

Reflective Cracking Daily Testing Notes

Date: March, 2013

Project: Reflective Cracking Indoor Phase 2

Temperature: N/A

Reflective Cracking Testing Notes:

The full-scale test ended on March 8, 2013. A total of 4869 loading cycles were completed. A number of cores were taken for future laboratory tests to verify the crack direction. For each overlay strip, three 9 inch and one 6 inch diameter cores were obtained as shown in Figure 2. The HMA overlay was then milled on March 20, 2013.

Based upon collected instrumentation data, it was concluded that reflection cracks first initiated at the overlay bottom then propagated in both vertical and horizontal directions. Such a two-directional propagation phenomenon is clearly shown in the crack map below. See Figure 1 and Table 1.

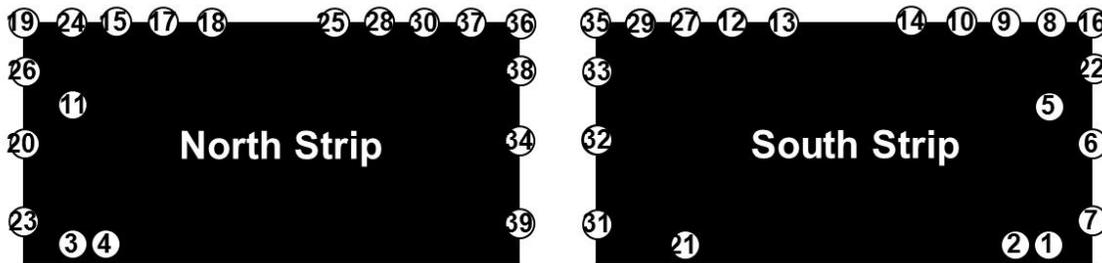


Figure 1. Crack Sequence, Profile View.

Since the majority of instrumentations were located on the surface, additional field cores were taken to determine the crack extent, Figure 2.

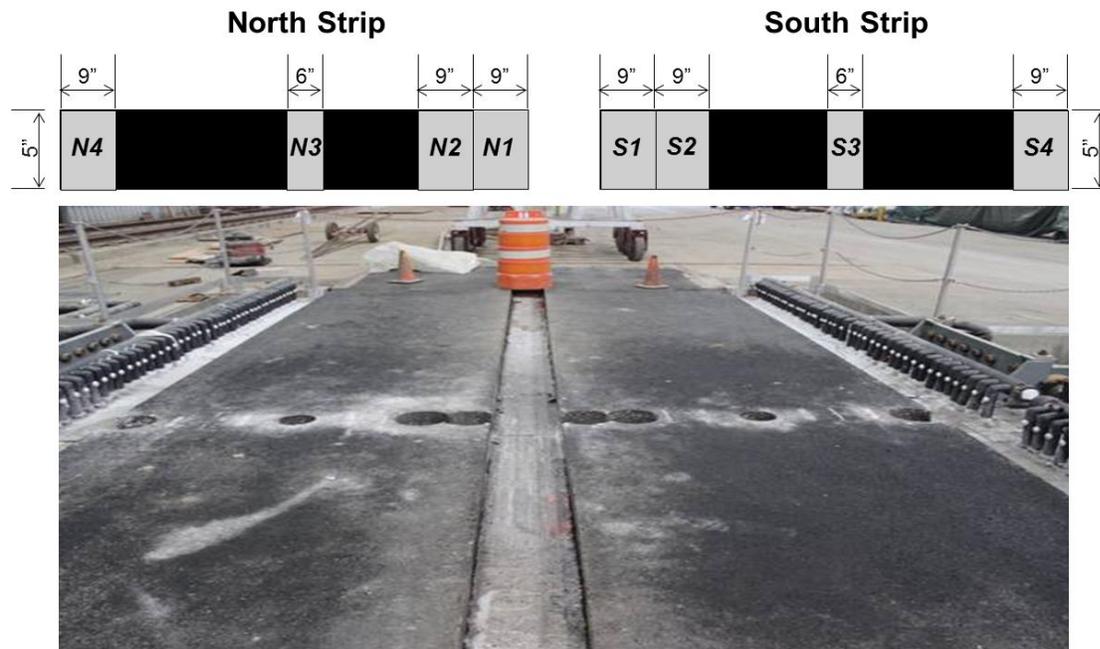


Figure 2. Core locations to determine the crack extent

Table 1. Summary of Sensor Locations and Crack Sequence (* Damaged During Paving).

Event ID	Sensor ID	Location		Cycle
		x	y	
1	EG-4	66	0.5	902
2	EG-12	62	0.5	1008
3	EG-8	-66	0.5	1009
4	EG-9	-62	0.5	1010
5	EG-3	66	3.0	1237
6	SG-8	72	2.5	1259
7	CD-8	72	1.0	1389
8	CD-6	66	5.0	1469
9	SG-6	60	5.0	1478
10	CD-5	54	5.0	1537
11	EG-7	-66	3.0	1563
12	CD-4	24	5.0	1598
13	SG-4	30	5.0	1608
14	SG-5	48	5.0	1637
15	SG-14	-60	5.0	1718
16	SG-7	72	5.0	1814
17	CD-13	-54	5.0	1866
18	SG-13	-48	5.0	1867
19	SG-15	-72	5.0	1877
20	SG-16	-72	2.5	1904
21	EG-11	16	0.5	1919
22	CD-7	72	4.0	1947
23	CD-16	-72	1.0	1973
24	CD-14	-66	5.0	2090
25	SG-12	-30	5.0	2182
26	CD-15	-72	4.0	2220
27	SG-3	18	5.0	2309
28	CD-12	-24	5.0	3309
29	CD-3	12	5.0	3376
30	SG-11	-18	5.0	3444
31	CD-1	6	1.0	3578
32	SG-1	6	2.5	3612
33	CD-2	6	4.0	3707
34	SG-9	-6	2.5	3794
35	SG-2	6	5.0	3820
36	SG-10	-6	5.0	3910
37	CD-11	-12	5.0	3926
38	CD-10	-6	4.0	4202
39	CD-9	-6	1.0	4331