SECOND ANNUAL REPORT
ON
EXPERIMENTAL NOISE BARRIER WALL
US-59 SOUTHWEST FREEWAY
RICE AVENUE TO CHIMNEY ROCK ROAD
LARCHMONT SUBDIVISION

by

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EXPERIMENTAL PROJECT NUMBER TX-89-06
CONSTRUCTION PROJECT NUMBER MA-F514(90)

AUGUST 1992

NOISE BARRIER WALL
US-59 SOUTHWEST FREEWAY
RICE AVENUE TO CHIMNEY ROCK ROAD
LARCHMONT SUBDIVISION

SECOND ANNUAL REPORT

On June 17, 1992, Mr. Mark G. Anthony, Engineering Specialist, and Mr. John B. Stokes, Jr., P.E., inspected the Larchmont Noise Barrier wall for the second annual inspection in accordance with the approved work plan. Each vertical and horizontal joint was inspected for the entire length of the wall and any cracking noted. As shown in the crack survey chart, there are a number of corner cracks where the panels intersect at the vertical joint.

Several photos were taken of the cracks in an attempt to photographically document each crack size. The cracks appear to be the result of stress concentration on uneven surfaces at the joint. A letter from the contractor, in Appendix E of the original report on this wall, indicated that the concrete precaster had trouble with maintaining a smooth, uniform product and corrective action was required when panels were erected. The corner cracks at the vertical joints indicate not enough corrective action was taken to insure uniform bearing at those joints. In addition to rough uneven spots causing cracking, some cracks indicate cover over the prestressing cable may have been inadequate. See Photo Number 6.

Photo Numbers 11, 12, and 16 show that two of the joints are opening up. (Photo #11 and #12 are of the same joint.) A close examination of the joints shows the prestressing cable in the joint is pulled to one side of the hole through the panel, causing cracking on the panel corners. Although the panels have moved, the cable appears to be tight, retaining some of its prestressing. Elevations on the foundations were obtained and slight foundation settlement has occurred. The panels also appear to have settled some, and closed the horizontal joint between the panels. Foundation and joint settlement are causing these vertical joints to open up.

No cracks were observed at the interior prestressing cables which are located at the 45° bends in each panel. Refer to Noise Barrier Wall Layout, and Plan and elevation sheets.

Several additional photographs were taken for this second annual report which are not included in the first annual report. The following photos in this report correspond with the listed photos of the first report.

Second Annual Report		First Annual Report
Photo 1	corresponds with	Photo 1
Photo 2	corresponds with	Photo 2
Photo 3	corresponds with	Photo 3
Photo 4	corresponds with	Photo 4
Photo 6	corresponds with	Photo 5
Photo 7	corresponds with	Photo 6
Photo 9	corresponds with	Photo 8
Photo 10	corresponds with	Photo 9
Photo 13	corresponds with	Photo 10

Although cracks occurred at some of the vertical joints, there does not appear to be any shift from the vertical for the wall. There are very few cracks in the spread footing foundation and the footing appears to be in good condition with little settlement. Wall finish appears to be in as good a condition as when the wall was constructed.

Even though there are some cracked corners on some of the wall panels and there are some foundation cracks, the wall appears to still be structurally sound and is functioning as intended.

CRACK SURVEY OF 271-13-149
SOUND WALL (LARCHMONT SUBDIVISION - US 59 SOUTHWEST FREEWAY)

The following chart indicates the location and severity of witnessed cracks along the "Larchmont" wall.

The joints referenced are the vertical joints (entire height of wall) between panels. These joints are numbered from right to left beginning near Rice Blvd. (#1) and continuing toward Chimney Rock as viewed from the freeway. See "Noise Barrier Wall Layout" for joint location.

The "Panel Intersection No." represents the actual intersections of two adjacent horizontal panels with two adjacent vertical panels. In essence, it is the intersection where four common corners of four panels come together. Also shown in this column is the severity of the crack, if any; S=small, M=medium, L=large, EL=extra large, X=no crack. The direction of the crack or cracks from the panel intersections is indicated by an "a" above joint and/or a "b" below joint. (See "Noise Barrier Wall Plan & Elevation.") The photograph number, if taken, is a circle with a number inside which corresponds to a number on the photo.

Crack Definitions

Small = Hairline to 1/32"

Medium = 1/32 to 1/16"

Large = 1/16" to 1/8"

Extra Large = 1/8" and greater

Five discrepancies have been noticed in the crack survey chart between the "First Annual Report, July 1991" and this report. Identified below are the joint numbers where the discrepancy occurs and an explanation:

35 - The previous report indicated a small crack above the horizontal joint at panel intersection number 3. During this inspection it was determined there was no crack.

46 - The previous report indicated a small crack above the horizontal joint at panel intersection number 2. This was a mistake in indicating the crack in the wrong column. The crack should have been shown in panel intersection number 1 rather than number 2.

67 - The previous report indicated an extra large crack below the horizontal joint at panel intersection number 3. This was a mistake of indicating the crack in the wrong panel intersection column. The crack should have been shown in panel intersection number 4 rather than number 3. Also column 5 indicated an extra large crack below the joint. This was a mistake of indicating the crack below the joint when it is actually above the joint.

69 - The previous report indicated a small crack above the horizontal joint at panel intersection number 2. This was a mistake of indicating the crack above the joint when it is actually below the joint.

73 - The previous report indicated a medium crack above the horizontal joint at panel intersection number 3. This was a mistake of indicating the crack above the joint when it is actually below the joint.

(1) PHOTO NUMBER
S SMALL CRACK
M MEDIUM CRACK

L=LARGE CRACK
EL=EXTRA LARGE CRACK
X=NO CRACK

a=above joint
b=below joint

JOINT NUMBER	PANEL INTERSECTION NUMBER 1	2	3	4	5	COMMENT
1	(1) Sb	Sb	Sb	X	X	
2	Sb	Sa	Sb	X	X	
3	(2) ELa&Mb	X	Mb	X	(3) ELb	
4	X	X	X	X	Ma&b	
5	(4) La&b	X	X	X	X	
6	X	X	X	X	X	
7	Sa	Elb	Ela	X	(5) ELb	
8	X	X	Sb	Sb	Sb	
9	X	X	X	X	(6) ELa&b	
10	X	X	X	X	X	
11	Mb	X	X	X	X	
12	X	X	Sb	X	X	
13	Sb	X	X	X	X	
14	X	Sb	Sb	X	X	
15	Mb	X	X	Mb	Sa	
16	X	X	X	X	Sa&b	
17	X	X	X	X	X	
18	X	Sb	X	X	X	
19	X	X	X	X	X	
20	Sa	Sa	X	X	X	
21	Sb	X	X	X	X	
22	X	X	X	X	X	

(1) PHOTO NUMBER
S SMALL CRACK
M MEDIUM CRACK

L=LARGE CRACK
EL=EXTRA LARGE CRACK
X=NO CRACK

a=above joint
b=below joint

	PANEL INTERSECTION NUMBER					COMMENT
JOINT NUMBER	1	2	3	4	5	
23	X	X	X	X	Ma&b	
24	X	Sa	X	Sb	(7) Lb	
25	X	X	Sb	X	X	
26	X	X	X	X	X	
27	Sb	X	X	X	Ma	
28	X	X	X	X	X	
29	X	X	Ma	X	Mb	
30	Sa	X	X	X	X	
31	Mb	X	X	Mb	Sb	
32	X	Ma&b	X	X	X	
33	X	X	X	X	X	
34	X	X	Sb	X	X	
35	X	X	X	X	X	
36	X	X	X	X	X	
37	X	X	X	Mb	X	
38	X	X	X	X	X	
39	X	Mb	X	X	X	
40	X	X	X	X	X	
41	Mb	X	Mb	X	X	
42	X	Sb	X	Sa	Mb	
43	X	X	Sb	X	X	
44	X	X	Sa&b	X	Ma&b	

(1) PHOTO NUMBER
S SMALL CRACK
M MEDIUM CRACK

L=LARGE CRACK
EL=EXTRA LARGE CRACK
X=NO CRACK

a=above joint
b=below joint

JOINT NUMBER	PANEL INTERSECTION NUMBER 1	2	3	4	5	COMMENT
45	Mb	X	X	X	Sb	
46	Sa	X	X	Sb	Sb	
47	X	X	X	X	X	
48	X	X	X	X	X	
49	a**	X	X	Sb	X	
50	X	X	Mb	X	ELb	
51	Mb	X	X	X	X	
52	X	X	Sb	Sb	Sa&b	
53	X	(8) b*	X	Mb	X	
54	Sb	X	X	X	X	
55	Mb	X	X	Mb	X	
56	(9) Ma	X	Lb***	X	Mb	
57	Ma	Mb	X	X	X	
58	X	X	Sb	X	Mb	
59	Sb	X	X	X	X	
60	X	X	X	X	X	
61	X	X	X	Lb	Ma	
62	(10) ****	X	X	X	Sb	
63	X	X	X	Sb	X	
64	X	Sb	X	X	X	
65	Lb	X	X	ELb	ELb	
66	Sa&b	X	X	X	X	

* Spall
** Corner Spall
*** Corner May Spall
**** Bottom Panel Spalled @ Spread Footing

(1) PHOTO NUMBER
S SMALL CRACK
M MEDIUM CRACK

L=LARGE CRACK
EL=EXTRA LARGE CRACK
X=NO CRACK

a=above joint
b=below joint

JOINT NUMBER	PANEL INTERSECTION NUMBER 1	2	3	4	5	COMMENT
67	X	Lb	X	b*	ELa*	
68	Sb	Sb	X	X	X	
69	X	Sb	X	X	X	
70	Sb	X	X	X	X	
71	X	X	X	X	X	
72	X	X	X	X	X	
73	b*	b*	b*	Sb	-	
74	X	X	X	X	-	
75	X	X	X	X	-	
76	X	X	X	Sb	-	
77	X	Sb	X	Lb	-	
78	Sa	X	X	X	-	
79	X	X	X	Sb	-	
80	Sb	X	(11) Mb	(12) ELa	-	
81	Sa	X	Sb	X	-	
82	X	X	X	X	-	
83	X	X	X	X	-	
84	X	X	X	X	-	
85	X	X	X	Mb***	-	
86	X	X	X	Sa	-	
87	X	X	X	X	-	
88	X	Ma	X	X	-	

* Spall
*** Corner May Spall

(1) PHOTO NUMBER
S SMALL CRACK
M MEDIUM CRACK

L=LARGE CRACK
EL=EXTRA LARGE CRACK
X=NO CRACK

a=above joint
b=below joint

JOINT NUMBER	PANEL INTERSECTION NUMBER 1	2	3	4	5	COMMENT
89	X	Sa	X	X	-	
90	X	X	X	X	-	
91	X	X	X	X	-	
92	X	Sb	X	X	-	
93	X	X	X	X	-	
94	X	Mb	X	X	-	
95	X	Ma	X	X	-	
96	X	X	X	X	-	
97	X	Mb	X	X	-	
98	X	X	b***	X	-	
99	X	X	X	X	-	
100	X	X	X	X	-	
101	X	X	X	X	-	
102	a**	X	X	X	-	
103	X	X	Sa	X	-	
104	X	Sa	X	X	-	
105	X	X	(13) Ma&b	X	-	
106	X	X	X	X	-	
107	X	X	X	Ma	-	
108	X	X	X	X	-	
109	X	X	Sb	Ma	-	
110	X	(14) ELb	(15) ELa&b	(16) ELb	-	
111	X	X	X	X	-	

** Corner Spall
*** Corner May Spall

PHOTO 1

PHOTO 2

PHOTO 3

PHOTO 4

PHOTO 5

PHOTO 6

PHOTO 7

PHOTO 8

PHOTO 9

PHOTO 10

PHOTO 11

PHOTO 12

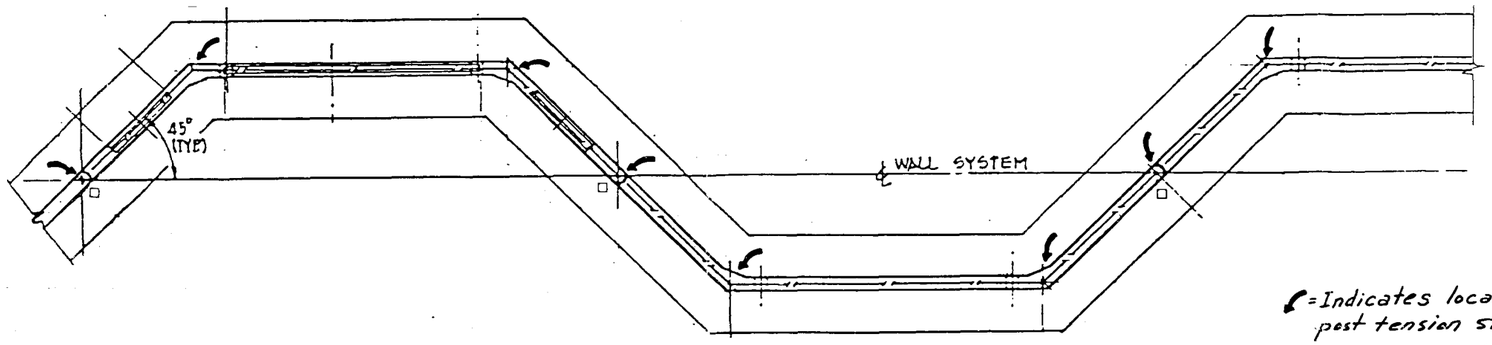
PHOTO 13

PHOTO 14

PHOTO 15

PHOTO 16

NOISE BARRIER WALL LAYOUT

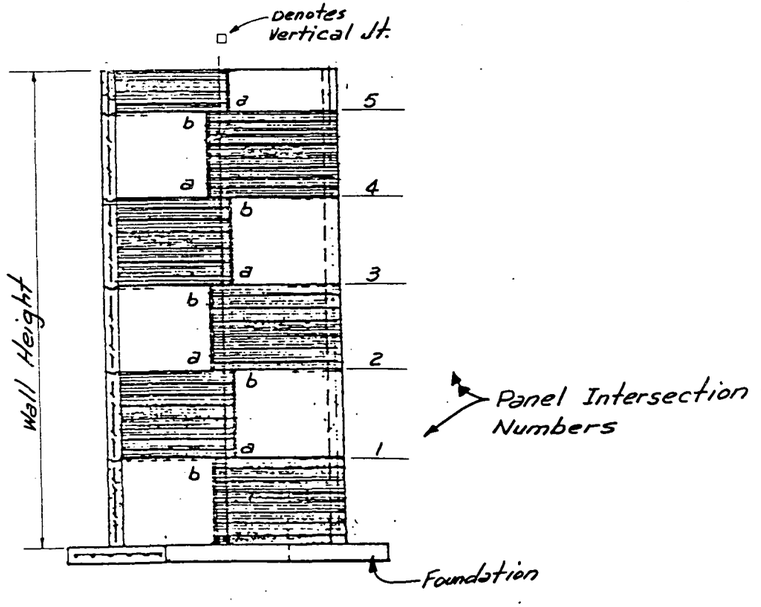


TYPICAL PLAN SHOWING
POST TENSION CABLE LOCATIONS

↙=Indicates location of post tension strands

a= above joint

b= below joint



TYPICAL ELEVATION

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

NOISE BARRIER WALL PLAN & ELEVATION

ORIGINAL DRAWING DATE		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
DR.-	REVISIONS		6		
CK.-		COUNTY		CONTROL SECTION JOB	HIGHWAY
DR.-					
CK.-					