**INVITATION TO BID**

**Turkey Creek Master Owner's Association, Inc.**
**11820 Turkey Creek Blvd.**
**Alachua, Florida**
**Roadway Resurfacing**

**General Notice**

Owner is requesting Bids for the construction of the following Project:

**Roadway Resurfacing**
**Project No. 2025-003**

Bids for the construction of the Project will be received at the office of **Affinity Management Group** located at **11820 Turkey Creek Blvd. Alachua, FL 32615**, until **Thursday**, **December 18, 2025** at **1:00 pm** local time. At that time the Bids received will be **privately** opened and read.

The Project includes the following Work:

**1 ½' and 2' ACSC overlay of portions of roadways within Turkey Creek together with minor concrete curbing and roadway striping.**

Bids are requested for the following Contract: **Roadway Resurfacing, Project No. 2025-003**

**Obtaining the Bidding Documents**

Information and Bidding Documents for the Project are attached to this Invitation to Bid.

**Pre-bid Conference**d.

A pre-bid conference for the Project will be held on Thursday**, December 4, 2025** at **10:00 am local time** at **Affinity Management Group, 11820 Turkey Creek Blvd, Alachua, FL 32615. Attendance at the pre-bid conference is required.**

**This Invitation to Bid is issued by**:

Owner: **Turkey Creek Master Owner's Association, Inc.**
By: **Edward Posey**
Title: **President**
Date: **November 21,2025**

# BID FORM FOR CONSTRUCTION CONTRACT

The terms used in this Bid with initial capital letters have the meanings stated EJCDC 522, Contract for Construction of a Small Project.

**ARTICLE 1—OWNER AND BIDDER**

1.1 This Bid is submitted to: **Turkey Creek Master Owner's Association, Inc.,**

1.2 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

**ARTICLE 2—ATTACHMENTS TO THIS BID**

2.1 The following documents are submitted with and made a condition of this Bid:

A. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids;

B. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids.

**ARTICLE 3—BASIS OF BID—LUMP SUM BID AND UNIT PRICES**

3.1 *Unit Price Bids*

A. Bidder will perform the following Work at the indicated unit prices:

| Item No. | Description | Unit | Estimated Quantity | Bid Unit Price | Bid Amount |
|---|---|---|---|---|---|
| | Base Bid | | | | |
| 1 | 1 ½" FDOT SP-9.5 ACSC w/tack, eda work location exhibit | SY | 44,136 | | $ |
| 2 | Mill 1 1/4" ACSC, Turkey Creek Blvd., US 441 to Palmetto Drive | SY | 4,430 | | $ |
| 3 | 1 1/2" FDOT SP-9.5 ACSC w/tack, Turkey Creek Blvd., US 441 to Palmetto Drive | SY | 4,430 | | $ |
| 4 | Replace two existing speed humps w/SP-9.5 ACSC | EA | 2 | | $ |
| 5 | FDOT Type B curb | LF | 150 | | $ |
| 6 | 4" 2500 psi concrete, median | SQFT | 80 | | $ |
| 7 | 4" 2500 psi sidewalks | SQFT | 80 | | $ |
| B | Asphalt widening strip complete | SY | 15 | | $ |
| | Note: All pavement markings to be "Durable Paint" w/Glass Spheres, FDOT 710 | | | | |
| 9 | 6" yellow pavement marking | LF | 1000 | | $ |
| | 6" yellow (6'-10') pavement markings | LF | 120 | | $ |

| | | | | | |
|---|---|---|---|---|---|
| | 6” white pavement markings | LF | 1120 | | $ |
| | 6”white (10’-30’) pavement markings | | 1120 | | $ |
| | Paint left turn arrows | EA | 4 | | $ |
| | Paint right turn arrows | EA | 2 | | |
| | Traffic channelization at gore pavement marking | EA | 2 | | |
| | 24 “ stop bar pavement markings | EA | 4 | | |
| | 12” speed hump pavement markings | EA | 4 | | |
| | 6” yellow (2’-4’) left turn CR pavement marking for left turns from Palmetto onto Turkey Creek Blvd. | LF | 270 | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| Bid Total | | | | | $ |

B. Bidder acknowledges that:

1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor’s overhead and profit for each separately identified item, and

2. estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

3.2 *Total Bid Price*

| | |
|---|---|
| Total Bid Price | $ |

**ARTICLE 4—TIME OF COMPLETION**

4.1 Bidder agrees that the Work will be substantially complete within _____calendar days after the date when the Contract Times commence to run as and will be completed and ready for final payment within _____ calendar days after the date when the Contract Times commence to run.

4.2 Bidder accepts the provisions of the Agreement as to liquidated damages.

**ARTICLE 5—BIDDER’S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA**

5.1 *Bid Acceptance Period*

A. This Bid will remain subject to acceptance for 45 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.2 *Instructions to Bidders*

A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

5.3 *Receipt of Addenda*

A. Bidder hereby acknowledges receipt of the following Addenda: **[Add rows as needed. Bidder is to complete table.]**

| Addendum Number | Addendum Date |
|---|---|
| | |
| | |
| | |

**ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS**

6.1 *Bidder's Representations*

A. In submitting this Bid, Bidder represents the following:

1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.2 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.

2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.

3. Bidder has not solicited or induced any individual or entity to refrain from bidding.

4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:

a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.

b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.

c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.

d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

BIDDER hereby submits this Bid as set forth above:

Bidder:

_____

*(typed or printed name of organization)*

By: _____

*(individual's signature)*

Name: _____

*(typed or printed)*

Title: _____

*(typed or printed)*

Date: _____

*(typed or printed)*

*If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.*

Attest: _____

*(individual's signature)*

Name: _____

*(typed or printed)*

Title: _____

*(typed or printed)*

Date: _____

*(typed or printed)*

Address for giving notices:

_____

_____

Bidder's Contact:

Name: _____

*(typed or printed)*

Title: _____

*(typed or printed)*

Phone: _____

Email: _____

Address:

_____

_____

_____

Bidder's Contractor License No.: (if applicable) _____

# CONTRACT FOR CONSTRUCTION OF A SMALL PROJECT

This Contract is by and between **Turkey Creek Master Owner's Association, Inc.** (Owner) and **[Legal name of Contractor]** (Contractor). Owner and Contractor hereby agree as follows:

## ARTICLE 1—THE WORK

1.01 *Work*

A. Work includes all labor, materials, equipment, services, and documentation necessary to construct the Project defined herein. The Work may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

B. The Contractor shall complete all Work as specified or indicated in the Contract Documents. The Project is generally described as follows:

1. **Turkey Creek Roadway Resurfacing** which consists of **1 ½" ACSC overlay of portions of roadways within Turkey Creek together with minor concrete curbing and roadway striping**.

2. The Site of the Work includes property, easements, and designated work areas described in greater detail in the Contract Documents but generally located **within the confines of Turkey Creek, Alachua, Florida**.

## ARTICLE 2—CONTRACT DOCUMENTS

2.01 *Intent of Contract Documents*

A. It is the intent of the Contract Documents to describe a functionally complete Project. The Contract Documents do not indicate or describe all of the Work required to complete the Project. Additional details required for the correct installation of selected products are to be provided by the Contractor and coordinated with Owner and Engineer. This Contract constitutes the entire agreement between Owner and Contractor, and supersedes prior negotiations, representations, and agreements, whether written or oral. The Contract Documents are complementary; what is required by one part of the Contract Documents is as binding as if required by other parts of the Contract Documents.

B. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work under the Contract Documents. During the performance of the Work and until final payment, Contractor and Owner shall submit to Engineer all matters in question concerning the requirements of the Contract Documents, or relating to the acceptability of the Work. Engineer will render a written clarification, interpretation, or decision on the issue submitted, or initiate a modification to the Contract Documents.

C. Contractor, and its subcontractors and suppliers, shall not have or acquire any title to or ownership rights to any of the Drawings, Specifications, or other documents (including copies or electronic media versions) prepared by Engineer or its consultants.

D. *Contract Price or Contract Times:* References to a change in "Contract Price or Contract Times" or "Contract Times or Contract Price" or similar, indicate that such change applies to

(1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term "or both" is not expressed.

E. Nothing in the Contract Documents creates any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity.

2.02 *Contract Documents Defined*

A. The Contract Documents consist of the following documents:

1. This Contract for Construction of a Small Project.
2. Specifications as listed in the Specifications Table of Contents.
3. Drawings as listed on the Drawing Sheet Index.
4. Addenda.
5. Exhibits to this Contract (enumerated as follows):
    a. **eda Consultants Inc**., Proposed Work Area Maps for Turkey Creek Road Resurfacing
    b. **eda Consultants Inc**., FDOT Specifications for Turkey Creek Road Resurfacing
6. The following which may be delivered or issued on or after the Effective Date of the Contract:
    a. Notice to Proceed (EJCDC® C-550).
    b. Work Change Directives (EJCDC® C-940).
    c. Change Orders (EJCDC® C-941).
    d. Field Orders (EJCDC® C-942).

**ARTICLE 3—ENGINEER**

3.01 *Engineer*

A. The Engineer for this Project is **eda Consultants, Inc.**.

**ARTICLE 4—CONTRACT TIMES**

4.01 *Contract Times*

A. The Work will be substantially complete within _____ days after the Effective Date of the Contract and completed and ready for final payment within _____ days after the Effective Date of the Contract.

4.02 *Delays in Contractor's Progress*

A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times or Contract Price.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor or its subcontractors or suppliers.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times.

D. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor or Contractor's subcontractors or suppliers.

4.03 *Progress Schedules*

A. Contractor shall develop a progress schedule and submit it to Engineer for review and comment before starting Work on the Site. Contractor shall modify the schedule in accordance with Engineer's comments.

B. Contractor shall update and submit the progress schedule to Engineer each month. Owner may withhold payment if Contractor fails to submit the schedule.

**ARTICLE 5—CONTRACT PRICE**

5.01 *Payment*

A. Owner shall pay Contractor, in accordance with the Contract Documents, at the following unit prices for each unit of Work completed:

| Item No. | Description | Unit | Estimated Quantity | Unit Price | Extended Price |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| **Total of all extended prices for Estimated Quantities of Work** | | | | | **$** |

Payment will be made in an amount equal to the total of all extended prices for actual Work completed. The extended price is determined by multiplying the unit price times the actual quantity of that Work item completed. Actual quantities installed will be determined by the Engineer.

**ARTICLE 6—BONDS AND INSURANCE**

6.01 *Insurance*

A. When Contractor delivers the signed counterparts of the Contract to Owner, Contractor shall furnish certificates, endorsements, and any other evidence of insurance requested by Owner. Insurance is to be provided by companies that are duly licensed or authorized in the

jurisdiction in which the Project is located with a minimum A.M. Best rating of A-VII or better. Contractor shall provide insurance in accordance with the following:

1. Contractor shall provide coverage for not less than the following amounts, or greater where required by Laws and Regulations:

   a. *Workers' Compensation and Employer's Liability*

| | |
|---|---|
| Workers' Compensation | Statutory |
| Employer's Liability | |
| Each Accident | $1,000,000.00 |
| Each Employee | $1,000,000.00 |
| Policy Limit | $1,000,000.00 |

   b. *Commercial General Liability*

| | |
|---|---|
| General Aggregate | $3,000,000.00 |
| Products - Completed Operations Aggregate | $3,000,000.00 |
| Personal and Advertising Injury | $1,000,000.00 |
| Bodily Injury and Property Damage—Each Occurrence | $1,000,000.00 |

   c. *Automobile Liability*

| | |
|---|---|
| **Bodily Injury** | |
| Each Person | $100,00.00 |
| Each Accident | $300,000.00 |
| **Property Damage** | |
| Each Accident | $100,000.00 |
| **[OR]** | |
| Combined Single Limit (Bodily Injury and Property Damage) | $ |

   d. *Excess or Umbrella Liability*

| | |
|---|---|
| Per Occurrence | $ |
| General Aggregate | $ |

   e. *Contractor's Pollution Liability*

| | |
|---|---|
| Each Occurrence/Claim | $ |
| General Aggregate | $ |

B. All insurance policies required to be purchased and maintained will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days after notice has been received by the purchasing policyholder. Within three days of receipt of any such notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

C. Automobile liability insurance provided by Contractor will be written on an occurrence basis and provide coverage against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle.

D. Contractor's commercial general liability policy will be written on a 1996 or later ISO commercial general liability occurrence form and include the following coverages and endorsements:

1. Products and completed operations coverage maintained for three years after final payment;
2. Blanket contractual liability coverage to the extent permitted by law;
3. Broad form property damage coverage; and
4. Severability of interest; underground, explosion, and collapse coverage; personal injury coverage.

E. The Contractor's commercial general liability and automobile liability, umbrella or excess, and pollution liability policies will include and list Owner and Engineer and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each as additional insureds; and the insurance afforded to these additional insureds will provide primary coverage for all claims covered thereby (including, as applicable, those arising from both ongoing and completed operations) on a non-contributory basis.

1. Additional insured endorsements will include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
2. Contractor shall provide ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent for design professional additional insureds.

F. Umbrella or excess liability insurance will be written over the underlying employer's liability, commercial general liability, and automobile liability insurance. The coverage afforded must be at least as broad as that of each and every one of the underlying policies. Contractor may meet the policy limits specified for employer's liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy's policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy.

G. The Contractor shall provide property insurance covering physical loss or damage during construction to structures, materials, fixtures, and equipment, including those materials, fixtures, or equipment in storage or transit.

H. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 15.

## ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. If professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

A. Contractor shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without notice to and approval by the Owner and Engineer except under extraordinary circumstances.

C. Contractor shall maintain good discipline and order at the Site.

D. Except as otherwise required for the safety or protection of the Work or persons or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday.

7.03 *Other Work at the Site*

A. In addition to and apart from the Work of the Contractor, other work may occur at or adjacent to the Site. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.

B. Contractor shall notify Owner, the owners of adjacent property, the owners of underground facilities and other utilities (if the identity of such owners is known to Contractor), and other contractors and utility owners performing work at or adjacent to the Site when Contractor knows that prosecution of the Work may affect them; and Contractor shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

7.04 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for everything necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work must be new and of good quality, and be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable supplier, except as otherwise may be provided in the Contract Documents.

7.05 *Subcontractors and Suppliers*

A. Just as Contractor is responsible for its own acts and omissions, Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of suppliers and subcontractors, and their employees; and of any other individuals or entities

performing or furnishing any of the Work. The Contractor's retention of a subcontractor or supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

7.06 *Licenses, Fees and Permits*

A. Contractor shall pay all license fees and royalties and assume all costs incident to performing the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others.

B. Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy, unless otherwise provided in the Contract Documents.

7.07 *Laws and Regulations; Taxes*

A. Contractor shall give all notices required by, and shall comply with, all local, state, and federal laws and regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any laws or regulations.

B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to laws or regulations, Contractor shall bear all resulting costs and losses, and to the fullest extent permitted by law Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all such claims, costs, losses, and damages.

C. Contractor shall pay all applicable sales, consumer, use, and other similar taxes.

7.08 *Record Documents*

A. Contractor shall maintain one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved shop drawings in a safe place at the Site. Contractor shall annotate them to show changes made during construction. Contractor shall deliver these record documents to Engineer upon completion of the Work.

7.09 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work.

B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.

C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

1. All persons on the Site or who may be affected by the Work;

2. All the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. Other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and underground

facilities not designated for removal, relocation, or replacement in the course of construction.

D. All damage, injury, or loss to any property caused, directly or indirectly, in whole or in part, by Contractor, or anyone for whose acts the Contractor may be liable, will be remedied by Contractor at its expense (except damage or loss attributable to the fault of the Contract Documents or to the acts or omissions of Owner or Engineer and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor).

E. Contractor shall be responsible for coordinating any exchange of safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with laws or regulations.

F. In emergencies affecting the safety or protection of the Work or persons or property at the Site or adjacent thereto, Contractor shall act to prevent damage, injury, or loss. Contractor shall give Engineer prompt notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.10 *Submittals*

A. Contractor shall review and coordinate shop drawings, samples, and other submittals with the requirements of the Work and the Contract Documents, and shall verify all related field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information. Contractor shall confirm that the submittal is complete with respect to all related data included in the submittal. Note: Shop drawing, submittals etc., are not to be submitted and will not be review unless specifically required by the contract documents.

B. Shop drawings and samples must bear a stamp or specific written certification that Contractor has satisfied its obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.

C. With each shop drawing or sample submittal, Contractor shall give Engineer specific written notification, in a communication separate from the shop drawing or sample, of any variations that the shop drawing or sample may have from the requirements of the Contract Documents.

D. Engineer will provide timely review of submittals. Engineer's review and approval of submittals will not extend to the means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs.

E. Engineer's review of shop drawings and samples will be only to determine if the items covered will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole.

F. Engineer's review and approval of a separate item in a shop drawing or sample does not indicate approval of the assembly in which the item functions.

G. Contractor shall make corrections required by Engineer, return the required number of corrected copies of shop drawings, and submit new samples for review and approval.

Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

H. Shop drawings are not Contract Documents.

7.11 *Warranties and Guarantees*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its consultants are entitled to rely on Contractor's warranty and guarantee.

7.12 *Correction Period*

A. If within one year after the date of substantial completion, any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, or other adjacent areas used by Contractor as permitted by laws and regulations, is found to be defective, then Contractor shall promptly correct any such defective Work and repairs, at no cost to Owner.

7.13 *Indemnification*

A. To the fullest extent permitted by law, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from all losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any subcontractor, any supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.

**ARTICLE 8—OWNER'S RESPONSIBILITIES**

8.01 *Responsibilities*

A. Except as otherwise provided in the Contract Documents, Owner shall issue all communications to Contractor.

B. Owner shall make payments to Contractor as provided in this Contract.

C. Owner shall provide the Site and easements required to construct the Project.

D. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.

E. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

F. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, unless stated elsewhere in the Contract Documents, Owner shall have sole authority and responsibility for such coordination.

G. Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or for related safety precautions and programs, or for any failure of Contractor to comply with laws and regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

**ARTICLE 9—ENGINEER'S STATUS DURING CONSTRUCTION**

9.01 *Engineer's Status*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility, or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, its subcontractors, suppliers, or sureties, or to any employee or agent of any of them.

B. Engineer will make visits to the Site at intervals appropriate to the various stages of construction. Engineer will not be required to make exhaustive or continuous inspections to check the quality or quantity of the Work.

C. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or for related safety precautions and programs, or for any failure of Contractor to comply with laws and regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

**ARTICLE 10—CHANGES IN THE WORK**

10.01 *Authority to Change the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work.

10.02 *Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;

2. Changes in the Work which are: (a) ordered by Owner or (b) agreed to by the parties or (c) resulting from the Engineer's decision, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and

3. Changes in the Contract Price or Contract Times or other changes which embody the substance of any final binding results under Article 12.

10.03 *Work Change Directive*

A. A Work Change Directive may be issued to Contractor ordering an addition, deletion, or revision in the Work. A Work Change Directive will not change the Contract Price or Contract

Times, but is evidence that the parties expect that the modification ordered or documented by the Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on Contract Price or Contract Times.

10.04 *Field Orders*

A. Owner orEngineer may issue a Field Order to authorize minor changes in the Work, provided that the changes do not involve an adjustment in the Contract Price or Contract Times.

B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then Contractor shall request such adjustment before proceeding with the Work.

**ARTICLE 11—DIFFERING SUBSURFACE OR PHYSICAL CONDITIONS**

11.01 *Differing Site Conditions Process*

A. If Contractor believes that any subsurface or physical condition (including but not limited to utilities or other underground facilities) that is uncovered or revealed at the Site either (1) differs materially from that shown or indicated in the Contract Documents, or (2) is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in Work of the character provided for in the Contract Documents, then Contractor shall promptly notify Owner and Engineer about such condition. Contractor shall not further disturb such condition or perform any Work in connection with the condition (except with respect to an emergency) until receipt of authorization to do so.

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if Contractor knew of, or should have known of, the existence of the condition prior to entry into the Contract.

B. After receipt of notice regarding a possible differing subsurface or physical condition, Engineer will promptly:

1. Review the condition in question;

2. Determine if it is necessary for Owner to obtain additional exploration or tests with respect to the condition;

3. Determine whether the condition falls within one of the two differing site condition categories described in Paragraph 11.01.A.;

4. Obtain any pertinent cost or schedule information from Contractor;

5. Advise Owner of Engineer's findings, conclusions, and recommendations, including recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question, the need for any change in the Drawings or Specifications, and possible Contract Price or Contract Times adjustments.

C. After receipt of Engineer's findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part, and granting any equitable adjustment in Contract Times or Contract Price to which Contractor is entitled.

**ARTICLE 12—CLAIMS AND DISPUTE RESOLUTION**

12.01 *Claims Process*

A. The party submitting a claim shall deliver it directly to the other party to the Contract and the Engineer promptly (but in no event later than 10 days) after the start of the event giving rise thereto.

B. The party receiving a claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the claim through the exchange of information and direct negotiations. All actions taken on a claim must be stated in writing and submitted to the other party.

C. If efforts to resolve a claim are not successful, the party receiving the claim may deny it by giving notice of denial to the other party. If the receiving party does not take action on the claim within 45 days, the claim is deemed denied.

D. If the dispute is not resolved to the satisfaction of the parties, Owner or Contractor shall give notice to the other party of the intent to submit the dispute to a court of competent jurisdiction unless the Owner and Contractor both agree to an alternative dispute resolution process.

**ARTICLE 13—TESTS AND INSPECTIONS; CORRECTION OF DEFECTIVE WORK**

13.01 *Tests and Inspections*

A. Owner and Engineer will have access to the Site and the Work at reasonable times for observation, inspection, and testing. Contractor shall provide proper and safe conditions for such access.

B. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

C. Except as otherwise provided in the Contract Documents, Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required: (1) by the Contract Documents; (2) by codes, laws, or regulations; (3) to attain Owner's and Engineer's acceptance of materials or equipment; and (4) to obtain Engineer's approval prior to purchase of materials, mix designs, or equipment.

D. If any Work that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense.

13.02 *Defective Work*

A. Contractor warrants that the Work is not defective.

B. Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. The Contractor shall promptly correct all defective Work.

E. When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's warranty and guarantee on said Work.

F. If the Work is defective or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated.

**ARTICLE 14—PAYMENTS TO CONTRACTOR**

14.01 *Progress Payments*

A. Contractor shall prepare a schedule of values that will serve as the basis for progress payments. The schedule of values will be in a form acceptable to Engineer. Lump sum items will be broken into units that allow for measurement of Work in progress. For unit price work, the unit price breakdown in Article 5 will be used as the schedule of values.

14.02 *Applications for Payments*

A. Contractor shall submit signed applications for payment to Engineer monthly, in a form acceptable to the Engineer. Contractor shall provide supporting documentation required by the Contract Documents. Owner will pay for Work completed as of the date of the application for payment.

B. Beginning with the second application for payment, each application must include an affidavit of Contractor stating that all previous progress payments have been applied to discharge Contractor's obligations associated with the prior applications for payment.

14.03 *Retainage*

A. The Owner shall retain **10**% (ten per cent) of each progress payment until the Work is substantially complete.

14.04 *Review of Applications*

A. Within 10 days after receipt of each application for payment, Owner will either process the application for payment , or return the application for payment to Contractor indicating Owners reasons for refusing to process payment. The Contractor will make the necessary corrections and may resubmit the application for payment.

B. Engineer will recommend reductions in payment (set-offs) which, in the opinion of the Engineer, are necessary to protect Owner from loss because the Work is defective and requires correction or replacement.

C. The Owner is entitled to impose set-offs against payment based on any claims that have been made against Owner, or any incurred costs, losses, or damages, on account of Contractor's conduct in the performance of the Work; for defective Work; or for liquidated damages that have accrued as a result of Contractor's failure to complete the Work.

14.05 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

14.06 *Substantial Completion*

A. When Contractor considers the Work ready for its intended use, Contractor shall request that Engineer issue a certificate of substantial completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

B. Promptly after Contractor's request, Engineer will inspect the Work with Owner and Contractor to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor and Owner of the reasons for Engineer's decision.

C. If Engineer considers the Work substantially complete, or upon resolution of all reasons for non-issuance of a certificate, Engineer will deliver to Owner and Contractor a certificate of substantial completion that will fix the date of substantial completion and include a punch list of items to be completed or corrected before final payment.

14.07 *Final Inspection*

A. Upon notice from Contractor that the entire Work is complete, Engineer will promptly make a final inspection with Owner and Contractor, and will notify Contractor of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work and remedy such defects.

14.08 *Final Payment*

A. Contractor may make application for final payment after satisfactorily completing all Work, including providing all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents, and other documents.

B. The final application for payment must be accompanied (except as previously delivered) by:

1. All documentation called for in the Contract Documents;

2. Consent of the surety to final payment;

3. Satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any liens or other title defects, or will so pass upon final payment;

4. A list of all pending claims; and

5. Complete and legally effective releases or waivers (satisfactory to Owner) of all lien rights arising out of the Work, and of liens filed in connection with the Work.

C. The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.

14.09 *Waiver of Claims*

A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding claim, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a claim.

**ARTICLE 15—SUSPENSION OF WORK AND TERMINATION**

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 60 consecutive days by notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or Contract Times, to the extent directly attributable to any such suspension.

15.02 *Owner May Terminate for Cause*

A. Contractor's failure to perform the Work in accordance with the Contract Documents or other failure to comply with a material term of the Contract Documents will constitute a default by Contractor and justify termination for cause.

B. If Contractor defaults in its obligations, then after giving Contractor and any surety 10 days' notice that Owner is considering a declaration that Contractor is in default and the termination of the Contract, Owner may proceed to:

1. Declare Contractor to be in default, and give Contractor and any surety notice that the Contract is terminated; and

2. Enforce the rights available to Owner under any applicable performance bond.

C. Owner may not proceed with termination of the Contract under Paragraph 15.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

D. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

E. In the case of a termination for cause, if the cost to complete the Work, including related claims, costs, losses, and damages, exceeds the unpaid contract balance, Contractor shall pay the difference to Owner.

F. If Contractor has provided a performance bond, the provisions of that bond will govern over any inconsistent provisions of Paragraph 15.02.

15.03 *Owner May Terminate for Convenience*

A. Upon 7 days' notice to Contractor, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for the following, without duplication of any items:

1. Completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, less any set-offs, and including fair and reasonable sums for overhead and profit on such Work;

2. Expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and

3. Other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid for any loss of anticipated profits, or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 60 consecutive days by Owner or under an order of court or other public authority, or (2) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' notice to Owner, and provided Owner does not remedy such suspension or failure within that time, either stop the Work until payment is received, or terminate the Contract and recover payment from the Owner.

**ARTICLE 16—CONTRACTOR'S REPRESENTATIONS**

16.01 *Contractor Representations*

A. Contractor makes the following representations when entering into this Contract:

1. Contractor has examined and carefully studied the Contract Documents.

2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

3. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

4. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that, without exception, all prices in the Contract are premised upon performing and furnishing the Work required by the Contract Documents.

## ARTICLE 17—MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of notice to Owner, Engineer, or Contractor, such notice must be in writing, and delivered in person (by commercial courier or otherwise); by registered or certified mail; or by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

17.02 *Cumulative Remedies*

A. The duties and obligations expressly imposed by this Contract, and the rights and remedies expressly available to the parties under this Contract, are in addition to, and are not to be construed in any way as a limitation of, any duties, obligations, rights, or remedies otherwise imposed or available by laws or regulations, by warranty or guarantee, or by other provisions of the Contract.

17.03 *Limitation of Damages*

A. Neither Owner, Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

17.04 *No Waiver*

A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

17.05 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

17.06 *Contractor's Certifications*

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or entering into the Contract.

17.07 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

The Effective Date of the Contract is **[date to be inserted at the time of execution]**.

| **Owner: Turkey Creek Master Owner's Association, Inc**. | **Contractor:** |
|---|---|
| *(typed or printed name of organization)* | *(typed or printed name of organization)* |
| By: _____ | By: _____ |
| *(individual's signature)* | *(individual's signature)* |
| Date: _____ | Date: _____ |
| *(date signed)* | *(date signed)* |
| Name: Edward Posey | Name: _____ |
| *(typed or printed)* | *(typed or printed)* |
| Title: President | Title: _____ |
| *(typed or printed)* | *(typed or printed)* |
| | *(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)* |
| Attest: _____ | Attest: _____ |
| *(individual's signature)* | *(individual's signature)* |
| Title: Secretary | Title: _____ |
| *(typed or printed)* | *(typed or printed)* |
| Address for giving notices: | Address for giving notices: |
| Turkey Creek Master Owner's Association, Inc | |
| 11820 Turkey Creek Blvd | |
| Alachua, FL 32615 | |
| Designated Representative: | Designated Representative: |
| Name: Robert Boukari, CAM | Name: _____ |
| *(typed or printed)* | *(typed or printed)* |
| Title: Community Association Manager | Title: _____ |
| *(typed or printed)* | *(typed or printed)* |
| Address: Affinity Management Group | Address: |
| 11820 Turkey Creek Blvd | |
| Alachua, Fl 32615 | |
| Phone: (352) 358-1967 | Phone: _____ |
| Email: manager@affinityeverywhere.com | Email: _____ |
| *Agreement.)* | License No.: _____ |
| | *(where applicable)* |
| | State: _____ |

# PROPOSED WORK AREA MAPS

**for**

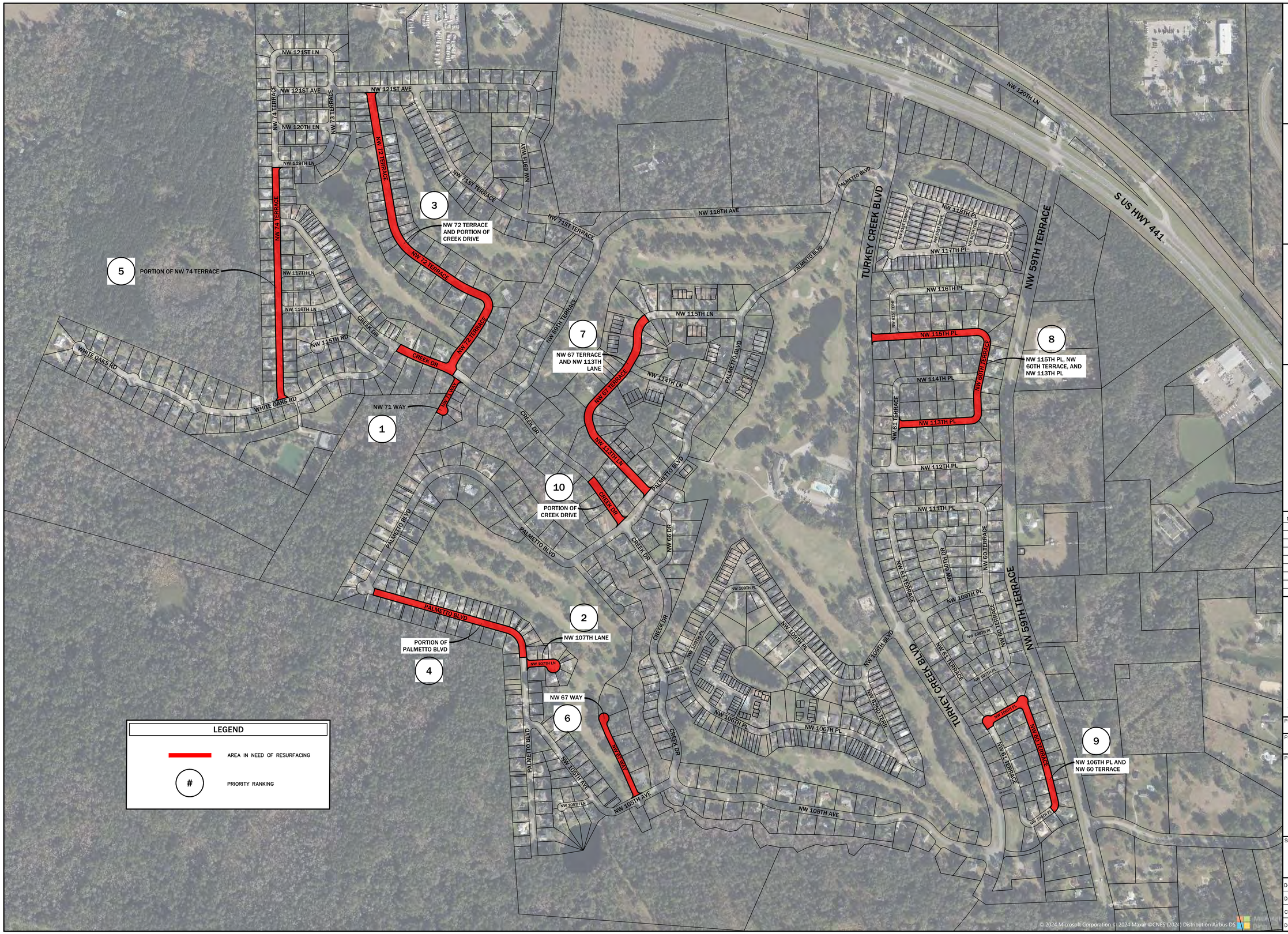
## TURKEY CREEK ROADS RESURFACING

### TURKEY CREEK MASTER OWNER'S ASSOCIATION, INC.

**Prepared by:**
eda consultants, inc.

**Submitted:**
January 31, 2025

engineers • surveyors • planners

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TEL. (352) 373-3541
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NORTH

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GRAPHIC SCALE

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Professional Engineer of Record:

Engineer Certificate No.

Project No: 24-152

Project phase: EXHIBIT

Project title:

TURKEY CREEK ROAD RESURFACING CITY OF ALACHUA, FLORIDA

Sheet title:

ROAD RESURFACING WORK AREAS MAP

| | |
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| Designed: | --- |
| Drawn: | GRV |
| Checked: | TAR |
| Date: | 01/10/25 |

Sheet No.: C810

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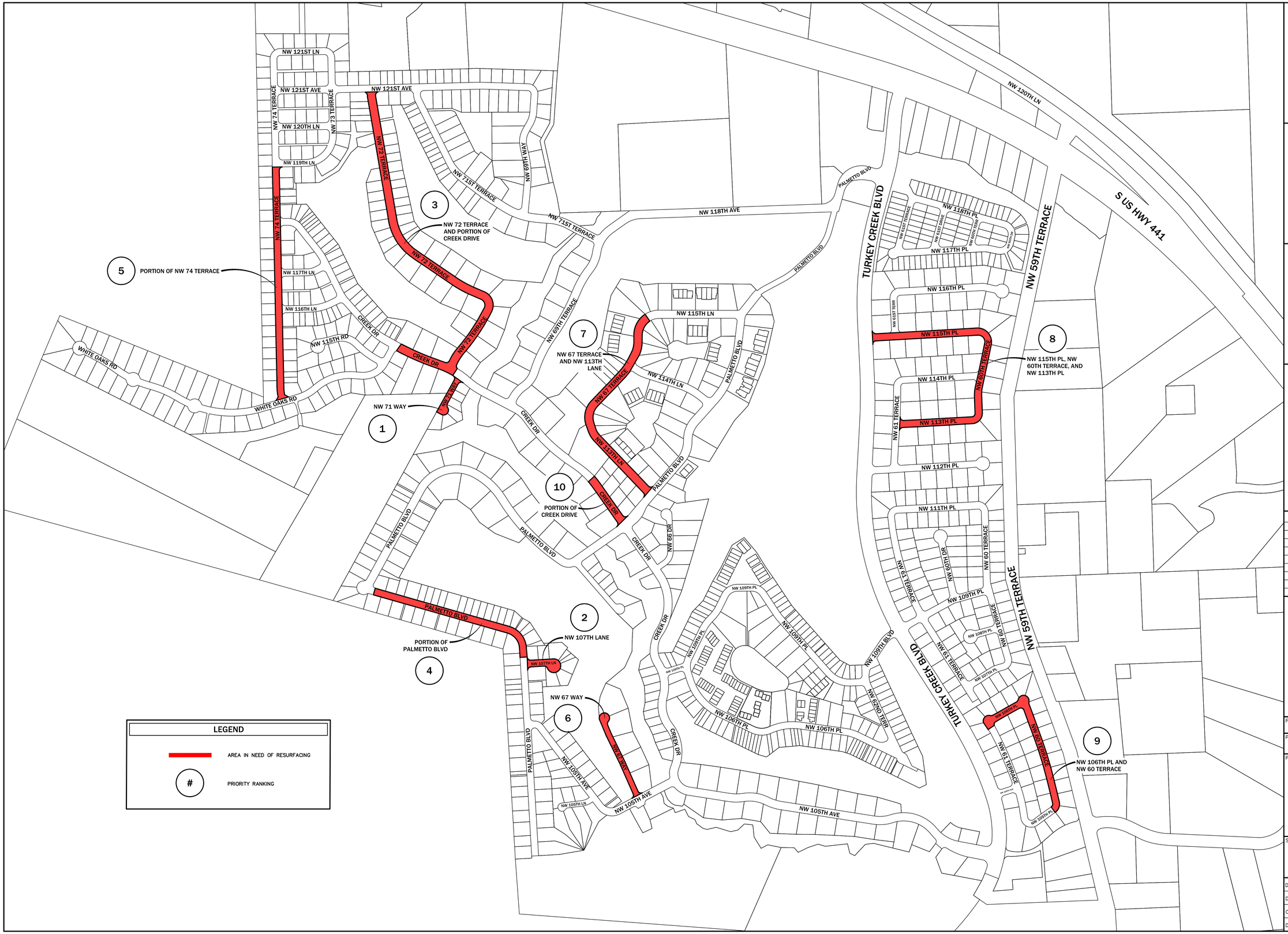


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| No. | Date | Comment |
|---|---|---|
| | | |

Professional Engineer of Record:

Engineer Certificate No.

Project No: 24-152

Project phase: EXHIBIT

Project title:

TURKEY CREEK ROAD RESURFACING CITY OF ALACHUA, FLORIDA

Sheet title:

ROAD RESURFACING WORK AREAS MAP

Designed: ---
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Date: 01/10/25

Sheet No.: C800

# FDOT SPECIFICATIONS

**for**

# TURKEY CREEK ROADS RESURFACING

## TURKEY CREEK MASTER OWNER'S ASSOCIATION, INC.

**Prepared by:**
eda consultants, inc.

**Submitted:**
January 31, 2025

engineers • surveyors • planners

# PROJECT SPECIFICATIONS

## OPTION A: RESURFACING FDOT SPECIFICATIONS

**FDOT Demolition Specifications**

327 Milling of Existing Asphalt Pavement

**FDOT Asphalt Specifications**

334 Superpave Asphalt Concrete

210 Reworking Limerock Base

## OPTION B: SEALING FDOT SPECIFICATIONS

**Sealing Specifications**

300-2.3 Tack Coat

300-5 Cleaning Base and Protection of Adjacent Work

300-8 Application of Tack Coat

# SECTION 327
# MILLING OF EXISTING ASPHALT PAVEMENT

## 327-1 Description.

Remove existing asphalt concrete pavement by milling to improve the rideability and cross slope of the finished pavement, to lower the finished grade adjacent to existing curb before resurfacing, or to completely remove existing pavement.

When milling to improve rideability, the Plans will specify an average depth of cut.

Take ownership of milled material.

## 327-2 Equipment.

Provide a milling machine capable of maintaining a depth of cut and cross slope to achieve the results specified in the Contract Documents. Use a machine with a minimum overall length (out-to-out measurement excluding the conveyor) of 18 feet and a minimum cutting width of 6 feet.

Equip the milling machine with a built-in automatic grade control system that can control the transverse slope and the longitudinal profile to produce the specified results.

To start the project, the Engineer will approve any commercially manufactured milling machine that meets the above requirements. If it becomes evident after starting milling that the milling machine cannot consistently produce the specified results, the Engineer will reject the milling machine for further use.

The Contractor may use a smaller milling machine when milling to lower the grade adjacent to existing curb or other areas where it is impractical to use the above described equipment.

Equip the milling machine with means to effectively limit the amount of dust escaping during the removal operation.

For complete pavement removal, the Engineer may approve the use of alternate removal and crushing equipment instead of the equipment specified above.

## 327-3 Construction.

**327-3.1 General:** Remove the existing raised pavement markers (RPMs) before milling. Include the cost of removing existing RPMs in the price for milling.

When milling to improve rideability or cross slope, remove the existing pavement to the average depth specified in the Plans, in a manner that will restore the pavement surface to a uniform cross slope and longitudinal profile. The Engineer may require the use of a stringline to ensure maintaining the proper alignment.

Establish the longitudinal profile of the milled surface in accordance with the milling plans. Ensure the final cross slope of the milled surface parallels the surface cross slope shown in the Plans or as directed by the Engineer. Establish the cross slope of the milled surface by a second sensing device near the outside edge of the cut or by an automatic cross slope control mechanism. The Plans may waive the requirement of automatic grade or cross slope controls where the situation warrants such action.

Operate the milling machine to minimize the amount of dust being emitted. The Engineer may require prewetting of the pavement.

Provide positive drainage of the milled surface and the adjacent pavement. Perform this operation on the same day as milling. Pave all milled surfaces no later than the day after the surface was milled.

If traffic is to be maintained on the milled surface before the placement of the new asphalt concrete, provide suitable transitions between areas of varying thickness to create a smooth longitudinal riding surface. Control milling operations to produce a pattern of striations and a texture that provide an acceptable riding surface.

Before opening an area which has been milled to traffic, sweep the pavement and gutters with a power broom or other approved equipment to remove, to the greatest extent practicable, fine material which will create dust under traffic. Sweep in a manner to minimize the potential for creation of a traffic hazard and to minimize air pollution. Do not sweep or allow milled asphalt into inlets.

Sweep the milled surface with a power broom before placing asphalt concrete.

In urban and other sensitive areas, use a street sweeper or other equipment capable of removing excess milled materials and controlling dust. Obtain the Engineer's approval of such equipment, contingent upon its demonstrated ability to do the work.

Perform the sweeping operation immediately after the milling operations or as directed by the Engineer.

**327-3.1.1 Extended Time for Milled Surface Traffic:** Upon approval of the Engineer, the time period for maintaining traffic on a milled surface may be extended up to 3 calendar days before paving is required, provided the Contractor can demonstrate the ability to produce a milled surface texture with continuous, longitudinal milling striations with no gaps in the longitudinal striations, and drop off conditions are not exceeded. Gaps in the milling striations and cases where gaps create a diagonal pattern or chevron appearance are to be milled again such that continuous, longitudinal striations are achieved prior to allowing traffic on the milled surface. Photos of acceptable and unacceptable surface texture are located at: https://www.fdot.gov/programmanagement/implemented/urlinspecs/milling-patterns

Maintain adequate drainage on the milled surface and at transitions between milled and non-milled surfaces on the same day as milling. At no cost to the Department, re-mill or pave any area the Engineer determines to have an unacceptable ride, does not provide adequate pavement structure, or does not provide adequate drainage.

If the Engineer determines the Contractor is unable to provide a milled surface meeting the Specification requirements above, at no cost to the Department, the Contractor will be required to pave all milled surfaces no later than the day after the surface was milled.

**327-3.2 Quality Control Requirements:** Furnish a four foot long electronic level accurate to 0.1 degree, approved by the Engineer for the control of cross slope. Make this electronic level available at the jobsite at all times during milling operations. Calibrate and compare electronic levels in accordance with 330-9.3.1 at a minimum frequency of once per day before any milling operation.

Multiple cuts may be made to achieve the required pavement configuration or depth of cut.

**327-3.2.1 Cross Slope Measurement:** Measure the cross slope of the milled surface by placing the level at the center of the lane and perpendicular to the roadway centerline. Record all the measurements to the nearest 0.1% on an approved form and submit the data to the Engineer.

**327-3.2.1.1 Cross Slope Measurement Frequency:**

1. Tangent Sections: Measure the cross slope at a minimum frequency of one measurement every 100 feet per lane. When the average absolute deviation is consistently within the acceptance tolerance in Table 327-1, upon approval by the Engineer, the frequency of the cross slope measurements can be reduced to one measurement every 200 feet.

2. Superelevated Sections: Measure the cross slope every 100 feet per lane within the length of full superelevation. For curves where the length of full superelevation is less than 250 feet, measure the cross slope at the beginning point, midpoint, and ending point of the fully superelevated section. For transition sections, measure the cross slope at control points identified in the Plans or, if not shown in the Plans, at a control point at a location of 0.0% cross slope.

**327-3.2.1.2 Cross Slope Deviations and Corrections:** Calculate the absolute deviation of each cross slope measurement and the average of the absolute deviations of ten consecutive cross slope measurements. The absolute deviation is the positive value of a deviation. In superelevated sections, when the number of measurements is less than ten, average the absolute deviation of all measurements.

If the average absolute deviation of any cross slope measurement falls outside the acceptance tolerance shown in Table 327-1, stop the milling operations and make adjustments until the problem is resolved to the satisfaction of the Engineer. If an individual cross slope deviation falls outside the acceptance tolerance as shown in Table 327-1, make corrections only in the deficient area to the satisfaction of the Engineer at no cost to the Department. For pavement with multiple cuts, the deficient areas not caused by the final cut may be left in place upon approval of the Engineer. All milling corrections shall be completed before placement of the asphalt course unless stated otherwise in the Plans or as determined by the Engineer.

The limits of deficient areas requiring correction may be verified and adjusted with more accurate measurement methods, including survey instruments, upon approval of the Engineer and at no cost to the Department.

Should the Contractor wish to have any required corrections waived, submit a request to the Engineer for approval. The Engineer may waive the corrections at no reduction in payment if the deficiencies are sufficiently separated so as not to significantly affect the final cross slope or project grade.

For intersections, tapers, crossovers, transitions at the beginning and end of the project, bridge approaches and similar areas, adjust the cross slope to match the actual site conditions, or as directed.

Table 327-1
Cross Slope Milling Acceptance Tolerance

| Roadway Feature | Individual Absolute Deviation | Average Absolute Deviation |
|---|---|---|
| Tangent section (including turn lanes) | 0.4% | 0.2% |
| Superelevated curve | 0.4% | 0.2% |
| Shoulder | 0.5% | 0.5% |

In the event the distance between two edges of deficient areas is less than 100 feet, the correction work shall include the area between the deficient areas.

**327-3.3 Verification:** The Engineer will verify the Contractor's cross slope measurements by randomly taking a minimum of ten cross slope measurements per lane per mile in tangent sections, at control points in transition sections, and a minimum of three cross slope measurements in fully superelevated sections. The Engineer will measure the cross slope of the milled surface by placing the level at the center of the lane and perpendicular to the roadway centerline.

**327-3.3.1 Cross Slope Deviations and Corrections:** If the average absolute deviation or an individual cross slope deviation falls outside the acceptance tolerance in Table 327-1, immediately make a comparison check at the QC test locations to verify the QC measurements in the section. If the comparisons are beyond the acceptable comparison tolerance in accordance with 327-3.2, stop the milling operation until the issue is resolved to the satisfaction of the Engineer. Correct any cross slope not meeting the individual deviation acceptance tolerance at no cost to the Department. The Engineer reserves the right to check the cross slope of the milled surface at any time by taking cross slope measurements at any location.

**327-4 Milled Surface.**

Provide a milled surface with a reasonably uniform texture, within 1/4 inch of a true profile grade, and with no deviation in excess of 1/4 inch from a straightedge applied to the pavement perpendicular to the centerline. Ensure the variation of the longitudinal joint between multiple cut areas does not exceed 1/4 inch. The Engineer may accept areas varying from a true surface in excess of the above stated tolerance without correction if the Engineer determines they were caused by a pre-existing condition which could not have reasonably been corrected by the milling operations. Correct any unsuitable texture or profile, as determined by the Engineer, at no cost to the Department.

The Engineer may require remilling of any area where a surface lamination causes a non-uniform texture to occur.

**327-5 Method of Measurement.**

The quantity to be paid for will be the plan quantity area, in square yards, over which milling is completed and accepted.

**327-6 Basis of Payment.**

Price and payment will be full compensation for all work specified in this Section, including hauling off and stockpiling or otherwise disposing of the milled material.

Payment will be made under:

Item No. 327- 70- Milling Existing Asphalt Pavement - per square yard.

# SECTION 334
# SUPERPAVE ASPHALT CONCRETE

**334-1 Description.**

**334-1.1 General:** Construct a Superpave Asphalt Concrete pavement with the type of mixture specified in the Contract Documents, 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.

Obtain Superpave Asphalt Concrete from a plant that is currently on the Department's Production Facility Listing. Producers seeking inclusion on the list shall meet the requirements of Section 105. Producers must meet the requirements of Section 320 for plant and equipment and the general construction requirements of Section 330.

**334-1.2 Traffic Levels:** The requirements for Type SP Asphalt Concrete mixtures are based on the design traffic level of the project. The traffic levels for the project are as specified in the Contract Documents.

**334-1.3 Gradation Classification:** The Superpave mixes are classified as fine and are defined in 334-3.2.2.

The equivalent AASHTO nominal maximum aggregate size Superpave mixes are as follows:

Type SP-9.5..... 9.5 mm
Type SP-12.5..... 12.5 mm
Type SP-19.0..... 19.0 mm

**334-1.4 Thickness:** The total thickness of the Type SP asphalt layers will be the plan thickness as shown in the Contract Documents. Before paving, propose a thickness for each individual layer meeting the requirements of this specification, which when combined with other layers (as applicable) will equal the plan thickness. For construction purposes, the plan thickness and individual layer thickness will be converted to spread rate based on the maximum specific gravity of the asphalt mix being used, as well as the minimum density level, as shown in the following equation:

$$\text{Spread rate (lb/yd}^2\text{)} = t \times G_{mm} \times 43.3$$

Where: t = Thickness (in.) (plan thickness or individual layer thickness)

$G_{mm}$ = Maximum specific gravity from the verified mix design

The weight of the mixture shall be determined as provided in 320-3.2. For target purposes only, spread rate calculations should be rounded to the nearest whole number.

Note: Plan quantities are based on a $G_{mm}$ of 2.540, corresponding to a spread rate of 110 lb/yd$^2$-in. Pay quantities will be based on the actual maximum specific gravity of the mix being used.

**334-1.4.1 Layer Thicknesses:** The allowable layer thicknesses for Type SP Asphalt Concrete mixtures are as follows:

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

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

Type SP-9.5 - Limited to the top two structural layers, two layers maximum.

Type SP-9.5 - Do not place less than 1-1/2 inches thick for Traffic Level E applications.

Type SP-19.0 - Do not use for the final (top) structural layer below FC-5 mixtures. Type SP-19.0 mixtures are permissible for the layer directly below FC-9.5 and FC-12.5 mixtures. Do not use for the final (top) layer of shoulders.

**334-1.4.2 Additional Requirements:** The following requirements also apply to Type SP Asphalt Concrete mixtures:

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

2. When construction includes the paving of adjacent shoulders (less than or equal to 5 feet wide), the layer thickness for the upper pavement layer and shoulder must be the same and paved in a single pass, unless called for differently in the Contract Documents.

3. All overbuild layers must be Type SP Asphalt Concrete designed at the traffic level as stated in the Contract Documents. Use the minimum and maximum layer thicknesses as specified above unless called for differently in the Contract Documents. On variable thickness overbuild layers, the minimum and maximum allowable thicknesses will be as specified below, unless called for differently in the Contract Documents.

Type SP-9.5..... 3/8 to 2 inches
Type SP-12.5..... 1/2 to 3 inches
Type SP-19.0.....1-1/2 to 4 inches

4. Variable thickness overbuild layers constructed using a Type SP-9.5 or SP-12.5 mixtures may be tapered to zero thickness provided the contract documents require a minimum of 1-1/2 inches of dense-graded mix placed over the variable thickness overbuild layer.

**334-2 Materials.**

**334-2.1 General Requirements:** Meet the following requirements:

Superpave PG Asphalt Binder* .....Section 916
Coarse Aggregate.....Section 901
Fine Aggregate.....Section 902
*Use products on the Department's Approved Product List (APL).

**334-2.2 Superpave Asphalt Binder:** Unless specified otherwise in the Contract Documents, use an asphalt binder grade as determined from Table 334-2.

High polymer binder mixtures may be used in lieu of mixtures with other specified binders at no additional cost to the Department, provided they meet the traffic level and mixture type requirements of the project.

High polymer binder may be substituted in a mixture at no additional cost to the Department when the mix design contains a maximum of 20% RAP.

**334-2.3 Reclaimed Asphalt Pavement (RAP) Material:**

**334-2.3.1 General requirements:** RAP may be used as a component of the asphalt mixture subject to the following requirements:

1. When using a PG 76-22 asphalt binder in friction course mixtures, limit the amount of RAP material used in the mix to a maximum of 20% by weight of total aggregate. As an exception, amounts greater than 20% RAP by weight of total aggregate can be used if no

more than 20% by weight of the total asphalt binder comes from the RAP material. When using a PG 76-22 asphalt binder in structural course mixtures, refer to 334-2.3.6. RAP is not allowed in mixtures containing High Polymer asphalt binder. High Polymer asphalt is defined in Section 916.

2. Assume full responsibility for the design, production and construction of asphalt mixes which incorporate RAP as a component material.

3. Use RAP from a Department approved stockpile or millings from a Department project.

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

5. Provide RAP material having a minimum average asphalt binder content of 4.0% by weight of RAP. As an exception, when using fractionated RAP, the minimum average asphalt binder content for the coarse portion of the RAP shall be 2.5% by weight of the coarse portion of the RAP. The coarse portion of the RAP shall be the portion of the RAP retained on the No. 4 sieve. The Engineer may sample the stockpiles to verify that this requirement is met.

**334-2.3.2 Material Characterization for Mix Design:** Assume responsibility for establishing the asphalt binder content, gradation, and bulk specific gravity ($G_{sb}$) of the RAP material based on a representative sampling of the material by roadway cores or stockpile samples. For roadway core samples, assume responsibility for the degradation that will occur during the milling operation.

**334-2.3.3 RAP Stockpile Approval:** Prior to the incorporation of RAP into the asphalt mixture, stockpile the RAP material and obtain approval for the stockpile by one of the following methods:

1. Continuous stockpile: When RAP is obtained from one or multiple sources and is either processed, blended, or fractionated, and stockpiled in a continuous manner, assure an adequate number of test results are obtained for stockpile approval. Test the RAP material for gradation and asphalt content at a minimum frequency of one sample per 1,000 tons with a minimum of six test results. Test the RAP material for $G_{mm}$ (for $G_{sb}$ determination) at a minimum frequency of one sample per 5,000 tons with a minimum of two test results. Based on visual inspection and a review of the test data, the Engineer will determine the suitability of the stockpiled material. In addition, address the details and specifics of the processing, sampling, testing and actions to be taken in the Producer Quality Control (QC) Plan.

When RAP is added to the continuous stockpile after original approval of the stockpile as described above, test the RAP material for gradation and asphalt content at a minimum frequency of one sample per 1,000 tons with a minimum of six test results. Test the RAP material for $G_{mm}$ (for $G_{sb}$ determination) at a minimum frequency of one sample per 5,000 tons with a minimum of two test results. Monitor test results during crushing operations for conformance to the requirements of Table 334-1. After the minimum frequency of tests have been performed, the Engineer will review the test data and visually inspect the stockpiled material. The average gradation and $G_{mm}$ of the added material shall be within the allowable ranges shown in Table 334-1 from the originally approved stockpile values. If the added RAP material does not meet the conditions of Table 334-1, then the Contractor must create a new stockpile when resuming crushing operations and the stockpile will receive a new number designation from the Department. The previously crushed material, which was added to

the continuous stockpile and did not meet the conditions of Table 334-1, may remain and that stockpile used until depleted.

| Table 334-1<br>Allowable Ranges for Continuous RAP Stockpile Properties | |
|---|---|
| Characteristic | Limit from Original Approved Stockpile Gradation |
| No. 8 sieve and coarser | ± 6.0% |
| No. 16 sieve | ± 5.0% |
| No. 30 sieve | ± 5.0% |
| No. 50 sieve | ± 4.0% |
| No. 100 sieve | ± 4.0% |
| No. 200 sieve | ± 2.0% |
| $G_{mm}$ | ± 0.040 |

2. Non-continuous single stockpile: When an individual stockpile is being constructed, obtain representative samples at random locations and test the RAP material for gradation and asphalt content at a minimum frequency of one sample per 1,000 tons with a minimum of six test results. Test the RAP material for $G_{mm}$ (for $G_{sb}$ determination) at a minimum frequency of one sample per 5,000 tons with a minimum of two test results. Based on visual inspection and a review of the test data, the Engineer will determine the suitability of the stockpiled material. If the properties of the new stockpile compare with the properties of an existing stockpile within the ranges provided in Table 334-1, the RAP in the new stockpile may be added to the existing stockpile. Once the RAP stockpile has been approved, do not add additional material without prior approval of the Engineer.

Determine the asphalt binder content and gradation of the RAP material in accordance with FM 5-563 and FM 1-T 030, respectively. Establish the $G_{sb}$ of the RAP material by using one of the following methods:

a. Calculate the $G_{sb}$ value based upon the effective specific gravity ($G_{se}$) of the RAP material, determined on the basis of the asphalt binder content and maximum specific gravity ($G_{mm}$) of the RAP material. The Engineer will approve the estimated asphalt binder absorption value used in the calculation.

b. Measure the $G_{sb}$ of the RAP aggregate, in accordance with FM 1-T 084 and FM 1-T 085. Obtain the aggregate by using a solvent extraction method.

**334-2.3.4 Pavement Coring Report:** When the Contract includes milling of the existing asphalt pavement, the Pavement Coring Report may be available on the Department's website.

**334-2.3.5 Asphalt Binder for Mixes with RAP:** Select the appropriate asphalt binder grade based on Table 334-2. The Engineer reserves the right to change the asphalt binder grade at design based on the characteristics of the RAP asphalt binder and reserves the right to make changes during production.

| Table 334-2<br>Asphalt Binder Grade for Mixes Containing RAP | |
|---|---|
| Percent RAP | Asphalt Binder Grade |
| 0 - 15 | PG 67-22 |
| 16 - 30 | PG 58-22 |
| >30 | PG 52-28 |

**334-2.3.6 Allowable RAP Percentages for Type SP Structural Mixtures with PG 76-22 Asphalt Binder:** For Type SP structural mixtures using PG 76-22 asphalt binder, select the percentage of RAP material based on Table 334-3.

Table 334-3
Allowable RAP Percentages[1] in Type SP Structural Mixtures with PG 76-22 Asphalt Binder

| | | Coarse RAP | Intermediate RAP | Fine RAP |
|---|---|---|---|---|
| Gradation % Passing #16 Sieve[2] | | ≤ 40% | > 40% to ≤ 50% | > 50% |
| $PG_{HT}$[3] > 100.0° C | Allowable RAP Percentage | ≤ 25% | ≤ 20% | ≤ 20% |
| $PG_{HT}$[3] ≤ 100.0° C | | ≤ 30% | ≤ 25% | |

Notes:
1. RAP aggregate by weight of total aggregate or RAP binder by weight of total binder.
2. RAP gradations based on ignition oven extraction of RAP material in accordance with FM 5-563.
3. $PG_{HT}$: asphalt binder high temperature continuous performance grade of RAP in accordance with Section 916.

**334-2.4 Recycled Crushed Glass:** Recycled crushed glass may be used as a component of the asphalt mixture subject to the following requirements:

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 to a maximum of 15% by weight of total aggregate.
3. Use an asphalt binder that contains an anti-stripping agent listed on the Approved Product List (APL). The anti-strip additive shall be introduced into the asphalt binder by the supplier during loading.
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 surface.

**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 mix design. Aggregates from various sources may be combined.

**334-3.2 Mix Design:**

**334-3.2.1 General:** Design the asphalt mixture in accordance with AASHTO R 35, except as noted herein. Prior to the production of any asphalt mixture, submit the proposed mix design with supporting test data indicating compliance with all mix design criteria to the Engineer. For all mix designs, include representative samples of all component materials, including asphalt binder. Allow the Director of the Office of Materials a maximum of four weeks to either conditionally verify or reject the mix as designed.

At no additional cost to the Department, for a Type SP mix the following Traffic Level substitutions are allowed:

Traffic Level E can be substituted for Traffic Level C.
Traffic Level C can be substituted for Traffic Level B.

The same traffic level and binder type that is used for the mainline traffic lanes may be placed in the shoulder at no additional cost to the Department, even if the conditions stated above are not met for the shoulder.

Warm mix technologies (additives, foaming techniques, etc.) listed on the Department's website may be used in the production of the mix. The URL for obtaining this information, if available, is: https://www.fdot.gov/materials/laboratory/asphalt/index.shtm.

When warm mix technologies are used, for mixtures containing a PG 52-28, PG 58-22, or PG 67-22 binder, a mixture will be considered a warm mix asphalt design if the mixing temperature is 285°F or less. For mixtures containing a PG 76-22 or High Polymer binder, a mixture will be considered a warm mix asphalt design if the mixing temperature is 305°F or less.

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 Mixture 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 AASHTO M 323. Aggregates from various sources may be combined.

**334-3.2.2.1 Mixture Gradation Classification:** Plot the combined mixture gradation on an FHWA 0.45 Power Gradation Chart. Include the Control Points from AASHTO M 323, as well as the Primary Control Sieve (PCS) Control Point from AASHTO M 323. Fine mixes are defined as having a gradation that passes above the primary control sieve control point and above the maximum density line for all sieve sizes smaller than the primary control sieve and larger than the No. 30 sieve.

**334-3.2.3 Aggregate Consensus Properties:** For Traffic Level C and E mixtures, meet the following consensus properties at design for the aggregate blend. Aggregate consensus properties do not apply to Traffic Level B mixtures.

**334-3.2.3.1 Coarse Aggregate Angularity:** When tested in accordance with ASTM D5821, meet the percentage of fractured faces requirements specified in AASHTO M 323.

**334-3.2.3.2 Fine Aggregate Angularity:** When tested in accordance with AASHTO T 304, Method A, meet the uncompacted void content of fine aggregate specified in AASHTO M 323. For Traffic Level C and E base and structural course mixtures, a fine aggregate angularity value less than 45.0 and greater than or equal to 42.0 is allowable provided testing parameters of AASHTO T 340-10 (2019) meet the following requirements:

1. Rutting tests are performed on two gyratory specimens compacted to $N_{design}$ level of gyrations with a height of 115 ± 5 mm and a diameter of 150 mm.
2. The air void ($V_a$) content of each gyratory specimen after compacting to $N_{design}$ shall be within the following range: $3.0 \leq V_a \leq 4.8$.
3. Rutting tests are performed at 64.0 C.
4. The average rut depth for two specimens shall not exceed 4.5 mm.

**334-3.2.3.3 Flat and Elongated Particles:** When tested in accordance with ASTM D4791, (with the exception that the material passing the 3/8-inch sieve and retained on the No. 4 sieve shall be included), meet the requirements specified in AASHTO M 323.

Measure the aggregate using the ratio of 5:1, comparing the length (longest dimension) to the thickness (shortest dimension) of the aggregate particles.

**334-3.2.3.4 Sand Equivalent:** When tested in accordance with AASHTO T 176, meet the sand equivalent requirements specified in AASHTO M 323.

**334-3.2.4 Gyratory Compaction:** Compact the design mixture in accordance with AASHTO T 312, with the following exception: use the number of gyrations at $N_{design}$ as defined in Table 334-4. Measure the inside diameter of gyratory molds in accordance with AASHTO T 312.

Table 334-4
Gyratory Compaction Requirements

| Traffic Level | $N_{design}$ Number of Gyrations |
|---|---|
| B | 65 |
| C | 75 |
| E | 100 |

**334-3.2.5 Design Criteria:** Meet the requirements for nominal maximum aggregate size as defined in AASHTO M 323, as well as for relative density, VMA, VFA, and dust-to-binder ratio as specified in AASHTO M 323. $N_{initial}$ and $N_{maximum}$ requirements are not applicable.

**334-3.2.6 Moisture Susceptibility:**

1. For all traffic levels, use a liquid anti-strip agent listed on the APL at the specified dosage rate. Hydrated lime may be used instead of the liquid anti-strip agent.
2. Provide a mixture having a retained tensile strength ratio of at least 0.80 and a minimum tensile strength (unconditioned) of 100 psi in accordance with FM 1-T 283.

**334-3.2.7 Additional Information:** In addition to the requirements listed above, provide the following information with each proposed mix design submitted for verification:

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 Department source number and the Department product code of the aggregate components furnished from a Department 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 caused by 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 material passing the No. 200 sieve) should be accounted for and identified.
6. The bulk specific gravity ($G_{sb}$) value for each individual aggregate and RAP component, as identified in the Department's 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 for the mixture at the plant (mixing temperature) and a target temperature for the mixture at the roadway (compaction temperature) in accordance with 320-6.3. Do not exceed a target temperature of 340°F for High Polymer asphalt binders, 330°F for PG 76-22 asphalt binders, and 315°F for unmodified asphalt binders.

9. Provide the physical properties at the optimum asphalt content, which must conform to all specified requirements.

10. The name of the Construction Training Qualification Program (CTQP) Qualified Mix Designer.

11. The ignition oven and maximum specific gravity ($G_{mm}$) calibration factors.

12. The warm mix technology, if used.

**334-3.3 Mix Design Revisions:** During production, the Contractor may request a target value revision to a mix design, subject to meeting the following requirements: the target change falls within the limits defined in Table 334-5, appropriate data exists demonstrating that the mix complies with production air voids specification criteria, and the mixture gradation meets the basic gradation requirements defined in 334-3.2.2.

Table 334-5
Limits for Potential Adjustments to Mix Design Target Values

| Characteristic | Limit from Original Mix Design |
|---|---|
| Asphalt Binder Content [1] | ±0.3% |
| Gradation and Aggregate Component [2] | |
| 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% |
| Each Component of Aggregate Blend | ± 5.0 % |

[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.
[2] The Engineer may waive the limits for the individual sieves and component of the aggregate blend contingent upon the quality of the production data for the mixture. Revisions to FC-5 mixtures to be determined by the Engineer.

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 verified mix design will remain in effect until the Engineer authorizes a change. In no case will 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 if aggregate sources change, or for any substitution of an aggregate product with a different aggregate code, unless approved by the Engineer.

**334-4 Producer Process Control (PC).**

Assume full responsibility for controlling all operations and processes such that the requirements of these Specifications are met at all times. Perform any tests necessary at the plant and roadway for process control purposes. Enter all PC test data into the Department's database. The Engineer will not use these test results in the acceptance payment decision.

Address in the Producer QC Plan how PC failures will be handled. When a PC failure occurs, investigate, at a minimum, the production process, testing equipment and/or sampling

methods to determine the cause of the failure, and make any necessary changes to assure compliance with these Specifications. Obtain a follow up sample immediately after corrective actions are taken to assess the adequacy of the corrections. In the event the follow-up PC sample also fails to meet Specification requirements, cease production of the asphalt mixture until the problem is adequately resolved to the satisfaction of the QC Manager.

**334-5 Acceptance of the Mixture.**

**334-5.1 General:** The mixture will be accepted at the plant with respect to gradation ($P_{-8}$ and $P_{-200}$), asphalt content ($P_b$), and volumetrics (volumetrics is defined as air voids at $N_{design}$). The mixture will be accepted on the roadway with respect to density of roadway cores. Acceptance will be on a LOT by LOT basis (for each mix design) based on tests of random samples obtained within each sublot taken at a frequency of one set of samples per sublot. A roadway LOT and a plant production LOT shall be the same. Acceptance of the mixture will be based on Contractor QC test results that have been verified by the Department.

**334-5.1.1 Sampling and Testing Requirements:** Obtain the samples in accordance with FM 1-T 168. Obtain samples at the plant of a sufficient quantity to be split into three smaller samples; one for QC, one for Verification testing and one for Resolution testing. Obtain each split sample of a sufficient quantity, approximately 40 pounds, for all required testing. The split samples for Verification testing and Resolution testing shall be reduced in size and stored in three boxes each. The approximate size of each box must be 12 inches x 8 inches x 4 inches. Provide, label, and safely store sample boxes in a manner agreed upon by the Engineer for future testing.

The asphalt content of the mixture will be determined in accordance with FM 5-563. The gradation of the recovered aggregate will be determined in accordance with FM 1-T 030. Volumetric testing will be in accordance with AASHTO T 312 and FM 1-T 209. Prior to testing volumetric samples, condition the test-sized sample for one hour, plus or minus five minutes, at the target roadway compaction temperature in a shallow, flat pan, such that the mixture temperature at the end of the one-hour conditioning period is within plus or minus 20°F of the roadway compaction temperature.

If one of the QC gyratory specimens is damaged, make an additional gyratory specimen.

For situations where two properly prepared gyratory specimens do not meet single-operator precision requirements for $G_{mb}$ as provided in FM 1-T 166:

1. Retest both gyratory specimens in accordance FM 1-T 166.
2. Following the retest, if the newly measured $G_{mb}$ values do not meet single-operator precision requirements, QC shall prepare a third gyratory specimen in accordance with AASHTO T 312 and test in accordance with FM 1-T 166. All three test results shall be input into MAC. The average $G_{mb}$ will be determined by MAC after performing an outlier check in accordance with ASTM E178.

Test for roadway density in accordance with FM 1-T 166.

**334-5.1.2 Acceptance Testing Exceptions:** When the total combined quantity of hot mix asphalt for the project, as indicated in the Plans for Type B-12.5, Type SP and Type FC mixtures only, is less than 4,000 tons, the Engineer will accept the mix on the basis of visual inspection. The Engineer may require the Contractor to run process control tests for informational purposes, as defined in 334-4, or may run independent verification tests to determine the acceptability of the material.

Density testing for acceptance will not be performed on widening strips or shoulders with a width of 5 feet or less, open-graded friction courses, variable thickness overbuild courses, leveling courses, any SP-9.5 or SP-12.5 asphalt layer placed on subgrade with a layer thickness less than or equal to 3 inches, miscellaneous asphalt pavement, shared use paths, crossovers, gore areas, raised crosswalks, speed tables, or any course with a specified thickness less than 1 inch or a specified spread rate that converts to less than 1 inch as described in 334-1.4. Density testing for acceptance will not be performed on asphalt courses placed on bridge decks or approach slabs; compact these courses in static mode only per the requirements of 330-7.7. In addition, density testing for acceptance will not be performed on the following areas when they are less than 500 feet (continuous) in length: turning lanes, acceleration lanes, deceleration lanes, shoulders, parallel parking lanes, ramps, or unsignalized side streets with less than four travel lanes and speed limits less than 35 mph. Do not perform density testing for acceptance in situations where the areas requiring density testing is less than 50 tons within a sublot.

Density testing for acceptance will not be performed in intersections. The intersection limits will be from stop bar to stop bar for both the mainline and side streets For roundabouts, the intersection limits are within the outside perimeter of the circulatory roadway. A random core location that occurs within the intersection shall be moved forward or backward from the intersection at the direction of the Engineer.

Where density testing for acceptance is not required, compact these courses (with the exception of open-graded friction courses) in accordance with the rolling procedure (equipment and pattern) as approved by the Engineer or with Standard Rolling Procedure as specified in 330-7.2. In the event that the rolling procedure deviates from the procedure approved by the Engineer, or the Standard Rolling Procedure, placement of the mix shall be stopped.

The density pay factor (as defined in 334-8.2) for areas not requiring density testing for acceptance will be paid at the same density pay factor as for the areas requiring density testing within the same LOT. If the entire LOT does not require density testing for acceptance, the LOT will be paid at a density pay factor of 1.00.

**334-5.2 Full LOTs:** Each LOT will be defined (as selected by the Contractor prior to the start of the LOT) as either (1) 2,000 tons, with each LOT subdivided into four equal sublots of 500 tons each, or (2) 4,000 tons, with each LOT subdivided into four equal sublots of 1,000 tons each. As an exception to this, the initial LOT of all new mix designs shall be defined as 2,000 tons, subdivided into four equal sublots of 500 tons each. Before the beginning of a LOT, the Engineer will develop a random sampling plan for each sublot and direct the Contractor on sample points, based on tonnage, for each sublot during construction.

**334-5.3 Partial LOTs:** A partial LOT is defined as a LOT size that is less than a full LOT. A partial LOT may occur due to the following:

1. The completion of a given mix type or mix design on a project.

2. Closure of the LOT due to time. LOTs will be closed 30 calendar days after the start of the LOT. Time periods other than 30 calendar days may be used if agreed to by both the Engineer and the Contractor, but under no circumstances shall the LOT be left open longer than 90 days.

3. A LOT is terminated per 334-5.4.4.

All partial LOTs will be evaluated based on the number of tests available, and will not be redefined. If a LOT is closed before the first plant random sample is obtained, then the LOT will be visually accepted by the Engineer and the LOT pay factor will be 1.00.

**334-5.4 QC Sampling and Testing:** Obtain all samples randomly as directed by the Engineer.

Should the Engineer determine that the QC requirements are not being met or that unsatisfactory results are being obtained, or should any instances of falsification of test data occur, acceptance of the Producer's QC Plan will be suspended and production will be stopped.

**334-5.4.1 Lost or Missing Verification/Resolution Samples:** In the event that any of the Verification and/or Resolution asphalt mixture samples that are in the custody of the Contractor are lost, damaged, destroyed, or are otherwise unavailable for testing, the minimum possible pay factor for each quality characteristic as described in 334-8.2 will be applied to the entire LOT in question, unless called for otherwise by the Engineer. Specifically, if the LOT in question has more than two sublots, the pay factor for each quality characteristic will be 0.55. If the LOT has two or less sublots, the pay factor for each quality characteristic will be 0.80. If only the roadway cores are lost, damaged, destroyed, or are otherwise unavailable for testing, then the minimum possible pay factor for density will be applied to the entire LOT in question. In either event, the material in question will also be evaluated in accordance with 334-5.9.5.

If any of the Verification and/or Resolution samples that are in the custody of the Department are lost, damaged, destroyed or are otherwise unavailable for testing, the corresponding QC test result will be considered verified, and payment will be based upon the Contractor's data.

**334-5.4.2 Plant Sampling and Testing Requirements:** Obtain one random sample of mix per sublot in accordance with 334-5.1.1 as directed by the Engineer. Test the QC split sample for gradation, asphalt binder content and volumetrics in accordance with 334-5.1.1. Complete all QC testing within one working day from the time the samples were obtained.

**334-5.4.3 Roadway Sampling and Testing Requirements:** Obtain five 6 inch diameter roadway cores within 24 hours of placement at random locations as directed by the Engineer within each sublot. Test these QC samples for density ($G_{mb}$) in accordance with 334-5.1.1. Obtain a minimum of three cores per sublot at random locations as identified by the Engineer in situations where the sublot/LOT was closed or terminated before the random numbers were reached or where it is impractical to cut five cores per sublot. Do not obtain cores any closer than 12 inches from an unsupported edge. The Engineer may adjust randomly generated core locations for safety purposes or as the Engineer deems necessary. Do not perform density testing for acceptance in a sublot if the plant random sample for that sublot has not been obtained. Maintain traffic during the coring operation; core the roadway, patch the core holes (within three days of coring); and trim the cores to the proper thickness prior to density testing.

Density for the sublot shall be based on the average value for the cores cut from the sublot with the target density being a percentage of the maximum specific gravity ($G_{mm}$) of the sublot, as defined in the Contract. Once the average density of a sublot has been determined, do not retest the samples unless approved by the Engineer. Ensure proper handling and storage of all cores until the LOT in question has been accepted.

**334-5.4.4 Individual Test Tolerances for QC Testing:** Terminate the LOT if any of the following QC failures occur:

1. An individual test result of a sublot for air voids does not meet the requirements of Table 334-6,

2. The average sublot density does not meet the requirements of Table 334-6,

3. Two consecutive test results within the same LOT for gradation or asphalt binder content do not meet the requirements of Table 334-6,

When a LOT is terminated due to a QC failure, stop production of the mixture until the problem is resolved to the satisfaction of the QC Manager and/or Asphalt Plant Level II technician responsible for the decision to resume production after a QC failure, as identified in Section 105. In the event that it can be demonstrated that the problem can immediately be or already has been resolved, it will not be necessary to stop production. When a LOT is terminated, make all necessary changes to correct the problem. Do not resume production until appropriate corrections have been made. Prior to resuming production, inform the Engineer of the problem and corrections made to correct the problem. After resuming production, sample and test the material to verify that the changes have corrected the problem. Summarize this information and provide it to the Engineer prior to the end of the work shift when production resumes.

In the event that a QC failure is not addressed as defined above, the Engineer's approval will be required prior to resuming production after any future QC failures.

Address any material represented by a failing test result, as defined above in this subarticle, in accordance with 334-5.9.5. Any LOT terminated under this subarticle will be limited to a maximum Pay Factor of 1.00 (as defined in 334-8.2) for all quality characteristics and will include all material placed up to the point when the LOT was terminated.

In the event that a $G_{mm}$ test result differs by more than 0.040 from the mix design $G_{mm}$, investigate the causes of the discrepancy and report the findings and proposed actions to the Engineer.

Table 334-6
Master Production Range

| Characteristic | Tolerance (1) |
|---|---|
| Asphalt Binder Content (%) | Target ±0.55 |
| Passing No. 200 Sieve (%) | Target ±1.50 |
| Air Voids (%) | 2.30 – 6.00 |
| Density (minimum % $G_{mm}$)(2) | 89.50 |

(1) Tolerances for sample size of n = 1 from the verified mix design
(2) Based on an average of three to five randomly located cores

**334-5.5 Verification Testing:** In order to determine the validity of the Contractor's QC test results prior to their use in the Acceptance decision, the Engineer will run verification tests.

**334-5.5.1 Plant Testing:** At the completion of each LOT, the Engineer will test a minimum of one Verification split sample randomly selected from the LOT. Results of the testing and analysis for the LOT will be made available to the Contractor within one working day from the time the LOT is completed. Verification samples shall be reheated at the target roadway compaction temperature for 1-1/2 hours, plus or minus 5 minutes, reduced to the appropriate testing size, and conditioned and tested as described in 334-5.1.1. In lieu of the 1-1/2 hours reheating procedure, the mixture may be reheated to within plus or minus 20°F of the roadway compaction temperature using a microwave oven. Stir the mixture as necessary during the reheating process to maintain temperature uniformity. Subsequently, condition and test the mixture as described in 334-5.1.1.

The Verification test results will be compared with the QC test results based on the between-laboratory precision values shown in Table 334-7.

| Table 334-7<br>Between-Laboratory Precision Values | |
|---|---|
| Property | Maximum Difference |
| $G_{mm}$ | 0.016 |
| $G_{mb}$ (gyratory compacted samples) | 0.022 |
| $G_{mb}$ (roadway cores) | 0.014 |
| $P_b$ | 0.44% |
| $P_{-200}$ | FM 1-T 030 (Figure 2) |
| $P_{-8}$ | FM 1-T 030 (Figure 2) |

If all of the specified mix characteristics compare favorably, then the LOT will be accepted, with payment based on the Contractor's QC test data for the LOT.

If any of the results do not compare favorably, then the Resolution samples from the LOT will be sent to the Resolution laboratory for testing, as described in 334-5.6.

**334-5.5.2 Roadway Testing:** At the completion of each LOT, the Engineer will determine the density ($G_{mb}$) of each core (previously tested by QC) as described in 334-5.1.1 from the same sublot as the plant samples. For situations where roadway density is not required for the random sublot chosen, then another sublot shall be randomly chosen for roadway density cores only. Results of the testing and analysis for the LOT will be made available to the Contractor within one working day from the time the LOT is completed.

The individual Verification test results will be compared with individual QC test results by the Engineer based on the between-laboratory precision values given in Table 334-7.

If each of the core test results compare favorably, then the LOT will be accepted with respect to density, with payment based on the Contractor's QC test data for the LOT.

If any of the results do not compare favorably, then the core samples from the LOT will be sent to the Resolution laboratory for testing as specified in 334-5.6.

**334-5.6 Resolution System:**

**334-5.6.1 Plant Samples:** In the event of an unfavorable comparison between the Contractor's QC test results and the Engineer's Verification test results on any of the properties identified in Table 334-7, the Resolution laboratory will test all of the split samples from the LOT for only the property (or properties) in question. Resolution samples shall be reheated at the target roadway compaction temperature for 1-1/2 hours, plus or minus 5 minutes, reduced to the appropriate testing size, and conditioned and tested as described in 334-5.1.1. In lieu of the 1-1/2 hours reheating procedure, the mixture may be reheated to within plus or minus 20°F of the roadway compaction temperature using a microwave oven. Stir the mixture as necessary during the reheating process to maintain temperature uniformity. Subsequently, condition and test the mixture as described in 334-5.1.1.

**334-5.6.2 Roadway Samples:** In the event of an unfavorable comparison between the Contractor's QC test data and the Engineer's Verification test data on the density results, the

Resolution laboratory will test all of the cores from the LOT. Testing will be as described in 334-5.1.1.

**334-5.6.3 Resolution Determination:** The Resolution test results (for the property or properties in question) will be compared with the QC test results based on the between-laboratory precision values shown in Table 334-7.

If the Resolution test results compare favorably with all of the QC results, then acceptance and payment for the LOT will be based on the QC results, and the Department will bear the costs associated with Resolution testing. No additional compensation, either monetary or time, will be made for the impacts of any such testing.

If the Resolution test results do not compare favorably with all of the QC results, then acceptance and payment for the LOT will be based on the Resolution test data for the LOT, and the costs of the Resolution testing will be deducted from monthly estimates. No additional time will be granted for the impacts of any such testing.

In addition, the material failure requirements of 334-5.4.4 apply to the Resolution test data. Address any material represented by the failing test results in accordance with 334-5.9.5. For this situation, the LOT will be limited to a maximum Pay Factor of 1.00 (as defined in 334-8.2) for all quality characteristics.

In the event of an unfavorable comparison between the Resolution test results and QC test results, make the necessary adjustments to assure that future comparisons are favorable.

**334-5.7 Independent Verification (IV) Testing:**

**334-5.7.1 Plant:** The Contractor shall provide sample boxes and take samples as directed by the Engineer for IV testing. Obtain enough material for three complete sets of tests (two samples for IV testing by the Engineer and one sample for testing by the Contractor). If agreed upon by both the Engineer and the Contractor, only one sample for IV testing by the Engineer may be obtained. IV samples will be reheated at the target roadway compaction temperature for 1-1/2 hours, plus or minus 5 minutes, reduced to the appropriate testing size, and conditioned and tested as described in 334-5.1.1. The Contractor's split sample, if tested immediately after sampling, shall be reduced to the appropriate testing size, and conditioned and tested as described in 334-5.1.1. If the Contractor's sample is not tested immediately after sampling, then the sample shall be reheated at the target roadway compaction temperature for 1-1/2 hours, plus or minus 5 minutes, reduced to the appropriate testing size, and conditioned and tested as described in 334-5.1.1. For the IV and Contractor's samples, in lieu of the 1-1/2 hours reheating procedure, the mixture may be reheated to within plus or minus 20°F of the roadway compaction temperature using a microwave oven. Stir the mixture as necessary during the reheating process to maintain temperature uniformity. Subsequently, condition and test the mixture as described in 334-5.1.1. The Contractor's test results shall be provided to the Engineer within one working day from the time the sample was obtained.

If any of the IV test results do not meet the requirements of Table 334-6, then a comparison of the IV test results and the Contractor's test results, if available, will be made. If a comparison of the IV test results and the Contractor's test results meets the precision values of Table 334-7 for the material properties in question, or if the Contractor's test results are not available, then the IV test results are considered verified and the Contractor shall cease production of the asphalt mixture until the problem is adequately resolved (to the satisfaction of the Engineer), unless it can be demonstrated to the satisfaction of the Engineer that the problem

can immediately be (or already has been) resolved. Address any material represented by the failing test results in accordance with 334-5.9.5.

If a comparison of the IV test results and the Contractor's test results does not meet the precision values of Table 334-7 for the material properties in question, then the second IV sample shall be tested by the Engineer for the material properties in question. If a comparison between the first and second IV test results does not meet the precision values of Table 334-7 for the material properties in question, then the first IV test results are considered unverified for the material properties in question and no action shall be taken, with the following exception: if the first and second IV test results do not meet the precision values of Table 334-7 and the first IV test result and Contractor's test result do not meet the precision values of Table 334-7, yet all three test results do not meet the requirements of Table 334-6, then address any material represented by the failing test results in accordance with 334-5.9.5.

If a comparison between the first and second IV test results meets the precision values of Table 334-7 for the material properties in question, then the first IV sample is considered verified and the Contractor shall cease production of the asphalt mixture until the problem is adequately resolved (to the satisfaction of the Engineer), unless it can be demonstrated to the satisfaction of the Engineer that the problem can immediately be (or already has been) resolved. Address any material represented by the failing test results in accordance with 334-5.9.5.

The Engineer has the option to use the IV sample for comparison testing as specified in 334-6.

**334-5.7.1.1 Asphalt Binder and Mixture Sampling for Determination of Asphalt Binder Quality:** At the Department's request, obtain an asphalt binder sample, in accordance with AASHTO R 66, from the asphalt plant storage tank and a corresponding asphalt mixture sample using binder from the same storage tank. Samples of asphalt binder and mixture shall be sampled the same day. The asphalt binder from the storage tank and the asphalt binder recovered from the asphalt mixture will be tested by the Department for compliance with Contract Documents. Should the test results of the asphalt binder from the storage tank and/or the asphalt binder recovered from the asphalt mixture not meet the requirements of the Contract Documents, address any material represented by the failing test results in accordance with 334-5.9.5.

**334-5.7.2 Roadway:** Obtain five 6-inch diameter roadway cores within 24 hours of placement, as directed by the Engineer, for IV testing. In situations where it is impractical to cut five cores per sublot, obtain a minimum of three cores per sublot at random locations, as identified by the Engineer. These independent cores will be obtained from the same LOTs and sublots as the Independent Verification Plant samples, or as directed by the Engineer. The density of these cores will be obtained as described in 334-5.1.1. If the average of the results for the sublot does not meet the requirements of Table 334-6 for density, then a comparison of the IV $G_{mm}$ test results and the Contractor's $G_{mm}$ test results, if available, will be made in accordance with the procedure provided in 334-5.7.1. Address any material represented by the failing test results in accordance with 334-5.9.5.

**334-5.8 Surface Tolerance:** The asphalt mixture will be accepted on the roadway with respect to surface tolerance in accordance with the applicable requirements of 330-9.

**334-5.9 Minimum Acceptable Quality Levels:**

**334-5.9.1 PFs Below 0.90:** In the event that an individual pay factor for any quality characteristic of a LOT falls below 0.90, take steps to correct the situation and report the

actions to the Engineer. In the event that the pay factor for the same quality characteristic for two consecutive LOTs is below 0.90, cease production of the asphalt mixture until the problem is adequately resolved (to the satisfaction of the Engineer), unless it can be demonstrated to the satisfaction of the Engineer that the problem can immediately be (or already has been) resolved. Actions taken must be approved by the Engineer before production resumes.

**334-5.9.2 CPFs Less Than 0.90 and Greater Than or Equal to 0.80:** If the composite pay factor for the LOT is less than 0.90 and greater than or equal to 0.80, cease production of the asphalt mixture until the problem is adequately resolved (to the satisfaction of the Engineer), unless it can be demonstrated to the satisfaction of the Engineer that the problem can immediately be (or already has been) resolved. Actions taken must be approved by the Engineer before production resumes.

**334-5.9.3 CPFs Less Than 0.80 and Greater Than or Equal to 0.75:** If the CPF for the LOT is less than 0.80 and greater than or equal to 0.75, address the defective material in accordance with 334-5.9.5.

**334-5.9.4 CPFs Less Than 0.75:** If the CPF for the LOT is less than 0.75, remove and replace the defective LOT at no cost to the Department, or as approved by the Engineer.

**334-5.9.5 Defective Material:** Assume responsibility for removing and replacing all defective material placed on the project, at no cost to the Department.

As an exception to the above and upon approval of the Engineer, obtain an engineering analysis in accordance with Section 6 by an independent laboratory (as approved by the Engineer) to determine the disposition of the material. The engineering analysis must be signed and sealed by a Professional Engineer licensed in the State of Florida.

The Engineer may determine that an engineering analysis is not necessary or may perform an engineering analysis to determine the disposition of the material.

Any material that remains in place will be accepted with a CPF as determined by 334-8, or as determined by the Engineer.

If the defective material is due to a failure of high air voids, gradation, asphalt binder content, roadway density, or asphalt binder grade, upon the approval of the Engineer the Contractor may perform delineation tests on roadway cores in lieu of an engineering analysis to determine the limits of the defective material that may require removal and replacement. Prior to any delineation testing, all sampling locations shall be approved by the Engineer. All delineation sampling and testing shall be monitored and verified by the Engineer. For materials that are defective due to low air voids, an engineering analysis is required.

When evaluating defective material by engineering analysis or delineation testing, at a minimum, evaluate all material located between passing QC, PC or IV test results. Any additional PC samples obtained in the same work shift after an IV sample has been obtained shall include enough material for three complete sets of tests (PC, IV and IV check samples) in the event the Contractor requests using the PC test results for engineering analysis or delineation. These additional PC samples must compare with verified IV test results as determined by the comparison process of 334-5.7.1 in order to be used for engineering analysis or delineation. Exceptions to this requirement shall be approved by the Engineer.

**334-6 Comparison Testing.**

At the start of the project (unless waived by the Engineer) and at other times as determined necessary by the Engineer, provide split samples for comparison testing with the Engineer. The purpose of these tests is to verify that the testing equipment is functioning

properly and that the testing procedures are being performed correctly. In the event that the Engineer determines that there is a problem with the Contractor's testing equipment and/or testing procedures, immediately correct the problem to the Engineer's satisfaction. In the event that the problem is not immediately corrected, cease production of the asphalt mixture until the problem is adequately resolved to the satisfaction of the Engineer.

If agreed to by both the Contractor and the Engineer, the split sample used for comparison testing may also be used for the QC sample. The split sample used for comparison testing must also meet the requirements for IV testing described in 334-5.7.

**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. For each pay item, excluding overbuild, the pay quantity will be based on the quantity placed on the project, limited to 110% of the adjusted plan quantity for the pay item. The adjusted plan quantity will be determined by dividing the pay item's original plan quantity (including any Engineer approved quantity revisions) by the design $G_{mm}$ stated in 334-1.4, then multiplying it by the tonnage-weighted average $G_{mm}$ of the mixes used for the pay item.

The bid price for the asphalt mix will include the cost of the liquid asphalt and the tack coat application as directed in 300-8. 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 average asphalt content will be based on the percentage specified in 9-2.1.2. The weight will be determined as provided in 320-3.2 (including the provisions for the automatic recordation system).

Prepare and submit a Certification of Quantities to the Engineer in accordance with 9-2.1.2.

**334-8 Basis of Payment.**

**334-8.1 General:** Price and payment will be full compensation for all the work specified under this Section (including the applicable requirements of Sections 320 and 330).

For materials accepted in accordance with 334-5, based upon the quality of the material, a pay adjustment will be applied to the bid price of the material as determined on a LOT by LOT basis. The pay adjustment will be assessed by calculating a Pay Factor for the following individual quality characteristics: pavement density, air voids, asphalt binder content, and the percentage passing the No. 200 and No. 8 sieves. The pay adjustment will be computed by multiplying a Composite Pay Factor (CPF) for the LOT by the bid price per ton.

**334-8.2 Pay Factors:**

**334-8.2.1 Partial LOTs:** For Partial LOTs where no random sample is obtained due to insufficient tonnage, a CPF of 1.00 shall be applied.

**334-8.2.2 Two or Less Sublot Test Results:** In the event that two or less sublot test results are available for a LOT, Pay Factors will be determined based on Table 334-8, using the average of the accumulated deviations from the target value. (Except for density, deviations are absolute values with no plus or minus signs.) Use the 1-Test column when there is only one sublot test result and use the 2-Tests column when there are two sublots.

| Table 334-8<br>Small Quantity Pay Table | | |
|---|---|---|
| Pay Factor | 1 Sublot Test Deviation | 2 Sublot Test Average Deviation |
| Asphalt Binder Content | | |
| 1.05 | 0.00-0.23 | 0.00-0.16 |
| 1.00 | 0.24-0.45 | 0.17-0.32 |
| 0.90 | 0.46-0.55 | 0.33-0.39 |
| 0.80 | >0.55 | >0.39 |
| No. 8 Sieve | | |
| 1.05 | 0.00-2.25 | 0.00-1.59 |
| 1.00 | 2.26-4.50 | 1.60-3.18 |
| 0.90 | 4.51-5.50 | 3.19-3.89 |
| 0.80 | >5.50 | >3.89 |
| No. 200 Sieve | | |
| 1.05 | 0.00-0.55 | 0.00-0.39 |
| 1.00 | 0.56-1.10 | 0.40-0.78 |
| 0.90 | 1.11-1.50 | 0.79-1.06 |
| 0.80 | >1.50 | >1.06 |
| Air Voids | | |
| 1.05 | 0.00-0.50 | 0.00-0.35 |
| 1.00 | 0.51-1.00 | 0.36-0.71 |
| 0.90 | 1.01-1.70 | 0.72-1.20 |
| 0.80 | 1.71-2.00 | 1.21-1.41 |
| 0.70 | 2.01-2.50 | 1.42-1.77 |
| 0.55 | >2.50 | >1.77 |
| Density (1) Target = 93.00 percent of $G_{mm}$ | | |
| 1.05 | + (0.00-3.50), - (0.00-0.50) | + (0.00-3.25), - (0.00-0.35) |
| 1.00 | + (3.51-4.50), - (0.51-1.00) | + (3.26-4.25), - (0.36-0.71) |
| 0.95 | + (4.51-5.00), - (1.01-2.00) | + (4.26-4.75), - (0.72-1.41) |
| 0.90 | + (5.01-5.50), - (2.01-3.00) | + (4.76-5.25) – (1.42-2.12) |
| 0.80 | + (>5.50), - (>3.00) | + (>5.25), - (>2.12) |
| Density (1) Target = 92.00 percent of $G_{mm}$ | | |
| 1.05 | + (0.00-4.50), - (0.00-0.50) | + (0.00-4.25), - (0.00-0.35) |
| 1.00 | + (4.51-5.50), - (0.51-1.00) | + (4.26-5.25), - (0.36-0.71) |
| 0.95 | + (5.51-6.00), - (1.01-1.50) | + (5.26-5.75), - (0.72-1.41) |
| 0.90 | + (6.01-6.50), - (1.51-2.00) | + (5.76-6.25) – (1.42-2.12) |
| 0.80 | + (>6.50), - (>2.00) | + (>6.25), - (>2.12) |

(1). Each density test result is the average of three to five randomly located cores. The target density is 93.00 percent of $G_{mm}$ (92.00 percent when compaction is limited to the static mode or for layers specified to be one inch thick). When compaction is limited to the static mode, no vibratory mode in the vertical direction will be allowed. Other vibratory modes will be allowed, if approved by the Engineer. In this case, the target density is 92.00 percent of $G_{mm}$.

**334-8.2.3 Three or More Sublot Test Results:** When three or more sublot test results are available for a LOT, the variability-unknown, standard deviation method will be used to determine the estimated percentage of the LOT that is within the specification limits. The

number of significant figures used in the calculations will be in accordance with requirements of AASHTO R 11/ASTM E29, Absolute Method.

**334-8.2.3.1 Percent Within Limits:** The percent within limits (PWL) and Pay Factors for the LOT will be calculated as described below. Variables used in the calculations are as follows:

x = individual test value (sublot)
n = number of tests (sublots)
s = sample standard deviation
$\Sigma(x^2)$ = summation of squares of individual test values
$(\Sigma x)^2$ = summation of individual test values squared
$Q_U$ = upper quality index
USL = upper specification limit (target value plus upper specification limit from Table 334-9)
$Q_L$ = lower quality index
LSL = lower specification limit (target value minus lower specification limit from Table 334-9)
$P_U$ = estimated percentage below the USL
$P_L$ = estimated percentage above the LSL

1. Calculate the arithmetic mean $(\overline{X})$ of the test values:

$$\overline{X} = \frac{\sum x}{n}$$

2. Calculate the sample standard deviation (s):

$$s = \sqrt{\frac{n\sum\left(x^2\right) - \left(\sum x\right)^2}{n(n-1)}}$$

3. Calculate the upper quality index ($Q_U$):

$$Q_U = \frac{\text{USL} - \overline{\text{X}}}{\text{s}}$$

4. Calculate the lower quality index ($Q_L$):

$$Q_L = \frac{\overline{X} - LSL}{s}$$

5. From Table 334-10, determine the percentage of work below the USL ($P_U$).

6. From Table 334-10, determine percentage of work above the LSL ($P_L$) Note: If USL or LSL is not specified; percentages within (USL or LSL) will be 100.

7. If $Q_U$ or $Q_L$ is a negative number, then calculate the percent within limits for $Q_U$ or $Q_L$ as follows: enter Table 334-10 with the positive value of $Q_U$ or $Q_L$ and obtain the corresponding percent within limits for the proper sample size. Subtract this number from 100.00. The resulting number is the value to be used in the next step (Step 8) for the calculation of quality level.

8. Calculate the percent within limits (PWL) = $(P_U + P_L) - 100$

9. Calculate the Pay Factor (PF) for each quality characteristic using the equation given in 334-8.2.3.2.

| Table 334-9<br>Specification Limits | |
|---|---|
| Quality Characteristic | Specification Limits |
| Passing No. 8 sieve (percent) | Target ± 3.1 |
| Passing No. 200 sieve (percent) | Target ± 1.0 |
| Asphalt Content (percent) | Target ± 0.40 |
| Air Voids (percent) | 4.00 ± 1.20 |
| Density, vibratory mode (percent of $G_{mm}$): | 93.00 + 4.00, - 1.20 |
| Density, static mode (percent of $G_{mm}$): | 92.00 + 5.00, - 1.50 (1) |
| (1): No vibratory mode in the vertical direction will be allowed. Other vibratory modes will be allowed, if approved by the Engineer. | |

| Table 334-10<br>Percent Within Limits | | |
|---|---|---|
| Quality Index | Percent within Limits for Selected Sample Size | |
| | n = 3 | n = 4 |
| 0.00 | 50.00 | 50.00 |
| 0.05 | 51.38 | 51.67 |
| 0.10 | 52.76 | 53.33 |
| 0.15 | 54.15 | 55.00 |
| 0.20 | 55.54 | 56.67 |
| | | |
| 0.25 | 56.95 | 58.33 |
| 0.30 | 58.37 | 60.00 |
| 0.35 | 59.80 | 61.67 |
| 0.40 | 61.26 | 63.33 |
| 0.45 | 62.74 | 65.00 |
| | | |
| 0.50 | 64.25 | 66.67 |
| 0.55 | 65.80 | 68.33 |
| 0.60 | 67.39 | 70.00 |
| 0.65 | 69.03 | 71.67 |
| 0.70 | 70.73 | 73.33 |
| | | |

| Table 334-10<br>Percent Within Limits | | |
|---|---|---|
| Quality Index | Percent within Limits for Selected Sample Size | |
| | n = 3 | n = 4 |
| 0.75 | 72.50 | 75.00 |
| 0.80 | 74.36 | 76.67 |
| 0.85 | 76.33 | 78.33 |
| 0.90 | 78.45 | 80.00 |
| 0.95 | 80.75 | 81.67 |
| | | |
| 1.00 | 83.33 | 83.33 |
| 1.05 | 86.34 | 85.00 |
| 1.10 | 90.16 | 86.67 |
| 1.15 | 97.13 | 88.33 |
| 1.20 | 100.00 | 90.00 |
| | | |
| 1.25 | 100.00 | 91.67 |
| 1.30 | 100.00 | 93.33 |
| 1.35 | 100.00 | 95.00 |
| 1.40 | 100.00 | 96.67 |
| 1.45 | 100.00 | 98.33 |
| | | |
| 1.50 | 100.00 | 100.00 |
| 1.55 | 100.00 | 100.00 |
| 1.60 | 100.00 | 100.00 |
| 1.65 | 100.00 | 100.00 |
| 1.70 | 100.00 | 100.00 |
| | | |
| 1.75 | 100.00 | 100.00 |
| 1.80 | 100.00 | 100.00 |
| 1.85 | 100.00 | 100.00 |
| 1.90 | 100.00 | 100.00 |
| 1.95 | 100.00 | 100.00 |
| | | |
| 2.00 | 100.00 | 100.00 |
| 2.05 | 100.00 | 100.00 |
| 2.10 | 100.00 | 100.00 |
| 2.15 | 100.00 | 100.00 |
| 2.20 | 100.00 | 100.00 |
| | | |
| 2.25 | 100.00 | 100.00 |
| 2.30 | 100.00 | 100.00 |
| 2.35 | 100.00 | 100.00 |
| 2.40 | 100.00 | 100.00 |
| 2.45 | 100.00 | 100.00 |

| Table 334-10<br>Percent Within Limits | | |
|---|---|---|
| Quality Index | Percent within Limits for Selected Sample Size | |
| | n = 3 | n = 4 |
| | | |
| 2.50 | 100.00 | 100.00 |
| 2.55 | 100.00 | 100.00 |
| 2.60 | 100.00 | 100.00 |
| 2.65 | 100.00 | 100.00 |

**334-8.2.3.2 Pay Factors (PF):** Pay Factors will be calculated by using the following equation:

Pay Factor = (55 + 0.5 x PWL) / 100

The PWL is determined from Step (8) of 334-8.2.3.1.

**334-8.3 Composite Pay Factor (CPF):** A CPF for the LOT will be calculated based on the individual PFs with the following weighting applied: 40% Density (D), 25% Air Voids ($V_a$), 20% asphalt binder content ($P_b$), 10% Passing No. 200 ($P_{-200}$) and 5% Passing No. 8 ($P_{-8}$). Calculate the CPF by using the following formula:

CPF = [(0.400 x PF D) + (0.250 x PF $V_a$) + (0.200 x PF $P_b$) + (0.100 x PF $P_{-200}$) + (0.050 x PF $P_{-8}$)]

Where the PF for each quality characteristic is determined in either 334-8.2.2 or 334-8.2.3, depending on the number of sublot tests. Note that the number after each multiplication will be rounded to the nearest 0.01.

The pay adjustment shall be computed by multiplying the CPF for the LOT by the bid price per ton.

**334-8.4 Payment:** Payment will be made under:

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

# SECTION 210
# REWORKING LIMEROCK BASE

**210-1 Description.**

Rework (or rework and widen) the existing rock base, by adding new limerock material as required by the Plans. Construct adjacent turnouts, entirely with new limerock.

**210-2 Materials.**

Meet the following requirements:

Limerock ..... Section 911
Prime Coat ..... Section 300

**210-2.1 Limerock:** Meet the limerock material requirements as specified in Section 911 if new limerock is needed. The Contractor may use limerock of either Miami Oolite or Ocala Formation but only use limerock of one formation on any Contract.

**210-3 Equipment.**

Provide equipment meeting the requirements of 200-3.

**210-4 Existing Bituminous Surfaces.**

**210-4.1 Asphalt Concrete:** Remove asphalt concrete surfaces from the base prior to excavating trenches or scarifying the rock. Dispose of removed materials as specified in 120-5.

**210-4.2 Bituminous Surface Treatment:** Remove and dispose of existing bituminous surface treatment only when specifically specified in the Plans. Otherwise, the Contractor may mix the existing bituminous surfacing in with the existing limerock material.

**210-5 Trenches and Subgrade.**

Where widening the existing base, excavate trenches along the edges of the existing pavement to the width and depth indicated in the Plans. Excavate the trenches before scarifying the existing base. Shape, compact, and maintain the subgrade of the trenches and turnouts as specified in 120-9, except that when stabilization of the subgrade is not included in the Plans, do not compact the trenches unless the native underlying material has been disturbed. Dispose of all excavated materials as specified in 120-5.

**210-6 Spreading, Shaping, and Compacting Rock.**

**210-6.1 General:** Scarify and disk, or otherwise loosen the existing base to such extent that no pieces larger than 3 1/2 inches in greatest dimension remain bonded together. Then, spread the material to the full width of the proposed new base course and to a grade and cross-section roughly parallel to the finished grade. Meet the requirements of 200-7.1.

**210-6.2 Widening Strips:** Where the widening strips are not of sufficient width to permit the use of standard compaction equipment, compact the rock in accordance with 200-6.5.

**210-6.3 Construction Sequence:** Do not spread any material for the upper course until the Engineer has made the density tests on the lower course and has determined that the specified compaction requirements have been met. Then, construct the second course of new limerock in accordance with the requirements of 200-5 through 200-7.

**210-7 Priming and Maintaining.**

Meet the requirements of 200-8.

**210-8 Method of Measurement.**

**210-8.1 Base:** The quantity to be paid for will be the plan quantity, in square yards, completed and accepted, including the areas of widened base and of turnouts constructed of new limerock material.

**210-8.2 Limerock Material:** The quantity to be paid for will be the number of cubic yards of only the new limerock material actually placed in the road and accepted. The quantity will be determined by measurement in loose volume, in truck bodies, at the point of dumping on the road, with proper deduction for all materials wasted, left in trucks or otherwise not actually used in the road. For this purpose, level the material in the truck bodies to facilitate accurate measurement.

**210-9 Basis of Payment.**

Prices and payments will be full compensation for performing all work specified in this Section including prime coat application as specified in 300-7, except all earthwork required for this work, and the work of removal and disposal of the existing bituminous surfaces, if required, as indicated in the Plans.

When the plans do not provide for direct payment for such work, the cost will be included in the Contract unit price for reworking limerock base.

Payment will be made under:

| | | |
|---|---|---|
| Item No. 210- | 1- | Reworking Limerock Base - per square yard. |
| Item No. 210- | 2- | Limerock, New Material - per cubic yard. |

# SECTION 911
# BASE AND STABILIZED BASE MATERIALS

## 911-1 Description.

This Section governs materials to be used in the construction of base and subgrade stabilization including limerock, shell, shell-rock, cemented coquina shell, and recycled concrete aggregate (RCA).

## 911-2 Materials.

### 911-2.1 General:

**911-2.1.1 Approval of Material:** Approval of mineral aggregate sources shall be in accordance with 6-2.3.

**911-2.1.2 Deleterious Substances:** Materials shall not contain deleterious substances that would result in: prevention of the bituminous prime coat from adhering to the base course; a detriment to the finishing, strength, or performance of the base; or a surface which is susceptible to distortion under construction traffic. Such substances include, but are not limited to: cherty or other extremely hard pieces, lumps, balls or pockets of sand or clay size material, organic matter, loose sand, loose, free shells, corals or skeletal remain of other marine invertebrates retained on the No. 4 sieve, or water sensitive clay minerals.

**911-2.2 Limerock Composition:** Limerock material shall consist of unconsolidated or partly consolidated limestone of marine origin.

**911-2.3 Shell Material: Composition:** Shell materials shall consist of naturally occurring deposits formed essentially of broken mollusk shell, corals and the skeletal remains of other marine invertebrates. Live or steamed shell, or man-made deposits as a by-product of the shellfish industry will not be permitted.

**911-2.3.1 Bank Run Shell:** Shell materials meeting the requirements of this Section which are presently found as “dry land” deposits.

**911-2.3.2 Dredged Shell:** Shell materials meeting the requirements of this Section which are dredged from ocean, bay or lake deposits.

**911-2.4 Shell-Rock Material Composition:** Shell-rock materials shall consist of naturally occurring heterogeneous deposits of limestone with interbedded layers or lenses of loose and cemented shell, to include cemented sands (calcitic sandstone). This material shall be mined and processed in a manner that will result in a reasonably homogenous finished product.

**911-2.5 Cemented Coquina Shell Material Composition:** Cemented coquina shell materials to be used as cemented coquina base or stabilized base, shall be defined as naturally occurring deposits formed essentially of broken mollusk shell, corals and the skeletal remains of other marine invertebrates, which are presently found as “dry land” deposits and which have been cemented together by carbonates or other natural cementing agents.

**911-2.6 Recycled Concrete Aggregate (RCA) Composition:** RCA shall consist of concrete material derived from the crushing of hard portland cement concrete. In addition to the deleterious materials noted in 911-2.1.2, RCA shall be asbestos free. The following limits shall not be exceeded:

Bituminous Concrete ..... 1% by weight
Bricks ..... 1% by weight
Glass and Ceramics ..... 1% by weight
Wood and other organic substances ..... 0.1% by weight
Reinforcing steel and welded wire fabric .... 0.1% by weight
Plaster and gypsum board ..... 0.1% by weight

**911-3 Material Requirements.**

**911-3.1 Limerock Bearing Ratio (LBR):** Materials shall meet the requirements in Table 911-1 in accordance with FM 5-515:

Table 911-1
Limerock Bearing Ratio (LBR)

| Material | Requirement |
|---|---|
| Limerock | Average Results per LOT - 100, minimum<br>Individual Results - 90, minimum |
| Shell | |
| Shell-Rock | |
| Cemented Coquina Shell | |
| RCA | Individual Results - 150, minimum |

**911-3.2 Liquid Limit and Plasticity:** Materials shall meet the requirements in Table 911-2 in accordance with AASHTO T 89 and AASHTO T 90:

Table 911-2
Liquid Limit and Plastic Properties

| Material | | Liquid Limit | Plastic Properties |
|---|---|---|---|
| Limerock | Base | Not to exceed 35 | Non-Plastic (NP) |
| | Stabilized Base | | Plasticity not to exceed 10 |
| Shell | | - | NP |
| Shell-Rock | | | |
| Cemented Coquina Shell | | - | NP |
| RCA | | - | NP |

**911-3.3 Carbonates:** Materials shall meet the carbonate requirements in Table 911-3 in accordance with FM 5-514:

Table 911-3
Percentage of Carbonates (Calcium and Magnesium)

| Material | Requirement |
|---|---|
| Limerock | minimum - 70% |
| Shell | minimum - 50% |
| Shell-Rock | minimum - 50% |
| Cemented Coquina Shell | minimum - 50% |
| RCA | Not Applicable |

**911-3.4 Gradation and Size Requirements:** Materials shall meet the gradation and size requirements in Table 911-4 in accordance with FM 1-T27 and FM 1-T11:

Table 911-4[1]
Gradation Requirements

| Material | | Requirement | |
|---|---|---|---|
| Limerock | Base | At least 97% shall pass a 3-1/2 inch sieve[2] | |
| | Stabilized Base | At least 97% shall pass a 1-1/2 inch sieve[2] | |
| Shell | Dredged shell | Passing 3-1/2 inch sieve - 97%<br>Passing No. 4 sieve - 50%, maximum<br>Passing No. 200 sieve - maximum 7.5% (washed) | |
| | Bank-run shell | Passing 3-1/2 inch sieve - 97%<br>Passing No. 4 sieve - 80%, maximum<br>Passing No. 200 sieve - 20%, maximum (washed) | |
| Shell-Rock | | Passing 3-1/2 inch sieve - 97%, minimum<br>Passing No. 4 sieve - 70%, maximum<br>Passing No. 200 sieve - 20%, maximum (washed) | |
| Cemented Coquina Shell | | | |
| RCA | | Sieve Size | Percent by Weight Passing |
| | | 2 inch | 100 |
| | | 3/4 inch | 65 to 95 |
| | | 3/8 inch | 40 to 85 |
| | | No. 4 | 25 to 65 |
| | | No. 10 | 20 to 50 |
| | | No. 50 | 5 to 30 |
| | | No. 200 | 0 to 10 |

(1) The maximum dimension shall not exceed six inches.
(2) The material shall be well graded down to dust. The fine material shall consist entirely of dust of fracture.

**911-4 Exceptions, Additions, and Restrictions.**

Approved materials shall not be mixed with other approved or non-approved materials.

# SECTION 300
# PRIME AND TACK COATS

**300-1 Description.**

Apply bituminous prime coats on previously prepared bases and apply bituminous tack coats on previously prepared bases and on existing pavement surfaces.

**300-2 Materials.**

Meet the following requirements:

| | |
|---|---|
| Asphalt Emulsion for Prime Coat* | 916-3 |
| PG 52-28 Tack Coat* | 916-2 |
| Asphalt Emulsion for Tack Coat* | 916-3 |
| Sand | 902-2, 902-6 |
| Screenings | 902-5 |

*Use products listed on the Department's APL.

**300-2.1 Prime Coat:** A copy of the Bill of Lading representing the material in the distributor tank must be in the truck and be always available.

Where prime coats are to be diluted, certify the dilution was done in accordance with the specific dilution requirements for each product and for each load of material used.

**300-2.2 Cover Material for Prime Coat:** Uniformly cover the primed base by a light application of cover material. The Contractor may use either sand or screenings for the cover material. For the sand, meet the requirements as specified in 902-2 or 902-6, and for the screenings, meet the requirements as specified in 902-5. If the primed base course will be exposed to general traffic, apply a cover material coated with 2 to 4% asphalt cement. Apply the asphalt coated material at approximately 10 pounds per square yard. Roll the entire surface of asphalt coated prime material with a traffic roller as required to produce a reasonably dense mat.

**300-2.3 Tack Coat:** Unless the Contract Documents call for a specific type or grade of tack coat, use PG 52-28 meeting the requirements of 916-2, heated to a temperature from 250 to 300ºF or use an undiluted emulsion listed on the APL, meeting the requirements of 916-3. Heat the emulsion to the temperature recommended by the tack coat manufacturer. A copy of the Bill of Lading representing the material in the distributor tank must be in the truck and be always available.

For night paving, use PG 52-28 tack coat. The Engineer may approve an emulsified tack coat for night paving if the Contractor demonstrates, at the time of use, the emulsion will break and not affect the progress of the paving operation.

**300-3 Equipment.**

**300-3.1 Pressure Distributor:** Provide a pressure distributor equipped with pneumatic tires having a sufficient width of rubber in contact with the road surface to avoid breaking the bond or forming a rut in the surface. Ensure the distance between the centers of openings of the outside nozzles of the spray bar is equal to the width of the application required, plus or minus two inches. Ensure the outside nozzle at each end of the spray bar has an area of opening greater than the opening of an interior nozzle by 25% to 75%. Ensure all other nozzles have uniform

openings. When the application covers less than the full width, the Contractor may allow the normal opening of the end nozzle at the junction line to remain the same as the interior nozzles. A trailer-mounted pressure distributor can be used for non-mainline applications, if approved by the Engineer. It shall have a self-contained heat system, clean out system, calibration chart, manhole, and shall meet the requirements herein.

Clean the distributor tank at a minimum of every twelve months and whenever the product type in the tank is changed. Remove all emulsion and asphalt material during cleaning. Additionally, clean the distributor tank if the quality of the tack or prime shot diminishes or buildup causes the calibration of the tank to be affected.

**300-3.2 Sampling Device:** Equip all pressure distributors and transport tanks with an approved spigot-type sampling device.

**300-3.3 Temperature Sensing Device:** Equip all pressure distributors and transport tanks with an approved dial type thermometer.

Use a thermometer with a temperature range from 50 to 500ºF, no greater than 25ºF increments, and a minimum dial diameter of two inches.

Locate the thermometer near the midpoint of the tank's length and within the middle third of the tank's height, or as specified by the manufacturer (if in a safe and easily accessible location). Enclose the thermometer in a well with a protective window or by other means as necessary to keep the instrument clean and in the proper working condition.

**300-4 Contractor's Quality Control.**

Provide the necessary quality control of the prime and tack coats and application in accordance with the Contract requirements. If the application rate varies by more than 0.01 gallon per square yard from the rate set by the Engineer or varies beyond the range established in 300-7 or 300-8, immediately make all corrections necessary to bring the application rate into the acceptable range. The Engineer may take additional measurements at any time. The Engineer will randomly check the Contractor's measurement to verify the application rate.

**300-5 Cleaning Base and Protection of Adjacent Work.**

Before applying any bituminous material, remove all loose material, dust, sand, dirt, caked clay, and other foreign material which might prevent proper bond with the existing surface for the full width of the application. Take particular care in cleaning the outer edges of the strip to be treated, to ensure the prime or tack coat will adhere.

When applying prime or tack coat adjacent to curb and gutter, valley gutter, or any other concrete surfaces, cover such concrete surfaces, except where they are to be covered with a bituminous wearing course, with heavy paper or otherwise protect them as approved by the Engineer, while applying prime or tack coat. Remove any bituminous material deposited on such concrete surfaces.

**300-6 Weather Limitations.**

Do not apply prime and tack coats when the air temperature in the shade and away from artificial heat is less than 40ºF at the location where the application is to be made or when weather conditions or the surface conditions are otherwise unfavorable.

## 300-7 Application of Prime Coat.

**300-7.1 General:** Clean the surface to be primed and ensure the moisture content of the base does not exceed the optimum moisture. Heat the prime coat material to the temperature recommended by the prime coat manufacturer. Apply the material with a pressure distributor. Determine the application amount based on the character of the surface. Use an amount sufficient to coat the surface thoroughly and uniformly with no excess.

The Contractor may elect to omit application of bituminous prime coat on previously prepared or exposed bases when an asphalt lift is placed within 24 hours of final preparation of such bases. Keep base moisture content within acceptable range. Protect finished base from rain and ensure base bonds adequately to the new lift of asphalt pavement. Apply prime to base when asphalt is not placed within 24 hours of final preparation of base. Apply prime to full depth reclamation and cement stabilized bases.

**300-7.2 Application Rate:** Use an application rate as defined in Table 300-1. Control the application rate within the minimum and plus 0.01 gallon per square yard of the minimum application rate. The minimum application rate may be adjusted by the Engineer to meet specific field conditions. Determine and record the application rate a minimum of twice per day, once at the beginning of each day's production and, as needed, to control the operation.

Table 300-1
Prime Coat - Minimum Application Rates

| Base Type | Minimum Application Rate ($gal/yd^2$) |
|---|---|
| Limerock, Limerock Stabilized, Shell-Rock, Recycled Concrete Aggregate and Local Rock Bases | 0.10 |
| Sand-Clay, Cemented Coquina, Shell, and Shell Stabilized Bases | 0.15 |

**300-7.3 Sprinkling:** If required by the Engineer, lightly sprinkle the base with water and roll it with a traffic roller in advance of the prime coat application.

**300-7.4 Partial Width of Application:** If traffic conditions warrant, the Engineer may require the application be made on only one-half the width of the base at one time, in which case, use positive means to secure the correct amount of bituminous material at the joint.

## 300-8 Application of Tack Coat.

**300-8.1 General:** Where the Engineer requires a tack coat prior to laying a bituminous surface, apply the tack coat as specified herein below. Coat the surface completely and uniformly with tack.

**300-8.2 Where Required:** Place a tack coat on all asphalt layers prior to constructing the next course. In general, the Engineer will not require a tack coat on primed bases except in areas that have become excessively dirty and cannot be cleaned, or in areas where the prime has cured to the extent all bonding effect has been lost.

**300-8.3 Method of Application:** Apply the tack coat with a pressure distributor except on small jobs, if approved by the Engineer, apply it by other mechanical devices or by hand methods. Heat the bituminous material to a suitable temperature as designated by the supplier.

**300-8.4 Application Rate:** Use an application rate defined in Table 300-2. Control the application rate within plus or minus 0.01 gallon per square yard of the target application rate. The target application rate may be adjusted by the Engineer to meet specific field conditions.

Determine and record the application rate a minimum of twice per day, once at the beginning of each day's production and again, as needed, to control the operation. When using PG 52-28, multiply the target application rate by 0.6.

Table 300-2
Tack Coat Application Rates

| Asphalt Mixture Type | Underlying Pavement Surface | Target Tack Rate ($gal/yd^2$)[1] |
|---|---|---|
| Base Course, Structural Course, Dense-Graded Friction Course, Open-Graded Friction Course | Newly Constructed Asphalt Layers | 0.06 |
| | Milled Asphalt Pavement Surface, Oxidized and Cracked Asphalt Pavement, Concrete Pavement | 0.09 |

Note 1: Target tack application rates greater than those specified may be used upon approval of the Engineer.

When using a meter to control the tack or prime application rate, manually measure the volume in the tank at the beginning and end of the application area for a specific target application rate. Perform this operation at a minimum frequency of once per production shift. Resolve any differences between the manually measured method and the meter to ensure the target application rate is met in accordance with this Section. Adjust the application rate if the manually measured application rate is greater than plus 0.02 or minus 0.01 gallons per square yard when compared to the target application rate.

**300-8.5 Curing and Time of Application:** When using a distributor, apply tack coat sufficiently in advance of placing bituminous mix to permit drying, but do not apply tack coat so far in advance that it might lose its adhesiveness as a result of being covered with dust or other foreign material. When using a spray paver, the requirements above do not apply.

**300-8.6 Protection:** Keep the tack coat surface free from traffic until the subsequent layer of bituminous hot mix has been laid.

**300-9 Method of Measurement.**

**300-9.1 General:** The quantity specified will be the volume, in gallons, of bituminous material actually applied and accepted. This application rate will be determined from measurements made by the Contractor and verified by the Engineer based on tank calibrations, as specified in 300-9.2. Where it is specified prime coat material is to be diluted with water, the amount specified for the application rate will be the volume after dilution.

**300-9.2 Calibration of Tanks:** Ensure all distributors used for applying tack or prime coats are calibrated prior to use by a reliable and recognized firm engaged in calibrating tanks. Submit a certification of calibration and the calibration chart to the Engineer prior to use. In lieu of a volumetrically calibrated distributor, use a distributor equipped with a calibrated meter approved by the Engineer.

**300-9.3 Temperature Correction:** Measure the volume and increase or decrease the volume actually measured to a corrected volume at a temperature of 60ºF.

Make the correction for temperature by applying the applicable conversion factor (K), as shown below.

For petroleum oils having a specific gravity above 0.966 at 60°F, K = 0.00035 per degree.

For petroleum oils having a specific gravity of between 0.850 and 0.966 at 60°F, K = 0.00040 per degree.

For emulsified asphalt, K = 0.00025 per degree.

When volume-correction tables based on the above conversion factors are not available, use the following formula in computing the corrections for volumetric change:

$$V = \frac{V^1}{K\,(T - 60) + 1}$$

Where:

V= Volume of bituminous material at 60ºF (pay volume).

$V^1$= Volume of bituminous material as measured.

K= Correction factor (Coefficient of Expansion).

T= Temperature (in ºF), of bituminous material when measured.

**300-10 Basis of Payment.**

There is no direct payment for the work specified in this Section, it is incidental to, and is to be included in the other items of related work.