



# Transportation test procedures

ATT-68 / 2023 – Appeal Testing ACP







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## 1.0 SCOPE

This method describes the procedures and Test Methods used for the appeal of acceptance test results for asphalt content, density, MTD, and gradation.

## 2.0 TEST PROCEDURES AND DATA SHEETS

Procedure	Data Sheet
ATT-56, Part II, Stratified Random Test Sites, ACP	Stratified Random Test Sites (Such as MAT 6-82)
ATT-5, Coring	N/A
ATT-7, Density, Immersion Method, Saturated Surface Dry Asphalt Concrete Specimens  ATT-12, Part II, Filterless Extraction and Filterless Centrifuge Method  ATT-26, Sieve Analysis -25,000 µm	Core Density, Extraction and Sieve Analysis (MAT 6-79)
ATT-12, Part III, Correction Factor, Extracted Asphalt Content	Extraction Asphalt Content Correction Factor (Such as MAT 6-75)
ATT-77, Theoretical Maximum Specific Gravity of Bituminous Mixtures (MTD)	N/A
Reporting	Data Sheet
Volume 2 – Construction Contract Admin Appendix B - Form B.15 <u>Appeal Initialization Form</u>  Volume 2 – Construction Contract Admin Appendix B - Form B.16 <u>Appeal Testing Form</u>	Required for all appeal types (MAT 6-92A)  Appeal Consultant partially fills out this form with appeal results. (MAT 6-92) <b><i>Remember that Contract specific information is NOT to be included on this form when it is forwarded to the Appeal Consultant.</i></b>  Prime Consultant completes the form with project info, etc. (MAT 6-92) <b><i>after receiving the appeal results</i></b>

## 3.0 PROCEDURE

### 3.1 Sampling by the Contractor

When an Appeal Asphalt Content Correction Factor is required, the Contractor supplies a minimum of 15 kg of representative aggregate of each split, and a 4" sample of project asphalt cement for the appealed Lot. These materials and a completed Appeal Initialization Form (MAT6-92A), as shown in Figure 1, with the design or target gradation, and design or target aggregate splits are shipped along with the appeal cores to a pre-qualified Appeal Testing Laboratory where they will be used to establish an asphalt content extraction correction factor.

### 3.2 Appeal Samples Determined by the Consultant

The following core sampling procedures are for **Appeals of Asphalt Content, Density, and Gradation**. The Contractor does the coring under the observation of the Consultant QA technologist or project manager.

1. Core locations are established by the Consultant using the Stratified Random Test Site procedure ATT-56, Part II. The contractor obtains 5 new core samples at the new stratified random locations and gives them to the consultant.
2. For density appeals, the core thickness must meet the requirements described in ATT-5 CORING (or ATT-56, Stratified Randoms, Part II).
3. For asphalt content or gradation appeals, sufficient six-inch diameter cores are taken at the same location, for each of the separate segments, to provide the Appeal Testing Laboratory with a minimum 2000-gram extraction sample. This is the weight after trimming and removing the cut rock, as described in ATT-12, EXTRACTION, Part II Centrifuge. Cores for asphalt content appeals taken on bottom lifts over crack filler, are discarded and re-cored at another random location within the segment.
4. For each cored specimen, a cut-off saw is used to separate the layer to be tested from other pavement layers, and to remove all tack. The Consultant does the sawing and trimming.
5. Each layer to be tested is identified by segment number only and placed in an appeal testing shipping box. For shipping of appeal test cores, the Consultant shall provide shipping boxes of rigid construction with interior protective padding.
6. When an **MTD Appeal** is required on any individual Lot, the Consultant supplies the stored loose mix samples (usually 5) for that particular lot to the Appeal Consultant so they can run another set of 5 MTD's.
7. The Consultant contacts the Project Administrator to confirm which appeal lab to use. Normally the closest appeal lab is chosen, however; the appeal lab selected should not be involved with the project for any QC/QA testing, and not involved in any of the project mix design services.
8. The cores, aggregate and asphalt cement samples (if applicable), along with the completed Appeal Initialization Form (MAT 6-92A) as shown in Figure 1 are then submitted to the Appeal Testing Laboratory. **Contract specific information IS NOT TO BE INCLUDED on this form**, so that the appeal consultant isn't influenced by what the actual mix design numbers should be.

### 3.3 Density Appeal Testing

1. Each core is processed as per ATT-7, DENSITY, Immersion Method.

## 3.4 Asphalt Content Appeal Testing

1. The asphalt content is determined for each segment in accordance with test method ATT-12, Part II, Filterless Extraction and Filterless Centrifuge Method.
2. An asphalt correction factor is determined using test method ATT-12, Part III, CORRECTION FACTOR, Extracted Asphalt Content. The average (uncorrected) extraction asphalt content of the five samples is used as the Target Asphalt Content. Five samples are required to establish a correction factor.

This correction factor is applied to the extracted asphalt content from the cores to correct for asphalt binder loss due to absorption by the aggregate.

3. The gradation of each extracted sample is determined according to ATT-26, SIEVE ANALYSIS, -25,000  $\mu\text{m}$  AGGREGATE.

## 3.5 Gradation Appeal Testing

1. Repeat steps 1 and 3 of Section 3.4 above.  
**For Gradation Appeals ONLY, ASPHALT CORRECTION FACTORS are NOT REQUIRED**, but the UNCORRECTED Asphalt Content of each core will be reported on the appeal form.

## 3.6 MTD Appeal Testing

1. When an **MTD Appeal** is required on any individual Lot, the Consultant supplies the stored loose mix samples (usually 5) for that particular lot to the Appeal Consultant so they can run another set of 5 MTD's.

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## 4.0 REPORTING PROCESS

1. The Appeal Consultant completes the appeal testing and forwards the appeal test results to the Prime Consultant, and then forwards the appeal testing invoice to the Project Administrator who setup the Appeal Testing.
2. The Prime Consultant then completes Appeal Testing form (MAT 6-92), as shown in Figure 2, and calculates the New Appeal Lot Mean value and completes a Revised Lot Paving Report which includes the appeal values and the original values, as per "3.50.4.9 Appeal of Acceptance Test Results and Appeal Testing".
3. The completed Appeal Testing form shall be signed by the Contractor. The Contractor is then given a photocopy of the signed form for his records. A copy of the completed and signed Appeal Testing form is also forwarded to the Project Administrator and the Technical Standards Branch.
4. For Gradation Appeals, a New Gradation Price Adjustment Datasheet is created, averaging all the original gradations for Segments 1-5 and all the gradation data for the appeal segments 1-5 added. A new Lot Mean and Range for all tests will be determined and used for acceptance and unit price adjustment (see Figure 3).
5. For Appeals other than gradations, the single-high and single-low test results from the original Lot will be rejected and the remaining test results will be added to the results of the new tests. A new Lot Mean for the test results will be determined and used for acceptance and unit price adjustment.
6. The original Lot Paving Report results are then amended to reflect the additional appeal results (see Figure 4), as shown in the Standard Specifications for Highway Construction 3.50.4.9 Appeal of Acceptance Test Results and Appeal Testing.

## Appeal Initialization Form

		APPEAL INITIALIZATION FORM	
MAT 6 - 92A/11	CONTACT NAME: <b>Sydney Boomer</b>	PHONE No.:	<b>780-777-2222</b>
	EMAIL: <b>sr@hotmail.com</b>	PRIME CONSULTANT:	<b>Good Roads Company</b>
DATE SUBMITTED: <b>1-Jan-2013</b>	APPEAL TYPE: <b>ACP Gradation</b>	APPEAL CONSULTANT:	<b>Good Appeal Guy</b>
LOT NO.: <b>5</b>	APPEAL NO.: <b>No. 1</b>	PROJECT IDENTIFIER:	<b>Project XX5</b>

APPEAL TYPES
Asphalt Content
ACP Gradation
ACP Density
GBC Gradation
GBC Fractures
L.A. Abrasion
Detrimental Matter
HIR MTD

CORRECTION FACTOR INFORMATION			
<i>(Fill this area out only for asphalt content appeals)</i>			
DESIGN or VIRGIN (fRAP) GRADATION		DESIGN or TARGET AGGREGATE PROPORTIONS %	
SIEVE SIZE (µm)	PERCENT PASSING (%)	COARSE AGGREGATE (12.5mm)	75
25 000		NATURAL FINES	10
20 000		MANUFACTURED FINES	
16 000	100	BLEND SAND	15
12 500	100	COARSE AGGREGATE (20mm)	
10 000	97	COARSE AGGREGATE (25mm)	
5 000	71	OTHER .....	
1250	43	% PASSING 500µm SIEVE IN COARSE	45
630	32		
315	19		
160	11.6		
80	7.5		
ASPHALT CEMENT GRADE AND SUPPLIER	200/300A IMPERIAL		

SHADED AREAS - COMPLETED BY PRIME CONSULTANT - HEADER INFORMATION COMPLETED FOR ALL APPEALS	
CORRECTION FACTOR INFORMATION NEEDED FOR ASPHALT CONTENT APPEALS ONLY	
COPY SUBMITTED WITH SAMPLES AND SENT TO AN APPROVED APPEAL CONSULTANT (AS SPECIFIED IN ATT-68)	For procedures and test methods used for the appeal of acceptance test results see ATT-68 APPEAL TESTING
SEND COMPLETED COPIES OF THIS FORM TO:	
1. THE SURFACE ENGINEERING AND AGGREGATES SECTION (email to trans.construction@gov.ab.ca)	
2. PROJECT SPONSOR	
REMARKS: <i>The Project Identifier in the header is useful in the case where more than one appeal is sent in by the same consultant for different jobs.</i>	
<i>For asphalt content appeals, the Contractor supplies a minimum of 15 kg of representative aggregate for each split, and a 4L sample of project asphalt cement for the appealed Lot. The materials and the design gradation are shipped to the Appeal Testing Consultant.</i>	
<i>For core asphalt content or gradation appeals, sufficient cores are taken at the same location to provide the Appeal Testing Lab with a minimum 2000 g extraction sample.</i>	
NOTE: Contract specific information is NOT to be included on this form.	
Revised: April, 2013	Appendix B.15

FIGURE 1

## Appeal Testing Form

		APPEAL TESTING					
TRANSPORTATION <small>NR 18 - 92 / 11</small>		APPEAL TYPE & NO:			Asphalt Content	No. 1	
PROJECT:	HWY XX:xx	CONTRACT:	123465	DATE LAID:	1-Jan-2013	DATE CORED:	5-Jan-2013
FROM:	Over Here	LOT NO.:	15	CONTRACTOR:	B. Roads	PRIME CONSULTANT	Good Rodway Co.
TO:	Over There	PROJECT MANAGER:				APPEAL CONSULTANT	Accurate Testing

  

SEGMENT OR SAMPLE NUMBER	1	2	3	4	5
STATION OF SEGMENT TEST SITE	12+100	12+650	13+002	13+122	13+450
LOCATION FROM CENTERLINE	2.0 m Rt $\nabla$	2.3 m Rt $\nabla$	0.5 m Rt $\nabla$	4.1 m Rt $\nabla$	3.1 m Rt $\nabla$

  

DENSITY							
A LOT AVERAGE MARSHALL DRY DENSITY						B TOTAL	AVERAGE
CORE DRY DENSITY (kg/m <sup>3</sup> )							

  

ASPHALT CONTENT							
EXTRACTION CORRECTION FACTOR	0.02%					C TOTAL	AVERAGE
CORRECTED EXTRACTION ASPHALT CONTENT (%)	5.71	5.58	5.42	5.52	5.33	27.56	5.51

  

GRADATION OF EXTRACTED CORES or GRANULAR BASE COURSE SAMPLES							
SIEVE SIZE (µm)	PERCENT PASSING (%)					AVERAGE	JOB MIX FORMULA
40 000							100
25 000							100
20 000							100
16 000	100	100	100	100	100	100	98
12 500	90	89	90	91	90	90	88
10 000	79	81	80	79	80	80	80
5 000	65	66	60	63	62	63	61
1 250	39	37	35	38	32	36	37
630	27	29	28	27	27	28	28
315	17	18	17	18	17	17	17
160	9.9	10.7	10.2	10.1	10.2	10.2	9.8
80	6.4	6.8	6.5	6.4	6.4	6.4	6.4
% FRACTURES - GBC	62	61	60	60	62	61	

  

LOT ASPHALT CONTENT or DENSITY CALCULATIONS			
<i>The single high and single low test results from the original Lot will be rejected</i>			
LOT 15		D	E
LOT 15 THREE REMAINING LOT ASPHALT CONTENT TESTS		4.96	5.35
G <sup>1</sup> . FINAL LOT DENSITY RESULTS	(D + E + F + G) / 8		kg/m <sup>3</sup>
G <sup>2</sup> . FINAL LOT ASPHALT CONTENT RESULTS	(D + E + F + G) / 8		%
H. LOT TARGET ASPHALT CONTENT			%
I. DEVIATION FROM TARGET ASPHALT CONTENT	H - G		%
J. FINAL LOT % COMPACTION	(100 G / A)		%
K. LOT UNIT PRICE ADJUSTMENT FOR DENSITY or ASPHALT CONTENT	(TABLE 3.50 A OR B)		\$/t
L. LOT TONNES OF MIX			t
M. APPEAL LOT ADJUSTMENT	K x L		\$

  

SHADE AREAS - COMPLETED BY THE PRIME CONSULTANT AFTER RECEIVING THE RESULTS FROM THE APPEAL CONSULTANT	
SIGN COMPLETED CORES OF THIS FORM TO:	1. THE SURFACE ENGINEERING AND AGGREGATES SECTION (email to <a href="mailto:www.construction@gov.ab.ca">www.construction@gov.ab.ca</a> )
	2. PROJECT SPONSOR
REMARKS:	
Example shown here tries to capture all appeals for illustration; density, asphalt content, gradation and fractures.	
For gradation appeals, all tests from the old Lot will be retained and averaged with the new appeal tests.	
<small>NR 18 - 92 / 11</small>	
PROJECT MANAGER	CONTRACTOR
	APPEAL CONSULTANT

Revised: April, 2013

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FIGURE 2

## Gradation Price Adjustment Datasheet

(with original gradations for Segments 1-5 and appeal gradation data for appeal segments 1-5 added)

Government of Alberta Transportation	E.P.S. GRADATION PRICE ADJUSTMENT DATA SHEET									
Project		Contract #		Lot No.	4	Date Laid				
From		To				Lift			1	
Project Manager		Contractor		Aggregate		Class(mm)			16.0	
	GRADATIONS OF EXTRACTED CORES									
Sieve Size	20000	16000	12500	10000	5000	1250	630	315	160	80
Segment 1	100	100	95	89	67	34	25	16	9.6	6.1
Segment 2	100	100	96	89	68	35	26	16	9.7	6.1
Segment 3	100	100	95	88	67	32	23	14	9.1	6.0
Segment 4	100	100	93	85	64	32	24	14	8.9	5.6
Segment 5	100	99	91	83	62	30	23	14	8.8	5.7
APPEAL Segment 1	100	98	90	81	59	29	21	13	8.7	6.1
APPEAL Segment 2	100	98	90	83	63	30	22	14	8.8	6.1
APPEAL Segment 3	100	99	91	83	61	28	20	13	8.0	5.5
APPEAL Segment 4	100	98	91	86	69	34	24	15	9.2	6.0
APPEAL Segment 5	100	100	92	85	63	31	23	14	8.8	5.9
A. Lot Mean	100	99	92	85	64	32	23	14	9.0	5.9
B. Job Mix Formula	100	99	90	81	63	33	26	15	9.8	7.1
C. Difference	0	0	2	4	1	1	3	1	0.8	1.2
D. Specification Limits		100	80-92	70-84	50-65	26-45	18-38	12-30	8-20	4-10
	Mean Adjustments (within 3.2 Specification)									
E. Mean Tolerance	5	5	5	5	5	3	2	2	1.5	1.5
F. % Out of Mean	0	0	0	0	0	0	1	0	0.0	0.0
G. Mean Adjustments	0	0	0	0	0	0	2	0	0.0	0.0
	Mean Adjustments (Outside Specification 3.2)									
H. % Out of Specifications	0	0	0	1	0	0	0	0	0.0	0.0
I. Mean Adjustments	0	0	0	5	0	0	0	0	0.0	0.0
J. Rejection	no	no	no	no	no	no	no	no	no	no
	Range Values									
K. Allowable Range	10	10	10	10	10	6	5	4	3	3
L. Lot Range	0	2	6	8	9	7	6	3	1.7	0.6
M. Range Failures	no	no	no	no	no	yes	yes	no	no	no
	Lot Adjustment Calculations									
N. Total Mean Adjustments (within Specifications)							2.0			
O. Lot Gradation Price Adjustment per Tonnage (in Spec)		$N \times \$0.04$				QA	(\$0.080)			Remarks:
P. Total Mean Adjustments (outside of Specifications)							5.0			Note: Tolerance of 3% passing the top size is allowed provided the next higher sieve is 100%.
Q. Lot Gradation Price Adjustment per Tonnage (out of Spec)		$P \times \$0.4$				QA	(\$2.000)			
R. Bonus Adjustment (No Adjustments or Range Failures)		+\$0.20				QA	\$0.000			
S. Total Lot Price Adjustment for Gradation							(\$2.080)			
T. Lot Tonnes of Mix							1734.31			
U. Lot Gradation Price Adjustment (Penalty) or Bonus							(\$3,607.36)			

FIGURE 3

# New Revised Lot Paving Report with Appeal Data added for AC, Density & Gradations.

## LOT PAVING REPORT

<b>Government of Alberta</b> Transportation	CONTRACT NO.			PROJECT NO.				PROJECT FROM		LOT NO.	MIX TYPE	MST DESIGN NO.		DESIGN DENSITY (kg/m <sup>3</sup> )	2344	DESIGN AIR VOIDS (%)	3.5				
	WEEK ENDING			PROJECT TO				PROJECT TO				PIT NAME	DESIGN AC (%)	5.3	DESIGN VMA (%)	13.9					
	YY	MM	DD	CL	NO.	A	CS	PAVING CONTRACTOR		QA CONSULTANT		TARGET AC (%)	5.3	DESIGN LIFT THICKNESS (mm)	50						
DATE LAID	LOT AGGREGATE PROPORTIONS			FORMED MARSHALL SPECIMENS				ASPHALT CONTENT (%)			LOT PAVEMENT AND COMPACTION DATA										
	COARSE AGGREGATE %	MANUFACTURED FIBR %	NEUTRAL FINES %	DENSITY kg/m <sup>3</sup>	AIR VOIDS %	V.M.A. %	MIX MOISTURE CONTENT (%)	SAMPLE SOURCE	SEGMENT ASPHALT CONTENT (%)	TEST METHOD	SEGMENT #	STATION	OR	LOCATION	LANE	LIFT	CORE THICKNESS (mm)	DENSITY kg/m <sup>3</sup>	AIR VOIDS %	COMPACTION %	CORE MOISTURE (%)
	53	50	15	2351	3.1	13.8		CO	5.86	IG	1				1	30	2264	6.7	95.4		
LOT PAVING LIMITS (km)				2379	1.9	12.7		CO	5.52	IG	2				1	35	2259	6.9	95.2		
FROM	TO	LANE	MAT	2385	1.7	12.5		CO	5.46	IG	3				1	44	2265	6.6	95.5		
								CO	4.86	IG	4				1	35	2275	6.2	95.9		
								CO	5.34	IG	5				1	40	2274	6.2	95.9		
								CO	5.37	IG	6						2297	5.3	96.8		
								CO	5.70	IG	7						2232	8.0	94.1		
								CO	5.23	IG	8						2264	6.7	95.4		
				<b>2372</b>	<b>2.2</b>	<b>13.0</b>			<b>5.42</b>			<b>LOT MEAN</b>			<b>37</b>	<b>2266</b>	<b>6.6</b>	<b>95.5</b>			
ADDITIONAL MAT		For QC Lots: calculate airvoids using target AC		2.3	12.9	* Use Lot Mean Corrected asphalt content to calculate Marshall Air Voids & V.M.A. ** Lot Mean % Compaction = (100 X Lot Mean Density) / (Lot Mean Marshall Density)														6.7	
RA Reclaim CF Coarse Fines BS Blend Sand C 2nd Coarse OR Other		R Right L Left C Centerline RS Right Shoulder LS Left Shoulder		TEST NO.		SAMPLE SOURCE		SIEVE ANALYSIS - % PASSING (µm)										LOT TONNAGE		1734.31	
TEST METHOD		LANE		1		CO		20000	16000	12500	10000	5000	1250	630	315	160	80	ASPHALT CONTENT CORRECTION FACTOR (%)		-1.34	
FE Fireless Extraction NU Nuclear RE Relfax FC Filter Centrifuge IG Ignition OR Other		N Northbound S Southbound V Vestbound E Eastbound		2		CO		100	100	96	89	68	35	26	16	9.7	6.1	GC ACCEPTANCE LOT (MGA ONLY)		QA	
SAMPLE SOURCE CODE				3		CO		100	100	95	88	67	32	23	14	9.1	6.0	COMMENTS <b>STD SPECS FOR HWY CONSTRUCTION - EDITION 14, 2010</b> <b>GRADATION APPEAL</b> <b>DENSITY &amp; %AC APPEALS</b> 10,000µm SPEC BAND was in REJECT (Spec 70-84) 10,000µm SPEC BAND now in PENALTY after appeal <b>LOW Marshall Air voids (3.5% ± 0.5%)</b> <b>Core Density still in PENALTY after APPEAL</b>			
CD Core BP Behind Paver CF Cold Feed OR Other				4		CO		100	100	93	85	64	32	24	14	8.9	5.6				
				5		CO		100	99	91	83	62	30	23	14	8.8	5.7				
				6		CO		100	98	90	81	59	29	21	13	8.7	6.1				
				7		Appeal Cores		100	98	90	83	63	30	22	14	8.8	6.1				
				8		CO		100	99	91	83	61	28	20	13	8.0	5.5				
				9		CO		100	98	91	86	69	34	24	15	9.2	6.0				
				10		CO		100	100	92	85	63	31	23	14	8.8	5.9				
				LOT MEAN		1-10		100	99	92	85	64	32	23	14	9.0	5.9				
				JOB MIX FORMULA				100	99	90	81	63	33	26	15	9.8	7.1				
				TOLERANCES FOR THE LOT MEAN FROM JOB MIX FORMULA				5	5	5	5	5	3	2	15	15					
				MAXIMUM RANGE BETWEEN INDIVIDUAL TEST RESULTS IN A LOT				10	10	10	10	10	6	5	4	3	3				
																		DATE RECEIVED		TIME	
																				*** Contractor's Representative	
																				*** Signator indicates receipt of data on the date and time indicated	

FIGURE 4