INSERT TAB

SECTION 3
Report Forms & Examples

SAMPLE AND TEST REPORT FORMS

This Section includes a sample of each of the ODOT forms used for submitting samples and reporting test results. The forms can accommodate two different formats, Metric and English. At the top of the form is an area that allows the user to switch between the different units. Examples of completed reports, in English are also included. Located after the table of contents section is a forms description document that outlines the functions and calculation abilities, if applicable, of the various forms. Each form has a unique number identifier that starts with 734-xxxx and the forms are arranged in numerical order, 734-1792, 734-1793A etc.

If a certified technician elects to use forms other than ODOT, then the modified form must contain the same information and be presented in a similar format to the existing ODOT form. The technician must obtain the approval of the Project Manager prior to using different forms. When submitting material for testing to the Salem Materials Laboratory, the appropriate ODOT form must be utilized.

These forms are available electronically. They may be downloaded from our webpage in FTP format.

The URL address is:

https://www.oregon.gov/odot/Construction/Pages/Forms.aspx

Submittals of form 734-4000, 734-4000C or 734-4000 NFTM requires properly completing the required information as outlined in Section 4 (C) of the MFTP. **If the information required in Section 4(C) is not included on the submitted forms the material will not be accepted for testing.**

A unique data sheet number is also required on the form that is referenced to a submitted sample in chronological order. The data sheet number is a unique value assigned by the submitting party. Example: F-40123-001, the F is generic on all form 4000's, the next set of numbers, in this example, is the technician's certification number and the last series of values indicates the sequential order of submitted samples, 001, 002, 003, etc. If a technician certification number is not available contact the Salem Materials Laboratory at (503-986-6626) and a unique number will be assigned to the user. This eliminates duplicate data sheet numbers, maintains the integrity of the data base and provides for efficient retrieval of information.

The Contractor shall submit copies of the test results to the specified ODOT personnel within the timeframes set forth in the QA program and the project contract. Either the copy of the results or a facsimile of the results will be accepted. The Contractor shall retain the original results for at least three years after ODOT formally accepts the project.

Oregon Department of Transportation
Field Tested Materials Forms and Examples

Soils	
ODOT Form Number	*Description*
734-1793 S	Nuclear Compaction Report For Soil
734-3468	Maximum Density of Construction Materials
734-3468 FC	Family of Curves
Aggregate	
ODOT Form Number	*Description*
734-1792	Field Worksheet for Aggregate
734-1793 B	Nuclear Compaction Report For Base Aggregate
734-1825	Unit Weight and Specific Gravity W/S
734-1825 C	Bulk Density “Unit Weight” Measure Calibration
734-3468 B	Maximum Density of Aggregate Base Material
Asphalt Concrete Pavement (ACP)	
ODOT Form Number	*Description*
734-1793 A 734-1793 AR 734-1793 A10	Nuclear Compaction Report For ACP Nuclear Compaction Report For ACP with Random Location Nuclear Compaction Report For ACP, 10 shot locations
734-1972 A	Random Sample Locations for Density Testing of ACP
734-2043	Daily Asphalt Cement Report
734-2050	Specific Gravity and Maximum Density of ACP
734-2050 GV	Voids Worksheet Gyratory - Multiple
734-2050 GVS	Voids Worksheet Gyratory - Single
734-2050 TSR	Tensile Stripping Strength (TSR) Worksheet
734-2084	Control Strip Method of Compaction Testing
734-2084 T	Establishing Roller Pattern for Thin Lifts of ACP
734-2277	Field Worksheet for ACP (Plant Report)
734-2327	Nuclear-- Core Correlation Worksheet
734-2327 CB	Calibration Batch Form
734-2327 IC	ACP Incinerator Oven Calibration Worksheet

Asphalt Concrete Pavement (ACP)	
ODOT Form Number	*Description*
734-2401	Daily Asphalt Plant Production
734-2401 ACP	Daily Asphalt Plant Reconciliation ACP
734-5068	CAT II – MDV Startup Review
734-2560	CAT II – JMF Target Adjustment Summary
734-5069	CAT II – Density / Control Strip Reconciliation
Concrete	
ODOT Form Number	*Description*
734-3573 WS	Concrete Yield and WIC Ratio Worksheet
734-4000 C	Sample Data Sheet for Concrete Cylinders
Pavement Marking Retroreflectivity Testing	
ODOT Form Number	*Description*
734-4101	Pavement Marking Retroreflectivity Testing – General
734-4102	Pavement Marking Retroreflectivity Testing – Longitudinal Markings
734-4103	Pavement Marking Retroreflectivity Testing – Transverse Markings
734-4104	Pavement Marking Additional Testing Required - Longitudinal Lines
734-4105	Pavement Marking Additional Testing Required - Transverse Markings
Miscellaneous	
ODOT Form Number	*Description*
734-1972	Random Sample Locations by Station Random Units Table
734-4000	Sample Data Sheet
734-4000 NFTM	Sample Data Sheet for Non-Field Tested Materials
734-4040	QA/QC Testing Investigation
734-5072	Random Number Table
734-5189	Resin Bonded Anchor Pull Test
734-5292	Mechanical Anchor Pull Test

Note: These forms may be photocopied for your use. They are also available in Microsoft Excel file format on the Construction Section webpage at the following address:

https://www.oregon.gov/odot/Construction/Pages/Forms.aspx

To copy or move sheets within or between workbooks use the following procedure:

- Save desired forms from the address above and open all files intended for the workbook.
- Right click the work sheet tab to be moved or copied.
- From the pop-up window, left click "**Move or Copy…**"
- From the pop-up window, left click drop down button from the "**To Book:**" box.
- Select desired workbook or (new book).
- Select location in workbook to copy or move sheet in the "**Before sheet**" box.
- To keep a copy in the original book and move select "**Create copy**", otherwise leave blank.
- Click **OK**.

Description of Worksheet & Calculation Explanations

General Instructions

All forms, with the exception of the **1972 A**, **2327 IC**, **2401**, **2550, 4000**, **4000 NFTM** and **4040** forms, have an English (**E**) or Metric (**M**) toggle box in the upper right corner of the form. The default setting will show English units. For field use the forms may be printed in dual units by leaving the box blank, entering (**E**) for English units, or entering (**M**) Metric units. Computer generated forms must have either an (**E**) or (**M**) entered in the box. The forms will then convert to English or Metric and calculate accordingly.

Some forms have color shaded data entry cells. This is to give a visual check for the user to see if data may be missing on the form. These cells are auto-formatted and the shading will disappear when data is entered. If the cell is intentionally left blank or a zero value is in the cell the shading will be visible. If no shading is desired for printing the user can go to: file > page setup, select the sheet tab and check the print black and white box.

1792 FIELD WORKSHEET FOR AGGREGATES

Enter either (**E**) for English or (**M**) for Metric. Enter sieve weights from the PAN cell up for washed gradations and from the top down for dry gradations. This will allow .075mm (#200) specifications to be taken to one decimal place. For dry gradations enter the dry mass and pan in the after wash dry mass and pan cell for the sieve loss to calculate. Enter the specification for either Method 1 (Combined) or Method 2 (Individual) for Fracture to calculate. Manually enter Cumulative % Retained (100-% Passing) for Fineness Modulus to calculate. Enter dry mass of wood waste.

1793 A NUCLEAR COMPACTION TEST REPORT FOR ACP

Enter either (**E**) for English or (**M**) for Metric. Enter correlation factor from **Form 2327** in the core to nuclear correlation box if applicable, otherwise leave blank. Form will calculate percent compaction for each test and the average of the five tests.

1793 AR NUCLEAR COMPACTION TEST REPORT FOR ACP with RANDOM'S

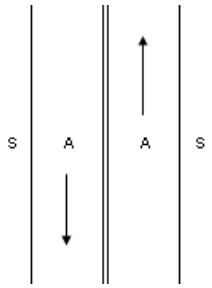
This form is the same as 1793 A except that it also has a section to calculate random testing locations and offsets. This form is an option for use in-lieu of the standard 1793 A form. The same directions apply as form 1793 A. For the yield calculation enter the MAMD, % compaction, panel depth and width, and sublot size. The random's can be set to auto-calculate, by entering an "X" in the auto-calc random's box, or manually by leaving blank. Enter an "X" in the checkbox to base random's on distance or tons. Enter an "X" in the appropriate box to calculate random's in ascending or descending order.

(See Next Sheet for Lane Configuration Examples and test site association)

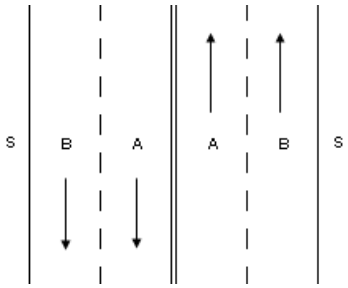
Description of Worksheet & Calculation Explanations

Form 1793 A & Form 1793 AR – (Example of Lane Designations and Test Site Location)

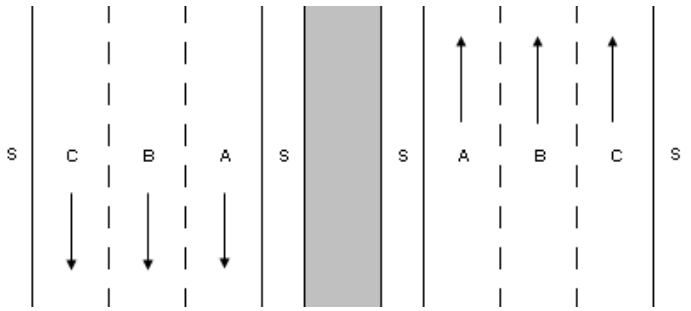
When a set of density tests are taken for a sublot, circle the appropriate direction and lane in which the test was taken. If testing is comprised of multiple lanes and/or ramps, note the test number and location in the remarks. Examples of lane designations are as follows:



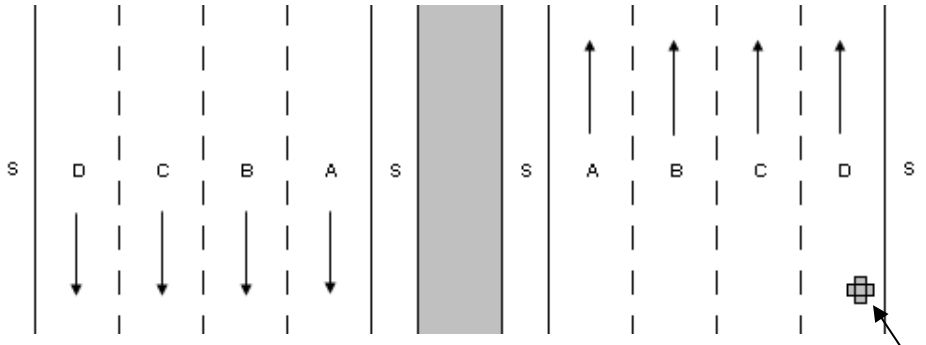
One Lane per Direction



Two Lanes per Direction



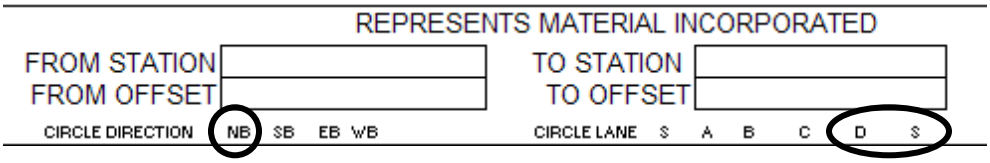
Three Lanes per Direction



Four Lanes per Direction

TEST LOCATION

Example: Shoulder and D lane pulled in the same panel (test location shown above)



Description of Worksheet & Calculation Explanations

1793 B NUCLEAR COMPACTION TEST REPORT FOR BASE

Enter either (**E**) for English or (**M**) for Metric. Enter shot data for wet densities and moistures. Form will average shots and compute dry density, percent moisture, and percent compaction for each individual test.

1793 S NUCLEAR COMPACTION TEST REPORT FOR SOIL

Enter either (**E**) for English or (**M**) for Metric. This form will auto-calculate. If an unscreened sample is used to verify gauge moisture enter the sample information in the appropriate boxes in the one-point section. If not the first one-point will be used to verify gauge moisture. Enter the appropriate mold factor. Enter the % Coarse (Pc) in the box from the Method "A" or "D" screening process. Enter curve data. The section of the form will auto-calculate.

1825 C BULK DENSITY "UNIT WEIGHT" MEASURE CALIBRATION

Enter either (**E**) for English or (**M**) for Metric. Enter mass (lbs for English or kg for Metric) in boxes "1" and "2". Box "A" will auto calculate. Enter Temperature of water (ºF for English or °C for Metric) and corresponding density in box "B" from water density table. Box "V" volume will auto calculate.

1825 UNIT WEIGHT AND SPECIFIC GRAVITY W/S

Enter either (**E**) for English or (**M**) for Metric. AASHTO T 19: Enter masses (lbs for English or kg for Metric) in boxes "A" and "B". Box "C" will auto calculate. Enter volume of measure (ft^3 for English or m^3 for Metric) from form 1825 C in box "D". Unit Weight will auto calculate. AASHTO T 85 and 84: Enter mass (grams) in boxes "A", "B", and "C". Specific gravity values and absorption will auto calculate.

1972 RANDOM SAMPLE LOCATIONS

Enter either (**E**) for English or (**M**) for Metric. This is not a calculating form.

1972 A RANDOM SAMPLE LOCATIONS FOR DENSITY TESTING OF ACP

The user can utilize either tonnage values or distance values for determining random sample locations. In most cases using tonnage values may simplify random sampling management. For the yield calculation enter the MAMD, % compaction, panel depth and width, and sublot size. The random's can be set to auto-calculate, by entering an "X" in the auto-calc random's box, or manually by leaving blank. Enter an "X" in the checkbox to base random's on distance or tons. Enter an "X" in the appropriate box to calculate random's in ascending or descending order.

2043 DAILY ASPHALT CEMENT REPORT

Enter either (**E**) for English or (**M**) for Metric. Some portions of this form are automatically calculated. Volumes in Tank and Temperature Corrections Factors need to be hand entered. The quantities will need to be carried forward to the next report in order to maintain a running total.

2050 SPECIFIC GRAVITY AND MAXIMUM DENSITY OF ACP

Enter either (**E**) for English or (**M**) for Metric. This form is designed for daily, first sample calculation of MAMD for compaction. The MAMD will not calculate but the MDT will self- calculate.

2050 GV VOIDS WORKSHEET GYRATORY

Enter either (**E**) for English or (**M**) for Metric. Enter Design Gsb and Asphalt Gb, test result P#200, test Pb, select dryback requirement according to AASHTO T209 yellow sheet requirements, and Specimen Height for each test sample. Enter previous form results for running average calculation.

2050 GVS VOIDS WORKSHEET GYRATORY

Enter either (**E**) for English or (**M**) for Metric. Enter design Gsb and Asphalt Gb, select dryback requirement according to AASHTO T209 yellow sheet requirements, test P#200, and test Pb in center of form. Enter previous form results and current test results at bottom for running average calculation.

2050 TSR TENSILE STRIPPING STRENGTH

Enter either (**E**) for English or (**M**) for Metric. In test condition cell enter Wet for saturated specimens and leave blank for dry specimens.

Description of Worksheet & Calculation Explanations

2084 CONTROL STRIP METHOD OF COMPACTION TESTING

Enter either (**E**) for English or (**M**) for Metric. This is not a calculating form.

2084T CONTROL STRIP METHOD OF COMPACTION FOR THIN LIFTS OF ACP (TM 301)

Enter either (**E**) for English or (**M**) for Metric. This is not a calculating form.
Enter the station and offsets of the two Evaluation points.

2277 FIELD WORKSHEET FOR ACP (PLANT REPORT)

Enter either (**E**) for English or (**M**) for Metric. Enter the exact term, **EAC** or **ACP** in the heading cell. Enter Sieves from the pan up. When applying correction factors for aggregate gradation and/or asphalt (**Cf**) from Form **2327 IC,** they should be entered as they appear on that form (e.g. + or –). Enter dry washed mass with pan tare for sieve loss calculation. The total asphalt **(O)** cell is the sub total multiplied by the asphalt meter correction cell, if needed. If the plant reads in Tons leave the asphalt meter correction blank. If Ultrapave is used, convert to dry Tons/Mg and enter those values for beginning and ending antistrip.

2327 NUCLEAR - CORE CORRELATION WORKSHEET

Enter either (**E**) for English or (**M**) for Metric. This form calculates the information to the ratio used cells. Check the unwanted ratios and the form will automatically adjust the overall correlation.

2327 CB CALIBRATION BATCH FORM

Enter either (**E**) for English or (**M**) for Metric. Hand enter all information in heading block, JMF % Pass and RAP % Pass columns, all weights in Actual column, and Buttered Mixing Bowl & Spoon cell. All other cells will automatically calculate.

2327 IC ACPINCINERATOR OVEN CALIBRATION WORKSHEET

If the blank and RAP are combined prior to washing, enter the combined weights in the center of the form for wet, dry, and after washed dry masses. If performed separately, use the RAP sample section in the upper right portion of the form and use the center portion for the Blank only.

2401 DAILY ASPHALT PLANT PRODUCTION

Enter the exact term **EAC** or **ACP** in the material type cell. The form assumes that Antistrip is incorporated before the aggregate inclined belt scale therefore including the mass of Antistrip in the total dry aggregate for proper calculations. If Antistrip is added after the aggregate inclined belt scale the mass of Antistrip will not be included in the total dry aggregate and will erroneously affect subsequent calculations. Contact the Region QAC for assistance on how to properly account for Antistrip for plants setup in this fashion. The asphalt deductions box (**k**) is only for material removed from the oil tank during production and not incorporated into the mix (material removed and used for other purposes). It is not to be used to deduct asphalt in mix waste based on the 2043 form. For plants that meter RAS and RAP as a combined product the meter readings should be entered in the "RAP/RAM" block of the meter readings section. For plants that meter RAS and RAP separately the individual RAS and RAP meter reading should be entered in their respective locations. For Asphalt and Antistrip meter readings supplied in tons enter 1.0 in the correction box cell. If a multiplier is necessary to convert meter readings to Tons enter the appropriate value in the correction box cell.

2550 CAT II – MDV STARTUP REVIEW

Enter MDV test data and evaluate according to Section 00745.16(b)(c)1-6. Check appropriate box (1-6) to identify step of MDV Startup Process review represents. This is a not a calculating form.

Description of Worksheet & Calculation Explanations

2560 CAT II – JMF TARGET ADJUSTMENT SUMMARY

Enter either (**E**) for English or (**M**) for Metric. Enter JMF adjustments made in column under "ADJUSTMENT #" box. Detail justification and obtain Engineers approval as required for each adjustment made. Enter in the "sublot" box, the sublot number for which the adjustment becomes effective.

2584 CAT II – DENSITY / CONTROL STRIP RECONCILIATION

Enter either (**E**) for English or (**M**) for Metric. Enter data supplied from CAT-I and CDT in the appropriate boxes for "Quality Control Lab Results" and "Control Strip Results". Identify if results reconcile by checking "YES" or "NO" box. Detail any corrective action taken or method of resolution as appropriate.

3468 MAXIMUM DENSITY OF CONSTRUCTION MATERIALS

Enter either (**E**) for English or (**M**) for Metric. This form has a Material Description box in the heading area to give a visual description (dark brown, gravely clay). The companion form will compute the coarse particle corrections based on the rules established under T 99/180.The mold factor must be manually entered in the "Mold Standardization Block". This value is determined on each mold used and is calibrated annually per AASHTO T-19M/T.

3468 B MAXIMUM DENSITY OF AGGREGATE BASE MATERIALS

Enter either (**E**) for English or (**M**) for Metric. This form is intended for use in conjunction with AASHTO T 99 "Method A" as required for test method ODOT TM 223. Enter the statspec stockpile mean for the material **retained** (100 - % passing) on the #4 (4.75mm) sieve in the "Pc" box. The scales for density and moisture on the graph auto calculate however the formulas are not protected. If either scale does not fit the data from the points, they can be manually overwritten. Enter the mass for "mold and materials" and "mold" in grams. The "mass of mold" entered for point #1 will auto insert for subsequent points.

3468 FC FAMILY OF CURVES

Enter either (**E**) for English or (**M**) for Metric. This is not a calculating form.

3573ws CONCRETE YIELD AND W/C RATIO WORKSHEET

Enter either (**E**) for English or (**M**) for Metric. The pot calibration is a divisor number, not a multiplier. The number for ¼ cubic foot pots should resemble 0.2497 for English and 0.007070 for Metric.

4000 SAMPLE DATA SHEET

In the Data Sheet Number cell the "**F**" number is the card number and one plus number of data sheets submitted prior to it. Also remember to include your Phone Number.

4000 C SAMPLE DATA SHEET FOR CONCRETE CYLINDERS

Enter either (**E**) for English or (**M**) for Metric. This form does the same calculations the **3573wc** form. The NET WEIGHT is the weight of the concrete only and does not include the weight of the pot. In the slots with the capitol letters "A through H" there should be a number to represent the number of days for the break. The "F" number is the card number and one plus number of data sheets submitted prior to it. Also remember to include your Phone Number.

4000NFTM SAMPLE DATA SHEET FOR NON-FIELD TESTED MATERIALS

This form is for submittals of materials not field tested and includes items like steel, bolts, washers etc.

4040 QA/QC TESTING INVESTIGATION

This form is for data collection during the investigation phase outlined in the Quality Assurance Program under Appendix C. Remember to submit copies of the report according to the distribution list.

4101-4105 PAVEMENT MARKINGS RETROREFLECTIVITY TESTING

These forms are used to document the Retroreflectivity of Longitudinal and Transverse pavement markings for durable and high performance applications. The forms also include areas for bead embedment estimates. Follow the test procedure for the proper completion of these forms.

FIELD WORKSHEET FOR AGGREGATE

E English (E) or Metric (M)

PROJECT NAME (SECTION)				CONTRACT NUMBER
C0NTRACTOR OR SUPPLIER		PROJECT MANAGER		BID ITEM NUMBER
SOURCE NAME		SOURCE NUMBER		MATERIAL SIZE
TEST NO.	DATE	TIME	SAMPLED AT	TO BE USED IN

SIEVE SIZE	SPECS. LIMITS	SIEVE ANALYSIS AASHTO T27/11							FM
		MASS 1	MASS 2	MASS 3	MASS 4	TOTAL MASS	% RET	% PASS	CUMULATIVE % RETAINED
PAN	---								

B = INITIAL DRY MASS: D =MASS AFTER SIEVING:

SIEVE SIZE	SPECS. LIMITS	FRACTURE % METHOD 2 AASHTO T 335				ELONGATED PIECES	
		FRAC MASS (**F**)	QUESTIONABLE MASS (**Q**)	NON FRAC MASS (**N**)	INDIVIDUAL FRAC %	TEST MASS	ELONG MASS

SE T 176			
1	2	3	Sample
			Clay
			Sand
			S.E.
AVG.		SPEC	

PAN TARE	
WET MASS & PAN	
DRY MASS & PAN	
AFTER WASH DRY MASS & PAN	

C = AFTER WASH DRY MASS & PAN - PAN

A = WET MASS & PAN - PAN

B = DRY MASS & PAN - PAN

☐ DRY ☐ WET

WAQTC AASHTO T-27/T11

RESULT SPEC

☐ Round ☐ Square ☐ Rectangle ☐ Size

Fracture % Method 1	T 335		
Wood Waste TM225		%	
CleannessValue	TM 227		
Flat & Elongated	TM 229		
Fineness Modulus	T 27/T11		
MOISTURE %={(A-B) / B} X 100			
SIEVE LOSS %={(C-D) / C} X 100			
(№10 / 1/4") x 100			

REMARKS

☐ QUALITY CONTROL ☐ VERIFICATION ☐ INDEPENDENT ASSURANCE

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

FIELD WORKSHEET FOR AGGREGATE

E English (E) or Metric (M)

PROJECT NAME (SECTION)				CONTRACT NUMBER
US97: Lower Bridge Rd (Terrebonne)				C15123
CONTRACTOR OR SUPPLIER		PROJECT MANAGER		BID ITEM NUMBER
Hooker Creek		Earl Mershon		420
SOURCE NAME		SOURCE NUMBER		MATERIAL SIZE
Red Rock Quarry		04-32-01		#4 -#8
TEST NO.	DATE	TIME	SAMPLED AT	TO BE USED IN
IA-4	4/27/2015	10am	Belt	ACP

SIEVE SIZE	SPECS. LIMITS	SIEVE ANALYSIS AASHTO T27/11 MASS 1	MASS 2	MASS 3	MASS 4	TOTAL MASS	% RET	% PASS	FM CUMULATIVE % RETAINED
						0.0	0.0	100	
						0.0	0.0	100	
1"		0.0	0.0			0.0	0.0	100	
3/4"	99-100	0.0	0.0			0.0	0.0	100	
1/2"	85-95	338.0	105.2			443.2	12.1	88	
3/8"	39-55	1115.2	396.4			1511.6	41.4	47	
1/4"		911.7	553.9			1465.6	40.1	6	
#4	0-11	68.4	68.7			137.1	3.8	3	
#8	0-7	7.4	28.0			35.4	1.0	2	
#16		0.2	3.6			3.8	0.1	2	
#30	0-6	0.1	1.8			1.9	0.1	1	
#50		0.1	1.6			1.7	0.0	1	
#100		0.1	2.2			2.3	0.1	1	
#200	0.1-2.1	0.1	4.0			4.1	0.1	1.2	
PAN	---	1.4	1.3			2.7	0.1		

B = INITIAL DRY MASS: 3653.5 D =MASS AFTER SIEVING: 3609.4

SIEVE SIZE	SPECS. LIMITS	FRACTURE % METHOD 2 AASHTO T 335 FRAC MASS (**F**)	QUESTIONABLE MASS (**Q**)	NON FRAC MASS (**N**)	INDIVIDUAL FRAC %	ELONGATED PIECES TEST MASS	ELONG MASS
1/2"	75%	443.2	0.0	0.0	100%		
3/8"	----						
1/4"	----						
#4	75%	3114.3	0.0	0.0	100%	1188.4	30.0
#8	75%	<5%					

SE T 176

1	2	3	Sample
			Clay
			Sand
			S.E.
AVG.		SPEC	

PAN TARE	1330.5
WET MASS & PAN	5032.5
DRY MASS & PAN	4984.0
AFTER WASH DRY MASS & PAN	4940.5

C = AFTER WASH DRY MASS & PAN - PAN **B** = DRY MASS & PAN - PAN

A = WET MASS & PAN - PAN

[ ] DRY [X] WET WAQTC AASHTO T-27/T11

RESULT SPEC [X] Round [ ] Square [ ] Rectangle 12" Size

Fracture % Method 1	T 335		
Wood Waste TM225	3.2	0.09 %	0.10%
CleannessValue	TM 227		
Flat & Elongated	TM 229	2.5%	10.0%
Fineness Modulus	T 27/T11		
MOISTURE %={(A-B) / B} X 100		1.3%	
SIEVE LOSS %={(C-D) / C} X 100		0.0%	<0.3%
(№10 / 1/4") x 100			

REMARKS

[ ] QUALITY CONTROL [X] VERIFICATION [X] INDEPENDENT ASSURANCE

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Josh Huber #42332	ODOT Region 1 QA		4/27/2015

FIELD WORKSHEET FOR AGGREGATE

E English (E) or Metric (M)

PROJECT NAME (SECTION)			CONTRACT NUMBER
Forms Example			12345
CONTRACTOR OR SUPPLIER	PROJECT MANAGER		BID ITEM NUMBER
ODOT Forms	Sean Parker		123
SOURCE NAME	SOURCE NUMBER		MATERIAL SIZE
Good Rock Bar	10-123-3		3/4"-0

TEST NO.	DATE	TIME	SAMPLED AT	TO BE USED IN
1	10/10/2012	7:30am	Final Belt	Base Aggregate

SIEVE ANALYSIS AASHTO T27/11

SIEVE SIZE	SPECS. LIMITS	MASS 1	MASS 2	MASS 3	MASS 4	TOTAL MASS	% RET	% PASS	FM CUMULATIVE % RETAINED
1"	100	0.0	0.0			0.0	0.0	100	
3/4"	90-100	88.3	170.2			258.5	4.8	95	
1/2"	---	446.3	381.5			827.8	15.4	80	
3/8"	55-75	223.8	247.7			471.5	8.8	71	
1/4"	40-60	311.8	347.5			659.3	12.3	59	
#4	---	252.7	193.6			446.3	8.3	50	
#6	---	298.8	165.1			463.9	8.7	42	
#10	---	287.4	222.1			509.5	9.5	32	
						0.0	0.0	32	
						0.0	0.0	32	
						0.0	0.0	32	
						0.0	0.0	32	
						0.0	0.0	32	
						0.0	0.0	32.2	
PAN	---	864.8	857.5			1722.3	32.1		

B = INITIAL DRY MASS: 5361.1 D =MASS AFTER SIEVING: 5359.1

SIEVE SIZE	SPECS. LIMITS	FRACTURE % METHOD 2 AASHTO T 335 FRAC MASS (**F**)	QUESTIONABLE MASS (**Q**)	NON FRAC MASS (**N**)	INDIVIDUAL FRAC %	ELONGATED PIECES TEST MASS	ELONG MASS
1"		0.0	0.0	0.0			
3/4"		248.1	0.0	10.4			
1/2"		765.7	0.0	62.1			
3/8"		436.9	0.0	34.6			
1/4"		659.5	0.0	0.0			

SE T 176

1	2	3	Sample
6.9	6.7	6.4	Clay
3.4	3.4	3.3	Sand
50	51	52	S.E.
AVG.	51	SPEC	30

PAN TARE	2516.3
WET MASS & PAN	8145.4
DRY MASS & PAN	7877.4
AFTER WASH DRY MASS & PAN	7877.4

C = AFTER WASH DRY MASS & PAN - PAN **B** = DRY MASS & PAN - PAN

A = WET MASS & PAN - PAN

[X] DRY [ ] WET WAQTC AASHTO T-27/T11

	RESULT	SPEC
Fracture % Method 1 T 335	95%	70-100%
Wood Waste TM225	%	
CleannessValue TM 227		
Flat & Elongated TM 229		
Fineness Modulus T 27/T11		
MOISTURE %={(A-B) / B} X 100	5.0%	
SIEVE LOSS %={(C-D) / C} X 100	0.0%	0.3 Max
(№10 / 1/4") x 100	54%	40-60

[X] Round [ ] Square [ ] Rectangle 12" Size

REMARKS

[X] QUALITY CONTROL [ ] VERIFICATION [ ] INDEPENDENT ASSURANCE

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT Region 3 QA Unit		4/27/2015

FIELD WORKSHEET FOR AGGREGATE

E English (E) or Metric (M)

PROJECT NAME (SECTION)			CONTRACT NUMBER
Forms Example			12345
CONTRACTOR OR SUPPLIER	PROJECT MANAGER		BID ITEM NUMBER
ODOT Forms	Sean Parker		123
SOURCE NAME	SOURCE NUMBER		MATERIAL SIZE
Good Rock Bar	10-123-3		#4-0

TEST NO.	DATE	TIME	SAMPLED AT	TO BE USED IN
1	10/10/2012	7:30am	Stockpile	PCC Fine Aggregate

SIEVE ANALYSIS AASHTO T27/11

SIEVE SIZE	SPECS. LIMITS	MASS 1	MASS 2	MASS 3	MASS 4	TOTAL MASS	% RET	% PASS	FM CUMULATIVE % RETAINED
						0.0	0.0	100	
						0.0	0.0	100	
						0.0	0.0	100	
						0.0	0.0	100	
						0.0	0.0	100	
						0.0	0.0	100	
3/8	100	0.0				0.0	0.0	100	
#4	90-100	1.3				1.3	0.1	100	0
#8	70-100	133.7				133.7	12.8	87	13
#16	50-85	192.4				192.4	18.5	69	31
#30	25-60	281.9				281.9	27.1	42	58
#50	5-30	260.9				260.9	25.0	17	83
#100	0-10	104.4				104.4	10.0	7	93
#200	0.0-4.0	38.9				38.9	3.7	2.8	
PAN	---	3.5				3.5	0.3		

B = INITIAL DRY MASS: 1041.8 D =MASS AFTER SIEVING: 1017.0

SIEVE SIZE	SPECS. LIMITS	FRACTURE % METHOD 2 AASHTO T 335 FRAC MASS (**F**)	QUESTIONABLE MASS (**Q**)	NON FRAC MASS (**N**)	INDIVIDUAL FRAC %	ELONGATED PIECES TEST MASS	ELONG MASS

SE T 176

1	2	3	Sample
4.5	4.6		Clay
3.5	3.6		Sand
78	79		S.E.
AVG.	79	SPEC	68

PAN TARE	1303.4
WET MASS & PAN	2418.0
DRY MASS & PAN	2345.2
AFTER WASH DRY MASS & PAN	2320.4

C = AFTER WASH DRY MASS & PAN - PAN **B** = DRY MASS & PAN - PAN

A = WET MASS & PAN - PAN

[ ] DRY [X] WET WAQTC AASHTO T-27/T11

RESULT SPEC [X] Round [ ] Square [ ] Rectangle 12" Size

Fracture % Method 1	T 335		
Wood Waste TM225		%	
CleannessValue	TM 227		
Flat & Elongated	TM 229		
Fineness Modulus	T 27/T11	2.78	2.60-3.00
MOISTURE %={(A-B) / B} X 100		7.0%	
SIEVE LOSS %={(C-D) / C} X 100		0.0%	0.3 Max
(№10 / 1/4") x 100			

REMARKS

[X] QUALITY CONTROL [ ] VERIFICATION [ ] INDEPENDENT ASSURANCE

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT Region 3 QA Unit		4/27/2015

FIELD WORKSHEET FOR AGGREGATE

M English (E) or Metric (M)

PROJECT NAME (SECTION)			CONTRACT NUMBER
Forms Example			12345
CONTRACTOR OR SUPPLIER	PROJECT MANAGER		BID ITEM NUMBER
ODOT Forms	Sean Parker		123
SOURCE NAME	SOURCE NUMBER		MATERIAL SIZE
Good Rock Bar	10-123-3		3/4"-#4

TEST NO.	DATE	TIME	SAMPLED AT	TO BE USED IN
1	10/10/2012	7:30am	Final Belt	PCC Coarse Aggregate

SIEVE ANALYSIS AASHTO T27/11

SIEVE SIZE	SPECS. LIMITS	MASS 1	MASS 2	MASS 3	MASS 4	TOTAL MASS	% RET	% PASS	FM CUMULATIVE % RETAINED
						0.0	0.0	100	
						0.0	0.0	100	
						0.0	0.0	100	
						0.0	0.0	100	
1	100	0.0	0.0			0.0	0.0	100	
3/4	90-100	10.5	27.6			38.1	0.7	99	
1/2	---	747.1	927.2			1674.3	30.1	69	
3/8	20-55	751.3	792.9			1544.2	27.8	41	
1/4	---	990.4	1040.7			2031.1	36.6	5	
#4	0-10	91.7	58.0			149.7	2.7	2	
#6	---	22.1	18.9			41.0	0.7	1	
#8	0-5	5.4	6.9			12.3	0.2	1	
#30	---	3.3	8.0			11.3	0.2	1	
#200	0.0-1.0	2.3	8.3			10.6	0.2	0.8	
PAN	---	1.7	3.5			5.2	0.1		

B = INITIAL DRY MASS: 5555.1 D =MASS AFTER SIEVING: 5517.8

SIEVE SIZE	SPECS. LIMITS	FRACTURE % METHOD 2 AASHTO T 335 FRAC MASS (**F**)	QUESTIONABLE MASS (**Q**)	NON FRAC MASS (**N**)	INDIVIDUAL FRAC %	ELONGATED PIECES TEST MASS	ELONG MASS

SE T 176

1	2	3	Sample
			Clay
			Sand
			S.E.
AVG.		SPEC	

PAN TARE	1329.3
WET MASS & PAN	7060.6
DRY MASS & PAN	6884.4
AFTER WASH DRY MASS & PAN	6848.2

C = AFTER WASH DRY MASS & PAN - PAN **B** = DRY MASS & PAN - PAN

A = WET MASS & PAN - PAN

[ ] DRY [X] WET WAQTC AASHTO T-27/T11

	RESULT	SPEC
Fracture % Method 1 T 335		
Wood Waste TM225	0.8	0.01 % 0.05%
CleannessValue TM 227		
Flat & Elongated TM 229		
Fineness Modulus T 27/T11		
MOISTURE %={(A-B) / B} X 100	3.2%	
SIEVE LOSS %={(C-D) / C} X 100	0.0%	0.3 Max
(2.00 / 6.3) x 100		

[X] Round [ ] Square [ ] Rectangle 12" Size

REMARKS: Woodwaste = 0.8 grams

[X] QUALITY CONTROL [ ] VERIFICATION [ ] INDEPENDENT ASSURANCE

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT Region 3 QA Unit		4/27/2015

NUCLEAR COMPACTION TEST REPORT FOR ACP

E English (E) or Metric (M)

PROJECT NAME (SECTION)					CONTRACT NUMBER
C0NTRACTOR OR SUPPLIER			PROJECT MANAGER		BID ITEM NUMBER
ODOT MIX DESIGN NO.	JMF PLACEMENT TEMP °F	LIFT THICKNESS	TYPE GAUGE-SERIAL NUMBER		MATERIAL TYPE
MEASURED PLACEMENT TEMP °F	PANEL WIDTH		CONTROL STRIP NO.	LOT-SUBLOT	LIFT / DATE

ROLLER TYPE AND DESCRIPTION (MANUFACTURE, WEIGHT, ETC)		CODES FOR ROLLER TYPES
BREAKDOWN		P - PNEUMATIC
INTERMEDIATE		TS - TANDEM STEEL
FINISH		3WS - THREE WHEEL STEEL SDV-SINGLE DRUM VIBRATORY DDV-DOUBLE DRUM VIBRATORY

TEST NUMBER						
DATE OF TEST						
TEST LOCATION (STATION)						
DISTANCE LT. OR RT. OF CENTERLINE FEET						
LIFT / DIST BELOW GRADE / LIFT THICKNESS						
Core Correlation ID						
DENSITY lb/ft³	1					
Max difference 2.5 lb/ft³	2					
AVERAGE DENSITY (LINE 1 + LINE 2) / 2	3					
Core Correlation Factor	4					
CORE TO NUCLEAR CORRELATION LINE 3 + LINE 4	5					
MAMD TARGET DENSITY lb/ft³	6					
% COMPACTION FOR INDIVIDUAL TESTS (LINE 3 OR 5 / LINE 6) X 100	7					
SUBLOT OR SECTION LINE 6 AVERAGE % REQUIRED						

REPRESENTS MATERIAL INCORPORATED

FROM STATION _____ TO STATION _____

FROM OFFSET _____ TO OFFSET _____

CIRCLE DIRECTION NB SB EB WB CIRCLE LANE S A B C D S

REMARKS

☐ QUALITY CONTROL ☐ VERIFICATION

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE DATE

NUCLEAR COMPACTION TEST REPORT FOR ACP

E English (E) or Metric (M)

PROJECT NAME (SECTION)						CONTRACT NUMBER
Forms Example						12345
C0NTRACTOR OR SUPPLIER			PROJECT MANAGER			BID ITEM NUMBER
ODOT Forms			Sean Parker			123
ODOT MIX DESIGN NO.	JMF PLACEMENT TEMP °F	LIFT THICKNESS	TYPE GAUGE-SERIAL NUMBER			MATERIAL TYPE
18-MD0001	288-297	See Table	See Table			L4 1/2" ACP
MEASURED PLACEMENT TEMP °F	PANEL WIDTH		CONTROL STRIP NO.	LOT-SUBLOT	LIFT	DATE
290	13 ft		1	1-1	1st	10/10/2018

ROLLER TYPE AND DESCRIPTION (MANUFACTURE, WEIGHT, ETC)		CODES FOR ROLLER TYPES
BREAKDOWN	CAT PF - 300B - 25 ton - P	P - PNEUMATIC TS - TANDEM STEEL
INTERMEDIATE	IR DD130 - 14 ton - DDV	3WS - THREE WHEEL STEEL SDV-SINGLE DRUM VIBRATORY
FINISH	Dynapac CC412 - 10 ton - DDV	DDV-DOUBLE DRUM VIBRATORY

TEST NUMBER		1-1-1	1-1-2	1-1-3	1-1-4	1-1-5
DATE OF TEST		10/10/2018	10/10/2018	10/10/2018	10/11/2018	10/11/2018
TEST LOCATION (STATION)		24+98	25+32	64+99	67+21	67+50
DISTANCE LT. OR RT. OF CENTERLINE FEET		6.5' Rt	7.6' Rt	10.0' Rf	2.1' Rt	4.1' Rt
LIFT / DIST BELOW GRADE / LIFT THICKNESS		1st - 2" - 2"	1st - 2" - 2"	1st - 2" - 2"	1st - 2" - 2"	1st - 2" - 2"
Core Correlation ID						
DENSITY lb/ft³	1	148.7	152.6	154.2	151.2	154.3
Max difference 2.5 lb/ft³	2	150.0	154.6	154.8	151.4	152.3
AVERAGE DENSITY (LINE 1 + LINE 2) / 2	3	149.4	153.6	154.5	151.3	153.3
Core Correlation Factor	4					
CORE TO NUCLEAR CORRELATION LINE 3 + LINE 4	5					
X MAMD TARGET DENSITY lb/ft³	6	162.6	162.6	162.6	162.6	162.6
% COMPACTION FOR INDIVIDUAL TESTS (LINE 3 OR 5 / LINE 6) X 100	7	91.9%	94.5%	95.0%	93.1%	94.3%
SUBLOT OR SECTION LINE 6 AVERAGE % REQUIRED	92.0	93.8%				

REPRESENTS MATERIAL INCORPORATED

FROM STATION	15+00	TO STATION	72+00
FROM OFFSET	Centerline	TO OFFSET	13' Rt

CIRCLE DIRECTION NB SB EB WB

CIRCLE LANE S A B C D S

REMARKS

X QUALITY CONTROL ☐ VERIFICATION

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT		10/10/2018

NUCLEAR COMPACTION TEST REPORT FOR ACP

E English (E) or Metric (M)

PROJECT NAME (SECTION)						CONTRACT NUMBER
Forms Example						12345
C0NTRACTOR OR SUPPLIER			PROJECT MANAGER			BID ITEM NUMBER
ODOT Forms			Sean Parker			123
ODOT MIX DESIGN NO.	JMF PLACEMENT TEMP °F	LIFT THICKNESS	TYPE GAUGE-SERIAL NUMBER			MATERIAL TYPE
18-MD0001	288-297	See Table	See Table			L4 1/2" ACP
MEASURED PLACEMENT TEMP °F	PANEL WIDTH		CONTROL STRIP NO.	LOT-SUBLOT	LIFT	DATE
290	13 ft		1	1-1	1st	10/10/2018

ROLLER TYPE AND DESCRIPTION (MANUFACTURE, WEIGHT, ETC)		CODES FOR ROLLER TYPES
BREAKDOWN	CAT PF - 300B - 25 ton - P	P - PNEUMATIC
INTERMEDIATE	IR DD130 - 14 ton - DDV	TS - TANDEM STEEL 3WS - THREE WHEEL STEEL SDV-SINGLE DRUM VIBRATORY
FINISH	Dynapac CC412 - 10 ton - DDV	DDV-DOUBLE DRUM VIBRATORY

TEST NUMBER		1-1-1	1-1-2	1-1-3	1-1-4	1-1-5
DATE OF TEST		10/10/2018	10/10/2018	10/10/2018	10/11/2018	10/11/2018
TEST LOCATION (STATION)		24+98	25+32	64+99	67+21	67+50
DISTANCE LT. OR RT. OF CENTERLINE FEET		6.5' Rt	7.6' Rt	10.0' Rf	2.1' Rt	4.1' Rt
LIFT DIST BELOW GRADE LIFT THICKNESS		1st - 2" - 2"	1st - 2" - 2"	1st - 2" - 2"	1st - 2" - 2"	1st - 2" - 2"
Core Correlation ID		12345-b	12345-b	12345-b	12345-h	12345-h
DENSITY lb/ft³	1	148.7	152.6	154.2	151.2	154.3
Max difference 2.5 lb/ft³	2	150.0	154.6	154.8	151.4	152.3
AVERAGE DENSITY (LINE 1 + LINE 2) / 2	3	149.4	153.6	154.5	151.3	153.3
Core Correlation Factor	4	1.2	1.2	1.2	0.9	0.9
CORE TO NUCLEAR CORRELATION LINE 3 + LINE 4	5	150.6	154.8	155.7	152.2	154.2
X MAMD TARGET DENSITY lb/ft³	6	162.6	162.6	162.6	162.6	162.6
% COMPACTION FOR INDIVIDUAL TESTS (LINE 3 OR 5 / LINE 6) X 100	7	92.6%	95.2%	95.8%	93.6%	94.8%
SUBLOT OR SECTION LINE 6 AVERAGE % REQUIRED	92.0	94.4%				

REPRESENTS MATERIAL INCORPORATED

FROM STATION	15+00	TO STATION	72+00
FROM OFFSET	Centerline	TO OFFSET	13' Rt

CIRCLE DIRECTION NB SB EB WB

CIRCLE LANE S A B C D S

REMARKS

X QUALITY CONTROL ☐ VERIFICATION

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE DATE
Scott Aker #43048	ODOT	10/10/2018

NUCLEAR COMPACTION TEST REPORT FOR ACP

[ ] English (E) or Metric (M)

PROJECT NAME (SECTION)					CONTRACT NUMBER
C0NTRACTOR OR SUPPLIER			PROJECT MANAGER		BID ITEM NUMBER
ODOT MIX DESIGN NO.	JMF PLACEMENT TEMP	LIFT THICKNESS	TYPE GAUGE-SERIAL NUMBER		MATERIAL TYPE

MEASURED PLACEMENT TEMP	PANEL WIDTH	CONTROL STRIP NO.	LOT-SUBLOT	LIFT	DATE

RANDOM TEST LOCATIONS AND OFFSETS

MAMD	COMPACTION	PANEL DEPTH	PANEL WIDTH	AVG VOLUME	CROSS SEC.	YIELD (FT/TON)	SUBLOT SIZE	SUBLOT DIST.
	%	in	ft	ft³/ton	ft²	ft/ton	tons	ft

AVG VOLUME 2000 (1000) / (MAMD x (% REQ'D / 100)) = ft³/ton (m³/Mg)

CROSS SECTION PANEL DEPTH / 12 (1000) X PANEL WIDTH = ft² (m²)

YIELD AVG VOLUME / CROSS SEC. =ft / ton (m / Mg)

SUBLOT DIST. YIELD X SUBLOT SIZE = ft (m)

TEST NUMBER	(A) THREE RANDOM DIGITS X .001	(B) **SUBLOT SEGMENT** DISTANCE OR TONS (Sublot Total / 5)	(C) BEGINNING STATION OR TONAGE	**TEST LOCATION** (A X B) ± C	(D) TWO RANDOM DIGITS X .01	(E) WIDTH MATERIAL COVERS ft.	OFFSET DIST. FROM RIGHT EDGE ((E - 2) X D) + 1

SUBLOT: DISTANCE **DISTANCE** [ ] **TONS** [ ] **AUTO-CALC. RANDOMS** [ ] **ASCENDING** [ ] **DESCENDING** [ ]

ROLLER TYPE AND DESCRIPTION (MANUFACTURE, WEIGHT, ETC)

P - PNEUMATIC TS - TANDEM STEEL 3WS - THREE WHEEL STEEL SDV-SINGLE DRUM VIBRATORY DDV-DOUBLE DRUM VIBRATORY

BREAKDOWN	**INTERMEDIATE**	**FINISH**

TEST NUMBER						
DATE OF TEST						
TEST LOCATION (STATION)						
OFFSET (FEET OR METERS)						
LIFT / DIST BELOW GRADE / LIFT THICKNESS						
Core Correlation ID						
DENSITY 1						
Max difference 2.5 lb/ft³ or 40 kg/m³ 2						
AVG DENSITY (LINE 1 + LINE 2) / 2 3						
Core Correlation Factor 4						
Core to Nuclear Correlation LINE 3 + LINE 4 5						
[ ] **MAMD** [ ] **TARGET DENSITY** 6						
% COMPACTION (LINE 3 OR 5 / LINE 6) X 100 7						
LINE 6 AVERAGE **% REQUIRED**						

REPRESENTS MATERIAL INCORPORATED

FROM STATION [ ] **OFFSET** [ ] **TO STATION** [ ] **OFFSET** [ ]

CIRCLE DIRECTION NB SB EB WB CIRCLE LANE S A B C D S

REMARKS

[ ] QUALITY CONTROL [ ] VERIFICATION

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

NUCLEAR COMPACTION TEST REPORT FOR ACP

E English (E) or Metric (M)

PROJECT NAME (SECTION)					CONTRACT NUMBER
Forms Example					12345
CONTRACTOR OR SUPPLIER			PROJECT MANAGER		BID ITEM NUMBER
ODOT Forms			Sean Parker		123
ODOT MIX DESIGN NO.	JMF PLACEMENT TEMP °F	LIFT THICKNESS	TYPE GAUGE-SERIAL NUMBER		MATERIAL TYPE
18-MD0001	288-297	2"	Troxler 3430 #11111		L3 1/2" Dense
MEASURED PLACEMENT TEMP °F	PANEL WIDTH	CONTROL STRIP NO.	LOT-SUBLOT	LIFT	DATE
290	16'	1	1-1	1st	10/10/2018

RANDOM TEST LOCATIONS AND OFFSETS

MAMD	COMPACTION	PANEL DEPTH	PANEL WIDTH	AVG VOLUME	CROSS SEC.	YIELD (FT/TON)	SUBLOT SIZE	SUBLOT DIST.
151.9	**92.0** %	**2** in	**16** ft	**14.32** ft³/ton	**2.67** ft²	**5.36** ft/ton	**1000** tons	**5360** ft

AVG VOLUME 2000 (1000) / (MAMD x (% REQ'D / 100)) = ft³/ton (m³/Mg)

CROSS SECTION PANEL DEPTH / 12 (1000) X PANEL WIDTH = ft² (m²)

YIELD AVG VOLUME / CROSS SEC. =ft / ton (m / Mg)

SUBLOT DIST. YIELD X SUBLOT SIZE = ft (m)

TEST NUMBER	(A) THREE RANDOM DIGITS X .001	(B) **SUBLOT SEGMENT** DISTANCE OR TONS (Sublot Total / 5)	(C) BEGINNING STATION OR TONAGE	**TEST LOCATION** (A X B) ± C	(D) TWO RANDOM DIGITS X .01	(E) WIDTH MATERIAL COVERS ft.	OFFSET DIST. FROM RIGHT EDGE ((E - 2) X D) + 1
1-1	0.254	1072	12345	**12617**	0.24	16.0	**4.4**
1-2	0.564	1072	13417	**14022**	0.15	16.0	**3.1**
1-3	0.854	1072	14489	**15404**	0.50	16.0	**8.0**
1-4	0.125	1072	15561	**15695**	0.80	16.0	**12.2**
1-5	0.025	1072	16633	**16660**	0.92	16.0	**13.9**

SUBLOT: DISTANCE 5360 **DISTANCE** [x] **TONS** [ ] **AUTO-CALC. RANDOMS** [x] **ASCENDING** [x] **DESCENDING** [ ]

ROLLER TYPE AND DESCRIPTION (MANUFACTURE, WEIGHT, ETC)

P - PNEUMATIC TS - TANDEM STEEL 3WS - THREE WHEEL STEEL SDV-SINGLE DRUM VIBRATORY DDV-DOUBLE DRUM VIBRATORY

BREAKDOWN	**INTERMEDIATE**	**FINISH**
CAT PF - 300B - 25ton - P	IR DD130 - 14ton - DDV	Dynapac CC412 - 10ton - DDV

TEST NUMBER		1-1	1-2	1-3	1-4	1-5
DATE OF TEST		10/10/2018	10/10/2018	10/10/2018	10/10/2018	10/10/2018
TEST LOCATION (STATION)		126+17	140+22	154+04	156+95	166+60
OFFSET (FEET OR METERS)		3.6' Rt	4.9' Rt	CL	4.2' Lt	5.9' Lt
LIFT / DIST BELOW GRADE / LIFT THICKNESS		1st 2" 2"	1st 2" 2"	1st 2" 2"	1st 2" 2"	1st 2" 2"
Core Correlation ID						
DENSITY lb/ft³	1	148.7	152.6	154.2	151.2	154.3
Max difference 2.5 lb/ft³	2	150.0	154.6	154.8	151.4	152.3
AVG DENSITY (LINE 1 + LINE 2) / 2	3	149.4	153.6	154.5	151.3	153.3
Core Correlation Factor	4					
Core to Nuclear Correlation LINE 3 + LINE 4	5					
[x] **MAMD** [ ] **TARGET DENSITY**	6	162.6	162.6	162.6	162.6	162.6
% COMPACTION (LINE 3 OR 5 / LINE 6) X 100	7	91.9%	94.5%	95.0%	93.1%	94.3%
LINE 6 AVERAGE **% REQUIRED** **92.0%**		**93.8%**				

REPRESENTS MATERIAL INCORPORATED

FROM STATION **123+45** **OFFSET** **8' Lt** **TO STATION** **177+05** **OFFSET** **8' Rt**

CIRCLE DIRECTION NB (SB) EB WB CIRCLE LANE S A (B) C D S

REMARKS

[x] QUALITY CONTROL [ ] VERIFICATION

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT		10/10/2018

NUCLEAR COMPACTION TEST REPORT FOR ACP

E — English (E) or Metric (M)

PROJECT NAME (SECTION)				CONTRACT NUMBER
Forms Example				12345
CONTRACTOR OR SUPPLIER		PROJECT MANAGER		BID ITEM NUMBER
ODOT Forms		Sean Parker		123
ODOT MIX DESIGN NO.	JMF PLACEMENT TEMP °F	LIFT THICKNESS	TYPE GAUGE-SERIAL NUMBER	MATERIAL TYPE
18-MD0001	288-297	2"	Troxler 3430 #11111	L3 1/2" Dense

MEASURED PLACEMENT TEMP °F	PANEL WIDTH	CONTROL STRIP NO.	LOT-SUBLOT	LIFT	DATE
290	16'	1	1-1	1st	10/10/2018

RANDOM TEST LOCATIONS AND OFFSETS

MAMD	COMPACTION	PANEL DEPTH	PANEL WIDTH	AVG VOLUME	CROSS SEC.	YIELD (FT/TON)	SUBLOT SIZE	SUBLOT DIST.
151.9	**92.0** %	**2** in	**16** ft	**14.32** ft³/ton	**2.67** ft²	**5.36** ft/ton	**1000** tons	**5360** ft

AVG VOLUME = 2000 (1000) / (MAMD x (% REQ'D / 100)) = ft³/ton (m³/Mg)

CROSS SECTION = PANEL DEPTH / 12 (1000) X PANEL WIDTH = ft² (m²)

YIELD = AVG VOLUME / CROSS SEC. =ft / ton (m / Mg)

SUBLOT DIST. = YIELD X SUBLOT SIZE = ft (m)

TEST NUMBER	(A) THREE RANDOM DIGITS X .001	(B) SUBLOT SEGMENT DISTANCE OR TONS (Sublot Total / 5)	(C) BEGINNING STATION OR TONAGE	TEST LOCATION (A X B) ± C	(D) TWO RANDOM DIGITS X .01	(E) WIDTH MATERIAL COVERS ft.	OFFSET DIST. FROM RIGHT EDGE ((E - 2) X D) + 1
1-1	0.254	1072	12345	**12617**	0.24	16.0	**4.4**
1-2	0.564	1072	13417	**14022**	0.15	16.0	**3.1**
1-3	0.854	1072	14489	**15404**	0.50	16.0	**8.0**
1-4	0.125	1072	15561	**15695**	0.80	16.0	**12.2**
1-5	0.025	1072	16633	**16660**	0.92	16.0	**13.9**

SUBLOT: DISTANCE 5360 — **DISTANCE** [x] **TONS** [ ] — **AUTO-CALC. RANDOMS** [x] — **ASCENDING** [x] **DESCENDING** [ ]

ROLLER TYPE AND DESCRIPTION (MANUFACTURE, WEIGHT, ETC)

P - PNEUMATIC; TS - TANDEM STEEL; 3WS - THREE WHEEL STEEL; SDV-SINGLE DRUM VIBRATORY; DDV-DOUBLE DRUM VIBRATORY

BREAKDOWN	INTERMEDIATE	FINISH
CAT PF - 300B - 25ton - P	IR DD130 - 14ton - DDV	Dynapac CC412 - 10ton - DDV

TEST NUMBER		1-1	1-2	1-3	1-4	1-5
DATE OF TEST		10/10/2018	10/10/2018	10/10/2018	10/10/2018	10/10/2018
TEST LOCATION (STATION)		126+17	140+22	154+04	156+95	166+60
OFFSET (FEET OR METERS)		3.6' Rt	4.9' Rt	CL	4.2' Lt	5.9' Lt
LIFT / DIST BELOW GRADE / LIFT THICKNESS		1st 2" 2"	1st 2" 2"	1st 2" 2"	1st 2" 2"	1st 2" 2"
Core Correlation ID		12345-b	12345-b	12345-b	12345-h	12345-h
DENSITY lb/ft³	1	148.7	152.6	154.2	151.2	154.3
Max difference 2.5 lb/ft³	2	150.0	154.6	154.8	151.4	152.3
AVG DENSITY (LINE 1 + LINE 2) / 2	3	149.4	153.6	154.5	151.3	153.3
Core Correlation Factor	4	1.2	1.2	1.2	0.9	0.9
Core to Nuclear Correlation LINE 3 + LINE 4	5	150.6	154.8	155.7	152.2	154.2
[x] **MAMD** [ ] **TARGET DENSITY**	6	162.6	162.6	162.6	162.6	162.6
% COMPACTION (LINE 3 OR 5 / LINE 6) X 100	7	92.6%	95.2%	95.8%	93.6%	94.8%
LINE 6 AVERAGE **% REQUIRED** **92.0%**		**94.4%**				

REPRESENTS MATERIAL INCORPORATED

FROM STATION 123+45 **OFFSET** 8' Lt — **TO STATION** 177+05 **OFFSET** 8' Rt

CIRCLE DIRECTION NB (SB) EB WB — CIRCLE LANE S A (B) C D S

REMARKS

[x] QUALITY CONTROL [ ] VERIFICATION

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT		10/10/2018

NUCLEAR COMPACTION TEST FOR ACP

E English

PROJECT NAME (SECTION)				ODOT MIX DESIGN NO.		CONTRACT NUMBER
CONTRACTOR OR SUPPLIER		PROJECT MANAGER		CONTRACTOR MIX DESIGN NO.		BID ITEM NUMBER
MEASURED PLACEMENT TEMP °F	JMF PLACEMENT TEMP °F	PANEL WIDTH	TYPE GAUGE-SERIAL NUMBER			MIX NOMINAL SIZE
BREAKDOWN ROLLER	INTERMEDIATE ROLLER	FINISH ROLLER	CONTROL STRIP NO.	LIFT THICKNESS	LIFT	DATE

ROLLER TYPE AND DESCRIPTION (MANUFACTURE, WEIGHT, ETC)

P - PNEUMATIC TS - TANDEM STEEL 3WS - THREE WHEEL STEEL SDV - SINGLE DRUM VIBRATORY DDV - DOUBLE DRUM VIBRATORY

TEST NUMBER										
DATE OF TEST										
LOCATION (STATION)										
OFFSET (FEET)										
LIFT DISTANCE BELOW GRADE LIFT THICKNESS										
DIRECTION OF TRAVEL NB SB EB WB										
TRAVEL LANE LS A B C D RS										
CORE CORRELATION ID										
DENSITY lb/ft^3	1									
MAX DIFFERENCE 2.5 lb/ft^3	2									
AVG DENSITY (LINE 1 + 2) / 2	3									
CORE CORRELATION	4									
CORE TO NUCLEAR CORRELATION LINE 3 + LINE4	5									
☐ MAMD ☐ TARGET DENSITY lb/ft^3	6									
% COMPACTION (LINE 3 OR 4 / LINE 5) X 100	7									
LINE 6 AVG **% REQUIRED**										

REPRESENTS MATERIAL INCORPORATED

FROM STATION **OFFSET** **TO STATION** **OFFSET**

REMARKS

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE	☐ QUALITY CONTROL ☐ VERIFICATION ☐ INDEPENDENT ASSURANCE

NUCLEAR COMPACTION TEST FOR ACP

E English

PROJECT NAME (SECTION)				ODOT MIX DESIGN NO.		CONTRACT NUMBER
OR58: Pheasant Lane to Dexter				14-MD0957		19245
CONTRACTOR OR SUPPLIER		PROJECT MANAGER		CONTRACTOR MIX DESIGN NO.		BID ITEM NUMBER
Stoney S & G		Art Truff		LBS154B		570
MEASURED PLACEMENT TEMP °F	JMF PLACEMENT TEMP °F	PANEL WIDTH	TYPE GAUGE-SERIAL NUMBER			MIX NOMINAL SIZE
305	300 - 315	26 Ft	Troxler 3430 / 3806			1/2"
BREAKDOWN ROLLER	INTERMEDIATE ROLLER	FINISH ROLLER	CONTROL STRIP NO.	LIFT THICKNESS	LIFT	DATE
CAT - 300 - TS	Hamm HD 20i +	Hamm HD 110 VO +	15	3"	Base	7/31/2018

ROLLER TYPE AND DESCRIPTION (MANUFACTURE, WEIGHT, ETC)

P - PNEUMATIC TS - TANDEM STEEL 3WS - THREE WHEEL STEEL SDV - SINGLE DRUM VIBRATORY DDV - DOUBLE DRUM VIBRATORY

TEST NUMBER		6-25-1	6-25-2	6-25-3	6-25-4	6-25-5	6-25-6	6-25-7	6-25-8	6-25-9	6-25-10
DATE OF TEST		7/31/18	7/31/18	7/31/18	7/31/18	7/31/18	7/31/18	7/31/18	7/31/18	7/31/18	7/31/18
LOCATION (STATION)		501+33	505+87	508+47	512+75	514+90	518+43	522+49	523+50	525+91	529+00
OFFSET (FEET)		14.4 ft Rt	17.2 ft Rt	10.9 ft Rt	8.6 ft Rt	16.1 ft Rt	17.7 ft Rt	10.0 ft Rt	2.0 ft Rt	4.4 ft Rt	12.0 ft Rt
LIFT DISTANCE BELOW GRADE LIFT THICKNESS		Base / 3"	Base / 3"	Base / 3"	Base / 3"	Wear / 2.5"	Wear / 2.5"	Wear / 2.5"	Wear / 2.5"	Wear / 2.5"	Wear / 2.5"
DIRECTION OF TRAVEL NB SB EB WB		EB	EB	EB	EB	EB	EB	EB	EB	EB	EB
TRAVEL LANE LS A B C D RS		RS & B	RS & B	RS & B	RS & B	RS & B	RS & A	RS & A	RS & A	RS & A	RS & A
CORE CORRELATION ID											
DENSITY lb/ft^3	1	144.2	144.7	137.3	140.4	145.1	144.6	142.8	140.7	142.8	146.5
MAX DIFFERENCE 2.5 lb/ft^3	2	143.6	145.1	137.1	140.1	145.5	145.5	143.2	140.1	143.6	147
AVG DENSITY (LINE 1 + 2) / 2	3	143.9	144.9	137.2	140.3	145.3	145.1	143	140.4	143.2	146.8
CORE CORRELATION	4										
CORE TO NUCLEAR CORRELATION LINE 3 + LINE4	5										
☑ **MAMD** ☐ **TARGET DENSITY** lb/ft^3	6	153.9	153.9	153.9	153.9	153.9	153.9	153.9	153.9	153.9	153.9
% COMPACTION (LINE 3 OR 4 / LINE 5) X 100	7	93.5%	94.2%	89.1%	91.2%	94.4%	94.3%	92.9%	91.2%	93.0%	95.4%
LINE 6 AVG **% REQUIRED** 92.0		92.9%									

REPRESENTS MATERIAL INCORPORATED

FROM STATION	500+00	**OFFSET**	Varied	**TO STATION**	530+50	**OFFSET**	Varied

REMARKS

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER		COMPANY NAME	SIGNATURE	DATE	
Scott Wales	49325	ODOT R2 QA			☐ QUALITY CONTROL ☐ VERIFICATION ☐ INDEPENDENT ASSURANCE

NUCLEAR COMPACTION TEST FOR ACP

E English

PROJECT NAME (SECTION)				ODOT MIX DESIGN NO.		CONTRACT NUMBER
OR58: Pheasant Lane to Dexter				14-MD0957		19245
CONTRACTOR OR SUPPLIER		PROJECT MANAGER		CONTRACTOR MIX DESIGN NO.		BID ITEM NUMBER
Stoney S & G		Art Truff		LBS154B		570
MEASURED PLACEMENT TEMP °F	JMF PLACEMENT TEMP °F	PANEL WIDTH	TYPE GAUGE-SERIAL NUMBER			MIX NOMINAL SIZE
305	300 - 315	26 Ft	Troxler 3430 / 3806			1/2"
BREAKDOWN ROLLER	INTERMEDIATE ROLLER	FINISH ROLLER	CONTROL STRIP NO.	LIFT THICKNESS	LIFT	DATE
CAT - 300 - TS	Hamm HD 20i +	Hamm HD 110 VO +	15	3"	Base	7/31/2018

ROLLER TYPE AND DESCRIPTION (MANUFACTURE, WEIGHT, ETC)

P - PNEUMATIC TS - TANDEM STEEL 3WS - THREE WHEEL STEEL SDV - SINGLE DRUM VIBRATORY DDV - DOUBLE DRUM VIBRATORY

TEST NUMBER		6-25-1	6-25-2	6-25-3	6-25-4	6-25-5	6-25-6	6-25-7	6-25-8	6-25-9	6-25-10
DATE OF TEST		7/31/18	7/31/18	7/31/18	7/31/18	7/31/18	7/31/18	7/31/18	7/31/18	7/31/18	7/31/18
LOCATION (STATION)		501+33	505+87	508+47	512+75	514+90	518+43	522+49	523+50	525+91	529+00
OFFSET (FEET)		14.4 ft Rt	17.2 ft Rt	10.9 ft Rt	8.6 ft Rt	16.1 ft Rt	17.7 ft Rt	10.0 ft Rt	2.0 ft Rt	4.4 ft Rt	12.0 ft Rt
LIFT DISTANCE BELOW GRADE LIFT THICKNESS		Base / 3"	Base / 3"	Base / 3"	Base / 3"	Wear / 2.5"	Wear / 2.5"	Wear / 2.5"	Wear / 2.5"	Wear / 2.5"	Wear / 2.5"
DIRECTION OF TRAVEL NB SB EB WB		EB	EB	EB	EB	EB	EB	EB	EB	EB	EB
TRAVEL LANE LS A B C D RS		RS & B	RS & B	RS & B	RS & B	RS & B	RS & A	RS & A	RS & A	RS & A	RS & A
CORE CORRELATION ID		12345-a	12345-a	12345-a	12345-a	12345-c	12345-c	12345-c	12345-c	12345-c	12345-c
DENSITY lb/ft^3	1	144.2	144.7	137.3	140.4	145.1	144.6	142.8	140.7	142.8	146.5
MAX DIFFERENCE 2.5 lb/ft^3	2	143.6	145.1	137.1	140.1	145.5	145.5	143.2	140.1	143.6	147
AVG DENSITY (LINE 1 + 2) / 2	3	143.9	144.9	137.2	140.3	145.3	145.1	143	140.4	143.2	146.8
CORE CORRELATION	4	-0.8	-0.8	-0.8	-0.8	0.7	0.7	0.7	0.7	0.7	0.7
CORE TO NUCLEAR CORRELATION ☑ MAMD ☐ TARGET DENSITY lb/ft^3 LINE 3 + LINE4	5	143.1	144.1	136.4	139.5	146	145.8	143.7	141.1	143.9	147.5
	6	153.9	153.9	153.9	153.9	153.9	153.9	153.9	153.9	153.9	153.9
% COMPACTION (LINE 3 OR 4 / LINE 5) X 100	7	93.0%	93.6%	88.6%	90.6%	94.9%	94.7%	93.4%	91.7%	93.5%	95.8%
LINE 6 AVG **% REQUIRED**	92.0	93.0%									

REPRESENTS MATERIAL INCORPORATED

FROM STATION 500+00 **OFFSET** Varied **TO STATION** 530+50 **OFFSET** Varied

REMARKS

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER		COMPANY NAME	SIGNATURE	DATE	
Scott Wales	49325	ODOT R2 QA			☐ QUALITY CONTROL ☐ VERIFICATION ☐ INDEPENDENT ASSURANCE

NUCLEAR COMPACTION TEST REPORT

PROJECT NAME (SECTION)				CONTRACT NUMBER
C0NTRACTOR OR SUPPLIER		PROJECT MANAGER		BID ITEM NUMBER
TEST LOCATION (STATION)		OFFSET (DISTANCE FROM CENTERLINE)		SOURCE POSITION
TEST NUMBER	DISTANCE BELOW GRADE	LIFT	LIFT THICKNESS	DATE

CODES FOR ROLLER TYPES
SDV-SINGLE DRUM VIBRATORY SF- SHEEP FOOT
DDV-DOUBLE DRUM VIBRATORY GR - GRID ROLLER

ROLLER TYPE AND DESCRIPTION (MANUFACTURE, WEIGHT, ETC)

REPRESENTS MATERIAL / AREA INCORPORATED

FROM: STATION | **OFFSET** | **DIST. BELOW GRADE**

TO: STATION | **OFFSET** | **DIST. BELOW GRADE**

CHECK BOX ☐ **DEFLECTION OBSERVED UNDER LOADED EQUIP.** ☐ **NO DEFLECTION OBSERVED UNDER LOADED EQUIP.**

☐ **MOISTURE IS NOT WITHIN SPECIFICATION** ☐ **MOISTURE IS WITHIN SPECIFICATION**

AASHTO T 310	Wet Density lb/ft³	Moisture lb/ft³	**Dry Density**	**Percent Moisture**
Shot 1			WD - M	(M / DD) X 100
Shot 2				
Average	**WD**	**M**	**DD**	**%M %**

(shots within 2 lb/ft³)

(Pc)

AASHTO T 99							
A	№4 or 4.75	COARSE		FINE		**% Coarse**	
D	¾ or 19.0	COARSE		FINE		**% Coarse**	

MASS OF MOLD AND MATERIALS	MASS OF MOLD	MASS OF WET MATERIAL **(M)**	WET DENSITY **(A)**	SPEEDY MOISTURE % WET **(B)**	SPEEDY MOISTURE % DRY **(C)**	AASHTO T 255 / T 265 MOISTURE % WET **(a)**	AASHTO T 255 / T 265 MOISTURE % DRY **(b)**	AASHTO T 255 / T 265 MOISTURE % % M **(C)**	DRY DENSITY **(D)**
UNSCREENED COMBINED IN-PLACE MOISTURE →									

WD (A) = (M) X (MF)MOLD FACTOR

MOLD FACTOR **(MF)** **0.06614**

4 inch MOLD (WD) = (M) x 0.06614

6 inch MOLD (WD) = (M) x 0.02939

SPEEDY MOISTURE %

$(C) = \frac{(B)}{100 - (B)} \times 100$

T 255 / T 265 MOISTURE %

$(C) = \frac{(a) - (b)}{(b)} \times 100$

DRY DENSITY

$(D) = \frac{(A)}{(C)+100} \times 100$

Pc (from A or D above)	**Pf** (Pf = 100 - Pc)	**CURVE NO.**	DRY DENSITY ρ_f	OPTIMUM MOISTURE	**MCf**	**k** (Gsb x 62.4)	**MCc**

COMBINED IN-PLACE MOISTURE
(C) = unaltered one-point moisture

Within 1% of T 310 % Moisture?
(If not Correct T 310 DD)

W = ((C)Pf + MCcPc) / 100

[ ][ ] + [ ][ ] /100

W=

COMBINED OPTIMUM MOISTURE (MCT)
(Based on Curve Info.)

MCT = (MCfPf + MCcPc) / 100

[ ][ ] + [ ][ ] /100

MCT=

RELATIVE MAXIMUM DRY DENSITY

$\rho_d = \frac{100}{\frac{Pf}{\rho_f} + \frac{Pc}{k}}$ "lb/ft³

$\rho_d = \frac{100}{\frac{\quad}{\quad} + \frac{\quad}{\quad}}$

CORRECTED DRY DENSITY

DD = WD / (1+(**W**/100))

DD	=	**WD**	/	**1+(W/100)**

PERCENT COMPACTION

Original or Corrected (DD / ρ_d) x 100

Percent Required | PERCENT OBTAINED

REMARKS

☐ QUALITY CONTROL ☐ VERIFICATION **TYPE GAUGE-SERIAL NUMBER:**

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

NUCLEAR COMPACTION TEST REPORT

PROJECT NAME (SECTION)				CONTRACT NUMBER
Forms Example				12345
CONTRACTOR OR SUPPLIER		PROJECT MANAGER		BID ITEM NUMBER
ODOT Forms		Sean Parker		123
TEST LOCATION (STATION)		OFFSET (DISTANCE FROM CENTERLINE)		SOURCE POSITION
65+15		15' Rt.		8"
TEST NUMBER	DISTANCE BELOW GRADE	LIFT	LIFT THICKNESS	DATE
1-1	Subgrade	N/A	N/A	10/9/20
CODES FOR ROLLER TYPES: SDV-SINGLE DRUM VIBRATORY, DDV-DOUBLE DRUM VIBRATORY, SF- SHEEP FOOT, GR - GRID ROLLER		ROLLER TYPE AND DESCRIPTION (MANUFACTURE, WEIGHT, ETC)		
		CAT CF 560 SDV		

REPRESENTS MATERIAL / AREA INCORPORATED

FROM: STATION	62+00	OFFSET	CL	DIST. BELOW GRADE	Subgrade
TO: STATION	75+00	OFFSET	20' Rt.	DIST. BELOW GRADE	Subgrade

CHECK BOX: [ ] DEFLECTION OBSERVED UNDER LOADED EQUIP. [X] NO DEFLECTION OBSERVED UNDER LOADED EQUIP.

[ ] MOISTURE IS NOT WITHIN SPECIFICATION [X] MOISTURE IS WITHIN SPECIFICATION

AASHTO T 310	Wet Density lb/ft³	Moisture lb/ft³	Dry Density	Percent Moisture
Shot 1	150.2	10.1	WD - M	(M / DD) X 100
Shot 2	150.9	10.3		
Average	WD 150.6	M 10.2	DD 140.4	%M 7.3 %

(shots within 2 lb/ft³)

								(Pc)
AASHTO T 99	A	№4	COARSE	4582.0	FINE	5939.0	% Coarse	44
	D	¾"	COARSE	845.0	FINE	9691.0	% Coarse	8

MASS OF MOLD AND MATERIALS	MASS OF MOLD	MASS OF WET MATERIAL (M)	WET DENSITY (A)	SPEEDY MOISTURE % WET (B)	SPEEDY MOISTURE % DRY (C)	AASHTO T 255 / T 265 MOISTURE % WET (a)	AASHTO T 255 / T 265 MOISTURE % DRY (b)	AASHTO T 255 / T 265 MOISTURE % % M (C)	DRY DENSITY (D)
UNSCREENED COMBINED IN-PLACE MOISTURE →						2005.2	1850.1	8.4	
10317	5655.5	4661.5	137.0			1097.7	1065.3	3.0	133.0
10491.8	5655.5	4836.3	142.1			1044.7	991.1	5.4	134.8

WD (A) = (M) X (MF)MOLD FACTOR

MOLD FACTOR (MF) 0.02939

4 inch MOLD (WD) = (M) x 0.06614

6 inch MOLD (WD) = (M) x 0.02939

SPEEDY MOISTURE % (C)= (B) / (100 - (B)) X100

T 255 / T 265 MOISTURE % (C)= (a) - (b) / (b) X100

DRY DENSITY (D)= (A) / (C)+100 X100

Pc (from A or D above)	Pf (Pf = 100 - Pc)	CURVE NO.	DRY DENSITY ρ_f	OPTIMUM MOISTURE	MCf	k (Gsb x 62.4) or (Gsb x 1000)	MCc
8	92	Exit 99-03	139	8.5		165	2.2

COMBINED IN-PLACE MOISTURE

(C) = unaltered one-point moisture

Within 1% of T 310 % Moisture?

(If not Correct T 310 DD)

W = ((C)Pf + MCcPc) / 100 = [ ] [ ] + [ ] [ ] /100

W= 8.4

COMBINED OPTIMUM MOISTURE (MCT)

(Based on Curve Info.)

MCT = (MCfPf + MCcPc) / 100 = [ ] [ ] + [ ] [ ] /100

MCT= 8.5

RELATIVE MAXIMUM DRY DENSITY

$\rho_d = \frac{100}{\frac{Pf}{\rho_f} + \frac{Pc}{k}}$ lb/ft³

ρ_d 139 = 100 / ([ ] / [ ] + [ ] / [ ])

CORRECTED DRY DENSITY

DD = WD / (1+(W/100))

DD	=	WD	/	1+(W/100)
138.9		150.6		1.084

PERCENT COMPACTION

Original or Corrected (DD / ρ_d) x 100

Percent Required	PERCENT OBTAINED
95	100

REMARKS

[ ] QUALITY CONTROL [X] VERIFICATION TYPE GAUGE-SERIAL NUMBER: Troxler 16029

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Zoid #40001	ODOT		11/21/2022

NUCLEAR COMPACTION TEST REPORT

PROJECT NAME (SECTION)				CONTRACT NUMBER
Forms Example				12345
CONTRACTOR OR SUPPLIER		PROJECT MANAGER		BID ITEM NUMBER
ODOT Forms		Sean Parker		123
TEST LOCATION (STATION)		OFFSET (DISTANCE FROM CENTERLINE)		SOURCE POSITION
117+17		16' Lt.		8"
TEST NUMBER	DISTANCE BELOW GRADE	LIFT	LIFT THICKNESS	DATE
1-1	7 ft.	3 rd	12"	10/9/20
CODES FOR ROLLER TYPES: SDV-SINGLE DRUM VIBRATORY; DDV-DOUBLE DRUM VIBRATORY; SF- SHEEP FOOT; GR - GRID ROLLER		ROLLER TYPE AND DESCRIPTION (MANUFACTURE, WEIGHT, ETC)		
		CAT CF 460 SF		

REPRESENTS MATERIAL / AREA INCORPORATED

FROM: STATION	115+25	OFFSET	15' Lt.	DIST. BELOW GRADE	8'
TO: STATION	200+25	OFFSET	20' Rt.	DIST. BELOW GRADE	7'

CHECK BOX: [ ] DEFLECTION OBSERVED UNDER LOADED EQUIP. [X] NO DEFLECTION OBSERVED UNDER LOADED EQUIP.

[ ] MOISTURE IS NOT WITHIN SPECIFICATION [X] MOISTURE IS WITHIN SPECIFICATION

AASHTO T 310	Wet Density lb/ft³	Moisture lb/ft³	Dry Density	Percent Moisture
Shot 1	121.8	5.4	WD - M	(M / DD) X 100
Shot 2	121.5	5.5		
Average	WD 121.7	M 5.5	DD 116.2	%M 4.7 %

(shots within 2 lb/ft³)

								(Pc)
AASHTO T 99	A	№4	COARSE	2789.1	FINE	14947	% Coarse	16
	D	¾"	COARSE	1829.1	FINE	15906.9	% Coarse	10

MASS OF MOLD AND MATERIALS	MASS OF MOLD	MASS OF WET MATERIAL (M)	WET DENSITY (A)	SPEEDY MOISTURE % WET (B)	SPEEDY MOISTURE % DRY (C)	AASHTO T 255 / T 265 MOISTURE % WET (a)	AASHTO T 255 / T 265 MOISTURE % DRY (b)	AASHTO T 255 / T 265 MOISTURE % % M (C)	DRY DENSITY (D)
UNSCREENED COMBINED IN-PLACE MOISTURE →									
5941.1	4223.7	1717.4	113.6			110.6	103	7.4	105.8
6101.5	4223.7	1877.8	124.2			165.9	147.5	12.5	110.4

WD (A) = (M) X (MF)MOLD FACTOR

MOLD FACTOR (MF): 0.06614

4 inch MOLD (WD) = (M) x 0.06614

6 inch MOLD (WD) = (M) x 0.02939

SPEEDY MOISTURE %

$(C) = \frac{(B)}{100 - (B)} \times 100$

T 255 / T 265 MOISTURE %

$(C) = \frac{(a) - (b)}{(b)} \times 100$

DRY DENSITY

$(D) = \frac{(A)}{(C)+100} \times 100$

Pc (from A or D above)	Pf (Pf = 100 - Pc)	CURVE NO.	DRY DENSITY ρ_f	OPTIMUM MOISTURE	MCf	k (Gsb x 62.4)	MCc
16	84	Exit 19-1	111.4	14.1		138	4.8

COMBINED IN-PLACE MOISTURE

(C) = unaltered one-point moisture

Within 1% of T 310 % Moisture?
(If not Correct T 310 DD)

$W = ((C)Pf + MCcPc) / 100$

$\frac{7.4 \times 84 + 4.8 \times 16}{100}$

W= 7.0

COMBINED OPTIMUM MOISTURE (MCT)

(Based on Curve Info.)

$MCT = (MCfPf + MCcPc) / 100$

$\frac{14.1 \times 84 + 4.8 \times 16}{100}$

MCT= 12.6

RELATIVE MAXIMUM DRY DENSITY

$\rho_d = \frac{100}{\frac{Pf}{\rho_f} + \frac{Pc}{k}}$ lb/ft³

$\rho_d = 114.9 = \frac{100}{\frac{84}{111.4} + \frac{16}{138}}$

CORRECTED DRY DENSITY

DD = WD / (1+(W/100))

DD	=	WD	/	1+(W/100)
113.7	=	121.7	/	1.07

PERCENT COMPACTION

Original or Corrected (DD / ρ_d) x 100

Percent Required	PERCENT OBTAINED
95	99

REMARKS

[ ] QUALITY CONTROL [X] VERIFICATION TYPE GAUGE-SERIAL NUMBER: Troxler 16029

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Zoid #40001	ODOT		11/21/2022

NUCLEAR COMPACTION TEST REPORT FOR BASE AGGREGATE

PROJECT NAME (SECTION)			CONTRACT NUMBER
C0NTRACTOR OR SUPPLIER		PROJECT MANAGER	BID ITEM NUMBER
PANEL WIDTH	LIFT THICKNESS	TYPE GAUGE-SERIAL NUMBER	MIX NOMINAL SIZE

ROLLER TYPE AND DESCRIPTION (MANUFACTURE, WEIGHT, ETC)

TEST NUMBER						
DATE OF TEST						
TEST LOCATION (STATION)						
DISTANCE LT. OR RT. OF CENTERLINE (FEET)						
SOURCE POSITION						
LIFT — DIST BELOW GRADE						
WET DENSITY	**1D**					
MAX DIFFERENCE 2 lb/ft³	**2D**					
MOISTURE	**1M**					
	2M					
AVE. WET DENSITY	**AD**					
AVE. MOISTURE	**AM**					
DRY DENSITY (AD-AM)	**DD**					
% MOISTURE (AM / DD) x 100	**%M**					
Curve #						
Source #						
RELATIVE MAXIMUM DRY DENSITY	ρ_d					
Combined Optimum Moisture						
% COMPACTION FOR INDIVIDUAL TESTS (DD / ρ_d) X 100		% REQ				

CHECK APPROPRIATE ☐ MATERIAL DEFLECTED UNDER LOADED EQUIPMENT ☐ MATERIAL DID NOT DEFLECT UNDER LOADED EQUIPMENT

REPRESENTS MATERIAL INCORPORATED

FROM STATION _____ TO STATION _____

FROM OFFSET _____ TO OFFSET _____

REMARKS

☐ QUALITY CONTROL ☐ VERIFICATION			
CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

NUCLEAR COMPACTION TEST REPORT FOR BASE AGGREGATE

PROJECT NAME (SECTION)			CONTRACT NUMBER
Forms Example			12345
CONTRACTOR OR SUPPLIER		PROJECT MANAGER	BID ITEM NUMBER
ODOT Forms		Sean Parker	123
PANEL WIDTH	LIFT THICKNESS	TYPE GAUGE-SERIAL NUMBER	MIX NOMINAL SIZE
13 Ft.	6"	Troxler 3430 #11111	3/4"-0

ROLLER TYPE AND DESCRIPTION (MANUFACTURE, WEIGHT, ETC)
Ingersoll Rand - SDV - 10 Ton

TEST NUMBER		1	2	3	4	5
DATE OF TEST		10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020
TEST LOCATION (STATION)		135+15	142+50	148+30	155+45	161+00
DISTANCE LT. OR RT. OF CENTERLINE (FEET)		5' Rt	2' Rt	10' Rt	9' Rt	3' Rt
SOURCE POSITION		6"	6"	6"	6"	6"
LIFT	DIST BELOW GRADE	1st 6"	1st 6"	1st 6"	1st 6"	1st 6"
WET DENSITY	**1D**	144.4	145.6	147.0	146.5	145.7
MAX DIFFERENCE 2 lb/ft³	**2D**	143.8	145.3	147.2	146.5	145.9
MOISTURE	**1M**	7.2	7.9	8.1	7.4	7.6
	2M	7.1	7.7	8.3	7.3	7.7
AVE. WET DENSITY	**AD**	144.1	145.5	147.1	146.5	145.8
AVE. MOISTURE	**AM**	7.2	7.8	8.2	7.4	7.7
DRY DENSITY (AD-AM)	**DD**	136.9	137.7	138.9	139.1	138.1
% MOISTURE (AM / DD) x 100	**%M**	5.3%	5.7%	5.9%	5.3%	5.6%
Curve #		#1	#1	#1	#1	#1
Source #		10-001-3	10-001-3	10-001-3	10-001-3	10-001-3
RELATIVE MAXIMUM DRY DENSITY	ρ_d	135.4	135.4	135.4	135.4	135.4
Combined Optimum Moisture		7.3%	7.3%	7.3%	7.3%	7.3%
% COMPACTION FOR INDIVIDUAL TESTS (DD / ρ_d) X 100	**95** % REQ	**101%**	**102%**	**103%**	**103%**	**102%**

CHECK APPROPRIATE [ ] MATERIAL DEFLECTED UNDER LOADED EQUIPMENT [X] MATERIAL DID NOT DEFLECT UNDER LOADED EQUIPMENT

REPRESENTS MATERIAL INCORPORATED

FROM STATION	**120+00**	TO STATION	**162+00**
FROM OFFSET	**Centerline**	TO OFFSET	**13' Rt.**

REMARKS

[X] QUALITY CONTROL [ ] VERIFICATION

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT	Scott Aker	10/9/2020

UNIT WEIGHT AND SPECIFIC GRAVITY W/S

E English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)					CONTRACT NUMBER
C0NTRACTOR OR SUPPLIER			PROJECT MANAGER		BID ITEM NUMBER
TEST NO.	DATE	TIME	SAMPLED AT	MATERIAL DESCRIPTION	TO BE USED IN

BULK DENSITY ("UNIT WEIGHT") AND VOIDS IN AGGREGATE AASHTO T 19

	SOURCE NAME				
	SOURCE NUMBER				
	MATERIAL SIZE				
A	MEASURE + AGGREGATE	lb			
B	EMPTY MEASURE	lb			
C	MASS OF AGGREGATE A-B	lb			
D	VOLUME OF MEASURE	ft^3			
	UNIT WEIGHT C / D	lb/ft^3			

SPECIFIC GRAVITY AND ABSORPTION OF COARSE AGGREGATE AASHTO T 85

	SOURCE NAME				
	SOURCE NUMBER				
	MATERIAL SIZE				
A	MASS OF DRY SAMPLE	g			
B	MASS OF SSD SAMPLE	g			
C	WEIGHT IN WATER	g			
	Gsb	A / (B - C)			
	Gsb ssd	B / (B - C)			
	Gsa	A / (A - C)			
	Absorption	[(B - A) / A] X 100			

SPECIFIC GRAVITY AND ABSORPTION OF FINE AGGREGATE AASHTO T 84

PYCNOMETER METHOD				**LeCHATELIER FLASK METHOD**			
	SOURCE NAME				**SOURCE NAME**		
	SOURCE NUMBER				**SOURCE NUMBER**		
	MATERIAL SIZE				**MATERIAL SIZE**		
S	MASS OF SSD SAMPLE	g		**S_1**	SSD MATERIAL IN FLASK (55±5)	g	
A	MASS OF DRY SAMPLE	g		**S**	SEPARATE SSD SAMPLE (500±10)	g	
B	MASS OF PYC + WATER	g		**R_1**	INITIAL FLASK READING	ml	
C	PYCN + WATER + SAMPLE	g		**R_2**	FINAL FLASK READING	ml	
Gsb	A / (B + S - C)			**A**	MASS OF DRY SAMPLE	g	
Gsb ssd	S / (B + S - C)			**Gsb**	$[S_1(A / S] / [0.9975 (R_2 - R_1)]$		
Gsa	A / (B + A - C)			**Gsb ssd**	S1 / [0.9975 (R2 - R1)]		
Absorption	[(S - A) / A] X 100			**Absorption**	[(S - A) / A] X 100		

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

UNIT WEIGHT AND SPECIFIC GRAVITY W/S

E English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)					CONTRACT NUMBER
Forms Example					12345
CONTRACTOR OR SUPPLIER				PROJECT MANAGER	BID ITEM NUMBER
Super Concrete Ready Mix				Sean Parker	123
TEST NO.	DATE	TIME	SAMPLED AT	MATERIAL DESCRIPTION	TO BE USED IN
07-1	10/5/2017	10:00am	Stockpile	Round/Crushed Blend	PCC Coarse Aggregate

BULK DENSITY ("UNIT WEIGHT") AND VOIDS IN AGGREGATE AASHTO T 19

	SOURCE NAME		Best Rock	Best Rock	Best Rock
	SOURCE NUMBER		12-123-3	12-123-3	12-123-3
	MATERIAL SIZE		85% 3/4 Rnd - 15% 1/2 Cr	3/4" - #4 round	1/2" - #4 Crushed
A	MEASURE + AGGREGATE	lb	70.76	70.90	70.12
B	EMPTY MEASURE	lb	19.12	19.12	19.12
C	MASS OF AGGREGATE A-B	lb	51.64	51.78	51.00
D	VOLUME OF MEASURE	ft^3	0.5002	0.5002	0.5002
	UNIT WEIGHT C / D	lb/ft^3	103	104	102

SPECIFIC GRAVITY AND ABSORPTION OF COARSE AGGREGATE AASHTO T 85

	SOURCE NAME		Best Rock	Best Rock	Best Rock
	SOURCE NUMBER		12-123-3	12-123-3	12-123-3
	MATERIAL SIZE		85% 3/4 Rnd - 15% 1/2" Cr	3/4" - #4 Round	1/2" - #4 Crushed
A	MASS OF DRY SAMPLE	g	3059.6	3101.5	2235.1
B	MASS OF SSD SAMPLE	g	3108.7	3145.6	2275.9
C	WEIGHT IN WATER	g	1954.1	1985.4	1425.1
	Gsb	A / (B - C)	2.650	2.673	2.627
	Gsb ssd	B / (B - C)	2.692	2.711	2.675
	Gsa	A / (A - C)	2.768	2.779	2.759
	Absorption	[(B - A) / A] X 100	1.6	1.4	1.8

SPECIFIC GRAVITY AND ABSORPTION OF FINE AGGREGATE AASHTO T 84

PYCNOMETER METHOD				LeCHATELIER FLASK METHOD			
	SOURCE NAME	Best Rock			SOURCE NAME	Best Rock	
	SOURCE NUMBER	12-123-3			SOURCE NUMBER	12-123-3	
	MATERIAL SIZE	#4-0			MATERIAL SIZE	#4-0	
S	MASS OF SSD SAMPLE g	504.9		**S_1**	SSD MATERIAL IN FLASK (55±5) g	55.1	
A	MASS OF DRY SAMPLE g	485.6		**S**	SEPARATE SSD SAMPLE (500±10) g	504.9	
B	MASS OF PYC + WATER g	4298.0		**R_1**	INITIAL FLASK READING ml	0.3	
C	PYCN + WATER + SAMPLE g	4622.5		**R_2**	FINAL FLASK READING ml	20.0	
Gsb	A / (B + S - C)	2.692		**A**	MASS OF DRY SAMPLE g	485.6	
Gsb ssd	S / (B + S - C)	2.799		**Gsb**	$[S_1(A / S] / [0.9975 (R_2 - R_1)]$	2.697	
Gsa	A / (B + A - C)	3.014		**Gsb ssd**	S1 / [0.9975 (R2 - R1)]	2.804	
Absorption	[(S - A) / A] X 100	4.0		**Absorption**	[(S - A) / A] X 100	4.0	

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT Region 3 QA Unit		10/5/2017

BULK DENSITY "UNIT WEIGHT" MEASURE CALIBRATION

E English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)		CONTRACT NUMBER
CONTRACTOR OR SUPPLIER	PROJECT MANAGER	BID ITEM NUMBER

BULK DENSITY ("UNIT WEIGHT") AND VOIDS IN AGGREGATE AASHTO T 19

WATER DENSITY TABLE

°F	lb/ft³	°c	kg/m³	°F	lb/ft³	°c	kg/m³	°F	lb/ft³	°c	kg/m³
60.0	62.366	15.6	999.01	68.5	62.312	20.3	998.14	77.0	62.243	25.0	997.04
60.5	62.363	15.8	998.96	69.0	62.308	20.6	998.08	77.5	62.239	25.3	996.97
61.0	62.360	16.1	998.91	69.5	62.305	20.8	998.02	78.0	62.234	25.6	996.90
61.5	62.357	16.4	998.87	70.0	62.301	21.1	997.97	78.5	62.230	25.8	996.82
62.0	62.354	16.7	998.82	70.5	62.297	21.4	997.90	79.0	62.225	26.1	996.75
62.5	62.351	16.9	998.77	71.0	62.293	21.7	997.84	79.5	62.221	26.4	996.68
63.0	62.348	17.2	998.72	71.5	62.289	21.9	997.78	80.0	62.216	26.7	996.59
63.5	62.345	17.5	998.67	72.0	62.285	22.2	997.71	80.5	62.211	26.9	996.53
64.0	62.342	17.8	998.63	72.5	62.281	22.5	997.65	81.0	62.206	27.2	996.45
64.5	62.339	18.1	998.58	73.0	62.277	22.8	997.58	81.5	62.201	27.5	996.37
65.0	62.336	18.3	998.54	73.5	62.273	23.1	997.52	82.0	62.196	27.8	996.29
65.5	62.333	18.6	998.47	74.0	62.269	23.3	997.46	82.5	62.191	28.1	996.21
66.0	62.329	18.9	998.42	74.5	62.265	23.6	997.39	83.0	62.186	28.3	996.13
66.5	62.326	19.2	998.36	75.0	62.261	23.9	997.32	83.5	62.181	28.6	996.05
67.0	62.322	19.4	998.30	75.5	62.257	24.2	997.26	84.0	62.176	29.2	995.97
67.5	62.319	19.7	998.25	76.0	62.252	24.4	997.18	84.5	62.171	29.2	995.89
68.0	62.315	20.0	998.19	76.5	62.248	24.7	997.11	85.0	62.166	29.4	995.83

CALIBRATION OF MEASURE

RECALIBRATE ANNUALLY OR WHEN IN QUESTION

	DATE						
	SERIAL NUMBER						
1	MEASURE + GLASS + WATER	lb					
2	EMPTY MEASURE + GLASS	lb					
A	MASS OF WATER (1 - 2)	lb					
	TEMPERATURE OF WATER	°F					
B	DENSITY OF WATER	ft³					
V	VOLUME OF MEASURE (A / B)	ft³					

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

BULK DENSITY "UNIT WEIGHT" MEASURE CALIBRATION

E English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)		CONTRACT NUMBER
Form Example		12345
CONTRACTOR OR SUPPLIER	PROJECT MANAGER	BID ITEM NUMBER
ODOT Forms	Sean Parker	123

BULK DENSITY ("UNIT WEIGHT") AND VOIDS IN AGGREGATE AASHTO T 19

WATER DENSITY TABLE

°F	lb/ft³	°c	kg/m³	°F	lb/ft³	°c	kg/m³	°F	lb/ft³	°c	kg/m³
60.0	62.366	15.6	999.01	68.5	62.312	20.3	998.14	77.0	62.243	25.0	997.04
60.5	62.363	15.8	998.96	69.0	62.308	20.6	998.08	77.5	62.239	25.3	996.97
61.0	62.360	16.1	998.91	69.5	62.305	20.8	998.02	78.0	62.234	25.6	996.90
61.5	62.357	16.4	998.87	70.0	62.301	21.1	997.97	78.5	62.230	25.8	996.82
62.0	62.354	16.7	998.82	70.5	62.297	21.4	997.90	79.0	62.225	26.1	996.75
62.5	62.351	16.9	998.77	71.0	62.293	21.7	997.84	79.5	62.221	26.4	996.68
63.0	62.348	17.2	998.72	71.5	62.289	21.9	997.78	80.0	62.216	26.7	996.59
63.5	62.345	17.5	998.67	72.0	62.285	22.2	997.71	80.5	62.211	26.9	996.53
64.0	62.342	17.8	998.63	72.5	62.281	22.5	997.65	81.0	62.206	27.2	996.45
64.5	62.339	18.1	998.58	73.0	62.277	22.8	997.58	81.5	62.201	27.5	996.37
65.0	62.336	18.3	998.54	73.5	62.273	23.1	997.52	82.0	62.196	27.8	996.29
65.5	62.333	18.6	998.47	74.0	62.269	23.3	997.46	82.5	62.191	28.1	996.21
66.0	62.329	18.9	998.42	74.5	62.265	23.6	997.39	83.0	62.186	28.3	996.13
66.5	62.326	19.2	998.36	75.0	62.261	23.9	997.32	83.5	62.181	28.6	996.05
67.0	62.322	19.4	998.30	75.5	62.257	24.2	997.26	84.0	62.176	29.2	995.97
67.5	62.319	19.7	998.25	76.0	62.252	24.4	997.18	84.5	62.171	29.2	995.89
68.0	62.315	20.0	998.19	76.5	62.248	24.7	997.11	85.0	62.166	29.4	995.83

CALIBRATION OF MEASURE

RECALIBRATE ANNUALLY OR WHEN IN QUESTION

	DATE		10/22/2007				
	SERIAL NUMBER		R3QA-1				
1	MEASURE + GLASS + WATER	lb	53.18				
2	EMPTY MEASURE + GLASS	lb	22.02				
A	MASS OF WATER (1 - 2)	lb	31.16				
	TEMPERATURE OF WATER	°F	71.0				
B	DENSITY OF WATER	ft³	62.293				
V	VOLUME OF MEASURE (A / B)	ft³	0.5002				

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT Region 3 QA Unit		10/10/2012

RANDOM SAMPLE LOCATIONS

E English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)		CONTRACT NUMBER
C0NTRACTOR OR SUPPLIER	PROJECT MANAGER	BID ITEM NUMBER

LOT SUBLOT TEST	FIVE DIGIT RANDOM NUMBER	(A) THREE RANDOM DIGITS X .001	(B) Ton or DISTANCE COVERED	(C) BEGINNING STATION OR Ton	TEST LOCATION STATION or Ton (A X B) ± C	(D) TWO RANDOM DIGITS X .01	(E) WIDTH MATERIAL COVERS	TEST LOCATION DISTANCE FROM RIGHT EDGE ((E - 2) X D) + 1

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

RANDOM SAMPLE LOCATIONS

E English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)		CONTRACT NUMBER
Forms Example		12345
CONTRACTOR OR SUPPLIER	PROJECT MANAGER	BID ITEM NUMBER
ODOT Forms	Sean Parker	123

LOT SUBLOT TEST	FIVE DIGIT RANDOM NUMBER	(A) THREE RANDOM DIGITS X .001	(B) Ton or DISTANCE COVERED	(C) BEGINNING STATION OR Ton	TEST LOCATION STATION or Ton (A X B) ± C	(D) TWO RANDOM DIGITS X .01	(E) WIDTH MATERIAL COVERS	TEST LOCATION DISTANCE FROM RIGHT EDGE ((E - 2) X D) + 1
1-1-1	.17550	0.175	5700	15+00	24+98	0.50	13'	6.5'
2	.92128	0.921			67+50	0.28	13'	4.1'
3	.18160	0.181			25+32	0.60	13'	7.6'
4	.91610	0.916			67+21	0.10	13'	2.1'
5	.87782	0.877			64+99	0.82	13'	10.0'
1-2-1	.69103	0.691	5700	72+00	118+32	0.03	13'	1.3'
2	.26825	0.268			92+47	0.25	13'	2.8'
3	.95215	0.952			134+27	0.15	13'	2.7'
4	.63932	0.639			115+14	0.32	13'	4.5'
5	.88997	0.889			130+42	0.97	13'	11.7'
1-3-1	.14741	0.147	5750	129+00	145+65	0.41	13'	6.3'
2	.81213	0.812			183+89	0.13	13'	2.7'
3	.09007	0.090			142+38	0.07	13'	1.9'
4	.70847	0.708			177+91	0.47	13'	7.1'
5	.34421	0.344			156+98	0.21	13'	3.7'
			5750	186+50				

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT		10/10/2012

RANDOM SAMPLE DENSITY LOCATIONS - ACP

E English (E) or Metric (M)

PROJECT NAME (SECTION)		CONTRACT NUMBER
CONTRACTOR OR SUPPLIER	PROJECT MANAGER	BID ITEM NUMBER

AVG VOLUME $\frac{2000\ (1000)}{(MAMD \times (\%\ REQ'D / 100))}$ = ft³/ton (m³/Mg)

CROSS SECTION $\frac{PANEL\ DEPTH}{12\ (1000)}$ X PANEL WIDTH = ft² (m²)

YIELD $\frac{AVG\ VOLUME}{CROSS\ SEC.}$ =ft / ton (m / Mg)

SUBLOT DIST. YIELD X SUBLOT SIZE = ft (m)

MAMD	COMPACTION	PANEL DEPTH	PANEL WIDTH	**AVG VOLUME**	**CROSS SEC.**	**YIELD** (FT/TON)	SUBLOT SIZE	**SUBLOT DIST.**
	%	in	ft	ft³/ton	ft²	ft/ton	tons	ft

TEST NUMBER	**(A)** THREE RANDOM DIGITS X .001	**(B)** **SUBLOT SEGMENT** DISTANCE OR TONS (Sublot Total / 5)	**(C)** BEGINNING STATION OR TONAGE	**TEST LOCATION** C ± (A X B)	**(D)** TWO RANDOM DIGITS X .01	**(E)** WIDTH MATERIAL COVERS ft.	**OFFSET** DIST. FROM RIGHT EDGE ((E - 2) X D) + 1
SUBLOT: DISTANCE			**DISTANCE** ☐ **TONS** ☐		**AUTO-CALC. RANDOMS** ☐	**ASCENDING** **DESCENDING**	☐ ☐

MAMD	COMPACTION	PANEL DEPTH	PANEL WIDTH	**AVG VOLUME**	**CROSS SEC.**	**YIELD** (FT/TON)	SUBLOT SIZE	**SUBLOT DIST.**
	%	in	ft	ft³/ton	ft²	ft/ton	tons	ft

TEST NUMBER	**(A)** THREE RANDOM DIGITS X .001	**(B)** **SUBLOT SEGMENT** DISTANCE OR TONS (Sublot Total / 5)	**(C)** BEGINNING STATION OR TONAGE	**TEST LOCATION** C ± (A X B)	**(D)** TWO RANDOM DIGITS X .01	**(E)** WIDTH MATERIAL COVERS ft.	**OFFSET** DIST. FROM RIGHT EDGE ((E - 2) X D) + 1
SUBLOT: DISTANCE			**DISTANCE** ☐ **TONS** ☐		**AUTO-CALC. RANDOMS** ☐	**ASCENDING** **DESCENDING**	☐ ☐

MAMD	COMPACTION	PANEL DEPTH	PANEL WIDTH	**AVG VOLUME**	**CROSS SEC.**	**YIELD** (FT/TON)	SUBLOT SIZE	**SUBLOT DIST.**
	%	in	ft	ft³/ton	ft²	ft/ton	tons	ft

TEST NUMBER	**(A)** THREE RANDOM DIGITS X .001	**(B)** **SUBLOT SEGMENT** DISTANCE OR TONS (Sublot Total / 5)	**(C)** BEGINNING STATION OR TONAGE	**TEST LOCATION** C ± (A X B)	**(D)** TWO RANDOM DIGITS X .01	**(E)** WIDTH MATERIAL COVERS ft.	**OFFSET** DIST. FROM RIGHT EDGE ((E - 2) X D) + 1
SUBLOT: DISTANCE			**DISTANCE** ☐ **TONS** ☐		**AUTO-CALC. RANDOMS** ☐	**ASCENDING** **DESCENDING**	☐ ☐

MAMD	COMPACTION	PANEL DEPTH	PANEL WIDTH	**AVG VOLUME**	**CROSS SEC.**	**YIELD** (FT/TON)	SUBLOT SIZE	**SUBLOT DIST.**
	%	in	ft	ft³/ton	ft²	ft/ton	tons	ft

TEST NUMBER	**(A)** THREE RANDOM DIGITS X .001	**(B)** **SUBLOT SEGMENT** DISTANCE OR TONS (Sublot Total / 5)	**(C)** BEGINNING STATION OR TONAGE	**TEST LOCATION** C ± (A X B)	**(D)** TWO RANDOM DIGITS X .01	**(E)** WIDTH MATERIAL COVERS ft.	**OFFSET** DIST. FROM RIGHT EDGE ((E - 2) X D) + 1
SUBLOT: DISTANCE			**DISTANCE** ☐ **TONS** ☐		**AUTO-CALC. RANDOMS** ☐	**ASCENDING** **DESCENDING**	☐ ☐

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

RANDOM SAMPLE DENSITY LOCATIONS - ACP

E English (E) or Metric (M)

PROJECT NAME (SECTION)		CONTRACT NUMBER
Forms Example		12345
C0NTRACTOR OR SUPPLIER	**PROJECT MANAGER**	**BID ITEM NUMBER**
ODOT Forms	Sean Parker	123

AVG VOLUME = 2000 (1000) / (MAMD x (% REQ'D / 100)) = ft³/ton (m³/Mg)

CROSS SECTION = PANEL DEPTH / 12 (1000) X PANEL WIDTH = ft² (m²)

YIELD = AVG VOLUME / CROSS SEC. = ft / ton (m / Mg)

SUBLOT DIST. = YIELD X SUBLOT SIZE = ft (m)

MAMD	COMPACTION	PANEL DEPTH	PANEL WIDTH	AVG VOLUME	CROSS SEC.	YIELD (FT/TON)	SUBLOT SIZE	SUBLOT DIST.
151.9	**92.0** %	**2** in	**16** ft	**14.32** ft³/ton	**2.67** ft²	**5.36** ft/ton	**1000** tons	**5360** ft

TEST NUMBER	(A) THREE RANDOM DIGITS X .001	(B) SUBLOT SEGMENT DISTANCE OR TONS (Sublot Total / 5)	(C) BEGINNING STATION OR TONAGE	TEST LOCATION 772 C ± (A X B)	(D) TWO RANDOM DIGITS X .01	(E) WIDTH MATERIAL COVERS ft.	OFFSET DIST. FROM RIGHT EDGE ((E - 2) X D) + 1
1-1	0.254	1072	12345	**12617**	0.55	16.0	**8.7**
1-2	0.564	1072	13417	**14022**	0.96	16.0	**14.4**
1-3	0.854	1072	14489	**15404**	0.64	16.0	**10.0**
1-4	0.125	1072	15561	**15695**	0.08	16.0	**2.1**
1-5	0.025	1072	16633	**16660**	0.40	16.0	**6.6**

SUBLOT: DISTANCE 5360 — **DISTANCE** [X] **TONS** [ ] — **AUTO-CALC. RANDOMS** [X] — **ASCENDING** [X] **DESCENDING** [ ]

MAMD	COMPACTION	PANEL DEPTH	PANEL WIDTH	AVG VOLUME	CROSS SEC.	YIELD (FT/TON)	SUBLOT SIZE	SUBLOT DIST.
152.1	**93.4** %	**2** in	**14** ft	**14.07** ft³/ton	**2.33** ft²	**6.04** ft/ton	**1000** tons	**6040** ft

TEST NUMBER	(A) THREE RANDOM DIGITS X .001	(B) SUBLOT SEGMENT DISTANCE OR TONS (Sublot Total / 5)	(C) BEGINNING STATION OR TONAGE	TEST LOCATION C ± (A X B)	(D) TWO RANDOM DIGITS X .01	(E) WIDTH MATERIAL COVERS ft.	OFFSET DIST. FROM RIGHT EDGE ((E - 2) X D) + 1
2-1	0.648	1208	12345	**11562**	0.46	14.0	**6.5**
2-2	0.522	1208	11137	**10506**	0.02	14.0	**1.2**
2-3	0.023	1208	9929	**9901**	0.18	14.0	**3.2**
2-4	0.089	1208	8721	**8613**	0.68	14.0	**9.2**
2-5	0.546	1208	7513	**6853**	0.93	14.0	**12.2**

SUBLOT: DISTANCE 6040 — **DISTANCE** [X] **TONS** [ ] — **AUTO-CALC. RANDOMS** [X] — **ASCENDING** [ ] **DESCENDING** [X]

MAMD	COMPACTION	PANEL DEPTH	PANEL WIDTH	AVG VOLUME	CROSS SEC.	YIELD (FT/TON)	SUBLOT SIZE	SUBLOT DIST.
152.2	**92.6** %	**2** in	**16** ft	**14.19** ft³/ton	**2.67** ft²	**5.31** ft/ton	**1000** tons	**5310** ft

TEST NUMBER	(A) THREE RANDOM DIGITS X .001	(B) SUBLOT SEGMENT DISTANCE OR TONS (Sublot Total / 5)	(C) BEGINNING STATION OR TONAGE	TEST LOCATION C ± (A X B)	(D) TWO RANDOM DIGITS X .01	(E) WIDTH MATERIAL COVERS ft.	OFFSET DIST. FROM RIGHT EDGE ((E - 2) X D) + 1
3-1	0.365	200	2000	**2073**	0.03	16.0	**1.4**
3-2	0.215	200	2200	**2243**	0.09	16.0	**2.3**
3-3	0.025	200	2400	**2405**	0.55	16.0	**8.7**
3-4	0.005	200	2600	**2601**	0.87	16.0	**13.2**
3-5	0.859	200	2800	**2972**	0.46	16.0	**7.4**

SUBLOT: DISTANCE 1000 — **DISTANCE** [ ] **TONS** [X] — **AUTO-CALC. RANDOMS** [X] — **ASCENDING** [X] **DESCENDING** [ ]

MAMD	COMPACTION	PANEL DEPTH	PANEL WIDTH	AVG VOLUME	CROSS SEC.	YIELD (FT/TON)	SUBLOT SIZE	SUBLOT DIST.
152.4	**91.5** %	**3** in	**14** ft	**14.35** ft³/ton	**3.5** ft²	**4.1** ft/ton	**1000** tons	**4100** ft

TEST NUMBER	(A) THREE RANDOM DIGITS X .001	(B) SUBLOT SEGMENT DISTANCE OR TONS (Sublot Total / 5)	(C) BEGINNING STATION OR TONAGE	TEST LOCATION C ± (A X B)	(D) TWO RANDOM DIGITS X .01	(E) WIDTH MATERIAL COVERS ft.	OFFSET DIST. FROM RIGHT EDGE ((E - 2) X D) + 1
4-1	0.879	200	3000	**3176**	0.56	14.0	**7.7**
4-2	0.556	200	3200	**3311**	0.88	14.0	**11.6**
4-3	0.989	200	3400	**3598**	0.16	14.0	**2.9**
4-4	0.521	200	3600	**3704**	0.09	14.0	**2.1**
4-5	0.014	200	3800	**3803**	0.07	14.0	**1.8**

SUBLOT: DISTANCE 1000 — **DISTANCE** [ ] **TONS** [X] — **AUTO-CALC. RANDOMS** [X] — **ASCENDING** [X] **DESCENDING** [ ]

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT		10/10/2012

DAILY ASPHALT CEMENT REPORT

E English (E) or Metric (M)

PROJECT NAME (SECTION)		CONTRACT NUMBER
C0NTRACTOR	PROJECT MANAGER	REPORT NUMBER
	SUPPLIER	DATE

ASPHALT INVENTORY METHOD

PREVIOUS ENDING TANK STICK — LINE 8 FROM PREVIOUS REPORT — 1

DELIVERIES BEFORE BEGINNING TANK STICK

INVOICE NO.	Tons	INVOICE NO.	Tons	INVOICE NO.	Tons

TOTAL DELIVERIES — 2

DEDUCTIONS BEFORE BEGINNING INVENTORY
EXPLAIN BELOW OR ON ATTACHMENT

EXPLANATION — 3

BEGINNING INVENTORY 1 + 2 - 3

(ANY DIFFERENCES WITH LINE 5 OTHER THAN MINOR MEASURING DIFFERENCES, MUST BE RESOLVED) — 4

BEGINNING TANK STICK

TANK NO.	TEMP	TANK STICK	VOLUME IN TANK	X	TEMP. CORR. FACTOR	X	SPECIFIC GRAVITY	/239.9=Tons
1								
2								
3								

BEGINNING TANK STICK TOTAL — 5

DELIVERIES AFTER BEGINNING INVENTORY

INVOICE NO.	Tons	INVOICE NO.	Tons	INVOICE NO.	Tons

TOTAL DELIVERIES — 6

DEDUCTIONS AFTER BEGINNING INVENTORY
(TACK, WASTE, REJECT, SOLD TO OTHERS ETC.) EXPLAIN BELOW OR ON ATTACHMENT — 7

ENDING TANK STICK

TANK NO.	TEMP	TANK STICK	VOLUME IN TANK	X	TEMP. CORR. FACTOR	X	SPECIFIC GRAVITY	/239.9=Tons
1								
2								
3								

ENDING TANK STICK TOTAL — 8

ASPHALT CEMENT — LINES 4 or 5 + 6 - 7 - 8 — 9

SMALL QUANTITY METHOD

ASPHALT TARGET % FROM JOB MIX FORMULA — C

Tons MIX THIS DATE X C/100 = ASPHALT CEMENT INCORPORATED — 10

BATCH MASS METHOD

BATCH TICKET NO.

ASPHALT CEMENT INCORPORATED — 11

ASPHALT CEMENT SUMMARY

		B.I. NO.
ASPHALT CEMENT IN MIX		
PREVIOUS REPORT LINE 14	12	
THIS REPORT LINE 9, 10, OR 11	13	
ASPHALT CEMENT IN MIXTURE TO DATE 12 + 13	14	

ASPHALT MIXTURE SUMMARY

		B.I. NO.
CLASS HMAC		
PREVIOUS REPORT LINE 17	15	
MATERIAL RECEIPT TOTAL FOR THIS DATE	16	
ASPHALT MIXTURE TO DATE 15+16	17	
CLASS HMAC		B.I. NO.
PREVIOUS REPORT LINE 20	18	
MATERIAL RECEIPT TOTAL FOR THIS DATE	19	
ASPHALT MIXTURE TO DATE 18+19	20	

WASTE DEDUCTION CALCULATION

From Form 2401

TOTAL MIX NOT ACCEPTED	Line "e"	e
DAILY AVERAGE MIX MOISTURE	Line "g"	g
TOTAL DRY MIX NOT ACCEPTED e / (1+(g/100))		TD
BY TANK % Pb HMAC	Line "Z"	Z
WASTE ASPHALT for line 7 deductions (TDxZ)/100		7

Remarks

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

DAILY ASPHALT CEMENT REPORT

E — English (E) or Metric (M)

PROJECT NAME (SECTION)		CONTRACT NUMBER
Forms Example		12345
CONTRACTOR	**PROJECT MANAGER**	**REPORT NUMBER**
ODOT Forms	Sean Parker	123
	SUPPLIER	**DATE**
	Confidential	10/10/2012

ASPHALT INVENTORY METHOD

PREVIOUS ENDING TANK STICK — LINE 8 FROM PREVIOUS REPORT	1	95.94	

DELIVERIES BEFORE BEGINNING TANK STICK

INVOICE NO.	Tons	INVOICE NO.	Tons	INVOICE NO.	Tons

TOTAL DELIVERIES	2	
DEDUCTIONS BEFORE BEGINNING INVENTORY EXPLAIN BELOW OR ON ATTACHMENT		
EXPLANATION	3	0.09
BEGINNING INVENTORY 1 + 2 - 3		
(ANY DIFFERENCES WITH LINE 5 OTHER THAN MINOR MEASURING DIFFERENCES, MUST BE RESOLVED)	4	95.85

BEGINNING TANK STICK

TANK NO.	TEMP	TANK STICK	VOLUME IN TANK	X	TEMP. CORR. FACTOR	X	SPECIFIC GRAVITY	/239.9=Tons
1	320	27.5"	24699		0.9118		1.021	95.85
2								
3								

BEGINNING TANK STICK TOTAL	5	95.85

DELIVERIES AFTER BEGINNING INVENTORY

INVOICE NO.	Tons	INVOICE NO.	Tons	INVOICE NO.	Tons
V09586	24.95	V09589	24.40		
V09587	23.51	V09590	23.49		
V09588	23.66				

TOTAL DELIVERIES	6	120.01
DEDUCTIONS AFTER BEGINNING INVENTORY (TACK, WASTE, REJECT, SOLD TO OTHERS ETC.) EXPLAIN BELOW OR ON ATTACHMENT	7	0.27

ENDING TANK STICK

TANK NO.	TEMP	TANK STICK	VOLUME IN TANK	X	TEMP. CORR. FACTOR	X	SPECIFIC GRAVITY	/239.9=Tons
1	325	49.25"	17648		0.9101		1.021	68.36
2								
3								

ENDING TANK STICK TOTAL	8	68.36
ASPHALT CEMENT — LINES 4 or 5 + 6 - 7 - 8	9	147.23

SMALL QUANTITY METHOD

ASPHALT TARGET % FROM JOB MIX FORMULA	C	

Tons MIX THIS DATE	X	C / 100	=	ASPHALT CEMENT INCORPORATED
		0	10	

BATCH MASS METHOD

BATCH TICKET NO.		
ASPHALT CEMENT INCORPORATED	11	

ASPHALT CEMENT SUMMARY

		B.I. NO.
ASPHALT CEMENT IN MIX		123
PREVIOUS REPORT LINE 14	12	531.66
THIS REPORT LINE 9, 10, OR 11	13	147.23
ASPHALT CEMENT IN MIXTURE TO DATE 12 + 13	14	678.89

ASPHALT MIXTURE SUMMARY

		B.I. NO.
CLASS HMAC		124
PREVIOUS REPORT LINE 17	15	10006.45
MATERIAL RECEIPT TOTAL FOR THIS DATE	16	2735.78
ASPHALT MIXTURE TO DATE 15+16	17	12742.23
CLASS HMAC		B.I. NO.
PREVIOUS REPORT LINE 20	18	
MATERIAL RECEIPT TOTAL FOR THIS DATE	19	
ASPHALT MIXTURE TO DATE 18+19	20	

WASTE DEDUCTION CALCULATION

From Form 2401

TOTAL MIX NOT ACCEPTED Line "e"	e	5.00
DAILY AVERAGE MIX MOISTURE Line "g"	g	0.27
TOTAL DRY MIX NOT ACCEPTED e / (1+(g/100))	TD	4.99
BY TANK % Pb HMAC Line "Z"	Z	5.40
WASTE ASPHALT for line 7 deductions (TDxZ)/100	7	0.27

EXPLANATION

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT		10/10/2012

SPECIFIC GRAVITY AND MAXIMUM DENSITY OF ACP

E English (**E**) or Metric(**M**)

PROJECT NAME (SECTION)			CONTRACT NUMBER
CONTRACTOR OR SUPPLIER		PROJECT MANAGER	BID ITEM NUMBER
ODOT MIX DESIGN NO.	JMF MAX SPECIFIC GRAVITY	PYCNOMETER	MIX NOMINAL SIZE

		DATE	DATE	DATE	DATE	DATE
		TIME	TIME	TIME	TIME	TIME
		LOT & SUBLOT	LOT & SUBLOT	LOT & SUBLOT	LOT & SUBLOT	LOT & SUBLOT
1	PYCNOMETER + LID + MIX					
2	PYCNOMETER + LID					
A	MASS OF DRY SAMPLE (1 - 2)					
A_{SSD}	MASS OF SSD SAMPLE (uncoated porous agg.)					
D	PYCNOMETER + LID + WATER					
E	PYCNOMETER + LID + WATER + MIX					
G	Gmm (pre) = A / (A + D - E)					
H	Gmm_{SSD} =A/(A_{SSD} + D - E) (uncoated porous agg.)					
I	MAX DENSITY = G or H x 62.4					
J	THE PREVIOUS MAMD					
K	THE DIFFERENCE BETWEEN I & J					
	THE MOVING AVERAGE MAXIMUM DENSITY **(MAMD)**					

MDT'S Previous Form	
TEST NO	MDT

REMARKS

	QUALITY CONTROL		VERIFICATION		INDEPENDENT ASSURANCE	
CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER		COMPANY NAME		SIGNATURE		DATE

SPECIFIC GRAVITY AND MAXIMUM DENSITY OF ACP

E English (**E**) or Metric(**M**)

PROJECT NAME (SECTION)			CONTRACT NUMBER
Form Example			12345
CONTRACTOR OR SUPPLIER		PROJECT MANAGER	BID ITEM NUMBER
ODOT Forms		Sean Parker	123
ODOT MIX DESIGN NO.	JMF MAX SPECIFIC GRAVITY	PYCNOMETER	MIX NOMINAL SIZE
10-MD0001	2.556	1122	L3 1/2" Dense

		DATE	DATE	DATE	DATE	DATE
		10/18/12	10/19/12	10/20/12	10/21/12	10/22/12
		TIME	TIME	TIME	TIME	TIME
		6:00am	6:30am	7:30am	6:00am	8:00am
		LOT & SUBLOT	LOT & SUBLOT	LOT & SUBLOT	LOT & SUBLOT	LOT & SUBLOT
		1-10	1-11	1-12	1-13	1-14
1	PYCNOMETER + LID + MIX	4621.3	4715.7	4599.5	4682.3	4542.2
2	PYCNOMETER + LID	2924.4	2924.4	2924.4	2924.4	2924.4
A	MASS OF DRY SAMPLE (1 - 2)	1696.9	1791.3	1675.1	1757.9	1617.8
A_{SSD}	MASS OF SSD SAMPLE (uncoated porous agg.)					
D	PYCNOMETER + LID + WATER	7327.8	7327.8	7327.8	7327.8	7327.8
E	PYCNOMETER + LID + WATER + MIX	8369.0	8421.3	8354.3	8399.9	8319.2
G	Gmm (pre) = A / (A + D - E)	2.588	2.567	2.583	2.563	2.583
H	Gmm_{SSD} =A/(A_{SSD} + D - E) (uncoated porous agg.)					
I	MAX DENSITY = G or H x 62.4	161.5	160.2	161.2	159.9	161.2
J	THE PREVIOUS MAMD	160.8	160.6	160.7	160.6	160.4
K	THE DIFFERENCE BETWEEN I & J	0.7	-0.4	0.5	-0.7	0.8
	THE MOVING AVERAGE MAXIMUM DENSITY **(MAMD)**	**160.6**	**160.7**	**160.6**	**160.4**	**160.8**

MDT'S Previous Form	
TEST NO	MDT
1-5	162.6
1-6	159.9
1-7	161.4
1-8	160.9
1-9	159.4

REMARKS

X	QUALITY CONTROL		VERIFICATION		INDEPENDENT ASSURANCE

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT		10/22/2012

VOIDS WORKSHEET GYRATORY

E English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)						CONTRACT NUMBER
CONTRACTOR OR SUPPLIER			PROJECT MANAGER			BID ITEM NUMBER
ODOT MIX DESIGN NO.	DESIGN Gsb	DESIGN Gmm	DESIGN VMA	DESIGN Va	DESIGN Pb	MATERIAL TYPE
COMPACTOR MAKE	SERIAL NUMBER	AC BRAND	AC GRADE	AC Gb @ 77°F	NUMBER GYRATIONS	PLACEMENT TEMP RANGE

										RUNNING AVERAGE			
DATE	Test Pb	Test P75um	Gse	Pba	Pbe	P75um/Pbe	Va	VMA	VFA	P75um/Pbe	Va	VMA	VFA

TEST	Test №			Gmb			PYCNOMETER + LID + MIX	
	specimen height	COMPACTED Temperature	(A) MASS IN AIR	(C) MASS IN WATER	(B) MASS SSD	A / B-C	PYCNOMETER + LID	
							MASS OF DRY SAMPLE (A)	
							MASS OF SSD SAMPLE (A SSD)	
							PYCNOMETER + LID+H2O	
REMARKS:	TIME SAMPLED:		TIME COMPACTED:		AVE		PYCNOMETER+ LID+H2O+MIX	
							Gmm SSD / Gmm	

										RUNNING AVERAGE			
DATE	Test Pb	Test P75um	Gse	Pba	Pbe	P75um/Pbe	Va	VMA	VFA	P75um/Pbe	Va	VMA	VFA

TEST	Test №			Gmb			PYCNOMETER + LID + MIX	
	specimen height	COMPACTED Temperature	(A) MASS IN AIR	(C) MASS IN WATER	(B) MASS SSD	A / B-C	PYCNOMETER + LID	
							MASS OF DRY SAMPLE (A)	
							MASS OF SSD SAMPLE (A SSD)	
							PYCNOMETER + LID+H2O	
REMARKS:	TIME SAMPLED:		TIME COMPACTED:		AVE		PYCNOMETER+ LID+H2O+MIX	
							Gmm SSD / Gmm	

										RUNNING AVERAGE			
DATE	Test Pb	Test P75um	Gse	Pba	Pbe	P75um/Pbe	Va	VMA	VFA	P75um/Pbe	Va	VMA	VFA

TEST	Test №			Gmb			PYCNOMETER + LID + MIX	
	specimen height	COMPACTED Temperature	(A) MASS IN AIR	(C) MASS IN WATER	(B) MASS SSD	A / B-C	PYCNOMETER + LID	
							MASS OF DRY SAMPLE (A)	
							MASS OF SSD SAMPLE (A SSD)	
							PYCNOMETER + LID+H2O	
REMARKS:	TIME SAMPLED:		TIME COMPACTED:		AVE		PYCNOMETER+ LID+H2O+MIX	
							Gmm SSD / Gmm	

Previous Forms Results

Test №	P75um/Pbe	Va	VMA	VFA

Dryback Trigger

Test No.	A	A SSD	% Diff	Avg Diff

Dryback Requirement	
Gmm	
Gmm SSD	

	Quality Control		Verification

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

VOIDS WORKSHEET GYRATORY

E English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)							CONTRACT NUMBER
Forms Sample							12345
C0NTRACTOR OR SUPPLIER			PROJECT MANAGER				BID ITEM NUMBER
ODOT Forms			Sean Parker				123
ODOT MIX DESIGN NO.	DESIGN Gsb	DESIGN Gmm	DESIGN VMA	DESIGN Va	DESIGN Pb		MATERIAL TYPE
17-MD0001	2.724	2.556	14.8	4.4	5.30%		L4 1/2" ACP
COMPACTOR MAKE	SERIAL NUMBER	AC BRAND	AC GRADE	AC Gb @ 77°F	NUMBER GYRATIONS		PLACEMENT TEMP RANGE
Brovold	59902	Albina	70-22ER	1.039	100		311-321

DATE	Test Pb	Test P75um	Gse	Pba	Pbe	P75um/Pbe	Va	VMA	VFA	RUNNING AVERAGE P75um/Pbe	RUNNING AVERAGE Va	RUNNING AVERAGE VMA	RUNNING AVERAGE VFA
12/11/17	5.36	5.3						15.8					

TEST	Test № 1-4	Gmb					PYCNOMETER + LID + MIX	5599.6
	specimen height	COMPACTED Temperature	(A) MASS IN AIR	(C) MASS IN WATER	(B) MASS SSD	A / B-C	PYCNOMETER + LID	2924.4
1	115.2	295	4828.3	2847.4	4831.0	2.434	MASS OF DRY SAMPLE (A)	2675.2
2	115.2	293	4840.5	2840.4	4847.4	2.412	MASS OF SSD SAMPLE (A_{SSD})	2676.8
REMARKS:	TIME SAMPLED: 7:00	TIME COMPACTED: 8:30	AVE			2.423	PYCNOMETER + LID+H2O	7327.8
							PYCNOMETER+ LID+H2O+MIX	8962.8
							Gmm_{SSD} **Gmm**	

DATE	Test Pb	Test P75um	Gse	Pba	Pbe	P75um/Pbe	Va	VMA	VFA	RUNNING AVERAGE P75um/Pbe	RUNNING AVERAGE Va	RUNNING AVERAGE VMA	RUNNING AVERAGE VFA
12/12/17	5.42	5.1						14.6					

TEST	Test № 1-5	Gmb					PYCNOMETER + LID + MIX	5579.6
	specimen height	COMPACTED Temperature	(A) MASS IN AIR	(C) MASS IN WATER	(B) MASS SSD	A / B-C	PYCNOMETER + LID	2924.4
1	115.9	296	4832.3	2878.6	4842.8	2.460	MASS OF DRY SAMPLE (A)	2655.2
2	116.2	296	4822.1	2873.1	4831.9	2.462	MASS OF SSD SAMPLE (A_{SSD})	2656.8
REMARKS:	TIME SAMPLED: 11:00	TIME COMPACTED: 12:30	AVE			2.461	PYCNOMETER + LID+H2O	7327.8
							PYCNOMETER+ LID+H2O+MIX	8953.1
							Gmm_{SSD} **Gmm**	

DATE	Test Pb	Test P75um	Gse	Pba	Pbe	P75um/Pbe	Va	VMA	VFA	RUNNING AVERAGE P75um/Pbe	RUNNING AVERAGE Va	RUNNING AVERAGE VMA	RUNNING AVERAGE VFA
12/13/17	5.33	5.8						15.2					

TEST	Test № 1-5	Gmb					PYCNOMETER + LID + MIX	5049.8
	specimen height	COMPACTED Temperature	(A) MASS IN AIR	(C) MASS IN WATER	(B) MASS SSD	A / B-C	PYCNOMETER + LID	2924.4
1	115	292	4840.5	2860.4	4847.4	2.436	MASS OF DRY SAMPLE (A)	2125.4
2	114.4	294	4828.3	2857.4	4831.0	2.446	MASS OF SSD SAMPLE (A_{SSD})	2127.0
REMARKS:	TIME SAMPLED: 3:00	TIME COMPACTED: 4:45	AVE			2.441	PYCNOMETER + LID+H2O	7327.8
							PYCNOMETER+ LID+H2O+MIX	8625.8
							Gmm_{SSD} **Gmm**	

Previous Forms Results

Test №	P75um/Pbe	Va	VMA	VFA
1-1	1.45	6.0	17.0	72
1-2	1.19	3.8	15.0	69
1-3	1.70	4.0	14.7	65

Dryback Trigger

Test No.	A	A_{SSD}	% Diff	Avg Diff
Info	1753.2	1754.8	0.09%	

Dryback Requirement

Gmm

Gmm_{SSD}

	Quality Control		Verification

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Nathaniel Powell #44595	ODOT		12/13/2017

VOIDS WORKSHEET GYRATORY

E English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)							CONTRACT NUMBER
Forms Sample							12345
C0NTRACTOR OR SUPPLIER			PROJECT MANAGER				BID ITEM NUMBER
ODOT Forms			Sean Parker				123
ODOT MIX DESIGN NO.	DESIGN Gsb	DESIGN Gmm	DESIGN VMA	DESIGN Va	DESIGN Pb		MATERIAL TYPE
17-MD0001	2.724	2.556	14.8	4.4	5.30%		L4 1/2" ACP
COMPACTOR MAKE	SERIAL NUMBER	AC BRAND	AC GRADE	AC Gb @ 77°F	NUMBER GYRATIONS		PLACEMENT TEMP RANGE
Brovold	59902	Albina	70-22ER	1.039	100		311-321

DATE	Test Pb	Test P75um	Gse	Pba	Pbe	P75um/Pbe	Va	VMA	VFA	RUNNING AVERAGE P75um/Pbe	RUNNING AVERAGE Va	RUNNING AVERAGE VMA	RUNNING AVERAGE VFA
12/11/17	5.36	5.3	2.807	1.13	4.29	1.24	5.8	15.8	63	1.4	4.9	15.6	67

TEST	Test № 1-4	Gmb					PYCNOMETER + LID + MIX	5599.6
	specimen height	COMPACTED Temperature	(A) MASS IN AIR	(C) MASS IN WATER	(B) MASS SSD	A / B-C	PYCNOMETER + LID	2924.4
							MASS OF DRY SAMPLE (A)	2675.2
1	115.2	295	4828.3	2847.4	4831.0	2.434	MASS OF SSD SAMPLE (A_{SSD})	2676.8
2	115.2	293	4840.5	2840.4	4847.4	2.412	PYCNOMETER + LID+H2O	7327.8
REMARKS:	TIME SAMPLED: 7:00	TIME COMPACTED: 8:30	AVE			2.423	PYCNOMETER+ LID+H2O+MIX	8962.8
							Gmm_{SSD} Gmm	**2.572**

DATE	Test Pb	Test P75um	Gse	Pba	Pbe	P75um/Pbe	Va	VMA	VFA	RUNNING AVERAGE P75um/Pbe	RUNNING AVERAGE Va	RUNNING AVERAGE VMA	RUNNING AVERAGE VFA
12/12/17	5.42	5.1	2.817	1.26	4.23	1.21	4.5	14.6	69	1.3	4.5	15.0	67

TEST	Test № 1-5	Gmb					PYCNOMETER + LID + MIX	5579.6
	specimen height	COMPACTED Temperature	(A) MASS IN AIR	(C) MASS IN WATER	(B) MASS SSD	A / B-C	PYCNOMETER + LID	2924.4
							MASS OF DRY SAMPLE (A)	2655.2
1	115.9	296	4832.3	2878.6	4842.8	2.460	MASS OF SSD SAMPLE (A_{SSD})	2656.8
2	116.2	296	4822.1	2873.1	4831.9	2.462	PYCNOMETER + LID+H2O	7327.8
REMARKS:	TIME SAMPLED: 11:00	TIME COMPACTED: 12:30	AVE			2.461	PYCNOMETER+ LID+H2O+MIX	8953.1
							Gmm_{SSD} Gmm	**2.578**

DATE	Test Pb	Test P75um	Gse	Pba	Pbe	P75um/Pbe	Va	VMA	VFA	RUNNING AVERAGE P75um/Pbe	RUNNING AVERAGE Va	RUNNING AVERAGE VMA	RUNNING AVERAGE VFA
12/13/17	5.33	5.8	2.801	1.05	4.34	1.34	5.0	15.2	67	1.4	4.8	15.1	66

TEST	Test № 1-5	Gmb					PYCNOMETER + LID + MIX	5049.8
	specimen height	COMPACTED Temperature	(A) MASS IN AIR	(C) MASS IN WATER	(B) MASS SSD	A / B-C	PYCNOMETER + LID	2924.4
							MASS OF DRY SAMPLE (A)	2125.4
1	115	292	4840.5	2860.4	4847.4	2.436	MASS OF SSD SAMPLE (A_{SSD})	2127.0
2	114.4	294	4828.3	2857.4	4831.0	2.446	PYCNOMETER + LID+H2O	7327.8
REMARKS:	TIME SAMPLED: 3:00	TIME COMPACTED: 4:45	AVE			2.441	PYCNOMETER+ LID+H2O+MIX	8625.8
							Gmm_{SSD} Gmm	**2.569**

Previous Forms Results

Test №	P75um/Pbe	Va	VMA	VFA
1-1	1.45	6.0	17.0	72
1-2	1.19	3.8	15.0	69
1-3	1.70	4.0	14.7	65

Dryback Trigger

Test No.	A	A_{SSD}	% Diff	Avg Diff
Info	1753.2	1754.8	0.09%	
SU	1753.2	1757.6	0.25%	0.17%

Dryback Requirement

Gmm	X
Gmm_{SSD}	

[ ] Quality Control [ ] Verification

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Nathaniel Powell #44595	ODOT		12/13/2017

VOIDS WORKSHEET GYRATORY

E English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)							CONTRACT NUMBER
Forms Sample							12345
C0NTRACTOR OR SUPPLIER			PROJECT MANAGER				BID ITEM NUMBER
ODOT Forms			Sean Parker				123
ODOT MIX DESIGN NO.	DESIGN Gsb	DESIGN Gmm	DESIGN VMA	DESIGN Va	DESIGN Pb		MATERIAL TYPE
17-MD0001	2.724	2.556	14.8	4.4	5.30%		L4 1/2" ACP
COMPACTOR MAKE	SERIAL NUMBER	AC BRAND	AC GRADE	AC Gb @ 77°F	NUMBER GYRATIONS		PLACEMENT TEMP RANGE
Brovold	59902	Albina	70-22ER	1.039	100		311-321

										RUNNING AVERAGE			
DATE	Test Pb	Test P75um	Gse	Pba	Pbe	P75um/Pbe	Va	VMA	VFA	P75um/Pbe	Va	VMA	VFA
12/11/17	5.36	5.3	2.801	1.05	4.37	1.21	5.6	15.8	65	1.4	4.9	15.6	68

TEST	Test № 1-4			Gmb			PYCNOMETER + LID + MIX	5599.6
	specimen height	COMPACTED Temperature	(A) MASS IN AIR	(C) MASS IN WATER	(B) MASS SSD	A / B-C	PYCNOMETER + LID	2924.4
							MASS OF DRY SAMPLE (A)	2675.2
1	115.2	295	4828.3	2847.4	4831.0	2.434	MASS OF SSD SAMPLE (A_{SSD})	2676.8
2	115.2	293	4840.5	2840.4	4847.4	2.412	PYCNOMETER + LID+H2O	7327.8
REMARKS:	TIME SAMPLED:	7:00	TIME COMPACTED:	8:30	AVE	2.423	PYCNOMETER+ LID+H2O+MIX	8962.8
							Gmm_{SSD} **2.568** **Gmm**	

										RUNNING AVERAGE			
DATE	Test Pb	Test P75um	Gse	Pba	Pbe	P75um/Pbe	Va	VMA	VFA	P75um/Pbe	Va	VMA	VFA
12/12/17	5.42	5.1	2.812	1.19	4.29	1.19	4.4	14.6	70	1.3	4.5	15.0	67

TEST	Test № 1-5			Gmb			PYCNOMETER + LID + MIX	5579.6
	specimen height	COMPACTED Temperature	(A) MASS IN AIR	(C) MASS IN WATER	(B) MASS SSD	A / B-C	PYCNOMETER + LID	2924.4
							MASS OF DRY SAMPLE (A)	2655.2
1	115.9	296	4832.3	2878.6	4842.8	2.460	MASS OF SSD SAMPLE (A_{SSD})	2656.8
2	116.2	296	4822.1	2873.1	4831.9	2.462	PYCNOMETER + LID+H2O	7327.8
REMARKS:	TIME SAMPLED:	11:00	TIME COMPACTED:	12:30	AVE	2.461	PYCNOMETER+ LID+H2O+MIX	8953.1
							Gmm_{SSD} **2.574** **Gmm**	

										RUNNING AVERAGE			
DATE	Test Pb	Test P75um	Gse	Pba	Pbe	P75um/Pbe	Va	VMA	VFA	P75um/Pbe	Va	VMA	VFA
12/13/17	5.33	5.8	2.795	0.97	4.41	1.32	4.8	15.2	68	1.4	4.7	15.1	67

TEST	Test № 1-5			Gmb			PYCNOMETER + LID + MIX	5049.8
	specimen height	COMPACTED Temperature	(A) MASS IN AIR	(C) MASS IN WATER	(B) MASS SSD	A / B-C	PYCNOMETER + LID	2924.4
							MASS OF DRY SAMPLE (A)	2125.4
1	115	292	4840.5	2860.4	4847.4	2.436	MASS OF SSD SAMPLE (A_{SSD})	2127.0
2	114.4	294	4828.3	2857.4	4831.0	2.446	PYCNOMETER + LID+H2O	7327.8
REMARKS:	TIME SAMPLED:	3:00	TIME COMPACTED:	4:45	AVE	2.441	PYCNOMETER+ LID+H2O+MIX	8625.8
							Gmm_{SSD} **2.564** **Gmm**	

Previous Forms Results

Test №	P75um/Pbe	Va	VMA	VFA
1-1	1.45	6.0	17.0	72
1-2	1.19	3.8	15.0	69
1-3	1.70	4.0	14.7	65

Dryback Trigger

Test No.	A	A_{SSD}	% Diff	Avg Diff
Info	1753.2	1754.8	0.09%	
SU	1753.2	1760.0	0.39%	0.24%

Dryback Requirement

Gmm	
Gmm_{SSD}	X

[ ] Quality Control [ ] Verification

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Nathaniel Powell #44595	ODOT		12/13/2017

VOIDS WORKSHEET GYRATORY

E English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)						CONTRACT NUMBER
CONTRACTOR OR SUPPLIER			PROJECT MANAGER			BID ITEM NUMBER
ODOT MIX DESIGN NO.	DESIGN Gsb	DESIGN Gmm	DESIGN VMA	DESIGN Va	DESIGN Pb	MATERIAL TYPE
COMPACTOR MAKE	SERIAL NUMBER	AC BRAND	AC GRADE	AC Gb @ 60°F	NUMBER GYRATIONS	PLACEMENT TEMP RANGE

DATE	TIME SAMPLED	TIME COMPACTED	LOT & SUBLOT

AASHTO T 166				AASHTO T 209		
	SPECIMEN ID			1	PYCNOMETER + LID + MIX	
	SPECIMEN HEIGHT			2	PYCNOMETER + LID	
	COMPACTED TEMP.			A	MASS OF DRY SAMPLE (1 - 2)	
A	MASS IN AIR			A_{SSD}	MASS OF SSD SAMPLE (uncoated porous agg.)	
C	MASS IN WATER			D	PYCNOMETER + LID + WATER	
B	MASS SSD			E	PYCNOMETER + LID + WATER + MIX	
Gmb	A / (B - C)			G	**Gmm** (pre) = A / (A + D - E)	
AVE	**Gmb**			H	Gmm_{SSD} =A/(A_{SSD} + D - E) (uncoated porous agg.)	

Va

$$= \left(\frac{Gmm - Gmb}{Gmm} \right) \times 100$$

VMA

$$= 100 - \left(\frac{Gmb \times PS}{Gsb} \right)$$

VFA

$$= \frac{(VMA - Va)}{VMA} \times 100$$

P #200/Pbe

= /

Pb

Gse $_{SSD}$

Gb 77°F

Pba $_{SSD}$

Gsb

Pbe $_{SSD}$

P #200

Ps

$$= 100 - Pb$$

Gse

$$= \frac{Ps}{\frac{100}{Gmm} - \frac{Pb}{Gb}}$$

Pba

$$= 100 \times \frac{(Gse - Gsb)}{(Gsb \times Gse)} \times Gb$$

Pbe

$$= Pb - \left(\frac{Pba}{100} \times Ps \right)$$

Previous Results

Test №	Va	VMA	VFA	P200/Pbe
Current				
Run Avg				

Dryback Trigger

Test No.	A	A_{SSD}	% Diff	Avg Diff

Dryback Requirement

Gmm

Gmm_{SSD}

REMARKS

☐ QUALITY CONTROL ☐ VERIFICATION ☐ INDEPENDENT ASSURANCE

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

VOIDS WORKSHEET GYRATORY

E English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)						CONTRACT NUMBER
Forms Sample						12345
CONTRACTOR OR SUPPLIER			PROJECT MANAGER			BID ITEM NUMBER
ODOT Forms			Sean Parker			123
ODOT MIX DESIGN NO.	DESIGN Gsb	DESIGN Gmm	DESIGN VMA	DESIGN Va	DESIGN Pb	MATERIAL TYPE
17-MD0001	2.724	2.556	14.8	4.0	5.30%	L4 1/2" ACP
COMPACTOR MAKE	SERIAL NUMBER	AC BRAND	AC GRADE	AC Gb @ 60°F	NUMBER GYRATIONS	PLACEMENT TEMP RANGE
Brovold	59902	McCall	70-22ER	1.043	100	311-321

DATE	TIME SAMPLED	TIME COMPACTED	LOT & SUBLOT
12/11/2017	7:00 PM	8:30 PM	1-4

AASHTO T 166

	SPECIMEN ID	1	2	
	SPECIMEN HEIGHT	115.2	115.2	
	COMPACTED TEMP.	295	293	
A	MASS IN AIR	4828.3	4840.5	
C	MASS IN WATER	2847.4	2840.4	
B	MASS SSD	4831	4847.4	
Gmb	A / (B - C)	2.434	2.412	
AVE	**Gmb**	2.423		

AASHTO T 209

1	PYCNOMETER + LID + MIX	5599.6
2	PYCNOMETER + LID	2924.4
A	MASS OF DRY SAMPLE (1 - 2)	2675.2
A_{SSD}	MASS OF SSD SAMPLE (uncoated porous agg.)	2676.8
D	PYCNOMETER + LID + WATER	7327.8
E	PYCNOMETER + LID + WATER + MIX	8962.8
G	**Gmm** (pre) = A / (A + D - E)	
H	Gmm_{SSD} =A/(A_{SSD} + D - E) (uncoated porous agg.)	**2.568**

Va

5.6 = $\left(\frac{Gmm - Gmb}{Gmm}\right)$ (Gmm = 2.568, Gmb = 2.423) x 100

VMA

15.8 = 100 - $\left(\frac{Gmb \times PS}{Gsb}\right)$ (Gmb = 2.423, PS = 94.64, Gsb = 2.724)

VFA

65 = $\frac{(VMA - Va)}{VMA}$ x 100 (VMA = 15.8, Va = 10.2)

P #200/Pbe

1.21 = 5.3 / 4.37

Pb

5.36

Gb 77°F

1.039

Gsb

2.724

P #200

5.3

Gse_{SSD}

2.801

Pba_{SSD}

1.05

Pbe_{SSD}

4.37

Ps

94.64 = 100 - Pb (Pb = 5.36)

Gse

= $\frac{Ps}{\frac{100}{Gmm} - \frac{Pb}{Gb}}$

Pba

= 100 x $\frac{(Gse - Gsb)}{(Gsb \times Gse)}$ x Gb

Pbe

= Pb - $\left(\left(\frac{Pba}{100}\right) \times Ps\right)$

Previous Results

Test №	Va	VMA	VFA	P200/Pbe
Current	5.6	15.8	65	1.21
1-3	4.0	14.7	65	1.70
1-2	3.8	15.0	69	1.19
1-1	6.0	17.0	72	1.45
Run Avg	4.9	15.6	68	1.4

Dryback Trigger

Test No.	A	A_{SSD}	% Diff	Avg Diff
MDT	2485.6	2494.2	0.34%	
1-4	2675.2	2676.8	0.06%	0.20%

Dryback Requirement

Gmm	
Gmm_{SSD}	X

REMARKS: Dryback Trigger based on MDT testing for MAMD (1-3) and Sublot (1-4) Volumetrics

☐ QUALITY CONTROL ☐ VERIFICATION ☐ INDEPENDENT ASSURANCE

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Nathaniel Powell #44595	ODOT		12/11/2017

VOIDS WORKSHEET GYRATORY

E English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)						CONTRACT NUMBER
Forms Sample						12345
CONTRACTOR OR SUPPLIER			PROJECT MANAGER			BID ITEM NUMBER
ODOT Forms			Sean Parker			123
ODOT MIX DESIGN NO.	DESIGN Gsb	DESIGN Gmm	DESIGN VMA	DESIGN Va	DESIGN Pb	MATERIAL TYPE
17-MD0001	2.724	2.556	14.8	4.0	5.30%	L4 1/2" ACP
COMPACTOR MAKE	SERIAL NUMBER	AC BRAND	AC GRADE	AC Gb @ 60°F	NUMBER GYRATIONS	PLACEMENT TEMP RANGE
Brovold	59902	McCall	70-22ER	1.043	100	311-321

DATE	TIME SAMPLED	TIME COMPACTED	LOT & SUBLOT
12/11/2017	7:00 PM	8:30 PM	1-4

AASHTO T 166

	SPECIMEN ID	1	2	
	SPECIMEN HEIGHT	115.2	115.2	
	COMPACTED TEMP.	295	293	
A	MASS IN AIR	4828.3	4840.5	
C	MASS IN WATER	2847.4	2840.4	
B	MASS SSD	4831	4847.4	
Gmb	A / (B - C)	2.434	2.412	
AVE	**Gmb**	2.423		

AASHTO T 209

1	PYCNOMETER + LID + MIX	5599.6
2	PYCNOMETER + LID	2924.4
A	MASS OF DRY SAMPLE (1 - 2)	2675.2
A_{SSD}	MASS OF SSD SAMPLE (uncoated porous agg.)	2676.8
D	PYCNOMETER + LID + WATER	7327.8
E	PYCNOMETER + LID + WATER + MIX	8962.8
G	**Gmm** (pre) = A / (A + D - E)	**2.572**
H	Gmm_{SSD} =A/(A_{SSD} + D - E) (uncoated porous agg.)	

Va

$$5.8 = \left(\frac{2.572 - 2.423}{2.572}\right) \times 100$$

VMA

$$15.8 = 100 - \left(\frac{2.423 \times 94.64}{2.724}\right)$$

VFA

$$63 = \frac{10.0}{15.8} \times 100$$

P #200/Pbe

1.24 = 5.3 / 4.29

Pb

5.36

Gse SSD

Gb 77°F

1.039

Pba SSD

Gsb

2.724

Pbe SSD

P #200

5.3

Ps

$$94.64 = 100 - 5.36$$

Gse

$$2.807 = \frac{94.64}{\frac{100}{2.572} - \frac{5.36}{1.039}}$$

Pba

$$1.13 = 100 \times \frac{0.083}{(Gse - Gsb)} \times \frac{7.646}{(Gsb \times Gse)} \times 1.039$$

Pbe

$$4.29 = 5.36 - \left(\frac{1.13}{100} \times 94.64\right)$$

Previous Results

Test №	Va	VMA	VFA	P200/Pbe
Current	5.8	15.8	63	1.24
1-3	4.0	14.7	65	1.70
1-2	3.8	15.0	69	1.19
1-1	6.0	17.0	72	1.45
Run Avg	4.9	15.6	67	1.4

Dryback Trigger

Test No.	A	A_{SSD}	% Diff	Avg Diff
MDT	2353.2	2354.2	0.04%	
1-4	2675.2	2676.8	0.06%	0.05%

Dryback Requirement

Gmm	X
Gmm_{SSD}	

REMARKS: Dryback Trigger based on MDT testing for MAMD (1-3) and Sublot (1-4) Volumetrics

☐ QUALITY CONTROL ☐ VERIFICATION ☐ INDEPENDENT ASSURANCE

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Nathaniel Powell #44595	ODOT		12/11/2017

TENSILE STRIPPING STRENGTH (TSR)

E English (E) or Metric (M)

PROJECT NAME (SECTION)				CONTRACT NUMBER
C0NTRACTOR OR SUPPLIER		PROJECT MANAGER		BID ITEM NUMBER
ODOT MIX DESIGN NO.	MAX SPECIFIC GRAVITY (Gmm)	% ASPHALT	NUMBER OF BLOWS	MIX NOMINAL SIZE

DATE SAMPLED

Sample #	1	2	3	4	5	6	7	8
D. diameter, in								
t. thickness, in								
A. mass in air, g								
B. SSD. WT. g								
C. WT. in H2O, g								
E. Volume **(B-C)**								
F. Bulk SpSg **(A/E)**								
G. MAX SPECIFIC GRAVITY (Gmm)								
H. % voids **((G-F)/G)x100**								
I. Vol of air voids **(HxE)/100**								
Test Cond. (**Wet or Dry)**								
X. Wt. gain for wet **(0.75 x I)**								
Target SSD Wt. **(X+A)**								
B' SSD Wt. after Sat.								
J' Vol absorbed H20 **(B'-A)**								
% saturation **(J'/I)x100**								

P. Load for dry sample									AVG
Std = 2P / (txDx3.14)									

P' Load for wet sample									AVG
Stm = 2P' / (txDx3.14)									

Tensile Strength Ratio = (Stm / Std) 100

Remarks

CERTIFIED TECHNICIAN (PLEASE PRINT) & CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

TENSILE STRIPPING STRENGTH (TSR)

E — English (E) or Metric (M)

PROJECT NAME (SECTION)				CONTRACT NUMBER
Forms Example				12345
C0NTRACTOR OR SUPPLIER		PROJECT MANAGER		BID ITEM NUMBER
ODOT Forms		Sean Parker		123
ODOT MIX DESIGN NO.	MAX SPECIFIC GRAVITY (Gmm)	% ASPHALT	NUMBER OF BLOWS	MIX NOMINAL SIZE
11-MD0001	2.497	5.7	35	L3 1/2" Dense HMAC

DATE SAMPLED **7/1/2011**

Sample #	1	2	3	4	5	6	7	8
D. diameter, in	4.001	4.001	4.001	4.001	4.001	4.001	4.001	4.001
t. thickness, in	2.481	2.481	2.481	2.481	2.481	2.481	2.481	2.481
A. mass in air, g	1201.9	1202.5	1202.3	1205.6	1205.6	1204.6	1205.6	1202.2
B. SSD. WT. g	1205.6	1207.9	1207.0	1211.2	1209.9	1209.6	1210.6	1206.8
C. WT. in H2O, g	687.5	688.9	687.3	689.2	688.7	690.2	689.0	690.1
E. Volume **(B-C)**	518.1	519.0	519.7	522.0	521.2	519.4	521.6	516.7
F. Bulk SpSg **(A/E)**	2.320	2.317	2.313	2.310	2.313	2.319	2.311	2.327
G. MAX SPECIFIC GRAVITY (Gmm)	2.497	2.497	2.497	2.497	2.497	2.497	2.497	2.497
H. % voids **((G-F)/G)x100**	7.1	7.2	7.4	7.5	7.4	7.1	7.4	6.8
I. Vol of air voids **(HxE)/100**	36.79	37.37	38.46	39.15	38.57	36.88	38.60	35.14
Test Cond. (**Wet or Dry)**	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet
X. Wt. gain for wet **(0.75 x I)**		28.0		29.4		27.7		26.4
Target SSD Wt. **(X+A)**		1230.5		1235.0		1232.3		1228.6
B' SSD Wt. after Sat.		1229.1		1236.1		1232.9		1228.3
J' Vol absorbed H20 **(B'-A)**		26.6		30.5		28.3		26.1
% saturation **(J'/I)x100**		71.2		77.9		76.7		74.3

P. Load for dry sample	1325		1425		1420		1422		AVG
Std = 2P / (txDx3.14)	85.0		91.4		91.1		91.2		**89.7**

P' Load for wet sample		1335		1310		1305		1330	AVG
Stm = 2P' / (txDx3.14)		85.7		84.1		83.7		85.3	**84.7**

Tensile Strength Ratio = (Stm / Std) 100 ***94.4***

Remarks

CERTIFIED TECHNICIAN (PLEASE PRINT) & CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT		10/10/2012

DEVELOPMENT OF ROLLER PATTERN

CONTROL STRIP METHOD OF COMPACTION

E English (**E**) or Metric **(M)**

PROJECT NAME (SECTION)					CONTRACT NUMBER
CONTRACTOR OR SUPPLIER			PROJECT MANAGER		BID ITEM NUMBER
ODOT MIX DESIGN NO.	JMF PLACEMENT TEMP °F	LIFT THICKNESS	TYPE GAUGE-SERIAL NUMBER		MIX NOMINAL SIZE
MEASURED PLACEMENT TEMP °F	PANEL WIDTH	CONTROL STRIP NO.	LOT-SUBLOT	LIFT	DATE

ROLLER TYPE AND DESCRIPTION (MANUFACTURER, WEIGHT, ETC)		CODES FOR ROLLER TYPES
BREAKDOWN		P - PNEUMATIC
INTERMEDIATE		TS - TANDEM STEEL
FINISH		3WS - THREE WHEEL STEEL SDV-SINGLE DRUM VIBRATORY DDV-DOUBLE DRUM VIBRATORY

NOTE: LENGTH OF CONTROL STRIP IS ALWAYS THE LENGTH OF CONTRACTOR'S ROLLING PATTERN (MAXIMUM 500ft)

DENSITY TEST CANNOT BE TAKEN BEHIND PNEUMATIC ROLLER WHEN USED IN THE BREAKDOWN POSITION.

INDICATE IF VIBRATION USED AND DIRECTION BY CIRCLING (F) FORWARD OR (B) BACK.

ROLLER →								
PASSES ↓	MIX TEMP °F	DENSITY	MIX TEMP °F	DENSITY	MIX TEMP °F	DENSITY	MIX TEMP °F	DENSITY
1		F B		F B		F B		F B
2		F B		F B		F B		F B
3		F B		F B		F B		F B
4		F B		F B		F B		F B

"INITIAL POINT" (SANDED) DENSITY READING 1 _____ lb/ft³

2 _____ lb/ft³

If correlation applies enter **A** = AVE + Correlation

AVE = **A** = _____ lb/ft³

NOTE: IF **A** IS LESS THAN **C** , MOVE AHEAD, CHANGE ROLLING PATTERN AND START OVER.

		1.0 Ft from LEFT	MIDPOINT LEFT	CENTER	MIDPOINT RIGHT	1.0 Ft from RIGHT
	STATION					
1	DENSITY lb/ft³					
2	DENSITY lb/ft³					
3	AVERAGE DENSITY (DENS 1+ DENS 2) / 2					
Cf	CORE CORRELATION LINE 3 + _____					
4	% COMPACTION DENSITY / MAMD					

TARGET

AVE = **B1** = _____ lb/ft³

AVE = **B2** = _____ %

Note: If any single value in row 4 is above 95% of **MAMD** contact the Project Manager

MAMD _____ lb/ft³ **X** PERCENT COMPACTION REQUIRED _____ % **= C =** _____ lb/ft³

REMARKS

CONTROL STRIP IS VALID ONLY IF:

	YES	NO
1. B1 is => **C**	☐	☐
2. Individual Results in Row 4 are all within ± 1.5 of **B2**	☐	☐

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

DEVELOPMENT OF ROLLER PATTERN

CONTROL STRIP METHOD OF COMPACTION

E English (**E**) or Metric **(M)**

PROJECT NAME (SECTION)					CONTRACT NUMBER
Forms Example					12345
CONTRACTOR OR SUPPLIER		PROJECT MANAGER			BID ITEM NUMBER
ODOT Forms		Sean Parker			123
ODOT MIX DESIGN NO.	JMF PLACEMENT TEMP °F / LIFT THICKNESS	TYPE GAUGE-SERIAL NUMBER			MIX NOMINAL SIZE
09-MD0001	288-297 / 2"	Troxler 3430 #12345			L3 1/2" Dense
MEASURED PLACEMENT TEMP °F	PANEL WIDTH	CONTROL STRIP NO.	LOT-SUBLOT	LIFT	DATE
290	13'	1	1-1	1st	10/10/2012

ROLLER TYPE AND DESCRIPTION (MANUFACTURER, WEIGHT, ETC)		CODES FOR ROLLER TYPES
BREAKDOWN	CAT PF 300B - 25 ton - P	P - PNEUMATIC
INTERMEDIATE	IR DD 130 - 14 ton - DDV	TS - TANDEM STEEL 3WS - THREE WHEEL STEEL SDV-SINGLE DRUM VIBRATORY
FINISH	Dynapac CC 412 - 10 ton - DDV	DDV-DOUBLE DRUM VIBRATORY

NOTE: LENGTH OF CONTROL STRIP IS ALWAYS THE LENGTH OF CONTRACTOR'S ROLLING PATTERN (MAXIMUM 500ft)

DENSITY TEST CANNOT BE TAKEN BEHIND PNEUMATIC ROLLER WHEN USED IN THE BREAKDOWN POSITION.

INDICATE IF VIBRATION USED AND DIRECTION BY CIRCLING (F) FORWARD OR (B) BACK.

ROLLER →	CAT PT 300B		IR DD 130		Dynapac CC 412		Dynapac CC 412	
PASSES ↓	MIX TEMP °F	DENSITY	MIX TEMP °F	DENSITY	MIX TEMP °F	DENSITY	MIX TEMP °F	DENSITY
1	288	F --- B	251	F 145.1 B	180	F 148.1 B	160	F 149.9 B
2	281	F --- B	245	F 147.5 B	175	F 148.8 B	158	F 150.2 B
3	277	F --- B	241	F 147.3 B	172	F 149.1 B		F B
4		F B		F B		F B		F B

"INITIAL POINT" (SANDED) DENSITY READING

1	151.1	lb/ft³
2	151.4	lb/ft³

If correlation applies enter **A** = AVE + Correlation

AVE = **A** = 151.9 lb/ft³

NOTE: IF **A** IS LESS THAN **C** , MOVE AHEAD, CHANGE ROLLING PATTERN AND START OVER.

		1.0 Ft from LEFT	MIDPOINT LEFT	CENTER	MIDPOINT RIGHT	1.0 Ft from RIGHT
	STATION	16+00	17+53	17+01	17+42	17+86
1	DENSITY lb/ft³	151.3	153.3	153.2	151.6	149.2
2	DENSITY lb/ft³	150.9	152.8	153.2	151.8	149.9
3	AVERAGE DENSITY (DENS 1+ DENS 2) / 2	151.1	153.1	153.2	151.7	149.6
Cf	CORE CORRELATION LINE 3 + 0.6	151.7	153.7	153.8	152.3	150.2
4	% COMPACTION DENSITY / MAMD	93.3	94.5	94.6	93.7	92.4

TARGET AVE = **B1** = 152.3 lb/ft³

AVE = **B2** = 93.7 %

Note: If any single value in row 4 is above 95% of **MAMD** contact the Project Manager

MAMD 162.6 lb/ft³ **X** PERCENT COMPACTION REQUIRED 92.0 % **= C =** 149.6 lb/ft³

REMARKS

CONTROL STRIP IS VALID ONLY IF:

	YES	NO
1. B1 is => **C**	X	
2. Individual Results in Row 4 are all within ± 1.5 of **B2**	X	

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT		10/10/2012

DEVELOPMENT OF ROLLER PATTERN

CONTROL STRIP METHOD OF COMPACTION FOR THIN LIFTS OF ACP (TM301)

E English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)					CONTRACT NUMBER
CONTRACTOR OR SUPPLIER			PROJECT MANAGER		BID ITEM NUMBER
ODOT MIX DESIGN NO.	JMF PLACEMENT TEMP °F	LIFT THICKNESS **<2"**	TYPE GAUGE-SERIAL NUMBER		MIX NOMINAL SIZE

MEASURED PLACEMENT TEMP °F	PANEL WIDTH	CONTROL STRIP NO.	LOT-SUBLOT	LIFT	DATE

ROLLER TYPE AND DESCRIPTION (MANUFACTURER, WEIGHT, ETC)		CODES FOR ROLLER TYPES
BREAKDOWN		P - PNEUMATIC
INTERMEDIATE		TS - TANDEM STEEL
FINISH		3WS - THREE WHEEL STEEL SDV-SINGLE DRUM VIBRATORY DDV-DOUBLE DRUM VIBRATORY

NOTE: TW0 (2) EVALUATION POINTS IN AN AREA REPRESENTING THE OVERALL MATERIAL AND CONDITIONS OF PLACEMENT.

EVALUATION POINTS SHALL BE AT THE SAME STATION AT LEAST 1 METER (3 FT) APART TRANSVERSELY.

DENSITY TEST CANNOT BE TAKEN BEHIND PNEUMATIC ROLLER WHEN USED IN THE BREAKDOWN POSITION.

STATION	OFFSET DISTANCE FROM CENTERLINE			
	EVAL 1		**EVAL 2**	

INDICATE IF VIBRATION (V) OR STATIC (S) USED AND DIRECTION BY CIRCLING (F) FORWARD OR (B) BACK.

PASS	EVALUATION POINT 1					EVALUATION POINT 2					AVERAGE DENSITY
	ROLLER	TEMP	F/B	DENSITY	S/V	ROLLER	TEMP	F/B	DENSITY	S/V	
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											

REMARKS

THE OPTIMUM ROLLING PATTERN CONSISTS OF ONE LESS THAN THE NUMBER OF PASSES NECESSARY TO REACH THE POINT AT WHICH DENSITY DOES NOT INCREASE.

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

DEVELOPMENT OF ROLLER PATTERN

CONTROL STRIP METHOD OF COMPACTION

FOR THIN LIFTS OF ACP (TM301)

E English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)					CONTRACT NUMBER
OR97: Lower Bridge Rd. (Terrebonne)					C1971
CONTRACTOR OR SUPPLIER			PROJECT MANAGER		BID ITEM NUMBER
Hooker Creek			Earl Mershon		420
ODOT MIX DESIGN NO.	JMF PLACEMENT TEMP °F	LIFT THICKNESS <2"	TYPE GAUGE-SERIAL NUMBER		MIX NOMINAL SIZE
15-MD0027	290-302	1 1/2"	Troxler 3440 #22252		1/2"

MEASURED PLACEMENT TEMP °F	PANEL WIDTH	CONTROL STRIP NO.	LOT-SUBLOT	LIFT	DATE
292	12 ft	QA-1	2-1	1	4/27/2015

ROLLER TYPE AND DESCRIPTION (MANUFACTURER, WEIGHT, ETC)		CODES FOR ROLLER TYPES
BREAKDOWN	CAT CB534XW - DDV	P - PNEUMATIC TS - TANDEM STEEL 3WS - THREE WHEEL STEEL SDV-SINGLE DRUM VIBRATORY DDV-DOUBLE DRUM VIBRATORY
INTERMEDIATE	CAT CB534 - DDV	
FINISH	CAT CB24 - DDV	

NOTE: TW0 (2) EVALUATION POINTS IN AN AREA REPRESENTING THE OVERALL MATERIAL AND CONDITIONS OF PLACEMENT.

EVALUATION POINTS SHALL BE AT THE SAME STATION AT LEAST 1 METER (3 FT) APART TRANSVERSELY.

DENSITY TEST CANNOT BE TAKEN BEHIND PNEUMATIC ROLLER WHEN USED IN THE BREAKDOWN POSITION.

STATION	OFFSET DISTANCE FROM CENTERLINE			
"PE" 1217+44	EVAL 1	15ft rt	EVAL 2	19ft rt

INDICATE IF VIBRATION (V) OR STATIC (S) USED AND DIRECTION BY CIRCLING (F) FORWARD OR (B) BACK.

PASS	EVALUATION POINT 1					EVALUATION POINT 2					AVERAGE DENSITY
	ROLLER	TEMP	F/B	DENSITY	S/V	ROLLER	TEMP	F/B	DENSITY	S/V	
1	CAT CB534XW - DDV	280	F	128.3	V	CAT CB534XW - DDV	282	B	127.9	V	128.1
2	CAT CB534XW - DDV	273	F	131.2	V	CAT CB534XW - DDV	270	B	130.9	V	131.1
3	CAT CB534XW - DDV	254	F	133.0	S	CAT CB534XW - DDV	250	B	133.5	S/V	133.3
4	CAT CB534XW - DDV	225	F	134.6	S	CAT CB534XW - DDV	220	B	134.7	S/V	134.7
5	CAT CB534 - DDV	212	F	138.0	V	CAT CB534 - DDV	205	B	136.5	V	137.3
6	CAT CB534 - DDV	202	F	139.5	V	CAT CB534 - DDV	186	B	140.0	V	139.8
7	CAT CB534 - DDV	162	F	140.0	S	CAT CB534 - DDV	154	B	140.5	S	140.3
8	CAT CB534 - DDV	142	F	141.2	S	CAT CB534 - DDV	138	B	140.8	S	141.0
9	CAT CB534 - DDV	132	F	140.1	S	CAT CB534 - DDV	130	B	139.8	S	140.0
10											
11											
12											
13											
14											
15											
16											

REMARKS

THE OPTIMUM ROLLING PATTERN CONSISTS OF ONE LESS THAN THE NUMBER OF PASSES NECESSARY TO REACH THE POINT AT WHICH DENSITY DOES NOT INCREASE.

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Josh Huber #42332	ODOT R1 QA		4/27/2015

FIELD WORKSHEET FOR ACP (PLANT REPORT)

EA(AC) **E** English (**E**) Metric (**M**)

PROJECT NAME (SECTION)				ODOT MIX DESIGN NO.	TEST NO.	CONTRACT NUMBER
C0NTRACTOR OR SUPPLIER		PROJECT MANAGER		DATE	AMOUNT REPRESENTED	BID ITEM NUMBER
SOURCE NAME		SOURCE NUMBER		TIME	(EAC OR ACP)	MIX NOMINAL SIZE
PLANT / MODEL	TYPE	SIZE	TO BE USED IN	SAMPLED AT	JMF MIX TEMP.	MIX TEMP

SIEVE ANALYSIS

SIEVE SIZE	MASS 1	MASS 2	TOTAL MASS	% RET	% PASS	INCINERATOR CORR. FACTOR	CORRECTED % PASSING	JOB MIX FORMULA TARGET	JOB MIX FORMULA TOLERANCE	SIEVE SIZE
										0
										0
										0
										0
										0
										0
										0
										0
										0
										0
										0
										0
										0
Pan							% AC, Pb			
INITIAL DRY MASS										

COLD FEED MOISTURE

PAN TARE	(T)	
WET MASS + PAN	(A)	
DRY MASS + PAN	(B)	

%M ={(A-B)/ (B-T)} X 100=

MIX MOISTURE

TEMP A ____ TEMP B ____

PAN TARE	(T)	
WET MASS + PAN	(A)	
DRY MASS + PAN	(B)	

%M = [(A-B)/(B-T)] X 100=

RAP MOISTURE

PAN TARE	(T)	
WET MASS + PAN	(A)	
DRY MASS + PAN	(B)	

%M = [(A-B)/(B-T)] X 100=

RAS MOISTURE

PAN TARE	(T)	
WET MASS + PAN	(A)	
DRY MASS + PAN	(B)	

%M = [(A-B)/(B-T)] X 100=

SIEVE LOSS

PAN TARE	(T)	
DRY WASHED MASS	(C)	
Mass After Sieve	(D)	

SL %={(C-T-D)/C-T)}X 100=

METER READINGS

	ASPHALT	WET AGG	WET RAP	WET RAS	ANTISTRIP	FILLER	FIBER
BEGINING							
ENDING							
SUB TOTAL							
MOISTURE		%	%	%	%		

TOTAL	O	A	B	C	D	E	F
	Tons	Tons	Tons	Tons	Tons	Tons	

ASPHALT METER CORRECTION

% VIRGIN AC (**G**) $= \frac{O}{O+A+B+C} \times 100 =$

% FILLER $= \frac{E}{A+B+C+E} \times 100 =$

PLANT DRY & MOISTURE SETTINGS

	←AGG→	
	←RAP→	
	←RAS→	
%m AGG	**%m RAP**	**%m RAS**

% RAM $= \frac{B+C}{A+B+C} \times 100 =$

% FIBER $= \frac{F}{O+A+B+C+E+F} \times 100 =$

% RAS $= \frac{C}{A+B+C} \times 100 =$

% ASPHALT= EAC $= \frac{O}{A} \times 100 =$

% BINDER REPLACEMT $= \frac{H-G}{H} \times 100 =$

% ANTISTRIP $= \frac{D}{A-D} \times 100 =$

T-308 METHOD A or B

BASKET TARE	**T**	
MIX MASS & BASKET	**A**	
AGG MASS & BASKET	**B**	
COOL AGG & BASKET		
MIX MOISTURE	**%M**	

(Mi) =(A-T)/(1+(%M/100)) (Mf) = (B - T)

TEMP A ____ Mi

TEMP B ____ Mf

%I = [(Mi -Mf) / (Mi)] x 100

% INCINERATED	%I	
CORRECTION FACTOR	**Cf**	

% AC, Pb=(% I - Cf)

% AC, Pb = (H)

REMARKS:

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE	QUALITY CONTROL / VERIFICATION / INDEPENDENT ASSURANCE

FIELD WORKSHEET FOR ACP (PLANT REPORT)

EA(AC) **E** English (**E**) Metric (**M**)

PROJECT NAME (SECTION)	ODOT MIX DESIGN NO.	TEST NO.	CONTRACT NUMBER
Form Example	18-MD0000	1-1	12345

CONTRACTOR OR SUPPLIER	PROJECT MANAGER	DATE	AMOUNT REPRESENTED	BID ITEM NUMBER
ODOT Forms	Sean Parker	5/25/2018	1,000 tons	123

SOURCE NAME	SOURCE NUMBER	TIME	(EAC OR ACP)	MIX NOMINAL SIZE
Rocks R US	12-345-1	9:47 PM	ACP	1/2"

PLANT / MODEL	TYPE	SIZE	TO BE USED IN	SAMPLED AT	JMF MIX TEMP.	MIX TEMP
Gencore	Drum	500	L4, 1/2" ACP	Drum Discharge	337-350	340

SIEVE ANALYSIS

SIEVE SIZE	MASS 1	MASS 2	TOTAL MASS	% RET	% PASS	INCINERATOR CORR. FACTOR	CORRECTED % PASSING	JOB MIX FORMULA TARGET	JOB MIX FORMULA TOLERANCE	SIEVE SIZE
				0.0	100.0		**100**			0
				0.0	100.0		**100**			0
				0.0	100.0		**100**			0
3/4	0.0		0.0	0.0	100.0		**100**	100	**95-100**	3/4
1/2	63.3		63.3	4.5	95.5		**96**	97	**90-100**	1/2
3/8	216.0		216.0	15.2	80.3		**80**			3/8
1/4	268.9		268.9	18.9	61.4		**61**			1/4
4	102.6		102.6	7.2	54.2		**54**	53	**48-58**	4
8	238.5		238.5	16.8	37.4		**37**	37	**33-41**	8
16	185.3		185.3	13.0	24.4		**24**			16
30	105.9		105.9	7.4	17.0		**17**	18	**14-22**	30
50	66.8		66.8	4.7	12.3		**12**			50
100	45.3		45.3	3.2	9.1		**9**			100
200	28.4		28.4	2.0	7.1		**7.1**	6.2	**4.2-8.2**	200
Pan	3.6		3.6	0.3			**% AC, Pb**	5.20	**4.70-5.70**	
	INITIAL DRY MASS		1422.3							

COLD FEED MOISTURE

PAN TARE	(T)	1291.3
WET MASS + PAN	(A)	3739.7
DRY MASS + PAN	(B)	3630.4
%M ={(A-B)/ (B-T)} X 100=		**4.7**

MIX MOISTURE

TEMP A	225	TEMP B	242

PAN TARE	(T)	99.5
WET MASS + PAN	(A)	1164.0
DRY MASS + PAN	(B)	1161.8
%M = [(A-B)/(B-T)] X 100=		**0.21**

RAP MOISTURE

PAN TARE	(T)	1331.5
WET MASS + PAN	(A)	2885.9
DRY MASS + PAN	(B)	2803.5
%M = [(A-B)/(B-T)] X 100=		**5.6**

RAS MOISTURE

PAN TARE	(T)	235.2
WET MASS + PAN	(A)	1329.4
DRY MASS + PAN	(B)	1315.5
%M = [(A-B)/(B-T)] X 100=		**1.3**

METER READINGS

	ASPHALT	WET AGG	WET RAP	WET RAS	ANTISTRIP	FILLER	FIBER
BEGINING	6.87	131.33	35.62	53.11			
ENDING	9.38	179.29	46.43	54.18			
SUB TOTAL	2.51	47.96	10.81	1.07			
MOISTURE		**4.7** %	**5.6** %	**1.3** %	%		
TOTAL	**O** 2.51 Tons	**A** 45.81 Tons	**B** 10.24 Tons	**C** 1.06 Tons	**D** Tons	**E** Tons	**F**

T-308 METHOD A or B: B

BASKET TARE	T	3074.1
MIX MASS & BASKET	A	4585.8
AGG MASS & BASKET	B	4494.1
COOL AGG & BASKET		4496.4
MIX MOISTURE	%M	0.21

(Mi) =(A-T)/(1+(%M/100)) (Mf) = (B - T)

TEMP A	236	Mi	1508.5
TEMP B	234	Mf	1420.0

%I = [(Mi -Mf) / (Mi)] x 100

% INCINERATED	%I	5.87
CORRECTION FACTOR	Cf	**0.64**

% AC, Pb=(% I - Cf)

% AC, Pb = (H) 5.23

SIEVE LOSS

PAN TARE	(T)	1306.9
DRY WASHED MASS	(C)	2628.2
Mass After Sieve	(D)	1324.6
SL %={(C-T-D)/C-T)}X 100=		**-0.2**

REMARKS:

ASPHALT METER CORRECTION

% VIRGIN AC (G) = O / (O+A+B+C) X100= **4.21**

% FILLER = E / (A+B+C+E) X100=

PLANT DRY & MOISTURE SETTINGS

124.60	←AGG→	170.10
33.60	←RAP→	43.80
52.22	←RAS→	53.27
%m AGG	**%m RAP**	**%m RAS**
5.4	6.0	1.7

% RAM = (B+C) / (A+B+C) X100= **19.8**

% FIBER = F / (O+A+B+C+E+F) X100=

% RAS = C / (A+B+C) X100= **1.9**

% ASPHALT= EAC = O / A X100=

% BINDER REPLACEMT = (H-G) / H X100= **19.5**

% ANTISTRIP = D / (A-D) X100=

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE	
Barbara L. Worbington #42736	ODOT		5/25/2018	QUALITY CONTROL / VERIFICATION / INDEPENDENT ASSURANCE

FIELD WORKSHEET FOR ACP (PLANT REPORT)

EA(AC) **E** English (**E**) Metric (**M**)

PROJECT NAME (SECTION)	ODOT MIX DESIGN NO.	TEST NO.	CONTRACT NUMBER
Form Example	18-MD0000	1-1	12345

CONTRACTOR OR SUPPLIER	PROJECT MANAGER	DATE	AMOUNT REPRESENTED	BID ITEM NUMBER
ODOT Forms	Sean Parker	5/25/2018	1,000 tons	123

SOURCE NAME	SOURCE NUMBER	TIME	(EAC OR ACP)	MIX NOMINAL SIZE
Rocks R US	12-345-1	9:47 PM	ACP	1/2"

PLANT / MODEL	TYPE	SIZE	TO BE USED IN	SAMPLED AT	JMF MIX TEMP.	MIX TEMP
Gencore	Drum	500	L4, 1/2" ACP	Drum Discharge	337-350	340

SIEVE ANALYSIS

SIEVE SIZE	MASS 1	MASS 2	TOTAL MASS	% RET	% PASS	INCINERATOR CORR. FACTOR	CORRECTED % PASSING	JOB MIX FORMULA TARGET	JOB MIX FORMULA TOLERANCE	SIEVE SIZE
				0.0	100.0		**100**			0
				0.0	100.0		**100**			0
				0.0	100.0		**100**			0
3/4	0.0		0.0	0.0	100.0		**100**	100	**95-100**	3/4
1/2	63.3		63.3	4.5	95.5		**96**	97	**90-100**	1/2
3/8	216.0		216.0	15.2	80.3		**80**			3/8
1/4	268.9		268.9	18.9	61.4		**61**			1/4
4	102.6		102.6	7.2	54.2		**54**	53	**48-58**	4
8	238.5		238.5	16.8	37.4		**37**	37	**33-41**	8
16	185.3		185.3	13.0	24.4		**24**			16
30	105.9		105.9	7.4	17.0		**17**	18	**14-22**	30
50	66.8		66.8	4.7	12.3		**12**			50
100	45.3		45.3	3.2	9.1		**9**			100
200	28.4		28.4	2.0	7.1		**7.1**	6.2	**4.2-8.2**	200
Pan	3.6		3.6	0.3			**% AC, Pb**	5.20	**4.70-5.70**	
	INITIAL DRY MASS		1422.3							

COLD FEED MOISTURE

PAN TARE	(T)	1291.3
WET MASS + PAN	(A)	3739.7
DRY MASS + PAN	(B)	3630.4
%M ={(A-B)/ (B-T)} X 100=		**4.7**

MIX MOISTURE

TEMP A	225	TEMP B	242

PAN TARE	(T)	99.5
WET MASS + PAN	(A)	1164.0
DRY MASS + PAN	(B)	1161.8
%M = [(A-B)/(B-T)] X 100=		**0.21**

RAP MOISTURE

PAN TARE	(T)	1331.5
WET MASS + PAN	(A)	2885.9
DRY MASS + PAN	(B)	2803.5
%M = [(A-B)/(B-T)] X 100=		**5.6**

RAS MOISTURE

PAN TARE	(T)	
WET MASS + PAN	(A)	
DRY MASS + PAN	(B)	
%M = [(A-B)/(B-T)] X 100=		

METER READINGS

	ASPHALT	WET AGG	WET RAP	WET RAS	ANTISTRIP	FILLER	FIBER
BEGINING	6.87	131.33	35.62				
ENDING	9.38	179.29	46.43				
SUB TOTAL	2.51	47.96	10.81				
MOISTURE		**4.7** %	**5.6** %	%	%		

	O	A	B	C	D	E	F
TOTAL	2.51 Tons	45.81 Tons	10.24 Tons	Tons	Tons	Tons	

T-308 METHOD A or B: B

BASKET TARE	T	3074.1
MIX MASS & BASKET	A	4585.8
AGG MASS & BASKET	B	4494.1
COOL AGG & BASKET		4496.4
MIX MOISTURE	%M	0.21

(Mi) =(A-T)/(1+(%M/100)) (Mf) = (B - T)

TEMP A	236	Mi	1508.5
TEMP B	234	Mf	1420.0

%I = [(Mi -Mf) / (Mi)] x 100

% INCINERATED	%I	5.87
CORRECTION FACTOR	Cf	**0.64**

% AC, Pb=(% I - Cf)

% AC, Pb = (H) 5.23

SIEVE LOSS

PAN TARE	(T)	1306.9
DRY WASHED MASS	(C)	2628.2
Mass After Sieve	(D)	1324.6
SL %={(C-T-D)/C-T)}X 100=		**-0.2**

REMARKS:

ASPHALT METER CORRECTION

% VIRGIN AC (G) = O / (O+A+B+C) X100= **4.29**

% FILLER = E / (A+B+C+E) X100=

PLANT DRY & MOISTURE SETTINGS

124.60	←AGG→	170.10
33.60	←RAP→	43.80
	←RAS→	
%m AGG	%m RAP	%m RAS
5.4	6.0	

% RAM = (B+C) / (A+B+C) X100= **18.3**

% FIBER = F / (O+A+B+C+E+F) X100=

% RAS = C / (A+B+C) X100=

% ASPHALT= EAC = O / A X100=

% BINDER REPLACEMT = (H-G) / H X100= **18.0**

% ANTISTRIP = D / (A-D) X100=

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE	
Barbara L. Worbington #42736	ODOT		5/25/2018	QUALITY CONTROL / VERIFICATION / INDEPENDENT ASSURANCE

NUCLEAR - CORE CORRELATION WORKSHEET

PROJECT NAME (SECTION)						CONTRACT NUMBER
C0NTRACTOR OR SUPPLIER			PROJECT MANAGER			BID ITEM NUMBER
ODOT MIX DESIGN NO.	TYPE GAUGE - SERIAL NUMBER	Gauge Cal. Number	LIFT	DEPTH OF LIFT	MATERIAL TYPE	Core Correlation ID

UNDERLYING MATERIAL (ACP / GRIND / AGG BASE)

LOT SUBLOT	TEST	SHOT #1	SHOT #2	NUCLEAR DENSITY AVERAGE	CORE DENSITY					
					CORE THICKNESS	(A) MASS IN AIR	(C) MASS IN WATER	(B) SSD MASS	$\frac{A}{B-C}$ X	62.4
	1									
	2									
	3									
	4									
	5									
	6									
	7									
	8									
	9									
	10									

TEST	Core - Gauge Difference	VALUES NOT USED
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
	Core-Gauge Avg Diff.	
	Standard Deviation	

2.5 MAX

CORRELATION FACTOR

(TO ONE DECIMAL PLACES)

a. If the standard deviation exceeds 2.5 lbs./ft^3 the value with the greatest deviation from the average is not used.

b. If less then 8 values remain, obtain more gauge readings and cores.

$$\text{Standard Deviation} = \sqrt{\frac{\sum x^2}{n-1}}$$

☐ QUALITY CONTROL ☐ VERIFICATION

CERTIFIED TECHNICAN **CDT** (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
CERTIFIED TECHNICAN **CAT 1**(PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
CERTIFIED TECHNICAN **QCCS** (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

NUCLEAR - CORE CORRELATION WORKSHEET

PROJECT NAME (SECTION)						CONTRACT NUMBER
Forms Example						12345
CONTRACTOR OR SUPPLIER			PROJECT MANAGER			BID ITEM NUMBER
ODOT Forms			Sean Parker			123
ODOT MIX DESIGN NO.	TYPE GAUGE - SERIAL NUMBER	Gauge Cal. Number	LIFT	DEPTH OF LIFT	MATERIAL TYPE	Core Correlation ID
22-MD000	Troxler 3430 11111	5999	2nd Base	2"	L3 1/2" Dense	12345-1

UNDERLYING MATERIAL (ACP / GRIND / AGG BASE)
ACP/Existing

LOT SUBLOT	TEST	SHOT #1	SHOT #2	NUCLEAR DENSITY AVERAGE	CORE DENSITY					
					CORE THICKNESS	(A) MASS IN AIR	(C) MASS IN WATER	(B) SSD MASS	$\frac{A}{B-C}$	X 62.4
	1	139.7	140.3	140.0	1.8	1867.3	1073.1	1885.7	2.298	143.4
	2	138.8	138.8	138.8	1.5	1371.2	782.9	1384.2	2.280	142.3
	3	139.0	139.8	139.4	1.6	1625.3	928.4	1639.9	2.284	142.5
	4	139.0	139.2	139.1	1.7	1641.4	941.4	1660.4	2.283	142.5
	5	140.5	140.1	140.3	1.7	1700.9	965.6	1716.9	2.264	141.3
	6	137.1	138.6	137.9	1.7	1698.0	988.6	1725.9	2.303	143.7
	7	138.2	138.8	138.5	1.9	1943.3	1127.3	1974.9	2.293	143.1
	8	144.9	145.0	145.0	2.5	3241.2	1883.2	3250.9	2.370	147.9
	9	142.8	145.0	143.9	2.1	2291.5	1325.2	2308.1	2.331	145.5
	10	142.9	144.0	143.5	2.1	2285.3	1325.3	2309.3	2.322	144.9

TEST	**Core - Gauge Difference**	VALUES NOT USED
1	3.4	
2	3.5	
3	3.1	
4	3.4	
5	1.0	
6	5.8	
7	4.6	
8	2.9	
9	1.6	
10	1.4	
	Core-Gauge Avg Diff. 3.1	
	Standard Deviation 1.47	

2.5 MAX

CORRELATION FACTOR

3.1

(TO ONE DECIMAL PLACES)

a. If the standard deviation exceeds 2.5 lbs./ft^3 the value with the greatest deviation from the average is not used.

b. If less then 8 values remain, obtain more gauge readings and cores.

$$\text{Standard Deviation} = \sqrt{\frac{\sum x^2}{n-1}}$$

☐ QUALITY CONTROL ☐ VERIFICATION

CERTIFIED TECHNICAN **CDT** (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
CERTIFIED TECHNICAN **CAT 1**(PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
CERTIFIED TECHNICAN **QCCS** (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

CALIBRATION BATCH FORM

SAMPLE No. ☐ ☐ English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)				CONTRACT NUMBER
C0NTRACTOR OR SUPPLIER	PROJECT MANAGER			BID ITEM NUMBER
MIX DESIGN NO.	DESIGN RAP % **(%RAP)**	DESIGN ANTISTRIP %	DESIGN ASPHALT % **(P_b)**	MATERIAL TYPE
AGG SOURCE No.	RAP SOURCE	ANTISTRIP SUPPLIER	AC SUPPLIER	MIXING TEMP RANGE
AGG % Absorbtion	RAP % ASPHALT **(P_{br})**	ANTISTRIP % Solids	AC GRADE	MASS OF SAMPLE **(M_{mix})** **Grams**

Mass of Asphalt Cement =	(Mass of Sample x Design Asphalt %) **/** 100	
Mass of Aggregate =	Mass of Sample - Mass of Asphalt Cement	
Mass of Asphalt Cement in RAP =	M_{mix} x [(1 - P_b / 100) / {(100 / %RAP - 1) x (100 / P_{br})} + (100 / P_{br} - 1)]	0.0
Mass of Aggregate in RAP =	Mass of Asphalt Cement in RAP x (100 / RAP % Asphalt - 1)	0.0
Mass of RAP =	Mass of Asphalt Cement in RAP + Mass of Aggregate in RAP	0.0
Mass of Virgin Aggregate =	Mass of Aggregate - Mass of Aggregate in RAP	
Mass of Virgin Aggregate without Antistrip =	Mass of Virgin Aggregate / (100 + DESIGN ANTISTRIP %) x 100	
Mass of Antistrip in Virgin Aggregate =	Mass of Virgin Aggregate - Mass of Virgin Agg w/o Antistrip	
Mass of Virgin Asphalt Cement =	Mass of Asphalt Cement - Mass of Asphalt Cement in RAP	
(Pb) Virgin Asphalt Cement Percentage =	Mass of Virgin Asphalt Cement / Mass of Virgin Aggregate + Mass of Virgin Asphalt Cement	

Batching Detail

	JMF	RAP	Virgin AGG Target		DRY VIRGIN AGGREGATE BATCHING WEIGHTS		
Sieve	% Pass	% Pass	% Pass	% Retain	Individual	Accumulative	Actual
1 in (25.0mm)							
¾ in (19.0mm)							
½ in (12.5mm)							
⅜ in (9.5mm)							
¼ in (6.3mm)							
№ 4 (4.75mm)							
№ 8 (2.36mm)							
№ 16 (1.18mm)							
№ 30 (600um)							
№ 50 (300um)							
№ 100 (150um)							
№ 200 (75um)							
Pan	Without ANTISTRIP						

Mix Designs Follow TM 316 (ADDING ANTI-STRIP ADDITIVES OR LIME TO MIX DESIGN SAMPLES)

TM 323 Add 0.1% More Moisture than AGG	Moisture				
% Absorbtion **MIX** add lime **MIX** AGAIN	ANTISTRIP				

All Ingredients and Utensils are Weighed in Hot Condition			Accumulative	Actual
		BUTTERED MIXING BOWL and SPOON		
Aggregate		**Mass of DRY AGG, ANTISTRIP, BOWL & SPOON**		
Asphalt		**Actual** Mass of DRY AGG X Pb **/** 100 - Pb		
RAP		Weigh the Sample after mixing before transferring to another container		
BUTTERED MIXING BOWL and SPOON		With in 1 Gram of Previous Tare weight		
		SAMPLE OF HMAC		

ACTUAL RAP AGG		ACTUAL RAP ASPHALT			
ACTUAL VIRG AGG		ACTUAL VIRG ASPHALT			
ACTUAL AGG TOTAL		ACTUAL ASPHALT TOTAL		% ASPHALT	

☐ QUALITY CONTROL ☐ VERIFICATION

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

CALIBRATION BATCH FORM

SAMPLE No. 3 **E** English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)				CONTRACT NUMBER
Forms Example				12345
C0NTRACTOR OR SUPPLIER		PROJECT MANAGER		BID ITEM NUMBER
ODOT Forms		Sean Parker		123
MIX DESIGN NO.	DESIGN RAP % **(%RAP)**	DESIGN ANTISTRIP %	DESIGN ASPHALT % **(P_b)**	MATERIAL TYPE
12-MD0001		0.375	5.5	L3 3/4" Dense
AGG SOURCE No.	RAP SOURCE	ANTISTRIP SUPPLIER	AC SUPPLIER	MIXING TEMP RANGE
10-001-3	Hwy 20	Ultrapave	Albina3	300-304
AGG % Absorbtion	RAP % ASPHALT **(P_{br})**	ANTISTRIP % Solids	AC GRADE	MASS OF SAMPLE **(M_{mix})**
2.3	6.3	69	PG 70-28	**2100** **Grams**

Mass of Asphalt Cement =	(Mass of Sample x Design Asphalt %) **/** 100	115.5
Mass of Aggregate =	Mass of Sample - Mass of Asphalt Cement	1984.5
Mass of Asphalt Cement in RAP =	M_{mix} x [(1 - P_b / 100) / {(100 / %RAP - 1) x (100 / P_{br})} + (100 / P_{br} - 1)]	0.0
Mass of Aggregate in RAP =	Mass of Asphalt Cement in RAP x (100 / RAP % Asphalt - 1)	0.0
Mass of RAP =	Mass of Asphalt Cement in RAP + Mass of Aggregate in RAP	0.0
Mass of Virgin Aggregate =	Mass of Aggregate - Mass of Aggregate in RAP	1984.5
Mass of Virgin Aggregate without Antistrip =	Mass of Virgin Aggregate / (100 + DESIGN ANTISTRIP %) x 100	1977.1
Mass of Antistrip in Virgin Aggregate =	Mass of Virgin Aggregate - Mass of Virgin Agg w/o Antistrip	7.4
Mass of Virgin Asphalt Cement =	Mass of Asphalt Cement - Mass of Asphalt Cement in RAP	115.5
(Pb) Virgin Asphalt Cement Percentage =	Mass of Virgin Asphalt Cement / Mass of Virgin Aggregate + Mass of Virgin Asphalt Cement	5.50%

Batching Detail

	JMF	RAP	Virgin AGG Target		DRY VIRGIN AGGREGATE BATCHING WEIGHTS		
Sieve	% Pass	% Pass	% Pass	% Retain	Individual	Accumulative	Actual
1 in	100		100.0	0.0	0.0	**0.0**	0
¾ in	96		96.0	4.0	79.4	**79.4**	79.2
½ in	80		79.9	16.1	317.5	**396.9**	396.8
⅜ in	69		68.9	11.0	218.3	**615.2**	615.1
¼ in	54		53.8	15.1	297.7	**912.9**	912.9
№ 4	44		43.8	10.0	198.5	**1111.3**	1111.2
№ 8	25		24.7	19.1	377.1	**1488.4**	1488.4
№ 16	18		17.7	7.0	138.9	**1627.3**	1627.3
№ 30	11		10.7	7.0	138.9	**1766.2**	1766.2
№ 50	9		8.7	2.0	39.7	**1805.9**	1805.9
№ 100	7		6.6	2.0	39.7	**1845.6**	1845.6
№ 200	5.0		4.6	2.0	39.7	**1885.3**	1885.3
Pan	Without ANTISTRIP			4.6	91.8	**1977.1**	1977.1

Mix Designs Follow TM 316 (ADDING ANTI-STRIP ADDITIVES OR LIME TO MIX DESIGN SAMPLES)

TM 323 Add 0.1% More Moisture than AGG	Moisture	2.4%	47.5	**2024.5**	2024.5
% Absorbtion **MIX** add lime **MIX** AGAIN	ANTISTRIP	0.4%	7.4	**2032.0**	2032

All Ingredients and Utensils are Weighed in Hot Condition			Accumulative	Actual
		BUTTERED MIXING BOWL and SPOON	**1000.0**	1001.2
Aggregate	1983.3	**Mass of DRY AGG, ANTISTRIP, BOWL & SPOON**	**2984.5**	2984.5
Asphalt	115.4	**Actual** Mass of DRY AGG X Pb **/** 100 - Pb	**3099.9**	3099.9
RAP	0.0	Weigh the Sample after mixing before transferring to another container	**3099.9**	3099.9
BUTTERED MIXING BOWL and SPOON		With in 1 Gram of Previous Tare weight	**1000.0**	1000.6
		SAMPLE OF HMAC	**2099.9**	2100.8

ACTUAL RAP AGG	0.0	ACTUAL RAP ASPHALT	0.0		
ACTUAL VIRG AGG	1983.3	ACTUAL VIRG ASPHALT	115.4		
ACTUAL AGG TOTAL	1983.3	ACTUAL ASPHALT TOTAL	115.4	% ASPHALT	5.50%

☑ QUALITY CONTROL ☐ VERIFICATION

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT		10/7/2012

ACP INCINERATOR OVEN CALIBRATION WORKSHEET

PROJECT NAME (SECTION)	PROJECT MANAGER	CONTRACT NUMBER	ASPHALT SUPPLIER	ODOT MIX DESIGN NO.
C0NTRACTOR OR SUPPLIER	**MATERIAL TYPE**	**PERCENT RAP**	**ASPHALT GRADE**	**CONTRACTOR DESIGN #**

INCINERATOR MAKE		SERIAL NUMBER		BURN METHOD (A OR B)	

BLANK		RAP		Incinerator Sample #		Incinerator Sample #	
PAN TARE		BASKET TARE T		BASKET TARE T		BASKET TARE T	
WET MASS & PAN		MIX MASS & BASKET A		MIX MASS & BASKET A		MIX MASS & BASKET A	
DRY MASS & PAN		AGG MASS & BASKET B		AGG MASS & BASKET B		AGG MASS & BASKET B	
		COOL AGG & BASKET		COOL AGG & BASKET		COOL AGG & BASKET	
		TEMP A	Mi (A-T)	TEMP A	Mi (A-T)	TEMP A	Mi (A-T)
		TEMP B	Mf (B-T)	TEMP B	Mf (B-T)	TEMP B	Mf (B-T)
		%I = [(Mi -Mf) / (Mi)] x 100		%I = [(Mi -Mf) / (Mi)] x 100		%I = [(Mi -Mf) / (Mi)] x 100	

Sieve	Mass	% Ret	%Pass	Sieve	Mass	% Ret	%Pass	Sieve	Mass	% Ret	%Pass	Sieve	Mass	% Ret	%Pass
PAN		Initial Mass		PAN		Initial Mass		PAN		Initial Mass		PAN		Initial Mass	
AFTER WASH DRY MASS				AFTER WASH DRY MASS				AFTER WASH DRY MASS				AFTER WASH DRY MASS			
MASS AFTER SIEVE				MASS AFTER SIEVE				MASS AFTER SIEVE				MASS AFTER SIEVE			
Sieve loss				Sieve loss				Sieve loss				Sieve loss			

SIEVE	TARGET	BLANK/RAP	MIX # 1	MIX # 2	AVE 1 & 2	Diff TARGET-BLANK	FACTOR

	MIX # 1	MIX # 2
% LOSS (%I)		
% Pb BATCHED		
CORRECTION		

(Cf)

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE		
					QUALITY CONTROL
					VERIFICATION
					INDEPENDENT ASSURANCE

ACP INCINERATOR OVEN CALIBRATION WORKSHEET

PROJECT NAME (SECTION)	PROJECT MANAGER	CONTRACT NUMBER	ASPHALT SUPPLIER	ODOT MIX DESIGN NO.
ODOT Forms	Sean Parker	12345	Paramount	20-MD0001
CONTRACTOR OR SUPPLIER	**MATERIAL TYPE**	**PERCENT RAP**	**ASPHALT GRADE**	**CONTRACTOR DESIGN #**
Best Paving Company	Level 3 1/2" Dense	25	PG 70-22	BPC-001

INCINERATOR MAKE	Troxler	SERIAL NUMBER	160	BURN METHOD (A OR B)	B

BLANK		RAP		Incinerator Sample #	3	Incinerator Sample #	7
PAN TARE	1311.8	BASKET TARE T	4461.7	BASKET TARE T	4504.2	BASKET TARE T	4543.2
WET MASS & PAN	2403.3	MIX MASS & BASKET A	4812.8	MIX MASS & BASKET A	6033.8	MIX MASS & BASKET A	6073.0
DRY MASS & PAN	2403.3	AGG MASS & BASKET B	4812.8	AGG MASS & BASKET B	5930.8	AGG MASS & BASKET B	5970.9
		COOL AGG & BASKET	4812.8	COOL AGG & BASKET	5930.8	COOL AGG & BASKET	5970.9
		TEMP A 70.0	Mi (A-T) 351.1	TEMP A 71.0	Mi (A-T) 1529.6	TEMP A 71.0	Mi (A-T) 1529.8
		TEMP B 72.0	Mf (B-T) 351.1	TEMP B 75.0	Mf (B-T) 1426.6	TEMP B 73.0	Mf (B-T) 1427.7
		%I = [(Mi -Mf) / (Mi)] x 100	0.00	%I = [(Mi -Mf) / (Mi)] x 100	6.73	%I = [(Mi -Mf) / (Mi)] x 100	6.67

Sieve	Mass	% Ret	%Pass	Sieve	Mass	% Ret	%Pass	Sieve	Mass	% Ret	%Pass	Sieve	Mass	% Ret	%Pass
1	0.0	0.0	100.0	1	0.0	0.0	100.0	1	0.0	0.0	100.0	1	0.0	0.0	100.0
3/4	0.0	0.0	100.0	3/4	0.0	0.0	100.0	3/4	0.0	0.0	100.0	3/4	0.0	0.0	100.0
1/2	52.0	4.8	95.2	1/2	30.7	8.7	91.3	1/2	53.3	3.7	96.3	1/2	32.3	2.3	97.7
3/8	181.5	16.6	78.6	3/8	8.2	2.3	89.0	3/8	209.4	14.7	81.6	3/8	233.2	16.3	81.4
1/4	228.9	21.0	57.6	1/4	48.4	13.8	75.2	1/4	241.4	16.9	64.7	1/4	236.8	16.6	64.8
4	202.0	18.5	39.1	4	35.8	10.2	65.0	4	237.0	16.6	48.1	4	238.2	16.7	48.1
6	106.0	9.7	29.4	6	37.0	10.5	54.5	6	128.4	9.0	39.1	6	137.0	9.6	38.5
8	58.7	5.4	24.0	8	30.7	8.7	45.8	8	93.1	6.5	32.6	8	86.8	6.1	32.4
16	72.1	6.6	17.4	16	38.4	10.9	34.9	16	100.0	7.0	25.6	16	100.0	7.0	25.4
30	72.2	6.6	10.8	30	38.5	11.0	23.9	30	135.7	9.5	16.1	30	133.9	9.4	16.0
50	28.2	2.6	8.2	50	19.0	5.4	18.5	50	50.0	3.5	12.6	50	50.0	3.5	12.5
100	28.2	2.6	5.6	100	19.1	5.4	13.1	100	50.0	3.5	9.1	100	50.0	3.5	9.0
200	28.4	2.6	3.0	200	19.1	5.4	7.7	200	57.5	4.0	5.1	200	57.9	4.1	4.9
PAN	4.0	Initial Mass	1091.5	PAN	4.7	Initial Mass	351.1	PAN	6.4	Initial Mass	1426.6	PAN	9.3	Initial Mass	1427.7
AFTER WASH DRY MASS			1062.2	AFTER WASH DRY MASS			329.7	AFTER WASH DRY MASS			1362.0	AFTER WASH DRY MASS			1365.7
MASS AFTER SIEVE			1062.2	MASS AFTER SIEVE			329.6	MASS AFTER SIEVE			1362.2	MASS AFTER SIEVE			1365.4
Sieve loss			0.0%	Sieve loss			0.0%	Sieve loss			0.0%	Sieve loss			0.0%

SIEVE	TARGET	BLANK/RAP	MIX # 1	MIX # 2	AVE 1 & 2	Diff TARGET-BLANK	FACTOR	
1	100	100.0	100.0	100.0	100.0	0.0	0.0	1
3/4	100	100.0	100.0	100.0	100.0	0.0	0.0	3/4
1/2	96	94.3	96.3	97.7	97.0	1.7	-2.7	1/2
3/8	81	81.2	81.6	81.4	81.5	-0.2	-0.3	3/8
1/4	65	62.0	64.7	64.8	64.8	3.0	-2.8	1/4
4	47	45.5	48.1	48.1	48.1	1.5	-2.6	4
6	39	35.6	39.1	38.5	38.8	3.4	-3.2	6
8	32	29.4	32.6	32.4	32.5	2.6	-3.1	8
16	25	21.7	25.6	25.4	25.5	3.3	-3.8	16
30	16	14.0	16.1	16.0	16.1	2.0	-2.1	30
50	12	10.7	12.6	12.5	12.6	1.3	-1.9	50
100	9	7.4	9.1	9.0	9.1	1.6	-1.7	100
200	5.1	4.1	5.1	4.9	5.0	1.0	-0.9	200

	MIX # 1	MIX # 2
% LOSS (%I)	6.73	6.67
% Pb BATCHED	5.71	5.71
CORRECTION	1.02	0.96

0.99 **(Cf)**

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE		
Scott Aker #43048	ODOT		10/10/2020	X	QUALITY CONTROL
					VERIFICATION
					INDEPENDENT ASSURANCE

DAILY ASPHALT PLANT PRODUCTION

PROJECT NAME (SECTION)		CONTRACT NUMBER
C0NTRACTOR OR SUPPLIER	PROJECT MANAGER	REPORT NUMBER
	MATERIAL TYPE (ACP OR EAC)	DATE

DAILY METER READINGS

AGG	PLANT DRY AGG BEGIN		WET AGG BEGIN	A
	PLANT DRY AGG END		WET AGG END	B
	PLANT SET AGG MOISTURE		AVERAGE COLD FEED MOISTURE	C
	(B-A)/(1+(C/100)) TOTAL DRY AGG			D
RAP/RAM	PLANT DRY RAP BEGIN		WET RAP BEGIN	E
	PLANT DRY RAP END		WET RAP END	F
	PLANT SET RAP MOISTURE		AVERAGE RAP MOISTURE	G
	(F-E)/(1+(G/100)) TOTAL DRY RAP			H
RAS	PLANT DRY RAS BEGIN		WET RAS BEGIN	I
	PLANT DRY RAS END		WET RAS END	J
	PLANT SET RAS MOISTURE		AVERAGE RAS MOISTURE	K
	(J-I)/(1+(K/100)) TOTAL DRY RAS			L
ASPHALT	ASPHALT BEGIN	correction 1.000		M
	ASPHALT END	1.000		N
	If correction used explain method.			
	(N-M) ASPHALT TOTAL			O
ANTISTRIP	ANTISTRIP BEGIN	correction 1.00	CORRECTED	P
	ANTISTRIP DELIVERED	1.00		Q
	ANTISTRIP END	1.00		R
	R-P (meter) or P+Q-R (scales) ANTISTRIP TOTAL			S

DAILY PHYSICAL INVENTORY

ACP	TOTAL MIX ACCEPTED		a
	PLANT MIX WASTE (WEIGHED)		b
	REJECTED LOAD MIX WASTE		c
	MIX SOLD TO OTHERS		d
	TOTAL MIX NOT ACCEPTED b + c + d		e
	TOTAL ACP PRODUCED a + e		f
	DAILY AVE MIX MOISTURE		g
ASPHALT	TANK STICK BEGIN		h
	ASPHALT DELIVERED		i
	DEDUCTIONS ASPHALT REMOVED PRIOR TO METERING		k
	TANK STICK END		m
	TOTAL BY TANK STICKING h + i - k - m		n
ANTISTRIP	ANTISTRIP BEGIN INVENTORY		p
	ANTISTRIP DELIVERED		q
	ANTISTRIP END INVENTORY		r
	ANTISTRIP TOTAL p + q - r		s

V	PHYSICAL TOTAL DRY MIX	**ACP:** f / (1+(g/100))	**EAC:** f / (1+(C/100))
W	METERED TOTAL DRY MIX	**ACP:** (D+H+L+O-U)	**EAC:** (D+O-U)
Y	BY METER % Pb	**ACP:** (O / W)X100	**EAC:** (O / (W - O))X100
Z	BY TANK % Pb	**ACP:** (n / V) x 100	**EAC:** (n/(V-n)) x 100
	% ERROR ASPHALT METER vs. TANK MEASURE		((n - O) / n) x 100

U **UNCOATED AGG WASTE (WEIGHED)**

% ANTISTRIP (S/(D-S))x100	% RAS (L/(D+H+L))x100	% RAM ((H+L)/(D+H+L))x100

% ERROR TRUCK SCALE vs. TOTAL METER		ALLOWABLE ±1.0% **(ACP)**
ACP: ((V - W) / V) x100		**EAC:** (f- (B - A + O - U) / f) x100
DAILY DIFFERENCE: TANK vs. METER	**Z - Y**	ALLOWABLE ±0.20

☐ QUALITY CONTROL ☐ VERIFICATION

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

DAILY ASPHALT PLANT PRODUCTION

PROJECT NAME (SECTION)		CONTRACT NUMBER
Forms Example		12345
C0NTRACTOR OR SUPPLIER	PROJECT MANAGER	REPORT NUMBER
ODOT Forms	Sean Parker	123
	MATERIAL TYPE (ACP OR EAC)	DATE
	ACP	10/10/2017

DAILY METER READINGS

AGG	PLANT DRY AGG BEGIN		WET AGG BEGIN	
	0.00	A	0.00	
	PLANT DRY AGG END		WET AGG END	
	825.60	B	841.29	
	PLANT SET AGG MOISTURE		AVERAGE COLD FEED MOISTURE	
	1.9	C	1.5	
	(B-A)/(1+(C/100))			
	TOTAL DRY AGG	D	**828.86**	
RAP/RAM	PLANT DRY RAP BEGIN		WET RAP BEGIN	
	0.00	E	0.00	
	PLANT DRY RAP END		WET RAP END	
	306.79	F	314.15	
	PLANT SET RAP MOISTURE		AVERAGE RAP MOISTURE	
	2.4	G	2.3	
	(F-E)/(1+(G/100))			
	TOTAL DRY RAP	H	**307.09**	
RAS	PLANT DRY RAS BEGIN		WET RAS BEGIN	
	0.00	I	0.00	
	PLANT DRY RAS END		WET RAS END	
	59.46	J	60.35	
	PLANT SET RAS MOISTURE		AVERAGE RAS MOISTURE	
	1.5	K	1.7	
	(J-I)/(1+(K/100))			
	TOTAL DRY RAS	L	**59.34**	
ASPHALT	ASPHALT BEGIN / correction			
	0.00 / 1.000	M	0.00	
	ASPHALT END			
	58.59 / 1.000	N	58.59	
	If correction used explain method.			
	(N-M)			
	ASPHALT TOTAL	O	**58.59**	
ANTISTRIP	ANTISTRIP BEGIN / correction		CORRECTED	
	14.080 / 1.00	P	14.080	
	ANTISTRIP DELIVERED			
	1.00	Q		
	ANTISTRIP END			
	7.400 / 1.00	R	7.400	
	R-P (meter) or P+Q-R (scales)			
	ANTISTRIP TOTAL	S	**6.680**	

DAILY PHYSICAL INVENTORY

ACP	TOTAL MIX ACCEPTED	a	1205.25
	PLANT MIX WASTE (WEIGHED)	b	36.11
	REJECTED LOAD MIX WASTE	c	10.00
	MIX SOLD TO OTHERS	d	0.00
	TOTAL MIX NOT ACCEPTED (b + c + d)	e	46.11
	TOTAL ACP PRODUCED (a + e)	f	**1251.36**
	DAILY AVE MIX MOISTURE	g	**0.25**
ASPHALT	TANK STICK BEGIN	h	100.24
	ASPHALT DELIVERED	i	38.50
	DEDUCTIONS ASPHALT REMOVED PRIOR TO METERING	k	0.00
	TANK STICK END	m	79.64
	TOTAL BY TANK STICKING (h + i - k - m)	n	**59.10**
ANTISTRIP	ANTISTRIP BEGIN INVENTORY	p	14.080
	ANTISTRIP DELIVERED	q	0.000
	ANTISTRIP END INVENTORY	r	7.400
	ANTISTRIP TOTAL (p + q - r)	s	**6.680**

V	PHYSICAL TOTAL DRY MIX — **ACP:** f / (1+(g/100)) **EAC:** f / (1+(C/100))	**1248.24**
W	METERED TOTAL DRY MIX — **ACP:** (D+H+L+O-U) **EAC:** (D+O-U)	**1242.77**
Y	BY METER % Pb — **ACP:** (O / W)X100 **EAC:** (O / (W - O))X100	**4.71**
Z	BY TANK % Pb — **ACP:** (n / V) x 100 **EAC:** (n/(V-n)) x 100	**4.73**
	% ERROR ASPHALT METER vs. TANK MEASURE ((n - O) / n) x 100	**0.86**

U	**UNCOATED AGG WASTE (WEIGHED)** 11.11

% ANTISTRIP (S/(D-S))x100	% RAS (L/(D+H+L))x100	% RAM ((H+L)/(D+H+L))x100
0.81	**5.0**	**30.7**

% ERROR TRUCK SCALE vs. TOTAL METER — ALLOWABLE ±1.0% **(ACP)**	
ACP: ((V - W) / V) x100 **EAC:** (f- (B - A + O - U) / f) x100	**0.44**
DAILY DIFFERENCE: TANK vs. METER **Z - Y** ALLOWABLE ±0.20	**0.02**

X QUALITY CONTROL ☐ VERIFICATION

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker # 43048	ODOT		10/10/2017

DAILY ASPHALT PLANT RECONCILIATION ACP

PROJECT NAME (SECTION)		CONTRACT NUMBER
C0NTRACTOR OR SUPPLIER	PROJECT MANAGER	REPORT NUMBER
REMARKS		DATE

DAILY METER READINGS (Plant)

			Moist			
AGG	Begin Meter		Moist	Plant Set	Total Dry Aggregate (End - Begin)X(1+plant set/100)/(1+avg/100)	A
	End Meter			Avg Moist		
RAM	Begin Meter		Moist	Plant Set	Total Dry RAM (End - Begin)X(1+plant set/100)/(1+avg/100)	B
	End Meter			Avg Moist		
AC	Begin Meter				Total Metered AC End - Begin	C
	End Meter					
ANTI STRIP	Begin Meter				Total Antistrip Begin + Deliveries - End	D
	Deliveries					
	End Meter					
	Total Plant Dry Metered Materials A + B + C - I					E
	Tank vs AC Meter (%) (Q - C)/Q*100					F

DAILY PHYSICAL INVENTORY (Truck Scale)

ACP			
	Truck Scale (Including mix sold to others)	G	
	Total ACP Mix Wasted	H	
	Total Uncoated Agg Waste	I	
	Total ACP Mix Produced G + H	J	
	Average Daily ACP Mix Moisture	K	%
	Total Truck Scale (Dry) J/ (1 + K / 100)	L	
	Total Plant Meters vs. Truck Scale (Dry) **Allowable ±1.0%** **((L - E) / L) X 100**	**M**	%
	% Antistrip D / (A-D) * 100	% RAM B / (B+A) * 100	

ASPHALT INVENTORY

Beginning Tank Stick

Tank No. / Binder Grade	Oil Temp	Tank Stick	Volume in Tank	X	Temperature Correction Factor	X	Binder Specific Gravity	/	239.9	=	Tons
1											
2											
3											
Beginning Tank Stick Total										N	

Deliveries After Beginning Inventory

Invoice No.	Tons	Invoice No.	Tons	Invoice No.	Tons	Invoice No.	Tons
Total Deliveries							O

Ending Tank Stick

Tank No. / Binder Grade	Oil Temp	Tank Stick	Volume in Tank	X	Temperature Correction Factor	X	Binder Specific Gravity	/	239.9	=	Tons
1											
2											
3											
Ending Tank Stick Total										P	
Total Daily Binder N + O - P										Q	

QUALITY CONTROL | VERIFICATION

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

DAILY ASPHALT PLANT RECONCILIATION ACP

PROJECT NAME (SECTION)		CONTRACT NUMBER
		12345
C0NTRACTOR OR SUPPLIER	PROJECT MANAGER	REPORT NUMBER
ODOT Forms	Sean Parker	1
REMARKS		DATE
		12/2/2019

DAILY METER READINGS (Plant)

			Moist			
AGG	Begin Meter	0.00	Moist	Plant Set 3.00	Total Dry Aggregate (End - Begin)X(1+plant set/100)/(1+avg/100)	
	End Meter	1396.30		Avg Moist 2.20	A	1407.23
RAM	Begin Meter	0.00	Moist	Plant Set 3.10	Total Dry RAM (End - Begin)X(1+plant set/100)/(1+avg/100)	
	End Meter	579.77		Avg Moist 3.10	B	579.77
AC	Begin Meter	0.00			Total Metered AC End - Begin	
	End Meter	80.65			C	80.65
ANTI STRIP	Begin Meter	22.62			Total Antistrip Begin + Deliveries - End	
	Deliveries	20.06				
	End Meter	30.02			D	12.66
	Total Plant Dry Metered Materials A + B + C - I				E	2051.65
	Tank vs AC Meter (%) (Q - C)/Q*100				F	-2.3

DAILY PHYSICAL INVENTORY (Truck Scale)

ACP	Truck Scale (Including mix sold to others)	G 2025.01
	Total ACP Mix Wasted	H 15.00
	Total Uncoated Agg Waste	I 15.00
	Total ACP Mix Produced G + H	J 2040.01
	Average Daily ACP Mix Moisture	K 0.38 %
	Total Truck Scale (Dry) J/ (1 + K / 100)	L 2032.29
	Total Plant Meters vs. Truck Scale (Dry) **Allowable ±1.0%** **((L - E) / L) X 100**	**M -1.0 %**
	% Antistrip D / (A-D) * 100	0.91
	% RAM B / (B+A) * 100	29.2

ASPHALT INVENTORY

Beginning Tank Stick

Tank No. / Binder Grade	Oil Temp	Tank Stick	Volume in Tank	X	Temperature Correction Factor	X	Binder Specific Gravity	/ 239.9	= Tons
1 PG 64-28	320	73.5	11768		0.9122		1.037	239.9	46.40
2									
3									
Beginning Tank Stick Total								N	46.40

Deliveries After Beginning Inventory

Invoice No.	Tons	Invoice No.	Tons	Invoice No.	Tons	Invoice No.	Tons
	32.76						
	33.07						
	30.21						
Total Deliveries							O 96.04

Ending Tank Stick

Tank No. / Binder Grade	Oil Temp	Tank Stick	Volume in Tank	X	Temperature Correction Factor	X	Binder Specific Gravity	/ 239.9	= Tons
1 PG 64-28	320	59.5	16127		0.9122		1.037	239.9	63.59
2									
3									
Ending Tank Stick Total								P	63.59
Total Daily Binder N + O - P								Q	78.85

QUALITY CONTROL ☐ VERIFICATION

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

CAT II - JMF TARGET ADJUSTMENT SUMMARY

CAT II - JMF TARGET ADJUSTMENT SUMMARY	E	English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)			CONTRACT NUMBER
C0NTRACTOR OR SUPPLIER		PROJECT MANAGER	BID ITEM NUMBER
CERTIFIED TECHNICIAN CAT II & CARD #	MIX DESIGN	MATERIAL DESCRIPTION	TO BE USED IN

ADJUSTMENT #	JMF Va		EXPECTED Va		JMF VFA		EXPECTED VFA		JMF VMA		EXPECTED VMA	
CONSTITUENT	**Pb**	**1”**	**3/4”**	**1/2”**	**3/8”**	**#4**	**#8**	**#16**	**#30**	**#50**	**#100**	**#200**
TARGET												
ADJUSTMENT												
SUBLOT	**JUSTIFICATION / REMARKS:**											
ADJUSTMENT DATE												

CERTIFIED CAT II SIGNATURE	DATE

ADJUSTMENT #	JMF Va		EXPECTED Va		JMF VFA		EXPECTED VFA		JMF VMA		EXPECTED VMA	
CONSTITUENT	**Pb**	**1”**	**3/4”**	**1/2”**	**3/8”**	**#4**	**#8**	**#16**	**#30**	**#50**	**#100**	**#200**
TARGET												
ADJUSTMENT												
SUBLOT	**JUSTIFICATION / REMARKS:**											
ADJUSTMENT DATE												

CERTIFIED CAT II SIGNATURE	DATE

ADJUSTMENT #	JMF Va		EXPECTED Va		JMF VFA		EXPECTED VFA		JMF VMA		EXPECTED VMA	
CONSTITUENT	**Pb**	**1”**	**3/4”**	**1/2”**	**3/8”**	**#4**	**#8**	**#16**	**#30**	**#50**	**#100**	**#200**
TARGET												
ADJUSTMENT												
SUBLOT	**JUSTIFICATION / REMARKS:**											
ADJUSTMENT DATE												

CERTIFIED CAT II SIGNATURE	DATE

ADJUSTMENT #	JMF Va		EXPECTED Va		JMF VFA		EXPECTED VFA		JMF VMA		EXPECTED VMA	
CONSTITUENT	**Pb**	**1”**	**3/4”**	**1/2”**	**3/8”**	**#4**	**#8**	**#16**	**#30**	**#50**	**#100**	**#200**
TARGET												
ADJUSTMENT												
SUBLOT	**JUSTIFICATION / REMARKS:**											
ADJUSTMENT DATE												

CERTIFIED CAT II SIGNATURE	DATE

CAT II - JMF TARGET ADJUSTMENT SUMMARY

E — English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)			CONTRACT NUMBER
Forms Example			12345
C0NTRACTOR OR SUPPLIER	PROJECT MANAGER		BID ITEM NUMBER
ODOT Forms	Sean Parker		123
CERTIFIED TECHNICIAN CAT II & CARD #	MIX DESIGN	MATERIAL DESCRIPTION	TO BE USED IN
Scott Aker #43048	08-MD0000	L3 1/2" Dense HMAC	Base / Wearing

ADJUSTMENT #	JMF Va	EXPECTED Va	JMF VFA	EXPECTED VFA	JMF VMA	EXPECTED VMA
1	4.0	4.8	74	67	15.4	14.5

CONSTITUENT	Pb	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200
TARGET	5.30	---	100	98	84	56	38	25	14	11	8	5.0
ADJUSTMENT							35					

SUBLOT: 1-5

ADJUSTMENT DATE: 10/9/12

JUSTIFICATION / REMARKS: Running average of 4 shows VMA out of tolerance at 13.4, Pb = 5.32, P#8 = 38%, P#200 = 4.9%, and Va = 4.6%. Proposed blend change for #8 to 35% to increase VMA. Will need to check voids after blend change.

CERTIFIED CAT II SIGNATURE | DATE

ADJUSTMENT #	JMF Va	EXPECTED Va	JMF VFA	EXPECTED VFA	JMF VMA	EXPECTED VMA
2	4.0	4.1	74	72	15.4	14.8

CONSTITUENT	Pb	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200
TARGET	5.30	---	100	98	84	53	35	25	14	11	8	5.0
ADJUSTMENT	5.50											

SUBLOT: 1-7

ADJUSTMENT DATE: 10/10/12

JUSTIFICATION / REMARKS: Blend change on sublot 1-5 brought VMA within tolerance however running average of 4 after sublots 1-5 and 1-6 shows Va at 5.0. Propose Pb target change to 5.50

CERTIFIED CAT II SIGNATURE | DATE

ADJUSTMENT #	JMF Va	EXPECTED Va	JMF VFA	EXPECTED VFA	JMF VMA	EXPECTED VMA

CONSTITUENT	Pb	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200
TARGET												
ADJUSTMENT												

SUBLOT

ADJUSTMENT DATE

JUSTIFICATION / REMARKS:

CERTIFIED CAT II SIGNATURE | DATE

ADJUSTMENT #	JMF Va	EXPECTED Va	JMF VFA	EXPECTED VFA	JMF VMA	EXPECTED VMA

CONSTITUENT	Pb	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200
TARGET												
ADJUSTMENT												

SUBLOT

ADJUSTMENT DATE

JUSTIFICATION / REMARKS:

CERTIFIED CAT II SIGNATURE | DATE

MAXIMUM DENSITY OF CONSTRUCTION MATERIALS

E English (E) or Metric (M)

PROJECT NAME (SECTION)					CONTRACT NUMBER
CONTRACTOR OR SUPPLIER			PROJECT MANAGER		BID ITEM NUMBER
SOURCE NAME			SOURCE NUMBER		MATERIAL SIZE
TEST NO.	DATE	TIME	SAMPLED AT	MATERIAL DESCRIPTION	TO BE USED IN

lb/ft³						
lb/ft³						
lb/ft³						
lb/ft³						
lb/ft³						
%	%	%	%	%	%	

TEST METHOD

T 99 ☐ T 180 ☐

A or D ☐

SAMPLE

+ №4	
- №4	
Total	
Pc	%
+ ¾	
- ¾	
Total	
Pc	%

MAX DRY DENSITY OF THE FINES

ρ_f ____ lb/ft³

OPTIMUM MOISTURE OF THE FINES

MCf ____ %

TEST NO.	MASS OF MOLD AND MATERIALS (GRAMS)	MASS OF MOLD (GRAMS)	(M) MASS OF WET MATERIAL	WET DENSITY WD = (M)x(MF) lb/ft³	OVEN MOISTURE % AASHTO T255 / 265 Pan Tare (t)	WET(a)	DRY(b)	% M (m)	(D) DRY DENSITY lb/ft³
1									
2									
3									
4									
5									
6									
7									
8									

MOLD FACTOR (MF)

4 in MOLD = 0.06614
101.6mm MOLD = 1.060
6 in MOLD = 0.02939
152.4mm = 0.471

OVEN MOISTURE %

$(m) = \frac{(a) - (b)}{(b) - (t)} \times 100$

$(D) = \frac{(WD)}{(m)+100} \times 100$

AASHTO T85 SPECIFIC GRAVITY OF COARSE AGGREGATE	Oven Dry Mass (A)	SSD Mass (B)	Weight in Water (C)	**Gsb** (A) / [(B)-(C)]	**Gsb SSD** (B) / [(B)-(C)]	**Gsa** (A) / [(A)-(C)]	**ABSORPTION** [[(B)-(A)]/(A)]X100

COMMENTS

☐ **QUALITY CONTROL** ☐ **INDEPENDENT ASSURANCE**

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

MAXIMUM DENSITY OF CONSTRUCTION MATERIALS

PROJECT NAME (SECTION)					CONTRACT NUMBER
CONTRACTOR OR SUPPLIER			PROJECT MANAGER		BID ITEM NUMBER
SOURCE NAME			SOURCE NUMBER		MATERIAL SIZE
TEST NO.	DATE	TIME	SAMPLED AT	MATERIAL DESCRIPTION	TO BE USED IN

AASHTO T 99 COARSE PARTICLE CORRECTION

RELATIVE MAXIMUM DRY DENSITY

$$\frac{100}{(Pf/\rho_f)+(Pc/k)} = \rho_d$$

COMBINED OPTIMUM MOISTURE

$$\frac{(MCf \times Pf + MCc \times Pc)}{100} = MCT$$

Pf = 100 - Pc k = Gsb x 62.4

MCc = ABSORPTION OR MOISTURE

COARSE PARTICLES	RELATIVE MAXIMUM DRY DENSITY	COMBINED OPTIMUM MOISTURE	COARSE PARTICLES
0-9%			0-9%
10%			10%
11%			11%
12%			12%
13%			13%
14%			14%
15%			15%
16%			16%
17%			17%
18%			18%
19%			19%
20%			20%
21%			21%
22%			22%
23%			23%
24%			24%
25%			25%
26%			26%
27%			27%
28%			28%
29%			29%
30%			30%
31%			31%
32%			32%
33%			33%
34%			34%
35%			35%
36%			36%
37%			37%
38%			38%
39%			39%
40%			40%

TEST METHOD

T 99 ☐ T 180 ☐

A or D ☐

CURVE COARSE PARTICLES

+ №4 ____ %

+ ¾ ____ %

SOILS

MAX DRY DENSITY OF THE FINES

ρ_f ____ lb/ft³

OPTIMUM MOISTURE % THE FINES

MCf ____ %

MAX DRY DENSITY OF THE COURSE

k ____ lb/ft³

OPTIMUM MOISTURE % THE COURSE

MCc ____ %

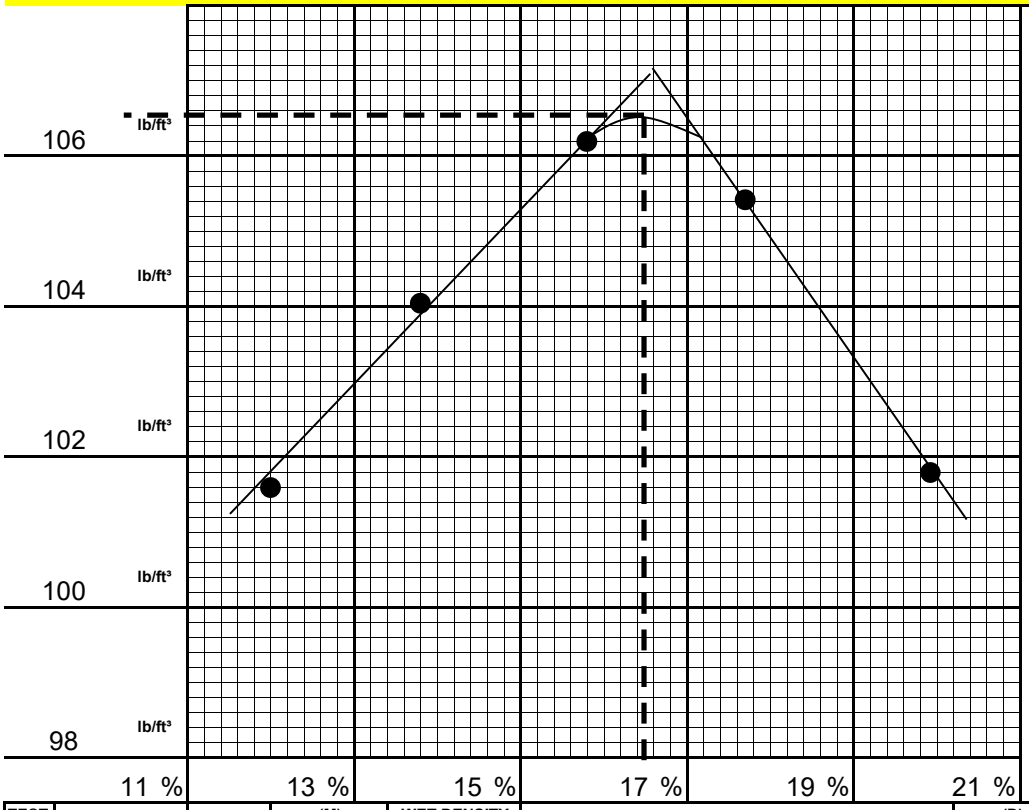
☐ QUALITY CONTROL ☐ VERIFICATION

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

MAXIMUM DENSITY OF CONSTRUCTION MATERIALS

E English (E) or Metric (M)

PROJECT NAME (SECTION)				CONTRACT NUMBER
Forms Example				12345
CONTRACTOR OR SUPPLIER		PROJECT MANAGER		BID ITEM NUMBER
ODOT Forms		Sean Parker		123
SOURCE NAME		SOURCE NUMBER		MATERIAL SIZE
Native		n/a		1"-0
TEST NO.	DATE / TIME	SAMPLED AT	MATERIAL DESCRIPTION	TO BE USED IN
1	10/9/2020 8:00am	15+45	Lt Brown Silty Clay	Embankment



TEST METHOD

T 99	T 180
X	

A or D A

SAMPLE

+ №4	4098.1
- №4	9231.6
Total	13329.7
Pc	**31 %**
+ ¾	1533.4
- ¾	11796.3
Total	13329.7
Pc	**12 %**

MAX DRY DENSITY OF THE FINES

ρ_f **106.5** lb/ft³

OPTIMUM MOISTURE OF THE FINES

MCf **16.5** %

TEST NO.	MASS OF MOLD AND MATERIALS (GRAMS)	MASS OF MOLD (GRAMS)	(M) MASS OF WET MATERIAL	WET DENSITY WD = (M)x(MF) lb/ft³	OVEN MOISTURE % AASHTO T255 / 265 Pan Tare (t)	WET(a)	DRY(b)	% M (m)	(D) DRY DENSITY lb/ft³
1	5964.80	4244.1	1720.70	113.8	130.2	358.4	334.0	**12.0**	**101.6**
2	6032.50	4244.1	1788.40	118.3	127.9	361.8	333.4	**13.8**	**104**
3	6104.20	4244.1	1860.10	123	128.5	382.0	347.4	**15.8**	**106.2**
4	6118.70	4244.1	1874.60	124	128.2	376.7	339.4	**17.7**	**105.4**
5	6090.50	4244.1	1846.40	122.1	129.5	372.2	331.9	**19.9**	**101.8**
6									
7									
8									

MOLD FACTOR (MF) **0.06614**

4 in MOLD = 0.06614
101.6mm MOLD = 1.060
6 in MOLD = 0.02939
152.4mm = 0.471

OVEN MOISTURE %

$(m) = \frac{(a) - (b)}{(b) - (t)} \times 100$

$(D) = \frac{(WD)}{(m)+100} \times 100$

AASHTO T85 SPECIFIC GRAVITY OF COARSE AGGREGATE	Oven Dry Mass (A)	SSD Mass (B)	Weight in Water (C)	**Gsb** (A) / [(B)-(C)]	**Gsb SSD** (B) / [(B)-(C)]	**Gsa** (A) / [(A)-(C)]	**ABSORPTION** [[(B)-(A)]/(A)]X100
	4001.7	4073.1	2498.4	2.541	2.587	2.662	1.8

COMMENTS

X **QUALITY CONTROL** ☐ **INDEPENDENT ASSURANCE**

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT	*Scott Aker*	10/9/20

MAXIMUM DENSITY OF CONSTRUCTION MATERIALS

PROJECT NAME (SECTION)					CONTRACT NUMBER
Forms Example					12345
CONTRACTOR OR SUPPLIER			PROJECT MANAGER		BID ITEM NUMBER
ODOT Forms			Sean Parker		123
SOURCE NAME			SOURCE NUMBER		MATERIAL SIZE
Native			n/a		1"-0
TEST NO.	DATE	TIME / SAMPLED AT	MATERIAL DESCRIPTION	TO BE USED IN	
1	10/9/2020	8:00am / 15+45	Lt Brown Silty Clay	Embankment	

AASHTO T 99 COARSE PARTICLE CORRECTION

RELATIVE MAXIMUM DRY DENSITY

100 / (Pf /ρ_f)+(Pc / k) = ρ_d

COMBINED OPTIMUM MOISTURE

(MCf x Pf + MCc x Pc) / 100 = MCT

Pf = 100 - Pc k = Gsb x 62.4

MCc = ABSORPTION OR MOISTURE

COARSE PARTICLES	RELATIVE MAXIMUM DRY DENSITY	COMBINED OPTIMUM MOISTURE	COARSE PARTICLES
0-9%	106.5	16.5	0-9%
10%	110.1	15.0	10%
11%	110.5	14.9	11%
12%	110.9	14.7	12%
13%	111.3	14.6	13%
14%	111.6	14.4	14%
15%	112	14.3	15%
16%	112.4	14.1	16%
17%	112.8	14.0	17%
18%	113.2	13.9	18%
19%	113.6	13.7	19%
20%	114	13.6	20%
21%	114.4	13.4	21%
22%	114.8	13.3	22%
23%	115.2	13.1	23%
24%	115.6	13.0	24%
25%	116	12.8	25%
26%	116.4	12.7	26%
27%	116.9	12.5	27%
28%	117.3	12.4	28%
29%	117.7	12.2	29%
30%	118.1	12.1	30%
31%	118.6	11.9	31%
32%	119	11.8	32%
33%	119.4	11.6	33%
34%	119.9	11.5	34%
35%	120.3	11.4	35%
36%	120.8	11.2	36%
37%	121.2	11.1	37%
38%	121.7	10.9	38%
39%	122.1	10.8	39%
40%	122.6	10.6	40%

TEST METHOD

T 99	T 180
X	

A or D: A

CURVE COARSE PARTICLES

+ №4: 31 %

+ ¾: 12 %

SOILS

MAX DRY DENSITY OF THE FINES

ρ_f: 106.5 lb/ft³

OPTIMUM MOISTURE % THE FINES

MCf: 16.5 %

MAX DRY DENSITY OF THE COURSE

k: 158.6 lb/ft³

OPTIMUM MOISTURE % THE COURSE

MCc: 1.8 %

X QUALITY CONTROL VERIFICATION

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT	Aker	10/9/20

MAXIMUM DENSITY OF AGGREGATE BASE MATERIALS [E] English (E) or Metric (M)

PROJECT NAME (SECTION)					CONTRACT NUMBER
CONTRACTOR OR SUPPLIER			PROJECT MANAGER		BID ITEM NUMBER
SOURCE NAME			SOURCE NUMBER		MATERIAL SIZE
TEST NO.	DATE	TIME	SAMPLED AT	MATERIAL DESCRIPTION	TO BE USED IN

lb/ft³						TEST METHOD **ODOT TM 223** **FOR AASHTO T 99 METHOD A**
lb/ft³						SAMPLE MAX DRY DENSITY OF THE FINES ρ_f ____ lb/ft³
lb/ft³						OPTIMUM MOISTURE % THE FINES MCf ____ %
lb/ft³						BASE AGG STOCKPILE STATSPEC MEAN #4 (4.75mm) Pc ____ %
lb/ft³						**COMBINED** **RELATIVE MAX DRY DENSITY** ρ_d ____ lb/ft³
lb/ft³						**OPTIMUM MOISTURE %** MC_T ____ %
%	%	%	%	%	%	

TEST NO.	MASS OF MOLD AND MATERIALS (grams)	MASS OF MOLD (grams)	(M) MASS OF WET MATERIAL	(WD) WET DENSITY lb/ft³	OVEN MOISTURE % AASHTO T255 / 265 Pan Tare (t)	WET(a)	DRY(b)	% M (m)	(D) DRY DENSITY lb/ft³
1									
2									
3									
4									
5									
6									
7									
8									

MOLD FACTOR ____

4" MOLD = 0.06614
101.6mm MOLD = 1.060
WD = (M) x MOLD FACTOR

OVEN MOISTURE %

$(m) = \frac{(a) - (b)}{(b) - (t)} \times 100$

$(D) = \frac{(WD)}{(m)+100} \times 100$

AASHTO T85
SPECIFIC GRAVITY OF COARSE AGGREGATE

Oven Dry Mass (A)	SSD Mass (B)	Weight in Water (C)	Gsb (A) / [(B)-(C)]	Gsb SSD (B) / [(B)-(C)]	Gsa (A) / [(A)-(C)]	ABSORPTION [[(B)-(A)]/(A)]X100

ODOT TM 223
COARSE PARTICLE CORRECTION

Pf = 100 - Pc k = Gsb x 62.4

MCc = ABSORPTION OR MOISTURE

$100 / ((Pf / \rho_f) + (Pc / (k \times 0.9))) = \rho_d$

100 /((____ / ____)+(____ / ____))= ρ_d

100 /((____)+(____))= ____

$((MCf \times Pf) + (MCc \times Pc)) / 100 = MCT$

((____ x ____)+(____ x ____))/ 100 = MC_T

((____)+(____))/ 100 = ____

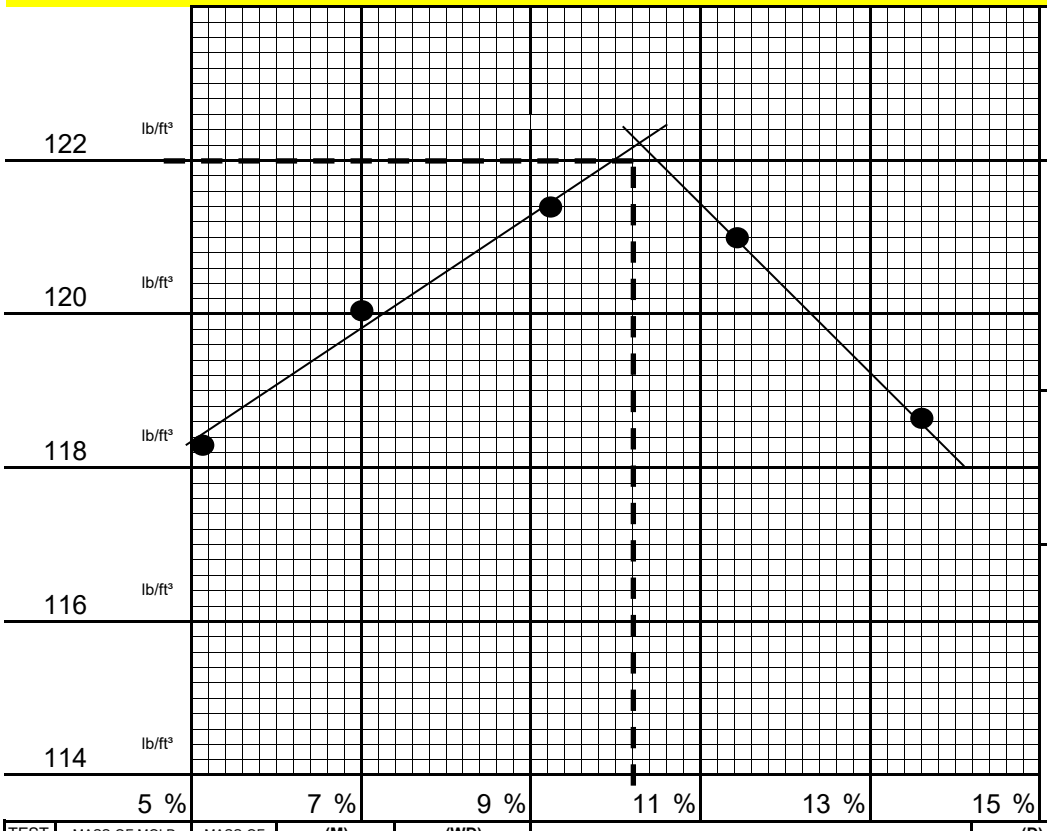
☐ QUALITY CONTROL ☐ INDEPENDENT ASSURANCE

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

MAXIMUM DENSITY OF AGGREGATE BASE MATERIALS

E English (E) or Metric (M)

PROJECT NAME (SECTION)					CONTRACT NUMBER
Forms Example					12345
CONTRACTOR OR SUPPLIER			PROJECT MANAGER		BID ITEM NUMBER
ODOT Forms			Sean Parker		123
SOURCE NAME			SOURCE NUMBER		MATERIAL SIZE
Best Rock Quarry			10-123-3		1"-0
TEST NO.	DATE	TIME	SAMPLED AT	MATERIAL DESCRIPTION	TO BE USED IN
1	10/9/2020	8:00am	Final Belt	Crushed Aggregate	Aggregate Base



TEST METHOD
ODOT TM 223
FOR AASHTO T 99 METHOD A

SAMPLE
MAX DRY DENSITY OF THE FINES
ρ_f 122.1 lb/ft³
OPTIMUM MOISTURE % THE FINES
MCf 10.2 %

BASE AGG STOCKPILE
STATSPEC MEAN #4 (4.75mm)
Pc 57 %

COMBINED
RELATIVE MAX DRY DENSITY
ρ_d **135.4** lb/ft³
OPTIMUM MOISTURE %
MC_T **6.2** %

TEST NO.	MASS OF MOLD AND MATERIALS (grams)	MASS OF MOLD (grams)	(M) MASS OF WET MATERIAL	(WD) WET DENSITY lb/ft³	OVEN MOISTURE % AASHTO T255 / 265 Pan Tare (t)	WET(a)	DRY(b)	% M (m)	(D) DRY DENSITY lb/ft³
1	6125.2	4244.1	1881.1	124.4	100.1	638.2	612.1	5.1	118.4
2	6188.4	4244.1	1944.3	128.6	99.9	660.2	623.5	7.0	120.2
3	6250.5	4244.1	2006.4	132.7	100.3	736.0	682.4	9.2	121.5
4	6284.3	4244.1	2040.2	134.9	100.5	668.0	609.9	11.4	121.1
5	6284.2	4244.1	2040.1	134.9	100.2	686.0	615.9	13.6	118.8
6									
7									
8									

MOLD FACTOR 0.06614

4" MOLD = 0.06614
101.6mm MOLD = 1.060
WD = (M) x MOLD FACTOR

OVEN MOISTURE %

$(m) = \frac{(a) - (b)}{(b) - (t)} \times 100$

$(D) = \frac{(WD)}{(m)+100} \times 100$

AASHTO T85
SPECIFIC GRAVITY OF COARSE AGGREGATE

Oven Dry Mass (A)	SSD Mass (B)	Weight in Water (C)	Gsb (A) / [(B)-(C)]	Gsb SSD (B) / [(B)-(C)]	Gsa (A) / [(A)-(C)]	ABSORPTION [(B)-(A)]/(A)]X100
4562.3	4701.9	2964.3	2.626	2.706	2.855	3.1

ODOT TM 223
COARSE PARTICLE CORRECTION

Pf = 100 - Pc k = Gsb x 62.4

MCc = ABSORPTION OR MOISTURE

100 / ((Pf / ρ_f) + (Pc / (k x 0.9))) = ρ_d

100 /((43 / 122.1)+(57 / 147.5))= ρ_d

100 /((0.35217)+(0.38644))= **135.4**

((MCf x Pf) + (MCc x Pc)) / 100 = MCT

((10.2 x 43)+(3.1 x 57))/ 100 = MC_T

((438.6)+(176.7))/ 100 = **6.2**

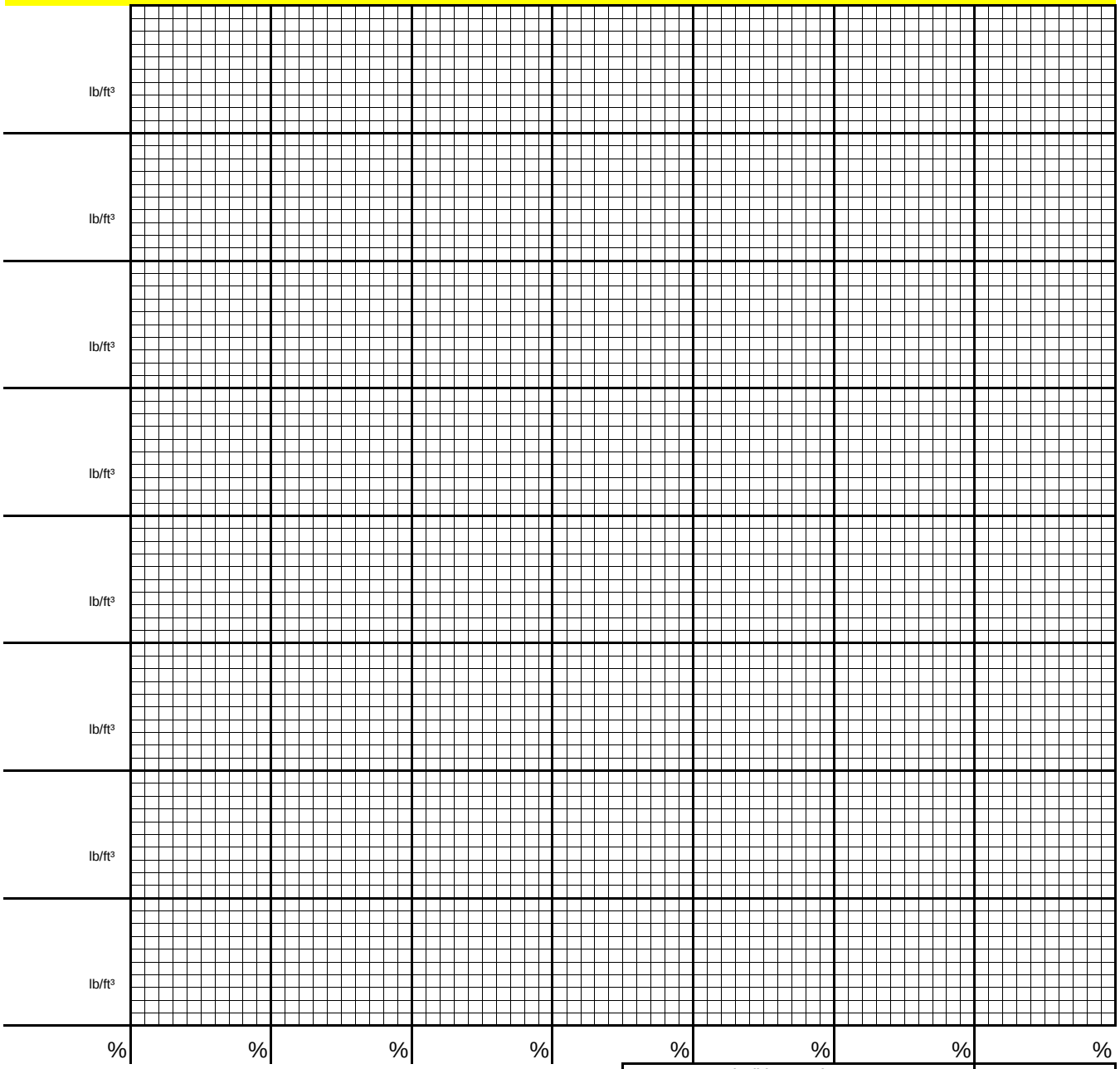
X QUALITY CONTROL ☐ INDEPENDENT ASSURANCE

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT	Scott Aker	10/9/2020

FAMILY OF CURVES

E English (**E**) Metric (**M**)

PROJECT NAME (SECTION)		CONTRACT NUMBER
CONTRACTOR OR SUPPLIER	PROJECT MANAGER	BID ITEM NUMBER



Gsb (k) = Gsb x 62.4	
MCc = Absorption or Moisture	

AASHTO T-99 **Method A** ☐ **Method D** ☐

Coarse-Grained		Fine-Grained		Color	
Sandy-Gravel	☐	Sand	☐	Light Brown	☐
Silty-Gravel	☐	Silt	☐	Med Brown	☐
Clayey-Gravel	☐	Clay	☐	Dark Brown	☐
				Redish Brown	☐

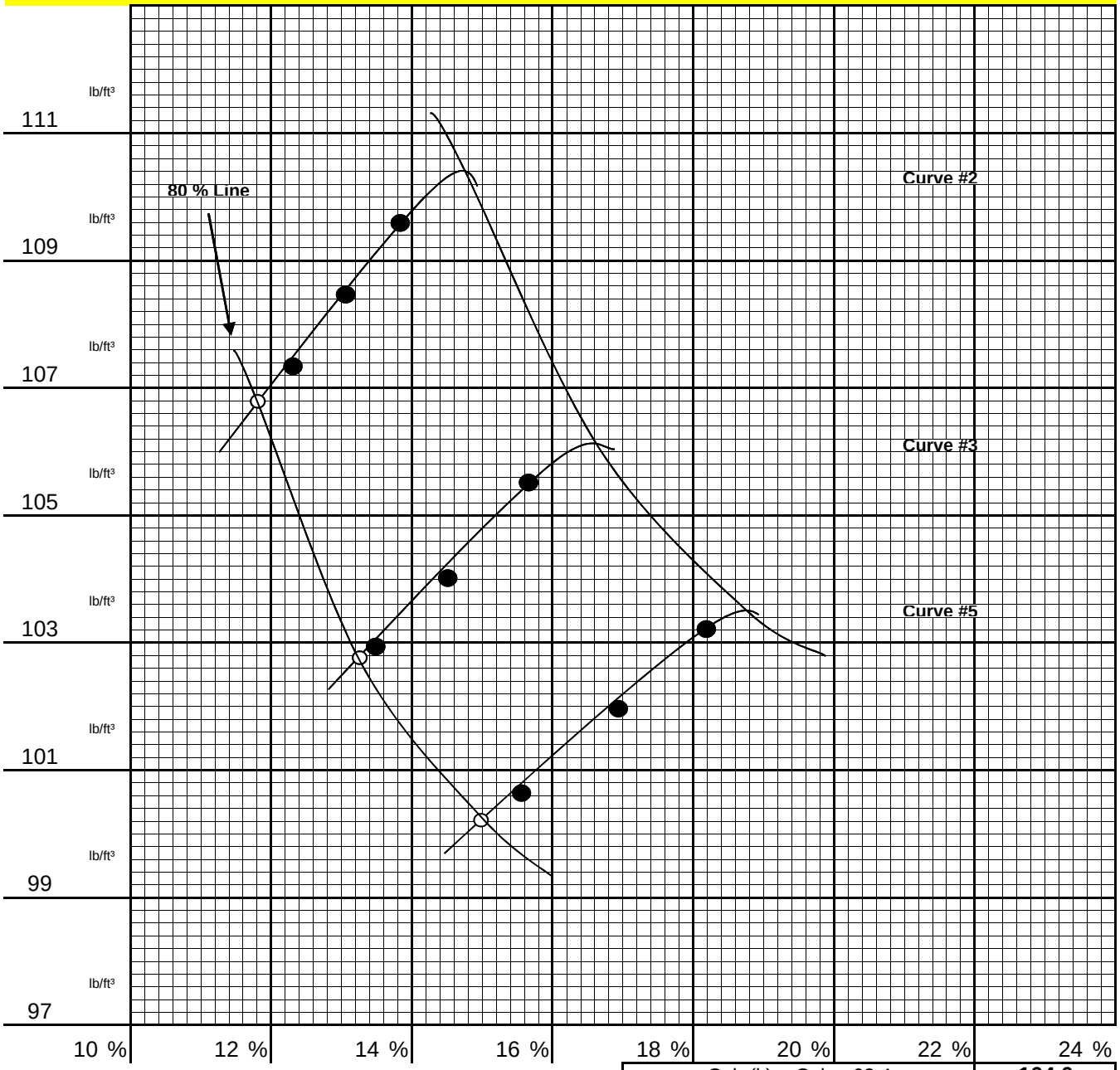
Comments:

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

FAMILY OF CURVES

E English (**E**) Metric (**M**)

PROJECT NAME (SECTION)		CONTRACT NUMBER
Forms Example		12345
CONTRACTOR OR SUPPLIER	**PROJECT MANAGER**	**BID ITEM NUMBER**
ODOT Forms	Sean Parker	123



Gsb (k) = Gsb x 62.4	**164.0**
MCc = Absorption or Moisture	**2.2%**

AASHTO T-99 **Method A** [x] **Method D** [ ]

Coarse-Grained		Fine-Grained		Color	
Sandy-Gravel	x	Sand		Light Brown	
Silty-Gravel		Silt		Med Brown	x
Clayey-Gravel		Clay		Dark Brown	
				Redish Brown	

Comments:

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT		10/10/2012

CONCRETE YIELD AND W/C RATIO WORKSHEET

PROJECT NAME (SECTION)			CONTRACT NUMBER
CONTRACTOR	PROJECT MANAGER		BID ITEM NUMBER
CONCRETE SUPPLIER	SUBMITTED BY		QUANTITY REPRESENTED yd³
CONCRETE FOR USE IN (LOCATION OR PLACEMENT)	BRIDGE NUMBER	SPECIFIED STRENGTH PSI @ DAYS	

DATA SHEET NUMBER	SET NUMBER	DATE	INVOICE NUMBER	BATCH SIZE	TRUCK NO & DRIVER

CONCRETE BATCH TICKET AND FIELD TEST DATA

CEMENTITIOUS MATERIAL		*AGGREGATES*			AGG % FREE MOISTURE
CEMENT	lb	#1		lb	%
SLAG	lb	#2		lb	%
FLYASH	lb	#3		lb	%
SILICA FUME	lb	FINE AGG (SAND) #4		lb	%
TOTAL CEMENT	**lb**	**TOTAL AGG**		**lb**	

ADMIXTURES			
	1		oz
	2		oz
ADD WATER	3		oz
	4		oz
TOTAL ADMIXTURES			oz
TOTAL ADMIXTURES			**lb**

ADD WATER		
BATCHED		lb
JOBSITE		lb
TOTAL WATER		**lb**

CONVERSIONS

WATER
Gal x 8.34 = lb
Admixtures
oz / 16 = lb

TOTAL BATCH MASS _____ **lb**

PLASTIC PROPERTIES

TIME CYLINDERS CAST _____ **AMBIENT** _____ °F **SLUMP** _____ in

CONCRETE _____ °F **AIR** _____ %

DENSITY

CONCRETE + POT _____ lb

- POT MASS _____ lb

CONCRETE MASS= _____ lb ÷ POT CALIBRATION = _____ lb/ft³

YIELD TOTAL BATCH MASS = _____

lb/ft³ x 27 = _____ = _____ lb/ft³

CEMENT CONTENT CEMENT, FLYASH & SILICA = _____

YIELD = _____ = _____ lb/ft³

WATER CEMENT RATIO A. AGGREGATE FREE WATER (FREE MOISTURE FACTOR = % FREE MOISTURE DIVIDED BY 100. EG. : 5.5% = 0.055)

BATCH MASS - (BATCH MASS / (1+ FREE MOISTURE FACTOR)) =AGG. FREE WATER

W/C RATIO= TOTAL FREE WATER (A+B+C) / TOTAL CEMENT & FLYASH

	#1	_____	- (	_____	/ 1+	_____) =	_____ lb
	#2	_____	- (	_____	/ 1+	_____) =	_____ lb
	#3	_____	- (	_____	/ 1+	_____) =	_____ lb
FINE AGG (SAND)	#4	_____	- (	_____	/ 1+	_____) =	_____ lb

A. AGGREGATE FREE WATER TOTAL = _____ lb

_____ lb = _____ **= W/C RATIO**

B. WATER ADDED AT PLANT&JOBSITE = _____ lb

lb C. ADMIXTURES ADDED = _____ lb

☐ QUALITY CONTROL ☐ VERIFICATION

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

CONCRETE YIELD AND W/C RATIO WORKSHEET

PROJECT NAME (SECTION)					CONTRACT NUMBER
Forms Example					12345
CONTRACTOR		PROJECT MANAGER			BID ITEM NUMBER
ODOT Forms		Sean Parker			123
CONCRETE SUPPLIER		SUBMITTED BY			QUANTITY REPRESENTED
The Best Ready Mix		Scott Aker			150 yd³
CONCRETE FOR USE IN (LOCATION OR PLACEMENT)		BRIDGE NUMBER		SPECIFIED STRENGTH	
Deck		1234a		5000 PSI @ 28 DAYS	
DATA SHEET NUMBER	SET NUMBER	DATE	INVOICE NUMBER	BATCH SIZE	TRUCK NO & DRIVER
F-43048-001	1	10/10/12	123456	9.00yd3	#21 T. Driver

CONCRETE BATCH TICKET AND FIELD TEST DATA

CEMENTITIOUS MATERIAL			*AGGREGATES*			AGG % FREE MOISTURE	
CEMENT	4735	lb	3/4" Round #1	17600	lb	0.30	%
SLAG	165	lb	#2		lb		%
FLYASH	2000	lb	#3		lb		%
SILICA FUME	288	lb	FINE AGG (SAND) #4	10080	lb	7.90	%
TOTAL CEMENT	**7188**	**lb**	**TOTAL AGG**	**27680**	**lb**		

ADMIXTURES			
Rheobuild	1	580	oz
997	2	512	oz
AE-90	3	64	oz
	4		oz
TOTAL ADMIXTURES		1156	oz
TOTAL ADMIXTURES		**72**	**lb**

ADD WATER		
BATCHED	1186	lb
JOBSITE		lb
TOTAL WATER	**1186**	**lb**

TOTAL BATCH MASS **36126** **lb**

CONVERSIONS

WATER
Gal x 8.34 = lb
Admixtures
oz / 16 = lb

PLASTIC PROPERTIES

TIME CYLINDERS CAST 11:30 AM

AMBIENT 40.5 °F **CONCRETE** 61 °F

SLUMP 6 1/2 in **AIR** 4.9 %

DENSITY

CONCRETE + POT	43.90	lb					
- POT MASS	7.68	lb					
CONCRETE MASS=	36.22	lb	÷ POT CALIBRATION	0.249900	=	**144.9**	lb/ft³

YIELD TOTAL BATCH MASS = 36126

lb/ft³ x 27 = 3912.30 = **9.23** lb/ft³

CEMENT CONTENT CEMENT, FLYASH & SILICA = 7188 / YIELD = 9.23 = **779** lb/ft³

WATER CEMENT RATIO

A. AGGREGATE FREE WATER (FREE MOISTURE FACTOR = % FREE MOISTURE DIVIDED BY 100. EG. : 5.5% = 0.055)

BATCH MASS - (BATCH MASS / (1+ FREE MOISTURE FACTOR)) =AGG. FREE WATER

W/C RATIO= TOTAL FREE WATER (A+B+C) / TOTAL CEMENT & FLYASH

3/4" Round	#1	17600	- (	17600	/ 1+	0.0030	) =	53 lb
	#2		- (		/ 1+		) =	lb
	#3		- (		/ 1+		) =	lb
FINE AGG (SAND)	#4	10080	- (	10080	/ 1+	0.0790	) =	738 lb

A. AGGREGATE FREE WATER TOTAL = 791 lb

2049 lb = **0.29** = **W/C RATIO**

B. WATER ADDED AT PLANT&JOBSITE = 1186 lb

7188 lb

C. ADMIXTURES ADDED = 72 lb

☐ QUALITY CONTROL ☐ VERIFICATION

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

SAMPLE DATA SHEET

LABORATORY REPORT NUMBER

* CON NO. & EA	* DATA SHEET NUMBER	
	F - -	
PROJECT NAME (SECTION)		CONTRACT NUMBER
C0NTRACTOR OR SUPPLIER	PROJECT MANAGER	CREW NUMBER

COMPLETE THIS SECTION FOR ALL SAMPLES **One Data Sheet Per Asphalt Cement Type or Aggregate Size**

* MATERIAL (DESCRIPTION, SIZE, GRADE, BRAND)	* USE OF MATERIAL	
* SOURCE OF MATERIAL (MANUFACTURER, SUPPLIER, OR SOURCE NO. & NAME FOR NATURAL MATERIALS)	SAMPLED AT (LOCATION OR STATION NUMBERS)	
NUMBER OF SAMPLES (BAGS, BOXES, OTHER)	QUANTITY REPRESENTED BY SAMPLE	DATE SAMPLED
* CLASS OF SAMPLE		DATE SHIPPED
☐ QUALITY CONTROL ☐ VERIFICATION ☐ THIRD PARTY	BID ITEM NUMBER	SAMPLE NUMBER
☐ SOURCE/PRODUCT COMPLIANCE ☐ OTHER (SPECIFY IN REMARKS)		
* FIELD TESTED OR SUBMITTED BY (PRINT NAME)	SIGNATURE	
COMPANY NAME		
STREET ADDRESS	CREW NUMBER	
CITY, STATE AND ZIP CODE	* PHONE NUMBER	
* PROJECT CONTACT PERSON	* CONTACT PHONE NUMBER	

* ACP MIX DESIGN no.	
ODOT LAB/JMF#	CONTRACTOR MIX #
ASPHALT CEMENT	
** Lot & Sublot	** Date

REMARKS / SPECIAL REQUIREMENTS

Note: *** Required information. If information is missing, testing will be delayed.**

**** Additional information required for Asphalt Cement samples.**

SAMPLE DATA SHEET

LABORATORY REPORT NUMBER

* CON NO. & EA	* DATA SHEET NUMBER	
CON01111	F - 43048 - 001	

PROJECT NAME (SECTION)	CONTRACT NUMBER
Form Example	12345

CONTRACTOR OR SUPPLIER	PROJECT MANAGER	CREW NUMBER
ODOT Forms	Sean Parker	1234

COMPLETE THIS SECTION FOR ALL SAMPLES **One Data Sheet Per Asphalt Cement Type or Aggregate Size**

* MATERIAL (DESCRIPTION, SIZE, GRADE, BRAND)	* USE OF MATERIAL
PG 64 - 28	Base & Leveling 1/2" HMAC

* SOURCE OF MATERIAL (MANUFACTURER, SUPPLIER, OR SOURCE NO. & NAME FOR NATURAL MATERIALS)	SAMPLED AT (LOCATION OR STATION NUMBERS)
Albina	Truck at Plant

NUMBER OF SAMPLES (BAGS, BOXES, OTHER)	QUANTITY REPRESENTED BY SAMPLE	DATE SAMPLED
12 cans	1 per 1000 ton HMAC sublot	10/18/2012

* CLASS OF SAMPLE

DATE SHIPPED: 10/19/2012

[X] QUALITY CONTROL [ ] VERIFICATION [ ] THIRD PARTY

[ ] SOURCE/PRODUCT COMPLIANCE [ ] OTHER (SPECIFY IN REMARKS)

BID ITEM NUMBER: 580

SAMPLE NUMBER: see below

* FIELD TESTED OR SUBMITTED BY (PRINT NAME)	SIGNATURE
Scott Aker	
COMPANY NAME: Eek Testers LLC	
STREET ADDRESS: 123 Hwy St	CREW NUMBER: 1234
CITY, STATE AND ZIP CODE: Roseburg, OR 97470	* PHONE NUMBER: (123)123-1234
* PROJECT MANAGER CONTACT: John Consultant #98764	* CONTACT PHONE NUMBER: (321) 321-4321

* ACP MIX DESIGN no.	
ODOT LAB/JMF#	CONTRACTOR MIX #
10-MD0001	AS30RL4.1
ASPHALT CEMENT	
** Lot & Sublot	** Date
1-1	10/16/2012
1-2	10/16/2012
1-3	10/17/2012
1-4	10/17/2012
1-5	10/18/2012
2-1	10/18/2012

REMARKS / SPECIAL REQUIREMENTS

"The EA (or Con Number), Data sheet number, grade of the material (i.e. "PG 64-22"), name of the oil manufacturer, class of sample, lot and sublot, date, submitted by name and contact number, and project contact person name and contact number is required for the sample to be accepted. Only one type of sample may be submitted per Sample Data Sheet."

Please make sure to label the SAMPLE containers with;
Product
ID (CSS 1 Tack or 19 mm Base Agg),

Test number (Lot & Sublot), Date, and Data Sheet Number.

In a manner that will with stand the elements
(water, wind, and wild shipping companies).

Note: * Required information. If information is missing, testing will be delayed.

**** Additional information required for Asphalt Cement samples.**

SAMPLE DATA SHEET

LABORATORY REPORT NUMBER

* CON NO. & EA	* DATA SHEET NUMBER	
CON01111	F - 43048 - 001	

PROJECT NAME (SECTION)	CONTRACT NUMBER
Form Example	

CONTRACTOR OR SUPPLIER	PROJECT MANAGER	CREW NUMBER
ODOT Forms	Sean Parker	1234

COMPLETE THIS SECTION FOR ALL SAMPLES **One Data Sheet Per Asphalt Cement Type or Aggregate Size**

* MATERIAL (DESCRIPTION, SIZE, GRADE, BRAND)	* USE OF MATERIAL
3/4"-0	Base Aggregate

* SOURCE OF MATERIAL (MANUFACTURER, SUPPLIER, OR SOURCE NO. & NAME FOR NATURAL MATERIALS)	SAMPLED AT (LOCATION OR STATION NUMBERS)
Newton Creek Quarry 10-216-3	Final Belt

NUMBER OF SAMPLES (BAGS, BOXES, OTHER)	QUANTITY REPRESENTED BY SAMPLE	DATE SAMPLED
2 Bags	Annual Compliance	10/18/2012

* CLASS OF SAMPLE

DATE SHIPPED: 10/19/2012

☐ QUALITY CONTROL ☐ VERIFICATION ☐ THIRD PARTY

☒ SOURCE/PRODUCT COMPLIANCE ☐ OTHER (SPECIFY IN REMARKS)

BID ITEM NUMBER: 550

SAMPLE NUMBER:

* FIELD TESTED OR SUBMITTED BY (PRINT NAME)	SIGNATURE
Scott Aker	
COMPANY NAME: Eek Testers LLC	
STREET ADDRESS: 123 Hwy St	CREW NUMBER: 1234
CITY, STATE AND ZIP CODE: Roseburg, OR 97470	* PHONE NUMBER: (123)123-1234
* PROJECT CONTACT PERSON: John Consultant #98764	* CONTACT PHONE NUMBER: (321) 321-4321

* ACP MIX DESIGN no.	
ODOT LAB/JMF#	CONTRACTOR MIX #

ASPHALT CEMENT

** Lot & Sublot	** Date

REMARKS / SPECIAL REQUIREMENTS

"The EA (or Con Number), Data sheet number, size of material (i.e. 3/4" - 1/4"), source number, use of material (i.e. "Base Rock"), class of sample, submitted by name and contact number, and project contact person name and contact number is required for the sample to be accepted. Only one type of sample may be submitted per Sample Data Sheet."

Note: * Required information. If information is missing, testing will be delayed.

**** Additional information required for Asphalt Cement samples.**

SAMPLE DATA SHEET

LABORATORY REPORT NUMBER

* CON NO. & EA	* DATA SHEET NUMBER	
CON01111	F - 43048 - 001	

PROJECT NAME (SECTION)	CONTRACT NUMBER
Form Example	12345

CONTRACTOR OR SUPPLIER	PROJECT MANAGER	CREW NUMBER
ODOT Forms	Sean Parker	1234

COMPLETE THIS SECTION FOR ALL SAMPLES **One Data Sheet Per Asphalt Cement Type or Aggregate Size**

* MATERIAL (DESCRIPTION, SIZE, GRADE, BRAND)	* USE OF MATERIAL
L3 1/2" Dense HMAC	Base and Leveling

* SOURCE OF MATERIAL (MANUFACTURER, SUPPLIER, OR SOURCE NO. & NAME FOR NATURAL MATERIALS)	SAMPLED AT (LOCATION OR STATION NUMBERS)
Industry Standard LLC	Plant Discharge

NUMBER OF SAMPLES (BAGS, BOXES, OTHER)	QUANTITY REPRESENTED BY SAMPLE	DATE SAMPLED
2 10,000g Boxes		10/18/2012

* CLASS OF SAMPLE

DATE SHIPPED: 10/19/2012

[ ] QUALITY CONTROL [ ] VERIFICATION [ ] THIRD PARTY

[ ] SOURCE/PRODUCT COMPLIANCE [X] OTHER (SPECIFY IN REMARKS)

BID ITEM NUMBER: 570

SAMPLE NUMBER:

* FIELD TESTED OR SUBMITTED BY (PRINT NAME)	SIGNATURE
Scott Aker	

COMPANY NAME	
Eek Testers LLC	

STREET ADDRESS	CREW NUMBER
123 Hwy St	1234

CITY, STATE AND ZIP CODE	* PHONE NUMBER
Roseburg, OR 97470	(123)123-1234

* PROJECT CONTACT PERSON	* CONTACT PHONE NUMBER
John Consultant #98764	(321) 321-4321

* ACP MIX DESIGN no.	
ODOT LAB/JMF#	CONTRACTOR MIX #
10-MD0001	AS30RL3.1
ASPHALT CEMENT	
** Lot & Sublot	** Date

REMARKS / SPECIAL REQUIREMENTS

"The EA (or Con Number), Data sheet number, material (i.e. "level 3 HMAC"), use of material (i.e. "Base lift"), class of sample, Mix Design Info., submitted by name and contact number, and project contact person name and contact number is required for the sample to be accepted. Only one type of sample may be submitted per Sample Data Sheet."

(Example)
2 boxes of mix for testing per AASHTO T308,AASHTO T30 and AASHTO T209.

Note: *** Required information. If information is missing, testing will be delayed.**

**** Additional information required for Asphalt Cement samples.**

SAMPLE DATA SHEET FOR CONCRETE CYLINDERS

E English (E) or Metric (M)

* CON NO. & EA	* DATA SHEET NUMBER	LABORATORY REPORT NUMBER
	F - -	

PROJECT NAME (SECTION)	CONTRACT NUMBER

C0NTRACTOR	PROJECT MANAGER	BID ITEM NUMBER

CONCRETE SUPPLIER	* SUBMITTED BY	QUANTITY REPRESENTED
		yd³

CONCRETE FOR USE IN (LOCATION OR PLACEMENT)	BRIDGE NUMBER	* SPECIFIED STRENGTH
		PSI DAYS

REPRESENTED BY NO. OF CYLS.	SET NUMBER	* DATE CAST	DATE SHIPPED	CYLINDER SIZE	INVOICE NUMBER

* TEST SPECIMENS AT DAYS INDICATED								YIELD
A.	B.	C.	D.	E.	F.	G.	H.	yd³

* MIX DESIGN	* ODOT LAB / MIX DESIGN NUMBER	* CONCRETE SUPPLIER MIX DESIGN NUMBER	* DESIGN CEMENTITIOUS MATERIAL CONTENT	* FREE (SURFACE) MOISTURE			
			lb/yd³	* COARSE #1 %	* COARSE #2 %	* COARSE #3 %	* SAND %

* AMBIENT TEMP.	* CONCRETE TEMP	* SLUMP	* AIR CONTENT	* UNIT WEIGHT	* CEMENTITIOUS MAT. CONTENT	* FIELD W/C RATIO
°F	°F	in	%	lb/ft³	lb/yd³	BY WT.

* ADDITIVES	* CEMENT	* FLYASH	* SILICA	* WATER BATCHED	* NET WEIGHT	* POT CALIBRATION
oz	lb	lb	lb	lb		

* AGGREGATE #1	* AGGREGATE #2	* AGGREGATE #3	* FINE AGG (SAND)	* WATER AT JOB	* CURING	* CAPPING
lb	lb	lb	lb	lb		

* PROJECT CONTACT PERSON	* CONTACT PHONE NUMBER	* TIME CYL CAST	* LOW TEMP.	* HIGH TEMP.
			°F	°F

FIELD REMARKS

☐ QUALITY CONTROL ☐ VERIFICATION ☐ INFO *** PHONE No.** FAX No.

T 23 CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

LAB USE ONLY BELOW

CYLINDER ID	DATE OF BREAK	AGE DAYS	MAXIMUM LOAD	CYLINDER AREA	STRENGTH PSI	COMPOUND TYPE / PAD DUROMETER	BREAK TYPE	REMARKS
A								
B								
C								
D								
E								
F								
G								
H								

AVE _____ DAY ☐ PSI ☐ PASS ☐ FAIL

COMMENTS (WHEN MATERIAL ,CYLINDERS OR DATA RECEIVED)

☐ QUALITY CONTROL ☐ VERIFICATION CYLINDERS REC'D DATA SHEET RECD

T 22 CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

Note: * Required information. If this information is missing, testing will be delayed.

734-4000_C (10-2012)

SAMPLE DATA SHEET FOR CONCRETE CYLINDERS

E — English (E) or Metric (M)

* CON NO. & EA	* DATA SHEET NUMBER	LABORATORY REPORT NUMBER
CON01234	F - 43048 - 001	

PROJECT NAME (SECTION)	CONTRACT NUMBER
Forms Example	12345

CONTRACTOR	PROJECT MANAGER	BID ITEM NUMBER
ODOT Forms	Sean Parker	123

CONCRETE SUPPLIER	* SUBMITTED BY	QUANTITY REPRESENTED
The Best Ready Mix	Scott Aker	150 yd³

CONCRETE FOR USE IN (LOCATION OR PLACEMENT)	BRIDGE NUMBER	* SPECIFIED STRENGTH
Deck	1234a	5000 PSI 28 DAYS

REPRESENTED BY NO. OF CYLS.	SET NUMBER	* DATE CAST	DATE SHIPPED	CYLINDER SIZE	INVOICE NUMBER
5	1	10/10/12	10/11/12	4" x 8"	123456

* TEST SPECIMENS AT DAYS INDICATED								YIELD
A. 7	B. 14	C. 28	D. 28	E. 28	F.	G.	H.	9.23 yd³

* MIX DESIGN	* ODOT LAB / MIX DESIGN NUMBER	* CONCRETE SUPPLIER MIX DESIGN NUMBER	* DESIGN CEMENTITIOUS MATERIAL CONTENT	* FREE (SURFACE) MOISTURE			
				* COARSE #1	* COARSE #2	* COARSE #3	* SAND
	08-0001	BRMHPC5000FM	780 lb/yd³	0.30 %	%	%	7.90 %

* AMBIENT TEMP.	* CONCRETE TEMP	* SLUMP	* AIR CONTENT	* UNIT WEIGHT	* CEMENTITIOUS MAT. CONTENT	* FIELD W/C RATIO
40.5 °F	60.5 °F	6 1/2" in	4.9 %	144.9 lb/ft³	779 lb/yd³	0.29 BY WT.

* ADDITIVES	* CEMENT	* FLYASH	* SILICA	* WATER BATCHED	* NET WEIGHT	* POT CALIBRATION
1156 oz	4735 lb	2165 lb	288 lb	1186 lb	36.22	0.249900

* AGGREGATE #1	* AGGREGATE #2	* AGGREGATE #3	* FINE AGG (SAND)	* WATER AT JOB	* CURING	* CAPPING
17600 lb	0 lb	0 lb	10080 lb	0 lb	Tank	Pad

* PROJECT CONTACT PERSON	* CONTACT PHONE NUMBER	* TIME CYL CAST	* LOW TEMP.	* HIGH TEMP.
John Consultant	123-123-1234	7:30am	65 °F	75 °F

FIELD REMARKS

"The EA (or Con Number), Data sheet number, specified strength, date cast, the number of days to test the specimens, and the field test results including the curing and capping methods, submitted by name and contact number, and project contact person name and contact number is required for the sample to be accepted. Only one type of sample may be submitted per Sample Data Sheet."

X QUALITY CONTROL ☐ VERIFICATION ☐ INFO *** PHONE No.** 123-123-1234 FAX No. 123-123-9876

T 23 CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT		10/10/12

LAB USE ONLY BELOW

CYLINDER ID	DATE OF BREAK	AGE DAYS	MAXIMUM LOAD	CYLINDER AREA	STRENGTH PSI	COMPOUND TYPE / PAD DUROMETER	BREAK TYPE	REMARKS
A	10/17/12	7	52500	12.56	4180	60	Shear	
B	10/24/12	14	59500	12.56	4740	60	Shear	
C	11/07/12	28	69540	12.56	5540	60	Cone	
D	11/07/12	28	70330	12.56	5600	60	Shear	
E	11/07/12	28	71850	12.56	5720	60	Shear	
F								
G								
H								

AVE 28 DAY 5620 PSI X PASS ☐ FAIL

COMMENTS (WHEN MATERIAL ,CYLINDERS OR DATA RECEIVED)

X QUALITY CONTROL ☐ VERIFICATION CYLINDERS REC'D 10/11/2012 DATA SHEET RECD 10/11/2012

T 22 CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT		11/7/2012

Note: *** Required information. If this information is missing, testing will be delayed.**

SAMPLE DATA SHEET (NONFIELD-TESTED MATERIALS)

* CON NO. & EA	* DATA SHEET NUMBER	LABORATORY REPORT NUMBER
	F - -	

PROJECT NAME (SECTION)	CONTRACT NUMBER

CONTRACTOR OR SUPPLIER	PROJECT MANAGER	CREW NUMBER

* SUBMITTED BY (PRINT NAME)	SIGNATURE
COMPANY NAME	
STREET ADDRESS	CREW NUMBER
CITY, STATE AND ZIP CODE	* PHONE NUMBER
* PROJECT CONTACT PERSON	* CONTACT PHONE NUMBER

SUPPORTING WORKSHEETS

☐ ATTACHED ☐ FAXED ☐ MAILED ☐ E-MAIL

DATE SHIPPED

CLASS OF SAMPLE

☐ QUALITY CONTROL ☐ VERIFICATION ☐ OTHER (SPECIFY IN REMARKS)

BID ITEM NUMBER

Description Of Item	Mfg - Source	Qty	Heat #	Lot #	LAB USE ONLY

REMARKS / SPECIAL REQUIREMENTS

Note: *** Required information. If this information is missing, testing will be delayed.**

SAMPLE DATA SHEET (NONFIELD-TESTED MATERIALS)

LABORATORY REPORT NUMBER

* CON NO. & EA	* DATA SHEET NUMBER
OTIA-S006(44) / 2142B005	F - 43048 - 123

PROJECT NAME (SECTION)	CONTRACT NUMBER
Forms Example	12345

CONTRACTOR OR SUPPLIER	PROJECT MANAGER	CREW NUMBER
ODOT Forms Example	Sean Parker	1234

* SUBMITTED BY (PRINT NAME)	SIGNATURE
Scott Aker	
COMPANY NAME	
ODOT	
STREET ADDRESS	CREW NUMBER
123 State Highway	1234
CITY, STATE AND ZIP CODE	* PHONE NUMBER
Salem, OR 97301	(123) 123-1234
* PROJECT CONTACT PERSON	* CONTACT PHONE NUMBER
John Consultant	(567) 567-5678

SUPPORTING WORKSHEETS

[ ] ATTACHED [X] FAXED [ ] MAILED [ ] E-MAIL

DATE SHIPPED: 10/10/2012

CLASS OF SAMPLE

[X] QUALITY CONTROL [ ] VERIFICATION [ ] OTHER (SPECIFY IN REMARKS)

BID ITEM NUMBER: 123

Description Of Item	Mfg - Source	Qty	Heat #	Lot #	LAB USE ONLY
2" x 48" Anchor Rod	Sheffield	24	510034	1812	
2" Nut	Dyson	48	51004	YDAX	
2" Washer	Binder	48	1412	S7914	
7/8" x 3" Bolt	Nucor	53	911105	D1865	
7/8" Nut	Unytite	137	74015	7845	
7/8" Washer	Binder	142	H4215	X4831	

REMARKS / SPECIAL REQUIREMENTS

"The EA (or Con Number), Data sheet number, submitted by name and contact number, and project contact person name and contact number is required for the sample to be accepted. Only one type of sample may be submitted per Sample Data Sheet. Must supply Certification of Heat Numbers for all materials.

(ALL BOLT KITS MUST BE BROKEN DOWN TO BOLT, NUT, WASHER).

Note: *** Required information. If this information is missing, testing will be delayed.**

SAMPLE DATA SHEET (NONFIELD-TESTED MATERIALS)

LABORATORY REPORT NUMBER

* CON NO. & EA	* DATA SHEET NUMBER	
EA or Con Number	**F - 43048 - 123**	

PROJECT NAME (SECTION)		CONTRACT NUMBER
Form Example		12345
C0NTRACTOR OR SUPPLIER	**PROJECT MANAGER**	**CREW NUMBER**
ODOT Forms Example	Rodney Smith	1234

* SUBMITTED BY (PRINT NAME)	SIGNATURE
Scott Aker	
COMPANY NAME	
ODOT	
STREET ADDRESS	CREW NUMBER
123 State Highway	
CITY, STATE AND ZIP CODE	* PHONE NUMBER
Salem, Oregon	541-123-1234
* PROJECT CONTACT PERSON	* CONTACT PHONE NUMBER
John Consulant	567-203-1235

SUPPORTING WORKSHEETS

[ ] ATTACHED [ ] FAXED [ ] MAILED [ ] E-MAIL

DATE SHIPPED: 10/10/2012

CLASS OF SAMPLE

[X] QUALITY CONTROL [ ] VERIFICATION [ ] OTHER (SPECIFY IN REMARKS)

BID ITEM NUMBER: 11

Description Of Item	Mfg - Source	Qty	Heat #	Lot #	LAB USE ONLY
# 10 Mechanical Splice	Erico	3		6171	
L-Splice					
# 8 Mech. Splice	Dayton	1		4325	
SCA Splice					
#5 Form Saver Splice	Superior	3		1743	

REMARKS / SPECIAL REQUIREMENTS

Indicate if samples are to be used for installer qualification or for production.
Suppy installer's name for each size of splice.

3 samples of each size and type to qualify an installer (530.30)
1 sample per 100 for production (530.42)
All sample sizes 8-feet total length

Note: *** Required information. If this information is missing, testing will be delayed.**

QC/QA TESTING INVESTIGATION

PROJECT NAME (SECTION)		CONTRACT NUMBER
CONTRACTOR OR SUPPLIER	PROJECT MANAGER	BID ITEM NUMBER
MATERIAL DESCRIPTION	SOURCE NAME & NUMBER IF APPLICABLE	
QA TEST NUMBER ID. / QC TEST NUMBER ID.	TEST PROCEDURE OR PROCESS UNDER INVESTIGATION	

☐ **FAILED I.A. PARAMETERS**

☐ **QA FAILED VERIFICATION**

☐ **QC FAILED VERIFICATION**

☐ **QUESTIONABLE QC HISTORY**

INVESTIGATION DESCRIPTION: ☐ CONTINUED ON ADDITIONAL SHEETS

INVESTIGATION SUMMARY: ☐ CONTINUED ON ADDITIONAL SHEETS

CONCLUSION / RESOLUTION: ☐ CONTINUED ON ADDITIONAL SHEETS

COMMENTS OR FOLLOW-UPS: ☐ CONTINUED ON ADDITIONAL SHEETS

INDIVIDUAL PERFORMING INVESTIGATION (PLEASE PRINT)	COMPANY NAME	SIGNATURE	DATE
PROJECT MANAGER or CPM REVIEW/APPROVAL (PLEASE PRINT)	COMPANY NAME	SIGNATURE	DATE

Distribution: QAC, QC, PM, CPM, QAE and Project File

734-4040-2012

QC/QA TESTING INVESTIGATION

PROJECT NAME (SECTION)		CONTRACT NUMBER
A Bridge Too Far		C12889
CONTRACTOR OR SUPPLIER	**PROJECT MANAGER**	**BID ITEM NUMBER**
Black and Sticky	John Behold	745
MATERIAL DESCRIPTION	**SOURCE NAME & NUMBER IF APPLICABLE**	
Level 3, 1/2" Dense Graded HMAC	Hard Rock, Source # 2-889-65	
QA TEST NUMBER ID. / **QC TEST NUMBER ID.**	**TEST PROCEDURE OR PROCESS UNDER INVESTIGATION**	
QA-V1 / QC-V1	HMAC Density Testing	

	FAILED I.A. PARAMETERS	X	**QA FAILED VERIFICATION**
	QC FAILED VERIFICATION		**QUESTIONABLE QC HISTORY**

INVESTIGATION DESCRIPTION: CONTINUED ON ADDITIONAL SHEETS

On October 15, 2006 Region QA performed verification testing (QA-V1) on a Level3, 1/2" Dense Graded HMAC. The contractor had placed 3005.26 tons of material on this date and had performed density testing for 3 sublots of HMAC. QA testing represented 1000 tons of HMAC and spanned testing performed by QC through sublots 1 & 2. The QC results showed all density measurements meeting and exceeding the contract criteria for a base lift application of (91.0%). QC testing showing an overall average for all 3 sublots to be (91.9%). The QA testing showed failing density in their represented area with an average compaction of 89.2%. QA had shot several of the QC existing locations and still had approximately a 2% difference. QA did indicate the QC technician was performing the testing according to the test procedure.

INVESTIGATION SUMMARY: X CONTINUED ON ADDITIONAL SHEETS

The Region QAC suggested both gauges be evaluated over the blocks according to TM 304 test procedure to ensure calibration integrity still existed. After completion of the calibration check, the Region gauge met test procedure criteria but the QC gauge failed the high block evaluation and the gauge was reading on the high side giving a false indication of achieving density. Several options were discussed with the PM and it was decided that the sublot's in question would be evaluated through a core analysis. Both parties agreed that 5 cores would be randomly removed from each of the three sublots and the results would replace the current gauge readings for statistical evaluation. It was also decided a core correlation would be performed on 10 of the core locations for future density testing. Prior to the core removals the QC gauge was re-calibrated and verified according to TM 304. **See Next page for further details.**

CONCLUSION / RESOLUTION: CONTINUED ON ADDITIONAL SHEETS

In conclusion, results of the core analysis did show the sublot's in question were failing density requirements. The core results showed an overall average density of 90.4%, which is 0.6% below the 91.0% compaction criteria. The failing results were discussed with the PQE and the sublots in question were placed into a different lot and the statistical analysis (CPF) showed 0.6789. The PM decided to allow the material to remain in place and applied the appropriate price reduction according to section 00165 & 00150.25. The PM and PQE determined the in-place material was suitable for the intended use and 3 subsequent lifts of material were going to be placed over the failing area, so the associated risk of leaving the material in place was minimal. See CCO #5 for allowance of in-place density according to the core method.

COMMENTS OR FOLLOW-UPS: CONTINUED ON ADDITIONAL SHEETS

A request to the Region QA for additional testing will be made to ensure the QC gauge is holding calibration and specified density is being achieved.

INDIVIDUAL PERFORMING INVESTIGATION (PLEASE PRINT)	COMPANY NAME	SIGNATURE	DATE
Sean P. Parker	ODOT		
PROJECT MANAGER or CPM REVIEW/APPROVAL (PLEASE PRINT)	**COMPANY NAME**	**SIGNATURE**	**DATE**
John Behold	ODOT		

Distribution: QAC, QC, PM, CPM, QAE and Project File

QC/QA TESTING INVESTIGATION

PROJECT NAME (SECTION)		CONTRACT NUMBER
A Bridge Too Far		C12889
CONTRACTOR OR SUPPLIER	**PROJECT MANAGER**	**BID ITEM NUMBER**
Black and Sticky	John Behold	745
MATERIAL DESCRIPTION	**SOURCE NAME & NUMBER IF APPLICABLE**	
Level 3, 1/2" Dense Graded HMAC	Hard Rock, Source # 2-889-65	
QA TEST NUMBER ID. / **QC TEST NUMBER ID.**	**TEST PROCEDURE OR PROCESS UNDER INVESTIGATION**	
QA-V1 / QC-V1	HMAC Density Testing	

☐	**FAILED I.A. PARAMETERS**	☒	**QA FAILED VERIFICATION**
☐	**QC FAILED VERIFICATION**	☐	**QUESTIONABLE QC HISTORY**

INVESTIGATION DESCRIPTION: ☐ CONTINUED ON ADDITIONAL SHEETS

INVESTIGATION SUMMARY: ☐ CONTINUED ON ADDITIONAL SHEETS

During the re-calibration phase the QA technician discovered the handle was loose and not maintaining a locked position in the backscatter mode. In addition, the block area of the gauge was extremely dirty and difficult to engage and disengage. These problems were corrected and the gauge was placed back in service.

CONCLUSION / RESOLUTION: ☐ CONTINUED ON ADDITIONAL SHEETS

COMMENTS OR FOLLOW-UPS: ☐ CONTINUED ON ADDITIONAL SHEETS

INDIVIDUAL PERFORMING INVESTIGATION (PLEASE PRINT)	COMPANY NAME	SIGNATURE	DATE
Sean P. Parker	ODOT		
PROJECT MANAGER or CPM REVIEW/APPROVAL (PLEASE PRINT)	**COMPANY NAME**	**SIGNATURE**	**DATE**
John Behold	ODOT		

Distribution: QAC, QC, PM, CPM, QAE and Project File

734-4040-2012

QC/QA TESTING INVESTIGATION

PROJECT NAME (SECTION)		CONTRACT NUMBER
A Bridge Too Far		C12889
CONTRACTOR OR SUPPLIER	PROJECT MANAGER	BID ITEM NUMBER
Black and Sticky	John Behold	745
MATERIAL DESCRIPTION	SOURCE NAME & NUMBER IF APPLICABLE	
1/2"- #4 Aggregate for L3 Dense HMAC	Hard Rock, Source # 2-889-65	
QA TEST NUMBER ID. / QC TEST NUMBER ID.	TEST PROCEDURE OR PROCESS UNDER INVESTIGATION	
QA-V1 / QC-V1	HMAC Density Testing	

X	**FAILED I.A. PARAMETERS**		**QA FAILED VERIFICATION**
	QC FAILED VERIFICATION		**QUESTIONABLE QC HISTORY**

INVESTIGATION DESCRIPTION: CONTINUED ON ADDITIONAL SHEETS

On October 15, 2006 Region QA performed verification testing (QA-V1) on Level 3 1/2" - #4 HMAC aggregate. The split sample results were within specification for both QC and QA, however, the results were not within I.A. parameters for the #4 sieve. The QC test showed the #4 at 9% passing and the QA test showed the #4 at 15%, a difference of 6%. The I.A. parameter allows 5% maximum difference.

INVESTIGATION SUMMARY: CONTINUED ON ADDITIONAL SHEETS

Because the results were within specification the investigation was initially restricted to the (QA-V1) original sample. The tested samples were swapped between the QA and QC technicians and passed through the sieves. The original results were verified by the opposite technician. QC got 15% passing on the QA side of the split and QA got 9% passing on the QC side of the split.

CONCLUSION / RESOLUTION: CONTINUED ON ADDITIONAL SHEETS

The results of the investigation indicate that the difference in the results was due to a bad split on the verification. The ongoing QC results show the average passing the #4 sieve at 12%.

As a result of this investigation the ongoing QC results are acceptable.

COMMENTS OR FOLLOW-UPS: CONTINUED ON ADDITIONAL SHEETS

The project QCCS will be observing the QC technician performing the splitting and testing procedures to ensure that splitting is being done properly ASAP.

INDIVIDUAL PERFORMING INVESTIGATION (PLEASE PRINT)	COMPANY NAME	SIGNATURE	DATE
Sean P. Parker			
PROJECT MANAGER or CPM REVIEW/APPROVAL (PLEASE PRINT)	COMPANY NAME	SIGNATURE	DATE
John Behold			

Distribution: QAC, QC, PM, CPM, QAE and Project File

Oregon Department of Transportation

PAVEMENT MARKING RETROREFLECTIVITY TESTING

FORM 734-4101 | GENERAL INFORMATION

PROJECT NAME (SECTION)			HIGHWAY
CONTRACTOR		CONTRACT NUMBER	
PROJECT BEGIN MP/STATION	PROJECT END MP/STATION	PROJECT (LOT) LENGTH (Miles)	NUMBER OF SUBLOTS

NO. OF FORM 734-4102 ATTACHED	NO. OF FORM 734-4103 ATTACHED	NO. OF FORM 734-4104 ATTACHED	NO. OF FORM 734-4105 ATTACHED

PROJECT ACCEPTANCE RESULTS

	LONGITUDINAL MARKINGS		TRANSVERSE MARKINGS	
	WHITE	YELLOW	WHITE	YELLOW
SUBLOT 1				
SUBLOT 2				
SUBLOT 3				
SUBLOT 4				
SUBLOT 5				
SUBLOT 6				
SUBLOT 7				
SUBLOT 8				
SUBLOT 9				
SUBLOT 10				
SUBLOT 11				
SUBLOT 12				
SUBLOT 13				
SUBLOT 14				
SUBLOT 15				
SUBLOT 16				
SUBLOT 17				
SUBLOT 18				
SUBLOT 19				
SUBLOT 20				

NAME OF TECHNICIAN (PLEASE PRINT)	COMPANY NAME	SIGNATURE	DATE

Oregon Department of Transportation

PAVEMENT MARKING RETROREFLECTIVITY TESTING

FORM 734-4101 | GENERAL INFORMATION

PROJECT NAME (SECTION)			HIGHWAY
US97: Terrebonne - Redmond			014 CROOKED RIVER
CONTRACTOR		**CONTRACT NUMBER**	
Pavement Markings 'R' Us		C7149	
PROJECT BEGIN MP/STATION	**PROJECT END MP/STATION**	**PROJECT (LOT) LENGTH (Miles)**	**NUMBER OF SUBLOTS**
112.68	124.32	1.119	1

NO. OF FORM 734-4102 ATTACHED	NO. OF FORM 734-4103 ATTACHED	NO. OF FORM 734-4104 ATTACHED	NO. OF FORM 734-4105 ATTACHED

PROJECT ACCEPTANCE RESULTS

	LONGITUDINAL MARKINGS		TRANSVERSE MARKINGS	
	WHITE	YELLOW	WHITE	YELLOW
SUBLOT 1	PASS	PASS W/ ADDITIONAL TESTING	PASS	
SUBLOT 2				
SUBLOT 3				
SUBLOT 4				
SUBLOT 5				
SUBLOT 6				
SUBLOT 7				
SUBLOT 8				
SUBLOT 9				
SUBLOT 10				
SUBLOT 11				
SUBLOT 12				
SUBLOT 13				
SUBLOT 14				
SUBLOT 15				
SUBLOT 16				
SUBLOT 17				
SUBLOT 18				
SUBLOT 19				
SUBLOT 20				

NAME OF TECHNICIAN (PLEASE PRINT)	COMPANY NAME	SIGNATURE	DATE
Cindy R. Wade	Mainline Utility Testing Tech		

Oregon Department of Transportation

PAVEMENT MARKING RETROREFLECTIVITY TESTING

FORM 734-4102 | LONGITUDINAL MARKINGS

PROJECT NAME (SECTION)	HIGHWAY	CONTRACT NUMBER

CONTRACTOR	BID ITEM NUMBER

SUBLOT NUMBER	SUBLOT BEGINNING STATION/LOCATION DESCRIPTION	SUBLOT ENDING STATION/LOCATION DESCRIPTION

METHOD OF LONGITUDINAL MARKING	MATERIAL	BEAD TYPE

MATERIAL MANUFACTURER	PRODUCT CODE (WHITE)	PRODUCT CODE (YELLOW)	DATE OF MATERIAL APPLICATION

RETROREFLECTOMETER EQUIPMENT USED	SERIAL NUMBER	DATE OF LAST FACTORY CALIBRATION

DATE OF MEASUREMENTS	ZERO & CALIBRATION READINGS (Attach Field Print-out)	WEATHER CONDITIONS	START TIME	END TIME
REMARKS:		AMBIENT TEMP. (^{O}F)		
		RELATIVE HUMIDITY		

LINE TYPE	DIRECTION	AVERAGE THICKNESS (mils)	AVERAGE GROOVE DEPTH (mils)	RETROREFLECTIVITY (mcd/m^2/lx) (Attach Field Print-out)	AVERAGE	% VALUES ABOVE MIN.
WHITE LONGITUDINAL MARKINGS						
YELLOW LONGITUDINAL MARKINGS						

SUBLOT ACCEPTANCE

WHITE MARKINGS

- ☐ PASS
- ☐ FAIL
- ☐ ADDITIONAL TESTING REQUIRED (Use ODOT Form 734-4104)

YELLOW MARKINGS

- ☐ PASS
- ☐ FAIL
- ☐ ADDITIONAL TESTING REQUIRED (Use ODOT Form 734-4104)

ATTACH FIELD PRINTOUTS

- ☐ ZERO & CALIBRATION READINGS
- ☐ RETROREFLECTIVITY

NAME OF TECHNICIAN (PLEASE PRINT)	COMPANY NAME	SIGNATURE	DATE

Oregon Department of Transportation

PAVEMENT MARKING RETROREFLECTIVITY TESTING

FORM 734-4102 | LONGITUDINAL MARKINGS

PROJECT NAME (SECTION)	HIGHWAY	CONTRACT NUMBER
US97: Terrebonne - Redmond	014 CROOKED RIVER	C7149
CONTRACTOR		**BID ITEM NUMBER**
Pavement Markings 'R' Us		0865-0114000

SUBLOT NUMBER	SUBLOT BEGINNING STATION/LOCATION DESCRIPTION	SUBLOT ENDING STATION/LOCATION DESCRIPTION
1	1645+80	1704+88

METHOD OF LONGITUDINAL MARKING	MATERIAL		BEAD TYPE
Method E	Thermoplastic		3130
MATERIAL MANUFACTURER	**PRODUCT CODE (WHITE)**	**PRODUCT CODE (YELLOW)**	**DATE OF MATERIAL APPLICATION**
Ennis-Flint	885300	884411	12/17/2014

RETROREFLECTOMETER EQUIPMENT USED	SERIAL NUMBER	DATE OF LAST FACTORY CALIBRATION
Microlux Ultra Retroreflectometer	1458932485	04/27/2014

DATE OF MEASUREMENTS	ZERO & CALIBRATION READINGS (Attach Field Print-out)	WEATHER CONDITIONS	START TIME	END TIME
12/17/2014	3,9,0,4			
REMARKS:		AMBIENT TEMP. (^{O}F)	52°F	67°F
New Asphalt Surface		RELATIVE HUMIDITY	87%	51%

LINE TYPE	DIRECTION	AVERAGE THICKNESS (mils)	AVERAGE GROOVE DEPTH (mils)	RETROREFLECTIVITY (mcd/m^2/lx) (Attach Field Print-out)										AVERAGE	% VALUES ABOVE MIN.
WHITE LONGITUDINAL MARKINGS															
W	Eastbound	120	N/A	500	537	486	433	444	489	460	433	510	506	423	96
				476	481	528	488	430	464	405	500	498	487		
W	Westbound	123	N/A	309	302	314	318	302	303	307	317	304	335		
				314	284	309	295	270	278	248	330	278	243		
WB	Eastbound	120	125	459	514	512	509	617	616	634	612	476	511		
				512	527										
YELLOW LONGITUDINAL MARKINGS															
ND	Eastbound	121	N/A	253	301									292	89
ND	Westbound	120	N/A	264	247										
Y	Eastbound	120	N/A	194	253	294	279	189	282	281	292	299	183		
				330	312	309	302	314	318	293					
Y	Westbound	120	N/A	323	351	347	332	363	371	334	307	306	300		
				195	302	284	309	319	295	263					

SUBLOT ACCEPTANCE

WHITE MARKINGS

X	PASS
	FAIL
	ADDITIONAL TESTING REQUIRED (Use ODOT Form 734-4104)

YELLOW MARKINGS

	PASS
	FAIL
X	ADDITIONAL TESTING REQUIRED (Use ODOT Form 734-4104)

ATTACH FIELD PRINTOUTS

X	ZERO & CALIBRATION READINGS
X	RETROREFLECTIVITY

NAME OF TECHNICIAN (PLEASE PRINT)	COMPANY NAME	SIGNATURE	DATE
Cindy R. Wade	Mainline Utility Testing Tech		

Oregon Department of Transportation

PAVEMENT MARKING RETROREFLECTIVITY TESTING

FORM 734-4103 | TRANSVERSE MARKINGS

PROJECT NAME (SECTION)	HIGHWAY	CONTRACT NUMBER

CONTRACTOR

SUBLOT NUMBER	SUBLOT BEGINNING STATION/LOCATION DESCRIPTION	SUBLOT ENDING STATION/LOCATION DESCRIPTION

TYPE OF APPLICATION	MATERIAL MANUFACTURER	BEAD TYPE
MATERIAL	**MATERIAL PRODUCT CODE**	**DATE OF MATERIAL APPLICATION**

RETROREFLECTOMETER EQUIPMENT USED	SERIAL NUMBER	DATE OF LAST FACTORY CALIBRATION

DATE OF MEASUREMENTS	ZERO & CALIBRATION READINGS (Attach Field Print-out)	WEATHER CONDITIONS	START TIME	END TIME

NUMBER OF LEGENDS IN THE SUBLOT	NUMBER OF LEGENDS TESTED	NUMBER OF BARS IN THE SUBLOT	NUMBER OF BARS TESTED	AMBIENT TEMP. (^{o}F)		
				RELATIVE HUMIDITY		

REMARKS:

MARKING DESCRIPTION/LOCATION	RETROREFLECTIVITY (mcd/m^2/lux) (Attach Field Print-out)										AVERAGE	% VALUES ABOVE MIN.
WHITE TRANSVERSE MARKINGS												
YELLOW TRANSVERSE MARKINGS												

SUBLOT ACCEPTANCE

WHITE MARKINGS		YELLOW MARKINGS		ATTACH FIELD PRINTOUTS	
	PASS		PASS		ZERO & CALIBRATION
	FAIL		FAIL		RETRO-REFLECTIVITY
	ADDITIONAL TESTING REQUIRED (Use ODOT Form 734-4105)		ADDITIONAL TESTING REQUIRED (Use ODOT Form 734-4105)		

NAME OF TECHNICIAN (PLEASE PRINT)	COMPANY NAME	SIGNATURE	DATE

Oregon Department of Transportation

PAVEMENT MARKING RETROREFLECTIVITY TESTING

FORM 734-4103 | TRANSVERSE MARKINGS

PROJECT NAME (SECTION)	HIGHWAY	CONTRACT NUMBER
US97: Terrebonne - Redmond	014 CROOKED RIVER	C7149

CONTRACTOR
Pavement Markings 'R' Us

SUBLOT NUMBER	SUBLOT BEGINNING STATION/LOCATION DESCRIPTION	SUBLOT ENDING STATION/LOCATION DESCRIPTION
1	1645+80	1704+88

TYPE OF APPLICATION	MATERIAL MANUFACTURER	BEAD TYPE
Type B	Ennis-Flint	3130
MATERIAL	**MATERIAL PRODUCT CODE**	**DATE OF MATERIAL APPLICATION**
Thermoplastic	1778	12/17/2014

RETROREFLECTOMETER EQUIPMENT USED	SERIAL NUMBER	DATE OF LAST FACTORY CALIBRATION
Microlux Ultra Retroreflectometer	1458932485	4/27/2014

DATE OF MEASUREMENTS	ZERO & CALIBRATION READINGS (Attach Field Print-out)			WEATHER CONDITIONS	START TIME	END TIME
12/17/2014	3,9,0,4					
NUMBER OF LEGENDS IN THE SUBLOT	NUMBER OF LEGENDS TESTED	NUMBER OF BARS IN THE SUBLOT	NUMBER OF BARS TESTED	AMBIENT TEMP. (°F)	52°F	67°F
8	1	1	1	RELATIVE HUMIDITY	87%	51%

REMARKS:

MARKING DESCRIPTION/LOCATION	RETROREFLECTIVITY (mcd/m²/lux) (Attach Field Print-out)										AVERAGE	% VALUES ABOVE MIN.
WHITE TRANSVERSE MARKINGS												
S - Stop Bar at Lower Bridge Rd (1645+98)	511	467	516	533	576	462	508				**522**	100
LRA - 1st Lane Reduction Arrow (1656+32)	593	514	602	472	508							
YELLOW TRANSVERSE MARKINGS												

SUBLOT ACCEPTANCE

WHITE MARKINGS		YELLOW MARKINGS		ATTACH FIELD PRINTOUTS	
X	PASS		PASS	X	ZERO & CALIBRATION
	FAIL		FAIL	X	RETRO-REFLECTIVITY
	ADDITIONAL TESTING REQUIRED (Use ODOT Form 734-4105)		ADDITIONAL TESTING REQUIRED (Use ODOT Form 734-4105)		

NAME OF TECHNICIAN (PLEASE PRINT)	COMPANY NAME	SIGNATURE	DATE
Cindy R. Wade	Mainline Utility Testing Tech		

Oregon Department of Transportation

PAVEMENT MARKING RETROREFLECTIVITY TESTING
ADDITIONAL TESTING REQUIRED
FORM 734-4104 | LONGITUDINAL MARKINGS

PROJECT NAME (SECTION)	HIGHWAY	CONTRACT NUMBER
CONTRACTOR		**BID ITEM NUMBER**

SUBLOT NUMBER	SUBLOT BEGINNING STATION/LOCATION DESCRIPTION	SUBLOT ENDING STATION/LOCATION DESCRIPTION

INITIAL RETROREFLECTIVITY MEASUREMENTS (WHITE) (mcd/m^2/lx) (Use ODOT Form 734-4102 containing original readings)										INITIAL RETROREFLECTIVITY MEASUREMENTS (YELLOW) (mcd/m^2/lx) (Use ODOT Form 734-4102 containing original readings)									

DATE OF ADDITIONAL MEASUREMENTS	ZERO & CALIBRATION READINGS (Attach Field Print-out)	WEATHER CONDITIONS	START TIME	END TIME
		AMBIENT TEMP. (^{O}F)		
REMARKS:		RELATIVE HUMIDITY		

LINE TYPE	DIRECTION	RETROREFLECTIVITY (mcd/m^2/lx) (Attach Field Print-out)										COMBINED AVERAGE	COMBINED % VALUES ABOVE MIN.
WHITE LONGITUDINAL MARKINGS													
YELLOW LONGITUDINAL MARKINGS													

FINAL SUBLOT ACCEPTANCE

WHITE MARKINGS	YELLOW MARKINGS	ATTACH FIELD PRINTOUTS
PASS	PASS	ZERO & CALIBRATION READINGS
FAIL	FAIL	RETROREFLECTIVITY

NAME OF TECHNICIAN (PLEASE PRINT)	COMPANY NAME	SIGNATURE	DATE

Oregon Department of Transportation

PAVEMENT MARKING RETROREFLECTIVITY TESTING
ADDITIONAL TESTING REQUIRED
FORM 734-4104 | LONGITUDINAL MARKINGS

PROJECT NAME (SECTION)	HIGHWAY	CONTRACT NUMBER
US97: Terrebonne - Redmond	014 CROOKED RIVER	C7149
CONTRACTOR		**BID ITEM NUMBER**
Pavement Markings 'R' Us		0865-0114000

SUBLOT NUMBER	SUBLOT BEGINNING STATION/LOCATION DESCRIPTION	SUBLOT ENDING STATION/LOCATION DESCRIPTION
1	1645+80	1704+88

INITIAL RETROREFLECTIVITY MEASUREMENTS (WHITE) (mcd/m²/lx) (Use ODOT Form 734-4102 containing original readings)										INITIAL RETROREFLECTIVITY MEASUREMENTS (YELLOW) (mcd/m²/lx) (Use ODOT Form 734-4102 containing original readings)									
500	537	486	433	444	489	460	433	510	506	253	301	264	247	194	253	294	279	189	282
476	481	528	488	430	464	405	500	498	487	281	292	299	183	330	312	309	302	314	318
309	302	314	318	302	303	307	317	304	335	293	323	351	347	332	363	371	334	307	306
314	284	309	295	270	278	248	330	278	243	300	195	302	284	309	319	295	263		
459	514	512	509	617	616	634	612	476	511										
512	527																		

DATE OF ADDITIONAL MEASUREMENTS	ZERO & CALIBRATION READINGS (Attach Field Print-out)	WEATHER CONDITIONS	START TIME	END TIME
12/18/2014	0,3,1,2			
REMARKS:		AMBIENT TEMP. (°F)	62°F	73°F
		RELATIVE HUMIDITY	34%	53%

LINE TYPE	DIRECTION	RETROREFLECTIVITY (mcd/m²/lx) (Attach Field Print-out)										COMBINED AVERAGE	COMBINED % VALUES ABOVE MIN.
WHITE LONGITUDINAL MARKINGS													
YELLOW LONGITUDINAL MARKINGS													
Y	Eastbound	323	302	318	303	335	314	330	284	309	319		
		282	270	222	275	305	308	283					
Y	Westbound	323	351	347	332	363	371	334	307	306	293		
		300	302	284	309	319	295	284					
												300	**94**

FINAL SUBLOT ACCEPTANCE

WHITE MARKINGS		YELLOW MARKINGS		ATTACH FIELD PRINTOUTS	
	PASS	X	PASS	X	ZERO & CALIBRATION READINGS
	FAIL		FAIL	X	RETROREFLECTIVITY

NAME OF TECHNICIAN (PLEASE PRINT)	COMPANY NAME	SIGNATURE	DATE
Cindy R. Wade	Mainline Utility Testing Tech		

Oregon Department of Transportation

PAVEMENT MARKING RETROREFLECTIVITY TESTING
ADDITIONAL TESTING REQUIRED
FORM 734-4105 | TRANSVERSE MARKINGS

PROJECT NAME (SECTION)	HIGHWAY	CONTRACT NUMBER

CONTRACTOR

SUBLOT NUMBER	SUBLOT BEGINNING STATION/LOCATION DESCRIPTION	SUBLOT ENDING STATION/LOCATION DESCRIPTION

INITIAL RETROREFLECTIVITY MEASUREMENTS (WHITE) (mcd/m^2/lx) (Use ODOT Form 734-4103 containing original readings)												INITIAL RETROREFLECTIVITY MEASUREMENTS (YELLOW) (mcd/m^2/lx) (Use ODOT Form 734-4103 containing original readings)							

DATE OF ADDITIONAL MEASUREMENTS		ZERO & CALIBRATION READINGS (Attach Field Print-		WEATHER CONDITIONS	START TIME	END TIME
NUMBER OF LEGENDS IN THE SUBLOT	NUMBER OF ADDITIONAL LEGENDS TESTED	NUMBER OF BARS IN THE SUBLOT	NUMBER OF ADDITIONAL BARS TESTED	AMBIENT TEMP. (^{O}F)		
				RELATIVE HUMIDITY		

REMARKS:

MARKING DESCRIPTION/LOCATION	RETROREFLECTIVITY (mcd/m^2/lux) (Attach Field Print-out)										COMBINED AVERAGE	COMBINED % VALUES ABOVE MIN.
WHITE TRANSVERSE MARKINGS												
YELLOW TRANSVERSE MARKINGS												

FINAL SUBLOT ACCEPTANCE

WHITE MARKINGS		YELLOW MARKINGS		ATTACH FIELD PRINTOUTS	
	PASS		PASS		ZERO & CALIBRATION READINGS
	FAIL		FAIL		RETROREFLECTIVITY

NAME OF TECHNICIAN (PLEASE PRINT)	COMPANY NAME	SIGNATURE	DATE

Oregon Department of Transportation

PAVEMENT MARKING RETROREFLECTIVITY TESTING
ADDITIONAL TESTING REQUIRED
FORM 734-4105 | TRANSVERSE MARKINGS

PROJECT NAME (SECTION)	HIGHWAY	CONTRACT NUMBER
US97: Terrebonne - Redmond	014 CROOKED RIVER	C7149

CONTRACTOR

Pavement Markings 'R' Us

SUBLOT NUMBER	SUBLOT BEGINNING STATION/LOCATION DESCRIPTION	SUBLOT ENDING STATION/LOCATION DESCRIPTION

INITIAL RETROREFLECTIVITY MEASUREMENTS (WHITE) (mcd/m^2/lx) (Use ODOT Form 734-4103 containing original readings)												INITIAL RETROREFLECTIVITY MEASUREMENTS (YELLOW) (mcd/m^2/lx) (Use ODOT Form 734-4103 containing original readings)							

DATE OF ADDITIONAL MEASUREMENTS		ZERO & CALIBRATION READINGS (Attach Field Print-		WEATHER CONDITIONS	START TIME	END TIME
NUMBER OF LEGENDS IN THE SUBLOT	NUMBER OF ADDITIONAL LEGENDS TESTED	NUMBER OF BARS IN THE SUBLOT	NUMBER OF ADDITIONAL BARS TESTED	AMBIENT TEMP. (^{O}F)		
				RELATIVE HUMIDITY		

REMARKS:

MARKING DESCRIPTION/LOCATION	RETROREFLECTIVITY (mcd/m^2/lux) (Attach Field Print-out)										COMBINED AVERAGE	COMBINED % VALUES ABOVE MIN.
WHITE TRANSVERSE MARKINGS												
YELLOW TRANSVERSE MARKINGS												

FINAL SUBLOT ACCEPTANCE

WHITE MARKINGS		YELLOW MARKINGS		ATTACH FIELD PRINTOUTS	
	PASS		PASS		ZERO & CALIBRATION READINGS
	FAIL		FAIL		RETROREFLECTIVITY

NAME OF TECHNICIAN (PLEASE PRINT)	COMPANY NAME	SIGNATURE	DATE
Cindy R. Wade	Mainline Utility Testing Tech		

CAT II - MDV STARTUP REVIEW

PROJECT NAME (SECTION)				CONTRACT NUMBER
C0NTRACTOR OR SUPPLIER		PROJECT MANAGER		BID ITEM NUMBER
DATE	MIX DESIGN	BEGINNING LOT/SUBLOT	MATERIAL DESCRIPTION	TO BE USED IN

MDV STARTUP REVIEW

CONDUCT REVIEW ACCORDING TO SECTION 00745.16(b)(1)(d) 1-4 MDV REQUIREMENTS AT STARTUP. If corrective action is required detail action taken and expected results below. If target adjustments are made, attach form 734-2560 (10-2017). Obtain Engineers approval prior to restarting if Va results exceed requirement of step 3 in Section 00745.16 (b)(1)(d)

MDV TEST DATA

DATE _____ **TEST No.** _____

TIME _____ **TONAGE** _____

SECTION 00745.16 (b)(1)(d)

1 ☐ **2** ☐ **3** ☐ **4** ☐

check appropriate boxes to identify which steps this review represents in the MDV Startup Process

	YES	NO
Va REQUIREMENT MET:	☐	☐
VMA REQUIREMENT MET:	☐	☐
CORRECTIVE ACTION REQUIRED:	☐	☐

RESULTS

	TARGET	ACTUAL
VMA		
Va		
VFA		
Pb		
P #8		
P #30		
P #200		

ACTION TAKEN: _____

EXPECTED RESULT: _____

CERTIFIED TECHNICIAN CAT II (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

ENGINEERS APPROVAL REQUIRED PRIOR TO RESTARTING IF PRODUCTION STOPPED PER SECTION 00745.16 (b)(1)(d)

CAT II - MDV STARTUP REVIEW

PROJECT NAME (SECTION)				CONTRACT NUMBER
Forms Example				12345
CONTRACTOR OR SUPPLIER			PROJECT MANAGER	BID ITEM NUMBER
The HMAC Company			Sean Parker	123
DATE	MIX DESIGN	BEGINNING LOT/SUBLOT	MATERIAL DESCRIPTION	TO BE USED IN
10/10/2017	17-MD0000	1-1	L3 1/2" Dense HMAC	Base / Wearing

MDV STARTUP REVIEW

CONDUCT REVIEW ACCORDING TO SECTION 00745.16(b)(1)(d) 1-4 MDV REQUIREMENTS AT STARTUP. If corrective action is required detail action taken and expected results below. If target adjustments are made, attach form 734-2560 (10-2017). Obtain Engineers approval prior to restarting if Va results exceed requirement of step 3 in Section 00745.16 (b)(1)(d)

MDV TEST DATA

DATE 10/10/2017 **TEST No.** 1-1

TIME 8:00am **TONAGE** 65

SECTION 00745.16(b)(1)(d)

1 [X] **2** [X] **3** [ ] **4** [ ]

check appropriate boxes to identify which steps this review represents in the MDV Startup Process

	YES	NO
Va REQUIREMENT MET:	[ ]	[X]
VMA REQUIREMENT MET:	[X]	[ ]
CORRECTIVE ACTION REQUIRED:	[X]	[ ]

RESULTS

	TARGET	ACTUAL
VMA	**15.4**	15.0
Va	**4.0**	2.7
VFA	**74**	82
Pb	**5.70**	5.69
P #8	**38**	37
P #30	**14**	13
P #200	**5.0**	5.1

ACTION TAKEN: Lab results indicate mix was produced close to JMF targets, However Voids and VFA are out of tolerance. Density results from the grade were reported to be 95.1% which reconcile with the Voids results from the lab. Pb results from the lab test were .01% lower than target. Propose Pb change reducing the target from 5.70% to 5.30%.

EXPECTED RESULT: Reducing Pb by 0.40% to 5.30% should bring Voids to approximately 3.9% without adversly affecting VMA. If the expected result from this change brings the Voids to 3.9% VFA should drop back to the JMF target of 74. All other constituents staying the same the mix should be within tolerance and field densities should fall within reasonable values of 92.2 to 94.1%. After adjustments are made another sample will immediately be taken and results reviewed in accordance with step 3 and 4 of the MDV Start-Up Process.

CERTIFIED TECHNICIAN CAT II (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT		10/10/2017

ENGINEERS APPROVAL REQUIRED PRIOR TO RESTARTING IF PRODUCTION STOPPED PER SECTION 00745.16(b)(1)(d)

CAT II - DENSITY / CONTROL STRIP RECONCILIATION

E

English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)				CONTRACT NUMBER
C0NTRACTOR OR SUPPLIER			PROJECT MANAGER	BID ITEM NUMBER
DATE	MIX DESIGN	BEGINNING SUBLOT	MATERIAL DESCRIPTION	TO BE USED IN

QUALITY CONTROL LAB RESULTS

TEST NUMBER	DATE	TIME
VMA	VFA	Pb
P #8	P #30	P #200

P #200 / Pbe	Va

PREDICTED DENSITY RANGE:

CONTROL STRIP RESULTS

CONTROL STRIP NUMBER	DATE	TIME

LIFT NUMBER	PERCENT REQUIRED	INITIAL POINT % COMP

CONTROL STRIP - % COMPACTION

LEFT EDGE	MIDPOINT LEFT	CENTER	MIDPOINT RIGHT	RIGHT EDGE

CONTROL STRIP AVERAGE

LABORATORY / CONTROL STRIP RECONCILE: YES ☐ NO ☐

NOTE: IF CONTROL STRIP DOES NOT RECONCILE DETAIL CORRECTIVE ACTION BELOW

CORRECTIVE ACTION TAKEN / RESOLUTION: (If new control strip performed a new reconciliation report is required)

CERTIFIED TECHNICIAN CAT II (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

CAT II - DENSITY / CONTROL STRIP RECONCILIATION

E — English (**E**) or Metric (**M**)

PROJECT NAME (SECTION)				CONTRACT NUMBER
Form Example				12345
CONTRACTOR OR SUPPLIER			PROJECT MANAGER	BID ITEM NUMBER
The HMAC Company			Sean Parker	123
DATE	MIX DESIGN	BEGINNING SUBLOT	MATERIAL DESCRIPTION	TO BE USED IN
10/10/2012	12-MD0000	1-1	L3 1/2" Dense HMAC	Base

QUALITY CONTROL LAB RESULTS

TEST NUMBER	DATE	TIME
1-1	10/10/2012	8:00am

VMA	VFA	Pb
15.0	74	5.00

P #8	P #30	P #200
37	13	5.1

P #200 / Pbe	Va
1.13	3.9

PREDICTED DENSITY RANGE:
92.2% - 94.1%

CONTROL STRIP RESULTS

CONTROL STRIP NUMBER	DATE	TIME
1	10/10/2012	10:30am

LIFT NUMBER	PERCENT REQUIRED	INITIAL POINT % COMP
1	92.0%	95.8%

CONTROL STRIP - % COMPACTION

LEFT EDGE	MIDPOINT LEFT	CENTER	MIDPOINT RIGHT	RIGHT EDGE
95.5%	95.0%	95.0%	95.7%	95.9%

CONTROL STRIP AVERAGE
95.4%

LABORATORY / CONTROL STRIP RECONCILE:	YES	NO
		X

NOTE: IF CONTROL STRIP DOES NOT RECONCILE DETAIL CORRECTIVE ACTION BELOW

CORRECTIVE ACTION TAKEN / RESOLUTION: (If new control strip performed a new reconciliation report is required)

Lab results indicate the mix is being produced close to JMF targets and compaction in the field may be artificially high. Density technician checked gauge accuracy by running comparison tests with ODOT QA gauge and found the gauges were reading within one percent of each other. Core correlation was then performed and after applying the correction to the the control strip the resulting average of 93.6 effectively reconciling the lab results and the control strip.

CERTIFIED TECHNICIAN CAT II (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Scott Aker #43048	ODOT		10/10/2012

Random Number Table

Line/Col.	1	2	3	4	5	6	7	8	9	10	11
1	16897	16881	22931	30360	86899	51400	15815	41234	81861	82040	35678
2	16066	03723	89146	22426	63867	63506	17781	49403	04287	20424	07348
3	85075	44878	72033	58248	77069	18971	39182	30082	56504	46566	42681
4	92639	30948	57302	81544	63775	52944	80353	63289	86249	75673	09155
5	35721	37005	49818	86207	62735	44649	23672	06383	04114	28132	05908
6	40489	59044	89605	35282	26421	01022	61386	92737	87214	45817	91765
7	44342	01656	85330	48692	24303	00857	37624	26026	24111	11525	09849
8	48339	55094	00436	05613	45626	16491	78652	60998	80789	51080	74835
9	78149	23513	40239	08012	07515	30771	22169	42811	65528	69258	08210
10	53975	05987	19104	37420	24813	05085	57626	68003	81529	15681	28910
11	47292	70452	34590	31785	85351	54591	59692	55567	45079	45751	40201
12	34542	53478	24010	23177	47320	47810	63102	42071	01144	52342	74604
13	07353	34902	98261	40943	21138	20089	18299	39147	87712	40470	72981
14	70361	33031	17937	83411	03889	16309	94376	88326	69494	20471	67255
15	33361	61660	86771	02004	01567	06219	97827	75885	90188	56494	52163
16	12998	73394	24693	34225	42333	69609	53915	18304	82164	56042	12097
17	29623	44833	25355	29022	41902	42322	67751	04941	42039	86077	87066
18	94859	35317	68957	47114	24840	73777	87089	17554	15613	59887	68990
19	68417	40318	85951	46929	07799	11666	94557	69499	73074	78549	50198
20	11826	65897	95213	07860	14082	23312	72457	17117	27707	33332	76374
21	85532	33390	48065	62862	93745	87022	68944	18825	96608	12332	31279
22	09588	86051	27474	46612	94954	66084	28031	11486	26895	56861	49260
23	99396	93908	91658	93214	79134	00272	89581	92129	23926	01510	55723
24	78462	91590	31144	91250	85550	11080	97373	63397	39601	43019	09742
25	98696	01557	06498	39892	02702	52858	36984	45515	21716	92369	81682

RESIN BONDED ANCHOR PULL TEST

PROJECT NAME (SECTION)					CONTRACT NUMBER	
C0NTRACTOR OR SUPPLIER			PROJECT MANAGER		BID ITEM NUMBER	TEST DATE
ANCHOR TYPE	ANCHOR SIZE	ANCHOR GRADE	STRUCTURE NUMBER	BRIDGE ELEMENT	PRODUCT NAME	EPOXY LOT NO.

TABLE 00535-1

TEST NO.	TEST TYPE	INSTALLATION POSITION	EMBEDMENT DEPTH (in)	MIN. PULL-OUT FORCE (Lbs)	MEAS. PULL-OUT FORCE (Lbs)	VISUAL DISPLACEMENT	RESULTS
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

REMARKS:

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

RESIN BONDED ANCHOR PULL TEST

PROJECT NAME (SECTION)						CONTRACT NUMBER
Demo Example						C 12345
CONTRACTOR OR SUPPLIER			PROJECT MANAGER		BID ITEM NUMBER	TEST DATE
Contractor X			PM X		00535	11/6/19
ANCHOR TYPE	ANCHOR SIZE	ANCHOR GRADE	STRUCTURE NUMBER	BRIDGE ELEMENT	PRODUCT NAME	EPOXY LOT NO.
Rebar	5	60	ABC123	Rail	HIT - RE 500	Lot # 125

TABLE 00535-1

TEST NO.	TEST TYPE	INSTALLATION POSITION	EMBEDMENT DEPTH (in)	MIN. PULL-OUT FORCE (Lbs)	MEAS. PULL-OUT FORCE (Lbs)	VISUAL DISPLACEMENT	RESULTS
1	DEMO	VERTICAL	6.00	22,300	21,000	YES	FAIL
2	DEMO	VERTICAL	6.00	22,300	22,500	NO	PASS
3	DEMO	VERTICAL	6.00	22,300	22,600	NO	PASS
4				Avg.	22,033		FAIL
5							
6							
7							
8							
9							
10							

REMARKS:

DEMO Test No. 1-3 (3Anchors) failed due to visible deflection and not achieving min. pull out force. Average pull out force = 22, 033 lbs. Since 22,033>0.95 x 22, 300, anchor system may be retested.

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Joe Bond	Contractor X		
CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Bob Force	Agency		

MECHANICAL ANCHOR PULL TEST

PROJECT NAME (SECTION)					CONTRACT NUMBER	
C0NTRACTOR OR SUPPLIER			PROJECT MANAGER		BID ITEM NUMBER	TEST DATE
ANCHOR TYPE	ANCHOR SIZE	ANCHOR GRADE	STRUCTURE NUMBER	BRIDGE ELEMENT	PRODUCT NAME	LOT NO.

TEST NO.	TEST TYPE	INSTALLATION POSITION	EMBEDMENT DEPTH (in)	MIN. PULL-OUT FORCE (Lbs)	MEAS. PULL-OUT FORCE (Lbs)	VISUAL DISPLACEMENT	RESULTS
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

REMARKS:

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE

MECHANICAL ANCHOR PULL TEST

PROJECT NAME (SECTION)							CONTRACT NUMBER
Demo Example							C 12345
C0NTRACTOR OR SUPPLIER			PROJECT MANAGER		BID ITEM NUMBER		TEST DATE
Contractor X			PM X		00534		7/6/20
ANCHOR TYPE	ANCHOR SIZE	ANCHOR GRADE	STRUCTURE NUMBER	BRIDGE ELEMENT	PRODUCT NAME		LOT NO.
Screw	5	60	ABC123	Rail	HIT - RE 500		Lot # 125

TEST NO.	TEST TYPE	INSTALLATION POSITION	EMBEDMENT DEPTH (in)	MIN. PULL-OUT FORCE (Lbs)	MEAS. PULL-OUT FORCE (Lbs)	VISUAL DISPLACEMENT	RESULTS
1	DEMO	VERTICAL	6.00	22,300	21,000	YES	FAIL
2	DEMO	VERTICAL	6.00	22,300	22,500	NO	PASS
3	DEMO	VERTICAL	6.00	22,300	22,600	NO	PASS
4				Avg.	22,033		FAIL
5							
6							
7							
8							
9							
10							

REMARKS:

DEMO Test No. 1-3 (3Anchors) failed due to visible deflection and not achieving min. pull out force. Average pull out force = 22, 033 lbs. Since 22,033>0.95 x 22, 300, anchor system may be retested.

CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Joe Bond	Contractor X		
CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Bob Force	Agency		