

STATE OF UTAH MSE WALL INSPECTION FORM

Compiled As Part of Research By The Utah Department of Transportation

Instructions:

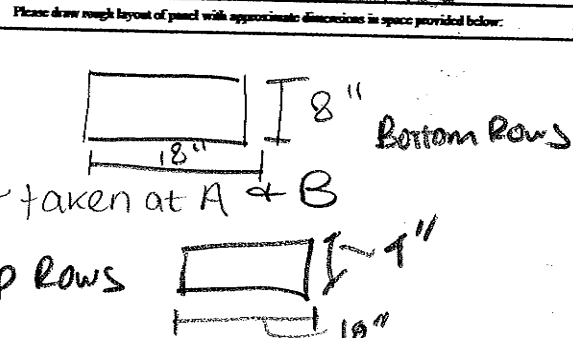
- 1- Fill out required sections for MSE Wall Inspector and Wall Characteristics.
- 2- Inspect the wall using the attached form. Questions that require a 'Yes' answer should be documented by noting the extent of the problem in the right most column and photo documentation. Photo documentation should consist 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	8/20/07	Names Of Inspectors	Ryan Maw, Holly Griffin
Region	1	Identifying Road/Intersection	SR-89

MSE WALL CHARACTERISTICS

MSE Wall at Bridge	Y	N	Bridge Number if applicable:	Wall Number	R-376
Surrounding Structures				Maximum Height of Wall (ft)	varies
Distance to Each Structure				One Stage, Two Stage or Block Wall	block walls
State Route Number			SR-89	Estimated Max Length of Wall Abutment	varies
Approximate Mile Marker				Max Slope of Ground in front of wall	varies
GPS Datum	WGS/84	NAD/83, or NAD/27		Max Height of wall burial line above surrounding level ground	varies
MSE Wall GPS Coordinates (Location of Measurement shown on plan view)	N 41° 49.936 W 111° 35.973				
If known, Panel or System Manufacturer	unknown				



Summary of Key Observations:

Bridge F-680 : walls M, N, O, P - MP 484

↑ CIP ↓ MB
 ↗ ↖

D-382 : walls Q, R, S, T - CIP

wall L: modular block

wall K: modular block

walls: I, J - not built

Bridge F-679: walls G and H are Rock walls
 wall F - modular Block - vert. drainboxed

E-2407 : MP481 - wall E and D

wall C - not built

walls A & B - please see next form

please see
drawing
(last page)
for layout
OF SITUATION & LAYOUT DRAWINGS IN
ELECTRONIC FORM

Cross Sections:

Cross Sections:

NISE WALL DAMAGE

Requirement	Yes	No	N/A	UNKN	Drainage	Measurement/Extent of Problem/Location/Photo Numbers
1. Is there an active water source near the top of the wall (is the wall over a body of water with water seepage)?	Y	N	N/A	UNKN	2. If applicable, are the cracks on the base of the wall blocked?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
2. If applicable, are the cracks on the base of the wall blocked?	Y	N	N/A	UNKN	3. Are there any plants growing through the wall?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
3. Are there any plants growing through the wall?	Y	N	N/A	UNKN	4. Are there vertical drains that extend through the height?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
4. Are there vertical drains that extend through the height?	Y	N	N/A	UNKN	5. Is there erosion at the base of the wall or leveling pad? (Photo 12)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
5. Is there erosion at the base of the wall or leveling pad? (Photo 12)	Y	N	N/A	UNKN	6. Is there erosion along the wing wall?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
6. Is there erosion along the wing wall?	Y	N	N/A	UNKN	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% /
7. Are there any signs of water flow along the base of the wall?	Y	N	N/A	UNKN	8. Is there less than 14 feet between impingement protrusion and wall?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
8. Is there less than 14 feet between impingement protrusion and wall?	Y	N	N/A	UNKN	9. Does the bedrock or joint fabric appear to be adjacent?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
9. Does the bedrock or joint fabric appear to be adjacent?	Y	N	N/A	UNKN	10. Is there vegetation growing in joint fabric (Photo 8)?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
10. Is there vegetation growing in joint fabric (Photo 8)?	Y	N	N/A	UNKN	11. Does the deck drain and extend to the top of the wall blocked? (Photo 14)	Partial / 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
11. Does the deck drain and extend to the top of the wall blocked? (Photo 14)	Y	N	N/A	UNKN	12. Does water enter the wall between coping and slab (i.e. Drain appropriately)?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
12. Does water enter the wall between coping and slab (i.e. Drain appropriately)?	Y	N	N/A	UNKN	13. Is there evidence of discharge points of fill washing through drain pipes?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
13. Is there evidence of discharge points of fill washing through drain pipes?	Y	N	N/A	UNKN		

NISE WALL JOINTS

Requirement	Yes	No	N/A	UNKN	Joint	Measurement/Extent of Problem/Location/Photo Numbers
14. Is bedrock coming out of joint or on them prior of bedrock at the base of the wall? (Photos 2 & 3)	Y	N	N/A	UNKN	15. Are the joints wide enough to see fabric or bedrock behind panels when looking into panel? (Photo 5) If so, is the joint filled with concrete?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
15. Are the joints wide enough to see fabric or bedrock behind panels when looking into panel? (Photo 5) If so, is the joint filled with concrete?	Y	N	N/A	UNKN	16. Is a concrete bedrock visible in the joint?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
16. Is a concrete bedrock visible in the joint?	Y	N	N/A	UNKN	17. Are there visible signs of bedrock or water backing through joint? (Do not include additional damage to fabric)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
17. Are there visible signs of bedrock or water backing through joint? (Do not include additional damage to fabric)	Y	N	N/A	UNKN	18. Do the joints have a non-uniform horizontal spacing? Are some horizontal joints larger/wider than others? (Photo 6)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
18. Do the joints have a non-uniform horizontal spacing? Are some horizontal joints larger/wider than others? (Photo 6)	Y	N	N/A	UNKN	19. Do the joints have a non-uniform vertical spacing? Are some vertical joints larger/wider than others? (Photo 5)	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
19. Do the joints have a non-uniform vertical spacing? Are some vertical joints larger/wider than others? (Photo 5)	Y	N	N/A	UNKN	20. Are the joints offset at the joint either in or out of the wall? (Photo 7) If yes, report the approximate maximum offset.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
20. Are the joints offset at the joint either in or out of the wall? (Photo 7) If yes, report the approximate maximum offset.	Y	N	N/A	UNKN	21. Does the fabric appear brittle, or appear as if it has undergone excessive IV exposure?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
21. Does the fabric appear brittle, or appear as if it has undergone excessive IV exposure?	Y	N	N/A	UNKN		

NISE WALL PACING

Requirement	Yes	No	N/A	UNKN	Wall Pacing	Measurement/Extent of Problem/Location/Photo Numbers
22. Are the panels "flipped"? Is there excessive cracking in the panels?	Y	N	N/A	UNKN	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.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
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	N/A	UNKN	24. Are there horizontal cracks that continue 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% /
24. Are there horizontal cracks that continue through adjacent panels? (Photos 9 & 10) If yes, record the approximate number of panels in the wall with cracking.	Y	N	N/A	UNKN	25. Are the panel centers matching center with each other? If yes, record the approximate number in the wall.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
25. Are the panel centers matching center with each other? If yes, record the approximate number in the wall.	Y	N	N/A	UNKN	26. Are the panel centers "offset" or diagonal from center with an adjacent panel? If yes, record the approximate number in the wall.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
26. Are the panel centers "offset" or diagonal from center with an adjacent panel? If yes, record the approximate number in the wall.	Y	N	N/A	UNKN	27. Does crack spacing suggest Differential Settlement?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
27. Does crack spacing suggest Differential Settlement?	Y	N	N/A	UNKN	28. Does the overlying coping exhibit Vertical Offset?	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
28. Does the overlying coping exhibit Vertical Offset?	Y	N	N/A	UNKN	29. Are the coping and parapet base or cladding? If yes, it may be appropriate to consult UDOT if differential occurs annually.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
29. Are the coping and parapet base or cladding? If yes, it may be appropriate to consult UDOT if differential occurs annually.	Y	N	N/A	UNKN	30. Are the panels in danger of falling out? (If foundation notes contain exposure, IVDOT requires).	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
30. Are the panels in danger of falling out? (If foundation notes contain exposure, IVDOT requires).	Y	N	N/A	UNKN	31. Is there any "bulging" (flowing horizontally)? If so, report maximum deflection from acceptable condition in inches.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
31. Is there any "bulging" (flowing horizontally)? If so, report maximum deflection from acceptable condition in inches.	Y	N	N/A	UNKN	32. Is there "tipping" at the top or bottom of the wall? (Record maximum degree of tipping from vertical using vertical level and offset axis).	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
32. Is there "tipping" at the top or bottom of the wall? (Record maximum degree of tipping from vertical using vertical level and offset axis).	Y	N	N/A	UNKN		

NISE TOP OF WALL OBSERVATIONS

Requirement	Yes	No	N/A	UNKN	Top of Wall	Measurement/Extent of Problem/Location/Photo Numbers
33. Is there evidence of settlement at the top of the wall? (pavement ending, etc)	Y	N	N/A	UNKN	34. Are there any open cracks in the concrete coping from behind? If yes, report the approximate maximum crack width.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
34. Are there any open cracks in the concrete coping from behind? If yes, report the approximate maximum crack width.	Y	N	N/A	UNKN	35. Do the joints in the coping appear to be sealed? (Photo 6) If yes, record the maximum joint width.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
35. Do the joints in the coping appear to be sealed? (Photo 6) If yes, record the maximum joint width.	Y	N	N/A	UNKN	36. Is there a large gap between the approach slab and the approach pavement? (Photo 15) If yes, this produces a bumping condition at the approach or corner. Record the approximate maximum gap size.	/ 0-No 1% 5% 10% 25% 50% 75% 90% 95% 100% /
36. Is there a large gap between the approach slab and the approach pavement? (Photo 15) If yes, this produces a bumping condition at the approach or corner. Record the approximate maximum gap size.	Y	N	N/A	UNKN		

Y	N	UNR	17-A) The abutments, has the joint between the wall coping and the abutment spaced up significantly? If so, record maximum diameters.	/	D-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/
Y	N	UNR	18-A) The coping wall pulling away from pavement/masonry sections? Please record maximum displacement for wall.	/	D-No	1%	5%	10%	25%	50%	75%	90%	95%	100%	/

MSE STABILITY

Required Items - Drawings		Measurements/Extent of Problems/Location/Photo Numbers
Y	N	19-A) Is the height of the coping wall (1) exceeding that of the abutment (2) unless from wall in a maximum depth of 24 inches (24 inches in the maximum depth for 2025, 2021)?
Y	N	20-A) Is the coping wall height (1) exceeding that of the abutment (2) unless from wall in a maximum depth of 24 inches (24 inches in the maximum depth for 2025, 2021)?
Y	N	21-A) Is there any evidence of settlement or differential settlement of the coping wall?
Y	N	22-A) Is there any evidence of settlement or differential settlement of the abutment?
Y	N	23-A) Is there any evidence of settlement or differential settlement of the wall?
Y	N	24-A) Is there any evidence of settlement or differential settlement of the footing?
Y	N	25-A) Is there any evidence of settlement or differential settlement of the foundation?
Y	N	26-A) Is there any evidence of settlement or differential settlement of the structure?
Y	N	27-A) Is there any evidence of settlement or differential settlement of the system?
Y	N	28-A) Is there any evidence of settlement or differential settlement of the overall?

MSE METAL CORROSION

Required Items - Drawings		Measurements/Extent of Problems/Location/Photo Numbers
Y	N	29-A) Is there any evidence of metal corrosion on the reinforcement?
Y	N	30-A) Is there any evidence of metal corrosion on the structure?
Y	N	31-A) Is there any evidence of metal corrosion on the system?
Y	N	32-A) Is there any evidence of metal corrosion on the overall?

MSE IMPACT/COLLISION PROTECTION

Required Items - Drawings		Measurements/Extent of Problems/Location/Photo Numbers
Y	N	33-A) Are there any impact/collision protection measures in place at the base of the wall to prevent it from relocating (until removed)?
Y	N	34-A) Does it appear that the wall has been involved in an accident (replaced panel, recent signs in the wall)?
Y	N	35-A) Does it appear the wall's fluidity and integrity has been compromised by a collision or accident?

MSE OBSTRUCTIONS IN REINFORCEMENT GEOMETRY

Required Items - Drawings		Measurements/Extent of Problems/Location/Photo Numbers
Y	N	36-A) Are there any obstructions in the reinforcement geometry?

MSE AS BUILT DIFFERENTIAL FOOT DESIGN

Required Items - Drawings		Measurements/Extent of Problems/Location/Photo Numbers
Y	N	37-A) Are there any differential foot design issues?
Y	N	38-A) Are there any differential foot design issues?
Y	N	39-A) Are there any differential foot design issues?
Y	N	40-A) Are there any differential foot design issues?
Y	N	41-A) Are there any differential foot design issues?
Y	N	42-A) Are there any differential foot design issues?
Y	N	43-A) Are there any differential foot design issues?
Y	N	44-A) Are there any differential foot design issues?
Y	N	45-A) Are there any differential foot design issues?
Y	N	46-A) Are there any differential foot design issues?
Y	N	47-A) Are there any differential foot design issues?
Y	N	48-A) Are there any differential foot design issues?
Y	N	49-A) Are there any differential foot design issues?
Y	N	50-A) Are there any differential foot design issues?
Y	N	51-A) Are there any differential foot design issues?
Y	N	52-A) Are there any differential foot design issues?
Y	N	53-A) Are there any differential foot design issues?
Y	N	54-A) Are there any differential foot design issues?
Y	N	55-A) Are there any differential foot design issues?
Y	N	56-A) Are there any differential foot design issues?
Y	N	57-A) Are there any differential foot design issues?
Y	N	58-A) Are there any differential foot design issues?
Y	N	59-A) Are there any differential foot design issues?
Y	N	60-A) Are there any differential foot design issues?
Y	N	61-A) Are there any differential foot design issues?
Y	N	62-A) Are there any differential foot design issues?
Y	N	63-A) Are there any differential foot design issues?
Y	N	64-A) Are there any differential foot design issues?
Y	N	65-A) Are there any differential foot design issues?
Y	N	66-A) Are there any differential foot design issues?
Y	N	67-A) Are there any differential foot design issues?
Y	N	68-A) Are there any differential foot design issues?
Y	N	69-A) Are there any differential foot design issues?
Y	N	70-A) Are there any differential foot design issues?
Y	N	71-A) Are there any differential foot design issues?
Y	N	72-A) Are there any differential foot design issues?
Y	N	73-A) Are there any differential foot design issues?
Y	N	74-A) Are there any differential foot design issues?
Y	N	75-A) Are there any differential foot design issues?
Y	N	76-A) Are there any differential foot design issues?
Y	N	77-A) Are there any differential foot design issues?
Y	N	78-A) Are there any differential foot design issues?
Y	N	79-A) Are there any differential foot design issues?
Y	N	80-A) Are there any differential foot design issues?
Y	N	81-A) Are there any differential foot design issues?
Y	N	82-A) Are there any differential foot design issues?
Y	N	83-A) Are there any differential foot design issues?
Y	N	84-A) Are there any differential foot design issues?
Y	N	85-A) Are there any differential foot design issues?
Y	N	86-A) Are there any differential foot design issues?
Y	N	87-A) Are there any differential foot design issues?
Y	N	88-A) Are there any differential foot design issues?
Y	N	89-A) Are there any differential foot design issues?
Y	N	90-A) Are there any differential foot design issues?
Y	N	91-A) Are there any differential foot design issues?
Y	N	92-A) Are there any differential foot design issues?
Y	N	93-A) Are there any differential foot design issues?
Y	N	94-A) Are there any differential foot design issues?
Y	N	95-A) Are there any differential foot design issues?
Y	N	96-A) Are there any differential foot design issues?
Y	N	97-A) Are there any differential foot design issues?
Y	N	98-A) Are there any differential foot design issues?
Y	N	99-A) Are there any differential foot design issues?
Y	N	100-A) Are there any differential foot design issues?

Situation: Layout Walls not built

only in Abutment Walls

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

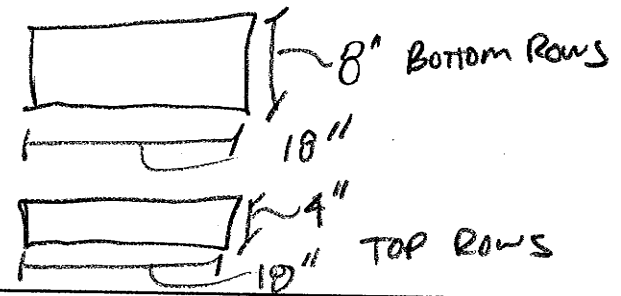
Inspection Date	7/9/07	Names Of Inspectors	Ruan Maw, Holly Griffin
Region	1	Identifying Road/Intersection	Twinn bridges - Hoag Canyon

MSE WALL CHARACTERISTICS

R-376 A+B ~~R-450~~
~~R-376~~

MSE Wall at Bridge:	<input checked="" type="radio"/> Y <input type="radio"/> N	Bridge Number if applicable:	E-670	Wall Number	R-376
Surrounding Structures	Maximum Height of Wall (ft): 23'				
Distance to Each Structure	One Stage, Two Stage or Block Wall				
State Route Number	Estimated Max Length of Wall Abutment:				
Approximate Mile Marker	Max Slope of Ground in front of wall:				
GPS Datum	Max Height of wall basal line above surrounding level ground:				
MSE Wall GPS Coordinates (Location of Measurement shown on plan view)	Please draw rough layout of panel with approximate dimensions in space provided below:				
If known, Panel or System Manufacturer	SEE FIRST FORM				

polysynthetic



Summary of Key Observations:

<input type="radio"/> Y	<input checked="" type="radio"/> N	<input type="radio"/> N/A	Are there acute wall angles (<90)?	90°
MSE AS BUILT DIFFERENT FROM DESIGN				
Required Tools:		Drawings		
Yes	No	N/A	MSE as built different than design	Measurement If Applicable
<input type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A	Are there available drawings for the wall? Please indicate type (Situation and Layout, Design, As Built, etc.)	
<input type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A	Is the layout in accordance with drawings?	
<input type="radio"/> Y	<input checked="" type="radio"/> N	<input type="radio"/> N/A	Is the wall benched?	
<input type="radio"/> Y	<input checked="" type="radio"/> N	<input type="radio"/> N/A	Are the panels "Tilt-Up"? Is there excessive cracking in the panels?	
<input type="radio"/> Y	<input checked="" type="radio"/> N	<input type="radio"/> N/A	Was GEOFoam used in the construction of the wall?	
<input type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A	Do the number of panel connections correspond with initial drawings?	
<input type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A	Are there any structures on or near wall that were not included in initial drawings?	
<input type="radio"/> Y	<input checked="" type="radio"/> N	<input type="radio"/> N/A	Are there any irrigation, utilities, or intrusions that are not part of the initial drawings?	
<input type="radio"/> Y	<input checked="" type="radio"/> N	<input type="radio"/> N/A	Have there been any excavations or evidence of excavations near the wall?	
<input type="radio"/> Y	<input checked="" type="radio"/> N	<input type="radio"/> N/A	Have local property owners changed the dynamics of the wall (additional structures, irrigation, vegetation, etc.)?	
<input type="radio"/> Y	<input checked="" type="radio"/> N	<input type="radio"/> N/A	Are the panels CIP (Cast in Place) Does there appear to be excessive cracking in the panels?	

Instructions:

- 1-Input date of Inspection, Name of Inspector, Region where wall is located, Road Identification, GPS Coordinates and whether the bridge is part of a structure such as a overpass embankment.
- 2-Inspect the Wall and answer the questions above. Reference the supplied sample photos for examples of indicators that it would be appropriate to mark 'Yes' for the stated question. If 'Yes' is marked it may indicate a potential problem with the wall, please document all 'Yes' answers with a digital photo, with sufficient detail to indicate why a 'Yes' was appropriate. The grey boxes indicate that a measurement is necessary and conversely the white indicate that a measurement should be taken and extent of problem. Please use care in taking these measurements as they may be consulted again in future inspections to track digression of wall conditions.
- 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.

Comments: ~~ABSEMENT/SYNOPSIS. POOR DRAINAGE ALONG SIDES & ABUTMENT OF WALLS~~

Layout and Discription:

