

# 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>	Port canyon river side #2 (R.V.P)
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## MSE WALL CHARACTERISTICS

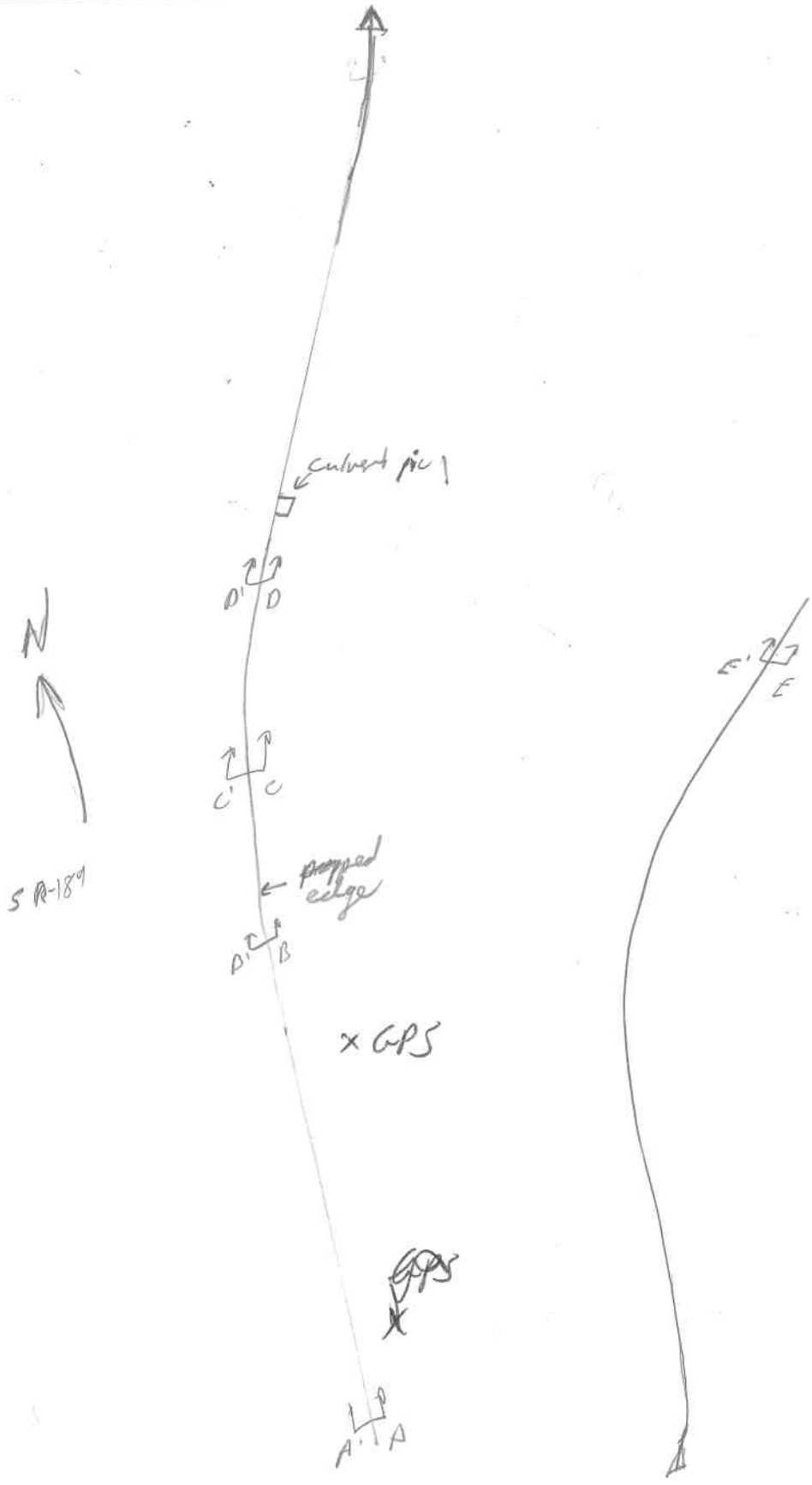
MSE Wall at Bridge	Y <u>N</u>	Bridge Number if applicable:		Wall Number	R-132
Surrounding Structures				Maximum Height of Wall (ft)	35 ft
Distance to Each Structure				One Stage, Two Stage or Block Wall	1-stage
State Route Number				Estimated Max Length of Wall Abutment:	760 ft
Approximate Mile Marker				Max Slope of Ground in front of wall:	2:1
GPS Datum	WGS/84, NAD/83, or NAD/27			Max Height of wall burial line above surrounding level ground:	15 ft

MSE Wall GPS Coordinates (Location of Measurement shown on plan view)	40° 20' 32.94" N 110° 36' 08.12" W	Please draw rough layout of panel with approximate dimensions in space provided below:
If known, Panel or System Manufacturer		

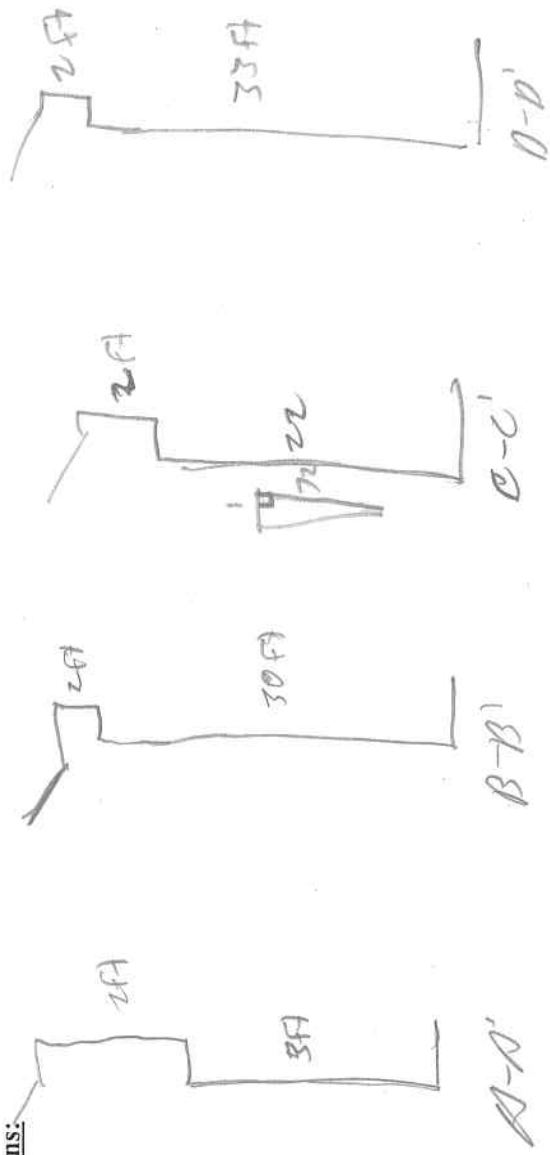
**Summary of Key Observations:**

looks good, but lots of vegetation at the base of the wall  
possible water damage from SR-189

Plan View/Drainage:



Cross Sections:



Cross Sections:



RISE WALL DAMAGE

RISE WALL DAMAGE

Required Issue:		Long Level Cracks	Vertical Cracks	Horizontal Cracks	Spalling	Delamination	Reinforcement	Joint	Other	Measurement/Extent of Problem/Location/Photo Numbers
Yes	No	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	Clear / 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-4 Does an active water source near the top of the wall (e.g. the wall near a body of water with wave potential)?
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-5 (If applicable, are the cracks located at the base of the wall blocked?)
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-6 Are there conduits protruding through the wall?
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-7 Are there vertical drains that extend through the backfill?
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-8 Do these drains extend to the base of the wall or leveling pad? (Photo 12)
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-9 Do these drains extend along the wing wall?
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-10 Are there any signs of water flow along the base of the wall?
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-11 Do these flow less than 14 feet between one irrigation sprinkler and wall?
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-12 Does the backfill or joint fabric appear to be saturated?
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-13 Do these vegetation growing in joint joints (Photo 13)?
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-14 Are the deck drains and outlets at the top of the wall blocked? (Photo 14)
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-15 Can water enter the wall between coping and abut (i.e., drain appropriately)?
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-16 Do these evidence at discharge points of fill washing through drain pipes?
RISE WALL JOINTS										
Required Issue:		Long Level Cracks	Vertical Cracks	Horizontal Cracks	Spalling	Delamination	Reinforcement	Joint	Other	Measurement/Extent of Problem/Location/Photo Numbers
Yes	No	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	Blocked / 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-17 Are the backfill coming out of joints or are there signs of backfill at the base of the wall? (Photos 2 & 3)
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-18 Are the joints wide enough to see fabric or backfill behind panels when looking into joints? (Photo 5)
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-19 Do the joints have evidence of backfill or water behind panels? (Photos 6 & 7)
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-20 Are there visible holes in the fabric? Is there evidence of backfill or water behind through joint? (Do not include additional damage to fabric)
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-21 Do the joints have a non-uniform horizontal spacing size? Are some horizontal joints larger/smaller than others? (Photo 8)
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-22 Do the joints have a non-uniform vertical spacing size? Are some vertical joints larger/smaller than others? (Photo 9)
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	1-23 Do the fabric appear brittle, or appear as if it has undergone excessive UV exposure?
RISE WALL FACING										
Required Issue:		Long Level Cracks	Vertical Cracks	Horizontal Cracks	Spalling	Delamination	Reinforcement	Joint	Other	Measurement/Extent of Problem/Location/Photo Numbers
Yes	No	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	Wall Facing / 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	21-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	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	21-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	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	22-Are the panel covers making contact with each other? If yes, record the approximate number in the wall.
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	23-Are the panel owners "popped-off" or chipped from contact with an adjacent panel? If yes, record the number in the wall.
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	24-Does the coping suggest Differential Settlement?
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	25-Over the coping, coping exhibits Vertical Offset?
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	26-Are the coping and parapet loose or delaminating? If yes, it may be appropriate to contact UDOT if delamination seems extensive.
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	27-Are the panels in danger of falling off? (If possible, note extent appropriate UDOT regions).
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	28-Are the panels bulging (swelling horizontally)? If so, record maximum deformation from accessible coping to leveling pad. (Photo 11)
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	29-Are there any open cracks in the concrete coping (not horizontal)? If yes, record the approximate maximum crack width.
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	30-Are the construction joints in the concrete coping spaced up? (Photo 6). If yes, record the maximum joint width.
RISE TOP OF WALL OBSERVATIONS										
Required Issue:		Long Level Cracks	Vertical Cracks	Horizontal Cracks	Spalling	Delamination	Reinforcement	Joint	Other	Measurement/Extent of Problem/Location/Photo Numbers
Yes	No	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	Top Of Wall / 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	31-Are there evidence of settlement at the top of the wall (movement resulting, etc)
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	32-Are there any open cracks in the concrete coping (not horizontal)? If yes, record the approximate maximum crack width.
Y	N	N/A	UNS	UNS	UNS	UNS	UNS	UNS	UNS	33-Are the construction joints in the concrete coping spaced up? (Photo 6). If yes, record the maximum joint width.

Y	N	N/A	UKS	56-Is there a large gap between the approach slab and the approach pavement? (Photo 15) Other than potholes or blinding, are there any voids or gaps between the approach slab and the approach pavement? If so, please describe the voids or gaps.	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/
Y	N	N/A	UKS	57-At the abutments, has the joint between the wall coping and the abutment opened up significantly? If so, record measurement distance.	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/
Y	N	N/A	UKS	58-Is the coping wall pulling away from pavement (measured by section)? Please record movement displacement for wall.	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/

**MSE STABILITY**

Measurement/Extent of Problems/Location/Photo Numbers																
Y	N	N/A	UKS	59-What is the location depth of leveling pad? (Photo 16) Has wall lowered 2 inches from wall to 4 inch measurement depth of 24 inches (24 inches is the measurement depth for MSE Wall).	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/
Y	N	N/A	UKS	60-Is leveling pad exposed?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/
Y	N	N/A	UKS	61-Is there cracking in the leveling pad? If so, record measurement, crack size with angle.	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/
Y	N	N/A	UKS	62-Is there a four foot bench (level slope) directly along the wall before the slope changes (Paved Width)?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/
Y	N	N/A	UKS	63-Is there a slope steeper than V: 1.5 to 1 (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	N/A	UKS	64-Is there a slope greater than V: 1.5 to 1 (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%	/

**MSE METAL CORROSION**

Measurement/Extent of Problems/Location/Photo Numbers																
Y	N	N/A	UKS	65-Is there extensive corrosion on guardrail or other exposed metal that might indicate corrosive conditions?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/
Y	N	N/A	UKS	66-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	N/A	UKS	67-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	N/A	UKS	68-Is there any indication of other corrosion (peeling back, rust, exposed metal under epoxy coating)? If so, please record the total number of panels affected.	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/

**MSE IMPACT/COLLISION PROTECTION**

Measurement/Extent of Problems/Location/Photo Numbers																
Y	N	N/A	UKS	69-Any guardrail wall protrusions in place at the base of the wall (to prevent it from potential traffic hazards)?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/
Y	N	N/A	UKS	70-Does it appear that the wall has been involved in an accident (exposed panel, rebar dips in the wall)?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/
Y	N	N/A	UKS	71-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%	/

**MSE OBSTRUCTIONS IN REINFORCEMENT GEOMETRY**

Measurement/Extent of Problems/Location/Photo Numbers																
Y	N	N/A	UKS	72-Are there extra wall angles (>90)?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/

**MSE AS BUILT DIFFERENT FROM DESIGN**

Measurement/Extent of Problems/Location/Photo Numbers																
Y	N	N/A	UKS	73-Is the layout in general accordance with drawings?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/
Y	N	N/A	UKS	74-Is the layout in general accordance with drawings?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/
Y	N	N/A	UKS	75-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	N/A	UKS	76-Was GEC/Flow used in the construction of the wall?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/
Y	N	N/A	UKS	77-Are there any structures on or near wall that were not included in initial drawings?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/
Y	N	N/A	UKS	78-Are there any irrigation, utilities, or impactions that are not part of the initial drawings?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/
Y	N	N/A	UKS	79-Have there been any excavations or evidence of excavation near the wall?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/
Y	N	N/A	UKS	80-Have there been any excavations or evidence of excavation near the wall (additional structures, irrigation, vegetation, etc.)?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/
Y	N	N/A	UKS	81-Are there piles located in the wall (bridge abutment)?	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/