

APPENDIX C

LPA Field Tested Materials Assurance Guide (FTMAG)

LANE COUNTY FIELD TESTED MATERIALS ASSURANCE GUIDE

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		ODOT	WAQTC	AASHTO				
SECTION 00330 - EARTHWORK								
Stone Embankment Material (See Sec. 330.16(a)) Soil and Soil/Aggregate Mixtures	<i>Gradation</i>						<i>1/Project or 1/Source/Year with Approved Source Documents on File with Lane County</i>	See ODOT MFTP Section 4D
Establishing Maximum Density (for Compaction) <i>(1) Per Agency requirements (2) Method A or D per Agency requirements</i>	<i>Density Curve</i>			<i>(1)(2) T 99 or T 180 T 85</i>	3468 3468		<i>1/Soil Type</i>	
	<i>Bulk Specific Gravity</i>			<i>T 272</i>	3468FC			
	<i>Family of Curves</i>			<i>T 310 T 99/T 180</i>		1793	<i>1/200'/Lane</i>	
Compaction <i>(3) Agency may report deflection testing in their daily field reports in lieu of using form LC734- 1793DFR</i>	<i>Nuclear Gauge</i> <i>Coarse Particle Correction</i> <i>(3) Deflection Testing</i>					1793DFR	<i>1 pass/Lane</i>	
							<i>Contractor must demonstrate, by compaction testing or acceptable visual means, that the material, equipment, and process used for compaction achieves the specification requirements. If the material, equipment, or process changes, or conditions indicate a non-specification product, the Contractor must re-demonstrate that it is achieving the specifications requirements.</i>	
Imported Topsoil (See Section 01040.14)	<i>Compliance</i>				4000		<i>1/Source and 1/Type of Soil</i>	
SECTION 00331 - SUBGRADE STABILIZATION								
Aggregate backfill	<i>Material must meet the requirements of Section 00331.10</i>						<i>1/Source/Year with Approved Source Documents on File with Lane County</i>	See ODOT MFTP Section 4D
Water	<i>Material must meet the requirements of Section 00340</i>						<i>Visual</i>	
Compaction by Nuclear Gauge				<i>T 310</i>		1793	<i>1/400 SQ.FT. (min. 4' wide)</i>	

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SECTION 00390 - RIPRAP PROTECTION									
Fill Material & Riprap	<i>Material must meet the requirements of Section 00390</i>								
Filter Blanket	<i>Gradation See 00390.13</i>	<i>Material must meet the requirements of Section 00390</i>					<i>Visual</i>	See ODOT MFTP Section 4A	
Grouted Riprap Sand	<i>Material must meet the requirements of Section 00390</i>								
Portland Cement	<i>Compliance</i>				4000		<i>Review Documentation for acceptance</i>		
SECTION 00405 - TRENCH EXCAVATION, BEDDING, AND BACKFILL									
TRENCH FOUNDATION -- Excavation below grade only									
Selected general backfill	<i>Material must meet the requirements of Section 00330.13</i>								
Selected granular backfill	<i>Material must meet the requirements of Section 00330.14</i>								
Selected stone backfill	<i>Material must meet the requirements of Section 00330.15</i>							<i>Visual</i>	See ODOT MFTP Section 4D
Other approved material	<i>Material must meet the requirements of Section 00405.11</i>								
Bedding									
Commercial 3/4" - 0 Aggregate	<i>Material must meet the requirements of Section 00641</i>							<i>Visual</i>	
Continuous cradle of Commercial Grade Concrete (See Section 00440)	<i>Material must meet the requirements of Section 00440</i>								

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Pipe Zone Material							Visual	See ODOT MFTP Section 4D
Flexible Pipe	Use the Listed Material requirements under Bedding							
Rigid Pipe: Aggregate Base (1"- 0) or (3/4"-0) aggregate	Material must meet the requirements of Section 00641							
Sand/Gravel Blend	Material must meet the requirements of Section 00405.14(d)							
Trench Backfill							Visual	
Class A Backfill - Native or common Material	Material must meet the requirements of Section 00330.43							
Class B Backfill - 1"-0 or 3/4"-0 Granular Material	Material must meet the requirements of Section 00641							
Class D Backfill - Pit run, bar run material with or Sand/Gravel Blend	Material must meet the requirements of Section 00405.14							
Class E Backfill - Controlled Low Strength Strength Material	Material must meet the requirements of Section 00442					Soil: 1/Soil Type Granular Material: 1/Gradation or Source		
Establishing Maximum Density (1) Per Agency requirements (2) Method A or D per Agency requirements	Density Curve			(1)(2) T 99 or T 180	3468			
	Bulk Specific Gravity			T 85	3468			
	Family of Curves			T 272	3468FC			
Compaction	Nuclear Gauge Coarse Particle Correction			T 310 T 99/T 180		1793	Trench Depth > 4' = Visual up to 4' depth, 1 test/100' length at 4' depth and top lift; Visual at intermediate depths (between 0 - 4')	

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SECTION 00430 - SUBSURFACE DRAINS								
Granular Drain Backfill Material	Sampling Reducing Sieve Analysis			T 2 T 248 T 27		1792	Visual	See ODOT MFTP Section 4D
SECTION 00440 - COMMERCIAL GRADE CONCRETE								
Mixture	Sampling Air Content Slump Concrete Temperature		TM 2	T 152 T 119 T 309		4000C	1 per each set of cylinders	Not Required
Structural Items	Strength			T 22 & T 23		4000C	^(S) 1 Set/Day	1/Project
Other Items (Except Visual Accept.)	Strength			T 22 & T 23		4000C	^(S) 1 Set/Day Pole Foundation: 1 Set/10yd ³ (min. 1/day)	
^(S) 1 Set Represents a minimum of 4 Cylinders								
SECTION 00442 - CONTROLLED LOW STRENGTH MATERIALS (CLSM)								
CLSM Mixture	Mix Proportions Trial Batch Strength			T 22 & T 23		4000C	1/Project or Source	Not Required
SECTION 00445 - SANITARY, STORM, CULVERT, SIPHON, AND IRRIGATION PIPE - INCLUDED WITH SECTION 00405								
SECTION 00460 - PAVED CULVERT END SLOPES								
Commercial Grade Concrete	Material must meet the requirements of Section 00440							

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SECTION 00470 - MANHOLES, CATCH BASINS AND INLETS								
Commercial Grade Concrete	<i>Material must meet the requirements of Section 00440</i>							See ODOT MFTP Section 4D
Sump Backfill- Crushed or Uncrushed, well graded from 4"- 2" or 6"- 2" (See Section 00470.17)							<i>Visual</i>	
Base Drain Backfill- Aggregate Base Selected or Selected Granular Backfill	<i>Material must meet the requirements of Section 00470.17</i>						<i>Visual</i>	
Excavation, Backfill and Foundation Stabilization	<i>Material must meet the requirements of Section 00405</i>						<i>Visual</i>	
SECTION 00480 - DRAINAGE CURBS								
Aggregate Gradation	<i>Material must meet the requirements of Section 00480.11</i>						<i>Visual</i>	See ODOT MFTP Section 4D
Commercial Grade Concrete	<i>Material must meet the requirements of Section 00440</i>						<i>Visual</i>	
Dense Graded HMAC Mixture Level 2, 1/2" Dense	<i>Material must meet the requirements of Section 00744</i>						<i>Visual</i>	
SECTION 00641 - AGGREGATE SUBBASE, BASE, AND SHOULDERS								
Aggregate Production	<i>Abrasion</i>						<i>Visual</i>	Not Required for Aggregate Subbase and Shoulders.
Aggregate Subbase Grading (See 00641.10)	<i>Sampling Reducing Sieve Analysis Sand Equivalent</i>			<i>T 2 T 248 T 27 T 176</i>		<i>1792</i>	<i>1/Project or 1/Source</i>	
Aggregate Base and Shoulders	<i>Abrasion Degradation</i>	<i>TM 208</i>		<i>T 96</i>	<i>4000</i>		<i>1/Project or 1/Source</i>	See ODOT MFTP Section 4D for Aggregate Base
Grading Aggregate Base (See 02630) Aggregate Shoulder (See 02640) Open Graded Aggregate Base (See 02630.11)	<i>Sampling Reducing (1) Sieve Analysis (2) Sand Equivalent</i>			<i>T 2 T 248 T 27 T 176</i>		<i>1792</i>		
(1) Perform at least 3 tests (2) May be waived by QAE	<i>Fracture</i>			<i>TP 61</i>		<i>1792</i>		

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		ODOT	WAQTC	AASHTO					
PLACEMENT									
Aggregate Base material only									
<i>Plant Mix Applications Only</i>									
Establishing Maximum Density & Optimum Moisture (Mix Design) (1) Per Agency requirements (2) Method A or D per Agency requirements	Density Curve Coarse Particle Correction Bulk Specific Gravity	TM 158		(1)(2) T 99 or T 180 T 99/T 180 T 85	3468B		1/Size per Source	See ODOT MFTP Section 4D	
Compaction (3) Agency may report deflection testing in their daily field reports in lieu of using form LC734-1793DFR (Individual tests must meet Specification)	Nuclear Gauge (3) Deflection Testing		T 310			1793			1 test/200'/Lane
						1793DFR			1 pass/Lane
SECTION 00642 - IN-PLACE CEMENT TREATED BASE									
SECTION 00643 - FULL DEPTH RECLAMATION									
Pulverized Material									
Gradation Moisture Content Establishing Maximum Density & Optimum Moisture (Mix Design) (1) Method A or D	Compliance Compliance Density Curve Coarse Particle Correction Bulk Specific Gravity			(1) T 99 T 99 T 85	3468 3468		Visual Visual 1/Size per Source	Not Required	
Additives Portland Cement Water	Compliance Content Compliance						None needed if from QPL Based on Dry Weight of Reclaimed Material See Section 02020		
Treated Material Compaction (2) Agency may report deflection testing in their daily field reports in lieu of using form LC734-1793DFR	Nuclear Gauge (2) Deflection Testing	TM 158		T 310		1793 1793DFR	1 pass/lane		
SECTION 00651 - CEMENT TREATED BASE									
Aggregate (See 02630.11) Grading	Abrasion Degradation	TM 208		T 96	4000			Not Required	

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(1) Perform at least 3 tests (2) May be waived by QAE	Sampling			T 2			1/Project or 1/Source	
	Reducing			T 248		1792		
	(1) Sieve Analysis			T 27				
	(2) Sand Equivalent			T 176				
	Fracture			TP 61		1792		
Additives Portland Cement Water	Compliance Compliance						None needed if from QPL See Section 02020	Not Required
Cement Treated Material Establishing Maximum Density & Optimum Moisture (Mix Design)	Density Curve			T 99 Method D	3468		1/Size per Source	
	Coarse Particle Correction Bulk Specific Gravity			T 99 T 85	3468			
Compaction	Nuclear Gauge			T 310		1793	3 locations/3600 square feet, 2 tests at each location	
Compressive Strength (1) May be waived by QAE	ASTM 1633 Method A						(1) 3 samples/day of production	
SECTION 00706 EMULSIFIED SLURRY SEAL SURFACING								
Aggregate Production	Sampling Reducing Sieve Analysis			T 2 T 248 T 27/T 11		1792	1/Source	Not Required
Emulsified Asphalt Cement Emulsified Asphalt Polymer Modified Emulsion	Compliance				4000		Review Documents Submitted per Specifications	
Additives Mineral Filler	Compliance Compliance				4000		Review Documents Submitted per Specifications	
Material must meet the requirements of Section 00706.16								
SECTION 00730 - ASPHALT TACK COAT								
Tack	Compliance				4000		Review Documentation for Acceptance	Not Required

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SECTION 00744 - ASPHALT CONCRETE PAVEMENT (ACP)								
Mix Design Verification								
(1) Minimum 1/Project required for projects with 2000 tons or more and to be performed within first subplot	(1) Gyratory Specimen Max. Specific Gravity	TM 326		T 209		2050GV 2050	1/Year/Mix or if asphalt source changes Review Documentation for Acceptance (part of the annual verification of approved mix designs)	Not Required for Projects using less than 2,500 tons of ACP See ODOT MFTP Section 4D for Projects using greater than 2,500 tons of ACP. Use IA parameters stated in: 00745 ASPHALT CONCRETE PAVEMENT- STATISTICAL ACCEPTANCE for all IA testing requirements for 00744.
	Bulk Specific Gravity		T 166		2050GV			
	Tensile Strength Ratio		T 283		2050tsr			
	Rut Susceptibility	TM 320			N/A	N/A		
Gradation Ignition Method (Residual aggregate from AASHTO T 308)	Calibrate Incinerator Sampling Reducing Sieve analysis	TM 323		T 168 R47 T 30		2327IC 2277	1/JMF 1/1000 tons	00745 ASPHALT CONCRETE PAVEMENT- STATISTICAL ACCEPTANCE for all IA testing requirements for 00744.
Asphalt Content Ignition Method	Calibrate Incinerator Sampling Reducing	TM 323		T 168 R47		2327IC	1/JMF 1/1000 tons	
	Asphalt Content			T 308		2277		
						2277		
RAP/RAS/RAM Percentage (1) Required at start of production and if meters fail to meet specification	RAP Moisture ColdFeed Moisture	TM 321 (1) TM 322		T 329 T 255/T 265			Review Documentation for Acceptance (part of the annual verification of approved mix designs)	

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Placement Maximum Density Test	<i>Max. Specific Gravity MAMD</i>	<i>TM 305</i>		<i>T 209</i>		<i>2277</i>	<i>1/full day of paving</i>	Not Required for Projects using less than 2,500 tons of ACP See ODOT MFTP Section 4D for Projects using greater than 2,500 tons of ACP (Section 00745 as referenced above)
Thickness of Pavement	<i>Sticking Measure</i>	<i>TM 775</i>					<i>1 measurement/100' and at grade breaks</i>	
Compaction	<i>Nuclear Density</i>		<i>TM 8</i>			<i>1793A or 1793AMAMD</i>	<i>Projects <= 1000' in length 1/100'/Lane Projects > 1000' in length 1/200'/Lane Minimum of 4 tests per project</i>	
Smoothness Testing							<i>Visual - Straightedge 10% length and at manholes, intersections and joints</i>	
SECTION 00748 - PAVEMENT REPAIR								
Aggregate Base	<i>Material must meet the requirements of Section 00332.10</i>						<i>Visual</i>	
Compaction by Nuclear Gauge	<i>Material must meet the requirements of Section 00332</i>						<i>Projects > 1000' in length 1/200'/Lane</i>	Not Required
HMAC								
Compaction by Nuclear Gauge	<i>Material must meet the requirements of Section 00748</i>						<i>1/400 SQ.FT. (min. 4' wide) per lift</i>	
SECTION 00755 - CONTINUOUSLY REINFORCED CONCRETE PAVEMENT								
SECTION 00756 - PLAIN PORTLAND CEMENT CONCRETE PAVEMENT								
Mixture	<i>Sampling Air Content Slump Yield Concrete Temperature Water/Cement Ratio</i>		<i>TM 2</i>	<i>T 152 T 119 T 121 T 309</i>		<i>4000C</i>	<i>1/per set of cylinders</i>	1/per year
	<i>Strength</i>			<i>T 121 T 22 & T 23</i>		<i>4000C</i>	<i>Review Documentation for Acceptance</i>	
(S) 1 Set Represents a minimum of 4 cylinders							<i>(S) 1 Set of Cylinders per 300 lane feet; min. 2 per full day of paving</i>	
Smoothness Testing (Smoothness)							<i>Visual - Straightedge 10% length and at manholes, intersections and joints</i>	
Thickness of Pavement	<i>Sticking Measure</i>	<i>TM 775</i>					<i>1 measurement/100' and at grade breaks</i>	
SECTION 00850 - COMMON PROVISIONS FOR PAVEMENT MARKINGS								
Placement Evaluation "Retroreflectivity" <i>In-Place Procedure evaluates Durable and High Performance Pavement Markings</i>	<i>Contractor provides Evaluation of Retroreflectivity Using Hand-Operated Instrument per Section 00850.47</i>						<i>Review Documentation for Acceptance</i>	See ODOT MFTP Section 4D

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