LaPave

Notes:

Cells with Blue background are data entry fields

Open a copy of LaPave to follow along

The tabs are listed in order that they appear in LaPave

The Excel version of LaPave is JMF specific. Each JMF has its own LaPave file. One LaPave, One JMF.

The last page is a guide for the roadway.

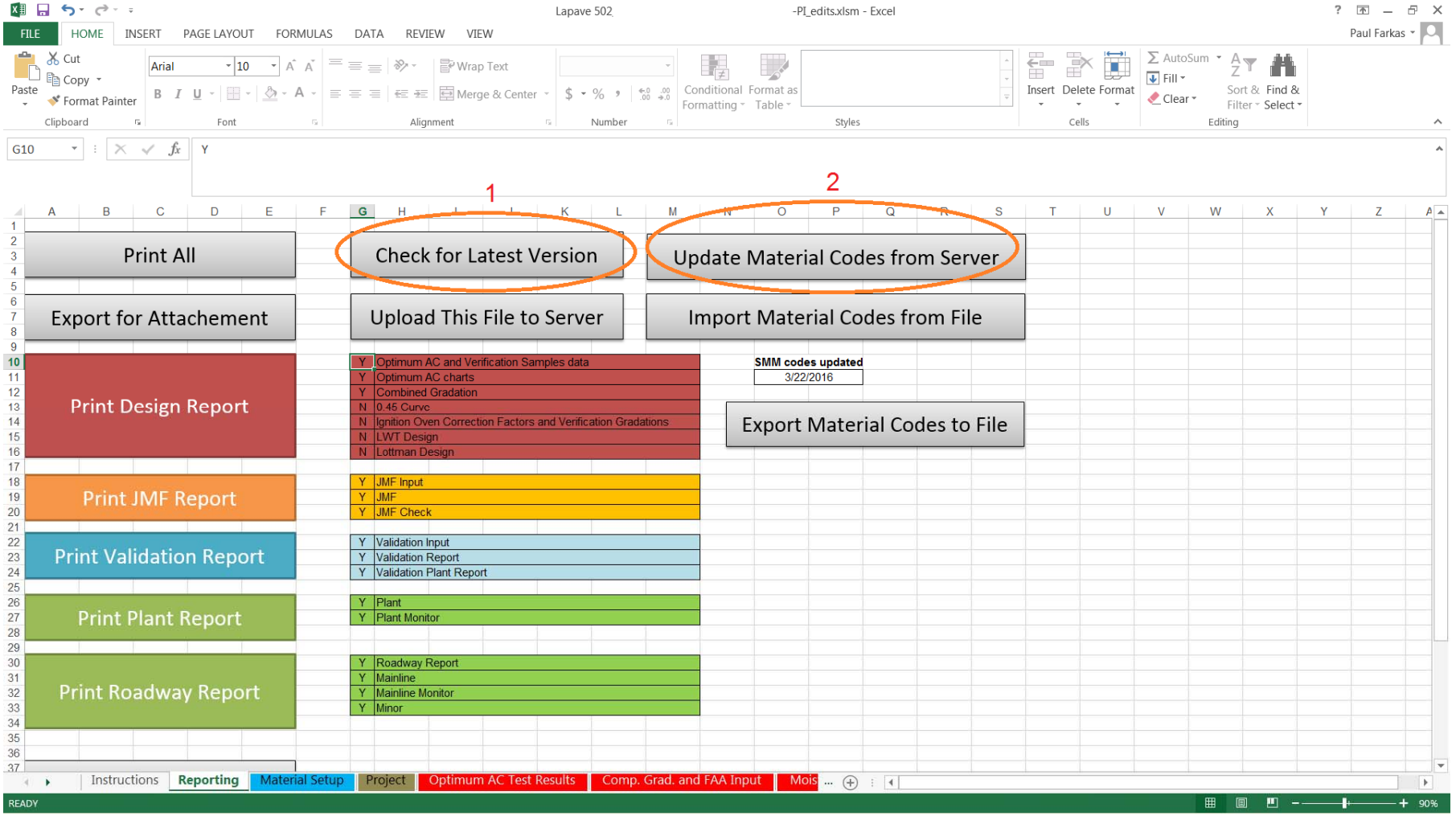
Reporting Tab

The district lab:

Download the latest version of LaPave from the “Public Share Folder” that is provided by the Materials Lab (section 22)

On the reporting tab:

1.) “Check for Latest Version” of LaPave
2.) “Update Material Codes from the Server”



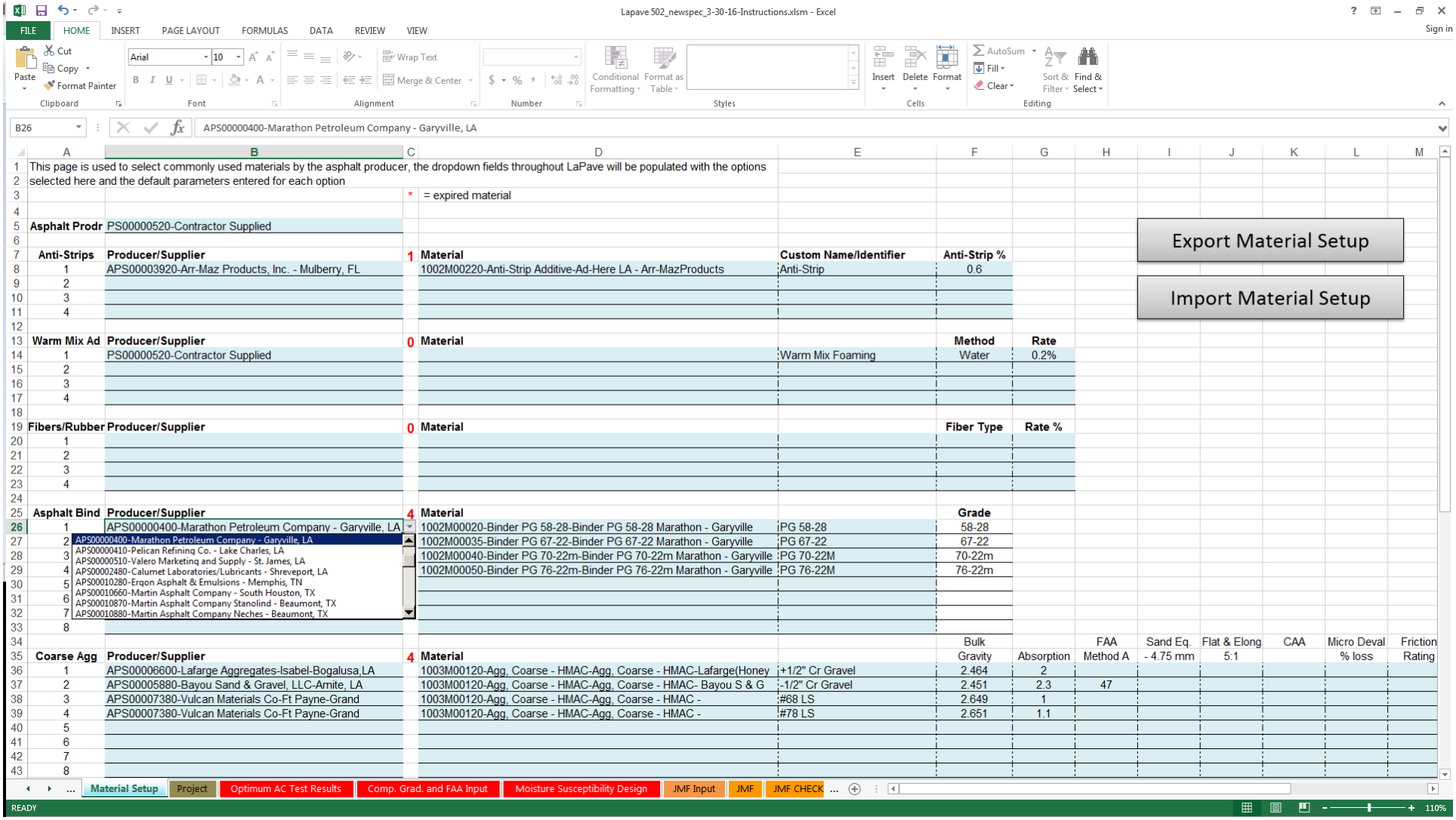
Send the contractor the blank LaPave with the latest Material Codes loaded

Materials Setup

The contractor can create a “Material Setup” that can be exported & imported

Materials that are specific to a contractor can be selected from drop downs. The setup will greatly reduce the selection options as well as speed up the JMF process. Mix additives, AC source & grade, coarse & fine aggregates, and RAP are some of sources that can be contractor specific

Consensus properties as well as gradations for the individual aggregates can be entered. This will auto populate certain fields for the JMF input process



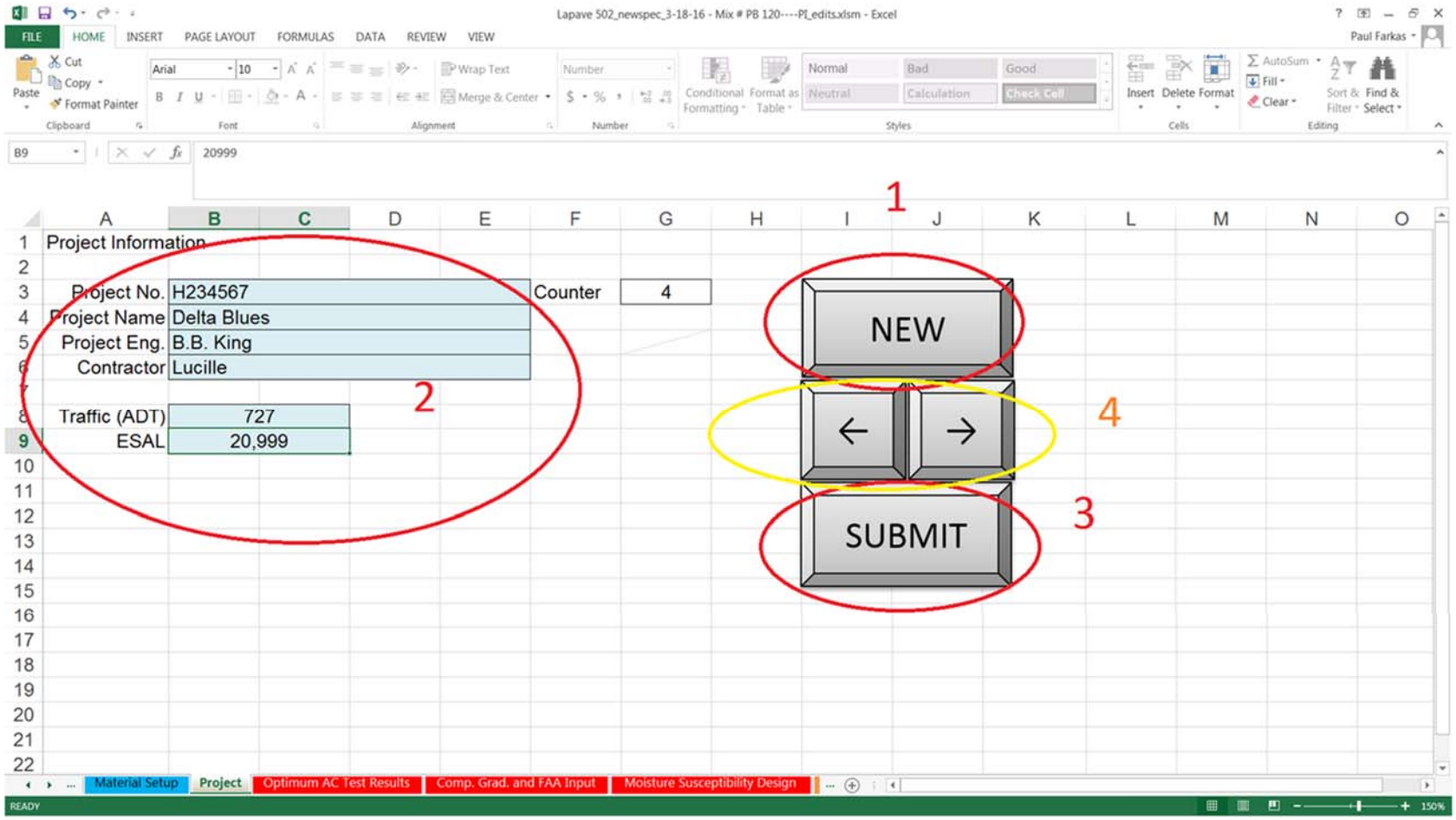
Project Tab

The Project Tab is used to enter project information that can be modified if necessary

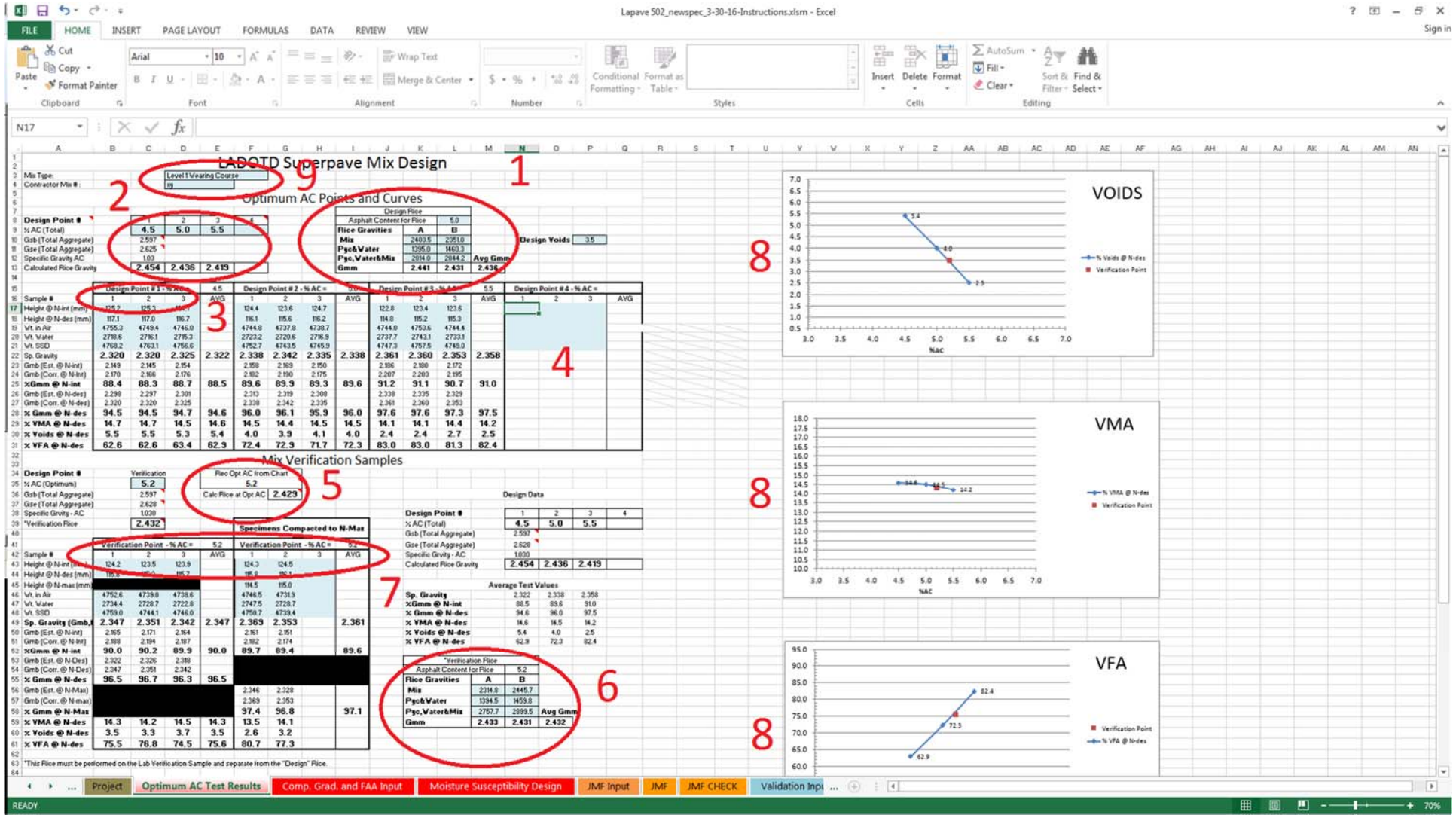
1) Click the new button to create a new project
2) Enter the project number, project name, project engineer, contractor, ADT & ESAL count
3) Click the submit button record the entered information. If using the Excel version of LaPave, you must also use the “SAVE” function
4) The arrows are used to scroll through the projects that have been entered

If the information for a project needs editing, scroll to that project. Edit the information & click submit. If using the Excel version of LaPave, you must also use the “SAVE” function

If you are on the last entry there will be a “You are on the last record” dialogue box



Optimum AC Test Results Tab



The “Optimum AC Test Results” tab is used to enter design information. The Blue fields are data entry fields.

1. One G_{mm} is entered at or near the optimal AC content
2. The sheet will calculate the G_{mm} plus and minus 0.5% from the entered G_{mm}.

3. A minimum of two gyratory briqs at the three design AC contents are to be made and entered into the top portion of the tab. There is a place for a third briq at each AC content if the designer so chooses.
4. There is also a section for a fourth AC content point for use at the option of the designer
5. The tab will plot give a suggested AC content that the designer may their discretion. This is based on the design voids entered and the graph fit
6. A verification G_{mm} also required as part of the design process
7. A minimum of two design and one max brig is required for the verification point. There are places for three of each if the designer chooses to utilize all entries.
8. The design information is plotted for Voids, VMA and VFA. The three or four points that form the graph line are the design points. The red point on the graph represents the verification point.
9. Mix type entry and Contractor Mix ID

Comp. Grad. And FAA Input

This tab is being covered in two parts

The first will cover individual aggregate gradation, composite gradation, gradation bands and .45 power curve

1. The individual aggregate names will be picked up from the JMF input page along with bin percentages. The gradations can be populated one of two ways
    a. If the contractor utilizes the Material Setup tab, gradation values will auto populate if they were set up.
    b. They can be manually entered if "Other" is used on the "Aggr. Class" dropdown on the "JMF Input" tab. After manually entering the gradation, the "Aggr. Class" can be changed to either "Coarse" or "Fine"
2. Gradations for the individual aggregates
3. Composite gradation of the mix
4. Gradation band for the Nominal Aggregate Size
5. FAA values and bin percentages are auto populated from the "JMF Input" tab
6. .45 power curve

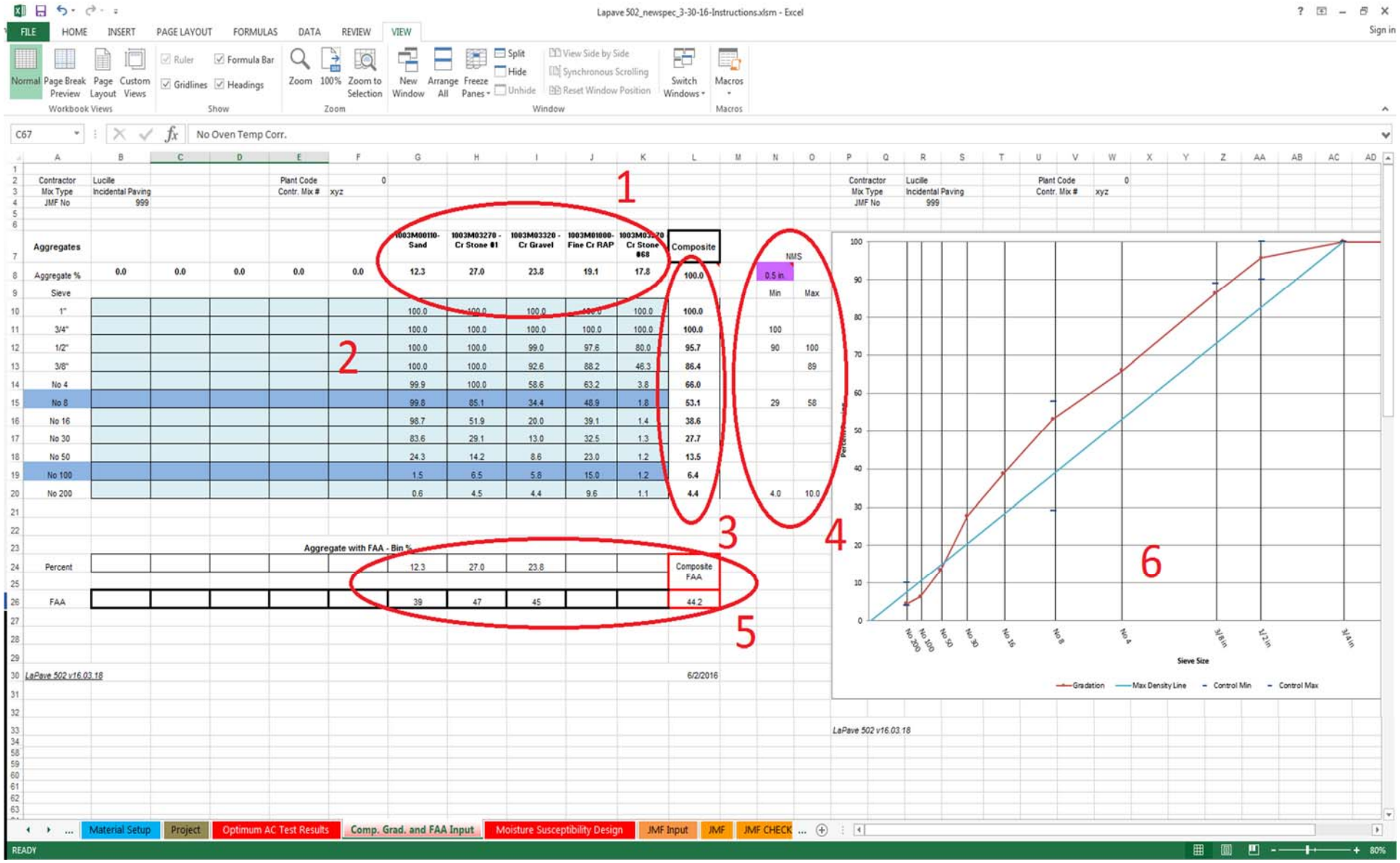
The second part of the "Comp. Grad. and FAA Input" tab is about mix correction factors.

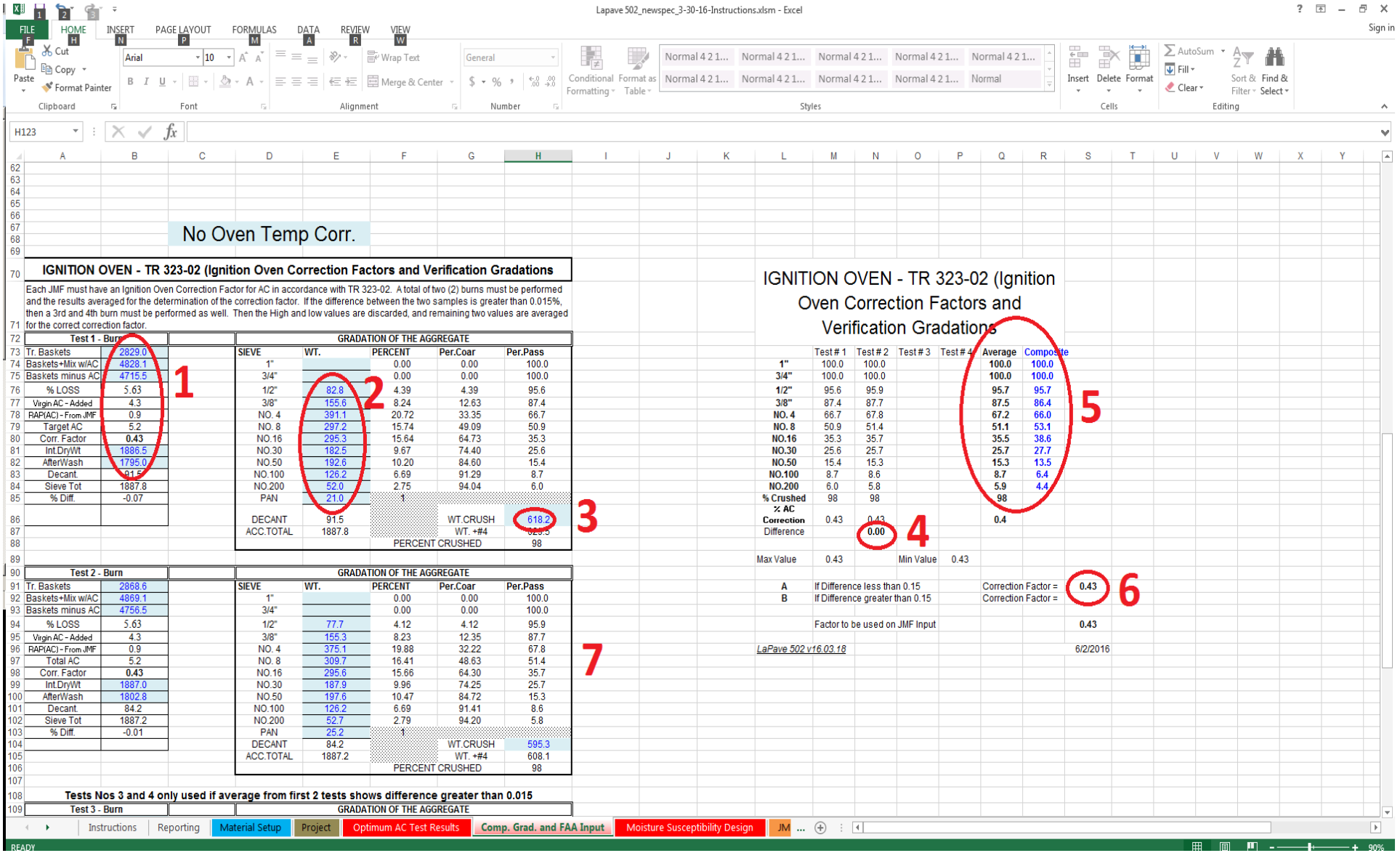
This establishes gradations of lab design mixes after going through the ignition furnace as well as the difference between the known AC content compared to the scale to scale calculated AC content to create an AC correction factor.

There should be a minimum of two ignition furnace extractions, which are averaged, to determine correction.

1. Weight for the empty burn basket is entered. The weight of the basket and mix is entered before and after the furnace extraction. The initial weight of the recovered aggregate as well as the dried weight after washing over the #200 sieve.
2. The gradation weights are entered.
3. The weight of the + #4 crushed aggregate is entered to calculate the percent crushed.
4. If the difference between the two correction factors is greater than 0.15, two more furnace extractions should be performed.
5. A gradation comparison is given for the after burn gradation vs composite gradation.
6. The calculated correction factor that will be used on the JMF.
7. Entry for the second furnace extraction and gradation.

Repeat for the third and four if the difference between the first and second burns are greater than 0.15


Lapave 502_newspec_3-30-16-Instructions.xlsm - Excel
FILE
HOME
INSERT
PAGE LAYOUT
FORMULAS
DATA
REVIEW
VIEW
Sign in
Normal
Page Break Preview
Page Layout
Custom Views
Workbook Views
Ruler
Formula Bar
Gridlines
Headings
Show
Zoom
100%
Zoom to Selection
Zoom
New Window
Arrange All
Freeze Panes
Split
Hide
Unhide
View Side by Side
Synchronous Scrolling
Reset Window Position
Window
Switch Windows
Macros
C67
No Oven Temp Corr.
Contractor
Lucille
Mix Type
Incidental Paving
JMF No
999
Plant Code
0
Contr. Mix #
xyz
Aggregates
1003M00110-Sand
1003M03270 - Cr Stone #1
1003M03320 - Cr Gravel
1003M01000-Fine Cr RAP
1003M03270 Cr Stone #68
Composite
Aggregate %
0.0
12.3
27.0
23.8
19.1
17.8
100.0
Sieve
1"
3/4"
1/2"
3/8"
No 4
No 8
No 16
No 30
No 50
No 100
No 200
100.0
99.8
98.7
83.6
24.3
1.5
0.6
95.7
86.4
66.0
53.1
38.6
27.7
13.5
6.4
4.4
NMS
0.5 in
Min
Max
100
90
100
89
29
58
4.0
10.0
Aggregate with FAA - Bin %
Percent
FAA
Composite FAA
39
47
45
44.2
1
2
3
4
5
6
LaPave 502 v16.03.18
6/2/2016
Percent Passing
Sieve Size
No 200
No 100
No 50
No 30
No 16
No 8
No 4
3/8 in
1/2 in
3/4 in
Gradation
Max Density Line
Control Min
Control Max
Material Setup
Project
Optimum AC Test Results
Comp. Grad. and FAA Input
Moisture Susceptibility Design
JMF Input
JMF
JMF CHECK
READY
80%


Lapave 502_newspec_3-30-16-Instructions.xlsm - Excel
No Oven Temp Corr.
IGNITION OVEN - TR 323-02 (Ignition Oven Correction Factors and Verification Gradations
Each JMF must have an Ignition Oven Correction Factor for AC in accordance with TR 323-02. A total of two (2) burns must be performed and the results averaged for the determination of the correction factor. If the difference between the two samples is greater than 0.015%, then a 3rd and 4th burn must be performed as well. Then the High and low values are discarded, and remaining two values are averaged for the correct correction factor.
Test 1 - Burn
GRADATION OF THE AGGREGATE
Tr. Baskets 2829.0
Baskets+Mix w/AC 4828.1
Baskets minus AC 4715.5
% LOSS 5.63
Virgin AC - Added 4.3
RAP(AC) - From JMF 0.9
Target AC 5.2
Corr. Factor 0.43
Int.DryWt 1886.5
AfterWash 1795.0
Decant. 91.5
Sieve Tot 1887.8
% Diff. -0.07
SIEVE WT. PERCENT Per.Coar Per.Pass
1" 0.00 0.00 100.0
3/4" 0.00 0.00 100.0
1/2" 82.8 4.39 4.39 95.6
3/8" 155.6 8.24 12.63 87.4
NO. 4 391.1 20.72 33.35 66.7
NO. 8 297.2 15.74 49.09 50.9
NO.16 295.3 15.64 64.73 35.3
NO.30 182.5 9.67 74.40 25.6
NO.50 192.6 10.20 84.60 15.4
NO.100 126.2 6.69 91.29 8.7
NO.200 52.0 2.75 94.04 6.0
PAN 21.0 1
DECANT 91.5 WT.CRUSH 618.2
ACC.TOTAL 1887.8 WT. +#4
PERCENT CRUSHED 98
Test 2 - Burn
GRADATION OF THE AGGREGATE
Tr. Baskets 2868.6
Baskets+Mix w/AC 4869.1
Baskets minus AC 4756.5
% LOSS 5.63
Virgin AC - Added 4.3
RAP(AC) - From JMF 0.9
Total AC 5.2
Corr. Factor 0.43
Int.DryWt 1887.0
AfterWash 1802.8
Decant. 84.2
Sieve Tot 1887.2
% Diff. -0.01
SIEVE WT. PERCENT Per.Coar Per.Pass
1" 0.00 0.00 100.0
3/4" 0.00 0.00 100.0
1/2" 77.7 4.12 4.12 95.9
3/8" 155.3 8.23 12.35 87.7
NO. 4 375.1 19.88 32.22 67.8
NO. 8 309.7 16.41 48.63 51.4
NO.16 295.6 15.66 64.30 35.7
NO.30 187.9 9.96 74.25 25.7
NO.50 197.6 10.47 84.72 15.3
NO.100 126.2 6.69 91.41 8.6
NO.200 52.7 2.79 94.20 5.8
PAN 25.2 1
DECANT 84.2 WT.CRUSH 595.3
ACC.TOTAL 1887.2 WT. +#4 608.1
PERCENT CRUSHED 98
Tests Nos 3 and 4 only used if average from first 2 tests shows difference greater than 0.015
Test 3 - Burn
GRADATION OF THE AGGREGATE
IGNITION OVEN - TR 323-02 (Ignition Oven Correction Factors and Verification Gradations
Test # 1 Test # 2 Test # 3 Test # 4 Average Composite
1" 100.0 100.0 100.0 100.0
3/4" 100.0 100.0 100.0 100.0
1/2" 95.6 95.9 95.7 95.7
3/8" 87.4 87.7 87.5 86.4
NO. 4 66.7 67.8 67.2 66.0
NO. 8 50.9 51.4 51.1 53.1
NO.16 35.3 35.7 35.5 38.6
NO.30 25.6 25.7 25.7 27.7
NO.50 15.4 15.3 15.3 13.5
NO.100 8.7 8.6 8.7 6.4
NO.200 6.0 5.8 5.9 4.4
% Crushed 98 98 98
% AC Correction 0.43 0.43 0.4
Difference 0.00
Max Value 0.43 Min Value 0.43
A If Difference less than 0.15 Correction Factor = 0.43
B If Difference greater than 0.15 Correction Factor =
Factor to be used on JMF Input 0.43
LaPave 502 v16.03.18 6/2/2016
1
2
3
4
5
6
7
Instructions
Reporting
Material Setup
Project
Optimum AC Test Results
Comp. Grad. and FAA Input
Moisture Susceptibility Design
JM
READY

Moisture Susceptibility Design

This will be covered in two parts.

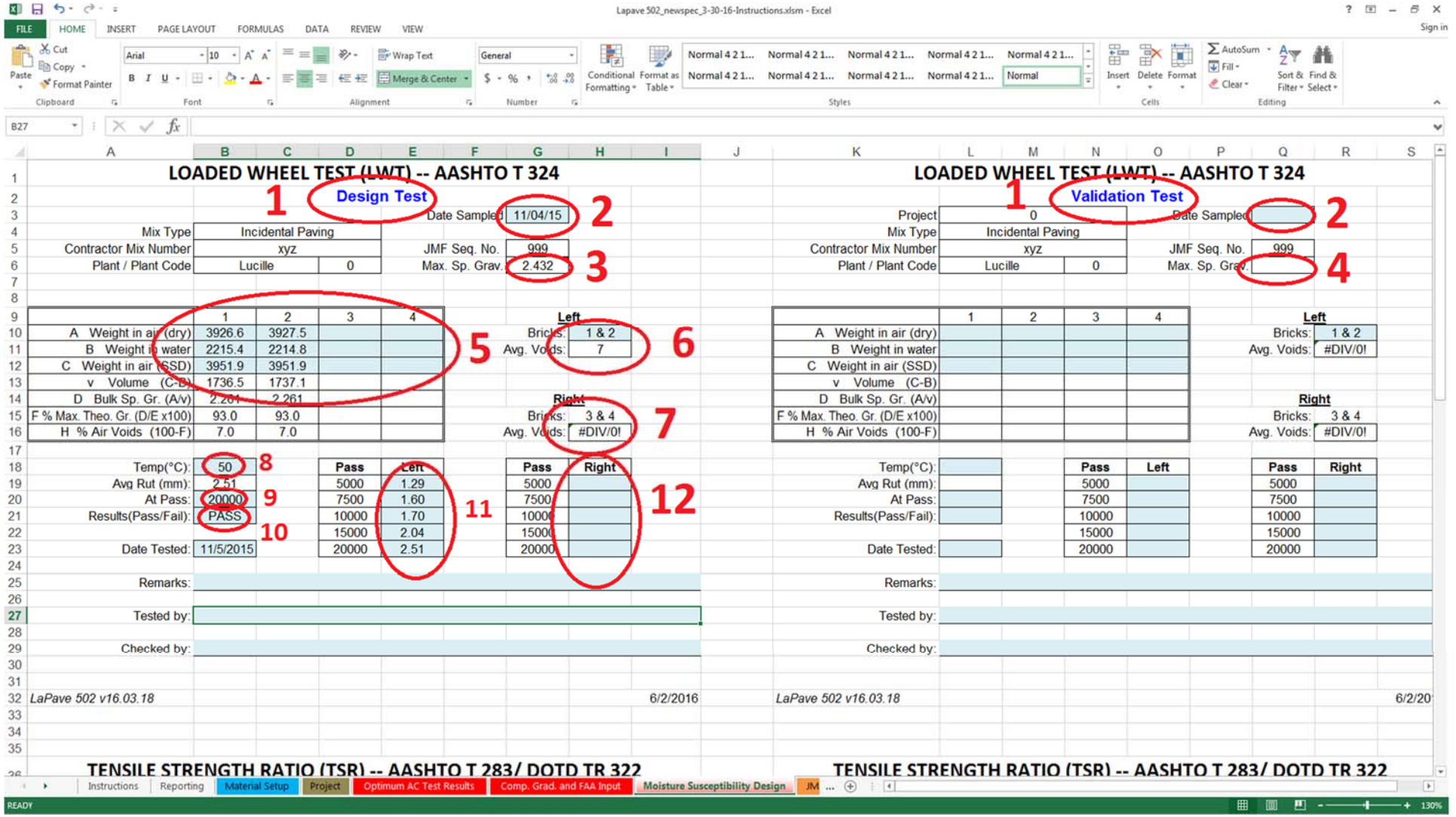
LWT AASHTO T 324 – Can be used for all mixes. Required for all mixes under traffic.

1. There is an entry for the LWT for design and one for plant run mix that is part of the validation process
2. The date sampled for both design and validation
3. The G_{mm} submitted with the design
4. The G_{mm} determined from the validation that is automatically pulled from the JMF.
5. Air, water, and SSD weights are entered to determined void content of the gyratory samples
6. Paired samples and average voids of the pair.
7. If a dual wheel tracker or a second set of samples are tested this will be utilized.
8. Temperature test was performed
9. The number of passes on the LWT correlating to the mix type and specification requirements
10. Pass / Fail dropdown
11. The rut depth at the corresponding pass
12. If a dual wheel tracker or a second set of samples are tested this will be utilized

TSR TR 322 / AASHTO T 283 – Tensile Strength Ratio – This can be used for minor mixes at the option of the contractor.

Like the LWT, this test will need to be performed on the lab design as well as plant run mix.

1. Date mix was sampled
2. Weights entered to determine air voids. Sort the specimens into two sets of three so that the average percent air voids of the two sets are as close to equal as possible
3. Enter after vacuum SSD and in water weights to calculate percent saturation
4. Enter two diameter measurements per the testing procedure
5. Enter three thickness measurements per the testing procedure
6. Enter the dial reading from the loading apparatus
7. Enter the maximum load from the conversion table for the loading apparatus



LOADED WHEEL TEST (LWT) -- AASHTO T 324

1 Design Test

Mix Type	Incidental Paving
Contractor Mix Number	xyz
Plant / Plant Code	Lucille 0
Date Sampled	11/04/15 (2)
JMF Seq. No.	999
Max. Sp. Grav.	2.432 (3)

	1	2	3	4
A Weight in air (dry)	3926.6	3927.5		
B Weight in water	2215.4	2214.8		
C Weight in air (SSD)	3951.9	3951.9		
v Volume (C-B)	1736.5	1737.1		
D Bulk Sp. Gr. (A/v)	2.261	2.261		
F % Max. Theo. Gr. (D/E x100)	93.0	93.0		
H % Air Voids (100-F)	7.0	7.0		

(5)

Left — Bricks: 1 & 2; Avg. Voids: 7 (6)

Right — Bricks: 3 & 4; Avg. Voids: #DIV/0! (7)

Temp(°C):	50 (8)
Avg Rut (mm):	2.51
At Pass:	20000 (9)
Results(Pass/Fail):	PASS (10)
Date Tested:	11/5/2015

Pass	Left
5000	1.29
7500	1.60
10000	1.70
15000	2.04
20000	2.51

(11)

Pass	Right
5000	
7500	
10000	
15000	
20000	

(12)

Remarks:

Tested by:

Checked by:

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LOADED WHEEL TEST (LWT) -- AASHTO T 324

1 Validation Test

Project	0
Mix Type	Incidental Paving
Contractor Mix Number	xyz
Plant / Plant Code	Lucille 0
Date Sampled	(2)
JMF Seq. No.	999
Max. Sp. Grav.	(4)

	1	2	3	4
A Weight in air (dry)				
B Weight in water				
C Weight in air (SSD)				
v Volume (C-B)				
D Bulk Sp. Gr. (A/v)				
F % Max. Theo. Gr. (D/E x100)				
H % Air Voids (100-F)				

Left — Bricks: 1 & 2; Avg. Voids: #DIV/0!

Right — Bricks: 3 & 4; Avg. Voids: #DIV/0!

Temp(°C):	
Avg Rut (mm):	
At Pass:	
Results(Pass/Fail):	
Date Tested:	

Pass	Left
5000	
7500	
10000	
15000	
20000	

Pass	Right
5000	
7500	
10000	
15000	
20000	

Remarks:

Tested by:

Checked by:

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TENSILE STRENGTH RATIO (TSR) -- AASHTO T 283/ DOTD TR 322

TENSILE STRENGTH RATIO (TSR) -- AASHTO T 283/ DOTD TR 322

TENSILE STRENGTH RATIO (TSR) -- AASHTO T 283/ DOTD TR 322

Design Test

Date Sampled: 1

Mix Type	Incidental Paving
Contractor Mix Number	xyz
Plant / Plant Code	Lucille 0
JMF Seq. No.	999
Max. Sp. Grav.	2.432

	1	2	3	4	5	6	7	8
	Control Set				Moisture Conditioned Set			
A Weight in air (dry)								
B Weight in water								
C Weight in air (SSD)								
v Volume (C-B)								
D Bulk Sp. Gr. (A/v)								
F % Max. Theo. Gr. (D/E x100)								
H % Air Voids (100-F)								

2

Avg. Voids (Control) | Avg. Voids (Cond) | Weight | # Blows

AFTER VACUUM CONDITIONING

	1	2	3	4	5	6	7	8
G Weight in air (SSD)								
I Weight in Water								
V Volume (G-I)								
W Vol. Abs. Water,cc (G-A)								
Vv Vol. Air Voids (Hv/100)								
N % Sat (100W/Vv)								

3

INDIRECT TENSILE TESTING

		1	2	3	4	5	6	7	8
	D1								
Specimen	D2								
Diameter	D								
	T1								
Specimen	T2								
Thickness	T3								
	T								
	Dial Reading								
	P Maximum Load								
	S Strength (2P/pi*TD)								

4 5 6 & 7

Avg. Strength (Ctrl.)		Date Tested	
Avg. Strength (Cond.)		Samp. Set I.D.	
TSR		Warm Mix Asphalt(Y/N)	Yes

TENSILE STRENGTH RATIO (TSR) -- AASHTO T 283/ DOTD TR 322

Validation Test

Date Sampled: 1

Mix Type	Incidental Paving
Contractor Mix Number	xyz
Plant / Plant Code	Lucille 0
JMF Seq. No.	999
Max. Sp. Grav.	

	1	2	3	4	5	6	7	8
	Control Set				Moisture Conditioned Set			
A Weight in air (dry)								
B Weight in water								
C Weight in air (SSD)								
v Volume (C-B)								
D Bulk Sp. Gr. (A/v)								
F % Max. Theo. Gr. (D/E x100)								
H % Air Voids (100-F)								

Avg. Voids (Control) | Avg. Voids (Cond) | Weight | # Blows

AFTER VACUUM CONDITIONING

	1	2	3	4	5	6	7	8
G Weight in air (SSD)								
I Weight in Water								
V Volume (G-I)								
W Vol. Abs. Water,cc (G-A)								
Vv Vol. Air Voids (Hv/100)								
N % Sat (100W/Vv)								

INDIRECT TENSILE TESTING

		1	2	3	4	5	6	7	8
	D1								
Speciman	D2								
Diameter	D								
	T1								
Speciman	T2								
Thickness	T3								
	T								
	Dial Reading								
	P Maximum Load								
	S Strength (2P/pi*TD)								

Avg. Strength (Ctrl.)		Date Tested	
Avg. Strength (Cond.)		Samp. Set I.D.	
TSR		Warm Mix Asphalt(Y/N)	Yes

Instructions | Reporting | Material Setup | Project | Optimum AC Test Results | Comp. Grad. and FAA Input | Moisture Susceptibility Design | JM ...

READY

JMF Input

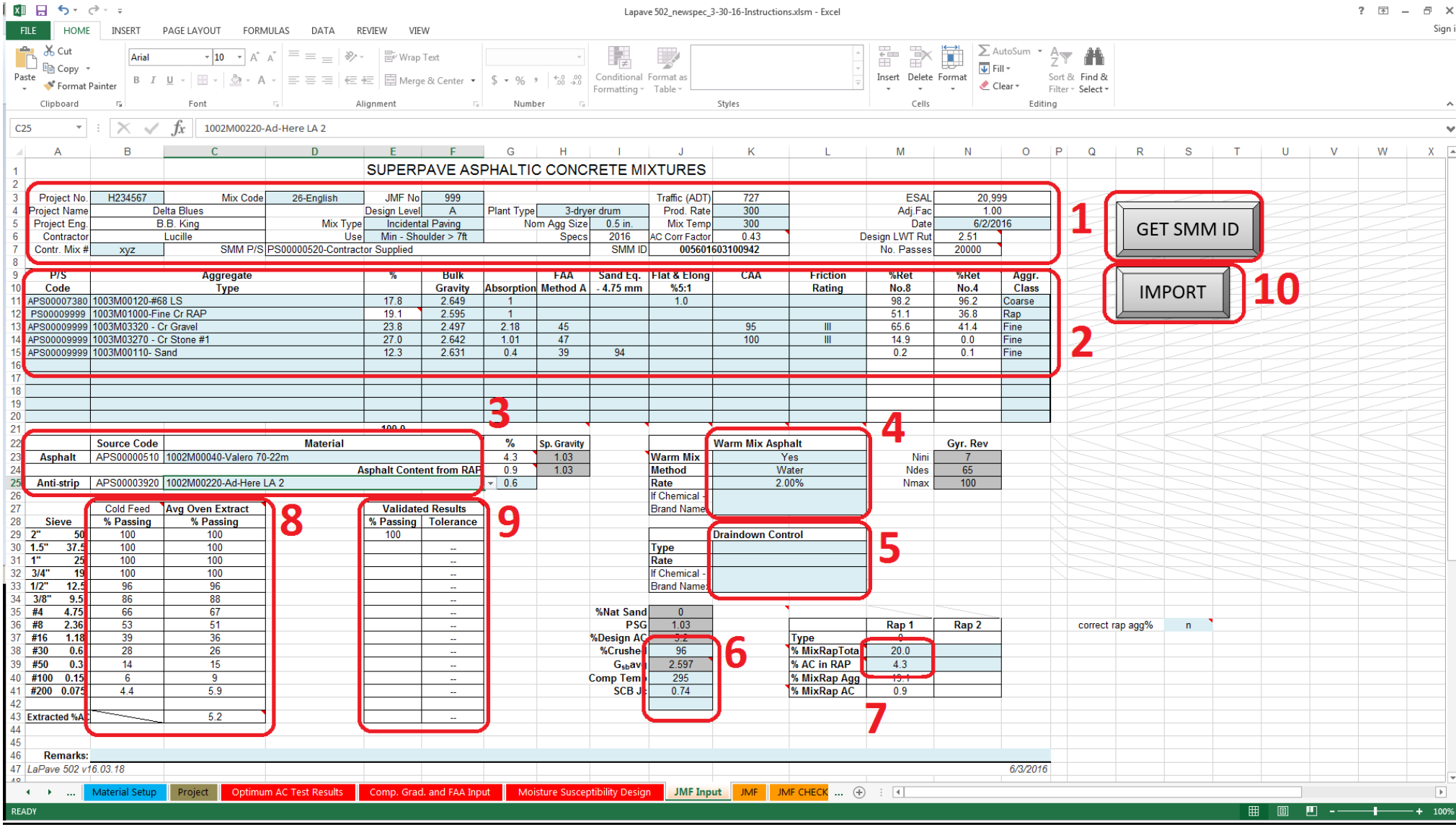
The JMF Input page is a combination of dropdown choices and manual entries. The version with the "Material Setup" tab will have more dropdown choices.

1. The header information is completed with a combination of dropdowns and manual data entry.
    a. Project No. – Information entered in the "Project" tab will appear in a dropdown. You may have to scroll up for the entered projects to be visible. Project Name, Project Eng. And Contractor will auto fill when the project number is chosen.
    b. Contr. Mix # - Manual input
    c. Mix Code – Dropdown for either English or Metric. Hopefully there are very few metric projects on the shelfs
    d. SMM P/S – Auto populate from the "Material Setup" tab cell B5
    e. JMF No – Manual input
    f. Design Level – Dropdown
    g. Use – Dropdown
    h. Plant type – Dropdown
    i. Nom Agg Size – Dropdown
    j. ADT – Auto populate from Project No. choice
    k. Production Rate – Manual entry
    l. Mix Temp – Manual entry
    m. AC Corr Factor – Auto populate from the "Comp. Grad. and FAA input" tab
    n. ESAL – Auto populate from Project No. choice
    o. Adj Fac – Calculated from the design G_{mm} and then from the validated G_{mm} after validation
    p. SMM ID – Created from GET SMM ID
    q. Date – Manual input
    r. Design LWT Rut – Auto populate from the "Moisture Susceptibility Design" tab
    s. No. Passes - Auto populate from the "Moisture Susceptibility Design" tab

2. The Aggregate Type and Consensus section of the "JMF Input" tab can be completed manually in older versions of LaPave or as a combination of dropdown and manual entry in the version of LaPave with the "Material Setup" tab
    a. For versions of LaPave with the "Material Setup" tab, **choose the "Aggr Class" first**. Aggregate Type has a dropdown to choose each aggregate for a JMF. The P/S Code, Bulk Gravity, Absorption, FAA, Sand Eq., and Flat & Elong %5:1 will auto populate from information entered on the "Material Setup" tab. Older versions of LaPave, all the above properties will have to be entered.
    b. The "%" of aggregate in a manual entry.
    c. % Ret No. 8 and % Ret No. 4 auto populates from the "Comp. Grad. and FAA Input" tab

d. Aggr. Class has dropdowns for Coarse, Fine, RAP and Other. If RAP is chosen, it will auto populate the "%" based on the data entered in the section containing Rap 1 and Rap 2. Choosing Other will allow manual entry of the gradation for that particular aggregate on the "Comp. Grad. and FAA Input" tab.

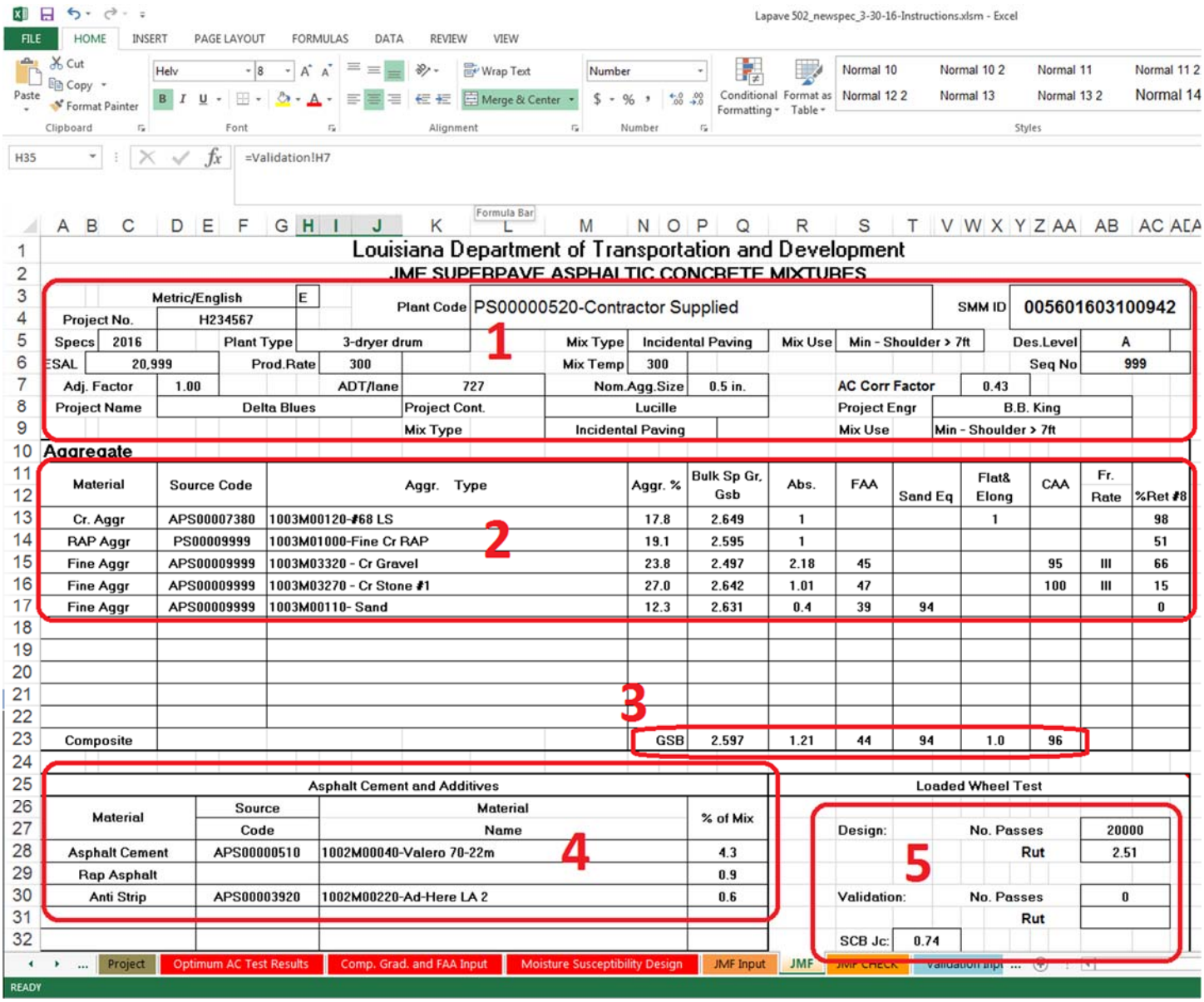
3. Material – In older versions of LaPave this is a manual entry. In the LaPave with the "Material Setup" the Asphalt and Anti-strip can be chosen from the dropdown from each. The Asphalt Content from RAP is auto populated from the data entered in Rap 1 and Rap 2.
4. Warm Mix – Warm Mix – Yes/No dropdown, Method – Water, Chemical or None dropdown, Rate – manual entry, If Chemical – Brand Name – manual entry
5. Draindown Control – Cellulose Fiber, Mineral Fiber, Crumb Rubber, and None from the dropdown
6. %Crushed, Comp. Temp, and SCB Jc are manual entries
7. Rap 1 and Rap 2 - %Mix Rap Total and % AC in RAP are manual entries
8. Cold Feed and Avg Oven Extract – Auto Populate from the Comp. Grad. and FAA Input tab
9. Validated Results – Populated and tolerances applied from the "JMF" tab
10. IMPORT button – Import all the JMF information from another LaPave file


Lapave 502_newspec_3-30-16-Instructions.xlsm - Excel
SUPERPAVE ASPHALTIC CONCRETE MIXTURES
Project No. H234567
Mix Code 26-English
JMF No 999
Project Name Delta Blues
Design Level A
Plant Type 3-dryer drum
Project Eng. B.B. King
Mix Type Incidental Paving
Nom Agg Size 0.5 in.
Contractor Lucille
Use Min - Shoulder > 7ft
Specs 2016
Contr. Mix # xyz
SMM P/S PS00000520-Contractor Supplied
SMM ID 005601603100942
Traffic (ADT) 727
Prod. Rate 300
Mix Temp 300
AC Corr Factor 0.43
ESAL 20,999
Adj.Fac 1.00
Date 6/2/2016
Design LWT Rut 2.51
No. Passes 20000
1
GET SMM ID
IMPORT
10
2
3
4
5
6
7
8
9
Remarks:
LaPave 502 v16.03.18
6/3/2016
Material Setup
Project
Optimum AC Test Results
Comp. Grad. and FAA Input
Moisture Susceptibility Design
JMF Input
JMF
JMF CHECK
READY

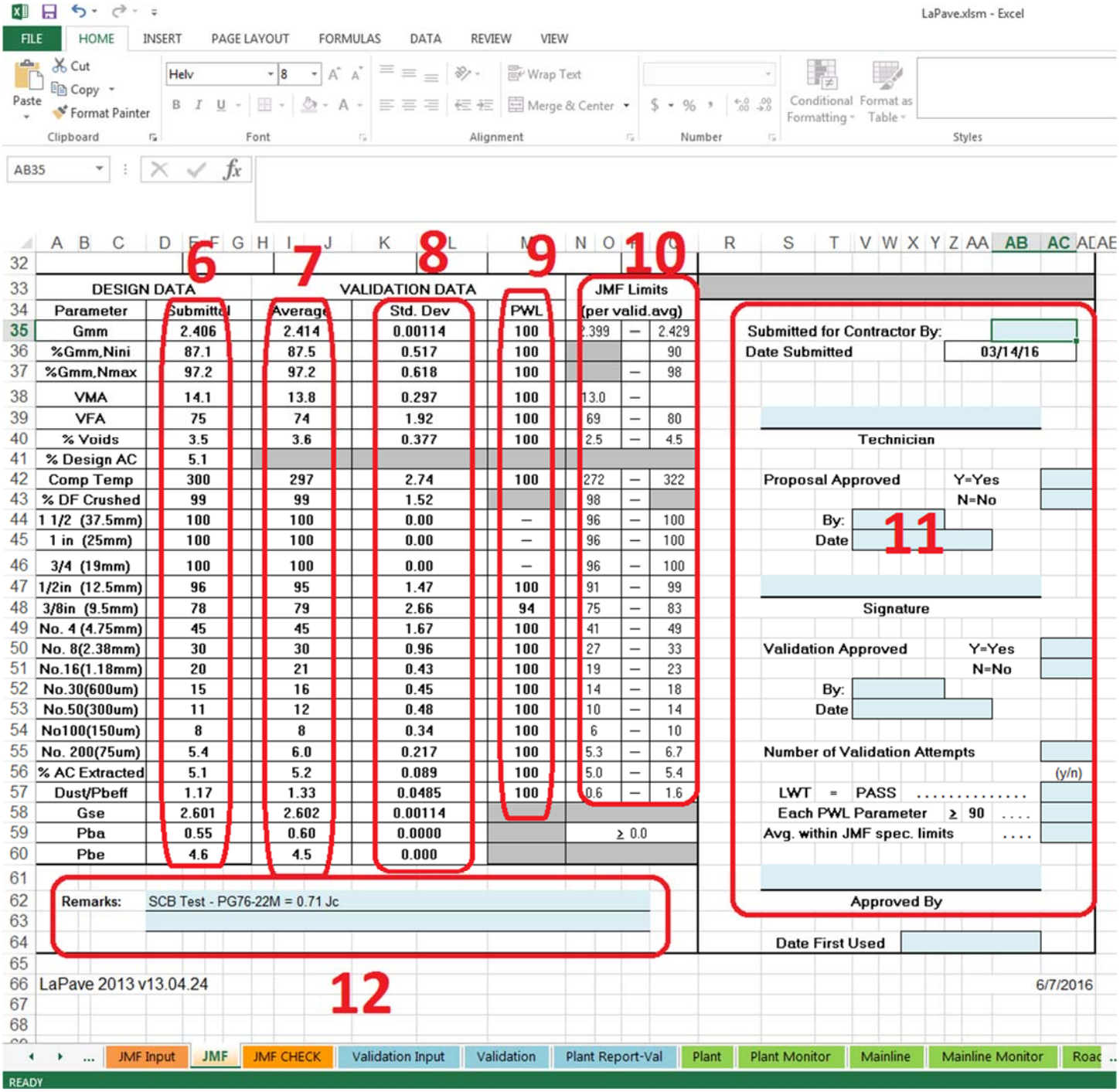
JMF

For the most part, the "JMF" tab auto populates. The signature area has some input as well as the Remarks section.

1. The header section auto populates based on the project selected and the design information input on the "JMF Input" tab
2. The aggregates, bin percentages, properties and source codes auto populate from the "JMF Input" tab.
3. Composite averages are calculated and shown on the "JMF" tab
4. Asphalt Cement and Additives are auto populated from the "JMF Input" tab
5. LWT and SCB Jc value are displayed in this section

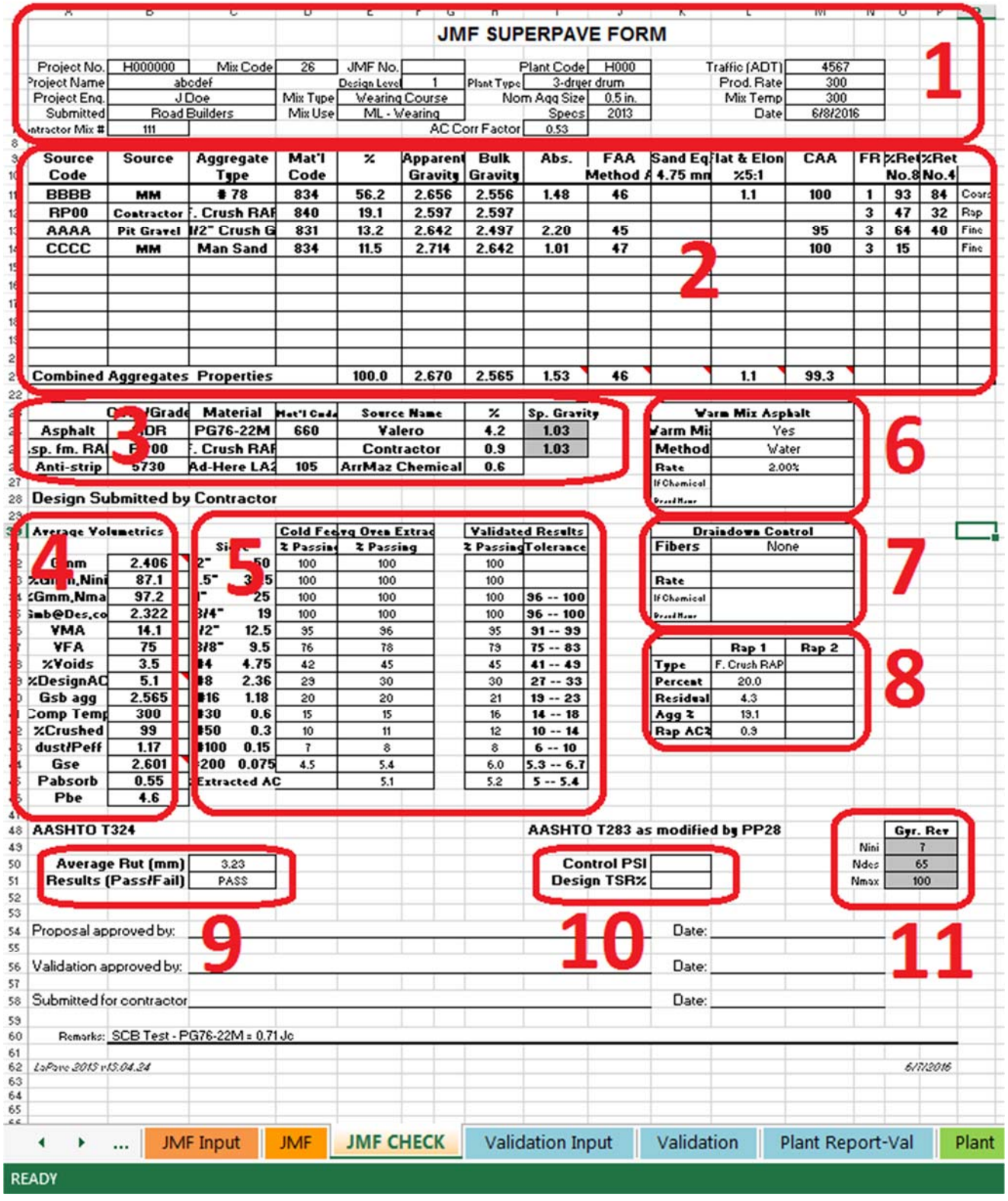


6. JMF values from the mix design
7. JMF average values from the validation
8. The standard deviation of each parameter from validation data
9. PWL from the validation data
10. Specification limits based on validation averages
11. Submittal and approval area
12. Remarks



JMF CHECK

1. Header area is auto populated from the “JMF Input” tab
2. The aggregate section is auto populated from the “JMF Input” tab with the Apparent Gravity calculated on this sheet.
3. Percent Virgin AC, Percent RAP AC and anti-strip rate. This is auto populated from the “JMF Input” tab.
4. Average Volumetrics for the most part pulls from the Optimum AC Test Results. VFA is calculated on optimum voids (3.5 for most mixes) not the voids of the design gyratory briqs.
5. Shows the composite gradation from the cold feeds, the furnace extraction gradation & the average gradation from the validation with tolerances.
6. Warm mix information pulled from the “JMF Input” tab
7. Drainwdown Control information pulled from the “JMF Input” tab
8. Information for up to two RAP cold feeds. The overall percentage of RAP including AC, the residual %AC of the RAP, the aggregate credit to the mix and the %AC credit to the mix.
9. The average rut from the LWT is pulled from the “Moisture Susceptibility Design” tab
10. TSR information if this option is used for minor mixes is pulled from the “Moisture Susceptibility Design” tab
11. The N_{ini}, N_{des}, and N_{max} gyrations are pulled from the “JMF Input” tab. The type and design level of the mix chosen on the “JMF Input” tab determines these numbers



JMF SUPERPAVE FORM

1

Project No.	H000000	Mix Code	26	JMF No.		Plant Code	H000	Traffic (ADT)	4567
Project Name	abcdef			Design Level	1	Plant Type	3-dryer drum	Prod. Rate	300
Project Eng.	J Doe			Mix Type	Wearing Course	Nom Agg Size	0.5 in.	Mix Temp	300
Submitted	Road Builders			Mix Use	ML - Wearing	Specs	2013	Date	6/8/2016
Contractor Mix #	111					AC Corr Factor	0.53		

2

Source Code	Source	Aggregate Type	Mat'l Code	%	Apparent Gravity	Bulk Gravity	Abs.	FAA Method A	Sand Eq 4.75 mm	Flat & Elon %5:1	CAA	FR	%Ret No.8	%Ret No.4	
BBBB	MM	# 78	834	56.2	2.656	2.556	1.48	46		1.1	100	1	93	84	Coars
RP00	Contractor	F. Crush RAP	840	19.1	2.597	2.597						3	47	32	Rap
AAAA	Pit Gravel	1/2" Crush G	831	13.2	2.642	2.497	2.20	45			95	3	64	40	Fine
CCCC	MM	Man Sand	834	11.5	2.714	2.642	1.01	47			100	3	15		Fine
Combined Aggregates Properties				100.0	2.670	2.565	1.53	46		1.1	99.3				

3

	Grade	Material	Mat'l Code	Source Name	%	Sp. Gravity
Asphalt	PGDR	PG76-22M	660	Valero	4.2	1.03
Asp. fm. RAP	RP00	F. Crush RAP		Contractor	0.9	1.03
Anti-strip	5730	Ad-Here LA2	105	ArrMaz Chemical	0.6	

6

Warm Mix Asphalt	
Warm Mix	Yes
Method	Water
Rate	2.00%
If Chemical Brand Name	

Design Submitted by Contractor

4

Average Volumetrics	
Gmm	2.406
%Gmm,Nini	87.1
%Gmm,Nma	97.2
Gmb@Des,co	2.322
VMA	14.1
VFA	75
%Voids	3.5
%DesignAC	5.1
Gsb agg	2.565
Comp Temp	300
%Crushed	99
dust/Peff	1.17
Gse	2.601
Pabsorb	0.55
Pbe	4.6

5

Sieve	Cold Feed % Passing	Hot Aggs % Passing	Validated Results % Passing	Tolerance
2" 50	100	100	100	
1.5" 37.5	100	100	100	
1" 25	100	100	100	96 -- 100
3/4" 19	100	100	100	96 -- 100
1/2" 12.5	95	96	95	91 -- 99
3/8" 9.5	76	78	79	75 -- 83
#4 4.75	42	45	45	41 -- 49
#8 2.36	29	30	30	27 -- 33
#16 1.18	20	20	21	19 -- 23
#30 0.6	15	15	16	14 -- 18
#50 0.3	10	11	12	10 -- 14
#100 0.15	7	8	8	6 -- 10
#200 0.075	4.5	5.4	6.0	5.3 -- 6.7
Extracted AC		5.1	5.2	5 -- 5.4

7

Draindown Control	
Fibers	None
Rate	
If Chemical Brand Name	

8

	Rap 1	Rap 2
Type	F. Crush RAP	
Percent	20.0	
Residual	4.3	
Agg %	19.1	
Rap AC%	0.9	

AASHTO T324

Average Rut (mm)	3.23
Results (Pass/Fail)	PASS

9

AASHTO T283 as modified by PP28

Control PSI	
Design TSR%	

10

	Gyr. Rev
Nini	7
Ndes	65
Nmax	100

11

Proposal approved by: _____ Date: _____

Validation approved by: _____ Date: _____

Submitted for contractor _____ Date: _____

Remarks: SCB Test - PG76-22M = 0.71 Jc

LaPave 2015 v15.04.24 6/7/2016

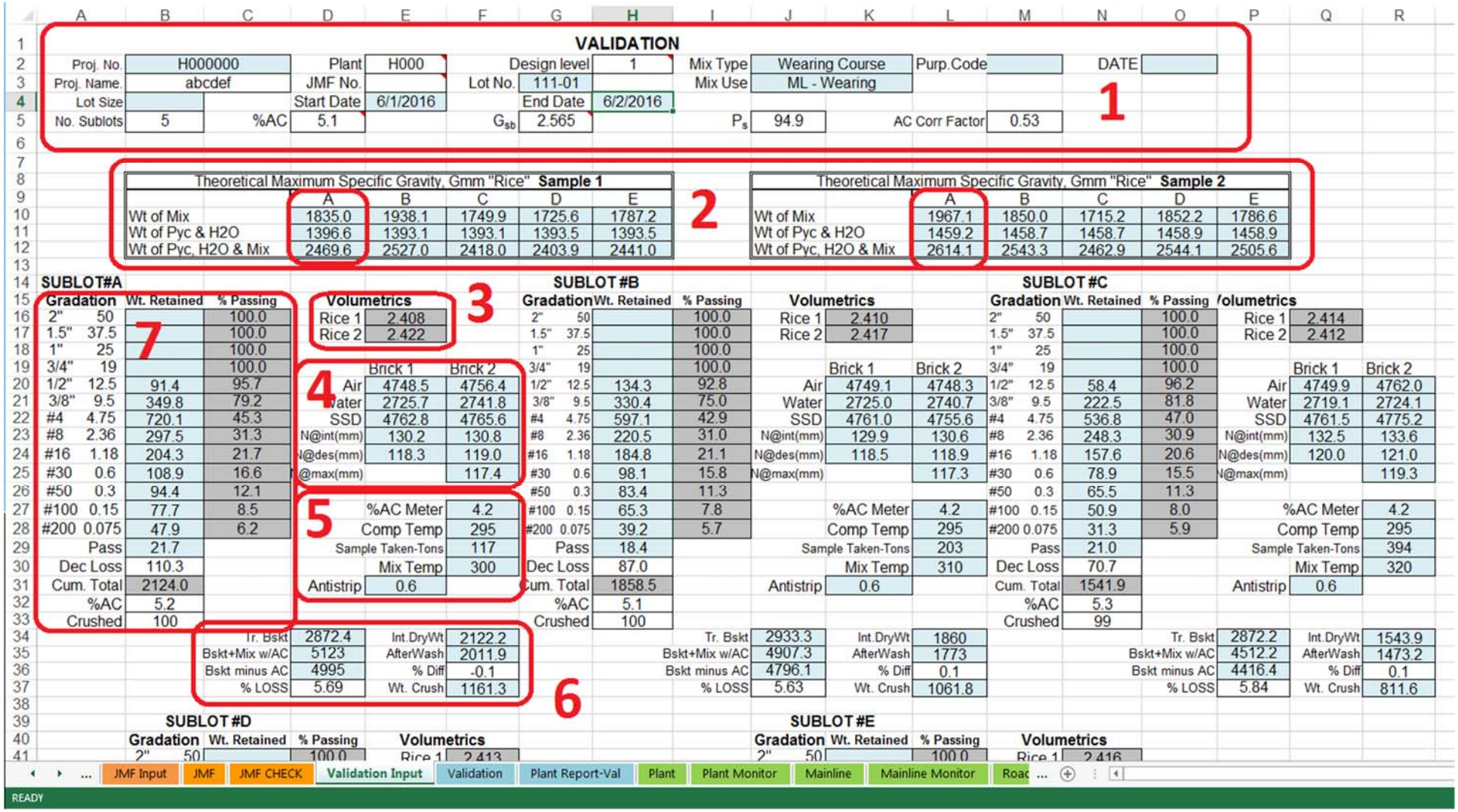
JMF Input | JMF | JMF CHECK | Validation Input | Validation | Plant Report-Val | Plant

READY

Validation Input

1. The header information is a combination of auto population and user input.
    a. Proj. No. – Choose a project from the drop down that was entered on the "Project" tab. Proj. Name will auto populate from information entered on the "Project Tab"
    b. Lot Size – The tonnage in the Validation Lot. Between 1000 and 2000 tons.
    c. No. Sublots - Populated from the number of Rice gravities entered
    d. SMM P/S – Populated from the "JMF Input" tab which is pulled from the "Material Setup" tab
    e. JMF No. – Populated from the "JMF Input" tab
    f. Start & End Date – Manual Input
    g. %AC – Populated from the "JMF Input" tab
    h. Design Level – Populated from the "JMF Input" tab
    i. G_{sb} – Composite bulk gravity of aggregates auto populated from the "JMF CHECK" tab
    j. Mix Type & Mix Use – Drop down choices that should correlate to the design level choices made on the "JMF Input" tab for the same fields
    k. P_s – Percent stone (aggregate) = 100 - %AC
    l. SMM ID – Generated and pulled from the "JMF Input" tab
    m. AC Corr Factor – Is determined on the "Comp. Grad. and FAA Input" tab

2. Paired G_{mm} test for the five sublots
3. Individual G_{mm} results
4. Air, Water, SSD weights and heights for N_{des} and N_{max} briqs
5. The percent virgin AC metered rate, compaction temperature of the sample, tonnage in the validation lot the sample was taken, Mix Temp in the haul truck, and the antistrip rate
6. Scale to scale %AC data entry, aggregate for gradation weights and weight of crushed aggregate
7. Gradation weights with decant loss calculation and percent passing calculation
8. Repeat for the rest of the validation sublots
9. Roadway Density Cores – Under the 2016 spec, the contractor or DOTD make take **informational** cores to check for density. The acceptance cores will come from the 37,500' roadway lot on the project.



VALIDATION

Proj. No.	H000000		Plant	H000		Design level	1	Mix Type	Wearing Course		Purp.Code		DATE				
Proj. Name.	abcdef		JMF No.			Lot No.	111-01	Mix Use	ML - Wearing								
Lot Size			Start Date	6/1/2016		End Date	6/2/2016										
No. Sublots	5	%AC	5.1			G_{sb}	2.565		P_s	94.9		AC Corr Factor	0.53				

1

Theoretical Maximum Specific Gravity, Gmm "Rice" **Sample 1**

	A	B	C	D	E
Wt of Mix	1835.0	1938.1	1749.9	1725.6	1787.2
Wt of Pyc & H2O	1396.6	1393.1	1393.1	1393.5	1393.5
Wt of Pyc, H2O & Mix	2469.6	2527.0	2418.0	2403.9	2441.0

Theoretical Maximum Specific Gravity, Gmm "Rice" **Sample 2**

	A	B	C	D	E
Wt of Mix	1967.1	1850.0	1715.2	1852.2	1786.6
Wt of Pyc & H2O	1459.2	1458.7	1458.7	1458.9	1458.9
Wt of Pyc, H2O & Mix	2614.1	2543.3	2462.9	2544.1	2505.6

2

SUBLOT#A

Gradation		Wt. Retained	% Passing
2"	50		100.0
1.5"	37.5		100.0
1"	25		100.0
3/4"	19		100.0
1/2"	12.5	91.4	95.7
3/8"	9.5	349.8	79.2
#4	4.75	720.1	45.3
#8	2.36	297.5	31.3
#16	1.18	204.3	21.7
#30	0.6	108.9	16.6
#50	0.3	94.4	12.1
#100	0.15	77.7	8.5
#200	0.075	47.9	6.2
Pass		21.7	
Dec Loss		110.3	
Cum. Total		2124.0	
%AC		5.2	
Crushed		100	

7

Volumetrics

Rice 1	2.408
Rice 2	2.422

3

	Brick 1	Brick 2
Air	4748.5	4756.4
Water	2725.7	2741.8
SSD	4762.8	4765.6
N@int(mm)	130.2	130.8
N@des(mm)	118.3	119.0
N@max(mm)		117.4

4

%AC Meter	4.2
Comp Temp	295
Sample Taken-Tons	117
Mix Temp	300
Antistrip	0.6

5

Tr. Bskt	2872.4	Int.DryWt	2122.2
Bskt+Mix w/AC	5123	AfterWash	2011.9
Bskt minus AC	4995	% Diff	-0.1
% LOSS	5.69	Wt. Crush	1161.3

6

SUBLOT#B

Gradation		Wt. Retained	% Passing
2"	50		100.0
1.5"	37.5		100.0
1"	25		100.0
3/4"	19		100.0
1/2"	12.5	134.3	92.8
3/8"	9.5	330.4	75.0
#4	4.75	597.1	42.9
#8	2.36	220.5	31.0
#16	1.18	184.8	21.1
#30	0.6	98.1	15.8
#50	0.3	83.4	11.3
#100	0.15	65.3	7.8
#200	0.075	39.2	5.7
Pass		18.4	
Dec Loss		87.0	
Cum. Total		1858.5	
%AC		5.1	
Crushed		100	

Volumetrics

Rice 1	2.410
Rice 2	2.417

	Brick 1	Brick 2
Air	4749.1	4748.3
Water	2725.0	2740.7
SSD	4761.0	4755.6
N@int(mm)	129.9	130.6
N@des(mm)	118.5	118.9
N@max(mm)		117.3

%AC Meter	4.2
Comp Temp	295
Sample Taken-Tons	203
Mix Temp	310
Antistrip	0.6

Tr. Bskt	2933.3	Int.DryWt	1860
Bskt+Mix w/AC	4907.3	AfterWash	1773
Bskt minus AC	4796.1	% Diff	0.1
% LOSS	5.63	Wt. Crush	1061.8

SUBLOT#C

Gradation		Wt. Retained	% Passing
2"	50		100.0
1.5"	37.5		100.0
1"	25		100.0
3/4"	19		100.0
1/2"	12.5	58.4	96.2
3/8"	9.5	222.5	81.8
#4	4.75	536.8	47.0
#8	2.36	248.3	30.9
#16	1.18	157.6	20.6
#30	0.6	78.9	15.5
#50	0.3	65.5	11.3
#100	0.15	50.9	8.0
#200	0.075	31.3	5.9
Pass		21.0	
Dec Loss		70.7	
Cum. Total		1541.9	
%AC		5.3	
Crushed		99	

Volumetrics

Rice 1	2.414
Rice 2	2.412

	Brick 1	Brick 2
Air	4749.9	4762.0
Water	2719.1	2724.1
SSD	4761.5	4775.2
N@int(mm)	132.5	133.6
N@des(mm)	120.0	121.0
N@max(mm)		119.3

%AC Meter	4.2
Comp Temp	295
Sample Taken-Tons	394
Mix Temp	320
Antistrip	0.6

Tr. Bskt	2872.2	Int.DryWt	1543.9
Bskt+Mix w/AC	4512.2	AfterWash	1473.2
Bskt minus AC	4416.4	% Diff	0.1
% LOSS	5.84	Wt. Crush	811.6

SUBLOT#D

Gradation		Wt. Retained	% Passing
2"	50		100.0

Volumetrics

Rice 1	2.413

SUBLOT#E

Gradation		Wt. Retained	% Passing
2"	50		100.0

Volumetrics

Rice 1	2.416

JMF Input | JMF | JMF CHECK | Validation Input | Validation | Plant Report-Val | Plant | Plant Monitor | Mainline | Mainline Monitor | Roac ...

READY

			% LOSS	5.69	Wt. Crush	1161.3			% LOSS	5.63	Wt. Crush	1061.8				% LOSS	5.84	Wt. Crush	811.6

SUBLOT #D

Gradation		Wt. Retained	% Passing
2"	50		100.0
1.5"	37.5		100.0
1"	25		100.0
3/4"	19		100.0
1/2"	12.5	82.6	96.1
3/8"	9.5	335.0	80.1
#4	4.75	733.8	45.2
#8	2.36	327.7	29.5
#16	1.18	180.0	21.0
#30	0.6	96.5	16.4
#50	0.3	85.8	12.3
#100	0.15	77.5	8.6
#200	0.075	51.1	6.2
Pass		21.5	
Dec Loss		107.8	
Cum. Total		2099.3	
%AC		5.3	
Crushed		97	

Volumetrics		
Rice 1	2.413	
Rice 2	2.415	
	Brick 1	Brick 2
Air	4744.4	4749.7
Water	2724.3	2743.7
SSD	4754.4	4756.4
N@int(mm)	130.4	130.2
N@des(mm)	118.0	118.0
N@max(mm)		116.4
%AC Meter		4.2
Comp Temp		300
Sample Taken-Tons		899.2
Mix Temp		305
Antistrip	0.6	

Tr. Bskt	2832.6	Int.DryWt	2099.9
Bskt+Mix w/AC	5064.1	AfterWash	1992.1
Bskt minus AC	4934.6	% Diff	0
% LOSS	5.80	Wt. Crush	1119.8

8

SUBLOT #E

Gradation		Wt. Retained	% Passing
2"	50		100.0
1.5"	37.5		100.0
1"	25		100.0
3/4"	19		100.0
1/2"	12.5	92.0	94.2
3/8"	9.5	275.7	77.0
#4	4.75	537.9	43.3
#8	2.36	225.0	29.2
#16	1.18	134.3	20.7
#30	0.6	72.4	16.2
#50	0.3	65.7	12.1
#100	0.15	59.2	8.4
#200	0.075	38.8	5.9
Pass		11.5	
Dec Loss		83.4	
Cum. Total		1595.9	
%AC		5.3	
Crushed		97	

Volumetrics		
Rice 1	2.416	
Rice 2	2.415	
	Brick 1	Brick 2
Air	4748.9	4754.2
Water	2717.3	2741.7
SSD	4768.7	4766.2
N@int(mm)	131.6	132.0
N@des(mm)	119.2	119.3
N@max(mm)		117.7
%AC Meter		4.2
Comp Temp		300
Sample Taken-Tons		1579.5
Mix Temp		310
Antistrip	0.6	

Tr. Bskt	2933.3	Int.DryWt	1596.5
Bskt+Mix w/AC	4628.1	AfterWash	1513.1
Bskt minus AC	4528.5	% Diff	0
% LOSS	5.88	Wt. Crush	874.2

Roadway Density Cores

	A	B	C	D	E
Use	Binder	Binder	Binder	Binder	Binder
Station					
Location					
Thickness					
Air					
Water					
SSD					
Gmb					
Tonnage					

9

Remarks: _____

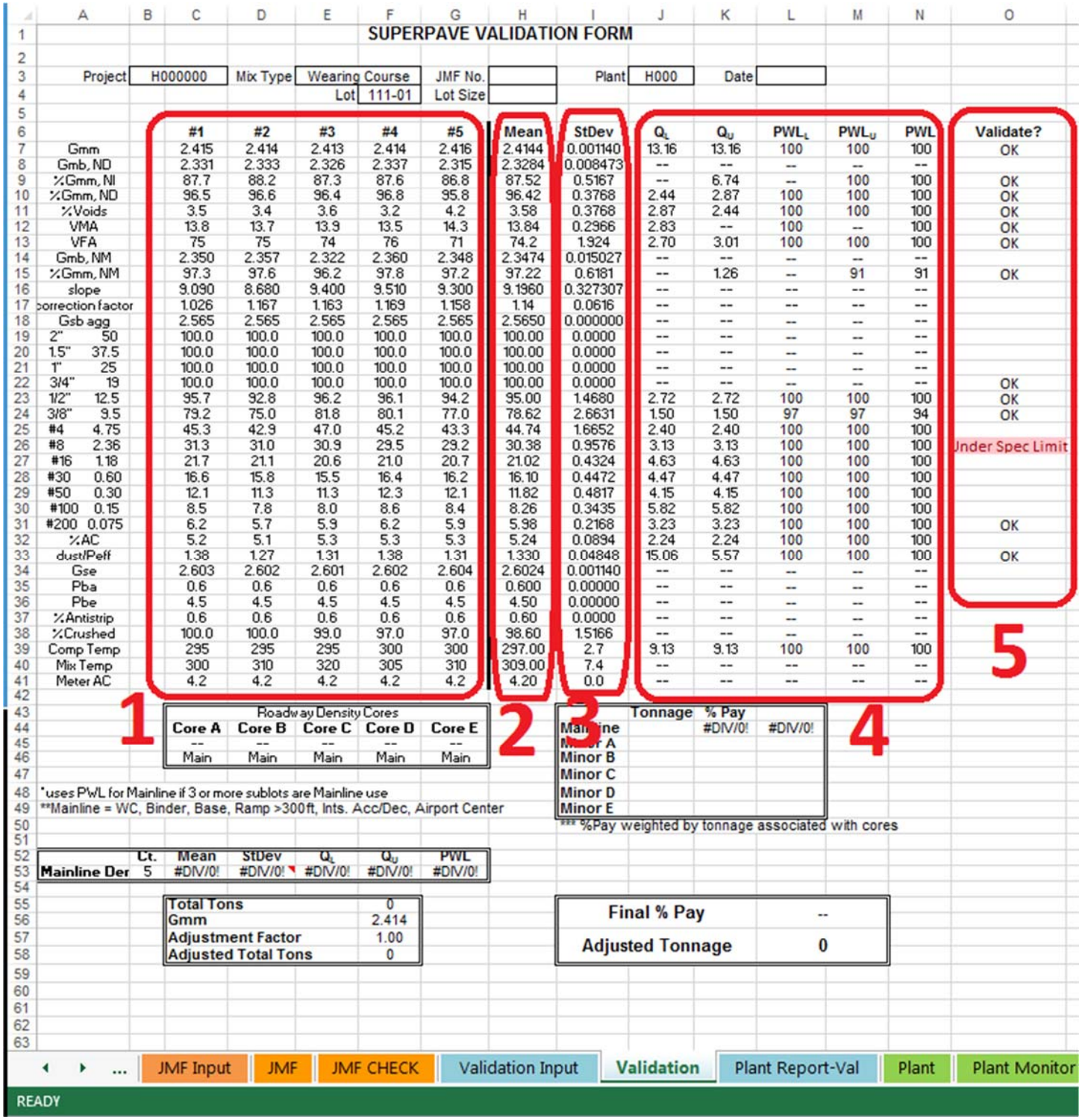
LaPave 2013 v13.04.24 *6/7/2016*

JMF Input | JMF | JMF CHECK | Validation Input | Validation | Plant Report-Val | Plant | Plant Monitor | Mainline | Mainline Monitor | Roac ...

READY

Validation

1. Summary of the 5 sublots test for the validation
2. The mean of the 5 sublot test that become the target values for the JMF
3. The standard deviation of the test results
4. PWL information
5. Whether or not the parameter meets specifications



SUPERPAVE VALIDATION FORM

Project: H000000 | Mix Type: Wearing Course | JMF No. | Plant: H000 | Date
Lot: 111-01 | Lot Size

	#1	#2	#3	#4	#5	Mean	StDev	Q_L	Q_U	PWL_L	PWL_U	PWL	Validate?
Gmm	2.415	2.414	2.413	2.414	2.416	2.4144	0.001140	13.16	13.16	100	100	100	OK
Gmb, ND	2.331	2.333	2.326	2.337	2.315	2.3284	0.008473	--	--	--	--	--	
%Gmm, NI	87.7	88.2	87.3	87.6	86.8	87.52	0.5167	--	6.74	--	100	100	OK
%Gmm, ND	96.5	96.6	96.4	96.8	95.8	96.42	0.3768	2.44	2.87	100	100	100	OK
%Voids	3.5	3.4	3.6	3.2	4.2	3.58	0.3768	2.87	2.44	100	100	100	OK
VMA	13.8	13.7	13.9	13.5	14.3	13.84	0.2966	2.83	--	100	--	100	OK
VFA	75	75	74	76	71	74.2	1.924	2.70	3.01	100	100	100	OK
Gmb, NM	2.350	2.357	2.322	2.360	2.348	2.3474	0.015027	--	--	--	--	--	
%Gmm, NM	97.3	97.6	96.2	97.8	97.2	97.22	0.6181	--	1.26	--	91	91	OK
slope	9.090	8.680	9.400	9.510	9.300	9.1960	0.327307	--	--	--	--	--	
correction factor	1.026	1.167	1.163	1.169	1.158	1.14	0.0616	--	--	--	--	--	
Gsb agg	2.565	2.565	2.565	2.565	2.565	2.5650	0.000000	--	--	--	--	--	
2" 50	100.0	100.0	100.0	100.0	100.0	100.00	0.0000	--	--	--	--	--	
1.5" 37.5	100.0	100.0	100.0	100.0	100.0	100.00	0.0000	--	--	--	--	--	
1" 25	100.0	100.0	100.0	100.0	100.0	100.00	0.0000	--	--	--	--	--	
3/4" 19	100.0	100.0	100.0	100.0	100.0	100.00	0.0000	--	--	--	--	--	OK
1/2" 12.5	95.7	92.8	96.2	96.1	94.2	95.00	1.4680	2.72	2.72	100	100	100	OK
3/8" 9.5	79.2	75.0	81.8	80.1	77.0	78.62	2.6631	1.50	1.50	97	97	94	OK
#4 4.75	45.3	42.9	47.0	45.2	43.3	44.74	1.6652	2.40	2.40	100	100	100	
#8 2.36	31.3	31.0	30.9	29.5	29.2	30.38	0.9576	3.13	3.13	100	100	100	Under Spec Limit
#16 1.18	21.7	21.1	20.6	21.0	20.7	21.02	0.4324	4.63	4.63	100	100	100	
#30 0.60	16.6	15.8	15.5	16.4	16.2	16.10	0.4472	4.47	4.47	100	100	100	
#50 0.30	12.1	11.3	11.3	12.3	12.1	11.82	0.4817	4.15	4.15	100	100	100	
#100 0.15	8.5	7.8	8.0	8.6	8.4	8.26	0.3435	5.82	5.82	100	100	100	
#200 0.075	6.2	5.7	5.9	6.2	5.9	5.98	0.2168	3.23	3.23	100	100	100	OK
%AC	5.2	5.1	5.3	5.3	5.3	5.24	0.0894	2.24	2.24	100	100	100	
dust/Peff	1.38	1.27	1.31	1.38	1.31	1.330	0.04848	15.06	5.57	100	100	100	OK
Gse	2.603	2.602	2.601	2.602	2.604	2.6024	0.001140	--	--	--	--	--	
Pba	0.6	0.6	0.6	0.6	0.6	0.600	0.00000	--	--	--	--	--	
Pbe	4.5	4.5	4.5	4.5	4.5	4.50	0.00000	--	--	--	--	--	
%Antistrip	0.6	0.6	0.6	0.6	0.6	0.60	0.0000	--	--	--	--	--	
%Crushed	100.0	100.0	99.0	97.0	97.0	98.60	1.5166	--	--	--	--	--	
Comp Temp	295	295	295	300	300	297.00	2.7	9.13	9.13	100	100	100	
Mix Temp	300	310	320	305	310	309.00	7.4	--	--	--	--	--	
Meter AC	4.2	4.2	4.2	4.2	4.2	4.20	0.0	--	--	--	--	--	

1

Roadway Density Cores

Core A	Core B	Core C	Core D	Core E
--	--	--	--	--
Main	Main	Main	Main	Main

2

3

	Tonnage	% Pay	
Mainline		#DIV/0!	#DIV/0!
Minor A			
Minor B			
Minor C			
Minor D			
Minor E			

4

*uses PWL for Mainline if 3 or more sublots are Mainline use
**Mainline = WC, Binder, Base, Ramp >300ft, Ints. Acc/Dec, Airport Center
*** %Pay weighted by tonnage associated with cores

	Ct.	Mean	StDev	Q_L	Q_U	PWL
Mainline Der	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Total Tons	0
Gmm	2.414
Adjustment Factor	1.00
Adjusted Total Tons	0

Final % Pay	--
Adjusted Tonnage	0

5

JMF Input | JMF | JMF CHECK | Validation Input | Validation | Plant Report-Val | Plant | Plant Monitor

READY

Plant Report – Val

The Plant Report – Val - A summary sheet of the validation that contains some of the raw data.

Superpave Asphalt Concrete Plant Report

Proj. No.	H000000	Plant	H000	Design Level	1	Mix Type	Wearing Course
Proj. No.	abcdef	JMF No.		Lot No.	111-01	Mix Use	ML - Wearing
Lot Size		Start Date	6/1/2016	End Date	6/2/2016	Purpose Code	
No. Sublots	5	%AC	5.1	G_{sb}	2.565	P_s	94.9
Roadway Category							
exclusions/grindings	0.534 (yes/no)						
IRI							

Theoretical Maximum Specific Gravity, Gmm "Rice" *(AASHTO T209 or DOTD TR327)*

	G_{mm1}		G_{mm2}		G_{mm3}		G_{mm4}		G_{mm5}	
	A	B	A	B	A	B	A	B	A	B
Wt of Mix	1835.0	1967.1	1938.1	1850.0	1749.9	1715.2	1725.6	1852.2	1787.2	1786.6
Wt of Pyc & H2O	1396.6	1459.2	1393.1	1458.7	1393.1	1458.7	1393.5	1458.9	1393.5	1458.9
Wt of Pyc, H2O & Mix	2469.6	2614.1	2527.0	2543.3	2418.0	2462.9	2403.9	2544.1	2441.0	2505.6
G_{mm}, Rice Gravity	2.408	2.422	2.410	2.417	2.414	2.412	2.413	2.415	2.416	2.415
Average G_{mm}	G_{mm1}=	2.415	G_{mm2}=	2.414	G_{mm3}=	2.413	G_{mm4}=	2.414	G_{mm5}=	2.416

Plant Test Properties *(AASHTO T166, T209, T245/DOTD TR 304, 305, &327)*

Sublot No.	1	2	3	4	5
G_{mm}	2.415	2.414	2.413	2.414	2.416
Wt (Mass) in Air	4748.5	4749.1	4749.9	4744.4	4748.9
Wt (Mass) in Water	2725.7	2725.0	2719.1	2724.3	2717.3
SSD Wt (Mass)	4762.8	4761.0	4761.5	4754.4	4768.7
G_{mb}, ND	2.331	2.333	2.326	2.337	2.315
Density	145.5	145.6	145.1	145.8	144.5
% G_{mm}, ND	96.5	96.6	96.4	96.8	95.8
Ht. @ NI (mm)	130.2	129.9	132.5	130.4	131.6
Ht. @ ND (mm)	118.3	118.5	120.0	118.0	119.2
% G_{mm}, NI	87.7	88.2	87.3	87.6	86.8
% Voids, V_a	3.5	3.4	3.6	3.2	4.2
% VMA	13.8	13.7	13.9	13.5	14.3
% VFA	75	75	74	76	71

			Asph	Aggr	RAP	AntiStrip	Asph	Aggr	RAP	AntiStrip	Asph	Aggr	RAP	AntiStrip	Asph	Aggr	RAP	AntiStrip	Asph	Aggr	RAP	AntiStrip
36	% Asphalt Content	1st Meter Reading, AM																				
37		1st Meter Reading, PM																				
38		2nd Meter Reading, AM																				
39		2nd Meter Reading, PM																				
40	% AC Meter		4.2				4.2				4.2				4.2				4.2			
41	Comp. Temp.		295				295				295				300				300			
42	Dust/P_{eff}		1.38				1.27				1.31				1.38				1.31			
43	G_{se}		2.603				2.602				2.601				2.602				2.604			
44	P_{ba}		0.6				0.6				0.6				0.6				0.6			
45	P_{be}		4.5				4.5				4.5				4.5				4.5			
46	Total Sublot Tons																					
47	Sample Taken, Tons Accum.		117				203				394				899				1580			
48	Mix Temperature		300				310				320				305				310			

		Test 1	Test 2
49			
50	% Anti Strip	0.6	0.6
51	% Lime		
52	Remarks:		

53

54

55

56 OTD Cert. Asphaltic Concrete Plant Tech. QC Cert. Asphaltic Concrete Plant Tech. APPROVED BY: District Laboratory Engineer

57

58 LaPave 2013 v13.04.24 6/7/2016

Plant

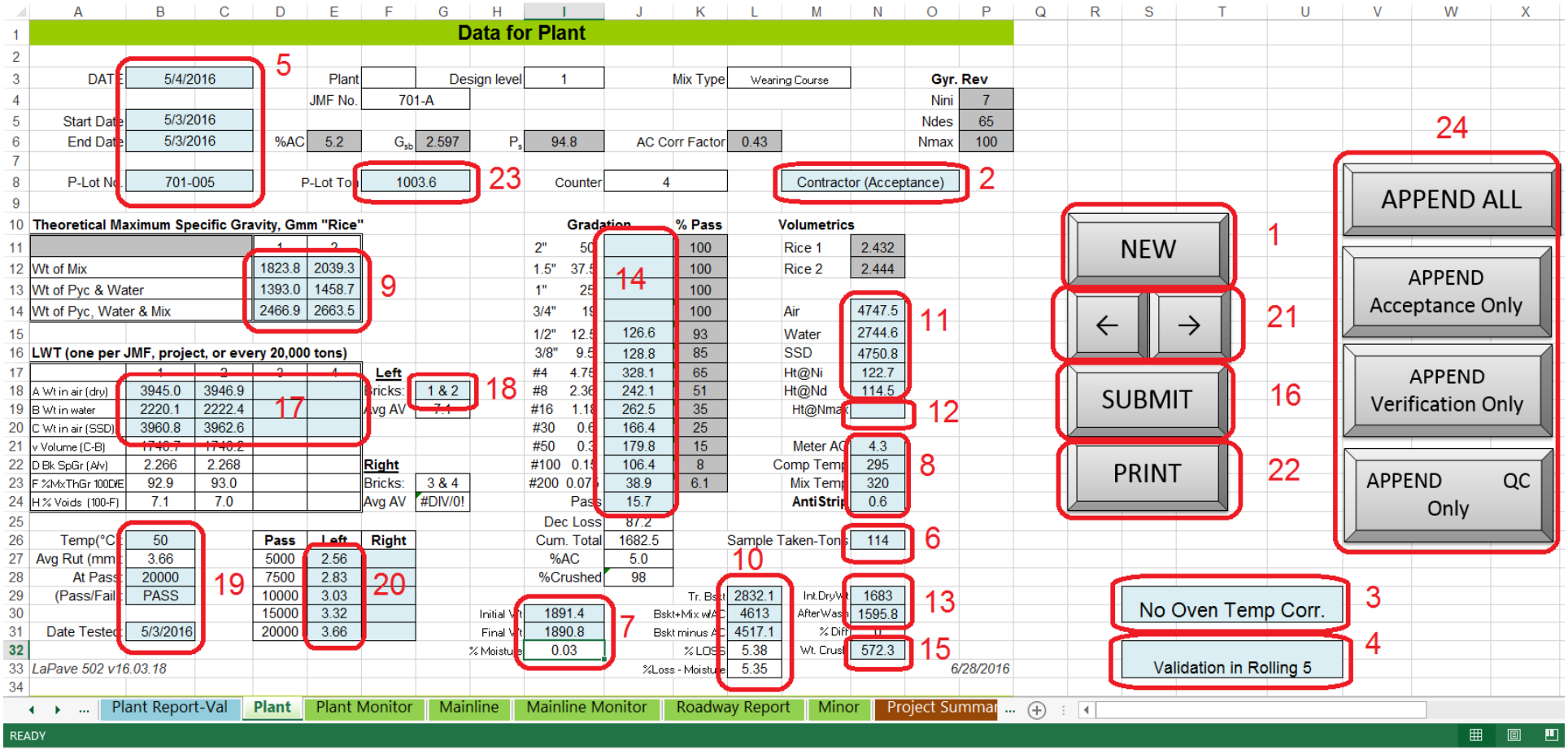
This tab is for inputting P-Lot test data and monitoring the rolling averages of plant data

Blue fields are for input

1. "NEW" button initiates a new test set for a P-Lot. If the time line and daily tonnage requires multiple test in the same sublot, the P-Lot No. nomenclature can be modified by adding A, B, C….etc to the end of the lot number. It will be necessary to click "NEW" for each test set.
2. In the dropdown, choose either Contractor (Acceptance), DOTD (Verification), Contractor (QC only)
3. In the drop down, choose whether to use "No Oven Temp Corr.", or "With Oven Temp Corr."
4. In the drop down, choose whether the validation data is included in the "Rolling 5" data calculation.
5. Enter date(s) and P-Lot number. (The JMF sequence number plus the P-Lot, ex 101-001)
6. Enter the tonnage at which the sample was taken
7. Enter weights for moisture content of the loose mix
8. Enter the Metered AC (Virgin AC metered into the mix), the lab compaction temperature, the mix temperature in the haul truck, and the rate of anti-strip check
9. G_{mm} data entry
10. Furnace extraction data entry
11. N_{des} briq data entry.
12. For every 5th P-Lot, a N_{max} briq needs to be tested. After the "Submit" (#16 below) button has be clicked, the N_{des} data can be cleared and the N_{max} data can be entered. The submit button will need to be clicked again.
13. The recovered aggregate from the furnace extraction and the after wash weight of the aggregate.
14. Gradation weights
15. Weight of the crushed aggregate
16. The "Submit" button. This button has to be clicked to submit the entered data to the tables in the different Plant Summary tabs. Data can be edited or updated, but the "Submit" button will need to be clicked again to update the tables.
17. Weights of LWT briqs for calculating the void content.
18. Depending on if one pair of LWT briqs (single wheel tracker) or two pair (double wheel tracker) are made, this drop down chooses the pairing up to match the voids. This data can be added after the P-Lot data is entered. The "Scroll" (#21) and "Submit" (#16) buttons will help in navigating between P-Lots.
19. Data and parameter entry for LWT testing.
20. The rut depth for the correlating number of wheel passes.
21. The "Scroll" button displays data from previously entered P-Lots. Using the dropdown (#2), the three data entry types can be viewed & edited/updated by clicking the "Submit" (#16) button.
22. The "Print" button prints the data entry numbers and the rolling averages from the "Plant" tab.
23. The tonnage for the P-Lot. This can be entered after the P-Lot is closed. The "Scroll" and "Submit" buttons can be helpful here.

24. Append buttons. Data will be “Pushed” **from** this LaPave file **to** another LaPave file. This is helpful in sharing data between the contractor and DOTD. One of the three types of data can be pushed or all three can be pushed together to another LaPave file.

REMEMBER TO ALWAYS USE THE SAVE FUNCTION OF EXCEL. THE “SUBMIT” BUTTON DOES NOT SAVE THE DATA, IT ONLY PUTS IT IN THE DATA TABLES



There is no data entry for the “Rolling Average.”

The following screen shot below displays the “Rolling Averages”. By using the “Scroll” (#21) button above, the “Rolling Average” can be moved within the recorded data.

Rolling 5 for Plant

Rolling 5	Active						JMF	MEAN	StDev	QL	QU	PWL		
P-Lot No.	111-007	111-006	111-005	111-004	111-003									
P-Lot Ton	1009.03	1002.5	1004	1024	1081									
Gmm	2.430	2.438	2.438	2.435	2.433		2.429	2.4348	0.003421	4.38	4.38	100		OK
Gmb,ND	2.355	2.362	2.366	2.352	2.362		2.348	2.3594	0.005727	4.19	4.19	100		
%Gmm,NI	90.6	90.8	90.6	90.4	90.9		90.22	90.66	0.1949	--	1.74	100		OK
%Gmm,ND	96.9	96.9	97.0	96.6	97.1		96.64	96.9	0.1871	7.48	3.21	100		
VFA	78	78	78	76	79		76.6	77.8	1.095	8.04	2.01	100		OK
VMA	14.0	13.8	13.6	14.1	13.8		14.30	13.86	0.1949	1.85	--	100		OK
%Voids	3.1	3.1	3.0	3.4	2.9		3.36	3.10	0.1871	3.21	7.48	100		OK
Extracted AC	5.2	5	5.0	5.1	5.0		5.20	5.06	0.0894	2.24	2.24	100		OK
Comp Temp	295	295	295	295	295		295	295.0	0.0	--	--	--		
Gradation							**JMF**	**MEAN**	**StDev**	**QL**	**QU**	**PWL**		
2" 50	100.0	100.0	100.0	100.0	100.0		100.00	100.00	0.0000	--	--	--		
1.5" 37.5	100.0	100.0	100.0	100.0	100.0		100.00	100.00	0.0000	--	--	--		
1" 25	100.0	100.0	100.0	100.0	100.0		100.00	100.00	0.0000	--	--	--		
3/4" 19	100.0	100.0	100.0	100.0	100.0		100.00	100.00	0.0000	--	--	--		OK
1/2" 12.5	94.8	94.3	92.5	94.3	93.7		91.90	93.92	0.8843	4.52	4.52	100		OK
3/8" 9.5	87.9	86.1	84.8	87.0	86.8		84.66	86.52	1.1563	3.46	3.46	100		OK
#4 4.75	69.1	68.2	65.3	67.1	67.5		67.98	67.44	1.4170	2.82	2.82	100		
#8 2.36	53.8	54.4	50.9	53.0	53.8		53.30	53.18	1.3682	2.19	2.19	100		OK
#16 1.18	36.6	37.2	35.3	35.9	36.8		35.52	36.36	0.76	2.64	2.64	100		
#30 0.6	25.5	26.6	25.4	25.4	26.5		24.90	25.88	0.6140	3.26	3.26	100		
#50 0.3	14.4	15.1	14.8	14.3	15.5		14.10	14.82	0.4970	4.02	4.02	100		
#100 0.15	8.2	8.4	8.4	7.9	8.7		7.96	8.32	0.2950	6.78	6.78	100		
#200 0.075	5.9	5.9	6.1	5.6	6.0		5.82	5.90	0.1871	3.74	3.74	100		OK
Other Factors (Informational Tools Only)							**JMF**	**MEAN**	**StDev**	**QL**	**QU**	**PWL**		
GmbEst,ND	2.338	2.340	2.346	2.329	2.339		--	2.3384	0.006107	--	--	--		
GmbEst,Nmax							2.365			--	--	--		
%Gmm,Nmax							97.36			--	--	--		
Design AC	5.2	5.2	5.2	5.2	5.2		--	5.20	0.0000	--	--	--		
%Antistrip	0.6	0.6	0.6	0.6	0.6		0.60	0.60	0.0000	--	--	--		
Meter AC	4.3	4.3	4.3	4.3	4.3		--	4.30	0.0000	--	--	--		
%Crushed	96.5	95.0	16.7	97.5	95.8		97.80	80.30	35.5879	--	--	--		
Mix Temp	300	290	320	315	280		295	301.0	16.7	--	--	--		
Gse	2.626	2.636	2.636	2.632	2.629		2.625	2.632	0.004382	--	--	--		
Pba	0.4	0.6	0.6	0.5	0.5		0.4	0.5	0.084	--	--	--		
Pbe	4.8	4.6	4.6	4.7	4.7		4.8	4.7	0.084	--	--	--		
dust/Peff	1.23	1.28	1.33	1.19	1.28		1.22	1.26	0.0536	--	--	--		
slope	6.51	6.30	6.61	6.41	6.41			6.45	0.117	--	--	--		
corrctn factor	1.0073	1.0094	1.009	1.01	1.01		1.011	1.0090	0.00109	--	--	--		

Rolling 10 for Plant

Rolling 10	Active										MEAN	StDev		
P-Lot No.	111-007	701-006	701-005	701-004	701-003	701-002	Val E	Val D	Val C	Val B				
Gmm	2.430	2.438	2.438	2.435	2.433	2.436	2.434	2.438	2.427	2.424	2.4333	0.004877		OK
%Voids	3.1	3.1	3.0	3.4	2.9	3.2	3.1	4.1	3.1	3.3	3.23	0.33680		OK

Plant Monitor

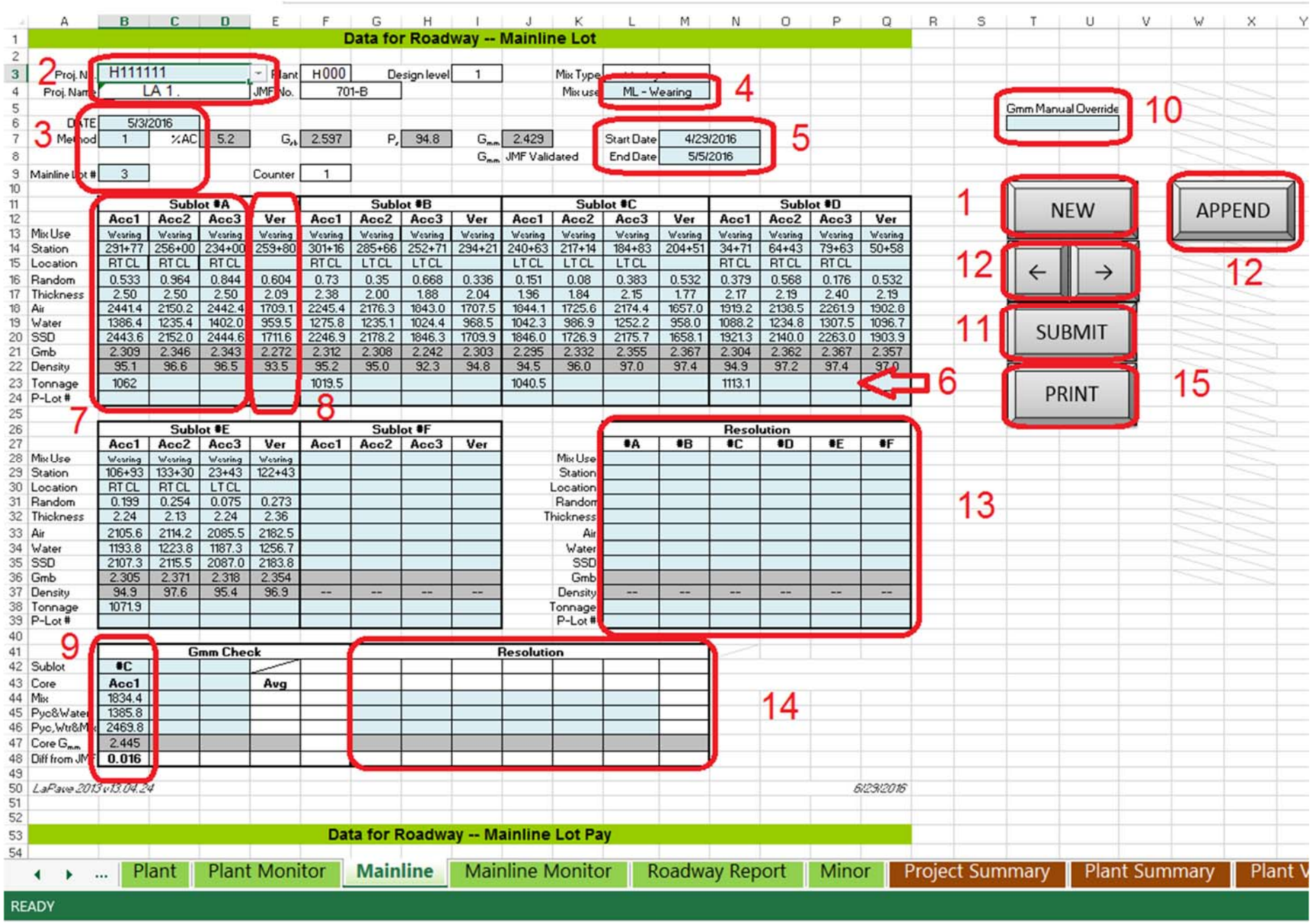
This tab will display F & *t* analysis for plant data.

Mainline

1. Click “NEW” to start a new roadway lot
2. Choose a project from the dropdown. This associates the cores to the project. (Remember, it is possible to have the same lot number on multiple projects. Each project starts with roadway lot #1.)
3. Enter Date, from dropdown choose whether method 1 or 2, and enter Roadway Lot #. Depending on choice in #4, it will display “Mainline Lot #” or “Minor Lot #”.
4. Choosing the mix use in this dropdown, will trigger between Mainline or Minor mix calculations.
5. Enter the beginning date and ending date of the mix placement for the lot. This can changed or edited later, using the Scroll (#12) and Submit (#11) buttons.
6. The tons for the sublot can be entered in just one block of each sublot or for each core.
7. The mix use and location are dropdown choices with the rest of the areas typable entries. The random number entry is for the transverse location. The station number represents the longitudinal location. Each sublot has three acceptance core entries.
8. The verification core has the same data fields as the acceptance cores.
9. The G_{mm} check from a randomly chosen core from the lot is entered here. If the first one fails to verify then two more roadway cores are randomly selected and the G_{mm} data is entered here.
10. To override the default G_{mm}, enter the G_{mm} to be used here.
11. After the data for the current session has been entered, click the submit button. This will put the data in the summary tables.
12. The “APPEND” button will “PUSH” any added data from this tab to another LaPave file. The intended use of this feature is for data transfer between the contractor and DOTD, the inspector updating the LaPave file at district, or updating files over a network. After clicking this button, the user will be prompted what file to append to. The user will have to navigate to where the second file is to send the new date to. The file can be located on the same computer, a USB stick or over a network.
13. Resolution core information is entered in this area.
14. G_{mm} data derived from resolution cores is entered here.
15. The print button will print both the top and bottom of the “Mainline” tab.

REMEMBER TO ALWAYS USE THE SAVE FUNCTION OF EXCEL. THE “SUBMIT” BUTTON DOES NOT SAVE THE DATA, IT ONLY PUTS IT IN THE DATA TABLES

The second screen shot is the bottom portion of the “Mainline” tab with the density and statistical data.


Data for Roadway -- Mainline Lot
Proj. No. H111111
Proj. Name LA 1.
Plant H000
JMF No. 701-B
Design level 1
Mix Type
Mix use ML - Wearing
DATE 5/3/2016
Method 1
%AC 5.2
Gsb 2.597
Pa 94.8
Gmm 2.429
Gmm JMF Validated
Start Date 4/29/2016
End Date 5/5/2016
Mainline Lot # 3
Counter 1
Gmm Manual Override
NEW
APPEND
SUBMIT
PRINT
Sublot #A
Sublot #B
Sublot #C
Sublot #D
Sublot #E
Sublot #F
Resolution
Gmm Check
Data for Roadway -- Mainline Lot Pay
Plant
Plant Monitor
Mainline
Mainline Monitor
Roadway Report
Minor
Project Summary
Plant Summary
READY

Data for Roadway -- Mainline Lot Pay

Mainline Density

Mainline	Ac1	Ac2	Ac3	Ver	Res
Sublot #A	95.1	96.6	96.5	93.5	--
Sublot #B	95.2	95.0	92.3	94.8	--
Sublot #C	94.5	96.0	97.0	97.4	--
Sublot #D	94.9	97.2	97.4	97.0	--
Sublot #E	94.9	97.6	95.4	96.9	--
Sublot #F	--	--	--	--	--

Method	1
Testing Laboratory	District Lab
Ac Count	15
Ac Mean	95.7
Ac Stdev	1.400
Testing Laboratory	Contractor
Ver Count	5
Ver Mean	95.9
Ver Stdev	1.690
Difference of Means	0.20
Rolling F & T Equal	Yes

Mainline Acceptance Density PWL

Ac Count	15	QL	2.65
Ac Mean	95.7	QU	--
Ac Stdev	1.400	PWL	100
Mainline Min	92		
Pay %	100		

Mainline Resolution Density PWL

Res Count	0	QL	--
Res Mean		QU	--
Res Stdev		PWL	--
Mainline Min	92		

Mainline Lot #	3
Total Tons	5306.95
G_{mm}	2.429
G_{mm} from	JMF Validated
Adjustment Factor	1.00
Adjusted Total Tons	5306.95

Previous Lot

Lot#	
Mix Use	
From	
Pay %	

LaPave 2013 v13.04.24

6/29/2016

Plant | Plant Monitor | **Mainline** | Mainline Monitor | Roadway Report | Minor | Project Summary | Plant Summary

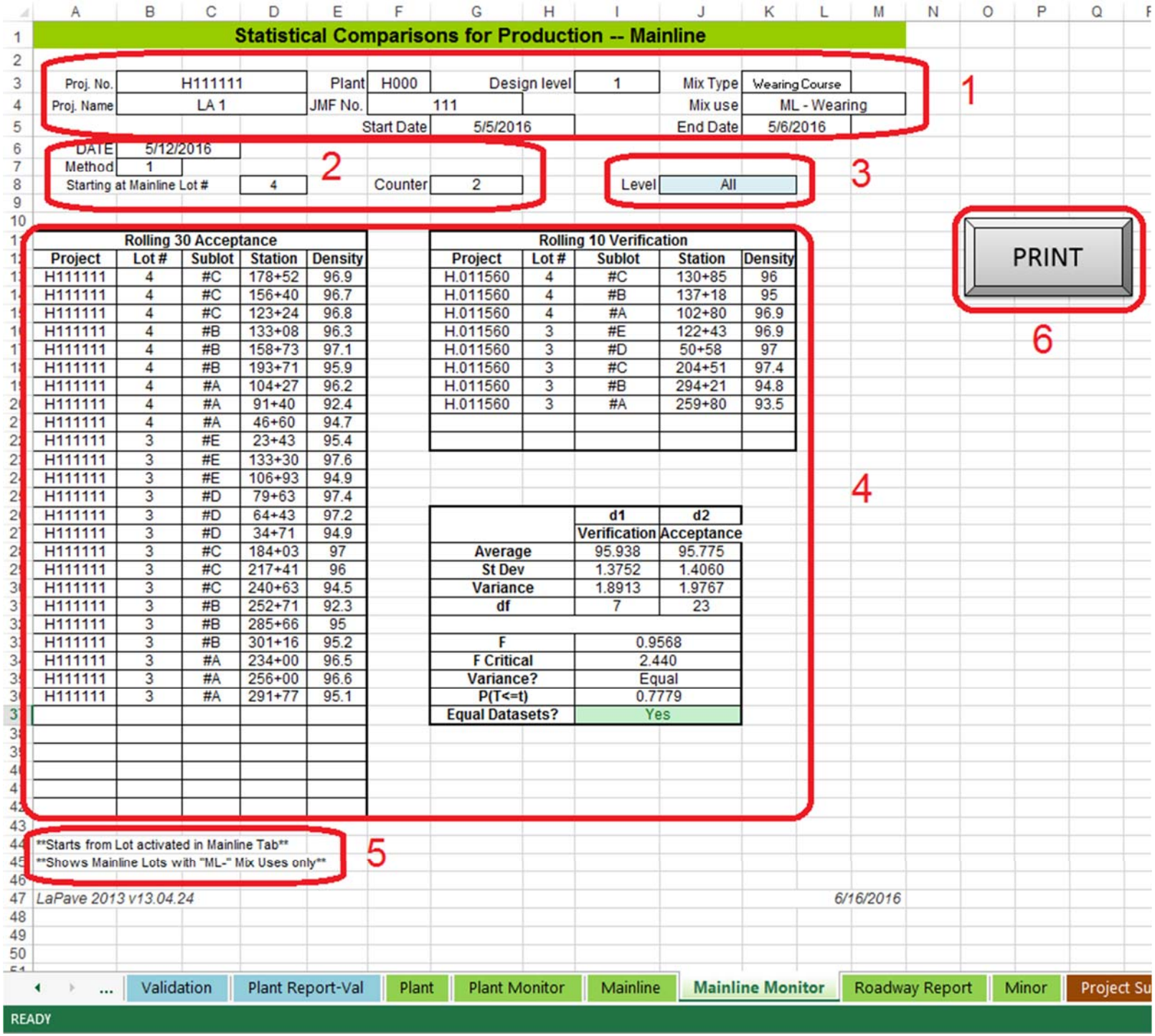
READY

Mainline Monitor

The “Mainline Monitor” tab displays the “F & *t*” statistical information for a JMF.

It can calculate the for cores on a project or for all mainline information entered for a JMF.

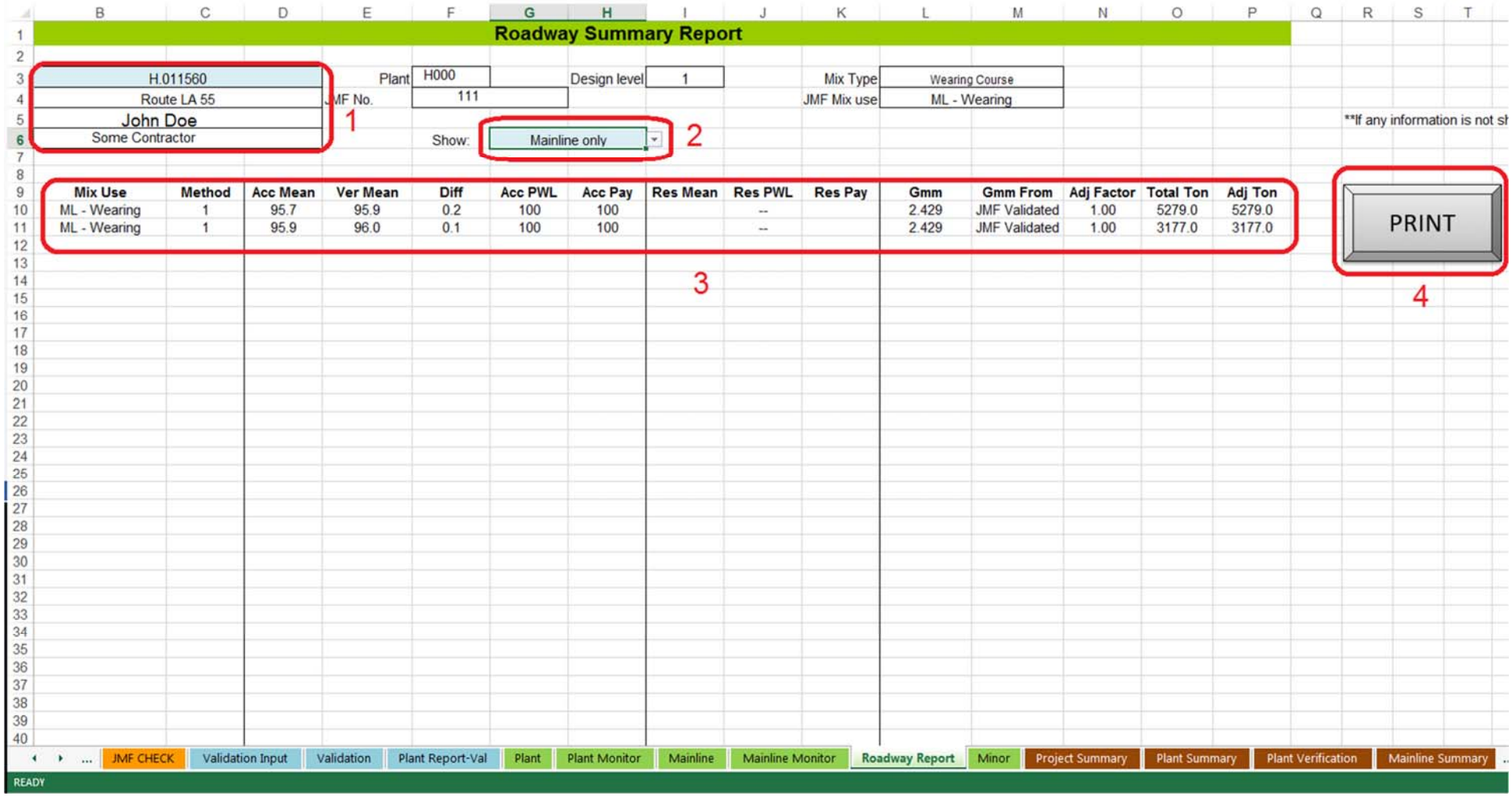
1. The information populated in the header is from the information displayed on the “Mainline” tab.
2. The next area displays the date, Method 1 or 2, which mainline Lot # the data starts with & associated counter in LaPave. The higher the Mainline Lot # chosen on the previous tab (Mainline) the more data is used. The lot chosen to start the data analysis will also move the F & *t* test through the data set.
3. The dropdown choices are all cores or project only cores. The project choice is filtered by which project on the “Mainline” is chosen.
4. The statistical data.
5. Note to point out that the lot chosen on the “Mainline” tab is where the data analysis starts. F & *t* only performed on “Mainline” core data.
6. Print button to print the displayed data set.


Statistical Comparisons for Production -- Mainline
Proj. No. H111111
Plant H000
Design level 1
Mix Type Wearing Course
Proj. Name LA 1
JMF No. 111
Mix use ML - Wearing
Start Date 5/5/2016
End Date 5/6/2016
1
DATE 5/12/2016
Method 1
Starting at Mainline Lot # 4
Counter 2
2
Level All
3
PRINT
6
Rolling 30 Acceptance
Project Lot # Sublot Station Density
H111111 4 #C 178+52 96.9
H111111 4 #C 156+40 96.7
H111111 4 #C 123+24 96.8
H111111 4 #B 133+08 96.3
H111111 4 #B 158+73 97.1
H111111 4 #B 193+71 95.9
H111111 4 #A 104+27 96.2
H111111 4 #A 91+40 92.4
H111111 4 #A 46+60 94.7
H111111 3 #E 23+43 95.4
H111111 3 #E 133+30 97.6
H111111 3 #E 106+93 94.9
H111111 3 #D 79+63 97.4
H111111 3 #D 64+43 97.2
H111111 3 #D 34+71 94.9
H111111 3 #C 184+03 97
H111111 3 #C 217+41 96
H111111 3 #C 240+63 94.5
H111111 3 #B 252+71 92.3
H111111 3 #B 285+66 95
H111111 3 #B 301+16 95.2
H111111 3 #A 234+00 96.5
H111111 3 #A 256+00 96.6
H111111 3 #A 291+77 95.1
Rolling 10 Verification
Project Lot # Sublot Station Density
H.011560 4 #C 130+85 96
H.011560 4 #B 137+18 95
H.011560 4 #A 102+80 96.9
H.011560 3 #E 122+43 96.9
H.011560 3 #D 50+58 97
H.011560 3 #C 204+51 97.4
H.011560 3 #B 294+21 94.8
H.011560 3 #A 259+80 93.5
4
d1 Verification d2 Acceptance
Average 95.938 95.775
St Dev 1.3752 1.4060
Variance 1.8913 1.9767
df 7 23
F 0.9568
F Critical 2.440
Variance? Equal
P(T<=t) 0.7779
Equal Datasets? Yes
Starts from Lot activated in Mainline Tab
Shows Mainline Lots with "ML-" Mix Uses only
5
LaPave 2013 v13.04.24
6/16/2016
Validation
Plant Report-Val
Plant
Plant Monitor
Mainline
Mainline Monitor
Roadway Report
Minor
READY

Roadway Report

This tab produces a summary of roadway data that is project specific.

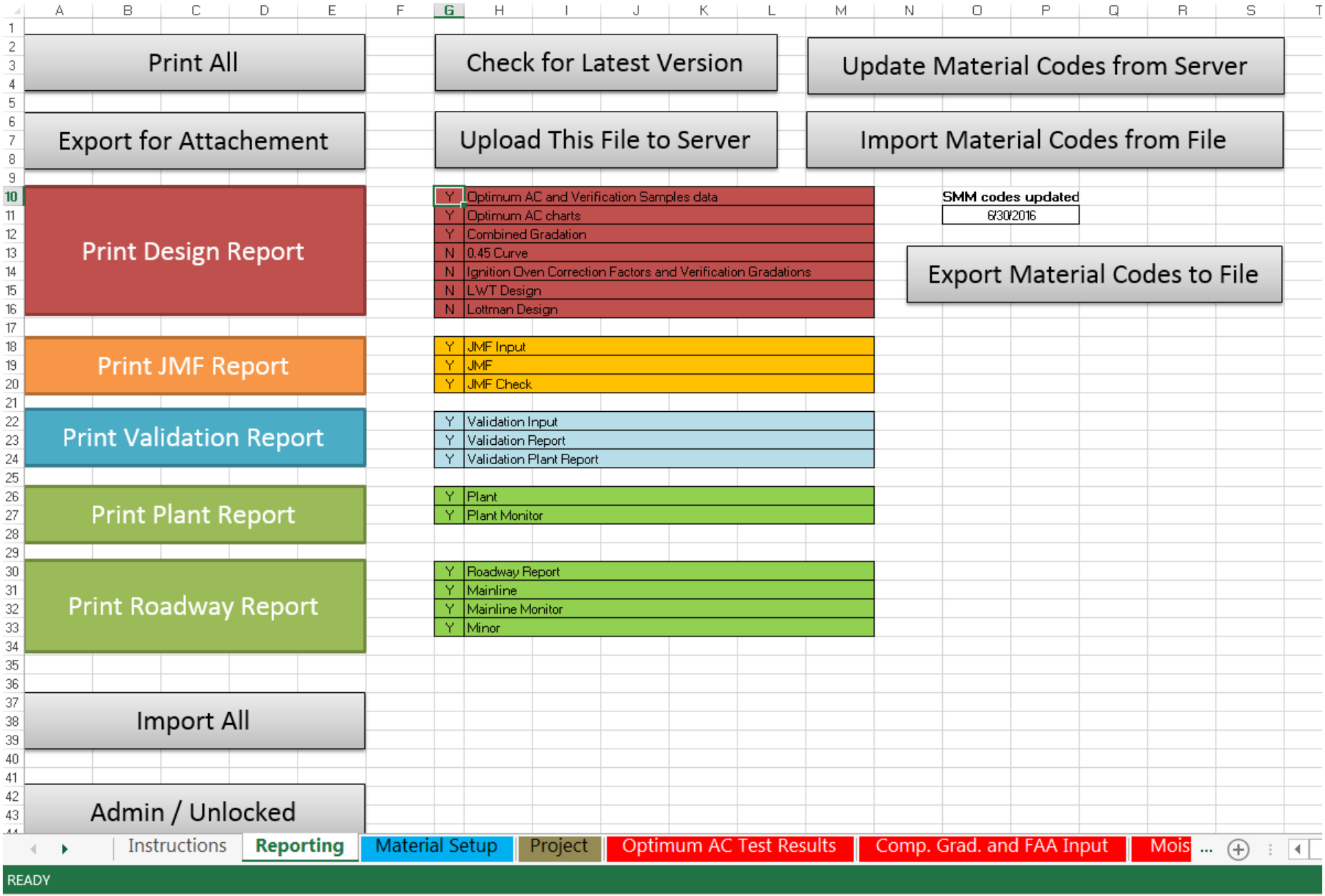
1. Choose the desired project from the dropdown. The associated information will populate.
2. The dropdown will filer the information for Mainline, Minor, or Mainline and Minor mix use.
3. Summary of roadway core information.
4. Print a project summary of roadway data.



The summary tabs to the right of the “Roadway Report” tab contain the tables for the data entered in previously covered tabs.

Reporting

Various printouts can be made from the “Reporting” tab. Portions of the reports can be included or omitted with the “Y”/”N” dropdowns.



Asphalt Sampling, Testing & Inspection (Method 1) March 31, 2016 Luanna Cambas

DOTD Roadway Duties

Check roadway equipment.
Check tack rate.
Get haul tickets.
Check temperature of mix.
Check yield.
Choose locations for cores using random numbers.
Send acceptance and resolution cores to District Lab; GPC core to Matlab
Complete roadway report.
Observe contractor's daily profiler set-up procedures, take IRI results.

Mainline Lots *(92.0 min Density)* ***7500 LF Sublots 37,500 LF Lots***

Travel lane base, binder and wearing; ramps > 300', interstate accel/decel lanes,turn lanes.

Take 3 Acceptance cores per sublot = 15 per lot. (To District Lab)
Take 1 Verification core per sublot = 5 per lot. (To Plant)
Take 1 Resolution core per sublot = 5 per lot. (To District Lab)

Mainline Roadway Cores 37,500 LF LOT														
7500 LF SUBLOT			***7500 LF SUBLOT***			***7500 LF SUBLOT***			***7500 LF SUBLOT***			***7500 LF SUBLOT***		
A1 Core	***A2 Core***	***A3 Core***	***A4 Core***	***A5 Core***	***A6 Core***	***A7 Core***	***A8 Core***	***A9 Core***	***A10 Core***	***A11 Core***	***A12 Core***	***A13 Core***	***A14 Core***	***A15 Core***
V1 Core			***V2 Core***			***V3 Core***			***V4 Core***			***V5 Core***		
R1 Core			***R2 Core***			***R3 Core***			***R4 Core***			***R5 Core***		

For sublots < 7500 LF, take a minimum of 3 cores. (For < 250 tons, PE decides.)

Minor Lots *(90.0 min Density)* ***1000 Ton Lots - Bike paths, crossovers, detour roads, leveling > 1.5" thick, parking lots, shoulders > 4' wide, ramps < 300', patching, and widening > 2.5'.***

Take 3 minor cores per lot. (To District Lab) (For < 250 tons, PE decides.)

Minor Mix Cores 1000 TON LOT		
333 TONS	*333 TONS*	*334 TONS*
M1 Core	*M2 Core*	*M3 Core*

Minor without density requirements – curbs, driveways, guardrail widening, islands, joint repair, spot leveling, medians, tapers, turnouts and shoulders ≤ 4' paved with the roadway. *(For < 250 tons, PE decides.)*

Take 3 cores per project for Gmm verification. (To District Lab)

PROJECT --- Take 1 GPC core for asphalt cement verification (To Matlab)

The new Pilot Asphalt Spec Revision Date is 10/15