

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
9	14-00103-01-DR	MERCER	30	1
		ILLINOIS	CONTRACT NO. 89705	

FOR INDEX OF SHEETS, SEE SHEET NO. 2
 FOR LIST OF HIGHWAY STANDARDS, SEE SHEET NO. 2

06-10-2016 LETTING ITEM 176

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
**PLANS FOR PROPOSED
 FEDERAL AID PROJECT
 SURFACE TRANSPORTATION
 RURAL**

COUNTY HIGHWAY 9 (JOY ROAD)
 SECTION 14-00103-01-DR
 PROJECT NO. RS-0212(107)
 SEGMENT I CULVERT REPLACEMENTS
 MERCER COUNTY
 C-94-039-15

UTILITIES:

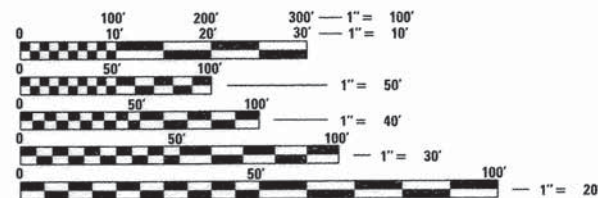
FRONTIER COMMUNICATIONS
 214 S. 1ST STREET
 MONMOUTH, IL 61462
 ATTN: RON PRITCHARD
 (309) 734-7991

NOVA/RIO CABLEVISION, INC.
 P.O. BOX 1412
 GALESBURG, IL 61401
 ATTN: ROBERT FISCHER, JR.
 (309) 342-9681

MIDAMERICAN ENERGY
 5955 FENNO ROAD
 BETTENDORF, IA 52722
 ATTN: NATE TEAGER
 (515) 242-4300

CITY OF ALEDO
 120 N. COLLEGE AVENUE
 ALEDO, IL 61231
 ATTN: JUSTIN BLASER
 (309) 582-7241

VILLAGE OF JOY
 MSA ENGINEERING
 2117 STATE STREET
 SUITE 200
 BETTENDORF, IA 52722
 (563) 445-3501



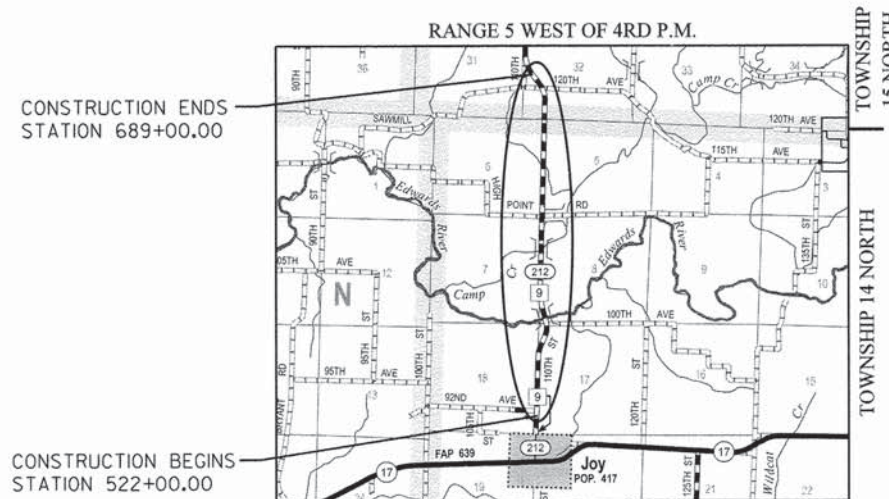
FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

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

PROJECT ENGINEER: LGN
 PROJECT MANAGER: GFS

CATALOG NO. 034788-01
 CONTRACT NO. 89705

FUNCTIONAL CLASSIFICATION
 MAJOR COLLECTOR
 DESIGN SPEED 40 MPH
 2016 ADT - 470
 3R GUIDELINES



GROSS LENGTH = 16,700 FT. = 3.163 MILE
 NET LENGTH = 16,700 FT. = 3.163 MILE



MERCER COUNTY HIGHWAY DEPARTMENT	
APPROVED	<i>Matt Bevan</i> 4-5-2016 ACTING MERCER COUNTY ENGINEER
PASSED	<i>April Le</i> 2016 DISTRICT 4 LOCAL ROADS & STREETS ENGINEER
RELEASING FOR BID BASED ON LIMITED REVIEW	<i>April Le</i> 2016 DEPUTY DIRECTOR OF HIGHWAYS, REGION 3 ENGINEER



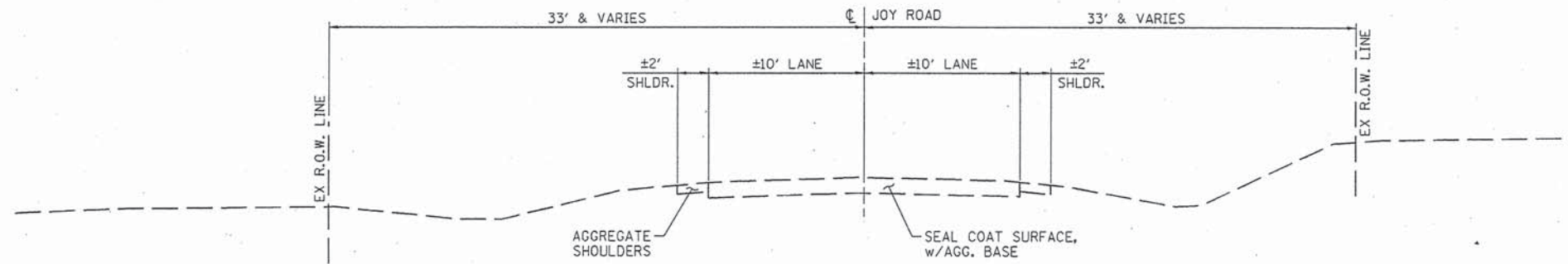
INDEX OF SHEETS

- 1 COVER SHEET
- 2 INDEX OF SHEETS, STANDARDS, & TYPICAL SECTION, & PROJECT CONTROL
- 3 SUMMARY OF QUANTITIES & GENERAL NOTES
- 4-17 PLAN AND PROFILE
- 18-19 STRUCTURE AT STATION 621+27.00
- 20-21 STRUCTURE AT STATION 631+64.00
- 22-23 STRUCTURE AT STATION 640+59.00
- 24-25 STRUCTURE AT STATION 673+71.00
- 26-30 CROSS SECTIONS

STANDARDS

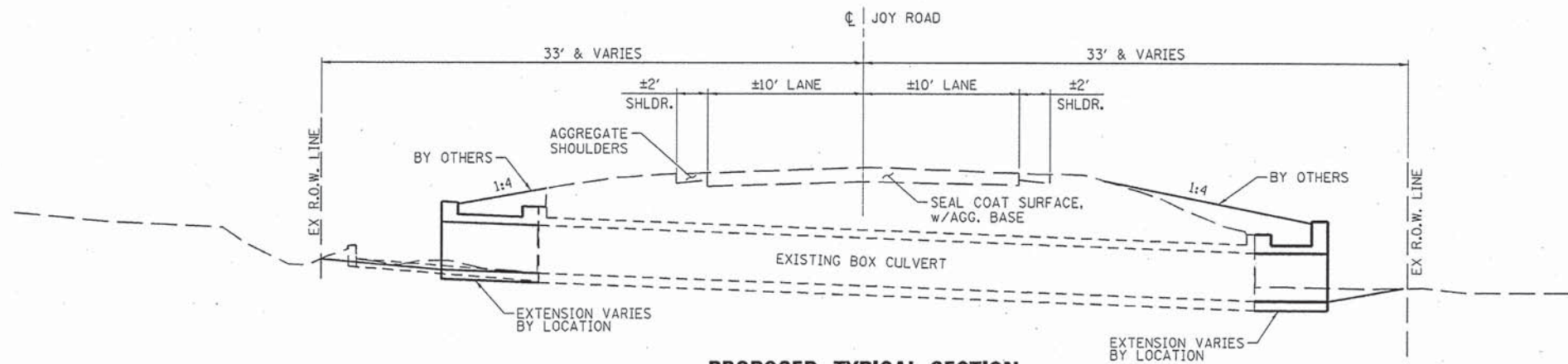
- 000001-06 STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
- BLR 17-4 TRAFFIC CONTROL DEVICES - DAY LABOR CONSTRUCTION
- BLR 18-6 TRAFFIC CONTROL DEVICES - DAY LABOR MAINTENANCE
- BLR 21-9 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
- BLR 22-7 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

TYPICAL SECTIONS



EXISTING TYPICAL SECTION

(LOOKING NORTH)
STA. 522+00.00 TO STA. 689+00.00



PROPOSED TYPICAL SECTION

(LOOKING NORTH)
STA. 621+27
STA. 631+64
STA. 640+59
STA. 673+71
STA. 688+65 (REMOVE ONLY)

PROJECT CONTROL

JOY ROAD - HORIZONTAL CONTROL POINTS					
PT #	STA.	N	E	EL.	DESCRIPTION
CP3	26.75' LT 506+12.86	1,651,582.81	2,100,624.24	684.99	CHISEL "+"
CP4	20.79' LT 509+15.76	1,651,885.37	2,100,639.74	686.58	PK NAIL
CP5	18.17' RT 512+85.64	1,652,253.84	2,100,690.34	686.29	PK NAIL
CP6	29.39' RT 568+42.91	1,657,737.83	2,101,234.79	595.78	5/8" IRON PIN
CP7	13.36' LT 573+57.56	1,658,229.12	2,101,070.74	594.81	5/8" IRON PIN
CP8	15.19' LT 603+84.00	1,661,238.03	2,100,922.33	595.83	5/8" IRON PIN
CP9	16.30' RT 607+10.35	1,661,563.48	2,100,962.04	595.57	5/8" IRON PIN
CP10	359.41' RT 622+65.80	1,663,110.18	2,101,346.99	599.54	5/8" IRON PIN
CP11	107.69' RT 684+38.22	1,669,318.41	2,101,154.60	672.83	5/8" IRON PIN
JOY ROAD - VERTICAL CONTROL POINTS					
BM #	STA.	N	E	EL.	DESCRIPTION
405	34' LT 541+69.13			673.37	RR SPIKE IN POWER POLE NORTH OF ENT
406	20' RT 569+93.53			596.30	CHISELED SQUARE ON SE WINGWALL OF BRIDGE
407	32' LT 590+54.97			603.94	RR SPIKE IN POWER POLE
408	17' RT 605+06.24			596.49	CHISELED SQUARE ON SE WINGWALL OF BRIDGE
409	21.5' RT 621+49.65			608.77	CHISELED SQUARE ON NE CORNER OF HEADWALL
410	15.6' RT 647+22.13			619.75	CHISELED SQUARE ON NE CORNER OF HEADWALL
411	18' LT 673+88.61			642.51	CHISELED SQUARE ON NE CORNER OF WEST WW
412	30' RT 683+35.12			673.60	RR SPIKE IN POWER POLE SE OF SAWMILL RD
413	32' RT 693+36.26			680.54	RR SPIKE IN POWER POLE



DESIGNED - LGN	REVISED -
CHECKED - GFS	REVISED -
DRAWN - MPO	REVISED -
CHECKED - LGN	REVISED -

**MERCER COUNTY
(C.H. 9) JOY ROAD
CULVERT EXTENSION**

INDEX OF SHEETS, STANDARDS, TYPICAL SECTION, & PROJECT CONTROL

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
212	14-00103-01-DR	MERCER	30	2
WHA# 1290D15			CONTRACT NO. 89705	
ILLINOIS FED. AID PROJECT RS-02121081				

SUMMARY OF QUANTITIES

ITEM NO.	CODE NO.	ITEM	UNIT	TOTAL
				QUANTITY
1	20700110	POROUS GRANULAR EMBANKMENT	TON	13
2	50100300	REMOVAL OF EXISTING STRUCTURES NO. 1	EACH	1
3	50100400	REMOVAL OF EXISTING STRUCTURES NO. 2	EACH	1
4	50100500	REMOVAL OF EXISTING STRUCTURES NO. 3	EACH	1
5	50100600	REMOVAL OF EXISTING STRUCTURES NO. 4	EACH	1
6	50800105	REINFORCEMENT BARS	POUND	8,130
7	54002020	EXPANSION BOLTS 3/4 INCH	EACH	88
8	54003000	CONCRETE BOX CULVERTS	CU YD	50.7
9	59000200	EPOXY CRACK INJECTION	FOOT	12
10	67100100	MOBILIZATION	L SUM	1
11	Z0012755	STRUCTURAL REPAIR OF CONCRETE (DEPTH GREATER THAN 5 INCHES)	SO FT	18

GENERAL NOTES

THE PROJECT LIMITS ARE FROM STA. 522+00 TO STA. 689+00.

EXISTING STREET SIGNS AND TRAFFIC SIGNS THAT ARE WITHIN THE CONSTRUCTION LIMITS SHALL BE REMOVED AND RESET BY THE CONTRACTOR IN ACCORDANCE WITH ARTICLE 107.25.

WHERE THE PROPOSED CONSTRUCTION MEETS AN EXISTING BITUMINOUS OR CONCRETE SURFACE, OR WHERE SAWING IS STATED ON THE PLANS, THE EXISTING SURFACE SHALL BE SAWED IN A NEAT, STRAIGHT LINE. COST OF SAWING IS TO BE INCLUDED IN THE UNIT BID PRICES OF THE ITEM BEING REMOVED.

WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE COUNTY SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKERS, MONUMENTS, AND RIGHT OF WAY PINS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR, OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.

MERCER COUNTY HIGHWAY DEPARTMENT MUST BE NOTIFIED A MINIMUM OF TWO (2) WEEKS IN ADVANCE OF ANY NON-EMERGENCY CONSTRUCTION WITHIN THE RIGHT-OF-WAY.

MERCER COUNTY SHALL BE NOTIFIED TWO (2) WEEKS IN ADVANCE OF NEEDING A ROAD CLOSURE.

MERCER COUNTY SHALL BE NOTIFIED WITHIN ONE (1) DAY OF COMPLETING WORK AT EACH LOCATION.

THE CONTRACTOR SHALL DISPOSE OF ALL MATERIAL GENERATED BY REMOVAL OF EXISTING STRUCTURES OFF-SITE.

ALL BORROW/WASTE/USE SITES MUST BE APPROVED BY IDOT PRIOR TO REMOVING ANY MATERIAL FROM THE PROJECT OR INITIATING ANY EARTHMOVING ACTIVITIES, INCLUDING TEMPORARY STOCKPILING OUTSIDE THE LIMITS OF CONSTRUCTION.

THE CONTRACTOR SHALL NOTIFY THE RESPECTIVE UTILITIES TO MAKE THE NECESSARY ADJUSTMENTS PRIOR TO THIS CONSTRUCTION.

THE UTILITIES LOCATED WITHIN THE PROJECT LIMITS OR IMMEDIATELY ADJACENT TO THE PROJECT CONSTRUCTION LIMITS INCLUDE:

FRONTIER COMMUNICATIONS
214 S. 1ST STREET
MONMOUTH, IL 61462
ATTN: RON PRITCHARD
(309) 734-7991

NOVA/RIO CABLEVISION, INC.
P.O. BOX 1412
GALESBURG, IL 61401
ATTN: ROBERT FISCHER, JR.
(309) 342-9681

VILLAGE OF JOY
MSA ENGINEERING
2117 STATE STREET
SUITE 200
BETTENDORF, IA 52722
(563) 445-3501

CITY OF ALEDO
120 N. COLLEGE AVENUE
ALEDO, IL 61231
ATTN: JUSTIN BLASER
(309) 582-7241

MIDAMERICAN ENERGY
5955 FENNO ROAD
BETTENDORF, IA 52722
ATTN: NATE TEAGER
(515) 242-4300

FILE: S:\PROJECTS\2015\1290D15.MCH\DESIGN\TRANS\1290D15.S00.CONTRACT.DWG



DESIGNED - LGN	REVISED -
CHECKED - GFS	REVISED -
DRAWN - MPO	REVISED -
CHECKED - LGN	REVISED -

**MERCER COUNTY
(C.H. 9) JOY ROAD
CULVERT EXTENSION**

SUMMARY OF QUANTITIES & GENERAL NOTES

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
212	14-00103-01-DR	MERCER	30	3
WHA* 1290D15		CONTRACT NO. 89705		
[ILLINOIS] FED. AID PROJECT RS-02121081				

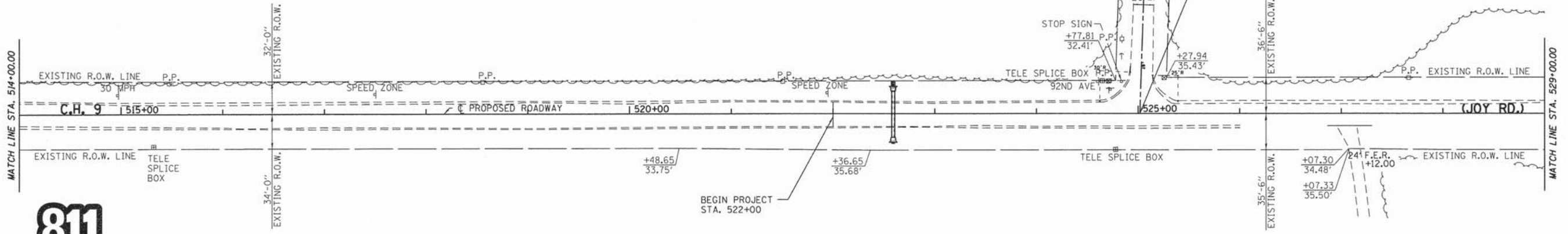
BENCH MARK #404; "O" IN "OPEN" ON FIRE HYDRANT AT NORTHEAST CORNER OF JOY RD AND BEESON ST EL. 688.24

PROVIDED FOR INFORMATIONAL USE ONLY

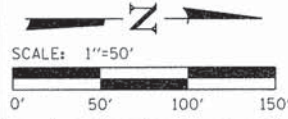
LOCATION #1 - STA. 522+59
WATERWAY INFORMATION TABLE

Drainage Area	31.0	acres		
Existing Profile Elevation	685.25	ft. @	522+59	
Proposed Profile Elevation	686.39	ft. @	522+59	
Flood Frequency	Year	Discharge cfs	Headwater Elev.	
Ten-Year	10	9	682.09	682.79
Design	50	16	683.98	683.56
Base	100	22	684.45	684.07
Overtop	>100	17 / (40)	684.33	(685.97)

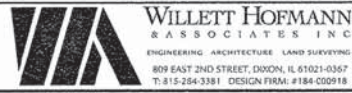
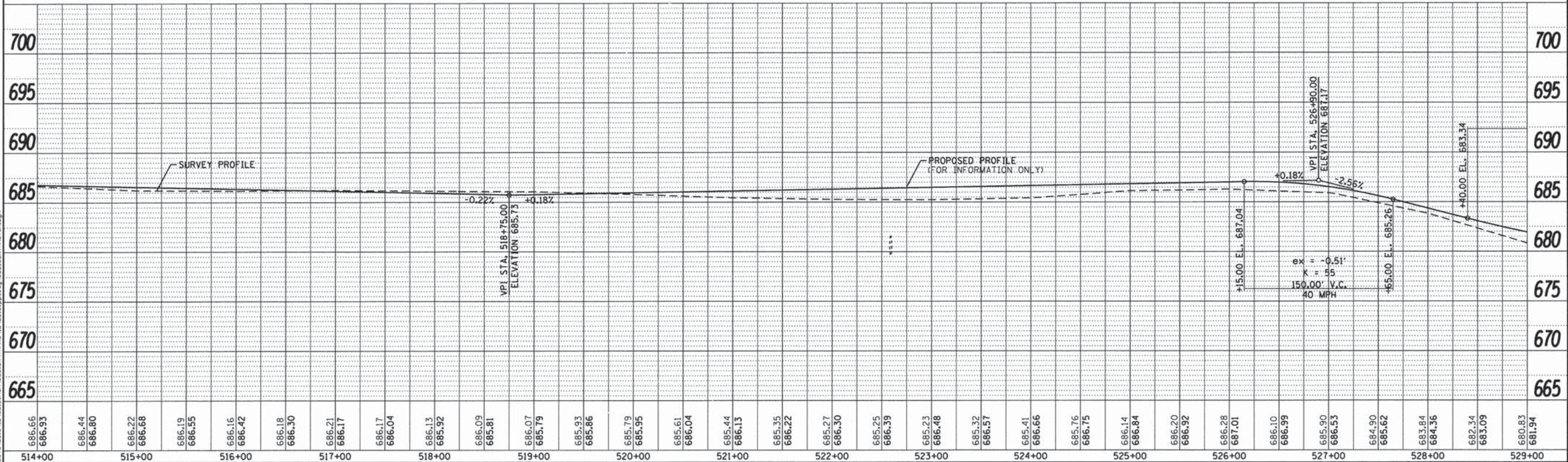
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ALIGNED	
CHECKED	
NOTE BOOK NO.	
DATE	
BY	
PROFILE	
SURVEYED	
GRADES CHECKED	
NOTE BOOK NO.	
DATE	
BY	



Know what's below. Call before you dig.



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SURVEYED	
GRADES CHECKED	
NOTE BOOK NO.	
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CHECKED - GFS	REVISED -
DRAWN - MPO	REVISED -
CHECKED - LGN	REVISED -

MERCER COUNTY
(C.H. 9) JOY ROAD
CULVERT EXTENSION

JOY ROAD
PLAN AND PROFILE

SHEET NO. 01 OF 14 SHEETS

F.A.S. RTE. 212	SECTION 14-00103-01-DR	COUNTY MERCER	TOTAL SHEETS 30	SHEET NO. 4
WHA# 1290015		CONTRACT NO. 89705		
ILLINOIS FED. AID PROJECT RS-02121081				

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LOCATION #2 - STA. 531+13
WATERWAY INFORMATION TABLE

Drainage Area 3.7 acres				
Existing Profile Elevation:		678.04	ft. @	531+13
Proposed Profile Elevation:		649.05	ft. @	531+13
Flood	Frequency	Discharge	Headwater	Elev.
Ten-Year	10	2	673.72	674.81
Design	50	5	674.17	675.23
Base	100	7	674.42	675.44
Overtop	>100	24 / (25)	677.08	(678.63)

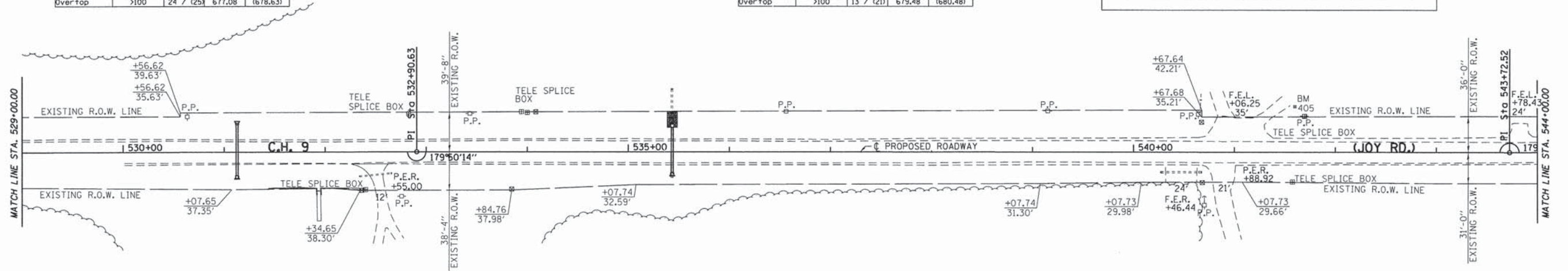
LOCATION #3 - STA. 535+43
WATERWAY INFORMATION TABLE

Drainage Area 8.8 acres				
Existing Profile Elevation:		680.33	ft. @	535+43
Proposed Profile Elevation:		680.90	ft. @	535+43
Flood	Frequency	Discharge	Headwater	Elev.
Ten-Year	10	5	676.97	678.06
Design	50	11	678.66	678.88
Base	100	15	679.54	679.41
Overtop	>100	13 / (21)	679.48	(680.48)

BENCH MARK #405: R.R. SPIKE IN P.P. WEST SIDE OF JOY RD
ACROSS FROM HOUSE #955
EL. 686.67

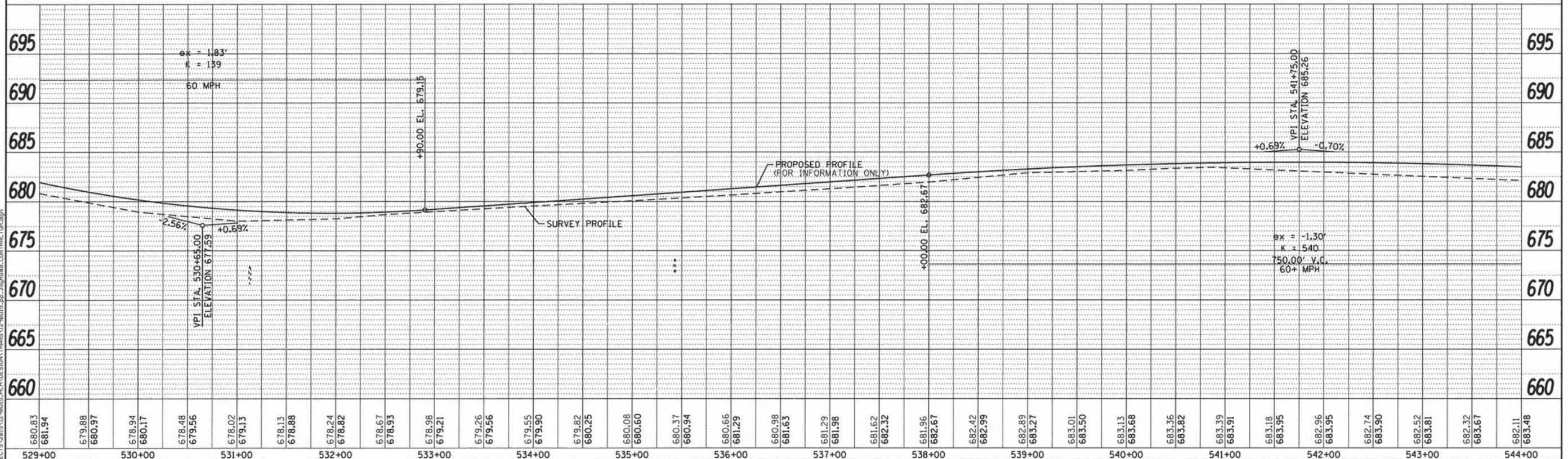
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PLAN	DATE
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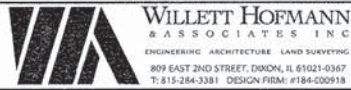


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PROFILE	DATE
BY	
REVISIONS	
NO.	



680.83	681.94	679.88	680.97	678.94	680.17	678.48	679.56	678.02	679.13	678.13	678.88	678.24	678.82	678.67	678.93	678.98	679.21	679.26	679.56	679.55	679.90	679.82	680.25	680.08	680.60	680.37	680.94	680.66	681.29	680.98	681.63	681.29	681.98	681.62	682.32	681.96	682.67	682.42	682.99	682.89	683.27	683.01	683.50	683.13	683.68	683.36	683.82	683.39	683.91	683.18	683.95	682.96	683.95	682.74	683.90	682.52	683.81	682.32	683.67	682.11	683.48
529+00	530+00	531+00	532+00	533+00	534+00	535+00	536+00	537+00	538+00	539+00	540+00	541+00	542+00	543+00	544+00																																														



DESIGNED - LGN	REVISED -
CHECKED - GFS	REVISED -
DRAWN - MPO	REVISED -
CHECKED - LGN	REVISED -

MERCER COUNTY
(C.H. 9) JOY ROAD
CULVERT EXTENSION

JOY ROAD
PLAN AND PROFILE

SHEET NO. 02 OF 14 SHEETS

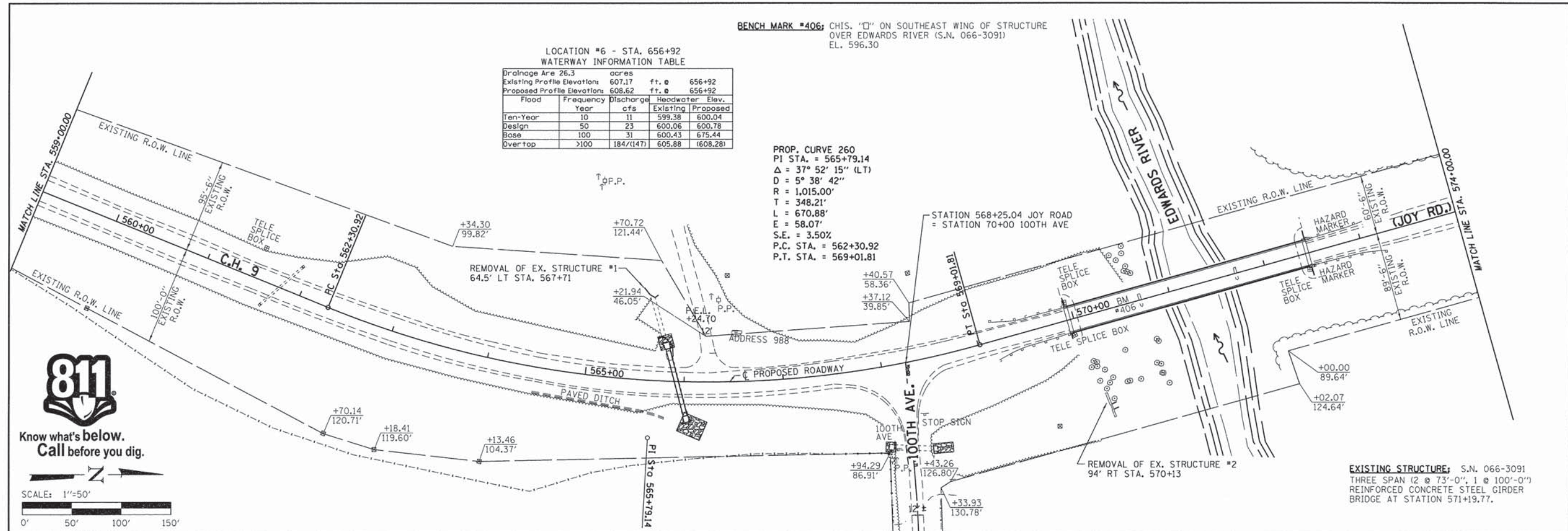
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS
212	14-00103-01-DR	MERCER	30
WHA* 1290D15		CONTRACT NO. 89705	SHEET NO. 5
ILLINOIS FED. AID PROJECT		RS-0212108	

BENCH MARK #406: CHIS. "□" ON SOUTHEAST WING OF STRUCTURE OVER EDWARDS RIVER (S.N. 066-3091) EL. 596.30

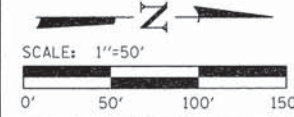
LOCATION #6 - STA. 656+92
WATERWAY INFORMATION TABLE

Drainage Area		acres	
Existing Profile Elevations		607.17 ft. @ 656+92	
Proposed Profile Elevations		608.62 ft. @ 656+92	
Flood Ten-Year	Frequency	Discharge cfs	Headwater Elev.
10	11	599.38	600.04
50	23	600.06	600.78
100	31	600.43	675.44
>100		184/(147)	605.88 (608.28)

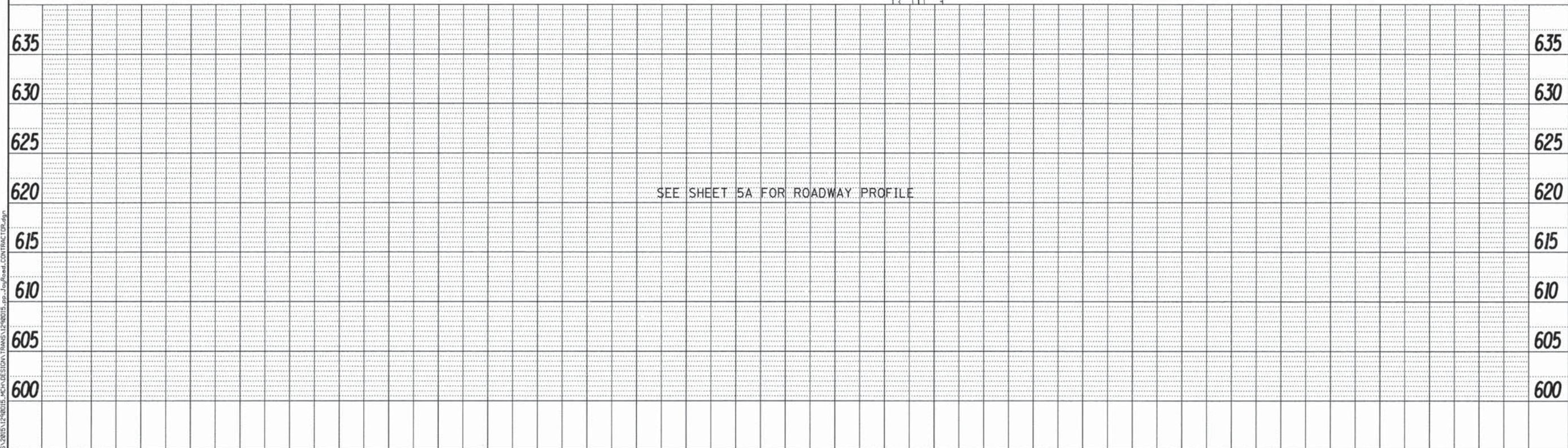
PROP. CURVE 260
PI STA. = 565+79.14
Δ = 37° 52' 15" (LT)
D = 5° 38' 42"
R = 1,015.00'
T = 348.21'
L = 670.88'
E = 58.07'
S.E. = 3.50%
P.C. STA. = 562+30.92
P.T. STA. = 569+01.81



Know what's below.
Call before you dig.



EXISTING STRUCTURE: S.N. 066-3091
THREE SPAN (2 @ 73'-0", 1 @ 100'-0")
REINFORCED CONCRETE STEEL GIRDER
BRIDGE AT STATION 571+19.77.

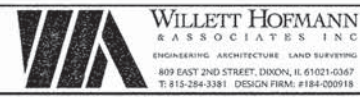


PLAN

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PROFILE

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FILE NAME	
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DESIGNED - LGN	REVISED -
CHECKED - GFS	REVISED -
DRAWN - MPO	REVISED -
CHECKED - LGN	REVISED -

MERCER COUNTY
(C.H. 9) JOY ROAD
CULVERT EXTENSION

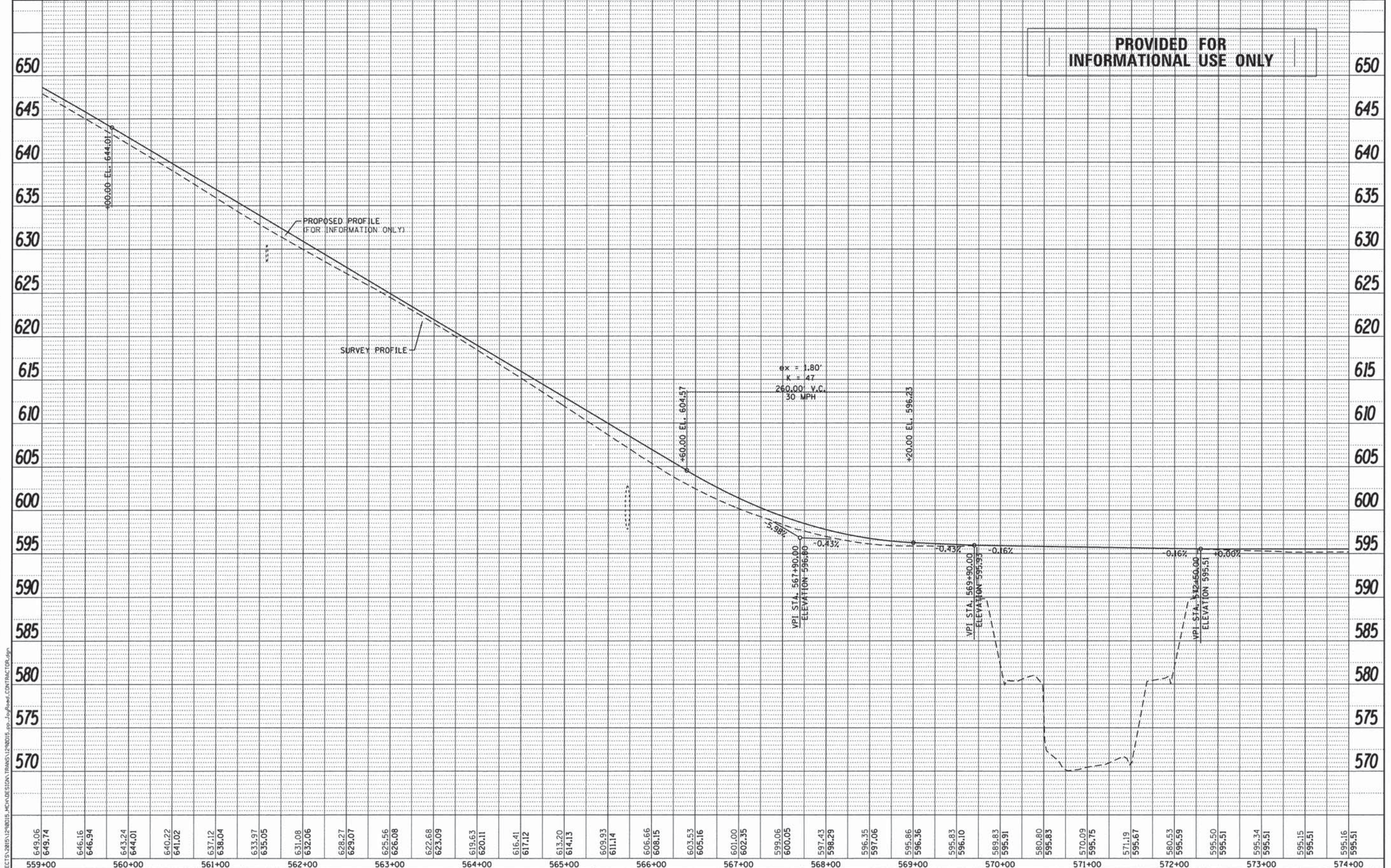
JOY ROAD
PLAN AND PROFILE

SHEET NO. 04 OF 14 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
212	14-00103-01-DR	MERCER	30	7
WHA# 1290015		CONTRACT NO. 89705		
ILLINOIS FED. AID PROJECT			RS-02121081	

PLAN	SURVEYED	BY	DATE
NOTE BOOK	ALIGNED		
NO.	NO.		

PROFILE	SURVEYED	BY	DATE
NOTE BOOK	GRADES CHECKED		
NO.	PHOTO TYPE		



559+00	560+00	561+00	562+00	563+00	564+00	565+00	566+00	567+00	568+00	569+00	570+00	571+00	572+00	573+00	574+00
649.06	649.74	646.16	646.94	643.24	644.01	640.22	641.02	637.12	638.04	633.37	635.05	631.08	632.06	628.27	629.07
625.56	626.08	622.68	623.09	619.63	620.11	616.41	617.12	613.20	614.13	609.93	611.14	606.66	608.15	603.53	605.16
601.00	602.35	599.06	600.05	597.43	598.29	596.35	597.06	595.86	596.36	595.83	596.10	589.83	595.91	580.80	595.83
570.09	595.75	571.19	595.67	580.53	595.59	595.50	595.51	595.34	595.51	595.15	595.51	595.16	595.51	595.16	595.51

WILLET HOFMANN
ASSOCIATES INC.
ENGINEERING ARCHITECTURE LAND SURVEYING
809 EAST 2ND STREET, DIXON, IL 61021-0367
T: 815-284-3391 DESIGN FIRM: #184-00919

DESIGNED - LGN	REVISED -
CHECKED - GFS	REVISED -
DRAWN - MPO	REVISED -
CHECKED - LGN	REVISED -

MERCER COUNTY
(C.H. 9) JOY ROAD
CULVERT EXTENSION

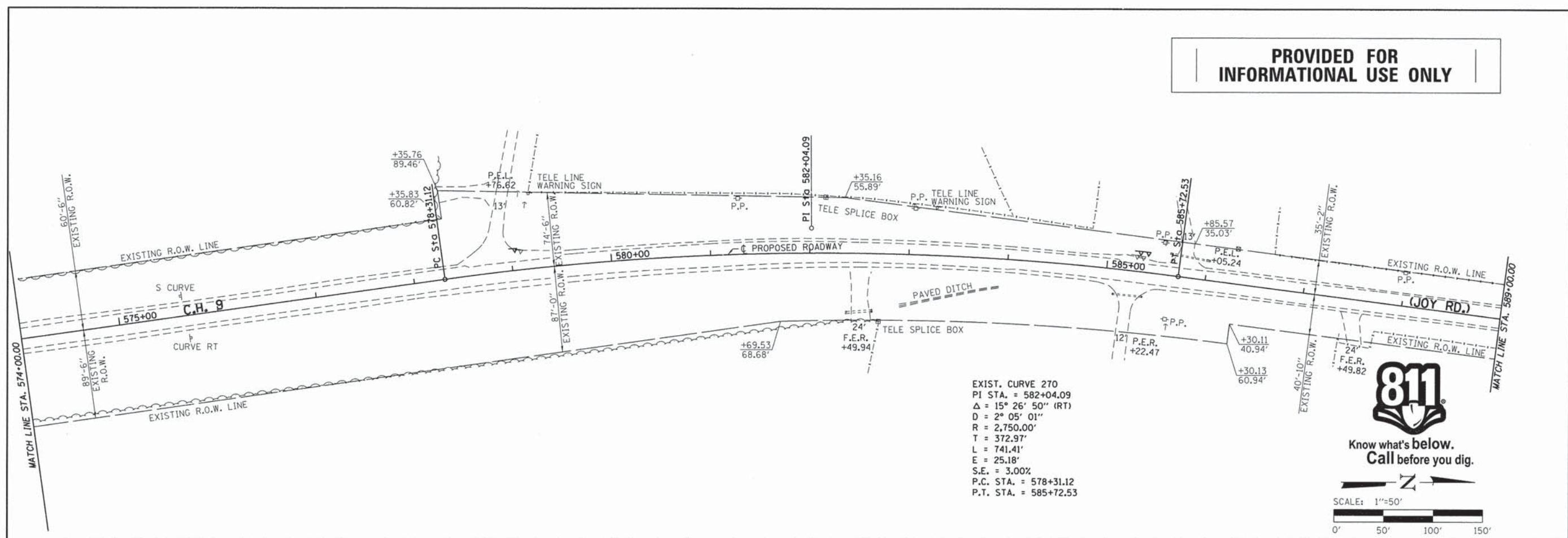
JOY ROAD
PLAN AND PROFILE
SHEET NO. 05 OF 14 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
212	14-00103-01-DR	MERCER	30	8
WHA* 1290D15		CONTRACT NO. 89705		
ILLINOIS FED. AID PROJECT RS-02121081				

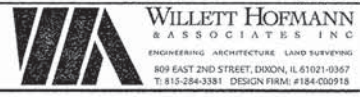
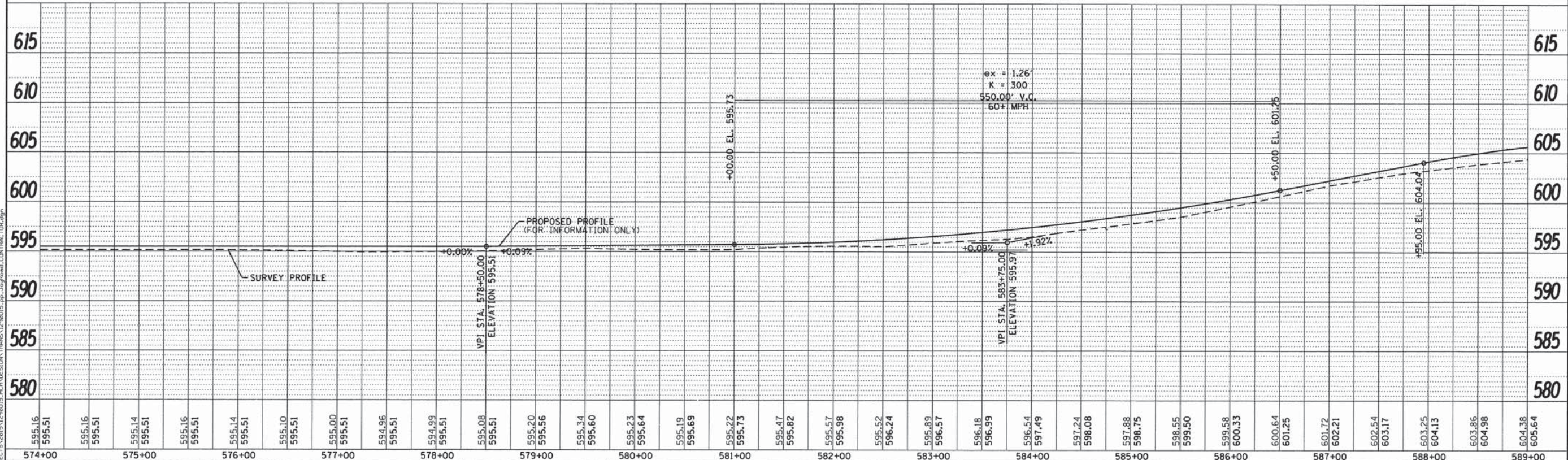
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PLAN	DATE
REVISIONS	BY
NOTED	
NO. 1	
NO. 2	
NO. 3	
NO. 4	
NO. 5	
NO. 6	
NO. 7	
NO. 8	
NO. 9	
NO. 10	

PROFILE	DATE
REVISIONS	BY
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NO. 1	
NO. 2	
NO. 3	
NO. 4	
NO. 5	
NO. 6	
NO. 7	
NO. 8	
NO. 9	
NO. 10	



811
 Know what's below.
 Call before you dig.
 SCALE: 1"=50'



DESIGNED - LGN	REVISED -
CHECKED - GFS	REVISED -
DRAWN - MPO	REVISED -
CHECKED - LGN	REVISED -

MERCER COUNTY
 (C.H. 9) JOY ROAD
 CULVERT EXTENSION

JOY ROAD
 PLAN AND PROFILE
 SHEET NO. 06 OF 14 SHEETS

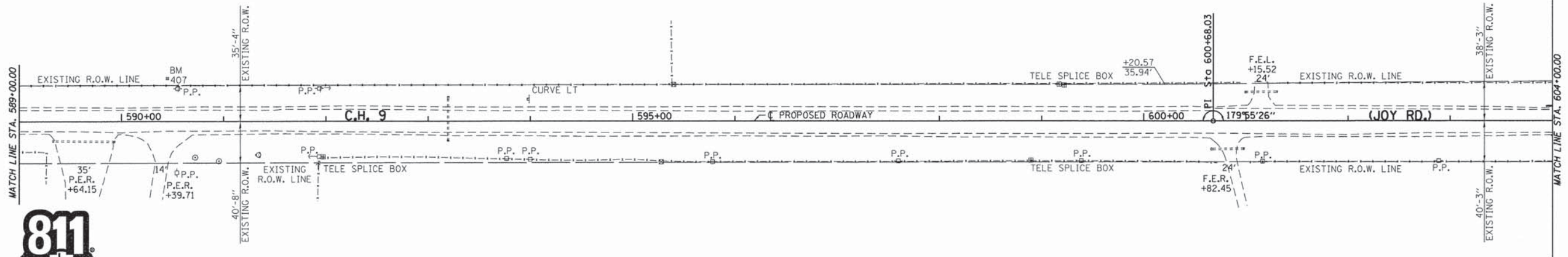
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
212	14-00103-01-DR	MERCER	30	9
WHA# 1290015		CONTRACT NO. 89705		
[ILLINOIS] FED. AID PROJECT RS-0212108				

FILE: S:\PROJECTS\2015\12\90015-MCN\DESIGN\TRANS\12\90015_pp_JoyRoad_CONTRACTOR.dwg

BENCH MARK #407: R.R. SPIKE IN P.P. WEST OF JOY ROAD
ACROSS FROM ABANDONED HOUSE
EL. 603.94

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INFORMATIONAL USE ONLY

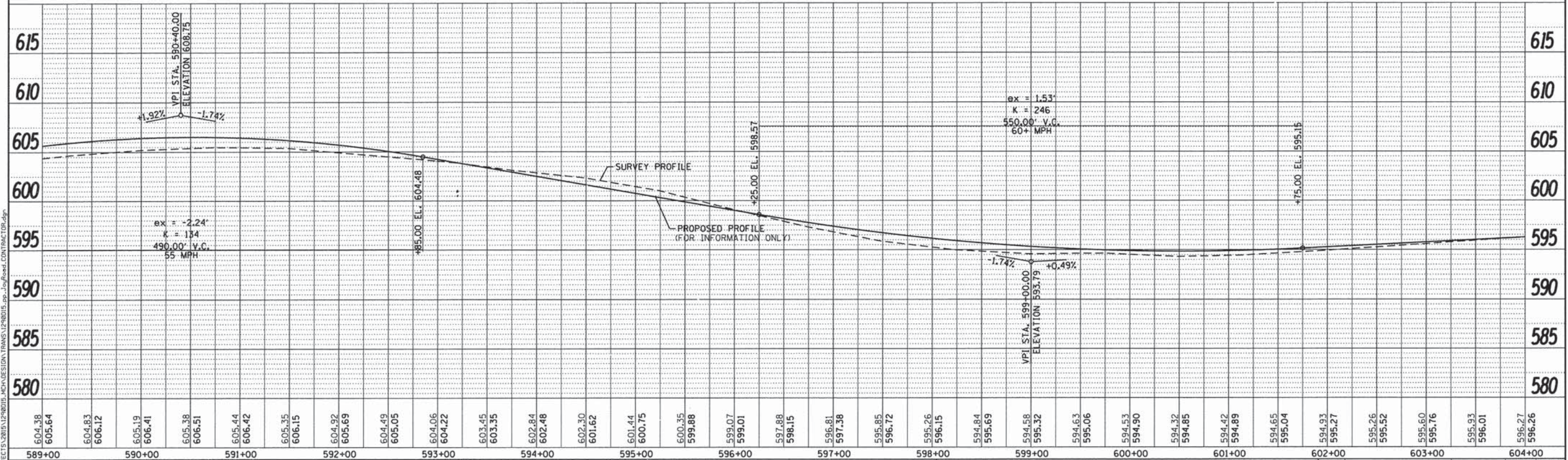
DATE	BY
DATE	BY
DATE	BY
DATE	BY



Know what's below.
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DATE	BY
DATE	BY
DATE	BY



DESIGNED - LGN	REVISED -
CHECKED - GFS	REVISED -
DRAWN - MPO	REVISED -
CHECKED - LGN	REVISED -

MERCER COUNTY
(C.H. 9) JOY ROAD
CULVERT EXTENSION

JOY ROAD
PLAN AND PROFILE

SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
14-00103-01-DR	MERCER	30	10
WHA* 1290015		CONTRACT NO. 89705	
ILLINOIS FED. AID PROJECT		RS-02121081	

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LOCATION #8 - STA. 621+27
WATERWAY INFORMATION TABLE

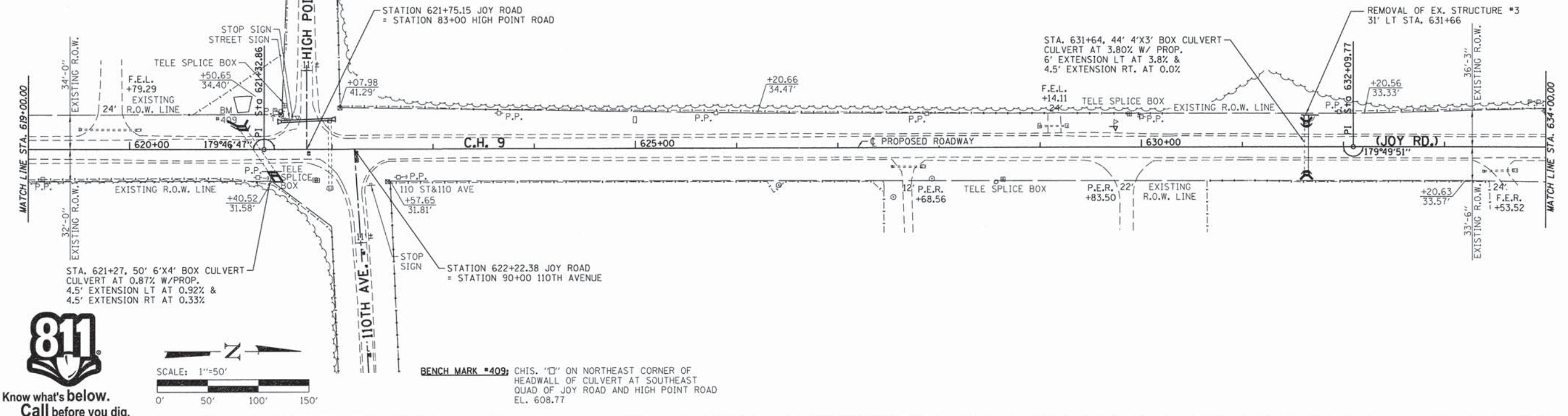
Drainage Area 50.0		acres	ft. @	621+27
Existing Profile Elevation	609.82	ft. @	621+27	
Proposed Profile Elevation	610.85	ft. @	621+27	
Flood	Frequency	Discharge	Headwater Elev.	
	Year	cfs	Existing	Proposed
Ten-Year	10	15	605.80	605.80
Design	50	29	606.48	606.48
Base	100	39	606.84	606.84
Overtop	>100	124/(158)	609.24	(610.17)

LOCATION #9 - STA. 621+98
WATERWAY INFORMATION TABLE

Drainage Area 6.2		acres	ft. @	621+98
Existing Profile Elevation	611.32	ft. @	621+98	
Proposed Profile Elevation	612.20	ft. @	621+98	
Flood	Frequency	Discharge	Headwater Elev.	
	Year	cfs	Existing	Proposed
Ten-Year	10	3	607.32	609.27
Design	50	7	607.70	609.87
Base	100	9	607.91	610.27
Overtop	>100	49 / (17)	611.44	(611.96)

LOCATION #9 - STA. 631+64
WATERWAY INFORMATION TABLE

Drainage Area 64.6		acres	ft. @	631+64
Existing Profile Elevation	612.61	ft. @	631+64	
Proposed Profile Elevation	613.58	ft. @	631+64	
Flood	Frequency	Discharge	Headwater Elev.	
	Year	cfs	Existing	Proposed
Ten-Year	10	24	607.48	607.71
Design	50	49	608.52	608.75
Base	100	67	609.29	609.43
Overtop	>100	128/(143)	611.98	(613.16)

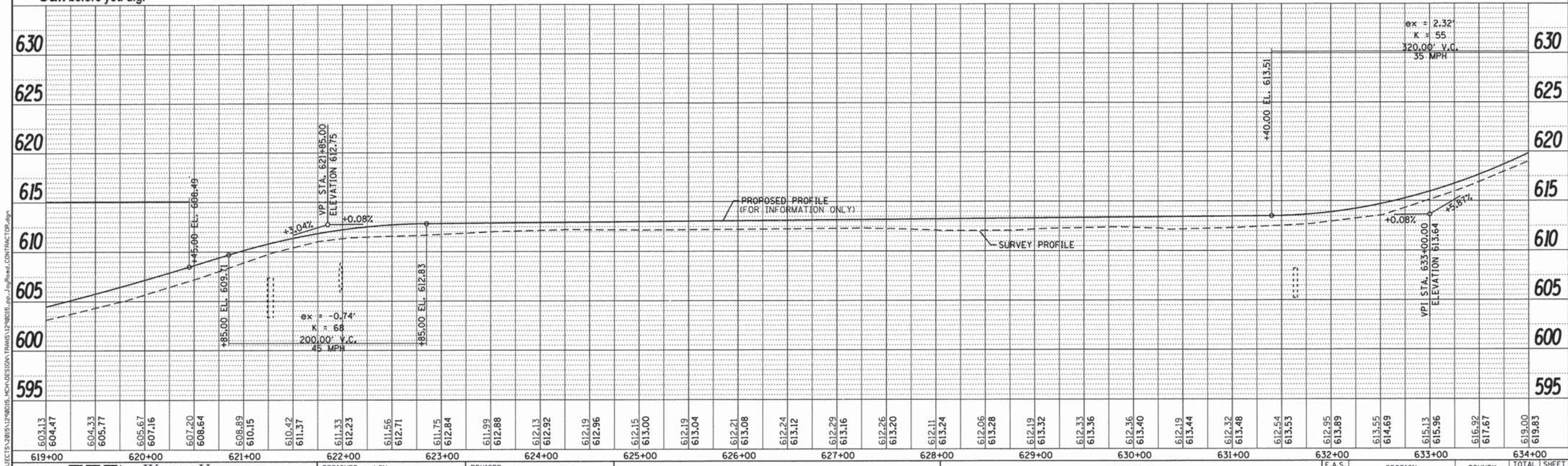


811
Know what's below.
Call before you dig.

SCALE: 1"=50'

0' 50' 100' 150'

BENCH MARK #409: CHIS. 'O' ON NORTHEAST CORNER OF HEADWALL OF CULVERT AT SOUTHEAST QUAD OF JOY ROAD AND HIGH POINT ROAD EL. 608.77



619+00	620+00	621+00	622+00	623+00	624+00	625+00	626+00	627+00	628+00	629+00	630+00	631+00	632+00	633+00	634+00																																														
603.13	604.47	604.33	605.77	605.67	607.16	607.20	608.64	608.89	610.15	610.42	611.37	611.33	612.23	611.56	612.71	611.75	612.84	611.99	612.88	612.13	612.92	612.19	612.96	612.15	613.00	612.19	613.04	612.21	613.08	612.24	613.12	612.29	613.16	612.26	613.20	612.11	613.24	612.06	613.28	612.19	613.32	612.33	613.36	612.36	613.40	612.19	613.44	612.32	613.48	612.54	613.53	612.95	613.89	613.55	614.69	615.13	615.96	616.92	617.67	619.00	619.83

WILLETT HOFMANN
ASSOCIATES INC.
ENGINEERING, ARCHITECTURE, LAND SURVEYING
809 EAST 2ND STREET, DIXON, IL 61021-0367
T: 815-284-3381 DESIGN FIRM: F184-00018

DESIGNED - LGN	REVISED -
CHECKED - GFS	REVISED -
DRAWN - MPO	REVISED -
CHECKED - LGN	REVISED -

MERCER COUNTY
(C.H. 9) JOY ROAD
CULVERT EXTENSION

JOY ROAD
PLAN AND PROFILE
SHEET NO. 09 OF 14 SHEETS

F.A.S. RTE. 212	SECTION 14-00103-01-DR	COUNTY MERCER	TOTAL SHEETS NO. 30	SHEET NO. 12
WHA# 1290015		CONTRACT NO. 89705		
ILLINOIS FED. AID PROJECT RS-02121081				

PLAN

BY	DATE
SURVEYED	
PLOTTED	
NOTE BOOK	
NO. OF WAYS CHECKED	
ADD FILE NAME	

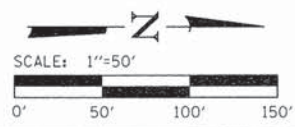
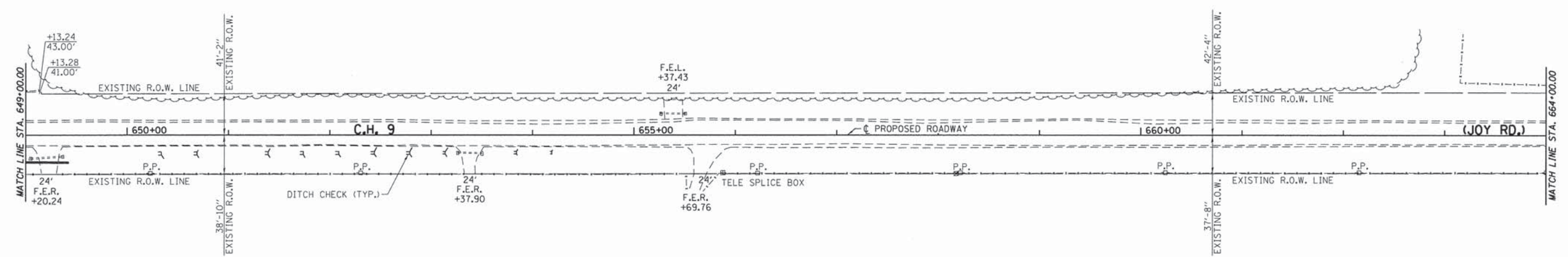
PROF ILE

BY	DATE
SURVEYED	
PLOTTED	
NOTE BOOK	
NO. OF WAYS CHECKED	
ADD FILE NAME	

FILE # S:\PROJECTS\2015\12\201512\0015 - MCH DESIGN TRANS\12\2015 - Joy Road - CONTRACT\PROF.dwg

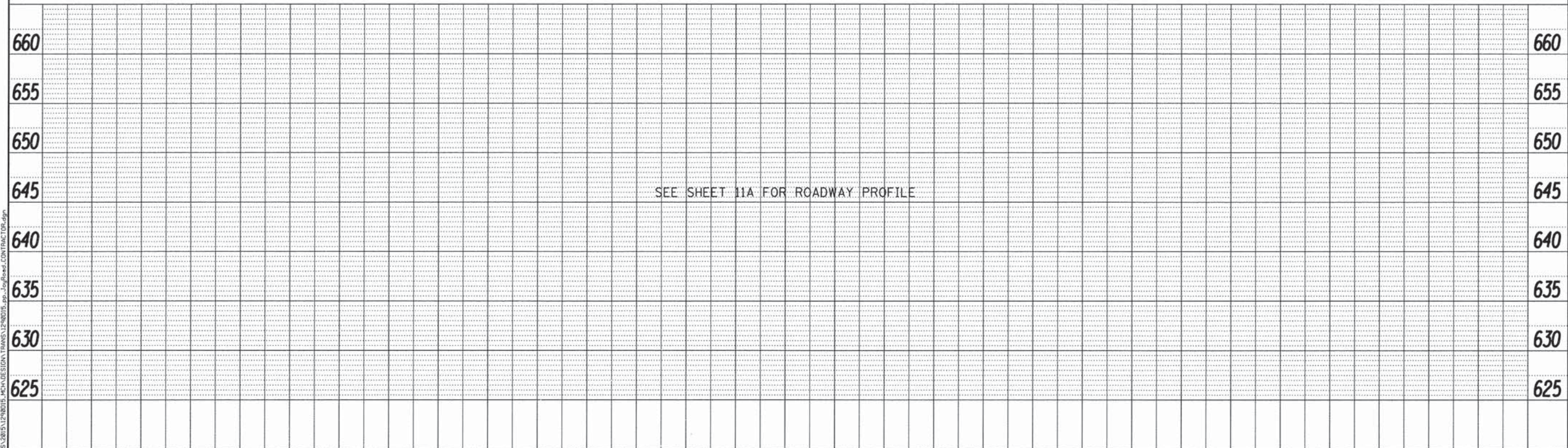
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INFORMATIONAL USE ONLY

PLAN	DATE
BY	
DESIGNED	
CHECKED	
DRAWN	
NOTED	
DATE	



Know what's below.
Call before you dig.

PROFILE	DATE
BY	
DESIGNED	
CHECKED	
DRAWN	
NOTED	
DATE	



FILE: S:\PROJECTS\2015\1290015\MCH\DESIGN\TRANS\1290015_001\JoyRoad.CONTRACTOR.dwg



DESIGNED - LGN	REVISED -
CHECKED - GFS	REVISED -
DRAWN - MPO	REVISED -
CHECKED - LGN	REVISED -

MERCER COUNTY
(C.H. 9) JOY ROAD
CULVERT EXTENSION

JOY ROAD
PLAN AND PROFILE

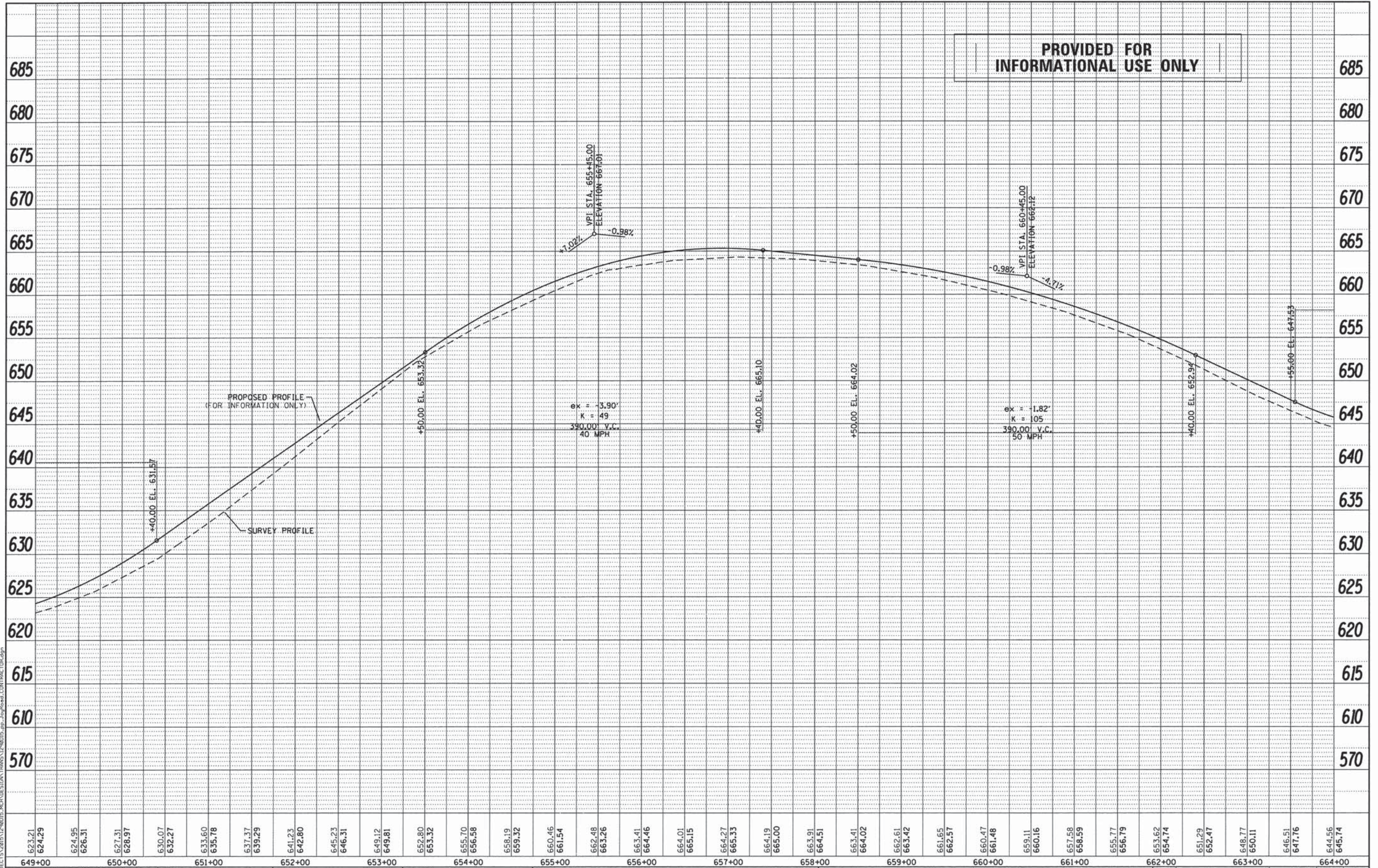
SHEET NO. 11 OF 14 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
212	14-00103-01-DR	MERCER	30	14
WHA# 1290015			CONTRACT NO. 89705	
ILLINOIS FED. AID PROJECT RS-0212100B				

PLAN	SURVEYED	BY	DATE
	PLOTTED		
	CHECKED		
	BY		
	NOTE BOOK		
	NO.		
	PAID FILE NAME		

PROFILE	SURVEYED	BY	DATE
	PLOTTED		
	CHECKED		
	BY		
	NOTE BOOK		
	NO.		
	STRUCTURE		
	NOTATION'S		
	CHKD		

FILE: S:\PROJECTS\2015\12\2015015_ARCH\DESIGN\TRANS\122015015_ppr_JoyRoad_Contract08.dwg



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DESIGNED - LGN	REVISED -
CHECKED - GFS	REVISED -
DRAWN - MPO	REVISED -
CHECKED - LGN	REVISED -

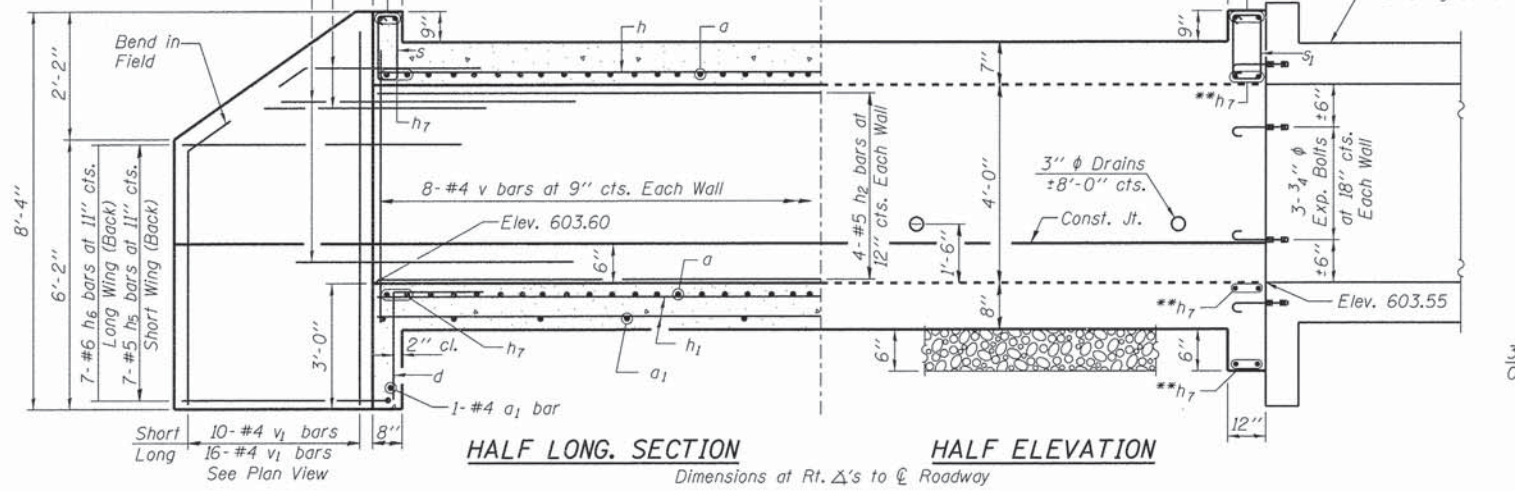
**MERCER COUNTY
(C.H. 9) JOY ROAD
CULVERT EXTENSION**

**JOY ROAD
PLAN AND PROFILE**

SHEET NO. 12 OF 14 SHEETS

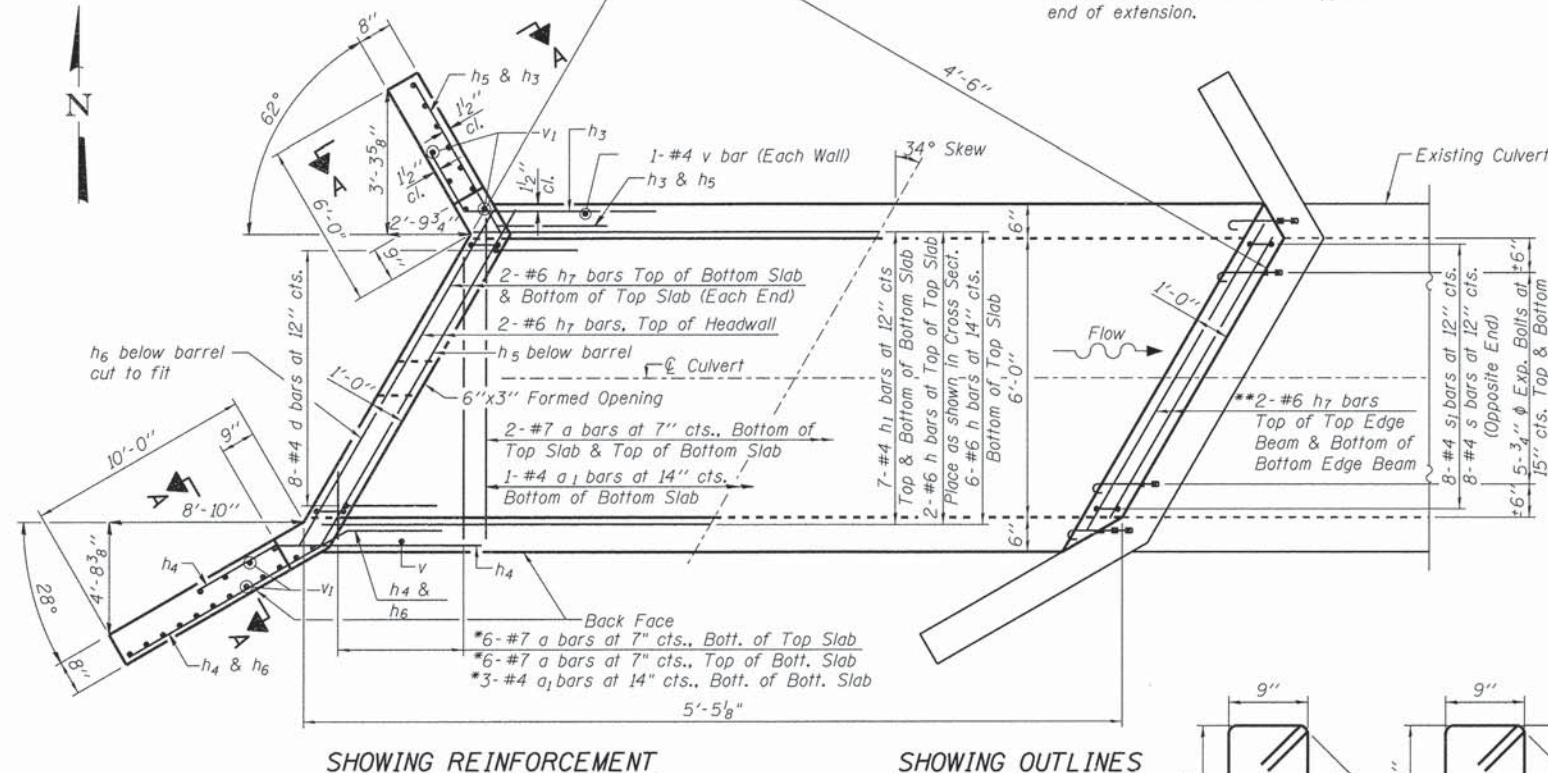
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WHA* 1290015		CONTRACT NO. 89705		
ILLINOIS FED. AID PROJECT			RS-02121081	

(Back)
 2-#5 h_3 at 11" cts. Short Wing
 2-#6 h_4 at 11" cts. Long Wing
 (Front)
 5-#5 h_3 at 11" cts. Short Wing
 5-#6 h_4 at 11" cts. Long Wing



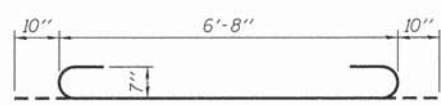
HALF LONG SECTION **HALF ELEVATION**
 Dimensions at Rt. Δ's to \mathcal{C} Roadway

*a & a₁ bars in skew portion of slab shall be ordered full length & cut to fit. Balance of bar to be used in opposite end of extension.

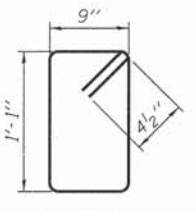


SHOWING REINFORCEMENT

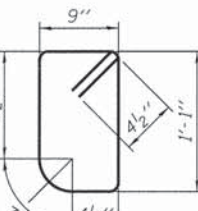
SHOWING OUTLINES



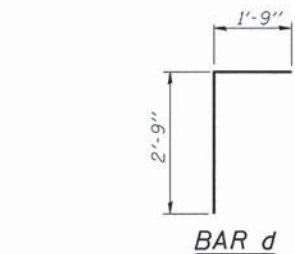
BAR a



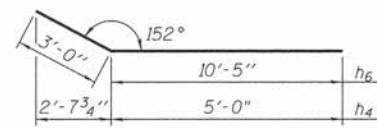
BAR s1



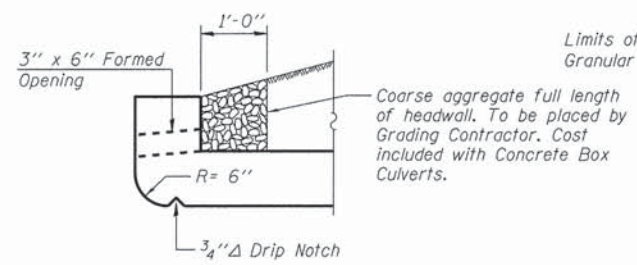
BAR s



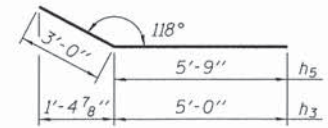
BAR d



BARS h4 & h6



DRAIN DETAIL AT UPSTREAM END



BARS h3 & h5

LOADING HS 20-44

DESIGN STRESSES

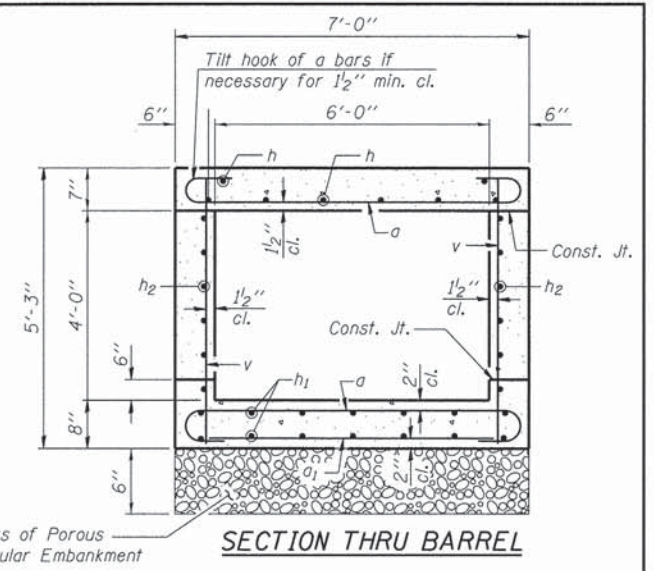
$f_y = 60,000$ psi
 $f'_c = 3,500$ psi

DESIGN SPECIFICATIONS

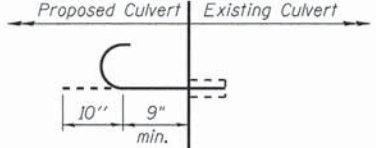
Designed in Accordance with 2002 A.A.S.H.T.O. Design Specifications, 17th Edition



DATE: 4/14/2016
 EXPIRES 11/30/16
 "I certify that to the best of my 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."



SECTION THRU BARREL



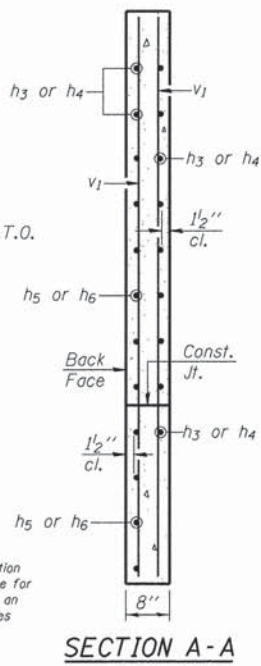
3/4" ϕ EXPANSION BOLT DETAIL
 (Minimum certified proof load = 7,500 lbs.)

BILL OF MATERIAL

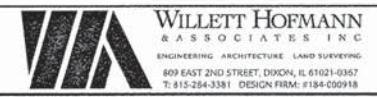
Bar	No.	Size	Length	Shape
a	16	#7	8'-4"	U
a ₁	5	#4	6'-8"	—
d	8	#4	4'-6"	L
h	8	#6	5'-0"	—
h ₁	14	#4	5'-0"	—
h ₂	8	#5	5'-0"	—
h ₃	7	#5	8'-0"	—
h ₄	7	#6	8'-0"	—
h ₅	7	#5	8'-9"	—
h ₆	7	#6	13'-5"	—
h ₇	14	#6	8'-0"	—
s	8	#4	4'-3"	□
s ₁	8	#4	4'-5"	□
v	18	#4	4'-11"	—
v ₁	26	#4	8'-0"	—
Porous Granular Embankment		Ton	1	
Reinforcement Bars		Pound	1,230	
Expansion Bolts 3/4 Inch		Each	16	
Concrete Box Culverts		Cu. Yd.	6.3	

NOTES

NO PRECAST OPTION ALLOWED.
 Expansion bolts shall be 3/4" ϕ hooked bolts. Hooked bolts shall extend a minimum of 9" into new concrete.
 All exposed edges shall be chamfered 3/4" unless otherwise noted.



SECTION A-A

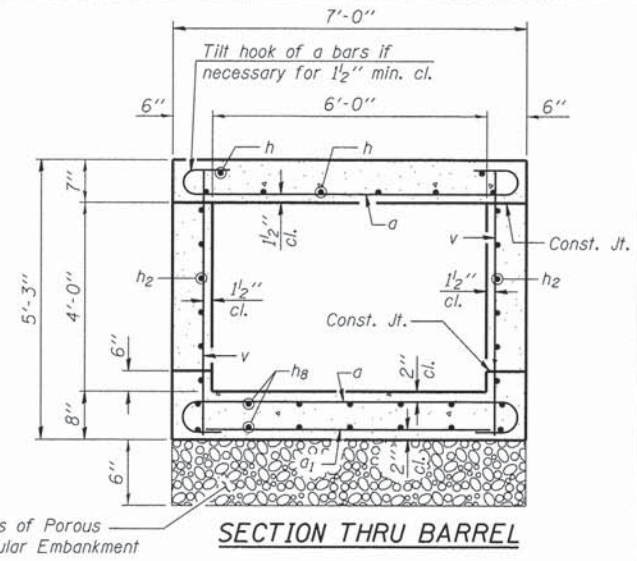
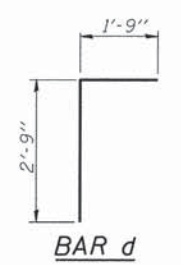
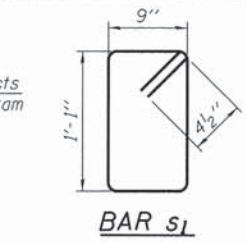
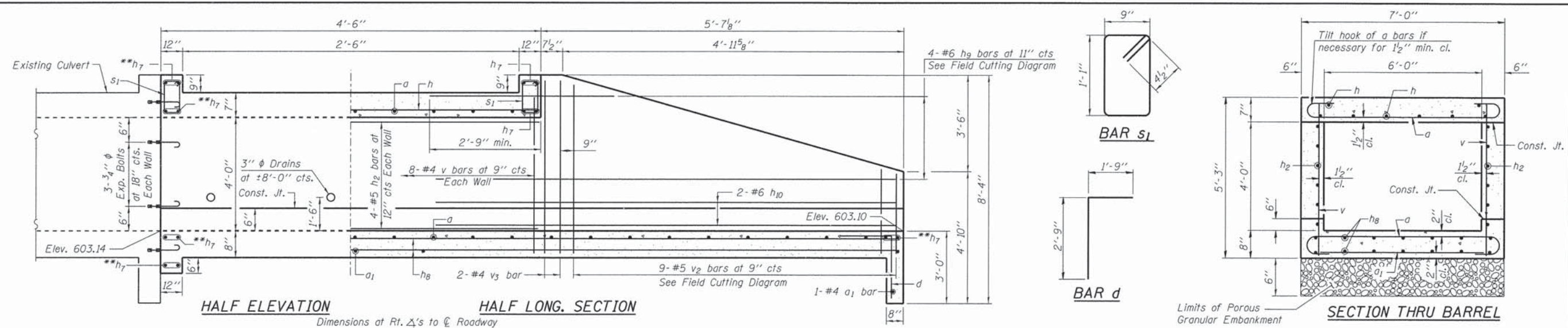


DESIGNED - EEL	REVISED -
CHECKED - BSK	REVISED -
DRAWN - FDL	REVISED -
CHECKED - EEL	REVISED -

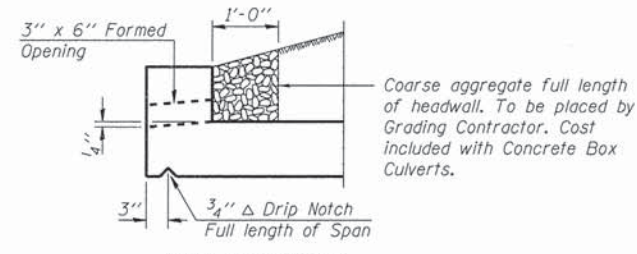
MERCER COUNTY
(C.H. 9) JOY ROAD
CULVERT EXTENSION

WEST EXTENSION DETAILS
STATION 621 + 27.00
 STRUCTURAL SHEET NO. 1 OF 2 SHEETS

F.A.S. RTE. 212	SECTION 14-00103-01-DR	COUNTY MERCER	TOTAL SHEETS 30	SHEET NO. 18
WHA# 1290015		CONTRACT NO. 89705		
ILLINOIS FED. AID PROJECT RS-0211081				

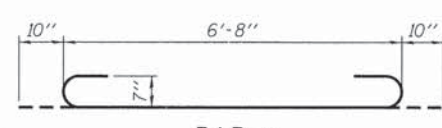


HALF ELEVATION HALF LONG SECTION
Dimensions at Rt. Δ's to C Roadway

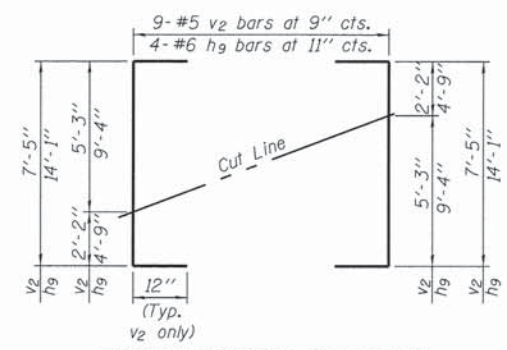


DRAIN DETAIL AT DOWNSTREAM END

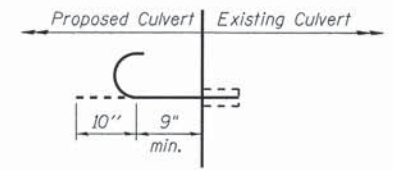
*a & a1 bars in skew portion of slab shall be ordered full length & cut to fit. Balance of bar to be used in opposite end of extension.
**Cut to fit



BAR a



FIELD CUTTING DIAGRAM



3/4" phi EXPANSION BOLT DETAIL
(Minimum certified proof load = 7,500 lbs.)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a	28	#7	8'-4"	U
a1	11	#4	6'-8"	U
d	8	#4	4'-6"	L
h	8	#6	5'-0"	—
h2	8	#5	5'-0"	—
h7	14	#6	8'-0"	—
h8	14	#4	11'-10"	—
h9	4	#6	14'-1"	—
h10	4	#6	9'-4"	—
s1	16	#4	4'-5"	D
v	18	#4	4'-11"	—
v2	9	#5	9'-5"	—
v3	4	#5	5'-8"	—
Porous Granular Embankment			Ton	3
Reinforcement Bars			Pound	1,290
Expansion Bolts 3/4 Inch			Each	16
Concrete Box Culverts			Cu. Yd.	5,6

LOADING HS 20-44

DESIGN STRESSES

fy = 60,000 psi
f'c = 3,500 psi

DESIGN SPECIFICATIONS

Designed in Accordance with 2002 AASHTO Design Specifications, 17th Edition

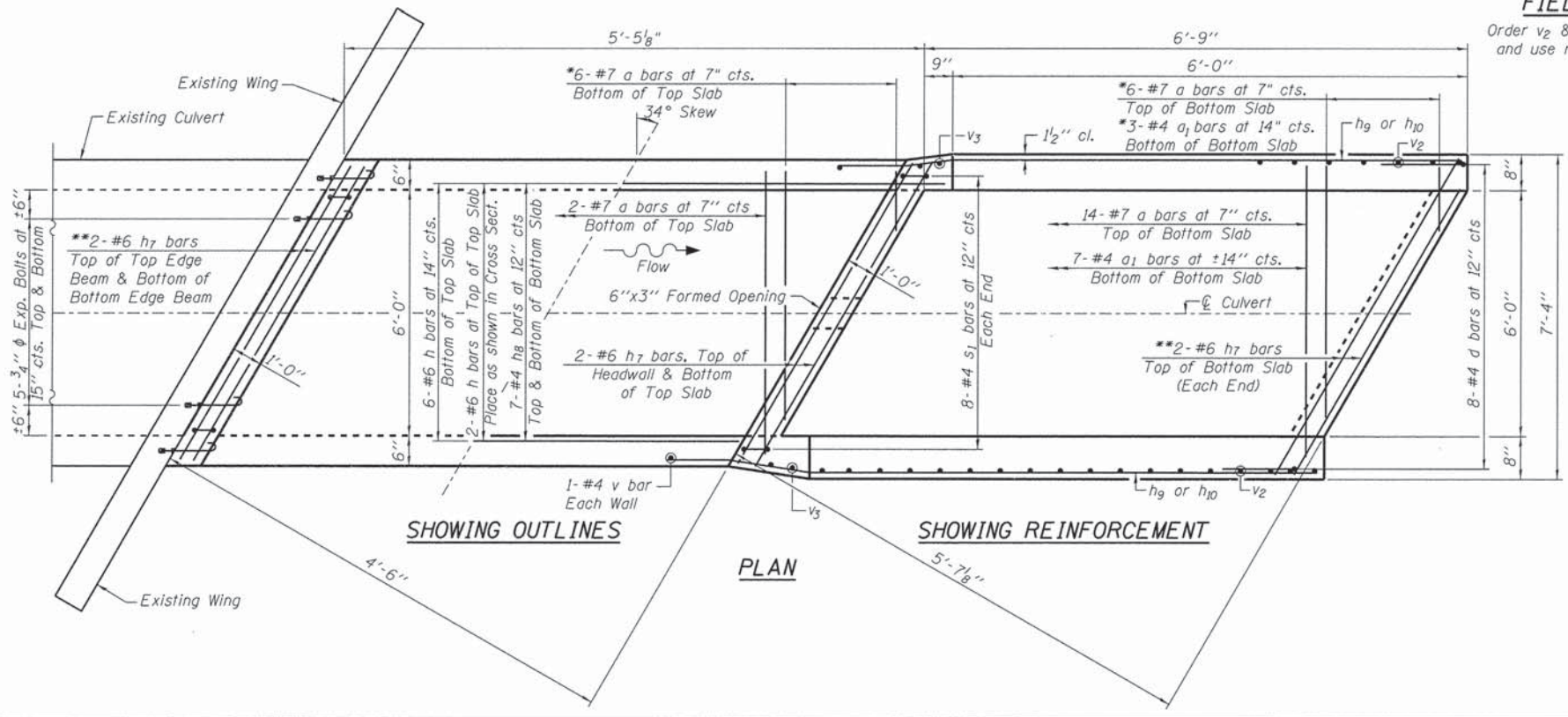


DATE: 4/5/2016
EXPIRES 11/30/16

"I certify that to the best of my 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"."

NOTES

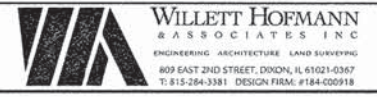
NO PRECAST OPTION ALLOWED.
Expansion bolts shall be 3/4" phi hooked bolts. Hooked bolts shall extend a minimum of 9" into new concrete.
All exposed edges shall be chamfered 3/4" unless otherwise noted.



SHOWING OUTLINES

SHOWING REINFORCEMENT

PLAN



DESIGNED - EEL	REVISED -
CHECKED - BSK	REVISED -
DRAWN - FDL	REVISED -
CHECKED - EEL	REVISED -

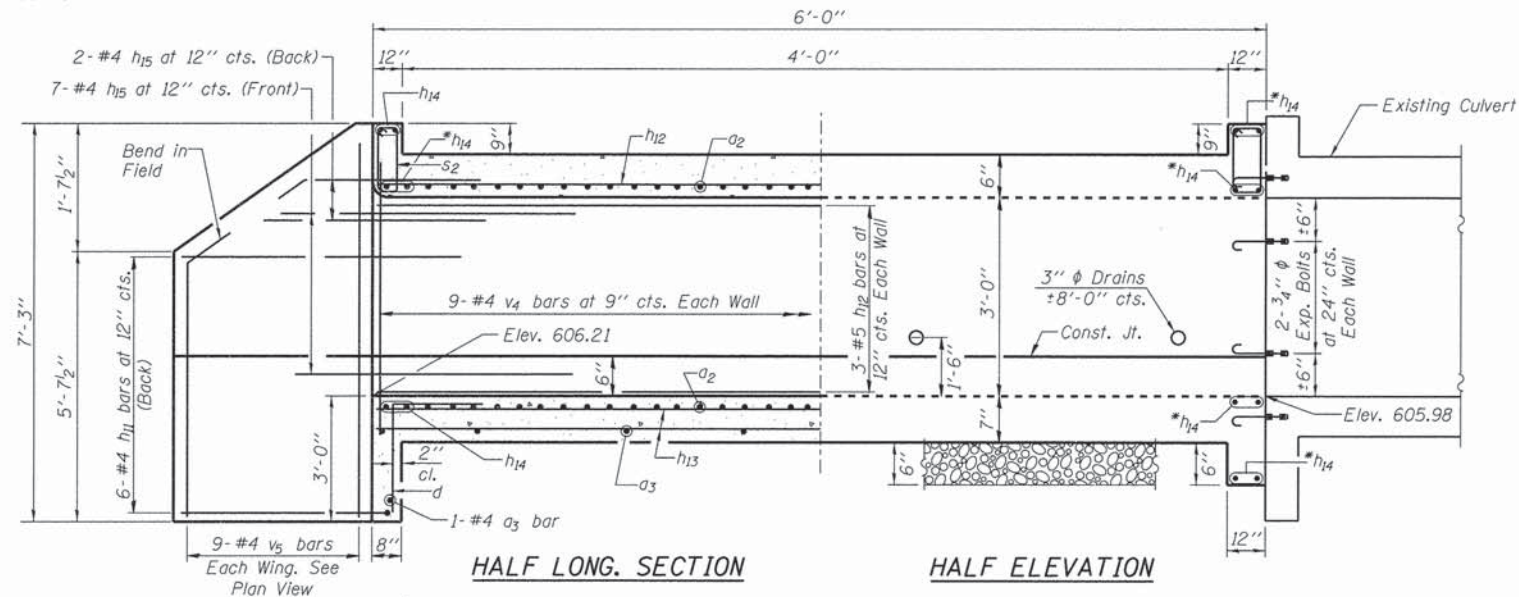
MERCER COUNTY (C.H. 9) JOY ROAD CULVERT EXTENSION

EAST EXTENSION DETAILS STATION 621+27.00

STRUCTURAL SHEET NO. 2 OF 2 SHEETS

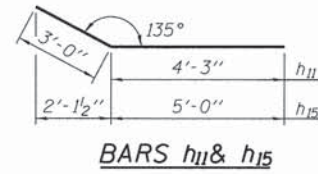
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
212	14-00103-01-DR	MERCER	30	19
WHA# 1290D15			CONTRACT NO. 89705	
ILLINOIS FED. AID PROJECT			RS-0211081	

*Cut to fit

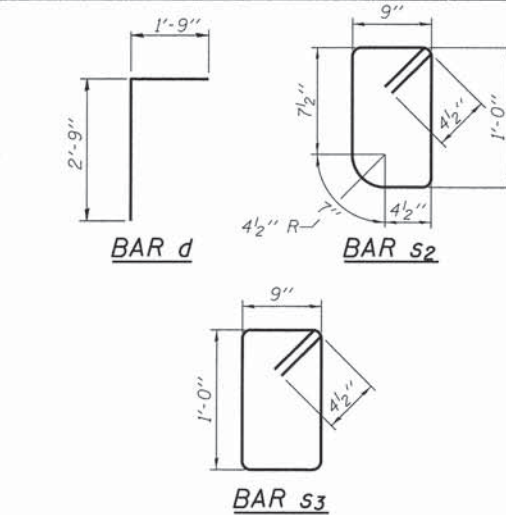


HALF LONG. SECTION

HALF ELEVATION



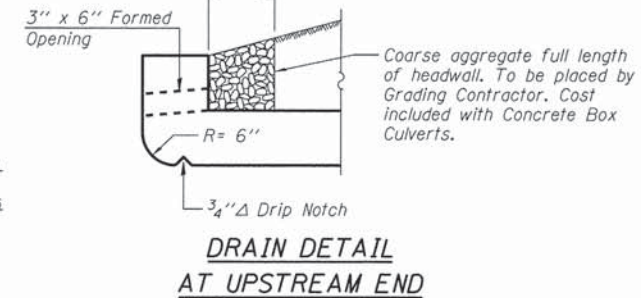
BARS h11 & h15



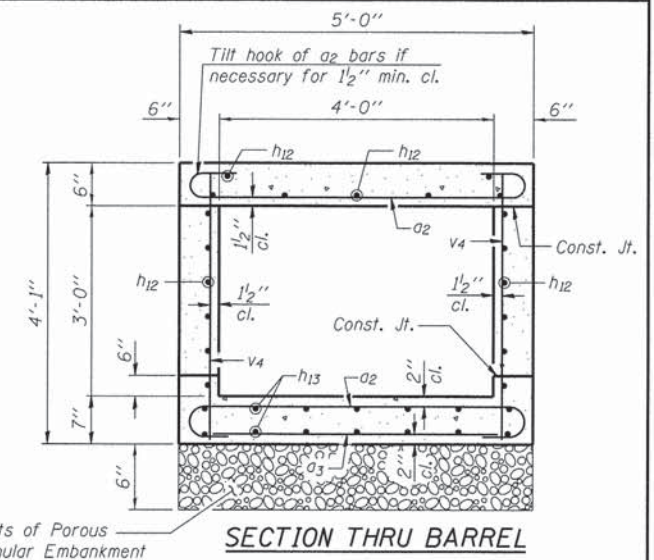
BAR d

BAR s2

BAR s3

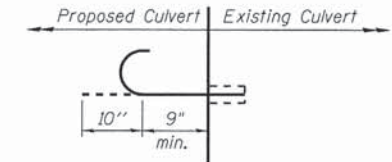


DRAIN DETAIL AT UPSTREAM END

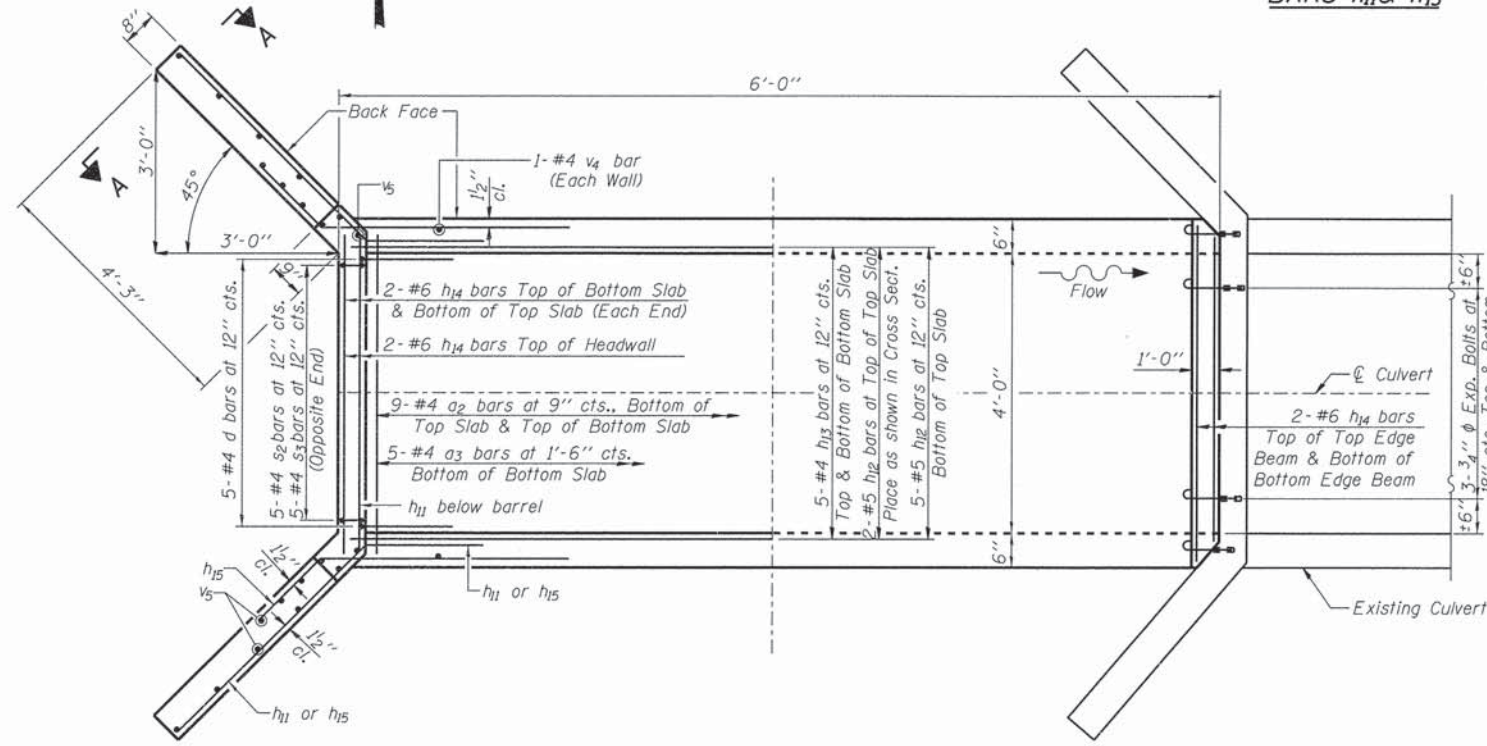


SECTION THRU BARREL

Limits of Porous Granular Embankment



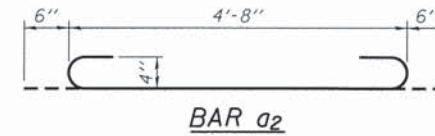
3/4" φ EXPANSION BOLT DETAIL
(Minimum certified proof load = 7,500 lbs.)



SHOWING REINFORCEMENT

SHOWING OUTLINES

PLAN



BAR a2

LOADING HS 20-44

DESIGN STRESSES

$f_y = 60,000 \text{ psi}$
 $f'_c = 3,500 \text{ psi}$

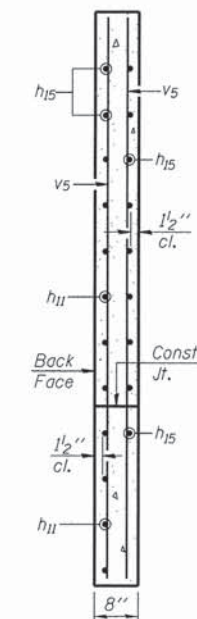
DESIGN SPECIFICATIONS

Designed in Accordance with 2002 AASHTO Design Specifications, 17th Edition



Brian K. Conner
DATE: 4/12/16
EXPIRES 11/30/16

"I certify that to the best of my 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'."



SECTION A-A

BILL OF MATERIAL

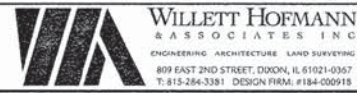
Bar	No.	Size	Length	Shape
a2	18	#4	5'-8"	U
a3	6	#4	4'-8"	U
d	5	#4	4'-6"	L
h11	12	#4	7'-3"	—
h12	13	#5	5'-8"	—
h13	10	#4	5'-8"	—
h14	14	#6	4'-8"	—
h15	18	#4	8'-0"	—
s2	5	#4	4'-1"	□
s3	5	#4	4'-3"	□
v4	20	#4	3'-9"	—
v5	18	#4	6'-11"	—
Porous Granular Embankment			Ton	1
Reinforcement Bars			Pound	630
Expansion Bolts 3/4 Inch			Each	10
Concrete Box Culverts			Cu. Yd.	3.9

NOTES

NO PRECAST OPTION ALLOWED.

Expansion bolts shall be 3/4" φ hooked bolts. Hooked bolts shall extend a minimum of 9" into new concrete.

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



DESIGNED - EEL	REVISED -
CHECKED - BSK	REVISED -
DRAWN - FDL	REVISED -
CHECKED - EEL	REVISED -

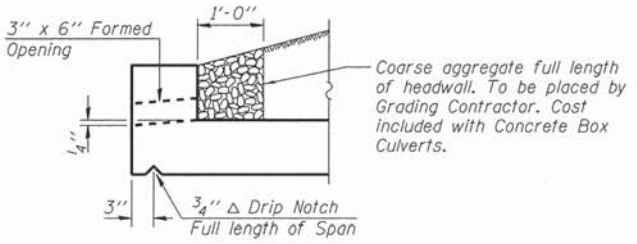
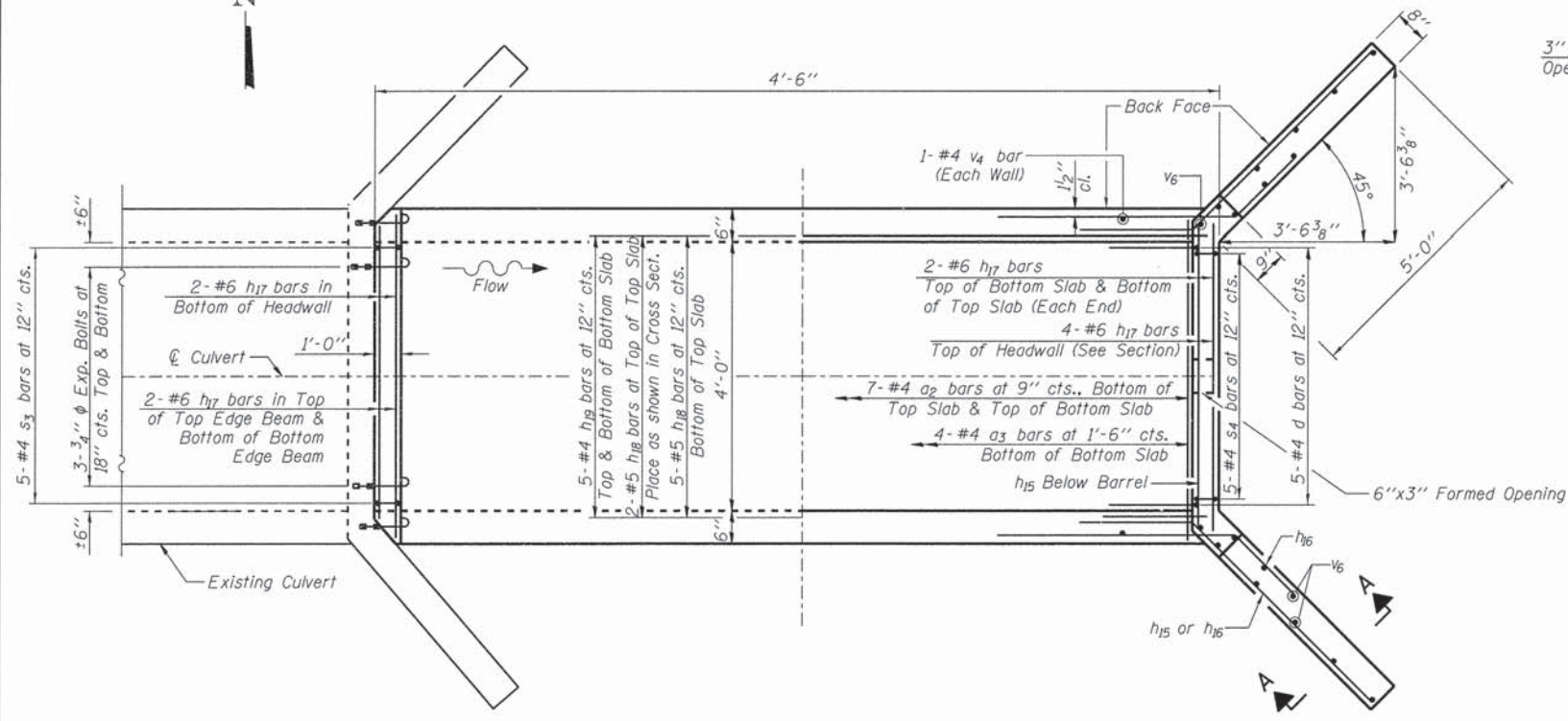
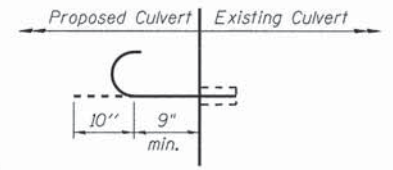
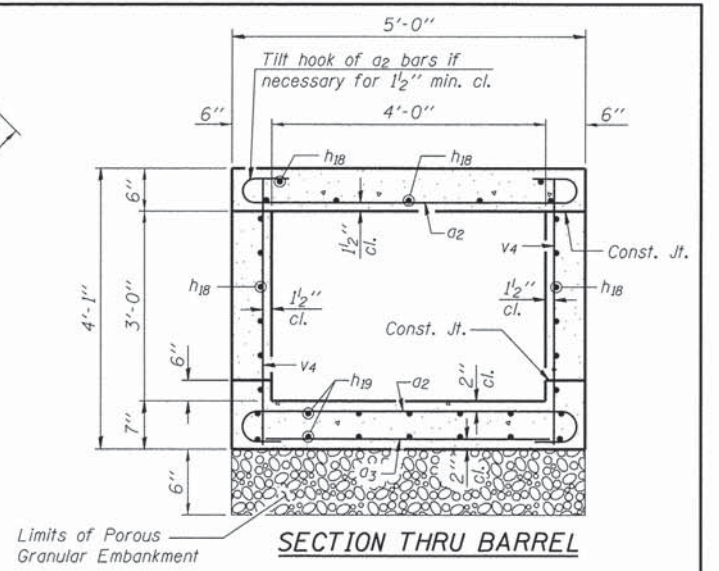
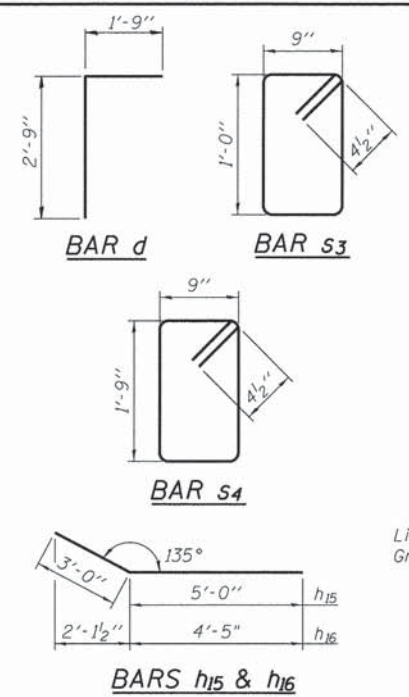
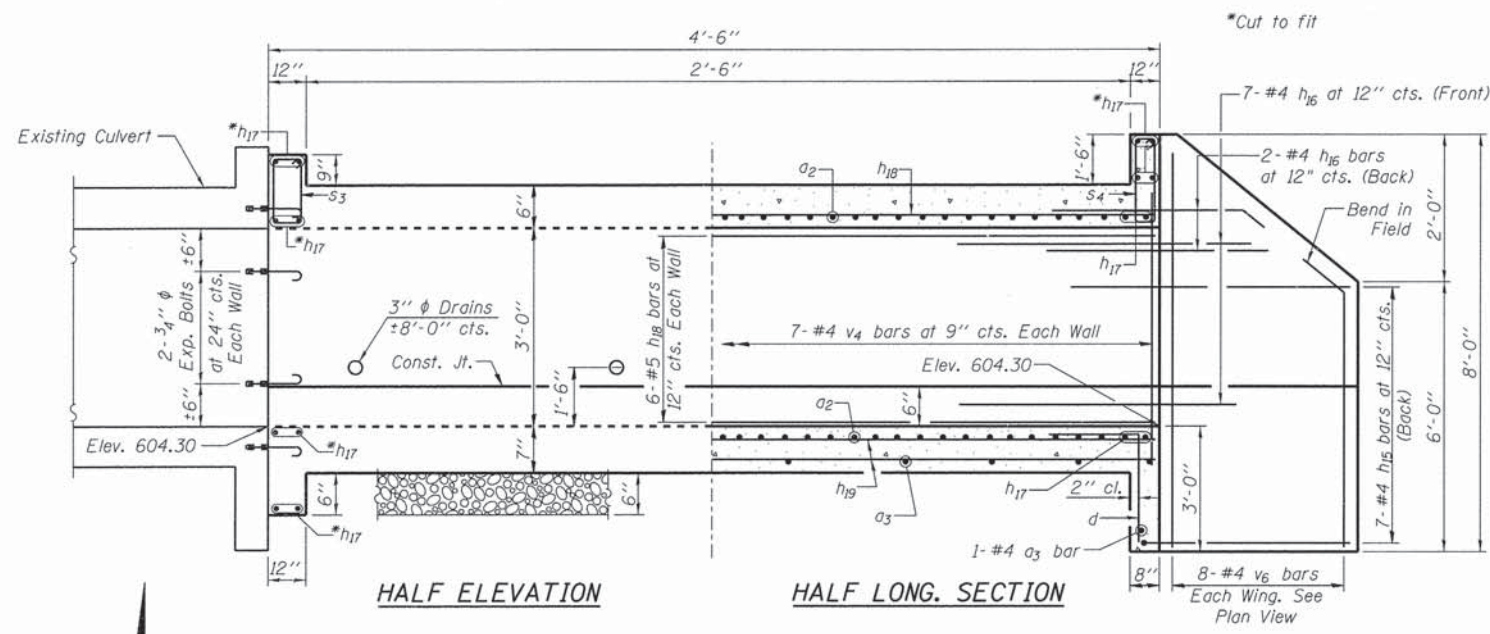
MERCER COUNTY
(C.H. 9) JOY ROAD
CULVERT EXTENSION

WEST EXTENSION DETAILS
STATION 631 + 64.00

STRUCTURAL SHEET NO. 1 OF 2 SHEETS

F.A.S. RTE. 212	SECTION 14-00103-01-OR	COUNTY MERCER	TOTAL SHEETS 30	SHEET NO. 20
WHA # 1290015			CONTRACT NO. 89705	
ILLINOIS FED. AID PROJECT			RS-02121081	

FILE: S:\PROJECTS\2015\1290015\MCH\DESIGN\STRUCT\2D\Drawings\1290015.Culvert10.dgn



DRAIN DETAIL AT DOWNSTREAM END

LOADING HS 20-44

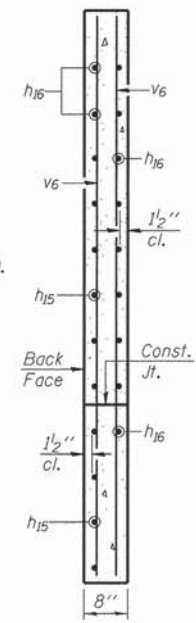
DESIGN STRESSES
 $f_y = 60,000 \text{ psi}$
 $f'_c = 3,500 \text{ psi}$

DESIGN SPECIFICATIONS
 Designed in Accordance with 2002 A.A.S.H.T.O. Design Specifications, 17th Edition



DATE: 4/12/16
 EXPIRES 11/30/16

"I certify that to the best of my 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."



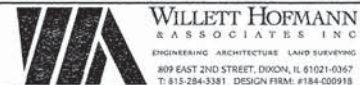
SECTION A-A

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a2	14	#4	5'-8"	
a3	5	#4	4'-8"	
d	5	#4	4'-6"	
h15	14	#4	8'-0"	
h16	18	#4	7'-5"	
h17	16	#6	4'-8"	
h18	19	#5	4'-2"	
h19	10	#4	4'-2"	
s3	5	#4	4'-3"	
s4	5	#4	5'-9"	
v4	16	#4	3'-9"	
v6	16	#4	7'-8"	
Porous Granular Embankment			Ton	1
Reinforcement Bars			Pound	630
Expansion Bolts 3/4 Inch			Each	10
Concrete Box Culverts			Cu. Yd.	3.9

NOTES

NO PRECAST OPTION ALLOWED.
 Expansion bolts shall be 3/4 inch diameter hooked bolts. Hooked bolts shall extend a minimum of 9 inches into new concrete.
 All exposed edges shall be chamfered 3/4 inch unless otherwise noted.



DESIGNED - EEL	REVISED -
CHECKED - BSK	REVISED -
DRAWN - FDL	REVISED -
CHECKED - EEL	REVISED -

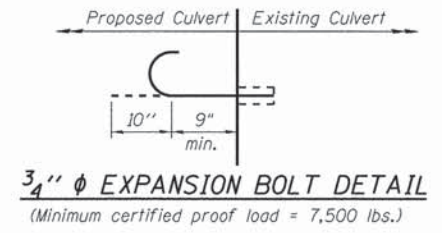
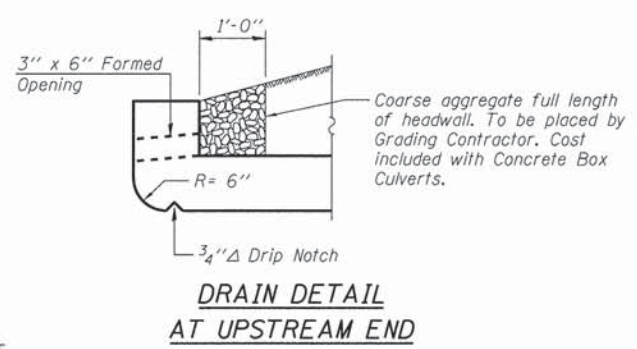
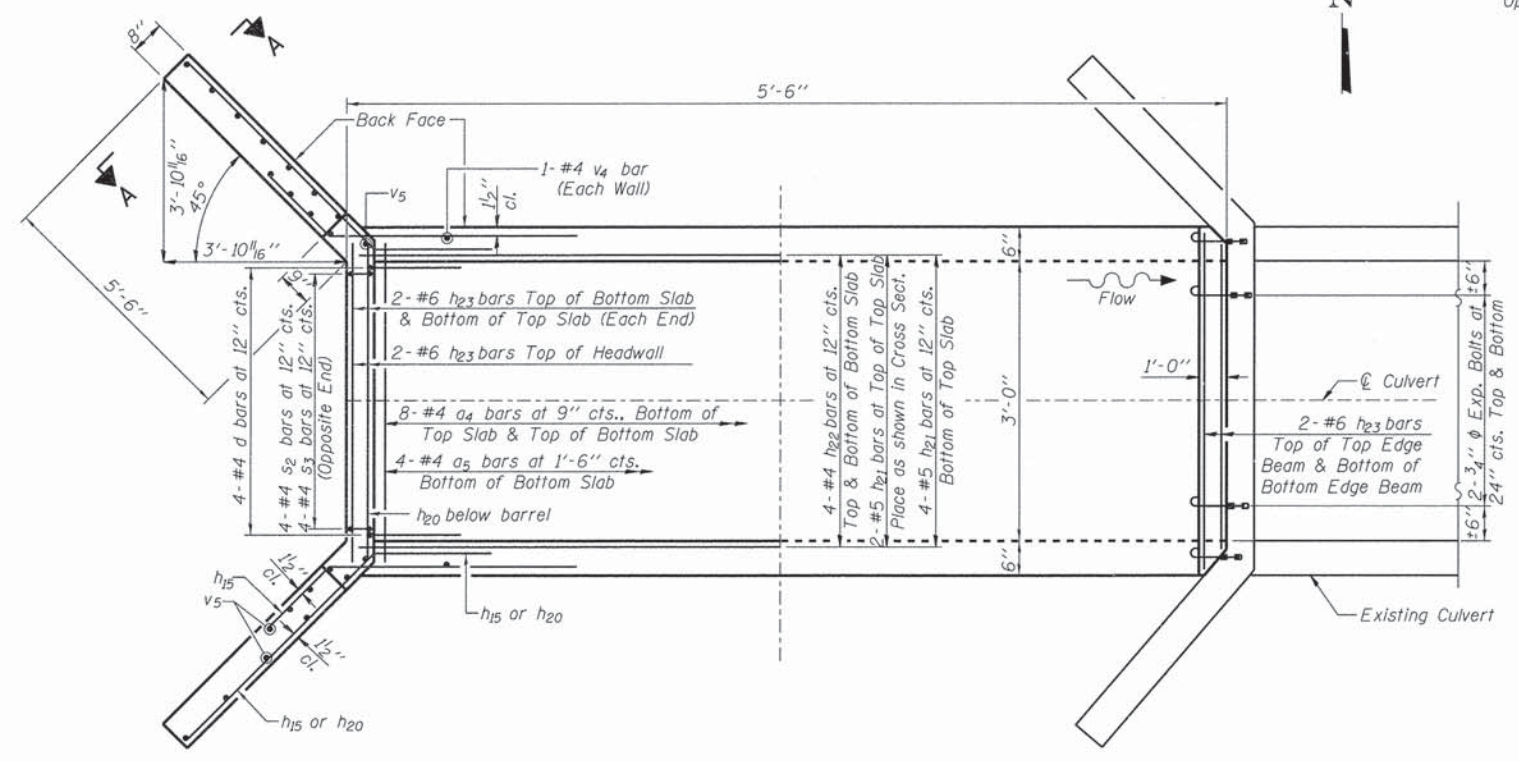
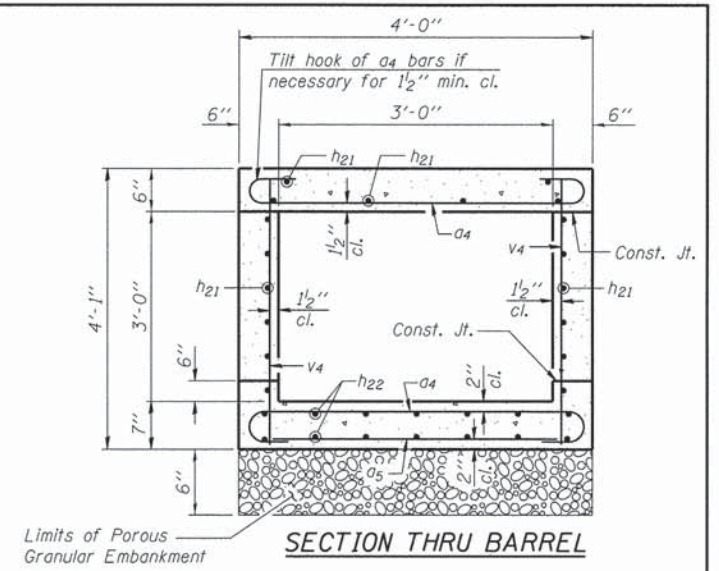
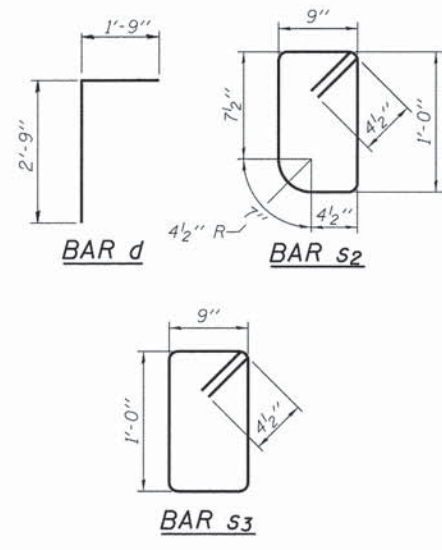
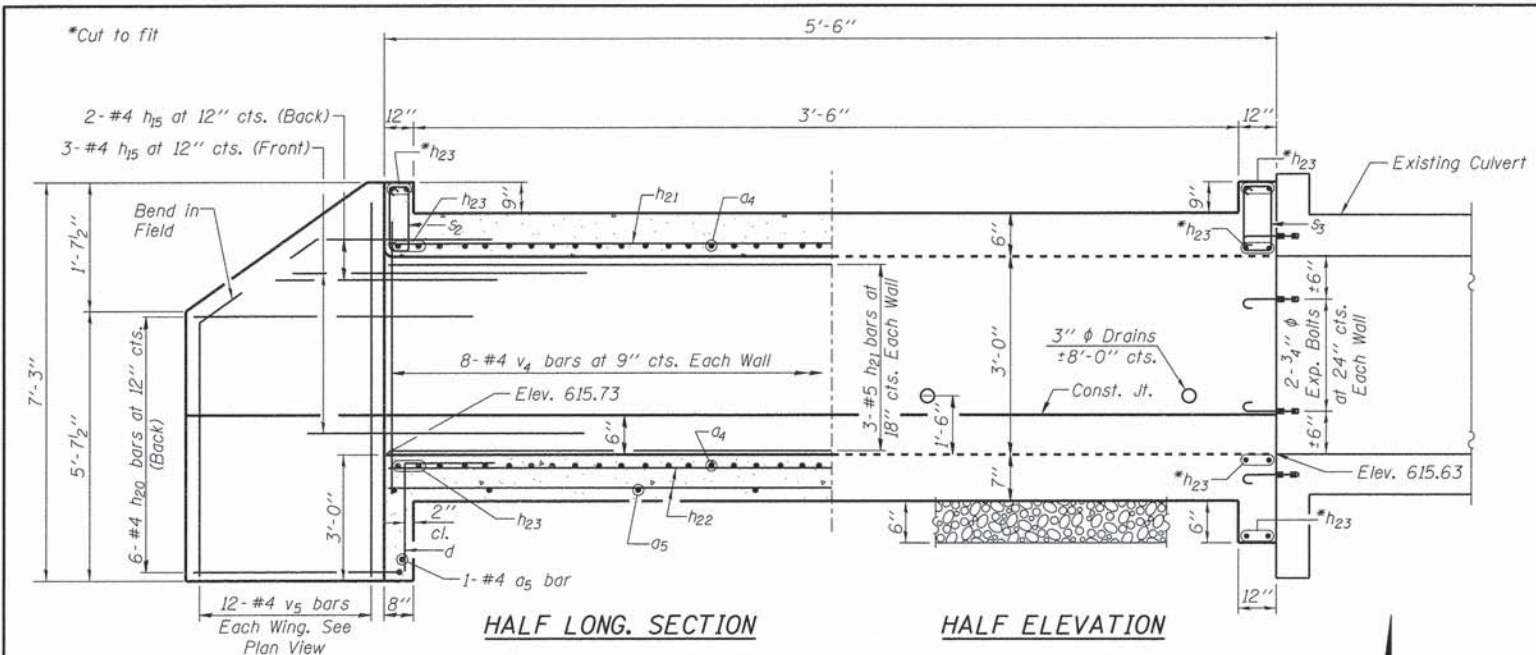
MERCER COUNTY (C.H. 9) JOY ROAD CULVERT EXTENSION

EAST EXTENSION DETAILS STATION 631 + 64.00

STRUCTURAL SHEET NO. 2 OF 2 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
212	14-00103-01-DR	MERCER	30	21
WHA# 1290D15			CONTRACT NO. 89705	
ILLINOIS FED. AID PROJECT RS-02121081				

FILE # SA\PROJECTS\2015\212015.MCH\DESIGN\STRUCT\20.Dr\exp\1290D15.Culvert-18.dgn



LOADING HS 20-44

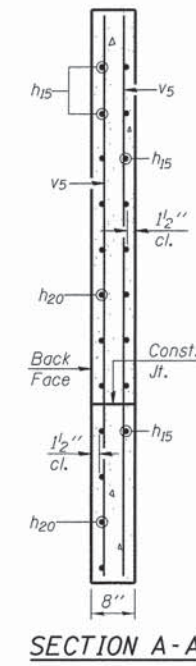
DESIGN STRESSES
 $f_y = 60,000 \text{ psi}$
 $f'_c = 3,500 \text{ psi}$

DESIGN SPECIFICATIONS
 Designed in Accordance with 2002 AASHTO Design Specifications, 17th Edition



Brian K. Conner
 DATE: 4/17/2016
 EXPIRES 11/30/16

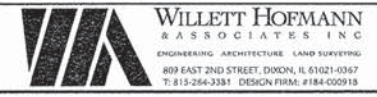
"I certify that to the best of my knowledge, information and belief, this Culvert Design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current 'AASHTO Standard Specifications for Highway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



BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a4	16	#4	4'-8"	
a5	5	#4	3'-8"	
d	4	#4	4'-6"	
h15	10	#4	8'-0"	
h20	12	#4	8'-6"	
h21	12	#5	5'-3"	
h22	8	#4	5'-3"	
h23	14	#6	3'-8"	
s2	4	#4	4'-1"	
s3	4	#4	4'-3"	
v4	18	#4	3'-9"	
v5	24	#4	6'-11"	
Porous Granular Embankment			Ton	1
Reinforcement Bars			Pound	550
Expansion Bolts 3/4 Inch			Each	8
Concrete Box Culverts			Cu. Yd.	3.7

NOTES
NO PRECAST OPTION ALLOWED.
 Expansion bolts shall be 3/4" ϕ hooked bolts. Hooked bolts shall extend a minimum of 9" into new concrete.
 All exposed edges shall be chamfered 3/4" unless otherwise noted.



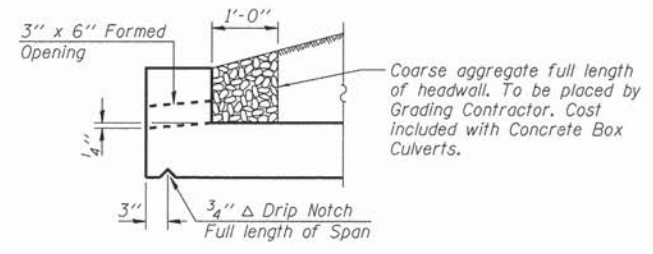
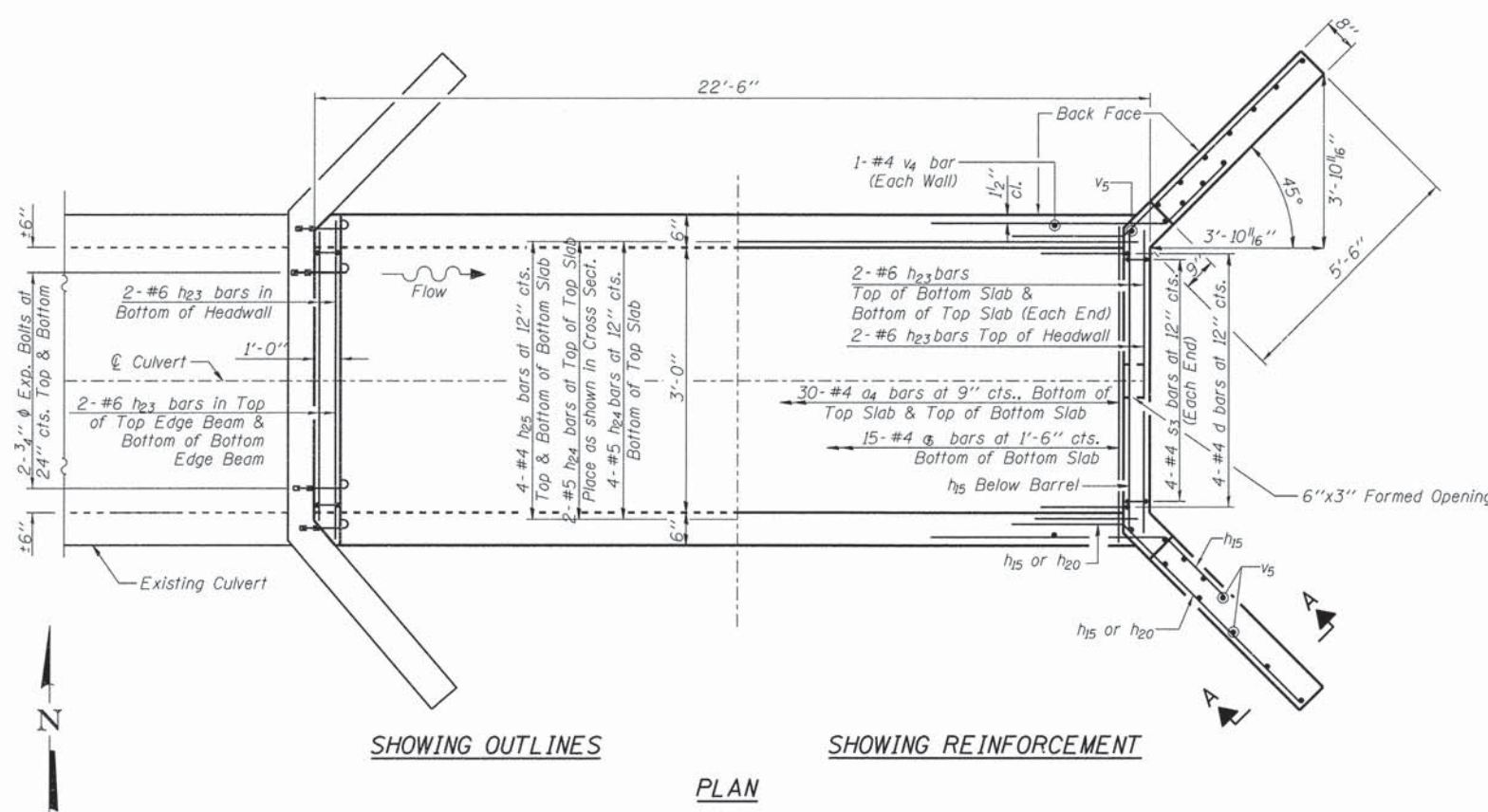
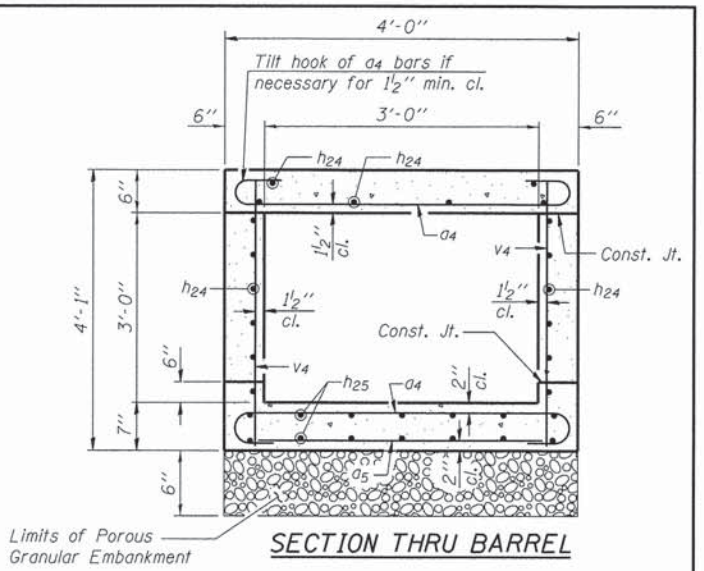
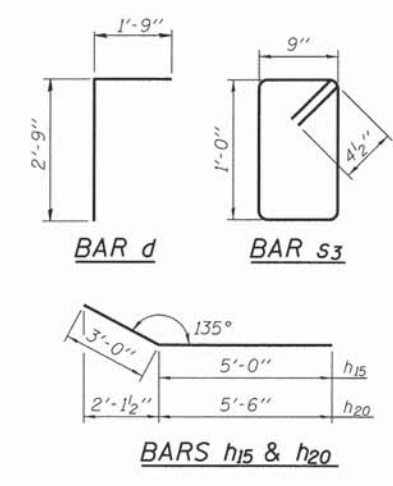
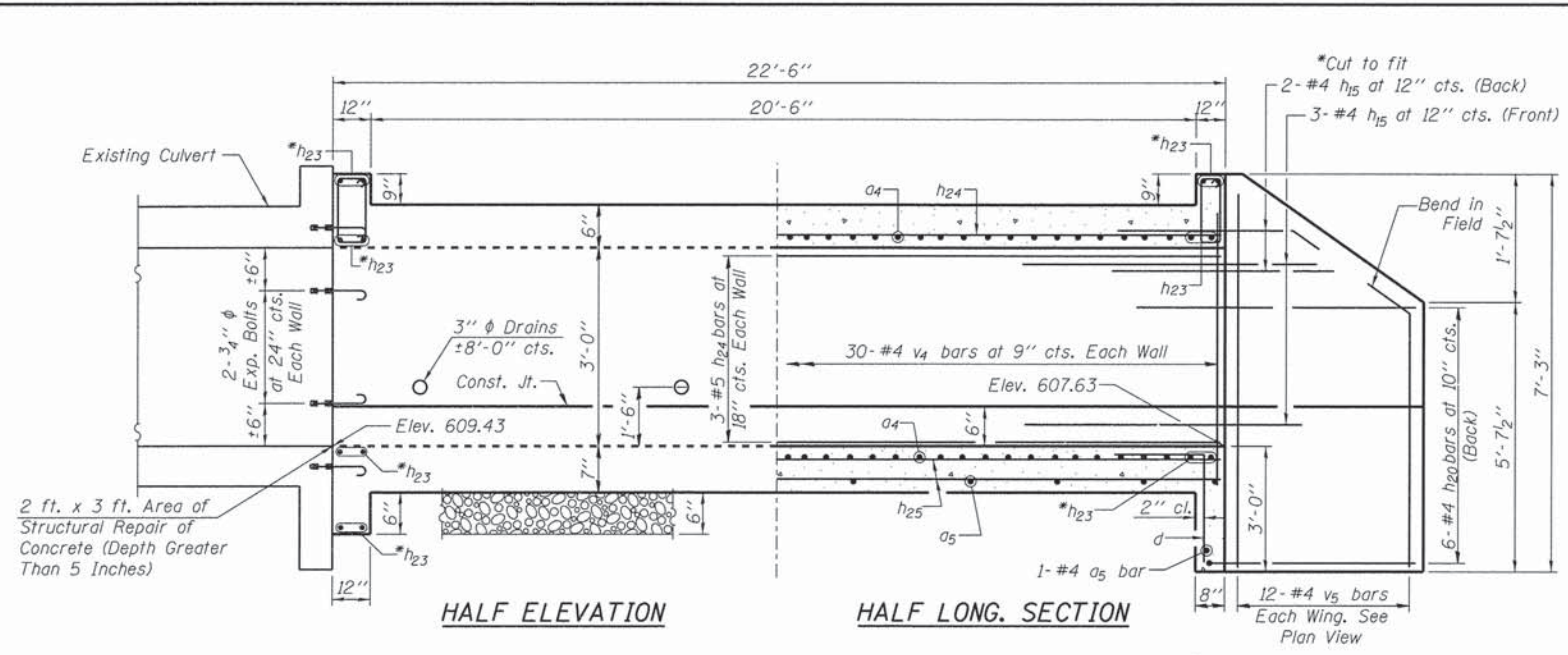
DESIGNED - EEL	REVISED -
CHECKED - BSK	REVISED -
DRAWN - FDL	REVISED -
CHECKED - EEL	REVISED -

MERCER COUNTY
(C.H. 9) JOY ROAD
CULVERT EXTENSION

WEST EXTENSION DETAILS
STATION 640 + 59.00
 STRUCTURAL SHEET NO. 1 OF 2 SHEETS

F.A.S. RTE. 212	SECTION 14-00103-01-DR	COUNTY MERCER	TOTAL SHEETS 30	SHEET NO. 22
WHA# 1290015		CONTRACT NO. 89705		ILLINOIS FED. AID PROJECT RS-02121081

FILE: SA\PROJECTS\2015\2129015.MCN\DESIGN\STRUCT\20_Drawing\129015_Culvert-11.dwg



DRAIN DETAIL AT DOWNSTREAM END

LOADING HS 20-44

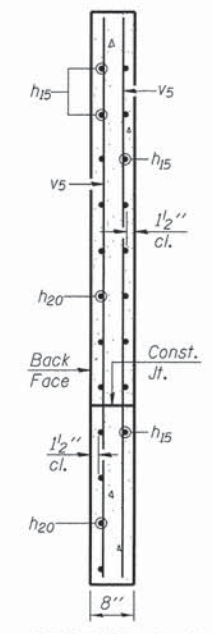
DESIGN STRESSES
 $f_y = 60,000 \text{ psi}$
 $f'_c = 3,500 \text{ psi}$

DESIGN SPECIFICATIONS
 Designed in Accordance with 2002 A.A.S.H.T.O. Design Specifications, 17th Edition



Brian K. Connor
 DATE: 4/4/2016
 EXPIRES 11/30/16

"I certify that to the best of my 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'."



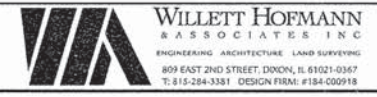
SECTION A-A

3/4" EXPANSION BOLT DETAIL
 (Minimum certified proof load = 7,500 lbs.)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a4	60	#4	4'-8"	
a5	16	#4	3'-8"	
d	4	#4	4'-6"	
h15	10	#4	8'-0"	
h20	12	#4	8'-6"	
h23	14	#6	3'-8"	
h24	12	#5	22'-2"	
h25	8	#4	22'-2"	
s3	8	#4	4'-3"	
v4	62	#4	3'-9"	
v5	24	#4	6'-11"	
Porous Granular Embankment		Ton	3	
Reinforcement Bars		Pound	1,120	
Expansion Bolts 3/4 Inch		Each	8	
Concrete Box Culverts		Cu. Yd.	8.3	
Epoxy Crack Injection		Foot	12	
Structural Repair of Concrete (Depth Greater Than 5 Inches)		Sq. Ft.	6	

NOTES
NO PRECAST OPTION ALLOWED.
 Expansion bolts shall be 3/4" hooked bolts. Hooked bolts shall extend a minimum of 9" into new concrete.
 All exposed edges shall be chamfered 3/4" unless otherwise noted.
 **Epoxy Crack Injection required around interior perimeter of culvert at the grade break near the East end of Culvert (See Cross Sections)



DESIGNED - EEL	REVISED -
CHECKED - BSK	REVISED -
DRAWN - FDL	REVISED -
CHECKED - EEL	REVISED -

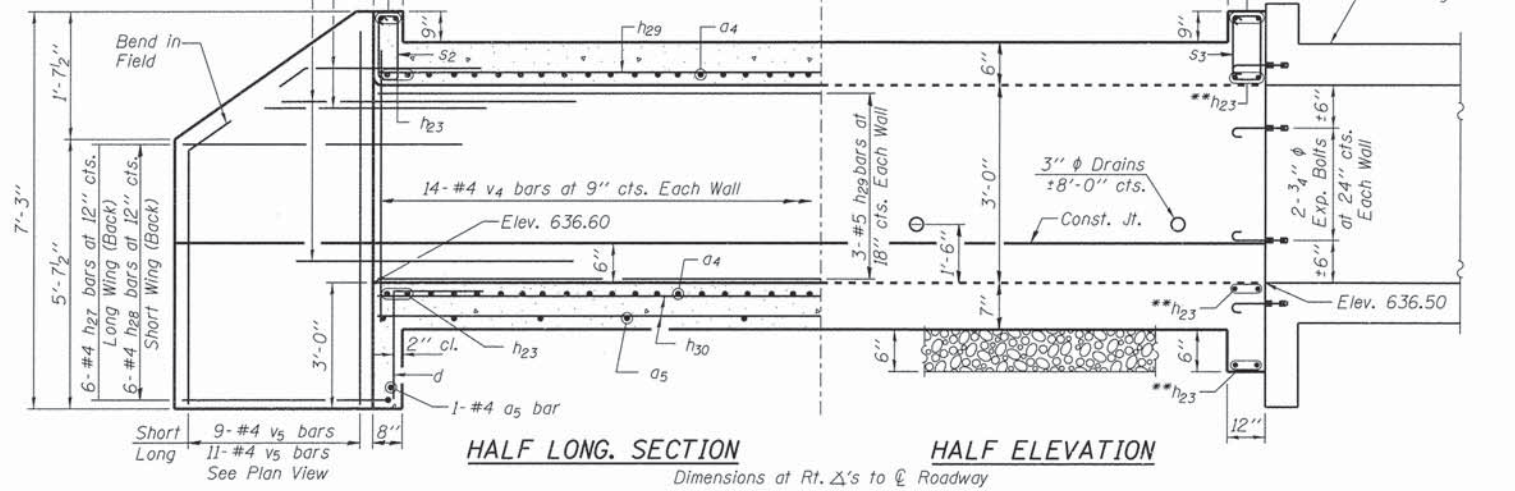
**MERCER COUNTY
 (C.H. 9) JOY ROAD
 CULVERT EXTENSION**

**EAST EXTENSION DETAILS
 STATION 640 + 59.00**
 STRUCTURAL SHEET NO. 2 OF 2 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
212	14-00103-01-DR	MERCER	30	23
WHA# 1290015		CONTRACT NO. 89705		
ILLINOIS FED. AID PROJECT RS-021108J				

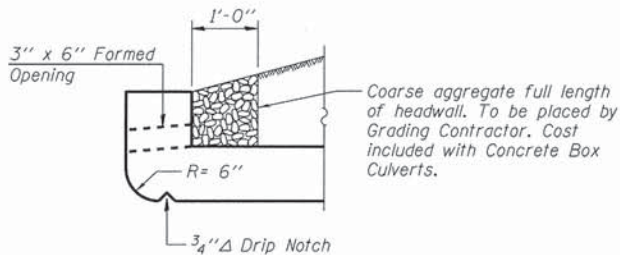
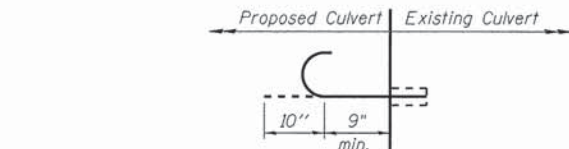
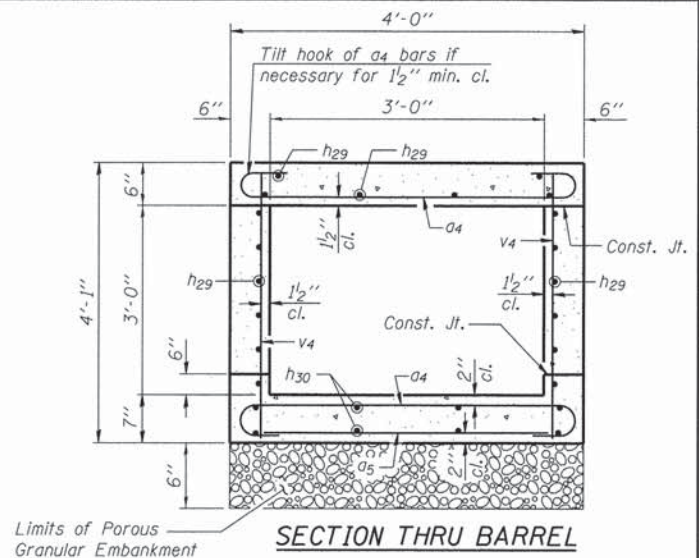
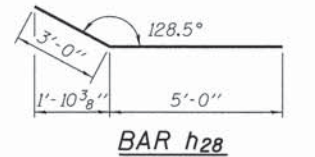
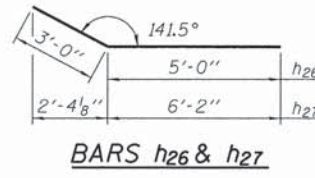
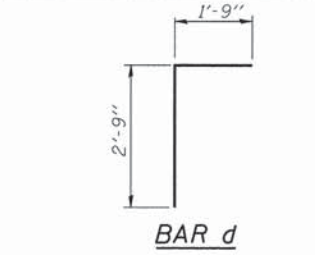
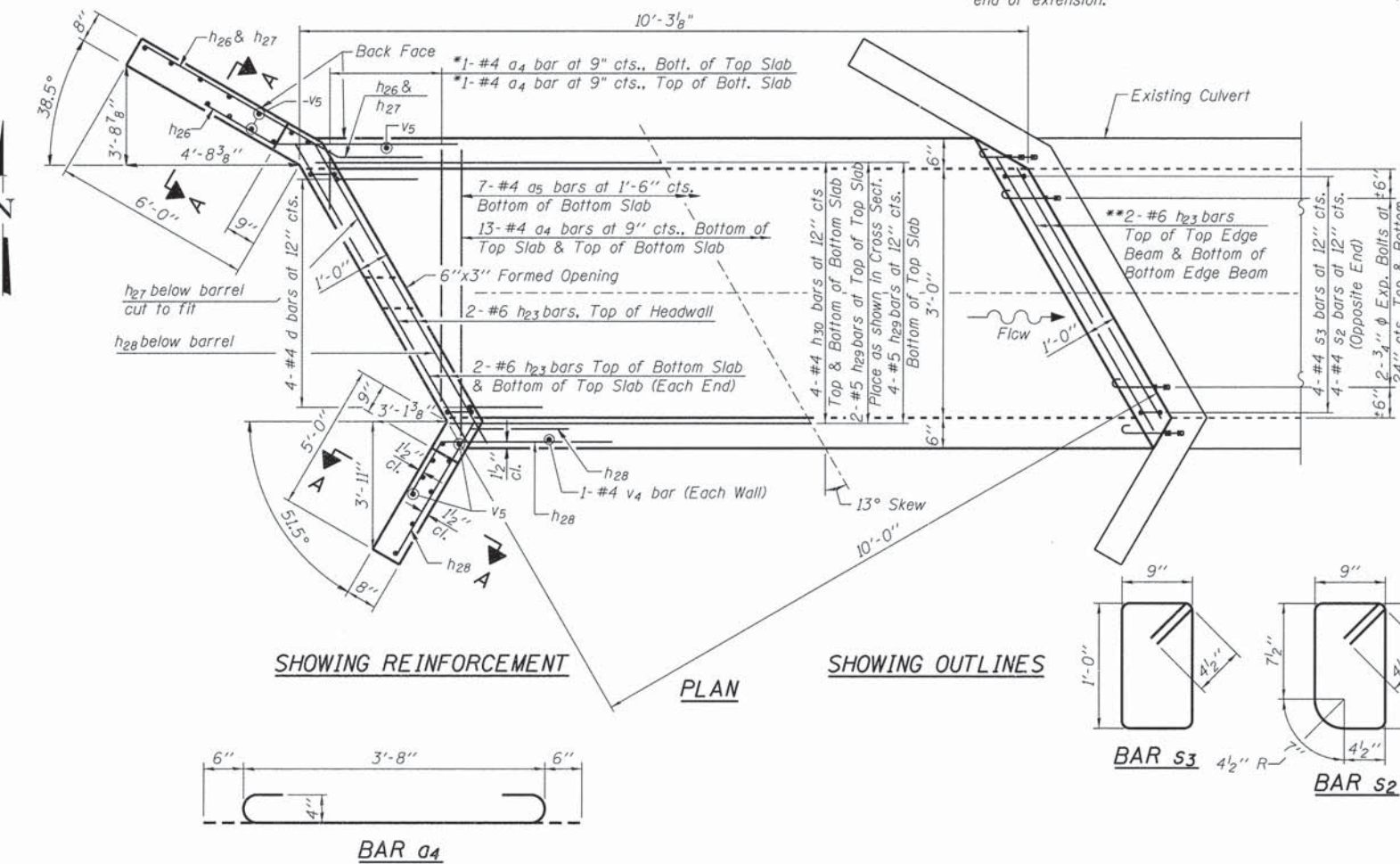
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(Back)
 2-#4 h₂₈ at 12" cts. Short Wing
 2-#4 h₂₆ at 12" cts. Long Wing
 (Front)
 5-#4 h₂₈ at 12" cts. Short Wing
 5-#4 h₂₆ at 12" cts. Long Wing



Note: Dimensions are along skew

*a₄ bars in skew portion of slab shall be ordered full length & cut to fit. Balance of bar to be used in opposite end of extension.



LOADING HS 20-44

DESIGN STRESSES

f_y = 60,000 psi
 f'c = 3,500 psi

DESIGN SPECIFICATIONS

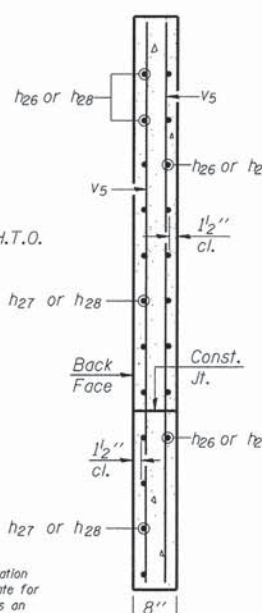
Designed in Accordance with 2002 A.A.S.H.T.O. Design Specifications, 17th Edition



DATE: 4/1/2016

EXPIRES 11/30/16

"I certify that to the best of my 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."

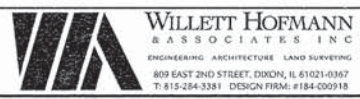


BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a ₄	28	#4	4'-8"	U
a ₅	8	#4	3'-8"	—
d	4	#4	4'-6"	L
h ₂₃	14	#6	3'-8"	—
h ₂₆	7	#4	8'-0"	—
h ₂₇	6	#4	9'-2"	—
h ₂₈	13	#4	8'-0"	—
h ₂₉	12	#5	9'-11"	—
h ₃₀	8	#4	9'-11"	—
s ₂	4	#4	4'-1"	□
s ₃	4	#4	4'-3"	□
v ₄	30	#4	3'-9"	—
v ₅	20	#4	6'-11"	—
Porous Granular Embankment		Ton		1
Reinforcement Bars		Pound		710
Expansion Bolts 3/4 Inch		Each		8
Concrete Box Culverts		Cu. Yd.		5.0

NOTES

NO PRECAST OPTION ALLOWED.
 Expansion bolts shall be 3/4" φ hooked bolts. Hooked bolts shall extend a minimum of 9" into new concrete.
 All exposed edges shall be chamfered 3/4" unless otherwise noted.

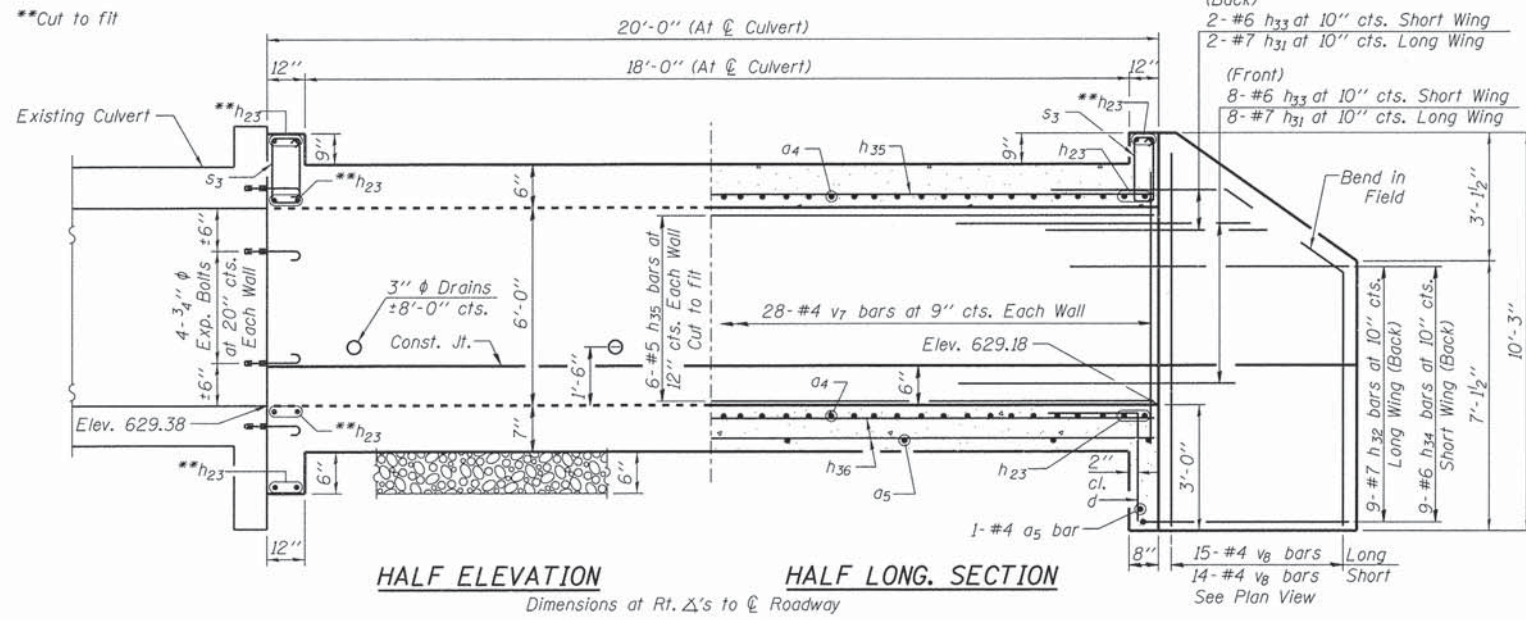


DESIGNED - EEL	REVISED -
CHECKED - BSK	REVISED -
DRAWN - FDL	REVISED -
CHECKED - EEL	REVISED -

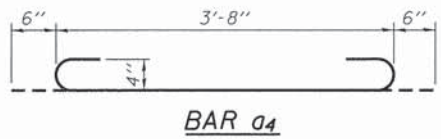
MERCER COUNTY
 (C.H. 9) JOY ROAD
 CULVERT EXTENSION

WEST EXTENSION DETAILS
 STATION 673 + 71.00
 STRUCTURAL SHEET NO. 1 OF 2 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
212	14-00103-01-DR	MERCER	30	24
WHA# 1290D15		CONTRACT NO. 89705		
ILLINOIS FED. AID PROJECT RS-02121081				

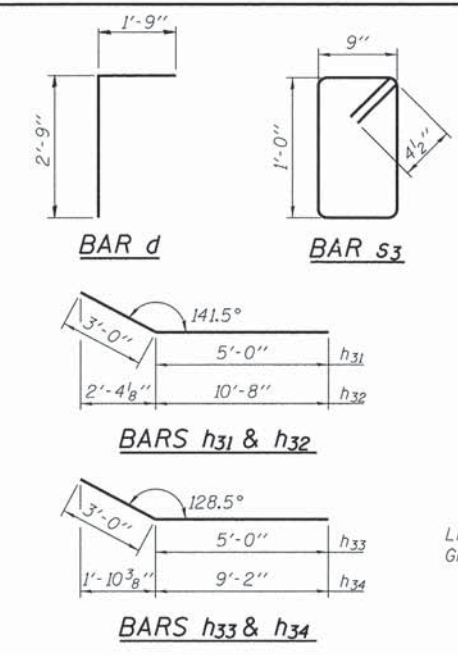


HALF ELEVATION **HALF LONG. SECTION**
Dimensions at Rt. Δ's to C. Roadway



BAR a4

*a4 bars in skew portion of slab shall be ordered full length & cut to fit. Balance of bar to be used in opposite end of extension.

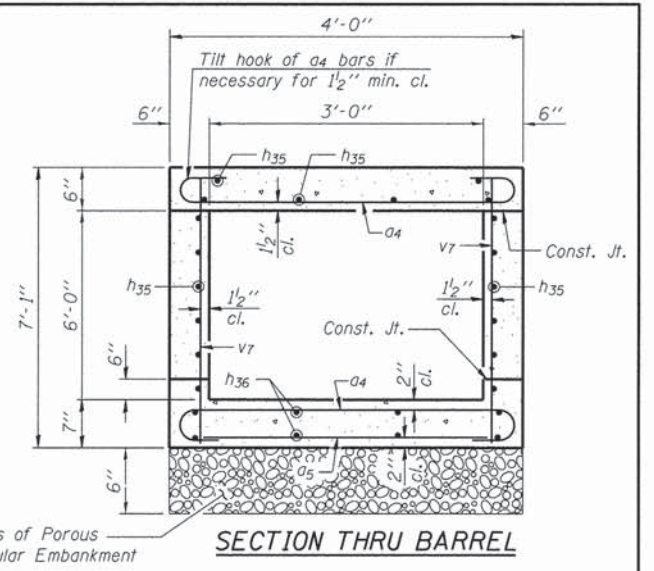


BAR d

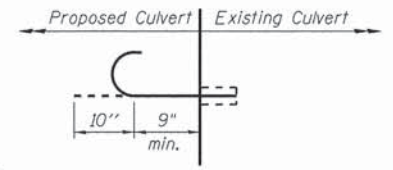
BAR s3

BARS h31 & h32

BARS h33 & h34



SECTION THRU BARREL



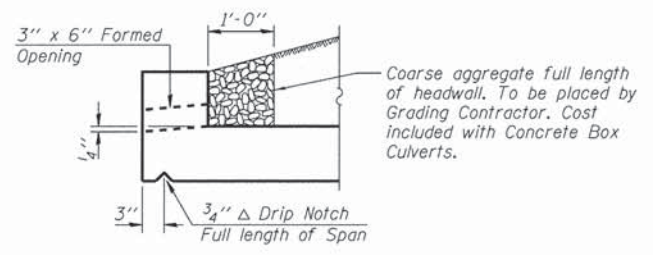
3/4" EXPANSION BOLT DETAIL
(Minimum certified proof load = 7,500 lbs.)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a4	56	#4	4'-8"	
a5	15	#4	3'-8"	
d	4	#4	4'-6"	
h23	14	#6	3'-8"	
h31	10	#7	8'-0"	
h32	9	#7	13'-8"	
h33	10	#6	8'-0"	
h34	9	#6	12'-2"	
h35	18	#5	20'-4"	
h36	8	#4	20'-4"	
s3	8	#4	4'-3"	
v7	58	#4	6'-9"	
v8	29	#4	9'-11"	
Porous Granular Embankment			Ton	2
Reinforcement Bars			Pound	1,970
Expansion Bolts 3/4 Inch			Each	12
Concrete Box Culverts			Cu. Yd.	14.0
Structural Repair of Concrete (Depth Greater Than 5 Inches)			Sq. Ft.	12

NOTES

NO PRECAST OPTION ALLOWED.
Expansion bolts shall be 3/4" φ hooked bolts. Hooked bolts shall extend a minimum of 9" into new concrete.
All exposed edges shall be chamfered 3/4" unless otherwise noted.
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.



DRAIN DETAIL AT DOWNSTREAM END

LOADING HS 20-44

DESIGN STRESSES

fy = 60,000 psi
f'c = 3,500 psi

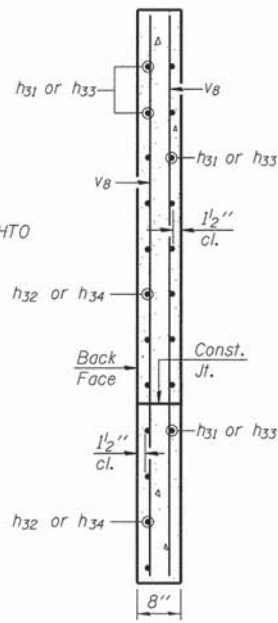
DESIGN SPECIFICATIONS

Designed in Accordance with 2002 AASHTO Design Specifications, 17th Edition



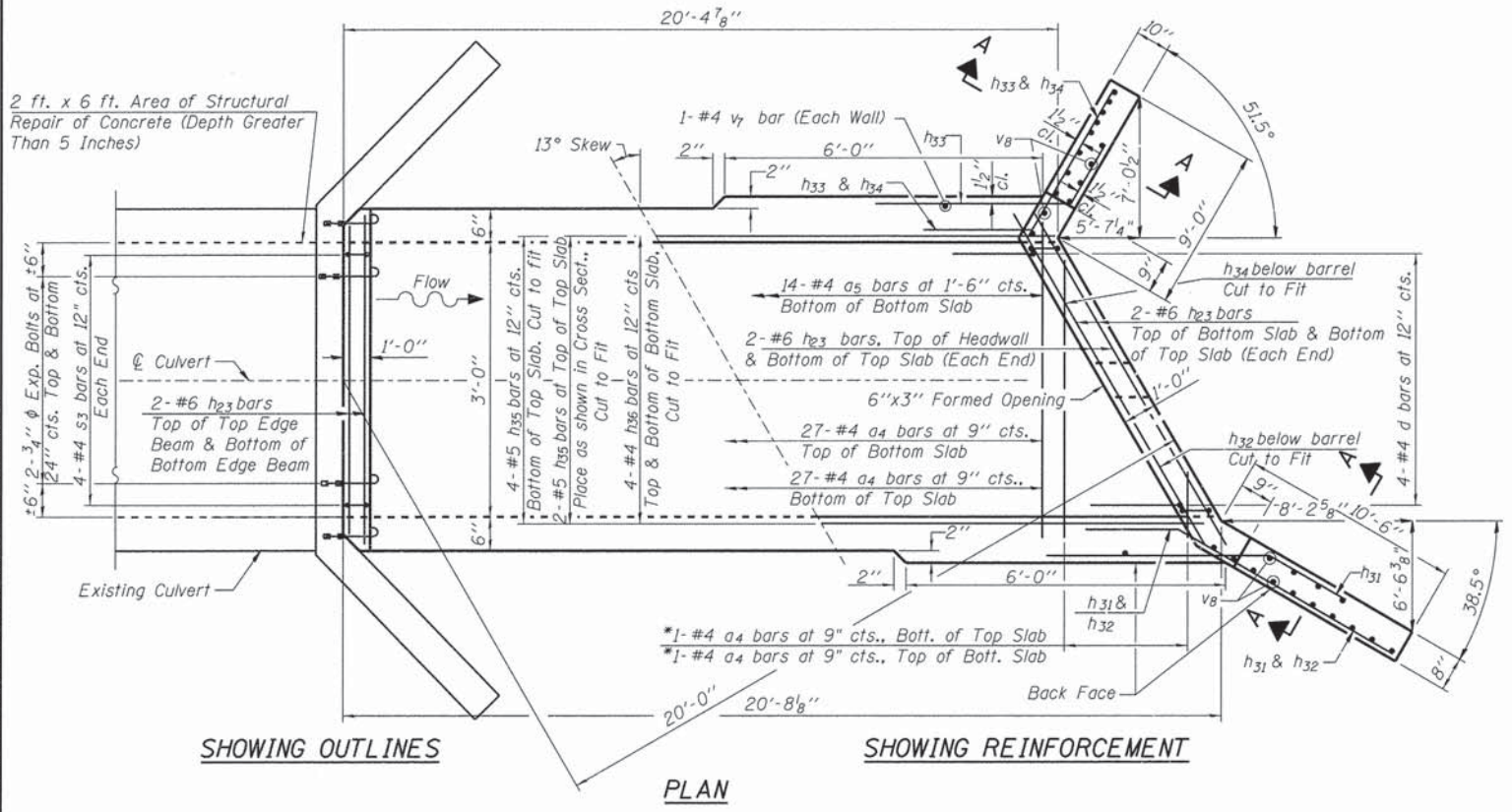
DATE: 4/12/16
EXPIRES 11/30/16

"I certify that to the best of my 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."



SECTION A-A

2 ft. x 6 ft. Area of Structural Repair of Concrete (Depth Greater Than 5 Inches)



SHOWING OUTLINES

SHOWING REINFORCEMENT

PLAN



DESIGNED - EEL	REVISED -
CHECKED - BSK	REVISED -
DRAWN - FDL	REVISED -
CHECKED - EEL	REVISED -

MERCER COUNTY
(C.H. 9) JOY ROAD
CULVERT EXTENSION

EAST EXTENSION DETAILS
STATION 673 + 71.00

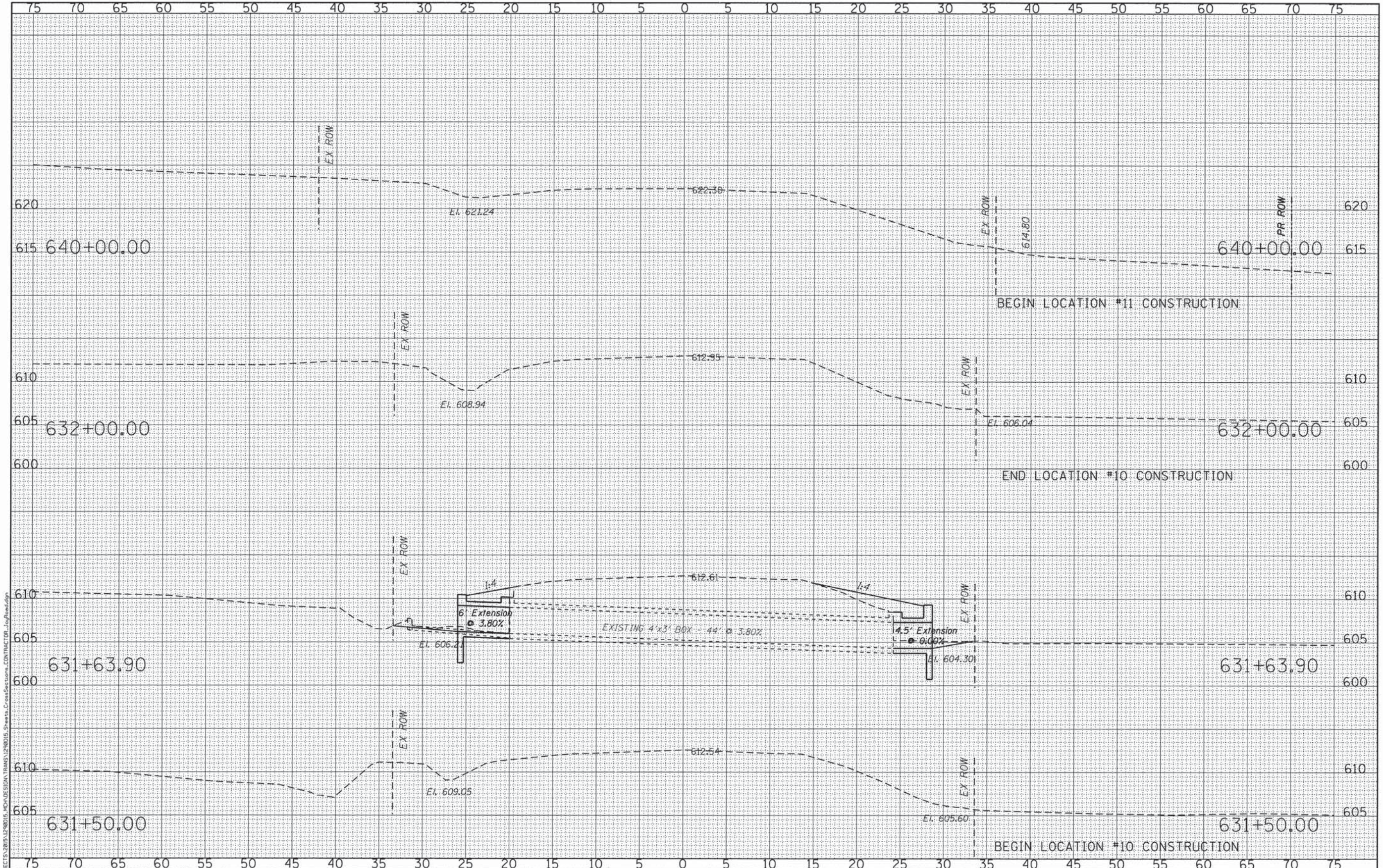
STRUCTURAL SHEET NO. 2 OF 2 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
212	14-00103-01-DR	MERCER	30	25
	WHA # 1290015		CONTRACT NO. 89705	
			ILLINOIS FED. AID PROJECT RS-02121081	

FILE: S:\PROJECTS\2015\1290015.MCH\DESIGN\STRUCT\20_Drawing\1290015_Culvert-14.dwg

DATE	
BY	
FINAL SURVEY	SURVEYED
NOTE BOOK NO.	PLOTTED
	TEMPLATE
	AREAS CHECKED

DATE	
BY	
ORIGINAL SURVEY	SURVEYED
NOTE BOOK NO.	PLOTTED
	TEMPLATE
	AREAS CHECKED



FILE: S:\PROJECTS\2015\228015_MCA\DESIGN\TRANS\228015_Sheets_CrossSections.CONTRACTOR_Layout.dwg

WILLET HOFMANN ASSOCIATES INC.
 ENGINEERING ARCHITECTURE LAND SURVEYING
 809 EAST 2ND STREET, DIXON, IL 61021-0367
 T: 815-294-3381 DESIGN FIRM: #184-00018

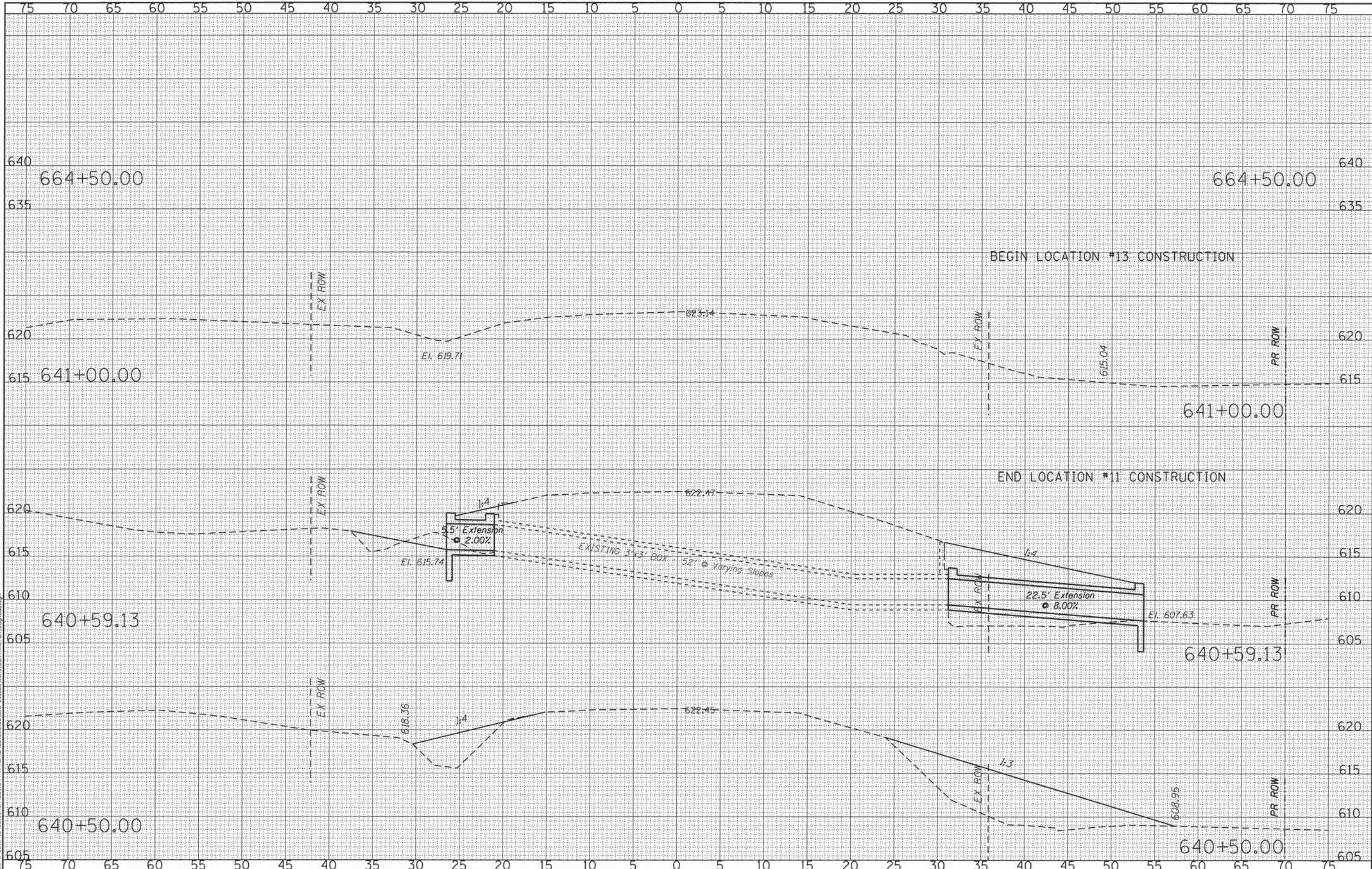
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CHECKED - GFS	REVISED -
DRAWN - MPO	REVISED -
CHECKED - LGN	REVISED -

**MERCER COUNTY
 (C.H. 9) JOY ROAD
 CULVERT EXTENSION**

**JOY ROAD
 CROSS SECTIONS**

SHEET NO. 02 OF 05 SHEETS

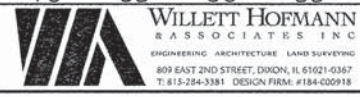
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212	14-00103-01-DR	MERCER	30	27
WHA* 1290015		CONTRACT NO. 89705		
ILLINOIS FED. AID PROJECT RS-0211089				



DATE	
BY	
FINAL SURVEY	
NOTE BOOK	
TEMPLATE	
AREAS CHECKED	
NO.	

DATE	
BY	
ORIGINAL SURVEY	
NOTE BOOK	
TEMPLATE	
AREAS CHECKED	
NO.	

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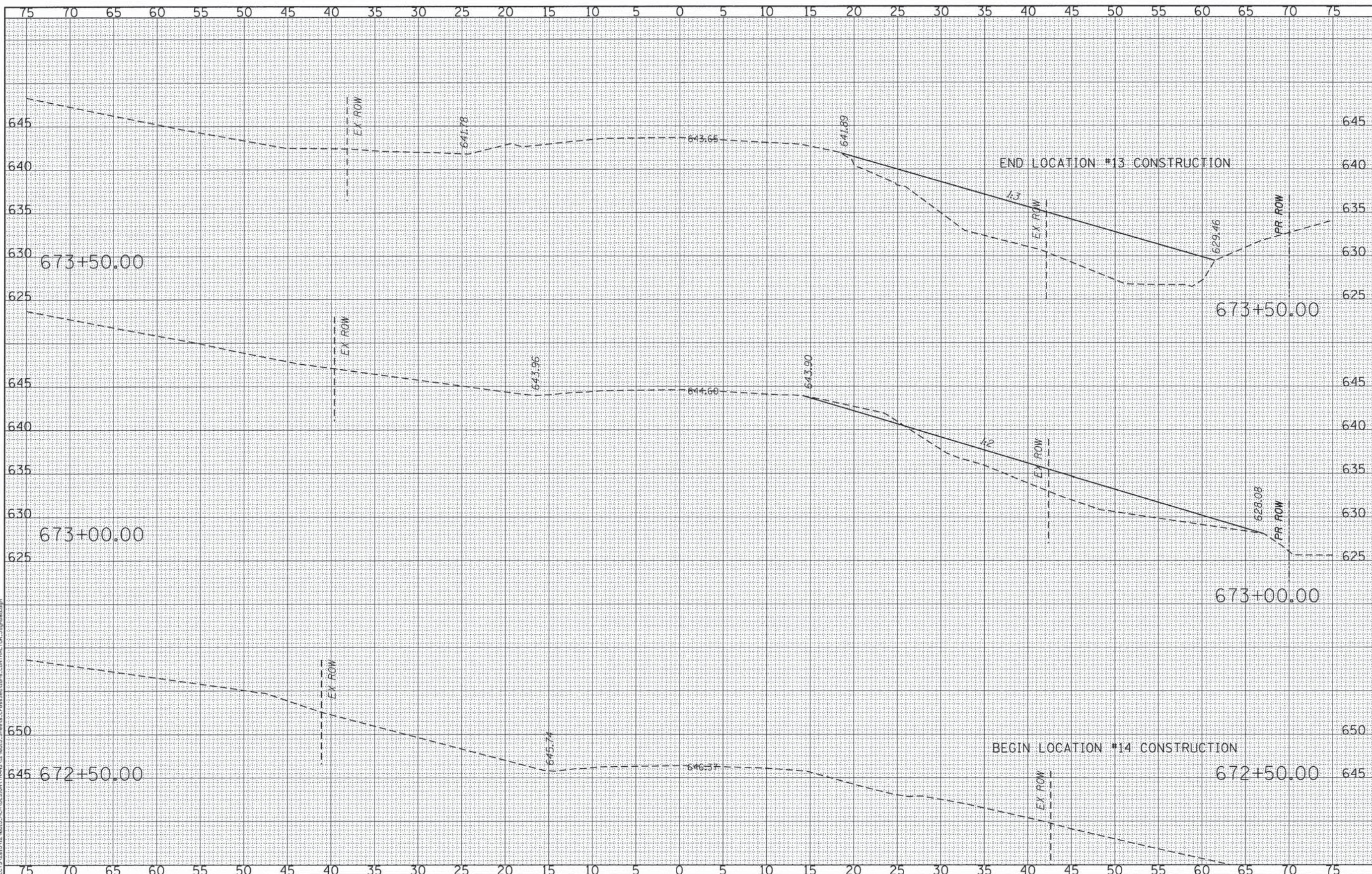
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CHECKED - GFS	REVISED -
DRAWN - MPO	REVISED -
CHECKED - LGN	REVISED -

**MERCER COUNTY
(C.H. 9) JOY ROAD
CULVERT EXTENSION**

**JOY ROAD
CROSS SECTIONS**

SHEET NO. 03 OF 05 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
212	14-00103-01-DR	MERCER	30	28
WHA* 1290015		CONTRACT NO. 89705		
ILLINOIS FED. AID PROJECT		RS-02121081		



DATE	
BY	
FINAL SURVEY	
REVISION	
NOTE BOOK	
AREAS CHECKED	

DATE	
BY	
ORIGINAL SURVEY	
REVISION	
NOTE BOOK	
AREAS CHECKED	

FILE: S:\PROJECTS\2015\1290015\MCA\DESIGN\TRANS\1290015_Swatts_CrossSections_CONTRACTOR_JoyRoad.dgn



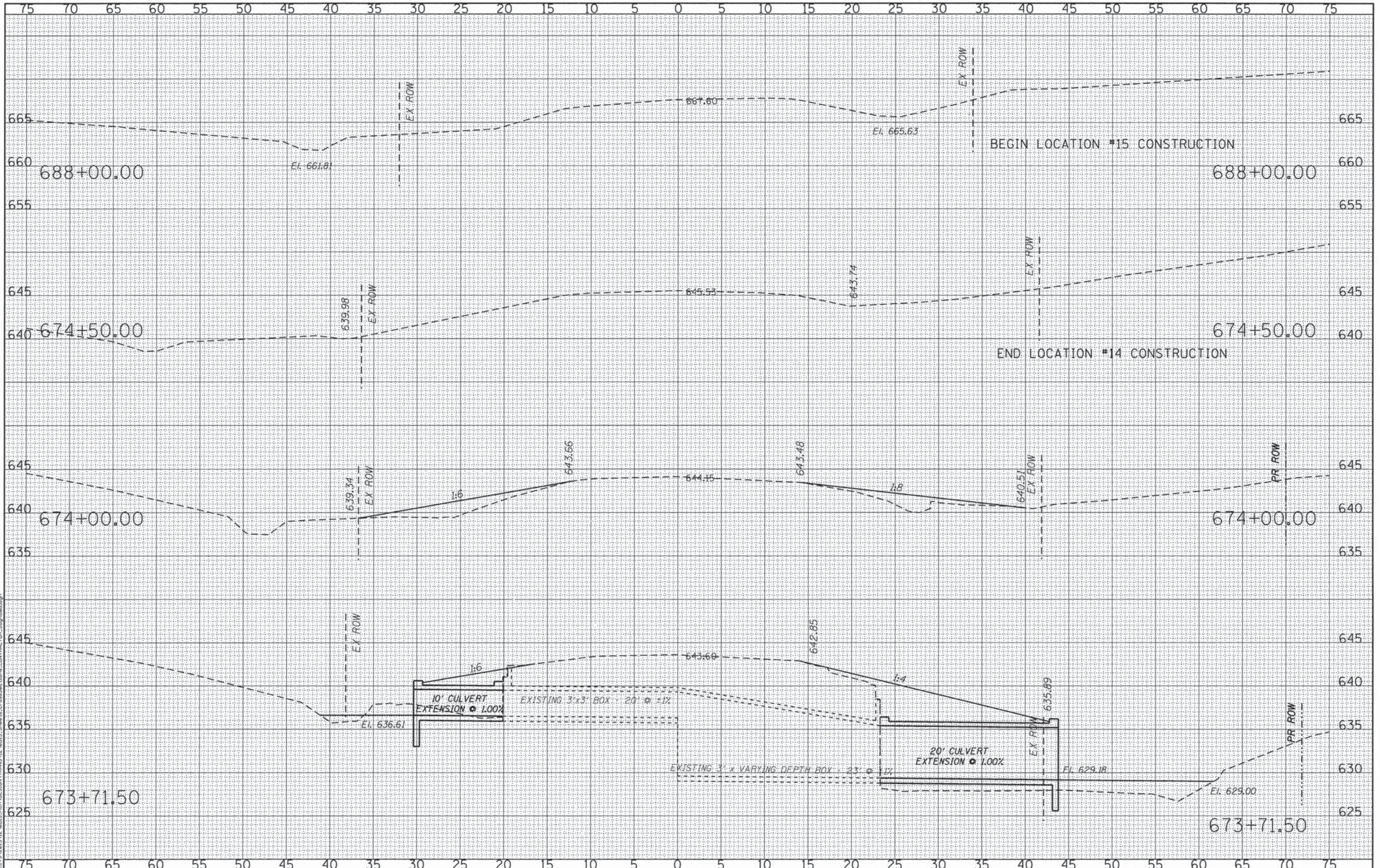
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**MERCER COUNTY
(C.H. 9) JOY ROAD
CULVERT EXTENSION**

**JOY ROAD
CROSS SECTIONS**

SHEET NO. 04 OF 05 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
212	14-00103-01-DR	MERCER	30	29
WHA* 1290015		CONTRACT NO. 89705		
ILLINOIS FED. AID PROJECT		RS-02121081		



DATE	
BY	
FINAL SURVEY	
TEMPLATE	
NOTE BOOK	
AREAS CHECKED	
NO.	

DATE	
BY	
ORIGINAL SURVEY	
TEMPLATE	
NOTE BOOK	
AREAS CHECKED	
NO.	

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WILLET HOFMANN
ASSOCIATES INC
ENGINEERING ARCHITECTURE LAND SURVEYING
809 EAST 2ND STREET, DODD, IL 61021-0347
T: 815-294-3381 DESIGN FIRM: #154-00918

DESIGNED - LGN	REVISED -
CHECKED - GFS	REVISED -
DRAWN - MPO	REVISED -
CHECKED - LGN	REVISED -

**MERCER COUNTY
(C.H. 9) JOY ROAD
CULVERT EXTENSION**

**JOY ROAD
CROSS SECTIONS**

SHEET NO. 05 OF 05 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
212	14-00103-01-DR	MERCER	30	30
WHA* 1290015		CONTRACT NO. 89705		
ILLINOIS FED. AID PROJECT		RS-02121081		