CITY OF HOLLYWOOD
DEPARTMENT OF PUBLIC WORKS
ENGINEERING & ARCHITECTURAL SERVICES DIVISION

DIVISION 1 – GENERAL REQUIREMENTS

00800 SUPPLEMENTARY CONDITIONS INDEX

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DEPARTMENT OF PUBLIC WORKS
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SUPPLEMENTARY CONDITIONS

PART – 1 - GENERAL

1.01 SCOPE OF WORK

A. The intent of these specifications, together with the plans and all other contract documents, is to remove and dispose of existing asphalt, rework the upper 4" of limerock, regrade as shown on plans, place new asphalt pavement surface and installation of 200 linear feet of 15" drainage pipes with drainfield as shown in the Construction Documents in city alleys/rights-of-way within the City of Hollywood.

B. All labor, materials, equipment and services necessary to complete the work as shown on the plans and as specified herein shall be provided by the Contractor. The bidder is advised to visit the job sites and be familiarized with the existing conditions and/or any difficulties, which may arise.

C. Questions prior to Bid Opening shall be directed to Clarissa Ip, P.E., City of Hollywood Engineering and Architectural Services Division, (954) 921-3900.

1.02 TIME AND WORK RESTRAINTS

A. Contractor's Use of Premises: During construction, contractor's use of premises is limited only by Owner's right to perform work or employ other contractors on portions of Project and as follows:

1. Contractor to coordinate Work Plan and hours of operations with Owner and must obtain Owner's approval prior to commencing Work.

B. The estimated project schedule is provided below for informational purposes only:

Notice to Bidders:	**Monday, September 21, 2015**
Pre-Bid Meeting:	**Friday, October 9, 2015 at 10:00 am City Hall*, Room 308**
Last Day Questions Accepted:	**Friday, October 16, 2015 by 5:00 pm**
Bid Opening:	**Friday, October 23, 2015 @ 10:00 am City Hall*, Room 308**
Contract Awarded by City Commission Notice of Award:	**Wednesday, November 18, 2015**
Contract Execution / Notice to Proceed:	**Thursday, December 10, 2015**
Substantial Completion:	**Friday, August 19, 2016**
Contractual Completion:	**Tuesday, September 6, 2016**

*City Hall is located at 2600 Hollywood Boulevard, Hollywood, Florida 33022.

C. The date of Substantial Completion of the project is the date when the construction is sufficiently completed in accordance with the contract documents, as modified by any change orders agreed to by the parties, so that the City of Hollywood can occupy or utilize the project for the use and purpose for which it was intended.

1.03 INSURANCE REQUIREMENTS:

All insurance policies shall be issued by companies authorized to do business under the laws of the State of Florida and satisfactory to the Owner. All companies shall have a Florida resident agent and be rated a minimum A-VI, as per A.M. Best Company's Key Rating Guide, latest edition.

The CONTRACTOR shall furnish certificates of insurance to the Risk Management Director for review and approval prior to the execution of this agreement. The Certificates shall clearly indicate that the CONTRACTOR has obtained insurance of the type, amount and classification required by these provisions, in excess of any pending claims at the time of contract award to the CONTRACTOR. No failure to renew, material change or cancellation of, the insurance shall be effective without a 30-day prior written notice to and approval by the Owner. The insurance required by Article 13 of the General Conditions shall be as follows:

A. Comprehensive General Liability:

Prior to the commencement of work governed by this contract, the CONTRACTOR shall obtain General Liability Insurance. Coverage shall be maintained throughout the life of the contract and include, as a minimum:

1. Premises Operations
2. Products and Completed Operations
3. Blanket Contractual Liability
4. Personal Injury Liability
5. Expanded Definition of Property Damage

The minimum limits acceptable shall be:

$1,000,000.00 Combined Single Limit (CSL)

If split limits are provided, the minimum limits acceptable shall be:

$500,000.00 per Person
$1,000,000.00 per Occurrence
$100,000.00 Property Damage

Recognizing that the work governed by this agreement involves either underground exposures, explosive activities or the possibility of collapse of a structure, the General Liability Policy shall include coverage for XCU (explosion, collapse and underground) exposures with limits of liability equal to those of the General Liability Insurance policy.

An Occurrence Form policy is preferred. If coverage is provided on a Claims Made policy, its provisions should include coverage for claims filed on or after the effective date of this contract. In addition, the period for which claims may be reported should extend for a minimum of twelve (12) months following the acceptance of work by the CITY. The CITY of Hollywood shall be named as Additional Insured on all policies issued to satisfy the above requirements.

B. Comprehensive Automobile Liability:

Recognizing that the work governed by this contract requires the use of vehicles, the CONTRACTOR, prior to the commencement of work, shall obtain Vehicle Liability Insurance. Coverage shall be maintained throughout the life of the contract and include, as a minimum, liability coverage for:

Owned, Non-Owned, and Hired Vehicles

The minimum limits acceptable shall be:

$1,000,000.00 Combined Single Limit (CSL)

If split limits are provided, the minimum limits acceptable shall be:

$500,000.00 per Person
$1,000,000.00 per Occurrence
$100,000.00 Property Damage

The CITY of Hollywood shall be named as Additional Insured on all policies issued to satisfy the above requirements.

C. Worker's Compensation Insurance:

Prior to the commencement of work governed by this contract, the CONTRACTOR shall obtain Workers' Compensation Insurance with limits sufficient to respond to the applicable state statutes.

In addition, the CONTRACTOR shall obtain Employers' Liability Insurance with limits of not less than:

$1,000,000.00 Bodily Injury by Accident
$1,000,000.00 Bodily Injury by Disease, policy limits
$1,000,000.00 Bodily Injury by Disease, each employee

D. Coverage shall be maintained throughout the entire term of the contract.

Coverage shall be provided by a company or companies authorized to transact business in the state of Florida and the company or companies must maintain a minimum rating of A-VI, as assigned by the A.M. Best Company.

If the CONTRACTOR has been approved by the Florida's Department of Labor, as an authorized self-insurer, the CITY shall recognize and honor the CONTRACTOR's status. The CONTRACTOR may be required to submit a Letter of Authorization issued by the Department of Labor and a Certificate of Insurance, providing details on the CONTRACTOR's Excess Insurance Program.

If the CONTRACTOR participates in a self-insurance fund, a Certificate of Insurance will be required. In addition, the CONTRACTOR may be required to submit updated financial statements from the fund upon request from the CITY.

E. No Subcontractor shall commence work until a similar such insurance has been obtained and approved by the CITY. Any SubContractor used by the contractor shall supply such similar insurance required of the contractor. Such certificates shall name the City as Additional Insured on the general liability and auto liability policies.

1.04 REFERENCED STANDARDS

The following standards may be referenced in the specifications and/or on the drawings for this project. It is the responsibility of the CONTRACTOR to verify in the documents exactly which standards are applicable to this Project.

A.	1. AASHTO	6.	BCTED	11.	OSHA
	2. ANSI	7.	FDOT	12.	SFBC
	3. ASCE	8.	NEC	13.	UL
	4. ASTM	9.	NEMA		
	5. AWPA	10.	NFPA		

1.05 REQUIRED SHOP DRAWINGS

A. Submit a preliminary schedule of shop drawing submittals as required in Paragraph 4.2 of the General Conditions and as required indicated in the drawings and specifications. The following shop drawings, illustrations, and samples are required.

Section	Item
02050	**Demolition & Site Clearing**
02220	**Excavation, Backfill and Compaction**
02222	**Excavation and Backfill for Utilities and Structures**
02260	**Finish Grading**
02332	**Limerock Base**
02507	**Prime and Tack Coats**
02509	**Milling of Existing Asphalt Pavement**
02510	**Asphaltic Concrete Pavement**
02526	**Concrete Pavement, Curb and Walkway**
02605	**Adjustment of Existing Utilities**
02720	**Drainage Structures, Pipes and Fittings**
02930	**Sodding**
03330	**Cast-In Place Concrete, Reinforcing and Formwork**

B. The CONTRACTOR shall submit five (5) copies minimum of each shop drawings to enable the PROJECT MANAGER to retain three (3) copies. Resubmissions of shop designs shall be made in the same quantity until final approval is obtained.

1.06 REQUIRED PERMITS AND NOTIFICATIONS

A. The CONTRACTOR shall comply with all state, county and local laws, regulations and ordinances applicable to this work, including all permit provisions and required testing.

B. The CONTRACTOR and Subcontractors must obtain the standard Building Department Permits as may be required by the City of Hollywood Building Department for any work covered under this Contract. The CONTRACTOR or Subcontractors shall be responsible for obtaining all inspections required under Section 305 of the latest Broward Edition of the South Florida Building Code.

C. The City of Hollywood will pay all permit fees including any Federal, State and County surcharges applicable at the time that the permit is issued. In instances where the City of Hollywood has obtained permits from Broward County Traffic Engineering Division (BCTED), Broward County Department of Planning & Environmental Protection (DPEP) and/or South Florida Water Management District (SFWMD) the CONTRACTOR shall comply with permit conditions.

D. The CONTRACTOR is required to notify all utility companies and call Sunshine at 1-800-432-4770, a minimum of forty-eight (48) hours prior to any excavation for location of existing underground facilities.

E. The CONTRACTOR is required to notify the Police Traffic Sergeant at 967-4572 when the normal flow of traffic on any street will be disrupted in any manner.

F. The CONTRACTOR is required to notify the Public Works Department at (954) 967-4526 for location of all electrical facilities on City properties.

1.07 TEMPORARY SERVICES AND FACILITIES

A**.** The CONTRACTOR shall make all arrangements for and furnish at his expense, all electricity, water, sanitary facilities and Services necessary for construction purposes.

B. If water is required, it is the CONTRACTOR's responsibility to arrange through the City Water Department for a two (2") inch water meter. A deposit to be paid by the CONTRACTOR is required for meter rental and all water shall be purchased at the prevailing rate.

1.08 LINES AND GRADES

A. The CONTRACTOR shall be responsible for and shall furnish all survey work required to locate and install all proposed facilities. The information on existing survey reference points will be provided to the CONTRACTOR by the PROJECT MANAGER. The CONTRACTOR shall provide as built drawings showing the exact location of all items installed including underground, upon completion of the work and prior to final payment.

B. All work under this Contract shall be constructed in accordance with the lines and grades shown on the Contract Drawings or as directed by the PROJECT MANAGER. Elevations of existing ground, structures and appurtenances are believed to be reasonably correct but are not guaranteed to be absolute and therefore are presented only as an approximation. Any error or apparent discrepancy in the data shown or omissions of data required for accurately accomplishing the stake-out survey shall be referred immediately to the PROJECT MANAGER for interpretation or correction.

C. All survey work for construction control purposes shall be made by the CONTRACTOR at his expense.

D. The CONTRACTOR shall establish all base lines for the location of the principal component parts of the work together with bench marks and batter boards adjacent to the work. Based upon the information provided by the Contract Drawings, the CONTRACTOR shall develop and make all detail surveys necessary for construction. The CITY will furnish information and location of existing bench marks.

E. The CONTRACTOR shall have the responsibility to carefully preserve the bench marks, reference points and stakes. In case of destruction thereof by the CONTRACTOR or resulting from his/her negligence, he/she shall be held liable for any expense and damage resulting therefrom and shall be responsible for any mistakes that may be caused by the necessary loss or disturbance of such bench marks, reference points and stakes.

F. Existing or new control points, property markers, and monuments that will be established or

are destroyed during the normal causes of construction shall be re-established by the

CONTRACTOR; and all reference ties recorded therefore shall be furnished to the

PROJECT MANAGER All computations necessary to establish the exact position of the

work shall be made and preserved by the CONTRACTOR.

G. The PROJECT MANAGER may check all or any portion of the work and the CONTRACTOR shall afford all necessary assistance to the PROJECT MANAGER in carrying out such checks. Any necessary corrections to the work shall be performed

immediately by the CONTRACTOR of any responsibilities for the accuracy or completeness of this work.

1.09 LIQUIDATED DAMAGES

A. In as much as the actual damages sustained by the CITY as a result of the CONTRACTOR's failure to timely complete his obligations under the contract cannot be readily ascertained, the CONTRACTOR shall apply to the CITY, as damages for non-completion of the work within the time stipulated for its completion, according to the following tables, which sums are hereby agreed upon, fixed and determined by the parties hereto as liquidated damages that the CITY will suffer by reason of such default and shall not be considered a penalty.

Liquidated Damages: For each calendar day of delay that the project is unavailable for Beneficial Occupancy:

Projects up to	$99,999	$200.00 per calendar day
Projects from	$100,000 to $299,999	$300.00 per calendar day
Projects from	$300,000 to $599,999	$400.00 per calendar day
Projects from	$600,000 to $999.999	$500.00 per calendar day
Projects from	$1,000,000	$600.00 per calendar day

For each consecutive calendar day that the correction for all items on the punch list remain incomplete after the date established for Final Completion, the Contractor and his sureties shall be liable for and shall pay to the Owner stipulated as fixed, agreed and additional liquidated damages in accordance with the following schedule.

Projects up to	$99,999	$100.00 per calendar day
Projects from	$100,000 to $299,999	$150.00 per calendar day
Projects from	$300,000 to $599,999	$200.00 per calendar day
Projects from	$600,000 to $999.999	$250.00 per calendar day
Projects from	$1,000,000	$300.00 per calendar day

B. The CITY is hereby authorized to deduct the sum described in Section 1.09 A. from the monies which may be due or become due to the CONTRACTOR for the work under this contract.

C. Correction of work not complying with plans or specifications shall not be considered as grounds for a time extension

1.10 PROJECT CLOSEOUT

A. The CONTRACTOR, prior to requesting final payment shall obtain and submit the following items to the PROJECT MANAGER:

1. Written Guarantees

2. Four (4) sets of record drawings/documents (if applicable) signed and sealed by a professional surveyor showing exact locations of all items of work installed under this contract. In addition, record drawings shall be submitted on an AutoCad (version 14) electronic disk. The Contractor shall be held fully responsible for costs incurred by the CITY due to erroneous information supplied on the record drawings submitted. Record drawings shall be provided for: paving, drainage, water, sewer, electrical, irrigation, landscaping, and all other improvements.

3. Release from all parties who are entitled to claims again the subject project, property or improvement, pursuant to the provisions of law.

4. A Certificate of Occupancy or Certificate of Completion (if applicable) as issued by the City of Hollywood Building Department showing that all Building Department inspections have been satisfactorily performed

B. The CONTRACTOR shall comply with the maintenance and guarantee requirements obtained in Article 19 of the General Conditions.

C. The Contractor shall make all repairs and replacements promptly upon the receipt of a written order from the CITY. If the CONTRACTOR fails to make such repairs or replacements promptly, the CITY reserves the right to do the work and the CONTRACTOR and his surety shall be liable to the CITY for the cost thereof.

1.11 PROGRESS SCHEDULE

A. In accordance with Article 4.2 of the General Conditions, the CONTRACTOR shall, prior to commencing work, submit to the PROJECT MANAGER for approval a detailed Sequence of Construction showing the sequence in which the various work elements will be performed and showing conformance to the restrictions and requirements below.

B. The CONTRACTOR must complete all driveway restoration work, apron restoration work and sodding within two (2) weeks after the concrete for the respective sidewalk has been placed.

C. The progress schedule shall be updated and submitted every month during the course of the project. The pay request shall not be considered complete until an updated schedule is submitted. The Engineer reserves the right to withhold payment from a pay request until an updated Progress Schedule is submitted and approved.

1.12 SCHEDULE OF VALUES

A. In accordance with Article 4.2 of the General Conditions the CONTRACTOR shall submit, with the estimated construction progress schedule, on suitable forms, a detailed estimate giving a complete breakdown of the Contract Price. The detailed estimate shall include the price for material, labor and other costs for various units of work in sufficient detail to correspondence with the contemplated construction operations. The schedule shall include all subcontracts and major items of equipment included in the Contract. The detailed estimate will be used only for determining the basis of monthly payment and will not be considered as establishing a basis for additions to or deductions from the Contract Price.

1.13 PROJECT AREA SAFETY

A. The CONTRACTOR shall give special attention to the protection and welfare of the Public and City of Hollywood personnel who will be utilizing the sidewalk. Any hazardous areas shall be adequately marked and barricaded.

1.14 PREVAILING RATE OF WAGES AND FRINGE BENEFITS

A. The CONTRACTOR shall be responsible for ensuring payment of the rate of wages and fringe benefits, or cash equivalent, for all laborers, mechanics and apprentices employed by them or their SUBCONTRACTORS on the work covered by this contract which shall be not less than the prevailing rate of wages and fringe benefits payment or cash equivalent for similar skills or classifications of work as established by the General Wage Decision by the United States Department of Labor for Broward County, Florida that is in effect prior to the date the CITY issued the invitation for bids for this project. If the General Wage Decision fails to provide for a fringe benefit rate for any worker classification, then the fringe benefit rate applicable to such worker classification shall be the fringe benefit rate that has a basic

wage rate closest in dollar amount to the work classification for which no fringe benefit rate has been provided.

B. Upon commencement of work, the CONTRACTOR and all of their SUB-CONTRACTORS shall post a notice in a prominent place at the work site stating the requirements of this section.

C. If any questions should arise concerning the applications of this Section, which are not specifically addressed, the CITY may, but is not required to, rely on rules, regulations, practices, administrative rulings and court decisions governing applications of the Davis-Bacon Act.

D. CONTRACTOR and SUBCONTRACTORS shall submit to the CITY on a regular basis, but not less than monthly, payroll sheets, which have been certified under oath by CONTRACTOR and/or SUBCONTRACTORS as to their accuracy and compliance with the provisions of this Section. The certified payroll sheets shall contain the following: name and address of each employee; his/her current classification; rate of pay (including rates of contributions for, or costs assumed to provide, fringe benefits); daily and weekly number of hours worked; deductions made; and actual wages paid. Such records shall be maintained by the CONTRACTOR and his/her SUBCONTRACTORS for a period of at least three (3) years following completion of the work.

E. The CITY may withhold, or cause to be withheld from the CONTRACTOR, so much of any requisitioned payment as may be considered necessary to pay laborers, mechanics and apprentices the full amount of wages required by this section. The CITY, or its designee, may enter on the job site and conduct such inquires of the CONTRACTOR'S workers and his/her SUBCONTRACTOR'S workers to determine whether this section is being complied with. If the CONTRACTOR or his/her SUBCONTRACTOR fails to pay any laborers, mechanics or apprentices employed or working on the job site all or part of the wages required by this section, then the CITY may, after written notice to the CONTRACTOR, take such action as may be necessary to cause suspension of any further payments or advances until such violations have been corrected. If the violations are not corrected, the CITY may terminate the CONTRACTOR'S right to proceed with the work or such part of the work for which there has been a failure to pay the required wages and take such steps as are necessary to complete the work, whereupon the CONTRACTOR and its sureties shall be liable to the CITY for all excess costs incurred by the CITY.

F. The CONTRACTOR shall insert in any subcontracts such language as is necessary to require all of their SUBCONTRACTORS to comply with the requirements of this section. The CONTRACTOR shall be responsible for noncompliance by any of their SUBCONTRACTORS. This section shall be deemed part of any contract entered into between the CONTRACTOR and any of their SUBCONTRACTORS.

1. The threshold dollar amount for construction contracts subject to prevailing wage and fringe benefit payments, pursuant to Section 38.52 of "Code of Ordinances", is $500,000.00 (Five-hundred-thousand Dollars).

2. CONTRACTOR and SUBCONTRACTORS shall comply with Section 38.52 of the Code of Ordinances titled "Prevailing Rate of Wages and Fringe Benefits on City Construction Contracts" for contracts in the amount of $500,000.00 and over.

1.15 BASIS FOR PAYMENT/QUANTITIES IN THE PROPOSAL:

A. Quantities listed in the proposal are approximate and subject to variance. Such quantities are to be used by the OWNER for comparison only. Payment for items with unit prices shall be for the measured amount of such items incorporated by the CONTRACTOR in the completed work and accepted by the PROJECT MANAGER.

B. The bidder shall not plead misunderstanding or deception because such listed quantities do not correspond with actual quantities. It is understood that the quantities may be increased or decreased in accordance with provisions of the General Conditions.

C. Item No. 14 – Remove existing drainage catch basin and replace with Type B catch basin with pollution retardant debris baffle – Payment for all labor, equipment, materials, delivery, testing and commissioning as necessary and required to remove the existing drainage structure and install a new Type B drainage structure. This work shall include but not be limited to: survey, clearing and grubbing, locating and protection of all existing utilities, preparation and submittal of shop drawings, installing storm water pollution prevention devices, dewatering, invert cutouts, mud/grout (non-shrink) & brick work, frame & grate, and all other fittings/appurtenances, excavation, bedding, backfilling, testing, removal and disposal of unsuitable/excess fill, bedding, compaction, 12" type B stabilized subgrade, 12" lime rock base and asphalt pavement (2-inch minimum). Payment includes coordination with franchise utility owner(s) (gas, communications, electric, etc.) and relocation of franchise utilities as necessary to install drainage pipe, removal, disposal and replacement/ restoration of areas impacted by the installation of the complete proposed storm drainage system, including but not limited to: pavement restoration, sidewalks (full flag), grass/sod (new sod must be consistent with the existing sod to be replaced), concrete elements, asphalt driveways, special driveways (concrete, bricks, paver blocks, stamped/decorative concrete, etc.), asphalt pavement (2-inch minimum), swale restoration and restoration of any other affected areas to an equal or better condition. All structures are to meet or exceed the requirements of ASTM C-478 and the Precast Concrete Structures Association of Florida.

D. Item No. 15 – Furnish and install 15" A -2000 PVC drainage pipe – Payment for all labor, equipment, materials, delivery, testing and commissioning as necessary and required to install new 15" (A-2000) PVC pipe with manufacturer's gasketed joints for proposed storm drainage pipe per the approved Contract Documents. This work shall include but not be limited to: survey, clearing and grubbing, locating, and protection of all existing utilities, preparation and submittal of shop drawings, installing storm water pollution prevention devices, dewatering, pipe and all fittings/appurtenances, trench excavation and restoration, backfilling, testing, removal and disposal of unsuitable/excess fill, bedding, compaction, 12" type B stabilized subgrade, 12" lime rock base and asphalt pavement (2-inch minimum). Payment includes coordination with franchise utility owner(s) (gas, communications, electric, etc.) and relocation of franchise utilities as necessary to install drainage pipe, removal, disposal and replacement/restoration of areas impacted by the installation of the complete proposed storm drainage system, including but not limited to: pavement restoration, sidewalks (full flag), grass/sod (new sod must be consistent with the existing sod to be replaced), concrete elements, asphalt driveways, special driveways (concrete, bricks, paver blocks, stamped/decorative concrete, etc.), asphalt pavement (2-inch minimum), swale restoration and restoration of any other affected areas to an equal or better condition.

E. Item No. 16 – Furnish all materials, labor and equipment to install 4'x4' drainfield with 15" diameter perforated A-2000 PVC drainage pipe – Payment for all labor, equipment, materials, delivery, testing and commissioning as necessary and required to install new 15" (A-2000) PVC pipe with manufacturer's gasketed joints for proposed storm drainage pipe with drainfield per the approved Contract Documents. This work shall include but not be limited to: survey, clearing and grubbing, locating, and protection of all existing utilities, preparation and submittal of shop drawings, installing storm water pollution prevention devices, dewatering, pipe and all fittings/appurtenances, trench excavation and restoration, backfilling, testing, removal and disposal of unsuitable/excess fill, bedding, compaction, 12" type B stabilized subgrade, 12" lime rock base and asphalt pavement (2-inch minimum). Payment includes coordination with franchise utility owner(s) (gas, communications, electric, etc.) and relocation of franchise utilities as necessary to install drainage pipe, removal, disposal and replacement/restoration

of areas impacted by the installation of the complete proposed storm drainage system, including but not limited to: pavement restoration, sidewalks (full flag), grass/sod (new sod must be consistent with the existing sod to be replaced), concrete elements, asphalt driveways, special driveways (concrete, bricks, paver blocks, stamped/decorative concrete, etc.), asphalt pavement (2-inch minimum), swale restoration and restoration of any other affected areas to an equal or better condition.

1.16 CONTRACT EXTENSION:

A. The successful bidder shall be given the option of accepting a one year extension of the Contract if the City finds it to its benefit to offer one. Extension of this Contract would require that work be performed at the unit prices shown in the Proposal, or at mutually agreed upon adjustments in the unit prices. The City may be willing to allow cost adjustments to the contractor's unit rates, as outlined below, if price increases occur in the industry. Extension of this Contract would be subject to the appropriation of funds by the City for the work.

B. Costs for any extension year shall be subject to an adjustment only if increases occur in the industry. However, unless very unusual and significant changes have occurred in the industry, such increases shall not exceed 5% per year or, whichever is less, the latest yearly percentage increase in the All Urban Consumers Price Index (CPU-U) (National) as published by the Bureau of Labor Statistics, U.S. Department of Labor. The yearly increase, or decrease in the CPI shall be the latest index published and available ninety (90) days prior to the end of the contract year then in effect compared to the index for the same month one year prior. Any requested cost increase shall be fully documented and submitted to the City at least ninety (90) days prior to the contract anniversary date. Any approved cost adjustments shall become effective upon the anniversary date of the contract. In the event the CPI or industry costs decline, the City shall have the right to receive from the Contractor a reasonable reduction in costs that reflect such cost changes in the industry.

1.17 PROJECT COORDINATION:

A. The CONTRACTOR or a representative shall attend project coordination meetings as deemed necessary by the Project Manager.

1.18 PRE-CONSTRUCTION PHOTOGRAPHIC RECORD:

A. For certain projects, and at certain locations, a pre-construction photographic record may be needed. The CONTRACTOR shall verify the applicability of this requirement with the PROJECT MANAGER.

1.19 SITE CONDITIONS AND SUBSURFACE INVESTIGATION:

A. The CONTRACTOR shall be responsible for having determined to his satisfaction, prior to the submission of his bid, the nature of the work, subsurface soil conditions, the character and quality of the substrate, the types and quantity of materials to be encountered, the nature of the ground water conditions, the character of equipment and facilities needed preliminary to and during the execution of the work, the general and local conditions and all other matters which can in any way affect the work under this contract. The prices established for the work to be done will reflect all costs pertaining to the work. Any claims for extras based on substrate or ground water table conditions will not be allowed.

B. If applicable, soil boring logs will be provided in the Appendix and are for information only. The CITY makes no guarantees as to their accuracy and is not responsible for assumptions made by the CONTRACTOR based upon the information.

1.20 CONTRACTORS RESPONSIBILITY FOR MATERIAL AND STORAGE:

A. The CONTRACTOR shall be responsible for all materials furnished by him. All such material which is defective in manufacture or has been damaged in transit or has been damaged after delivery shall be replaced by the CONTRACTOR at his expense.

B. The CONTRACTOR shall be responsible for the safe storage of material furnished to or by him, and accepted by him, until it has been incorporated in the completed project. The CONTRACTOR shall be responsible for the safe storage of material furnished to or by him, and accepted by him, until it has been incorporated in the completed project.

C. The CONTRACTOR shall be responsible for the securing of any facilities that may be required for material and equipment storage on the project.

1.21 DUST CONTROL:

A. CONTRACTOR shall provide to the PROJECT MANAGER for approval, a method of controlling and preventing the spread of dust to occupied premises and vehicles parked along the work area.

B. The use of public streets and alleys shall be such as to provide a minimum of inconvenience to the public and to other traffic. Any earth or other excavated materials spilled from trucks shall be removed immediately by the CONTRACTOR and the streets cleaned to the satisfaction of the ENGINEER. The walks, roadways, temporary pavement, etc. shall be swept clean at the end of each day.

1.22 GUARANTEES:

A. Written guarantees shown below shall be provided to the CITY. The guarantee period shall begin the day the project is accepted as complete by the PROJECT MANAGER. Final payment will not be released until all the guarantees have been received in writing, properly signed and executed.

1. CONTRACTOR'S GUARANTEE:

a. The CONTRACTOR shall furnish a written one (1) year guarantee on all labor and materials furnished by him except stated otherwise. No costs will be borne by the CITY for correcting defective workmanship or materials.

b. The landscape guarantee shall be for a minimum of 180 days.

1.23 SUBSTITUTIONS - GENERAL:

A. After the execution of the Contract, requests made by the CONTRACTOR for substitution of equipment and/or material of makes and/or types other than those specified in the Contract will be considered for two reasons only:

1. That the equipment and/or material proposed for substitution is **superior** in construction and/or efficiency to that specified in the Contract.

2. That the equipment and/or material proposed for substitution is **equal** in construction and/or efficiency to that specified in the Contract.

In either case, it will be assumed that the cost to the CONTRACTOR of the equipment and/or material proposed to be substituted is less than the equipment and/or material

specified in the Contract and, if the substitution is approved, the Contract price shall be reduced a corresponding amount.

1.24 MAINTENANCE OF TRAFFIC:

A. In projects where it is applicable, The CONTRACTOR shall submit maintenance of traffic plan for approval by the CITY TRAFFIC ENGINEER, TRAFFIC SERGEANT AND FIRE MARSHALL prior to commencing work.

B. The CONTRACTOR shall control their operations and those of their SUBCONTRACTORS and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration. The CONTRACTOR shall keep roads, streets, or highways open to all traffic and shall provide such maintenance as may be required to maintain specified traffic. The CONTRACTOR shall furnish, erect and maintain barricades, warning signs, flagmen, and other traffic control devices in reasonable conformity with the manual of Uniform Traffic Control Devices for Streets and Highways (published by the United States Government Printing Office), unless otherwise specified herein. The CONTRACTOR shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress form abutting property or intersecting roads, streets or highways.

C. Beginning date of CONTRACTOR's responsibility: the CONTRACTOR's responsibility for maintenance of traffic shall begin on the day they starts work on the project or on the first day contract time is charged, whichever is earlier. Their responsibility at this date is to notify the PROJECT MANAGER of the dates when traffic will be affected and where it will be affected and the steps they will take to maintain traffic safety.

D. Sections not requiring traffic maintenance: In general the CONTRACTOR will not be required to maintain traffic over those portions of the project where no work is to be accomplished or where construction operations will not affect existing roads. The CONTRACTOR, however, shall not obstruct nor create a hazard to any traffic during the prosecution of the work and shall be responsible for repair of any damage to existing pavement or facilities caused by their operation.

E. No waiver of liability: The CONTRACTOR shall conduct their operations in such a manner that no undue hazard will result due to the requirements of this section, and the procedures and policies described therein shall in no way act as a waiver of any of the terms of the liability of the CONTRACTOR or their surety.

1.25 WORK HOURS AND OVERTIME WORK:

A. City noise ordinances prohibit any work prior to 7:00 a.m. and after 6:00 p.m., Monday through Friday. Work is allowed 8:00 a.m. to 6:00 p.m. on Saturdays. No work is allowed on Sundays.

B. CONTRACTOR shall provide weekly progress schedule indicating working hours, and days subject to PROJECT MANAGER'S approval.

C. CONTRACTOR shall be responsible for reimbursement of inspector's wages when inspection is required for over 40 hours per week, at a rate of $50.00 per hour.

D. Overtime inspection fees will not be deducted from moneys due the CONTRACTOR. Payment covering all overtime reimbursements must accompany monthly pay request.

1.26 HURRICANE PREPAREDNESS:

A. As the schedule for this project may coincide, in part, with the recognized South Florida hurricane season, the CONTRACTOR's attention is drawn to the possibility of hurricane conditions, or severe storm conditions, occurring at the site during the course of Contract work.

B. When applicable, the CONTRACTOR shall submit to the PROJECT MANAGER and OWNER a Hurricane Preparedness Plan. The plan should outline the necessary measures which the CONTRACTOR proposes to perform at no additional cost to the OWNER in case of hurricane warning.

C. In the event of inclement weather, or whenever the PROJECT MANAGER shall direct, the CONTRACTOR shall, and will cause sub-Contractors to protect carefully the work and materials against damage or injury by reasons of failure on the part of the CONTRACTOR or any Sub-Contractor to so protect the work. Such work and materials so damaged shall be removed and replaced at the expense of the CONTRACTOR.

Hurricane Watch: Upon designation of a hurricane watch, CONTRACTORS shall be responsible for storing all loose supplies and equipment on the job site that may pose a danger. The CONTRACTOR shall also cooperate with City Personnel in protecting other structures at the site.

Hurricane Warning: No mobile "temporary facility" under the control of the City of Hollywood, or on City property shall be staffed during a hurricane warning.

CONTRACTOR facilities meeting these criteria shall comply.

D. The CONTRACTOR is advised to take all necessary precautions to protect his equipment by moving it to higher ground if in an area subject to flooding. Known areas of Hollywood that would be subject to flooding from storm tides include:

Hollywood Blvd.	North Lake Area	South Lake Area
A1A	Sheridan Street	Dania Beach Blvd.
US Highway 1	46th Avenue	Hallandale Bch Blvd.

1.27 MAINTENANCE OF ACCESS:

A. CONTRACTOR shall maintain access to all private property at all times during construction.

B. CONTRACTOR shall provide alternate means of access where it is impractical to use the primary means of access during construction.

C. The CONTRACTOR must not deny access to any driveway for any period of time that will exceed 24 hours.

D. Any potential access interruption shall be coordinated between the CONTRACTOR and property owner.

E. Access for Residences and Businesses: The CONTRACTOR shall not isolate residences and places of business. Access shall be provided to all residences and all places of businesses whenever construction interferes with the existing means of access. All access interruption shall be coordinated between the CONTRACTOR and business or resident. Notice to the CITY of such coordination shall be provided in advance.

F. CONTRACTOR shall pass out flyers notifying residents to place garbage and recycle carts to the front of property and coordinate with garbage and recycle companies for the change in pick up location and duration of such change. CONTRACTOR shall assist residents as needed to place carts to the front of property.

1.28 CONSTRUCTION PHASING & COORDINATION WITH THE SCHOOL

A. Coordination with the adjacent school is required.

B. CONTRACTOR shall provide notification of any construction activities to the School's principal and the School Board verbally and via email 48 hours in advance.

C. Phasing plans provided shall be adhered to.

D. Work shall not interfere with school activities and shall be done while school is not in session.

END OF SECTION

DIVISION 2

SITE WORK

SECTION 02050

DEMOLITION & SITE CLEARING

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. The work covered by this Section of the specifications consists of furnishing all material, labor, tools, equipment, plant, appliances and services necessary to complete all removals of existing rock alleys, all removals of existing asphalt, all demolition, site clearing, grubbing and relocation work required in the Drawings and specified herein. The CONTRACTOR shall examine the various Drawings, visit the site and determine for himself the extent of work affected therein and all conditions under which he is required to perform the various operations.

1.02 QUALITY ASSURANCE:

A. Permits and Licenses: CONTRACTOR shall obtain all necessary permits and licenses for performing the work and shall furnish a copy of same to ENGINEER prior to commencing the work. Please note that the City of Hollywood requires permits for the removal, trimming and relocation of trees. The CONTRACTOR shall comply with the requirements of the permits.

B. Notices: CONTRACTOR shall issue written notices of planned demolition to companies or local authorities owning utility conduit, wire or pipes running to or through project site. Copies of said notices shall be submitted to the ENGINEER.

C. Utility Services: CONTRACTOR shall notify utility companies or local authorities furnishing gas, water, electrical, telephone or sewer service to remove any equipment owned by them in structures to be demolished and to remove, disconnect, cap or plug their services to facilitate demolition.

1.03 JOB CONDITIONS:

A. Sequence of Construction: Demolition, removal and relocation work shall be coordinated with the ENGINEER and an agreed upon sequence of construction to minimize down time at the site.

1.04 RELATED WORK:

A. Section 02220-Excavations, Backfill and Compaction

B. Section 02510-Asphaltic Concrete Pavement

1.05 PROTECTION:

A. Provide adequate protection for the adjacent private property to insure that no damage to existing structures occur. Protection shall include control of dust during demolition work.

B. Provide suitable barricades and lighting to protect the public prior to the removal of concrete, etc. The barricades and lights shall remain until the newly placed concrete is sufficiently hard to sustain pedestrian traffic. Barricades and lights shall be removed as soon as possible after placing concrete.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 PERFORMANCE:

A. General: Demolition shall result in the complete removal and disposal of existing structures and appurtenances from the site as indicated on Drawings, the salvaging of indicated items and the cleanup after completion of the demolition work.

B. The width of clearing and grubbing shall be as indicated on the drawings or as a minimum the full width of public right-of-way. Clearing and grubbing will include hedge removal and tree trimming. For tree trimming see FDOT Specifications for Road and Bridge Construction. No tree shall be removed unless it is entirely necessary because of line, grade, and/or condition of tree as determined by the ENGINEER. All trees within the right-of-way which are designated by the ENGINEER for removal shall be completely removed, including the removal of stumps and all roots and other portions below the existing ground. Only those trees so designated by the ENGINEER either by indication on the drawings or by marking of the trees in the field shall be removed.

C. Concrete Sidewalks: Concrete sidewalks that are being replaced or removed shall be removed and disposed of including any pole foundations encountered to a depth of 6” below bottom of sidewalk.

D. Provide suitable barricades and lighting to protect the public prior to the removal of concrete, etc. The barricades and lights shall remain until the newly placed concrete is sufficiently hard to sustain pedestrian traffic. Barricades and lights shall be removed as soon as possible after placing concrete.

E. All grubbing shall be done with the removal of unsatisfactory top soil before earthwork operations are started. All top soil that is removed as a part of the clearing and grubbing and all other earth that is accumulated with the vegetation and earth from the clearing and grubbing operation shall be kept separate from the excavation and embankment material.

F. Fence Removal: The CONTRACTOR will be required to remove and salvage fences from the right-of-way in certain areas. The CONTRACTOR shall either dispose of fence on owners property or as directed by the ENGINEER.

G. It shall be the CONTRACTOR'S responsibility to load, haul and provide a disposal site for any unsuitable material such as trees, shrubs, top soil, asphalt, concrete etc.

3.03 DAMAGE:

A. Where demolition leaves adjacent surfaces in an unfinished or damaged state, repair area with same or matching materials.

B. Where removed items leave holes in the facilities to remain, the holes shall be repaired as approved by the ENGINEER.

C. Repair or replace damaged items without additional cost to the CITY.

3.04 CLEANUP:

A. Site shall be left in a clean condition satisfactory to the ENGINEER, free from demolished materials, rubbish or debris. Site shall be graded to meet adjacent contours and provide flow for surface drainage.

B. The CONTRACTOR shall restore items intended to remain that have been damaged by demolition work.

C. All interrupted utility services shall be returned to their preexisting state and disconnect temporary services, unless otherwise specified.

END OF SECTION

DIVISION 2

SITE WORK

SECTION 02220

EXCAVATION, BACKFILL AND COMPACTION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The work included under this section consists of excavating, grading, backfilling and compacting for general construction.

B. For Excavation and Backfill for Utilities and Structures refer to Section 02222.

C. Excavation shall include the removal of all material of whatever nature encountered, including all obstructions of any nature that would interfere with the proper execution and completion of the work. The removal of said material shall conform to the lines and grades indicated.

1. When excavations are to be made in paved surfaces, the pavement shall be saw- cut ahead of the excavation by means of suitable sharp tools to provide a uniform sharp edge, with minimum disturbance of remaining material.

1.02 PROTECTION

A. Excavations

1. Notify ENGINEER of unexpected subsurface conditions and discontinue work in affected area until notification to resume work.
2. Provide and maintain adequate barricades and warning lights to protect open trenches.
3. All trenches shall be fully backfilled at the end of each day.

B. Existing Utilities

1. Those existing utilities that are to be retained shall be protected, and if damaged, shall be repaired by the CONTRACTOR at no additional cost to the CITY.
2. The CONTRACTOR shall notify CALL SUNSHINE at their toll free number 1-800-432-4770 and/or each utility individually, forty-eight (48) hours prior to any excavation.

C. Contractor shall exercise care during excavation in areas of environmental sensitivity and advise the project engineer if any hazardous material is encountered.

PART 2 - PRODUCTS

2.01 MATERIAL

A. Material shall comply with the latest FDOT specifications for Road and Bridge Construction, the drawings and other contract documents.

B. Material used for backfill shall be select granular material, free from grass, roots, brush or other vegetation, rubbish, clay, marl, lumps of broken paving or boulders having maximum dimension larger than six (6") inches. Unsuitable material shall be removed from the site at the CONTRACTOR'S expense away from the project.

C. Material coming within one foot (1'-0") of any structure or pipe shall be free of rocks or unbroken masses of earthy material having maximum dimension larger than two inches (2").

D. If, in the ENGINEER'S opinion, material is unsuitable for backfill purposes, imported material having sand equivalent value of no less than twenty percent (20%) shall be used for this portion of the trench backfill. Imported sand backfill, when ordered by the ENGINEER, will be paid for under a separate unit bid item if such bid item has been established, otherwise payment will be made in accordance with a negotiated price.

E. Suitable for Fills: Material classified as A-1, A-3, or A-2-4 under AASHTO M145 free from vegetation and organic material, and with not more than 10 percent by weight passing the No. 200 sieve.

F. Unsuitable for Fills: Materials classified as A-2-5, A-2-6, A-2-7, A-4, A-5, A-6, A-7 and A-8 under AASHTO M 145.

G. Select Material: Suitable material containing no pieces or rock fragments larger than will pass a 3-inch diameter ring.

PART 3 - EXECUTION

3.01 EXCAVATION

A. Work shall comply with the latest FDOT Standard Specifications for Road and Bridge Construction.

B. Trench and Excavation

1. Work shall comply with the latest FDOT Standard Specifications for Road and Bridge Construction.

2. The maximum amount of open trench permitted in any one (1) location shall be one hundred feet (100'), unless the trench is located within a State of County right-of-way, in which case the requirement would defer to the more stringent of those agencies.

3. All trenches shall be fully backfilled at the end of each day or, in lieu thereof, when approved by the ENGINEER, heavy steel plate adequately braced and capable of supporting vehicular traffic may be used in certain locations where it is impractical to backfill at the end of each day.

4. When excavations are to be made in paved surfaces, the pavement shall be saw-cut ahead of the excavation by means of suitable sharp tools to provide a uniform sharp edge, with minimum disturbance of remaining material. The saw shall be of sufficient size to entirely cut through the pavement. Jagged and excessive cuts will not be permitted. Partial sawing and breaking of concrete will not be allowed.

C. Excavation in Vicinity of Trees:

1. Trees that are designated not to be removed shall be protected from injury during construction operations. Cut and remove all tree roots smaller than four inches (4") in diameter which are under the sidewalk to be replaced or under the proposed new sidewalk. No tree roots over four (4) inches in diameter shall be cut without express permission of the Engineer. Trees shall be supported during excavation as may be directed by the Engineer.

2. All depressions that were created below the surface of the ground as a result of removal of roots shall be filled with suitable material and compacted to a density conforming to the surrounding ground.

D. Over-excavation When Ordered:

1. Trenches shall be over-excavated beyond the depth shown, when ordered by the ENGINEER. Such over-excavation shall be to the depth ordered.

2. The trench shall be refilled to the grade of the bottom of the pipe with

either selected granular material obtained from the excavation, sand or crushed rock, at the option of the ENGINEER. When crushed rock bedding is ordered, the material shall be a well-graded material with maximum particle size of three-quarters of an inch (3/4").

3. Bedding material shall be placed in layers, brought to optimum moisture content, and compacted to ninety-five percent (95%) of maximum density.

4. Payment for over-excavation shall be paid for either on a negotiated price basis, or as the ENGINEER may determine in accordance with the General Conditions.

E. Over Excavation not Ordered, Specified or Shown:

1. Any over-excavation carried below the grade ordered, specified or shown, shall be refilled to the required grade with suitable selected granular material.

2. Refilled material shall be moistened as required and compacted to ninety- five percent (95%) of maximum density.

3. Work required due to over excavation when not ordered shall be performed by the CONTRACTOR at his own expense.

F. Disposal of Excess Excavated Material:

1. The CONTRACTOR shall remove and dispose of all excess excavated material at his own expense, in accordance with the General Conditions.

2. All excess suitable material that cannot be used as fill on the site(s), is to remain property of the CITY and shall be removed by the CONTRACTOR to a disposal site(s) as directed by ENGINEER.

3. All materials suitable for use as backfill shall be hauled to and used in areas where not enough suitable material is available from the excavation.

4. Unsuitable material such as trees, shrubs, etc. shall be the CONTRACTORS responsibility to load, haul and provide a disposal site.

3.02 BACKFILLING

A. Work shall comply with the latest FDOT Specifications for Road and Bridge Construction, the drawings and all other contract documents.

B. Backfill shall not be dropped directly upon any structure or pipe.

C. Backfill shall not be placed around or upon any structure until the concrete has attained sufficient strength to withstand the loads imposed.

D. Fill material shall be placed in compacted layers of no more than six inches (6") in depth to the required sub-grade elevation.

E. Imported fill is allowed to be used only after the existing fill that is suitable for use has been completely used up.

F. The ENGINEER must approve of all locations where imported fill is to be used.

G. Backfill around and beneath structures, and beneath paved areas:

1. Except where otherwise specified for a particular structure or ordered by the ENGINEER, backfill placed around and beneath structures, and beneath paved areas, shall be placed in horizontal layers not to exceed eight inches (8") in thickness, as measured before compaction.
2. The backfill shall be brought up evenly with each layer moistened and compacted by mechanical means to ninety-five percent (95%) of maximum density.

3.03 COMPACTION TESTING

A. Compaction testing specified herein are expressed as a percentage of maximum density. Maximum density shall be determined by AASHTO T-180, Method D.

B. The CITY shall retain the services of an independent materials testing laboratory to perform laboratory and field density tests which, in the opinion of the ENGINEER, are necessary to establish compliance with the compaction requirements of these specifications. The first round of tests will be paid from the “Cost Allowance for Permits, Licenses and Fees”.

C. The costs of subsequent recompaction and retesting due to not achieving the required minimum compaction shall be borne by the CONTRACTOR at no additional cost to the CITY.

D. Compaction density tests shall be scheduled by the ENGINEER.

CONTRACTOR shall give notice to the ENGINEER 24 hours in advance of required density tests.

E. All tests which fail to meet minimum compaction requirements shall be paid by the CONTRACTOR. All tests shall be performed in the presence of the ENGINEER or his representative.

F. Trench backfill which does not comply with the specified densities, as indicated by such tests, shall be reworked and recompacted until the required compaction is secured, at no additional cost to the CITY.

END OF SECTION

DIVISION 2

SITE WORK

SECTION 02222

EXCAVATION AND BACKFILL FOR UTILITIES AND STRUCTURES

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. Excavate, grade and backfill as required for underground piping systems and structures including appurtenances as shown on the Drawings and specified herein.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 02220 – Excavation, Backfill and Compaction

1.03 QUALITY CONTROL

A. Codes and Standards: Excavation and backfill work shall be performed in compliance with applicable codes, standards and requirements of governing authorities having jurisdiction in the area.

B. Testing and Inspection Service: An independent testing laboratory will be retained by the City to do appropriate testing as described in Section 01400, Testing and Inspection. The Contractor shall schedule its work so as to permit a reasonable time for testing before placing succeeding lifts and shall keep the laboratory informed of his progress. A minimum of 48 hours of notice shall be provided to the testing laboratory to mobilize its activities.

1.04 SUBMITTALS

A. General: Submit information and samples to the Engineer for review as specified herein in accordance with 1.05 of the Supplemental Conditions.

B. Dewatering: See Section 02140 for Dewatering. If the quantity or nature of water withdrawn requires approval/permits from regulatory agencies, the Contractor shall procure such permits at its expense and submit copies to the Engineer and Owner before commencing the work. The Contractor will not be

granted contract time extensions due to dewatering permit processing delays or sampling requirements.

C. Bedding and Backfill Materials: The Contractor shall notify the Engineer of the off-site sources of bedding and backfill materials, and submit to the Engineer a representative sample weighing approximately 50 lbs. The sample shall be delivered to a location on site determined by the Engineer.

D. Sheeting System: Drawings of the sheeting system and design computations shall be submitted to the Engineer; however, the review of these drawings shall in no way relieve the Contractor of the responsibility to provide a safe and satisfactory sheeting and shoring system. Sheeting and shoring shall be designed by the Contractor, and the proposed design shall be sealed by a Professional Engineer registered in the State of Florida. If the Engineer is of the opinion that at any point sufficient or proper supports have not been provided, it may order additional supports put in at the Contractor's expense.

1.05 SUBSURFACE INFORMATION

A. The Contractor shall be responsible for anticipating groundwater and understanding soil conditions and shall provide positive control measures as required. Such measures shall ensure stability of excavations, groundwater pressure control, prevention of tanks, pipes, and other structures from being lifted by hydrostatic pressures, and avoiding the disturbance of subgrade bearing materials.

1.06 TRENCH SAFETY ACT COMPLIANCE

A. The Contractor by signing and executing the contract is, in writing, assuring that it will perform any trench excavation in accordance with the Florida Trench Safety Act, Section 553.60 et. seq.. The Contractor has further identified the separate item(s) of cost of compliance with the applicable trench safety standards as well as the method of compliance as noted in the "Bid Forms" Section of the Contract front-end documents.

B. The Contractor acknowledges that this cost is included in the applicable items of the Proposal and Contract and in the Grand Total Bid and Contract Price.

C. The Contractor is, and the City and Engineer are not, responsible to review or assess the Contractor's safety precautions, programs or costs, or the means, methods, techniques or technique adequacy, reasonableness of cost, sequences or procedures of any safety precaution, program or cost, including but not limited to, compliance with any and all requirements of Florida Statute Section 553.60 et. seq. cited as the "Trench Safety Act". The Contractor is,

and the City and Engineer are not, responsible to determine if any safety or safety related standards apply to the project, including but not limited to, the "Trench Safety Act".

1.07 PROTECTION OF PROPERTY AND STRUCTURES

A. The Contractor shall, at its own expense, sustain in place and protect from direct or indirect injury, all pipes, poles, conduits, walls, buildings, and all other structures, utilities, and property in the vicinity of its Work. Such sustaining shall be done by the Contractor. The Contractor shall take all risks attending the presence or proximity of pipes, poles, conduits, walls, buildings, and all other structures, utilities, and its Work. It shall be responsible for all damage, and assume all expenses, for direct or indirect injury and damage, caused by its Work, to any such pipe, structures, etc., or to any person or property, by reason of injury to them, whether or not such structures, etc., are shown on the Drawings.

B. Barriers shall be placed at each end of all excavations and at such places as may be necessary along excavations to warn all pedestrian and vehicular traffic of such excavations. Barricades with flashing lights shall also be placed along excavation from sunset each day to sunrise of the next day until such excavation is entirely refilled, compacted, and paved. All excavations shall be barricaded where required to meet OSHA, local and Federal Code requirements, in such a manner to prevent persons from falling or walking into any excavation within the site fenced property limits.

1.08 EXISTING UTILITIES

A. Locate existing underground utilities in the areas of work. Test pits and hand excavation in critical areas will be required prior to initiating work.

B. All existing utilities including piping, electrical conduits, electric duct banks and telephone cables that are shown on the Contract Drawings to be relocated, shall be relocated prior to initiating earth work. Excavation and backfill for relocation of existing utilities shall conform to the requirements of Section 02222, Excavation and Backfill for Utilities and Structures. The Contractor shall coordinate relocation of utilities with utility companies having jurisdiction in the area. Should unknown or incorrectly identified piping or other utilities be encountered during excavation, the Contractor shall consult the City, Engineer and Owner of such piping/utility for directions.

C. The Contractor shall cooperate with the City and utility companies in keeping respective services and facilities in operation.

PART 2 - PRODUCTS

2.01 BEDDING MATERIAL

A. Bedding materials shall be furnished from acceptable off-site sources. The Contractor shall submit to the Engineer the sources of each material for review in accordance with 1.05 of the Supplemental Conditions.

B. Crushed stone (or drainfield limerock) shall be used as bedding material for piping (except for copper pipe) and/or manholes as shown on the Standard Details when the installation is below the ground water table elevation. Crushed stone shall consist of hard, durable, sub-angular particles of proper size and gradation, and shall be free from organic material, wood, trash, sand, loam, clay, excess fines, and other deleterious materials.

1. For pipe diameters less than 24 inches, the stone shall conform to the requirements of ASTM C 33, Size No. 57 (3/4-inch rock) and be graded within the following limits:

Sieve Size	Percent Finer by Weight
1-½ inch	100
1 inch	95 - 100
½ inch	25 - 60
No. 4	0 - 10
No. 8	0 – 5

2. For bedding of 24 inch and larger diameter pipe, the stone shall conform to the requirements of ASTM C 33 and be graded within the following limits:

Sieve Size	Percent Finer by Weight
5/8 inch	100
1/2 inch	40 – 100
3/8 inch	15 - 45
No. 100 – 5	

C. Sand shall be used for bedding pipe when installed under dry trench conditions, or above the ground water table. Sand shall also be used for bedding copper pipe under all conditions. Sand shall be dry, screened, graded sand with 100 percent passing a 3/8-inch sieve and not more than 5 percent passing a No. 200 sieve.

D. Limerock screenings, sand or other fine material shall not be used for bedding.

E. All pipe bedding material shall be new, unless otherwise approved by the Engineer. Existing pipe bedding material may not be used.

2.02 SELECT BACKFILL

A. Select Backfill: Select backfill shall be clean sandy material passing through a 3/4-inch sieve as select backfill material.

2.03 GENERAL BACKFILL

A. All other backfill (general backfill) placed above the select backfill shall pass through a 6-inch ring. General backfill shall contain no more than 10 percent organics. General backfill used under roadways shall be compatible with the materials and compaction specified under Section 02510, Asphaltic Concrete Pavement and 02526, Concrete Pavement, Curb and Walkway.

2.04 STRUCTURAL BACKFILL

A. Fill material shall be non-cohesive, non-plastic, granular mixture of local clean sand or local clean sand and limerock free from vegetation, organic material, muck or deleterious matter. Material shall conform to AASHO-2 gradation with no more than ten (10) percent by weight passing the No. 200 sieve. All rock or hard material shall pass through a 3-inch diameter ring. Broken Portland cement or asphaltic concrete shall not be considered an acceptable fill material. Fill material containing limerock shall have sufficient sand to fill the voids in the limerock. Material placed in the upper 6-inches of all backfills or fills shall not contain any stones or rocks larger than 1-inch in diameter. Limits of excavation and fill shall be as defined on the Drawings. All structural fill materials shall be obtained from off- site sources.

PART 3 - EXECUTION

3.01 EXCAVATION

A. Examine the areas and conditions under which excavating, filling, and grading are to be performed. Do not proceed with the work until unsatisfactory conditions have been corrected.

B. Examine and accept existing grade of the project site walkways, pavements, etc., prior to commencement of work and report to Engineer if elevations of existing subgrade substantially vary from elevations shown on the Drawings.

C. The Contractor shall perform all excavation of every description and of whatever substance encountered, to the dimensions, grades and depths shown on the Drawings, or as required for a proper installation. All excavations shall be made by open cut and in accordance with the Trench Safety Act. All existing utilities such as pipes, poles and structures shall be carefully located, supported and protected from injury; in case of damage, they shall be restored at the Contractor's expense.

D. Pipe trenches for piping shall be excavated to a width within the limits of the top of the pipe and the trench bottom so as to provide a clearance on each side of the pipe barrel, measured to the face of the excavation, or sheeting if used, of 8 inches to 18 inches as defined on the Drawings. Where the pipe size exceeds 12 inches, the clearance shall be from 12 inches-to-18 inches. All pipe trenches shall be excavated to a level where suitable material is reached, a minimum of 8 inches below the pipe barrel or that will allow for a minimum of 36 inches of covering unless otherwise indicated on the Drawings.

E. Ladders or steps shall be provided for and used by workmen to enter and leave trenches as per OSHA standards.

F. Excavated unsuitable material shall be removed from the site and disposed of by the Contractor. Materials removed from the trenches shall be stored and in such a manner that will not interfere unduly with traffic on public roadways and sidewalks and shall not be placed on private property. In congested areas, such materials that cannot be stored adjacent to the trench or used immediately as backfill shall be removed to other convenient places of storage acceptable to the City at the Contractor's expense.

G. Excavated material that is suitable for use as backfill shall be used in areas where sufficient material is not available from the excavation. Suitable material in excess of backfill requirements shall be disposed off-site at the Contractor's expense and with no additional cost to the Owner.

H. Unless otherwise indicated on the Drawings, all excavation for structures shall be made in such a manner, and to such widths, as will give ample room for properly constructing and inspecting the structures they are to contain. Excavation shall be made in accordance with the details shown on the Drawings, and as specified herein. Attention shall be given to the proper

handling of storm water runoff. The Contractor shall intercept and collect surface run off both at the top and bottom of cut slopes. The excavating equipment shall operate in an organized fashion so as to remove silt from one edge of the excavation to the other so as not to trap silt within the undercut area.

3.02 UNAUTHORIZED EXCAVATION

A. Excavation work carried outside of the work limits required by the Contract Documents shall be at the Contractor's expense, and shall be backfilled by the Contractor at its own expense with structural fill, as directed by the Engineer. Where, in the judgment of the Engineer, such over-excavation requires use of lean concrete or crushed stone, the Contractor, at its expense, shall furnish and place such materials.

3.03 SHEETING AND BRACING

A. The term "sheeting" shall represent any type of shoring used to support sides of the excavation. Walls of the excavation shall be kept vertical where open cut is not practical and, if required to protect the safety of workmen, the general public, this or other work or structure, or excavation walls, the excavation shall be properly sheeted and braced for conditions encountered and in conformance with OSHA requirements. Excavation for the structures shall be sufficient to provide a clearance between their outer surfaces and the face of the excavation, sheeting, or bracing, of not less than two feet, unless otherwise indicated on the Drawings. Materials encountered in the excavation, which have a tendency to slough or flow into the excavation, undermine the bank, weaken the overlying strata, or are otherwise rendered unstable by the excavation operation shall be retained by sheeting, stabilization, grouting or other acceptable methods.

C. Minimum length of embedment below the deepest part of the excavation shall be 0.3 times the depth of excavation being supported or greater depending on the sheeting. The design of the sheeting arrangement shall be the responsibility of the Contractor.

D. The Contractor shall furnish, place and maintain sheeting and bracing to support sides of the excavation as necessary to provide safe working conditions in accordance with OSHA requirements, and to protect pipes, structures and other Work from possible damage. Where wood sheeting or certain designs of steel sheeting are used, the sheeting shall be cut off at a level of 2 feet above the top of the installed pipe and that portion below the level shall be left in place. If interlocking steel sheeting is used, it may be removed providing removal can be accomplished without disturbing the bedding, pipe or alignment of the pipe. Any damage to the pipe bedding,

pipe or alignment of the constructed utility caused by the removal of sheeting shall be cause for rejection of the affected portion of the work. The City may permit sheeting to be left in place at the request and expense of the Contractor, or the City may order him in writing to leave in place, for the preventing of damage to structures or property. Payment for sheeting ordered to remain in place shall be paid for at a negotiated price.

E. If the Engineer is of the opinion that at any point sufficient or proper supports, have not be provided, he may order additional supports put in at the Contractor's expense. The Contractor shall be responsible for the adequacy of all sheeting used and for all damage resulting from sheeting and bracing failure or from placing, maintaining and removing it.

3.04 REMOVAL OF WATER

A. General: It is a basic requirement of these Specifications that excavations shall be free from water before pipe or structures are installed.

1. Removal of groundwater, or dewatering, shall be accomplished in accordance with the requirements of Section 02140, Dewatering.

B. Disposal: The Contractor shall be responsible to dispose of water from the dewatering operation in accordance with the Contract Documents and shall obtain all necessary permits and conform to all local regulations and codes.

3.05 TRENCH STABILIZATION

A. No claim for extras or additional payment will be considered for cost incurred in the stabilization of trench bottoms which are rendered soft or unstable as a result of construction methods, such as improper or inadequate sheeting, dewatering or other causes. In no event shall pipe be installed when such conditions exist and the Contractor shall correct such conditions so as to provide proper bedding or foundations for the proposed installation at no additional cost to the City before placing the pipe or structures.

3.06 PIPE BEDDING IN DRY TRENCHES

A. Pipe trenches shall be excavated as described herein. The resulting excavation shall be backfilled with acceptable pipe bedding material, up to the level of the centerline of the proposed pipe barrel. This backfill shall be tamped and compacted to provide a proper bedding for the pipe and shall then be shaped to receive the pipe. Bedding shall be provided under the

branch of all fittings to furnish adequate support and bearing under the fitting.

B. Any over excavation below the levels required for installation of the pipe shall be backfilled with acceptable bedding material, tamped, compacted and shaped to provide proper support for the proposed pipe, at the Contractor's expense.

3.07 BACKFILL

A. The Contractor shall not backfill trenches until the piping has been inspected and tested in accordance with Section 15995, Pipeline Testing and Disinfection.

B. Pipelines: Pipeline trenches shall be backfilled to a level 12 inches above the top of the pipe with select backfill. When placed in the dry, such material shall be placed in 9-inch layers, each compacted to the densities specified herein. Only hand operated mechanical compacting equipment shall be used within six inches of the installed pipe.

C. After the select backfill has been placed as specified above, and after all excess water has completely drained from the trench, general backfilling of the remainder of the trench may proceed. General backfill shall be placed in horizontal layers, the depth of which shall not exceed the ability of the compaction equipment employed, and in no event shall exceed a depth of 12 inches. Each layer shall be moistened, tamped, puddled, rolled or compacted to the densities specified herein.

D. Manholes and Vaults: Any excavation below the levels required for the proper construction of manholes or vaults shall be filled with Class B concrete. The use of earth, rock, sand or other materials for this purpose will not be permitted.

3.08 COMPACTION AND DENSITIES

A. Compaction of backfill shall be 98 percent of the maximum density where the trench is located under structures or paved areas, and 95 percent of the maximum density elsewhere. Methods of control and testing of backfill construction are:

1. Maximum density of the material in trenches shall be determined by ASTM D1557.

2. Field density of the backfill material in place shall be determined by ASTM D1556 or D 2922.

B. Density Test Locations for Pipelines: The compacted backfill/fill shall be tested for in-place density at the rate of one test location per 200 lineal feet (or fraction thereof) of trench, or as shown on the Drawings or as directed by the Engineer. The density tests shall be taken at the trench bottom and at each location in one foot intervals beginning from the top of the piping and ending at the final grade. At existing road or pavement crossings, a minimum of two (2) density tests per crossing per lift is required.

C. Inspection and Testing: As a minimum, an in-place density test will be made in each lift of compacted soil for every 2,500 square feet of area. The Contractor shall coordinate and cooperate with the testing laboratory.

D. Trench backfill which does not comply with the specified densities, as indicated by such tests, shall be reworked and recompacted until the required compaction is secured, at no additional cost to the City. The costs for retesting such Work shall be paid for by the Contractor.

3.09 ADDITIONAL EXCAVATION AND BACKFILL

A. Where organic material, such as roots, muck, or other vegetable matter, or other material which, in the opinion of the Engineer, will result in unsatisfactory foundation conditions, is encountered below the level of the proposed pipe bedding material, it shall be removed to a depth of two feet below the outside bottom of the pipe or to a greater depths as directed by the Engineer and removed from the site. Sheeting shall be installed if necessary to maintain pipe trenches within the limits identified by the Engineer. The resulting excavation shall be backfilled with suitable backfill material, placed in 12-inch layers, tamped and compacted up to the level of the bottom of the proposed pipe bedding material. Sufficient compaction of this material shall be performed to protect the proposed pipe against settlement. Lean concrete may be used in lieu of backfill when pipe installation is in the wet or at the Contractor's option. Construction shall then proceed in accordance with the provisions herein.

B. Additional excavation (more than two feet below the pipe) shall be performed when ordered by the Engineer. Where organic or other material is encountered in the excavation, the Contractor shall bring the condition to the attention of the Engineer and obtain his determination as to whether or not the material will require removal, prior to preparing the pipe bedding. In areas where muck is located, the excavation of material up to two feet below the outside bottom of the trench width will be required to be removed and disposed of by the Contractor. The removal and disposal of up to two

feet of muck below the pipe trench is considered incidental to the construction and the Work shall be done at no additional cost to the City which also includes replacing the muck with suitable pipe bedding material.

3.10 ALTERNATE METHOD OF CONSTRUCTION

A. Use of This Method: A combination of conditions in the substrate, water table, or method of disposal may be encountered during the course of the work which makes dewatering impossible. When such conditions are encountered, but only after all reasonable means (pumps, well points, etc.) to dewater the excavation have been employed without success, the Contractor may request to employ the following Alternate Method of Construction. The concurrence of the Engineer and City shall be obtained in writing and shall limit the use of the alternate method of construction to such specific portions of the Work as the Engineer and City shall determine acceptable.

B. The requirements set forth in other sections of these Specifications shall establish the required standards of construction quality for this work. Use of the alternate method of construction described hereinafter shall in no way be construed as relieving the Contractor of the work. No additional payment will be made to the Contractor for excavation, backfill, sheeting or any cost incurred for Work or materials, or any other costs incurred as a result of the use of this alternate method of construction. The prices established in the Proposal shall be for full payment for the various items of work.

C. Subject to all the requirements stated herein, including written acceptance of the Engineer, construction will be permitted in accordance with the following specifications. All requirements of these Specifications shall apply to this construction unless otherwise specifically modified herein.

D. Removal of Water: The installation of pipe and appurtenances under water will be permitted and the requirements of Article 3.04 will be waived.

E. Excavation shall be performed in accordance with Article 3.01 to the specified limits. The excavation shall be completely cleaned of silt and other fines.

F. Pipe Bedding: Pipe bedding shall be placed from the bottom of the excavation to six inches above the top of the pipe. The bedding material shall be screened gravel or crushed stone as specified in Article 2.01. Limerock screenings, sand or other fine organic material shall not be used.

G. The bedding material shall be placed to the lower third of the pipe barrel and then be shaped to receive the pipe at the intended elevation. Bedding shall be provided under the branch of all fittings to furnish adequate support and bearing under the fitting. After the pipe section is installed and tested if required, the remaining bedding shall be placed to the top of the pipe.

H. Select backfill material shall be used to backfill from 6 inches above the top of the pipe to a level one foot above standing ground water. The lift shall then be compacted per Article 3.08. General backfill shall then be placed in 8-inch lifts and compacted per Article 3.08.

I. If the Alternate Method of Construction is used, all backfill material, including specified pipe bedding material, shall be carefully lifted into the trench and not released to fall freely therein until the bucket or container is at or just above water level. Under no circumstances shall backfill material be dumped or pushed into the trenches containing water. Below water level, the bedding and backfill material shall be carefully rammed into place in uniform layers, of equal depth on each side of the pipe, up to one foot above the water level. Above the water level, backfill material shall be placed and compacted for normal backfill as previously specified.

3.11 RESTORATION

A. Provide finished grading in accordance with Section 02260, Finish Grading.

B. Restore all green space areas disturbed by the trenching operations in accordance with Section 02500, Landscaping, and Section 02930, Sodding or as otherwise applicable.

END OF SECTION

DIVISION 2

SITE WORK

SECTION 02260

FINISH GRADING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The Contractor shall, under this Section, supply, place, compact and roll finish grade materials prior to landscaping work.

B. Finish grade sub-soil.

C. Cut out areas to receive stabilizing base course materials for paving and sidewalks.

D. Place, finish grade and compact topsoil.

1.02 RELATED WORK

A. Section 02222 - Excavation and Backfill for Utilities and Structures

B. Section 02930 – Sodding

1.03 PROTECTION

A. The Contractor shall prevent damage to existing fencing, trees, landscaping, natural features, bench marks, pavement, utility lines, and sprinkler system. Correct and restore any damaged items at no cost to the City.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Topsoil shall be friable loam free from subsoil, roots, grass, excessive amount of weeds, stones and foreign matter; acidity range (pH) of 5.5 to 7.5; containing a minimum of 4% and a maximum of 25% organic matter.

2.02 CRUSHED STONE

A. Crushed stone for general grading purposes shall be hard, durable, subangular particles of proper size and gradation, and shall be free from

organic materials, wood, trash, sand, loam, chalk, excess fines and other deleterious materials. Maximum aggregate size shall be ¾ inches.

PART 3 - EXECUTION

3.01 SUBSOIL PREPARATION

A. Rough grade subsoil systematically to allow for a maximum amount of natural settlement and compaction. Eliminate uneven areas and low spots. Remove debris, roots, branches, stones, etc., in excess of 2 inches in size. Remove sub-soil which has been contaminated with petroleum products.

B. Cut out areas, to subgrade elevation, which are to receive stabilizing base for paving and sidewalks.

C. Bring subsoil to required levels, profiles and contours. Make changes in grade gradual. Blend slopes in to level areas.

D. Slope grade away from building minimum 4 inches in 10 feet (unless indicated otherwise on Drawings).

3.02 PLACING TOPSOIL

A. Place topsoil in area where seeding, sodding and planting is to be performed. Place to the following minimum depths, up to finished grade elevations:

1. 6-inches for seeded areas.
2. 4 1/2-inches for sodded areas.
3. 24-inches for shrub beds.
4. 18-inches for flower beds.

B. Use topsoil in relatively dry state. Place during dry weather.

C. Fine grade topsoil eliminating rough and low areas to ensure positive drainage. Maintain levels, profiles and contours of subgrade.

D. Remove stones, roots, grass, weeds, debris and other foreign material while spreading.

E. Manually spread topsoil around trees, plants, buildings and other structures to prevent damage which may be caused by grading equipment.

F. Lightly compact placed topsoil.

3.03 SURPLUS MATERIAL

A. Remove surplus sub-soil and topsoil from site.

B. Leave stockpile areas and entire job site clean and raked, ready to receive landscaping and or sodding.

3.04 GRADING:

A. Bring top of sub-grade, base, or finished grade to a smooth and compact surface conforming to grades, lines, and cross-sections specified, of uniform density ready to receive base course, sidewalk, ramp, surface course, topsoil or sod.

B. Check slopes, elevations, cross-sections and density before placement of the sidewalk, ramp, asphalt or sod.

C. Finished surface shall be protected from ruts, depressions or other irregularities, until placement of sidewalk, ramp or asphalt.

D. Assure the subgrade is at the required elevations at driveways to achieve a maximum slope of 1:20 at all transition areas between the new sidewalk and existing driveways.

E. Assure the subgrade is at the required elevations at aprons to achieve a maximum slope of 1:6 at all transition areas between the new sidewalk and existing aprons.

F. If conditions exists that more than 2 inches of asphalt will be required to be placed over the existing asphalt in order to provide the proper transitions between the new sidewalk and driveway / apron, then the existing asphalt must be removed and limerock be scarified / added. Prime coat will be applied over limerock prior to asphalt placement.

G. If conditions exist that 2 inches of asphalt or less will be required to be placed over the existing asphalt in order to provide for proper transitions between the new sidewalk and driveway / apron, then the existing asphalt may be resurfaced. Tack coat will be applied over existing asphalt prior to additional asphalt placement. Provide for keyway at joints.

END OF SECTION

DIVISION 2

SITE WORK

SECTION 02332

LIMEROCK BASE

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Furnish all labor, materials, equipment and incidentals required to provide limerock base in accordance with the grades and typical sections shown on the Drawings and as specified herein. The Contractor is solely responsible for the cost of limerock base to be provided at various locations within the project corridor, and at potentially varying thicknesses per jurisdictional requirements, or for replacement in kind, as applicable.

B. Limerock base must be sufficient so that the maximum thickness of compacted asphalt will not exceed 1 1/2 inches.

1.02 RELATED WORK:

A. Section 02050 – Demolition & Site Clearing

B. Section 02260 – Finish Grading

C. Section 02510 - Asphaltic Concrete Pavement

PART 2 - PRODUCTS

2.01 MATERIALS

A. Source: The material used in limerock base courses shall be material classified as either Miami Oolite Formation or Ocala Formation at the Contractor's option; however, only one formation may be used.

B. Limerock material shall contain not less than 70 percent of carbonates of calcium and magnesium. The maximum percentage of water sensitive clay material shall be 3%.

C. Graduation: At least 97 percent (by weight) of the material shall pass a 3-1/2-inch sieve and the material shall be grades uniformly down to dust. The fine material shall consist entirely of dust of fracture. All crushing or breaking up which might be necessary in order to meet such size requirements shall be done before the material is placed on the road.

D. Quality:

1. The limerock material shall be uniform in quality and shall not contain cherty or other extremely hard pieces or lumps, balls or pockets of sand or clay size material in sufficient quantity as to be detrimental to prevent proper bonding, finishing or strength of limerock base. Limerock material shall be non-plastic, and the liquid amount shall not exceed 35.

2. Compacted limerock material shall have an average LBR value of not less than 100.

PART 3 - EXECUTION

3.01 PREPARATION

A. For new limerock base construction, or areas where pavement is to be replaced, Contractor shall remove existing subgrade as required to provide the minimum thickness of new limerock base course as indicated on plans.

B. Compact subgrade to a density of no less than 98% of maximum density as determined by AHSHTO T-180.

C. No separate bid item is provided in the proposal for evacuating, grading and compacting subgrade. The cost thereof shall be included in the BID schedule items.

3.02 PERFORMANCE

A. Transporting Limerock: The limerock shall be transported to the point where it is to be used, over rock previously placed if practicable, and dumped on the end of the preceding spread. No hauling over the subgrade or dumping on the subgrade shall be done.

B. Spreading Limerock:

1. The limerock shall be spread uniformly, and all segregated areas of fine or coarse rock shall be removed and replaced with well-graded rock.

2. When the specified compacted thickness of the base is greater than 6-inches, the base shall be constructed in two courses. The thickness of the first course shall be approximately one-half the total thickness of the finished base, or enough additional to bear the weight of the construction equipment without disturbing the subgrade.

C. Establish grades and cross-sections conforming to plans

1. Provide a minimum of 8” inches of limerock as required to provide grades, elevations and cross sections or as indicated on plans.
2. The Contractor must determine for himself the volume of material required for the site.

D. Compacting and Finishing Base:

1. Work shall comply with the appropriate Section of the FDOT Standard Specifications for Road and Bridge Construction, latest edition.
2. Proposed limerock base shall be compacted to a minimum of ninety-eight percent (98%) of maximum density as determined by AASHTO T-180. Properly compact areas adjacent to curbs, catch basins, manholes and other areas not accessible to rollers with mechanical or hand tamping devices.

3. Correction of Defects:

(a) If at any time the subgrade material should become mixed with the base course material, the Contractor shall dig out and remove the mixture, which shall be shaped and compacted as specified above.

(b) If cracks or checks appear in the base, either before or after priming, which in the opinion of the Engineer would impair the structural efficiency of the base course or checks by rescarifying, reshaping, adding base material where necessary and recompacting are deemed as being necessary, the Contractor shall rectify at no cost to the Owner.

END OF SECTION

DIVISION 2

SITE WORK

SECTION 02507

PRIME AND TACK COATS

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. The work specified in this section consists of the application of bituminous tack coats on previously prepared bases and on all existing pavement surfaces. All work shall be accomplished in accordance with these specifications and as per the direction of the ENGINEER. No separate bid item is provided in the proposal for tack coats. The cost shall be included in the contract unit price for asphaltic concrete pavement.

1.02 RELATED WORK:

A. Section 02510-Asphaltic Concrete Pavement

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Prime Coat

1. Materials shall comply with Section 300 of the January 2015 FDOT Standard Specifications for Road and Bridge Construction.

2. Type or grade of material shall be as specified in Section 300-2.1 of January 2015 FDOT Standard Specifications for Road and Bridge Construction and shall meet requirements of Section 916-2 or 916-4.

3. No separate bid item is provided in the proposal for prime and tack coats. The cost shall be included in the contract unit price for limerock base.

A. Tack Coat

1. Undiluted Emulsified Asphalt Grades RS-1 or RS-2 meeting the requirements of Section 916-2 of the January 2015 FDOT Standard Specifications for Road and Bridge Construction. RS-1 or RS-2 shall

be heated to a temperature of 140 degrees F. to 180 degrees F. For night paving the tack coat shall be RA-500 meeting the requirements of 916-2 and shall be heated to a temperature between 250 degrees F. and 300 degrees F. Equipment shall conform to the requirements of Section 300-3 and application of tack coat shall conform to Section 300-8 of said specifications. The Engineering Inspector may require appropriate tests of materials at times and locations determined by him.

2. A RS-2 tack coat shall be required on existing asphalt surfaces before placing new surface course.

3. Material used shall conform to Section 300-2.3 and Section 916-4 of the January 2015 FDOT Standard Specifications for Road and Bridge Construction.

4. No separate bid item is provided in the Proposal for tack coat; the cost shall be included in the contract unit price for asphaltic concrete surface course.

2.02 EQUIPMENT:

1. The pressure distributor used for placing the tack coat shall be equipped with pneumatic tires having a sufficient width of rubber in contact with the road surface to avoid breaking the bond or forming a rut in the surface. The distance between the centers of openings of the outside nozzles of the spray bar shall be equal to the width of the application required, within an allowable variation of 2-inches. The outside nozzle at each end of the spray bar shall have an area of opening of not less than 25 percent, nor more than 75 percent in excess of the other nozzles which shall have uniform openings. When the application covers less than the full width, the normal opening of the end nozzle at the junction line may remain the same as those of the interior nozzle.

2. SAMPLING DEVICE ON TRANSPORT TANKS: All transport tanks delivering bituminous materials shall be equipped with an approved spigot-type sampling device.

3. TEMPERATURE SENSING DEVICE ON TRANSPORT TANKS: All transport tanks delivering bituminous materials shall be quipped with an approved dial type thermometer.

   The thermometer shall have a temperature range from 50□F to 500□F in 25□F increments with minimum dial diameter of two inches.

The thermometer shall be located near the midpoint in length and within the middle third of the height of the tank and be enclosed in a well with a protective window or by other means as necessary to keep the instrument clean and in the proper working condition.

The measurement shall be based on a temperature of 60□F and correction for temperature shall be made by increasing or decreasing the volume actually measured as specified in Section 300-8 of the January 2015 FDOT Standard Specifications for Road and Bridge Construction.

PART 3 -EXECUTION

3.01 PREPARATION:

A. Before applying any tack coat all loose material, dust, dirt and foreign material which might prevent proper bond with the existing surface shall be removed. Particular care shall be taken to clean the outer edges of the strip to be treated in order to insure the tack coat will adhere.

B. When the tack coat is applied adjacent to curb and gutter or another concrete surface, such concrete surfaces (except where they are to be covered with a bituminous wearing coarse) shall be protected by heavy paper or other protective material while the tack coat is being applied. Any bituminous material deposited on such concrete surfaces shall be removed immediately.

C. PRIME COAT

1. Work shall comply with Section 300 of the January 2015 FDOT Standard Specifications for Road and Bridge Construction.

2. Ensure base course is dry and free of loose or foreign material before priming.

3. Apply primer over prepared base course at a uniform rate of approximately one-tenth (1/10) gallon per square yard. Ensure primer is at temperature recommended by manufacturer.

4. The prime coat shall be fully set and cured before placing asphaltic concrete. Use clean natural sand to blot excess primer.

5. Coat surfaces of manholes which are to remain free of asphalt with oil to prevent asphalt adhesion.

D. TACK COAT

1. Work shall comply with Section 300 of the January 2015 FDOT Standard Specifications for Road and Bridge Construction.

2. Application shall be in accordance with Section 300-7 of January 2015 FDOT Standard Specifications for Road and Bridge Construction.

3. A tack coat will be required on existing asphalt surfaces before placing new surfaces courses.

3.02 WEATHER LIMITATIONS:

A. No bituminous material shall be applied when the air temperature is less than 400 F in the shade, or when the weather conditions or the condition of the existing surface is unsuitable. In no case shall prime or tack coats be applied while rain is falling or when there is water on the surface to be covered.

3.03 APPLICATION OF PRIME OR TACK COATS:

A. No prime or tack coat shall be applied until the surface has been cleaned and is free from sand, dust or other objectionable material.

B. The prime and tack coat shall be applied with a pressure distributor as specified in paragraph 2.02 above. The tack coat shall be heated to a suitable temperature and shall be applied in a thin uniform layer at the rate of between .02 gallons and .08 gallons per square yard.

C. The prime and tack coat shall be applied sufficiently in advance of the placement of the asphaltic concrete pavement in order to permit drying. However the tack coat shall not be applied so far in advance that it might lose its adhesiveness as a result of being covered with dust or other foreign material.

D. Suitable precautions shall be taken by the CONTRACTOR to protect the surface while the prime and tack coat is drying and until the placement of the asphaltic concrete.

END OF SECTION

DIVISION 2

SITE WORK

SECTION 02513

MILLING OF EXISTING ASPHALT PAVEMENT

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. The work specified in this section consists of removing existing asphaltic concrete pavement by milling to improve the rideability of the finished pavement. The milled material shall be removed and disposed of by the CONTRACTOR.

B. The locations and the extent of milling are as per the direction of the ENGINEER.

C. Basis of payment: The quantity shall be paid for at the contract unit price established in the bid proposal form for Milling Existing Asphalt Pavement.

1.02 RELATED SECTION:

A. Section 02510-Asphaltic Concrete Pavement

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

3.01 GENERAL:

A. The milled surface shall maintain the proposed grade and cross slope and shall be textured so as to provide a sound mechanical bonding surface for the new asphalt overlay. The milling operation shall be performed so as to minimize the amount of dust emitted by the machine. Pre-wetting of the pavement immediately ahead of the operation shall be required, using a separate self-propelled watering vehicle.

B. Shall be as specified in Section 327 of the January 2015 FDOT Standard Specifications for Road and Bridge Construction.

3.02 GRADE CONTROL:

A. Grade Control within the general asphalt pavement area shall be referenced from the proposed grade lines and elevations. Tolerance for overcutting shall be within 1/4 inch of the required grade.

B. Shall be as specified in Section 327 of the January 2015 FDOT Standard Specifications for Road and Bridge Construction.

3.03 EQUIPMENT:

A. Shall be as specified in Section 327 of the January 2015 FDOT Standard Specifications for Road and Bridge Construction.

B. Milling Equipment:

1. The milling machine shall be a self-propelled heavy duty unit capable of maintaining a smooth depth of cut and cross slope which will achieve the results specified herein and as depicted on the plans, without applying artificial heat to the pavement surfaces. The equipment used shall be capable of milling and removing a constant one inch (1") depth cut at the rate of 2,000 square yard per hour at normal operating speed. The milling equipment shall have effective pick up and removal integral with the unit and shall be further equipped with positive means to limit the amount of dust escaping from the removal operation. The minimum cutting width shall be six (6) feet.

2. The use of a smaller milling machine will be permitted when milling a maximum 2 foot wide strip to lower the grade adjacent to existing curb and gutter, curb, concrete ramps, catch basins, aprons, driveways and/or to provide proper joint at existing asphalt roads, as required by the ENGINEER.

C. Grade Control: The milling equipment shall be equipped with automatic grade control devices capable of maintaining depth of cut as specified herein. The control system shall be automatically actuated from either a reference line or surface through a system of mechanical sensors or sensor-directed mechanisms or devices which will maintain the depth of cut at a predetermined transverse slope and/or at the proper depth or elevations to obtain the required texture or surface. The controls shall be capable of working in conjunction with any of the following attachments:

1. Adjustable length ski-type device of up to thirty (30) feet in length as directed by the ENGINEER.

2. Taut string line (wire) pre-set to grade.

3. Short ski or shoe.

The control systems or devices shall be capable of being operated on both sides of the equipment simultaneously, when necessary.

D. Pre-wetting Equipment: The pre-wetting equipment shall be self-propelled tank units with sufficient capacity to provide continuous full coverage watering immediately ahead of the milling operation at all times.

3.04 PROTECTION OF MILLED SURFACES:

A. Milling over-cut operations shall normally progress immediately ahead of the asphalt paving operations such that a minimum over-cut area will be exposed to vehicular traffic at any one time. The finished milled surface in over-cut areas shall be protected from all traffic and/or endangering such traffic until the new asphalt surface course has been applied, compacted and completed.

B. Shall be as specified in Section 327 of the January 2015 FDOT Standard Specifications for Road and Bridge Construction.

3.05 CONSTRUCTION:

A. Milling:

1. The existing pavement shall be milled and removed to the average depths indicated by the ENGINEER or as specified in this Section in a manner that will restore the pavement surface to a uniform cross section and longitudinal profile.

2. The CONTRACTOR may elect to make multiple cuts to achieve the required configurations or depth of cut.

3. The milling machine shall be operated to effectively minimize the amount of dust being emitted from the matching and pre-wetting of the pavement shall be used as required.

4. Where traffic is to be maintained in the milled surface, the texture of the milled surface shall be controlled to provide an acceptable riding surface and the surface shall be thoroughly swept with a power vacuum or other approved equipment to remove fine material which will dust under traffic.

5. The CONTRACTOR shall take precautions to prevent milled materials from entering storm sewer systems and to prevent damage to curbs and gutters.

B. Milled Surface:

1. The milled surface shall have a reasonably uniform texture, shall be within 1/4-inch of a true profile grade and shall have no deviation in excess of 1/4-inch from a straightedge applied to the pavement perpendicular to the centerline. Any unsuitable texture or profile shall be corrected by the CONTRACTOR at no additional compensation unless accepted by the ENGINEER without correction.

2. Prior to placing the new asphaltic concrete surface course, the milled surface shall be swept clean with a power vacuum and all dust and fine materials shall be removed to the greatest extent practicable to provide a good bonding surface for the new material. A tack coat is required on milled surfaces.

C. Shall be as specified in Section 327 of the January 2015 FDOT Standard Specifications for Road and Bridge Construction.

END OF SECTION

DIVISION 2

SITE WORK

SECTION 02510

ASPHALTIC CONCRETE PAVEMENT

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The work specified in this section consists of the construction of asphaltic concrete surface course composed of a mixture of aggregates, mineral filler and asphalt cement properly laid upon a prepared base or a newly constructed and compacted, primed and tacked roadway base course, in accordance with these specifications and in conformity with the lines, grades, thickness and typical cross section shown on the Drawings. The Contractor shall furnish asphaltic concrete surface course in the locations and to the extent indicated on the Drawings.

B. The Contractor is solely responsible for the cost of asphaltic concrete pavement to be provided at various locations within the project corridor, and at potentially varying thicknesses per jurisdictional requirements, or for replacement in kind, as applicable.

1. For new asphalt roadway pavement construction or reconstruction, provide asphaltic concrete structural surface course consisting of one of the following:

   (a) “Superpave Asphalt Concrete” per FDOT Standard Specifications for Road and Bridge Construction.

   (b) Or as otherwise required by the authority having jurisdiction over the roadway right-of-way and as indicated on the plans and Standard Details.

2. Thickness of the asphalt course shall be two (2”) inch thick minimum, or as specified on the Drawings, or by the regulatory agency having jurisdictional authority over the roadway right-of-way limits. In addition, asphaltic pavement may be required to be replaced in kind if deemed necessary by the agency having jurisdictional authority over the right-of-way.

1.02 QUALITY ASSURANCE

A. Construction of asphaltic concrete surface courses shall be in accordance with the Standard Specifications for Road and Bridge Construction (current edition), of the Florida Department of Transportation, and supplements thereto, hereinafter referred to as FDOT Specifications, except as amended herein. The FDOT Specifications are hereby made a part of this contract to the extent they are applicable thereto and shall be as binding upon the Contractor as though reproduced herein.

1.03 RELATED SECTIONS

A. Section 02332 - Limerock Base

B. Section 02507 - Prime and Tack Coats

PART 2 - PRODUCTS

2.01 MATERIALS

A. Bituminous Material: Asphalt cement, Viscosity Gard AC-20 or AC-30, shall conform to the requirements of FDOT Specifications.

B. Coarse Material: Coarse aggregate, stone or slag shall conform to the requirements of FDOT Specifications.

C. Fine Aggregate Material: Fine aggregate shall conform to the requirements of FDOT Specifications.

D. Mineral Filler: Mineral filler shall conform to the requirements of FDOT Specifications.

2.02 GENERAL COMPOSITIONS OF MIXTURE:

A. The bituminous mixture shall be composed of a combination of aggregate (coarse, fine, or mixture thereof), mineral filler, if required, and bituminous material. The several aggregate fractions shall be sized, uniformly graded and combined in such proportion that the resulting mixture will meet the grading and physical properties of the approved job mix formula.

C. In all cases, the job mix formula shall be within the design ranges specified in the following table.

Sieve Size	Gradation Design Range % by Weight Passing Type S-III
¾-inch	
½-inch	100
3/8-inch	88-100
No. 4	60-90
No. 10	40-70
No. 40	20-45
No. 80	10-30
No. 200	2-6

2.03 JOB MIX FORMULA

A. No work shall be started on the specific project until the Engineer has approved the job mix formula.

B. The job mix formula shall conform to the requirements of FDOT Specifications.

In addition, the job mix formula shall include test data showing that the material as produced meets the requirements of the following table:

Mix Type	Minimum Marshall Stability (%)	Flow (0.01 in)	Minimum VMA (%)	Air Voids (%)	Min Effective Asphalt Content (%)
SP-9.5	1,500	8 – 14	15	3 – 7	5.5

PART 3 - EXECUTION

3.01 TRANPORTATION

A. The mixture shall be transported in tight vehicles previously cleaned of all foreign material and, if necessary, each load shall be covered with a waterproof canvas cover of sufficient dimensions to protect it from weather conditions. The inside surface of the truck bodies may be thinly coated with soapy water, or a mixture of water with not more than five percent of lubricating oil, but no excess of either shall be used. After the truck bodies are coated and before any mixture is placed therein, they shall be raised so that all excess water will drain out. Kerosene, gasoline or similar products shall not be used to prevent adhesion.

3.02 LIMITATION FOR SPREADING

A. The mixture shall be spread only when the surface is properly prepared and is intact, firm, cured and dry. No mixture shall be spread when the air

temperature is less than 40 degree Fahrenheit, nor when the spreading cannot be finished and compacted during the daylight hours. The temperature of the mix at the time of spreading shall not be less than 230 degree Fahrenheit.

3.03 PLACING

A. The mixture shall be placed in accordance with the requirements of FDOT Specifications. The new asphalt pavement shall be placed in two lifts. The second lift shall match the elevation of the adjacent pavement.

3.04 COMPACTING

A. The mixture shall be compacted in accordance with the requirements of FDOT Specifications.

3.05 JOINTS

A. Joints shall conform to the requirements of FDOT Specifications.

3.06 FIELD QUALITY CONTROL

A. Surface Requirements: Depressions which may develop after initial rolling shall be remedied by loosening or removing the mixture and adding new material to bring the areas to a true surface. No skin patching shall be done. Such portions of the completed pavement which are defective in surface compaction or in composition, or that do not comply with all other requirements of these specifications, shall be taken up and replaced with suitable mixture, properly laid in accordance with these specifications and at the expense of the Contractor.

B. Thickness Requirements: The thickness of the compacted asphaltic concrete surface course shall be no less than that shown on the Drawings as determined by coring. Thickness testing and correction of defective work shall be as specified in FDOT Specifications.

C. “As-Built” limerock elevations shall be signed and sealed by a registered land surveyor and submitted to the Project Engineer for approval prior to placement of asphalt. Elevation shall be taken at high and low points, midpoint, intersections and breaks in grade at intervals not to exceed 50 feet. No separate pay item is included in bid form for this work. Include limerock as-built cost in asphalt section.

D. Protection of Pavement: After the completion of the pavement, no vehicular traffic of any kind shall be permitted on the pavement until it has set sufficiently to prevent rutting or other distortion.

END OF SECTION

DIVISION 2

SITE WORK

SECTION 02526

CONCRETE PAVEMENT, CURB AND WALKWAY

PART 1 – GENERAL

1.01 THE REQUIREMENT

A. Concrete pavement, curbs and sidewalk shall be constructed to the lines and grades and dimensions required for a complete installation as shown on the Drawings and specified herein. Existing features are to be replaced in kind and at the same grades and elevations.

1.02 SUBMITTALS

A. Shop drawings for reinforcing, joint material and mix designs shall be submitted for review in accordance with Section 01300 - Submittals.

PART 2 - PRODUCTS

2.01 CONCRETE

A. Concrete shall be Class B, conforming to Section 03300 – Cast-in-place Concrete, Reinforcing and Formwork, unless noted or specified otherwise.

2.02 REINFORCING AND WELDED WIRE FABRIC

A. N/A

2.03 JOINT SEALER FOR PAVEMENT

A. Joint sealer shall be a one or two part polysulfide base self-leveling sealant for horizontal surfaces that has been developed for foot and vehicular traffic. The sealant shall conform to FDOT standards.

2.04 PREFORMED JOINT FILLER

B. Preformed joint filler shall be sponge rubber and conform to the requirements of AASHTO Designated M148, Type 1.

PART 3 – EXECUTION

3.01 SUBGRADE CONDITION

A. The finished subgrade shall be maintained in a smooth, compact condition and any areas which are disturbed prior to placing of the

concrete shall be restored at the Contractor's expense. The subgrade shall be moist at the time the concrete is placed. Water shall be uniformly applied ahead of the paving operations as directed by the Engineer. If the Contractor does not maintain the subgrade in the required moist condition, a vapor barrier sheet will be required between the subgrade and the concrete.

B. The subgrade shall be accurately trimmed to the required elevation with a 1/4- inch tolerance. High areas shall be trimmed to proper elevation. Low areas may be filled with suitable material and compacted to the specified density or filled with concrete integrally with the placing of the pavement.

3.02 SETTING FORMS

A. The forms shall be accurately set to line and grade and such that they rest firmly, throughout their entire length, upon the compacted subgrade surface. Forms shall be joined neatly and tightly and braces to test the pressure of the concrete and the finishing operations. The alignment and grade of all forms shall be approved before and immediately prior to the placing of concrete.

3.03 MIXING CONCRETE

A. Concrete shall be mixed in accordance with Section 03300, Cast-in-place Concrete, Reinforcing and Formwork.

3.04 PLACING CONCRETE

A. The concrete shall be distributed on the subgrade to such depth, that, when it is consolidated and finished, the slab thickness required by the Drawings will be obtained at all points and the surface will at no point be below the grade specified for the finished surface, after application of the allowable tolerance. The concrete shall be deposited on the subgrade in a manner which will require as little rehandling as possible.

B. Fabric reinforcement shall be placed at mid slab depth, and the fabric shall be maintained at this location during the placing and finishing operations.

B. Concrete shall be thoroughly consolidated against and along the faces of all forms, by means of hand-operated, spud-type vibrators. Vibrators shall not be permitted to come in contact with the subgrade or a side form. Vibration at any one location shall not continue so long as to produce puddling or the accumulation of excessive grout on the surface. In no case shall the vibrator be operated longer than 15 seconds in any one location.

3.05 STRIKING-OFF, CONSOLIDATING AND FINISHING CONCRETE

A. Immediately after the placing, the concrete shall be struck off, consolidated and finished, to produce a finished pavement conforming to the cross section, width and surface. Sequence of operations shall be as follows: strike-off; vibratory consolidation; screeding; floating; removal of laitance; straight-edging; and final surface finish.

3.06 STRAIGHTEDGING AND SURFACE CORRECTIONS

A. After floating has been completed and the excess water removed, but while the concrete is still in a plastic state, the surface of the concrete shall be tested for trueness with an accurate 10 foot straightedge. The straightedge shall be furnished by the Contractor. The straightedge shall be held in successive positions parallel to the road center line, in contact with the surface, and the whole area tested from one side of the slab to the other as necessary. Any depressions shall be immediately filled with freshly mixed concrete and struck-off; consolidated and refinished. High areas shall be cut down and refinished. Straightedge testing and surface correction shall continue until the entire surface appears to conform to the required grade and cross section.

3.07 FINAL FINISH

A. As soon as the water sheen has disappeared from the surface of the pavement and just before the concrete becomes nonplastic, a light broom finish shall be given to the surface.

3.08 EDGING

A. After the final finish has been applied, but before the concrete has become nonplastic, the edges of the pavement along each side of the strip being placed, on each side of construction joints and along any structure extending into the pavement, shall be carefully rounded to a 1/4 inch radius except as otherwise indicated. A well-defined and continuous radius shall be produced and a smoother, dense mortar finish obtained. All concrete shall be completely removed from the top of the joint filler.

B. All joints shall be checked with a straightedge before the concrete has become nonplastic and, if one side of the joint is higher than the other or the entire joint is higher or lower than the adjacent slabs, corrections shall be made as necessary.

3.09 JOINTS

A. Construction Joints

1. Construction joints shall be located as shown on the Drawings and/or as directed by the Engineer.

B. Expansion Joints Around Structures

1. Expansion joints shall be formed by placing premolded expansion joint material about all structures and features projecting through, into or against the pavement. Unless otherwise indicated, such joints shall be 1/2 inch in width.

C. Transverse Expansion Joints

1. Open type transverse expansion joints shall be provided at all sidewalk returns and at 50 feet intervals and wherever indicated on the Drawings. Open type joints shall be formed by staking a 1/4 inch thick metal bulkhead in place and placing concrete on both sides. After the concrete has set sufficiently to preserve the width and shape of the joint, the bulkhead shall be removed. After the sidewalk has been finished over the joint, the slot shall be opened and edged with a tool having a 1/2 inch radius. Transverse expansion joints shall be cleaned and filled with joint filler strips 1/4 inch thick conforming to the requirements of AASHTO M-153.

D. Scored Joints

1. Scored joints shall be either formed or sawed at 5 foot intervals and shall extend to a depth of at least one fourth of the sidewalk slab thickness.

3.10 CURING

A. After the finishing operations have been completed and as soon as the concrete has hardened sufficiently that marring of the surface will not occur, the entire surface and the edges of the newly placed concrete shall be covered and cured with membrane curing compound.

B. Curing compound shall be uniformly applied to the surfaces to be cured, in a single coat, continuous film, at the rate of one gallon to not more than 200 square feet, by a mechanical sprayer.

C. Curing compound shall not be applied during periods of rainfall. Curing compound shall not be applied to the inside faces of joints to be sealed. Should the film become damaged from any cause within the required curing period, the damaged portions shall be repaired immediately with additional compound. Upon removal of side forms, the sides of the slabs exposed shall immediately be coated to provide a curing treatment equal to that provided for the surface.

3.11 CURB AND SIDEWALK CONSTRUCTION

A. The concrete curbs and sidewalks shall be constructed on a prepared smooth subgrade of uniform density. Large boulders and other obstructions shall be removed to a minimum depth of 6 inches below the finished subgrade elevation and the space shall be backfilled with sand, base course material or other suitable material which shall be thoroughly compacted by rolling or tamping. The Contractor shall furnish a template and shall thoroughly check the subgrade prior to depositing concrete.

B. Concrete for curbs and sidewalks shall be formed, mixed, placed and finished in conformance with the requirements of Division 3, except as modified herein. Concrete shall be cured with a clear membrane curing compound which shall be applied at a uniform rate of one gallon per 200 square feet in accordance with the requirements specified herein. Sidewalks shall be given a light broom finish.

3.12 CURBS

A. Curbs shall be constructed in uniform sections ten feet in length except where shorter sections are necessary for closures or arcs. The sections shall be separated by sheet metal templates set perpendicular to the face and tip of the curve and not less than 2 inches longer than the depth of the curb. The templates shall be held firmly during the placing of the concrete and shall be allowed to remain in place until the concrete has set sufficiently to hold its shape, but shall be removed while the forms are still in place.

B. After the concrete has sufficiently set for a minimum of 12 hours, the Contractor shall remove the forms and backfill the spaces on each side. The earth shall be compacted in satisfactory manner without damage to the concrete Work. Minor defects shall be filled with a mortar composed of one part Portland cement and two parts fine aggregate.

3.13 PAVEMENT CURB AND SIDEWALK

A. All damage to pavement, curb or sidewalk as a result of work under this Contract shall be repaired in a manner satisfactory to the Engineer and at no additional cost to the Owner. The repair shall include all work as specified herein.

B. The width of all curb repairs shall extend at least 12 inches beyond the limit of the damage or as required by jurisdictional agencies. The edge of the pavement curb to be left in place shall be cut to a true edge with a saw or other approved method so as to provide a clean edge to abut the repair. The line of the repair shall be reasonably uniform with no unnecessary irregularities. Only full slab sidewalk replacement is permitted, no partial slab repair.

C. All modified, restored, or repaired sidewalks must meet all jurisdictional authority requirements; including but not limited to, thickness, reinforcement, ADA compliance, slopes and safety requirements.

END OF SECTION

DIVISION 2

SITE WORK

SECTION 02605

ADJUSTMENT OF EXISTING UTILITIES

PART 1 – GENERAL

1.01 WORK INCLUDED:

A. Adjust existing sanitary sewer, storm sewer and other City of Hollywood manhole frame and cover to match proposed asphalt pavement elevation. The use of polypropylene rings for adjustments will be used in lieu of brick and mortar if the adjustment that is required can be achieved by the providing of a single ring. If the adjustment that is required cannot be achieved by the providing of a single ring one of the following two installation procedures will be utilized by the CONTRACTOR at the direction of the ENGINEER

- Providing multiple polypropylene rings
- Utilizing brick and mortar for the full depth

B. Adjust storm sewer inlets frame and grate to match proposed pavement elevation.

C. Adjust water valve boxes to match proposed asphalt pavement grades.

D. Review requirements under other sections and coordinate with requirements of this section. All work under this section to be completed prior to mobilizing for resurfacing.

PART 2 - PRODUCT

(NOT USED)

PART 3 - EXECUTION

3.01 MANHOLES AND INLETS: UTILIZING BRICK AND MORTAR:

A. Adjust the frame to the required elevation with brick and mortar.

B. Work shall comply with Section 425-6 of the January 2015 FDOT Standard Specifications for Road and Bridge Construction.

C. Two (2) coats of Koppers 300-M, or approved equal, shall be applied to the inside surfaces of the brick and mortar for all sanitary sewers.

D. Furnish and install limerock (LBR 100 min) around adjusted manholes and inlets up to existing asphalt pavement grade limerock shall be compacted to 98% of T-180. CONTRACTOR may substitute flowable fill for limerock.

3.02 MANHOLES AND INLETS: UTILIZING POLYPROPYLENE RINGS:

A. Provide rings as manufactured by Turner Company, P.O. Box 20741, Raleigh, North Carolina 27619 or approved equal. The main office Point of Contact is Frank Turner @ (919) 782-3851. The local point of contact is Bill Godfrey @ (877) 927-7011

B. Furnish and install limerock (LBR 100 min) around adjusted manholes and inlets up to existing asphalt pavement grade limerock shall be compacted to 98% of T-180. CONTRACTOR may substitute flowable fill for limerock.

C. Unless otherwise directed by the ENGINEER, a maximum of one ring shall be utilized per manhole. Rings are not allowed to be stacked unless authorized by the ENGINEER.

3.03 VALVE BOXES:

A. Furnish and install cast iron riser ring, thickness to match proposed pavement.

B. All other utility boxes shall be adjusted by the respective utility company. In locations where adjustment has not been performed, it shall be the CONTRACTOR'S responsibility to lay a bond-breaker material over the utility box before surfacing, then remove the fresh asphalt placed over the utility box access hole after resurfacing.

3.04 PROTECTION:

All utility rims and/or grates shall be painted and maintained fluorescent orange immediately after adjustment.

END OF SECTION

DIVISION 2

SITE WORK

SECTION 02720

DRAINAGE STRUCTURES, PIPES AND FITTINGS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope of Work: The work covered and described in this Section includes the furnishing and construction of stormwater system improvements as shown on the Drawings and specified herein.

1.02 QUALITY ASSURANCE

A. Provide quality certification by manufacturer to Engineer 10 days prior to installation.

1.03 SUBMITTALS

A. Shop Drawings: Shop drawings for the following items shall be submitted to the Engineer for approval in accordance with Section 01300 - Submittals.

1. Grates and castings.

2. Precast structures.

B. Quality certification by pipe manufacturer shall be delivered to Engineer ten days prior to delivery to the job site.

1.04 JOB CONDITIONS

A. Existing Drainage System: Maintain operational, prevent siltation.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: The Contractor must furnish the type of drainage pipe as shown on the Drawings. Default pipe material, sized between 4” and 36” are to be smooth interior corrugated A-2000 PVC as manufactured by Contech or approved equal. Pipe and fittings are to conform to the

requirements of ASTM Designation F949. Pipe manufacturer shall provide all fittings.

B. Pipe Joints: The joint system to be used will be integral bell and spigot, unless otherwise approved, with gaskets provided by the manufacturer and installation per manufacturer's recommendations.

C. Cement Mortar: Cement mortar for manhole construction shall be one part cement and two parts clean sharp sand to which may be added lime in the amount of not over twenty-five percent volume of cement. It shall be mixed dry and then wetted to proper consistency for use. No mortars that have stood for more than one hour shall be used.

D. Concrete: Concrete shall be Class I that conforms to the requirements of Section 345: Portland Cement Concrete. FDOT Standard Specifications for Road and Bridge Construction (latest edition).

E. Precast Concrete Units: Precast concrete structures shall conform to ASTM C-478 and the requirements of the Precast Concrete Structures Association of Florida. Unless otherwise noted, all structures are to have an 18" sump between the lowest invert elevation and the interior structure bottom.

PART 3 - EXECUTION

3.01 PREPARATION

A. Pipe Trenches:

1. Pipe trenches shall be prepared in accordance FDOT Standards and Specifications, City requirements, and Florida Trench Safety Act requirements.

3.02 INSTALLATION

A. Laying Drainage Pipe:

1. All pipes shall be carefully laid true to the line and grade shown on the Drawings.

2. Before installation of the pipe gasket, the gasket and the surface of the pipe joint, including the gasket recess shall be clean and free from grit, dirt, or other foreign matter at the time the joints are made. In order to facilitate closure of the joint, application of an approved lubricant immediately prior to closing of the joint will be permitted.

3. All pipes shall be laid with bells or grooves facing upstream. As the pipes are laid throughout the work, they must be thoroughly cleaned and protected from dirt and water. No length of pipe shall be laid until the two preceding lengths have been thoroughly embedded in place so as to prevent any movement or disturbance of the finished joint. No walking on or working over the pipes after they are laid, except as may be necessary in tamping earth and refilling, will be permitted until they are covered to a depth of 1 foot. No pipe shall be laid except in the presence of the authorized inspector. Fill placed around the pipe shall be deposited on both sides simultaneously to approximately the same elevation and uniformly compacted. Whenever the pipe laying is discontinued, as at night, the unfinished end is to be securely protected from displacement and a suitable stopper is to be inserted therein.

B. Drainage Structures:

1. Concrete inlets or other structures shall be constructed in conformance with the Drawings. Forms shall be designed and constructed so that they may be removed without injury to the concrete and shall be left in place for at least 24 hours after concrete is poured. Concrete shall be thoroughly cleaned, saturated with water and pointed up with mortar.

2. Precast drainage structures are preferred, but cast-in-place structures may be allowed on a case by case basis. Grates are to be set in place in mortar to the proper line and grade.

3. Where drainage structures are to be placed in line with existing pipe, existing pipe is to be cut slightly larger than the structure, and on at least one end of structure, a new pipe piece is to be placed, matching the material of the existing pipe unless otherwise required. Ideally the replacement piece is a standard bell end over the cut pipe and facing in the upstream direction.

C. Backfilling for Pipe Culverts and Drainage Structures:

1. After the pipe has been installed, approved selected material from excavation at a moisture content which will facilitate compaction shall be placed alongside the pipe in layers not exceeding 6 inches loose measure in depth. Special care shall be taken to ensure thorough compaction of the fill under the haunches of the pipe. Each layer shall be thoroughly compacted by rolling or tamping with mechanical rammers. This method of filling and compacting shall

be continued until the fill is 12 inches above the pipe, then the remainder of the backfill shall be placed in lifts not exceeding 9 inches. The operation of heavy equipment shall be conducted so that no damage to the pipe will result. Backfill material 12 inches and above the top of the pipe shall be compacted to not less than 95 percent of maximum density as determined by AASHTO Designation T-180. Selected material for backfill shall not contain any stones or rock larger than 3 inches. Tests for density of compaction may be made at the option of the Engineer, and deficiencies shall be corrected by the Contractor without additional cost to the Owner.

2. Backfill for drainage structures shall be placed and compacted in the same manner as specified above for pipe, except the concrete shall be permitted to cure for not less than 5 days before the backfill is placed. Drainage structures shall be placed on a 4" minimum leveling course of No. 57 stone of other approved leveling rock / gravel.

END OF SECTION

DIVISION 2

SITE WORK

SECTION 02930

SODDING

PART 1 - GENERAL

1.01 SCOPE

A. Provide all labor, materials and equipment necessary for complete sodding of areas affected by construction. This shall include, but not be limited to: liming, fertilizing, sodding, necessary barriers, tests and all incidentals to make the work complete.

1.02 WORK INCLUDED

A. Testing of topsoil.
B. Raking and leveling topsoil as required for sodding.
C. Liming and fertilizing of topsoil.
D. Laying and rolling of sod.
E. Maintaining

1.03 SUBMITTALS

A. Submit product source and information sheets in accordance with 1.05 of the Supplemental Conditions.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Fertilizer

1. Fertilizer shall be commercial fertilizer, as manufactured by International Chemical Company or equal.
2. Said fertilizer shall have a 10-20-6 N.P.K. content and contain a minimum of 60% of organic material or as otherwise approvable to the City.
3. It shall be delivered at the site in the original sealed containers.

B. Sod

1. Sod from right-of-way swales within the work area shall be Bahia sod or replaced in-kind, whichever is finer quality.

2. Sod shall be first quality Bahia sod of firm texture having a compacted growth and good root development.

3. Sod shall be absolutely true to varietal type, live, fresh and free from weeds or objectionable vegetation, fungus, insects and disease of any kind. Sod shall be kept moist from the time it is field cut until it is laid at the proposed site.

4. The sod shall be as grown by a certified turf nursery and Contractor shall inform Engineer as to the source of the sod to be utilized prior to ordering and delivery of sod.

5. Sod shall be furnished and installed in rectangular sod strips measuring 12 to 16-inches in width of standard lengths of not less than 2 feet and delivered on pallets.

PART 3 – EXECUTION

3.01 INSTALLATION

A. These areas shall be fine graded to achieve the finished compaction which shall be obtained by rolling, dragging or by an approved method which obtains an equivalent compaction to that produced by a hand roller weighting from 75 to 100 pounds per foot of width. All depressions caused by settlement or rolling shall be filled with additional existing or furnished topsoil and regraded and prepared as specified above until it presents a reasonably smooth and even finish at the required sod subgrade.

B. All sod furnished shall be living sod containing at least 70% of thickly matter grasses as specified and free from noxious weeds. All sod shall be certified free of fire ants.

C. No broken pads or torn or uneven ends will be accepted. Standard size sections of sod shall be strong enough to support own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10% of the section. Sod shall not be harvested when its moisture content (excessively wet or dry) may adversely affect its survival.

D. Sod shall be harvested, delivered, and installed within a period of 24 hours. Sod not installed within this time period shall be subject to inspection and rejection by Engineer, and shall be removed from the site and a fresh sod supply shall be furnished at no extra cost to City.

E. The topsoil shall not be moist at time of installation; however, it shall contain sufficient moisture so as not be powdery or dusty, both as determined by the supplier's representative.

F. The overlapping of existing lawn with new sod along limit of work lines will not be permitted. Sod shall be laid in strips, edge to edge, with the lateral joints staggered. All minor or unavoidable openings in the sod shall be closed with sod plugs or with topsoil, as directed by Engineer. However, sod laid with joints determined to be too large shall be lifted and re-laid as specified herein at no extra cost to City.

G. Immediately after the sod is laid, the sod shall be watered thoroughly by hand or mechanical sprinkling until the sod and at least 2-inch of the top soil bed have been thoroughly moistened.

H. Contractor shall be responsible to furnish his own supply of water to the site at no extra cost. If possible, City shall furnish Contractor, upon request, with a source and supply of water. Contractor shall apply for temporary meter and pay City for water used at current utility billing rates. However, if City's water supply is not available or not functioning, Contractor shall be responsible to furnish adequate supplies at his own cost. All work injured or damaged due to the lack of, or the use of too much water, shall be Contractor's responsibility to correct.

3.02 MAINTENANCE

A. Maintain the entire sodded areas at least a 30-day period or until final acceptance at the completion of the Contract, whichever is longer. Maintenance shall include watering as specified, weeding and removal of stones which may appear. All bare or dead spots which become apparent shall be properly prepared, limed and fertilized, and resodded at Contractor's expense as many times as necessary to secure a good growth. In the event that the sod installation is not accepted by Engineer, the entire area shall be maintained and cut by Contractor until final acceptance of the sod installation.

B. Take whatever measures are necessary to protect the sod while it is developing. These measures shall include furnishing of warning signs, barriers, or any other necessary measures of protection.

END OF SECTION

DIVISION 2

SITE WORK

SECTION 03300

CAST-IN-PLACE CONCRETE, REINFORCING AND FORMWORK

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included: Provide all labor, materials, equipment, fabrication, incidentals, transportation, placing and supervision necessary to complete all cast-in-place concrete work, its finishing, and all related work called for by the Contract Drawings and/or Specifications, or reasonably inferable from either or both, as needed for a complete and proper installation.

B. Related work: Work affecting this Section includes, but is not limited to:

1. Shop Drawings-Per General Conditions and Supplementary Conditions and as specified herein.
2. Materials and storage thereof
3. Reinforcing-Bar and fabric
4. Accessories of every nature, including form tie system.
5. Formwork and removal thereof, including shoring and reshoring
6. Concrete proportions and mixes
7. Placing of concrete
8. Admixtures
9. Joints, metal joint screeds and joint fillers
10. Finishes of all types
11. Protection and curing
12. Patching
13. Laboratory Testing

A.02 QUALITY ASSURANCE

A. Unless otherwise indicated, all materials, workmanship and practices shall conform to the requirements of ACI 301-96 "Specifications for Structural Concrete for Buildings", except as modified by supplemental requirements hereinafter.

1.03 STANDARDS

A. ACI 301-96 Specifications for Structural Concrete

B. ACI 318-95 Building Code Requirements for Reinforced Concrete

C. Florida Building Code, latest edition.

D. ACI 117-90 Standard Specifications for Tolerances for Concrete Construction and Materials

PART 2 - PRODUCTS

2.01 MATERIALS

A. Materials for Concrete:

1. Cement shall conform to the following: Portland Cement ASTM C150, normal, type I or type II. Provide domestic cement of one type and from same source for entire project.

2. Mineral Admixtures:

(a) Fly Ash: Shall conform to ASTM C 618, with 20% maximum of total cementitious weight.

(b) Ground Blast Furnace Slag: Shall conform to ASTM C 989-93. 30% maximum of total cementitious weight.

3. Chemical Admixtures: The following admixtures are permitted, but require written approval from the Engineer:

(a) Air Entraining Admixture: Comply with ASTM C260. "Specifications for Air-Entraining Admixtures for Concrete".

(b) Water Reducing Admixture: Comply with ASTM C494 "Specifications for Chemical Admixtures for Concrete", Type A, and compatible with air entraining admixture.

(c) Water Reducing and Retarding Admixture: Comply with ASTM C494, "Specifications for Chemical Admixtures for Concrete, Type D, and compatible with air entraining admixture.

(d) High Range Water Reducing Admixture: Comply with ASTM C494, "Specifications for Chemical Admixtures for Concrete", Type F or G, and compatible with air entraining admixture (Including superplasticizer to reduce water content.)

(e) Admixtures containing added calcium chloride are not permitted.

4. Aggregates: Shall conform to ASTM C 33 and shall be quarried/mined in fresh water. Aggregates from salt water or brackish water are not permitted. Coarse aggregate size shall not exceed:

Concrete Member	Size	
Walls	3/4"	67#
Beams or structural slabs not on ground	3/4"	67#
Columns and all other concrete	1"	57#
Drilling concrete pad or slabs on ground	1"	57#

5. In sanitary sewage applications, where called for in the plans and/or specifications an antimicrobial admixture as specified below shall be utilized:

   (a) An antimicrobial agent, Con^{mic}Shield®, or approved equal, shall be used to render the concrete uninhabitable for bacteria growth.

   (b) Contractor shall mix the liquid antimicrobial additive with the total water content of the concrete mix design in a proportion of 1 gallon per cubic yard. In the case of repairs to damaged concrete a proportion of 2 gallons per cubic yard shall be utilized.

   (c) In some instances all of the concrete in the structure in will receive the additive and in other instances only a portion of the concrete will receive the additive. Hence, the Contractor shall apply the additive only as directed in the specific instance.

   (d) Contractor shall submit a letter of certification to the City, stating that the correct amount and correct mixing procedure was followed for all antimicrobial concrete.

   (e) Con^{mic}Shield® antimicrobial additive shall be as manufactured by Con^{mic}Shield® Technologies, Inc. 541 - 10th Street NW, #233, Atlanta, GA 30318. Phone: (877)543-2094.

B. Portland cement and reinforcing steel: Comply with ACI 301-96 and, with all modifications and supplements thereto listed in Part 3 of this specification.

C. Burlap mats: Conform to AASHTO Specification M182. (Burleen non-staining mats.)

D. Epoxy bonding agent: A two (2) component, solvent free, moisture insensitive structural epoxy adhesive conforming to ASTM C881-90 Type II, Sikadur 32

Hi- Mod, as manufactured by Sika Corp., Concresive 1090 Liquid by Master Builders or approved equal.

E. Anchor bolts, nuts and washers: Conform to ASTM A449-89, hot-dip galvanized.

F. Dovetail slots: Galvanized steel, 22 gauge, 1"x 1", with 5/8" throat, fiber filled.

G. Forms:

1. Plywood Forms: PS-1, B-B Concrete Form, Class I, exterior type, mill oiled and edge sealed. Thickness shall be as required to support concrete at the rate placed, but not less than 3/4".

2. Steel Forms: Uncoated steel, 3/16"-inch minimum thickness, fabricated to close tolerances, protected only by the specified release agent, braced so as not to dent, bend or dimple under wet concrete loads, vibrator impact and tool impact. Maintain steel forms in rust free condition by use of steel wool and light grinding, followed by coats of the specified release agent. Forms should be adjustable to be brought into true alignment without steps or ridges.

H. Form release agent:

1. For plywood forms use a natural non-petroleum base, non-staining and non- retarding release agent that will effectively prevent absorption of moisture and prevent bond with concrete, and leaves the concrete with a paintable surface.

2. For steel forms, use an approved material that will not stain, color or otherwise affect the finish of the concrete. Form coating shall not be detectable on finished surfaces.

3. Round column forms: Provide seamless fiber forms with the three plies nearest to the interior surface of the form deckled or scarfed and overlapped to minimize spiral gaps or seams on the column surface.

I. Form Ties: Steel rod type with integral waterstops and cones, and with ends or end fasteners that can be removed without spalling the concrete and which leave a hole equal in depth to the required reinforcement clearance, but not less than 2 inches from the formed face of the concrete. Wire tie, banding wire and wood spreaders will not be permitted.

J. Form Inserts:

1. Bevel or chamfer strips: Wood or non-staining plastic, 3/4" wide on each leg at exposed edges of concrete members, unless otherwise noted on plans.

2. Tongue and Groove Joint Forms: Minimum 24 gauge with steel stakes and splice plates. Forms shall be designed for joints not to receive a poured seal.

3. Pipe hangers and other utility supports: AISI Type 316 stainless steel.

K. Non-Shrink Grout: Non-shrink, non-metallic grout conforming to ASTM C 1107 Grade B or Grade C only. Grout must meet ASTM C 1107 at a temperature range of 50 F to 90 F at a flowable consistency.

L. Grout for Surface Repair and Bond Coat:

1. For repair, one part Portland cement to two parts fine sand, and a 50%of water and 50% Acryl 60 or equal (Thoroseal or Acryl Set Bonding Agent by Master Builders) to produce a stiff mortar.

2. For bond coat, one part Portland cement to one part sand, and a 50% of water and 50% Acryl 60 or equal (Thoroseal or Acryl Set Bonding Agent) to produce a slurry mix.

M. Moisture Barrier: Kraft paper and glass reinforcing fibers sandwiched between 2 layers of polyethylene film with a permeance rating of maximum 0.1 as per ASTM E-96, Procedure A.

N. Preformed Expansion Joint Filler: Non-extruding type, self-expanding cork, 3/4", 1", and 1½" cork (not to be used for sidewalks), conforming to plans or as otherwise noted on drawings, conforming to the requirements of ASTM D1752, Type II, and compatible with joint sealant compound.

O. Joint Sealant Compound: Non-sag, 2 component, solvent free, moisture insensitive, flexible, epoxy resin conforming to the requirements ASTM C920-87
Type M, Grade NS. Additionally, the sealant must be recommended by the manufacturer to perform under continuous immersion in water.

P. Polyurethane Elastomeric Sealant: Sikaflex-2c, NS/SL or approved equal. Provide a 2- component, premium-grade, polyurethane-based, elastomeric sealant. It is principally a chemical cure in a non-sag and self-leveling consistency. Sealant shall meet ASTM C-920 and Federal Specifications TT-S-00227E.

a. Joint Movement: +50%.

Q. Waterstops:

1. Volclay Waterstop-RX or approved equal. Flexible strip of bentonite waterproofing compound in coiled form.

(a) Chemical Composition:

(1) Butyl Rubber-Hydrocarbon: 24.9% by weight; ASTM D-297.

(2) Bentonite: 75 % by weight; SS-S-210-A.
(3) Volatile Matter: Below 1 %; ASTM D-6.
(4) Waterstop shall not contain any asbestos fibers or asphaltics.

(b) Physical Properties:
(1) Specific Gravity: 1.57; ASTM D-71.
(2) Application Temperature Range: 5-125 F.
(3) Flash Point: 365; ASTM D 93-97.
(4) Accelerated Aging: Maintained 99% solids.
(5) Dimensions: 1" x 3/4" x 16'-6"

2. Polyvinyl chloride (PVC): Conforming to the requirements of U.S. Army Corps of Engineers Specification CRD-C-572 and of the following type:
(a) Expansion Joints: 9-inches by 3/8-inch, ribbed center bulb.
(b) Construction Joint: 9-inches by 3/8-inch, flat ribbed.
(c) Only where specified on Plans at construction and expansion joints: 9- inches by 3/8-inch, split ribbed.
(d) Install waterstops as shown as manufactured structures.

R. Fiber Reinforcement: Fiber reinforcement shall not be used in the concrete unless ordered buy the Engineer in writing. It shall consist of 100% virgin polypropylene fibrillated fiber- dosage of 2 lbs. per cubic foot.

1. Compressive Strength: 1 psi (.006895 M Pa), ASTM C-39.
2. Flexural Strength: 288 psi (2.0 M Pa) after 7 days, 390 psi (2.7 M Pa) after 28 days; ASTM C-78.
3. Splitting Tensile Strength: 194 psi (1.3 M Pa) after 7 days, and 290 psi (2.0 M Pa) after 28 days; ASTM C-496.
4. Source: Fibermesh Micro-Reinforcement System by Fibermesh Company, Division of Synthetic Industries, Inc., or approved equal.

S. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Engineer.

T. A shrinkage reducing admixture (Teraguard) or equivalent at the rate of 2.2% by weight of cement may be used in the concrete to meet the shrinkage limitations.

U. To protect the concrete slab against the elements, the Engineer may direct the Contractor to spray an evaporation retarder on the finished concrete slab immediately behind the cement finishing process at no additional cost to the City. This is not a curing compound.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work.

3.02 SUPPLEMENTAL REQUIREMENTS

A. All phases of concrete construction, including materials formwork, and all other related procedures shall comply with the most stringent allowed tolerances of ACI-
301 and ACI-117 Standards (Latest Edition) – Non-compliance with these standards will cause full rejection of any work done.

B. Comply with ACI 301-96 and with all modifications and supplements thereto listed herein. In addition to the ACI Standards on finished concrete, the Engineer will only approve quality finished concrete which in his opinion is ready to receive a grout finish, paint or liquid membrane.

C. The following modifications and supplements to ACI 301-96 shall also apply to the work.

1. General

(a) These specifications cover cast-in-place structural concrete for use in buildings and appurtenances, including foundations, curbs, sidewalks, concrete pavements and utility structures, water containment tanks, and piles.

(b) Keep minimum two (2) copies of ACI 301-96 "Specifications for Structural Concrete" in field office at all times.

2. Proportioning and Design of Mixes:

(a) General: Proportion concrete to meet properties as specified. Prepare mix designs for each type and strength of concrete. Submit with mix design the chemical admixture manufacturer’s statement that the admixture proposed complies with the requirements of this specification. Where concrete of different strengths are specified for the same location, the higher strength concrete shall be used. Concrete proportions shall be established on the basis of previous field experience, or laboratory trial batches as specified in ACI 301-96 Sections 4.2.2 & 4.2.3.

(b) Classes of Concrete:

(1) Structural concrete of normal weight for portions of the structure that are required to be watertight containments or tremie concrete, the water/cementitious ratio shall not exceed 0.45 if exposure is to be to fresh water.

(2) If the concrete is exposed to salt or brackish water, or if exposed to injurious concentrations of sulfate-containing solutions (1500 ppm or more of Sulfate in water) or other chemically aggressive solutions, use Type II cement with Rheobuild 1000 admixture by Master Builders, or approved equal; water/cementitious ratio shall not exceed 0.34.

(3) Other Concrete: (This would be slabs-on-grade, concrete thrust blocks, and miscellaneous concrete). The water cementitious ratio shall not exceed 0.50 to 0.55.

(4) Minimum f'c @ 28 days shall be 4000 KSI with a Water/Cement ratio of 0.45.

(5) Minimum f'c @ 28 days shall be 7000 KSI with a Water/Cement ratio of 0.34.

(c) Slu nps:

(1) All structural concrete, pumped concrete and tremie concrete shall contain a High Range Water Reducing Admixture and be designed with a maximum water content of 270 pounds per cubic yard. The initial water slump prior to addition of the High Range Water Reducing Admixture shall be 2-inch maximum. Concrete at point of placement shall not exceed 10-inches. Concrete shall be non- segregating.

(2) Slabs including slabs-on-grade, and all other concrete shall have a maximum water content of 287 pounds per cubic yard and have a 5- inch maximum slump with a water reducer, or water reducer and retarder admixture added.

3. Formwork

(a) Earth cuts are not permitted for forms for vertical surfaces. Footings, grade beams and slab edges shall be formed. Provide

moisture barrier under all slabs on grade. Lap 6-inches and tape punctures.

(b) The contractor is responsible for the adequacy of forms and shoring including placing, fill and equipment on roof, and for safe practice in their use and removal. Submit formwork calculations, and shop drawings including shoring and reshoring. In addition, the calculations and shop drawings for formwork, shoring, and reshoring, if required by the Engineer or Building City, shall be signed and sealed by a Professional Engineer registered in the State of Florida.

(c) Design forms for the loads and lateral pressures resulting from the placement and vibration of concrete and for design considerations, wind loads, allowable stresses, and other applicable requirements of the South Florida Building Code.

(d) Provide form facing materials as required by the specified finish of the formed surface. Do not use facing material with raised grain, torn surfaces, worn edges, patches, dents or other defects. No form may be reused more than three times without the City's approval. The maximum deflection permitted of facing materials reflected in concrete surfaces exposed to view is 1/240 of the span between structural members.

(1) Forms shall be free from surface defects, tight to prevent leakage and braced to keep its position and shape when filled with concrete. Adjacent edges and end panels and sections shall be held together to provide accurate alignment and prevent forming ridges, fins, offsets or similar type defects in finished concrete. It shall be tight to prevent loss of water, cement or fines during placing and vibrating concrete. The bottom of the forms placed in continuous straight even footings or slabs shall be watertight to prevent loss of water, cement and fines during placement and vibration of concrete, a gasket may be required by the Engineer under the forms to provide water tightness at the Contractor expense. The Contractor shall not proceed to place forms for concrete work adjacent to or on top of previous placed concrete without the Engineer's approval, if the stripped forms reveals columns, walls or beams are out of level or plumb or there are cold joints or other objectionable work in the opinion of the Engineer. Contractor shall submit to the Engineer for approval, how he intends to correct or remove the defective work promptly at his expense. Contractor shall perform such corrections prior to proceeding to place concrete in the next Section.

(e) Provide positive means of adjustment (wedges or jacks) of shores and struts, and all settlement shall be taken up during concrete placing operation. Brace forms securely against lateral deflection. Do not anchor form bracing to poured concrete floors, or make holes in floor.

(f) Provide temporary openings in columns and wall forms to limit the free fall of concrete to five (5) feet. Place such openings at no more than eight (8) feet apart to facilitate placing and consolidation of concrete. Elephant trunks may be used to vertical heights of fifteen (15) feet for tremie and other purposes, if approved by the Engineer. Provide temporary openings at the bottom of wall and column forms and elsewhere as necessary to facilitate cleaning and observation immediately before concrete is placed. Blow formwork entirely clean of all saw dust, dirt, or other items not specifically intended to be a part of the final concrete. Any evidence of non-intended items in the forms is considered sufficient cause to stop concreting operation and/or require removal of concrete placed in such contaminated forms.

(g) Provide inserts, conduits, boxes, sleeves, anchors, ties, bolts, hangers, dowels, thimbles, nailers, grounds and other devices in coordination with other trades.

(h) Set anchor bolts and other embedded items accurately and hold securely until concrete is placed and set. Anchor bolts shall be galvanized and of size and length as indicated on the Contract Drawings. Bolts not sized shall be 3/4-inch diameter.

(i) Insert galvanized dovetail anchor slot in forms, in columns, beams and slabs completely around in-fill masonry panels.

(j) Install wall spools, wall flanges and wall anchors before placing concrete.Do not weld, tie or otherwise connect the wall spools to the reinforcing steel.

(k) Do not use pinch bars, wrecking bars or other metal tools against as-cast concrete to wedge forms loose; use only wooden wedges carefully and gradually. Driving shall be accomplished by light tapping.

(l) The Contractor is responsible for the removal of forms and shores. Do not remove forms or shores before the member has attained sufficient strength to support its weight and the loads imposed, nor sooner than listed below

(1) Wall forms: 24 hours

(2) Column forms: 24 hours.

(3) Beam and girder side forms only (not bottom form): 24 hours.

(4) Beam and Girder bottom forms: 7 days minimum unless otherwise approved by the Engineer.

(5) Slab forms: 14 days.

(6) Arch centers: 7 days.

(7) Pan joist forms: 4 days.

4. Reinforcement

(a) Prior to fabrication, submit for review shop drawings showing all fabrication dimensions, bar lists and location for placing of the reinforcing steel and accessories, including spacing of reinforcing, splices (lap, welded, Cadweld and/or mechanically threaded), grade of reinforcing and name of manufacturer. Note all deviations from the Contract Drawings and use the same designation mark as shown on the Contract Drawings where possible.

(b) Reinforcing bars: ASTM A615, Grade 60, deformed bars of USA manufacturer.

(c) Welded wire fabric: ASTM A185, galvanized.

(d) Metal bar supports: CRSI MSP-1, Chapter 3, Class 2, Type B stainless steel protected bar supports.

(e) Coupler Splice Devices: Cadweld, tension couplers capable of developing the ultimate strength of the bar.

(f) Reinforcing steel upon which unauthorized welding has been done; removal and replacement no additional cost to the City.

(g) Place reinforcing bars to the most stringent tolerances indicated in ACI 301 and ACI 117 (Latest Edition). Tolerances specified in those standards shall govern over any other reference code or standard.

(h) All reinforcement at time concrete is placed shall be free of mud, oil or other materials that may affect or reduce the bond. Reinforcing with rust or mill scale will not be accepted without cleaning and/or brushing to remove scale and rust.

(i) Support rebar and mesh reinforcing for slabs on grade 1½ inches from top of slab on masonry blocks not less than 4 sq. in., having a compressive strength equal to or greater than the specified strength of the concrete being placed. Space blocks at no more than 4 feet apart each way for rebars, and no more than 3 feet apart for mesh reinforcement.

(j) Support reinforcing off from formwork for columns, walls and beams with stainless steel protected bar supports. Support slab reinforcing on #5 bars, or larger, spaced at no more than 48 inches on center. Space individual high chairs no more than 48 inches apart and support bars shall not exceed 24 inches past outermost chairs.

(k) Overlap welded wire fabric in such a manner that the overlap measured between outermost cross wires of each fabric sheet is not less than the spacing of the cross wires plus 2 inches or 6 inches, whichever is greater. Do not extend fabric through expansion and/or contraction joints, unless otherwise noted on the Contract Drawings.

(l) The minimum clear distance between parallel bars, both vertical and horizontally, shall not be less than the nominal diameter of the bars, or less than 1½ times the maximum size of the aggregate, or 1-inch in beams, or 1½ inches in columns, whichever is greater. Where reinforcement in beams is placed in two or more layers, the upper layer shall be placed directly above the bars in the bottom layer. Misplacement, misalignment or improper length of dowels shall be sufficient cause to require removal and reconstruction of affected work.

(m) Unless allowed by the Engineer, bending of reinforcing partially embedded in concrete is not permitted. When permitted, bending shall be in accordance with CRSI Manual of Standard Practice.

5. Joints and Embedded Items.

(a) Provide premolded expansion joint filler strips of proper width and length as specified in the Contract Drawings. Place ½" expansion joint fillers every 20 feet in straight runs of walkways or sidewalks, at right angle turns and wherever concrete butts into vertical surfaces, unless otherwise noted on the Contract Drawings.

(b) Provide waterstops in all construction joints, unless otherwise indicated on the Contract Drawings.

(c) Join all waterstops at all intersections so that a continuous seal is provided. Center the waterstop in the joint. Hold water stop positively in correct position. In the event of damage to the waterstop, repair the water stop in an acceptable manner. Vibrate concrete to obtain impervious concrete in the vicinity of all joints.

(d) Install waterstop in accordance with instructions of the manufacturer.Prior to use of the waterstop material in the field, submit to the Engineer for approval a sample of each size and shape to be used. Fabricate sample so that the material and workmanship

represent in all respects the fittings to be furnished under this Specification.

(e) Place all sleeves, inserts, anchors, and other embedded items prior to placing concrete. Anchors and bolts cast in concrete shall be hot dip galvanized or stainless steel. Where permitted by the Engineer, concrete expansion bolts shall be stainless steel and of the wedge anchor type. Take all necessary precautions to prevent embedded items from being displaced, broken or deformed during concreting operation. Protect drains from intrusion of concrete.

6. Placing:

(a) Equipment for mixing and transporting concrete must be clean. Forms shall be thoroughly clean and damp, and reinforcing shall be secured in place. Runaways for transporting concrete shall not rest on reinforcing. When concrete is placed against earth, sprinkle sufficiently before placing.

(b) Deposit of concrete in forms no longer than ninety (90) minutes after the initial design water has been added to the cement and aggregates. Concrete which cannot be so placed shall not be used and shall be wasted. **No additional water shall be added**. No retempering with water is permitted.

(c) In addition to the requirements of ASTM C94, the concrete delivery tickets shall indicate the cement content and water/cement ratio.

(d) During hot weather, proper attention shall be given to ingredients, production methods, handling, placing, protection and curing. Comply with ACI 305R "Hot Weather Concreting" recommendations.

(e) Do not place concrete in forms unless the water level is below the concrete to be placed, even if it is necessary to maintain the dewatering, or under rain.

(f) Do not place concrete under water except for tremie concrete as called for on the Contract Drawings. Submit for approval plan and details of means and methods for installation of seal tremie concrete prior to commencement of work. Seal concrete which subsequently fails to perform, shall be repaired or replaced at no additional cost to the City.

(g) Place seal concrete under water in the space in which it is to remain, by means of a tremie, a closed-bottom dump bucket of not less than one cubic yard capacity, or other approved method, and do not disturb after it is deposited. Deposit all seal concrete in one continuous pour. Do not place concrete in running water. Design all

formwork, to retain concrete under water, to be watertight. Submit shop drawings for the design of formwork and excavation sheeting signed and sealed by a Florida Registered Professional Engineer.

(h) The tremie shall consist of a tube having a minimum inside diameter of ten (10) inches, and shall be constructed of sections having tight joints. No aluminum parts which have contact with the concrete will be permitted. The discharge end shall be entirely seated at all times and the tremie tube kept full to the bottom of the hopper. When a batch is dumped into the hopper, the tremie shall be slightly raised (but not out of the concrete at the bottom) until the batch discharges to the bottom of the hopper, after which the flow shall be stopped by lowering the tremie. The means of supporting the tremie shall be such as to permit the free movement of the discharge end over the entire top surface of the work, and shall permit it being lowered rapidly when necessary to choke off or retard the flow. The flow shall preferably be continuous and in no case shall be interrupted until the work is completed. Exercise special care to maintain still water at the point of deposit.

(i) When the concrete is placed by means of a bottom dump bucket, the bucket shall be lowered gradually and carefully until it rests upon the concrete already placed. The bucket shall then be raised very slowly during the discharge travel; the intent being to maintain, as nearly as possible, still water at the point of discharge and to avoid agitating the mixture. Aluminum buckets will not be permitted.

(j) Do not commence pumping, to dewater a sealed cofferdam, until the seal has set sufficiently to withstand the hydrostatic pressure, and in no case earlier than 72 hours after placement of concrete.

(k) Notify Engineer a minimum of 24 hours prior to concreting and request a specific time for observation of reinforcing and formwork for portions of concrete work to be placed. No observation will made by the Engineer until rebar installation for all work to be done and all formwork has been completed and approved by the Contractor's field superintendent. Do not order concrete until all correction and additions indicated by the Engineer have been made. Should the Engineer's observation reveal that work is improperly prepared and an additional observation will be required, he will so inform the Contractor and all above requirements shall also govern.

7. Repair of Surface Defects:

(a) Repair all concrete surface defects, which includes, but not limited to cracks, tie holes (no plastic cones), uneven holes, honey combs, rough frame work and other objectionable conditions deemed unacceptable to the Engineer immediately after form removal. This

repair work is to be done for all concrete expose surfaces, liquid applied surface or painted surfaces in or out of the water. Repair all cracks and defects in the concrete floors, beams, joists, columns, and other structural members, roof and walls that may occur up to one year after acceptance of work regardless of the cause to the satisfaction of the Engineer. Test unformed, surfaces such as monolithic slabs, for smoothness and verify placement tolerances specified for each surface and finish. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness. Repair unformed surfaces that contain surface defects which affect durability of concrete. Surface defects, as such, include cracking, cracks which penetrate to reinforcement or completely through non-reinforced sections regardless of width, spalling, pop-outs, honeycomb, rock pockets and other objectionable and rough conditions.

(b) Proprietary compounds for adhesion or as patching ingredients may be used, if approved by the Engineer. All structural repair of surface defects to be made require the approval of the Engineer, as to the method and procedure. Approval of the completed work must be obtained from the Engineer.

8. Finishing of Formed Surfaces.

(a) Apply rough form finish to exterior walls below grade not exposed to water.

(b) Apply smooth form finish to exterior and interior walls and columns exposed to water.

(c) Apply smooth form finish to interior walls and underside of floors, stairs and slabs.

(d) In addition to the smooth form finish, apply a grout cleaned finish to concrete walls and surfaces exposed to public view and underside of formed floors, stairs or slabs.

(e) Apply a rubber float grout mix to properly prepared concrete surface, only when approved by the Engineer. Mix shall have one part Portland cement to two parts fine sand in a 50% water and 50% Acryl #60 (Thoroseal or Acryl Set) mix or Acryl Set by Master Builders. Make a 10' by 10' sample on the concrete wall for the approval of the Engineer. Finished surface shall be a non-dusting hard finish, when scratched with a ¼" metal edge.

(f) Finish concrete surface, interior or exterior, below or above water shall include all:

(1) Exposed concrete.

(2) Grout finished concrete.

(3) Painted surface concrete.

(4) Liquid membrane finished concrete shall comply with manufacturer's requirements.

(5) The entire surface of finished concrete shall have a smooth uniform surface, there shall be no offsets, visually bulges, or wavering in the finished surfaces. The joints must be accurately aligned, they cannot be uneven or in or out, a higher and lower, there shall be no fins, projection or

(6) If after stripping the forms the Engineer determines that the finished concrete does not comply with any or all of the above requirements, the Contractor shall submit his proposal in writing to the Engineer as to his methods of correcting the work at no added cost to the City, which shall include, but not limited to all grinding of fins, projections, unevenness between joints, form high spots and uneven spots.

(7) In addition to all other requirements, concrete surfaces exposed to public view, irrespective of size, area or location shall be completely clean and free of: (1) Stains of any nature, (2) Parts of forms or other wood of any nature, (3) laitance, (4) "Run-downs" of leaked water from secondary pours, (5) Nails, (6) Strips, (7) Ties and (8) all other extraneous, deleterious materials and/or substances which may affect the finished appearance and condition of exposed concrete. Surfaces not meeting the above requirements are to be repaired and treated at no additional cost to the City.

9. Slabs

(a) Unless otherwise noted on the Contract Drawings, place strips alternately at maximum 20 feet center-to-center and to align with column centerline.Do not place adjacent strips until elapse of twenty four hours after first strip is placed. Place slabs on grade by the "strip-cast" method. Method to be reviewed by the Engineer. Provide saw-cut joints at maximum 20 feet center-to-center and to align with column center lines within four hours of final finishing.

(b) Provide doweled construction joints where shown on the Contract Drawings.

(c) Provide a hard steel troweled finish, free from trowel marks and irregularities, to slabs and floors.

(d) Provide a light hair-broom finish to exterior slabs and floors exposed to public view. Leave hair-broom lines parallel to direction of the slab drainage.

(e) Provide a stiff bristle broom finish to slabs and floors with slopes greater than 10 percent. Leave broom lines parallel to slope drainage.

(f) Finish exposed edges of slabs, floors and tops of walls with a ¼-inch radius edge unless a chamfer is called for on the Contract Drawings.

10. Curing and Protection

(a) Comply with ACI 305 "Hot Weather Concreting", Chapter 4, with the supplements and modifications to ACI 301 listed herein.

(b) Only concrete water curing for not less than 7 days (24 hours/day continuously) will not be accepted; Burleen mats shall be used in curing. Water cure by ponding or continuous sprinkling covering complete surface with minimum runoff. The application of water to wall may be interrupted for grout cleaning only over the areas being cleaned at the time, and the concrete surfaces shall not be permitted to become dry during such interruption.

(c) Begin all water curing as soon as concrete is set and concrete will not be damaged. Keep concrete and wall forms wet the first 24 hours. Remove forms as indicated in Formwork, Section 3.02-C.4, and continue with 7 day water curing. Recoat damaged surfaces subject to heavy or surfaces damaged by construction procedures within 3 hours of damage. Method of repair shall be approved by the Engineer.

11. Testing

(a) Testing laboratory will be selected and paid for by the City. Send results of all test to the City and to the Contractor. The Contractor shall notify the Testing laboratory at least 24 hours before each concrete placing.

(b) Obtain and mold 3 specimens for each fifty (50) cu. yds., or fraction thereof, of each class of concrete placed each day or as directed by the Engineer.

(c) Cure specimens from each sample in accordance with ASTM C31.Record in test report any deviations from this Standard.

(d) Test specimens in accordance with ASTM C39. Test one specimen at twenty eight (28) days for acceptance and, one specimen at three (3) days and seven (7) days respectively, for information. If one specimen in a test manifests evidence of improper sampling, molding or testing,

it shall be discarded and the strength of the remaining cylinders shall be considered the test result.

(e) Contractor's Superintendent shall color code on a set of structural drawings the extent of days work and date to conform to cylinders test.

(f) Perform slump test at discharge of mixer, one for each strength test in accordance with ASTM C143. In the event slump is excessive, testing laboratory will immediately notify the Contractor's superintendent and the Engineer's representative on site. The Contractor shall then reject all concrete with excessive slump and/or deposit time.

(g) Drying Shrinkage Test: A drying shrinkage test shall be conducted on the preliminary trial batch with the maximum water-cementitious materials ratio used to qualify each proposed concrete mix design using the concrete materials, including admixtures, that are proposed for the project. Three test specimens shall be prepared for each test. Drying shrinkage specimens shall be 4 x 4 x 11 inch prisms with an effective gauge length of 10 inches fabricated, cured, dried, and measured in accordance with ASTM C 157 except with the following modifications:

(1) Specimens shall be removed from the molds at an age of 23 hours ±1 hour after trial batching, shall be placed immediately in water at 73° F ± 3°F for at least 30 minutes, and shall be measured within 30 minutes thereafter to determine original length and then submerged in lime-saturated water as specified in ASTM C157. Measurement to determine expansion expressed as a percentage of original length shall be taken at age 7 days. The length at 7 days shall be the base length for drying shrinkage calculations ("0" days drying age). Specimens then shall be stored immediately in a humidity controlled room maintained at 73° F ± 3°F and 50% ± 4% relative humidity for the remainder of the test. Measurements to determine shrinkage expressed as percentage of base length shall be reported separately for 7, 14, and 21 days ±4 hours of drying from "0" day after 7 days of moist curing.

(2) Drying shrinkage deformation for each specimen shall be computed as the difference between the base length (at "0" days drying age) and the length after drying at each test age. Results of the shrinkage test shall be reported to the nearest 0.001 percent. If drying shrinkage of any specimen deviates from the average for that test age more than 0.004 percent, the results for that specimen shall be disregarded.

(3) The average drying shrinkage of each set of test specimens cast in the laboratory from a trial batch as measured at the 21 days drying age shall not exceed 0.036 percent and 0.042 percent at the 28-day drying stage for all concrete.

(4) The maximum concrete shrinkage for specimens cast in the field shall not exceed the trial batch maximum shrinkage requirement by more than 25 percent.

(5) If the required shrinkage limitation is not met during construction, the Contractor shall take any or all of the following actions at no additional cost to the Owner, for securing the specified shrinkage requirements. These actions may include changing the source or aggregates, cement and/or admixtures, including Tetra Guard AS 20 or approved equal; reducing water content; washing of aggregate to reduce fines; increasing the number of construction joints; modifying the curing requirements; or other actions designed to minimize shrinkage or the effects of shrinkage.

(6) Alkali-aggregate reactivity potential shall be determined in accordance with Appendix XI of ASTM C 33. Aggregates shall be tested in accordance with ASTM C 289 and C295 to determine potential reactivity. Aggregates which do not indicate a potential for alkali reactivity or reactive constituents may be used without further testing. Aggregates which indicate a potential for alkali reactivity shall be further tested in accordance with ASTM C227 or C1105, as appropriate, using a cement containing less than 0.6 percent alkalies. At the discretion of the Engineer, testing in addition to that indicated in Appendix XI of ASTM C33 may be performed on potentially reactive aggregates. Nonreactive aggregates shall be imported if, in the opinion of the Engineer, local aggregates exhibit unacceptable potential reactivity.

12. Evaluation and Acceptance of Concrete

(a) If tests are insufficient or inadequate, test and evaluate by core tests.

Failure of any concrete cylinder to meet specified requirements shall be deemed as non- complying and costs of additional tests to determine the adequacy or inadequacy shall be borne by the Contractor. Concrete rejected for any reason is to be removed and replaced, including labor, forms and reinforcing, to meet specifications at no additional cost to the City and no additional time extension.

13. Additional Requirements

(a) Submit shop drawings as required per General Conditions and elsewhere in these specifications. Prime Contractor shall check and approve all shop drawings prior to submission. Do not fabricate any item requiring shop drawings until approval of shop drawings has been granted by the City. Partial shop drawings are not accepted, submit drawings for complete submittal.

(b) Provide precast or cast-in-place reinforced concrete lintels at all masonry openings and sills at all windows. Reinforce to suit loads and span. Provide minimum 8" bearing at each end and, pour integral with columns where opening abuts columns.

(c) Sidewalks in R.O.W.: Provide poured-in-place 4" thick concrete slab, 3000 psi concrete, with continuous 8" deep thickened slab edges. Isolate walks from vertical surfaces with ½" expansion joint material. Provide ½" expansion bituminous joint material flush with top of concrete slabs at 20 feet on center and tooled joints at 5 feet on center. Tool all open edges to a smooth radius and all edges adjacent to the forms.

END OF SECTION

APPENDIX

Construction Plans

CITY OF HOLLYWOOD, FLORIDA

DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND ARCHITECTURAL SERVICES DIVISION

2600 Hollywood Blvd. · P. O. Box 229045 · Hollywood, Florida 33022-9045
Phone (954)921-3900 · Fax (954)921-3481 · www.hollywoodfl.org

DATE: October 16, 2015

ADDENDUM NUMBER 1

PROJECT TITLE: **2015 Alley Reconstruction Program**

PROJECT NO.: **PW-14-023**

ALL BIDDERS BE ADVISED OF THE FOLLOWING CHANGES TO THE ABOVE REFERENCED PROJECT AS LISTED BELOW:

Item #1:
Title of the project was revised on the cover page of the construction plans from *Alley Resurfacing Program* to *2015 Alley Reconstruction Program, City Project # PW-14-023*.

Item #2:
Note for the hatch on Proposed Plan Sheets C-1 for all alleys were revised from *PROPOSED TRAVEL LANE OF ALLEY MAY BE ADJUSTED AND MUST MAINTAIN EXISTING PAVEMENT WIDTH* to *HATCH SHOWN IS FOR GRAPHIC REPRESENTATION ONLY. EXISTING ALLEY WIDTHS TO BE MAINTAINED*.

Item #3:
Survey for Alley #23 was added.

Item #4:
Plan sheets for Alleys #23, 25, 26, 28 and 29 were rearranged to match the rest of the plan set.

ALL OTHER TERMS, CONDITIONS, AND SPECIFICATIONS SHALL REMAIN THE SAME.

THIS ADDENDUM SHALL BE ATTACHED TO THE CONTRACT DOCUMENTS AND THE RECEIPT OF THE SAME SHALL BE NOTED IN THE PROPOSAL IN THE SPACE PROVIDED.

Clarissa Ip, PE
Engineering Support Services Manager