Mix Design Review - Superpave 19 mm Heavy Below Zone

Project Information

Project:	
MCDOT Job No.:	
Material Supplier:	Mesa Materials (Higley)
Mix ID:	533
Mix Type:	19.0 mm Superpave
Intended Use:	Arterial

Submittal Requirements

Mix Design Expiration Date	4/16/2005	
Mix Plant Location	Mesa AZ	
ARPA Certificate	2/19/2006	
Engineer Stamp	Yes - Don Cornelison	
Compaction Curves	Yes	
0.45 Power Gradation Chart	Below Zone	
TSR Test Results, %	82%	70 Min.

Aggregate Properties

Gradation	Submitted Target	Required	Production Tolerences	
1" (25)		100		
3/4" (19)	97	90-100		± 7
1/2" (12.5)	84	68-88		± 6
3/8" (9.5)	73	56-80		± 6
#4 (4.75)	43			± 6
#8 (2.36)	32	<34.6		± 6
#16 (1.18)	22	<22.3		
#30 (.600)	15	<16.7		± 4
#50 (.300)	10	<13.7		
#200 (.075	5.0	2.0-8.0		± 2.0

Characteristics	Submitted Target	Heavy Volume Traffic
FF% (Coarse aggregate only) (AZ Test Method 212D)	99.2 98.1	85.0, 1 or more 80.0, 2 or more
Uncompacted Voids % Min. (AASHTO T-304, Method A)	45.9	45 Min.
Flat & Elong Pieces % Max. (ASTM D-4791)	0.5	10 Max.
Sand Equivalent % Min.	63	50 Min.
Plasticity Index (AASHTO T-90)	NP	Non-Plastic
LAR (100 Rev):	5	10 Max.
LAR (500 Rev):	20	40 Max
Film Thickness, Microns	9	

Approved By: [illegible] Date: 6-28-04

Mix Design Criteria

Table 710.6 Superpave™ Criteria

	Submitted	Heavy Traffic
% of Rice @ N_{ini}	87.1	<89.0
% of Rice @ N_{des}	96.1	96.0±0.2
% of Rice @ N_{max}	97.3	<98.0
% Voids Filled	70.9	65-75
Air Voids @ N_{des}, %	3.9	4.0±0.2

Table 710.7 / Asphalt Content (%)

Mix Designation	Submitted AC, %	For Gradations Below the Restricted Zone
19.0 mm	4.9	4.0-5.5

Table 710.8 / Voids in Mineral Aggregate

Nominal Max. Agg. Size/Designation	Max Agg. Size	Submitted VMA, %	Minimum VMA (%)
19.0 mm	25 mm	13.4	13.0

713.3 General

Maximum Theoretical Sp. Gr.	2.467	153.9 (pcf)
Asphalt Absorption on Dry Agg. (%)	0.78	
Binder Type	PG 70-10	
Binder Source	Koch	
Admix Type	Lime	
Admix Source	Chemical Lime Co.	
Mixing Temperature	326ºF	
Compaction Temperature	303ºF	