Appendix A5

Retaining Wall Inspection Reports

NY33 RETAINING WALL CONDITION EVALUATION 2023

KENSINGSTON EXPRESSWAY PROJECT
PIN 5512.52
CITY OF BUFFALO, ERIE COUNTY
RETAINING WALL 1

Prepared By:

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Inspection Team Leader | Sr. Structural Engineer
Date: 5/30/2023

Reviewed By:

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Quality Control Engineer | Sr. Structural Engineer
Date: 6/16/2023

LaBella
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PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

STRUCTURE:	Retaining Wall #1 (RT) along 33EB between off Ramp to NB Humboldt Parkway and Pedestrian Bridge
STRUCTURE TYPE:	Reinforced Concrete Cantilever Wall on Spread Footings Year Built: 1970
CURRENT INSPECTION:	05/01/23 – 5/09/23 (LaBella Inspections)
LAST KNOWN INSPECTION:	Unknown
CONDITION STATE.	FAIR

RETAINING WALL INSPECTION & DOCUMENTATION:

Inspection of the retaining walls will be in conformance with the NYSDOT Retaining Wall Inventory and Inspection Program Manual, October 2018. Inspection of the following elements will be inspected and documented as appropriate:

- Inspection:

The following inspection procedure was followed:

- Walls were checked for signs of settlement, rotation, or bulging. Walls faces were checked for vertical alignment using a smart level. The walls being evaluated are vertical with no batter.
- Construction joints between sections of the wall were examined for misalignment, and near the ground line for fill material washing out from between panels or joint.
- Walls were inspected for erosion material in front of the wall, for heaving of material in front of the wall, and for settlement of fill behind the wall
- Examined the wall for deterioration of the material, such as cracking, spalling, and/or corrosion, noting the width, length, depth, and/or orientation of the deterioration. Photographs are provide documenting defects found.
- Wall façades were reviewed for evidence of water seepage, efflorescence, or rust staining.
- Examined the base of walls for evidence of water flow where the water table may be within the retained earth.
- Examined and probed drains for signs of clogging. Examined drainage around ends of wall and note if embankments have been experiencing erosion.
- Examined site grading for any locations that may prohibit proper drainage from behind the wall looking for evidence of ponding above the wall, such as debris accumulation in the lower spots.
- Ascertain why water is not draining properly and note in the inspection.
- Inspected roadway components above wall for signs or joint separation, potholes, and areas of settlement.
- Examined vegetation growth along and above the wall for root infiltration creating undesirable stresses on the wall. Documented any induce cracking, bulging or failure.
- Examined the wall system for vehicular damage, and document the location and degree of damage.

GENERAL OBSERVATIONS:

1. Retaining Wall Panels are generally 30 feet in length. The wall cap is 9” with horizontal chamfered panels spaced 3’-0” vertically, from the top of the wall. The wall cap is 9” with horizontal chamfered panels spaced 3’-0” vertically, from the top of the wall. There is some variation in panel length due to the location of bridges within the corridor. For specific panel lengths see the DOCUMENTION Section of this report.

2. The lower 6-10 ft of the subject retaining wall was found to be in FAIR-POOR condition with extensive map cracking, dampness, isolated rust staining, concrete spalls and widespread delamination. For specific conditions found, photographs of the of wall panels, and condition calculations see the attached sections of this report.

3. The upper portions of theses wall panels were generally found to be in GOOD-FAIR condition except for a few locations. The top of wall rail coping is map cracked under approximately 50% of the railing posts and has horizontal cracking along the coping at mid height for approximately 40% of the wall length. For specific conditions found, photographs of the of wall panels, and condition calculations see the attached sections of this report.

GENERAL:	
DEFECT	DESCRIPTION
Misalignment	None noted. No tipping or rotation of the wall panels was observed.
Settlement	None noted. No heaving was detected at the wall toe, nor was the Humboldt Parkway above the wall showing signs of settlement.
Sinkhole (cavity) Formation	None noted.

Concrete Cracks:	
DEFECT	DESCRIPTION
Insignificant Cracks (cracks < 0.012 inches wide)	Most wall panels exhibit minor cracking. Cracking is predominately vertical and seems to mirror the rebar spacing underneath.
Map cracks	Most wall panels are exhibiting some map cracking. The map cracking is most prevalent in the bottom 6 feet of the panels and at the top of walls under railing posts.
Moderate Cracks (0.012 - 0.05 inches wide)	Many wall panels exhibit moderate cracking. These cracks, where they exist, are predominately vertical, full height cracks located at or near the midpoint of the panel.
Wide Cracks (cracks > 0.05 inches wide)	A few panels exhibit wide cracking. These cracks, where they exist, are predominately vertical, full height cracks located at or near the midpoint of the panel.

Additional Concrete Distress:	
DEFECT	DESCRIPTION
Spalling / Delamination	Every wall panel is exhibiting delamination. Delamination amounts vary from approximately 15% to 60% of the exposed wall face. Many wall panels exhibit spalling. Spalling is predominately found at the wall joints to adjacent wall panels and in vertical rebar areas in the lower 6 to 10 feet of wall.
Staining	Staining, both efflorescence and rust staining, is evident on every wall panel. The amount of staining varies and is best noted in the photo documentation.
Exposed Rebar	Rebar is exposed in many of the spalled areas noted during the inspection. Most of the exposed rebar is vertically placed reinforcement. Exposed rebar was noted to have between 15% and 60% section loss.

Notes:
RW 1 consists of 99 panels numbered west (south) to east (north). The retaining wall supports the Humboldt Parkway above State Route 33 (Kensington Expressway). Located along the right shoulder of E.B. Kensington from the off-ramp to N.B. Humboldt Parkway and extending beyond Sidney Street supporting N.B. Humboldt Parkway (Approximately 2,935 ft. long, 21 ft. maximum exposed height). The east abutments for the E. Utica and E. Ferry Street Overpass Bridges are not considered as part of RW #1.

INVENTORY, INSPECTION, AND DATA COLLECTION

Element	Total Qty	Units	Condition State			
			1	2	3	4
			GOOD	*FAIR*	*POOR*	*SEVERE*
RW.01 - Entire Wall	1	Each	0.79	0.07	0.14	
RW.02 - Wall Facing	56770	SF	43678	4233	8859	
RW.03 - Ground Surface, Front	2935	Ft	2935			
RW.04 - Ground Surface, Back	2935	Ft	2932		3	
RW.05 - Weep Holes	1	Each			1	
800 – Scour	N/A	Ft	---	---	---	---

PIN 5512.52 Kensington Expressway
Retaining Wall #1 (RT) along 33EB between Off Ramp to NB Humboldt Parkway and Pedestrian Bridge

INSPECTION RESULTS/ RECOMMENDATIONS

- **Overall Condition State Recommendation: 2 - FAIR**

- PROJECT DOCUMENTATION CAN BE FOUND IN THE ATTACHED SECTIONS

Inspection Photos

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #1 (RT) along 33EB between off Ramp to NB Humboldt Parkway and Pedestrian Bridge.

PHOTO 1

PANEL 103

Description:

The railing coping concrete and the underlying wall face are spalled 1" deep with exposed rebar. Rebar exhibits approximately 15% section loss. The remaining coping concrete is delaminated. The wall face has minor map-cracking with efflorescence and rust staining.

The bottom steel bridge rail tube is broken and detached from the railing post.

PHOTO 2

PANEL 105

Description:

The wall railing system coping is cracked at mid-height. The crack is 80% of the wall panel length.
The wall face has minor map-cracking with staining.

There are two (2) full height vertical cracks in the wall face under two of the railing posts. There is map-cracking and delamination of the concrete approximately 12 inches wide adjacent to the crack over 50% of length.

The bottom steel bridge rail tube is missing from the railing posts.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #1 (RT) along 33EB between off Ramp to NB Humboldt Parkway and Pedestrian Bridge.

PHOTO 3

PANEL 106

Description:

The wall railing system coping is cracked at mid-height. The crack is approximately 80% of the wall panel length.

The wall face has minor map-cracking with staining.
There are two (2) spall areas with exposed rebar (rebar section loss is 30%) at the first chamfer line at 12 ft. and 19 ft. from the panel begins.
There is map-cracking and delamination of the concrete approximately 3 ft by 3 ft adjacent to the end panel joint.

PHOTO 4

PANEL 112

Description:

The wall railing system coping is cracked under the railing posts.
The wall face is map-cracked with staining.

There are multiple vertical cracks in the wall face mirroring the underlying vertical reinforcing.

Concrete spalls and delamination are found between 5 ft and 9 ft from the roadway surface.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #1 (RT) along 33EB between off Ramp to NB Humboldt Parkway and Pedestrian Bridge.

PHOTO 5

PANEL 120

Description:

The lower 4 ft of the wall surface is spalled and delaminated over 50% of the area.

The multiple spalls have exposed rebar.

There is a half height vertical crack in the wall face at 13 ft from the panel begin.

PHOTO 6

PANEL 126

Description:

There is a a full height vertical crack in the wall face near mid span. The lowest panel has cracking mirroring the underlying vertical reinforcement. The lower two panels are cracked, spalled and delaminated over 60% of the area. the remainder of the wall is in good condition.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #1 (RT) along 33EB between off Ramp to NB Humboldt Parkway and Pedestrian Bridge.

PHOTO 7

PANEL 131

Description:

The bottom three wall panels are delaminated over most of their area. The begin wall joint is delaminated approximately two-thirds the wall height by one foot wide. The lowest panel has a large spall with exposed rebar (rebar has 60% section loss).

PHOTO 8

PANEL 132

Description:

The bottom wall panel is spalled over 30% of its area with exposed rebar, and is 100% delaminated. The second panel is map-cracked and delaminated over 20% of its area.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #1 (RT) along 33EB between off Ramp to NB Humboldt Parkway and Pedestrian Bridge.

PHOTO 9

PANEL 134

Description:

The lower three sections of the wall are heavily map-cracked with rust staining and some efflorescence. There is a full height crack at 18 ft from the panel begin. The concrete adjacent to the wall end joint is spalled with exposed rebar (rebar is exhibiting 50% section loss)

PHOTO 10

PANEL 144

Description:

The lower three sections of the wall are heavily map-cracked with rust staining. The wall face has vertical cracking at 2-foot intervals. This mirrors the underlying rebar placement.

The wall railing system coping is map cracked with efflorescence under the railing posts.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #1 (RT) along 33EB between off Ramp to NB Humboldt Parkway and Pedestrian Bridge.

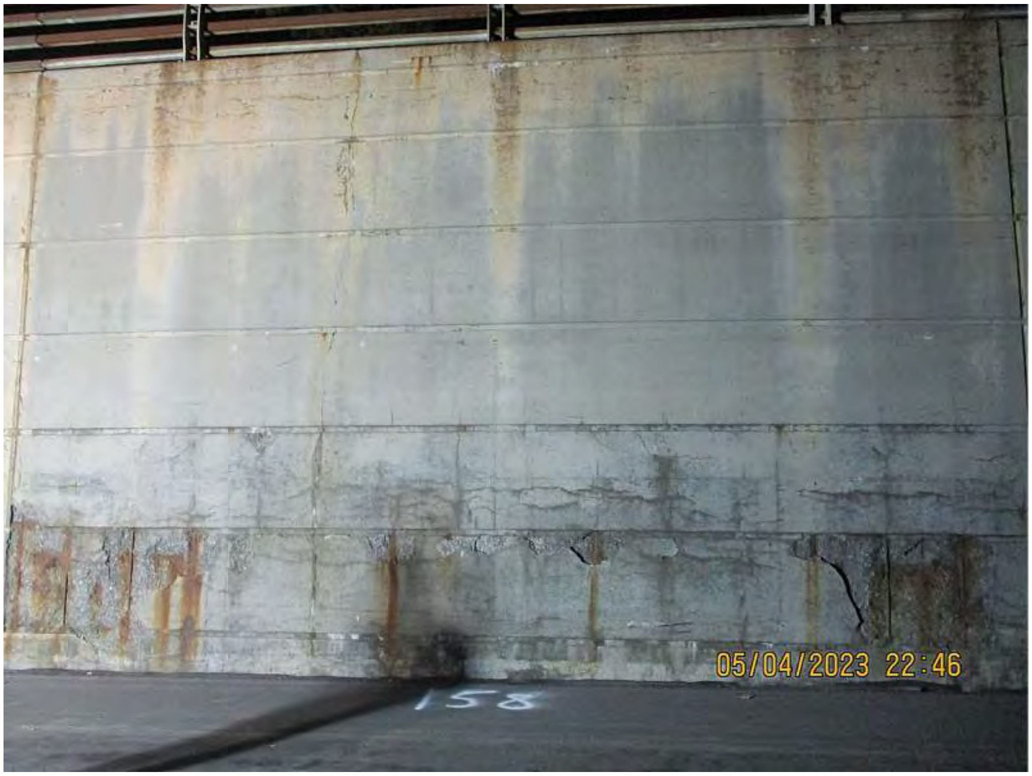


PHOTO 11

PANEL 158

Description:

The lower three sections of the wall are heavily map-cracked with rust staining and some efflorescence.

There is a full height crack at 17 ft from the panel begin. The concrete adjacent to each wall joint is heavily delaminated and spalled. with exposed rebar (rebar is exhibiting 25% section loss).

The lowest wall section is 90% delaminated (where not spalled), section 2 is 30 % delaminated and section 3 exhibits 50% delamination.

PHOTO 12

PANEL 167

Description:

The concrete wall face is map cracked, stained and spalled with exposed rebar. The rebar shows approximately 15% section loss. The spalled areas are in the lower section and are located at both ends of the panel at 10 ft, 18 ft, 22 ft and 26 ft from the panel begin.

The various wall sections are delaminated. The lower section exhibits 70% delamination, section 2 is delaminated over 60% of its area and section 3 is 40% delaminated.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #1 (RT) along 33EB between off Ramp to NB Humboldt Parkway and Pedestrian Bridge.

PHOTO 13

PANEL 171

Description:

The bottom wall section is heavily delaminated, spalled and map cracked. The map cracking is at 2-foot intervals mirroring the underlying rebar placement.
Section 2 is delaminated and map cracked over 60% of its area.
Section 3 is delaminated approximately 3 ft at both ends of the wall adjacent to the joint with other panels.
Section 4 is delaminated for 3 ft from at the end wall joint.

PHOTO 14

PANEL 174

Description:

The bottom wall section is heavily delaminated, spalled and map cracked over 90% of its area. The map cracking is at 2-foot intervals mirroring the underlying rebar placement.

Section 2 is delaminated and map cracked over 75% of its area.
Section 3 exhibits vertical cracking and map cracking in its lower half.

Retaining Wall #1 (RT) along 33EB between off Ramp to NB Humboldt Parkway and Pedestrian Bridge.

PHOTO 15

PANEL 176

Description:

The bottom wall section is heavily delaminated, spalled and map cracked over 80% of its area. The map cracking is at 2-foot intervals mirroring the underlying rebar placement.

Section 2 is delaminated and map cracked over 50% of its area. Section 3 is map cracked with several vertical cracks in the concrete surface.

PHOTO 16

PANEL 177

Description:

The bottom wall section is heavily delaminated (60% of the wall section) and map cracked throughout. The map cracking is at 2-foot intervals mirroring the underlying rebar placement. Section 2 and 3 are delaminated and map cracked over 60% of their areas.

The wall railing system coping is map cracked and delaminated over 30% of its surface. The map cracked areas are stained with rust and some efflorescence.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #1 (RT) along 33EB between off Ramp to NB Humboldt Parkway and Pedestrian Bridge.

PHOTO 17

PANEL 178

Description:

The bottom wall panel is heavily delaminated and map cracked throughout. The map cracking is at 2-foot intervals mirroring the underlying rebar placement. Section 2 and 3 are delaminated and map cracked over 50% of their areas.

The wall railing system coping is map cracked and delaminated over 30% of its surface. The map cracked areas are stained with rust and some efflorescence.

PHOTO 18

PANEL 190

Description:

The bottom wall section is heavily delaminated, spalled and map cracked. The map cracking is at 2-foot intervals mirroring the underlying rebar placement.

Section 2 is map cracked over 35% of its area.
Section 3 exhibits map cracking throughout.

The wall railing system coping is cracked at mid-height. The crack is full length with staining.

Retaining Wall #1 (RT) along 33EB between off Ramp to NB Humboldt Parkway and Pedestrian Bridge.

PHOTO 19

PANEL 196

Description:

The wall panel is heavily delaminated and map cracked throughout. The vertical map cracking is at 2-foot intervals mirroring the underlying rebar placement.

The wall railing system coping is map cracked and delaminated full length.

PHOTO 20

PANEL 199

Description:

The wall panel is heavily delaminated and map cracked throughout.

The wall railing system coping is cracked and delaminated full length.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #1 (RT) along 33EB between off Ramp to NB Humboldt Parkway and Pedestrian Bridge.

PHOTO 21

PANEL 130 (Back side of coping)

Description:

Safety walk is broken, cracked, and heaved around the manhole.

Map cracking is present on the rail coping, typical for entire wall.

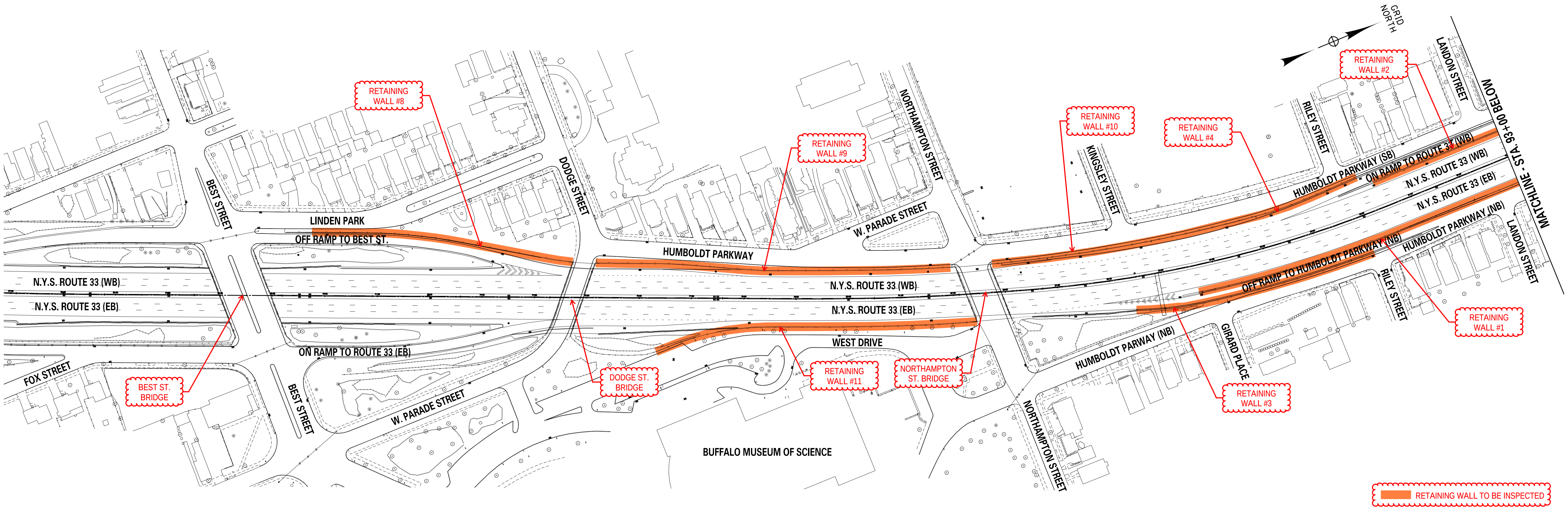
PHOTO 22

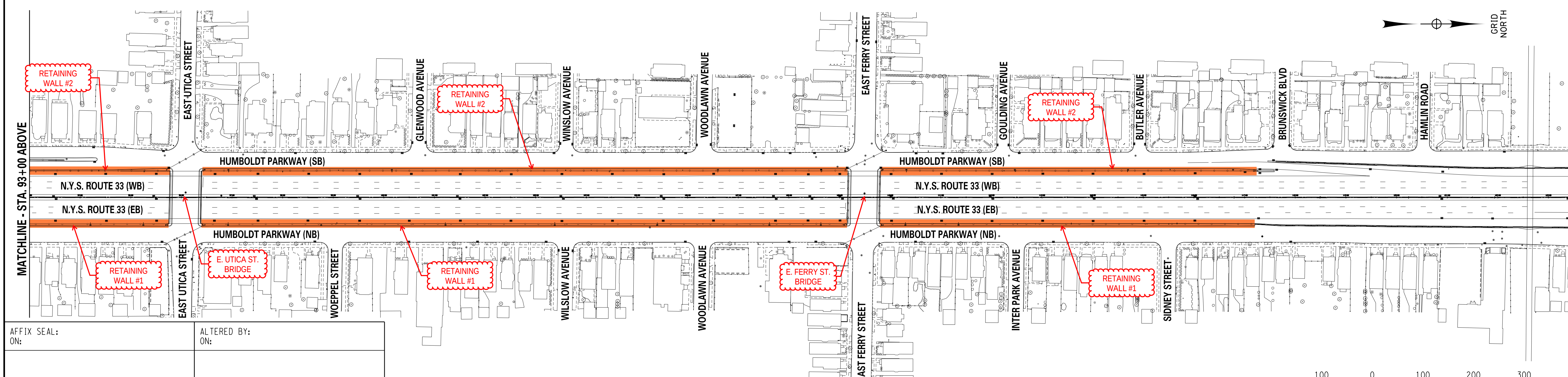
Back of coping (somewhere between Panel 185 and 193)

Description:

Singular spall area under rail post on back side of coping. The longitudinal rebar is exposed.

Field Sheets





AFFIX SEAL:
ON:

ALTERED BY:
ON:

AS-BUILT REVISIONS
DESCRIPTION OF ALTERATIONS:

STATE ROUTE 33
KENSINGTON EXPRESSWAY
CITY OF BUFFALO
COUNTY: ERIE REGION: 5

PIN 5512.52

BRIDGES

CULVERTS

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

KENSINGTON EXPRESSWAY
RETAINING WALL LOCATION PLAN

CONTRACT NUMBER

DRAWING NO. 1
SHEET NO.

LaBella Powered by partnership.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

PROJECT MANAGER
CHECK
DRAFTING
CHECK
DESIGN
JOB MANAGER
DESIGN SUPERVISOR

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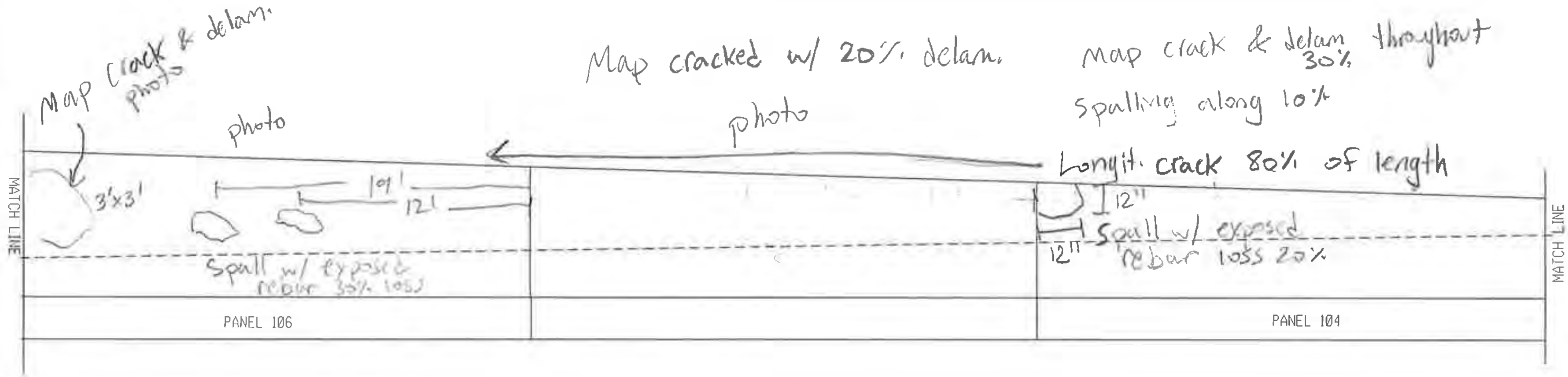
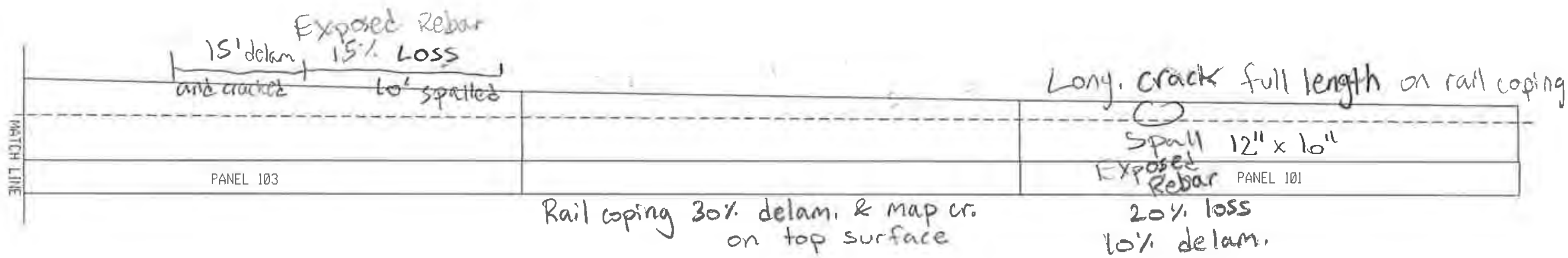
TIME = 12:56:26 PM

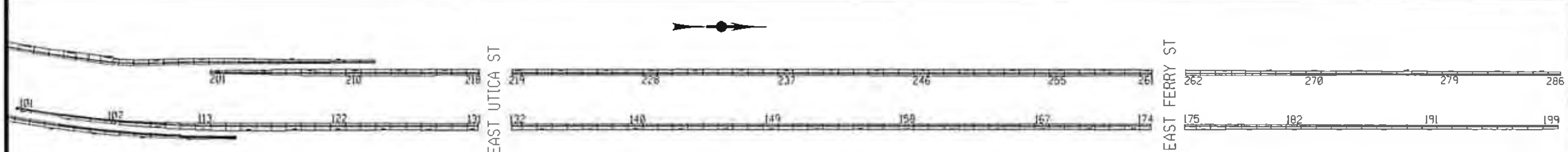
General: Map cracking on coping





delaminated

RW 1 PANELS 106-101



BY: RIM

DATE: 5/3/23

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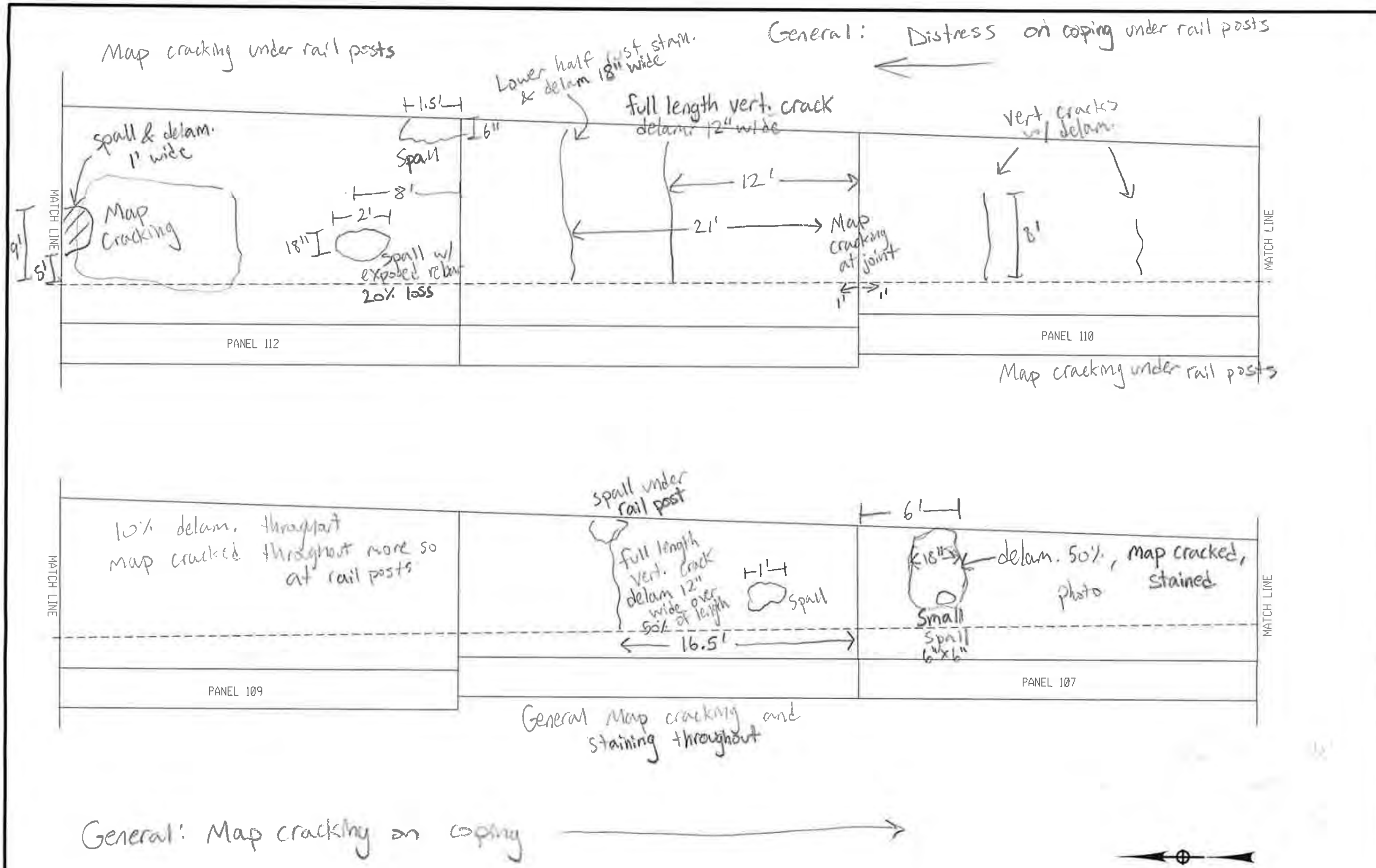

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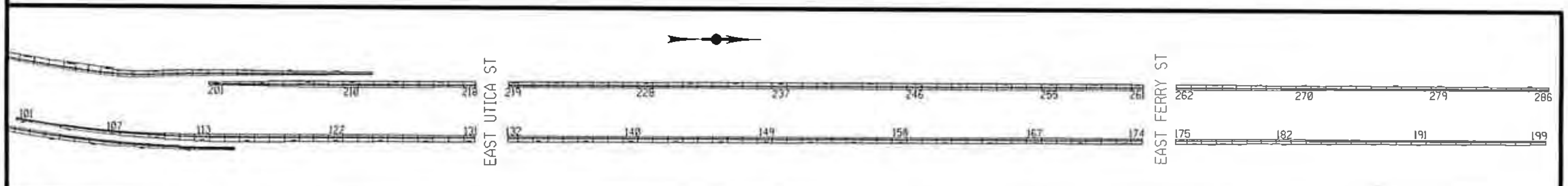

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DATE: 5/3/23

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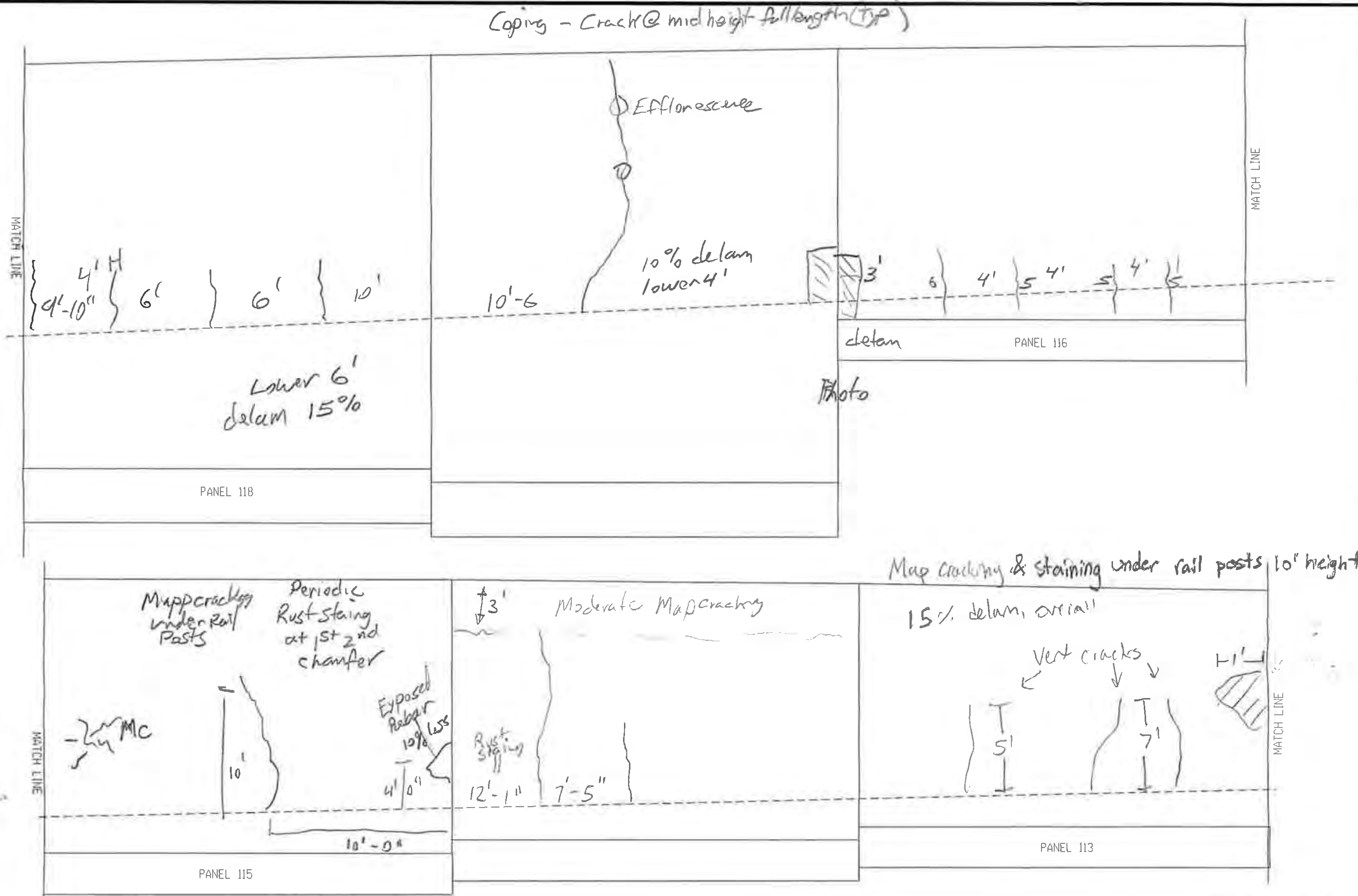
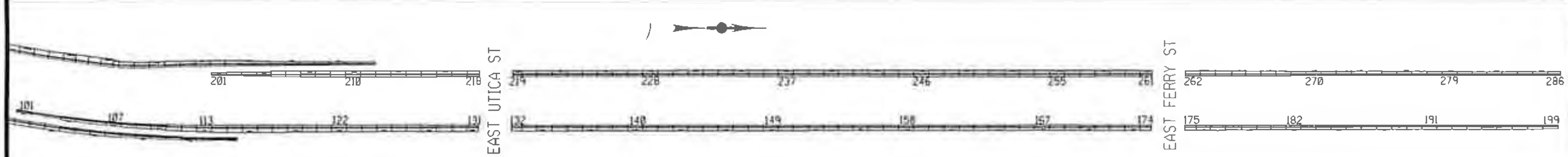


RW 1 PANELS 118-113

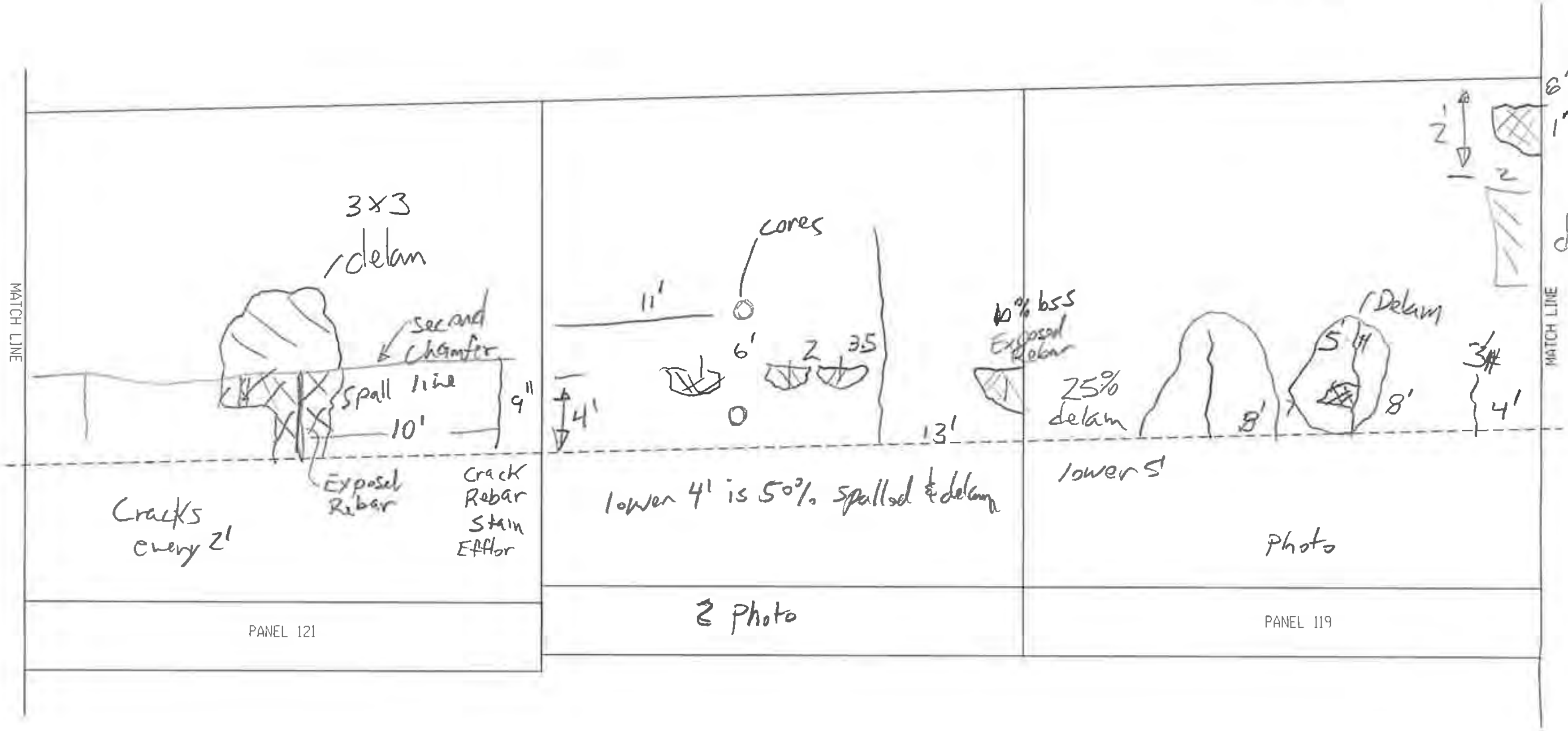


BY: MJE

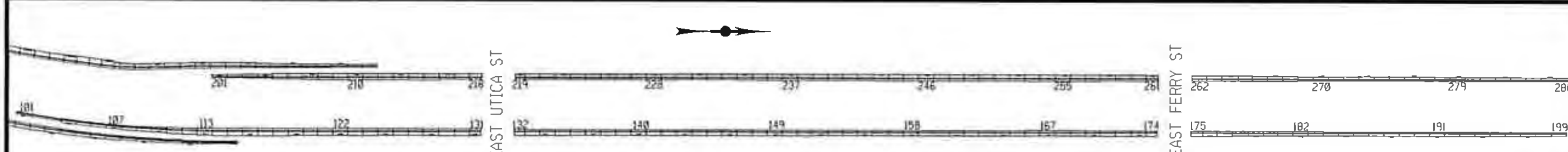
DATE: 5/4/23

SCALE: 1" = 10'

119 has light
cantelevered
from face



RW 1 PANELS 121-119



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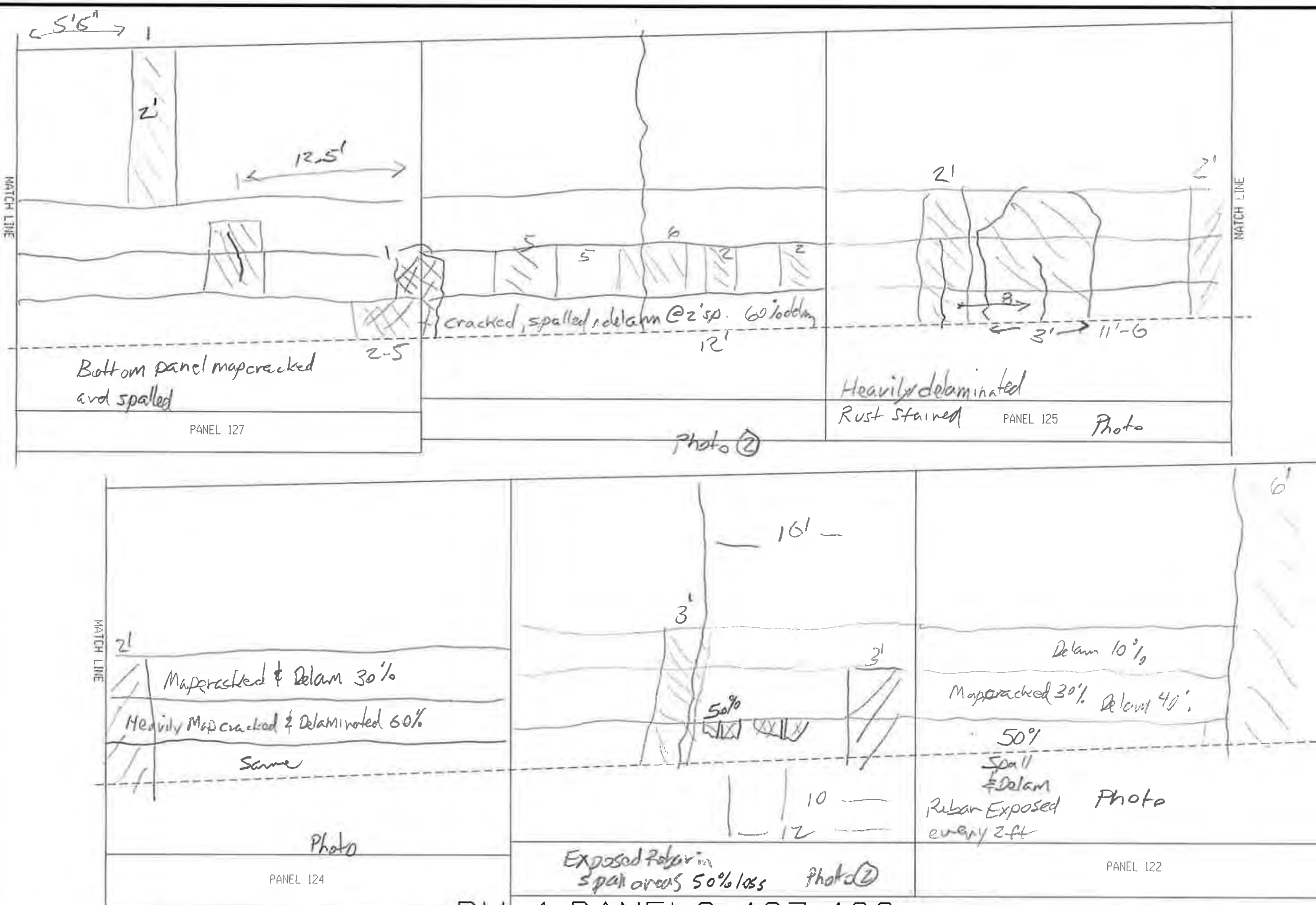
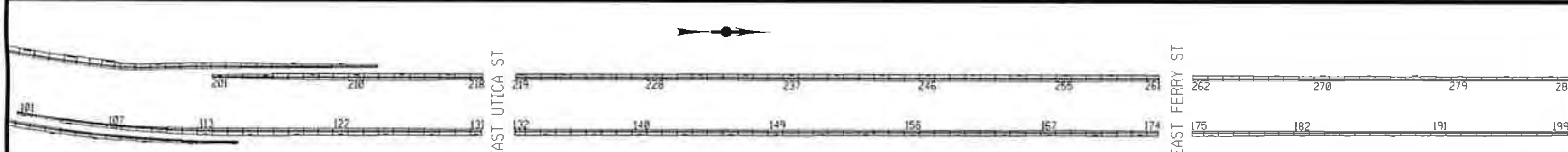


RW 1 PANELS 127-122



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DATE: 5/4/23

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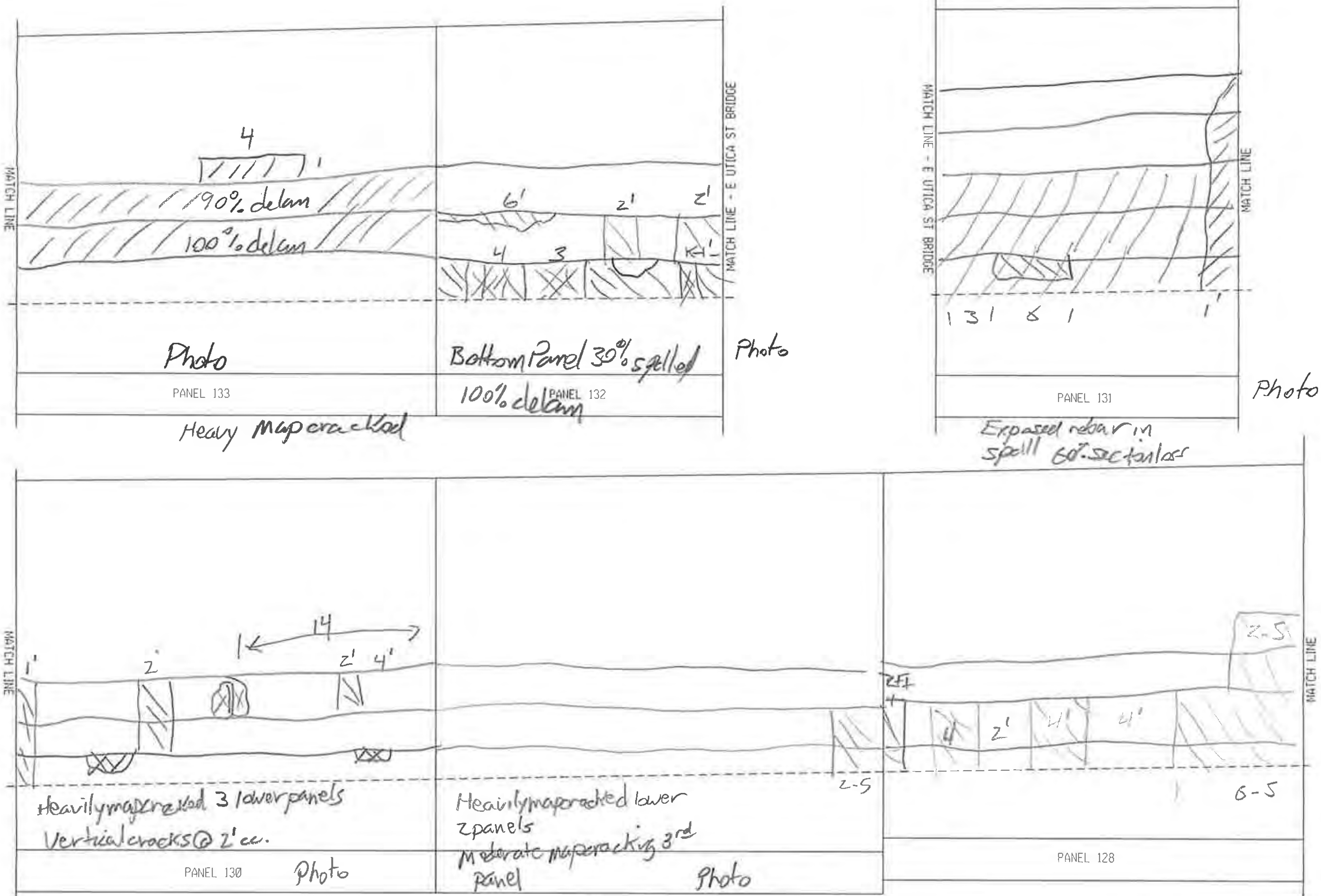

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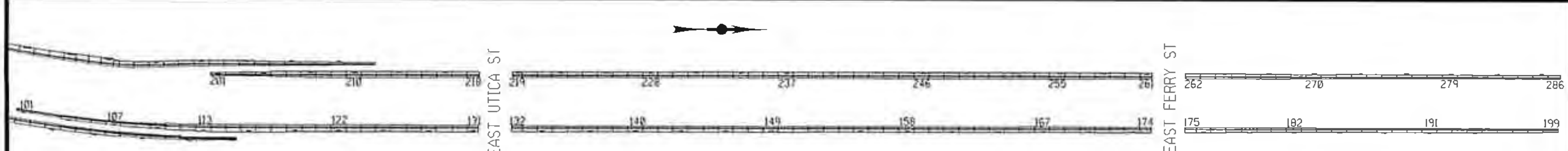

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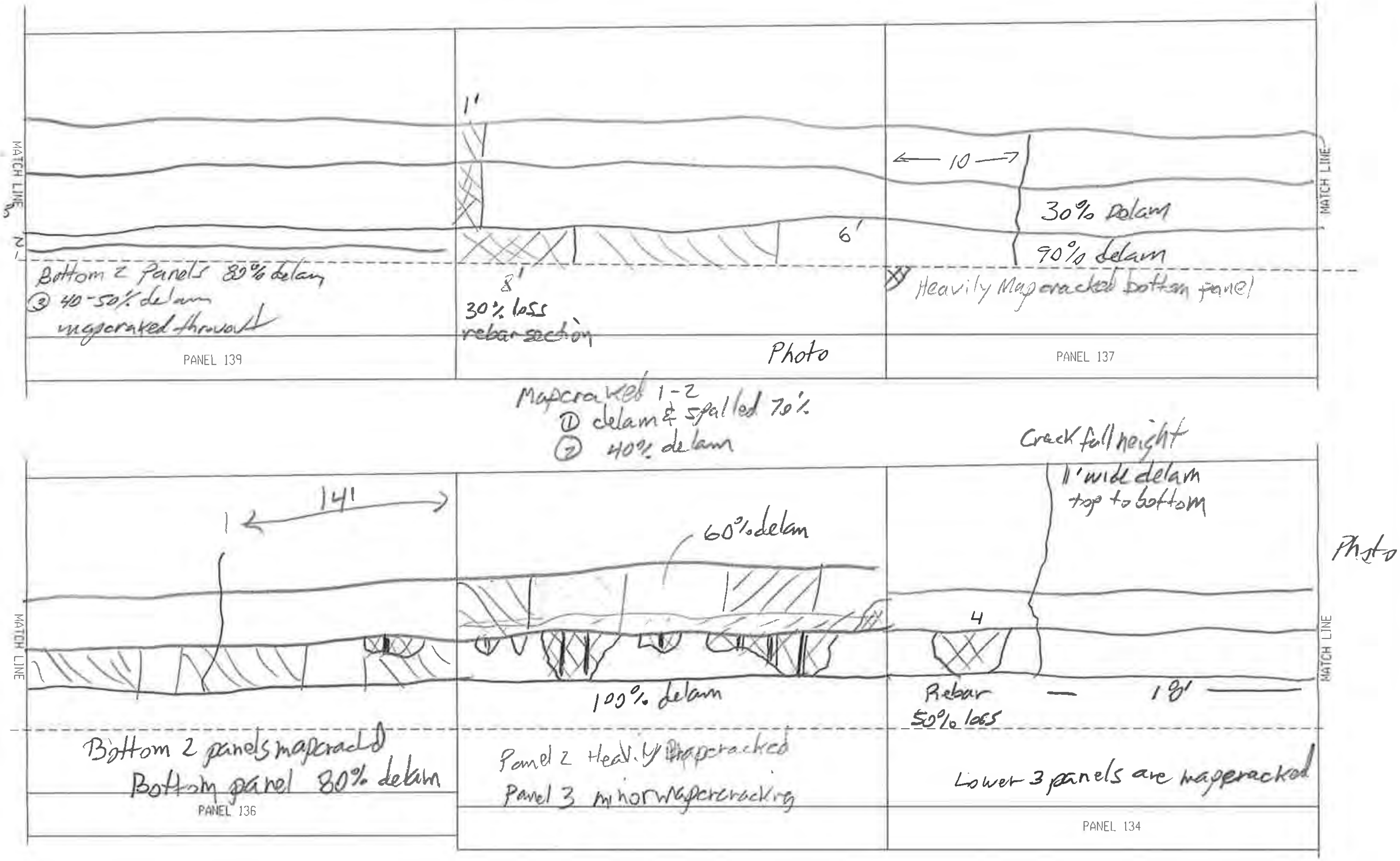
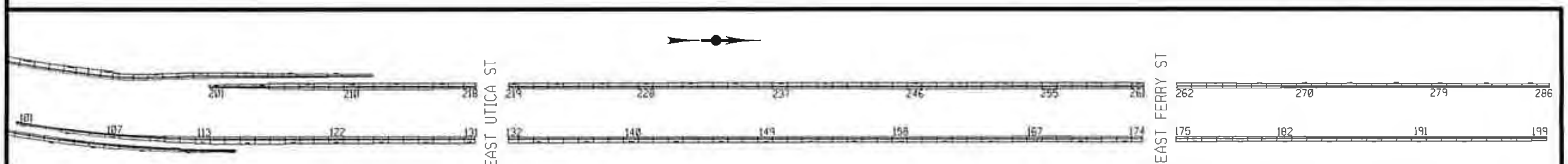


RW 1 PANELS 139-134



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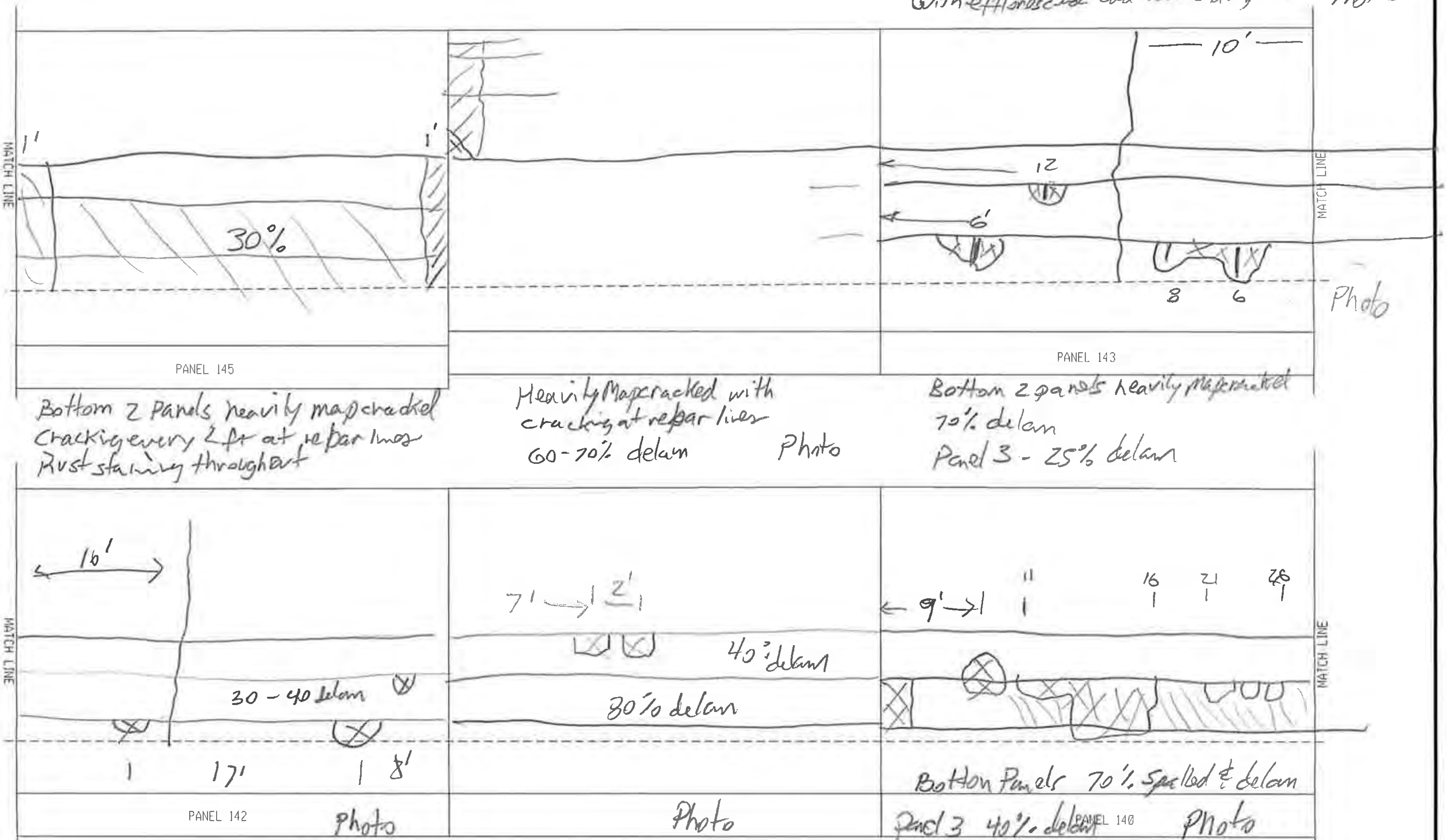


Rail coping cracked at mid height with efflorescence and rust staining Photo

Photo

Bottom 2 panels heavily mapcracked
Cracking every 2 ft at rebar lines
Rust staining throughout

Heavily Mapcracked with cracking at rebar lines
60-70% delam Photo

Bottom 2 panels heavily mapcracked
70% delam
Panel 3 - 25% delam

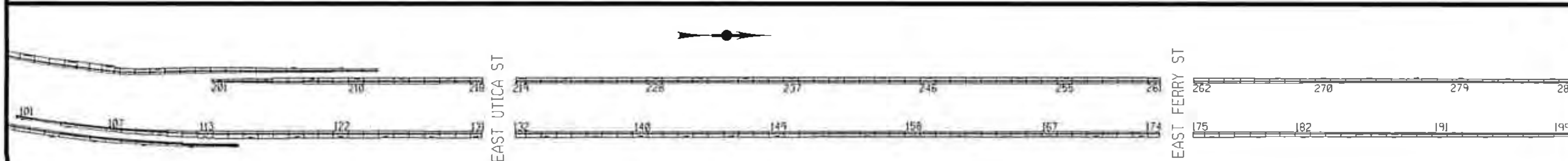
Bottom Panels 70% spalled & delam

Photo Photo

Panel 3 40% delam Photo
with mapcracking

Panel 1 & 2 Heavy mapcracking

RW 1 PANELS 145-140



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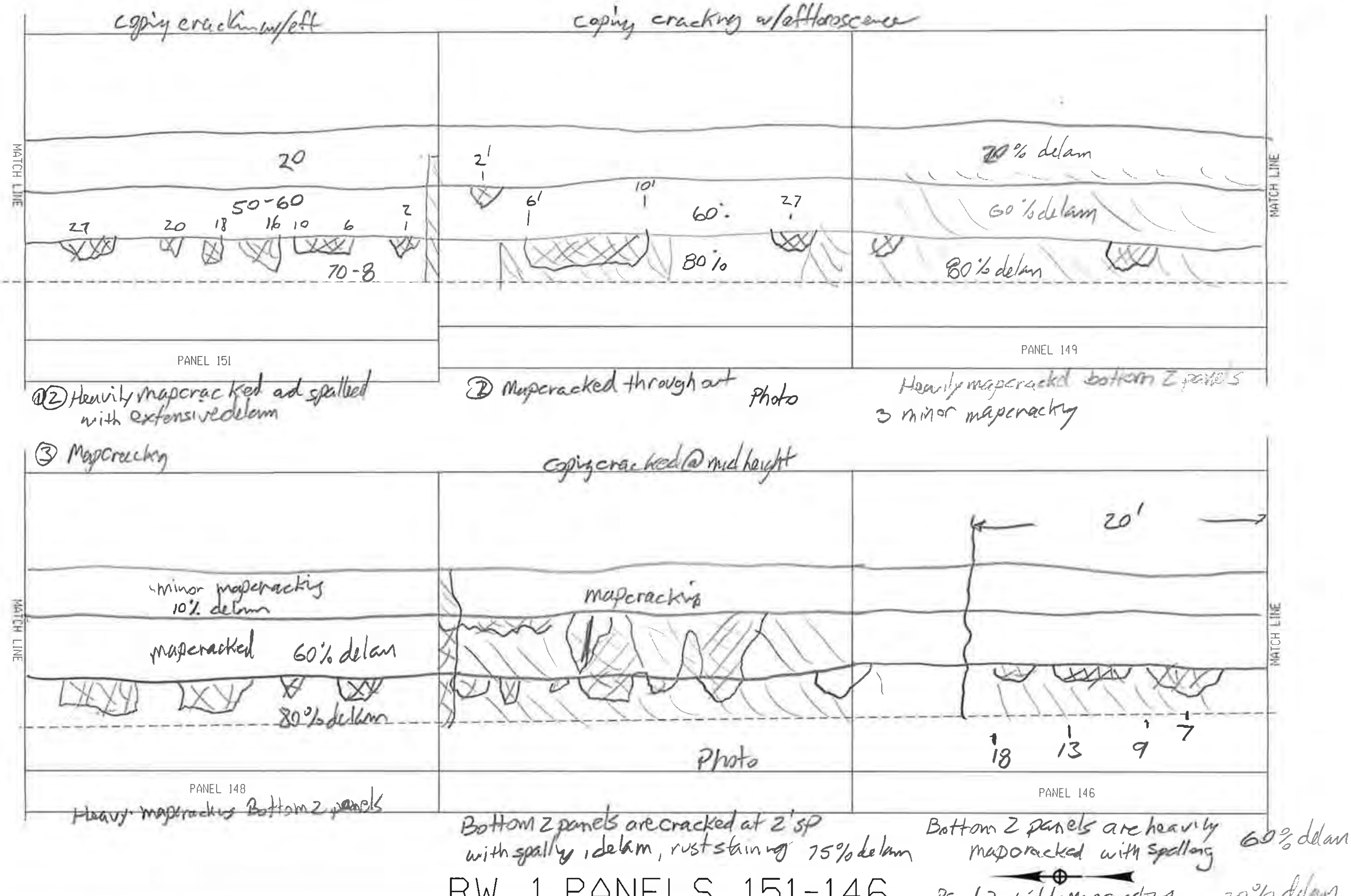

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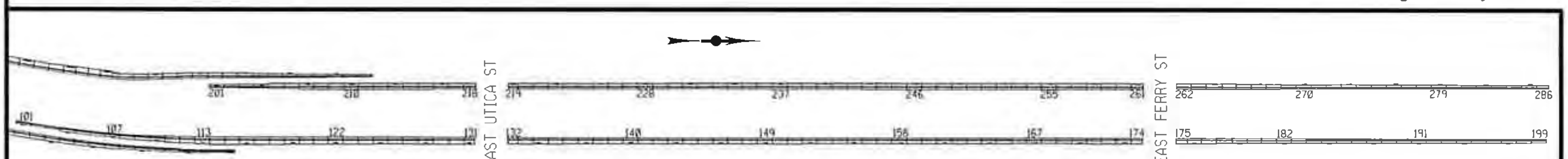

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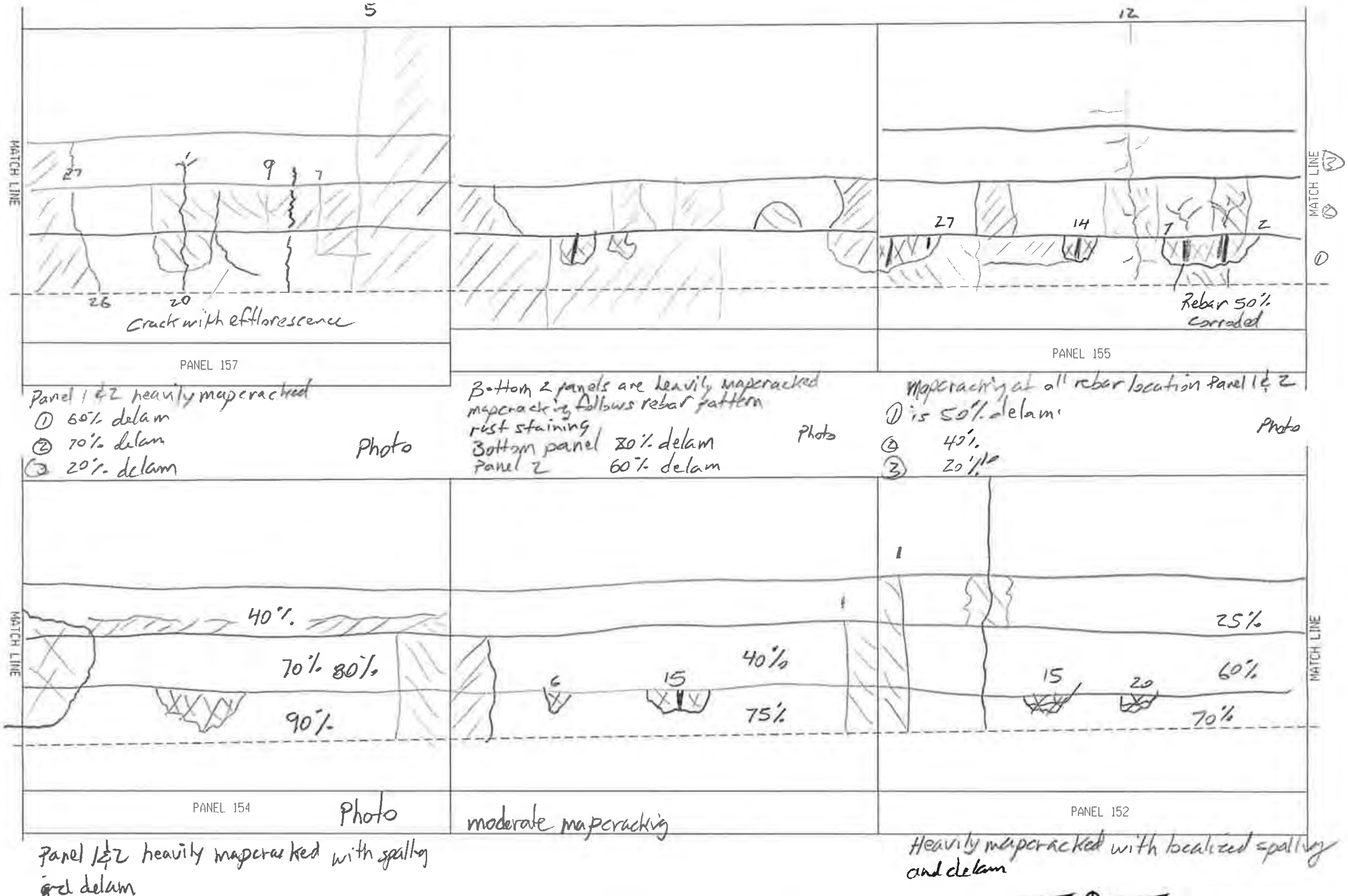

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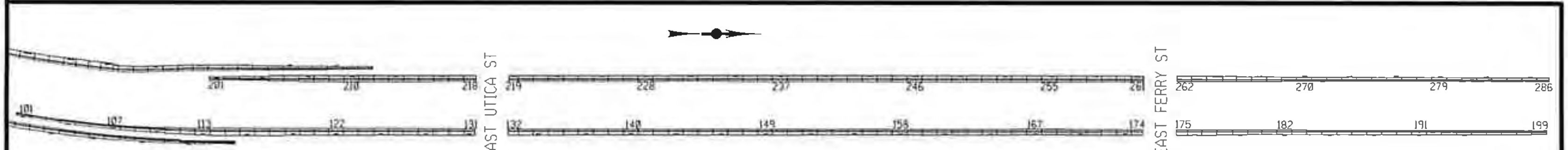

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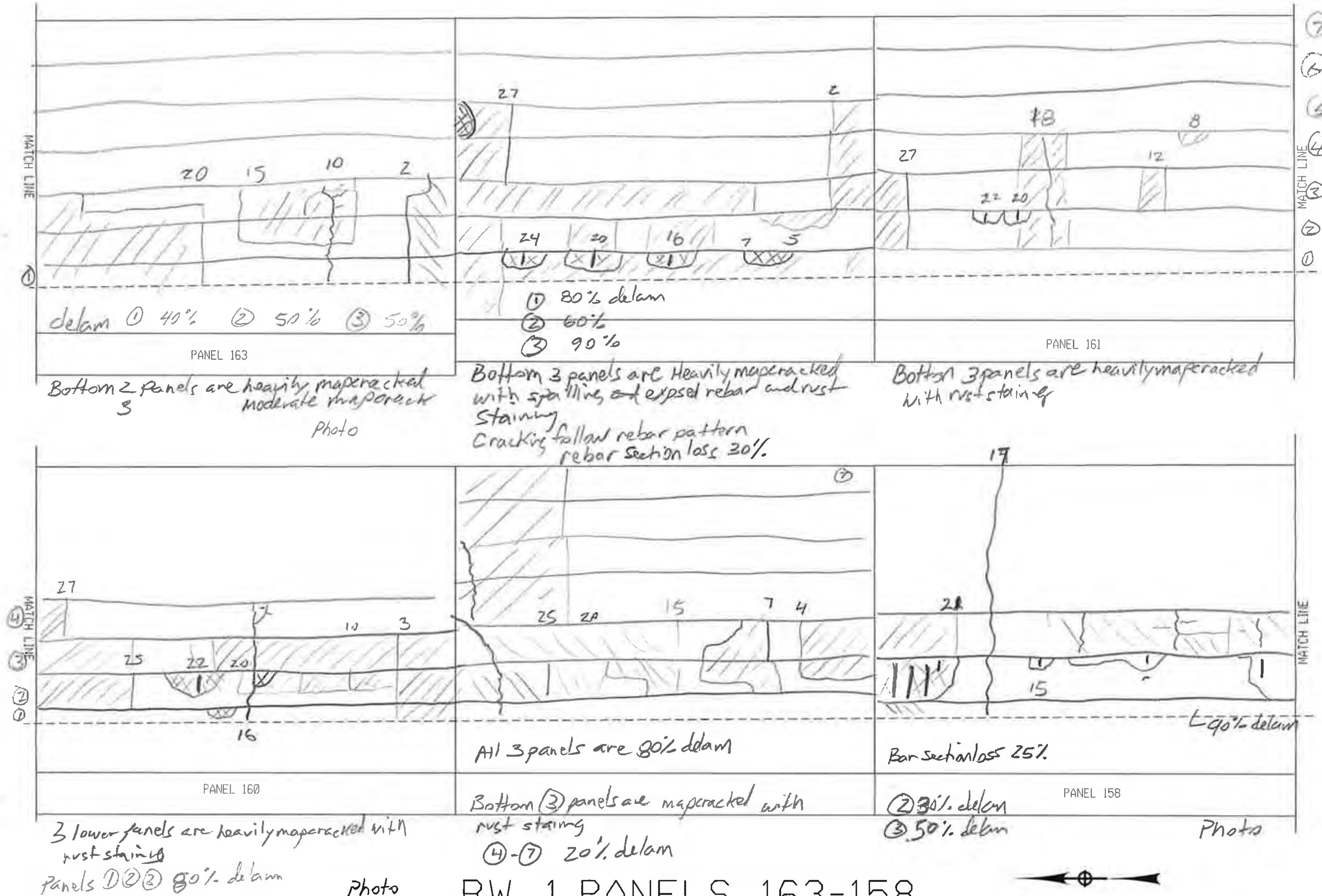

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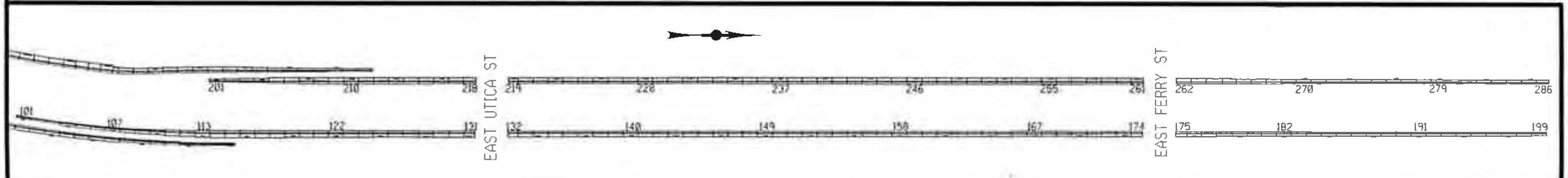

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DATE: 5/4/23

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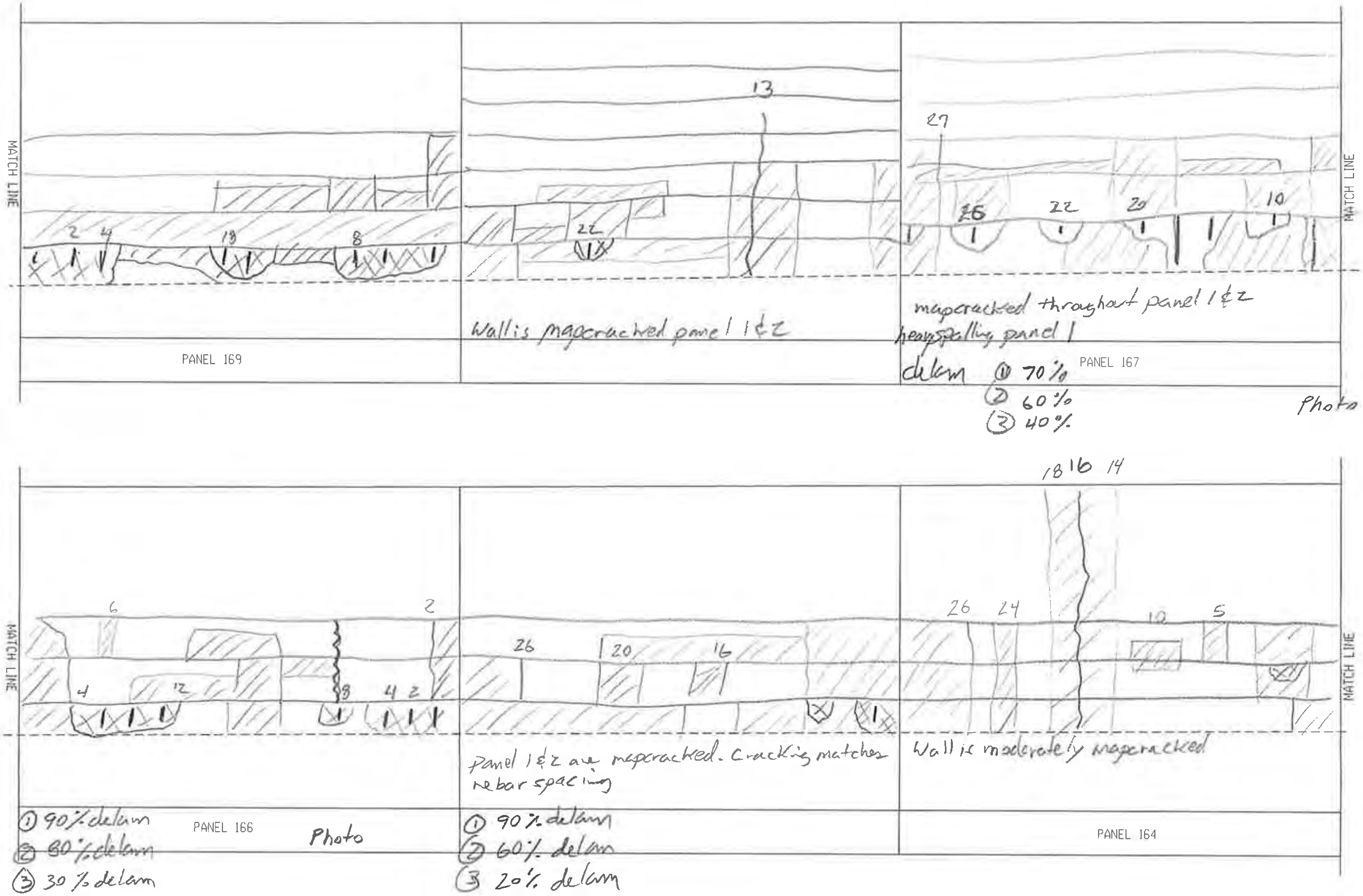
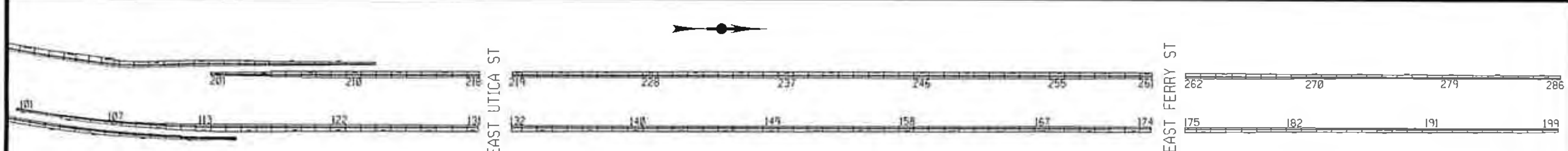


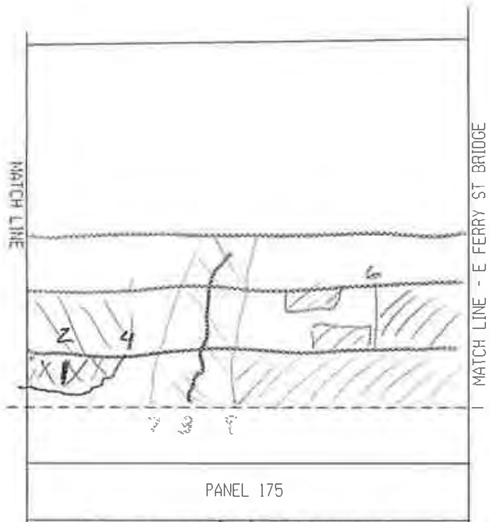
RW 1 PANELS 169-164



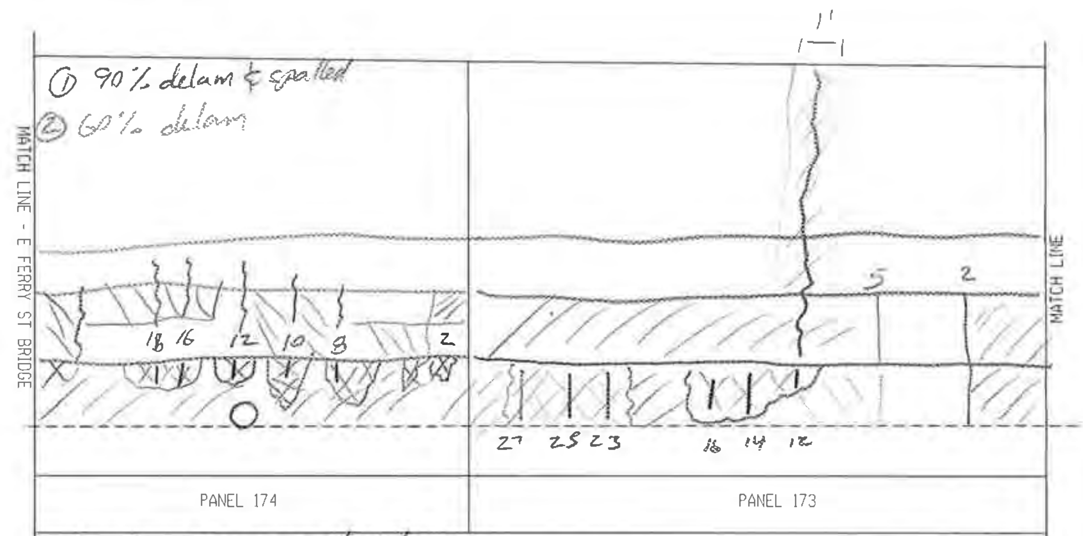
BY: MJE

DATE: 5/4/23

SCALE: 1" = 10'

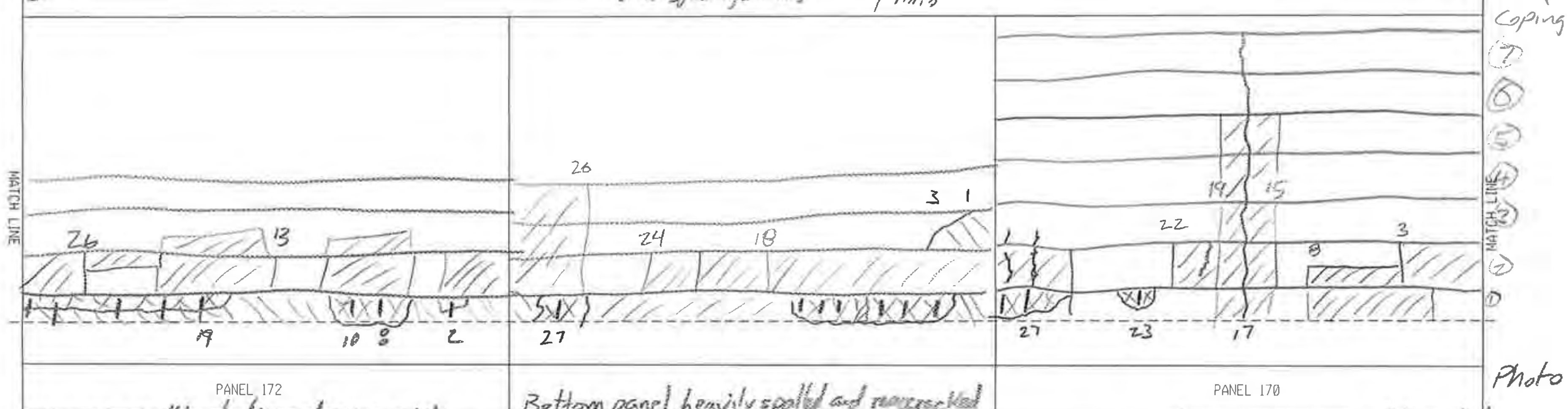


Bottom 2 panels heavily mapcracked with rust staining - spalling exposed re bar
① 70% delam
② 50% delam



Non functioning weep at midspan weep full of silt
Heavily mapcracked with delam and spalling conc.
Photo

Photo



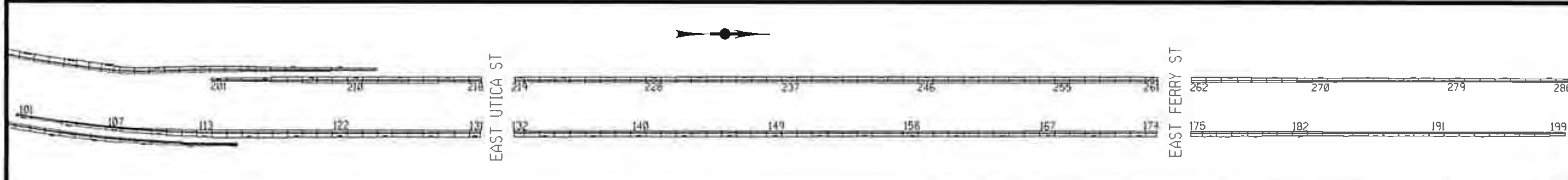
Photo

Heavy spalling delam and mapcracking
① 90% delam
② 70% delam
③ 20% delam

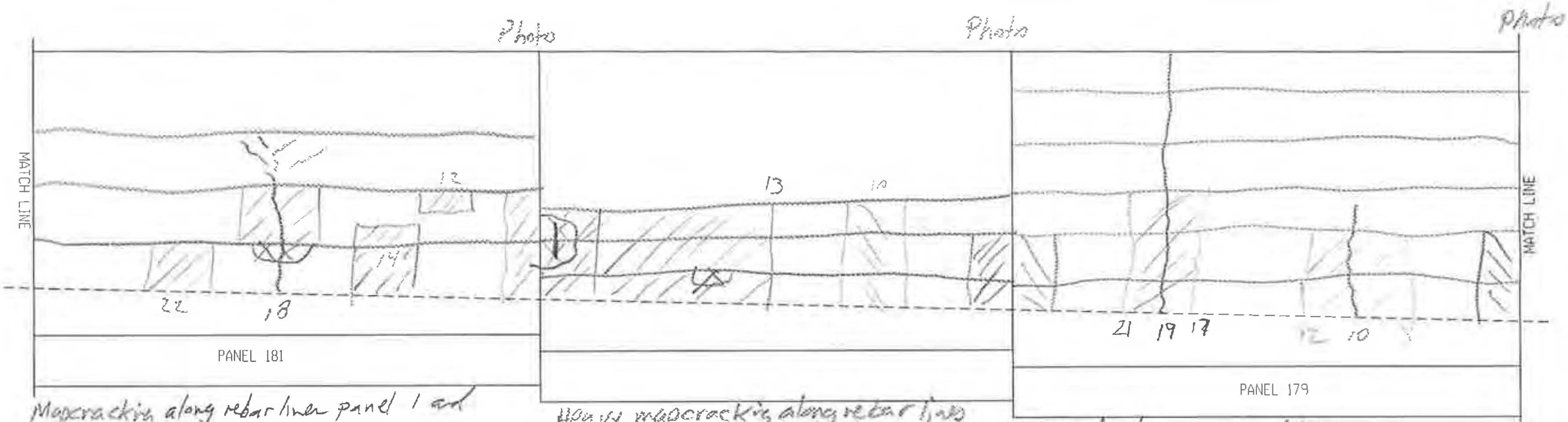
Bottom panel heavily spalled and mapcracked
Mapcracking mirrors rebar placement
Photo

Lower 2 panels are mapcracked & spalled exposing some rebar. Core is delam
① 60% delam
② 60% delam
③ 20% delam

RW 1 PANELS 175-170



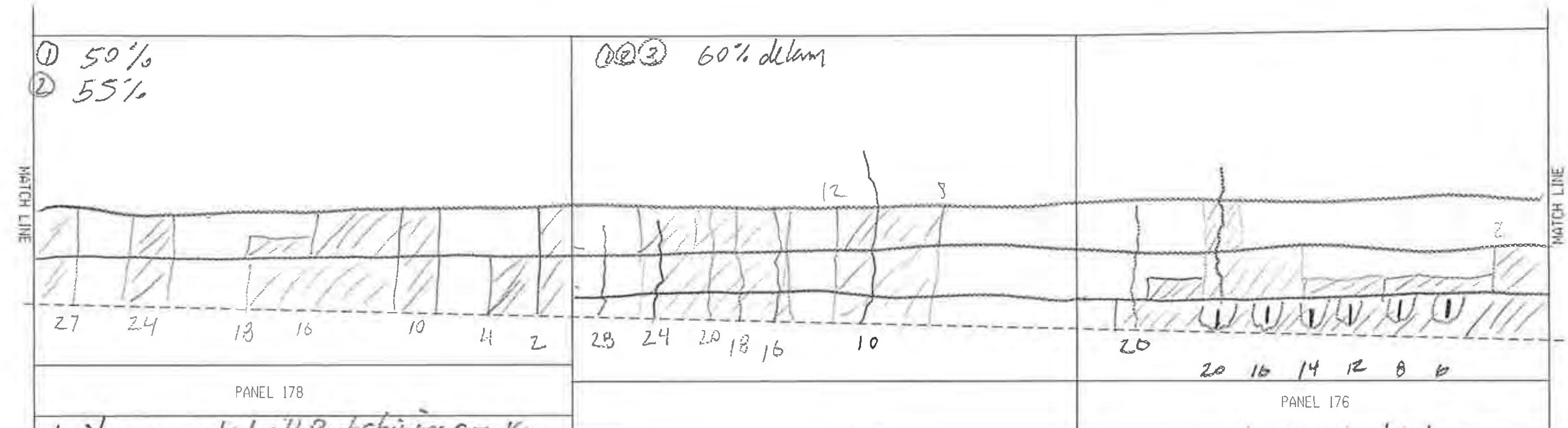
BY: MJE
DATE: 5/4/23
SCALE: 1" = 10'



Mapcracking along rebar lines panel 1 and some panel 2
① 30%
② 25%

Heavy mapcracking along rebar lines on lower 2 panels - moderate on 3rd panel
① 50% delam
② 50% delam
③ 35%

Moderate mapcracking
① 50% delam
② 50% delam
③ 10% delam

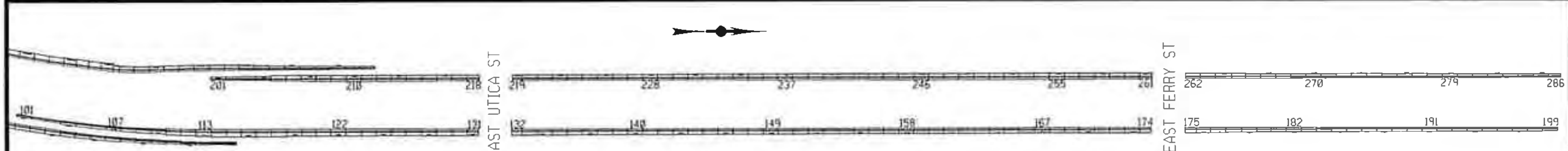


Heavily mapcracked with Rust staining, Cracking mirrors vertical rebar spacing - cracks every 2 ft.

Mapcracking along rebar lines

Mapcracked with rust staining
① 80% delam
③ 50% delam

RW 1 PANELS 181-176

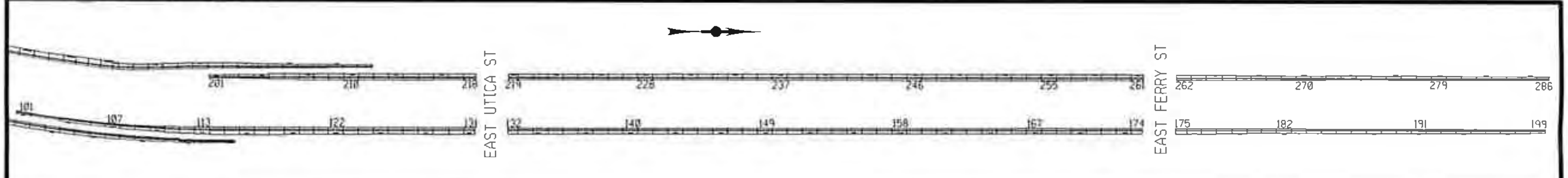


BY: MJE
DATE: 5/4/23
SCALE: 1" = 10'

mapcracked
① 60% delam
② 20% delam

Minor Map Cracking

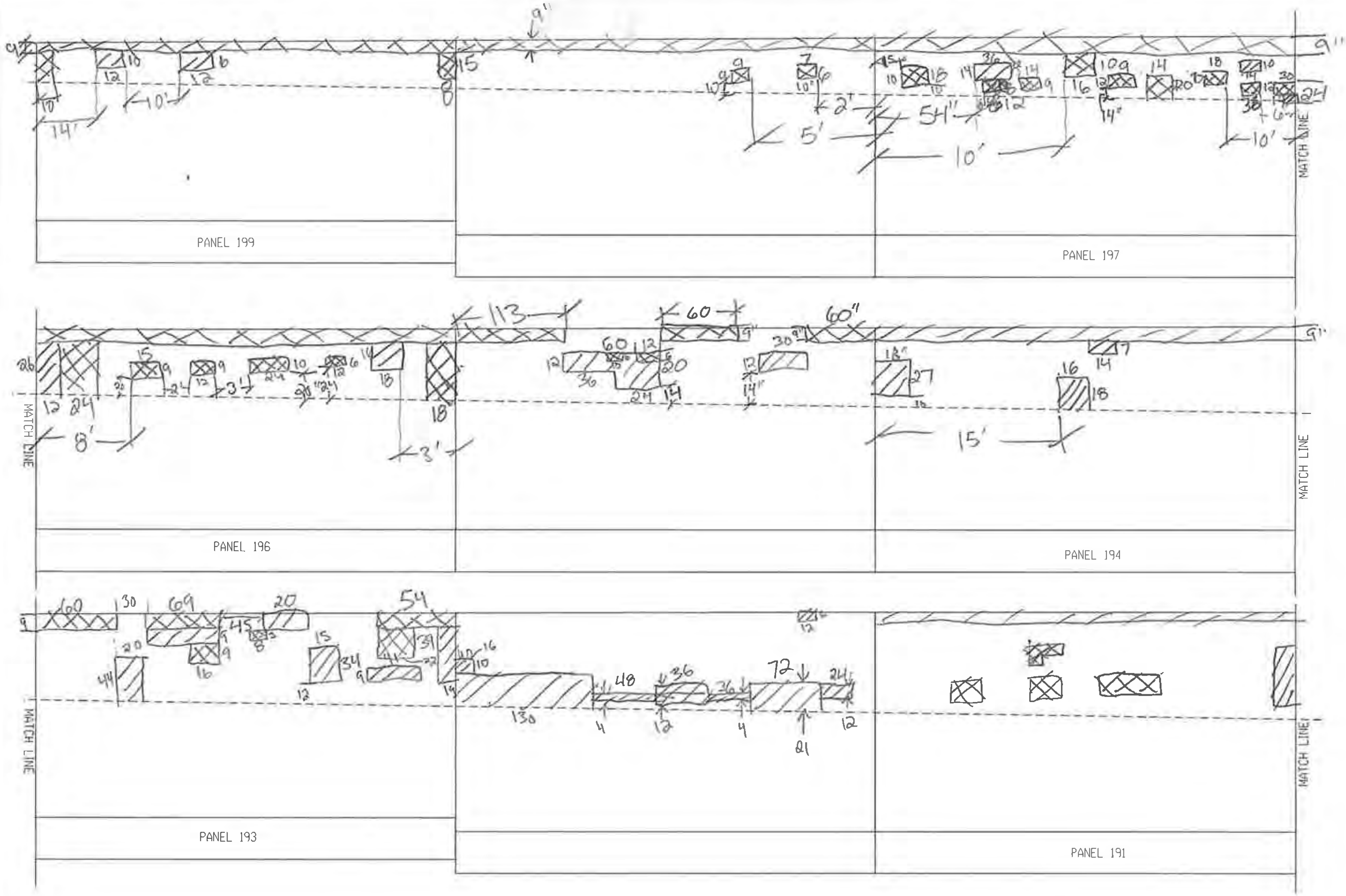
RW 1 PANELS 190-182



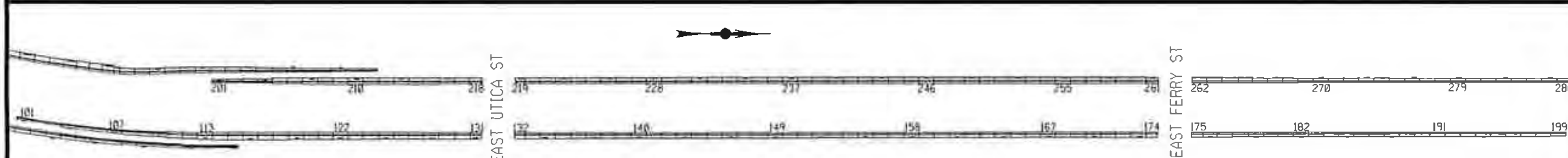
BY: MJE

DATE: 5/4/23

SCALE: 1" = 10'



RW 1 PANELS 199-191



BY:

DATE: 5/4/23

SCALE: 1' = 10'

Retaining Wall Coping Inspection 5/30/2023

Retaining Wall 1

Adjacent to wall 3 (ramp):
- Bottom railing tube of steel BR rail is detached in several areas
- Mid-height cracking of coping 60% of length

Northampton to E Utica:
- Manhole adjacent to wall lighting standard, safety walk is broken and heaved

E Utica to E Ferry:
- Horizontal crack in coping
- map cracking, staining, delam, and broken d clips for full length

E Ferry to Wall end:
- Horizontal crack in coping
- Typical intermittent map-cracking
- Impact damage to rail at Inter Park intersection
- Singular spall area under rail post midway between Inter Park and Sidney St

General:
- D-clips intermittently broken throughout

Calculations

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www.labellapc.com

PROJECT Kensington Inspections
PIN 5512.52 CALC. BY CAM DATE 5/26/2023

Condition Estimates

- Retaining Wall 1
  - Condition 2 - map cracks, stains, isolated delam, minor cracks
  - Condition 3 - spalls, widespread delam, major cracks
  - Areas with multiple forms of deteroration were measured under only one category. Condition 3 categories were prioritized over condition 2.

Panel	Minor/Map Crack (sf)	Major Cracks (ft)	Spalls (sf)	Widespread Delam (sf)	Isolated Delam (sf)	Other (staining, efflor., etc.)
101	29.0		1.0			
102	9.0				9.0	
103			15.0		30.0	
104			8.5		28.5	
105	33.7				25.3	
106	162.9		2.0		9.0	
107	48.6		1.0		15.0	
108	60.8	10.9	3.0			
109	52.9				29.4	
110	66.2		16.0			
111	36.2	59.3				
112	267.8		7.8			
113	56.5	12.0	1.0		68.7	
114	112.5	19.5				
115	99.4	14.0	9.0			15.0
116	22.5	21.0			3.0	
117	22.5	19.0			12.0	
118	22.5	16.0			11.0	
119		15.0	2.0		47.5	
120			30.0	30.0		
121			9.0	9.0		
122				189.5	7.2	
123		12.4		53.0		
124				144.0		
125				63.0		
126			52.2	360.0		
127	41.4	4.5	10.3	6.0	4.3	
128				99.0		
129	112.5				15.0	
130	24.0		15.0		27.0	
131			9.0	273.0		
132	34.5		45.0	72.0		
133	63.0			175.0		
134		17.0				
135	18.0		45.0	99.0		
136	22.5	6.0	3.0	69.0		
137				108.0		
138	43.5	27.0		48.0		
139	40.5			141.0		
140	9.0		29.7	141.2		

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PROJECT	Kensington Inspections				
PIN	5512.52	CALC. BY	CAM	DATE	5/26/2023

Condition Estimates

- Retaining Wall 1

Panel	Minor/Map Crack (sf)	Major Cracks (ft)	Spalls (sf)	Widespread Delam (sf)	Isolated Delam (sf)	Other (staining, efflor., etc.)
141	45.0		3.0	58.8		
142	44.5	3.0	6.0	48.1		
143	58.8		20.3	113.3		
144	48.1		11.0	160.3		
145	30.0				72.0	
146	50.8	9.0	16.0	98.4	18.0	
147	45.0			180.0		
148	18.0			144.0	9.0	
149	36.9			144.0	18.0	
150	56.3		2.0	148.5		
151	36.0			153.0	18.0	
152		8.9		175.5		
153				126.0		
154				234.0		
155		12.5		126.0		
156				135.0		
157				141.0	19.8	
158	22.5	11.1	43.0	112.6		
159	10.5			168.0	72.0	
160	22.5		11.3	171.0		
161	90.9	9.0	12.0		37.5	
162				183.0	30.0	
163	78.0			120.0		
164	36.0	7.9		180.0	27.5	
165	38.6			153.0		
166	20.3		38.0	145.8		
167	23.0		40.0	125.0		
168		4.5	4.0	150.2		
169	15.3		40.0	178.5		
170		6.0	13.0	163.2		
171			36.0	135.0	29.0	
172	16.2		45.0	121.5		
173			33.0	45.6		
174	18.1			118.8		
175				74.8		
176	12.2	9.0		121.5	6.0	
177	28.1	3.0		112.5		
178	50.3			109.5		
179	22.5	6.6		99.0		
180	47.6		18.0	97.5		
181	82.3			58.5		
182	25.9	7.7		106.5		
183	54.3			136.5		
184	55.5	6.0		93.0		
185	36.6	5.0	8.0	99.0		

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PROJECT	Kensington Inspections				
PIN	5512.52	CALC. BY	CAM	DATE	5/26/2023

Condition Estimates

- Retaining Wall 1

Panel	Minor/Map Crack (sf)	Major Cracks (ft)	Spalls (sf)	Widespread Delam (sf)	Isolated Delam (sf)	Other (staining, efflor., etc.)
186	31.0		19.5	64.8		
187	38.1		16.0		36.0	
188	66.9	18.0	4.0		4.5	
189	120.4		22.5		57.0	
190	63.5		15.3		67.5	
191	85.8		19.5		28.5	
192	56.2		0.5		37.9	
193	49.3		14.8		28.7	
194	49.1				28.6	
195	45.3		15.5		8.9	
196	35.5		33.9		4.2	
197	45.1		35.1		4.5	
198	44.5		23.4			
199	33.9		24.6		1.3	
Total (sf):	3552.87	190.39 (sf)	958.40	7709.85	1006.18	15.00

COND 2	COND 3
4575	8859

Wall Inventory Sheet

RW 1

INVENTORY, INSPECTION, AND DATA COLLECTION	
PRIMARY OWNER	NYSDOT - New York State Department of Transportation
REGION	05-Region 05 - Buffalo
COUNTY	3-County 3 - Erie
RESIDENCY	534 - Erie North Residency
NYS ROUTE	Rte. 33
REFERENCE MARKER	3353011032
LONGITUDE	78.84325
LATITUDE	42.90887
ADDITIONAL LOCATION DESCRIPTION	Located along the right shoulder of E.B. Kensington from the off-ramp to N.B. Humboldt Parkway and extending beyond Sidney Street supporting N.B. Humboldt Parkway (approximately 2,935 ft. long, 21 ft. maximum exposed height). The east abutments for the E. Utica and E. Ferry Street Overpass Bridges are not considered as part of RW #1.
TYPE OF SERVICE PROVIDED	Support/Protect a Roadway
WALL TYPE	Cantilever - Concrete
LEGACY RETAINING WALL TYPE	
WALL FACING TYPE	Cast - in -Place Concrete
WALL BACKFILL REINFORCEMENT TYPE	N/A
ADDITIONAL WALL DESCRIPTION	
WALL LENGTH	2,935 Ft
WALL MAXIMUM HEIGHT	21 Ft
WALL AREA	66790 SF
YEAR BUILT	1970
CONTRACT NUMBER	C 68-2
AADT	76,347
QC REVIEWER	
QC APPROVED DATE	
SITE ACCESS NOTES	With WZTC in place to close the adjacent shoulder and travel lane, access was performed by walking and extension ladder.
INSPECTION FREQUENCY	
LAST INSPECTION STATUS	
INSTRUMENTED	N/A
MONITORED BY	----
INSTRUMENTATION COMMENT	----
CONSEQUENCE OF FAILURE	3-Major
WALL POSITION	Between Roads
GENERAL NOTES	
RETAINING WALL DATABASE ID	
NUMBER OF ERRORS AND WARNINGS	
USER UPDATE	
SUBMISSION DATE	
DATE UPDATE	

WALL INSPECTION LOCATION INFORMATION & NOTES

NY33 RETAINING WALL CONDITION EVALUATION 2023

KENSINGSTON EXPRESSWAY PROJECT
PIN 5512.52
CITY OF BUFFALO, ERIE COUNTY
RETAINING WALL 2

Prepared By:

Merton J. Edwards, PE (NYSPE 064981)
Inspection Team Leader | Sr. Structural Engineer
Date: 5/30/2023

Reviewed By:

Stephen L. Gauthier, PE (NYSPE 0075775)
Quality Control Engineer | Sr. Structural Engineer
Date: 6/16/2023

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PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

STRUCTURE:	Retaining Wall #2 (LT) along 33WB between On Ramp from SB Humboldt Parkway and Pedestrian Bridge
STRUCTURE TYPE:	Reinforced Concrete Cantilever Wall on Spread Footings Year Built: 1970
CURRENT INSPECTION:	05/01/23 – 5/09/23 (LaBella Inspections)
LAST KNOWN INSPECTION:	Unknown
CONDITION STATE.	FAIR

RETAINING WALL INSPECTION & DOCUMENTATION:

Inspection of the retaining walls will be in conformance with the NYSDOT Retaining Wall Inventory and Inspection Program Manual, October 2018. Inspection of the following elements will be inspected and documented as appropriate:

- Inspection:

The following inspection procedure was followed:

- Walls were checked for signs of settlement, rotation, or bulging. Walls faces were checked for vertical alignment using a smart level. The walls being evaluated are vertical with no batter.
- Construction joints between sections of the wall were examined for misalignment, and near the ground line for fill material washing out from between panels or joint.
- Walls were inspected for erosion material in front of the wall, for heaving of material in front of the wall, and for settlement of fill behind the wall
- Examined the wall for deterioration of the material, such as cracking, spalling, and/or corrosion, noting the width, length, depth, and/or orientation of the deterioration. Photographs are provide documenting defects found.
- Wall façades were reviewed for evidence of water seepage, efflorescence, or rust staining.
- Examined the base of walls for evidence of water flow where the water table may be within the retained earth.
- Examined and probed drains for signs of clogging. Examined drainage around ends of wall and note if embankments have been experiencing erosion.
- Examined site grading for any locations that may prohibit proper drainage from behind the wall looking for evidence of ponding above the wall, such as debris accumulation in the lower spots.
- Ascertain why water is not draining properly and note in the inspection.
- Inspected roadway components above wall for signs or joint separation, potholes, and areas of settlement.
- Examined vegetation growth along and above the wall for root infiltration creating undesirable stresses on the wall. Documented any induce cracking, bulging or failure.
- Examined the wall system for vehicular damage, and document the location and degree of damage.

GENERAL OBSERVATIONS:

1. Retaining Wall Panels are generally 30’-0” in length. The wall cap is 9” with horizontal chamfered panels spaced 3’-0” vertically, from the top of the wall. The wall cap is 9” with horizontal chamfered panels spaced 3’-0” vertically, from the top of the wall. There is some variation in panel length due to the location of bridges within the corridor. For specific panel lengths see the DOCUMENTION Section of this report.

2. The lower 6-10 ft of the subject retaining wall was found to be in FAIR-POOR condition with extensive map cracking, dampness, isolated rust staining, concrete spalls and widespread delamination. For specific conditions found and photographs of the of wall panels, see the DOCUMENTION Section of this report.

3. The upper portions of theses wall panels were generally found to be in GOOD-FAIR condition except for a few locations. The top of wall rail coping is map cracked under approximately 50% of the railing posts and has horizontal cracking along the coping at mid height for approximately 40% of the wall length. For specific conditions found, photographs of the of wall panels, and condition calculations see the attached sections of this report.

General:	
DEFECT	DESCRIPTION
Misalignment	None noted. No tipping or rotation of the wall panels was observed.
Settlement	The safety walk at the intersection with East Ferry St is sunken. The safety walk is heaving at the intersection with East Utica St as well as at a manhole near East Ferry St.
Sinkhole (cavity) Formation	None noted.

Concrete Cracks:	
DEFECT	DESCRIPTION
Insignificant Cracks / (cracks < 0.012 inches wide)	Most wall panels exhibit minor cracking. Cracking is predominately vertical and seems to mirror the rebar spacing underneath.
Map cracks	Most wall panels are exhibiting some map cracking. The map cracking is most prevalent in the bottom 6 feet of the panels and at the top of walls under railing posts.
Moderate Cracks (0.012 - 0.05 inches wide)	Many wall panels exhibit moderate cracking. These cracks, where they exist, are predominately vertical, full height cracks located at or near the midpoint of the panel.
Wide Cracks (cracks > 0.05 inches wide	A few panels exhibit wide cracking. These cracks, where they exist, are predominately vertical, full height cracks located at or near the midpoint of the panel.

Additional Concrete Distress:	
DEFECT	DESCRIPTION
Spalling / Delamination	Every wall panel is exhibiting delamination. Delamination amounts vary from approximately 15% to 60% of the exposed wall face. Many wall panels exhibit spalling. Spalling is predominately found at the wall joints to adjacent wall panels and in vertical rebar areas in the lower 6 to 10 feet of wall.
Staining	Staining, both efflorescence and rust staining, is evident on every wall panel. The amount of staining varies and is best noted in the photo documentation.
Exposed Rebar	Rebar is exposed in many of the spalled areas noted during the inspection. Most of the exposed rebar is vertically placed reinforcement. Exposed rebar was noted to have between 15% and 60% section loss.

Notes:
RW 2 consists of 86 panels numbered west (south) to east (north) from 201 to 286. The retaining wall supports the Humboldt Parkway above State Route 33 (Kensington Expressway). Located along the right shoulder of W.B. Kensington from the on-ramp from S.B. Humboldt Parkway and extending to Riley Street supporting S.B. Humboldt Parkway (Approximately 2,552 ft. long, 20 ft. maximum exposed height). The east abutments for the E. Utica and E. Ferry Street Overpass Bridges are not considered as part of RW #2.

INVENTORY, INSPECTION, AND DATA COLLECTION

Element	Total Qty	Units	Condition State			
			1	2	3	4
			GOOD	*FAIR*	*POOR*	*SEVERE*
RW.01 - Entire Wall	1	Each	0.71	0.08	0.21	
RW.02 - Wall Facing	51260	SF	34802	4484	11974	
RW.03 - Ground Surface, Front	2522	FT	2522			
RW.04 - Ground Surface, Back	2522	FT	2510		12	
RW.05 - Weep Holes	N/A	Each	---	---	---	---
800 - Scour	N/A	FT	---	---	---	---

INSPECTION RESULTS/ RECOMMENDATIONS

- **Overall Condition State Recommendation: 2 - FAIR**
- PROJECT DOCUMENTATION CAN BE FOUND IN THE ATTACHED SECTIONS

Inspection Photos

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #2 (LT) along 33WB between On-Ramp from SB Humboldt Parkway and Pedestrian Bridge.

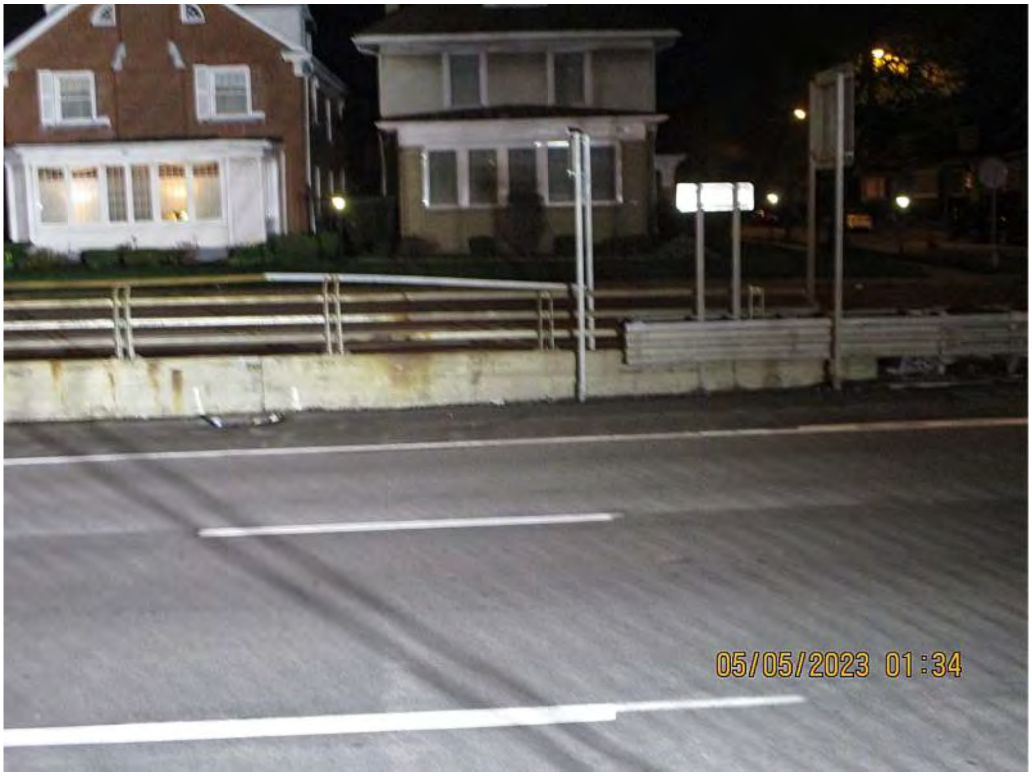


PHOTO 1

PANEL 286

Description:

End of RW2.

Map cracking and rust staining on rail coping.

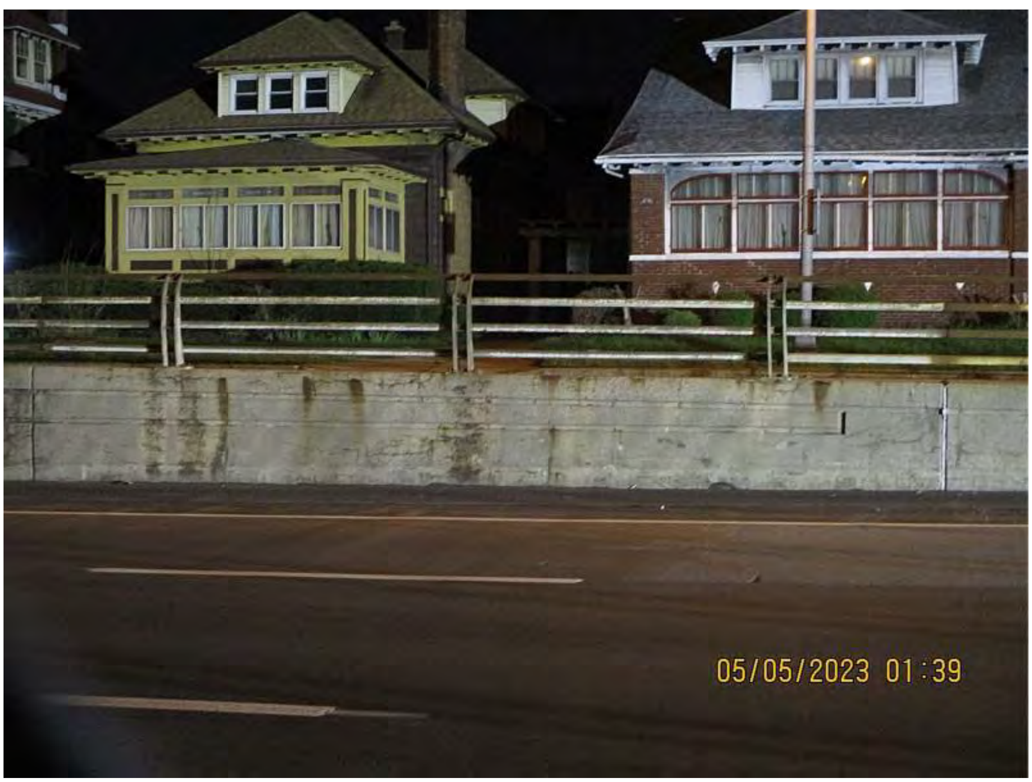


PHOTO 2

PANEL 283

Description:

Map cracking and rust staining on rail coping.

Map cracking with efflorescence throughout. More concentrated map cracking under rail posts, typical.

Delamination in top half of panel for 1' from right joint.

Similar for panels 285-279. Panels 285 and 282-280 have spalls as well.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #2 (LT) along 33WB between On-Ramp from SB Humboldt Parkway and Pedestrian Bridge.

PHOTO 3

PANEL 277

Description:

Cracking along coping and under rail posts, typical.

There are 2 full-height vertical cracks. Panel is 50% delaminated with widespread map cracking.

The bottom panel has many large spalls with exposed rebar, rust staining, and efflorescence.

Panels 278 and 272 are similar.

PHOTO 4

PANEL 266

Description:

Rust staining under rail posts is typical for entire wall.

There is a 9' vertical crack. There is map cracking on the bottom 2 panels. Cracks extend into the third panel near the joints.

The bottom panel is 100% delaminated. The second and third panel are 20%-30% delaminated.

Panels 276, 275, and 267-263 are similar. Panels 273 and 268 are similar with spalls as well.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #2 (LT) along 33WB between On-Ramp from SB Humboldt Parkway and Pedestrian Bridge.

PHOTO 5

PANEL 262

Description:

Right of Ferry St bridge west abutment.

Map cracking under rail posts, typical.

Bottom 2 panels are map cracked with rust staining and 50%-60% delamination. Some cracks extend into the third panel which is 20% delaminated.

PHOTO 6

PANEL 261

Description:

Left of Ferry St bridge west abutment.

Map cracking under rail posts, typical.

Map cracking on bottom 2.5 panels. Bottom 2 panels are 100% delaminated, and there are isolated areas of delamination on the third panel.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #2 (LT) along 33WB between On-Ramp from SB Humboldt Parkway and Pedestrian Bridge.

PHOTO 7

PANEL 258

Description:

Map cracking bottom 2 panels with 40% delamination. Map cracks extend into third panel near left joint.

Several large spalls on bottom panel with exposed rebar.

PHOTO 8

PANEL 256

Description:

Map cracking under rail posts, typical.

Full-height vertical crack with efflorescence near midspan of the panel.

Map cracking bottom 2 panels with a few rust stains. Bottom panel 100% delaminated, second panel 75% delaminated.

A few small spalls, most significant is in lower right corner of panel.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #2 (LT) along 33WB between On-Ramp from SB Humboldt Parkway and Pedestrian Bridge.

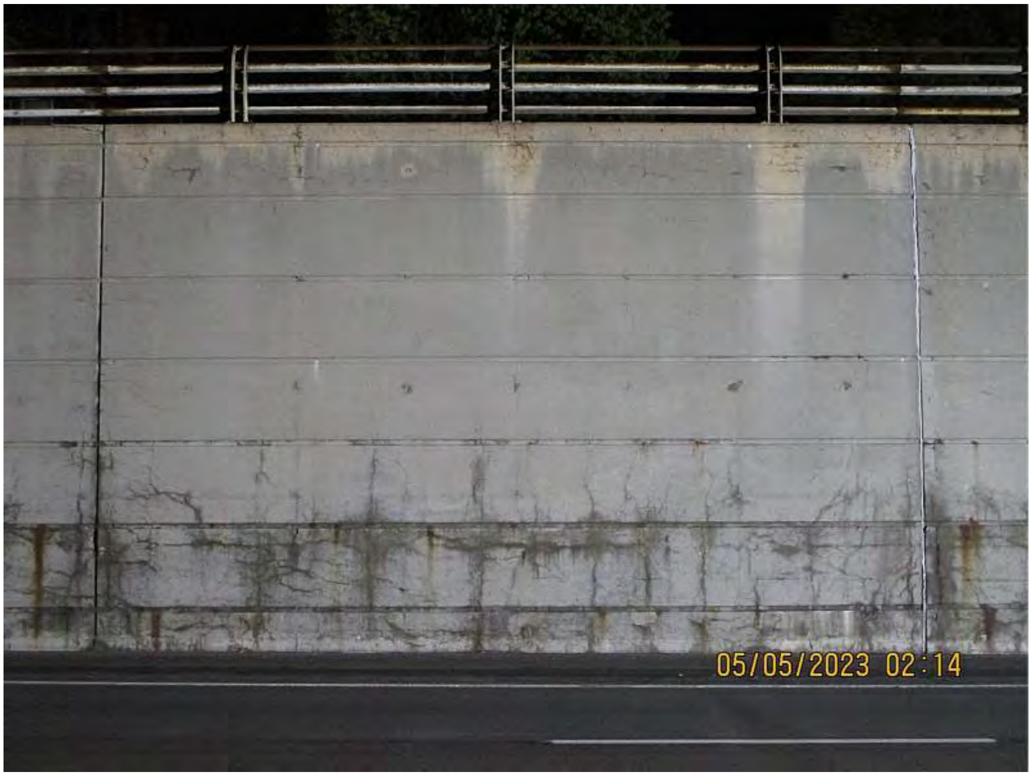


PHOTO 9

PANEL 248

Description:

Map cracking under rail posts, typical.

Map cracked bottom 2 panels with 90%-100% delamination. Less severe map cracking on third panel with delamination for 6' from right joint.

Scattered map cracking on top 4 panels.

There is a spall on the second panel.

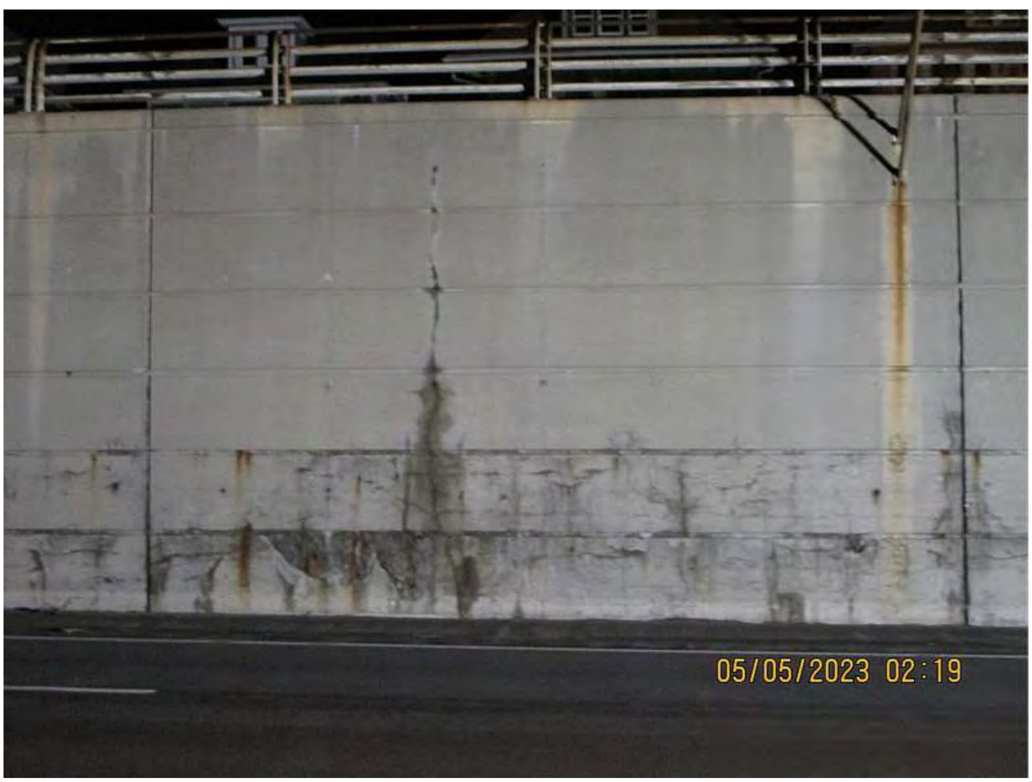


PHOTO 10

PANEL 238

Description:

Full-height vertical crack with efflorescence.

Bottom 2 panels map cracked with 90%-100% delamination. Some delamination extends into third panel as well.

Large spall with exposed rebar on bottom panel.

Rust staining under luminaire and a few isolated stains throughout.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #2 (LT) along 33WB between On-Ramp from SB Humboldt Parkway and Pedestrian Bridge.

PHOTO 11

PANEL 237

Description:

Map cracked on bottom 3 panels with areas of rust staining and efflorescence.

Delaminated 100% on bottom panel, 70% on second panel, and 15% on third panel.

There is a spall on the right side of the bottom panel.

Similar to panels 236 and 234.

PHOTO 12

PANEL 232

Description:

Map cracked on bottom 2 panels with some vertical cracks extending into the third panel. There are isolated rust stains.

Full height vertical crack at midspan of the panel with efflorescence.

Large spall on bottom two panels at left joint. The spall has exposed rebar.

Similar to panels 235, 223, and 220.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #2 (LT) along 33WB between On-Ramp from SB Humboldt Parkway and Pedestrian Bridge.

PHOTO 13

PANEL 222

Description:

Map cracking under rail posts, typical.

There is map cracking on the bottom 2 panels. The bottom 2 are 100% delaminated and the third panel is 70% delaminated.

There are several spalls. The large spall near the right joint has exposed rebar with 30% loss.

There is a 13' crack near the left joint that is about to spall.

PHOTO 14

PANEL 219

Description:

Right of East Utica St bridge west abutment.

Map cracking under rail posts, typical.

The bottom 2.5 panels are map cracked and 100% delaminated. Rust staining is present in the chamfer between panels.

There is a 10' vertical crack near the left joint.

There are several spalls including one large spall in the bottom panel with exposed rebar.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #2 (LT) along 33WB between On-Ramp from SB Humboldt Parkway and Pedestrian Bridge.

PHOTO 15

PANEL 218

Description:

Left of East Utica St bridge west abutment.

There is map cracking on the bottom 2 panels throughout and bottom 3 panels near the joints. Panels 1 and 2 are 100% delaminated and panel 3 is 90% delaminated.

Scattered areas of rust staining are present.

There are a few spalls on the bottom panel.

PHOTO 16

PANEL 213

Description:

Map cracking on top panel and coping.

Map cracking on bottom 2 panels. Map cracking continues up to the fourth panel near the left joint. Bottom 3 panels are 100% delaminated.

There is a 15' crack near the left joint.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #2 (LT) along 33WB between On-Ramp from SB Humboldt Parkway and Pedestrian Bridge.

PHOTO 17

PANEL 208

Description:

Map cracking under rail posts, typical.

Map cracking on bottom 2 panels. Sparser map cracking throughout.

Bottom 2 panels are 100% delaminated with rust staining and efflorescence. Panel 3 is 60% delaminated.

There is a full height crack at midspan of the panel with rust staining and efflorescence.

PHOTO 18

PANEL 204

Description:

Map cracking under rail posts, typical.

Rust staining on top panel and coping.

Scattered map cracking throughout with 50% delamination.

Similar to panel 205.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #2 (LT) along 33WB between On-Ramp from SB Humboldt Parkway and Pedestrian Bridge.

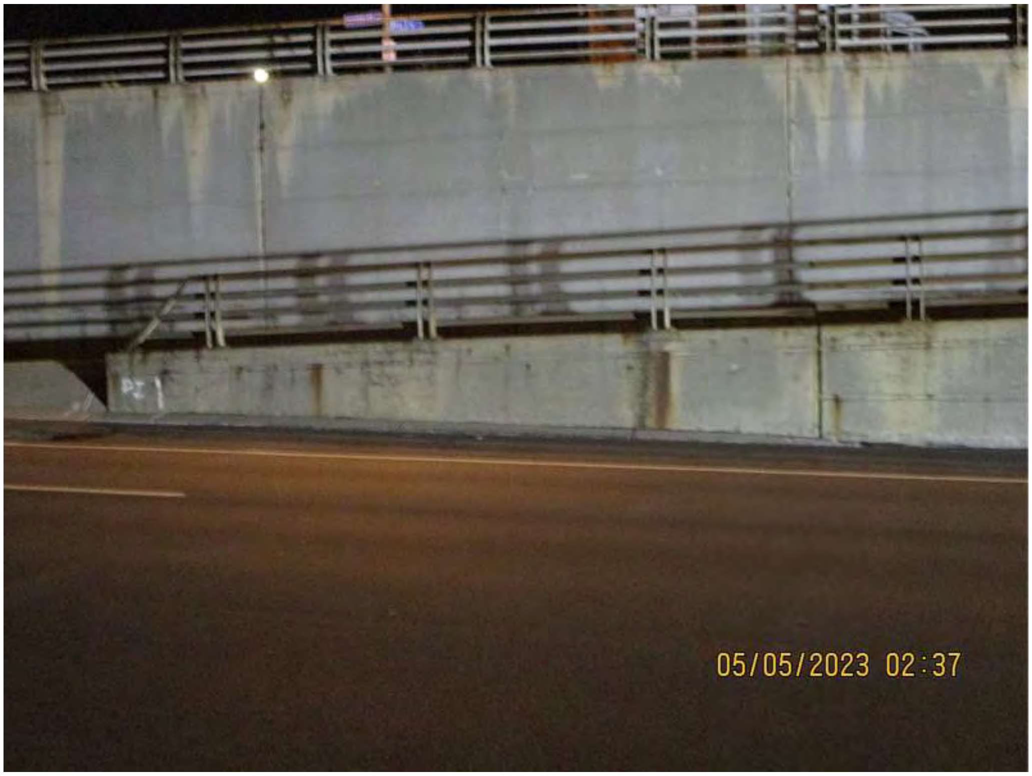


PHOTO 19

PANEL 201

Description:

Start of RW2.

Map cracking and rust staining under rail posts.

Sparser map cracking throughout.

PHOTO 20

PANEL 211 (Back Side of Coping)

Description:

There is a large longitudinal crack on the coping along with general map cracking.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #2 (LT) along 33WB between On-Ramp from SB Humboldt Parkway and Pedestrian Bridge.

PHOTO 21

PANEL 206 (Back Side of Coping)

Description:

Back of coping is spalled with exposed longitudinal rebar and rust staining.

Top of coping is map cracked.

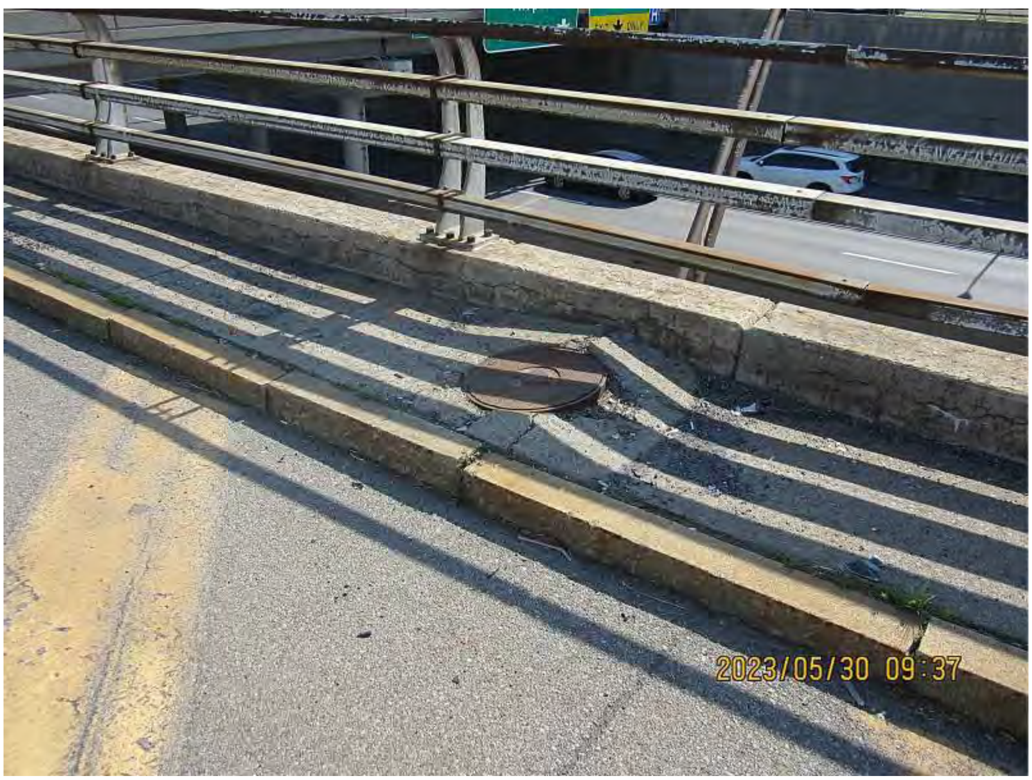


PHOTO 22

PANEL 260 (Back Side of Coping)

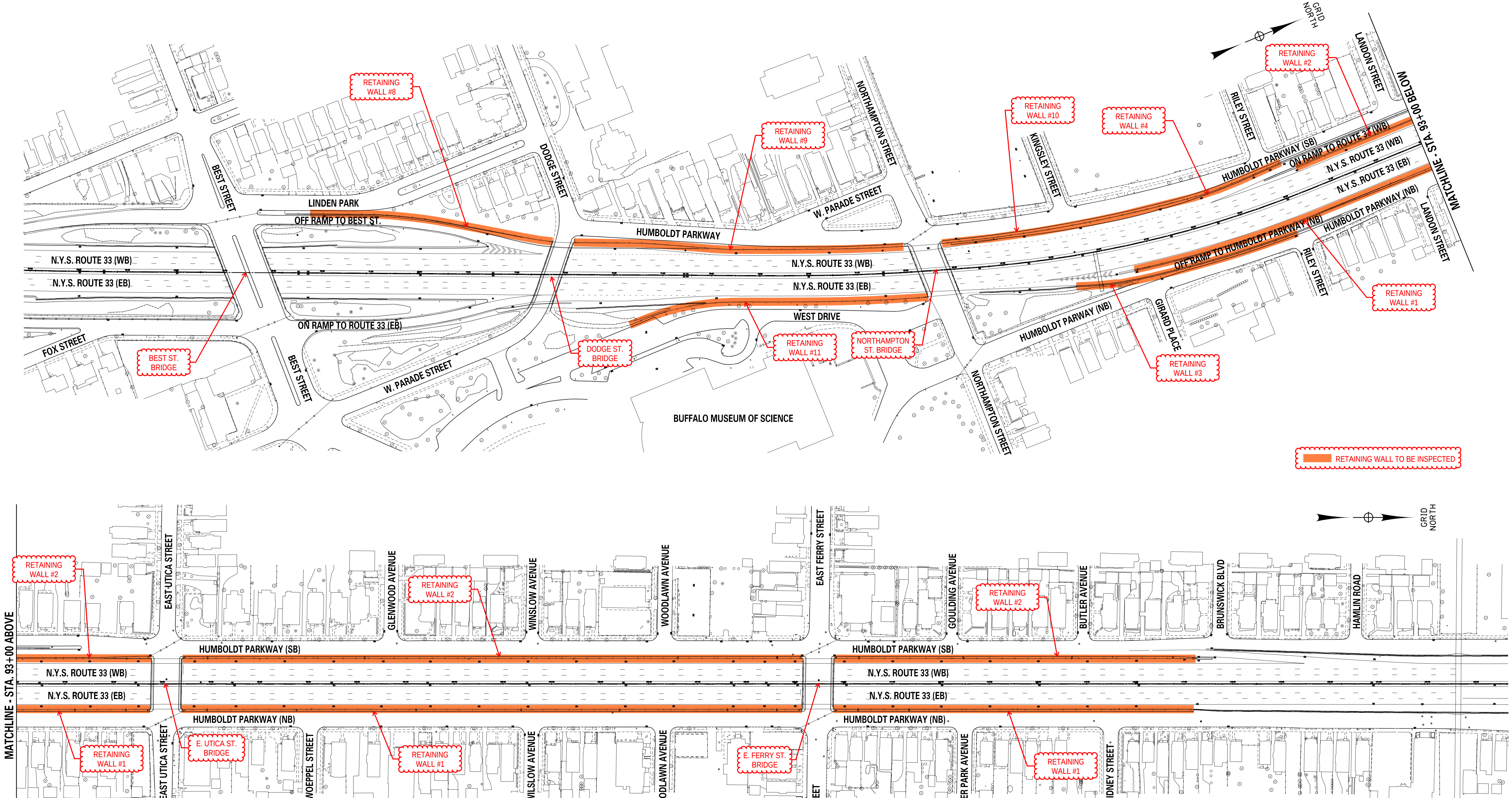
Description:

There is a large longitudinal crack on the coping.

The manhole and safety walk adjacent to the wall are heaving.

Heaving is also present at the intersection with E Ferry St. and sinking is present on the other side of the intersection.

Field Sheets



AFFIX SEAL:
ON:

ALTERED BY:
ON:

AS-BUILT REVISIONS
DESCRIPTION OF ALTERATIONS:

STATE ROUTE 33 KENSINGTON EXPRESSWAY CITY OF BUFFALO COUNTY: ERIE REGION: 5	PIN 5512.52	BRIDGES	CULVERTS	ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED KENSINGTON EXPRESSWAY RETAINING WALL LOCATION PLAN	CONTRACT NUMBER DRAWING NO. 1 SHEET NO.

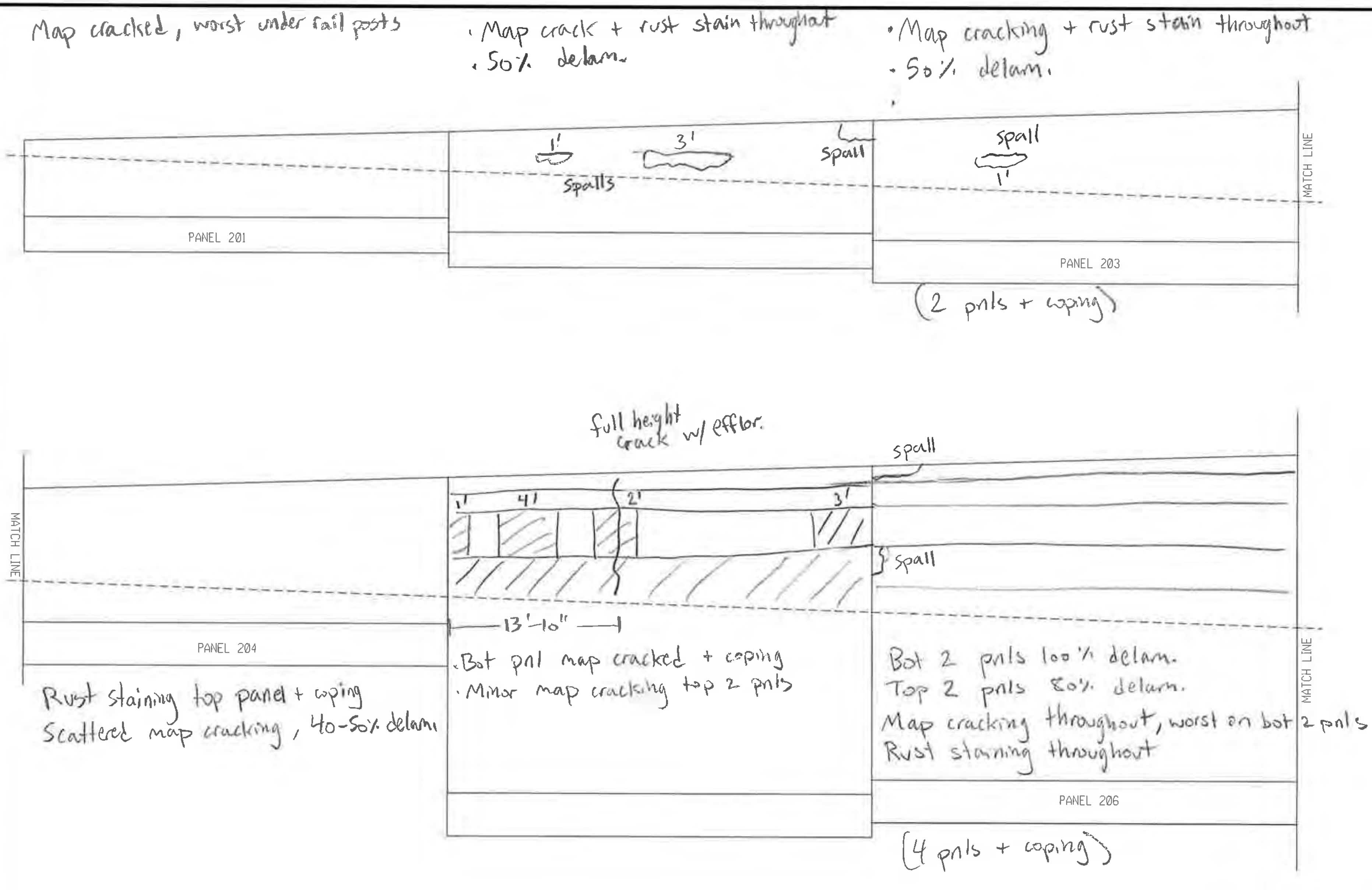
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

LaBella Powered by partnership.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

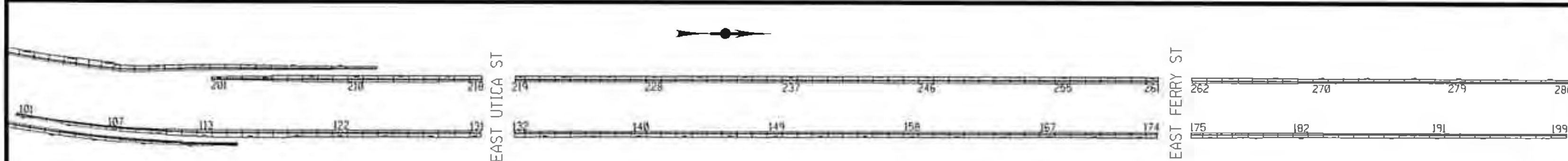
PROJECT MANAGER
CHECK
DRAFTING
CHECK
DESIGN
JOB MANAGER
DESIGN SUPERVISOR

FILE NAME = ØØcashlabØpØNØNYSDOT#2150716.01 Kensington Preliminary DesignØDrawingsØHighwayØPlanset2Ø551252_cph_pln_A#A.dgn
DATE = 2/7/2023
TIME = 12:56:26 PM



▨ delaminated

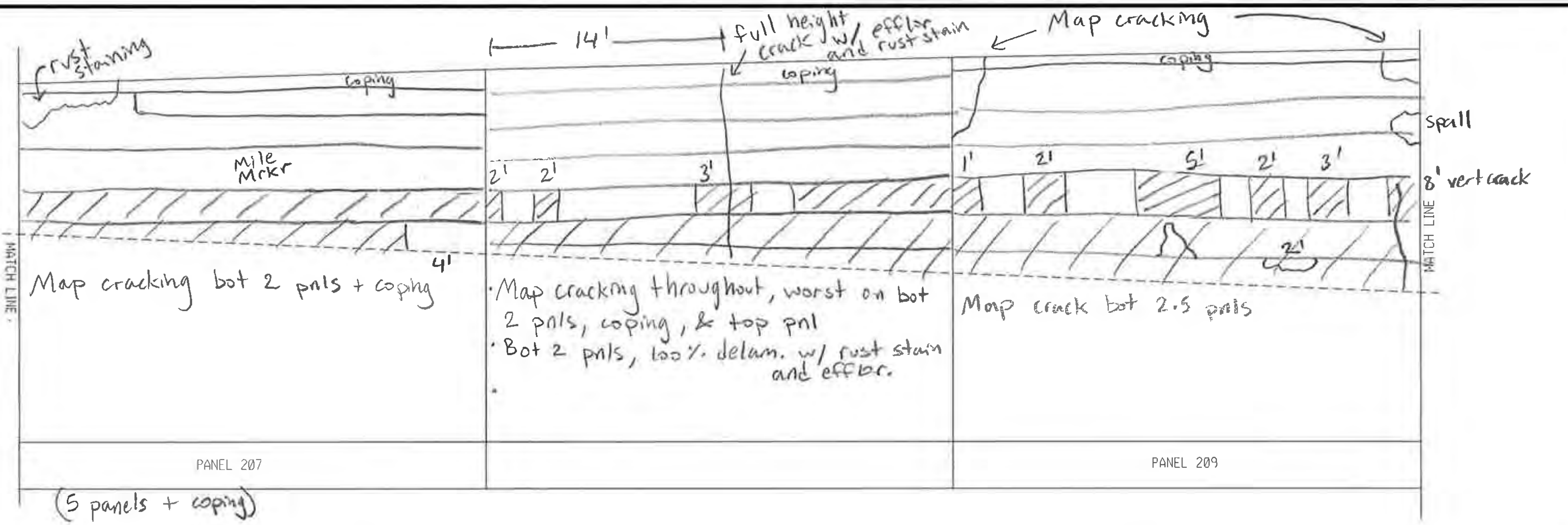
RW 2 PANELS 201-206

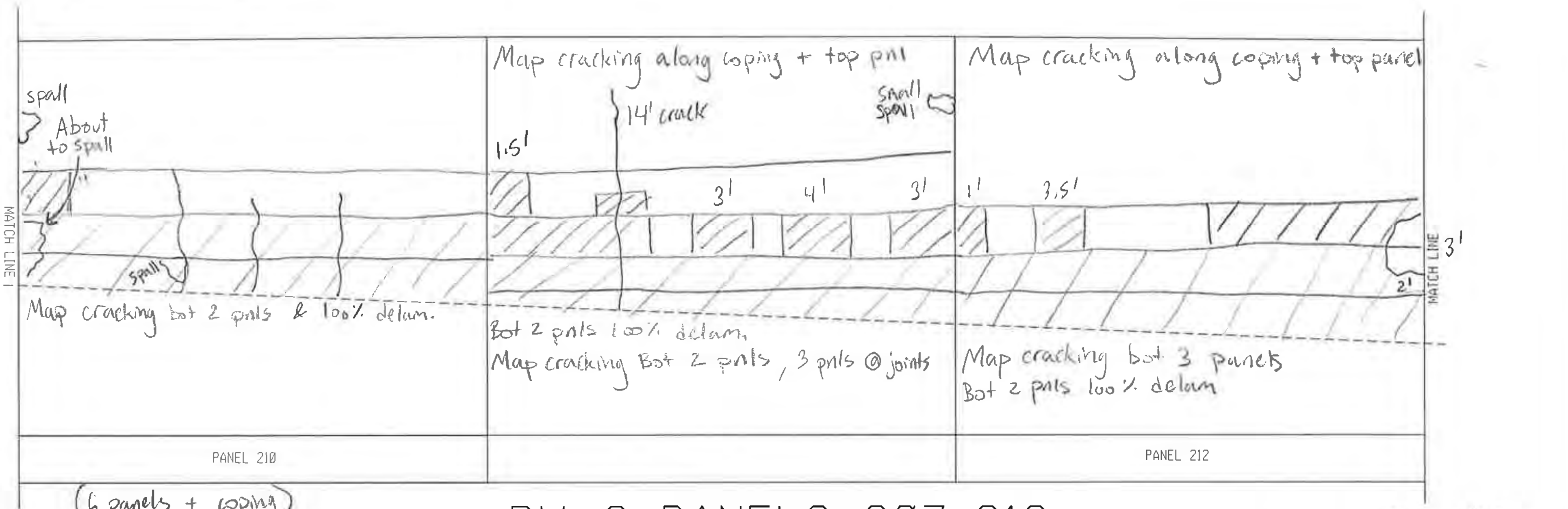


BY: RIM

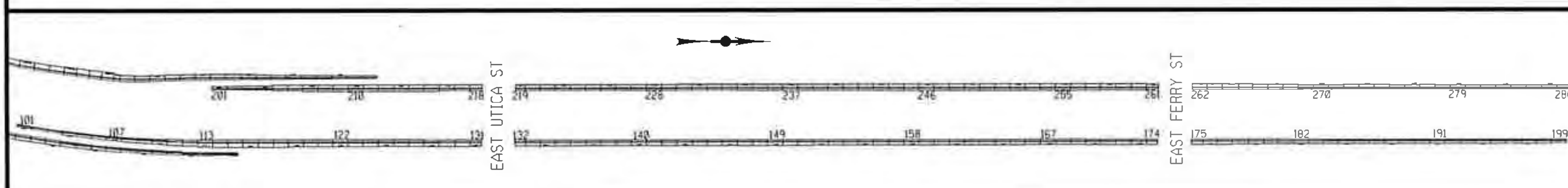
DATE: 5/8/23

SCALE: 1" = 10'





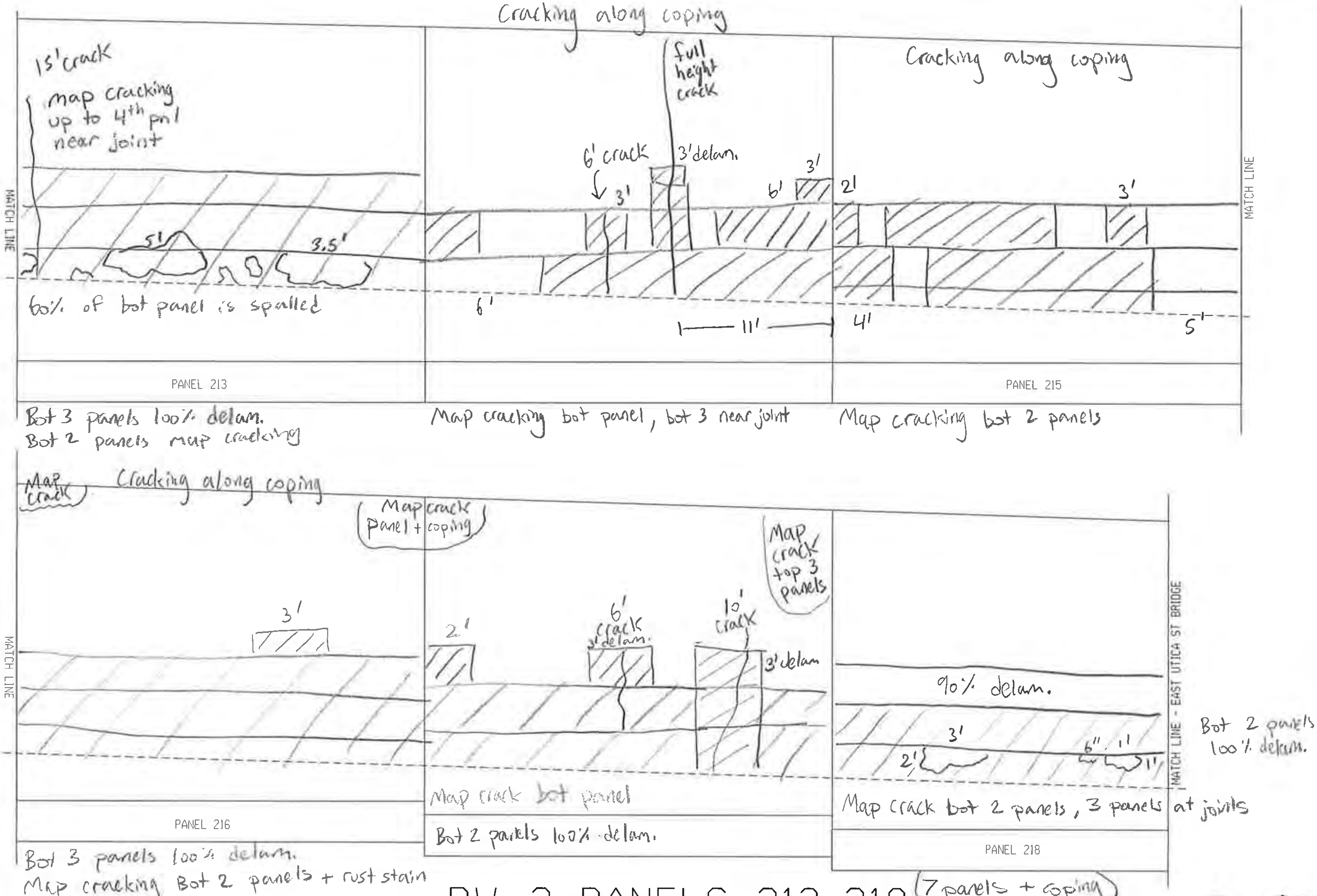
RW 2 PANELS 207-212



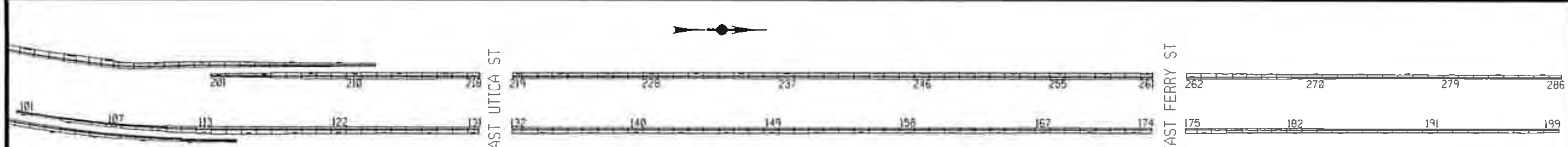
BY: RIM

DATE: 5/8/23

SCALE: 1" = 10'



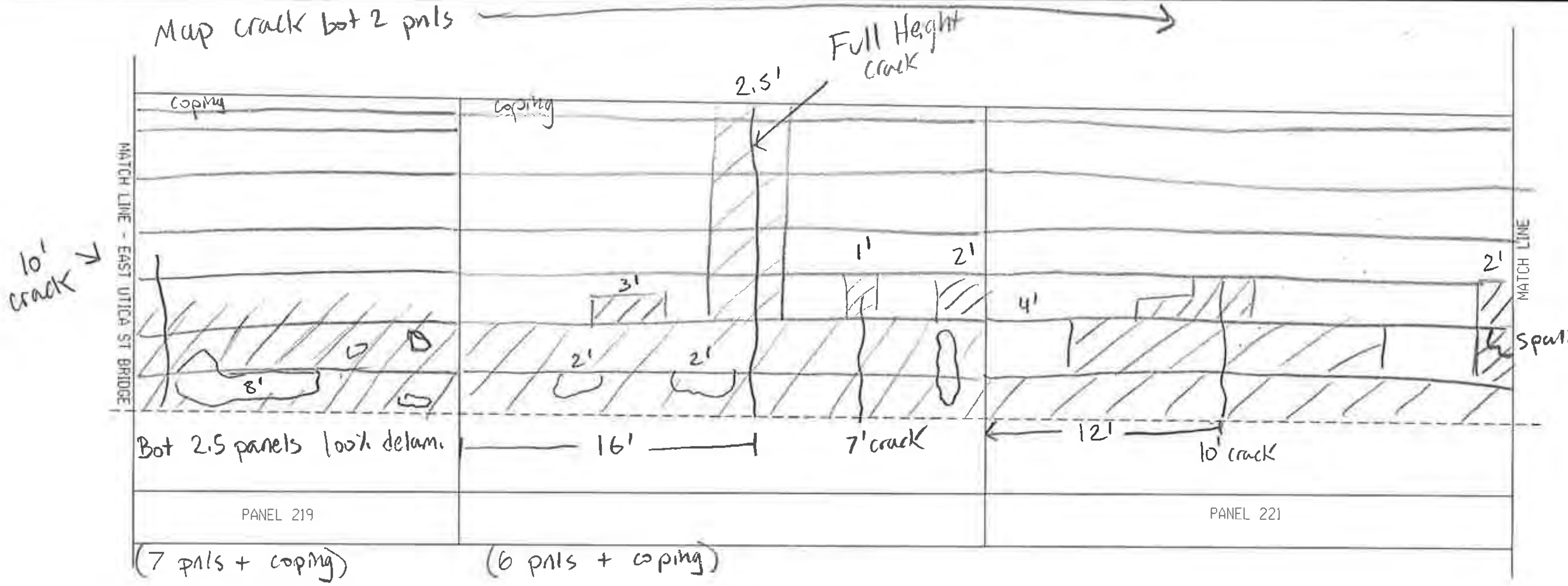
RW 2 PANELS 213-218 (7 panels + coping)

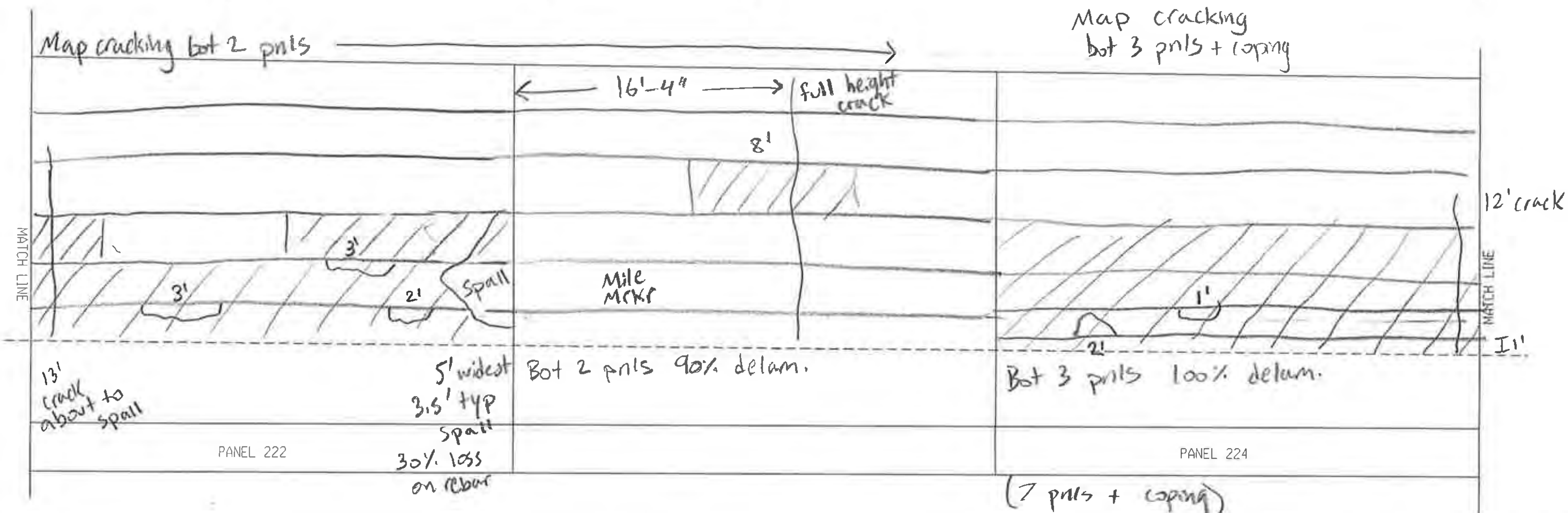


BY: RIM

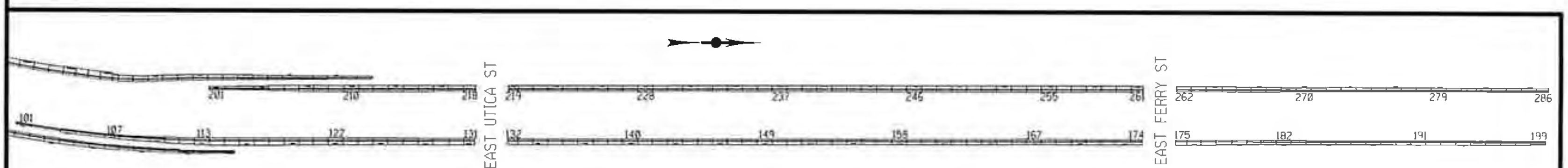
DATE: 5/8/23

SCALE: 1" = 10'





RW 2 PANELS 219-224



BY: RJM

DATE: 5/8/23

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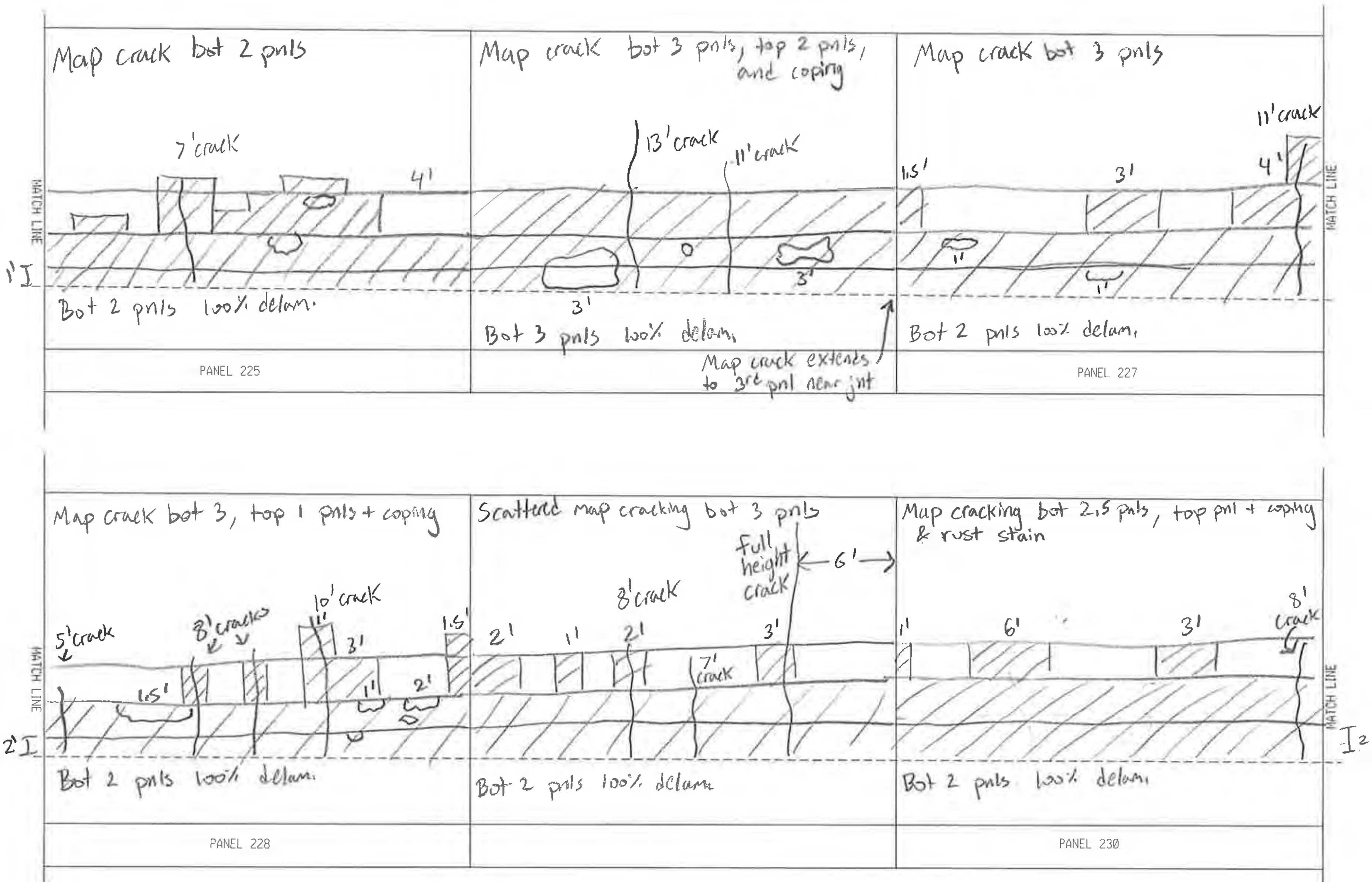
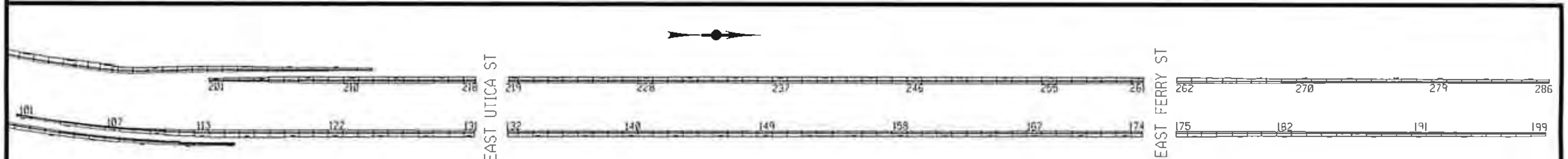


RW 2 PANELS 225-230



BY: RIM

DATE: 5/8/23

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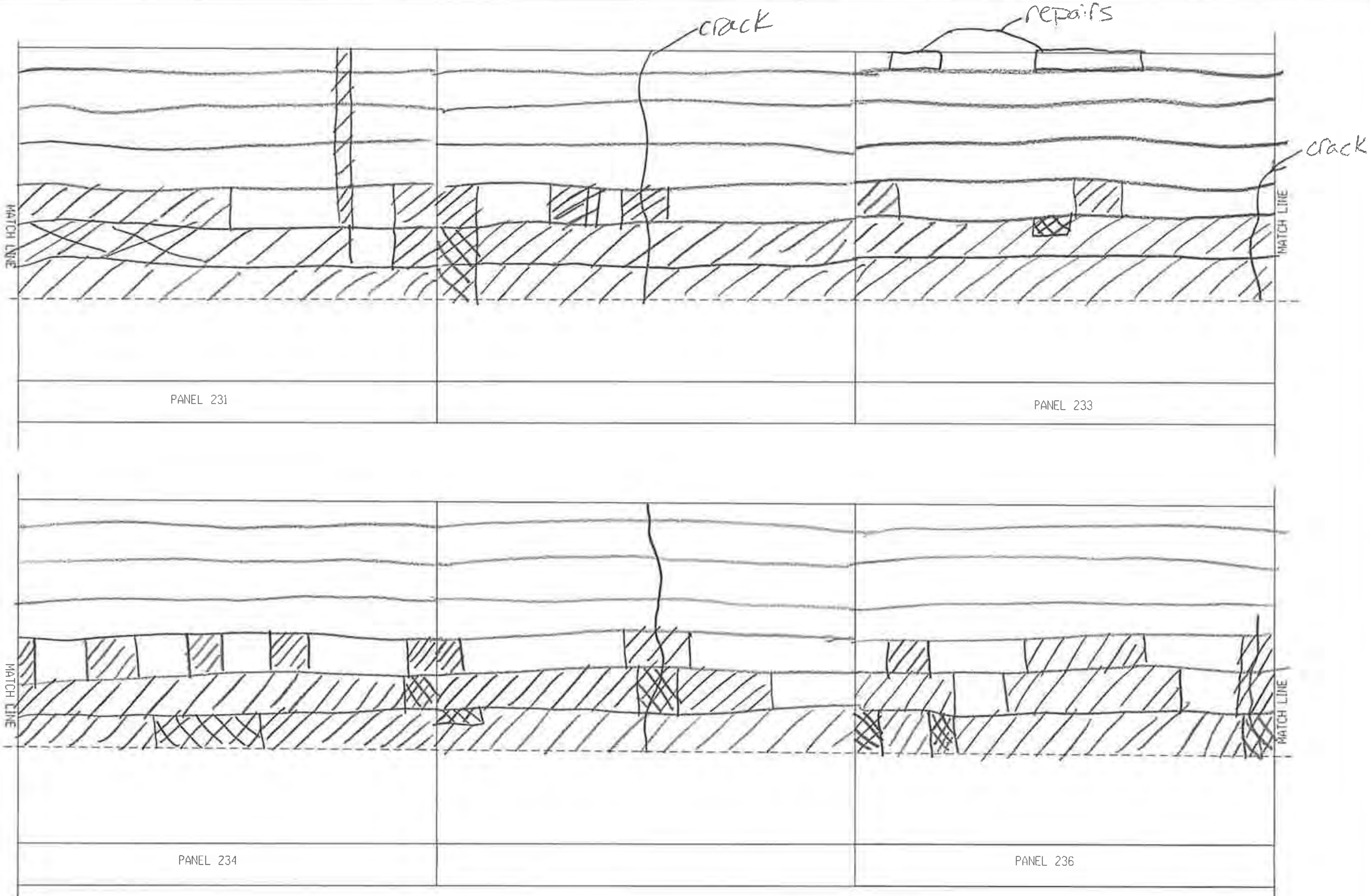
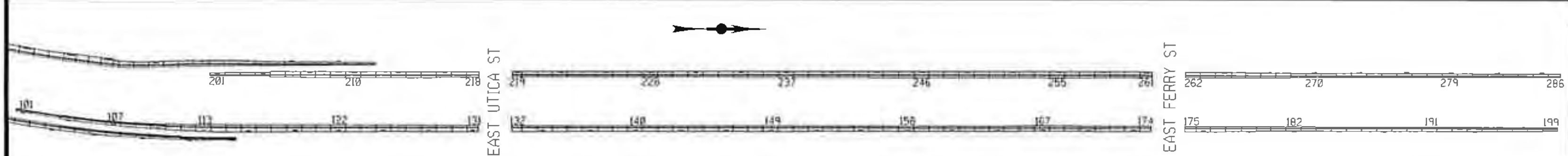


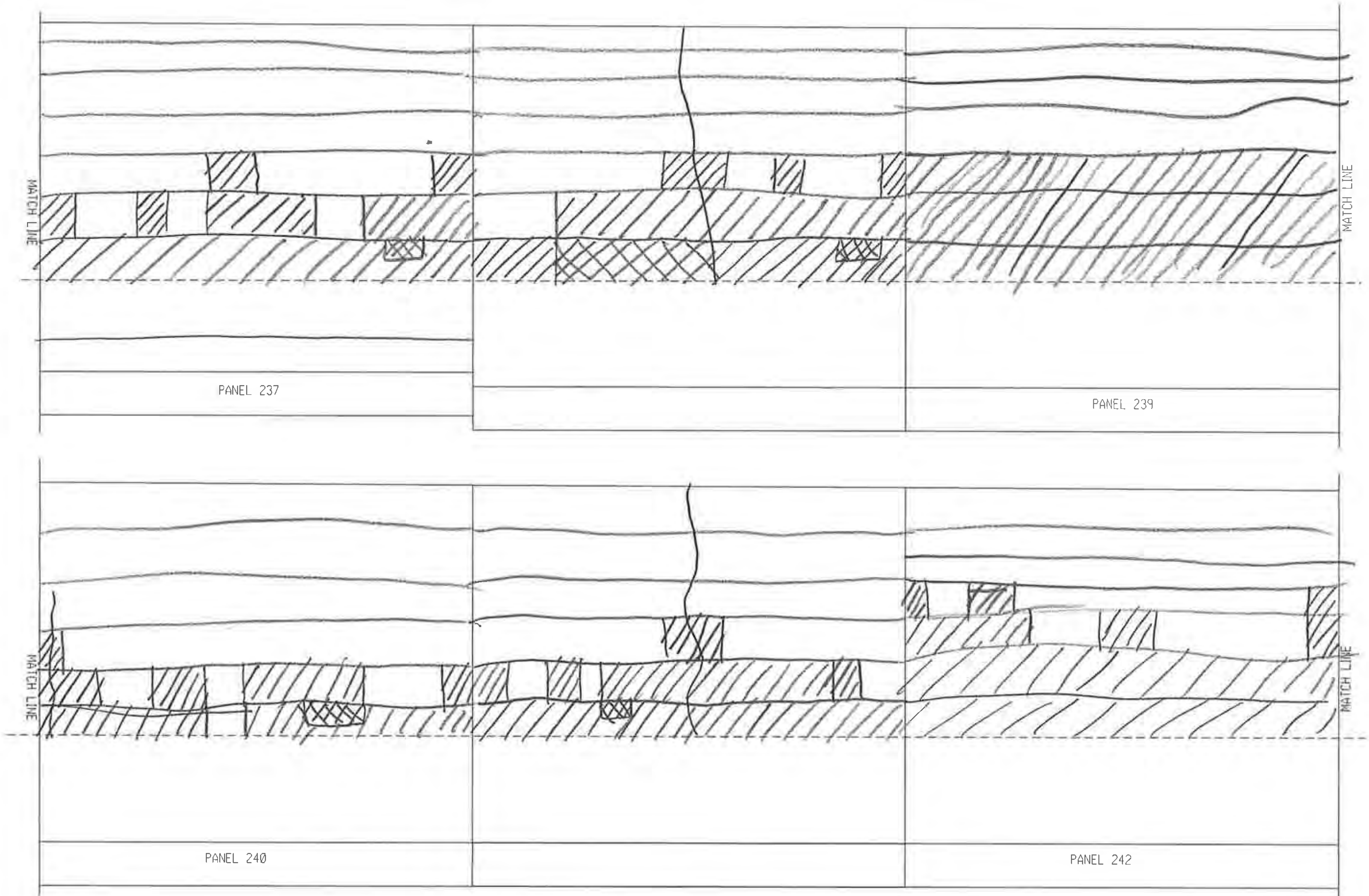
RW 2 PANELS 231-236



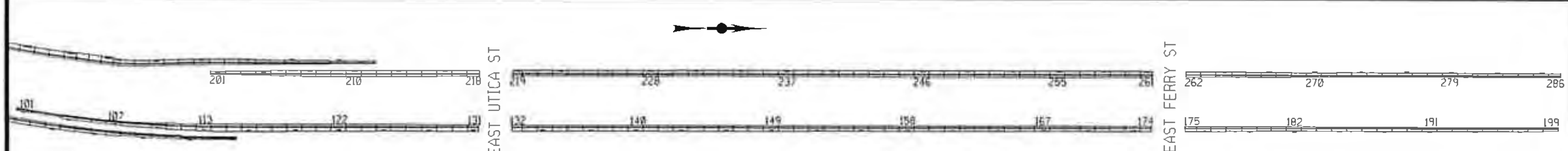
BY:

DATE: 5/8/23

SCALE: 1" = 10'



RW 2 PANELS 237-242



BY:

DATE: 5/8/23

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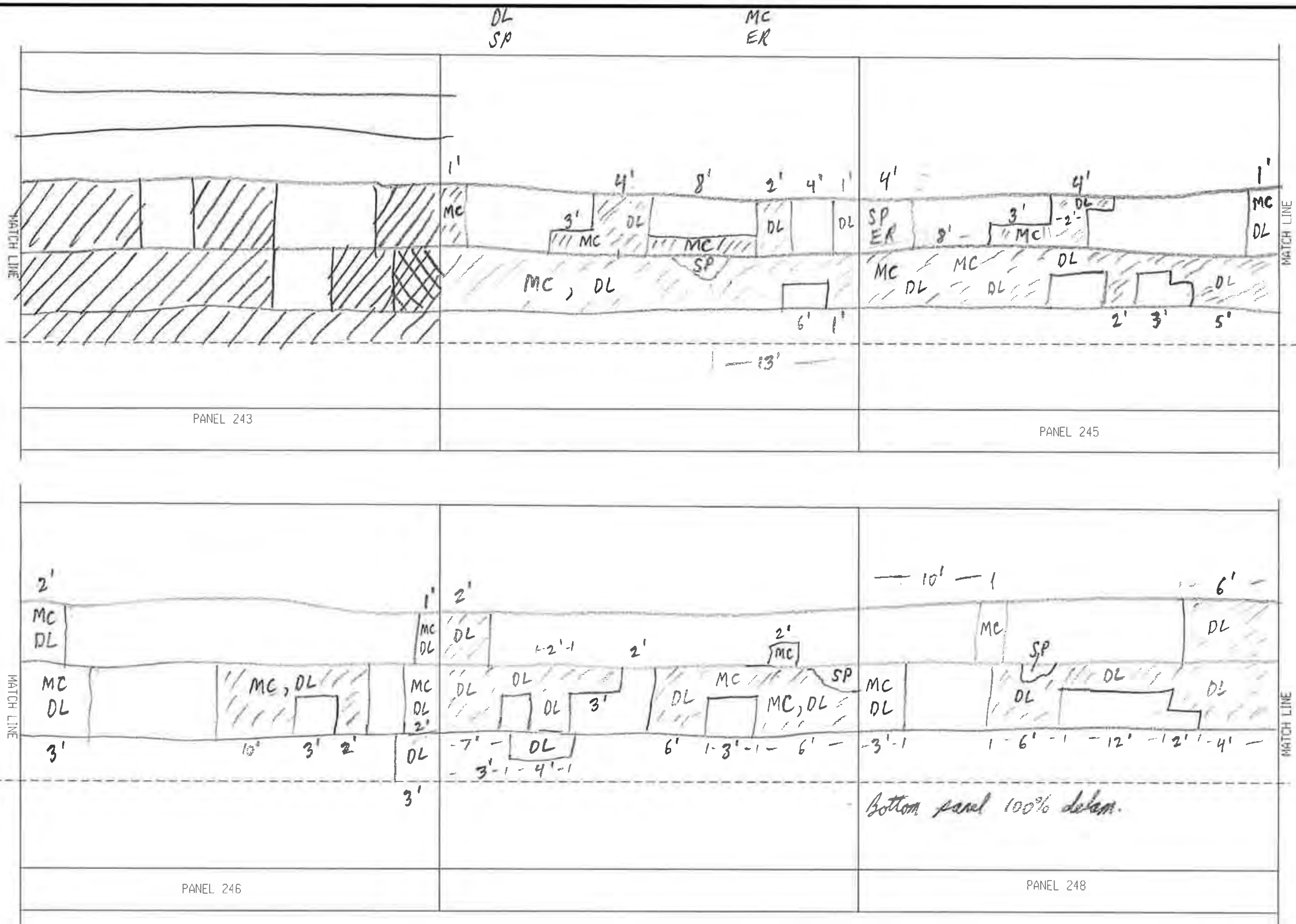
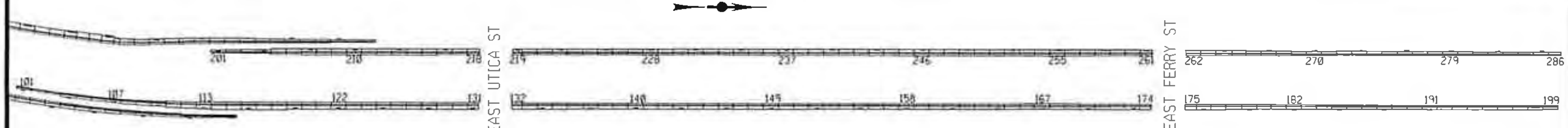


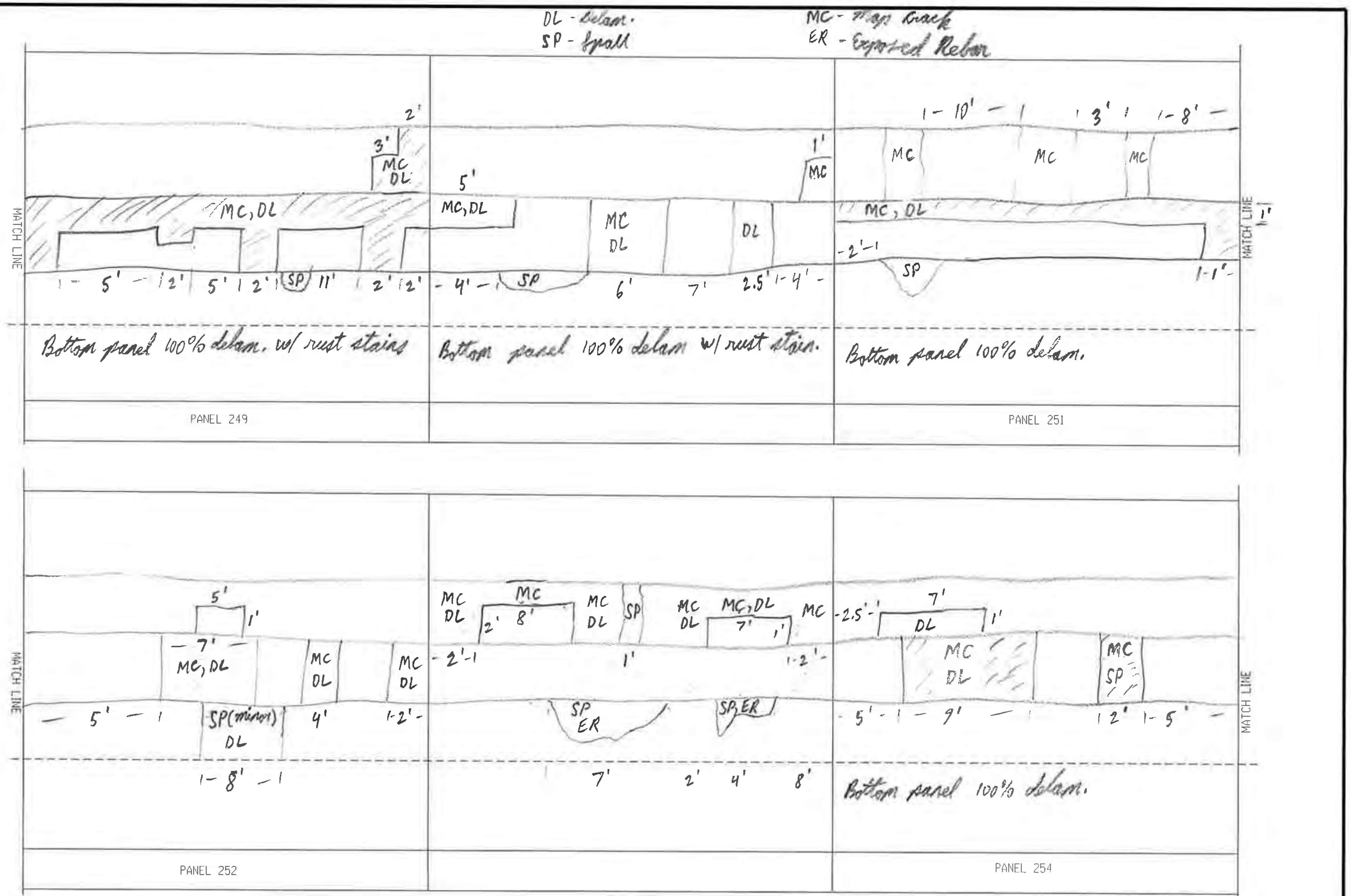
RW 2 PANELS 243-248



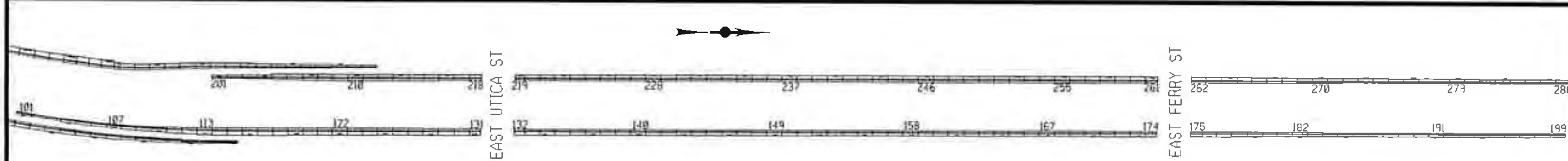
BY:

DATE: 5/8/23

SCALE: 1" = 10'



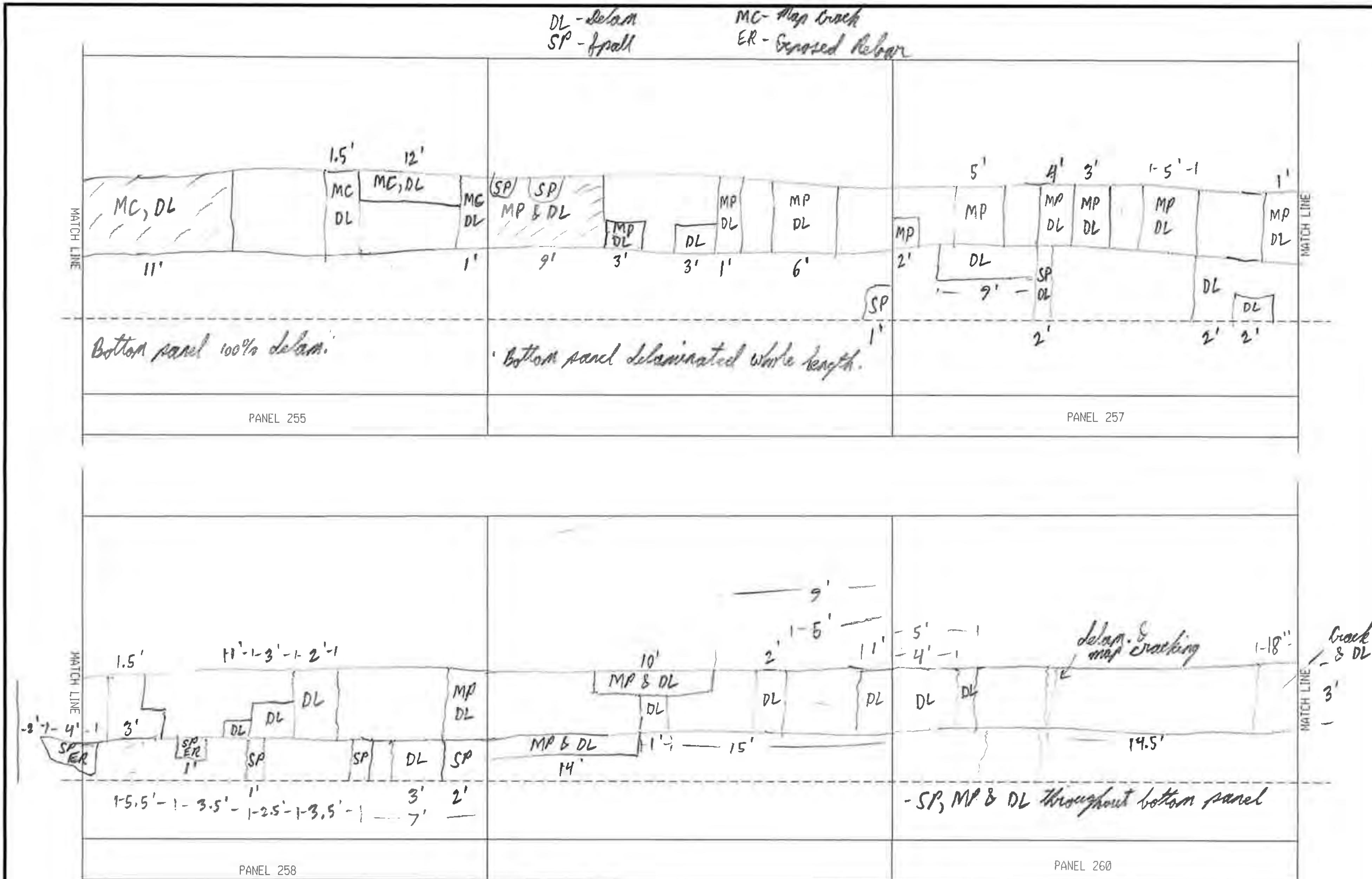
RW 2 PANELS 249-254



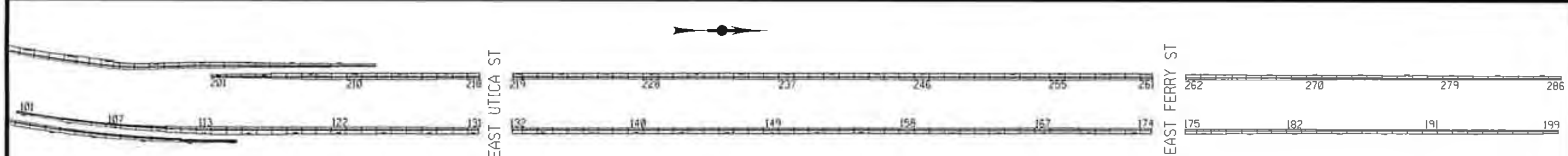
BY:

DATE: 5/8/23

SCALE: 1" = 10'



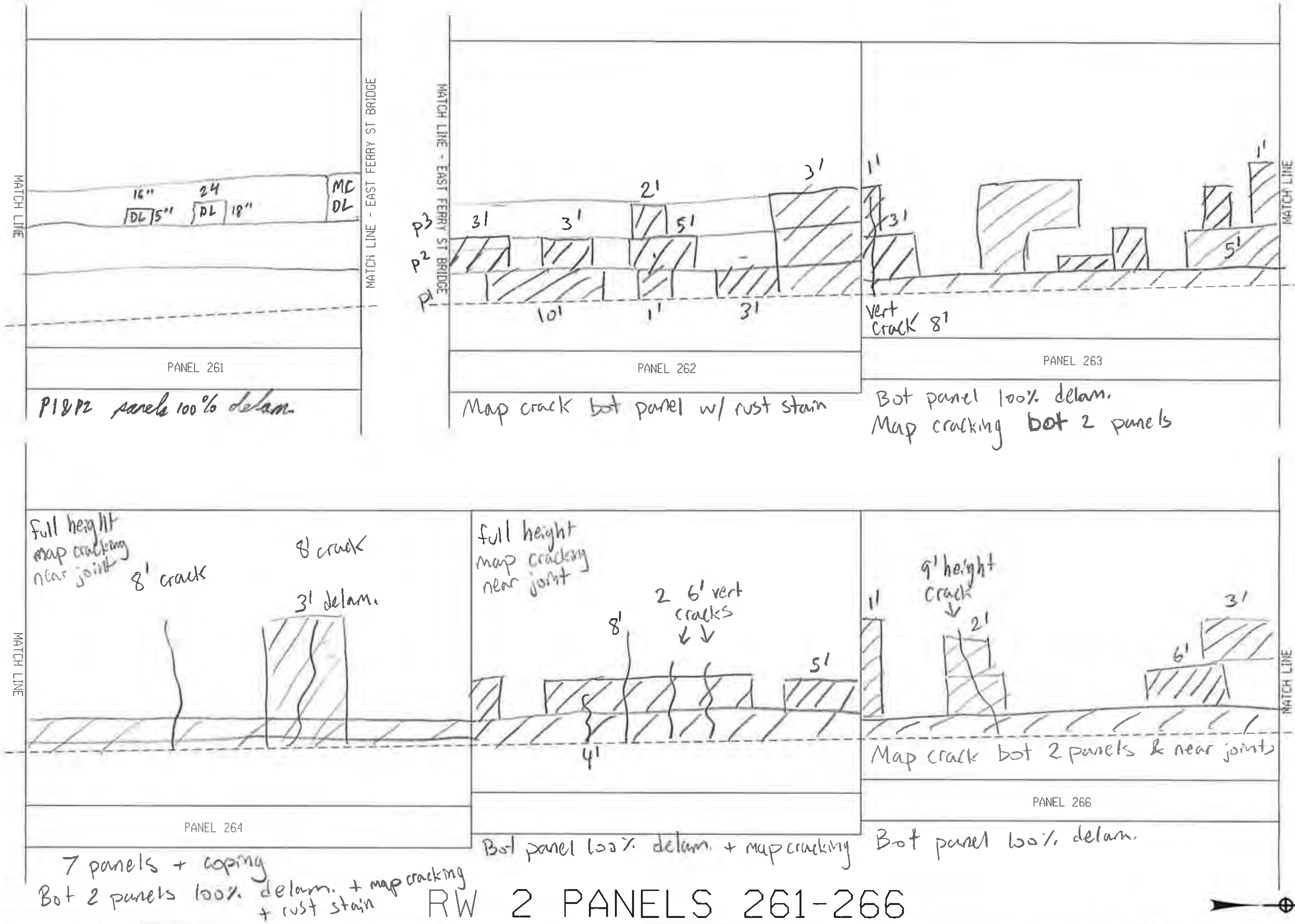
RW 2 PANELS 255-260



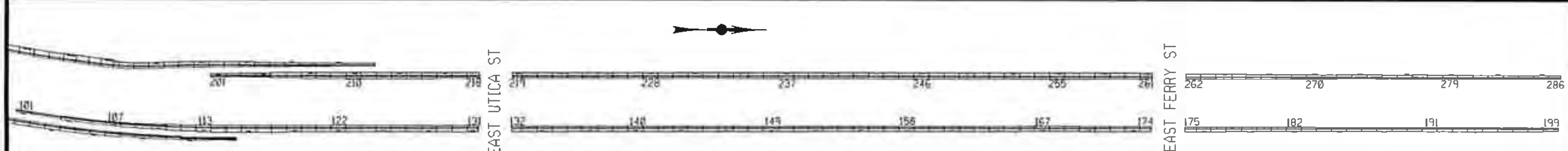
BY:

DATE: 5/8/23

SCALE: 1" = 10'



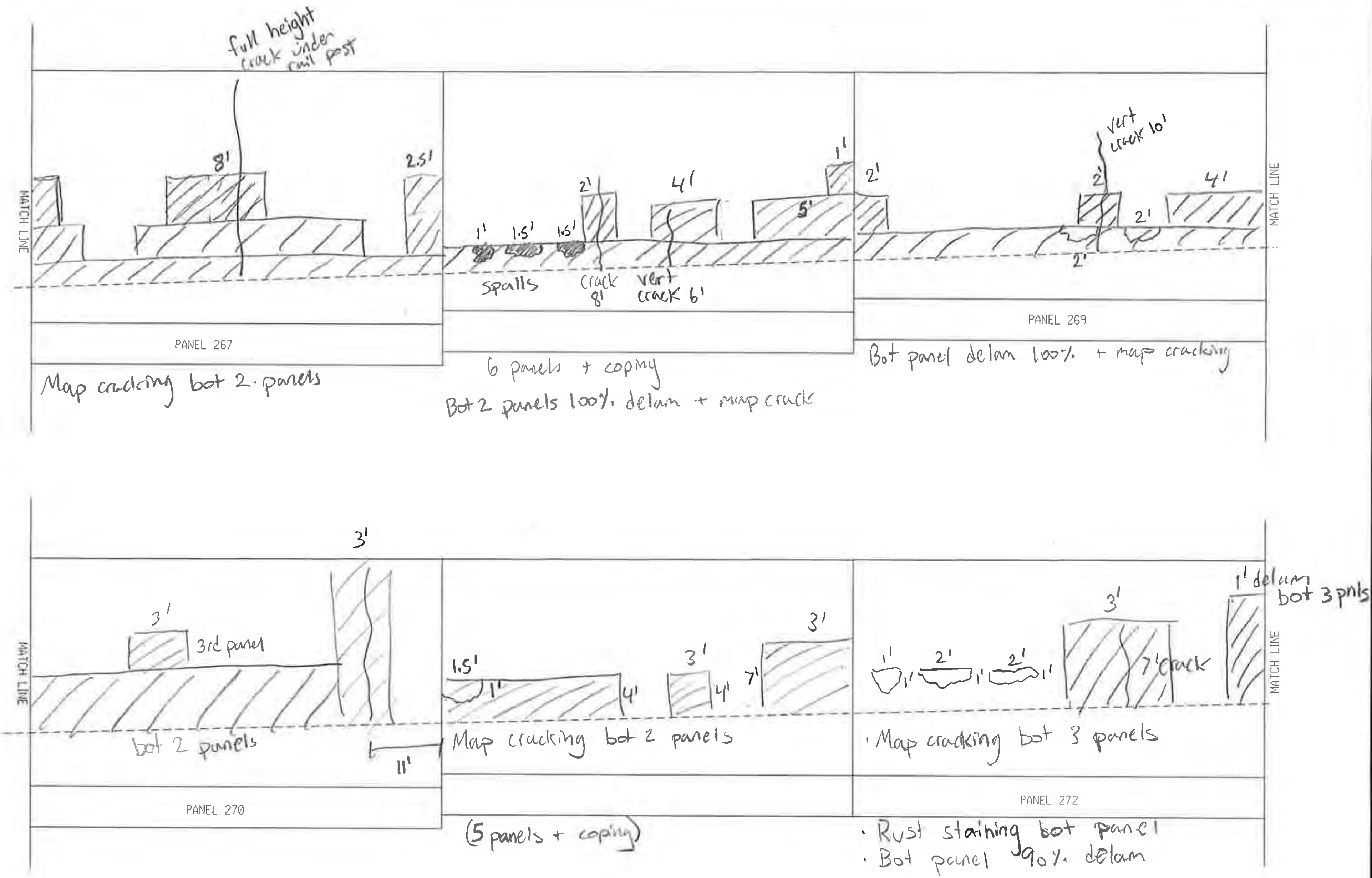
RW 2 PANELS 261-266



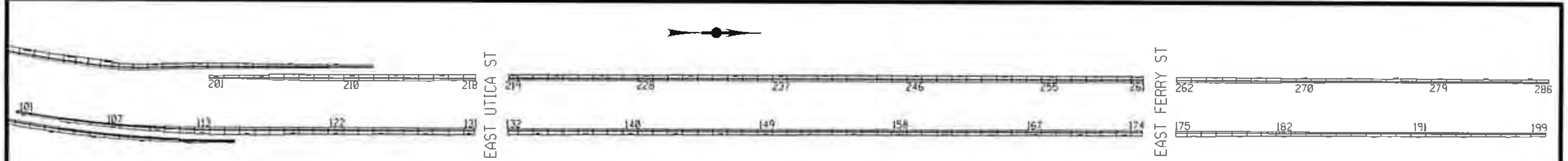
BY: RIM

DATE: 5/8/23

SCALE: 1" = 10'



RW 2 PANELS 267-272



BY: RIM

DATE: 5/8/23

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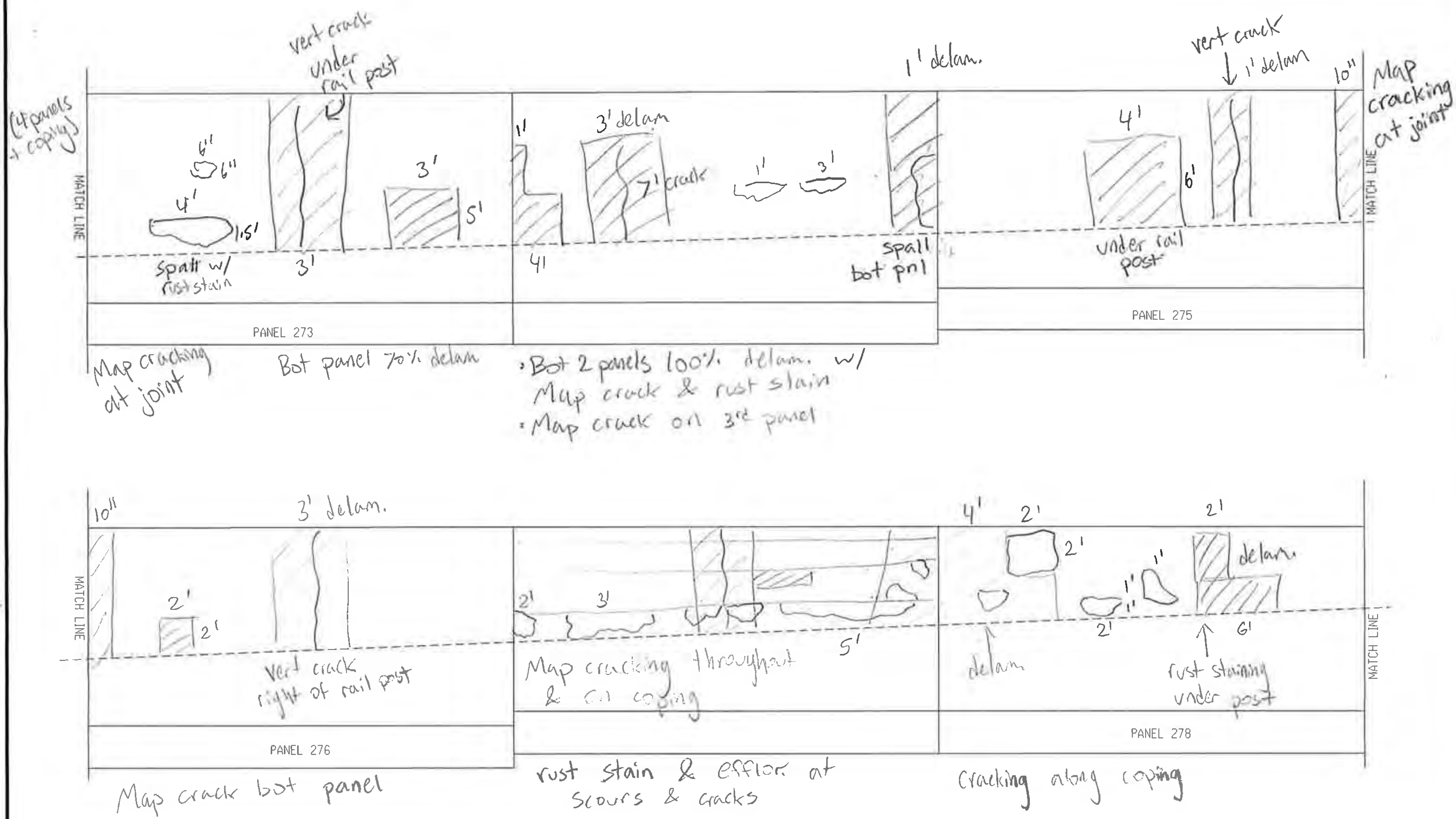
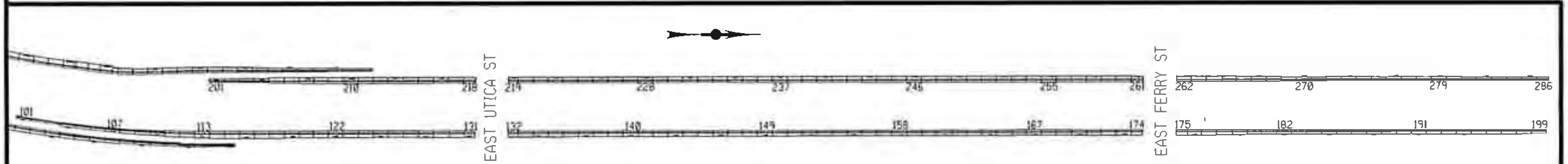


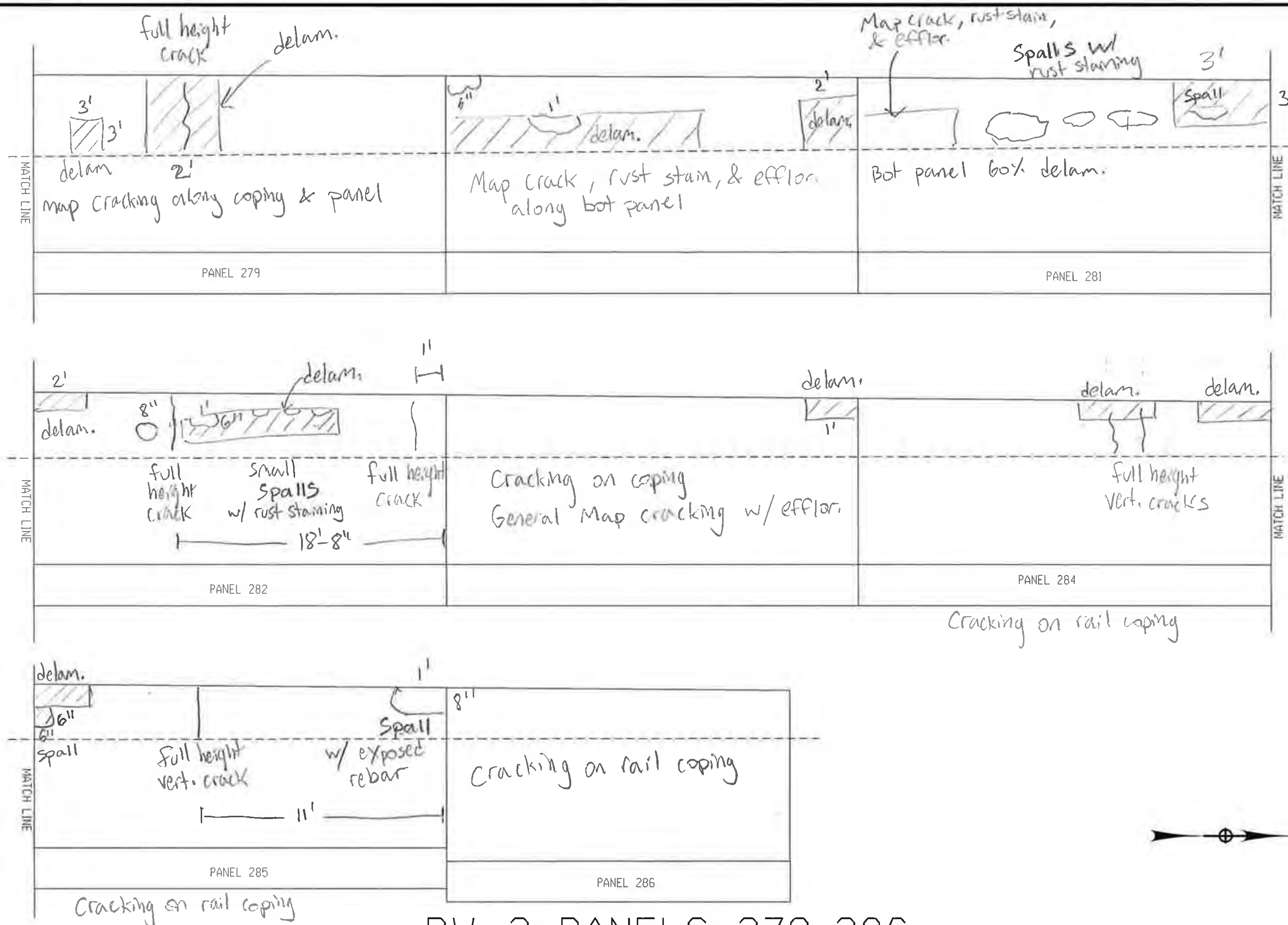
RW 2 PANELS 273-278



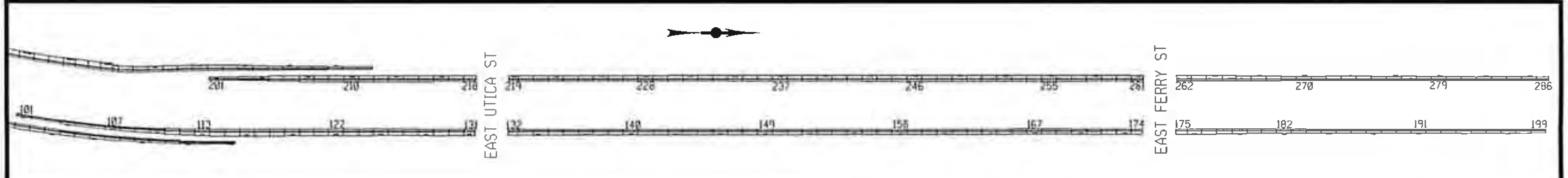
BY: RIM

DATE: 5/8/23

SCALE: 1" = 10'



RW 2 PANELS 279-286



BY: RIM

DATE: 5/8/23

SCALE: 1" = 10'

Retaining Wall Coping Inspection 5/30/2023

Retaining Wall 2

End of Wall to East Ferry:
- Rail Coping is cracked at mid-height for entire length
- Bridge Rail is corroded and rusting
- Heavy Spalling from Butler Ave to Goulding
- Coping is delaminated approx. 50%
- 45 ft from E Ferry is tilted at manhole
- Safety walk at intersection (E Ferry) is broken and heaved
- Stress cracking of safety walk at curb joints

East Ferry to E Utica:
- At E Ferry, DI, curb, and safety walk are sunken
- 60 ft from E Ferry, manhole adjacent to wall lighting is heaved causing tenting of safety walk.
- 30 ft before Winslow Ave, concrete at wall coping is cracked and delaminated

Winslow to E Utica:
- Cracking at top of rail coping becomes intermittent

End to Ramp from Humboldt to Rte33
- Majority 75% mid-height crack
- 40% spalled and delam. with rust and rebar exposure

General WB:
- Granite curb joints are gapped and curb misaligned

Calculations

LaBella
Powered by partnership.
300 State Street, Suite 201 • Rochester, NY 14614
Phone 585.454.6110 • Fax 585.454.3066
www.labellapc.com

PROJECT	Kensington Inspections				
PIN	5512.52	CALC. BY	RIM	DATE	5/26/2023

Condition Estimates

- Retaining Wall 2
  - Condition 2 - map cracks, stains, isolated delam, minor cracks
  - Condition 3 - spalls, widespread delam, major cracks
  - Areas with multiple forms of deteroration were measured under only one category. Condition 3 categories were prioritized over condition 2.

Panel	Minor/Map Crack (sf)	Major Cracks (ft)	Spalls (sf)	Widespread Delam (sf)	Isolated Delam (sf)	Other (staining, efflor., etc.)
201	60					
202	42.75		2.25	45		
203	59.5		0.5	60		
204	18.75			75		4.5
205	45	8		120		
206	36		1	323		
207	34.5			168		30
208	159.64	15		171		
209	40		0.5	222		
210	14.25		0.5	189		
211	52.5	4	0.25	189		
212	69.75			235.5		
213	67.5	6		270		
214	23.25	8		144		
215	11.25			159		
216	27			249		
217	36	1		174		
218	4.69			217.5		
219	4.69	2.5		150		
220				230.5		
221				174		
222	22.5	4		240		
223		9		105		
224	52.5	3		210		
225				192		
226	182	6		210		
227	16.13			163.5		
228	107			177		
229		10		174		
230	89.25	3		180		
231				208		
232		10		207		
233	25.65	4.5		198		
234				225		
235	7.5	10		180		
236	12			201		
237	20			168		
238	6	10		198		
239	7.5			270		
240	54.75	3		147		
241	7.5	9		177		
242				183		
243	15			174		
244	43.5	12		141		
245	9		12	135		

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PROJECT	Kensington Inspections				
PIN	5512.52	CALC. BY	RIM	DATE	5/26/2023

Condition Estimates

- Retaining Wall 2

Panel	Minor/Map Crack (sf)	Major Cracks (ft)	Spalls (sf)	Widespread Delam (sf)	Isolated Delam (sf)	Other (staining, efflor., etc.)
246	115			72		
247	86	14		104		
248	143.5			159		
249	83			159		
250	98	13		100.5		
251	75			150		
252	89.33	13			55	
253	142	13	36	57		
254	28.00		6	124		
255	9			166.5		
256	34.5	13		156		
257	101.25		6		81	
258	120		27		33	
259	142.00	13		11	39	
260	39			153		
261	8			159		
262	39			108		
263	42			135		
264	66	4		132		
265	37			168		
266	30			138		
267	6	7		205.5		
268	21			156		
269		4		114		
270	23.75			159		
271	129.5			85		
272	205.5		5	94		
273	66		0.25	96		
274	53			153		
275					40.5	
276	42				38.5	
277	132		45	93		
278	103.00		7	72		
279	124.67				23	
280	22.5		0.5	112.5		
281	39			81		
282	52.28	8	0.44		30	
283	67.5				1	
284	25.5					
285	23.5		0.92			
286	19.5					
Total (sf):	4168.57	120.00 (sf)	151.11	11702.00	341.00	34.50

COND 2	COND 3
4545	11974

Wall Inventory Sheet

RW 2

INVENTORY, INSPECTION, AND DATA COLLECTION

PRIMARY OWNER	NYSDOT - New York State Department of Transportation
REGION	05-Region 05 - Buffalo
COUNTY	3-County 3 - Erie
RESIDENCY	534 - Erie North Residency
NYS ROUTE	Rte. 33
REFERENCE MARKER	3350311032
LONGITUDE	78.84363
LATITUDE	42.91378
ADDITIONAL LOCATION DESCRIPTION	Located along the right shoulder of W.B. Kensington from the off-ramp to N.B. Humboldt Parkway and extending beyond Sidney Street supporting S.B. Humboldt Parkway (approximately 2,552 ft. long, 20 ft. maximum exposed height). The west abutments for the E. Utica and E. Ferry Street Overpass Bridges are not considered as part of RW #2.
TYPE OF SERVICE PROVIDED	Support/Protect a Roadway
WALL TYPE	Cantilever - Concrete
LEGACY RETAINING WALL TYPE	
WALL FACING TYPE	Cast - in -Place Concrete
WALL BACKFILL REINFORCEMENT TYPE	N/A
ADDITIONAL WALL DESCRIPTION	
WALL LENGTH	2,552 ft
WALL MAXIMUM HEIGHT	20 Ft
WALL AREA	61070 SF
YEAR BUILT	1970
CONTRACT NUMBER	C 68-2
AADT	76,347
QC REVIEWER	
QC APPROVED DATE	
SITE ACCESS NOTES	With WZTC in place to close the adjacent shoulder and travel lane, access was performed by walking and extension ladder.
INSPECTION FREQUENCY	
LAST INSPECTION STATUS	
INSTRUMENTED	N/A
MONITORED BY	----
INSTRUMENTATION COMMENT	----
CONSEQUENCE OF FAILURE	3-Major
WALL POSITION	Between Roads
GENERAL NOTES	
RETAINING WALL DATABASE ID	
NUMBER OF ERRORS AND WARNINGS	
USER UPDATE	
SUBMISSION DATE	
DATE UPDATE	

WALL INSPECTION LOCATION INFORMATION & NOTES

NY33 RETAINING WALL CONDITION EVALUATION 2023

KENSINGSTON EXPRESSWAY PROJECT
PIN 5512.52
CITY OF BUFFALO, ERIE COUNTY
RETAINING WALL 3

Prepared By:

Merton J. Edwards, PE (NYSPE 064981)
Inspection Team Leader | Sr. Structural Engineer
Date: 5/30/2023

Reviewed By:

Stephen L. Gauthier, PE (NYSPE 0075775)
Quality Control Engineer | Sr. Structural Engineer
Date: 6/16/2023

LaBella
Powered by partnership.
300 State Street
Rochester, New York 14614
ph: 585-454-6110
www.labellapc.com

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

STRUCTURE:	Retaining Wall #3 (RT) along 33EB. Located along the right side of the off-ramp to N.B. Humboldt Parkway and extending past Riley Street
STRUCTURE TYPE:	Reinforced Concrete Cantilever Wall on Piles (Panels 301-315) Reinforced Concrete Cantilever Wall on Spread Footings (Panels 316-319) Year Built: 1970
CURRENT INSPECTION:	05/01/23 – 5/09/23 (LaBella Inspections)
LAST KNOWN INSPECTION:	Unknown
CONDITION STATE.	FAIR

RETAINING WALL INSPECTION & DOCUMENTATION:

Inspection of the retaining walls will be in conformance with the NYSDOT Retaining Wall Inventory and Inspection Program Manual, October 2018. Inspection of the following elements will be inspected and documented as appropriate:

- Inspection:

The following procedure will be followed for the inspection of retaining walls:

- Walls were checked for signs of settlement, rotation, or bulging. Walls faces were checked for vertical alignment using a smart level. The walls being evaluated are vertical with no batter.
- Construction joints between sections of the wall were examined for misalignment, and near the ground line for fill material washing out from between panels or joint.
- Walls were inspected for erosion material in front of the wall, for heaving of material in front of the wall, and for settlement of fill behind the wall.
- Examined the wall for deterioration of the material, such as cracking, spalling, and/or corrosion, noting the width, length, depth, and/or orientation of the deterioration. Photographs are provided, documenting defects found.
- Wall façades were reviewed for evidence of water seepage, efflorescence, or rust staining.
- Examined the base of walls for evidence of water flow where the water table may be within the retained earth.
- Examined and probed drains for signs of clogging. Examined drainage around ends of wall and note if embankments have been experiencing erosion.
- Examined site grading for any locations that may prohibit proper drainage from behind the wall looking for evidence of ponding above the wall, such as debris accumulation in the lower spots.
- Ascertain why water is not draining properly and note in the inspection.
- Inspected roadway components above wall for signs or joint separation, potholes, and areas of settlement.
- Examined vegetation growth along and above the wall for root infiltration creating undesirable stresses on the wall. Documented any induce cracking, bulging or failure.
- Examined the wall system for vehicular damage and document the location and degree of damage.

PIN 5512.52 Kensington Expressway
Retaining Wall #3 (RT) along 33EB
Located along the right side of the off-ramp to N.B. Humboldt Parkway and extending past Riley Street

GENERAL OBSERVATIONS:

1. Retaining Wall Panels are generally 30 ft in length with horizontal chamfered panels spaced 3’-0” vertically, from the top of the wall. There is some variation in panel length due to the location of bridges within the corridor. For specific panel lengths see the DOCUMENTION Section of this report.

2. The lower 5 ft of the subject retaining wall was found to be in FAIR-POOR condition with extensive map cracking, dampness, isolated rust staining, spalls, and widespread delaminations. For specific conditions found and photographs of the wall panels, see the DOCUMENTION Section of this report.

3. The upper portions of theses wall panels were generally found to be in GOOD condition with the exception of a few locations. Localized map cracking was found under several rail post locations. For specific conditions found and photographs of the wall panels, see the DOCUMENTION Section of this report.

4. The rail coping was found to be in FAIR-POOR condition with 50% map cracking and minimal areas of delamination. For specific conditions found, photographs of the of wall panels, and condition calculations see the attached sections of this report.

General:	
DEFECT	DESCRIPTION
Misalignment	None noted.
Settlement	The concrete safety walk behind the full-height section of the retaining wall slopes toward the back of the retaining wall. The curb and safety walk are misaligned.
Sinkhole (cavity) Formation	None noted.

Concrete Cracks:	
DEFECT	DESCRIPTION
Insignificant Cracks (cracks < 0.012 inches wide)	Vertical cracks are present on some of the panels in the bottom 3’-5’ of the wall. The placement mirrors that of the underlying rebar.
Map cracks	The wall railing system coping is map cracked over 50% of its surface. A few of the panels have localized map cracking under rail posts, near joints, near vertical cracks, and in the lower half of the panel.
Moderate Cracks (0.012 - 0.05 inches wide)	A few of the panels have full height cracks near midspan of the panel (314, 311, 308, and 302). There is a longitudinal crack at mid-height of the coping.
Wide Cracks (cracks > 0.05 inches wide)	None noted.

PIN 5512.52 Kensington Expressway
Retaining Wall #3 (RT) along 33EB
Located along the right side of the off-ramp to N.B. Humboldt Parkway and extending past Riley Street

Additional Concrete Distress:	
DEFECT	DESCRIPTION
Spalling / Delamination	Spalls and delamination (5%-50%) are common in the bottom 4' of the wall. Around 10% of the backside of the coping is spalled and 15% is delaminated.
Staining	Isolated areas of minor rust staining are present, typically near the bottom of the panel. Staining is present under most rail posts.
Exposed Rebar	5 spalls have exposed rebar with 15%-20% loss. See panels 302, 308, 307, 306, 318.

Notes:
RW 3 consists of 19 panels numbered from 301 (South) to 319 (North). The retaining wall supports the N.B. Humboldt Parkway above State Route 33 (Kensington Expressway). Located along the right side of the off-ramp to N.B. Humboldt Parkway and extending past Riley Street (Approximately 567 ft. long, 14 ft. maximum exposed height).

INVENTORY, INSPECTION, AND DATA COLLECTION

Element	Total Qty	Units	Condition State			
			1	2	3	4
			GOOD	*FAIR*	*POOR*	*SEVERE*
RW.01 - Entire Wall	1	Each	0.77	0.16	0.07	
RW.02 - Wall Facing	5084	SF	3657	990	437	
RW.03 - Ground Surface, Front	567	FT	567			
RW.04 - Ground Surface, Back	567	FT	542		25	
RW.05 - Weep Holes	N/A	Each	---	---	---	---
800 - Scour	N/A	FT	---	---	---	---

PIN 5512.52 Kensington Expressway
Retaining Wall #3 (RT) along 33EB
Located along the right side of the off-ramp to N.B. Humboldt Parkway and extending past Riley Street

INSPECTION RESULTS/ RECOMMENDATIONS

- **Overall Condition State Recommendation: 2 - FAIR**

- PROJECT DOCUMENTATION CAN BE FOUND IN THE ATTACHED SECTIONS

Inspection Photos

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #3 (RT) along 33EB. Located along the right side of the off-ramp to N.B. Humboldt Parkway and extending past Riley Street.

PHOTO 1

PANEL 302

Description:

Full-height crack to right of rail post. Rust staining and map cracking under rail post typical throughout the wall. Map cracking and rust staining on bottom 2 panels.

PHOTO 2

PANEL 304

Description:

Vertical cracking at many vertical rebar locations in bottom panel, typical throughout the wall. Minor map cracking is present as well. Bottom 1' of the wall is delaminated.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #3 (RT) along 33EB. Located along the right side of the off-ramp to N.B. Humboldt Parkway and extending past Riley Street.

PHOTO 3

PANEL 305

Description:

Bottom panel of wall is 50% delaminated. Map cracking is present on the bottom 4' of the wall and is most concentrated near rebar locations. Rust staining at some rebar locations is typical for most of the wall.

Spalls with exposed rebar similar to spalls on panels 308 and 307.

PHOTO 4

PANEL 306

Description:

Bottom 4' of wall is 50% delaminated and map cracked. Vertical cracks are present at rebar locations.

Panel has the largest spall on RW3, with exposed rebar with 20% loss.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #3 (RT) along 33EB. Located along the right side of the off-ramp to N.B. Humboldt Parkway and extending past Riley Street.

PHOTO 5

PANEL 308

Description:

Full-height vertical crack with efflorescence and map cracking on either side.

Bottom 2.5' is 30% to 40% delaminated. The bottom 2 panels have significant map cracking and rust staining. Panel 307 is similar without the rust staining.

PHOTO 6

PANEL 309

Description:

Map cracking and rust staining underneath rail post and near top of joints. Material loss from joint.

Rail coping is map cracked 50% with minimal delamination for most of RW3.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #3 (RT) along 33EB. Located along the right side of the off-ramp to N.B. Humboldt Parkway and extending past Riley Street.

PHOTO 7

PANEL 311

Description:

Full height crack with rust staining and efflorescence.

Localized map cracking and staining under rail posts for full-height, same for panel 312.

Scattered map cracking throughout.

PHOTO 8

PANEL 312

Description:

Heavier map cracking throughout especially under rail posts. No measurable delamination.

Scattered areas of rust staining.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #3 (RT) along 33EB. Located along the right side of the off-ramp to N.B. Humboldt Parkway and extending past Riley Street.

PHOTO 9

PANEL 314

Description:

Two full-height cracks and map cracking on bottom panel. Minor map cracking and staining under rail posts.

Minor spalling in the chamfer between panels.

Conditions similar for panels 313 to 317.

PHOTO 10

PANEL 318

Description:

Longitudinal crack on rail coping extends full length of panels 318 and 319. Coping is 40% delaminated.

Panel is heavily spalled for 4' from the left joint with exposed rebar with 20% loss.

Retaining Wall #3 (RT) along 33EB. Located along the right side of the off-ramp to N.B. Humboldt Parkway and extending past Riley Street.

PHOTO 11

Safety walk behind wall

Description:

The safety walk and curb are misaligned. The safety walk has settled at the retaining wall back face, rotating the safety walk to be higher than the curb.

PHOTO 12

Safety walk behind wall

Description:

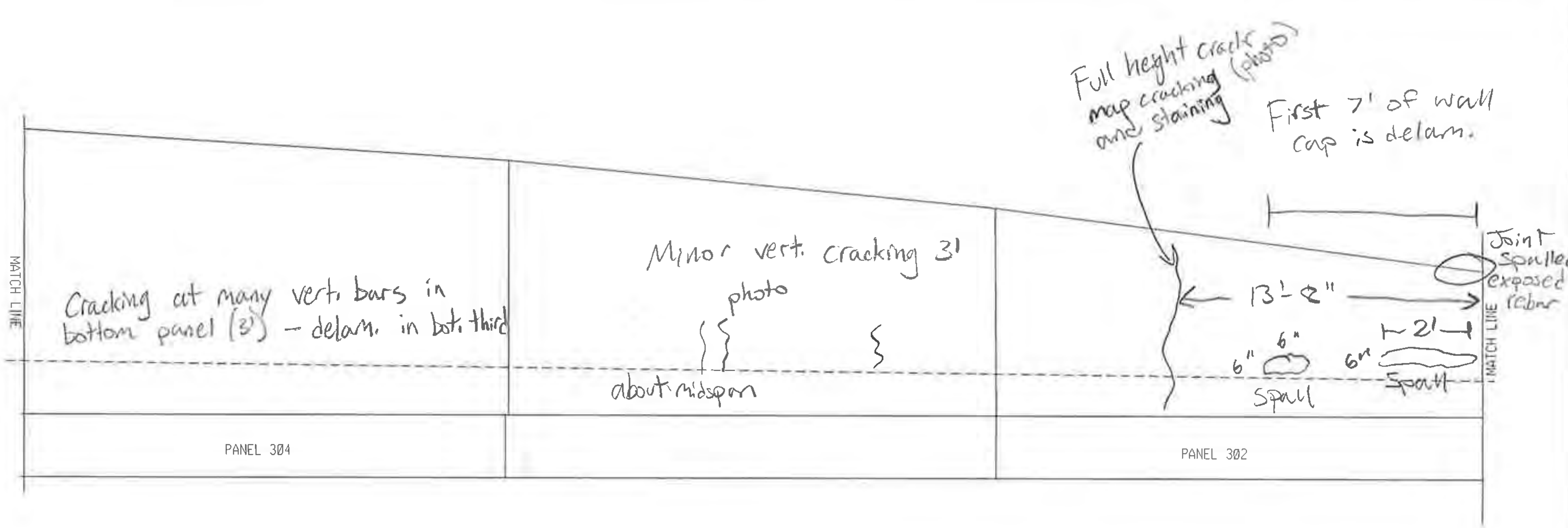
The safety walk, across from Gerard Place, is sloped toward the back of the retaining wall for approximately 25 ft.

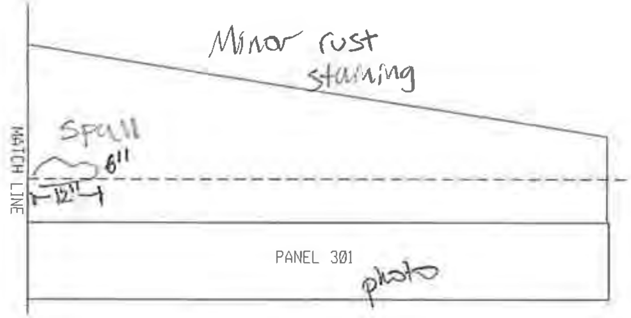
The curb and safety walk are misaligned with the curb being below the edge of sidewalk.

The coping has a mid-height longitudinal crack.

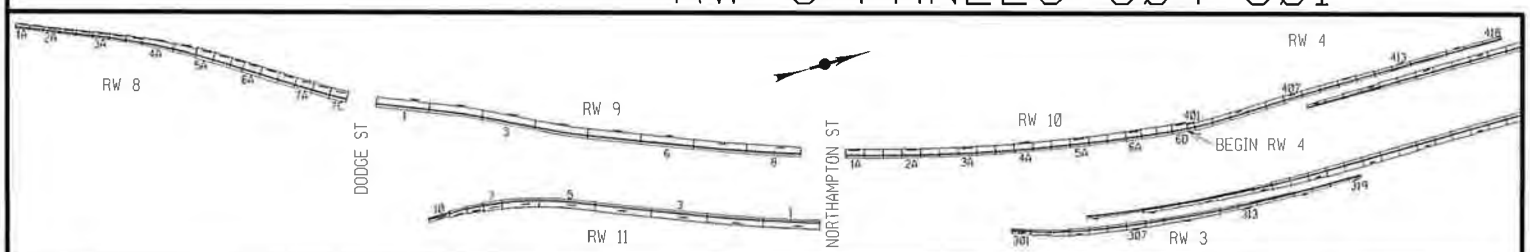
PIN 5512.52 Kensington Expressway
Retaining Wall #3 (RT) along 33EB
Located along the right side of the off-ramp to N.B. Humboldt Parkway and extending past Riley Street

Field Sheets





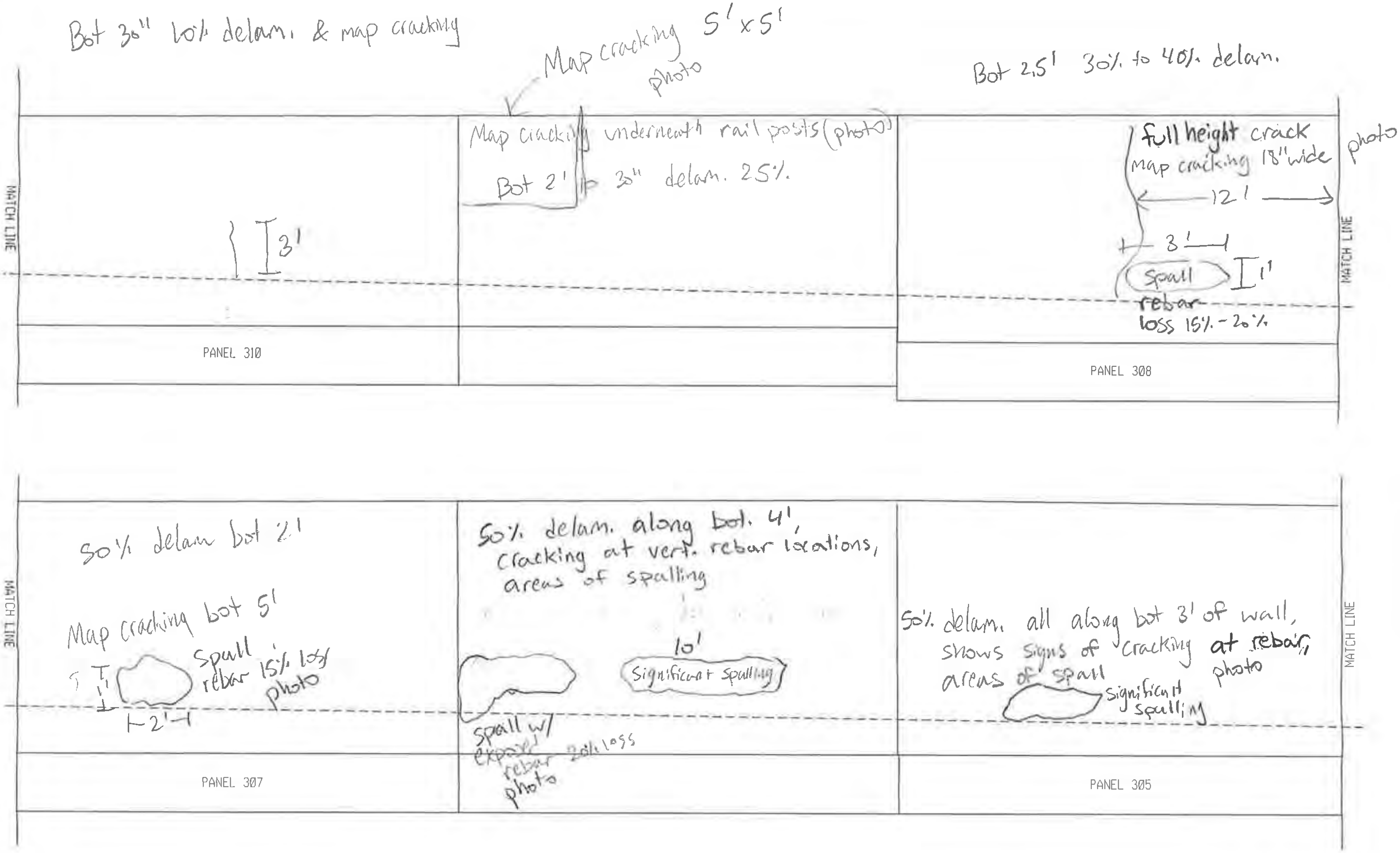
RW 3 PANELS 304-301



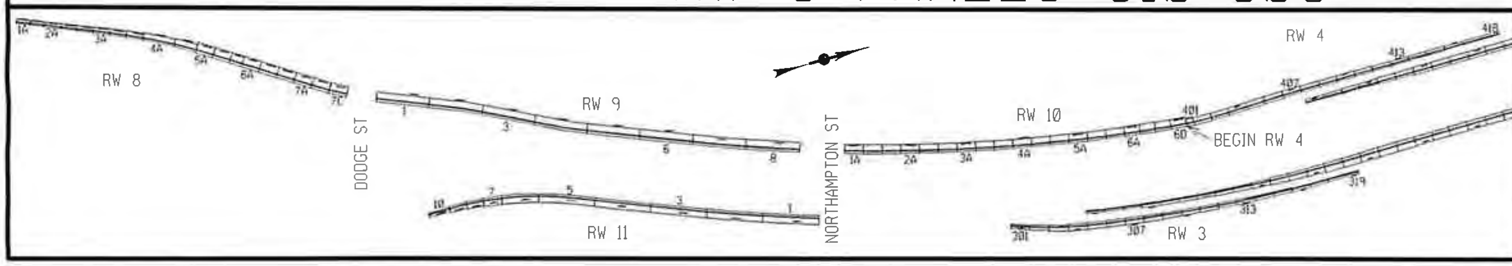
BY: RIM

DATE: 5/1/23

SCALE: 1" = 10'



RW 3 PANELS 310-305

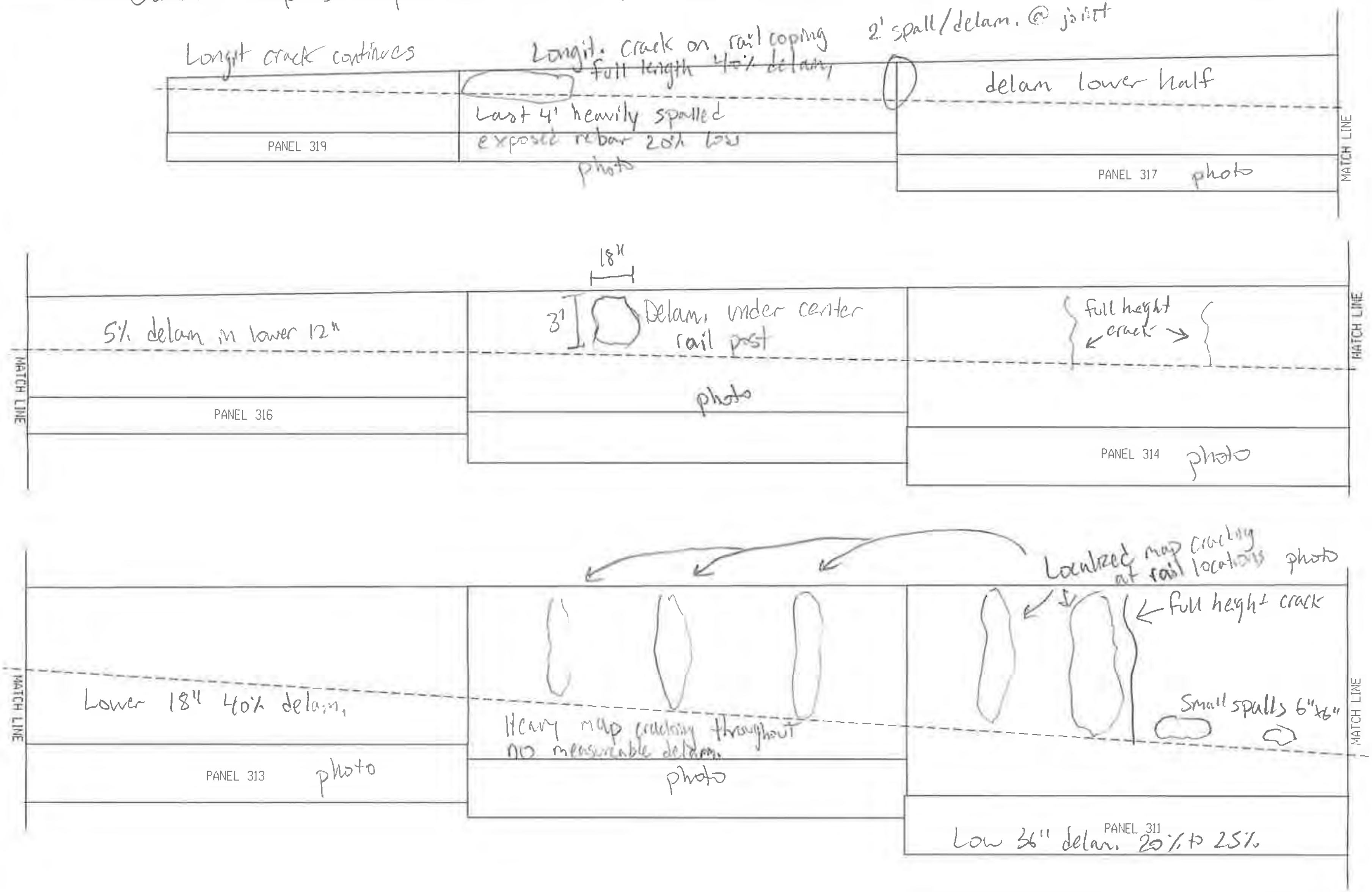


BY: RIM

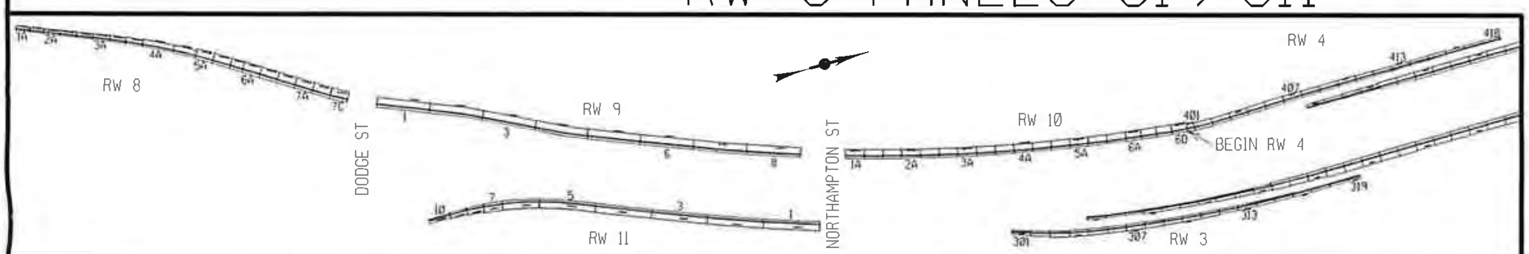
DATE: 5/1/23

SCALE: 1" = 10'

General: Cap is map cracked 50% w/ minimal delam.



RW 3 PANELS 319-311



BY: RJM

DATE: 5/1/23

SCALE: 1" = 10'

Retaining Wall Coping Inspection 5/30/2023

Retaining Wall 3

- Concrete safety walk behind full-height wall slopes drastically toward back of wall. 3" in 3.5'
- Curb and safety walk are misaligned with curb below safety walk edge.
- Longitudinal crack at mid-height of coping for full length
- Some areas are spalled 10%, delam 15%

Calculations

LaBella
Powered by partnership.
300 State Street, Suite 201 • Rochester, NY 14614
Phone 585.454.6110 • Fax 585.454.3066
www.labellapc.com

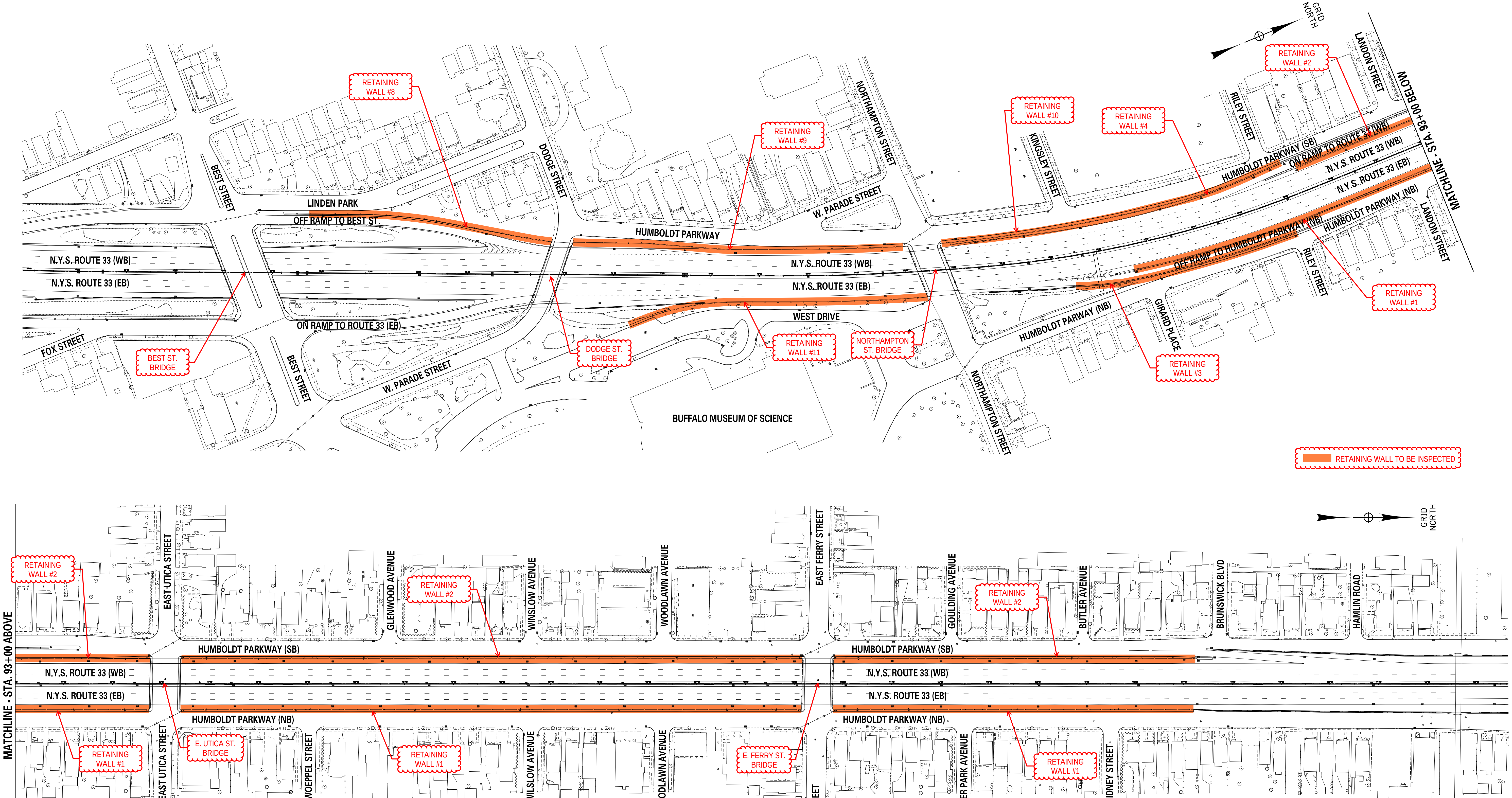
PROJECT	Kensington Inspections				
PIN	5512.52	CALC. BY	RIM	DATE	5/26/2023

Condition Estimates

- Retaining Wall 3
  - Condition 2 - map cracks, stains, isolated delam, minor cracks
  - Condition 3 - spalls, widespread delam, major cracks
  - Areas with multiple forms of deteroration were measured under only one category. Condition 3 categories were prioritized over condition 2.

Panel	Minor/Map Crack (sf)	Major Cracks (ft)	Spalls (sf)	Widespread Delam (sf)	Other (staining, efflor., etc.)		
301			0.5		1		
302	90	7	1.75	3.5			
303		9					
304				90			
305	45		4	45			
306	60		20	60			
307	120		2	30			
308	55.5	13	3	30			
309	34			18.75			
310	75		3.00	0.25			
311	36	9	0.5	22.5			
312	210						
313	20			18			
314	30	10					
315			4.5	4			
316				1.5			
317			2	30			
318			12	6			
319							
Coping	212.63					COND 2	COND 3
Total (sf):	988.13	24.00	53.25	359.50	1.00	990	437
		(sf)					

Wall Inventory Sheet



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DATE : 2/7/2023
TIME : 12:56:26 PM

PROJECT MANAGER | CHECK | DRAFTING | CHECK | DESIGN | JOB MANAGER | DESIGN SUPERVISOR

AFFIX SEAL:
ON:

ALTERED BY:
ON:

AS-BUILT REVISIONS
DESCRIPTION OF ALTERATIONS:

STATE ROUTE 33
KENSINGTON EXPRESSWAY
CITY OF BUFFALO
COUNTY: ERIE REGION: 5

PIN 5512.52

BRIDGES

CULVERTS

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

KENSINGTON EXPRESSWAY
RETAINING WALL LOCATION PLAN

CONTRACT NUMBER

DRAWING NO. 1
SHEET NO.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

LaBella Powered by partnership.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

RW 3

INVENTORY, INSPECTION, AND DATA COLLECTION

PRIMARY OWNER	NYSDOT - New York State Department of Transportation
REGION	05-Region 05 - Buffalo
COUNTY	3-County 3 - Erie
RESIDENCY	534 - Erie North Residency
NYS ROUTE	Rte. 33
REFERENCE MARKER	3353011030
LONGITUDE	78.84339
LATITUDE	42.90806
ADDITIONAL LOCATION DESCRIPTION	Located along the right shoulder of E.B. mainline and off-ramp for northbound Humboldt Parkway and supports N.B. Humboldt Parkway (approximately 567 ft. long, 14 ft. maximum exposed height).
TYPE OF SERVICE PROVIDED	Support/Protect a Roadway
WALL TYPE	Cantilever - Concrete
LEGACY RETAINING WALL TYPE	
WALL FACING TYPE	Cast - in -Place Concrete
WALL BACKFILL REINFORCEMENT TYPE	N/A
ADDITIONAL WALL DESCRIPTION	
WALL LENGTH	567 Ft
WALL MAXIMUM HEIGHT	14 ft
WALL AREA	8840 SF
YEAR BUILT	1970
CONTRACT NUMBER	C 68-2
AADT	76,347
QC REVIEWER	
QC APPROVED DATE	
SITE ACCESS NOTES	With WZTC in place to close the adjacent shoulder and travel lane, access was performed by walking and extension ladder.
INSPECTION FREQUENCY	
LAST INSPECTION STATUS	
INSTRUMENTED	N/A
MONITORED BY	----
INSTRUMENTATION COMMENT	----
CONSEQUENCE OF FAILURE	3-Major
WALL POSITION	Between Roads
GENERAL NOTES	
RETAINING WALL DATABASE ID	
NUMBER OF ERRORS AND WARNINGS	
USER UPDATE	
SUBMISSION DATE	
DATE UPDATE	

WALL INSPECTION LOCATION INFORMATION & NOTES

NY33 RETAINING WALL CONDITION EVALUATION 2023

KENSINGSTON EXPRESSWAY PROJECT
PIN 5512.52
CITY OF BUFFALO, ERIE COUNTY
RETAINING WALL 4

Prepared By:

Merton J. Edwards, PE (NYSPE 064981)
Inspection Team Leader | Sr. Structural Engineer
Date: 5/30/2023

Reviewed By:

Stephen L. Gauthier, PE (NYSPE 0075775)
Quality Control Engineer | Sr. Structural Engineer
Date: 6/16/2023

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300 State Street
Rochester, New York 14614
ph: 585-454-6110
www.labellapc.com

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

STRUCTURE:	Retaining Wall #4 (RT) along 33WB between Northampton St and Utica St
STRUCTURE TYPE:	Reinforced Concrete Cantilever Wall on Piles (Panels 401-415) Reinforced Concrete Cantilever Wall on Spread Footings (Panels 416-418) Year Built: 1970
CURRENT INSPECTION:	05/01/23 – 5/09/23 (LaBella Inspections)
LAST KNOWN INSPECTION:	Unknown
CONDITION STATE.	FAIR

RETAINING WALL INSPECTION & DOCUMENTATION:

Inspection of the retaining walls will be in conformance with the NYSDOT Retaining Wall Inventory and Inspection Program Manual, October 2018. Inspection of the following elements will be inspected and documented as appropriate:

- Inspection:

The following procedure will be followed for the inspection of retaining walls:

- Walls were checked for signs of settlement, rotation, or bulging. Walls faces were checked for vertical alignment using a smart level. The walls being evaluated are vertical with no batter.
- Construction joints between sections of the wall were examined for misalignment, and near the ground line for fill material washing out from between panels or joint.
- Walls were inspected for erosion material in front of the wall, for heaving of material in front of the wall, and for settlement of fill behind the wall.
- Examined the wall for deterioration of the material, such as cracking, spalling, and/or corrosion, noting the width, length, depth, and/or orientation of the deterioration. Photographs are provided, documenting defects found.
- Wall façades were reviewed for evidence of water seepage, efflorescence, or rust staining.
- Examined the base of walls for evidence of water flow where the water table may be within the retained earth.
- Examined and probed drains for signs of clogging. Examined drainage around ends of wall and note if embankments have been experiencing erosion.
- Examined site grading for any locations that may prohibit proper drainage from behind the wall looking for evidence of ponding above the wall, such as debris accumulation in the lower spots.
- Ascertain why water is not draining properly and note in the inspection.
- Inspected roadway components above wall for signs or joint separation, potholes, and areas of settlement.
- Examined vegetation growth along and above the wall for root infiltration creating undesirable stresses on the wall. Documented any induce cracking, bulging or failure.
- Examined the wall system for vehicular damage and document the location and degree of damage.

PIN 5512.52 Kensington Expressway
Retaining Wall #4 (RT) along 33WB between Northampton St and Utica St

GENERAL OBSERVATIONS:

1. Retaining Wall Panels are generally 30 ft in length with horizontal chamfered panels spaced 3'-0" vertically, from the top of the wall. There is some variation in panel length due to the location of bridges within the corridor. For specific panel lengths see the DOCUMENTION Section of this report.

2. The lower 3-6 ft of the subject retaining wall was found to be in FAIR-POOR condition with extensive map cracking, dampness, isolated rust staining, spalls and widespread delamination. For specific conditions found and photographs of the wall panels, see the DOCUMENTION Section of this report.

3. The upper portions of theses wall panels were generally found to be in GOOD condition with the exception of a very few locations. For specific conditions found and photographs of the wall panels, see the DOCUMENTION Section of this report.

4. Most panels were found to have mid-height to full-height vertical cracks near the midspan of the panel. For specific conditions found, photographs of the of wall panels, and condition calculations see the attached sections of this report.

General:	
DEFECT	DESCRIPTION
Misalignment	None noted.
Settlement	None noted.
Sinkhole (cavity) Formation	None noted.

Concrete Cracks:	
DEFECT	DESCRIPTION
Insignificant Cracks (cracks < 0.012 inches wide)	None noted.
Map cracks	The bottom 1 to 2 panels (3'-6') are map cracked on all panels. On some panels the map cracking extends higher near the joints and vertical cracks. Half of the panels have map cracking on the rail system coping.
Moderate Cracks (0.012 - 0.05 inches wide)	Most of the panels have mid- to full-span vertical cracks on the wall face from the roadway upwards. The cracks are approximately at midspan of the panels. There is a longitudinal crack at mid-height of the coping.
Wide Cracks (cracks > 0.05 inches wide)	None noted.

Additional Concrete Distress:	
DEFECT	DESCRIPTION
Spalling / Delamination	There is one small spall on panel 409. The bottom wall panel is delaminated over 70%-100% of the area. The second panel is delaminated over 10%-50%. The concrete is delaminated approximately 1 ft wide on either side of each vertical crack over 50%-100% of its length. Around 20% of the backside of the coping is spalled and delaminated.
Staining	There are isolated areas of rust staining on the bottom panel, in the chamfer between the two bottom panels, and on the rail coping.
Exposed Rebar	The backside of the coping has spalls with exposed rebar.

Notes:
RW 4 consists of 18 panels numbered from 401 (South) to 418 (North). The retaining wall supports the S.B. Humboldt Parkway above State Route 33 (Kensington Expressway). Located along the right side of the on-ramp from S.B. Humboldt Parkway and extending to retaining wall 10 (Approximately 521 ft. long, 17.5 ft. maximum exposed height).

INVENTORY, INSPECTION, AND DATA COLLECTION

Element	**Total Qty**	**Units**	**Condition State**			
			1	**2**	**3**	**4**
			GOOD	***FAIR***	***POOR***	***SEVERE***
RW.01 - Entire Wall	1	Each	0.80	0.04	0.16	
RW.02 - Wall Facing	5661	SF	4345	245	1071	
RW.03 - Ground Surface, Front	521	FT	521			
RW.04 - Ground Surface, Back	521	FT	521			
RW.05 - Weep Holes	N/A	Each	---	---	---	---
800 – Scour	N/A	FT	---	---	---	---

PIN 5512.52 Kensington Expressway
Retaining Wall #4 (RT) along 33WB between Northampton St and Utica St

INSPECTION RESULTS/ RECOMMENDATIONS

- **Overall Condition State Recommendation: 2 - FAIR**
- PROJECT DOCUMENTATION CAN BE FOUND IN THE ATTACHED SECTIONS

Inspection Photos

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #4 (RT) along 33WB between Northampton St and Utica St

PHOTO 1

PANEL 401-402

Description:

Start of RW4. Connects to RW10.

Bottom 2 panels are 80% to 100% delaminated with map cracking and some rust staining. Map cracking extends into bottom 4 panels near joints.

PHOTO 2

PANEL 404

Description:

Bottom panel is delaminated 70% with map cracking and scattered rust stains. Second panel from bottom is 15% delaminated.

There is a 12' high crack around midspan, with delamination 1.5' wide.

Conditions are similar for panel 403.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #4 (RT) along 33WB between Northampton St and Utica St

PHOTO 3

PANEL 405

Description:

Full-height crack with efflorescence. Map cracking on 1.5' either side for full height. Delaminated on either side for bottom 9'.

Bottom panel has map cracking and 50% delamination. Delamination extends into second panel near left joint.

PHOTO 4

PANEL 407

Description:

Map cracking and delamination on bottom panel, more concentrated at rebar locations. A few vertical cracks extend into the second and third panels with delamination on either side.

Map cracking on the rail coping is typical for about half of the panels on RW4.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #4 (RT) along 33WB between Northampton St and Utica St

PHOTO 5

PANEL 409

Map cracking on bottom panel and coping with scattered rust stains. Map cracking extends full height near the left joint. There is a 4' wide area of map cracking in the second panel from the top.

To the left of the map cracking, there is a 12' high vertical crack with 1' wide delamination on the bottom 3 panels.

Bottom panel is 100% delaminated with a small spall.

PHOTO 6

PANEL 411

Description:

Map cracking and 75% delamination on bottom panel.

Full-height crack with 1' wide delamination at 10' from left joint.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #4 (RT) along 33WB between Northampton St and Utica St

PHOTO 7

PANEL 413

Description:

Map cracking on bottom 2 panels and coping.

Rust staining and delamination on bottom panel.

Panel 412 is similar, without rust stains.

PHOTO 8

PANEL 415

Description:

Scattered map cracking on bottom panel and coping.

Two full height cracks with 2' wide delamination and minor efflorescence.

Conditions similar for panel 414.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #4 (RT) along 33WB between Northampton St and Utica St

PHOTO 9

PANEL 417

Description:

Map cracking and rust staining throughout, heaviest near rail posts.

PHOTO 10

PANEL 418

Description:

End of RW4.

Heavy map cracking throughout.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #4 (RT) along 33WB between Northampton St and Utica St

PHOTO 11

Rail Coping (Backside) along Humbolt Parkway

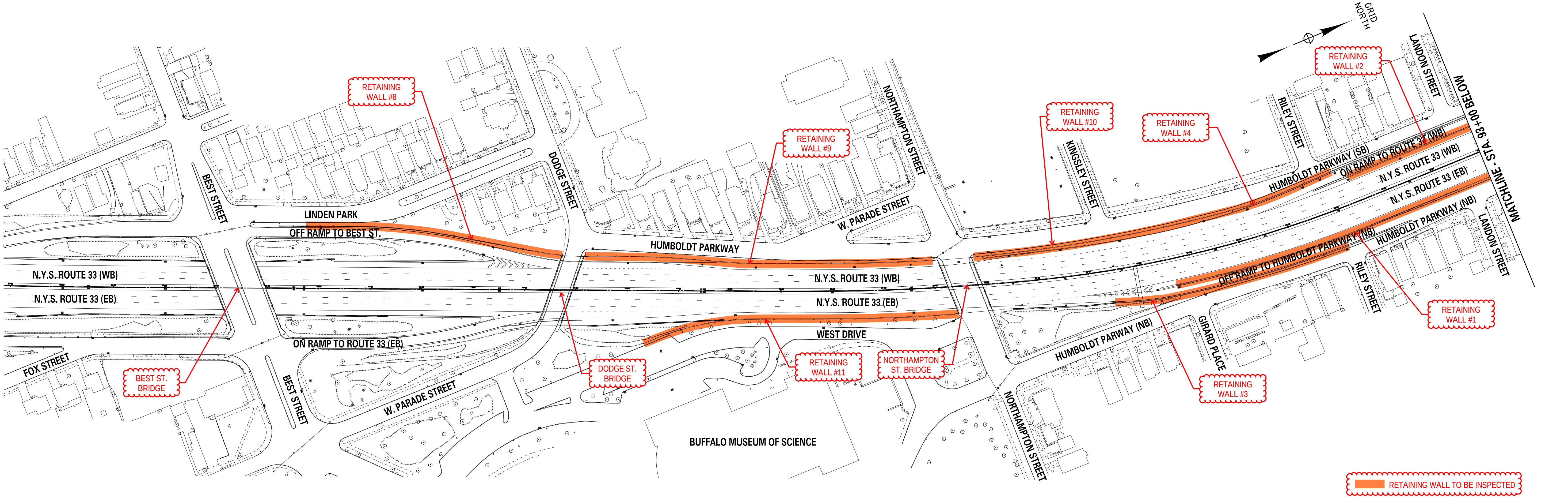
Description:

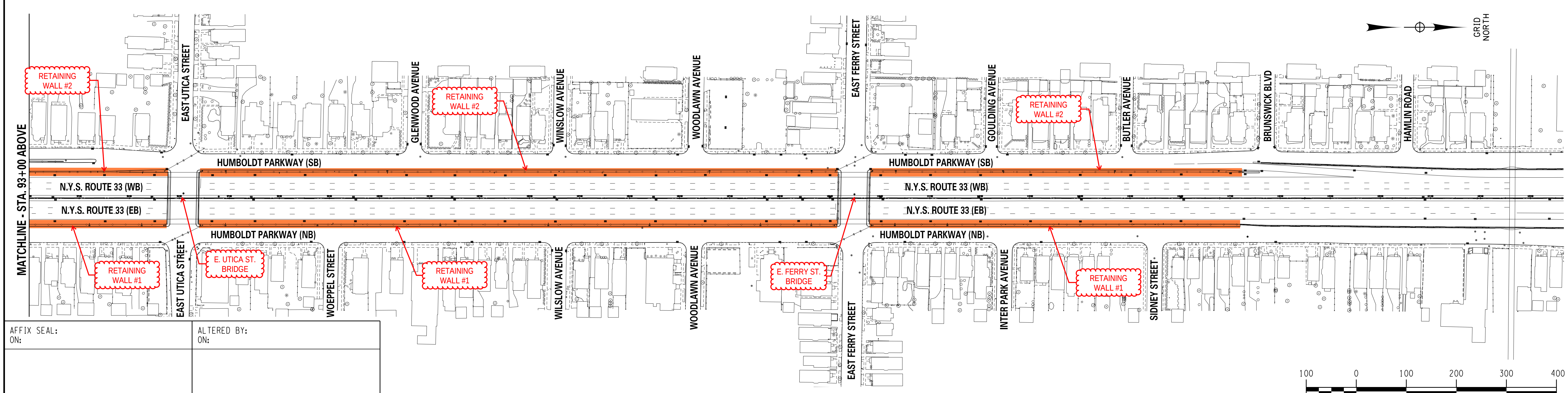
There is a longitudinal crack at mid-height of the coping for the entire length of the wall.

The coping is 20% delaminated.

Spalls with exposed rebar are present over 20% of the area.

Field Sheets





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TIME = 12:56:26 PM

DESIGN SUPERVISOR
JOB MANAGER
DESIGN
CHECK
DRAFTING
CHECK
PROJECT MANAGER

AFFIX SEAL:
ON:

ALTERED BY:
ON:

AS-BUILT REVISIONS
DESCRIPTION OF ALTERATIONS:

STATE ROUTE 33
KENSINGTON EXPRESSWAY
CITY OF BUFFALO
COUNTY: ERIE REGION: 5

PIN 5512.52

BRIDGES

CULVERTS

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

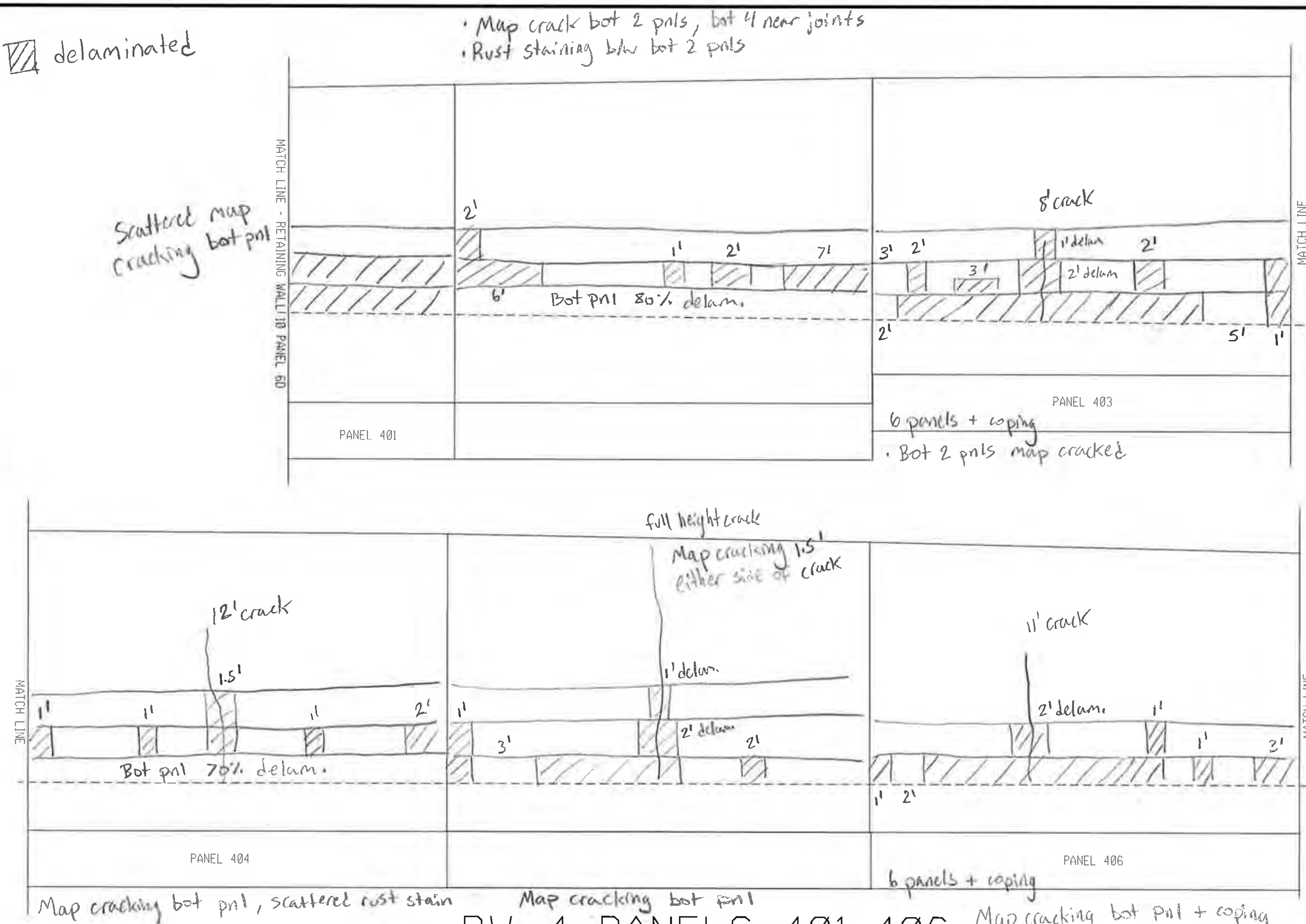
KENSINGTON EXPRESSWAY
RETAINING WALL LOCATION PLAN

CONTRACT NUMBER

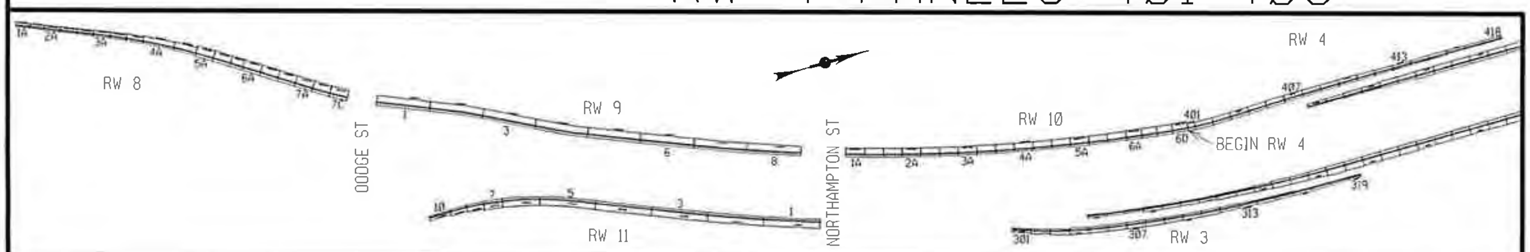
DRAWING NO. 1
SHEET NO.

LaBella Powered by partnership.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation



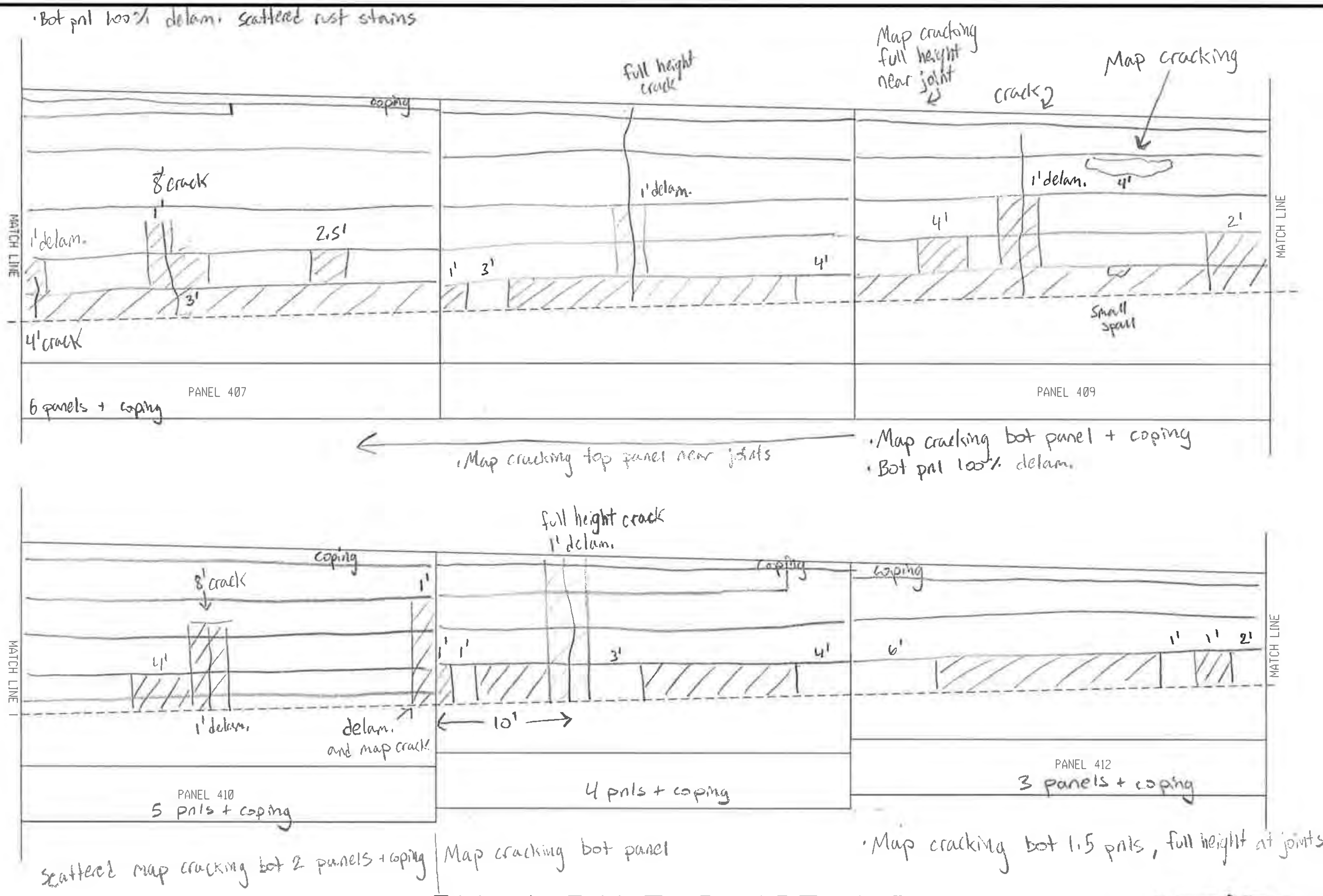
RW 4 PANELS 401-406



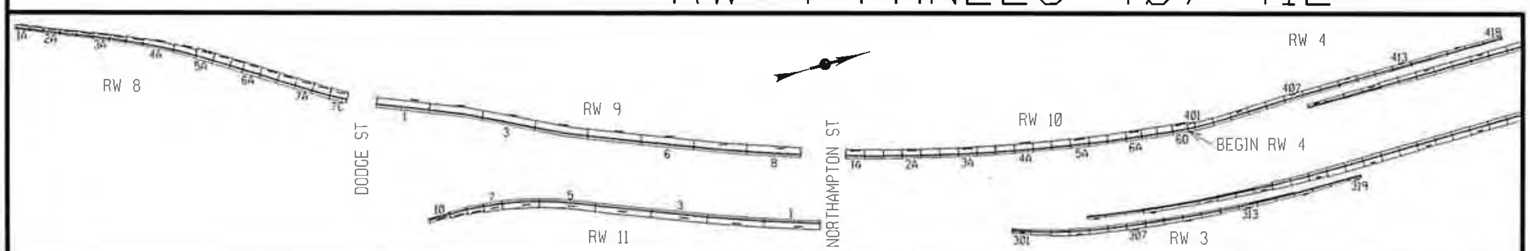
BY: RJM

DATE: 5/9/23

SCALE: 1" = 10'



RW 4 PANELS 407-412



BY: RIM

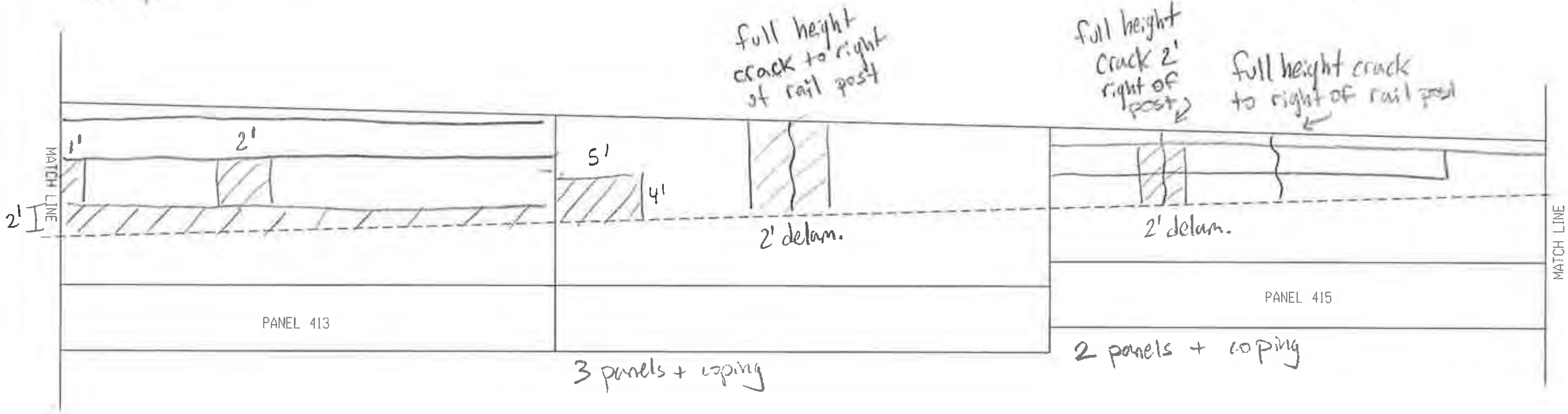
DATE: 5/9/23

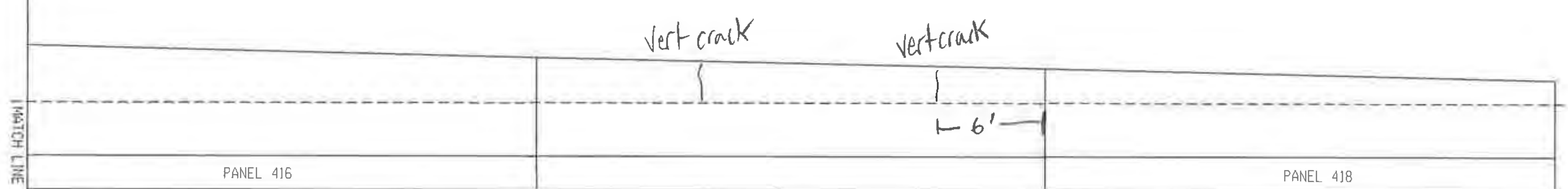
SCALE: 1" = 10'

- Map cracking bot 2 panels + coping
- Rust staining bot panel
- Bot panel 100% delam.

- Scattered map cracking on bot 2 panels, worst near joints

- Map cracking on coping
- Scattered map cracking on bot panel



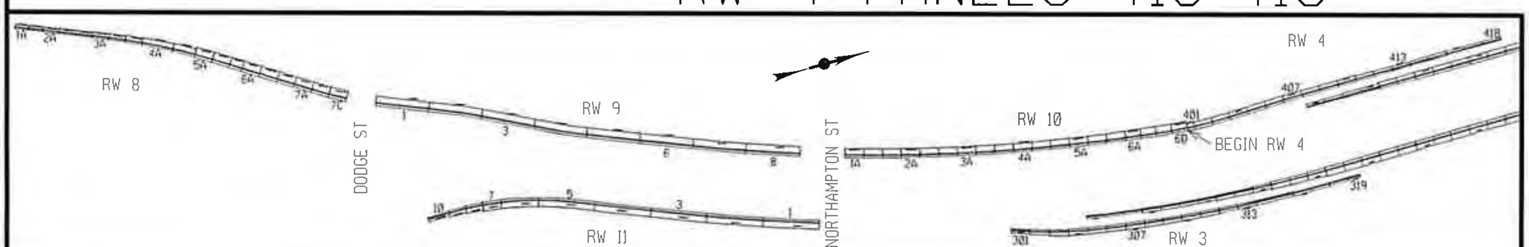


- Longit. crack on coping + map cracking
- Map cracking under rail posts to ground

Map cracking

Map cracking

RW 4 PANELS 413-418



BY: RIM

DATE: 5/9/23

SCALE: 1" = 10'

Retaining Wall Coping Inspection 5/30/2023

Retaining Wall 4

- Mid-height coping crack for entire length
- Spalling 20% with rebar exposure, Delam 20%
- Map cracking at rail posts with staining and efflorescence.

General WB:
- Granite curb joints are gapped and curb misaligned

Calculations

LaBella
Powered by partnership.
300 State Street, Suite 201 • Rochester, NY 14614
Phone 585.454.6110 • Fax 585.454.3066
www.labellapc.com

PROJECT	Kensington Inspections				
PIN	5512.52	CALC. BY	RIM	DATE	5/26/2023

Condition Estimates

- Retaining Wall 4
  - Condition 2 - map cracks, stains, isolated delam, minor cracks
  - Condition 3 - spalls, widespread delam, major cracks
  - Areas with multiple forms of deteroration were measured under only one category. Condition 3 categories were prioritized over condition 2.

Panel	Minor/Map Crack (sf)	Major Cracks (ft)	Spalls (sf)	Widespread Delam (sf)	Isolated Delam	Other (staining, efflor., etc.)
401				72		
402				126		
403				102		
404		3		84		
405		9		57		
406		5		81		
407				112.5		
408	21	9		75		
409	40	5	1	114		
410	18			36		
411				78		
412	21.5			42		
413	30			69		
414	18.4				30	
415	12	6			12	
416	18					
417	12	5				
418	12					
Total (sf):	202.90	21.00 (sf)	1.00	1048.50	42.00	0.00

COND 2	COND 3
245	1071

Wall Inventory Sheet

RW 4

INVENTORY, INSPECTION, AND DATA COLLECTION

PRIMARY OWNER	NYSDOT - New York State Department of Transportation
REGION	05-Region 05 - Buffalo
COUNTY	3-County 3 - Erie
RESIDENCY	534 - Erie North Residency
NYS ROUTE	Rte. 33
REFERENCE MARKER	3353011031
LONGITUDE	78.84369
LATITUDE	42.91034
ADDITIONAL LOCATION DESCRIPTION	Located along the on-ramp right shoulder from S.B. Humboldt Parkway to W.B. Kensington Expressway (approximately 521 ft. long, 17.5 ft. maximum exposed height). The west abutment of the Northampton Street Overpass is not considered as part of RW #10.
TYPE OF SERVICE PROVIDED	Support/Protect a Roadway
WALL TYPE	Cantilever - Concrete
LEGACY RETAINING WALL TYPE	
WALL FACING TYPE	Cast - in -Place Concrete
WALL BACKFILL REINFORCEMENT TYPE	N/A
ADDITIONAL WALL DESCRIPTION	
WALL LENGTH	521 Ft
WALL MAXIMUM HEIGHT	17.5 Ft
WALL AREA	9650 SF
YEAR BUILT	1970
CONTRACT NUMBER	C 68-2
AADT	76,347
QC REVIEWER	
QC APPROVED DATE	
SITE ACCESS NOTES	With WZTC in place to close the adjacent shoulder and travel lane, access was performed by walking and extension ladder.
INSPECTION FREQUENCY	
LAST INSPECTION STATUS	
INSTRUMENTED	N/A
MONITORED BY	----
INSTRUMENTATION COMMENT	----
CONSEQUENCE OF FAILURE	3-Major
WALL POSITION	Between Roads
GENERAL NOTES	
RETAINING WALL DATABASE ID	
NUMBER OF ERRORS AND WARNINGS	
USER UPDATE	
SUBMISSION DATE	
DATE UPDATE	

WALL INSPECTION LOCATION INFORMATION & NOTES

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

STRUCTURE:	Retaining Wall #4 (RT) along 33WB between Northampton St and Utica St
STRUCTURE TYPE:	Reinforced Concrete Cantilever Wall on Piles (Panels 401-415) Reinforced Concrete Cantilever Wall on Spread Footings (Panels 416-418) Year Built: 1970
CURRENT INSPECTION:	05/01/23 – 5/09/23 (LaBella Inspections)
LAST KNOWN INSPECTION:	Unknown
CONDITION STATE.	FAIR

RETAINING WALL INSPECTION & DOCUMENTATION:

Inspection of the retaining walls will be in conformance with the NYSDOT Retaining Wall Inventory and Inspection Program Manual, October 2018. Inspection of the following elements will be inspected and documented as appropriate:

- Inspection:

The following procedure will be followed for the inspection of retaining walls:

- Walls were checked for signs of settlement, rotation, or bulging. Walls faces were checked for vertical alignment using a smart level. The walls being evaluated are vertical with no batter.
- Construction joints between sections of the wall were examined for misalignment, and near the ground line for fill material washing out from between panels or joint.
- Walls were inspected for erosion material in front of the wall, for heaving of material in front of the wall, and for settlement of fill behind the wall.
- Examined the wall for deterioration of the material, such as cracking, spalling, and/or corrosion, noting the width, length, depth, and/or orientation of the deterioration. Photographs are provided, documenting defects found.
- Wall façades were reviewed for evidence of water seepage, efflorescence, or rust staining.
- Examined the base of walls for evidence of water flow where the water table may be within the retained earth.
- Examined and probed drains for signs of clogging. Examined drainage around ends of wall and note if embankments have been experiencing erosion.
- Examined site grading for any locations that may prohibit proper drainage from behind the wall looking for evidence of ponding above the wall, such as debris accumulation in the lower spots.
- Ascertain why water is not draining properly and note in the inspection.
- Inspected roadway components above wall for signs or joint separation, potholes, and areas of settlement.
- Examined vegetation growth along and above the wall for root infiltration creating undesirable stresses on the wall. Documented any induce cracking, bulging or failure.
- Examined the wall system for vehicular damage and document the location and degree of damage.

PIN 5512.52 Kensington Expressway
Retaining Wall #4 (RT) along 33WB between Northampton St and Utica St

GENERAL OBSERVATIONS:

1. Retaining Wall Panels are generally 30 ft in length with horizontal chamfered panels spaced 3'-0" vertically, from the top of the wall. There is some variation in panel length due to the location of bridges within the corridor. For specific panel lengths see the DOCUMENTION Section of this report.

2. The lower 3-6 ft of the subject retaining wall was found to be in FAIR-POOR condition with extensive map cracking, dampness, isolated rust staining, spalls and widespread delamination. For specific conditions found and photographs of the wall panels, see the DOCUMENTION Section of this report.

3. The upper portions of theses wall panels were generally found to be in GOOD condition with the exception of a very few locations. For specific conditions found and photographs of the wall panels, see the DOCUMENTION Section of this report.

4. Most panels were found to have mid-height to full-height vertical cracks near the midspan of the panel. For specific conditions found, photographs of the of wall panels, and condition calculations see the attached sections of this report.

General:	
DEFECT	DESCRIPTION
Misalignment	None noted.
Settlement	None noted.
Sinkhole (cavity) Formation	None noted.

Concrete Cracks:	
DEFECT	DESCRIPTION
Insignificant Cracks (cracks < 0.012 inches wide)	None noted.
Map cracks	The bottom 1 to 2 panels (3'-6') are map cracked on all panels. On some panels the map cracking extends higher near the joints and vertical cracks. Half of the panels have map cracking on the rail system coping.
Moderate Cracks (0.012 - 0.05 inches wide)	Most of the panels have mid- to full-span vertical cracks on the wall face from the roadway upwards. The cracks are approximately at midspan of the panels. There is a longitudinal crack at mid-height of the coping.
Wide Cracks (cracks > 0.05 inches wide)	None noted.

Additional Concrete Distress:	
DEFECT	DESCRIPTION
Spalling / Delamination	There is one small spall on panel 409. The bottom wall panel is delaminated over 70%-100% of the area. The second panel is delaminated over 10%-50%. The concrete is delaminated approximately 1 ft wide on either side of each vertical crack over 50%-100% of its length. Around 20% of the backside of the coping is spalled and delaminated.
Staining	There are isolated areas of rust staining on the bottom panel, in the chamfer between the two bottom panels, and on the rail coping.
Exposed Rebar	The backside of the coping has spalls with exposed rebar.

Notes:
RW 4 consists of 18 panels numbered from 401 (South) to 418 (North). The retaining wall supports the S.B. Humboldt Parkway above State Route 33 (Kensington Expressway). Located along the right side of the on-ramp from S.B. Humboldt Parkway and extending to retaining wall 10 (Approximately 521 ft. long, 17.5 ft. maximum exposed height).

INVENTORY, INSPECTION, AND DATA COLLECTION

Element	Total Qty	Units	Condition State			
			1	2	3	4
			GOOD	FAIR	POOR	SEVERE
RW.01 - Entire Wall	1	Each	0.80	0.04	0.16	
RW.02 - Wall Facing	5661	SF	4345	245	1071	
RW.03 - Ground Surface, Front	521	FT	521			
RW.04 - Ground Surface, Back	521	FT	521			
RW.05 - Weep Holes	N/A	Each	---	---	---	---
800 – Scour	N/A	FT	---	---	---	---

PIN 5512.52 Kensington Expressway
Retaining Wall #4 (RT) along 33WB between Northampton St and Utica St

INSPECTION RESULTS/ RECOMMENDATIONS

- **Overall Condition State Recommendation: 2 - FAIR**

- PROJECT DOCUMENTATION CAN BE FOUND IN THE ATTACHED SECTIONS

Inspection Photos

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #4 (RT) along 33WB between Northampton St and Utica St

PHOTO 1

PANEL 401-402

Description:

Start of RW4. Connects to RW10.

Bottom 2 panels are 80% to 100% delaminated with map cracking and some rust staining. Map cracking extends into bottom 4 panels near joints.

PHOTO 2

PANEL 404

Description:

Bottom panel is delaminated 70% with map cracking and scattered rust stains. Second panel from bottom is 15% delaminated.

There is a 12' high crack around midspan, with delamination 1.5' wide.

Conditions are similar for panel 403.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #4 (RT) along 33WB between Northampton St and Utica St

PHOTO 3

PANEL 405

Description:

Full-height crack with efflorescence. Map cracking on 1.5' either side for full height. Delaminated on either side for bottom 9'.

Bottom panel has map cracking and 50% delamination. Delamination extends into second panel near left joint.

PHOTO 4

PANEL 407

Description:

Map cracking and delamination on bottom panel, more concentrated at rebar locations. A few vertical cracks extend into the second and third panels with delamination on either side.

Map cracking on the rail coping is typical for about half of the panels on RW4.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #4 (RT) along 33WB between Northampton St and Utica St

PHOTO 5

PANEL 409

Map cracking on bottom panel and coping with scattered rust stains. Map cracking extends full height near the left joint. There is a 4' wide area of map cracking in the second panel from the top.

To the left of the map cracking, there is a 12' high vertical crack with 1' wide delamination on the bottom 3 panels.

Bottom panel is 100% delaminated with a small spall.

PHOTO 6

PANEL 411

Description:

Map cracking and 75% delamination on bottom panel.

Full-height crack with 1' wide delamination at 10' from left joint.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #4 (RT) along 33WB between Northampton St and Utica St

PHOTO 7

PANEL 413

Description:

Map cracking on bottom 2 panels and coping.

Rust staining and delamination on bottom panel.

Panel 412 is similar, without rust stains.

PHOTO 8

PANEL 415

Description:

Scattered map cracking on bottom panel and coping.

Two full height cracks with 2' wide delamination and minor efflorescence.

Conditions similar for panel 414.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #4 (RT) along 33WB between Northampton St and Utica St

PHOTO 9

PANEL 417

Description:

Map cracking and rust staining throughout, heaviest near rail posts.

PHOTO 10

PANEL 418

Description:

End of RW4.

Heavy map cracking throughout.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #4 (RT) along 33WB between Northampton St and Utica St

PHOTO 11

Rail Coping (Backside) along Humbolt Parkway

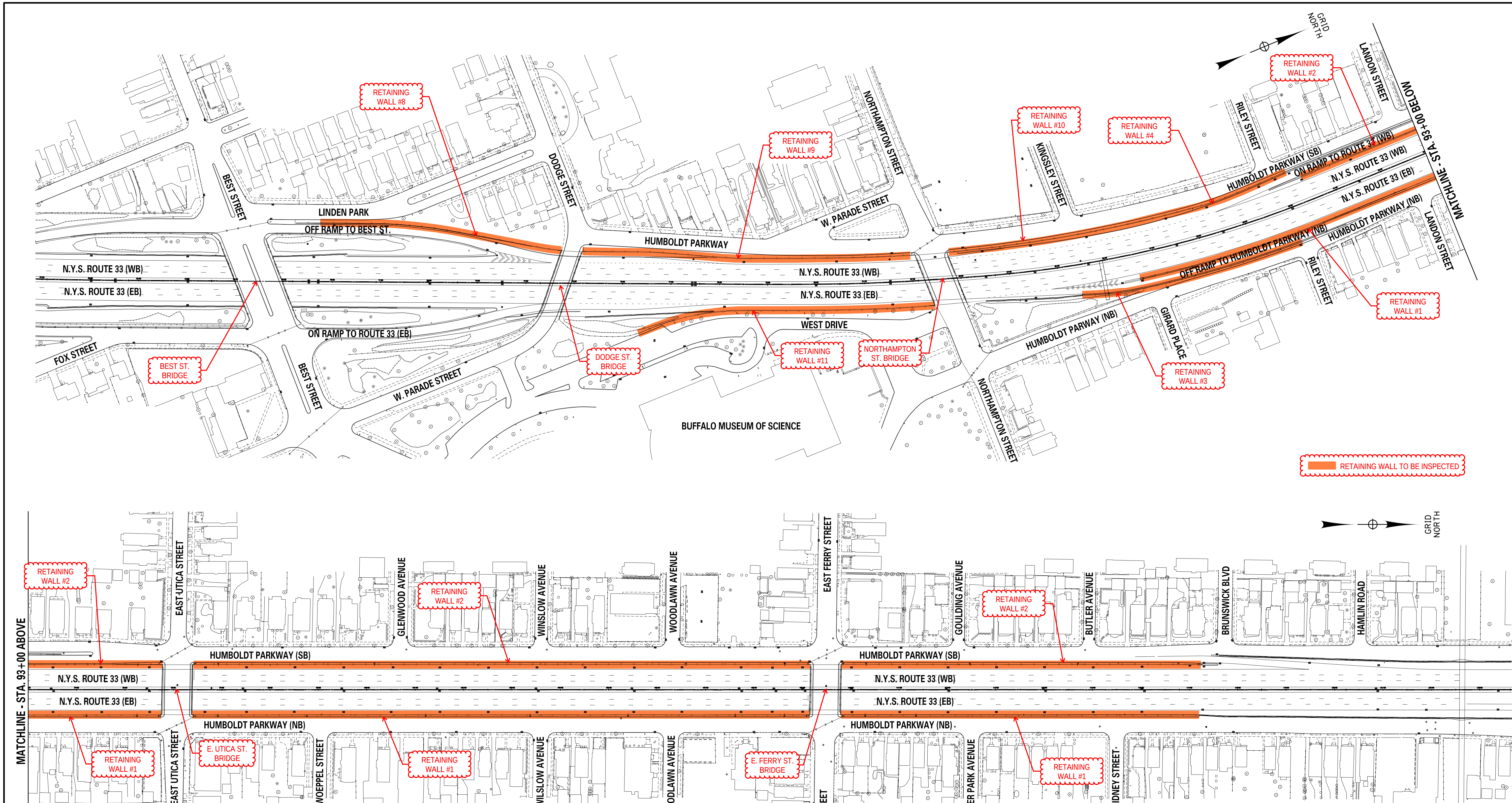
Description:

There is a longitudinal crack at mid-height of the coping for the entire length of the wall.

The coping is 20% delaminated.

Spalls with exposed rebar are present over 20% of the area.

Field Sheets



AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS DESCRIPTION OF ALTERATIONS:	STATE ROUTE 33 / KENSINGTON EXPRESSWAY / CITY OF BUFFALO / COUNTY: ERIE REGION: 5	PIN 5512.52	BRIDGES	CULVERTS	ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED / KENSINGTON EXPRESSWAY / RETAINING WALL LOCATION PLAN	CONTRACT NUMBER / DRAWING NO. 1 / SHEET NO.

LaBella Powered by partnership.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

PROJECT MANAGER | CHECK | DRAFTING | CHECK | DESIGN | JOB MANAGER | DESIGN SUPERVISOR

FILE NAME = Ø@cashlab@pØNØNYSDOT#2150716.01 Kensington Preliminary DesignØDrawingsØHighwayØPlansets2Ø551252.cph.pln_A1tA.dgn
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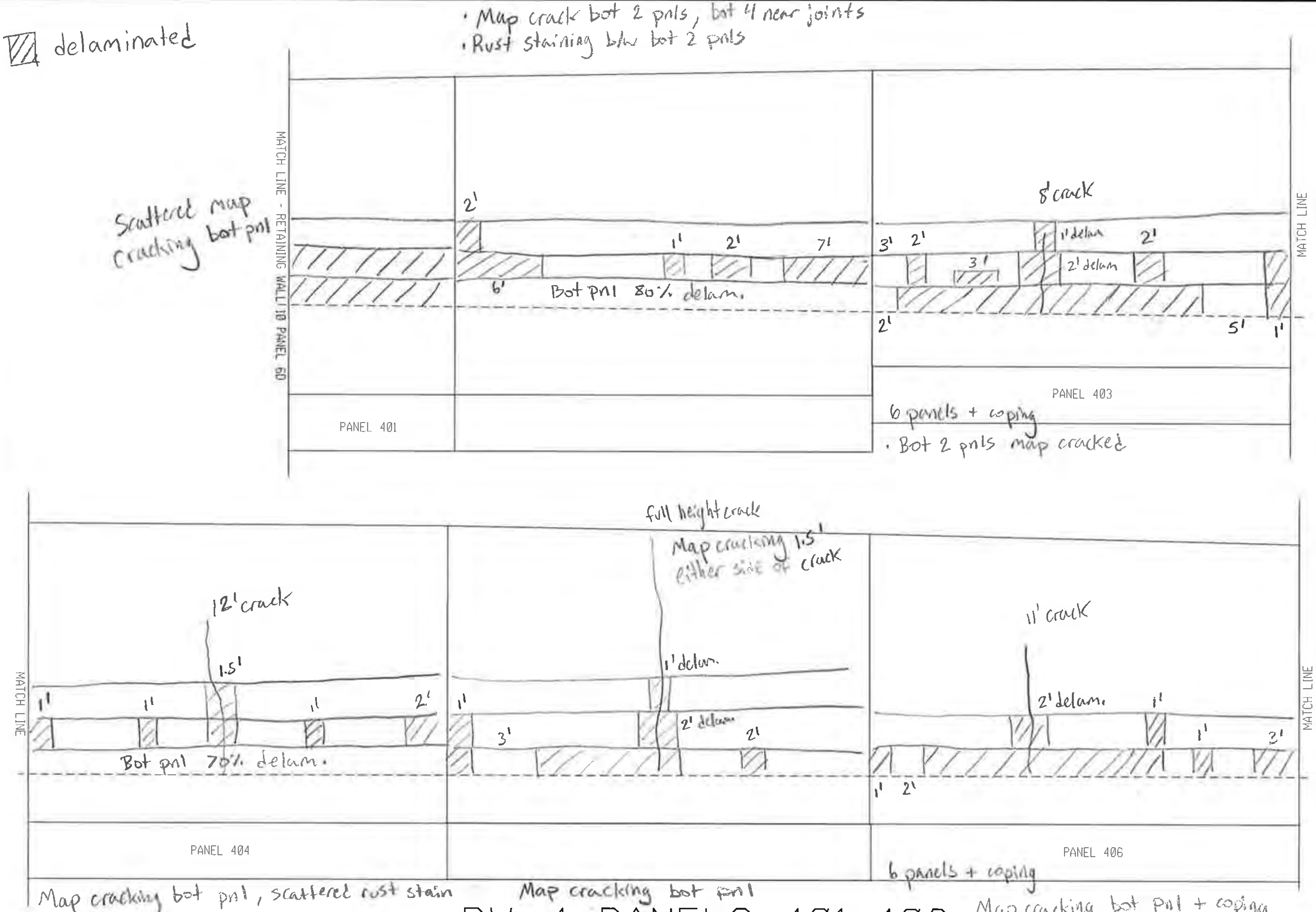
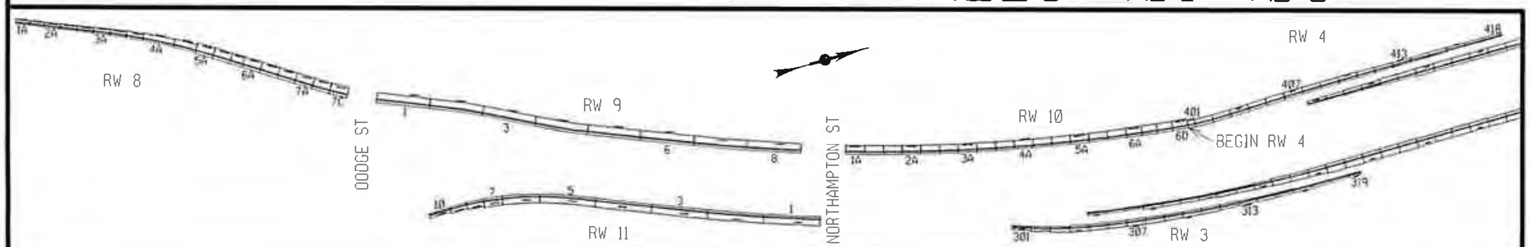


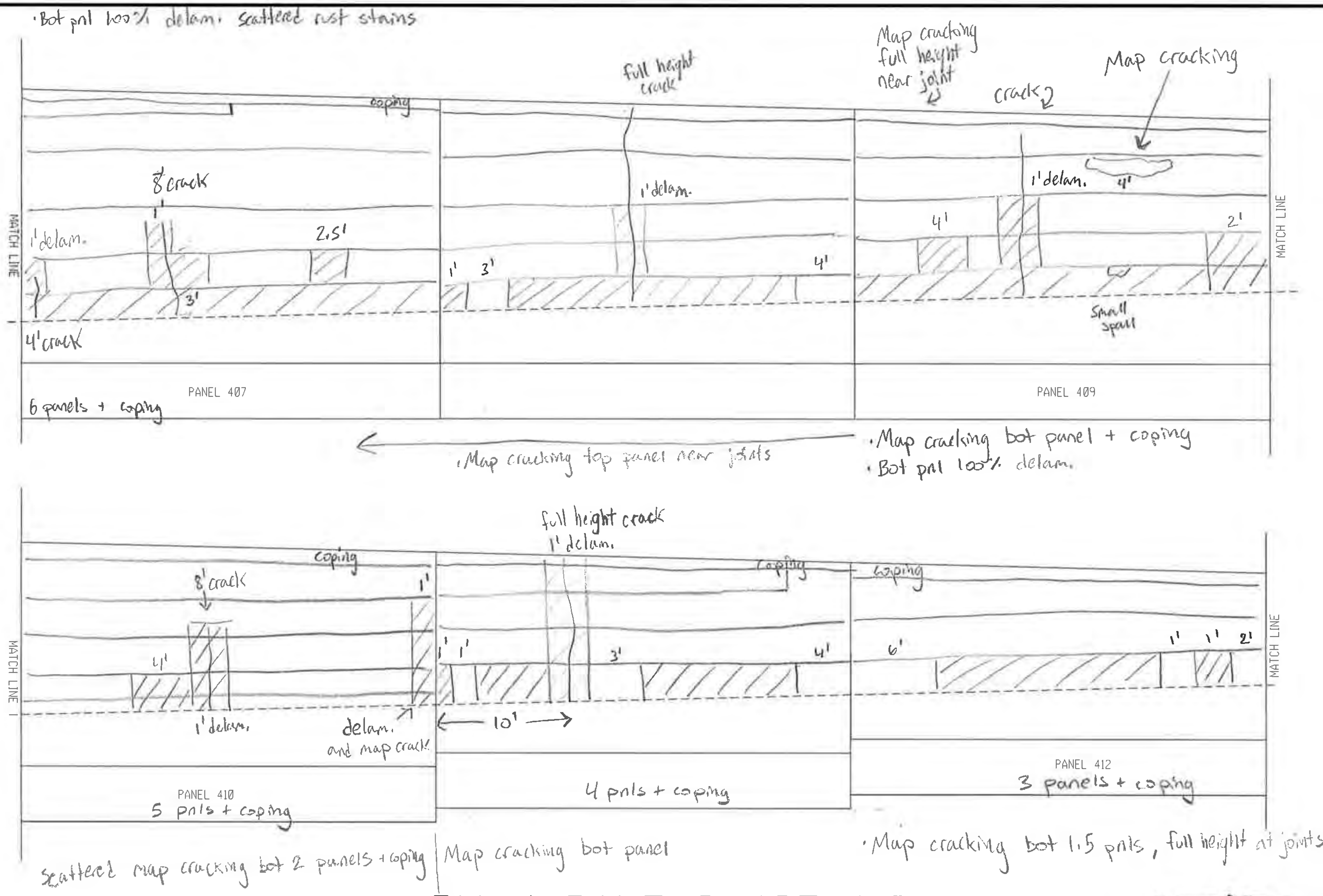
RW 4 PANELS 401-406



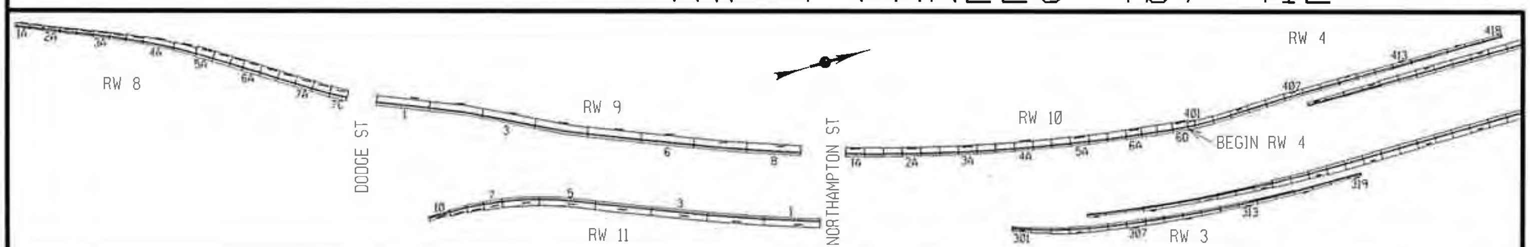
BY: RJM

DATE: 5/9/23

SCALE: 1" = 10'



RW 4 PANELS 407-412



BY: RIM

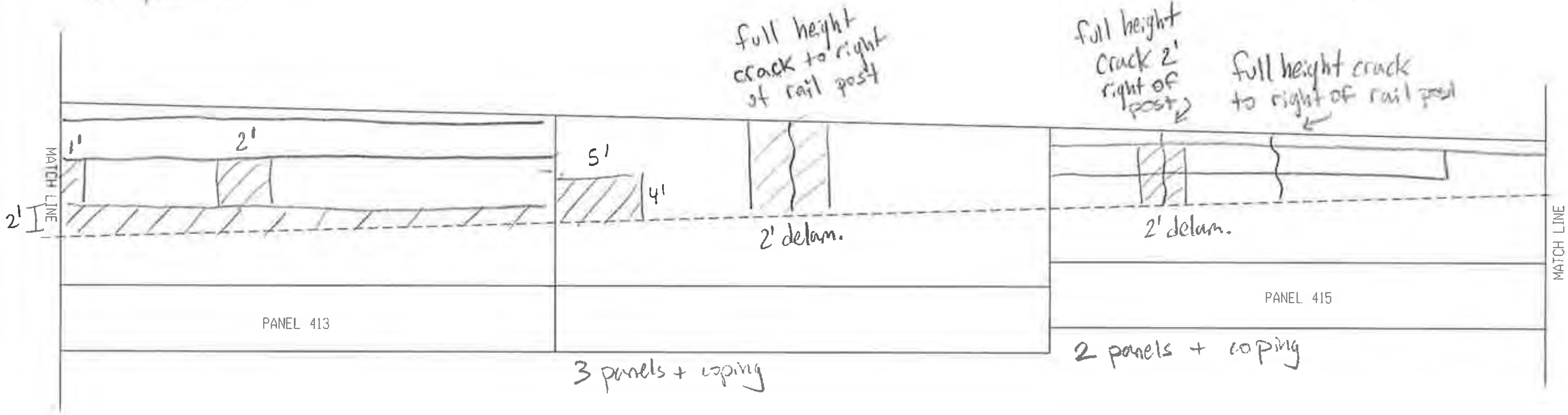
DATE: 5/9/23

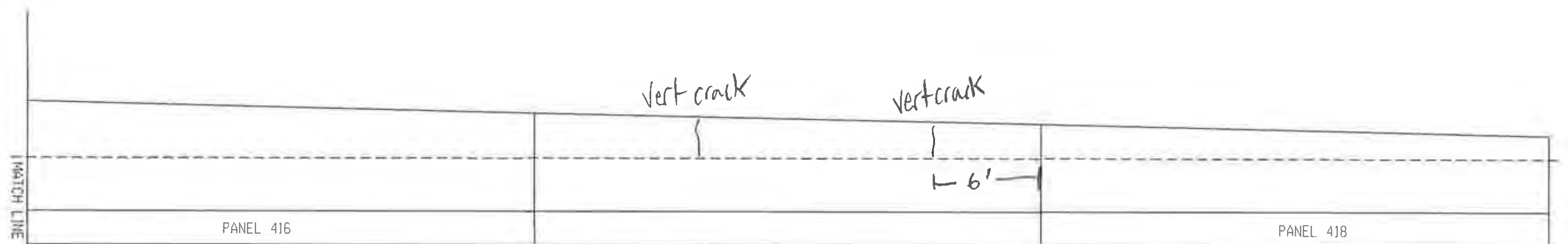
SCALE: 1" = 10'

- Map cracking bot 2 panels + coping
- Rust staining bot panel
- Bot panel 100% delam.

- Scattered map cracking on bot 2 panels, worst near joints

- Map cracking on coping
- Scattered map cracking on bot panel



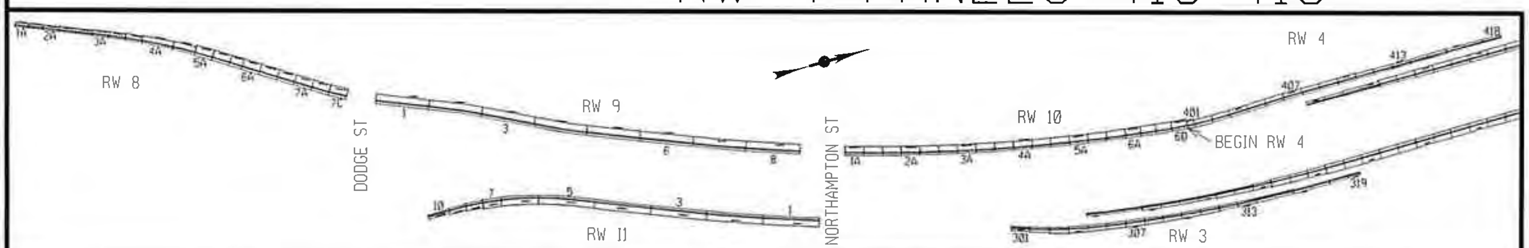


- Longit. crack on coping + map cracking
- Map cracking under rail posts to ground

Map cracking

Map cracking

RW 4 PANELS 413-418



BY: RIM

DATE: 5/9/23

SCALE: 1" = 10'

Retaining Wall Coping Inspection 5/30/2023

Retaining Wall 4

- Mid-height coping crack for entire length
- Spalling 20% with rebar exposure, Delam 20%
- Map cracking at rail posts with staining and efflorescence.

General WB:
- Granite curb joints are gapped and curb misaligned

Calculations

LaBella
Powered by partnership.
300 State Street, Suite 201 • Rochester, NY 14614
Phone 585.454.6110 • Fax 585.454.3066
www.labellapc.com

PROJECT	Kensington Inspections				
PIN	5512.52	CALC. BY	RIM	DATE	5/26/2023

Condition Estimates

- Retaining Wall 4
  - Condition 2 - map cracks, stains, isolated delam, minor cracks
  - Condition 3 - spalls, widespread delam, major cracks
  - Areas with multiple forms of deteroration were measured under only one category.
    Condition 3 categories were prioritized over condition 2.

Panel	Minor/Map Crack (sf)	Major Cracks (ft)	Spalls (sf)	Widespread Delam (sf)	Isolated Delam	Other (staining, efflor., etc.)
401				72		
402				126		
403				102		
404		3		84		
405		9		57		
406		5		81		
407				112.5		
408	21	9		75		
409	40	5	1	114		
410	18			36		
411				78		
412	21.5			42		
413	30			69		
414	18.4				30	
415	12	6			12	
416	18					
417	12	5				
418	12					
Total (sf):	202.90	21.00 (sf)	1.00	1048.50	42.00	0.00

COND 2	COND 3
245	1071

Wall Inventory Sheet

RW 4

INVENTORY, INSPECTION, AND DATA COLLECTION

PRIMARY OWNER	NYSDOT - New York State Department of Transportation
REGION	05-Region 05 - Buffalo
COUNTY	3-County 3 - Erie
RESIDENCY	534 - Erie North Residency
NYS ROUTE	Rte. 33
REFERENCE MARKER	3353011031
LONGITUDE	78.84369
LATITUDE	42.91034
ADDITIONAL LOCATION DESCRIPTION	Located along the on-ramp right shoulder from S.B. Humboldt Parkway to W.B. Kensington Expressway (approximately 521 ft. long, 17.5 ft. maximum exposed height). The west abutment of the Northampton Street Overpass is not considered as part of RW #10.
TYPE OF SERVICE PROVIDED	Support/Protect a Roadway
WALL TYPE	Cantilever - Concrete
LEGACY RETAINING WALL TYPE	
WALL FACING TYPE	Cast - in -Place Concrete
WALL BACKFILL REINFORCEMENT TYPE	N/A
ADDITIONAL WALL DESCRIPTION	
WALL LENGTH	521 Ft
WALL MAXIMUM HEIGHT	17.5 Ft
WALL AREA	9650 SF
YEAR BUILT	1970
CONTRACT NUMBER	C 68-2
AADT	76,347
QC REVIEWER	
QC APPROVED DATE	
SITE ACCESS NOTES	With WZTC in place to close the adjacent shoulder and travel lane, access was performed by walking and extension ladder.
INSPECTION FREQUENCY	
LAST INSPECTION STATUS	
INSTRUMENTED	N/A
MONITORED BY	----
INSTRUMENTATION COMMENT	----
CONSEQUENCE OF FAILURE	3-Major
WALL POSITION	Between Roads
GENERAL NOTES	
RETAINING WALL DATABASE ID	
NUMBER OF ERRORS AND WARNINGS	
USER UPDATE	
SUBMISSION DATE	
DATE UPDATE	

WALL INSPECTION LOCATION INFORMATION & NOTES

NY33 RETAINING WALL CONDITION EVALUATION 2023
KENSINGSTON EXPRESSWAY PROJECT
PIN 5512.52
CITY OF BUFFALO, ERIE COUNTY
RETAINING WALL 8

Prepared By:

Merton J. Edwards, PE (NYSPE 064981)
Inspection Team Leader | Sr. Structural Engineer
Date: 5/30/2023

Reviewed By:

Stephen L. Gauthier, PE (NYSPE 0075775)
Quality Control Engineer | Sr. Structural Engineer
Date: 6/16/2023

LaBella
Powered by partnership.
300 State Street
Rochester, New York 14614
ph: 585-454-6110
www.labellapc.com

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

STRUCTURE:	Retaining Wall #8 (RT) along 33WB between Best St and Dodge St
STRUCTURE TYPE:	Reinforced Concrete Cantilever Wall on Piles (Panels 1A-3C) Reinforced Concrete Cantilever Buttressed Wall on Spread Footings (Panels 4A-4B) Reinforced Concrete Cantilever Wall on Spread Footings (Panels (5A-7C) Year Built: 1970
CURRENT INSPECTION:	05/01/23 – 5/09/23 (LaBella Inspections)
LAST KNOWN INSPECTION:	Unknown
CONDITION STATE.	GOOD

RETAINING WALL INSPECTION & DOCUMENTATION:

Inspection of the retaining walls will be in conformance with the NYSDOT Retaining Wall Inventory and Inspection Program Manual, October 2018. Inspection of the following elements will be inspected and documented as appropriate:

- Inspection:

The following procedure will be followed for the inspection of retaining walls:

- Walls were checked for signs of settlement, rotation, or bulging. Walls faces were checked for vertical alignment using a smart level. The walls being evaluated are vertical with no batter.
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- Examined the wall for deterioration of the material, such as cracking, spalling, and/or corrosion, noting the width, length, depth, and/or orientation of the deterioration. Photographs are provided, documenting defects found.
- Wall façades were reviewed for evidence of water seepage, efflorescence, or rust staining.
- Examined the base of walls for evidence of water flow where the water table may be within the retained earth.
- Examined and probed drains for signs of clogging. Examined drainage around ends of wall and note if embankments have been experiencing erosion.
- Examined site grading for any locations that may prohibit proper drainage from behind the wall looking for evidence of ponding above the wall, such as debris accumulation in the lower spots.
- Ascertain why water is not draining properly and note in the inspection.
- Inspected roadway components above wall for signs or joint separation, potholes, and areas of settlement.
- Examined vegetation growth along and above the wall for root infiltration creating undesirable stresses on the wall. Documented any induce cracking, bulging or failure.
- Examined the wall system for vehicular damage and document the location and degree of damage.

PIN 5512.52 Kensington Expressway
Retaining Wall #8 (RT) along 33WB between Best St and Dodge St

GENERAL OBSERVATIONS:

1. Retaining Wall Panels are generally 30 ft in length with a 9” coping under the barrier and horizontal chamfered panels spaced 3’-0” vertically. There is some variation in panel length due to the location of bridges within the corridor. For specific panel lengths see the DOCUMENTION Section of this report.

2. The subject retaining wall was found to be in GOOD-FAIR condition with some minor cracking, small areas of rust staining, and small isolated spalls. For specific conditions found and photographs of the wall panels, see the DOCUMENTION Section of this report.

3. The rail coping was found to be in FAIR condition with minor map cracking. For specific conditions found, photographs of the of wall panels, and condition calculations see the attached sections of this report.

General:	
DEFECT	DESCRIPTION
Misalignment	None noted.
Settlement	None noted.
Sinkhole (cavity) Formation	None noted.

Concrete Cracks:	
DEFECT	DESCRIPTION
Insignificant Cracks (cracks < 0.012 inches wide)	Most panels have minor cracking on the bottom 2’ to 6’.
Map cracks	A few panels have map cracking on the bottom 3’ to 9’. Minor map cracking is present on the coping.
Moderate Cracks (0.012 - 0.05 inches wide)	Panels 4A.1 and 4A.2 both have a full-height crack near the joint between them. Panel 1A has a full depth longitudinal crack under the coping.
Wide Cracks (cracks > 0.05 inches wide)	None noted.

Additional Concrete Distress:	
DEFECT	DESCRIPTION
Spalling / Delamination	Some panels have small spalls on the top edge of the top panel. Panel 5B has small spalls between a few of the lower chamfer lines.
Staining	Some of the panels have rust staining at vertical rebar locations in between some panel chamfers.
Exposed Rebar	None noted.

Notes:

RW 8 consists of 20 panels numbered from 1A (South) to 7C (North). Panel 4A is split into two sections (4A.1 and 4A.2). The retaining wall supports Linden Park above State Route 33 (Kensington Expressway).

Located along the off-ramp shoulder from W.B. Kensington to Best St (Approximately 544 ft. long, 21.5 ft. maximum exposed height). The west abutment of Dodge St Bridge is not included as part of retaining wall 8.

INVENTORY, INSPECTION, AND DATA COLLECTION

Element	Total Qty	Units	Condition State			
			1	2	3	4
			GOOD	*FAIR*	*POOR*	*SEVERE*
RW.01 - Entire Wall	1	Each	0.91	0.09		
RW.02 - Wall Facing	7831	SF	7006	805	20	
RW.03 - Ground Surface, Front	544	FT	544			
RW.04 - Ground Surface, Back	544	FT	544			
RW.05 - Weep Holes	N/A	Each	---	---	---	---
800 - Scour	N/A	FT	---	---	---	---

PIN 5512.52 Kensington Expressway
Retaining Wall #8 (RT) along 33WB between Best St and Dodge St

INSPECTION RESULTS/ RECOMMENDATIONS

- **Overall Condition State Recommendation:** 1 – GOOD

- PROJECT DOCUMENTATION CAN BE FOUND IN THE ATTACHED SECTIONS

Inspection Photos

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #8 (RT) along 33WB between Best St and Dodge St

PHOTO 1

PANEL 7C

Description:

Left of Dodge St bridge west abutment.

Minor map cracking on bottom two panels and coping. Cracking on coping is similar for most of RW8.

Rust staining present at vertical rebar location in between most panel chamfers.

PHOTO 2

PANEL 7A

Description:

Rust staining present at vertical rebar locations in between some panel chamfers. Similar for Panel 7B and 6B.

There is a small repaired area 6.5' high with a 6' vertical crack above.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #8 (RT) along 33WB between Best St and Dodge St

PHOTO 3

PANEL 6A

Description:

Minor cracking on bottom two panels and coping. Similar for 6B and 5C.

One of the repaired areas is cracking.

PHOTO 4

PANEL 5B

Description:

Rust staining present at vertical rebar locations in between most panel chamfers.

There are several small spalls at the chamfers between panels 2 and 3 and 3 and 4 from the bottom.

Minor cracking on bottom two panels and coping, typical.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #8 (RT) along 33WB between Best St and Dodge St

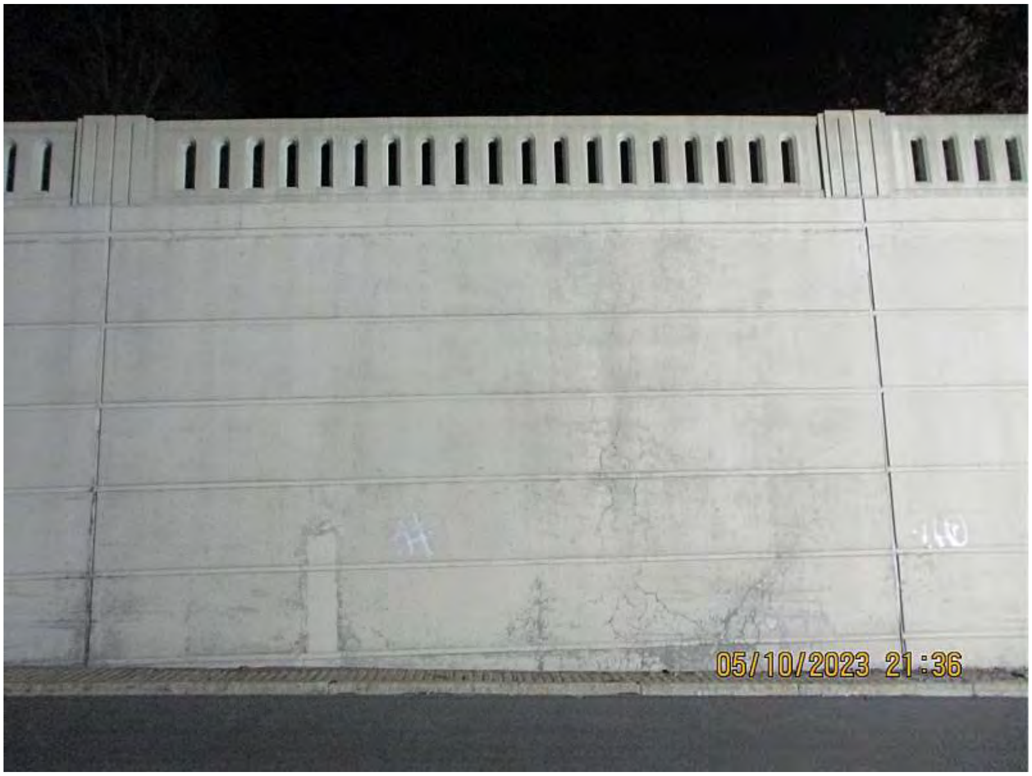


PHOTO 5

PANEL 4B

Description:

Map cracking for full height on the right half of the panel and 6' high on left half of the panel.

Minor cracking on coping, typical.

The top panel has areas of spalling on the edge below the coping.

PHOTO 6

PANEL 4A.2

Description:

Map cracking bottom 2 panels.
Minor cracking on coping, typical.

There is a full-height vertical crack near the left joint of the panel.
There is a 6' vertical crack above the repaired area near midspan.

The top panel has areas of spalling on the edge below the coping.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #8 (RT) along 33WB between Best St and Dodge St

PHOTO 7

PANEL 4A.1

Description:

Map cracking on bottom panel. Minor cracking on coping, typical.

Above the repaired area near the right joint, there is a 9' vertical crack that extends to the coping.

The top panel has areas of spalling on the edge below the coping.

PHOTO 8

PANEL 3B

Description:

Minor cracking on coping, typical.

The top panel has areas of spalling on the edge below the coping.

There is map cracking on the top 2 panels for 1.5' from each joint.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #8 (RT) along 33WB between Best St and Dodge St

PHOTO 9

PANEL 2C

Description:

Minor cracking on coping, typical.

Isolated map cracking near bottom of left joint. Continues onto Panel 2B.

PHOTO 10

PANEL 2A

Description:

Minor cracking on coping, typical.

Scattered vertical crack throughout.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #8 (RT) along 33WB between Best St and Dodge St

PHOTO 11

PANEL 1A

Description:

End of RW8.

Minor cracking on coping, typical.

Rust staining present at vertical rebar locations in lower chamfer.

PHOTO 12

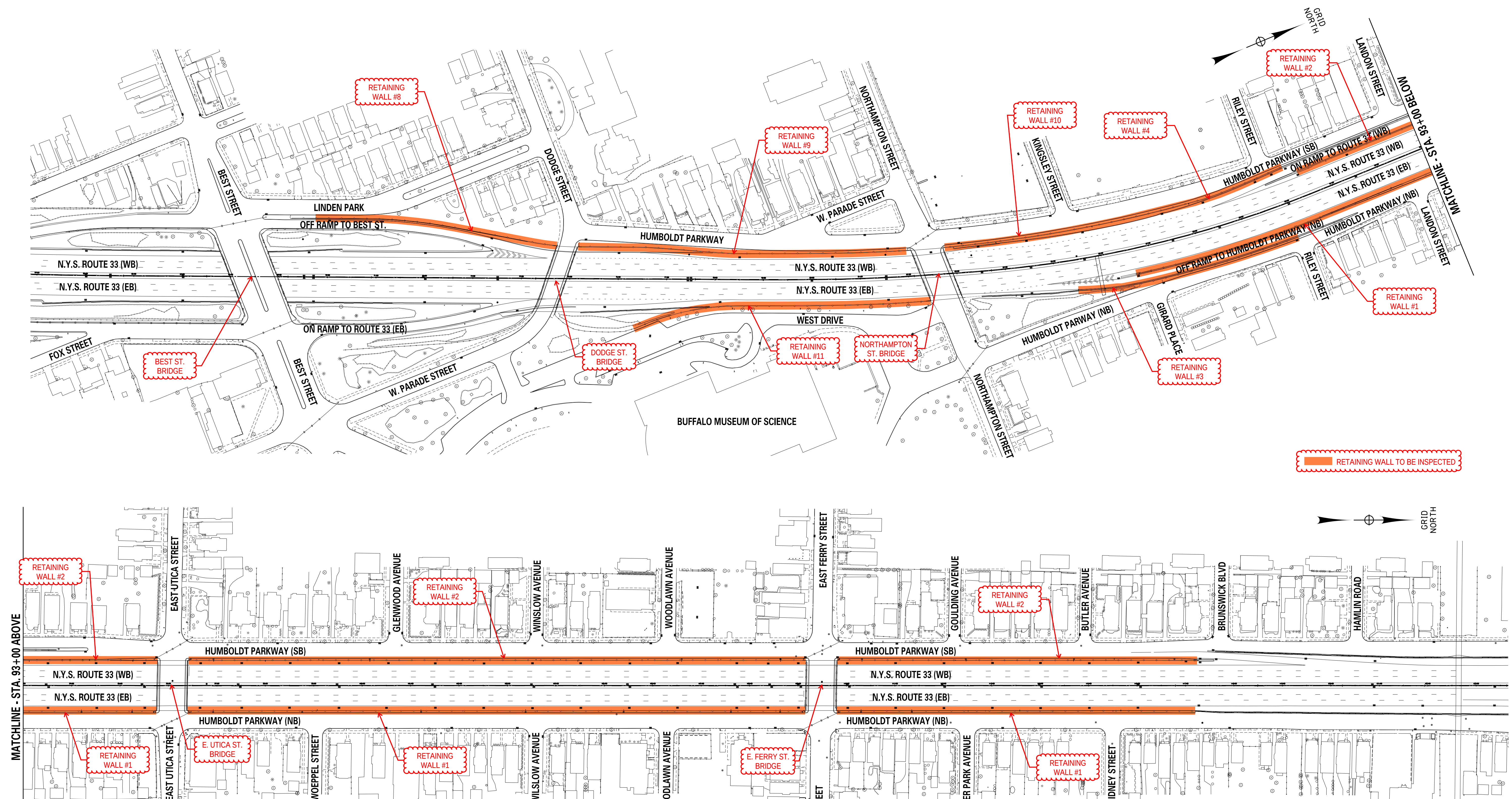
PANEL 1A (END)

Description:

Full depth longitudinal crack right below coping for full length of panel.

Fill behind wall is in good condition.

Field Sheets



100 0 100 200 300 400

1" = 200'

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS
DESCRIPTION OF ALTERATIONS:

STATE ROUTE 33
KENSINGTON EXPRESSWAY
CITY OF BUFFALO
COUNTY: ERIE REGION: 5

PIN 5512.52

BRIDGES

CULVERTS

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

KENSINGTON EXPRESSWAY
RETAINING WALL LOCATION PLAN

CONTRACT NUMBER

DRAWING NO. 1

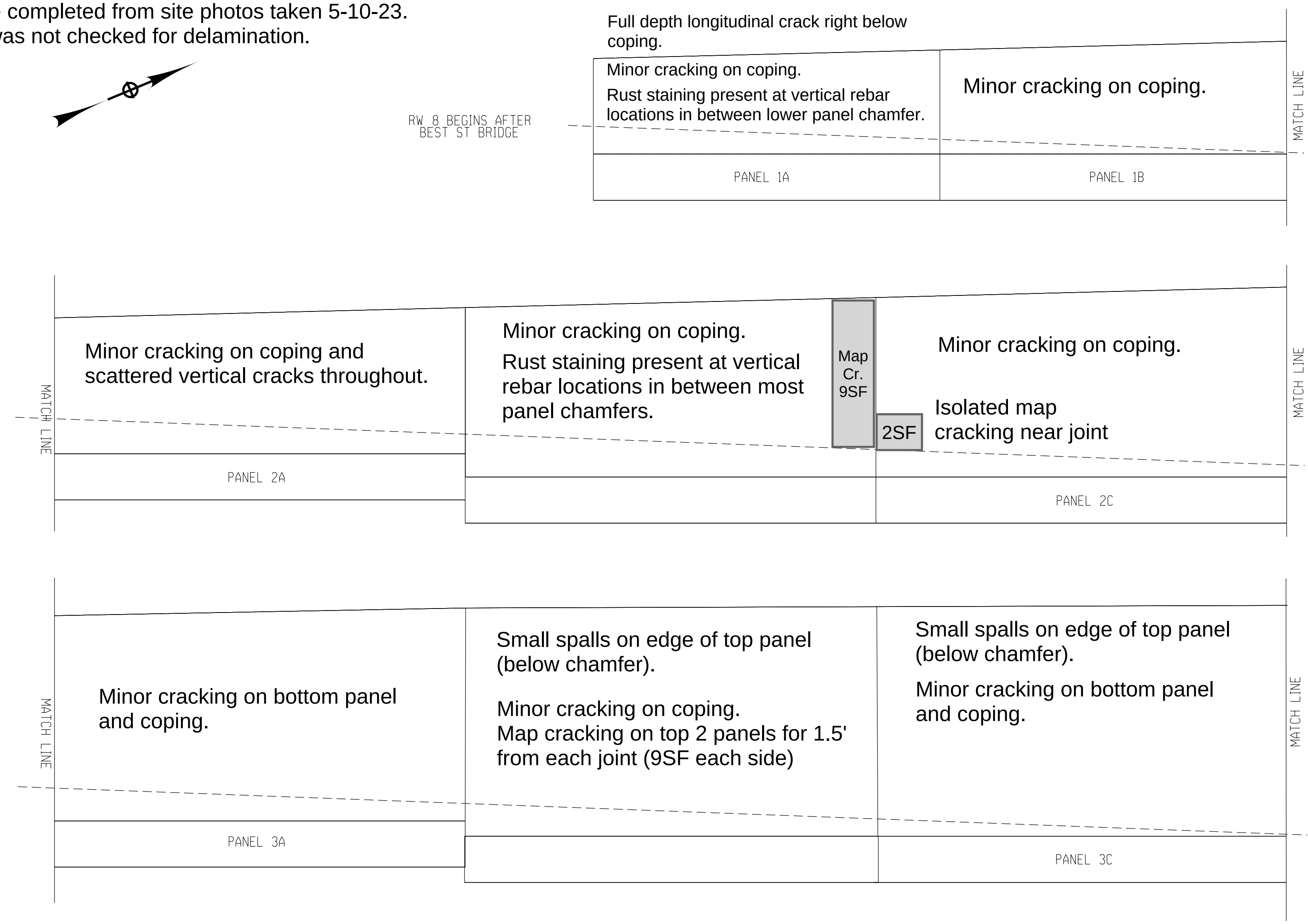
SHEET NO.

LaBella Powered by partnership.
NEW YORK STATE OF OPPORTUNITY. Department of Transportation

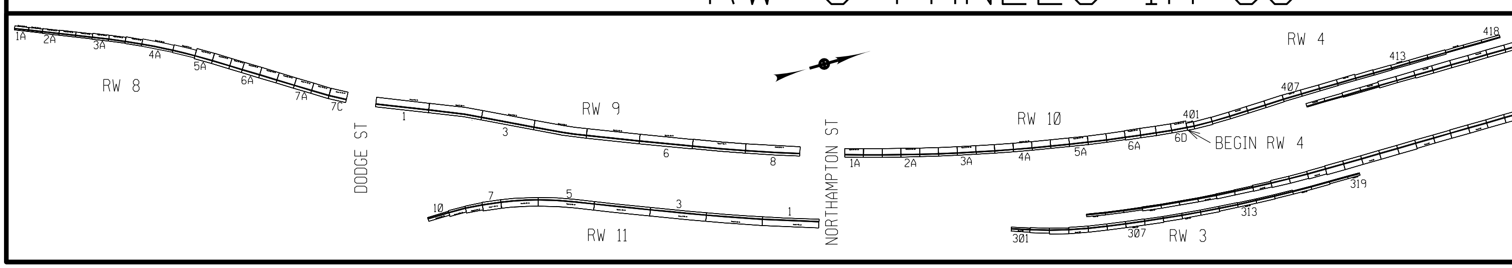
PROJECT MANAGER
CHECK
DRAFTING
CHECK
DESIGN
JOB MANAGER
DESIGN SUPERVISOR

FILE NAME = ØØcashlab\pØ\NYSDOT\2150716.01 Kensington Preliminary Design\Drawings\Highway\Planset\2Ø551252_cph_pln_AltA.dgn
DATE = 2/7/2023
TIME = 12:56:26 PM

Due to limitation with road closures, field sheets for RW8 were completed from site photos taken 5-10-23. The wall was not checked for delamination.



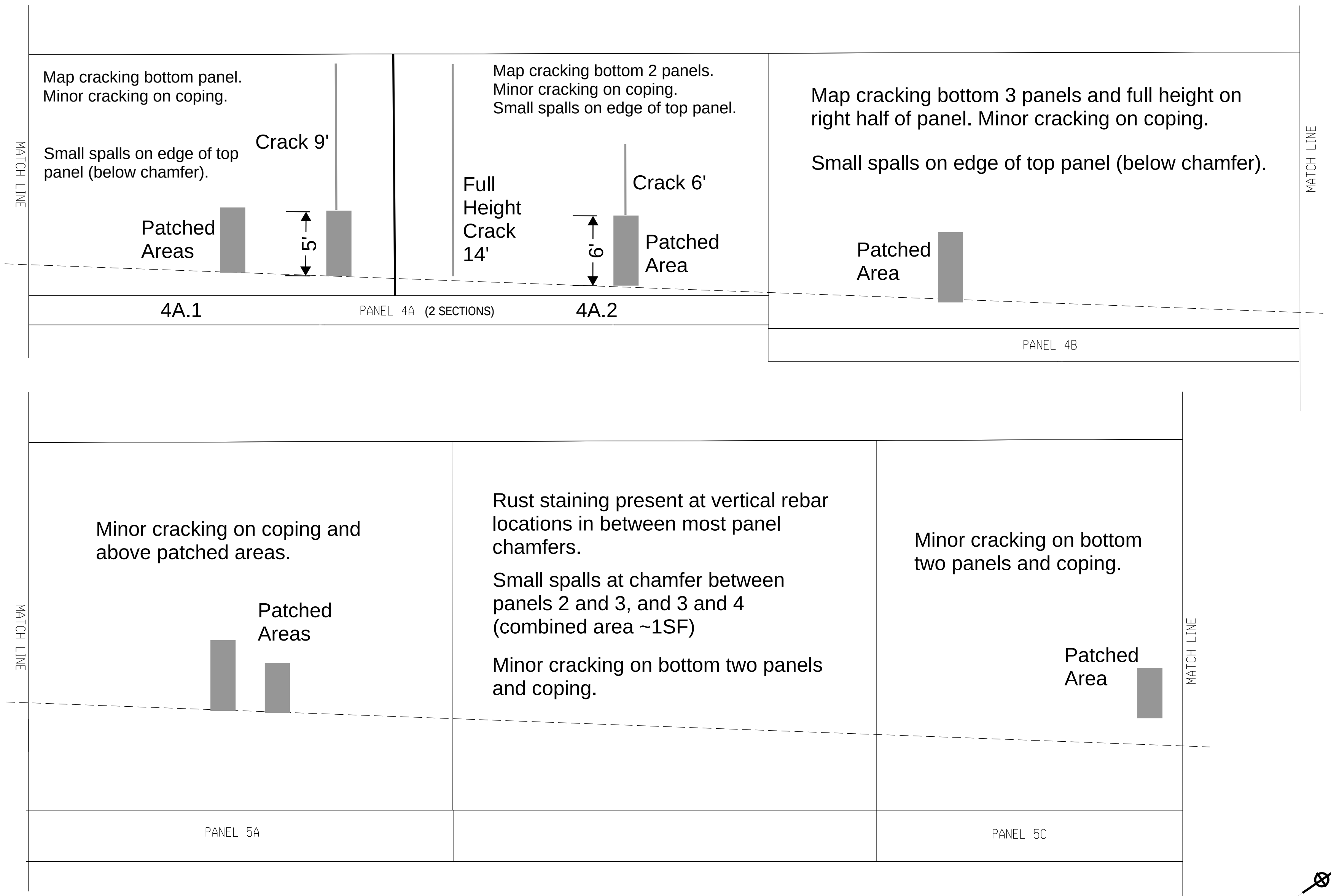
RW 8 PANELS 1A-3C



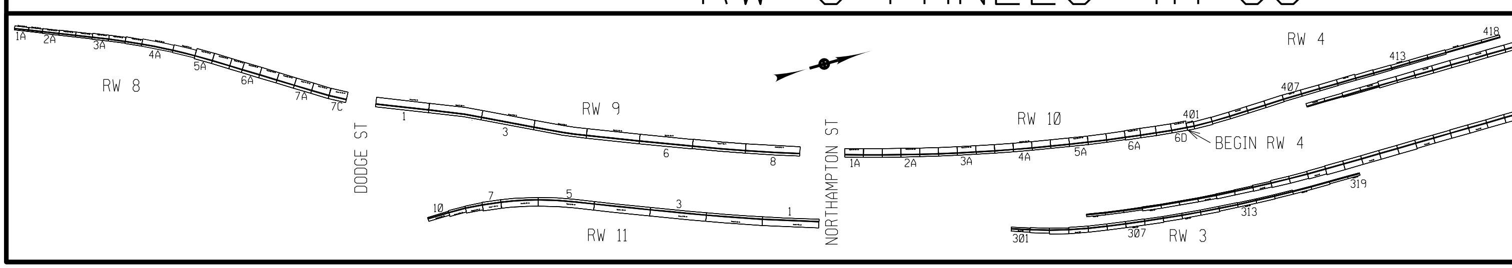
BY: RIM

DATE: 5-24-2023

SCALE: 1" = 10'



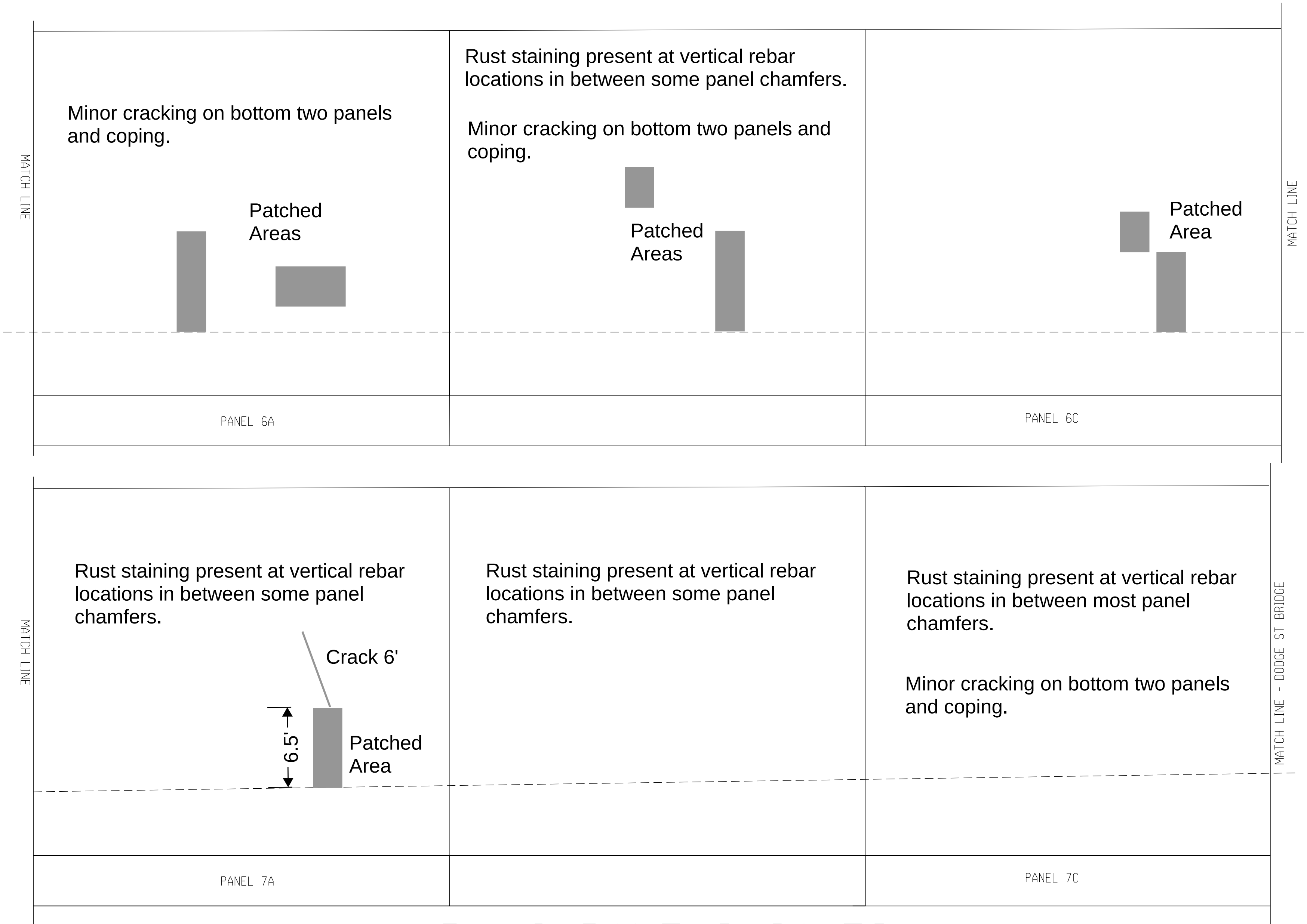
RW 8 PANELS 4A-5C



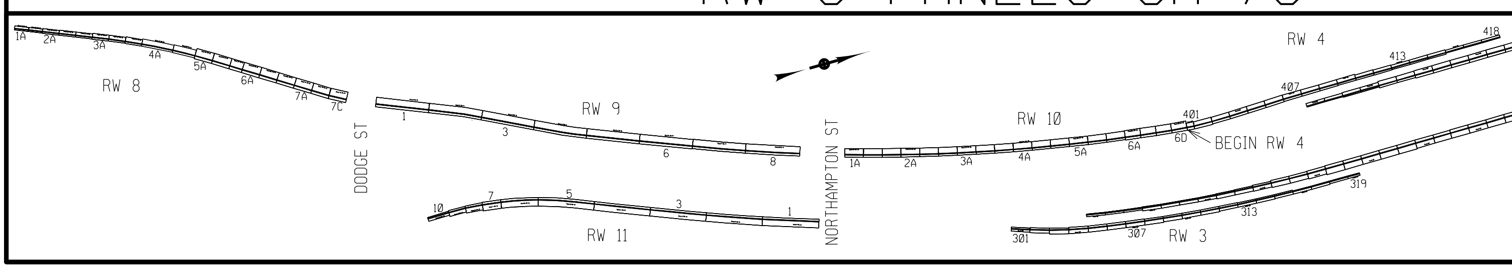
BY: RIM

DATE: 5-24-2023

SCALE: 1" = 10'



RW 8 PANELS 6A-7C



BY: RIM

DATE: 5-24-2023

SCALE: 1" = 10'

Retaining Wall Coping Inspection 5/30/2023

Retaining Wall 8

Northampton to Dodge:
- Typical stress cracking in balustrade railing

Calculations

LaBella
Powered by partnership.
300 State Street, Suite 201 • Rochester, NY 14614
Phone 585.454.6110 • Fax 585.454.3066
www.labellapc.com

PROJECT	Kensington Inspections				
PIN	5512.52	CALC. BY	RIM	DATE	5/26/2023

Condition Estimates

- Retaining Wall 8
  - Condition 2 - map cracks, stains, isolated delam, minor cracks
  - Condition 3 - spalls, widespread delam, major cracks
  - Areas with multiple forms of deteroration were measured under only one category. Condition 3 categories were prioritized over condition 2.

Panel	Minor/Map Crack (sf)	Major Cracks (ft)	Spalls (sf)	Delam (sf)	Other (staining, efflor., etc.)
1A		15			1
1B					
2A	25				
2B	9				1
2C	2				
3A	12				
3B	18		0.5		
3C	18		0.5		
4A.1	30	9	0.5		
4A.2	95.5	9	0.5		
4B	330		0.5		
5A	4				
5B	45		1		6.67
5C	36				
6A	24				
6B	27				1
6C					
7A	3				1
7B					1
7C	36				10
Coping	68.1				
Total (sf):	782.60	16.50 (sf)	3.50	0.00	21.67

COND 2	COND 3
805	20

Wall Inventory Sheet

RW 8

INVENTORY, INSPECTION, AND DATA COLLECTION

PRIMARY OWNER	NYSDOT - New York State Department of Transportation
REGION	05-Region 05 - Buffalo
COUNTY	3-County 3 - Erie
RESIDENCY	534 - Erie North Residency
NYS ROUTE	Rte. 33
REFERENCE MARKER	53011027
LONGITUDE	78.84522
LATITUDE	42.90542
ADDITIONAL LOCATION DESCRIPTION	Located along the off-ramp shoulder from W.B. Kensington to Best Street (approximately 544 ft. long, 21.5 ft. maximum exposed height).
TYPE OF SERVICE PROVIDED	Support/Protect a Roadway
WALL TYPE	Cantilever - Concrete
LEGACY RETAINING WALL TYPE	
WALL FACING TYPE	Cast - in -Place Concrete
WALL BACKFILL REINFORCEMENT TYPE	N/A
ADDITIONAL WALL DESCRIPTION	
WALL LENGTH	544 Ft
WALL MAXIMUM HEIGHT	21.5 Ft
WALL AREA	11960 SF
YEAR BUILT	1960
CONTRACT NUMBER	FAC 59-19
AADT	82,171
QC REVIEWER	
QC APPROVED DATE	
SITE ACCESS NOTES	With WZTC in place to close the adjacent shoulder and travel lane, access was performed by walking and extension ladder.
INSPECTION FREQUENCY	
LAST INSPECTION STATUS	
INSTRUMENTED	N/A
MONITORED BY	----
INSTRUMENTATION COMMENT	----
CONSEQUENCE OF FAILURE	3-Major
WALL POSITION	Above Road
GENERAL NOTES	
RETAINING WALL DATABASE ID	
NUMBER OF ERRORS AND WARNINGS	
USER UPDATE	
SUBMISSION DATE	
DATE UPDATE	

WALL INSPECTION LOCATION INFORMATION & NOTES

NY33 RETAINING WALL CONDITION EVALUATION 2023
KENSINGSTON EXPRESSWAY PROJECT
PIN 5512.52
CITY OF BUFFALO, ERIE COUNTY
RETAINING WALL 9

Prepared By:

Merton J. Edwards, PE (NYSPE 064981)
Inspection Team Leader | Sr. Structural Engineer
Date: 5/30/2023

Reviewed By:

Stephen L. Gauthier, PE (NYSPE 0075775)
Quality Control Engineer | Sr. Structural Engineer
Date: 6/16/2023

LaBella
Powered by partnership.
300 State Street
Rochester, New York 14614
ph: 585-454-6110
www.labellapc.com

PIN5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

STRUCTURE: Retaining Wall #9 (RT) along 33WB between Dodge St and Northampton St

STRUCTURE TYPE: Reinforced Concrete Cantilever Buttressed Wall on Spread Footings (Panels 1-6)
Reinforced Concrete Cantilever Wall on Piles (Panels 7-8)
Year Built: 1970

CURRENT INSPECTION: 05/01/23 – 5/09/23 (LaBella Inspections)

LAST KNOWN INSPECTION: Unknown

CONDITION STATE. FAIR

RETAINING WALL INSPECTION & DOCUMENTATION:

Inspection of the retaining walls will be in conformance with the NYSDOT Retaining Wall Inventory and Inspection Program Manual, October 2018. Inspection of the following elements will be inspected and documented as appropriate:

- Inspection:

The following procedure will be followed for the inspection of retaining walls:

- Walls were checked for signs of settlement, rotation, or bulging. Walls faces were checked for vertical alignment using a smart level. The walls being evaluated are vertical with no batter.
- Construction joints between sections of the wall were examined for misalignment, and near the ground line for fill material washing out from between panels or joint.
- Walls were inspected for erosion material in front of the wall, for heaving of material in front of the wall, and for settlement of fill behind the wall.
- Examined the wall for deterioration of the material, such as cracking, spalling, and/or corrosion, noting the width, length, depth, and/or orientation of the deterioration. Photographs are provided, documenting defects found.
- Wall façades were reviewed for evidence of water seepage, efflorescence, or rust staining.
- Examined the base of walls for evidence of water flow where the water table may be within the retained earth.
- Examined and probed drains for signs of clogging. Examined drainage around ends of wall and note if embankments have been experiencing erosion.
- Examined site grading for any locations that may prohibit proper drainage from behind the wall looking for evidence of ponding above the wall, such as debris accumulation in the lower spots.
- Ascertain why water is not draining properly and note in the inspection.
- Inspected roadway components above wall for signs or joint separation, potholes, and areas of settlement.
- Examined vegetation growth along and above the wall for root infiltration creating undesirable stresses on the wall. Documented any induce cracking, bulging or failure.
- Examined the wall system for vehicular damage and document the location and degree of damage.

PIN 5512.52 Kensington Expressway
Retaining Wall #9 (RT) along 33WB between Dodge St and West Parade Street

GENERAL OBSERVATIONS:

1. Retaining Wall Panels are generally 30 ft in length with horizontal chamfered panels spaced 3'-0" vertically, from the top of the wall. There is some variation in panel length due to the location of bridges within the corridor. For specific panel lengths see the DOCUMENTION Section of this report.

2. The lower 6-12 ft of the subject retaining wall was found to be in FAIR-POOR condition with extensive map cracking, dampness, isolated efflorescence, spalls, and small areas of delamination. For specific conditions found and photographs of the wall panels, see the DOCUMENTION Section of this report.

3. The upper portions of theses wall panels were generally found to be in GOOD-FAIR condition with the exception of a few locations. Staining was found on the top panel. About half of the panels were found to have map cracking near either side of each joint for the full height of the panel. For specific conditions found and photographs of the wall panels, see the DOCUMENTION Section of this report.

4. The panels were found to have several full-height or mid-height vertical cracks. For specific conditions found, photographs of the of wall panels, and condition calculations see the attached sections of this report.

General:

DEFECT	DESCRIPTION
Misalignment	None noted.
Settlement	None noted.
Sinkhole (cavity) Formation	None noted.

Concrete Cracks:

DEFECT	DESCRIPTION
Insignificant Cracks (cracks < 0.012 inches wide)	Almost all panels have several vertical cracks on the bottom half of the panel.
Map cracks	Map cracking is present on the bottom 3'-9' of the panels. About half the panels also have map cracking near either side of each joint for the full height of the panel.
Moderate Cracks (0.012 - 0.05 inches wide)	Most panels have at least one mid- to full-height moderate crack.
Wide Cracks (cracks > 0.05 inches wide)	None noted.

Additional Concrete Distress:	
DEFECT	DESCRIPTION
Spalling / Delamination	There are 1’ to 2’ wide spalls present on the panels in group 5. Panels 1.1 and 1.2 have smaller (3”x3”) spalls, 6’ above the ground. Some panels have isolated areas of delamination, typically in the lower half of the panel. Panel 7.3 has widespread delamination in the bottom 9’.
Staining	A few isolated areas of rust staining are present. There is efflorescence staining on the top panel as well as in some of the vertical cracks.
Exposed Rebar	None noted.

Notes:
RW 9 consists of 24 panels grouped into sets of 3 and numbered from 1 (South-West) to 8 (North-East) on record plans. For the inspections, panels were numbered as 1.1, 1.2, and 1.3 for group one, and so on. The retaining wall supports the S.B. Humboldt Parkway above State Route 33. Located along the W.B. mainline right shoulder between Dodge and Northampton Streets (Approximately 683 ft. long, 22 ft. maximum exposed height). The west abutments for Dodge and Northampton Street Bridges are not considered as part of RW 9.

INVENTORY, INSPECTION, AND DATA COLLECTION

Element	Total Qty	Units	Condition State			
			1	2	3	4
			GOOD	*FAIR*	*POOR*	*SEVERE*
RW.01 - Entire Wall	1	Each	0.69	0.28	0.03	
RW.02 - Wall Facing	13968	SF	9369	4288	516	
RW.03 - Ground Surface, Front	683	FT	683			
RW.04 - Ground Surface, Back	683	FT	683			
RW.05 - Weep Holes	N/A	Each	---	---	---	---
800 - Scour	N/A	FT	---	---	---	---

PIN 5512.52 Kensington Expressway
Retaining Wall #9 (RT) along 33WB between Dodge St and West Parade Street

INSPECTION RESULTS/ RECOMMENDATIONS

- **Overall Condition State Recommendation: 2 – FAIR**
- PROJECT DOCUMENTATION CAN BE FOUND IN THE ATTACHED SECTIONS

Inspection Photos

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #9 (RT) along 33WB between Dodge St and Northampton St

PHOTO 1

PANEL 8.3

Description:

End RW9. Right of Northampton St bridge west abutment.

Staining on top panel is typical for all panels.

Scattered vertical cracks on the bottom three panels.

Map cracking is present in the top 5 panels near the left joint for 3'.

There is a 16' vertical crack at midspan of the panel.

PHOTO 2

PANEL 8.2

Description:

Staining on top panel is typical for all panels.

Scattered map cracking on the bottom three panels.

Map cracking is present for 3' to 5' from the right joint for the full height. Also, for 3' from the left joint for the top three panels.

There is a 13' vertical crack at midspan of the panel.

Panels 8.1 and 7.2 are similar with smaller areas of map cracking.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #9 (RT) along 33WB between Dodge St and Northampton St

PHOTO 3

PANEL 7.3

Description:

Staining on top panel is typical for all panels.

There is map cracking and 70% delamination on the bottom three panels. Map cracking reaches higher near the joints - 5 panels near the right joint, and full height near the left joint.

PHOTO 4

PANEL 5.3

Description:

There are several long vertical / right leaning cracks. Longest is 14'. There is some map cracking near these long cracks and in bottom panel.

The 7' crack near the right joint is delaminated.

There is a 1' spall in the fifth panel from the bottom.

Panel 6.3 is similar without spalls.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #9 (RT) along 33WB between Dodge St and Northampton St

PHOTO 5

PANEL 5.2

Description:

There are two full height vertical cracks with efflorescence near midspan and several other long cracks. There is some map cracking near these long cracks and in bottom panel.

On one of the full-height cracks there is a 1' spall in the third panel from the bottom.

There are a few isolated areas of delamination.

Panel 6.2 is similar without spalls

PHOTO 6

PANEL 5.1

Description:

There are several long vertical / left leaning cracks. Longest is 14'. There is some map cracking near these long cracks and in bottom panel.

There are isolated areas of delamination.

There is a 1' spall in the fifth panel from the bottom and a 2' spall near the bottom right of the panel.

Panel 6.1 is similar without spalls.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #9 (RT) along 33WB between Dodge St and Northampton St

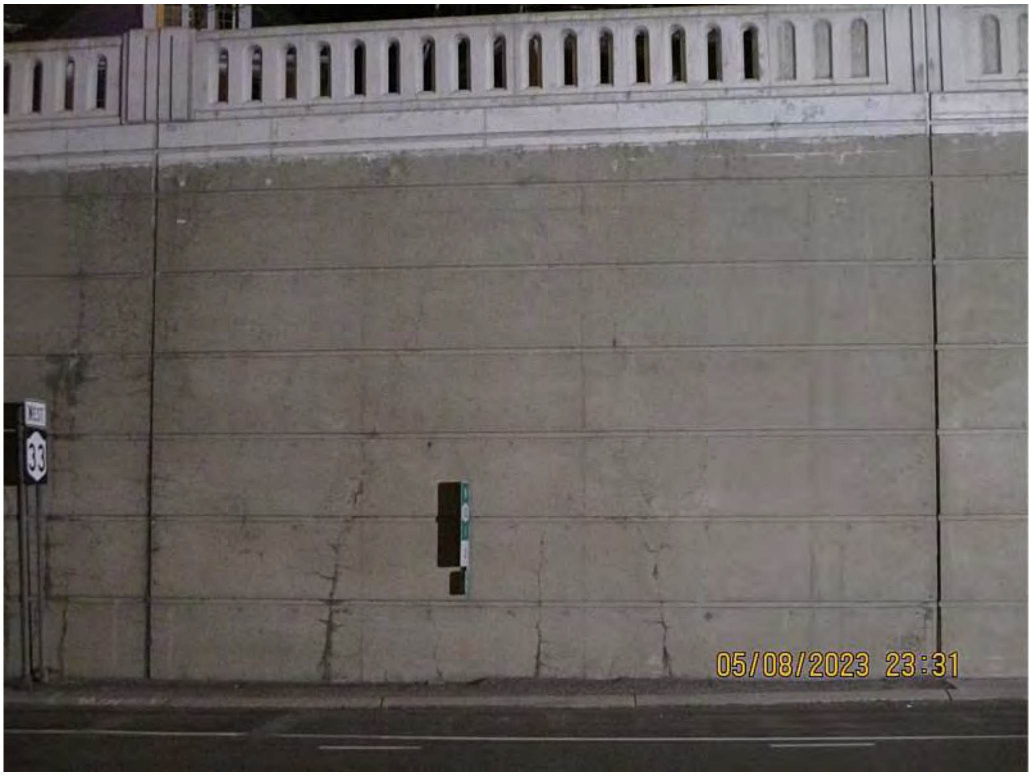


PHOTO 7

PANEL 3.3

Description:

There are several long vertical / right leaning cracks. Longest is 18'.

There is scattered map cracking in the bottom 3 panels. Map cracking extends the full height for 2' near the left joint.

Panel 4.3 is similar.

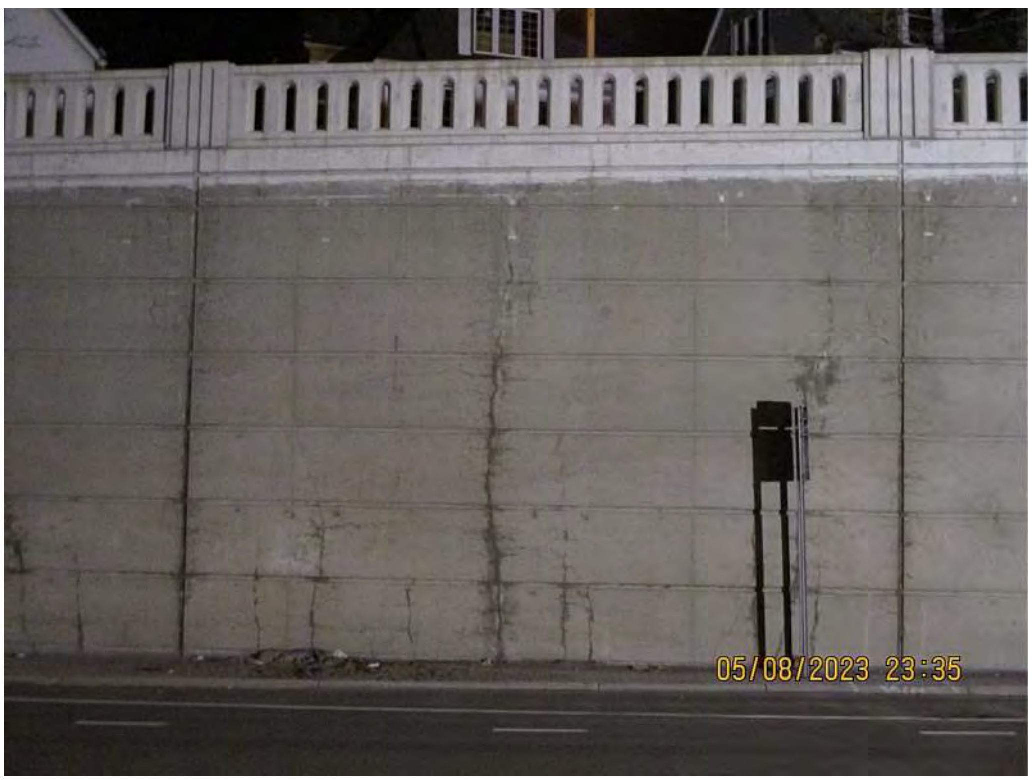


PHOTO 8

PANEL 3.2

Description:

There are two full-height vertical cracks with efflorescence, one at midspan and one near the right joint. There are several other long vertical cracks as well.

There is map cracking in the bottom 4 panels, more in the bottom 2. Map cracking extends full height near joints.

Panel 4.2 is similar.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #9 (RT) along 33WB between Dodge St and Northampton St

PHOTO 9

PANEL 3.1

Description:

There is a full-height vertical / left leaning crack with efflorescence. There are a few other long cracks as well.

The bottom 3 to 5 panels are map cracked. There is full-height map cracking for 1' to 2' from the right joint.

Panel 4.1 is similar.

PHOTO 10

PANEL 2.3

Description:

There is and 11' long vertical / right leaning crack.

There is scattered map cracking throughout. More concentrated near the left joint and long cracks.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #9 (RT) along 33WB between Dodge St and Northampton St

PHOTO 11

PANEL 2.2

Description:

There is a full-height vertical crack with efflorescence near midspan of the panel. There a few other long vertical cracks.

Map cracking bottom 4 panels. Map cracking extends full-height near joints and center of panel.

PHOTO 12

PANEL 2.1

Description:

Map cracking throughout. More concentrated near joints and on bottom 3 panels. A few more prominent vertical cracks 4' to 7' in length.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #9 (RT) along 33WB between Dodge St and Northampton St

PHOTO 13

PANEL 1.2

Description:

Full-height crack and 5' crack with efflorescence near midspan of panel.

Map cracking bottom 4 panels. Map cracking extends to full-height near left joint and full-height crack.

Small spall 6' off the ground closer to left joint.

PHOTO 14

PANEL 1.1

Description:

Begin RW9. Left of Dodge St bridge west abutment.

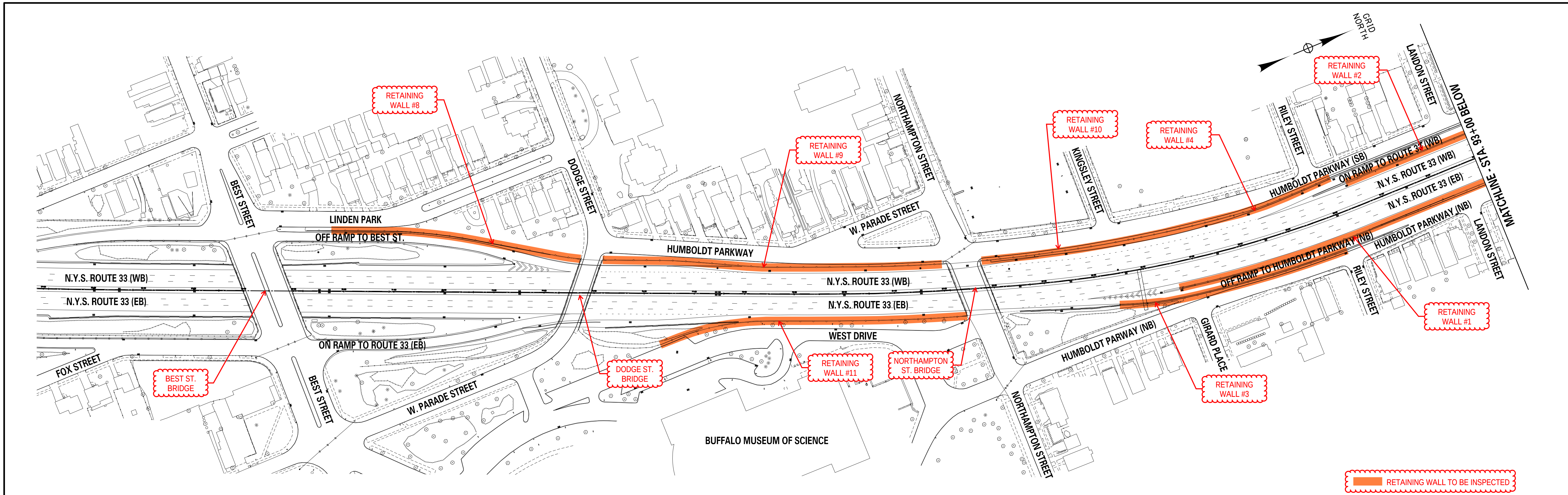
There is a 13' long vertical / left leaning crack with 2' wide delamination in the bottom panel.

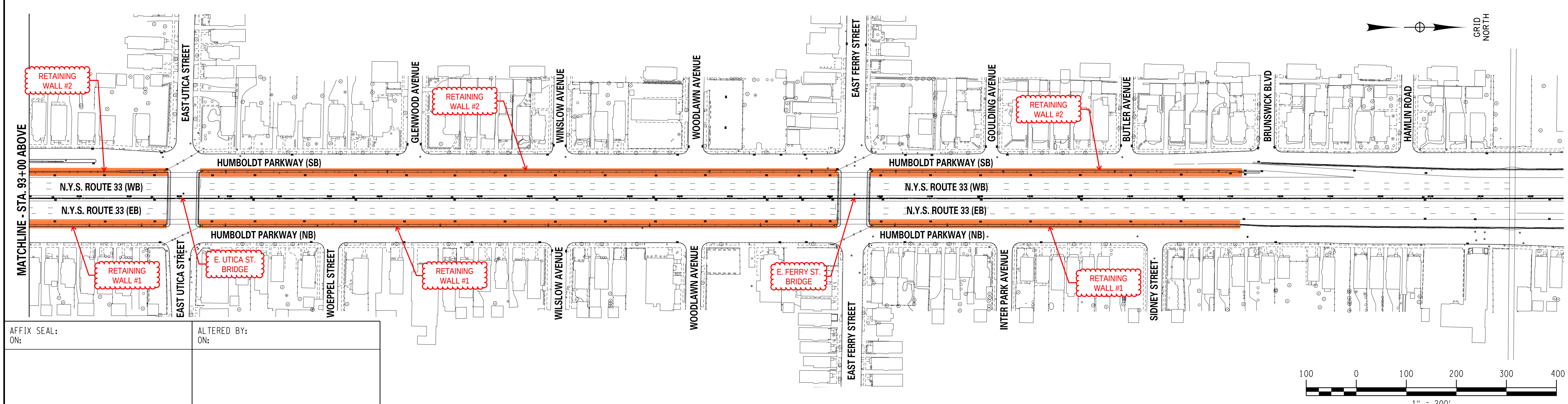
There is a 5' high isolated area of delamination near the right joint.

Map cracking bottom 4 panels.

Small spall 6' off the ground closer to left joint.

Field Sheets





AFFIX SEAL:
ON:

ALTERED BY:
ON:

AS-BUILT REVISIONS
DESCRIPTION OF ALTERATIONS:

STATE ROUTE 33
KENSINGTON EXPRESSWAY
CITY OF BUFFALO
COUNTY: ERIE REGION: 5

PIN 5512.52

BRIDGES

CULVERTS

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

KENSINGTON EXPRESSWAY
RETAINING WALL LOCATION PLAN

CONTRACT NUMBER

DRAWING NO. 1
SHEET NO.

LaBella Powered by partnership.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

PROJECT MANAGER
CHECK
DRAFTING
CHECK
DESIGN
JOB MANAGER
DESIGN SUPERVISOR

FILE NAME = ∅∅cash.lab∅p∅N∅NYSDOT∅2150716.01 Kensington Preliminary Design∅Drawings∅Highway∅Planset∅2∅551252.cph.pln_Alt4.dgn
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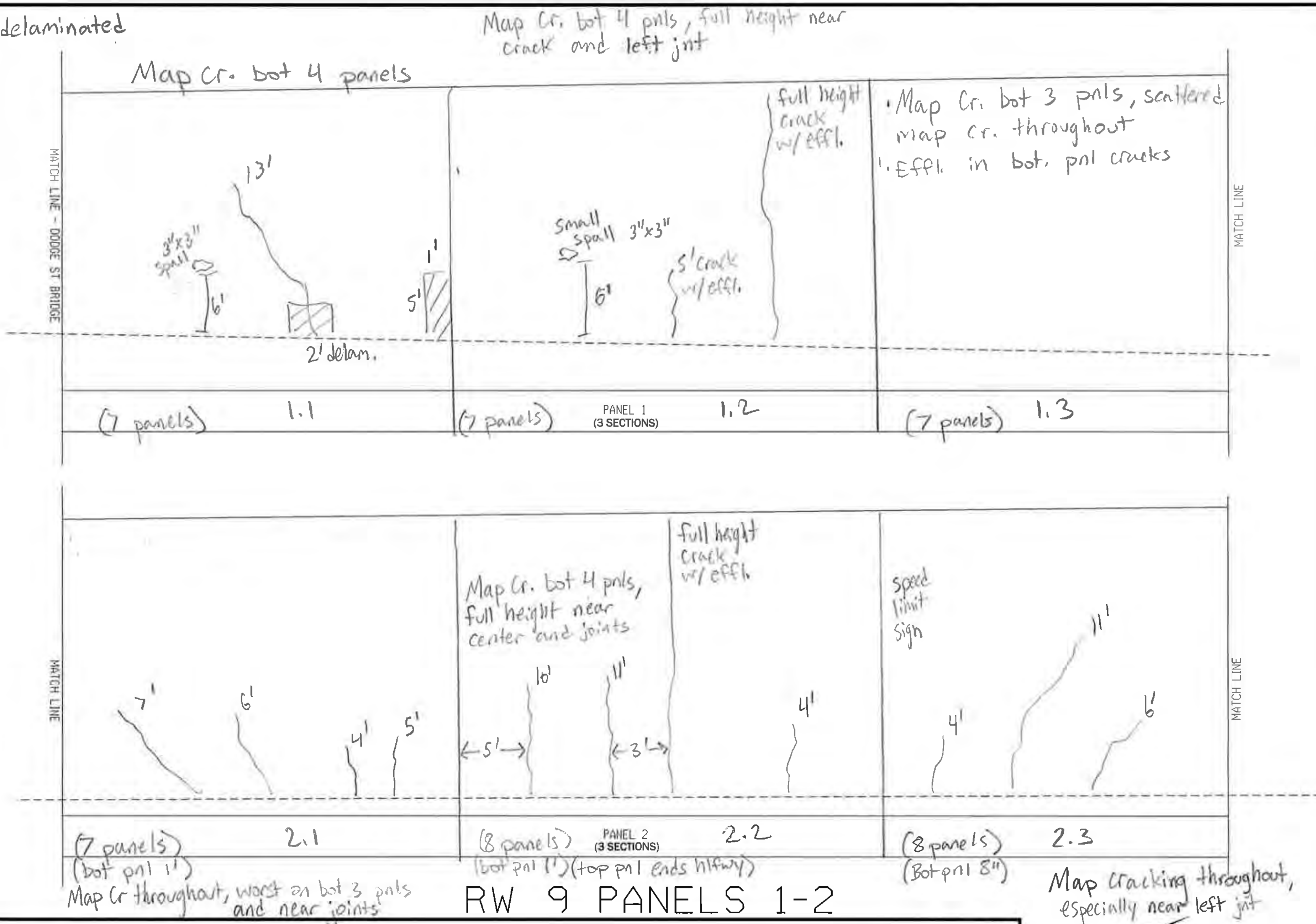
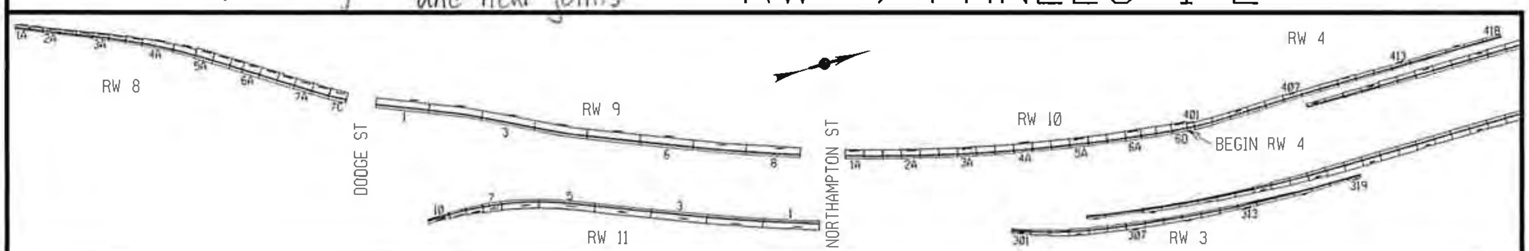
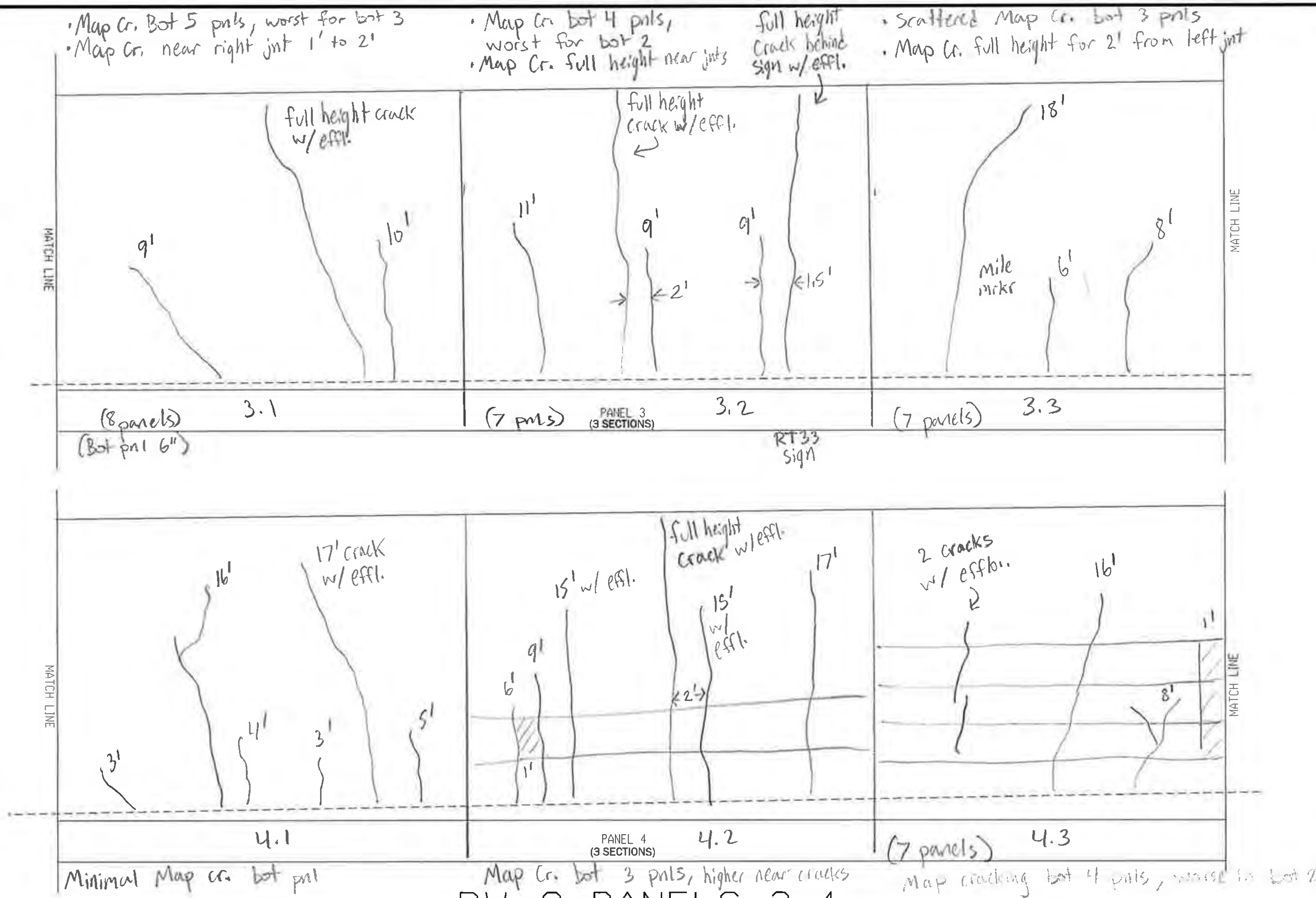




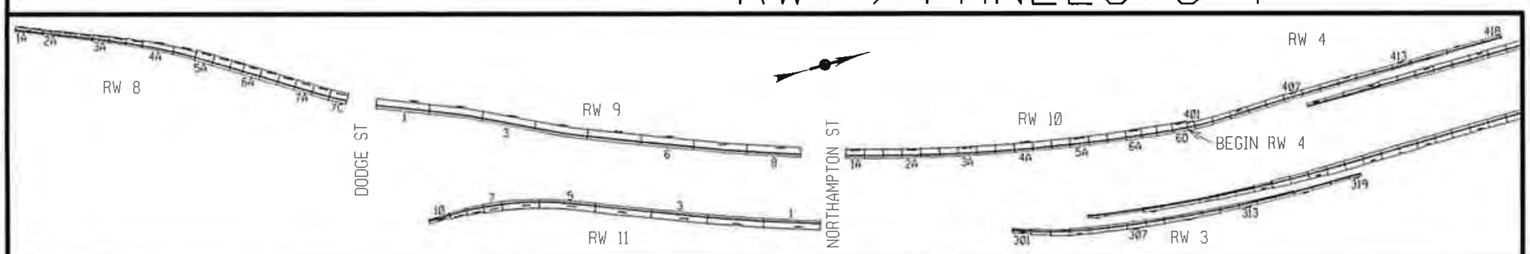
BY: RIM

DATE: 5/9/23

SCALE: 1" = 10'



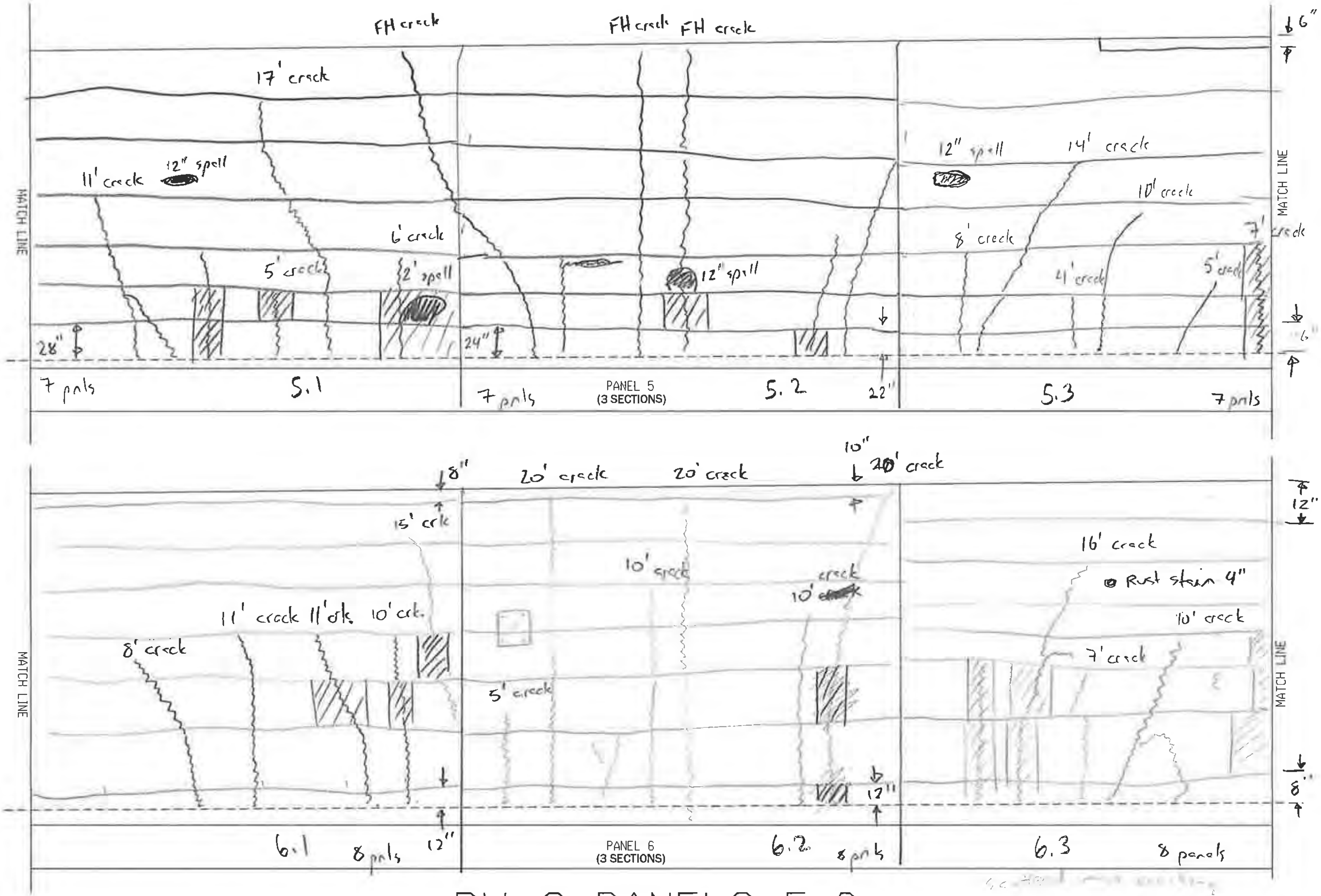
RW 9 PANELS 3-4



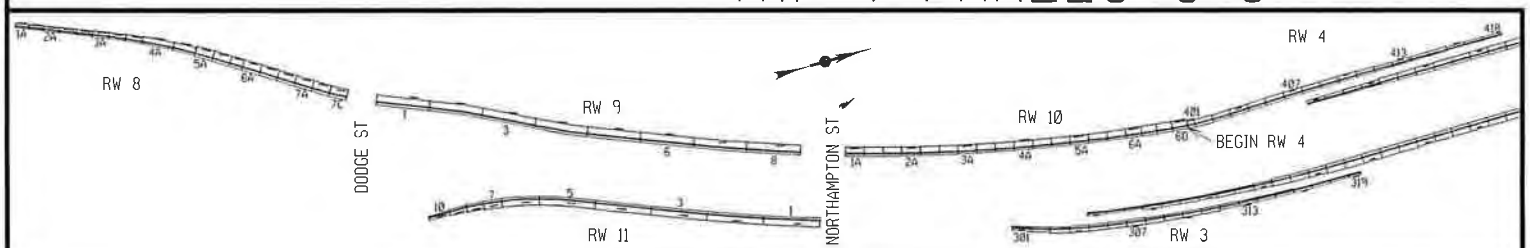
BY: RM

DATE: 5/9/23

SCALE: 1" = 10'



RW 9 PANELS 5-6

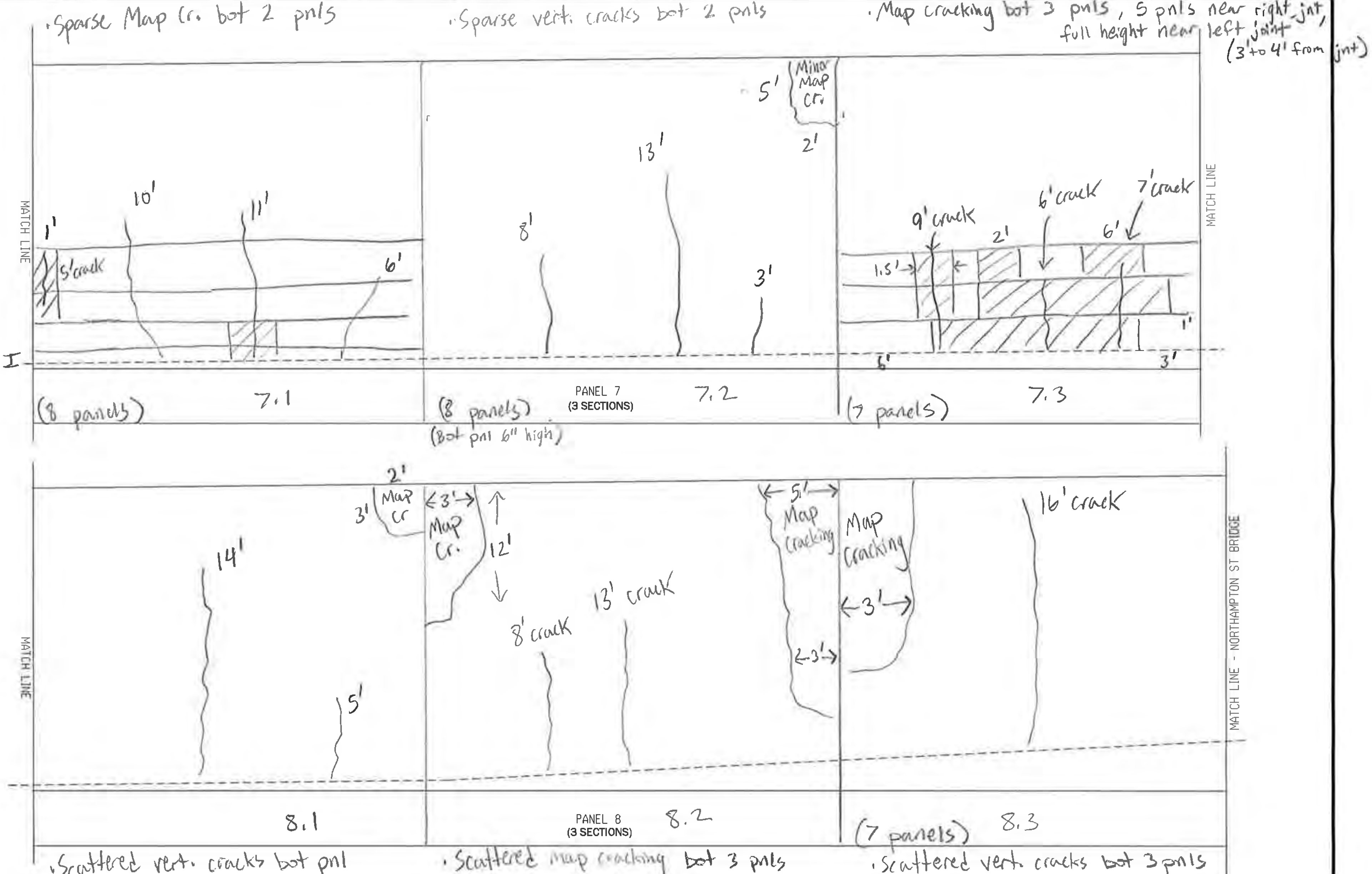


BY: CM

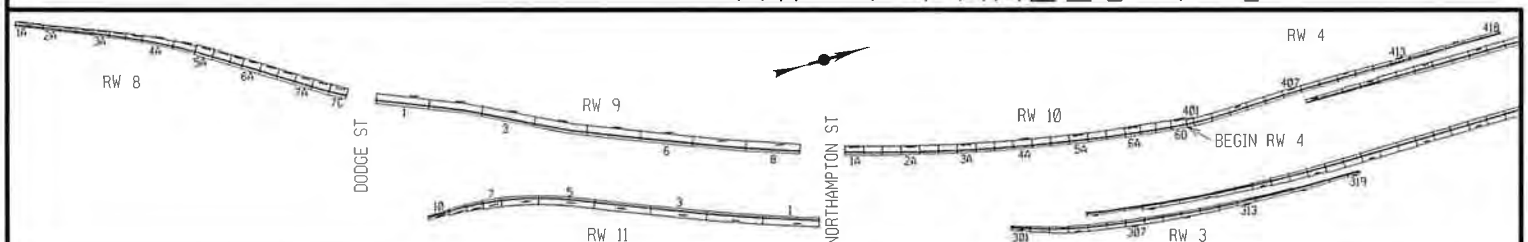
DATE: 5/9/23

SCALE: 1" = 10'

General Note: Staining on Top PNL



RW 9 PANELS 7-8



BY: RIM

DATE: 5/9/23

SCALE: 1" = 10'

Calculations

LaBella
Powered by partnership.
300 State Street, Suite 201 • Rochester, NY 14614
Phone 585.454.6110 • Fax 585.454.3066
www.labellapc.com

PROJECT	Kensington Inspections				
PIN	5512.52	CALC. BY	RIM	DATE	5/26/2023

Condition Estimates

- Retaining Wall 9
  - Condition 2 - map cracks, stains, isolated delam, minor cracks
  - Condition 3 - spalls, widespread delam, major cracks
  - Areas with multiple forms of deteroration were measured under only one category. Condition 3 categories were prioritized over condition 2.

Panel	Minor/Map Crack (sf)	Major Cracks (ft)	Spalls (sf)	Widespread Delam (sf)	Other (staining, efflor., etc.)		
1.1	228.94	13	0.06	11			
1.2	180.94	18	0.06				
1.3	198						
2.1	191						
2.2	163	19					
2.3	285						
3.1	223.5	19					
3.2	174	38					
3.3	99						
4.1	46	16					
4.2	180	45		3			
4.3	240	12		9			
5.1	225	21	3	36			
5.2	300	71	1	10			
5.3	202	32	1	7			
6.1	188	31		12			
6.2	341	60		4			
6.3	111			46			
7.1	40			14			
7.2	43						
7.3	115.5			160.5			
8.1	33.5						
8.2	154						
8.3	120.5						
General	204.9					COND 2	COND 3
Total (sf):	4287.78	197.50 (sf)	5.13	312.50	0.00	4288	516

Wall Inventory Sheet

RW 9

INVENTORY, INSPECTION, AND DATA COLLECTION

PRIMARY OWNER	NYSDOT - New York State Department of Transportation
REGION	05-Region 05 - Buffalo
COUNTY	3-County 3 - Erie
RESIDENCY	534 - Erie North Residency
NYS ROUTE	Rte. 33
REFERENCE MARKER	3353011028
LONGITUDE	78.84417
LATITUDE	42.90724
ADDITIONAL LOCATION DESCRIPTION	Located along the W.B. mainline right shoulder between Dodge and Northampton Streets and supports S.B. Humboldt Parkway (approximately 683 ft. long, 22 ft. maximum exposed height). The west abutments for the Dodge and Northampton Street Bridge Overpasses are not considered as part of RW #9.
TYPE OF SERVICE PROVIDED	Support/Protect a Roadway
WALL TYPE	Cantilever - Concrete
LEGACY RETAINING WALL TYPE	
WALL FACING TYPE	Cast - in -Place Concrete
WALL BACKFILL REINFORCEMENT TYPE	N/A
ADDITIONAL WALL DESCRIPTION	
WALL LENGTH	680 FT
WALL MAXIMUM HEIGHT	22 FT
WALL AREA	17560 SF
YEAR BUILT	1960
CONTRACT NUMBER	FAC 59-19
AADT	82,171
QC REVIEWER	
QC APPROVED DATE	
SITE ACCESS NOTES	With WZTC in place to close the adjacent shoulder and travel lane, access was performed by walking and extension ladder.
INSPECTION FREQUENCY	
LAST INSPECTION STATUS	
INSTRUMENTED	N/A
MONITORED BY	----
INSTRUMENTATION COMMENT	----
CONSEQUENCE OF FAILURE	3-Major
WALL POSITION	Between Roads
GENERAL NOTES	
RETAINING WALL DATABASE ID	
NUMBER OF ERRORS AND WARNINGS	
USER UPDATE	
SUBMISSION DATE	
DATE UPDATE	

WALL INSPECTION LOCATION INFORMATION & NOTES

NY33 RETAINING WALL CONDITION EVALUATION 2023

KENSINGSTON EXPRESSWAY PROJECT
PIN 5512.52
CITY OF BUFFALO, ERIE COUNTY
RETAINING WALL 10

Prepared By:

Merton J. Edwards, PE (NYSPE 064981)
Inspection Team Leader | Sr. Structural Engineer
Date: 5/30/2023

Reviewed By:

Stephen L. Gauthier, PE (NYSPE 0075775)
Quality Control Engineer | Sr. Structural Engineer
Date: 6/16/2023

LaBella
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300 State Street
Rochester, New York 14614
ph: 585-454-6110
www.labellapc.com

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

STRUCTURE:	Retaining Wall #10 (RT) along 33WB between Northampton St and on ramp from Humboldt Parkway to Rte 33 WB
STRUCTURE TYPE:	Reinforced Concrete Cantilever Wall on Piles Year Built: 1960
CURRENT INSPECTION:	05/01/23 – 5/09/23 (LaBella Inspections)
LAST KNOWN INSPECTION:	Unknown
CONDITION STATE.	FAIR

RETAINING WALL INSPECTION & DOCUMENTATION:

Inspection of the retaining walls will be in conformance with the NYSDOT Retaining Wall Inventory and Inspection Program Manual, October 2018. Inspection of the following elements will be inspected and documented as appropriate:

- Inspection:

The following procedure will be followed for the inspection of retaining walls:

- Walls were checked for signs of settlement, rotation, or bulging. Walls faces were checked for vertical alignment using a smart level. The walls being evaluated are vertical with no batter.
- Construction joints between sections of the wall were examined for misalignment, and near the ground line for fill material washing out from between panels or joint.
- Walls were inspected for erosion material in front of the wall, for heaving of material in front of the wall, and for settlement of fill behind the wall.
- Examined the wall for deterioration of the material, such as cracking, spalling, and/or corrosion, noting the width, length, depth, and/or orientation of the deterioration. Photographs are provided, documenting defects found.
- Wall façades were reviewed for evidence of water seepage, efflorescence, or rust staining.
- Examined the base of walls for evidence of water flow where the water table may be within the retained earth.
- Examined and probed drains for signs of clogging. Examined drainage around ends of wall and note if embankments have been experiencing erosion.
- Examined site grading for any locations that may prohibit proper drainage from behind the wall looking for evidence of ponding above the wall, such as debris accumulation in the lower spots.
- Ascertain why water is not draining properly and note in the inspection.
- Inspected roadway components above wall for signs or joint separation, potholes, and areas of settlement.
- Examined vegetation growth along and above the wall for root infiltration creating undesirable stresses on the wall. Documented any induce cracking, bulging or failure.
- Examined the wall system for vehicular damage and document the location and degree of damage.

PIN 5512.52 Kensington Expressway
Retaining Wall #10 (RT) along 33WB
between Northampton St and on ramp from Humboldt Parkway to Rte 33 WB

GENERAL OBSERVATIONS:

1. Retaining Wall Panels are generally 30 ft in length with horizontal chamfered panels spaced 3'-0" vertically, from the top of the wall. There is some variation in panel length due to the location of bridges within the corridor. For specific panel lengths see the DOCUMENTION Section of this report.

2. The lower 6-12 ft of the subject retaining wall was found to be in FAIR condition with scattered map cracking, dampness, and small areas of delamination. For specific conditions found and photographs of the wall panels, see the DOCUMENTION Section of this report.

3. The upper portions of theses wall panels were generally found to be in GOOD condition with the exception of a few locations. About one third of the panels were found to have map cracking near the joint for the upper-half to full-height of the panel. . For specific conditions found, photographs of the of wall panels, and condition calculations see the attached sections of this report.

4. The panels were typically found to have a full-height or mid-height vertical crack near midspan of the panel.

General:	
DEFECT	DESCRIPTION
Misalignment	None noted.
Settlement	None noted.
Sinkhole (cavity) Formation	None noted.

Concrete Cracks:	
DEFECT	DESCRIPTION
Insignificant Cracks (cracks < 0.012 inches wide)	A few panels have minor vertical cracking. The location of the cracks mirrors the rebar placement.
Map cracks	Most panels have scattered/sparse map cracking in the bottom 2 to 4 panels (6'-12'). Some panels have isolated areas of heavier map cracking near larger vertical cracks and joints.
Moderate Cracks (0.012 - 0.05 inches wide)	Most panels have a 2/3-height to full-height vertical crack near midspan of the panel.
Wide Cracks (cracks > 0.05 inches wide)	None noted.

PIN 5512.52 Kensington Expressway
Retaining Wall #10 (RT) along 33WB
between Northampton St and on ramp from Humboldt Parkway to Rte 33 WB

Additional Concrete Distress:	
DEFECT	DESCRIPTION
Spalling / Delamination	Areas of spalling and delamination are minimal. Spalls are present on panels 3A and 4A and isolated delamination is present on panels 4C, 6B, and 6D.
Staining	The top panel has minor staining throughout. A few isolated areas of rust staining are present.
Exposed Rebar	None noted.

Notes:
RW 10 consists of 19 panels numbered from 1A (South) to 6D (North). The retaining wall supports the S.B. Humboldt Parkway above State Route 33 (Kensington Expressway). Located along the right side of W.B. Kensington Expressway from Northampton St Bridge to retaining wall 4 panel 401 (Approximately 550 ft. long, 19 ft. maximum exposed height). The west abutment of Northampton St Bridge is not included as part of retaining wall 10.

INVENTORY, INSPECTION, AND DATA COLLECTION

Element	Total Qty	Units	Condition State			
			1	2	3	4
			GOOD	*FAIR*	*POOR*	*SEVERE*
RW.01 - Entire Wall	1	Each	0.78	0.21	0.01	
RW.02 - Wall Facing	9617	SF	7302	2267	48	
RW.03 - Ground Surface, Front	550	FT	550			
RW.04 - Ground Surface, Back	550	FT	550			
RW.05 - Weep Holes	1	Each			1	
800 - Scour	N/A	FT	---	---	---	---

PIN 5512.52 Kensington Expressway
Retaining Wall #10 (RT) along 33WB
between Northampton St and on ramp from Humboldt Parkway to Rte 33 WB

INSPECTION RESULTS/ RECOMMENDATIONS

- **Overall Condition State Recommendation:** 2 – FAIR
- PROJECT DOCUMENTATION CAN BE FOUND IN THE ATTACHED SECTIONS

PIN 5512.52 Kensington Expressway
Retaining Wall #10 (RT) along 33WB
between Northampton St and on ramp from Humboldt Parkway to Rte 33 WB

Inspection Photos

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #10 (RT) along 33WB between Northampton Street and Utica Street Bridges

PHOTO 1

PANEL 6D

Description:

End RW10. Connects to RW4.

Staining on top panel typical for entire wall.

There is a 6' vertical crack with 1' wide delamination.

There is scattered rust staining on chamfers between panels 1 and 2, and 2 and 3.

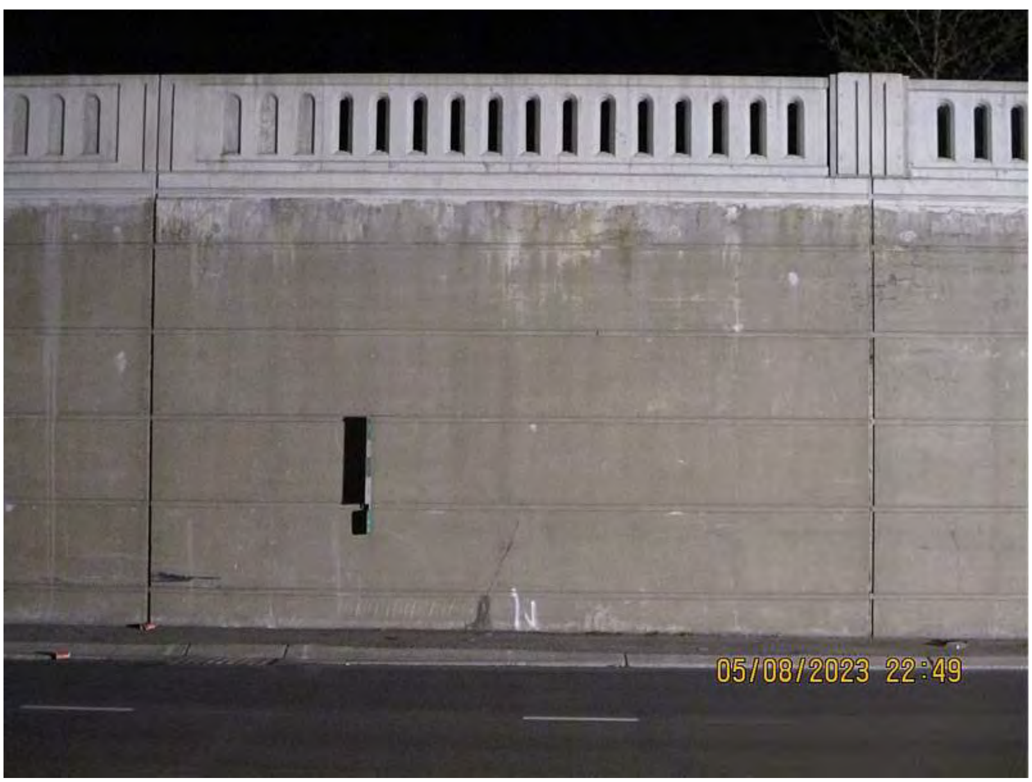


PHOTO 2

PANEL 6A

Description:

Staining on top panel typical for entire wall.

There is a 8' vertical / right leaning crack.

Map cracking on top 2 panels.

Panel 6B is similar.

Retaining Wall #10 (RT) along 33WB between Northampton Street and Utica Street Bridges

PHOTO 3

PANEL 5B

Description:

Full-height crack at midspan of panel.

Scattered map cracking throughout. Heavier map cracking around center crack and for 3' from either joint.

PHOTO 4

PANEL 4C

Description:

Full-height crack to right of sign. Delaminated 3' wide for bottom 7'.

Map cracking throughout.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #10 (RT) along 33WB between Northampton Street and Utica Street Bridges

PHOTO 5

PANEL 4B

Description:

There is a 12' vertical crack near midspan of the panel.

Map cracking throughout, heaviest near joints.

Rust staining under the luminaire.

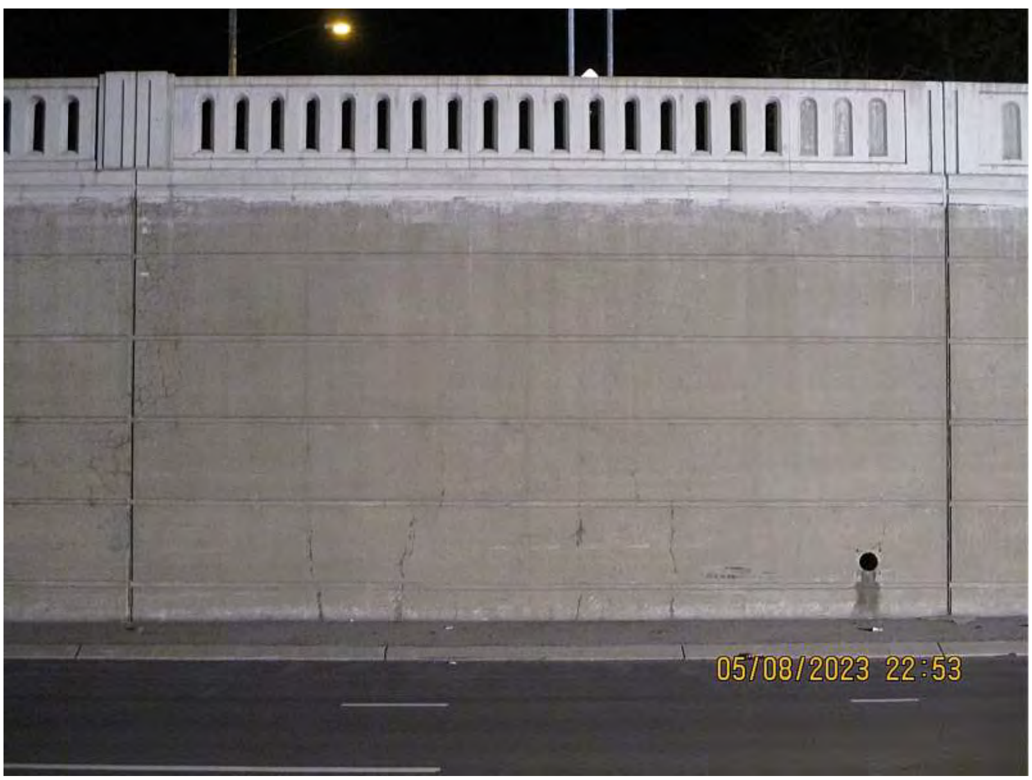


PHOTO 6

PANEL 3C

Description:

Scattered vertical cracks on bottom 3 panels. Map cracking near left joint on top 3 panels.

Weep hole is in poor condition with debris build-up and a crack through the weep hole.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #10 (RT) along 33WB between Northampton Street and Utica Street Bridges

PHOTO 7

PANEL 3A

Description:

There are 11' and 12' vertical cracks.

Map cracking bottom on bottom 2 panels. Scattered map cracking on panels 3 and 4.

There is a small spall with rust staining near the left joint.

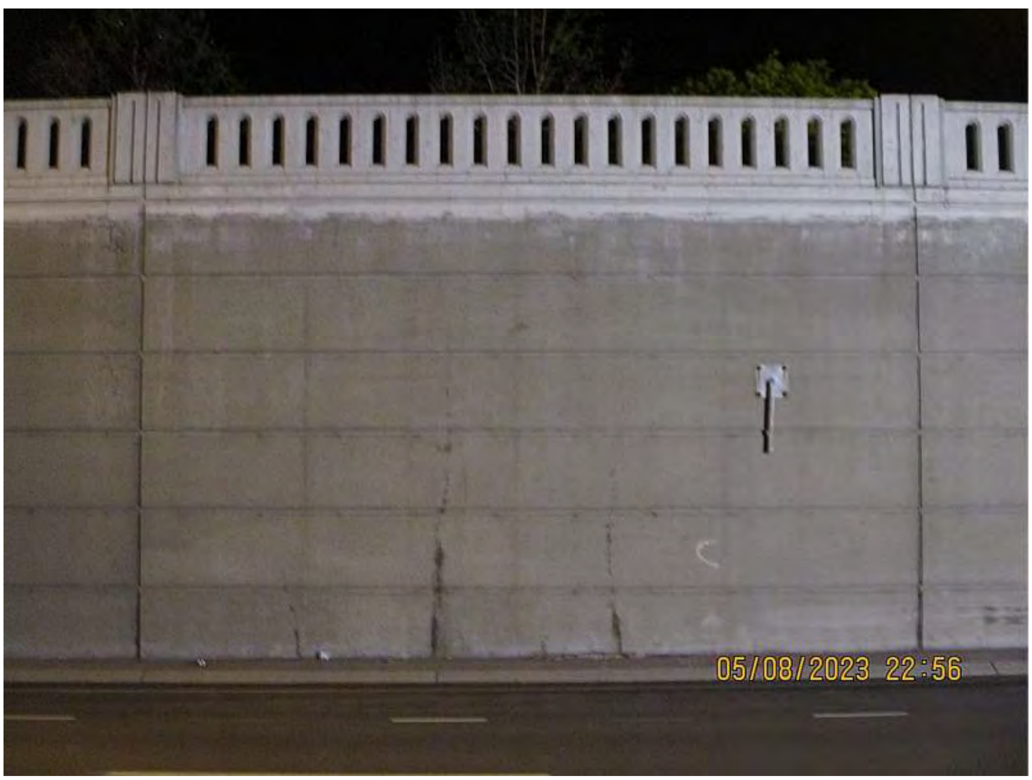


PHOTO 8

PANEL 2B

Description:

There is a 4', 13', and 9' vertical crack with minor map cracking nearby.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #10 (RT) along 33WB between Northampton Street and Utica Street Bridges

PHOTO 9

PANEL 2A

Description:

There is a 15' crack under the luminaire.

Staining on top panel typical for entire wall.

Scattered map cracking on the bottom 2 panels. More concentrated map cracking for 2' from the right joint.

Panels 2C is similar with map cracking near the left joint instead.

PHOTO 10

PANEL 1A

Description:

Begin RW10. Right of Northampton St bridge west abutment.

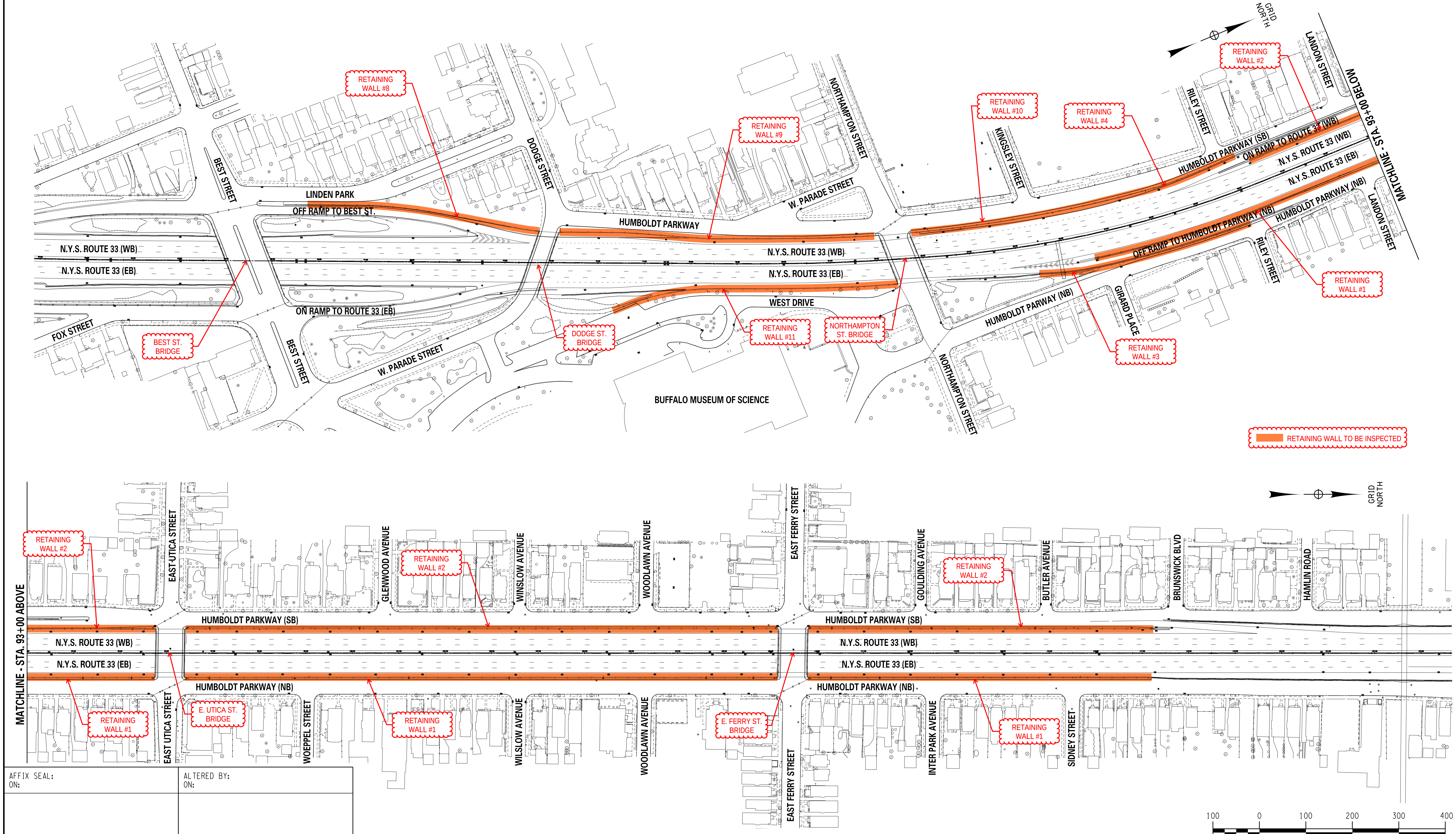
Staining on top panel typical for entire wall.

There is a 15' and 8' vertical crack near midspan of the panel.

Scattered map cracking on the bottom 4 panels.

PIN 5512.52 Kensington Expressway
Retaining Wall #10 (RT) along 33WB
between Northampton St and on ramp from Humboldt Parkway to Rte 33 WB

Field Sheets



PROJECT MANAGER | CHECK | DRAFTING | CHECK | DESIGN | JOB MANAGER | DESIGN SUPERVISOR

AFFIX SEAL:
ON:

ALTERED BY:
ON:

AS-BUILT REVISIONS
DESCRIPTION OF ALTERATIONS:

STATE ROUTE 33
KENSINGTON EXPRESSWAY
CITY OF BUFFALO
COUNTY: ERIE REGION: 5

PIN 5512.52

BRIDGES

CULVERTS

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

KENSINGTON EXPRESSWAY
RETAINING WALL LOCATION PLAN

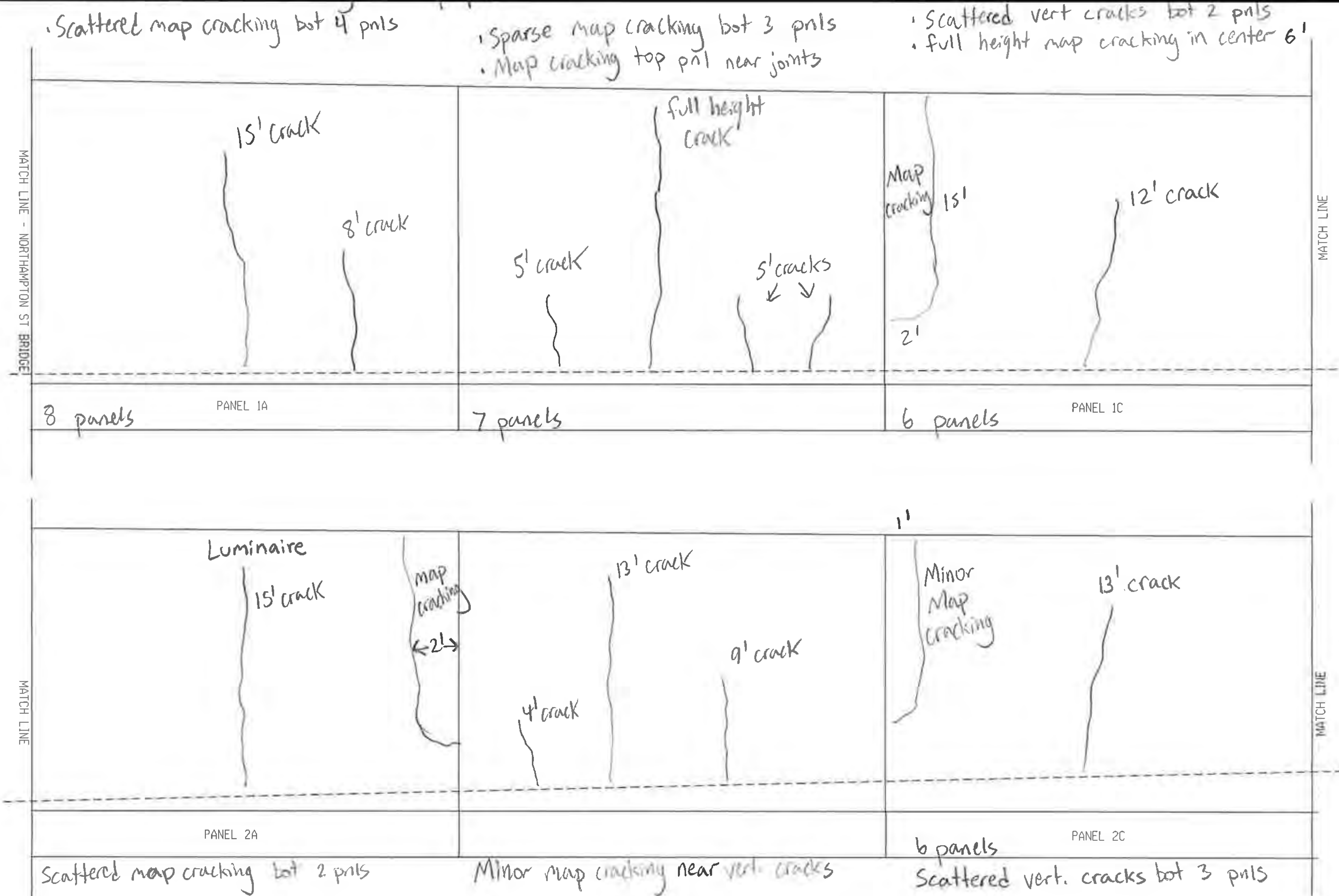
CONTRACT NUMBER

DRAWING NO. 1
SHEET NO.

LaBella Powered by partnership.

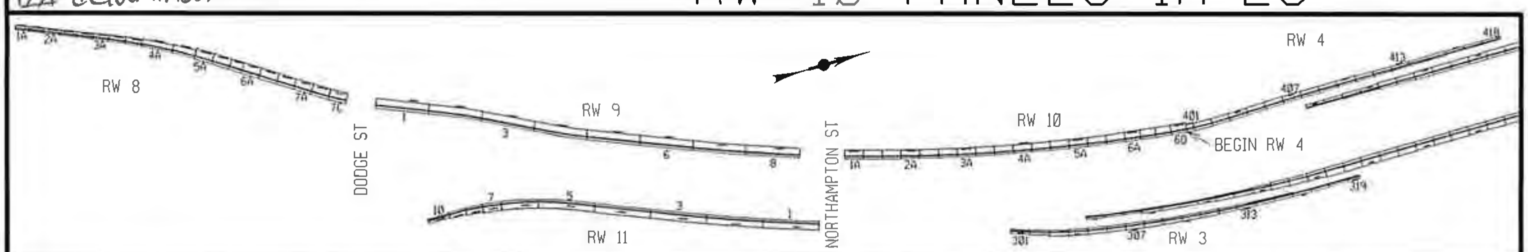
NEW YORK STATE OF OPPORTUNITY. Department of Transportation

General Note: Staining on top pnl



delaminated

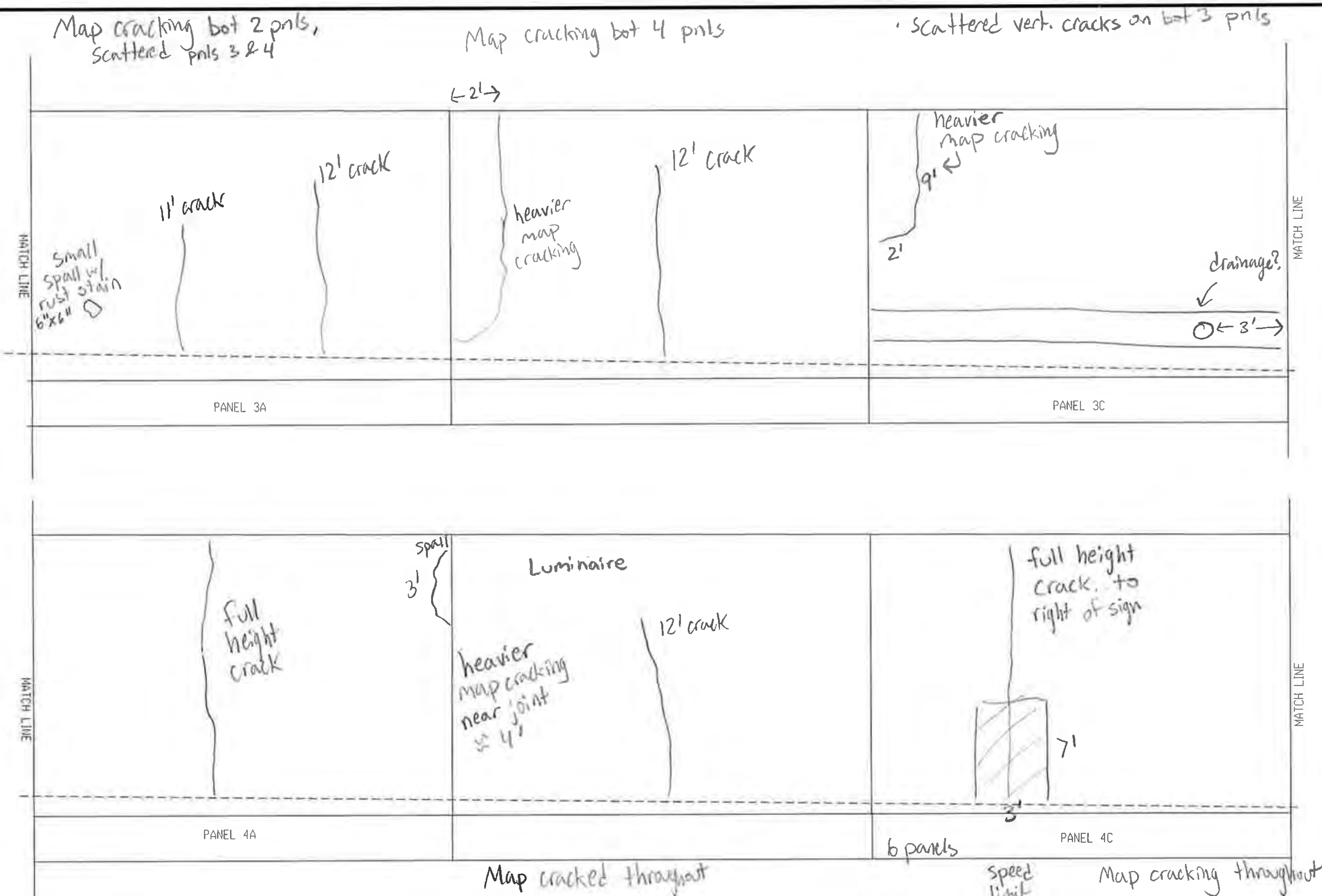
RW 10 PANELS 1A-2C



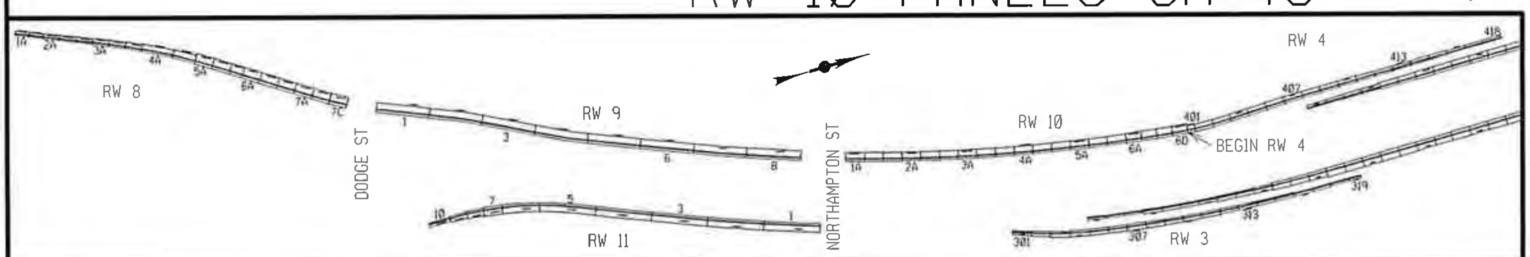
BY: RJM

DATE: 5/9/23

SCALE: 1' = 10'



RW 10 PANELS 3A-4C

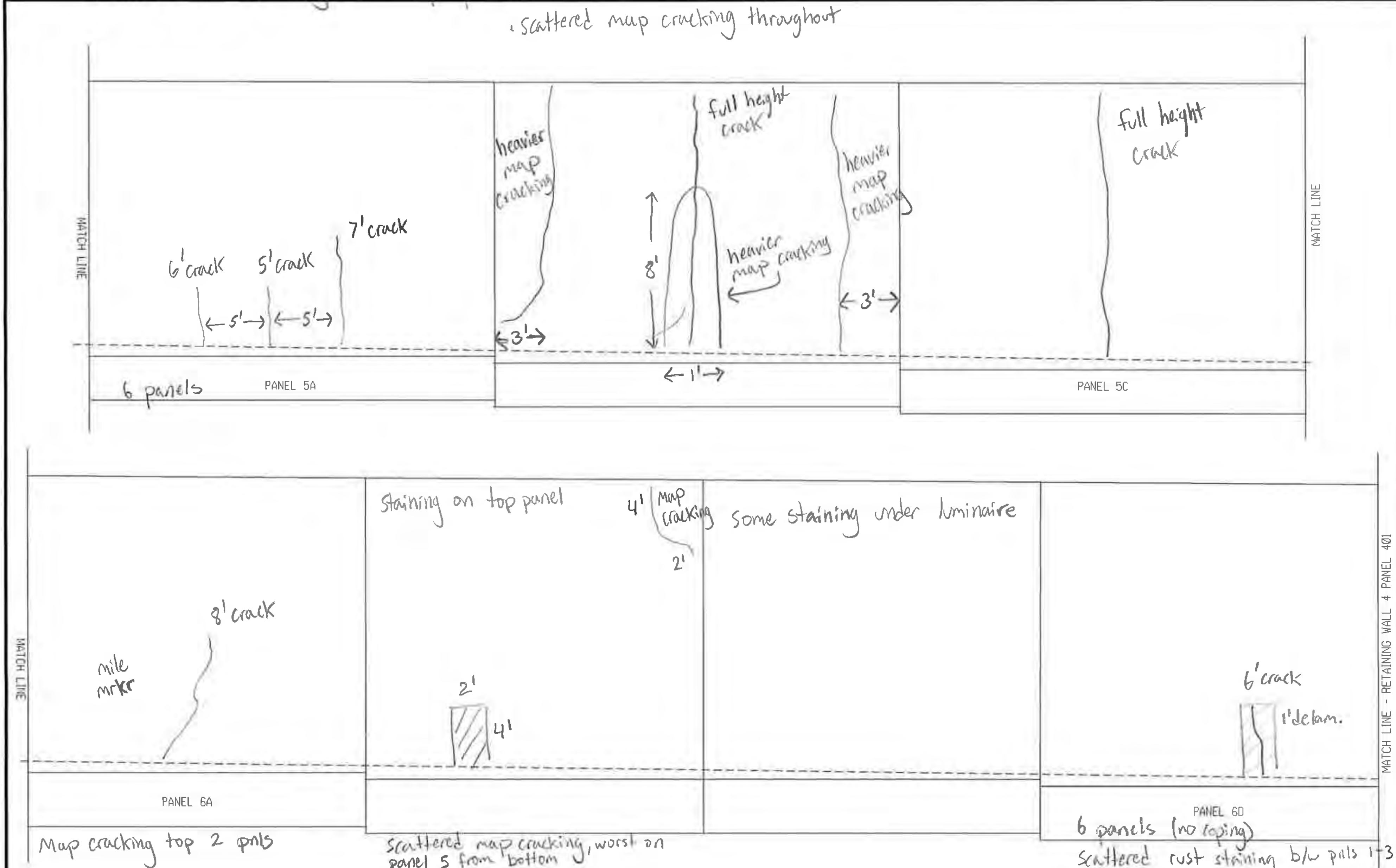


BY: RIM

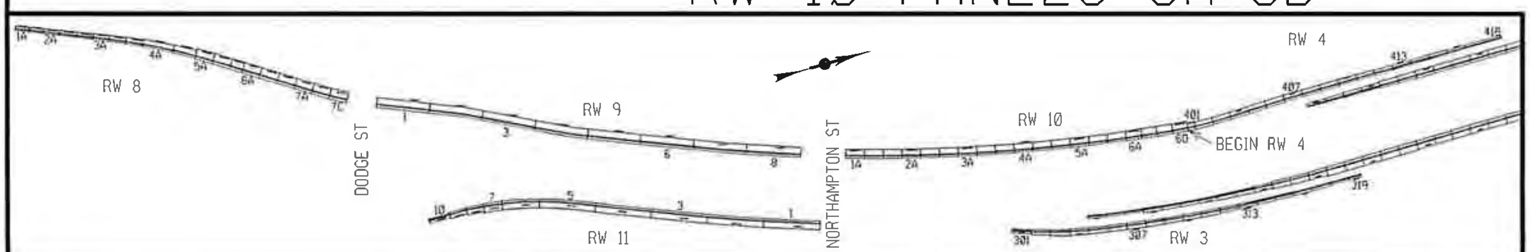
DATE: 5/9/23

SCALE: 1" = 10'

General Note: staining on top panel



RW 10 PANELS 5A-6D



BY: RIM

DATE: 5/9/23

SCALE: 1' = 10'

Retaining Wall Coping Inspection 5/30/2023

Retaining Wall 10

- Concrete balustrade railing from wall 4 to Northampton
- Intermittent vertical cracking of railing

General WB:
- Granite curb joints are gapped and curb misaligned

Calculations

LaBella
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300 State Street, Suite 201 • Rochester, NY 14614
Phone 585.454.6110 • Fax 585.454.3066
www.labellapc.com

PROJECT	Kensington Inspections				
PIN	5512.52	CALC. BY	RIM	DATE	5/26/2023

Condition Estimates

- Retaining Wall 10
  - Condition 2 - map cracks, stains, isolated delam, minor cracks
  - Condition 3 - spalls, widespread delam, major cracks
  - Areas with multiple forms of deteroration were measured under only one category. Condition 3 categories were prioritized over condition 2.
  - For RW10, about 1/3 of cracks are condition 3

Panel	Map Crack (sf)	Cracks (ft)	Spalls (sf)	Isolated Delam (sf)	Other (staining, efflor., etc.)	COND 2	COND 3
1A	72	23			18		
1B	60	35			18		
1C	138	12			18		
2A	60	15			18		
2B	26	26			18		
2C	63	13			18		
3A	126	23	0.25				
3B	237	12					
3C	72						
4A		20	3				
4B	384	12					
4C	300	13		21			
5A		18			18		
5B	196.6	18			18		
5C		18			18		
6A	90	8					
6B	83			8	30		
6C					42		
6D			0	6	1		
Total (sf):	1907.60	133.00 (sf)	3.25	35.00	235.00	2267	48

PIN 5512.52 Kensington Expressway
Retaining Wall #10 (RT) along 33WB
between Northampton St and on ramp from Humboldt Parkway to Rte 33 WB

Wall Inventory Sheet

RW 10

INVENTORY, INSPECTION, AND DATA COLLECTION

PRIMARY OWNER	NYSDOT - New York State Department of Transportation
REGION	05-Region 05 - Buffalo
COUNTY	3-County 3 - Erie
RESIDENCY	534 - Erie North Residency
NYS ROUTE	Rte. 33
REFERENCE MARKER	3353011030
LONGITUDE	78.84368
LATITUDE	42.90892
ADDITIONAL LOCATION DESCRIPTION	Located along the on-ramp right shoulder from S.B. Humboldt Parkway to W.B. Kensington Expressway (approximately 550 ft. long, 19 ft. maximum exposed height). The west abutment of the Northampton Street Overpass is not considered as part of RW #10.
TYPE OF SERVICE PROVIDED	Support/Protect a Roadway
WALL TYPE	Cantilever - Concrete
LEGACY RETAINING WALL TYPE	
WALL FACING TYPE	Cast - in -Place Concrete
WALL BACKFILL REINFORCEMENT TYPE	N/A
ADDITIONAL WALL DESCRIPTION	
WALL LENGTH	550 Ft
WALL MAXIMUM HEIGHT	19 ft
WALL AREA	13130 SF
YEAR BUILT	1970
CONTRACT NUMBER	C 68-2
AADT	76,347
QC REVIEWER	
QC APPROVED DATE	
SITE ACCESS NOTES	With WZTC in place to close the adjacent shoulder and travel lane, access was performed by walking and extension ladder.
INSPECTION FREQUENCY	
LAST INSPECTION STATUS	
INSTRUMENTED	N/A
MONITORED BY	----
INSTRUMENTATION COMMENT	----
CONSEQUENCE OF FAILURE	3-Major
WALL POSITION	Between Roads
GENERAL NOTES	
RETAINING WALL DATABASE ID	
NUMBER OF ERRORS AND WARNINGS	
USER UPDATE	
SUBMISSION DATE	
DATE UPDATE	

WALL INSPECTION LOCATION INFORMATION & NOTES

NY33 RETAINING WALL CONDITION EVALUATION 2023

KENSINGSTON EXPRESSWAY PROJECT
PIN 5512.52
CITY OF BUFFALO, ERIE COUNTY
RETAINING WALL 11

Prepared By:

Merton J. Edwards, PE (NYSPE 064981)
Inspection Team Leader | Sr. Structural Engineer
Date: 5/30/2023

Reviewed By:

Stephen L. Gauthier, PE (NYSPE 0075775)
Quality Control Engineer | Sr. Structural Engineer
Date: 6/16/2023

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Rochester, New York 14614
ph: 585-454-6110
www.labellapc.com

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

STRUCTURE:	Retaining Wall #11 (RT) along 33EB between Dodge Street and Northampton Street Bridges
STRUCTURE TYPE:	Reinforced Concrete Cantilever Wall on Spread Footings Year Built: 1970
CURRENT INSPECTION:	05/01/23 – 5/09/23 (LaBella Inspections)
LAST KNOWN INSPECTION:	Unknown
CONDITION STATE.	FAIR

RETAINING WALL INSPECTION & DOCUMENTATION:

Inspection of the retaining walls will be in conformance with the NYSDOT Retaining Wall Inventory and Inspection Program Manual, October 2018. Inspection of the following elements will be inspected and documented as appropriate:

- Inspection:

The following inspection procedure was followed:

- Walls were checked for signs of settlement, rotation, or bulging. Walls faces were checked for vertical alignment using a smart level. The walls being evaluated are vertical with no batter.
- Construction joints between sections of the wall were examined for misalignment, and near the ground line for fill material washing out from between panels or joint.
- Walls were inspected for erosion material in front of the wall, for heaving of material in front of the wall, and for settlement of fill behind the wall
- Examined the wall for deterioration of the material, such as cracking, spalling, and/or corrosion, noting the width, length, depth, and/or orientation of the deterioration. Photographs are provide documenting defects found.
- Wall façades were reviewed for evidence of water seepage, efflorescence, or rust staining.
- Examined the base of walls for evidence of water flow where the water table may be within the retained earth.
- Examined and probed drains for signs of clogging. Examined drainage around ends of wall and note if embankments have been experiencing erosion.
- Examined site grading for any locations that may prohibit proper drainage from behind the wall looking for evidence of ponding above the wall, such as debris accumulation in the lower spots.
- Ascertain why water is not draining properly and note in the inspection.
- Inspected roadway components above wall for signs or joint separation, potholes, and areas of settlement.
- Examined vegetation growth along and above the wall for root infiltration creating undesirable stresses on the wall. Documented any induce cracking, bulging or failure.
- Examined the wall system for vehicular damage, and document the location and degree of damage.

PIN 5512.52 Kensington Expressway
Retaining Wall #11 (RT) along 33EB between Dodge Street and Northampton Street Bridge

GENERAL OBSERVATIONS:

1. Retaining Wall Panels are generally 30 ft in length. The wall cap is 9” with horizontal chamfered panels spaced 3’-0” vertically, from the top of the wall. The wall cap is 9” with horizontal chamfered panels spaced 3’-0” vertically, from the top of the wall. There is some variation in panel length due to the location of bridges within the corridor. For specific panel lengths see the DOCUMENTION Section of this report.

2. The lower 6-10 ft of the subject retaining wall was found to be in FAIR-POOR condition with extensive map cracking, dampness, isolated rust staining, concrete spalls, and widespread delamination. For specific conditions found and photographs of the of wall panels, see the DOCUMENTION Section of this report.

3. The upper portions of theses wall panels were generally found to be in GOOD-FAIR condition except for a few locations. The top of wall rail coping is map cracked under approximately 50% of the railing posts and has horizontal cracking along the coping at mid height for approximately 40% of the wall length. For specific conditions found, photographs of the of wall panels, and condition calculations see the attached sections of this report.

General:	
DEFECT	DESCRIPTION
Misalignment	None noted. No tipping or rotation of the wall panels was observed.
Settlement	None noted. No heaving was detected at the wall toe, nor was West Drive above the wall showing signs of settlement.
Sinkhole (cavity) Formation	None noted.

Concrete Cracks:	
DEFECT	DESCRIPTION
Insignificant Cracks (cracks < 0.012 inches wide)	Most wall panels exhibit minor cracking. Cracking is predominately vertical and seems to mirror the rebar spacing underneath.
Map cracks	Most wall panels are exhibiting some map cracking. The map cracking is most prevalent in the bottom 6 feet of the panels and at the top of walls under railing posts.
Moderate Cracks (0.012 - 0.05 inches wide)	Many wall panels exhibit moderate cracking. These cracks, where they exist, are predominately vertical, full height cracks located at or near the midpoint of the panel.
Wide Cracks (cracks > 0.05 inches wide)	Panels 5-1 exhibits a wide crack. The crack is full height and located at or near the midpoint of the panel.

Additional Concrete Distress:	
DEFECT	DESCRIPTION
Spalling / Delamination	Wall panels 1 through 5 have minor areas of delamination. Delamination amounts vary from approximately 0% to 5% of the exposed wall face. Isolated spalling was noted. Spalling is predominately found at the wall joints to adjacent wall panels and in vertical rebar areas in the lower 6 to 10 feet of wall.
Staining	Staining, both efflorescence and rust staining, is evident on every wall panel. The amount of staining varies and is best noted in the photo documentation.
Exposed Rebar	Rebar is exposed in many of the spalled areas noted during the inspection. Most of the exposed rebar is vertically placed reinforcement. Exposed rebar was noted to have between 15% and 60% section loss.

Notes:

RW 11 consists of 10 panels with 21 sections numbered east (north) to west (south). The retaining wall supports the West Drive above State Route 33 (Kensington Expressway).

Located along the E.B. mainline right shoulder between Dodge and Northampton Streets supporting West Drive adjacent to the Buffalo Museum of Science (approximately 630 ft. long, 20 ft. maximum exposed height). The east abutment of the Northampton Street Overpass is not considered as part of RW #11.

The wall exhibits a medium to high extent of low-severity distress and a low extent of medium-severity distress.

INVENTORY, INSPECTION, AND DATA COLLECTION

Element	Total Qty	Units	Condition State			
			1	2	3	4
			GOOD	*FAIR*	*POOR*	*SEVERE*
RW.01 - Entire Wall	1	Each	0.96	0.03	0.01	
RW.02 - Wall Facing	11410	SF	10980	326	104	
RW.03 - Ground Surface, Front	630	FT	630			
RW.04 - Ground Surface, Back	630	FT	630			
RW.05 - Weep Holes	N/A	Each	---	---	---	---
800 - Scour	N/A	Ft	---	---	---	---

PIN 5512.52 Kensington Expressway
Retaining Wall #11 (RT) along 33EB between Dodge Street and Northampton Street Bridge

INSPECTION RESULTS/ RECOMMENDATIONS

- **Overall Condition State Recommendation: 2 - FAIR**

- PROJECT DOCUMENTATION CAN BE FOUND IN THE ATTACHED SECTIONS

Inspection Photos

Retaining Wall #11 (RT) along 33EB between Dodge Street and Northampton Street Bridges

PHOTO 1

PANEL 7

Description:

There is map cracking on the top 7' of panel 7 near the left joint.

Panels 4.1 and 3.1 have similar cracking near the right joint.

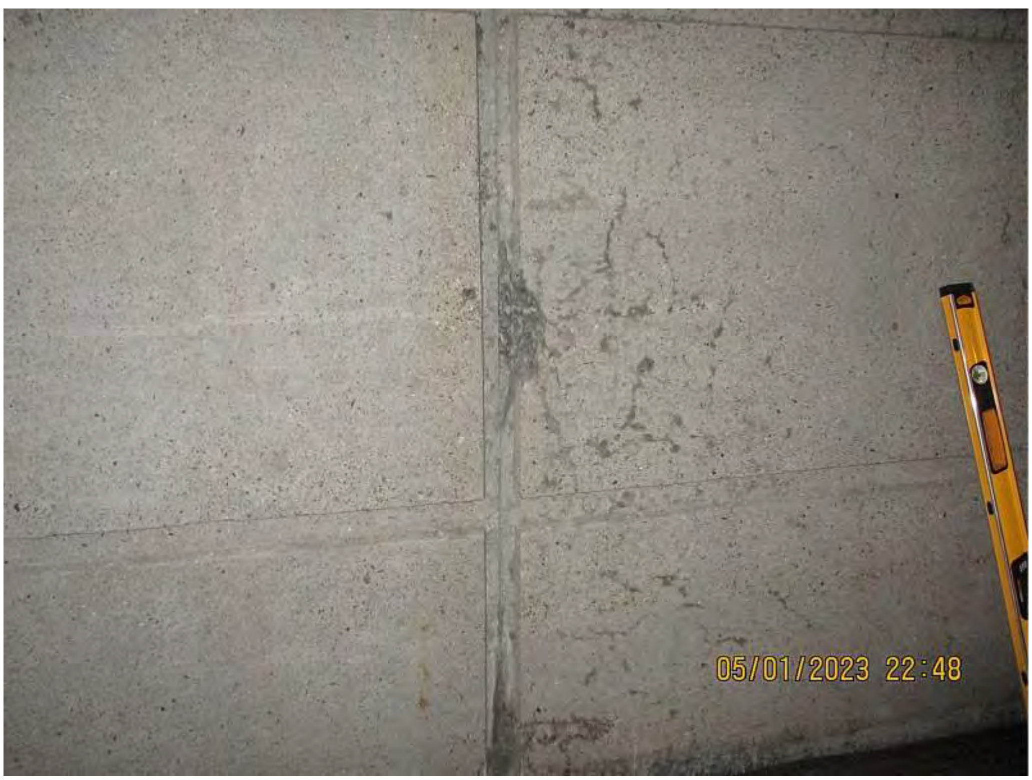


PHOTO 2

PANEL 5.3

Description:

There is a 3"x8" spall on the edge of panel 5.3 at the left joint.

Retaining Wall #11 (RT) along 33EB between Dodge Street and Northampton Street Bridges

PHOTO 3

PANEL 4.3

Description:

There is a 15' vertical crack at 11' from the left joint.

Most panels have a 6' to full-height crack at 10' to 15' from the edge of the panel.

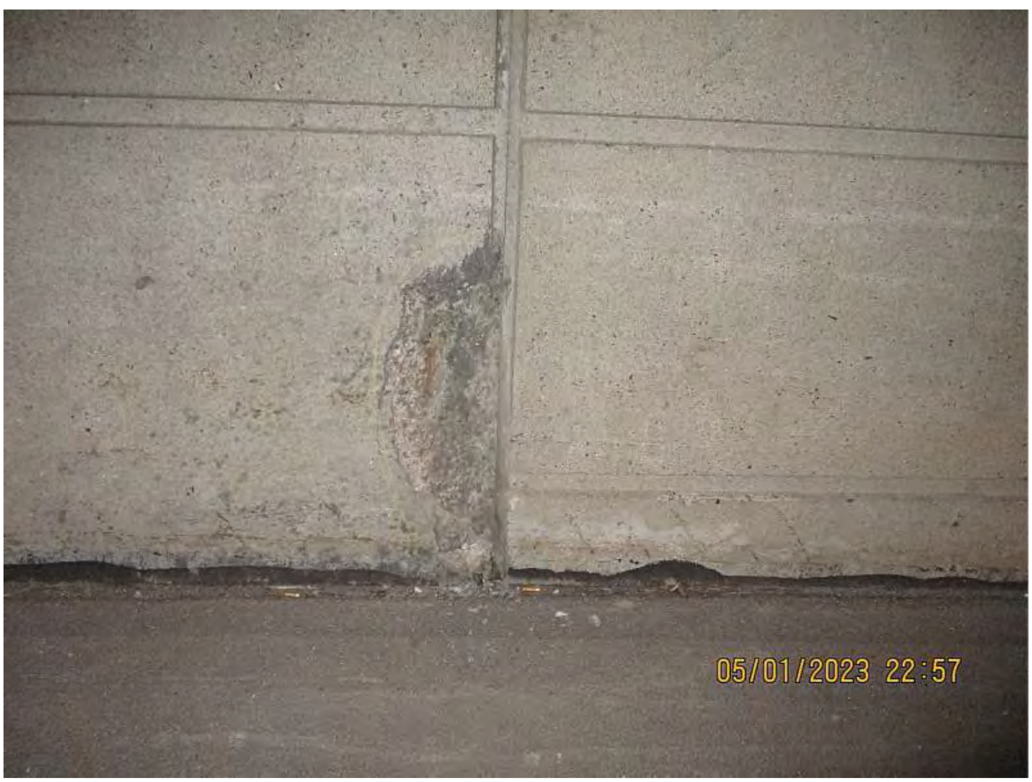


PHOTO 4

PANEL 4.2

Description:

There is a 1'x3' spall on the bottom right edge of the panel. Some rust staining is present.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #11 (RT) along 33EB between Dodge Street and Northampton Street Bridges

PHOTO 5

PANEL 4.2

Description:

There is a 60-degree crack with delamination as outlined.

Rust staining is present.

PHOTO 6

PANEL 4.1

Description:

Vertical cracking mirrors the placement of rebar. Rust staining and efflorescence is present. Cracking continues for entire panel.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #11 (RT) along 33EB between Dodge Street and Northampton Street Bridges

PHOTO 7

PANEL 3.2

Description:

There is a 19"x40" spall with exposed rebar on the bottom left edge of the panel.

There is a similar spall without exposed rebar on the right edge of the panel.

PHOTO 8

PANEL 2.3

Description:

There is a 10.5' vertical crack at midspan of the panel. Delamination is present for 1' on either side of the crack.

Vertical cracking and map cracking is also present similar to panel 4.1.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #11 (RT) along 33EB between Dodge Street and Northampton Street Bridges

PHOTO 9

PANEL 2.2

Description:

There is a 3' high x 10" wide area of delamination along the right side of the panel. Map cracking is present in the surrounding area.

Rust staining is present in the chamfer.

PHOTO 10

PANEL 2.1 & 2.2

Description:

Map cracking is present on either side of the joint.

PIN 5512.52 – NY33 RETAINING WALL CONDITION EVALUATION 2023
FIELD INSPECTION SUMMARY

Retaining Wall #11 (RT) along 33EB between Dodge Street and Northampton Street Bridges

PHOTO 11

PANEL 1.2

Description:

There is an 11' crack at midspan of the panel. There is an 18" high area of delamination as outlined.

Vertical rebar is showing in the wall chamfer for 10' from the left joint.

PHOTO 12

PANEL 1.1

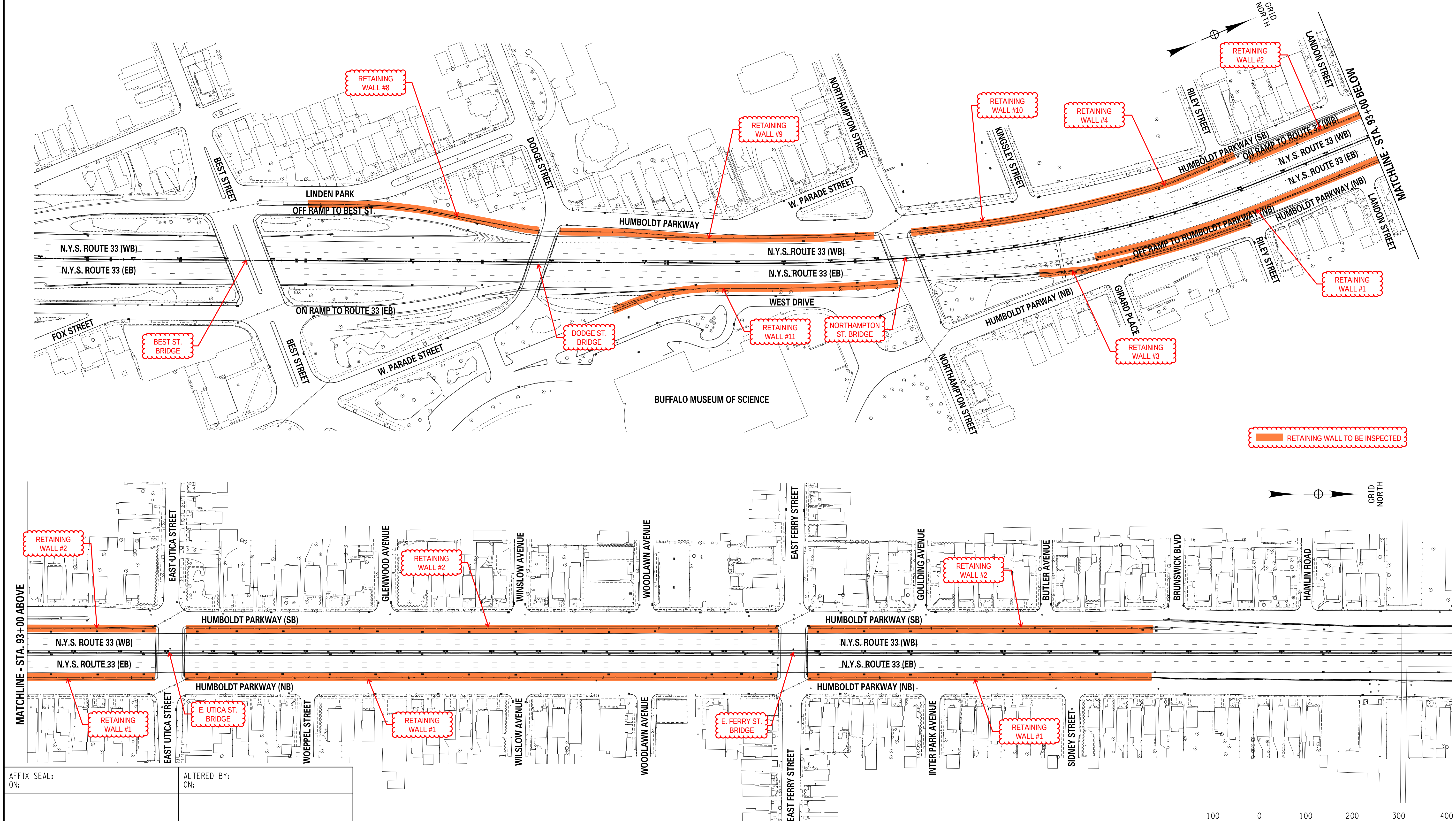
Description:

Begin RW11. Right of Northampton St bridge east abutment.

There are 6' and 10' vertical cracks near midspan of the panel.

The panel is in good condition near the abutment.

Field Sheets



AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS
DESCRIPTION OF ALTERATIONS:

STATE ROUTE 33 KENSINGTON EXPRESSWAY CITY OF BUFFALO COUNTY: ERIE REGION: 5	PIN 5512.52	BRIDGES	CULVERTS	ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED KENSINGTON EXPRESSWAY RETAINING WALL LOCATION PLAN	CONTRACT NUMBER DRAWING NO. 1 SHEET NO.

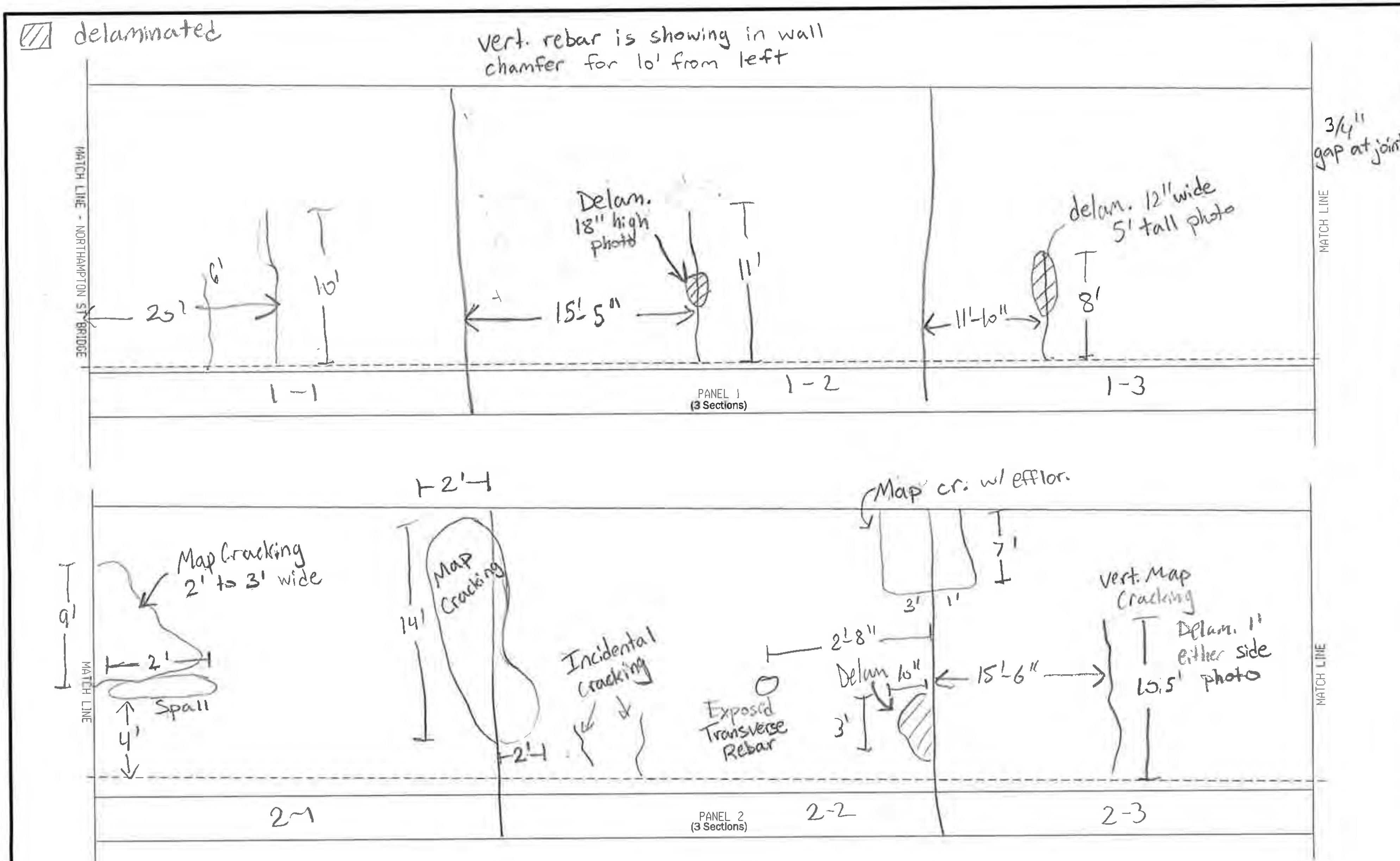
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

LaBella Powered by partnership.

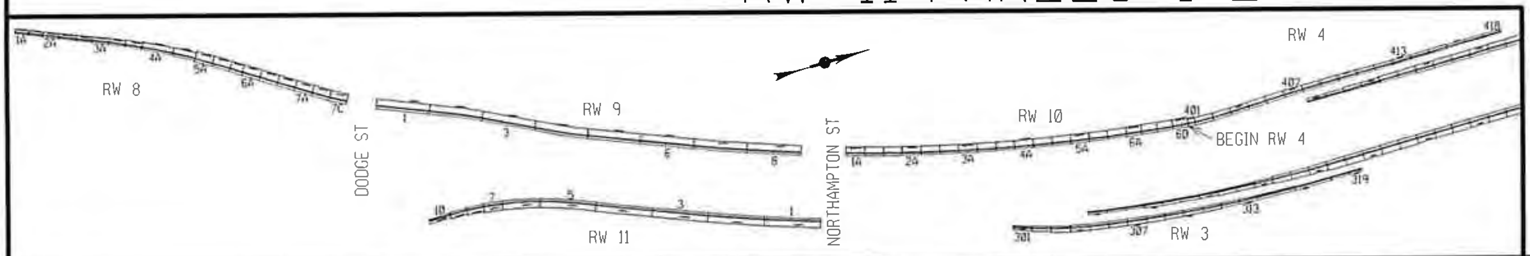
NEW YORK STATE OF OPPORTUNITY. Department of Transportation

PROJECT MANAGER
CHECK
DRAFTING
CHECK
DESIGN
JOB MANAGER
DESIGN SUPERVISOR

FILE NAME = ØØcash.labØpØNØNYSDOTØ2150716.01 Kensington Preliminary DesignØDrawingsØHighwayØPlansetØ2Ø551252.cph.pln_AltA.dgn
DATE = 2/7/2023
TIME = 12:56:26 PM



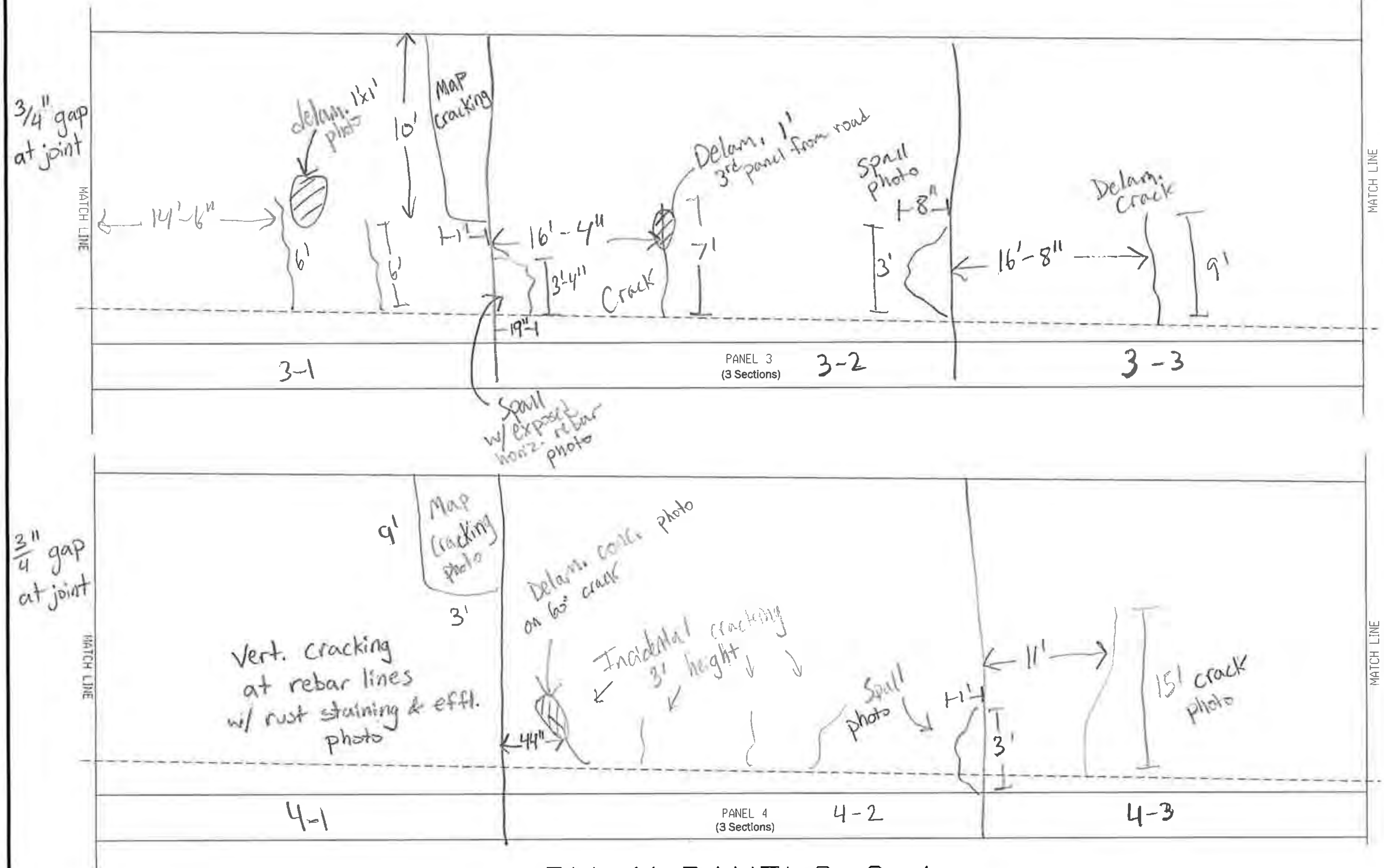
RW 11 PANELS 1-2



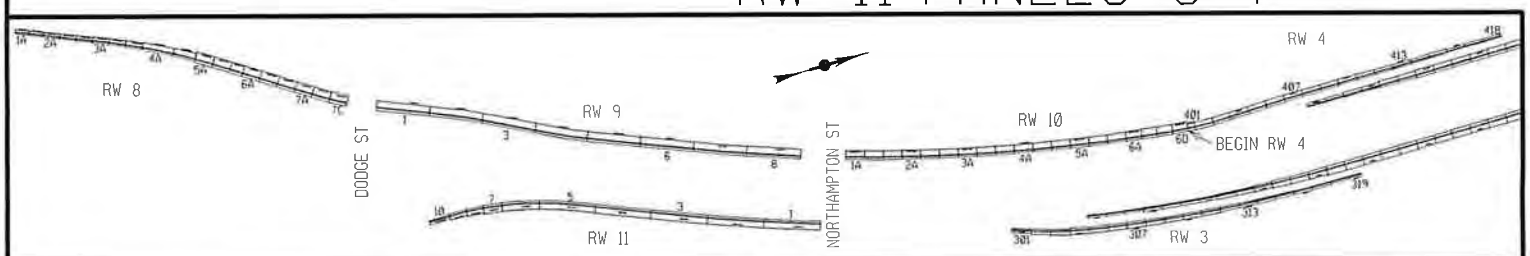
BY: RIM

DATE: 5/1/23

SCALE: 1" = 10'



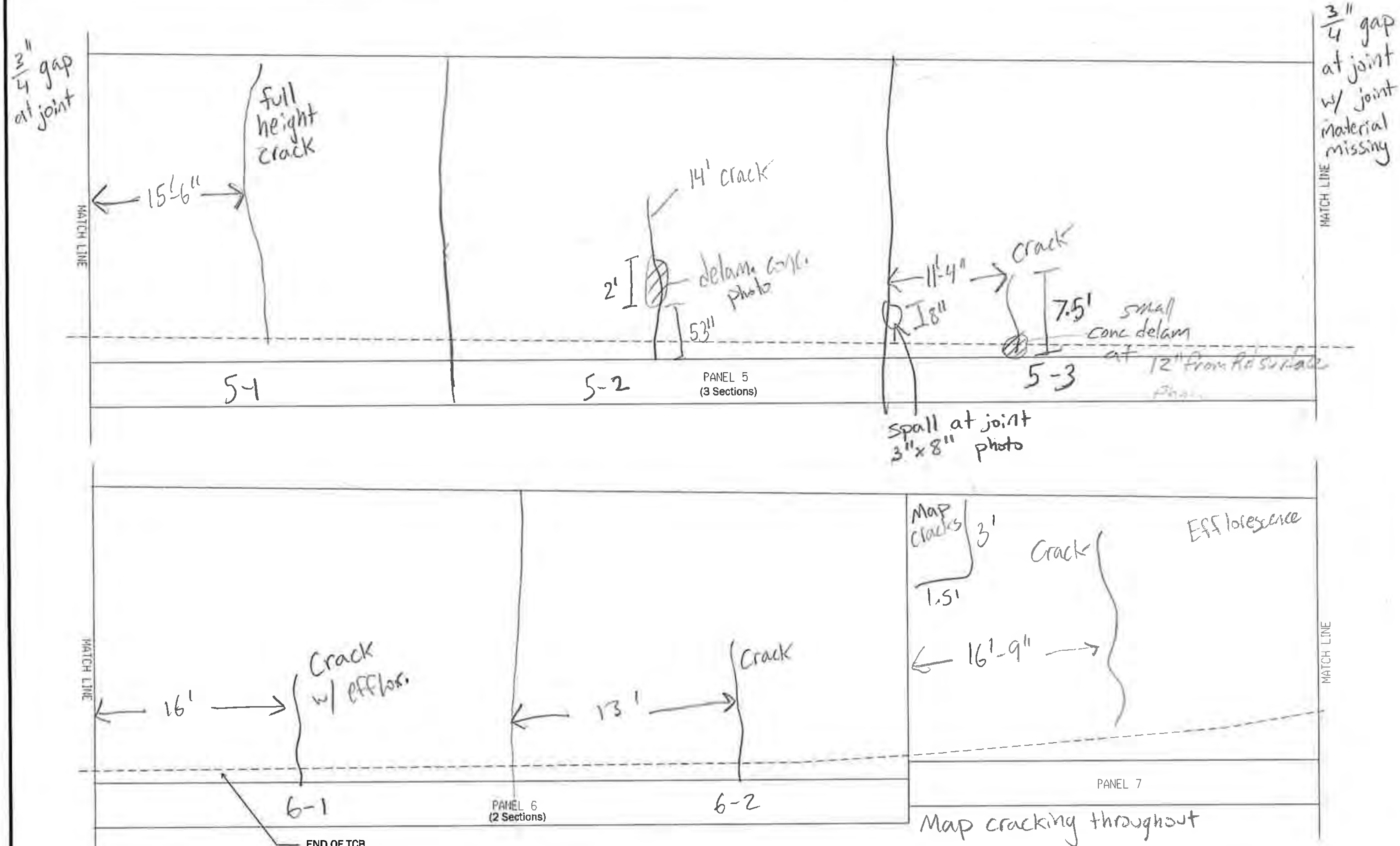
RW 11 PANELS 3-4



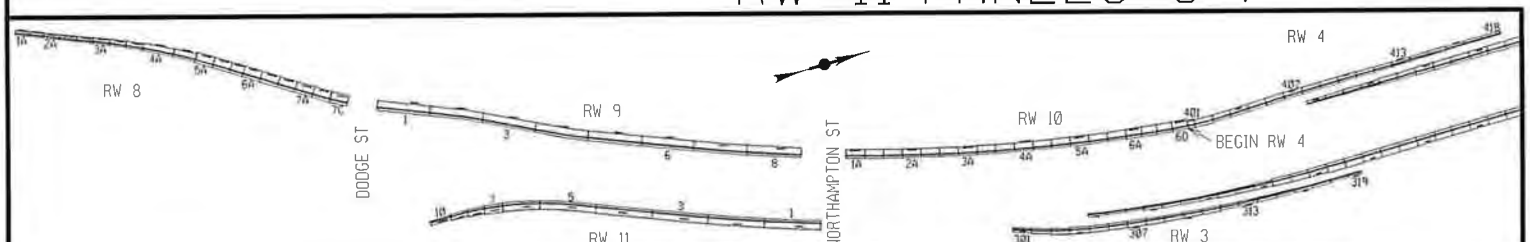
BY: RIM

DATE: 5/1/23

SCALE: 1" = 10'



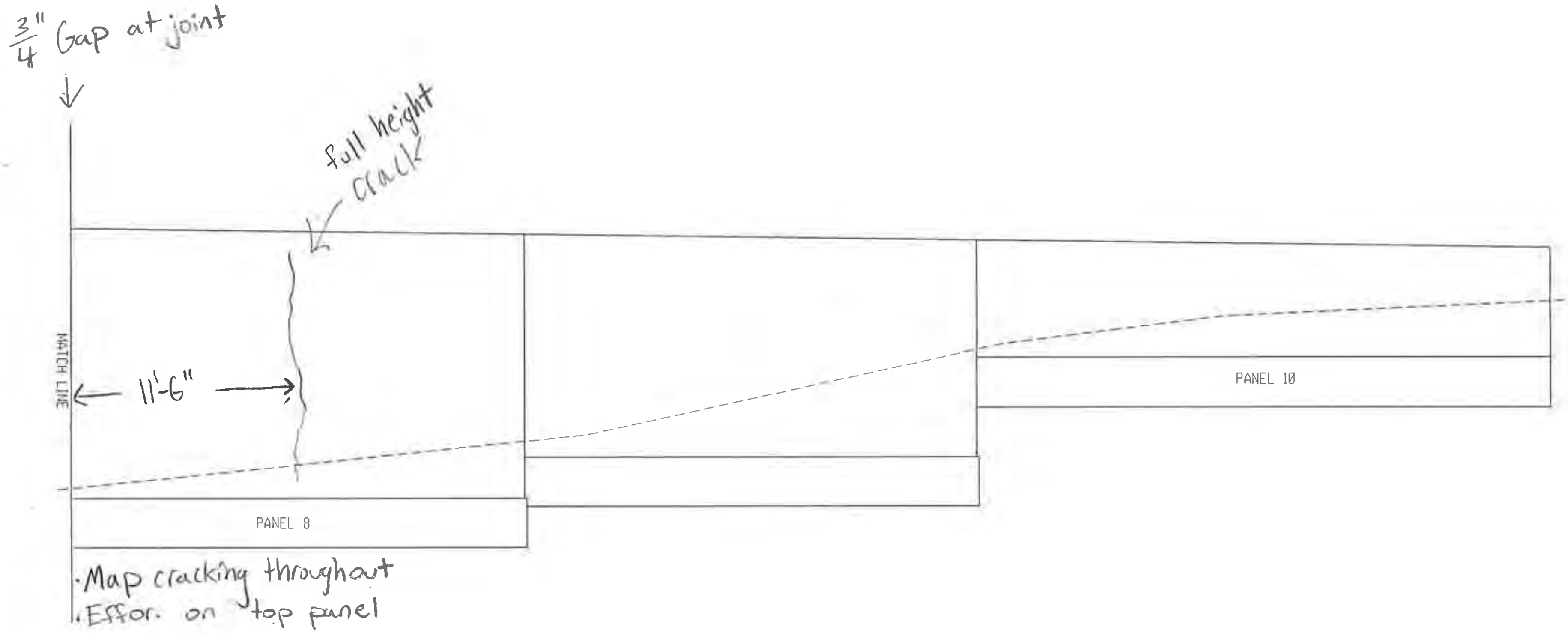
RW 11 PANELS 5-7



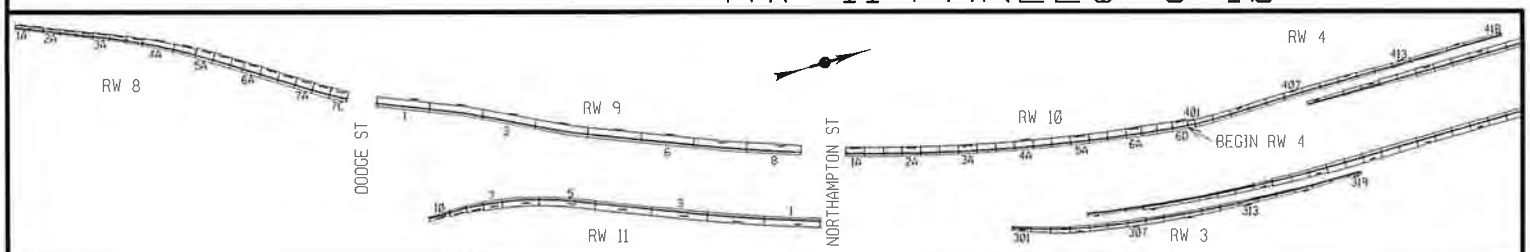
BY: RIM

DATE: 5/1/23

SCALE: 1" = 10'



RW 11 PANELS 8-10



BY: RIM

DATE: 5/1/23

SCALE: 1' = 10'

Retaining Wall Coping Inspection 5/30/2023

Retaining Wall 11

- Balustrade railing has minor stress cracking

Calculations

LaBella
Powered by partnership.

300 State Street, Suite 201 • Rochester, NY 14614
Phone 585.454.6110 • Fax 585.454.3066
www.labellapc.com

PROJECT	Kensington Inspections				
PIN	5512.52	CALC. BY	CAM	DATE	5/26/2023

Condition Estimates

- Retaining Wall 11
  - Condition 2 - map cracks, stains, isolated delam, minor cracks
  - Condition 3 - spalls, widespread delam, major cracks
  - Areas with multiple forms of deteroration were measured under only one category.
    Condition 3 categories were prioritized over condition 2.

Panel	Minor/Map Crack (sf)	Major Cracks (ft)	Spalls (sf)	Widespread Delam (sf)	Isolated Delam (sf)	Other (staining, efflor., etc.)
1.1		16				
1.2		11			3	5
1.3		8			6	
2.1	55		2			
2.2	41		1		3	
2.3	7				24	
3.1	10	12	1		3	
3.2	7		11		3	
3.3		9			18	
4.1	94.5					
4.2	21		3		3	
4.3		15				
5.1		22.5				
5.2		14			6	
5.3		8	1		1	
6.1		11				
6.2		11				
7	6	15				
8	9	17				
9						
10						
Total (sf):	250.50	84.75 (sf)	19.00	0.00	70.00	5.00

COND 2	COND 3
326	104

Wall Inventory Sheet

RW 11

INVENTORY, INSPECTION, AND DATA COLLECTION

PRIMARY OWNER	NYSDOT - New York State Department of Transportation
REGION	05-Region 05 - Buffalo
COUNTY	3-County 3 - Erie
RESIDENCY	534 - Erie North Residency
NYS ROUTE	Rte. 33
REFERENCE MARKER	3353011032
LONGITUDE	78.84444
LATITUDE	42.90565
ADDITIONAL LOCATION DESCRIPTION	Located along the E.B. mainline right shoulder between Dodge and Northampton Streets and supports West Drive adjacent to the Buffalo Museum of Science (approximately 630 ft. long, 20 ft. maximum exposed height). The east abutment of the Northampton Street Overpass is not considered as part of RW#11
TYPE OF SERVICE PROVIDED	Support/Protect a Roadway
WALL TYPE	Cantilever - Concrete
LEGACY RETAINING WALL TYPE	
WALL FACING TYPE	Cast - in -Place Concrete
WALL BACKFILL REINFORCEMENT TYPE	N/A
ADDITIONAL WALL DESCRIPTION	
WALL LENGTH	630 Ft
WALL MAXIMUM HEIGHT	20 Ft
WALL AREA	14700 SF
YEAR BUILT	1960
CONTRACT NUMBER	FAC 59-19
AADT	82,171
QC REVIEWER	
QC APPROVED DATE	
SITE ACCESS NOTES	With WZTC in place to close the adjacent shoulder and travel lane, access was performed by walking and extension ladder.
INSPECTION FREQUENCY	
LAST INSPECTION STATUS	N/A
INSTRUMENTED	N/A
MONITORED BY	----
INSTRUMENTATION COMMENT	----
CONSEQUENCE OF FAILURE	3-Major
WALL POSITION	Between Roads
GENERAL NOTES	
RETAINING WALL DATABASE ID	
NUMBER OF ERRORS AND WARNINGS	
USER UPDATE	
SUBMISSION DATE	
DATE UPDATE	

WALL INSPECTION LOCATION INFORMATION & NOTES