

# STATE OF UTAH MSE WALL INSPECTION FORM

Compiled As Part of Research By The Utah Department of Transportation

**Instructions:**

1-Fill out required sections for MSE Wall Inspector and Wall Characteristics.

2-Inspect the wall using the attached form. Questions that require a 'Yes' answer should be documented by noting the extent of the problem in the right most column and photo documentation. Photo documentation should consist of wall or bridge number, nature of problem, date, photo number for wall, and a size reference, which should be indicated in the photo (white board/paper). Photos taken should be placed on the Top View layout and indicated with the appropriate number. Note should be taken by the inspector that often anomalies are due to construction and should be distinguished from those that are a result of post-construction. If it is observable that they existed at the time of construction note should be taken in the space provided for drawings.

3- Shoot digital photos of the entire wall. This may require the use of a variety of shots and angles on each wall to cover the wall in its entirety.

4- Indicate Layout of MSE Wall in respect to major intersections, roadways, potential hazards, irrigation, vegetation, locations of conditions for which 'Yes' was marked, etc. in space provided below. Also Indicate approximate GPS Coordinates of Site of Interest in space provided below

<b>Region</b>	3	<b>Identifying Road/Intersection</b>	US-6 and APRR W of Sorkogwin
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## MSE WALL CHARACTERISTICS

MSE Wall at Bridge	Y	N	Bridge Number if applicable:		Wall Number	R-436-B
Surrounding Structures	rail road			Maximum Height of Wall (ft)	19 FT	
Distance to Each Structure	20 FT			One Stage, Two Stage or Block Wall	1 stage	
State Route Number	US-6			Estimated Max Length of Wall Abutment:	160 FT	
Approximate Mile Marker				Max Slope of Ground in front of wall:	3	
GPS Datum	WGS/84, NAD/83, or NAD/27			Max Height of wall burial line above surrounding level ground:	0	
MSE Wall GPS Coordinates (Location of Measurement shown on plan view)	39°57'49.75"N 110°48'14.19"W			Please draw rough layout of panel with approximate dimensions in space provided below:		
If known, Panel or System Manufacturer				<div style="border: 1px solid black; width: 150px; height: 50px; margin: 0 auto; position: relative;"> <span style="position: absolute; top: -10px; left: 50%; transform: translate(-50%, -50%); font-size: 1.2em;">18"</span> <span style="position: absolute; left: -10px; top: 50%; transform: translateY(-50%); font-size: 1.2em;">8"</span> </div>		

**Summary of Key Observations:**

over all good  
erosion on north end just past wingwall

1 of 4

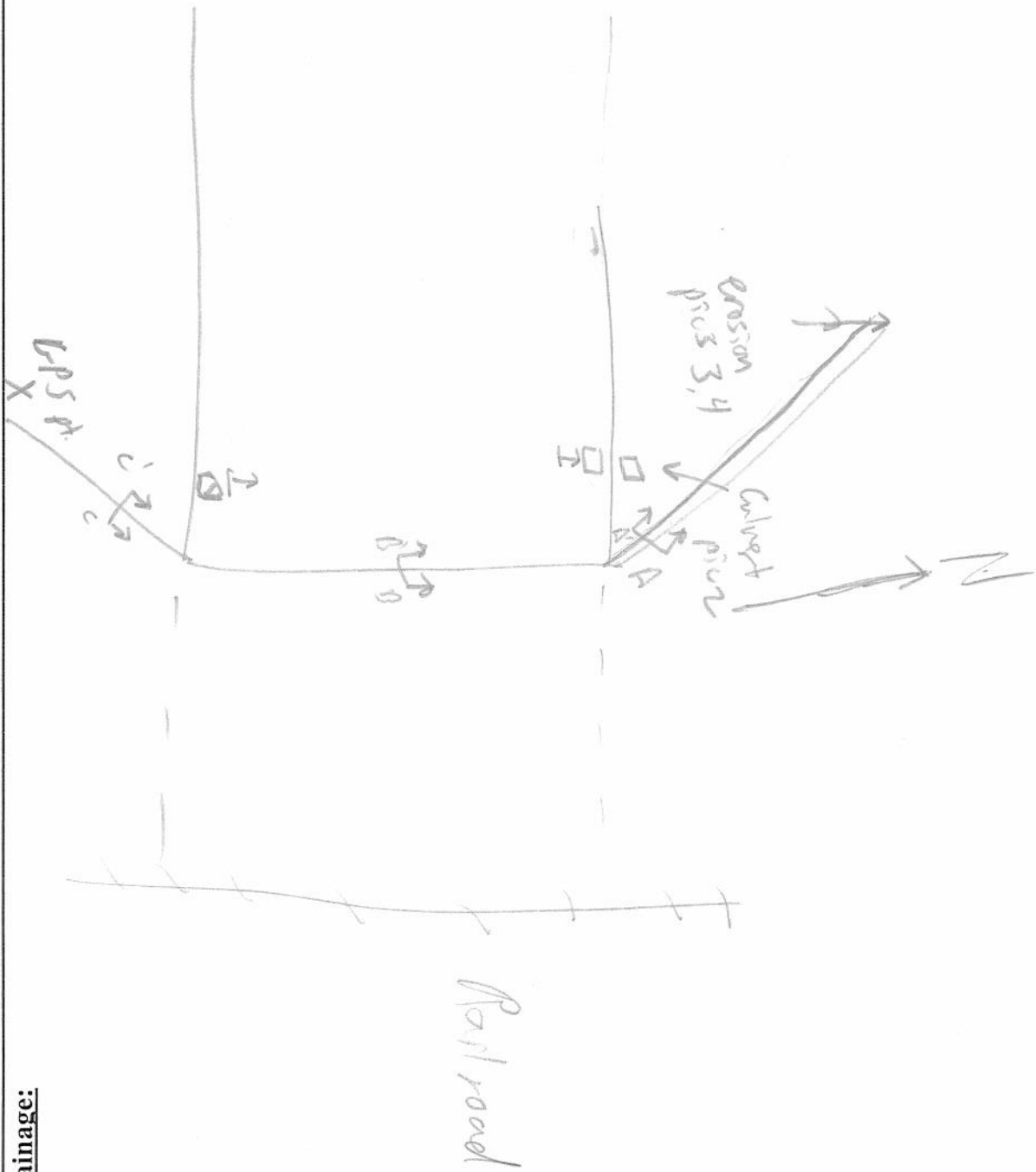
$$\begin{array}{r} 19 \\ 121252 \\ \hline 22 \end{array}$$

$$\begin{array}{r} 7 \\ 29 \\ 8 \\ \hline 252 \end{array}$$

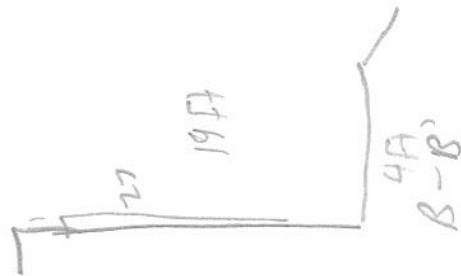
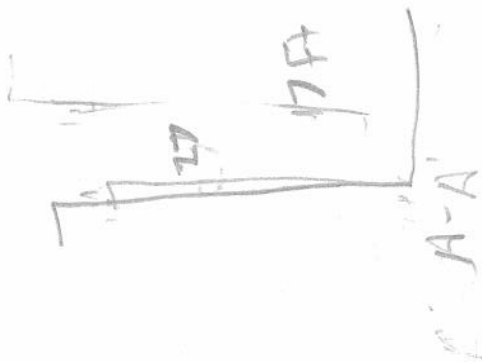
$$\begin{array}{r} 104 \\ 18 \\ 832 \\ \hline 940 \end{array}$$

$$\begin{array}{r} 15 \\ 171722 \\ \hline 87 \\ 81 \end{array}$$

Plan View/Drainage:



Cross Sections:



Cross Sections:

26  
2  
208  
12/13  
17  
802  
13  
1

MISE WALL DRAINAGE

Required Tests: Visual Moisture Results (PFS-Covers)		Measurement/Extent of Problem/Location/Photo Numbers	
Yes	No	Y	N
Y	N/A	UKN	1-Is there an active water source near the toe of the wall (i.e. the wall near a body of water with seepage potential)?
Y	N/A	UKN	2-If applicable, are the catch basins at the base of the wall blocked?
Y	N/A	UKN	3-Are there culverts protruding through the wall?
Y	N/A	UKN	4-Are there vertical drains that travel through the backfill?
Y	N/A	UKN	5-Is there erosion at the base of the wall or leveling pad? (Photo 12)
Y	N/A	UKN	6-Is there erosion along the wing wall?
Y	N/A	UKN	7-Are there any signs of water flow along the base of the wall?
Y	N/A	UKN	8-Is there less than 14 feet between impalement welders and wall?
Y	N/A	UKN	9-Does the backfill or joint fabric appear to be saturated?
Y	N/A	UKN	10-Is there vegetation growing in panel joints (Photo 8)?
Y	N/A	UKN	11-Are the deck drains and outlets at the top of the wall blocked? (Photo 14)
Y	N/A	UKN	12-Can water enter the wall between coping and slab (i.e., drains appropriately)?
Y	N/A	UKN	13-Is there evidence of discharge point of fill washing through drain pipe?

MISE WALL JOINTS

Required Tests: Long Lead String (PFS-Covers/CPFS)		Measurement/Extent of Problem/Location/Photo Numbers	
Yes	No	Y	N
Y	N/A	UKN	14-Is backfill coming out of joint or are there piles of backfill at the base of the wall? (Pictures 2 & 3)
Y	N/A	UKN	15-Are the joints wide enough to see fabric or backfill behind panels when locking into joint? (Photo 5) If not, record the approximate number of panels in the wall with cracking.
Y	N/A	UKN	16-Are there visible signs of water seepage through the joint? (Photo 4)
Y	N/A	UKN	17-Are there visible signs of water seepage through the joint? (Photo 4)
Y	N/A	UKN	18-Do the joints have a non-uniform horizontal spacing/size? Are some horizontal joints larger/wider than others? (Photo 6)
Y	N/A	UKN	19-Do the joints have a non-uniform vertical spacing/size? Are some vertical joints larger/wider than others? (Photo 6)
Y	N/A	UKN	20-Are the panels offset at the joints either in or out of the wall? (Photo 7) If yes, record the approximate measurement offset.
Y	N/A	UKN	21-Does the fabric appear brittle, or appear as if it has undergone excessive UV exposure?

MISE WALL FACING

Required Tests: Long Lead String (PFS-Covers/Crack Grout)		Measurement/Extent of Problem/Location/Photo Numbers	
Yes	No	Y	N
Y	N/A	UKN	22-Are the panels "Tilt-Up"? Is there excessive cracking in the panels?
Y	N/A	UKN	23-Are there cracks that continue vertically through adjacent panels (Photos 9 & 10)? If yes, record the approximate number of panels in the wall with cracking.
Y	N/A	UKN	24-Are there cracks that continue horizontally through adjacent panels (Photos 9 & 10)? If yes, record the approximate number of panels in the wall with cracking.
Y	N/A	UKN	25-Are the panel corners making contact with each other? If yes, record the approximate number in the wall.
Y	N/A	UKN	26-Are the panel corners "pop-out" or chipped from contact with an adjacent panel? If yes, record the number in the wall.
Y	N/A	UKN	27-Does crack spacing suggest Differential Settlement?
Y	N/A	UKN	28-Does the overlying coping exhibit Vertical Offset?
Y	N/A	UKN	29-Are the coping and parapets loose or detaching? If yes, it may be appropriate to contact UDOT if detachment seems eminent.
Y	N/A	UKN	30-Are the panels in danger of falling off? (If potential exists contact appropriate UDOT region).
Y	N/A	UKN	31-Are the panels bulging (bowing horizontally)? If so, record maximum deformation from accessible coping to leveling pad. (Photo 11)
Y	N/A	UKN	32-Are there any open cracks in the concrete coping (not hairline)? If yes, record the approximate maximum crack width.
Y	N/A	UKN	33-Do the connection joints in the concrete coping appear open up? (Photo 6). If yes, record the maximum joint width.

MISE TOP OF WALL OBSERVATIONS

Required Tests: Long Lead String (PFS-Covers)		Measurement/Extent of Problem/Location/Photo Numbers	
Yes	No	Y	N
Y	N/A	UKN	34-Is there evidence of settlement at the top of the wall? (prement cracking, etc)
Y	N/A	UKN	35-Do the coping and parapets appear to be loose or detaching? If yes, it may be appropriate to contact UDOT if detachment seems eminent.

27:1

Y	N/A	UKS	36-Is there a large gap between the approach slab and the approach pavement? (Photo 15) Often this produces a bumping sensation as the vehicle crosses. Record the approximate maximum gap size.	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	37-At the abutment, has the joint between the wall coping and the abutment opened up significantly? If so, record the maximum depth of the opening.	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	38-Is the coping wall pulling away from pavement (see survey section)? Please record maximum displacement for wall.	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%

**MISE STABILITY**

Required Issue:		Drawings:	Current:	Photo:	Measurements/Extent of Problem:	Location/Photo Numbers									
Y	N/A	UKS	39-What is the location depth of leveling pad? Found Close-Probe into soil located 2 inches from wall to maximum depth of 24 inches (24 inches is the minimum depth for MSE wall)	24+1	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	40-Is leveling pad exposed?		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	41-Is there cracking in the leveling pad? If so, record maximum crack size with gage.		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	42-Is there a four foot backfill (level slope) directly along the wall before the slope changes (Record Width)?		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	43-Is there a slope steeper than V: 1.5 to H: 1 in front of the wall? Please record slope and height of backfill above top of wall.		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	44-Is there a slope greater than V: 1.5 to H: 1 below the wall? Please record slope and height of backfill below the wall.		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	45-Is there excessive degradation of panel face?		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%

**MISE METAL CORROSION**

Required Issue:		Drawings:	Current:	Photo:	Measurements/Extent of Problem:	Location/Photo Numbers									
Y	N/A	UKS	46-Is there excessive corrosion on guardrails or other exposed metal that might indicate corrosive condition?		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	47-Are there major rust stains on the face panels? Along joints? If so, record total number.		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	48-Are any internal straps exposed? Does there appear to be corrosion on these straps? If applicable please record the total number of straps affected.		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	49-When a redability sample taken of exposed wall? If so, please indicate depth in inches.		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	50-Is there any indication of rebar corrosion (swelling bars, rust, exposed metal inside epoxy coating)? If so, please record the total number of rebar affected.		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%

**MISE IMPACT/COLLISION PROTECTION**

Required Issue:		Drawings:	Current:	Photo:	Measurements/Extent of Problem:	Location/Photo Numbers									
Y	N/A	UKS	51-Are guardrails/wall protections in place at the base of the wall (to protect it from potential traffic hazards)?		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	52-Does it appear that the wall has been involved in an accident (replaced panel, recent dig in the wall)?		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	53-Does it appear the wall's functionality and integrity has been compromised by a collision or accident?		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%

**MISE OBSTRUCTIONS IN REINFORCEMENT GEOMETRY**

Required Issue:		Drawings:	Current:	Photo:	Measurements/Extent of Problem:	Location/Photo Numbers									
Y	N/A	UKS	54-Are there acute wall angles (<90°)?		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%

**MISE AS BUILT DIFFERENT FROM DESIGN**

Required Issue:		Drawings:	Current:	Photo:	Measurements/Extent of Problem:	Location/Photo Numbers									
Y	N/A	UKS	55-Are there available drawings for the wall? Please indicate type (Situation and Layout, Design, As Built, etc.)		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	56-Is the layout in general accordance with drawings?		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	57-Are the panels CIP (Cast in Place) Does there appear to be excessive cracking in the panels?		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	58-Was GRC/Foam used in the construction of the wall?		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	59-Are there any structures on or near wall that were not included in initial drawing?		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	60-Are there any irrigation, utilities, or interferences that are not part of the initial drawing?		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	61-Have there been any excavations or evidence of excavations near the wall?		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	62-Have load property or owner changed the dynamics of the wall (additional structures, irrigation, vegetation, etc.)?		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	UKS	63-Are there filters located in the wall (bridge abutment)?		/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%