

# 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> 57-189, 800 N. ave., west side

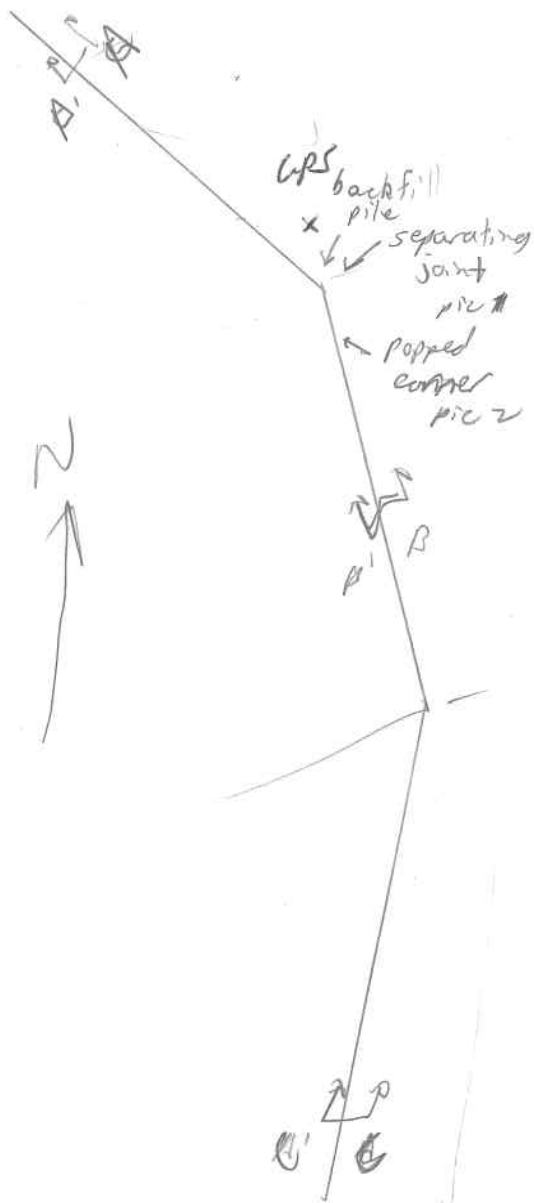
## MSE WALL CHARACTERISTICS

MSE Wall at Bridge	(Y) N	Bridge Number if applicable:		Wall Number
Surrounding Structures				Maximum Height of Wall (ft) 24 ft
Distance to Each Structure				One Stage, Two Stage or Block Wall 1-stage
State Route Number				Estimated Max Length of Wall Abutment: 130 ft
Approximate Mile Marker				Max Slope of Ground in front of wall: 0
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) 40° 18' 47.19" N 111° 39' 30.05" W	Please draw rough layout of panel with approximate dimensions in space provided below.
If known, Panel or System Manufacturer	

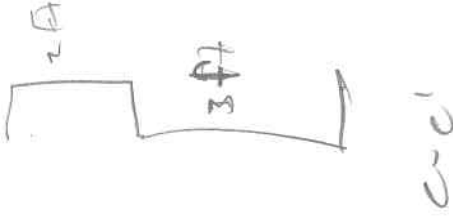
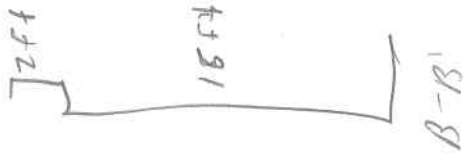
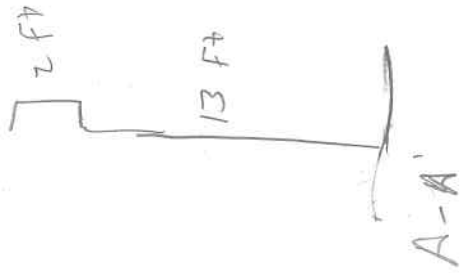
**Summary of Key Observations:**  
 seams with wing wall open

Plan View/Drainage:



SR-189

Cross Sections:



Cross Sections:

MSE WALL DRAINAGE

Required Item:	Long Level String - Center-C/S	Drainage	Measurement/Extent of Problem/Location/Photo Numbers
Yes	N/A	1-Is there an active water source near the toe of the wall (i.e. the wall near a body of water with seepage present)?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	2-If applicable, are the catch basins at the base of the wall blocked?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	3-Are there culverts protruding through the wall?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	4-Are there vertical drains that travel through the backfill?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	5-Is there erosion at the base of the wall or leveling pad? (Photo 12)	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	6-Is there erosion along the wing wall?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	7-Are there any signs of water flow along the base of the wall?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	8-Does the backfill or joint fabric appear to be saturated?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	9-Is there vegetation growing in post joints (Photo 9)?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	10-Is there vegetation growing in post blocks? (Photo 14)	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	11-Are the deck, drain and outlets at the top of the wall blocked? (Photo 14)	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	12-Can water enter the wall between coping and slab (i.e. Drain appropriately)?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	13-Is there evidence at discharge points of fill washing through drain pipes?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /

MSE WALL JOINTS

Required Item:	Long Level String - Center-C/S	Joints	Measurement/Extent of Problem/Location/Photo Numbers
Yes	N/A	14-Is backfill coming out of joints or are there piles of backfill at the base of the wall? (Pictures 2 & 3)	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	15-Are the joints wide enough to see fabric or backfill behind panels when looking into joint? (Photo 5) If yes, record the approximate maximum joint width in inches.	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	16-Is exposed backfill visible in the horizontal joint? (Photo 4)	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	17-Are there visible tears in the fabric? Is there evidence of backfill or water leaking through tear? (Do not induce additional damage in fabric)	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	18-Do the joints have a non-uniform horizontal spacing? Are some horizontal joints larger/smaller than others? (Photo 6)	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	19-Do the joints have a non-uniform vertical spacing? Are some vertical joints larger/smaller than others? (Photo 6)	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	20-Are the panels offset at the joint either in or out of the wall? (Photo 7) If yes, record the approximate maximum offset.	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	21-Does the fabric appear brittle, or appear as if it has undergone excessive UV exposure?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /

MSE WALL FACING

Required Item:	Long Level String - Center-C/S	Wall Facing	Measurement/Extent of Problem/Location/Photo Numbers
Yes	N/A	22-Are the panels "bulging"? Is there excessive cracking in the panels?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	23-Are there cracks that continue vertically through adjacent panels (Photos 8 & 10)? If yes, record the approximate number of panels in the wall with cracking.	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	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.	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	25-Is the panel former sticking out with each other? If yes, record the approximate number in the wall.	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	26-Are the panel corners "chipped off" or chipped from contact with an adjacent panel? If yes, record the number in the wall.	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	27-Does crack spacing suggest Differential Settlement?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	28-Does the overlying coping exhibit Vertical Offset?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	29-Is the coping and parapets loose or delimiting? If yes, it may be appropriate to contact LDOT if delimitation items exist.	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	30-Are the panels in danger of falling off? (If potential exist contact appropriate LDOT region).	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	31-Are the panels bulging (bowing, horizontal)? If so, record maximum deformation from accessible coping to leveling pad. (Photo 11)	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	32-Is there flaring at the top or bottom of the wall? Record maximum degree of flaring from astrich using vertical level rod affected area.	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /

MSE TOP OF WALL OBSERVATIONS

Required Item:	Long Level String - Center-C/S	Top Of Wall	Measurement/Extent of Problem/Location/Photo Numbers
Yes	N/A	33-Is there evidence of settlement at the top of the wall? (government cracking, etc)	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	34-Are there any signs of concrete coping (post bedding)? If yes, record the approximate maximum crack width.	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Yes	N/A	35-Is there the construction joint in the connecting coping opened up? (Photo 6). If yes, record the maximum joint width.	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /

Y	N	N/A	UNS	26-Is there a large gap between the approach slab and the approach pavement? (Please list other US, US, or UNS)	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	27-Is the alignment, but big joint between the wall coping and the abutment opened up significantly? (If so record maximum distance)	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	28-Is the coping wall pulling away from pavement/abutment? Please record maximum distance for wall.	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /

**Required Tests: Impact/Geotech**

Y	N	N/A	UNS	Structural Integrity	Measurement/Extent of Problem/Location/Photo Numbers
Y	N	N/A	UNS	29-What is the location depth of leveling pad? Please Note Probe into wall located 2 inches from wall to a maximum depth of 24 inches (24 inches is the maximum depth for MSE Wall)	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	30-Is leveling pad exposed?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	31-Is there cracking in the leveling pad? If so, record maximum crack size with gauge.	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	32-Is there a four foot board (fixed slope) directly along the wall before the slope changes (Fixed Wall)?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	33-Is there a slope steeper than V: 1.5 to H: 1 in front of the wall? Please record slope and height off backfill above top of wall.	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	34-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-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	35-Is there excessive degradation of panel face?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /

**Required Tests: Visual/Manual/Concrete/PS/20' Tack/High/Trawl**

Y	N	N/A	UNS	Metal Corrosion	Measurement/Extent of Problem/Location/Photo Numbers
Y	N	N/A	UNS	36-Is there excessive corrosion on guardrails or other exposed metal that might indicate corrosive conditions?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	37-Are there major rust stains on the face panels? Along joints? If so, record total number.	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	38-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-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	39-Is a relatively simple stain of exposed nail? If so, please indicate depth in inches.	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	40-Does any indication of rebar corrosion (swelling bars, rust, exposed metal inside epoxy coating)? If so please record the total number of rebar's.	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /

**Required Tests: Concrete/PS**

Y	N	N/A	UNS	Impact/Column	Measurement/Extent of Problem/Location/Photo Numbers
Y	N	N/A	UNS	41-Is the guardrail wall protrusions in place at the base of the wall (to prevent it from potential failure)?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	42-Does it appear that the wall has been involved in an accident (replaced panel, recent dip in the wall)?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	43-Does it appear the walls functionality and integrity has been compromised by a collision or accident?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /

**Required Tests: Drawings**

Y	N	N/A	UNS	Obstructions in Reinforcement Geometry	Measurement/Extent of Problem/Location/Photo Numbers
Y	N	N/A	UNS	44-Are there waste wall angles (cut)?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /

**Required Tests: Drawings/Concrete/PS**

Y	N	N/A	UNS	MSE as built different from design	Measurement/Extent of Problem/Location/Photo Numbers
Y	N	N/A	UNS	45-Are there visible drawings for the wall? Please indicate type (Situation and Layout, Design, As Built, etc.)	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	46-Is the layout in general accordance with drawings?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	47-Are the panel CIP (Cast in Place)? Does there appear to be excessive cracking in the panel?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	48-Was GEOFIBER used in the construction of the wall?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	49-Are there any structures on or near wall that were not included in initial drawings?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	50-Are there any inclusions, voids, or inclusions that are not part of the initial drawings?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	51-Have there been any excavations or evidence of excavation near the wall?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	52-Have local property owners changed the dynamics of the wall (additional structures, irrigation, vegetation, etc.)?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	N/A	UNS	53-Are there piles located in the wall (bridge abutment)?	/ 0-Nb 1% 5% 10% 25% 50% 75% 90% 95% 100% /

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

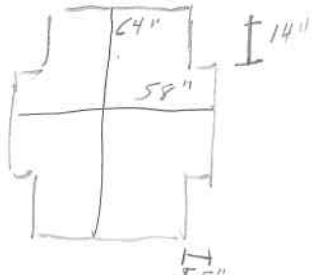
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4- Indicate Layout of MSE Wall in respect to major intersections, roadways, potential hazards, irrigation, vegetation, locations of conditions for which 'Yes' was marked, etc. in space provided below. Also Indicate approximate GPS Coordinates of Site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

<b>Region</b>	<u>3</u>	<b>Identifying Road/Intersection</b>	
			<u>800 N, SR-189 (East side)</u>

## MSE WALL CHARACTERISTICS

MSE Wall at Bridge	<u>(Y)</u> N	Bridge Number if applicable:		Wall Number
Surrounding Structures				Maximum Height of Wall (ft) <u>29 ft</u>
Distance to Each Structure			One Stage, Two Stage or Block Wall	<u>1 stage</u>
State Route Number			Estimated Max Length of Wall Abutment:	
Approximate Mile Marker			Max Slope of Ground in front of wall:	<u>4:1</u>
GPS Datum	WGS/84, NAD/83, or NAD/27		Max Height of wall burial line above surrounding level ground:	<u>12 ft</u>
MSE Wall GPS Coordinates (Location of Measurement shown on plan view)	<u>40° 18' 48.02" N 111° 39' 38.39" W</u>		Please draw rough layout of panel with approximate dimensions in space provided below:	
If known, Panel or System Manufacturer				

**Summary of Key Observations:**

*plants growing from cracks*  
*panel corrosion*  
*panel cracking*