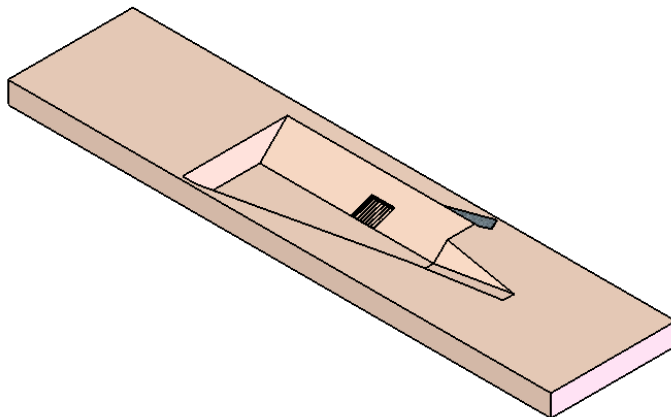
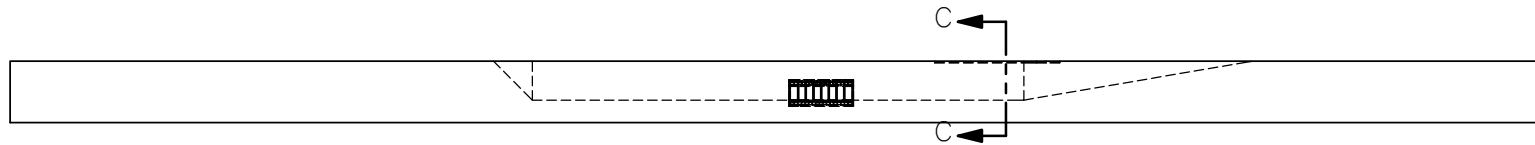
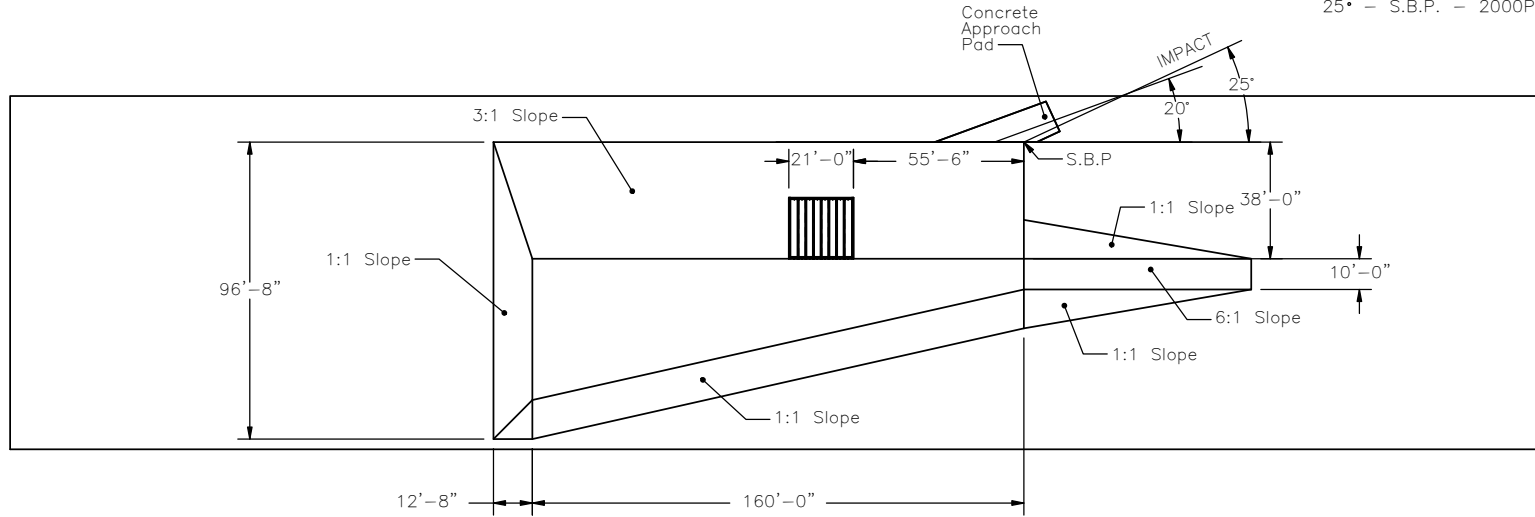


IMPACT LOCATIONS

- 20' - 115" DS of S.B.P. - 820C Car
- 25' - S.B.P. - 2000P Pickup



Midwest Roadside  
Safety Facility

Culvert on Slope  
Culvert Layout

SHEET:  
1 of 11

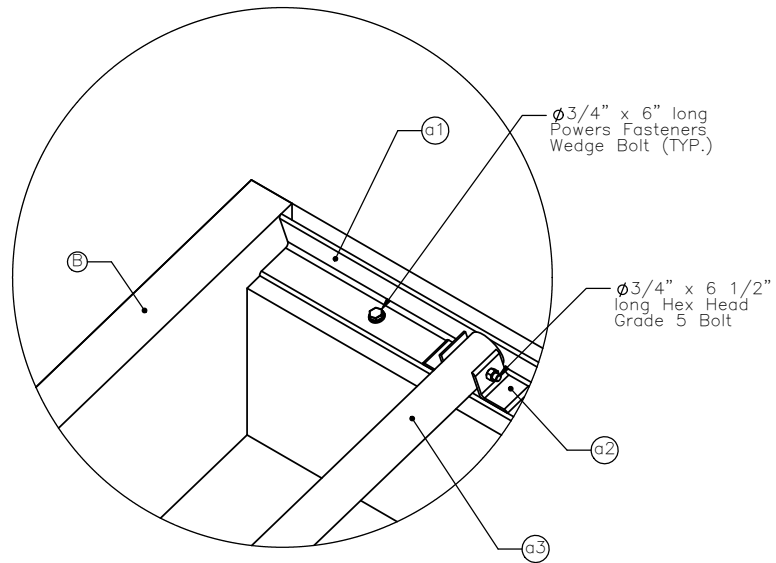
DATE:  
7/10/2006

DRAWN BY:  
GEP

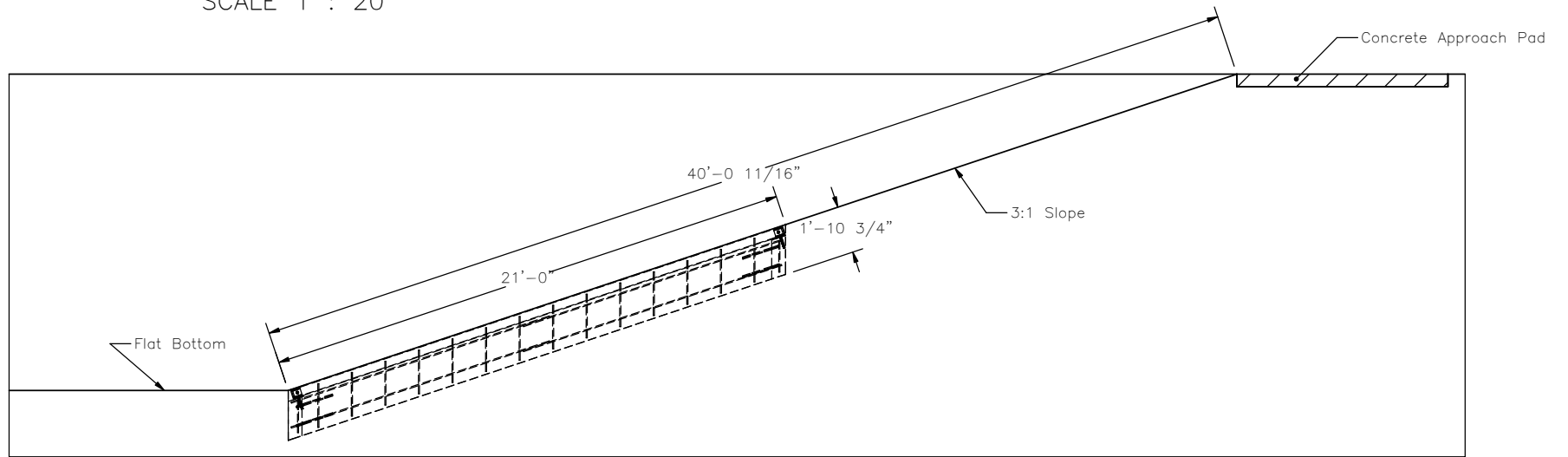
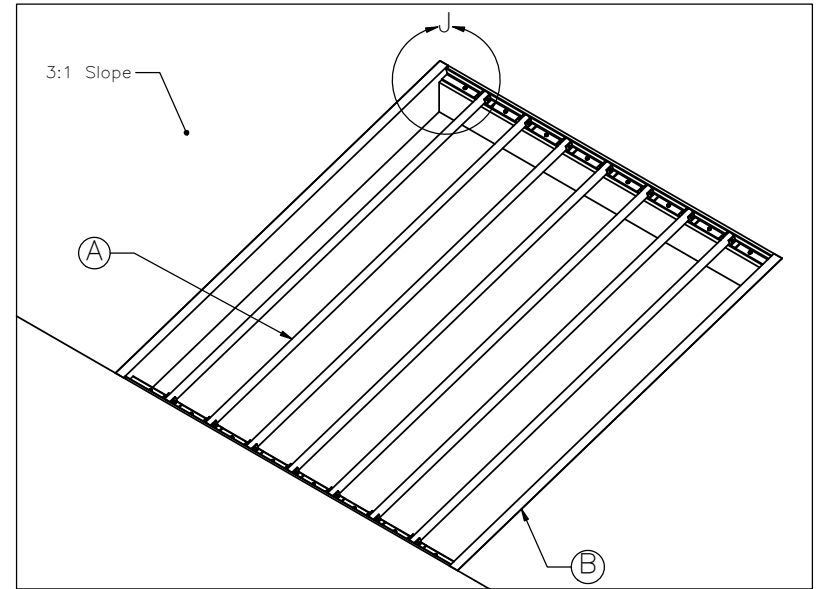
DWG. NAME:  
Culvert\_System\_R3

SCALE: None  
UNITS: Inches

REV. BY:  
KAP/RKF



DETAIL J  
SCALE 1 : 20



SECTION C-C  
SCALE 1 : 80

NOTE:  
Cut into soil 21' x 21' x 2'  
for culvert grate



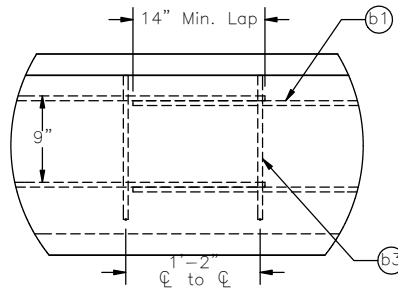
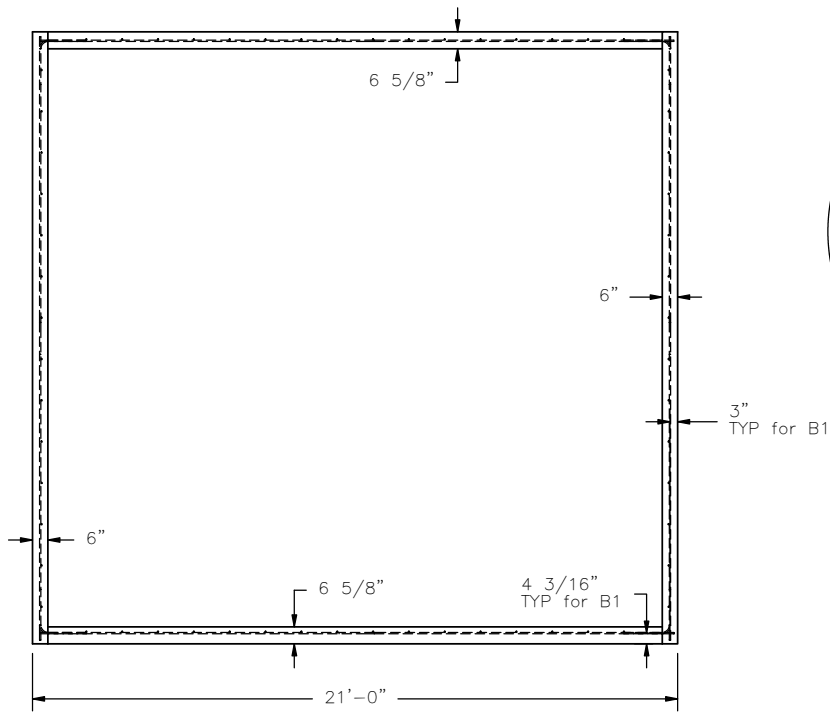
Midwest Roadside  
Safety Facility

Culvert on Slope  
Culvert Details

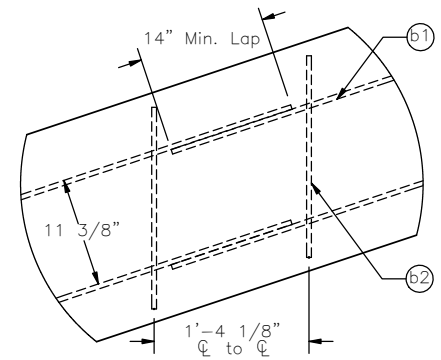
DWG. NAME.  
Culvert\_System\_R3

SCALE: None  
UNITS: Inches

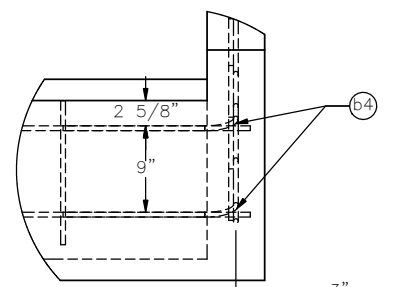
SHEET:  
2 of 11  
Date:  
7/10/2006  
DRAWN BY:  
GEP  
REV. BY:  
KAP/RKF



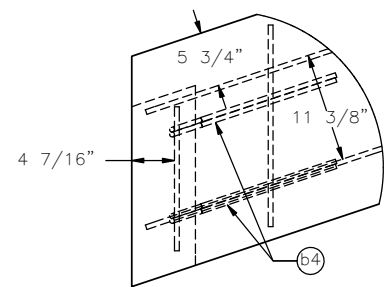
DETAIL E  
SCALE 1 : 20



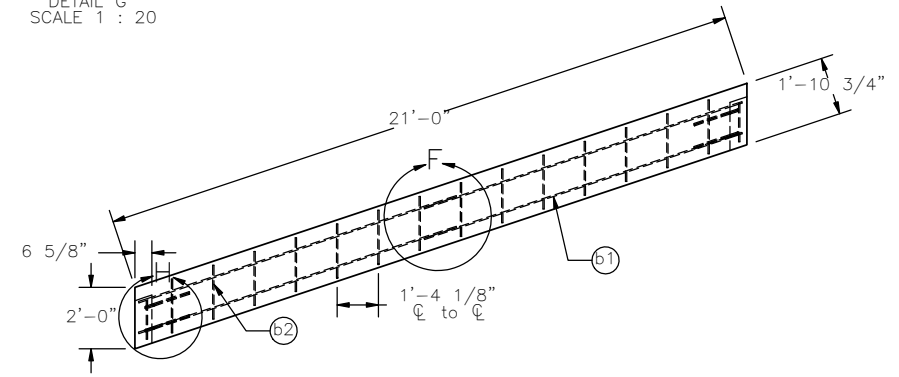
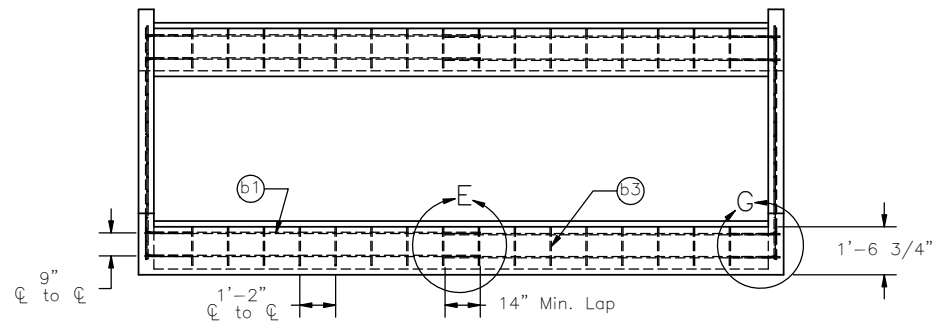
DETAIL F  
SCALE 1 : 20



DETAIL G  
SCALE 1 : 20



DETAIL H  
SCALE 1 : 20

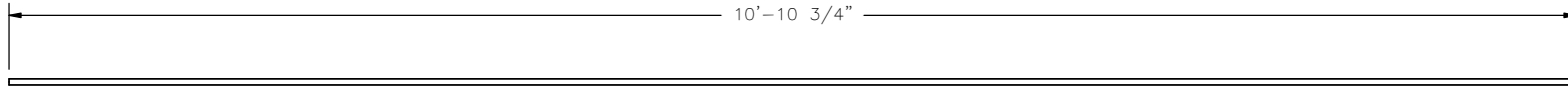


Item No.	QTY.	Description	Material Specification
B	1	Concrete Culvert Wall	f'c=4000 psi
b1	16	#4 Bar - 10'-10 3/4" long	Grade 60 Steel
b2	28	#4 Bar - 21" long	Grade 60 Steel
b3	32	#4 Bar - 15" long	Grade 60 Steel
b4	8	#4 Bar - 36" long (L Bar)	Grade 60 Steel

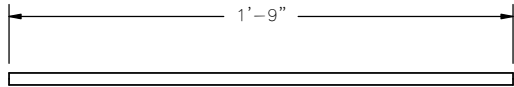


Midwest Roadside Safety Facility

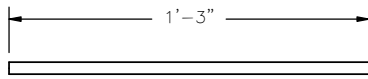
Culvert on Slope Concrete Wall Details Part B		SHEET: 3 of 11
		DATE: 7/10/2006
DWG. NAME: Culvert_System_R3		DRAWN BY: GEP
		REV. BY: KAP/RKF
SCALE: None UNITS: Inches		



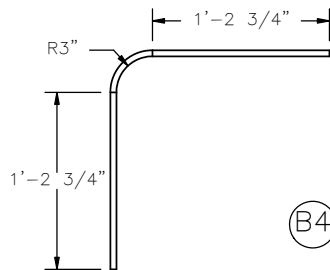
(B1)



(B2)



(B3)



(B4)



Midwest Roadside  
Safety Facility

Culvert on Slope

Bill of Bars

SHEET:  
4 of 11

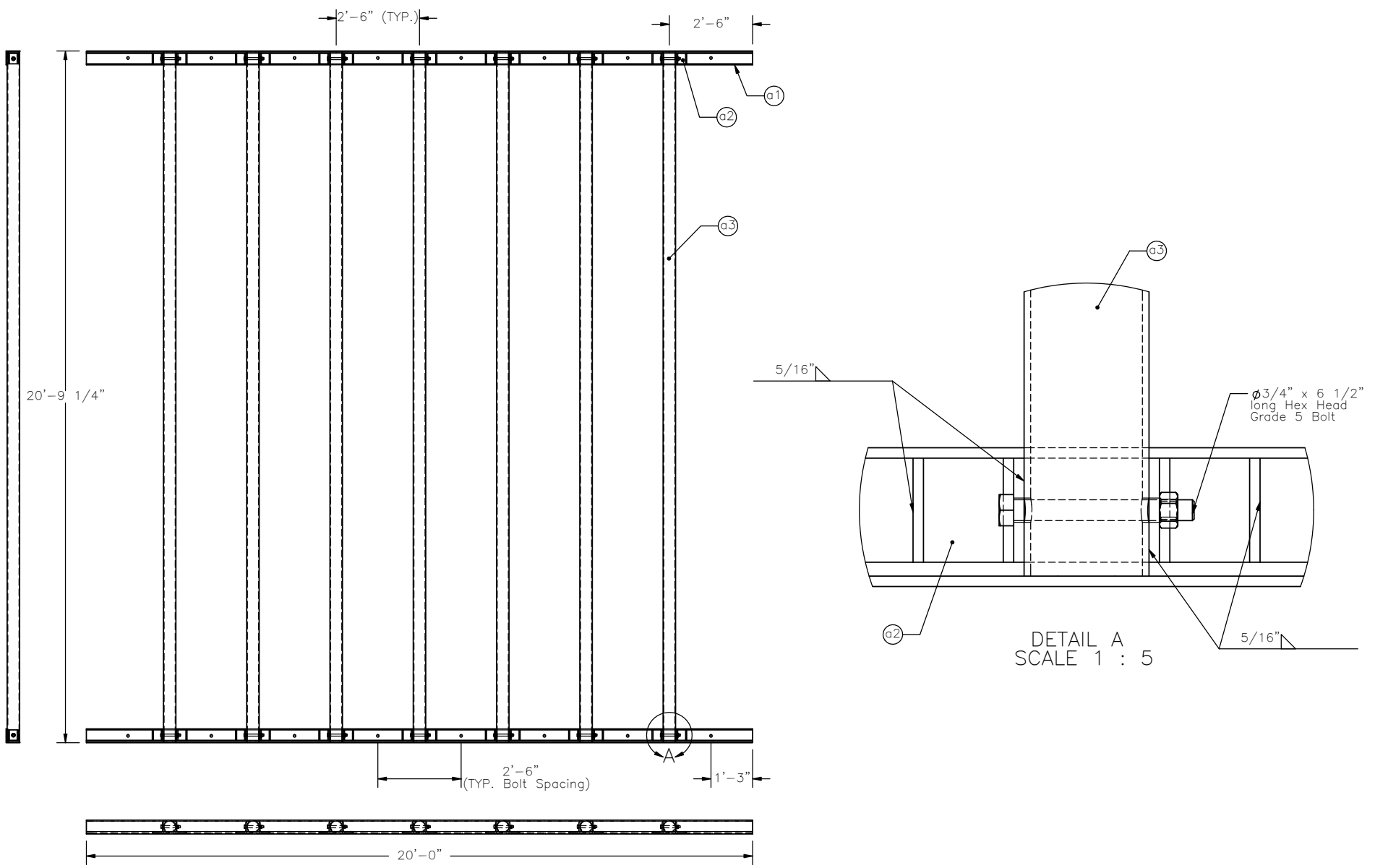
DATE:  
7/10/2006

DRAWN BY:  
GEP

DWG. NAME:  
Culvert\_System\_R3

SCALE: None  
UNITS: Inches

REV. BY:  
KAP/RKF

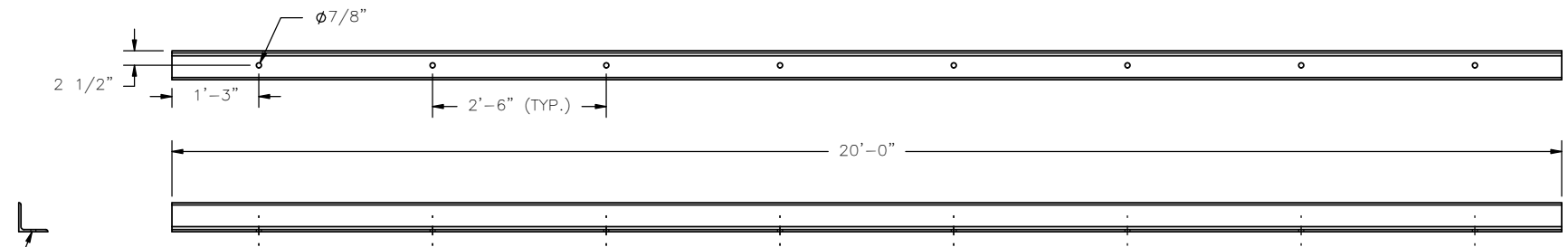


Item No.	QTY.	Description	Material Specification
a1	2	5x5x0.375 Angle x 20' long	A36 Steel
a2	28	4x4x0.375 Angle x 3 3/4" long	A36 Steel
a3	7	4" Nominal Dia. x 21' long Pipe	Schedule 40, A36 Steel
-	14	3/4" Dia. x 6 1/2" long Hex Head Bolt	Grade 5
-	14	3/4" Dia. Nut	Grade 5

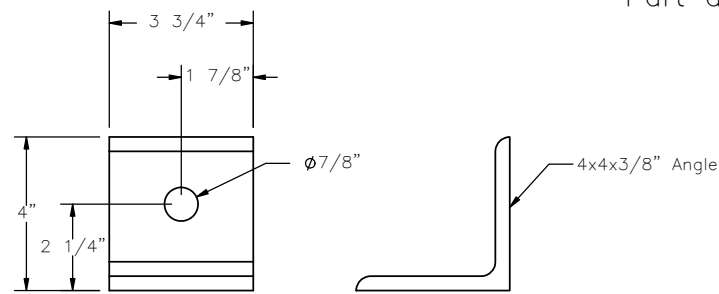


Midwest Roadside  
Safety Facility

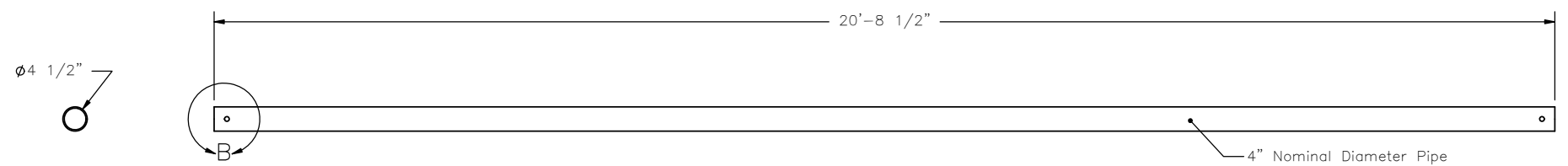
Culvert on Slope Culvert Grate Details Part A		SHEET: 5 of 11
		DATE: 7/10/2006
DWG. NAME: Culvert_System_R3		DRAWN BY: GEP
		REV. BY: KAP/RKF
SCALE: None UNITS: Inches		



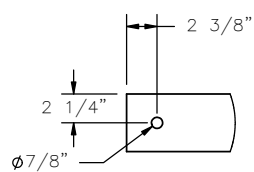
Angle Clip Base  
Part a1



Angle Clips  
Part a2



Grate Pipe  
Part a3

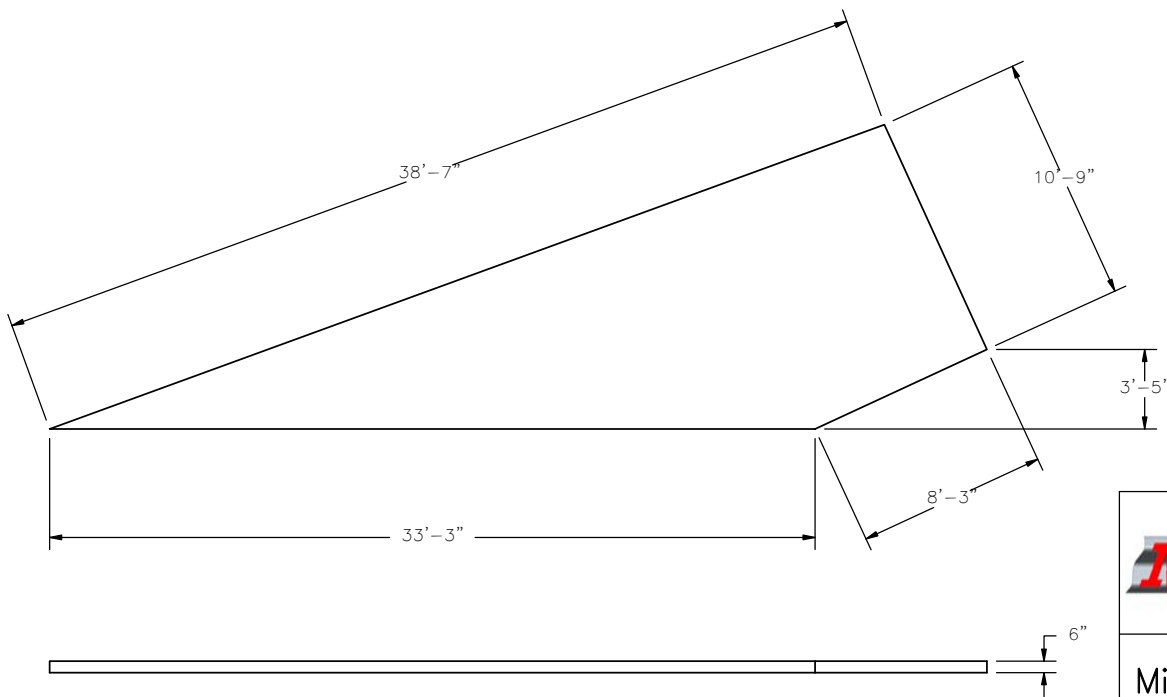
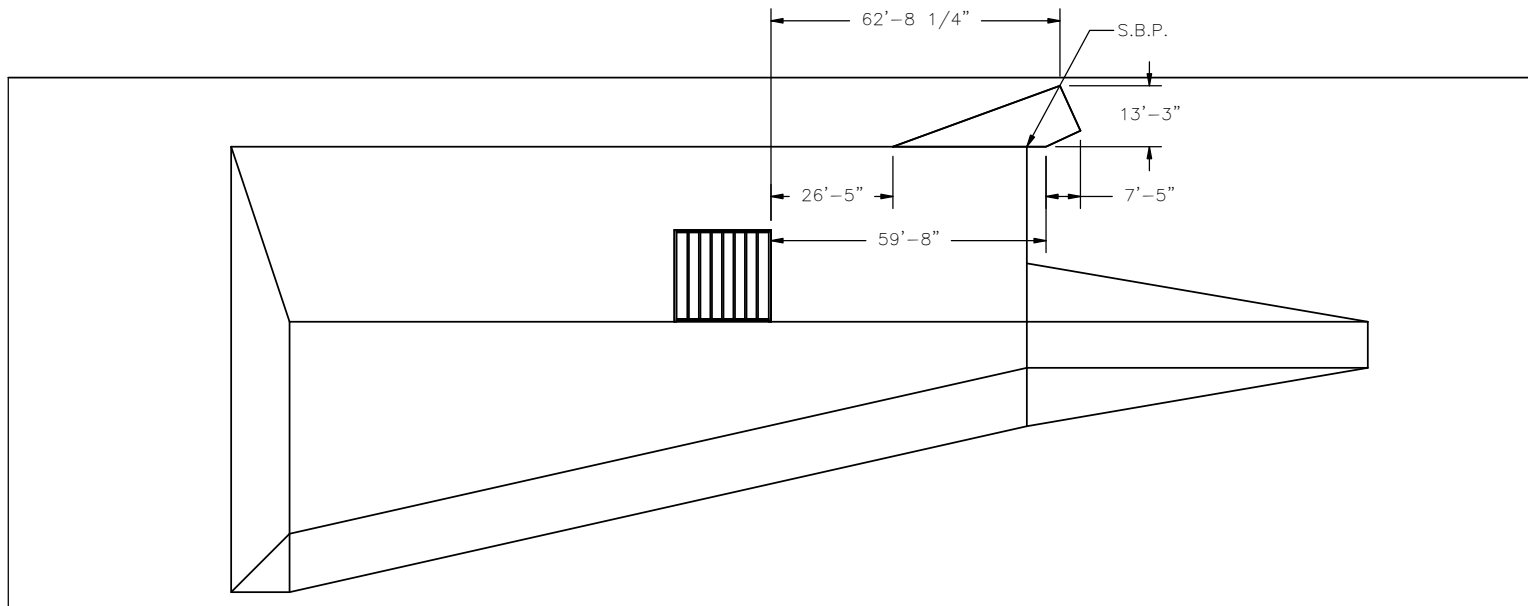


DETAIL B (Both Ends)  
SCALE 1 : 15



Midwest Roadside  
Safety Facility

Culvert on Slope		SHEET: 6 of 11
Culvert Grate Part Details		DATE: 7/10/2006
		DRAWN BY: GEP
DWG. NAME: Culvert_System_R3	SCALE: None UNITS: Inches	REV. BY: KAP/RKF



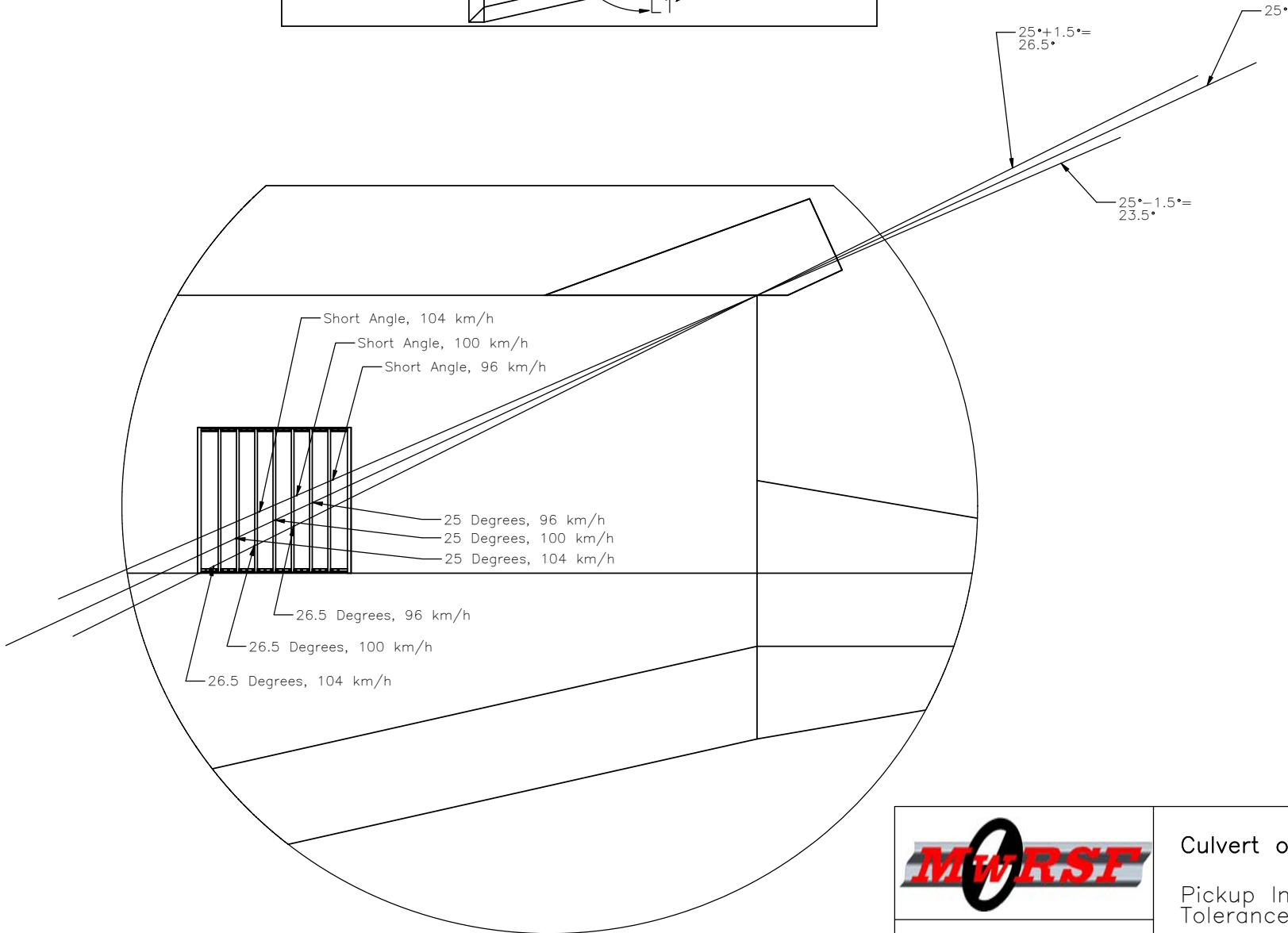
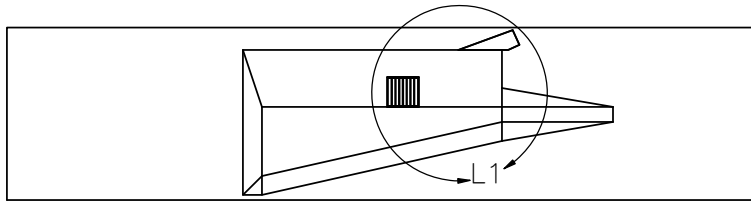
Midwest Roadside  
Safety Facility

Culvert on Slope  
Concrete Launch Pad

DWG. NAME.  
Culvert\_System\_R3

SCALE: None  
UNITS: Inches

SHEET:  
7 of 11  
DATE:  
7/10/2006  
DRAWN BY:  
GEP/CSS  
REV. BY:  
KAP/RKF



DETAIL L1  
SCALE 1 : 250



Midwest Roadside  
Safety Facility

Culvert on Slope

Pickup Impact  
Tolerances (Faller)

SHEET:  
8 of 11

DATE:  
7/10/2006

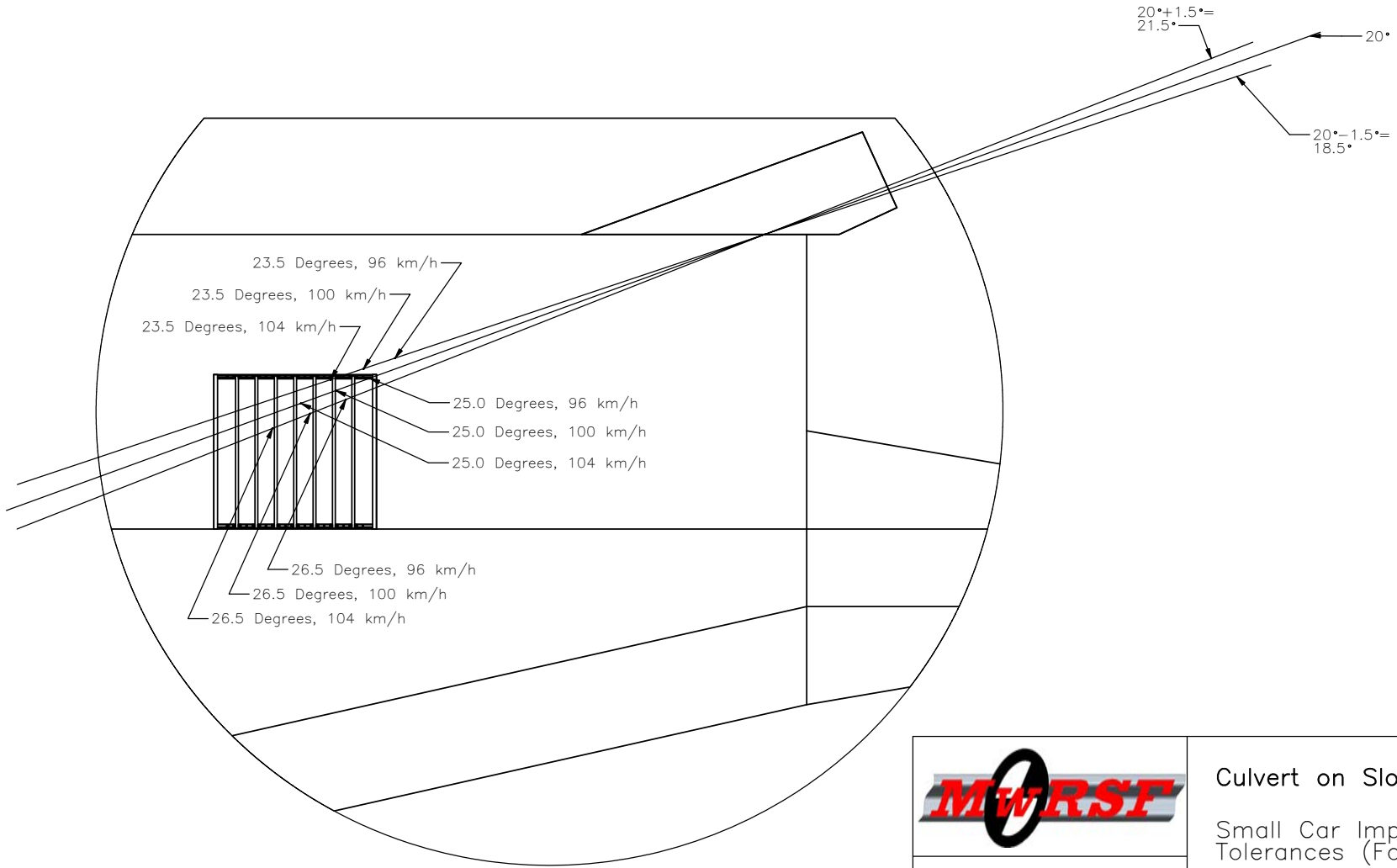
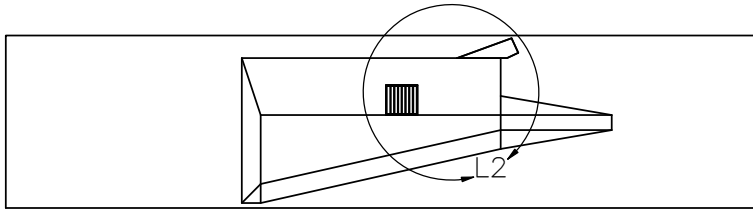
DRAWN BY:  
GEP/CSS

DWG. NAME:  
Culvert\_System\_R3

SCALE: None  
UNITS: Inches

REV. BY:  
KAP/RKF





DETAIL L2  
SCALE 1 : 250



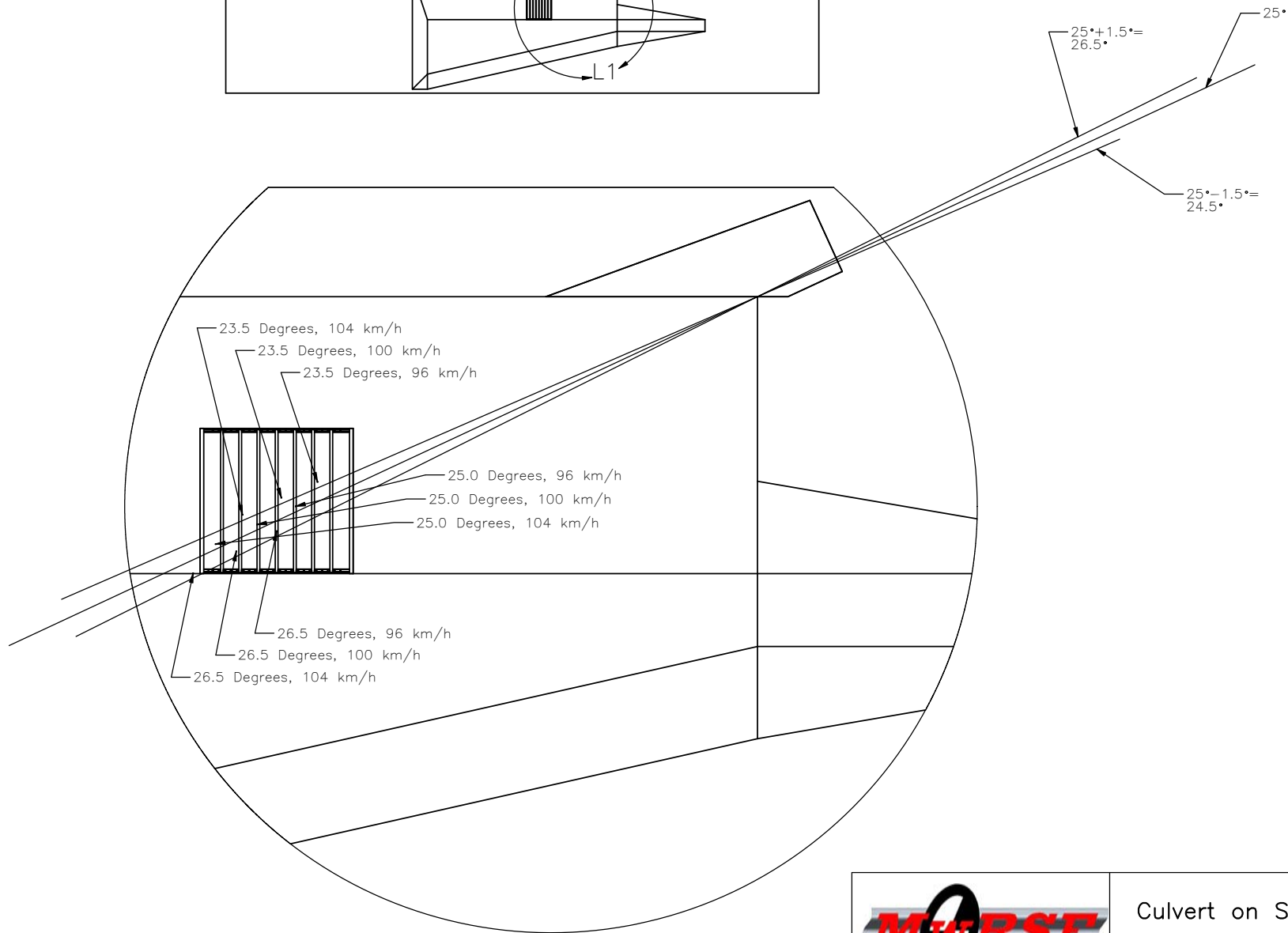
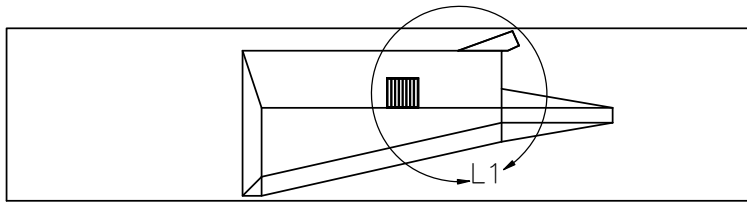
Midwest Roadside  
Safety Facility

Culvert on Slope  
Small Car Impact  
Tolerances (Faller)

DWG. NAME.  
Culvert\_System\_R3

SCALE: None  
UNITS: Inches

SHEET:  
9 of 11  
DATE:  
7/10/2006  
DRAWN BY:  
GEP  
REV. BY:  
KAP/RKF



DETAIL L1  
SCALE 1 : 250



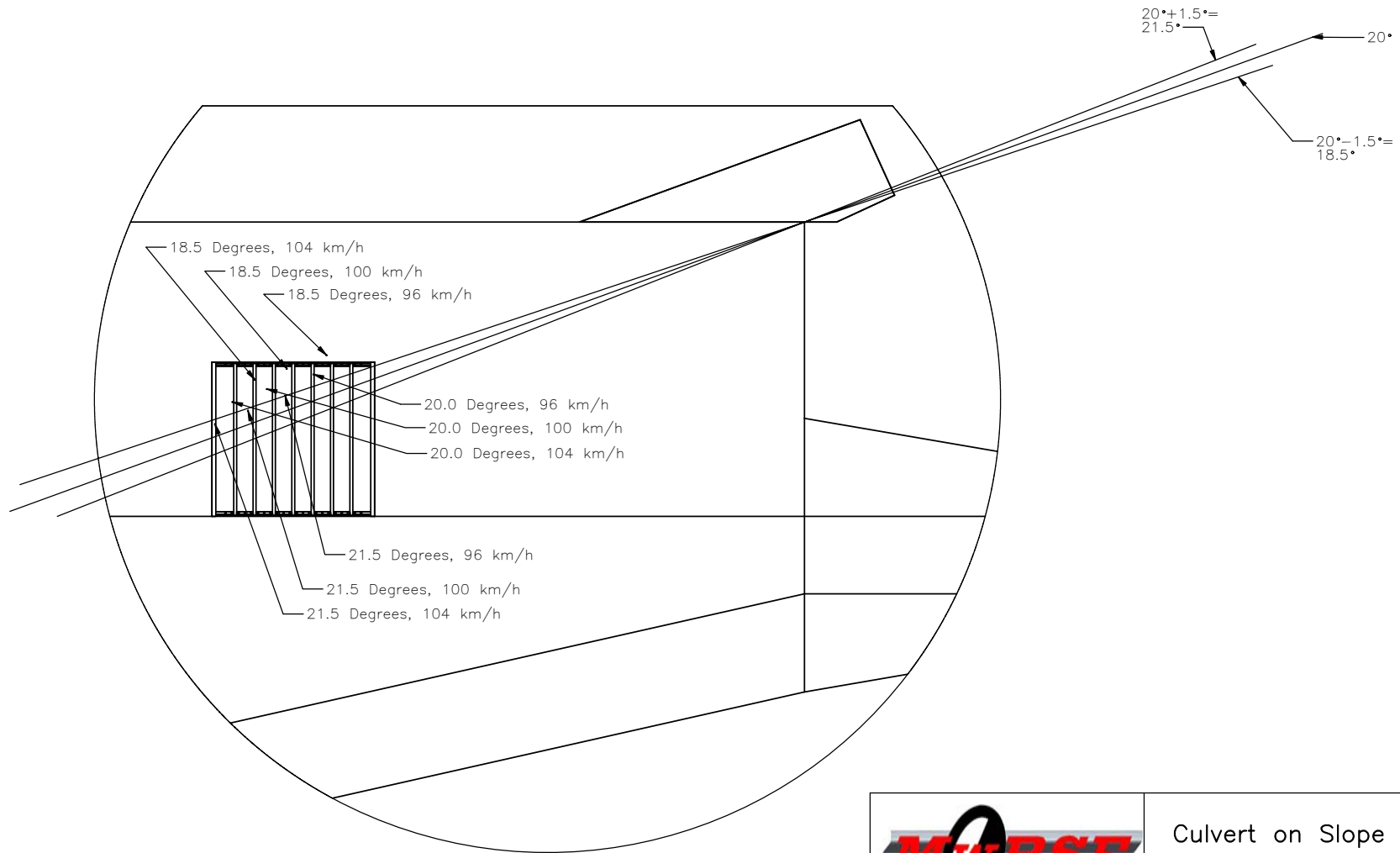
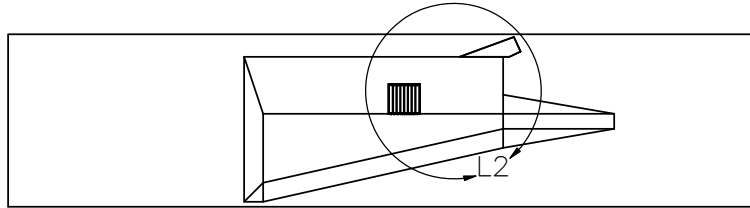
Midwest Roadside  
Safety Facility

Culvert on Slope  
Pickup Impact  
Tolerances (Reid)

DWG. NAME.  
Culvert\_System\_R3

SCALE: None  
UNITS: Inches

SHEET:  
10 of 11  
DATE:  
7/10/2006  
DRAWN BY:  
GEP  
REV. BY:  
KAP/RKF



DETAIL L2  
SCALE 1 : 250



Midwest Roadside  
Safety Facility

Culvert on Slope  
Small Car Impact  
Tolerances (Reid)

SHEET:  
11 of 11

DATE:  
7/10/2006

DRAWN BY:  
GEP

DWG. NAME:  
Culvert\_System\_R3

SCALE: None  
UNITS: Inches

REV. BY:  
KAP/RKF