



CONTRACT

BETWEEN

BROWARD COUNTY

AND

EMERALD CONSTRUCTION CORPORATION

FOR

LAUDERHILL MALL TRANSIT CENTER

BID/CONTRACT NO.: PNC2119699C1

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005200 CONTRACT

This is a Construction Contract ("Contract"), by and between Broward County, a political subdivision of the State of Florida ("County"), and Emerald Construction Corporation ("Contractor") (collectively referred to as the "Parties"), for the goods and services set forth herein.

IN CONSIDERATION of the mutual terms, conditions, promises, covenants, and payments hereinafter set forth, the Parties agree as follows:

ARTICLE 1 DEFINITIONS

For purposes of this Contract, reference to one gender shall include the other, use of the plural shall include the singular, and use of the singular shall include the plural. The following definitions and identifications set forth below apply unless the context in which the word or phrase is used requires a different definition. Whenever the following terms or pronouns in place of them appear in the Contract Documents, the intent and meaning shall be interpreted as follows:

- 1.1. **Bidder:** Any individual, firm, or corporation submitting a bid for this Project, acting directly or through a duly authorized representative.
- 1.2. **Board:** The Board of County Commissioners of Broward County, Florida, its successors and assigns.
- 1.3. **Change Order:** A written document ordering a change in the Contract Price or Contract Time or a material change in the Work.
- 1.4. **Consultant:** Architect or engineer who has contracted with County or who is an employee of County and provides professional services for this Project.
- 1.5. **Contract Administrator:** The ranking managerial employee of the agency of County government which requested the Project, or some other employee expressly designated as Contract Administrator in writing by said ranking managerial employee.
- 1.6. **Contract Documents:** The official documents setting forth bidding information, requirements, and contractual obligations for the Project and includes Articles 1 through 7 of this Contract, the Contract Supplement, the General Conditions, the Supplemental General Conditions, the Scope of Work, Invitation to Bid, Addenda, Standard Instructions for Vendors, Special Instructions for Vendors, Plans, Drawings, Exhibits, General Requirements, Technical Specifications, Bid Forms, Record of Award by Board, Bonds, Notice of Award, Notices(s) to Proceed, Supplements, Representations and Certifications, Certificates, Project Forms, Closeout Forms, Purchase Order(s), Change Order(s), Field Order(s), and any additional documents the submission of which is required by this Project.

- 1.7. Contract Price: The original amount established in the bid submittal and award by the Board, as may be amended by Change Order.
- 1.8. Contract Time: The original time between commencement and completion, including any milestone dates thereof, established in Article 3 of this Contract, as may be amended by Change Order.
- 1.9. Contractor: The person, firm, or corporation with whom Broward County has contracted and who is responsible for the acceptable performance of the Work and for the payment of all legal debts pertaining to the Work. All references in the Contract Documents to third parties under contract or control of Contractor shall be deemed to be a reference to Contractor.
- 1.10. Field Order: A written order which orders minor changes in the Work but which does not involve a change in the Contract Price or Contract Time.
- 1.11. Final Completion: The date certified by Consultant in the Final Certificate of Payment upon which all conditions and requirements of any permits and regulatory agencies have been satisfied; any documents required by the Contract Documents have been received by Consultant; any other documents required to be provided by Contractor have been received by Consultant; and to the best of Consultant's knowledge, information and belief the Work defined herein has been fully completed in accordance with the terms and conditions of the Contract Documents.
- 1.12. Materials: Materials incorporated in this Project or used or consumed in the performance of the Work.
- 1.13. Notice(s) to Proceed: Written notice to Contractor authorizing the commencement of the activities identified in the notice or as described in the Contract Documents.
- 1.14. Plans or Drawings: The official graphic representations of this Project that are a part of the Contract Documents.
- 1.15. Project: The construction project described in the Contract Documents, including the Work described therein.
- 1.16. Project Initiation Date: The date upon which the Contract Time commences.
- 1.17. Subcontractor: A person, firm or corporation having a direct contract with Contractor including one who furnishes material worked to a special design according to the Contract Documents, but does not include one who merely furnishes Materials not so worked.
- 1.18. Substantial Completion: That date, as certified in writing by Consultant and as finally determined by Contract Administrator in its sole discretion, on which the Work, or a portion thereof, is at a level of completion in substantial compliance with the Contract Documents such that all conditions of permits and regulatory agencies have been satisfied and the County or its

designee can enjoy use or occupancy and can use or operate it in all respects for its intended purpose. A Certificate of Occupancy (or a Temporary Certificate of Occupancy (TCO) or other alternate municipal/county authorization for limited or conditional occupancy acceptable to the Contract Administrator) must be issued for Substantial Completion to be achieved, however, the issuance of a Certificate of Occupancy or the date thereof are not to be determinative of the achievement or date of Substantial Completion.

1.19. Surety: The surety company or individual which is bound by the performance bond and payment bond with and for Contractor who is primarily liable, and which surety company or individual is responsible for Contractor's satisfactory performance of the Work under this Contract and for the payment of all debts pertaining thereto in accordance with Section 255.05, Florida Statutes.

1.20. Work: The construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by Contractor to fulfill Contractor's obligations. The Work may constitute the whole or a part of the Project.

ARTICLE 2 SCOPE OF WORK

Contractor hereby agrees to furnish all of the labor, materials, equipment, services, and incidentals necessary to perform all of the Work described in the Contract Documents and related thereto for the Project.

ARTICLE 3 CONTRACT TIME

3.1. Contractor shall be instructed to commence the Work by written instruction in the form of a Purchase Order issued by the County's Director of Purchasing and two or more Notices to Proceed issued by the Contract Administrator. The first Notice to Proceed and Purchase Order will not be issued until Contractor's submission to County of all required documents and after execution of this Contract by both Parties. Preliminary work, including submission of a project schedule, schedule of values, submittals, submittal schedule, and other documents required for permitting, and performance of work that does not require permits, shall be commenced within ten (10) calendar days after the date of the first Notice to Proceed. Contractor shall have ten (10) days after receipt of signed and sealed contract drawings from Consultant to apply for construction permits to the applicable permitting authority. Issuance of all permits by the permitting authority shall be a condition precedent to the issuance of a second Notice to Proceed for all other Work. Except for the reimbursement of permit application fees as may be provided in the Contract Documents, Contractor shall not be entitled to compensation of any kind during the permitting process. The Work to be performed pursuant to the second Notice to Proceed shall be commenced within ten (10) calendar days of the Project Initiation Date specified in the second Notice to Proceed.

3.2. Time is of the essence throughout this Contract. Contractor must obtain Substantial Completion of the Work within three hundred twenty-five (325) calendar days from the Project Initiation Date specified in the Second Notice to Proceed, and Final Completion within thirty (30) calendar days from the date of Substantial Completion.

3.3. Upon failure of Contractor to obtain Substantial Completion within the deadline stated in Section 3.2, plus approved time extensions, Contractor shall pay to County the sum of Four Hundred Fifty Dollars (\$450.00) for each calendar day after the deadline for Substantial Completion, plus any approved time extensions, until Substantial Completion is obtained. After Substantial Completion, should Contractor fail to complete the remaining Work within the deadline stated in Section 3.2, plus approved time extensions thereof, Contractor shall pay to County the sum of Four Hundred Fifty Dollars (\$450.00) for each calendar day after the deadline for Final Completion, plus any approved extensions, until Final Completion is obtained. These amounts are not penalties but are liquidated damages to County for its inability to obtain full beneficial occupancy of the Project. Liquidated damages are hereby fixed and agreed upon between the Parties, recognizing the impossibility of precisely ascertaining the amount of damages that will be sustained by County as a consequence of such delay, and both Parties desiring to obviate any question of dispute concerning the amount of said damages and the cost and effect of the failure of Contractor to complete this Contract on time.

The above-stated liquidated damages shall apply separately to each portion of the Project for which a deadline for completion is given.

3.4. County is authorized to deduct liquidated damages from monies due to Contractor for the Work under this Contract or as much thereof as County may, in its sole discretion, deem just and reasonable.

3.5. Contractor shall be responsible for reimbursing County, in addition to liquidated damages, for all costs incurred by Consultant in administering the construction of the Project beyond the completion date specified above, plus approved time extensions. Consultant construction administration costs shall be pursuant to the contract between County and Consultant, a copy of which is available upon request of the Contract Administrator. All such costs shall be deducted from the monies due Contractor for performance of Work under this Contract by means of unilateral credit Change Orders issued by County as costs are incurred by Consultant and agreed to by County.

ARTICLE 4 CONTRACT SUM

4.1. This is a Unit Price Contract:*

4.1.1. County shall pay to Contractor the amounts determined for the total number of each of the units of work completed at the unit price stated in the schedule of prices bid. The number of units contained in this schedule is an estimate only, and

final payment shall be made for the actual number of units incorporated in or made necessary by the Work covered by the Contract Documents.

- 4.1.2. Payment shall be made at the unit prices applicable to each integral part of the Work. These prices shall be full compensation for all costs, including overhead and profit, associated with completion of all the Work in full conformity with the requirements as stated or shown, or both, in the Contract Documents. The cost of any item of Work not covered by a definite Contract unit price shall be included in the Contract unit price or lump sum price to which the item is most applicable.

4.2. This is a Lump Sum Contract:*

- 4.2.1. County shall pay to Contractor for the performance of the Work described in the Contract Documents, the total price stated as awarded.

- 4.2.2. Payment shall be at the lump sum price stated in this Contract. This price shall be full compensation for all costs, including overhead and profit, associated with completion of all the Work in full conformity with the requirements as stated or shown, or both, in the Contract Documents. The cost of any item of Work not covered by a definite Contract lump sum should be included in the lump sum price to which the item is most applicable.

***Note:** Only the subsections corresponding to any checked box in this Article 4 will apply to this Contract. Some Projects include both unit prices and lump sums, in which case all subsections shall apply as appropriate depending upon the type of Work being performed by Contractor and approved by County.

ARTICLE 5 PROGRESS PAYMENTS

5.1. Contractor may make Application for Payment for Work completed during the Project at intervals of not more than once a month. Contractor shall, where the Project involves Broward County Business Enterprise ("CBE") subcontractors, make Application for Payment for Work completed by such subcontractors during the Project at monthly intervals. Contractor's application shall show a complete breakdown of the Project components, the quantities completed, and the amount due, together with such supporting evidence as may be required by Consultant or Contract Administrator. Contractor shall submit with each Application for Payment an updated progress schedule acceptable to Consultant as required by the Contract Documents, a Certification of Payments to Subcontractors Form (007500-9), a statement indicating the cumulative amount of CBE participation to date, and a release of claims relative to the Work which was the subject of previous applications or consent of surety relative to the Work which is the subject of the Application. The Certification of Payments to Subcontractors Form shall be accompanied by a copy of the notification sent to each Subcontractor (listed in Item 2 of the Form), explaining the good cause why payment has not been made. When applicable, an

Application for Payment shall be accompanied by a completed Statement of Wage Compliance Form (007500-8). Each Application for Payment shall be submitted in triplicate to Consultant for approval as follows:

Saltz Michelson Architects
3501 Griffin Road,
Fort Lauderdale, Florida 33312
(954) 266-2700

All such applications for payment (hereinafter "Invoices") shall be stamped as received on the date on which it is delivered above. Payments of Invoices shall be subject to approval as specified hereinbefore and if approved, shall be due 25 business days after the date on which the Invoice is stamped received. At the end of the 25 business days, the Contractor may send the Contract Administrator an overdue notice. If the Invoice is not rejected within 4 business days after delivery of the overdue notice, the Invoice shall be deemed accepted, except for any portion of the Invoice that is fraudulent or misleading. If the Invoice does not meet the requirements of this Contract, the County shall reject the invoice within 20 business days after the date stamped received and said rejection shall specify the deficiency and the action necessary to make the Invoice proper. If the Contractor submits a request that corrects the deficiency, the corrected Invoice must be paid or rejected within ten business days after the corrected Invoice is stamped as received. If the dispute between County and the Contractor cannot be resolved as set forth above, and the dispute directly relates to the promptness of payment, the dispute shall be resolved in accordance the Prompt Payment Ordinance (Section 1-51.6 of the Broward County Code of Ordinances). For all other disputes related to payment, the dispute shall be resolved pursuant to the dispute resolution procedure set forth in Article 12 of the General Conditions.

5.2. Ten percent (10%) of all monies earned by Contractor shall be retained by County until Final Completion and acceptance by County in accordance with Article 6 hereof, except that after fifty percent (50%) of the Work has been completed, the Contract Administrator shall reduce the retainage to five percent (5%) of all monies previously earned and all monies earned thereafter, and after ninety percent (90%) of the Work has been completed, the Contract Administrator may reduce the retainage to two and one-half percent (2-1/2%) of all monies previously earned and all monies earned thereafter. Any reduction in retainage below five percent (5%) shall be at the sole discretion of the Contract Administrator, as may be recommended by Consultant, and Contractor shall have no entitlement to a reduction. Any interest earned on retainage shall accrue to the benefit of County.

Payment for materials and equipment stored at the project site shall be equal to ninety percent (90%) of the invoiced amount of the materials and equipment as set forth herein. Additionally, retainage on 90% of the invoiced amount shall be paid per this section. The invoiced amount shall be based on the value of all acceptable materials and equipment not yet incorporated in the Work but delivered and suitably stored at the project site and scheduled for installation on-site within thirty (30) calendar days of the date of the Application for Payment. Copies of the

supplier's invoices for the materials and equipment shall be included with the Application for Payment.

5.3. County may withhold, in whole or in part, payment to such extent as may be necessary to protect itself from loss on account of:

- 5.3.1 Defective work not remedied.
- 5.3.2 Claims filed or reasonable evidence indicating probable filing of claims by other parties against Contractor or County because of Contractor's performance.
- 5.3.3 Failure of Contractor to make payments properly to Subcontractors or for material or labor.
- 5.3.4 Damage to another contractor not remedied.
- 5.3.5 Liquidated damages and costs incurred by Consultant for extended construction administration.
- 5.3.6 Failure of Contractor to provide any and all documents required by the Contract Documents.

When the above grounds are removed or resolved satisfactory to the Contract Administrator, any withheld payment shall be made to the extent otherwise due.

ARTICLE 6 ACCEPTANCE AND FINAL PAYMENT

6.1. Upon receipt of written notice from Contractor that the Work is ready for final inspection and acceptance, Consultant shall conduct an inspection within ten (10) calendar days. If Consultant and Contract Administrator find the Work acceptable, the requisite documents have been submitted and the requirements of the Contract Documents fully satisfied, and all conditions of the permits and regulatory agencies have been met, a Final Certificate of Payment (007600-2) shall be issued by Consultant, over its signature, stating that the requirements of the Contract Documents have been performed and the Work is ready for acceptance under the terms and conditions thereof.

6.2. Before issuance of the Final Certificate for Payment, Contractor shall deliver to Consultant: a complete release of all claims arising out of this Contract, or receipts in full in lieu thereof; an affidavit certifying that all suppliers and Subcontractors have been paid in full and that all other indebtedness connected with the Work has been paid, or a consent of the surety to final payment; the final corrected as-built drawings; and the final bill of materials, if required, and invoice. Final payment package is to include the certification document titled "Final List of Non-Certified Subcontractors and Suppliers" Form (007600-4), which must be signed and notarized by Contractor. A list of all noncertified sub-vendors used must be attached to this certified document.

6.3. If, after Substantial Completion, Final Completion is materially delayed through no fault of Contractor, and Consultant so certifies, County shall, upon certificate of Consultant, and without terminating this Contract, make payment of the balance due for that portion of the Work

fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

6.4. Final payment shall be made only after the County's Director of Purchasing or Board of County Commissioners, as applicable, has reviewed a written evaluation of the performance of Contractor prepared by the Contract Administrator, and approved the final payment. The acceptance of final payment shall constitute a waiver of all claims by Contractor, except those previously made in strict accordance with the provisions of the General Conditions and identified by Contractor as unsettled at the time of the application for final payment.

ARTICLE 7 MISCELLANEOUS

7.1. Contract Documents and Priority of Provisions. Any and all Recital clauses stated above are true and correct and are incorporated herein by reference. All of the documents incorporated in the Contract Documents shall govern this Project. Where there is a conflict between any provision set forth within the Contract Documents and a more stringent state or federal provision which is applicable to this Project, the more stringent state or federal provision shall prevail. If there is a conflict or inconsistency between any term, statement, requirement, or provision of any document or exhibit attached hereto or referenced or incorporated herein and any provision of any article in the Contract Documents, the provisions contained in the Contract Supplement, the Contract, the Supplemental General Conditions, or the General Conditions shall prevail (in that order) and be given effect.

7.2. Public Entity Crimes. Contractor represents that it is familiar with the requirements and prohibitions of the Public Entity Crime Act, Section 287.133, Florida Statutes, and represents that its entry into this Contract will not violate that Act. In addition to the foregoing, Contractor further represents that there has been no determination that it committed a "public entity crime" as defined by Section 287.133, Florida Statutes, and that it has not been formally charged with committing an act defined as a "public entity crime" regardless of the amount of money involved or whether Contractor has been placed on the convicted vendor list. Notwithstanding any provision in this Contract to the contrary, if any representation stated in this paragraph is false, County shall have the right to immediately terminate this Contract and recover all sums paid to Contractor under this Contract.

7.3. Independent Contractor. Contractor is an independent contractor under this Contract. Services provided by Contractor pursuant to this Contract shall be subject to the supervision of Contractor. In providing such services, neither Contractor nor its agents shall act as officers, employees, or agents of the County. This Contract shall not constitute or make the Parties a partnership or joint venture.

7.4. Third Party Beneficiaries. Neither Contractor nor County intends to directly or substantially benefit a third party by this Contract. Therefore, the Parties agree that there are no third party beneficiaries to this Contract (other than Consultant to the extent this Contract expressly states any such rights or remedies).

7.5. Notices. All notices to be given hereunder shall be in writing, and may be given by United States Mail, postage prepaid, return receipt requested, by commercial express carrier with acknowledgment of delivery, or by hand delivery, addressed to the party to be notified at the last place specified with a simultaneous copy sent via electronic mail. The place for giving notice shall remain the same as set forth herein until changed in writing in the manner provided in this section. For the present, the Parties designate the following as the respective places for giving of notice:

For County:

Ms. Ariadna Musarra, Contract Administrator
Director/ County Architect
Construction Management Division
Gov't Center East, Annex, 5th Floor
115 South Andrews Avenue, A-550,
Fort Lauderdale, FL 33301

For Contractor:

Gilda Pereda, President
Emerald Construction Corporation
1211 Stirling Road
Suite 106
Dania Beach, FL 33004

and

Ramiro Gamez, Vice President
Emerald Construction Corporation
1211 Stirling Road, Suite 106
Dania Beach, FL 33004

7.6. Assignment and Performance. Neither this Contract nor any interest herein or proceeds hereof shall be assigned, transferred, or encumbered without the written consent of the other party, and Contractor shall not subcontract any portion of the Work required by this Contract except as authorized by Article 28 of the General Conditions.

Contractor represents that each person and entity that will provide services under this Contract is duly qualified to perform such services by all appropriate governmental authorities, where required, and is sufficiently experienced and skilled in the area(s) for which such person or entity will render services. Contractor agrees that all services under this Contract shall be performed in a skillful and respectable manner, and that the quality of all such services shall equal or exceed prevailing industry standards for the provision of such services.

7.7. Materiality and Waiver of Breach. Each requirement, duty, and obligation set forth in this Contract was bargained for at arm's-length and is agreed to by the Parties. Each requirement, duty, and obligation set forth herein is substantial and important to the formation of this Contract and, therefore, is a material term hereof.

7.8. No Waiver. County's failure to enforce any provision of this Contract shall not be deemed a waiver of such provision or modification of this Contract. A waiver of any breach of a provision of this Contract shall not be deemed a waiver of any subsequent breach and shall not be construed to be a modification of the terms of this Contract.

7.9. Severability. In the event any part of this Contract is found to be unenforceable by a court of competent jurisdiction, that part shall be deemed severed from this Contract and the balance of this Contract shall remain in full force and effect.

7.10. Law, Jurisdiction, Venue, Waiver of Jury Trial. This Contract shall be interpreted and construed in accordance with and governed by the laws of the State of Florida. Jurisdiction of any controversies or legal problems arising out of this Contract, and any action involving the enforcement or interpretation of any rights hereunder, shall be exclusively in the state courts of the Seventeenth Judicial Circuit in Broward County, Florida, and venue for litigation arising out of this Contract shall be exclusively in such state courts, forsaking any other jurisdiction which either party may claim by virtue of its residency or other jurisdictional device. **BY ENTERING INTO THIS CONTRACT, CONTRACTOR AND COUNTY HEREBY EXPRESSLY WAIVE ANY RIGHTS EITHER PARTY MAY HAVE TO A TRIAL BY JURY OF ANY CIVIL LITIGATION RELATED TO THIS CONTRACT. IF A PARTY FAILS TO WITHDRAW A REQUEST FOR A JURY TRIAL IN A LAWSUIT ARISING OUT OF THIS CONTRACT AFTER WRITTEN NOTICE BY THE OTHER PARTY OF VIOLATION OF THIS SECTION, THE PARTY MAKING THE REQUEST FOR JURY TRIAL SHALL BE LIABLE FOR THE REASONABLE ATTORNEYS' FEES AND COSTS OF THE OTHER PARTY IN CONTESTING THE REQUEST FOR JURY TRIAL, AND SUCH AMOUNTS SHALL BE AWARDED BY THE COURT IN ADJUDICATING THE MOTION. CONTRACTOR, PURSUANT TO ARTICLE 28 OF THE GENERAL CONDITIONS, SHALL SPECIFICALLY BIND ALL SUBCONTRACTORS TO THE PROVISIONS OF THIS CONTRACT.**

7.11. Amendments. No modification, amendment, or alteration in the terms or conditions contained herein shall be effective unless contained in a written document prepared with the same or similar formality as this Contract and executed by the Contractor and the Board or another person to whom appropriate authority has been delegated or who is otherwise authorized to execute same.

7.12. Prior Agreements. The Contract is the final and complete understanding of the Parties regarding the subject matter hereof and supersedes all prior and contemporaneous negotiations and discussions regarding that subject matter. There is no commitment, agreement or understanding concerning the subject matter of this Contract that is not contained in this Contract or the Contract Documents.

7.13. Truth-In-Negotiation Representation. Contractor's compensation under this Contract is based upon representations supplied to County by Contractor, and Contractor certifies that the wage rates, factual unit costs, and other factual information supplied to substantiate Contractor's compensation are accurate, complete, and current at the time of contracting. County shall be entitled to recover any damages it incurs to the extent any such representation is untrue.

7.14. Workforce Investment Program. This Contract constitutes a "Covered Contract" under the Broward Workforce Investment Program, Broward County Administrative Code Section 19.211 ("Workforce Investment Program"). Contractor affirms it is aware of the requirements of the Workforce Investment Program and agrees to use good faith efforts to meet the First Source Referral Goal and the Qualifying New Hires Goal as set forth therein, including by (a) publicly advertising any vacancies that are the direct result of this Contract (whether those vacancies are with Contractor or its subcontractors) exclusively with CareerSource Broward for at least five (5) business days and using good faith efforts to interview any qualified candidates referred under the Workforce Investment Program, and (b) using good faith efforts to hire Qualifying New Hires, as defined by the Workforce Investment Program, for at least fifty percent (50%) of the vacancies that are the direct result of this Contract. Until at least one year after the conclusion of this Contract, Contractor shall maintain and make available to County upon request all records documenting Contractor's compliance with the requirements of the Workforce Investment Program, and shall submit the required Workforce Investment Reports to the Contract Administrator annually by January 31 and within thirty (30) days after the conclusion of this Contract. Failure to demonstrate good faith efforts to meet the First Source Referral Goal and the Qualifying New Hires Goal shall constitute a material breach of this Contract.

(The remainder of this page is intentionally left blank.)

IN WITNESS WHEREOF, the Parties have made and executed this Contract: BROWARD COUNTY, through its BOARD OF COUNTY COMMISSIONERS, signing by and through its Mayor or Vice-Mayor, authorized to execute same by Board action on the ____ day of _____, 20____, and CONTRACTOR, signing by and through its _____, duly authorized to execute same.

COUNTY

ATTEST:

BROWARD COUNTY, by and through its Board of County Commissioners

Broward County Administrator, as
Ex-Officio Clerk of the Broward County
Board of County Commissioners

By _____
Mayor

____ day of _____, 20____

Insurance requirements
approved by Broward County
Risk Management Division

Approved as to form by
Andrew J. Meyers
Broward County Attorney
Governmental Center, Suite 423
115 South Andrews Avenue
Fort Lauderdale, Florida 33301
Telephone: (954) 357-7600
Telecopier: (954) 357-7641

By Colleen Pounall 01/06/20
Signature (Date)

Colleen Pounall ASST. Risk Manager
Print Name and Title above

By [Signature] 1/14/2020
Jordan S. Nadel (Date)
Assistant County Attorney

[Signature] 1/14/2020
Michael J. Kerr (Date)
Deputy County Attorney

CONTRACTOR MUST EXECUTE THIS CONTRACT AS INDICATED BELOW. USE CORPORATION OR NONCORPORATION FORMAT, AS APPLICABLE.

[If incorporated sign below.]

Contractor

ATTEST:

Emerald Construction Corp.
(Name of Corporation)

[Signature]
Secretary

By [Signature]
President/Vice-President

Sugey Granados
(Print/Type Name)

Ramiro Gamez, VP
(Type/Type Name and Title)

(Corporate Seal)

11 day of January, 2020.

[If not incorporated sign below.]

Contractor

WITNESSES:

(Signature)

(Business Name)

(Print/Type Name)

By _____
(Signature)

(Signature)

(Type/Print Name and Title)

(Print/Type Name)

____ day of _____, 20____.

005400

CONTRACT SUPPLEMENT

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007200 GENERAL CONDITIONS**ARTICLE 1 CONTRACT DOCUMENTS**

1.1 The Contract Documents shall be followed in strict accordance as to Work, performance, material, and dimensions except when Consultant may authorize, in writing, an exception.

1.2 Dimensions given in figures are to hold preference over scaled measurements from the drawings; however, all discrepancies shall be resolved by Consultant. Contractor shall not proceed when in doubt as to any dimension or measurement, but shall seek clarification from Consultant.

1.3 Contractor shall be furnished ten (10) copies, free of charge, of this Contract; two (2) of which shall be preserved and always kept accessible to Consultant and Consultant's authorized representatives. Additional copies of this Contract may be obtained from County at the cost of reproduction.

ARTICLE 2 INTENTION OF COUNTY

It is the intent of County to describe in this Contract a functionally complete Project (or part thereof) to be constructed in accordance with this Contract and in accordance with all codes and regulations governing construction of the Project. Any work, materials or equipment that may reasonably be inferred from this Contract as being required to produce the intended result shall be supplied by Contractor whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe work, materials or equipment, such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals, or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or laws or regulations in effect at the time of opening of bids and Contractor shall comply therewith. County shall have no duties other than those duties and obligations expressly set forth within this Contract.

ARTICLE 3 PRELIMINARY MATTERS

3.1. At least five (5) calendar days prior to the pre-construction meeting described in Section 3.2, Contractor shall submit to Consultant for Consultant's review and acceptance:

3.1.1. A progress schedule in the indicated form:

Bar Chart

Modified CPM

CPM

Computerized CPM

(CPM shall be interpreted to be generally as outlined in the Association of General Contractors (AGC) publication, "The Use of CPM in Construction.")

The progress schedule shall indicate the start and completion dates of the various stages of the Work and shall show an activity network for the planning and execution of the Work. Included with the progress schedule shall be a narrative description of the progress schedule. The progress schedule must be updated monthly by Contractor, submitted as part of each Application for Payment and shall be acceptable to Consultant.

3.1.2. A preliminary schedule of Shop Drawing submissions; and

3.1.3. In a lump sum contract or in a contract which includes lump sum bid items of Work, a preliminary schedule of values for all of the Work which will include quantities and prices of items aggregating the Contract Price and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work which will be confirmed in writing by Contractor at the time of submission.

Such prices shall be broken down to show labor, equipment, materials, and overhead and profit.

3.1.4. After award but prior to the submission of the progress schedule, Consultant, Contract Administrator and Contractor shall meet with all utility owners and secure from them a schedule of utility relocation, provided, however, neither Consultant nor County shall be responsible for the nonperformance by the utility owners.

3.2. At a time specified by Consultant but before Contractor starts the Work at the Project site, a conference attended by Contractor, Consultant and others as deemed appropriate by Contract Administrator, will be held to discuss the schedules referred to in Section 3.1, to discuss procedures for handling Shop Drawings and other submittals and for processing Applications for Payment, and to establish a working understanding among the Parties as to the Work.

3.3. Within thirty-five (35) days from the Project Initiation Date set forth in the Notice to Proceed, a conference attended by Contractor, Consultant and others, as appropriate, will be held to finalize the schedules submitted in accordance with Section 3.1. Within forty-five (45) days after the Project Initiation Date set forth in the Notice to Proceed, the Contractor shall revise

the original schedule submittal to address all review comments from the CPM review conference and resubmit for Consultant review. The finalized progress schedule will be accepted by Consultant only as providing an orderly progression of the Work to completion within the Contract Time, but such acceptance shall not constitute acceptance by County or Consultant of the means or methods of construction or of the sequencing or scheduling of the Work, and such acceptance will neither impose on Consultant or County responsibility for the progress or scheduling of the Work nor relieve Contractor from full responsibility therefor. The finalized schedule of Shop Drawing submissions must be acceptable to Consultant as providing a workable arrangement for processing the submissions. The finalized schedule of values pursuant to subsection 3.1.3 above must be acceptable to Consultant as to form and substance.

ARTICLE 4 PERFORMANCE BOND AND PAYMENT BOND

4.1. Within fifteen (15) calendar days of being notified of the award, Contractor shall furnish a Performance Bond and a Payment Bond containing all the provisions of the Performance Bond (Form 007500-1) and Payment Bond (Form 007500-2). Each Bond shall be in the amount of one hundred percent (100%) of the Contract Price guaranteeing to County the completion and performance of the Work covered in such Contract as well as full payment of all suppliers, laborers, or subcontractors employed pursuant to this Project. Each Bond shall be with a surety company which is qualified pursuant to Article 5.

4.2. Each Bond shall continue in effect for one (1) year after Final Completion and acceptance of the Work with liability equal to one hundred percent (100%) of the Contract Price, or an additional bond shall be conditioned that Contractor will, upon notification by County, correct any defective or faulty work or materials which appear within one (1) year after Final Completion of this Contract.

4.3. Pursuant to the requirements of Section 255.05, Florida Statutes, Contractor shall ensure that the bond(s) referenced above shall be recorded in the public records of Broward County and provide County with evidence of such recording.

4.4. In lieu of a Performance Bond and a Payment Bond, Contractor may furnish alternate forms of security which may be in the form of cash, money order, certified check, cashier's check, or unconditional letter of credit (Form 007500-5). Such alternate forms of security shall be subject to the approval of County and for same purpose and shall be subject to the same conditions as those applicable above and shall be held by County for one (1) year after completion and acceptance of the Work.

ARTICLE 5 QUALIFICATION OF SURETY

5.1. Bid Bonds, Performance Bonds, and Payment Bonds over Five Hundred Thousand Dollars (\$500,000.00):

5.1.1. Each bond must be executed by a surety company of recognized standing, authorized to do business in the State of Florida as surety, having a resident agent in the State of Florida and having been in business with a record of successful continuous operation for at least five (5) years.

5.1.2. The surety company shall hold a current Certificate of Authority as acceptable surety on federal bonds in accordance with United States Department of Treasury Circular 570, Current Revisions. If the amount of the Bond exceeds the underwriting limitation set forth in the circular, in order to qualify, the net retention of the surety company shall not exceed the underwriting limitation in the circular, and the excess risks must be protected by coinsurance, reinsurance, or other methods in accordance with Treasury Circular 297, Revised (31 C.F.R. Section 223.10, Section 223.11). Further, the surety company shall provide County with evidence satisfactory to County that such excess risk has been protected in an acceptable manner.

5.1.3. The surety company shall have at least the following minimum ratings. A surety company that is rejected by County may be substituted by the Bidder or proposer with a surety company acceptable to the County, only if the bid amount does not increase. The following sets forth, in general, the acceptable parameters for bonds:

Amount of Bond	Policy Holder's Ratings	Financial Size Category
500,001 to 1,000,000	A,A-	Class I
1,000,001 to 2,000,000	A,A-	Class II
2,000,001 to 5,000,000	A	Class III
5,000,001 to 10,000,000	A	Class IV
10,000,001 to 25,000,000	A	Class V
25,000,001 to 50,000,000	A	Class VI
50,000,001 or more	A	Class VII

5.2. For projects which do not exceed Five Hundred Thousand Dollars (\$500,000.00), County may accept a Bid Bond, Performance Bond and Payment Bond from a surety company which has twice the minimum surplus and capital required by the Florida Office of Insurance Regulation at the time the solicitation is issued, if the surety company is otherwise in compliance with the provisions of the Florida Insurance Code, and if the surety company holds a currently valid Certificate of Authority issued by the United States Department of the Treasury under Section 9304 to 9308 of Title 31 of the United States Code. The Certificate and Affidavit (Form 007500-4) so certifying should be submitted with the Bid Bond and also with the Performance Bond and Payment Bond.

5.3. More stringent requirements of any grantor agency are set forth within the Supplemental Conditions. If there are no more stringent requirements, the provisions of this article shall apply.

ARTICLE 6 INDEMNIFICATION

Contractor shall indemnify and hold harmless County, its officers and employees, from liabilities, damages, losses, and costs, including, but not limited to, reasonable attorneys' fees, caused or alleged to be caused, in whole or in part, by the negligence, recklessness, or intentional wrongful misconduct of Contractor and persons employed or utilized by Contractor in the performance of this Contract. To the extent considered necessary by Contract Administrator and County Attorney, any sums due Contractor under this Contract may be retained by County until all of County's claims for indemnification pursuant to this Contract have been settled or otherwise resolved, and any amount withheld shall not be subject to payment of interest by County. These indemnifications shall survive the term of this Contract.

ARTICLE 7 INSURANCE REQUIREMENTS

7.1 The specific insurance coverage requirements for this project are identified in the Minimum Insurance Requirements section which is a part of the Contract Documents. For purposes of this article, the term "County" shall include Broward County and its members, officials, officers, and employees.

7.2 Contractor shall maintain, at its sole expense and at all times during the term of this Contract (unless a different time period is otherwise stated herein), at least the minimum limits of insurance coverage designated in the Contract Documents (inclusive of any amount provided by an umbrella or excess policy) in accordance with the terms and conditions stated in this article. All required insurance shall apply on a primary basis, and shall not require contribution from, any other insurance or self-insurance maintained by County. Any insurance, or self-insurance, maintained by County shall be in excess of, and shall not contribute with, the insurance provided by Contractor.

7.3 Insurers providing the insurance required by this Contract must either be: (1) authorized by a current certificate of authority issued by the State of Florida to transact insurance in the State of Florida, or (2) except with respect to coverage for the liability imposed by the Florida Workers' Compensation Act, an eligible surplus lines insurer under Florida law. In addition, each such insurer shall have and maintain throughout the period for which coverage is required, a minimum A. M. Best Company Rating of "A-" and a minimum Financial Size Category of "VII." To the extent insurance requirements are designated in the Minimum Insurance Requirements, the applicable policies shall comply with the following:

7.3.1 Commercial General Liability Insurance. Policy shall be no more restrictive than that provided by the latest edition of the standard Commercial General Liability Form (Form CG 00 01) as filed for use in the State of Florida by the Insurance Services Office (ISO), with the exception of endorsements specifically required by ISO or the State of Florida, and liability arising out of:

Mold, fungus, or bacteria

Terrorism
Silica, asbestos or lead
Sexual molestation
Architects and engineers professional liability, unless coverage for professional liability is specifically required by this Contract.

County and Consultant shall be included on the policy (and any excess or umbrella policy) as "Additional Insureds" on a form no more restrictive than ISO form CG 20 10 (Additional Insured – Owners, Lessees, or Contractor). The policy (and any excess or umbrella policy) must be endorsed to waive the insurer's right to subrogate against County.

Contractor shall maintain products/completed operations coverage for at least three (3) years after the final completion of the Work, unless a longer period is identified in the Minimum Insurance Requirements. In that case, the term specified in the Insurance Requirements shall supersede.

7.3.2 Business Automobile Liability Insurance. Policy shall be no more restrictive than that provided by Section II (Liability Coverage) of the most recent version of the standard Business Auto Policy (ISO Form CA 00 01) without any restrictive endorsements, including coverage for liability contractually assumed, and shall cover all owned, non-owned, and hired autos used in connection with the performance of work under this Contract. County and Consultant shall be included on the policy (and any excess or umbrella policy) as "Additional Insureds." The policy (and any excess or umbrella policy) must be endorsed to waive the insurer's right to subrogate against County.

7.3.3 Workers' Compensation/Employer's Liability Insurance. Such insurance shall be no more restrictive than that provided by the latest edition of the standard Workers' Compensation Policy, as filed for use in Florida by the National Council on Compensation Insurance (NCCI), with the exception of endorsements required by NCCI or the State of Florida. The policy must be endorsed to waive the insurer's right to subrogate against County in the manner which would result from the attachment of the NCCI form "Waiver of our Right to Recover from Others Endorsement" (Advisory Form WC 00 03 13) with County scheduled thereon. Where appropriate, coverage shall be included for any applicable Federal or State employer's liability laws including, but not limited to, the Federal Employer's Liability Act, the Jones Act, and the Longshoreman and Harbor Workers' Compensation Act.

In the event that Contractor provides all or a portion of the Workers' Compensation/Employer's Liability insurance required herein via a professional employer organization ("PEO") or employee leasing company, any such Workers' Compensation/Employer's Liability insurance provided will only be deemed acceptable solely for the purposes of insuring Contractor's enrolled employees. In addition, and notwithstanding the foregoing, in order to adequately protect the County against injuries to uninsured employees of Subcontractors and non-enrolled employees of Contractor,

Contractor must still procure, maintain, and furnish the County with evidence of a stand-alone separate Workers' Compensation/Employer's Liability insurance policy issued with Contractor as the named insured, and complying with all requirements for Contractor provided Workers' Compensation contained in the Contract. It is permissible for Contractor to exclude payroll of leased employees from such separate Workers' Compensation/Employer's Liability insurance policy.

7.3.4 Professional Liability Insurance. Such insurance shall cover Contractor for those sources of liability arising out of the rendering or failure to render professional services in the performance of the services required in this Contract. If policy provides coverage on a claims-made basis, such coverage must respond to all claims reported within at least three (3) years following the period for which coverage is required, unless a longer period is indicated in the Minimum Insurance Requirements.

7.3.5 Environmental Pollution Liability. Such insurance shall include clean-up costs and provide coverage to Contractor for liability resulting from pollution or other environmental impairment arising out of, or in connection with, work performed under this Contract, or which arises out of, or in connection with this Contract, including coverage for clean-up of pollution conditions and third-party bodily injury and property damage arising from pollution conditions. Such insurance shall also include Transportation Coverage and Non-Owned Disposal Sites coverage. Should policy provide coverage on a claims-made basis, the coverage shall be in force and effect to respond to all claims reported within at least three years following the period for which coverage is required, unless a longer period is indicated in the Minimum Insurance Requirements, and which would have been covered had the coverage been provided on an occurrence basis.

County and Consultant shall be included as "Additional Insureds" on the policy. Contractor shall be responsible for all deductibles in the event of a claim.

7.3.6 Property Insurance, Builder's Risk, or Installation Floater. Such insurance shall be in force and evidenced to County as a condition precedent to the Notice to Proceed for construction. Coverage shall be "All Risks," Completed Value form with a deductible not to exceed Ten Thousand Dollars (\$10,000) each claim for all perils except wind and flood. For the perils of wind and flood, Contractor shall maintain a deductible that is commercially feasible which does not exceed five (5%) of the "values at risk at the time of loss" unless otherwise approved by County's Risk Management Division.

Sublimits: With respect to coverage for the peril of wind, the policy shall not be subject to any sublimit which is less than Fifty Million Dollars (\$50,000,000) per occurrence. With respect to the peril of Flood, the policy shall not be subject to any sublimit which is less than Ten Million Dollars (\$10,000,000) per occurrence. Any sublimit for wind or flood lower than those identified in the foregoing must be approved by the County's Risk Management Division.

Waiver of Occupancy Clause or Warranty-Policy must be specifically endorsed to eliminate any "Occupancy Clause" or similar warranty or representation that the building(s), addition(s) or structure(s) in the course of construction shall not be occupied without specific endorsement of the policy. The Policy must be endorsed to provide that the Builder's Risk coverage will continue to apply until final acceptance of the building(s), addition(s) or structure(s) by County.

The Builder's Risk policy shall reflect County as an "Additional Insured" and as a loss payee.

The Builder's Risk policy(ies) shall be endorsed to waive the insurer's rights of subrogation against County.

County reserves the right to provide property insurance covering the materials, equipment and supplies that are intended for specific installation in the Project while such materials, equipment and supplies are located at the Project site (this coverage will be specifically to cover property under construction or similar coverage), in transit, and while temporarily located away from the Project site for the purpose of repair, adjustment or storage at the risk of one (1) of the insured parties. This coverage will not cover any of the contractors' or subcontractors' tools, equipment, machinery or provide any business interruption or time element coverage to the contractors.

If County elects to purchase property insurance or provide for coverage under its existing insurance for this Project, then in that case, the insurance required to be carried by the Contractor may be modified to account for the insurance being provided by County. Such modification may also include execution of Waiver of Subrogation documentation.

In the event that a claim occurs for this Project and is made upon County's insurance policy, Contractor shall be responsible for up to the first Fifty Thousand Dollars (\$50,000) of the deductible amount for such claim.

7.4 Within fifteen (15) days after the full execution of this Contract or notification of award, whichever is earlier, Contractor shall provide to County satisfactory evidence of the insurance required in this Contract with the exception of property, builder's risk or installation floater coverage. With respect to the Workers' Compensation/Employer's Liability Insurance, Professional Liability and Business Automobile Liability Insurance, an appropriate Certificate of Insurance identifying the project and signed by an authorized representative of the insurer shall be satisfactory evidence of insurance. With respect to the Commercial General Liability, an appropriate Certificate of Insurance identifying the project, signed by an authorized representative of the insurer, and copies of the actual additional insured endorsements as issued on the policy(ies) shall be satisfactory evidence of such insurance.

7.5 Coverage is not to cease and is to remain in force until County determines all performance required of Contractor is completed. If any of the insurance coverage will expire prior to the completion of the Services, proof of insurance renewal shall be provided to County prior to the policy's expiration.

7.6 Contractor shall provide County thirty (30) days' advance notice of any cancellation of the policy except in cases of cancellation for non-payment for which County shall be given ten (10) days' advance notice.

7.7 Contractor shall provide, within thirty (30) days after receipt of a written request from County, a copy of the policies providing the coverage required by this Contract. Contractor may redact provisions of the policies that are not relevant to the insurance required by this Contract.

7.8 County and Contractor, each for itself and on behalf of its insurers, to the fullest extent permitted by law without voiding the insurance required hereunder, waive all rights against the other party and any of the other party's contractors, subcontractors, agents and employees for damages or loss to the extent covered and paid for by any insurance maintained by the other party.

7.9 If Contractor uses a Subcontractor, Contractor shall require each Subcontractor to endorse County and Consultant as "Additional Insureds" on the Subcontractor's Commercial General Liability policy.

ARTICLE 8 LABOR AND MATERIALS

8.1. Unless otherwise provided herein, Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and other facilities and services necessary for the proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

8.2. Contractor shall at all times enforce strict discipline and good order among its employees and subcontractors at the Project site and shall not employ on the Project any unfit person or anyone not skilled in the Work to which they are assigned.

ARTICLE 9 ROYALTIES AND PATENTS

All fees, royalties, and claims for any invention, or pretended inventions, or patent of any article, material, arrangement, appliance, or method that may be used upon or in any manner be connected with the construction of the Work or appurtenances, are hereby included in the prices stipulated in this Contract for said Work.

ARTICLE 10 WEATHER

Extensions to the Contract Time for delays caused by the effects of inclement weather shall be submitted as a request for a change in the Contract Time pursuant to Article 40. These time extensions are justified only when rains or other inclement weather conditions or related adverse soil conditions result in Contractor being unable to work at least fifty percent (50%) of the normal workday on controlling items of work identified on the accepted schedule or updates due to adverse weather conditions.

ARTICLE 11 PERMITS, LICENSES, AND IMPACT FEES

11.1. Except as otherwise provided within the Special Instructions for Vendors, all permits and licenses required by federal, state or local laws, rules, and regulations necessary for the prosecution of the Work undertaken by Contractor pursuant to this Contract shall be secured and paid for by Contractor. It is Contractor's responsibility to have and maintain appropriate Certificate(s) of Competency, valid for the Work to be performed and valid for the jurisdiction in which the Work is to be performed for all persons working on the Project for whom a Certificate of Competency is required.

11.2. Impact fees levied by any municipality shall be paid by Contractor. Contractor shall be reimbursed only for the actual amount of the impact fee levied by the municipality as evidenced by an invoice or other acceptable documentation issued by the municipality. Reimbursement to Contractor in no event shall include profit or overhead of Contractor.

ARTICLE 12 RESOLUTION OF DISPUTES

12.1. To prevent all disputes and litigation, it is agreed by the Parties hereto that, Consultant shall decide all questions, claims, difficulties and disputes of whatever nature which may arise relative to the technical interpretation of this Contract and fulfillment of this Contract as to the character, quality, amount and value of any work done and materials furnished, or proposed to be done or furnished under or, by reason of, this Contract and Consultant's decisions of all claims, questions, difficulties and disputes shall be final and binding to the extent provided in Section 12.2. Any claim, question, difficulty, or dispute which cannot be resolved by mutual agreement of the Contract Administrator and Contractor shall be submitted to Consultant in writing within five (5) calendar days from the date of impasse. Unless a different period of time is set forth herein, Consultant shall notify the Contract Administrator and Contractor in writing of Consultant's decision within fourteen (14) calendar days from the date of the receipt of the claim, question, difficulty, or dispute, unless Consultant requires additional time to gather information or allow the Parties to provide additional information. Except for disputes directly related to the promptness of payment as set forth in Section 5.1 of this Contract, all nontechnical administrative disputes shall be determined by the Contract Administrator pursuant to the time periods provided herein. During the pendency of any dispute and after a determination thereof, Contractor, Consultant, and Contract Administrator shall act in good faith to mitigate any

potential damages including utilization of construction schedule changes and alternate means of construction.

12.2. In the event the determination of a dispute under this article is unacceptable to either party hereto, the party objecting to the determination must notify the other party in writing within ten (10) calendar days of receipt of the written determination. The notice must state the basis of the objection and must be accompanied by a statement that any Contract Time or Contract Price adjustment claimed is the entire adjustment to which the objecting party has reason to believe it is entitled to as a result of the determination. Within sixty (60) calendar days after Final Completion of the Work, the Parties shall participate in mediation to address all objections to any determinations hereunder and to attempt to prevent litigation. Neither party shall commence litigation prior to the expiration of the sixty (60) day mediation period. The mediator shall be mutually agreed upon by the Parties. Should any objection not be resolved in mediation, the Parties retain all their legal rights and remedies provided under State law. **A PARTY SPECIFICALLY WAIVES ALL OF ITS RIGHTS, INCLUDING, BUT NOT LIMITED TO, CLAIMS FOR CONTRACT TIME AND CONTRACT PRICE ADJUSTMENTS PROVIDED IN THE CONTRACT, INCLUDING ITS RIGHTS AND REMEDIES UNDER STATE LAW, IF SAID PARTY FAILS TO COMPLY IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THIS ARTICLE.**

ARTICLE 13 INSPECTION OF WORK

13.1. Consultant and County shall at all times have access to the Work, and Contractor shall provide proper facilities for such access and for inspecting, measuring and testing.

13.1.1. Should this Contract, Consultant's instructions, any laws, ordinances, or any public authority require any of the Work to be specially tested or approved, Contractor shall give Consultant timely notice of readiness of the Work for testing. If the testing or approval is to be made by an authority other than County, timely notice shall be given of the date fixed for such testing. Testing shall be made promptly, and, where practicable, at the source of supply. If any of the Work should be covered up without approval or consent of Consultant, it must, if required by Consultant, be uncovered for examination and properly restored at Contractor's expense.

13.1.2. Reexamination of any of the Work may be ordered by Consultant with prior written approval by the Contract Administrator, and if so ordered, the Work must be uncovered by Contractor. If such Work is found to be in accordance with this Contract, County shall pay the cost of reexamination and replacement by means of a Change Order. If such Work is not in accordance with this Contract, Contractor shall pay such cost.

13.2. Inspectors shall have no authority to permit deviations from, nor to relax any of the provisions of, this Contract, or to delay the Project by failure to inspect the materials and work with reasonable promptness, without the written permission or instruction of Consultant.

13.3. The payment of any compensation, whatever may be its character or form, or the giving of any gratuity or the granting of any favor by Contractor to any inspector, directly or indirectly, is strictly prohibited, and any such act on the part of Contractor will constitute a breach of this Contract.

ARTICLE 14 SUPERINTENDENCE AND SUPERVISION

14.1. The orders of County are to be given through Consultant, which instructions are to be strictly and promptly followed in every case. Contractor shall keep on the Project during its progress, a full-time, competent, English-speaking superintendent and any necessary assistants, all satisfactory to Consultant. The superintendent shall not be changed except with the written consent of Consultant, unless the superintendent proves to be unsatisfactory to Contractor and ceases to be in its employ. The superintendent shall represent Contractor and all directions given to the superintendent shall be as binding as if given to Contractor and will be confirmed in writing by Consultant upon the written request of Contractor. Contractor shall give efficient supervision to the Work, using its best skill and attention.

14.2. Daily, Contractor's superintendent shall record, at a minimum, the following information in a bound log: the day; date; weather conditions and how any weather condition affected progress of the Work; time of commencement of Work for the day; the Work being performed; materials, labor, personnel, equipment and subcontractors at the Project site; visitors to the Project site, including representatives of County, Consultant, regulatory representatives; any event that caused or contributed a delay to the critical path of the Project, any special or unusual conditions or occurrences encountered; and the time of termination of Work for the day. All information shall be recorded in the daily log in ink. The daily log shall be kept on the Project site and shall be available at all times for inspection and copying by County and Consultant.

14.3. The Contract Administrator, Contractor, and Consultant shall meet at least every two (2) weeks or as determined by the Contract Administrator, during the course of the Work to review and agree upon the Work performed to date and to establish the controlling items of Work for the next two (2) weeks. Consultant shall publish, keep, and distribute minutes and any comments thereto of each such meeting.

14.4. If Contractor, in the course of prosecuting the Work, finds any discrepancy between this Contract and the physical conditions of the locality, or any errors, omissions, or discrepancies in this Contract, it shall be Contractor's duty to immediately inform Consultant, in writing, and Consultant will promptly review the same. Any Work done after such discovery, until authorized, will be done at Contractor's sole risk.

14.5. Contractor shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with this Contract. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

ARTICLE 15 COUNTY'S RIGHT TO TERMINATE CONTRACT

15.1. If Contractor fails to begin the Work within fifteen (15) calendar days after the Project Initiation Date, or fails to perform the Work with sufficient workers and equipment or with sufficient materials to insure the prompt completion of the Work, or shall perform the Work unsuitably, or cause it to be rejected as defective and unsuitable, or shall discontinue the prosecution of the Work pursuant to the accepted schedule, or if Contractor shall fail to perform any material term set forth in this Contract, or if Contractor shall become insolvent or be declared bankrupt, or commit any act of bankruptcy or insolvency, or shall make an assignment for the benefit of creditors, or from any other cause whatsoever shall not carry on the Work in an acceptable manner, or if Contractor is placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List created pursuant to Section 215.473, Florida Statutes, or if Contractor provides a false certification submitted pursuant to Section 287.135, Florida Statutes, the Contract Administrator may give notice in writing to Contractor and its Surety of such delay, neglect, or default, specifying the same with a notice to cure. If Contractor, within a period of ten (10) calendar days after such notice, shall not proceed in accordance therewith, then County's awarding authority for this Contract may, upon written certificate from Consultant of the fact of such delay, neglect, or default and Contractor's failure to comply with such notice, terminate the services of Contractor, exclude Contractor from the Project site and take the prosecution of the Work out of the hands of Contractor, and appropriate or use any or all materials and equipment on the Project site as may be suitable and acceptable. In such case, Contractor shall not be entitled to receive any further payment until the Project is completed. In addition County may enter into an agreement for the completion of the Project according to the terms and provisions of this Contract, or use such other methods as in the Contract Administrator's sole opinion shall be required for the completion of the Project according to the terms and provisions of this Contract, or use such other methods as in the Contract Administrator's sole opinion shall be required for the completion of the Project in an acceptable manner. All damages, costs and charges incurred by County, together with the costs of completing the Project, shall be deducted from any monies due or which may become due to Contractor. In case the damages and expenses so incurred by County shall exceed the unpaid balance, then Contractor shall be liable and shall pay to County the amount of said excess.

15.2. If, after notice of termination of Contractor's right to proceed, it is determined for any reason that Contractor was not in default, the rights and obligations of County and Contractor shall be the same as if the notice of termination had been issued pursuant to the Termination for Convenience clause as set forth in Section 15.3 below.

15.3. This Contract may be terminated for convenience in writing by County upon ten (10) days written notice to Contractor (delivered by certified mail, return receipt requested) of intent to terminate and the date on which such termination becomes effective. In such case, Contractor shall be paid for all Work executed and actual expenses incurred prior to termination in addition to termination settlement costs reasonably incurred by Contractor relating to commitments which had become firm prior to the termination. Payment shall include reasonable profit for

Work and services performed as limited by Article 39 hereof. All actual expenses incurred shall have sufficient back-up documentation to verify that such expenses were actually incurred by Contractor. No payment shall be made for profit for Work and services which have not been performed.

15.4. Upon receipt of Notice of Termination pursuant to Sections 15.1, 15.3, or 15.5, Contractor shall promptly discontinue all affected Work unless the Notice of Termination directs otherwise and deliver or otherwise make available to County all data, drawings, specifications, reports, estimates, summaries, and such other information as may have been required by this Contract whether completed or in process.

15.5. This Contract may also be terminated by the Board:

15.5.1. Upon the disqualification of Contractor as a CBE firm by County's Director of the Office of Economic and Small Business Development ("OESBD") if Contractor's status as CBE firm was a factor in the award of this Contract and such status was misrepresented by Contractor;

15.5.2. Upon the disqualification of Contractor by County's Director of the OESBD due to fraud, misrepresentation, or material misstatement by Contractor in the course of obtaining this Contract or attempting to meet the CBE contractual obligations;

15.5.3. Upon the disqualification of one or more of Contractor's CBE participants by County's Director of the OESBD if any such participant's status as a CBE firm was a factor in the award of this Contract and such status was misrepresented by Contractor or such participant;

15.5.4. Upon the disqualification of one or more of Contractor's CBE participants by County's Director of the OESBD if such CBE participant attempted to meet its CBE contractual obligations through fraud, misrepresentation, or material misstatement;

15.5.5. If Contractor is determined by County's Director of the OESBD to have been knowingly involved in any fraud, misrepresentation, or material misstatement concerning the CBE status of its disqualified CBE participant.

ARTICLE 16 SUSPENSION OF WORK

Contractor shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with the County. No Work shall be delayed or postponed pending resolution of any disputes or disagreements except as the Contractor and County may otherwise agree in writing. Suspension of Work by Contractor during any dispute or disagreement with County shall entitle County to terminate this Contract for cause.

ARTICLE 17 PROJECT RECORDS AND RIGHT TO AUDIT

17.1 Audit Rights and Retention of Records. Contractor shall preserve all Contract Records (as defined below) for a minimum period of three (3) years after expiration or termination of this Contract or until resolution of any audit findings, whichever is longer. Contract Records shall, upon reasonable notice, be open to County inspection and subject to audit and reproduction during normal business hours. County audits and inspections pursuant to this article may be performed by any County representative (including any outside representative engaged by County). County may conduct audits or inspections at any time during the term of this Contract and for a period of three years after the expiration or termination of this Contract (or longer if required by law). County may, without limitation, verify information, payroll distribution, and amounts through interviews, written affirmations, and on-site inspection with Contractor's employees, Subcontractors, vendors, or other labor.

17.2 County shall have the right to audit, review, examine, inspect, analyze, and make copies of all Contract Records at a location within Broward County. County reserves the right to conduct such audit or review at Contractor's place of business, if deemed appropriate by County, with seventy-two (72) hours' advance notice. Contractor agrees to provide adequate and appropriate work space. Contractor shall provide County with reasonable access to the Contractor's facilities, and County shall be allowed to interview all current or former employees to discuss matters pertinent to the performance of this Contract.

Contract Records include any and all information, materials and data of every kind and character, including without limitation, records, books, papers, documents, subscriptions, recordings, agreements, purchase orders, leases, contracts, commitments, arrangements, notes, daily diaries, drawings, receipts, vouchers and memoranda, and any and all other documents that pertain to rights, duties, obligations, or performance under this Contract. Contract Records include hard copy and electronic records, written policies and procedures, time sheets, payroll records and registers, cancelled payroll checks, estimating work sheets, correspondence, invoices and related payment documentation, general ledgers, insurance rebates and dividends, and any other records pertaining to rights, duties, obligations or performance under this Contract, whether by Contractor or Subconsultants, or otherwise necessary to adequately permit evaluation and verification of any or all of the following:

- a) Compliance with Contract
- b) Compliance with County's code of ethics
- c) Compliance with Contract provisions regarding the pricing of Change Orders
- d) Accuracy of Contractor representations regarding the pricing of invoices
- e) Accuracy of Contractor representations related to claims submitted by the Contractor including subcontractors, or any of its other payees.

In addition to the normal documentation Contractor typically furnishes to the County, in order to facilitate efficient use of County resources when reviewing or auditing the Contractor's billings

and related reimbursable cost records, the Contractor agrees to furnish (upon request) the following types of information in the specified computer readable file format(s):

Type of Record	File format
Monthly Job Cost Detail	.pdf and Excel
Detailed Job Cost History To Date	.pdf and Excel
Monthly Labor Distribution detail (if not already separately detailed in the Job Cost Detail)	.pdf and Excel
Total Job to date Labor Distribution detail (if not already included in the detailed Job Cost History to date)	.pdf and Excel
Employee Timesheets documenting time worked by all individuals who charge reimbursable time to the project	.pdf
Daily Foreman Reports listing names and hours and tasks of personnel who worked on the project	.pdf
Daily Superintendent Reports	.pdf
Detailed Subcontract Status Reports (showing original subcontract value, approved subcontract change orders, subcontractor invoices, payment to Subcontractors, etc.)	.pdf and Excel
Copies of Executed Subcontracts with all Subcontractors	.pdf
Copies of all executed Change Orders issued to Subcontractors	.pdf
Copies of all documentation supporting all reimbursable job costs (Subcontractor payment applications, vendor invoices, internal cost charges, etc.)	.pdf

17.3 Contractor shall, by written contract, require its Subcontractors to agree to the requirements and obligations of this article.

17.4 Any incomplete or incorrect entry in such books, records, and accounts shall be a basis for County's disallowance and recovery of any payment reliant upon such entry.

17.5 If an audit inspection or examination in accordance with this article discloses overpricing or overcharges to County of any nature by Contractor or its Subcontractors in excess of five percent (5%) of the total contract billings reviewed by County, the reasonable actual cost of County's audit shall be reimbursed to County by Contractor in addition to making adjustments for the overcharges. Any adjustments or payments due as a result of any such audit or inspection shall be made within thirty (30) days from presentation of County's findings to Contractor.

ARTICLE 18 RIGHTS OF VARIOUS INTERESTS

Whenever work being done by County's forces or by other contractors is contiguous to or within the limits of Work covered by this Contract, the respective rights of the various interests involved shall be established by the Contract Administrator to secure the completion of the various portions of the Work in general harmony.

ARTICLE 19 EXPLOSIVES

When the use of explosives is necessary in the prosecution of the Work, Contractor shall exercise the utmost care in handling and usage of such explosives to the protection of life and property. All explosives shall be stored in a safe manner and storage places shall be clearly marked "Dangerous-Explosives" and placed in the care of competent watchmen. When such use of explosives becomes necessary, Contractor shall furnish to County proof of coverage, adequately providing public liability and property damage insurance as a rider attached to its regular policies, unless otherwise included.

ARTICLE 20 DIFFERING SITE CONDITIONS

In the event that during the course of the Work Contractor encounters subsurface or concealed conditions at the Project site which differ materially from those shown on this Contract and from those ordinarily encountered and generally recognized as inherent in work of the character called for in this Contract; or unknown physical conditions of the Project site, of an unusual nature, which differ materially from that ordinarily encountered and generally recognized as inherent in work of the character called for in this Contract, Contractor, without disturbing the conditions and before performing any Work affected by such conditions, shall, within twenty-four (24) hours of their discovery, notify Contract Administrator and Consultant in writing of the existence of the aforesaid conditions. Consultant and Contract Administrator shall, within two (2) business days after receipt of Contractor's written notice, investigate the site conditions identified by Contractor. If, in the sole opinion of Contract Administrator, the conditions do materially so differ and cause an increase or decrease in Contractor's cost of, or the time required for, the performance of any part of the Work, whether or not charged as a result of the conditions, Contract Administrator may recommend an equitable adjustment to the Contract Price, or the Contract Time, or both. If Contract Administrator and Contractor cannot agree on an adjustment in the Contract Price or Contract Time, the adjustment shall be referred to Consultant for determination in accordance with the provisions of Article 12. No request by Contractor for an equitable adjustment to this Contract under this provision shall be allowed unless Contractor has given written notice to Contract Administrator in strict accordance with the provisions of this article. **No request for an equitable adjustment or change to the Contract Price or Contract Time for differing site conditions shall be allowed if made after the date certified by Contract Administrator as the date of substantial completion.**

ARTICLE 21 PLANS AND WORKING DRAWINGS

County, through Consultant, shall have the right to modify the details of the plans and specifications, to supplement the plans and specifications with additional plans, drawings or additional information as the Work proceeds, all of which shall be considered as part of this Contract. In case of disagreement between the written and graphic portions of this Contract, the written portion shall govern.

ARTICLE 22 CONTRACTOR TO CHECK PLANS, SPECIFICATIONS, AND DATA

Contractor shall verify all dimensions, quantities and details shown on the plans, specifications or other data received from Consultant, and shall notify Consultant of all errors, omissions and discrepancies found therein within three (3) calendar days of discovery. Contractor will not be allowed to take advantage of any error, omission or discrepancy, as full instructions will be furnished by Consultant. Contractor shall not be liable for damages resulting from errors, omissions or discrepancies in this Contract unless Contractor recognized such error, omission or discrepancy and knowingly failed to report it to Consultant.

ARTICLE 23 CONTRACTOR'S RESPONSIBILITY FOR DAMAGES AND ACCIDENTS

23.1. Contractor shall accept full responsibility for the Work against all loss or damage of whatsoever nature sustained until final acceptance by County, and shall promptly repair any damage done from any cause whatsoever, except as provided in Article 30.

23.2. Contractor shall be responsible for all materials, equipment and supplies pertaining to the Project. In the event any such materials, equipment and supplies are lost, stolen, damaged, or destroyed prior to final acceptance by County, Contractor shall replace same without cost to County, except as provided in Article 30.

ARTICLE 24 WARRANTY

Contractor warrants to County that all materials and equipment furnished under this Contract will be new unless otherwise specified and that all of the Work will be of good quality, free from faults and defects, and in conformance with this Contract. All Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. If required by Consultant, Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This warranty is not limited by the provisions of Article 26 herein.

ARTICLE 25 SUPPLEMENTARY DRAWINGS

25.1. When, in the opinion of Consultant, it becomes necessary to explain the Work to be done more fully, or to illustrate the Work further, or to show any changes which may be required, supplementary drawings, with specifications pertaining thereto, will be prepared by Consultant.

25.2. The supplementary drawings shall be binding upon Contractor with the same force as this Contract. Where such supplementary drawings require either less or more than the original quantities of Work, appropriate adjustments shall be made by Change Order.

ARTICLE 26 DEFECTIVE WORK

26.1. Consultant shall have the authority to reject or disapprove Work which Consultant finds to be defective. If required by Consultant, Contractor shall promptly either correct all defective Work or remove such defective Work and replace it with non-defective Work. Contractor shall bear all direct, indirect and consequential costs of such removal or corrections including cost of testing laboratories and personnel.

26.2. Should Contractor fail or refuse to remove or correct any defective Work or to make any necessary repairs in accordance with the requirements of this Contract within the time indicated in writing by Consultant, County shall have the authority to cause the defective Work to be removed or corrected, or make such repairs as may be necessary at Contractor's expense. Any expense incurred by County in making such removals, corrections or repairs, shall be paid for out of any monies due or which may become due to Contractor, or may be charged against the Performance Bond. In the event of failure of Contractor to make all necessary repairs promptly and fully, County may declare Contractor in default.

26.3. If, within one (1) year after Substantial Completion or such longer period of time as may be prescribed by the terms of any applicable special warranty required by this Contract, or by any specific provision of this Contract, any of the Work is found to be defective or not in accordance with this Contract, Contractor, after receipt of written notice from County, shall promptly correct such defective or nonconforming Work within the time specified by County without cost to County, to do so. Nothing contained herein shall be construed to establish a period of limitation with respect to any other obligation which Contractor might have under this Contract, including, but not limited to, Article 24 hereof and any claim regarding latent defects.

26.4. Failure to reject any defective Work or material shall not in any way prevent later rejection when such defect is discovered, or obligate County to final acceptance.

ARTICLE 27 TAXES

Contractor shall pay all applicable sales, consumer, use and other taxes required by law. Contractor is responsible for reviewing the pertinent state statutes involving state taxes and complying with all requirements.

ARTICLE 28 SUBCONTRACTS

28.1. Each Subcontractor must possess certificates of competency and licenses required by law. Contractor shall have a continuing obligation to notify the Contract Administrator and Consultant of any change in Subcontractors.

28.2. Contractor shall not employ any subcontractor against whom County or Consultant may have a reasonable objection. Contractor shall not be required to employ any subcontractor against whom Contractor has a reasonable objection.

28.3. Contractor shall be fully responsible for all acts and omissions of its subcontractors and of persons directly or indirectly employed by its subcontractors and of persons for whose acts any of them may be liable to the same extent that Contractor is responsible for the acts and omissions of persons directly employed by it. Nothing in this Contract shall create any contractual relationship between any Subcontractor and County or any obligation on the part of County to pay or to see the payment of any monies due any Subcontractor. County or Consultant may furnish to any Subcontractor evidence of amounts paid to Contractor on account of specific work performed.

28.4. Contractor agrees to bind specifically every Subcontractor to the applicable terms and conditions of this Contract for the benefit of County.

28.5. Contractor shall perform the Work with its own organization, amounting to not less than fifteen percent (15%) of the Contract Price.

ARTICLE 29 SEPARATE CONTRACTS

29.1. County reserves the right to let other contracts in connection with this Project. Contractor shall afford other persons reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate this Work with theirs.

29.2. If any part of Contractor's Work depends for proper execution or results upon the work of any other persons, Contractor shall inspect and promptly report to Consultant any defects in such Work that render it unsuitable for such proper execution and results. Contractor's failure to so inspect and report shall constitute an acceptance of the other person's work as fit and proper for the reception of Contractor's Work, except as to defects which may develop in other Contractor's Work after the execution of Contractor's Work.

29.3. Contractor shall conduct its operations and take all reasonable steps to coordinate the prosecution of the Work so as to create no interference or impact on any other contractor on the site. Should such interference or impact occur, Contractor shall be liable to the affected contractor for the cost of such interference or impact.

29.4. To insure the proper execution of subsequent Work, Contractor shall inspect the Work already in place and shall at once report to Consultant any discrepancy between the executed Work and the requirements of this Contract.

ARTICLE 30 USE OF COMPLETED PORTIONS

30.1. County shall have the right at its sole option to take possession of and use any completed or partially completed portions of the Project. Such possession and use shall not be deemed an acceptance of any of the Work not completed in accordance with this Contract. If such possession and use increases the cost of or delays the Work, Contractor shall be entitled to reasonable extra

compensation or reasonable extension of time or both, as recommended by Consultant and approved by County.

30.2. In the event County takes possession of any completed or partially completed portions of the Project, the following shall occur:

30.2.1. County shall give notice to Contractor in writing at least thirty (30) calendar days prior to County's intended occupancy of a designated area.

30.2.2. Contractor shall complete to the point of Substantial Completion the designated area and request inspection and issuance of a Certificate of Substantial Completion (Form 007600-1) from Consultant.

30.2.3 Upon Consultant's issuance of a Certificate of Substantial Completion, County will assume full responsibility for maintenance, utilities, subsequent damages of County and public, adjustment of insurance coverages and start of warranty for the occupied area.

30.2.4 Contractor shall complete all items noted on the Certificate of Substantial Completion within the time specified by Consultant on the Certificate of Substantial Completion, as soon as possible and request final inspection and final acceptance of the portion of the Work occupied. Upon completion of final inspection and receipt of an application for final payment, Consultant shall issue a Final Certificate of Payment relative to the occupied area.

30.2.5. If County finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion thereof, such occupancy or use shall not commence prior to a time mutually agreed upon by County and Contractor and to which the insurance company or companies providing the property insurance have consented by endorsement to the policy or policies. Insurance on the unoccupied or unused portion or portions shall not be canceled or lapsed on account of such partial occupancy or use. Consent of Contractor and of the insurance company or companies to such occupancy or use shall not be unreasonably withheld.

ARTICLE 31 LANDS OF WORK

31.1. County shall provide, as may be indicated in this Contract, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands as are designated by County for the use of Contractor.

31.2. Contractor shall provide, at Contractor's own expense and without liability to County, any additional land and access thereto that may be required for temporary construction facilities, or for storage of materials. Contractor shall furnish to County copies of written permission obtained by Contractor from the owners of such land.

ARTICLE 32 LEGAL RESTRICTIONS AND TRAFFIC PROVISIONS

Contractor shall conform to and obey all applicable laws, regulations, or ordinances with regard to labor employed, hours of work and Contractor's general operations. Contractor shall conduct its operations so as not to close any thoroughfare, nor interfere in any way with traffic on railway, highways, or water, without the written consent of the proper authorities.

ARTICLE 33 LOCATION AND DAMAGE TO EXISTING FACILITIES, EQUIPMENT, OR UTILITIES

33.1. Utility lines in the Project area have been shown on the plans. However, County does not guarantee that all lines are shown, or that the ones indicated are in their true location. It shall be Contractor's responsibility to identify and locate all underground and overhead utility lines or equipment affecting or affected by the Project. No additional payment will be made to Contractor because of discrepancies in actual and plan location of utilities, and additional costs suffered as a result thereof.

33.2. Contractor shall notify each utility company involved at least thirty (30) days prior to the start of construction to arrange for positive underground location, relocation or support of its utility where that utility may be in conflict with or endangered by the proposed construction. Relocation of water mains or other utilities for the convenience of Contractor shall be paid by Contractor. All charges by utility companies for temporary support of its utilities shall be paid for by Contractor. All costs of permanent utility relocation to avoid conflict shall be the responsibility of the utility company involved. No additional payment will be made to Contractor for utility relocations, whether or not said relocation is necessary to avoid conflict with other lines.

33.3. Contractor shall schedule the Work in such a manner that the Work is not delayed by the utility providers relocating or supporting their utilities. Contractor shall coordinate its activities with any and all public and private utility providers occupying the right-of-way. No compensation will be paid to Contractor for any loss of time or delay.

33.4. All overhead, surface or underground structures and utilities encountered are to be carefully protected from injury or displacement. All damage to such structures is to be completely repaired within a reasonable time; needless delay will not be tolerated. County reserves the right to remedy such damage by ordering outside parties to make such repairs at the expense of Contractor. All such repairs made by Contractor are to be made to the satisfaction of the utility owner. All damaged utilities must be replaced or fully repaired. All repairs are to be inspected by the utility owner prior to backfilling.

ARTICLE 34 VALUE ENGINEERING

Contractor may request substitution of materials, articles, pieces of equipment, or any changes that reduce the Contract Price by making such request to Consultant in writing. Consultant will be the sole judge of acceptability, and no substitute will be ordered, installed, used or initiated without Consultant's prior written acceptance which will be evidenced by either a Change Order

or an approved Shop Drawing. However, any substitution accepted by Consultant shall not result in any increase in the Contract Price or Contract Time. By making a request for substitution, Contractor agrees to pay directly to Consultant all Consultant's fees and charges related to Consultant's review of the request for substitution, whether or not the request for substitution is accepted by Consultant. Any substitution submitted by Contractor must meet the form, fit, function, and life cycle criteria of the item proposed to be replaced and there must be a net dollar savings including Consultant review fees and charges. If a substitution is approved, the net dollar savings shall be shared equally between Contractor and County and shall be processed as a deductive Change Order. County may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute approved after award of this Contract.

ARTICLE 35 PAYMENT BY COUNTY FOR TESTS

Except when otherwise specified in this Contract, the expense of all tests requested by Consultant shall be borne by County and performed by a testing firm chosen by Consultant. For road construction projects, the procedure for making tests required by Consultant will be in conformance with the most recent edition of the State of Florida, Department of Transportation Standard Specifications for Road and Bridge Construction. The cost of any required test which Contractor fails shall be paid for by Contractor.

ARTICLE 36 CHANGE IN THE WORK OR TERMS OF CONTRACT

36.1. Without invalidating this Contract and without notice to any surety, County reserves and shall have the right from time to time to make such increases, decreases, or other changes in the character or quantity of the Work as may be considered necessary or desirable to complete fully and acceptably the proposed construction in a satisfactory manner. Any extra or additional Work within the scope of this Project must be accomplished by means of appropriate Field Orders and Supplemental Instructions or Change Orders.

36.2. Any changes to the terms of this Contract must be contained in a written document, executed by the Parties hereto, with the same formality and of equal dignity prior to the initiation of any Work reflecting such change. This section shall not prohibit the issuance of Change Orders executed only by County as hereinafter provided.

ARTICLE 37 FIELD ORDERS AND SUPPLEMENTAL INSTRUCTIONS

37.1. The Contract Administrator, through Consultant, shall have the right to approve and issue Field Orders setting forth written interpretations of the intent of this Contract and ordering minor changes in Work execution, providing the Field Order involves no change in the Contract Price or the Contract Time.

37.2. Consultant shall have the right to approve and issue Supplemental Instructions setting forth written orders, instructions, or interpretations concerning this Contract or its performance,

provided such Supplemental Instructions involve no change in the Contract Price or the Contract Time.

ARTICLE 38 CHANGE ORDERS

38.1. Changes in the quantity or character of the Work within the scope of the Project which are not properly the subject of Field Orders or Supplemental Instructions, including all changes resulting in changes in the Contract Price, or the Contract Time, shall be authorized only by Change Orders approved in advance and issued in accordance with the provisions of the Broward County Procurement Code, as amended from time to time.

38.2. Contractor shall not start work on any changes requiring an increase in the Contract Price or the Contract Time until a Change Order setting forth the adjustments is approved by the County. Upon receipt of a Change Order, Contractor shall promptly proceed with the Work set forth within the document.

38.3. In the event satisfactory adjustment cannot be reached for any item requiring a change in the Contract Price or Contract Time, and a Change Order has not been issued, County reserves the right at its sole option to either terminate this Contract as it applies to the items in question and make such arrangements as may be deemed necessary to complete the disputed Work; or submit the matter in dispute to Consultant as set forth in Article 12 hereof. During the pendency of the dispute, and upon receipt of a Change Order approved by County, Contractor shall promptly proceed with the change in the Work involved and advise the Consultant and Contract Administrator in writing within seven (7) calendar days of Contractor's agreement or disagreement with the method, if any, provided in the Change Order for determining the proposed adjustment in the Contract Price or Contract Time.

38.4. On approval of any Contract change increasing the Contract Price, Contractor shall ensure that the performance bond and payment bond are increased so that each reflects the total Contract Price as increased.

38.5. Under circumstances determined necessary by County, Change Orders may be issued unilaterally by County.

ARTICLE 39 VALUE OF CHANGE ORDER WORK

39.1. The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

39.1.1. Where the Work involved is covered by unit prices contained in this Contract, by application of unit prices to the quantities of items involved, subject to the provisions of Section 39.7.

39.1.2. By mutual acceptance of a lump sum which Contractor and County acknowledge contains a component for overhead and profit.

39.1.3. On the basis of the "cost of work," determined as provided in Sections 39.2 and 39.3, plus a Contractor's fee for overhead and profit which is determined as provided in Section 39.4.

39.2. The term "cost of work" means the sum of all direct costs necessarily incurred and paid by Contractor in the proper performance of the Work described in the Change Order. Except as otherwise may be agreed to in writing by County, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in Section 39.3.

39.2.1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work described in the Change Order under schedules of job classifications agreed upon by County and Contractor. Payroll costs for employees not employed full time on the Work covered by the Change Order shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay application thereto. Such employees shall include superintendents and foremen at the site. The expenses of performing the Work after regular working hours, on Sunday or legal holidays, shall be included in the above to the extent authorized by County.

39.2.2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and manufacturers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless County deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to County. All trade discounts, rebates and refunds, and all returns from sale of surplus materials and equipment shall accrue to County and Contractor shall make provisions so that they may be obtained. Rentals of all construction equipment and machinery and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by County with the advice of Consultant and the costs of transportation, loading, unloading, installation, dismantling and removal thereof, all in accordance with the terms of said agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

39.2.3. Payments made by Contractor to Subcontractors for work performed by Subcontractors. If required by County, Contractor shall obtain competitive bids from Subcontractors acceptable to Contractor and shall deliver such bids to County who will then determine, with the advice of Consultant, which bids will be accepted. If the Subcontract provides that the Subcontractor is to be paid on the basis of cost of the work

plus a fee, the Subcontractor's cost of the work shall be determined in the same manner as Contractor's cost of the work. All Subcontractors shall be subject to the other provisions of this Contract insofar as applicable.

39.2.4. Cost of special consultants, including, but not limited to, engineers, architects, testing laboratories, and surveyors employed for services specifically related to the performance of the work described in the Change Order only if pre-approved in writing by the Contract Administrator.

39.2.5. Supplemental costs including the following:

39.2.5.1. The proportion of necessary transportation, travel and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work except for local travel to and from the site of the Work.

39.2.5.2. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost less market value of such items used but not consumed which remains the property of Contractor.

39.2.5.3. Sales, use, or similar taxes related to the Work, and for which Contractor is liable, imposed by any governmental authority.

39.2.5.4. Deposits lost for causes other than Contractor's negligence; royalty payments and fees for permits and licenses.

39.2.5.5. The cost of utilities, fuel and sanitary facilities at the site.

39.2.5.6. Receipted minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

39.2.5.7. Cost of premiums for additional bonds and insurance required because of changes in the Work.

39.3. The term "cost of the work" shall not include any of the following:

39.3.1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, schedulers, lawyers, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by Contractor whether at the site or in its principal or a branch office for general administration of the Work and not specifically included in the agreed-upon schedule of

job classifications referred to in subsection 39.2.1, all of which are to be considered administrative costs covered by Contractor's fee.

39.3.2. Expenses of Contractor's principal and branch offices other than Contractor's office at the site.

39.3.3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

39.3.4. Cost of premiums for all Bonds and for all insurance whether or not Contractor is required by this Contract to purchase and maintain the same, except for additional bonds and insurance required because of changes in the Work.

39.3.5. Costs due to the negligence or neglect of Contractor, any Subcontractors, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

39.3.6. Other overhead or general expense costs of any kind.

39.4. Contractor's fee allowed to Contractor for overhead and profit shall be determined as follows:

39.4.1. A mutually acceptable fixed fee, or if none can be agreed upon; or

39.4.2. A fee based on the following percentages of the various portions of the cost of the work:

39.4.2.1. For costs incurred under subsections 39.2.1 and 39.2.2, Contractor's fee shall not exceed ten percent (10%).

39.4.2.2. For costs incurred under subsection 39.2.3, Contractor's fee shall not exceed seven and one half percent (7.5%); and if a subcontract is on the basis of cost of the work plus a fee, the maximum allowable to the Subcontractor as a fee for overhead and profit shall not exceed ten percent (10%); and

39.4.2.3. No fee shall be payable on the basis of costs itemized under subsections 39.2.4 and 39.2.5 (except subsection 39.2.5.3) and Section 39.3.

39.5. The amount of credit to be allowed by Contractor to County for any such change which results in a net decrease in cost, will be the amount of the actual net decrease. When both additions and credits are involved in any one change, the combined overhead and profit shall be figured on the basis of the net increase, if any, however, Contractor shall not be entitled to claim lost profits for any Work not performed.

39.6. Whenever the cost of any Work is to be determined pursuant to Sections 39.2 and 39.3, Contractor will submit in a form acceptable to Consultant an itemized cost breakdown together with the supporting data.

39.7. Where the quantity of any item of the Work that is covered by a unit price is increased or decreased by more than twenty percent (20%) from the quantity of such Work indicated in this Contract, an appropriate Change Order shall be issued to adjust the unit price, if warranted.

39.8. Whenever a change in the Work is to be based on mutual acceptance of a lump sum, whether the amount is an addition, credit or no change-in-cost, Contractor shall submit an initial cost estimate acceptable to Consultant and Contract Administrator.

39.8.1. Breakdown shall list the quantities and unit prices for materials, labor, equipment and other items of cost.

39.8.2. Whenever a change involves Contractor and one or more Subcontractors and the change is an increase in the Contract Price, overhead and profit percentage for Contractor and each Subcontractor shall be itemized separately.

39.9. Each Change Order must state within the body of the Change Order whether it is based upon unit price, negotiated lump sum, or "cost of the work."

ARTICLE 40 NOTIFICATION AND CLAIM FOR CHANGE OF CONTRACT TIME OR CONTRACT PRICE

40.1. Any claim for a change in the Contract Time or Contract Price shall be made by written notice by Contractor to the Contract Administrator and to Consultant within five (5) calendar days of the commencement of the event giving rise to the claim or knowledge by Contractor of the claim and the notice shall state the general nature and cause of the claim. Thereafter, within twenty (20) calendar days of the termination of the event giving rise to the claim or knowledge of the claim, written notice of the extent of the claim with supporting information and documentation shall be submitted to the Contract Administrator and Consultant (hereinafter "Claim Notice"). The Claim Notice shall include Contractor's written notarized certification that the adjustment claimed is the entire adjustment to which the Contractor has reason to believe it is entitled as a result of the occurrence of said event. If the Contract Administrator and Contractor cannot resolve a claim for changes in the Contract Time or Contract Price as set forth in a proper Claim Notice within twenty (20) calendar days after receipt by the Contract Administrator and Consultant, then Contractor shall submit the claim to Consultant within five (5) calendar days from the date of impasse in accordance with Article 12 hereof. **IT IS EXPRESSLY AND SPECIFICALLY AGREED THAT ANY AND ALL CLAIMS FOR CHANGES TO THE CONTRACT TIME OR CONTRACT PRICE SHALL BE WAIVED IF NOT SUBMITTED IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THIS SECTION.**

40.2. The Contract Time will be extended in an amount equal to time lost on critical Work items due to delays beyond the control of and through no fault or negligence of Contractor if a claim is made therefor as provided in Section 40.1. Such delays shall include, but not be limited to, acts or neglect by any separate contractor employed by County, fires, floods, labor disputes, epidemics, abnormal weather conditions or acts of God.

ARTICLE 41 NO DAMAGES FOR DELAY

No claim for damages or any claim, other than for an extension of time, shall be made or asserted against County by reason of any delays except as provided herein. Contractor shall not be entitled to an increase in the Contract Price or payment or compensation of any kind from County for direct, indirect, consequential, impact or other costs, expenses or damages, including but not limited to costs of acceleration or inefficiency, arising because of delay, disruption, interference or hindrance from any cause whatsoever, whether such delay, disruption, interference or hindrance be reasonable or unreasonable, foreseeable or unforeseeable, or avoidable or unavoidable; provided, however, that this provision shall not preclude recovery of damages by Contractor for actual delays due solely to fraud, bad faith or active interference on the part of County or its Consultant. Otherwise, Contractor shall be entitled only to extensions of the Contract Time as the sole and exclusive remedy for such resulting delay, in accordance with and to the extent specifically provided above.

ARTICLE 42 EXCUSABLE DELAY; COMPENSABLE; NON-COMPENSABLE

42.1. Excusable Delay. Delay which extends the completion of the Work and which is caused by circumstances beyond the control of Contractor or its Subcontractors, suppliers, or vendors are Excusable Delay. Contractor is entitled to a time extension of the Contract Time for each day the Work is delayed due to Excusable Delay. Contractor shall document its claim for any time extension as provided in Article 40 hereof. Failure of Contractor to comply with Article 40 hereof as to any particular event of delay shall be deemed conclusively to constitute a waiver, abandonment or relinquishment of any and all claims resulting from that particular event of delay. Excusable Delay may be compensable or non-compensable.

42.1.1. Compensable Excusable Delay. Excusable Delay is compensable when (i) the delay extends the Contract Time, (ii) is caused by circumstances beyond the control of the Contractor or its subcontractors, suppliers or vendors, and (iii) is caused solely by fraud, bad faith or active interference on the part of County or its agents. In no event shall Contractor be compensated for interim delays which do not extend the Contract Time. Contractor shall be entitled to direct and indirect costs for Compensable Excusable Delay. Direct costs recoverable by Contractor shall be limited to the actual additional costs allowed pursuant to Article 39 hereof.

County and Contractor recognize and agree that the amount of Contractor's precise actual indirect costs for delay in the performance and completion of the Work is impossible to determine as of the date of execution of this Contract, and that proof of the

precise amount will be difficult. Therefore, indirect costs recoverable by the Contractor shall be liquidated on a daily basis for each day the Contract Time is delayed due to a Compensable Excusable Delay. These liquidated indirect costs shall be paid to compensate Contractor for all indirect costs caused by a Compensable Excusable Delay and shall include, but not be limited to, lost profits, all profit on indirect costs, home office overhead, acceleration, loss of earnings, loss of productivity, loss of bonding capacity, loss of opportunity and all other indirect costs incurred by Contractor. The amount of liquidated indirect costs recoverable shall be Four Hundred Fifty Dollars (\$450.00) per day for each calendar day this Contract is delayed due to a Compensable Excusable Delay.

42.1.2. Non-Compensable Excusable Delay. When Excusable Delay is (i) caused by circumstances beyond the control of Contractor, its Subcontractors, suppliers and vendors; (ii) is caused by circumstances beyond the control of the County or Consultant, or (iii) is caused jointly or concurrently by Contractor or its Subcontractors, suppliers or vendors and by the County or Consultant, then Contractor shall be entitled only to a time extension and no further compensation for the delay.

ARTICLE 43 SUBSTANTIAL COMPLETION

When Contractor considers that the Work, or a portion thereof designated by County pursuant to Article 30 hereof, has reached Substantial Completion, Contractor shall so notify the Contract Administrator and Consultant in writing. Consultant and the Contract Administrator shall then promptly inspect the Work. When Consultant, on the basis of such an inspection, determines that the Work or designated portion thereof is substantially complete, it will then prepare a Certificate of Substantial Completion (Form 007600-1). The Contract Administrator shall affix its determination to the Certificate of Substantial Completion which shall establish the Date of Substantial Completion. The Certificate of Substantial Completion shall state the responsibilities of County and Contractor for security, maintenance, heat, utilities, damage to the Work, and insurance. The Consultant and the Contract Administrator shall develop and Contractor shall review the list of all Work yet to be completed by Contractor to satisfy the requirements of this Contract for Final Completion and to make the Work satisfactory and acceptable. The list shall be provided to Contractor within five (5) days after final development and review. If the final list is not provided within the stated five (5) days, the Contract Time for completion shall be extended by the number of days exceeding the five days. The failure to include any items of corrective Work on such list does not alter the responsibility of Contractor to complete all of the Work in accordance with this Contract. Warranties required by this Contract shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Contract Administrator and Contractor for their written acceptance of the responsibilities assigned to them in the Certificate of Substantial Completion.

ARTICLE 44 NO INTEREST

44.1 County shall not be liable to pay any interest to Contractor for any reason, whether as prejudgment interest or for any other purpose, and in furtherance thereof Contractor waives, rejects, disclaims and surrenders any and all entitlement it has or may have to receive interest in connection with a dispute or claim arising from, related to, or in connection with this Contract. This section shall not apply to any claim for interest, including for post-judgment interest, if such application would be contrary to applicable law.

44.2 If the preceding section is inapplicable or is determined to be invalid or unenforceable by a court of competent jurisdiction, the annual rate of interest payable by County under this Contract, whether as prejudgment interest or for any other purpose, shall be, to the full extent permissible under applicable law, 0.25% (one quarter of one percent) simple interest (uncompounded).

ARTICLE 45 SHOP DRAWINGS

45.1. Contractor shall submit Shop Drawings as required by the Technical Specifications. The purpose of the Shop Drawings is to show the suitability, efficiency, technique of manufacture, installation requirements, details of the item and evidence of its compliance or noncompliance with this Contract.

45.2. Within thirty (30) calendar days after the Project Initiation Date specified in the Notice to Proceed, Contractor shall submit to Consultant a complete list of preliminary data on items for which Shop Drawings are to be submitted and shall identify the critical items. Approval of this list by Consultant shall in no way relieve Contractor from submitting complete Shop Drawings and providing materials, equipment, etc., fully in accordance with this Contract. This procedure is required in order to expedite final approval of Shop Drawings.

45.3. After the approval of the list of items required in Section 45.2 above, Contractor shall promptly request Shop Drawings from the various manufacturers, fabricators, and suppliers. Contractor shall include all shop drawings and other submittals in its certification.

45.4. Contractor shall thoroughly review and check the Shop Drawings and each and every copy shall show this approval thereon.

45.5. If the Shop Drawings show or indicate departures from the Contract requirements, Contractor shall make specific mention thereof in its letter of transmittal. Failure to point out such departures shall not relieve Contractor from its responsibility to comply with this Contract.

45.6. Consultant shall review and approve Shop Drawings within twenty-one (21) calendar days from the date received, unless said Drawings are rejected by Consultant for material reasons. Consultant's approval of Shop Drawings will be general and shall not relieve Contractor of responsibility for the accuracy of such Drawings, nor for the proper fitting and construction of

the work, nor for the furnishing of materials or Work required by this Contract and not indicated on the Drawings. No Work called for by Shop Drawings shall be performed until the said Drawings have been approved by Consultant. Approval shall not relieve Contractor from responsibility for errors or omissions of any sort on the Shop Drawings.

45.7. No approval will be given to partial submittals of Shop Drawings for items which interconnect or are interdependent where necessary to properly evaluate the design. It is Contractor's responsibility to assemble the Shop Drawings for all such interconnecting or interdependent items, check them and then make one submittal to Consultant along with its comments as to compliance, noncompliance, or features requiring special attention.

45.8. If catalog sheets or prints of manufacturers' standard drawings are submitted as Shop Drawings, any additional information or changes on such drawings shall be typewritten or lettered in ink.

45.9. Contractor shall submit the number of copies required by Consultant. Resubmissions of Shop Drawings shall be made in the same quantity until final approval is obtained.

45.10. Contractor shall keep one set of Shop Drawings marked with Consultant's approval at the job site at all times.

ARTICLE 46 FIELD LAYOUT OF THE WORK AND RECORD DRAWINGS

46.1. Contractor shall utilize Building Information Modeling ("BIM") and develop and finalize a BIM model based on the 'as-constructed' building elements, approved substitutions and change orders for the Project in accordance with Exhibit D, BIM and Electronic Media Requirements, attached hereto and incorporated herein.

46.2. The entire responsibility for establishing and maintaining line and grade in the field lies with Contractor. Contractor shall maintain an accurate and precise record of the location and elevation of all pipe lines, conduits, structures, maintenance access structures, handholes, fittings and the like and shall prepare record or "as-built" drawings of the same which are sealed by a Professional Surveyor. Contractor shall deliver these records in good order to Consultant as the Work is completed. The cost of all such field layout and recording work is included in the prices bid for the appropriate items. All record drawings shall be made on reproducible paper, and in an electronic format in accordance with Exhibit D, BIM and Electronic Media Requirements.

46.3. Contractor shall maintain in a safe place at the Project site one record copy of all Drawings, Plans, Specifications, Addenda, written amendments, Change Orders, Field Orders and written interpretations and clarifications in good order and annotated to show all changes made during construction. These record documents together with all approved samples and a counterpart of all approved Shop Drawings shall be available at all times to Consultant for reference. Upon Final Completion of the Project and prior to Final Payment, these record documents, samples and Shop Drawings shall be delivered to the Contract Administrator.

46.4. Prior to, and as a condition precedent to Final Payment, Contractor shall submit to County Contractor's record drawings or as-built drawings acceptable to Consultant.

ARTICLE 47 SAFETY AND PROTECTION

47.1. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Project. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

47.1.1. All employees on the work site and other persons who may be affected thereby;

47.1.2. All the Work and all materials or equipment to be incorporated therein, whether in storage on or off the Project site; and

47.1.3. Other property at the Project site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

47.2. Contractor shall comply with all applicable laws, ordinances, rules, regulations, and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and utilities when prosecution of the Work may affect them. All damage, injury or loss to any property referred to in subsections 47.1.2 and 47.1.3 above, caused directly or indirectly, in whole or in part, by Contractor, any Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall be remedied by Contractor. Contractor's duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed and Consultant has issued a notice to County and Contractor that the Work is acceptable except as otherwise provided in Article 30 hereof.

47.3. Contractor shall designate a responsible member of its organization at the Work site whose duty shall be the prevention of accidents. This person shall be Contractor's superintendent unless otherwise designated in writing by Contractor to County.

ARTICLE 48 FINAL BILL OF MATERIALS

Contractor shall be required to submit to County and Consultant a final bill of materials with unit costs for each bid item for supply of materials in place. This shall be an itemized list of all materials with a unit cost for each material and the total shall agree with unit costs established for each Contract item. A Final Certificate for Payment cannot be issued by Consultant until Contractor submits the final bill of materials and Consultant verifies the accuracy of the units of Work.

ARTICLE 49 PROJECT SIGN

Any requirements for a project sign shall be as set forth within the contract construction drawings or Technical Specifications section.

ARTICLE 50 CLEANING UP; COUNTY'S RIGHT TO CLEAN UP

Contractor shall at all times keep the premises free from accumulation of waste materials or rubbish caused by its operations. At the completion of the Project, Contractor shall remove all its waste materials and rubbish from and about the Project as well as its tools, construction equipment, machinery and surplus materials. If Contractor fails to clean up during the prosecution of the Work or at the completion of the Work, County may do so and the cost thereof shall be charged to Contractor. If a dispute arises between Contractor and separate contractors as to their responsibility for cleaning up, County may clean up and charge the cost thereof to the contractors responsible therefore as Consultant shall determine to be just.

ARTICLE 51 HURRICANE PRECAUTIONS

51.1. During such periods of time as are designated by the National Weather Services as being a hurricane watch or warning, the Contractor, at no cost to the County, shall take all precautions necessary to secure the Project site in response to all threatened storm events, regardless of whether the County or Consultant has given notice of same.

51.2. Compliance with any specific hurricane watch or warning precautions will not constitute additional work.

51.3. Suspension of the Work caused by a threatened or actual storm event, regardless of whether the County has directed such suspension, will entitle the Contractor to additional Contract Time as non-compensable, excusable delay, and shall not give rise to a claim for compensable delay.

ARTICLE 52 REMOVAL OF EQUIPMENT

In case of termination of this Contract before completion for any cause whatsoever, Contractor, if notified to do so by County, shall promptly remove any part or all of Contractor's equipment and supplies from the property of County, failing which County shall have the right to remove such equipment and supplies at the expense of Contractor.

ARTICLE 53 DOMESTIC PARTNERSHIP REQUIREMENT

Contractor certifies and represents that it will comply with the County's Domestic Partnership Act (Section 16½-157 of the Broward County Code of Ordinances) during the entire term of this Contract. The failure of the Contractor to comply shall be a material breach of this Contract, entitling the County to pursue any and all remedies provided under applicable law including, but

not limited to (1) retaining all monies due or to become due the Contractor until the Contractor complies; (2) termination of this Contract; and (3) suspension or debarment of the Contractor from doing business with the County.

ARTICLE 54 EEO AND CBE COMPLIANCE

54.1. No party to this Agreement may discriminate on the basis of race, color, sex, religion, national origin, disability, age, marital status, political affiliation, sexual orientation, pregnancy, or gender identity and expression in the performance of this Agreement. Contractor shall include the foregoing or similar language in its contracts with any Subcontractors, except that any project assisted by the U.S. Department of Transportation funds shall comply with the nondiscrimination requirements in 49 C.F.R. Parts 23 and 26.

54.2. Contractor shall affirmatively comply with all applicable provisions of the Americans with Disabilities Act (ADA) in the course of providing any services funded by County, including Titles I and II of the ADA (regarding nondiscrimination on the basis of disability), and all applicable regulations, guidelines, and standards. In addition, Contractor shall take affirmative steps to ensure nondiscrimination in employment against disabled persons.

54.3. By execution of this Contract, Contractor represents that it has not been placed on the discriminatory vendor list (as provided in Section 287.134, Florida Statutes, as may be amended from time to time). County hereby materially relies on such representation in entering into this Contract. An untrue representation of the foregoing shall entitle County to terminate this Contract and recover from Contractor all monies paid by County pursuant to this Contract, and may result in debarment from County's competitive procurement activities.

54.4. Contractor shall comply with all applicable requirements of Section 1-81, Broward County Code of Ordinances, in the award and administration of this Agreement. Failure by Contractor to carry out any of the requirements of this article shall constitute a material breach of this Agreement, which shall permit County to terminate this Agreement or exercise any other remedy provided under this Agreement, the Broward County Code of Ordinances, the Broward County Administrative Code, or under other applicable law, all such remedies being cumulative.

54.5. Contractor will meet the required CBE goal by utilizing the CBE firms listed in Exhibit B (or a CBE firm substituted for a listed firm, if permitted) for twenty-five percent (25%) of total Services under this Agreement (the "Commitment").

54.6. In performing the Services, Contractor shall utilize the CBE firms listed in Exhibit B for the scope of work and the percentage of work amounts identified on each Letter of Intent. Promptly upon execution of this Agreement by County, Contractor shall enter into formal contracts with the CBE firms listed in Exhibit B and, upon request, shall provide copies of the contracts to the Contract Administrator and OESBD.

54.7. Each CBE firm utilized by Contractor to meet the CBE goal must be certified by OESBD. Contractor shall inform County immediately when a CBE firm is not able to perform or if Contractor believes the CBE firm should be replaced for any other reason, so that OESBD may review and verify the good faith efforts of Contractor to substitute the CBE firm with another CBE firm. Whenever a CBE firm is terminated for any reason, Contractor shall provide written notice to OESBD and, upon written approval of the Director of OESBD, shall substitute another CBE firm in order to meet the CBE goal, unless otherwise provided in this Agreement or agreed in writing by the Parties. Such substitution shall not be required in the event the termination results from modification of the Scope of Services and no CBE firm is available to perform the modified Scope of Services; in which event, Contractor shall notify County, and OESBD may adjust the CBE goal by written notice to Contractor. Contractor shall not terminate a CBE firm for convenience without County's prior written consent, which consent shall not be unreasonably withheld.

54.8. The Parties stipulate that if Contractor fails to meet the Commitment, the damages to County arising from such failure are not readily ascertainable at the time of contracting. If Contractor fails to meet the Commitment and County determines, in the sole discretion of the OESBD Program Director, that Contractor failed to make Good Faith Efforts (as defined in Section 1-81, Broward County Code of Ordinances) to meet the Commitment, Contractor shall pay County liquidated damages in an amount equal to fifty percent (50%) of the actual dollar amount by which Contractor failed to achieve the Commitment, up to a maximum amount of ten percent (10%) of the total contract amount excluding costs and reimbursable expenses. An example of this calculation is stated in Section 1-81.7, Broward County Code of Ordinances. As elected by County, such liquidated damages amount shall be either credited against any amounts due from County, or must be paid to County within thirty (30) days after written demand. These liquidated damages shall be County's sole contractual remedy for Contractor's breach of the Commitment, but shall not affect the availability of administrative remedies under Section 1-81. Any failure to meet the Commitment attributable solely to force majeure, changes to the scope of work by County, or inability to substitute a CBE Subcontractor where the OESBD Program Director has determined that such inability is due to no fault of Contractor, shall not be deemed a failure by Contractor to meet the Commitment.

54.9. Contractor acknowledges that the Board, acting through OESBD, may make minor administrative modifications to Section 1-81, Broward County Code of Ordinances, which shall become applicable to this Agreement if the administrative modifications are not unreasonable. Written notice of any such modification shall be provided to Contractor and shall include a deadline for Contractor to notify County in writing if Contractor concludes that the modification exceeds the authority under this section. Failure of Contractor to timely notify County of its conclusion that the modification exceeds such authority shall be deemed acceptance of the modification by Contractor.

54.10. County may modify the required participation of CBE firms under this Agreement in connection with any amendment, extension, modification, change order, or Work Authorization to this Agreement that, by itself or aggregated with previous amendments, extensions, modifications, change orders, or Work Authorizations, increases the initial Agreement price by

ten percent (10%) or more. Contractor shall make a good faith effort to include CBE firms in work resulting from any such amendment, extension, modification, change order, or Work Authorization, and shall report such efforts, along with evidence thereof, to OESBD.

54.11. Contractor shall provide written monthly reports to the Contract Administrator attesting to Contractor's compliance with the CBE goal stated in this article. In addition, Contractor shall allow County to engage in onsite reviews to monitor Contractor's progress in achieving and maintaining Contractor's contractual and CBE obligations. The Contract Administrator in conjunction with OESBD shall perform such review and monitoring, unless otherwise determined by the County Administrator.

54.12. The Contract Administrator may increase allowable retainage or withhold progress payments if Contractor fails to demonstrate timely payments of sums due to all Subcontractors and suppliers. The presence of a "pay when paid" provision in a Contractor's contract with a CBE firm shall not preclude County or its representatives from inquiring into allegations of nonpayment.

ARTICLE 55 PUBLIC RECORDS

55.1. Public Records. To the extent Contactor is acting on behalf of County as stated in Section 119.0701, Florida Statutes, Contactor shall:

55.1.1. Keep and maintain public records required by County to perform the services under this Contract;

55.1.2. Upon request from County, provide County with a copy of the requested records or allow the records to be inspected or copied within a reasonable time and at a cost that does not exceed that provided in Chapter 119, Florida Statutes, or as otherwise provided by law;

55.1.3. Ensure that public records that are exempt or confidential and exempt from public record requirements are not disclosed except as authorized by law for the duration of this Contract and following completion or termination of this Contract if the records are not transferred to County; and

55.1.4. Upon completion or termination of this Contract, transfer to County, at no cost, all public records in possession of Provider or keep and maintain public records required by County to perform the services. If Contactor transfers the records to County, Contactor shall destroy any duplicate public records that are exempt or confidential and exempt. If Contactor keeps and maintains public records, Contactor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to County upon request in a format that is compatible with the information technology systems of County.

The failure of Contactor to comply with the provisions of this article shall constitute a material breach of this Contract entitling County to exercise any remedy provided in this Contract or under applicable law.

A request for public records regarding this Contract must be made directly to County, who will be responsible for responding to any such public records requests. Contactor will provide any requested records to County to enable County to respond to the public records request.

Any material submitted to County that Contactor contends constitutes or contains trade secrets or is otherwise exempt from production under Florida public records laws (including Florida Statutes Chapter 119) ("Trade Secret Materials") must be separately submitted and conspicuously labeled "EXEMPT FROM PUBLIC RECORD PRODUCT – TRADE SECRET." In addition, Contactor must, simultaneous with the submission of any Trade Secret Materials, provide a sworn affidavit from a person with personal knowledge attesting that the Trade Secret Materials constitute trade secrets under Florida Statutes Section 812.081 and stating the factual basis for same. In the event that a third party submits a request to County for records designated by Contactor as Trade Secret Materials, County shall refrain from disclosing the Trade Secret Materials, unless otherwise ordered by a court of competent jurisdiction or authorized in writing by Contactor. Contactor shall indemnify and defend County and its employees and agents from any and all claims, causes of action, losses, fines, penalties, damages, judgments and liabilities of any kind, including attorneys' fees, litigation expenses, and court costs, relating to the non-disclosure of any Trade Secret Materials in response to a records request by a third party.

IF CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF FLORIDA STATUTES CHAPTER 119 TO CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT (954) 357-5638, DHawke@Broward.org, 115 S. ANDREWS AVENUE, SUITE GC-East-550, Annex Building, FORT LAUDERDALE, FLORIDA 33301.

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007300 SUPPLEMENTAL GENERAL CONDITIONS

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007343 SUPPLEMENTAL WAGE REQUIREMENTS

1. Prevailing Wage Rate Ordinance - This Project is not federally funded. If this Contract is in excess of Two Hundred Fifty Thousand Dollars (\$250,000.00), the following sections shall apply.

1.1. The rate of wages and fringe benefit payments for all laborers, mechanics, and apprentices shall not be less than those payments for similar skills in classifications of work in a like construction industry as determined by the Secretary of Labor and as published in the Federal Register (latest revision is attached hereto).

1.2. All mechanics, laborers, and apprentices, employed or working directly upon the site of the Work shall be paid in accordance with the above referenced wage rates. Contractor shall post notice of these provisions at the site of the Work in a prominent place where it can be easily seen by the workers.

1.3. If the Parties cannot agree on the proper classification of a particular class of laborers or mechanics or apprentices to be used, the Contract Administrator shall submit the question, together with its recommendation, to the County Administrator for final determination.

1.4. In the event it is found by the Contract Administrator that any laborer or mechanic or apprentice employed by Contractor, or any subcontractor directly on the site of the Work has been or is being paid at a rate of wages less than the rate of wages required by the ordinance, the Contract Administrator may (1) by written notice to Contractor terminate its right to proceed with the Work or such part of Work for which there has been a failure to pay said required wages; and (2) prosecute the Work or portion thereof to completion by contract or otherwise. Whereupon, Contractor and its sureties shall be liable to County for any excess costs occasioned to County thereby.

1.5. Sections 1.1 through 1.4 above shall apply to this Contract to the extent that it is (1) a prime contract subject to the ordinance; or (2) a subcontract also subject to the ordinance under such prime Contract.

1.6. Contractor shall maintain payrolls and basic records relating thereto during the course of the Work and shall preserve such for a period of three (3) years thereafter for all laborers, mechanics, and apprentices working at the site of the Work. Such records shall contain the name and address of each such employee; its current classification; rate of pay (including rates of contributions for, or costs assumed to provide, fringe benefits); daily and weekly number of hours worked; deductions made; and actual wages paid.

1.7. Contractor shall submit, with each requisition for payment, a signed and sworn "Statement of Compliance" (007500-8) attesting to compliance with the Prevailing Wage Ordinance, Section 26-5 of the Broward County of Ordinances, as amended.

1.8. The Contract Administrator may withhold or cause to be withheld from Contractor so much of the payments requisitioned as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and guards employed by Contractor or any Subcontractor on the work, the full amount of wages required by this Contract.

1.9. If Contractor or any Subcontractor fails to pay any laborer, mechanic, or apprentice employed or working on the site of the Work all or part of the wages required by this Contract, the Contract Administrator may, after written notice to Contractor, take such action as may be necessary to cause suspension of any further payments or advances until such violations have ceased.

2. Federal Grant Projects:

2.1. By virtue of the fact that the funding of this Project will be delivered in full or in part from the United States government through _____ [Federal Agency] _____ and referred to as _____ No. _____, Federal assurances must follow the grant application in addition to any and all supervening assurances set forth in Rules and Regulations published in Federal Register or C.F.R.

2.2. Clauses, terms, or conditions required by federal grantor agency are hereby attached and made a part of this Contract.

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FORM 007500-1: PERFORMANCE BOND

Project Name: Lauderhill Mall Transit Center
 Bid Project Number: PNC2119699C1

BY THIS BOND, We, Emerald Construction Corporation, as Principal, hereinafter called Contractor, and _____, as Surety, under the assigned Bond Number _____, are bound to Broward County, Florida, as Obligee, hereinafter called County, in the amount of _____ Dollars (\$_____) for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally.

WHEREAS, Contractor has by written agreement dated the _____ day of _____, 20____, entered into a Contract, Bid/Contract No. PNC2119699C1, with County, which Contract Documents are by reference incorporated herein and made a part hereof, including any and all provisions for liquidated damages, and other damages identified, and for the purposes of this Bond are hereafter referred to as the "Contract";

THE CONDITION OF THIS BOND is that if Contractor:

- 1) Performs the Contract between Contractor and County for construction of _____, in the time and manner prescribed in the Contract; and
- 2) Pays County all losses, liquidated damages, expenses, costs and attorneys' fees including appellate proceedings, that County sustains as a result of default by Contractor under the Contract; and
- 3) Performs the guaranties of all work and materials furnished under the Contract for the time specified in the Contract; then THIS BOND IS VOID, OTHERWISE IT REMAINS IN FULL FORCE AND EFFECT.

Whenever Contractor shall be, and is declared by County to be, in default under the Contract, County having performed County's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

- a) Complete the required performance in accordance with the terms and conditions of the Contract Documents; or
- b) Obtain a bid or bids for completing the Project in accordance with the terms and conditions of the Contract Documents, and upon determination by Surety of the lowest responsible Bidder, or, if County elects, upon determination by County and Surety jointly of the lowest responsible Bidder, arrange for a contract between such Bidder and County on the same terms and conditions as the Contract Documents unless otherwise agreed by County, and make available as work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph)

sufficient funds to pay the cost of completion less the balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the Contract Price," as used in this paragraph, shall mean the total amount payable by County to Contractor under the Contract and any amendments thereto, less the amount properly paid by County to Contractor.

No right of action shall accrue on this bond to or for the use of any person or corporation other than Broward County named herein.

The Surety hereby waives notice of and agrees that any changes in or under the Contract Documents and compliance or noncompliance with any formalities connected with the Contract or the changes does not affect Surety's obligation under this Bond.

Signed and sealed this 11 day of January, 2020.

ATTEST:

[Signature]
Corporate Secretary or other person authorized to attest

Sugey Granados
Print Name

CONTRACTOR

By: [Signature]
Authorized Signor

Ramiro Gomez, VP
Print Name and Title

11 day of January, 2020

(CORPORATE SEAL OR NOTARY)

IN THE PRESENCE OF:

Signature

(Print Name)

Signature

SURETY:

By _____
Agent and Attorney-in-Fact

(Print/Type Name)

Address: _____
(Street)

(City/State/Zip Code)

Telephone No.: _____

FORM 007500-2: PAYMENT BOND

Project Name: Lauderhill mall Transit Center

Bid/ Project Number: PNC2119699C1

KNOW ALL BY THESE PRESENTS:

That we _____, as Principal (hereinafter called "Contractor"), located at _____, phone _____, and _____, as Surety, located at _____, phone _____, under the assigned Bond Number _____ and pursuant to Section 255.05, Florida Statutes, are bound to Broward County, Florida (hereinafter "County"), as Obligee, in the amount of _____ Dollars (\$_____) for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally.

WHEREAS, Contractor has by written agreement dated the ___ of _____, 20____, entered into a Contract, Bid/Contract No. _____, with County for construction of _____ located at _____, which Contract Documents are by reference incorporated herein and for purposes of this Bond are hereafter referred to as the "Contract";

THE CONDITION OF THIS BOND is that if Contractor:

1. Pays County all losses, damages, expenses, costs and attorneys' fees including appellate proceedings, that County sustains because of default by Contractor under the Contract; and
2. Promptly makes payments to all claimants as defined by Florida Statute Section 225.05(1) for all labor, materials and supplies used directly or indirectly by Contractor in the performance of the Contract;

THEN CONTRACTOR'S OBLIGATION SHALL BE VOID; OTHERWISE, IT SHALL REMAIN IN FULL FORCE AND EFFECT SUBJECT, HOWEVER, TO THE FOLLOWING CONDITIONS:

- A. A claimant, except a laborer, who is not in privity with Contractor and who has not received payment for its labor, materials, or supplies shall, within forty-five (45) days after beginning to furnish labor, materials, or supplies for the prosecution of the work, furnish to the Contractor a notice that he or she intends to look to the bond for protection.
- B. A claimant who is not in privity with the Contractor and who has not received payment for its labor, materials, or supplies shall, within ninety (90) days after performance of the labor or after complete delivery of the materials or supplies, deliver to the Contractor and to the Surety, written notice of the performance of the labor or delivery of the materials or supplies and of the nonpayment.

C. No action for the labor, materials, or supplies may be instituted against the Contractor or the Surety unless the notices stated under the preceding conditions (A) and (B) have been given.

D. Any action under this Bond must be instituted in accordance with the Notice and Time Limitations provisions prescribed in Section 255.05(2) and 255.05(10), Florida Statutes.

The Surety hereby waives notice of and agrees that any changes in or under the Contract Documents and compliance or noncompliance with any formalities connected with the Contract or the changes does not affect the Surety's obligation under this Bond.

Signed and sealed this ____ day of _____, 20__.

ATTEST:

CONTRACTOR

Corporate Secretary or other person
authorized to attest

By: _____
Authorized Signor

Print Name

Print Name and Title
____ day of _____, 20__

(CORPORATE SEAL OR NOTARY)

IN THE PRESENCE OF:

SURETY:

Signature

By _____
Agent and Attorney-in-Fact

(Print Name)

(Print/Type Name)

Signature

Address: _____
(Street)

(City/State/Zip Code)

Telephone No.: _____

FORM 007500-4: FORM OF CERTIFICATE AND AFFIDAVIT FOR BONDS \$500,000.00 OR LESS

TO: BROWARD COUNTY
RE: BID NUMBER: PNC2119699C1
BIDDER: _____

Name: _____

Address: _____

Phone: _____

AMOUNT OF BOND: _____

SURETY BOND COMPANY:

Name: _____

Address: _____

Phone: _____

This is to certify that, in accordance with Section 287.0935, Florida Statutes, the insurer named above:

- (1) Is licensed to do business in the State of Florida;
- (2) Holds a certificate of authority authorizing it to write surety bonds in the State of Florida;
- (3) Has twice the minimum surplus and capital required by the Florida Insurance Code;
- (4) Is otherwise in compliance with the provisions of the Florida Insurance Code; and
- (5) Currently holds a valid certificate of authority issued by the United States Department of Treasury under 31 U.S.C. §§ 9304-9308.

(Date Signed)

Agent and Attorney-in-Fact

(continued on next page)

AFFIDAVIT

STATE OF _____)
) SS.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 20____, by _____, Agent and Attorney-in-Fact of _____, who, is personally known to me or who has produced _____ as identification and who did/did not take an oath.

WITNESS my hand and official seal, this _____ day of _____, 20____.

(NOTARY SEAL)

(Signature of person taking acknowledgment)

(Name of officer taking acknowledgment)

(Title or rank)

(Serial number, if any)

My commission expires:

FORM 007500-5: UNCONDITIONAL LETTER OF CREDIT (PERFORMANCE AND PAYMENT GUARANTY) FORM

UNCONDITIONAL LETTER OF CREDIT

Date of Issue _____

Issuing Bank's No. _____

Beneficiary:

Applicant: _____

Broward County,
County Administrator
Governmental Center, Room 409
115 South Andrews Avenue
Fort Lauderdale, FL 33301

Amount: _____
(in United States Funds)

Expiry: _____
(Date)

Bid/Contract Number _____

We hereby authorize you to draw on _____ (Bank, Issuer Name)

at _____ (Branch Address) by order of and for the account of

_____ (Contractor, Applicant, Customer) up to an aggregate amount, in United States

Funds, of \$_____ available by your drafts at sight, accompanied by: A signed statement

from the County Administrator of Broward County, or the County Administrator's authorized

representative that the drawing is due to default in performance of certain obligations on the

part of _____ (Contractor, Applicant, Customer) agreed upon by and between Broward

County and _____ (Contractor, Applicant, Customer) pursuant to the Bid/Contract No.

_____ for _____ (Name of Project) and Section 255.05, Florida Statutes.

Drafts must be drawn and negotiated not later than _____ (expiration date).

Drafts must bear the clause: "Drawn under Letter of Credit No. _____ (number), of

_____ (Bank name) dated _____."

This Letter of Credit shall be renewed for successive periods of one (1) year each unless we provide the Broward County Administrator with written notice of our intent to terminate the

credit herein extended, which notice must be provided at least thirty (30) days prior to the expiration date of the original term hereof or any renewed one (1) year term. Notification to Broward County that this Letter of Credit will expire prior to performance of the Contractor's obligations will be deemed a default.

This Letter of Credit sets forth in full the terms of our undertaking, and such undertaking shall not in any way be modified, or amplified by reference to any documents, instrument, or agreement referred to herein or to which this Letter of Credit is referred or this Letter of Credit relates, and any such reference shall not be deemed to incorporate herein by reference any document, instrument, or agreement.

We hereby agree with the drawers, endorsers, and bona fide holders of all drafts drawn under and in compliance with the terms of this credit that such drafts will be duly honored upon presentation to the drawee.

Obligations under this Letter of Credit shall be released one (1) year after the final completion of the Project by the _____ (Emerald Construction Corporation) _____.

This Credit is subject to the "Uniform Customs and Practice for Documentary Credits," International Chamber of Commerce (2007 revision), Publication No. 600 and to the provisions of Florida law. If a conflict between the Uniform Customs and Practice for Documentary Credits and Florida law should arise, Florida law shall prevail. If a conflict between the law of another state or country and Florida law should arise, Florida law shall prevail.

Authorized Signature



MONTHLY (CBE) UTILIZATION REPORT

Report No. _____

Contract #:	Contract Amount:	Date Form Submitted:	
Project Description:		Project Completion Date:	
Prime Contractor:		Period Ending:	Amt. Paid to Prime:
Contact Person:		Telephone#: ()	Fax#: ()

SUBCONTRACTING INFORMATION

TO BE SUBMITTED TO BROWARD COUNTY OFFICE OF ECONOMIC AND SMALL BUSINESS DEVELOPMENT

CBE Subcontractor	Address	Description of Work	Original Agreed Price	Revised Agreed Price	% of work Completed to Date	Amount Paid This Period	Amount Paid To Date
Total Amount Paid to Subcontractors to Date:							

I certify that the information submitted in this report is in fact true and correct to the best of my knowledge

Signature:	Title:	Date:
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Note: The information provided herein is subject to verification by the Office of Economic and Small Business Development.



FINAL (CBE) UTILIZATION REPORT

Report No. _____

Contract #:	Contract Amount:	Date Form Submitted:	
Project Description:		Project Completion Date:	
Prime Contractor:		Period Ending:	Amt. Paid to Prime:
Contact Person:		Telephone#: ()	Fax#: ()

SUBCONTRACTING INFORMATION

TO BE SUBMITTED TO BROWARD COUNTY OFFICE OF ECONOMIC AND SMALL BUSINESS DEVELOPMENT

CBE Subcontractor	Address	Description of Work	Original Agreed Price	Revised Agreed Price	% of work Completed to Date	Amount Paid This Period	Amount Paid To Date
Total Amount Paid to Subcontractors to Date:							

I certify that the information submitted in this report is in fact true and correct to the best of my knowledge

Signature:	Title:	Date:
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Note: The information provided herein is subject to verification by the Office of Economic and Small Business Development.

OESBD Compliance Form 2009-MUR-F

FORM 007500-8: STATEMENT OF COMPLIANCE (PREVAILING WAGE RATE)

No. _____
Contract No. PNC2119699C1
Project Title Lauderhill Mall Transit Center

The undersigned Contractor hereby swears under penalty of perjury that, during the period covered by the application for payment to which this statement is attached, all mechanics, laborers, and apprentices, employed or working on the site of the Project, have been paid at wage rates, and that the wage rates of payments, contributions, or costs for fringe benefits have not been less than those required by Broward County Code of Ordinance Section 26-5 and the applicable conditions of the Contract.

Dated _____, 20___ _____
Contractor

By _____
(Signature)

By _____
(Name and Title)

STATE OF _____)
) SS.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 20___, by _____ who is personally known to me or who has produced _____ as identification and who did/did not take an oath.

WITNESS my hand and official seal, this _____ day of _____, 20___.

(NOTARY SEAL)

(Signature of person taking acknowledgment)

(Name of officer taking acknowledgment)

(Title or rank)

(Serial number, if any)

My commission expires:

FORM 007500-9: STATEMENT OF COMPLIANCE (DAVIS-BACON ACT)

No. _____
Contract No. PNC2119699C1
Project Title Lauderhill Mall Transit Center

The undersigned Contractor hereby swears under penalty of perjury that, during the period covered by the application for payment to which this statement is attached, all mechanics, laborers, and apprentices, employed or working on the site of the Project, have been paid at wage rates, and that the wage rates of payments, contributions, or costs for fringe benefits have not been less than those required by the Davis-Bacon Act and the applicable conditions of the Contract.

Dated _____, 20____
_____ Contractor

By _____
(Signature)

By _____
(Name and Title)

STATE OF _____)
) SS.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 20____, by _____ who is personally known to me or who has produced _____ as identification and who did/did not take an oath.

WITNESS my hand and official seal, this _____ day of _____, 20____.

(NOTARY SEAL)

(Signature of person taking acknowledgment)

(Print Name of officer taking acknowledgment)

(Title or rank)

My commission expires: _____ (Serial number, if any)

FORM 007500-10: CERTIFICATION OF PAYMENTS TO SUBCONTRACTORS

Contract No. PNC2119699C1

Project Title Lauderhill Mall Transit Center

The undersigned Contractor hereby swears under penalty of perjury that:

1. Contractor has paid all subcontractors all undisputed contract obligations for labor, services, or materials provided on this project within the time period set forth in Sections 218.73 and 218.735, Florida Statutes, as applicable.
2. The following subcontractors have not been paid because of disputed contractual obligations; a copy of the notification sent to each, explaining the good cause why payment has not been made, is attached to this form:

Subcontractor Name and Address	Date of Disputed Invoice	Amount in Dispute

Dated _____, 20__

Contractor

By _____
(Signature)

By _____
(Name and Title)

FORM 007600-1: CERTIFICATE OF SUBSTANTIAL COMPLETION

Contract No. PNC2119699C1

Project (Name and Address): Lauderhill Mall Transit Center

To (County): _____

Consultant: _____

Contractor: _____

Notice to Proceed Date: _____

Consultant: _____

Date of Issuance: _____

Project or Designated Portion Shall Include:

The Work performed under this Contract has been reviewed and found to be substantially complete and all documents required to be submitted by Contractor under the Contract Documents have been received and accepted.

The date of Substantial Completion of the Project or portion thereof designated above is recommended as: _____

Unless otherwise defined in the contract: The definition of date of Substantial Completion is that date, as certified in writing by Consultant and as finally determined by Contract Administrator in its sole discretion, the Work, or a portion thereof, is at a level of completion in substantial compliance with the Contract Documents such that all conditions of permits and regulatory agencies have been satisfied and the Owner or its designee can enjoy use or occupancy and can use or operate it in all respects for its intended purpose. A Certificate of Occupancy (or a Temporary Certificate of Occupancy or other alternate municipal/county authorization for limited or conditional occupancy acceptable to the Contract Administrator) must be issued for Substantial Completion to be achieved, however, the issuance of a Certificate of Occupancy or the date thereof are not to be determinative of the achievement or date of Substantial Completion.

A list of items to be completed or corrected, prepared by Consultant and approved by County is attached hereto. The failure to include any items on such list does not alter the responsibility of Contractor to complete all work in accordance with the Contract Documents.

Consultant

By

Date

In accordance with the terms of the Contract, Contractor will complete or correct the work on the list of items attached hereto within _____ from the above date of Substantial Completion.

Contractor By Date

County, through the Contract Administrator, has determined the Work or portion thereof designated by County is substantially complete and will assume full possession thereof at _____ (time) on _____ (date).

BROWARD COUNTY: _____
By Contract Administrator Date

The responsibilities of County and Contractor for security, maintenance, heat, utilities, damage to the work and insurance shall be as follows: _____

FORM 007600-2: FINAL CERTIFICATE OF PAYMENT

Contract No. PNC2119699C1

Project (Name and Address): Lauderhill mall Transit Center

To (County): _____

Consultant: _____

Contractor: _____

Notice to Proceed Date: _____

Consultant: _____

Date of Issuance: _____

All conditions or requirements of any permits or regulatory agencies have been satisfied. The documents required pursuant to the terms and conditions of the Contract, and the final bill of materials, if required, have been received and accepted. The Work required by the Contract Documents has been reviewed and the undersigned certifies that the Work, including minor corrective work, has been completed in accordance with the provision of the Contract Documents and is accepted under the terms and conditions thereof.

_____	_____	_____
Consultant	By	Date

County, through its Contract Administrator, accepts the work as fully complete and will assume full possession thereof at _____ on _____.
(time) (date)

BROWARD COUNTY:

_____	_____
By Contract Administrator	Date

FORM 007600-3: FORM OF FINAL RECEIPT

[The following form will be used to show receipt of final payment for this Contract.]

FINAL RECEIPT FOR CONTRACT NO. PNC2119699C1

Received this _____ day of _____, 20_____, from Broward County, the sum of _____ Dollars (\$ _____) as full and final payment to Contractor for all work and materials for the Project described as:

This sum includes full and final payment for all extra work and material and all incidentals.

Contractor hereby indemnifies and releases Broward County from all liens and claims whatsoever arising out of the Agreement and Project.

Contractor hereby certifies that all persons doing work upon or furnishing materials or supplies for the Project have been paid in full. In lieu of this certification regarding payment for work, materials and supplies, Contractor may submit a consent of surety to final payment in a form satisfactory to County.

Contractor further certifies that all taxes imposed by Chapter 212, Florida Statutes (Sales and Use Tax Act), as amended, have been paid and discharged.

[If incorporated sign below.]

CONTRACTOR

ATTEST:

CONTRACTOR NAME

Corporate Secretary or other person
authorized to attest

By: _____
Authorized Signor

(CORPORATE SEAL OR NOTARY)

Print Name and Title

_____ day of _____, 20____

[If not incorporated sign below.]

CONTRACTOR

WITNESSES:

(Name)

By _____

Date: _____

FORM 007600-4: FINAL LIST OF NON-CERTIFIED SUBCONTRACTORS AND SUPPLIERS

To: _____, Contractor

From: Broward County Purchasing Division

Subject: Final List of Non-certified Subcontractors/Sub-vendors

Re: Lauderhill mall Transit Center, PNC2119699C1 – (Project Title, Contract Number)

For tracking purposes, the attached list of non-certified subcontractors/sub-vendors have performed or provided services to the County for the referenced contract. Non-certified subcontractors/sub-vendors are any subcontractors/sub-vendors whose services under the Contract were not approved to meet the County’s participation goal established for this Contract and whose participation was not listed on the Contractor’s “Schedule of Participation” and/or not approved as substitutes or additions by the Broward County Office of Economic Small Business Development Division toward meeting the established goal.

The Contractor certifies the following:

There were no other non-certified subcontractors/sub-vendors who provided a service to the County for the referenced Contract. All participants on the Contract are listed on the attached list.

There were other non-certified subcontractors/sub-vendors who provided a service and are not listed on the attached list. The additional subcontractors/sub-vendors are listed on the form attached.

THE UNDERSIGNED VENDOR HEREBY CERTIFIES THAT THE INFORMATION PROVIDED HEREIN IS TRUE AND CORRECT.

The foregoing instrument was acknowledged before me this ___ day of _____, 20___, By _____ (Print Name) as _____ (Title) of _____ (Contractor), known to me to be the person described herein, or who produced _____ as identification, and who did/did not take an oath.

Notary Public:

(Seal)

Commission No: _____ Expires: ___/___/___

State of _____ at Large

FORM 00924: CERTIFICATION OF PAYMENTS TO SUBCONTRACTORS

Bid/Contract No. PNC2119699C1

Project Title: Lauderhill mall Transit Center

The undersigned Contractor hereby swears under penalty of perjury that:

1. Contractor has paid all subcontractors all undisputed contract obligations for labor, services, or materials provided on this project in accordance with this Agreement, except as provided in paragraph 2 below.

2. The following subcontractors have not been paid because of disputed contractual obligations; a copy of the notification sent to each, explaining the good cause why payment has not been made, is attached to this form:

Subcontractor or supplier's name and address	Date of disputed invoice	Amount in dispute

Dated _____, 20__

Contractor

By _____
(Signature)

By _____
(Name and Title)

STATE OF _____)
) SS.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ___ day of _____, 20___, by _____ as _____ of _____, known to me to be the person described herein, or who produced _____ as identification, and who did/did not take an oath.

NOTARY PUBLIC:

(Signature)

SEAL

(Print Name)

My commission expires: _____

LETTER OF INTENT (CBE)

Project Name: Lauderhill mall Transit Center

Bid/Project Number: PNC2119699C1

LETTER OF INTENT

To Utilize a County Business Enterprise (CBE) Subcontractor/Subconsultant

From (Name of Proposer/Bidder): _____

Firm Address: _____

Project Description: _____

In response to Broward County's RLI/Bid No. _____, the undersigned hereby agree to utilize the CBE firm listed below, if awarded the contract. The undersigned further certify that the firm has been contacted and properly apprised of the projected work assignment(s) upon execution of the contract with Broward County.

Name of CBE Firm: _____

Address of CBE Firm: _____

Expiration of CBE Certification: _____ Projected CBE Work Assignment (description of work assignment): _____

Projected Percentage of Prime's Contract Fees to be Awarded to CBE (Percentage %): _____

(Signature of Owner or Authorized Rep. **Prime**)

(Date)

Print Name (owner or authorized Rep. **Prime**): _____

Subscribed and sworn to before me this _____ day of _____ 20_____.

Notary's Signature _____

Notary Seal: _____

(ACKNOWLEDGEMENT BY THE PROPOSED CBE FIRM)

The undersigned intends to perform work in connection with the above Contract as (check one) ___ an individual ___ a partnership ___ a corporation ___ a joint venture. The undersigned agrees with the prime contractor's/consultant's proposal and further certifies that all information provided herein is true and correct.

(Signature of Owner or Authorized Rep. **CBE**)

(Date)

Print Name (owner or authorized Rep. **CBE**): _____

Subscribed and sworn to before me this _____ day of _____ 20_____.

Notary's Signature: _____

Notary Seal: _____

EMPLOYMENT ELIGIBILITY VERIFICATION PROGRAM CONTRACTOR CERTIFICATION

On January 4, 2011, Governor Scott issued Executive Order 11-02 which requires Broward County as a party to any State funded contracts to participate in the Employment Eligibility Verification Program ("E-Verify Program") administered by the U.S. Department of Homeland Security ("DHS"). The E-Verify Program can be found at <http://www.uscis.gov/e-verify>.

The County has entered into a "Memorandum of Understanding" with DHS governing the E-Verify Program. As a result of the adopting the terms and conditions of the "Memorandum of Understanding" with DHS and Execute Order 11-02, any Contractor performing work pursuant to the State funded contract issued by the County is required to use the E-Verify Program to confirm employment eligibility of its current and prospective employees. The undersigned contractor hereby certifies that it will enroll and participate in the E-Verify Program, in accordance with the terms and conditions governing the use of the program by:

- (1) Verifying the employment eligibility of all persons employed during the contract term by the contractor to perform the work under this contract.
- (2) Enrolling in the E-Verify Program within thirty (30) days of the effective date of this contract by obtaining a copy of the "Edit Company Profile" page and make such record available to Broward County within seven days of request from the County.
- (3) Requiring all persons, including subcontractors, assigned by the Contractor to perform work under this contract to enroll and participate in the E-Verify Program within ninety (90) days of the effective date of this contract or within ninety (90) days of the effective date of the contract between the Contractor and the subcontractor, whichever is later. The Contractor shall obtain from the subcontractor a copy of the "Edit Company Profile" screen indicating enrollment in the E-Verify Program and make such record available to the County within seven calendar days from the County's request.
- (4) Displaying the notices supplied by DHS in a prominent place that is clearly visible to prospective employees and all employees who are to be verified through the system.
- (5) Initiate E-Verify verification procedures for new employees within 3 business days after the actual work start date of each new hire and thereafter shall respond appropriately to any additional requests from DHS or Social Security Administration (SSA).
- (6) Maintain records of its participation and compliance with the provisions of the E-Verify Program and make such records available to the County within seven days of County's request.

[Continued on next page]

(Contractor's Signature)

(Print Vendor Name)

STATE OF _____)
) SS.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ___ day of _____, 20___, by _____ as _____ of _____, known to me to be the person described herein, or who produced _____ as identification, and who did/did not take an oath.

NOTARY PUBLIC:

(Signature)

SEAL

(Print Name)

My commission expires: _____

SCRUTINIZED COMPANIES LIST CERTIFICATION

This certification form should be completed and submitted with your proposal but must be completed and submitted prior to award.

The vendor, by virtue of the signature below, certifies that:

- a. The vendor, owners, or principals are aware of the requirements of Section 287.135, Florida Statutes, regarding companies on the Scrutinized Companies with Activities in Sudan List or on the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List; and
- b. The vendor, owners, or principals, are eligible to participate in this solicitation and not listed on either the Scrutinized Companies with Activities in Sudan List or on the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List; and
- c. If awarded the contract, the vendor, owners, or principals will immediately notify the County in writing if any of its principals are placed on the Scrutinized Companies with Activities in Sudan List or on the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List.

(Authorized Signature)

(Print Name and Title)

(Name of Firm)

STATE OF _____)
) SS.
 COUNTY OF _____)

The foregoing instrument was acknowledged before me this ___ day of _____, 20___, by _____ as _____ of _____, known to me to be the person described herein, or who produced _____ as identification, and who did/did not take an oath.

NOTARY PUBLIC:

(Signature)

SEAL

(Print Name)

My commission expires:_____

STATEMENT OF CBE ASSURANCE

(Company Letterhead)

CONTRACTOR ASSURANCE STATEMENT

PROJECT DESCRIPTION

I, _____, (Authorized Official/Agent) on behalf of the
_____ (Contractor) hereby agree to comply with the County
Business Enterprise (CBE) requirements of the RFP between Broward County and (your company)
for _____ Project.

1. Affirm that your company will comply with the County’s non-discrimination policy by providing a non-discrimination Statement and;

2. Acknowledge the CBE percentage goal established on the project and;

3. Agree to engage in good faith effort solicitation of approved Broward County Small Business Development Program firms to achieve the project goals as indicated in the RFP document.

Authorized Agent of Contractor

Printed Name & Title

Telephone Number/Fax Number

Date: _____

EXHIBIT A – LIST OF DRAWING SHEETS

DISCIPLINE

ISSUE DATEVolume I of II

FDOT Traffic Signal and Control (S & S by Jacobs Engineering)

Issue Date

07/29/2019

- T-1 Key Sheet
- T-2 Signature Sheet
- T-3 Tabulation of Quantities
- T-4 Project Notes (1)
- T-5 Project Notes (2)
- T-6 Project Notes (3)
- T-7 Project Notes (4)
- T-8 Project Notes (5)
- T-9 Signalization Plan
- T-10 ITS Plan
- T-11 Fiber Splicing Diagrams
- T-12 Standard Mast Arm Tabulation
- T-13 Standard Mast Arm Assemblies Data Table
- T-14 Sign Details
- T-15 Cross Sections
- GS-1 Report of Core Borings
- GS-2 Report of Core Borings
- GS-3 Report of Core Borings
- GS-4 Report of Core Borings
- GS-5 Report of Core Borings
- GS-6 Report of Core Borings
- TVV-5 Survey of Verified Utilities

Volume II of II

Lauderhill Mall Transit Center (S & S by Saltz Michelson Architects)

ARCHITECTURAL	<u>Issue Date</u>	<u>Revision Date</u>
A0 COVER	07/01/2019	09/18/2019
- SURVEY - 2 PAGES	06/26/2019	00/00/2019

SP	SITE PLAN	07/01/2019	00/00/2019
SP-D	SITE PLAN DEMO	07/01/2019	10/31/2019
SP.1	SITE PLAN DETAILS	07/01/2019	10/31/2019
SP.2	SITE PLAN DETAILS	07/01/2019	09/18/2019
SP.3	STAGING & STORAGE AREA	08/22/2019	09/18/2019
LS-1	LIFE SAFETY PLANS	07/01/2019	09/18/2019
A1.0	FLOOR PLANS	07/01/2019	10/31/2019
A1.2	FLOOR PLAN	07/01/2019	00/00/2019
A1.3	ROOF PLAN	07/01/2019	00/00/2019
A1.4	RCP PLANS	07/01/2019	09/18/2019
A1.5	RCP PLANS	07/01/2019	00/00/2019
A1.6	GEOMETRY PLAN	07/01/2019	00/00/2019
A2.0	EXTERIOR ELEVATIONS	07/01/2019	10/31/2019
A2.1	EXTERIOR ELEVATIONS	07/01/2019	10/31/2019
A3.0	SECTIONS	07/01/2019	10/31/2019
A3.2	WALL SECTIONS	07/01/2019	00/00/2019
A4.0	INTERIOR ELEVATIONS	07/01/2019	09/18/2019
A4.1	TOILETS ENLARGMENT	07/01/2019	09/18/2019
A4.2	TOILETS ENLARGMENT	07/01/2019	00/00/2019
A5.0	TRESPA FACADE & LADDER DETAIL	07/01/2019	00/00/2019
A5.1	DETAILS	07/01/2019	00/00/2019
A5.2	CABINET DETAILS	07/01/2019	00/00/2019
A6.0	DOOR AND WINDOW SCHEDULE	07/01/2019	00/00/2019
A6.1	ROOF DETAILS	07/01/2019	00/00/2019
A8.0	WALL TYPES	07/01/2019	00/00/2019
A9.0	EXTERIOR FINISHES PLAN/FACADES	07/01/2019	10/31/2019
A9.1	SIGNAGE PLAN AND DETAILS	07/01/2019	09/18/2019
CIVIL			
C0.1	GENERAL NOTES	07/22/2019	00/00/2019
C1.1	DEMOLITION PLAN	07/22/2019	00/00/2019
C2.1	SITE PLAN	07/22/2019	11/25/2019
C3.1	PAVING DRAINAGE & GRADING PLAN	07/22/2019	11/25/2019
C3.2	CROSS SECTIONS	07/22/2019	00/00/2019

C3.3	PAVING DETAILS	07/22/2019	11/25/2019
C3.4	DRAINAGE DETAILS	07/22/2019	00/00/2019
C3.5	DRAINAGE DETAILS	07/22/2019	11/25/2019
C3.6	DRAINAGE DETAILS	07/22/2019	00/00/2019
C4.1	WATER AND SEWER PLAN	07/22/2019	11/25/2019
C4.2	WATER & SEWER PLAN / PROFILE	07/22/2019	00/00/2019
C4.3	WATER DETAILS	07/22/2019	00/00/2019
C4.4	WATER DETAILS	07/22/2019	00/00/2019
C4.5	SANITARY SEWER DETAILS	07/22/2019	00/00/2019
C5.1	SIGNING AND MARKING PLAN	07/22/2019	00/00/2019
C6.1	FIRE ACCES PLAN	07/22/2019	00/00/2019
C7.1	OFFSITE DEMOLITION PLAN	07/22/2019	11/25/2019
C7.2	OFFSITE ENGINEERING PLAN	07/22/2019	11/25/2019
C8.1	STORMWATER POLLUTION PREV. PLAN	07/22/2019	00/00/2019
C8.2	STORM WATER PREVENTION DETAILS	07/22/2019	00/00/2019

STRUCTURAL

S1.0	STRUCTURAL NOTES	07/01/2019	00/00/2019
S1.1	STRUCTURAL SCHEDULES	07/01/2019	09/18/2019
S1.2	UPLIFT PLAN /SCULPT. BASE DETAILS	07/01/2019	00/00/2019
S2.0	PLATFORM 1 FOUNDATION PLAN	07/01/2019	11/21/2019
S2.1	PLATFORM 2 / DROP OFF FOUND. PLAN	07/01/2019	09/18/2019
S2.2	PLATFORM 1 ROOF PLAN	07/01/2019	00/00/2019
S2.3	PLATFORM 2 & DROP OFF ROOF PLAN	07/01/2019	00/00/2019
S2.4	PLATFORM 1 FRAMING PLAN	07/01/2019	00/00/2019
S2.5	PLATFORM 2 & DROP OFF FRAM.PLAN	07/01/2019	00/00/2019
S3.0	C1 -COLUMN DETAILS	07/01/2019	11/21/2019
S3.1	C2 & C3 COLUMN DETAILS	07/01/2019	11/21/2019
S3.2	BUILDING SECTIONS	07/01/2019	00/00/2019
S3.3	BUILDING SECTIONS	07/01/2019	00/00/2019
S4.0	STRUCTURAL DETAILS	07/01/2019	00/00/2019
S4.1	STRUCTURAL DETAILS	07/01/2019	09/18/2019

ELECTRICAL

E0.1	INDEX, NOTES AND SYMBOL LEGEND	07/01/2019	00/00/2019
E1.0	SITE ELECTRICAL PLAN	07/01/2019	09/18/2019

E1.1	SITE PHOTOMETRICS PLAN	07/01/2019	09/18/2019
E1.2	OVERALL LIGHTING PLAN	07/01/2019	09/18/2019
E1.3	ROOF LEVEL ELECTRICAL PLAN	07/01/2019	00/00/2019
E2.0	ENLARGED POWER FLOOR PLANS	07/01/2019	09/18/2019
E2.1	ENLARGED BCT SERV.& BUS CANOPY LIGHTNING PLAN	07/01/2019	09/18/2019
E2.2	ENLARGED RESTROOMS & SECURITY LIGHTNING PLAN	07/01/2019	00/00/2019
E3.0	RISER DIAGRAM & PANEL SCHEDULES	07/01/2019	00/00/2019
E3.1	TELEPHONE / FIRE ALARM RISER	07/01/2019	09/18/2019
E3.2	PANEL SCHEDULES	07/01/2019	09/18/2019
E4.0	ELECTRICAL DETAILS	07/01/2019	00/00/2019
MECHANICAL			
M1.0	INDEX, NOTES AND SYMBOL LEGEND	07/01/2019	00/00/2019
M1.1	OVERALL FIRST FLR MECH. PLAN	07/01/2019	00/00/2019
M1.2	ROOF MECHANICAL PLAN	07/01/2019	00/00/2019
M2.0	ENLARGED BCT SERV.MECH. PLAN	07/01/2019	09/18/2019
M2.1	ENLARGED RESTROOMS & SECURITY MECHANICAL PLANS	07/01/2019	00/00/2019
M3.0	MECHANICAL DETAILS	07/01/2019	00/00/2019
PLUMBING			
P1.0	INDEX, NOTES AND SYMBOL LEGEND	07/01/2019	09/18/2019
P1.1	SITE PLUMBING PLAN	07/01/2019	00/00/2019
P2.0	ENLARGE DOMESTIC WATER PLANS	07/01/2019	09/18/2019
P2.1	ENLARGED SANITARY FLOOR PLAN	07/01/2019	09/18/2019
P2.2	ROOF PLUMBING PLAN	07/01/2019	00/00/2019
P3.0	PIPING ISOMETRIC DOMESTIC WATER	07/01/2019	09/18/2019
P3.1	SANITARY PIPING ISOMETRICS	07/01/2019	09/18/2019
P3.2	STORM PIPING RISER DIAGRAM	07/01/2019	00/00/2019
P3.3	GAS PIPING RISER DIAGRAM	07/01/2019	00/00/2019
P4.0	DETAILS	07/01/2019	00/00/2019
FIRE SPRINKLER			
FP1.0	INDEX, NOTES AND SYMBOL LEGEND	07/01/2019	00/00/2019
FP1.1	LEVEL 1 OVERALL FIRE SPRINK.PLAN	07/01/2019	00/00/2019

FP2.0	ENLARG.BCT SERV. FIRE SPRINK. PLAN	07/01/2019	00/00/2019
FP2.1	ENLARGED RESTRMS & FIRE SPRINKLER PLANS	07/01/2019	00/00/2019
PHOTOVOLTAIC			
EPV0.1	ELECTRICAL NOTES, LEGEND & INDEX	07/01/2019	00/00/2019
EPV3.1	ELECTRICAL ROOF STRING PLAN A & B	07/01/2019	11/19/2019
EPV3.2	ELECTRICAL ROOF PWR PLAN OVER & ELEVATIONS	07/01/2019	11/19/2019
EPV5.1	ELECTRICAL RISER DIAGRAM	07/01/2019	00/00/2019
EPV7.1	ELECTRICAL DETAILS	07/01/2019	00/00/2019
EPV7.2	ELECTRICAL DETAILS	07/01/2019	11/19/2019
LANDSCAPE			
L1.1	TREE DEPOSITION PLAN	07/22/2019	00/00/2019
L1.2	TREE DEPOSITION CHART	07/22/2019	00/00/2019
L2.1	LANDSCAPE PLAN	07/22/2019	00/00/2019
L2.2	LANDSCAPE DETAIL, PLANT SCHEDULE	07/22/2019	00/00/2019
L2.3	LANDSCAPE SPECIFICATIONS	07/22/2019	00/00/2019
IRRIGATION			
L3.01	IRRIGATION PLAN	07/22/2019	00/00/2019
L3.02	IRRIGATION DETAILS	07/22/2019	00/00/2019
L3.03	IRRIGATION SPECS.	07/22/2019	00/00/2019

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EXHIBIT B - CBE – LETTERS OF INTENT

RFP No: PNC2119699C1

Project Title: LAUDERHILL MALL TRANSIT CENTER



LETTER OF INTENT
BETWEEN BIDDER/OFFEROR AND
COUNTY BUSINESS ENTERPRISE (CBE) FIRM/SUPPLIER

This form is to be completed and signed for each CBE firm. If the PRIME is a CBE firm, please indicate the percentage performing with your own forces.

Solicitation No.: PCN 2119699

Project Title: Lauderhill Mall Transit Center

Bidder/Offeror Name: Emerald Construction Corporation
 Address: 1211 Stirling Rd #106 City: Dania Beach State: FL Zip: 33004
 Authorized Representative: [Signature] Phone: 954.241.2583

CBE Firm/Supplier Name: Alexander & Johnson Project Management and Development, Inc
 Address: 221 NW 2nd Avenue, City: Hallandale Beach State: FL Zip: 33009
 Authorized Representative: James Alexander Phone: 954 309 6567

- A. This is a letter of intent between the bidder/offeror on this project and a CBE firm for the CBE to perform work on this project.
- B. By signing below, the bidder/offeror is committing to utilize the above-named CBE to perform the work described below.
- C. By signing below, the above-named CBE is committing to perform the work described below.
- D. By signing below, the bidder/offeror and CBE affirm that if the CBE subcontracts any of the work described below, it may only subcontract that work to another CBE.

Work to be performed by CBE Firm

Description	NAICS ¹	CBE Contract Amount ²	CBE Percentage of Total Project Value
Earthwork	236220 541,41	1,046,071	10.2 %
			%
			%

AFFIRMATION: I hereby affirm that the information above is true and correct.

CBE Firm/Supplier Authorized Representative

Signature: [Signature] Title: President Date: 10/31/19

Bidder/Offeror Authorized Representative

Signature: [Signature] Title: Vice President Date: 10/31/19

¹ Visit Census.gov and select **NAICS** to search and identify the correct codes. Match type of work with NAICS code as closely as possible.

² To be provided only when the solicitation requires that bidder/offeror include a dollar amount in its bid/offer.

EXHIBIT B - CBE – LETTERS OF INTENT

RFP No: PNC2119699C1

Project Title: LAUDERHILL MALL TRANSIT CENTER



LETTER OF INTENT
 BETWEEN BIDDER/OFFEROR AND
 COUNTY BUSINESS ENTERPRISE (CBE) FIRM/SUPPLIER

This form is to be completed and signed for each CBE firm. If the PRIME is a CBE firm, please indicate the percentage performing with your own forces

Solicitation No.: DNC 2119699C1

Project Title: Broward County Lauderhill Mall Transit Center

Bidder/Offeror Name: Emerald Construction Corp

Address: 1211 Stirling Rd #106 City: Dania Beach State: FL Zip: 33004

Authorized Representative: [Signature] Phone: 954-241-2583

CBE Firm/Supplier Name: ALLPRO FABRICATORS + Erectors, Inc.

Address: 3595 SW 46th AVE City: DAVIE State: FL Zip: 33314

Authorized Representative: [Signature] Phone: (954) 914-2684

- A This is a letter of intent between the bidder/offeror on this project and a CBE firm for the CBE to perform work on this project.
- B By signing below, the bidder/offeror is committing to utilize the above-named CBE to perform the work described below
- C By signing below, the above-named CBE is committing to perform the work described below
- D By signing below, the bidder/offeror and CBE affirm that if the CBE subcontracts any of the work described below, it may only subcontract that work to another CBE.

Work to be performed by CBE Firm

Description	NAICS ¹	CBE Contract Amount ²	CBE Percentage of Total Project Value
Metals	239710, 33243	1,651,152.71	16.1 %
			%
			%

AFFIRMATION: I hereby affirm that the information above is true and correct

CBE Firm/Supplier Authorized Representative
 Signature: [Signature] Title: President Date: 11/5/19

Bidder/Offeror Authorized Representative
 Signature: [Signature] Title: Vice President Date: 11/5/19

¹ Visit Census.gov and select NAICS to search and identify the correct codes. Match type of work with NAICS code as closely as possible.

² To be provided only when the solicitation requires that bidder/offeror include a dollar amount in its bid/offer

EXHIBIT C – INSURANCE REQUIREMENTS MEMO

Project: Construction of Lauderhill Mall Transit Center
 Agency: Construction Management Division

TYPE OF INSURANCE	ADDL INSD	SUBR WVD	MINIMUM LIABILITY LIMITS		
				Each Occurrence	Aggregate
GENERAL LIABILITY - Broad form <input checked="" type="checkbox"/> Commercial General Liability <input checked="" type="checkbox"/> Premises-Operations <input checked="" type="checkbox"/> XCU Explosion/Collapse/Underground <input checked="" type="checkbox"/> Products/Completed Operations Hazard <input checked="" type="checkbox"/> Contractual Insurance <input checked="" type="checkbox"/> Broad Form Property Damage <input checked="" type="checkbox"/> Independent Contractors <input checked="" type="checkbox"/> Personal Injury Per Occurrence or Claims-Made: <input checked="" type="checkbox"/> Per Occurrence <input type="checkbox"/> Claims-Made Gen'l Aggregate Limit Applies per: <input type="checkbox"/> Project <input type="checkbox"/> Policy <input type="checkbox"/> Loc. <input type="checkbox"/> Other _____	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Bodily Injury		
			Property Damage		
			Combined Bodily Injury and Property Damage	\$2,000,000	\$4,000,000
			Personal Injury		
			Products & Completed Operations		
AUTO LIABILITY <input checked="" type="checkbox"/> Comprehensive Form <input checked="" type="checkbox"/> Owned <input checked="" type="checkbox"/> Hired <input checked="" type="checkbox"/> Non-owned <input checked="" type="checkbox"/> Any Auto, If applicable <i>Note: May be waived if no driving will be done in performance of services/project.</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Bodily Injury (each person)		
			Bodily Injury (each accident)		
			Property Damage		
			Combined Bodily Injury and Property Damage	\$1,000,000	
<input type="checkbox"/> EXCESS LIABILITY / UMBRELLA Per Occurrence or Claims-Made: <input type="checkbox"/> Per Occurrence <input type="checkbox"/> Claims-Made <i>Note: May be used to supplement minimum liability coverage requirements.</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/> WORKER'S COMPENSATION <i>Note: U.S. Longshoremen & Harbor Workers' Act & Jones Act is required for any activities on or about navigable water.</i>	N/A	<input checked="" type="checkbox"/>	Each Accident	STATUTORY LIMITS	
<input checked="" type="checkbox"/> EMPLOYER'S LIABILITY			Each Accident	\$1,000,000	
<input type="checkbox"/> PROFESSIONAL LIABILITY (ERRORS & OMISSIONS) Including all engineering, surveying and design professionals.	N/A	<input checked="" type="checkbox"/>	If claims-made form:		
			Extended Reporting Period of:	5 years	
			*Maximum Deductible:	\$100,000	
<input checked="" type="checkbox"/> CONTRACTORS POLLUTION LIABILITY	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	If claims-made form:	\$1,000,000	\$2,000,000
			Extended Reporting Period of:	2 years	
			*Maximum Deductible:	\$10,000	
<input checked="" type="checkbox"/> BUILDERS RISK <i>Note: Coverage must be "All Risk", Completed Value.</i> Broward County must be shown as additional insured and Loss Payee.			*Maximum Deductible (Wind and/or Flood):	Not to exceed 5% of completed value	Completed Value
			*Maximum Deductible:	\$10,000	
Description of Operations: "Broward County" shall be listed as Certificate Holder and endorsed as an additional insured for liability, except as to Professional Liability. County shall be provided 30 days written notice of cancellation, 10 days' notice of cancellation for non-payment. Contractors insurance shall provide primary coverage and shall not require contribution from the County, self-insurance or otherwise. Any self-insured retention (SIR) higher than the amount permitted in this Agreement must be declared to and approved by County and may require proof of financial ability to meet losses. Contractor is responsible for all coverage deductibles unless otherwise specified in the agreement.					

CERTIFICATE HOLDER:

Broward County
 115 South Andrews Avenue
 Fort Lauderdale, Florida 33301

Journal
 cpounall@broward.org
 cn=cpounall@broward.org
 9
 2019.08.15 16:12:23
 -04'00'

Risk Management Division

EXHIBIT D – BIM and ELECTRONIC MEDIA SUBMITTAL REQUIREMENTS:

Introduction

The Contract Administrator will be utilizing electronic media as the principal way it develops, communicates and archives information concerning its various construction programs for the County. To that end, County's standard Professional Services Agreements for Consultant services and Construction Agreements for Construction services require submittal of documents produced on electronic media. The County requires Building Information Modeling (BIM) based design, documentation and construction deliverables, scaled to the County's needs, especially for all major projects, including all new construction. These BIM processes typically include a Managing General Contractor as a collaborative participant in all activities intended to conclude with the completion of the Consultant's Design Model and a Contractor's As-Constructed Model as outlined in the Scope of Work and in the BIM Project Execution Plan (BIM PxP).

For this BCF170 Agreement and its subsequent Design-Bid-Build construction delivery procurement, Contractors shall include in the cost of the work, the use of the Consultant provided Design Model, its development and completion to become the As-Constructed BIM as set forth in this Attachment 2. To coordinate the process to accomplish these tasks, a second, modified Construction BIM Project Execution Plan (BIM PxP) will be required. This Construction BIM PxP will be completed by the Contractor in coordination with the Consultant and the County. The BIM PxP will demonstrate how the Contractor will manage the BIM process during construction, develop the Design Model to an As-Constructed Model, and manage updates reflecting changes to the work and actual field installations. Shop drawing and other fabrication models will be coordinated with the Design Model. The Contractor will receive the Design Model from the Consultant at Level of Development (LOD) 300 for construction. Contractor will further develop the model elements to graphically illustrate them to LOD 350. As part of the work, the Contractor must update COBie information reflecting actual equipment installed, provide BIM coordination, clash detection and collaboration with the Consulting Architects and Engineers as well as provide any services to meet other Required 'BIM Uses' applicable during the term of the construction agreement. See also Section 3.7 for Contractor required BIM uses.

For all projects utilizing BIM, Consultant and Contractor will include native BIM format and Industry Foundation Class (IFC) electronic BIM deliverables, in addition to all other electronic copies of hardcopy submissions and other files that support the intent of the project at all project milestones. Data interoperability is important to the County and is in line with our life cycle vision. Design Authoring software shall be used throughout the project lifecycle and shall be parametric. It is also important that nationally defined standards and protocols be used when developing BIM's so that data may be normalized for multiple uses, now and in the future. Most current versions of standards such as the National BIM Standards, BIMForum LOD Specification Part 1 and Commentary, OmniClass, Unifomat and MasterFormat, should be used whenever possible.

The Consultant will derive any two-dimensional (2D) deliverables from the Building Information Model. Further, it is the intent of the County to require open-standard facility management data as a project deliverable at all milestones. Project Consultant shall initiate and jointly develop

BIM and Construction Operations Building Information Exchange (COBie) information to be completed by the Contractors throughout their corresponding phases of the project.

Definitions and Identifications of BIM terms used in this Attachment, requirements for electronic media, the BIM/CADD Standard of Care, Level of Development (LOD), COBie and other requirements are presented in Sections 1, 2 and 3 of this Attachment 2. The detailed (BIM PxP) Template is provided in Section 4 and is required to be developed at project initiation to provide a master information and data management plan and assignment of roles and responsibilities for model creation and data integration. Wherever possible, the BIM PxP will be developed through a collaborative approach involving all Project Consultants, Contractors and applicable County staff. A small sample of the Model Progression Schedule/Agent Responsible Matrix Template (MPS) is provided in Section 5 and will be made available in its native Excel format upon request. The County template includes minimum levels of development but will be adapted if needed for the Project. An Introduction and directions for completion are described on the first page of the document.

An important goal for the Construction Management Division is to not only enhance the value of all team efforts to efficiently design and construct lean, new and renovated construction projects using BIM, but also to assist in achieving a dependable use and development of BIM's across multiple building types and for a wide range of County agencies. Predictable, reliable and uniform data will help to ensure a building dataset that will facilitate ongoing building operation and maintenance protocols, and perhaps someday be called upon to provide usable and consistent data to support other SMART City / SMART County initiatives.

Table of Contents - Attachment 2:

- Section 1 - Definitions and Identifications**
- Section 2 - Electronic Media**
- Section 3 - BIM/ CADD Standard of Care, Level of Development (LOD), COBie**
- Section 4 - BIM Execution Plan (BIM PxP) *(Template to be completed)***
- Section 5 - Model Progression Schedule/
Agent Responsible Matrix (MPS) *(Template to be completed)***

Section 1 Definitions and Identifications

The following BIM oriented definitions and identifications in this Section apply to this Attachment 2 unless the context, the Agreement in which the word or phrase is used, requires a different definition. In the event of a conflict, the Contract Administrator will determine its final resolution:

- 1.1 **3D Coordination & Conflict Analysis:** A process in which clash detection software is utilized during the coordination process to determine field conflicts by comparing 3D models of building systems. The goal of clash detection is to eliminate the major system conflicts prior to installation.

- 1.2 **As-Constructed BIMs:** Multiple Construction BIMs, delivered and validated by the Contractor before closing-up spaces and reviewed by the Consultants that represent the final As-Constructed building and components, including embedded data as required by the Contract Documents.
- 1.3 **Asset Management:** A process in which an organized management system will efficiently aid in the maintenance and operation of a facility and its assets. Asset Management utilizes the data contained in a record model to determine cost implications of changing or upgrading building assets, segregate costs of assets for financial tax purposes, and maintain a current comprehensive database that can produce the value of a company's assets.
- 1.4 **Augmented Reality Simulation (AR):** A Model Use where 3D models - combined with other technologies - allow users to experience virtual objects superimposed on top of physical objects or places, thus allowing images from the physical and virtual worlds to appear as one. AR is typically experienced through hand-held screens, wearables, holograms and projections.
- 1.5 **BIM:** Building Information Modeling as such term is defined by the US National Building Information Model Standard Project Committee. BIM is not a specific product or technology, instead it's a collection of software applications and processes designed to facilitate coordination and project collaboration through a facilities lifecycle. BIM is a digital representation of physical and functional characteristics of a facility and is used as a process for developing design, construction and operations and maintenance documentation by virtually constructing a building, bridge or other form of infrastructure – before anything is built. As used herein, the BIM may also refer to a specific model derived from the BIM process (sometimes redundantly identified as a BIM model). References to Building Information Model, BIM, or the Model, include the primary design model or models and all linked, related, affiliated or subsidiary models developed for design, analysis, estimating, detailing, fabrication, construction, operation or maintenance of the project, or any portion or element of the project.
- 1.6 **BIM Project Execution Plan (BIM PxP or PxP):** A document that defines the appropriate uses for Building Information Modeling on a project (e.g., design authoring, design review and 3D coordination), along with a detailed design and documentation process for executing BIM throughout a facility's lifecycle, team contacts, team responsibilities, team roles, definitions, delivery methods / formats, LOD matrix, work flow and process maps are among other information outlined in the BIM PxP.
- 1.7 **Building Maintenance Scheduling:** A process in which the functionality of the building structure (walls, floors, roof, etc.) and equipment serving the building (mechanical, electrical, plumbing, etc.) are maintained over the operational life of a facility.
- 1.8 **BIM2Field:** See definition for Digital Layout.
- 1.9 **CAD/CADD:** Computer Aided Design/Computer Aided Design and Drafting. Interchangeably used terms interpreted as 2D, (Two Dimensional) representations in electronic format. CAD represents all pre-BIM digital tools and their 2D/3D deliverables.
- 1.10 **CAD/BIM Manager:** The System Administrator and/or person responsible for leading the BIM implementation processes within an organization and supporting it in developing/delivering new BIM services and model-based efficiencies. Also responsible for the management of all CAD and BIM data and processes.

- 1.11 **CAFM – Computer Aided Facility Management:** A software platform that streamlines facilities management and maintenance. CAFM software spans space and workplace management, asset management, project management, building operations, preventive maintenance, and more. These systems leverage facilities data and drawings into performance metrics and planning tools to optimize the process of managing facilities.
- 1.12 **CIM - Sub-Surface:** Civil Information Modeling and subsurface utility mapping that relates and is coordinated with the building modeling.
- 1.13 **Clash Detection - Clash Rendition:** A process in which clash detection software is used during the coordination process to determine field conflicts by comparing 3D models of building systems prepared by different disciplines. Rendition or the visual representation of the native-format model file is be used specifically for spatial coordination processes. The key benefit is to eliminate major system conflicts prior to installation, reducing errors, and hence costs, prior to commencement of construction.
- 1.14 **COBie:** Construction Operations Building Information Exchange specifications as administered through the buildingSMART alliance, National Institute of building Sciences, Washington, DC. http://www.nibs.org/?page=bsa_cobie.
- 1.15 **Code Validation:** A process in which code validation software is utilized to check model parameters against specific codes.
- 1.16 **Commissioning:** The process of verifying in new construction that agreed upon building systems achieve the County's project requirements.
- 1.17 **Compatible Data:** Data that can be accessed directly by the target BIM or CAD/CADD system upon delivery to the County, without further translation or post-processing of the electronic digital data files. It is the responsibility of Consultant to ensure this minimum level of compatibility.
- 1.18 **Constructability - PEER Review:** Constructability can be defined as a review of the building model along with drawings, specifications to determine feasibility to assembly the project in the manner documented. The review includes, but does not limit, evaluating and identifying efficiencies, assemblies, systems and obstacles to construction.
- 1.19 **Construction System Design:** A process in which 3D System Design Software is utilized to design and analyze the construction of a complex building system (e.g. form work, glazing, tiebacks, etc.) in order to improve planning.
- 1.20 **Cost Analysis:** A process in which a BIM can offer a preliminary analysis of the costs of constructing a Project during the design process and provide cost benefit effects of additions and modifications with potential to save time and avoid budget overruns. The accumulation, examination, and manipulation of cost data for comparisons and projections.
- 1.21 **Cost Estimation:** A process in which a BIM is used to develop accurate quantity take-offs for the purpose of creating or validating cost estimates.
- 1.22 **Design Authoring:** A process in which 3D software is used to develop a BIM based on criteria that is important to the translation of the building's design. Design authoring tools are a first step towards BIM, connecting the 3D model with a database of properties, quantities, means and methods and schedules.
- 1.23 **Design for Maintenance:** An evaluation process where each object selected during design for inclusion in a BIM are evaluated for maintenance issues, such as recommended, or

code required clearances to perform routine maintenance activates to include complete replacement of the object or any of its components.

- 1.24 **Design Model:** is an object-based 3D model generated by the Design Team (individually or as a group) for the purposes of design analysis, Clash Detection and documentation.
- 1.25 **Design Reviews:** A process in which a 3D model is used to showcase the proposed design to the stakeholders and to help evaluate whether it has met deliverable requirements.
- 1.26 **Digital Fabrication:** A process that utilizes machine technology to prefabricate objects directly from a 3D Model. The Model is spooled into appropriate sections and input into fabrication equipment for production of system assemblies.
- 1.27 **Digital Layout - BIM2Field:** A process that allows information in a BIM to be transferred to digital layout tools for layout in conformance to the model. This information can be used to validate (QA/QC) the physical facility against the model.
- 1.28 **Disaster Planning - EM Preparation:** A process in which emergency responders would have access to critical building information in the form of model and information system. The BIM would provide critical building information to the responders, that would improve the efficiency of the response and, more importantly, minimize the safety risks. The dynamic building information would be provided by a building automation system (BAS), while the static building information, such as floor plans and equipment schematics, would reside in a BIM model. These two systems would be integrated via a wireless connection and emergency responders would be linked to an overall system. The BIM coupled with the BAS would be able to clearly display where the emergency was located within the building, possible routes to the area, and any other harmful locations within the building.
- 1.29 **Electrical Analysis:** A process in which intelligent modeling software uses the BIM model to determine the most effective electrical system based on engineering and design specifications. These analysis tools and performance simulations can significantly improve the design of the facility and its energy consumption during its lifecycle in the future.
- 1.30 **Energy Analysis:** A process in which intelligent modeling software uses the BIM model to determine the most effective facility energy plan based on engineering and design specifications. These analysis tools and performance simulations can significantly improve the design of the facility and its energy consumption during its lifecycle in the future.
- 1.31 **Existing Conditions Modeling:** A process in which a project team develops a parametric 3D model of the existing conditions for a site, facilities on a site, or a specific area within a facility. This model can be developed in multiple ways depending on what is desired and what is most efficient. Once the model is constructed, it can be queried for information, whether it be for new construction or a modernization project.
- 1.32 **Facility Data Exchange:** A process where a facility data schema is developed to ensure information is supplied to the BIM in electronic form so that it can be easily exchanged between the BIM and the organizations selected tool. The capability should include textural as well as graphic entities.
- 1.33 **Federated BIM:** A BIM model which links (does not merge) several single-discipline models together. Federated Models do not merge the properties of individual models into a single database. A federated model is useful for design co-ordination, clash avoidance and clash detection, approvals processes, design development, estimating and so on, but the individual models do not interact, they have clear authorship and remain

- separate. This means that the liabilities of the originators of the separate models are not changed by their incorporation into the federated model.
- 1.34 **IFC:** Industry Foundation Classes, open sharable standards for building information as defined by the buildingSMART alliance, National Institute of building Sciences, Washington, DC. <http://www.buildingSmart.org/compliance/certified-software>
- 1.35 **Information Manager:** The BIM Protocol refers to and provides for the appointment of 'Information Manager' by the Consultants, Contractors or County. This is the project manager, or BIM Manager who is responsible for managing the processes of information exchange on projects, using BIM procedures and methods.
- 1.36 **Integrated Project Delivery* (IPD):** The owner's goal who's primary motive is to bring the teams together early on in the project. A full implementation of BIM also requires the project teams to collaborate from the inception stage and formulate model sharing and ownership contract documents. *NOTE: True IPD employs various constructs, many of which the County is precluded from using by state law. (such as the use of multi-party contracts, and profit sharing). The County's integrated delivery approach leverages aspects of IPD that are allowed by law.
- 1.37 **Laser Scanning and Point Cloud Integration:** A process where the application is the controlled steering of laser beams followed by a distance measurement at every pointing direction. This is used to rapidly capture shapes of objects, buildings and landscapes. The point cloud generated is then interpreted by software to create a BIM of the existing conditions.
- 1.38 **Life Cycle Assessment -** Life-cycle assessment (LCA, also known as life-cycle analysis) is a cradle-to-grave environmental impact assessment for built assets, in terms of materials and energy. The energy and materials used, along with waste and pollutants produced as a consequence of a product or activity, are quantified over the whole life cycle; the result representing the environmental load of that asset. ISO 14040 defines LCA methodology.
- 1.39 **Lighting Analysis:** A process in which intelligent modeling software uses the BIM model to determine the most effective lighting method based on engineering and design specifications. These analysis tools and performance simulations can significantly improve the design of the facility and its energy consumption during its lifecycle in the future.
- 1.40 **LOD:** Level Of Development Specification for Building Information Models. See Section 3 – BIM/CADD Standards of Care and the current edition of the BIMForum LOD Specification for additional information. <http://BIMForum.org/lod>
- 1.41 **Maintenance & Repair Information:** A function to allow the collection and storage of maintenance and repair information about objects brought into a BIM.
- 1.42 **Mechanical Analysis:** A process in which intelligent modeling software uses the BIM model to determine the most effective mechanical system design based on engineering and design specifications. These analysis tools and performance simulations can significantly improve the design of the facility and its energy consumption during its lifecycle in the future.
- 1.43 **Model Progression Schedule/Agent Responsible Matrix (MPS):** A worksheet that is a guide for the project team to define model creation scope of work, minimum model level of development and responsible agent. The LOD will aid in determining the level of involvement of the project stakeholders from planning through facility turnover. This

worksheet is intended to guide the project team in achieving project goals, accommodate required BIM uses, meet schedule requirements for the project and identify the responsible agents at differing phases of the project.

- 1.44 **OmniClass:** OmniClass Construction Classification System (OCCS), is a means of organizing and retrieving information specifically designed for the construction industry. This agreement incorporates Table 23 establishing National Standards for the classification of construction products. OmniClass uses MasterFormat and UniFormat as the basis of its Tables wherever possible. <http://www.omniclass.org/about>
- 1.45 **Owner (County) Approval:** A business process which takes advantage of information stored in a BIM to help validate progress as well as observing that the County's intent for the facility is being honored both conceptually and contractually.
- 1.46 **Phase Planning - 4D Modeling:** A process in which a 4D model (3D models with the added dimension of time) is utilized to effectively plan the phased occupancy in a renovation, retrofit, addition, allow construction scheduling or to show the construction sequence and space requirements on a building site.
- 1.47 **Programming:** A process in which a spatial program is utilized to efficiently and accurately assess design performance in regard to spatial requirements. Use of the BIM model allows the project team to critically analyze space and understand the complexity of space standards and regulations for discussion with the County and other stakeholders.
- 1.48 **PxP:** Abbreviated form of (BIM PxP). See definition for BIM Project Execution Plan.
- 1.49 **RAW Image Format:** A camera raw image file contains minimally processed data from the image sensor of either a digital camera, a motion picture film scanner, or other image scanner. Raw files are named so because they are not yet processed and therefore are not ready to be printed or edited with a bitmap graphics editor.
- 1.50 **Quality Assurance/Quality Control - QA/QC:** QA/QC as a BIM Use refers to ensuring that the BIMs follow County requirements and all components of the approved BIM Execution Plan, and that the BIMs accurately represent the building geometry and data to meet the purposes for which they are developed.
- 1.51 **Quantity Take Off (QTO):** A model use representing how 3D models are used to calculate the quantity of Furniture, Fixtures and Equipment or building material to create a detailed measurement of materials and labor needed to complete a construction project. Estimators review drawings, specifications and BIMs to find these quantities.
- 1.52 **Record BIMs:** The updated BIMs generated by the Architecture/Engineering Team of record that includes the Contractors' As-Constructed BIMs.
- 1.53 **Security - Key Management:** A process to identify and evaluate the security zones in the facility using BIM. The process includes identifying the door keys required for openings through the security perimeters established to ensure that the level of security defined is maintained.
- 1.54 **Site Analysis:** A process in which BIM/GIS tools are used to evaluate properties in a given area to determine the most optimal site location for a future project. The site data collected is used to first select the site and then the position the building based on engineering criteria (e.g. solar path, utility availability, hazardous material).
- 1.55 **Site Utilization Planning:** A process in which a 4D model is used to graphically represent both permanent and temporary facilities on site, with the construction activity schedule.

- Additional information incorporated into the model can include labor resources, materials and associated deliveries, and equipment location.
- 1.56 **Space Management:** A process in which BIM is utilized to effectively allocate, manage, and track space types, workspaces, occupancy and resources within physical spaces.
- 1.57 **Specification Production:** A data based three-part specification system linked to the objects selected in a BIM which responds to any changes or alternatives items added or subtracted from the model.
- 1.58 **Structural Analysis:** A process in which analytical modeling software utilizes the BIM design authoring model to determine the behavior of a given structural system. Based on this analysis further development and refinement of the structural design takes place to create effective, efficient, and constructible structural systems.
- 1.59 **Sustainability & LEED Evaluation:** A BIM process in which a project is evaluated based on LEED or other sustainability criteria. This can refer to materials, performance, or a process. Sustainability evaluations can be applied across all four phases of a construction project, Planning, Design, Construction, and Operation. Sustainability evaluation is most effective when it is done in planning and design stages and then applied in construction and operations phase.
- 1.60 **Tolerance:** Acceptable dimension or variation from precise material, fabrication, or assembled condition as a unit of measure to be specified allowable variations in strength, stability, dimension, the mix of a material, the performance of a system, temperature ranges and so on.
- 1.61 **Total Cost of Ownership / Service Life:** A financial estimate intended to help buyers and owners determine all direct and indirect costs of a product or system.
- 1.62 **Virtual Design and Construction (VDC):** The management of integrated multi-disciplinary performance models of design-construction projects, the work processes and organization of the teams to support business objectives.
- 1.63 **Virtual Reality Simulation (VR):** A Model Use where 3D models are part of an Immersive Environment where users experience simulated places, objects and processes. As opposed to Augmented Reality Simulation, VR may require full 'immersion' within multi-projection rooms and/or through stereoscopic goggles and other specialized gear.
- 1.64 **Visualization:** Any technique for creating images, diagrams, or animations to communicate information. BIM can be used as a tool to show visual clarity of simple and complex systems and data to help understand project scope, design options, constructability, coordination and for QA/QC.

Section 2 Electronic Media

2.1 General Requirements:

2.1.1 All Work, including drawings, land surveying work, maps, details or other drawing information to be provided in electronic media by Consultant shall be accomplished and developed using Computer-Aided Design and Drafting (CADD), or Building Information Modeling (BIM), or a coordinated combination of both as determined by the Contract

Administrator and may also include other software and procedures conforming to the following criteria.

2.2 BIM and CAD/CADD Graphic Formats:

2.2.1 Provide all CAD/CADD data in Autodesk, Inc.'s AutoCAD release 2019 or higher for Windows in native .dwg electronic digital format. CAD/CADD data required for Contract submittals shall be provided in native .dwg format. Provide copies of all drawing sheets or other CAD/CADD and/or PDF format produced documents intended for hardcopy plotting or printing in plot (.plt) and drawing web format (.dwf) versions of all sheets/documents.

2.2.2 Provide all BIM models and data in Autodesk Revit 2019 or higher. Provide all BIM and data in any of the following software formats:

- a. Autodesk, Inc. Revit 2019 or higher.
- b. Alternative compatible BIM software formats that conform to the requirements of Section 2.2 of this Attachment if accepted in writing by the County's Contract Administrator.

2.2.3 BIM data required for Contract submittals shall be provided in their native (.rvt typical) format as well as .ifc format in conformance with IFC (Industry Foundation Classes) IFC2x4 or higher, as established by the buildingSMART International Alliance for Interoperability. Use of BIM vendor's or systems that incorporate the International Alliance for Interoperability IFC standard above are acknowledged but their use must be approved in writing in advance by the County's Contract Administrator and otherwise comply with this Attachment.

2.2.4 Building Positioning to be accomplished for the intended project site by using "Auto – by Shared Coordinates" process or similar. Obtain State Plane Coordinates from Project survey information and utilize this same positioning process for all BIM files.

2.2.5 CAD/CADD data required for Contract submittals shall be provided in native .dwg format or be contained within the structure of the BIM data required in Section 2.2.2.

- a. Ensure that all digital files and data (e.g., constructs, elements, base files, prototype drawings, reference files and images, blocks, attribute links, pen settings and all other files external to the drawing itself) are Compatible Data with the Contract Administrator's target BIM and/or CADD system (i.e., BIM and CADD software, platform, database software), and adhere to the standards and requirements specified herein.

2.2.6 Target platform: A personal computer with Windows 10 operating system that meets or exceeds the minimum manufacturer's requirements to operate the version of software utilized for the project.

2.2.7 Any non-graphical database delivered with prepared drawings must be provided in relational database format compatible with Microsoft Access 2016 or higher, or other compatible SQL format database. All database tables must conform to the structure and field-naming guidance provided upon request by the Contract Administrator.

- a. Maintain all linkages of non-graphical data with graphic elements, relationships between database tables, and report formats.

2.2.8 CAD/CADD Standards:

- a. Standard plotted drawing size: 24-inch x 36-inch sheets (Arch D-sized sheet)
- b. Coordinate with the Contract Administrator concerning the standard file naming protocol to be utilized.
- c. Drawing Set Organization and Sheet Identification per the United States National CAD Standard - V5. Provide dots in lieu of dashes at all uses.

2.2.9 CAD/CADD Layering:

- a. Conform to the guidelines defined by the American Institute of Architects (AIA) standard document, U.S. National CAD standards version 5 (V5). "CAD Layer Guidelines", 2nd edition or later.
- b. Provide an explanatory list of which layers are used at which drawing and an explanatory list of all layers which do not conform to the standard AIA CAD Layer Guidelines including any user definable fields permitted by the guidelines.
- c. Layering: The Contract Administrator may, from time to time, supplement the AIA CAD Layer Guidelines with the Contract Administrator's specific requirements for Facilities or Construction Management and other related information. Obtain latest Contract Administrator specific layering from Contract Administrator prior to production of documents and incorporate into drawings.

2.2.10 Attribute Definitions:

- a. Obtain latest guidance from the Contract Administrator concerning attribute definition, database linking and other information embedding requirements prior to production of documents.

2.2.11 Federated Models: The following colors shall be utilized for all federated models including Design, Construction, Coordination, As-Constructed, and Record Models:

- a. Architectural Models
 1. Architectural - Default
 2. Envelope (Curtainwall, Precast, Other) - Default
 3. Masonry - Gray
- b. Civil & Site Improvement Model
 1. TBD
- c. Structural Models

1. Steel – Rust
2. Concrete - Gray
3. Masonry - Gray

d. MEP/FP Models

1. Mechanical Ductwork Supply - Magenta
2. Mechanical Ductwork Return - Plum
3. Mechanical Ductwork Exhaust – Medium Orchid
4. Mechanical Piping Supply – Hot Pink
5. Mechanical Piping Return- Violet
6. Electrical Conduit - Orange
7. Cable Tray- Yellow
8. Electrical Lighting – Light Golden Rod Yellow
9. Plumbing Domestic Water - Lime
10. Plumbing Storm / Roof Drain – Dark Green
11. Plumbing Waste / Vent - Olive
12. Medical Gas – Light Green
13. Fire Protection - Red
14. Fire Alarm – Golden Rod
15. Data/IT / Controls - Aqua
16. Pneumatic Tubing – Dark Slate Gray

e. Miscellaneous Models

1. Framing – Sandy Brown
2. Equipment Models (by Equip. Planners) – Burly Wood
3. Clearances - Dark Red

2.2.12 Deviations from Standards:

- a. Submit a written request for approval of any deviations from the Contract Administrator's established electronic media standards. Pre-coordinate the development, use and submittal of 3D modeling, Building Information Models (BIM), photo-realistic renderings, animations, presentations and other visualization/information tools utilized during the design and construction process to ensure compatibility of submittal with County's intended use and information systems.
- b. No deviations from the County's established BIM/CADD standards will be permitted unless prior written approval of such deviation has been received from the Contract Administrator.
- c. Contract Administrator reserves the right to review, accept or reject AutoCAD files, BIMs and other Digital Deliverables. If the Digital Deliverables do not comply with the provisions of the agreement between County and the External Project Team member, the External Project Team member will be required to correct the work at no additional cost to County or delay to the Project Schedule.
- d. Contract Administrator reserves the right to review, accept or reject Facility Data deliverables when required by contractual agreements. To ensure successful

integration into County's CAFM software, milestone reviews may be conducted by County to export or link BIM data into these designated programs to ensure compatibility and capability. During the development of the BIM P&P, the required BIM outputs allowing for this integration will be determined. If the Facility Data integration with the computer aided facility management software fails because of the BIMs non-compliance with the provisions of the agreement between County and the External Project Team member, or the data imported does not accurately reflect the current state of the Project, the External Project Team member will be required to correct the work at no additional cost to the owner or delay to the Project Schedule.

2.3 Non-BIM/CADD Graphic Format:

2.3.1 Provide digital photography files and other miscellaneous graphics in High Resolution JPEG, PDF in 600 dots per inch (dpi) or higher resolution or PNG format. Provide RAW files in addition to above when available.

2.4 Non-Graphic Format:

2.4.1 Provide word processing files in Microsoft Word 2016 or higher compatible file formats including all fonts, typefaces, bitmap and vector graphics and other information necessary for remote printing.

2.4.2 Provide spreadsheet files in Microsoft Excel 2016 or higher for windows compatible file formats including all fonts, typefaces, bitmap and vector graphics and other information necessary for remote printing.

2.4.3 Provide database files in relational database format compatible with Microsoft Access 2016 or higher, PDF or other compatible SQL format database including all tables, form and report formats, fonts, typefaces, bitmap and vector graphics and other information necessary for remote printing. Ensure integrity of relational database structure.

2.5 Delivery Media and Format:

2.5.1 Submit copies of all BIM/CADD data and other electronic files developed under this contract on electronic digital media as required for project phase submittals to 400 dots per inch (dpi) resolution.

2.5.2 Provide electronic digital data and files on labeled ISO-9660 CD-ROM., DVD's, Flash drives or other acceptable alternatives if approved by the Contract Administrator. Each device or disc shall contain identifying County project information in their disk name.

2.5.3 The electronic digital media shall be in the format which can be read and processed by the Contract Administrator's target CAD/CADD or BIM system. See also Section 2.2.

2.5.4 The external label or archival case for each electronic digital media shall contain, as a minimum, the following information:

- a. The Project Number, Project Title and date.
- b. The Facility Name
- c. The format and version of operating system software.
- d. The name and version of utility software used for preparation (e.g., compression/decompression) and copying files to the media.
- e. A list of the filenames, (a separate sheet will be accepted).

2.5.5 Before a CADD file is placed on the delivery electronic digital media, the following procedures shall be performed:

- a. Ensure that drawing sheets, viewports, paper-space, line weights, fonts, and other drawing components are correctly configured for Contract Administrator's viewing and plotting.
- b. Make sure all reference files are attached using a "relative" path setting and without device or directory specifications.
- c. Transmit function should be used in AutoCAD to assemble files for submittal. For each 2D drawing, provide one bound file containing drawing sheet with associated XREFs and one un-bound file containing the associated XREFs.
- d. Compress and reduce all design files using PKZIP, WINZIP or other compatible file compression/decompression software approved by the Contract Administrator. If the file compression/decompression software is different from that specified above, then an electronic digital media copy of the file compression/decompression software shall be purchased for the Contract Administrator and provided with the delivery media.
- e. Include all files, both graphic and non-graphic, required for the project (i.e., color tables, pen tables, font libraries, block libraries, user command files, plot files, and other elements of drawing definition). All blocks not provided as Contract Administrator-furnished materials must be provided as a part of the electronic digital deliverables.
- f. Make sure that all support files such as those listed above are in the same directory and that references to those files do not include device or directory specifications.
- g. Document any fonts, tables, or other similar customized drawing element developed by Consultant or not provided among Contract Administrator-furnished materials. Contractor shall obtain Contract Administrator approval before using anything other than Contract Administrator's standard fonts, line types, tables, blocks, or other drawing elements available from Contract Administrator.
- h. Include any standard sheets (i.e., abbreviation sheets, standard symbol sheets, or other listing) necessary for a complete project.

- i. Check completed files are free of any known viruses or unrequired attachments.

2.6 Drawing Development Documentation:

2.6.1 Provide the following information for each finished drawing in the nonplot layer X****-NPLT:

- a. How the data were input (e.g., keyed in, downloaded from a survey total station instrument (include name and model), and other identification data).
- b. Brief drawing development history (e.g., date started, modification date(s) with brief description of item(s) modified, author's name, and other identifying data.).
- c. The names of the reference, blocks, symbols, details, tables, and schedule files required for the finished drawing.
- d. Layer assignments and lock settings.
- e. Text fonts, line styles/types used, and pen settings.

2.7 Submittals / Deliverables:

2.7.1 Submit as Project Record Documents specified above and as required for project phase submittals and project record documents.

2.7.2 Submit electronic media with a transmittal letter containing, as a minimum, the following information:

- a. The information included on the external label of each media unit (e.g., CD, DVD, flash drive, etc.), along with the total number being delivered, and a list of the names and issue dates of all files on the media.
- b. Brief instructions for transferring the files from the media.
- c. Confirm that all delivery media is free of known computer viruses. A statement including the name(s) and release date(s) of the virus-scanning software used to analyze the delivery media, the date the virus-scan was performed, and the operator's name shall also be included with the certification. The release or version date of the virus-scanning software shall be the current version that has detected the latest known viruses at the time of delivery of the digital media.
- d. The following "Plot File Development and Project Documentation Information" as an enclosure or attachment to the transmittal letter provided with each electronic digital media submittal:
 1. List of all new figures, symbols, tables, schedules, details, and other blocks created for the project, which were not provided to Consultant with the Contract Administrator-furnished materials, and any associated properties.
 2. List of all database files associated with each drawing, as well as a description and documentation of the database format and schema design.
 3. Recommended modifications which will be necessary to make the data available for GIS use.

2.7.3 Prime Contractors are responsible for ensuring that the Digital Deliverables

prepared by their Subcontractors or Subconsultants comply with the standards and policies outlined in this document.

2.8 Ownership:

2.8.1 County has ownership and all rights to all finished or unfinished digital deliverables developed for this Project. Any digital deliverables generated under any County Consulting or Construction Agreements or Contracts, including those generated by the External Project Team Members' Subcontractors or Subconsultants, shall become the property of County. County will have unlimited use of the digital deliverables produced for the Project. County acknowledges that the digital deliverables are an instrument of service of the external project team member and that the author of the digital deliverable does not represent or guarantee that the digital deliverable will be useful to County for any purposes beyond those uses that they were authored.

2.8.2 County will have unlimited rights under the Agreement of which this document is a part to all information and materials developed under these and other contractual requirements and furnished to the Contract Administrator and documentation thereof, reports, and listings, and all other items pertaining to the work and services pursuant to this agreement including any copyright.

2.8.3 Unlimited rights under this contract are rights to use, duplicate, or disclose text, data, drawings, and information, in whole or in part in any manner and for any purpose whatsoever without compensation to or approval from author except where otherwise limited within the Contract.

2.8.4 The Contract Administrator will at all reasonable times have the right to inspect the work and will have access to and the right to make copies of the above-mentioned items.

2.8.5 All text, electronic digital files, data, and other products generated under this contract shall become the property of County except where otherwise limited within the Contract.

2.9 Contract Administrator-Furnished Materials to the Construction Contractor:

2.9.1 The Contract Administrator and Consultant may make various electronic information available to the Contractor during the Pre-Construction and Construction phases of the Project. To this end, Consultant shall make the following information available to the Contractor in electronic format:

- a. Work-files: Selected work product files, copies of BIM and/or CAD files, reports, spreadsheets, databases, specifications, drawings and other documentation of Consultant's work in progress may be provided to the Contractor, Managing General Contractor, or other County consultant on an as required basis. Consultant shall cooperate and facilitate the secure exchange of these electronic

media documents.

- b. Where electronic media submittals of final site surveys are required: Provide electronic copies of any existing site survey data already on electronic media conforming to Section 2.2 of this Attachment.
- c. Where Electronic Project Record Documents are required, Consultant will provide the Contractor one set of contract drawings in an electronic file format conforming to Section 2.2 of this Attachment, to be used for as-constructed drawing markups at the Contractor's option. Make electronic file drawings available on media in conformance with Section 2.5 of this Attachment.

2.10 Other Digital Information:

2.10.1 A variety of digital information may be generated by participants in the design process including the Contract Administrator, Consultant, Subconsultants, Contractor, subcontractors, the Contract Administrator's commissioning authority, local jurisdictional authorities and other project team members.

2.10.2 Consultant shall facilitate and participate in this digital exchange of information by conforming to the standards expressed above and as further described in Attachments.

Section 3 BIM/CADD Standards of Care

3.1 General Provisions:

3.1.1 The Model(s) shall be developed to include the systems described below as they would be built, the processes of installing them, and to reflect final As-Constructed construction conditions. The deliverable 3D Model at all phases shall be developed to include as many of the systems described below as are necessary and appropriate to the design/construction stage. The BIM shall be provided in an editable form and from its inception shall include automatic model positioning using a common reference point (Point of Origin), based on "Florida State Plane Coordinates" derived from the project survey.

3.1.2 The Model shall be developed using Building Information Modeling ("BIM") supplemented with Computer Aided Drafting and Design ("CADD") content as necessary to produce a complete set of Construction Documents.

3.1.3 Provide all Building Information Modeling (BIM) for Space Management and Program Validation in conformance to the General Service Administration's (GSA) "Building Information Modeling Guide 02 -Spatial Program Validation," dated May 21, 2015 or later. Provide space identification, charts and information in conformance with this Guide.

3.1.4 The parties shall utilize the appropriate Levels of Development (LOD) described

below in completing the Model, which establishes the required LOD for each Model Element at each phase of the Project.

3.1.5 The following Level of Development (LOD) descriptions are summaries of Level Of Development Specification for Building Information Models as developed by BIMForum. (<http://bimforum.org/lod>), current edition (2017 or later). **Each subsequent LOD builds on the previous level and includes all the characteristics of previous levels.** See also “Section 5 BIM Model Progression Schedule” for examples and graphic descriptions of Levels of Development. The following list is a simplified summary of the adopted Levels of Development:

- **LOD 100** elements are not geometric presentations. They may be symbols or other generic representations of information that can be derived from other model elements. Any information derived from LOD 100 elements must be considered approximate.
- **LOD 200** elements are represented graphically but are generic placeholders, e.g., volume, quantity, location, or orientation. Any information derived from LOD 200 elements must be considered approximate.
- **LOD 300** elements are graphically represented as specific systems, objects, or assemblies from which quantity, shape, size, location, and orientation can be measured directly, without having to refer to non-modeled information such as notes or dimension callouts.
- **LOD 350** elements are enhanced beyond LOD 300 by the addition of information regarding interfaces with other building systems. For example, an LOD 350 masonry wall element would include jamb conditions, bond beams, grouted cells, dowel locations, and joints – information that enables the model user to coordinate the wall element with other systems in the structure.
- **LOD 400** elements are modeled at sufficient detail and accuracy for fabrication of the represented component.

NOTE - County and the LOD Specification do not address **LOD 500** since that LOD relates to field verification and is not an indication of progression to a higher level of geometry or information.

3.1.6 The parties shall utilize the appropriate Levels of Development (LOD) described below in completing the Model, which establishes the required LOD for each Model Element at each phase of the Project. LODs and Model Definition: There is no such thing as an “LOD ### model.” As previously noted, project models at any stage of delivery will invariably contain elements and assemblies at various levels of development. As an example, it is not logical to require an “LOD 200 model” at the completion of the schematic design phase. Instead, the “100% SD Model” will contain modeled elements at LOD 100 as well as various other levels of development. Consultants will be required to submit a LOD Model Progression as part of the Project Execution Plan.

3.2 Level of Development (LOD) – Expanded Descriptions

- 3.2.1 **LOD 100:** (Predesign – preferred use). Schematic Design (Basic Services)
- a. **Model Content Requirements:** Overall building massing indicative of area, height, volume, location, and orientation may be modeled in three dimensions or represented by other data.
 - b. **Potential Uses:**
 1. **Analysis:** The Model may be analyzed based on volume, all spaces, area, solar orientation and configuration by application of generalized performance criteria assigned to the representative Model Elements.
 2. **Cost Estimating:** The Model may be used to develop a cost estimate based on current area, volume or similar conceptual estimating techniques (e.g., square feet of floor area, etc.), as opposed to components.
 3. **Schedule:** The Model may be used for project phasing and overall duration.
- 3.2.2 **LOD 200:** Design Development (Basic Service)
- b. **Model Content Requirements:** Model Elements are modeled as generalized systems or assemblies with approximate quantities, size, shape, location, and orientation. Non-geometric information may also be attached to Model Elements. Partitions and simple furniture models shall be included at this phase.
 - c. **Potential Uses:**
 1. **Analysis.** The Model may be analyzed for performance of selected systems and orientation by application of generalized performance criteria assigned to the representative Model Elements.
 2. **Cost Estimating.** The Model may be used to develop cost estimates based on the approximate data provided and conceptual estimating techniques (e.g., volume and quantity of elements or type of system selected).
 3. **Schedule.** The Model may be used to show ordered, time-scaled appearance of major elements and selected systems.
- 3.2.3 **LOD 300:** Construction Documents (Basic Service)
- a. **Model Content Requirements:** Model Elements are modeled as specific assemblies accurate in terms of quantity, size, shape, location, and orientation. Non-geometric information may also be attached to Model Elements.
 - b. **Facility Management information:** Consultant will be required to input all new products installed under the scope of work for this project in conformance with an agreed upon list in OmniClass Table 23 format per Table 1 herein. County and Consultant to meet to refine the scope of the COBie information following issuance of the Schematic Phase NTP.
 - c. **Potential Uses:**

Suitable for the generation of traditional construction documents and shop drawings.

 1. **Analysis.** The Model may be analyzed for performance of selected systems by application of specific performance criteria assigned to the representative Model Elements.

2. Cost Estimating. The Model may be used to develop cost estimates based on the specific data provided and industry estimating techniques.
3. Schedule. The Model may be used to show ordered, time-scaled appearance of detailed elements and systems.
4. Clash Detection. The Model may be used to identify architectural and engineering conflicts for primary systems and elements. Areas of study include HVAC ductwork and equipment, structural elements, above ground plumbing and drainage piping, fire sprinklers and risers.

3.2.4 **LOD 350**: Construction (Contractor to provide this LOD as part of its Scope of Work, using the Consultants' Design Model unless County elects Consultant to provide as Optional Service)

- a. Model Content Requirements: Model Elements are modeled as constructed assemblies, actual and accurate in terms of size, shape, location, quantity, and orientation. Clearances and access requirements to be included in model elements where applicable, (e.g. VAV access, HVAC access panels, equipment door swings, maintenance panel access, etc.). Non-geometric information may also be attached to modeled elements.
- b. Facilities Management information: Consultant to provide complete BIM model(s) to Contractor for its use containing elements and information placeholders meeting Construction Operations Building Information Exchange (COBIE) standards in conformance with Table 1 herein.
- c. Potential Uses:
 1. Clash Detection. The model may be used to coordinate the configuration, installation and positioning of all building elements.
 2. Facility Management. The Model may be utilized for maintaining, altering, and adding to the Project. Update and confirm As-Constructed COBie data and Space Management information.
 3. Analysis. The Model may be analyzed for performance of selected systems by application of specific performance criteria assigned to the representative Model Elements.
 4. Cost Estimating. The Model may be used to develop cost estimates due to change in project scope based on the specific data provided and estimating techniques.
 5. Schedule. The Model may be used to show ordered, time-scaled appearance of detailed elements and systems.

3.2.5 **Detailed BIM Delivery Breakdown for LOD 300 and 350**:

- a. Architectural/Interior Design. The Architectural systems Model may vary in level of detail for individual building elements, but at a minimum the model must include all features that would be included on a quarter inch (1/4" = 1'-0") scaled drawing. Where applicable and as required for construction documents, the model, or host platform will include additional scales as required to show necessary details. Additional minimum Model requirements include:
 1. Spaces. The Model shall include spaces defining actual net square footage, net

volume and holding data to develop the room finish schedule including room names and numbers. Include program information to verify design space against programmed space, using this information to validate area quantities.

2. Walls and Curtain Walls. Each wall shall be depicted to the exact height, length, width, materiality and ratings (thermal, acoustic, fire) to properly reflect wall types. The Model shall include all walls, both interior and exterior, and the necessary intelligence to produce accurate plans, sections and elevations depicting these design elements.
 3. Doors, Windows and Louvers. Doors, windows and louvers shall be depicted to represent their actual size, type and location. Doors and windows shall be modeled with the necessary intelligence to produce accurate window and door schedules.
 4. Roof. The Model shall include the roof configuration, drainage system, penetrations, specialties, and the necessary intelligence to produce accurate plans, building sections and wall sections where roof design elements are depicted.
 5. Floors. The floor slab(s) shall be developed in the Structural Model and then referenced by the Architectural Model.
 6. Ceilings. All heights and other dimensions of ceilings, including soffits, ceiling materials, or other special conditions shall be depicted in the Model with the necessary intelligence to produce accurate plans, building sections and wall sections where ceiling design elements are depicted.
 7. Vertical Circulation. All continuous vertical components (i.e., non-structural shafts, architectural stairs, ramps, conveying systems, handrails and guardrails) shall be accurately depicted and shall include the necessary intelligence to produce accurate plans, elevations and sections in which such design elements are referenced.
 8. Architectural Specialties. All architectural specialties (i.e., toilet room accessories, toilet partitions, grab bars, lockers, and display cases) and millwork (i.e., cabinetry and counters) shall be accurately depicted with the necessary intelligence to produce accurate plans, elevations, sections and schedules in which such design elements are referenced.
 9. Signage. The Model shall include all signage and the necessary intelligence to produce accurate plans and schedules.
 10. Schedules. Provide door, window, hardware sets using Builders Hardware Manufacturers Association (BHMA) designations, flooring, wall finish, and signage schedules from the Model, indicating the type, materials and finishes used in the design.
- b. Furniture. The furniture Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4" = 1'-0") scaled drawing and have necessary intelligence to produce accurate plans. Where applicable and as required for construction documents, the model, or host platform will include additional scales as required to show necessary details. Representation of furniture elements is to be 3D. 3D

Examples of furniture include, but are not limited to, desks, furniture systems, seating, tables, and office storage. Additional minimum Model requirements include:

1. **Furniture Coordination.** Furniture that makes use of electrical, data or other features shall include the necessary intelligence to produce coordinated documents and data. Models shall be sufficient to enable their use to demonstrate complete furniture mounted electrical and data installation locations.
- c. **Equipment.** The Model may vary in level of detail for individual elements. Equipment shall be depicted to meet layout and clearance requirements with the necessary intelligence to produce accurate plans and schedules, indicating the configuration, materials, finishes, mechanical, electrical requirements and all other related utilities. Examples of equipment include but are not limited to copiers, printers, refrigerators, ice machines, microwaves, and equipment specifically related to the operations and functions of the facility.
1. **Schedules.** Provide furniture and equipment schedules from the model indicating the materials, finishes, mechanical, and electrical requirements.
- d. **Structural** The structural systems Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4" = 1'-0") scaled drawing. Where applicable and as required for construction documents, the model, or host platform will include additional scales as required to show necessary details. Additional minimum Model requirements include:
1. **Foundations.** All necessary foundation and/or footing elements, with necessary intelligence to produce accurate plans and elevations.
 2. **Floor Slabs.** Structural floor slabs shall be depicted with all necessary recesses, curbs, pads, closure pours, and major penetrations accurately depicted. Major penetrations shall include A/C duct chases and pipes larger than 6" dia. only.
 3. **Structural Steel.** All steel columns, primary and secondary framing members, and steel bracing for the roof and floor systems (including decks), including all necessary intelligence to produce accurate structural steel framing plans, related building/wall sections, and schedules.
 4. **Cast-in-Place Concrete.** All walls, columns, beams, including necessary intelligence to produce accurate plans and building/wall sections, depicting cast-in-place concrete elements.
 5. **Precast/Tilt-up/CMU.** All walls, columns, beams, including necessary intelligence to produce accurate plans and building/wall sections, depicting such elements.
 6. **Expansion Joints.** Joints shall be accurately depicted.
 7. **Stairs.** All framing members for stair systems, including necessary intelligence to produce accurate plans and building/wall sections depicting stair design elements.
 8. **Shafts and Pits.** All shafts and pits, including necessary intelligence to produce

accurate plans and building/wall sections depicting these design elements.

9. Openings and Penetrations. All major openings and penetrations.
- e. Mechanical. The Mechanical systems Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4" = 1'-0") scaled drawing. Where applicable and as required for construction documents, the model, or host platform will include additional scales as required to show necessary details. Small diameter (less than 1-1/2" NPS) field-routed piping is not required to be depicted in the Model. Additional minimum Model requirements include:
1. HVAC. All necessary heating, ventilating, air-conditioning and specialty equipment, including air distribution for supply, return, ventilation and exhaust ducts, control systems, chillers, registers, diffusers, grills, and hydronic baseboards with necessary intelligence to produce accurate plans, elevations, building/wall sections and schedules.
 2. Mechanical Piping. All necessary piping and fixture layouts, and related equipment, including necessary intelligence to produce accurate plans, elevations, building/wall sections, and schedules.
 3. Equipment Clearances. All Mechanical equipment clearances shall be modeled for use in interference management and maintenance access requirements.
- f. Plumbing. All necessary plumbing piping and fixture layouts, floor and area drains, and related equipment, including necessary intelligence to produce accurate plans, elevations, building/wall sections, riser diagrams, and schedules. Piping shall include slope requirements.
1. Equipment Clearances. All equipment clearances shall be modeled for use in interference management and maintenance access requirements.
- g. Electrical/Telecommunications/Data. The electrical and telecommunications systems Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4" = 1'-0") scaled drawing. Where applicable and as required for construction documents, the model, or host platform will include additional scales as required to show necessary details. Small diameter (less than 1-1/2" Ø) field-routed conduit is not required to be depicted in the Model unless banks of 3 or more conduits are run on racks. Additional *minimum* Model requirements include:
1. Interior Electrical Power and Lighting. All necessary interior electrical components (i.e., lighting, receptacles, special and general-purpose power receptacles, lighting fixtures, panel boards, cable trays and control systems), including necessary intelligence to produce accurate plans, details and schedules. Lighting and power built into furniture/equipment shall be modeled. Whips servicing lighting fixtures are required to be modeled.
 2. Special Electrical. All necessary special electrical components (i.e., mass notification, nurse call and other special electrical occupancy sensors, and

- control systems), including necessary intelligence to produce accurate plans, details and schedules.
3. Grounding. All necessary grounding components (i.e., lightning protection systems, static grounding systems, communications grounding systems, cadweld locations, and bonding), including necessary intelligence to produce accurate plans, details and schedules.
 4. Telecommunications/Data. All existing and new telecommunications service controls and connections, both above ground and underground, with necessary intelligence to produce accurate plans, details and schedules. Cable tray routing shall be modeled without detail of cable contents.
 5. Exterior Building Lighting. All necessary exterior lighting including all lighting fixtures, mounting details, relevant existing and proposed support utility lines and equipment with necessary intelligence to produce accurate plans, details and schedules.
 6. Exterior Electrical Equipment. All new transformers, pads, disconnects, site power receptacles, photocells, with necessary intelligence to produce accurate plans and details.
 7. Photovoltaic Panel Systems. Panels, transformers, inverters, fuses, switches, disconnects, communication panels and all underground conduit 1-1/2" or larger in diameter, with necessary intelligence to produce accurate plans and details.
 8. Electric Car Charging Stations. All new charging stations and conduit to point of power connection, including devices and disconnects, with necessary intelligence to produce accurate plans and details.
 9. Equipment Clearances. All electrical equipment clearances shall be modeled for use in interference management and maintenance access requirements.
- h. **Fire Protection**. The fire protection system Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4" = 1'-0") scaled drawing. Where applicable and as required for construction documents, the model, or host platform will include additional scales as required to show necessary details. All fire protection piping should be modeled. Additional minimum Model requirements include:
1. Fire Alarms. Fire alarm/mass notification devices and detection systems, audible and visual, shall be indicated with necessary intelligence to produce accurate plans depicting them.
 2. Fire Protection System. All relevant fire protection components (i.e., branch piping, sprinkler heads, fittings, drains, pumps, tanks, sensors, control panels) with necessary intelligence to produce accurate plans, elevations, building/wall sections, riser diagrams, and schedules including necessary intelligence to produce accurate plans, details and schedules.
 3. Exterior Fire Protection elements. All fire hydrants, fire department connections, valves and fire line piping shall be indicated with necessary intelligence to produce accurate plans depicting them on drawings.

- i. **Security**. The security system Model may vary in level of detail for individual elements, but at a minimum must include all devices and components that would be included on a quarter inch (1/4" = 1'-0") scaled drawing. Where applicable and as required for construction documents, the model, or host platform will include additional scales as required to show necessary details. Additional minimum Model requirements include, but not limited to:
1. **Closed Circuit Television (CCTV)**. Security cameras, devices, components, and detection systems shall be indicated with necessary intelligence to produce accurate plans depicting them on drawings.
 2. **Emergency notification systems**. All relevant security protection components (i.e. panic buttons, card readers, door controls, monitoring stations, security computer room, room/ corridor sensors, audible/visible annunciators, and security control panels) with necessary intelligence to produce accurate plans depicting the system(s).
 3. **Burglar alarm systems**. Building security including motion detectors, glass-break sensors, audible devices, and other intrusion detection devices as well control system for above shall be indicated on plans.
 4. **Public address system**. Speakers, zone control reflected on plan.
 5. **Low-voltage systems**. Various systems for communication, or customer services including Wi-Fi, FIBS/BIDS boards, phone chargers, lighting, Public Art, induction systems, wayfinding, solar PV, wind, and other systems.
 6. **Bi-Directional Antenna system (BDA)**. Antennas, trunk lines, branch line, control boxes, repeaters, emergency or redundant power sources, primary interface components, & home run room.
 7. **Distributed Antenna system (DAS)**. Antennas, splitters, feeders, nodes, headend and other distribution system and signal source equipment.
 8. **Public Address system (PA)**. Speakers, amplifiers, microphone locations and backbone.
- j. **Conveying Systems**. The conveying systems models should indicate primary equipment, all necessary plumbing piping, electrical panels, fixture layouts and other related equipment, that would appear on a quarter inch (1/4" = 1'-0") scaled drawing. Clearly indicate equipment clearances.
1. **Elevator Equipment**. All necessary equipment and control systems, including necessary intelligence to produce accurate plans, sections and elevations depicting these design elements. Provide indicators and call buttons.
 2. **Escalator and other Conveyance Equipment**. All relevant components of the escalator/conveyance system including accurate modeling of stair tread, size and placement. Indicate areas where 6'-8" clear headroom exists below the finished escalator if applicable.
- k. **Landscape**. The Landscape Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4" = 1'-0") scaled drawing and have necessary intelligence to produce accurate plans. Representation of Landscape elements is to be

diagrammatic. Examples of landscape material include but are not limited to trees and shrubs.

1. Irrigation system. Primary components, including pumps, wells, control valves, timers and main and secondary piping, (1-1/4" in size and above).
 2. Site Elements. Benches, Bike Racks, Postal Equipment and Trash Receptacles.
- i. **Civil**. The Civil Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a one inch (1" = 100' to 1" = 20') scaled drawing. Additional *minimum* Model requirements include:
1. Terrain (DTM). All relevant site conditions and proposed grading, including necessary intelligence to produce accurate Project site topographical plans and cross sections.
 2. Drainage. All existing and new drainage piping and structures including upgrades thereto, including necessary intelligence to produce accurate plans and profiles for the Project site.
 3. Cisterns. All new above or below ground water storage structures, pumps, filters, treatment equipment, backflow preventers, rainwater leaders, overflow piping, automatic and manual shutoffs or valves and supply piping to the rainwater's intended use.
 4. Storm Water and Sanitary Sewers. All existing and new sewer structures and piping, cleanouts including upgrades thereto, with necessary connections to mains or other distribution points as appropriate, including necessary intelligence to produce accurate plans and profiles.
 5. Potable Water systems. All new water piping to the building, meters, backflow preventers, valves, distribution and access boxes, including interconnection to cistern makeup water connections.
 6. Utilities. All necessary new utilities connections from the Project building(s) to the existing or newly created utilities, and all existing above ground and underground utility conduits, including necessary intelligence to produce accurate plans and site-sections.
 7. Roads and Parking. All necessary roadways, parking lots, and parking structures, light poles, including necessary intelligence to produce accurate plans, profiles and cross-sections.
 8. Sidewalks and Paths. All concrete, paver, asphalt, rubber, synthetic turf or other permanent material used for activity areas, pedestrian walkways and bicycle paths.
- m. **Potential Uses:**
- a. Suitable for the generation of traditional construction documents and shop drawings.
 - b. Analysis. The Model may be analyzed for performance of selected systems by application of specific performance criteria assigned to the representative Model Elements.
 - c. Cost Estimating. The Model may be used to develop cost estimates based on the specific data provided and conceptual estimating techniques.

- d. Schedule. The Model may be used to show ordered, time-scaled appearance of detailed elements and systems.

3.2.6 **LOD 400**: BIM for Fabrication. (Optional Service).

- a. Model Content Requirements. Model Elements are modeled as specific assemblies that are accurate in terms of size, shape, location, quantity, and orientation with complete fabrication, assembly, and detailing information. Non-geometric information may also be attached to Model Elements.
- b. Potential Uses:
 1. Construction. Model Elements are virtual representations of the proposed element and are suitable for construction.
 2. Analysis. The Model may be analyzed for performance of approved selected systems based on specific Model Elements.
 3. Cost Estimating. Costs are based on the actual cost of specific elements at buyout.
 4. Schedule. The Model may be used to show ordered, time-scaled appearance of detailed specific elements and systems including construction means and methods.

3.3 **BIM for Facility Management**

3.3.1 BIMs shall be provided by Contractor or Managing General Contractor (MGC). Contractor or MGC shall submit an As Constructed BIM to the A/E Consultant demonstrating the successful extraction and validation of COBie in Excel format for building operations, maintenance and management.

3.4 **As-Constructed Model Content Requirements**

- a. Model Content Requirements. Contractor shall model Elements as constructed assemblies, actual and accurate in terms of size, shape, location, quantity, and orientation. Non-geometric information may also be attached to modeled elements. Facilities Management/CAFM data completed with all requested information developed to County required Construction Operations Building Information Exchange (COBIE) standards. A model that accurately depicts rooms, names, uses, final room numbering, sizes and identifiers for on-going space management of the completed facility.
- b. Potential Uses:
 1. Facility & Construction Management. The Model may be utilized for maintaining, altering, and adding to the Project and generating reports.
 2. Project Record Documents. As-Constructed data accurately portrayed in the BIM model for future reference and reuse.

3.5 **COBie Data**

- a. **Within 30 days from the issuance of the Notice To Proceed (NTP) for Schematic Design**, the County and Consultant shall finalize and select items from the following OmniClass 23 table to establish the basis of COBie elements to be

tracked and delivered in the completed model.

23-11	Products
23-13	Structural and Exterior Enclosure Products
23-15	Interior and Finish Products
23-17	Openings, Passages, and Protection Products
23-21	Furnishings, Fixtures and Equipment Products
23-23	Conveying Systems and Material Handling Products
23-27	General Facility Services Products
23-29	Facility and Occupant Protection Products
23-31	Plumbing Specific Products and Equipment
23-33	HVAC Specific Products and Equipment
23-35	Electrical and Lighting Specific Products and Equipment
23-37	Information and Communication Specific Products and Equipment

Table 1.0 – Selected Excerpt from OmniClass Table 23

3.6 **BIM Project Execution Plan (BIM PxP or PxP)**

3.6.1 The BIM PxP template is included in this Attachment 2, as “Section 4 - Project Execution Plan (BIM PxP). The Consultants BIM PxP Coordinator for the Project has the responsibility of documenting the Project Execution Plan (PxP), gathering the required information from the External Project Team, scheduling and leading the PxP meetings and establishing and implementing protocols for revisions and sharing the PxP

3.6.2 The development of the PxP is a collaborative effort by all members of the Project team and will be reviewed and updated in meetings specifically scheduled for this purpose. All members of the Project team are required to submit initial information for their scope to the designated PxP Coordinator within 15 calendar days of commencing work. At a minimum PxP meetings shall be conducted at the end of each project phase and a revised PxP shall be issued to County and the External Project Team. A record PxP shall be provided to the owner at handover including all updated requirements.

3.6.3 The PxP is subject to review and approval by County at each project phase.

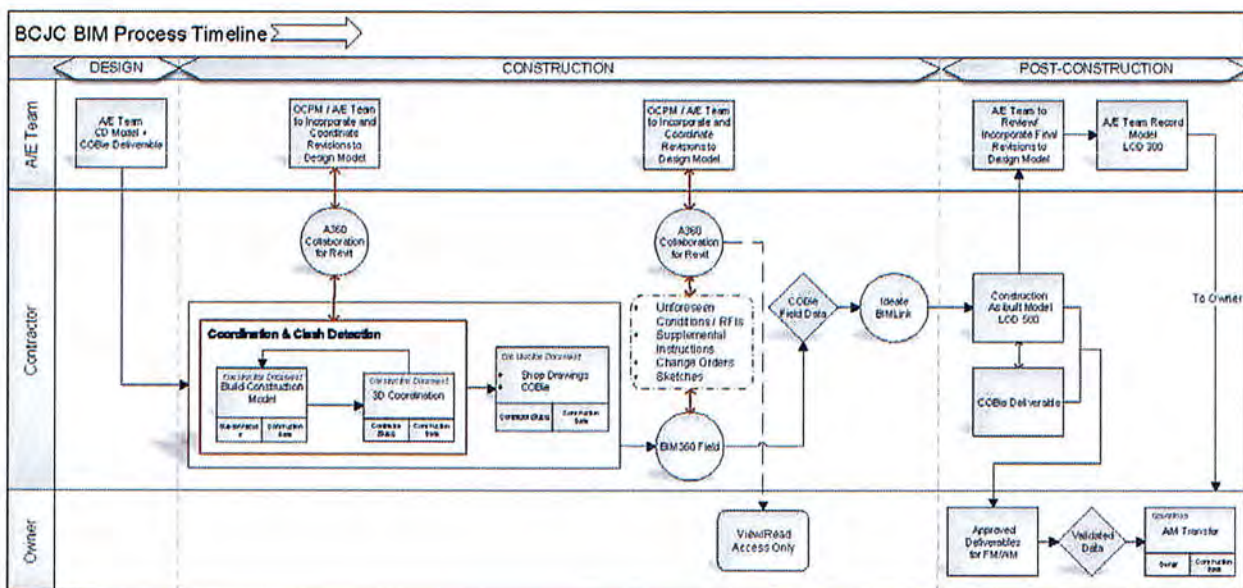
3.6.4 The design & construction teams shall submit a written BIM PxP using the attached template, subject to review and written approval by County prior to proceeding with the process. The BIM PxP will outline all methods and procedures for collaboration between the design and construction teams as well as coordination of VDC/BIM efforts of the subcontractors. The Contract Administrator, Consultant, Contractor and all sub-consultants and subcontractors engaged in the BIM process will sign agreement to adhere to the BIM Project Execution Plan.

3.6.5 The BIM Project Execution Plan shall include as a minimum:

- a. Project Information
- b. Key Project Contacts

- c. Project VDC / BIM Uses
- d. Organizational Roles and Staffing
- e. VDC / BIM Process for preconstruction, construction and handover
- f. BIM Information Exchanges
- g. BIM and Facility Data Requirements
- h. Collaboration and coordination procedures
- i. Quality Control
- j. Technological Infrastructure Needs
- k. A Model Progression Schedule identifying LODs and Authors for each category of model (built) element.
- l. Clash detection approach
- m. Cost estimating level
- n. BIM Deliverables
- o. Signature approval page

3.6.6 A BIM Process Flow Chart provides a graphic visualization of the processes and approval points to be used during the life of the project. The County encourages the development of this chart as an effective practice and communication tool. An example BIM Flow Chart is provided below:



3.6.7 To promote efficiency and continuity, the 2D construction documents must be extracted directly from the Design Model and both the BIMs and the 2D Deliverables will be integral parts of the contract documents. Two dimensional (2D) details, enlargements, General Notes, externally generated Schedules, and specifications will take precedence over the Design Models.

3.7 **BIM Uses**

3.7.1 County has identified the Required, Preferred and Optional BIM uses as it relates to this project. The County acknowledges that Design and Construction Consultants will work together to achieve these Uses. Implementation of these uses and timing are to be documented and explained by the Consultant in the BIM PxP, Section E. Roles and Responsibilities.

3.7.2 The County's typical BIM Uses for New Construction Projects are as follows:

County Typical BIM Use - New Construction	
BIM Use	County Intent
3D Coordination / Conflict Analysis	Required**
As-Constructed Model	Required**
Asset Management	Required**
CIM / Subsurface	Required
Constructability/Peer Review	Required
Design 4 Maintenance (D4M)	Required
Design Authoring	Required*
Design Reviews	Required
Existing Conditions Modeling	Required
Facility Data Exchange	Required**
Owner Approvals	Required
QA/QC	Required
Record Modeling	Required**
Site Utilization Planning	Required**
Spatial Analysis	Required
Visualization	Required
Commissioning	Preferred
Cost Estimation	Preferred
Energy / Mechanical Analysis	Preferred
Programming	Preferred
Program / Code Validation	Preferred
Quantity Take-Off	Preferred
Site Analysis	Preferred
Space Management / Tracking	Preferred
Structural Analysis	Preferred
Sustainability / LEED	Preferred
Total Cost Of Ownership	Preferred
BIM2field - Digital Layout	Optional
Building Maintenance Scheduling	Optional

BIM Use	County Intent
Building System Analysis	Optional
Code Analysis	Optional
Construction System Design	Optional
Digital Fabrication	Optional
Disaster Planning	Optional
Electrical Analysis	Optional
Field and Material Tracking	Optional
Laser Scanning	Optional
Lighting Analysis	Optional
Pay Applications	Optional
Phase Planning 4D	Optional
Security / Key Management	Optional
Specification Production	Optional

**Indicates a required BIM Use which must be provided during construction by the Contractor, when using a BCF170 Agreement procurement.

3.8 **3D Coordination and Conflict Analysis**

3.8.1 The Design Team shall use BIM to employ a managed approach to advanced collaborative reviews, including automated element collision detection using software such as Autodesk Navisworks and model checkers such as Solibri by Nemetschek. By coordinating BIM data during the design phases, this can reduce the number of potential major conflicts that might arise during the construction phase.

3.8.2 This approach is not meant to replace the traditional quality control process, or the early airspace zone MEP strategy approach used by the project team and participating consultants but will enhance the ability of the project team to visualize the design and detect interferences between discipline components.

3.8.3 Consultant Team Coordination

- a. The Design Team shall produce a design in which all MEP/FP systems fit within the intended spaces provided, including necessary and required clearances, egress zones, and access zones. To help achieve this goal, the Design Team shall have a formal 3D spatial analysis and clash resolution process that forms the backbone of the QA/QC process. The spatial analysis and clash resolution process shall include regularly scheduled clash review meetings and the use of software tools to analyze and resolve clashes.
- b. County does not expect a completely “clash-free” design, however County expects a design that has been spatially analyzed and validated such that all systems are constructible within the space designed.

- c. Clash reports will be required at project milestone deliverables for both Design and Construction.
- d. Utilities coordination & invert elevations

3.8.4 Contractor Team Coordination

- a. Contractor shall carry out clash detection analysis and complete preliminary virtual design and construction (VDC) activities as part of the Constructability Reviews.
- b. Weekly, the CM shall conduct coordination meetings with each Contractor, Subcontractor, PM, County and Consultant Team as needed.
- c. The CM shall prepare clash detection reports and distribute minutes/ reports to all attendees.

3.9 **Model Content Requirements**

3.9.1 A Model Progression Schedule/Agent Responsibility Matrix (MPS) shall be used as a tool to help Model Contributors throughout the Design, Construction and Operation phases understand what should be included in the BIMs when at each project milestone.

- a. The Construction Models should reflect the exact geometric properties of the materials and/or systems being submitted. These models should reflect the exact material properties and performance data.
- b. It is the responsibility of the Design and Construction Team to use the MPS as part of the BIM PxP or JBIM PxP to establish how they progressively reach the County's expectations.
- c. See also Section 4 - BIM Project Execution Plan and Section 5 - Model Progression Schedule/Agent Responsibility Matrix templates for additional required information.

3.10 **Shop Drawings, Sleeve Drawings and Fabrication**

3.10.1 Shop Drawings shall be produced directly from the construction BIMs. No parallel 2D process will be accepted

- a. Sleeve Drawings -Sleeve drawings for cast-in-place or precast systems shall be produced after BIM Coordination is completed for the area of construction requiring the sleeve drawings.
- b. Fabrication & Preassembly -Whenever possible the Contractor Team shall use the Construction BIMs to fabricate or preassemble their systems.

3.11 **BIM in the field for Installation**

3.11.1 The Contractor shall take measures to assure that what is being installed at the field is what was agreed upon on the Coordinated Federated Construction BIM. Any deviations must be documented as updates to the BIMs and the party responsible for resulting conflicts will be liable for costs associated with such deviations.

3.12 Submittals

3.12.1 Upon Substantial Completion, BIM files shall be submitted to County, and shall be cleaned of extraneous “scrap” or “working space”, stories, abandoned designs, object creation and testing places, and other content which is typically produced in or during BIM construction coordination.

- a. The Contractor shall be responsible for providing the County a Federated, As-Constructed Model that includes all building systems. The Model shall be coordinated and “clash free” except as noted.
- b. Contractor shall provide a native file of the final Federated As-Constructed Model for building systems used in the multi-discipline coordination process (version as agreed in BIM PxP)
- c. Contractor shall identify native file formats used in the final Federated As-Constructed Model for building systems for the multi-discipline coordination process (version as agreed in BIM PxP)
- d. Contractor shall provide IFC files (ISO 16739) of As-Constructed models (version as agreed in BIM PxP)
- e. Contractor shall provide COBie / data compliant file containing room and product data information (version as agreed in BIM PxP)

3.12.2 County will not accept BIM files that have become un-useable, or too memory or C.P.U. intensive for normal use. Proper care shall be taken to strip all BIMs of any and all miscellaneous files that are not directly part of the BIMs. The BIM Compliance Checklist, shown below, is required to be submitted with each BIM Deliverable as part of the QA/QC process and to show compliance.

BIM Compliance Checklist	
Description	Y / N
Detach all BIM's from the Central File.	
Ensure the proper and updated completion of all information on the 'Start Screen' page for all Revit models.	
Scrub and remove all unused or alternative versions, elements and objects from the model.	
Ensure that drawing sheets, viewports, paper-space, line weights, fonts, and other drawing components are correctly configured for Contract Administrator's viewing and plotting.	
Make sure all reference files are attached using a “relative” path setting and without device or directory specifications.	
“Transmit a Model” function should be used in Revit to assemble files for submittal.	
Compress and reduce all design files using PKZIP, WINZIP or other compatible file compression/decompression software approved by the Contract Administrator.	
Include all files, both graphic and non-graphic, required for the project (i.e., color tables, pen tables, font libraries, block libraries, user command files, plot files, and other elements of drawing definition).	

BIM Compliance Checklist	
Ensure that all support files such as those listed above are in the same directory and that references to those files do not include device or directory specifications.	
Model content is representative of their discipline developments according to the MPS.	
Model file name and folder structure conforms to County Standards.	
All annotations and title blocks are per the County standards.	
All floor plans types have been created for each floor or mezzanine in the project model.	
All schedules are populated with all the required data for the project.	
The model is correctly assembled as per visual inspection.	
The color code for Federated BIMs conforms to County Standards.	
All the model contents are correctly placed per their element categorization in the correct work set and conform to standards.	
All non-transmittal linked-in files (CAD/Revit) have been removed from the model.	
All non-required views / legends / schedules / sheets / images have been removed from the model.	
Unwanted Design Options have been removed from the model (applicable for Contract Document Phase through Project completion and handover).	
All unnecessary groups have been removed from the model. All groups used to model the building have been ungrouped and purged from the deliverables to reduce the file size of the model.	
As a last step, the model has been purged (repeat the process three times -- materials are only removed after the parent object has been removed). This will reduce the file size.	
3D Solids Check – No wireframe or lines are accepted. Surface modeling shall be reserved for Topography modeling only. Other use of surface modeling shall require prior approval by County.	
Errors or Warnings - check that there are not any generated within the BIM Authoring software. It is the Design & Construction Teams' responsibility to ensure BIM quality and data integrity.	
Model Elements are not duplicated. i.e. Columns in both Architectural and Structural models.	
Objects are correctly defined under the proper Revit Family Category and sub-category.	
Check completed files are free of any known viruses or unrequired attachments.	

3.13 **Responsibilities Related to the Final Record BIM**

3.13.1 Design Team Responsibilities

- a. The Design Team will update the Architectural and Structural Design Models as changes occur throughout the construction phase, incorporating all updates and/or revisions to the models as necessary to reflect design changes initiated by Architect's Supplemental Instructions (ASI), Request for Information (RFI), Conformed Documents, Construction Change Directive, Owner Changes, coordination with existing conditions or other changes to the work.

3.13.2 Construction Team Responsibilities

- a. During the construction phase, and while the work is still visible, the Construction Team will maintain 'red-line' As-Constructed drawings and demonstrate regular updates to the BIM models during the progress of the work.
- b. In preparation for Substantial Completion, the Contractor Team will:
 1. Make all necessary final updates and/or revisions to the models to reflect the As-Constructed information to the tolerance specified in the BIM PxP. It is the responsibility of each subcontractor to keep accurate 'red-line' markups and records from the field in order to produce accurate As-Constructed models and drawings.
 2. Include and revise any construction BIM's developed for the Project by the Contractor or its Subcontractors. i.e.
 3. Provide final updates to material/equipment data and properties where installations differ from the 'basis of design' included in the Design Team Models.
 4. Include any final, As-Constructed COBie information into the BIM.
 5. Incorporate or link identified close-out documents to the Federated Model (as agreed in BIM PXP).
- c. All model updates by the Construction Team shall be complete one (1) week prior to Final Completion at which time all close out BIM deliverables shall be transmitted to the Consultant for review. Upon acceptance and approval, they will be coordinated by the Consultant and federated with the updated Design Model to create the Record Model deliverable. (as set forth in BIM PXP).

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Section 4 BIM Execution Plan



**BIM PROJECT EXECUTION PLAN
(BIM PxP)**

FOR

Insert Project Name Here in Black Font

DEVELOPED BY

**Broward County - Construction Management Division
(County)**

This template is a required tool that is provided to assist in the development of a BIM Project Execution Plan (BIM PxP) as required by Contract.

Contractors are required to "Track" changes when editing this document so BROWARD COUNTY - CONSTRUCTION MANAGEMENT DIVISION (County) can review and accept any additions and modifications as part of the review process.

BIM PROJECT EXECUTION PLAN

FOR

Insert Project Name Here in Black font

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Introduction

This template exists to document the decisions made by the Design and Construction Teams working through the BIM process. To successfully implement BIM on both the project and organizational levels, Broward County Construction Management Division has developed this BIM Project Execution Plan (BIM PxP) to improve accuracy and consistency of BIM deliverables. This plan will delineate roles and responsibilities while detailing BIM scope of information to be shared that is relevant to the BIM project process. The document is intended to cover both model creation and data integration.

Instructions

Submission Schedule

The Design and Construction Teams are required to submit a completed BIM PxP within 30 days of their contract execution. This plan shall identify the entire project team including consulting engineers, specialty consultants and contractors. The BIM PxP should be considered a living document and maintained and updated throughout the project.

Please note: Instructions and examples to assist with the completion of this guide are displayed in italicized blue font. The text can and should be modified to suit the needs of the organization filling out the template. If modified, the format of the text should be changed to match the rest of the document (non- italicized and in black, 12-point, Calibri font typical) and “tracked changes” shall be submitted in electronic form for Broward County Construction Management Division review and approval.

The overall section headings of this template shall remain, but the BIM PxP Coordinator may propose any other changes or additions to this template including expansion of the content of the sections and additional sections and attachments. Changes & additions shall be agreed to by the project team and submitted to Broward County Construction Management Division for approval.

This BIM PxP document is based on the National BIM Standard-United States™ Version 3 and the Pennsylvania State University BIM Project Execution Plan Version 2.0 and customized for Broward County Construction Management Division.

Section A: BIM Project Execution Plan Overview

The Broward County Construction Management Division requires the use of Building Information Modeling (BIM) as a tool in the planning, design, construction and operation of our facilities worldwide. A well-executed BIM project facilitates the collaboration and communication between the owner, the design team and the construction team in order to best meet the project's goals.

The purpose of this process change is to ensure maximum benefit from our assets by improving the building's design and construction, reduce the total cost and time of delivery and improve operations and management after handover. BIM allows for a more complete, efficient, iterative design and construction process. The clearest benefits are the enhanced visualization of the project at all stages of development, the creation of higher quality design and construction deliverables and the reduction of construction coordination conflicts in the field. At the end of construction, the Building Information Models serve as rich databases of digital data captured during design and construction about the building's assets. This single centralized source of information is invaluable to the Facilities Department for the on-going operations and management of the building to ensure our facilities are sustainable and resilient.

To successfully implement Building Information Modeling (BIM) on a project, the project team has developed this detailed template BIM Project Execution Plan.

INSERT ADDITIONAL INFORMATION HERE IF APPLICABLE.

With the help of the project team, develop a brief mission statement here that will give an overview of BIM objectives that are specific to this project. This can be developed at a collaborative brainstorming session at the first BIM PxP meeting. Extensive additional information can be included as an attachment to this document.

Section B: Project Information

This section defines basic project reference information and determined project milestones

1. Client Name: Broward County Construction Management Division
2. Project Name:
3. Project Location and Address:
4. Contract Type / Delivery Method: BCF170 - General Contractor
5. Brief Project Description:
6. Additional Project Information: none
7. Project Identification Numbers: *Please complete table below*

Team Member	Project Number
Broward County Construction Management Division	
Architect	
MEP Engineers	
Structural Engineer	
Contractor	

Section C: Delivery Strategy

Delivery and Contracting Strategy for the project:

This section is useful primarily when design delivery methods are being utilized that involve early collaboration of the design and construction teams (IPD, Design Assist, etc.). List the Project Delivery strategy for the project below (Design-Bid-Build, CM at Risk, IPD, Design Assist, etc.).

Please note what additional measures need to be taken to successfully use BIM with the selected delivery method and contract type?

Section C.1 - Project Schedule / Phases / Milestones:

In coordination with the project schedule, include BIM milestones, pre-design activities, major design reviews, stakeholder reviews and any other major events which occur during the project lifecycle.

Project Phase / Milestone	Estimated Start Date	Estimated Completion Date	Project Stakeholders Involved
Notice to Proceed			
BIM PxP Kick-off			
Programming			
County Review & Comments			
Design Team Review & Resubmit			
Schematic Design			
County Review & Comments			
Design Team Review & Resubmit			
Design Development			
County Review & Comments			
Design Team Review & Resubmit			
50% CD's			
County Review & Comments			
Design Team Review & Resubmit			
___% CD's			
County Review & Comments			
Design Team Review & Resubmit			
100% CD's			
County Review & Comments			

Project Phase / Milestone	Estimated Start Date	Estimated Completion Date	Project Stakeholders Involved
Design Team Review & Resubmit			
Award / Permit			
Pre-Construction			
Project Coordination Kickoff			
Underground Coordination			
Site Coordination			
Building Exterior Coordination			
Building Interior Coordination (First Floor)			
Building Roof Coordination			
Coordination Sign-Off			

Section C.2 - Project Deliverables

In this section, please check off the BIM Deliverables from Consultant and Contractor on the appropriate tables below that are relevant for this project. Note any and all deviations to these required deliverables below.

Schedule of Deliverables to Broward County Construction Management Division				
<u>CONSULTING ARCHITECTURE AND ENGINEERING TEAM</u>				
Phase	Deliverable	Include Y/N	Due	File Type
Contract Award	BIM PxP		30 days of ATP	Native & PDF
Programming / Feasibility Models	Massing models & Narrative Space & Program Validation Report		Per BIM PxP	Native & IFC & PDF Native & PDF
Planning	Design Models -		Per BIM PxP	Native & IFC (2x3) files
Schematic Design	Design Models -		Per BIM PxP	Native & IFC (2x3) files
Design Development	Existing Conditions Model Design & Analysis Models -		Per BIM PxP	Native & IFC (2x3) files Native & IFC

	Updated BIM PxP Coordination Reports BIM Compliance Checklist			Native & PDF PDF PDF
Construction Documents	Design & Analysis Models 2D documents & Clash Report Updated BIM PxP Coordination Reports BIM Compliance Checklist COBie Data Set - Del 1		Per BIM PxP	Native & IFC (2x3) files PDF Native & PDF PDF PDF COBie2 2.40
Permitting / Conformance	Federated Design Model 2D Documents		Per BIM PxP	Native files PDF
Construction - Approved Submittals	COBie Data Set - Del 2		Per BIM PxP	Native & IFC (2x3) files
Construction- Close-Out Close-Out Close-Out Close-Out Close-Out Close-Out	COBie Data Set - Del 3 COBie Data Set – Final Record Floor Plans Record BIMs Federated Record BIM Coordination Report Record Model Instruction Rpt. Final BIM PxP		Per BIM PxP	COBie2 2.40 COBie2 2.40 DWG Native & IFC (2x3) Native Native & PDF Native & PDF Native & PDF

Schedule of Deliverables to Broward County Construction Management Division				
CONSTRUCTION TEAM				
Phase	Deliverable	Include Y/N	Due	File Type
Contract Award	BIM PxP		Within 30 days	Native & PDF
Pre-Construction	Coordination BIMs BIM Compliance Checklist		Per BIM PxP	
Project Close out	COBie Data Set – Del 3 As-Constructed BIMs BIM Compliance Checklist Coordination Report Federated As-Constructed BIM Final BIM PxP		Per BIM PxP	COBie2 2.40 Native & IFC (2x3) PDF PDF .NWD Native & PDF

Section D: Key Project Contacts

ROLE	CONTACT NAME	ORGANIZATION	EMAIL	PHONE
Owner PM		Broward County CMD		
Owners BIM Manager		Broward County CMD		
BIM PxP Coordinator				
Design Professional's Principal in Charge				
Design Professional's Project Manager				
Design Professional's BIM Manager				
Design Professional's BIM Project Lead				
Consultant's Principal in Charge				
Consultant's Project Manager				
Consultant's BIM Manager				
Consultant's BIM Project Lead (per discipline)				
Contractors PM				
Contractors BIM Manager				
Others				

Section E: Organizational Roles / Staffing

This section should be filled in at the choice of the BIM P&P Coordinator and extended team

BIM Roles and Responsibilities:

Broward County Construction Management Division (CMD): Broward County's Construction Management Division is responsible for BIM, CAD support, coordination and integration. It is also their responsibility to ensure design and construction document/model compliance with Broward County Construction Management Division Standards while maintaining and facilitating access to record drawings and models.

Describe BIM roles and responsibilities such as BIM Managers, Project Managers, Draftspersons, etc.

Titles	Roles in Design	Roles in Construction
Broward County Construction Management Division	<ul style="list-style-type: none"> • BIM Oversight and Compliance Reviews 	<ul style="list-style-type: none"> • BIM Oversight and Compliance Reviews
Project Manager		
Model Manager		
BIM Coordinator		
Modeler		
COBie Coordinator		

Section F: BIM Uses

Broward County Construction Management Division has developed a BIM Use/Consultant Responsible Matrix for use in the planning and procurement of BIM projects. This matrix defines Broward County Construction Management Division's priorities for the application of BIM Uses, the responsibilities of the External Team Members, and the phases to which the BIM Uses apply. BIM Uses should only be employed if they offer significant benefit to the Project without compromising cost or schedule.

*Insert additional information as needed for this specific project. Items in **RED** are minimal required by Broward County Construction Management Division.*

BIM Use	Consultant Responsible for Implementation	Required Proposed	Plan Design Construct Operate			
			P	D	C	O
Visualization	A & C.	Required	X	X	X	X
Programming						
Site Analysis						
Design Authoring	A, Trades	Required	X	X	X	
Design Reviews	A	Required	X	X		
3D Coordination	A & C.	Required	X	X	X	
Constructability Review	C	Required	X	X		
Structural Analysis						
Lighting Analysis						
Energy Analysis						
Mechanical Analysis						
Other Eng. Analysis						
Sustainability Evaluation						
Design4Maintenance Review	A & C.	Required		X	X	
3D Coordination and Conflict Analysis	A & C.	Required	X	X	X	
Facility Data Exchange	A & C.	Required		X	X	X
Quality Assurance / Quality Control						
Owner Approvals	A	Required	X	X		
Code Validation						
Commissioning						
Site Utilization Planning	A or C.	Required		X	X	
Construction System Design						
Digital Fabrication						
3D Control and Planning						
4D Phase Planning						
5D Cost Estimation						
Quantity Take Off						
BIM2Field						
Laser Scanning						
Point Cloud integration						

Security Key Management					
Building Maintenance Scheduling					
Record Modeling	A	Required	X		
Way finding					
Virtual / Mixed Reality					
As-Constructed Modeling	C	Required		X	
Building System Analysis					
Asset Management	A & C	Required	X	X	X
Space Management / Tracking	A	Required	X	X	X
Disaster Planning					
Existing Conditions Model					

Section G: BIM Process Design

Define the BIM Process and Workflows that the External Project Team will be implementing on this project as it relates to the BIM Uses that have been selected and contracted for this project. Define a detailed plan for implementing each BIM Use, define the specific exchanges of information and/or BIMs for each activity, the party responsible for each activity, and when in the schedule of the project it should occur. Process maps like those in the Penn State BIM Execution Plan may be included but are optional.

Section H: Model Progression Schedule / LOD

A template Model Progression Schedule/Agent Responsibility Matrix (MPS) template defining minimum requirements for model handover will be provided by the Project Manager and examples are included and referenced in Section 5 of this Attachment 2. The LOD levels and tolerances in the Handover section of the sample MPS define Broward County Construction Management Division's requirements for the Existing Conditions, As-Constructed and Record BIMs. The External Project Team is to complete and submit a project specific MPS for this project for all project phases as applicable. The columns pertaining to Existing Conditions, As-Constructed Modeling and Record Modeling along with requirements for tolerances and allowable deviations are to be included in the MPS.

The Model Element Rows in Broward County Construction Management Division's template MPS are high level. The rows in the final project MPS may have a higher level of granularity to address the needs of the project and the best practices of the External Project Team.

The executed MPS shall be attached to this BIM PxP.

Section I: BIM and Facility Data Requirements

At a minimum and not limited to, Broward County Construction Management Division will require COBie data sets for all components on the Equipment List per the Construction Documents that require any of the following:

- ✓ Scheduled preventative maintenance i.e. Mechanical, Electrical,
- ✓ Routine maintenance/inspections: i.e. Plumbing
- ✓ Regulatory inspections i.e. life safety related: fire extinguisher, fire dampers, backflow preventers

The list to the right shows a sample Preliminary Asset Type List for Broward County Construction Management Division Projects. This list should be used and further detailed in the BIM PxP Template.

Shown In	BCAD Preliminary Asset Type List	OmniClass- Products Classification - Table 23
ARCH Model	AUTOMATIC EXTERNAL DEFIBULATOR (AED)	23-25 21 13
	BAGGAGE HANDLING CONVEYOR	23-23 17 15
	ELEVATOR	23-23 11 11
	ESCALATOR	23-23 11 13
	FIRE DOOR	23-17 11 32
	ICE MACHINE	23-21 21 29
	MOVING WALKWAY	23-23 15 11
	SLIDING DOOR	23-17 11 23
	TICKET COUNTER	23-21 19 15
WATER COOLER	23-31 31 00	
ELECT Model	FIELD CONTROL PANEL	23-35 31 15
	GENERATOR	23-35 11 15
	LINE CONTROL PANEL	23-35 31 15
	MOTOR CONTROL CENTER	23-35 31 23
	MOTOR CONTROL PANEL	23-35 31 15
	VARIABLE FREQUENCY DRIVE	23-35 17 15
	VARIABLE SPEED DRIVE	23-35 17 00
MECH Model	AC UNIT	23-33 39 11
	AIR HANDLER	23-33 25 00
	CHILLER	23-33 21 00
	CONDENSER WATER PUMP	23-27 17 00
	CONDENSING UNIT	23-33 43 00
	COOLING TOWER	23-33 23 00
	EXHAUST FAN	23-33 31 19
	FAN COIL UNITS	23-33 33 11
	FAN POWERED BOX	23-33 41 11
	FAN TERMINAL BOX	23-33 41 11
	FAN VARIABLE VOLUME BOX	23-33 41 11
	OUTSIDE AIR HANDLER UNIT	23-33 25 13
	PACKAGE AIR CONDITIONING UNIT	23-33 39 17
	PRIMARY CHILLED WATER PUMP	23-27 17 00
	ROOF TOP UNIT	23-33 25 17
	SECONDARY CHILLED WATER PUMP	23-27 17 00
	SPLIT SYS CONDENSING UNIT	23-33 43 00
SUPPLY FAN	23-33 31 19	
VARIABLE AIR VOLUME BOX	23-33 41 17	
PLUM Model	AIR COMPRESSOR	23-27 21 00
	CHEMICAL STATION	23-27 55 31
	ELECTRIC HOT WATER BOILER	23-33 11 22
	HEAT EXCHANGER	23-27 23 00
	HEAT PUMPS	23-33 17 00
	HOT WATER PUMP REHEAT	23-27 17 00
	SUMP PUMP	23-27 17 00
	TRASH PUMP	23-27 17 00
	WATER CIRCULATING PUMP	23-27 17 00
These assets types may be found in consultant 3D CAD models with limited information embedded. The information required on these asset types would be manual entered into the COBie deliverable worksheets.		
CIVIL	AIR FIELD LIGHTING RUNWAY	N/A
	AIRFIELD BEACON	N/A
	CRASH GATE	23-11 25 15
	CRASH PERIMETER GATE	23-11 25 15
	ENGINEERED MATERIAL ARRESTING SYSTEM - EMAS	N/A
	PEDESTRIAN GATE	23-11 25 15
PERIMETER GATE	23-11 25 15	
CONSULTANT	ABOVE GROUND STORAGE TANK	23-27 29 19
	BAG MEASUREMENT EQUIPMENT	23-23 17 15
	BAGGAGE DIMENSIONER	23-23 17 15
	BAGGAGE HANDLING CAROUSEL	23-23 17 15
	DIESEL FUEL STORAGE TANK	23-27 29 19
	HIGH SPEED DIVERTER	23-23 17 15
	JETWAY	23-23 15 15
	OVER SIZE BAG DOOR	23-23 17 15
	SCALE	N/A

Section J: Collaboration Procedures

Collaboration Strategy:

Provide a brief, general description of how the project team will collaborate. Include items such as communication methods, document management and transfer, and record storage, etc.

FILE LOCATION	FILE STRUCTURE/ NAME	FILE TYPE	PASSWORD PROTECT	FILE OWNER	UPDATED
Collaboration SITE: SITE	Root Project Folder	FOLDER	YES	PT Project Mgr.	ONCE
Provide Further Information on Structure of Collaboration Site	Root Project Folder	FOLDER	YES	PMG Project Mgr.	ONCE
Provide Further Information on Structure of Collaboration Site	TBD	RVT	YES	PMG Project Mgr.	WEEKLY

Section J.1 - BIM Meeting Procedures:

There will be several types of collaboration and model review meetings needed for the project, including general progress meetings, design coordination meetings, etc. The following table includes, but is not limited to, some of the types of potential meetings necessary for the project, meeting host(s), required attendees, and required technology. Broward County Construction Management Division understands that these meetings may be in-person, virtual and/or a combination of both. The following table describes the schedule for coordination meetings, clash detection meetings, and model walkthroughs. Items marked in Red will be REQUIRED.

The meetings listed below reflect typical Broward County Construction Management Division expectations for a project and should be customized for the needs of a project.

MEETING TYPE	DESIGN INTENT MODELS			
	STAGE	FREQUENCY	LOCATION	COMMENTS / PARTICIPANTS
Design Phase BIM Kick-off		1X within 15 days of start of project	On-site	General discussion to make sure all parties are aligned on BIM Requirements
BIM Project Execution Plan Presentation		1X within 30 days of start of project	On-site	BIM PxP Coordinator presents completed BIM PxP to entire team for final sign-off

Design Authoring Coordination Meetings		Weekly	In-Cloud	Coordination and Federation of Design Team Models.
Design Presentations/ Model Walk-throughs		As Needed	On-site	BIM presentations to Project Team for approval and reviews. Geared towards Owner and User Groups.
Design4Maintenance		DD / CD Phases 1X	On-site	BIMs to review equipment maintainability and "soft clash" for clearances.
Data Meeting		DD / CD Phases 1X	In-Cloud / On-site	Review BIMs for data compliance and test import.
Model Handover Meeting		1X	On-site	Meeting to discuss and test interoperability and file exchange.
Design Close-out		2X	On-site	Meeting to finalize Record BIMs and As-Constructed BIMs for close-out.
Construction Phase	STAGE	FREQUENCY	LOCATION	COMMENTS / PARTICIPANTS
BIM Kick-off Meeting				
Clash / Cord Meetings			On-site	General Guidelines for model laying, area, trade sequencing and reserved zones.
Design4Maintenance			In-Cloud / On-site	
Contractor Handover/ Close-out			On-site	BIMs to review equipment maintainability and "soft clash" for clearances.
Contractor Handover/ Close-out			TBD	Meeting to finalize Record BIMs and As-Constructed BIMs for close-out.

Section J.2 - Model Delivery Schedule of Information Exchange for Submission and Approval:

Document the information exchanges and file transfers that will occur on the project. Modify the DISCIPLINE column to match the way that content is segregated into different models on a project.

DISCIPLINE	FILE TYPE	UPLOAD FREQUENCY	DOWNLOAD FREQUENCY
Architectural (Exterior)			
Architectural (Interior)			

Specialty Equipment			
Furniture			
Structural			
Mechanical			
Electrical			
Plumbing			
Civil			
Landscape			

Section J.3 - Electronic Communication Procedures:

The following document management issues should be resolved, and a procedure should be defined for each: Permissions / access, File Locations, FTP Site Location(s), File Transfer Protocol, File / Folder Maintenance, etc.

Section K: Quality Control

Overall Strategy for Quality Control:

Describe the strategy to control the quality of the model.

Quality Control Checks: The following checks should be performed to assure quality:

CHECKS	DEFINITION	RESPONSIBLE PARTY	SOFTWARE PROGRAM(S)	FREQUENCY
VISUAL CHECK	Ensure there are no unintended model components and that the design intent has been followed	A/E/C	REVIT / NAVIS	Ongoing
INTERFERENCE CHECK	Detect problems in the model where two building components are clashing including soft and hard	A/E/C	NAVIS	Bi-weekly
STANDARDS CHECK	Ensure that the BIM and County Standards have been followed (fonts, dimensions, line styles, family naming, shared coordinates, etc.)	A/E/C	REVIT / DATA NORMALIZATION	Weekly

MODEL INTEGRITY CHECKS	Describe the QC validation process used to ensure that the Project Facility Data set has no undefined, incorrectly defined or duplicated elements and the reporting process on non-compliant elements and corrective action plans	A/E/C	REVIT	Ongoing
DATA CONTENT CHECK	Conform to County BIM Requirements	A/E/C	DATA NORMALIZATION / MAXIMO	Weekly then monthly
ERROR / WARNING CHECK	Conform to County BIM Requirements	A/E/C	REVIT	Weekly

Section K.1 - Model Maintenance

The following table describes the recommended process for model maintenance. Each discipline shall be responsible for the maintenance of their models. Broward County Construction Management Division requires that all the below be conducted before submitting model at the completion of each phase of the development of the project. All the below except for removing unused design options shall be conducted before uploading models for exchange with other team members.

PROCESS	FREQUENCY (MINIMUM)
Auditing Central Files	
Compacting	
Removal of Unused Design Options	
Correcting Warning Messages where applicable	On-going (Warnings that have significance shall be resolved. Warnings shall be kept to a reasonable number. An export of warnings in the model shall accompany major milestone deliverables.)
Purging unused objects	
Purging DWG links/imports	
Deletion of unused Sheets & Views	
Resolve duplicate elements	

Section K.2 - Document Revisions

Revisions to documents will be tracked as follows:

DESCRIPTION	DESIGN/ RECORD	AS-CONSTRUCTED MODEL	DESCRIPTION
RFI's			
Revit Model			
Navisworks			
CCD's			
ASI's			
CO's			

Section K.3 - Model Accuracy and Tolerances:

Models should include all appropriate dimensioning as needed for design intent, analysis, and construction.

PHASE	DISCIPLINE	TOLERANCE
EXISTING CONDITIONS MODEL	CIVIL (UNDERGROUND)	ACCURATE TO +/- (6") OF ACTUAL SIZE ACCURATE TO +/- (12") OF ACTUAL LOCATION
EXISTING CONDITIONS MODEL (ACCESSIBLE ITEMS)	ARCHITECTURAL STRUCTURAL MEPFP	ACCURATE TO +/- (1/8") OF DESIGN INTENT SIZE ACCURATE TO +/- (2") OF DESIGN INTENT LOCATION
DESIGN DOCUMENT MODELS	CIVIL ARCHITECTURAL STRUCTURAL MEP FP	ACCURATE TO +/- (1/8") OF DESIGN INTENT SIZE ACCURATE TO +/- (2") OF DESIGN INTENT LOCATION
SHOP DRAWINGS MODELS	CIVIL INTERIORS ENVELOPE STRUCTURAL MEPFP	ACCURATE TO +/- (1/16") OF ACTUAL SIZE ACCURATE TO +/- (1") OF ACTUAL LOCATION
AS-CONSTRUCTED MODELS	INTERIORS NOT RELATED TO CODE	ACCURATE TO +/- (1/8") OF ACTUAL SIZE ACCURATE TO +/- (2") OF ACTUAL LOCATION

PHASE	DISCIPLINE	TOLERANCE
AS-CONSTRUCTED MODELS	INTERIORS RELATED TO CODE	ACCURATE TO +/- (1/8") OF ACTUAL SIZE ACCURATE TO +/- (1/4") OF ACTUAL LOCATION
AS-CONSTRUCTED MODELS	CIVIL INTERIORS ENVELOPE STRUCTURAL MEP FP	ACCURATE TO +/- (1/16") OF ACTUAL SIZE ACCURATE TO +/- (1") OF ACTUAL LOCATION

Section K.4 - BIM Folder Structure for Deliverables:

The following folder structure is the standard folder structure for BIM-related files that will be used on Broward County Construction Management Division projects. No deviations from this folder structure will be permitted without a Proposed Variance Request. However, if desired, each project team may add subfolders where necessary, as defined in the BIM PxP and approved by Broward County Construction Management Division.

Project Documents for Design BIMs

- Design BIM Execution Plan (Owner, AE)
- Design BIM Analysis Reports (Owner, AE)
- Coordination Logs and Reports
- Design Model Deliverables (Public)
 - Models Used to Produce Schematic Design
 - Models Used to Produce Design Development
 - Models Used to Produce Construction Documents
 - Models Used to Produce Agency Submittals
 - Models for Permitting/ Conformance
 - Models for Construction Manager
- COBie Data Deliverables
- BIM Project Close-out
 - Record Floor Plans
 - Record BIMs
 - Federated Record BIM
 - COBie Data Final Deliverable
- Other

Project Documents for Construction BIMs

- Owner BIM Execution Plan (Owner, CM, BIM Subs)
- Construction BIM Analysis Reports (Owner, GC)
- Coordination Logs and Reports
- Coordination Models

- Trade Models
 - Models Used to Produce Final Shop Drawings
 - Models Used to Produce 4D
 - Schedule Data Used to Produce 4D
 - Models Used to Produce 5D
 - Model Quantities Used to Produce 5D
- COBie Data Deliverables
- BIM Project Close-Out
 - As-Constructed Models
 - Federated As-Constructed Models
 - Record Models
 - Federated Record Models
 - COBie Data Final Deliverable
- Other

Section L: Technological Infrastructure Needs

1. Software:

Broward County Construction Management Division uses Autodesk Revit for projects. Use of other IFC Compatible software than what is listed in the Broward County Construction Management Division BIM Standard requires approval by Broward County Construction Management Division.

List software used to deliver BIM. List any add-on software that is required to open, read or manipulate files as well. Indicate the 2D export deliverable file format for each software. The lines listed below are a sample and shall be modified for a project.

BIM USE	DISCIPLINE(S)	SOFTWARE	VERSION / BUILD	2D FILE FORMAT DELIVERABLE
Authoring				
Authoring				
Authoring				
Authoring				
Authoring				
Clash Detection				
Energy Analysis				
Cost Analysis				

Section M: Model Structure

Section M.1 - File Naming Structure:

Determine and list the structure for model file names. Design Team CAD File names shall be listed in the Drawing List with Authoring Company and File Names attachment.

FILE NAMES (Design Intent Models)	
Architectural Model	
Civil Model	
Mechanical Model	
Plumbing Model	
Electrical Model	
Structural Model	
Energy Model	
Coordination Model	

FILE NAMES (Construction Models)	
Steel Model	
Mechanical Model	
Plumbing Model	
Electrical Model	
Construction Model	
Coordination Model	

Section M.2 - Model Structure:

Describe how the Model is separated, e.g., by building, by floors, by zone, by areas, and/or discipline. Indicate the connections and hierarchy of linked files, including CAD files. Broward County Construction Management Division requires that all paths in Revit files be relative and that files be overlaid instead of attached unless the project team makes a strong case for alternate strategies.

1. DESIGN PHASE MODEL STRUCTURE:

(Contractor to coordinate with Consultant to complete this portion of the Section.)

2. CONSTRUCTION PHASE MODEL STRUCTURE:

Section M.3 - Measurement and Coordinate Systems:

Broward County Construction Management Division requires use of State Plane Coordinates to place the Building on its site to act as the Site origin Point and to provide for future GIS integration. See Section 2.2.4 of this Attachment 2. Broward County Construction Management Division will also provide 2D and 3D AutoCAD blocks and a 3D generic model family to be placed at the origin of ALL Design Intent BIMs, Construction BIMs and CAD files to confirm that files are aligned.

All Revit files shall have their project base point at the Revit project startup location. All CAD and Revit files that are to be linked to the Revit file using the "Origin to Origin" option. All plan-based CAD files shall use the Broward County Construction Management Division Site Origin Point as well as their 0,0 WCS origin. The 0 level in the "Z" coordinate shall match the survey datum of "0" used by the Civil Engineer in their surveys. This will ensure that all files for all buildings across the Broward County Construction Management Division campus will align to a single origin and that Revit level tags will report the true elevations of the floors.

Civil AutoCAD 2D and Civil 3D files will need to be modified prior to linking because they use an origin point that is different than the Broward County Construction Management Division Site Origin Point. It is typically outside the distance allowed by Revit. Broward County Construction Management Division's CAD-BIM Manager can provide instructions on this.

Units shall be Imperial units. Civil 2D AutoCAD or Civil 3D files may be set with 1 unit equals 1 foot. Revit files will be set with 1 unit equals 1 foot. All other AutoCAD files including Revit exports shall be set with 1 unit equals 1 inch.

Section M.4 - Worksets:

Each discipline shall be responsible for the naming of the worksets within their files. The only required worksets are LinkCAD-Description and LinkBIM-Description. Any linked CAD files or BIM files shall be placed on these worksets so that Revit files can be opened without loading these worksets for ease of upgrading the files.

List Worksets used by discipline below:

DISCIPLINE	WORKSET	DESCRIPTION
Arch, M, E, P, Struct	LinkCAD-All	Workset for all CAD links
M, E, P, Struct	LinkBIM-Arch	Workset for Architectural Revit file
Arch, E, P, Struct	LinkBIM-Mech	Workset for Mechanical Revit file
Arch, M, P, Struct	LinkBIM-Elec	Workset for Electrical Revit file
Arch, M, E, Struct	LinkBIM-Plumb	Workset for Plumbing Revit file
Arch, M, E, P	LinkBIM-Struct	Workset for Structural Revit file
Arch, M, E, P, Struct	Levels and Grids	Levels, Grids
Arch	Shell	Building Shell
Arch	Core	Elevators, Stairs
Arch	Interior-B	Basement Interior Fit-out
Arch	Interior-1	1 st floor Interior Fit-out

Section M.5 - Color Coding:

Federated models shall adhere to Exhibit "A" – Scope of Work Attachment 2, Section 2.2.12. If approved by the Contract Administrator, a modified color coding may be revised to follow the agreed upon trade colors listed below:

(insert any modified, Contract Administrator approved, color coding selections for this project below)

- a. Architecture: White
- b. Structural Steel: Maroon
- c. Concrete and Masonry: Gray
- d. HVAC Equipment: Gold
- e. HVAC Supply Duct/Diffuser: Blue
- f. HVAC Return Duct/Diffuser: Magenta
- g. HVAC Exhaust Ventilation Ductwork: Medium Orchid
- h. HVAC Piping Supply: Gold
- i. HVAC Piping Return: Violet
- j. Electrical Equipment: Dark Yellow
- k. Electrical Conduits: Light Yellow
- l. Communication Conduit: Light Blue
- m. Electrical Cable Tray: Dark Orange
- n. Electrical Lighting: Light Golden Rod Yellow

- o. Plumbing Domestic Water: Lime
- p. Plumbing Sewer Waste / Vent: Olive
- q. Plumbing Storm/Roof Drain: Dark Green
- r. Fire Protection: Red
- s. Fire Alarm: Golden Rod
- t. Pneumatic Tube: Dark Slate Gray
- u. Equipment: Burly Wood
- v. Specialty Gas: Light Green
- w. Steel: Rust
- x. Security Systems: Orange

Section N: Attachments

1. *List any project specific BIM PxP Attachments here*
- 2.

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Approvals:

By signing below, this BIM Project Execution Plan is adopted and agreed upon between the signed companies.

DISCIPLINE	NAME	SIGNATURE	DATE
BC Construction Management Division			
Architect			
Mechanical Engineer			
Electrical Engineer			
Plumbing Engineer			
Fire Protection Engineer			
Structural Engineer			
Landscape Architect			
Interior Designer			
Civil Engineer			
Surveyor			
BIM Consultant			
Contractor			
Construction Consultant			
Other			

End of Section 4 BIM Execution Plan

Section 5 BIM Model Progression Schedule/Agent Responsible Matrix (MPS) (Example of "Overview" Tab)

The MPS will be distributed by the Project Manager in an electronic format for use



Model Progression Schedule (MPS) Agent Responsible Matrix (ARM)

Overview and Intent of this Document.

Broward County Public Works Department and the Construction Management Division have created this Model Progression Schedule (MPS) and Agent Responsible Matrix (ARM) for use in the planning and procurement of BIM projects. This Matrix is based upon BIMForum's 2017 LOD (Level of Development) Specification and serves as a reference document. The BIMForum Specification reference enables practitioners to specify and articulate with a high level of clarity the content and reliability of BIMs at various stages in the design and construction process.

The County has prescribed minimum LOD's that are required at project milestones, but does not dictate workflow to achieve these requirements leaving the completion of the Model Progressions to the users in consultation with the County and project team.

This matrix defines Broward County's priorities for the development of project BIMs, the responsibilities of the External Team Members, and the phases to which the BIMs will be delivered and the LOD expected. The "Model Element Table" Tab includes the BIM Elements that are to be defined and the "LOD Definitions" tab includes example Level of Development definitions. This chart will be included in RFP's that require BIM and is a tool to be used for contract negotiation upon project award.

Instructions for completing this Document.

- 1 This MPS/ ARM will be included in the RFP for all BIM Projects. Upon Contract award, your team shall complete the MPS as part of the contract negotiation process, and be prepared to discuss "hand-off" & coordination of the BIM's.
- 2 Click on the "Model Element Table" Tab below to complete the MPS as is applicable to your project.
- 3 Insert the Level of Development (LOD) and the Agent Responsible and contracted to deliver that element.
- 4
- 5 Once agreed upon, this document will become a contract document and will be attached to the teams BIMPxP. When completing the MPS, Please check the box on the top of the MPS to show the stage of the MPS submittal i.e. RFP, Proposed, Approved as described below:
 - RFP:** Required for this Project by Broward County, the initial stage of review.
 - Proposed:** The Design or Construction Professional changes the status to "Proposed" for all elements that are to be included in the project models.
 - Approved:** The Model Elements and Progression Schedule that is contracted by the Design Consultants and Contractors to be included in their Team's scope of work.

Please Note:

Questions, suggestions or concerns with completing this document during the RFP selection process should be directed to the BC-PurchasingAgent listed on the RFP. The Broward County Project Manager will serve as the primary contact and address all discussions or concerns during negotiations and subsequent Project Phases.

Model Progression Schedule/Agent Responsible Matrix ("Model Element Table" Tab - Partial Example)

Model Element ID	Model Element Name	Planning		Design		Construction		Commissioning		Handover		Handover		Commissioning	
		Phase	Start/End	Phase	Start/End	Phase	Start/End	Phase	Start/End	Phase	Start/End	Phase	Start/End	Phase	Start/End
1	Project Overview	LOD 100	2019-01-01 to 2019-01-31	LOD 100	2019-01-01 to 2019-01-31	LOD 100	2019-01-01 to 2019-01-31	LOD 100	2019-01-01 to 2019-01-31	LOD 100	2019-01-01 to 2019-01-31	LOD 100	2019-01-01 to 2019-01-31	LOD 100	2019-01-01 to 2019-01-31
2	Project Overview	LOD 200	2019-02-01 to 2019-02-28	LOD 200	2019-02-01 to 2019-02-28	LOD 200	2019-02-01 to 2019-02-28	LOD 200	2019-02-01 to 2019-02-28	LOD 200	2019-02-01 to 2019-02-28	LOD 200	2019-02-01 to 2019-02-28	LOD 200	2019-02-01 to 2019-02-28
3	Project Overview	LOD 300	2019-03-01 to 2019-03-31	LOD 300	2019-03-01 to 2019-03-31	LOD 300	2019-03-01 to 2019-03-31	LOD 300	2019-03-01 to 2019-03-31	LOD 300	2019-03-01 to 2019-03-31	LOD 300	2019-03-01 to 2019-03-31	LOD 300	2019-03-01 to 2019-03-31
4	Project Overview	LOD 400	2019-04-01 to 2019-04-30	LOD 400	2019-04-01 to 2019-04-30	LOD 400	2019-04-01 to 2019-04-30	LOD 400	2019-04-01 to 2019-04-30	LOD 400	2019-04-01 to 2019-04-30	LOD 400	2019-04-01 to 2019-04-30	LOD 400	2019-04-01 to 2019-04-30
5	Project Overview	LOD 500	2019-05-01 to 2019-05-31	LOD 500	2019-05-01 to 2019-05-31	LOD 500	2019-05-01 to 2019-05-31	LOD 500	2019-05-01 to 2019-05-31	LOD 500	2019-05-01 to 2019-05-31	LOD 500	2019-05-01 to 2019-05-31	LOD 500	2019-05-01 to 2019-05-31
6	Project Overview	LOD 600	2019-06-01 to 2019-06-30	LOD 600	2019-06-01 to 2019-06-30	LOD 600	2019-06-01 to 2019-06-30	LOD 600	2019-06-01 to 2019-06-30	LOD 600	2019-06-01 to 2019-06-30	LOD 600	2019-06-01 to 2019-06-30	LOD 600	2019-06-01 to 2019-06-30
7	Project Overview	LOD 700	2019-07-01 to 2019-07-31	LOD 700	2019-07-01 to 2019-07-31	LOD 700	2019-07-01 to 2019-07-31	LOD 700	2019-07-01 to 2019-07-31	LOD 700	2019-07-01 to 2019-07-31	LOD 700	2019-07-01 to 2019-07-31	LOD 700	2019-07-01 to 2019-07-31
8	Project Overview	LOD 800	2019-08-01 to 2019-08-31	LOD 800	2019-08-01 to 2019-08-31	LOD 800	2019-08-01 to 2019-08-31	LOD 800	2019-08-01 to 2019-08-31	LOD 800	2019-08-01 to 2019-08-31	LOD 800	2019-08-01 to 2019-08-31	LOD 800	2019-08-01 to 2019-08-31
9	Project Overview	LOD 900	2019-09-01 to 2019-09-30	LOD 900	2019-09-01 to 2019-09-30	LOD 900	2019-09-01 to 2019-09-30	LOD 900	2019-09-01 to 2019-09-30	LOD 900	2019-09-01 to 2019-09-30	LOD 900	2019-09-01 to 2019-09-30	LOD 900	2019-09-01 to 2019-09-30
10	Project Overview	LOD 1000	2019-10-01 to 2019-10-31	LOD 1000	2019-10-01 to 2019-10-31	LOD 1000	2019-10-01 to 2019-10-31	LOD 1000	2019-10-01 to 2019-10-31	LOD 1000	2019-10-01 to 2019-10-31	LOD 1000	2019-10-01 to 2019-10-31	LOD 1000	2019-10-01 to 2019-10-31

BIMForum Level of Development (LOD) Definitions ("LOD Definitions" Tab - Example)

Fundamental LOD Definitions

LOD 100 - Massing / Planning Level

The Model Element may be graphically represented in the Model with a symbol or other generic representation, but does not satisfy the requirements for LOD 200. Information related to the Model Element (i.e. cost per square foot, tonnage of HVAC, etc.) can be derived from other Model Elements.

BIMForum Interpretation: LOD 100 elements are not geometric representations. Examples are information attached to other model elements or symbols showing the existence of a component but not its shape, size, or precise location. Any information derived from LOD 100 elements must be considered approximate.



LOD 200 - Generic Design Level

The Model Element is graphically represented within the Model as a generic system, object, or assembly with approximate quantities, size, shape, location, and orientation. Non-graphic information may also be attached to the Model Element.

BIMForum Interpretation: At this LOD elements are generic placeholders. They may be recognizable as the components they represent, or they may be volumes for space reservation. Any information derived from LOD 200 elements must be considered



LOD 300 - Design Coordination Level

The Model Element is graphically represented within the Model as a specific system, object or assembly in terms of quantity, size, shape, location, and orientation. Non-graphic information may also be attached to the Model Element.

BIMForum Interpretation: The quantity, size, shape, location, and orientation of the element as designed can be measured directly from the model without referring to non-modeled information such as notes or dimension call-outs. The project origin is defined and the element is located accurately with respect to the project origin.



LOD 350 - Construction Coordination Level

The Model Element is graphically represented within the Model as a specific system, object, or assembly in terms of quantity, size, shape, location, orientation, and interfaces with other building systems. Non-graphic information may also be attached to the Model Element.

BIMForum Interpretation: Parts necessary for coordination of the element with nearby or attached elements are modeled. These parts will include such items as supports and connections. The quantity, size, shape, location, and orientation of the element as designed can be measured directly from the model without referring to non-modeled information such as notes or dimension call-outs.



LOD 400 - Fabrication Level

The Model Element is graphically represented within the Model as a specific system, object or assembly in terms of size, shape, location, quantity, and orientation with detailing, fabrication, assembly, and installation information. Non-graphic information may also be attached to the Model Element.

BIMForum Interpretation: An LOD 400 element is modeled at sufficient detail and accuracy for fabrication of the represented component. The quantity, size, shape, location, and orientation of the element as designed can be measured directly from the model without referring to non-modeled information such as notes or dimension call-outs.



* Definition from the "Level of Development Specification Part 1. November 2017 BIMFORUM.

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End of Attachment 2: BIM and Electronic Media Submittal Requirements