50#/sq. ft. Included in dead load for future wearing surface.

DESIGN SPECIFICATIONS

2010 (5th Ed.) AASHTO LRFD
Bridge Design Specifications

DESIGN STRESSES

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



PROFILE GRADE ACROSS STRUCTURE
(along C Roadway)

BILL OF MATERIALS (CULVERT ONLY)

ITEM	UNIT	QUANTITY
Removal And Disposal Of Unsuitable Material	Cu Yd	180
Channel Excavation	Cu Yd	745
Porous Granular Embankment	Ton	704
Stone Riprap, Class A1	Ton	237
Removal Of Existing Structures	Each	1
Reinforcement Bars, Epoxy Coated	Pound	34,920
Name Plates	Each	1
Concrete Box Culverts	Cu Yd	283.2

GENERAL NOTES

Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60 (IL Modified).

All reinforcement shall be Epoxy Coated.

All exposed edges shall be chamfered 3/4", unless noted otherwise.

See Plan and Profile for layout of slope protection system which may be varied in the field to suit ground conditions as directed by the Engineer.

See Section 502 of the Standard Specifications for Structural Excavation.

See Plan and Profile for Channel Excavation. If the Engineer deems the material satisfactory, it may be used to construct the roadway embankment.

Do not scale these drawings.

Precast alternate is not allowed.

I certify that to the best of knowledge, information and belief, this culvert design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current AASHTO Standard Specifications for Highway Bridges.



William D. Lueking
William D. Lueking
08-11-2014
Date of Signing
11-30-2014
Date of License Expiration

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

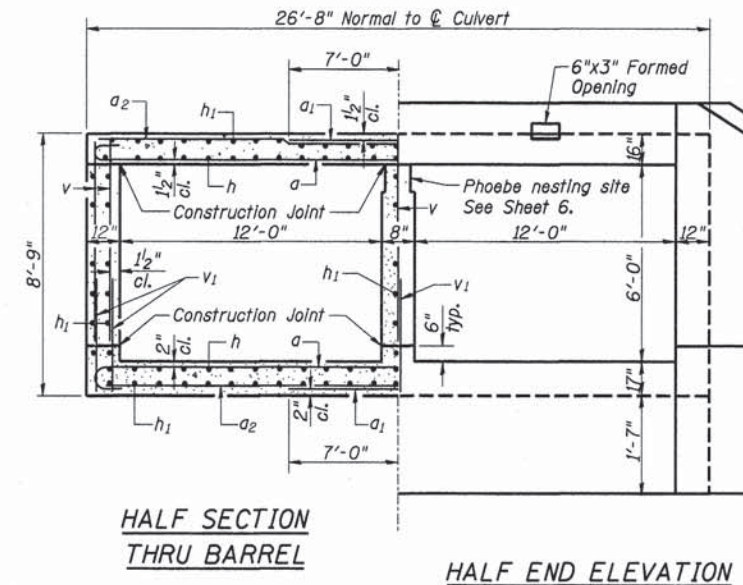
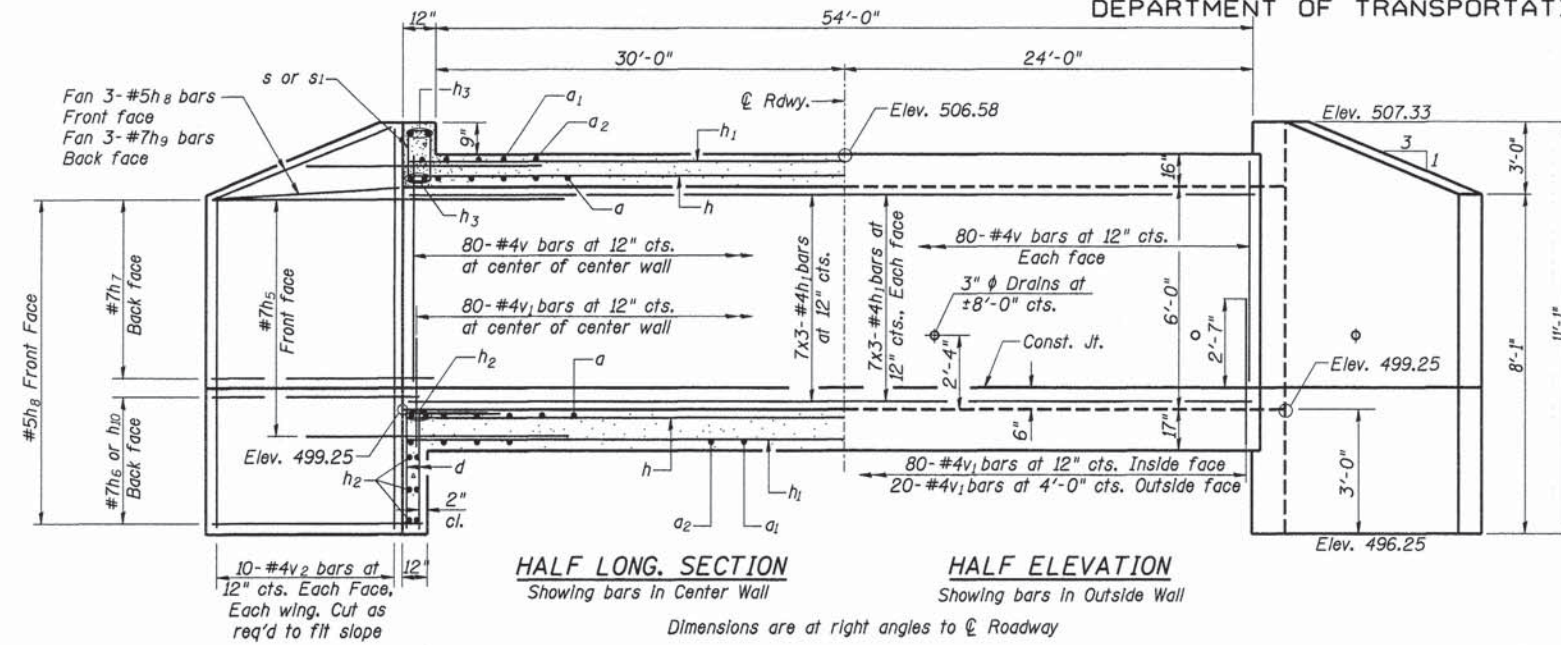
DESIGNED - BLT	REVISED -
DRAWN - JN	REVISED -
CHECKED - WDL	REVISED -
DATE - 08/11/2014	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 095-3267

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 11	11-00089-00-BR	WASHINGTON	7	4
RAAT JOB NO. 51213 ILLINOIS FED. AID PROJECT			CONTRACT NO. 97564	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



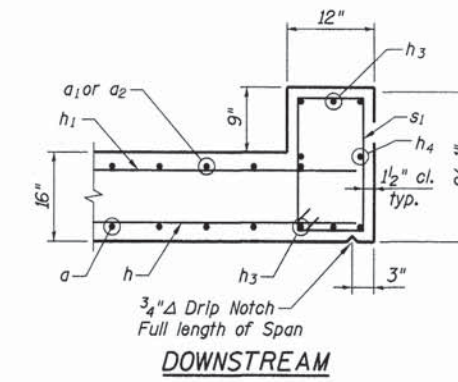
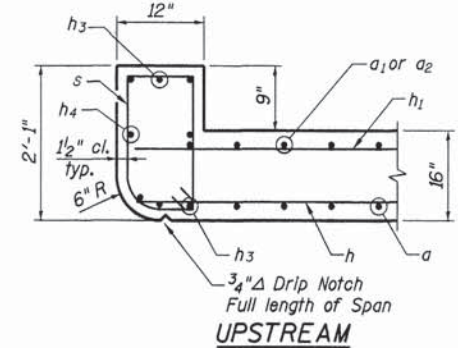
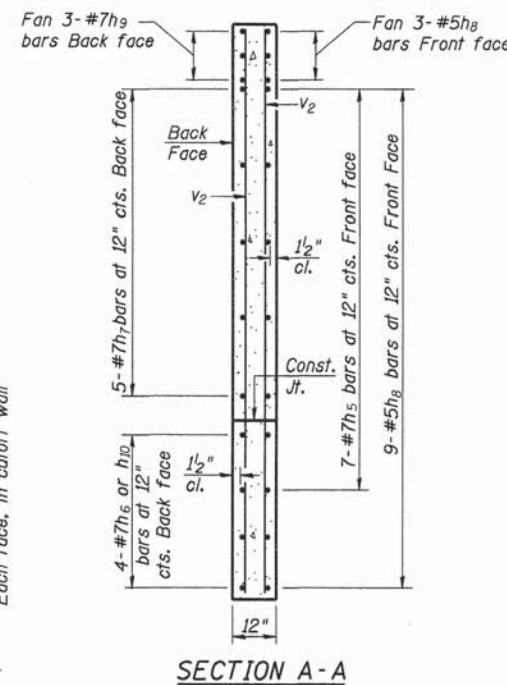
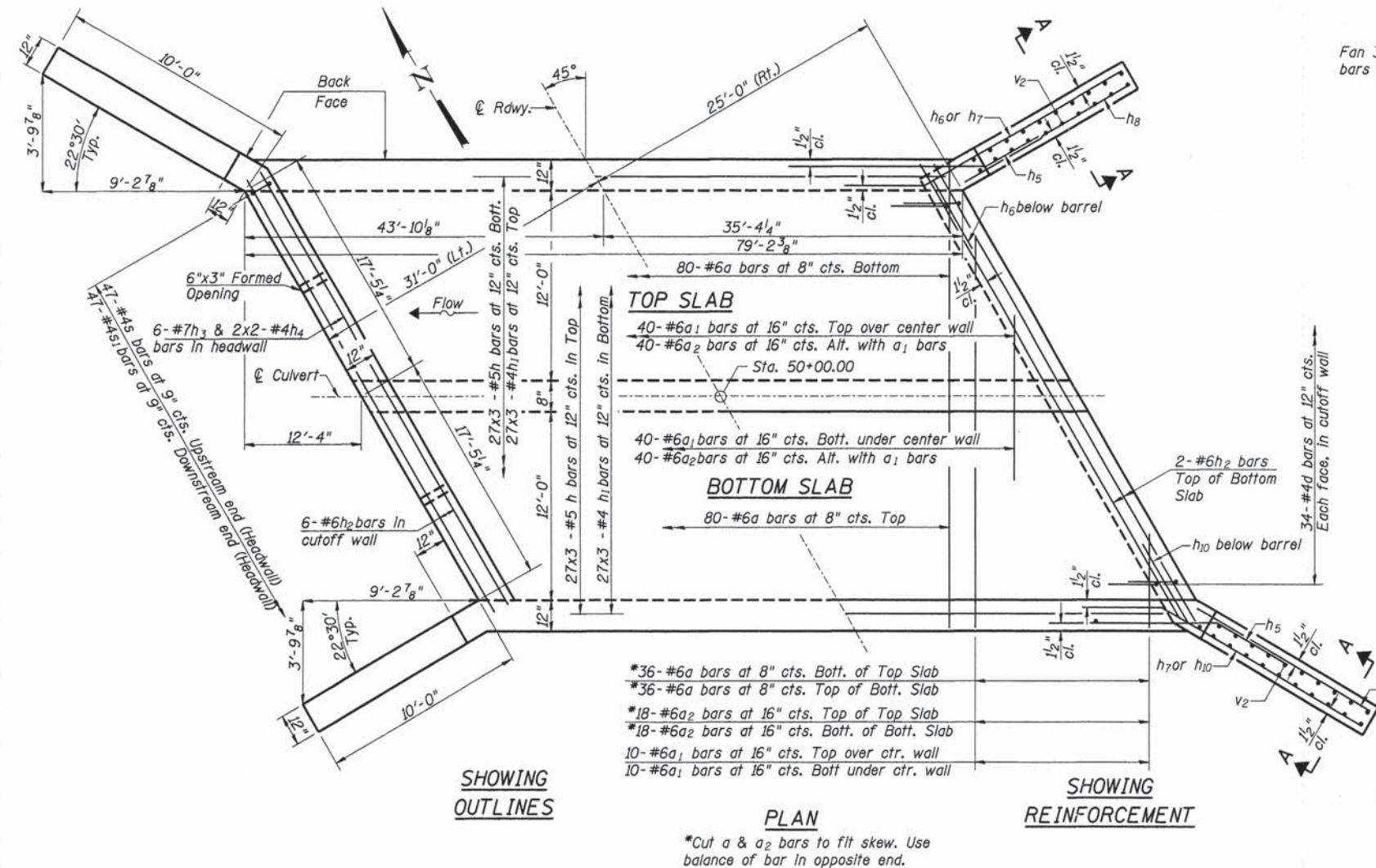
NOTES

A distance of half the length of the wingwall but not less than six feet of the barrel shall be poured monolithically with the wingwalls.

Bars indicated thus 12x4-#5 etc. indicates 12 lines of bars with 4 lengths per line.

All reinforcement shall be epoxy coated.

See Sheet 6 for Bill of Materials and bar details.



MINIMUM BAR LAPS
(Unless noted otherwise)
#4 bars 2'-11"
#5 bars 3'-8"

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS
FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

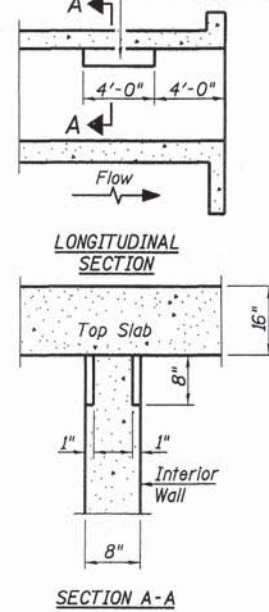
DESIGNED - BLT	REVISED -
DRAWN - JN	REVISED -
CHECKED - WDL	REVISED -
DATE - 08/11/2014	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

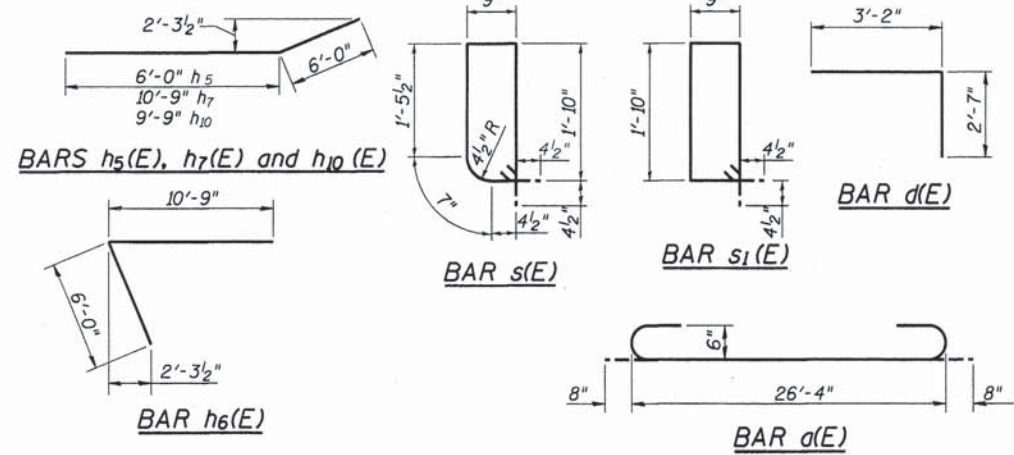
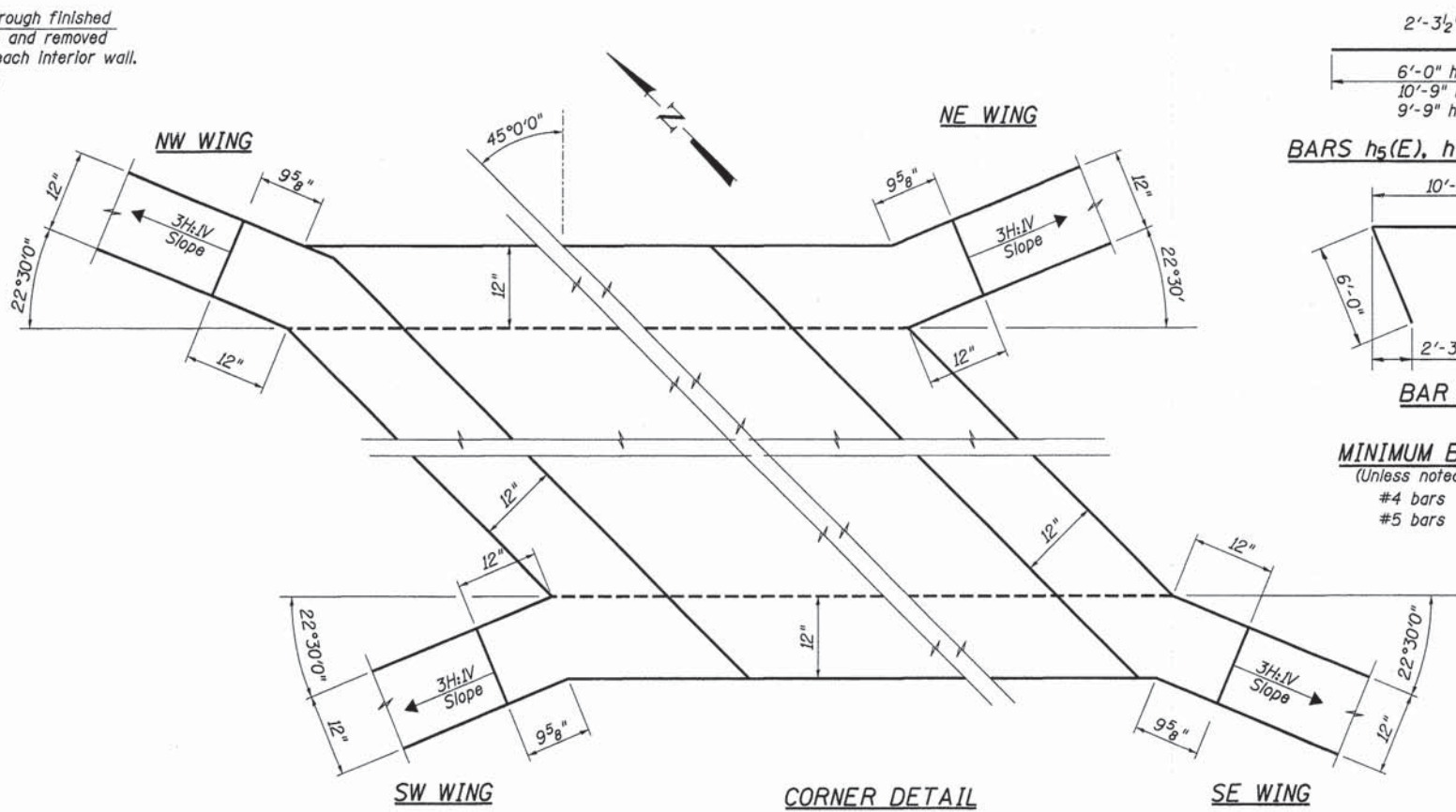
CULVERT DETAILS
STRUCTURE NO. 095-3267

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 11	11-00089-00-BR	WASHINGTON	7	5
CONTRACT NO. 97564				
RAAI JOB NO. 51213 ILLINOIS FED. AID PROJECT				

Notch formed by rough finished board attached to and removed with form work, each interior wall. (Do not chamfer).



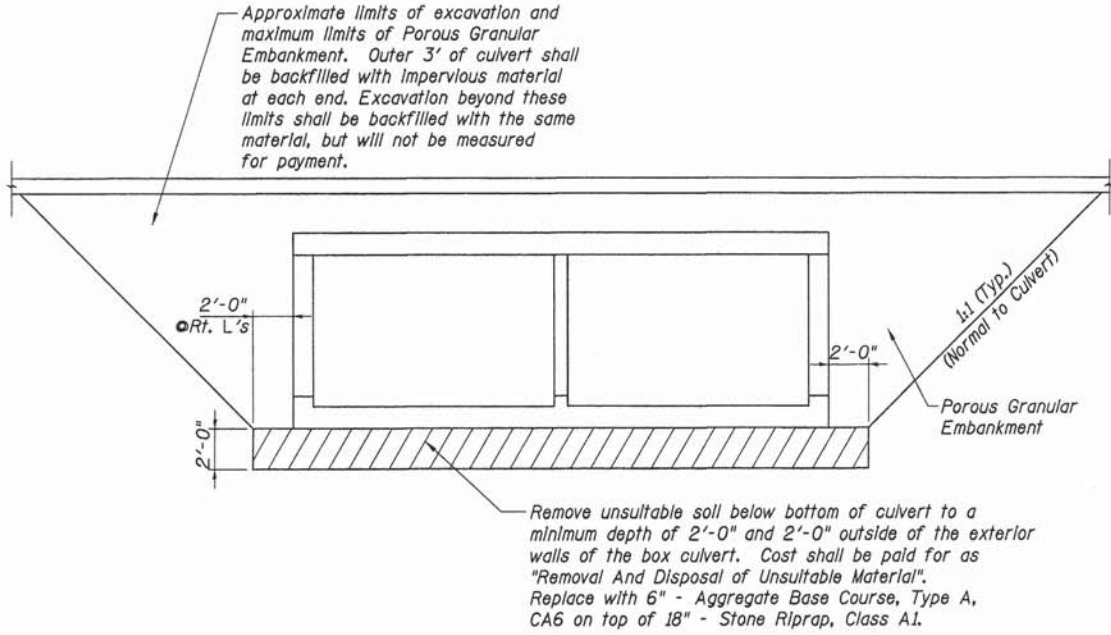
SECTION A-A
PHOEBE NESTING
SITE DETAILS
(Downstream End Only)



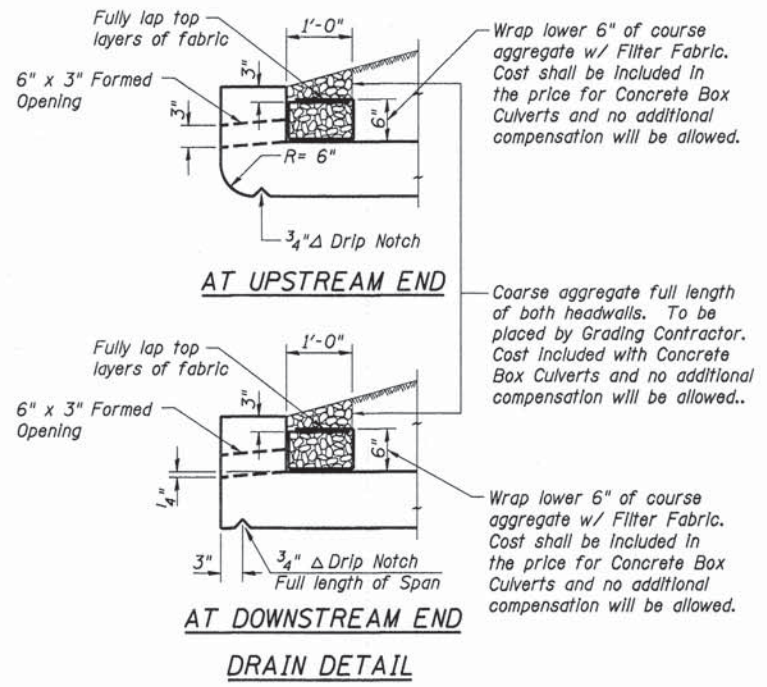
MINIMUM BAR LAPS
(Unless noted otherwise)
#4 bars 2'-11"
#5 bars 3'-8"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d(E)	232	#6	27'-8"	U
a1(E)	100	#6	14'-0"	—
a2(E)	116	#6	26'-4"	—
d(E)	136	#4	5'-9"	L
h(E)	162	#5	28'-9"	—
h1(E)	267	#4	28'-3"	—
h2(E)	16	#6	37'-4"	—
h3(E)	12	#7	37'-4"	—
h4(E)	8	#4	20'-2"	—
h5(E)	28	#7	12'-0"	—
h6(E)	8	#7	16'-9"	L
h7(E)	20	#7	16'-9"	L
h8(E)	48	#5	9'-9"	—
h9(E)	12	#7	9'-9"	—
h10(E)	8	#7	15'-9"	L
s(E)	47	#4	5'-9"	□
s1(E)	47	#4	5'-11"	□
v(E)	400	#4	6'-8"	—
v1(E)	280	#4	4'-4"	—
v2(E)	80	#4	10'-9"	CUT IN FIELD
Concrete Box Culverts			Cu Yd	283.2
Reinforcement Bars, Epoxy Coated			Pound	34,830



DETAIL FOR PAVEMENT REPLACEMENT AND EXCAVATION AND BACKFILL TYPES AND LIMITS



EXTRA BARS FOR TEST SAMPLES

Bar	No.	Size	Length	Shape
v(E)	2	#4	6'-8"	—
h8(E)	2	#5	9'-9"	—
a1(E)	1	#6	14'-0"	—
h9(E)	2	#7	9'-9"	—
Reinforcement Bars			Pound	90

These bars shall be identical to and delivered with the bars of the same mark listed on the bridge sheets. One bar of each of these marks will be selected by the Engineer to be used as a test sample. This chart assumes that all bars of the same size on the job will have the same heat numbers. If bars of the same size on the job have different heat numbers, then the Contractor shall supply additional bars from other heat numbers for sampling by the Engineer at no additional cost.

The weight of these extra bars has been included in the Summary of Quantities for the project.

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED -	BLT	REVISED -	
DRAWN -	JN	REVISED -	
CHECKED -	WDL	REVISED -	
DATE -	08/11/2014	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CULVERT DETAILS
STRUCTURE NO. 095-3267

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 11	11-00089-00-BR	WASHINGTON	7	6
RAAI JOB NO. S1213 ILLINOIS FED. AID PROJECT			CONTRACT NO. 97564	

