

CONTRACT DOCUMENTS FOR:



ITB # 24-008

SOUTH STREET IMPROVEMENTS

FEBRUARY 2024

CITY OF KEY WEST

MAYOR: TERI JOHNSTON

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PREPARED BY:
Engineering Services

CITY OF KEY WEST

KEY WEST, FLORIDA

DOCUMENTS

For

SOUTH STREET IMPROVEMENTS

ITB # 24-008

CONSISTING OF:

BIDDING REQUIREMENTS
CONTRACT FORMS
CONDITIONS OF THE CONTRACT
GENERAL REQUIREMENTS
TECHNICAL SPECIFICATIONS
ENGINEERED DRAWINGS

FEBRUARY 2024

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PART 1

BIDDING REQUIREMENTS

INVITATION TO BID

Sealed Bids for City of Key West “**SOUTH STREET IMPROVEMENTS**” addressed to the City of Key West, will be received at the office of the City Clerk, 1300 White Street, Key West, Florida until **3:00 p.m.**, local time, on the **March 6, 2024**, and then will be publicly opened and read.

Please submit one (1) original bid package and two (2) electronic copies on USB drives with a single PDF file of the entire bid package. Bid package shall be enclosed in a sealed envelope, clearly marked on the outside “**ITB #24-008 SOUTH STREET IMPROVEMENTS**” addressed and delivered to the City Clerk at the address noted above.

The CITY is seeking BIDS from qualified individuals or firms The CITY is seeking BIDS from qualified individuals or firms for roadway improvements including paving, sidewalks, curbing and stormwater improvements as well as landscape and hardscape installation and pavement markings, all in accordance with the Scope of Services and engineered drawings.

The full Invitation to Bid may be obtained from Demand Star by Onvia and The City of Key West website. Please contact Demand Star at www.demandstar.com or call 1-800-711-1712 or www.cityofkeywest-fl.gov

EACH BID MUST BE SUBMITTED ON THE PRESCRIBED FORM AND ACCOMPANIED BY BID SECURITY AS PRESCRIBED IN THE INSTRUCTIONS TO BIDDERS, PAYABLE TO THE CITY OF KEY WEST, FLORIDA, IN AN AMOUNT NOT LESS THAN FIVE (5) PERCENT OF THE AMOUNT BID.

For information concerning the proposed work please contact Ian McDowell, City Engineer, Engineering Services by email at cimcdowell@cityofkeywest-fl.gov. Please include:

“ITB # 24-008 SOUTH STREET IMPROVEMENTS” in the subject line of email requests. Verbal communications, per the City’s “Cone of Silence” ordinance are not allowed.

As stated above at the time of the BID submittal the Bidder must provide satisfactory documentation of State Licenses. The Bidder shall furnish documentation showing that he is in compliance with the licensing requirements of County, and City licenses as would be required within ten days of the award. The successful Bidder must also be able to satisfy the City Attorney as to such insurance coverage and legal requirements as may be demanded by the Proposal in question. The CITY may reject BID for any and/or all of the following reasons: (1) for budgetary reasons, (2) if the proposer misstates or conceals a material fact in its bid, (3) if the proposal does not strictly conform to the law or is non-responsive to the bid requirements, (4) if the proposal is conditional, or (5) if a change of circumstances occurs making the purpose of the proposal unnecessary to the CITY. (6) if such rejection is in the best interest of the CITY. The CITY may also waive any minor formalities or irregularities in any proposal.

The City retains the right to award bid to the bidder that best meet the needs of the City.

* * * * *

INSTRUCTIONS TO BIDDERS

1. CONTRACT DOCUMENTS

A. FORMAT

The Contract Documents are divided into parts, divisions, and sections for convenient organization and reference. Generally, there has been no attempt to divide the Specification sections into work performed by the various building trades, work by separate subcontractors, or work required for separate facilities in the Project.

B. DOCUMENT INTERPRETATION

Separate sections contained within these Contract Documents are intended to be mutually cooperative and provide all details reasonably required for the execution of proposed work.

Should there be any doubt as to the meaning or intent of said Contract Documents, the Bidder should request of the City Engineer, in writing **at least 5 calendar days prior (March 6, 2024) to Bid opening** an interpretation thereof. Any interpretation or change in said Contract Documents will be made only in writing in the form of Addenda to the Documents, which will be furnished to all registered holders of Contract Documents. Bidders shall submit with their Bids, or indicate receipt of all Addenda. The Owner will not be responsible for any other explanation or interpretations of said Documents.

2. SCOPE OF SERVICES

Project includes the all construction related activities per attached engineered drawings including the following:

Roadway Improvements including paving, sidewalks, curbing and stormwater improvements as well as landscape installation and pavement markings, all in accordance with the Scope of Services and engineered drawings.

The intent of this Scope of Work is to describe a functionally complete project (or part thereof) to be constructed in accordance with all applicable codes. Any work, materials, or equipment that may reasonably be inferred from this Scope of Work, as being required to produce the intended result shall be supplied whether or not specifically called for.

3. REQUIRED QUALIFICATIONS

The prospective Proposers must meet the statutorily prescribed requirements before award of Contract by the City. Proposers must hold or obtain all licenses and/or certificates as required by the State and Local Statutes in order to bid and perform the work specified herein.

4. BIDDER'S UNDERSTANDING

Each Proposer must inform himself of the conditions relating to the execution of the work and make himself thoroughly familiar with all the Contract Documents. Failure to do so will not relieve the successful Proposer of his obligation to enter into a Contract and complete the contemplated work in strict accordance with the Contract Documents.

Each Proposer shall inform himself of, and the Proposer awarded a Contract shall comply with, federal, state, and local laws, statutes, and ordinances relative to the execution of the work. This requirement includes, but is not limited to, applicable regulations concerning minimum wage rates, nondiscrimination in the employment of labor, protection of public and employee safety and health, environmental protection, the protection of natural resources, fire protection, permits, fees, and similar subjects.

5. TYPE OF BID

UNIT PRICE

The Bid for the work is to be submitted on Unit Price basis. All items required to complete the work specified but not included in the BID shall be considered incidental to those set forth in the Proposal. Payment to the Contractor will be made on work actually performed by the Contractor, as specified in the Contract Documents.

The total contract base bid price shall be the sum of the extended prices for all work described in the City of Key West's drawings and specifications.

6. PREPARATION OF BIDS

A. GENERAL

All blank spaces in the BID form must be filled in for all schedules and associated parts, as required, preferably in BLACK INK. All price information shall be clearly shown in both words and figures where required. No changes shall be made in the phraseology of the forms. Written amounts shall govern in case of discrepancy between the amounts stated in writing and the amounts stated in figures. In case of discrepancy between unit prices and extended totals, unit prices shall prevail.

Any BID shall be deemed informal which contains omissions, erasures, alterations, or additions of any kind, or prices uncalled for, or in which any of the prices are obviously unbalanced, or which in any manner shall fail to conform to the conditions of the published Invitation to BID.

Only one BID from any individual, firm, partnership, or corporation, under the same or different names, will be considered. Should it appear to the Owner that any Bidder is interested in more than one BID for work contemplated; all Bids in which such Bidder is interested will be rejected.

B. SIGNATURE

The Bidder shall sign his BID in the blank space provided therefor. If Bidder is a corporation, the legal name of the corporation shall be set forth above together with the signature of the officer or officers authorized to sign Contracts on behalf of the corporation. If Bidder is a partnership, the true name of the firm shall be set forth above together with the signature of the partner or partners authorized to sign Contracts in behalf of the partnership. If signature is by an agent, other than an officer of a corporation or a member of a partnership, a notarized power-of-attorney must be on file with the Owner prior to opening of Bids or submitted with the Bid otherwise the Bid will be regarded as not properly authorized.

C. SPECIAL BIDDING REQUIREMENTS

The Bidder's attention is brought to the hiring practices and licenses and permits of the City of Key West. These are defined in the addition to Article 39, ORDINANCES, PERMITS, AND LICENSES, as set forth in the Supplementary Conditions.

The Bidder shall submit with his Bid his experience record showing his experience and expertise in *roadway and sidewalk construction* and related work. Such experience record shall provide at least five current or recent projects of similar work, not more than 5 years old within the State Florida and preferably Monroe County. For each project the following information shall be provided:

1. Description and location of work.
2. Contract amount.
3. Dates work was performed.
4. Owner.

5. Name of Owner's contact person and phone number.
6. Engineer.
7. Name of Engineer's contact person and phone number.

The bidder shall submit at least 3 references from the above work experience.

D. ATTACHMENTS

Bidder shall complete and submit the following forms with his bid:

1. Anti-Kickback Affidavit
2. Public Entity Crimes Form
3. City of Key West Indemnification Form
4. Equal Benefits for Domestic Partners Affidavit
5. Cone of Silence
6. Local Vendor Certification
7. Non-Collusion Affidavit
8. Scrutinized Companies List Certification
9. Proof of Required Insurance

E. PUBLIC ENTITY CRIMES FORM

Pursuant to the requirements of Chapter 287.133, Laws of Florida, pertaining to the sworn statement on Public Entity Crimes and the Convicted Vendor List, all Bidders shall submit a signed and notarized statement with their Bid on the form provided herein.

7. STATE AND LOCAL SALES AND USE TAXES

Unless the Supplementary Conditions contains a statement that the OWNER is exempt from state sales tax on materials incorporated into the work due to the qualification of the work under this Contract, the CONTRACTOR, as required by the laws and statutes of the state and its political subdivisions, shall pay all state and local sales and use taxes. Prices quoted in the Bid shall include all nonexempt sales and use taxes, unless Provision is made in the Bid form to separately itemize the tax.

8. SUBMISSION OF BID PROPOSALS

All Bids must be submitted not later than the time prescribed, at the place, and in the manner set forth in the Invitation to Bid. Bids must be made on the Bid Proposal forms provided herewith, submit one (1) original and two (2) USB drives each with a single file of the entire bid proposal package.

Each Bid must be submitted in a sealed envelope, so marked as to indicate the Bidder's name and its contents without being opened and addressed in conformance with the instructions in the Invitation to Bid.

9. MODIFICATION OR WITHDRAWAL OF BID

Prior to the time and date designated for receipt of Bids, any Bid submitted may be withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the signature of the Bidder or by telegram. If by telegram, written confirmation over the signature of the Bidder shall be mailed and postmarked on or before the date and time set for receipt of Bids. No Bid may be withdrawn after the time scheduled for opening of Bids unless the time specified in paragraph AWARD OF CONTRACT of these Instructions to Bidders shall have elapsed.

BID SECURITY

BIDS must be accompanied by cash, a certified check, or cashier's check drawn on a bank in good standing, or a bid bond issued by a Surety authorized to issue such bonds in the state where the work is located, in the amount of five (5) percent of the total amount of the Proposal submitted. This bid security shall be given as a guarantee that the Bidder will not withdraw his BID for a period of ninety (90) days after bid opening, and that if awarded the Contract, the successful Bidder will execute the attached Contract and furnish properly executed Performance and Payment Bonds, each in the full amount of the Contract price within the time specified. Agent and Surety phone numbers must be provided.

The Attorney-in-Fact who executes this bond in behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond. Where State Statute requires, certification by a resident agent shall also be provided.

If the Bidder elects to furnish a Bid Bond, he shall use the Bid Bond form bound herewith, or one conforming substantially thereto in form and content.

11. RETURN OF BID SECURITY

Within fifteen (15) days after the award of the Contract, the City will return the Bid securities to all Bidders whose Bids are not to be further considered in awarding the Contract. Retained Bid securities will be held until the Contract(s) has been finally executed, after which all Bid securities, other than Bidder's Bonds and any guarantees which have been forfeited, will be returned to the respective Bidders whose Bids they accompanied.

12. AWARD OF CONTRACT

Within 1 calendar day after the opening of Bids the City will recommend acceptance of one of the Bids. The acceptance of the Bid will be approved by City Commission by written notice of award mailed to the office designated in the Bid or delivered to the Bidder's representative. The City reserves the right to accept or reject any or all Bids and to waive any formalities and irregularities in said Bids.

13. BASIS OF AWARD

The award will be made by the Owner on the basis of the BID from the lowest, responsive, responsible BIDDER which, in the Owner's sole and absolute judgment will best serve the interest of the Owner.

14. EXECUTION OF CONTRACT

The successful Bidder shall, within 10 working days after receiving Notice of Award, sign and deliver to the Owner a Contract in the form hereto attached together with the insurance certificate examples of the bonds as required in the Contract Documents and evidence of holding required licenses and certificates. Within 10 working days after receiving the signed Contract from the successful Bidder, the Owner's authorized agent will sign the Contract. Signature by both parties constitutes execution of the Contract.

15. CONTRACT BONDS

A. PERFORMANCE AND PAYMENT BONDS

The successful Bidder shall file with the CITY, at the time of delivery of the signed Contract, a Performance Bond and Payment Bond on the form bound herewith, each in the full amount of the Contract price in accordance with the requirements of Florida Statutes Section 255.05 or 713.23, as applicable, as security for the faithful performance of the Contract and the payment of all persons supplying labor and materials for the construction of the work, and to cover all guarantees against defective workmanship or materials, or both, during the warranty period following the date of final acceptance of the work by the CITY. The Surety furnishing this bond shall have a sound financial standing and a record of service satisfactory to the CITY,

shall be authorized to do business in the State of Florida, and shall be listed on the current U.S. Department of Treasury Circular Number 570, or amendments thereto in the Federal Register, of acceptable Sureties for federal projects. The CONTRACTOR shall supply the OWNER with phone numbers, addresses, and contacts for the Surety and their agents. Pursuant to Section 255.05(7), Florida Statutes, in lieu of the bond required by law, the contractor may file with the city an alternative form of security in the form of cash, a money order, a certified check, a cashier's check or an irrevocable letter of credit.

B. POWER-OF-ATTORNEY

The Attorney-in-Fact (Resident Agent) who executes this Performance and Payment Bond in behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond. All Contracts, Performance and Payment Bonds, and respective powers-of-attorney will have the same date.

16. FAILURE TO EXECUTE CONTRACT AND FURNISH BOND

The Bidder who has a Contract awarded to him and who fails to promptly and properly execute the Contract or furnish the required Bonds shall forfeit the bid security that accompanied his bid, and the bid security shall be retained as liquidated damages by the CITY, and it is agreed that this said sum is a fair estimate of the amount of damages the CITY will sustain in case the Bidder fails to enter into a Contract or furnish the required Bonds. Bid security deposited in the form of cash, a certified check, or cashier's check shall be subject to the same requirement as a Bid Bond.

17. PUBLIC RECORDS REQUIREMENTS

In addition to other contract requirements provided by law, each public agency contract for services must include a provision that requires the contractor to comply with public records laws, specifically to (a) keep and maintain public records that ordinarily and necessarily would be required by the public agency in order to perform the service; (b) provide the public with access to public records on the same terms and conditions that the public agency would provide the records and at a cost that does not exceed the cost provided in this chapter or as otherwise provided by law; (c) ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law; and (d) meet all requirements for retaining public records and transfer, at no cost, to the public agency all public records in possession of the contractor upon termination of the contract and destroy any duplicate public records that exempt or confidential and exempt from public records disclosure requirements. All records stored electronically must be provided to the public agency in a format that is compatible with the information technology systems of the public agency. If a contractor does not comply with a public records request, the public agency shall enforce the contract provisions in accordance with the contract.

The CONTRACTOR shall preserve and make available, at reasonable times for examination and audit by CITY, all financial records, supporting documents, statistical records, and any other documents pertinent to this Agreement for the required retention period of the Florida Public Records Act (Chapter 119, Fla. Stat.), if applicable, or, if the Florida Public Records Act is not applicable, for a minimum period of three (3) years after termination of this Agreement. If any audit has been initiated and audit findings have not been resolved at the end of the retention period or three (3) years, whichever is longer, the books, records, and accounts shall be retained until resolution of the audit findings. If the Florida Public Records Act is determined by CITY to be applicable to CONTRACTOR's records, CONTRACTOR shall comply with all requirements thereof; however, CONTRACTOR shall violate no confidentiality or non-disclosure requirement of either federal or state law. Any incomplete or incorrect entry in such books, records, and accounts shall be a basis for CITY's disallowance and recovery of any payment upon such entry.

18. PERFORMANCE OF WORK BY SUBCONTRACTOR

Each Bidder must furnish with his proposal a list of SUBCONTRACTOR performed items and the estimated value of each item.

19. TIME OF COMPLETION

The time of completion of the work to be performed under this Contract is the essence of the Contract. Delays and extensions of time may only be allowed in accordance with the provisions stated in the General Conditions. Time allowed for completion of the work authorized is stated in Bid.

When the Contractor receives a Notice to Proceed, he shall commence work and shall complete all work within the number of calendar days stipulated in the Contract.

The term of this contract will be three hundred (**300**) calendar days.

BID PROPOSAL FORM

To: City of Key West, Florida

Address: 1300 White Street, Key West, Florida 33040

Project Title: SOUTH STREET IMPROVEMENTS

Project No.: ITB # 24-008

Bidder's person to contact for additional information on this Bid:

Company Name: _____

Contact Name & Telephone #: _____

Email Address: _____

BIDDER'S DECLARATION AND UNDERSTANDING

The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this Bid are those named herein, that this Bid is, in all respects, fair and without fraud, that it is made without collusion with any official of the Owner, and that the Bid is made without any connection or collusion with any person submitting another Bid on this Contract.

The Bidder further declares that he has carefully examined the Contract Documents, that he has personally inspected the Project, that he has satisfied himself as to the quantities involved, including materials and equipment, and conditions of work involved, including the fact that the description of the quantities of work and materials, as included herein, is brief and is intended only to indicate the general nature of the work and to identify the said quantities with the detailed requirements of the Contract Documents, and that this Bid is made according to the provisions and under the terms of the Contract Documents, which Documents are hereby made a part of this Proposal.

The Bidder further agrees that the Owner may "non-perform" the work in the event that the low bid is in excess of available funding. Non-performance will be determined prior to Notice of Award.

The intent of the Bid Documents is to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any work, materials, or equipment that may reasonably be inferred from the Contract Documents, as being required to produce the intended result shall be supplied, whether or not specifically called for in the Contract Documents.

CONTRACT EXECUTION AND BONDS

The Bidder agrees that if this Bid is accepted, he will, within 10 days after Notice of Award, sign and deliver the Contract in the form annexed hereto, and will also at that time, deliver to the City the Performance Bond and Payment Bond required herein, and evidence of holding required licenses and certificates, and will, to the extent of his Bid, furnish all machinery, tool, apparatus, and other means of construction and do the work and furnish all the materials necessary to complete all work as specified or indicated in the Contract Documents.

CERTIFICATES OF INSURANCE

Bidder agrees to furnish the City, before commencing the work under this Contract, the certificates of insurance as specified in these Documents.

START OF CONSTRUCTION AND CONTRACT COMPLETION TIME

The Bidder agrees to begin work upon receipt of the Notice to Proceed and to fully complete all work under this contract within three hundred (300) calendar days.

This Contract will automatically expire and be terminated on final acceptance by the Owner.

LIQUIDATED DAMAGES

In the event the Bidder is awarded the Contract and fails to complete the work within the time limit or extended time limit agreed upon, as more particularly set forth in the Contract Documents, liquidated damages shall be paid to the Owner at the rate of \$250.00 per day for all work awarded until the work has been satisfactorily completed as provided by the Contract Documents. Sundays and legal holidays shall be excluded in determining days in default.

Owner will recover such liquidated damages by deducting the amount owed from the final payment or any retainage held by Owner.

ADDENDA

The Bidder hereby acknowledges that he has received Addenda No's. _____, _____, _____, _____. (Bidder shall insert No. of each Addendum received) and agrees that all addenda issued are hereby made part of the Contract Documents, and the Bidder further agrees that his Bid(s) includes all impacts resulting from said addenda.

SALES AND USE TAXES

The Bidder agrees that all federal, state, and local sales and use taxes are included in the stated bid prices for the work.

LUMP SUM WORK ITEMS

The Proposal for the work is to be submitted on lump sum basis. All items required to complete the work specified but not included in the Proposal shall be considered incidental to those set forth in the Proposal. Payment to the Contractor will be made on work actually performed by the Contractor, as specified in the Contract Documents.

The Bidder further proposes to accept as full payment for the Work proposed herein, the amounts computed under the provisions of the Contract Documents and based on the following individual lump sum amounts. The Bidder agrees that the lump sum pricing include all allowances for overhead and profit for each type and unit of work called for in these Contract Documents.

* * * * *

**SOUTH STREET IMPROVEMENTS
BID PROPOSAL FORM**

ROADWAY ITEMS

Pay Item No.	Description	Estimated Quantity	Unit	Unit Price	Total Price
0101-1	Mobilization	1	LS		
0102-1	Maintenance of Traffic	1	LS		
0104-18	Inlet Protection System	12	EA		
0107-1	Litter Removal	2.88	AC		
0110-1-1	Clearing and Grubbing	0.08	AC		
0110-4-10	Removal of Existing Concrete	3,846	SY		
---	Type D-3 Geotextile for Trench Restoration	328	SY		
---	Tensar Glasgrid CG System Geotextile	8,479	SY		
121-70	Flowable Fill	94	SY		
0285-704	Limerock Stabilized Base (LBR 100) - 6"	2,251	SY		
0285-706	Optional Base, Base Group 06	1,226	SY		
0327-70-5	Milling Exist Asph Pavement (2.0" Avg. Depth)	5,794	SY		
0334-1-12	Superpave Asphaltic Conc, Traffic B	1487	TN		
0425-1-201	Inlet, Curb, Type 9, <10 ft. and Type P Box Alt B	5	EA		
0425-4	Inlets, Adjust	1	EA		
425-5-1	Manhole, Adjust	17	EA		
0425-6	Valve Boxes, Adjust	214	EA		
0430-175-124	Pipe Culvert, Optional Material, Round, 24" S/CD	102	LF		
0520-1-10	Concrete Curb & Gutter, Type F	4,571	LF		
0520-2-4	Concrete Curb, Type D	1,868	LF		
0522-1	Concrete Sidewalk and Driveways, 4" thick	2,614	SY		
0522-2	Concrete Sidewalk and Driveways, 6" thick	714	SY		
0527-2	Detectable Warnings	328	SF		
---	SOP Technologies Curbed Inlet Filter Screen	4	EA		
---	Madrax Bollard Bike Rack	9	EA		
0581-1-1	Relocate Trees & Palms, Palm < 14' of Clear Trunk	4	EA		
---	Landscape Trees	35	EA		
---	Flexi-pave at Tree Wells	1,257	SF		
	ROADWAY TOTAL:				

SIGNING & PAVEMENT MARKING ITEMS

Pay Item No.	Description	Estimated Quantity	Unit	Unit Price	Total Price
700-1-11	Single Post Sign, F&I Ground Mount, up to 12 SF	47	AS		
706-1-3	Raised Pavement Marker, Type B (Blue)	9	EA		
710-90	Painted Pavement Markings	1	LS		
711-11-123	Thermoplastic, Std, White, Solid, 12" for Crosswalk	1,450	LF		
711-11-125	Thermoplastic, Std, White, Solid, 24" for Stop Bar	223	LF		
711-11-141	Thermoplastic, Std, White, 2-4 Dotted Guideline, 6"	0.059	GM		
711-14-160	Thermoplastic, Preformed, White, Message	38	EA		
711-14-170	Thermoplastic, Preformed, White, Arrow	16	EA		
711-16-201	Thermoplastic, Other Surfaces, Yellow, 6"	0.79	GM		
1000	Utility Coordination	1	LS		
	SIGNING & PAVEMENT MARKING TOTAL:				

Grand Total:

TOTAL OF ALL EXTENDED LINE ITEMS LISTED ON PAGE 10 & PAGE 11:

Total of lump sum items \$ _____
(numeric)

_____ Dollars & _____ Cents
(amount written in words)

NOTE: THE TOTAL BID WILL BE THE BASIS OF EVALUATING LOW BIDDER AND BASIS OF AWARD

SUBCONTRACTORS

The Bidder further proposes that the following subcontracting firms or businesses will be awarded subcontracts for the following portions of the work in the event that the Bidder is awarded the Contract:

Portion of Work

Name

Street City State Zip

Portion of Work

Name

Street City State Zip

Portion of Work

Name

Street City State Zip

Portion of Work

Name

Street City State Zip

SURETY

_____ whose address is

_____, _____, _____, _____
Street City State Zip

_____ Resident Agent
Phone

BIDDER

The name of the Bidder submitting this Bid is _____

_____ doing business
at

_____, _____, _____, _____
Street City State Zip

_____ E-mail address

which is the address to which all communications concerned with this Bid and with the Contract shall be sent.

The names of the principal officers of the corporation submitting this Bid, or of the partnership, or of all persons interested in this Bid as principals are as follows:

Name	Title
_____	_____
_____	_____
_____	_____
_____	_____

If Sole Proprietor or Partnership

IN WITNESS hereto the undersigned has set his (its) hand this ____ day of _____ 2024.

Signature of Bidder

Title

If Corporation

IN WITNESS WHEREOF the undersigned corporation has caused this instrument to be executed and its seal affixed by its duly authorized officers this _____ day of _____ 2024.

(SEAL)

Name of Corporation

By _____

Title _____

Attest _____

Secretary

FLORIDA BID BOND

BOND NO. _____

AMOUNT: \$ _____

KNOW ALL MEN BY THESE PRESENTS, that _____

_____ hereinafter called the PRINCIPAL, and _____

_____ a corporation duly organized under the laws of the State of _____

_____ having its principal place of business at _____

_____ in the State of _____,

and authorized to do business in the State of Florida, as SURETY, are held and firmly bound unto

_____ hereinafter CITY OF KEY WEST called the OBLIGEE, in the sum of _____
_____ DOLLARS (\$ _____)

for the payment for which we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these present.

THE CONDITION OF THIS BOND IS SUCH THAT:

WHEREAS, the PRINCIPAL is herewith submitting his or its Bid Proposal for **ITB #24-008 SOUTH STREET IMPROVEMENTS**, said Bid Proposal, by reference thereto, being hereby made a part hereof.

WHEREAS, the PRINCIPAL contemplates submitting or has submitted a bid to the OBLIGEE for the furnishing of all labor, materials (except those to be specifically furnished by the CITY), equipment, machinery, tools, apparatus, means of transportation for, and the performance of the work covered in the Proposal and the detailed Scope of Work, entitled:

ITB #24-008

SOUTH STREET IMPROVEMENTS

WHEREAS, it was a condition precedent to the submission of said bid that a cashier's check, certified check, or bid bond in the amount of 5 percent of the base bid be submitted with said bid as a guarantee that the Bidder would, if awarded the Contract, enter into a written Contract with the CITY for the performance of said Contract, within 10 working days after written notice having been given of the award of the Contract.

NOW, THEREFORE, the conditions of this obligation are such that if the PRINCIPAL within 10 consecutive calendar days after written notice of such acceptance, enters into a written Contract with the OBLIGEE and furnishes the Performance and Payment Bonds, each in an amount equal to 100 percent of the base bid, satisfactory to the CITY, then this obligation shall be void; otherwise the sum herein stated shall be due and payable to the OBLIGEE and the Surety herein agrees to pay said sum immediately upon demand of the OBLIGEE in good and lawful money of the South States of America, as liquidated damages for failure thereof of said PRINCIPAL.

Signed and sealed this _____ day of _____, 2024.

By: _____
PRINCIPAL

SURETY

By: _____
Attorney-In-Fact

**SWORN STATEMENT UNDER SECTION 287.133(3)(A)
FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES**

*THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICER
AUTHORIZED TO ADMINISTER OATHS.*

1. This sworn statement is submitted with Bid or Proposal for _____

2. This sworn statement is submitted by _____
(name of entity submitting sworn statement)

whose business address is _____

and (if applicable) its Federal Employer Identification Number (FEIN) is _____

(If the entity has no FEIN, include the Social Security Number of the individual
signing this sworn statement _____)

3. My name is _____
(please print name of individual signing)

and my relationship to the entity named above is _____

4. I understand that a “public entity crime” as defined in Paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the South States, including but not limited to, any bid or contract for goods or services to be provided to any public or an agency or political subdivision of any other state or of the South States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, material misrepresentation.

5. I understand that “convicted” or “conviction” as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.

6. I understand that an “affiliate” as defined in Paragraph 287.133(1)(a), Florida Statutes, means
1. A predecessor or successor of a person convicted of a public entity crime; or

2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term “affiliate” includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm’s length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.
7. I understand that a “person” as defined in Paragraph 287.133(1)(8), Florida Statutes, means any natural person or entity organized under the laws of any state or of the South States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with public entity. The term “person” includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.
8. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. (Please indicate which statement applies).

____Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, nor any affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989, AND (Please indicate which additional statement applies.)

____There has been a proceeding concerning the conviction before a hearing of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer did not place the person or affiliate on the convicted vendor list. (Please attach a copy of the final order.)

____The person or affiliate was placed on the convicted vendor list. There has been a subsequent proceeding before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer determined that it was in the public interest to remove the person or affiliate from the convicted vendor list. (Please attach a copy of the final order.)

____The person or affiliate has not been put on the convicted vendor list. (Please describe any action taken by or pending with the Department of General Services.)

(signature)

(date)

STATE OF _____

COUNTY OF _____

PERSONALLY APPEARED BEFORE ME, the undersigned authority,

_____ who, after first being sworn by me, affixed his/her
(name of individual signing)

signature in the space provided above on this _____ day of _____, 2024.

My commission expires:

NOTARY PUBLIC

CITY OF KEY WEST INDEMNIFICATION FORM

To the fullest extent permitted by law, the CONTRACTOR expressly agrees to indemnify and hold harmless the City of Key West, their officers, directors, agents and employees *(herein called the "indemnitees") from liabilities, damages, losses and costs, including but not limited to, reasonable attorney's fees and court costs, such legal expenses to include costs incurred in establishing the indemnification and other rights agreed to in this Paragraph, to persons or property, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of the CONTRACTOR, its Subcontractors or persons employed or utilized by them in the performance of the Contract. Claims by indemnitees for indemnification shall be limited to the amount of CONTRACTOR's insurance or \$1 million per occurrence, whichever is greater. The parties acknowledge that the amount of the indemnity required hereunder bears a reasonable commercial relationship to the Contract and it is part of the project specifications or the bid documents, if any.

The indemnification obligations under the Contract shall not be restricted in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR under Workers' Compensation acts, disability benefits acts, or other employee benefits acts, and shall extend to and include any actions brought by or in the name of any employee of the CONTRACTOR or of any third party to whom CONTRACTOR may subcontract a part or all of the Work. This indemnification shall continue beyond the date of completion of the work.

CONTRACTOR: _____

SEAL:

Address

Signature

Print Name

Title

DATE: _____

**LOCAL VENDOR CERTIFICATION
PURSUANT TO CITY OF KEY WEST CODE OF ORDINANCES SECTION 2-798**

The undersigned, as a duly authorized representative of the vendor listed herein, certifies to the best of his/her knowledge and belief, that the vendor meets the definition of a "Local Business." For purposes of this section, "local business" shall mean a business which:

- a. Principle address as registered with the FL Department of State located within 30 miles of the boundaries of the city, listed with the chief licensing official as having a business tax receipt with its principle address within 30 miles of the boundaries of the city for at least one year immediately prior to the issuance of the solicitation.
- b. Maintains a workforce of at least 50 percent of its employees from the city or within 30 miles of its boundaries.
- c. Having paid all current license taxes and any other fees due the city at least 24 hours prior to the publication of the call for bids or request for proposals.
 - Not a local vendor pursuant to Code of Ordinances Section 2-798
 - Qualifies as a local vendor pursuant to Code of Ordinances Section 2-798

If you qualify, please complete the following in support of the self-certification & submit copies of your County and City business licenses. Failure to provide the information requested will result in denial of certification as a local business.

Business Name

Phone:

Current Local Address:

Fax:

(P.O Box numbers may not be used to establish status)

Length of time at this address

Signature of Authorized Representative

Date

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 2024.

By _____, of _____
(Name of officer or agent, title of officer or agent) Name of corporation acknowledging)
or has produced _____ as identification
(type of identification)

Signature of Notary

Print, Type or Stamp Name of Notary

Return Completed form with
Supporting documents to:
City of Key West Purchasing

_____ Title or Rank

**VENDOR CERTIFICATION REGARDING
SCRUTINIZED COMPANIES LISTS**

Respondent Vendor Name: _____

Vendor FEIN: _____

Vendor's Authorized Representative Name and Title: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone Number: _____

Email Address: _____

Section 287.135(2)(a), Florida Statutes, prohibits a company from bidding on, submitting a proposal for, or entering into or renewing a contract for goods or services of any amount if, at the time of contracting or renewal, the company is on the Scrutinized Companies that Boycott Israel List, created pursuant to section 215.4725, Florida Statutes, or is engaged in a boycott of Israel. Section 287.135(2)(b), Florida Statutes, further prohibits a company from bidding on, submitting a proposal for, or entering into or renewing a contract for goods or services over one million dollars (\$1,000,000) if, at the time of contracting or renewal, the company is on either the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, both created pursuant to section 215.473, Florida Statutes, or the company is engaged in business operations in Cuba or Syria.

As the person authorized to sign on behalf of Respondent, I hereby certify that the company identified above in the section entitled "Respondent Vendor Name" is not listed on either the Scrutinized Companies that Boycott Israel List, Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List I understand that pursuant to section 287.135, Florida Statutes, the submission of a false certification may subject such company to civil penalties, attorney's fees, and/or costs and termination of the contract at the option of the awarding governmental entity.

Certified By: _____,
Print Name *Print Title*

who is authorized to sign on behalf of the above referenced company.

Authorized Signature: _____.

BIDDER'S CHECKLIST

(Note: The purpose of this checklist is to serve as a reminder of major items to be addressed in submitting a bid and is not intended to be all inclusive. It does not alleviate the Bidder from the responsibility of becoming familiar with all aspects of the Contract Documents and Proper completion and submission of his bid.)

1. All Contract Documents thoroughly read and understood
2. All blank spaces in Bid filled in black ink.
3. Total and unit Prices added correctly.
4. Addenda acknowledged.
5. Subcontractors are named as indicated in the Bid.
6. Experience record included.
7. Bid signed by authorized officer.
8. Bid Bond completed and executed, including power-of-attorney, dated the same date as Bid Bond.
9. Bidder familiar with federal, state, and local laws, ordinances, rules and regulations affecting performance of the work.
10. Bidder, if successful, able to obtain and/or demonstrate possession of required licenses and certificates within (10) ten days after receiving a Notice of Award.
11. Bid submitted intact with the volume containing the Bidding Requirements, Contract Forms and Conditions of the Contract, one (1) original, two (2) USB drives.
12. Bid Documents submitted in sealed envelope and addressed and labeled in conformance with the instructions in the Invitation to Bid.
13. Anti-kickback Affidavit; Public Entity Crime Form; City of Key West Indemnification
Equal Benefits for Domestic Partners Affidavit; Cone of Silence, Local Vendor Certification
Non-Collusion Affidavit; Scrutinized Companies List Verification; Proof of Required
Insurance

* * * * *

PART 2

CONTRACT FORMS

CONTRACT AGREEMENT

This Contract, made and entered into _____ day of _____ 2024,
by and between the City of Key West, hereinafter called the "Owner", and
_____, hereinafter called the "Contractor";

WITNESSETH:

The Contractor, in consideration of the sum to be paid him by the Owner and of the covenants and agreements herein contained, hereby agrees at his own proper cost and expense to do all the work and furnish all the materials, tools, labor, and all appliances, machinery, and appurtenances

Key West, Florida to the extent of the Bid made by the Contractor, dated the _____ day
of _____, 2024, all in full compliance with the Contract Documents referred
to herein.

The BIDDING REQUIREMENTS, including the signed copy of the BID FORM, the CONTRACT FORMS, DRAWINGS and/or SUPPLEMENTAL INFORMATION (if any), are hereby referred to and by reference made part of this Contract as fully and completely as if the same were fully set forth herein and are mutually cooperative therewith.

In consideration of the performance of the work as set forth in these Contract Documents, the Owner agrees to pay to the Contractor the amount bid in the Bid as adjusted in accordance with the Contract Documents, or as otherwise herein provided, and to make such payments in the manner and at the times provided in the Contract Documents.

The Contractor agrees to complete the work days and to accept as full payment hereunder the amounts computed as determined by the Contract Documents and based on the said Bid.

The Contractor agrees to remedy all defects appearing in the work or developing in the materials furnished and the workmanship performed under this Contract during the warranty period after the date of final acceptance of the work by the Owner, and further agrees to indemnify and save the Owner harmless from any costs encountered in remedying such defects.

Liquidated Damages: The Contractor recognizes that time is of the essence and that the Owner will suffer financial loss if the Work is not completed within the dates specified in the paragraphs above, plus any extensions thereof allowed, in accordance with Article 58 of the General Conditions.

In the event the Contractor fails to complete the work within the time limit or extended time limit agreed upon, as more particularly set forth in the Contract Documents, liquidated damages shall be paid at a rate of **\$250.00** per day. Sundays and legal holidays shall be included in determining days in default.

This contract will automatically expire upon completion of the project. Contractors warranty obligations remain in affect.

IN WITNESS WHEREOF, we, the parties hereto, each herewith subscribe the same this

_____ day of _____, A.D., 2024.

CITY OF KEY WEST

By _____

Printed Albert P Childress, City Manager

Title _____

CONTRACTOR

By _____

Printed _____

Title _____

APPROVED AS TO FORM

Attorney for Owner

* * * * *

FLORIDA PERFORMANCE BOND

BOND NO. _____

AMOUNT: \$ _____

KNOW ALL MEN BY THESE PRESENTS, that in accordance with Florida Statutes Section

255.05 _____

with offices at _____

hereinafter called the CONTRACTOR (Principal), and

with offices at _____

a corporation duly organized and existing under and by virtue of the laws of the State of _____ Florida, hereinafter called the SURETY, and authorized to transact business within the State of Florida, as SURETY, are held and firmly bound unto the **CITY OF KEY WEST**, hereinafter called the CITY (Obligee), in the sum of:

_____ DOLLARS (\$ _____), lawful money of the South States of America, for the payment of which, well and truly be made to the CITY, the CONTRACTOR and the SURETY bind themselves and each of their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents as follows:

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, the CONTRACTOR has executed and entered into a certain Contract hereto attached, with the CITY, dated _____, 2024, to furnish at his own cost, charges, and expense all the necessary materials, equipment, and/or labor in strict and express accordance with said Contract and the Contract Documents as defined therein, all of which is made a part of said Contract by certain terms and conditions in said Contract more particularly mentioned, which Contract, consisting of the various Contract Documents is made a part of this Bond as fully and completely as if said Contract Documents were set forth herein;

NOW THEREFORE, the conditions of this obligation are such that if the above bounden CONTRACTOR:

1. Shall in all respects comply with the terms and conditions of said Contract and his obligation there under, including the Contract Documents (which include the scope of work and conditions as prepared by the CITY, invitation to bid, instructions to bidders, the CONTRACTOR'S bid as accepted by the above CITY, the bid and contract performance and payment bonds (Not required as part of this contract), and all addenda, if any, issued prior to the opening of bids), being made a part of this bond by reference, at the times and in the manner prescribed in the contract; and
2. Promptly makes payments to all claimants, as defined in Section 255.05(1), Florida Statutes, supplying PRINCIPAL with labor, materials, or supplies, used directly or indirectly by PRINCIPAL in the prosecution of the work provided for in the contract; and

3. Pays CITY all losses, costs, expenses, damages, attorney's fees, including appellate proceedings, injury or loss of whatever kind and however arising including, without limitation, delay damages to which said CITY may be subject by reason of any wrongdoing, misconduct, want of care or skill, negligence, failure of performance, breach, failure to petition within the prescribed time, or default, including patent infringements, on the part of said CONTRACTOR, his agents or employees, in the execution or performance of said Contract; and

4. Performs the guarantee of all work and materials furnished under the contract for the time specified in the contract, then this obligation shall be void; otherwise, to remain in full force and effect for the term of said Contract.

AND, the said Surety for value received, hereby stipulates and agrees that no change involving any extension of time, or addition to the terms of the Contract Documents, or to the work to be performed, or materials to be furnished there under shall affect said obligation of said Surety on this Bond, and the said Surety does hereby waive notice of any such changes, extension of time, alterations, or additions of the terms of the Contract Documents, or to the work.

Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes.

IN WITNESS WHEREOF, the above parties bonded together have executed this instrument

this _____ day of _____, 2024, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR

By: _____ (SEAL)

_____ ATTEST

SURETY

By: _____ (SEAL)

_____ ATTEST

FLORIDA PAYMENT BOND

BOND NO. _____

AMOUNT: \$ _____

KNOW ALL MEN BY THESE PRESENTS, that in accordance with Florida Statutes Section 255.05, _____

with offices at _____ hereinafter called the CONTRACTOR, (Principal), and

with offices at _____

a corporation duly organized and existing under and by virtue of the laws of the State of _____

_____, hereinafter called the SURETY, and authorized to transact business within the State of Florida, as SURETY, are held and firmly bound unto CITY OF KEY WEST, hereinafter called the City (Obligee), in the sum of:

_____ DOLLARS(_____), lawful money of the South States of America, for the payment of which, well and truly be made to the CITY, and the CONTRACTOR and the SURETY bind themselves and each of their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents as follows:

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, the CONTRACTOR has executed and entered into a certain Contract for

ITB # 24-008 SOUTH STREET IMPROVEMENTS, attached hereto, with

the CITY, dated _____, 2024, to furnish at his own cost, charges, and expense the necessary materials, equipment, and/or labor in strict and express accordance with said Contract and the plans, drawings (if any), and specifications prepared by the CITY, all of which is made a part of said Contract by certain terms and conditions in said Contract more particularly mentioned, which Contract, consisting of the various Contract Documents specifically mentioned herein and relative hereto, is made a part of this Bond as fully and completely as if said Contract Documents were set forth herein.

NOW THEREFORE, the conditions of this obligation are such that if the above bounden CONTRACTOR shall in all respects comply with the terms and conditions of said Contract and his obligation thereunder, including the Contract Documents, which include Scope of work and conditions prepared by the CITY, invitation to bid, instructions to bidders, the

CONTRACTOR’S bid as accepted by the CITY, the bid and contract and payment bonds (Not required as part of this contract), and all addenda, if any, issued prior to the opening of bids), and further that if said CONTRACTOR shall promptly make payments to all persons supplying materials, equipment, and/or labor, used directly or indirectly by said CONTRACTOR or subcontractors in the prosecution of the work for said contract in accordance with Florida Statutes, Section 255.05 or Section 713.23, then this obligation

shall be void; otherwise to remain in full force and effect for the term of said contract, including and all guarantee periods as specifically mentioned in said Contract Documents.

AND, the said SURETY for value received, hereby stipulates and agrees that no change involving any extension of time, or addition to the terms of the Contract or to the work to be performed, or materials to be furnished thereunder, or in the Contract Documents and specifications accompanying the said contract shall affect said obligation of said SURETY on this Bond, and the said SURETY does hereby waive notice of any such changes, extension of time, alternations, or additions of the terms of the Contract, or to the work, to the Contract Documents, or to the specifications.

Claimant shall give written notice to the CONTRACTOR and the SURETY as required by Section 255.05 or Section 713.23, Florida Statutes. Any action instituted against the CONTRACTOR or SURETY under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2) or Section 713.23, Florida Statutes.

IN WITNESS WHEREOF, the above parties bounded together have executed this instrument

this _____ day of _____, 2024, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR

By: _____ (SEAL)

_____ ATTEST

SURETY

By: _____ (SEAL)

_____ ATTEST

PART 3

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DEFINITIONS

Whenever in the Contract Documents the following terms are used, the intent and meaning shall be interpreted as follows:

1. AS APPROVED

The words “as approved”, unless otherwise qualified, shall be understood to be followed by the words “by the ENGINEER for conformance with the Contract Document”.

2. AS SHOWN, AND AS INDICATED

The words “as shown” and “as Indicated” shall be understood to be followed by the words “on the Drawings”.

3. BIDDER

The BIDDER is person or persons, partnership, firm, or corporation submitting a Bid for the work contemplated.

4. CONTRACT DOCUMENTS

The “Contract Documents” consist of the Bidding Requirements, Contract Forms, Conditions of the Contract, Specifications, Drawings, all modifications thereof incorporated into the Documents before their execution, Change Orders, and all other requirements incorporated by specific reference thereto. These form the Contract.

5. CONTRACTOR

The “CONTRACTOR” is person or persons, partnership, firm, or corporation who enters into the Contract awarded him by the OWNER.

6. CONTRACT COMPLETION

The “Contract Completion” is the date the OWNER accepts the entire work as being in compliance with the Contract Documents, or formally waives nonconforming work to extent of nonconformity, and issues the final payment in accordance with the requirements set forth in Article, “Final Payment” of these General Conditions.

7. DAYS

Unless otherwise specifically stated, the term “days” will be understood to mean calendar days. Business day or working day means any day other than Saturday, Sunday, or legal holiday.

8. DRAWINGS

The term “Drawings” refers to the official Drawings, Profiles, cross sections, elevations, details, and other working drawings and supplementary drawings, or reproductions thereof, signed by the ENGINEER, which shows the location, character, dimensions, and details of the work to be performed. Drawings may either be bound in the same book as the balance of the Contract Documents, or bound in separate sets, and are a part of the Contract Documents, regardless of the method of binding, and may also be referred to as PLANS.

9. ENGINEER

Wherever in these Documents the word "ENGINEER" appears, it shall be understood to mean the City Engineer or his/her authorized representative, who will perform the Contract administrative and field inspections as authorized agents of the OWNER.

10. NOTICE

The term “notice” or the requirement to notify, as used in the Contract Documents or applicable state or federal statutes, shall signify a written communication delivered in person or by registered mail to the individual, or to a member of the firm, or to an officer of the corporation for whom it is intended. Certified or registered mail shall be addressed to the last business address known to him who gives the notice.

11. OR EQUAL

The term “or equal” shall be understood to indicate that the “equal” Product is equivalent to or better than the Product named in function, performance, reliability, quality, and general configuration. Determination of equality in reference to the Project design requirements will be made by the ENGINEER. Such equal Products shall not be purchased or installed by the CONTRACTOR without written authorization.

12. OWNER

Wherever in these Documents the word “OWNER” appears, it shall be understood to mean the City of Key West whose address is P.O. Box 1409, Key West, Florida 33041-1409.

13. SPECIFICATIONS

The term “Specifications” refers to those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards, and workmanship as applied to the work and certain administrative details applicable thereto. Where standard specifications, such as those of FDOT, ASTM, AASHTO, etc., have been referred to, the applicable portions of such standard specifications shall become a part of these Contract Documents. If referenced specifications conflict with specifications contained herein, the requirements contained herein shall prevail.

14. SUBCONTRACTOR

The "SUBCONTRACTOR" is person or persons, partnership, firm or corporation who enters into a contract with the CONTRACTOR to perform work awarded to the CONTRACTOR by the OWNER.

15. NOTICE TO PROCEED

A written notice given by the OWNER to the CONTRACTOR (with a copy to the ENGINEER) fixing the date on which the Contract time will commence to run and on which the CONTRACTOR shall start to perform his obligation under the Contract Documents. The Notice to Proceed will be given within 30 days following the execution of the Contract by the OWNER.

16. SUBSTANTIAL COMPLETION

“Substantial Completion” shall be that degree of completion of the Project or a defined portion of the Project, as evidenced by the ENGINEER’s written notice of Substantial Completion, sufficient to Provide the OWNER, at his discretion, the full-time use of the Project or defined portion of the Project for the purposes for which it was intended. “Substantial Completion” of an operating facility shall be that degree of completion that has Provided a minimum of 7 continuous days of successful, trouble-free, operation, which period shall begin after all performance and acceptance testing has been successfully demonstrated to the ENGINEER. All equipment contained in the work, plus all other components necessary to enable the OWNER to operate the facility in a manner that was intended, shall be complete on the substantial completion date.

17. WORK

The word “work” within these Contract Documents shall include all material, labor, tools, and all appliances, machinery, transportation, and appurtenances necessary to perform and complete the Contract, and such additional items not specifically indicated or described which can be reasonably inferred as belonging to the item described or indicated and as required by good Practice to Provide a complete and satisfactory system or structure. As used herein, “Provide” shall be understood to mean “furnish and install, complete in-place “.

CONTRACT DOCUMENTS

18. INTENT OF CONTRACT DOCUMENTS

The Contract Documents are complementary, and what is called for by one shall be as binding as if called for by all. The intent of the Documents is to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any work, materials, or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result shall be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe work, materials, or equipment, such words shall be interpreted in accordance with that meaning.

Reference to standard specifications, manuals, or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or laws or regulations in effect on the first published date of the Invitation to Bid, except as may be otherwise specifically stated. However, no Provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of OWNER, CONTRACTOR, or ENGINEER, or any of their consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to ENGINEER, or any ENGINEER’s consultants, agents, or employees, any duty or authority to supervise or direct the furnishing or performance of the work or any duty or authority to undertake responsibility contrary to the Provisions of Article LIMITATIONS ON ENGINEER’S RESPONSIBILITIES.

19. DISCREPANCIES AND OMISSIONS

Any discrepancies or omissions found in the Contract Documents shall be reported to the ENGINEER immediately. The ENGINEER will clarify discrepancies or omissions, in writing, within a reasonable time.

In resolving inconsistencies among two or more sections of the Contract Documents, Precedence shall be given in the following order:

- A. CONTRACT
- B. BID
- C. SUPPLEMENTARY CONDITIONS
- D. INVITATION TO BID
- E. INSTRUCTIONS TO BIDDERS
- F. GENERAL CONDITIONS
- G. SPECIFICATIONS
- H. DRAWINGS

Addenda shall take Precedence over all sections referenced therein. Figure dimensions on Drawings shall take precedence over scale dimensions. Detailed Drawings shall take precedence over general Drawings.

20. CHANGES IN THE WORK

The OWNER, without notice to the Sureties and without invalidating the Contract, may order changes in the work within the general scope of the Contract by altering, adding to, or deducting from the work, the Contract being adjusted accordingly. All such work shall be executed under the conditions of the original Contract, except as specifically adjusted at the time of ordering such change.

In giving instructions, the ENGINEER may order minor changes in the work not involving extra cost and not inconsistent with the purposes of the Project, but otherwise, except in an emergency endangering life and Property, additions or deductions from the work shall be performed only in pursuance of an approved Change Order from the OWNER, countersigned by the ENGINEER.

If the work is reduced by alterations, such action shall not constitute a claim for damages based on loss of anticipated Profits.

EXAMINATION AND VERIFICATION OF CONTRACT DOCUMENTS

The CONTRACTOR shall thoroughly examine and become familiar with all of the various parts of these Contract Documents and determine the nature and location of the work, the general and local conditions, and all other matters, which can in any way affect the work under this Contract. Failure to make an examination necessary for this determination shall not release the CONTRACTOR from the obligations of this Contract. No verbal agreement or conversation with any officer, agent, or employee of the OWNER or with the ENGINEER either before or after the execution of this Contract shall affect or modify any of the terms or obligations herein contained.

22. DOCUMENTS TO BE KEPT ON THE JOBSITE

The CONTRACTOR shall keep one copy of the Contract Documents on the job- site, in good order, available to the ENGINEER and to his representatives.

The CONTRACTOR shall maintain on a daily basis at the jobsite, and make available to the ENGINEER on request, one current record set of the Drawings which have been accurately marked to indicate all modifications in the completed work that differ from the design information shown on the Drawings. Upon Substantial completion of the work, the CONTRACTOR shall give the ENGINEER one complete set of these marked up record Drawings.

23. ADDITIONAL CONTRACT DOCUMENTS

Copies of Contract Documents or Drawings may be obtained on request from the ENGINEER and by paying the actual cost of reproducing the Contract Documents or Drawings.

24. OWNERSHIP OF CONTRACT DOCUMENTS

All portions of the Contract Documents, and copies thereof furnished by the ENGINEER are instruments of service for this Project. They are not to be used on other work and are to be returned to the ENGINEER on request at the completion of the work. Any reuse of these materials without specific written verification or adaptation by the ENGINEER will be at the risk of the user and without liability or legal expense to the ENGINEER. Such user shall hold the ENGINEER harmless from any and all damages, including reasonable attorneys' fees, from any and all claims arising from any such reuse. Any such verification and adaptation shall entitle the ENGINEER to further compensation at rates to be agreed upon by the user and the ENGINEER.

THE ENGINEER

25. AUTHORITY OF THE ENGINEER

The ENGINEER will be the OWNER's representative during the construction period. His authority and responsibility will be limited to the Provisions set forth in these Contract Documents. The ENGINEER will have the Authority to reject work that does not conform to the Contract Documents. However, neither the ENGINEER's authority to act under this Provision, nor any decision made by him in good faith either to exercise or not to exercise such authority, shall give rise to any duty or responsibility of the ENGINEER to the CONTRACTOR, any SUBCONTRACTOR, their respective Sureties, any of their agents or employees, or any other person performing any of the work.

26. DUTIES AND RESPONSIBILITIES OF THE ENGINEER

The ENGINEER will make visits to the site at intervals appropriate to the various stages of construction to observe the Progress and quality of the work and to determine, in general, if the work is proceeding in accordance with the intent of the Contract Documents. He will not make comprehensive or continuous review or observation to check quality or quantity of the work, and he will not be responsible for construction means, methods, techniques, sequences, or Procedures, or for safety Precautions and Programs in connection with the work. Visits and observations made by the ENGINEER shall not relieve the CONTRACTOR of his obligation to conduct comprehensive inspections of the work and to furnish materials and perform acceptable work, and to provide adequate safety Precautions, in conformance with the intent of the Contract.

The ENGINEER will make recommendations to the OWNER, in writing, on all claims of the OWNER or the CONTRACTOR arising from interpretation or execution of the Contract Documents. Such recommendations will be of factual and/or technical nature, and will not include the legal interpretation of the Contract Documents. Any necessary legal interpretation of the Contract Document will be made by the OWNER. Such recommendation shall be necessary before the CONTRACTOR can receive additional money under the terms of the Contract. Changes in work ordered by the ENGINEER shall be made in compliance with Article CHANGES IN THE WORK.

One or more Project representatives may be assigned to observe the work. It is understood that such Project representatives shall have the authority to issue notice of nonconformance and make decisions within the limitations of the authority of the ENGINEER. The CONTRACTOR shall furnish all reasonable assistance required by the ENGINEER or Project representatives for Proper observation of the work. The above-mentioned Project representatives shall not relieve the CONTRACTOR of his obligations to conduct comprehensive inspections of the work and to furnish materials and perform acceptable work, and to provide adequate safety Precautions, in conformance with the intent of the Contract.

27. LIMITATIONS ON ENGINEER'S RESPONSIBILITIES

ENGINEER will not be responsible for CONTRACTOR's means, methods, techniques, sequences, or Procedures of construction, or the safety Precautions and Programs incident thereto, and ENGINEER will not be responsible for CONTRACTOR's failure to perform or furnish the work in accordance with the Contract Documents.

ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any SUBCONTRACTOR, any supplier, or of any other person or organization performing or furnishing any of the work.

Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved", or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "Proper", or "satisfactory", or adjectives of like effect or import are used to describe a requirement, direction, review or judgment of ENGINEER as to the work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the furnishing or performance of the work or any duty or authority to undertake responsibility contrary to the Provisions of this Article.

28. REJECTED WORK

Any defective work or nonconforming materials or equipment that may be discovered at any time prior to expiration of the warranty period shall be removed and replaced by work which shall conform to the Provisions of the Contract Documents. Any material condemned or rejected shall be removed at once from the Project site.

Failure on the part of the ENGINEER to condemn or reject bad or inferior work or to note nonconforming materials or equipment on CONTRACTOR submittals shall not be construed to imply acceptance of such work. The OWNER shall reserve and retain all of its rights and remedies at law against the CONTRACTOR and its Surety for correction of any and all latent defects discovered after the guarantee period.

29. LINES AND GRADES

Lines and grades shall be established as provided in the supplementary conditions. All stakes, marks, and other reference information shall be carefully preserved by the CONTRACTOR, and in case of their careless or unnecessary destruction or removal by him or his employees, such stakes, marks, and other information shall be replaced at the CONTRACTOR's expense.

It will be the CONTRACTOR's responsibility to layout the work and to transfer elevations from benchmarks. Where new construction connects to existing facilities, the CONTRACTOR shall check and establish the exact location prior to construction of the facilities.

The CONTRACTOR shall furnish all surveys, labor, and equipment, including setting all alignment and gradient, grade stakes, batter boards, and everything necessary to lay out his work. The CONTRACTOR shall be responsible for maintaining and re-establishing at his expense, all control points. After completion of his construction, he shall reset all permanent monuments at their original locations and elevations through the use of registered surveys.

Layout work may be checked by the ENGINEER, and the CONTRACTOR shall furnish all necessary labor, equipment, and materials, and shall cooperate and assist the ENGINEER in making such checks.

The dimensions for lines and elevations for grades of the structures, appurtenances, and utilities will be shown on Drawings attached to each Work Order, together with other pertinent information required for laying out the work. If site conditions vary from those indicated, the CONTRACTOR shall notify the ENGINEER immediately, who will make any minor adjustment as required.

30. SUBMITTALS

After checking and verifying all field measurements and after complying with applicable Procedures specified in Division I, GENERAL REQUIREMENTS, CONTRACTOR shall submit to ENGINEER, in accordance with the schedule for submittals for review, shop drawings, electrical diagrams, and catalog cuts for fabricated items and manufactured items (including mechanical and electrical equipment), which shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's responsibilities under the Contract Documents with respect to the review of the submittal. All submittals shall be identified as ENGINEER may require. The data shown shall be complete with respect to quantities, dimensions specified, performance and design criteria, materials, and similar data to enable ENGINEER to review the information. CONTRACTOR shall also submit to ENGINEER for review, with such promptness as to cause no delay in work, all samples required by the Contract Documents. All samples shall have been checked by and accompanied by a specific written indication that CONTRACTOR has satisfied CONTRACTOR's responsibilities under the Contract Documents with respect to the review of the submission and shall be identified clearly as to material, supplier, pertinent data such as catalog numbers and the use for which intended.

Before submission of each submittal, CONTRACTOR shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar data with respect thereto and reviewed or coordinated each submittal with other submittals and with the requirements of the work and the Contract Documents.

At the time of each submission, CONTRACTOR shall give ENGINEER specific written notice of each variation that the submittal may have from the requirements of the Contract Documents, and, in addition, shall cause a specific notation to be made on each shop drawing submitted to ENGINEER for review and approval of each variation.

ENGINEER will review submittals with reasonable Promptness, but ENGINEER's review will be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, techniques, sequences, or Procedures of construction (except where a specific means, method, technique, sequence, or Procedure of construction is indicated in or required by the Contract Documents) or to safety Precautions or Programs incident thereto. The review of a separate item as

such will not indicate review of the assembly in which the item functions. CONTRACTOR shall make corrections required by ENGINEER and shall return the required number of corrected copies of shop drawings and submit as required new samples for review. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on Previous submittals.

ENGINEER's review of submittals shall not relieve CONTRACTOR from the responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of submission and ENGINEER has given written approval of each such variation by a specific written notation thereof incorporated therein or accompanying the shop drawing or sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for errors or omissions in the shop drawings or from responsibility for having complied with the Provisions herein.

Where a shop drawing or sample is required by the specifications, any related work performed prior to ENGINEER's review and approval of the pertinent submission shall be at the sole expense and responsibility of the CONTRACTOR.

31. DETAIL DRAWINGS AND INSTRUCTIONS

The ENGINEER will furnish, with reasonable Promptness, additional instructions by means of Drawings or otherwise, if, in the ENGINEER's opinion, such are required for the Proper execution of the work. All such Drawings and instructions will be consistent with the Contract Documents, true developments thereof, and reasonably inferable there from.

THE CONTRACTOR AND HIS EMPLOYEES

32. CONTRACTOR, AN INDEPENDENT AGENT

The CONTRACTOR shall independently perform all work under this Contract and shall not be considered as an agent of the OWNER or of the ENGINEER, nor shall the CONTRACTOR's SUBCONTRACTORS or employees be subagents of the OWNER or of the ENGINEER.

A. ASSIGNMENT OF CONTRACT

Assignment of any part or the whole of this Contract shall be subject to review and approval of the City Commission

33. SUBCONTRACTING

Unless modified in the Supplementary Conditions, within 10 days after the execution of the Contract, the CONTRACTOR shall submit to the ENGINEER the names of all SUBCONTRACTORS Proposed for the work, including the names of any SUBCONTRACTORS that were submitted with the Bid. The CONTRACTOR shall not employ any SUBCONTRACTORS to which the OWNER may object to as lacking capability to properly perform work of the type and scope anticipated.

The CONTRACTOR is as fully responsible to the OWNER for the acts and omissions of his SUBCONTRACTORS and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him.

Nothing contained in the Contract Documents shall create any contractual relationship between any SUBCONTRACTOR and the OWNER or ENGINEER.

34. INSURANCE AND LIABILITY

CONTRACTOR shall maintain limits no less than those stated below:

GENERAL INSURANCE REQUIREMENTS

- 1.01 During the Term of the Agreement, the Contractor shall provide, pay for, and maintain with insurance companies satisfactory to the City of Key West, Florida ("City"), the types of insurance described herein.
- 1.02 All insurance shall be from responsible insurance companies eligible to do business in the State of Florida. The required policies of insurance shall be performable in Monroe County, Florida, and shall be construed in accordance with the laws of the State of Florida.
- 1.03 The City shall be specifically included as an additional insured on the Contractor's Liability policies with the exception of the Contractor's Professional Liability policies (if required) and shall also provide the "Severability of Interest" provision (a/k/a "Separation of Insured's" provision). The City's additional insured status should be extended to all Completed Operations coverages.
- 1.04 The Contractor shall deliver to the City, prior to commencing work/activities under the Agreement, properly executed "Certificate(s) of Insurance" setting forth the insurance coverage and limits required herein. The Certificates must be signed by the authorized representative of the insurance company(s) shown on the Certificate of Insurance. In addition, certified, true, and exact copies of the insurance policies required herein shall be provided to the City, on a timely basis, if requested by the City.
- 1.05 If the Contractor fails to provide or maintain the insurance coverages required in this Agreement at any time during the Term of the Agreement and if the Contractor refuses or otherwise neglects to deliver the required Certificate(s) of Insurance signed by the authorized representative of the insurance company(s) to the City, the City may, at the City's sole discretion, terminate or suspend this Agreement and seize the amount of Contractor's performance bond, letter of credit, or other security acceptable to the City).
- 1.06 The Contractor shall take immediate steps to make up any impairment to any Aggregate Policy Limit upon notification of the impairment. If at any time the City requests a written statement from the insurance company(s) as to any impairment to the Aggregate Limit, the Contractor shall promptly authorize and have delivered such statement to the City.
- 1.07 The Contractor authorizes the City and/or its insurance consultant to confirm all information furnished to the City, as to its compliance with its Bonds and Insurance Requirements, with the Contractor's insurance agents, brokers, surety, and insurance carriers.
- 1.08 All insurance coverage of the Contractor shall be primary to any insurance or self-insurance program carried by the City. The City's insurance or self-insurance programs or coverage shall not be contributory with any insurance required of the Contractor in this Agreement.
- 1.09 The acceptance of delivery to the City of any Certificate of Insurance evidencing the insurance coverage and limits required in the Agreement does not constitute approval or agreement by the City that the insurance requirements in the Agreement have been met or that the insurance policies shown in the Certificates of Insurance are in compliance with the Agreement requirements.
- 1.10 No work/activity under this Agreement shall commence or continue unless and until the required Certificate(s) of Insurance are in effect and the written Notice to Proceed is issued by the City.
- 1.11 The insurance coverage and limits required of the Contractor under this Agreement are designed to meet the minimum requirements of the City. They are not designed as a recommended insurance program for the Contractor. The Contractor alone shall be responsible for the sufficiency of its own insurance program. Should the Contractor have any question concerning its exposures to loss under this Agreement or the possible insurance coverage needed therefore, it should seek professional assistance.
- 1.12 During the Term of this Agreement, the City and its agents and contractors may continue to engage in necessary business activities during the operations of the Contractor. No personal

- property owned by City used in connection with these business activities shall be considered by the Contractor's insurance company as being in the care, custody, or control of the Contractor.
- 1.13 Should any of the required insurances specified in this Agreement provide for a deductible, self-insured retention, self-insured amount, or any scheme other than a fully insured program, the Contractor shall be responsible for all deductibles and self-insured retentions.
 - 1.14 All of the required insurance coverages shall be issued as required by law and shall be endorsed, where necessary, to comply with the minimum requirements contained herein.
 - 1.15 All policies of insurance required herein shall require that the insurer give the City thirty (30) days advance written notice of any cancellation, intent not to renew any policy and/or any change that will reduce the insurance coverage required in this Agreement, except for the application of the Aggregate Limits Provisions.
 - 1.16 Renewal Certificate(s) of Insurance shall be provided to the City at least twenty (20) days prior to expiration of current coverage so that there shall be no termination of the Agreement due to lack of proof of the insurance coverage required of the Contractor.
 - 1.17 If the Contractor utilizes contractors or sub-contractors to perform any operations or activities governed by this Agreement, the Contractor will ensure all contractors and sub-contractors to maintain the same types and amounts of insurance required of the Contractor. In addition, the Contractor will ensure that the contractor and sub-contractor insurances comply with all of the Insurance Requirements specified for the Contractor contained within this Agreement. The Contractor shall obtain Certificates of Insurance comparable to those required of the Contractor from all contractors and sub-contractors. Such Certificates of Insurances shall be presented to the City upon request. Contractor's obligation to ensure that all contractor's and sub-contractor's insurance as provided herein shall not exculpate Contractor from the direct primary responsibility Contractor has to the City hereunder. The City will look directly to Contractor for any such liability hereunder and shall not be obligated to seek recovery from any contractor or subcontract or under such contractor's or sub-contractor's insurance coverages.

SPECIFIC INSURANCE COVERAGES AND LIMITS

- 2.01 All requirements in this Insurance Section shall be complied with in full by the Contractor unless excused from compliance in writing by the City.
- 2.02 The amounts and types of insurance must conform to the following minimum requirements. Current Insurance Service Office (ISO) or National Council on Compensation Insurance (NCCI) policies, forms, and endorsements or broader shall be used where applicable. Notwithstanding the foregoing, the wording of all policies, forms, and endorsements must be acceptable to the City.

Workers' Compensation and Employers' Liability Insurance shall be maintained in force during the Term of this Agreement for all employees engaged in this work under this Agreement, in accordance with the laws of the State of Florida. The minimum acceptable limits shall be:

Workers' Compensation	Florida Statutory Requirements
Employer's Liability	\$100,000.00 Limit Each Accident
	\$500,000.00 Limit Disease Aggregate
	\$100,000.00 Limit Disease Each Employee

If the Contractor has less than four (4) employees and has elected not to purchase Workers' Compensation/Employers Liability coverage as permitted by *Florida Statutes*, the Contractor will be required to issue a formal letter (on the Contractor's letterhead) stating that it has less than four (4) employees and has elected not to purchase Workers' Compensation/Employers Liability coverage as permitted by *Florida Statutes*. This exception does **not** apply to firms engaged in construction

activities.

Commercial General Liability Insurance shall be maintained by the Contractor on a Full Occurrence Form. Coverage shall include, but not be limited to, Premises and Operations, Personal Injury, Contractual for this Agreement, Independent Contractors, and Products & Completed Operations Coverage. The limits of such coverage shall not be less than:

Bodily Injury &	\$2,000,000.00 Combined Single Limit each
Property Damage Liability	Occurrence and Aggregate

Completed Operations Liability Coverage shall be maintained by the Contractor for a period of not less than four (4) years following expiration or termination of this Agreement.

The use of an Excess, Umbrella and/or Bumbershoot policy shall be acceptable if the level of protection provided by the Excess, Umbrella and/or Bumbershoot policy is equal to or more comprehensive than the Primary Commercial General Liability policy.

Business Automobile Liability Insurance shall be maintained by the Contractor as to ownership, maintenance, use, loading and unloading of all owned, non-owned, leased, or hired vehicles with limits of such coverage of not less than:

Bodily Injury	\$300,000.00 Limit Each Accident
Property Damage Liability	\$200,000.00 Limit Each Accident

or

Bodily Injury &	
Property Damage Liability	\$300,000.00 Combined Single Limit Each Accident

If the Contractor does not own any vehicles, this requirement can be satisfied by having the Contractor's Commercial General Liability policy endorsed with "Non-Owned and Hired Automobile" Liability coverage.

NO PERSONAL LIABILITY OF PUBLIC OFFICIALS

In carrying out any of the Provisions hereof in exercising any authority granted by the Contract, there will be no personal liability upon any public official.

B. SURETY AND INSURER QUALIFICATIONS

All bonds, insurance contracts, and certificates of insurance shall be either executed by or countersigned by a licensed resident agent of the Surety or insurance company, having his place of business in the State of Florida, and in all ways complying with the insurance laws of the State of Florida. Further, the said Surety or Insurance Company shall be duly licensed and qualified to do business in the State of Florida. If requested, CONTRACTOR shall Provide Proof of Florida Licensure for all insurance companies. The City of Key West shall be named as Additional Insured on the insurance certificates.

35. INDEMNITY

To the fullest extent permitted by law, the CONTRACTOR expressly agrees to indemnify and hold harmless the City of Key West, their officers, directors, agents, and employees (herein called the "indemnitees") from liabilities, damages, losses and costs, including, but not limited to, reasonable attorney's fees and court costs, such legal expenses to include costs incurred in establishing the indemnification and other rights agreed to in this Paragraph, to persons or property, to the extent caused by the negligence, recklessness, or intentional

wrongful misconduct of the CONTRACTOR, its SUBCONTRACTORS or persons employed or utilized by them in the performance of the Contract. Claims by indemnitees for indemnification shall be limited to the amount of CONTRACTOR's insurance or \$1 million per occurrence, whichever is greater. The parties acknowledge that the amount of the indemnity required hereunder bears a reasonable commercial relationship to the Contract and it is part of the project specifications or the bid documents, if any. The indemnification obligations under the Contract shall not be restricted in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR under workers' compensation acts, disability benefits acts, or other employee benefits acts, and shall extend to and include any actions brought by or in the name of any employee of the CONTRACTOR or of any third party to whom CONTRACTOR may subcontract a part or all the Work. This indemnification shall continue beyond the date of completion of the work.

36. EXCLUSION OF CONTRACTOR CLAIMS

In performing its obligations, the ENGINEER and its consultants may cause expense for the CONTRACTOR or its SUBCONTRACTORS and equipment or material suppliers. However, those parties and their sureties shall maintain no direct action against the ENGINEER, its officers, employees, agents, and consultants for any claim arising out of, in connection with, or resulting from the engineering services performed or required to be performed.

37. TAXES AND CHARGES

The CONTRACTOR shall withhold and pay any and all sales and use taxes and all withholding taxes, whether State or Federal, and pay all Social Security charges and also all State Unemployment Compensation charges, and pay or cause to be withheld, as the case may be, any and all taxes, charges, or fees or sums whatsoever, which are now or may hereafter be required to be paid or withheld under any laws.

38. REQUIREMENTS OF STATE LAW FOR PUBLIC WORKS PROJECTS

When the Contract Documents concern public works of the state or any county, municipality, or political subdivision created by its laws, the applicable statutes shall apply. All parties to this Contract shall determine the contents of all applicable statutes and comply with their Provisions throughout the performance of the Contract.

39. CODES, ORDINANCES, PERMITS AND LICENSES

The CONTRACTOR shall keep himself fully informed of all local codes and ordinances, as well as state and federal laws, which in any manner affect the work herein specified. The CONTRACTOR shall at all times comply with said codes and ordinances, laws, and regulations, and Protect and indemnify the OWNER, the ENGINEER and their respective employees, and its officers and agents against any claim or liability arising from or based on the violation of any such laws, ordinances, or regulations. All permits, licenses and inspection fees necessary for Prosecution and completion of the work shall be secured and paid for by the CONTRACTOR, unless otherwise specified.

A. PERMIT FOR WORK WITHIN LOCAL RIGHTS OF WAY

The CONTRACTOR shall obtain from the City of Key West the necessary permits for work within the rights of way. The CONTRACTOR shall abide by all regulations and conditions, including maintenance of traffic. RIGHT OF WAY Permit fees will be waived by the City for work within the City's RIGHT OF WAY

B. HISTORIC ARCHITECTURAL REVIEW COMMISSION (HARC) APPROVAL

Prior to beginning construction within the Historic District of Key West, the CONTRACTOR shall obtain a Certificate of Appropriateness from the City of Key West Historic Planner's office.

C. NOISE ORDINANCE

City of Key West has a noise ordinance that allows working hours between 8:00 AM to 7:00 PM, Monday through Friday. No work should be performed during weekends or City Holidays, State Holidays and National Holidays. Any construction operations outside these hours and these days will require a variance from the City of Key West Commission.

D. "LICENSES"

THE BIDDER MUST BE A LICENSED CONTRACTOR BY THE STATE OF FLORIDA AND SUBMIT PROOF OF SUCH WITH THE BID.

2. Within 10 days of Notice of Award, the successful Bidder must represent that he holds all applicable, county, and City of Key West licenses and permits required to do business as a CONTRACTOR with respect to the work described in the Contract Documents.
3. Further, the successful Bidder must, within 10 days of Notice of Award, furnish documentation showing that, as a minimum, he has complied with the provisions of Chapter 18 of the Code of Ordinances of the City of Key West to enter the Agreement contained in the Contract Documents.
4. Specifically, within 10 days after Notice of Award, the successful Bidder must demonstrate that he holds, as a minimum, the following licenses and certificates:
 - a.) City of Key West Tax License Receipt;
 - b.) A valid Certified CONTRACTORs License issued by the State of Florida.
 - c.) A valid occupational license issued by the City of Key West, Florida.

E. WORK DURING HOLIDAYS

There shall be no work during City Holidays, State Holidays and National Holidays. Any construction operations during these days shall be approved by the City Manager.

40. SUPERINTENDENCE

The CONTRACTOR shall keep at the project site, competent supervisory personnel. The CONTRACTOR shall designate, in writing, before starting work, a Project superintendent who shall be an employee of the CONTRACTOR and shall have complete authority to represent and to act for the CONTRACTOR. ENGINEER shall be notified in writing prior to any change in superintendent assignment. The CONTRACTOR shall give efficient supervision to the work, using his best skill and attention. The CONTRACTOR shall be solely responsible for all construction means, methods, techniques, and Procedures, and for providing adequate safety Precautions and coordinating all portions of the work under the Contract. It is specifically understood and agreed that the ENGINEER, its employees and agents, shall not have control or charge of and shall not be responsible for the construction means, methods, techniques, procedures, or for providing adequate safety precautions in connection with the work under Contract.

The CONTRACTOR shall keep at the project site, competent supervisory personnel, able to read, write and speak English to effectively communicate with City staff.

41. RECEPTION OF ENGINEER'S COMMUNICATIONS

The superintendent shall receive for the CONTRACTOR all communications from the ENGINEER. Communications of major importance will be confirmed in writing upon request from the CONTRACTOR.

The ENGINEER may schedule Project meetings for the purposes of discussing and resolving matters concerning the various elements of the work. Time and place for these meetings and the names of persons required to be

Present shall be as determined by the ENGINEER. CONTRACTOR shall comply with these attendance requirements and shall also require his SUBCONTRACTORS to comply.

42. SAFETY

The CONTRACTOR shall be solely and completely responsible for conditions of the jobsite, including safety of all persons (including employees) and Property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours. Safety Provisions shall conform to U.S. Department of Labor (OSHA), and all other applicable federal, state, county, and local laws, ordinances, codes, and regulations. Where any of these are in conflict, the more stringent requirement shall be followed. The CONTRACTOR's failure to thoroughly familiarize himself with the aforementioned safety Provisions shall not relieve him from compliance with the obligations and penalties set forth therein.

The CONTRACTOR shall develop and maintain for the duration of this Contract, a safety Program that will effectively incorporate and implement all required safety Provisions. The CONTRACTOR shall appoint an employee who is qualified and authorized to supervise and enforce compliance with the safety Program. The duty of the ENGINEER to conduct construction review of the work does not include review or approval of the adequacy of the CONTRACTOR's safety Program, safety supervisor, or any safety measures taken in, on, or near the construction site. The CONTRACTOR, as a part of his safety Program, shall maintain at his office or other well-known place at the jobsite, safety equipment applicable to the work as Prescribed by the aforementioned authorities, all articles necessary for giving first-aid to the injured, and shall establish the Procedure for the immediate removal to a hospital or a doctor's care of persons (including employees) who may be injured on the jobsite.

If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the ENGINEER and the OWNER. In addition, the CONTRACTOR must promptly report in writing to the ENGINEER all accidents whatsoever arising out of, or in connection with, the performance of the work whether on, or adjacent to, the site, giving full details and statements of witnesses.

If a claim is made by anyone against the CONTRACTOR or any SUBCONTRACTOR on account of any accident, the CONTRACTOR shall promptly report the facts in writing to the ENGINEER, giving full details of the claim.

A. OCCUPATIONAL SAFETY AND HEALTH

The CONTRACTOR shall observe and comply with all applicable local, state, and federal occupational safety and health regulations during the prosecution of work under this Contract. In addition, full compliance by the CONTRACTOR with the U.S. Department of Labor's Occupational Safety and Health Standards, as established in Public Law 91-596, will be required under the terms of this Contract.

43. PROTECTION OF WORK AND PROPERTY

The CONTRACTOR shall at all times safely guard and Protect from damage the OWNER's Property, adjacent Property, and his own work from injury or loss in connection with this Contract. All facilities required for Protection by federal, state, or municipal laws and regulations and local conditions must be provided and maintained. The CONTRACTOR shall Protect his work and materials from damage due to the nature of the work, the elements, carelessness of other CONTRACTORS, or from any cause whatever until the completion and acceptance of the work. All loss or damages arising out of the nature of the work to be done under these Contract Documents, or from any unforeseen obstruction or defects which may be encountered in the Prosecution of the work, or from the action of the elements, shall be sustained by the CONTRACTOR.

A. HISTORIC PRESERVATION

The CONTRACTOR shall comply with Florida's Archives and Historic Act (Florida Statutes, Chapter 267) and the regulations of the local historic preservation board as applicable and protect against the potential loss or destruction of significant historical or archaeological data, sites, and properties in connection with the project.

44. RESPONSIBILITY OF CONTRACTOR TO ACT IN AN EMERGENCY

In case of an emergency which threatens loss or injury of Property, and/or safety of life, the CONTRACTOR shall act, without previous instructions from the OWNER or ENGINEER, as the situation may warrant. The CONTRACTOR shall notify the ENGINEER thereof immediately thereafter. Any claim for compensation by the CONTRACTOR, together with substantiating documents in regard to expense, shall be submitted to the OWNER through the ENGINEER and the amount of compensation shall be determined by agreement.

45. MATERIALS AND APPLIANCES

Unless otherwise stipulated, the CONTRACTOR shall Provide and pay for all materials, labor, water, tools, equipment, heat, light, fuel, power, transportation, construction equipment and machinery, appliances, telephone, sanitary facilities, temporary facilities and other facilities and incidentals necessary for the execution and completion of the work.

Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of good quality. The CONTRACTOR shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

In selecting and/or approving equipment for installation in the Project, the OWNER and ENGINEER assume no responsibility for injury or claims resulting from failure of the equipment to comply with applicable federal, state, and local safety codes or requirements, or the safety requirements of a recognized agency, or failure due to faulty design concepts, or defective workmanship and materials.

46. CONTRACTORS' AND MANUFACTURERS' COMPLIANCE WITH STATE SAFETY, OSHA, AND OTHER CODE REQUIREMENTS

The completed work shall include all necessary permanent safety devices, such as machinery guards and similar ordinary safety items required by the state and federal (OSHA) industrial authorities and applicable local and national codes. Further, any features of the work subject to such safety regulations shall be fabricated, furnished, and installed (including OWNER-furnished equipment) in compliance with these requirements. CONTRACTORS and manufacturers of equipment shall be held responsible for compliance with the requirements included herein. CONTRACTORS shall notify all equipment suppliers and SUBCONTRACTORS of the Provisions of this Article.

47. SUBSTITUTION OF MATERIALS

Except for OWNER-selected equipment items, and items where no substitution is clearly specified, whenever any material, article, device, Product, fixture, form, type of construction, or Process is indicated or specified by patent or Proprietary name, by name of manufacturer, or by catalog number, such specifications shall be deemed to be used for the purpose of establishing a standard of quality and facilitating the description of the material or Process desired. This Procedure is not to be construed as eliminating from competition other Products of equal or better quality by other manufacturers where fully suitable in design, and shall be deemed to be followed by the words "or equal". The CONTRACTOR may, in such cases, submit complete data to the ENGINEER for consideration of another material, type, or Process that shall be substantially equal in every respect to that so indicated or specified. Substitute materials shall not be used unless approved in writing. The ENGINEER will be the sole judge of the substituted article or material.

48. TESTS, SAMPLES, AND OBSERVATIONS

The CONTRACTOR shall furnish, without extra charge, the necessary test pieces and samples, including facilities and labor for obtaining the same, as requested by the ENGINEER. When required, the CONTRACTOR shall furnish certificates of tests of materials and equipment made at the point of manufacture by a recognized testing laboratory.

The OWNER, ENGINEER, and authorized government agents, and their representatives shall at all times be Provided safe access to the work wherever it is in Preparation or Progress, and the CONTRACTOR shall Provide

facilities for such access and for observations, including maintenance of temporary and permanent access.

If the Specifications, laws, ordinances, or any public authority require any work, to be specially tested or approved, the CONTRACTOR shall give timely notice of its readiness for observations. If any work should be covered up without approval or consent of the ENGINEER, it shall, if required by the ENGINEER, be uncovered for examination at the CONTRACTOR's expense.

Reexamination of questioned work may be ordered by the ENGINEER, and, if so ordered, the work shall be uncovered by the CONTRACTOR. If such work is found to be in accordance with the Contract Documents, the OWNER will pay the cost of uncovering, exposure, observation, inspection, testing and reconstruction. If such work is found to be not in accordance with the Contract Documents, the CONTRACTOR shall correct the defective work, and the cost of reexamination and correction of the defective work shall be paid by the CONTRACTOR.

49. ROYALTIES AND PATENTS

The CONTRACTOR shall pay all royalty and licenses fees, unless otherwise specified. The CONTRACTOR shall defend all suits or claims for infringement of any patent rights and shall save the OWNER and the ENGINEER harmless from any and all loss, including reasonable attorneys' fees, on account thereof.

50. CONTRACTOR'S RIGHT TO TERMINATE CONTRACT

If the work should be stopped under an order of any court or other public authority for a period of more than 3 months, through no act or fault of the CONTRACTOR, its SUBCONTRACTORS, or respective employees or if the ENGINEER should fail to make recommendation for payment to the OWNER or return payment request to CONTRACTOR for revision within 30 days after it is due, or if the OWNER should fail to pay the CONTRACTOR within 30 days after time specified in Article PARTIAL PAYMENTS, any sum recommended by the ENGINEER, then the CONTRACTOR may, upon 15 days' written notice to the OWNER and the ENGINEER, stop work or terminate this Contract and recover from the OWNER payment for all acceptable work performed and reasonable termination expenses, unless said default has been remedied.

51. CORRECTION OF DEFECTIVE WORK DURING WARRANTY PERIOD

The CONTRACTOR hereby agrees to make, at his own expense, all repairs or replacements necessitated by defects in materials or workmanship, Provided under terms of this Contract, and pay for any damage to other works resulting from such defects, which become evident within 2 years after the date of final acceptance of the work or within 2 years after the date of substantial completion established by the ENGINEER for specified items of equipment, or within such longer period as may be Prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents. Un-remedied defects identified for correction during the warranty period but remaining after its expiration shall be considered as part of the obligations of the warranty. Defects in material, workmanship, or equipment which are remedied as a result of obligations of the warranty shall subject the remedied portion of the work to an extended warranty period of 2 years after the defect has been remedied.

The CONTRACTOR further assumes responsibility for a similar guarantee for all work and materials provided by SUBCONTRACTORS or manufacturers of packaged equipment components. The effective date for the start of the guarantee or warranty period for equipment qualifying as substantially complete is defined in Article SUBSTANTIAL COMPLETION, AND Article SUBSTANTIAL COMPLETION DATE, in these General Conditions.

The CONTRACTOR also agrees to hold the OWNER and the ENGINEER harmless from liability of any kind arising from damage due to said defects. The CONTRACTOR shall make all repairs and replacements promptly upon receipt of written order for same from the OWNER. If the CONTRACTOR fails to make the repairs and replacements promptly, or in an emergency where delay would cause serious risk, or loss, or damage, the OWNER may have the defective work corrected or the rejected work removed and replaced, and the CONTRACTOR and his Surety shall be liable for the cost thereof.

PROGRESS OF THE WORK

52. BEGINNING OF THE WORK

Following execution of the Contract, the CONTRACTOR shall meet with the OWNER and ENGINEER relative to his arrangements for prosecuting the work.

53. SCHEDULES AND PROGRESS REPORTS

Prior to starting the construction, the CONTRACTOR shall Prepare and submit to the ENGINEER, a Progress schedule showing the dates on which each part or division of the work is expected to be started and finished, and a Preliminary schedule for submittals. The Progress schedule for submittals shall be brought up to date and submitted to the ENGINEER at the end of each month or at such other times the ENGINEER may request.

The CONTRACTOR shall forward to the ENGINEER, at the end of each month, an itemized report of the delivery status of major and critical items of purchased equipment and material, including shop drawings and the status of shop and field fabricated work. These Progress reports shall indicate the date of the purchase order, the current percentage of completion, estimated delivery, and cause of delay, if any.

If the completion of any part of the work or the delivery of materials is behind the submitted Progress schedule, the CONTRACTOR shall submit in writing a plan acceptable to the OWNER and ENGINEER for bringing the work up to schedule.

The OWNER shall have the right to withhold Progress payments for the work if the CONTRACTOR fails to update and submit the Progress schedule and reports as specified.

54. PROSECUTION OF THE WORK

It is expressly understood and agreed that the time of beginning, rate of Progress, and time of completion of the work are the essence of this Contract. The work shall be prosecuted at such time, and in or on such part or parts of the Project as may be required, to complete the Project as contemplated in the Contract Documents and the Progress schedule.

If the CONTRACTOR desires to carry on work at night or outside the regular hours, he shall give timely notice to the ENGINEER to allow satisfactory arrangements to be made for observing the work in Progress.

55. OWNER'S RIGHT TO RETAIN IMPERFECT WORK

If any part or portion of the work completed under this Contract shall Prove defective and not in accordance with the Drawings and Specifications, and if the imperfection in the same shall not be of sufficient magnitude or importance as to make the work dangerous or unsuitable, or if the removal of such work will create conditions which are dangerous or undesirable, the OWNER shall have the right and authority to retain such work but will make such deductions in the final payment therefore as may be just and reasonable.

56. OWNER'S RIGHT TO DO WORK

Should the CONTRACTOR neglect to Prosecute the work in conformance with the Contract Documents or neglect or refuse at his own cost to remove and replace work rejected by the ENGINEER, then the OWNER may notify the Surety of the condition, and after 10 days' written notice to the CONTRACTOR and the Surety, or without notice if an emergency or danger to the work or public exists, and without Prejudice to any other right which the OWNER may have under Contract, or otherwise, take over that portion of the work which has been improperly or non-timely executed, and make good the deficiencies and deduct the cost thereof from the payments then or thereafter due the CONTRACTOR.

57. OWNER'S RIGHT TO TRANSFER EMPLOYMENT

If the CONTRACTOR should abandon the work or if he should persistently or repeatedly refuse or should fail to make prompt payment to SUBCONTRACTORS for material or labor, or to persistently disregard laws, ordinances, or to prosecute the work in conformance with the Contract Documents, or otherwise be guilty of a substantial violation of any Provision of the Contract or any laws or ordinance, then the OWNER may, without Prejudice to any other right or remedy, and after giving the CONTRACTOR and Surety 10 days' written notice, transfer the employment for said work from the CONTRACTOR to the Surety. Upon receipt of such notice, such Surety shall enter upon the Premises and take possession of all materials, tools, and appliances thereon for the purpose of completing the work included under this contract and employ by Contract or otherwise, any qualified person or persons to finish the work and Provide the materials therefore, in accordance with the Contract Documents, without termination of the continuing full force and effect of this contract. In case of such transfer of employment to such Surety, the Surety shall be paid in its own name on estimates according to the terms hereof without any right of the CONTRACTOR to make any claim for the same or any part thereof.

If, after the furnishing of said written notice to the Surety, the CONTRACTOR and the Surety still fail to make reasonable Progress on the performance of the work, the OWNER may terminate the employment of the CONTRACTOR and take possession of the Premises and of all materials, tools, and appliances thereon and finish the work by whatever method he may deem expedient and charge the cost thereof to the CONTRACTOR and the Surety. In such case, the CONTRACTOR shall not be entitled to receive any further payment until the work is finished. If the expense of completing the Contract, including compensation for additional managerial and administrative services, shall exceed such unpaid balance, the CONTRACTOR and the Surety shall pay the difference to the OWNER.

A. TERMINATION FOR CONVENIENCE AND RIGHT OF SUSPENSION

OWNER shall have the right to terminate this Contract without cause by written notice of Termination to the Contractor. In the event of such termination for convenience, the Contractor's recovery against the OWNER shall be limited to that portion of the Contract amount earned through the date of termination, together with any retainage withheld and reasonable termination expenses incurred. CONTRACTOR shall not be entitled to any other or further recovery against the OWNER, including, but not limited to, damages or any anticipated profit on portions of the Work not performed.

The OWNER shall have the right to suspend all or any portions of the Work upon giving the CONTRACTOR prior written notice of such suspension. If all or any portion of the Work is so suspended, the CONTRACTOR shall be entitled to reasonable costs, expenses and time extension associated with the suspension.

58. DELAYS AND EXTENSION OF TIME

If the CONTRACTOR is delayed in the Progress of the work by any act or neglect of the OWNER or the ENGINEER, or by any separate CONTRACTOR employed by the OWNER, or by strikes, lockouts, fire, adverse weather conditions not reasonably anticipated, or acts of Nature, and if the CONTRACTOR, within 48 hours of the start of the occurrence, gives written notice to the OWNER of the cause of the potential delay and estimate of the possible time extension involved, and within 10 days after the cause of the delay has been remedied, the CONTRACTOR gives written notice to the OWNER of any actual time extension requested as a result of the aforementioned occurrence, then the Contract time may be extended by change order for such reasonable time as the ENGINEER determines. It is agreed that no claim shall be made or allowed for any damages, loss, or expense which may arise out of any delay caused by the above referenced acts or occurrences other than claims for the appropriate extension of time. No extension of time will be granted to the CONTRACTOR for delays occurring to parts of the work that have no measurable impact on the completion of the total work under this Contract. No extension of time will be considered for weather conditions reasonably anticipated for the area in which the work is being performed. Reasonably anticipated weather conditions will be based on official records of monthly Precipitation and other historical data. Adverse weather conditions, if determined to be of a severity that would impact Progress of the work, may be considered as cause for an extension of Contract completion time.

Delays in delivery of equipment or material purchased by the CONTRACTOR or his SUBCONTRACTORS, including OWNER-selected equipment shall not be considered as a just cause for delay, unless the OWNER determines that for good cause the delay is beyond the control of the CONTRACTOR. The CONTRACTOR shall be fully responsible for the timely ordering, scheduling, complete the work is the per-diem rate, as stipulated in the Bid. The said amount is hereby agreed upon as a reasonable estimate of the costs, which may be accrued by the OWNER after the expiration of the time of completion. It is expressly understood and agreed that this amount is not to be considered in the nature of a penalty, but as liquidated damages which have accrued against the CONTRACTOR. The OWNER shall have the right to deduct such damages from any amount due, or that may become due the CONTRACTOR, or the amount of such damages shall be due and collectible from the CONTRACTOR or Surety.

59. DIFFERING SITE CONDITIONS

The CONTRACTOR shall promptly, and before the conditions are disturbed, give a written notice to the OWNER and ENGINEER of:

- 1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract,
- 2) unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

The ENGINEER will investigate the site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase or decrease in the CONTRACTOR's cost of, or the time required for, performing any part of the work under this Contract, whether or not changed as a result of the conditions, and equitable adjustment shall be made under this Article and the Contract modified in writing accordingly.

No request by the CONTRACTOR for an equitable adjustment to the Contract under this Article will be allowed, unless the CONTRACTOR has given the written notice required; provided that the time prescribed above for giving written notice may be extended by the OWNER.

No request by the CONTRACTOR for an equitable adjustment to the Contract for differing site conditions will be allowed if made after final payment under this Contract.

60. LIQUIDATED DAMAGES

Should the CONTRACTOR fail to complete the work or any part thereof in the time agreed upon in the Contract Documents or within such extra time as may have been allowed for delays by extensions granted as provided in the Contract, the CONTRACTOR shall reimburse the OWNER for the additional expense and damage for each calendar day that project outlined in Contract Documents remains uncompleted after the completion date. Liquidated damages shall be assessed. It is agreed that the amount of such additional expense and damage incurred by reason of failure to complete the work is the per diem rate as stipulated in the Bid. The said amount is hereby agreed upon as a reasonable estimate of the costs which may be accrued by the OWNER after the expiration of the time of completion. It is expressly understood and agreed that this amount is not to be considered in the nature of a penalty but as liquidated damages, which have accrued against the CONTRACTOR. The OWNER shall have the right to deduct such damages from any amount due or that may become due the CONTRACTOR or the amount of such damages shall be due and collectible from the CONTRACTOR or Surety.

61. OTHER CONTRACTS

The OWNER reserves the right to let other Contracts in connection with the work. The CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his work with theirs.

If any part of the work under this Contract depends for Proper execution or results upon the work of any other CONTRACTOR, utility service company or OWNER, the CONTRACTOR shall inspect and Promptly report to the ENGINEER in writing any patent or apparent defects to deficiencies in such work that render it unsuitable for such Proper execution and results. The CONTRACTOR's failure to so report shall constitute and acceptance of the work by others as being fit and Proper for integration with work under this Contract, except for latent or non-apparent defects and deficiencies in the work.

62. USE OF PREMISES

The CONTRACTOR shall confine his equipment, the storage of materials and the operation of his workers to limits shown on the Drawings or indicated by law, ordinances, permits, or directions of the ENGINEER, and shall not unreasonably encumber the Premises with his materials. The CONTRACTOR shall provide, at his own expense, the necessary rights-of-way and access to the work, which may be required outside the limits of the OWNER's Property and shall furnish the ENGINEER copies of permits and agreements for use of the Property outside that provided by the OWNER.

The CONTRACTOR shall not load nor permit any part of the structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the work or adjacent Property to stresses or Pressures that will endanger it.

63. SUBSTANTIAL COMPLETION DATE

The ENGINEER may issue a written notice of substantial completion for the purpose of establishing the starting date for specific equipment guarantees, and to establish the date that the OWNER will assume the responsibility for the cost of operating such equipment. Said notice shall not be considered as final acceptance of any portion of the work or relieve the CONTRACTOR from completing the remaining work within the specified time and in full compliance with the Contract Documents. See SUBSTANTIAL COMPLETION under DEFINITIONS of these General Conditions.

64. PERFORMANCE TESTING

Operating equipment and systems shall be performance tested in the Presence of the ENGINEER to demonstrate compliance with the specified requirements. Performance testing shall be conducted under the specified design operating conditions or under such simulated operating conditions as recommended or approved by the ENGINEER. Schedule such testing with the ENGINEER at least one week in advance of the planned date for testing.

65. OWNER'S USE OF PORTIONS OF THE WORK

Following issuance of the written notice of Substantial Completion, the OWNER may initiate operation of the facility. Such use shall not be considered as final acceptance of any portion of the work, nor shall such use be considered as cause for an extension of the Contract completion time, unless authorized by a Change Order issued by the OWNER.

66. CUTTING AND PATCHING

The CONTRACTOR shall do all cutting, fitting, or patching of his work that may be required to make its several parts come together Properly and fit it to receive or be received by work of other CONTRACTORS shown upon or reasonably implied by the Drawings.

67. CLEANING UP

The CONTRACTOR shall, at all times, keep Property on which work is in Progress and the adjacent Property free from accumulations of waste material or rubbish caused by employees or by the work. Upon completion of the construction, the CONTRACTOR shall remove all temporary structures, rubbish, and waste materials resulting

from his operations.

PAYMENT

68. PAYMENT FOR CHANGE ORDERS

The OWNER's request for quotations on alterations to the work shall not be considered authorization to proceed with the work expediting, delivery, and installation of all equipment and materials. Within a reasonable period after the CONTRACTOR submits to the OWNER a written request for an extension of time, the ENGINEER will Present his written opinion to the OWNER as to whether an extension of time is justified, and, if so, his recommendation as to the number of days for time extension. The OWNER will make the final decision on all requests for extension of time.

Prior to the issuance of a formal Change Order, nor shall such request justify any delay in existing work. Quotations for alterations to the work shall include substantiating documentation with an itemized breakdown of CONTRACTOR and SUBCONTRACTOR costs, including labor, material, rentals, approved services, overhead, and profit. OWNER may require detailed cost data in order to substantiate the reasonableness of the proposed costs.

Any compensation paid in conjunction with the terms of a Change Order shall comprise total compensation due the CONTRACTOR for the work or alteration defined in the Change Order. By signing the Change Order, the CONTRACTOR acknowledges that the stipulated compensation includes payment for the work or alteration plus all payment for the interruption of schedules, extended overhead, delay, or any other impact claim or ripple effect, and by such signing specifically waives any reservation or claim for additional compensation in respect to the subject Change Order.

At the OWNER's option, payment or credit for any alterations covered by a Change Order shall be determined by one or a combination of the methods set forth in A, B, or C below, as applicable:

A. UNIT PRICES

Those unit Prices stipulated in the Bid shall be utilized where they are applicable. In the event the Change Order results in a change in the original quantity that is materially and significantly different from the original bid quantity, a new unit Price shall be negotiated upon demand of either party. Unit Prices for new items included in the Change Order shall be negotiated and mutually agreed upon.

B. LUMP SUM

A total lump sum for the work negotiated and mutually acceptable to the CONTRACTOR and the OWNER. Lump sum quotations for modifications to the work shall include substantiating documentation with an itemized breakdown of CONTRACTOR and SUBCONTRACTOR costs, including labor, material, rentals, approved services, overhead, and Profit, all calculated as specified under "C" below.

C. COST REIMBURSEMENT WORK

The term "cost reimbursement" shall be understood to mean that payment for the work will be made on a time and expense basis, that is, on an accounting of the CONTRACTOR's forces, materials, equipment, and other items of cost as required and used to do the work.

If the method of payment cannot be agreed upon Prior to the beginning of the work, and the OWNER directs by written Change Order that the work be done on a cost reimbursement basis, then the CONTRACTOR shall furnish labor, and furnish and install equipment and materials necessary to complete the work in a satisfactory manner and within a reasonable period of time. For the work performed, payment will be made for the documented actual cost of the following:

1. Labor including foremen for those hours they are assigned and participating in the cost reimbursement

work (actual payroll cost, including wages, fringe benefits as established by negotiated labor agreements, labor insurance, and labor taxes as established by law). No other fixed labor burdens will be considered, unless approved in writing by the OWNER.

2. Material delivered and used on the designated work, including sales tax, if paid by the CONTRACTOR or his SUBCONTRACTOR.
3. Rental or equivalent rental cost of equipment, including necessary transportation for items having a value in excess of \$100. Rental or equivalent rental cost will be allowed for only those days or hours during which the equipment is in actual use. Rental and transportation allowances shall not exceed the current rental rates prevailing in the locality. The rentals allowed for equipment will, in all cases, be understood to cover all fuel, supplies, repairs, and renewals, and no further allowances will be made for those items, unless specific agreement to that effect is made.
4. Additional bond, as required and approved by the OWNER.
5. Additional insurance (other than labor insurance) as required and approved by the OWNER.

In addition to 1 through 5 above, an added fixed fee for general overhead & profit shall be negotiated and allowed for the CONTRACTOR (or approved SUBCONTRACTOR) executing the Cost Reimbursement work.

An additional fixed fee of 5% will be allowed the CONTRACTOR for the administrative handling of portions of the work that are executed by an approved SUBCONTRACTOR. No additional fixed fee will be allowed for the administrative handling of work executed by the SUBCONTRACTOR of a SUBCONTRACTOR.

The added fixed fees shall be considered to be full compensation, covering the cost of general supervision, overhead, Profit, and any other general expense. The CONTRACTOR's records shall make clear distinction between the direct costs of work paid for on a cost reimbursement basis and the costs of other work. The CONTRACTOR shall furnish the ENGINEER report sheets in duplicate of each day's cost reimbursement work no later than the working day following the performance of said work. The daily report sheets shall itemize the materials used, and shall cover the direct cost of labor and the charges for equipment rental, whether furnished by the CONTRACTOR, SUBCONTRACTOR or other forces. The daily report sheets shall provide names or identifications and classifications of workers, the hourly rate of pay and hours worked, and also the size, type, and identification number of equipment and hours operated.

Material charges shall be substantiated by valid copies of vendors' invoices. Such invoices shall be submitted with the daily report sheets, or, if not available, they shall be submitted with subsequent daily report sheets. Said daily report sheets shall be signed by the CONTRACTOR or his authorized agent.

The OWNER reserves the right to furnish such materials and equipment as he deems expedient and the CONTRACTOR shall have no claim for profit or added fees on the cost of such materials and equipment. To receive partial payments and final payment for cost reimbursement work, the CONTRACTOR shall submit to the ENGINEER, detailed and complete documented verification of the CONTRACTOR's and any of his SUBCONTRACTORS' actual costs involved in the cost reimbursement work. Such costs shall be submitted within 30 days after said work has been performed.

69. PARTIAL PAYMENTS

A. GENERAL

Nothing in this Article shall be construed to affect the right, hereby reserved, to reject the whole or any part of the aforesaid work, should such work be later found not to comply with the Provisions of the Contract Documents. All estimated quantities of work for which partial payments have been made are subject to review and correction on the final estimate. Payment by the OWNER and acceptance by the CONTRACTOR of partial payments based on periodic estimates of quantities of work performed shall not, in any way, constitute acceptance of the estimated quantities used as a basis for computing the amounts of the partial payments.

B. ESTIMATE

No more than once each month the CONTRACTOR shall submit to the ENGINEER a detailed estimate of the amount earned during the preceding month for the separate portions of the work and request payment. As used in this Article the words "amount earned" means the value, on the date of the estimate, for partial payment of the work completed in accordance with the Contract Documents and the value of approved materials delivered to the project site suitably stored and protected prior to incorporation into the work. Payment will be made by the Owner to the CONTRACTOR within 40 days receipt of the written recommendation of payment from the ENGINEER. Payment will be made by the OWNER to the CONTRACTOR within 40 days receipt of the written recommendation of payment from the ENGINEER.

ENGINEER will, within 7 days after receipt of each request for payment, either indicate in writing a recommendation of payment and present the request to OWNER, or return the request to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may, within 7 days, make the necessary corrections and resubmit the request.

ENGINEER may refuse to recommend the whole or any part of any payment if, in his opinion, it would be incorrect to make such representations to OWNER. ENGINEER may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended to such an extent as may be necessary in ENGINEER's opinion to protect the OWNER from loss because:

1. The work is defective, or completed work has been damaged requiring correction or replacement;
2. Written claims have been made against OWNER or Liens have been filed in connection with the work;
3. The Contract Price has been reduced because of Change Orders;
4. OWNER has been required to correct defective work or complete the work in accordance with Article OWNER'S RIGHT TO DO WORK;
5. Of CONTRACTOR's unsatisfactory Prosecution of the work in accordance with the Contract Documents;
or
6. CONTRACTOR's failure to make payment to SUBCONTRACTORS or for labor, materials, or equipment.

C. DEDUCTION FROM ESTIMATE

Unless modified in the Supplementary Conditions, deductions from the estimate will be as described below:

1. The OWNER will deduct from the estimate, and retain as part security, 10 percent of the amount earned for work satisfactorily completed. A deduction and retainage of 10 percent will be made on the estimated amount earned for approved items of material delivered to and properly stored at the jobsite but not incorporated into the work. When the work is 90 percent complete, the OWNER may reduce the retainage to 5 percent of the dollar value of all work satisfactorily completed to date provided the CONTRACTOR is making satisfactory progress and there is no specific cause for a greater retainage. The OWNER shall hold retainage for an individual Work Order until such time as work associated with that Work Order is deemed complete by the OWNER.

D. QUALIFICATION FOR PARTIAL PAYMENT FOR MATERIALS DELIVERED

Unless modified in the Supplementary Conditions, qualification for partial payment for materials delivered but not yet incorporated into the work shall be as described below:

1. Materials, as used herein, shall be considered to be those items which are fabricated and manufactured

material and equipment. No consideration shall be given to individual purchases of less than \$200 for any one item.

2. To receive partial payment for materials delivered to the site, but not incorporated in the work, it shall be necessary for the CONTRACTOR to include a list of such materials on the Partial Payment Request. At his sole discretion, the ENGINEER may approve items for which partial payment is to be made. Partial payment shall be based on the CONTRACTOR's actual cost for the materials as evidenced by invoices from the supplier. Proper storage and Protection shall be provided by the CONTRACTOR, and as approved by the ENGINEER. Final payment shall be made only for materials actually incorporated in the work and, upon acceptance of the work, all materials remaining for which advance payments had been made shall revert to the CONTRACTOR, unless otherwise agreed, and partial payments made for these items shall be deducted from the final payment for the work.
3. CONTRACTOR warrants and guarantees that title to all work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER at the time of payment free and clear of all liens, claims, security interests, and encumbrances.
4. If requested by the ENGINEER, the CONTRACTOR shall provide, with subsequent pay requests, invoices received by the supplier showing payment in full has been made.

E. PAYMENT

After deducting the retainage and the amount of all previous partial payments made to the CONTRACTOR from the amount earned the amount due will be made payable to the CONTRACTOR.

70. CLAIMS FOR EXTRA WORK

In any case where the CONTRACTOR deems additional time or compensation will become due him under this Contract for circumstances other than those defined in Article DELAYS AND EXTENSION OF TIME, the CONTRACTOR shall notify the ENGINEER, in writing, of his intention to make claim for such time or compensation before he begins the work on which he bases the claim, in order that such matters may be settled, if possible, or other appropriate action taken. The notice of claim shall be in duplicate, in writing, and shall state the circumstances and the reasons for the claim but need not state the amount. If such notification is not given or if the ENGINEER is not afforded proper facilities by the CONTRACTOR for keeping strict account of actual cost, then the CONTRACTOR hereby agrees to waive the claim for such additional time or compensation. Such notice by the CONTRACTOR, and fact that the ENGINEER has kept account of the cost as aforesaid, shall not in any way be construed as proving the validity of the claim.

No extension of time will be granted to the CONTRACTOR for delays resulting from extra work that have no measurable impact on the completion of the total work under this Contract. Claims for additional time or compensation shall be made in itemized detail and submitted, in writing, to the OWNER and ENGINEER within 10 days following completion of that portion of the work for which the CONTRACTOR bases his claim. Failure to make the claim for additional compensation in the manner and within the time specified above shall constitute waiver of that claim. In case the claim is found to be just, it shall be allowed and paid for as provided in Article PAYMENT FOR CHANGE ORDERS.

71. RELEASE OF LIENS OR CLAIMS

The CONTRACTOR shall indemnify and hold harmless the OWNER from all claims for labor and materials furnished under this Contract. Prior to the final payment, the CONTRACTOR shall furnish to the OWNER, as part of his final payment request, a certification that all of the CONTRACTOR's obligations on the project have been satisfied and that all monetary claims and indebtedness have been paid. The CONTRACTOR shall furnish complete and legal effective releases or waivers, satisfactory to the OWNER, of all liens arising out of or filed in connection with the work.

72. FINAL PAYMENT

Upon completion of the work the CONTRACTOR shall notify the ENGINEER, in writing, that he has completed it and shall request final payment. The CONTRACTOR shall be responsible for keeping an accurate and detailed record of his actual construction. Upon completion of construction and before final acceptance and payment the CONTRACTOR shall furnish the ENGINEER as-built drawings of his construction. Upon receipt of a request for final payment and the as-built drawings the ENGINEER will inspect and, if acceptable, submit to the OWNER his recommendation as to acceptance of the completed work and as to the final estimate of the amount due the CONTRACTOR. Upon approval of this final estimate by the OWNER and compliance by the CONTRACTOR with provisions in Article RELEASE OF LIENS OR CLAIMS, and other provisions as may be applicable, the OWNER shall pay to the CONTRACTOR all monies due him under the provisions of these Contract Documents.

A. Acceptance and Final Payment

Whenever the CONTRACTOR has completely performed the work provided for under the Contract and the ENGINEER has performed a final inspection and made final acceptance and subject to the terms of the ENGINEER will prepare a final estimate showing the value of the work as soon as the ENGINEER makes the necessary measurements and computations. The ENGINEER will correct all prior estimates and payments in the final estimate and payment. The OWNER will pay the estimate, less any sums that the OWNER may have deducted or retained under the provisions of the Contract, as soon as practicable after final acceptance of the work, provided the CONTRACTOR has met the requirements of (1) through (4) below.

1. The CONTRACTOR has agreed in writing to accept the balance due or refund the overpayment, as determined by the OWNER, as full settlement of his account under the Contract and of all claims in connection therewith, or the CONTRACTOR, accepted the balance due or refunded the overpayment, as determined by the OWNER, with the stipulation that his acceptance of such payment or the making of such refund does not constitute any bar, admission, or estoppel, or have any effect as to those payments in dispute or the subject of a pending claim between the CONTRACTOR and the OWNER. To receive payment based on a FINAL PAYMENT CERTIFICATE, The CONTRACTOR further agrees, by submitting a FINAL PAYMENT CERTIFICATE that any pending or future arbitration claim or suit is limited to those particulars, including the itemized amounts, defined in the original FINAL PAYMENT CERTIFICATE , and that he will commence with any such arbitration claim or suit within 15 calendar days from and after the time of final PAYMENT of the work and that his failure to file a formal claim within this period constitutes his full acceptance of the ENGINEER's final estimate and payment. The overpayment refund check from the CONTRACTOR, if required, will be considered a part of any Acceptance Letter executed.
2. The CONTRACTOR has properly maintained the project, as specified hereinbefore.
3. The CONTRACTOR has furnished a sworn affidavit to the effect that the CONTRACTOR has paid all bills and no suits are pending (other than those exceptions listed, if any) in connection with work performed under the Contract and that the CONTRACTOR has not offered or made any gift or gratuity to, or made any financial transaction of any nature with, any employee of the OWNER in the performance of the Contract.
5. Final payment will not be released until the OWNER receives Certified As-built drawings in Auto Cad & Adobe format.

73. NO WAIVER OF RIGHTS

Neither the inspection by the OWNER, through the ENGINEER or any of his employees, nor any order by the OWNER for payment of money, nor any payment for, or acceptance of, the whole or any part of the work by the OWNER or ENGINEER, nor any extension of time, nor any possession taken by the OWNER or its employees,

shall operate as a waiver of any Provision of this Contract, or any power herein reserved to the OWNER, or any right to damages herein Provided, nor shall any waiver of any breach in this Contract be held to be a waiver of any other or subsequent breach. Acceptance or final payment shall not be final and conclusive with regards to latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the OWNER's rights under the warranty.

74. ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE

The acceptance by the CONTRACTOR of the final payment shall release the OWNER and the ENGINEER, as representatives of the OWNER, from all claims and all liability to the CONTRACTOR for all things done or furnished in connection with the work, and every act of the OWNER and others relating to or arising out of the work except claims Previously made in writing and still unsettled. No payment, however, final or otherwise, shall operate to release the CONTRACTOR or his Sureties from obligations under this Contract and the Performance Bond, Payment Bond, and other bonds and warranties, as herein provide

END OF SECTION

PART 4: GENERAL REQUIREMENTS

01001: GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 PROJECT DESCRIPTION

- A. A brief description of the work is stated in the Invitation to Bid. To determine the full scope of the project or of any part of the project, coordinate the applicable information in the several parts of these Contract Documents.

1.2 MOBILIZATION AND DEMOBILIZATION

- A. CONTRACTOR shall be responsible for mobilization and demobilization of labor, materials and equipment. Payment for mobilization and demobilization will be included in the unit price for MOBILIZATION indicated in the BID. Parking for vehicles used on site will be determined by the ENGINEER prior to mobilization.
- B. DAILY REPORTS (If Required)
 - 1) The CONTRACTOR shall submit daily reports of construction activities for each site, including non-work days. The report shall include:
 - a) Manpower, number of workers by craft
 - b) Quality Control
 - c) Equipment on the Project
 - d) Major deliveries
 - e) Activities worked
 - f) New problems
 - g) Other pertinent information
 - 2) A similar report shall be submitted for/by each SUBCONTRACTOR.
 - 3) The reports shall be submitted to the ENGINEER upon request.

1.3 SCHEDULING

- A. Prior to starting the work, confer with the ENGINEER and OWNER's representative to develop an approved work schedule. Which will permit the surrounding facilities to function as normally as practical. It may be necessary to do certain parts of the work outside normal working hours to avoid undesirable conditions. The CONTRACTOR shall do this work at such times and at no additional cost to the OWNER.
- B. SPECIAL EVENTS: CONTRACTOR may be asked to stop work during special events. Individual days where work is stopped at the city's request due to special events shall not count toward the total number of contract days.

1.4 COORDINATION

- A. CONTRACTORS shall cooperate in the coordination of their separate activities in a manner that will provide the least interference with the OWNER's operations and other CONTRACTORS and utility companies working in the area, and in the interfacing and connection of the separate elements of the overall project work.
- B. If any difficulty or dispute should arise in the accomplishment of the above, the problem shall be brought immediately to the attention of the ENGINEER.

- C. CONTRACTOR shall notify all residents and proprietors adjacent to construction site of work to be performed, more specifically the notice shall state the day and time construction will begin, the name and phone number of the CONTRACTOR's representative responsible for the completion of the proposed improvements. Notice shall also include the OWNER's representative for the project.
- D. All CONTRACTORS working on the site are subject to this requirement for cooperation and all shall abide by the OWNER's decision in resolving project coordination problems without additional cost to the OWNER.

1.5 SITE INVESTIGATION AND REPRESENTATION

- A. The CONTRACTOR acknowledges satisfaction as to the nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, access to the site, disposal, handling and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, or similar physical conditions at the site, the conformation and conditions at the site, the character of equipment and facilities needed preliminary to and during the prosecution of the work, and all other matters which can any way affect the work or the cost thereof under this Contract.
- B. The CONTRACTOR further acknowledges satisfaction as to character, quality, and quantity of surface and subsurface materials to be encountered from his inspection of the site and from reviewing any available records of exploratory work furnished by the OWNER or included in these Documents. Failure by the CONTRACTOR to become acquainted with the physical conditions of the site and all available information will not relieve the CONTRACTOR from responsibility for properly estimating the difficulty or cost of successfully performing the work.
- C. The CONTRACTOR warrants that as a result of examination and investigation of all the aforesaid data, the CONTRACTOR can perform the work in a good and workmanlike manner and to the satisfaction of the OWNER.
- D. The OWNER assumes no responsibility for any representations made by any of its officers or agents during or prior to the execution of this Contract, unless (1) such representations are expressly stated in the Contract, and (2) the Contract expressly provides that the responsibility therefore is assumed by the OWNER.

1.6 INFORMATION ON SITE CONDITIONS

- A. General: Any information obtained by the ENGINEER regarding site conditions, subsurface information, water level, existing construction of site facilities as applicable, and similar data will be available for inspection at the office of the ENGINEER upon request. Such information is offered as supplementary information only. Neither the ENGINEER nor the OWNER assumes any responsibility for the completeness or interpretation of such supplementary information.
- B. The CONTRACTOR shall provide a color audio-video recording showing the entire preconstruction site. All videos shall be taken by a professional commercial video photographer. The video photographer shall be an established enterprise that routinely provides these services. The videos shall be in DVD format or .wav files on removable USB drive, indicating the date, project name, and a brief description of the location where the video was taken. The CONTRACTOR shall submit one (1) copy of the preconstruction audio-video to the OWNER.

1.7 DIFFERING SUBSURFACE CONDITIONS

- A. The ENGINEER shall investigate such conditions promptly and following this investigation, the CONTRACTOR shall proceed with the work, unless otherwise instructed by the ENGINEER. If the ENGINEER finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for performing the work, the ENGINEER will recommend to the OWNER the amount of adjustment in cost and time he considers reasonable. The OWNER will make the final decision on all Change Orders to the Contract regarding any adjustment in cost or time for completion.

1.8 UTILITIES

- A. During excavation, the CONTRACTOR shall be responsible for determining, at his cost, the locations of all known utilities in the project area.
- B. CONTRACTOR shall notify utility location service (e.g. Call Sunshine 1-800-432-4770) a minimum for 48 hours prior to work order mobilization. Assigned notification number shall be maintained at the job site at all times and recorded in the daily reports.

1.9 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTIES AND SERVICE

- A. Where the CONTRACTOR's operations could cause damage or inconvenience to telephone, television, gas, water, sewer, or irrigation systems, the operations shall be suspended until all arrangements necessary for the protection of these utilities and services have been made by the CONTRACTOR.
- B. Notify all utility offices, which are affected by the construction operation at least 48 hours in advance. Under no circumstances expose any utility without first obtaining permission from the appropriate agency. Once permission has been granted, locate, expose, and provide temporary support for all existing underground utilities.
- C. The CONTRACTOR shall be solely and directly responsible to the OWNER and operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the construction operations under this Contract
- D. Neither the OWNER nor its Officers or agents shall be responsible to the CONTRACTOR for damages as a result of the CONTRACTOR's failure to protect utilities encountered in the work.
- E. In the event of interruption to domestic water, sewer, storm drain, or other utility services as a result of accidental breakage due to construction operations, promptly notify the proper authority. Cooperate with said authority in restoration of service as promptly as possible and bear all costs of repair. In no case shall interruption of any water or utility service be allowed to exist outside working hours unless prior approval is granted.
- F. In the event the CONTRACTOR encounters water service lines that interfere with trenching, he may, by obtaining prior approval of the property owner, Florida Keys Aqueduct Authority (FKAA), or Fire Department as applicable, and the ENGINEER, cut the service dig through, and restore service with similar and equal materials at the CONTRACTOR's expense.
- G. The CONTRACTOR shall replace, at his own expense, all existing utilities or structures removed or damaged during construction, unless otherwise provided for in these Contract Documents or ordered by the ENGINEER.

1.10 PROTECTED VEGETATION

- A. Trees and shrubs are regulated and protected. Prior to any trimming or pruning, the CONTRACTOR shall contact the City of Key West Urban Forestry Manager and obtain approval to perform the trimming and pruning work. This work is considered to be incidental to the project cost.

1.11 TEMPORARY WATER

- A. The CONTRACTOR shall make his own arrangements to obtain suitable water for any need and shall pay all costs.

1.12 TEMPORARY ELECTRIC POWER

- A. The CONTRACTOR shall make his own arrangements to obtain and pay for electrical power used until final acceptance by the OWNER.

1.13 SAFETY REQUIREMENTS FOR TEMPORARY ELECTRIC POWER

- A. Temporary electric power installation shall meet the construction Safety requirements of OSHA, State, and other governing agencies.

1.14 SANITARY FACILITIES

- A. The CONTRACTOR shall provide and maintain sanitary facilities for his employees and his SUBCONTRACTOR's employees that will comply with the regulations of the local and State Departments of Health and as directed by the OWNER.

1.15 STORAGE OF MATERIALS

- A. Materials shall be so stored as to ensure the preservation of their quality and fitness for the work. When considered necessary, they shall be placed on wooden platforms or other clean hard surfaces and not on the ground. Stored materials shall be located so as to facilitate prompt inspection. Stored materials on city property must be safe and secured from the general public and if necessary they must be fitted with lights at night. Private property shall not be used for storage purposes without the written permission of the OWNER or lessee. Materials shall not be stored where access to any structure, plot, or road is blocked. Location of stored materials approved by the ENGINEER or his designee.
- B. Delicate instruments and materials subject to vandalism shall be placed under lock cover and, if necessary, provided with temperature control as recommended by the manufacturer.

1.16 CONSTRUCTION SAFETY PROGRAM

- A. The CONTRACTOR shall develop and maintain for the duration of this Contract, a safety program that will effectively incorporate and implement all required safety provisions. The CONTRACTOR shall appoint an employee who is qualified and authorized to supervise and enforce compliance with the safety program.
- B. The duty of the ENGINEER to conduct construction review of the CONTRACTOR's performance is not intended to include a review or approval of the adequacy of the CONTRACTOR's safety supervisor, the safety program or any safety measures taken in, on, or near the construction site.
- C. The CONTRACTOR shall do all work necessary to protect the public from hazards, including, but not limited to, surface irregularities, or unramped grade changes on pedestrian walkways and docks.

Barricades, lights, and proper signs shall be furnished in sufficient amount to safeguard the public and the work.

- D. The performance of all work shall be in accordance with the applicable governing safety authorities.

1.17 ACCIDENT REPORTS

- A. If death or serious injuries or serious damages are caused; the CONTRACTOR must promptly report by telephone or messenger to the ENGINEER. In addition, the CONTRACTOR must promptly report in writing to the ENGINEER all accidents whatsoever arising out of or in connection with, the performance of the work whether on, or adjacent, to the site, giving full details and statements of witnesses.
- B. If a claim is made against the CONTRACTOR or any SUBCONTRACTOR on account of any accident, the CONTRACTOR shall promptly report the facts in writing to the ENGINEER, giving full details of the claim.

1.18 TRAFFIC MAINTENANCE AND SAFETY

- A. Comply with all rules and regulations of the state, county, and city authorities regarding closing or restricting the use of public streets or highways. No public or private road shall be closed, except by express permission of the OWNER. Conduct the work so as to assure the least possible obstruction to traffic and normal commercial pursuits. Protect all obstructions within traveled roadways by installing approved signs, barricades, and lights where necessary for the safety of the public. The convenience of the general public and residents adjacent to the project and the protection of persons and property are of prime importance and shall be provided for in an adequate and satisfactory manner.
- B. Maintenance of Traffic shall be maintained at all construction sites until the work is either completed or any open trenches have been properly covered and all equipment is properly stored. CONTRACTOR shall maintain Maintenance of Traffic (MOT) signs in good repairs and required MOT lights should be operative at all times. The OWNER shall stop work if MOT is not properly maintained; there shall not be any additional cost to the OWNER for this downtime.
- C. When flagmen and guards are required by regulation, permits, or when deemed necessary for safety, they shall be furnished with approved orange wearing apparel and other regulation traffic-control devices. Flaggers shall be certified by State approved agency.
- D. MOT plans shall be in accordance with Florida Department of Transportation standard details for MOT and the Manual on Uniform Traffic Control Devices (MUTCD). MOT plans shall be submitted with the Temporary Right-of-Way Permit application for review and approval by the Engineering Department.

1.19 STREET MAINTENANCE

- A. CONTRACTOR shall notify all residents and proprietors adjacent to construction site of work to be performed, more specifically the notice shall state the day and time construction will begin, the name and phone number of the CONTRACTOR's representative responsible for the completion of the proposed improvements. Notice shall also include the OWNER's representative for the project.

1.20 PROTECTION OF PROPERTY

- A. Protect stored materials located adjacent to the proposed work. Notify property OWNERS affected by the construction at least 48 hours in advance of the time construction begins. During construction operations, construct and maintain such facilities as may be required to provide access by all property OWNERS to their property. No person shall be cut off from access to his residence or place of business for a period exceeding 8 hours, unless the CONTRACTOR has made special arrangements with the affected persons.
- B. The CONTRACTOR shall identify and isolate his work zone in such a manner as to exclude all personnel not employed by him, the ENGINEER, and the OWNER.

1.21 FIRE PREVENTION AND PROTECTION

- A. The CONTRACTOR shall perform all work in a fire-safe manner and shall supply and maintain on the site adequate fire-fighting equipment capable of extinguishing incipient fires. The CONTRACTOR shall comply with applicable federal, state, and local fire-prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standard for Safeguarding Building Construction Operations (NFPA No. 241) shall be followed.

1.22 SITE RESTORATION AND CLEANUP:

- A. At all times during the work keep the premises clean and orderly and upon completion of daily work repair all damage caused by equipment and leave the project free of rubbish or excess materials of any kind.
- B. Stockpile excavated materials in a manner that will cause the least damage to adjacent lawns, grassed areas, gardens, shrubbery, or fences regardless of whether these are on private property, or State, County, or City rights-of-way. Remove all excavated materials from grassed and planted areas, and leave these surfaces in a condition equivalent to their original condition.

1.23 FINISHING OF SITE AND STORAGE AREAS

- A. Upon completion of the project, all areas used by the CONTRACTOR shall be properly cleared of all temporary structures, rubbish and waste materials and properly graded to drain and blend in with the abutting property. Areas used for the deposit of waste materials shall be finished to properly drain and blend in with the surrounding terrain.

1.24 AREA CLEANUP DURING CONSTRUCTION

- A. Thoroughly clean all spilled dirt, gravel, sand or other foreign materials caused by the construction operations from all streets and roads, grass, pathways, docks or concrete walkways and from adjacent areas at the conclusion of each day's operation. Truck or equipment wash down is not to be performed on City Property.

1.25 SUBMITTALS

- A. See Submittals section of the specifications

1.26 PAYMENT

- A. The cost of the work in this section is considered incidental to the contract.

END OF SECTION

01014: ENVIRONMENT PROTECTION

PART 1 GENERAL

1.1 GENERAL

- A. The CONTRACTOR shall maintain all work areas within and outside the project boundaries free from environmental pollution, which would be in violation to any federal, state, or local regulations.
- B. The work specified in this Section consists of designing, providing, maintaining and removing temporary erosion and sedimentation controls as necessary.
- C. Temporary erosion controls include, but are not limited to, grassing, mulching, watering, and reseeded on-site surfaces and spoil and borrow area surfaces and providing interceptor ditches at ends of berms and at those locations which will ensure that erosion during construction will be either eliminated or maintained within acceptable limits as established by the OWNER.
- D. Temporary sedimentation controls include, but are not limited to, silt dams, traps, barriers, and appurtenances at the foot of sloped surfaces which will ensure that sedimentation pollution will be either eliminated or maintained within acceptable limits as established by the OWNER.
- E. CONTRACTOR is responsible for providing effective temporary erosion and sediment control measures during construction or until final controls become effective.

1.2 PROTECTION OF AIR QUALITY

- A. The air pollution likely to occur due to construction operations shall be minimized by wetting down bare soils during windy periods, requiring the use of properly operating combustion emission control devices on construction vehicles and equipment used by the CONTRACTOR, and by encouraging the shutdown of motorized equipment not actually in use.
- B. Trash burning will not be permitted on the construction site.
- C. CONTRACTOR shall provide dust control for any asphalt / concrete removal and during the asphalt milling operations.

1.3 CONSTRUCTION NOISE CONTROL

- A. The CONTRACTOR shall conduct all his work, use appropriate construction methods and equipment, and furnish and install acoustical barriers, all as necessary so that no noise emanating from the process or any related tool or equipment will exceed legal noise levels, as set forth in the Code of Ordinances, City of Key West, Florida.

1.5 PAYMENT

- A. Payment for the work associated with this Section will be incidental to the contract.

PART 2 – Not used

PART 3 – Not used

END OF SECTION

01020: SUMMARY OF WORK

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work Included: Furnishing all materials, equipment and labor for the construction and/ or replacement of pavement overlay and reconstruction, shoulder restoration, sidewalks, curbs, gutters, crosswalks, site clean-up, and all necessary appurtenances and incidental work to provide a complete and serviceable project.. The CONTRACTOR will receive a Notice to Proceed with the work authorized. The CONTRACTOR shall complete all work in within the number of calendar days stipulated in the
- B. Related requirements in other parts of the Contract Documents: Include but not limited to:
 - 1. General Conditions of the Contract for Construction.

1.2 CONTRACTOR'S DUTIES:

- A. In addition to provisions stipulated in other portions of the Contract Documents, the CONTRACTOR shall:
 - 1. Secure permits as necessary for proper execution and completion of the work.
 - 2. All conditions of the permit must be adhered to by the CONTRACTOR.
 - 3. Notify (in writing) all vendors, residents and proprietors adjacent to construction site of work to be performed, more specifically the notice shall state the day and time construction will begin, hours of work, the name and phone number of the CONTRACTOR's Superintendent and an end date for the project.
- B. The CONTRACTOR shall be totally responsible for securing and complying with all, required permits and payment of associated fees. CONTRACTOR shall ensure that construction complies with all applicable local, state, and federal codes.
- C. Provide an experienced, qualified, and competent Superintendent able to read, write and speak English to oversee the work and perform quality assurance inspections. Prior to starting construction, the proposed Superintendent's qualifications shall be submitted in writing to the City for approval. The approved Superintendent shall be expected to remain for the duration of the Project, unless the City or ENGINEER deem him/her inadequate and requests his/her removal or the CONTRACTOR cannot continue his services to the Project for a reason or reasons that shall be communicated in writing to the City.
- D. The Superintendent shall provide to the City, upon request, Construction Reports for each week of construction, the reports shall be in English, legible, and signed. CONTRACTOR, upon request, shall provide PDF copies monthly. Reports shall include quantity control checks.
- E. It shall be the CONTRACTOR's responsibility to comply with the City's Ordinance

Chapter 26 Environment, Article IV. Sound Control below:

Sec. 26-193. - Exceptions.

- A. The prohibitions contained in this article shall not apply to the following:

1. Construction/demolition. Sound levels produced from tools and equipment in commercial construction, demolition, drilling, or reasonably similar activities. However, such sound levels are limited to the hours of 8:00 a.m. to 7:00 p.m., Monday through Friday, and 9:00 a.m. to 5:00 p.m. on Saturday. The tools and equipment must be muffled and maintained equal to the functional standards of the industry. No exceptions contained in this subsection shall apply on Thanksgiving Day, Christmas Day and New Year's Day.
- B. The CONTRACTORs is responsible for the construction of the above mentioned project, concrete walkways and all associated items used in the completion of the project. CONTRACTOR is further responsible for all costs associated with the disposal of materials and must dispose of in an environmentally responsible manner.
- C. The CONTRACTOR shall provide material safety data sheets (2 copies) for chemicals, paints, coatings and materials used on-site prior to initiation of work.

1.3 CONTRACTOR'S USE OF PREMISES

- A. Work shall be scheduled as to not interfere with on-going area activities.
- B. Coordinate use of premises and requirements for security under direction of City.
- C. Assume full responsibility for the protection and safekeeping of products, under this Contract, stored on the site.
- D. Obtain and pay for the use of additional storage or work areas needed for operation.

1.4 MAINTENANCE OF EXISTING UTILITIES OPERATION

- A. Provide at least three weeks' notice prior to interruption of utility services for temporary or permanent connections.
- B. Keep interruption of utility services, and utility outages during disconnection, moving, and reconnection to a minimum.
- C. Keys Energy shall be notified two weeks in advance in writing by the CONTRACTOR for any KEYS support equipment required by the CONTRACTOR during construction. CONTRACTOR is responsible for all impact fees. No additional payment will be paid for this coordination.

END OF SECTION

01025: MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 GENERAL

- A. The CONTRACTOR shall receive and accept the compensation as provided in the BID and the Contract in full payment for performing all operations necessary to complete the work under this Contract, and also in full payment for all loss or damages arising from the nature of the work, until the final acceptance by the OWNER.
- B. The Unit prices stated in the Bid include all costs and expenses for performing and completing the work as ordered and as described in the Contract Documents, details, technical specifications, and specified herein. Measurement and payment for an item at a Unit Price or Lump Sum shown in the Bid shall be in accordance with the description of the item in this section.
- C. The CONTRACTOR'S attention is called to the fact that the quotations for various items of work are intended to establish a total price for completing the work. Should the CONTRACTOR feel that the cost for an item has not been established in the BID, or this section, they shall include the cost for that work in an applicable BID item, so that this bid reflects his total Unit Prices and Aggregate Sums for completing the work in its entirety.
- D. The quantities for payment under this Contract shall be determined by actual measurement of completed items, in-place, and ready for service and accepted by the OWNER, in accordance with the applicable method of payment therefore contained herein. The CONTRACTOR shall designate and provide a representative to be present at, to witness, and to assist in the making of field measurement of payment.

1.2 MEASUREMENT GENERAL

- A. Whenever pay quantities of material are determined by weight, the material shall be weighed on scales furnished by CONTRACTOR and certified accurate by the state agency responsible. A weight or load slip shall be obtained from the scale operator and delivered to the OWNER'S representative at the point of delivery of the material.
- B. Vehicles used to haul material being paid for by weight shall be weighed empty daily and at such additional times as required by ENGINEER. Each vehicle shall bear a plainly legible identification mark.
- C. All materials which are specified for measurement by the cubic yard "measured in the vehicle" shall be hauled in vehicles of such type and size that the actual contents may be readily and accurately determined. Unless all vehicles are of uniform capacity, each vehicle must bear a plainly legible identification mark indicating its water level capacity. All vehicles shall be loaded to at least their water level capacity. Loads hauled in vehicles not meeting the above requirements or loads of a quantity less than the capacity of the vehicle, measured after being leveled off as above provided, will be subject to rejection, and no compensation will be allowed for such material.

D. Units of measure shown on the Bid shall be as follows unless specified otherwise.

<u>Item</u>	<u>Method of Measurement</u>
CY	Cubic Yard: Field Measure Calculated by ENGINEER within the limits specified or shown
EA	Each: Field Count by ENGINEER
LF	Linear Foot: Field Measure by ENGINEER
LS	Lump Sum: Unit is one; no measurement will be made
SF	Square Foot: Measurement & calculation by ENGINEER
SY	Square Yard: Measurement & calculation by ENGINEER
TN	Ton: Haul tickets signed by ENGINEER
AC	Acres: Haul tickets signed by ENGINEER
AS	Assembled: Field Count by ENGINEER
GM	Gross Mile: Measurement & calculation by ENGINEER

1.3 PAYMENT

- A. General: Progress payments will be made monthly based on the date of Notice to Proceed issuance.
- B. Payment for all Work shown or specified in the Contract Documents is included in the Contract Price. No measurement or payment will be made for individual items except as itemized herein as unit price items.
- C. Payment will not be made for following:
 - 1. Loading, hauling, and disposing of rejected material.
 - 2. Quantities of material wasted or disposed of in manner not called for under Contract Documents.
 - 3. Rejected loads of material, including material rejected after it has been placed by reason of failure of CONTRACTOR to conform to provisions of Contract Documents.
 - 4. Material not unloaded from transporting vehicle.
 - 5. Defective Work not accepted by OWNER.
 - 6. Material remaining on hand after completion of Work.

1.4 DESCRIPTION OF BID ITEMS

See Bid Proposal Form

01050: FIELD ENGINEERING

PART 1 - GENERAL

1. DESCRIPTION:

A. Work Included:

1. Provide field-engineering services required for the Project, including but not limited to survey work required in execution of the Work.

B. Related Work:

1. General and Supplementary Conditions of the Contract.
2. Section 01020 Summary of Work.

1.2 SUBMITTALS:

A. Upon request of the City's Engineer, submit documentation to verify accuracy of field engineering work.

B. Upon request, submit certificates signed by the Surveyor certifying that elevations and locations of the work of this Project are in conformance, or non-conformance, with the Contract Documents.

1.3 INSURANCE:

- A. Surveying work constitutes a professional service, requiring the CONTRACTOR to maintain a minimum \$1,000,000 professional liability insurance policy per occurrence.

PART 2 – MATERIALS (not used)

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION OF SITE

- A. Before starting operations, CONTRACTOR shall examine work site to acquaint himself with conditions to be encountered.
- B. Compare actual site with drawings and specifications.
- C. Report discrepancies affecting work or cost thereof to the OWNER.
- D. Verify exact locations of sewers, water mains, gas mains, above or below ground electrical wires and conduits and structures which may interfere with work.
- E. No extra compensation will be allowed for any extra work made necessary due to conditions or obstacles encountered during progress of work, which could have been determined by examination of site or by contacting OWNERS of utilities, pipelines and conduits before starting operations.
- F. Comply with State law concerning Sunshine State One Call of Florida, State Statute Title 33, Chapter 556.

3.2 LINES AND GRADES

- A. Prior to staking out work, CONTRACTOR shall verify established base line, benchmarks, and control points provided.
- B. CONTRACTOR shall furnish and maintain lines and grades.
- C. CONTRACTOR shall take immediate steps to correct errors or inconsistencies in lines and grades of work to be in conformity with Contract Documents.
- D. CONTRACTOR shall be fully responsible for accuracy of lines and grades of work and control and checking and immediate correction of it.

3.3 RESTORATION

- A. Items to remain which are disturbed, damaged, or removed when performing required work or for convenience of CONTRACTOR or to expedite his operations shall be restored, repaired, reinstalled, or replaced with new work and refinished, as appropriate, so as to be left in as good condition as existed before work commenced and such restoration shall be considered incidental to the work.
- B. Any sidewalks or pavement replaced or installed shall meet ADA requirements.
- C. Existing items to be altered, extended, salvaged, or relocated and reused, if found to be defective in any way, shall be reported to the OWNER before items are disturbed.
- D. Materials and workmanship used in restoring work shall conform in type and quality to original existing construction.

3.4 PAYMENT

- A. Payment for work specified in this section will be incidental to the contract.

END OF SECTION

01300: SUBMITTALS

PART 1 - GENERAL

1.1 GENERAL

- A. Inquiries: Direct to ENGINEER regarding procedure, purpose, or extent of Submittal.
- B. Submittal Submission Procedures: As provided in General Conditions, as specified herein, and as may otherwise be established during the preconstruction conference.
- C. OWNER's Authorization: At any time, OWNER may authorize changes to procedures and requirements for Submittals, as necessary to accomplish specific purpose of each Submittal. Such authorization will be by Field Order or Work Change Directive.
- D. Timeliness: Make submissions in accordance with requirements of individual Specification sections, as shown on the current accepted schedule of Submittals submissions, and in such sequence as to cause no delay in Work or in work of other CONTRACTORS.
- E. Identification of Submittals:
 - 1. Complete, sign, and transmit with each Submittal package, one Transmittal of CONTRACTOR's Submittal Form attached at the end of this section.
 - 2. Identify each Submittal with numbering and tracking system reviewed by ENGINEER:
 - a. Sequentially number each Submittal.
 - b. Resubmission of a Submittal will have original number with sequential alphabetic suffix.
 - 3. Show date of submission and dates of previous submissions.
 - 4. Show Project title and OWNER's contract identification and contract number.
 - 5. Show names of CONTRACTOR, SUBCONTRACTOR or Supplier, and manufacturer as appropriate.
 - 6. Identify, as applicable, Contract Document section and paragraph to which Submittal applies.
 - 7. Clearly identify revisions from previous submissions.
- F. Incomplete Submittal Submissions:
 - 1. At ENGINEER's sole discretion, ENGINEER will either (i) return the entire Submittal for CONTRACTOR's revision/correction and resubmission, or (ii) retain portions of the Submittal and request submission/resubmission of specified items or as noted thereon.
 - 2. Submittals which do not clearly bear CONTRACTOR's specific written indication of CONTRACTOR review and approval of Submittal or which are transmitted with an unsigned or uncertified submission form or as may otherwise be required under Contract Documents, will be returned to CONTRACTOR unreviewed for resubmission in accordance with Contract Documents.
 - 3. Delays, re-sequencing or other impact to Work resulting from CONTRACTOR's submission of unchecked or unreviewed, incomplete, inaccurate or erroneous, or nonconforming Submittals, which will require CONTRACTOR's resubmission of a Submittal for

ENGINEER's review, shall not constitute a basis of claim for adjustment in Contract Price or Contract Times.

G. Non-specified Submissions: Submissions not required under these Contract Documents and not shown on schedule of Submittals submissions will not be reviewed and will be returned to CONTRACTOR.

H. Transmit submittals in accordance with current accepted schedule of Submittal submissions, and deliver to the ENGINEER designated by the Engineering Department of the City of Key West.

I. Disposition of Submittals: As specified herein for administrative Submittals. ENGINEER will review, stamp, and indicate requirements for resubmission or acceptance on Submittal as follows:

1. No Exceptions Taken.
2. Reviewed as Noted:
 - a. Reference the General Conditions for intent.
 - b. CONTRACTOR may proceed to perform Submittal related Work.
 - d. One copy for ENGINEER's file.
 - e. One copy returned to CONTRACTOR.
3. Revise and Resubmit (Revise/Correct or Develop Replacement and Resubmit):
 - a. Revise/correct in accordance with ENGINEER's comments and resubmit.
 - b. One copy to ENGINEER's file.
 - c. One copy returned to CONTRACTOR appropriately annotated.

J. Payment for the work in this section will be incidental to the contract.

PART 2 - Not used

PART 3 - Not used

END OF SECTION

01500: TESTING SERVICES

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. The CONTRACTOR shall employ and pay for the services of a qualified commercial independent testing laboratory acceptable to the OWNER to perform specified services.
- B. Inspection, sampling, and testing is required for:
 - 1. Backfill
 - 2. Paving and surfacing
 - 3. Concrete
 - 3. Additional quality checks as required by the ENGINEER
- C. Employment of a testing laboratory shall in no way relieve the CONTRACTOR of his obligation to perform work in accordance with the Contract.

PART 2 - PRODUCTS

2.1 SUBMITTALS

- A. Submit two copies of reports of inspections and tests to ENGINEER promptly upon completion of inspections and tests, including: Provide one copy in PDF.
 - 1. Date issued.
 - 2. Project title and job number.
 - 3. Testing laboratory name and address.
 - 4. Name and signature of inspector.
 - 5. Date of inspection or sampling.
 - 6. Record of temperature and weather.
 - 7. Date of test.
 - 8. Location of inspection or test.
 - 9. Identification of product and specification section.
 - 10. Type of inspection or test.
 - 11. Observation regarding compliance with the Contract Documents.

PART 3 - EXECUTION

3.1 LABORATORY DUTIES - LIMITATIONS OF AUTHORITY

- A. Cooperate with the OWNER and CONTRACTOR; provide qualified personnel promptly on notice.
- B. Perform specified inspections, sampling, and testing of materials and methods of construction:
 - 1. Comply with specified standards; ASTM, other recognized standards, authorized and as specified.
 - 2. Ascertain compliance with requirements of Contract Documents.
- C. Notify the ENGINEER and CONTRACTOR immediately of irregularities or deficiencies of work that are observed during performance of services.

D. Perform additional services as required by the ENGINEER.

3.2 ON SITE TESTING

A. On site testing must be performed by technical staff certified/accredited by state approved agencies and industry standards.

B. Testing as required by other sections of this document.

3.3 PAYMENT

A. Payment for the work in this section will be incidental to the respective unit price items.

END OF SECTION

01530: BARRIERS

PART 1 – GENERAL

1.1 REQUIREMENTS

A. Furnish, install, and maintain suitable barriers as required to prevent public entry, and to protect the work, existing facilities, trees, and plants from construction operations; remove when no longer needed, or at completion of work.

1.2 RELATED REQUIREMENTS

A. Section 01020 Summary of Work.

PART 2 - PRODUCTS

2.1 MATERIALS – GENERAL

A. Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

2.2 FENCING

A. Minimum fence height shall be four feet. Open-mesh orange plastic fence shall be used to prohibit public access to the construction site.

2.3 BARRIERS

A. Materials are CONTRACTOR's option, as appropriate to serve required purpose and should comply with industry accepted standards.

2.4 NO PARKING SIGNS

A. The Contractor is responsible to furnish and place “No Parking” signs when necessary to perform work.

PART 3 - EXECUTION

3.01 GENERAL

A. Install facilities in a neat and reasonably uniform appearance, structurally adequate for the required purposes.

B. Maintain barriers during entire construction period.

C. Relocate barriers as required by the progress of construction.

3.02 FENCES

A. Provide and maintain fences necessary to assure security of the site during construction to keep unauthorized people and animals from the site when construction is not in progress.

B. Provide additional security measures as deemed necessary and approved by the OWNER.

3.03 TREE AND PLANT PROTECTION

A. Preserve and protect existing trees and plants at site which are designated to remain, and those adjacent to site. Tree protection and preservation measures shall be per the 20-22 FDOT Standard Plans Index 110-100 and these specifications.

B. Consult with the ENGINEER and the City's Urban Forestry Manager and remove agreed-on roots and branches which interfere with construction. Employ a qualified tree surgeon to remove branches and treat cuts. No trees or roots shall be removed without approval and/or a permit issued by the City Tree Commission.

C. Protect root zones of trees and plants:

1. Do not allow vehicular traffic or parking.
2. Do not store materials or products.
3. Prevent dumping of refuse or chemically injurious materials or liquids.
4. Prevent puddling or continuous running water.

D. Carefully supervise excavating, grading and filling, and other construction operations, to prevent damage.

E. Replace, or suitably trim trees and plants designated to remain which are damaged or destroyed due to construction operations.

3.04 REMOVAL

A. Completely remove barricades when construction has progressed to the point that they are no longer needed and when approved by the OWNER.

C. Repair damage caused by construction. Fill and grade areas of the site to the required elevations, and clean up the entire area impacted by construction activities.

3.05 PAYMENT

A. Payment for the work in this section will be incidental to the respective unit price items.

END OF SECTION

01700: CONTRACT CLOSEOUT

PART 1 – GENERAL

1.1 REQUIREMENTS

- A. Project completion includes completion of all Work, final inspection after completion, final cleaning, CONTRACTOR's closeout submittals, and final adjustment of accounts.

1.2 FINAL INSPECTION AFTER COMPLETION

- A. When the CONTRACTOR considers the Work complete with all minor deficiencies completed or corrected, he shall submit written certification that:
 - 1. Contract Document requirements have been met.
 - 2. Work has been inspected for compliance with Contract Documents.
 - 3. Work has been completed in accordance with Contract Documents.
 - 4. All minor deficiencies have been corrected or completed and the Work is ready for final inspection.
 - 5. Project record documents are complete and submitted.
- B. Within a reasonable time upon receipt of such certification, the OWNER will make an inspection to verify the status of completion.
- C. Should the OWNER determine that the work is incomplete or defective:
 - 1. The OWNER will promptly notify the CONTRACTOR in writing, listing the incomplete or defective work.
 - 2. CONTRACTOR shall remedy the deficiencies in the work and send a second written certification to the OWNER that the project is complete.
 - 3. Upon receipt of the second certification, the OWNER will review the Work.
- D. When the OWNER determines that the work is acceptable under the Contract Documents, the CONTRACTOR shall provide all closeout submittals.

1.3 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Clean site; sweep paved areas, rake clean other surfaces.
- C. Remove waste and surplus materials, rubbish, and construction facilities from the Project and from the site.

1.5 CONTRACTOR'S CLOSEOUT SUBMITTALS

- A. Project Record Documents
 - 1. At Contract Closeout, submit documents with transmittal letter containing date, project title, CONTRACTOR's name and address, list of documents, and signature of CONTRACTOR.
 - 2. Changes made by Field Order or by Change Order.
- B. Evidence of payment and Release of Liens.

1.6 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to the OWNER.
- B. Statement shall reflect all adjustments to the Contract Sum.
 - 1. The original Contract sum.
 - 2. Additions and deductions resulting from:
 - a. Previous change orders or written amendment.
 - b. Allowances
 - c. Unit prices
 - d. Deductions for uncorrected work.
 - e. Deductions for liquidated damages
 - f. Other adjustments
 - 3. Total contract sum as adjusted
 - 4. Previous payments
 - 5. Sum remaining due

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION (not used)

END OF SECTION

PART 5: ENGINEERED PLANS

CONTRACT PLANS COMPONENTS

ROADWAY PLANS
SIGNING AND PAVEMENT MARKING PLANS

CITY OF KEY WEST

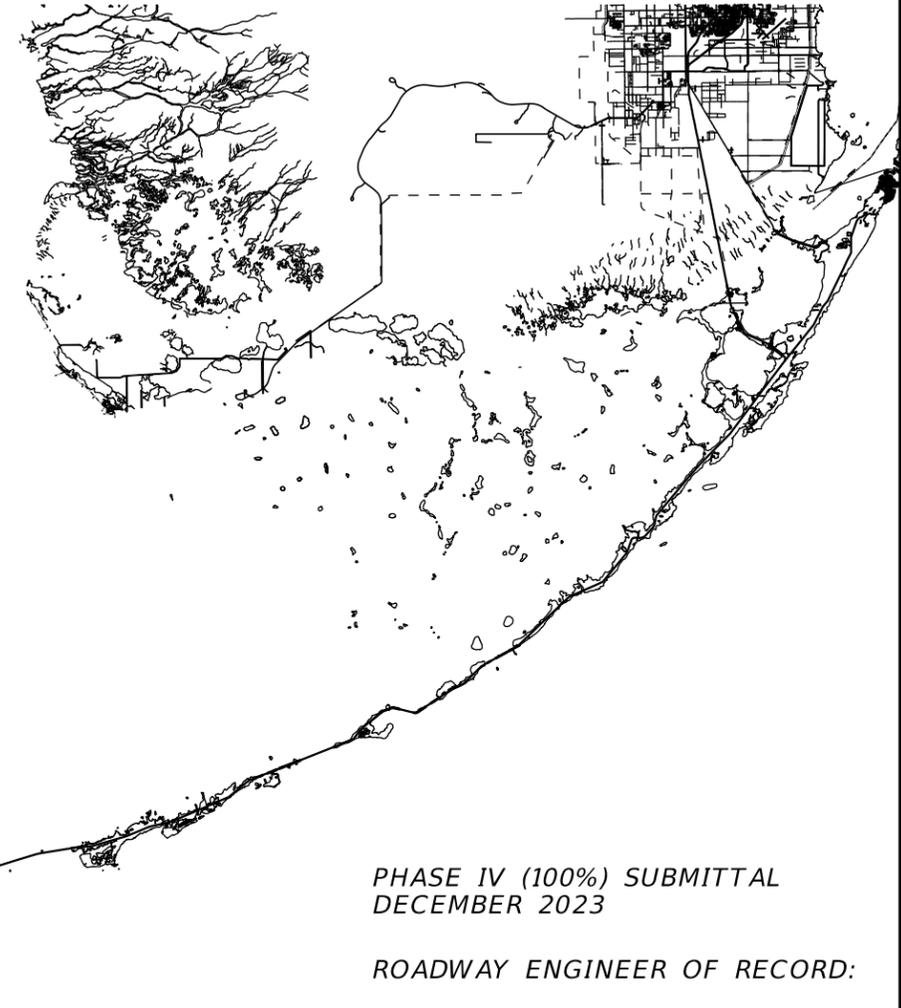
TASK ORDER 9-22
SOUTH STREET IMPROVEMENTS

MONROE COUNTY

ROADWAY PLANS

INDEX OF ROADWAY PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2	SIGNATURE SHEET
3	SUMMARY OF PAY ITEMS
4	GENERAL NOTES
5	TREE PROTECTION NOTES
6 - 7	TYPICAL SECTION
8 - 10	DETAILS
11 - 14	ROADWAY PLAN
15	ROADWAY PLAN/PROFILE
16	DRAINAGE DETAILS
17 - 21	DRAINAGE PLAN
22	ROADWAY SOILS SURVEY
23	ROADWAY SOIL PROFILES
24 - 26	LANDSCAPE TABLE



PROJECT LOCATION

PHASE IV (100%) SUBMITTAL
DECEMBER 2023

ROADWAY ENGINEER OF RECORD:

KAREN E. FALKENBERRY P.E.
P.E. LICENSE NUMBER 54015
JACOBS ENGINEERING GROUP INC.
200 W. FORSYTH ST., STE 1520
JACKSONVILLE, FLORIDA 32202

CITY PROJECT MANAGER:

IAN MCDOWELL, P.E.

GOVERNING STANDARD PLANS:

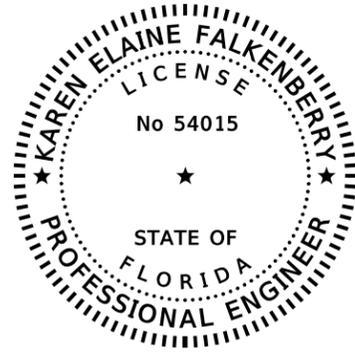
Florida Department of Transportation, FY 2023-24 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

Standard Plans for Road Construction and associated IRs are available at the following website: <http://www.fdot.gov/design/standardplans>

GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, FY 2023-24 Standard Specifications for Road and Bridge Construction at the following website: <http://www.fdot.gov/programmanagement/Implemented/SpecBooks>

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
	24	1



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

ON THE DATE ADJACENT TO THE SEAL

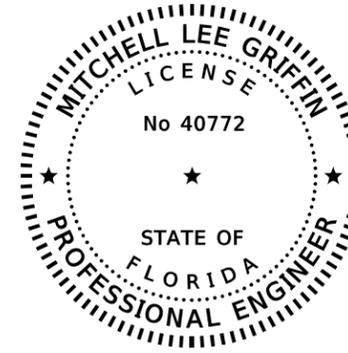
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

JACOBS ENGINEERING GROUP, INC.
200 W. FORSYTH STREET, SUITE 1520
JACKSONVILLE, FL 32202
KAREN E. FALKENBERRY, P.E. NO. 54015

THE ABOVE NAMED ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

ROADWAY PLANS

SHEET NO	SHEET DESCRIPTION
1	KEY SHEET
2	SIGNATURE SHEET
3	SUMMARY OF PAY ITEMS
4	GENERAL NOTES
5	TREE PROTECTION NOTES
6 - 7	TYPICAL SECTIONS
8 - 10	DETAILS
11 - 14	ROADWAY PLAN
15	ROADWAY PLAN/PROFILE
24 - 26	LANDSCAPE TABLE



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

ON THE DATE ADJACENT TO THE SEAL

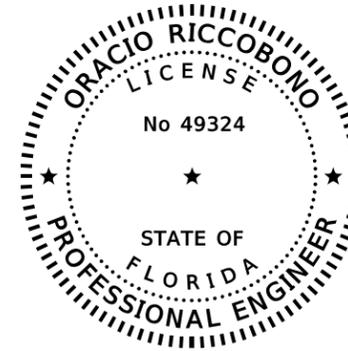
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

JACOBS ENGINEERING GROUP, INC.
5401 W KENNEDY BLVD, STE 300
TAMPA, FL 33609
MITCH GRIFFIN, P.E. NO. 40772

THE ABOVE NAMED ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

ROADWAY PLANS

SHEET NO	SHEET DESCRIPTION
2	SIGNATURE SHEET
16	DRAINAGE DETAILS
17 - 21	DRAINAGE PLAN



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

ON THE DATE ADJACENT TO THE SEAL

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

GEOSOL, INC.
5795-A NW 151ST STREET
MIAMI LAKES, FL 33014
ORACIO RICCOBONO, P.E. NO. 49324

THE ABOVE NAMED ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

ROADWAY PLANS

SHEET NO	SHEET DESCRIPTION
2	SIGNATURE SHEET
22	ROADWAY SOILS SURVEY
23	ROADWAY SOIL PROFILES

REVISIONS				KAREN E. FALKENBERRY, P.E. P.E. LICENSE NUMBER 54015 JACOBS ENGINEERING GROUP, INC. 200 W. FORSYTH ST, STE 1520 JACKSONVILLE, FL 32202		TASK ORDER 9-22	PROJECT: SOUTH STREET IMPROVEMENTS	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION					
								2

SIGNATURE SHEET

2/2/2024 11:47:22 AM Karen.Falkenberry@jacobs.com
c:\users\kfalkenb\appdata\local\bentley\projectwise\jacobs-america-01\dms89931\SUMORD01.dgn

Bid Item Number	Pay Item Number	Description	Estimated Quantity	Unit
1	101-1	Mobilization	1	LS
2	102-1	Maintenance of Traffic	1	LS
3	104-18	Inlet Protection System	12	EA
4	107-1	Litter Removal	2.88	AC
5	110-1-1	Clearing and Grubbing	0.08	AC
6	110-4-10	Removal of Existing Concrete Pavement	3,846	SY
7	---	Type D-3 Geotextile for Trench Restoration	328	SY
8	---	Tensar Glasgrid CG System Geotextile	8,479	SY
9	121-70	Flowable Fill	94	CY
10	285-704*	Limerock Stabilized Base (LBR 100) - 6" (Stabilization)	2,251	SY
11	---	Regrading Limerock Base	1,317	SY
12	285-706	Optional Base, Base Group 6	1,226	SY
13	327-70-5	Mill Existing Asphalt Pavement (2.0" Avg Depth)	5,794	SY
14	334-1-12	Superpave Ashaltic Concrete, Traffic B	943.4	TN
15	425-1-201	Inlet, Curb, Type 9, <10 ft with Type P Box Alt B	5	EA
16	425-4	Inlets, Adjust	1	EA
17	425-5-1	Manhole, Adjust	17	EA
18	425-6	Valve Boxes, Adjust	214	EA
19	430-175-124	Pipe Culvert, Optional Material, Round, 24" S/CD	102	LF
20	520-1-10	Concrete Curb & Gutter, Type F	4,571	LF
21	520-2-4	Concrete Curb, Type D	1,868	LF
22	522-1	Concrete Sidewalk and Driveways, 4" thick	2,614	SY
23	522-2	Concrete Sidewalk and Driveways, 6" thick	714	SY
24	527-2	Detectable Warnings	328	SF
25	---	SOP Technologies Curbed Inlet Filter Screen	4	EA
26	---	Madrax Bollard Bike Rack	9	EA
27	581-1-1	Relocate Trees & Palms, Palm < 14' of Clear Trunk	4	EA
28	---	Landscape Trees	35	EA
29	---	Flexi-pave at Tree Wells	1,257	SF
30	700-1-11	Single Post Sign, F&I Ground Mount, up to 12 SF	47	AS
31	706-1-110	Raised Pavement Marker, Type B, Solar Powered Blue	9	EA
32	710-90	Painted Pavement Markings - Final Surface	1	LS
33	711-11-123	Thermo, Std, White, Solid, 12" (Cross-Walk)	1450	LF
34	711-11-125	Thermo, Std, White, Solid, 24" (Stop Bar)	223	LF
35	711-11-141	Thermo, Std, White, 2-4' Dotted Guideline, 6"	0.059	GM
36	711-14-160	Thermo, Preformed, White, Message	24	EA
37	711-14-170	Thermo, Preformed, White, Arrow	16	EA
38	711-16-201	Thermo, Std - Other Surfaces, Yellow, Solid, 6" (Centerline)	0.790	GM
39	1000	Utility Coordination	1	LS

PAY ITEM NOTES

- 102-1 INCLUDES ALL ITEMS FOR MAINTENANCE OF TRAFFIC WHICH ARE NOT INCLUDED FOR PAYMENT UNDER SEPARATE ITEMS. INCLUDES PEDESTRIAN MAINTENANCE OF TRAFFIC IN ACCORDANCE WITH THE SPECIFICATIONS. INCLUDES TEMPORARY PAVEMENT MARKINGS AND TAPE, SIGNAGE, AND RAISED PAVEMENT MARKERS.
- 104-18 IS ESTIMATED FOR PREVENTION, CONTROL AND ABATEMENT OF EROSION AND WATER POLLUTION AND ARE TO BE USED AT LOCATIONS DESIGNATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
- 107-1 PROVIDE PICKUP, REMOVAL AND DISPOSAL OF LITTER WITHIN THE PROJECT LIMITS FROM THE OUTSIDE EDGE OF TRAVEL WAY TO THE RIGHT-OF-WAY LINE. LITTER INCLUDES, BUT IS NOT LIMITED TO BOTTLES, CANS, PAPER, TIRES, TIRE PIECES, LUMBER, VEHICLE PARTS, METAL JUNK, AND BRUSH DEBRIS.
- 110-1-1 INCLUDES REMOVAL AND DISPOSAL OF ALL VEGETATION, DEBRIS, DRAINAGE STRUCTURES, FLEXIBLE PAVEMENT, BUILDINGS OR ANY OTHER OBSTRUCTIONS IN ALL AREAS WHERE EXCAVATION IS TO BE DONE, OR WHERE EMBANKMENTS OR STRUCTURES WILL BE CONSTRUCTED. THIS INCLUDES ROADWAY AREA, DITCH AREA, BORROW AND MATERIAL PITS, AND AREAS WHERE CULVERTS OR PIPE LINES WILL BE CONSTRUCTED. TOTAL: 0.08 AC.
- 110-4-10 INCLUDES REMOVAL AND DISPOSAL OF EXISTING CURB & GUTTER AND CONCRETE SIDEWALKS AS REQUIRED FOR NEW CONSTRUCTION.
- 425-6 ADJUST VALVES, METERS, CLEANOUTS, UTILITY BOXES AS SHOWN IN THE PLANS TO BE ADJUSTED OR REQUIRING ADJUSTMENT FOR THE SATISFACTORY COMPLETION OF THE WORK.
- 520-1-10 MODIFIED TYPE F CURB AND MODIFIED DROP CURB CONSTRUCTION AND INSTALLATION IS INCIDENTAL AND INCLUDED IN THE COST OF THE CONCRETE.
- 520-1-10, 520-2-4, 522-1, 522-2 EXCAVATION AND/OR EMBANKMENT, SUBGRADE, OR BASE FOR CONSTRUCTION OF THE LISTED ROADWAY FEATURES IS INCIDENTAL AND INCLUDED IN THE COST OF THE CONCRETE.
- 522-2 6" CONCRETE TO BE PLACED WITHIN LIMITS OF CURB RAMPS WITHIN RADIUS RETURNS, SIDEWALKS WITHIN DRIVEWAYS, AND DRIVEWAYS. INCLUDES CONCRETE PAVEMENT IN PARKING AREAS (IF APPLICABLE).
- 527-2 SHALL BE CAST IN PLACE, INCLUDES ALL LABOR, SURFACE PREPARATION, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK. CITY OF KEY WEST REQUIRES ENDICOTT CLAY PAVERS, (4"x8"x2.25", ROSE BLEND COLOR).
- 706-1-110** INCLUDES PAYMENT FOR FINAL SURFACE RAISED PAVEMENT MARKERS (RPMs). THIS INCLUDES BLUE SOLAR-POWERED RPMs AT ALL FIRE HYDRANT LOCATIONS PER FDOT STANDARD INDEX 706-001.
- 710-90** INCLUDES PAYMENT FOR PAINTED FINAL SURFACE PAVEMENT MARKINGS (ONE COAT OF FINAL PAINT). THIS INCLUDES RED PAINT AND YELLOW REFLECTIVE PAINTED CURB FOR NO PARKING AREAS AS SHOWN IN THE PLAN.
- 711-11-123**, 711-11-124, 711-11-141, 711-14-160, 711-14-170, 711-16-201 INCLUDES ALL CLEANING AND PREPARATION OF SURFACES, FURNISHING OF ALL MATERIALS, APPLICATION, CURING AND PROTECTION OF ALL ITEMS, PROTECTION OF TRAFFIC, FURNISHING OF ALL TOOLS, MACHINES AND EQUIPMENT, AND ALL INCIDENTALS NECESSARY TO COMPLETE THE WORK.
- 1000 SHALL COMPENSATE THE CONTRACTOR FOR ALL COORDINATION WITH EXISTING UTILITY PROVIDER THROUGHOUT THE DURATION OF THE CONSTRUCTION CONTRACT.

* PAY ITEM 285-704, OPTIONAL BASE GROUP 4, IS SIMILAR TO THE LIMEROCK STABILIZED BASE (LBR 100)
 ** PAY ITEM IN SIGNING AND PAVEMENT MARKING COMPONENT SET.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

KAREN E. FALKENBERRY, P.E.
 P.E. LICENSE NUMBER 54015
 JACOBS ENGINEERING GROUP, INC.
 200 W. FORSYTH ST., STE 1520
 JACKSONVILLE, FL 32202



TASK ORDER 9-22
 PROJECT:
 SOUTH STREET IMPROVEMENTS

SUMMARY OF PAY ITEMS

SHEET NO.
 3

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

GENERAL NOTES

- THE CONTRACTOR SHALL FIELD-VERIFY EXISTING CONDITIONS PRIOR TO PERFORMING ANY WORK UNDER THIS CONTRACT AND NOTIFY THE ENGINEER IN WRITING OF ANY DIFFERENCES BEFORE COMMENCING WITH ANY CONSTRUCTION.
- HORIZONTAL COORDINATES ARE BASED ON FLORIDA STATE PLANE COORDINATE SYSTEM. VERTICAL ELEVATIONS ARE BASED ON NGVD 1929 DATUM AS PROVIDED IN THE TOPOGRAPHIC ROUTE SURVEY SHEETS.
- EXISTING DRAINAGE STRUCTURES WITHIN CONSTRUCTION LIMITS SHALL REMAIN, UNLESS OTHERWISE NOTED.
- ALL STORM DRAINAGE INLETS AND PIPES SHALL BE PROTECTED FROM SILT, SAND AND DEBRIS DURING CONSTRUCTION. ANY ACCUMULATION WITHIN THE STORM DRAINAGE SYSTEM SHALL BE REMOVED WITHOUT PUMPING OR FLUSHING INTO SURFACE WATERS. STORM DRAINAGE SYSTEM SHALL BE CLEANED AND FREE OF DEBRIS PRIOR TO FINAL ACCEPTANCE.
- NO CONNECTIONS FOR THE PURPOSE OF OBTAINING WATER SUPPLY DURING CONSTRUCTION SHALL BE MADE TO ANY FIRE HYDRANT OR BLOW-OFF STRUCTURE WITHOUT FIRST OBTAINING A CONSTRUCTION METER FROM THE FLORIDA KEYS AQUEDUCT AUTHORITY.
- ALL SURVEY INFORMATION WAS OBTAINED FROM A LICENSED FLORIDA PROFESSIONAL SURVEYOR AND MAPPER AND UTILIZED AS SUPPORTING DATA IN THE PRODUCTION OF DESIGN PLANS AND FOR CONSTRUCTION ON SUBJECT PROJECT. THE PROFESSIONAL SURVEYOR AND MAPPER OF RECORD IS :

KEITH M. CHEE-A-TOW, P.L.S.
Florida Registration No.: 5328
AVIROM & ASSOCIATES, INC.
50 S.W. 2nd AVENUE, SUITE 102
BOCA RATON, FL 33432
L.B. No. 3300
- THE LOCATION OF UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY IF "OTHER" UTILITIES (NOT SHOWN ON THE PLANS) EXIST WITHIN THE AREA OF CONSTRUCTION. SHOULD THERE BE UTILITY CONFLICTS, THE CONTRACTOR SHALL INFORM THE ENGINEER AND NOTIFY THE RESPECTIVE UTILITY OWNER TO RESOLVE UTILITY CONFLICTS AND UTILITY ADJUSTMENTS AS REQUIRED.

IDENTIFIED UTILITY / AGENCY OWNERS:

COMPANY	CONTACT	TELEPHONE
A.T.T. FLORIDA	CARLOS MORENO	(305) 929-4579
COMCAST	LEONARD MAXWELL-NEWBOLD	(954) 447-8405
F.K.A.A.	MARNIE WALTERSON	(305) 295-2154
KEYS ENERGY SERVICES	MATTHEW ALFONSO	(305) 295-1055
O.M.I. (KEY WEST SEWER DEPT)	KELLY CROWE	(305) 809-3906

- UTILITY ADJUSTMENTS INCLUDE THE COST OF REMOVAL AND REPLACEMENT OF NEW PULL BOXES FOR WATER METERS, WATER VALVES, AND SEWER CLEAN OUTS. CONTRACTOR IS RESPONSIBLE FOR PROCUREMENT AND INVENTORY OF ALL UTILITY PULL BOXES PRIOR TO CONSTRUCTION. COST OF PULL BOXES ARE INCIDENTAL AND INCLUDED IN THE COST OF THE UTILITY ADJUSTMENT, (PAY ITEM #425-6). CONTRACTOR MUST COORDINATE WITH THE CITY OF KEY WEST FOR THE NECESSARY PULL BOX INVENTORY TO BEGIN WATER METER AND WATER VALVE (FKAA) ADJUSTMENTS.
- THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION AND ELEVATION IN THE FIELD PRIOR TO INSTALLING ANY NEW WORK THAT CROSSES OR CONNECTS TO EXISTING UTILITY SYSTEMS. LOCATIONS OF NEW UTILITIES SHALL BE ADJUSTED IN A MANNER APPROVED BY THE ENGINEER TO AVOID CONFLICTS. DAMAGES TO UTILITIES RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE CITY.
- ALL CONCRETE SIDEWALK JOINTS SHALL BE TOOLED WITHOUT EXPANSION JOINTS. EXPANSION MATERIAL MUST BE PLACED AT ALL EXISTING CONCRETE INTERFACES AND FORM MATERIAL MUST BE USED TO ACT AS BUFFER WITH ANY OTHER OBSTRUCTIONS, (WOOD FENCES, RAILING, GATES, ETC.) AT BACK OF SIDEWALK. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE THAT OCCURS TO ANY EXISTING RIGHT-OF-WAY LINE FEATURES (WALLS, GATES, FENCES, ETC.) WHEN REMOVING THE CONCRETE SIDEWALK OR DRIVEWAYS. RIGHT-OF-WAY LINE FEATURES MUST BE REPLACED OR REPAIRED TO THE EXISTING CONDITION PRIOR TO SIDEWALK REMOVAL.
- CONTRACTOR WILL BE RESPONSIBLE FOR NOTIFYING AND RECEIVING CONSENT FROM PRIVATE RESIDENTS AND/OR BUSINESS OWNERS FOR THE GRADE HARMONIZATION OF THEIR DRIVEWAYS. GRADE HARMONIZATION IS INCIDENTAL AND INCLUDED IN THE COST OF THE CONCRETE, (PAY ITEM #522-2), THIS INCLUDES BUT IS NOT LIMITED TO THE REMOVAL AND REPLACEMENT OF BRICK PAVERS AND/OR CONCRETE NECESSARY TO MAKE FINISH PRODUCT SATISFACTORY AND AS DIRECTED BY THE ENGINEER.

- THE CONTRACTOR SHALL SEQUENCE OPERATIONS SUCH THAT ORANGE MESH SAFETY FENCING IS PROVIDED ALONG ALL AREAS BEING TRENCHED AND NO TRENCH IS LEFT OPEN AT THE END OF THE WORK DAY. THE LOCATIONS IDENTIFIED IN THESE ROADWAY PLANS AS "PAVEMENT RESTORATION AREA" WILL FOLLOW CITY DETAIL NO. 21 - FAILED TRENCH RESTORATION. EXACT LOCATIONS OF FAILED TRENCH REPAIR TO BE FIELD DETERMINED.
- CONTRACTOR SHALL REMOVE AND REPLACE ALL EXISTING FEATURES, (GARBAGE CANS, PAY TO PARK CONSOLES, SIGNAGE, AND BENCHES) WITHIN RECONSTRUCTED SIDEWALK OR AS DIRECTED BY THE ENGINEER. CONTRACTOR TO REMOVE AND TEMPORARILY STORE EXISTING PARKING METERS. CONTRACTOR SHALL COORDINATE WITH THE CITY OF KEY WEST PARKING DIRECTOR, JOHN WILKINS (305-809-3855) FOR PICK-UP OF REMOVED PARKING METERS WITHIN 24 HOURS. CONTRACTOR SHALL COORDINATE WITH THE CITY FOR OBTAINING AND INSTALLATION OF PAY TO PARK CONSOLE BASE PLATE IN AREAS WHERE EXISTING PARKING METERS ARE REMOVED. COST OF REMOVAL AND REPLACEMENT OF EXISTING FEATURES AND REMOVAL AND STORAGE OF EXISTING PARKING METERS, AND INSTALLATION OF PAY TO PARK CONSOLE BASE PLATE AND SIGN POST IS INCIDENTAL AND INCLUDED IN THE COST OF THE CONCRETE, (PAY ITEM # 522-1).
- CONTRACTOR TO REMOVE PAY STATION AND STORE FOR REINSTALLATION; FINAL LOCATION TO BE REVIEWED IN FIELD WITH CITY PRIOR TO REINSTALLATION.
- ALL ITEMS INDICATING TO BE REMOVED OR DEMOLISHED SHALL BE REVIEWED WITH THE OWNER TO DETERMINE IF THE ITEM IS TO BE PROPERTY OF THE CONTRACTOR. HISTORIC GRANITE CURBS THAT ARE PROPOSED TO BE REMOVED/REPLACED SHALL BE PROVIDED TO THE CITY FOR PLACEMENT IN CITY STORAGE.
- CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL, NEAT STACKING, AND SECURE STORAGE OF HISTORICAL GRANITE CURB THROUGHOUT PROJECT. CONTRACTOR IS RESPONSIBLE FOR COORDINATING PICK UP OF THE GRANITE CURB BY THE CITY OF KEY WEST AND SHALL NOTIFY CITY OF KEY WEST WITHIN 24 HOURS OF THE REMOVAL OF THE GRANITE CURB, COST FOR REMOVAL, STACKING, AND SECURE STORAGE IS INCIDENTAL AND INCLUDED IN THE COST OF THE CONCRETE REMOVAL, (PAY ITEM# 110-4-10).
- EXISTING ELEVATIONS ARE SHOWN IN THE PLANS AS " EL XX.XX ±" FOR REFERENCE. THESE ELEVATIONS WERE OBTAINED FROM SURVEY DATA AND SHOULD BE FIELD-CONFIRMED. DESIGN INTENT IS TO PROVIDE POSITIVE DRAINAGE FLOW.
- ADDITIONAL GENERAL NOTES ARE PROVIDED ON SIGNING AND PAVEMENT MARKING PLANS (SHEET S-5).
- THE CONTRACTOR IS RESPONSIBLE TO VERIFY AND/OR OTHERWISE SATISFY HIMSELF THAT THE QUANTITIES SHOWN IN THE PLAN SET ARE ACCURATE. ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ATTENTION OF THE CITY OF KEY WEST IMMEDIATELY AND PRIOR TO BEGINNING CONSTRUCTION.
- ALL WORK ASSOCIATED WITH THIS PROJECT IS TO BE PERFORMED WITHIN THE RIGHT-OF-WAY LIMITS AS DEPICTED ON THE PLAN SHEETS, OR AS DIRECTED BY THE CITY OF KEY WEST.
- ANY PUBLIC LAND CORNER WITHIN THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED. IF A CORNER MONUMENT IS IN DANGER OF BEING DESTROYED AND HAS NOT BEEN PROPERLY REFERENCED, THE CONTRACTOR SHOULD NOTIFY THE CITY OF KEY WEST WITHOUT DELAY.
- SIDEWALK AND CURBING TO REMAIN SHALL BE PRESSURE WASHED.

EROSION CONTROL NOTES

- EROSION, SEDIMENT, AND TURBIDITY CONTROL MEASURES SHALL BE PROVIDED THROUGHOUT CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND REPAIRING ALL SLOPES AND SURFACES THROUGHOUT CONSTRUCTION AND UNTIL A STABLE SURFACE CONDITION EXISTS. THE CONTRACTOR SHALL MINIMIZE THE EXPOSED AREA AT ANY POINT DURING CONSTRUCTION AS MUCH AS PRACTICAL.
- FILTER FABRIC SILT FENCE SHALL BE IN CONFORMANCE WITH SECTION 985, FDOT SPECIFICATION.
- PROVIDE EROSION CONTROL MEASURES AS NECESSARY TO AVOID ADVERSE IMPACTS TO JURISDICTIONAL AREAS (WETLANDS OR WATER BODIES) AND OFF-SITE LANDS AND WATER BODIES. MAINTAIN THESE MEASURES DAILY UNTIL CONSTRUCTION ACCEPTANCE BY THE OWNER AND THEN REMOVE AND LEGALLY DISPOSE OF SAID MEASURES.
- EROSION CONTROL SHALL BE MAINTAINED WITHIN CONSTRUCTION AREA BY QUICKLY STABILIZING DISTURBED AREA TO PREVENT THE RELEASE OF SEDIMENT. THIS SHALL BE ACCOMPLISHED USING GRASS COVER, HAY BALES AND OTHER MEANS ACCEPTABLE TO OWNER, ENGINEER AND REGULATORY AGENCIES.
- ALL SURFACE WATER DISCHARGE FROM SITE, INCLUDING DEWATERING DISCHARGE, SHALL MEET STATE WATER QUALITY STANDARDS (LESS THAN 29 NTU ABOVE BACKGROUND) PRIOR TO REACHING ANY WATER OF THE STATE INCLUDING WETLAND.
- IN THE EVENT THAT THE EROSION PREVENTION AND CONTROL DEVICES SHOWN IN THESE PLANS PROVE NOT TO BE EFFECTIVE, ALTERNATE METHODS FOR MAINTAINING STATE WATER QUALITY STANDARDS FOR DISCHARGE FROM THE CONSTRUCTION SITE WILL BE REQUIRED. ANY ALTERNATE EROSION PREVENTION AND CONTROL DEVICES MUST BE APPROVED BY THE CITY OF KEY WEST.

TRAFFIC CONTROL NOTES

- THE CONTRACTOR SHALL DEVELOP A DETAILED MAINTENANCE OF TRAFFIC PLAN BASED ON THE SITE SPECIFIC MEANS AND METHODS OF CONSTRUCTION. THE DETAILED PLANS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY THE CITY PRIOR TO ANY CONSTRUCTION ACTIVITIES. TRAFFIC PLAN SHALL BE IN CONFORMANCE WITH FDOT STANDARD PLANS 102-600 SERIES.
- TEMPORARY TRAVEL LANES SHALL BE 10 FEET MINIMUM WIDTH.
- ACCESS TO ALL SIDE STREETS AND DRIVEWAYS MUST BE PROVIDED AND MAINTAINED DURING CONSTRUCTION. ACCESS TO BUSINESS ENTRANCES SHALL BE MAINTAINED DURING SIDEWALK CONSTRUCTION. COORDINATE WITH THE NAVAL AIR STATION KEY WEST TO ENSURE ACCESS IS MAINTAINED AT ALL TIMES TO THE GATE AT THE WEST END OF UNITED STREET AT WHITEHEAD STREET.
- PEDESTRIAN, BICYCLE, BUS AND TROLLEY ACCESS SHALL BE MAINTAINED OR DETOURED.
- EXISTING SIGNALIZATION SHALL REMAIN IN PLACE TO THE EXTENT POSSIBLE. IMPACTS TO SIGNAL LOOPS SHALL BE COORDINATED WITH THE MAINTAINING AGENCY.
- RESURFACING SHALL BE PERFORMED ON THE SAME DAY AS MILLING AND POSITIVE DRAINAGE SHALL BE PROVIDED AT ALL TIMES. IF MILLING OPERATIONS CEASE FOR ANY REASON, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE REMAINING ASPHALT AND BASE.
- WORK HOURS ARE FROM 8:00 AM TO 5:00 PM, MONDAY - FRIDAY. WORK WILL NOT BE ALLOWED ON WEEKENDS OR HOLIDAYS OBSERVED BY THE CITY OF KEY WEST UNLESS WRITTEN APPROVAL IS OBTAINED FROM THE CITY.
- ALL TRAFFIC CONTROL SIGNS SHALL BE IN ACCORDANCE WITH FDOT INDEX 102-600 SHEET 6 OF 11. PLYWOOD CONTRACTOR FABRICATED SIGNAGE WILL NOT BE ALLOWED.
- MAINTAIN THE EXISTING POSTED SPEED OF 20 MPH DURING CONSTRUCTION.

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

KAREN E. FALKENBERRY, P.E.
P.E. LICENSE NUMBER 54015
JACOBS ENGINEERING GROUP, INC.
200 W. FORSYTH ST., STE 1520
JACKSONVILLE, FL 32202



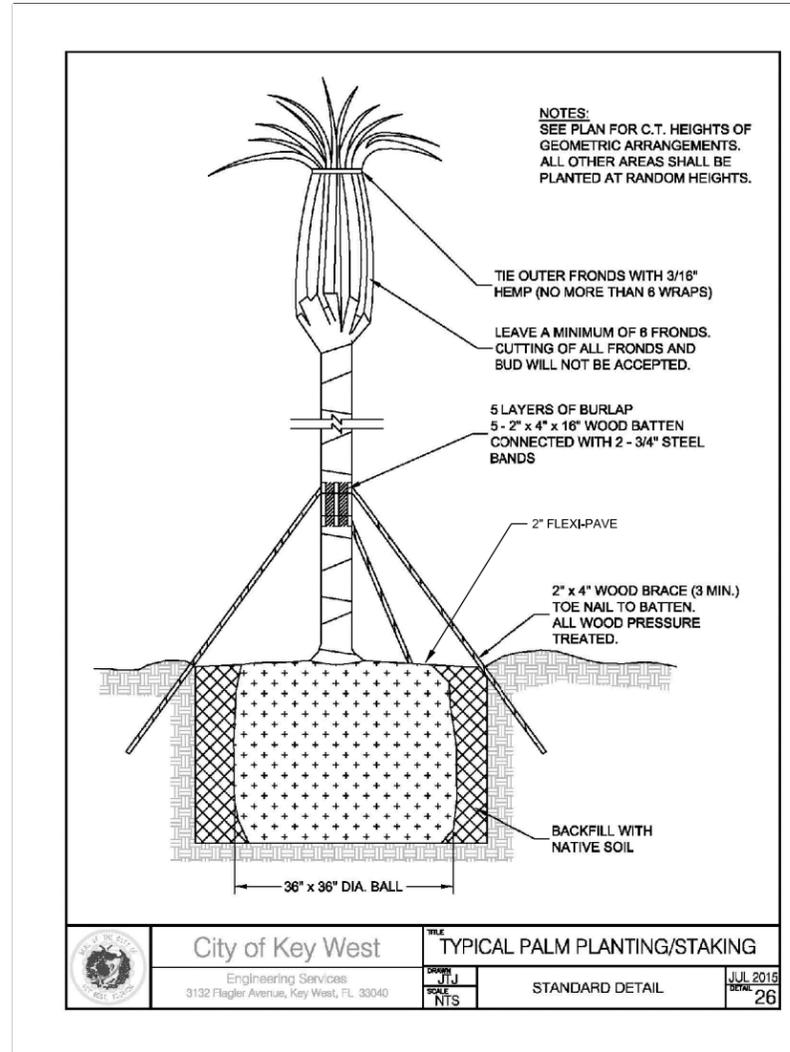
TASK ORDER 9-22
PROJECT:
SOUTH STREET IMPROVEMENTS

GENERAL NOTES

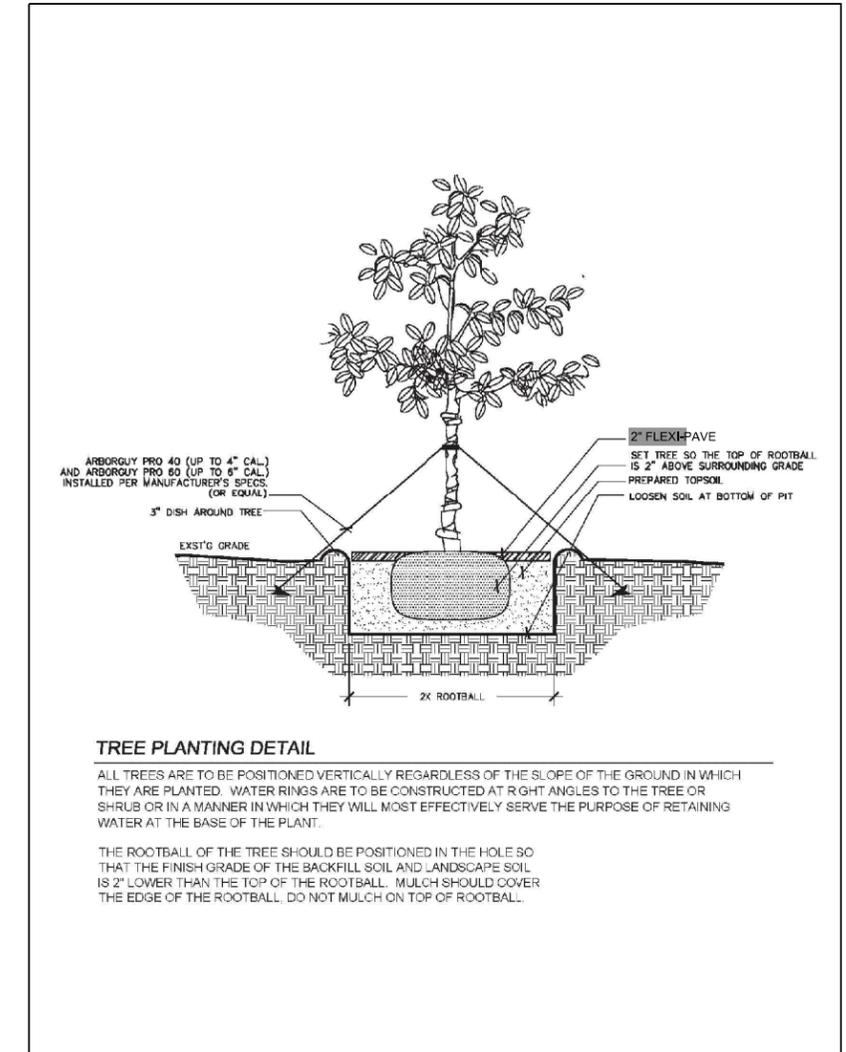
SHEET NO.
4

TREE AND PALM PROTECTION NOTES

1. TOPOGRAPHIC ROUTE SURVEY (PART 6) INCLUDES A TREE TABULATION WITH TREE SPECIES AND TRUNK DIAMETER.
2. TREE PROTECTION AND PRESERVATION INCLUDING TRUNK AND ROOT PRESERVATION SHALL BE IN ACCORDANCE WITH FDOT STANDARD PLANS INDEX 110-100.
3. THE GENERAL CONTRACTOR SHALL CONSULT WITH AN ISA CERTIFIED ARBORIST REGARDING THE CONDITION OF THE EXISTING TREES AND PALMS AND SHALL HIRE AN ISA CERTIFIED ARBORIST TO PERFORM TREE CARE THAT MAY BE NEEDED TO MITIGATE RISKS PRIOR TO AND DURING CONSTRUCTION.
4. GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING A MEETING WITH ISA CERTIFIED ARBORIST AND CITY OF KEY WEST URBAN FORESTRY MANAGER TO REVIEW TREE PROTECTION MEASURES PRIOR TO CONSTRUCTION COMMENCING.
5. FLEXIBLE POROUS PAVEMENT TO BE REPLACED AT TREE SITES AS SHOWN IN PLANS. COLOR TO BE APPROVED BY THE CITY.
6. ALL UNDERGROUND UTILITIES AND DRAIN OR IRRIGATION LINES SHALL BE ROUTED OUTSIDE THE TREE PROTECTION ZONE. IF LINES MUST TRAVERSE THE PROTECTION AREA, THEY SHALL BE TUNNELED OR BORED UNDER THE TREE.
7. NO CONSTRUCTION MATERIALS, EQUIPMENT, SPOIL, OR WASTE OR WASHOUT WATER MAY BE DEPOSITED, STORED, OR PARKED WITHIN THE TREE PROTECTION ZONE (FENCED AREA).
8. IF INJURY SHOULD OCCUR TO ANY TREE DURING CONSTRUCTION, THE GENERAL CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE CITY OF KEY WEST URBAN FORESTER, ISA CERTIFIED ARBORIST, LANDSCAPE ARCHITECT AND LANDSCAPE CONTRACTOR AS SOON AS POSSIBLE SO THAT APPROPRIATE TREATMENTS CAN BE APPLIED.
9. ADDITIONAL TREE PRUNING THAT MAY BE REQUIRED FOR CLEARANCE DURING CONSTRUCTION SHALL BE APPROVED BY CITY OF KEY WEST URBAN FORESTRY MANAGER AND PERFORMED BY AN ISA CERTIFIED ARBORIST AS PER ANSI A-300 STANDARDS.
10. EROSION CONTROL DEVICES SUCH AS SILT FENCING, DEBRIS BASINS, AND WATER DIVERSION STRUCTURES SHALL BE INSTALLED TO PREVENT SILTATION AND/OR EROSION WITHIN THE TREE PROTECTION ZONE.
11. BEFORE GRADING, PAD PREPARATION, OR EXCAVATION FOR FOUNDATIONS, FOOTINGS, WALLS, SIDEWALKS, CURBS OR TRENCHING NEAR TREES THE TREES SHALL BE ROOT PRUNED 12 INCHES OUTSIDE THE TREE PROTECTION ZONE BY CUTTING ALL ROOTS CLEANLY TO A DEPTH OF 36 INCHES. ROOTS SHALL BE CUT MANUALLY BY DIGGING A TRENCH AND CUTTING EXPOSED ROOTS WITH A SAW, VIBRATING KNIFE, ROCK SAW, NARROW TRENCHER WITH SHARP BLADES, OR OTHER APPROVED ROOT-PRUNING EQUIPMENT.
12. ANY ROOTS DAMAGED DURING GRADING OR CONSTRUCTION SHALL BE EXPOSED TO SOUND TISSUE AND CUT CLEANLY WITH A SAW.
13. SPOIL FROM TRENCHES, BASEMENTS, OR OTHER EXCAVATIONS SHALL NOT BE PLACED WITHIN THE TREE PROTECTION ZONE, EITHER TEMPORARILY OR PERMANENTLY.
14. NO BURN PILES OF DEBRIS PITS SHALL BE PLACED WITHIN THE TREE PROTECTION ZONE. NO ASHES, DEBRIS OR GARBAGE MAY BE DUMPED OR BURIED WITHIN THE TREE PROTECTION ZONE.
15. MAINTAIN FIRE-SAFE AREAS AROUND FENCED TREE PROTECTION AREAS, NO HEAT SOURCES, FLAMES, IGNITION SOURCES OR SMOKING ARE ALLOWED NEAR MULCH OR TREES.
16. ABBREVIATION ON LANDSCAPE TABLE: o.a. = OVERALL HEIGHT



CITY STD. PALM PLANTING/STAKING



CITY STD. TREE PLANTING DETAIL

REVISIONS				KAREN E. FALKENBERRY, P.E. P.E. LICENSE NUMBER 54015 JACOBS ENGINEERING GROUP, INC. 200 W. FORSYTH ST., STE 1520 JACKSONVILLE, FL 32202		TASK ORDER 9-22	PROJECT: SOUTH STREET IMPROVEMENTS	SHEET NO. 5
DATE	DESCRIPTION	DATE	DESCRIPTION					

TRAFFIC DATA

CURRENT YEAR = 2022 AADT = 2,746
 ESTIMATED OPENING YEAR = 2024 AADT = 2,773
 ESTIMATED DESIGN YEAR = 2044 AADT = 3,313
 T = 4.7% (24 HOUR)
 DESIGN SPEED = 25 MPH

* EXCEPTIONS FOR 5.0% CORRECTIVE MILLING:

STA 107+71.06: TRANSITION TO 1.0%
 STA. 124+36.49: TRANSITION TO 4.0%

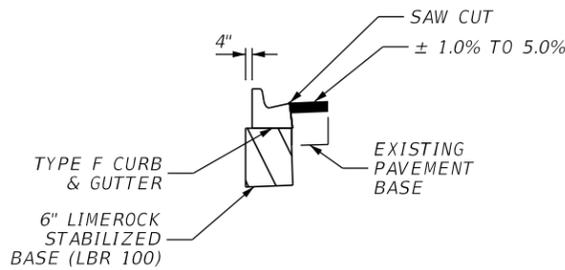
** SLOPE IS 1.0% IN MOST PLACES. STATIONS WHERE WIDENING PAVEMENT SLOPE VARIES FROM 1.0%:

STA. 109+40.28: TRANSITION TO 2.0%
 STA. 114+73.07: TRANSITION TO 0.5%
 STA. 119+01.99: TRANSITION TO 0.5%

*** SIDEWALK SLOPE IS 1.0% IN MOST PLACES. STATIONS WHERE SLOPE VARIES FROM 1.0%:

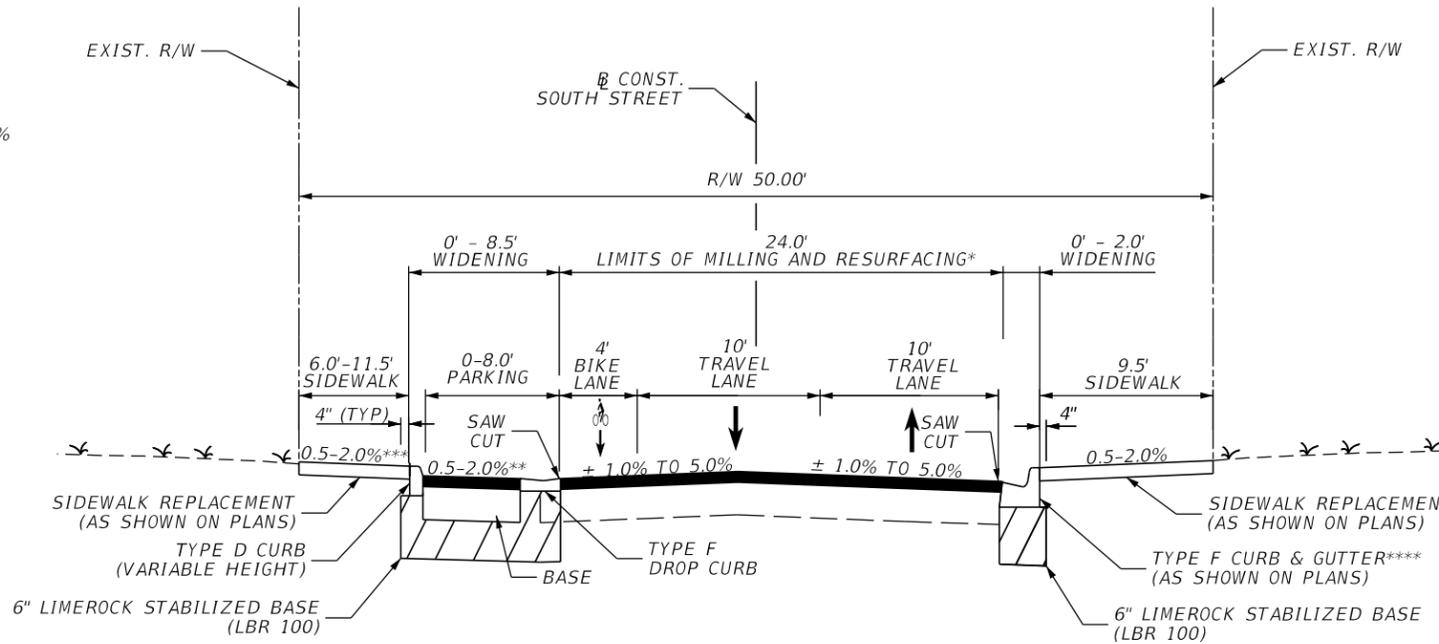
STA. 107+71.06: TRANSITION TO 2.0%
 STA. 108+04.82: TRANSITION TO 2.0%
 STA. 109+40.28: TRANSITION TO 2.0%
 STA. 111+10.55: TRANSITION TO 0.5%
 STA. 114+73.07: TRANSITION TO 0.5%
 STA. 119+01.99: TRANSITION TO 0.5%

**** THE TYPE F CURB ON THE RT SIDE WILL VARY BETWEEN DROP CURB AND FULL HEIGHT CURB.



NOTE: SEE PLAN VIEW FOR LOCATIONS.

LT CURB AND GUTTER DETAIL (AT BULB OUTS)



TYPICAL SECTION STATIONING FROM \pm SURVEY SOUTH STREET STA. 104+27.58 TO STA. 124+44.18

WIDENING (TYPICAL) (AS SHOWN IN PLANS)

LIMEROCK STABILIZED BASE (LBR 100) (6.0")
 OPTIONAL BASE GROUP 6 (TYPE B-12.5) (5.0")
 1 LAYER OF TENSAR GLASGRID CG SYSTEM
 ON BASE AFTER PRIME/TACK COAT
 TYPE SP 9.5 STRUCTURAL COURSE (TRAFFIC B) (1.5")
 TYPE SP 9.5 STRUCTURAL COURSE FOR LEVELING (TRAFFIC B) (1.0")

MILLING

MILL EXISTING ASPHALT PAVEMENT FOR DEPTH (2.0")

RESURFACING

1 LAYER OF TENSAR GLASGRID CG SYSTEM
 ON MILLED SURFACE AFTER PRIME/TACK COAT
 TYPE SP 9.5 STRUCTURAL COURSE (TRAFFIC B) (1.0")
 TYPE SP 9.5 STRUCTURAL COURSE FOR LEVELING (TRAFFIC B) (1.0")

TYPICAL SECTION NOTES

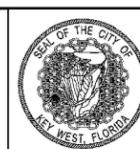
1. THE TYPICAL SECTIONS SHOWN MAY NOT BE REPRESENTATIVE OF THE ACTUAL CONDITIONS AT ALL LOCATIONS ON THE PROJECT. VARIABLE CONDITIONS SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER.
2. THE CONTRACTOR MAY ENCOUNTER ISOLATED AREAS OF ASPHALT LESS THAN THE MILLING DEPTH. IN THESE LOCATIONS THE CONTRACTOR SHALL MILL TO THE SURFACE OF THE BASE AND RESURFACE TO MAINTAIN POSITIVE DRAINAGE.
3. EXISTING GRANITE CURB TO BE REMOVED AND PRESERVED AS INDICATED ON GENERAL NOTES.
4. LIMEROCK MAY BE ENCOUNTERED DURING MILLING.
5. PERFORM CORRECTIVE MILLING ON BOTH LANES OF SOUTH STREET AT 5.0% CROSS-SLOPE WITH THE EXCEPTIONS LISTED ABOVE.

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THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

KAREN E. FALKENBERRY, P.E.
 P.E. LICENSE NUMBER 54015
 JACOBS ENGINEERING GROUP, INC.
 200 W. FORSYTH ST., STE 1520
 JACKSONVILLE, FL 32202



TASK ORDER 9-22
 PROJECT:
 SOUTH STREET IMPROVEMENTS

TYPICAL SECTION (1)

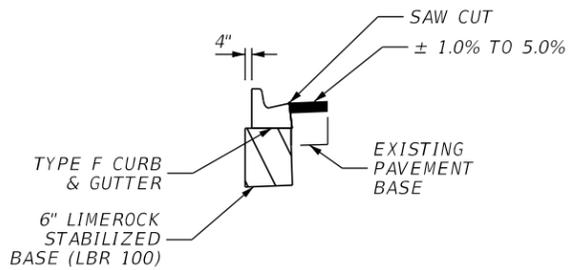
SHEET NO.
 6

TRAFFIC DATA

CURRENT YEAR = 2022 AADT = 2,746
 ESTIMATED OPENING YEAR = 2024 AADT = 2,773
 ESTIMATED DESIGN YEAR = 2044 AADT = 3,313
 T = 4.7% (24 HOUR)
 DESIGN SPEED = 25 MPH

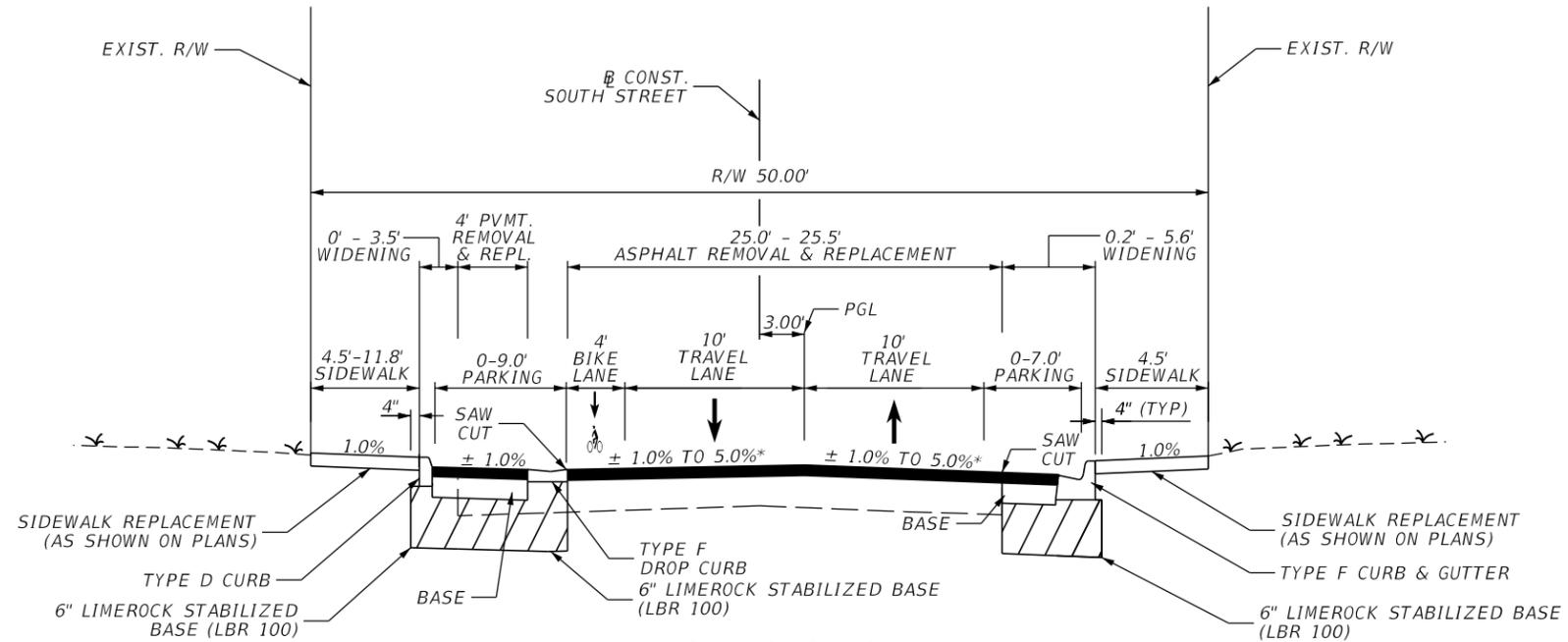
* CROSS-SLOPE VARIES AS FOLLOWS:

STA. 302+33.30: 2%
 STA. 302+50.00: 2%
 STA. 303+00.00: 2%
 STA. 303+50.00: 2%
 STA. 304+00.00: 2%
 STA. 304+50.00: 2%
 STA. 305+00.00: 2%
 STA. 305+50.00: 2%
 STA. 305+75.00: 3%
 STA. 306+00.00: 4%
 STA. 306+25.00: 5%
 STA. 306+26.22: 5%



NOTE: SEE PLAN VIEW FOR LOCATIONS.

LT CURB AND GUTTER DETAIL (AT BULB OUTS)



TYPICAL SECTION

STATIONING FROM \pm SURVEY SOUTH STREET
 STA. 124+44.18 TO STA. 125+13.83
 STATIONING FROM \pm SURVEY REYNOLDS STREET
 STA. 301+75.19 TO STA. 306+26.22

WIDENING (TYP.) (AS SHOWN IN PLANS)

LIMEROCK STABILIZED BASE (LBR 100) (6.0")
 OPTIONAL BASE GROUP 6 (8")
 1 LAYER OF TENSAR GLASGRID CG SYSTEM ON LIMEROCK SURFACE (AFTER PRIME COAT)
 TYPE SP 9.5 STRUCTURAL COURSE (TRAFFIC B) (1.0")
 TYPE SP 9.5 STRUCTURAL COURSE FOR LEVELING (TRAFFIC B) (1.0")

PAVEMENT REPLACEMENT

OPTIONAL BASE GROUP 6 (8") (AS NEEDED)
 1 LAYER OF TENSAR GLASGRID CG SYSTEM ON LIMEROCK SURFACE AFTER PRIME COAT
 TYPE SP 9.5 STRUCTURAL COURSE (TRAFFIC B) (1.0")
 TYPE SP 9.5 STRUCTURAL COURSE FOR LEVELING (TRAFFIC B) (1.0")

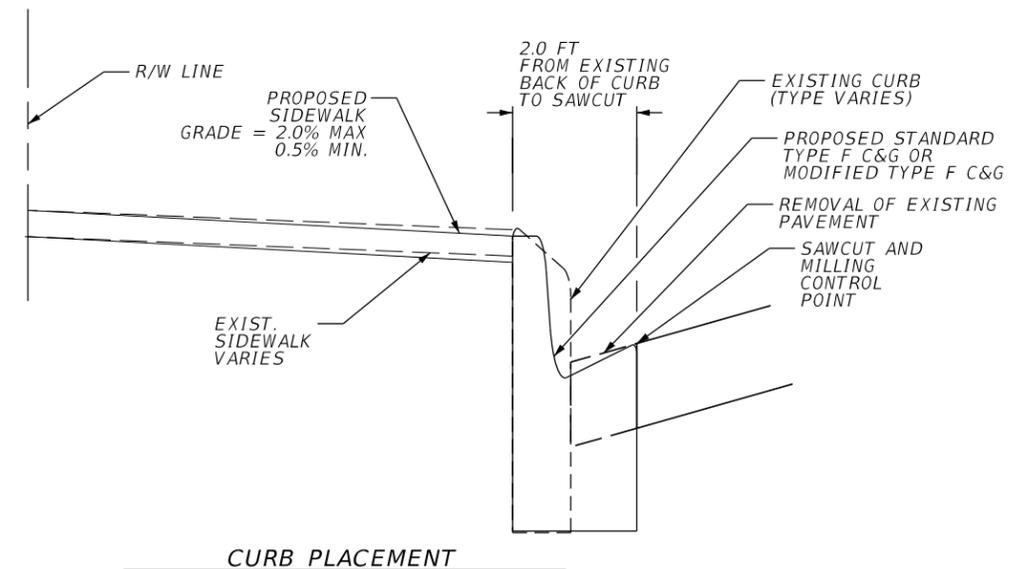
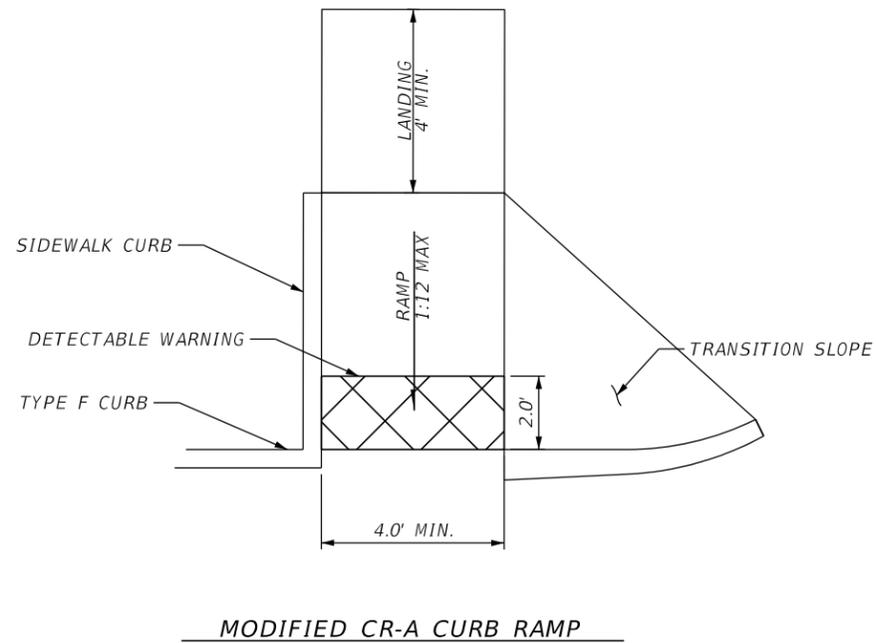
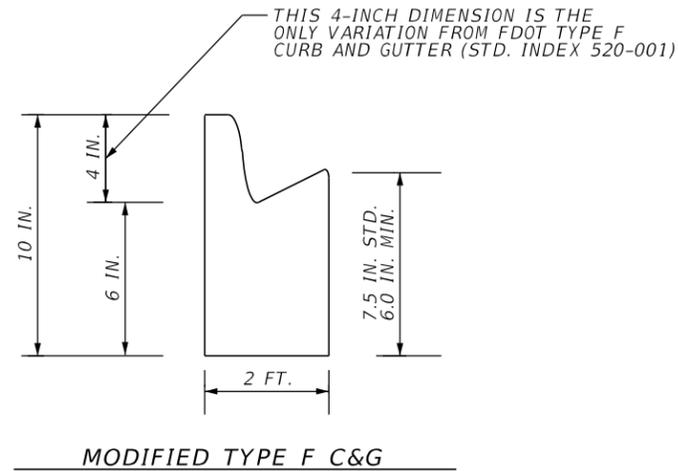
TYPICAL SECTION NOTES

1. THE TYPICAL SECTIONS SHOWN MAY NOT BE REPRESENTATIVE OF THE ACTUAL CONDITIONS AT ALL LOCATIONS ON THE PROJECT. VARIABLE CONDITIONS SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER.
2. THE CONTRACTOR MAY ENCOUNTER ISOLATED AREAS OF ASPHALT LESS THAN THE MILLING DEPTH. IN THESE LOCATIONS THE CONTRACTOR SHALL MILL TO THE SURFACE OF THE BASE AND RESURFACE TO MAINTAIN POSITIVE DRAINAGE.
3. EXISTING GRANITE CURB TO BE REMOVED AND PRESERVED AS INDICATED ON GENERAL NOTES.
4. LIMEROCK MAY BE ENCOUNTERED DURING MILLING.

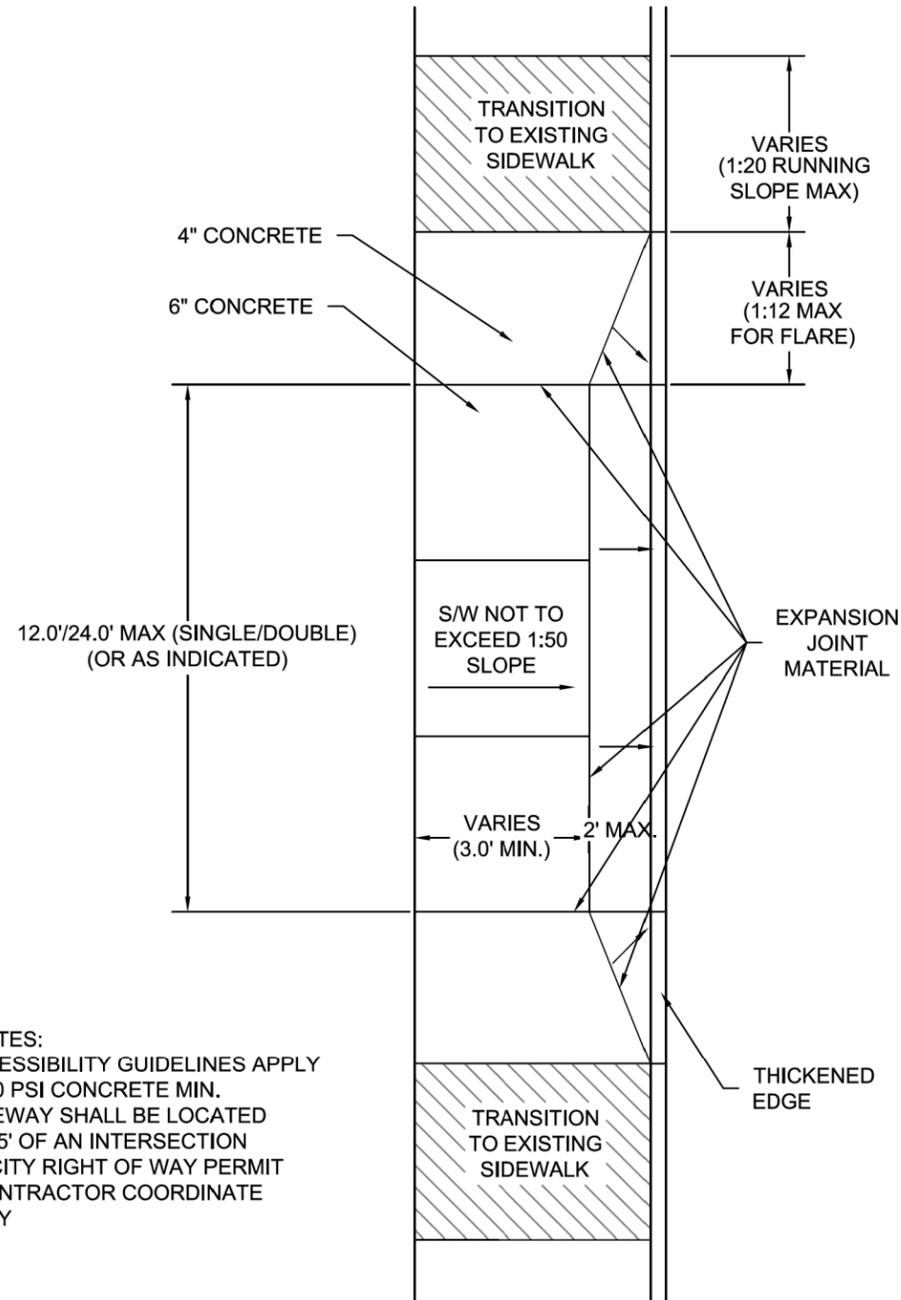
REVISIONS				KAREN E. FALKENBERRY, P.E. P.E. LICENSE NUMBER 54015 JACOBS ENGINEERING GROUP, INC. 200 W. FORSYTH ST., STE 1520 JACKSONVILLE, FL 32202	 TASK ORDER 9-22 PROJECT: SOUTH STREET IMPROVEMENTS	SHEET NO. 7
DATE	DESCRIPTION	DATE	DESCRIPTION			
					TYPICAL SECTION (2)	

CROSS SLOPE OF PROPOSED SIDEWALK SHALL BE 0.5% MIN. AND 2.0% MAX. THE CONTRACTOR MAY MODIFY THE VERTICAL HEIGHT OF THE CURB AS SHOWN IN "MODIFIED TYPE F C&G" AND "MODIFIED TYPE D CURB" TO ENSURE POSITIVE DRAINAGE TOWARD THE GUTTER.

GENERALLY THE CONTRACTOR SHALL MATCH EXISTING GROUND ELEVATIONS AT THE BACK OF SIDEWALK. WITH APPROVAL OF THE ENGINEER, THE CONTRACTOR MAY COORDINATE WITH THE ADJACENT PROPERTY OWNER TO MAKE ADJUSTMENTS TO HARMONIZE AT OR BEYOND THE R/W LINE.

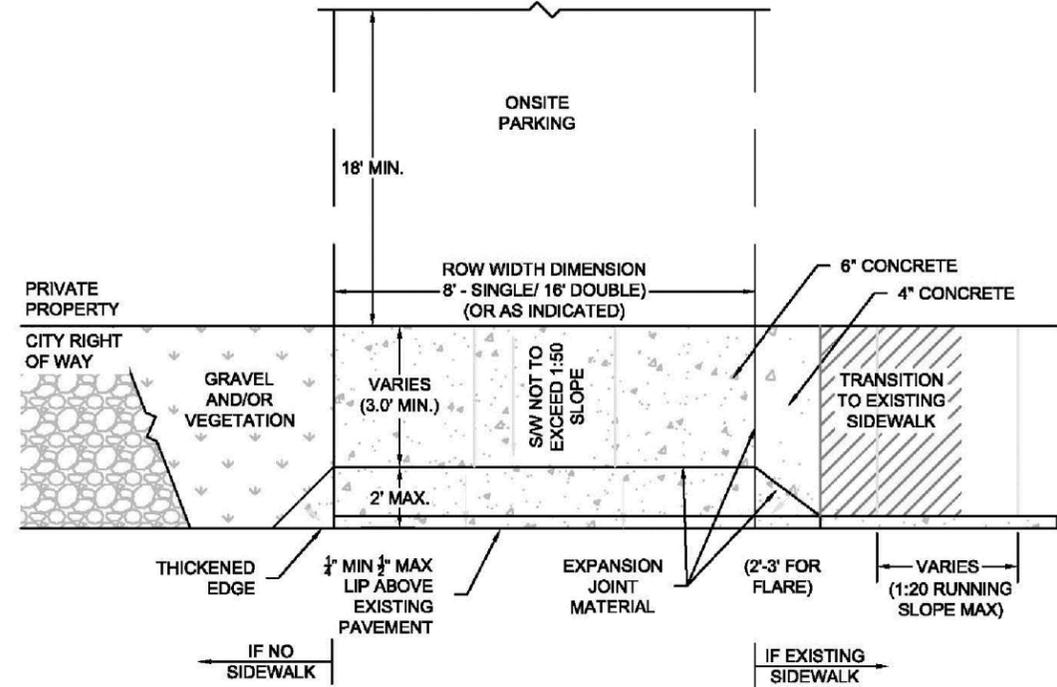


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DATE	DESCRIPTION	DATE	DESCRIPTION						8



- GENERAL NOTES:**
- ADA ACCESSIBILITY GUIDELINES APPLY
 - USE 3,000 PSI CONCRETE MIN.
 - NO DRIVEWAY SHALL BE LOCATED WITHIN 25' OF AN INTERSECTION
 - OBTAIN CITY RIGHT OF WAY PERMIT
 - HAVE CONTRACTOR COORDINATE WITH CITY

DRIVEWAY APRON - COMMERCIAL

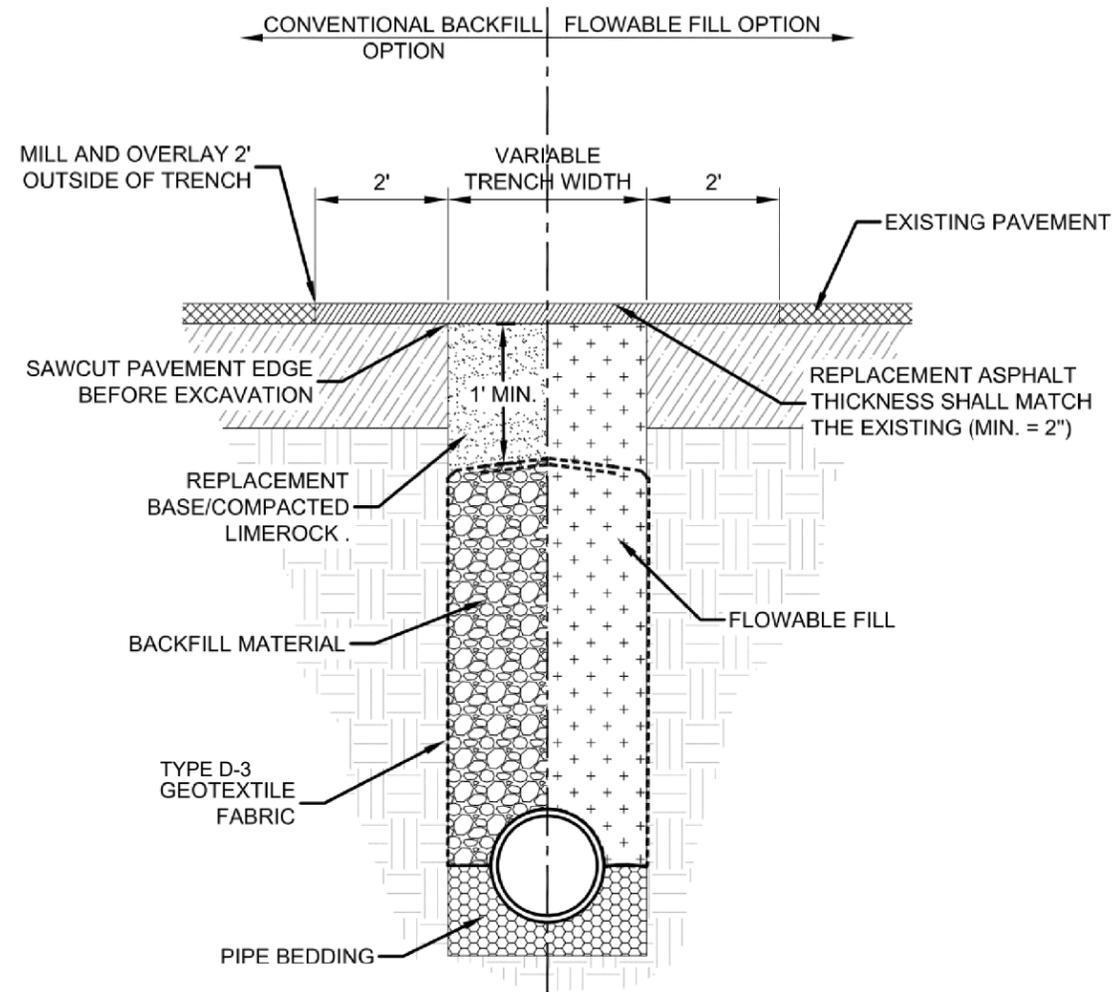


- GENERAL NOTES:**
- ADA ACCESSIBILITY GUIDELINES APPLY
 - PROPERTY SURVEY MUST ACCOMPANY ROW PERMIT APPLICATION
 - USE 3,000 PSI CONCRETE MIN.
 - NO DRIVEWAY SHALL BE LOCATED WITHIN 25' OF AN INTERSECTION
 - ONSITE PARKING SPACE IS REQUIRED TO BE 18' LONG (MIN.) MEASURED FROM THE PROPERTY LINE
 - CONTRACTOR MUST COMPLY WITH TYPICAL CITY DESIGNS
 - CITY RETAINS THE RIGHT TO MODIFY DESIGN BASED ON FIELD CONDITIONS

- CONSTRUCTION REQUIREMENTS (IF APPLICABLE):**
- CURB PAINT
 - UTILITY ADJUSTMENT OR RELOCATION
 - ROADWAY RESTRIPING REWORK
 - ASPHALT RESTORATION
 - PLANTER RESTORATION
- OWNER RESPONSIBILITIES:**
- WILL VERIFY 18' ONSITE DRIVEWAY DEPTH REQUIREMENT
 - COMPLY WITH CITY LOT PERVIOUS REQUIREMENTS
 - OBTAIN HARC APPROVAL (IF LOCATED IN OLD TOWN)
 - OBTAIN CITY RIGHT OF WAY PERMIT
 - HAVE CONTRACTOR COORDINATE WITH CITY

DRIVEWAY APRON - RESIDENTIAL

REVISIONS				KAREN E. FALKENBERRY, P.E. P.E. LICENSE NUMBER 54015 JACOBS ENGINEERING GROUP, INC. 200 W. FORSYTH ST., STE 1520 JACKSONVILLE, FL 32202		TASK ORDER 9-22	PROJECT: SOUTH STREET IMPROVEMENTS	SHEET NO. 9
DATE	DESCRIPTION	DATE	DESCRIPTION					



ASPHALT UTILITY TRENCH

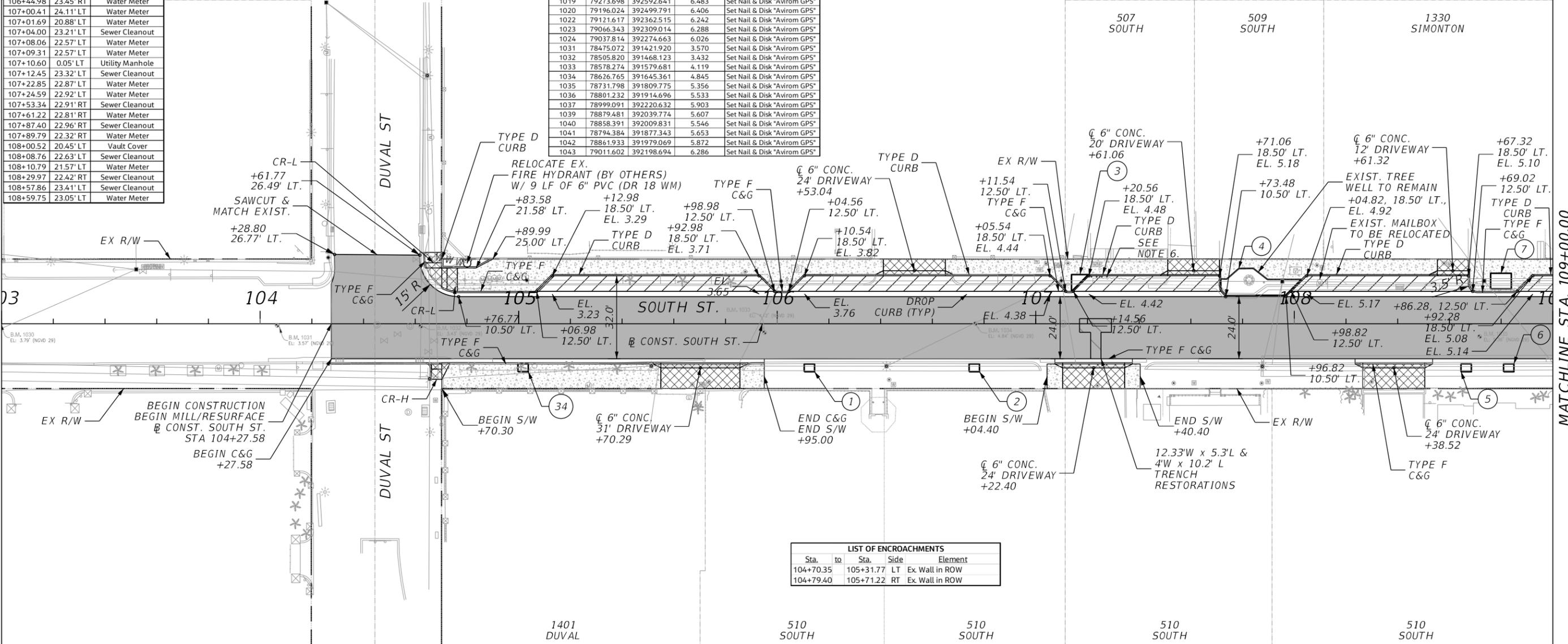
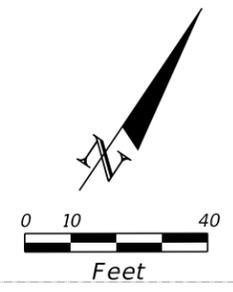
1. BACKFILL MATERIAL SHALL CONSIST OF #57 STONE, FLOWABLE FILL, OR OTHER APPROVED BACKFILL MATERIAL. IF FLOWABLE FILL IS USED IT SHALL HAVE A MINIMUM RATING OF 500 PSI.
2. BACKFILL MATERIAL SHALL BE COMPACTED TO 95% STANDARD PROCTOR AND SHALL GENERALLY BE COMPACTED IN 6" LIFTS WITH A VIBRATORY COMPACTOR.
3. ALL TRENCH RESTORATION WORK SHALL COMPLY WITH THE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) DESIGN STANDARDS FOR TRENCH CUTS AND RESTORATIONS ACROSS ROADWAYS (INDEX 125-001)
4. THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION SHALL APPLY FOR ALL RESTORATION WORK.
5. ADJUST ALL EXISTING METER BOXES AND MANHOLE RINGS IMPACTED BY CONSTRUCTION.

TRENCH RECONSTRUCTION

REVISIONS				KAREN E. FALKENBERRY, P.E. P.E. LICENSE NUMBER 54015 JACOBS ENGINEERING GROUP, INC. 200 W. FORSYTH ST, STE 1520 JACKSONVILLE, FL 32202		TASK ORDER 9-22	<i>DETAILS (3)</i>	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION			PROJECT: SOUTH STREET IMPROVEMENTS		10

Station	Offset	Utility
104+45.22	0.40' RT	Sewer Manhole
104+47.95	6.47' RT	Water Valve
104+53.14	3.96' RT	Water Valve
104+58.05	0.91' RT	Utility Manhole
104+60.40	24.80' LT	Water Valve
104+65.06	10.73' RT	Water Valve
104+67.34	6.53' RT	Water Valve
105+67.19	23.34' RT	Sewer Cleanout
105+70.82	23.42' RT	Water Meter
105+72.03	23.61' RT	Water Meter
105+73.61	22.34' RT	Sewer Cleanout
105+87.56	20.20' LT	Sewer Cleanout
106+07.53	21.22' LT	Vault Cover
106+43.30	21.50' RT	Water Meter
106+44.98	23.45' RT	Water Meter
107+00.41	24.11' LT	Water Meter
107+01.69	20.88' LT	Water Meter
107+04.00	23.21' LT	Sewer Cleanout
107+08.06	22.57' LT	Water Meter
107+09.31	22.57' LT	Water Meter
107+10.60	0.05' LT	Utility Manhole
107+12.45	23.32' LT	Sewer Cleanout
107+22.85	22.87' LT	Water Meter
107+24.59	22.92' LT	Water Meter
107+53.34	22.91' RT	Sewer Cleanout
107+61.22	22.81' RT	Water Meter
107+87.40	22.96' RT	Sewer Cleanout
107+89.79	22.32' RT	Water Meter
108+00.52	20.45' LT	Vault Cover
108+08.76	22.63' LT	Sewer Cleanout
108+10.79	21.57' LT	Water Meter
108+29.97	22.42' RT	Sewer Cleanout
108+57.86	23.41' LT	Sewer Cleanout
108+59.75	23.05' LT	Water Meter

BENCH MARK LIST				
Bench Mark No.	Northing (NAD 83)	Eastings (NAD 83)	Elevation (NGVD 1929)	Description of Mark
1001	79982.074	392880.633	9.465	Set Nail & Disk "Avirom GPS"
1003	79910.828	392952.217	8.757	Set Nail & Disk "Avirom GPS"
1004	79834.462	393011.358	7.525	Set Nail & Disk "Avirom GPS"
1005	79710.489	393065.038	6.197	Set Nail & Disk "Avirom GPS"
1006	79630.339	393109.125	5.520	Set Nail & Disk "Avirom GPS"
1007	79628.556	393154.526	5.686	Set Nail & Disk "Avirom GPS"
1008	79674.067	393177.19	5.869	Set Nail & Disk "Avirom GPS"
1013	79581.524	393036.078	5.648	Set Nail & Disk "Avirom GPS"
1014	79509.313	392938.287	5.995	Set Nail & Disk "Avirom GPS"
1015	79474.829	392889.098	6.059	Set Nail & Disk "Avirom GPS"
1016	79412.803	392798.018	6.256	Set Nail & Disk "Avirom GPS"
1017	79369.009	392735.022	6.406	Set Nail & Disk "Avirom GPS"
1018	79312.442	392675.173	6.322	Set Nail & Disk "Avirom GPS"
1019	79273.698	392592.641	6.483	Set Nail & Disk "Avirom GPS"
1020	79196.024	392499.791	6.406	Set Nail & Disk "Avirom GPS"
1022	79121.617	392362.515	6.242	Set Nail & Disk "Avirom GPS"
1023	79066.343	392309.014	6.288	Set Nail & Disk "Avirom GPS"
1024	79037.814	392274.663	6.026	Set Nail & Disk "Avirom GPS"
1031	78475.072	391421.920	3.570	Set Nail & Disk "Avirom GPS"
1032	78505.820	391468.123	3.432	Set Nail & Disk "Avirom GPS"
1033	78578.274	391579.681	4.119	Set Nail & Disk "Avirom GPS"
1034	78626.765	391645.361	4.845	Set Nail & Disk "Avirom GPS"
1035	78731.798	391809.775	5.356	Set Nail & Disk "Avirom GPS"
1036	78801.232	391914.696	5.533	Set Nail & Disk "Avirom GPS"
1037	78999.091	392220.632	5.903	Set Nail & Disk "Avirom GPS"
1039	78879.481	392039.774	5.607	Set Nail & Disk "Avirom GPS"
1040	78858.391	392009.831	5.546	Set Nail & Disk "Avirom GPS"
1041	78794.384	391877.343	5.653	Set Nail & Disk "Avirom GPS"
1042	78861.933	391979.069	5.872	Set Nail & Disk "Avirom GPS"
1043	79011.602	392198.694	6.286	Set Nail & Disk "Avirom GPS"



LIST OF ENCROACHMENTS				
Sta.	to	Sta.	Side	Element
104+70.35		105+31.77	LT	Ex. Wall in ROW
104+79.40		105+71.22	RT	Ex. Wall in ROW

LEGEND	
	TRENCH RESTORATION
	MILLING AND RESURFACING
	PAVEMENT WIDENING
	4" CONCRETE SIDEWALK
	6" CONC. CURB RAMP / DRIVEWAY
	TREE WELL: 7'X10', 6'X8', OR 4'X3' (TYP.)

- NOTES:
- FOR CURB RAMP DETAILS, REFER TO FDOT STANDARD INDEX NO. 522-002
 - FOR SIDEWALK THICKNESS IN CURB RETURN, REFER TO FDOT STANDARD INDEX. NO. 522-001
 - FOR DRIVEWAY DETAILS, SEE DRIVEWAY PROFILE SHEETS.
 - FOR DRAINAGE DESIGN, SEE DRAINAGE PLAN SHEETS 17-20.
 - TREE WELLS ARE NUMBERED WITH CIRCLED CALLOUTS.
 - INSTALL 4 MADRAX BOLLARD BIKE RACKS, PRODUCT: B0L450-2-SF(1G) BY GRABER MANUFACTURING, INC.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

KAREN E. FALKENBERRY, P.E.
 P.E. LICENSE NUMBER 54015
 JACOBS ENGINEERING GROUP, INC.
 200 W. FORSYTH ST., STE 1520
 JACKSONVILLE, FL 32202



TASK ORDER 9-22
 PROJECT:
 SOUTH STREET IMPROVEMENTS

ROADWAY PLAN (1)

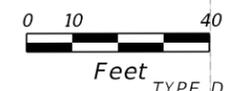
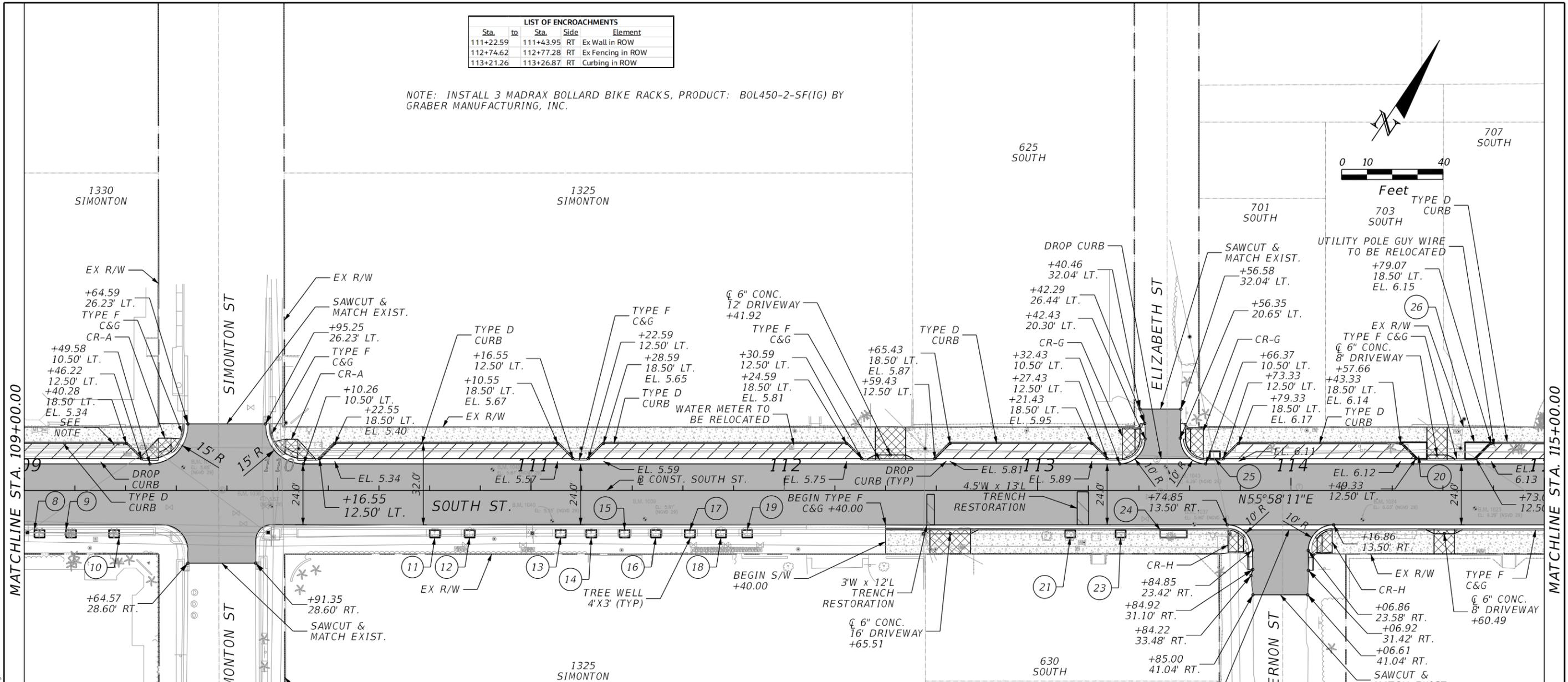
SHEET NO.
 11

2/2/2024 10:22:35 AM Karen.Falkenberry@jacobs.com c:\users\kfalkenb\appdata\local\bentley\projectwise\jacobs-america-01\dms89931\PLANRD01.dgn

MATCHLINE STA. 109+00.00 THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23-.004, F.A.C.

LIST OF ENCROACHMENTS				
Sta.	to	Sta.	Side	Element
111+22.59		111+43.95	RT	Ex Wall in ROW
112+74.62		112+77.28	RT	Ex Fencing in ROW
113+21.26		113+26.87	RT	Curbing in ROW

NOTE: INSTALL 3 MADRAX BOLLARD BIKE RACKS, PRODUCT: BOL450-2-SF(IG) BY GRABER MANUFACTURING, INC.



MATCHLINE STA. 109+00.00

MATCHLINE STA. 115+00.00

UTILITY ADJUSTMENT TABLE								
Station	Offset	Utility	Station	Offset	Utility	Station	Offset	Utility
109+25.87	22.60' RT	Sewer Cleanout	111+69.23	23.23' RT	Water Meter	112+49.15	24.43' LT	Water Valve
109+28.14	19.21' RT	Water Meter	111+70.51	23.18' RT	Water Meter	112+57.81	23.23' RT	Sewer Cleanout
109+57.26	6.57' RT	Water Valve	111+71.66	23.15' RT	Water Meter	112+59.69	23.13' RT	Sewer Cleanout
109+78.17	0.20' LT	Sewer Manhole	111+72.90	23.16' RT	Water Meter	112+69.60	22.13' RT	Water Valve
109+83.65	8.93' RT	Water Valve	111+74.19	23.15' RT	Water Meter	112+70.54	22.19' RT	Water Valve
109+86.51	13.04' RT	Water Valve	111+75.40	23.18' RT	Water Meter	112+95.62	23.58' LT	Sewer Cleanout
109+95.20	6.28' RT	Water Valve	111+76.78	21.21' RT	Water Valve	113+15.69	22.71' RT	Water Meter
110+70.64	22.88' RT	Water Meter	111+76.79	23.18' RT	Water Meter	113+16.90	20.43' RT	Water Meter
110+71.79	22.91' RT	Water Meter	111+77.63	21.94' RT	Water Valve	113+18.32	20.46' RT	Sewer Cleanout
110+73.01	22.96' RT	Water Meter	111+78.21	23.10' RT	Water Meter	113+42.48	11.17' RT	Water Valve
110+74.26	21.24' RT	Water Valve	111+79.50	23.19' RT	Water Meter	113+44.22	2.38' RT	Water Valve
110+74.29	22.94' RT	Water Meter	111+80.74	23.20' RT	Water Meter	113+47.10	12.09' LT	Sewer Manhole
110+85.52	19.03' RT	Sewer Cleanout	111+81.92	23.21' RT	Water Meter	113+48.46	0.40' RT	Sewer Manhole
110+96.90	21.46' RT	Water Valve	111+83.17	23.18' RT	Water Meter	113+51.09	2.72' RT	Water Valve
110+96.95	23.30' RT	Water Meter	111+84.35	23.27' RT	Water Meter	113+84.29	4.62' RT	Water Valve
110+98.24	23.25' RT	Water Meter	111+85.69	23.27' RT	Water Meter	113+89.25	3.31' RT	Water Valve
110+99.44	23.30' RT	Water Meter	111+86.80	23.26' RT	Water Meter	114+03.29	1.44' LT	Telephone Manhole
111+00.61	23.26' RT	Water Meter	111+87.97	23.25' RT	Water Meter	114+06.22	23.67' LT	Sewer Cleanout
111+35.77	23.44' RT	Sewer Cleanout	111+89.09	23.27' RT	Water Meter	114+09.37	24.10' LT	Water Meter
111+64.05	23.18' RT	Water Meter	111+90.37	23.25' RT	Water Meter	114+65.10	23.34' LT	Water Meter
111+64.13	21.31' RT	Water Valve	111+90.44	21.41' RT	Water Valve	114+66.24	23.15' LT	Sewer Cleanout
111+65.34	23.18' RT	Water Meter	112+02.92	17.01' LT	Water Valve	114+74.12	23.93' RT	Water Meter
111+66.64	23.17' RT	Water Meter	112+04.24	23.42' LT	Sewer Cleanout	114+75.84	23.94' RT	Water Meter
111+67.93	23.19' RT	Water Meter	112+05.48	23.13' RT	Sewer Cleanout			

LEGEND

- TRENCH RESTORATION
- MILLING AND RESURFACING
- PAVEMENT WIDENING
- 4" CONCRETE SIDEWALK
- 6" CONC. CURB RAMP / DRIVEWAY
- TREE WELL: 7'X10', 6'X8', OR 4'X3' (TYP.)

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

KAREN E. FALKENBERRY, P.E.
 P.E. LICENSE NUMBER 54015
 JACOBS ENGINEERING GROUP, INC.
 200 W. FORSYTH ST., STE 1520
 JACKSONVILLE, FL 32202



TASK ORDER 9-22

PROJECT:
SOUTH STREET IMPROVEMENTS

ROADWAY PLAN (2)

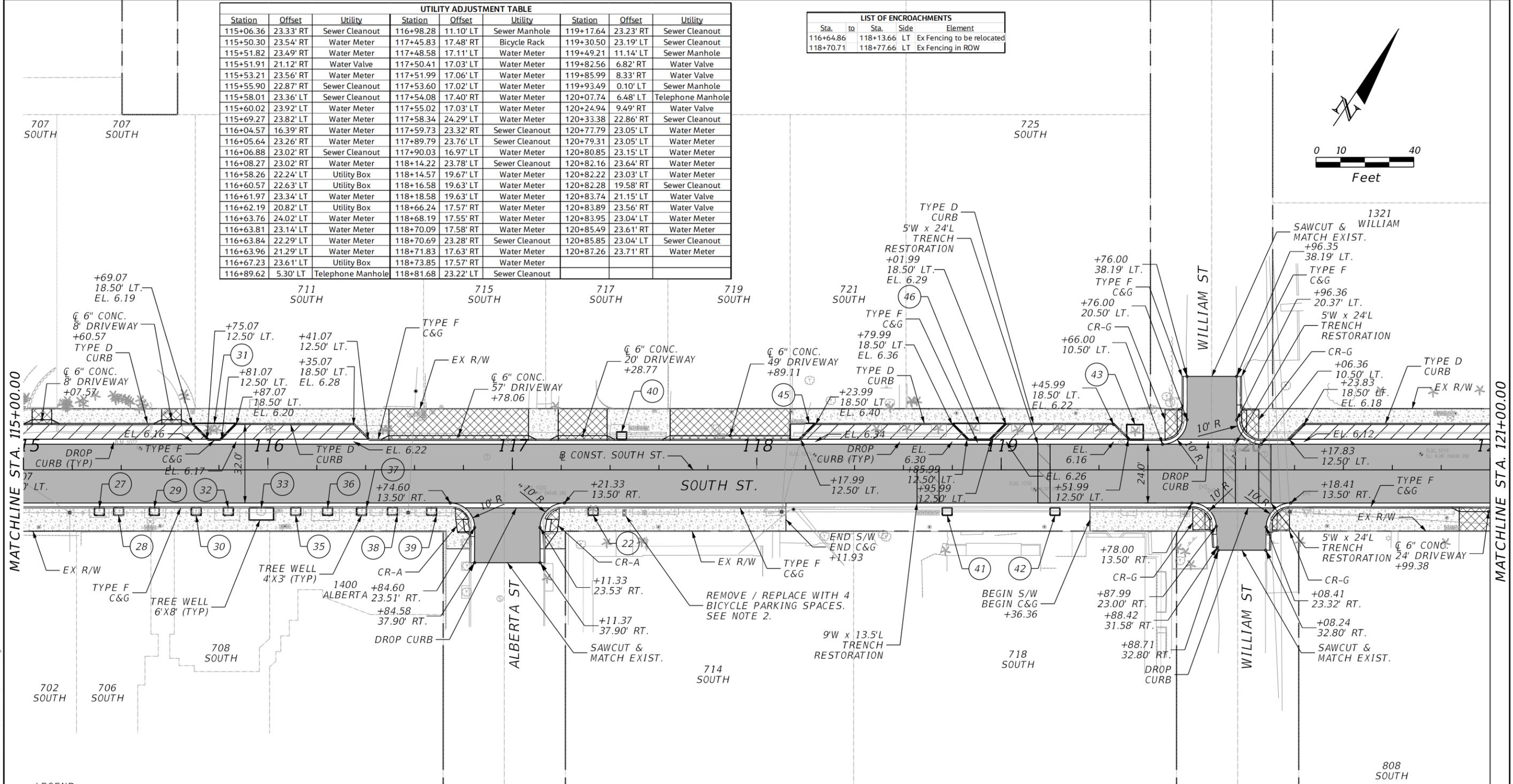
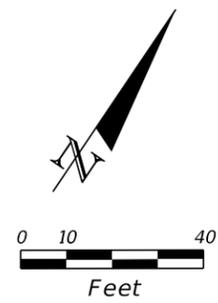
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UTILITY ADJUSTMENT TABLE								
Station	Offset	Utility	Station	Offset	Utility	Station	Offset	Utility
115+06.36	23.33' RT	Sewer Cleanout	116+98.28	11.10' LT	Sewer Manhole	119+17.64	23.23' RT	Sewer Cleanout
115+50.30	23.54' RT	Water Meter	117+45.83	17.48' RT	Bicycle Rack	119+30.50	23.19' LT	Sewer Cleanout
115+51.82	23.49' RT	Water Meter	117+48.58	17.11' LT	Water Meter	119+49.21	11.14' LT	Sewer Manhole
115+51.91	21.12' RT	Water Valve	117+50.41	17.03' LT	Water Meter	119+82.56	6.82' RT	Water Valve
115+53.21	23.56' RT	Water Meter	117+51.99	17.06' LT	Water Meter	119+85.99	8.33' RT	Water Valve
115+55.90	22.87' RT	Sewer Cleanout	117+53.60	17.02' LT	Water Meter	119+93.49	0.10' LT	Sewer Manhole
115+58.01	23.36' LT	Sewer Cleanout	117+54.08	17.40' RT	Water Meter	120+07.74	6.48' LT	Telephone Manhole
115+60.02	23.92' LT	Water Meter	117+55.02	17.03' LT	Water Meter	120+24.94	9.49' RT	Water Valve
115+69.27	23.82' LT	Water Meter	117+58.34	24.29' LT	Water Meter	120+33.38	22.86' RT	Sewer Cleanout
116+04.57	16.39' RT	Water Meter	117+59.73	23.32' RT	Sewer Cleanout	120+77.79	23.05' LT	Water Meter
116+05.64	23.26' RT	Water Meter	117+89.79	23.76' LT	Sewer Cleanout	120+79.31	23.05' LT	Water Meter
116+06.88	23.02' RT	Sewer Cleanout	117+90.03	16.97' LT	Water Meter	120+80.85	23.15' LT	Water Meter
116+08.27	23.02' RT	Water Meter	118+14.22	23.78' LT	Sewer Cleanout	120+82.16	23.64' RT	Water Meter
116+58.26	22.24' LT	Utility Box	118+14.57	19.67' LT	Water Meter	120+82.22	23.03' LT	Water Meter
116+60.57	22.63' LT	Utility Box	118+16.58	19.63' LT	Water Meter	120+82.28	19.58' RT	Sewer Cleanout
116+61.97	23.34' LT	Water Meter	118+18.58	19.63' LT	Water Meter	120+83.74	21.15' LT	Water Valve
116+62.19	20.82' LT	Utility Box	118+66.24	17.57' RT	Water Meter	120+83.89	23.56' RT	Water Valve
116+63.76	24.02' LT	Water Meter	118+68.19	17.55' RT	Water Meter	120+83.95	23.04' LT	Water Meter
116+63.81	23.14' LT	Water Meter	118+70.09	17.58' RT	Water Meter	120+85.49	23.61' RT	Water Meter
116+63.84	22.29' LT	Water Meter	118+70.69	23.28' RT	Sewer Cleanout	120+85.85	23.04' LT	Sewer Cleanout
116+63.96	21.29' LT	Water Meter	118+71.83	17.63' RT	Water Meter	120+87.26	23.71' RT	Water Meter
116+67.23	23.61' LT	Utility Box	118+73.85	17.57' RT	Water Meter			
116+89.62	5.30' LT	Telephone Manhole	118+81.68	23.22' LT	Sewer Cleanout			

LIST OF ENCROACHMENTS				
Sta.	to	Sta.	Side	Element
116+64.86		118+13.66	LT	Ex Fencing to be relocated
118+70.71		118+77.66	LT	Ex Fencing in ROW



LEGEND

- TRENCH RESTORATION
- MILLING AND RESURFACING
- PAVEMENT WIDENING
- 4" CONCRETE SIDEWALK
- 6" CONC. CURB RAMP / DRIVEWAY
- TREE WELL: 7'X10', 6'X8', OR 4'X3' (TYP.)

NOTES:

- CITY OF KEY WEST TO COORDINATE WITH PROPERTY OWNER AT 715, 717 & 719 SOUTH ST. TO RELOCATE FENCING BACK A MINIMUM OF 2 FT.
- INSTALL 2 MADRAX BOLLARD BIKE RACKS, PRODUCT: BOL450-2-SF(IG) BY GRABER MANUFACTURING, INC.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

KAREN E. FALKENBERRY, P.E.
 P.E. LICENSE NUMBER 54015
 JACOBS ENGINEERING GROUP, INC.
 200 W. FORSYTH ST., STE 1520
 JACKSONVILLE, FL 32202

TASK ORDER 9-22

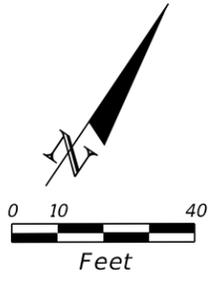
PROJECT:
 SOUTH STREET IMPROVEMENTS

ROADWAY PLAN (3)

SHEET NO.
13

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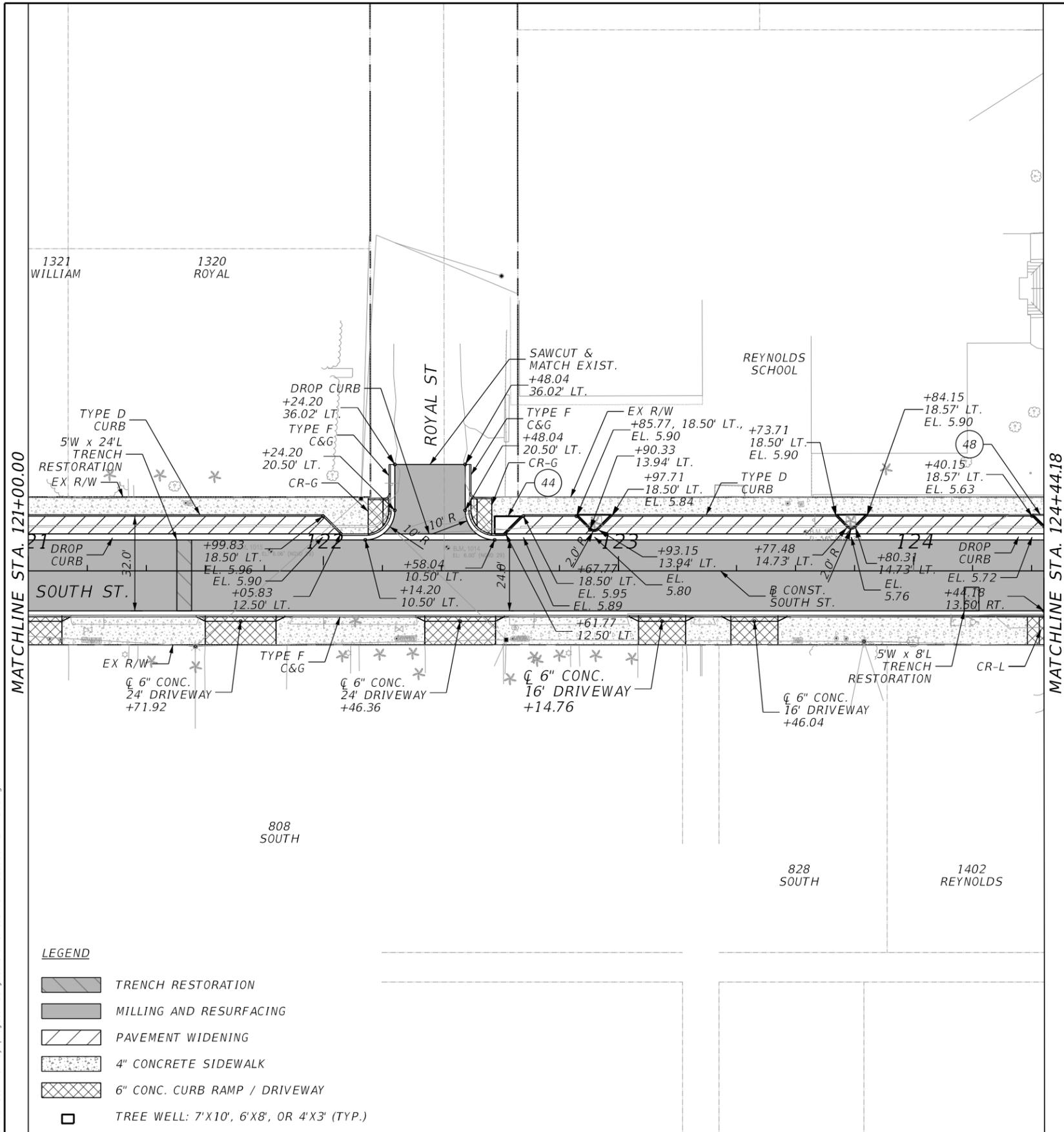
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LIST OF ENCROACHMENTS				
Sta.	to	Sta.	Side	Element
302+32.95		302+79.78	RT	Ex Fencing in ROW
303+26.09		303+65.65	RT	Ex Fencing in ROW
304+58.09		304+95.43	RT	Ex Fencing in ROW
304+98.42		305+07.16	RT	Ex Bldg in ROW
305+31.79		305+53.94	LT	Ex Bldg in ROW
305+53.44		305+56.11	RT	Ex Pavers in ROW
305+67.37		305+68.07	LT	Ex Wall in ROW
305+67.36		306+32.16	LT	Ex Fencing in ROW
305+97.55		306+04.13	LT	Ex Gate in ROW

UTILITY ADJUSTMENT TABLE					
Station	Offset	Utility	Station	Offset	Utility
121+07.27	23.01' RT	Sewer Cleanout	122+65.46	22.89' RT	Water Meter
121+10.93	23.23' RT	Sewer Cleanout	122+66.64	22.87' RT	Water Meter
121+19.07	23.30' RT	Water Meter	122+67.76	22.83' RT	Water Meter
121+20.22	19.84' RT	Sewer Valve	122+68.90	22.89' RT	Water Meter
121+20.78	23.50' RT	Water Meter	122+30.49	2.68' RT	Water Valve
121+22.22	23.52' RT	Water Meter	122+36.43	0.18' LT	Sewer Manhole
121+23.91	23.53' RT	Water Meter	123+57.35	22.82' LT	Sewer Cleanout
121+53.36	23.01' LT	Sewer Cleanout	123+60.23	23.44' RT	Water Meter
121+54.83	22.89' LT	Water Meter	123+61.55	23.47' RT	Water Meter
122+24.80	22.84' RT	Sewer Cleanout	123+61.89	22.57' LT	Water Meter
122+25.66	19.64' RT	Water Valve	123+73.82	22.80' RT	Sewer Cleanout
122+26.02	22.80' RT	Water Meter	124+19.65	9.58' RT	Water Valve
122+27.16	22.84' RT	Water Meter	124+58.41	8.76' RT	Water Valve
122+28.36	22.82' RT	Water Meter	124+61.49	5.96' RT	Water Valve
122+29.50	22.81' RT	Water Meter	124+63.68	12.06' RT	Water Valve
122+30.64	22.74' RT	Water Meter	124+66.66	9.18' RT	Water Valve
122+64.11	22.95' RT	Sewer Cleanout	124+69.87	0.29' LT	Sewer Manhole
122+64.97	19.18' RT	Utility Box			

UTILITY ADJUSTMENT TABLE (REYNOLDS ST)		
Station	Offset	Utility
303+02.20	23.05' RT	Sewer Valve
303+17.99	22.75' RT	Water Meter
303+25.11	23.73' LT	Sewer Valve
303+40.87	21.95' RT	Sewer Valve
303+87.97	23.41' RT	Sewer Valve
303+89.54	23.61' RT	Water Meter
304+28.81	9.56' RT	Water Valve
304+32.81	23.82' LT	Sewer Valve
304+33.75	38.47' RT	Sewer Manhole
304+34.00	23.76' LT	Water Meter
304+41.86	24.26' LT	Sewer Valve
304+43.09	12.11' LT	Telephone Manhole
304+75.31	24.31' LT	Water Meter
305+04.12	22.52' RT	Water Meter
305+05.58	22.52' RT	Sewer Valve
305+18.29	22.87' RT	Sewer Valve
305+28.38	20.95' LT	Water Meter
305+29.51	20.92' LT	Sewer Valve
305+30.80	20.79' LT	Sewer Valve
305+31.95	20.76' LT	Water Meter
305+72.23	22.66' RT	Water Meter
305+73.95	22.77' RT	Water Meter
305+75.89	22.93' RT	Sewer Valve
306+05.23	1.27' LT	Sewer Manhole



LEGEND

- TRENCH RESTORATION
- MILLING AND RESURFACING
- PAVEMENT WIDENING
- 4" CONCRETE SIDEWALK
- 6" CONC. CURB RAMP / DRIVEWAY
- TREE WELL: 7'X10', 6'X8', OR 4'X3' (TYP.)

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

KAREN E. FALKENBERRY, P.E.
P.E. LICENSE NUMBER 54015
JACOBS ENGINEERING GROUP, INC.
200 W. FORSYTH ST., STE 1520
JACKSONVILLE, FL 32202

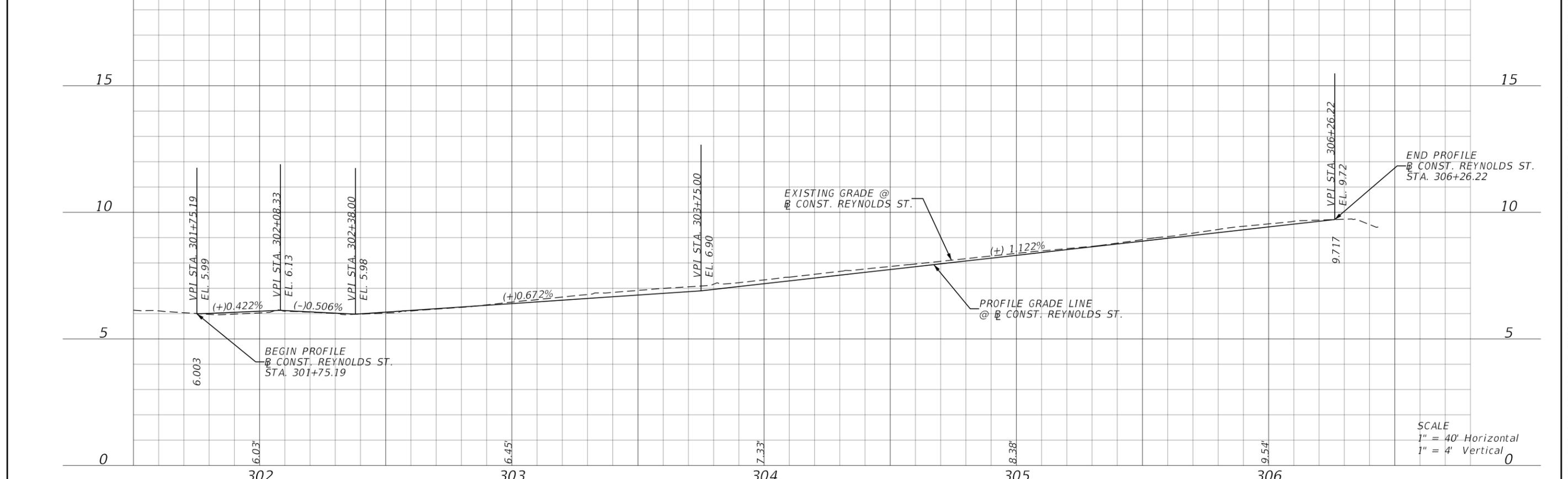
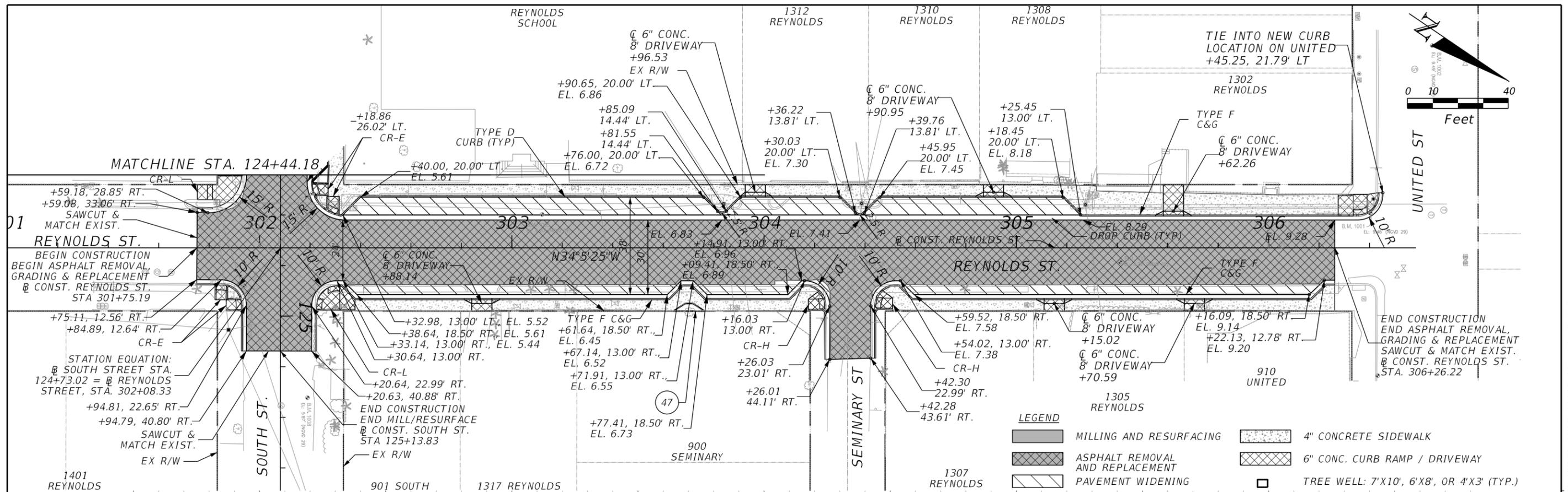
TASK ORDER 9-22

PROJECT:
SOUTH STREET IMPROVEMENTS

SHEET
NO.

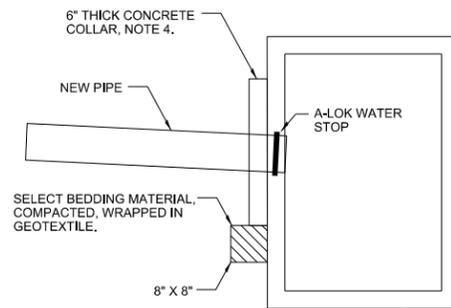
2/2/2024 10:24:31 AM Karen.Falkenberry@jacobs.com c:\users\kfalkenb\appdata\local\bentley\projectwise\jacobs-americas-01\dms89931\PLANRD01.dgn

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REVISIONS				KAREN E. FALKENBERRY, P.E. P.E. LICENSE NUMBER 54015 JACOBS ENGINEERING GROUP, INC. 200 W. FORSYTH ST., STE 1520 JACKSONVILLE, FL 32202	 TASK ORDER 9-22 PROJECT: SOUTH STREET IMPROVEMENTS	ROADWAY PLAN & PROFILE		SHEET NO. 15
DATE	DESCRIPTION	DATE	DESCRIPTION					

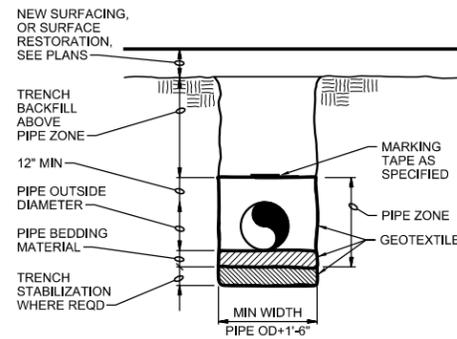
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- NOTES:
1. ALTERNATIVE WHEN CORING IS NOT FEASIBLE.
 2. A-LOK WATER STOP, OR APPROVED ALTERNATIVE.
 3. ALL GAPS IN BOX ARE TO BE GROUTED PRIOR TO COLLAR INSTALLATION.
 4. COLLAR IS TO COVER CUTS BY 8" MIN.

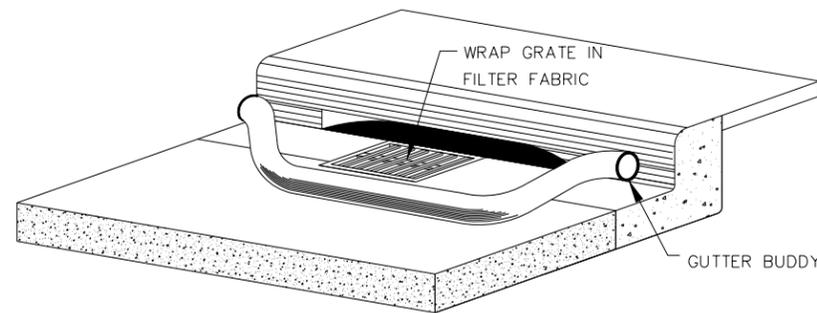
A. ALTERNATIVE BOOT INSTALLATION

NTS



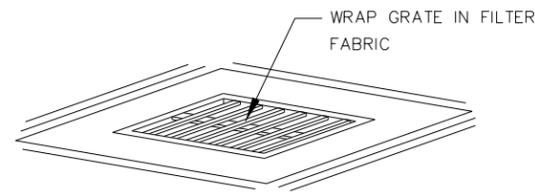
B. TYPICAL TRENCH

NTS



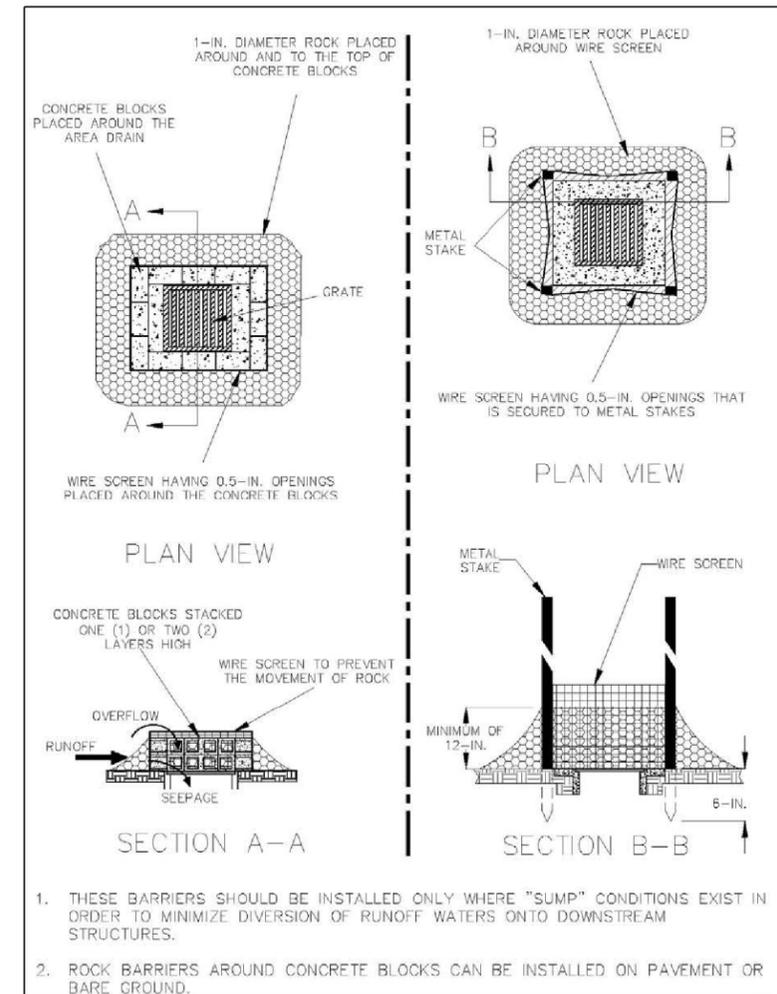
D. TYPE 4 INLET PROTECTION

NTS



C. TYPE 2 INLET PROTECTION

NTS



F. FDOT STANDARD INLET PROTECTION

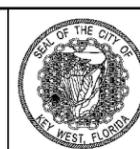
NTS

1. THESE BARRIERS SHOULD BE INSTALLED ONLY WHERE "SUMP" CONDITIONS EXIST IN ORDER TO MINIMIZE DIVERSION OF RUNOFF WATERS ONTO DOWNSTREAM STRUCTURES.
2. ROCK BARRIERS AROUND CONCRETE BLOCKS CAN BE INSTALLED ON PAVEMENT OR BARE GROUND.

1/28/2024 7:22:03 PM Karen.Falkenberry@jacobs.com

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

MITCHELL LEE GRIFFIN, P.E.
 P.E. LICENSE NUMBER 40772
 JACOBS ENGINEERING GROUP INC.
 643 SW 4TH AVENUE
 GAINESVILLE, FL 32601



TASK ORDER 9-22
 PROJECT:
 SOUTH STREET IMPROVEMENTS

DRAINAGE DETAIL

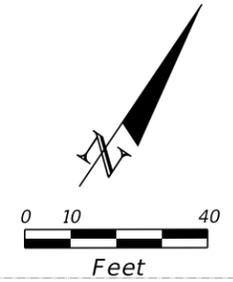
SHEET NO.
 16

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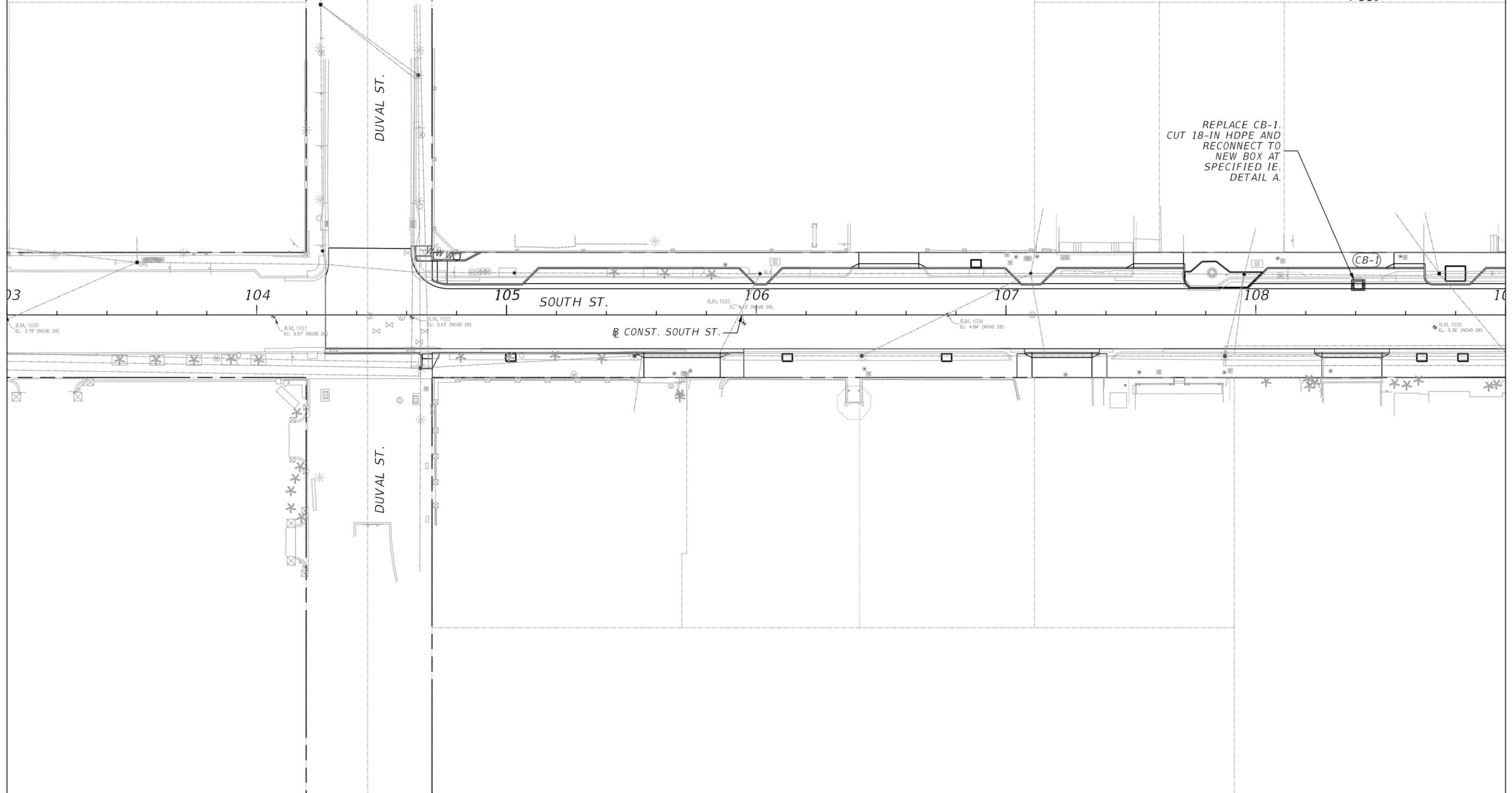
CB-1
 STA. 108+41 05: 12' LT
 TYPE P ALT-B BASIN AND
 TOP SLAB W/ 24"X36" OPENING
 PER FDOT INDEX 425-010
 USF 5112 FRAME & 6143 GRATE
 OR APPROVED EQUAL
 RIM: 4.95
 SUMP: -0.75
 INV OUT (NE): -1.16 (18" HDPE, 30-DEG)

GENERAL NOTES

1. IT IS EXPECTED THAT THE ACTUAL LOCATION OF EXISTING UNDERGROUND UTILITIES MAY VARY FROM THAT SHOWN ON THE PLANS. VARIATIONS IN LOCATION AND DEPTH SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE IMMEDIATELY SO THAT THE LOCATION OF THE UTILITIES MAY BE CHECKED WITH THE PROPOSED DESIGN.
2. ALL LOCATIONS FOR WORK SHALL BE CHECKED AND COORDINATED WITH EXISTING CONDITIONS IN THE FIELD BEFORE COMMENCING CONSTRUCTION.
3. LOCATE, PROTECT AND AVOID DISRUPTION OF ALL ABOVE AND BELOW GRADE UTILITIES TO REMAIN.
4. ALL EXISTING UTILITIES SHOULD BE CONSIDERED ACTIVE UNLESS OTHERWISE NOTED.



REPLACE CB-1.
 CUT 18-IN HDPE AND
 RECONNECT TO
 NEW BOX AT
 SPECIFIED IE.
 DETAIL A.



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 643 SW 4TH AVENUE
 GAINESVILLE, FL 32601

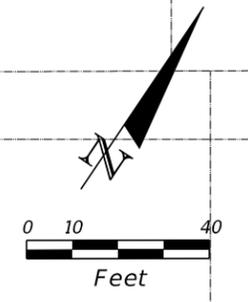


TASK ORDER 9-22
 PROJECT:
 SOUTH STREET IMPROVEMENTS

DRAINAGE PLAN (1)

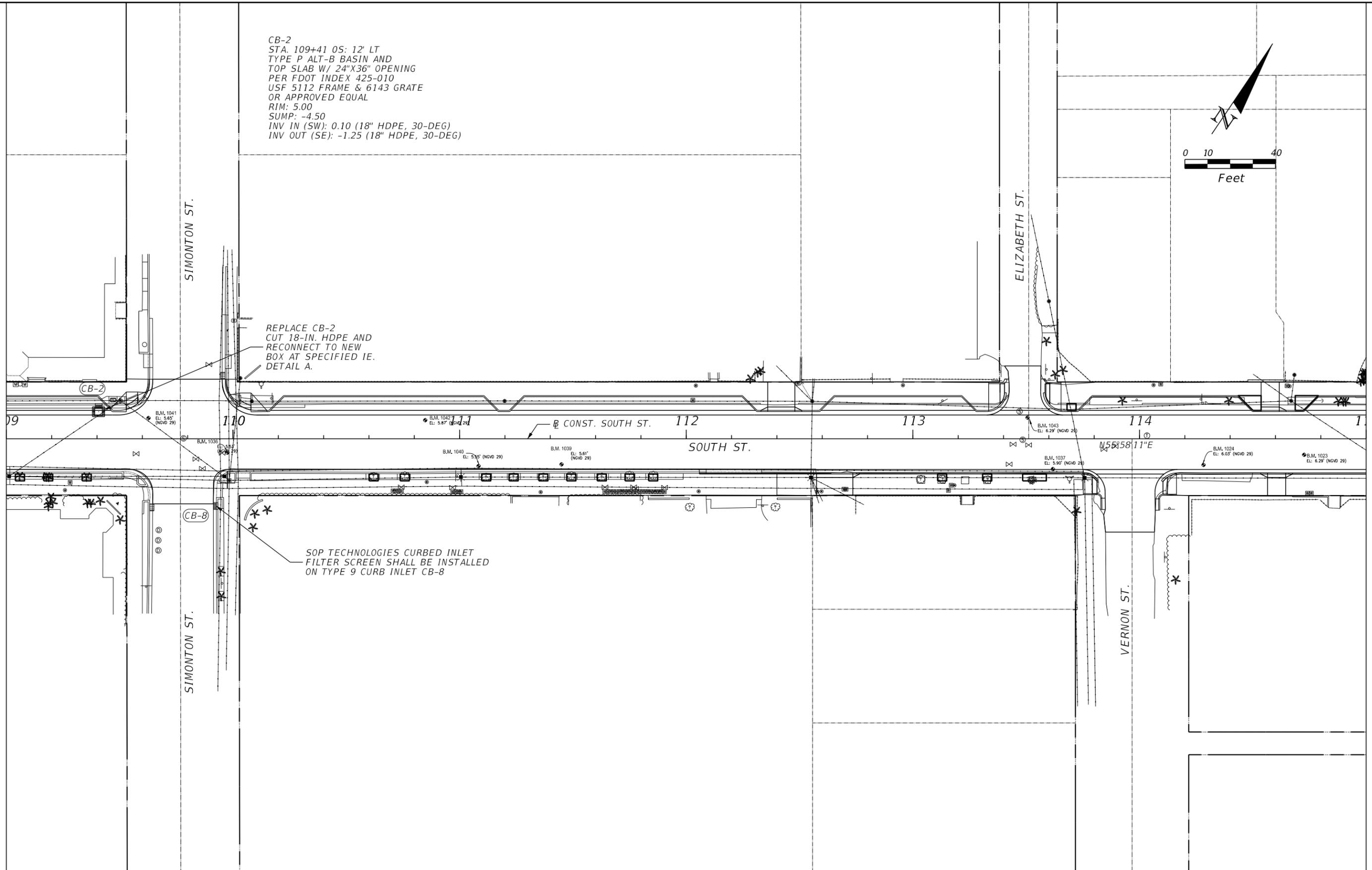
SHEET NO.
 17

CB-2
 STA. 109+41 OS: 12' LT
 TYPE P ALT-B BASIN AND
 TOP SLAB W/ 24"X36" OPENING
 PER FDOT INDEX 425-010
 USF 5112 FRAME & 6143 GRATE
 OR APPROVED EQUAL
 RIM: 5.00
 SUMP: -4.50
 INV IN (SW): 0.10 (18" HDPE, 30-DEG)
 INV OUT (SE): -1.25 (18" HDPE, 30-DEG)



REPLACE CB-2
 CUT 18-IN. HDPE AND
 RECONNECT TO NEW
 BOX AT SPECIFIED IE.
 DETAIL A.

SOP TECHNOLOGIES CURBED INLET
 FILTER SCREEN SHALL BE INSTALLED
 ON TYPE 9 CURB INLET CB-8

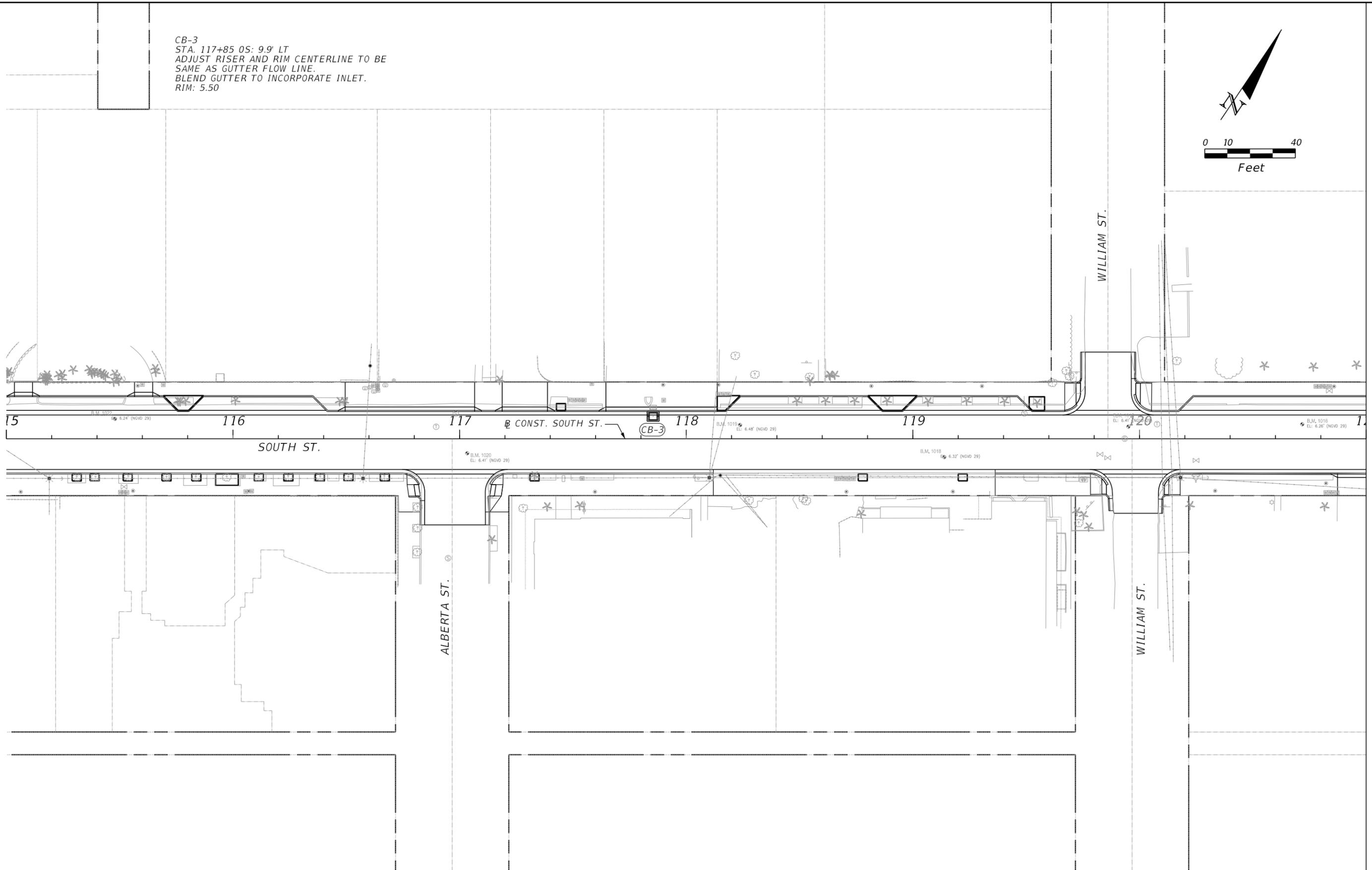
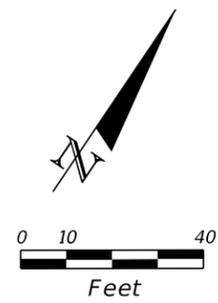


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REVISIONS				MITCHELL LEE GRIFFIN, P.E. P.E. LICENSE NUMBER 40772 JACOBS ENGINEERING GROUP INC. 643 SW 4TH AVENUE GAINESVILLE, FL 32601		TASK ORDER 9-22 PROJECT: SOUTH STREET IMPROVEMENTS	<i>DRAINAGE PLAN (2)</i>	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION					18

CB-3
 STA. 117+85 OS: 9.9' LT
 ADJUST RISER AND RIM CENTERLINE TO BE
 SAME AS GUTTER FLOW LINE.
 BLEND GUTTER TO INCORPORATE INLET.
 RIM: 5.50



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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

MITCHELL LEE GRIFFIN, P.E.
 P.E. LICENSE NUMBER 40772
 JACOBS ENGINEERING GROUP INC.
 643 SW 4TH AVENUE
 GAINESVILLE, FL 32601



TASK ORDER 9-22
 PROJECT:
 SOUTH STREET IMPROVEMENTS

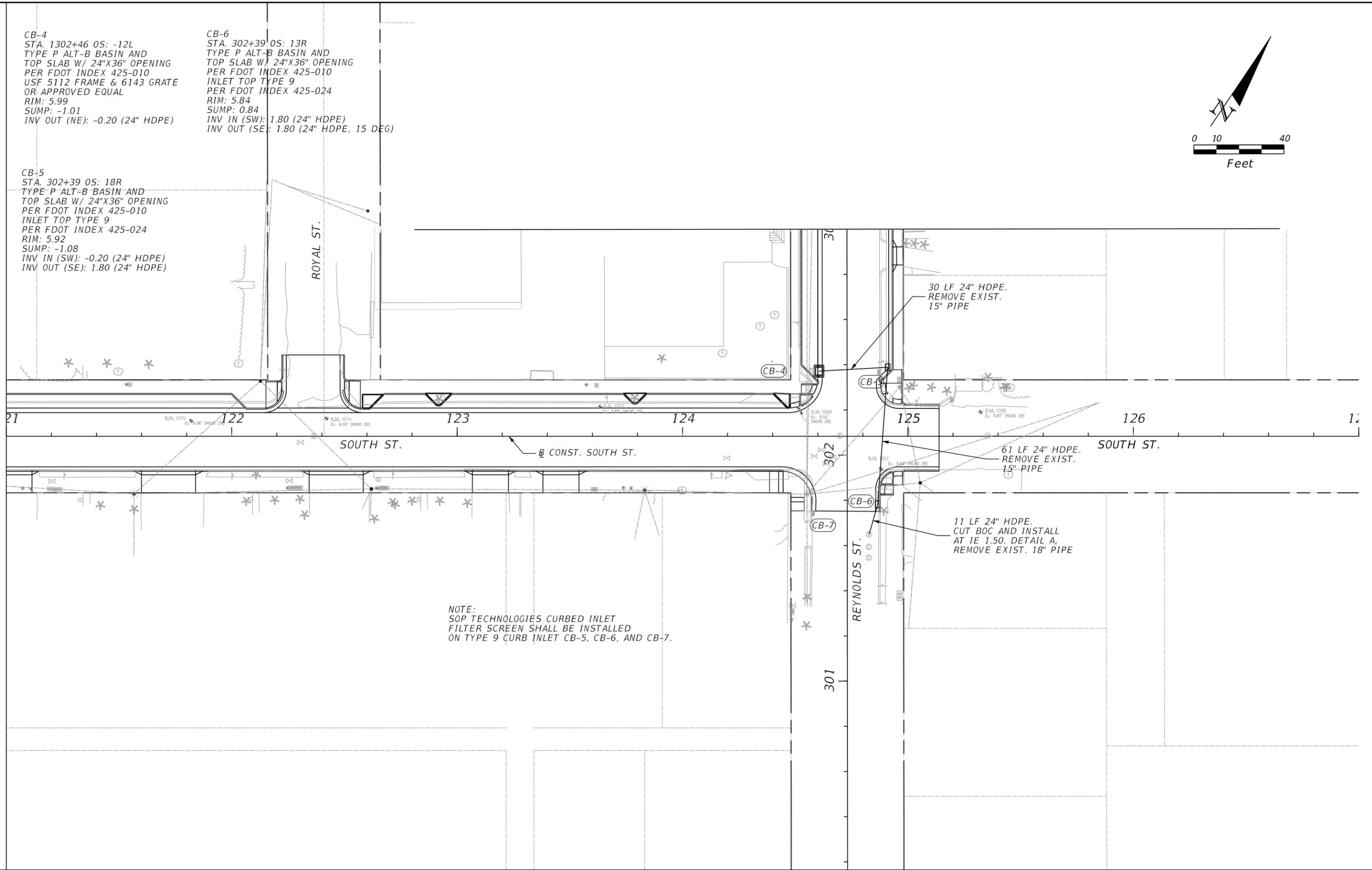
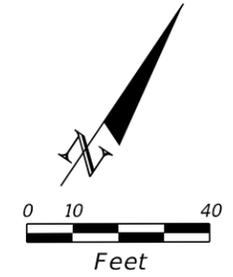
DRAINAGE PLAN (3)

SHEET NO.
 19

CB-4
 STA. 1302+46.05: -12L
 TYPE P ALT-B BASIN AND
 TOP SLAB W/ 24"X36" OPENING
 PER FDOT INDEX 425-010
 USF 5112 FRAME & 6143 GRATE
 OR APPROVED EQUAL
 RIM: 5.99
 SUMP: -1.01
 INV OUT (NE): -0.20 (24" HDPE)

CB-6
 STA. 302+39.05: 13R
 TYPE P ALT-B BASIN AND
 TOP SLAB W/ 24"X36" OPENING
 PER FDOT INDEX 425-010
 INLET TOP TYPE 9
 PER FDOT INDEX 425-024
 RIM: 5.84
 SUMP: 0.84
 INV IN (SW): 1.80 (24" HDPE)
 INV OUT (SE): 1.80 (24" HDPE, 15 DEG)

CB-5
 STA. 302+39.05: 18R
 TYPE P ALT-B BASIN AND
 TOP SLAB W/ 24"X36" OPENING
 PER FDOT INDEX 425-010
 INLET TOP TYPE 9
 PER FDOT INDEX 425-024
 RIM: 5.92
 SUMP: -1.08
 INV IN (SW): -0.20 (24" HDPE)
 INV OUT (SE): 1.80 (24" HDPE)



NOTE:
 SOP TECHNOLOGIES CURBED INLET
 FILTER SCREEN SHALL BE INSTALLED
 ON TYPE 9 CURB INLET CB-5, CB-6, AND CB-7.

1/28/2024 7:29:28 PM Karen.Falkenberry@jacobs.com
 c:\users\kfalkenb\appdata\local\bentley\projectwise\jacobs-americas-01\dms89904\DRPLAN01.dgn

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

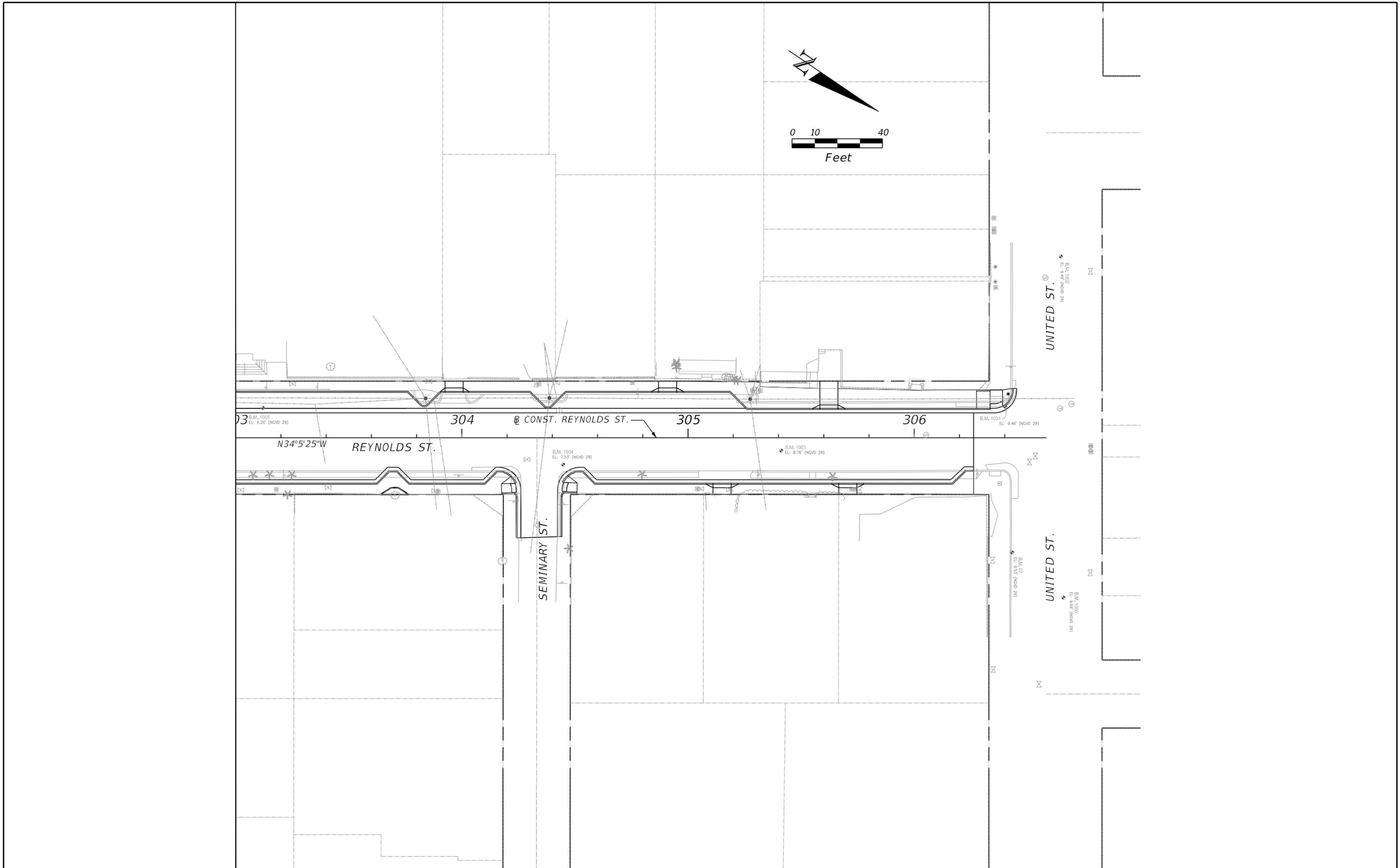
MITCHELL LEE GRIFFIN, P.E.
 P.E. LICENSE NUMBER 40772
 JACOBS ENGINEERING GROUP INC.
 643 SW 4TH AVENUE
 GAINESVILLE, FL 32601



TASK ORDER 9-22
 PROJECT:
 SOUTH STREET IMPROVEMENTS

DRAINAGE PLAN (4)

SHEET NO.
 20



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

MITCHELL LEE GRIFFIN, P.E.
 P.E. LICENSE NUMBER 40772
 JACOBS ENGINEERING GROUP INC.
 643 SW 4TH AVENUE
 GAINESVILLE, FL 32601



TASK ORDER 9-22
 PROJECT:
 SOUTH STREET IMPROVEMENTS

DRAINAGE PLANS (5)

SHEET NO.
 21

DATE OF SURVEY: 3/2/2023
 SURVEY MADE BY: ORACIO RICCOBONO, P.E.
 SUBMITTED BY: GEOSOL, Inc.

SOUTH STREET ROADWAY IMPROVEMENT PROJECT
 FROM WHITEHEAD STREET TO REYNOLDS STREET
 CITY OF KEY WEST, FLORIDA

DISTRICT: N/A
 ROAD NO.: N/A
 COUNTY: MONROE

CROSS SECTION SOIL SURVEY FOR THE DESIGN OF ROADS

SURVEY BEGINS STA.: 200+00 SURVEY ENDS STA.: 201+00 REFERENCE: B/L SURVEY WHITEHEAD STREET
 SURVEY BEGINS STA.: 100+00 SURVEY ENDS STA.: 125+00 REFERENCE: B/L SURVEY SOUTH STREET
 SURVEY BEGINS STA.: 302+00 SURVEY ENDS STA.: 304+00 REFERENCE: B/L SURVEY REYNOLDS STREET

STRATUM NO.	MOISTURE CONTENT		ORGANIC CONTENT		SIEVE ANALYSIS RESULTS PERCENT PASS					NO. OF TESTS	LIQUID LIMIT	PLASTIC INDEX	AASHTO GROUP	DESCRIPTION	CORROSION TEST RESULTS				
	NO. OF TESTS	MOISTURE CONTENT	NO. OF TESTS	% ORGANIC	NO. OF TESTS	10 MESH	40 MESH	60 MESH	100 MESH						200 MESH	NO. OF TESTS	RESISTIVITY ohms cm	CHLORIDE ppm	SULFATES ppm
0												N/A	Asphalt Pavement						
1	4	14-23			4	51-68	27-48	17-38	11-31	7-24			A-1-b	Brown Slightly Silty to Silty Fine to Coarse SAND with Little to Some Limerock Fragments (FILL)					
2	1	13			1	59	40	34	28	23			A-1-b	Brown Slightly Silty to Silty Fine to Coarse SAND with Few to Some Limestone Fragments	1	22	18,500	2,800	7.7

EMBANKMENT AND SUBGRADE MATERIAL
 STRATA BOUNDARIES ARE APPROXIMATE. MAKE FINAL CHECK AFTER GRADING.
 ∇ - WATER TABLE ENCOUNTERED
 GNE - GROUNDWATER NOT ENCOUNTERED

Notes:

- The material from Stratum 0 is the Asphalt Pavement.
- The materials from Strata Numbers 1 and 2 (A-1-b) are considered to be select and should be utilized in accordance with FDOT Roadway and Traffic Design Standard Plan Index Drawing I20-001.

REVISIONS				ENGINEER OF RECORD:		SOUTH STREET ROADWAY IMPROVEMENT PROJECT FROM WHITEHEAD STREET TO REYNOLDS STREET CITY OF KEY WEST, FLORIDA	ROADWAY SOILS SURVEY	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	GEOSOL, INC. ORACIO RICCOBONO, P.E. P.E. LICENSE NO. 49324 5795-A NW 151st STREET MIAMI LAKES, FL 33014				22

Tree Inventory and Disposition

Zone	No.	Plant	Station	Side	Dia.	Size (HxW)	Existing Condition	Notes	Disposition	Tree Well #	Replacement Tree Information		
											Plant	Dia.	Size (HxW)
1	1	Thrinax radiata Thatch Palm	104+81.74	RT	---	10'-12' o.a. 5'-6'	Fair	1401 Duval: soil planter	Transplant / Remove	---	---	---	---
1	2	Thrinax radiata Thatch Palm	105+01.04	RT	---	10'-13' o.a. 5'-6'	Fair	1401 Duval: soil planter, leaning over s/w	Transplant / Remove	---	---	---	---
1	3	Thrinax radiata Thatch Palm	105+19.50	RT	---	15'-20' o.a. 10'-12'	Fair	1401 Duval: soil planter	Transplant / Remove	---	---	---	---
1	4	Thrinax radiata Thatch Palm	105+38.11	RT	---	13'-15' o.a. 8'-10'	Poor	1401 Duval: soil planter	Remove	---	---	---	---
--	--	Thrinax radiata Thatch Palm	106+12.43	RT	---	10'-12' o.a.	---	Selected specimen to be FL #1 or better	---	1	---	---	---
--	--	Thrinax radiata Thatch Palm	106+76.21	RT	---	10'-12' o.a.	---	Selected specimen to be FL #1 or better	---	2	---	---	---
--	--	Thrinax radiata Thatch Palm	108+66.47	RT	---	10'-12' o.a.	---	Selected specimen to be FL #1 or better	---	5	---	---	---
--	--	Thrinax radiata Thatch Palm	108+82.94	RT	---	10'-12' o.a.	---	Selected specimen to be FL #1 or better	---	6	---	---	---
1	5	Adonidia merrillii Christmas Palm	109+06.02	RT	---	15'-16' o.a. 8'-10'	Fair	510 South: grass tree lawn, under utility lines	Replace	8	Thrinax radiata Thatch Palm	---	10'-12' o.a.
1	6	Adonidia merrillii Christmas Palm DBL	109+18.47	RT	---	1-15' o.a. 2-9' o.a.	1 - Fair 2 - Poor	510 South: grass tree lawn, under utility lines	Replace	9	Thrinax radiata Thatch Palm	---	10'-12' o.a.
1	7	Adonidia merrillii Christmas Palm	109+35.47	RT	---	15' o.a.	Poor	510 South: grass tree lawn, under utility lines	Replace	10	Thrinax radiata Thatch Palm	---	10'-12' o.a.
1	8	Cocos nucifera Coconut Palm	105+43.09	LT	---	30'-35' o.a. 15'-18'	Fair	1319 Duval: soil planter, leaning over parking area	Remove	---	---	---	---
1	9	Cocos nucifera Coconut Palm	105+63.34	LT	---	15'-18' o.a. 8'-10'	Fair	1319 Duval: soil planter, leaning over parking area	Remove	---	---	---	---
1	10	Cocos nucifera Coconut Palm	105+82.11	LT	---	40'-50' o.a. 20'-25'	Fair	1319 Duval: soil planter, leaning over parking area	Remove	---	---	---	---
--	--	Thrinax radiata Thatch Palm	107+17.10	LT	---	10'-12' o.a.	---	Selected specimen to be FL #1 or better	---	3	---	---	---
1	11	Swietenia mahagoni Mahogany Tree	107+80.00	LT	42.6"	55'-60' o.a. 50'-60'	Good RETAIN PROTECT	1330 Simonton: Soil planter, utility lines through canopy, sidewalk lifted. Replace concrete w/Flexi-pave.	To Remain	4	---	---	---
--	--	Thrinax radiata Thatch Palm	108+79.95	LT	---	10'-12' o.a.	---	Selected specimen to be FL #1 or better	---	7	---	---	---
2	1	Conocarpus erectus var. sericeus Silver Buttonwood	110+62.08	RT	4.9"	13'-15' x 10'-11'	Fair	1401 Simonton: grass/stone, maintained/hedge, under utility lines	To Remain	11	---	---	---
2	2	Conocarpus erectus var. sericeus Silver Buttonwood	110+75.78	RT	4.5"	12'-14' x 9'x10'	Poor	1401 Simonton: grass/stone, maintained/hedge, leaning under utility	To Remain	12	---	---	---
2	3	Conocarpus erectus var. sericeus Silver Buttonwood	111+11.74	RT	8.5"	15'-18' x 15'-18'	Fair	1401 Simonton: grass/stone, maintained/hedge, leaning under utility	To Remain	13	---	---	---
2	4	Conocarpus erectus var. sericeus Silver Buttonwood	111+23.81	RT	3"	8'-9' x 6'-7'	Poor	1401 Simonton: grass/stone, maintained/hedge, under utility lines	To Remain	14	---	---	---
2	5	Conocarpus erectus var. sericeus Silver Buttonwood	111+36.96	RT	7.3"	15'-18' x 16'-18'	Poor	1401 Simonton: grass/stone, maintained/hedge, leaning under utility	To Remain	15	---	---	---
2	6	Conocarpus erectus var. sericeus Silver Buttonwood	111+49.28	RT	7"	18'-20' x 16'-18'	Poor	1401 Simonton: grass/stone, maintained/hedge, under utility lines	To Remain	16	---	---	---
2	7	Conocarpus erectus var. sericeus Silver Buttonwood	111+62.74	RT	6.8"	18'-20' x 12'-13'	Fair	1401 Simonton: grass/stone, maintained/hedge, slight lean under utility	To Remain	17	---	---	---
2	8	Conocarpus erectus var. sericeus Silver Buttonwood	111+74.99	RT	5.6"	13'-18' x 12'-13'	Fair	1401 Simonton: grass/stone, maintained/hedge, slight lean	To Remain	18	---	---	---
2	9	Conocarpus erectus var. sericeus Silver Buttonwood	111+85.37	RT	4.7"	10'-12' x 6'x8'	Poor	1401 Simonton: grass/stone, maintained/hedge, leaning/under utility	To Remain	19	---	---	---
2	10	Capparis cynophallophora Jamaica Caper	113+03.56	RT	0.9"	6' x 5'	Poor	630 South: soil planter	Remove	---	---	---	---
2	11	Conocarpus erectus var. sericeus Silver Buttonwood	113+12.83	RT	4"	8' x 8'	Poor	630 South: soil planter, slightly leaning	Replace	21	Conocarpus erectus var. sericeus Silver Buttonwood	2"-4"	10'-15' o.a.
2	12	Ficus macrocarpa Green Island Ficus	113+22.99	RT	---	2' x 3'	Fair	630 South: soil planter, ground cover	Remove	---	---	---	---

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<p align="center">REVISIONS</p> <table border="1"> <thead> <tr> <th>DATE</th> <th>DESCRIPTION</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>				DATE	DESCRIPTION	DATE	DESCRIPTION					<p>KAREN E. FALKENBERRY, P.E. P.E. LICENSE NUMBER 54015 JACOBS ENGINEERING GROUP, INC. 200 W. FORSYTH ST., STE 1520 JACKSONVILLE, FL 32202</p>			<p>TASK ORDER 9-22</p> <p>PROJECT: SOUTH STREET IMPROVEMENTS</p>	<p>LANDSCAPE TABLE (1)</p>	<p>SHEET NO. 24</p>
DATE	DESCRIPTION	DATE	DESCRIPTION														

Tree Inventory and Disposition Continued

Zone	No.	Plant	Station	Side	Dia.	Size (HxW)	Existing Condition	Notes	Disposition	Tree Well #	Replacement Tree Information		
											Plant	Dia.	Size (HxW)
2	13	Genipa clusiifolia Seven-Year Apple	113+32.75	RT	0.6"	7' x 6'	Fair	630 South: soil planter	Replace	23	Conocarpus erectus var. sericeus Silver Buttonwood	2"-4"	10'-15' o.a.
2	14	Delonix regia Poinciana Tree	113+53.65	RT	4.5"	18'-20' x 28'-30'	Very Poor	630 South: soil planter, leaning, mechanical damage	Replace	24	Conocarpus erectus var. sericeus Silver Buttonwood	2"-4"	10'-15' o.a.
3	1	Syagrus romanzoffiana Queen Palm	113+92.50	LT	---	19'-20' o.a. 10'-12'	Poor	701 South: grass tree lawn	Remove	---	---	---	---
--	--	Cassia javanica Apple Blossom Tree	113+70.00	LT	3"	14'-16'	---	Selected specimen to be FL #1 or better	---	25	---	---	---
3	2	Cocos nucifera Coconut Palm DBL	114+39.46	LT	---	W: 30'-35' o.a. x 18'-20' E: 35'-40' o.a. x 20'-25'	W: Fair E: Fair	703 South: grass tree lawn	Remove	---	---	---	---
--	--	Cassia bakeriana Pink Shower Tree	114+50.00	LT	3"-4"	12'-14' o.a.	---	Selected specimen to be FL #1 or better	---	20	---	---	---
--	--	Cassia javanica Apple Blossom Tree	114+72.37	LT	3"	14'-16'	---	Selected specimen to be FL #1 or better	---	26	---	---	---
3	3	Adonidia merrillii Christmas Palm DBL	114+87.73	LT	---	W: 19'-20' o.a. x 14'-16' E: 20'-25' o.a. x 15'-18'	W: Poor E: Poor	707 South: grass tree lawn	Remove	---	---	---	---
3	4	Adonidia merrillii Christmas Palm	114+90.01	LT	---	19'-20' o.a. 14'-16'	Poor	707 South: grass tree lawn	Remove	---	---	---	---
3	5	Adonidia merrillii Christmas Palm DBL	115+75.83	LT	---	W: 21'-23' o.a. x 19'-20' E: 21'-23' o.a. x 19'-20'	W: Poor E: Poor	711 South: grass tree lawn	To Remain	31	---	---	---
3	6	Adonidia merrillii Christmas Palm	115+76.70	LT	---	21'-23' o.a. 19'-20'	Poor	711 South: grass tree lawn	To Remain	31	---	---	---
3	7	Cocos nucifera Coconut Palm	115+79.18	LT	---	65'-70' o.a. 45'-50'	Fair	711 South: grass tree lawn	To Remain	31	---	---	---
3	8	Carissa macrocarpa Natal Plum (15)	116+01.12	LT	---	5.5' x 20'	Fair	711 South: thorns, hedged grass tree lawn	Remove	---	---	---	---
--	--	Thrinax radiata Thatch Palm	105+01.73	RT	---	10'-12' o.a.	---	Selected specimen to be FL #1 or better	---	34	---	---	---
3	9	Adonidia merrillii Christmas Palm	116+47.13	LT	---	20'-25' o.a. 12'-15'	Fair/Poor	711 South: grass tree lawn	Remove	---	---	---	---
3	10	Adonidia merrillii Christmas Palm	116+49.16	LT	---	20'-25' o.a. 12'-15'	Fair/Poor	711 South: grass tree lawn	Remove	---	---	---	---
3	11	Bucida buceras Black Olive Tree	115+31.07	RT	15.8"	45'-50' x 25'-30'	Fair	706 South: utility lines thru canopy, flexi- pave planter	Replace	27	Tabebuia aurea Yellow Trumpet Tree	4"-6"	10'-15' o.a.
3	12	Bucida buceras Black Olive Tree	115+38.94	RT	10.9"	45'-50' x 25'-30'	Poor	706 South: utility lines thru canopy, rock planter	Replace	28	Tabebuia aurea Yellow Trumpet Tree	4"-6"	10'-15' o.a.
3	13	Bucida buceras Black Olive Tree	115+53.56	RT	10.1"	35'-40' x 15'-20'	Fair	706 South: utility lines thru canopy, flexi- pave planter	Replace	29	Tabebuia aurea Yellow Trumpet Tree	4"-6"	10'-15' o.a.
3	14	Bucida buceras Black Olive Tree	115+70.66	RT	5.4"	15'-18' x 15'	Poor	708 South: utility lines thru canopy, rock planter	Replace	30	Tabebuia aurea Yellow Trumpet Tree	4"-6"	10'-15' o.a.
3	15	Bucida buceras Black Olive Tree	115+83.85	RT	12.8"	35'-40' x 25'-30'	Fair	708 South: utility lines thru canopy, flexi- pave planter	Replace	32	Tabebuia aurea Yellow Trumpet Tree	4"-6"	10'-15' o.a.
3	16	Bucida buceras Black Olive Tree	115+97.31	RT	12"	35'-40' x 25'-30'	Poor	708 South: utility lines thru canopy, flexi- pave planter	Replace	33	Tabebuia aurea Yellow Trumpet Tree	4"-6"	10'-15' o.a.
3	17	Bucida buceras Black Olive Tree	116+11.42	RT	6.6"	18'-20' x 15'-18'	Fair	1400 Alberta: utility lines thru canopy, rock planter	Replace	35	Tabebuia aurea Yellow Trumpet Tree	4"-6"	10'-15' o.a.
3	18	Bucida buceras Black Olive Tree	116+24.43	RT	15.6"	45'-50' x 30'-35'	Poor	1400 Alberta: utility lines thru canopy, flexi-pave planter	Replace	36	Tabebuia aurea Yellow Trumpet Tree	4"-6"	10'-15' o.a.
3	19	Bucida buceras Black Olive Tree	116+38.33	RT	13.5"	45'-50' x 25'-30'	Fair	1400 Alberta: utility lines thru canopy, rock planter	Replace	37	Tabebuia aurea Yellow Trumpet Tree	4"-6"	10'-15' o.a.
3	20	Bucida buceras Black Olive Tree	116+50.97	RT	9.2"	35'-40' x 15'-20'	Poor	1400 Alberta: utility lines thru canopy, rock planter	Replace	38	Tabebuia aurea Yellow Trumpet Tree	4"-6"	10'-15' o.a.

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<p align="center">REVISIONS</p> <table border="1"> <thead> <tr> <th>DATE</th> <th>DESCRIPTION</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		DATE	DESCRIPTION	DATE	DESCRIPTION					<p>KAREN E. FALKENBERRY, P.E. P.E. LICENSE NUMBER 54015 JACOBS ENGINEERING GROUP, INC. 200 W. FORSYTH ST., STE 1520 JACKSONVILLE, FL 32202</p>		<p align="center">TASK ORDER 9-22</p> <p align="center">PROJECT: SOUTH STREET IMPROVEMENTS</p>	<p align="center">LANDSCAPE TABLE (2)</p>	<p align="center">SHEET NO. 25</p>
DATE	DESCRIPTION	DATE	DESCRIPTION											

Tree Inventory and Disposition Continued

Zone	No.	Plant	Station	Side	Dia.	Size (HxW)	Existing Condition	Notes	Disposition	Tree Well #	Replacement Tree Information		
											Plant	Dia.	Size (HxW)
3	21	Bucida buceras Black Olive Tree	116+66.98	RT	11"	35'-40' x 25'-30'	Poor	1400 Alberta: utility lines thru canopy, rock planter	Replace	39	Tabebuia aurea Yellow Trumpet Tree	4"-6"	10'-15' o.a.
3	22	Cocos nucifera Coconut Palm	117+33.11	RT	---	35'-40' o.a. 18'-20'	Fair	714 South: leaning into street	To Remain	22	---	---	---
--	--	Cassia javanica Apple Blossom Tree	117+44.71	LT	3"	14'-16'	---	Selected specimen to be FL #1 or better	---	40	---	---	---
---	---	Cassia bakeriana Pink Shower Tree	118+16.66	LT	3"-4"	12'-14' o.a.	---	Selected specimen to be FL #1 or better	---	45	---	---	---
3	23	Cocos nucifera Coconut Palm	118+48.87	LT	---	35'-40' o.a. 18'-20'	Fair	721 South: leaning into street	Remove	---	---	---	---
3	24	Cocos nucifera Coconut Palm	118+61.51	LT	---	35'-40' o.a. 20'-25'	Poor	721 South: leaning into street	Remove	---	---	---	---
3	25	Cocos nucifera Coconut Palm	118+74.35	LT	---	35'-40' o.a. 20'-25'	Poor	725 South: leaning into street, lethal yellowing	Remove	---	---	---	---
--	--	Lysiloma sabicu Sabicu	118+77.90	RT	5" min.	12'-14' o.a.	---	Selected specimen to be FL #1 or better	---	41	---	---	---
3	26	Cocos nucifera Coconut Palm	118+88.64	LT	---	40'-45' o.a. 25'-30'	Poor	725 South: leaning into street	Remove	---	---	---	---
--	--	Cassia bakeriana Pink Shower Tree	118+90.99	LT	3"-4"	12'-14' o.a.	---	Selected specimen to be FL #1 or better	---	46	---	---	---
--	--	Lysiloma sabicu Sabicu	119+21.99	RT	5" min.	12'-14' o.a.	---	Selected specimen to be FL #1 or better	---	42	---	---	---
3	27	Cocos nucifera Coconut Palm	119+06.71	LT	---	40'-45' o.a. 30'-35'	Poor	725 South: leaning into street, lethal yellowing	Remove	---	---	---	---
3	28	Cocos nucifera Coconut Palm	119+23.80	LT	---	45'-50' o.a. 30'-35'	Poor	725 South: Leaning into street, lethal yellowing	Remove	---	---	---	---
3	29	Cocos nucifera Coconut Palm	119+40.46	LT	---	35'-40' o.a. 20'-25'	Fair	725 South: leaning into street	Remove	---	---	---	---
3	30	Cocos nucifera Coconut Palm	119+54.71	LT	---	35'-40' o.a. 20'-25'	Poor	725 South: leaning into street, lethal yellowing	Replace	43	Lysiloma sabicu Sabicu	5" min.	12'-14' o.a.
3	31	Tabebuia heterophylla Pink Trumpet Tree	119+61.52	LT	Codom 10" + 8"	35'-40' x 15'-20'	Poor	725 South: Wrought iron fence embedded into trunk	Remove	---	---	---	---
4	1	Syagrus romanzoffiana Queen Palm	122+10.86	RT	---	20'-25' o.a. 12'-16'	Fair	810 South: Grass lawn	Remove	---	---	---	---
--	--	Lysiloma sabicu Sabicu	122+62.55	LT	5" min.	12'-14' o.a.	---	Selected specimen to be FL #1 or better	---	44	---	---	---
4	2	Cocos nucifera Coconut Palm	122+91.97	LT	---	20'-25' o.a. 12'-16'	Poor	Reynolds School soil planter, lethal yellowing	To Remain	49	---	---	---
4	3	Cocos nucifera Coconut Palm	123+78.71	LT	---	30'-35' o.a. 15'-20'	Fair	Reynolds School soil planter	To Remain	50	---	---	---
--	--	Lysiloma sabicu Sabicu	124+40.00	LT	5" min.	12'-18' o.a.	---	Selected specimen to be FL #1 or better	---	48	---	---	---
5	1	Ground covers - various Thrinax radiata FL Thatch Palm	303+02.00	RT	---	1' x 1' 3' o.a. 3'	Fair/Poor	901 South: Liriopy, Fakahatchee grass, flax, sago, soil planter	Remove Transplant / Remove	---	---	---	---
5	2	Ficus benjamina Ficus	303+02.00	RT	1.5"	6'-8" x 4'-5'	Fair	901 South: soil planter	Remove	---	---	---	---
5	3	Aloe	303+02.00	RT	1'	1' x 1'	Fair	901 South: soil planter	Remove	---	---	---	---
5	4	Adonidia merrillii Christmas Palm	303+07.65	RT	---	18'-20' o.a. 10'-12'	Fair	1317 Reynolds: leaning into street, soil planter	Remove	---	---	---	---
5	5	Adonidia merrillii Christmas Palm	303+14.94	RT	---	20'-25' o.a. 12'-15'	Fair	1317 Reynolds: leaning into street, soil planter	Remove	---	---	---	---
5	6	Cocos nucifera Coconut Palm	303+24.80	RT	---	35'-40' o.a. 20'-25'	Fair	1317 Reynolds: leaning into street, soil planter	Remove	---	---	---	---
5	7	Melicoccus bijugatu Spanish Lime	303+70.38	RT	28"	30'-35' x 18'-20'	Fair PROTECT	1315 Reynolds: Shared tree trunk and root system on City property, flexi-pave	To Remain	47	---	---	---
5	8	Adonidia merrillii Christmas Palm	304+79.68	RT	---	16'-18' o.a. 10'-12'	Fair	1307 Reynolds: leaning into street, soil planter	Remove	---	---	---	---
5	9	Cocos nucifera Coconut Palm	305+63.84	RT	---	30'-35' o.a. 15'-20'	Fair	1305 Reynolds: leaning into street, soil planter	Remove	---	---	---	---
5	10	Randia aculeata White Indigo Berry Tree	306+00.00	RT	0.5"	3' x 3'	Fair	910 United: seedling, soil planter	Remove	---	---	---	---

REVISIONS

DATE	DESCRIPTION	DATE	DESCRIPTION

KAREN E. FALKENBERRY, P.E.
P.E. LICENSE NUMBER 54015
JACOBS ENGINEERING GROUP, INC.
200 W. FORSYTH ST., STE 1520
JACKSONVILLE, FL 32202



TASK ORDER 9-22
PROJECT:
SOUTH STREET IMPROVEMENTS

LANDSCAPE TABLE (3)

SHEET
NO.
26

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CITY OF KEY WEST

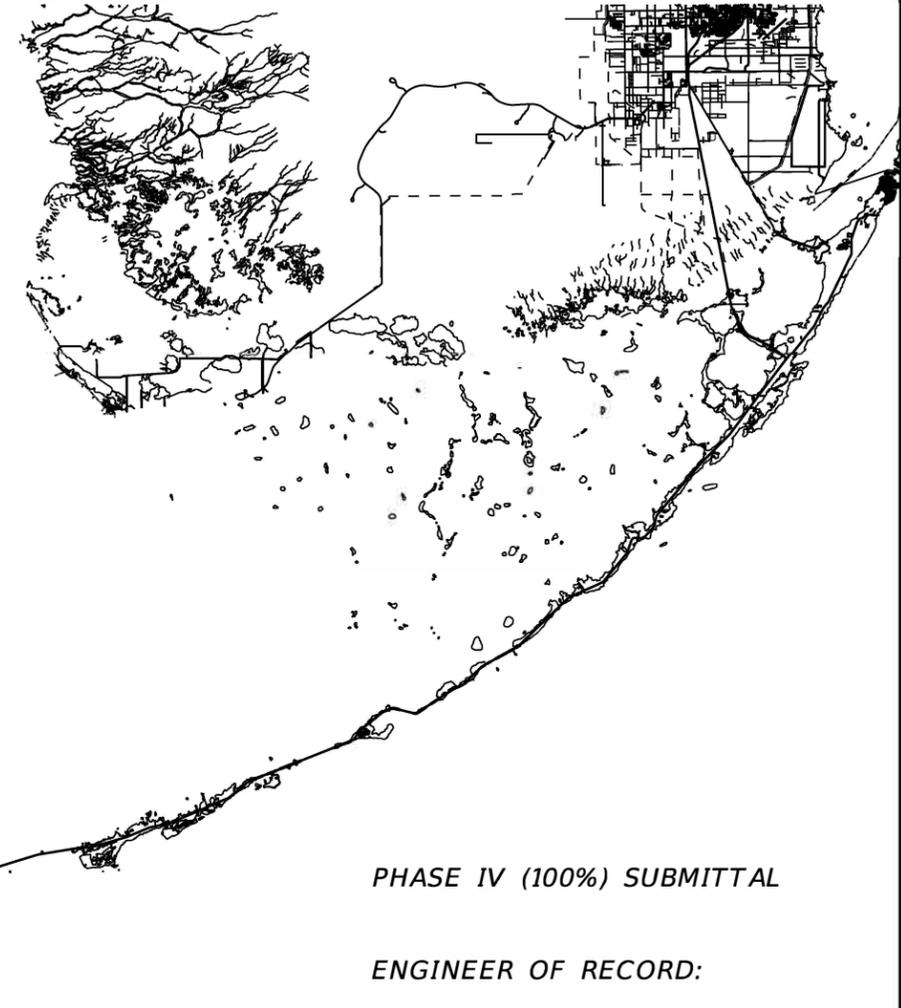
TASK ORDER 9-22
SOUTH ST. IMPROVEMENTS

MONROE COUNTY

SIGNING AND PAVEMENT MARKING PLANS

INDEX OF SIGNING AND PAVEMENT MARKING PLANS

SHEET NO.	SHEET DESCRIPTION
S-1	KEY SHEET
S-2	SIGNATURE SHEET
S-3	TABULATION OF QUANTITIES
S-4	GENERAL NOTES
S-5	STANDARD PAVEMENT MARKINGS
	MESSAGE LAYOUT
S-6 - S-10	PAVEMENT MARKING PLANS
S-11 - S-15	SIGNING PLANS
S-16	CITY OF KEY WEST STANDARD TYPICAL DETAILS
S-17	CITY OF KEY WEST BIKE ROUTE WAYFINDING DETAILS



PROJECT LOCATION

PHASE IV (100%) SUBMITTAL

ENGINEER OF RECORD:

DEEANGELA R. TJIKUENI, P.E.
P.E. LICENSE NUMBER 68301
JACOBS ENGINEERING GROUP INC.
200 W. FORSYTH ST., STE 1520
JACKSONVILLE, FLORIDA 32202

CITY PROJECT MANAGER:

IAN MCDOWELL, P.E.

GOVERNING STANDARD PLANS:

Florida Department of Transportation, FY 2023-24 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

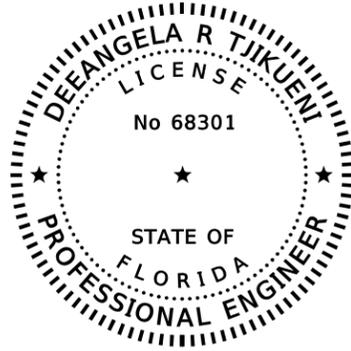
Standard Plans for Road Construction and associated IRs are available at the following website: <http://www.fdot.gov/design/standardplans>

GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, FY 2023-24 Standard Specifications for Road and Bridge Construction at the following website: <http://www.fdot.gov/programmanagement/Implemented/SpecBooks>

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
	24	S-1

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SIGNED AND SEALED BY:

ON THE DATE ADJACENT TO THE SEAL

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200 W. FORSYTH ST., STE 1520
JACKSONVILLE, FLORIDA 32202
DEEANGELA R. TJIKUENI, P.E. NO. 68301

THE ABOVE NAMED ENGINEER SHALL BE RESPONSIBLE FOR THE
FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

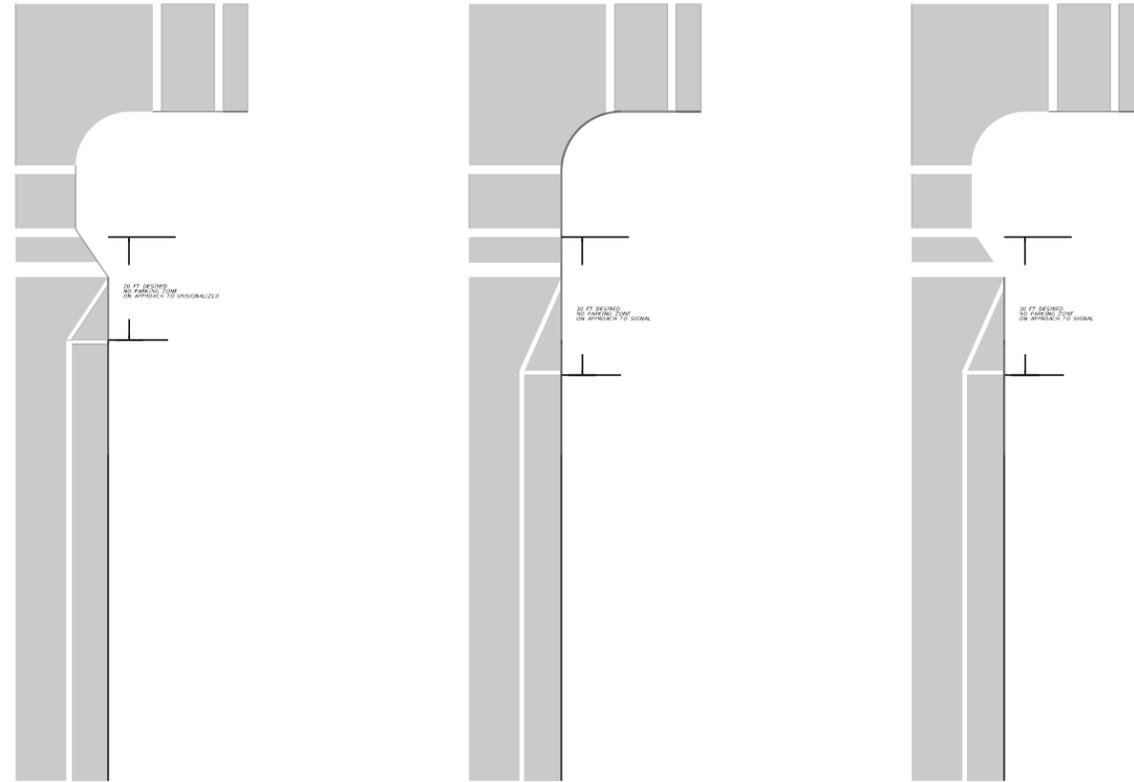
SHEET NO.	SHEET DESCRIPTION
S-1	KEY SHEET
S-2	SIGNATURE SHEET
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S-11 - S-15	SIGNING PLANS
S-16	CITY OF KEY WEST STANDARD TYPICAL DETAILS
S-17	CITY OF KEY WEST BIKE ROUTE WAYFINDING DETAILS

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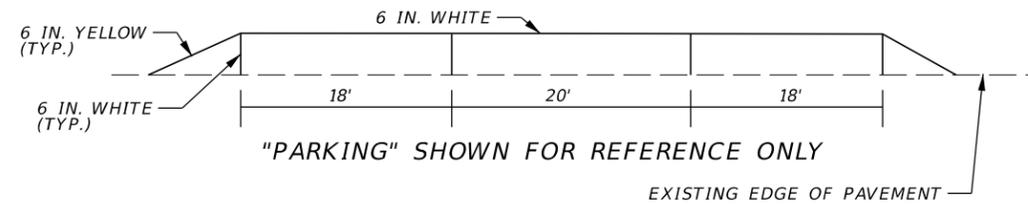
REVISIONS				DEEANGELA R. TJIKUENI, P.E. P.E. LICENSE NUMBER 68301 JACOBS ENGINEERING GROUP, INC. 200 W. FORSYTH ST., STE 1520 JACKSONVILLE, FL 32202		TASK ORDER 9-22 PROJECT: SOUTH STREET IMPROVEMENTS	<i>SIGNATURE SHEET</i>	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION					S-2

NOTES:

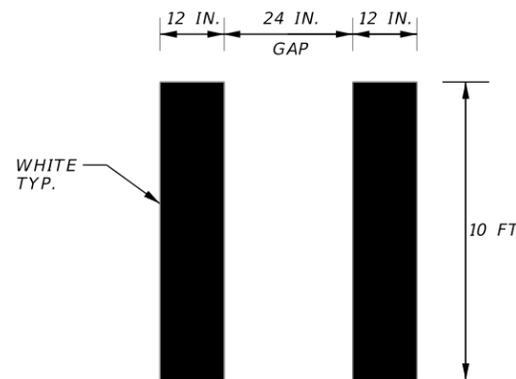
1. HAND DIG OR VACUUM EXCAVATE THE FIRST FOUR FEET OF SIGN FOUNDATIONS.
2. REMOVE OR CUT VEGETATION AS NEEDED TO PROVIDE ADEQUATE SIGHT DISTANCE FOR ALL OVERHEAD AND GROUND MOUNTED SIGNS. VEGETATION REMOVAL AND TRIMMING IS INCLUDED IN THE UNIT PRICE OF THE SIGN ASSEMBLY. DO NOT ALTER VEGETATION WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
3. USE COUNTERSUNK SCREWS WHEN USING MECHANICAL FASTENERS TO ATTACH SIGN PANELS TO WINDBEAMS, BRACKETS AND SPLICE PLATES FOR SINGLE AND MULTI-POST SIGNS.
4. PATCH ATTACHMENT HARDWARE, SUCH AS COUNTERSUNK SCREWS OR RIVET HEADS, WITH RETROFLECTIVE BUTTONS THAT MATCH THE COLOR AND SHEETING MATERIAL OF THE FINISHED SIGN PANEL INCLUDING THE BACKGROUND, LEGEND OR BORDER.
5. ALL SIGNS SHALL BE ASTM D4956-09 TYPE-XI RETROFLECTIVE SHEETING MATERIAL.
6. ENSURE THAT PROPOSED PAVEMENT MARKINGS AT ALL EXISTING OR PROPOSED INTERFACE LOCATIONS MATCH THE EXISTING PAVEMENT MARKINGS IN TERMS OF ALIGNMENT. ANY CONFLICTING PAVEMENT MARKINGS SHALL BE REMOVED.
7. WORK THAT INCLUDES EXTENDING OR REFURBISHING OF EXISTING STRIPING DAMAGED DURING CONSTRUCTION IS INCLUDED IN THE UNIT PRICE OF THE PAVEMENT MARKING.
8. PAVEMENT MARKINGS MAY BE ADJUSTED SLIGHTLY AS DIRECTED BY THE FIELD ENGINEER.
9. LAY OUT PERMANENT FINAL STRIPING THAT LEAVES NO VISIBLE MARKS AT TIME OF FINAL ACCEPTANCE.
10. ALL SIGNS ARE EXISTING TO REMAIN UNLESS A REMOVAL AND PROPOSED PAY ITEM ARE SHOWN.
11. ALL OBJECTS MARKED BY THE OBJECT MARKERS SHOWN IN THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO PLACING THE PROPOSED OBJECT MARKERS.
12. THE CONTRACTOR SHALL USE THE CITY OF KEY WEST TYPICAL SIGN DETAILS, THE MUTCD, AND THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD PLANS, INDEX 700-101, TO MOUNT AND PLACE ALL PROPOSED SIGNS. ENSURE THAT ALL SIGN MOUNTING HEIGHTS, FROM THE BOTTOM OF THE SIGN PANEL TO THE HORIZONTAL LINE EXTENDED FROM THE EDGE OF TRAVELED WAY OR FROM THE GROUND SURFACE AT THE BACK OF CURB, IS 7 FEET.
13. OFFSET FROM PEDESTRIAN CROSSWALK TO STOP BAR SHALL BE A MINIMUM OF 4.0 FEET, UNLESS OTHERWISE SHOWN IN PLANS TO ACCOMMODATE VEHICLE TURNING WHEELPATHS.
14. ALL SIGNS AND POSTS SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF KEY WEST DETAILS.



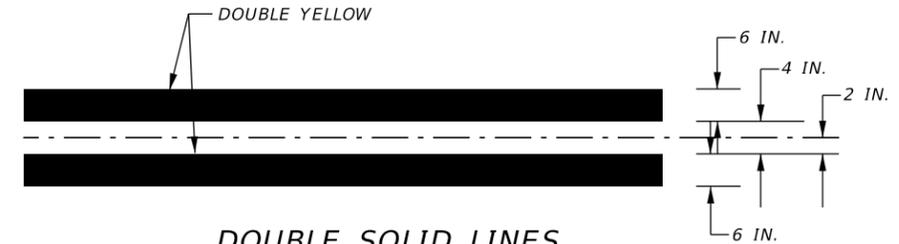
PARKING SPACE MARKINGS
N.T.S.



PARKING STRIPING DETAIL
N.T.S.



TYPICAL CROSSWALK DETAIL

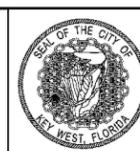


DOUBLE SOLID LINES DETAIL
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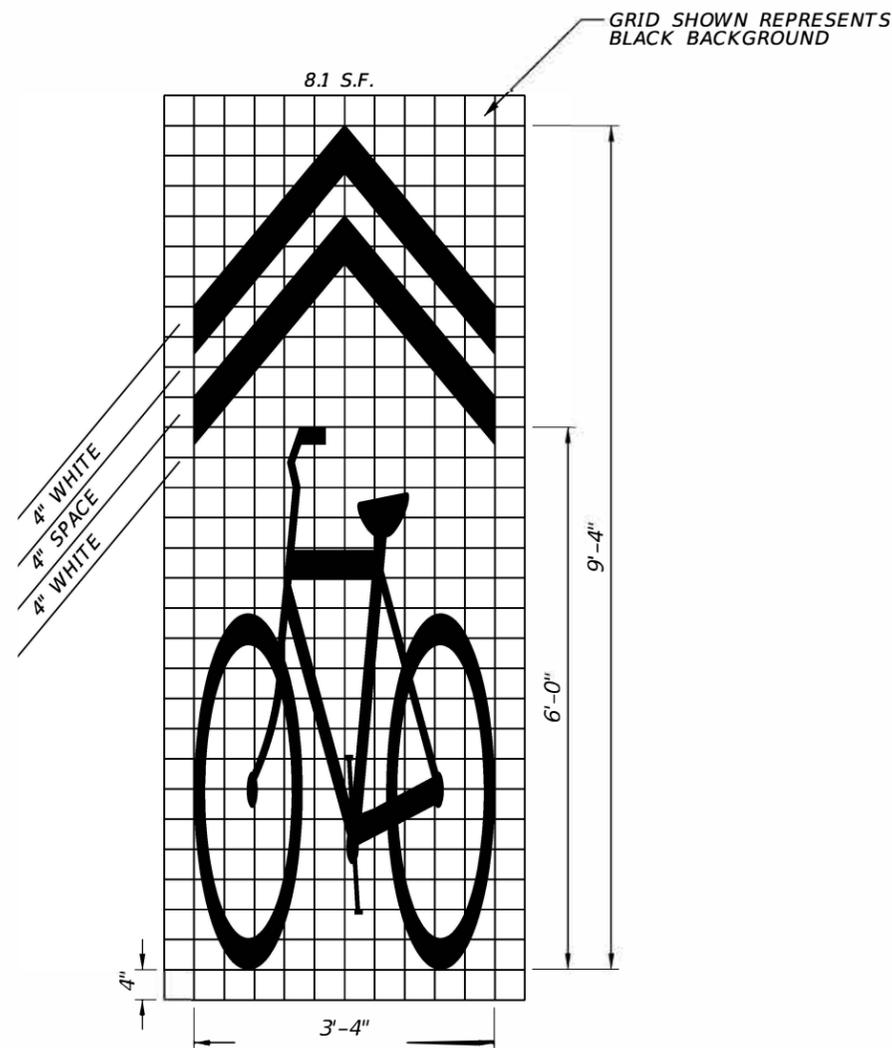
DEEANGELA R. TJKUENI, P.E.
P.E. LICENSE NUMBER 68301
JACOBS ENGINEERING GROUP, INC.
200 W. FORSYTH ST., STE 1520
JACKSONVILLE, FL 32202



TASK ORDER 9-22
PROJECT:
SOUTH STREET IMPROVEMENTS

GENERAL NOTES

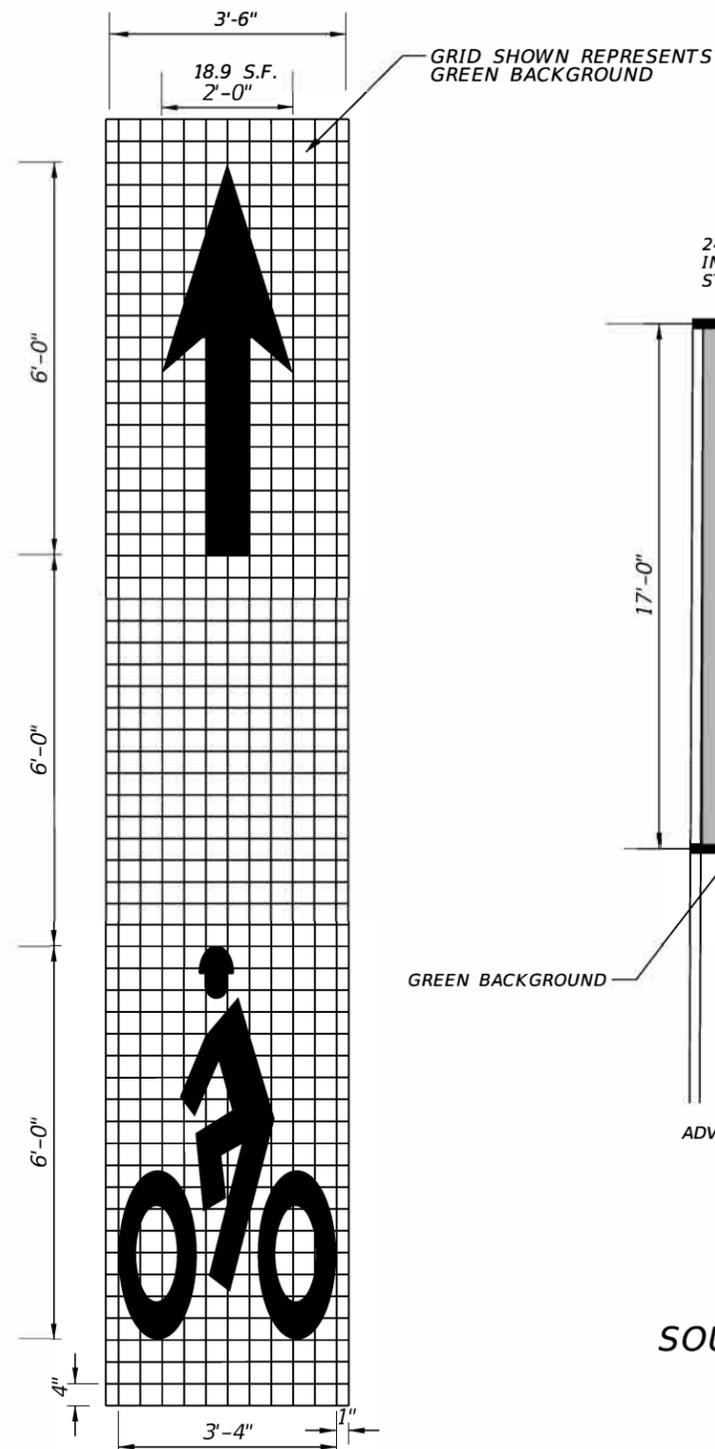
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S-4



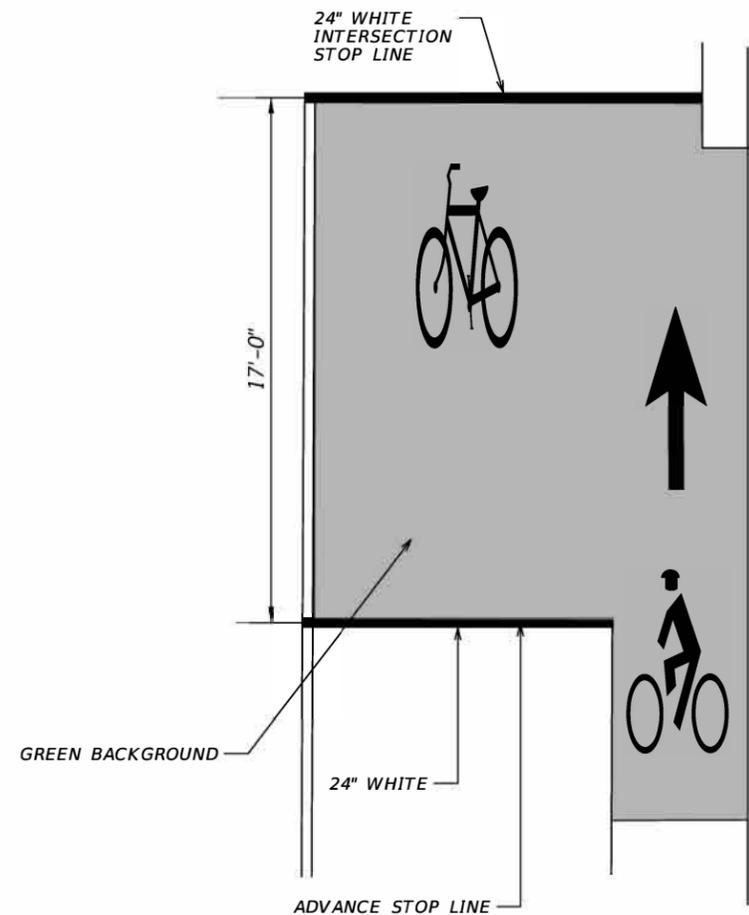
SHARED LANE MARKING (SLM)

NOTES:

1. ALL BICYCLE MARKINGS AND PAVEMENT MESSAGES SHALL BE WHITE.
2. ALL BICYCLE MARKINGS SHALL BE PREFORMED THERMOPLASTIC.



HELMETED BICYCLIST SYMBOL & BIKE LANE ARROW



BICYCLE BOX DETAIL AT THE INTERSECTION OF SOUTH STREET AND REYNOLDS STREET PER MUTCD FIGURE 9E-12

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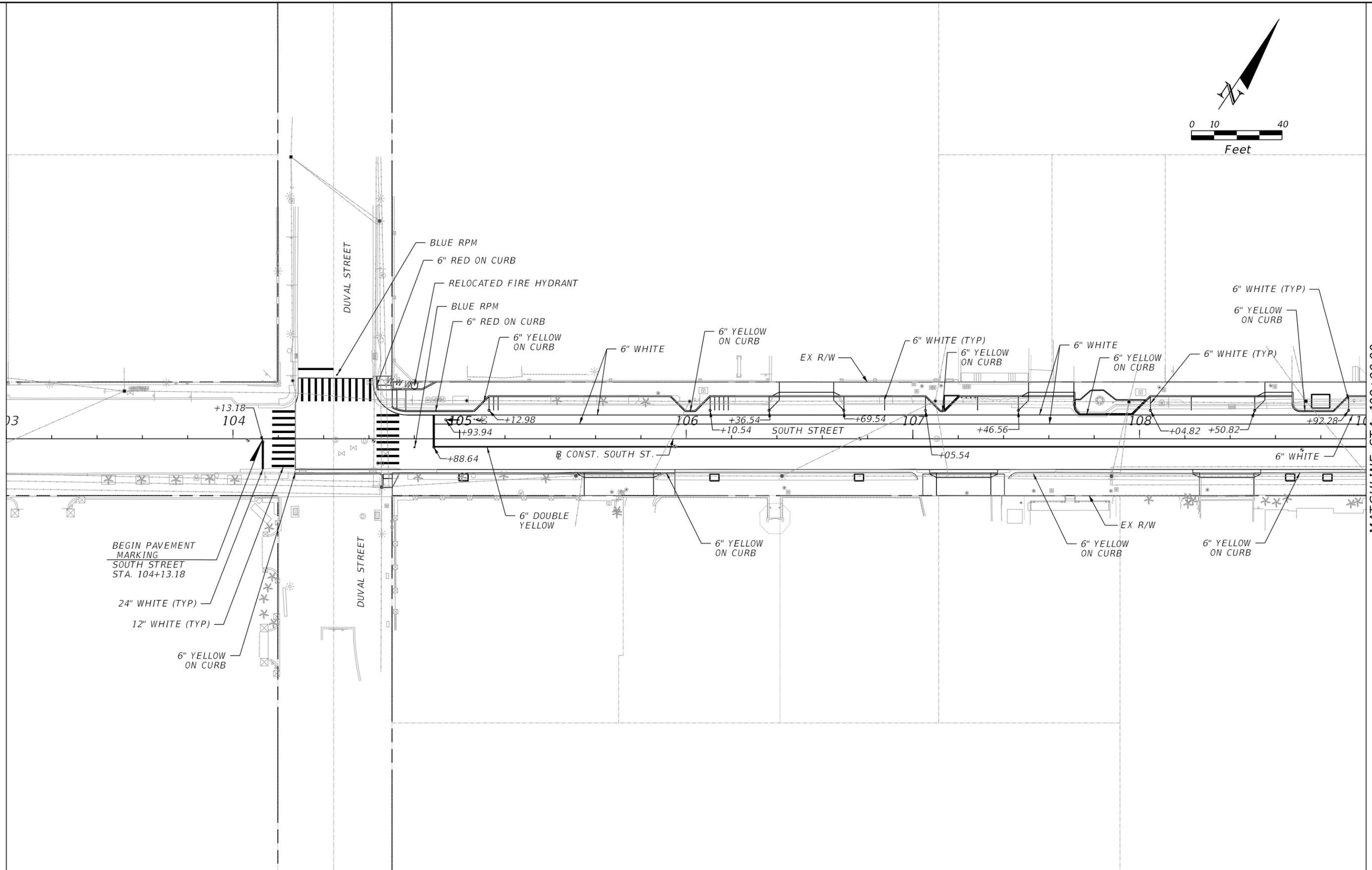
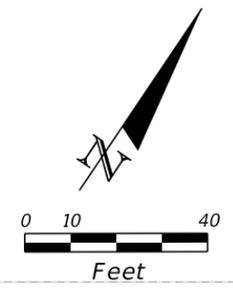
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P.E. LICENSE NUMBER 68301
JACOBS ENGINEERING GROUP, INC.
200 W. FORSYTH ST, STE 1520
JACKSONVILLE, FL 32202



TASK ORDER 9-22
PROJECT:
SOUTH STREET IMPROVEMENTS

STANDARD PAVEMENT
MARKING MESSAGE LAYOUT

SHEET NO.
S-5



MATCHLINE STA. 109+00.00

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

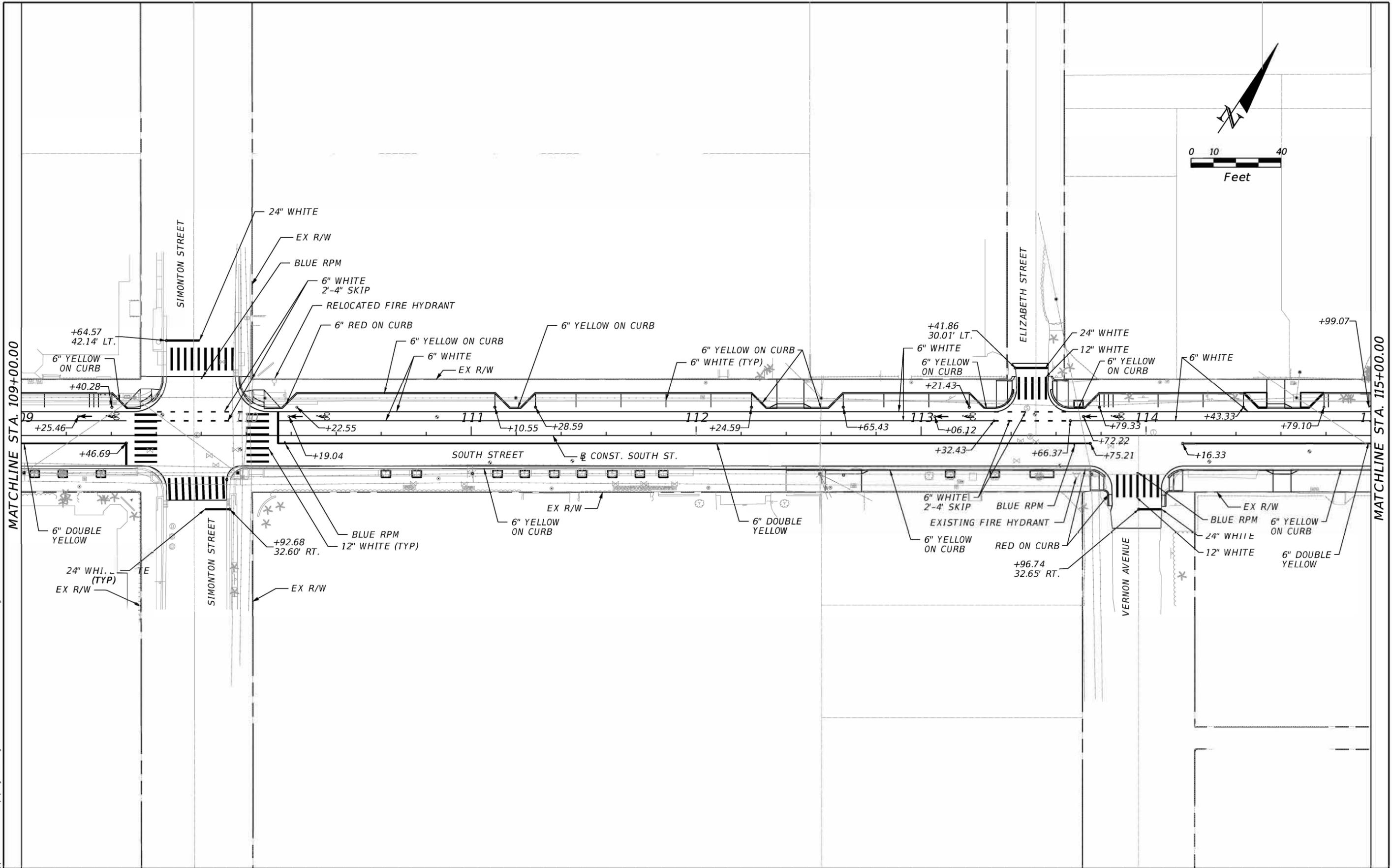
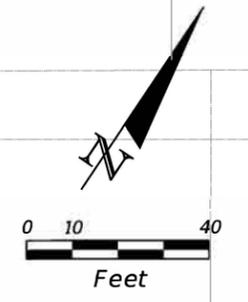
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P.E. LICENSE NUMBER 68301
JACOBS ENGINEERING GROUP, INC.
200 W. FORSYTH ST., STE 1520
JACKSONVILLE, FL 32202



TASK ORDER 9-22
PROJECT:
SOUTH STREET IMPROVEMENTS

PAVEMENT MARKING PLAN (1)

SHEET NO.
S-6



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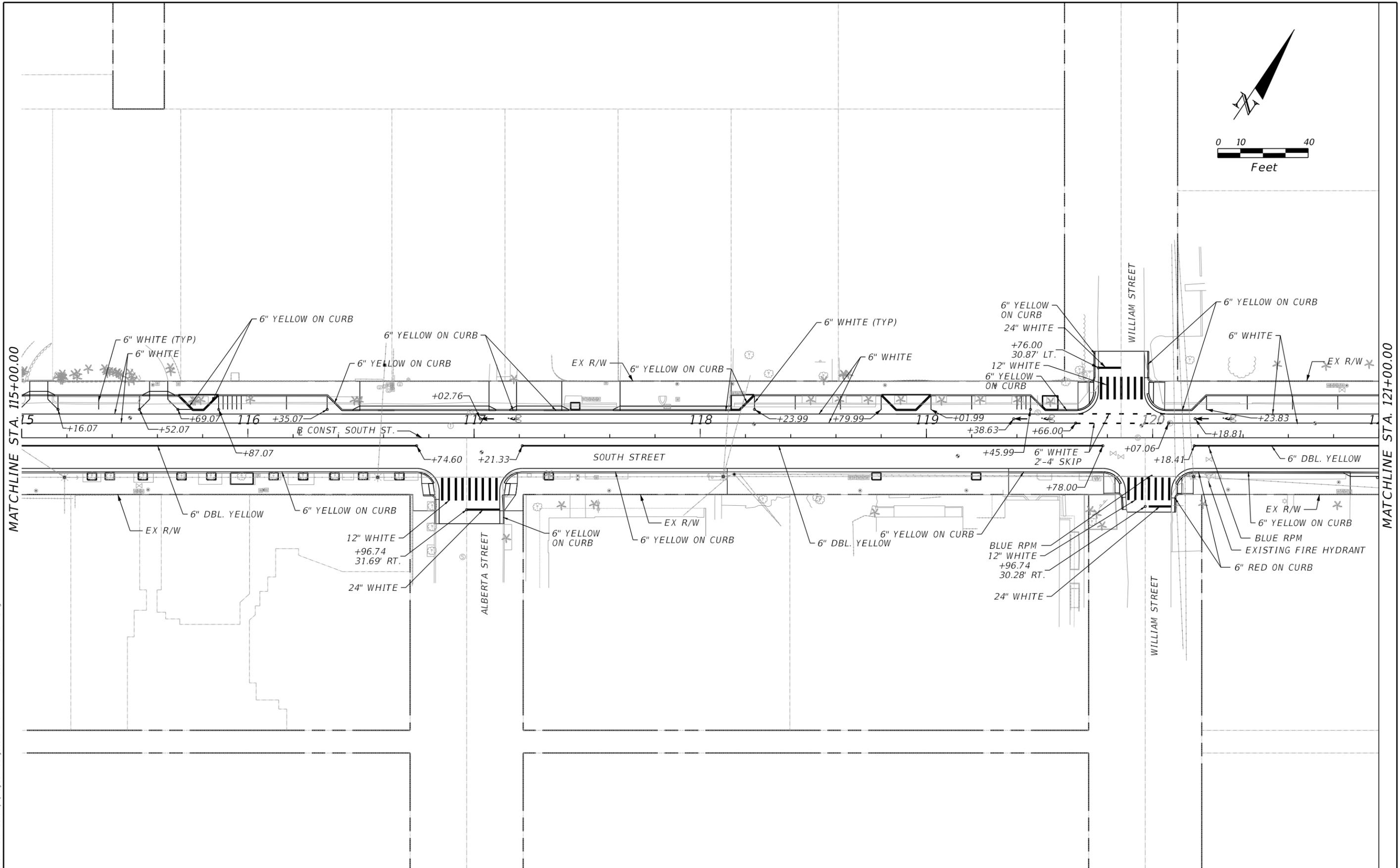
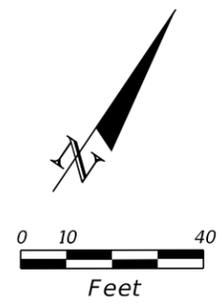
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TASK ORDER 9-22
 PROJECT:
 SOUTH STREET IMPROVEMENTS

PAVEMENT MARKING PLAN (2)

SHEET NO.
 S-7



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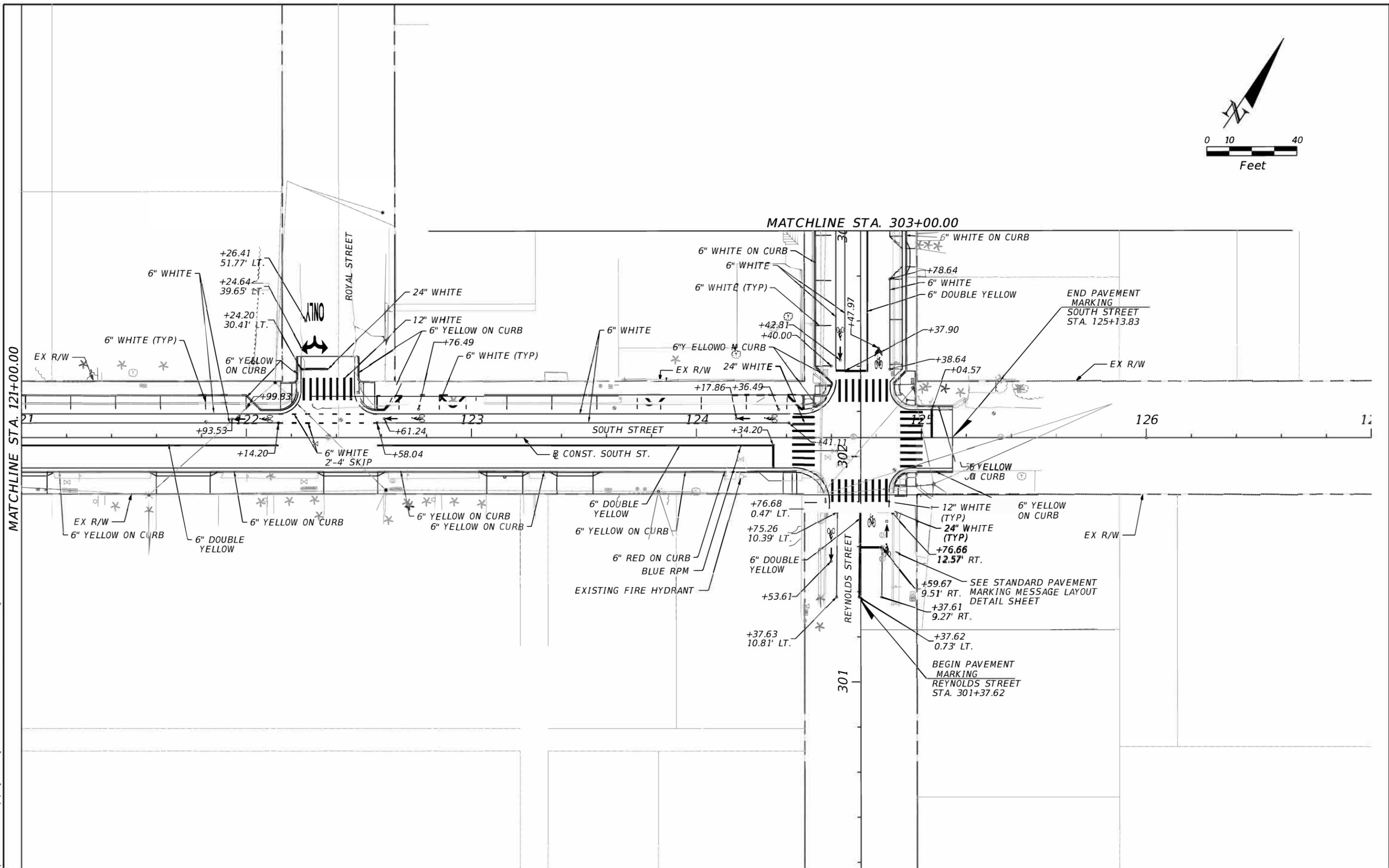
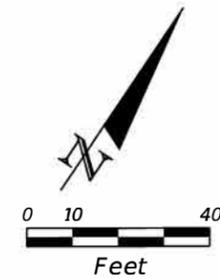
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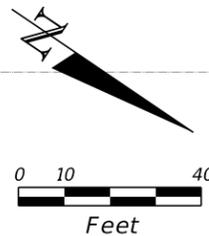
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PAVEMENT MARKING PLAN (4)

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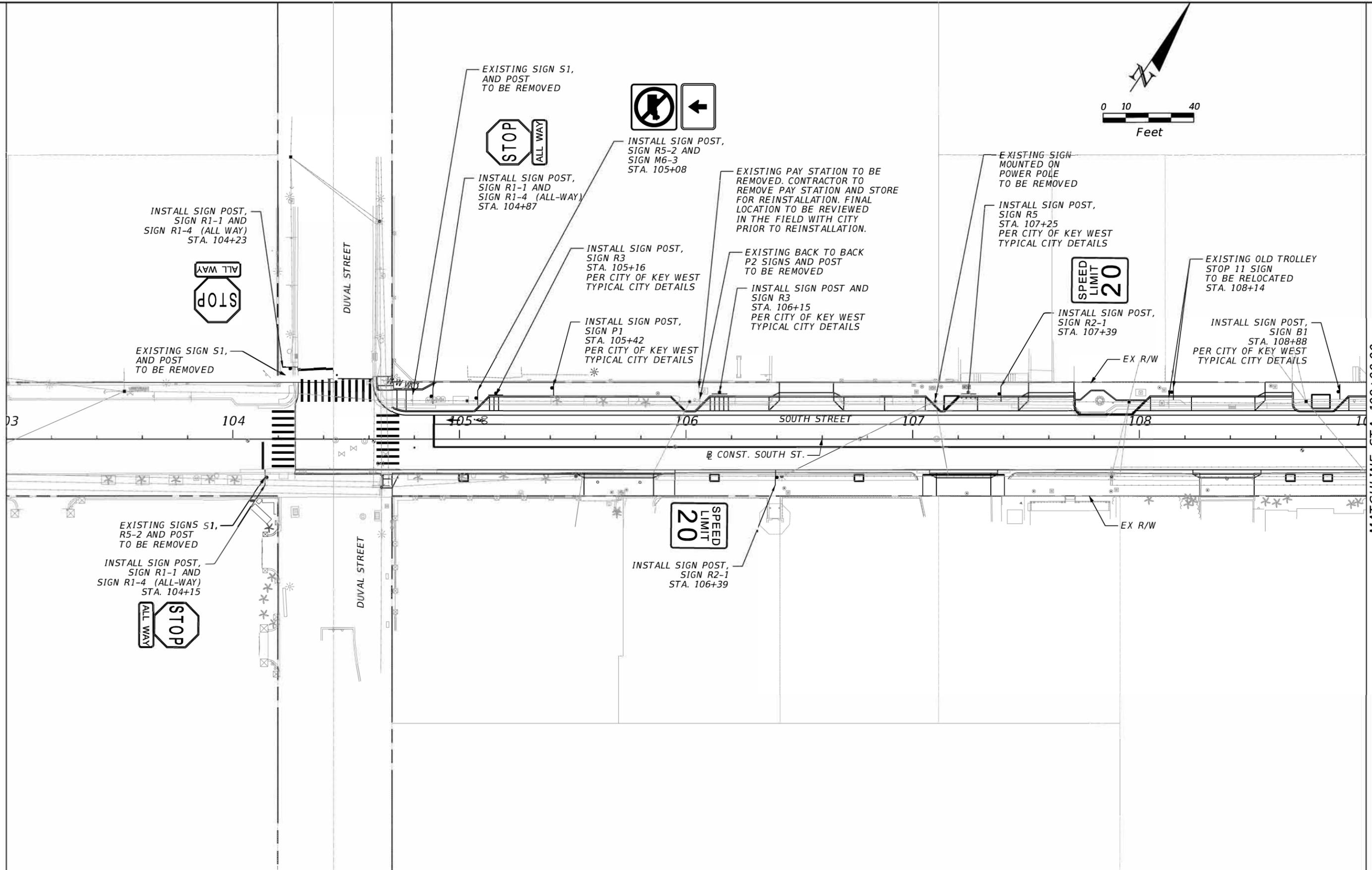
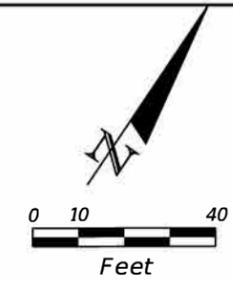
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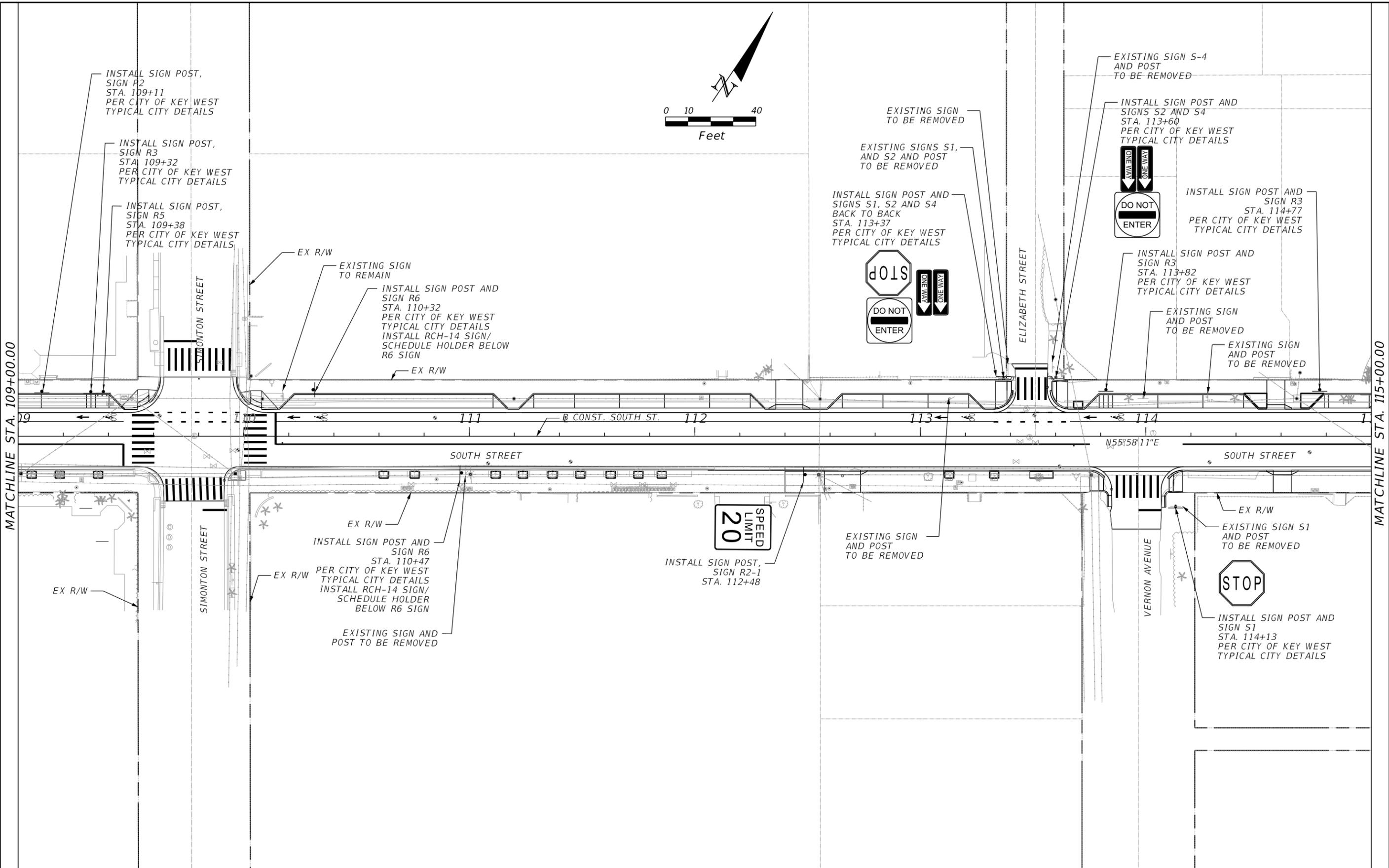
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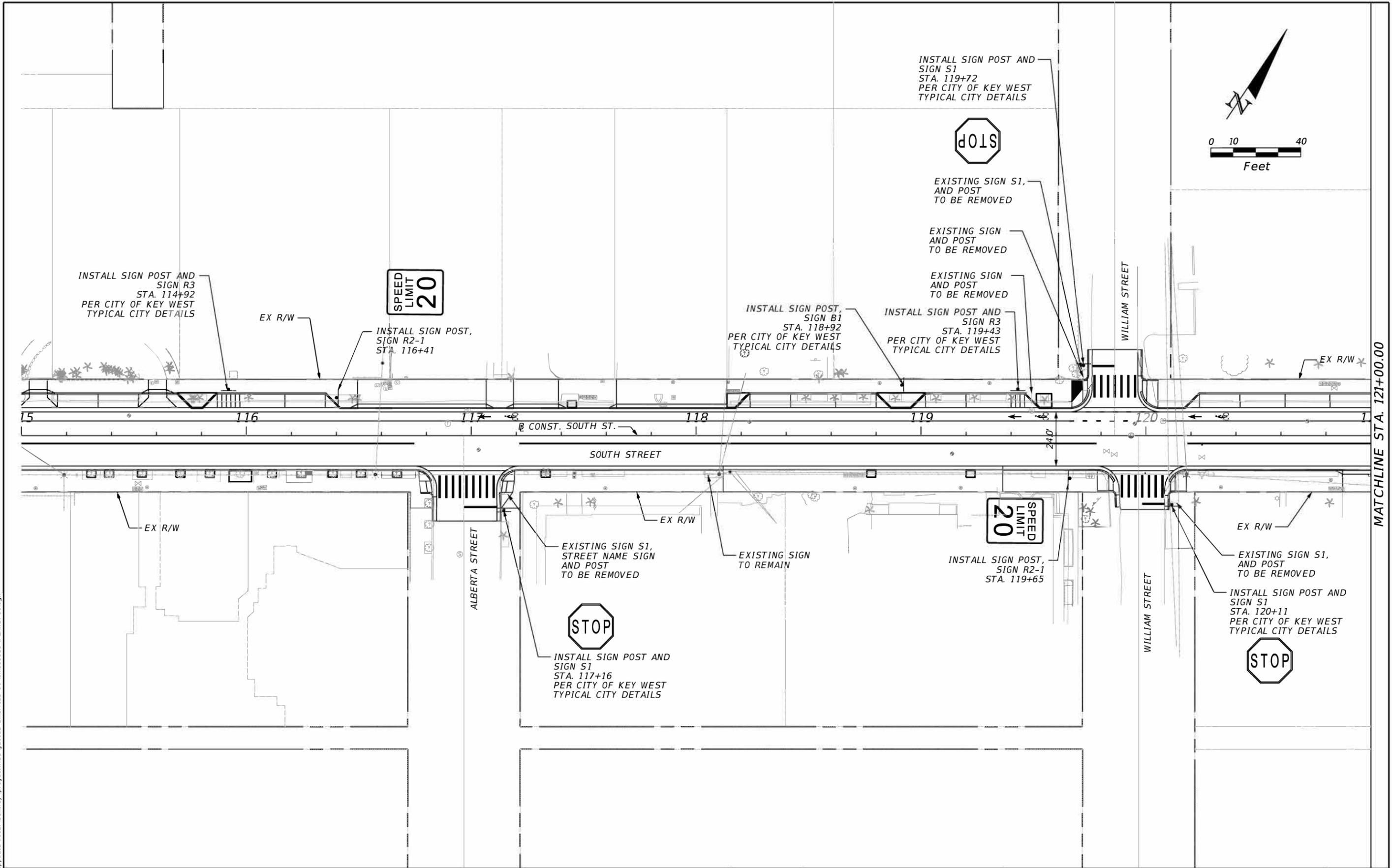


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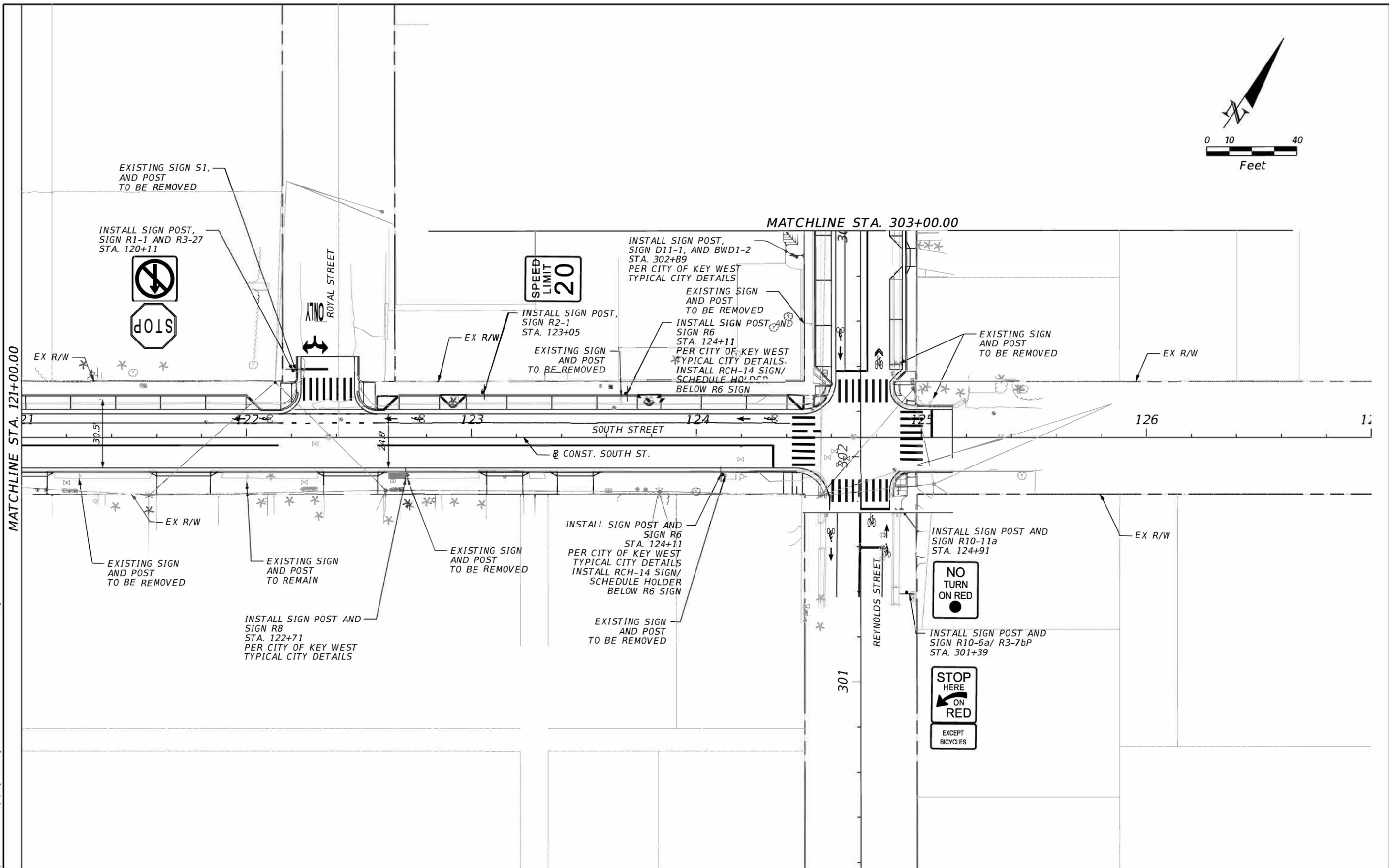
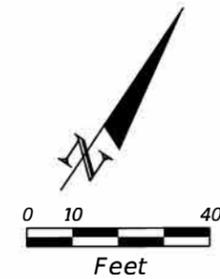
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SIGNING PLAN (3)

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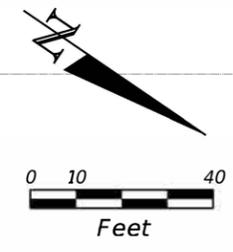
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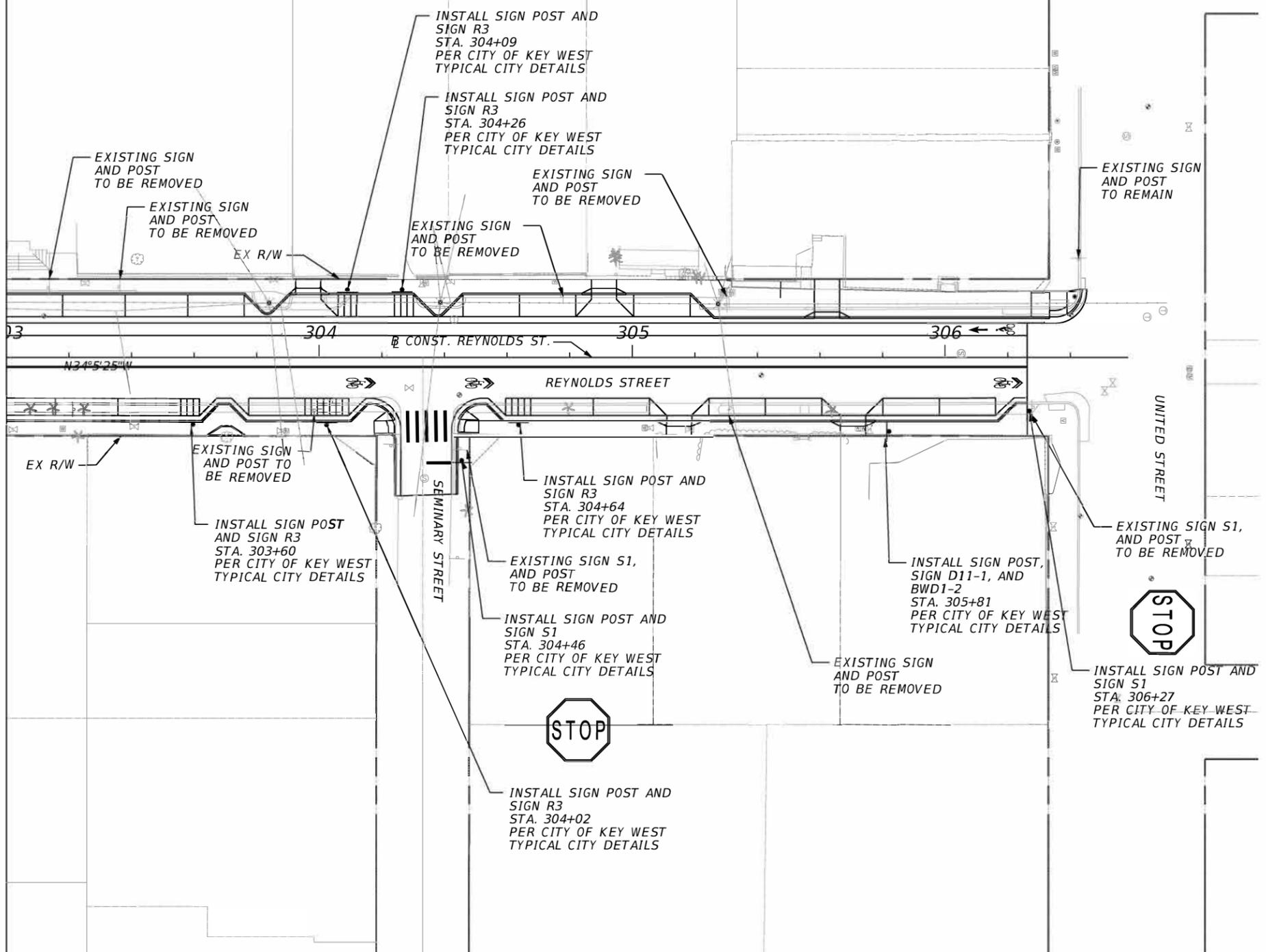
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P1 DETAIL: PAY TO PARK THIS BLOCK NTS	P2 DETAIL: PAY TO PARK INSTRUCTIONS NTS	P3 DETAIL: WEEKLY PARKING TIMES NTS	P4 DETAIL: PAY TO PARK WEEKLY TIMES NTS	P5 DETAIL: PAY TO PARK (6 PM - 6 AM) NTS	P6 DETAIL: SCOOTER PARKING (6 PM - 6 AM) NTS	P7 DETAIL: TAXI STAND (6 PM - 6 AM) NTS	P8 DETAIL: 15 MINUTE LOADING ZONE NTS
R1-A DETAIL: LOADING ZONE NTS	R1-B DETAIL: LOADING ZONE NTS	R1-C DETAIL: LOADING ZONE NTS	R2 DETAIL: LOADING ZONE NTS	R3 DETAIL: SCOOTER PARKING ONLY NTS	R4 DETAIL: MOTORCYCLE PARKING NTS	R5 DETAIL: BICYCLE PARKING ONLY NTS	R6 DETAIL: BUS STOP - NO PARKING MUTCD R7-107A NTS
R7 DETAIL: LOADING ZONE NTS	R8 DETAIL: NO PARKING NTS	R9-A DETAIL: NO PARKING NTS	R9-B DETAIL: NO PARKING NTS	R10-A DETAIL: NO PARKING NTS	R10-B DETAIL: NO PARKING NTS	R11 DETAIL: NO PARKING NTS	
S1 DETAIL: STOP SIGN MUTCD R1-1 NTS	S2 DETAIL: DO NOT ENTER MUTCD R5-1 NTS	H1 DETAIL: HANDICAP PARKING NTS	DETAIL: TYPICAL SIGN LOCATION AND SPACING NTS	DETAIL: TYPICAL DOUBLE SIGN LOCATION AND SPACING NTS	DETAIL: SIGN ORIENTATION NTS	DETAIL: DOUBLE AND FOUR SIDED SIGN NTS	
S3 DETAIL: ONE WAY MUTCD R6-1R NTS	S4 DETAIL: ONE WAY MUTCD R6-1L NTS	 DETAIL: TYPICAL SIDE-BY-SIDE SIGN MOUNTING NTS					

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<p>B1</p>  <p>DETAIL: BIKE ROUTE CROSSTOWN 18"x24"</p>	<p>B2</p>  <p>DETAIL: BIKE ROUTE BEACHES 18"x24"</p>	<p>B3</p>  <p>DETAIL: BIKE ROUTE SEAPORT 18"x24"</p>	<p>B4</p>  <p>DETAIL: BIKE ROUTE TRUMAN WTRFRONT 18"x24"</p>	<p>B5a</p>  <p>DETAIL: BIKE ROUTE OLD TOWN LOOP OUT 18"x24"</p>	<p>B5b</p>  <p>DETAIL: BIKE ROUTE OLD TOWN LOOP IN 18"x24"</p>	<p>B6</p>  <p>DETAIL: BIKE ROUTE OLD TOWN CENTER</p>
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<p>MUTCD D11-1</p>  <p>DETAIL: BIKE ROUTE MUTCD D11-1 24"x18"</p>	<p>MUTCD M6-1</p>  <p>DETAIL: DIRECTIONAL ARROW 21"x15"</p>
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<p>BWD1-1</p>  <p>DETAIL: DECISION 1 LINE 24"x6"</p>	<p>BWD1-2</p>  <p>DETAIL: DECISION 2 LINES 24"x12"</p>	<p>BWD1-3</p>  <p>DETAIL: DECISION 3 LINES 24"x18"</p>
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PART 6: SPECIFICATIONS

**CITY OF KEY WEST
KEY WEST, FLORIDA**

**BIDDING REQUIREMENTS
AND
CONTRACT DOCUMENTS**

for the construction of the

SOUTH STREET IMPROVEMENTS

PART 7 – CITY OF KEY WEST SPECIFICATIONS

JACOBS

December 2023

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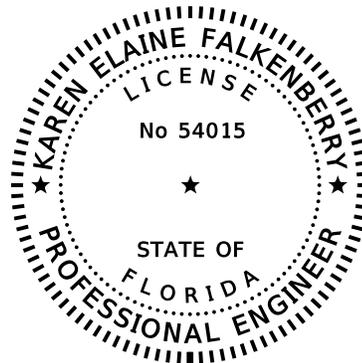
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SEALS PAGE**

PART 7 – TECHNICAL SPECIFICATIONS

DIVISION 31 – EARTHWORK
DIVISION 32 – EXTERIOR IMPROVEMENTS
DIVISION 33 – UTILITIES

This item has been digitally signed and sealed by Karen E. Falkenberry, P.E. on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Date:	<u>12/23/2023</u>
State of Florida,	
Professional Engineer, License No.:	<u>54015</u>
Firm Name:	<u>Jacobs Engineering Group Inc.</u>
Firm Address:	<u>200 West Forsyth Street, Suite 1520</u>
City, State, Zip Code:	<u>Jacksonville, Florida 32202</u>
Page(s):	<u>1 through 140</u>



END OF SECTION

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END OF SECTION

**SECTION 31 10 00
SITE CLEARING**

PART 1 GENERAL

1.01 DEFINITIONS

- A. Interfering or Objectionable Material: Trash, rubbish, and junk; vegetation and other organic matter, whether alive, dead, or decaying; topsoil.
- B. Clearing: Removal of interfering or objectionable material lying on or protruding above ground surface.
- C. Grubbing: Removal of vegetation and other organic matter including stumps, buried logs, and roots greater than 2-inch caliper to a depth of 6 inches below subgrade.
- D. Demolition: Dismantling, razing, destroying, or wrecking of any fixed building or structure or any part thereof.
- E. Project Limits: Areas, as shown or specified, within which Work is to be performed.

1.02 SCHEDULING AND SEQUENCING

- A. Prepare Site only after adequate erosion and sediment controls are in place.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

- A. Clear, grub areas actually needed for Site improvements within limits shown or specified.
- B. Do not injure or deface vegetation that is not designated for removal.

3.02 LIMITS

- A. As follows, but not to extend beyond Project limits:
 - 1. Trench Excavation: 4 feet from trench centerline, regardless of actual trench width.
 - 2. Other Areas: As shown.
- B. Remove rubbish, trash, and junk from entire area within Project limits.

South Street Improvements

3.03 TEMPORARY REMOVAL OF INTERFERING PLANTINGS

- A. Remove and store shrubs and trees that are not designated for removal but do interfere with construction or could be damaged by construction activities.
- B. Photograph and document location, orientation, and condition of each plant prior to its removal. Record sufficient information to uniquely identify each plant removed and to assure accurate replacement.

3.04 CLEARING

- A. Clear areas within limits shown or specified.
- B. Fell trees so that they fall away from facilities and vegetation not designated for removal.
- C. Cut stumps not designated for grubbing flush with ground surface.
- D. Cut off shrubs, brush, weeds, and grasses to within 2 inches of ground surface.

3.05 GRUBBING

- A. Grub areas within limits shown or specified.

3.06 TREE REMOVAL OUTSIDE CLEARING LIMITS

- A. Remove within Project Limits: Dead, dying, leaning, or otherwise unsound trees that may strike and damage Project facilities in falling.
- B. Cut stumps off flush with ground, remove debris, and if disturbed, restore surrounding area to its original condition.

3.07 UTILITIES AND RELATED EQUIPMENT

- A. Notify Owner or appropriate utilities to turn off affected services at 48 hours before starting demolition activities.
- B. Remove existing utilities as indicated and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the Engineer.
- C. When utility lines are encountered that are not indicated on the Drawings, notify Engineer prior to further work in that area.
- D. Remove meters and related equipment and deliver to a location as determined by the Owner or relocate as indicated on the Drawings.
- E. Plug storm sewer pipes as shown on drawings to prevent groundwater infiltration.

3.08 PAVING AND SLABS

- A. Sawcut concrete and asphaltic concrete paving and slabs as indicated to full depth of paving.
- B. Provide neat sawcuts at limits of pavement removal as indicated.

3.09 PATCHING:

- A. Where removals leave holes or damaged surfaces exposed in the finished Work, patch and repair to match adjacent finished surfaces as to texture and finish.

3.10 PROTECTION

- A. Dust and Debris Control: Sweep pavements as often as necessary to control the spread of debris that may result in foreign object damage potential to vehicular traffic.
- B. Traffic Control Signs: Where pedestrian, bicyclists, and driver safety is endangered in the area of removal Work, use traffic barricades with flashing lights.

3.11 DISPOSAL

- A. Clearing and Grubbing Debris:
 - 1. Dispose of debris offsite.
 - 2. Burning of debris onsite will not be allowed.
 - 3. Woody debris may be chipped. Chips may be sold to Contractor's benefit or used for landscaping onsite as mulch or uniformly mixed with topsoil, provided that resulting mix will be fertile and not support combustion. Maximum dimensions of chipped material used onsite shall be 1/4 inch by 2 inches. Dispose of chips that are unsaleable or unsuitable for landscaping or other uses with unchipped debris.
 - 4. Limit offsite disposal of clearing and grubbing debris to locations that are approved by federal, state, and local authorities.

END OF SECTION

**SECTION 31 23 13
SUBGRADE PREPARATION**

PART 1 GENERAL

1.01 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
 - 1. ASTM International (ASTM):
 - a. D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort [2,400 ft-lb/ft³ (600 kN-m/m³)]
 - b. D1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort [6,000 ft-lb/ft³ (2,700 kN-m/m³)].

1.02 DEFINITIONS

- A. Optimum Moisture Content: As defined in Section 31 23 23.15, Trench Backfill.
- B. Prepared Ground Surface: Ground surface after completion of clearing and grubbing, demolition, excavation to grade, and scarification and compaction of subgrade.
- C. Relative Compaction: As defined in Section 31 23 23.15, Trench Backfill.
- D. Subgrade: Layer of existing soil after completion of clearing, grubbing, and excavation prior to placement of stormwater structures.

1.03 SCHEDULING AND SEQUENCING

- A. Complete applicable Work specified in Sections 31 10 00, Site Clearing; and 31 23 16, Excavation, prior to subgrade preparation.

1.04 QUALITY ASSURANCE

- A. Notify Engineer when subgrade is ready for compaction or whenever compaction is resumed after a period of extended inactivity.

PART 2 PRODUCTS

2.01 BASE ROCK

- A. Base rock shall be crushed gravel or crushed rock, free from dirt, clay balls, and organic material and conforming to size No. 57 gradation as specified in the FDOT Standard Specifications for Road and Bridge Construction or

similar accepted material and shall be imported if necessary at the Contractor's own expense. Lime rock screenings or material resulting from trench excavation, except for lime rock which has been crushed and graded to size as specified, will not be accepted for base rock.

PART 3 EXECUTION

3.01 GENERAL

- A. Keep subgrade free of water, debris, and foreign matter during compaction or proof-rolling.
- B. Bring subgrade to proper grade and cross-section and uniformly compact surface.
- C. Maintain prepared ground surface in finished condition until next course is placed.

3.02 COMPACTION

- A. Granular Fill Under Structures: Compact the upper 6 inches of subgrade to minimum of 100 percent relative compaction as determined in accordance with ASTM D1557. After compaction of subgrade, place a minimum of 6 inches of rock base in conformance with Section 911 of the FDOT Standard Specifications for Road and Bridge Construction and thoroughly compact with a mechanical vibrating or power tamper.
- B. Granular Fill Under Sidewalks: Compact the upper 12 inches of subgrade to a minimum of 95 percent relative compaction as determined in accordance with ASTM D1557.

3.03 MOISTURE CONDITIONING

- A. Dry Subgrade: Add water, then mix to make moisture content uniform throughout.
- B. Wet Subgrade: Aerate material by blading, discing, harrowing, or other methods, to hasten drying process.

3.04 CORRECTION

- A. Soft or Loose Subgrade:
 - 1. Adjust moisture content and recompact, or
 - 2. Over excavate as specified in Section 31 23 16, Excavation, and replace with suitable material from the excavation, as specified in Section 31 23 23.15, Trench Backfill.

- B. Unsuitable Material: Over excavate as specified in Section 31 23 16, Excavation, and replace with suitable material from the excavation, as specified in Section 31 23 23.15, Trench Backfill.

END OF SECTION

**SECTION 31 23 16
EXCAVATION**

PART 1 GENERAL

1.01 QUALITY ASSURANCE

- A. Provide adequate survey control to avoid unauthorized overexcavation.

1.02 WEATHER LIMITATIONS

- A. Material excavated during inclement weather shall not be used as fill or backfill until after material drains and dries sufficiently for proper compaction.

1.03 SEQUENCING AND SCHEDULING

- A. Clearing, Grubbing, and Stripping: Complete applicable Work specified in Section 31 10 00, Site Clearing, prior to excavating.
- B. Dewatering: Conform to applicable requirements of Section 31 23 19.01, Dewatering, prior to initiating excavation.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

- A. Excavate to lines, grades, and dimensions shown and as necessary to accomplish Work. Excavate to within tolerance of plus or minus 0.1 foot, except where dimensions or grades are shown or specified as maximum or minimum. Allow for forms, working space, granular base, topsoil, and similar items, wherever applicable. Trim to neat lines where concrete is to be deposited against earth.
- B. Do not overexcavate without written authorization of Engineer.
- C. It shall be the Contractor’s responsibility to make exploratory excavations as required to verify location, size, and elevation of existing utilities that may interfere with installation of the new pipe lines. Contractor shall perform this Work well in advance of trenching and pipe laying, but a minimum of 300 feet ahead. The Contractor shall call “48 hours before digging” the underground utilities location center at 1-800-432-4770.

South Street Improvements

3.02 UNCLASSIFIED EXCAVATION

- A. Excavation is unclassified. Complete all excavation regardless of the type, nature, or condition of the materials encountered.

3.03 SHORING, SHEETING, AND BRACING OF TRENCHES

- A. Sheet and brace the trench when necessary to prevent caving during excavation in unstable material, or to protect adjacent structures, property, workers, and the public. Increase trench widths accordingly by the thickness of the sheeting. Maintain sheeting in-place until the pipe has been placed and backfilled at the pipe zone. Shoring and sheeting shall be removed, as the backfilling is done, in a manner that will not damage the pipe or permit voids in the backfill. All sheeting, shoring, and bracing of trenches shall conform to the safety requirements of the federal, state, or local public agency having jurisdiction. The most stringent of these requirements shall apply.

3.04 TRENCH WIDTH

- A. Minimum Width of Trenches:
 - 1. Single Pipes, Conduits, Direct-Buried Cables, and Duct Banks:
 - a. Less than or equal to 15-inch Outside Diameter or Width: 18 inches.
 - b. Greater than 15-inch Outside Diameter or Width: 24 inches greater than outside diameter or width of pipe, conduit, direct-buried cable, or duct bank.
 - 2. Increase trench widths by thicknesses of sheeting.
- B. Maximum Trench Width: Unlimited, unless otherwise shown or specified, or unless excess width will cause damage to existing facilities, adjacent property, or completed Work.
- C. Confine trench widths to dedicated rights-of-way or construction easements, unless special written agreements have been made with the affected property owner.

3.05 STOCKPILING EXCAVATED MATERIAL

- A. Stockpile excavated material that is suitable for use as fill or backfill until material is needed.
- B. Confine stockpiles to within easements, rights-of-way, and approved work areas. Do not obstruct roads or streets.

- C. Do not stockpile excavated material adjacent to trenches and other excavations, unless excavation side slopes and excavation support systems are designed, constructed, and maintained for stockpile loads.
- D. Do not stockpile excavated materials near or over existing facilities, adjacent property, or completed Work, if weight of stockpiled material could induce excessive settlement.

3.06 DISPOSAL OF SPOIL

- A. Dispose of excavated materials, which are unsuitable or exceed quantity needed for fill or backfill, offsite, in a county-approved disposal facility.
- B. Dispose of debris resulting from removal of organic matter, trash, refuse, and junk as specified in Section 31 10 00, Site Clearing, for clearing and grubbing debris.

3.07 SUPPLEMENT

- A. Report of Geotechnical Exploration follows “End of Section” of this specification.
 - 1. Report of Subsurface Exploration and Geotechnical Engineering Evaluations. Prepared for SOUTH STREET ROADWAY IMPROVEMENT PROJECT FROM WHITEHEAD STREET TO REYNOLDS STREET, CITY OF KEY WEST, FLORIDA. Geosol, Inc. March 17, 2023.

END OF SECTION

**SOUTH STREET ROADWAY IMPROVEMENT PROJECT
FROM WHITEHEAD STREET TO REYNOLDS STREET
CITY OF KEY WEST, FLORIDA**

**REPORT OF SUBSURFACE EXPLORATION AND
GEOTECHNICAL ENGINEERING EVALUATIONS**

PREPARED FOR: JACOBS

PREPARED BY: GEOSOL, INC.

MARCH 17, 2023



JACOBS
200 West Forsyth Street, Suite 1520
Jacksonville, FL 32202

March 17, 2023

Attention: Ms. Karen Falkenberry, PE - Project Manager

Re: **Report of Subsurface Exploration and Geotechnical Engineering Evaluations**
South Street Roadway Improvement Project
From Whitehead Street to Reynolds Street
City of Key West, Florida
GEOSOL Project No. 223108

Dear Ms. Falkenberry:

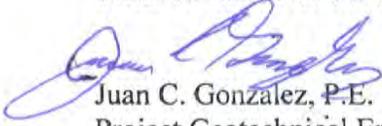
Geosol, Inc. (GEOSOL) is pleased to submit this report presenting the results of our geotechnical services for the above-referenced project. The services were provided in accordance with our proposal No. P-222235-R1 dated May 9, 2022. Authorization to perform our services was provided to us on January 17, 2023 by means of a Field Services Agreement.

The geotechnical services were performed in accordance with the project's scope of services, and in accordance with the guidelines established in the *FDOT's Soils and Foundation Handbook*. The results of the field exploration and laboratory testing programs, together with our geotechnical recommendations are presented in the accompanying report.

GEOSOL appreciates the opportunity to work on this interesting project. If you have any question or need additional information, please do not hesitate to call our office.

Sincerely,
GEOSOL, INC.
 3/17/23
Gracio Riccobono, P.E.
Chief Geotechnical Engineer/President
Florida License No. 49324
Texas License No. 143780


Adnan Ismail, P.E.
Senior Geotechnical Engineer
Florida License No. 76014
Texas License No. 143698


Juan C. Gonzalez, P.E.
Project Geotechnical Engineer
Florida License No. 88803

cc: Addressee;
File



5795-A NW 151st Street
Miami Lakes, FL 33014
Phone (305) 828-4367; Fax (305) 828-4235
E-mail: geosolusa@bellsouth.net

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APPENDICES

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INTRODUCTION

Project Information

As we understand it, the City of Key West is planning the design and construction of pavement and right of way improvements to South Street. The project limits are along South Street between and including the intersections of Whitehead Street and Reynolds Street in the City of Key West, Florida.

As requested, a roadway soils survey was required in order to explore the subsurface conditions along the alignment of the proposed roadway improvements. Also, an asphalt pavement coring program was required for use in milling and resurfacing evaluation of the existing roadway. This report contains the results of our field exploration and laboratory testing programs as well as our geotechnical engineering evaluations and recommendations for the proposed roadway improvements described above.

Our geotechnical study began with a review of available subsurface test data, including the publication titled *Soil Survey of Monroe County Area, Florida*, published by the United States Department of Agriculture (USDA). We conducted field reconnaissance and assessed conditions with respect to the drilling equipment access, general topographic site conditions and underground utilities.

PURPOSE AND SCOPE OF STUDY

The purpose of this study was to perform a subsurface investigation along the alignment of the proposed roadway improvements within the described project limits in order to catalog the general near-surface stratigraphy and provide the following information:

1. Soil stratigraphy at the boring locations. Development of the anticipated soil profile along the roadway and the anticipated subsurface conditions within the depth of influence.
2. Assessment of the existing soil subgrade and groundwater conditions along the alignment of the proposed roadway improvements for suitability of pavement support.
3. General location and description of potential deleterious materials encountered in the borings that may interfere with construction progress or pavement performance, including existing fills, organic soils (A-8), and silty soils (A-4).
4. Site preparation requirements. Engineering criteria for placement and compaction of approved fill materials.
5. Identification of some critical design or construction considerations based on the soil and groundwater conditions developed from the borings.
6. Measurement of groundwater levels in the test locations.



7. Determination of the pavement type, thickness, and composition from pavement coring program.
8. Determination of base and subbase material type and thickness from pavement coring program.

The scope of services for the geotechnical testing program associated with the design and construction of the proposed roadway improvements to achieve the project requirements consisted of the following:

1. Discussing with JACOBS the scope of the field exploration and laboratory testing programs for this project.
2. Conducting a general visual reconnaissance of the site, locate, and coordinate for existing utilities.
3. Reviewing the USDA Soil Survey maps for the Monroe County area along the project vicinity.
4. Obtaining a Right of Way permit from City of Key West.
5. Planning and executing a Maintenance of Traffic (MOT) program in accordance with the FDOT Standard Index Drawings required for performance of the field exploration program along the proposed roadway and drainage improvement limits.
6. Executing a program of subsurface exploration consisting of subsurface sampling and field testing. The subsurface exploration program was accomplished by performing Standard Penetration Test (SPT) borings.
7. Obtaining asphalt pavement cores from existing roadway for determination of asphalt pavement type and condition.
8. Visually classifying the samples from the test borings in the laboratory using the American Association of State Highway and Transportation Officials (AASHTO) Classification System. The laboratory testing program included grain-size analyses, percent passing the No. 200 sieve, organic content determination, moisture content determination, and FDOT Environmental Classification Testing.
9. Providing discussions of critical design or construction considerations based on the subsurface and groundwater conditions developed from the results of the geotechnical investigations.
10. Preparing a report which summarizes the course of study pursued, the field and laboratory data generated, subsurface conditions encountered, analyses, design recommendations, construction considerations and report limitations.



SITE CONDITIONS

Our understanding of the site conditions is based on our observations during our field visit/review, test layout and the performance of the field exploration program. The project is located along South Street between and including the intersections of Whitehead Street and Reynolds Street in the City of Key West, Florida. The existing roadway typical section along South Street consists of a two (2)-lane, one in each direction, roadway with parking lanes, and curb-and-gutter. The existing roadway pavements consist of flexible asphaltic structures. We have appended a Site Vicinity Map that identifies the location of the study area, which is presented in Sheet 1 of Appendix “A”.

FIELD EXPLORATION

General

The field exploration program for this study included the performance of Standard Penetration Test (SPT) borings, and a pavement coring program as follows:

- Two (2) SPT borings (B-1 and B-2) to depths of 12 feet below existing grades along the alignment of the proposed roadway improvements.
- Five (5) pavement cores (C-1 through C-5) were collected from the existing roadways to determine the type and condition of the existing pavement for use in evaluation of milling and resurfacing improvements. The pavement coring program included the performance of 2-foot deep SPT borings to determine the type and thickness of the base and subbase materials.

The field exploration program was performed on March 2, 2023.

Field Test Locations

The test locations were marked in the field by a representative of GEOSOL utilizing the plans provided by JACOBS showing the requested testing locations, existing landmarks and standard taping procedures. The tests were performed as close as possible to the requested locations considering existing utilities and equipment accessibility constraints. The approximate boring locations for each test location were obtained by means of a hand-held Global Positioning System (GPS) device (Garmin eTrex 20x). The latitude and longitude coordinates obtained with the GPS device were converted to northing and easting using the software “Corpscon” developed by the United States Army Corps of Engineers. The ground surface elevations at each test location have not been provided to us at this point. A summary of the approximate test boring locations is presented on Table 1 and in the Test Location Plan in Appendix “A”.



Standard Penetration Test (SPT) Borings

The SPT boring procedures were conducted in general conformance with ASTM D-1586. All SPT borings were performed utilizing a truck-mounted drill rig (Foremost Mobile B-53) using an automatic hammer. After seating the sampler 6 inches, the number of successive blows required to drive the sampler 12 inches into the soil constitutes the test result commonly referred to as the “N”-value. The “N”-value has been empirically correlated with various soil properties and is considered to be indicative of the relative density of cohesionless soils and the consistency of cohesive soils. The N-value information for each SPT boring is presented in the Soil Profile sheets in Appendix “A” and in the Test Boring Records that are included in Appendix “C” of this report.

Pavement Coring

The pavement cores were obtained using a 6-inch diameter core barrel that was attached to an AWJ diameter drilling rod and to a truck mounted drill rig. The core barrel was advanced by slowly drilling through the pavement. Water was used to aid the drilling process and to keep the core barrel cool. Upon reaching the surface of the base materials, the coring process was terminated and the pavement core was retrieved. The total thickness of the pavement was measured and recorded. Measurements of the rut depth and cross slope were measured prior to the performance of the pavement coring program. We have prepared a Pavement Evaluation and Condition Data Sheet and is presented in Appendix "C" along with pavement core and site photographs. The approximate location of the pavement cores is presented in Table 1 and on the Test Location Plan sheets in Appendix "A".

Water Level Measurements

Water level depths were obtained during the performance of the field exploration program. They are noted on the Soil Profile sheets in Appendix “A”. In relatively pervious soils/rocks, such as sandy (granular) soils and porous limestone, the indicated depths are usually reliable groundwater levels. Seasonal variations, tidal conditions, temperature variations, land uses, and recent rainfall conditions may influence the depth of groundwater levels.

Traffic Control

Flagmen, barricades, cones, and sign devices were continuously used in general compliance with FDOT Roadway and Traffic Design Standards Index Drawings.



LABORATORY TESTING

General

Representative samples collected from the test boring were visually reviewed in the laboratory by a geotechnical engineer to confirm the field classifications. The soil samples from the borings were classified using the American Association of State Highway and Transportation Officials (AASHTO) Soil Classification System in general accordance with the American Society of Testing and Materials (ASTM) test designation D-3282, titled "Classification of Soils and Soils-Aggregate Mixtures for Highway Construction Purposes". The classification was based on visual observations with the aids of a laboratory testing which consisted of grain-size analysis, moisture content percent passing the #200 sieve, and organic content testing. A summary of the laboratory classification test results is presented in Table 2 of Appendix "B". Also, FDOT environmental classification testing was performed on a water sample obtained from an SPT boring location performed for this project. The environmental classification test results are summarized in Table 3 of Appendix "B".

Moisture Content

The laboratory moisture content test consists of the determination of the percentage of moisture contents in selected samples in general accordance with FDOT Test Designation FM1-T265 (ASTM Test Designation D-2216, titled "Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures"). Briefly, the moisture content is determined by weighing a sample of the selected material and then drying it in a warm oven. Care is taken to use a gentle heat so as not to destroy any organics. The sample is removed from the oven and re-weighed. The difference of the two weights is the amount of moisture removed from the sample. The weight of the moisture divided by the weight of the dry soil sample is the percentage by weight of moisture in the sample. The test results are summarized in Table No. 2 of Appendix "B".

Grain-Size Analysis

The grain-size analyses were conducted in general accordance with the FDOT Test Designation FM1-T88 (ASTM Test Designation D-422, titled "Particle-Size Analysis of Soils"). The grain-size analysis test measures the grain-size distribution in the soil sample. The test also measures the percentage by weight passing the No. 200 sieve, which is the amount of silt and clay sized particles. The test results are summarized in Table 2 of Appendix "B".



Organic Content

Organic content test consists of the determination of the percentage of organic content in selected samples in general accordance with FDOT Test Designation FM1-T267 (ASTM Test Designation D-2974, titled "Moisture, Ash, and Organic Matter of Peat and Other Organic Soils"). Briefly, the organic content is determined by weighing a sample of the selected material and then burning off the organic material in a hot oven. The sample is removed from the oven and re-weighed. The difference of the two weights is the amount of organic material removed from the sample. The weight of the organic material divided by the weight of the dry soil sample is the percentage by weight of organic material in the sample. The organic content test results are summarized in Table No. 2 of Appendix "B".

Environmental Classification

Environmental classification testing was performed on water samples obtained from the field exploration program. The testing performed included pH, resistivity, sulfate and chloride content. The results of the testing were evaluated based on the criteria established in the FDOT *Structures Design Guidelines*, Section 1.3. Based on the criteria in Section 1.3 and the laboratory test results, the environment is recommended as extremely aggressive for both the substructure and superstructure and is indicated in the Soil Profile sheets in Appendix "A". The results are summarized in Table 3 in Appendix "B".

GENERALIZED SUBSURFACE CONDITIONS

Monroe County Regional Geology

The proposed project is located on the Southern Flank of the Florida Plateau. A stable, carbonate platform on which deposits of limestone, dolomite and evaporated have accumulated. Within the investigative depths of this study, the natural limestone formation was encountered. Above the limestone formation, deposits of organic soils, silts and man-made fill materials were encountered. The natural limestone formation is a rock formation of the Pleistocene Epoch, deposited 10,000 to 2 million years before the present. Although the natural limestone formation can be very porous and have a sponge-like, open interconnected network of vugs and small voids, large cavities do not exist and there is no potential for sinkhole activity. The rock formations encountered in this area are typically much softer than the "bedrock" formations encountered in other areas of the country.

The strength of the natural limestone as well as its deformation characteristics depends upon the degree of cementation of the formation and its alteration by solutioning and weathering subsequent to deposition. One of the most important characteristics of the limestone encountered in the project area is the degree of erosion. Past surface solutioning of the limestone has resulted in formation called "pinnacle rock". In some cases nearly vertical cylindrical-shaped solution cavities are filled with surficial fine sands extending below the groundwater level. The subsurface conditions encountered at the site are presented in the following section.



South Street Roadway Improvement Project
 From Whitehead Street to Reynolds Street
 City of Key West, Florida
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Monroe County Soil Survey

The *Soil Survey of Monroe County Area, Florida*, published by the United States Department of Agriculture (USDA), was reviewed for general near-surface soil information within the general project vicinity. This information indicates that there is one (1) primary mapping unit within the project vicinity, as follows:

- ❖ Urban land, 0 to 2 percent slopes, frequently flooded (11)

A reproduction of the USDA map for the project area is illustrated on Sheet 2 in Appendix “A”.

SITE SUBSURFACE CONDITIONS

General

The subsurface conditions disclosed by the test borings performed for this study are generally consistent with the regional geology described above. Detailed information is presented in the Test Boring Records in Appendix “C”. The stratification shown is based on visual examination of recovered samples and interpretation of the field boring logs. Specifically, we have identified two (2) strata along the project alignment (except the asphalt pavement) and they are summarized in Table “A” below.

TABLE “A” – SUMMARY OF SUBSURFACE STRATIGRAPHY

Stratum No.	Material Description	General Depth Interval (feet)	AASHTO Group
0	Asphalt Pavement	0 to 0.3	N/A
1	Brown Slightly Silty to Silty Fine to Coarse SAND with Little to Some Limerock Fragments (FILL)	0.3 to 2.0	A-1-b
2	Brown Slightly Silty to Silty Fine to Coarse SAND with Few to Some Limestone Fragments	2.0 to 12.0	A-1-b

Groundwater Conditions

The groundwater table was measured at each boring location during drilling operations for the tests performed during this study. The test borings performed by GEOSOL for this project were performed during the dry season. The depths to the "static" groundwater table encountered within the borings were measured after a short stabilization period and were found to range from about 2.2 to 2.4 feet below the existing grades. The difference in groundwater level depths may be attributed but not limited to difference in ground surface elevations that exist between the boring locations, recent rainfall, and poor drainage. This information is shown on the Roadway Soil Profiles in Appendix “A” and on the Test Boring Records that are included in Appendix “C” of this report.



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From Whitehead Street to Reynolds Street
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In relatively pervious soils, such as the near surface granular soils, the indicated depths are usually reliable groundwater levels. Fluctuation in the observed groundwater levels should be expected due to rainfall variation, tidal conditions, construction activity and other factors.

Estimated Seasonal High Water Table

The estimated seasonal high groundwater table (SHGWT) each year is in the August-September period at the end of the rainy season during a year of average (normal) rainfall. The water table elevations associated with a flood would be much higher than the seasonal high water table elevations. The normal high water levels would more approximate the seasonal high water table elevations. The seasonal high water table is affected by a number of factors. The drainage characteristic of the soils, the land surface elevation, relief points such as lakes, rivers, swamp areas, etc., and distance to relief points are some of the more important factors influencing the seasonal high water table elevation.

It is to be noted that the test borings for this project were performed during the dry season. Therefore, based on our interpretation of the site conditions using the results of our test boring data, we estimate that the normal seasonal highwater table is about 6 to 12 inches above the water levels shown at the boring locations.

ENGINEERING EVALUATIONS AND RECOMMENDATIONS

General

As we understand it, this project will include roadway improvements, and milling and resurfacing of the existing roadway. Results of the soil survey indicate that the project area is generally suitable for the potential improvements when viewed from a geotechnical engineering perspective. The following sections provide discussions regarding geotechnical suggestions for the improvement of the existing pavement.

Existing Subgrade Resilient Modulus (M_R) Value

As part of the pavement coring program, SPT borings were performed at the coring location to explore the type and thickness of the base and subbase materials. The base and subgrade materials encountered at the asphaltic pavement coring locations consisted of fine to medium sand with variable percentages of limerock fragments (A-1-b). Based on our evaluation of the SPT data and our local experience, the existing base and subgrade soils encountered below the asphaltic pavement appear to have been stabilized and most probably meets a design M_R value of 12,000 pounds per square inch (psi) typically used by FDOT for design. However, adjustment/reduction to the design M_R value need to be considered by the Pavement Engineer due to the relatively shallow groundwater table with respect to the base materials.



Milling and Resurfacing Recommendations

The results of the field exploration program revealed that the asphalt pavement had thicknesses ranging from about 1.3 to 5.8 inch. Based on visual inspection of the cores obtained for this project, four (4) of the cores obtained (C-1, C-2, C-4 and C-5) revealed cracking of the asphalt pavement that extended throughout the full length of the core. It should be noted that the pavement cores obtained from this project are only representative of the locations sampled and that the City of Key West shall be aware that it is possible that the pavement may be cracked the full depth in other locations not explored.

We understand that milling and resurfacing of the existing roadways is being considered for the roadway improvements. Considering that there will be no change in grades, the milling and resurfacing option is the most economical alternative. However, at best, it should only be considered a temporary cure and may cause future milling and resurfacing cycles to occur more frequently given the condition of the existing pavement.

Since some of the asphalt pavement core obtained revealed cracks extending throughout the full length of the core, milling of the existing pavement will leave behind cracks and over time these cracks will propagate and reflect into the new asphalt pavement overlay.

If the City of Key West ultimately decides to implement the milling and resurfacing option, our recommendations for milling and resurfacing is mill 1-inch and replace with FC-9.5 along the proposed project limits. This recommendation provides that a minimum of a ¼-inch-thick layer of asphalt pavement be left in place to avoid exposing and wetting of the existing base materials during milling of the asphalt pavement.

Site Preparation

Site preparation will involve a combination of removal of existing asphalt pavement or topsoil and pavement construction. Site preparation for this project is per FDOT specifications. The following are our discussions regarding the utilization and the site preparation requirements of the subsurface soils.

- The material from Stratum 0 is the Asphalt Pavement.
- The materials from Strata Numbers 1 and 2 (A-1-b) are considered to be select and should be utilized in accordance with FDOT Roadway and Traffic Design Standard Plan Index Drawing 120-001.

Fill Material

The embankment fill should consist of select material, meeting the requirements of FDOT Standard Plan Index 120-001 and shall be constructed in general accordance of Section 120.8 of the FDOT *Standard Specifications for Road and Bridge Construction*.



South Street Roadway Improvement Project
From Whitehead Street to Reynolds Street
City of Key West, Florida
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General Roadway Construction Suggestions

Site preparation shall be in accordance with sections 110 and 120 of the FDOT *Standard Specifications for Road and Bridge Construction* and FDOT Standard Plans for Road and Bridge Construction Indices 120-001 and 120-002.

Excavation Recommendations

If required, temporary excavation side slopes of 1V:2H in the granular subsurface materials (Strata 1 and 2) are stable and have a minimum factor of safety of 1.3. If steeper sides are used, the excavations will require the need of temporary ground support systems in order to maintain the stability of the excavations and for safety reasons. Based on the results of the soil borings, an unsupported vertical cut is not considered stable or safe during construction. An unsupported vertical cut will cause cracks on the ground surface because the angle of repose of the granular soils will be exceeded and a failure surface will develop behind the vertical face of the excavation. The existing subsurface materials may be excavated using conventional excavation equipment. However, The Contractor shall be aware that the natural limestone formations may be difficult to excavate and/or penetrate given the relatively high strength of the rock formation. The temporary ground support system should be in conformance with the Occupational Safety and Health Administration (OSHA) Standards. Materials removed from the excavation should not be stockpiled immediately adjacent to the cut, inasmuch as this load may cause a sudden collapse of the temporary ground support system.

Ground Water Control

Groundwater can normally be controlled in shallow excavations with a sump pump. During subgrade soil preparation the soils below design grade could become disturbed by construction activities. If this becomes the case, the contractor may be directed by the owner's representative to remove the disturbed or pumping soils to a depth of 12 to 18 inches below design grades and backfill the area with structural fill in accordance with FDOT Plan Index 120-001 and the latest FDOT *Standard Specifications for Roads and Bridge Construction*. The Contractor shall be aware that dewatering may be very difficult to accomplish due to the relatively high permeability of the natural rock formation.

FHWA REPORT CHECKLIST

In conformance with FDOT and FHWA, a report "Checklist and Guidelines for Review of Geotechnical Reports and Preliminary Plans and Specifications" is required when preparing geotechnical reports. The FHWA checklist for this report is enclosed in Appendix "D".



South Street Roadway Improvement Project

From Whitehead Street to Reynolds Street

City of Key West, Florida

GEOSOL Project No.: 223108

REPORT LIMITATIONS

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This company is not responsible for the conclusions, opinions or recommendations made by others based on these data. No other warranties are expressed or implied.

The scope of the investigation was intended to evaluate soil conditions within the influence of the proposed roadway improvements. The analysis and recommendations submitted in this report are based upon the data obtained from the soil borings performed at the locations indicated. If any subsoil variations become evident during the course of this project, a re-evaluation of the recommendations contained in this report will be necessary after we have had an opportunity to observe the characteristics

of the conditions encountered. The applicability of the report should also be reviewed in the event significant changes occur in the design, nature or location of the proposed roadway alignment.

The scope of our services does not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the site studied. Any statements in this report regarding odors, staining of soils, or other unusual conditions observed are strictly for the information of our client.



APPENDIX "A"

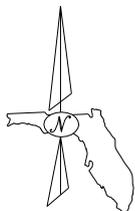
- Sheet 1: Site Vicinity Map
- Sheet 2: USDA Soils Survey Map
- Table 1: Summary of Test Locations
- Sheets 3 through 7: Test Location Plans
- Sheet 8: Roadway Soil Profiles
- Sheet 9: Roadway Soils Survey Sheet





APPROXIMATE SITE LOCATION

SITE VICINITY MAP



COUNTY: MONROE DADE COUNTY, FLORIDA

REFERENCE: GOOGLE EARTH, 2023

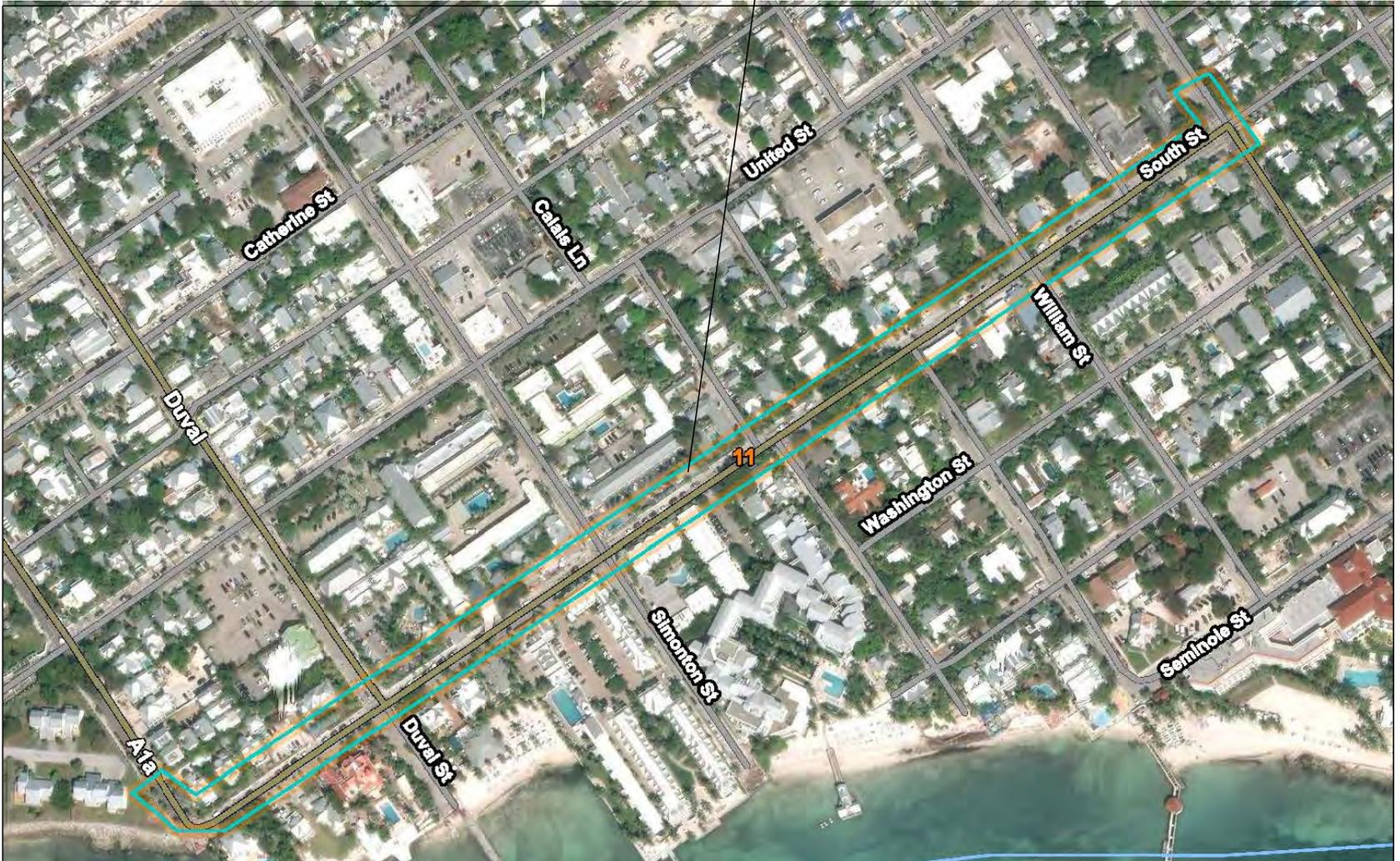
DATE: MARCH, 2023

SITE VICINITY MAP

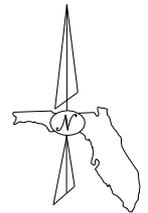
SOUTH STREET ROADWAY IMPROVEMENT PROJECT
FROM WHITEHEAD STREET TO REYNOLDS STREET
CITY OF KEY WEST, FLORIDA

<small>DRAWN</small>	JM	<small>SCALE</small>	N.T.S.	<small>PROJ. No.</small>	223108
<small>CHECKED</small>	OR	<small>DATE</small>	MARCH, 2023		SHEET 1

APPROXIMATE SITE LOCATION



USDA SOILS SURVEY MAP



MAP UNIT	SOIL NAME
----------	-----------

11	Urban land, 0 to 2 percent slopes, frequently flooded
----	---

COUNTY: MONROE COUNTY, FLORIDA
REFERENCE: NRCS WEB SOILS SURVEY, 2023
DATE: MARCH, 2023

USDA SOILS SURVEY MAP

SOUTH STREET ROADWAY IMPROVEMENT PROJECT
 FROM WHITEHEAD STREET TO REYNOLDS STREET
 CITY OF KEY WEST, FLORIDA

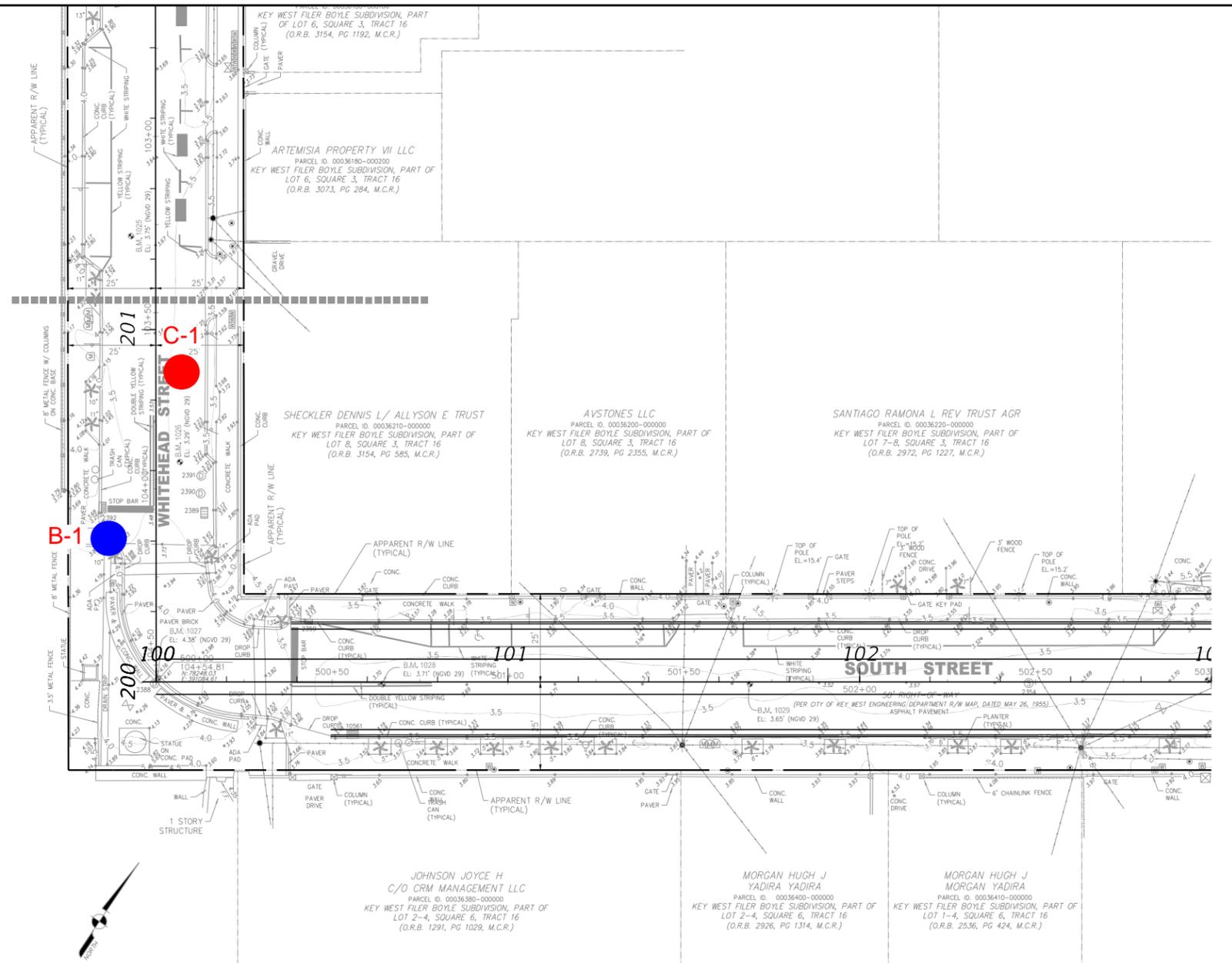
DRAWN	JM	SCALE	N.T.S.	PROJ. No.	223108
CHECKED	OR	DATE	MARCH, 2023	SHEET 2	

South Street Roadway Improvement Project
From Whitehead Street to Reynolds Street
City of Key West, Florida
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TABLE 1 - SUMMARY OF TEST BORING LOCATIONS

BORING / TEST No.	APPROXIMATE TEST LOCATION (FEET)							GROUND SURFACE ELEVATION (FEET)
	NORTHING	EASTING	LATITUDE	LONGITUDE	STATION	OFFSET	REFERENCE	
B-1	78277	391048	24.546639	-81.797606	200+40	13 LT	B/L Survey Whitehead Street	N/A
B-2	78534	391513	24.547352	-81.796212	105+20	8 RT	B/L Survey South Street	N/A
C-1	78328	391038	24.546777	-81.797638	200+90	8 RT	B/L Survey Whitehead Street	N/A
C-2	78719	391769	24.547865	-81.795445	108+25	0	B/L Survey South Street	N/A
C-3	78999	392204	24.548642	-81.794140	113+50	8 RT	B/L Survey South Street	N/A
C-4	79607	393081	24.550331	-81.791514	124+20	8 LT	B/L Survey South Street	N/A
C-5	79745	393045	24.550710	-81.791623	303+45	5 LT	B/L Survey Reynolds Street	N/A

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LEGEND:

- C-1 APPROXIMATE PAVEMENT CORE LOCATION
- B-1 APPROXIMATE SPT BORING LOCATION

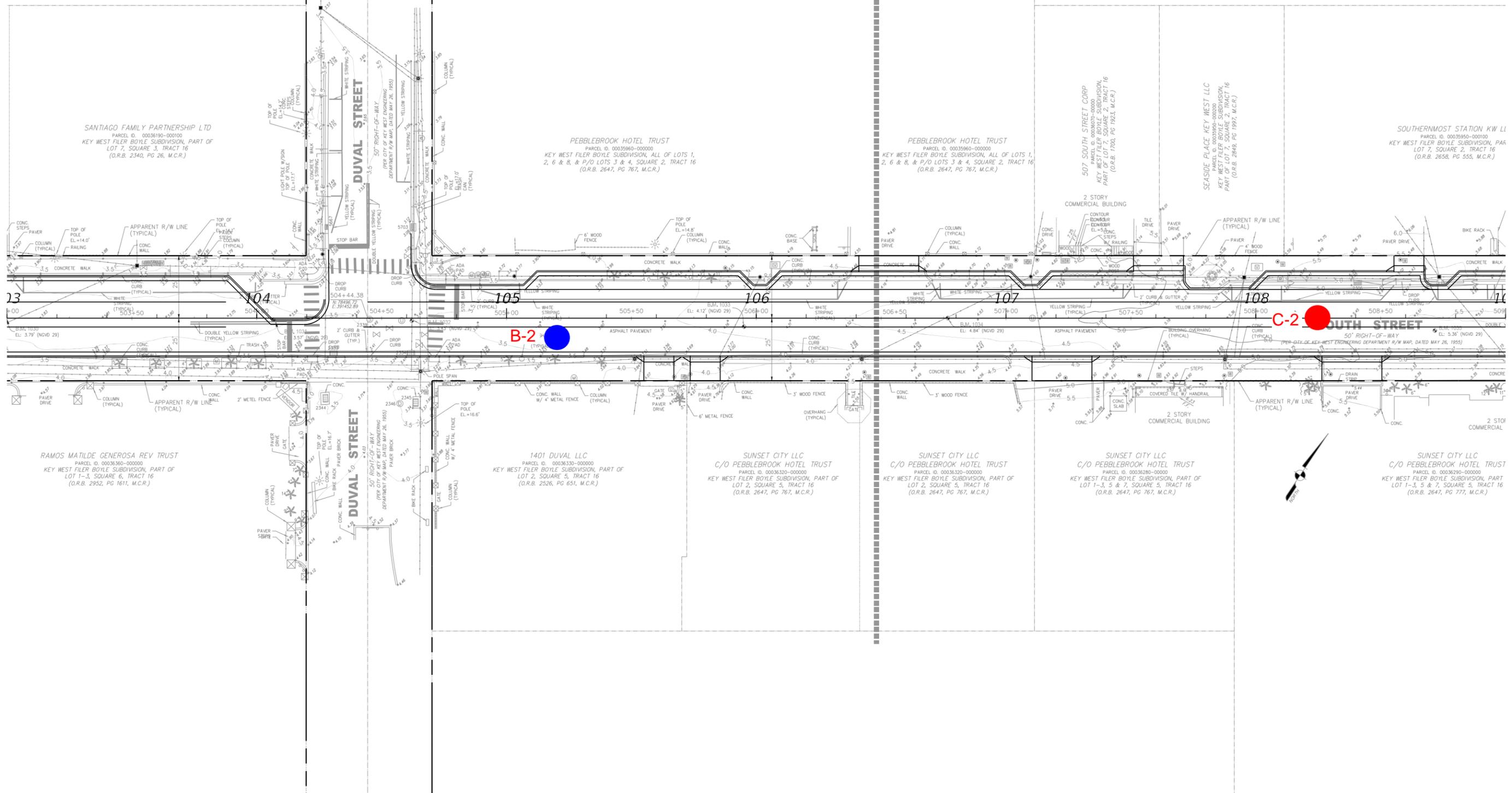
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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID

TEST LOCATION PLANS

SHEET NO.
3

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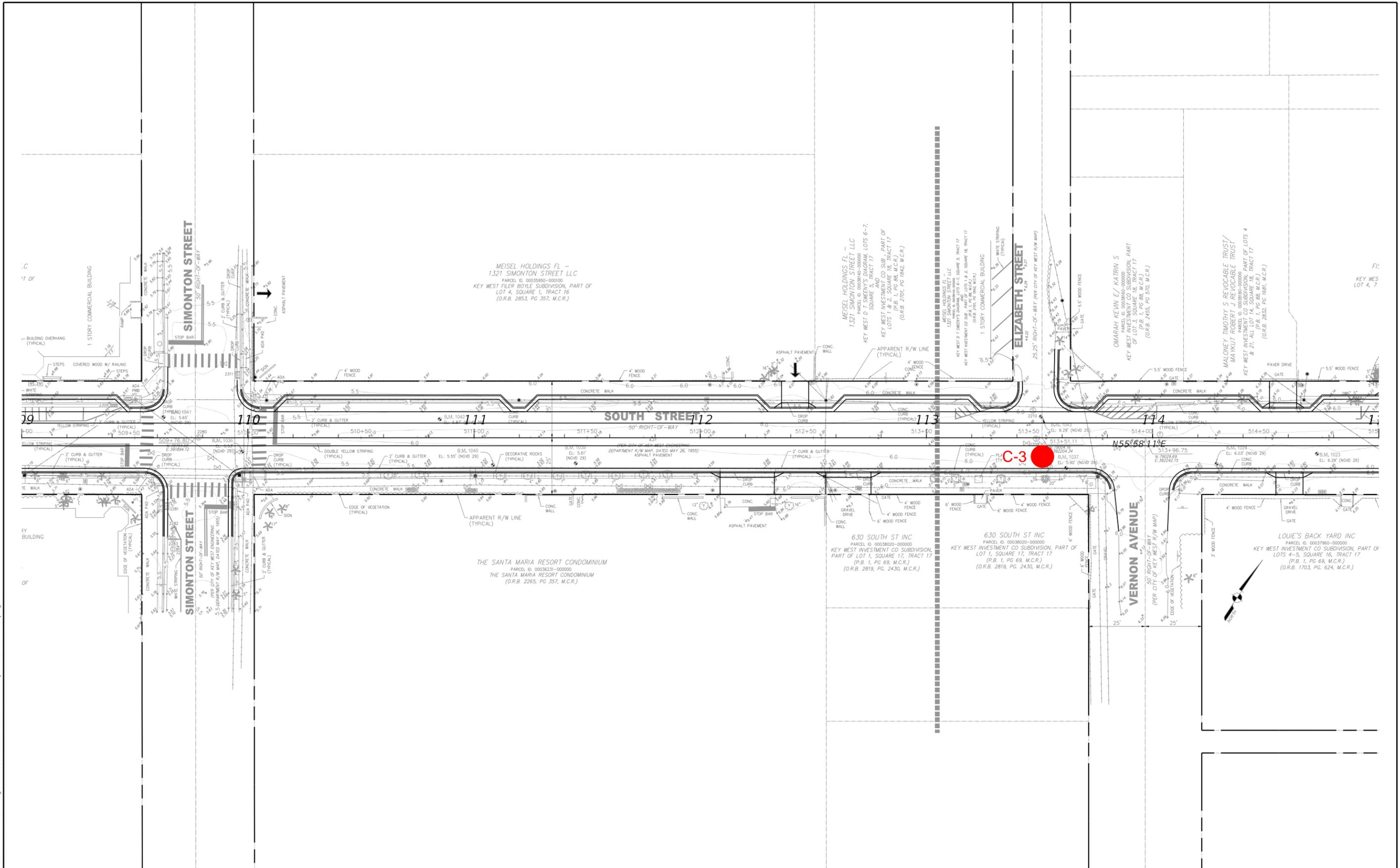


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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID

TEST LOCATION PLANS

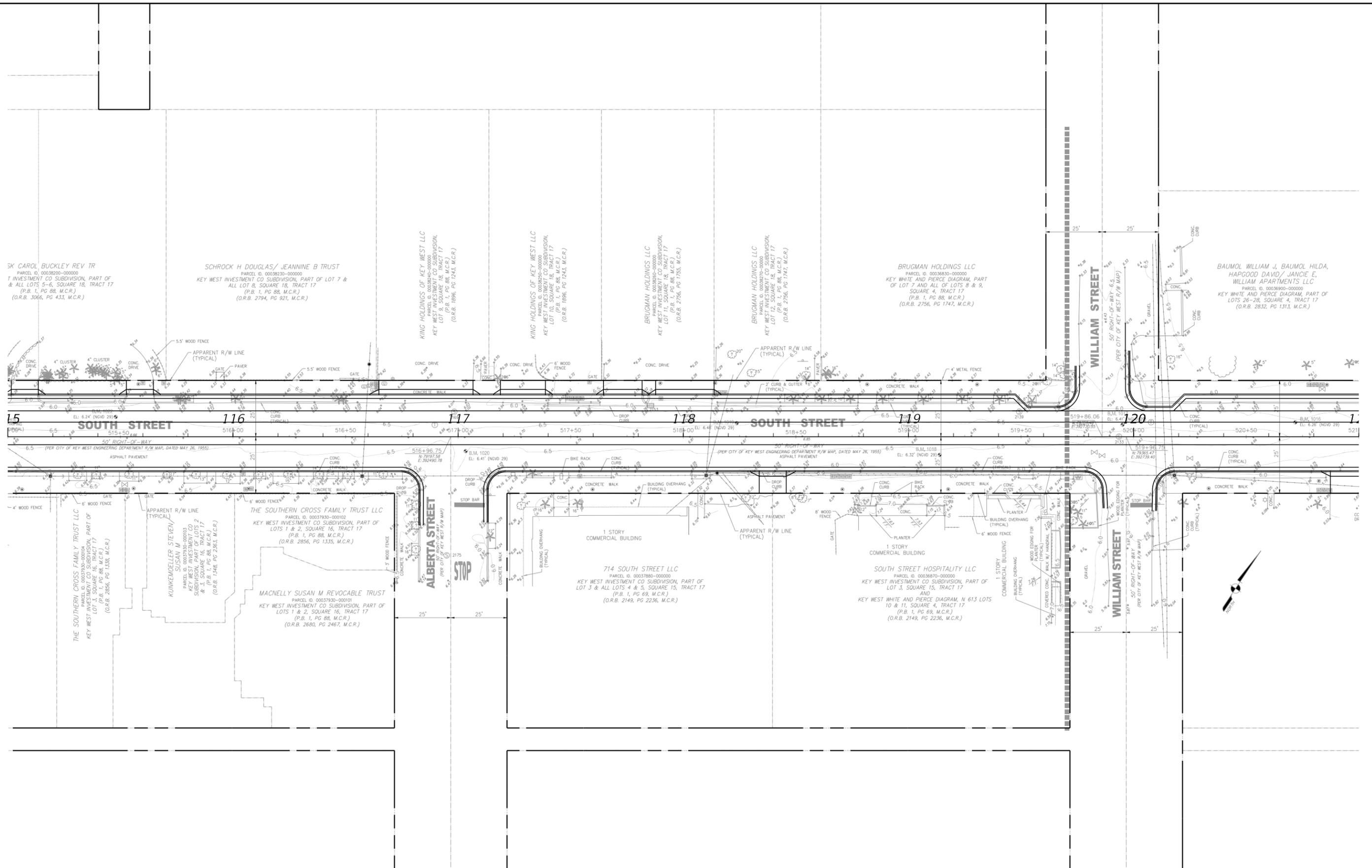
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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID

TEST LOCATION PLANS	SHEET NO. 5
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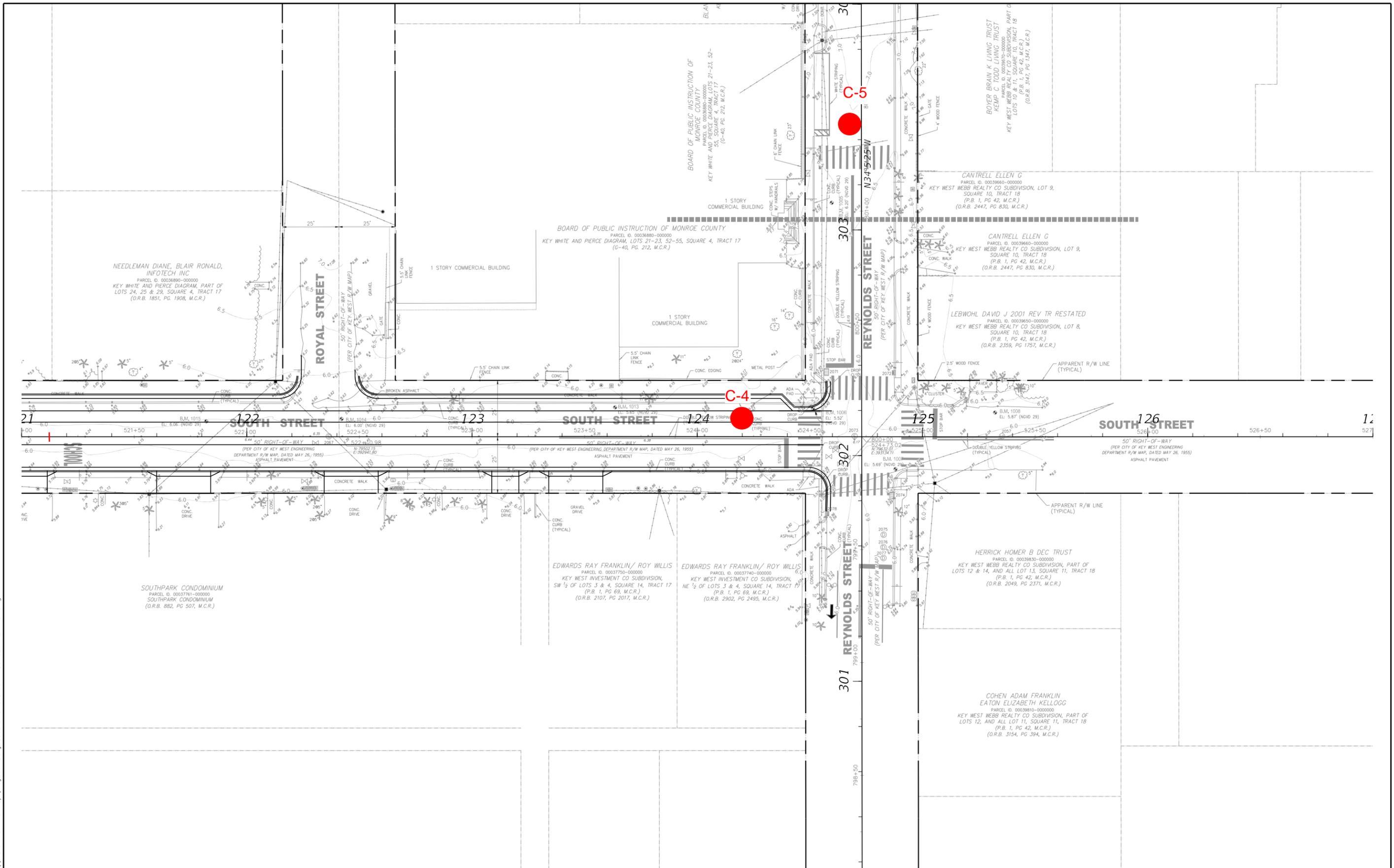
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DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID

TEST LOCATION PLANS

SHEET NO.
6

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID

TEST LOCATION PLANS

SHEET NO.
7

DATE OF SURVEY: 3/2/2023
 SURVEY MADE BY: ORACIO RICCOBONO, P.E.
 SUBMITTED BY: GEOSOL, Inc.

SOUTH STREET ROADWAY IMPROVEMENT PROJECT
 FROM WHITEHEAD STREET TO REYNOLDS STREET
 CITY OF KEY WEST, FLORIDA

DISTRICT: N/A
 ROAD NO.: N/A
 COUNTY: MONROE

CROSS SECTION SOIL SURVEY FOR THE DESIGN OF ROADS

SURVEY BEGINS STA.: 200+00 SURVEY ENDS STA.: 201+00 REFERENCE: B/L SURVEY WHITEHEAD STREET
 SURVEY BEGINS STA.: 100+00 SURVEY ENDS STA.: 125+00 REFERENCE: B/L SURVEY SOUTH STREET
 SURVEY BEGINS STA.: 302+00 SURVEY ENDS STA.: 304+00 REFERENCE: B/L SURVEY REYNOLDS STREET

STRATUM NO.	MOISTURE CONTENT		ORGANIC CONTENT		SIEVE ANALYSIS RESULTS PERCENT PASS					NO. OF TESTS	LIQUID LIMIT	PLASTIC INDEX	AASHTO GROUP	DESCRIPTION	CORROSION TEST RESULTS				
	NO. OF TESTS	MOISTURE CONTENT	NO. OF TESTS	% ORGANIC	10 MESH	40 MESH	60 MESH	100 MESH	200 MESH						NO. OF TESTS	RESISTIVITY ohms cm	CHLORIDE ppm	SULFATES ppm	pH
0													N/A	Asphalt Pavement					
1	4	14-23			4	51-68	27-48	17-38	11-31	7-24			A-1-b	Brown Slightly Silty to Silty Fine to Coarse SAND with Little to Some Limerock Fragments (FILL)					
2	1	13			1	59	40	34	28	23			A-1-b	Brown Slightly Silty to Silty Fine to Coarse SAND with Few to Some Limestone Fragments	1	22	18,500	2,800	7.7

EMBANKMENT AND SUBGRADE MATERIAL
 STRATA BOUNDARIES ARE APPROXIMATE. MAKE FINAL CHECK AFTER GRADING.
 ▽ - WATER TABLE ENCOUNTERED
 GNE - GROUNDWATER NOT ENCOUNTERED

Notes:

- 1) The material from Stratum 0 is the Asphalt Pavement.
- 2) The materials from Strata Numbers 1 and 2 (A-1-b) are considered to be select and should be utilized in accordance with FDOT Roadway and Traffic Design Standard Plan Index Drawing I20-001.

REVISIONS				ENGINEER OF RECORD: GEOSOL, INC. ORACIO RICCOBONO, P.E. P.E. LICENSE NO. 49324 5795-A NW 151ST STREET 38 MIAMI LAKES, FL 33014	SOUTH STREET ROADWAY IMPROVEMENT PROJECT FROM WHITEHEAD STREET TO REYNOLDS STREET CITY OF KEY WEST, FLORIDA	ROADWAY SOILS SURVEY	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION				9

APPENDIX “B”

Table 2 – Summary of Laboratory Test Results
Table 3 – Summary of Environmental Classification Test Results
Moisture Content Test Results
Material Passing the No. 200 Sieve Test Results
Grain-Size Analysis Test Results and Curves
Environmental Classification Test Results



TABLE 2 - SUMMARY OF LABORATORY TEST RESULTS
South Street Improvement Project from Whitehead Street to Reynolds Street
City of Key West, Florida
GEOSOL Project No.: 223108

BORING NUMBER	SAMPLE NUMBER	STRATUM NUMBER	AASHTO Group	Sample Depth (FEET)	Sieve Analysis (Percent Passing)									Organic Content (%)	Natural Moisture Content (%)
					1"	3/4"	3/8"	#4	#10	#40	#60	#100	#200		
B-2	1	1	A-1-b	0.3 - 2.0	100	90	82	71	61	45	34	28	22	-	16
B-1	4	2	A-1-b	6.0 - 8.0	100	100	100	94	59	40	34	28	23	-	13
C-4	1	1	A-1-b	0.4 - 2.0	100	84	74	66	51	27	17	11	7	-	20
C-3	1	1	A-1-b	0.2 - 2.0	100	94	87	80	68	48	38	31	24	-	14
C-5	1	1	A-1-b	0.1 - 2.0	86	83	78	73	55	28	17	12	8	-	23

TABLE 3 - SUMMARY OF ENVIRONMENTAL CLASSIFICATION TEST RESULTS
South Street Improvement Project from Whitehead Street to Reynolds Street
City of Key West, Florida
GEOSOL Project No.: 223108

Sample Location	Sample Type	Depth (ft)	pH	Resistivity (ohm-cm)	Chloride (ppm)	Sulfate (ppm)	FDOT ENVIRONMENTAL CLASSIFICATION	
							Steel	Concrete
B-1	WATER	2.2	7.7	22	18,500	2,800	EA	EA

NOTES: (1) The following FDOT laboratory test methods were utilized.

4500H+ (pH)

EPA-300 (Equivalent to FM5-552: Chlorides)

EPA 120.1 (Equivalent to FM5-551: Resistivity)

EPA-300 (Equivalent to FM5-553: Sulfates)

(2) SA: SLIGHTLY AGGRESSIVE

(3) MA: MODERATELY AGGRESSIVE

(4) EA: EXTREMELY AGGRESSIVE

FDOT Criteria for Substructure Environmental Classification (FDOT Structures Design Guidelines)

Classification	Environmental Condition	Units	Steel		Concrete	
			Water	Soil	Water	Soil
Extremely Aggressive (If any of these conditions exist)	pH		< 6.0		< 5.0	
	Cl	ppm	> 2000		> 2000	
	SO ₄	ppm	N.A.		> 1500	> 2000
	Resistivity	Ohm-cm	< 1000		< 500	
Slightly Aggressive (If all of these conditions exist)	pH		> 7.0		> 6.0	
	Cl	ppm	< 500		< 500	
	SO ₄	ppm	N.A.		< 150	< 1000
	Resistivity	Ohm-cm	> 5000		> 3000	
Moderately Aggressive	This classification must be used at all sites not meeting requirements for either slightly aggressive or extremely aggressive environments.					
pH = acidity (-log ₁₀ H ⁺ ; potential of Hydrogen), Cl = chloride content, SO ₄ = Sulfate content.						

MOISTURE CONTENT TEST RESULTS (ASTM D-2216)

PROJECT NAME: South Street Improvement Project from Whitehead Street to Reynolds Street
LOCATION: City of Key West, Florida
PROJECT No.: 223108

Boring No.	B-1	B-2	C-4	C-3	C-5
Sample No.	4	1	1	1	1
Sample Depth (Feet)	6-8	0.3-2	0.4-2	0.2-2	0.1-2
Tare No.	18	18	B-5	B-2	232
Tare plus wet soil (grams)	340.1	359.0	385.1	457.3	494.5
Tare plus dry soil (grams)	301.0	310.6	322.1	400.7	402.6
Water Ww (grams)	39.1	48.4	63.0	56.6	91.9
Tare (grams)	8.5	8.4	8.6	8.5	8.5
Dry soil Ws (grams)	292.5	302.2	313.5	392.2	394.1
Water Content w (%)	13.4	16.0	20.1	14.4	23.3

MATERIAL PASSING THE # 200 SIEVE TEST RESULTS (AASHTO T-11)

PROJECT NAME: South Street Improvement Project from Whitehead Street to Reynolds Street
LOCATION: City of Key West, Florida
PROJECT No.: 223108

Boring No.	B-1	B-2	C-4	C-3	C-5
Sample No.	4	1	1	1	1
Sample Depth (Feet)	6-8	0.3-2	0.4-2	0.2-2	0.1-2
Original Dry Weight of Soil (grams)	292.5	302.2	313.4	392.2	394.1
Weight of Soil After Washing (grams)	225.8	236.9	292.6	296.4	364.4
Weight of Soil Passing 200 Sieve (grams)	66.7	65.3	20.8	95.8	29.7
Percent of Soil Passing 200 Sieve (%)	22.8	21.6	6.6	24.4	7.5

GRAIN SIZE DATA SHEET

PROJECT NAME: South Street Improvement Project from Whitehead Street to Reynolds Street
GEOSOL PROJECT No. 223108
GENERAL LOCATION: City of Key West, Florida

Boring No. B-1
Sample No. 4
Depth (feet) 6-8

SOIL DESCRIPTION: Brown Silty Fine to Coarse SAND with Few Limestone Fragments (A-1-b)

			Tare #		Dry Soil Wt.	
			18		292.5	
Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	0.0	0.0	100.0	100.0	0.0
9.5	9.5mm 3/8"	0.0	0.0	100.0	100.0	0.0
4.75	4.75mm #4	17.2	5.9	94.1	94.1	17.2
2.36	2 mm #10	121.3	41.5	58.5	58.5	104.1
0.6	425um #40	174.5	59.7	40.3	40.3	53.2
0.3	250um #60	193.9	66.3	33.7	33.7	19.4
0.15	150um #100	209.4	71.6	28.4	28.4	15.5
0.075	75um #200	225.8	77.2	22.8	22.8	16.4
PAN	-	292.5	100.0	0.0	0.0	66.7

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4

Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

Cu = D60 / D10
 Cc = (D30)² / (D10 x D60)
 1000 um = 1 mm

tested by: E. MASIS computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

PROJECT NAME: South Street Improvement Project from Whitehead Street to Reynolds Street
GEOSOL PROJECT No. 223108
GENERAL LOCATION: City of Key West, Florida

Boring No. B-2
Sample No. 1
Depth (feet) 0.3-2

SOIL DESCRIPTION: Brown Silty Fine to Coarse SAND with Little to Some Limerock Fragments (FILL; A-1-b)

			Tare #		Dry Soil Wt.	
			18		302.2	
Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	31.2	10.3	89.7	89.7	31.2
9.5	9.5mm 3/8"	55.5	18.4	81.6	81.6	24.3
4.75	4.75mm #4	87.2	28.9	71.1	71.1	31.7
2.36	2 mm #10	118.5	39.2	60.8	60.8	31.3
0.6	425um #40	167.6	55.5	44.5	44.5	49.1
0.3	250um #60	198.8	65.8	34.2	34.2	31.2
0.15	150um #100	218.6	72.3	27.7	27.7	19.8
0.075	75um #200	236.9	78.4	21.6	21.6	18.3
PAN	-	302.2	100.0	0.0	0.0	65.3

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4

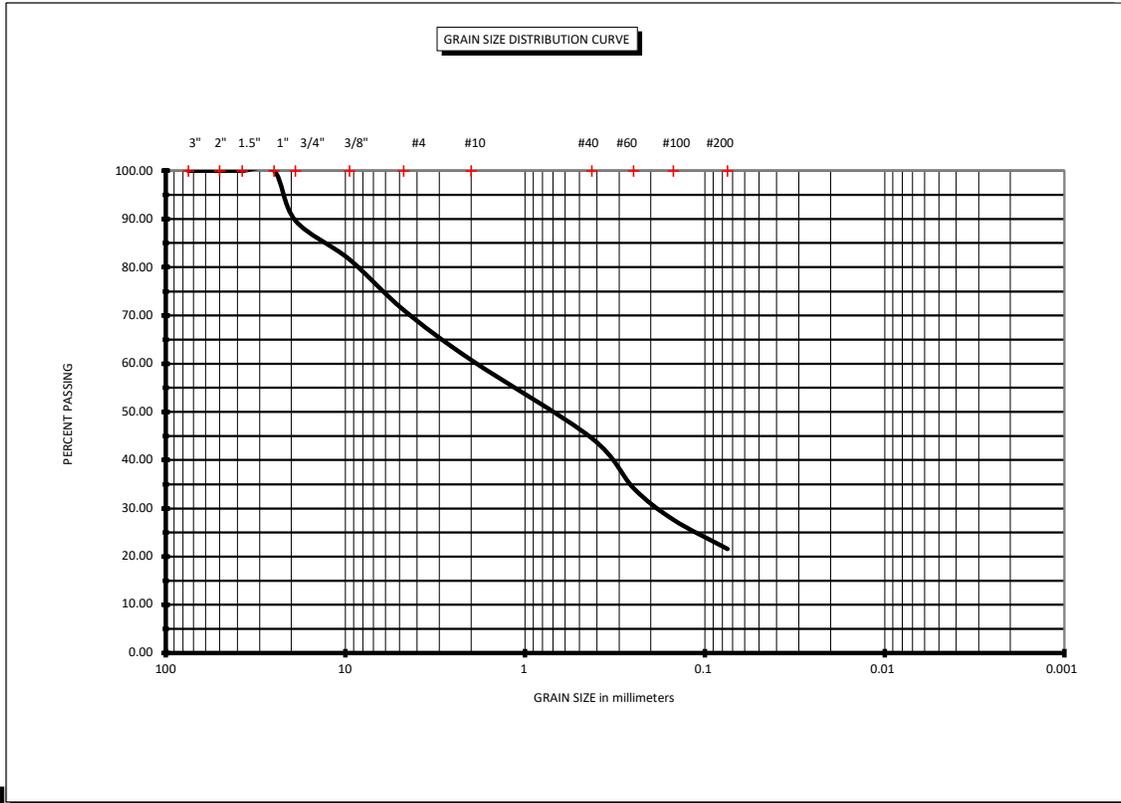
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

$C_u = D_{60} / D_{10}$
 $C_c = (D_{30})^2 / (D_{10} \times D_{60})$
 1000 um = 1 mm

tested by: E. MASIS computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

PROJECT NAME: South Street Improvement Project from Whitehead Street to Reynolds Street
GEOSOL PROJECT No. 223108
GENERAL LOCATION: City of Key West, Florida



ASTM D 2487 Classification of Soil for Engineering Purposes		Coarse Sand	< #4 and > #10	$Cu = D60 / D10$
Coarse Gravel	< 3" and > 3/4"	Medium Sand	< #10 and > #40	$Cc = (D30)^2 / (D10 \times D60)$
Fine Gravel	< 3/4" and > #4	Fine Sand	< #40 and > #200	

BORING # B-2 **SAMPLE #** 1 **Depth (feet)** 0.3-2

SOIL DESCRIPTION: Brown Silty Fine to Coarse SAND with Little to Some Limerock Fragments (FILL; A-1-b)

Natural Moisture Content: 16.0%

GRAIN SIZE DATA SHEET

PROJECT NAME: South Street Improvement Project from Whitehead Street to Reynolds Street
GEOSOL PROJECT No. 223108
GENERAL LOCATION: City of Key West, Florida

Boring No. C-4
Sample No. 1
Depth (feet) 0.4-2

SOIL DESCRIPTION: Brown Slightly Silty Fine to Coarse SAND with Some Limerock Fragments (FILL; A-1-b)

			Tare #		Dry Soil Wt.	
			B-5		313.4	
Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	51.3	16.4	83.6	83.6	51.3
9.5	9.5mm 3/8"	82.0	26.2	73.8	73.8	30.7
4.75	4.75mm #4	105.1	33.5	66.5	66.5	23.1
2.36	2 mm #10	155.0	49.5	50.5	50.5	49.9
0.6	425um #40	229.1	73.1	26.9	26.9	74.1
0.3	250um #60	259.5	82.8	17.2	17.2	30.4
0.15	150um #100	277.7	88.6	11.4	11.4	18.2
0.075	75um #200	292.6	93.4	6.6	6.6	14.9
PAN	-	313.4	100.0	0.0	0.0	20.8

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4

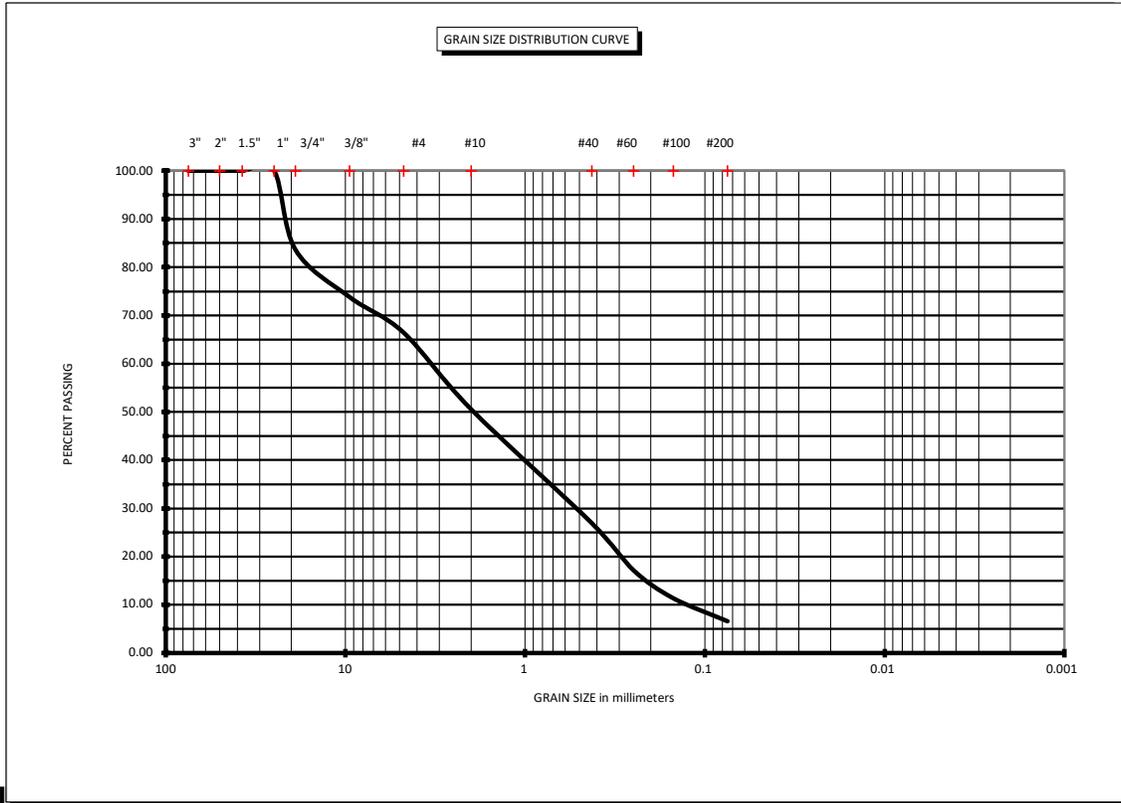
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

$Cu = D_{60} / D_{10}$
 $Cc = (D_{30})^2 / (D_{10} \times D_{60})$
 1000 um = 1 mm

tested by: E. MASIS computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

PROJECT NAME: South Street Improvement Project from Whitehead Street to Reynolds Street
GEOSOL PROJECT No. 223108
GENERAL LOCATION: City of Key West, Florida



GRAIN SIZE DATA SHEET

PROJECT NAME: South Street Improvement Project from Whitehead Street to Reynolds Street
GEOSOL PROJECT No. 223108
GENERAL LOCATION: City of Key West, Florida

Boring No. C-3
Sample No. 1
Depth (feet) 0.2-2

SOIL DESCRIPTION: Brown Silty Fine to Coarse SAND with Little of Limerock Fragments (FILL; A-1-b)

			Tare #		Dry Soil Wt.	
			B-2		392.2	
Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	25.2	6.4	93.6	93.6	25.2
9.5	9.5mm 3/8"	51.9	13.2	86.8	86.8	26.7
4.75	4.75mm #4	76.5	19.5	80.5	80.5	24.6
2.36	2 mm #10	126.7	32.3	67.7	67.7	50.2
0.6	425um #40	203.6	51.9	48.1	48.1	76.9
0.3	250um #60	242.9	61.9	38.1	38.1	39.3
0.15	150um #100	271.5	69.2	30.8	30.8	28.6
0.075	75um #200	296.4	75.6	24.4	24.4	24.9
PAN	-	392.2	100.0	0.0	0.0	95.8

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4

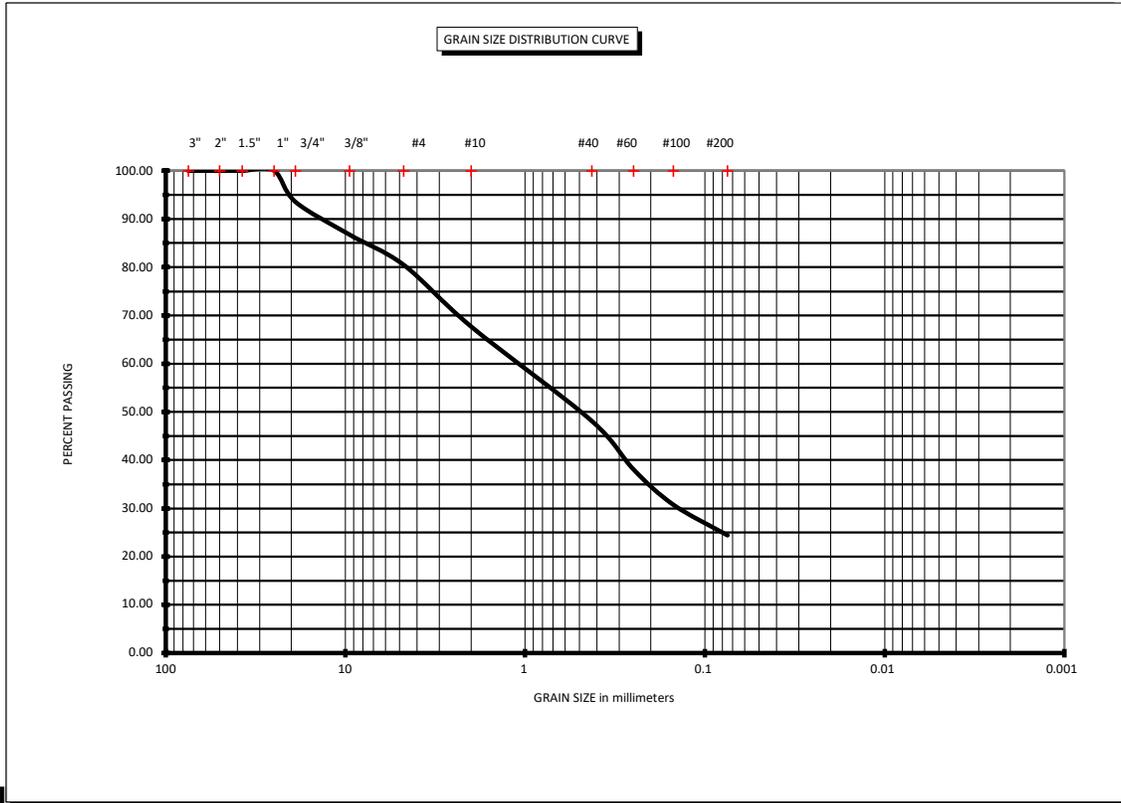
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

$C_u = D_{60} / D_{10}$
 $C_c = (D_{30})^2 / (D_{10} \times D_{60})$
 1000 um = 1 mm

tested by: E. MASIS computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

PROJECT NAME: South Street Improvement Project from Whitehead Street to Reynolds Street
GEOSOL PROJECT No. 223108
GENERAL LOCATION: City of Key West, Florida



ASTM D 2487 Classification of Soil for Engineering Purposes		Coarse Sand	< #4 and > #10	$C_u = D_{60} / D_{10}$
Coarse Gravel	< 3" and > 3/4"	Medium Sand	< #10 and > #40	$C_c = (D_{30})^2 / (D_{10} \times D_{60})$
Fine Gravel	< 3/4" and > #4	Fine Sand	< #40 and > #200	

BORING # C-3 **SAMPLE #** 1 **Depth (feet)** 0.2-2

SOIL DESCRIPTION: Brown Silty Fine to Coarse SAND with Little of Limerock Fragments (FILL; A-1-b)

Natural Moisture Content: 14.4%

GRAIN SIZE DATA SHEET

PROJECT NAME: South Street Improvement Project from Whitehead Street to Reynolds Street
GEOSOL PROJECT No. 223108
GENERAL LOCATION: City of Key West, Florida

Boring No. C-5
Sample No. 1
Depth (feet) 0.1-2

SOIL DESCRIPTION: Brown Slightly Silty Fine to Coarse SAND with Little to Some Limerock Fragments (FILL; A-1-b)

			Tare #		Dry Soil Wt.	
			232		394.1	
Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	53.3	13.5	86.5	86.5	53.3
19	19mm 3/4"	68.2	17.3	82.7	82.7	14.9
9.5	9.5mm 3/8"	86.0	21.8	78.2	78.2	17.8
4.75	4.75mm #4	107.1	27.2	72.8	72.8	21.1
2.36	2 mm #10	179.3	45.5	54.5	54.5	72.2
0.6	425um #40	283.7	72.0	28.0	28.0	104.4
0.3	250um #60	326.3	82.8	17.2	17.2	42.6
0.15	150um #100	348.5	88.4	11.6	11.6	22.2
0.075	75um #200	364.4	92.5	7.5	7.5	15.9
PAN	-	394.1	100.0	0.0	0.0	29.7

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4

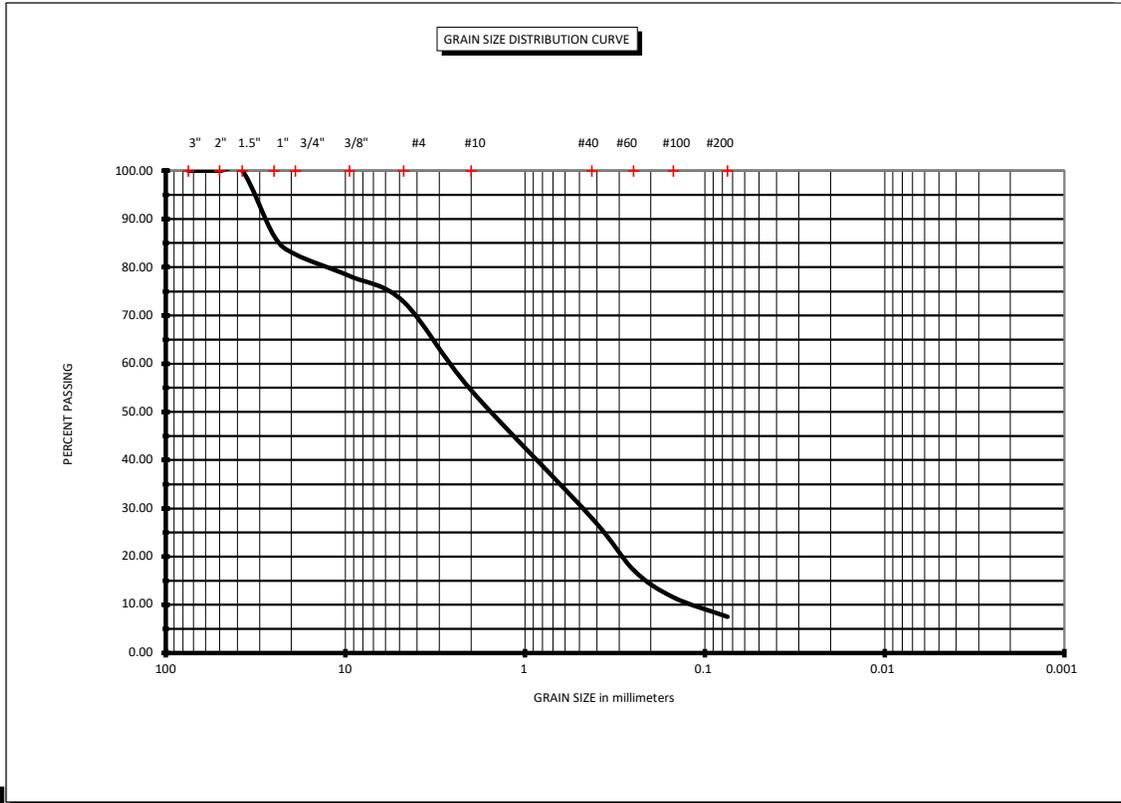
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

Cu = D60 / D10
 Cc = (D30)² / (D10 x D60)
 1000 um = 1 mm

tested by: E. MASIS computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

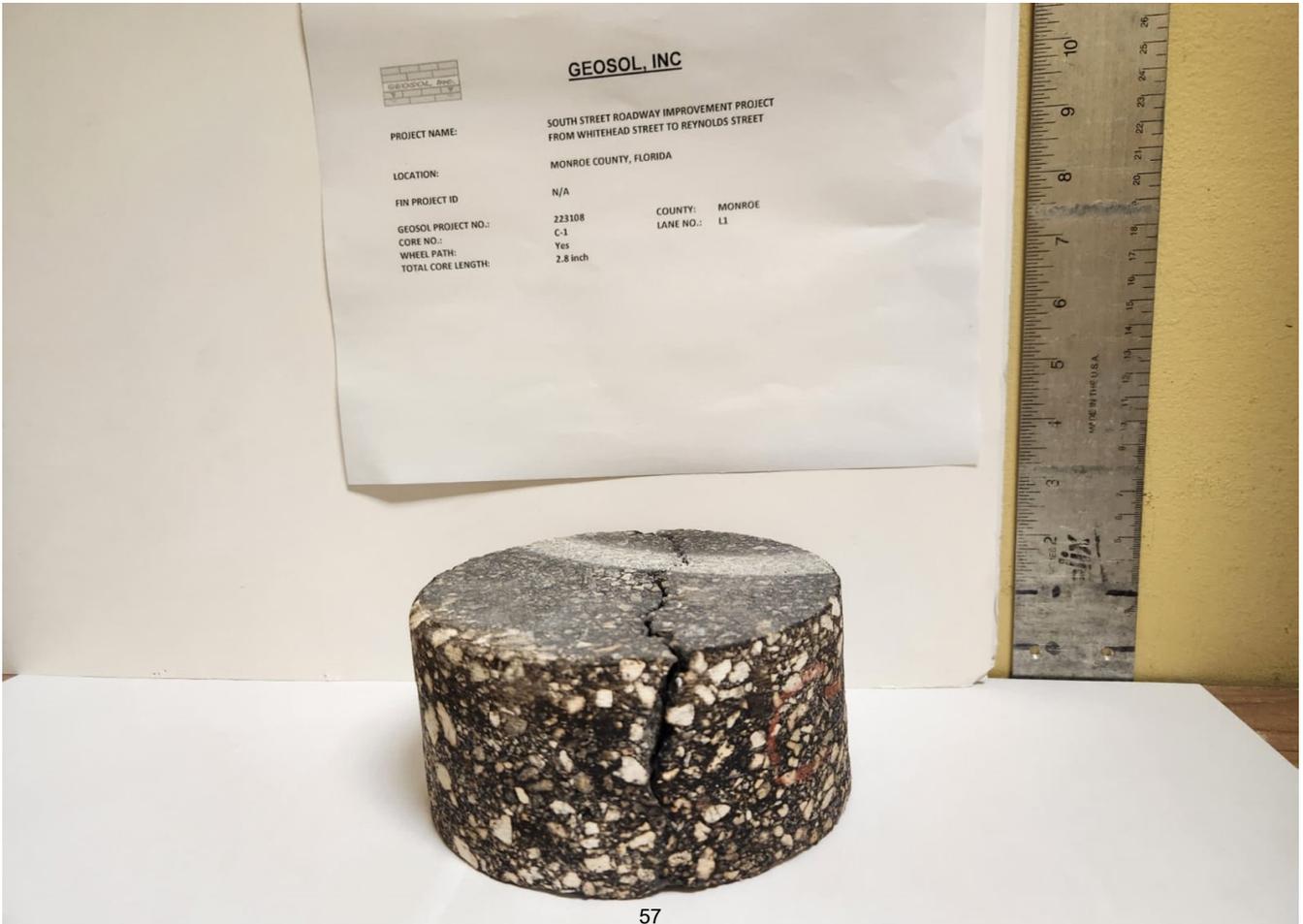
PROJECT NAME: South Street Improvement Project from Whitehead Street to Reynolds Street
GEOSOL PROJECT No. 223108
GENERAL LOCATION: City of Key West, Florida



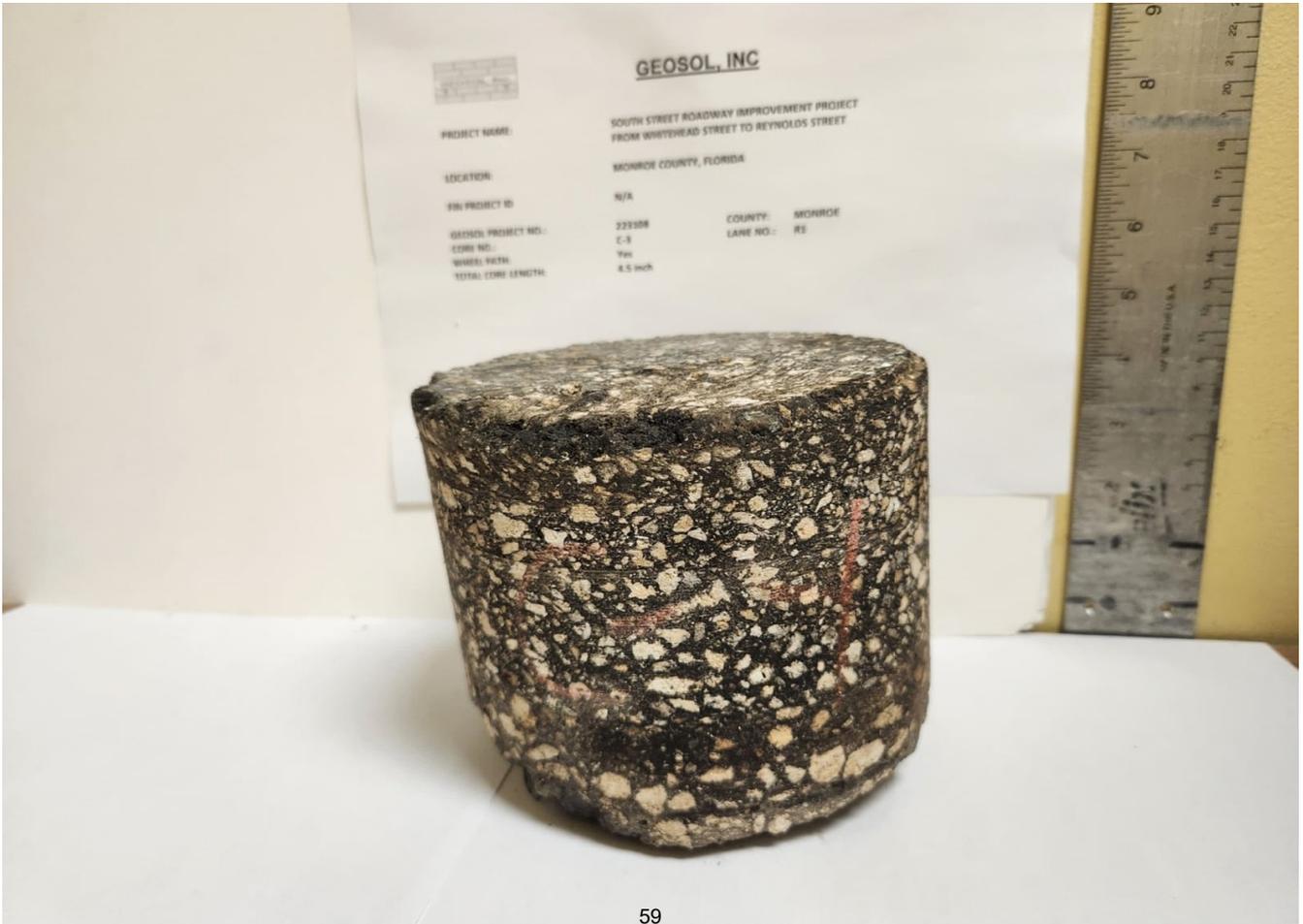
APPENDIX "C"

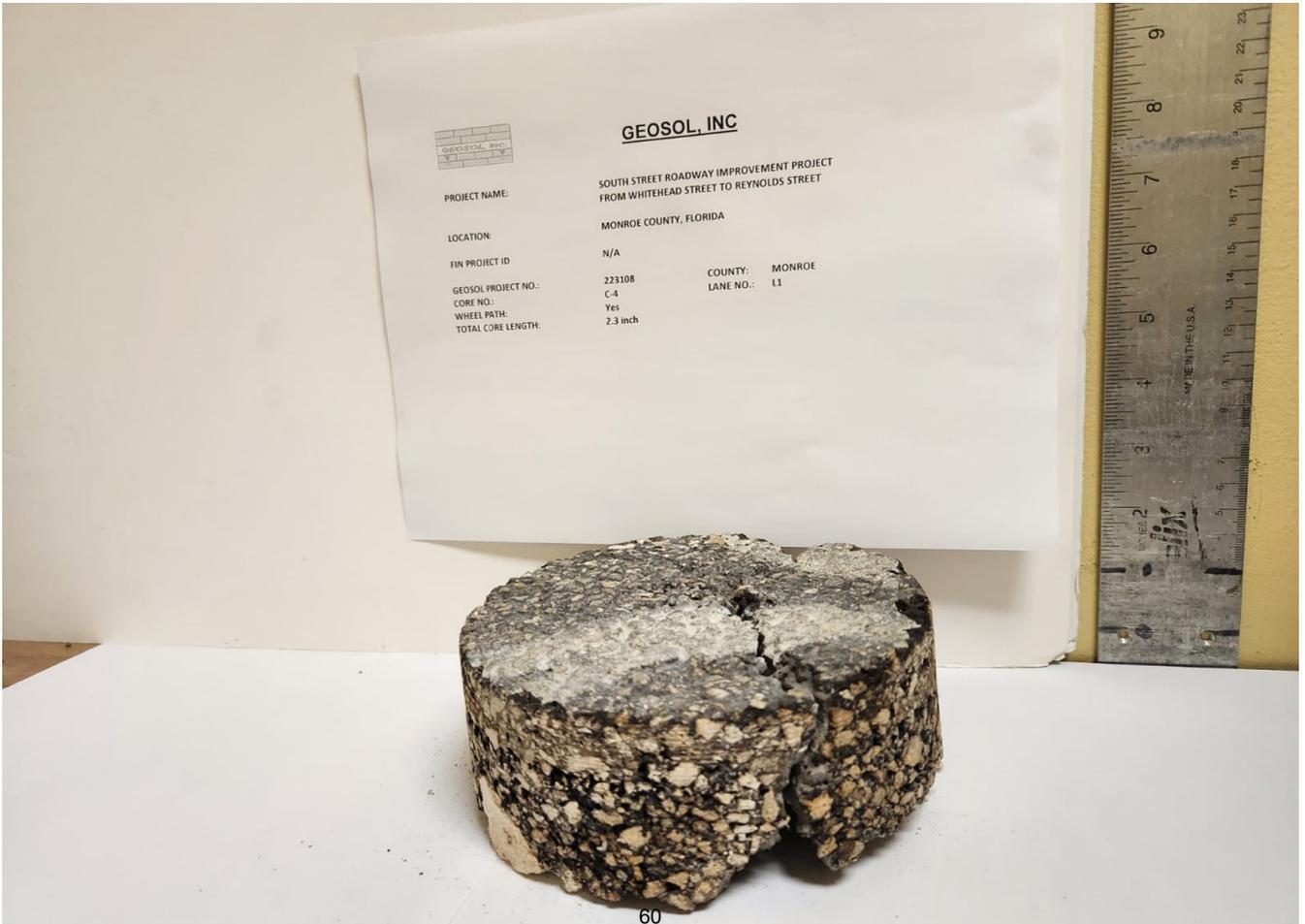
Pavement Evaluation and Condition Data
Pavement and Site Photographs
Test Boring Records

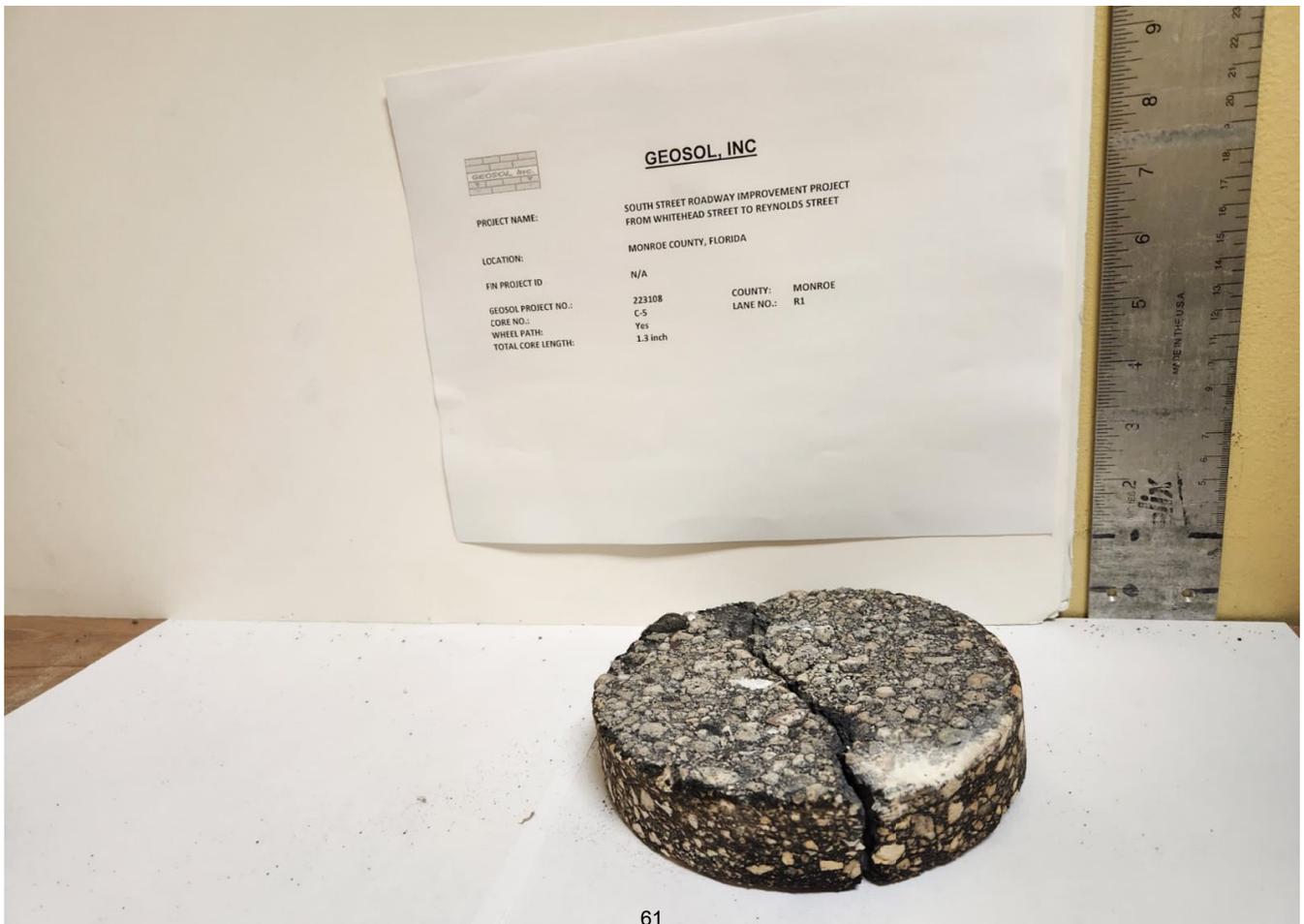












GEOSOL, Inc. MIAMI LAKES, FL		TEST BORING RECORD (ASTM D-1586)				BORING No. C-1		
PROJECT NAME: South Street Improvement Project from Whitehead Street to Reynolds Street						SHEET No. 1 OF 1		
CLIENT: JACOBS						GEOSOL PROJECT No. 223108		
BORING LOCATION: NORTHING (ft):		EASTING (ft):		ELEVATION (ft):				
GROUNDWATER (FEET): N/A						DATUM (ft): NGVD, 1929		
DATE	TIME	DEPTH (ft)	CASING L (ft)	TYPE DIA.(in)	NW 3	SAMPLE SS 1 - 3/8 ID	CORE WT.(lbs) 140	TUBE FALL(in) 30
						DATE START: 3/2/2023		
						DATE FINISH: 3/2/2023		
						DRILLER: R. Morales		
						EQUIP./HAMMER: B-53/ AUTO.		
DEPTH, ft	SAMPLE No.	STRATUM No.	BLOWS / 6"	N Value (bpf)	SYMBOL	MATERIAL DESCRIPTION		REMARKS
1	S-1	0	-	16		0 to 2.8": Asphalt Pavement		BORING TERMINATED AT DEPTH OF 2.23 ft. BOREHOLE GROUTED
2		1	14			2.8" to 2.23": Brown Slightly Silty Fine to Medium SAND with Little Limerock Fragments (Base/Stabilized Subgrade; A-1-b)		
3			9					
4			7					
5			5					
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLE IDENTIFICATION				
0-3	Very Loose	0-1	Very Soft		- H - Hand Auger			
3-8	Loose	1-3	Soft		- S - Split Spoon			
8-24	Medium Dense	3-6	Medium Stiff		- T - Thin Wall Tube			
24-40	Dense	6-12	Stiff		- U - Undisturbed Piston			
> 40	Very Dense	12-24	Very Stiff		- C - Diamond Core			
		> 24	Hard		- W - Wash Sample			
					- FILL			
					- SAND			
					- ORGANIC SOILS / MUCK			
					- SILT			
					- CLAY			
					- LIMESTONE			
					- SANDSTONE			

GEOSOL, Inc. MIAMI LAKES, FL			TEST BORING RECORD (ASTM D-1586)				BORING No. C-2	
PROJECT NAME: South Street Improvement Project from Whitehead Street to Reynolds Street							SHEET No. 1 OF 1	
CLIENT: JACOBS							GEOSOL PROJECT No. 223108	
BORING LOCATION: NORTHING (ft):			EASTING (ft):		ELEVATION (ft):			
GROUNDWATER (FEET): N/A			CASING	SAMPLE	CORE	TUBE		
DATE	TIME	DEPTH (ft)	CASING L (ft)	TYPE DIA.(in)	NW 3	SS 1 - 3/8 ID	DATUM (ft): NGVD, 1929	
			-	WT.(lbs)		140	DATE START: 3/2/2023	
				FALL(in)		30	DATE FINISH: 3/2/2023	
							DRILLER: R. Morales	
							EQUIP./HAMMER: B-53/ AUTO.	
DEPTH, ft	SAMPLE No.	STRATUM No.	BLOWS / 6"	N Value (bpf)	SYMBOL	MATERIAL DESCRIPTION	REMARKS	
		0	-			0 to 1.3"/5.8" Asphalt Pavement	BORING TERMINATED AT DEPTH OF 2.48 ft. BOREHOLE GROUTED	
1	S-1	1	11	26		1.3"/5.8" to 2.48" Brown Slightly Silty Fine to Medium SAND with Little Limerock Fragments (Base/Stabilized Subgrade, A-1-b)		
			14					
2			12					
			13					
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE IDENTIFICATION				
0-3	Very Loose	0-1	Very Soft		- H - Hand Auger			
3-8	Loose	1-3	Soft		- S - Split Spoon			
8-24	Medium Dense	3-6	Medium Stiff		- T - Thin Wall Tube			
24-40	Dense	6-12	Stiff		- U - Undisturbed Piston			
> 40	Very Dense	12-24	Very Stiff		- C - Diamond Core			
		> 24	Hard		- W - Wash Sample			
					- FILL			
					- SAND			
					- ORGANIC SOILS / MUCK			
					- SILT			
					- CLAY			
					- LIMESTONE			
					- SANDSTONE			

GEOSOL, Inc. MIAMI LAKES, FL		TEST BORING RECORD (ASTM D-1586)				BORING No. C-3			
PROJECT NAME: South Street Improvement Project from Whitehead Street to Reynolds Street						SHEET No. 1 OF 1			
CLIENT: JACOBS						GEOSOL PROJECT No. 223108			
BORING LOCATION: NORTHING (ft):		EASTING (ft):		ELEVATION (ft):					
GROUNDWATER (FEET): N/A			CASING	SAMPLE	CORE	TUBE	DATUM (ft): NGVD, 1929		
DATE	TIME	DEPTH (ft)	L (ft)	NW	SS		DATE START: 3/2/2023		
			DIA.(in)	3	1 - 3/8 ID		DATE FINISH: 3/2/2023		
			WT.(lbs)		140		DRILLER: R. Morales		
			FALL(in)		30		EQUIP./HAMMER: B-53/ AUTO.		
DEPTH, ft	SAMPLE No.	STRATUM No.	BLOWS / 6"	N Value (bpf)	SYMBOL	MATERIAL DESCRIPTION	REMARKS		
		0	-			0 to 4.5": Asphalt Pavement			
1	S-1	1	13	26		4.5" to 2.38': Brown Silty Fine to Coarse SAND with Little Limerock Fragments (Base/Stabilized Subgrade; A-1-b)	BORING TERMINATED AT DEPTH OF 2.38 ft. BOREHOLE GROUTED		
2			15						
			11						
			13						
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
BLOWS/FT.		DENSITY		BLOWS/FT.		CONSISTENCY		SAMPLE IDENTIFICATION	
0-3	Very Loose	0-1	Very Soft		H - Hand Auger		FILL		
3-8	Loose	1-3	Soft		S - Split Spoon		SAND		
8-24	Medium Dense	3-6	Medium Stiff		T - Thin Wall Tube		ORGANIC SOILS / MUCK		
24-40	Dense	6-12	Stiff		U - Undisturbed Piston		SILT		
> 40	Very Dense	12-24	Very Stiff		C - Diamond Core		CLAY		
		> 24	Hard		W - Wash Sample		LIMESTONE		
							SANDSTONE		

GEOSOL, Inc. MIAMI LAKES, FL				TEST BORING RECORD (ASTM D-1586)				BORING No. C-4	
PROJECT NAME: South Street Improvement Project from Whitehead Street to Reynolds Street								SHEET No. 1 OF 1	
CLIENT: JACOBS								GEOSOL PROJECT No. 223108	
BORING LOCATION: NORTHING (ft):				EASTING (ft):		ELEVATION (ft):			
GROUNDWATER (FEET): N/A				CASING	SAMPLE	CORE	TUBE	DATUM (ft): NGVD, 1929	
DATE	TIME	DEPTH (ft)	CASING L (ft)	TYPE DIA.(in)	NW 3	SS 1 - 3/8 ID			DATE START: 3/2/2023
			-	WT.(lbs)		140			DATE FINISH: 3/2/2023
				FALL(in)		30			DRILLER: R. Morales
									EQUIP./HAMMER: B-53/ AUTO.
DEPTH, ft	SAMPLE No.	STRATUM No.	BLOWS / 6"	N Value (bpf)	SYMBOL	MATERIAL DESCRIPTION			REMARKS
		0	-			0 to 2.3": Asphalt Pavement			BORING TERMINATED AT DEPTH OF 2.19 ft. BOREHOLE GROUTED
1	S-1	1	13	30		2.3" to 2.19": Brown Slightly Silty Fine to Coarse SAND with Some Limerock Fragments (Base/Stabilized Subgrade; A-1-b)			
			16						
2			14						
			12						
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLE IDENTIFICATION					
0-3	Very Loose	0-1	Very Soft		- H - Hand Auger				- FILL
3-8	Loose	1-3	Soft		- S - Split Spoon				- SAND
8-24	Medium Dense	3-6	Medium Stiff		- T - Thin Wall Tube				- ORGANIC SOILS / MUCK
24-40	Dense	6-12	Stiff		- U - Undisturbed Piston				- SILT
> 40	Very Dense	12-24	Very Stiff		- C - Diamond Core				- CLAY
		> 24	Hard		- W - Wash Sample				- LIMESTONE
									- SANDSTONE

GEOSOL, Inc.		TEST BORING RECORD				BORING No. C-5			
MIAMI LAKES, FL		(ASTM D-1586)							
PROJECT NAME: South Street Improvement Project from Whitehead Street to Reynolds Street						SHEET No. 1 OF 1			
CLIENT: JACOBS						GEOSOL PROJECT No. 223108			
BORING LOCATION: NORTHING (ft):		EASTING (ft):		ELEVATION (ft):					
GROUNDWATER (FEET): N/A									
DATE	TIME	DEPTH (ft)	CASING L (ft)	TYPE DIA.(in)	CASING NW 3	SAMPLE SS 1 - 3/8 ID	CORE	TUBE	DATUM (ft): NGVD, 1929
				WT.(lbs)		140			DATE START: 3/2/2023
				FALL(in)		30			DATE FINISH: 3/2/2023
									DRILLER: R. Morales
									EQUIP./HAMMER: B-53/ AUTO.
DEPTH, ft	SAMPLE No.	STRATUM No.	BLOWS / 6"	N Value (bpf)	SYMBOL	MATERIAL DESCRIPTION		REMARKS	
		0	-			0 to 1.3": Asphalt Pavement		BORING TERMINATED AT DEPTH OF 2.10 ft. BOREHOLE GROUTED	
1	S-1	1	13	30		1.3" to 2.10": Brown Slightly Silty Fine to Coarse SAND with Little to Some Limerock Fragments (Base/Stabilized Subgrade, A-1-b)			
2			16						
			14						
			12						
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLE IDENTIFICATION					
0-3	Very Loose	0-1	Very Soft		- H - Hand Auger				
3-8	Loose	1-3	Soft		- S - Split Spoon				
8-24	Medium Dense	3-6	Medium Stiff		- T - Thin Wall Tube				
24-40	Dense	6-12	Stiff		- U - Undisturbed Piston				
> 40	Very Dense	12-24	Very Stiff		- C - Diamond Core				
		> 24	Hard		- W - Wash Sample				
					- FILL				
					- SAND				
					- ORGANIC SOILS / MUCK				
					- SILT				
					- CLAY				
					- LIMESTONE				
					- SANDSTONE				

APPENDIX “D”

FHWA Checklist



GEOTECHNICAL REPORT REVIEW CHECKLISTS

The following checklists cover the major information and recommendations that should be addressed in project geotechnical reports.

Section A covers site investigation information that will be common to all geotechnical reports for any type of geotechnical feature.

Sections B through I cover the basic information and recommendations that should be presented in geotechnical reports for specific geotechnical features: centerline cuts and embankments, embankments over soft ground, landslides, retaining structures, structure foundations and material sites.

<u>Subject</u>	<u>Page</u>
SECTION A, Site Investigation Information	12
SECTION B, Centerline Cuts and Embankments	14
SECTION C, Embankments Over Soft Ground	16
SECTION D, Landslide Corrections	18
SECTION E, Retaining Structures	20
SECTION F, Structure Foundations – Spread Footings	21
SECTION G, Structure Foundations – Driven Piles	22
SECTION H, Structure Foundations – Drilled Shafts	25
SECTION I, Ground Improvement Techniques	27
SECTION J, Material Sites	28

In most sections and subsections the user has been provided supplemental page references to the “Soils and Foundations Workshop Manual” FHWA NHI-00-045. These page numbers appear in parentheses () immediately adjacent to the section or subsection topic. Generalist engineers are particularly encouraged to read these references. Additional reference information on these topics is available in the Geotechnical Engineering Notebook, a copy of which is kept in all FHWA Division offices by either the Bridge Engineer or the engineer with the geotechnical collateral duty.

Certain checklist items are of vital importance to have been included in the geotechnical report. These checklist items have been marked with an asterisk (*). A negative response to any of these asterisked items is cause to contact the geotechnical engineer for clarification of this omission.

GTR REVIEW CHECKLIST FOR SITE INVESTIGATION

A. Site Investigation Information

Since the most important step in the geotechnical design process is to conduct an adequate site investigation, presentation of the subsurface information in the geotechnical report and on the plans deserves careful attention.

<u>Geotechnical Report Text</u> (Introduction) (Pgs. 10-1 to 10-4)	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
1. Is the general location of the investigation described and/or a vicinity map included?	<u>X</u>	___	___
2. Is scope and purpose of the investigation summarized?	<u>X</u>	___	___
3. Is concise description given of geologic setting and topography of area?	<u>X</u>	___	___
4. Are the field explorations and laboratory tests on which the report is based listed?	<u>X</u>	___	___
5. Is the general description of subsurface soil, rock, and groundwater conditions given?	<u>X</u>	___	___
*6. Is the following information included with the geotechnical report (typically included in the report appendices):			
a. Test hole logs? (Pgs. 2-24 to 2-32)	<u>X</u>	___	___
b. Field test data?	<u>X</u>	___	___
c. Laboratory test data? (Pgs. 4-22 to 4-23)	<u>X</u>	___	___
d. Photographs (if pertinent)?	<u>X</u>	___	___
 <u>Plan and Subsurface Profile</u> (Pgs. 2-19, 3-9 to 3-12, 10-13)			
*7. Is a plan and subsurface profile of the investigation site provided?	<u>X</u>	___	___
8. Are the field explorations located on the plan view?	<u>X</u>	___	___

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

A. <u>Site Investigation Information</u> (Cont.)	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
*9. Does the conducted site investigation meet minimum criteria outlined in Table 2?	<u>X</u>	___	___
10. Are the explorations plotted and correctly numbered on the profile at their true elevation and location?	<u>X</u>	___	___
11. Does the subsurface profile contain a word description and/or graphic depiction of soil and rock types?	<u>X</u>	___	___
12. Are groundwater levels and date measured shown on the subsurface profile?	<u>X</u>	___	___
<u>Subsurface Profile or Field Boring Log</u> (Pgs. 2-14, 2-15, 2-24 to 2-31)			
13. Are sample types and depths recorded?	<u>X</u>	___	___
*14. Are SPT blow count, percent core recovery, and RQD values shown?	<u>X</u>	___	___
15. If cone penetration tests were made, are plots of cone resistance and friction ratio shown with depth?			X
<u>Laboratory Test Data</u> (Pgs. 4-6, 4-22, 4-23)			
*16. Were lab soil classification tests such as natural moisture content, gradation, Atterberg limits, performed on selected representative samples to verify field visual soil identification?	<u>X</u>	___	___
17. Are laboratory test results such as shear strength (Pg. 4-14), consolidation (Pg. 4-9), etc., included and/or summarized?	___	___	<u>X</u>

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

GTR REVIEW CHECKLIST FOR CENTERLINE CUTS AND EMBANKMENTS

B. Centerline Cuts and Embankments (Pgs. 2-2 to 2-6)

In addition to the basic information listed in Section A, is the following information provided in the project geotechnical report.

Are station-to-station descriptions included for:	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
1. Existing surface and subsurface drainage?	___	___	<u>X</u>
2. Evidence of springs and excessively wet areas?	___	___	<u>X</u>
3. Slides, slumps, and faults noted along the alignment?	___	___	<u>X</u>

Are station-to-station recommendations included for the following?

General Soil Cut or Fill

4. Specific surface/subsurface drainage recommendations?	___	___	<u>X</u>
5. Excavation limits of unsuitable materials?	___	___	<u>X</u>
*6. Erosion protection measures for back slopes, side slopes, and ditches, including riprap recommendations or special slope treatment.	___	___	<u>X</u>

Soil Cuts (Pgs. 5-23, 5-24)

*7. Recommended cut slope design?	___	___	<u>X</u>
8. Are clay cut slopes designed for minimum F.S. = 1.50?	___	___	<u>X</u>
9. Special usage of excavated soils?	___	___	<u>X</u>
10. Estimated shrink-swell factors for excavated materials?	___	___	<u>X</u>
11. If answer to 3 is yes, are recommendations provided for design treatment?	___	___	<u>X</u>

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

B. <u>Centerline Cuts and Embankments</u> (Cont.)	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
<u>Fills</u> (Pgs. 5-1 to 5-3)			
12. Recommended fill slope design?	___	___	<u> X </u>
13. Will fill slope design provide minimum F.S. = 1.25?	___	___	<u> X </u>
<u>Rock Slopes</u>			
*14. Are recommended slope designs and blasting specifications provided?	___	___	<u> X </u>
*15. Is the need for special rock slope stabilization measures, e.g., rockfall catch ditch, wire mesh slope protection, shotcrete, rock bolts, addressed?	___	___	<u> X </u>
16. Has the use of “template” designs been avoided (such as designing all rock slopes on 0.25:1 rather than designing based on orientation of major rock jointing)?	___	___	<u> X </u>
*17. Have effects of blast induced vibrations on adjacent structures been evaluated?	___	___	<u> X </u>

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THIS PROJECT

GTR REVIEW CHECKLIST FOR EMBANKMENTS OVER SOFT GROUND

C. Embankments Over Soft Ground

Where embankments must be built over soft ground (such as soft clays, organic silts, or peat), stability and settlement of the fill should be carefully evaluated. In addition to the basic information listed in Section A, is the following information provided in the project geotechnical report?

<u>Embankment Stability</u> (Pgs. 5-1 to 5-3, 5-20 to 5-22)	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
*1. Has the stability of the embankment been evaluated for minimum F.S. = 1.25 for side slope and 1.30 for end slope of bridge approach embankments?	___	___	___
*2. Has the shear strength of the foundation soil been determined from lab testing and/or field vane shear or cone penetrometer tests?	___	___	___
*3. If the proposed embankment does not provide minimum factors of safety given above, are recommendations given or feasible treatment alternates, which will increase factor of safety to minimum acceptable (such as change alignment, lower grade, use stabilizing counterberms, excavate and replace weak subsoil, lightweight fill, geotextile fabric reinforcement, etc.)?	___	___	___
*4. Are cost comparisons of treatment alternates given and a specific alternate recommended?	___	___	___
 <u>Settlement of Subsoil</u> (Pgs. 6-7 to 6-20)			
5. Have consolidation properties of fine-grained soils been determined from laboratory consolidation tests?	___	___	___
*6. Have settlement amount and time been estimated?	___	___	___
7. For bridge approach embankments, are recommendations made to get the settlement out before the bridge abutment is constructed (waiting period, surcharge, or wick drains)?	___	___	___

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THIS PROJECT

C. <u>Embankments Over Soft Ground</u> (Cont.)	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
8. If geotechnical instrumentation is proposed to monitor fill stability and settlement, are detailed recommendations provided on the number, type, and specific locations of the proposed instruments?	—	—	—
<u>Construction Considerations</u> (Pgs. 10-8, 10-9)			
9. If excavation and replacement of unsuitable shallow surface deposits (peat, muck, top soil) is recommended, are vertical and lateral limits of recommended excavation provided?	—	—	—
10. Where a surcharge treatment is recommended, are plan and cross-section of surcharge treatment provided in geotechnical report for benefit of the roadway designer?	—	—	—
11. Are instructions or specifications provided concerning instrumentation, fill placement rates and estimated delay times for the contractor?	—	—	—
12. Are recommendations provided for disposal of surcharge material after the settlement period is complete?	—	—	—

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THIS PROJECT
GTR REVIEW CHECKLIST FOR LANDSLIDE CORRECTIONS

D. Landslide Corrections (Pgs. 5-1 to 5-4, 5-17 to 5-20)

In addition to the basic information listed in Section A, is the following information provided in the landslide study geotechnical report? (Refer to Table 4 for guidance on the necessary technical support data for correction of slope instabilities.)

		<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
*1.	Is a site plan and scaled cross-section provided showing ground surface conditions both before and after failure?	___	___	___
*2.	Is the past history of the slide area summarized, including movement history, summary of maintenance work and costs, and previous corrective measures taken, if any?	___	___	___
*3.	Is a summary given of results of site investigation, field and lab testing, and stability analysis, including cause(s) of the slide?	___	___	___

Plan

4.	Are detailed slide features, including location of ground surface cracks, head scarp, and toe bulge, shown on the site plan?	___	___	___
----	--	-----	-----	-----

Cross-section

*5.	Are the cross-sections used for stability analysis included with the soil profile, water table, soil unit weights, soil shear strengths, and failure plane shown as it exists?	___	___	___
6.	Is slide failure plane location determined from slope indicators?	___	___	___
*7.	For an active slide, was soil strength along the slide failure plane back-calculated using a F.S. = 1.0 at the time of failure?	___	___	___

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THIS PROJECT

	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
--	------------	-----------	---------------------------

D. Landslide Corrections (Cont.)

Text

*8. Is the following information presented for each proposed correction alternative (typical correction methods include buttress, shear key, rebuild slope, surface drainage, subsurface drainage-interceptor, drain trenches or horizontal drains, etc.).

- | | | | |
|---|-----|-----|-----|
| a. Cross-section of proposed alternative? | ___ | ___ | ___ |
| b. Estimated safety factor? | ___ | ___ | ___ |
| c. Estimated cost? | ___ | ___ | ___ |
| c. Advantages and disadvantages? | ___ | ___ | ___ |

9. Is recommended correction alternative(s) given that provide a minimum F.S. = 1.25?	___	___	___
---	-----	-----	-----

10. If horizontal drains are proposed as part of slide correction, has subsurface investigation located definite water bearing strata that can be tapped with horizontal drains?	___	___	___
--	-----	-----	-----

11. If a toe counterberm is proposed to stabilize an active slide has field investigation confirmed that the toe of the existing slide does not extend beyond the toe of the proposed counterberm?	___	___	___
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Construction considerations

12. Where proposed correction will require excavation into the toe of an active slide (such as for buttress or shear key) has the “during construction backslope F.S.” with open excavation been determined?	___	___	___
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13. If open excavation F.S. is near 1.0, has excavation stage stage construction been proposed?	___	___	___
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14. Has seasonal fluctuations of groundwater table been considered?	___	___	___
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15. Is stability of excavation backslope to be monitored?	___	___	___
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16. Are special construction features, techniques and materials described and specified?	___	___	___
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*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THIS PROJECT
GTR REVIEW CHECKLIST FOR RETAINING STRUCTURES

E. Retaining Structures (See “Earth Retaining Structures” FHWA NHI-99-025)

In addition to the basic information listed in Section A, is the following information provided in the project geotechnical report?

	Yes	No	Unknown or N/A
*1. Recommended soil strength parameters and groundwater elevations for use in computing wall design lateral earth pressures and factor of safety for overturning, sliding, and external slope stability.	___	___	___
2. Is it proposed to bid alternate wall designs?	___	___	___
*3. Are acceptable reasons given for the choice and/or exclusion of certain wall types?	___	___	___
*4. Is an analysis of the wall stability included with minimum acceptable factors of safety against overturning (F.S. = 2.0), sliding (F.S. = 1.5), and external slope stability (F.S. = 1.5)?	___	___	___
5. If wall will be placed on compressible foundation soils, is estimated total, differential and time rate of settlement given?	___	___	___
6. Will wall types selected for compressible foundation soils allow differential movement without distress?	___	___	___
7. Are wall drainage details, including materials and compaction, provided?	___	___	___
<u>Construction Considerations</u>			
8. Are excavation requirements covered including safe slopes for open excavations or need for sheeting or shoring?	___	___	___
9. Fluctuation of groundwater table?	___	___	___

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THIS PROJECT

Top-down Construction Type Walls (See “Manual for Design & Construction Monitoring of Soil Nail Walls”, FHWA SA-96-069R and “Ground Anchors and Anchored Systems”, FHWA IF-99-015)

	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
*10. For soil nail and anchor walls are the following included in the geotechnical report?			
a. Design soil parameters (ϕ , c , γ)	___	___	___
b. Minimum bore size (soil nails)?	___	___	___
c. Design pullout resistance (soil nails)?	___	___	___
d. Ultimate anchor capacity (anchors)?	___	___	___
e. Corrosion protection requirements?	___	___	___

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THIS PROJECT

GTR REVIEW CHECKLIST FOR SPREAD FOOTINGS

F. Structure Foundations – Spread Footings (Pgs. 7-1 to 7-17)

In addition to the basic information listed in Section A, is the following information provided in the project foundation report?

	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
*1. Are spread footing recommended for foundation support? If not, are reasons for not using them discussed?	___	___	___
If spread footing supports are recommended, are conclusions and recommendations given for the following:			
*2. Is recommended bottom of footing elevation and reason for recommendation (e.g., based on frost depth, estimated scour depth, or depth to competent bearing material) given?	___	___	___
*3. Is recommended allowable soil or rock bearing pressure given?	___	___	___
*4. Is estimated footing settlement and time given?	___	___	___
*5. Where spread footings are recommended to support abutments placed in the bridge end fill, are special gradation and compaction requirements provided for select end fill and backwall drainage material (Pgs. 6-1 to 6-4)	___	___	___

Construction Considerations

6. Have the materials been adequately described on which the footing is to be placed so the project inspector can verify that material is as expected?	___	___	___
7. Have excavation requirements been included for safe slopes in open excavations, need for sheeting or shoring, etc.?	___	___	___
8. Has fluctuation of the groundwater table been addressed?	___	___	___

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

GTR REVIEW CHECKLIST FOR DRIVEN PILES

G. Structure Foundations – Driven Piles (Pgs. 8-1 to 8-29, 9-1 to 9-35)

In addition to the basic information listed in Section A, if pile support is recommended or given as an alternative, conclusions/recommendations should be provided in the project geotechnical report for the following:

	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
*1. Is the recommended pile type given (displacement, non-displacement, steel pipe, concrete, H-pile, etc.) with valid reasons given for choice and/or exclusion? (Pgs. 8-1 to 8-3)	<u>X</u>	___	___
2. Do you consider the recommended pile type(s) to be the most suitable and economical?	<u>X</u>	___	___
*3. Are estimated pile lengths and estimated tip elevations given for the recommended allowable pile design loads?	<u>X</u>	___	___
4. Do you consider the recommended design loads ^X to be reasonable?	<u>X</u>	___	___
5. Has pile group settlement been estimated (only of practical significance for friction pile groups ending in cohesive soil)? (Pgs. 8-20 to 8-22)	___	___	<u>X</u>
6. If a specified or minimum pile tip elevation is recommended, is a clear reason given for the required tip elevation, such as underlying soft layers, scour, downdrag, piles uneconomically long, etc.?	<u>X</u>	___	___
*7. Has design analysis (wave equation analysis) verified that the recommended pile section can be driven to the estimated or specified tip elevation without damage (especially applicable where dense gravel-cobble-boulder layers or other obstructions have to be penetrated)?	___	___	<u>X</u>
8. Where scour piles are required, have pile design and driving criteria been established based on mobilizing the full pile design capacity below the scour zone?	___	___	<u>X</u>

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

G. <u>Structure Foundations – Driven Piles (Cont.)</u>		<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
9.	Where lateral load capacity of large diameter piles is an important design consideration, are p-y curves (load vs. deflection) or soil parameters given in the geotechnical report to allow the structural engineer to evaluate lateral load capacity of all piles?	<u>X</u>	___	___
*10.	For pile supported bridge abutments over soft ground:			
a.	Has abutment downdrag load been estimated and solutions such bitumen coating been considered in design? Not generally required if surcharging of the fill is being performed. (Pgs. 8-21, 8-23)	___	___	<u>X</u>
b.	Is bridge approach slab recommended to moderate differential settlement between bridge ends and fill?	___	___	<u>X</u>
c.	If the majority of subsoil settlement will not be removed prior to abutment construction (by surcharging), has estimate been made of abutment rotation that can occur due to lateral squeeze of soil subsoil? (Pgs. 5-25, 5-26)	___	___	<u>X</u>
d.	Does the geotechnical report specifically alert the structural designer to the estimated horizontal abutment movement?	___	___	<u>X</u>
11.	If bridge project is large, has pile load test program been recommended? (Pgs. 9-23 to 9-26)	___	___	<u>X</u>
12.	For major structure in high seismic risk area, has assessment been made of liquefaction potential of foundation soil during design earthquake (only loose saturated sands and silts are susceptible to liquefaction)? (See GEC No. 3, FHWA SA-97-076)	___	___	<u>X</u>

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

G. Structure Foundations – Driven Piles (Cont.)

<u>Construction Considerations</u> (Pgs. 9-4 to 9-35)	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
13. Pile driving details such as: boulders or obstructions which may be encountered during driving; need for preaugering, jetting, spudding; need for pile tip reinforcement; driving shoes, etc.?	<u>X</u>	___	___
14. Excavation requirements: safe slope for open excavations; need for sheeting or shoring; fluctuation of groundwater table?	<u>X</u>	___	___
15. Have effects of pile driving operation on adjacent structures been evaluated such as protection against damage caused by footing excavation or pile driving vibrations?	<u>X</u>	___	___
16. Is preconstruction condition survey to be made of adjacent structures to prevent unwarranted damage claims?	___	___	<u>X</u>
17. On large pile driving projects, have other methods of pile driving control been considered such as dynamic testing or wave equation analysis?	___	___	<u>X</u>

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THIS PROJECT

GTR REVIEW CHECKLIST FOR DRILLED SHAFTS

H. Structure Foundations – Drilled Shafts (Pgs. 8-23 to 8-29)

In addition to the basic information listed in Section A, if drilled shaft support is recommended or given as an alternative, are conclusion/recommendations provided in the project foundation report for the following:

	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
*1. Are recommended shaft diameter(s) and length(s) for allowable design loads based on an analysis using soil parameters for side friction and end bearing?	___	___	___
*2. Settlement estimated for recommended design loads?	___	___	___
*3. Where lateral load capacity of shaft is an important design consideration, are p-y (load vs. deflection) curves or soils data provided in geotechnical report that will allow structural engineer to evaluate lateral load capacity of shaft?	___	___	___
4. Is static load test (to plunging failure) recommended?	___	___	___

Construction Considerations

5. Have construction methods been evaluated, i.e., can less expensive dry method or slurry method be used or will casing be required?	___	___	___
6. If casing will be required, can casing be pulled as shaft is concreted (this can result in significant cost savings on very large diameter shafts)?	___	___	___
7. If artesian water was encountered in explorations, have design provisions been included to handle it (such as by requiring casing and a tremie seal)?	___	___	___
8. Will boulders be encountered? (If boulders will be encountered, then the use of shafts should be seriously questioned due to construction installation difficulties and resultant higher cost to boulders can cause.)	___	___	___

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THIS PROJECT
GTR REVIEW FOR GROUND IMPROVEMENT TECHNIQUES

I. Ground Improvement Techniques

In addition to the basic information listed in Section A, if ground improvement techniques are recommended or given as an alternative, are conclusion/recommendations provided in the project foundation report for the following:

	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
1. For wick drains, do recommendations include the coefficient of consolidation for horizontal drainage, c_h , and the length and spacing of wick drains?	—	—	—
2. For lightweight fill, do recommendations include the material properties (ϕ , c , γ), permeability, compressibility, and drainage requirements?	—	—	—
3. For vibro-compaction, do the recommendations include required degree of densification (e.g., relative density, SPT blow count, etc.), settlement limitations, and quality control?	—	—	—
4. For dynamic compaction, do the recommendations include required degree of densification (e.g., relative density, SPT blow count, etc.), settlement limitations, and quality control?	—	—	—
5. For stone columns, do the recommendations include spacing and dimensions of columns, bearing capacity, settlement characteristics, and permeability (seismic applications)?	—	—	—
6. For grouting, do the recommendations include the grouting method (permeation, compaction, etc.), material improvement criteria, settlement limitations, and quality control?	—	—	—

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THIS PROJECT

GTR REVIEW CHECKLIST FOR MATERIAL SITES

J. Material Sites

In addition to the basic information listed in Section A, is the following information provided in the project Material Site Report.

	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
1. Material site location, including description of existing or proposed access routes and bridge load limits, if any?	___	___	___
*2. Have soil samples representative of all materials encountered during pit investigation been submitted and tested?	___	___	___
*3. Are laboratory quality test results included in the report?	___	___	___
4. For aggregate sources, do the laboratory quality test results (such as L.A. abrasion, sodium sulfate, degradation, absorption, reactive aggregate, etc.) indicate if specification materials can be obtained from the deposit using normal processing methods?	___	___	___
5. If the lab quality test results indicate that specification material cannot be obtained from the pit materials as they exist naturally, has the source been rejected or are detailed recommendations provided for processing or controlling production so as to ensure a satisfactory product?	___	___	___
*6. For soil borrow sources, have possible difficulties been noted, such as above optimum moisture content for clay-silt soils, waste due to high PI, boulders, etc.?	___	___	___
*7. Where high moisture content clay-silt soils must be used, are recommendations provided on the need for aeration to allow the materials to dry out sufficiently to meet compaction requirements?	___	___	___
8. Are estimated shrink-swell factors provided.	___	___	___

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THIS PROJECT

I. <u>Material Sites</u> (Cont.)	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
*9. Do the proven material site quantities satisfy the estimated project quantity needs?	___	___	___
10. Where materials will be executed from below the water table, have seasonal fluctuations of the water table been determined?	___	___	___
11. Are special permit requirements been covered?	___	___	___
12. Have pit reclamation requirements been covered adequately?	___	___	___
13. Has a material site sketch (plan and profile) been provided for inclusion in the plans, which contains:	___	___	___
a. Material site number?	___	___	___
b. North arrow and legal subdivision?	___	___	___
c. Test hole or test pit logs, locations, numbers and date?	___	___	___
d. Water table elevation and date?	___	___	___
e. Depth of unsuitable overburden, which will have to be stripped?	___	___	___
f. Suggested overburden disposal area?	___	___	___
g. Proposed mining area and previously mined areas?	___	___	___
h. Existing stockpile locations?	___	___	___
i. Existing or suggested access road?	___	___	___
j. Bridge load limits?	___	___	___
k. Reclamation details?	___	___	___
14. Are recommended special provisions provided?	___	___	___

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

**SECTION 31 23 19.01
DEWATERING**

PART 1 GENERAL

1.01 SUBMITTALS

- A. Quality Control Submittals: Copies of any authorization and permits required to perform work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

- A. The Contractor shall be responsible for design, installation, and operation of a dewatering system to keep excavations and trenches free of water.
- B. Remove and control water during periods when necessary to properly accomplish Work.
- C. Prior to beginning work, the Contractor shall develop a dewatering method and submit it to the Engineer and the Owner. The Contractor’s dewatering method shall take into account limitations in the existing operating conditions of the Owner’s sewage collection and pumping facilities. Final acceptance of the Contractor’s dewatering method will be based on demonstrated performance of the system to satisfy the requirements of dewatering as specified herein.
- D. The Contractor shall not discharge water into the storm sewer system. The Contractor shall discharge water into the sanitary sewer system and prescreening is to be provided to prevent excess sand or trench materials from entering the system. The Contractor shall provide an acceptable plan to receive approval from the City of Key West prior to discharging into the sanitary sewer system.
- E. The Contractor shall be responsible and bear the cost for any sanitary sewer system breakdowns and associated repair costs if they are directly attributed to his dewatering operation.
- F. If the dewatering requirements are not satisfied due to inadequacy or failure of the dewatering system, then loosening of the foundation material, instability of the slopes, or damage to the foundations or structures may occur, or other additional work or handling of materials may be required of the Contractor. The supply of all labor, materials, and equipment, and the performance of all

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work necessary to carry out additional work resulting from such inadequacy, premature shutdown, or failure of the dewatering system shall be undertaken by the Contractor to the satisfaction of the Engineer, and at no additional expense to the Owner.

- G. Dewatering shall be considered incidental to the construction and included in the applicable unit prices stated in the Proposal.

3.02 DEWATERING SYSTEMS

- A. Contractor shall design, furnish, install, operate, and maintain dewatering systems of sufficient size and capacity to permit excavation and subsequent construction in dry and to lower and maintain groundwater level a minimum of 2 feet below the lowest point of excavation. Continuously maintain excavations free of water, regardless of source, and until backfilled to final grade.
- B. For excavations and trenches, dewatering systems shall include equipment and appurtenances installed outside structural limits and sufficiently below lowest point of excavation when possible, or to maintain specified groundwater elevation.
- C. Design and Operate Dewatering Systems:
 - 1. To prevent loss of ground as water is removed.
 - 2. To avoid inducing settlement or damage to existing facilities, completed Work, or adjacent property.
 - 3. To relieve artesian pressures and resultant uplift of excavation bottom.

3.03 DISPOSAL OF WATER

- A. Obtain discharge permit for water disposal from authorities having jurisdiction.
- B. Treat water collected by dewatering operations, as required by regulatory agencies, prior to discharge.
- C. Discharge water as required by discharge permit and in manner that will not cause erosion or flooding, or otherwise damage existing facilities, completed Work, or adjacent property. Drainage of trench water through the pipeline under construction is prohibited.
- D. Remove solids from treatment facilities and perform other maintenance of treatment facilities as necessary to maintain their efficiency.

3.04 WELL POINT REMOVAL

- A. If well points are used, after removing the well point dewatering system, well point holes shall be filled with sand which shall be washed into the hole. Well point holes located in asphalt pavement surfaces or concrete pavements shall be filled with sand to the subgrade and the remaining portion of holes shall be filled with nonshrink grout.

3.05 CLEANING OF WASTEWATER PUMP STATION WET WELLS

- A. After all work has been completed, and before final acceptance, the Contractor shall clean the wet wells of the wastewater pump stations that receive flow from the sanitary sewers into which the Contractor discharged water from his dewatering operations. The Contractor is advised that the cleaning can only be performed during periods of low wastewater flow into the stations. The Contractor shall coordinate the cleaning with the Owner at least two weeks in advance of the cleaning operations.
- B. The sanitary sewers discharge into District 6.
- C. Cleaning of the wet wells shall be considered incidental to the construction and included in the applicable unit prices stated in the Proposal.

3.06 ALTERNATE METHODS OF CONSTRUCTION

- A. A combination of extremely porous substrata and relatively high ground water table exist at the sites of the proposed work. It is recognized that it may be very difficult and costly to dewater excavations. In view of this, the foregoing requirements for dewatering may be waived if the Contractor, at his option, chooses to employ an alternate method of construction. Prior to his selection of an alternate method of construction, the Contractor shall demonstrate that all reasonable means to dewater the excavation have been employed without success and shall obtain the concurrence of the Owner that the method selected is applicable to the conditions existing in the particular area. Concurrence by the Owner of the method selected, shall by no means relieve the Contractor of his obligation to install the system in accordance with the Contract Documents and to provide a completed functioning system.
- B. Any alternate method of construction proposed by the Contractor shall include provision such that the trenches shall be undercut a minimum of 8 inches. The resulting excavation shall then be backfilled with approved pipe bedding material.
- C. No additional payment will be made to the Contractor for excavation, backfill, sheeting, or any costs incurred for work or materials, or any other costs incurred, as a result of alternate methods of construction selected by the

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Contractor, but the prices established in the Proposal shall be full payment for the various items of work to be done.

- D. The alternate method of construction, if selected by the Contractor, shall in no way be construed as relieving the Contractor of his basic responsibility for satisfactory completion of the work in accordance with these Contract Documents.

END OF SECTION

**SECTION 31 23 23.15
TRENCH BACKFILL**

PART 1 GENERAL

1.01 DEFINITIONS

- A. Bedding Material: Granular material upon which pipes, conduits, cables, or duct banks are placed.
- B. Imported Material: Material obtained by Contractor from source(s) offsite.
- C. Lift: Loose (uncompacted) layer of material.
- D. Pipe Zone: Backfill zone that includes full trench width and extends from prepared trench bottom to an upper limit above top outside surface of pipe, conduit, cable or duct bank.
- E. Prepared Trench Bottom: Graded trench bottom after excavation and installation of stabilization material, if required, but before installation of bedding material.
- F. Relative Compaction: The ratio, in percent, of the as-compacted field dry density to the laboratory maximum dry density as determined by
- G. ASTM D1557. Corrections for oversize material may be applied to either as-compacted field dry density or maximum dry density, as determined by Engineer.
- H. Optimum Moisture Content: shall be determined by the ASTM standard specified to determine the maximum dry density for relative compaction. Field moisture content shall be determined on the basis of the fraction passing the 3/4-inch sieve.
- I. Selected Backfill Material: Material available onsite that Engineer determines to be suitable for a specific use.
- J. Well-Graded: A mixture of particle sizes that has no specific concentration or lack thereof of one or more sizes producing a material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids. Well-graded does not define any numerical value that must be placed on the coefficient of uniformity, coefficient of curvature, or other specific grain size distribution parameters.

1.02 SUBMITTALS

- A. Quality Control Submittals:

1. Certified Gradation Analysis: Submit not less than 30 days prior to delivery for imported materials or anticipated use for excavated materials, except for trench stabilization material that will be submitted prior to material delivery to Site.

PART 2 PRODUCTS

2.01 GEOTEXTILE

- A. Geotextile shall be a pervious sheet of polyester, polyethylene, nylon, or polypropylene filaments, woven or nonwoven, and formed into a uniform pattern. The geotextile shall have the following minimum properties (except when a range is given) when measured in accordance with the referenced standard:

PHYSICAL PROPERTY	TEST METHOD	REQUIREMENTS
Grab Tensile Strength (lbs) minimum	ASTM D4632	200
Elongation (%)	ASTM D4632	60
Apparent Opening Size U.S. Sieve No.	ASTM D4632	30-70
Permeability (cm/sec)	ASTM D4632	0.35
Trapezoid Tear Strength (lbs) minimum	ASTM D4632	75
Ultraviolet Degradation (minimum)	ASTM D4632	80 percent strength retention after 500 hours

- B. The geotextile shall be finished so that the filaments will retain their relative position with respect to each other. The edges of woven fabric shall be finished to prevent the outer material from pulling away from the fabric.
- C. The Contractor shall provide manufacturer’s certificate of compliance attesting that the geotextile meets the requirements of these Specifications. Provide mill certificates stating the length and width of fabric contained on each roll.

2.02 TRENCH STABILIZATION MATERIAL

- A. Granular Backfill: Shall be 2-1/2 inches minus crushed rock, reasonably well-graded from coarse to fine, and free from excessive dirt or other organic material with no more than 2 percent by weight passing the No. 200 sieve. The material shall be nonplastic and shall be wrapped in Geotextile.

2.03 BEDDING MATERIAL AND PIPE ZONE MATERIAL

- A. Unfrozen, friable, and no clay balls, roots, or other organic material.
- B. Crushed gravel or crushed rock, free from dirt, conforming to size No. 57 (per FDOT Standard Specifications) gradation or similar accepted material and shall be imported, if necessary, at the Contractor's own expense. Lime rock screenings or material resulting from trench excavation, except for lime rock which has been crushed and graded to size as specified, will not be accepted for pipe bedding materials.

2.04 TRENCH BACKFILL

- A. Same as specified in Paragraph 2.03 above for Bedding Material and Pipe Zone Material.

2.05 CONCRETE ENCASEMENT

- A. Concrete encasement will be used where, in the opinion of the Engineer, there is insufficient separation from water mains.
- B. Mix: ASTM C94, Alternate 3.
 - 1. Use a minimum of five sacks of cement per cubic yard of concrete.
 - 2. Design for Minimum Compressive Strength at 28 Days: 2,500 psi.

2.06 SOURCE QUALITY CONTROL

- A. Contractor's testing laboratory to perform gradation analysis in accordance with ASTM C136:
- B. Certify Laboratory Performance of Mix Designs: Concrete.

PART 3 EXECUTION

3.01 TRENCH PREPARATION

- A. Water Control:
 - 1. As specified in Section 31 23 19.01, Dewatering.
 - 2. Remove water in a manner that minimizes soil erosion from trench sides and bottom.
 - 3. Provide continuous water control until trench backfill is complete.
- B. Remove foreign material and backfill contaminated with foreign material that falls into trench.

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3.02 TRENCH BOTTOM

- A. Firm Subgrade: Grade with hand tools, remove loose and disturbed material, and trim off high areas and ridges left by excavating bucket teeth. Allow space for bedding material if shown or specified.
- B. Soft Subgrade: If subgrade is encountered that may require removal to prevent pipe settlement, notify Engineer. Engineer will determine depth of overexcavation, if any required.

3.03 TRENCH STABILIZATION MATERIAL INSTALLATION

- A. Rebuild trench bottom with trench stabilization material and shall be wrapped in Geotextile.
- B. Place material over full width of trench in 6-inch lifts to required grade, providing allowance for bedding thickness.
- C. Compact each lift so as to provide a firm, unyielding support for the bedding material prior to placing succeeding lifts.

3.04 BEDDING

- A. Furnish imported bedding material where, in the opinion of Engineer, excavated material is unsuitable for bedding or insufficient in quantity.
- B. Place over the full width of the prepared trench bottom in two equal lifts when the required depth exceeds 8 inches.
- C. Hand grade and compact each lift to provide a firm, unyielding surface.
- D. Minimum Thickness: As follows
 - 1. Pipe 15 Inches and Smaller: 4 inches.
 - 2. Pipe 18 Inches to 36 Inches: 6 inches.
- E. Check grade and correct irregularities in bedding material. Loosen top 1 inch to 2 inches of compacted bedding material with a rake or by other means to provide a cushion before laying each section of pipe, conduit, direct-buried cable, or duct bank.
- F. Install to form continuous and uniform support except at bell holes, if applicable, or minor disturbances resulting from removal of lifting tackle.
- G. Bell or Coupling Holes: Excavate in bedding at each joint to permit proper assembly and inspection of joint and to provide uniform bearing along barrel of pipe or conduit.

3.05 BACKFILL PIPE ZONE

- A. Upper limit of pipe zone shall not be less than following:
 - 1. Pipe: 12 inches.
- B. Restrain pipe as necessary to prevent their movement during backfill operations.
- C. Material to be wrapped in Geotextile according to the Drawings. Place material simultaneously in lifts on both sides of pipe and, if applicable, between pipes, conduit, cables, and duct banks installed in same trench.
 - 1. Pipe Over 10-Inch Diameter: Maximum 6-inch lifts.
- D. Thoroughly tamp each lift, including area under haunches, with handheld tamping bars supplemented by “walking in” and slicing material under haunches with a shovel to ensure that voids are completely filled before placing each succeeding lift.
- E. After the full depth of the pipe zone material has been placed as specified, compact the material by a minimum of three passes with a vibratory plate compactor only over the area between the sides of the pipe and the trench walls.
- F. Do not use power-driven impact compactors to compact pipe zone material. Care shall be taken to prevent damage to the pipe. Deflection of pipe shall be kept to a minimum and in no case shall it exceed 5 percent of the pipe inside diameter.

3.06 BACKFILL ABOVE PIPE ZONE

- A. General:
 - 1. Process excavated material to meet specified gradation requirements.
 - 2. Adjust moisture content as necessary to obtain specified compaction.
 - 3. Do not allow backfill to free fall into the trench or allow heavy, sharp pieces of material to be placed as backfill until after at least 2 feet of backfill has been provided over the top of pipe.
 - 4. Do not use power driven impact type compactors for compaction until at least 4 feet of backfill is placed over top of pipe.
 - 5. Backfill to grade with proper allowances for topsoil, crushed rock surfacing, and pavement thicknesses, wherever applicable.
 - 6. Backfill around structures with same class backfill as specified for adjacent trench unless otherwise shown or specified.

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- B. Trench Backfill: Place in lifts not to exceed 6 inches. Compact each lift to a minimum of 95 percent relative compaction prior to placing succeeding lifts.
- C. Concrete Encasement:
 - 1. Place above bedding.
 - 2. Minimum Concrete Thickness: 12 inches on top and sides of pipe.
 - 3. Do not allow dirt or foreign material to become mixed with concrete during placement.
 - 4. Allow sufficient time for concrete to reach initial set before additional backfill material is placed in trench.
 - 5. Prevent flotation of pipe.
 - 6. Begin and end concrete backfill within 4 inches of a pipe joint on each end.
 - 7. Do not encase pipe joints except within the limits of the concrete backfill. Wrap mechanical joints to protect bolts prior to encasing.

3.07 UTILITY LINE CROSSINGS

- A. Crushed stone backfill in accordance with Paragraph Bedding Material and Pipe Zone Material shall be used under all culverts, water, gas, gravity sewer lines, force mains, buried telephone conduit, and any other miscellaneous buried pipelines that cross the excavated trench. Crushed stone backfill shall be carried a minimum of 2 feet beyond the edge of the buried utility. Crushed stone backfill beneath these facilities shall be considered incidental to the work and no additional payment will be made to the Contractor.

3.08 PLACEMENT OF FILTRATION GEOTEXTILE

- A. For placement of backfill above filtration geotextile, place the first lift of fill in a 12-inch lift to protect the geotextile material. Place additional granular fill in 6-inch lifts and compact each lift to 95 percent relative compaction.
- B. The Contractor shall take precautions so the operation will not damage the geotextile material.

3.09 REPLACEMENT OF TOPSOIL

- A. Replace topsoil in top 4 inches of backfilled trench outside paved areas.
- B. Maintain the finished grade of topsoil even with adjacent area and grade as necessary to restore drainage.

3.10 MAINTENANCE OF TRENCH BACKFILL

- A. After each section of trench is backfilled, maintain the surface of the backfilled trench even with the adjacent ground surface until final surface restoration is completed.
- B. Topsoil: Add topsoil where applicable and as necessary to maintain the surface of the backfilled trench level with the adjacent ground surface.
- C. Concrete Pavement: Replace settled slabs as specified in Section 32 16 00, Concrete Curbs and Gutters and Sidewalks.
- D. Asphaltic Pavement: Replace settled areas or fill with asphalt as specified in Section 32 12 16, Asphalt Paving.
- E. Other Areas: Add excavated material where applicable and keep the surface of the backfilled trench level with the adjacent ground surface.

3.11 SETTLEMENT OF BACKFILL

- A. Settlement of trench backfill, or of fill, or facilities constructed over trench backfill will be considered a result of defective compaction of trench backfill and shall be corrected at no cost to the Owner. Structures damaged by settlement shall be restored to their original condition by the Contractor at no cost to the Owner.

END OF SECTION

SECTION 31 25 00
EROSION AND SEDIMENTATION CONTROLS

PART 1 – GENERAL

1.01 SUMMARY

- A. Section Includes: Requirements for erosion and sedimentation control.

1.02 DEFINITIONS

- A. The phrase "DOT Specifications" shall refer to the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, edition referenced on the Plans Cover Sheet.

1.03 SYSTEM DESCRIPTION

- A. Obtain permits required by regulatory authorities having jurisdiction and required by the Owner for installation, maintenance, and removal of erosion and sedimentation control measures.
- B. Furnish and install erosion and sedimentation control measures.
- C. Provide labor, equipment, and services required to maintain erosion and sedimentation control measures.
- D. Remove erosion and sedimentation control measures that are not a permanent part of Work.

1.04 SUBMITTALS

- A. General: As specified in:
 - 1. Division 1;
 - 2. This Section
- B. Submit copy of Erosion Control Plan prior to installing erosion and sedimentation control measures. Minimum Plan must comply with control plan approved by State, local, or State and local authorities.
- C. Submit erosion and sedimentation materials specification data.

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1.05 PROJECT/SITE CONDITIONS

A. Regulatory Requirements

1. Dewatering
 - a. Comply with requirements of permits for erosion and sedimentation control.
2. Stormwater Pollution Prevention Plan
 - a. Prepare "Notice of Intent to Use Generic Permit for Stormwater Discharge from Construction Activities that Disturb Five or More Acres of Land". Submit application and pay fee for review and approval of Notice.
 - b. Obtain response to Notice prior to starting construction.
 - c. Comply with requirements of Stormwater Pollution Prevention Plan and Generic Permit for Stormwater Discharge from Construction Activities that Disturb Five or More Acres, including modifications, addenda, and additions by Federal, State, and County regulatory authorities having jurisdiction.

PART 2 – PRODUCTS

2.01 MATERIALS FOR EROSION AND SEDIMENT CONTROL

A. Filter Fabric

1. Filter Fabric Material: Nylon, polyester, propylene or ethylene yarn with ultraviolet ray inhibitors and stabilizers conforming to Section 985 of the DOT Specifications.
2. Filter Fabric Flow: 0.3 gallons per foot per minute, minimum.

B. Sediment Fence Posts

1. Post Material: Pine or metal
2. Post Diameter: four inches
3. Post Length: Four feet, minimum.

C. Inlet Protection

1. Filter Fabric per Drawings and above.
2. Gutter log per Drawings

PART 3 – EXECUTION

3.01 EROSION CONTROL PLAN

- A. Excavation method shall be selected by the Contractor, unless otherwise shown on the Drawings or required by local regulations
- B. Contractor shall be responsible for erosion and sedimentation control.
- C. Prepare and submit an Erosion Control Plan based upon the proposed excavation method.
- D. Erosion Control Plan shall be reviewed and accepted by the Engineer prior to commencement of any land disrupting activities. Erosion Control Plan shall be reviewed and accepted by local authorities having jurisdiction over erosion and sedimentation control prior commencement of any land disrupting activities.

3.02 LOCATION

- A. The type of sedimentation and erosion control (SEC) devices to be employed on the project will depend on location and adjoining features of the land at that location.
- B. Construct SEC devices in accordance with approved Erosion Control Plan.

3.03 SEC CONSTRUCTION

- A. Locate SEC down-slope from source of sediment. Extend SEC around source of sediment so that all run-off from source of sediment flows through sediment fence.
- B. Inspect SEC regularly and after storms larger than 0.25 inch.
- C. Repair or replace damaged SEC promptly.
- D. Clean SEC of sediment when no more than 50 percent full.

3.04 SILTATION AND BANK EROSION

- A. Take adequate precautions to minimize siltation and bank erosion in ditches, in discharging well point systems, or during other construction activities.
- B. Additional SEC measures may be required to limit the release of turbidity from the Work area.

END OF SECTION

**SECTION 32 11 23
AGGREGATE BASE COURSES**

PART 1 GENERAL

1.01 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
 - 1. American Association of State Highway and Transportation Officials (AASHTO):
 - a. T180, Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18-in) Drop.
 - b. Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction (Standard Specifications).

1.02 DEFINITIONS

- A. Completed Course: Compacted, unyielding, free from irregularities, with smooth, tight, even surface, true to grade, line, and cross-section.
- B. Completed Lift: Compacted with uniform cross-section thickness.
- C. Standard Specifications: When referenced in this section, shall mean the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, edition referenced on the Plans Cover Sheet.

PART 2 PRODUCTS

2.01 FLOWABLE FILL

- A. Provide flowable fill with the following Specifications:
 - 1. 28-day compressive field strength of 500 psi.
 - 2. Aggregate gradations must be submitted for review and approval. Maximum size No. 4 stone.
 - 3. Slump Range: Flowable.
 - 4. Cement Content: 250 pounds per cubic yard.
 - 5. Water Cement Ratio: 0.65 range 0.6 to 0.7.

PART 3 EXECUTION

3.01 CONSTRUCTION OF COURSES

- A. The Contractor shall provide a minimum 12 inches of 500 psi flowable fill.

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3.02 SURFACE TOLERANCES

- A. Finished Surface of Base Course: Within plus or minus 0.05 foot of grade shown at any individual point.

3.03 CLEANING

- A. Remove excess material from the Work area.

END OF SECTION

**SECTION 32 12 16
ASPHALT PAVING**

PART 1 GENERAL

1.01 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
1. American Association of State Highway and Transportation Officials (AASHTO):
 - a. M17, Standard Specification for Mineral Filler for Bituminous Paving Mixtures.
 - b. M81, Standard Specification for Cut-Back Asphalt (Rapid Curing Type).
 - c. M82, Standard Specification for Cut-Back Asphalt (Medium Curing Type).
 - d. M140, Standard Specification for Emulsified Asphalt.
 - e. M208, Standard Specification for Cationic Emulsified Asphalt.
 - f. T166, Standard Method of Test for Bulk Specific Gravity of Compacted Asphalt Mixtures Using Saturated Surface-Dry Specimens.
 - g. T176 Standard Method of Test for Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test.
 - h. T230, Standard Method of Test for Determining Degree of Pavement Compaction of Bituminous Aggregate Mixtures.
 - i. T245, Standard Method of Test for Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus.
 - j. T246, Standard Method of Test for Resistance to Deformation and Cohesion of Bituminous Mixtures by Means of Hveem Apparatus.
 - k. T247, Standard Method of Test for Preparation of Test Specimens of Bituminous Mixtures by Means of California Kneading Compactor.
 - l. T283, Standard Method of Test for Resistance of Compacted Bituminous Mixture to Moisture Induced Damage.
 - m. T304, Standard Method of Test for Uncompacted Void Content of Fine Aggregate (Method A).
 2. Asphalt Institute (AI):
 - a. Manual Series No. 2 (MS-2), Mix Design Methods for Asphalt Concrete.
 - b. Superpave Series No. 2 (SP-2), Superpave Mix Design.
 3. ASTM International (ASTM):
 - a. D2041, Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures.
 - b. D4318, Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

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- c. D4791, Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.
- d. D5821, Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate.
- e. E329, Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.

1.02 DEFINITIONS

- A. Combined Aggregate: All mineral constituents of asphalt concrete mix, including mineral filler and separately sized aggregates.
- B. RAP: Reclaimed asphalt pavement.
- C. Standard Specifications: Florida Department of Transportation Standard Specifications for Road and Bridge Construction, edition referenced on the Plans Cover Sheet.

1.03 DESIGN REQUIREMENTS

- A. Prepare asphalt concrete mix design, meeting the design criteria, tolerances, and other requirements of Section 334 of the Standard Specifications.

1.04 SUBMITTALS

- A. Informational Submittals:
 - 1. Asphalt Concrete Mix Formula:
 - a. Submit minimum of 15 days prior to start of production.
 - b. Submittal to include the following information: Properties as stated in Section 334 of the Standard Specifications.
 - 2. Manufacturer's Certificate of Compliance, in accordance with Section 01 43 33, Manufacturers' Field Services, for the following materials:
 - a. Aggregate: Gradation, source test results as defined in Section 334 of the Standard Specifications.
 - b. Asphalt for Binder: Type, grade, and viscosity-temperature curve.
 - c. Prime Coat: Type and grade of asphalt.
 - d. Tack Coat: Type and grade of asphalt.
 - e. Additives.
 - f. Mix: Conforms to job-mix formula.
 - 3. Statement of qualification for independent testing laboratory.
 - 4. Test Results:
 - a. Mix design.
 - b. Asphalt concrete core.
 - c. Gradation and asphalt content of uncompacted mix.

1.05 QUALITY ASSURANCE

A. Qualifications:

1. Independent Testing Laboratory: In accordance with ASTM E329.
2. Asphalt concrete mix formula shall be prepared by approved certified independent laboratory under the supervision of a certified asphalt technician.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Moisture: Do not apply asphalt materials or place asphalt mixes when application surface is wet.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Prime Coat: Cut-back asphalt, conform to Section 300 of the Standard Specifications.
- B. Tack Coat: Emulsified asphalt, conform to Section 300 of the Standard Specifications.

2.02 ASPHALT CONCRETE MIX

A. General:

1. Mix formula shall not be modified except with written approval of Engineer.
2. Source Changes:
 - a. Should material source(s) change, establish new asphalt concrete mix formula before new material(s) is used.
 - b. Make adjustments in gradation or asphalt content as necessary to meet design criteria.

- B. Asphalt Concrete: as specified on the Drawings in accordance with Section 334 of the Standard Specifications.

- C. Composition: Hot-plant mix of aggregate, mineral filler, if required, and paving grade asphalt cement. The several aggregate fractions shall be sized, uniformly graded, and combined in such proportions that resulting mixture meets grading requirements of mix formula.

D. Aggregate:

1. General: As specified in Section 334 of the Standard Specifications.

- E. Mineral Filler: In accordance with Section 334 of the Standard Specifications.

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- F. Asphalt Cement: Paving Grade as shown on the Drawings in accordance with Section 334 of the Standard Specifications.

PART 3 EXECUTION

3.01 GENERAL

- A. Traffic Control:
 - 1. Minimize inconvenience to traffic, but keep vehicles off freshly treated or paved surfaces to avoid pickup and tracking of asphalt.
- B. Driveways: Repave asphalt driveways from which pavement was removed. Leave driveways in as good or better condition than before start of construction.

3.02 LINE AND GRADE

- A. Provide and maintain intermediate control of line and grade, independent of underlying base, to meet finish surface grades and minimum thickness.
- B. Shoulders: Construct to line, grade, and cross-section shown.

3.03 APPLICATION EQUIPMENT

- A. In accordance with Section 320 of the Standard Specifications.

3.04 PREPARATION

- A. Existing Roadway:
 - 1. Modify profile by grinding, milling, or overlay methods as approved, to provide meet lines and surfaces and to produce smooth riding connection to existing facility.
 - 2. Remove existing material to a minimum depth of 25 millimeters (1 inch).
 - 3. Paint edges of meet line with tack coat prior to placing new pavement.
- B. Thoroughly coat edges of contact surfaces (curbs, manhole frames) with emulsified asphalt or asphalt cement prior to laying new pavement. Prevent staining of adjacent surfaces.

3.05 PAVEMENT APPLICATION

- A. General: Place asphalt concrete mixture on approved, prepared base in conformance with Section 32 11 23, Aggregate Base Course.

B. Prime Coat:

1. Heat cut-back asphalt as specified in Section 330 of the Standard Specifications, prior to application.
2. Apply uniformly to clean, dry surfaces avoiding overlapping of applications.
3. Do not apply when moisture content of upper 75 millimeters (3 inches) of base exceeds optimum moisture content of base, or if free moisture is present.
4. Remove or redistribute excess material.
5. Allow a minimum of 5 full days for curing of primed surface before placing asphalt concrete.

C. Tack Coat:

1. Prepare material, as specified in Section 330 of the Standard Specifications, prior to application.
2. Apply uniformly to clean, dry surfaces avoiding overlapping of applications.
3. Do not apply more tack coat than necessary for the day's paving operation.
4. Touch up missed or lightly coated surfaces and remove excess material.

D. Pavement Mix:

1. Prior to Paving:
 - a. Sweep primed surface free of dirt, dust, or other foreign matter.
 - b. Patch holes in primed surface with asphalt concrete pavement mix.
 - c. Blot excess prime material with sand.
2. Place asphalt concrete pavement mix as specified on the Drawings.
3. Total Compacted Thickness: As shown.
4. Apply such that meet lines are straight and edges are vertical.
5. Collect and dispose of segregated aggregate from raking process. Do not scatter material over finished surface.
6. Joints:
 - a. Offset edge of each layer a minimum of 150 millimeters (6 inches) so joints are not directly over those in underlying layer.
 - b. Offset longitudinal joints in roadway pavements so longitudinal joints in wearing layer coincide with pavement centerlines and lane divider lines.
 - c. Form transverse joints by cutting back on previous day's run to expose full vertical depth of layer.
7. Succeeding Lifts: Apply tack coat to pavement surface between each lift.

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8. After placement of pavement, seal meet line by painting a minimum of 150 millimeters (6 inches) on each side of joint with cut-back or emulsified asphalt. Cover immediately with sand.
- E. Compaction: In accordance with Section 330 of the Standard Specifications.
- F. Tolerances:
 1. General: In accordance with Section 330 of the Standard Specifications.

3.06 FIELD QUALITY CONTROL

- A. General: Provide services of approved certified independent testing laboratory to conduct tests.
- B. Field Density Tests:
 1. Perform tests from cores or sawed samples in accordance with AASHTO T230 and AASHTO T166.
 2. Measure with properly operating and calibrated nuclear density gauge in accordance with ASTM D2950.
 3. Maximum Density: In accordance with ASTM D2041, using sample of mix taken prior to compaction from same location as density test sample.
- C. Testing Frequency:
 1. Quality Control Tests:
 - a. Asphalt Content, Aggregate Gradation: Once per every 400 mg (500 tons) of mix or once every 4 hours, whichever comes first.
 - b. Mix Design Properties, Measured Maximum (Rice's) Specific Gravity: Once every 900 mg (1,000 tons) or once every 8 hours, whichever comes first.
 2. Density Tests: Once every 450 mg (500 tons) of mix or once every 4 hours, whichever comes first.

END OF SECTION

**SECTION 32 16 00
CONCRETE CURBS AND GUTTERS AND SIDEWALKS**

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Association of State Highway and Transportation Officials (AASHTO): T 99, Standard Specification for the Moisture-Density Relations of Soils Using a 2.5 kg (5.5 pound) Rammer and a 305 mm (12 in.) Drop.
2. American Concrete Institute (ACI): 304R, Guide for Measuring, Mixing, Transporting, and Placing Concrete.
3. ASTM International (ASTM):
 - a. C94, Standard Specification for Ready-Mixed Concrete.
 - b. C309, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
 - c. D994, Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).
4. Standard Specification: State of Florida Department of Transportation Standard Specifications for Road and Bridge Construction, edition referenced on the Plans Cover Sheet.

1.02 SUBMITTALS

A. Action Submittals: Complete data on concrete mix, including aggregate gradations and admixtures in accordance with requirements of ASTM C94.

1.03 QUALITY ASSURANCE

A. Regulatory Requirements: Conform to the Standard Specifications.

PART 2 PRODUCTS

2.01 MATERIALS

A. Conform to the requirements of the referenced Standard Specification.

2.02 EXPANSION JOINT FILLER

A. Conform to the requirements of the referenced Standard Specification.

2.03 CONCRETE

A. As specified in Section 520 and 522 of the Standard Specifications.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Perform Work in accordance with the referenced Standard Specification.

3.02 PLACING CONCRETE

- A. Prior to placing concrete, remove water from excavation and debris and foreign material from forms.
- B. Place concrete as soon as possible, and within 1-1/2 hours after adding cement to mix without segregation or loss of ingredients, and without splashing.
- C. Place, process, finish, and cure concrete in accordance with applicable requirements of ACI 304, and this section. Wherever requirements differ, the more stringent shall govern.
- D. To compact, vibrate until concrete becomes uniformly plastic.

3.03 CURB CONSTRUCTION

- A. Construct ramps at pedestrian crossings.
- B. Expansion Joints: Place at maximum 500-foot intervals and at the beginning and end of curved portions of curb and at connections to existing curbs. Install expansion joint filler at each joint.
- C. Curb Facing: Do not allow horizontal joints within 7 inches from top of curb.
- D. Contraction Joints:
 - 1. Maximum 15-foot intervals in curb.
 - 2. Provide open joint type by inserting thin, oiled steel sheet vertically in fresh concrete to force coarse aggregate away from joint.
 - 3. Insert steel sheet to full depth of curb.
 - 4. Remove steel sheet with sawing motion after initial set has occurred in concrete and prior to removing front curb form.
 - 5. Finish top of curb with steel trowel and finish edges with steel edging tool.
- E. Front Face:
 - 1. Remove front form and finish exposed surfaces when concrete has set sufficiently to support its own weight.
 - 2. Finish formed face by rubbing with burlap sack or similar device to produce uniformly textured surface, free of form marks, honeycomb, and other defects.

3. Remove and replace defective concrete.
 4. Apply curing compound to exposed surfaces of curb upon completion of finishing.
 5. Continue curing for minimum of 5 days.
- F. Backfill curb with earth upon completion of curing period, but not before 7 days has elapsed since placing concrete.
1. Backfill shall be free from rocks 2 inches and larger and other foreign material.
 2. Compact backfill firmly.

3.04 SIDEWALK CONSTRUCTION

- A. Thickness: As shown on Drawings.
- B. Connection to Existing Sidewalk:
1. Remove old concrete back to an existing contraction joint.
 2. Clean the surface.
 3. Apply a neat cement paste immediately prior to placing new sidewalk.
- C. Joints:
1. Provide types and locations as shown on Drawings.
 2. Construct straight and at right angles to surface of walk.
- D. Finish:
1. Broom surface with fine-hair broom at right angles to length of walk and tool at edges, joints, and markings.
 2. Apply curing compound to exposed surfaces upon completion of finishing.
 3. Protect sidewalk from damage and allow to cure for at least 7 days.
 4. Pressure wash sidewalk segments within the project which were not replaced.
- E. Opening Sidewalk to Pedestrian Traffic:
1. Install detectable warnings, when shown in the Plans, in accordance with Section 527 on completed sections of sidewalk before opening to pedestrian traffic.

END OF SECTION

**SECTION 32 17 23
PAVEMENT MARKINGS**

PART 1 GENERAL

1.01 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
 - 1. American Association of State Highway and Transportation Officials (AASHTO):
 - a. M237, Standard Specification for Epoxy Resin Adhesives for Bonding Traffic Markers to Hardened Portland Cement and Asphalt Concrete.
 - b. M248, Standard Specification for Ready-Mixed White and Yellow Traffic Paints.
 - c. M249, Standard Specification for White and Yellow Reflective Thermoplastic Striping Material (Solid Form).
 - 2. ASTM International (ASTM): D4280, Standard Specification Extended Life Type, Nonplowable, Prismatic, Raised, Retroreflective Pavement Markers.
 - 3. Federal Specifications (FS):
 - a. A-A-2886A, Paint, Traffic, Solvent Based.
 - b. TT-B-1325C, Beads (Glass Spheres); Retroreflective.

1.02 DEFINITIONS

- A. Standard Specifications: Florida Department of Transportation Standard Specifications for Road and Bridge Construction, edition referenced on the Plans Cover Sheet.

1.03 SUBMITTALS

- A. Action Submittals:
 - 1. Shop Drawings:
 - a. Product Data:
 - 1) Paint.
 - 2) Thermoplastic material.
 - 3) Reflective markers.
 - 4) Epoxies, resins, and primers to be used.

PART 2 PRODUCTS

2.01 GENERAL

- A. All products shall be in accordance with Section 710 of the Standard Specifications.

2.02 PAINT

- A. Color: As noted in plans.
- B. Traffic paint pin accordance with Section 710 of the Standard Specifications.
- C. Homogeneous, easily stirred to smooth consistency, with no hard settlement or other objectionable characteristics during storage period of 6 months.

2.03 THERMOPLASTIC MARKING

- A. Color: As noted in plans.

PART 3 EXECUTION

3.01 GENERAL

- A. Surface Preparation, Application, and Protection: In accordance with Section 710 of the Standard Specifications
- B. All areas having traffic stripes and reflective markers prior to paving shall be repainted and replaced. Temporary traffic painting shall be applied immediately after asphalt pavement has been placed. Permanent traffic painting may be applied only after the proper curing time for the asphalt.

END OF SECTION

**SECTION 32 90 00
LANDSCAPING**

PART 1 – GENERAL

1.01 SUMMARY

- A. Section includes: The work consists of furnishing, planting, watering, fertilizing, mulching, pruning, and transplanting and initial maintenance of all plants of the species, size, and quantity in the locations indicate on Drawings and the installation of soil, soil amendments, fine grading, fertilizer, planting soil and top dressing in areas indicated on Drawings.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM D 2487-85 Standard Testing Method for Classification of Soil for Engineering Purposes.
- B. “Grades and Standards for Nursery Plants”, by the Florida State Department of Agriculture, latest edition.
- C. “Approved Planting Practices” by the American Association of Nurserymen. D. “Hortus”, by L.H. Bailey, Second Edition.
- E. “Manual of Cultivated Plants” by L.H. Bailey.
- F. “Standard Plant Names” by the American Joint Committee on Horticultural Nomenclature.”

1.03 QUALITY ASSURANCE

- A. Contract Landscape work to a single firm specializing in landscape contracting. Landscape Contractor must show proof of having successfully completed three (3) or more similar projects within the last five (5) years in Monroe County, Florida.
- B. Source Quality Control:
 - 1. General: Ship landscape materials with certificates of inspection required by governing authorities. Comply with regulations applicable to landscape materials.

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2. Do not make substitutions. If specified landscape material is not obtainable, submit proof of non-availability to Urban Forester, together with proposal for use of equivalent material.
 3. Analysis and Standards: Package standard products with manufacturer's certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agricultural Chemists, wherever applicable.
 4. Planting Soil: Before delivery of planting soil, furnish Urban Forester with written statement giving location of properties from which planting soil is to be obtained, names and addresses of owners, depth to be stripped and crops grown during past 2 years.
 5. Trees, Shrubs and Plants: Provide trees, shrubs and plants of quality, size, genus, species and variety shown and scheduled for landscape work and complying with recommendations and requirements of ANSI Z60.1 2004 "American Standard for Nursery Stock." Provide healthy, vigorous stock grown in a recognized nursery in accordance with good horticultural practice and free of disease, insects, eggs, larvae and defects such as knots, sunscald, injuries, abrasions or disfigurement.
 6. Inspection: The Urban Forester may inspect trees and shrubs either at place of growth or at site before planting for compliance with requirements for genus, species, variety, size and quality. Notify Urban Forester prior to shipping so that nursery inspection can be scheduled. Urban Forester retains right to further inspect trees and shrubs for size and condition of balls and root systems, insects, injuries and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from project site.
 7. In the event that the Urban Forester suspects deficiencies in materials used on this project, such materials will be tested by Owner contacted testing laboratory.
 - a. Cost of Testing:
 - 1) Initial Testing: By Owner.
 - 2) Retesting: By Contractor.
 - b. Evidence of non-compliance will result in rejection of all work.
- C. Qualifications of Workers: Provide at least one person who shall be present at all times during execution of this portion of work and who shall be thoroughly familiar with type of materials being installed and best methods for their installation and who shall direct the work performed under this section.

- D. Quality Control
 - 1. Notify the Urban Forester at least 5 workdays in advance of the following for field review:
 - a. Field inspection of trees or shrubs at place of growth.
 - b. Review of proposed tree pit locations as represented by staking.
 - c. Review upon delivery of plant materials and sod at the site to verify species, vigor, size, condition, shape, quantity in compliance with specifications and drawings.
 - d. Review of tree pit excavation and final subgrade.
 - e. Review of all backfilling for palm and tree pits.
 - f. Review of work and materials after completion of planting. This review shall be scheduled sufficiently in advance and in cooperation with the Urban Forester so that it may be conducted within 48 hours after completion of planting.
 - g. Review after a 30-day period of maintenance upon written request by the Contractor. Request shall be received at least five (5) days before anticipated date of review.
 - h. Review for final acceptance at the end of the warranty period.

1.04 DEFINITIONS

- A. Satisfactory Fill Materials: Materials classified in ASTM D2487 as CW, GP, SW and SP properly worked by Contractor to obtain optimum moisture and compaction.
- B. Unsatisfactory Materials: Materials of any classification that are determined by testing laboratory as too wet or too soft for providing a stable foundation for pavement and walks will be classified as “unsatisfactory.”
- C. The words “plant materials” or “plants” refer to and include trees, shrubs, hedge, ground cover, annuals, grass, or herbaceous materials.
- D. Specimen: An exceptional, heavy, symmetrical, tightly knit plant so trained or favored in its development that its appearance is unquestionable and outstandingly superior in form, number of branches, compactness, and symmetry. Specimen shall conform to the standard for “Florida Fancy” as per the State of Florida, Department of Agriculture.
- E. Ground Cover: Anything other than grass.

1.05 SUBMITTALS

- A. Samples: Submit the following in accordance with conditions of Contract and Division 1 Specification Sections.
- B. Soil and Soil Amendments:
 - 1. Planting Soil Mixture: Prior to Contractor purchasing planting soil mixture Contractor shall obtain a soil test of planting soil mixture in accordance with the most current edition of Methods of Soil Analysis by the Soil Science Society of America, Inc. for particle size and soil fertility. A sample of planting soil mixture and soil test results shall be submitted to Owner and Urban Forester.
 - 2. Existing Soil Test: Prior to Contractor purchasing planting soil mixture and fertilizer Contractor shall obtain a soil test of existing soil on site in accordance with the most current edition of Methods of Soil Analysis by the Soil Science Society of America, Inc. for existing particle size and existing soil fertility. A sample of the existing soil and soil test results shall be submitted to Owner and Urban Forester. Soil tests shall indicate specific types of soil and nutrient requirements for all plant material specified. Contractor shall select the appropriate soil amendments and fertilizers needed for plant material specified based on results of planting soil test and existing soil test.
- C. Plant and Material Certifications:
 - 1. Certificates of inspection as required by governmental authorities.
 - 2. Label data substantiating that plants, trees, shrubs and planting materials comply with specified requirements.
 - 3. Submit photographs of trees, palms and shrubs to Urban Forester for approval.
- D. Planting Schedule: Proposed planting schedule, indicating dates for each type of landscape work during normal season for such work in areas of site. Once accepted, revise dates only as approved in writing after documentation of reasons for delays.
- E. Maintenance Schedule: Proposed maintenance schedule, indicating dates for maintenance from date of substantial completion. Once accepted, revise dates only as approved in writing after documentation for reasons for delays.

- F. Contract Closeout Submittals:
 - 1. Record Drawings: Provide blueprint with red line markings indicating changes made to the planting system layout during installation.
 - 2. Manual: Deliver one copy giving complete instructions regarding maintenance of materials, complete nomenclature of items used, and a copy of the guarantee issued to Urban Forester and Owner upon conditional acceptance of installation.
- 1.06 DELIVERY, STORAGE AND HANDLING
- A. Packaged Materials: Deliver packaged materials in original containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and while stored at site.
 - B. Trees, Palms and Shrubs: Provide freshly dug palms and provide container grown trees, shrubs and small palms. Do not prune prior to delivery unless otherwise approved by Urban Forester. Do not bend or bind-tie trees or shrubs in such manner as to damage bark break branches or destroy natural shape. Provide protective covering during delivery. Do not drop balled and burlapped stock during delivery.
 - C. Deliver trees, palms and shrubs after preparations for planting have been completed and plant immediately. If planting is delayed more than 6 hours after delivery, set trees and shrubs in shade, protect from weather and mechanical damage, and keep roots moist by covering with mulch, burlap or other acceptable means of retaining moisture.
 - D. Do not remove container-grown stock from containers until planting time.
 - E. Immediately remove from the site materials which do not comply with the provisions of this Section of these Specifications.
 - F. Replacements: In the event of damage or rejection, immediately make repairs and replacements necessary to the acceptance of Urban Forester at no additional cost to Owner.
 - G. Plants shall not be planted on job until they have been inspected at receiving site and accepted by the Urban Forester.

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- H. Legible identification tags shall be attached to at least one plant of each species. Packages, boxes or bunches of plants shall also be identified with a similar tag. Plants which show improper handling, bruised trunks, broken branches or root balls or arrive on site in an unsatisfactory condition will be rejected.
- I. Where formal arrangements or consecutive order of trees or shrubs are shown, select stock for uniform height and spread and label with number to assure symmetry in planting.
- J. Shipment and Delivery: Acceptance of plant material will be given by the Urban Forester and Owner only after the material is planted and after meeting all of the incidental requirements prescribed herein and on the plans.

1.07 JOB CONDITIONS

- A. Utilities: Determine location of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate as required. Maintain grade stakes set by others until removal is mutually agreed upon by parties concerned.
- B. Excavation: When conditions detrimental to plant growth are encountered such as rubble fill, adverse drainage conditions or obstructions, notify Urban Forester before planting.

1.08 SEQUENCING

- A. Notify the Urban Forester a minimum of 5 workdays in advance of delivery of plant material.
- B. Construction Review: In addition to other progress construction reviews, the Contractor shall schedule and facilitate the following related reviews giving notice to the Urban Forester at least 5 workdays in advance.
 - 1. Field inspection of trees, palms and shrubs at place of growth.
 - 2. Review of proposed tree pit locations as represented by staking.
 - 3. Review upon delivery of plant materials at the site to verify species, vigor, size, condition, shape, quantity in compliance with specifications and drawings.
 - 4. Review of tree pit excavation and final subgrade.
 - 5. Review of all backfilling for palm and tree pits as well as the placement of the planting soil.

6. Review of work and materials after completion of planting for conditional acceptance. This review shall be scheduled sufficiently in advance and in cooperation with the Urban Forester so that it may be conducted within 48 hours after completion of planting.
7. Review after a 30-day period of maintenance upon written requested by the Contractor. Request shall be received at least five days before anticipated date of review.
8. Review for final acceptance at the end of the warranty period.

1.09 WARRANTY

- A. Irrigate the newly planted trees, palms, shrubs and ground cover until plant material is firmly established, for a period not to exceed one year. Irrigation shall occur in sufficient quantity and frequency to insure the establishment of the plant material.
- B. Warrant plants for one year after conditional acceptance by the Urban Forester and Owner. Any planting that fails or dies within that period shall be replaced and replanted immediately without expense to Owner, provided that the Contractor shall not be held responsible for losses beyond his control arising from “Acts of Providence”; acts of vandalism; or loss arising from documented neglect on the part of Owner to properly care for planting after acceptance.
- C. Make periodic reviews of the planting at no extra cost to Owner during the warranty period to determine what changes, if any, should be made in Owner maintenance program. Proposed changes shall be submitted, in writing, to Owner and, jointly by copy, to the Urban Forester.
- D. At conclusion of the one-year warranty period, the Urban Forester shall make a construction review to determine the condition of planting. Plants that have died or, in the opinion of the Urban Forester, are in an unhealthy or badly impaired condition for reasons other than vandalism, “Acts of Providence”, or documented neglect by Owner, shall be replaced by the Contractor as soon as possible, except that replacement will not be required in any season definitely unfavorable for the kinds of plants involved.
- E. Before final acceptance, at the end of the warranty period, remove guying and saucers. Install mulch around trees formerly with saucers. Bracing of palms shall remain in place for one year unless the removal is directed by Urban Forester.

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1.10 MAINTENANCE

- A. Maintain all planting, starting at the time of planting and continuing for 365 calendar days after planting is complete and conditional acceptance by the Urban Forester and Owner.
- B. Maintain and protect all plants including incidental materials until end of maintenance period.
- C. Plant Maintenance:
 - 1. Maintenance shall begin immediately after each plant is planted and shall continue until the completion of the 365-day maintenance period. Plants shall be watered, mulched, weeded, pruned, sprayed, fertilized, cultivated and otherwise maintained and protected for the period of time stated above.
 - 2. Settled plants shall be reset to proper grade position, planting saucer reset, and dead material removed. Guys shall be tightened and repaired.
 - 3. Defective work shall be corrected as soon as possible after it becomes apparent and weather and season permit. Upon completion of planting, the Contractor shall remove from the site excess soil and debris and repair all damage to structures resulting from planting operations.
- D. General Maintenance:
 - 1. Maintenance shall include all watering, weeding, fertilizing, cultivating, spraying, adjustment of guying, staking and pruning necessary to keep plant material in a healthy vigorous growing condition and to keep planted area neat and attractive.
 - 2. Provide all equipment and means for proper application of water to those planted areas not provided with an irrigation system.
 - 3. Planting areas shall be kept weed free with manual removal or an herbicide program until final acceptance is incurred.
- E. Replacements:
 - 1. At the end of the maintenance period, plant material shall be in a healthy growing condition.
 - 2. During maintenance period immediately replace any plants showing weakness and probability of failure with a new healthy plant of the same type and size, without additional cost to Owner.
- F. Extension of Maintenance Period: Continue maintenance period, at no additional cost to Owner, for additional thirty days after previously noted deficiencies have been corrected. Warranty period shall commence upon acceptance of replaced plant material.

- G. The Contractor shall conclude maintenance (exclusive of replacement within warranty period) upon written acceptance of the Urban Forester at the end of the maintenance period or, as provided for above, at the end of the extended maintenance period.
- H. Protection:
 - 1. Irrigate the newly planted trees, palms, shrubs and groundcover until final acceptance is issued.
 - 2. Irrigation will occur in sufficient quantity to insure the orderly establishment of the trees, palms, shrubs and groundcover.
 - 3. Planting area shall be kept weed free by manual removal or by an herbicide program until final acceptance is issued.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Planting Soil: An evenly blended mixture of 50% topsoil and 50% organic material shall be used for trees and shrubs and 70% topsoil and 30% organic material shall be used for palms.
 - 1. Material shall be proportioned by volume rather than weight.
 - 2. Site mixing will not be acceptable.
 - 3. Soil shall be free of silt and sludge.
 - 4. Mixture shall be free of rocks greater than 2 inches in size, limbs, roots and other deleterious matter.
 - 5. Urban Forester reserves the right to reject planting soil utilized at any time during the execution of work that does not meet specification.
- B. Commercial Fertilizers: Commercial grade fertilizer shall be uniform in composition, dry, free flowing and delivered to site in fully labeled, unopened containers, bearing name, trade name or trademark and warranty of producer. Contractor is responsible for specifying fertilizers needed based on plant material, existing soil analysis and planting soil analysis. Contractor is responsible for providing soil analysis. All fertilizers shall conform to applicable State and Federal laws and shall be installed according to manufacturer’s recommendations.
- C. Trees, Palms & Shrubs:
 - 1. Trees and shrubs shall be as noted on plans and as approved by Urban Forester and Owner.

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2. Caliper measurement, height measurement, height relation to caliper, spread, root ball dimensions, and ground covers, etc. shall conform to the applicable standards above and the requirements for this project.
 3. Substitutions in plant species or sizes shall be made only after written authorization by the Urban Forester and Owner.
 4. Materials or work may be rejected if, in the opinion of the Urban Forester, such work does not meet the requirements of the Specifications. Rejected materials shall be promptly removed from the site by the Contractor at no expense to Owner or Urban Forester.
- D. Pruning:
1. Plants shall not be pruned prior to delivery except as authorized by the Urban Forester.
 2. Plants shall have been transplanted or root pruned at least once in the three years prior to the contract date.
 3. Immediately upon selection by the Contractor and acceptance by the Urban Forester, all major field grown trees shall be completely root pruned at the nursery site and held in that condition for a period of 45 to 60 days. Plants shall not be further dug or transported without field acceptance of Urban Forester and Owner.
 4. All tree pruning shall be in accordance with ANSI A-300 Guidelines for Tree Pruning.
- E. Tree and Palm Guys: Provide Arrow Anchor, tree guy anchoring system (TG-2) trees less than 2-1/2" caliper and TG-1 for trees greater than 2-1/2" caliper by U.S. Rigging Supply or equal approved by Urban Forester.
- F. Large Palm Guys: Install and brace palms in a vertical position. Place a minimum of five layers of burlap around the trunk and, in turn, have a minimum of five wood battens placed vertically over it. The battens shall be retained in place by two 3/4 inch high carbon steel bands. Three wood braces, placed at a 60-degree angle equidistant around the plant shall be nailed to the battens. No nails shall be placed into the palm trunk. Three bracing pads shall be placed below grade at the bottom of each brace.
- G. Peat: Sphagnum peat moss for horticultural use.
- H. Mulch: Use KBI Flexi-Pave or approved equal as the mulching material as shown in attached Tree Planting Detail and Palm Planting Detail.
- I. Water: Potable water shall be provided by the Contractor. In the event of emergency or other loss of water supply, the Contractor shall be responsible for water supply.

- J. Plant Material:
 - 1. Refer to the Tree Inventory and Disposition Table located in the Roadway Plans.
 - 2. Plant Quality:
 - a. Plants shall be freshly dug, balled and burlapped nursery grown stock or container grown nursery stock. All plants shall be free of broken, damaged root balls or root bound conditions. Plants shall be sound, healthy, vigorous, free from plant diseases, insect pests, or their eggs and shall have healthy normal root systems.
 - b. Collected plants shall not be used unless authorized in writing by the Urban Forester.
 - c. Plant material, not otherwise specified as being Florida Fancy or "Specimen" shall be Florida No. 1 or better quality, graded in accordance with Grades and Standards for Nursery Plants, published by the State of Florida, Department of Agriculture. Plants judged to be not in accordance with said standards will be rejected.
 - d. Ground Cover
 - 1) Provide plants established and well rooted in removable containers or integral peat pots and with not less than minimum number and length of runners required by ANSI Z60.1 for the pot size shown or listed.

PART 3 – EXECUTION

3.01 INSPECTION

- A. Inspect work of all other trades and verify that all such work is complete to the point at which this landscape work may properly commence. Verify that planting may be completed in accordance with Contract Documents.
- B. Discrepancies:
 - 1. In the event of discrepancy, immediately notify Urban Forester.
 - 2. Do not proceed with installation of materials or plants in areas of discrepancy until all such discrepancies have been fully resolved to the satisfaction of the Urban Forester.
 - 3. Plans supersede tabulations, Contractor responsible for verifying all takeoffs.

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3.02 PREPARATION – GENERAL

- A. Stake the proposed location of trees, palms and large shrubs to be planted.
- B. Excavate planting pits and beds, prepare subgrade.
- C. Provide plants, fertilizer and planting soil and incidental materials as specified.
- D. Place plants, backfill and guy or brace plants as required.
- E. Fine grade planting areas and complete incidental work as specified.

3.03 PREPARATION OF PLANTING SOIL

- A. Before mixing, clean topsoil of roots, plants, weeds, stones, clay lumps and other extraneous materials harmful or toxic to plant growth.
- B. Mix planting soil at rates specified and as shown in plans.
- C. Remove all existing soil from all plant beds and pits.
- D. All plant beds and pits shall be filled with planting soil.

3.04 PREPARATION OF PLANTING BEDS

- A. Loosen subgrade of planting bed areas to a minimum depth of 18” for shrubs, 6” for groundcover using a culti-mulcher or similar equipment. Remove stones measuring over 6 inches in any dimension. Remove sticks, stones, rubbish and other extraneous matter.
- B. Remove existing soil and spread planting soil mixture to minimum depth of 18” for shrubs and 6” for groundcover to meet lines, grades, and elevations shown, after light rolling and natural settlement. Work planting soil into top of loosened subgrade to create a transition layer then place remainder of the planting soil.

3.05 EXCAVATION FOR TREES, PALMS AND LARGE SHRUBS

- A. Excavate pits, beds, and trenches with vertical sides and with bottom of excavation slightly raised at center to provide proper drainage. Loosen hard subsoil in bottom of excavation.
 - 1. For balled and burlap (B&B), make excavations at least again as wide as the ball diameter and 36” depth, plus following allowance for setting of ball on a layer of compacted backfill:
 - a. Allow for 6-inch-thick setting layer of planting soil mixture.
 - 2. For container grown stock, excavate as specified for balled and burlapped stock, adjusted to size of container width and depth.

- B. Dispose of subsoil removed from planting excavations. Do not mix with planting soil or use as backfill.
- C. Fill excavations for trees and shrubs with water and allow water to percolate out prior to planting.

3.06 PLANTING TREES, PALMS, SHRUBS AND GROUNDCOVER

- A. Set trees and shrubs on layer of compacted planting soil mixture, plumb and in center of pit or trench with top of ball 10% above elevation of adjacent finished landscape grades. Set palms in same manner as tree except with top of ball at the same elevation as adjacent finished grade. When set, place additional backfill around base and sides of ball, and work each layer to settle backfill and eliminate voids and air pockets. When excavation is approximately 2/3 full, water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. After placing final layer of backfill watering shall occur again.
- B. Set container grown stock, as specified for balled burlapped stock, except cut containers on 2 sides with an approved can cutter. Remove bottoms of wooden boxes after partial backfilling so as not to damage root balls.
- C. Saucer top of backfill to allow for water retention.
- D. Mulch planted areas and provide not less than 4 inches thickness of mulch.
- E. Unless otherwise directed by Urban Forester, do not cut tree leaders, or prune trees or palms. Any pruning directed by Urban Forester must be in compliance with ANSI A-300 Guidelines for Pruning, latest version.
- F. Remove and replace excessively pruned or misformed stock resulting from improper pruning.
- G. Guy and stake trees immediately after planting, as indicated.

3.07 ADJUSTMENT AND CLEANING

- A. Cleaning up the Site: Upon completion of any landscape project, the Contractor must thoroughly clean up the project site. In addition to removing all equipment, unused materials, deleterious materials and surplus excavated material, the Contractor shall fine grade all disturbed areas and the areas adjacent to the new plantings to provide a neat and uniform site.

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All damaged or altered existing structures as a result of the landscape work shall be corrected.

3.08 MAINTENANCE

- A. Begin maintenance immediately after planting.
- B. Maintain trees, palms, shrubs, and other plants until final acceptance, but in no case, less than following period:
 - 1. 365 days after substantial completion of planting and conditional acceptance by Owner.
- C. Maintain trees, palms, shrubs, and other plants by pruning, cultivating, and weeding as required for healthy growth. Restore planting saucers. Tighten and repair stake and guy supports and reset trees and shrubs to proper grades or vertical position as required. Restore or replace damaged wrappings. Spray as required to keep trees and shrubs free of insects and disease.

3.09 CLEANUP AND PROTECTION

- A. During landscape work, keep pavements clean and work area in an orderly condition.
- B. Protect landscape work and materials from damage due to landscape operations, operations by other contractors and trades, and trespassers. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged landscape work as directed.

3.10 INSPECTION AND ACCEPTANCE

- A. When landscape work is completed, including maintenance, Urban Forester will, upon request, make an inspection to determine final acceptance.
 - 1. Landscape work may be inspected for final acceptance in portions as agreeable to Urban Forester, provided each portion of work offered for inspection is complete, including maintenance.
- B. **WHEN INSPECTED LANDSCAPE WORK DOES NOT COMPLY WITH REQUIREMENTS, REPLACE REJECTED WORK AND CONTINUE SPECIFIED MAINTENANCE UNTIL RE-INSPECTED BY Urban Forester AND FOUND TO BE ACCEPTABLE. REMOVE**

**REJECTED PLANTS AND MATERIALS PROMPTLY FROM
PROJECT SITE.**

END OF SECTION

**SECTION 33 41 01
STORM DRAIN PIPING****PART 1 GENERAL**

1.01 REFERENCES

- A. The following is a list of standards which may be referenced in this section and any supplemental Data Sheets:
1. American Association of State Highway and Transportation Officials (AASHTO):
 - a. M36M, Standard Specification for Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains.
 - b. M190M, Standard Specification for Bituminous Coated Corrugated Metal Culvert Pipe and Pipe Arches.
 - c. M196M, Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains.
 2. American Water Works Association (AWWA):
 - a. C104/A21.4, Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
 - b. C105/A21.5, Polyethylene Encasement for Ductile-Iron Pipe Systems.
 - c. C110/A21.10, Ductile-Iron and Gray-Iron Fittings, 3 in. Through 48 in. (75 mm Through 1200 mm) for Water and Other Liquids.
 - d. C111/A21.11, Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
 - e. C151/A21.51, Ductile-Iron Pipe, Centrifugally Cast, for Water.
 3. ASTM International (ASTM):
 - a. A746, Standard Specification for Ductile Iron Gravity Sewer Pipe.
 - b. C14, Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe.
 - c. C76, Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
 - d. C150, Standard Specification for Portland Cement.
 - e. C311, Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use as a Mineral Admixture in Portland-Cement Concrete.
 - f. C361, Standard Specification for Reinforced Concrete Low-Head Pressure Pipe.
 - g. C425, Standard Specification for Compression Joints for Vitrified Clay Pipe and Fittings.
 - h. C443, Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.

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- i. C497, Standard Test Methods for Concrete Pipe, Manhole Sections, or Tile.
- j. C507, Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe.
- k. C595, Standard Specification for Blended Hydraulic Cements.
- l. C618, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
- m. C655, Standard Specification for Reinforced Concrete D-Load Culvert, Storm Drain, and Sewer Pipe.
- n. C700, Standard Specification for Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated.
- o. C1012, Standard Test Method for Length Change of Hydraulic-Cement Mortars Exposed to a Sulfate Solution.
- p. D1248, Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable.
- q. D1784, Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
- r. D2412, Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading.
- s. D3034, Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
- t. D3212, Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
- u. F477, Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
- v. F679, Standard Specification for Poly(Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.
- w. F794, Standard Specification for Poly(Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter.
- x. F894, Standard Specification for Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe.

1.02 SUBMITTALS

- A. Informational Submittals: Manufacturer's Certification of Compliance.

PART 2 PRODUCTS

2.01 GENERAL

- A. All storm drainpipes in the project shall be ADS polyethylene or Polyvinyl Chloride (PVC) as indicated in the plans.
- B. Provide ADS Pipe Adapter flexible watertight Waterstop connection with pipe adapter for ADS Corrugated HDPE Pipe to storm structures or approved equal ADS Pipe Adapters meeting the requirements of ASTM F 2510 and ASTM C 1478 for watertight flexible connections. Rapid set mortar shall be used with potable water; ground water shall not be used.

2.02 ADS POLYETHYLENE PIPE N-12 OR EQUAL

- A. This Specification covers the requirement of high-density polyethylene corrugated pipe with smooth interior for storm sewer. Nominal sizes 12, 15, 18, and 24 -inch are included.
- B. Material: Pipe and fittings shall be manufactured from high density polyethylene resin which shall meet or exceed the requirements of Type III, Category 4 of 5, Grade P33 or P34, Class C per ASTM D1248.
- C. Pipe Dimensions: the nominal size of the pipe is based on the nominal inside diameter of the pipe. The tolerance on the specified inside diameter shall be +3 percent, -1 percent, or 1/2 inch whichever is less. Lengths shall be not less than 99 percent of the stated quantity
- D. Pipe Stiffness: The pipe shall have minimum pipe stiffness at 5 percent deflection as follows:

Diameter (Inches)	Pipe Stiffness (PSI)
12	45
15	42
18	40
24	34

- E. Tests shall be in accordance with ASTM D2412 with a minimum one-diameter sample length, a loading rate of 0.5 inch/min., and readings at 5 percent deflection.

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- F. Hydraulics: The pipe shall have a minimum tested Manning's "n" value of 0.012.

2.03 POLYVINYL CHLORIDE (PVC) GRAVITY PIPE AND FITTING:

- A. 15-inch diameter PVC sewer pipe and under for general service shall conform to ASTM D3034, standard dimension ratio not to exceed 26.
- B. PVC fittings for 15-inch diameter pipe and under for general service shall conform to ASTM D3034, standard dimension ratio not to exceed 35.
- C. PVC pipe for watermains 12 inches and smaller shall be AWWA C900, standard dimension. Dimension ratio not to exceed 18.
- D. PVC pipe for storm and sanitary sewer pipe larger than 15 inches shall be AWWA C905, standard dimension ratio, not to exceed 26.
- E. PVC additives and fillers including but not limited to stabilizers, antioxidants, lubricants, colorants, etc. shall not exceed 10 parts by weight per 100 of PVC resin in the compound.
- F. Plastic pipe and fittings shall meet all the requirements of AWWA C900 and shall be PVC-1120 pipe, having a cell classification of 1245A or 1245B, in accordance with ASTM D1784. Pipes 4 inches and larger shall be pressure rated Class 150 (DR 18) with cast iron pipe equivalent OD in accordance with AWWA C900. Pipe shall be equipped with a push-on type joint with elastomeric gasket that meets the requirements of ASTM D3139. Pipes smaller than 4 inches shall be PVC Schedule 80, in accordance with ASTM D1785. Schedule 80 pipe and fittings shall be threaded joint.

2.04 PIPE JOINTS

- A. ADS POLYETHYLENE PIPE JOINTS: The pipe shall be joined by split corrugated couplings at least seven corrugations wide and exceeding the soil tightness requirements of the AASHTO Standard Specification for Highway Bridges, Section 23 (2.23.3).
- B. POLYVINYL CHLORIDE (PVC) GRAVITY PIPE JOINTS: Joints shall be rubber-gasketed type complying in all respects to the physical requirements of ASTM D3212 for gravity pipes. Gaskets shall conform to ASTM F477. Furnish complete information on basic gasket polymer and results of test of physical properties. Lubricant for jointing as approved by the pipe manufacturer.

2.05 PIPE BEDDING AND PIPE ZONE MATERIAL

- A. Pipe bedding and pipe zone material are identical and shall be free from dirt, clay balls, and organic material and forming to size No. 57 stone gradation as specified in the Standard Specifications or similar accepted material and shall be imported at the contractor's own expense. Lime rock screenings or material resulting from trench excavation, except for lime rock that has been crushed and graded to size as specified, will not be accepted for pipe bedding materials.

- B. Imported pipe bedding and pipe zone materials specified in this Section are subject to the following requirements:
 - 1. All tests necessary for the CONTRACTOR to locate an acceptable source of imported material shall be made by the CONTRACTOR. Certification that the material conforms to the Specification requirement along with copies of the test results from a qualified commercial testing laboratory shall be submitted to the ENGINEER for acceptance at least 10 days before the material is required for use. CONTRACTOR shall furnish all material samples the CONTRACTOR'S sole expense. Samples shall be representative and be clearly marked to show the source of the material and the intended use on the project. CONTRACTOR shall due sampling of the material source in accordance with ASTM D75. Also, the CONTRACTOR shall notify the ENGINEER at least 24 hours prior to sampling. The ENGINEER may, at the ENGINEER'S option, observe the sampling procedures. Tentative acceptance of the material source shall be based on an inspection of the source by the ENGINEER, and/or the certified test results submitted by the CONTRACTOR to the ENGINEER, at the ENGINEER'S discretion. No imported materials shall be delivered to the site until the proposed source and the ENGINEER has tentatively accepted the material's tests in writing. Final acceptance will be based on tests made on samples of material taken from the completed and compacted course. The completed course is defined as a course or layer that is ready for the next layer or the next phase of construction.

 - 2. Gradation tests by the CONTRACTOR shall be

made on samples taken at the place of production prior to shipment. Samples of the finished project for gradation testing shall be taken from each 1,500 tons of prepared materials or more often as determined by the ENGINEER, if variation in gradation is occurring, or if the material appears to depart from the Specifications. Test results shall be forwarded to the ENGINEER within 48 hours after sampling.

3. If tests conducted by the CONTRACTOR or the ENGINEER indicate that the material does not meet Specification requirements, material placement will be terminated until corrective measures are taken. Material that does not conform to the Specification requirements and is placed in the work shall be removed and replaced at the CONTRACTOR'S sole expense. Sampling and testing performed by the CONTRACTOR shall be done at the CONTRACTOR'S sole expense.

PART 3 EXECUTION

3.01 LINE AND GRADE

- A. Installation of the pipe shall be in accordance with the manufacturer and either AASHTO Section 30 or ASTM Recommended Practice D2321.
- B. Do not deviate from line or grade, as established by the ENGINEER, more than 1/2 inch for line and 1/4 inch for grade, provided that such variation does not result in a level or reverse sloping invert. Measure for grade at the pipe invert not at the top of the pipe because of permissible variation in pipe wall thickness.
- C. All storm sewers shall be laid using a laser accepted by the ENGINEER. The beam shall be directed through the pipe. Batter boards or instrument laying will not be permitted. The laser shall be constantly shielded from the direct sun.
- D. The CONTRACTOR shall set offset stakes or other accepted method of controlling alignment and grade for excavation of trenches and for pipe laying. The CONTRACTOR shall submit in writing his proposed method of establishing line and grade to the ENGINEER for acceptance.

3.02 LAYING AND JOINTING PIPE AND FITTINGS

- A. Do not permit mud and foreign material to get into the pipe. During laying operations, do not permit debris, tools, clothing, or similar items to be placed in pipes.
- B. Pipe laying shall proceed upgrade with ends pointing in the direction of flow. After a section of pipe has been lowered into the trench, clean the ends of the pipe. Be careful in handling pipe to prevent breakage. Remove any pipe damaged and replace at the CONTRACTOR's sole expense.
- C. Make assembly of the joint in accordance with the recommendations of the manufacturer of the type of joint used. Provide all special tools and appliances required for the jointing assembly.
- D. After the joint has been made, check pipe for alignment and grade. The trench bottom shall form a continuous and uniform bearing and support for the pipe at every point between joints. Apply sufficient pressure in making the joint to assure that the joint is "home," as defined in the standard installation instructions provided by the pipe manufacturer. To assure proper pipe alignment and joint makeup, place sufficient pipe zone material to secure the pipe from movement before the next joint is installed. Pipes 21 inches and smaller shall be laid so the inside joint space does not exceed 3/8 inch in width.
- E. Take the necessary precautions required to prevent excavated or other foreign material from entering the pipe during the laying operation. At all times, when laying operations are not in progress, at the close of the day's work, or whenever the workmen are absent from the job, close and block the open end of the last laid section of pipe to prevent entry of foreign material or creep of the gasketed joints.
- F. Take all precautions necessary to prevent the "uplift" or floating of the line prior to the completion of the backfilling operation.

3.03 BACKFILL AT THE PIPE ZONE

- A. The pipe zone shall be considered to include the full width of the excavated trench from the bottom of the pipe to a point 12 inches above the outside surface of the barrel of the pipe.
- B. Pipe zone material as hereinbefore specified shall be used for the

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full depth of the pipe zone and for the full width of the excavated trench for all pipe.

- C. Hand place the material around the pipe in horizontal 6-inch layers and thoroughly hand tamp with accepted tamping sticks supplemented by "walking in" and slicing with a shovel. Backfill the area of the pipe zone from the horizontal centerline to a point 12 inches above the top outside surface of the barrel of the pipe with pipe zone material. Use particular attention in placing material on the underside of the pipe to provide a solid backing and to prevent lateral movement during the final backfilling procedure.
- D. DETECTION TAPE shall be used above every underground pipe.

3.04 MATERIALS TESTS AND INSPECTIONS

- A. Deflection Test: All PVC and ADS gravity stormwater pipes shall be tested for deflection after installation and backfill by pulling a round plug equal to 95.0 percent of pipe base inside diameter, as defined in the Appendices of ASTM D3034, through the completed pipeline. The mandrel shall be of a design that provides an accurate measure of excess deflection regardless of orientation. Mandrel testing shall be performed not less than 30 days after complete pipe installation.
- B. Lamping Test: City to perform Lamping Test of all the installed stormwater pipes, prior to establishing flow to the associated gravity injection well, to verify the alignment and condition of the pipe. The lamp test shall be performed only after the contractor has completely cleaned the line to the satisfaction of the City. Should the lamp test indicate an alignment problem, the City shall be the sole judge of the need for replacement. The contractor shall supply all the equipment and labor necessary for the lamping (i.e. lamps, ladders).

3.05 CONNECTING TO EXISTING PIPING AND EQUIPMENT

- A. The CONTRACTOR shall verify exact location, material, alignment, joint, etc. of existing piping and prior to making the connections called out in the Drawings. The verifications shall be performed with adequate time to correct any potential alignment or other problems prior to the actual time of connection.
- B. At the time that a new connection is made to an existing pipeline, additional new piping, extending to and including the most convenient ne valve, shall be installed.

- C. Where necessary or required for the purpose of making connections, the CONTRACTOR shall cut existing pipe lines in a manner to provide an approved joint. Where required, he shall weld beads, flanges or provide couplings or special pieces as needed.
- D. Where connections are to be made to existing piping, or when existing piping and fittings are to be reused in the work, the pipe and fittings shall be sand blasted, cleaned and mating surfaces shall be properly prepared. CONTRACTOR may not reuse bolts, nuts, washers or gaskets, and shall instead replace with new.

3.06 FINAL STORM SEWERS CLEANING

- A. Prior to final acceptance and final structure to structure inspection by the ENGINEER of the storm sewers system, completely flush or clean all parts of the system. Remove all accumulated construction debris, rocks, gravel, and other foreign material from the storm sewers system at or near the closest downstream manhole. If necessary, use mechanical rodding equipment to remove accumulated mud, silt, and all other deposits from the storm sewer system at no additional cost to the OWNER.
- B. Upon the ENGINEER's final structure to structure inspection of the storm sewers system, if foreign matter and other construction debris are still prevalent in the system, reflush and clean the sections and portions of the lines as required.

END OF SECTION

**SECTION 33 44 13.13
STORMWATER STRUCTURES**

PART 1 GENERAL

1.01 REFERENCES

- A. The following is a list of standards that may be referenced in this section:
 - 1. American Welding Society (AWS): Code for Welding in Building Construction.
 - 2. ASTM International (ASTM):
 - a. A36/A36M, Standard Specification for Carbon Structural Steel.
 - b. A48, Standard Specification for Gray Iron Castings.
 - c. A615/A615M, Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 - d. C94/C94M, Standard Specification for Ready-Mixed Concrete.
 - e. C387, Standard Specification for Packaged, Dry, Combined Materials for Mortar and Concrete.
 - f. C478, Standard Specification for Precast Reinforced Concrete Manhole Sections.
 - 3. FDOT: Florida Department of Transportation.

PART 2 PRODUCTS

2.01 UNITS

- A. Structure dimensions and details of construction shall conform to FDOT Standard Specifications for Road and Bridge Construction and the FDOT Design Standards. All structures shall be H-20 load rated.

2.02 PRECAST UNITS

- A. Precast units shall conform to ASTM C478 except dimensions shall be as shown. Submit details of proposed units to Engineer for review. Concrete risers for extensions shall be a maximum of 6 inches high and of same quality as sections. Risers shall be reviewed by Engineer before installation.
- B. Structure dimensions and details of construction shall conform to FDOT Standard Specifications for Road and Bridge Construction and the FDOT Design Standards. All structures shall be H-20 load rated.
- C. Provide ADS Pipe Adapter flexible watertight Waterstop connection with pipe adapter for corrugated HDPE pipe to storm structures or approved equal ADS Pipe Adapters meeting the requirements of ASTM F2510 and ASTM C1478 for watertight flexible connections.

- D. Stormwater drainage baffle box shall conform with Drawings. Referenced structure is for information only.

2.03 MORTAR

- A. Standard premixed mortar conforming to ASTM C387, Type S, or proportion 1 part Portland cement to 2 parts clean, well-graded sand which will pass a 1/8-inch screen. Admixtures may be used not exceeding the following percentages of weight of cement: Hydrated lime, 10 percent; diatomaceous earth or other inert materials, 5 percent. Consistency of mortar shall be such that it will readily adhere to concrete. Only potable water shall be used for mixing. No groundwater is allowed.

2.04 FRAMES AND GRATES

- A. Frames and grates for catch basins and storm drain inlets shall be fabricated of steel conforming to ASTM A36/A36M in accordance with details shown. Connections shall be welded. Welding shall conform to requirements of current Code For Welding in Building Construction of the American Welding Society. Frames and grates shall be properly cleaned.
- B. All grates shall be H-20 traffic load rated.

2.05 FRAMES AND LIDS FOR MANHOLES

- A. Cast iron frames and lids for manholes shall be as indicated. Bearing surfaces shall be clean and shall provide uniform contact. Castings shall be tough, close-grained gray iron, sound, smooth, clean, free from blisters, blowholes, shrinkage, cold shuts, and defects, and shall conform to ASTM A48, Class 35.
- B. All lids shall be H-20 traffic load rated.

PART 3 EXECUTION

3.01 EXCAVATION AND BACKFILL

- A. Excavate as required to accomplish construction. Backfill shall be as specified for adjoining pipe trench.

3.02 PLACING PRECAST UNITS

- A. Excavate and backfill as specified in Section 31 23 13, Subgrade Preparation. Set units to grade at locations shown.

3.03 EXTENSIONS

- A. Install extensions to height determined by Engineer. Lay risers in mortar with sides plumb and tops to grade. Joints shall be sealed with mortar, with interior and exterior troweled smooth. Prevent mortar from drying out and cure by applying a curing compound. Extensions shall be watertight.

3.04 INSTALLATION OF FRAMES, COVERS AND GRATES

- A. Set frames, covers and grates at elevations indicated or as determined in field and in conformance with Drawings.
- B. Frames may be cast in, or shall be set in mortar.

3.05 CLEANING

- A. Upon completion, clean each structure of all silt, debris, and foreign matter.

END OF SECTION