

# 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.

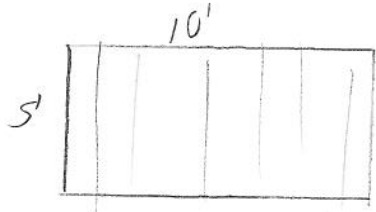
2-Inspect the wall using the attached form. Questions that require a 'Yes' answer should be documented by noting the extent of the problem in the right most column and photo documentation. Photo documentation should consist of wall or bridge number, nature of problem, date, photo number for wall, and 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>	<b>Identifying Road/Intersection</b>	I-15 onramp from 500 S, 520
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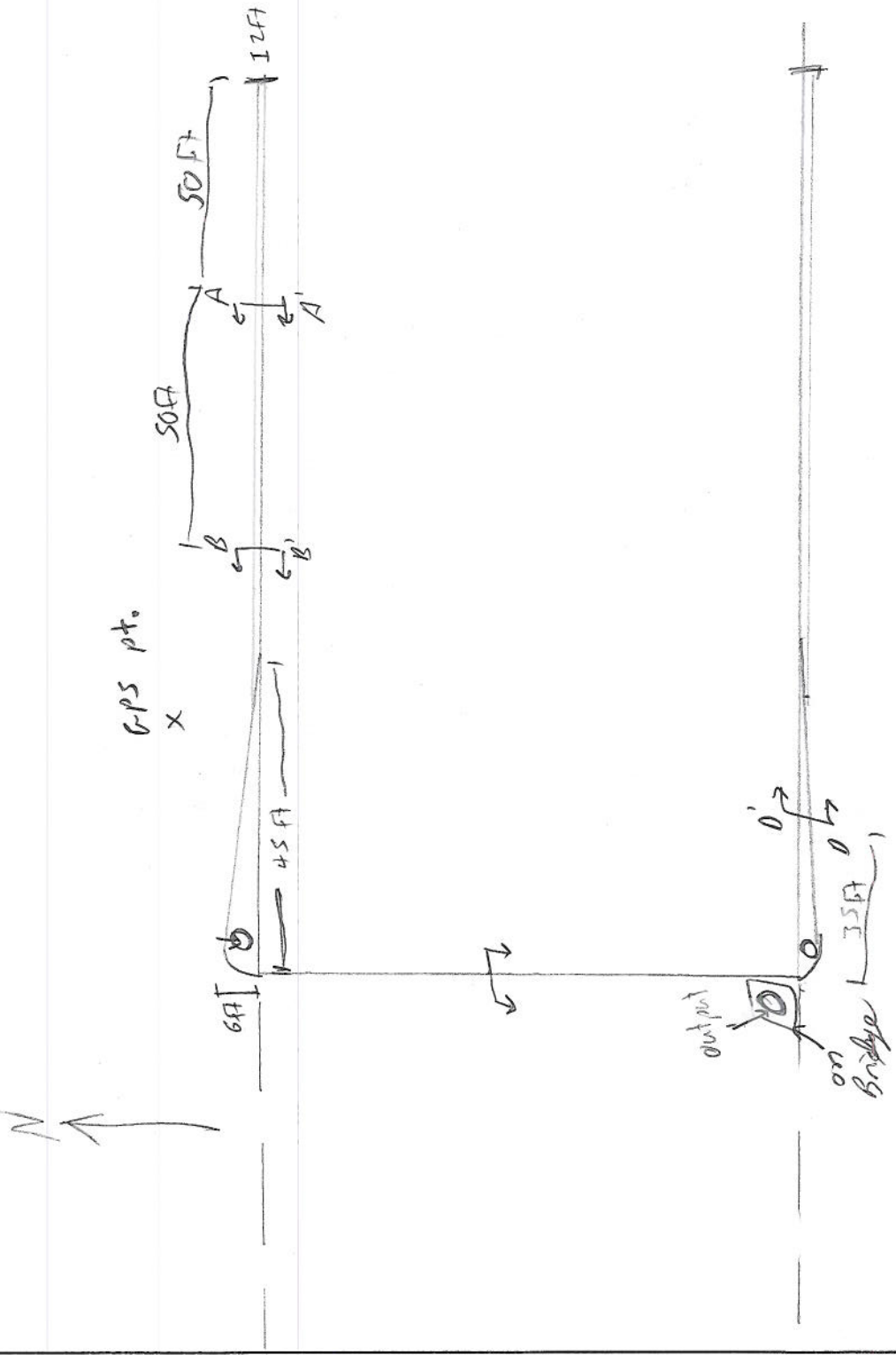
## MSE WALL CHARACTERISTICS

MSE Wall at Bridge	(Y) N	Bridge Number if applicable:	Wall Number	R-351-37
Surrounding Structures	sign post		Maximum Height of Wall (ft)	17.5 ft
Distance to Each Structure	3 ft		One Stage, Two Stage or Block Wall	
State Route Number	I-15		Estimated Max Length of Wall Abutment:	430 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:	unknown
MSE Wall GPS Coordinates (Location of Measurement shown on plan view)	40° 45' 31.09" N, 111° 54' 23.90" W		Please draw rough layout of panel with approximate dimensions in space provided below:	
If known, Panel or System Manufacturer				

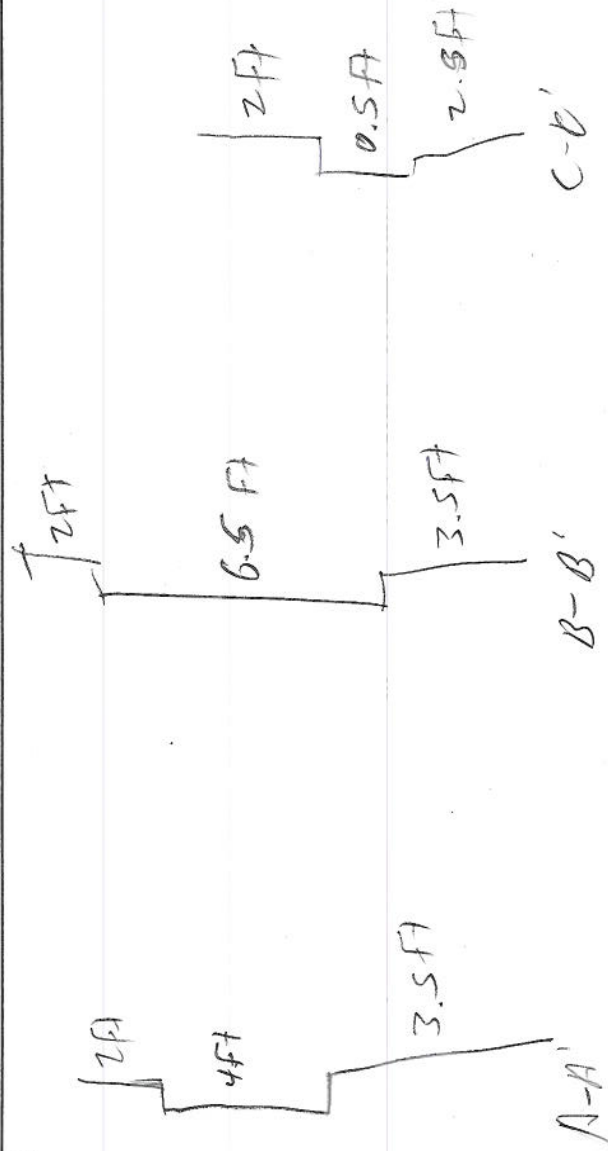
**Summary of Key Observations:**

lots of vegetation on north face.

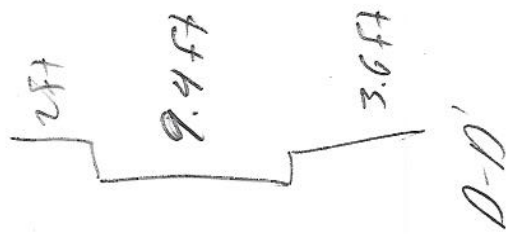
Plan View/Drainage:



Cross Sections:



Cross Sections:





MISE WALL DRAINAGE

Required Issue:		Long Level Spring/GFS/Cracks	Drainage	Measurement/Extent of Problem/Location/Photo Numbers
Yes	No	UNSN	1-Is there an active water source near the toe of the wall (i.e. water well near a body of water with seepage)?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	2-If applicable, are the catch basins at the base of the wall blocked?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	3-Are there culverts protruding through the wall?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	4-Are there vertical drains that travel through the backfill?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	5-Is there erosion at the base of the wall or leveling post? (Photo 12)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	6-Is there erosion along the wing wall?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	7-Are there any signs of water flow along the base of the wall?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	8-Is there less than 14 feet between irrigation sprinklers and wall?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	9-Does the backfill or joint fabric appear to be saturated?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	10-Is there vegetation growing in panel joints (Photo 8)?	Partial / 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	11-Are the deck drains and outlets at the top of the wall blocked? (Photo 14)	Blocked / 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	12-Can water enter the wall between coping and slab (i.e., drains appropriately)?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	13-Is there evidence of discharge point of fill washing through drain pipe?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

*probably not  
a rising base of panel north*

MISE WALL JOINTS

Required Issue:		Long Level Spring/GFS/Cracks	Joint	Measurement/Extent of Problem/Location/Photo Numbers
Yes	No	UNSN	14-Is backfill coming out of joint or are there piles of backfill at the base of the wall? (Photos 2 & 3)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	15-Are the joints wide enough to see fabric or backfill behind panels when locking into joint? (Photo 5) If not, are there any signs of fabric or backfill behind panels when locking into joint? (Photo 4)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	16-Are there visible signs in the fabric? Is there evidence of backfill or water leaking through seam? (Do not induce additional damage to fabric)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	17-Do the joints have a non-uniform horizontal spacing/dim? Are some horizontal joints larger/smaller than others? (Photo 6)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	18-Do the joints have a non-uniform vertical spacing/dim? Are some vertical joints larger/smaller than others? (Photo 6)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	19-Do the panels offset at the joint either in or out of the wall? (Photo 7) If yes, record the approximate maximum offset.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	20-Do the panels appear brittle, or appear as if they have undergone excessive UV exposure?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

MISE WALL FINISH

Required Issue:		Long Level Spring/GFS/Cracks	Wall Finishing	Measurement/Extent of Problem/Location/Photo Numbers
Yes	No	UNSN	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.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	22-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-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	23-Do the panel corners make contact with each other? If yes, record the approximate number in the wall.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	24-Do the panel corners "pop-out" or chip off from contact with an adjacent panel? If yes, record the number in the wall.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	25-Does crack spacing suggest Differential Settlement?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	26-Does the coping coping exhibit Vertical Offset?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	27-Are the coping and parapet loose or detaching? If yes, it may be appropriate to contact LDOT if detachment seems eminent.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	28-Are the panels in danger of falling off? (If potential exist, contact appropriate LDOT region).	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	29-Is the panel bulging (showing horizontal)? If so, record maximum deformation from accessible surface.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	30-Is the coping or parapet loose or detaching? If yes, it may be appropriate to contact LDOT if detachment seems eminent.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	31-Is there any open cracks in the concrete coping (not hairline)? If yes, record the approximate maximum crack width.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	32-Is there the connection joints in the concrete coping opened up? (Photo 6). If yes, record the maximum joint width.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /

MISE TOP OF WALL OBSERVATIONS

Required Issue:		Long Level Spring/GFS/Cracks	Top Of Wall	Measurement/Extent of Problem/Location/Photo Numbers
Yes	No	UNSN	33-Is there evidence of movement at the top of the wall (movement cracking, etc)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	34-Are there any open cracks in the concrete coping (not hairline)? If yes, record the approximate maximum crack width.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
Y	N	UNSN	35-Is there the connection joints in the concrete coping opened up? (Photo 6). If yes, record the maximum joint width.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /



Y	N/A	USN	36-1-Is there a large gap between the approach side and the approach pavement? (Photo 1) Often this is due to the approach being too steep. Record the approximate maximum gap size.	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	37-1-Is there a large gap between the approach side and the approach pavement? (Photo 2) Often this is due to the approach being too steep. Record the approximate maximum gap size.	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	38-1-Is the coping/wall pulling away from pavement/roadway section? Please record maximum displacement for wall.	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%

NISE STABILITY

Required Tests:		Shovel, GPS-Probe													
Yes	No	N/A	USN												
Y	N/A	USN	39-1-What is the location depth of leveling pad? Found One-Probe from soil located 2 inches from wall to a maximum depth of 24 inches (24 inches is the minimum depth for MSE Wall)	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	40-1-Is leveling pad exposed?	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	41-1-Is there cracking in the leveling pad? If so, record maximum crack size with edge.	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	42-1-Is there a four foot bench (level slope) directly along the wall below the slope change (Round Wall)?	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	43-1-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.	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	44-1-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.	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	45-1-Is there excessive degradation of panel faces?	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%

*all concrete reinforcement*

*all flat*

NISE METAL CORROSION

Required Tests:		Nylon Mesh Corrosion/PS-2/24 Lock Ring tested													
Yes	No	N/A	USN												
Y	N/A	USN	46-1-Is there excessive corrosion on guardrails or other exposed metal that might indicate corrosive conditions?	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	47-1-Is there major rust stain on the face panels? Along joints? If so, record total number.	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	48-1-Is there any internal damp exposure? Does there appear to be corrosion on these steps? If applicable please record the total number of steps affected.	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	49-1-Is there any indication of other corrosion (swelling bars, rust, exposed metal inside epoxy coating)? If so, please record the total number of panels affected.	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%

NISE IMPACT COLLISION PROTECTION

Required Tests:		Concrete/Steel													
Yes	No	N/A	USN												
Y	N/A	USN	51-1-Is there guardrail wall protrusions in place at the base of the wall (to protect it from potential impacts)?	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	52-Does it appear that the wall has been involved in an accident (replaced panel, recent dips in the wall)?	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	53-Does it appear the wall is functionally and integrity has been compromised by a collision or accident?	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%

NISE OBSTRUCTIONS IN REINFORCEMENT GEOMETRY

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

NISE AS BUILT DIFFERENT FROM DESIGN

Required Tests:		Drawings/Concrete/PS													
Yes	No	N/A	USN												
Y	N/A	USN	55-1-Is there available drawings for the wall? Please indicate type (Station and Layout, Design, As Built, etc.)	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	56-1-Is the layout in general accordance with drawings?	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	57-1-Is the panel C/P (Cast in Place)? Does there appear to be excessive cracking in the panel?	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	58-1-Is GED/GOM used in the construction of the wall?	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	59-1-Are there any structures on or near wall that were not included in initial drawing?	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	60-1-Are there any irrigation, utilities, or structures that are not part of the initial drawing?	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	61-1-Has there been any excavation or evidence of excavation near the wall?	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	62-1-Has local property owners changed the dynamics of the wall (additional structures, irrigation, vegetation, etc.)	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%
Y	N/A	USN	63-1-Are there piles located in the wall (bridge abutment)?	Measurement/Extent of Problem/Location/Photo Numbers	/	0-No	1%	5%	10%	25%	50%	75%	90%	95%	100%