MEMORANDUM

To: All Interested Bidders

Date: September 28, 2015

Subject: IFB#15-2513-OV, Robinson Preserve Expansion Phase II Restoration, Bradenton, FL

ADDENDUM #2

Bidders are hereby notified that this Addendum shall be acknowledged on page 00300-1 of the Bid Form and made a part of the above named bidding and contract documents. Bids submitted without Acknowledgement of the Addendum will be considered incomplete.

The following items are issued to add to, modify, and clarify the bid and contract documents. These items shall have the same force and effect as the original bidding document, and cost involved shall be included in the bid prices. Bids to be submitted on the specified bid date, shall conform to the additions and revisions listed herein.

The deadline to submit all inquiries concerning interpretation, clarification or additional information pertaining to this bid is September 18, 2015 at 5:00 pm. This deadline has been established to maintain fair treatment for all potential bidders, while maintaining the expedited nature of the Economic Stimulus that the contracting of this work may achieve.

Bidders Note 1: – Pertaining to the Measurement and Payment Section, Bid Form, and Completion Time of Project:

1. Robinson Preserve Expansion Phase II Project has been **revised from a Completion Time of 210 Calendar days** to a **Completion Time of 300 Calendar Days.**

2. The following Measurement and Payment items and / or Bid Form items have been added and /or revised. All changes are shown in RED.

   Section D.1.6 EXCAVATION, EMBANKMENT AND STOCKPILING: (page D-4).

   D.1.6.1 DESCRIPTION OF WORK: Additional information in RED has been provided in the Measurement and Payment Section regarding required documentation for Disposal of Unsuitable Materials (page D-5).

   D.1.6.2 PAYMENT: Bid Item No. D.1.6.1.6 Disposal of Unsuitable Material has been added to the Bid Form (pages D-7, D-8).

Financial Management
Purchasing Division
1112 Manatee Ave W Suite 803, Bradenton, FL 34205
Phone number: (941)749-3014

Section D.1.11 ASPHALT TRAIL (COMPLETE): (page D-18).

D.1.11.1 DESCRIPTION OF WORK
Additional information has been added in RED detailing the requirement to construct the cement treated base (pages D-19, D-20).

Section D.1.12 PARKING AREA & DRIVE: (page D-24).

D.1.12.2 PAYMENT - Revision in RED: (page D-31).

Bid Item D.1.12.1.2 – has been revised to read ¾" Asphaltic Concrete Type S-III(Initial Lift)

Bid Item D.12.1.1.3 – has been revised to read ¾" Asphaltic Concrete Type S-III (Final Lift)

Section D.1.13 PEDESTRIAN BRIDGES: (page D-31, D-32)
Acceptable bridge building services

Bidders Note 2: An Interactive Excel Bid Form is provided in this Addendum #2 (8 total pages)

Bidders Note 3: RFI responses to questions received at the Pre-Bid Conference which was held on September 11, 2015 and received via email through September 18, 2015.

All responses shall be provided in Bold lettering.

1a. Reference plan sheet 32, TYPICAL PEDESTRIAN BRIDGE DETAIL, Notes Nos. 2 and 4, what grade southern pine are we to bid for these bridges? Please clarify.

As shown in Note 1 on Typical Pedestrian Bridge Detail on Plan Sheet 32, the typical pedestrian bridge details shown are minimum specifications for locations, dimension and materials for environmental permitting and are subject to change based on bridge plan structural design by others. Notes 2 and 4 provide the minimum non-structural specifications for the pilings, framing, and deck. Structural properties, including grades, shall be provided by Contractor's structural engineer.

1b. Reference specifications Section 'D', MEASUREMENT AND PAYMENT, page D-2, par. D.1.3, CONSTRUCTION SURVEYING AND STAKEOUT (INCLUDING RECORD DRAWINGS), sub-par. D.1.3.1, DESCRIPTION OF WORK, the first sentence tells us this item is to include all survey services necessary to complete construction of the project, why then does the bid form have three (3) other bid items for stakeout and as-builts and one (1) for construction surveying and record drawings?

Payment Item 1.3.1.1 Construction Surveying and Stakeout includes all construction surveying and stake-out not covered under a separate payment item.

Payment Item 1.3.1.2 Record Drawings includes providing 10 complete signed/sealed sets of record drawings and one CD containing CAD files of all record drawings in accordance with FDEP and Manatee County requirements indicating the location and elevation of all constructed features and improvements.

Payment Item 1.10.1.1 Trail Stake-out and As-builts includes providing for all construction surveying, stake-out, and as-builts necessary for the shell trails as described in Section D.1.10.1. The record drawings for the shell trail features will be included in the record drawings provided for in Payment Item 1.3.1.2.

Payment Item 1.11.1.1 Trail Stake-out and As-builts includes providing for all construction surveying, stake-out, and as-builts necessary for the asphalt trails as described in Section D.1.11.1. The record drawings for the asphalt trail features will be included in the record drawings provided for in Payment Item 1.3.1.2.

Payment Item 1.12.1.1 Stake-out and As-builts includes providing for all construction surveying, stake-out, and as-builts necessary for the parking area & drive as described in Section D.1.12.1. The record drawings for the parking area & drive features will be included in the record drawings provided for in Payment Item 1.3.1.2.

Payment Item 1.13.1.2 Construction Surveying and Record Drawings includes providing for all construction surveying, stake-out, and record drawings as necessary for the pedestrian bridges as described in Section D.1.13.1. Separate record drawings for the pedestrian bridge features will be required showing adherence with the structural design plans in accordance with Section D.1.13.1 and will be provided for in Payment Item 1.13.1.2.

2. Reference specifications Section 'D', MEASUREMENT AND PAYMENT, page D-5, par. D.1.6, EXCAVATION, EMBANKMENT AND STOCKPILING, sub-par. D.1.6.1, Disposal of Unsuitable Materials, this paragraph tells us we are responsible for disposing unsuitable excavated material and the costs for disposal are to be included in the excavation bid item, we cannot quantify the volume of unsuitable material and should not be expected to include costs for it in our bid. Please add a bid item for removal and disposal of "Unsuitable Materials" and assign an arbitrary quantity to it for purposes of establishing a unit price.

   Section D.1.6.1 has been revised for the disposal of unsuitable materials and Payment Item 1.6.1.6 Disposal of Unsuitable Material has been added to the Bid Form.

3. Reference specifications Section 'D', MEASUREMENT AND PAYMENT, page D-19, par. D.1.11, ASPHALT TRAIL (COMPLETE), sub-par. D.1.11.1.e, page D-23, this paragraph tells us the minimum compressive strength core break shall be 200 psi, this contradicts County specifications Detail 403.1, CEMENT TREATED BASE, par. 2.5 that states "sample breaks below 150 psi will not be acceptable" please review and clarify.

   The specifications for the Cement Treated Base in Part D.1.11.1 of Section D have been revised.

4. Reference bid form, bid items 1.9.1.3 through 1.9.1.7, will these storm pipe have to be laser profiled and televised?

   Storm pipes will not be required to be laser profiled and televised.

5. Reference bid form, bid item 1.6.1.3, Stockpile Point "B", will the contractor be expected to strip the area prior to placing the import fill material? If so, what is the disposition of the strippings?

   Contractor will not be expected to strip the offsite stockpile area.

6. Reference plan sheet 30, the two (2) "Shell Weir Details", are we to include placing a geotextile filter cloth beneath the washed shell? Details do not show any.

   A geotextile filter cloth beneath the washed shell is not proposed for the Shell Weirs.

7. The contract construction time, 210-days, is not long enough, please consider adding at least another ninety (90) days.

   The contract construction time has been revised from 210 calendar days to 300 calendar days.

8. At a recent visit to the existing Robinson Preserve facility, I noticed the grates on the ditch bottom inlets were galvanized, this job does not specify galvanized grates, what are we to furnish?

   The specifications for the grates on the ditch bottom inlets for this project are shown on the F.D.O.T. Type "C" Inlet detail on Plan Sheet 32.

9. I also noticed the concrete wheel stops were doubled up at each parking stall, is this what we are to provide? If so, the bid quantity will need to be changed.

   No. One double-sided concrete wheel stop (as shown on the Precast Concrete Wheel Stop on Sheet 31) is to be provided at each parking stall. No changes to the bid quantity.

10. Is a building permit required and if so, what is the cost to the contractor?

    A Building Permit will be required for each of the pedestrian bridges. The permit fee for each bridge will be $317 plus 3% for Florida Building Code plus $25 for flood review. Therefore, the permit fee for each bridge is estimated to be $351.51. It will be the responsibility of all bidding contractors to verify the permit fees for each bridge and include them in the cost of construction.

11. Are the grates for the inlets to be galvanized?

    No. The specifications for the grates on the ditch bottom inlets for this project are shown on the F.D.O.T. Type "C" Inlet detail on Plan Sheet 32.

12. Can the contract completion time be extended to at least 280 days? The 210 day duration is inadequate.

    See #7 response.

13. Reference bid form bid item 1.12.1.3, ½" Asphaltic Concrete Type S-III (Final Lift), the asphalt paving vendors tell us that a one-half inch lift of asphalt cannot be installed and are suggesting the area to receive the 1-1/2" of asphalt thickness be installed in one (1) lift at 1-1/2" thick. Please clarify.

    The asphalt pavement for the parking area drive shall be placed in two ¾" lifts. Payment Items D.1.12.1.2 and D.1.12.1.3 have been revised in Section D and on the Bid Form.

14. Who will maintain the haul road inside the remainder property?

For the purpose of this bid, the bidding contractor should provide for maintaining the haul road within the "remainder" property as necessary to maintain efficient ingress and egress of the hauling equipment.

15. Can you clarify what as-built data will be required for the earthwork portion of the contract.

Sufficient as-built data shall be collected for the earthwork portion to show that dimensions, elevations, contours, slopes, pond bottoms, top of banks and representative cross-sections of the constructed improvements are significantly in accordance with the construction plans. This information, along with all other record data of the constructed improvements, shall be shown on the record drawings and shall be in accordance with the requirements of Manatee County and FDEP.

16. Once the truck measure quantity is agreed upon will the hauling contractor be responsible for the counting of the hauled loads?

The Project's prime contractor shall be responsible for counting the hauled loads. The contractor shall keep a daily log for each truck used for hauling to the stockpile area. The number of load and volume for each load shall be recorded in daily log for each truck. At the end of the week the contractor shall submit a copy of the daily logs for each truck along with a summary of the week's total to the County.

17. In the pre-bid conference there was concern that the 210 day schedule may be hard to meet, would the county consider an alternate price for an extended schedule in addition to a 210 day price?

See #7 response.

18. Will the Contractor be expected to clear the Australian pine and pepper trees along the north side of the access road, 9th Avenue NW extended, that are also directly beneath the east/west power lines? That area appears to be outside the limits of construction, please clarify.

The Construction plans show that the east/west power poles are within the ditch along the north side of the 9th Avenue NW extended access road. The Construction Plans also show that this ditch is outside of the limits of construction for this phase and there is to be no clearing or construction outside the limits of construction. The Contractor will be expected to clear all trees within the project boundary and limits of construction in accordance with the contract documents.

19. Reference plan sheet 18, the area referred to as "Point B", the note that reads "THE REMAINDER PROPERTY OFF-SITE STOCKPILE AREA", at the pre-bid meeting Mr. Sellers told us we would be placing the fill dirt over the entire site for others to grade and compact, this note is misleading, for the benefit of those who were not in attendance at the pre-bid meeting please confirm that we are either stockpiling the earth fill or will be placing over entire site.

    Section D Measurement and Payment Part D.1.6.1 page D-5 paragraph 1 states: "Work in this Section includes the loading, hauling and stockpiling of 240,000 cubic yards-truck measure of excavated material from the project site to "The Remainder Property" Offsite Stockpile Area centered at or near "Point B" as shown on the Construction Plans. Contractor shall be responsible for coordination with the offsite receiving site contractor regarding placement of the stockpiled material, access, and tracking of volume of material removed from the site."

    The Amended and Restated Fill Removal Agreement (Agreement) is also include in the Contract Documents which establishes the mutual rights and obligations with respect to the 240,000 cubic yards of material being moved from the project area to the adjacent site for stockpiling and use. Agreement Article I, Part 1.2 B. states "The County shall remove from the Expansion Property and transport 240,000 cubic yards (determined by truck measure) of fill material free from muck and excessive organics, and stockpile such fill material upon the Remainder Property, at the location specified on Exhibit B." The location specified on Exhibit B is identified as B and is the same location referred to as "Point B" on plan sheet 18 and plan sheet 2 of the Construction Plans.

    Contractor will be stockpiling 240,000 cubic yards of material on "The Remainder Property" Offsite Stockpile area as per the contract documents and will not be "placing" fill over the entire site.

20. The trail that runs north and south along the west side of the "Point B" property has a ditch along the east side that has mangrove and buttonwood trees growing in it, will we be allowed to remove them in order to place a temporary pipe for access to the "Point B" property?

    There is an existing culvert crossing across this ditch providing access to the "Point B" property. For the purpose of this bid, Contractor shall assume access to the "Point B" property is via the existing culvert crossing.

21. Pond #3 generates the most material and the location appears to be best suited for providing the fill material for the "Point B" property, will this line of thought be acceptable?

The contract documents state that 240,000 cubic yards (determined by truck measure) of fill material free from muck and excessive organics shall be removed from the project site and stockpiled on the Remainder Property (or "The Remainder Property" Offsite Stockpile Area). The contract documents do not specify which part of the project area the material must come from.

22. Our earthwork calculations show the job coming up short of material necessary to build the job to design grades after furnishing material to the "Point B" property. We were told at the pre-bid meeting that delivering the required fill material to the "Point B" property is first and foremost, and that design changes to the Preserve would be made to accommodate an underrun of material, please describe the areas that would be changed as those changes may very well impact our earth moving efforts.

If there is an "under-run" of fill material, grade reductions could be made to the non-trail or non-feature areas such as:
Re-shaping/lowering the contours on the east side of the 16' ridge between Pond 1 and the Parking area.
Re-shaping/lowering the contours on the west side of the shell trail north of Pond 2.
Re-shaping/lowering the contours on the north side of the shell trail south of Pond 5.

23. Is the Local preference only in the event of a tie?

See Section "C", Article C.02, Basis of Award, page C-1 of the Invitation for Bid.

24. Is there a stated Small Business % participation requirement with this RFP?

No, there is no stated Small Business % participation listed in this Bid. Reference Section "A", Article A.36, Southwest Florida Water Management District Grant Requirements, page A-14 of the Invitation for Bid.

If you have submitted a bid prior to receiving this addendum, you may request in writing that your original sealed bid be returned to your firm. All sealed bids received will be opened on the date stated.

Bids will be received at the Manatee County Purchasing Division, 1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205 **October 6, 2015 at 3:00 PM.**

Sincerely yours,

Melissa M. Wendel, CPPO, Purchasing Official
Manatee County Purchasing Division

Ov
Attachments:
Measurement and Payment, Section D (33 pdf pages)
Interactive Excel Bid Form (8 pages)

SECTION D
MEASUREMENT AND PAYMENT
(ADDENDUM #2)

D.1 SCOPE

This Section defines the items included in each Bid Item in the Bid Form section. Payment will be made based on the specified items included in the description in this section for each bid item.

D.1.1 MOBILIZATION

D.1.1.1 DESCRIPTION OF WORK

The work included under this Section consists of the preparatory work and operations in mobilizing to begin work on the project. This may include those operations necessary for the movement of personnel, equipment, supplies and incidentals to the project site and for the establishment of temporary offices, safety equipment and first aid supplies, and sanitary and other facilities/utilities. This item also includes demobilization of all equipment, personnel, supplies and incidentals from the project site upon final completion.

D.1.1.2 PAYMENT

All work specified under this Section shall be paid for under the Lump Sum Pay Item for MOBILIZATION on the Bid Form and in accordance with the following schedule:

Percent of Total Contract Amount Earned	Allowable Percent of the Lump Sum Price for Mobilization
5	25
10	50
25	75
100	100

D.1.2 MISCELLANEOUS PERMITS AND BONDING

D.1.2.1 DESCRIPTION OF WORK

The work included under this Section includes obtaining any miscellaneous permits not furnished by the owner (including any required permit fees). These permits may include, but are not limited to, NPDES permits, dewatering permits, right-of-way use permits, temporary access/drainage permits, and burn permits, if required.

The Contractor shall also be responsible for the preparation of a Stormwater Pollution Prevention Plan and submittal of NPDES Notice of Intent and Notice of Termination pursuant to State NPDES permitting requirements. The Contractor shall provide a Stormwater Pollution Prevention Plan to Engineer and the County prior to commencing construction. The Contractor shall be responsible for the implementation of the NPDES and related Stormwater Pollution Prevention Plan for the duration of the project.

In addition, the Contractor shall also obtain any required temporary dewatering permits through the Florida Department of Environmental Protection (FDEP), if required, and shall provide copies to the County and Engineer.

The Contractor shall have copies of all permits readily accessible on-site. The Contractor shall be responsible for adhering to all applicable permit conditions.

The cost of any bonds required by the County as part of this contract shall also be included under this Section.

D.1.2.2 PAYMENT

All work specified under this section shall be paid for under the Lump Sum Pay Item for MISCELLANEOUS PERMITS AND BONDING on the Bid Form.

D.1.3 CONSTRUCTION SURVEYING AND STAKEOUT (INCLUDING RECORD DRAWINGS)

D.1.3.1 DESCRIPTION OF WORK

The work included under this Section includes all survey related services needed to complete the construction of the project. The Contractor shall employ a Land Surveyor registered in the State of Florida and acceptable to the County to perform survey functions on this project. The Contractor shall provide the name, address and telephone number of the Surveyor before starting survey work.

The Surveyor shall maintain a complete and accurate log of control and survey work as it progresses. Contractor shall locate and protect survey control and reference points prior to starting work.

Surveyor shall establish a minimum of two permanent benchmarks on-site, referenced to established control points. The benchmark locations, with horizontal and vertical data, shall be provided on project documents. Surveyor shall sign field notes and keep duplicate field notes.

Upon completion of finished grading and prior to initiation of seeding, sodding, and/or planting, the Contractor's Surveyor shall provide preliminary as-built project drawings and CAD file of the finished grade elevations of the constructed features to the Project Engineer and the County for review (to confirm adherence with the Construction Plans) and approval.

The Contractor's Surveyor shall also provide accurate, detailed and complete signed and sealed record drawings (10 sets) and one CD containing CAD files of all record drawing sheets to the Engineer and the County. The record drawings shall be signed and sealed by a Florida registered Land Surveyor. The record drawings shall meet or exceed the requirements of the Florida Department of Environmental Protection (FDEP) and Manatee County.

D.1.3.2 PAYMENT

All work specified under this section shall be paid for under the Lump Sum / Unit Price Pay Items for CONSTRUCTION SURVEYING AND STAKEOUT (INCLUDING RECORD DRAWINGS) on the Bid Form at the indicated schedule:

ITEM D.1.3.1.1 Construction Surveying and Stakeout
ITEM D.1.3.1.2 Record Drawings

D.1.4 EROSION AND TURBIDITY CONTROL

D.1.4.1 DESCRIPTION OF WORK

The work included under this Section consists of furnishing all necessary labor, equipment, tools and materials associated with erosion and turbidity control and turbidity monitoring needed throughout the construction of the project. Contractor shall be responsible for erection and maintenance of all required erosion and turbidity control devices best management practices (BMPs) in accordance with the Construction Plans prior to the start of construction.

Prior to the installation of the erosion control devices, the Contractor shall contact the Manatee County Building and Development Services Department - Environmental Planning Division to schedule and confirm the required inspections of the erosion control devices for the project.

Contractor shall install staked and/or floating barriers with weighted skirts that extend to within 1 foot of the bottom around all work areas that are in, or adjacent to, surface waters prior to initiation of any of the work authorized by this permit. The turbidity barriers shall remain in place and be maintained until the authorized work has been completed and all suspended and erodible materials have been stabilized. Contractor shall be responsible for complete removal of turbidity barriers upon final completion of the project. No portion of erosion control devices are to remain above or below ground.

The Contractor shall re-establish, at no additional expense to the County, all erosion and turbidity controls, or sections thereof, which may become damaged, destroyed or otherwise rendered unsuitable for their intended function during the construction of the project. The Contractor shall, at their expense, provide routine maintenance of permanent and temporary erosion and turbidity control features until the project is completed and accepted. If such erosion and turbidity control features must be reconstructed due to the Contractor's negligence or carelessness or, in the case of temporary erosion and turbidity control features, failure by the Contractor to install permanent erosion control features as scheduled, such replacement shall be at the Contractor's own expense. The Contractor, at their expense, shall also be responsible for repair/re-establishment of areas damaged by failure of erosion and turbidity control features to the design specifications until the project is completed and accepted. The work specified under this Section shall include the installation, re-establishment and maintenance of all required erosion and turbidity control devices, all other work required to minimize turbidity in downstream waters, and the removal of all such temporary erosion and turbidity control features upon completion of the project.

D.1.4.2 PAYMENT

All work specified under this section shall be paid for under the Lump Sum / Unit Price Pay Items for EROSION AND TURBIDITY CONTROL on the Bid Form at the indicated schedule:

ITEM D.1.4.1.1	Staked Silt Fence
ITEM D.1.4.1.2	Floating/Staked Turbidity Barrier
ITEM D.1.4.1.3	Erosion and Turbidity Control Maintenance

D.1.5 CLEARING AND GRUBBING

D.1.5.1 DESCRIPTION OF WORK

The work included under this Section consists of clearing and grubbing within all areas that will be cut or filled to elevations above or below pre-construction grade at project completion.

All trees, brush, stumps, grass, roots and other such protruding objects within the limit of construction shown on the Construction Plans shall be removed and properly disposed of by the Contractor to prepare the area for the proposed construction. All roots, stumps, or other such protruding objects shall be cut off and/or removed one-foot below the design finished grade of the excavated surface. Any rock larger than 3½" diameter, existing facilities or debris laying on the top of the existing surface or otherwise encountered during the clearing and grubbing shall be removed and properly disposed of off-site by the Contractor unless otherwise directed by the County Project Manager (or designee).

Contractor shall also be responsible for the plugging and abandoning all existing wells within the project limits in accordance with SWFWMD rules and requirements. Contractor shall cut off and remove all properly plugged and abandoned wells at least two feet below the design finished grade of the excavated or filled surface.

All work and travel should be within the limits of the project and/or within corridors designated by the County Project Manager (or designee).

The Contractor shall notify all utility companies or utility owners (both public and private) of their intent to perform such work and shall coordinate field locations of utility lines prior to commencement of construction.

The Contractor shall obtain all permits/approvals necessary for proper disposal at Contractor's expense. Unless otherwise stated in the Contract Documents, burning may be permitted within the project limits provided the burning operation complies with all applicable laws, ordinances, and other regulatory agencies. All permits required shall be obtained by the Contractor prior to the start of burning and all permit regulations shall be strictly adhered to. All burning shall be done at locations designated by the County where vegetation and soils adjacent to the cleared area will not be harmed. Material/debris not burned onsite shall be removed and properly disposed of off-site by the Contractor at Contractor's expense. All burning residue (ash) shall be removed and properly disposed of off-site by the Contractor at Contractor's expense.

D.1.5.2 PAYMENT

All work specified under this section shall be paid for under the Lump Sum / Unit Price Pay Items for CLEARING AND GRUBBING on the Bid Form at the indicated schedule:

ITEM D.1.5.1 Clearing and Grubbing

D.1.6 EXCAVATION, EMBANKMENT, AND STOCKPILING (Addendum #2)

D.1.6.1 DESCRIPTION OF WORK

Work specified in this Section consists of excavation and embankment required for roadways, ponds, ditches, swales, berms, canals, parking areas, site fill, building pads, retention areas, structure excavation, and other similar work described herein or shown on the plans. This section includes preparation of subgrades, construction of embankments, utilization or disposal of materials excavated, and compaction of excavated areas and embankments. All work shall conform to the proposed alignment, elevations, slopes, and cross sections shown on the plans. Contractor shall include any temporary dewatering (and required permitting if necessary) work necessary to complete the project.

Included in the excavation under this Section are materials of whatever nature encountered within the required limits of excavation (except material removed during clearing and grubbing). Determination of sub-surface conditions and its effect on construction costs are the sole responsibility of the Contractor. Sub-surface conditions between soil borings that may be provided can vary greatly from those conditions found at the location where the sample was extracted.

Work in this Section includes the loading, hauling, and stockpiling of 240,000 cubic yards – truck measure of excavated material from the project site to "The Remainder Property" Offsite Stockpile Area centered at or near "Point B" as shown on the Construction Plans. Contractor shall be responsible for coordination with the offsite receiving site contractor regarding placement of the stockpiled material, access, and tracking of volume of material removed from the project.

Contractor shall notify all utility companies or utility owners, both public and/or private of their intent to perform such work and coordinate field location of utility lines prior to commencement of construction. Locating existing underground utilities shall be the responsibility of the Contractor. In the event of any utility conflict, the Contractor shall immediately inform the utility company, the County and the Engineer of the conflict. Contractor at Contractor's expense shall be responsible for the immediate repair of any utility lines damaged during construction.

Excavation shall consist of excavation of all material necessary for construction of the project features according to the elevations, depths, dimensions, side slopes, and in the locations shown in the Construction Plans. Contractor shall be responsible for any investigation of sub-surface conditions and subsequent determination of the amount of rock, roots, irrigation piping, drain tile, drainage piping, and other materials to be incorporated into Contractor's cost. Rock blasting is strictly prohibited.

If the excavation requires the use of cofferdams, dewatering, sheeting, or bracing, all such work will be done in strict compliance with all permit requirements and any laws or ordinance that may apply to the work being performed. It shall be the responsibility of the Contractor to be familiar with any applicable regulations and to satisfy said regulations at the Contractor's own expense.

All excavated materials suitable for embankment shall be utilized in the embankment areas shown in the Construction Plans, hauled to an adjacent off-site stockpile site, or as otherwise specified in the Contract Documents. After the requirements for embankment and off-site stockpile sites have been satisfied, the surplus suitable excavated material shall be deposited in areas on-site as directed by the Project Engineer or County Project Manager (or designee).

Disposal of Suitable Surplus Materials: Ownership of all suitable excavated materials shall be retained by the County unless otherwise stated in the Contract Documents.

Disposal of Unsuitable Materials: Material such as silt, clay, peat, muck, highly organic soils, rock larger than 3½" diameter, roots, irrigation piping, drain tile, drainage piping or other deleterious materials shall be classified as "unsuitable" unless otherwise specified or classified by the County. Unsuitable excavated material shall become the property of the Contractor to be properly disposed of offsite at a legally approved disposal facility. The Contractor shall provide weight tickets (or other form of documentation acceptable to County) of the amount of unsuitable material that is removed from the project site. The cost for removal, disposal, and furnishing the disposal area of unsuitable material shall be included in Item D.1.6.1.6 Disposal of Unsuitable Material and no additional compensation will be given. If a dispute arises over the classification of materials, the final determination shall be made by the County.

Embankments shall be constructed true to line and grades shown in the Construction Plans or ordered by the Project Engineer or County (or designee). Material used in embankments shall be obtained from on-site excavation and/or from off-site borrow sources secured by the Contractor as approved by the Project Engineer.

Subsequent to clearing and prior to placement of embankment material, the existing earth surface shall be compacted six feet beyond the building and pavement structure limits and in other areas shown in the Construction Plans. The existing surface shall be compacted at moisture content such that specific density requirements can be attained. Soil one foot below the compacted surface shall attain a density of 95 percent of the maximum theoretical density as determined by the Modified Proctor Density (ASTM-D-1557). Field density tests shall be conducted in accordance with ASTM D-1556, D-2167, D-2922, or D-2937 (latest revisions) by a certified laboratory or soils engineer approved by the County. The locations and number of the tests shall be verified by the Project Engineer.

Embankments shall be constructed of material containing no muck, stumps, roots, brush, vegetable matter, rubbish, or other material that will not compact into a suitable and enduring roadbed or similar foundation. Material designated as unsuitable in the soil borings or as classified as unsuitable by the County shall be removed from the embankment and disposed of off-site. Utilization of material in embankment construction shall be in accordance with Construction Plan details or as directed by the County.

The maximum sizes of rock which will be permitted in the completed embankment are as follows:

In top 12 inches	3½ inches
12 inches to 2 feet	6 inches
In the 2 feet depth below	Not to exceed the compacted thickness of the layer being placed.

When and where approved by the County, the Contractor may place larger rocks outside the 2 to 1 slope of any structure embankment. Where such rock is utilized in any embankment, enough fine material shall be deposited and compacted between individual rocks so as to complete fill any voids that may occur during the placement of such material. No rock shall be utilized in any building pad embankment areas.

Embankment Construction Requirements

Embankment material shall be placed in horizontal layers not to exceed 12 inches thickness measured loose. Each layer shall be leveled and compacted in accordance with Embankment Compaction Requirements. No fill material shall be placed where area is wet. Dewatering may be required prior to filling operation, either by pumping or well pointing. Water shall not be allowed to stand on or adjacent to fill areas that could saturate the material.

When embankments are constructed on a hill or slope, slope shall be "stepped" so as to permit the embankment to be placed in horizontal layers and compacted as stated above. Upon completion of the embankment steps on a slope, steps shall be dressed to conform to the specified slope.

For any embankments not covered above, construction methods shall be approved by the Project Engineer prior to placement.

Embankment Compaction Requirements

Materials shall be compacted at moisture content such that the specific density can be attained. If necessary, water shall be added to the material, or the moisture content shall be lowered by manipulating the material or allowing it to dry, as is appropriate. Each layer of material shall be compacted by the use of a smooth drum vibratory roller or other method approved by the Project Engineer. The top 12" of natural ground shall be compacted in accordance with be requirements listed below.

Field density tests shall be conducted in accordance with ASTM D-1556, D-2167, D-2922, or D-2937 (latest revisions) by a certified laboratory or soils engineer approved by the County according to the Compaction Requirements stated below:

Embankment Area	Density[1] Below 3'	Density[1] 0' to 3'	Testing Frequency/Lift
Building Pads[2]	95%	98%	1 Ea/2000 SF, Minimum 2 Ea/Structure
Pavement Areas[3]	95%	98%	1 Ea/500 SY
Retention Areas[4]	95%	95%	1 Ea/500 SY
Other Areas	N/A	N/A	N/A

1 The percentage listed shall be the minimum acceptable amount of the maximum theoretical density as determined by the Modified Proctor Density (ASTM-D-1557).
2 Includes future building pads and lots.
3 Includes any permanent pavement structure such as curb and gutter, sidewalk, roadway, shoulder, driveway, or any other similar surface.
4 Includes shell trails, earth berms, water retention slopes, dikes, and other similar areas.

Contractor shall be responsible for scheduling of all soil testing. These soil testing costs shall be borne by the Contractor unless stated otherwise in the plans or specifications. In the event of a test failure all subsequent tests required to pass density shall be at the expense of the Contractor. The County may deduct this expense from the Contractor's payment or request payment directly from Contractor.

Also included in this Section are the supply, placement and construction of the oyster islands and shell weirs according to the depths, dimensions, elevations and locations as specified in the Construction Plans.

Contractor shall be responsible for the maintenance and repair of all access routes for the duration of the project. Contractor shall also be responsible for protection of the existing underground stormwater facilities within and directly adjacent to the project area from damage and shall repair or replace damaged facilities at no additional cost.

Unless otherwise stated in the Contract Documents, operating hours shall be 7:00 AM to 5:00 PM Monday through Friday.

D.1.6.2 PAYMENT (Addendum #2)

All work specified under this section shall be paid for under the Unit Price Pay Items for EXCAVATION, EMBANKMENT, AND STOCKPILING on the Bid Form at the indicated schedule:

ITEM D.1.6.1.1	Excavation
ITEM D.1.6.1.2	Embankment (Haul, place, compact)
ITEM D.1.6.1.3	Stockpile Point B (Load, haul & stockpile)
ITEM D.1.6.1.4	Oyster Islands 4" Thick Large Washed Shell (3" min)

ITEM D.1.6.1.5 Shell Weirs 8" Thick Large Washed Shell (3" min)
ITEM D.1.6.1.6 Disposal of Unsuitable Material

D.1.7 FINISHED GRADING

D.1.7.1 DESCRIPTION OF WORK

The work included under this Section consists of all finished grading required to achieve the design elevations shown on the Construction Plans. As a final grading operation, the surface of the earthwork shall be shaped to conform to the lines, grades and contours shown on the Construction Plans. Hand dressing will be required in confined areas where equipment operation is restricted or where the equipment-finished surface is unsatisfactory in the judgment of the County. It shall also include restoring (re-grading) any access routes to existing pre-construction grades upon completion of construction and stockpile removal activities. The Contractor shall be responsible for the removal and proper disposal of surplus material (if any) upon completion of finished grading as directed by the County.

The Contractor shall take the necessary precautions to prevent erosion of the slopes before and after finish grading. Any erosion of whatever consequence shall be repaired at the expense of the Contractor until final acceptance of the project.

In final shaping of the surface of earthwork (a.k.a. finished grade), a tolerance of 0.1 foot above or below the plan elevations and contours will be allowed. Final grading will be field verified by County prior to any planting.

D.1.7.2 PAYMENT

All work specified under this section shall be paid for under the Unit Price Pay Items for FINISHED GRADING on the Bid Form at the indicated schedule:

ITEM D.1.7.1.1 Pond Areas
ITEM D.1.7.1.2 Dry Detention Area
ITEM D.1.7.1.3 Embankment Areas

D.1.8 SOD AND SEED/MULCH

D.1.8.1 DESCRIPTION OF WORK

The work included under this Section consists of sodding and seeding/mulching upon completion of finish grading activities in conformity with the lines and grades as shown on the Construction Plans.

Argentine Bahia (*Paspalum notatum*) sod shall be used on areas to be sodded. Sod shall be free of Bermuda grass (*Cynodon* spp.), Smut grass (*Sporobolus indicus*), or any species identified on the 2015 Florida Exotic Pest Plant Council list of invasive plant species or it will be rejected. It shall be well matted with roots. The sod shall be taken up in commercial-size rectangles preferably 12 by 24 inches. The sod shall be sufficiently thick to secure a dense stand of live turf with a minimum thickness of two inches. The sod shall be live, fresh and uninjured, at the time of planting. It shall have a soil mat of sufficient thickness adhering firmly to the roots to withstand necessary handling. It shall be planted within 48 hours after being cut and kept shaded and moist from the time it is cut until it is planted. The sod shall be firmly embedded by light tamping. No sod, which has been cut for more than 48 hours, may be used unless specifically authorized. A letter of certification from the turf supplier as to when the sod was cut shall be provided if requested. Immediately before sod is placed, fertilizer shall

be applied evenly at the equivalent rate of approximately 10 pounds of 6-6-6 per 1,000 square feet and shall be cut into the soil with suitable equipment. After the sod has been placed, it shall be thoroughly watered with freshwater. Sodding includes maintaining sod until growth is established. All erosion, siltation and maintaining grades are the responsibility of the Contractor until the root system has adequately "survived" and taken "hold".

The areas to be seeded and mulched shall have the ground over which the seed is to be sown prepared by disking and thoroughly pulverizing the soil to a suitable depth. The prepared soil shall be loose and reasonably smooth and reasonably free of large clods, roots, and other material which will interfere with the work or subsequent mowing and maintenance operations. The proportions of seed and fertilizer shall be as follows unless otherwise approved/directed by County:

- Annual Ryegrass or Brown Top Millet seed at 30 pounds per acre.
- Scarified Argentine Bahia seed at 150 pounds per acre.
- Fertilizer at 500 pounds of 12-8-8 per acre.

All seed shall meet the requirements of the Florida Department of Agriculture and Consumer Services (FDACS). Seed mixture shall be free of Bermuda grass (*Cynodon* spp.) or it will be rejected.

On steep slopes or other areas where machine-spreading may not be practicable, the spreading may be done by hand. Immediately after the fertilizer is spread, it shall be mixed with the soil to a depth of approximately four inches. While the soil is still loose and moist, the seed shall be scattered uniformly over the grassing area. When mulching, approximately two inches, loose thickness, of the mulch material shall be applied uniformly over the seeded area, and the mulch material cut into the soil uniformly to produce a loose mulched thickness of three to four inches. The mulching equipment shall be a type capable of cutting the specified materials uniformly into the soil and to the required depth. Care shall be exercised that the materials are not cut too deeply into the soil. Unless otherwise approved/directed by the County, the mulch material used shall be dry mulch and shall consist of oat or rye straw or peanut or Bahia grass hay. Only un-deteriorated mulch which can readily be cut into the soil shall be used. Immediately after completion of the seeding/mulching, the entire grassed/mulched area shall be rolled thoroughly. At least two trips over the entire area will be required. The Contractor shall be responsible for watering (salty or brackish water shall not be used) the seeded areas to provide optimum growth conditions for the establishment of the grass. In no case shall the period of maintaining such moisture be less than two weeks following planting.

On steep slopes, where the use of a machine for the cutting-in process described above is not practicable, the construction operations shall be modified as follows:

- The fertilizer shall be applied uniformly, at the rate specified, and shall be raked in and thoroughly mixed with the soil to a depth of approximately two inches.
- The seeding operations shall follow the fertilizing.
- The mulch material, in lieu of being cut into the soil, may be anchored down. Anchoring shall be done by either of the following methods:
  a. Placing a layer of soil, approximately two inches thick by nine inches wide, along the upper limits of the mulch, and spotting soil piles over the rest of the area at a maximum spacing of four feet.
  b. spreading a biodegradable natural fiber string net over the mulch, using stakes driven flush with the top of the mulch, at six foot centers, and stringing parallel and perpendicular, with diagonals in both directions.

Fertilizers used shall be commercial fertilizers that comply with the state/local fertilizer laws.

The Contractor shall, at their expense, maintain the seeded, mulched, planted or sodded areas in a satisfactory condition until final acceptance or completion of the project, whichever occurs last. Such maintenance shall include the filling, leveling and repairing of any washed-out or eroded areas, equipment damaged areas, etc. The County may require re-seeding, re-planting or re-sodding of any areas in which establishment of the grass stand does not appear to be developing satisfactorily (e.g. browning or dead spots) within sixty days following planting (or replanting). Replanting or replacement shall be at the Contractor's expense.

D.1.8.2 PAYMENT

All work under this section shall be paid for under the Unit Price Pay Items for SOD AND SEED/MULCH on the Bid Form at the indicated schedule:

ITEM D.1.8.1.1 Sod
ITEM D.1.8.1.2 Seed and Mulch

D.1.9 DRAINAGE STRUCTURES

D.1.9.1 DESCRIPTION OF WORK

The work included in this section shall consist of the removal and proper disposal of existing drainage culverts and furnishing all labor, materials, and testing necessary to complete the installation of the storm drainage system with all the component parts specified in the Contract Documents and Construction Plans. Included are storm sewers, pipe culverts, manholes, crossing boxes, inlets, catch basins, pipe end treatments, restoration, and other similar items defined in this section.

Where supplementary specifications or standards such as ASTM, AWWA, AASHTO, etc., are referenced, such references shall be the latest edition. All references to "FDOTSPEC" shall mean the latest edition of the "Florida Department of Transportation Standard Specifications for Road and Bridge Construction". All references to "FDOT INDEX BOOK" shall mean the latest edition of the "FDOT Roadway and Traffic Design Standards".

Contractor shall be responsible for determining the subsurface conditions in areas where excavation can be anticipated. The type of soil, depth and thickness of rock and unsuitable materials, ground water table, and other factors that affect cost shall be evaluated prior to submitting a bid. The method used to determine subsurface conditions shall be the responsibility of the Contractor. Soil borings (if provided) only supply information in the exact location of each boring; therefore, on site exploration of the subsurface is the Contractor's responsibility. All on site exploration shall be scheduled with the County and coordinated with jurisdictional agencies and utility companies.
With the exception of sheeted excavations for deep pipe installations, wet wells or other poured in place construction activity, all excavations or trenches shall be backfilled immediately after the work is completed. The Contractor shall plan the daily construction activity whereby trenches are backfilled and compacted in accordance with the accompanying specifications at the end of each work day. Should it be necessary for reasons other than standard construction procedures to leave an excavation open the Contractor shall isolate and protect the workers and the general public from the entire excavation by barricades, fences, signs, lights or other devices required by the contract documents and/or local agency codes.

Contractor shall comply with the applicable trench safety standards specifically set forth in Florida's Trench Safety Act.

Pavement, sidewalk, driveway, curb and gutter, and other structures shall be protected from damage during excavation wherever possible and as directed in the Contract Documents.

D.1.9.2 PRODUCTS

Corrugated Polyethylene Pipe
Corrugated polyethylene pipe shall meet the requirements of AASHTO M294 specification except size range shall be expanded through 36-inch diameter. Minimum pipe values shall be as follows:

Diameter	Interior	Pipe Stiffness	N Factor
12"	Smooth	45 psi	.12
15"	Smooth	42 psi	.12
18"	Smooth	40 psi	.12
24"	Smooth	34 psi	.12
30"	Smooth	28 psi	.12
36"	Smooth	22 psi	.12

Mortar, Brick, and Reinforcing Bars
Mortars used for constructing and plastering manholes, catch basins, drop inlets and junction boxes shall meet the requirements of ASTM Specification Serial Designation C 270. Contractor shall use either Portland cement-hydrated lime mixture cement or a Portland cement mixture with masonry cement added for improved workability. However, the same materials must be used throughout the project. Mortar materials shall be proportioned by volume and shall be as follows:

- One (1) part Type I Portland Cement - ASTM C-150
- Three (3) parts Aggregate (sand) - ASTM C-144
- Addition of masonry cement, ASTM C-91 will be permitted to improve workability of mortar.

Brick used in construction of manholes, catch basins, drop inlets and junction boxes shall be Portland cement concrete meeting the requirements of ASTM Serial Designation C-55, Grade P II.

All bars shall be deformed Reinforcing Steel and shall meet the requirements of Specifications for Billet-Steel Bars for Concrete Reinforcement (ASTM A-15), and to Specifications for Deformation on Deformed Steel Bars (ASTM A-305) for concrete reinforcement. All bars shall be lapped and placed in accordance with ACI Requirements and Specifications.

Structures
Structures shall be precast or cast in place. Work specified in this section shall consist of furnishing all concrete, reinforcing steel, ties, forms, labor, materials, and placing of all embedded pipe sleeves, fixtures, joist anchors, etc., necessary to complete the work shown on the plans and specified herein, all in accordance with the Southern Building Code and the American Concrete Institute Building Code Requirements for Reinforced Concrete (ACI 318). All concrete shall develop 3,000 psi compressive strength in 28 days. Coarse aggregate shall be no smaller than 1/2-inch in diameter.

Iron Castings
Frames, covers and gratings shall be of the type and duty shown on the Construction Plans. Iron castings shall conform to ASTM A-48, Class 30, gray cast iron. All castings shall be true to pattern in form and dimension, free from faults or other defects. Bearing surfaces between cast frames, cover and grates shall be machine fitted together and match-marked to prevent rocking. All covers shall have a concealed type pick-hole (non-penetrating), and shall have the words "storm sewer" cast thereon.

Rip-rap
The rip-rap shall consist of broken rock or stone locally available. The material shall be of sufficient hardness so as not to break or crumble while loading or placing, similar to the cap rock stratums found in southwest Florida. The pieces shall be roughly angular and shall be reasonably free from thin, flat, or elongated pieces. Recycled concrete is not acceptable.

Bedding and Backfill Materials
Crushed stone bedding material: Crushed, washed, and graded in accordance with ASTM C 33, gradation 67.

Sand bedding material: Clean sand, free of clay, silt, debris, roots, vegetation, or rock larger than one-half inch in diameter.

Shell bedding material: Clean 3/8 inch washed shell material.

Select fill: Materials excavated from the limits of construction or imported that conform to AASHTO Standard M 145, Groups A 1 and A 3 and free of rocks or gravel, clay, silt, debris, roots and vegetation.

Common fill: Material that conforms to AASHTO Standard M 145, Groups A 1, A 2, or A 3, free of rocks or gravel, clay, silt, debris, roots and vegetation.

D.1.9.3 EXECUTION

Pipe and structures shall be constructed at the location and elevations specified on the plans and in accordance with the details specified in the Contract Documents.

Contractor shall investigate existing conditions and identify line and grade stakes as applicable. Arrange for placement of materials required to minimize the duration of open trenches or excavated areas.

Contractor shall install well points or other approved methods of dewatering as required so that the discharged water complies with all pertinent ordinances, codes, permits, or requirements of the Contract Documents.

Contractor shall implement traffic control and protective devices as may be applicable.

For pipe lines placed above the natural ground, embankment shall be placed and compacted to an elevation of at least two feet above the top of the pipe and to a width equal to four pipe diameters prior to trench excavation. The minimum side slopes shall be six feet (horizontal) to one foot (vertical).

Prior to trench excavation, the existing surface that will be disturbed by the excavation operation shall be cleared and grubbed. The limits of clearing and grubbing for this section shall be as shown on the plans or as otherwise specified in the Contract Documents. Where the clearing limits are not shown or stated, the limits of clearing and grubbing shall be the smallest area that will facilitate the construction of work specified.

Trenches for pipe construction shall be excavated to a width that will provide enough working space next to the pipe and facilitate proper compaction of backfill material around the haunches of the pipe. All such trench excavation shall comply with the manufacturer's recommendations for the type of pipe used.

Excavations for structures such as manholes, inlets, pump stations, etc. shall be large enough to provide adequate working room. A minimum distance of two feet shall be provided between the outside edge of the structures and the side or wall of the excavation to allow for proper backfilling and compaction.

All trenches shall be excavated by open cut unless otherwise indicated in the Contract Documents.

The length of the open cut trench that is excavated ahead of the pipe laying operation shall not exceed half of the normal daily production length. The excavation and pipe laying operation shall be coordinated so that all pipe laid in one day is fully backfilled except for the last length of pipe in an unfinished run between structures.

Where rock is encountered during the performance of work specified in this section, the rock shall be removed.

Where materials unsuitable for backfilling are encountered during trench excavation, these materials shall be separated from the suitable materials and disposed of off-site or utilized on site in embankment areas as authorized by the County (or designee).

Where unsuitable material including rock larger than six inches is excavated and hauled off-site, replacement material shall be acquired from on-site excavation as provided by the Contract Documents or as authorized by the County (or designee). Where replacement material is not available from the site, the Contractor shall furnish fill material from an off-site borrow source. Only materials that conform to Select fill or Common fill of this section may be used for backfilling operations unless otherwise specified in the Contract Documents or authorized in writing by the County (or designee).

Where rock is encountered at the bottom of the trench, the trench shall be undercut to a depth of at least six inches below the bottom of the pipe to allow for a bedding cushion above the rock.

Where muck, roots or other organic materials are encountered at the bottom of the trench, the trench shall be undercut to remove the unsuitable material to the satisfaction of the County (or designee).

The Contractor shall dewater the excavation operation as required to provide a dry trench bottom. Prior to beginning work Contractor shall prepare their dewatering plan and obtain all necessary permits.

Where the exposed material at the bottom of the trench meets the requirements of Crushed stone bedding material, Sand bedding material, or clean 3/8 inch washed shell material of this section, the existing material may be used as bedding, provided it is compacted.

Where the bottom of the trench has been undercut to remove rock or unsuitable material, the bottom shall be brought up to grade by placing and compacting bedding materials conforming to the requirements of Crushed stone bedding material, Sand bedding material, or Clean 3/8 inch washed shell material of this section.

In exceptionally wet conditions, the Contractor may request permission from the County's representative to lay the pipe in water. If that request is authorized, the Contractor shall undercut the existing bottom a minimum of six inches and replace with "bedding material" conforming to Crushed stone bedding material or clean 3/8 inch washed shell material of this section. This bedding material shall be tamped and consolidated to provide a solid and unyielding base for the pipe. During this operation, the Contractor shall continue the dewatering process to facilitate adequate installation of the pipe or structure and to permit observation of the process by the County's representative. The additional undercut excavation, crushed stone or clean washed shell bedding, and other associated costs shall be at the Contractor's expense and no extra compensation will be allowed.

Backfilling of pipe trenches shall be done in three stages as follows:

First Stage: Material above the bedding and beneath the haunches compacted in six-inch layers.

Second Stage: Material along the sides of the pipe up to at least one foot above the top of the pipe compacted in six-inch layers.

Third Stage: Material above the second stage up to the bottom of the subgrade or the finished surface as applicable compacted in 12-inch layers.

Backfilling of structures shall be done in 12- inch compacted layers up to the top of the completed or partially completed structure. Materials used for backfilling shall comply with the requirements of Select fill and Common fill of this section or as otherwise authorized in writing by the County (or designee). For backfilling of pipe, "Select Fill" shall be used for the first and second stages. "Common Fill" shall be used for the third stage of pipe backfill and for backfilling structures.

The compaction requirements for backfilling pipe trenches and around structures are listed below under the following categories. These requirements are the minimum percentages of the maximum density determined by the "Modified Proctor Density" (ASTM D 1557).

- Under and adjacent (within ten feet) to pavement shall be 95 percent except within three feet of bottom of subbase grade it shall be 98 percent.

- Not under pavement: Any area outside the 10 feet referred to above shall be 95% for all stages.

- Under and adjacent (within ten feet) to structures shall be 95 percent except within three feet of finished grade it shall be 98 percent.

The Contractor shall add water or dry out the material used for backfilling until the moisture content is within two percent of the optimum moisture required to achieve the maximum compaction.

A density test shall be taken for each 300 lineal foot section of trench or part thereof for each layer.

A density test shall be taken for every other layer for each structure.

Pipe and accessories shall be loaded and unloaded by lifting with hoists or skidding in a manner that will avoid shock or damage. Under no circumstances shall such materials be dropped. Pipe handled on skidways shall not be skidded or rolled against pipe already on the ground. In distributing material at the site of the work, each piece shall be off loaded near the place where it is to be laid in the trench.

Laying of pipe in finished trenches shall be commenced at the lowest point, and shall progress up-grade. All pipe shall be carefully laid, true to the lines and grades given, with hubs upgrade and tongue end fully entered into the hub. When pipe with quadrant reinforcement or circular pipe with elliptical reinforcement is used, pipe shall be installed in a position such that manufacturer's marks designating "top" and "bottom" of the pipe shall not be more than five degrees from the vertical plane through the longitudinal axis of the pipe. Any pipe that is not in true alignment or which shows any settlement after laying shall be taken up and re-laid without additional compensation. Pipe and joints shall be kept clean at all times.

In general, corrugated metal pipe shall be installed in accordance with the Handbook for Steel Drainage and Highway Construction Products, published by the American Iron and Steel Institute. In general, concrete pipe shall be installed in accordance with the Concrete Pipe Installation Manual, published by the American Concrete Pipe Association.

Corrugated polyethylene pipe shall be joined by split corrugated couplings at least seven corrugations wide and exceeding soil tightness requirements of the AASHTO Standard Specifications for Highway Bridges Section 23 (2.23.2). Unless otherwise specified by the Engineer, a mastic type gasket shall be utilized. Corrugated polyethylene pipe shall be installed in accordance with ASTM 2321 specifications.

Where the plans and specifications call for sand cement construction, bags shall be made of burlap. Paper bags will not be permitted.

Pipe End Treatments

Where storm drains connect to a pond, location of the headwall or end section shown on the Construction Plans shall be adjusted to fit the slope of the pond bank. Length of pipe at each end treatment shall be adjusted accordingly, and the quantity of pipe paid for shall be the actual length installed.

If mitered ends are called for on the plans, mitered end section shall be constructed so that the top of the pipe end will match and intersect the designed slope of the pond bank, and the concrete collar slope shall conform to the mitered end detail.

Contractor shall coordinate the location and installation of the headwall or mitered end section to be constructed at the pond bank. All "field adjustments" to end treatment location or elevation shall be approved by the Project Engineer prior to construction.

Placing of Concrete for Structures
Concrete shall be deposited in clean wet form as nearly as practicable in its final position to avoid segregation. Concrete placing shall be carried on at such a rate that the concrete is, at all times, plastic and flows readily into the spaces between the bars. Concreting shall be a continuous operation until the panel or section is completed. Walls and slabs shall be poured monolithically unless shown otherwise on the plans. All structural concrete shall be mechanically vibrated.

No concrete shall be allowed a free fall of more than four feet or allowed to strike against a vertical or inclined surface or reinforcement above point of deposit. Placing by means of pumping may be allowed, contingent upon the adequacy of the equipment for this particular work. The operation of the pump shall be such that a continuous stream of concrete without air pockets is produced.

Placing of concrete shall be regulated so the pressure caused by wet concrete shall not exceed that used in the design of the forms. After the concrete has taken its initial set, care shall be exercised to avoid jarring the forms or placing any strain on the ends of projecting reinforcement.

Joints between the junction box and manhole walls and incoming and outgoing pipes shall be sealed with Portland Cement Mortar to form a watertight joint. All pipes in manholes or catch basins shall be sawed off flush with the inside face of the structure and sawed ends of these pipes shall be grouted with Portland Cement Mortar to a smooth uniform covering with no steel exposed.

Final Inspection of Storm Water System
Each storm sewer, upon completion, or at such time as the Project Engineer may direct, is to be cleaned and inspected. All repairs or alterations shown necessary by these inspections shall be made; all broken or cracked pipe removed; all excessive infiltration or exfiltration corrected; all deposits in pipe and catch basins removed; and the storm sewer left clean, true to line and grade and ready for use. Each section of pipe from catch basin to catch basin is to show a full circle of light from either end. Each catch basin shall be to the specified form and size, to the proper depth and watertight.

Bottom Treatment Underdrain
Contractor shall install bottom treatment underdrain in accordance with specifications shown in the Typical Bottom Treatment Underdrain detail, Cleanout Detail for Single Underdrain Filter System, and elevations as shown on the Construction Plans. Contractor shall have the filter material that will be used in construction of the underdrain treatment unit tested at a certified independent laboratory for the parameters listed for the Type "A" Aggregate as specified in the Typical Bottom Treatment Underdrain detail on Sheet 32 of the Construction Plans. Contractor shall provide Project Engineer and County with the certified laboratory test results showing the tested material meets the required specifications for uniformity coefficient, effective grain size, sieve analysis, percent silts, clays, and organic matter, and permeability test (constant head). Contractor shall also provide Project Engineer and County certification that the filter media used in construction of the treatment system is of the same source as the material used for the certified laboratory test and that the material meets the specification requirements.

Adjusting Existing Structures
Existing manholes, catch basins, inlets, conflict boxes, monument boxes, etc., within the limits of the proposed work, that do not conform to the finished grade of the proposed pavement, or to the finished grade designated on the Construction Plans for

such structures, shall be cut down or extended, and made to conform to the grade of the new pavement, or to the designated grade of the structure if outside of the proposed pavement area. The materials and construction methods for this work shall conform to the requirements specified above.

Restoration
Existing surfaces or property improvements damaged during the construction of work specified in this section shall be restored to finished grade and condition as per the Construction Plans.

D.1.9.4 PAYMENT

All work specified under this section shall be paid for under the Unit Price Pay Items under the DRAINAGE STRUCTURES section of the Bid Form at the indicated schedule:

ITEM D.1.9.1.1	Type "C" Inlet
ITEM D.1.9.1.2	Type "C" Inlet Control Structure w/ Skimmer
ITEM D.1.9.1.3	12" PCP
ITEM D.1.9.1.4	18" PCP
ITEM D.1.9.1.5	24" PCP
ITEM D.1.9.1.6	36" PCP
ITEM D.1.9.1.7	15" RCP
ITEM D.1.9.1.8	12" MES (includes rip-rap)
ITEM D.1.9.1.9	15" MES (includes rip-rap)
ITEM D.1.9.1.10	6" Treatment Underdrain System (Complete)
ITEM D.1.9.1.11	Underdrain Cleanout

D.1.10 SHELL TRAILS (COMPLETE)

D.1.10.1 DESCRIPTION OF WORK

The work included in this Section shall consist of furnishing all equipment, labor, materials, surveying, and testing necessary to prepare the work area for construction (including but not limited to: clearing and grubbing and proper disposal of debris) and complete the construction of the proposed shell trails per the Construction Plans and in accordance with County requirements.

Contractor shall notify all utility companies or utility owners, both public and private, of their intent to perform such work and coordinate field location of utility lines prior to commencement of construction. Locating existing aboveground or underground utilities and protection of these facilities shall be the responsibility of the Contractor. In the event of any utility conflict, the Contractor shall immediately inform the utility company, the County and the Project Engineer of the conflict. Contractor shall at Contractor's expense be responsible for the repair of any utilities damaged during construction.

The shell trails are to be staked by the Contractor and field reviewed by County (or designee) prior to any other work on the shell trails. The shell trail alignment will be revised and field staked by or under the supervision of County (or designee). Contractor shall be responsible for obtaining the field adjusted shell trail alignment and submitting a CAD file of the adjusted shell trail alignment to County as part of the Record Drawings.

The entire width of approved alignment of Shell Trails shall be cleared and grubbed. All trees, brush, stumps, and other such protruding objects shall be removed from

within the limits of the trail width and properly disposed of by the Contractor to prepare the area for the proposed construction activities.

The soil beneath the proposed shell trail path shall be thoroughly compacted by the use of a smooth drum vibratory roller or other method approved by the County. Unless otherwise noted on the Construction Plans, proposed fill shall be compacted in 12 inch lifts-maximum to 95% Maximum Density in accordance with AASHTO T-180. The surface of the Shell Trails shall consist of a 4" layer (finished thickness after finished grading and rolling) of bank run shell rolled in place.

Upon completion of finished grading, the Contractor's Surveyor shall provide preliminary as-built project drawings and CAD file of the constructed features of the Shell Trails to the Project Engineer and the County for review and approval confirming adherence with the Construction Plans.

The Contractor's Surveyor shall also provide accurate, detailed and complete signed and sealed record drawings (10 sets) of the Shell Trails, and one CD containing CAD files of all record drawing sheets to the Project Engineer and the County. The record drawings shall be signed and sealed by a Florida registered Land Surveyor. The record drawings shall meet or exceed the requirements of FDEP and Manatee County.

The Contractor shall take the necessary precautions to prevent erosion and rutting of trail surfaces before and after finished grading. Any erosion of whatever consequence shall be repaired at the expense of the Contractor until final acceptance of the project.

D.1.10.2 PAYMENT

All work specified under this section shall be paid for under the Lump Sum / Unit Price Pay Items for SHELL TRAILS (COMPLETE) on the Bid Form at the indicated schedule:

ITEM D.1.10.1.1	Trail Stake-out and As-builts
ITEM D.1.10.1.2	Shell Trails – 4" Bank Run Shell
ITEM D.1.10.1.3	Shell Maintenance Trail – 4" Bank Run Shell
ITEM D.1.10.1.4	Kayak Storage Area - 4" Bank Run Shell

D.1.11 ASPHALT TRAIL (COMPLETE) (Addendum #2)

D.1.11.1 DESCRIPTION OF WORK

The work included in this Section shall consist of furnishing all equipment, labor, materials, surveying, testing and incidentals necessary to prepare the work area for construction (including but not limited to: clearing, grubbing and proper disposal of debris) and complete the construction of the proposed asphalt trail segments per the Construction Plans and in accordance with County requirements.

Contractor shall notify all utility companies or utility owners, both public and private, of their intent to perform such work and coordinate field location of utility lines prior to commencement of construction. Locating existing aboveground or underground utilities and protection of these facilities shall be the responsibility of the Contractor. In the event of any utility conflict, the Contractor shall immediately inform the utility company, the County and the Engineer of the conflict. Contractor shall at Contractor's expense be responsible for the repair of any utilities damaged during construction.

The asphalt trail segments are to be staked by the Contractor and field reviewed by County (or designee) prior to any other work on the asphalt trail. The asphalt trail alignment will be revised and field staked by or under the supervision of County (or

designee). Contractor shall be responsible for obtaining the field adjusted asphalt trail alignment and submitting a CAD file of the adjusted asphalt trail alignment to County for review and approval prior to proceeding with construction of the asphalt trails.

The entire width of approved alignment of Asphalt Trail shall be cleared and grubbed. All trees, brush, stumps, and other such protruding objects shall be removed from within the limits of the trail width and properly disposed of by the Contractor to prepare the area for the proposed construction activities.

The soil beneath the proposed asphalt trail path shall be thoroughly compacted by the use of a smooth drum vibratory roller or other method approved by the County. Unless otherwise noted on the Construction Plans, proposed fill shall be compacted in 12 inch lifts-maximum to 95% Maximum Density in accordance with AASHTO T-180.

Before other construction operations are begun, the areas to be paved shall be graded and shaped as required to construct the cement treated base in conformance with the grades, lines, thicknesses and typical cross-sections shown on the plans. Any additional soil needed shall be placed as directed by the Project Engineer. The subgrade shall be firm and able to support without displacement the construction equipment and compaction hereinafter specified. Any unsuitable soil or materials, including material retained on a three-inch sieve, shall be removed and replaced with acceptable material. Soft or yielding subgrade shall be corrected and made stable before construction proceeds.

The subgrade in both cuts and fills shall be compacted to density of 95 percent of the maximum density as determined by AASHTO T-180 (modified). The subgrade shall be shaped prior to making the density tests. Test results of subgrade density shall be provided to the Project Engineer for review prior to the construction of the base material.

The base material specified on the drawings shall be the basis for the bid.

Cement treated base shall be designed and constructed in general accordance with Manatee County Standards. (Manatee County Department of Public Works Specification No. 403.1)

The construction of the cement-treated base shall be in general accordance with FDOT Specification Section 270.

The subgrade is to be compacted to minimum 95 percent AASHTO T-180 density. The subgrade to be constructed of material having a minimum LBR of 40 unless otherwise noted.

The cement treated base is to have a minimum laboratory cured field mix seven-day compressive strength of 200 psi by bag sample.

Shell material shall be mixed with a minimum cement content by weight of two percent, but not to exceed 4%. The intent of a two percent mix is not primarily to generate strength but to enhance a shell base with the resiliency and water resistance characteristics of soil cement, without generating the problematic cracking characteristics generally associated with normal soil cement mixes. Therefore, the Contractor is instructed to generate a mix capable of achieving a field test seven-day compressive strength in the range of 200 psi to 300 psi by bag sample.

Shell material shall have a minimum LBR of 90 prior to mixing with cement, unless otherwise noted.

Any area represented by a 400 psi seven-day break or greater is subject to rejection by the County or the County's representative after observation, evaluation and testing. Values from 300 psi to 400 psi shall be subject to review and comparison to the design mix.

It should be noted that the moisture content, rapidity of compaction effort and final compaction results have as much, if not more, influence on the compressive strength as does the cement content. In order to give the Contractor a referenced acceptance standard, lower and upper values of 200 psi and 300 psi have been established. These values are also given some subjective leeway in the inspection of the final product.

All material shall be collected by the sack method, transported to lab in sealed/moisture retaining enclosure and tested within two hours of field sampling.

Tests are a necessary part of cement treated base construction. The following tests will be made by the laboratory:

a. All testing and inspection shall be performed by an independent laboratory approved by the Project Engineer.

b. The Contractor shall make available all materials to the laboratory for the purpose of performing routine tests as specified. This includes samples for soil cement mixture design, maximum density determination, sieve analysis or other tests as directed by the Project Engineer.

c. The pills cast from project operations must break at 200 psi or higher at seven days.

d. Cores may be taken at 14 days to provide additional information regarding a cement-treated base.

e. Compressive strength tests on cores should verify that the base has achieved a minimum in-situ strength of 150 psi before the asphalt concrete surface course is placed. All cores shall be six inches in diameter.

f. In-place density tests shall be made in the subgrade and base course. Frequency of testing shall be at least one test for every 500 linear feet of pavement. A minimum of two strength test value specimens shall be taken each day (one in the morning and one in the afternoon).

g. Test results shall be reported in writing to the County, Project Engineer, and Contractor.

h. The costs of all tests shall be borne by the Contractor.

The Contractor shall maintain the base to a true and satisfactory surface until the wearing surface is constructed. Should any repairs of patching be necessary, they shall extend to the full depth of the base and shall be made in a manner that will assure restoration of a uniform base course conforming to the requirements of these specifications. In no case shall repairs be made by adding a thin layer of cement treated base to the completed work. The Contractor may, at his option, make full-depth repairs with concrete to small or minor areas such as manholes, inlets or the like.

The prime and tack coat work consists of applying bituminous materials on a previously prepared base in accordance with these specifications and in conformity with the lines, grades, dimensions and notes shown on the plans.

For the prime and tack coat, any one of the following types or grades of prime and tack materials may be used at the option of the Contractor unless a particular type and grade are called for on the plans.

Prime Coat

a. Cutback Asphalt, Grade RC-70 or RC-250.
b. Emulsified Asphalt, Grade RS-2, SS-1, SS-1H or Special MS.

Tack Coat

a. Emulsified Asphalt, Grade S, RS-2, AE-90, SS-1, SS-1H or Special MS.

The work in this section also consists of the application of hot bituminous mixtures of the type and thickness specified on the construction plans which shall be composed of a mixture of aggregate, mineral filler (if necessary to produce the desired stability hereinafter described), and asphalt cement.

The application of hot bituminous mixtures shall be properly placed upon a prepared base of the type called for on the construction plans in accordance with lines, grades, thickness, and typical section(s) shown including the conditioning of existing surface or base.

Except for friction courses and base courses, the hot bituminous mixture shall be of the type called for on the construction plans and shall conform to hot mix design criteria as outlined in the latest edition of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Limitation of Operations

The mixture shall be spread only when the air temperature (in the shade) is above 40° Fahrenheit and rising.

The temperature of the mixture at the time of spreading shall be within 25° Fahrenheit of the temperature set by the Project Engineer for this stage of the operation. The temperatures thus set by the Project Engineer shall be between 250° Fahrenheit and 340° Fahrenheit.

Any mixture caught in transit by a sudden rain may be laid only at the Contractor's risk. Should such mixture prove unsatisfactory, it shall be removed and replaced with satisfactory mixture at the Contractor's expense. In no case shall the mixture be laid while rain is falling or when there is water on the surface to be covered.

Joints

Transverse joints: Placing of the mixture shall be as continuous as possible and the roller shall not pass over the unprotected end of the freshly laid mixture except when the laying operation is to be discontinued long enough to permit the mixture to become chilled. When the laying operation is thus interrupted, or laying operation is to commence from a cold joint, a transverse joint shall be construction by cutting back on the previous run to expose the full depth of the mat.

Longitudinal joints: Where only a portion of the width of pavements is to be laid, the exposed edge shall be vertical. If traffic has rolled over the edge the Project

Engineer may require the rolled edge trimmed back to a vertical face prior to construction the adjacent strip.

General: When the fresh mixture is laid against the exposed edges of joints (trimmed or formed) it shall be placed on close contact with the exposed edge so that an even, well compacted joint will be produced after rolling without having an open joint or unlevel surface condition.

Layered placement of hot bituminous mixture shall be accomplished to cause longitudinal joints to be offset 6 to 12 inches laterally between successive layers.

Finished Surface Requirements

For the purpose of testing the finished surface, the Contractor shall provide a 15-foot straight edge and a standard template cut to the true cross-section of the road. These shall be available at all times during construction so that the Project Engineer may check the finished surface. The Contractor shall provide and designate some employee whose duty it is to use the straight edge and template in checking all rolled surface under the direction of the Project Engineer. The finished surface shall be such that it will not vary more than one-fourth inch from the 15-foot straight edge. Any irregularity of the surface exceeding the above limits shall be corrected.

The Contractor shall be responsible for obtaining a smooth surface on all pavement courses placed. The finished surface shall be of uniform thickness texture and compaction. The surface shall have no pulled, torn, loosened portions and shall be free of segregation, sand streaks, sand spots, ripples or roller marks, depressions that show up after initial rolling, and roller depressions. Any area of the surface which does not meet the foregoing requirements shall be corrected at the Contractor's expense.

Correction of unacceptable pavement or portion thereof shall be determined in one of the following methods, only if approved by the Project Engineer:

Remove and replace - if correction is made by removing and replacing the pavement, the removal must be for the full depth of the course and extend at least 50 feet on either side of the defective area, for the full width of the paving lane.

Overlaying - if correction is made by overlaying, the overlay shall cover the length of the defective area and taper uniformly to a feather edge thickness at a minimum distance of 50 feet on either side of the defective area and for the entire width of trail.

Compaction

The complete pavement will be accepted with respect to in-place density when the following criteria have been met:

Ninety-five percent of laboratory density (FM 1-T166) has been achieved.

Laboratory density (FM-T166) will be determined from a sample of the hot mix obtained in the field.

In-place density will be determined from field cores obtained during thickness evaluation.

Tests (Allowable Deficiencies - Thickness)

The average thickness of the compaction in-place mixture shall be determined as shown on the construction plans typical cross-section(s) for that particular trail(s) to be constructed. The pavement shall not be approved or accepted unless the following criteria have been met:

The compacted in-place pavement has not exceeded a deficiency of ¼ inch in thickness as determined by the measured depths of two-inch diameter cores taken at random at a rate of one every 500 SY.

Not more than 20 percent of the total cores taken for that trail (thickness and type) shall be deficient with no individual core exceeding the ¼-inch tolerance. Trail pavement indicating an average thickness of 1 inch shall not have an individual core of less than ¾-inch in-place thickness.

Core lengths shall not exceed the average pavement thickness by more than three-eighths inch and shall be calculated as the next lower thickness.

All testing required such as mixture, density, cores, etc. shall be the responsibility of the Contractor with the testing performed by an independent testing laboratory and testing results submitted to and approved by the Engineer.

Care to be Exercised

The Contractor shall use extreme care when applying prime coats, tack coats or laying the asphaltic concrete to insure the materials being applied do not come in contact with surface of adjacent structures such as but not limited to curb, inlets, etc., other than those surfaces designed for contact. Any material allowed to come in contact with surfaces other than those scheduled shall be cleaned by any method acceptable to the Project Engineer that does not destroy the function or aesthetic value of the structure. Any surface after cleaning that remains objectionable to the Project Engineer may result in removing and replacing the objectionable section. All removal, replacement or attempts to clean surfaces shall be at the Contractor's expense.

The Contractor shall use extreme care in using equipment adjacent to structures such as, but not limited to curbs, inlets, etc. to prevent damage to those structures such as roller scars, grader scars, etc. The Project Engineer may direct removal and replacement of those objectionable surfaces that have in his opinion destroyed the functional or aesthetic value of the structure. Cost of removal and replacement shall be at the Contractor's expense.

The Contractor shall make every effort to preserve the grade stakes until the job is completed. Destroyed or moved stakes shall be replaced at the Contractor's expense.

Upon completion of finished trail surface, the Contractor's Surveyor shall provide preliminary as-built project drawings and CAD file of the constructed features of the Asphalt Trails to the Engineer and the County for review and approval confirming adherence with the Construction Plans.

The Contractor's Surveyor shall also provide accurate, detailed and complete signed and sealed record drawings (10 sets) of the Asphalt Trail, and one CD containing CAD files of all record drawings sheets to the Project Engineer and the County. The record drawings shall be signed and sealed by a Florida registered Land Surveyor. The record drawings shall meet or exceed the requirements of FDEP and Manatee County.

The Contractor shall take the necessary precautions to prevent erosion and rutting on or adjacent to the trail surface before and after finished grading. Any erosion of whatever consequence shall be repaired at the expense of the Contractor until final acceptance of the project.

D.1.11.2 PAYMENT

All work specified under this section shall be paid for under the Lump Sum / Unit Price Pay Items for ASPHALT TRAIL (COMPLETE) on the Bid Form at the indicated schedule:

ITEM D.1.11.1.1 Trail Stake-out and As-builts
ITEM D.1.11.1.2 6" Cement Treated Base LBR 100
ITEM D.1.11.1.3 1" Asphaltic Concrete Type S-III

D.1.12 PARKING AREA & DRIVE (Addendum #2)

D.1.12.1 DESCRIPTION OF WORK

The work included in this Section shall consist of furnishing all equipment, labor, materials, surveying, testing and incidentals necessary to prepare the work area for construction (including but not limited to: clearing, grubbing and proper disposal of debris) and complete the construction of the Phase II portion of the Parking Area & Drive (excluding asphalt pavement and concrete sidewalks) per the Construction Plans and in accordance with County requirements.

Contractor shall notify all utility companies or utility owners, both public and private, of their intent to perform such work and coordinate field location of utility lines prior to commencement of construction. Locating existing aboveground or underground utilities and protection of these facilities shall be the responsibility of the Contractor. In the event of any utility conflict, the Contractor shall immediately inform the utility company, the County and the Project Engineer of the conflict. Contractor shall at Contractor's expense be responsible for the repair of any utilities damaged during construction.

The entire work area for the Parking Area & Drive shall be cleared and grubbed. All trees, brush, stumps, and other such protruding objects shall be removed from within the limits of the work area and properly disposed of by the Contractor to prepare the area for the proposed construction activities.

The soil beneath the proposed Parking Area & Drive shall be thoroughly compacted by the use of a smooth drum vibratory roller or other method approved by the County. Unless otherwise noted on the Construction Plans, proposed fill shall be compacted in 12 inch lifts-maximum to 95% Maximum Density in accordance with AASHTO T-180.

The stabilized subgrade work shall consist of bringing the bottom of excavations and top of embankments of the roadway between the outer limits of the paving or base course to a surface conforming to the grades, lines and cross-sections shown on the Construction Plans, and to a uniform density.

All soft and yielding material and other portions of the subgrade which will not compact readily shall be removed and replaced with suitable material and the whole subgrade brought to line and grade, allowing for subsequent compaction.

All submerged stumps, roots or other organic matter encountered in the preparation of the subgrade shall be removed.

The subgrade shall be stabilized to the minimum Bearing Ratio and depth shown on the plans. LBR tests shall be taken per each 1,500 SY area or per each 1,500 feet of roadway, whichever is less. If the natural in-place soils do not meet the required stability, sufficient borrow material for stabilization shall be uniformly mixed with in-place soils to produce the load Bearing Ratio. Material used for stabilization must be specifically approved for usage. Borrow material shall be included in the cost of subgrade bid item.

The stabilized subgrade in both cuts and fills shall be compacted to a density as determined by AASHTO T-180 (modified). The subgrade shall be shaped prior to making the density tests.

The subgrade shall be firm and able to support the construction equipment without displacement. The minimum density acceptable at any location will be 98 percent of the maximum density as determined by AASHTO T-180 (modified). Load Bearing Ratio determinations shall be made by the Limerock Bearing Ratio Method, Test Method D of AASHTO T-180 as modified by the Florida Department of Transportation's Research Bulletin 22-B, revised April, 1972. Soft or yielding subgrade shall be corrected and made stable before construction proceeds.

Density tests shall be made before work proceeds.

The required density shall be maintained until the base of pavement has been laid or until the aggregate materials for the base of pavement course have been spread in place.

After the subgrade has been prepared, and immediately before any base material is placed, the subgrade shall be tested for substantial compliance as to crown and elevation. Material shall be removed or added, as the condition necessitates, and again stabilized and compacted to bring all portions of the subgrade to the specified elevation, stability and density.

The crushed concrete base course work specified in this section consists of construction of a base course composed of crushed concrete conforming to the gradation and other requirements of Section 204-2 of the most recent FDOT Standard Specifications for Road and Bridge Construction. It shall be constructed on the prepared subbase in accordance with these specifications and in conformity with the lines, grades, notes and typical cross-sections shown on the plans. Where so shown on the plans, the base shall be constructed in two courses. Where the plans do not specify double-course base, the base may be constructed in either one or two courses. The base material specified on the drawings shall be the basis for the bid.

This work may be performed with any machine, combination of machine or equipment that will produce the specified results.

The crushed concrete shall be transported (over material previously spread) to the point where it is to be used. It shall then be dumped on the end of the preceding spread. In no case shall material be dumped directly on the subbase.

The crushed concrete shall be spread uniformly. All segregated areas of fine or coarse material shall be removed and replaced with well graded material. For double-course base, the material shall be spread 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 subbase.

For double course base, the first course shall be bladed if necessary to secure a uniform surface and shall be compacted to the density specified below immediately prior to spreading the second course. No other finishing of this course is required.

After spreading is completed, the entire surface shall be scarified and shaped so as to produce the exact grade and cross-section after compaction. For double-course bases, this scarifying shall extend to a depth sufficient to penetrate slightly the surface of the first course.

As soon as proper conditions of moisture are attained, the material shall be compacted to a density of 98 percent of the maximum density obtainable under AASHTO Method T-180 (modified). Where the base is being constructed in one course and the specified thickness is more than six inches, the density specified above shall be obtained in both the bottom half and the top half of the base. During final compacting operations, if blading of any areas is necessary to obtain the true grade and cross-section, the compacting operations for such areas shall be completed prior to making the density determinations on the finished base.

The surface shall be "hard-planed" with a blade grader immediately prior to the application of the prime coat to remove the tin-glazed or cemented surface, leaving a granular or porous condition that will allow free penetration of the prime material. The materials planed from the base shall be removed from the base area.

If, at any time, the subbase material should become mixed with the base course material, the Contractor shall excavate and remove the mixture. Contractor shall reshape and compact the subgrade, and replace the materials removed with clean base material. The clean base material shall then be shaped and compacted as specified above.

The finished surface of the base course shall be checked with a templet cut to the required cross-section and with a 15 foot straight edge laid parallel to the centerline of the road or other approved testing devices. All irregularities greater than ±1/4 inch shall be corrected by scarifying and removing or adding rock, as may be required, after which the entire areas shall be re-compacted as specified herein. On every project at least one of each of the following density tests shall be made by the laboratory at intervals not exceeding 500 SY unless otherwise specified.

a. Modified Proctor Maximum Density Determination Tests. Tests shall be taken per each 500 SY maximum area.

b. Field In-Place Density Tests.

After the base is completed, test holes shall be dug or cores taken at intervals of not more than 500 SY, or at closer intervals if necessary. Where the base is deficient in thickness, the area covered by this deficient base shall be reworked by scarifying to a depth of at least three inches and adding more base material, so that after proper compacting the thickness will conform to the plans.

All tests shall be performed by an independent testing laboratory, approved by the Project Engineer. The testing laboratory shall be under the direction of a Professional Engineer with at least five years of materials testing experience.

The Contractor shall make every effort to preserve the grade stakes until the job is completed. Destroyed or moved stakes shall be replaced at the Contractor's expense.

For the prime and tack coat, any one of the following types or grades of prime and tack materials may be used at the option of the Contractor unless a particular type and grade are called for on the plans.

Prime Coat

a. Cutback Asphalt, Grade RC-70 or RC-250.
b. Emulsified Asphalt, Grade RS-2, SS-1, SS-1H or Special MS.

Tack Coat

a. Emulsified Asphalt, Grade S, RS-2, AE-90, SS-1, SS-1H or Special MS.

This application of the prime and tack coat may be performed with any machines, combination of machines, or equipment that will produce the specified results.

Before any bituminous material is applied, all loose material, dust, caked clay and foreign materials which might prevent proper bond with existing surface shall be moved to the shoulders. Particular care shall be taken to clean the outer edges of the strip to the treated in order to insure that the tack coat will adhere. Where the prime or tack coat is applied adjacent to the curb and gutter or valley gutter, such concrete surfaces are to be protected and kept free of bituminous material.

No bituminous material shall be applied when the temperature of the air is less than 40° Fahrenheit in the shade, or when the weather conditions or the condition of the existing surface is unsuitable.

The surface to be primed shall be clean and contain optimum moisture. The temperature of the prime material shall be between 100° and 150° Fahrenheit. The exact temperature shall be such as will insure uniform distribution. The material shall be applied by means of a pressure distributor.

The amount of bituminous material applied shall be at the rate of approximately 0.10 to 0.25 gallons per square yard, dependent upon the type of base materials. The rate of application shall be sufficient so as to coat the surface thoroughly and uniformly without having any excess to form pools or to flow off the base. A light, uniform application of clean sand shall be applied prior to opening the primed base to traffic. To cure the prime coat in such cases, the sand shall be rolled with a traffic roller in conjunction with traffic. If warranted by traffic conditions, the application shall be made only on one-half of the width of the base at one time, care being taken to secure the correct amount of

bituminous material at the joint. The base shall be sufficiently moist in order to obtain maximum penetration of the asphalt.

Where a bituminous surface is to be laid and a tack coat is required, both shall be applied as herein specified. On newly constructed base courses, the application of the tack coat (when one is required) shall follow the application of the prime coat, immediately before the wearing surface is applied. In general, a tack coat will not be required on primed bases, except in areas which have become excessively dirty and cannot be cleaned, or in areas where the prime has cured and lost bonding effect. The tack coat shall be applied with a pressure distributor. The bituminous material shall be heated to a suitable consistency as designated. The bituminous material shall be applied only in the amount necessary to bond the wearing surface to the base. The rate of application shall be between 0.02 and 0.08 gallons per square yard or as designated by the Project Engineer. The tack coat shall be applied sufficiently in advance of the wearing surface to permit drying. However, it shall not be applied so far in advance or over such an area as to lose its adhesiveness as a result of being covered with dust or other foreign material. The tack coat shall be kept free from traffic until the wearing surface is laid.

The work in this section also consists of the application of hot bituminous mixtures of the type and thickness specified on the construction plans which shall be composed of a mixture of aggregate, mineral filler (if necessary to produce the desired stability hereinafter described), and asphalt cement for the access drive, parking drive aisles, and handicap spaces.

The application of hot bituminous mixtures shall be properly placed upon a prepared base of the type called for on the construction plans in accordance with lines, grades, thickness, and typical section(s) shown including the conditioning of existing surface or base.

Except for friction courses and base courses, the hot bituminous mixture shall be of the type called for on the construction plans and shall conform to hot mix design criteria as outlined in the latest edition of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Limitation of Operations

The mixture shall be spread only when the air temperature (in the shade) is above 40° Fahrenheit and rising.

The temperature of the mixture at the time of spreading shall be within 25° Fahrenheit of the temperature set by the Project Engineer for this stage of the operation. The temperatures thus set by the Project Engineer shall be between 250° Fahrenheit and 340° Fahrenheit.

Any mixture caught in transit by a sudden rain may be laid only at the Contractor's risk. Should such mixture prove unsatisfactory, it shall be removed and replaced with satisfactory mixture at the Contractor's expense. In no case shall the mixture be laid while rain is falling or when there is water on the surface to be covered.

Joints

Transverse joints: Placing of the mixture shall be as continuous as possible and the roller shall not pass over the unprotected end of the freshly laid mixture except when the laying operation is to be discontinued long enough to permit the mixture to become chilled. When the laying operation is thus interrupted, or laying operation is to commence from a cold joint, a transverse joint shall be construction by cutting back on the previous run to expose the full depth of the mat.

Longitudinal joints: Where only a portion of the width of pavements is to be laid, the exposed edge shall be vertical. If traffic has rolled over the edge the Project Engineer may require the rolled edge trimmed back to a vertical face prior to construction the adjacent strip.

General: When the fresh mixture is laid against the exposed edges of joints (trimmed or formed) it shall be placed on close contact with the exposed edge so that an even, well compacted joint will be produced after rolling without having an open joint or unlevel surface condition.

Layered placement of hot bituminous mixture shall be accomplished to cause longitudinal joints to be offset 6 to 12 inches laterally between successive layers.

Finished Surface Requirements

For the purpose of testing the finished surface, the Contractor shall provide a 15-foot straight edge and a standard template cut to the true cross-section of the road. These shall be available at all times during construction so that the Project Engineer may check the finished surface. The Contractor shall provide and designate some employee whose duty it is to use the straight edge and template in checking all rolled surface under the direction of the Project Engineer. The finished surface shall be such that it will not vary more than one-fourth inch from the 15-foot straight edge. Any irregularity of the surface exceeding the above limits shall be corrected.

The Contractor shall be responsible for obtaining a smooth surface on all pavement courses placed. The finished surface shall be of uniform thickness texture and compaction. The surface shall have no pulled, torn, loosened portions and shall be free of segregation, sand streaks, sand spots, ripples or roller marks, depressions that show up after initial rolling, and roller depressions. Any area of the surface which does not meet the foregoing requirements shall be corrected at the Contractor's expense.

Correction of unacceptable pavement or portion thereof shall be determined in one of the following methods, only if approved by the Project Engineer:

Remove and replace - if correction is made by removing and replacing the pavement, the removal must be for the full depth of the course and extend at least 50 feet on either side of the defective area, for the full width of the paving lane.

Overlaying - if correction is made by overlaying, the overlay shall cover the length of the defective area and taper uniformly to a feather edge thickness at a minimum distance of 50 feet on either side of the defective area and for the entire width of roadway.

Compaction

The complete pavement will be accepted with respect to in-place density when the following criteria have been met:

Ninety-five percent of laboratory density (FM 1-T166) has been achieved.

Laboratory density (FM-T166) will be determined from a sample of the hot mix obtained in the field.

In-place density will be determined from field cores obtained during thickness evaluation.

Tests (Allowable Deficiencies - Thickness)

The average thickness of the compaction in-place mixture shall be determined as shown on the construction plans typical cross-section(s) for that particular roadway(s) to be constructed. The pavement shall not be approved or accepted unless the following criteria have been met:

The compacted in-place pavement has not exceeded a deficiency of ¼ inch in thickness as determined by the measured depths of two-inch diameter cores taken at random at a rate of one every 500 SY.

Not more than 20 percent of the total cores taken for that roadway (thickness and type) shall be deficient with no individual core exceeding the ¼-inch tolerance. Roadway pavement indicating an average thickness of 1 inch shall not have an individual core of less than ¾-inch in-place thickness.

Core lengths shall not exceed the average pavement thickness by more than three-eighths inch and shall be calculated as the next lower thickness.

All testing required such as mixture, density, cores, etc. shall be the responsibility of the Contractor with the testing performed by an independent testing laboratory, testing results submitted to and approved by the Project Engineer.

Care to be Exercised

The Contractor shall use extreme care when applying prime coats, tack coats or laying the asphaltic concrete to insure the materials being applied do not come in contact with surface of adjacent structures such as but not limited to curb, inlets, etc., other than those surfaces designed for contact. Any material allowed to come in contact with surfaces other than those scheduled shall be cleaned by any method acceptable to the Project Engineer that does not destroy the function or aesthetic value of the structure. Any surface after cleaning that remains objectionable to the Project Engineer may result in removing and replacing the objectionable section. All removal, replacement or attempts to clean surfaces shall be at the Contractor's expense.

The Contractor shall use extreme care in using equipment adjacent to structures such as, but not limited to curbs, inlets, etc. to prevent damage to those structures such as roller scars, grader scars, etc. The Project Engineer may direct removal and replacement of those objectionable surfaces that have in his opinion destroyed the functional or aesthetic value of the structure. Cost of removal and replacement shall be at the Contractor's expense.

The work in this Section also consists of the installation of a final surface for the shell parking spaces consisting of a 4" layer (finished thickness after finished grading and

rolling) of bank run shell rolled in place and the installation of 12" of beach compatible sand (or approved alternate) for the kayak launch areas in accordance with the grade, lines and sections as shown on the Construction Plans. It shall also include the supply and installation of the wheel stops (and anchors), handicap parking space striping and signage, and crosswalk striping (thermoplastic) as shown on the Construction Plans.

The Contractor shall be responsible for all construction staking. The Contractor shall make every effort to preserve the grade stakes until the job is completed. Destroyed or moved stakes shall be replaced at the Contractor's expense.

Upon completion of finished Parking Area & Drive surfaces, the Contractor's Surveyor shall provide preliminary as-built project drawings and CAD file of the finished grade elevations of the Parking Area & Drive to the Project Engineer and the County for review and approval confirming adherence with the Construction Plans.

The Contractor's Surveyor shall also provide accurate, detailed and complete signed and sealed record drawings (10 sets) of the Parking Area & Drive, and one CD containing CAD files of all record drawings sheets to the Project Engineer and the County. The record drawings shall be signed and sealed by a Florida registered Land Surveyor. The record drawings shall meet or exceed the requirements of FDEP and Manatee County.

The Contractor shall take the necessary precautions to prevent erosion and rutting on or adjacent to the Parking Area & Drive surface before and after finished grading. Any erosion of whatever consequence shall be repaired at the expense of the Contractor until final acceptance of the project.

D.1.12.2 PAYMENT (Addendum #2)

All work specified under this section shall be paid for under the Lump Sum / Unit Price Pay Items for PARKING AREA & DRIVE on the Bid Form at the indicated schedule:

ITEM D.1.12.1.1	Stake-out and As-builts
ITEM D.1.12.1.2	¾" Asphaltic Concrete Type S-III (Initial Lift)
ITEM D.1.12.1.3	¾" Asphaltic Concrete Type S-III (Final Lift)
ITEM D.1.12.1.4	6" Crushed Concrete Base LBR 100
ITEM D.1.12.1.5	6" Stabilized Subgrade LBR 40
ITEM D.1.12.1.6	Shell Parking – 4" Bank Run Shell
ITEM D.1.12.1.7	8" Stabilized Subgrade LBR 40
ITEM D.1.12.1.8	Kayak Launch Sand (12" Depth)
ITEM D.1.12.1.9	Wheel Stops
ITEM D.1.12.1.10	Handicap Parking Signs
ITEM D.1.12.1.11	Handicap Striping (5 Spaces & 4 Loading Zones)
ITEM D.1.12.1.12	12" Wide Crosswalk (Thermoplastic)

D.1.13 PEDESTRIAN BRIDGES (Addendum #2)

D.1.13.1 DESCRIPTION OF WORK

The work included in this Section shall consist of furnishing all equipment, labor, materials, surveying, testing, design, and permitting necessary to prepare structural design plans and specifications certified by appropriate professional engineer for the twelve foot wide timber Pedestrian Bridge 2 and Pedestrian Bridge 3 and installation of same. The Florida Department of Protection (FDEP) approved location, dimensions, elevations and general details of the proposed Pedestrian Bridges are shown on the Construction Plans.

Contractor shall provide for acceptable bridge building services. Acceptable bridge building services are as follows:

1. Bridge Builders USA, Inc.
   1149 Shope Road
   Otto, NC 28763
   Phone: 800-874-9403
   Email: sales@bridgebuilders.com

2. Nature Bridges
   1586 Seven Bridges Road
   Monticello, FL 32344
   Phone: 850-997-8585
   Email: Santiago@NatureBridges.com

3. York Bridge Concepts
   2420 Brunello Trace
   Lutz, FL 33558
   Phone: 800-226-4178 or 813-482-0613
   Email: YBC@ybc.com

Contractor shall procure all necessary information about the site and soil conditions, including geotechnical testing necessary for structural design. All materials used in construction of Pedestrian Bridges shall be marine grade and as specified by Contractor's Pedestrian Bridge structural design plans and specifications.

Contractor shall provide County with preliminary Pedestrian Bridges structural design plans and specifications for review and approval prior to proceeding with final Pedestrian Bridges structural design plans and specifications.

Contractor is responsible for obtaining building permits and any submittals, costs, fees, taxes or other charges as required by state or local agencies related to the Pedestrian Bridges.

Contractor is responsible for having the Pedestrian Bridges inspected at commencement of pile setting and after construction is complete by appropriate professionals to provide for quality assurance. Contractor shall provide all geotechnical reports, pile driving reports, inspection reports and final record drawings certified by appropriate processionals for the Pedestrian Bridges for confirmation of adherence with the structural design plans and specifications to County for review and approval.

Contractor shall notify all utility companies or utility owners, both public and private, of their intent to perform such work and coordinate field location of utility lines prior to commencement of construction. Locating existing aboveground or underground utilities and protection of these facilities shall be the responsibility of the Contractor. In the event of any utility conflict, the Contractor shall immediately inform the utility company, the County and the Project Engineer of the conflict. Contractor shall at Contractor's expense be responsible for the repair of any utilities damaged during construction.

The Pedestrian Bridges are to be staked by the Contractor and field reviewed by County (or designee) prior to any other work on the Pedestrian Bridges. The Pedestrian Bridge alignments may be revised and field staked by or under the supervision of County (or designee) where impacts to ecological resources may be avoided. Contractor shall be responsible for obtaining the field adjusted Pedestrian Bridges

alignment and submitting a CAD file of the adjusted alignment to County for review and approval prior to proceeding with construction of Pedestrian Bridges.

Upon completion of construction, the Contractor shall provide accurate, detailed and complete certified record drawings (and one CD containing CAD files of all record drawing sheets) of the Pedestrian Bridges confirming adherence with the Construction Plans, structural design plans and specifications to the County for review and approval. Once approved, the Contractor shall also provide 10 sets of accurate, detailed and complete certified record drawings of the Pedestrian Bridges to the County. The record drawings shall be signed and sealed by a Florida registered Professional Engineer or Land Surveyor. The record drawings shall meet or exceed the requirements of the FDEP and Manatee County.

D.1.13.2 PAYMENT

All work specified under this section shall be paid for under the Lump Sum / Unit Price Pay Items for PEDESTRIAN BRIDGES on the Bid Form at the indicated schedule:

ITEM D.1.13.1.1	Structural Design, Inspection and Certification
ITEM D.1.13.1.2	Construction Surveying and Record Drawings
ITEM D.1.13.1.3	Pedestrian Bridge 2 and 3 (12' Width)

CONTRACT CONTINGENCY

Contract Contingency is a monetary allowance used solely at Owner's discretion to handle unexpected conditions as required to satisfactorily complete the Work in accordance with the solicitation documents. A written notice must be issued by an authorized Owner representative to authorize use of contract contingency funds.

Payment for all work under this Bid Item shall be made only at the County's discretion. This Bid Item shall not exceed 10% of the Bidders Total Base Bid. The Bidder shall calculate and enter a dollar amount for this Bid Item.

END OF SECTION D