



CITY OF GAINESVILLE

Public Works Department

Technical Specifications

Eastside/GTEC Infrastructure

The Technical Specifications denoted in this Table of Contents were prepared under the direction and responsible charge of the engineer below; the specifications herein are in compliance with generally acceptable engineering practices for roadway, stormwater and site construction in the State of Florida.

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01 GENERAL

All described in these specifications supplement the work detailed in the following construction drawings:

- *Eastside/GTEC Infrastructure Plans* dated August 15, 2023, prepared by CHW Professional Consultants.

The aforementioned construction drawings are hereby incorporated into these Contract Documents by reference. In the event any work conflicts with the aforementioned construction drawings and these Technical Specifications, the provision herein shall prevail.

All work shall be performed in accordance with the construction drawings and the FDOT Standard Specifications for Road and Bridge Construction, July 2022 edition, except as provided for in these "Technical Specifications." Deviation from these standards will be permitted only upon presentation of specific written authorization by the City.

Whenever, in the Florida Department of Transportation's Standard Specifications for Road and Bridge Construction, the following terms or their pronouns occur, they shall be defined as follows: Department of Transportation: City of Gainesville, Florida, or its duly authorized representative.

State Highway Engineer, State Transportation Engineer, District Engineer, Engineer of Materials and Tests, Engineer, Inspector: The City of Gainesville City Engineer.

02 STANDARD DOCUMENTS

Construction shown on the construction drawing shall conform to the technical portions of the:

Florida Department of Transportation Standard Specifications for Road and Bridge Construction, July 2022 edition, the Florida Greenbook, 2018 edition and the Americans with Disabilities Act Guidelines, except when otherwise indicated hereinafter.

The construction drawings reference Index Sheets and Standards which are the FDOT Standard Plans for Roadway and Bridge Construction, FY 2022-2023 edition.

References to Article Numbers, hereinafter, apply to the FDOT Standard Specifications for Road and Bridge Construction, July 2022 edition.

All traffic control devices and procedures shall conform to the FDOT Standards and/or Federal Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), 2009 edition

03 MODIFICATIONS TO THE FDOT STANDARD SPECIFICATIONS

All work on the roadway portion of this Contract shall conform to the applicable specifications of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, July 2022 edition, and the current edition of Supplemental Specifications thereto, except as modified and supplemented hereinafter or in the "Technical Specifications" section. The following shall be interpreted as additions unless otherwise noted. In the event that any information contained hereinafter or in the "Technical Specifications" section conflict with the FDOT Standard Specifications, the provisions contained herein shall prevail.

SECTION 1 DEFINITIONS AND TERMS

1-3 Definitions:

Calendar Day Contract

Agreement in which contract time is specified in calendar days.

Contract Documents

The term "Contract Documents" includes all documents listed in the Agreement, Paragraph 9.1.

Department

Shall be understood to be the City of Gainesville or authorized representative of the City.

Final Completion

Final completion has been attained when the City confirms that the Work is complete, satisfactory, and acceptable in accordance with the Agreement. Final completion shall incorporate all requirements and conditions of “final acceptance” specified herein and in the applicable FDOT Standard Specifications.

Holidays

To Holidays listed, add Juneteenth and Christmas Eve Day.

Non-Working Day

Weekends, holidays unless approval is granted by the City and any other time suspensions.

Substantial Completion

Substantial completion has been attained when all <enter relvaent scopes of work such as: asphalt, sidewalk, handrail, guardrail, initial striping, structures, signage, signalization, beacons and final stabilization have been constructed and the City has inspected and accepted the work.>

Supplemental Agreement

This term shall be understood to be Change Order or Field Order.

Working Day

Any day the Contractor performs work in accordance the Agreement. Saturdays, Sundays and City-designated holidays are generally not considered working days; unless prior approval is received from the City Engineer, work shall not be performed on weekends and holidays. If work is performed on weekends and holidays under a Working Day Contract, a working day shall be charged.

Working Day Contract

Agreement in which contract time is specified in working days.

SECTION 2 PROPOSAL REQUIREMENTS AND CONDITIONS

Processing of bid proposals shall be in accordance with the “Invitation to Bid” in the Invitation to Bid package.

SECTION 3 AWARD AND EXECUTION OF CONTRACT

Awarding of bids shall be in accordance with the “Instruction to Bidders” in the Invitation to Bid package.

3-8 Audit of Contractor’s Records

Upon execution of the Agreement, the City reserves the right to conduct an audit of the Contractor’s records pertaining to the project. The City or its representatives may conduct an audit, or audits, at any time prior to final payment, or thereafter pursuant to 5-13. The City may also require submittal of the records from either the Contractor or any subcontractor or material supplier. As the City deems necessary, records include all books of account, supporting documents, and papers pertaining to the cost of performance of the Work.

Retain all records pertaining to the Agreement for a period of not less than three years from the date of the Engineer’s final acceptance of the project, unless a longer minimum period is otherwise specified. Upon request, make all such records available to the City or its representative(s). For the purpose of this Article, records include but are not limited to all books of account, supporting documents, and papers that the City deems necessary to ensure compliance with the provisions of the Contract Documents.

If the Contractor fails to comply with these requirements, the City may disqualify or suspend the Contractor from bidding on or working as a subcontractor on future Agreements.

Ensure that the subcontractors provide access to their records pertaining to the project upon request by the City.

Comply with Section 20.055(5), Florida Statutes, and incorporate in all subcontracts the obligation to comply with Section 20.055(5), Florida Statutes.

SECTION 4 SCOPE OF THE WORK

4-3 Alteration of Plans or Character of Work

4-3.1 General: The Engineer reserves the right to make, at any time prior to or during the progress of the work, such increases or decreases in quantities, whether a significant change or not, and such alterations in the details of construction, whether a substantial change or not, including but not limited to alterations in the grade or alignment of the road or structure or both, as may be found necessary or desirable by the Engineer. Such increases, decreases or alterations shall not constitute a breach of Agreement, shall not invalidate the Agreement, nor release the Surety from any liability arising out of an Agreement or the Surety bond. The Contractor agrees to perform the work, as altered, the same as if it had been a part of the original Agreement.

The term “significant change” applies only when:

- (1) The Engineer determines that the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction, or
- (2) A major item of work is defined as an increase in excess of 125% or decreased below 75% of the original Agreement quantity. The City will apply any price adjustment for an increase in quantity only to that portion in excess of 125% of the original Agreement item quantity in accordance with 4-3.2 below. In the case of a decrease below 75% the City will only apply a price adjustment for the additional costs that are a direct result of the reduction in quantity.

In (1) above, the determination by the Engineer shall be conclusive. If the determination is challenged by the Contractor in any proceeding, the Contractor must establish by clear and convincing proof that the determination by the Engineer was without any reasonable basis.

4-3.2 Increase, Decrease or Alteration in the Work: The Engineer reserves the right to make alterations in the character of the work which involve a substantial change in the nature of the design or in the type of construction or which materially increases or decreases the cost or time of performance. Such alteration shall not constitute a breach of Agreement, shall not invalidate the Agreement or release the Surety.

Notwithstanding that the Contractor shall have no formal right whatsoever to any extra compensation or time extension deemed due by the Contractor for any cause unless and until the Contractor follows the procedures set forth in 5-12.2 for preservation, presentation and resolution of the claim, the Contractor may at any time, after having otherwise timely submitted a notice of intent to claim or preliminary time extension request pursuant to 5-12.2 and 8-7.3.2, submit to the Engineer a request for equitable adjustment of compensation or time or other dispute resolution proposal. The Contractor shall in any request for equitable adjustment of compensation, time, or other dispute resolution proposal certify under oath and in writing, in accordance with the formalities required by Florida law, that the request is made in good faith, that any supportive data submitted is accurate and complete to the Contractor’s best knowledge and belief, and that the amount of the request accurately reflects what the Contractor in good faith believes to be the City’s responsibility. Such certification must be made by an officer or director of the Contractor with the authority to bind the Contractor. Any such certified statements of entitlement and costs shall be subject to the audit provisions set forth in 5-12.14. While the submittal or review of a duly certified request for equitable adjustment shall neither create, modify, nor activate any legal rights or obligations as to the Contractor or the City, the City will review the content of any duly certified request for equitable adjustment or other dispute resolution proposal, with any further action or inaction by the City thereafter being in its sole discretion. Any request for equitable adjustment that fails to fully comply with the certification requirements will not be reviewed by the City.

The monetary compensation provided for below constitutes full and complete payment for such additional work and the Contractor shall have no right to any additional monetary compensation for any direct or indirect costs or profit for any such additional work beyond that expressly provided below. The Contractor shall be entitled to a time extension only to the extent that the performance of any portion of the additional work is a controlling work item and the performance of such controlling work item actually extends completion of the project due to no fault of the Contractor. All time related costs for actual performance of such additional work are included in the compensation already provided below and any time extension entitlement hereunder will be without additional monetary compensation. The Contractor shall have no right to any monetary compensation or damages whatsoever for any direct or indirect delay to a controlling work item arising out of or in any way related to the circumstances leading up to or

resulting from additional work (but not relating to the actual performance of the additional work, which is paid for as otherwise provided herein), except only as provided for under 5-12.6.2.1.

4-3.2.1 Allowable Costs for Extra Work: The Engineer may direct in writing that extra work be done and, at the Engineer’s sole discretion, the Contractor will be paid pursuant to an agreed amount in a Change Order as outlined in the Agreement, Paragraph 25.3. In the event the Contractor must be paid in accordance with the Agreement, Paragraph 25.3.4, the following terms shall apply:

1. **Labor and Burden:** The Contractor will receive payment for actual costs of direct labor and burden for the additional or unforeseen work. Labor includes foremen actually engaged in the work; and will not include project supervisory personnel nor necessary on-site clerical staff, except when the additional or unforeseen work is a controlling work item and the performance of such controlling work item actually extends completion of the project due to no fault of the Contractor. Compensation for project supervisory personnel, but in no case higher than a Project Manager’s position, shall only be for the pro-rata time such supervisory personnel spent on the Agreement. In no case shall an officer or director of the Company, nor those persons who own more than 1% of the Company, be considered as project supervisory personnel, direct labor or foremen hereunder.

Payment for burden shall be limited solely to the following:

Table 4-1	
Item	Rate
FICA	Rate established by Law
FUTA/SUTA	Rate established by Law
Medical Insurance	Actual
Holidays, Sick & Vacation benefits	Actual
Retirement benefits	Actual
Workers Compensation	Rates based on the National Council on Compensation Insurance basic rate tables adjusted by Contractor’s actual experience modification factor in effect at the time of the additional work or unforeseen work.
Per Diem	Actual but not to exceed State of Florida’s rate
Insurance*	Actual
*Compensation for Insurance is limited solely to General Liability Coverage and does not include any other insurance coverage (such as, but not limited to, Umbrella Coverage, Automobile Insurance, etc.).	

At the Pre-construction conference, certify to the Engineer the following:

- a. A listing of on-site clerical staff, supervisory personnel and their pro-rated time assigned to the Agreement,
- b. Actual Rate for items listed in Table 4-1,
- c. Existence of employee benefit plan for Holiday, Sick and Vacation benefits and a Retirement Plan, and,
- d. Payment of Per Diem is a company practice for instances when compensation for Per Diem is requested.

Such certification must be made by an officer or director of the Contractor with authority to bind the Contractor. Timely certification is a condition precedent to any right of the Contractor to recover compensations for such costs, and failure to timely submit the certification will constitute a full, complete, absolute and irrevocable waiver by the Contractor of any right to recover such costs. Any subsequent changes shall be certified to the Engineer as part of the cost proposal or seven calendar days in advance of performing such extra work.

2. **Materials and Supplies:** For materials accepted by the Engineer and used on the project, the Contractor will receive the actual cost of such materials incorporated into the work, including Contractor paid transportation charges (exclusive of equipment as hereinafter set forth). For

supplies reasonably needed for performing the work, the Contractor will receive the actual cost of such supplies.

3. Equipment: For any machinery or special equipment (other than small tools), including fuel and lubricant, the Contractor will receive 100% of the "Rental Rate Blue Book" for the actual time that such equipment is in operation on the work, and 50% of the "Rental Rate Blue Book" for the time the equipment is directed to standby and remain on the project site, to be calculated as indicated below. The equipment rates will be based on the latest edition (as of the date the work to be performed begins) of the "Rental Rate Blue Book for Construction Equipment" as published by EquipmentWatch, a division of Informa Business Media, Inc., using all instructions and adjustments contained therein and as modified below. On all projects, the Engineer will adjust the rates using regional adjustments and Rate Adjustment Tables according to the instructions in the Blue Book.

Allowable Equipment Rates will be established as set out below:

- a. Allowable Hourly Equipment Rate = Monthly Rate/176 x Adjustment Factors x 100%.
- b. Allowable Hourly Operating Cost = Hourly Operating Cost x 100%.
- c. Allowable Rate Per Hour = Allowable Hourly Equipment Rate + Allowable Hourly Operating Cost.
- d. Standby Rate = Allowable Hourly Equipment Rate x 50%.

The Monthly Rate is The Basic Machine Rate Plus Any Attachments. Standby rates will apply when equipment is not in operation and is directed by the Engineer to standby at the project site when needed again to complete work and the cost of moving the equipment will exceed the accumulated standby cost. Standby rates will not apply on any day the equipment operates for eight or more hours. Standby payment will be limited to only that number of hours which, when added to the operating time for that day equals eight hours. Standby payment will not be made on days that are not normally considered work days on the project.

The City will allow for the cost of transporting the equipment to and from the location at which it will be used. If the equipment requires assembly or disassembly for transport, the City will pay for the time to perform this work at the rate for standby equipment.

Equipment may include vehicles utilized only by Labor, as defined above.

4. Indirect Costs, Expenses, and Profit: Compensation for all indirect costs, expenses, and profit of the Contractor, including but not limited to overhead of any kind, whether jobsite, field office, division office, regional office, home office shall be in accordance with the Agreement, Paragraph 25.3.4.

The Contractor will receive compensation for any premium for acquiring a bond for such additional or unforeseen work at the original Agreement bond rate paid by the Contractor; the Contractor shall provide documentation to the City demonstrating the bond rate paid in order to receive additional compensation for bond premiums. No compensation for bond premium will be allowed for additional or unforeseen work paid via initial contingency pay items.

4-3.2.2 Subcontracted Work: Compensation for additional unforeseen work performed by subcontractor shall be limited solely to that provided in 4-3.2.1 and the Agreement, Paragraph 25.3.4.

4-3.7 Differing Site Conditions

During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the Contract Documents, or if unknown physical conditions of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the Contract Documents are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before the Contractor disturbs the conditions or performs the affected work.

Upon receipt of written notification of differing site conditions from the Contractor, the Engineer will investigate the conditions, and if it is determined that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the Contract Documents, an adjustment will be made, excluding loss of anticipated profits, and the Agreement will be modified in writing accordingly. The Engineer will notify the Contractor whether or not an adjustment of the Agreement is warranted.

The Engineer will not allow an adjustment for a differing site condition unless the Contractor has submitted the required written notice.

The Engineer will not allow an adjustment under this clause for any effects caused to any other City or non-City projects on which the Contractor may be working.

4-3.8 Changes Affecting Utilities

The Contractor shall be responsible for identifying and assessing any potential impacts to a utility that may be caused by the changes proposed by the Contractor, and the Contractor shall at the time of making the request for a change notify the City in writing of any such potential impacts to utilities.

City approval of a Contractor proposed change 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 in the original Contract Documents, Design Plans (including Traffic Control Plans) or other Contract Documents and which effect a change in utility work different from that shown in the Utility Plans, joint project agreements or utility relocation schedules.

SECTION 5 CONTROL OF THE WORK

Subsection 5-12 is replaced as follows:

5-12 Claims by Contractor:

5-12.1 General: When the Contractor deems that extra compensation or a time extension is due beyond that agreed to by the Engineer, whether due to delay, additional work, altered work, differing site conditions, breach of Agreement, or for any other cause, the Contractor shall follow the procedures set forth in the Agreement, Paragraphs 24 through 26 and herein for preservation, presentation and resolution of the claim.

Submission of timely notice of intent to file a claim, preliminary time extension request, time extension request, and the certified written claim, together with full and complete claim documentation, are each a condition precedent to the Contractor bringing any circuit court, arbitration, or other formal claims resolution proceeding against the City for the items and for the sums or time set forth in the Contractor's certified written claim. The failure to provide such notice of intent, preliminary time extension request, time extension request, certified written claim and full and complete claim documentation within the time required shall constitute a full, complete, absolute and irrevocable waiver by the Contractor of any right to additional compensation or a time extension for such claim.

5-12.2 Notice of Claim:

5-12.2.1 Claims for Extra Work: Where the Contractor deems that additional compensation or a time extension is due for work or materials not expressly provided for in the Contract Documents or which is by written directive expressly ordered by the Engineer pursuant to 4-3, the Contractor shall submit written notification to the Engineer of the intention to make a claim and submit the claim within the time limits outlined in the Agreement, Paragraphs 25 and 26. The notice and claim shall expressly notify the Engineer that the Contractor intends to seek additional compensation and/or a time extension. If such written notification is not submitted and the Engineer is not afforded the opportunity for keeping strict account of actual labor, material, equipment, and time, the Contractor waives the claim for additional compensation or a time extension. Such notice by the Contractor, and the fact that the Engineer has kept account of the labor, materials and equipment, and time, shall not in any way be construed as establishing the validity of the claim or method for computing any compensation or time extension for such claim.

If the Contractor fails to submit a certificate of claim as described in 5-12.9, the City will so notify the Contractor in writing. The Contractor shall have five calendar days from receipt of the notice to resubmit the

claim documentation, without change, with a certificate of claim as described in 5-12.9. Failure by the Contractor to comply with the five calendar day notice shall constitute a waiver of the claim.

5-12.2.2 Claims For Delay: Where the Contractor deems that additional compensation or a time extension is due on account of delay, differing site conditions, breach of Agreement, or any other cause other than for work or materials not expressly provided for in the Contract Documents (Extra Work) or which is by written directive of the Engineer expressly ordered by the Engineer pursuant to 4-3, the Contractor shall submit a written notice of intent to the Engineer of the intention to make a claim and submit the claim within the time limits outlined in the Agreement, Paragraphs 25 and 26 for a delay to a controlling work item. The notice and claim shall expressly notify the Engineer that the Contractor intends to seek additional compensation and/or a time extension and provide a reasonably complete description as to the cause and nature of the delay and the possible impacts to the Contractor's work by such delay.

If the Contractor fails to submit a certificate of claim as described in 5-12.9, the City will so notify the Contractor in writing. The Contractor shall have five calendar days from receipt of the notice to resubmit the claim documentation, without change, with a certificate of claim as described in 5-12.9. Failure by the Contractor to comply with the five calendar day notice shall constitute a waiver of the claim.

There shall be no Contractor entitlement to any monetary compensation or time extension for any delays or delay impacts, whatsoever, that are not to a controlling work item, and then as to any such delay to a controlling work item entitlement to any monetary compensation or time extension shall only be to the extent such is otherwise provided for expressly under 4-3 or 5-12, except that in the instance of delay to a non-controlling item of work the Contractor may be compensated for the direct costs of idle labor or equipment only, at the rates set forth in 4.3.2.1(1) and (3), and then only to the extent the Contractor could not reasonably mitigate such idleness.

If the Contractor provides the written notice of intent and the request for Contract Time extension in compliance with the aforementioned time and content requirements, the Contractor's claim for delay to a controlling work item will be evaluated as of the date of the elimination of the delay even if the Contractor's performance subsequently overcomes the delay. If the claim for delay has not been settled, the Contractor must also comply with 5-12.3 and 5-12.9 to preserve the claim.

5-12.3 Content of Claim: As a condition precedent to the Contractor being entitled to additional compensation or a time extension under the Contract Documents, for any claim, the Contractor shall submit a certified written claim to the City which will include for each individual claim, at a minimum, the following information:

1. A detailed factual statement of the claim providing all necessary dates, locations, and items of work affected and included in each claim;
2. The date or dates on which actions resulting in the claim occurred or conditions resulting in the claim became evident;
3. Identification of all pertinent documents and the substance of any material oral communications relating to such claim and the name of the persons making such material oral communications;
4. Identification of the provisions of the Contract Documents which support the claim and a statement of the reasons why such provisions support the claim, or alternatively, the provisions of the Contract Documents which allegedly have been breached and the actions constituting such breach;
5. A detailed compilation of the amount of additional compensation sought and a breakdown of the amount sought as follows:
 - a. documented additional job site labor expenses;
 - b. documented additional cost of materials and supplies;
 - c. a list of additional equipment costs claimed, including each piece of equipment and the rental rate claimed for each;
 - d. any other additional direct costs or damages and the documents in support thereof;
 - e. any additional indirect costs or damages and all documentation in support thereof.
6. A detailed compilation of the specific dates and the exact number of calendar days sought for a time extension, the basis for entitlement to time for each day, all documentation of the delay, and a breakout of the number of days claimed for each identified event, circumstance or occurrence.

Further, the Contractor shall be prohibited from amending either the bases of entitlement or the amount of any compensation or time stated for any and all issues claimed in the Contractor's written

claim submitted hereunder, and any circuit court, arbitration, or other formal claims resolution proceeding shall be limited solely to the bases of entitlement and the amount of any compensation or time stated for any and all issues claimed in the Contractor's written claim submitted hereunder. This shall not, however, preclude a Contractor from withdrawing or reducing any of the bases of entitlement and the amount of any compensation or time stated for any and all issues claimed in the Contractor's written claim submitted hereunder at any time.

5-12.4 Action on Claim: The Engineer will respond in writing within 30 calendar days of receipt of a complete claim submitted by a Contractor in compliance with 5-12.3. Failure by the Engineer to respond to a claim in writing within 30 days after receipt of a complete claim submitted by the Contractor in compliance with 5-12.3 constitutes a denial of the claim by the Engineer. If the Engineer finds the claim or any part thereof to be valid, such partial or whole claim will be allowed and paid for to the extent deemed valid and any time extension granted, if applicable, as provided in the Contract Documents. No circuit court or arbitration proceedings on any claim, or a part thereof, may be filed until after the terms of the Agreement, Paragraph 36 are met or after final acceptance per 5-11 of all work by the City or denial hereunder, whichever occurs last.

5-12.5 Pre-Settlement and Pre-Judgment Interest: Entitlement to any pre-settlement or pre-judgment interest on any claim amount determined to be valid subsequent to the City's receipt of a certified written claim in full compliance with 5-12.3, whether determined by a settlement or a final ruling in formal proceedings, the City shall pay to the Contractor simple interest calculated at the Prime Rate (as reported by the Wall Street Journal as the base rate on corporate loans posted by at least 75% of the Nation's 30 largest banks) as of the 60th calendar day following the City's receipt of a certified written claim in full compliance with 5-12.3, such interest to accrue beginning 60 calendar days following the City's receipt of a certified written claim in full compliance with 5-12.3 and ending on the date of final settlement or formal ruling.

5-12.6 Compensation for Extra Work or Delay:

5-12.6.1 Compensation for Extra Work: Notwithstanding anything to the contrary contained in the Contract Documents, the Contractor shall not be entitled to any compensation beyond that provided for in 4-3.2.

5-12.6.2 Compensation for Delay: Notwithstanding anything to the contrary contained in the Contract Documents, the additional compensation set forth in 5-12.6.2.1 shall be the Contractor's sole monetary remedy for any delay other than to perform extra work caused by the City unless the delay shall have been caused by acts constituting willful or intentional interference by the City with the Contractor's performance of the work and then only where such acts continue after Contractor's written notice to the City of such interference. The parties anticipate that delays may be caused by or arise from any number of events during the term of the Agreement, including, but not limited to, work performed, work deleted, supplemental agreements, Contract Documents, disruptions, differing site conditions, utility conflicts, design changes or defects, time extensions, extra work, right-of-way issues, permitting issues, actions of suppliers, subcontractors or other contractors, actions by third parties, suspensions of work by the Engineer shop drawing approval process delays, expansion of the physical limits of the project to make it functional, weather, weekends, holidays, special events, suspension of Contract Time, or other events, forces or factors sometimes experienced in construction work. Such delays or events and their potential impacts on the performance by the Contractor are specifically contemplated and acknowledged by the parties in entering into this Agreement, and shall not be deemed to constitute willful or intentional interference with the Contractor's performance of the work without clear and convincing proof that they were the result of a deliberate act, without reasonable and good-faith basis, and specifically intended to disrupt the Contractor's performance.

5-12.6.2.1 Compensation for Direct Costs, Indirect Costs, Expenses, and Profit thereon, of or from Delay: For any delay claim, the Contractor shall be entitled to monetary compensation for the actual idle labor (including supervisory personnel) and equipment, and indirect costs, expenses, and profit thereon, as provided for in 4-3.2.1(4) and solely for costs incurred beyond what reasonable mitigation thereof the Contractor could have undertaken.

5-12.7 Mandatory Claim Records: After submitting to the Engineer a notice of intent to file a claim for extra work or delay, the Contractor must keep daily records of all labor, material and equipment costs incurred for operations affected by the extra work or delay. These daily records must identify each operation affected by the extra work or delay and the specific locations where work is affected by the extra work or delay, as nearly as possible. The Engineer may also keep records of all labor, material and equipment used on the operations affected by the extra work or delay.

The Contractor shall, once a notice of intent to claim has been timely filed, and not less than weekly thereafter as long as appropriate, submit the Contractor's daily records to the Engineer and be likewise entitled to receive the City's daily records. The daily records to be submitted hereunder shall be done at no cost to the recipient.

5-12.8 Claims For Acceleration: The City shall have no liability for any constructive acceleration of the work, nor shall the Contractor have any right to make any claim for constructive acceleration nor include the same as an element of any claim the Contractor may otherwise submit under this Agreement. If the Engineer gives express written direction for the Contractor to accelerate its efforts, such written direction will set forth the prices and other pertinent information and will be reduced to a written Contract Document promptly. No payment will be made on a Supplemental Agreement for acceleration prior to the City's approval of the documents.

5-12.9 Certificate of Claim: When submitting any claim, the Contractor shall certify under oath and in writing, in accordance with the formalities required by Florida law, that the claim is made in good faith, that the supportive data are accurate and complete to the Contractor's best knowledge and belief, and that the amount of the claim accurately reflects what the Contractor in good faith believes to be the City's liability. Such certification must be made by an officer or director of the Contractor with the authority to bind the Contractor.

5-12.10 Non-Recoverable Items: The parties agree that for any claim the City will not have liability for the following items of damages or expense:

1. Loss of profit, incentives or bonuses;
2. Any claim for other than extra work or delay;
3. Consequential damages, including, but not limited to, loss of bonding capacity, loss of bidding opportunities, loss of credit standing, cost of financing, interest paid, loss of other work or insolvency;
4. Acceleration costs and expenses, except where the City has expressly and specifically directed the Contractor in writing "to accelerate at the City's expense"; nor
5. Attorney fees, claims preparation expenses and costs of litigation.

5-12.11 Exclusive Remedies: Notwithstanding any other provision of this Agreement, the parties agree that the City shall have no liability to the Contractor for expenses, costs, or items of damages other than those which are specifically identified as payable under 5-12. In the event any legal action for additional compensation, whether on account of delay, acceleration, breach of Agreement, or otherwise, the Contractor agrees that the City's liability will be limited to those items which are specifically identified as payable in 5-12.

5-12.12 Settlement Discussions: The content of any discussions or meetings held between the City and the Contractor to settle or resolve any claims submitted by the Contractor against the City shall be inadmissible in any legal, equitable, arbitration or administrative proceedings brought by the Contractor against the City for payment of such claim.

5-12.13 Personal Liability of Public Officials: In carrying out any of the provisions of the Agreement or in exercising any power or authority granted to the Engineer or any of their respective employees or agents, there shall be no liability on behalf of any employee, officer or official of the City for which such individual is responsible, either personally or as officials or representatives of the City. It is understood that in all such matters such individuals act solely as agents and representatives of the City.

5-12.14 Auditing of Claims: All claims filed against the City shall be subject to audit at any time following the filing of the claim, whether or not such claim is part of a suit pending in the Courts of this State. The audit may be performed, at the City's sole discretion, by employees of the City or by any independent auditor appointed by the City, or both. The audit may begin after ten days written notice to the Contractor, subcontractor, or supplier. The Contractor, subcontractor, or supplier shall make a good faith effort to cooperate with the auditors. As a condition precedent to recovery on any claim, the Contractor, subcontractor, or supplier must retain sufficient records, and provide full and reasonable access to such records, to allow the City's auditors to verify the claim and failure to retain sufficient records of the claim or failure to provide full and reasonable access to such records shall constitute a waiver of that portion of such claim that cannot be verified and shall bar recovery thereunder. Further, and in addition to such audit access, upon the Contractor submitting a written claim, the City shall have the right to request and receive, and the Contractor shall have the affirmative obligation to submit to the City any and all documents in the possession of the Contractor or its subcontractors, materialmen or suppliers as may be deemed relevant by the City in its review of the basis, validity or value of the Contractor's claim.

Without limiting the generality of the foregoing, the Contractor shall upon written request of the City make available to the City's auditors, or upon the City's written request, submit at the City's expense, any or all of the following documents:

1. Daily time sheets and foreman's daily reports and diaries;
2. Insurance, welfare and benefits records;
3. Payroll register;
4. Earnings records;
5. Payroll tax return;
6. Material invoices, purchase orders, and all material and supply acquisition contracts;
7. Material cost distribution worksheet;
8. Equipment records (list of company owned, rented or other equipment used);
9. Vendor rental agreements and subcontractor invoices;
10. Subcontractor payment certificates;
11. Canceled checks for the project, including, payroll and vendors;
12. Job cost report;
13. Job payroll ledger;
14. General ledger, general journal, (if used) and all subsidiary ledgers and journals together with all supporting documentation pertinent to entries made in these ledgers and journals;
15. Cash disbursements journal;
16. Financial statements for all years reflecting the operations on this project;
17. Income tax returns for all years reflecting the operations on this project;
18. All documents which reflect the Contractor's actual profit and overhead during the years this Agreement was being performed and for each of the five years prior to the commencement of this Agreement;
19. All documents related to the preparation of the Contractor's bid including the final calculations on which the bid was based;
20. All documents which relate to each and every claim together with all documents which support the amount of damages as to each claim;
21. Worksheets used to prepare the claim establishing the cost components for items of the claim including, but not limited to, labor, benefits and insurance, materials, equipment, subcontractors, and all documents that establish which time periods and individuals were involved, and the hours and rates for such individuals.

SECTION 6 CONTROL OF MATERIALS

Prior to ordering of materials, provide a material submittal for approval by the City for all materials & products that will be incorporated into the project. This shall include all materials included on the Approved Products List.

6-5 Products and Source of Supply.

6-5.1 Source of Supply–Convict Labor: Delete this subsection.

6-5.2 Source of Supply-Steel: Delete this subsection.

SECTION 7 LEGAL REQUIREMENTS AND RESPONSIBILITY TO THE PUBLIC

7-11.5.3 Utility Adjustments

Utility work which will be accomplished concurrently with this Agreement will involve facilities owned by other agencies. Utility Schedules (Utility Relocation and/or Work Schedules) for these agencies are posted as part of the advertisement for this project on DemandStar or in these Specifications. Take responsibility to obtain this information and comply with all requirements posted on the website up through seven calendar days before opening of bids. Contractor shall incorporate all posted schedules within their bid and work schedule.

7-13 Insurance

Delete this subsection.

7-14 Contractor's Responsibility for Work

This subsection is replaced with the following:

The Contractor will take charge and custody of the Work, and take every necessary precaution against damage to the Work, by the action of the elements or from any other cause whatsoever, until the City's final acceptance of the Work. The Contractor will rebuild, repair, restore, and make good, all damage to any portion of the Work occasioned by any of the above causes before final acceptance of the Agreement.

The City will have no obligation to pay any reimbursement for damage caused by the execution or non-execution of the Work by the Contractor or its sub-contractors, or damage the Contractor was negligent in preventing.

For damage to installed material caused by third parties, the Contractor shall pursue recovery from the third party. The City shall not reimburse the Contractor for repair costs due to damage, theft or vandalism to installed material caused by third parties. If the third party is unknown or the Contractor is unable to obtain recovery from the third party, the Contractor may pursue recovery through its Insurance Policy.

The City may, at its discretion, reimburse the Contractor for the repair of damage to the Work not caused by a third party and due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to Acts of God, of a public enemy, or of governmental authorities.

7-22 Available Funds

Delete this subsection.

7-23 Contractor's Motor Vehicle Registration

Delete this subsection.

7-24 Disadvantaged Business Enterprise Program

Delete this subsection

7-25 On-The-Job Training Requirements

Delete this subsection.

7-27 E-Verify

The Contractor shall utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired by the Contractor during the term of the Agreement and shall expressly require any subcontractors performing work or providing services pursuant to the Agreement to likewise utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired by the subcontractor during the Agreement term.

SECTION 8 PROSECUTION AND PROGRESS

8-1 Subletting or Assigning of Contracts

Provisions concerning subcontracts are contained in the Agreement.

Do not, sell, transfer, assign or otherwise dispose of the Agreement or Contracts or any portion thereof, or of the right, title, or interest therein, without written consent of the City.

Include in the total Contract Price the cost of materials and manufactured component products, and their transportation to the project site. For the purpose of meeting this requirement the City will not consider off-site commercial production of materials and manufactured component products that the Contractor purchases, or their transportation to the project, as subcontracted work.

Execute all agreements to sublet work in writing and include all pertinent provisions and requirements of the Agreement. All other agreements must be in writing and reference all applicable Contract provisions. Upon request, furnish the City with a copy of the subcontract and agreement. The subletting of work does not relieve the Contractor or the surety of their respective liabilities under the Agreement.

The City recognizes a subcontractor only in the capacity of an employee or agent of the Contractor, and the Engineer may require the Contractor to remove the subcontractor as in the case of an employee.

8-3-3 Beginning Work: Delete this subsection.

8-4 Limitations of Operations

The work may require night time operations, however, 24 hour operations are prohibited. Day work and night work shall be conducted in one or more full week blocks at a time; alternating between day and night work during a week is prohibited.

8-6 Temporary Suspension of Contractor's Operations

8-6.1 Authority to Suspend Contractor's Operations: The Engineer has the authority to suspend the Contractor's operations, wholly or in part. The Engineer will order such suspension in writing, giving in detail the reasons for the suspension. Contract Time will be charged during all suspensions of Contractor's operations. The City may grant an extension of Contract Time in accordance with 8-7.3.2 when determined appropriate in the City's sole judgment.

No additional compensation or time extension will be paid or granted to the Contractor when the operations are suspended for the following reasons:

1. The Contractor fails to comply with the Contract Documents.
2. The Contractor fails to carry out orders given by the Engineer.
3. The Contractor causes conditions considered unfavorable for continuing the Work.

Immediately comply with any suspension order. Do not resume operations until authorized to do so by the Engineer in writing. Any operations performed by the Contractor, and otherwise constructed in conformance with the provisions of the Agreement, after the issuance of the suspension order and prior to the Engineer's authorization to resume operations will be at no cost to the City. Further, failure to immediately comply with any suspension order will also constitute an act of default by the Contractor and is deemed sufficient basis in and of itself for the City to declare the Contractor in default; the Contractor shall not have a time period to correct the conditions for which the suspension was ordered.

8-6.1.1 State of Emergency: The Engineer has the authority to suspend the Contractor's operations, wholly or in part, pursuant to a Governor's Declaration of a State of Emergency or a Local State of Emergency. The Engineer will order such suspension in writing, giving in detail the reasons for the suspension. Contract Time will be charged during all suspensions of Contractor's operations. The City, at its sole discretion, may grant an extension of Contract Time and reimburse the Contractor for specific costs associated with such suspension. Further, in such instances, the City's determination as to entitlement to either time or compensability will be final.

8-6.4 Suspension of Contractor's Operations - Holidays and Special Events

Unless the Contractor submits a written request to work during one or more days of a Holiday or Special Event at least ten calendar days in advance of the beginning date of the Holiday or Special Event and receives written approval from the Engineer, the Contractor shall not work on the following days: New Year's Day; New Year's Day (Observed); Martin Luther King, Jr. Day; Memorial Day; Juneteenth; Juneteenth (Observed); Independence Day; Independence Day (Observed); Labor Day; Veterans Day; Veterans Day (Observed); Thanksgiving Day; the Friday immediately following Thanksgiving Day; Christmas Eve; Christmas Eve (Observed); Christmas Day; Christmas Day (Observed); and Special Events as designated by the City. Contract Time will be charged during these Holiday and Special Event periods. The Contractor is not entitled to any additional compensation for suspension of operations during such Holiday and Special Event periods.

During such suspensions, remove all equipment and materials from the clear zone, except those required for the safety of the traveling public and retain sufficient personnel at the job site to properly meet the requirements of Sections 102 and 104. The Contractor is not entitled to any additional compensation for removal of equipment from clear zones or for compliance with Section 102 and Section 104 during such Holiday and Special Event periods.

For working day contracts, a working day shall not be charged for such suspensions unless work is approved by the City to be performed on these dates.

8-7 Computation of Contract Time

8-7.1 General: Perform the contracted work fully, entirely, and in accordance with the Contract Documents within the Contract Time as specified by the Contract Documents, or as may be extended in accordance with the provisions herein below.

8-7.2 Date of Beginning of Contract Time: Delete this subsection.

8-7.3 Adjusting Contract Time

8-7.3.1 Increased Work: The City may grant an extension of Contract Time when it increases the Contract Price due to overruns in original Contract items, adds new work items, or provides for unforeseen work. The City will base the consideration for granting an extension of Contract Time on the extent that the time normally required to complete the additional designated work delays the Contract completion schedule.

8-7.3.2 Contract Time Extension: The City may grant an extension of Contract Time when a controlling item of work is delayed by factors not reasonably anticipated or foreseeable at the time of bid. The City may allow such extension of time only for delays occurring during the Contract Time period or authorized extensions of the Contract Time period. When failure by the City to fulfill an obligation under the Contract results in delays to the controlling items of work, the City will consider such delays as a basis for granting a time extension to the Agreement.

Whenever the Engineer suspends the Contractor's operations, as provided in 8-6, for reasons other than the fault of the Contractor, the Engineer will grant a time extension for any delay to a controlling item of work due to such suspension. The City will not grant time extensions to the Contract for delays due to the fault or negligence of the Contractor.

The City does not include an allowance for delays caused by the effects of inclement weather or suspension of Contractor's operations as defined in 8-6.4, in establishing Contract Time. The Engineer will continually monitor the effects of weather and, when found justified, grant time extensions on a monthly basis. The Contractor shall submit a request for additional time due to the effects of weather monthly in accordance with the Agreement, Paragraph 26.

The City will grant time extensions, on a day for day basis, for delays caused by the effects of rains or other inclement weather conditions, related adverse soil conditions or suspension of operations that prevent the Contractor from productively performing controlling items of work resulting in:

1. The Contractor being unable to work at least 50% of the normal work day on pre-determined controlling work items; or
2. The Contractor must make major repairs to work damaged by weather, provided that the damage is not attributable to the Contractor's failure to perform or neglect; and provided that the Contractor was unable to work at least 50% of the normal workday on pre-determined controlling work items.

No additional compensation will be made for delays caused by the effects of inclement weather.

The City will consider the delays in delivery of materials or component equipment that affect progress on a controlling item of work as a basis for granting a time extension if such delays are beyond the control of the Contractor or supplier. Such delays may include an area-wide shortage, an industry-wide strike, or a natural disaster that affects all feasible sources of supply. In such cases, the Contractor shall submit substantiating letters from a representative number of manufacturers of such materials or equipment clearly confirming that the delays in delivery were the result of an area-wide shortage, an industry-wide strike, etc. No additional compensation will be made for delays caused by delivery of materials or component equipment.

The City will not consider requests for time extension due to delay in the delivery of custom manufactured equipment such as traffic signal equipment, highway lighting equipment, etc., unless the Contractor submits documentation that he placed the order for such equipment in a timely manner, the delay was caused by factors beyond the manufacturer's control, and the lack of such equipment caused a delay in progress on a controlling item of work. No additional compensation will be paid for delays caused by delivery of custom manufactured equipment.

The City will consider the effect of utility relocation and adjustment work on job progress as the basis for granting a time extension only if all the following criteria are met:

1. Delays are the result of either utility work that was not detailed in the Plans, or utility work that was detailed in the Plans but was not accomplished in reasonably close accordance with the schedule included in the Contract Documents.

2. Utility work actually affected progress toward completion of controlling work items.
3. The Contractor took all reasonable measures to minimize the effect of utility work on job progress, including cooperative scheduling of the Contractor's operations with the scheduled utility work at the preconstruction conference and providing adequate advance notification to utility companies as to the dates to coordinate their operations with the Contractor's operations to avoid delays.

As a condition precedent to an extension of Contract Time the Contractor must submit to the Engineer:

Notice of intent to file a Contract Time Claim in accordance with the Agreement, Paragraph 26. If the Contractor fails to submit this required notice for an extension of Contract Time, the Contractor fully, completely, absolutely and irrevocably waives any entitlement to an extension of Contract Time for that delay. In the case of a continuing delay only a single preliminary request for an extension of Contract Time will be required. Each such preliminary request for an extension of Contract Time shall include as a minimum the commencement date of the delay, the cause of the delay, and the controlling item of work affected by the delay.

Furthermore, the Contractor must submit to the Engineer a request for a Contract Time extension in accordance with the Agreement, Paragraph 26 after the elimination of the delay to the controlling item of work identified in the aforementioned notice. Each request for a Contract Time extension shall include as a minimum all documentation that the Contractor wishes the City to consider related to the delay, and the exact number of days requested to be added to Contract Time. If the Contractor contends that the delay is compensable, then the Contractor shall also be required to submit with the request for a Contract Time extension a detailed cost analysis of the requested additional compensation. If the Contractor fails to submit this required request for a Contract Time extension, with or without a detailed cost analysis, depriving the Engineer of the timely opportunity to verify the delay and the costs of the delay, the Contractor waives any entitlement to an extension of Contract Time or additional compensation for the delay.

Upon timely receipt of the notice of claim for Contract Time from the Contractor, the Engineer will investigate the conditions, and if it is determined that a controlling item of work is being delayed for reasons beyond the control of the Contractor, the Engineer will take appropriate action to mitigate the delay and the costs of the delay. Upon timely receipt of the request for a Contract Time extension the Engineer will further investigate the conditions, and if it is determined that there was an increase in the time or the cost of performance of the controlling item of work beyond the control of the Contractor, then an adjustment of Contract Time will be made, and a monetary adjustment will be made, excluding loss of anticipated profits, and the Contract will be modified in writing accordingly.

The existence of an accepted schedule, including any required update(s) is a condition precedent to the Contractor having any right to the granting of an extension of Contract Time or any monetary compensation arising out of any delay. Contractor failure to have an accepted schedule, including any required update(s), for the period of potential impact, or in the event the currently accepted schedule and applicable updates do not accurately reflect the actual status of the project or fail to accurately show the true controlling or non-controlling work activities for the period of potential impact, will result in any entitlement determination as to time or money for such period of potential impact being limited solely to the City's analysis and identification of the actual controlling or non-controlling work activities. Further, in such instances, the City determination as to entitlement as to either time or compensability will be final.

8-8 Failure of Contractor to Maintain Satisfactory Progress: Delete this subsection.

8-9 Default and Termination of Contract: Delete this subsection.

8-10 Liquidated Damages for Failure to Complete the Work.

8-10.1: Highway Code Requirements Pertaining to Liquidated Damages: Delete this subsection

8-10.2: Amount of Liquidated Damages: Applicable liquidated damages are the amounts established in the following schedule:

Original Contract Price	Daily Charge Per Calendar Day
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\$50,000 and under	\$868
Over \$50,000 but less than \$250,000	\$882
\$250,000 but less than \$500,000	\$1,197
\$500,000 but less than \$2,500,000	\$1,694
\$2,500,000 but less than \$5,000,000	\$2,592
\$5,000,000 but less than \$10,000,000	\$3,786
\$10,000,000 but less than \$15,000,000	\$4,769
\$15,000,000 but less than \$20,000,000	\$5,855
\$20,000,000 and over	\$9,214 plus 0.00005 of any amount over \$20 million (Round to nearest whole dollar)

The City may approve adjustments to the liquated damages amounts in accordance with FDOT’s Construction Project Administration Manual (CPAM) provided all contract work is complete.

8-10.3 Determination of Number of Days of Default: For all contracts, regardless of whether the Contract Time is stipulated in calendar days or working days, the Engineer will count default days in calendar days.

8-10.4 Conditions under which Liquidated Damages are Imposed: If the Contractor or, in case of its default, the surety fails to complete the work within the time stipulated in the Contract, or within such extra time that the City may have granted then the Contractor or, in case of its default, the surety shall pay to the City, not as a penalty, but as liquidated damages, the amount so as provided in 8-10.2.

8-10.5 Right of Collection: The City has the right to apply, as payment on such liquidated damages, any money the City owes the Contractor.

8-10.6 Allowing Contractor to Finish Work: The City does not waive its right to liquidated damages due under the Agreement by allowing the Contractor to continue and to finish the work, or any part of it, after the expiration of the Contract Time.

8-10.7 Completion of Work by the City: In the case of a default of the Agreement and the completion of the work by the City, the Contractor and its surety are liable for the liquidated damages under the Agreement, but the City will not charge liquidated damages for any delay in the final completion of the City’s performance of the work due to any unreasonable action or delay on the part of the City.

8-11 Release of Contractor’s Responsibility: Delete this subsection

8-12 Recovery of Damages Suffered by Third Parties: Delete this subsection

SECTION 9 MEASUREMENT AND PAYMENT

9-2 Scope of Payments.

9-2.1.1 Fuels: Delete this subsection.

Section 9-5 is replaced as follows:

9-5 Partial Payments.

9-5.1 General: The Engineer will make partial payments on monthly estimates based on the amount of work that the Contractor completes during the month (including delivery of certain materials, as specified herein below). The Engineer will make approximate monthly payments, and the City will correct all partial estimates and payments in the subsequent estimates and in the final estimate and payment.

The City will base the amount of such payments on the total value of the work that the Contractor has performed to the date of the estimate, based on the quantities completed and the Contract prices, less payments previously made and less any retainage withheld.

9-5.2 Unsatisfactory Payment Record: In accordance with Sections 255.05 and 337.16 of the Florida Statutes, and the rules of the City and FDOT, the City and FDOT may disqualify the Contractor from bidding on future City or FDOT contracts if the Contractor’s payment record in connection with contract work becomes unsatisfactory.

9-5.3 Unsatisfactory Payment Record:

9-5.3.1 Withholding Payment for Defective Work: If the City discovers any defective work or material prior to the final acceptance, or if the City has a reasonable doubt as to the integrity of any part of the completed work prior to final acceptance, then the City will not allow payment for such defective or questioned work until the Contractor has remedied the defect and removed any causes of doubt.

9-5.3.2 Withholding Payment for Failure to Comply: The City will withhold progress payments from the Contractor if he fails to comply with any or all of the following after beginning work:

1. Comply with and submit required paperwork relating to prevailing wage rate provisions, Equal Employment Opportunity, On-The-Job Training, and Affirmative Action;
2. Comply with the requirement to all necessary information, including actual payments to DBEs, all other subcontractors and major suppliers, through the Internet based Equal Opportunity Reporting System;
3. Comply with or make a good faith effort to ensure employment opportunity for minorities and females in accordance with the required contract provisions for Federal Aid Construction Contracts, and
4. Comply with or make a good faith effort to meet On-The-Job Training goals.

The City will withhold progress payments until the Contractor has satisfied the above conditions.

9-5.4 Release of Retainage After Acceptance: Delete this subsection.

9-5.5.3 Off Site Storage: Delete this subsection. No payments will be made for materials stored off-site.

9-5.6 Certification of Payments to Subcontractors: The term “subcontractor,” as used herein, includes persons or firms furnishing materials or equipment incorporated into the work or stockpiled for which the City has made partial payment and firms working under equipment-rental agreements. The Contractor is required to pay all subcontractors for satisfactory performance of their Contracts before the City will make a further progress (partial) payment. The Contractor shall also return all retainage withheld to the subcontractors within 30 days after the subcontractor’s work is satisfactorily complete, as determined by the City. Prior to receipt of any progress (partial) payment, the prime Contractor shall certify that all subcontractors having an interest in the Contract were paid for satisfactory performance of their Contracts and that the retainage is returned to subcontractors within 30 days after satisfactory completion of the subcontractor’s work. Provide this certification in the form designated by the City.

Within 30 days of the Contractor’s receipt of the final progress payment or any other payments thereafter, except the final payment, the Contractor shall pay all subcontractors and suppliers having an interest in the Agreement for all work completed and materials furnished. The City will honor an exception to the above when the Contractor demonstrates good cause for not making any required payment and furnishes written notification of any such good cause to both the City and the affected subcontractors or suppliers within said 30 day period.

The Contractor shall indemnify and provide defense for the City when called upon to do so for all claims or suits against the City, by third parties, pertaining to Contractor payment or performance issues arising out of the Agreement. It is expressly understood that the monetary limitation on the extent of the indemnification shall be the approved Contract Price, which shall be the original Contract Price as may be increased by subsequent Supplemental Agreements.

SECTION 102 MAINTENANCE OF TRAFFIC

102-1 Description

The Contractor shall be responsible for preparation of maintenance of traffic plan and shall adhere to the requirements of this section. Develop and submit a maintenance of traffic plan in accordance with the Agreement and Plans. Restoration of all roadway features disturbed by the maintenance of traffic plan shall be included in this section.

102-3 Specific Requirements

Lane Closure Restrictions

Refer to the FDOT Permit conditions for Hawthorne Road. City Roads shall have no lane closures between 7-9 am and 4-6 PM Daily.

Road Closures/Detours

Not allowed.

Milestones

UF Health is in the process of building a clinic site on the subject property and as such the north south road from station 18+50 to Hawthorne Road must be substantially completed along with all associated utilities, landscaping, lighting and FDOT ROW improvements by July 1, 2024.

Permits

City of Gainesville MOT
FDOT MOT

102-5.1 Standards

Basic principles and minimum standards for all traffic maintenance activities will be in accordance with the current edition of the Index of Roadway and Traffic Design Standards and the Manual on Uniform Traffic Control Devices.

This item shall also include all temporary pavement markings and the placement of the workzone RPM's on all asphalt intermediate surfaces. RPM's, temporary and final, shall be placed prior to opening the roadway to traffic; opening roadways traffic on milled or limerock surfaces is prohibited. This section shall include the usage of portable changeable messages signs (PCMS) for at least one week prior to the start of construction to alert motorist of pending construction and during construction to alert motorist of changes in the traffic patterns or signalization control. The section shall include maintenance of pedestrian and bicycle accessibility through the work zone in accordance with FDOT and ADA standards at all times. This section shall include an off duty law enforcement officer anytime a flagman is required in a signalized intersection. This section shall include relocation of mailboxes as required for maintenance of postal service, the temporary relocation of signs for visibility for emergency responders and final relocation. It is the Contractor's responsibility to replace any signs that are damaged during construction.

Access to all driveways shall be provided at all times unless a closure is coordinated with the property owner. Coordination for driveway access with the property owners shall be the responsibility of the contractor. This section shall include coordination and notification with property owner of any planned work. The contractor shall use door hangers for notification purposes. The contractor shall also coordinate removal of parked vehicles with the property owners. The contractor shall notify the City at least two working days prior to any planned closures.

102-13 Basis of Payment

All traffic control devices (including signs), warning devices and barriers shall be furnished and maintained by the Contractor. Cost of all devices necessary for conformance to the FDOT Standard Plans for Roadway and Bridge Construction and this section shall be included in lump sum bid item for Maintenance of Traffic, unless bid separately.

SECTION 104 PREVENTION, CONTROL, AND ABATEMENT OF EROSION AND WATER POLLUTION

This section shall include the installation, cost and maintenance of any materials to comply with construction drawings, the Stormwater Pollution Prevention Plan, the Erosion & Sedimentation Control Plan and any other regulations as required by law for any work done under this Agreement. This section shall include filing of a Notice of Intent with the Florida Department of Environmental Protection for stormwater discharge. Develop and submit Stormwater Pollution Prevention Plan and/or an Erosion & Sedimentation Control Plan in accordance with the Agreement if the plan(s) are not included in the construction drawings. This section shall also include adhering to all conditions of St. John River Water Management District Permit No. 195356-2 including filing the Construction Commencement Notice and As-built Certification and Request for Conversion to Operational Phase.

104-10 Basis of Payment

The installation and maintenance of all items for conformance to this section shall be included in LS bid item for prevention, control and abatement of erosion and water pollution unless bid separately.

SECTION 107 LITTER REMOVAL AND MOWING

The Contractor shall perform litter removal, mowing and edging of the right-of-way as directed by the City Inspector.

SECTION 110 CLEARING AND GRUBBING

This section shall include trimming trees and vegetation to a height of 17.5 ft. above and <Clear zone> ft. beyond the edge of travel way on swale sections, or a height of 17.5 ft. above and 4 ft. beyond the back of curb for curb and gutter sections. This section shall also include trimming trees and vegetation to a height of 8 ft. above the sidewalks/paths and 2 ft. beyond either side of the sidewalks/paths. The Contractor shall notify the City Arborist 48 hours prior to any planned trimming operations. All tree trimming and root pruning shall be performed in accordance with ANSI A300 and Z133 Standards.

110-7 Removal of Existing Concrete

Removal or relocation of pipe, pipe end treatments, drainage structures, fence and any other items noted in the plans or not noted in the plans not covered by other sections, within the limits of construction, shall be included in this section.

110-12 Basis of Payment

All work required under this section shall be bid in LS item for clearing & grubbing unless bid separately.

SECTION 120 EXCAVATION AND EMBANKMENT (LAP) (REV 3-2-22) (FA 7-13-21) (7-22) MODIFIED

Delete this section and replace with the following:

120-1 Description.

120-1.1 General: Perform earthwork and related operations based on the type of work specified in the Agreement and the Earthwork Categories as defined below. Meet the applicable requirements for materials, equipment and construction as specified.

Earthwork and related operations consists of excavation for the construction of the roadway, excavation for structures and pipe, constructing backfill around structures and pipe, and constructing embankments as required for the roadway, ditches, and channel changes.

This section shall include spreading, redistributing and compacting of any on-site materials as required by the plans and the redistribution or removal of onsite material required to attain the proposed grades as indicated on the plans.

120-1.2 Earthwork Categories: Performance of Earthwork Operations will fall into one of the following Earthwork Categories:

120-1.2.1 Earthwork Category 1: Includes the earthwork and related operations associated with the construction of sidewalks and bike paths along with any drainage structures associated with these facilities or any areas not covered by Category 2 or 3.

120-1.2.2 Earthwork Category 2: Includes the earthwork and related operations associated with the construction of turn lanes and other non-mainline traffic lanes, widening, roadway shoulders, concrete box culverts, retaining walls, and other drainage structures on the non-mainline pavement.

120-1.2.3 Earthwork Category 3: Includes the earthwork and related operations associated with the construction of new mainline pavement, along with concrete box culverts, retaining walls, and other drainage structures on the mainline pavement.

120-1.3 Unidentified Areas of Contamination: When encountering or exposing any abnormal condition indicating the presence of contaminated materials, cease operations immediately in the vicinity and notify the Engineer. The presence of tanks or barrels; discolored earth, metal, wood, ground water, etc.; visible fumes; abnormal odors; excessively hot earth; smoke; or other conditions that appear abnormal may indicate the presence of contaminated materials and must be treated with extreme caution.

Make every effort to minimize the spread of contamination into uncontaminated areas. Immediately provide for the health and safety of all workers at the job site and make provisions necessary for the health and safety of the public that may be exposed to any potentially hazardous conditions. Ensure provisions adhere to all applicable laws, rules or regulations covering potentially hazardous conditions and will be in a manner commensurate with the gravity of the conditions.

120-2 Classes of Excavation.

120-2.1 General: The Engineer may classify excavation specified under this Section as any of the following: regular excavation, subsoil excavation, lateral ditch excavation, channel excavation and sediment removal excavation.

The definition of the existing surface is a combination of the following:

1. The original unpaved ground line;
2. The bottom of the existing pavement;
3. The bottom of existing features removed by clearing and grubbing;
4. The bottom of the existing base, if the base is to be removed.

The definition of finished graded surface includes the completed grades of side slopes, unpaved shoulders, and the bottom of base for flexible or rigid pavement.

120-2.2 Regular Excavation: Regular excavation includes roadway excavation and borrow excavation, as defined below for each.

120-2.2.1: Roadway excavation consists of the excavation and the utilization or disposal of all materials necessary for the construction of the roadway, ditches, channel changes, etc., except as may be specifically shown to be paid for separately and that portion of the lateral ditches within the limits of the roadway right-of-way as shown in the Plans.

120-2.2.2: Borrow excavation consists of the excavation and utilization of material from authorized borrow pits, including only material that is suitable for the construction of roadway embankments or of other embankments covered by the plans.

120-2.3 Subsoil Excavation: Subsoil excavation consists of the excavation and disposal of muck, clay, rock, or any other material that is unsuitable in its original position and that is excavated below the existing surface. For pond and ditches that identify the placement of a blanket material, the existing surface is the bottom of the blanket material. Subsoil excavation also consists of the excavation of all suitable material within the above limits as necessary to excavate the unsuitable material. Consider the limits of subsoil excavation indicated in the Plans as being particularly variable, in accordance with the field conditions encountered.

The quantity of material required to replace the excavated material and to raise the elevation of the roadway to the bottom of the template will be paid for under embankment or borrow (truck measure).

120-2.4 Lateral Ditch Excavation: Lateral ditch excavation consists of all excavation of inlet and outlet ditches to structures and roadway, changes in channels of streams, and ditches parallel to the roadway right-of-way. Dress lateral ditches to the grade and cross-section shown in the plans.

120-2.5 Channel Excavation: Channel excavation consists of the excavation and satisfactory disposal of all materials from the limits of the channel as shown in the plans.

120-2.6 Excavation for Structures and Pipe: Excavation for structures consists of the excavation for bridge foundations, box culverts, pipe culverts, storm sewers and all other pipe lines, retaining walls, headwalls for pipe culverts and drains, catch basins, drop inlets, manholes, and similar structures.

120-2.7 Sediment Removal Excavation: Sediment removal excavation consists of excavation and disposal of sediment, debris and trash collected in sediment basins or traps.

120-2.7.1: Excavation of bypass and other areas in sediment basins or trap is considered under the facility's sediment removal and disposal activity, not as channel excavation.

120-2.7.2: Disposal of sediment may vary. Dependent on the facility and the analytical results of the sediment, the material may be determined to be suitable for commercial uses or disposal of the material in a C&D landfill or a Class I landfill.

120-3 Preliminary Soils Investigation. When the plans contain the results of a soil survey, do not assume such data is a guarantee of the depth, extent, or character of material present.

120-4 Excavation Requirements.

120-4.1 Removal of Unsuitable Materials and Existing Roads:

120-4.1.1 Subsoil Excavation. Where rock, muck, clay, or other material within the limits of the roadway is unsuitable in its original position, excavate such material to the cross-sections shown in the plans or indicated by the Engineer, and backfill with suitable material. Shape backfill materials to the required cross-sections.

Where the removal of plastic soils below the finished earthwork grade is required, meet a construction tolerance of plus or minus 0.2 foot in depth and plus or minus 6 inches (each side) in width.

120-4.1.2 Construction over Existing Old Road: Where a new roadway is to be constructed over an old one, completely remove the existing pavement for the entire limits of the width and depth. If the Plans provide that paving materials may be incorporated into the fill, distribute such material in a manner so as not to create voids. Recompact the old road meeting the requirements of 120-10.2.

120-4.2 Lateral Ditch Excavation: Excavate inlet and outlet ditches to structures and roadway, changes in channels of streams and ditches parallel to the roadway. Dress lateral ditches to the grade and cross-section shown in the plans.

120-4.3 Channel Excavation: Excavate and dispose of all materials from the limits of the channel as shown in the plans. Excavate for bridge foundations, box culverts, pipe culverts, storm sewers and all other pipe lines, retaining walls, headwalls for pipe culverts and drains, catch basins, drop inlets, manholes, and similar structures.

120-4.4 Excavation for Structures and Pipe.

120-4.4.1 Requirements for all Excavation: Perform all excavation to foundation materials, satisfactory to the Engineer, regardless of the elevation shown in the Plans. Remove rock, boulders or other hard lumpy or unyielding material to a depth of 12 inches below the bottom of pipes and box culverts elevations. Remove muck or other soft material to the depth indicated in the Plans or as directed by the Engineer.

120-4.4.2 Earth Excavation:

120-4.4.2.1 Foundation Material other than the Rock: When masonry is to rest on an excavated surface other than rock, take special care to avoid disturbing the bottom of the excavation, and do not remove the final foundation material to grade until just before placing the masonry. In case the foundation material is soft or mucky, the Engineer may require excavation to a greater depth and to backfill to grade with approved material.

120-4.4.2.2 Foundation Piles: Where foundation piles are used, complete the excavation of each pit before driving the piles. After the driving is completed, remove all loose and displaced material, leaving a smooth, solid, and level bed to receive the masonry.

120-4.4.2.3 Removal of Obstructions: Remove boulders, logs, or any unforeseen obstacles encountered in excavating.

120-4.4.3 Rock Excavation: Clean all rock and other hard foundation material, remove all loose material, and cut all rock to a firm surface. Either level, step vertically and horizontally, or serrate the rock, as may be directed by the Engineer. Clean out all seams, and fill them with concrete or mortar.

120-4.4.4 Pipe Trench Excavation: Excavate trenches for pipe culverts and storm sewers to the elevation of the bottom of the pipe and to a width sufficient to provide adequate working room. Remove soil not meeting the classification specified as suitable backfill material in 120-8.3.2.2 to a depth of 4 inches below the bottom of the pipe elevation. Remove rock, boulders or other hard lumpy or unyielding material to a depth of 12 inches below the bottom of the pipe elevation. Remove muck or other soft material to a depth necessary to establish a firm foundation. Where the soils permit, ensure that the trench sides are vertical up to at least the mid-point of the pipe.

For pipe lines placed above the natural ground line, place and compact the embankment, prior to excavation of the trench, to an elevation at least 2 feet above the top of the pipe and to a width equal to four pipe diameters, and then excavate the trench to the required grade.

For pipe trenches utilizing trench boxes, ensure that the trench box used is of sufficient width to permit thorough tamping of bedding material under and around the pipes as specified in 125-8.1.6.

Do not disturb the installed pipe and its embedment when moving trench boxes. Move the trench box carefully to avoid excavated wall displacement or damage. As the trench box is moved, fill any voids left by the trench box and continuously place and compact the backfill material adjacent to and all along the side of the trench box walls to fill any voids created by the trench box.

120-4.5 Sediment Removal Excavation: Remove and dispose of all materials as indicated in the plans or as specified by the Engineer.

120-5 Disposal of Surplus and Unsuitable Material.

120-5.1 Ownership of Excavated Materials: Take ownership of the materials and dispose of them outside the right-of-way.

120-5.2 RESERVED

120-5.3 Disposal of Paving Materials: Unless otherwise noted, take ownership of paving materials, such as paving brick, asphalt block, concrete slab, sidewalk, curb and gutter, etc., excavated in the removal of existing pavements, and dispose of them outside the right-of-way. If the materials are to remain the property of the Agency, place them in neat piles as directed. Existing limerock base that is removed may be incorporated in the stabilized portion of the subgrade. If the construction sequence will allow, incorporate all existing limerock base into the project as allowed by the Plans.

120-5.4 Disposal Areas: Where the Plans require disposal of excavated materials outside the right-of-way, and the disposal area is not indicated in the Plans, furnish the disposal area without additional compensation.

Provide areas for disposal of removed paving materials out of sight of the project and at least 300 feet from the nearest roadway right-of-way line of any road. If the materials are buried, disregard the 300 foot limitation.

120-6 Materials for Embankment.

120-6.1 General Requirements for Embankment Materials: Construct embankments using suitable materials excavated from the roadway or delivered to the jobsite from authorized borrow pits. Embankment material shall not contain muck, stumps, roots, brush, vegetable matter, rubbish, reinforcement bar or other material that does not compact into a suitable and enduring roadbed.

Remove all waste material designated as undesirable. Use material in embankment construction in accordance with Plan detail or as the Engineer directs.

Construct the embankment using maximum particle sizes as follows:

In top 12 inches: 3 1/2 inches (in any dimension).

12 to 24 inches: 6 inches (in any dimension).

In the depth below 24 inches: not to exceed 12 inches (in any dimension) or the compacted thickness of the layer being placed, whichever is less.

Spread all material so that the larger particles are separated from each other to minimize voids between them during compaction. Compact around these rocks in accordance with 120-9.2.

When and where approved by the Engineer, larger rocks (not to exceed 18 inches in any dimension) may be placed outside the 1:2 slope and at least 4 feet or more below the bottom of the base. Compact around these rocks to a firmness equal to that of the supporting soil. Where constructing embankments adjacent to bridge end bents or abutments, do not place rock larger than 3 1/2 inches in diameter within 3 feet of the location of any end-bent piling. Materials specification for the pond embankment and backfill are specified in the construction plans.

120-6.2 Use of Materials Excavated from the Roadway and Appurtenances: Assume responsibility for determining the suitability of excavated material for use on the project in accordance with the applicable Plans. Consider the sequence of work and maintenance of traffic phasing in the determination of the availability of this material.

120-6.3 Authorization for Use of Borrow: Use borrow only when sufficient quantities of suitable material are not available from roadway, pond and drainage excavation, to properly construct the embankment, subgrade, and shoulders, and to complete the backfilling of structures and pipe. Do not use borrow material until ordered by the Engineer, and then only use material from approved borrow pits.

120-6.3.1 Haul Routes for Borrow Pits: Provide and maintain, at no expense to the City, all necessary roads for hauling the borrow material. Where borrow area haul roads or trails are used by others, do not cause such roads or trails to deteriorate in condition.

Arrange for the use of all non-public haul routes crossing the property of any railroad. Incur any expense for the use of such haul routes. Establish haul routes which will direct construction vehicles away from developed areas when feasible, and keep noise from hauling operations to a minimum. Advise the Engineer in writing of all proposed haul routes.

120-6.3.2 Borrow Material for Shoulder Build-up: When so indicated in the plans, furnish borrow material with a specific minimum bearing value, for building up of existing shoulders. Blend materials as necessary to achieve this specified minimum bearing value prior to placing the materials on the shoulders. Take samples of this borrow material at the pit or blended stockpile. Include all costs of providing a material with the required bearing value in the Contract unit price for borrow material.

120-6.4 Materials Used at Pipes, Culverts, etc.: Construct embankments over and around pipes, culverts, and bridge foundations with selected materials.

120-7 Embankment Construction.

120-7.1 General: Construct embankments in sections of not less than 300 feet in length or for the full length of the embankment. Do not construct another LOT over an untested LOT without the Engineer’s approval in writing. Special requirements for pond embankment are specified in the Plans.

For construction of mainline pavement lanes, turn lanes, ramps, parking lots, concrete box culverts and retaining wall systems, a LOT is defined as a single lift of finished embankment not to exceed 500 feet.

For construction of shoulder-only areas, shared use paths, and sidewalks areas, a LOT is defined as a single lift of finished embankment not to exceed 2000 feet.

Isolated compaction operations will be considered as separate LOTs. For multiple phase construction, a LOT shall not extend beyond the limits of the phase.

120-7.2 Dry Fill Method:

120-7.2.1 General: Construct embankments to meet compaction requirements in 120-7 and in accordance with the acceptance program requirements in 120-10. Restrict the compacted thickness of the last embankment lift to 6 inches maximum.

Construct embankment in the dry whenever normal dewatering equipment and methods can accomplish the needed dewatering.

120-7.2.1.1 Maximum Compacted Lift Thickness Requirements. Construct embankment in successive layers with lifts up to the maximum listed in Table 120-1 based on the embankment material classification group.

Group	AASHTO Soil Class	Maximum Lift Thickness	Thick Lift Control Test Section Requirements
1	A-3	12 inches	Not Required
	A-2-4 (No. 200 Sieve ≤ 15%)		
2	A-1	6 inches without Control Test Section	Maximum of 12 inches per 120-7.2.1.2
	A-2-4 (No. 200 Sieve > 15%)		
	A-2-5, A-2-6, A-2-7, A-4, A-5, A-6		
	A-7 (Liquid Limit <50)		

120-7.2.1.2 Thick Lift Requirements: For embankment materials classified as Group 2 in Table 120-1 above, the option to perform thick lift construction in successive layers of not more than 12 inches compacted thickness may be used after meeting the following requirements:

1. Demonstrate the possession and control of compacting equipment sufficient to achieve density required by 120-10.5 for the full depth of a thicker lift.
2. Construct a test section of the length of one full LOT of not less than 500 feet.
3. Perform five tests at random locations within the test section.
 - a. All five tests must meet the density required by 120-10.5.
 - b. Identify the test section with the compaction effort and soil classification in the project’s records.
4. Obtain Engineer’s approval for the compaction effort after completing a successful test section.

In case of a change in compaction effort or soil classification, or failing density test, construct a new test section. The Contractor may elect to place material in 6 inches compacted thickness at any time. Construct all layers approximately parallel to the centerline profile of the road.

The Engineer reserves the right to terminate the Contractor’s use of thick lift construction. Whenever the Engineer determines that the Contractor is not achieving satisfactory results, revert to the 6-inch compacted lifts.

120-7.2.1.3 Equipment and Methods: Provide normal dewatering equipment including, but not limited to, surface pumps, sump pumps and trenching/digging machinery. Provide normal dewatering methods including, but not limited to, constructing shallow surface drainage trenches/ditches, using sand blankets, sumps, and siphons.

When normal dewatering does not adequately remove the water, the Engineer may require the embankment material to be placed in the water or in low swampy ground in accordance with 120-9.2.4.

120-7.2.2 Placing in Unstable Areas: Where depositing the material in water, or in low swampy ground that will not support the weight of hauling equipment, construct the embankment by dumping successive loads in a uniformly distributed layer of a thickness not greater than necessary to support the hauling equipment while placing subsequent layers. Once sufficient material has been placed so that the hauling equipment can be supported, construct the remaining portion of the embankment in layers in accordance with the applicable provisions of 120-9.2.3 and 120-9.2.6.

120-7.2.3 Placing on Steep Slopes: When constructing an embankment on a hillside sloping more than 20 degrees from the horizontal, before starting the fill, deeply plow or cut into steps the surface of the original ground on which the embankment is to be placed.

120-7.2.4 Placing Outside Standard Minimum Slope: The standard minimum slope is defined as the plane described by a one (vertical) to two (horizontal) slope downward from the roadway shoulder point or the gutter line, in accordance with Standard Plans, Index 120-001 and 120-002. Where material that is unsuitable for normal embankment construction is to be used in the embankment outside the standard minimum slope, place such material in layers of not more than 18 inches in thickness, measured loose. The Contractor may also place material, which is suitable for normal embankment, outside such standard minimum slope in 18-inch layers. Maintain a constant thickness for suitable material placed within and outside the standard minimum slope, unless placing in a separate operation.

120-7.3 Hydraulic Method:

120-7.3.1 Method of Placing: When the hydraulic method is used, as far as practicable, place all dredged material in its final position in the embankment by such method. Place and compact any dredged material that is reworked or moved and placed in its final position by any other method, as specified in 120-9.2. Baffles or any other form of construction may be used if the slopes of the embankments are not steeper than indicated in the Plans. Remove all timber used for temporary bulkheads or baffles from the embankment and fill and thoroughly compact all voids. When placing fill on submerged land, construct dikes prior to beginning of dredging, and maintain the dikes throughout the dredging operation.

120-7.3.2 Excess Material: Do not use excess material placed outside the prescribed slopes, below the normal high-water level, to raise the fill. Remove only the portion of this material required for dressing the slopes.

120-7.3.3 Protection of Openings in Embankment: Maintain openings in the embankments at the bridge sites. Remove any material which invades these openings or existing channels without additional compensation to provide the same depth of channel as existed before the construction of the embankment. Do not excavate or dredge any material within 200 feet of the toe of the proposed embankment.

120-8 Backfilling Around Structures and Pipe.

120-8.1 Requirements for Structures and Pipes:

120-8.1.1 General: Backfill around structures and pipe in the dry whenever normal dewatering equipment and methods can accomplish the needed dewatering. A LOT is defined as one lift of backfill material placement, not to exceed 500 feet in length or a single run of pipe connecting two successive structures, whichever is less. Backfill for structures and pipe compacted in one operation will be considered as one LOT within the cover zone. Backfill around structures compacted separately from the pipe will be considered as separate LOTs. Backfill on each side of the pipe for the first lift will be considered a separate LOT. Backfill on opposite sides of the pipe for the remaining lifts will be considered separate LOTs, unless the same compaction effort is applied. Same compaction effort is defined as the same type of equipment (make and model) making the same number of passes on both sides of the pipe. For multiple phases of backfill, a LOT shall not extend beyond the limits of the phase.

When placing backfill within a trench box, each lift of backfill is considered a LOT. Placement of backfill within a trench box limits will be considered a complete operation before trench box is moved for next backfill operation. When the trench box is moved for next backfill operation this will start new LOTs for each lift. Follow the density testing frequency in 125-9.3.1.

129-8.1.2 Equipment and Methods: Provide normal dewatering equipment including, but not limited to, surface pumps, sump pumps, wellpoints and header pipe and trenching/digging machinery. Provide normal dewatering methods including, but not limited to, constructing shallow surface drainage trenches/ditches, using sand blankets, perforated pipe drains, sumps and siphons.

120-8.1.3 Backfill Materials: Backfill to the original ground surface or subgrade surface of openings made for structures, with a sufficient allowance for settlement. The Engineer may require that the material used for this backfill be obtained from a source entirely apart from the structure.

Do not allow heavy construction equipment to cross over culvert or storm sewer pipes until placing and compacting backfill material to the finished earthwork grade or to an elevation at least 4 feet above the crown of the pipe.

120-8.1.4 Use of A-7 Material: In the backfilling of trenches, A-7 material may be used from a point 12 inches above the top of the pipe up to the elevation shown in the Standard Plans as the elevation for undercutting of A-7 material.

120-8.1.5 Time of Placing Backfill: Do not place backfill against any masonry or concrete abutment, wingwall, or culvert until the Engineer has given permission to do so, and in no case until the masonry or concrete has been in place seven days or until the specified 28-day compressive strength occurs.

120-8.1.6 Placement and Compaction: Place the material in horizontal layers not exceeding 6 inches compacted thickness in depth above water level, behind abutments, wingwalls and end bents or end rest piers, under the haunches of the pipes, around box culverts, and all structures including pipe culverts. When the backfill material is deposited in water, compact as specified in 125-8.2.5 and 125-8.3.4.

120-8.1.6.1 Thick Lift Requirements: The Contractor may elect to place material in thicker lifts of no more than 12 inches compacted thickness above the Soil Envelope if the embankment material is classified as Group 1 in the Table 120-2. If the embankment material is classified as Group 2 in Table 120-2 and the Contractor chooses to place material in thicker lifts of no more than 12 inches compacted thickness above the soil envelope, then the Contractor must demonstrate with a successful test section that density can be achieved. Thick lift around structures is only allowed above the soil envelope of the connecting pipe. Notify the Engineer in writing prior to beginning construction of a test section. Construct a test section of the length of one LOT. Perform five quality control tests at random locations within the test section. All five tests must meet the density required by 120 9.2. Identify the test section with the compaction effort and soil classification in the project's records. In case of a change in compaction effort or soil classification, construct a new test section. When a test fails the requirements of 120 9.2, construct a new test section. The Contractor may elect to place material in 6 inches compacted thickness at any time.

Group	AASHTO Soil Class	Maximum Lift Thickness		Thick Lift Control Test Section Requirements	
		Within Cover Zone	Above Soil Envelope	Within Cover Zone	Above Soil Envelope
1	A-3	6 inches	12 inches	N/A	Not Required
	A-2-4 (No. 200 Sieve ≤ 15%)				
2	A-1	6 inches without Control Test Section	N/A	N/A	Maximum of 12 inches per 120-7.2.1.2
	A-2-4 (No. 200 Sieve > 15%)				
	A-2-5, A-2-6, A-2-7, A-4, A-5, A-6				
	A-7 (Liquid Limit <50)				

120-8.2 Additional Requirements for Structures Other than Pipe:

120-8.2.1 Density: Where the backfill material is deposited in water, obtain a 12 inch layer of comparatively dry material, thoroughly compacted by tamping, before the Engineer verifies layer and density requirements. Meet the requirements of the density 120-10.5.

120-8.2.2 Box Culverts: For box culverts over which pavement is to be constructed, compact around the structure to an elevation not less than 12 inches above the top of the structure, using rapid-striking mechanical tampers.

120-8.2.3 Other Limited Areas: Compact in other limited areas using mechanical tampers or approved hand tampers, until the cover over the structure is at least 12 inches thick. When hand tampers are used, deposit the materials in layers not more than 4 inches thick using hand tampers suitable for this purpose with a face area of not more than 100 in². Take special precautions to prevent any wedging action against the masonry, and step or terrace the slope bounding the excavation for abutments and wingwalls if required by the Engineer.

120-8.2.4 Culverts and Piers: Backfill around culverts and piers on both sides simultaneously to approximately the same elevation.

120-8.2.5 Compaction Under Wet Conditions: Where wet conditions do not permit the use of mechanical tampers, compact using hand tampers. Use only A-3 material for the hand tamped portions of the backfill. When the backfill has reached an elevation and condition such as to make the use of the mechanical tampers practical, perform mechanical tamping in such manner and to such extent as to transfer the compaction force into the sections previously tamped by hand.

120-8.3 Additional Requirements for Pipe 12 Inches Inside Diameter or Greater:

120-8.3.1 General: Trenches for pipe may have up to four zones that must be backfilled.

Lowest Zone: The lowest zone is backfilled for deep undercuts up to within 4 inches of the bottom of the pipe.

Bedding Zone: The zone above the Lowest Zone is the Bedding Zone. Usually it will be the backfill which is the 4 inches of soil below the bottom of the pipe. When rock or other hard material has been removed to place the pipe, the Bedding Zone will be the 12 inches of soil below the bottom of the pipe.

Cover Zone: The next zone is backfill that is placed after the pipe has been laid and will be called the Cover Zone. This zone extends to 12 inches above the top of the pipe. The Cover Zone and the Bedding Zone are considered the Soil Envelope for the pipe.

Top Zone: The Top Zone extends from 12 inches above the top of the pipe to the base or final grade.

120-8.3.2 Material:

120-8.3.2.1 Lowest Zone: Backfill areas undercut below the Bedding Zone of a pipe with coarse sand, or other suitable granular material, obtained from the grading operations on the project, or a commercial material if no suitable material is available.

120-8.3.2.2 Soil Envelope: In both the Bedding Zone and the Cover Zone of the pipe, backfill with materials classified as A-1, A-2, or A-3. Material classified as A-4 may be used if the pipe is concrete pipe.

120-8.3.2.3 Top Zone: Backfill the area of the trench above the soil envelope of the pipe with materials allowed on Design Standard, Index 120-001.

120-8.3.3 Compaction:

120-8.3.3.1 Lowest Zone: Compact the soil in the Lowest Zone to approximately match the density of the soil in which the trench was cut.

120-8.3.3.2 Bedding Zone: If the trench was not undercut below the bottom of the pipe, loosen the soil in the bottom of the trench immediately below the approximate middle third of the outside diameter of the pipe.

If the trench was undercut, place the bedding material and leave it in a loose condition below the middle third of the outside diameter of the pipe. Compact the outer portions to meet the density requirements of the Acceptance Criteria. Place the material in lifts no greater than 6 inches (compacted thickness).

120-8.3.3.3 Cover Zone: Place the material in 6 inches layers (compacted thickness), evenly deposited on both sides of the pipe, and compact with mechanical tampers suitable for this purpose. Hand tamp material below the pipe haunch that cannot be reached by mechanical tampers. Meet the requirements of the density Acceptance Criteria.

120-8.3.3.4 Top Zone: Place the material in layers not to exceed 12 inches in compacted thickness. Meet the requirements of the density Acceptance Criteria.

120-8.3.4 Backfill Under Wet Conditions: Where wet conditions are such that dewatering by normal pumping methods would not be effective, the procedure outlined below may be used when specifically authorized by the Engineer in writing.

Granular material may be used below the elevation at which mechanical tampers would be effective, but only material classified as A-3. Place and compact the material using timbers or hand tampers until the backfill reaches an elevation such that its moisture content will permit the use of mechanical tampers. When the backfill has reached such elevation, use normally acceptable backfill material. Compact the material using mechanical tampers in such manner and to such extent as to transfer the compacting force into the material previously tamped by hand.

The Engineer may permit the use of coarse aggregate below the elevation at which mechanical tampers would be effective. Use coarse aggregate from approved sources for Aggregate Size Number 89, 8, 78, 7, 68, 6, or 57. Place the coarse aggregate such that it will be stable and firm. Fully wrap the aggregate with an appropriate geosynthetic filter fabric, as specified by the Engineer. Do not place coarse aggregate within 4 feet of the ends of the trench or ditch. Use normally accepted backfill material at the ends.

120-9 Compaction Requirements.

120-9.1 Moisture Content: Compact the materials at a moisture content such that the specified density can be attained. If necessary to attain the specified density, add water to the material, or lower the moisture content by manipulating the material or allowing it to dry, as is appropriate, to attain the specified density.

120-9.2 Compaction of Embankments:

120-9.2.1 Earthwork Category 1 and 2 Density Requirements: The Engineer will accept a minimum density of 95% of the maximum density as determined by AASHTO T 99 Method C for all earthwork items requiring densities.

120-9.2.2 Earthwork Category 3 Density Requirements: The Engineer will accept a minimum of 100% of the maximum density as determined by FM 1-T099 for all densities required under category 3. Except for embankments constructed by the hydraulic method as specified in 120-7.3, and for the material placed outside the standard minimum slope as specified in 120-7.2.4, and for other areas specifically excluded herein, compact each layer of the material used in the formation of embankments to the required density stated above. Uniformly compact each layer using equipment that will achieve the required density, and as compaction operations progress, shape and manipulate each layer as necessary to ensure uniform density throughout the embankment.

120-9.2.3 Compaction Over Unstable Foundations: Where the embankment material is deposited in water or on low swampy ground, and in a layer thicker than 12 inches (as provided in 120-7.2.2), compact the top 6 inches (compacted thickness) of such layer to the density as specified in 120-10.5.

120-9.2.4 Compaction Where Plastic Material Has Been Removed: Where unsuitable material is removed and the remaining surface is of soil classifications A-4, A-5, A-6, or A-7 per AASHTO M 145, as determined by the Engineer, compact the surface of the excavated area by rolling with a sheepfoot roller exerting a compression of at least 250 psi on the tamper feet, for the full width of the roadbed (subgrade and shoulders). Perform rolling before beginning any backfill and continue until the roller feet do not penetrate the surface more than 1 inch. Do not perform such rolling where the remaining surface is below the normal water table and covered with water. Vary the procedure and equipment required for this operation at the discretion of the Engineer.

120-9.2.5 Compaction for Pipe, Culverts, etc.: Compact the backfill of trenches to the densities specified for embankment or subgrade, as applicable, and in accordance with the requirements of this section.

Thoroughly compact embankments over and around pipes, culverts, and bridges in a manner which will not place undue stress on the structures, and in accordance with the requirements of this section.

120-9.2.6 Compaction of Grassed Shoulder Areas: For the upper 6 inch layer of all shoulders which are to be grassed, since no specific density is required, compact only to the extent directed.

120-9.2.7 Compaction of Grassed Embankment Areas: For the outer layer of all embankments where plant growth will be established, do not compact. Leave this layer in a loose condition to a minimum depth of 6 inches for the subsequent seeding or planting operations.

120-9.3 Compaction of Subgrade: If the plans do not provide for stabilizing, compact the subgrade in both cuts and fills to the density specified in 120-10.5. For cut areas, determine Standard Proctor Maximum Density in accordance with FM 1-T099 at a frequency of one per mile or when there is a change in soil type, whichever occurs first. For undisturbed soils, do not apply density requirements where constructing paved shoulders is 5 feet or less in width.

Where trenches for widening strips are not of sufficient width to permit the use of standard compaction equipment, perform compaction using vibratory rollers, trench rollers, or other type compaction equipment approved by the Engineer.

Maintain the required density until the base or pavement is placed on the subgrade.

120-10 Acceptance Program.

120-10.1 Density over 105%: When a computed dry density results in a value greater than 105% of the applicable Proctor maximum dry density, the Engineer will perform a second density test within 5 feet. If the second density results in a value greater than 105%, investigate the compaction methods, examine the applicable Maximum Density and material description. If necessary, the Engineer will test an additional sample for acceptance in accordance with FM 1-T099.

120-10.2 Maximum Density Determination: The Engineer will determine the maximum density and optimum moisture content by sampling and testing the material in accordance with the specified test method listed in 120-10.3.

120-10.3 Density Testing Requirements: Compliance with the requirements of 120-10.5 will be determined in accordance FM 1-T238. The in-place moisture content will be determined for each density in accordance with FM 5-

507 (Determination of Moisture Content by Means of a Calcium Carbide Gas Pressure Moisture Tester), or ASTM D 4643 (Laboratory Determination of Moisture Content of Granular Soils by Use of a Microwave Oven).

120-10.4 Soil Classification and Organic Content: The Engineer will perform soil classification tests in accordance with AASHTO T 88, T 89, T 90, and FM 1-T267. The Engineer will classify soils in accordance with AASHTO M 145 in order to determine compliance with embankment utilization requirements. The Engineer will verify the organic content test with the criteria specified in Standard Plans, Index 120-001.

120-10.5 Acceptance Criteria: The Engineer will accept a minimum density in accordance with 120-9.2 with the following exceptions:

- 1) embankment constructed by the hydraulic method as specified in 120-7.3;
- 2) material placed outside the standard minimum slope as specified in 120-7.2.4;
- 3) other areas specifically excluded herein.

120-10.6 Frequency: The Engineer will conduct sampling and testing at a minimum frequency listed in the table below.

Test Name	Frequency
Maximum Density	One per soil type
Density	1 per LOT (Alt Lift)
Soil Classification	One per Maximum Density

120-11 Maintenance and Protection of Work.

While construction is in progress, maintain adequate drainage for the roadbed at all times. Maintain a shoulder at least 3 feet wide adjacent to all pavement or base construction in order to provide support for the edges.

Maintain and protect all earthwork construction throughout the life of the Agreement, and take all reasonable precautions to prevent loss of material from the roadway due to the action of wind or water. Repair any slides, washouts, settlement, subsidence, or other mishap which may occur prior to final acceptance of the work. Maintain all channels excavated as a part of the Contract work against natural shoaling or other encroachments to the lines, grades, and cross-sections shown in the plans, until final acceptance of the project.

120-12 Construction.

120-12.1 Construction Tolerances: Shape the surface of the earthwork to conform to the lines, grades, and cross-sections shown in the plans. In final shaping of the surface of earthwork, maintain a tolerance of 0.3 foot above or below the plan cross-section with the following exceptions:

1. Shape the surface of shoulders to within 0.1 foot of the plan cross-section.
2. Shape the earthwork to match adjacent pavement, curb, sidewalk, structures, etc.
3. Shape the bottom of ditches so that the ditch impounds no water.
4. When the work does not include construction of base or pavement, shape the entire roadbed (shoulder point to shoulder point) to within 0.1 foot above or below the plan cross-section.

Ensure that the shoulder lines do not vary horizontally more than 0.3 foot from the true lines shown in the plans.

120-12.2 Operations Adjacent to Pavement: Carefully dress areas adjacent to pavement areas to avoid damage to such pavement. Complete grassing of shoulder areas prior to placing the final wearing course. Do not manipulate any embankment material on a pavement surface.

When shoulder dressing is underway adjacent to a pavement lane being used to maintain traffic, exercise extreme care to avoid interference with the safe movement of traffic.

120-13 Method of Measurement.

120-13.1 General: All work included in this section shall be considered lump sum “Grading” unless bid separately. When payment for excavation is on a volumetric basis, the quantity paid will be the volume, in cubic yards. The material will be measured in its original position by field survey or by photogrammetric means as designated by the Engineer, unless otherwise specified under the provisions for individual items.

120-13.2 Borrow Excavation: Represents material obtained from off-site areas necessary for construction to required line and grade. Measurement will be made on a loose volume basis, delivered and placed, measured in trucks or other hauling equipment at the point of dumping on the road. If measurement is made in vehicles, level the material to facilities accurate measurement.

120-13.3 Subsoil Excavation: Measurement will include only material excavated within the line and grades indicated in the Plans or as directed by the Engineer.

120-14 Basis of Payment.

120-14.1 General: Prices and payments for the work items included in this Section will be full compensation for all work described herein, including but not limited to excavating, dredging, hauling, placing, and compacting; dressing the surface of the earthwork; and maintaining and protecting the complete earthwork. Compensation for all work under this section shall be paid under the lump sum pay item "Grading" unless bid separately. No payment will be made for materials or work placed outside the lines and grades given by the Engineer.

The contractor shall conduct plan take-off to bid accordingly.

SECTION 125 EXCAVATION FOR STRUCTURES AND PIPE

Density requirements shall be in accordance with the modification provided herein for Section 120. Exceptions provided for outside of roadway embankment still apply.

SECTION 160 STABILIZING

This section will primarily be utilized for base failure point repairs; costs for excavation and disposal of existing materials shall be included in this section.

LBR Stabilization: After stabilization and mixing, sample to a depth of 12" minimum for each change of subgrade material, or each section of subgrade with differing amounts of added stabilizing material. Minimum of 2 tests per mile of roadway. No less than 2 determinations shall be made per project. Verify width and depth of stabilization every 200 foot.

Density: No less than one density determination per 500 feet of subgrade or one per each section of roadway between intersections or between intersections and ends of cul-de-sac roads. Density shall be as specified on design plans, utilizing the proctor sample as modified for the LBR testing. Subgrade densities performed solely for placement of curb shall not satisfy requirements for subgrade density verification prior to base material placement. Curb densities shall be performed at the same frequency as subgrade densities. Portions of subgrade not worked as a part of overall compactive effort or sections replaced as rework or repair, shall be tested for density and bearing value prior to placement of base rock.

160-4.1.4.3.1 Under-tolerances in Bearing Value Requirements

Where plans call for a minimum LBR value, under tolerance criteria is not applicable.

SECTION 200 ROCK BASE

Limerock shall be constructed to specified thickness and shall be compacted to 98% AASHTO T 180. No less than one density determination per 500 linear feet of base. Minimum of one density test between intersections or intersection and end of cul-de-sac roads. A minimum of two density test per project shall be performed.

200-9 Calculations for Average Thickness of Base

Delete this section.

200-10 Method of Measurement

Delete this section. Quantity to be paid for will be the as measured square yards of rock base with the minimum thickness, shaped to the required line, grade, and profile.

SECTION 285 OPTIONAL BASE COURSE

Limerock shall be constructed to specified thickness and shall be compacted to 98% AASHTO T 180. No less than one density determination per 500 linear feet of base. Minimum of one density test between intersections or intersection and end of cul-de-sac roads. A minimum of two density test per project shall be performed.

285-7 Calculations for Average Thickness of Base

Delete this section.

285-8 Method of Measurement

Delete this section. Quantity to be paid for will be the as measured square yards of optional base with the minimum thickness, shaped to the required line, grade, and profile OR as noted in the bid tab.

SECTION 300 PRIME AND TACK COATS FOR BASE COURSES

300-10 Basis of Payment

Cost of priming will be included in the unit cost per square yard of limerock, asphalt base or structural asphalt. Cost of tack coats shall be included in the unit cost of asphalt surface treatment or asphaltic concrete to be placed.

SECTION 330 HOT BITUMINOUS MIXTURES, GENERAL CONSTRUCTION REQUIREMENTS

The Contractor shall furnish asphaltic concrete from a FDOT certified plant.

330-5.6 Material Transfer Vehicle: Provide remixing material transfer equipment that allows for continuous paving and remixing of asphalt materials (example: Roadtec MTV1000 or Terex CR662RM).

330-6.1.8 Uniform Mat Temperature: A material transfer vehicle shall be utilized in the paving operation for all mainline final asphalt surfaces.

SECTION 334 SUPERPAVE ASPHALT CONCRETE (LAP) (REV 3-2-22) (FA 7-2-21) (7-22) MODIFIED

Delete this section and replace with the following:

334-1 Description.

334-1.1 General

Construct Asphalt Concrete pavement based on the type of work specified in the Plans and the Asphalt Work Categories as defined below. Meet the applicable requirements for plants, equipment, and construction requirements as defined below. Use an asphalt concrete mix that meets the requirements of this specification.

334-1.2 Asphalt Work Mix Categories

Construction of Hot Mix Asphalt Pavement will fall into one of the following work categories:

- 334-1.2.1 Asphalt Work Category 1:** Includes the construction of bike paths and miscellaneous asphalt.
- 334-1.2.2 Asphalt Work Category 2:** Includes the construction of new turn lanes, paved shoulders and other non-mainline pavement locations.
- 334-1.2.3 Asphalt Work Category 3:** Includes the construction of new mainline pavement lanes, milling and resurfacing.

334-1.3 Mix Types

Use the appropriate asphalt concrete mix as shown in Table 334-1.

Table 334-1 Asphalt Concrete Mix Types			
Asphalt Work Category	Mix Types	Traffic Level	ESALs (millions)
1	Type SP-9.5	A	<0.3
2	Structural Mixes: Types SP-9.5 or SP-12.5 Friction Mixes: Types FC-9.5 or FC-12.5	B	0.3 to <3
3	Structural Mixes: Types SP-9.5 or SP-12.5	C	≥3

Table 334-1 Asphalt Concrete Mix Types			
Asphalt Work Category	Mix Types	Traffic Level	ESALs (millions)
	Friction Mixes: Types FC-9.5 or FC-12.5		

For a Traffic Level A mixture, meet the mix design criteria for Traffic Level B mixture and for a Traffic Level D mixture meet the mix design criteria for a Traffic Level E mixture. At no cost to the City the contractor may substitute one traffic level up.

334-1.4 Gradation Classification

Asphalt concrete mixes are classified as fine and are defined in Standard Specification 334-3.2.2.

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

- Type SP-9.5, FC-9.5 9.5 mm
- Type SP-12.5, FC-12.5 12.5 mm

334-1.5 Thickness

The total pavement thickness of the asphalt concrete pavement will be based on a specified spread rate or plan thickness as shown in the Plans. Before paving, propose a spread rate or thickness for each individual layer meeting the requirements of this specification, which when combined with other layers (as applicable) will equal the plan spread rate or thickness. For construction purposes, the plan thickness and individual layer thickness will be converted to spread rate using the following equation:

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

- where: t = Thickness (in.) (Plan thickness or individual layer thickness)
- G_{mm} = Maximum specific gravity from the mix design

For target purposes only, spread rate calculations shall be rounded to the nearest whole number.

334-1.5.1 Layer Thicknesses: Unless otherwise called for in the Plans, the allowable layer thicknesses for asphalt concrete mixtures are as follows:

- Type SP-9.5, FC-9.5 1 to 1-1/2 inches
- Type SP-12.5 1 ½ to 3 inches
- Type FC-12.5 1-1/2 inches to 2-1/2 inches

334-1.5.2 Additional Requirements: The following requirements also apply to ASPHALT CONCRETE mixtures:

1. When construction includes the paving of adjacent shoulders (less than or equal to 5 feet wide), the layer thickness for the upper pavement layer and shoulder shall be the same and paved in a single pass, unless otherwise called for in the Plans.
2. For overbuild layers, use the minimum and maximum layer thicknesses as specified above unless called for differently in the Plans. On variable thickness overbuild layers, the minimum and maximum allowable thicknesses will be as specified below unless called for differently in the Plans.
 - Type SP-9.5 3/8 to 2 inches
 - Type SP-12.5 1/2 to 3 inches
 - Type SP-19.0 1-1/2 inches to 4 inches
3. Variable thickness overbuild layers constructed using a Type SP-9.5 or SP-12.5 mixtures may be tapered to zero thickness provided the contract documents require a minimum of 1-1/2 inches of dense-graded mix placed over the variable thickness overbuild layer.

334-1.6 Weight of Mixture

The weight of the mixture shall be determined as provided in 320-2.2 of the Florida Department of Transportation (FDOT) specifications.

334-2 Materials.

334-2.1 Superpave Asphalt Binder

Unless specified elsewhere in the Plans, use an asphalt binder grade as determined from Table 334-2. If the Contract calls for an alternative binder, meet the requirements of FDOT Specification 916.

334-2.2 Aggregate

Use aggregate capable of producing a quality pavement. Size, grade and combine the aggregate fractions to meet the grading and physical properties of the mix design. Aggregates from various sources may be combined.

For Type FC mixes, use an aggregate blend that consists of approved friction course aggregates that consists of crushed granite, crushed granitic gneiss, crushed limestone, crushed shell rock, or a combination of the above. As an exception, mixes that contain a minimum of 60% of approved friction course aggregates of crushed granite and/or crushed gneiss may either contain: up to 40% fine aggregate from other sources of aggregate not approved for friction courses or a combination of up to 20% RAP and the remaining fine aggregate from other sources of aggregate not approved for friction courses. Mixtures utilizing High Polymer (HP) binder are not allowed to contain RAP.

A list of aggregates approved for use in friction courses may be available on the FDOT’s State Materials Office website. The URL for obtaining this information, if available, is: <https://mac.fdot.gov/>.

334-2.3 Reclaimed Asphalt Pavement (RAP) Material

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

1. Limit the amount of RAP material used in the mix to a maximum of 50% by weight of total aggregate.
2. Assume full responsibility for the design, production and construction of asphalt mixes which incorporate RAP as a component material.
3. Provide stockpiled RAP material that is reasonably consistent in characteristics and contains no aggregate particles which are soft or conglomerates of fines.
4. Provide RAP material having a minimum average asphalt content of 4.0% by weight of total mix. As an exception, when using fractionated RAP, the minimum average asphalt binder content for the coarse portion of the RAP shall be 2.5% by weight of the coarse portion of the RAP. The coarse portion of the RAP shall be the portion of the RAP retained on the No. 4 sieve. The Engineer may sample the stockpile to verify that this requirement is met.
5. When using RAP as a component material, prevent any oversized RAP from being incorporated into the completed mixture by the use of a grizzly or grid over the RAP bin; in-line roller or impact crusher; screen; or other suitable means. If oversized RAP material appears in the completed recycled mix, take the appropriate corrective action immediately. If the appropriate corrective actions are not immediately taken, stop plant operations.

334-2.3.2 Material Characterization: Assume responsibility for establishing the asphalt binder content, gradation, viscosity and bulk specific gravity (G_{sb}) of the RAP material based on a representative sampling of the material.

334-2.3.3 Asphalt Binder for Mixes with RAP: Select the appropriate asphalt binder grade based on Table 334-2.

Table 334-2 Asphalt Binder Grade for Mixes Containing RAP	
Percent RAP	Asphalt Binder Grade
0 - 15	PG 67-22 and above
16- 30	PG 58-22
≥ 30	PG 52-28

334-3 Composition of Mixture.

334-3.1 General

Compose the asphalt mixture using a combination of aggregates, mineral filler, if required, and asphalt binder material. Size, grade and combine the aggregate fractions to meet the grading and physical properties of the mix design. Aggregates from various sources may be combined.

334-3.2 Mix Design

334-3.2.1 General: The Contractor shall use a valid, currently approved FDOT Mix Design. Provide copies of the approved mix design and obtain approval from the City prior to use. Design the asphalt mixture in accordance with AASHTO R 35, except as noted herein. Submit the proposed mix design with supporting test data indicating compliance with all mix design criteria to the Engineer. Prior to the production of any asphalt mixture, obtain the Engineer’s conditional approval of the mix design. If required by the Engineer,

send representative samples of all component materials, including asphalt binder to a laboratory designated by the Engineer for verification.

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 at its discretion, the Engineer may no longer allow the use of the mix design.

334-3.2.2 Mixture Gradation Requirements: Combine the coarse and fine aggregate in proportions that will produce an asphalt mixture meeting all of the requirements defined in this specification and conform to the gradation requirements at design as defined in AASHTO M 323. Aggregates from various sources may be combined.

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

334-3.2.3 Gyratory Compaction: Compact the design mixture in accordance with AASHTO T 312, with the following exception: use the number of gyrations at N_{design} as defined in Standard Specification Table 334-3. Measure the inside diameter of gyratory molds in accordance with AASHTO T 312.

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

334-3.2.4 Design Criteria: Meet the requirements for nominal maximum aggregate size as defined in AASHTO M 323, as well as for relative density, VMA, VFA, and dust-to-binder ratio as specified in AASHTO M 323, Table 6. $N_{initial}$ and $N_{maximum}$ requirements are not applicable.

334-3.2.5 Moisture Susceptibility: For all traffic levels, use a liquid anti-strip agent listed on the APL at the specified dosage rate. Hydrated lime may be used instead of the liquid anti-strip agent. Provide a mixture having a retained tensile strength ratio of at least 0.80 and a minimum tensile strength (unconditioned) of 100 psi in accordance with FM 1-T283.

334-3.2.6 Additional Information: In addition to the requirements listed above, provide the following information on each mix design:

1. The design traffic level and the design number of gyrations (N_{design}).
2. The source and description of the materials to be used.
3. The FDOT source number and the FDOT product code of the aggregate components furnished from an FDOT approved source (if required).
4. The gradation and proportions of the raw materials as intended to be combined in the paving mixture. The gradation of the component materials shall be representative of the material at the time of use. Compensate for any change in aggregate gradation caused by handling and processing as necessary.
5. A single percentage of the combined mineral aggregate passing each specified sieve. Degradation of the aggregate due to processing (particularly material passing the No. 200 sieve) should be accounted for and identified.
6. The bulk specific gravity (G_{sb}) value for each individual aggregate and RAP component.
7. A single percentage of asphalt binder by weight of total mix intended to be incorporated in the completed mixture, shown to the nearest 0.1%.
8. A target temperature for the mixture at the plant (mixing temperature) and a target temperature for the mixture at the roadway (compaction temperature). Do not exceed a target temperature of 340°F for High Polymer asphalt binders, 330°F for PG 76-22 asphalt binders, and 315°F for unmodified asphalt binders.
9. Provide the physical properties at the optimum asphalt content, which must conform to all specified requirements.
10. The name of the Construction Training Qualification Program (CTQP) mix designer.
11. The ignition oven and maximum specific gravity (G_{mm}) calibration factors.

12. The warm mix technology, if used.

334-4 Producer Process Control (PC)

Assume full responsibility for controlling all operations and processes such that the requirements of these Specifications are met at all times. Perform any tests necessary at the plant and roadway to control the process.

334-5 General Construction Requirements

334-5.1 Weather Limitations

Do not transport asphalt mix from the plant to the roadway unless all weather conditions are suitable for the paving operations.

334-5.2 Limitations of Paving Operations

334-5.2.1 General: Spread the mixture only when the surface upon which it is to be placed has been previously prepared, is intact, firm, dry, clean, and the tack, with acceptable spread rate, is properly broken or cured. Do not place friction course until the adjacent shoulder area has been dressed and grassed.

334-5.2.2 Air Temperature: Place the mixture only when the air temperature in the shade and away from artificial heat meets the requirements of Table 334-4. The minimum ambient temperature requirement may be reduced by 5°F when using warm mix technology, if mutually agreed to by both the Engineer and the Contractor.

Table 334-4 Ambient Air Temperature Requirements for Paving	
Layer Thickness or Asphalt Binder Type	Minimum Temperature (°F)
≤1 inch	50
Any mixture > 1 inch containing a PG asphalt binder with a high temperature designation ≥ 76°C	45
Any mixture > 1 inch containing a PG asphalt binder with a high temperature designation < 76°C	40

334-5.3 Mix Temperature

Heat and combine the ingredients of the mix in such a manner as to produce a mixture with a temperature at the plant and at the roadway, within a range of plus or minus 30°F from the target temperature as shown on the mix design. Reject all loads outside of this range. Reject any load or portion of a load of asphalt mix at the plant or at the roadway with a temperature outside of its respective master range shown in Table 334-5. Notify the Engineer of the rejection immediately.

Table 334-5 Mix Temperature Master Range Tolerance	
Location	Acceptable Temperature Tolerance
Plant	Mixing Temperature ±30 F
Roadway (mix in truck)	Compaction Temperature ±30°F

334-5.4 Transportation of the Mixture

Transport the mix in trucks of tight construction, which prevents the loss of material and the excessive loss of heat and previously cleaned of all foreign material. After cleaning, thinly coat the inside surface of the truck bodies with soapy water or an asphalt release agent as needed to prevent the mixture from adhering to the beds. Do not allow excess liquid to pond in the truck body. Do not use a release agent that will contaminate, degrade, or alter the characteristics of the asphalt mix or is hazardous or detrimental to the environment. Petroleum derivatives (such as diesel fuel), solvents, and any product that dissolves asphalt are prohibited. Provide each truck with a tarpaulin or other waterproof cover mounted in such a manner that it can cover the entire load when required. When in place, overlap the waterproof cover on all sides so it can be tied down. Cover each load during cool and cloudy weather and at any time it appears rain is likely during transit with a tarpaulin or waterproof cover. Cover and tie down all loads of friction course mixtures.

334-5.5 Preparation of Surfaces Prior to Paving

334-5.5.1 Cleaning: Clean the surface of all loose and deleterious material by the use of power brooms or blowers, supplemented by hand brooming where necessary.

334-5.5.2 Patching and Leveling Courses: As shown in the plans, bring the existing surface to proper grade and cross-section by the application of patching or leveling courses.

334-5.5.3 Application over Surface Treatment: Where an asphalt mix is to be placed over a surface treatment, sweep and dispose of all loose material from the paving area.

334-5.5.4 Tack Coat: Use a rate of application as defined in Table 334-6. Control the rate of application to be within plus or minus 0.01 gal. per square yard of the target application rate. The target application rate may be adjusted by the Engineer to meet specific field conditions. Determine the rate of application as needed to control the operation. When using PG 52-28, multiply the target rate of application by 0.6.

Table 334-6 Tack Coat Application Rates		
Asphalt Mixture Type	Underlying Pavement Surface	Target Tack Rate (gal/yd ²)
Base Course, Structural Course, Dense Graded Friction Course, Open Grade Friction Course	Newly Constructed Asphalt Layers	0.06
	Milled Surface, Oxidized and Cracked Asphalt Pavement, Concrete Pavement	0.09
Note: Target tack application rates greater than those specified may be used upon approval of the Engineer.		

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

334-5.5.5 Curing and Time of Application: Apply tack coat sufficiently in advance of placing bituminous mix to permit drying, but do not apply tack coat so far in advance that it might lose its adhesiveness as a result of being covered with dust or other foreign material.

334-5.5.6 Protection: Keep the tack coat surface free from traffic until the subsequent layer of bituminous hot mix has been laid.

334-6 Placing Mixture

334-6.1 Alignment of Edges: With the exception of pavements placed adjacent to curb and gutter or other true edges, place all pavements by the stringline method to obtain an accurate, uniform alignment of the pavement edge. Control the unsupported pavement edge to ensure that it will not deviate more than plus or minus 1.5 inches from the stringline.

334-6.2 Rain and Surface Conditions: Immediately cease transportation of asphalt mixtures from the plant when rain begins at the roadway. Do not place asphalt mixtures while rain is falling, or when there is water on the surface to be covered. Once the rain has stopped and water has been removed from the tacked surface to the satisfaction of the Engineer and the temperature of the mixture caught in transit still meets the requirements as specified in 334-5.3, the Contractor may then place the mixture caught in transit.

334-6.3 Checking Depth of Layer: Check the depth of each layer at frequent intervals to ensure a uniform spread rate that will meet the requirements of the Plans.

334-6.4 Hand Spreading: In limited areas where the use of the spreader is impossible or impracticable, spread and finish the mixture by hand.

334-6.5 Spreading and Finishing: Upon arrival, dump the mixture in the approved paver, and immediately spread and strike-off the mixture to the full width required, and to such loose depth for each course that, when the work is completed, the required weight of mixture per square yard, or the specified thickness, is secured. Carry a uniform amount of mixture ahead of the screed at all times.

334-6.6 Thickness Control: Ensure the spread rate is within 5% of the target spread rate, as indicated in the Plans. When calculating the spread rate, use, at a minimum, an average of five truckloads of mix and at a maximum, an average of 10 truckloads of mix. When the average spread rate is beyond plus or minus 5% of the target spread rate, monitor the thickness of the pavement layer closely and adjust the construction operations.

If the Contractor fails to maintain an average spread rate within plus or minus 5% of the target spread rate for two consecutive days, stop the construction operation until the issue is resolved.

The Engineer will allow a maximum deficiency from the specified spread rate for the total thickness as follows:

1. For pavement of a specified thickness of 2-1/2 inches or more: 50 pounds per square yard.

2. For pavement of a specified thickness of less than 2-1/2 inches: 25 pounds per square yard.

Address the unacceptable pavement in accordance with 334-6.10.4, unless an alternative approach is agreed upon by the Engineer.

334-6.7 Leveling Courses

334-6.7.1 Patching Depressions: Before spreading any leveling course, fill all depressions in the existing surface as shown in the plans.

334-6.7.2 Spreading Leveling Courses: Place all courses of leveling with an asphalt paver or by the use of two motor graders, one being equipped with a spreader box. Other types of leveling devices may be used upon approval by the Engineer.

334-6.7.3 Rate of Application: When using Type SP-9.5 (fine graded) for leveling, do not allow the average spread of a layer to be less than 50 pounds per square yard or more than 75 pounds per square yard. The quantity of mix for leveling shown in the plans represents the average for the entire project; however, the Contractor may vary the rate of application throughout the project as directed by the Engineer. When leveling in connection with base widening, the Engineer may require placing all the leveling mix prior to the widening operation.

334-6.8 Compaction

For each paving or leveling train in operation, furnish a separate set of rollers, with their operators.

When density testing for acceptance is required, select equipment, sequence, and coverage of rolling to meet the specified density requirement. Regardless of the rolling procedure used, complete the final rolling before the surface temperature of the pavement drops to the extent that effective compaction may not be achieved or the rollers begin to damage the pavement.

No vibratory compaction in the vertical direction will be allowed for layers one inch or less in thickness or, if the Engineer or Plans limit compaction to the static mode only. Compact these layers in the static mode only. Other non-vertical vibratory modes of compaction will be allowed, if approved by the Engineer; however, no additional compensation, cost or time, will be made.

When density testing for acceptance is not required, use a rolling pattern approved by the Engineer.

Use hand tamps or other satisfactory means to compact areas which are inaccessible to a roller, such as areas adjacent to curbs, headers, gutters, bridges, manholes, etc.

334-6.9 Joints

334-6.9.1 Transverse Joints: Construct smooth transverse joints, which are within 3/16 inch of a true longitudinal profile when measured with a 15 foot manual straightedge. The Engineer may waive these for transverse joints at the beginning and end of the project and at the beginning and end of bridge structures, at manholes and utility structures if the deficiencies are caused by factors beyond the control of the Contractor such as no milling requirement, as determined by the Engineer. When smoothness requirements are waived, construct a reasonably smooth transitional joint.

334-6.9.2 Longitudinal Joints: Place each layer of pavement so all longitudinal construction joints are offset 6 to 12 inches laterally between successive layers. Plan offsets in advance so the longitudinal joints of the friction course are not in wheel path areas. The longitudinal joints for friction course layers should be within 6 inches of the lane edge or at the center of the lane. The Engineer may waive these requirements where offsetting is not feasible due to the sequence of construction.

334-6.10 Surface Requirements

Construct a smooth pavement with good surface texture and the proper cross slope.

334-6.10.1 Texture of the Finished Surface of Paving Layers: Produce a finished surface of uniform texture and compaction with no pulled, torn, raveled, crushed or loosened portions and free of segregation, bleeding, flushing, sand streaks, sand spots, or ripples. Correct any area of the surface that does not meet the foregoing requirements in accordance with 334-6.10.4.

In areas not defined to be a density testing exception per 334-6.4.1, obtain for the Engineer, three 6 inch diameter roadway cores at locations visually identified by the Engineer to be segregated. The Engineer will determine the density of each core in accordance with FDOT Test Method FM 1-T166 and calculate the percent G_{mm} of the segregated area using the average G_{mb} of the roadway cores and the representative PC

Gmm for the questionable material. If the average percent G_{mm} is less than 90.0, address the segregated area in accordance with 334-6.10.4.

334-6.10.2 Cross Slope: Construct a pavement surface with cross slopes in compliance with the requirements of the Plans. Furnish a four-foot-long electronic level accurate to 0.1 degree, approved by the Engineer for the control of cross slope. Make this electronic level available at the jobsite at all times during paving operations.

334-6.10.3 Pavement Smoothness: Construct a smooth pavement meeting the requirements of this Specification. 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.

334-6.10.3.1 Straightedge Testing:

334-6.10.3.1.1 Acceptance Testing: Using a rolling straightedge, test the final (top) layer of the pavement. Test all pavement lanes where the width is constant using a rolling straightedge and document all deficiencies on a form approved by the Engineer. Notify the Engineer of the location and time of all straightedge testing a minimum of 48 hours before beginning testing.

334-6.10.3.1.2 Final (Top) Pavement Layer: At the completion of all paving operations, straightedge the final (top) layer either behind the final roller of the paving train or as a separate operation. Address all deficiencies in excess of 3/16 inch in accordance with 334-6.10.4, unless waived by the Engineer. Retest all corrected areas.

334-6.10.3.1.3 Straightedge Exceptions: Straightedge testing will not be required in the following areas: shoulders, intersections, tapers, crossovers, sidewalks, bicycle/shared use paths, parking lots and similar areas, or in the following areas when they are less than 250 feet in length: turn lanes, acceleration/deceleration lanes and side streets. In the event the Engineer identifies a surface irregularity in the above areas that is determined to be objectionable, straightedge and address all deficiencies in excess of 3/8 inch in accordance with 334-6.10.4.

334-6.10.4 Correcting Unacceptable Pavement: Correct deficiencies in the pavement layer by removing and replacing the full depth of the layer, extending a minimum of 50 feet on both sides of the defective area for the full width of the paving lane, at no additional cost. Alternatively, the engineer reserves the right to accept the deficient area at no pay or reduced pay.

334-6.11 Material Transfer Vehicle: For Category 2 and Category 3 work, all final surfaces courses the contractor shall utilize a remixing material transfer vehicle (example: Roadtec MTV1000 or Terex CR662RM) to allow for continuous paving and remixing or asphalt materials.

334-7 Acceptance of the Mixture

334-7.1 General

Contractor Quality Control test results may be verified by the City by separate sample.

The asphalt mixture will be accepted based on the Asphalt Work Category as defined below:

1. Asphalt Work Category 1 – Certification by the Contractor as defined in 334-7.2.
2. Asphalt Work Category 2 – Certification and process control testing by the Contractor as defined in 334-7.3
3. Asphalt Work Category 3 – Process control testing by the Contractor and acceptance testing by the Engineer as defined in 334-7.4.

334-7.2 Certification by the Contractor

On Asphalt Work Category 1 construction, the Engineer will accept the mix on the basis of visual inspection. Submit a Notarized Certification of Specification Compliance letter on company letterhead to the Engineer stating that all material produced and placed on the project meets the requirements of the Specifications. The Engineer may run independent tests to determine the acceptability of the material.

334-7.3 Certification and Process Control Testing by the Contractor & City

On Asphalt Work Category 2 construction, submit a Notarized Certification of Specification Compliance letter on company letterhead to the Engineer stating that all material produced and placed on the project meets the requirements of the Specifications, along with supporting test data documenting all process control testing as described in 334-7.3.1.

If required by the Plans, utilize an Independent Laboratory as approved by the Engineer for the process control testing. The mix will also require visual acceptance by the Engineer. In addition, the Engineer may run independent tests to determine the acceptability of the material. Material failing to meet these acceptance criteria will be addressed as directed by the Engineer such as but not limited to acceptance at reduced pay, delineation testing to determine the limits of the questionable material, removal and replacement at no cost to the City, or performing an Engineering analysis to determine the final disposition of the material. .

334-7.3.1 Process Control Sampling and Testing Requirements: Perform process control testing at a frequency of once per day. Obtain the samples in accordance with FDOT Method FM 1-T168. Test the mixture at the plant for gradation (P_{.8} and P_{.200}) and asphalt binder content (P_b). Measure the roadway density with 6 inch diameter roadway cores at a minimum frequency of once per 1,500 feet of pavement with a minimum of three cores per day.

Determine the asphalt binder content of the mixture in accordance with FDOT Method FM 5-563. Determine the gradation of the recovered aggregate in accordance with FM 1-T030. Determine the roadway density in accordance with FM 1-T166. The minimum roadway density will be based on the percent of the maximum specific gravity (G_{mm}) from the approved mix design. If the Contractor or Engineer suspects that the mix design G_{mm} is no longer representative of the asphalt mixture being produced, then a new G_{mm} value will be determined from plant-produced mix, with the approval of the Engineer. Roadway density testing will not be required in certain situations as described in 334-7.4.1. Assure that the asphalt binder content, gradation and density test results meet the criteria in Table 334-7.

Characteristic	Tolerance
Asphalt Binder Content (percent)	Target ± 0.55
Passing No. 8 Sieve (percent)	Target ± 6.00
Passing No. 200 Sieve (percent)	Target ± 1.50
Roadway Density (daily average)	Minimum 91.5% of G _{mm}
Roadway Density (any single core)	Minimum 88% of G _{mm}

334-7.4 Process Control Testing by the Contractor and Acceptance Testing by the Engineer

On Asphalt Work Category 3, perform process control testing as described in 334-7.3.1. In addition, the Engineer may accept the mixture at the plant with respect to gradation (P_{.8} and P_{.200}) and asphalt binder content (P_b). The mixture will be accepted on the roadway with respect to density. The Engineer may sample and test the material as described in 334-7.3.1. The Engineer may require the contractor to randomly obtain at least one set of samples per day on behalf of the City. Assure that the asphalt content, gradation and density test results meet the criteria in Table 334-7. Material failing to meet these acceptance criteria will be addressed as directed by the Engineer such as but not limited to acceptance at reduced pay, delineation testing to determine the limits of the questionable material, removal and replacement at no cost to the City, or performing an Engineering analysis to determine the final disposition of the material at no cost to the City.

334-7.4.1 Acceptance Testing Exceptions: When the total quantity of any mix type in the project is less than 500 tons, the Engineer will accept the mix on the basis of visual inspection. The Engineer may run independent tests to determine the acceptability of the material.

Density testing for acceptance will not be performed on widening strips or shoulders with a width of 5 feet or less, variable thickness overbuild courses, leveling courses, any asphalt layer placed on subgrade (regardless of type), miscellaneous asphalt pavement, bike/shared use paths, crossovers, or any course with a specified thickness less than 1 inch or a specified spread rate less than 100 lb per square yard. Density testing for acceptance will not be performed on asphalt courses placed on bridge decks or approach slabs; compact these courses in static mode only. In addition, density testing for acceptance will not be performed on the following areas when they are less than 500 feet continuous in length: turning lanes, acceleration lanes, deceleration lanes, shoulders, parallel parking lanes, or ramps. Do not perform density testing for acceptance in situations where the area requiring density is less than 50 tons. Density testing for acceptance will not be performed in intersections. The limits of the intersection will be from stop bar to stop bar for both the mainline and side streets. Compact these courses in accordance with a standard rolling procedure approved by the Engineer. In the event that the rolling procedure deviates from the approved procedure, placement of the mix will be stopped.

334-8 Method of Measurement

For the work specified under this Section, the quantity to be paid for will be the area placed and accepted in square yards or the weight of the mixture in tons.

The bid price for the asphalt mix will include the cost of the liquid asphalt or the asphalt recycling agent and the tack coat application as specified in 334-5.5.4. There will be no separate payment for the asphalt or unit price adjustment for binder material in the asphalt mix.

334-9 Basis of Payment

334-9.1 General

Price and payment will be full compensation for all the work specified under this Section (including the applicable requirements of Sections 320 and 330). No composite pay factor will be paid.

SECTION 337 ASPHALT CONCRETE FRICTION COURSES

337-6.1 FC-9.5 and FC-12.5

Mixture acceptance shall meet the requirements of 334-7.

337-7.8 Material Transfer Vehicle

The contractor shall utilize a remixing material transfer vehicle (example: Roadtec MTV1000 or Terex CR662RM) to allow for continuous paving and remixing or asphalt materials.

337-11 Method of Measurement

There will be no separate payment for the asphalt or unit price adjustment for binder material in the asphalt mix.

337-12 Basis of Payment

337-12.1 General

No composite pay factor will be paid. Material acceptance shall meet the requirements of 334-6.

SECTION 344 CONCRETE FOR LAP (OFF-SYSTEM) (REV 6-9-21) (FA 7-2-21) (7-22) MODIFIED

Delete Section 346 and Section 347 and replace with the following:

Mix designs may be utilized that have current approval by FDOT for use in the appropriate application for the appropriate class of concrete. Provide copies of the approved concrete mix design and obtain approval from the City prior to use.

344-1 Description.

344-1.1 General

Construct concrete based on the type of work as described in the Plans and the concrete work categories as defined below.

344-1.2 Work Categories

Construction will fall into one of the following concrete work categories:

344-1.2.1 Concrete Work Category 1: Includes the construction cast-in-place non-structural concrete including sidewalks, curb and gutter, ditch and slope pavement, or other non-reinforced cast-in-place elements.

344-1.2.2 Concrete Work Category 2: Includes the construction of precast and prestressed concrete products.

344-1.2.2.1 Precast Concrete Drainage Structures: Includes but are not limited to reinforced and non-reinforced concrete pipes, french drains, underdrains, inlets, manholes, junction boxes, endwalls, pipe culverts, storm sewers, and box culverts.

344-1.2.2.2 Incidental Precast/Prestressed Concrete Structures: Includes the fabrication, storage, transportation, and erection of prestressed concrete poles, concrete bases for light poles, highway sign foundations, retaining wall systems, traffic separators, sound barriers or other structural precast elements.

344-1.2.3 Concrete Work Category 3: Includes the work associated with the placement and/or construction of structural cast-in-place concrete meeting the requirements of this section.

344-2 Materials.

344-2.1 General

Use concrete composed of a mixture of Portland cement, aggregates, and water, with or without chemical or mineral admixtures that meet the following requirements:

344.2.1.1 Portland Cement: Portland cements meeting the requirements of AASHTO M 85 or ASTM C150 is required. Different brands of cement, cement of the same brand from different facilities or different types of cement shall be stored separately and shall not be mixed.

344.2.1.2 Coarse and Fine Aggregates: Aggregates shall meet ASTM C33. Source approval by the FDOT is required.

344.2.1.3 Water: Water shall meet the requirements of ASTM C1602.

344.2.1.4 Chemical Admixtures: Chemical admixtures shall be listed on the FDOT Approved Products List. Admixtures may be added at the dosage rates recommended by the manufacturer.

344.2.1.5 Types of Cement: Unless a specific type of cement is designated in the Plans, use Type I, Type II, Type IP, Type IS, Type II, Type II (MH) or Type III cement in all classes of concrete. Use Type II or Type II (MH) for all mass concrete elements.

344.2.1.6 Supplementary Cementitious Materials shall meet the requirements of ASTM C618 and ASTM C989, respectively. Fly ash shall not include the residue resulting from the burning of municipal garbage or any other refuse with coal, or the burning of industrial or municipal garbage in incinerators.

344-3 Production, Mixing and Delivery of Concrete.

344-3.1 Concrete Production Requirements

344.3.1.1 Category 1: Use a concrete production facility that is listed on the FDOT list of non-structural concrete producers. Concrete production facilities listed on the FDOT Producers with Accepted QC Programs list for structural concrete may also be used for Category 1.

344.3.1.2 Category 2: Obtain precast concrete products from plants that are currently on the FDOT's Production Facility Listing for the types of products that they are producing.

344.3.1.3 Class 3: Obtain structural concrete from a plant that is currently on the FDOT's Production Facility Listing for structural concrete.

344-3.2 Classes of Concrete: Meet the requirements of Table 344-1.

Table 344-1 Master Proportion Table ⁽⁷⁾				
Class of Concrete	28-day Specified Minimum Compressive Strength (f _c ') (psi)	Maximum Water to Cementitious Materials Ratio (pounds per pounds)	Minimum Total Cementitious Materials Content (lb/yd ³)	Target Slump Value (inches) ⁽³⁾
Category 1				
Class NS	2,500	N/A	N/A	N/A
Category 3				
I ⁽¹⁾	3,000	0.53	470	3 ⁽²⁾
I (Pavement)	3,000	0.50	470	1.5 or 3 ⁽⁵⁾
II ⁽¹⁾	3,400	0.53	470	3 ⁽²⁾
II (Bridge Deck)	4,500	0.44	600 ⁽⁸⁾	3 ⁽²⁾
III ⁽⁴⁾	5,000	0.44	600 ⁽⁸⁾	3 ⁽²⁾
III (Seal)	3,000	0.53	600 ⁽⁸⁾	8
IV	5,500	0.41 ⁽⁶⁾	600 ⁽⁸⁾	3 ⁽²⁾
IV (Drilled Shaft)	4,000	0.41	600 ⁽⁸⁾	8.5
V (Special)	6,000	0.37 ⁽⁶⁾	600 ⁽⁸⁾	3 ⁽²⁾
V	6,500	0.37 ⁽⁶⁾	600 ⁽⁸⁾	3 ⁽²⁾
VI	8,500	0.37 ⁽⁶⁾	600 ⁽⁸⁾	3 ⁽²⁾
VII	10,000	0.37 ⁽⁶⁾	600 ⁽⁸⁾	3 ⁽²⁾

Notes:

- (1) For precast three-sided culverts, box culverts, endwalls, inlets, manholes and junction boxes, the target slump value and air content will not apply. The maximum allowable slump is 6 inches, except as noted in (2). The Contractor is permitted to use concrete meeting the requirements of ASTM C478 (4,000 psi) in lieu of the specified Class I or Class II concrete for precast endwalls, inlets, manholes and junction boxes.
- (2) The Engineer may allow a maximum target slump of 7 inches when a Type F, G, I or II admixture is used. When flowing concrete is used, meet the requirements of Section 8.6 of the FDOT Materials Manual.
- (3) For a reduction in the target slump for slip-form operations, submit a revision to the mix design to the Engineer. The target slump for slip-form mix is 1.50 inches.
- (4) When precast three-sided culverts, box culverts, endwalls, inlets, manholes or junction boxes require a Class III concrete, the minimum cementitious materials content is 470 pounds per cubic yard. Do not apply the air content range and the maximum target slump shall be 6 inches, except as allowed in (2).
- (5) Meet the requirements of Section 350 of FDOT Specifications.
- (6) When silica fume or metakaolin is required, the maximum water to cementitious material ratio will be 0.35. When ultrafine fly ash is used, the maximum water to cementitious material ratio will be 0.30.
- (7) Tolerance for slump is ± 1.5 inches and Air Content range is 0.0% to 6.0%.
- (8) The minimum total amount of cementitious materials content of 600 pounds per cubic yard is required for extremely aggressive environment. For moderately and slightly aggressive environments, the required amounts are 550 lb/yd³ and 510 lb/yd³, respectively.

344-3.3 Contractors Quality Control: For Categories 1 and 2, assume full responsibility for controlling all operations and processes such that the requirements of these Specifications are met at all times.

For Category 3, furnish a Quality Control (QC) plan to identify to the Engineer how quality will be ensured at the project site. During random inspections, the Engineer will use this document to verify that the construction of the project is in agreement with the QC plan.

344-3.4 Concrete Mix Design: For all categories, submit to the Engineer for approval, FDOT approved mix designs. Do not use concrete mix designs without prior approval of the Engineer.

Materials may be adjusted provided that the theoretical yield requirement of the approved mix design is met. Show all required original approved design mix data and batch adjustments on an Engineer approved concrete delivery ticket.

344-3.5 Delivery: For Category 3, the maximum allowable transit time of concrete is 90 minutes. For critical placements, with the Engineer's approval, the transit time may be extended to the allowable mixing time shown in the mix design.

Furnish a delivery ticket on a form approved by the Engineer with each batch of concrete before unloading at the placement site. Record material quantities incorporated into the mix on the delivery ticket. Ensure that the Batchers responsible for producing the concrete signs the delivery ticket certifying that the batch was produced and delivered in accordance with these requirements. Sign the delivery ticket certifying that the concrete was placed in accordance with these requirements.

344-3.6 Placing Concrete:

344.3.6.1 Placing Concrete in Cold Weather: Do not mix or place concrete when the air temperature at placement is below 40°F.

During the curing period, if NOAA predicts the ambient temperature to fall below 35°F for 12 hours or more or to fall below 30°F for more than 4 hours, enclose the structure in such a way that the air temperature within the enclosure can be kept above 50°F for a period of 3 days after placing the concrete or until the concrete reaches a minimum compressive strength of 1,500 psi.

Assume all risks connected with the placing and curing of concrete. Although the Engineer may give permission to place concrete, the Contractor is responsible for satisfactory results. If the placed concrete is determined to be unsatisfactory, remove, dispose of, and replace the concrete at no expense to the City.

344.3.6.2 Placing Concrete in Hot Weather: For Category 3, hot weather concreting is defined as the production, placing and curing of concrete when the concrete temperature at placing exceeds 86°F but is less than 100°F.

Spray reinforcing bars and metal forms with cool fresh water just prior to placing the concrete in a method approved by the Engineer.

Assume all risks associated with the placing and curing of concrete. Although the Engineer may give permission to place concrete, the Contractor is responsible for satisfactory results. If the placed concrete is determined to be unsatisfactory, remove, dispose of, and replace the concrete at no expense to the City.

Unless the specified hot weather concreting measures are in effect, reject concrete exceeding 85°F at the time of placement. Regardless of special measures taken, reject concrete exceeding 100°F. Predict the concrete temperatures at placement time and implement hot weather measures to avoid production shutdown.

344-3.7 Mixers: For Category 3 concrete, do not place concrete from a truck mixer that does not have a current FDOT mixer identification card.

344-3.8 Small Quantities of Concrete: With approval of the Engineer, small quantities of concrete, less than 3 cubic yards placed in one day and less than 0.5 cubic yards placed in a single placement may be accepted using a pre-bagged mixture. The Engineer may verify that the pre-bagged mixture is prepared in accordance with the manufacturer's recommendations and will meet the requirements of this Specification.

344-3.9 Sampling and Testing:

344.3.9.1 Category 1: The Engineer may sample and test the concrete to verify its quality. The minimum 28 day compressive strength requirement for this concrete is 2,500 psi.

344.3.9.2 Category 2: No sampling and testing is required for category 2.

344.3.9.3 Category 3: The Engineer will randomly select a sample from each LOT to determine its plastic properties and to make three 4 x 8 inch cylinders for testing by the Engineer at 28 days to ensure that the design compressive strength has been met for the class of concrete as specified in Table 344-1. A LOT is defined as the concrete placement of 200 cubic yards or one day's production, whichever is less.

344-3.10 Records: Ensure the following records are available for review for at least 3 years after final acceptance of the project:

1. Accepted concrete Plant QC Plan
2. Approved concrete mix designs.
3. Materials source (delivery tickets, certifications, certified mill test reports).
4. A copy of the scale company or testing agency report showing the signature of the scale company representative, date of inspection, observed deviations from quantities checked during calibration of the scales and meters.
5. A copy of the documentation certifying the admixture weighing/measuring devices.
6. Aggregate moisture control records including date and time of test.
7. Manufacturer's mixer information.
8. Certification documents for admixture weighing and measuring dispensers.
9. A daily record of all concrete batched for delivery to the projects, including respective mix design numbers and quantities of batched concrete.

344-4 Acceptance of Work.

344-4.1 Category 1 Work: Category 1 work will be accepted based on certification by the batcher and contractor on the delivery ticket.

344-4.2 Category 2 Work: Certify that the precast elements were produced by production facilities that are currently on the FDOT's Production Facility Listing for the types of products that they are producing. In addition, the producer's logo shall be stamped on the element. The producer shall not use the Florida Department of Transportation QC stamp on elements used on this project. Provide a statement of certification from the manufacturer of the precast element that the element meets the requirements of this Specification.

344-4.3 Category 3 Work: Category 3 concrete will be accepted based on the Engineer's test results for plastic properties and compressive strength requirements for the class of concrete as defined in Table 344-1. In addition, a Delivery Ticket as described in 344-3.5 will be required for acceptance of the material at the project site.

344-4.4 Small Quantities of Concrete: Category 3 concrete meeting the definition of 344-3.8 will be accepted in accordance with 344-4.3 based on test results for plastic properties and compressive strength.

344-5 Method of Measurement.

The quantities to be paid for will be the items shown in the plans, completed and accepted.

344-6 Basis of Payment.

Prices and payments will be full compensation for all work and materials specified in this Section.

SECTION 430 PIPE CULVERTS

All pipe shall be reinforced concrete pipe or 100 year design service life polypropylene pipe unless otherwise noted in the plans.

SECTION 440 UNDERDRAINS

Underdrain pipe shall be 6" schedule 40 PVC and this section shall include flush mounted cleanout structures at each end of pipe run and every 250 ft.

SECTION 522 CONCRETE SIDEWALK AND DRIVEWAYS

Any and all final sidewalk in excess of a 2% cross slope, regardless of any interim phase inspection acceptance, shall be replaced at the Contractor's expense. No tolerance in excess of 2% will be accepted.

All ADA ramps shall be constructed with 6" thick concrete including a 6" concrete base beneath detectable warning areas. All 6" thick concrete (ramps, driveways, turnouts, etc.) shall require 6x6 WWM or 1.5 lb polypropylene fiber mesh per CY.

SECTION 527 DETECTABLE WARNINGS

527-2 Materials

Detectable warning surfaces outside of FDOT right-of-way shall be clay or concrete red brick. No post-applied materials or wet-set materials are acceptable.

527-4 Method of Measurement

Detectable warning surfaces placed in newly constructed sidewalk/curb ramps outside of FDOT right-of-way will be paid by the square foot furnished, installed and accepted.

527-5 Basis of Payment

Pay Item – Detectable Warning Surface – per SF

SECTION 570 PERFORMANCE TURF

570-3.2 Seeding

The Contractor shall furnish to the City Inspector, prior to placement of any seed, a certification from the Florida Department of Agriculture and Consumer Services Division of Plant Industries, stating that the seed is free of noxious weeds, including tropical soda apple. All seed materials shall be subject to inspection by the City Inspector prior to placement. Any sod with noxious weeds and grasses, including tropical soda apple, shall be rejected for use on the project.

570-3.3 Sod

Any portion of the existing right-of-way, including all easements, that is disturbed outside the limits of construction shall be sodded at the Contractor's expense as directed by the City Inspector. The Contractor shall furnish to the City Inspector, prior to placement of any sod, a certification from the Florida Department of Agriculture and Consumer Services Division of Plant Industries, stating that the sod is free of noxious weeds, including tropical soda apple. All sod materials shall be subject to inspection by the City Inspector prior to placement. Any sod with noxious weeds and grasses, including tropical soda apple, shall be rejected for use on the project.

Contractor may elect to use hydroseed in lieu of sod. Contractor shall be responsible to maintain erosion control on areas that are stabilized with hydroseed. The City shall not make payment for redressing of areas the Contractor elects to place hydroseed due to erosion.

SECTION 654 MIDBLOCK CROSSWALK ENHANCEMENT ASSEMBLIES

Rectangular Rapid Flashing Beacons shall be Carmanah Model SC315-G (Solar – 50W) and compatible with the City of Gainesville Traffic Management Center. Obtain the site specific solar power report provided by the manufacturer and submit to the Engineer for approval prior to installation.

SECTION 660 VEHICLE DETECTION SYSTEM

All loops shall be 30 ft in length unless otherwise noted in the plans. Video detection shall include GRIDSMART video vehicle detection system with Performance+Data Aggregation License or Iteris Vantage Edge2 with Iteris Vantage Live Data Aggregation. Detection systems shall be configured for vehicular and bicycle detection. The initial zones shall be 6' x 30' for presence and stop-bar detection for all approaches. The advance detection zones shall be 6' x 6'. Obtain approval from the City of Gainesville Traffic Operations Division for all materials and equipment under this section prior to ordering.

SECTION 665 PEDESTRIAN DETECTOR SYSTEM

All detectors shall have solid state switch, momentary LED and tone (ex. Polara Engineering (Bulldog) BDL3 Series).

SECTION 670 TRAFFIC CONTROLLER ASSEMBLIES

Traffic controller assembly shall be Cubic Type-VI controller cabinet with Cubic TS-2 (ATC) controller, generator plug and LCD MMU.

SECTION 682 VIDEO EQUIPMENT

Camera shall be PTZ model VG-5 ITS-Autodome Series (VG5-ITSS1080P-30X6 or newer). Contractor shall ensure the ITS firmware is installed for Statewide compatibility with the SunGuide system.

SECTION 684 NETWORK DEVICES

Managed field Ethernet switch shall be model ITS Express 8012-24.

SECTION 700 HIGHWAY SIGNING

Generally: All signage shall be attached to posts with stainless steel bolts and vandal proof stainless steel nuts.

Posts: When the Contractor has the option for sign post type, the sign post type shall be uni-strut square post for street name assemblies and 2 lb/1f u-channel posts for all other sign types. Uni-strut post shall be embedded 3.5 ft into the ground and u-channel post shall be embedded 3 ft into the ground.

Post Installed in Concrete – The following minimum standards shall be followed:

1. Bury an 8 inch diameter, minimum 6 inch long schedule 40 PVC pipe so that it extends the entire depth of the concrete pour to provide an unobstructed opening from the top of the pipe through to the bottom end below the concrete.
2. The top opening of the PVC pipe shall be flush with the surface of the sidewalk and empty of debris for the entire length.
3. Duct tape shall be applied over the top opening of pipe until the post is installed so debris cannot enter the opening.
4. The pipe shall be buried, not driven into the ground.
5. The pipe shall be installed before the concrete pour and the concrete poured around the pipe, leaving the top of the pipe accessible for sign installation.

Post Installed in Brick – The following minimum standards shall be followed:

1. Bury an 8 inch diameter, minimum 6 inch long schedule 40 PVC pipe so that it extends the entire depth of the brick to provide an unobstructed opening from the top of the pipe through to the bottom end below the brick.
2. The top opening of the PVC pipe shall be flush with the surface of the brick sidewalk and empty of debris for the entire length.
3. Duct tape shall be applied over the top prior to a post being installed so debris cannot enter the opening.
4. The pipe shall be buried, not driven into the ground.
5. If a concrete base is poured for the bricks, the PVC pipe must extend the entire depth of the bricks and the concrete so there is an unobstructed opening from the top of the pipe through to the bottom end below the concrete.
6. The pipe shall be installed before the concrete pour and the concrete poured around the pipe, leaving the top of the pipe accessible for sign installation.

Post Mounted Street Name Signs – The following minimum standards shall be followed:

1. Provide four (4) blanks per intersection;
2. Provide a 1/2 inch border matching the letter color around the perimeter;
3. Provide 6 inch – series “B” lettering;
4. Provide 2-3/4 inch – series “C” superscript lettering;
5. Bolt signs back-to-back onto the post, with the post between them and rivet them together on each end. Rivets shall be in the center of the sign vertically, and 1/2 inch from the outer ends;
6. Attach street name signs above the stop sign, with the primary street name sign at the top of the post and the cross (secondary) street name sign below the primary street name sign.

04 LAYING OUT THE WORK

The Contractor shall be responsible for establishing all lines and grades together with all reference points as required by the various trades for all work under this Agreement. All required layout, both horizontal and vertical, shall be completed under the supervision of a Land Surveyor, who is registered in the State of Florida. Station boards and survey control shall be maintained on-site at all times. Station boards shall be provided every 200 ft at a minimum and survey control shall be provided at every named intersection at a minimum. The construction plans and right-of-way maps, if available, are at the Public Works Department for review. Survey control points disturbed or destroyed by the Contractor shall be replaced by the Contractor’s Surveyor at the Contractor’s expense. Survey monuments, markers or other survey control points, which will be removed by construction, shall be properly referenced to the right-of-way line prior to removal. Reference monumentation for all survey control shall be provided to the City upon project completion.

05 AS-BUILT SURVEY

The Contractor shall supply a final as-built survey for all Work completed under this agreement. The as-built survey shall show the constructed conditions of the City owned or maintained areas and be performed by a Florida Licensed Professional Surveyor and Mapper. Bearings and coordinates shall be referenced to the State Plane Coordinate System, Florida North Zone, North American Datum of 1983 (NAD 83), with distances given in feet. Vertical elevations shall be referenced to the North American Vertical Datum of 1988 (NAVD 88), with elevations given in feet. As-built plans shall be signed and sealed and be submitted to the City in AutoCAD and pdf electronic drawing format prior to final payment. Include all external references and benchmarks.

06 SPECIAL PAY ITEM NOTES

Generally -

The contract is lump sum contract. The lump sum items 1-10 are intended to encompass the major work groups that must be accomplished per the plans and specifications. The separate items are for the benefit of the City to monitor the contractors' progress and are in no way intended to exclude any item of required work. The contractor is to provide a COMPELTE bid and even if an item is not specifically listed or called it shall be included in the overall contract lump sum. The contractor may use their discretion for non-listed items as to which item to list them under.

Bid Form Narratives

Item 1- MOBILIZATION, PERMITTING AND SURETY shall include all general conditions, mobilization, maintenance of traffic, permit fees for contractors' work, and bonding or surety required or similar.

Item 2 - CLEARING, GRUBBING AND DEMOLITION shall include all silt fence, tree barricades, Inlet protection, construction entrances and exits and any other erosion and sedimentation controls. All demolition of any structures, milling of asphalt, removal of sidewalks, curbs or like allow the construction shall be included in this lump sum. Clearing of all vegetation and grubbing of the site is to be included.

Item 3 - MASS GRADING, SITE WORK, STORM PIPING/INLETS, CURB & PAVING shall include all grading including cut and fill for roadway and lots, site work to include but not limited to curbs, sidewalks and paving, and storm to include inlets, piping and end sections. This item shall include SMF outfall and piping from outfall to downstream points of connections. All dewatering, if required, shall be included.

Item 4 - POTABLE WATER, SANITARY SEWER & UTILITY CROSSINGS shall include the complete installation of the potable water systems with all apertures, valves, blow offs, services, and fire hydrants. It shall also include the complete sanitary sewer system to include all manholes, sewer, laterals, and cleanouts. This section shall also include all necessary utility sleeves for telephone, CATV, GRU gas and irrigation and any conduit for GRU com as well as underground junction boxes for GRU Com. All dewatering, if required, shall be included.

Item 5 - FDOT ROW IMPROVEMENTS shall include all sidewalks, curbs, pavement, striping and signage to modify Hawthorne Road per the plans and specifications and the FDOT driveway connection permit.

Item 6 - NON FDOT OFF-SITE UTILITIES AND IMPROVEMENTS shall include all offsite work not in the FDOT ROW to include milling, open cut and resurfacing of SE 8th Ave. and SE 6th Ave. This line item shall also include the utility work in SE 8th Ave ROW and SE 6th Ave ROW west of Sta 30+00 on Road B.

Item 7- STRIPING AND SIGNAGE shall include all striping and signage on the project as shown on the plans and specifications as well as any required temporary signage or striping due to milestone deliveries.

Item 8 - STORMWATER MANAGEMENT FACILITIES (SMF) shall include the entire cost for excavation and grading of the SMF including sodding per plans and cross sections. Outfall and storm piping are to be included in Item 3. All dewatering, if required, shall be included.

Item 9 - ELECTRICAL CONDUITS, PADS & STREET LIGHTING shall include the contractor providing and installing all conduit as shown on the electrical plans for the primary and secondary power and street lighting conduit. The contractor shall provide and install all transformer pads, secondary enclosures, pull boxes and underground junction boxes. All the forementioned shall be in compliance with GRU standards. GRU will pull all necessary wiring for the primary and secondary and set the light poles on behalf of the City.

Item 10- LANDSCAPING & IRRIGATION shall include providing and installing all trees, shrubs, flowers, mulch and a functioning irrigation system as shown on the approved plans. Sod for the ROW and seeding for mass disturbed areas shall be included here except for the sod for the SMF areas.

07 UTILITY WORK SCHEDULES, WORK PLANS AND PERMITS

1. AT&T Distribution
2. Cox Communications
3. GRU – Communications
4. GRU – Electric
5. GRU – Gas
6. GRU – Water/Wastewater
7. GRU – Gas
8. St. John River Water Management District Permit No. 195356-2
9. City of Gainesville Development Order
10. GRU Utility Construction Permit
11. FDEP NOI for Construction Activity