* INVITATION TO BID *

I. The CITY OF KISSIMMEE is seeking SEALED BIDS on the following:
Bid Number **IFB2022-002 Alternative Paving Methods**

II. All bids must be submitted in a SEALED envelope and plainly marked with the bid number on the exterior of the bid envelope, one (1) original, one (1) copy and one (1) electronic copy on CD or Flash Drive.

III. To be considered bids MUST be delivered OR mailed to:

City of Kissimmee
Finance Department 4th Floor
Attn: Purchasing Division
101 Church Street
Kissimmee, FL 34741

And time stamped on or before 2:00PM May 5, 2022.

IV. All bids shall be opened and read publicly in the City of Kissimmee Finance Department 4th Floor, Allendale Conference Room, 101 Church Street, Kissimmee, Florida at 2:30PM May 5, 2022.

V. All bids must be according to specifications and conditions, and on the forms provided herein.

VI. The Bidder's name and address shall be clearly shown on the exterior of the Sealed Envelope.

VII. The City of Kissimmee reserves the right to accept and/or reject any or all bids, with or without cause, to waive technicalities or to accept the bid which, in its judgment, best serves the interest of the City of Kissimmee. Persons are advised that, if they decide to appeal any decision made concerning the award of this Bid, they will need a record of the proceedings, and for such purpose, they may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be made. Bid results other than the apparent low bidder will not be provided in response to telephone inquiries. Bidders desiring a copy of the Bid Abstract should include such request with a self addressed stamped envelope in their bid.

Brandon Durango
Procurement Manager

General Requirements:

1.1 BID PREPARATION

Submission of a bid in response to this solicitation shall evidence the bidders acknowledgement that he is cognizant of all the conditions and specifications contained herein and that any offer made is in accordance with the contained specifications and conditions unless, specifically identified and explained as exceptions on the bids schedule. Each bidder is responsible for the completeness and accuracy of their bid. Bids must show manual signatures by an individual authorized to offer such obligations and shall contain evidence of that person's authority to make such offers. Unsigned bids will be rejected. Stamped or otherwise reproduced signatures are not acceptable. Erasures or other changes must be initialed by the person signing the bid. Bidders should include all descriptive literature specifications, or catalogs or cuts necessary to specifically identify and describe the item(s) being offered. Failure to do so may result in the bid being declared non-responsive.

1.2 SUBMISSION OF BIDS

All bids shall be submitted in a sealed envelope on the forms included with this solicitation with the bidder's name and address and bid number plainly marked on the exterior of the envelope. Timely submission of a bid is important. Official receipt is acknowledged using an atomic date/time stamp interfaced with the U.S. Government's National Institute of Standards and Technology (NIST) which is the official timekeeper for the U.S. Facsimile or telegraphed bids will not be accepted.

1.3 PRICING

The unit price for each item being bid will be shown on the Bid Schedule and will include all costs for or associated with the item. A total for each line item will be entered on the Bid Schedule. In case of a discrepancy between unit price and extended price, the unit price shown shall prevail.

1.4 DELIVERY

Exact delivery times frames or dates must be shown on the bid, such as, "(x) days after receipt of order". Number of days for delivery shall be presumed to include all weekends or holidays in the period. All offers shall be FOB Destination and shall include inside delivery to the delivery point specified.

1.5 DEFAULT

Should the successful bidder for any award made as a result of this solicitation fail to deliver a product in accordance with the specifications contained herein and within the time frame promised, the City of Kissimmee reserves the right to cancel the contract for default and to award this contract to the next most qualified offer. The bidder in default may be held liable for any added cost to the City of Kissimmee incurred as a result of such action.

1.6 LATE BIDS AND WITHDRAWL OF OFFERS

No bid will be accepted after the published deadline for accepting bids in response to this solicitation. Bids may be withdrawn at any time prior to the official time set for the bid opening. No modification or withdrawal of any offer received will be allowed after the time and date set for the official bid opening.

1.7 DISCOUNTS

Bidders may offer cash discounts for prompt payment, however, any such discount offered will not be considered as a factor in determining the lowest bid offered. Any other discounts should be reflected in the unit price bid.

1.8 BID EVALUATION AND AWARD

All bids received will be evaluated based on one or more of the following factor: price; quality of product offered; compliance with specifications; delivery; reputation of the bidder; previous contract' proximity of parts and service; compatibility with similar, existing products; and any other factors detailed in the specifications. Award will be made to the lowest responsive and responsible bidder complying with the provisions of the invitation to Bid, provided that such award is in the best interests of the City of Kissimmee.

The City of Kissimmee reserves the right to accept and /or reject any or all bids in whole or in part with or without cause; to waive technicalities; to make multiple awards on a line item basis; and accept the bid which in its judgment, best services the interest of the City of Kissimmee.
Bidders are cautioned that no communication with any City of Kissimmee employees involved in the evaluation process is authorized during the bid evaluation process unless such communication is originated by the City of Kissimmee for the purpose of clarifying the bid or proposal. Questions regarding the status of any bid or proposal should be directed to the Purchasing Agent. Bid awards will be posted in the Purchasing Office after Commission Approval. Vendors are responsible for following up on the status of any bid. The City of Kissimmee will only notify successful vendor(s).

1.9 BILLING AND PAYMENT

The City of Kissimmee will pay all proper invoices submitted for supplies and/or services within 30 calendar days. To be considered a proper invoice it must be submitted in 2 copies to the City of Kissimmee Accounting Department, 101 Church Street Kissimmee, FL 34741, show the Vendor Taxpayer Identification Number Attachment B, the purchase order number and be based on proper delivery installation or provision of goods or services to and accepted by The City of Kissimmee. The payment cycle will not start until all the above requirements are met.

1.10 SAMPLES

The City of Kissimmee may, at its discretion, require submission of samples for inspection and testing. When specifications require such submissions, all costs for such samples, including postage, will be the responsibility of the bidder. Samples that are not consumed in the evaluation process or determined necessary for comparison with future deliveries may be returned at the bidder's request and at the bidder's expense. The City of Kissimmee will not be held liable for any sample provided.

1.11 SILENCE OF SPECIFICATIONS

The silence of these specifications regarding exact details of any product or service required shall be regarded as meaning that only the best commercial practices will prevail and that only materials of first quality and correct type, size, or design are to be used. All workmanship will be first quality. Unless otherwise specified all products provided as a result of this solicitation will be new, unused, the latest model in production, and in compliance with the enclosed specifications.

1.12 USE OF BRAND NAMES

Unless otherwise stated, the use of brand names in specifications is not intended to restrict any offer. Brand names are only used to illustrate the type and quality of product acceptable for this solicitation and to provide a simplified specification. Vendors should feel free to propose any equal item provided that all exceptions to these specifications are clearly identified and explained and definitive specifications for the item being proposed including product literature, cuts or samples are included with the bid. The City of Kissimmee reserves the sole right of final determination of product equivalency.

1.13 WARRANTY

All warranties for products or services provided under any contract resulting from this solicitation will meet or exceed that warranty offered the providers most favored customer and in no instance will be less than unlimited twelve-month non-prorated warranty. If individual specifications contained herein require a warranty in conflict with this provision, the warranty provisions of the individual specification shall prevail.

1.14 ADDENDUMS

In the event modifying addenda to the basic solicitation are issued the City of Kissimmee will attempt to provide such addenda to all vendors who have been furnished bid packages. However, it shall be the bidder's responsibility to verify with the Purchasing Office before the bid is submitted whether or not addenda have been issued and to obtain such addenda for submission with the bid. Receipt of any addenda issued must be acknowledged on the bid schedule.

1.15 BIDDERS CERTIFICATION

By signature on this bid, bidder certifies or in the case of a joint bid each party certifies that:

A. He has not given, offered nor intends to give at any time economic opportunity, future employment, favor or gratuity in any kind to any employee of the City of Kissimmee in connection with this bid.
B. That the bidder has not divulged or discussed his offer with other bidders.
C. Prices offered have been determined independently without collusion with other bidders for the purpose of restricting competition.
D. No attempt has been made to induce any potential bidder to submit or decline to submit an offer in response to this solicitation.

1.16 "NO BID" RESPONSE

Vendors electing to not submit bids in response to this solicitation should complete the attached "Notice to Bidders" form. Failure to return the form may result in your omission from future bid lists.

1.17 CFPC

The City of Kissimmee participates in a Central Florida Purchasing Cooperative CFPC). All bidders awarded contracts from this bid are encouraged to permit other active members of CFPC to participate in the contract under the same prices, terms, and conditions except that allowances may be made for differences in delivery costs.

1.18 COMPLIANCE WITH THE JESSICA LUNSFORD ACT

If applicable, compliance with the Jessica Lunsford Act will be required by Contractor.

1.19 CONE OF SILENCE – The Cone of Silence is designed to protect the integrity of the procurement process by shielding it from undue influences prior to the execution of the award.

The Cone of Silence is defined as the period beginning with the issuance of the solicitation document and continues through the execution of the award document. During this time vendors, service providers and the like are prohibited from all communications regarding the solicitation with City staff, City consultants, City legal counsel, City Managers, or elected officials. Any vendor who attempts to influence a member or members of the aforementioned shall be disqualified from continued participation in the procurement process with regard to that particular solicitation.

Exceptions to the Cone of Silence –

- Written communications directed to the Procurement Officer;
- All communications occurring at pre-bid meetings;
- Oral presentations before publicly noticed committee meetings;

- Procurement of goods and services for Emergency situations; and
- Contractors already on contract with the City to perform services for the City are allowed discussions necessary for the completion of an existing contract.

1.20 PROTEST

Any protest must be made within three (3) days following posting of the bid award. Protest procedures are available from the City of Kissimmee Finance Department 4th Floor, Attn: Purchasing Division, 101 Church Street, Kissimmee, FL 34741.

Notice of decision or intended decision concerning a bid solicitation or award may be given by posting the bid tabulation or recommended award at the location where the bids were opened or posted electronically on the City's website www.kissimmee.gov. Failure to file a protest within the deadlines prescribed shall constitute a waiver of protest proceedings.

2.0 SPECIAL PROVISIONS: The following are special provisions set forth in this bid.

2.1 PUBLIC ENTITY CRIMES: "A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.0l7, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list".

2.2 CLARIFICATION OF REQUIREMENTS: Questions regarding clarification or interpretation of the technical specifications and/or non-technical nature regarding this solicitation must be addressed **IN WRITING** to Debbie Luke, Purchasing Coordinator at 101 Church Street, Kissimmee, Florida 34741 **OR BY EMAIL** to **debbie.luke@kissimmee.gov** or faxed to 407-518-2208 not less than seven (7) days prior to the bid opening date.
Last day for emailed or faxed questions is 4:00PM, April 15, 2022; an addendum will be issued not later than 4:00PM, April 20, 2022 by email.

However, unless modified by a written addendum issued by the Purchasing Agent, the specifications and conditions contained herein stand as stated. Verbal communications are neither authoritative or binding. Any verbal interpretation in conflict with these specifications as written should immediately be directed in writing to the Purchasing Agent for the City of Kissimmee. Any interpretation provided to any vendor in response to inquiries regarding this solicitation which may affect the outcome of this bid will be furnished in writing to all vendors who have received bid packages.

2.3 This bid contains pages 1 - 124. Please contact the Purchasing Office at 407-518-2214 if you are missing any pages.

2.4 ALTERNATE BIDS WILL NOT BE ACCEPTED:
If two bids are received from a company one bid will be returned unopened. If two different bids are included in a single envelope, both will be rejected at the bid opening.

2.5 No minor children are permitted to accompany bidders during pre-bid conferences, bid opening or site tour.

2.6 The City of Kissimmee has a Local Vendor Preference Policy: When written bids, responses

to request for proposals or quotations are received by the City as part of the competitive sealed bid process, and the lowest responsible price is offered by an individual or entity that is not an Osceola County person, firm and/or corporation and the next lowest responsible bidder is an Osceola County person, firm and/or corporation, the Osceola County individual or entity will be given an opportunity to match the lowest price offered.

If an offer is made to match the lowest price and the Osceola County individual or entity is otherwise fully qualified and meets all City requirements, the bid shall be awarded to the Osceola County individual or entity at the lowest price.
In order to receive the local vendor preference provided herein, the Osceola County individual or entity that qualifies as the next lowest price bidder hereunder, must unconditionally agree in writing to match the lowest price bid and deliver to the City designated representative by 8:30 a.m. on the third regular business day after notification of opportunity to match bid. Eligibility form is Attachment A.

2.7 A link to this website is available through the City's Web Page http://www.kissimmee.gov, under the Finance Department, Purchasing. Notice of Award, Bids currently available, and Tabulation sheets are available Online. Bidders, who do not have Internet access, may request a copy of the tabulation by enclosing a stamped, self-addressed envelope with the Bid response.

2.8 **INDEMNITY:** The Contractor will indemnify and hold harmless the City of Kissimmee from and against all claims, damage loss, and expenses arising out of, or resulting from, the performance of their operations under this contract.

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the service.

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

- All employees on the job and all other persons who may be affected thereby.
- All the work, materials, and equipment, whether in storage on or off the site, under the care, custody, or control of the Contractor; and
- Other property at the site including trees, shrubs, lawns, walks, pavements, and roadways.

The Contractor shall comply with all applicable laws, ordinances, rules, regulations, and lawful order of any public authority bearing on the safety of persons or property or their protection from damage, injury, or loss.

In any emergency affecting the safety of persons or property, the Contractor shall act, at his discretion, to prevent threatened damage, injury or loss.

2.9 **INSURANCE PROVISIONS:** The Successful bidder will have in force the following insurance coverage and will provide Certificates of Insurance prior to commencement of any work.

A) **Workers' Compensation:** The Contractor will provide Worker's Compensation coverage for all employees at the site location and, in case any work is subcontracted, will require the subcontractor to provide Workers' Compensation for all his employees. The limits will be statutory for Workers' Compensation and $300,000.00 for Employers' Liability.

B) **Comprehensive General Liability:** The Contractor will provide for all operations including, but not limited to Contractual, and Products and Completed Operations. The limits will be not less than $1,000,000.00.

C) **Comprehensive Automobile Liability:** The Contractor will provide coverage for all

owned and non-owned vehicles for limits of not less than $1,000.000.00.

D) Umbrella Liability: The Contractor will provide an umbrella in excess to the coverage in paragraphs B), and C) of not less than $1,000,000.00.

2.10 BOND REQUIREMENT: This bid requires the following bond:

A. Performance bond issued by a surety licensed to do business in the state of Florida prior to commencement of work in the amount of $10,000.

2.11 Employees Information/Criminal History: The successful bidder shall be required to provide an annual comprehensive listing of all employees of the bidder who will be on the premises of the City of Kissimmee. This obligation is continuing in nature and must be updated from time to time by the successful bidder as additional employees are employed by the bidder. This information includes but is not limited to driver's licenses numbers and social security numbers.

A criminal background check on any personnel who may be assigned duties in any space at any City Facility will be obtained by the City of Kissimmee to be kept on file by the City personnel department and will be available to governing agencies upon official written request. Anyone working on the premises of the City without a background check on file will be cause for immediate termination of this contract and forfeiture of all bonds. The cost of this background check is the responsibility of the bidder and will be invoiced by the City of Kissimmee. Anyone found to have any sexual offenses on their criminal background check, including arrests and not limited to convictions, shall be ineligible to work on City of Kissimmee premises.

2.12 LIABILITY: The successful bidder shall act as an independent contractor and not as an employee of the City of Kissimmee. The vendor will be required to indemnify, defend, hold and save harmless City of Kissimmee, its officers, agents, and employees, from damages arising from the vendor's performance of, or failure to perform, any task or duty required to be performed.

2.13 CONFLICT OF INTEREST: All offers must disclose with their offer the name of any officer, director, or agent, who is also an officer or employee of the City of Kissimmee. Further, all bidders must disclose the name of any City of Kissimmee officer or employee who owns, directly or indirectly, an interest of the bidders firm or any of its branches.

2.14 TERMINATION FOR CONVENIENCE: The City of Kissimmee reserves the right to terminate the Agreement in whole or part by giving the vendor written notice at least thirty (30) days prior to the effective date of the termination. Upon receipt of termination from the City of Kissimmee, the vendor shall only provide those services specifically approved or directed by the City of Kissimmee. All other rights and duties of the parties under the Agreement shall continue during such notice period, and the City of Kissimmee shall continue to be responsible to the vendor for the payment of any obligation to the extent such responsibility has not been excused by breach or default of vendor.

Upon termination, vendor shall bill the City of Kissimmee for all amounts not previously billed and due to the vendor at that time. The vendor shall not be entitled to a professional fee nor expenses for any work commenced or expenses incurred after the notice of termination was received by the vendor, unless specifically approved or requested by the City of Kissimmee. The vendor shall however, be entitled to payment for services commenced and approved by the City of Kissimmee prior to the receipt of notice, or with the express written consent of the City of Kissimmee, prior to the effective date of termination.

2.15 LAWS GOVERNING THIS CONTRACT: Any contractual arrangement between the City of Kissimmee and the vendor shall be consistent with, and be governed by the ordinances or the

City of Kissimmee, laws of the state of Florida both procedural and substantive, and applicable federal statutes, rules and regulations. Any and all litigation arising under any contractual arrangement shall be brought in the appropriate court in the City of Kissimmee.

2.16 **MODIFICATIONS:** Any contract resulting from this solicitation may be modified within the scope of the contract upon the written and mutual consent of both parties, and approval by appropriate legal bodies in the City of Kissimmee.

2.17 **POST AWARD CONFERENCE:** The successful bidder will meet with the PW&E project manager within ten (10) days after notification to proceed for the purpose of providing proof of insurance, licensure, and to perform a walk-through of the maintenance sites covered by this contract. Any questions regarding the scope or requirements of this job should be resolved at this meeting prior to commencement of work. A schedule of mowing cycles will be established at this meeting.

2.18 **FORM OF CONTRACT:** The Contract agreement between the Contractor and the Owner will be furnished by the Owner with any amendments thereto.

2.19 **PRICING:** The lump price for furnishing all design, labor, and materials to do the work (required by the plans and specifications being provided by the bidder), will be shown on the enclosed "Schedule of Offers" and shall include all costs associated with the project.

2.20 **TERM OF CONTRACT:** The term of this Agreement shall commence on the date of execution and terminate on September 20, 2025. This Agreement may, by mutual written consent of the Parties, be extended for two (2) additional twelve-month periods. City reserves the right to cancel this Agreement without cause on any and all locations.

2.21 **SPECIAL PROVISIONS:** Any offer should be substantially similar to the attached specifications. Any deviations should be clearly identified and explained.

A. Use of Premises: The contractor is responsible for all damages to the City of Kissimmee property and private property near the job site. The contractor will be responsible for restoring, replacing or repairing any damage which occurs during the performance of his work. The contractor is also responsible for the cleanup and removal of all debris, cuttings, accidental or otherwise, which occur as a result of his operations.

B. Supervisions of work: The contractor shall provide a thoroughly competent superintendent who shall oversee the work and be present during all normal maintenance.

2.22 **PAYMENTS:** Payments to the vendor shall be made only upon submission by the vendor of efficient proof of satisfactory completion of the services, or the increment(s) thereof, for which payment is made. The vendor shall provide at the post award conference a payment schedule for work phases. Payment to the vendor prior to initiation of the project and receipt by the City of Kissimmee for services for which payment is invoiced is strictly prohibited. A payment will be made based on proof of satisfactory completion of each cycle. The amount of each payment will be based upon final contract payment schedule. The Contract Coordinator shall sign off on invoices as proof of satisfactory completion.

Bills for the compensation of completed work shall be submitted in detail sufficient for a proper pre-audit and post-audit thereof to the Kissimmee Public Works & Engineering Department, 101 Church St Suite 301, Kissimmee, FL 34741

2.23 **PROPOSAL OF PUBLIC DOMAIN:** All documents and other materials made or received in conjunction with this project will be subject to public disclosure requirements of Chapter 119, Florida Statutes. The proposal will become part of the public domain upon opening. Vendors

shall not submit pages marked a proprietary or otherwise restricted.

2.24 **ASSIGNMENT:** Successful Proposer shall not assign his contract with the City of Kissimmee without prior approval of the City of Kissimmee.

2.25 The Contractor warrants that its services under this agreement shall be conducted in a thorough, efficient and workmanlike manner, promptly and with due diligence and care, and in accordance with the standard practices of the specified profession for the relevant geographical area. Any or all portions of the contract may **not** be sub-contracted out by the company awarded the bid.

2.26 **PRE-BID CONFERENCE:** A **NON-MANDATORY** pre-bid conference will be held 10:00AM April 13, 2022 in the Toho Conference Room 1st Floor City Hall, 101 Church St., Kissimmee, FL 34741. **A single addendum addressing questions will be issued after the pre-bid if required.**

2.27 **REFERENCES:** Provide with your bid a minimum of 3 current references for job of equal scope and 2 references from jobs no longer serviced.

3.0 **SPECIFICATIONS:** It is the intent of this solicitation to engage multiple contractors to perform miscellaneous alternative paving methods on an as-needed basis. Work may include, but not limited to, milling, resurfacing, striping, micro-surfacing, reclaimed asphalt paving, concrete work, and sodding. Under the solicitation process, the stipulations set forth herein are fully binding on the bidder to the extent that you confirm acceptance by your signature on the Respondent's Certification page.

1. Description The CONTRACTOR shall provide all supervision, labor, materials, equipment, machinery, tools, apparatus, transportation, fuel, mileage and incidentals necessary to perform alternate paving methods on an as-needed basis, including, but not limited to milling, resurfacing, striping, micro-surfacing, reclaimed asphalt paving, concrete work and sodding. Please refer to Attachments L, M and N for specific technical specifications and requirements.

2. Safety: The CONTRACTOR shall be responsible for ensuring that all materials and performance of work shall meet all Federal, State and local safety laws currently in effect. The CONTRACTOR shall take all necessary precautions for the safety of their employees and of the general public.

3. Personnel: The CONTRACTOR shall have qualified individuals, properly trained and equipped with the necessary tools and equipment, to perform the scope of services of this solicitation. The personnel shall be competent, properly licensed, experienced, and skilled in the services provided by the CONTRACTOR.

4. Task Authorization Process: This section briefly describes the expected process to be used to request work from the awarded CONTRACTORS.
1. The CITY's Project Manager or designee identifies alternate paving methods work that needs to be performed.
2. The CITY'S Project Manager or designee may choose any one of the awarded CONTRACTORS to perform the Work.

a.) The CITY's Project Manager or designee issues a generally worded scope of work to CONTRACTORS outlining the necessary alternate paving methods work requirements for a specific project and the maximum allowable calendar days from the time of Notice to Proceed (Issuance of a Purchase Order) to project completion.

b.) When required by the CITY's Project Manager or designee, CONTRACTORS will attend any Mandatory onsite visits.

c.) The CONTRACTOR drafts price proposal and submits to CITY for review. This proposal shall include the following:
1.) Brief description of the work to be performed.
2.) Labor and material costs for each of the major elements of work. Total cost of project.
3.) List of sub-contractors.
4.) Signed statement confirming that the CONTRACTOR has visited the site prior to preparing the estimate and is thoroughly familiar with the site and the scope of work.
5.) Number of calendar days required to complete the work after CITY authorization. It is the responsibility of the CONTRACTOR to ensure that he has all of the information necessary to prepare the estimate.
6.) The completed cost proposal shall be signed and dated by the CONTRACTOR and returned to the CITY for review within the specified time period of request. This time period requirement may be revised on a per project basis by the CITY'S Project Manager or designee.
7.) Upon review of all proposals received, the CITY will assign the project by issuing a Task Authorization.

d.) The CITY'S review and approval of the cost estimate shall become the sole price for each Task Authorization awarded. The CITY will only consider change orders in extreme cases.

e.) Issuance by the CITY of a Purchase Order after the Task Authorization has been signed by both parties shall constitute the Notice to Proceed. The CONTRACTOR shall commence on-site work no later than ten (10) working days after receipt of a Purchase Order.

f.) The CONTRACTOR will subcontract as required and comply with statutory requirements regarding payment to sub-contractors.

g.) The CONTRACTOR shall control all work.

h.) If, in the CITY'S opinion, the CONTRACTOR has been found to submit excessive pricing for any element of the task assigned which cannot be justified, the CITY may select an alternate CONTRACTOR for the work. If the CONTRACTOR has been found, in the CITY'S opinion, to submit excessive pricing for work elements that cannot adequately be justified on a repeated basis, the CITY reserves the right to suspend the CONTRACTOR.

i.) Upon completion of work in its entirety, and inspection and approval of work has been performed by the CITY'S Project Manager or designee, the CONTRACTOR shall issue an invoice to the CITY'S Project Manager or designee.

5. Changes: Any changes agreed upon between the CITY and the CONTRACTOR shall be documented and a change order issued and signed by both parties.

6. Material Approval:

a.) All materials and supplies provided by the CONTRACTOR must be approved by the CITY's Project Manager prior to being used.
b.) All work and materials shall comply with any and all applicable laws, codes, and industry standards, as well as any and all recommendations and requirements of the applicable manufacturer.

c.) The CONTRACTOR must submit all invoices for materials to the CITY with each invoice.

7. Subcontractors: If a subcontractor is needed to complete work, the CONTRACTOR must have approval from the CITY. The CONTRACTOR will be held responsible for holding the subcontractor accountable to the same contract standards set forth in this contract.

8. Permits, Licenses and Fees:
The CONTRACTOR will obtain and pay for all permits and licenses required by law that are associated with the CONTRACTOR'S performance of the Scope of Services per project.

9. Hours of Work: No work shall be done between the hours of 7:00 p.m. and 7:00 a.m., or on Saturdays and Sundays or CITY holidays unless the proper and efficient prosecution of the work requires operations during the night or weekend and/or without prior written approval from the CITY'S Project Manager or designee and any other agency having jurisdiction. Written notification for doing the work shall be provided to the CITY'S Project Manager or designee a minimum of 24 hours before starting such items of the work.

10. Vehicle Operator Licenses: The CONTRACTOR shall ensure that all vehicle operators have a valid operator's license for the type vehicle being driven, prior to commencement of work.

11. Clean-Up:

a.) The CONTRACTOR shall at all times keep the adjacent areas of the property free from rubbish and the accumulation of any waste materials. Trash and debris shall be cleaned daily or more often if requested by the CITY. Staged materials shall be organized and placed so they do not interfere with access to the property/building.

b.) At the completion of the services, the CONTRACTOR shall remove all waste materials and rubbish from and about the job site, as well as all tools, equipment, machinery, surplus supplies, and materials, leaving the job site in a clean, ready to use condition. The CONTRACTOR shall not use trash receptacles on the CITY's premises without authorization. If a dumpster is required for removal of material then the contractor must contract with Waste Management who has an exclusive contract with the CITY.

c.) All waste materials associated with these services shall be handled in accordance with all federal, state, and local regulations.

d.) Any hazardous materials shall be disposed of as prescribed by law and the CONTRACTOR shall provide the appropriate certifications and records that verify an accredited hazardous material disposal company disposed of the materials.

12. Warranty:

a.) The CONTRACTOR shall, and in addition to all other guarantees, be responsible for faulty labor or workmanship and shall promptly correct improper work, without cost to the CITY, within twenty-four (24) hours after receipt of notification of such faulty labor or workmanship. If the CONTRACTOR fails within twenty-four (24) hours to correct defects, the CITY shall be entitled to have such work remedied and the CONTRACTOR shall be fully liable for all costs and expenses reasonably incurred by the CITY. Payment in full or otherwise does not constitute a waiver of this guarantee. The guarantee period shall be effective for one (1) year after acceptance of the work by the CITY.

b.) The CONTRACTOR shall conform to all federal, state, and other local government regulations during the performance of the services under the resulting Agreement. Any fines levied due to inadequacies or failure to comply with any and all requirements shall be the sole responsibility of the CONTRACTOR. Any person found not in conformance with any laws, statutes, rules, or regulations will not be allowed on the job site. Continued violations by a CONTRACTOR constitute cause for immediate termination of the resulting Agreement.

13. Damages:

a.) The CONTRACTOR shall not damage any property adjacent to, on or near, the site where repairs are being made. Any damage caused by the CONTRACTOR shall be the CONTRACTOR's sole responsibility and liability.

b.) Any materials stored on property shall be the responsibility of the CONTRACTOR for any damaged or stolen materials.

c.) Any pre-existing damage shall be reported immediately to the CITY Project Manager or his appointed Designee.

14. Penalty: The CONTRACTOR shall conform to all federal, state, and other local government regulations during the performance of the services under the resulting Agreement. Any fines levied due to inadequacies or failure to comply with any and all requirements shall be the sole responsibility of the CONTRACTOR. Any person found not in conformance with any laws, statutes, rules, or regulations will not be allowed on the job site. Continued violations by a CONTRACTOR constitute cause for immediate termination of this Agreement.

15. Work Completion Date: The CONTRACTOR shall communicate to the CITY any delays in the completion of the work. A final walk through will be conducted with a City Designee to approve the completed project. If the CONTRACTOR cannot perform the services according to the scope, the CITY reserves the right to select another CONTRACTOR to perform the services.

16. Salvage:

a.) The CITY reserves the first right of salvage for any and all materials of value from items that are scheduled to be removed as part of any project.

b.) The CITY will at its sole discretion when in the best interest of the CITY remove any item that it deems useful without incurring additional costs to the project.

c.) Should the CONTRACTOR desire items for salvage, they must submit the request in writing and include it in the Bid Response. The CITY reserves the right to refuse the request in all or in part.

17. Percentage Mark – up on Material: When applicable, the "percentage mark-up" on materials shall be calculated as a percentage rate.

18. Federal Requirements (when applicable):

CONTRACTOR shall comply with Federal requirements per 2 Code of Federal Regulations (CFR) Part 200, Uniform Guidance, listed in Attachment 'B', and any subsequent revisions and updates.

4.0 ATTACHMENTS

Attachment 'A': Local Vendor Affidavit of Eligibility
Attachment 'B': Federal Requirements
Attachment 'C': Schedule of Unit Prices Bid Form Sheet
Attachment 'D': Bidder's Personnel List
Attachment 'E': Bidder's Equipment List
Attachment 'F': Bidder's Previous Experience
Attachment 'G': No Response Form
Attachment 'H': Identical Tie Bids
Attachment 'I': Special Technical Specifications
Attachment 'J': Standard Specifications
Attachment 'K': Supplemental Specifications

**** THIS SCHEDULE OF OFFERS SHOULD BE THE FIRST PAGE SUBMITTED WITH YOUR BID ****
Bid IFB2022-002

I/we, the undersigned, hereby declare that I/we have reviewed the bid documents and with full knowledge and understanding of all specifications and conditions contained therein do submit, (in duplicate), our bid as follows with full understanding that the bid package in its entirety is made a part of any agreement, contract or order between the City of Kissimmee and the successful bidder.

ITEM NO.	DESCRIPTION	COST
1	TOTAL BID AMOUNT OF ITEMS 5 to 229	_____
2	TOTAL BID AMOUNT OF ITEMS S-1 to S-9	_____
3	TOTAL BID AMOUNT OF ITEMS S-10 to S-15	_____
4	TOTAL BID AMOUNT OF ITEMS S-16 to S-26	_____
5	TOTAL BID AMOUNT OF ITEMS S-27 to S-29	_____
6	TOTAL BID AMOUNT OF ITEMS S-30 to S-32	_____
7	TOTAL BID AMOUNT OF ITEMS S-33 to S-35	_____
8	TOTAL BID AMOUNT OF ITEMS S-36 to S-38	_____
9	TOTAL BID AMOUNT OF ITEMS S-39 to S-41	_____
10	TOTAL BID AMOUNT OF ITEMS S-42 to S-47	_____
11	TOTAL BID AMOUNT OF ITEMS S-48 to S-50	_____

ACKNOWLEDGMENT OF ADDENDA NO.(S) _____ (IF APPLICABLE)

_____
(Signature)

ALL PRICES QUOTED ARE GOOD FOR A PERIOD OF 90 DAYS.

_____We do not take exception to Specifications.
(initial)

_____We take exception to Specifications as follows:
(initial)

_____

_____

_____

(attach additional sheets, if necessary)

COMPANY NAME Asphalt Paving Systems, Inc.
COMPANY ADDRESS 9021 Wire Road Zephyrhills, FL 33540

NOTE: OFFERS NOT RECEIVED IN DUPLICATE MAY BE REJECTED.
VENDORS ARE RESPONSIBLE FOR DELIVERY OF THEIR BID TO THE ADDRESS INDICATED ON THE BID COVER SHEET PRIOR TO THE DATE AND TIME SHOWN. BIDS NOT SO DELIVERED MAY BE REJECTED.

BY: _____ DATE: 5/4/2022
(signature)

Robert Capoferri, President EMAIL: FLEstimating@asphaltpavingsystems.com
(typed name/title of signer)

TELEPHONE NO.: (813) 788-0010 FAX NO.: (813) 788-0020

Attachment A

Local Vendor Affidavit of Eligibility

This form is to be completed in its entirety by the vendor and submitted along with your bid or quote. Incomplete forms will be rejected for preference evaluation.

State of Florida
County of Osceola

Before me on this _____day of _____20___, personally appeared

(print name)_____ being an authorized representative of lawful age, who being by me first duly sworn, on his/her oath, deposes and says:

(print name of company) _____ MEETS ALL CRITERIA AS REQUIRED BY THE CITY OF KISSIMMEE TO QUALIFY FOR LOCAL VENDOR PREFERENCE. Qualification documentation attached.

._____
Signature of Affiant

._____
Typed/Printed Name of Affiant

._____

._____
Address of Affiant

State of Florida
County of _____

Sworn to (or affirmed) and subscribed before me this ____day of _____20__, by

._____
(Signature of Notary Public-State of Florida)

._____
(Print, Type, or Stamp commissioned name of notary public)___personally known or ____ produced identification. Type of identification produced_____

Attachment B

Federal Requirements (when applicable)

A. 2 CFR. Part 200 Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards.

The Contractor shall comply with the Federal requirements per 2 Code of Federal Regulations (CFR) Part 200 Super Circular, titled "Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards", effective December 26, 2014, and any subsequent revisions and updates to 2 CFR. Part 200 "Uniform Administrative Requirements, Cost Principles and Audit Requirements for Federal Awards".

B. Federal Equal Opportunity Employer Requirement.

1. The Contractor is an Equal Opportunity Employer and will comply with all equal opportunity employment laws. The Contractor will further ensure that all subcontractors it utilizes in providing the services required hereunder will comply with all equal opportunity employment laws.
2. During the performance of this contract, the Contractor agrees as follows:
   a) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin.
   Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.
   The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
   b) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.
   c) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
   d) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, as amended by Executive Order 11375, and of the rules, regulations, and relevant orders of the Secretary of Labor.
   e) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, as amended by Executive Order 11375, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
   f) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, as amended by Executive Order 11375, and such other sanctions as may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, as amended by Executive Order 11375, and by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
   g) The Contractor will include the portion of the sentence immediately preceding paragraph 1 and the provisions of paragraphs a) through f) in every subcontract or Purchase Order (PO) unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, as amended by Executive Order 11375, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or PO as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, That in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

C. Compliance of Reporting Requirements.

The Contractor hereby acknowledges that the City has the responsibility for providing required reporting, including financial information, program progress, and real property status, in accordance with 2 CFR. § 200.327, 2 CFR. § 200.328, and 2 CFR. § 200.329 on frequencies established by the Federal awarding agency.

D. Access to Records.

The following access to records requirements apply to this contract in respect to federal financial assistance awards:

(a) The CONTRACTOR agrees to provide the City, the State of Florida, the Federal grantor agency, the Comptroller General of the United States, or any of their authorized representatives access to any books, documents, papers, and records of the CONTRACTOR which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions.

(b) The CONTRACTOR agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

(c) The CONTRACTOR agrees to provide the Federal grantor agency administrator or his authorized representatives access to construction or other work sites pertaining to the work being completed under the contract.

E. Retention of Records.

1. The City shall retain all records related to this project for three (3) years from the date of final expenditure report for projects funded by the FEMA PA program.
2. The Contractor shall retain all records related to this Agreement for three (3) years after termination of this contract.

F. Compliance with the Contract Work Hours and Safety Standards Act.

1. Overtime requirements. No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty (40) hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-halftimes the basic rate of pay for all hours worked in excess of forty hours in such workweek.
2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph A of this section the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph A of this section, in the sum of $10 for each Day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph A of this section.
3. Withholding for unpaid wages and liquidated damages. The City shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any other Federal contract with the same prime Contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph B of this section.
4. Subcontracts. The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs 1 through 3 of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1 through 3 of this section.

G. Clean Air Act and The Federal Water Pollution Control Act.

1. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387).
2. The Contractor agrees to report each violation to the City and understands and agrees that the City will, in turn, report each violation as required to assure notification to the City, Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

3. The Contractor agrees to include these requirements in each subcontract exceeding $100,000 financed in whole or in part with Federal assistance provided by FEMA.

H. Suspension and Debarment.

1. This contract is a covered transaction for purposes of 2 CFR. Part 180 and 2 CFR. Part 3000. As such the Contractor is required to verify that none of the Contractor, its principals (defined at 2 CFR. § 180.995), or its affiliates (defined at 2 CFR. § 180.905) are excluded (defined at 2 CFR. § 180.940) or disqualified (defined at 2 CFR. § 180.935).
2. The Contractor must comply with 2 CFR. Part 180, subpart C and 2 CFR. Part 3000, subpart C and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.
3. This certification is a material representation of fact relied upon by the City of Kissimmee. If it is later determined that the Contractor did not comply with 2 CFR. Part 180, subpart C and 2 CFR. Part 3000, subpart C, in addition to remedies available to the Florida Department of Emergency Management (recipient) and the City of Kissimmee (sub-recipient), the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.
4. The Proposer agrees to comply with the requirements of 2 CFR. Part 180, subpart C and 2 CFR. Part 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The Proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

I. Byrd Anti-Lobbying Amendment, 31 U.S. C. § 1352 (As Amended).

1. Contractors who apply or propose for an award of $100,000 or more shall file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient.
2. Federal Form ‘C.1’ titled “44 CFR. Part 18 – Certification Regarding Lobbying” is hereby attached and made a binding part hereof.

J. Procurement of Recovered Materials.

1. In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA designated items unless the product cannot be acquired:
   a) Competitively within a timeframe providing for compliance with the contract performance schedule;
   b) Meeting contract performance requirements; or
   c) At a reasonable price.
2. Information about this requirement is available at EPA's Comprehensive Procurement Guidelines web site, http://www.epa.gov/cpg/. The list of EPA-designate items is available at http://www.epa.gov/cpg/products.htm.

K. Department of Homeland Security (DHS) Seal, Logo and Flags.

The Contractor shall not use the Department of Homeland Security (DHS) seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific preapproval from the appropriate Federal agency.

L. Compliance with Federal Law, Regulations and Executive Orders.

This is an acknowledgement that Federal and state financial assistance may be used to fund payment for services provided under this contract. The Contractor will comply will all applicable federal law, regulations, executive orders, as well as policies, procedures and directives of the respective funding Federal grantor agency.

M. No Obligation by the Federal Government.

The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the City, Contractor, or any other party pertaining to any matter resulting from the contract.

N. Fraud and False or Fraudulent or Related Acts.

The Contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the Contractor's actions pertaining to this contract.

O. Compliance with the "Davis-Bacon Act":

(a) In accordance with the requirements of the Davis-Bacon Act (40 U.S.C. §§ 3141-3144 and 3146-3148) as supplemented by Department of Labor regulations at 29 C.F.R. Part 5 (Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction) as amended), all prime construction contracts in excess of $2,000 must comply with the Davis-Bacon Act. CONTRACTORS are required to pay wages to laborers and mechanics at a rate not less that the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, CONTRACTORS must pay wages not less than once a week.

(b) The CITY shall report all suspected or reported violations to the appropriate Federal agency in accordance with 2 C.F.R. Part 200, Appendix II, ¶ D

P. Compliance with the Copeland "Anti-Kickback Act":

(a) The CONTRACTOR hereby agrees to comply with the Copeland "Anti-Kickback" Act (40 U.S. C. 3145), as supplemented by the Department of Labor regulations (29 C.F.R. Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States".

(b) Each CONTRACTOR or SUBCONTRACTOR are hereby prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled.

(c) The CONTRACTOR or subcontractor shall insert in any subcontracts the clause above and such other clauses as the FEMA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime CONTRACTOR shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.

(d) Breach. A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a CONTRACTOR and subcontractor as provided in 29 C.F.R. § 5.12.

(e) The CITY shall report all suspected or reported violations to the appropriate Federal agency in accordance with 2 C.F.R. Part 200, Appendix II, ¶ D

Q. Hatch Act

The CONTRACTOR shall comply with the Hatch Act, 5 USC 1501 – 1508, and shall ensure that no funds provided, nor personnel employed under this agreement, shall be in any way or to any extent engaged in the conduct of political activities in violation of Chapter 15 of Title V of the U.S.C.

Attachment C

CITY OF KISSIMMEE

ALTERNATIVE PAVING METHODS

SCHEDULE OF UNIT PRICES

Mobilization/Maintenance of Traffic				
Item	**Description**	**Estimated Quantity**	**Unit of Measure**	**Unit Price**
1	Mobilization	1	%	%
2	Night Work Mobilization	1	%	%
3	Maintenance of Traffic	1	%	%
4	Maintenance of Traffic Nightwork	1	%	%
Asphalt, Earthwork, and Concrete				
5	Inlet Protection System	1-25	EA	$
6	Inlet Protection System	26-50	EA	$
7	Inlet Protection System	51-100+	EA	$
8	Floating Turbidity Barrier	1-200	LF	$
9	Floating Turbidity Barrier	201-500	LF	$
10	Floating Turbidity Barrier	501-1000+	LF	$
11	Staked Silt Fence	1-200	LF	$
12	Staked Silt Fence	201-500	LF	$
13	Staked Silt Fence	501+	LF	$
14	Clearing and Grubbing	1	AC	$
15	Curb and Gutter Removal	1-200	LF	$
16	Curb and Gutter Removal	201-500	LF	$
17	Curb and Gutter Removal	501+	LF	$
18	Miscellaneous Concrete Removal	1-200	SY	$
19	Existing Pipe Removal	1-200	LF	$
20	Existing Pipe Removal	201-500	LF	$
21	Existing Pipe Removal	501+	LF	$
22	Removal of Existing Pavement	1-200	SY	$
23	Removal of Existing Pavement	201-500	SY	$
24	Removal of Existing Pavement	501+	SY	$
25	Roadway Excavation	1-200	CY	$
26	Roadway Excavation	201-500	CY	$
27	Roadway Excavation	501+	CY	$
28	Swale Grading	1-200	LF	$
29	Swale Grading	201-500	LF	$
30	Swale Grading	501+	LF	$
31	Embankment (Truckload)	1-200	CY	$
32	Embankment (Truckload)	201-500	CY	$
33	Embankment (Truckload)	501+	CY	$
34	Flowable Fill	1-9	CY	$
35	Flowable Fill	10-18	CY	$
36	Flowable Fill	19-27+	CY	$
37	Asphaltic Base Course	1-200	TN	$
38	Asphaltic Base Course	201-500	TN	$

39	Asphaltic Base Course	501+	TN	$
40	Optional Base Group 1	1-200	SY	$
41	Optional Base Group 1	201-500	SY	$
42	Optional Base Group 1	501-1000+	SY	$
43	Optional Base Group 4	1-200	SY	$
44	Optional Base Group 4	201-500	SY	$
45	Optional Base Group 4	501-1000+	SY	$
46	Optional Base Group 6	1-200	SY	$
47	Optional Base Group 6	201-500	SY	$
48	Optional Base Group 6	501-1000+	SY	$
49	Optional Base Group 9	1-200	SY	$
50	Optional Base Group 9	201-500	SY	$
51	Optional Base Group 9	501-1000+	SY	$
52	Optional Base Group 11	1-200	SY	$
53	Optional Base Group 11	201-500	SY	$
54	Optional Base Group 11	501-1000+	SY	$
55	Milling (1")	1-200	SY	$
56	Milling (1")	201-500	SY	$
57	Milling (1")	501-1000+	SY	$
58	Milling (1.5")	1-200	SY	$
59	Milling (1.5")	201-500	SY	$
60	Milling (1.5")	501-1000+	SY	$
61	Milling (2")	1-200	SY	$
62	Milling (2")	201-500	SY	$
63	Milling (2")	501-1000+	SY	$
64	Milling (3")	1-200	SY	$
65	Milling (3")	201-500	SY	$
66	Milling (3")	501-1000+	SY	$
67	Milling (4")	1-200	SY	$
68	Milling (4")	201-500	SY	$
69	Milling (4")	501-1000+	SY	$
70	Milling (5")	1-200	SY	$
71	Milling (5")	201-500	SY	$
72	Milling (5")	501-1000+	SY	$
73	Milling (6")	1-200	SY	$
74	Milling (6")	201-500	SY	$
75	Milling (6")	501-1000+	SY	$
76	Type III Asphaltic Concrete	1-200	TN	$
77	Type III Asphaltic Concrete	201-500	TN	$
78	Type III Asphaltic Concrete	501+	TN	$
79	Asphaltic Concrete Type "S-1"	1-200	TN	$
80	Asphaltic Concrete Type "S-1"	201-500	TN	$
81	Asphaltic Concrete Type "S-1"	501+	TN	$
82	Asphaltic Concrete Type "S-3"	1-200	TN	$
83	Asphaltic Concrete Type "S-3"	201-500	TN	$
84	Asphaltic Concrete Type "S-3"	501+	TN	$
85	Adjusting Manholes (Metal Riser Rings)	1-5	EA	$

86	Adjusting Manholes (Metal Riser Rings)	6-10	EA	$
87	Adjusting Manholes (Metal Riser Rings)	11-20+	EA	$
88	Adjusting Valve Boxes (Metal Riser Rings)	1-5	EA	$
89	Adjusting Valve Boxes (Metal Riser Rings)	6-10	EA	$
90	Adjusting Valve Boxes (Metal Riser Rings)	11-20+	EA	$
91	18" RCP CD - Cl	1-200	LF	$
92	18" RCP CD - Cl	201-500	LF	$
93	18" RCP CD - Cl	501+	LF	$
94	Type "A" Curb	1-25	LF	$
95	Type "A" Curb	26-50	LF	$
96	Type "A" Curb	51-100+	LF	$
97	Type "B" Curb	1-20	LF	$
98	Type "B" Curb	26-50	LF	$
99	Type "B" Curb	51-100+	LF	$
100	Type "D" Curb	1-25	LF	$
101	Type "D" Curb	26-50	LF	$
102	Type "D" Curb	51-100+	LF	$
103	Type "E" Curb	1-25	LF	$
104	Type "E" Curb	26-50	LF	$
105	Type "E" Curb	51-100+	LF	$
106	Type "F" Curb	1-25	LF	$
107	Type "F" Curb	26-50	LF	$
108	Type "F" Curb	51-100+	LF	$
109	Valley Gutter	1-25	LF	$
110	Valley Gutter	26-50	LF	$
111	Valley Gutter	51-100+	LF	$
112	Traffic Separator - (4')	1-25	LF	$
113	Traffic Separator - (4')	26-50	LF	$
114	Traffic Separator - (4')	51-100+	LF	$
115	Traffic Separator - (6')	1-25	LF	$
116	Traffic Separator - (6')	26-50	LF	$
117	Traffic Separator - (6')	51-100+	LF	$
118	Traffic Separator - (width varies)	1-25	SY	$
119	Traffic Separator - (width varies)	26-50	SY	$
120	Traffic Separator - (width varies)	51-100+	SY	$
121	Concrete Sidewalk - (4" thickness)	1-100	SY	$
122	Concrete Sidewalk - (4" thickness)	101-250	SY	$
123	Concrete Sidewalk - (4" thickness)	251-500+	SY	$
124	Concrete Sidewalk - (6" thickness)	1-100	SY	$
125	Concrete Sidewalk - (6" thickness)	101-250	SY	$
126	Concrete Sidewalk - (6" thickness)	251-500+	SY	$
127	Concrete Sidewalk - (6" Thickness)	1-100	SY	$
128	Concrete Sidewalk - (6" Thickness)	101-250	SY	$
129	Concrete Sidewalk - (6" Thickness)	251+	SY	$
130	Detectable Warning Surfaces (Inset)	1-50	SF	$
131	Detectable Warning Surfaces (Inset)	51-100	SF	$
132	Detectable Warning Surfaces (Inset)	101+	SF	$

133	Detectable Warning Surfaces (Screwdown Retro-Fit)	1-50	SF	$
134	Detectable Warning Surfaces (Screwdown Retro-Fit)	51-100	SF	$
135	Detectable Warning Surfaces (Screwdown Retro-Fit)	101+	SF	$
136	Sodding (Bahia)	1-200	SY	$
137	Sodding (Bahia)	201-500	SY	$
138	Sodding (Bahia)	501+	SY	$
139	Sodding (Floratam)	1-200	SY	$
140	Sodding (Floratam)	201-500	SY	$
141	Sodding (Floratam)	501+	SY	$
142	Loop Assembly, F&I - Type B	1	AS	$
Pavement Markings				
143	Install Sign (single post)	1-5	EA	$
144	Install Sign (single post)	6-15	EA	$
145	Install Sign (single post)	16-30+	EA	$
146	Install Sign (multi-post)	1-5	EA	$
147	Install Sign (multi-post)	6-15	EA	$
148	Install Sign (multi- post)	16-30+	EA	$
149	Reflective Pavement Markers (RPM's)	1-20	EA	$
150	Reflective Pavement Markings (RPM's)	21-60	EA	$
151	Reflective Pavement Markers (RPM's)	61-100+	EA	$
152	6" Solid Traffic Stripe (paint) (white)	1-200	LF	$
153	6" Solid Traffic Stripe (paint) (white)	201-500	LF	$
154	6" Solid Traffic Stripe (paint) (white)	501-1000+	LF	$
155	6" Solid Traffic Stripe (paint) (yellow)	1-200	LF	$
156	6" Solid Traffic Stripe (paint) (yellow)	201-500	LF	$
157	6" Solid Traffic Stripe (paint) (yellow)	501-1000+	LF	$
158	12" Solid Traffic Stripe (paint)	1-25	LF	$
159	12" Solid Traffic Stripe (paint)	26-50	LF	$
160	12" Solid Traffic Stripe (paint)	51-100+	LF	$
161	18" Solid Traffic Stripe (paint)	1-25	LF	$
162	18" Solid Traffic Stripe (paint)	26-50	LF	$
163	18" Solid Traffic Stripe (paint)	51-100+	LF	$
164	24" Solid Traffic Stripe (paint)	1-25	LF	$
165	24" Solid Traffic Stripe (paint)	26-50	LF	$
166	24" Solid Traffic Stripe (paint)	51-100+	LF	$
167	6" Skip Traffic Stripe (paint)	1-200	LF	$
168	6" Skip Traffic Stripe (paint)	201-500	LF	$
169	6" Skip Traffic Stripe (paint)	501-1000+	LF	$
170	6" Dotted Guide Lines (paint)	1-50	LF	$
171	6" Dotted Guide Lines (paint)	51-100	LF	$
172	6" Dotted Guide Lines (paint)	101-150+	LF	$
173	Directional Arrows (Paint)	1-10	EA	$
174	Directional Arrows (Paint)	11-50	EA	$
175	Directional Arrows (Paint)	51+	EA	$
176	Pavement Messages (Paint)	1-10	EA	$
177	Pavement Messages (Paint)	11-50	EA	$
178	Pavement Messages (Paint)	51+	EA	$

179	8" Solid Traffic Stripe (Paint)	1-200	LF	$
180	8" Solid Traffic Stripe (Paint)	201-500	LF	$
181	8" Solid Traffic Stripe (Paint)	501-1000+	LF	$
182	6" Solid Stripe/Extru. Thermo (white)	1-200	LF	$
183	6" Solid Stripe/Extru. Thermo (white)	201-500	LF	$
184	6" Solid Stripe/Extru. Thermo (white)	501-1000+	LF	$
185	6" Solid Stripe/Extru. Thermo (yellow)	1-200	LF	$
186	6" Solid Stripe/Extru. Thermo (yellow)	201-500	LF	$
187	6" Solid Stripe/Extru. Thermo (yellow)	501-1000+	LF	$
188	12" Solid Traffic Stripe/Extru. Thermo	1-25	LF	$
189	12" Solid Traffic Stripe/Extru. Thermo	26-50	LF	$
190	12" Solid Traffic Stripe/Extru. Thermo	51-100+	LF	$
191	18" Solid Traffic Stripe/Extru. Thermo	1-25	LF	$
192	18" Solid Traffic Stripe/Extru. Thermo	26-50	LF	$
193	18" Solid Traffic Stripe/Extru. Thermo	51-100+	LF	$
194	24" Solid Traffic Stripe/Extru. Thermo	1-25	LF	$
195	24" Solid Traffic Stripe/Extru. Thermo	26-50	LF	$
196	24" Solid Traffic Stripe/Extru. Thermo	51-100+	LF	$
197	6" Skip Traffic Stripe/Extru. Thermo	1-200	LF	$
198	6" Skip Traffic Stripe/Extru. Thermo	201-500	LF	$
199	6" Skip Traffic Stripe/Extru. Thermo	501-1000+	LF	$
200	6" Dotted Guide Lines/Extru. Thermo	1-50	LF	$
201	6" Dotted Guide Lines/Extru. Thermo.	51-100	LF	$
202	6" Dotted Guide Lines/Extru. Thermo.	101-150+	LF	$
203	Directional Arrows / Extru. Thermo.	1	EA	$
204	Preformed Symbol	1	EA	$
205	Pavement Messages / Extru. Thermo.	1	EA	$
206	8" Solid Traffic Stripe / Extru. Thermo	1-200	LF	$
207	8" Solid Traffic Stripe / Extru. Thermo	201-500	LF	$
208	8" Solid Traffic Stripe / Extru. Thermo	501-1000+	LF	$
209	Remove Ex. Pavement Markings(paint)	1-100	SF	$
210	Remove Ex. Pavement Markings(paint)	101-300	SF	$
211	Remove Ex. Pavement Markings(paint)	301-500+	SF	$
212	Rem. Ex. Pavement Markings(thermo)	1-100	SF	$
213	Rem. Ex. Pavement Markings(thermo)	101-300	SF	$
214	Rem. Ex. Pavement Markings(thermo)	301-500+	SF	$
	TOTAL BID AMOUNT OF ITEMS 5 to 214 ABOVE			$
Item	**Description**	**Estimated Quantity**	**Unit of Measure**	**Unit Price**
HOT-IN-PLACE (With Virgin Top Course) Asphalt Recycling				
215	Asphalt Recycling	1 - 10,000	SY	$
216	Asphalt Recycling	10,001 - 50,000	SY	$
217	Asphalt Recycling	50,001+	SY	$
218	Recycling Agent	1 - 10,000	GAL	$
219	Recycling Agent	10,001 - 50,000	GAL	$
220	Recycling Agent	50,001+	GAL	$
HOT-IN-PLACE (100%) Asphalt Recycling				

221	Base Course HIPR	1 - 10,000	SY	$
222	Base Course HIPR	10,001 - 50,000	SY	$
223	Base Course HIPR	50,001+	SY	$
224	2" Complete HIPR	1 - 10,000	SY	$
225	2" Complete HIPR	10,001 - 50,000	SY	$
226	2" Complete HIPR	50,001+	SY	$
227	Asphalt Recycling Agent	1 - 10,000	SY	$
228	Asphalt Recycling Agent	10,001 - 50,000	SY	$
229	Asphalt Recycling Agent	50,001+	SY	$
		TOTAL BID AMOUNT OF ITEMS 215 to 229 ABOVE		$

Item	Description	Estimated Quantity	Unit of Measure	Unit Price
Specialty Paving Methods				
1	Mobilization	1	%	%
2	Night Work Mobilization	1	%	%
3	Maintenance of Traffic	1	%	%
4	Maintenance of Traffic Nightwork	1	%	%
S-1	Rut Fill / Scratch Course (Micro)	1-50	TN	$
S-2	Rut Fill / Scratch Course (Micro)	51-100	TN	$
S-3	Rut Fill / Scratch Course (Micro)	101+	TN	$
S-4	Single Micro Surface 20-24 lbs	1-10,000	SY	$
S-5	Single Micro Surface 20-24 lbs	10,001 - 50,000	SY	$
S-6	Single Micro Surface 20-24 lbs	50,001+	SY	$
S-7	Double Micro Surface 30-34 lbs	1-10,000	SY	$
S-8	Double Micro Surface 30-34 lbs	10,001 - 50,000	SY	$
S-9	Double Micro Surface 30-34 lbs	50,001+	SY	$
		TOTAL BID AMOUNT OF ITEMS S-1 to S-9 ABOVE		$

Item	Description	Estimated Quantity	Unit of Measure	Unit Price
1	Mobilization	1	%	%
2	Night Work Mobilization	1	%	%
3	Maintenance of Traffic	1	%	%
4	Maintenance of Traffic Nightwork	1	%	%
S-10	Single Chip Seal -#89 Granite	1-10,000	SY	$
S-11	Single Chip Seal -#89 Granite	10,001 - 50,000	SY	$
S-12	Single Chip Seal -#89 Granite	50,001+	SY	$
S-13	Double Chip Seal -#57 w #89 Granite	1-10,000	SY	$
S-14	Double Chip Seal -#57 w #89 Granite	10,001 - 50,000	SY	$
S-15	Double Chip Seal -#57 w #89 Granite	50,001+	SY	$
		TOTAL BID AMOUNT OF ITEMS S-10 to S-15 ABOVE		$

Item	Description	Estimated Quantity	Unit of Measure	Unit Price
1	Mobilization	1	%	%
2	Night Work Mobilization	1	%	%
3	Maintenance of Traffic	1	%	%
4	Maintenance of Traffic Nightwork	1	%	%
S-16	Full Depth Reclamation /6"-9"	1-10,000	SY	$
S-17	Full Depth Reclamation /6"-9"	10,001 - 50,000	SY	$

S-18	Full Depth Reclamation /6"-9"	50,001+	SY	$
S-19	Full Depth Reclamation 9"-12"	1-10,000	SY	$
S-20	Full Depth Reclamation 9"-12"	10,001 - 50,000	SY	$
S-21	Full Depth Reclamation 9"-12"	50,001+	SY	$
S-22	Cement for Reclamation	1	TN	$
S-23	Emulsion for Reclamation	1	Gal	$
S-24	Reclaimed Asphalt Paving (RAP)	1-10,000	SY	$
S-25	Reclaimed Asphalt Paving (RAP)	10,001 - 50,000	SY	$
S-26	Reclaimed Asphalt Paving (RAP)	50,001+	SY	$
	TOTAL BID AMOUNT OF ITEMS S-16 to S-26 ABOVE			$

Item	Description	Estimated Quantity	Unit of Measure	Unit Price
1	Mobilization	1	%	%
2	Night Work Mobilization	1	%	%
3	Maintenance of Traffic	1	%	%
4	Maintenance of Traffic Nightwork	1	%	%
S-27	Fog Seal	1- 10,000	SY	$
S-28	Fog Seal	10,001- 50,000	SY	$
S-29	Fog Seal	50,000+	SY	$
	TOTAL BID AMOUNT OF ITEMS S-27 to S-29 ABOVE			$

Item	Description	Estimated Quantity	Unit of Measure	Unit Price
1	Mobilization	1	%	%
2	Night Work Mobilization	1	%	%
3	Maintenance of Traffic	1	%	%
4	Maintenance of Traffic Nightwork	1	%	%
S-30	Cape Seal	1- 10,000	SY	$
S-31	Cape Seal	10,001- 50,000	SY	$
S-32	Cape Seal	50,000+	SY	$
	TOTAL BID AMOUNT OF ITEMS S-30 to S-32 ABOVE			$

Item	Description	Estimated Quantity	Unit of Measure	Unit Price
1	Mobilization	1	%	%
2	Night Work Mobilization	1	%	%
3	Maintenance of Traffic	1	%	%
4	Maintenance of Traffic Nightwork	1	%	%
S-33	In-Place Recycling-Reconstrction	1- 10,000	SY	$
S-34	In-Place Recycling-Reconstrction	10,001- 50,000	SY	$
S-35	In-Place Recycling-Reconstrction	50,000+	SY	$
	TOTAL BID AMOUNT OF ITEMS S-33 to S-35 ABOVE			$

Item	Description	Estimated Quantity	Unit of Measure	Unit Price
1	Mobilization	1	%	%
2	Night Work Mobilization	1	%	%
3	Maintenance of Traffic	1	%	%
4	Maintenance of Traffic Nightwork	1	%	%
S-36	Crack Filling/Sealing	1-500	GAL	$
S-37	Crack Filling/Sealing	501 - 1000	GAL	$
S-38	Crack Filling/Sealing	1,001+	GAL	$

TOTAL BID AMOUNT OF ITEMS S-36 to S-38 ABOVE				$
Item	**Description**	**Estimated Quantity**	**Unit of Measure**	**Unit Price**
1	Mobilization	1	%	%
2	Night Work Mobilization	1	%	%
3	Maintenance of Traffic	1	%	%
4	Maintenance of Traffic Nightwork	1	%	%
S-39	Asphalt Rejuvenator	1-50,000	SY	$
S-40	Asphalt Rejuvenator	50,001 - 100,000	SY	$
S-41	Asphalt Rejuvenator	100,001+	SY	$
TOTAL BID AMOUNT OF ITEMS S-39 to S-41 ABOVE				$
Item	**Description**	**Estimated Quantity**	**Unit of Measure**	**Unit Price**
1	Mobilization	1	%	%
2	Night Work Mobilization	1	%	%
3	Maintenance of Traffic	1	%	%
4	Maintenance of Traffic Nightwork	1	%	%
S-42	Speed Hump W/ Curbing	1-50	FT	$
S-43	Speed Hump W/ Curbing	51-100	FT	$
S-44	Speed Hump W/ Curbing	101+	FT	$
S-45	Speed Hump No Curbing	1-50	FT	$
S-46	Speed Hump No Curbing	51-100	FT	$
S-47	Speed Hump No Curbing	101+	FT	$
TOTAL BID AMOUNT OF ITEMS S-42 to S-47 ABOVE				$
Item	**Description**	**Estimated Quantity**	**Unit of Measure**	**Unit Price**
1	Mobilization	1	%	%
2	Night Work Mobilization	1	%	%
3	Maintenance of Traffic	1	%	%
4	Maintenance of Traffic Nightwork	1	%	%
S-48	Slurry Seal	1-10,000	SY	$
S-49	Slurry Seal	10,001 - 50,000	SY	$
S-50	Slurry Seal	50,001+	SY	$
TOTAL BID AMOUNT OF ITEMS S-48 to S-50 ABOVE				$

**Quantities are not guaranteed. Final payment will be based on actual quantities.

NAME OF CONTRACTOR:_____

Attachment D

BIDDER'S PERSONNEL LIST

The Bidder shall indicate on this form all personnel currently employed by the Contractor to be utilized in the performance of this Scope of Work.

MANAGER/SUPERINTENDENT: (For each individual listed, indicate the total years employed by bidder & in this field.)

	Name	Years Employed	Years in Field
1.	TBD by each work order Can be submitted prior to work starting		

EMPLOYEE/WORK CREW:

2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Attach additional pages if necessary to include all personnel.

(PLEASE SEE ATTACHED)

Attachment E

BIDDER'S EQUIPMENT LIST

ITEM	MODEL/YEAR	MANUFACTURER
1.		
Owned by Bidder:	OR Leased from:	
2.		
Owned by Bidder:	OR Leased from:	
3.		
Owned by Bidder:	OR Leased from:	
4.		
Owned by Bidder:	OR Leased from:	
5.		
Owned by Bidder:	OR Leased from:	
6.		
Owned by Bidder:	OR Leased from:	
7.		
Owned by Bidder:	OR Leased from:	
8.		
Owned by Bidder:	OR Leased from:	
9.		
Owned by Bidder:	OR Leased from:	
10.		
Owned by Bidder:	OR Leased from:	
11.		
Owned by Bidder:	OR Leased from:	
12.		
Owned by Bidder:	OR Leased from:	

Attach additional pages if necessary to include all equipment

(PLEASE SEE ATTACHED) **Attachment F**

BIDDER'S PREVIOUS EXPERIENCE LIST

The Bidder shall indicate at least five (5) recent Agreements of a non-residential nature, completed or in progress by the Bidder, including, but not limited to, any previous experience similar in size and scope to the Scope of Work indicated in this Invitation to Bid. ***Do not include projects completed or currently underway with the City of Kissimmee.***

Company/Entity Name	
Contact Name & Title	
Address	
Phone Number / E-mail	
Name and Scope of Contract	
Date of Contract	
Dollar Amount of Contract	$

Company/Entity Name	
Contact Name & Title	
Address	
Phone Number / E-mail	
Name and Scope of Contract	
Date of Contract	
Dollar Amount of Contract	$

Company/Entity Name	
Contact Name & Title	
Address	
Phone Number / E-mail	
Name and Scope of Contract	
Date of Contract	
Dollar Amount of Contract	$

Company/Entity Name	
Contact Name & Title	
Address	
Phone Number / E-mail	
Name and Scope of Contract	
Date of Contract	
Dollar Amount of Contract	$

Company/Entity Name	
Contact Name & Title	
Address	
Phone Number / E-mail	
Name and Scope of Contract	
Date of Contract	
Dollar Amount of Contract	$

Company/Entity Name	
Contact Name & Title	
Address	
Phone Number / E-mail	
Name and Scope of Contract	
Date of Contract	
Dollar Amount of Contract	$

Company/Entity Name	
Contact Name & Title	
Address	
Phone Number / E-mail	
Name and Scope of Contract	
Date of Contract	
Dollar Amount of Contract	$

Company/Entity Name	
Contact Name & Title	
Address	
Phone Number / E-mail	
Name and Scope of Contract	
Date of Contract	
Dollar Amount of Contract	$

Company/Entity Name	
Contact Name & Title	
Address	
Phone Number / E-mail	
Name and Scope of Contract	
Date of Contract	
Dollar Amount of Contract	$

Attachment G

NOTICE

IFB2022-002

If for some reason you are not participating in this solicitation, PLEASE complete the following and return to:

City of Kissimmee
Finance Department 4th Floor
Attn: Purchasing Division
101 Church Street
Kissimmee, FL 34741

DO NOT return the solicitation package. Failure to respond may result in removal of your firm from our current vendor file.

Company Name: _____

Address: _____

_____

_____

Phone Number: (___)_____

Fax Number: (___)_____

Continue on Vendor List: _____ Yes _____ No
___ Large Business ___ Small Business ___ Minority Owned

Reason for no response to the solicitation:

_____ Cannot supply at this time

_____ Suitable, but engaged in other work

_____ Quantity too small

_____ Cannot meet required minimum

_____ Opening date does not allow sufficient time to complete

_____ Equivalent not presently available

_____ Other reasons or remarks:_____
_____
_____
_____

_____
Signature

Attachment H

IDENTICAL TIE BIDS

Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids, which are equal with respect to price, quality and service are received by the state or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

1) Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2) Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs and the penalties that may be imposed upon employees for drug abuse violations.

3) Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).

4) In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of chapter 893 or of any controlled substance law of the United States or any state for a violation occurring in the workplace no later than 5 days after such conviction.

5) Impose a sanction on or require the satisfactory participation in a drug abuse assistance or rehabilitation program, if such is available in the employee's community by any employee who is so convicted.

6) Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Robert Capoferri, President

Vendor's Signature

Attachment I

SPECIAL TECHNICAL SPECIFICATIONS

MICRO SURFACING

SECTION 335
MICRO SURFACING

335-1 Description.
Construct a micro surfacing pavement with the type of mixture specified in the Contract Documents. Micro surfacing is a mixture of polymer-modified emulsified asphalt, mineral aggregate, mineral filler, water, and other additives, properly proportioned, mixed and spread on a paved surface.

The mix shall be capable of being spread in variable thickness cross-sections (wedges, ruts, scratch courses and surfaces) which, after curing and initial traffic consolidation, resists compaction throughout the entire design tolerance range of asphalt binder content and variable thickness to be encountered. The end product shall maintain a skid-resistant surface in variable thick sections throughout the service life of the micro surfacing.

The mix shall be a quick-traffic system that will be able to accept straight rolling traffic one hour after application.

335-2 Materials.
335-2.1 Emulsified Asphalt:
335-2.1.1 General Requirements:
Provide a quick-traffic, polymer-modified emulsified asphalt conforming to the requirements specified in AASHTO M 208 for CSS-lh as listed in Table 335-1. The cement mixing test shall be waived for this product.

The polymer material shall be co-milled into the asphalt or added to the emulsifier solution prior to the emulsification process. The amount of polymer modifier shall not be less than 3.0% polymer solids based on the asphalt content (by weight) and will be certified by the emulsified asphalt supplier.

The Engineer may waive the five-day settlement test, provided job-stored emulsified asphalt is used within 36 hours from the time of the shipment or the stored material has had additional emulsified asphalt blended into it prior to use.

335-2.1.2 Quality Tests:
The emulsified asphalt, and emulsified asphalt residue, shall meet the requirements of AASHTO M 208 for CSS-lh, with the following additions:

Table 335-1
Quality Tests for Emulsified Asphalt

AASHTO Test No.	Emulsified Asphalt Property	Specification Requirements
AASHTO T 59	Residue after Distillation (1)	62% Minimum
AASHTO T 59	Cement Mixing	Not Required
Quality Tests for Emulsified Asphalt Residue		
AASHTO T 53	Softening Point	135°F (57°C) Minimum

(1) Maintain the test temperature at 350°F (177°C) for 20 minutes.

335-2.1.3 Sampling, Certification, and Verification:

For the first load of emulsified asphalt produced for the project, the supplier shall submit a sample to the Engineer for testing before use. A pretest number will then be assigned by the Engineer, and the pretest number shall be furnished with all emulsified asphalt delivered to the project.

At any time during application, the Engineer may sample and test all subsequent loads of emulsified asphalt delivered to the project to verify and determine compliance with specification requirements. Where these tests identify material outside specification requirements, the Engineer may require the supplier to cease shipment of that pre-tested product. Further shipment of that pre-tested product to the owning agency's projects will remain suspended until the cause of the problem is evaluated and corrected by the supplier to the satisfaction of the Engineer.

335-2.2 Aggregate:
335-2.2.1 General:
Use an aggregate consisting of 100% crushed stone. The aggregate shall be a crushed stone such as granite, slag, limestone, chat, or other high-quality aggregate, or a combination thereof. To assure the material is 100 percent crushed, the parent aggregate will be larger than the largest stone in the gradation used. Use aggregate source(s) from the list of aggregates available on the Florida Department of Transportation's website and also meeting the requirements of this specification. The URL for obtaining the list of aggregates is: ftp://ftp.dot.state.fl.us/fdot/smo/website/sources/frictioncourse.pdf.

335-2.2.2 Aggregate Quality Tests:
In addition to the requirements of FDOT Standard Specification Sections 901 and 902, meet the minimum aggregate requirements of Table 335-2.

Table 335-2
Quality Tests for Aggregate

AASHTO Test No.	Aggregate Property	Specification Requirements
AASHTO T 176	Sand Equivalent	65 Minimum
AASHTO T 104	Soundness	15% Maximum using Na_2SO_4 or 25% Maximum using $MgSO_4$
AASHTO T 96	Abrasion Resistance (1)	30% Maximum

(1) The abrasion test will be performed on the parent aggregate.

335-2.2.3 Gradation Requirements:
When tested in accordance with FM 1-T 027 and FM 1-T 011, the target (mix design) aggregate gradation, including the mineral filler, shall be within the gradation range for a Type II mixture shown in Table 335-3, Column II.

Table 335-3 Mix Design Gradation Requirements			
Sieve Size	Type II Mix Design Range Percent Passing		Stockpile Tolerance from Mix Design Percent Passing
3/8 inch	100		N/A
No. 4	90 – 100		± 5%
No. 8	65 – 90		± 5%
No. 16	45 – 70		± 5%
No. 30	30 – 50		± 5%
No. 50	18 – 30		± 4%
No. 100	10 – 21		± 3%
No. 200	5 – 15		± 2%

The aggregate will be accepted from the stockpile located at the project. The stockpile will be accepted based on five quality control gradation tests conducted in accordance with FM 1-T 002. If the average of the five gradation tests is within the stockpile tolerances shown in Table 335-3, Column III for all of the sieve sizes, then the stockpile is accepted. If the average of the five gradation tests is not within the stockpile tolerances shown in Table 335-3, Column III, for any sieve size, remove the stockpiled material and replace it with new aggregate or blend other aggregate sources with the stockpiled material. Aggregates used in blending must meet the quality tests shown in Table 335-2 before blending and must be blended in a manner to produce a consistent gradation and sand equivalent value. If new aggregate is obtained or blending of aggregates is performed resulting in an aggregate that is not represented by the mix design, submit a new mix design to the Engineer for approval prior to production of the mix.

The Engineer may obtain stockpile samples at any time. If the average of five gradation tests conducted in accordance with FM 1-T 002 is not within the gradation tolerances shown in Table 335-3, Column III for any sieve size, cease production until the problem is corrected to the satisfaction of the Engineer.

Screen all stockpiled aggregates at the stockpile area prior to delivery to the paving machine to remove oversize material and non-desirable particles.

335-2.3 Mineral Filler:
If mineral filler is utilized in the mix design, use non air-entrained Portland cement or hydrated lime that is free from lumps. The Engineer will accept the mineral filler by visual inspection. The type and amount of mineral filler shall be determined by a laboratory mix design and will be considered as part of the aggregate gradation. An increase or decrease of less than one percent mineral filler may be permitted during production if it is found to result in better consistency or set times. Any changes to the percentage of mineral filler must meet the requirements of Table 335-5.

335-2.4 Water:
Utilize water that is potable and free of harmful soluble salts, reactive chemicals, or any other contaminants.

335-2.5 Additives:
Additives may be added to the mixture or any of the component materials to provide control of quick-trafficking properties. The additives to be used should be indicated on the mix design and be compatible with the other components of the mix.

335-3 Mix Design.
Before work begins, the Contractor shall submit a mix design to the Engineer. The mix design must have an aggregate source used on five (5) similar projects and have been developed using the specific materials to be

used on the project. The mix design shall be developed by an independent, accredited laboratory with no affiliation to the emulsion supplier and is endorsed by the International Slurry Surfacing Association (ISSA) and has experience in designing micro surfacing mixtures.

Submit the proposed mix design with supporting test data indicating compliance with all mix design criteria. Allow the Engineer a maximum of two weeks to either conditionally verify or reject the mix design.

Meet the requirements provided in Table 335-4. After the mix design has been approved, no substitutions to the mix design will be permitted, unless approved by the Engineer. The Engineer will consider inadequate field performance of a mix as sufficient evidence that the properties of the mix related to the mix design have changed, and the Engineer will no longer allow the use of the mix design. The project will be stopped until it is demonstrated that those properties, or issues, have been sufficiently addressed.

Table 335-4
Mix Design Testing Requirements

ISSA Test No.	Property	Specification Requirements
ISSA TB-139(1)	Wet Cohesion: @ 30 Minutes Minimum (Set) @ 60 Minutes Minimum (Traffic)	 12 kg-cm Minimum 20 kg-cm or Near Spin Minimum
ISSA TB-109	Excess Asphalt by Loaded Wheel Tester (LWT) Sand Adhesion	50 g/ft^2 Maximum
ISSA TB-114	Wet Stripping	90% Minimum
ISSA TB-100	Wet-track Abrasion Loss: One-hour Soak Six-day Soak	 50 g/ft^2 Maximum 75 g/ft^2 Maximum
ISSA TB-147	Lateral Displacement Specific Gravity after 1,000 Cycles of 125 lb.	5% Maximum 2.10 Maximum
ISSA TB-113(1)	Mix Time @ 77°F (25°C)	Controllable to 120 Seconds Minimum

(1) The Cohesion test and Mixing Time test should be checked and reported for the highest temperatures expected during construction.

The mix design must clearly show the proportions of aggregate, emulsified asphalt, mineral filler, water, and additive usage based on the dry weight of the aggregate. Meet the mix design component material requirements provided in Table 335-5.

Table 335-5
Mix Design Component Material Requirements

Component Materials	Specification Requirements
Residual Asphalt	5.5 to 10.5% (by dry weight of aggregate)
Mineral Filler	0.5 to 3.0% (by dry weight of aggregate)
Polymer-based Modifier	Minimum of 3.0% (solids based on asphalt weight content)
Additives	As needed
Water	As required to produce proper mix consistency

The materials (aggregates, emulsion, mineral filler, and additives) must be from the same source, grade and type used to develop the approved mix design. Any substitutions or alternate supplies must be preapproved by the Engineer. Changes in the aggregate source or emulsion source requires re-validating the mix design and the performance properties. Blending, comingling and otherwise combining materials from two or more sources, grades or types is strictly prohibited. Aggregate stockpiles and emulsion material should be located at or near the job site in sufficient quantity for the job or designated parts of the job.

335-4 Equipment.
335-4.1 General:
Maintain all equipment, tools, and machines used in the performance of this work in satisfactory working condition at all times to ensure a high-quality product.

335-4.2 Mixing Equipment:
Use a machine specifically designed and manufactured to place micro surfacing. Truck mounted and self-loading continuous machines are acceptable. Mix the material with an automatic sequenced, self-propelled micro surfacing mixing machine. It shall be a continuous-flow mixing unit able to accurately deliver and proportion the mix components through a revolving multi blade, double-shafted mixer and to discharge the mixed product on a continuous-flow basis.
The machine shall have sufficient storage capacity for all mix components to maintain an adequate supply to the proportioning controls. Four truck mounted machines of 12 cubic yard capacity, or larger, will be required for all projects or roads one half mile or less in length. Self loading continuous machines shall be capable of loading materials while continuing to lay micro surfacing, thereby minimizing construction joints. Two self-loading machines may be required on all projects or roads greater than one half mile in length. Self-loading continuous machines shall be equipped to allow the operator to have full control of the forward and reverse speeds during applications of the micro surfacing material and shall be equipped with opposite-side driver stations to assist in alignment.

The self-loading device, opposite-side driver stations, and forward and reverse speed controls shall be original equipment-manufacturer design.

335-4.3 Proportioning Device:
Provide and properly mark individual volume or weight controls for proportioning each material to be added to the mix (i.e., aggregate, mineral filler, emulsified asphalt, additives, and water).

335-4.4 Spreading Equipment:
Agitate and spread the mixture uniformly in the spreader box by means of twin-shafted paddles or spiral augers fixed in the spreader box. Provide a front seal to ensure no loss of the mixture at the road contact point. The rear seal shall act as a final strike-off and shall be adjustable. The spreader box and rear strike-off shall be so designed and operated that a uniform consistency is achieved and a free flow of material is provided to the rear strike-off. The spreader box shall have suitable means to hydraulically adjust the box width automatically while traveling behind the mixing unit, and be able to side shift the box to compensate for variations in the pavement geometry.

335-4.4.1 Secondary Strike-off:
Provide a secondary strike-off to improve surface texture. The secondary strike-off shall have the same adjustments as the spreader box. No burlap drags will be permitted on the final applications.

335-4.4.2 Rut-filling Equipment:
When required by the Contract Documents, micro surfacing material may be used to fill ruts, utility cuts, depressions in the existing surface, etc. When rutting or deformation is less than ½ inch, a full width scratch course may be applied with the spreader box using a metal or stiff rubber strike-off. Ruts of 1/2 inch or greater in depth shall be filled independently with a rut-filling box, either five or six feet in width. Ruts that are in excess of 1 1/2 inch in depth may require multiple applications with the rut-filling box to restore the cross-section.

When a rut box is used, emulsified asphalt content may be reduced by 0.5% of the mix design target. Any reduction of emulsified asphalt content must be within the tolerance of the job mix formulation listed in the mix design. Material placed with the rut-filling box shall have a 1/4 inch crown to allow for traffic consolidation. Before placing subsequent lifts, allow all rut-filling material to cure under traffic for at least 24 hours.

335-4.5 Auxiliary Equipment:
Provide suitable surface preparation equipment, traffic control equipment, hand tools, and any other support and safety equipment necessary to perform the work.

335-5 Calibration.
Calibrate each mixing unit to be used in the performance of the work in the presence of the Engineer prior to the start of construction. Previous calibration documentation covering the exact materials to be used may be acceptable, provided that no more than 60 days have lapsed. Document the individual calibration of each material at various settings, which can be related to the machine metering devices. Do not utilize any mixing unit on the project until the calibration has been completed and approved by the Engineer. Any component replacement affecting material proportioning requires that the machine be recalibrated. No machine will be allowed to work on the project until the calibration has been completed and accepted. 335-6 Weather Limitations.

Do not apply micro surfacing if either the pavement or air temperature is below 50 F. Do not apply micro surfacing when there is the possibility that the finished product will freeze within 24 hours. Do not apply micro surfacing in the rain or when there is standing water on the pavement. The mixture shall not be applied when weather conditions prevent opening to traffic within a reasonable amount of time, as determined by the Engineer.

335-7 Surface Preparation.

335-7.1 General:
Remove any thermoplastic striping materials and retro-reflective pavement markers in the areas to be micro surfaced. Provide temporary striping as necessary to comply with Contract Documents. Immediately prior to applying the micro surfacing, clear the surface of all loose material, silt spots, vegetation, and other material that will negatively affect the quality of the micro surfacing, utilizing any standard cleaning method. If water is used for cleaning, allow any unsealed cracks to dry thoroughly before applying micro surfacing. Protect manholes, valve boxes, drop inlets and other service entrances from the micro surfacing mixture by a suitable method. The Engineer will approve the surface preparation prior to micro surfacing. No loose aggregate, either spilled from the laydown machine or existing on the road, will be permitted.

335-7.2 Tack Coat:
Place a tack coat on all collector roads prior to constructing a micro surfacing course. A tack coat is not required on residential roads or between the leveling (scratch) course and the surface course provided the surface course is placed within 30 days of the leveling (scratch) course. If required, the tack coat should be type SS, type CSS, or the micro surfacing emulsified asphalt. It may consist of one part emulsified asphalt to three parts water and should be applied with a standard distributor. The distributor shall be capable of applying the tack evenly at a rate of 0.05-0.15 gal/yd.

335-8 Application.
335-8.1 General:
Pre-wet the surface by fogging ahead of the spreader box with water. Adjust the rate of application of the fog spray to suit temperatures, surface texture, humidity, and dryness of the pavement.

The micro surfacing shall be of the desired consistency upon leaving the mixer. Carry a sufficient amount of material in all parts of the spreader box at all times so that complete coverage is obtained. Avoid overloading of the spreader box. Do not allow lumping, bailing, or unmixed aggregate in the micro surfacing mixture.

Do not leave streaks, such as those caused by oversized aggregate, in the finished surface. If excess streaking develops, stop production until the situation has been corrected. Excessive streaking is defined as more than four

drag marks greater than 1/2 inch wide and 4 inches long, or 1 inch wide and 3 inches long, in any 30 yd area. Do not permit transverse ripples or longitudinal streaks of 1/4 inch in depth or greater, when measured by placing a 10-foot straight edge over the surface.

335-8.2 Rate of Application.
The average application rate shall be in accordance with Table 335-6, unless otherwise specified in the Contract Documents. Full width application rates must be maintained within ± 2 lbs/yd of the specified rate. Application rates are based upon the weight of dry aggregate in the mixture. The maximum thickness of any single layer of micro surfacing at the edge of the pavement shall be 1/4 inch.

Table 335-6
Application Rates

AGGREGATE TYPE	LOCATION	APPLICATION RATE(1)	
Type II	Collectors, Local Roads, and Airport Runways	Single Application: 20-24 lbs/yd^2	Double Application (two lifts): Bottom: 14-18 lbs/yd^2 Top: 16-20 lbs/yd^2 Total: 30-34 lbs/yd^2
	Scratch or Leveling Course	As Required --- 12 lb/yd^2 (minimum)	

(1) Application rates are based upon the weight of dry aggregate in the mixture.

335-8.3 Joints:
Prevent excessive buildup, uncovered areas, or unsightly appearance on longitudinal and trans verse joints. Provide suitable-width spreading equipment to produce a minimum number of longitudinal joints throughout the project. Place longitudinal joints on lane lines, where possible.

Use half passes and odd-width passes only when absolutely necessary. Do not apply a half pass as the last pass of any area. Do not overlap longitudinal lane line joints by more than three inches. Do not construct joints having more than a 1/4 inch difference in elevation when measured by placing a 10-foot straight edge over the joint and measuring the elevation drop-off.

Construct longitudinal joints so that water is not held at the joint. Construct transverse joints at the beginning and end project limits so that the elevation difference between the micro surfacing and the adjacent pavement does not exceed 1/4 inch.

335-8.4 Mix Stability:
Produce a micro surfacing mixture that possesses sufficient stability so that premature breaking of the material in the spreader box does not occur. The mixture shall be homogeneous during and following mixing and spreading. The mixture shall be free of excess water or emulsified asphalt and free of segregation of the emulsified asphalt and aggregate fines from the coarser aggregate. Do not spray water directly into the spreader box while applying micro surfacing material under any circumstances.

335-8.5 Handwork:

Utilize hand squeegees to provide complete and uniform coverage of micro surfaced areas that cannot be reached with the mixing machine. Lightly dampen the area to be hand worked prior to mix placement, if necessary. Care shall be exercised to leave no unsightly appearance from handwork. When performing handwork, provide the same type of finish as that applied by the spreader box.

335-8.6 Lines:
Construct straight lines along curbs and shoulders. Do not permit runoff on these areas. Keep lines at intersections straight to provide a good appearance. If necessary, utilize a suitable material to mask off the end of streets to provide straight lines. Edge lines shall not vary by more than 2 inches horizontally.

335-8.7 Cleanup:
Remove micro surfacing mixture from all areas such as manholes, gutters, drainage structures, rumble strips, and as otherwise specified by the Engineer. On a daily basis, remove any debris resulting from the performance of the work.

335-8.8 Post Sweeping:
If required by the Engineer, broom the surface of any loose material within 48 hours after the completion of the micro surfacing. If directed by the Engineer, perform this operation again approximately seven to ten days after completion of the micro surfacing as needed. Additionally, clean the surface, as necessary, prior to application of the final pavement markings.

335-9 Quality Assurance.
335-9.1 Material Monitoring:
Provide a computerized material monitoring system with integrated material control devices that are readily accessible and positioned so the amount of each material used can be determined at any time. Ensure the computer system is functional at the beginning of work and during each calibration. Provide a back-up electronic materials counter that is capable of recording running count totals for each material being monitored. Equip the mixer with a radar ground measuring device. The computer system shall have the capability to record, display and print the following information:

1. Individual sensor counts for emulsion, aggregate, cement, water, and additive.
2. Aggregate, emulsion, and cement output in pounds per minute.
3. Ground travel distance.
4. Spread rate in pounds per square yard.
5. Percentages of emulsion, cement, water, and additive.
6. Cumulative totals of aggregate, emulsion, cement, water, and Additive.
7. Scale factor for all materials.

335-9.2 Sampling and Testing:
The Engineer shall obtain one sample of micro-surfacing mixture each day of production. The Engineer shall test each sample in accordance with FM 5-563 and FM 1-T 030 to determine the residual asphalt content and the gradation of the sample. Evaporate all water from the sample prior to testing. Determine the deviation of the test results for each sample from the mix design target values. Compare the deviation from the mix design to the mixture control tolerances shown in Table 335-7.

Table 335-7 Aggregate and Emulsified Asphalt - Acceptance Limits	
Aggregate	**Tolerance from Mix Design Target Values**
Percent Passing No. 4 Sieve	± 6 percent
Percent Passing No. 8 Sieve	± 7 percent
Percent Passing No. 50 Sieve	± 6 percent
Percent Passing No. 200 Sieve	± 3.0 percent
Emulsified Asphalt	
Residual Asphalt Content of Mixture	± 0.6 percent

335-9.3 Application Rate:
Control the application rate for micro surfacing on a lot basis to within the "Total" range specified in 335-6. A lot will be considered as 0.10 lane miles. No additional compensation will be paid for micro surfacing application rates placed in excess of the "Total" specified range. The unit price for each deficient lot will be reduced by ten percent for each lb/sq yd rate less than the "Total" specified range. For application rates outside the "Total" specified range, stop production of the mixture and make adjustments to correct the problem to the satisfaction of the Engineer prior to resuming production. Accept a pay reduction for deficient lot production or overlay the deficient area at full plan width and depth at no additional cost.

335-9.4 Experience:
All contractors and their subcontractors shall be FDOT prequalified in the work classes of flexible paving and hot plant-mixed bitum courses. Bidders must submit with the bid a minimum of five (5) Micro-surfacing project references from a City or County in the State of Florida, that have been completed within the past three years. Bidders are required to submit detailed information: indicating the project date, number of square yards treated in each and phone number of the government official in charge of each project. Contractor shall be capable of meeting all the requirements of this specification at the time of the bid. The contractor shall have in their possession, in the State of Florida at the time of bidding, four (4) micro-surface truck mounted machines and two (2) self loading machines as described in the equipment section of the specification. Staff shall have the option to inspect the Contractor's equipment and if found deficient, it shall be the basis for rejection of Contractor's bid.

335-10 Basis of Payment.
335-10.1 General:
The micro surfacing shall be paid for at the Contract unit price per square yard, completed and accepted. Such price and payment shall be full compensation for performing all micro surfacing work included in this section, and shall include the cost of all materials, including the cost of the emulsified asphalt and aggregate. Crack sealing, if required, shall be paid for under the appropriate pay item.

Warranty:
The Contractor shall provide the City or County upon final acceptance of the micro surfacing work, a warranty period of three (3) years which shall include all labor, materials, hauling, traffic control and striping to repair the defective areas. Defective areas shall include debonding/delamination, bleeding, excessive raveling and aggregate loss exposing the old roadway surface. The Contractor shall perform all warranty work at no cost to the City or County. The Contractor shall have been doing business in the State of Florida for at least four years from the date of this bid and have full time experienced personal to respond to any warranty issues within 24 hours. The Contractor can be called to preform work or warranty work at any time of the year as needed by the City or County. The Contractor must have a full-time presence with an office, experienced personal and the proper equipment in Florida to respond 365 days a year.
ASPHALTIC SURFACE TREATMENT (CHIP SEAL) SPECIFICATIONS

The work specified in this section consists of furnishing and applying a single, double or triple application of bituminous surface treatment on a paved roadway or on a prepared road base, compacted to the lines, grades, and thickness established by the City and in substantial conformance with the limits established by the owner.

Description: Chip Seal is a pavement surface treatment option that combines a layer of polymer modified liquid asphalt emulsion placed on a prepared base with a layer of aggregate spread and compacted while the asphalt is still liquid.

Materials:
Aggregates: Crushed granite conforming to FDOT specifications section 901, table 1 for #89, #78 or #67 gradation for coarse aggregates except as modified herein. The aggregate shall be washed granite obtained from a source approved by the owner. Sampling and testing of aggregate shall be the responsibility of the contractor. Copies of test results from the aggregate supplier shall be furnished to the owner prior to the start of the surface treatment.

All aggregate, #89, #78 and #67 shall be treated prior to application with Emulsified Asphalt Grade CSS-1H at the rate of .4% to .8% residual asphalt. All aggregate, clean broken stone, shall be pre-coated with an asphaltic material prior to the oil and chip process. All of the stone shall have 100% total coverage. A pugmill shall be used to pre-coat the stone. Stone having less than 100% total coverage shall not be used. The emulsified asphalt grade CSS-1H shall coat the entire surface of all of the aggregate. The pre-coating process is to take place at a location that is approved by the City. The City shall approve the pre-coated aggregate before the seal coat process begins.

All costs for the pre-coating and placement of aggregate shall be included in the cost of the items surface treatment CRS-2P and asphaltic pre-coated cover material, clean broken stone. Payment shall not be made for the surface treatment/pre-coated cover material, clean broken stone unless a representative of the City is present to observe the pre-coating process.

Liquid bituminous material for surface treatment: CRS-2P liquid bituminous material conforming to AASHTO M 316-99. When CRS-2P is specified apply the following modifications:

a.) Distill the CRS-2P at 400°F for 20 min. and
b.) Provide Polymer-Modified Cationic Emulsified Asphalt, CRS-2P produced by using polymer modified base asphalt only. The emulsion shall be pumpable and suitable for application through a distributor truck.

The Cationic mixing grade shall be homogenous and of high quality. The material shall be prepared from straight-run Venezuelan Asphalt of high ductility and shall contain a rubber hydrocarbon additive derived from latex in addition to carefully controlled amounts of selected diluents to promote work ability and minimize stripping. Additives that enhance pavement performance are subject to approval by the City. The polymer material shall be co-milled into the asphalt or added to the emulsifier solution prior to the emulsification process. The amount of polymer modifier shall not be less than 3.0% polymer solids based on the asphalt content (by weight) and will be certified by the emulsified asphalt supplier.

Cationic Asphalt Emulsion

Material Designation		
Test on Emulsion:	Minimum	Maximum
Viscosity, Saybolt Furol, 77 degrees F (25 C), s	---	---
Viscosity, Saybolt, 122 degrees F (50 C), s	100	400
Demulsibility, 35ml, 0.8 percent DSS, %	70	-
Sieve Test, %	-	0.1
Storage Stability	-	1
Residue by Distillation, 350ºF max, %	65	---
Oil distillate, % by volume of emulsion	---	0.5
Residue Test, ASTM D 244 Low Temp	Minimum	Maximum
Penetration, 77ºF, 100gr, 5 sec	70	150
Elastic Recovery, ASTM D 6084, method B, 77ºF, 5 cm/min, %	50	-
Softening Point, ºF	125	-
Solubility in Trichloroethylene, %	97.0	-

Material Samples:
The City will require the Contractor to sample and test each load of emulsion prior to delivery. The Contractor will also provide a sample of the emulsion, on site, prior to commencing work. The City will require the Contractor to provide sample containers and a local Independent testing laboratory with no affiliation to the emulsion supplier for the analyzing of emulsion. The Contractor will be responsible for the cost of the testing. The City reserves the right to test any shipment of emulsion that is believed to be of substandard. All samples shall be shipped and stored in clean air tight sealed wide mouth jars or bottles made of plastic.

Equipment

Distributor:
The liquid bituminous material shall be applied with a truck mounted, pressure distributor that as been calibrated within the previous twelve (12) months, for transverse and longitudinal application rate. The distributor shall be equipped, maintained and operated so that the bituminous material can be applied at controlled temperatures and rates from .035 to 1.5 gallons per square yard. The distributor shall be capable of applying bituminous material of variable widths up to twenty-four (24) feet. The distributor shall uniformly apply the bituminous material to the specified rate with a maximum allowed variation of 0.015 gallons per square yard.

Distributor equipment shall include tachometer, accurate volume measuring device, a calibrated tank and a thermometer for measuring the temperature of the tank's contents. Distributors shall be equipped with a heating device, asphalt pump and full circulating spray bars adjustable laterally and vertically. Distributors and transport trailers shall be equipped with a sampling valve. Distributor trucks shall be of the pressure type with insulated tanks. The use of gravity distributors will not be permitted. The valves shall be operated by levers so that one or all valves may be quickly opened or closed in one operation. The valves which control the flow from nozzles shall act positively so as to provide a uniform unbroken spread of bituminous material on the surface. The distributor shall be equipped with devices and charts to provide for accurate and rapid determination and control of the amount of bituminous material being applied and with a bitumeter of the auxiliary wheel type registering speed in feet per minute, and trip and total distance in feet. Two distributor trucks will be required on all projects.

Aggregate Spreader:
The aggregate spreader shall be a self-propelled unit capable of uniformly spreading the aggregate at the required rate on a minimum width of six (6") inches wider than the width of the lane to be treated. The spreader shall be calibrated within the previous twelve (12) months for transverse and longitudinal application. The spreader shall be capable of extending to a width of 24 feet. The spreader shall be equipped with a computer-controlled aggregate/chip spreader in order to ensure the appropriate aggregate coverage at varying speeds, unless approved otherwise by Engineer.

Rollers:
The contractor shall use one, ten (10) ton steel wheeled roller and two, eight (8) to twelve (12) ton self-propelled pneumatic tire rollers with oscillating wheels and low pressure, smooth tires. Maintain the inflation of the tires such that in no two tires the air pressure varies more than 5 psi.

The rollers will be equipped with an operating water system and coco pads. A sufficient number of rollers and a sufficient number of passes shall be used to ensure cover aggregate is properly rolled.

Self-Propelled Rotary Power Broom:
The self-propelled rotary broom shall be designed, equipped, maintained and operated so the pavement surface can be swept clean. The broom shall have an adjustment to control the downward pressure.

Additional equipment:
Additional equipment will be needed to complete the operations required by this technical provision. All equipment necessary for the successful completion of projects governed by this technical provision shall be included in the unit costs associated herein. Availability of quality assurance devices (such as a 10' straight edge) shall be the responsibility of the Contractor.

Experience:
All contractors and their subcontractors shall be FDOT prequalified in the work classes of drainage, flexible paving, grading, and hot plant-mixed bitum courses. Bidders must submit with the bid a minimum of five (5) Chip Seal project references from a City or County in the State of Florida that have been completed within the past three years. Bidders may be required to submit detailed information regarding the staff that they propose for this project. The Contractor shall be capable of meeting all the requirements of this specification at the time of the bid. The Contractor shall have in their possession, in the State of Florida at the time of bidding, two (2) or more aggregate spreaders and two (2) distributors as described in the equipment section of the specification. Staff shall have the option to inspect the Contractor's equipment and if found deficient, it shall be the basis for rejection of Contractor's bid.

Construction

Layout:
The Contractor will be responsible for the string lining and lay out of the roadway prior to paving.

Weather and Seasonal limitations:
The surface treatment shall not be applied to a wet surface or when rain is occurring or the threat of rain is present immediately before placement. The surface treatment shall not be applied when the temperature is less than 50 degrees Fahrenheit in the shade. When applying emulsions, the temperature of the surface shall be a minimum of 55°F, and no more than 140°F.

Preparation of Surface:
The chip seal material shall be placed on a firm unyielding prepared roadway. The Contractor shall be responsible for clipping back shoulders and removing overburden or any other vegetation or debris to ensure that the road is free of organic and deleterious material. The contractor will be responsible for blowing or sweeping the road immediately ahead of the chip seal operation to make sure the road is free of loose aggregate and other debris.

Application of bituminous material:
Liquid bituminous material shall be applied by means of a pressure type distributor in a uniform, continuous spread over the section to be treated. The distributor shall be moving forward at the proper speed when the liquid is discharged onto the pavement to provide an even and consistent application at the rate prescribed. If any areas are deficient the operation shall be stopped and corrected immediately. The liquid shall not be applied more than two hundred (200') feet in advance of the aggregate spreader when the ambient air temperature is above 75 degrees or one hundred (100') feet if the air temperature is below 75 degrees.

• Single Chip Seal: Application of the liquid bituminous material shall be applied at a rate of .40 -.45 gallons per square yard depending on the composition of the existing road bed, surface texture and the size of the aggregate in use.
• Double Chip Seal: The second application of liquid bituminous material shall be applied at a rate of .40 - .42 gallons per square yard depending upon the size of the first layer of aggregate that the liquid is sprayed upon and the size of the aggregate being placed over the first application of surface treatment.
• Triple Chip Seal: The third application of liquid bituminous material shall be applied at a rate of .35 - .38 gallons per square yard depending upon the size of the first two layers of aggregate that the liquid is sprayed upon and the size of the aggregate being placed over the first and second applications of surface treatment.

Application of cover Aggregate:
Immediately following the spray application of the liquid bituminous material, cover aggregate shall be spread over the liquid material at a rate of 25 - 30 Ibs square yard depending upon the type of road base and/or the size of the existing aggregate that is being resurfaced.

Rolling:
Immediately following the first application of the cover material, roll the entire surface with a pneumatic roller, followed immediately with the steel drum roller. Cover the entire surface one time with the steel drum roller. Then, roll the cover material again with the pneumatic roller.

Continue rolling as long as necessary to ensure thorough keying of the cover aggregate into the liquid bituminous material. Eliminate the steel drum when rolling the second application of cover aggregate. Apply the second application of liquid and cover material the same day as the first application, as far as it is practicable and consistent with the setting of the liquid bituminous material.

Sweeping:
After rolling of the first application of cover aggregate, lightly broom the loose aggregate in a manner not to dislodge the aggregate embedded in the liquid. Sweep loose material from road bed. Following second application again broom loose aggregate from the road bed prior to the application of the fog seal. If temperatures exceed 85 degrees, it may be necessary to wait 24 hours before sweeping the first application of chip seal.

Fog Seal:
Upon direction from the engineer, fog seal is to be applied as a separate pay item. When surface treatment has set, a fog seal is to be applied at a rate of .1 to .15 gallons per square yard to the entire surface treatment. The liquid for fog seal shall be a cationic mixing type emulsion diluted forty (40%) percent with water. If sanding is needed, the fog seal shall be lightly sanded at a rate of plus or minus two (2) pounds per square yard by means of a mechanical spreader.

General Performance:
Provide completed pavement which performs to the satisfaction of the engineer without bleeding, rutting, shoving, raveling, stripping, or showing other types of pavement distress or unsatisfactory performance.

Traffic Control:
The Contractor shall furnish all necessary traffic control, barricades, signs and flagmen, to ensure the safety of the traveling public and to all working personnel. Traffic shall not travel on fresh mix until rolling and blotting has been completed. The Contractor shall have on site an M.O.T. person with no less than an Intermediate

certification and submit an M.O.T plan indicating all facets of traffic control for the project area. The M.O.T. plan must be approved in writing by the City prior to commencing any work. All traffic control shall be in accordance with the FDOT Roadway Design Standards, most current edition and TP-102. M.O.T. and associated devices shall be checked daily and periodically throughout the project for compliance; and where adjustments or corrections are needed, prompt revisions shall be made.

Method of Measurement:
If a pay item is listed on the Bid Form for work required in this Technical Provision, the quantity to be paid shall be as specified in the Bid Form including all items of work described herein. Any item necessary for Chip Seal, and not specifically listed in another item in the Bid Form, shall be included in this item. Should the contractor be directed to place Fog Seal as a secondary application to Chip Seal, it shall be measured separately as listed in the Technical Provision for Fog Seal. The prime contractor must perform at least 51% or more of the project that includes Chip Seal.

Basis of Payment:
The quantities to be paid for under this Technical Provision shall be included in the Square Yard price for Chip Seal (Single application), Chip Seal (Double application) or Chip Seal (Triple application) as listed in the Bid Form. The Unit price includes all items listed in the contract, including all General Conditions, Special Conditions and Technical Provisions pertaining to Chip Seal, including all items of work described herein. No additional payment will be provided for any item necessary for the completion of this contract as detailed in the specifications, except that at the direction of the City, Fog Seal shall be applied and paid separately as listed in the Technical Provision for Fog Seal.

Cape Seal will be the combined price per SY of a Single Chip Seal and a Double Micro-surface.

Cape Seal Applications:
For Cape Seal applications a Single Chip Seal with #89 stone (treated with CSS-1H) aggregate will be applied to the roadway. After sweeping the single chip seal in 24 to 48 hours a double micro-surface 30-34 Ibs/SY will be applied in two lifts. (See Micro-surfacing Specifications and warranty)

FULL DEPTH RECLAMATION WITH ASPHALT EMULSION SPECIFICATIONS
This work shall consist of the preparation of a stabilized base course composed of a mixture of the existing bituminous concrete pavement, existing base course material and emulsified asphalt and other additives. The manufacturing of the stabilized base course shall be done by in-place pulverizing and blending of the existing pavement and base materials, and the introduction of asphalt emulsion and additives if called for in the Special Conditions or design mix formula. The process which results in a stabilized base course shall be accomplished in accordance with these specifications and conform to the lines and grades established by the engineer. Existing asphalt pavement shall be pulverized by a method that does not damage the material below the plan depth as shown on the appropriate roadway section.

Materials:
RAP: Materials must meet all requirements specified in the 2010 Florida Department of Transportation Standard Specifications for Road and Bridge Construction 283-2, except that 98% of all material is required to pass through a 50 mm (2 inch) sieve.

Additional Base Materials: Additional base materials may be needed for adjusting grade elevations as directed by the engineer, or for widening. When such additional material is required it shall be among those bases listed in FDOT Design Standards as General Use Optional Base Materials and meet applicable FDOT requirements for such.

Asphalt Emulsion: When asphalt emulsion treatment is specified, asphalt emulsion, type CSS- 1h or CMS-2h mod., meeting the requirements of ASTM D2397-98, shall be utilized.

Portland Cement: When a blend of asphalt emulsion and Portland cement is specified the Portland cement shall be type I or II and conform to the latest standard requirements of ASTM C150 and AASHTO M85. If cement is added with emulsion no more than 4% shall be used on the project.

Water: The water for the base course compaction and foaming additive shall be clean and free from sewage, oil, acid, strong alkalies, or vegetable matter and it shall be in sufficient supply for mixing and curing. Water of questionable quality shall be tested in accordance with the requirements of AASHTO T 26.

Soil: The soil base to be reclaimed shall be evaluated by a professional geotechnical engineering laboratory to determine suitability in the stabilization process. The soil shall be free of roots, sod, weeds, and shall not contain gravel or stone retained on a 1-inch (25 mm) sieve, or more than 45% retained on a No. 4 (4.75 mm) sieve, as determined by ASTM C 136.

Equipment:
Road Reclaimer: Shall be originally designed for pavement reclaiming of a size equal to or larger than a Caterpillar Model RM-350B with comparable specifications including horsepower and rotor size. The reclaimer shall be capable of pulverizing and mixing pavement, base materials, and subgrade soil to depth of 16 inches. It shall have the capability of introducing and metering additives uniformly and accurately and that positive displacement pumps accurately meter the planned amount of asphalt emulsion into the mixture. The reclaiming machine shall mix the emulsified asphalt additive thoroughly with the RAP and soil materials. The pump shall be mechanically or electronically interlocked with the ground speed of the machine. The asphalt metering system and water metering system shall be capable of continuously monitoring (GPM) flow, and totaling the quantity of water and asphalt applied into the mixing chamber. Additives shall be uniformly distributed and mixed with the pulverized material, any existing underlying material as specified.

Motor Grader: Shall be of sufficient size and horsepower to adequately rough grade the pulverized base and rough and finish grade the mixed and compacted base. The equipment shall be in good working order free from leaks and capable of maintaining an accurate grade and cross-slope.

Rollers: Shall be in good working order free from leaks and capable of compacting the mix to the requirements of this specification: Vibratory rollers shall be a minimum of 10 tons and capable of rolling in either vibratory or static mode. Three wheel static rollers shall be a minimum of 11 tons. Pneumatic tire rollers shall have a minimum of 9 oscillating wheels with smooth, low pressure tires (pressure shall be equally matched in all tires within 5 PSI) and weigh at least 20 tons. Initial compaction shall be accomplished by either single or dual drum vibratory or three wheel roller static rollers.

Additional equipment: Additional equipment will be needed to complete the operations required by this technical provision. All equipment necessary for the successful completion of projects governed by this technical provision shall be included in the unit costs associated herein. Availability of quality assurance devices (such as a 15' straight edge) shall be the responsibility of the Contractor.

Cement Delivery Equipment: A calibrated screw-type distributor shall be used with a curtain to accurately place the amount of cement required by the mix design onto the roadbed for mixing.

Experience:
All contractors and their subcontractors shall be FDOT prequalified. Bidders must submit a minimum of five Full Depth Reclamation (with emulsion stabilization) project references that have been completed within the past three years. Bidders may be required to submit detailed information regarding the staff that they propose for this project. Contractor shall be capable of meeting all the requirements of this specification at the time of the bid. Staff shall have the option to inspect the Contractor's equipment and if found deficient, it shall be the basis for rejection of Contractor's bid.

Construction:

Layout: The Contractor will be responsible for the string lining and lay out of the roadway prior to paving. Elevations of the existing road must be referenced at sufficient intervals to ensure the roadway elevation is not changed in any location after final surface is placed. Method for layout and line and elevation reference must be approved by the engineer prior to beginning work. It is imperative that roadway elevations remain unchanged except cross slope correction or as approved by the engineer.

Weather and Seasonal limitations: The base shall not be mixed or placed while the atmospheric temperature is below 35 F (2 C) or when conditions indicate that the temperature may fall below 35 F (2C) within 24 hours, or when the weather is foggy or rainy, or when the soil or sub grade is frozen.

Mix Design: Prior to base course construction, a minimum of one (1) core sample must be taken for every 5,000 square yards of the roadway. Representative samples of the RAP material, underlying base material and virgin materials, where applicable, shall be supplied to a nationally accredited laboratory for preliminary testing to determine the optimum moisture content and proportions of asphalt emulsion or foamed asphalt needed to produce a finished base course with a mix design target of 300 PSI and a final in place base compressive strength of 200 to 400 PSI. Laboratory tests of material to be reclaimed and virgin materials for use as base shall be performed to determine compliance with 3-day and 7-day minimum compressive strength requirements of the mixture and the quantity of asphalt emulsion or foamed asphalt required in the mix. Test specimens containing various amounts of asphalt emulsion or foamed asphalt are to be compacted in accordance with ASTM D558, and the optimum moisture for each amount of either is to be determined. Actual application quantities for the additives will be derived from the mix design. The minimum compressive strength requirements of the mixture shall be determined by the engineer. The mix design and laboratory testing shall be performed by a geotechnical engineering laboratory and all reports sealed by a professional engineer.

Mix Design Performance Criteria		
100 mm specimens shall be prepared in a Superpave Gyratory compactor. The mixture should meet the following criteria at the selected design asphalt emulsion content:		
Property	***Criteria***	***Purpose***
Compaction effort, Superpave Gyratory Compactor AASHTO T312	1.25° angle, 600 kPa stress, 30 gyrations	Density Indicator
Density, ASTM D2726 or equivalent	Report	Compaction Indicator
Gradation for Design Millings, ASTM C117	Report	
*Marshall stability, ASTM D6926, D6927, 40°C	1,250 lb min.	Stability Indicator
**Resistance of Compacted Bituminous Mixture to Moisture Induced Damage AASHTO T283 - Retained stability based on cured stability	70 % min.	Ability to withstand moisture damage
** Cured stability tested on compacted specimens after 60°C (140°F) curing to constant weight.*		
***Vacuum saturation of 55 to 75 percent, water bath 25°C 23 hours, last hour at 40°C water bath*		

Widening: When the existing base is to be widened, the Contractor shall excavate the shoulder from the edge of the existing pavement to at least 6 inches beyond the planned new width of the base prior to pulverization. All costs involved in collecting, hauling, and disposing of these materials shall be borne by the Contractor. The bottom of the trench shall be kept free of loose soil and vegetation. Approved base material (those bases listed in FDOT Design Standards as General Use Optional Base Materials) shall be placed in the excavation uniformly and without loss or contamination. The Contractor shall correct all areas of irregular grade or deficient thickness and shall remove and replace material contaminated with soil, organic material, or debris. After the final pass of the reclaimer, soil shall be drawn up against the widening material to close the excavation, and the shoulder shall be graded and compacted to produce a firm, even surface.

Additional Material: When additional material is to be added to correct cross slope deficiencies or change elevation as directed by the engineer, approved base material (those bases listed in FDOT Design Standards as General Use Optional Base Materials) shall be placed on the roadway prior to final pass for pulverization and mixed uniformly with the existing material.

Pulverization: The existing pavement and base material shall be pulverized and blended to the depth required so the entire mass of material shall be uniformly graded to the following gradation:

SIEVE SIZE	PERCENT PASSING
2”	98 - 100
1-1/2”	95

Material gradation may vary due to local aggregates and conditions. Multiple passes of the reclaimer may be necessary to achieve the required gradation. The asphalt emulsion or asphalt and water (to produce a foamed asphalt) shall be introduced into the mix through the reclaimer uniformly and accurately and metered such that areas are of equal consistency and moisture content. The reclaimed material and additives shall be combined in place to meet the requirements specified in such proportions that the reclaimed mixture is of acceptable composition and stability. Before the start and at the end of each day's work and at any time requested, the engineer must be permitted access to the mixing equipment in order to read the meter to verify the quantity of asphalt emulsion applied during the day's work. Field adjustments shall be made as necessary to the recommended mix design under the guidance of a knowledgeable and competent technician or superintendent to obtain a satisfactory reclaimed mixture of consistent composition and stability throughout the Project. After the material has been processed, it shall be compacted to the lines, grades, and depth required. Water may be applied to ensure optimum moisture content at the time of mixing and compaction.

Compaction: Commence rolling with self propelled rollers as required by this technical provision at the low side of the course, except leave 3 to 6 inches from any unsupported edge or edges unrolled initially to prevent distortion. Density readings shall be taken by Contractor's licensed nuclear gauge operator and witnessed by the Engineer/inspector. A control strip of not less than 500 feet shall be constructed to develop proper rolling/compaction patterns and methods to obtain desired density. Whenever there is a change in the reclaimed material or compaction method, equipment or unacceptable results occur, a new control strip shall be constructed, tested and analyzed. Rollers shall move at a uniform speed that shall not exceed 8 km/hour (5 miles/hour). For static rollers, the drive drum normally shall be in the forward position or nearest to the paver. Vibratory rollers shall be operated at the speed, frequency and amplitude required to obtain the required density and prevent defects in the mat. The number, weight and type of rollers furnished shall be sufficient to obtain the required compaction of the reclaimed material. The field density of the compacted mixture shall be at least 95 percent of the maximum density of laboratory specimens prepared from samples of the base material taken from the material in place. The specimens shall be compacted in accordance with ASTM D 558. The in-place field density shall be determined in accordance with ASTM D 2922. Any pavement shoving or other unacceptable displacement shall be corrected. The cause of the displacement shall be determined and corrective action taken immediately and before continuing rolling. Care shall be exercised in rolling the edges of the reclaimed mixture so the line and grade of the edge are maintained. At the end of each day's production, a transverse construction

joint shall be formed by a header or by cutting back into the compacted material to form a true vertical face free of loose material. The protection provided for construction joints shall permit the placing, spreading, and compacting of base material without injury to the work previously laid. Where it is necessary to operate or turn any equipment on the completed base course, sufficient protection and cover shall be provided to prevent damage to the finished surface. A supply of mats or wooden planks shall be maintained and used as approved and directed by the Engineer.

Finishing: Finishing operations shall be completed and the base course shall conform to the required lines, grades, and cross section. If necessary, the surface shall be lightly scarified to eliminate any imprints made by the compacting or shaping equipment. The surface shall then be recompacted to the required density. Correct all irregularities greater than 1^" over ten feet to the satisfaction of the engineer.

Protection and Curing: After the base course has been finished as specified herein, it shall be protected against drying for a period of 5 to 7 days by the application of a prime coat as specified in FDOT Standard Specifications section 300 at a rate of not less than 0.15 gal/sy. The curing method shall begin as soon as possible, but no later than 24 hours after the completion of finishing operations. The finished base course shall be kept moist continuously until the curing material is placed. At the time the prime coat is applied, the surface shall be dense, free of all loose and extraneous material, and shall contain sufficient moisture to prevent penetration of the bituminous material. Water shall be applied in sufficient quantity to fill the surface voids immediately before the bituminous curing material is applied. The curing material shall be maintained and re-applied as needed by the Contractor during the 7-day protection period so that all of the soil-cement will be covered effectively during this period. Finished portions of soil-cement that are used by equipment in constructing an adjoining section shall be protected to prevent equipment from marring or damaging the completed work. When the air temperature may be expected to reach the freezing point, sufficient protection from freezing shall be given the soil-cement for 7 days after its construction and until it has hardened.

Thickness: The average thickness of the base constructed during one day shall be within ½ inch (12 mm) of the thickness required, except that the thickness of any one point may be within 3/4 inch (19 mm) of that required. Where the average thickness shown by the measurements made in one day's construction is not within the tolerance given, the Engineer shall evaluate the area and determine if, in his/her opinion, it shall be reconstructed at the Contractor's expense or the deficiency deducted from the total material in place.
Sampling and Testing:

Control Testing for Full Depth Reclamation Field Sampling and Testing

Type of Test	Method	Frequency	Size and Location
RAP and Soil Cement Base Gradation	ASTM D-136	Each 3000 SY (not less than once per day)	20 lb min sampled from hopper
Moisture Density Relationship of Soil Cement Mixtures	ASTM D-558	Each 1000 SY (not less than once per day)	33 lb min sampled from pulverized base
Compressive Strength of Molded Soil Cement Cylinders	ASTM D-1633	Each 3000 SY (not less than once per day)	33 lb min sampled from pulverized and mixed base
In-place Field Density	ASTM D-2922	Each 250 SY (not less than once per day)	Random locations after spreading and compacting

specified depth shall be removed and satisfactorily replaced by the contractor at no additional cost. At the City's option, cores may be taken by the engineer in the finished product to further ensure base thickness meets requirements. All delivery tickets and notes regarding any materials brought to the project site to complete this Contract must be given to the Engineer/Inspector upon delivery to the project site. Additional sampling and testing may be required if major changes in RAP characteristics are observed, such as a much coarser or finer gradation or a noticeable difference in asphalt content, or when considerable variability is occurring in the field test results.

Method of Measurement:
If a pay item is listed on the Bid Form for work required in this Technical Provision, the quantity to be paid shall be as specified in the Bid Form including all items of work described herein. An item necessary for Full Depth Reclamation with Asphalt Emulsion, and not specifically listed in another item in the Bid Form, shall be included in the SY Price for Pulverization including but not limited to shaping, compacting, finish grading, prime coat, sanding prime coat... Cost for introduction of asphaltic cement into the mixture shall be included in the per GL cost for Asphalt Emulsion. Cost for excavation for widening will be included in the CY Price for Excavation. Cost for additional materials needed for widening or adjustment of grade as directed by the engineer shall be included in the per TON Price for General Use Optional Base Material.

Basis of Payment:
The quantities to be paid for under this Technical Provision shall be included in the Square Yard price for Full Depth Reclamation (Pulverization), the per Gallon price for Asphalt Emulsion, the per Cubic Yard price for Excavation and the per TON price for General Use Optional Base Material. The Unit prices include all items listed in the contract, including all General Conditions, Special Conditions and Technical Provisions pertaining to Full Depth Reclamation with Asphalt Emulsion, including all items of work described herein. No additional payment will be provided for any item necessary for the completion of this contract as detailed in the specifications.

RAP / Milling Placement Specifications

1. Mobilize a crusher to crush millings to 1/2" minus
2. Load & haul crushed millings to the attached locations
3. Prior to placement of the crushed RAP the existing roads shall be clipped and any low areas (pot holes included) shall be filled and rolled with a standard rolling pattern.
4. The crushed Rap must have the proper amount of moister to allow for compaction/ be placed by a self propelled Paving Machine with a standard 10; main screed, be able to hold an 18' roadway from edge to edge, and will be compacted to a standard rolling pattern according to the 2000 Standard DOT Spec. Book
5. Spread rate of the application of crushed RAP of will be placed at 250 Ibs per SY
6. After accepted, it will have to be Primed & Sanded at an application rate not less than 0.10 Gal/Per SY, unless a lower rate is directed by LCDOT.
7. Dress the edges at any drop offs and positive Drainage
8. Driveway tie ends shall not exceed more than 1" at concrete or Paved drives

FOG SEAL SPECIFICATIONS

The work specified in this section consists of furnishing and applying fog seal on existing roads at application rates described here-in.

Description: Fog seals are a method of adding asphalt to an existing pavement surface to improve sealing or waterproofing, prevent further stone loss by holding aggregate in place, or simply improve the surface appearance. Generally, fog seal is a light spray application of diluted asphalt emulsion used primarily to seal an existing asphalt surface to reduce raveling and enrich dry and weathered surfaces. However, inappropriate use can result in slick pavements and tracking of excess material.

Materials:
The emulsion types recommended for fog seals may be cationic (i.e., a positive surface charge on the asphalt particles), or anionic (i.e., a negative surface charge on the asphalt particles).The primary types used are CSS-1h and SS-1h. In some circumstances, CQS-1h (and LMCQS-1h) will give a faster set.

Liquid emulsified bituminous material for dilution: CSS-1h liquid bituminous material conforming to the requirements of AASHTO Ml 208 or SS-1h conforming to the requirements of AASHTO M 140 (except as modified herein) shall be utilized. The contractor shall certify the liquid bituminous material meets the aforementioned specifications.

The asphalt emulsion may contain up to 43% water prior to dilution. Original emulsion water and dilution water shall be limited to and not exceed for any reason 50% by volume. Therefore, residual asphalt shall equal 50% (+1%, -0%).

Dilution Water and Emulsion Water: Water introduced into the asphalt must be potable and free from detectable solids or incompatible soluble salts (hard water).

Material Samples:

The City will require the Contractor to sample and test each load of emulsion prior to delivery. The Contractor will also provide a sample of the emulsion, on site, prior to commencing work. The City will require the Contractor to provide sample containers and a local Independent testing laboratory for the analyzing of emulsion. The Contractor will be responsible for the cost of the testing. The City reserves the right to test any shipment of emulsion that is believed to be of substandard. All samples shall be shipped and stored in clean air tight sealed wide mouth jars or bottles made of plastic.

Equipment

Distributor:

The liquid bituminous material shall be applied with a truck mounted, pressure distributor that has been calibrated within the previous twelve (12) months, for transverse and longitudinal application rate. The distributor shall be equipped, maintained and operated so that the bituminous material can be applied at controlled temperatures and rates from .03 to .22 gallons per square yard with nozzles adjusted to allow minimum overlap of 3x. The distributor shall be capable of applying bituminous material of variable widths up to sixteen (16) feet. The distributor shall uniformly apply the bituminous material to the specified rate with a maximum allowed variation of 0.015 gallons per square yard. Distributor equipment shall include tachometer, accurate volume measuring device, a calibrated tank and a thermometer for measuring the temperature of the tank's contents.

Distributors shall be equipped with an asphalt pump and full circulating spray bars adjustable laterally and vertically. Distributors and transport trailers shall be equipped with a sampling valve. Distributor trucks shall be of the pressure type with insulated tanks. The use of gravity distributors will not be permitted. The valves shall be operated by levers so that one or all valves may be quickly opened or closed in one operation. The valves which control the flow from nozzles shall act positively so as to provide a uniform unbroken spread of bituminous material on the surface. The distributor shall be equipped with devices and charts to provide for accurate and rapid determination and control of the amount of bituminous material being applied and with a bitumeter of the auxiliary wheel type registering speed in feet per minute, and trip and total distance in feet.

Additional equipment:

Additional equipment will be needed to complete the operations required by this technical provision. All equipment necessary for the successful completion of projects governed by this technical provision shall be included in the unit costs associated herein. Availability of quality assurance devices shall be the responsibility of the Contractor.

Experience:

All contractors and their subcontractors shall be FDOT prequalified. Bidders must submit a minimum of five Fog Seal project references that have been completed within the past three years. Bidders may be required to submit detailed information regarding the staff that they propose for this project. Contractor shall be capable of meeting all the requirements of this specification at the time of the bid. Staff shall have the option to inspect the Contractor's equipment and if found deficient, it shall be the basis for rejection of Contractor's bid.

Construction

Layout:

The Contractor will be responsible for the layout of the roadway and project planning and sequencing to meet traffic control requirements prior to paving.

Weather and Seasonal limitations:

The fog seal shall not be applied to a wet surface or when rain is occurring or the threat of rain is present immediately before placement. The surface treatment shall not be applied when the temperature is less than 50 degrees Fahrenheit in the shade. When applying emulsions, the temperature of the surface shall be a minimum of 59°F, and no more than 140°F. If unexpected rain occurs prior to the emulsion breaking, the area shall be re-fogged at no cost to the City. Further, the contractor's traffic control and project monitoring shall continue until the

surface is either free of emulsion or the emulsion applied has broke and the resultant surface is not slippery or dangerous to vehicular travel.

Preparation of Surface:
The contractor will be responsible for blowing or sweeping the road immediately ahead of the fog seal operation to make sure the road is free of loose aggregate and other debris. The surface shall be clean and dry prior to the application.

Application of bituminous material:
The emulsion shall be diluted no more than 24 hours before its intended use to avoid settlement of the diluted emulsion. Water shall be introduced into the emulsion. Introducing emulsion into water is not permitted. The emulsion shall be circulated using a centrifugal or other suitable pump to ensure uniformity as needed.
Properly calibrated distributor trucks with 4 to 5 mm (1/8" to 3/16") opening spray nozzles shall be used to apply the emulsion. The emulsion may be heated to 122°F maximum, or may be applied at ambient temperatures conforming to the requirements of this technical provision. The emulsion shall be sprayed at a rate as directed in the field by the City. Application will be determined dependent upon the surface conditions.

Tight Surface (low absorbance and relatively smooth) - .09-.14 gal/sy

Open Surface (relatively porous and absorbent with open voids) - .18-.22 gal/sy
Exceptions: When fog seal is required as a subsequent treatment to chip seal, OGCM, or other method described in this contract, materials, equipment and application shall be as described in this technical provision and as amended in the technical provision appropriate to the work the fog seal is subsequent to. If discrepancies occur, the City shall determine the appropriate specification.

Traffic Control:
The Contractor shall furnish all necessary traffic control, barricades, signs and flagmen, to ensure the safety of the traveling public and to all working personnel. Traffic shall not travel on fresh fog seal until material is sufficiently broke such that tire pickup does not occur. The Contractor shall submit an M.O.T plan indicating all facets of traffic control for the project area.
The MOT plan must be approved in writing by the City prior to commencing any work. All traffic control shall be in accordance with the FDOT Roadway Design Standards, most current edition and TP-102. M.O.T. and associated devices shall be checked daily and periodically throughout the project for compliance; and where adjustments or corrections are needed, prompt revisions shall be made.

Method of Measurement
If a pay item is listed on the Bid Form for work required in this Technical Provision, the quantity to be paid shall be as specified in the Bid Form including all items of work described herein. Any item necessary for Fog Seal, and not specifically listed in another item in the Bid Form, shall be included in this item.

Basis of Payment:
The quantities to be paid for under this Technical Provision shall be included in the per square yard price for Fog Seal. There will be a bid item for "Tight Surfaces" (.09-. 14 gal/sy) and a separate bid item for "Open Surfaces" (.18-.22 gal/sy) as listed in the Bid Form. The Unit price includes all items listed in the contract, including all General Conditions, Special Conditions and Technical Provisions pertaining to Fog Seal, including all items of work described herein. No additional payment will be provided for any item necessary for the completion of this contract as detailed in the specifications.

CAPE SEAL SPECIFICATIONS

Description:
The work specified in this section consists of furnishing and applying a single application of polymer modified bituminous surface treatment followed by a mixture of polymer-modified emulsified asphalt, mineral aggregate,

mineral filler, water, and other additives, properly proportioned, mixed and spread on a paved surface, established by the City and in substantial conformance with the limits established by the owner. This two-step process is called a Cape Seal.

Materials

Aggregates: for the first coat, surface treatment crushed granite conforming to FDOT specifications section 901, table 1 for #89 gradation for coarse aggregates except as modified herein. The aggregate shall be washed granite obtained from a source approved by the owner.

Sampling and testing of aggregate shall be the responsibility of the contractor. Copies of test results from the aggregate supplier shall be furnished to the owner prior to the start of the surface treatment.

All aggregate, #89 shall be treated prior to application with Emulsified Asphalt Grade CSS-1H at the rate of .4% to .8% residual asphalt. All aggregate, clean broken stone, shall be pre-coated with an asphaltic material prior to the oil and chip process. All of the stone shall have 100% total coverage. A pugmill shall be used to pre-coat the stone. Stone having less than 100% total coverage shall not be used. The emulsified asphalt grade CSS-1H shall coat the entire surface of all of the aggregate. The pre-coating process is to take place at a location that is approved by the City. The City shall approve the pre-coated aggregate before the seal coat process begins. All costs for the pre-coating and placement of aggregate shall be included in the cost of the item Cape Seal.

Payment shall not be made for the Cape Seal unless a representative of the City is present to observe the pre-coating process.

Aggregates: for the final coat, use an aggregate consisting of 100% crushed stone. The aggregate shall be a crushed stone such as granite, slag, limestone, chat, or other high-quality aggregate, or a combination thereof. To assure the material is 100 percent crushed, the parent aggregate will be larger than the largest stone in the gradation used. Use aggregate source(s) from the list of aggregates available on the Florida Department of Transportation's website and also meeting the requirements of this specification. The URL for obtaining the list of aggregates is: ftp://ftp.dot.state.fl.us/fdot/smo/website/sources/frictioncourse.pdf In addition to the requirements of FDOT Standard Specification Sections 901 and 902, meet the minimum aggregate requirements of Table 62-1.

Table 62-1
Quality Tests for Aggregate

AASHTO Test No.	Aggregate Property	Specification Requirements
AASHTO T 176	Sand Equivalent	65 Minimum
AASHTO T 104	Soundness	15% Maximum using Na_2SO_4 or 25% Maximum using $MgSO_4$
AASHTO T 96	Abrasion Resistance (1)	30% Maximum

(1) The abrasion test will be performed on the parent aggregate.

Gradation Requirements:

When tested in accordance with FM 1-T 027 and FM 1-T 011, the target (mix design) aggregate gradation, including the mineral filler, shall be within the gradation range for a Type II mixture shown in Table 62-2, Column II.

Table 62-2 Mix Design Gradation Requirements			
Sieve Size	Type II Mix Design Range Percent Passing		Stockpile Tolerance from Mix Design Percent Passing
3/8 inch	100		N/A
No. 4	90 – 100		± 5%
No. 8	65 – 90		± 5%
No. 16	45 – 70		± 5%
No. 30	30 – 50		± 5%
No. 50	18 – 30		± 4%
No. 100	10 – 21		± 3%
No. 200	5 – 15		± 2%

The aggregate will be accepted from the stockpile located at the project. The stockpile will be accepted based on five quality control gradation tests conducted in accordance with FM 1-T 002.

If the average of the five gradation tests is within the stockpile tolerances shown in Table 62-2, Column III for all of the sieve sizes, then the stockpile is accepted. If the average of the five gradation tests is not within the stockpile tolerances shown in Table 62-2, Column III, for any sieve size, remove the stockpiled material and replace it with new aggregate or blend other aggregate sources with the stockpiled material. Aggregates used in blending must meet the quality tests shown in Table 62-1 before blending and must be blended in a manner to produce a consistent gradation and sand equivalent value. If new aggregate is obtained or blending of aggregates is performed resulting in an aggregate that is not represented by the mix design, submit a new mix design to the Engineer for approval prior to production of the mix.

The Engineer may obtain stockpile samples at any time. If the average of five gradation tests conducted in accordance with FM 1-T 002 is not within the gradation tolerances shown in Table 62-2, Column III for any sieve size, cease production until the problem is corrected to the satisfaction of the Engineer.

Screen all stockpiled aggregates at the stockpile area prior to delivery to the paving machine to remove oversize material and non-desirable particles.

Mineral Filler:

If mineral filler is utilized in the mix design, use non air-entrained Portland cement or hydrated lime that is free from lumps. The Engineer will accept the mineral filter by visual inspection. The type and amount of mineral filler shall be determined by a laboratory mix design and will be considered as part of the aggregate gradation. An increase or decrease of less than one percent mineral filler may be permitted during production if it is found to result in better consistency or set times. Any changes to the percentage of mineral filler must meet the requirements of Table 62-4.

Water:

Utilize water that is potable and free of harmful soluble salts, reactive chemicals, or any other contaminants.

Additives:

Additives may be added to the mixture or any of the component materials to provide control of quick-trafficking properties. The additives to be used should be indicated on the mix design and be compatible with the other components of the mix.

Mix Design:

Before work begins, the Contractor shall submit a mix design to the Engineer. The mix design must have an aggregate source used on five (5) similar projects and have been developed using the specific materials to be used on the project. The mix design shall be developed by an independent, accredited laboratory with no affiliation to the emulsion supplier and is endorsed by the International Slurry Surfacing Association (ISSA) and has experience in designing such mixtures.

Submit the proposed mix design with supporting test data indicating compliance with all mix design criteria. Allow the Engineer a maximum of two weeks to either conditionally verify or reject the mix design.
Meet the requirements provided in Table 62-3. After the mix design has been approved, no substitutions to the mix design will be permitted, unless approved by the Engineer. The Engineer will consider inadequate field performance of a mix as sufficient evidence that the properties of the mix related to the mix design have changed, and the Engineer will no longer allow the use of the mix design. The project will be stopped until it is demonstrated that those properties, or issues, have been sufficiently addressed.

Table 62-3
Mix Design Testing Requirements

ISSA Test No.	Property	Specification Requirements
ISSA TB-139(1)	Wet Cohesion: @ 30 Minutes Minimum (Set) @ 60 Minutes Minimum (Traffic)	 12 kg-cm Minimum 20 kg-cm or Near Spin Minimum
ISSA TB-109	Excess Asphalt by Loaded Wheel Tester (LWT) Sand Adhesion	50 g/ft^2 Maximum
ISSA TB-114	Wet Stripping	90% Minimum
ISSA TB-100	Wet-track Abrasion Loss: One-hour Soak Six-day Soak	 50 g/ft^2 Maximum 75 g/ft^2 Maximum
ISSA TB-147	Lateral Displacement Specific Gravity after 1,000 Cycles of 125 lb.	5% Maximum 2.10 Maximum
ISSA TB-113(1)	Mix Time @ 77°F (25°C)	Controllable to 120 Seconds Minimum

(1) The Cohesion test and Mixing Time test should be checked and reported for the highest temperatures expected during construction.

The mix design must clearly show the proportions of aggregate, emulsified asphalt, mineral filler, water, and additive usage based on the dry weight of the aggregate. Meet the mix design component material requirements provided in Table 62-4.

Table 62-4
Mix Design Component Material Requirements

Component Materials	Specification Requirements
Residual Asphalt	5.5 to 10.5% (by dry weight of aggregate)
Mineral Filler	0.5 to 3.0% (by dry weight of aggregate)
Polymer-based Modifier	Minimum of 3.0% (solids based on asphalt weight content)
Additives	As needed
Water	As required to produce proper mix consistency

The materials (aggregates, emulsion, mineral filler, and additives) must be from the same source, grade and type used to develop the approved mix design. Any substitutions or alternate supplies must be preapproved by the Engineer. Changes in the aggregate source or emulsion source requires re-validating the mix design and the performance properties. Blending, comingling and otherwise combining materials from two or more sources, grades or types is strictly prohibited.
Aggregate stockpiles and emulsion material should be located at or near the job site in sufficient quantity for the job or designated parts of the job.

Liquid bituminous material for the first coat: CRS-2P liquid bituminous material conforming to AASHTO M 316-99. When CRS-2P is specified apply the following modifications:
a.) Distill the CRS-2P at 400°F for 20 min. and

b.) Provide Polymer-Modified Cationic Emulsified Asphalt, CRS-2P produced by using polymer modified base asphalt only. The emulsion shall be pumpable and suitable for application through a distributor truck.
The Cationic mixing grade shall be homogenous and of high quality. The material shall be prepared from an Asphalt of high ductility and shall contain a rubber hydrocarbon additive derived from latex in addition to carefully controlled amounts of selected diiuents to promote work ability and minimize stripping. Additives that enhance pavement performance are subject to approval by the City. The polymer material shall be co-milled into the asphalt or added to the emulsifier solution prior to the emulsification process. The amount of polymer modifier shall not be less than 3.0% polymer solids based on the asphalt content (by weight) and will be certified by the emulsified asphalt supplier.

Cationic Asphalt Emulsion

Material Designation		
Test on Emulsion:	Minimum	Maximum
Viscosity, Saybolt Furol, 77 degrees F (25 C), s	---	---
Viscosity, Saybolt, 122 degrees F (50 C), s	100	400
Demulsibility, 35ml, 0.8 percent DSS, %	70	-
Sieve Test, %	-	0.1
Storage Stability	-	1
Residue by Distillation, 350ºF max, %	65	---
Oil distillate, % by volume of emulsion	---	0.5
Residue Test, ASTM D 244 Low Temp	Minimum	Maximum
Penetration, 77ºF, 100gr, 5 sec	70	150
Elastic Recovery, ASTM D 6084, method B, 77ºF, 5 cm/min, %	50	-
Softening Point, ºF	125	-
Solubility in Trichloroethylene, %	97.0	-

Liquid bituminous material for the final coat: Provide a quick-traffic, polymer-modified emulsified asphalt conforming to the requirements specified in AASHTO M 208 for CSS-1 h as listed in Table 62-5. The cement mixing test shall be waived for this product.
The polymer material shall be co-milled into the asphalt or added to the emulsifier solution prior to the emulsification process. The amount of polymer modifier shall not be less than 3.0% polymer solids based on the asphalt content (by weight) and will be certified by the emulsified asphalt supplier.
The Engineer may waive the five-day settlement test, provided job-stored emulsified asphalt is used within 36 hours from the time of the shipment or the stored material has had additional emulsified asphalt blended into it prior to use.

Quality Tests:
The emulsified asphalt, and emulsified asphalt residue, shall meet the requirements of AASHTO M 208 for CSS-1h, with the following additions:

Table 62-5
Quality Tests for Emulsified Asphalt

AASHTO Test No.	Emulsified Asphalt Property	Specification Requirements
AASHTO T 59	Residue after Distillation (1)	62% Minimum
AASHTO T 59	Cement Mixing	Not Required
Quality Tests for Emulsified Asphalt Residue		
AASHTO T 53	Softening Point	135°F (57°C) Minimum

(1) Maintain the test temperature at 350°F (177°C) for 20 minutes.

Sampling, Certification, and Verification:
For the first load of emulsified asphalt produced for the project, the supplier shall submit a sample to the Engineer for testing before use. A pretest number will then be assigned by the Engineer, and the pretest number shall be furnished with all emulsified asphalt delivered to the project.

At any time during application, the Engineer may sample and test all subsequent loads of emulsified asphalt delivered to the project to verify and determine compliance with specification requirements. Where these tests identify material outside specification requirements, the Engineer may require the supplier to cease shipment of that pre-tested product. Further shipment of that pre-tested product to the owning agency's projects will remain suspended until the cause of the problem is evaluated and corrected by the supplier to the satisfaction of the Engineer.

Material Samples:
The City will require the Contractor to sample and test each load of emulsion prior to delivery. The Contractor will also provide a sample of the emulsion, on site, prior to commencing work. The City will require the Contractor to provide sample containers and a local Independent testing laboratory with no affiliation to the emulsion supplier for the analyzing of emulsion. The City will be responsible for the cost of the testing. The City reserves the right to test any shipment of emulsion that is believed to be of substandard. All samples shall be shipped and stored in clean air tight sealed wide mouth jars or bottles made of plastic.

Equipment:
Maintain all equipment, tools, and machines used in the performance of this work in satisfactory working condition at all times to ensure a high-quality product.

Distributor:
The liquid bituminous material shall be applied with a truck mounted, pressure distributor that has been calibrated within the previous twelve (12) months, for transverse and longitudinal application rate. The distributor shall be equipped, maintained and operated so that the bituminous material can be applied at controlled temperatures and rates from .035 to 1.5 gallons per square yard. The distributor shall be capable of applying bituminous material of variable widths up to twenty-four (24) feet. The distributor shall uniformly apply the bituminous material to the specified rate with a maximum allowed variation of 0.015 gallons per square yard.
Distributor equipment shall include tachometer, accurate volume measuring device, a calibrated tank and a thermometer for measuring the temperature of the tank's contents. Distributors shall be equipped with a heating device, asphalt pump and full circulating spray bars adjustable laterally and vertically. Distributors and transport trailers shall be equipped with a sampling valve. Distributor trucks shall be of the pressure type with insulated tanks. The use of gravity distributors will not be permitted. The valves shall be operated by levers so that one or all valves may be quickly opened or closed in one operation. The valves which control the flow from nozzles shall act positively so as to provide a uniform unbroken spread of bituminous material on the surface. The distributor shall be equipped with devices and charts to provide for accurate and rapid determination and control of the amount of bituminous material being applied and with a bitumeter of the auxiliary wheel type registering speed in feet per minute, and trip and total distance in feet. Two distributor trucks will be required on all projects.

Aggregate Spreader:
The aggregate spreader shall be a self-propelled unit capable of uniformly spreading the aggregate at the required rate on a minimum width of six (6") inches wider than the width of the lane to be treated. The spreader shall be calibrated within the previous twelve (12) months for transverse and longitudinal application. The spreader shall be capable of extending to a width of 24 feet. The spreader shall be equipped with a computer-controlled aggregate/chip spreader in order to ensure the appropriate aggregate coverage at varying speeds, unless approved otherwise by Engineer.

Rollers:
The contractor shall use three, eight (8) to twelve (12) ton self-propelled pneumatic tire rollers with oscillating wheels and low pressure, smooth tires. Maintain the inflation of the tires such that in no two tires the air pressure

varies more than 5 psi. The rollers will be equipped with an operating water system and coco pads. A sufficient number of rollers and a sufficient number of passes shall be used to ensure cover aggregate is properly rolled.

Sweepers:
A minimum of 2 vacuum sweepers shall be used on this project. In rural areas a self-propelled rotary broom can be used. It shall be equipped, maintained and operated so the pavement surface can be swept clean. The broom shall have an adjustment to control the downward pressure. In residential areas a vacuum street sweeper must be used, and all excess aggregate shall be swept within 24 to 48 hours after the first application of the Cape Seal has been applied.
Mixing Equipment:
Truck mounted, and self-loading continuous machines are acceptable. Mix the material with an automatic-sequenced, self-propelled mixing machine. It shall be a continuous-flow mixing unit able to accurately deliver and proportion the mix components through a revolving multi-blade, double-shafted mixer and to discharge the mixed product on a continuous-flow basis. The machine shall have sufficient storage capacity for all mix components to maintain an adequate supply to the proportioning controls. Four truck mounted machines of 12 cubic yard capacity, or larger, will be required for all projects or roads one half mile or less in length.
Self-loading continuous machines shall be capable of loading materials while continuing to lay micro surfacing, thereby minimizing construction joints. Two self-loading machines shall be required on all projects or roads greater than one half mile in length. Self-loading continuous machines shall be equipped to allow the operator to have full control of the forward and reverse speeds during applications of the material and shall be equipped with opposite-side driver stations to assist in alignment. The self-loading device, opposite-side driver stations, and forward and reverse speed controls shall be original equipment-manufacturer design.

Proportioning Device:
Provide and properly mark individual volume or weight controls for proportioning each material to be added to the mix (i.e., aggregate, mineral filler, emulsified asphalt, additives, and water).

Spreading Equipment:
Agitate and spread the mixture uniformly in the spreader box by means of twin-shafted paddles or spiral augers fixed in the spreader box. Provide a front seal to ensure no loss of the mixture at the road contact point. The rear seal shall act as a final strike-off and shall be adjustable. The spreader box and rear strike-off shall be so designed and operated that a uniform consistency is achieved, and a free flow of material is provided to the rear strike-off. The spreader box shall have suitable means to hydraulically adjust the box width automatically while traveling behind the mixing unit and be able to side shift the box to compensate for variations in the pavement geometry.

Secondary Strike-off:
Provide a secondary strike-off to improve surface texture. The secondary strike-off shall have the same adjustments as the spreader box. No burlap drags will be permitted on the final applications.

Auxiliary Equipment:
Provide suitable surface preparation equipment, traffic control equipment, hand tools, and any other support and safety equipment necessary to perform the work.

Calibration:
Calibrate each mixing unit to be used in the performance of the work in the presence of the Engineer prior to the start of construction. Previous calibration documentation covering the exact materials to be used may be acceptable, provided that no more than 60 days have lapsed.
Document the individual calibration of each material at various settings, which can be related to the machine metering devices. Do not utilize any mixing unit on the project until the calibration has been completed and approved by the Engineer. Any component replacement affecting material proportioning requires that the machine be recalibrated. No machine will be allowed to work on the project until the calibration has been completed and accepted.

Additional equipment:
Additional equipment will be needed to complete the operations required by this technical provision. All equipment necessary for the successful completion of projects governed by this technical provision shall be included in the unit costs associated herein. Availability of quality assurance devices (such as a 10' straight edge) shall be the responsibility of the Contractor.

Experience:
All contractors and their subcontractors shall be FDOT prequalified in the work classes of drainage, flexible paving, grading, and hot plant-mixed bitum courses. Bidders must submit with the bid a minimum of five (5) Cape Seal project references from a City or County in the State of Florida that have been completed within the past three years. Bidders may be required to submit detailed information regarding the staff that they propose for this project. The Contractor shall be capable of meeting all the requirements of this specification at the time of the bid. The Contractor shall have in their possession, in the State of Florida at the time of bidding, two (2) or more aggregate spreaders, two (2) distributors, four (4) truck mounted machines and two (2) self loading machines as described in the equipment section of the specification. Staff shall have the option to inspect the Contractor's equipment and if found deficient, it shall be the basis for rejection of Contractor's bid.

Construction

Layout:
The Contractor will be responsible for the string lining and lay out of the roadway prior to paving.

Weather and Seasonal limitations:
The cape seal treatment shall not be applied to a wet surface or when rain is occurring or the threat of rain is present immediately before placement. The surface treatment shall not be applied when the temperature is less than 50 degrees Fahrenheit in the shade. When applying emulsions, the temperature of the surface shall be a minimum of 55°F, and no more than 140°F.

Preparation of Surface:
The cape seal material shall be placed on a firm unyielding prepared roadway. The Contractor shall be responsible for clipping back shoulders and removing overburden or any other vegetation or debris to ensure that the road is free of organic and deleterious material. The contractor will be responsible for blowing or sweeping the road immediately ahead of the chip seal operation to make sure the road is free of loose aggregate and other debris. Remove any thermoplastic striping materials and retro-reflective pavement markers in the areas to be cape sealed. Provide temporary striping as necessary to comply with Contract Documents. If water is used for cleaning, allow any unsealed cracks to dry thoroughly before applying cape seal. Protect manholes, valve boxes, drop inlets and other service entrances from the cape seal mixture by a suitable method. The Engineer will approve the surface preparation prior to cape seal. No loose aggregate, either spilled from the lay-down machine or existing on the road, will be permitted on the final application.

Application of bituminous material:
Liquid bituminous material shall be applied by means of a pressure type distributor in a uniform, continuous spread over the section to be treated. The distributor shall be moving forward at the proper speed when the liquid is discharged onto the pavement to provide an even and consistent application at the rate prescribed. If any areas are deficient the operation shall be stopped and corrected immediately. The liquid shall not be applied more than two hundred (200') feet in advance of the aggregate spreader when the ambient air temperature is above 75 degrees or one hundred (100') feet if the air temperature is below 75 degrees.
• Single Chip Seal: Application of the liquid bituminous material shall be applied at a rate of .32 -.38 gallons per square yard depending on the composition of the existing road bed, surface texture and the size of the aggregate in use.

Application of cover Aggregate:
Immediately following the spray application of the liquid bituminous material, cover aggregate shall be spread over the liquid material at a rate of 22 - 28 lbs square yard depending upon the type of road that is being resurfaced.

Rolling:
Immediately following the first application of the cover material, roll the entire surface with pneumatic rollers. Continue rolling as long as necessary to ensure thorough keying of the cover aggregate into the liquid bituminous material and as far as it is practicable and consistent with the setting of the liquid bituminous material.

Sweeping:
After rolling of the first application of cover aggregate, lightly broom the loose aggregate in a manner not to dislodge the aggregate embedded in the liquid. Sweep loose material within 24 to 48 hours after the first application, before the final lift is applied.
Application of final lift:
Pre-wet the surface by fogging ahead of the spreader box with water. Adjust the rate of application of the fog spray to suit temperatures, surface texture, humidity, and dryness of the pavement.
The material shall be of the desired consistency upon leaving the mixer. Carry a sufficient amount of material in all parts of the spreader box at all times so that complete coverage is obtained. Avoid overloading of the spreader box. Do not allow lumping, bailing, or unmixed aggregate in the micro surfacing mixture.
Do not leave streaks, such as those caused by oversized aggregate, in the finished surface. If excess streaking develops, stop production until the situation has been corrected. Excessive streaking is defined as more than four drag marks greater than 1/2 inch wide and 4 inches long, or 1 inch wide and 3 inches long, in any 30 yd2 area. Do not permit transverse ripples or longitudinal streaks of 1/4 inch in depth or greater, when measured by placing a 10-foot straight edge over the surface.

Rate of Application:
The average application rate shall be in accordance with Table 62-6, unless otherwise specified in the Contract Documents. Full width application rates must be maintained within ± 2 Ibs/yd2 of the specified rate. Application rates are based upon the weight of dry aggregate in the mixture.
The maximum thickness of any single layer of micro surfacing at the edge of the pavement shall be 1/4 inch.

Table 62-6
Final Application Rates

AGGREGATE TYPE	LOCATION	APPLICATION RATE(1)	
Type II	Collectors, Local Roads, and Airport Runways	Single Application: 26-30 lbs/yd^2	

(1) Application rates are based upon the weight of dry aggregate in the mixture.

Joints:
Prevent excessive buildup, uncovered areas, or unsightly appearance on longitudinal and transverse joints. Provide suitable-width spreading equipment to produce a minimum number of longitudinal joints throughout the project. Place longitudinal joints on lane lines, where possible.
Use half passes and odd-width passes only when absolutely necessary. Do not apply a half pass as the last pass of any area. Do not overlap longitudinal lane line joints by more than three inches. Do not construct joints having more than a 1/4 inch difference in elevation when measured by placing a 10-foot straight edge over the joint and measuring the elevation drop-off.
Construct longitudinal joints so that water is not held at the joint. Construct transverse joints at the beginning and end project limits so that the elevation difference does not exceed 1/4 inch.

Mix Stability:

Produce a mixture that possesses sufficient stability so that premature breaking of the material in the spreader box does not occur. The mixture shall be homogeneous during and following mixing and spreading. The mixture shall be free of excess water or emulsified asphalt and free of segregation of the emulsified asphalt and aggregate fines from the coarser aggregate. Do not spray water directly into the spreader box while applying material under any circumstances.

Handwork:
Utilize hand squeegees to provide complete and uniform coverage of cape sealed areas that cannot be reached with the mixing machine. Lightly dampen the area to be hand worked prior to mix placement, if necessary. Care shall be exercised to leave no unsightly appearance from handwork. When performing handwork, provide the same type of finish as that applied by the spreader box.
Lines:
Construct straight lines along curbs and shoulders. Do not permit runoff on these areas. Keep lines at intersections straight to provide a good appearance. If necessary, utilize a suitable material to mask off the end of streets to provide straight lines. Edge lines shall not vary by more than 2 inches horizontally.

Cleanup:
Remove cape seal material from all areas such as manholes, gutters, drainage structures, rumble strips, and as otherwise specified by the Engineer. On a daily basis, remove any debris resulting from the performance of the work.

Quality Assurance

Material Monitoring:
Provide a computerized material monitoring system with integrated material control devices that are readily accessible and positioned so the amount of each material used can be determined at any time. Ensure the computer system is functional at the beginning of work and during each calibration. Provide a back-up electronic materials counter that is capable of recording running count totals for each material being monitored. Equip the mixer with a radar ground measuring device. The computer system shall have the capability to record, display and print the following information:

1. Individual sensor counts for emulsion, aggregate, cement, water, and additive.
2. Aggregate, emulsion, and cement output in pounds per minute.
3. Ground travel distance.
4. Spread rate in pounds per square yard.
5. Percentages of emulsion, cement, water, and additive.
6. Cumulative totals of aggregate, emulsion, cement, water, and additive.
7. Scale factor for all materials.

Sampling and Testing:
The Engineer shall obtain one sample of micro-surfacing mixture each day of production. The Engineer shall test each sample in accordance with FM 5-563 and FM 1-T 030 to determine the residual asphalt content and the gradation of the sample. Evaporate all water from the sample prior to testing. Determine the deviation of the test results for each sample from the mix design target values. Compare the deviation from the mix design to the mixture control tolerances shown in Table 62-7.

Table 62-7 Aggregate and Emulsified Asphalt - Acceptance Limits	
Aggregate	**Tolerance from Mix Design Target Values**
Percent Passing No. 4 Sieve	± 6 percent
Percent Passing No. 8 Sieve	± 7 percent
Percent Passing No. 50 Sieve	± 6 percent
Percent Passing No. 200 Sieve	± 3.0 percent
Emulsified Asphalt	
Residual Asphalt Content of Mixture	± 0.6 percent

Application Rate:
Control the application rate for micro surfacing on a lot basis to within the "Total" range specified in 62-6. A lot will be considered as 0.10 lane miles. No additional compensation will be paid for application rates placed in excess of the "Total" specified range. The unit price for each deficient lot will be reduced by ten percent for each lb/sq yd rate less than the "Total" specified range.
For application rates outside the "Total" specified range, stop production of the mixture and make adjustments to correct the problem to the satisfaction of the Engineer prior to resuming production. Accept a pay reduction for deficient lot production or overlay the deficient area at full plan width and depth at no additional cost.

Traffic Control:
The Contractor shall furnish all necessary traffic control, barricades, signs and flagmen, to ensure the safety of the traveling public and to all working personnel. Traffic shall not travel on fresh mix until rolling and blotting has been completed. The Contractor shall have on site an M.O.T. person with no less than an Intermediate certification and submit an M.O.T plan indicating all facets of traffic control for the project area. The M.O.T. plan must be approved in writing by the City prior to commencing any work. All traffic control shall be in accordance with the FDOT Roadway Design Standards, most current edition and TP-102. M.O.T. and associated devices shall be checked daily and periodically throughout the project for compliance; and where adjustments or corrections are needed, prompt revisions shall be made.

Method of Measurement:
If a pay item is listed on the Bid Form for work required in this Technical Provision, the quantity to be paid shall be as specified in the Bid Form including all items of work described herein. Any item necessary for Cape Seal, and not specifically listed in another item in the Bid Form, shall be included in this item. The prime contractor must perform at least 51% or more of the project that includes Cape Seal.

Basis of Payment:
The quantities to be paid for under this Technical Provision shall be included in the Square Yard price for Cape Seal as listed in the Bid Form. The Unit price includes all items listed in the contract, including all General Conditions, Special Conditions and Technical Provisions pertaining to Cape Seal, including all items of work described herein. No additional payment will be provided for any item necessary for the completion of this contract as detailed in the specifications, except that at the direction of the City.

Warranty:
The Contractor shall provide the City upon final acceptance of the Cape Seal work, a warranty period of three (3) years which shall include all labor, materials, hauling, traffic control and striping to repair the defective areas. Defective areas shall include debonding/delamination, excessive raveling and aggregate loss exposing the old roadway surface. The Contractor shall perform all warranty work at no cost to the City. The Contractor shall have been doing business in the State of Florida for at least four years from the date of this bid and have full time experienced personal to respond to any warranty issues within 24 hours. The Contractor can be called to preform work or warranty work at any time of the year as needed by the City. The

Contractor must have a full-time presence with an office, experienced personal and the proper equipment in Florida to respond 365 days a year.

IN-PLACE RECYCLING-RECONSTRUCTION WITH ASPHALT EMULSION

AND CEMENT BLEND SPECIFICATION

This work shall consist of the preparation of a stabilized base course composed of a mixture of the existing bituminous concrete pavement, existing base course material, emulsified asphalt, Portland cement and other additives per the mix design. The manufacturing of the stabilized base course shall be done by in-place pulverizing and blending of the existing pavement and base materials, and the introduction of asphalt emulsion, cement, and additives if called for in the Special Conditions or design mix formula. The process, which results in a stabilized base course, shall be accomplished in accordance with these specifications and conform to the lines and grades established by the engineer. Existing asphalt pavement shall be pulverized by a method that does not damage the material below the plan depth as shown on the appropriate roadway section.

Materials:

RAP: Materials must meet all requirements specified in the 2017 Florida Department of Transportation Standard Specifications for Road and Bridge Construction 283-2, except that 98% of all material is required to pass through a 50 mm (2 inch) sieve.

Additional Base Materials: Additional base materials may be needed to meet the mix design parameter for adjusting grade elevations, as directed by the engineer, or for widening. When such additional material is required it shall be among those bases listed in FDOT Design Standards as General Use Optional Base Materials and meet applicable FDOT requirements for such. Section 285, Table 285-1 FDOT.

Asphalt Emulsion: When the mix design calls for stabilization with asphalt emulsion, utilize CSS- 1h or CMS-2h, meeting the requirements of AASHTO M 208-01 (2009) and approved by the State Materials Office prior to use.

Foamed Asphalt: If the mix design calls for stabilization with foamed asphalt utilize an asphalt binder meeting the requirements of Section 916 FDOT and listed on the FDOT Department's Approved Products List.

Portland Cement: When a blend of asphalt emulsion and Portland cement is specified the Portland cement shall be type I or II and conform to the latest standard requirements of ASTM C150 and AASHTO M85. When cement is added with the emulsion no more than 2.5% shall be used on the project, unless approved by the Engineer.

Water: The water for the base course compaction and foaming additive shall be clean and free from sewage, oil, acid, strong alkalies, or vegetable matter and it shall be in sufficient supply for mixing and curing. Water of questionable quality shall be tested in accordance with the requirements of AASHTO T 26.

Soil: The soil base to be reclaimed shall be evaluated by a professional geotechnical engineering laboratory to determine suitability in the stabilization process. The soil shall be free of roots, sod, weeds and deleterious materials.

Equipment:

Road Reclaimer: Shall be originally designed for pavement reclaiming of a size equal to or larger than a Wirtgen WR 2401 with comparable specifications including but not limited to: horsepower, rotor size, and injection system. The reclaimer shall be capable of pulverizing and mixing pavement, base materials, and subgrade soil to depth of 20 inches. It shall have the capability of introducing and metering additives uniformly and accurately and that positive displacement pumps accurately meter the planned amount of asphalt emulsion into the mixture.

The reclaiming machine shall mix the emulsified asphalt and cement additive thoroughly with the RAP and soil materials. The pump shall be mechanically or electronically interlocked with the ground speed of the machine. The asphalt metering system and water metering system shall be capable of continuously monitoring (GPM) flow, and totaling the quantity of water and asphalt applied into the mixing chamber. Additives shall be uniformly distributed and mixed with the pulverized material, any existing underlying material as specified.

Milling Machine:

A 10 foot and a 12 foot mill, self-propelled, bi-directional, down-cutting, lateral/horizontal mixing, cold milling machine capable of pulverizing the existing asphalt (and base material as needed to a maximum depth of 14

inches) in a single pass to the depth shown on the plans will be required. The machine shall have automatic depth controls to maintain the cutting depth to within % in (6 mm) of that shown on the plans and shall have a positive means for controlling cross slope elevations. A 30 foot non-contact averaging beam must be used on the mill. The use of a heating device to soften the pavement will not be permitted. Up-cutting machines shall not be permitted. Machines that only provide vertical mixing will not be permitted.
The milling machine must be equipped with a liquid metering device capable of adjusting the flow of asphalt emulsion to compensate for any variation in the speed of the machine. The metering device shall deliver the amount of asphalt emulsion to within 0.2 percent of the required design amount by weight of pulverized bituminous material (for example, if the design requires 3.0 percent, the metering device shall maintain the emulsion amount between 2.8 percent and 3.2 percent). The asphalt emulsion pump should be of sufficient capacity to allow emulsion contents up to 3.5% by weight of pulverized bituminous material. Also, automatic digital readings will be displayed for both the flow rate and total amount of pulverized bituminous material and asphalt emulsion in appropriate units of weight and time.

Bituminous Paver:
A self-propelled high density paver having tamper bar compaction, electronic grade and cross slope control for the screed shall be utilized. The equipment shall be of sufficient size and power to spread and lay the reclaimed base mixture in one smooth continuous pass to the specified section and according to the plans. A 30 foot non-contact averaging beam must be used on the bituminous paver. To reduce material segregation, the bituminous paver must utilize a hopper insert.

Motor Grader:
Shall be of sufficient size and horsepower to adequately rough grade the pulverized base and rough and finish grade the mixed and compacted base. The equipment shall be in good working order free from leaks and capable of maintaining an accurate grade and cross-slope.

Rollers:
Shall be in good working order free from leaks and capable of compacting the mix to the requirements of this specification: Vibratory rollers shall be a minimum of 10 tons and capable of rolling in either vibratory or static mode. Three wheel static rollers shall be a minimum of 11 tons. Pneumatic tire rollers shall have a minimum of 9 oscillating wheels with smooth, low pressure tires (pressure shall be equally matched in all tires within 5 PSI) and weigh at least 28 tons. Initial compaction shall be accomplished by either single or dual drum vibratory or three wheel roller static rollers. Additional equipment; Additional equipment will be needed to complete the operations required by this technical provision. All equipment necessary for the successful completion of projects governed by this technical provision shall be included in the unit costs associated herein. Availability of quality assurance devices (such as a 10' straight edge) shall be the responsibility of the Contractor.

Cement Delivery Equipment:
Ensure cement is spread uniformly and accurately during the recycling process with an Integrated binder spreader system, capable of spreading in various widths by opening or closing panels and micro processer-controlled metering cells for precise metering of the cement. The spreader shall be mounted on the Road Reclaimer, have digital and automated controls and be dust free. Minimize the amount of airborne cement dust to the satisfaction of the Engineer and in accordance with OSHA regulations.
A cement spreader can only be used if milling machines are required. The cement spreader shall be equipped with a bag house and curtains with the capable of spreading 25 tons at one time before being reloaded. Cement will not be allowed to be spread with spreader bars from a tanker.

Experience:
All contractors and their subcontractors shall be FDOT prequalified in the work classes of drainage, flexible paving, grading, and hot plant-mixed bituminous courses. Bidders must submit with the bid a minimum of five (5) In-Place Recycling-Reconstruction (with emulsion and cement blend stabilization) project references from a City or County in the State of Florida, that have been completed within the past two years. Minimum experience requirement must be met by the Prime Bidder and not the proposed subcontractor for this project. Bidders are required to submit detailed information: indicating the project date, number of square yards treated in each and

phone number of the government official in charge of each project. Contractor shall be capable of meeting all the requirements of this specification at the time of the bid. The contractor shall have in their possession at the time of bidding, three (3) or more Road Reclaimers and two (2) or more Milling Machines as described in the equipment section of the specification. Staff shall have the option to inspect the Contractor's equipment and if found deficient, it shall be the basis for rejection of Contractor's bid.

Construction:

Layout:
The Contractor will be responsible for the string lining and lay out of the roadway prior to paving. Elevations of the existing road must be referenced at sufficient intervals to ensure the reclaimed roadway elevation, template and cross slope are as previously planned after the final wearing surface is placed. Method for layout and line and elevation reference must be approved by the engineer prior to beginning work.
Weather and Seasonal limitations: The base shall not be mixed or placed while the atmospheric temperature is below 40 F (2 C) or when conditions indicate that the temperature may fall below 35 F (2 C) within 24 hours, or when the weather is foggy or rainy, or when the soil or sub grade is frozen.
Mix Design: Prior to construction, obtain an adequate number of core samples to develop the mix design(s). Representative samples of the asphalt pavement material, underlying base material, and virgin materials, where applicable, shall be supplied to an independent, nationally accredited laboratory with no partnership with the emulsion supplier, for testing to determine the proportions of asphalt emulsion and cement needed to produce a mix design meeting the requirements of Table 198-1. The optimum binder content shall be the binder content that results in the highest wet tensile strength while also having 70% retained tensile strength compared to the dry strength and additionally has a minimum 3500 pounds Marshall stability. Cement shall be used at a minimum dosage rate of 1% and at a maximum dosage rate of 2.5% by dry weight of reclaimed material. Cement amounts greater than 2.5% will only be allowed if approved by the engineer. The mix design shall be signed and sealed by a professional engineer and submitted to the Engineer prior to use for approval.

Table 198-1
Mix Design Criteria

Test	Test Method Number	Criteria
Gradation of reclaimed material	AASHTO T 27-11	Report
Determination of optimum binder content		
Compaction effort at optimum fluids content. Marshall Compactor; 50 blows/side or Superpave Gyratory Compactor, 100 mm diameter specimens, 30 gyrations. Density determination.	Asphalt Institute MS 14, Appendix F. ASTM D6926-10 AASHTO T 312-12 FM 1-T 166	Report
Marshall stability Cure at 60°C to constant weight. Test at 40°C.	ASTM D6927-06	3500 lbs. minimum stability
Resistance of compacted bituminous mixture to moisture induced damage. 55 to 75% vacuum saturation, water bath at 25°C for 23 hours, last hour in water bath at 40°C.	AASHTO T 283-07 (2011)	70% minimum retained tensile strength

Widening:
When the existing base is to be widened, the Contractor shall excavate the shoulder from the edge of the existing pavement to at least 6 inches beyond the planned new width of the base prior to pulverization. All costs involved in collecting, hauling, and disposing of these materials shall be borne by the Contractor.
The bottom of the trench shall be kept free of loose soil and vegetation. Reclaimed existing roadway parent materials or approved base material (those bases listed in FDOT Design Standards as General Use Optional Base Materials) shall be placed in the excavation uniformly and without loss or contamination. The Contractor shall correct all areas of irregular grade or deficient thickness and shall remove and replace material contaminated with soil, organic material, or debris.

After the final pass of the recycler, soil shall be drawn up against the widening material to close the excavation, and the shoulder shall be graded and compacted to produce a firm, even surface.
Additional Material: When additional material is to be added to correct cross slope deficiencies or change elevation as directed by the engineer, approved base material (those bases listed in FDOT Design Standards as General Use Optional Base Materials) shall be placed on the roadway prior to final pass for pulverization and mixed uniformly with the existing material.

Pulverization:
The existing pavement and base material shall be pulverized and blended to the depth required so the entire mass of material shall be uniformly graded to the following gradation:

Table 198-2

SIEVE SIZE	PERCENT PASSING
2"	98 - 100
1-1/2"	95

Material gradation may vary due to local aggregates and conditions. Multiple passes of the reclaimer may be necessary to achieve the required gradation.

The asphalt emulsion or asphalt and water (to produce a foamed asphalt) shall be introduced into the mix through the reclaimer uniformly and accurately and metered such that areas are of equal consistency and moisture content. The reclaimed material and additives shall be combined in place to meet the requirements specified in such proportions that the reclaimed mixture is of acceptable composition and stability. Before the start and at the end of each day's work and at any time requested, the engineer must be permitted access to the mixing equipment in order to read the meter to verify the quantity of asphalt emulsion applied during the day's work. Field adjustments shall be made as necessary to the recommended mix design under the guidance of a knowledgeable and competent technician or superintendent to obtain a satisfactory reclaimed mixture of consistent composition and stability throughout the Project.
After the material has been processed, it shall be compacted to the lines, grades, and depth required. Water may be applied to ensure optimum moisture content at the time of mixing and compaction.

Compaction:
Commence rolling with self propelled rollers as required by this technical provision at the low side of the course, except leave 3 to 6 inches from any unsupported edge or edges unrolled initially to prevent distortion. Density readings shall be taken by Contractor's licensed nuclear gauge operator and witnessed by the Engineer/inspector.
Rollers shall move at a uniform speed that shall not exceed 8 km/hour (5 miles/hour). For static rollers, the drive drum normally shall be in the forward position or nearest to the paver. Vibratory rollers shall be operated at the speed, frequency and amplitude required to obtain the required density and prevent defects in the mat.
The number, weight and type of rollers furnished shall be sufficient to obtain the required compaction of the reclaimed material. The field density of the compacted mixture shall be at least 94 percent of the maximum density of laboratory specimens prepared from samples of the base material taken from the material in place. The specimens shall be compacted in accordance with AASHTO T-180. The in-piace field density shall be determined in accordance with ASTM D 2922.
Any pavement shoving or other unacceptable displacement shall be corrected. The cause of the displacement shall be determined and corrective action taken immediately and before continuing rolling.
Care shall be exercised in rolling the edges of the reclaimed mixture so the line and grade of the edge are maintained. At the end of each day's production, a transverse construction joint shall be formed by a header or by cutting back into the compacted material to form a true vertical face free of loose material. The protection provided for construction joints shall permit the placing, spreading, and compacting of base material without injury to the work previously laid.

Where it is necessary to operate or turn any equipment on the completed base course, sufficient protection and cover shall be provided to prevent damage to the finished surface. A supply of mats or wooden planks shall be maintained and used as approved and directed by the Engineer.
Finishing: Finishing operations shall be completed and the base course shall conform to the required lines, grades, and cross section. If necessary, the surface shall be lightly scarified to eliminate any imprints made by the compacting or shaping equipment. The surface shall then be recompacted to the required density. Correct all irregularities greater than V-i' over ten feet to the satisfaction of the engineer.

Protection and Curing:
After the base course has been finished as specified herein, it shall be protected against drying for a period of 2 to 3 days by the application of a prime coat as specified in FDOT Standard Specifications section 300 at a rate of not less than 0.15 gal/sy or a sacrificial HMA paving 4.75 mix as per Dev 337 on collector & arterial roads with over 10,000 ADT. Both are incidental and will be included in the In-Place Recycling price. The curing method shall begin as soon as possible, but no later than 24 hours after the completion of finishing operations. The finished base course shall be kept moist continuously until the curing material is placed.
If performed, micro fracturing will be performed within 48 to 72 hours after the chemical add mixtures have been introduced into the reclaimed base. At the time the prime coat or 4.75 mix is applied, the surface shall be dense, free of all loose and extraneous material, and shall contain sufficient moisture to promote adhesion of the bituminous material. To prevent equipment from marring or damaging the completed work, protect finished portions of base used by equipment.
Do not allow traffic on the reclaimed base until it is assured the reclaimed base surface will not distort, shove, or ravel under the anticipated vehicular loading.
Thickness:
The average thickness of the base constructed during one day shall be within 1 /2 inch (12 mm) of the thickness required, except that the thickness of any one point may be within 3/4 inch (19 mm) of that required. Where the average thickness shown by the measurements made in one day's construction is not within the tolerance given, the Engineer shall evaluate the area and determine if, in his/her opinion, it shall be reconstructed at the Contractor's expense or the deficiency deducted from the total material in place.

Sampling and Testing

Quality Control:
Perform the following quality control tests at the prescribed frequency. Randomly determine sample locations in accordance with ASTM D 3665-12 or equivalent. Reclaimed material gradation: Determine the percent passing the following sieve sizes: 3 inches and 2 inches. Obtain a sample at a frequency of one sample per 5,000 SY. Meet the requirements of Table 198-2. If the requirements of Table 198-2 are not met, adjust the pulverization operation so that the resultant material will meet specification requirements or to the satisfaction of the Engineer. Moisture/density relationship of reclaimed base: Establish a wet/dry density relationship for density specification compliance by obtaining a sample at a frequency of once per 5000 square yards for Modified Proctor (AASHTO T-180) determination. Determine the moisture content in accordance with AASHTO T 110-03 (2011), AASHTO T 265-1 2, or ASTM D 4643-08.

In-place field density:
Perform one nuclear density test per 1000 square yards. The dry field density (i.e. corrected gauge wet density) of the compacted mixture shall average at least 96.0 percent of the maximum laboratory dry density as determined by modified proctor. No individual density test shall be lower than 94.0 percent of the maximum laboratory dry density. If one density test is below 94.0 percent or two consecutive density tests are below 96.0 percent of the maximum laboratory dry density, cease production and resolve the issue to the satisfaction of the Engineer before resuming production.

Marshall stability:
Perform Marshall stability testing twice per day or once per day if less than 1500 square yards is reclaimed. Meet the requirements of Table 198-1. If the Marshall stability does not meet the requirements of Table 198-1, cease production and resolve the issue to the satisfaction of the Engineer before resuming production. Retained tensile strength: Perform retained tensile strength testing twice per day or once per day if less than 1500 square yards is

reclaimed. Meet the requirements of Table 1 98-1. If the retained tensile strength does not meet the requirements of Table 198-1, cease production and resolve the issue to the satisfaction of the Engineer before resuming production.

Depth of mixing:
Determine the depth of mixing at least once per 250 square yards. Meet the requirements of Thickness.
Cross slope measurement: Meet the requirements of Table 330-4 FDOT 2017. Additional sampling and testing may be required if significant changes in the characteristics of the reclaimed material are observed, such as a much coarser or finer gradation or a noticeable difference in asphalt content, or when there is considerable variability in the field test results. All delivery tickets and notes regarding any materials brought to the project site to complete this Contract must be given to the Engineer/Inspector upon delivery to the project site.
Method of Measurement:
If a pay item is listed on the Bid Form for work required in this Technical Provision, the quantity to be paid shall be as specified in the Bid Form including all items of work described herein. Any item necessary for In-Place Recycling-Reconstruction with Asphalt Emulsion and Cement, and not specifically listed in another item in the Bid Form, shall be included in the SY Price for Pulverization including but not limited to shaping, compacting, finish grading, sacrificial 4.75 mix, prime coat, sanding prime coat... Cost for introduction of asphaltic cement into the mixture shall be included in the per GL cost for Asphalt Emulsion. Cost for excavation for widening will be included in the CY Price for Excavation. Cost for additional materials needed for widening or adjustment of grade as directed by the engineer shall be included in the per TON Price for General Use Optional Base Material.

Basis of Payment:
The quantities to be paid for under this Technical Provision shall be included in the Square Yard price for In-Place Recycling-Reconstruction, (Pulverization), the per Gallon price for Asphalt Emulsion, the per ton price for Portland Cement, the per Cubic Yard price for Excavation and the per TON price for General Use Optional Base Material. The Unit prices include all items listed in the contract, including all General Conditions, Special Conditions and Technical Provisions pertaining to In-Place Recycling-Reconstruction with Asphalt Emulsion and Cement, including all items of work described herein. No additional payment will be provided for any item necessary for the completion of this contract as detailed in the specifications.

Warranty:
The Contractor shall provide the City or County upon final acceptance of the In-Place Recycling- Reconstruction with Asphalt Emulsion and Cement work, a warranty period of three years (36 months) which shall include all materials and workmanship. The Contractor shall have been doing business in the State of Florida for at least four years from the date of this bid and have full time experienced personal to respond to any warranty issues within 24 hours. The Contractor can be called to preform work or warranty work at any time of the year as needed by the City or County. The Contractor must have a full-time presence with an office, experienced personal and the proper equipment in Florida to respond 365 days a year.

TECHNICAL REQUIREMENTS
Section 1. CRACK FILLING/SEALING

1.1 Description
All cracks within the specified area that are one quarter (1/4) inch or greater shall be properly prepared and sealed. Crack filling material must cure for a minimum of 30 days prior to application of the micro surfacing or asphalt concrete.

1.2 References
All reference standards and specifications shall be the current issue or latest revision at the first date offender advertisement. These specifications herein are in addition to the following standards, specifications or publications listed below:
• ASTM D-5329: Standard Test Method for Sealants and Fillers, Hot-Applied, For Joints and Cracks in Asphaltic and Portland Cement Concrete Pavements.

• ASTM D3 6: Standard Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)
• ASTM D3111: Standard Test Method for Flexibility Determination of Hot-Melt Adhesives by Mandrel Bend Test Method.
• ASTM Dll 3: Standard Test Method for Ductility of Bituminous Materials
• ASTM D-2669: Standard Test Method for Apparent Viscosity of Petroleum Waxes Compounded with Additives (Hot Melts)
• ASTM D4: Standard Test Method for Bitumen Content
• ASTM D6690: Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements

1.3 Experience
All contractors and their subcontractors shall be FDOT prequalified in the work classes of flexible paving and hot plant-mixed bitum courses. Bidders must submit with the bid a minimum of five (5) Crack Seal project references from a City or County in the State of Florida, that have been completed within the past three years. Bidders are required to submit detailed information:

indicating the project date, number of square yards treated in each and phone number of the government official in charge of each project. Contractor shall be capable of meeting all the requirements of this specification at the time of the bid. The contractor shall have in their possession, in the State of Florida at the time of bidding, three (3) or more crack seal machines as described in the equipment section of the specification. Staff shall have the option to inspect the Contractor's equipment and if found deficient, it shall be the basis for rejection of Contractor's bid. The Contractor shall have been doing business in the State of Florida for at least four years from the date of this bid and have full time experienced personal to respond to any warranty issues within 24 hours. The Contractor can be called to perform work or warranty work at any time of the year as needed by the City or County. The Contractor must have a fulltime presence with an office, experienced personal and the proper equipment in Florida to respond 365 days a year.

1.4 Submittals
a) The CONTRACTOR shall submit to the Project Manager the specifications sheets along with the manufacturer's suggested installation procedures of the type of crack seal that is to be used.
b) A log sheet shall be maintained during the crack seal operations. The original of this log sheet shall be supplied to the Project Manager. A minimum of the following information shall be recorded:
1. Date, time and amount added to the melter. The lot number from each box added shall be also recorded.
2. Road name, date, time application process starts, amount installed, time application process ends.
3. Weather conditions.
c) The CONTRACTOR shall supply the Project Manager with tickets and the corresponding actual lot numbers removed from the boxes, showing the amount of gallons used for each road.
d) A log of all herbicides, if any, shall be kept and a copy shall be supplied to the Project Manager within one (1) week of spraying. This log shall include the type of material, mixture rate, application rate, location, date, and time of application.

1.5 Materials
a) Crack Seal: Crack sealer product shall be Crafco PolyFlex Type 3, product # 34521 or equivalent. It shall be an asphalt based product designed to be used to fill cracks and joints in asphalt. It shall have the ability to seal out water.
b) Blotting Material: If required the blotting material shall be an aggregate such as cement dust, Crafco Detack or equivalent, or other cover aggregate approved by the Project Manager.

1.6 Equipment
a) Crack Sealant Application Equipment: Equipment used to install the sealant into the cracks shall be as specified by the manufacturer and shall have the ability to fill cracks with two wands at the same time and maintain the proper temperature of the sealant throughout the sealing process.

This heating unit shall be a jacketed double boiler melter and shall be equipped with an agitation system. The applicator hose's shall have a recirculation system or be equipped with a temperature controlled heating system. Pouring pots or gravity-fed sealant applicators shall not be used for sealing cracks and joints.
b) Compressor: The compressor shall be 75 C.F.M. capacity, or more, to ensure an adequate supply of air to effectively clean the joints. Any pneumatic tool lubricator must be bypassed and a filter installed on the discharge valve to keep water and oil out of the lines.
c) Hot Compressed Air Equipment: A hot compressed air lance shall be used to clean, dry and pre-heat cracks prior to applying sealant. The air lance shall consist of a compressor propane system providing a high temperature, high velocity blast of air.
d) Crack Cleaning Equipment: Cleaning of excess debris shall be done by means of power sweepers, hand brooms, or air brooms.

1.7 Work Methods
a) Weather: No sealant shall be installed unless the ambient and pavement temperature are 40° and rising. There shall be no fog and no chance of rain. Any cracks that are not sealed the same day they are prepared shall be blown out with compressed air before the sealing operation continues. If rain or fog delays the sealing operation, the cracks shall be allowed to dry and shall have additional cleaning as required to remove any debris that may have been washed into the crack by rain. The cracks shall be completely dry before the seal treatment can resume. The Contractor may use the Hot Compressed Air Lance method of cleaning and drying the cracks with the approval of the Project Manager. Care shall be taken to not overheat the existing asphaltic concrete surface if this method is used.
b) Surface Preparation: Prior to starting any application process the CONTRACTOR shall be responsible for removing any existing dirt and vegetation that is on the asphalt.
c) Crack Cleaning: All cracks and joints shall be cleaned free of all deleterious materials, including any dust, old sealant, incompressible, and organic material. When vegetation exists in the cracks and joints, it shall be removed by either using propane torch or treated with an herbicide that sterilizes the soil. The method of removal is subject to the approval of the Project Manager. If an herbicide is used it shall be applied according to the manufacturer's specifications and shall be applied ahead of the operations so that the weed is totally browned. The applicator of the herbicide shall have the proper State of Florida Pesticide Applicators License. A copy of this license shall be supplied to the Project Manager upon request. A log of all herbicides shall be kept as specified in the section 1.4 Submittals and a copy shall be supplied to the Project Manager. All cracks are to be clean and are sufficiently dry before any crack sealing material is applied. All cracks shall be blown clean by high pressure air. All old material and other debris removed from the cracks shall be removed from the pavement surface immediately. Any cracks that are not sealed the same day they are prepared shall be blown out with compressed air before the sealing operation continues.
d) Sealant Heating: The temperature of the sealant shall be heated and maintained using the manufacturer's recommended procedures. The sealant compound shall be melted slowly with constant agitation until it is in a lump-free, free-flowing state, within the temperature range recommended by the manufacturer for application. Care shall be taken to insure that the sealant is not heated above the manufacturer's recommended maximum temperature or for longer than the recommended application life. The Project Manager shall have the right to reject the product if it is determined that this has occurred.
e) Sealant Application: The sealant shall be applied in the crack or joint reservoir uniformly from the bottom to the top and shall be filled without formation of entrapped air or voids. The sealant shall be installed so that it is recessed approximately one eight (1/8) inch below the pavement surface to prevent tracking. Sealant shall be applied to slightly overfill the reservoir and then struck off using a "V" shaped squeegee. The remaining squeegee material shall be flush with the pavement surface. In no case shall the width of excess material on the pavement surface exceed (4) inches. At no time shall the sealant be in excess of one sixtieth (1/16) inch above the adjacent surface and shall extend no more than one and a half (1.5) inches from the crack edges. Each wand shall have removable heads so that variable width discs from two (2) to four (4) inches may be installed at the Project Managers request.
f) Blotting Application: When traffic requires immediate use of the roadway, a blotting material shall be broadcast or sprayed over the fresh sealant to prevent it from being picked up and tracked. Any excessive or spilled sealer shall be removed by the CONTRACTOR using approved methods.

• During the period of construction and the warranty period the CONTRACTOR shall be responsible for processing any and all claims for property damage and or bodily injury caused by the failure of the Crack Sealing including but not limited to, motor vehicles or pedestrians. The CONTRACTOR shall be responsible for the payment of all property damage and bodily injury claims and agrees to save and hold harmless the CITY from all such claims. Claims not handled by the CONTRACTOR or their representative in the proper manner, will be settled by the CITY. The CITY shall recover all costs from the CONTRACTOR. The CONTRACTOR shall be responsible for any claims of tracking as part of this specification. If there is a claim the CONTRACTOR shall be responsible for:
1) Applying more blotting material as necessary.
2) Address the tracked material by either removing or repairing the object that was affected.
1.8 Method of Measurement.
The measurement shall be made in amount of gallons of crack seal applied to the road, and shall be supported by the submittals as outlined in Section 1.4 Submittals, paragraph b. The amount of crack sealer shall be reported and invoiced for each road.

1.9 Basis of Payment.
Crack Sealing shall be based on a price per gallon. The unit price as shown on the Bid Sheet "Sealing" or "Routing and Sealing" shall be all inclusive to include cleaning, sealing, FDOT traffic control, mobilization and any other incidentals required to provide the CITY with a final product that will meet the specifications as described in the crack sealing section. All invoices shall contain the purchase order number, invoice date, itemized work detail including the amount of product applied to each road, date of service specific to each location, appropriate retention, person to contact and their phone number for billing questions and location of delivery or service, and confirmation of acceptance of the goods or services by the appropriate CITY representative.

2.0 Deficiencies and Repairs
a) Where the sealant subsides in the crack by more than 1/8 inch below the adjacent pavement surface, except where the pavement will be immediately overlaid, the surface of the sealant shall be cleaned and topped up.
b) The sealant shall be removed, the routed crack rerouted at the Project Manager's discretion, and resealed if any of the following occur:
i) the sealant contains imbedded foreign material other than dusting material;
ii) the sealant contains entrapped air bubbles;
iii) the sealant has de-bonded or pulled away from the crack; or
iv) the sealant has been excessively heated.

STANDARD SPECIFICATIONS FOR ASPHALT SURFACE PRESERVATION WITH A MALTENE BASED ASPHALT REJUVENATING AGENT

ASPHALT REJUVENATING AGENT
I. Scope:
This work shall consist of furnishing all labor, material, and equipment necessary to perform all operations for the application of an asphalt rejuvenating agent to asphaltic concrete surface courses. The rejuvenation of surface courses shall be by spray application of a maltene based cationic rejuvenating agent composed of petroleum oils and resins emulsified with water. All work shall be in accordance with the specifications, the applicable drawings, and subject to the terms and conditions of this contract.
II. Material Specifications:
The asphalt rejuvenating agent shall be an emulsion composed of a petroleum resin oil base uniformly emulsified with water. Each bidder must submit with his bid a certified statement from the asphalt rejuvenator manufacturer showing that the asphalt rejuvenating emulsion conforms to the required physical and chemical requirements.

SPECIFICATIONS

Tests	Test Method ASTM	AASHTO	Requirements Min.	Max.
Tests on Emulsion:				
Viscosity @ 25°C, SFS	D-244	T-59	15	40
Residue, % W[1]	D-244 (Mod.)	T-59 (Mod)	60	65
Miscibility Test[2]	D-244 (Mod.)	T-59 (Mod)	No Coagulation	
Sieve Test, %W[3]	D-244 (Mod.)	T-59 (Mod)	-	0.1
Particle Charge Test	D-244	T-59	Positive	
Percent Light Transmittance[4]	GB	GB	-	30
Tests on Residue from Distillation:				
Flash Point, COC, °C	D-92	T-48	196	-
Viscosity @ 60°C, cSt	D-445	-	100	200
Asphaltenes, %w	D-2006-70	-	-	1.00
Maltene Dist. Ratio	D-2006-70	-	0.3	0.6
$\frac{PC + A_1}{S + A_2}$[5]				
PC/S Ratio[5]	D-2006-70	-	0.5	-
Saturated Hydrocarbons, S[5]	D-2006-70	-	21	28

[1] ASTM D-244 Modified Evaporation Test for percent of residue is made by heating 50 gram sample to 149 C (300 F) until foaming ceases, then cool immediately and calculate results.

[2] Test procedure identical with ASTM D-244-60 except that .02 Normal Calcium Chloride solution shall be used in place of distilled water.

[3] Test procedures identical with ASTM D-244-60 except that distilled water shall be used in place of two percent sodium oleate solution.

[4] Test procedure is attached.

[5] Chemical composition by ASTM Method D-2006-70:
PC = Polar Compounds, A_1 = First Acidaffins
A_2 = Second Acidaffins, S = Saturated Hydrocarbons

PROCEDURE FOR DETERMINING PERCENT LIGHT TRANSMITTANCE ON ASPHALT REJUVENATING AGENT

A. SCOPE

This procedure covers the determination of percent light transmittance of the asphalt rejuvenating agent.

B. APPARATUS

1) Container may be either glass, plastic or metal having a capacity of 6,000 ml.
2) Graduated cylinder, 1,000 ml, or greater
3) Light transmittance measuring apparatus, such as Bausch and Lomb or Lumetron spectrophotometer
4) Graduated pipette having 1 ml capacity to 0.01 ml accuracy
5) Suction bulb for use with pipette
6) Test tubes compatible with spectrophotometer, 3/4" X 6, Bausch and Lomb, Catalog No. 33-17- 81, (B&L)

C. CALIBRATION OF SPECTROPHOTOMETER

1) Calibrate spectrophotometer as follows: (a) Set wavelength at 580 mu, (b) Allow spectrophotometer to wann-up thirty minutes, (c) Zero percent light transmittance (%LT) scale,

(d) Rinse test tube three times with tap water and fill to top of circle marking on B&L test tube or approximately 2/3 full, (e) Place tube in spectrophotometer and set %LT scale at 100, and (f) repeat steps (c) and (e) two times or until no further adjustments are necessary.

D. PROCEDURE
1) Shake, stir or otherwise thoroughly mix emulsion to be tested. Place sample of emulsion in beaker and allow to stand one minute.
2) Place 2,000 ml tap water in container.
3) Suck 1.00 ml emulsion into pipette using suction bulb. Wipe off outside of pipette.
4) Using suction bulb, blow emulsion into container.
5) Rinse pipette by sucking in diluted emulsion solution and blowing out.
6) Clean pipette with soap or solvent and water. Rinse with acetone.
7) Stir diluted emulsion thoroughly.
8) Rinse out tube to be used with the diluted emulsion three times and fill to top of circle.
9) Calibrate spectrophotometer.
10) Place diluted emulsion sample tube in spectrophotometer, cover and read %LT to nearest tenth.
11) Repeat steps 9 and 10 until three identical consecutive readings are achieved.
12) The elapsed time between addition of emulsion to dilution of water and final %LT reading should not exceed 5 minutes.

III. Material Performance:
The asphalt rejuvenating agent shall have the capability to penetrate the asphalt pavement surface and performing as follows. The asphalt rejuvenating agent shall be absorbed and incorporated into the asphalt binder. Verification that said incorporation of the asphalt rejuvenating agent into the asphalt binder has been effected shall be by analysis of the chemical properties of said asphalt binder i.e. viscosity shall be reduced by petroleum maltene fraction replacement method to the following extent. For pavements receiving the first or original application of rejuvenating agent the viscosity shall be reduced by a minimum of thirty-five, (35%) percent as determined by dynamic shear rheometer (DSR) method for asphalt testing in accord with AASHTO T315-05. For retreated pavements after an initial treatment with the asphalt rejuvenator the viscosity shall be reduced by petroleum maltene replacement method a minimum of twenty percent(20%)as determined by dynamic shear rheometer (DSR) method for testing in accord with AASHTO T315-05. In addition the phase angle shall be increased. This analysis shall apply to extracted asphalt binder, taken from cores extracted fifteen to thirty days following application, in the upper three eights inch (3/8//) of pavement. In addition the treated areas shall be sealed in-depth to the intrusion of air and water. The rejuvenating agent shall have a record of at least five years of satisfactory service as a petroleum maltene based emulsion asphalt rejuvenating agent and in-depth sealer. Satisfactory service shall be based on the capability of the material to decrease the viscosity of the asphalt binder by petroleum maltene fraction replacement method, increase the phase angle and provide an in-depth seal. Reclamite®, a Tricor Refiners/LLC product manufactured by D&D Emulsion, Inc., Mansfield,
Ohio, is a product of know quality and accepted performance.
The bidder must submit with his bid the manufacturer's certification that the material proposed for use is in compliance with the specification requirements. The bidder must submit with his bid previous use documentation and test data conclusively demonstrating that; the rejuvenating agent has been used successfully for a period of five years by government agencies such as Cities, Counties, etc; and that the asphalt rejuvenating agent has been proven to perform, as heretofore required, through field testing by government agencies as to the required change in asphalt binder viscosity and phase angle. Prior testing data shall be submitted indicating such product performance on a sufficient number of projects to insure product consistency. In addition, prior testing data shall be submitted to indicate said product performance as heretofore described over a minimum testing period of three years to insure reasonable life expectancy.
RECLAMITE®, a product of Tricor Refining,LLC is a product of known quality and accepted performance.

IV. Applicator Experience:
The asphalt-rejuvenating agent shall be applied by an experienced applicator of such material. The bidder shall have a minimum of three years experience in applying the product proposed for use. He must submit with his bid a list of five projects on which he applied said rejuvenator. He shall indicate the project dates, number of square

yards treated in each and the name and phone number of the government official in charge of each project. A project superintendent knowledgeable and experienced in application of the asphalt rejuvenating agent must be in control of each day's work. The bidder shall submit a written experience outline of the project superintendent.

V. PRODUCT STANDARDS AND ALTERNATES:
The product "Reclamite"® for the asphalt rejuvenating agent, a Tricor Refiners LLC product manufactured by D & D Emulsions, Inc. Mansfield, Ohio is the standard for these specifications and the prices quoted on the Bid Sheet Base Bid shall be for this standard. Should a bidder wish to submit a bid for alternates to the Standard, said prices shall be entered on the BID SHEET as the "Alternate Bid" for each item. In the event that the bidder submits no bid for the Standard, only the "Alternate Bids" should be completed. Bidders may offer an ALTERNATE for the Standard specified in the Specifications provided the bidder adheres to the following and submits same with his bid.
(a) List the proposed alternate on the BID SHEET form giving the product name and price.
(b) Furnish complete specifications and descriptive literature for the alternate as well as a one-gallon sample of the material proposed for use. Such descriptive and detailed information shall be complete and at least equal in detail to the agencies requirements for the standard item for which the alternate is offered.
(c) Submit a current Safety Data Sheet for the alternate materials. The agency will give the alternate consideration. The Contractor may furnish only those alternate items included in his proposal and approved by the agency prior to award of a contract.
(d) Furnish all required test data and use documentation as heretofore required. If no ALTERNATE is indicated on the BID SHEET, the Contractor shall furnish the STANDARD
(brand) specified in the attached specifications. Should the ALTERNATE offered be found unacceptable by the agency based on the data submitted with the bid and no bid is entered on the BID SHEET for the Standard, then said bid will be considered non-responsive.

VI. APPLICATION TEMPERATURE/WEATHER LIMITATIONS:
The temperature of the asphalt rejuvenating emulsion, at the time of application shall be as recommended by the manufacturer. The asphalt-rejuvenating agent shall be applied only when the existing surface to be treated is thoroughly dry and when it is not threatening to rain. The asphalt-rejuvenating agent shall not be applied when the ambient temperature is below 40° F.

VII. HANDLING OF ASPHALT REJUVENATING AGENT:
Contents in tank cars or storage tanks shall be circulated at least forty-five minutes before withdrawing any material for application. When loading the distributor, the asphalt rejuvenating agent concentrate shall be loaded first and then the required amount of water shall be added. The water shall be added into the distributor with enough force to cause agitation and thorough mixing of the two materials. To prevent foaming, the discharge end of the water hose or pipe shall be kept below the surface of the material in the distributor that shall be used as a spreader.
The distributor truck will be cleaned of all of its asphalt materials, and washed out to the extent that no discoloration of the emulsion may be perceptible. Cleanliness of the spreading equipment shall be subject to the approval and satisfaction of the Engineer.

VIII. RESIDENT NOTIFICATION:
The contractor shall distribute by hand, a typed notice to all residences and businesses on the street to be treated. The notice will be delivered no more than 24 hours prior to the treatment of the road. The notice will have a local phone number that residents may call to ask questions.
The notice shall be of the door hanger type that secures to the door handle of each dwelling. Unsecured notices will not be allowed. The contractor shall also place the notice on the windshield of any parked cars on the street. Hand distribution of this notice will be considered incidental to the contract.

IX. APPLICATING EQUIPMENT:
The distributor for spreading the emulsion shall be self-propelled, and shall have pneumatic tires. The distributor shall be designed and equipped to distribute the asphalt rejuvenating agent uniformly on variable widths of

surface at readily determined and controlled rates from 0.04 to 0.08 gallons per square yard of surface, and with an allowable variation from any specified rate not to exceed 5 percent of the specified rate.
Distributor equipment shall include full circulation spray bars, pump tachometer, volume measuring device and a hand hose attachment suitable for application of the emulsion manually to cover areas inaccessible to the distributor. The distributor shall be equipped to circulate and agitate the emulsion within the tank. The distributor shall have a computerized system, acceptable to the Engineer that controls the rate of product application. A check of distributor equipment as well as application rate accuracy and uniformity of distribution shall be made when directed by the Engineer.
The truck used for applying rock dust, or other aggregate when required and approved by the Engineer, shall be equipped with a spreader that allows the rock dust to be uniformly distributed onto the pavement. The spreader shall be able to apply ½ pound to 3 pounds of rock dust or other aggregate per square yard in a single pass. The spreader shall be adjustable so as not to broadcast the rock dust or other aggregate onto driveways or tree lawns. The rock dust or other aggregate to be used shall be free flowing, without any leaves, dirt, stones, etc. Any wet rock dust shall be rejected from the job site. Any equipment that is not maintained in full working order, or is proven inadequate to obtain the results prescribed, shall be repaired or replaced at the direction of the Engineer.

X. APPLICATION OF REJUVENATING AGENT:
The asphalt-rejuvenating agent shall be applied by a distributor truck at the temperature recommended by the manufacturer and at the pressure required for the proper distribution. The emulsion shall be so applied that uniform distribution is obtained at all points of the areas to be treated. Distribution shall be commenced with a running start to insure full rate of spread over the entire area to be treated. Areas inadvertently missed shall receive additional treatment as may be required by hand sprayer application. Application of asphalt rejuvenating agent shall be on one-half width of the pavement at a time. When the second half of the surface is treated, the distributor nozzle nearest the center of the road shall overlap the previous application by at least one-half the width of the nozzle spray. In any event the centerline construction joint area of the pavement shall be treated in both application passes of the distributor truck. Before spreading the asphalt rejuvenating agent shall be blended with water at the rate of two (2) parts rejuvenating agent to one (1) part water, by volume or as specified by the manufacturer for jobsite conditions. The combined mixture of asphalt rejuvenating agent and water shall be spread at the rate of 0.04 to 0.08 gallons per square yard, or as approved by the Engineer following field testing. Where more than one application is to be made, succeeding applications shall be made as soon as penetration of the preceding application has been completed and the
Engineer grants approval for additional applications. Grades or super elevations of surfaces that may cause excessive runoff, in the opinion of the Engineer, shall have the required amounts applied in two or more applications as directed. After the rejuvenating emulsion has penetrate and when surface conditions require a light coating of dry rock dust, or other aggregate approved by the Engineer, shall be applied to the surface in sufficient amount to protect the traveling public as required by the Engineer. The rock dust or other approved aggregate shall be swept and removed from the streets and properly disposed of at the Contractor's expense within 24 hours of application. The Contractor shall furnish a quality inspection report showing the source, manufacturer, and the date shipped, for each load of asphalt rejuvenating agent. When
directed by the Engineer, the Contractor shall take representative samples of material for testing.

XI. STREET SWEEPING:
The Contractor shall be responsible for sweeping and cleaning of the streets prior to, and after treatment. Prior to treatment, the street will be cleaned of all standing water, dirt, leaves, foreign materials, etc. This work shall be accomplished by hand brooming, power blowing or other approved methods. If in the opinion of the Engineer the hand cleaning is not sufficient than a self-propelled street sweeper shall be used. All rock dust or other approved material used during the treatment must be removed no later than 24 hours after treatment of the street. This shall be accomplished by a combination of hand and mechanical sweeping. All turnouts, cul-de-sacs, etc. must be cleaned of any material to the satisfaction of the Engineer. Street sweeping will be included in the price bid per square yard for asphalt rejuvenating agent. If, in the opinion of the Engineer, additional rock dust is required said material shall be applied by the contractor. Said rock dust shall be swept up no later than 24 hours following reapplication. No additional compensation will be allowed for reapplication and removal of rock dust.

XII. TRAFFIC CONTROL:

The Contractor shall schedule his operations and carry out the work in a manner to cause the least disturbance and/or interference with the normal flow of traffic over the areas to be treated.
Treated portions of the pavement surfaces shall be kept closed and free from traffic until penetration, in the opinion of the Engineer, has become complete and the area is suitable for traffic. When, in the opinion of the Engineer, traffic must be maintained at all times on a particular street, then the Contractor shall apply asphalt rejuvenating agent to one lane at a time. Traffic shall be maintained in the untreated lane until the traffic may be switched to the completed lane. The Contractor shall be responsible for all traffic control and signing required to permit safe travel. The contractor shall notify the police and fire departments as to the streets that are to be treated each day. If, in the opinion of the Engineer, proper signing is not being used, the Contractor shall stop all operations until safe signing and barricading is achieved.

XIII. METHOD OF MEASUREMENT:
Asphalt rejuvenating agent will be measured by the square yard as provided for in the Contract Documents.

XIV. BASIS FOR PAYMENT:
The accepted quantities, measured as provided for above, will be paid for at the contract unit price for asphalt rejuvenating agent.
Asphalt rejuvenating agent shall be paid for PER SQUARE YARD, which shall be full compensation for furnishing all materials; equipment, labor and incidentals to complete the work as specified and required.
Polymer Modified Standard Slurry Seal Polymer modified slurry seal is used in the same applications as a standard slurry seal however polymer slurry seal has higher binder cohesion that leads to improvements in resistance to raveling/ especially in cul-de-sacs. Polymer modified slurry seals are more abrasion resistant and can be laid at higher application rates without bleeding or deformation. For airport application suitable variations are made including rolling.

1.01 SCOPE
Slurry Seal shall consist of mixing asphalt emulsion/ aggregate/ and water and spreading the mixture on a surface or pavement where shown on the plans/ as specified in these specifications and the special provisions/ and as directed by the Engineer.

1.02 EXPERIENCE
All contractors and their subcontractors shall be FDOT prequalified in the work classes of flexible paving and hot plant-mixed bitum courses. Bidders must submit with the bid a minimum of five (5) Polymer Modified Slurry Seal or Micro-surfacing project references from a City or County in the State of Florida that have been completed within the past three years. Bidders are required to submit detailed information: indicating the project date/ number of square yards treated in each and phone number of the government official in charge of each project. Contractor shall be capable of meeting all the requirements of this specification at the time of the bid. The contractor shall have in their possession/ in the State of Florida at the time of bidding/ four (4) or more slurry seal machines as described in the equipment section of the specification. Staff shall have the option to inspect the Contractor's equipment and if found deficient, it shall be the basis for rejection of Contractor's bid.

2.01 MATERIALS
The materials for slurry/seal immediately prior to mixing shall conform to the following requirements:

2.02 (a) POLYMER MODIFIED ASPHALT EMULSION
Emulsified asphalt shall provide a quick- traffic latex modified cationic type CSS emulsion with natural or synthetic latex conforming to the requirements specified in AASHTO M208 or ASTM D2397 for CSS-1H,

Property	Minimum	Maximum
Viscosity, Saybolt Furol @ 25° C, Sec.	20.0	90.0
Particle Charge	Positive	---
Sieve Test	---	0.1
Distillation:	---	---
Oil distillate, by volume, %	---	0.5
Residue from Distillation, %	62.0	---
Penetration, 25°C, 100g, 5 sec.	40.0	100.0
Ductility, 77° F, 50 mm/ sec.	70.0	---

plus the following:

AASHTO TEST NO.	ASTM TEST NO.	QUALITY	SPECIFICATION
T53	D36	Softening Point	135˚F (57˚C) Min.
T59	D244	Residue after Distillation	62% Minimum
T49	2397	Penetration at 77˚ F (25˚ C)	40 – 90*
	2170	Kinematic Viscosity @ 275˚ F (135˚ C)	650 cSt/sec. Minimum ˚F

It shall pass all applicable storage and settlement tests. The cement mixing test shall be waived for this emulsion. The polymer material shall be milled or blended into the asphalt or emulsifier solution prior to the emulsification process.

The minimum amount and type of polymer modifier shall be determined by the laboratory performing the mix design. The minimum amount required will be based on asphalt weight content and will be certified by the emulsion supplier. In general, a one percent (1%) minimum to three (3%) maximum polymer solids/ based on asphalt weight/ is considered the standard.

The five-day (5) settlement test may be waived/ provided job stored emulsion is used within thirty-six (36) hours from the time of the shipment/ or the stored material has had additional emulsion blended into it prior to use.

Each load of emulsified asphalt shall be accompanied with a Certificate of Analysis/Compliance to assure that it is the same as that used in the mix design. For the first load of emulsified asphalt produced for the project/ the supplier shall submit a sample to the owning agency's designated laboratory for testing. At any time during application/ the owner / buying agency may sample and test all subsequent loads of emulsified asphalt delivered to the project to verify and determine compliance with specification requirements. Where these tests identify material outside specification requirements/ the owner may require the supplier to cease shipment of that protested emulsified asphalt product. Further shipment of that protested emulsified asphalt
product to the owning agency's projects will remain suspended until the cause of the problem is evaluated and corrected by the supplier as necessary to the satisfaction of the owning agency.

2.02 (b) WATER

Water shall be potable/ free of harmful soluble salts and shall be of such quality that the asphalt will not separate from the emulsion before the slurry seal is in place in the work.

2.02 (c) AGGREGATE

The mineral aggregate used shall be of the type and grade specified for the particular use of the Slurry. The aggregate shall be a manufactured crushed stone such as granite, slag/ limestone, chat/ or other high-quality aggregate/ or combination thereof. The material shall be free from vegetable matter and other deleterious substances. The percentage composition by weight of the aggregate shall conform to the following grading:

Type II

Sieve Sizes	Percentage Passing
3/8"(9.5- mm)	100
No. 4(4.75- mm)	90-100
No. 8(2.36- mm)	65-90
No. 16(1.18- mm)	40-70
No. 30(600- um)	25-50
No. 200 (75- um)	5-15
Approximate application rate (Pounds/Square Yard)	**22-26 Single App.** **30-34 Double App.**

The aggregate shall also conform to the following quality requirements:

Test	Test Method	Requirement
Sand Equivalent	ASTM D2419	65 Min.
Soundness	ASTM C88	15% Maximum using NA2 SO4 or 25% Maximum using MgSO4
Abrasion Resistance*	ASTM C131	30% maximum after 500 revolutions
* Abrasion Resistance is to be performed on the parent aggregate before crushing.		

2.02 (d) MINERAL FILLER

The mineral filler shall be either Portland Cement or other approved mineral filters/ if required. Portland Cement if used/ shall be commercially available Type 1-11 and shall be free of lumps and clods.

2.03 MIX DESIGN

At least 7 working days before slurry seal placement commences/ the Contractor shall submit to the Engineer for approval a laboratory report of tests and proposed mix design covering the specific materials to be used on the project. The percentage of asphalt emulsion proposed in the mix design shall be within the percentage range specified in Section 2.04 "Proportioning."

The tests and mix design shall be performed by an independent, accredited laboratory with no affiliation to the emulsion supplier and capable of performing the applicable International Slurry Seal Association (ISSA) tests. The proposed slurry seal mixture shall conform to the requirements specified when tested in accordance with the following tests:

Test	ISSA Test Method	Requirement
Slurry Seal Consistency, cm	T106	3 max.
Wet Stripping	T114	Pass
Compatibility	T115	Pass (a)
Cohesion Test, kg - cm within 1 hour	T139	20 min. (b)
Wet Track Abrasion, g/sq..ft.	T100	75 max.
(a). Mixing test must pass at the maximum expected air temperature at the project site during application.		
(b). Using project source aggregate asphalt emulsion and set-control agents if used.		

The laboratory report shall be signed by the laboratory that performed the tests and mix design and shall show the results of the tests on individual materials/ comparing the test results to those required by the specifications. The report shall clearly show the proportions of aggregate, filter (as determined from the tests, minimum and maximum)/ water (minimum and maximum), asphalt solids content based on the dry weight of aggregate and set-control agent usage. Previous laboratory reports covering the same materials may be accepted provided they are made during the same calendar year.

2.04 PROPORTIONING

Asphalt emulsion shall be added at a rate determined by the mix design and in the range of the table above. A job mix design shall be submitted by the Contractor for approval by the Engineer that conforms to the specification limits/ and that is suitable for the traffic/ climate conditions, curing conditions and final use. This will include recommended application rate of slurry to suit the job conditions.

The Slurry Seal mixture shall be proportioned by the operation of a single start/stop switch or lever which automatically sequences the introduction of aggregate/ emulsified asphalt, admixtures/ if used/ and water to the pug mill.

Calibrated flow meters shall be provided to measure both the addition of water and liquid additives to the pug mill. If necessary for workability/ a retarding agent/ that will not adversely affect the seal, may be used.

Water/ and retarder if used, shall be added to ensure proper workability and (a) permit uncontrolled traffic on the slurry seal no more than three (3) hours after placement without the occurrence of bleeding, raveling, separation or other distress; and (b) prevent development of bleeding, raveling/ separation or other distress within fifteen (15) days after placing the slurry seal.

2.05 MIXING AND SPREADING EQUIPMENT

The Slurry Seal shall be mixed in a self-propelled mixing machine equipped with a continuous flow pug mill capable of accurately delivering and automatically proportioning the aggregate, emulsified asphalt, water and

additives to a double shafted, multi-blade pug mill mixer capable of minimum speeds of 200 revolutions per minute.
A minimum of four operational mixing machines of 12 cubic yard capacity/ or larger/ shall be maintained on the project. The mixed slurry seal retention time in the pug mill shall be less than three seconds. No retention of mixed slurry seal shall be allowed within the pug mill by gate shut-off or other mechanical means. Any machines with pugmill retention or shut-off gates shall have them removed prior to being used on this project. The mixing machine shall have sufficient storage capacity of aggregate/ emulsified asphalt/ and water to maintain an adequate supply to the proportioning controls.
The mixing machine shall be equipped with hydraulic controls for proportioning the material by volume to the mix. Each material control device shall be calibrated, properly marked/ preset and lockable at the direction of the Engineer. The mixing machine shall be equipped with a water pressure system and nozzle type spray bars to provide a water spray immediately ahead of the spreader box.
The mixing machine shall be equipped with an approved fines feeder that provides a uniform, positive, accurately metered, pre-determined amount of a mineral filler, if used, at the same time and location that the aggregate is fed.
The slurry mixture shall be uniformly spread by means of a controlled spreader box conforming to the following requirements:
The slurry shall be agitated and spread uniformly in the surfacing box by means of twin-shafted paddles or spiral augers fixed in the spreader box. A front seal shall be provided to insure no loss of the slurry at the road contact point. The rear seal shall act as a final strike-off and shall be adjustable. The spreader box and rear strike-off shall be so designed and operated that a uniform consistency is achieved to produce a free flow of material to the rear strike-off. The spreader box shall have suitable means provided to side shift the box to compensate for variations in the pavement geometry.
A secondary strike-off shall be provided to improve surface texture. The secondary strike-off shall have the same adjustments as the spreader box. No burlap drags will be permitted on the applications of the slurry seal.
Slurry mixture/ to be spread in areas which cannot be reached with the machine spreader box shall be surfaced using hand squeegees to provide uniform coverage. If necessary, the area to be hand worked shall be lightly dampened prior to mix placement. Care shall be exercised to leave no unsightly appearance from hand work. The same type of finish as applied by the spreader box shall be required.

2.06 PLACING
The slurry seal shall not be placed if either the pavement or the air temperature is below 55 degrees F (13C) and falling/ but may be applied when both the air and pavement temperature is 45 degrees F (7C) or above and rising. The mixture shall not be applied if high relative humidity prolongs the curing beyond a reasonable time.
Before placing the slurry seal/ the pavement surface shall be cleaned by sweeping/ flushing or other means necessary to remove all loose particles of paving/ all dirt and all other extraneous material.
Forty-eight (48) hours prior to the slurry seal operations/ the contractor shall notify all residents, businesses and agencies with an approved written notice detailing the streets and limits of work to be done along, with the hours of work.
Immediately before commencing the slurry seal operations/ all surface metal utility covers (including survey monuments) shall be protected by thoroughly covering the surface with an appropriate adhesive and paper or plastic. No adhesive material shall be permitted to cover, seal or fill the joint between the frame and cover of the structure. Covers are to be uncovered and cleaned of slurry material by the end of the same work day.
Hand tools shall be available in order to remove spillage. Ridges or bumps in the finished surface will not be permitted. The mixture shall be uniform and homogeneous after spreading on the existing surface and shall not show separation of the emulsion and aggregate after setting.
Adequate means shall be provided to protect the slurry seal from damage from traffic until such time that the mixture has cured sufficiently so that the slurry seal will not adhere to and be picked up by the tires of the vehicles.
For the purpose of this project, the construction zone is defined to include all stockpile staging areas and travel routes to/from streets where the slurry seal is to be applied.
All traffic control shall be in accordance with the FDOT Roadway Design Standards/ most current edition and TP-102 (MOT). All associated devices shall be checked daily or more frequently as needed throughout the project for compliance. Where adjustments or corrections are needed, prompt revisions shall be made.

Any deviations shall not be made without prior written approval from the project engineer.

2.07 MEASUREMENT
Slurry seal will be measured and paid for by the square yard for the actual surface areas covered.

2.08 PAYMENT
The contract price paid per square yard for slurry seal shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in the furnishing and placing of the slurry seal complete in place/ including cleaning the surface and protecting the slurry seal until it has set, all as shown on the plans, as specified in these specifications and as directed by the Engineer.

HOT- in PLACE SPECIFICATIONS
PART I
1.1 GENERAL
The Contractor shall furnish all labor, material, consumables, tools and equipment necessary to perform all operations for "hot-in-place" recycling of street asphalt, addition of a rejuvenating agent, and subsequent resurfacing of the street, at selected streets within the City of Kissimmee, on an as-needed basis. The list of street names and surfaces selected for application will be provided by the City after the bid award. Asphaltic concrete used to complete this work shall conform to the applicable Technical Specifications sections, unless otherwise modified herein. The quality of workmanship and materials used in restoration shall produce a surface equal to or better than the condition before the Work began.

1.2 SCOPE OF WORK
The essential portions of the proposed Work for the Project are summarized as follows: The Work consists of street cleaning and a single pass, single machine process of heating, scarifying, and reworking existing pavement, adding a recycling agent, redistributing the processed materials and placing an asphalt concrete surface course overlay of Type S-Ill asphalt concrete, at a rate of 110 pounds per square yard. Surface adjustment of manhole rings, as requested by the City, will be required. Striping, Markings and Restoration of vehicle detector loops will also be required. The estimated quantities and Contract Pay Items are listed in the Invitation for Bid.

1.3 ESTIMATED QUANTITIES
The estimated quantities listed in the bid for the various Contract Pay Items shall be used for the purposes of comparing bids. Certain estimated quantities listed are greater than the quantities required to complete the Work. The greater quantities and quantities of work items not shown may be for contingent work; compensation for contingent work will be made if required and approved by the Engineer. The City reserves the right to vary the estimated quantities or to delete the Work and the corresponding Contract Pay Items from the Contract. The Contractor will be compensated for work actually performed as indicated in the Specifications or as authorized by the Engineer, all in accordance with the unit prices and lump sum prices
contained in the bid. The bidder shall quote in the bid a unit or lump sum price for which he will perform the work for each bid item.

1.4 SAFEGUARDING SURVEY MARKS
The Contractor shall safeguard all existing property monuments, benchmarks, and other survey marks adjacent to and within the Project limits, and shall bear the cost of reestablishing them if disturbed or destroyed.

1.5 INSPECTION AUTHORITY
The Engineer has ultimate responsibility for contract administration and inspection for this bid. The Engineer may assign field inspection responsibilities to a Design Professional and/or City Inspector. Each step of construction is subject to approval by the Engineer prior to proceeding with a subsequent step. During the progress of the Work and up to the date of the final acceptance, the Contractor shall, at all times, afford representatives of the City, the City, the State, the Department of Environmental Protection, the Department of Labor, or any other agency with jurisdiction, every reasonable, safe, and proper facility for observation of the Work done or being done at the site,

and also the manufacture or preparation of materials and equipment at the place of such manufacture or preparation.

1.6 QUALIFICATIONS
The bidder shall have a minimum of three years experience in applying the product proposed for use in this specification. He must submit with his bid a list of five similar projects on which he worked. He shall indicate the project dates, number of square yards treated in each and the name and phone number of the official in charge of each project.

1.7 SUBMITTALS
The bidder must submit with his bid the manufacturer's certification that the material proposed for use is in compliance with the specification requirements. The bidder must submit with his bid previous use documentation and test data conclusively demonstrating that; the rejuvenating agent has been used successfully for a period of five years by government agencies such as Cities, Counties, etc; and that the asphalt rejuvenating agent has been proven to perform, as heretofore required, through field testing by government agencies as to the required change in the asphalt binder viscosity and penetration number. Testing data shall be submitted indicating such product performance on a sufficient number of projects, each being tested for a minimum period of three years to insure reasonable longevity of the treatment, as well as product consistency.
The Contractor shall submit shop drawings, and samples where specified for the following materials:

Equipment
Asphaltic Concrete Type S-lll
Recycling Agent

The Contractor shall submit to the City in writing the proposed asphalt design mixes and sufficient samples for study and testing.

1.8 WARRANTY
The Contractor shall provide workmanship and labor warranty for a period of at least 12 months from the date of application. The material warranty shall be as offered by the manufacturer.

1.9 DELIVERY AND STORAGE
Contractor shall deliver materials in ample quantities to ensure the most speedy and uninterrupted progress of the Work to complete the Work within the allotted time. The Contractor shall also coordinate deliveries in order to avoid delay in, or impediment of, the progress of the Work of any related contractor. The Contractor shall provide space for storage of materials and equipment.

1.10 WORK SCHEDULE AND PROGRESS SCHEDULE
Normal working hours are 7:00 AM to 7:00 PM, Monday through Friday. Work on holidays, weekends, and evenings will be done if determined by the Engineer. The Contractor shall schedule his work so as to maintain at least a one-way traffic and shall provide effective dust control at all times. Two lane traffic shall be maintained whenever possible. No interruption of access to property shall be made unless prior arrangements acceptable to the occupant or owner of the property have been made by the Contractor in writing. Contractor shall prepare and submit to the Engineer a Progress Schedule showing the order in which the Contractor proposes to carry out the Work, the start dates and the completion dates of the salient features of the Work. It shall clearly depict the order, inter-dependence, and duration of each activity.
Any changes to the Progress Schedule shall be in writing, and shall be cleared by the Engineer in advance. If the Engineer orders a phase of construction to be stopped due to the Contractor's neglect to adhere to the sequence of operations or any other nonconformance of specifications, as outlined herein, the Stop Work Order shall not constitute a basis for an extension of time.

PART 11 MATERIALS AND EQUIPMENT
2.0 GENERAL

A. All materials, appliances, and types of construction shall be in accordance with the F.D.O.T. Standard Specifications for Road and Bridge Construction, 2000 edition, and shall, in no event, be less than that necessary to conform to the requirements of any applicable State, County, Federal, laws, ordinances, and codes.
B. All materials and equipment to be incorporated into the Work shall be new, unused and correctly designed. They shall be of standard first grade quality, produced by expert workmen, and be intended for the use for which they are offered. Materials or equipment which, in the opinion of the Engineer, are inferior or of a lower grade than indicated, specified, or required, will not be accepted.
C. For detailed specifications for Type S-lll Asphaltic material, and Asphaltic Concrete Pavement, the Contractor shall consult F.D.O.T. Standard Specifications for Road and Bridge Construction, 2000 edition.
D. Only "Asbestos-Free" materials shall be incorporated into the Work, unless the Technical Specifications specifically call for otherwise. Material suspected of being Regulated Asbestos Containing Material (RACM), includes but is not limited to: thermal and acoustic insulation, joint compound, mastic, adhesive, vinyl floor tile and sheeting, ceiling tile, plaster, wall board, roofing felt, and shingle. Shop drawings for material or equipment suspected of being RACM shall list all contents, shall be noted "Asbestos-Free," and shall be screened by the Contractor prior to submittal to confirm that it is "Asbestos-Free." All materials delivered
to the Project site shall have been approved through the shop drawing procedure and shall be in their original labeled and unopened containers.
E. In the event that asbestos-containing material installed by the Contractor is discovered either during construction, following completion of construction, or following acceptance of the Contract Work by the City and closeout of the Contract, it will be the responsibility of the Contractor to pay all costs incurred to remove and replace those materials, including repair or replacement of all adjacent materials which are affected by the abatement process.

2.1 EQUIPMENT
A. The machine used to recycle the existing pavement shall be designed and built for this specific purpose. The machine shall be capable of heating by infrared heat, scarifying to a minimum of one-inch depth, applying a recycling agent, reworking and redistribution of the existing asphalt concrete surface course (minimum ten-foot width), and a concurrent application of the final surface course of Type III material in a single machine operation. The machine shall have the capability of maintaining a recycled mat temperature of 225 degrees F throughout the repaying operation, including application of the final course.
B. The machine shall also be capable of reworking the material around manholes and other obstacles. The machine shall be equipped to add the recycling agent and mix the pavement material evenly, and shall be equipped with a leveling blade and screed for regrading the existing asphalt concrete surface course. The screed shall be a heated vibratory screed equipped with crown controls and be capable of adjustment to redistribute the existing asphalt concrete surface course in order to produce the desired longitudinal grade and transverse cross section.
C. The machine shall be on the site in operating condition sufficiently in advance of beginning of the surface-recycling project to allow full evaluation. As required by the Engineer, the Contractor shall demonstrate that the machine he proposes to use will achieve the results specified.

2.2 ASPHALTIC CONCRETE PAVEMENT
Unless otherwise specified elsewhere, all asphalt concrete shall be Type S-lll mix as specified in the F.D.O.T. Standard Specifications for Road and Bridge Construction, 2000 Edition. Asphalt concrete shall be placed and compacted to provide a minimum thickness as specified on the Plans. Samples of the material shall meet the quality requirements as specified in ASTM D979, to determine conformance to the approved design mix. Construction material and workmanship shall conform to the applicable requirements of DOT-SSRBC sections 320, 330, 331 and 332.

2.3 TYPE S-lll ASPHALT CONCRETE
Type S-lll asphalt concrete shall be used for an alternate for the final surface (no friction course specified), and, as the final layer of structural course only. The composition and physical test properties for Type S-III are described below.

Minimum Marshall Stability (Ibs) 1 500

Flow (.01 in.) in % 8-14
Minimum VMA in % 15
Air Voids in % 3-7
Minimum Effective Asphalt Content 5.5
Percent by weight total aggregate passing sieves -See Section 331 (FDOT 2000)
Asphalt Cement Viscosity Grade AC-20 -See Section 916-1
Mineral Filter -See Section 917-1 , 917-2
Course Aggregate, Stone, Slag or Crushed Grave -See Section 901
Fine Aggregate -See Section 902
The aggregate shall be clean and shall not contain any deleterious substances.
Course or fine aggregate containing any appreciable amount of phosphate shall not be used.

2.4 RECYCLING AGENT
A. General
The recycling agent, or restorative agent, shall be an emulsified asphalt recycling agent as approved by the City. These specifications establish the requirements and uses for recycling agents used in the repaying of asphaltic surfaced streets. Recycling agents are used to restore the plasticity to existing asphaltic paving. Either the agent is used independently an emulsified agent is used in conjunction with cationic emulsified asphalt.
B. Use of agent without addition of emulsified asphalt tightly or equal:

Flash Point, CCC, Degrees C	195 Min. Viscosity, mPa Sec
100 Degrees C	15-22
60 Degrees C	90-180
38 Degrees C	500-1500
Refractive Index	1.5460 Min.
Four Point, Degrees C	+27 Max.
Specific Gravity, 15.6115.6 Degrees C	980-1.040
Analine Point, Degrees C	48 Max.
Molecular Analysis, Clay Gel, %	
Polar Compounds	8 Min.
Aromatics	65 Max.
Saturates	27 Max.
Asphaltenes	.2 Max

Note: mPa Sec = Centipoise

C. Use of agent in conjunction with Cationic emulsified asphalt AE300R or equal:
D. Sampling and Testing:
The Contractor shall submit samples of the recycling agents along with samples of existing pavement to a competent laboratory, which will select a formulation suited for the Project, and determine the rate of application for the recycling agent that will provide the desired viscosity in the recycled pavement. The Engineer reserves the right to make changes in the recycling agent formulation and rate of application at any time throughout the construction duration.

PART III EXECUTION
3.1 HOT-IN-PLACE ASPHALTIC RECYCLJNG
A. The existing pavement shall be removed to varying depths in a manner which will restore the pavement surface to a uniform longitudinal profile and cross slope of % inch per foot. Minimum removal depth shall be 1 inch, or as directed by the Engineer.
B. Prior to recycling, the pavement shall be cleaned by the Contractor so as to be reasonably free from sand, dirt and other deleterious substances that would affect the quality of the recycled mix.
C. The entire width of pavement surface being processed in a single pass shall be uniformly heated in such a manner as to soften the existing pavement to the extent that 'rt can be scarified in a manner that will result in a layer of uniformly loosened material without appreciable ridges of undistributed material which will provide

sufficient scarified material to allow the pavement surface to be restored to the shape specified. Spot leveling may be necessary as directed by the Engineer.
D. An approved recycling agent shall be applied to the scarified material, which then shall be distributed evenly over the width being processed so as to produce a uniform cross section. The exact amount of recycling agent will be determined by a competent laboratory and will generally range between 0.008 and 0.15 gallon per square yard as directed by the City.
E. Asphaltic Concrete used shall be Type S-III.

3.2 ADJUSTMENT OF EXISTING MANHOLE COVERS AND VALVE BOXES
The Contractor shall make vertical adjustments to existing manhole covers and valve boxes within or adjacent to all proposed construction. Covers and valve boxes shall be adjusted to elevations compatible to proposed roadway or parkway grades. The manhole covers and valve boxes, if needed, shall be supplied by the Contractor.

3.3 STREET RESURFACING WORK
A. The Contractor shall clean, to the satisfaction of the City, existing surfaces to be resurfaced and shall maintain said clean surfaces until completion of resurfacing work. Prior to the Contractor's sweeping-cleaning operations, the City, if given a minimum of 48 hours notice by the Contractor, will schedule to scrape and pull the curb line where there are heavy accumulations of dirt and/or debris. The Contractor shall furnish and apply the tack coat prior to placing of the asphaltic concrete.
B. Where it becomes necessary, the Contractor will adjust manhole rings, as directed by the City. Manhole rings will be adjusted by the use of adjustment rings supplied by the Contractor. Alt such work shall be accomplished as ordered by the City.
C. At streets intersected by streets being resurfaced, resurfacing shall be feathered along the radH of all returns, so as to maintain the drainage pattern of the intersection, or at the direction of the Engineer.

3.4 FINISHED SURFACE
The finished surface shall have a reasonable uniform texture and shall be within % inch of a true profile grade and shall have no deviation in excess of Vs. inch from a straight edge applied to the pavement perpendicular to the centerline. Areas varying from a true surface in excess of the above state tolerance may be accepted without correction if the Engineer determines that they were caused by pre-existing condition, which could not have reasonably been corrected. Any unsuitable texture or profile, as determined by the Engineer, shall be corrected by the Contractor at no additional compensation.

3.5 STRIPING AND MARKING SPECIFICATIONS
Consult the manual on Uniform Traffic Control Devices (MUTCD).

3.6 WORK IN PRIVATE PROPERTT AND RESIDENT NOTIFICATION
A. The Contractor shall distribute by hand, a typed notice to all residences and businesses on the street to be treated. The notice will be delivered no more than 24 hours prior to the treatment of the road. The notice will have a local phone number that residents may call to ask questions. The notice shall be of the door hanger type, which secures to the door handle of each dwelling. Unsecured notices will not be allowed. The Contractor shall also place the notice on the windshield of any parked cars on the street. Hand distribution of this notice will be considered incidental to the contract.
B. In the event that, in the opinion of the Contractor, obtaining a temporary construction easement outside the limits of the public right-of-way, of City owned property, or of the easements obtained by the City is necessary or desirable, it shall be the sole responsibility of the Contractor to obtain such easement from the owner of the property. If such easement is obtained by the Contractor it shall contain provisions to hold the City harmless from any operations of the Contractor within the easement limits. The Contractor shall not conduct construction operations on private property outside the limits of the public right-of-way, of
City-owned property, or of the easements obtained by the City unless a copy of the Temporary Construction Easement Agreement is filed with the Engineer.

C. Upon completion of Work in easements, the Contractor shall restore the property, including all fences or other structures disturbed by his operations, as nearly as possible to the condition in which he found it. No material shall be used or removed from private property without the approval of the Engineer.

3.7 TRAFFIC CONTROL

A. The work consists of maintaining traffic within the limits of the Project for the duration of the construction period, including any temporary suspensions of the Work. It shall include the construction and maintenance of any necessary detour facilities; the providing of necessary facilities for access to residences, businesses, etc., along the Project; the furnishing, installing, and maintaining of traffic control and safety devices during construction; the control of dust; and any other special requirements for safe and expeditious movement of traffic as may be called for on the Plans.

B. The term, "traffic control" shall include all of such facilities, devices, and operations as are required for the safety and convenience of the public as well as for minimizing public nuisance; all as specified.

C. The Contractor shall schedule his operations and carry out the work in a manner to cause the least disturbance and/or interference with the normal flow of traffic over the areas to be treated. Treated portions of the pavement surfaces shall be kept closed and free from traffic until penetration, in the opinion of the Engineer, has become complete and the area is suitable for traffic.

D. If for any reason, permanent traffic lines cannot be placed due to incomplete work, it shall be the Contractor's responsibility to place temporary traffic stripes prior to completing the day's operations.

E. When, in the opinion of the Engineer, traffic must be maintained at all times on a particular street, then the Contractor shall apply asphalt-rejuvenating agent to one lane at a time. Traffic shall be maintained in the untreated lane until the traffic may be switched to the completed lane.

F. The Contractor shall be responsible for all traffic control and signing required to permit safe travel. The Contractor shall notify the police and fire departments as to the streets that are to be treated each day.

G. If, in the opinion of the Engineer, proper signing is not being used, the Contractor shall stop alt operations until safe signing and barricading is achieved.

3.8 UTILITIES

Prior to construction, the Contractor shall familiarize himself with the location of all existing utilities and facilities within the project sites, and work in close co-operation with the utility company, so as not to disturb, destroy or otherwise harm any existing infrastructure.

3.9 DAMAGES

Access to the work sites shall be over public streets and highways. Any damage to existing pavement surface and base or other surface improvements outside the Contract Pay Limits, that are attributable to the Contractor's activities, shall be restored to like-new condition by the Contractor at his own expense.

3.10 METHOD OF MEASUREMENT, BASIS OF PAYMENT

A. Mobilization:

The cost of required insurance, consideration for indemnification to the City and the Engineer, and any other pre-construction expenses necessary for the start of the Work, excluding the cost of construction materials, shall be included in the various unit prices bid. No separate payment will be made.

B. Traffic Control:

The Scope of Work consists of maintaining traffic for the duration of the construction period, including any temporary suspensions of the work details of which are mentioned in Section 3.11. Payment for traffic control shall be included in the various unit prices bid. No separate payment will be made.

C. Hot In-Place Asphalt Recycling: Payment under this Pay Item provides for all costs for hot in-place asphalt recycling existing asphaltic concrete roadway, including but not limited to: cleaning the surface, scarifying, mixing the recycling agent, mixing the concrete and redistributing the final mixture, rolling and compacting the placed mixture, and any temporary traffic control markings as required by the Engineer. The price quoted shall be on a per square yard basis.

D. Asphaltic Concrete Type S-I 11:

Payment under this Pay Item provides for all costs for furnishing and placing Type S-III asphaltic concrete for mixing into the recycled material, including but not limited to trucking to job site and placing in mixer. The price quoted shall be on a per ton basis.
E. Recycling Agent:
Payment under this Pay Item provides for all costs for furnishing the recycling agent to be mixed into the scarified material at a rate of .008 to 0.15 gallon per square yard, including but not limited to delivery to the job site and adding to the mix. The price quoted shall be on a per gallon basis.
F. Bid Items:

PAY ITEM	PAY UNIT
Hot In-Place Asphalt Recycling	SY
Recycling Agent	GAL
Furnish and Place S-III Asphalt	TON

City or County of Florida
Single Machine
Hot-In-Place Asphalt Recycling Special Conditions

3.1 DESCRIPTION OF WORK
This work consists of rehabilitating the surface layer of the existing asphalt roadway to a depth of 1 inch and placing a layer of new Hot Mix Asphaltic Concrete (HMAC) material over the rehabilitated surface. This will be accomplished with a specially designated machine in a simultaneous process of heating, scarifying, applying an asphalt rejuvenating agent (emulsifier), thoroughly re-mixing, reshaping the existing surface, and an application of the final overlay. The new HMAC placed over the rejuvenated layer of existing asphalt shall be in compliance with the lines, grades, thickness, and typical cross section, established by the Director of Public Works or Designee. NOTE: The machine that heats, scarifies, rejuvenates, and remixes the materials must also lay the recycled asphalt material, as well as the new HMAC material. The Director of Public Works or his Designee will provide the list of streets for this application after the bid is awarded as required. Additional pre-heaters may be required to achieve the specified depth, as directed by the Director of Public Works or Designee.

3.2 MATERIAL
a) Asphalt Rejuvenating Agent (Emulsifier) The Director of Public Works or Designee will approve the asphalt-rejuvenating agent. The recycling agent used to restore the plasticity of the existing asphalt pavement shall be an emulsified agent. The rejuvenating agent shall meet the minimum requirements of FDOT Specifications. A manufacturer's certification shall be submitted for the recycling agent.
b) Hot Mix Asphaltic Concrete: The Contractor will provide and deliver the F.D.O.T.-Type Hot mix asphalt concrete specified in the bid schedule.

3.3 JOB CONDITIONS
a) Weather limitations for this work shall be a minimum of 50 degrees F and rising.
b) Normal working hours is 8 a.m. to 5 p.m. Monday through Friday. Work on holidays, weekends, will only be done if approved by the Director of Public Works or Designee.
c) Prior to the hot-in-place operation, the pavement shall be cleaned so as to be reasonably free from sand, dirt, and other deleterious substances that would affect the quality of the recycled mix. NOTE: No separate charge shall be made for this requirement.
d) The Contractor shall be responsible for protecting the areas adjacent to the work.

3.4 EQUIPMENT
a) All tools, equipment, and machinery shall be maintained in satisfactory working condition and shall be subject to the approval of the Director of Public Works or Designee.
b) Repaying machine:
1) The machine: Shall be an approved, self-contained, self-propelled, automated unit that heats, scarifies (or mills), automatically applies recycling agent at a uniform rate (determined by the Director of Public Works or Designee), thoroughly mixes, redistributes, and levels the existing asphalt to the specified depth, and lays the new HMAC material overlay. The new HMAC must be laid within 30 seconds after the scarification begins to

ensure a hot monolithic bond with the recycled asphalt pavement. The machine shall also be capable of reworking the material around manholes and other obstacles; the machine shall be capable of adding and mixing the recycling agent evenly and shall be equipped with a leveling blade and screed for re-grading of the existing asphaltic concrete surface.
2) Pre-heater: This unit shall be hooded to prevent damage to adjacent property; including trees, shrubs, and landscaping. The heating hood shall be capable of heating the pavement surface to a minimum temperature of 225 degrees F, not to exceed 325 degrees F. This will allow for scarification to the required depth without breaking the aggregate particles or charring the pavement surface.
3) Scarifying and Milling: Units shall be automatically controlled units in order to control the depth of penetration and to clear utility manholes and other obstructions. The Director of Public Works or Designee shall direct the depth of scarification. NOTE: Scarifying depth may vary in range from 3/4 inch to 1 inch.
4) Recycling Agent Applicator: This System shall be automatically controlled; the recycling agent must be applied to the scarifying material at a uniform rate (determined by the Director of Public Works or Designee.) The application rate shall be synchronized with the machine's forward speed to maintain a tolerance within 5% of the specified rate.
5) Receiving Hopper and Conveying System: The machine shall consist of a hopper and conveyor system to collect and transport the new HMAC to the finishing unit without segregation of the new material.
6) Recycling Unit: The machine shall consist of a system that mixes and redistributes and levels the scarified material over the width being processed to produce a uniform cross section of recycled material. The recycling screed shall be heated to have crown control, and be capable of redistributing the recycled material to the desired longitudinal grade and transverse cross section.
7) Finishing unit: The machine shall have an automatic controlled screed to produce a surface conforming to the surface thickness as required by the Director of Public Works or Designee.
The thickness of the surface course lift shall not exceed 2 inches. This unit shall be capable of applying the new HMAC to a uniform longitudinal profile and cross slope of 1/4 inch per foot. The finishing screed must be heated and capable of electronically controlling the cross slope, and applying the new HMAC to produce a uniform surface and texture.
8) Rollers: Rolling equipment shall be of sufficient type and weight to compact the new HMAC and the recycled material to the required density as determined by the Director of Public Works or Designee. Sufficient number of rollers shall be furnished to keep up with the operation. All rolling should be completed before the temperature of the new HMAC drops below 190 F.

3.5 TRAFFIC CONTROL
a) Temporary pavement markings shall be the responsibility of the Contractor. This may be either foil back traffic tape, or temporary reflective tabs.
b) Maintenance of Traffic: Suitable methods shall be used by the Contractor to protect the new asphalt surface from all types of vehicular traffic without damage. Opening the new roadway to traffic does not constitute acceptance of work. All work shall conform to the FDOT "Maintenance of Traffic" specifications.
c) The contractor will maintain at least one-way traffic and shall provide effective traffic control at all times. Two-lane traffic shall be maintained wherever possible.
d) No interruption of access to property shall be made unless prior arrangements acceptable to the owner of the affected property have been made and approved by the Director of Public Works or Designee.
e) Submit to the Director of Public Works or Designee for approval a Traffic Control Plan signed by a State of Florida Advance Trained Traffic Control Supervisor.
f) The Contractor shall have, at all times of operation, a Certified Traffic Control Supervisor on site.

3.6 EXECUTIONS
Hold a pre-construction meeting prior to construction, and not later than seven days before start of operation. The Director of Public Works or Designee shall be notified at least 48 hours prior to commencement of any paving operation.
a) The heating unit shall produce sufficient heat to soften the pavement uniformly without burning or charring the existing asphalt pavement.
b) The process shall produce a welded, longitudinal joint, and the standing edge of the adjoining asphalt pavement shall fully heat to a width of at least 2 inches beyond the width to be scarified and recycled.

c) Immediately following heating of the pavement, the existing surface shall be scarified (milled) to the specified depth. The machine shall have the capability of maintaining a recycled mat with a minimum temperature of 190 degrees F and a maximum temperature of 225 degrees F. throughout the repaying operation.
d) Due to the varying locations and properties of the existing asphalt paving, the following adjustments shall be made if required and directed by the Director of Public Works or Designee.
1) Depth of scarification may be varied.
2) Application rate for the recycling agent may vary and must be uniformly mixed. Note: Payment for the item recycling agent will be the unit price per gallon used.
3) Contractor to provide sufficient testing to ascertain correct application rate of the emulsified agent.
e) Cleanup- The Contractor will keep the work site free from accumulation of waste material; rubbish and debris from and about the work site, as well as all construction equipment, machinery, surplus materials, and will leave the site clean.
f) The Contractor will restore to their original condition those portions of the work site, such as staging and stockpile areas, not designed for alteration as contained in the Delivery Order. This will include returning the area to the proper grade and slope as well as replacing sod, if so required by the Director of Public Works or Designee.

3.7 QUALITY CONTROL
The Director of Public Works has the option of when and where tests may be taken to check if the surface is in compliance with thickness, smoothness, etc., and meets requirements of the specifications as directed by the Director of Public Works and as outlined in Section 334 FDOT. Contractor will assign a Quality Control Supervisor of the project. This person will work in conjunction with the City/County Quality Control Inspector.

3.8 METHOD of MEASUREMENT
a) The accepted quantities of asphalt pavement surface recycled will be measured and paid by the square yard. Pay item, Hot-In-Place Recycling-Square Yard unit price.
b) Asphalt recycling emulsion agent will be measured by the gallon used in place as determined by the Contractor and their predetermined Mix Design, and Director of Public Works or Designee, and the job supervisor. Pay item, Recycling Emulsion – Pre Gallon.
c) Basis of payment for the work will be made on the unit price bid per ton of asphaltic concrete per the price in the bid. The basis of measurement shall be tonnage slips accepted by the Inspector at the job site for material placed and accepted.

3.09 MATERIAL SAFETY DATA
The contractor shall submit a Material Safety Data Sheet in accordance with the requirements of 29 CFR 1910.1200(g) for all hazardous material identified and listed in the contractor's bid. Data shall be submitted whether or not the contractor is the actual manufacturer of these items. Failure to submit the Material Safety Data Sheet before the use of any hazardous material shall result in termination of the contract with the contractor for default.

3.10 CONTRACTOR INSPECTION REQUIREMENTS
The Contractor is responsible for performing or having performed all inspections and tests necessary to substantiate that the supplies, material, equipment, or services furnished under this contract conform to contract requirements, including any applicable technical requirements for specified manufacturer parts.
Performance of inspection or testing by the City/County shall not relieve the Contractor of this responsibility nor waive any rights of the City/County to reject or otherwise obtain relief in relation to non-conforming supplies, material, equipment, or services.

3.11 DELIVERY of EXCESS QUANTITIES
The Contractor is responsible for the delivery of each item quantity within allowable variations, if any. If the Contractor delivers and the City/County receives quantities of any item in excess of the quantity called for (after considering any allowable variation in quantity), such excess quantities will be treated as being delivered for the convenience of the Contractor. Quantities in excess will, at the option of the City, either be rejected and returned at the Contractor's expense, or retained and paid for by the City/County at the contract unit price.

3.12 GENERAL
All edge milling work herein specified shall be performed in accordance with the Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction most recent edition at the time of bid submittal and this specification. Where there is conflict between this specification and FDOT's specifications, this specification shall overrule. All references in FDOT's specifications to the Engineer shall mean the City/County Director of Public Works or his/her Designee, herein after referenced to as the Director. The decision of the Director of Public Works shall be final on all items.

3.13 EQUIPMENT
a) In general, the Contractor may perform the work using equipment, tools, machinery, etc. of their own choosing. However, all equipment to be used in the construction of the project shall be subject to approval or disapproval by the Director or designee.
b) The equipment used in the cold plane milling operation shall be a machine capable of maintaining a depth of cut and cross slope across the entire pavement surface to the desired uniformity and texture as specified by the Director. The equipment shall be capable of accurately and automatically establishing profile grades along each edge of the machine (within + or- 1/8 inch) by automatic controls referencing from the existing pavement. The machine shall be equipped with a means to effectively limit the amount of dust escaping from the removal operation. To prevent infiltration of milled material into the storm sewer system, the sweeping operation shall be performed immediately after the milling operation.
c) Jobsite storage of equipment shall be the responsibility of the Contractor.

3.14 CONSTRUCTION METHODS
a) Edge Milling
1) The pavement surface shall be removed to the depth, width, grade, and cross section as directed by the Director of Public Works or Designee, which will restore the pavement surface to a uniform longitudinal profile and cross section. Additional work at intersections may be needed to obtain smooth transitions.
2) In general, the work to be done shall be removal of existing asphalt pavement to a depth of (3/4) to one (1) inch below gutter elevation. However, in no case shall asphalt pavement be removed within one-half (1/2) inch of the base, unless approved by the Director. If the base is exposed, asphalt will be placed immediately over exposed areas. All asphalt above and in the gutter is to be removed by methods which will not damage concrete curb and gutter.
3) The City/County will not be liable and will accept no responsibility for damage by hidden unexposed manholes or other utility appurtenances done to the milling machine or any other equipment of the Contractor.
4) The Contractor shall construct transitions at all streets, driveway intersections, intersections and alleys (that have a transition greater than 1"), as directed by the Designee. The transitions shall be from a straight-line projection of the toe of the curb of the street being milled to a distance not to exceed one hundred (100) feet.
5) The Contractor shall edge mill on either or both sides of the street with a width of approximately six and one half (6 Vz) feet, (single pass).
6) The milled material shall remain the property of the City/County.
7) The newly edge milled surface shall be properly cleaned; the Hot-In-Place asphalt recycling to follow the milling operation, or as directed by the Director of Public Works or Designee.
3.16 MEASUREMENT of WORK COMPLETED
a) Asphalt edge milling shall be measured in square yards and in (0-1) inches of depth.

3.15 BASIS OF PAYMENT ASPHALTIC CONCRETE
The quantity of asphalt being purchased hereunder is a rough approximation only and the total quantity of work to be included in the contract may vary widely depending upon the work that will be authorized by the City/County during the period covered by the proposed contract. The basis of measurement shall be tonnage slips accepted by the Inspector at the job site for material placed and accepted. Asphalt installed in excess of required thickness shall be removed and reinstalled at Contractor's expense. Basis of payment for the work will be made on the unit price bid per ton of asphaltic concrete per the price in the bid. The bid price for the asphalt mix shall include the cost of liquid asphalt. There will be no separate payment for the bituminous material in the asphalt mix. Should it become necessary to increase the percentage of asphalt to satisfy the job mix formula (e.g., the minimum

effective asphalt content) or other requirements of the specifications, no additional compensation will be made. The bid price per ton for asphalt in the proposal shall remain in effect for one year.

Attachment J

STANDARD SPECIFICATIONS

The Standard Specifications comprise Divisions I and II as noted below:

1. Division I - Construction Details

2. Division II - Materials refer to the July 2021 (or most recently published version), edition of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Attachment K

SUPPLEMENTAL SPECIFICATIONS

DIVISION I-GENERAL REOUIREMENTS AND COVENANTS
RESERVED

DIVISION II-CONSTRUCTION DETAILS
SECTION 102 - MAINTENANCE OF TRAFFIC (FLDOT 10/27/2017)
Article 102-4: Delete Article 102-4 in its entirety and substitute the following:
The Contractor shall submit a complete Traffic Control Plan (TCP) to the Engineer for review and approval at the preconstruction meeting. Prepare the TCP in conformance with and in the form prescribed in the current version of the FDOT Plans Preparation Manual, FDOT Design Standards
- Index 600 series and the MUTCD. Indicate in the plan a TCP for each phase of activities. Take responsibility for identifying and assessing any potential impacts to a utility that may be caused by the TCP, and notify the Department in writing of any such potential impacts to utilities. The TCP shall be signed and sealed by a professional engineer duly registered in the State of Florida.
Engineer's approval of the TCP does not relieve the Contractor of sole responsibility for all utility impacts, costs, delays or damages, whether direct or indirect, resulting from Contractor initiated changes in the design or construction activities from those depicted in the original Contract Documents, and which effect a change in utility work different from that shown in the utility plans, joint project agreements, interlocal agreements or utility
The City reserves the right to reject any Traffic Control Plan. Obtain the Engineer's written approval before beginning work using a TCP. The Engineer's written approval is required for all modifications to the TCP. The Engineer will only allow changes to the TCP without proper documentation on an emergency basis.
Pedestrian and/or bicycle traffic must be safely and continuously maintained through, or around, work zones on highway or streets where pedestrian and bicyclists were permitted at the start of the project. The Contractor shall submit a plan for approval signed and sealed by a professional engineer duly licensed in the State of Florida for the safe passage of pedestrian and bicycle traffic prior to closure of any existing pedestrian facility. Facilities constructed to specifically provide access for pedestrians in or around work zones must be consistent with the current PROWAG. The plan shall detail the rerouting of users, duration of closure and proposed construction methods for any temporary facility. Payment for this work shall be included in price bid for Pay Item 102-la - Maintenance of Pedestrian and Bicycle Traffic.
All costs for maintenance of traffic including preparation of Traffic Control Plan shall be in included in the price bids for Pay Item 102-1 - Maintenance of Traffic, except as expressly provided for in other pay items in the contract.

SECTION 331 -TYPES ASPHALT CONCRETE, QUALITY ASSURANCE AND ACCEPTANCE PROCEDURES (LCDOT REV 12/06/2017)
Section 331: The following Section shall be added in its entirety:

331-1 Description.

331-1.1 General: Construct a Type S Asphalt Concrete course (using the Quality Assurance acceptance system) using the type of mixture specified in the Contract, or when offered as alternates, as selected. If offered as alternates, meet the layer thickness criteria specified in 331- 1.2. Type S mixes are identified as Type S-1, Type S-11, or Type S-111. The composition and physical test properties for all mixes including Type S Asphalt Concrete are shown in Tables 331-1 and 331-2. This Section establishes Acceptance Procedures for materials and work performed under Sections 290, 320, 330, 331, 334, and 337 of the July 2017 edition of the FDOT Standard Specifications for Road and Bridge Construction.

Where Type S Asphalt Concrete is specified in the Contract, if approved by the Engineer, the equivalent fine Type SP Asphalt Concrete mixture (Traffic Level C) meeting the requirements of Section 334 may be selected as an alternate at no additional cost to the Department. The equivalent mixes are as follows:

Type S-1. ..... Type SP-12.5
Type S-11 ..... Type SP-19.0
Type S-111 ..... Type SP-9.5
Meet the requirements for the plant and equipment specified in Section 320. Meet the general construction requirements specified in Section 330.

Table 331-1

Bituminous Concrete Mixtures

Type	Total Aggregate Passing Sieves[1]							
	3/4 inch	1/2 inch	3/8 inch	No.4	No.10	No.40	No. 80	No.200
S-1[5]	100	88-98	75-93	47-75	31-53	19-35	7-21	2-6
S-II[2]	83-98	71-87	62-78	47-63	33-49	19-35	9-18	2-6
S-III[5]		100	88-98	60-90	40-70	20-45	10-30	2-6
FC-3[5]		100	88-98	60-90	40-70	20-45	10-30	2-6

1 In inches or sieves.
2 100% passingl 1/4 inch sieve and 94 to 100% passingl inch sieve.
3 100% passingl 1/2 inch sieve.
4 The Engineer may increase the design range for the No. 10 sieve for lightweight aggregates.
5 The Engineer may retain up to 1% on the maximum sieve size.

Table331-2

Marshall Design Properties for Bituminous Concrete Mixes

Mix Type	Minimum Marshall Stability Obs.)	Flow** (0.01 in.)	Minimum VMA(%)	Air Voids (%)	Minimum Effective Asphalt Content (%)	VFA Voids Filled with Asphalt(%)
S-I	1,500*	8-13	14.5	4-5	***	65-75
S-II	1,500*	8-13	13.5	4-5	***	65-75
S-ill	1,500*	8-13	15.5	4-6	***	65-75
FC-3	1,500	8-13	15.5	4-6	***	65-75

*The minimum Marshall Stability for Type S mixes used on limited access facilities (Interstate, Turnpike, and Expressways) shall be 1,800 lbs.

**The maximum Flow value during production shall not exceed one point more than shown in the Table.

***The ratio of the percentage by weight of total aggregate passing the No. 200 sieve to the effective asphalt content expressed as a percentage by weight of total mix shall be in the range of O.6 to 1.2.

The Engineer will accept the work on a LOT to LOT basis in accordance with the applicable requirements of Sections 5 and 6. The size of the LOT will be as specified in 331-6 for the bituminous mixture produced at the plant and as stipulated in 331-7 for the material placed on the roadway.

331-1.2 Layer Thicknesses:

331-1.2.1 Structural Layers: The allowable layer thicknesses for Type S Asphalt Concrete mixtures used in structural and overbuild applications is as follows:
Type S-III ..... 3/4 to 1-1/4 inches
Type S-I.....1-1/4 to 2-1/2 inches
Type S-II ..... 2 to 2-3/4 inches
In addition to the minimum and maximum thickness requirements, the following restrictions are placed on Type S mixtures when used as a structural course:
Type S-III- Limited to the final (top) structural layer, one layer only.
Type S-I- May not be used in the first layer of courses over 3-1/2 inches thick, nor in the first layer of courses over 2-3/4 inches thick on limited access facilities.
Type S-II - May not be used in the final (top) structural layer.

331-1.2.2 Additional Requirements: The following requirements also apply to Type S Asphaltic Concrete mixtures:
1. A minimum 1-1/2 inch initial lift is required over an Asphalt Rubber Membrane Interlayer (ARMI).
2. When construction includes the paving of adjacent shoulders (5 feet wide), the layer thickness for the upper pavement layer and shoulder shall be the same and paved in a single pass, unless shown differently in the plans.
3. All overbuild layers shall be Type S s\asphalt concrete. Use the minimum and maximum layer thicknesses as specified in 331-1.2.1 unless shown differently in the plans.
4. On variable thickness overbuild layers, the minimum allowable thickness may be reduced by ½ inch, and the maximum allowable thickness may be increased ½ inch, unless shown differently on\\in the plans. Other variations from these thicknesses shall be approved by the Engineer.

331-1 Materials

331-2.1 General Requirements: Meet the material requirements specified in Division III. Specific references are as follows:
Superpave PG Asphalt Binderor Recycling Agent. 916-1, 916-2
Mineral Filler.....917-1, 917-2
Coarse Aggregate, Stone, Slag or Crushed Gravel..... Section 901
Fine Aggregate ..... Section 902
Asphalt concrete mixes containing crushed gravel as coarse aggregate component must show no potential for stripping during laboratory testing for *mix* design verification. Crushed Reclaimed Portland Cement Concrete Pavement may be used as a coarse aggregate or screenings component subject to meeting all applicable specifications.

331-2.2 Specific Requirements:

331-2.2.1 Condition of Aggregate: Use clean aggregate containing no deleterious substances. Do not use coarse or fine aggregate which contains more than 0.5% of phosphate.

331-2.2.2 Fine Aggregate and Mineral Filler: In laboratory tests, and for the purpose of proportioning the paving mixture, consider all material passing the No. 10 sieve and retained on the No. 200 sieve as fine aggregate, and the material passing the No. 200 sieve as mineral filler.

331-2.2.3 Screenings: Do not use any screenings in the combination of aggregates containing more than 15% of material passing the No. 200 sieve. When two screenings are blended to produce, the screening component of the aggregate one of such screenings may contain up to 18% of material passing the No. 200 sieve, as long as the combination of the two does not contain over 15% material passing the No.200 sieve. Screenings maybe washed to meet these requirements.

331-2.2.4 Use of Reclaimed Asphalt Pavement (RAP): Subject to certain requirements, Reclaimed Asphalt Pavement (RAP) may be used as a component material of the asphalt mixture RAP may be used as a component material of the bituminous mixture subject to the following:

1. Assume responsibility for the design of asphalt mixes which incorporate RAP as a component part.
2. Do not allow RAP to exceed 60% by weight of total aggregates for Asphalt Base Courses nor more than 50% by weight of total aggregates for Structural and Leveling Courses. Do not use RAP in Friction Courses.
3. Mount a grizzly or grid with openings of a sufficient size to prevent clogging of the cold feed over the RAP cold bin. Use a grizzly or grid over the RAP cold bin, in-line roller crusher, screen, or other suitable means to prevent oversized RAP material from showing up in the completed recycled mixture. If oversized RAP material appears in the completed recycled mix, cease plant operations and take appropriate corrective action.
4. Ensure that the RAP material as stockpiled is reasonably uniform in characteristics and contains no aggregate particles which are soft or conglomerates of fines.
5. Ensure that the RAP has a minimum average asphalt content of 4% by weight of total mix.

The Department reserves the right to sample the stockpile in order that this requirement is met. When material milled from the project is used as a component of the asphalt mixture and a Composition of Existing Pavement is known, use the following procedures for obtaining representative samples for the mix design:

1. Cut ten 6-inch cores in area(s) approved by the Engineer. Fill the core holes immediately prior to opening to traffic.
2. Representative samples may also be obtained by milling the existing pavement to the full depth shown on the plans for pavement removal for a length of approximately 200 feet. Immediately replace the pavement removed with the specified mix in the Contract.
3. Submit a request in writing to the Engineer for any variance from the above outlined methods of obtaining samples for mix designs. When the RAP to be used as a component in a mix design is stockpiled from a previous DOT project and the Composition of Existing Pavement is known, design the mix and submit to the Department for verification.

When the composition of stockpiled RAP to be used as a component in a mix design is not known, design the mix as follows:

1. Submit a bag of RAP, composed of samples from several locations in the stockpile(s), to the Department at least four weeks prior to the planned start of mix design. The Engineer will run viscosities on the reclaimed asphalt pavement and furnish the information to the Contractor.
2. Run a minimum of six extraction gradation analyses of the RAP. Take the samples at random locations around the stockpile(s).
3. Request the Engineer to make a visual inspection of the stockpile(s) of RAP. Based on visual inspection, the Engineer will determine the suitability of the stockpiled materials.
4. When the proposed mix design is submitted to the Department for verification, submit the data from the extraction gradation analyses required above.

331-2.2.5 Binder for Mixes with RAP: Use a PG 67-22 where RAP is less than 20% by weight of total aggregate; use a PG 64-22 where RAP is 20% or greater but less than 30% by weight of total aggregate; use appropriate recycle agent where RAP is 30% or greater. The Engineer reserves the right to change binder type and grade at design based on the characteristics of the RAP binder, and reserves the right to request reasonable changes during the production based on the requirements of 331-4.4.4.

331-2.2.6 Use of Recycled Crushed Glass: Recycled crushed glass maybe used as a component of the bituminous mixture subject to the following:

1. Consider the recycled crushed glass a local material and meet all requirements specified in 902-6.
2. The percentage of recycled crushed glass in any bituminous mixture does not exceed 15% of the total aggregate weight.
3. The asphalt binder used with mixtures containing recycled crushed glass contains 0.5% anti-stripping agent from an approved source. The addition of the specified amount of anti-stripping agent must be certified by the supplier.

4. Test bituminous mixtures containing recycled crushed glass in accordance with AASHTO T•283 as part of the mix design approval. The minimum tensile strength ratio must not be less than 80%. An increase in the amount of anti- stripping agent maybe necessary in order to meet this requirement.
5. Recycled crushed glass must not be used in friction course mixtures nor in structural course mixtures which are to be used as the final wearing course.

331-1 Permissible Variation for the Coarse Aggregate.
Size and uniformly grade or combine the aggregate or aggregates shipped to the job in such proportions that the resulting mixture meets the grading requirements of the mix design.

331-2 General Composition of Mixture.

331-4.1 General: Use a bituminous mixture composed of a combination of aggregate (coarse, fine or mixtures thereof), mineral filler, if required, and bituminous material. Ensure that not more than 20% by weight of the total aggregate used is silica sand or local materials as defined in Section 902. Consider the silica sand and local materials contained in any RAP material, if used in the mix, in this limitation. Size, grade and combine the several aggregate fractions in such proportions that the resulting mixture meets the grading and physical properties of the verified mix design.
RAP meeting the requirements of 331-2.2.4 may be approved as a substitution for a portion of the combination of aggregates, subject to all applicable specification requirements being met.
331-4.2 Grading Requirements: In all cases, use a mix design within the design ranges specified in Table 331-1.

331-4.3 Mix Design:

331-4.3.1 General: Prior to the production of any asphalt paving mixture, submit a mix design and representative samples of all component materials to the Department at least two weeks before the scheduled start of production. The Engineer will verify the mix design before use. Send a copy of the proposed mix design to the Engineer at the same time. (Open-graded mixes will be designed by the Engineer). Furnish the following information:
1. The specific project on which the mixture will be used.
2. The source and description of the materials to be used.
3. The gradation and approximate 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.
4. A single percentage of the combined mineral aggregate passing each specified sieve. Degradation of the aggregate due to processing (particularly No. 200) should be accounted for and identified for the applicable sieves.
5. A single percentage of asphalt by weight of total mix intended to be incorporated in the completed mixture, shown to the nearest O.1%. For structural mixes (S-1, S-11 and S-111) establish the optimum asphalt content at a level corresponding to minimum of 4.5% air voids. For FC-3 mixes, establish optimum asphalt content at a level corresponding to a minimum of 5.0% air voids.
6. A single temperature at which the mixture is intended to be discharged from the plant.
7. The laboratory density of the asphalt mixture for all mixes except Open-Graded Friction Courses.
8. Evidence that the completed mixture will meet all specified physical requirements.
9. The name of the individual responsible for the Quality Control of the mixture during production

331-4.3.2 Revision of Mix Design: Submit all requests for revisions to approved mix designs, along with supporting documentation, in writing to the Engineer. In order to expedite the revision process, a verbal revision request or discussion of the possibility of a revision request maybe made, but must be followed up with a written request. The verified mix design will remain in effect until a change is authorized by the Engineer. In no case will the effective date of the revision be established earlier than the date of the first communication with the Engineer regarding the revision. Provide a new mix design for any change in source of aggregate.

331-4.3.3 Resistance to Plastic Flow: Include with the submitted mix design test data showing that the material as produced will meet the requirements specified in Table 331- 2 when tested in accordance with FM 1-T 245. Further, determine the bulk specific gravity of the laboratory compacted bituminous mixture in accordance with FM 1-T 166. Determine the percent of unfilled voids and the percent of aggregate voids filled with asphalt using the maximum specific gravity of the bituminous mixture and on the asphalt content of each group of specimens prepared from the same sample. Determine maximum specific gravity of the bituminous mixture by FM 1-T 209.

331-4.3.4 Revocation of Mix Design: 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.

331-4.4 Contractor's Quality Control:

331-4.4.1 Personnel: In accordance with the requirements of 331-8 provide the necessary quality control personnel. Ensure that the Quality Control Technician is certified by the CTQP process and possesses a valid certificate of qualification. When it becomes evident to the Department that the Quality Control Technician cannot perform as required by the position, the Department will revoke the certification and require replacement with a certified technician.

331-4.4.2 Extraction Gradation Analysis: Sample the bituminous mixture at the plant in accordance with FM 1-T 168. Determine the percent bitumen content of the mixture in accordance with FM 5-563, and determine the percent passing the standard sieves in accordance with FM 1-T 030. In the event the calibration factor for the mix exceeds 0.50%, conduct the extraction and gradation analysis in accordance with FM 5-544 and FM 5-545, respectively. Show all test results to the nearest 0.01. Carry all calculations to the nearest 0.001 and rounded to the nearest 0.01, in accordance with the Department's rules of rounding.

Run a minimum of one extraction gradation analysis of the mixture for each day's or part of a day's production and immediately following any change in the production process. Take the quality control sample of mixture for the extraction gradation analysis each day as soon as the plant operations have stabilized. Obtain the results in a timely manner (no later than the end of the day) so that adjustments can be made if necessary.

On initial use of a Type S or FC-3 mix design at a particular plant, as a minimum, run an additional extraction gradation analysis if more than 500 tons of mixture are produced on the first day of production. Extraction gradation analysis will not be required on the days when mix production is less than 100 tons. However, when mix production is less than 100 tons per day on successive days, run the test when the accumulative tonnage on such days exceeds 100 tons. Use the target gradation and asphalt content as shown on the mix design. Any changes in target will require a change in the mix design in accordance with 331-4.3.2.

If the percentage of bitumen deviates from the optimum asphalt content by more than 0.55% or the percentage passing any sieve falls outside the limits shown in Table 331-3, make the necessary correction. If the results for two consecutive tests deviate from the optimum asphalt content by more than 0.55% or exceeds the limits as shown in Table 331-3 for any sieve, stop the plant operations until the problem has been corrected. In addition, if the results of two consecutive tests show an amount greater than 99.0% passing the 1/2 inch sieve for Type S-1, an amount greater than 99.0% passing the 3/4 inch sieve for Type S-II, or an amount greater than 99.0% passing the 3/8 inch sieve for FC-3, stop the plant operation until the problem has been corrected.

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

Table331-3

Sieve Size	Percent
1 inch	7
3/4 inch	7

1/2 inch	7
3/8 inch	7
No.4	7
No. 10	5.5
No.40	4.5
No.80	3
No.200	2

331-4.4.3 Plant Calibration: At or before the start of mix production, perform a wash gradation on a set of hot bin samples for batch or continuous mix plants or belt cut for drum mix plants to verify calibration of the plant. When approved by the Engineer, extraction gradation analysis of the mix may be used to verify calibration of the plant. This extraction gradation analysis may also be used to fulfill the quality control requirements for the first day's production.

331-4.4.4 Viscosity of Asphalt in Mixes Containing RAP: When RAP is a component material, the viscosity of the asphalt material in the bituminous mixture, determined by the Engineer in accordance with ASTM D 2171, shall be 6,000 ± 2000 poises. This determination will be made on samples obtained by the Department on a random basis at a frequency of approximately one per 2,000 tons of mix.

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

331-5.1 Acceptance of the Mixture:

The Department will approve all materials for acceptance through the Department's Acceptance Procedures specified herein. The Engineer is responsible for determining the acceptability of the construction and materials incorporated therein. The Contractor is responsible for the quality of construction and materials incorporated therein. The Contractor shall maintain effective quality control until final project acceptance. Accomplish all quality control sampling and testing on a random basis in accordance with the approved Quality Control Plan. The Department will perform all necessary sampling and testing for acceptance purposes on a random basis as specified herein, in addition to monitoring and observing the Contractor's quality control test procedures and results.

A LOT is defined as an isolated quantity of a specified material produced from a single source or operation, or it is a measured amount of specified construction produced by the same process. In order to change the process, thereby necessitating the termination of the current LOT and starting a new LOT, submit a written request, with justification, to the Engineer for approval. Obtain the Engineer's approval prior to making the process change. Perform all quality control sampling and testing of materials in strict conformance with the Florida Method of Sampling and Testing as found in the Field Sampling and Testing Manual. The Department will perform all acceptance sampling and testing of materials in strict conformance with the Florida Method of Sampling and Testing as found in the Field Sampling and Testing Manual.

This manual, developed and distributed by the FDOT Materials Office, contains the detailed sampling and testing procedures from AASHTO and ASTM as modified by the Department.

331-5.1.1 Payment Based on Acceptance Results: The Department will adjust the payment for each LOT of material, product, item of construction or completed construction based on acceptance test results in accordance with the requirements specified hereinafter in the applicable Sections.

331-5.1.2 Resampling of LOTs: The Department requires that LOTs of materials, products, items of construction or completed construction meet the requirements of these Specifications at the time of submission. The Department will not take check samples for acceptance purposes.

331-5.3 Defective Materials:

331-5.3.1 Acceptance or Rejection: Following the application of the appropriate acceptance plan, the Engineer will make the final decision as to the acceptance, rejection or acceptance at an adjusted payment of the LOTs.
331-5.3.2 Disposition of LOTs: For nonconforming LOTs of materials, products, items of construction or complete construction that are not adaptable to correction by reworking, either remove and replace the nonconforming work, or accept no payment or an adjusted payment as stated in these Specifications, or, if not stated, as directed by the Engineer.

331-5.4 General Basis of Adjusted Payment for Deficiencies: When the Engineer determines that a deficiency exists, the Engineer will apply the applicable payment factor as shown in these Specifications to the entire LOT. When the Engineer determines that multiple deficiencies exist, the Engineer will apply an adjustment to the LOT of material that is identified by each deficiency. The Engineer will apply the adjustment for each deficiency separately as it occurs. The Engineer will not allow an adjustment to be affected by any other adjustment occurring for the same LOT. As an exception to the foregoing requirements, when there are two or more deficiencies in the gradation acceptance tests(% pass No. 4 sieve,% pass No. 10 sieve,% pass No. 40 sieve,% pass No. 200 sieve) the Engineer will only apply the greater adjustment. The Engineer will express all reductions in payment in terms of equivalent pay items at no pay. When the item is measured by the ton, the Engineer will convert the LOT in the field, which is measured in feet, to equivalent tons and by using the average calculated spread for that LOT. When the pay item is measured by the square yard, the Engineer will convert the LOT at the production point, which is measured in tons, to equivalent square yards at the design thickness and by using the laboratory density as a conversion factor.

331-6 Acceptance of the Mixture at the Plant:

331-6.1 General: The Engineer will accept the bituminous mixture at the plant, with respect to gradation and asphalt content, on a LOT to LOT basis. The material will be tested for acceptance in accordance with the provisions of 331-5 and the following requirements. However, the Engineer will reject any load or loads of mixture which are unacceptable for reason of being excessively segregated, aggregates improperly coated, or of excessively high or low temperature for use in the work.
For initial use of a Type S or FC-3 mix design with a Florida limestone source north of the 28th parallel at a particular plant, limit the first day's production to a maximum of 300 tons.
Resume production upon notification of acceptable Marshall properties. 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.

A partial LOT may occur due to the following:
(1) The completion of a given mix type or mix design on a project.
(2) An approved LOT termination by the Engineer due to a change in process, extended delay in production, or change in mix design.
(3) 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 60 days. On multiple project contacts, the LOT(s) of the asphalt plant will carry over from project to project.

331-6.2 Acceptance Procedures: Control all operations in the handling, preparation, and mixing of the asphalt mix so that the percent bitumen and the percent passing the No. 4, No. 10, No. 40 and No. 200 sieves will meet the approved job mix formula within the tolerance shown in Table 331-6.

Table331-4

Tolerances for Acceptance Tests

Characteristic	Tolerance*
Asphalt Content (Extraction)	±0.55%
Passing No. 4 sieve	±7.00%
PassingNo. 10 sieve	±5.50%
Passing No. 40 sieve**	±4.50%
Passing No. 200 sieve	±2.00%

*Tolerances for sample size of n=1. See Table 331-7 for other sample sizes n=2 through n=6.

**Applies only to FC-3.

Acceptance of the mixture will be on the basis of test results on consecutive random samples from each sublot. One random sample will be taken from each sublot. The bituminous mixture will be sampled and tested at the plant as specified in 331-4.4.2. Complete all QC testing within one working day from the time the samples were obtained.
Calculations for the acceptance test results for bitumen content and gradation (percentages passing No. 4, No. 10, No. 40 and No. 200 sieves) will be shown to the nearest 0.01.
Calculations for arithmetic averages will be carried to the nearest 0.001 and rounded to the nearest 0.01 in accordance with the Department's rules ofrounding.

334-6.2.1 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.

334-6.2.2 Plant Testing: At the completion of each LOT, the Engineer may 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. 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.
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 an Independent laboratory for testing.
331-6.2.3 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, the Independent 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. 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.

331-6.2.4 Independent 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. 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. 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. No additional time will be granted for the impacts of any such testing. 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.

331-6.2.5 Basis of Payment: Price and payment will be full compensation for all the work specified under this Section (including the applicable requirements of Sections 320 and 330) for materials accepted in accordance with 331-4, 331-6, and 331-7. 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: asphalt binder content, roadway density testing, and the percentage passing the No. 4, No. 10, No. 40 and No. 200. The pay adjustment will be computed by multiplying a Composite Pay Factor (CPF) for the LOT by the bid price per ton.

331-6.2.5.1 Partial LOTs: For Partial LOTs where no random sample is obtained due to insufficient tonnage, a CPF of 1.00 shall be applied.

331-6.2.5.2 Pay Factors: Pay Factors will be determined based on Table 331-5, using the average of the accumulated deviations from the target value (deviations are absolute values with no plus or minus signs.) The process will be considered out of control when the deviation of any individual test result from the mix design falls in the 80% pay factor for the "one test" column of Table 331-5. When this happens, the LOT will be automatically terminated and production stopped. The approval of the Engineer will be required prior to resuming production of the mix.
Acceptance of the LOT will then be determined in accordance with Table 331-5.

able331-5

Acceptance Schedule of Payment (Asphalt Plant MixCharacteristics)

Average of Accumulated Deviations of the Acceptance Tests from the Mix Design.				
Pay Factor	I-Test	2-Tests	3-Tests	4-Tests
Asphalt Cement Content (Extraction -FM 5-544 or5-563)				
1.00	0.00-0.55	0.00-0.43	0.00-0.38	0.00-0.35
0.95	0.56-0.65	0.44-0.50	0.39-0.44	0.36-0.40
0.90	0.66-0.75	0.51-0.57	0.45-0.50	0.41-0.45
0.80*	over 0.75	over0.57	over 0.50	over 0.45
No. 4 sieve**				
1.00	0.00-7.00	0.00-5.24	0.00-4.46	0.00-4.00
0.98	7.01-8.00	5.25-5.95	4.47-5.04	4.01-4.50
0.95	8.01-9.00	5.96-6.66	5.05-5.62	4.51-5.00
0.90	9.01-10.00	6.67-7.36	5.63-6.20	5.01-5.50
0.80*	over 10.00	over7.36	over 6.20	over 5.50
No. 10 sieve**				
1.00	0.00-5.50	0.00-4.33	0.00-3.81	0.00-3.50
0.98	5.51-6.50	4.34-5.04	3.82-4.39	3.51-4.00
0.95	6.51-7.50	5.05-5.74	4.40-4.96	4.01-4.50

0.90	7.51-8.50	5.75-6.45	4.97-5.54	4.51-5.00
0.80*	over 8.50	over 6.45	over 5.54	over 5.00
No. 40 sieve**				
1.00	0.00-4.50	0.00-3.91	0.00-3.65	0.00-3.50
0.98	4.51-5.50	3.92-4.62	3.66-4.23	3.51-4.00
0.95	5.51-6.50	4.63-5.33	4.24-4.81	4.01-4.50
0.90	6.51-7.50	5.34-6.04	4.82-5.39	4.51-5.00
0.80*	over 7.50	over6.04	over 5.39	over 5.00
No. 200 sieve**				
1.00	0.00-2.00	0.00-1.71	0.00-1.58	0.00-1.50
0.95	2.01-2.40	1.72-1.99	1.59-1.81	1.51-1.70
0.90	2.41-2.80	2.00-2.27	1.82-2.04	1.71-1.90
0.80*	over 2.80	over2.27	over2.04	over 1.90

*If approved by the Engineer based on an engineering determination that the material is acceptable to remain in place, the Contractor may accept the indicated partial pay. Otherwise, remove and replace the material at no cost to the Department on any item.
**When there are two or more reduced payments for these items in one LOT of material, only the greatest reduction in payment will be applied. CAUTION: This rule applies only to these four gradation test results.

NOTES:
(1) The No. 40 sieve applies to FC3..
(2) Deviations are absolute values with no plus or minus signs.

331-6.3 Automatic Batch Plant Asphalt Cement Content: Acceptance determinations for asphalt content for mixtures produced by automatic batch plants will be determined per 334- 5.1.1. Acceptance determinations for gradations (No. 4, No. 10, No. 40 and No. 200 sieves) will be based on the actual test results from extraction gradation analyses. Payment will be made based on the provisions of Table 331-5.

331-6.4 Additional Tests: The Engineer reserves the right to run any test at any time for informational purposes and for determining the effectiveness of the Contractor's quality control.

331-6.4.1 Determination of Marshall and Volumetric Properties: The Contractor will determine the Marshall and Volumetric Properties of the mix at a minimum frequency of one set per LOT, to determine whether or not the produced mix is meeting the specification requirements. The Department may sample and prepare test specimens and test the min accordance with FM 5-511 for Marshall stability and flow., FM 1-T 209 for maximum specific gravity, and FM 1-T 166 for density. Volumetric properties will be determined for Type S and FC-3 mixes only.

331-6.4.2 Failing Marshall Properties: When the average value of the specimens fails to meet specification requirements for stability or flow, the Engineer may stop the plant operations until all specification requirements can be met or until another verified mix design has been approved. Make revisions to a mix design in accordance with 331-4.3.2. If the Lab Density of the mix during production differs from the value shown on the verified mix design by more than 2 lbs/ft3 for two consecutive tests, the Engineer will revise the target value.

331-6.4.3 Failing Volumetric Properties (Type Sand FC-3 mixes only): When the Engineer determines the air void content to be less than 3.0%, or greater than 6.5%, make appropriate adjustments to the mix. When the air void content is determined to be less than 2.5% or greater than 7.0% on any one test, or less than 3.0% on two consecutive tests, cease operations until the problem has been resolved.

331-6.4.4 Resuming Production: In the event that plant operations are stopped due to a failure to meet specification requirements, obtain the Engineer's approval before resuming production of the mix. Limit production to a maximum of 300 tons. At this time, the Marshall and volumetric properties of the mix will be verified. After the Marshall and volumetric properties are verified, full scale production of the mix may be resumed.

331-6.5.5 Disposition of In-Place Material: Any material in-place that is represented by the failing test results (low stability, high flow, or less than 2.5% air voids) will be evaluated by the Engineer to determine if removal and replacement is necessary. Remove and replace any in-place material, if required at no cost to the Department.

331-7 Acceptance of the Mixture at the Roadway

331-7.1 Density Control Nuclear Method: Determine the in-place density of each course of asphalt mix construction using the Nuclear Density Backscatter Method as specified by FM 1-T 238 (Method B). For a completed course, obtain an average in-place LOT density of at least 98% of the valid control strip density. Do not perform density testing on patching courses, leveling and intermediate courses less than 1 inch thick (or a specified spread rate less than 100 lb/ yd 2), overbuild courses where the minimum thickness is less than 1 inch, projects less than 1,000 feet, sections with variable width, or open-graded friction courses. Compact these courses, with the exception of open- graded friction courses in accordance with 330-7.

331-7.2 Control Strips: In order to detennine the density of compacted asphalt mixtures for the purpose of acceptance, first establish a control strip. Construct one or more control strips for the purpose of detennining the control strip density. Construct a control strip at the beginning of asphalt construction and one thereafter for each successive course. Construct a new control strip for any change in the composition of the mix design, underlying pavement structure, compaction equipment, or procedures.
The Engineer may require an additional control strip when the Engineer deems it necessary to establish a new control strip density or confum the validity of the control strip density being used at that time. The Contractor may also request a confirmation of the control strip density. Construct the control strip as a part of a nom1al day's run. Construct control strip 300 feet in length and of an adequately uniform width to maintain a consistent compactive eff011 throughout the section. When constructing the control strip, start it between 300 and 1,000 feet from the beginning of the paving operation. Construct a control strip of a thickness that is the same as that specified for the course of which it is part. Construct the control strip using the same mix, the san1e paving and rolling equipment, and the same procedures as those used in laying the asphalt course of which the control strip is to become a part. Leave every control strip in place to become a portion of the completed roadway.
In order to determine the acceptability of the control strip, make ten nuclear density determinations at random locations within the control strip after completing the compaction of the control strip. Do not make any determinations within 12 inches of any unsupported edge. Use the average of these ten determinations for the Control Strip Density. For purposes of determining the percent of laboratory density, as required in Table 331-6, the Engineer will develop a conection factor a four nuclear density locations from 6 inches diameter cores or by direct transmission nuclear detemlination where applicable. Cut the cores prior to opening the roadway to traffic. The Engineer will calculate the percent oflab density to the nearest 0.01% and round it to the nearest 0.1%. Should the percent oflab density in a control strip exceeds 99.0%, notify the Engineer immediately.
In the event that a control strip does not meet the minimum density requirements specified in Table 331-6, take appropriate conective actions and construct anew control strip. If three consecutive control strips fail to meet specification requirements, the Engineer will limit production and placement of the mix to 800 to 1,000 feet, regardless of the thickness and width the Contractor is placing, until the Contractor obtains a passing control strip. Once the Contractor has obtained a passing control strip after a failing control strip (for the same mix layer, and project), the Department will use the passing control strip to accept all previously laid mix. In the event the Contractor does not obtain a passing control strip, and this particular mix, layer, etc., is completed on the project, the Engineer will evaluate density in accordance with FM 5-543.

Table331-6			
Roadway Requirements for Bituminous Concrete Mixes			
Mix Type	Density	Minimum Control Strip Density* (% of Lab Density)	Surface Tolerance
S-I, S-II, S-m,	per 331-7	96	per 331-7.3
FC-3	per 331-7	96	per 331-7.3
* The minimum control strip density requirement for shoulders is 95% oflab density.			

331-7.3 Surface Requirements: Construct a smooth pavement with good surface texture and the proper cross-slope meeting the requirements per Table 331-7.

331-7.4 Texture of the Finished Surface of Paving Layers: Produce a finished surface of uniform texture and compaction with no pulled, tom, raveled, crushed or loosened portions and free of segregation, bleeding, flushing, sand streaks, sand spots, or ripples.

331-7.5 Cross Slope: Construct a pavement surface with cross slopes in compliance with the requirements of the Contract Documents. Furnish a four-foot-long electronic level accurate to 1.1 degree, approved by the Engineer for the control of cross slope. Make this electronic level available at the jobsite at all times during paving operations.

331-7.5.1 QC Calibration and Comparison: Calibrate the electronic levels a minimum of once per day before paving operations begin, in accordance with manufacturer's instructions. Compare the QC level with the Verification level before paving operations begin, and at any time as directed. If the comparison between QC and Verification levels is within plus or minus 0.2%, QC level is considered to compare favorably and can be used for measurement and acceptance of cross-slopes. If the levels do not compare favorably, perform a second comparison using another calibrated electronic level (Department or Contractor) for resolution. If the resolution level compares favorably with the QC level, the QC level is considered to be verified. If the resolution level does not compare favorably with the QC level, discontinue the use of the QC electronic level and obtain another approved electronic level that meets the requirements of this specification. The Contractor assumes all risk associated with placing the pavement at the correct cross slope.

331-7.5.2 Cross Slope Measurement: Measure the cross slope of the compacted pavement surface by placing the level at the center of the lane and perpendicular to the roadway centerline. Record all measurements to the nearest 0.1% on an approved form and submit the data to the Engineer.

331-7.5.2.1 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 331- 7, upon the approval of the Engineer, the cross-
2. Super elevated Sections: Measure the cross slope every 100 feet per lane within the length of the full super elevation. For curves where the length of full super elevation is less than 250 feet, measure the cross slope at the beginning point, midpoint, and ending point of the fully super elevated 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 the location of 0.0% cross slope.

331-7.5.2.2 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 super elevated 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 331-7, stop the paving operation and make adjustments until the problem is resolved to the satisfaction of the Engineer.
Address in accordance with 337-7.5, all individual cross slope deviations outside the acceptance tolerances shown in Table 331-7. Complete all corrections before placement of the final pavement surface layer. For pavement with multiple layers, the deficient areas for the structural course maybe left in place, if approved by the Engineer. For friction course layers, make corrections in accordance with 331-7.5.

Table331-7
Cross Slope Acceptance

Roadway Feature	Individual Absolute Deviation	Average Absolute Deviation
Tangent section (including tum lanes)	0.4%	0.2%
Super elevated curve	0.4%	0.2%
Shoulder	0.5%	0.5%

The limits of deficient areas requiring correction maybe 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 affect the pavement's overall traffic safety, surface drainage, ride quality, or surface texture.
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 by the Engineer.
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.

331-7.5.3 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 super elevated sections. The Engineer will measure the cross slope of the compacted pavement surface by placing the level at the center of the lane and perpendicular to the roadway centerline.

331-7.5.3.1 Cross Slope Deviations and Corrections: If the average absolute deviation or an individual cross slope deviation falls outside of the acceptance tolerance in Table 331-7, 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 331- 7.5.1, stop the paving operations until the issue is resolved to the satisfaction of the Engineer. Correct any cross slope not meeting the individual deviation acceptance tolerance in accordance with 331-7.7 at no cost to the Department. The Engineer reserves the right to check the pavement cross slope at any time by taking cross slope measurements at any location.

331-7.6 Pavement Smoothness: Construct a smooth pavement meeting the requirements of this Specification.

331-7.6.1 General: Furnish a 15-foot manual and a 15-foot rolling straightedge meeting the requirements of FM 5-509. Obtain a smooth surface on all pavement courses placed, and then straightedge all layers as required by this Specification.

331-7.6.2 Test Method: Perform all straightedge testing in accordance with FM 5- 509 in the outside wheel path of each lane. The Engineer may require additional testing at other locations within the lane.

331-1.6.3 Traffic Control: Provide traffic control in accordance with Section 102 and the Design Standards, Index Nos. 607 or 619 during all testing. When traffic control cannot be provided in accordance with Index Nos. 607 or 619, submit an alternative Traffic Control Plan as specified in 102-4. Include the cost of this traffic control in the Contract bid prices for the asphalt items.

331-7.6.4 Process Control Testing: Assume full responsibility for controlling all paving operations and processes such that the requirements of these Specifications are met at all times.

331-7.6.5 QC Testing:

331-7.6.5.1 General: Straightedge the final Type S structural layer and friction course layer in accordance with 331-7.6.2, with the exception that if the method of acceptance is by laser profiler, then straight edging of the friction course layer is not required unless otherwise stated in the Specifications. If the project's method of acceptances by laser profiler, areas not suitable for testing with the laser profiler will be tested and accepted by straight edging. Test all pavement lanes and ramps where the width is constant and document all deficiencies in excess of 3/16 inch on a form approved by the Engineer.

331-7.6.5.2 Straightedge Exceptions: Straightedge testing will not be required in the following areas: shoulders, intersections, tapers, crossovers, sidewalks, shared use paths, parking lots and similar areas, or in the following areas when they are less than 250 feet in length: tum lanes, acceleration/deceleration lanes and side streets. The limits of the intersection will be from stop bar to stop bar for both the mainline and side streets. As an exception, in the event the Engineer identifies an objectionable surface irregularity in the above areas, straightedge and address all deficiencies in excess of 3/8 inch in accordance with 331-7.7. The Engineer may waive straightedge requirements for transverse joints at the beginning and end of the project, at the beginning and end of bridge structures, at manholes, and at utility structures if the deficiencies are caused by factors beyond the control of the Contractor, as determined by the Engineer. In addition, the Engineer may also waive the straight edging requirements on ramps and super elevated sections where the geometrical orientation of the pavement results in an inaccurate measurement with the rolling straightedge.

331-7.6.5.3 Intermediate Layers and Temporary Pavement: When the design speed is 55 mph or greater and the intermediate Type S layer or temporary pavement is to be opened to traffic, if the Engineer identifies an objectionable surface irregularity, straightedge and address all deficiencies in excess of 3/8 inch within 72 hours of placement in accordance with 331-7.7.

331-7.6.5.4 Final Type S Structural Layer: Straightedge the final Type S structural layer in accordance with 331-7.6.2, either behind the final roller of the paving train or as a separate operation. Notify the Engineer of the location and time of straightedge testing a minimum of 48 hours before beginning testing. The Engineer will verify the straightedge testing by observing the QC straight edging operations. Address all deficiencies in excess of 3/16 inch in accordance with 331-7.7.
When the final structural course is to be opened to traffic and the design speed is 55 mph or greater, if any defect is 3/8 inch or greater, the Engineer may require deficiencies to be corrected within 72 hours after opening to traffic.

331-7.6.5.5 Friction Course Layer: Where required per 331-7.6.5.1, and in areas noted in 331- 7.6.6.2 as not suitable for testing with the Laser Profiler, straightedge the friction course layer in accordance with 331-7.6.2, either behind the final roller of the paving train or as a separate operation upon completion of all paving operations. Notify the Engineer of the location and time of straightedge testing a minimum of 48 hours before beginning testing.
The Engineer will verify the straightedge testing by observing the QC straight edging operations. Address all deficiencies in excess of 3/16 inch in accordance with 331-7.7.

331-7.6.6 Acceptance:

331-7.6.6.1 Straightedge Acceptance: For areas of roadways where the design speed is less than 55 miles per hour, and for areas of roadways where the design speed is greater than or equal to 55 miles per hour which are noted in 331-7.6.6.2 as not suitable for testing with the Laser Profiler, acceptance for pavement smoothness of the friction course will be based on verified QC measurements using the straightedge as required by 331- 7.6.5. The Engineer will verify the straightedge testing by observing the QC straight edging operations.

331-7.6.6.2 Laser Acceptance: For areas of high speed roadways where the design speed is equal to or greater than 55 miles per hour, acceptance testing for pavement smoothness of the friction course (for mainline traffic lanes only) may be based on the Laser Profiler. Ramps, acceleration and deceleration lanes, and other areas not suitable for testing with the Laser Profiler will be tested and accepted with the straightedge in accordance with 331- 7.6.5.5 and 331-7.6.6.1.

331-7.7 Unacceptable Pavement:

331-7.7.1 Corrections: Address all areas of unacceptable pavement at no cost to the Department. Retest all corrected areas and assure the requirements of these Specifications are met.

331-7.7.1.1 Structural Layers: Correct all deficiencies, as defined in the Specifications, in the Type S structural layers by removing and replacing the full depth of the layer, extending a minimum of 50 feet on both sides (where possible) of the defective area for the full width of the paving lane.
As an option, for high straightedge deficiencies only, mill the pavement surface the full lane width to a depth and length adequate to remove the deficiency. This option only applies if the structural layer is not the final surface layer.

331-7.7.1.2 Friction Course: Correct deficiencies in the friction course or final surface layer by removing and replacing the full depth of the layer, extending a minimum of 50 feet on both sides (where possible) of the defective area for the full width of the paving lane.
As an exception, the Engineer may allow the Contractor to leave these areas in place if it is determined by the Engineer that the deficiency is not a significant detriment to the pavement quality. A reduction to the pay item quantity will be made in accordance with 331-7.7.2.

331-7.7.2 Reduction in Pay Item Quantity: When the Engineer elects to waive corrections, the Department will reduce the pay quantity for the pay item in question by the amount of material the Contractor would have removed and replaced had the correction been made. When the Pay Quantity is in tons, the Department will base the reduction on the volume of material the Contractor would have re.moved (the length by the lane width by layer thickness) multiplied by the maximum specific gravity of the mix as determined through the following equation:

Quantity(tons) = L x W x t x Gmm x 0.0024
Where:
L = Lane length (ft.) W
= Lane width (ft.)
t = Layer thickness (in.)Gmm = Maximum specific gravity from verified mix design

For FC-3 friction course, the Department will base the reduction on the area the Contractor would have removed (the length by lane width) multiplied by a spread rate of 80 pounds per square yard as determined through the following equation:

Quantity(tons) = L x W x 0.0044
Where:
L = Lane length (ft.)
W = Lane width (ft.)

331-7 Protection of Finished Surface.
Keep sections of newly compacted asphalt concrete, which are to be covered by additional courses, clean until the successive course is laid. Do not dump embankment or base material directly on the pavement. Dress shoulders before placing the final lift on adjacent pavement. Equip blade graders operating adjacent to the pavement during shoulder construction with a 2 inch by 8 inch or larger board, or other attachment providing essentially the same results, attached to their blades so it extends below the blade edge and protects the pavement surface from damage by the grader blade. To prevent rutting or other distortion, protect sections of newly finished dense-graded friction course and the last structural layer from traffic until the surface temperature has cooled below 160°F. The Contractor may use artificial methods to cool the pavement to expedite paving operations. The Department may direct the Contractor to use artificial cooling methods when maintenance of traffic requires opening the pavement to traffic at the earliest possible time.

331-8 Contractor Quality Control System

331-8.1 Quality Control Description: The asphalt concrete supplier shall comply with Section 105 and maintain an approved Quality Control Program, as an alternate, the supplier shall submit a Quality Control Plan per these requirements. These Specifications establish minimum requirements and activities for a Contractor quality control system. These requirements pertain to the inspections and tests necessary to substantiate material and product conformance to Contract requirements and to all inspections and tests required by the Contract.

331-8.2 Functions and Responsibilities:
1. The Department. The Department will verify the Contractor's design mixes, inspect plants and monitor control of the operations to ensure conformance with these Specifications. At no time will the Engineer issue instructions to the Contractor or producer as to the setting of dials, gauges, scales and meters. However, the Department's representatives may question and warn the Contractor against the continuance of any operations or sequence of operations that obviously do not result in satisfactory compliance with the requirements of these Specifications.
2. The Contractor. Submit in writing the proposed Quality Control Plan for each asphalt plant for the Engineer's approval. Maintain the approved Quality Control Plan in effect for the plant to which it is assigned until the Engineer rejects it in writing. Include in the plan the sampling, testing, inspection and the anticipated frequencies of each to maintain process control.

331-8.3 Recommendations for a Contractor Quality Control Plan.

331-8.3.1 All Types of Plants:
1. Stockpiles
a. Place materials in the correct stockpile.
b. Use good stockpiling techniques.
c. Inspect stockpiles for separation, contamination, segregation, etc.
2. Incoming Aggregate
a. Obtain gradations and bulk specific gravity (BSG) values from the aggregate supplier.
b. Determine gradation of all component materials.
c. Compare gradations and BSG to mix design.
3. Cold Bins
a. Calibrate the cold gate/feeder belt settings.
b. Observe operation of cold feed for uniformity.
4. Dryer
a. Observe pyrometer for aggregate temperature control.
b. Observe efficiency of the burner.
5. Hot Bins
a. Determine gradation of aggregates in each bin.
b. Determine theoretical combined grading.

6. Bituminous Mixture
a. Determine asphalt content.
b. Determine mix gradation.
c. Check mix temperature.
d. Verify modifier addition.

331-8.3.2 Batch Plants:
1. For batch weights, determine percent used and weight to be pulled from each bin to ensure compliance with the mix design.
2. Check mixing time.
3. Check operations of weigh bucket and scale

331-8.3.3 Continuous Mix Plant:
1. Determine gate calibration chart for each bin.
2. Determine gate settings for each bin to ensure compliance with the mix design.
3. Determine gallons [cubic meters] per revolution or gallons [cubic meters] per minute to ensure compliance with the mix design.

331-8.3.4 Drum Mixer Plant:
1. Calibrate the cold feed and prepare a calibration chart for each cold gate.
2. Develop information for the synchronization of the aggregate feed, reclaimed asphalt pavement (RAP) feed and the bituminous material feed.
3. Calibrate the weigh bridge on the changing conveyor.
The activities shown in Table 331-4 are the normal activities necessary to control the production of bituminous concrete at an acceptable quality level. The Department recognizes, however, that depending on the type of process or materials, some of the activities listed may not be necessary and, in other cases, additional activities may be required. The frequency of these activities will also vary with the process and the materials. When the process varies from the defined process average and variability targets, increase the frequency of these activities until the proper conditions are restored. Take one sample and test for every 1,000 tons [900 metric tons] of incoming aggregate (including RAP) as it is stockpiled. Test RAP material for extracted gradation and asphalt content.
Plot and keep up-to-date control charts for all quality control sampling and testing.
Provide control charts for the following:

a. gradation of incoming aggregates
b. gradation and asphalt content of RAP
c. combined gradations of hot bins
d. extracted asphalt content
e. mix gradation
f. gradation of cold feed (drum mixers)
Post all current control charts in the asphalt lab where they can be seen. Submit design mixes to the Engineer for verification prior to their use. Provide process control of all materials during handling, blending, mixing and placing operations.

331-8.4 General Requirements: Furnish and maintain a quality control system that
provides reasonable assurance that all materials and products submitted to the Engineer for acceptance meet the Contract requirements. Perform, or have performed, the inspection and tests required to substantiate product conformance to Contract requirements, and also perform, or have performed, all inspections and tests otherwise required by the Contract.
Keep a quality control technician, who has been certified by the Department as a Qualified Asphalt Plant Technician (Plant Level II), available at the asphalt plant at all times when producing asphalt mix for the Department. Place a person in responsible charge of the paving operations who is qualified by the Department as a Qualified Asphalt Paving Technician (Paving Level II). Document the quality control procedures, inspection and tests, and make that information available for review by the Engineer throughout the life of the Contract.

331-8.5 Documentation: Maintain adequate records of all inspections and tests. Record the nature and number of tests made, the number and type of deficiencies found, the quantities approved and rejected, and the nature of corrective action taken, as appropriate.
The Department may review and approve all documentation procedures prior to the start of the work. The Department will take ownership of all charts and records documenting the Contractor's quality control tests and inspections upon completion of the work.

331-8.6 Charts and Forms: Record all conforming and nonconforming inspections and test results on approved forms and charts, and keep them up to date and complete and make them available at all times to the Engineer during the performance of the work. Prepare charts of test properties for the various materials and mixtures on forms that are in accordance with the applicable requirements of the Department. The Engineer will furnish a copy of each applicable chart and form. Provide a supply of the charts and forms from the copy furnished. Obtain the Engineer's approval of non-standard forms and charts prior to using them.

331-8.7 Corrective Actions: Take prompt action to correct any errors, equipment malfunctions, process changes or other problems that result or could result in the submission of materials, products or completed construction that do not meet the requirements of these Specifications. When it becomes evident to the Department that the Contractor is not controlling his process and is making no effort to take corrective actions, the Department will require the Contractor to cease plant operations until such time as the Contractor can demonstrate that he can and is willing to control the process.

331-8.8 Laboratories with Measuring and Testing Equipment: Furnish a fully equipped asphalt laboratory (permanent or portable) at the production site, and meeting the following requirements:
1. Area - Provide an effective working area for the laboratory that is a minimum of 180 square feet. This area does not include the space for desks, chairs and file cabinets.
2. Lighting - Provide lighting in the lab adequate to illuminate all areas of work.
3. Temperature Control- Equip the lab with heating and air conditioning units that provide a satisfactory working environment.
4. Ventilation - Equip the lab with fume hoods and exhaust fans that will remove all hazardous fumes from within the laboratory in accordance with OSHA requirements.
5. Equipment and Supplies - Furnish the lab with the necessary sampling and testing equipment, and supplies, for performing Contractor quality control and Department acceptance sampling and testing. A detailed list of equipment and supplies required for each test is included in the Field Sampling and Testing Manual.
When running plants at a high production rate, furnish additional testing equipment as necessary to allow the completion of the Contractor's quality control tests and the Department's Acceptance tests within the specified time frame.

331-8.9 Sampling and Testing: Use the sampling and testing methods and procedures that the Department provides to determine quality conformance of the materials and products. The Department will use these same methods and procedures for its acceptance tests. Include the sampling for other material characteristics on a random basis and the plotting of the test results on control charts in the Quality Control Plan.

331-8.9.1 Alternative Procedures: The Contractor may use alternative sampling methods, procedures and inspection equipment when such procedures and equipment provide, as a minimum, the quality assurance required by the Contract Documents. Prior to applying such alternative procedures, describe them in a written proposal and demonstrate for the Engineer's approval that their effectiveness is equal to or better than the Contract requirements. In case of dispute as to whether certain proposed procedures provide equal assurance, use the procedures stipulated by the Contract Documents.

331-8.10 Nonconforming Materials: Establish and maintain an effective and positive system for controlling nonconforming materials, including procedures for identification, isolation and disposition. Reclaim or rework

nonconforming materials in accordance with procedures acceptable to the Engineer. Discuss the details of this system at the preconstruction conference, and make these details a part of the record of the conference.
331-8.11 Department Inspection at Subcontractor or Supplier Facilities: The Department reserves the right to inspect materials not manufactured within the Contractor's facility.
The Department's inspection does not constitute acceptance and does not, in any way, replace the Contractor's inspection or otherwise relieve the Contractor of his responsibility to furnish an acceptable material or product. When the Department inspects the subcontractor's or supplier's product, such inspection does not replace the Contractor's responsibility to inspect such subcontractor's or supplier's product.

SECTION 331-9 ASPHALT CONCRETE FRICTION COURSE (LCDOT REV 12/06/2017)

331-7 Description. Construct an asphalt concrete friction course. This Section specifies mixes designated as Friction Course 3(FC-3).

331-9.1 Materials.

331-9.1.1 General Requirements: Meet the plant and equipment requirements of Section 320, as modified herein. Meet the general construction requirements of Section 330, as modified herein. The Engineer will base continuing approval of material sources on field performance.

331-9.1.2 Coarse Aggregate: Meet the requirements of Section 901, and any additional requirements or modifications specified herein for the various mixtures.

331-9.1.3 Fine Aggregate: Meet the requirements of Section 902, and any additional requirements or modifications specified herein for the various mixtures.

331-9.2 General Composition of Mixes.

331-9.2.1 General: Use a bituminous mixture composed of aggregate (coarse, fine, or a mixture thereof). Size, uniformly grade and combine the aggregate fractions in such proportions that the resulting mix meets the requirements of this Section. The use of RAP material will not be permitted.

331-9.3 Specific Component Requirements for FC-3 Mix:

331-9.3.1 Aggregates: In addition to the requirements of Section 901, meet the following coarse aggregate requirements. Use either crushed gravel, crushed granite, crushed slag, or crushed limestone from the Oolitic formation. Aggregates other than those listed above may be used if approved by the Engineer.
In addition to the requirements of Section 902, meet the following time aggregate requirements. Use crushed screenings or a combination of crushed screenings and local materials. Use crushed screenings composed of hard, durable particles resulting from crushing or processing the coarse aggregate as specified above. Screenings from other approved sources may be used provided that the total of these screenings along with silica sand or local materials does not exceed 40%. Ensure that not more than 20% by weight of the total aggregate used is silica sand or local materials defined in Section 902.

331-9.3.2 FC-3: Provide a mix design conforming to the requirements of 331-4.3. Submit data showing that the mix design meets the requirements of Table 331-2. Then, for production, substitute the asphalt binder at the optimum conventional binder content and show it as the optimum binder content on the verified mix design.

331-9.4 Contractor's Quality Control. Provide the necessary quality control of the friction course mix and construction in accordance with the applicable provisions of Section 330 and 331-4.4 for FC-3. After the mix design has been approved, furnish the material to meet the approved mix design in accordance with the provisions of 331-4.4.2 and Table 331- 3 for FC-

3. Calibrate the plant in accordance with 331-4.4.3 and Table 331-3. The Engineer will monitor the spread rate periodically to ensure uniform thickness. Provide quality control procedures for daily monitoring and control of spread rate variability. If the spread rate varies by more than 5% of the spread rate, immediately make all corrections necessary to bring the spread rate into the acceptable range.

331-9.5 Acceptance of Mix.

331-9.5.1 Acceptance at the Plant: The bituminous mix will be accepted at the plant with respect to gradation and asphalt content in accordance with the applicable requirements of 331-5 for FC-3, with the exception that the asphalt content of the mixture will be determined in accordance with FM 5-563, and the gradation will be determined in accordance with FM 1-T 030.

331-9.5.2 Acceptance on the Roadway: The FC-3 mix will be accepted on the roadway with respect to density in accordance with the applicable provisions of 331. The FC-3 mixture will be accepted on the roadway with respect to surface tolerance in accordance with the applicable provisions of 330-4.

331-9.6 Temperature Requirements for FC-3:

331-9.6.1 Air Temperature at Laydown: Spread the mixture only when the air temperature, taken in the shade away from artificial heat, is at or above 45°F.

331-9.6.2 Temperature of the Mixture: Heat and combine the asphalt binder and aggregate in a manner which will produce a mixture having a temperature, when discharged from the plant, of 310°F, or as directed by the Engineer. Meet the temperature tolerance requirements specified in Table 330-2.

331-9.7 Spread Rate for FC-3: The Engineer will set the spread rate within the range of 100-110 lb/yd2.

331-9.8 Method of Measurement.
The quantity to be paid for will be the weight, in tons [metric tons], as determined in accordance with 320-2 (including provisions for the automatic recordation system). The pay quantity will be based on the average spread rate for the project, limited to a maximum of 105% of the spread rate set by the Engineer.

331-9.9 Basis of Payment.
Price and payment will be full compensation for all the work specified under this Section, including the cost of the (asphalt cement, anti-stripping agent, blending, and handling), as well as fiber stabilizing additive and hydrated lime (if required). Payment will be made under: Item No. 337-7 -Asphaltic Concrete Friction Course per-ton.

SECTION 570 - PERFORMANCE TURF
Section 570: Delete Section 570 in its entirety and substitute the following:

SECTION 570 - SODDING OF DISTURBED AREAS

570-1 Description.
Establish a growing, healthy turf over the disturbed areas designated by the Engineer using sod. Maintain all sodded areas until final acceptance of all contract work in accordance with Section 5-11.

570-2 Materials.
Meet the following requirements:
Turf Materials ..... Section 981
Fertilizer ..... Section 982
Water. ..... Section 983
570-3 Construction Methods.
570-3.1 General: Incorporate sod installation into the project at the earliest practical time.

Shape the areas to be sodded to the typical sections generally existing prior to overlay work. Sod variety matching the adjoining areas shall be used unless otherwise directed by the Engineer. Use the methods and materials necessary to establish and maintain the initial sodding until acceptance of the Contract work in accordance with 5-11. All permanent sodding shall be in place prior to final acceptance. The Department will only pay for replanting as necessary due to factors determined by the Engineer to be beyond the control of the Contractor.

570-3.2 Sod. Place the sod on the prepared surface, with edges in close contact. Do not use sod which has been cut for more than 48 hours. Place the sod to the edge of all landscape areas as shown in the Plans and as shown in the Design Standards. Place rolled sod parallel with the roadway and cut any exposed netting even with the sod edge. Remove and replace any sod as directed by the Engineer.

570-8 Method of Measurement.

The quantities to be paid for will be the authorized quantity in square yards of areas sodded for each sod variety. Any areas sodded without the express authorization of the Engineer will not be considered for payment. Quantities will be measured in place after sodding is completed and accepted.

570-9 Basis of Payment.

Prices and payments will be full compensation for all work and materials specified in this Section.
Payment will be made under:
Item No. 570- 9- 1 Sodding, Bahia- per square yard
Item No. 570- 9- 2 Sodding, Floratam - per square yard

SECTION 710 - PAINTED PAVEMENT MARKINGS

Section 710: Throughout the entire Section replace "gross mile" with "linear foot" or "linear f eet", as applicable. All painted pavement markings will be measured on a linear foot basis.

Subarticle 710-11.1: Add the following to the end of the paragraph: "Raised Pavement Markers will be paid for separately under Item No. 706- 03 Retroreflective Pavement Markers – per each. Pavement markings of a temporary nature used for maintenance of traffic purposes are not subject to payment under this provision, but shall be included in the cost of item No. 102- 1 Maintenance of Traffic - lump sum."

SECTION 711 - THERMOPLASTIC PAVEMENT MARKINGS

Section 711: Throughout the Section replace "gross mile" with "linear foot" or "linear feet", as applicable. All thermoplastic pavement markings will be measured on a linear foot basis.

DIVISION III-MATERIALS

RESERVED

AGREEMENT between CITY OF KISSIMMEE

And

_____

THIS AGREEMENT is made this _____ day of _____, 2022 by and between the CITY OF KISSIMMEE, a municipal corporation of the State of Florida, 101 Church Street, Kissimmee, Florida 34741, hereinafter "City" and _____, whose business address is _____, hereinafter "Contractor" and each represents as follows:

WITNESSETH

WHEREAS, City advertised IFB 2022-002 Annual Contract for Milling, Resurfacing and Minor Concrete Work, attached hereto and incorporated herein as Exhibit "A"; and

WHEREAS, Contractor provides milling, resurfacing and minor concrete work services and was the lowest responsive and responsible bidder, a copy of said bid response is attached hereto and incorporated herein as Exhibit "B"; and

WHEREAS, City desires to award IFB 2022-002 to Contractor consistent with the terms and conditions and requirements of the bid specifications.

NOW THEREFORE, in consideration of the mutual promises contained herein and for other good and value considerations, the receipt and sufficiency of which I hereby acknowledged, each Party hereby promises to the other as follows:

1. **RECITALS.** The foregoing recitals are true and correct and specifically incorporated herein.

2. **SPECIFICATIONS.** Contractor agrees to perform miscellaneous alternative paving methods on an as-needed basis on City premises and facilities. Work may include, but not limited to, milling, resurfacing, striping, micro-surfacing, reclaimed asphalt paving, concrete work, and sodding.

3. **WORKMANSHIP and WARRANTY.** Contractor agrees to furnish all material, labor, equipment and tools necessary to provide the contracted services in accordance with the Exhibit "A", Exhibit "B", any and all change orders, and this Agreement. Contractor agrees to provide these services in a professional manner in accordance with the standards outlined Exhibit "A". Contractor shall supervise the performance of work by employees who shall present a favorable image for the City at all times when working on City property.

4. **TERM.** The term of this Agreement shall commence on the date of execution and terminate on September 20, 2025. This Agreement may, by mutual written consent of the Parties, be

extended for two (2) additional twelve-month periods. City reserves the right to cancel this Agreement without cause on any and all locations.

5. **PAYMENT.** Payments to Contractor shall be made only upon submission of proof of satisfactory completion of the services, or the increment(s) thereof, for which payment is made. Contractor shall provide at the post award conference a payment schedule for work phases. Payment prior to initiation of the project and receipt by the City for services for which payment is invoiced is strictly prohibited. A payment will be made based on proof of satisfactory completion of each cycle. The amount of each payment will be based upon final contract payment schedule. Invoices shall provide details of all project expenses permitted in this Agreement. Upon review and approval of the Contractor's invoice and verification that services have been rendered in conformity with this Agreement, the City, through payment issued by the Public Works and Engineering Department, shall pay Contractor in accordance with the Local Government Prompt Payment Act, Chapter 218, Part VII, Florida Statutes. Contractor shall not apply any late charges, interest or penalties to any invoice or charges for services until 30 days from the City's receipt of the invoice. If this Agreement is terminated for convenience for any reason, then the Contractor shall be paid pro rata for all services performed, materials purchased, and administrative costs incurred, including lost profit, to the effective date of termination.

6. **BOND**. Contractor shall furnish City with a performance bond issued by a surety licensed to do business in the State of Florida prior to commencement of work in the amount of $10,000.00.

7. **INSURANCE.** Contractor is required to submit to the City Certificates of Insurance naming the City as an additional insured. Said Certificate of Insurance shall also provide that at least thirty (30) days written notice shall be given to the City. During the term of the Agreement and any renewals, Contractor, at its sole cost and expense, shall maintain insurance coverage as follows:

   A. **Workers Compensation**: Contractor will provide Worker's Compensation coverage for all employees at the site location. The limits will be statutory for Worker's Compensation and $300,000.00 for Employers' Liability.

   B. **Comprehensive General Liability**: Contractor will provide coverage for all owned and non-owned vehicles for limits of not less than $1,000,000.00.

   C. **Comprehensive Automobile Liability**: Contractor will provide coverage for all owned and non-owed vehicles for limits of not less than $1,000,000.00.

   D. **Umbrella Insurance**: The Contractor will provide an umbrella in excess to the coverage in paragraphs B), and C) of not less than $1,000,000.00.

8. **WORK ORDERS**. The City may issue subsequent modifications to the work order(s) for additional work that was not known or included in the Specifications that is found to be needed during the course of this Agreement and above the amount set forth in Exhibit ”C.” Contractor must seek approval from the City before performing any additional work. The City must provide the Contractor with written documentation of the modification to any work order within three (3) business days of verbal approval. Contractor is not obligated to perform additional work until written modification has been received from the City but may commence work based upon a reasonable assumption that written modification will be issued. Incidental additional work performed by the Contractor without City consent will be evaluated and considered for payment based upon the work's merit. If the City determines the incidental additional work was not included in the original scope of the project and required for the Contractor's uninterrupted performance in fulfillment of the contract, then the City will approve the Contractor's request for payment for incidental additional work.

9. **TERMINATION FOR CONVENIENCE.** The City reserves the right to terminate the Agreement in whole or part by giving the Contractor written notice at least thirty (30) days prior to effective date of termination. Upon receipt of termination from the City, the Contractor shall only provide those services specifically approved or directed by the City. All other rights and duties of the parties under the Agreement shall continue during such notice period, and the City shall continue to be responsible to the vendor for the payment of any obligation to the extent such responsibility has not been excused by breach or default of the Contractor.

   Upon termination, Contractor shall bill the City for all amounts not previously billed and due to the vendor at that time. The vendor shall not be entitled to a profession fee nor expenses for any work commenced or expenses incurred after the notice of termination was received by the vendor, unless specifically approved or requested by the City. The Contractor shall however, be entitled to payment for services commenced and approved by the City prior to receipt of notice, or with the expressed written consent of the City, prior to the effective date of termination.

10. **TERMINATION FOR CAUSE**. If City wishes to terminate the Contractor for cause due to the failure of Contractor to perform as required under this Agreement and/or in a manner consistent with the degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances, then the City must provide the Contractor with written notice of said failure to perform. The City must give ten (10) working days from the Contractor's receipt of the Notice to Cure for the Contractor to cure or take reasonable action to commence to cure the performance concerns specified. If the Contractor does not take appropriate action within the ten (10) day period, the City may issue a Final Notice to Cure. The Contractor will have an additional five (5) working days from the receipt of the Notice to Cure to cure or take reasonable action to commence to cure before the City can terminate the Agreement. If the Contractor is terminated for cause, the Contractor may provide or employ any necessary labor and materials in lieu of Contractor to finish part or all of the work under the Agreement or to supplement the work of Contractor, and to deduct the cost

thereof from any money, then due or thereafter to become due to the Contractor; and if such cost shall exceed the balance due to Contractor, then the Contractor shall pay the difference to the City.

11. **BREACH.** Failure of Contractor or the City to perform the covenants, conditions, or provisions of the Agreement shall constitute a material default and breach of the Agreement. In the event of any default, the City has the right to terminate this Agreement immediately without notice to Contractor In the event of any default of the City, except the payments required under the Agreement, Contractor may terminate this Agreement immediately without notice. If the City fails to timely pay the monies required under this Agreement, it has fifteen (15) days after written notice from Contractor to cure said default, unless the City disputes satisfactory performance of services.

12. **E-VERIFY.** In compliance with Section 448.095, Fla. Stat., Contractor and its subcontractors shall, register with and use the E-Verify system to verify work authorization status of all employees hired after January 1, 2021.

a. Contractor shall require each of its subcontractors to provide Contractor with an affidavit stating that the subcontractor does not employ, contract with, or subcontract with an unauthorized alien. Contractor shall maintain a copy of the subcontractor's affidavit as part of and pursuant to the records retention requirements of this Agreement.

b. The City, Contractor, or any subcontractor who has a good faith belief that a person or entity with which it is contracting has knowingly violated Section 448.09(1), Fla. Stat. or the provisions of this section shall terminate the contract with the person or entity.

c. The City, upon good faith belief that a subcontractor knowingly violated the provisions of this section, but Contractor otherwise complied, shall promptly notify Contractor and Contractor shall immediately terminate the contract with the subcontractor.

d. A contract terminated under the provisions of this section is not a breach of contract and may not be considered such. Any contract termination under the provisions of this section may be challenged pursuant to Section 448.095(2)(d), Fla. Stat. Contractor acknowledges that upon termination of this Agreement by the City for a violation of this section by Contractor, Contractor may not be awarded a public contract for at least one (1) year. Contractor further acknowledges that City is liable for any additional costs incurred by the City as a result of termination of any contract for a violation of this section.

13. **INDEMNIFICATION/HOLD HARMLESS.** To the extent permitted by law, Contractor hereby releases and waives all claims against the City, its officers, employees, agents, independent Contractors for any injury or damaged to the person, property, or business of Contractor, its agents, employees, sub-contractors, or other persons, for which injury or damages result from any act, neglect, occurrence, or condition in or about any City properties whether such damage is caused by the City or any other person. Nothing in the agreement shall

be construed as a waiver of the City's statutory sovereign immunity pursuant to Section 768.28, Florida Statutes.

Contractor agrees to indemnify and hold harmless the City, its agents, officers, employees against any and all claims, demand, cost, and expenses of every kind and nature, including reasonable attorney fees for the enforcement, defense, or appeals thereof arise from Contractor performance of the Agreement or any breach or default of Contractor.

14. **PUBLIC RECORDS.** Contractor specifically acknowledges the City's obligations under Article I, Section 24, of the Florida Constitution and under Chapter 119, Florida Statutes, to release public records to members of the public upon request and that the constitutional and statutory provisions control over the terms of this Agreement. As such, the Contractor shall keep and maintain public records required by the City and to comply with §119.071, F.S., shall:

a) Keep and maintain public records that ordinarily and necessarily would be required by the City in order to perform the services required under this Agreement;

b) Provide the public with access to public records on the same terms and conditions that the City would provide the records and at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes, or as otherwise provided by law;

c) Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed, except as authorized by law; and

d) Meet all requirements for retaining public records and transfer, at no cost to the City, all public records in possession of Contractor upon termination of this Agreement and destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. All records stored electronically must be provided to the City in a format that is compatible with the information technology system of the City.

If the Contractor has questions regarding the application of Chapter 119, Florida Statutes, to Contractor's duty to provide public records relating to this Agreement, contact the Custodian of Public Records at 407-518-2308, cityclerkemail@kissimmee.org, and 101 Church Street, Kissimmee, Florida 34741.

15. **NON-ASSIGNMENT.** Contractor shall not assign, sell or transfer this Agreement or any portion hereof without receiving the written consent of the City. This Agreement is hereby deemed to be of a personal service contact nature, thus, subcontracting any portion of this Agreement is prohibited.

16. **APPLICABLE LAWS.** This Agreement shall be governed, construed and enforced in accordance with the laws of the State of Florida.

17. **JURY TRIAL WAIVER/VENUE/WAIVER OF ATTORNEY FEES.** Contractor agrees to waive the right to a jury trial in any action, proceeding, or counterclaim. Venue shall be Osceola County, Florida. Each party waives the right to attorney fees in any action to enforce this Agreement.

18. **WAIVER.** No failure of the City to insist upon strict performance in any one or more terms of this Agreement, nor any failure of the City to exercise any right or remedy under this Agreement shall constitute a waiver of any such term, right or remedy the City may have, or future rights to enforce compliance.

19. **NOTICES.** Notice under this Agreement shall be deemed effective when mailed, certified mail return receipt requested or when delivered personally at the parties address below:

Notice to CITY:
Natrevia Gradney-Mitchell, Public Works and Engineering Director
101 N. Church Street
Kissimmee, Florida 34741

Notice to Contractor:

20. **ENTIRETY OF AGREEMENT.** This Agreement shall constitute the entire Agreement of the Parties. Any prior understanding or representations of any kind preceding the date of this Agreement shall not be binding on either Party except as incorporated herein.

21. **MODIFICATIONS.** Any modifications or additional obligations assumed by either Party shall be binding only if written and valued considerations exchanged.

(*Signature page to follow*)

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed:

CONTRACTOR

By:_____

Title: _____

Date:_____

STATE OF FLORIDA

COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 2022, by means of ☐ physical presence or ☐ online notarization, by_____as _____for _____, a Florida corporation, who is personally known to me or has produced identification.

Notary Seal:

Notary: _____

Print Name: _____

My Commission Expires: _____

CITY OF KISSIMMEE

By: _____
Olga Gonzalez, Mayor-Commissioner
Date: _____

ATTEST:

_____
Linda Hansell, City Clerk

Approved as to form a legal sufficiency:

_____

City Attorney

EXHIBIT “A”

EXHIBIT “B”