MANATEE COUNTY

January 4, 2012

All Interested Bidders:

SUBJECT: Invitation for Bid #12-0461-OV
Rubonia Area Resurfacing / North County Infrastructure Improvements
Manatee County, FL (CDBG Project #5128760)

ADDENDUM #1

Bidders are hereby notified that this Addendum shall be acknowledged on page 37 of the Bid Form and made a part of the above named bidding and contract documents. Bids submitted without acknowledgement of the Addendum will be considered incomplete.

The following items are issued to add to, modify, and clarify the bid and contract documents. These items shall have the same force and effect as the original bidding and contract documents, and cost involved shall be included in the bid prices. Bids to be submitted on the specified bid date, shall conform to the additions and revisions listed herein.

Bidders Note: The deadline for clarification requests was **December 30, 2011 at 5:00 PM**. This deadline has been established to maintain fair treatment of all potential bidders, while maintaining the expedited nature of the Economic Stimulus that the contracting of this work may achieve. Questions received after this date and time shall not be considered.

Attachment #1 provides for the responses to questions received during the Pre-Bid / Information Conference which was held on December 21, 2011. (18 Total Pages)

Attachment #2 provides a copy of the Engineer's Estimate dated January 3, 2012. It is important to note that Manatee County is currently receiving competitive bids which are up to 50% lower than the Engineer's Estimate. (1 Total Page)

Financial Management Department - Purchasing Division
1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205
Phone: 941-708-7527 - Fax: 941-708-7544
www.mymanatee.org

LARRY BUSTLE * MICHAEL GALLEN* JOHN R. CHAPPIE * ROBIN DiSABATINO * DONNA G. HAYES * CAROL WHITMORE * JOE McCLASH
District 1 District 2 District 3 District 4 District 5 District 6 District 7

If you have submitted a bid prior to receiving this addendum, you may request in writing that your original, sealed bid be returned to your firm. All sealed bids received will be opened on the date stated.

END OF ADDENDUM #1

Bids will be received at the **Manatee County Purchasing Division, 1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205 until 2:00 P.M. on January 10, 2012.**

Sincerely,

Melissa Assha, CPPO
Interim Purchasing Official
Purchasing Division

Ov/ (19 total pages attached)

MEMORANDUM

ATTACHMENT #1

Public Works Department
Project Management Division
1022 26th Avenue East
Bradenton, FL 34208

Phone: 941.708-7450
Fax: 941.708-7579
www.mymanatee.org

MANATEE COUNTY
FLORIDA

To: Olga Valcich, Contract Specialist
From: Brian Martineau, Senior Engineering Specialist
Date: January 4, 2012
Subject: Response to Pre-Bid Rubonia Area Road Resurfacing Project

Response to Pre-Bid questions during the December 21, 2011 Pre-Bid conference.

Plans/Drawings questions:

1. Page 2 of 12 General Note # 33 states "The contractor to provide the engineer of record with reproducible record drawings ...Remove note # 33 no record drawings are required.

2. Page 3 of 12 Typical Shoulder Detail has a statement "Place and Compact Fill Dirt as Required". No placing or compacting of fill dirt is required for this project. Manatee County in house crews have addressed the shoulders.

Bid Documents questions:

3. Special Provisions – Remove FDOT Section 324 "Reworking Asphalt Concrete Pavement". Replace with FDOT current 2010 Version Section 334 "Superpave Asphalt Concrete." (See Attached)

General questions:

4. Will contractor be required to obtain a Manatee County Right of Way use permit. No Manatee County Right of Way use permit is required.

5. Will testing be required. No testing will be required.

6. Does an (underground, utility and excavation license) meet the minimum requirement for the General Contractor license to bid this project. Yes per Florida Statute 489.113 (3a).

BM/bm

cc: Jeff Streitmatter, P.E. Interim Division Manager
William O'Shea, Comm Dev Project Manager
File 5128760 9.1

LARRY BUSTLE * MICHAEL GALLEN * JOHN R. CHAPPIE * ROBIN DiSABATINO * DONNA G. HAYES * CAROL WHITMORE * JOE McCLASH
District 1 *District 2* *District 3* *District 4* *District 5* *District 6* *District 7*

SECTION 334
SUPERPAVE HOT MIX ASPHALT
FOR LOCAL AGENCIES
(12-19-03)

334-1 Description.

334-1.1 General: Construct a Superpave Hot Mix Asphalt pavement for local agencies using the type of mixture specified in the Contract, or when offered as alternates, as selected. Superpave mixes are identified as Type SP-9.5, Type SP-12.5 or Type SP-19.0.

All test methods designated as FM refer to the FDOT Florida Sampling and Testing Methods. All references to the Department shall mean the local agency. All references to the Engineer shall mean the designated Engineer of the local agency. Any incorrect references to FDOT specifications, test methods, or standards should be brought to the attention of the Engineer for clarification.

Meet the requirements of Section 320 for plant and equipment, and meet the general construction requirements of Section 330.

The Engineer will accept the work based on one of the following methods as described in 334-5: 1) Certification, 2) Certification and process control testing by the Contractor, 3) acceptance testing by the Agency or 4) other method(s) as determined by the Contract.

334-1.2 Traffic Levels: The requirements for Type SP Hot Mix Asphalt mixtures are based on the design traffic level of the project, expressed in 18-Kip Equivalent Single Axle Loads (ESAL's). The traffic levels are as shown in Table 334-1.

Table 334-1
Superpave Traffic Levels

Traffic Level	Million ESAL's	Typical Applications
A	<0.3	Local roads, county roads, city streets where truck traffic is light or prohibited.
B	0.3 to <3	Collector roads, access streets. Medium duty city streets and majority of county roadways
C	3 to < 10	
D	10 to <30	Medium to heavy traffic city streets, many state routes, US highways, some rural interstates.
E	≥30	US Interstate class roadways.

The traffic level(s) for the project are as specified in the Contract. In situations where the design traffic level is not specified in the Contract, use a Traffic Level C mix. Where Type S Hot Mix Asphalt is specified in the Contract, if approved by the Engineer, the equivalent

fine Type SP Hot Mix Asphalt mixture (Traffic Level C) may be selected as an alternate at no additional cost to the Department. The equivalent mixes are as follows:

Type S-I ..... Type SP-12.5
Type S-II ..... Type SP-19.0
Type S-III ..... Type SP-9.5

334-1.3 Layer Thicknesses: Use only fine graded Superpave mixes. Fine graded mixes are defined as having a gradation that passes above the restricted zone when plotted on an FHWA 0.45 Power Gradation Chart.

334-1.3.1 Fine Mixes: The allowable structural layer thicknesses for fine Type SP Hot Mix Asphalt mixtures are as follows:

Type SP-9.5 ..... 3/4 – 1 1/4 inches
Type SP-12.5 ..... 1 1/4 – 2 1/2 inches
Type SP-19.0 ..... 2- 2 3/4 inches

In addition to the minimum and maximum thickness requirements, the following restrictions are placed on fine mixes when used as a structural course:

Type SP-9.5 - Limited to the final (top) structural layer, one layer only.

Type SP-12.5 - May not be used in the first layer of courses over 3 1/2 inches thick, nor in the first layer of courses over 2 3/4 inches thick on limited access facilities.

Type SP-19.0 - May not be used in the final (top) structural layer.

334-1.3.2 Additional Requirements: The following requirements also apply to fine Type SP Hot Mix Asphalt mixtures:

1. A minimum 1 1/2 inch initial lift is required over an Asphalt Rubber Membrane Interlayer (ARMI).

2. When construction includes the paving of adjacent shoulders (≤5 feet wide), the layer thickness for the upper pavement layer and shoulder shall be the same and paved in a single pass, unless shown differently in the plans.

3. All overbuild layers shall be Type SP Hot Mix Asphalt designed at the traffic level as stated in the Contract. Use the minimum and maximum layer thicknesses as specified in 334-1.3.1 unless shown differently in the plans. On variable thickness overbuild layers, the minimum allowable thickness may be reduced by 1/2 inch, and the maximum allowable thickness may be increased 1/2 inch, unless shown differently in the plans.

334-2 Materials.

334-2.1 General Requirements: Meet the material requirements specified in Division III. Specific references are as follows:

Superpave PG Asphalt Binder or Recycling Agent 916-1, 916-2
Coarse Aggregate, Stone, Slag or Crushed Gravel ..... Section 901
Fine Aggregate ..... Section 902

Crushed Reclaimed Portland Cement Concrete Pavement may be used as a coarse aggregate or screenings component subject to meeting all applicable specifications.

334-2.2 Gradation Requirements: Combine the coarse and fine aggregate in proportions that will produce an asphalt mixture meeting all of the requirements defined in this Specification

and conform to the gradation requirements at design as defined in Table 334-2. Aggregates from various sources may be combined.

Table 334-2 Aggregate Gradation Control Points (Gradation Design Ranges)						
	Superpave Mixture (Percent Passing)					
	SP-9.5		SP-12.5		SP-19.0	
Sieve Size	Min.	Max.	Min.	Max.	Min.	Max
1 inch	-	-	-	-	100	-
3/4 inch	-	-	100	-	90	100
1/2 inch	100	-	90	100	-	90
3/8 inch	90	100	-	90	-	-
No. 4	-	90	-	-	-	-
No. 8	32	67	28	58	23	49
No. 200	2	10	2	10	2	8

334-2.3 Restricted Zone: The gradation identified in 334-2.2 shall pass above the restricted zone specified in Table 334-3.

334-2.4 Aggregate Consensus Properties: Meet the following consensus properties at design for the aggregate blend:

334-2.4.1 Coarse Aggregate Angularity: When tested in accordance with ASTM D 5821, meet the coarse aggregate angularity requirement defined in Table 334-4.

334-2.4.2 Fine Aggregate Angularity: When tested in accordance with AASHTO T-304, meet the fine aggregate angularity requirement defined in Table 334-5.

Table 334-3 Aggregate Gradation Restricted Zone (Design Only)						
Sieve Size within Restricted Zone	Boundaries of Restricted Zone Superpave Mixture (Percent Passing)					
	SP-9.5		SP-12.5		SP-19.0	
	Min.	Max.	Min.	Max.	Min.	Max
No. 4	-	-	-	-	-	-
No. 8	47.2	47.2	39.1	39.1	34.6	34.6
No. 16	31.6	37.6	25.6	31.6	22.3	28.3
No. 30	23.5	27.5	19.1	23.1	16.7	20.7

Table 334-4 Coarse Aggregate Angularity Criteria (Minimum Percent Fractured Faces)				
Traffic Level	Depth of Top of Pavement Layer From Surface			
	≤4 inches		>4 inches	
	1 or More Fractured Faces (%)	2 or More Fractured Faces (%)	1 or More Fractured Faces (%)	2 or More Fractured Faces (%)
A	55	-	-	-
B	75	-	50	-
C	85	80	60	-
D	95	90	80	75
E	100	100	100	100

Table 334-5 Fine Aggregate Angularity Criteria		
Traffic Level	Depth of Top of Pavement Layer From Surface	
	≤4 inches	>4 inches
	Minimum Uncompacted Void Content (%)	Minimum Uncompacted Void Content (%)
A	-	-
B	40	40
C	45	40
D	45	40
E	45	45

334-2.4.3 Flat and Elongated Particles: When tested in accordance with ASTM D 4791, use a ratio of maximum to minimum dimensions of 5:1 and do not exceed 10% as the maximum amount of flat and elongated particles for the coarse aggregate blend for all projects with Traffic Levels B and higher. This criteria does not apply for Traffic Level A.

334-2.4.4 Clay Content: When tested in accordance with AASHTO T 176, meet the sand equivalent value for fine aggregate blend defined in Table 334-6.

Table 334-6 Clay Content	
Traffic Level	Sand Equivalent Minimum (%)
A	40
B	40
C	45
D	45
E	50

334-2.5 Use of Reclaimed Asphalt Pavement:

334-2.5.1 General Requirements: Reclaimed Asphalt Pavement (RAP) may be used as a component material of the asphalt mixture subject to the following:

1. The Contractor assumes responsibility for the design of asphalt mixes which incorporate RAP as a component material.

2. For design purposes, the Contractor assumes responsibility for establishing accurate specific gravity values for the RAP material. This may be accomplished by one of the following methods:

a) Calculation of the bulk specific gravity value based upon the effective specific gravity of the RAP, determined on the basis of the asphalt binder content and maximum specific gravity. The Engineer will approve the estimated asphalt binder absorption value used in the calculation.

b) Testing of the extracted aggregate obtained through a vacuum extraction or ignition oven extraction.

3. For projects with Traffic Levels D and E, do not permit the amount of RAP material used in the mix to exceed 30% by weight of total aggregate. For projects with Traffic Levels A, B and C, do not permit the amount of RAP material used in the mix to exceed 50% by weight of total aggregate.

4. Use a grizzly or grid over the RAP cold bin, in-line roller crusher, screen, or other suitable means to prevent oversized RAP material from showing up in the completed recycled mixture.

If oversized RAP material appears in the completed recycled mix, take the appropriate corrective action immediately. If the appropriate corrective actions are not immediately taken, stop plant operations.

5. Provide stockpiled RAP material that is reasonably consistent in characteristics and contains no aggregate particles which are soft or conglomerates of fines.

6. Provide RAP having a minimum average asphalt content of 4.0% by weight of total mix. The Engineer may sample the stockpile to verify that this requirement is met.

334-2.5.2 Binder for Mixes with RAP: Select the appropriate binder based on Table 334-7. The Engineer reserves the right to change binder type and grade at design based on the characteristics of the RAP binder, and reserves the right to make changes during production. Maintain the viscosity of the recycled mixture within the range of 4,000 to 12,000 poises. Obtain a sample of the mixture for the Engineer within the first 1,000 tons and at a frequency of approximately one per 4,000 tons of mix.

Table 334-7
Binder Grade for Mixes Containing RAP

% RAP	Asphalt Binder Grade
<20	PG 67-22
20-29	PG 64-22
≥ 30	Recycling Agent

Note: When a PG 76-22 Asphalt Binder is called for in the Contract, limit the amount of RAP material used in the mix to a maximum of 15%.

334-2.6 Use of Recycled Crushed Glass: Recycled crushed glass may be used as a component of the bituminous mixture subject to the following:

1. Consider the recycled crushed glass a local material and meet all requirements specified in 902-6.

2. Limit the amount of recycled crushed glass in any bituminous mixture to a maximum of 15% of the total aggregate weight.

3. Use an asphalt binder that contains a minimum of 0.5% anti-stripping agent from the Department's Qualified Products List. The addition of the specified amount of anti-stripping agent must be certified by the supplier.

4. Do not use recycled crushed glass in friction course mixtures or in structural course mixtures, which are to be used as the final wearing course.

334-3 General Composition of Mixture.

334-3.1 General: Compose the asphalt mixture using a combination of aggregate (coarse, fine or mixtures thereof), mineral filler, if required, and asphalt binder material. Size, grade and combine the aggregate fractions to meet the grading and physical properties of the approved mix design. Aggregates from various sources may be combined.

334-3.2 Mix Design:

334-3.2.1 General: Design the Superpave asphalt mixture in accordance with AASHTO PP-28, except as noted herein, to meet the requirements of this Specification. Use only FDOT verified mix designs. (Note: For Fine graded Traffic Level D & E mixes, if an FDOT verified design is not available, use a design as approved by the Engineer.) Prior to the production of any Superpave asphalt mixture, submit the proposed mix design with supporting test data indicating compliance with all Superpave mix design criteria.

The Engineer will consider any marked variations from original test data for a mix design or any evidence of inadequate field performance of a mix design as sufficient evidence that the properties of the mix design have changed, and the Engineer will no longer allow the use of the mix design.

334-3.2.2 Grading Requirements: Meet the gradation design ranges of Table 334-2.

334-3.2.3 Gyratory Compaction: Compact the design mixture in accordance with AASHTO TP-4. Use the number of gyrations as defined in Table 334-8.

Table 334-8
Superpave Design Gyratory Compactive Effort

Traffic Level	$N_{initial}$	N_{design}	$N_{maximum}$
A	6	50	75
B	7	75	115
C	7	75	115
D	8	100	160
E	9	125	205

334-3.2.4 Volumetric Criteria: Use an air void content of the mixture at design of 4.0% at the design number of gyrations (N_{design}). Meet the requirements of Table 334-9.

Table 334-9 Mixture Densification Criteria			
Traffic Level	% G_{mm}		
	$N_{initial}$	N_{design}	$N_{maximum}$
A	≤91.5	96.0	≤98.0
B	≤90.5	96.0	≤98.0
C	≤89.0	96.0	≤98.0
D	≤89.0	96.0	≤98.0
E	≤89.0	96.0	≤98.0

334-3.2.5 VMA Criteria: Meet the requirements of Table 334-10 for voids in the mineral aggregate (VMA) of the mixture at the design number of gyrations.

Table 334-10 VMA Criteria	
Type Mix	Minimum VMA (%)
SP-9.5	15.0
SP-12.5	14.0
SP-19.0	13.0

334-3.2.6 VFA Criteria: Meet the requirements of Table 334-11 for voids filled with asphalt (VFA) of the mixture at the design number of gyrations.

Table 334-11 VFA Criteria	
Traffic Level	Design VFA (%)
A	70 - 80
B	65 - 78
C	65 - 75
D	65 - 75
E	65 - 75

Note: For Type SP-9.5 mixtures at Traffic Levels C, D & E, the specified VFA range shall be 73% to 76%.

334-3.2.7 Dust Proportion: Use a dust to effective asphalt binder content by weight between 0.6 to 1.2.

334-3.2.8 Moisture Susceptibility: Test the specimens in accordance with FM 1-T 283. Provide a mixture (4 inch specimens) having a retained tensile strength ratio of at least 0.80 and a minimum tensile strength (dry and unconditioned) of 100 psi. If necessary, add a liquid anti-stripping agent, which is on the Department's Qualified Products List or hydrated lime (meeting the requirements of Section 337) in order to meet these criteria.

334-3.2.9 Additional Information: In addition to the requirements listed above, provide the following information with each proposed mix design submitted for use:

1. The design traffic level and the design number of gyrations (N_{design}).

2. The source and description of the materials to be used.

3. The FDOT source number product code of the aggregate components furnished from an FDOT approved source.

4. The gradation and proportions of the raw materials as intended to be combined in the paving mixture. The gradation of the component materials shall be representative of the material at the time of use. Compensate for any change in aggregate gradation in handling and processing as necessary.

5. A single percentage of the combined mineral aggregate passing each specified sieve. Degradation of the aggregate due to processing (particularly -No. 200 [-75 µm]) should be accounted for and identified for the applicable sieves.

6. The bulk specific gravity value for each individual aggregate (and RAP) component, as identified in the FDOT aggregate control program.

7. A single percentage of asphalt binder by weight of total mix intended to be incorporated in the completed mixture, shown to the nearest 0.1%.

8. A target temperature at which the mixture is to be discharged from the plant and a target roadway temperature (per 330-6.3). Do not exceed a target temperature of 340°F for modified asphalts and 315°F for unmodified asphalts.

9. Evidence that the completed mixture conforms to all specified physical requirements.

10. The name of the Mix Designer.

11. The ignition oven calibration factor(s).

334-3.3 Revision of Mix Design: During production, the Contractor may request a target value revision to a mix design, subject to: (1) the target change falls within the limits defined in Table 334-12, (2) appropriate data exists demonstrating that the mix complies with production air voids specification criteria, and (3) the mixture gradation meets the basic gradation requirements defined in 334-2.2 and 334-2.3.

Table 334-12
Limits for Potential Adjustments to Mix Design Target Values

Characteristic	Limit from Original Mix Design
No. 8 sieve and Coarser	± 5.0%
No. 16 sieve	± 4.0%
No. 30 sieve	± 4.0%
No. 50 sieve	± 3.0%
No. 100 sieve	± 3.0%
No. 200 sieve	± 1.0%
Asphalt Binder Content (1)	± 0.3%

(1) Reductions to the asphalt binder content will not be permitted if the VMA during production is lower than 1.0% below the design criteria.

Submit all requests for revisions to mix designs, along with supporting documentation, to the Engineer. In order to expedite the revision process, the request for revision or discussions on the possibility of a revision may be made verbally, but must be followed up by a written request. The initial mix design will remain in effect until a change is authorized by the

Engineer. In no case may the effective date of the revision be established earlier than the date of the first communication between the Contractor and the Engineer regarding the revision.

A new design mix will be required for any substitution of an aggregate product with a different aggregate code, unless approved by the Engineer.

334-4.4 Contractor's Process Control:

334-4.4.1 Personnel: Provide the necessary quality control personnel to comply with the requirements of the Contract.

334-4.4.2 Initial Production Test Strip: For initial use of a Type SP mix design at a particular plant, limit full-scale production and placement of the mix to a test strip of 500 tons (for each mix) to demonstrate the capability of producing, placing, and compacting the mix as specified, unless waived by the Engineer. Upon agreement between the Contractor and the Engineer, test strips of up to 1,000 tons may be used. Initial production requirements do not apply if the total quantity of mix to be placed is less than 2000 tons.

334-4.4.2.1 Calibration of the Superpave Gyratory Compactor: Calibrate the Superpave Gyratory Compactor in accordance with the manufacturer's recommendations prior to producing the Superpave mixture for the test strip. Check the height calibration, the speed of rotation, ram pressure and angle of gyration. (Following completion of the test strip, calibrate the height daily, the ram pressure and speed of rotation weekly, and the angle of gyration monthly.)

334-4.4.2.2 Plant Testing Requirements: During the initial production period, take a minimum of three separate sets of mixture samples which will be used for extraction gradation analysis and determination of volumetric properties. Provide a split sample of one of the samples for comparison testing with the Engineer if determined necessary by the Engineer.

334-4.4.2.3 Roadway Testing Requirements: For density determination, obtain 6 inch diameter roadway cores at random locations as directed by the Engineer within the test strip, at a frequency shown in Table 334-16.

334-4.4.2.4 Criteria for Passing Test Strip: Resume production when authorized by the Engineer based upon acceptable extraction gradation analysis as determined in accordance with 334-4.4.3, acceptable volumetric properties as determined in accordance with 334-4.4.4, acceptable density in accordance with 334-5.4.2, and a favorable comparison with the Engineer's test results (G_{mb} at N_{design} (within 1%) and G_{mm} (within 0.019) only). In the event that the test strip fails to meet any of the above mentioned criteria, remove and replace the material at no cost to the Department if so directed by the Engineer.

334-4.4.3 Extraction Gradation Analysis: Sample the asphalt mixture at the plant in accordance with FM 1-T 168. The percent asphalt binder content of the mixture will be determined in accordance with FM 5-563 (ignition oven). The gradation of the extracted mixture will be determined in accordance with FM 1-T 030. All test results will be shown to the nearest 0.01. All calculations will be carried to the nearest 0.001 and rounded to the nearest 0.01, in accordance with the Department's rules of rounding.

Run an extraction gradation analysis on the mixture at a minimum frequency of once per production day when the daily production is less than 1,000 tons. If the daily production exceeds 1,000 tons, perform the extraction gradation analysis of the mix a minimum of two times per production day.

During normal production, the Engineer will not require extraction gradation analysis on days when mix production is less than 100 tons. However, when mix production is less than 100 tons per day on successive days, run the test when the accumulative tonnage on such days exceeds 100 tons.

The target gradation and asphalt content will be as shown on the mix design. Any changes in target will require a change in the mix design in accordance with 334-4.3.

If the percentage of asphalt binder deviates from the optimum asphalt binder content by more than 0.55%, or the percentage passing any sieve falls outside the limits in Table 334-13, immediately resample the mix and test to validate the previous test result, and if needed, make the necessary correction. If the results for two consecutive tests deviate from the optimum asphalt binder content by more than 0.55%, or exceed the limits in Table 334-13 for any sieve, notify the Engineer and take immediate steps to identify and correct the problem, then resample the mix. If the results from this test deviate from the optimum asphalt binder content by more than 0.55%, or exceed the limits in Table 334-13 for any sieve, stop plant operations until the problem has been corrected.

Table 334-13
Tolerances for Quality Control Tests
(Extraction Gradation Analysis)

Size	Percent Passing
1 inch	7.0
3/4 inch	7.0
1/2 inch	7.0
3/8 inch	7.0
No. 4	7.0
No. 8	5.5
No. 16	5.0
No. 30	4.5
No. 50	4.5
No. 100	3.0
No. 200	2.0

Maintain control charts showing the results of the extraction gradation analysis (asphalt binder content and sieve analysis).

334-4.4.4 Volumetric Control: During production of the mix, monitor the volumetric properties of the Superpave mix with a Superpave Gyratory Compactor to determine the air voids, VMA, VFA, and dust-to-effective asphalt binder ratio (dust proportion) at N_{design}.

Take appropriate corrective actions in order to maintain an air void content at N_{design} between 3.0 and 5.0% during production. When the air void content at N_{design} drops below 2.5 or exceeds 5.5%, stop plant operations until the appropriate corrective actions are made and the problem is resolved to the satisfaction of the Engineer. Evaluate any failing material in accordance with 334-6.

Determine the volumetric properties of the mixture at a minimum frequency of once per production day when the daily production is less than 1,000 tons. If the daily production exceeds 1,000 tons, monitor the volumetric properties two times per production day.

During normal production, volumetric properties of the mixture will not be required on days when mix production is less than 100 tons. However, when mix production is less than 100 tons per day on successive days, run the test when the accumulative tonnage on such days exceeds 100 tons.

Testing required for volumetric property determination includes AASHTO TP-4, FM 1-T 209, FM 5-563 and FM 1-T 030. Prior to testing samples in accordance with AASHTO TP-4 and FM 1-T 209, condition the test-sized sample for one hour at the compaction temperature in a covered container.

Maintain control charts showing the results of the volumetric testing (air voids, G_{mm}, G_{mb}).

334-4.4.5 Plant Calibration: At or before the start of mix production, perform an extraction gradation analysis of the mix to verify calibration of the plant. This extraction gradation analysis may also be used for the first test of the first day's production.

334-4.4.6 Viscosity of Asphalt Binder in Mixes Containing Reclaimed Asphalt Pavement: When RAP is a component material, assure that the viscosity of the asphalt binder material in the asphalt mixture, when determined in accordance with FM 1-T 202, will be within the range of 4,000 - 12,000 poises. This determination will be made on samples obtained by the Engineer on a random basis at a frequency of approximately one per 2,000 tons of mix.

If the viscosity determined by the Engineer is out of the specified range, adjust the binder formulation or blend or RAP in the mix to bring the viscosity within tolerance.

334-4.4.7 Process Control of In-Place Compaction: Develop and implement a method to control the compaction of the pavement and ensure its compliance with the minimum specified density requirements. Include density determinations by the use of a nuclear density gauge at a frequency of one test per 1,000 feet of compacted pavement in the process control. Other density measuring devices may be used in lieu of the nuclear density gauge, provided that it is demonstrated to the satisfaction of the Engineer that the device can accurately measure the relative level of density in the pavement on a consistent basis.

334-5 Acceptance of the Mixture.

334-5.1 General: The asphalt mixture will be accepted based on one of the following methods as determined by the Engineer and/or Contract Documents:

1) Certification by the Contractor
2) Certification and Process Control Testing by the Contractor
3) Acceptance testing by the Engineer
4) Other method(s) as determined by the Contract

334-5.2 Certification by the Contractor: Submit a Notarized Certification of Specification Compliance letter on company letterhead to the Engineer that all material produced and placed on the project was in substantial compliance with the Specifications.

334-5.3 Certification and Process Control Testing by the Contractor: Submit a Notarized Certification of Specification Compliance letter on company letterhead to the Engineer

that all material produced and placed on the project was in substantial compliance with the Specifications, along with supporting test data documenting all process control testing as described in 334-4.4. If so required by the Contract, utilize an Independent Laboratory as approved by the Engineer for the Process Control testing.

334-5.4 Acceptance Testing by the Engineer:

334-5.4.1 Acceptance at the Plant: The asphalt mixture will be accepted at the plant, with respect to gradation and asphalt binder content, on a LOT to LOT basis. However, any load or loads of mixture which, in the opinion of the Engineer, are unacceptable for reasons of excessive segregation, aggregates improperly coated, or of excessively high or low temperature will be rejected for use in the work.

A standard size LOT at the asphalt plant will consist of 4,000 tons with four equal sublots of 1,000 tons each.

A partial LOT may occur due to the following:

(1) the completion of a given mix type on a project.

(2) an approved LOT termination by the Engineer due to a change in process, extended delay in production (greater than 60 days), or change in mix design.

If the partial LOT contains one or two sublots with their appropriate test results, then the previous full-size LOT will be redefined to include this partial LOT and the evaluation of the LOT will be based on either five or six sublot determinations. If the partial LOT contains three sublots with their appropriate test results, this partial LOT will be redefined to be a whole LOT and the evaluation of it will be based on three sublot determinations.

When the total quantity of any mix is less than 3,000 tons, the partial LOT will be evaluated for the appropriate number of sublots from n=1 to n=3. When the total quantity of any mix type is less than 500 tons, the Engineer will accept the mix on the basis of visual inspection. The Engineer may run extraction and gradation analysis for verification purposes; however, the provisions for partial payment will not apply.

On multiple project contracts, the LOT(s) at the asphalt plant will carry over from project to project.

334-5.4.1.1 Acceptance Procedures: Control all operations in the handling, preparation, and production of the asphalt mix so that the percent asphalt binder content and the percents passing the No. 8 and No. 200 sieves will meet the targets from the mix design within the tolerances shown in Table 334-14.

Table 334-14
Tolerances for Acceptance Tests

Characteristic	Tolerance*
Asphalt Binder Content	±0.55%
Passing No. 8 Sieve	±5.50%
Passing No. 200 Sieve	±2.00%

*Tolerances for sample size of n=1. See Table 334-15 for other sample sizes n=2 through n=6.

Acceptance of the mixture will be on the basis of test results on consecutive random samples from each LOT. The Engineer will take one random sample from each sublot. The asphalt mixture will be sampled at the plant in accordance with FM 1-T 168.

The percent asphalt binder content of the mixture will be determined in accordance with FM 5-563. The percentages passing the No. 8 and No. 200 sieves will be determined in accordance with FM 1-T 030.

Calculations for the acceptance test results for asphalt binder content and gradation (percentages passing the No. 8 and No. 200 sieves) will be shown to the nearest 0.01. Calculations for arithmetic averages will be carried to the 0.001 and rounded to the nearest 0.01 in accordance with the Department's rules of rounding.

Payment will be made on the basis of Table 334-15 "Acceptance Schedule of Payment". The process will be considered out of control when the deviation of any individual test result from the mix design falls in the 80% pay factor for the "1 Test" column of Table 334-15. When this happens, the LOT will be automatically terminated and acceptance of the LOT determined in accordance with Table 334-15.

Table 334-15
Acceptance Schedule of Payment
(Asphalt Plant Mix Characteristics)

Pay Factor	Average of Accumulated Deviations of the Acceptance Tests from the Mix Design					
	1-Test	2-Tests	3-Tests	4-Tests	5-Tests	6-Tests
Asphalt Binder Content						
1.00	0.00-0.55	0.00-0.43	0.00-0.38	0.00-0.35	0.00-0.33	0.00-0.31
0.95	0.56-0.65	0.44-0.50	0.39-0.44	0.36-0.40	0.34-0.37	0.32-0.36
0.90	0.66-0.75	0.51-0.57	0.45-0.50	0.41-0.45	0.38-0.42	0.36-0.39
0.80*	over 0.75	over 0.57	over 0.50	over 0.45	over 0.42	over 0.39
No. 8 Sieve **						
1.00	0.00-5.50	0.00-4.33	0.00-3.81	0.00-3.50	0.00-3.29	0.00-3.13
0.98	5.51-6.50	4.34-5.04	3.82-4.39	3.51-4.00	3.30-3.74	3.14-3.54
0.95	6.51-7.50	5.05-5.74	4.40-4.96	4.01-4.50	3.75-4.18	3.55-3.95
0.90	7.51-8.50	5.75-6.45	4.97-5.54	4.51-5.00	4.19-4.63	3.96-4.36
0.80*	over 8.50	over 6.45	over 5.54	over 5.00	over 4.63	over 4.36
No. 200 Sieve **						
1.00	0.00-2.00	0.00-1.71	0.00-1.58	0.00-1.50	0.00-1.45	0.00-1.41
0.95	2.01-2.40	1.72-1.99	1.59-1.81	1.51-1.70	1.46-1.63	1.42-1.57
0.90	2.41-2.80	2.00-2.27	1.82-2.04	1.71-1.90	1.64-1.80	1.58-1.73
0.80*	over 2.80	over 2.27	over 2.04	over 1.90	over 1.80	over 1.73

*If approved by the Engineer based on an engineering determination that the material is acceptable to remain in place, the indicated partial pay may be accepted. Otherwise, the Engineer will require removal and replacement at no cost. The Contractor may remove and replace at no cost to the Department at any time.

**When there are two reduced payments for these items in one LOT of material, only the greatest reduction in payment will be applied. CAUTION: This rule applies only to these two gradation test results.

Note: Deviations are absolute values with no plus or minus signs.

When possible, the Engineer will complete all acceptance tests on the same day the sample was taken, and on no occasion will they be completed later than the following work day.

334-5.4.1.2 Automatic Batch Plant With Printout: Acceptance determinations for asphalt binder content and gradation for mixtures produced by automatic batch plants with printout will be based on extraction results as specified in 334-5.4.1.1.

334-5.4.2 Acceptance on the Roadway:

334-5.4.2.1 Density Control: The in-place density of each course of asphalt mix construction will be evaluated by the use of 6 inch diameter roadway cores. The required average density of a completed course will be based on the maximum specific gravity (G_{mm}) of the as-produced mix.

The Engineer will not perform density testing on patching courses, leveling courses, open-graded friction courses, or any course with a specified thickness less than 1 inch or a specified spread rate less than 105 lb/yd^2. In addition, density testing will not be performed on the following areas when they are less than 1,000 feet in length: crossovers, intersections, turning lanes, acceleration lanes or deceleration lanes. Compact these courses (with the exception of open-graded friction courses) in accordance with the rolling procedure as approved by the Engineer.

334-5.4.2.1.1 LOTs: For the purpose of acceptance and determination of payment, each day's production will be divided into LOTs, and all LOTs are to be closed out at the end of the day. The standard size of a LOT will consist of 5,000 feet of any pass made by the paving train regardless of the width of the pass. Changes in thickness, mix design, or underlying layer shall constitute a separate LOT. Mix placed on the shoulder shall also be considered a separate LOT. Pavers traveling in echelon will be considered as two separate passes. When at the end of a day's production (production day) or the completion of a given course, layer, or mix, or at the completion of the project, a LOT size is determined to be less than 5,000 feet, it is considered a partial LOT. Partial LOTs are to be handled as follows:

If the length of the partial LOT is 2,000 feet or less, then the previous full-size LOT will be redefined to include this partial LOT and the number of tests required for the combined LOT will be as shown in Table 334-16. If the partial LOT is 2,000 feet or less, and a previous full-size LOT from the same day, mix, layer and project is not available, then the partial LOT will be evaluated separately and the number of tests required for the partial LOT will be as shown in Table 334-16. If the partial LOT is greater than 2,000 feet long, it will be evaluated separately, with the number of tests required as shown in Table 334-16.

Table 334-16
Density Testing Requirements for Partial LOTs

(feet)	Number of Tests
Less than 3,000	3
3,001 - 4,000	4
4,001 - 5,000	5
5,001 - 6,000	6
6,001 - 7,000	7
Greater than 7,000	2 LOTs

334-5.4.2.1.2 Target Maximum Specific Gravity: The target maximum specific gravity of the mix will be based on the average daily value as determined by the Contractor's Process Control testing described in 334-4.4. Obtain two separate samples for maximum specific gravity determination on a daily basis. If only one maximum specific gravity test value is available, this value shall be used as the target maximum specific gravity. If a maximum specific gravity value is not determined for a day's production, the previous day's value will be used. Obtain, under the Engineer's supervision, split samples of the asphalt mixture used for the maximum specific gravity test for verification purposes. The minimum size of the split sample will be 4,000 g. The split samples shall be conditioned in accordance with 334-4.4.4 prior to testing and will become the property of the Department. The split samples will become the property of the Department. In the event of an obvious sampling or testing error, the Engineer may allow the Contractor to retest a portion of the split sample. The Engineer will run verification tests on the split samples in order to determine the acceptability of the Contractor's test results. If the verification test result differs from the Quality Control test result by more than 0.019 for two consecutive tests, the target G_{mm} value will be established by the Department's result until the cause of the discrepancy is identified and resolved to the satisfaction of the Engineer.

334-5.4.2.1.3 Acceptance: The completed pavement will be accepted with respect to density on a LOT basis. For each LOT, 6 inch diameter roadway cores will be obtained at random locations within the LOT, at the frequency shown in Table 334-16. Obtain the roadway cores at the random locations as directed by the Engineer, at the end of each day's production prior to opening the roadway to traffic. The locations of the cores will be determined in the longitudinal direction by the use of statistically derived stratified random number tables furnished by the Department. The locations of the cores transversely will be uniformly spaced across the width of the pavement, with no cores located closer than 1 foot of any unsupported edge. These will also be used for partial LOTs. Assume responsibility for maintenance of traffic, coring, patching the core holes, and trimming the cores to the proper thickness prior to density testing.

The density of the cores will be determined in accordance with FM 1-T 166, and will be averaged for each LOT. To receive full payment for density, the average density of a LOT shall be a minimum of 92% of G_{mm}. Partial payment will be made for those LOTs that have an average density less than 92% of G_{mm} based on Table 334-17 (for pavements with an unrestricted compactive effort). As an exception, if the Engineer (or Contract Documents) limits compaction to the static mode, the percent of payment will be based on the Restricted Compactive Effort schedule defined in Table 334-17.

Once the average density of a LOT has been determined, do not provide additional compaction to raise the average.

Table 334-17
Payment Schedule For Density

Unrestricted Compactive Efforts (Vibratory and/or Static)		Restricted Compactive Efforts (Static Only)	
Percent of Maximum	Percent of Payment	Percent of Maximum	Percent of Payment

Specific Gravity (G_{mm})		Specific Gravity (G_{mm})	
92.0 and above	100	91.0 and above	100
91.0 to less than 92.0	95	90.5 to less than 91.0	95
90.0 to less than 91.0	90	90.0 to less than 91.5	90
Less than 90.0 *	0 Remove and Replace	Less than 90.0 *	0 Remove and Replace

*The Department will require removal and replacement at no cost. The Contractor may remove and replace at no cost to the Department at any time.

334-5.4.2.1.4 Additional Density Requirement:

1) On shoulders with a width of 5 feet or less, the Engineer will not require density. Compact the pavement in accordance with the rolling procedure (equipment and pattern) approved by the Engineer. Stop the production of the mix if the rolling procedure deviates from the approved procedure.

334-5.4.2.2 Surface Tolerance: The asphalt mixture will be accepted on the roadway with respect to surface tolerance in accordance with the applicable requirements of 330-12.

334-5.5 Additional Tests: The Department reserves the right to run any test at any time for informational purposes and for determining the effectiveness of the Contractor's quality control.

334-5.5.1 Verification of Volumetric Properties: The Engineer will verify the densification properties of the mix during production with the Superpave Gyratory Compactor and will determine volumetric properties of the mix (air voids, VMA, VFA, and dust-to-effective asphalt binder ratio). The Engineer will condition the specimens as specified in 334-4.4.4 prior to testing.

Take appropriate corrective actions to maintain an air void content at N_{design} between 3.0 and 5.0% during production. When the air void content at N_{design} drops below 2.5 or exceeds 5.5%, stop plant operations until the appropriate corrective actions are made and the problem is resolved. Evaluate any failing material in accordance with 334-6.

When plant operations are stopped for mixes that have failing volumetric properties, obtain the Engineer's approval prior to resuming production of the mix. Limit production to 500 tons until passing volumetric properties are obtained.

334-6 Disposition of Failing Material.

Any material that is represented by failing test results identified in 334-4.4.4 or 334-5.5.1 (less than 2.5% air voids at N_{design}) will be evaluated to determine if removal and replacement is necessary. Remove and replace any material, if required, at no cost to the Department. The evaluation will be conducted by the Engineer. If so directed, obtain an engineering analysis, as directed by the Engineer, by an independent laboratory (as approved by the Engineer) to determine if the material can (a) remain in place, for this case the appropriate pay factor will be applied, or (b) be removed and replaced at no cost to the Department. The analysis will be a signed and sealed report by a Professional Engineer licensed in the State of Florida.

334-7 Method of Measurement.

For the work specified under this Section (including the pertinent provisions of Sections 320 and 330), the quantity to be paid for will be the weight of the mixture, in tons.

The bid price for the asphalt mix will include the cost of the liquid asphalt or the asphalt recycling agent. There will be no separate payment or unit price adjustment for the asphalt binder material in the asphalt mix. For the calculation of unit price adjustments of bituminous material, the asphalt content will be based on the percentage specified in 9-2.1.2. The weight will be determined as provided in 320-2 (including the provisions for the automatic recordation system).

334-8 Basis of Payment:

Price and payment will be full compensation for all the work specified under this Section (including the applicable requirements of Sections 320 and 330).

Payment shall be made under:

Item No. 334- 1- Superpave Asphaltic Concrete - per ton.

MANATEE COUNTY
FLORIDA

January 3, 2012

ATTACHMENT #2

To All Bidders

RE: Rubonia Area Resurfacing Project

The "construction cost estimate" for the Rubonia Area Resurfacing Project is $132,841.00 (one hundred thirty two thousand, eight hundred and forty one dollars and no cents)

This construction cost estimate was determined as of November 2011. The construction cost estimate is based on the quantities calculated from Plans and referencing our current annual bid costs.

Sincerely,

Brian Martineau
Senior Engineering Specialist
Manatee County Public Works

BM/bm

Cc: Ron Schulhofer, Director, Public Works Department
Sia Mollanazar, Deputy Director, Traffic Engineering
Jeff Streitmatter, PE, Interim Project Management Division Manager
William O'Shea, Comm Dev Project Manager
Project 167-5128760 5.0

Public Works Department / Project Management
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LARRY BUSTLE * MICHAEL GALLEN * JOHN R. CHAPPIE * ROBIN DiSABATINO * DONNA G. HAYES * CAROL WHITMORE * JOE McCLASH
District 1 District 2 District 3 District 4 District 5 District 6 District 7