

Warren County
FD52 114 0234 009-010
BRO 5073 (001)
KY 234 over Drakes Creek
Station 120+00.00 Item No. 3-1077.00
Drawing No. 27398

PRELIMINARY STRUCTURE PLANS

J.M. Crawford and Associates, Inc.
Consulting Engineers
Lexington, Kentucky

January, 2016

COUNTY OF	ITEM NO.	SHEET NO.
WARREN	3-1077.00	RI



Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS

PLANS OF PROPOSED PROJECT

WARREN COUNTY KY 234 OVER DRAKES CREEK

SHEET NO.	DESCRIPTION
R1	LAYOUT SHEET
R2-R2c	TYPICAL SECTIONS-SUMMARY OF QUANTITIES
R3-R9	PLAN AND PROFILE SHEETS
R10	UTILITY REFERENCE SHEETS
R11	RIGHT OF WAY SUMMARY SHEETS
R12-R12g	RIGHT OF WAY STRIP MAP SHEETS
R13-R18	DETAIL SHEETS
R19-R21	TRAFFIC CONTROL SHEETS
R22	EROSION CONTROL SHEETS
R23-R24	MITIGATION PLAN SHEETS
S	COORDINATE CONTROL SHEETS
TI-T9	SOIL PROFILE SHEETS
U	PIPE DRAINAGE SHEETS
X1-X53	STRUCTURE PLANS
	TRAFFIC PLANS
	UTILITY RELOCATION PLANS
	CROSS SECTION SHEETS

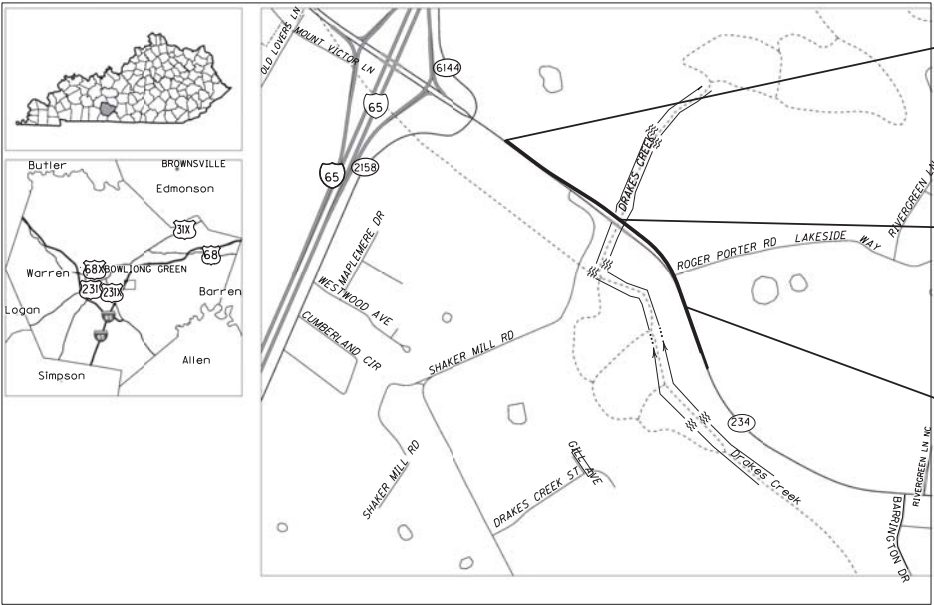
SHEETS NOT INCLUDED IN TOTAL SHEETS

R2a, R2b, R2c, R13a, R13b, R13c, R13d, R13e

STANDARD DRAWINGS

NUMBER				
RBC-001-10	RBR-035-10	RDH-020-03	RDI-041	RGX-100-05
RBC-002-02	RBR-050-06	RDI-001-09	RDX-210-02	RGX-105-07
RBI-001-10	RDB-105-05	RDI-011-02	RDX-220-04	RGX-200
RBI-002-06	RDB-106-04	RDI-020-08	RDX-230	RPM-100-09
RBI-004-04	RDB-280-05	RDI-021	RGS-001-06	RPM-110-06
RBR-005-10	RDB-281-02	RDI-025-04	RGX-001-05	TPM-140-02
RBR-010-05	RDB-282-03	RDI-026	RGX-010-03	TTC-125-02
RBR-016-04	RDB-283-03	RDI-035-01	RGX-060	TTD-110-01
RBR-020-05	RDD-040-04	RDI-040	RGX-061	

TOTAL NUMBER OF STANDARD DRAWINGS 44



BEGIN PROJECT
STA. 104 + 50.00

Sta. 120 + 00 Const. 3-Span
Concrete Bridge (100'-130'-100')
PCIB Type 6 at 20° Skew Lt.

END PROJECT
STA. 132 + 25.00

THESE PLANS ARE FOR
GRADE, DRAIN & SURFACING

THE CONTROL OF ACCESS ON THIS
PROJECT SHALL BE BY PERMIT

DESIGN CRITERIA

CLASS OF HIGHWAY	RURAL COLLECTOR
TYPE OF TERRAIN	ROLLING
DESIGN SPEED	55 MPH
REQUIRED NPSD	495'
REQUIRED PSD	900'
LEVEL OF SERVICE	
ADT PRESENT (2012)	7600
ADT FUTURE (2037)	11300
DHV 2012 = 900	2037 = 1400
D % 2037 - 5% ADT	3.3% DHV
T %	

GEOGRAPHIC COORDINATES

LATITUDE 36 DEGREES 58 MINUTES 22 SECONDS NORTH
LONGITUDE 86 DEGREES 22 MINUTES 56 SECONDS WEST

DESIGNED

% RESTRICTED SD	
LEVEL OF SERVICE	
MAX. DISTANCE W/O PASSING	

LENGTH 2775 LIN. FT. 526 MILES
ADDED FOR EQUALITIES LIN. FT.
DEDUCTED NOT INCLUDED
RAILROAD CROSSINGS NO. LIN. FT.
BRIDGES LIN. FT.

LENGTH LIN. FT. MILES
ADDED FOR EQUALITIES LIN. FT.
DEDUCTED NOT INCLUDED
RAILROAD CROSSINGS NO. LIN. FT.
BRIDGES LIN. FT.

LENGTH LIN. FT. MILES
ADDED FOR EQUALITIES LIN. FT.
DEDUCTED NOT INCLUDED
RAILROAD CROSSINGS NO. LIN. FT.
BRIDGES LIN. FT.

LENGTH LIN. FT. MILES
ADDED FOR EQUALITIES LIN. FT.
DEDUCTED NOT INCLUDED
RAILROAD CROSSINGS NO. LIN. FT.
BRIDGES LIN. FT.

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS
COUNTY OF
WARREN
KY 234

ITEM NO. 3-1077.00
PROJECT FD52 114 0234 009-010
NUMBER: BRO 5073 (001)
LETTING DATE:

RECOMMENDED BY: PROJECT MANAGER DATE:

PLAN APPROVED BY: STATE HIGHWAY ENGINEER DATE:

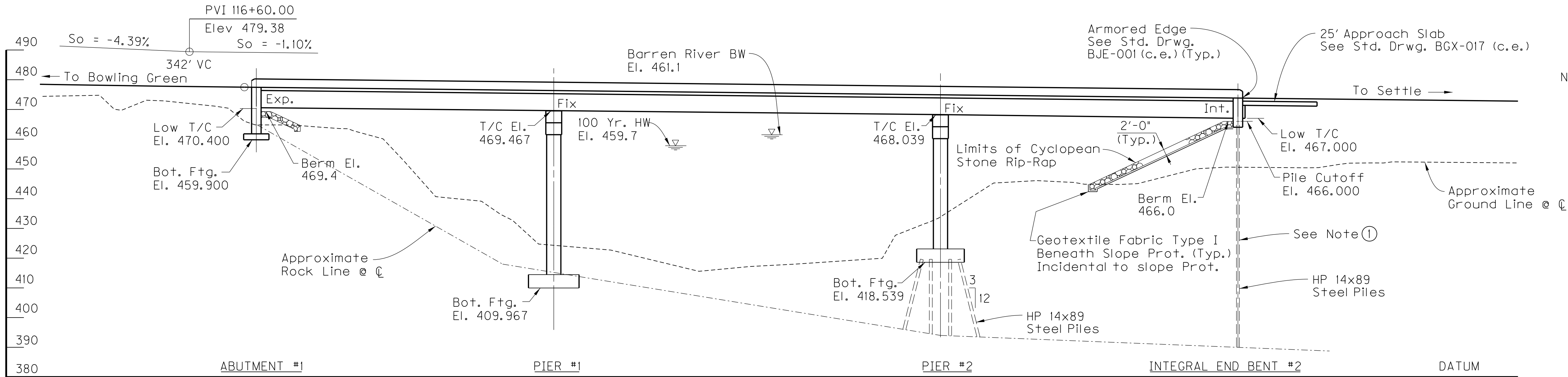
DESIGNED, PREPARED,
AND SUBMITTED BY:
JMC J.M. Crawford & Associates
Consulting Engineers

FILE NAME: G:\KY\WARREN\KY 234\BRIDGE\Layout.dgn

USER: gcrank
DATE PLOTTED: January 13, 2016

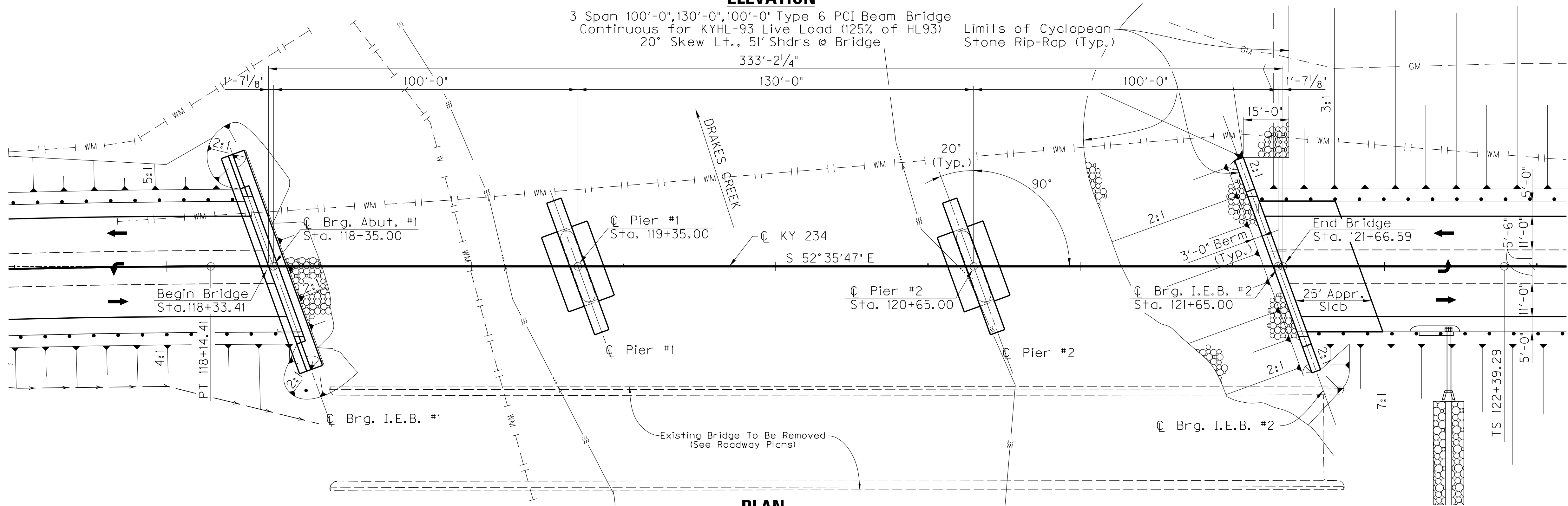
E-SHEET NAME:

MicroStation v8.11.7.443

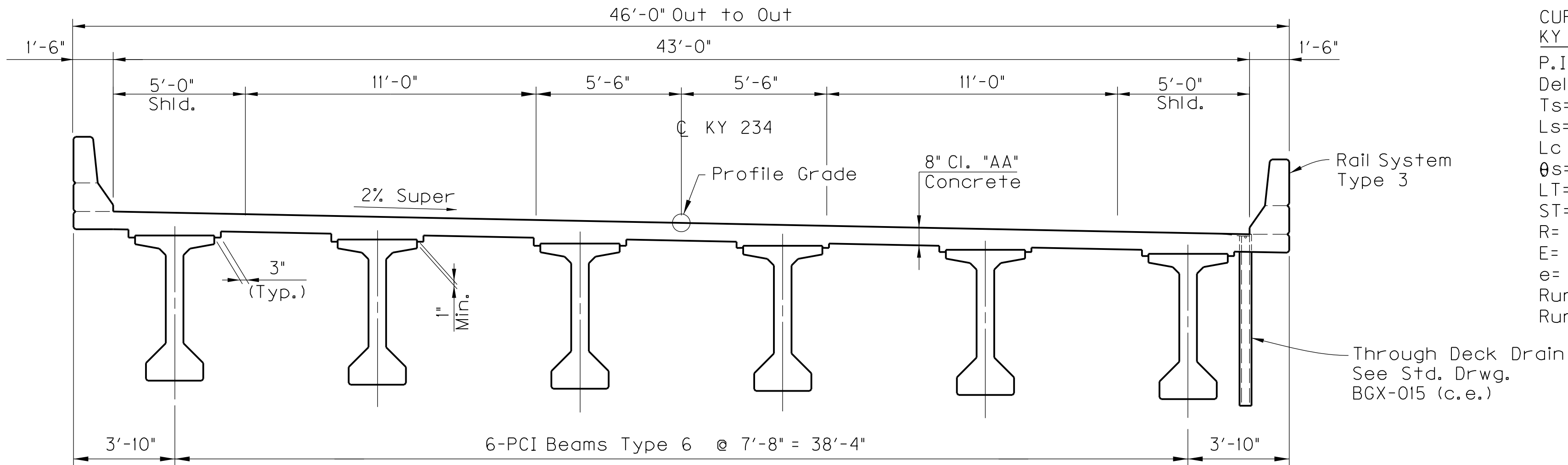


NOTE ① Piles at End Bent 2 are not to be driven until embankments have adequately consolidated. See General Notes

HYDRAULIC DATA			
DRAINAGE AREA = 503 SQ. MILES			
FLOOD	ELEV.	DISCHARGE	VELOCITY
50 Yr	458.43	59600 cfs	10.96 ft/s
100 Yr	459.70	70200 cfs	12.31 ft/s



CURVE DATA
KY 234
P.I. Sta= 117+05.12
Delta= 5°13'20.05" Right
Dc = 2°23'14.37"
T = 109.45'
Lc = 218.75'
R= 2400.00'
E= 2.49'
e= 0.044'/'
Runoff = See X-Sect.
Runout =



CURVE DATA
KY 234
P.I. Sta= 126+51.42
Delta= 33°10'20.62" Right
Ts= 412.13'
Ls= 192.00'
Lc = 421.71'
θs= 5°11'21"
LT= 128.06'
ST= 64.05'
R= 1060.00'
E= 47.53'
e= 0.060'/'
Runoff = 192'
Runout = 64'

ITEM NUMBER

3-1077.00

REVISION		DATE	
DATE: 10/15		CHECKED BY	
DESIGNED BY: C. Reid			
DETAILED BY: G. Crank			
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS			
COUNTY WARREN			
ROUTE KY 234		CROSSING DRAKES CREEK	
LAYOUT			
PREPARED BY JMC J.M. Crawford & Associates Consulting Engineers			SHEET NO. S3 DRAWING NO. 27398

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
DIVISION OF STRUCTURAL DESIGN
SUMMARY OF BRIDGE DESIGN DATA

TC 66-101
Rev. 11/05

COUNTY	Warren
ROAD	KY 234, Cemetery Road
STATUS REPORT ITEM	3-1077.00
STATE PROJECT NO.	FD52 114 0234 009-010
FEDERAL PROJECT NC	BRO 5073 (001)
CROSSING	Drakes Creek
DESIGNER	J.M. Crawford Design Section
DRAWING NO.	27398
STATION	120+00
SKEW	20.0 deg Lt
DESIGN LOAD	HL-93 x 125%
ROAD ALIGNMENT	Straight
BRIDGE ROADWAY	43.000 ft.
BRIDGE WIDTH	46.000 ft.
TOTAL LENGTH	333.190 ft.
DECK AREA	15326.74 ft.^2
BRIDGE TYPE	Type 6 PCIB

ABUTS	1		2		COMPARISON of Estimate vs. Final Bid										
	ABUT. TYPE	BW	IEB		Final Plan Total	\$2,009,750.75		Contractor UNDER By:		100.0	%				
	ABUT. HEIGHT	10.5 ft	3.0 ft		Final Bid Total	\$-		\$ 2,009,750.75							
SPANS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	100.0 ft	130.0 ft	100.0 ft												
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
PIERS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	C1	C1P													
	59.5 ft	49.5 ft													
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
FRAMING		Continuous for Live Load													
MATERIAL		Type 6 PCIB													
SPECIAL FEATURES		Estimated cost of cofferdams included in unit price for Common Excavation													

FINAL PLANS ESTIMATE								1/12/16	BID		Letting:		Awarded:	
Item	Units	Unit Price	Superstructure		Substructure		Bridge		Unit Price		Superstructure		Substructure	Bridge
Concrete Class A	CY	525.00			740.1	388,552.50	388,552.50						740.1	
Concrete Class AA	CY	575.00	480.4	276,230.00	54.6	31,395.00	307,625.00			480.4			54.6	
Steel Reinforcement	LB	1.10			80838	88,921.80	88,921.80						80838	
Steel Reinforcement Epoxy Coated	LB	1.15	133148	153,120.20	7645	8,791.75	161,911.95			133148			7645	
Structure Excavation Common	CY	162.00			584.0	94608.00	94,608.00						584.0	
Structure Excav Solid Rock	CY	70.00			147.0	10,290.00	10,290.00						147.0	
Cyclopean Stone Rip Rap	Ton	30.00			953.0	28,590.00	28,590.00						953.0	
Structure Granular Backfill	CY	40.00			453.0	18,120.00	18,120.00						453.0	
Piles - Steel HP 14 X 89	LF	70.00			1239	86,730.00	86,730.00						1239	
Test Piles	LF	90.00			107	9,630.00	9,630.00						107	
Pile Points 14"	Each	135.00			35	4,725.00	4,725.00						35	
Precast PC I Beam Type 6	LF	350.00	1976.5	691,775.00			691,775.00			1976.5				
Rail System Type III	LF	95.00	666	63,308.00			63,308.00			666				
Approach Slab	SY	190.00			119.4	22,686.00	22,686.00						119.4	
Armored Edge for Concrete	LF	115.00	91.5	10,522.50			10,522.50			91.5				
Masonry Coating	SY	10.00	538	5,380.00	332	3,320.00	8,700.00			538			332	
Total for Additional Items				5,250.00		7,805.00	13,055.00							
TOTAL COST				1,205,585.70		804,165.05	2,009,750.75							
Cost per Deck Area				78.66		52.47	131.13							

[illegible]

Deck Drain	EACH	750.00	7.0	5250.00			5,250.00		7.0				
Concrete Class B	CY	350.00			22.3	7805.00	7,805.00				22.3		
Total for Additional Items				5,250.00		7,805.00	13,055.00						

SHEET LOCATION:

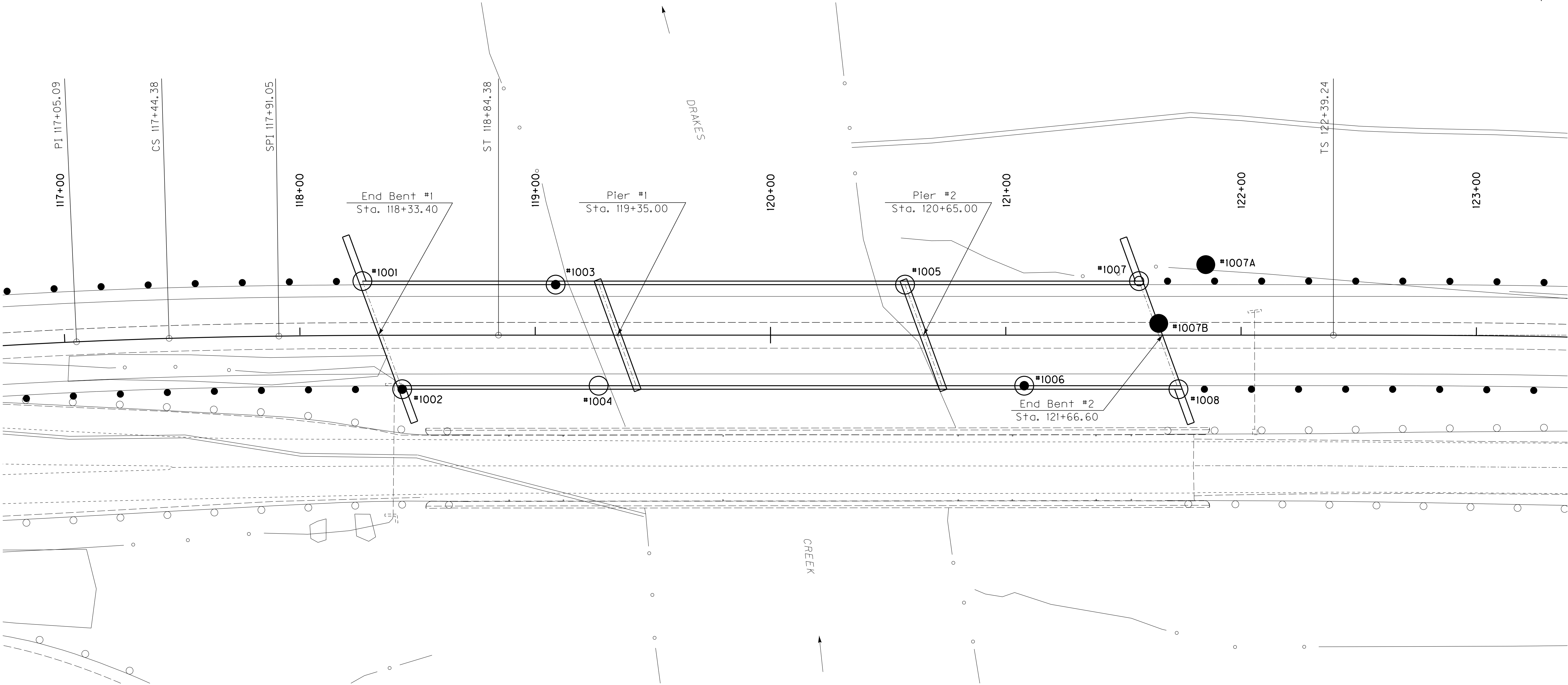
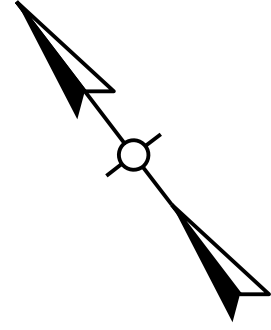
USERNAME: J M Crawford & Associates
FILE NAME: Subsurface 1.dgn

DATE: 1/13/2016

E-SHEET NAME:

SUBSURFACE DATA

Plan Scale 1" = 20'



DATE:	16-SEPTEMBER-2015	CHECKED BY:	
DESIGNED BY:			
DETAILED BY:	E. BAILEY	M. CARPENTER	

Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS			
COUNTY WARREN			
ROUTE KY 234	CROSSING DRAKES CREEK		
SUBSURFACE DATA			
PREPARED BY Division of Structural Design GEOTECHNICAL BRANCH			SHEET NO. S4
			DRAWING NO. 27398

S-082-13	
ITEM NUMBER	
3-1077.00	

SHEET LOCATION:

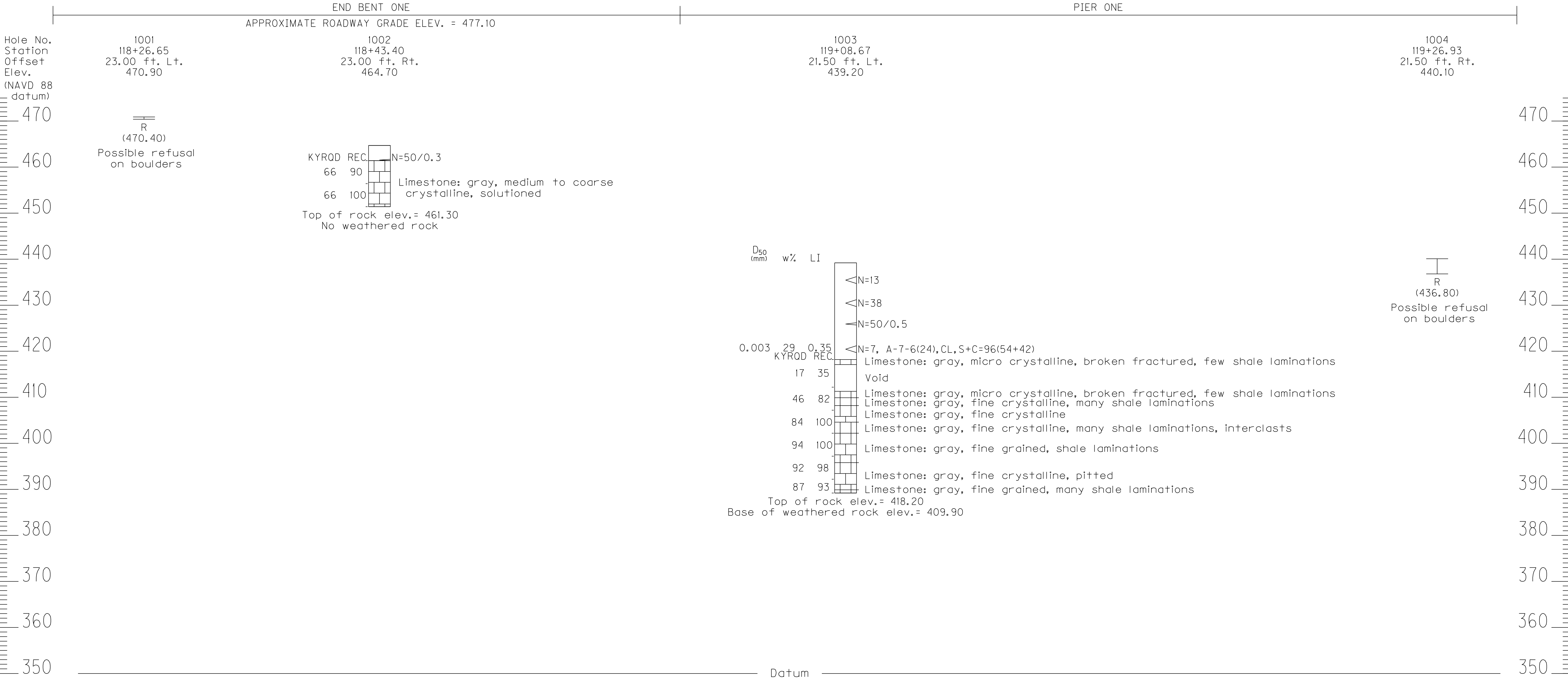
USERNAME: J M Crawford & Associates, Inc. FILE NAME: Subsurface 2.dgn

DATE: 1/13/2016

E-SHEET NAME:

SUBSURFACE DATA

Profile Scale:
Vertical 1" = 10'
Horizontal not to scale



S-082-13	DATE: 16-SEPTEMBER-2015		CHECKED BY:
	DESIGNED BY:		
ROUTE KY 234		CROSSING DRAKES CREEK	
ITEM NUMBER		PREPARED BY	
3-1077.00		Division of Structural Design	
		GEOTECHNICAL BRANCH	
		SHEET NO. S5	
		DRAWING NO. 27398	

SHEET LOCATION:

USER NAME: J M Crawford & Associates, Inc. Subsurface 3.dgn

DATE: 1/13/2016

E-SHEET NAME:

SUBSURFACE DATA

Profile Scale:
Vertical 1" = 10'
Horizontal not to scale

PIER TWO

Hole No.
Station
Offset
Elev.
(NAVD 88
datum)

1005
120+57.17
21.50 ft. Lt.
440.50

1006
121+07.83
21.50 ft. Rt.
446.50

UU (psf) QU (psf) D₅₀ (mm) w% LI

0.034 18 -0.09

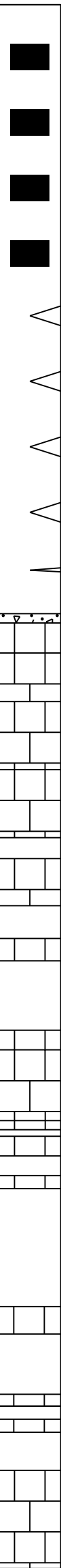
2090 0.014 20 0.11

1303 0.008 23 0.23

1753 0.013 27 0.74

1.498 30

2.195 14 -1.74



A-4(2), CL, S+C=59(41+18)

A-6(8), CL, S+C=77(58+19)

A-6(11), CL, S+C=90(64+26)

A-4(5), CL, S+C=77(57+20)

N=13, A-1-b(0), SM, S+C=16(14+2)

N=14

A-1-a(0), SM, S+C=13(7+6)

N=36

N=6

N=50/0.3

KYRQD REC

53 73

63 77

92 98

80 100

26 65

50 50

52 54

33 58

38 60

12 20

0 0

36 42

28 38

22 50

82 100

Cored Overburden

Limestone: gray, very fine crystalline to fine crystalline, few shale laminations

Limestone: gray, fine crystalline to fine grained, many shale laminations, fossils

Limestone: gray, fine to medium crystalline

Limestone: gray, fine grained to fine crystalline, shale laminations

Void

Limestone: gray, fine to medium crystalline, few shale laminations

Void

Limestone: gray, fine to medium crystalline

Void

Limestone: gray, fine to very fine crystalline

Limestone: gray, fine grained to fine crystalline, many shale laminations

Limestone: gray, fine grained to very fine crystalline

Void

Limestone: gray, fine grained to very fine crystalline

Void

Limestone: dark gray, very fine grained

Void: sandy filled void

Limestone: gray, very fine crystalline

Void

Limestone: gray, very fine grained

Void

Limestone: gray, very fine grained

Void

Limestone: gray, very fine grained to very fine crystalline, shale laminations

Top of rock elev.= 399.30
No weathered rock

R
(394.20)

Datum

S-082-13

ITEM NUMBER

3-1077.00

DATE: 16-SEPTEMBER-2015
DESIGNED BY:
CHECKED BY:
DETAILED BY: E. BAILEY
M. CARPENTER

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
WARREN

ROUTE
KY 234
CROSSING
DRAKES CREEK

SUBSURFACE DATA

PREPARED BY
Division of Structural Design
GEOTECHNICAL BRANCH

SHEET NO.
S6
DRAWING NO.
27398

SUBSURFACE DATA

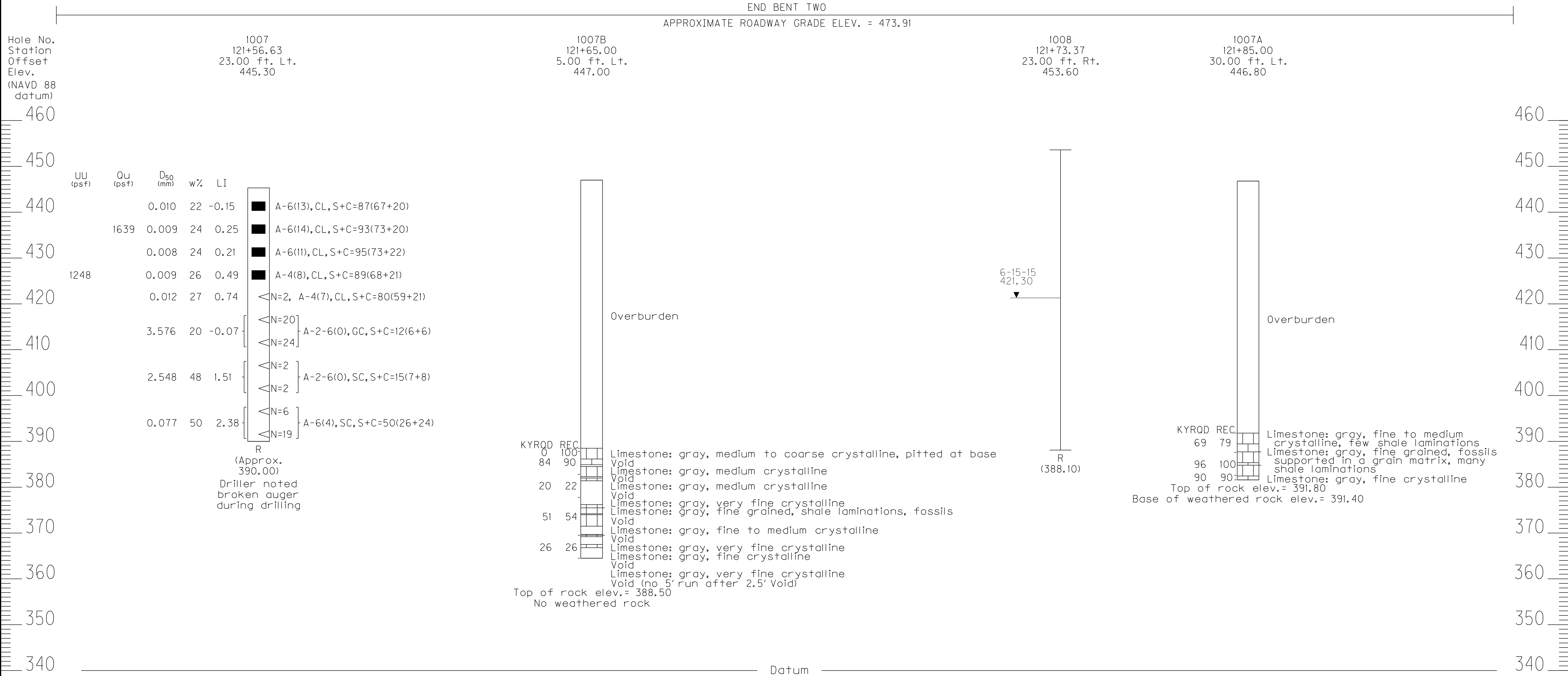
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Vertical 1" = 10'
Horizontal not to scale

SHEET LOCATION:

USERNAME: J M Crawford & Associates FILES NAME: Subsurface 4.dgn

DATE: 1/13/2016

E-SHEET NAME:



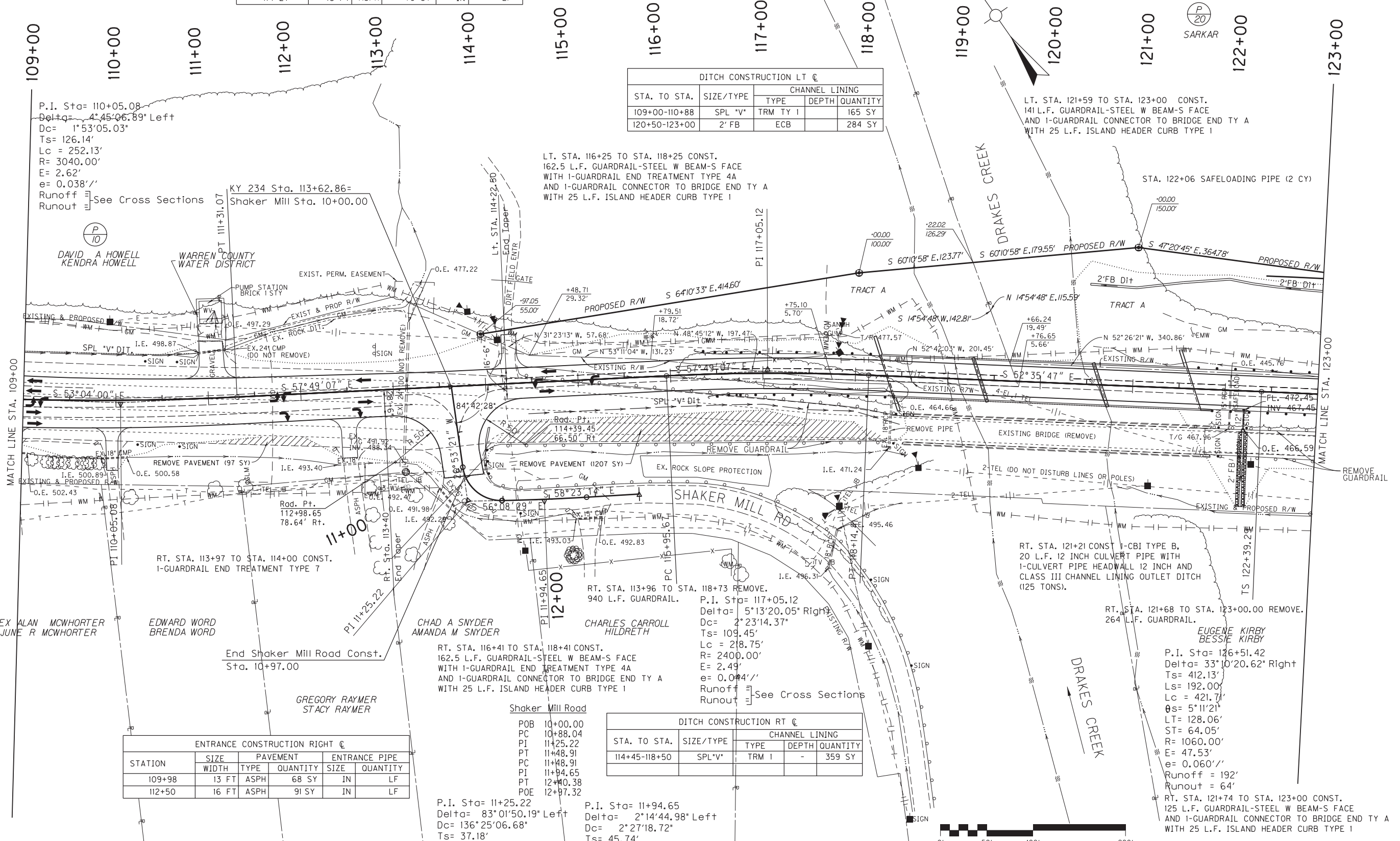
DATE: 16-SEPTEMBER-2015	CHECKED BY:
DESIGNED BY:	
DETAILED BY: E. BAILEY	M. CARPENTER
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS	
COUNTY WARREN	
ROUTE KY 234	CROSSING DRAKES CREEK
<i>SUBSURFACE DATA</i>	
PREPARED BY Division of Structural Design GEOTECHNICAL BRANCH	SHEET NO. S8 DRAWING NO. 27398

STATION	ENTRANCE CONSTRUCTION LEFT @					
	SIZE	PAVEMENT	ENTRANCE PIPE	SIZE	QUANTITY	
III+05	27 FT	ASPH	129 SY	IN	LF	
III+27	16 FT	ASPH	76 SY	IN	LF	

STA. TO STA.	SIZE/TYPE	CHANNEL LINING		
		TYPE	DEPTH	QUANTITY
109+00-110+88	SPL 'V'	TRM TY I		165 SY
120+50-123+00	2' FB	ECB		284 SY

STATION	ENTRANCE CONSTRUCTION RIGHT @					
	SIZE	PAVEMENT	ENTRANCE PIPE	SIZE	QUANTITY	
109+98	13 FT	ASPH	68 SY	IN	LF	
112+50	16 FT	ASPH	91 SY	IN	LF	

STA. TO STA.	SIZE/TYPE	CHANNEL LINING		
		TYPE	DEPTH	QUANTITY
114+45-118+50	SPL 'V'	TRM I		359 SY



SCALE: 1"= 50'

PLAN
KY 23A OVER DRAKES CREEK
STA. 109+00 TO STA. 123+00

FILE NAME: G:\KY\WARREN\KY 23A\PLAN SET\00500PL.DGN
USER: EsJones
DATE PLOTTED: April 15, 2014
E-SHEET NAME:
MicroStation v8.11.7.443

FILE NAME: G:\KY\WARREN\KY 234\PLAN SET\RD0600PF.DGN

USER: EsJones
DATE PLOTTED: April 15, 2014

E-SHEET NAME:

MicroStation v8.11.7.443

COUNTY OF	ITEM NO.	SHEET NO.
WARREN	3-1077.00	R6

