September 15, 2010

Project No. 2008-007

Mr. Brian Balderrama
AECOM
300 South Grand Avenue, 2nd Floor
Los Angeles, California 90071

Subject: Addendum No. 1
Preliminary Materials Report
Grove Avenue Corridor Project
Project No. ST0302
Ontario, California

Dear Mr. Balderrama:

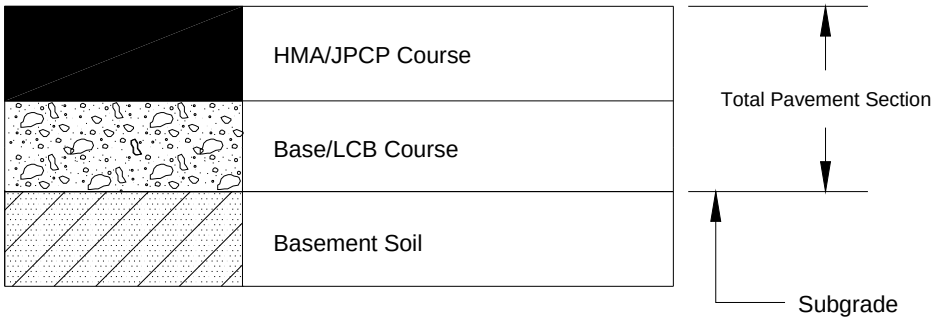
This Addendum No. 1 presents Diaz•Yourman & Associates' (DYA) revised pavement recommendations for the subject project. Previously, DYA provided a Preliminary Materials Report (PMR) for the subject project on November 5, 2008 (DYA PMR). DYA PMR included recommendations for hot mix asphalt (HMA) pavement for Grove Avenue and Fourth Street. Subsequently, in December 2009 additional pavement recommendations were requested by AECOM for the following:

- Portland cement concrete (PCC) sections for Grove Avenue and Fourth Street.
- HMA and PCC pavement sections for freeway outer lanes, inner lanes, and ramp.

The additional pavement recommendations were provided by DYA in December 2009 to AECOM via emails. This Addendum No. 1 documents the revised pavement recommendations previously provided.

The revised pavement recommendations for Grove Avenue and Fourth Street are provided on Figure 1. Recommendations for freeway pavement sections based on assumed subgrade characteristics are included on Figure 2.

1616 EAST 17th STREET SANTA ANA, CA 92705-8509 TEL. (714) 245-2920 FAX (714) 245-2950

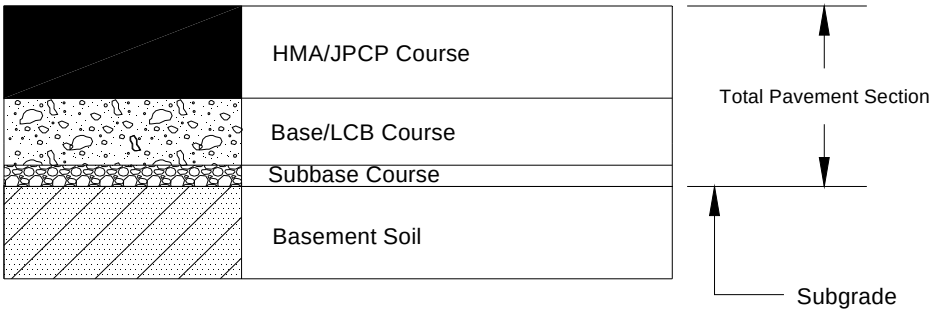


COURSE	MINIMUM THICKNESS (feet)			
	Hot Mix Asphalt Over Base		Full Depth Hot Mix Asphalt	
	TI[1]=12	TI=10	TI=12	TI=10
	R[2]=50	R=50	R=50	R=50
HMA[3]	0.65	0.5	1.0	0.85
Base[4]	0.7	0.65	--	--
Subgrade Layer[5]	1	1	1	1
	Portland Cement Concrete Section			
JPCP[6]	0.85	0.80	0.75	0.75
LCB[7]	0.40	--	--	--
Base[4]	--	0.60	0.50	1.00
Subgrade Layer[5]	1	1	1.3	1

Notes:

1. TI = Traffic index; TI=12 and TI=10 were considered for Grove Avenue and Fourth Street, respectively.
2. R = California R Value; R=50 for existing subgrade based on DYA field investigation at the locations sampled.
3. Hot Mix Asphalt (HMA) should satisfy the requirements of Caltrans Standard Specifications Section 39.
4. Base course = Crushed miscellaneous base (CMB), in accordance with Caltrans Standard Specifications Section 26. The minimum relative compaction is 95 percent.
5. Compacted in-place natural soil or fill; the minimum is 95 percent relative.
6. JPCP = Jointed Plain Concrete Pavement.
7. LCB = Lean Concrete Base.

Figure 1 - PAVEMENT THICKNESS RECOMMENDATIONS - GROVE AVENUE AND FOURTH STREET



COURSE	MINIMUM THICKNESS (feet)					
	Hot Mix Asphalt Over Base					
	TI[1]=17		TI=14		TI=9	
	R[2]=50	R=15	R=50	R=15	R=50	R=15
HMA[3]	--	--	0.9	1.35	0.5	0.7
Base[4]	--	--	0.55	0.9	0.45	0.9
Basement Soil[5]	--	--	1	1	1.6	1
	Full Depth Hot Mix Asphalt					
HMA	--	--	1.2	1.75	0.75	1.05
Base	--	--	--	--	--	--
Basement Soil	--	--	1.3	1	1.8	1.5
	Rubberized Hot Mix Asphalt					
RHMA-G[6]	--	--	0.1	0.1	0.1	0.1
HMA	--	--	0.8	1.25	0.4	0.6
Base	--	--	0.55	0.9	0.45	0.9
Basement Soil	--	--	1	1	1.6	1
	Portland Cement Concrete Section					
JPCP[7]	1.1	1.1	0.95	0.95	0.75	0.75
LCB[8]	0.5	0.5	0.5	0.5	--	--
Base	--	--	--	--	0.50	1.00
Class 2 Aggregate Subbase[9]	--	0.7	--	0.7	--	--
Basement Soil	1	1	1	1	1.3	1

Notes:

1. TI = Traffic index; TI=17, T=14, and TI=9 were considered for Freeway outer lane, Freeway inner lane, and ramps, respectively. Flexible pavements are not recommended for TI>15.
2. R = California R Value, assumed. No field investigation has been performed for this investigation.
3. Hot Mix Asphalt (HMA) should satisfy the requirements of Caltrans Standard Specifications Section 39.
4. Base course = Crushed miscellaneous base (CMB), in accordance with Caltrans Standard Specifications Section 26. The minimum relative compaction is 95 percent.
5. Compacted in-place natural soil or fill; the minimum is 95 percent relative. The minimum thickness of compacted subgrade was based on Caltrans criteria requiring 95% relative compaction in the upper 2.5 feet.
6. RHMA-G = Rubberized Hot Mix Asphalt – Gap graded. This is a structural course placed as the surface portion of a standard HMA pavement section. If a non-structural open-graded RHMA-O is selected, it may be added as a 0.1 foot lift onto the top of a standard HMA course.
7. JPCP = Jointed Plain Concrete Pavement. Laterally supported case considered.
8. LCB = Lean Concrete Base.
9. Class 2 Aggregate Subbase in accordance with Caltrans Standard Specifications Section 26.

Figure 2 - PAVEMENT THICKNESS RECOMMENDATIONS - FREEWAY LANES AND RAMPS

This Addendum No. 1 report is intended to be made a part of, and incorporated with DYA's PMR dated November 5, 2008. All conclusions, recommendations, and limitations provided in the 2008 DYA PMR, except as amended in this letter report, remain valid.

Sincerely,

DIAZ•YOURMAN & ASSOCIATES

V.R. Nadeswaran
Geotechnical Engineer 2390

VRN:cfp