

STATE OF UTAH MSE WALL INSPECTION FORM

Compiled As Part of Research By The Utah Department of Transportation

Instructions:

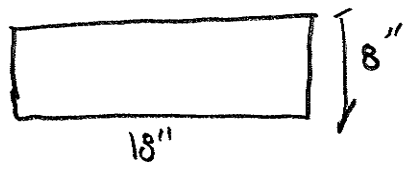
- 1- Fill out required sections for MSE Wall Inspector and Wall Characteristics.
- 2- Inspect the wall using the attached form. Questions that require a 'Yes' answer should be documented by noting the extent of the problem in the right most column and photo documentation. Photo documentation should consist 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

Inspector Information

| | | | |
|------------------------|---------|--------------------------------------|-------------------------|
| Inspection Date | 7/30/07 | Names Of Inspectors | Ryan Maw, Holly Griffin |
| Region | 2 | Identifying Road/Intersection | I-80, MP 139 |

MSE WALL CHARACTERISTICS

| | | | | | |
|--|----------------------------|-------------------------------------|--|---|---------|
| MSE Wall at Bridge: | (Y) N | Bridge Number if applicable: | | Wall Number | R-404 |
| Surrounding Structure | CULVERT | | | Maximum Height of Wall (ft) | 16.5 FT |
| Distance to Each Structure | ~30 | | | One Stage, Two Stage or Block Wall | Block |
| State Route Number | I-80 | | | Estimated Max Length of Wall Abutment: | 41 FT |
| Approximate Mile Marker | 154 | | | 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) | N 40° 48.701' | | | | |
| | W 111° 24.060' | | | | |
| If known, Panel or System Manufacturer | | | | | |



Summary of Key Observations:

NEWER WALL w/ LIMITED PROBLEMS
 NW WITH WALL EROSION w/ WATER ABLE TO DRAIN PHOTO # 7

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MSE WALL DRAWING

| Required Item | Yes | No | UKN | Measurement/Extent of Problem/Location/Photo Numbers |
|--|-----|----|-----|--|
| 1. Is there any water seepage over the face of the wall (is the wall near a body of water with water potential)? | Y | N | N/A | STREAM |
| 2. If applicable, are the catch basins at the base of the wall blocked? | Y | N | N/A | |
| 3. Are there curbs remaining through the wall? | Y | N | N/A | |
| 4. Are there vertical drains that lined through the backfill? | Y | N | N/A | |
| 5. Is there erosion at the base of the wall or leveling proof? (Photo 12) | Y | N | N/A | |
| 6. Is there erosion along the wing wall? | Y | N | N/A | |
| 7. Are there any signs of water flow along the base of the wall? | Y | N | N/A | No Gutters/Drains |
| 8. Is there less than 14 feet between irrigation sprinklers and wall? | Y | N | N/A | |
| 9. Does the backfill or joint fabric appear to be saturated? | Y | N | N/A | |
| 10. Is there vegetation growing in panel joints (Photo 8)? | Y | N | N/A | |
| 11. Are the deck drains and outside at the top of the wall blocked? (Photo 14) | Y | N | N/A | |
| 12. Can water enter the wall between coping and slab (i.e., drain appropriately)? | Y | N | N/A | |
| 13. Is there evidence at discharge point of fill washing through drain pipes? | Y | N | N/A | |

MSE WALL JOINTS

| Required Item | Yes | No | UKN | Measurement/Extent of Problem/Location/Photo Numbers |
|---|-----|----|-----|--|
| 14. Is backfill coming out of joints or are there piles of backfill at the base of the wall? (Photos 2 & 3) | Y | N | N/A | |
| 15. Are the joints wide enough to see fabric or backfill behind panels when looking into joints? (Photo 5) If so, are they too wide? | Y | N | N/A | |
| 16. Is exposed backfill visible in the horizontal panel? (Photo 4) | Y | N | N/A | |
| 17. Are there visible tears in the fabric? Is there evidence of backfill or water leaking through tears? (Do not include additional damage to fabric) | Y | N | N/A | |
| 18. Do the joints have a non-uniform horizontal spacing? Are some horizontal joints larger/smaller than others? (Photo 6) | Y | N | N/A | |
| 19. Do the joints have a non-uniform vertical spacing? Are some vertical joints larger/smaller than others? (Photo 5) | Y | N | N/A | |
| 20. Do the joints exhibit any offset at the joints either in or out of the wall? (Photo 7) If yes, record the maximum offset. | Y | N | N/A | |
| 21. Does the fabric appear brittle, or appear as if it has undergone excessive UV exposure? | Y | N | N/A | |

MSE WALL FINISH

| Required Item | Yes | No | UKN | Measurement/Extent of Problem/Location/Photo Numbers |
|---|-----|----|-----|--|
| 22. Are the panels "flipped"? Is there excessive embedding in the panel? | Y | N | N/A | |
| 23. Are there cracks that continue vertically through adjacent panels (Photos 9 & 10)? If yes, record the maximum number of panels in the wall with cracking. | Y | N | N/A | |
| 24. Are there horizontal cracks in the panels? If yes, record the maximum number of panels in the wall with cracking. | Y | N | N/A | |
| 25. Are the panel corners making contact with each other? If yes, record the approximate number in the wall. | Y | N | N/A | |
| 26. Are the panel corners "popped-off" or clipped from contact with an adjacent panel? If yes, record the number in the wall. | Y | N | N/A | |
| 27. Does crack spacing suggest Differential Settlement? | Y | N | N/A | |
| 28. Does the overlying coping exhibit Vertical Offset? | Y | N | N/A | |
| 29. Are the coping and parapets loose or delimiting? If yes, it may be appropriate to contact UDOT if delimitation occurs imminent. | Y | N | N/A | |
| 30. Are the panels in danger of falling off? If potential exists contact appropriate UDOT region. | Y | N | N/A | |
| 31. Are there signs of backfill protruding horizontally? If so, record maximum information from accessible coping on leveling proof (Photo 11) | Y | N | N/A | |
| 32. Is there "ripping" at the top or bottom of the wall? Record maximum degree of ripping from south (using vertical level and affected area). | Y | N | N/A | |

MSE TOP OF WALL OBSERVATIONS

| Required Item | Yes | No | UKN | Measurement/Extent of Problem/Location/Photo Numbers |
|--|-----|----|-----|--|
| 33. Is there evidence of settlement at the top of the wall? (prevention embedding, etc) | Y | N | N/A | |
| 34. Are there any open cracks in the concrete coping from landfill? If yes, record the approximate maximum crack width. | Y | N | N/A | |
| 35. Have the construction joints in the concrete coping spaced apart? (Photo 6) If yes, record the maximum joint width. | Y | N | N/A | |
| 36. Is there a large gap between the approach slab and the approach pavement? (Photo 15) Other than this produces a tripping situation as the vehicles are crossed. Record the approximate maximum gap size. | Y | N | N/A | |

| | | | | | | | | | | | | | | |
|---|-----|--|---|------|----|----|-----|-----|-----|-----|-----|-----|------|---|
| Y | UNN | 17-At the abutments, has the joint between the wall coping and the abutment opened up significantly? If so, record maximum distance. | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |
| Y | UNN | 18-Is the coping wall pulling away from pavement/roadway sections? Please record maximum displacement. | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |

| MSR STABILITY | | | | | | | | | | | | | | | |
|----------------------|---------------|---|---|---|------|----|----|-----|-----|-----|-----|-----|-----|------|---|
| Structural Integrity | | | | | | | | | | | | | | | |
| Requirement | Pass/Fail/Unk | Measure/Extent of Problem/Location/Photo Number | | | | | | | | | | | | | |
| Yes | N/A | UNN | 19-What is the location depth of existing panel? Please Give Probe rate soil located 2 inches from wall to a maximum depth of 24 inches (24 inches is the minimum depth for MSR Wall) | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |
| Y | N | UNN | 40-Is leveling pad present? | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |
| Y | N | UNN | 41-Is there cracking in the leveling pad? If so, record maximum crack size with gauge. | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |
| Y | N | UNN | 42-Is there a four foot "head" (head depth) directly along the wall before the slope changes (Recent Weather)? | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |
| Y | N | UNN | 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 | UNN | 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 | UNN | 45-Is there excessive degradation of panel face? | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |

| MSR METAL CORROSION | | | | | | | | | | | | | | | |
|---------------------|---------------|---|--|---|------|----|----|-----|-----|-----|-----|-----|-----|------|---|
| Metal Corrosion | | | | | | | | | | | | | | | |
| Requirement | Pass/Fail/Unk | Measure/Extent of Problem/Location/Photo Number | | | | | | | | | | | | | |
| Yes | N/A | UNN | 46-Is there excessive corrosion on guardrails or other exposed metal that might indicate corrosion conditions? | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |
| Y | N | UNN | 47-Are there major rust stains on the face panels? Along joints? If so, record total surface. | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |
| Y | N | UNN | 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 | UNN | 49-Was a rebar/survey sample taken at exposed wall? If so, please indicate depth in inches. | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |
| Y | N | UNN | 50-Is there any indication of rebar corrosion (swelling bars, rust, exposed metal inside every 6" E)? If so please record the total number of panels affected. | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |

| MSR IMPACT COLLISION PROTECTION | | | | | | | | | | | | | | | |
|---------------------------------|---------------|---|---|---|------|----|----|-----|-----|-----|-----|-----|-----|------|---|
| Impact Conditions | | | | | | | | | | | | | | | |
| Requirement | Pass/Fail/Unk | Measure/Extent of Problem/Location/Photo Number | | | | | | | | | | | | | |
| Y | N | UNN | 51-Are guardrails/wall projections 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 | UNN | 52-Does it appear that the wall has been involved in an incident (exposed panel, excess damage to the wall)? | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |
| Y | N | UNN | 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% | / |

| MSR OBSTRUCTIONS IN REINFORCEMENT GEOMETRY | | | | | | | | | | | | | | | |
|--|---------------|---|---------------------------------------|---|------|----|----|-----|-----|-----|-----|-----|-----|------|---|
| Obstructions in Reinforcement Geometry | | | | | | | | | | | | | | | |
| Requirement | Pass/Fail/Unk | Measure/Extent of Problem/Location/Photo Number | | | | | | | | | | | | | |
| Y | N | UNN | 54-Are there joint wall angles (45°)? | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |

| MSR AS BUILT DIFFERENT FROM DESIGN | | | | | | | | | | | | | | | |
|------------------------------------|---------------|---|---|---|------|----|----|-----|-----|-----|-----|-----|-----|------|---|
| Drawing Comments | | | | | | | | | | | | | | | |
| Requirement | Pass/Fail/Unk | Measure/Extent of Problem/Location/Photo Number | | | | | | | | | | | | | |
| Y | N | UNN | 55-Are there visible drawings for the wall? Please indicate type (Foundation and Layout, Design, As Built, etc.) | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |
| Y | N | UNN | 56-Is the layout in general accordance with drawings? | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |
| Y | N | UNN | 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 | UNN | 58-Was GFD/FRAM used in the construction of the wall? | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |
| Y | N | UNN | 59-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 | UNN | 60-Are there any impurities, utilities, or antennas that are not part of the initial drawings? | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |
| Y | N | UNN | 61-Has there been any excavation or evidence of excavation near the wall? | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |
| Y | N | UNN | 62-Have local property owners checked the dynamics of the wall (additional structures, impurities, vegetation, etc.)? | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |
| Y | N | UNN | 63-Are there piles located in the wall (bridge abutment)? | / | 0-No | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 100% | / |