**Second Amendment to the Agreement between Broward County and James B. Pirtle Construction Company, Inc. d/b/a Pirtle Construction Company, Managing General Contractor for New BARC Central Facility, Contract No.: R1144703P1**

This Second Amendment ("Second Amendment") to the May 19, 2015 Agreement ("Agreement") between Broward County, a political subdivision of the state of Florida ("County"), and James B. Pirtle Construction Company, Inc., d/b/a Pirtle Construction Company, a Florida corporation ("Contractor") (collectively, the "Parties") is entered into and effective as of the date the Second Amendment is fully executed by the Parties (the "Effective Date")

Recitals

A. On November 12, 2013, the Broward County Board of County Commissioners approved Request for Proposals No. R1144703P1 (the "RFP"), seeking a qualified managing general contractor to provide construction manager at risk services for two new facilities for the County's Human Services Department: the Broward Addiction Recovery Center Central ("BARC Central") and the Nancy J. Cotterman Center ("NJCC").

B. On May 19, 2015, pursuant to the RFP, the Parties entered into the Agreement, whereby Contractor agreed to provide construction manager at risk services relating to BARC Central, with the Agreement containing a Guaranteed Maximum Price ("GMP") for such services.

C. At the time the Parties entered into the Agreement, it was understood that the Parties would subsequently negotiate services and a GMP concerning NJCC and that the Parties would thereafter amend the Agreement to include NJCC.

D. On August 15, 2016, the Parties entered into a First Amendment to the Agreement to increase the Estimated Owners Allowance Account and the total estimated GMP relating to BARC Central.

E. The Parties desire to amend the Agreement a second time to include construction manager at risk services, and a GMP for such services, relating to NJCC.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. The above recitals are true and correct, and are incorporated herein by reference.

2. The Agreement shall hereafter be described as the "Agreement between Broward County and James B. Pirtle Construction Company, Inc., d/b/a, Pirtle Construction Company, Managing General Contractor for New BARC Central Facility and Nancy J. Cotterman Center, Contract No: R1144703P1."

3. All capitalized terms not expressly defined in this Second Amendment shall retain the meaning ascribed to such terms in the Agreement.

4. The Agreement is hereby amended to include NJCC, and the provisions thereof shall apply to Contractor's performance of services relating to NJCC.

5. Contractor's Scope of Services relating to NJCC are set forth in the Agreement's Exhibit "A," Scope of Services, as amended herein.

6. The term GMP, as used in the Agreement, is hereby amended to refer to either the GMP relating to BARC Central ("GMP 1"), the GMP relating to NJCC ("GMP 2"), or both, as applicable.

7. All references to "GMP" in the Agreement and its attachments that specifically refer to BARC Central are hereby amended to read as "GMP 1."

8. The estimated GMP 2 is Eleven Million Nine Hundred Sixty-six Thousand Three Hundred Sixty-nine Dollars ($11,966,369) as reflected in Exhibit B-E, Estimated GMP 2, attached hereto and made part of the Agreement herein.

9. Unless otherwise stated, for Paragraphs 10 through 12 below, words and numbers in ~~struck through~~ type are deletions from existing text and words and numbers in underlined type (aside from previously included headings) are additions to existing text.

10. Exhibit B-R, Reconciled GMP, is hereby amended as follows:

**Reconciled GMP 1**

| **Contract Price Element – New BARC Central Facility** | **Reconciled Value** |
|---|---|
| A. Pre-construction Services | $ 196,179 |
| B. Reconciled Direct Construction Cost | $ 16,185,366 |
| C. Reconciled General Conditions Cost | $ 1,610,511 |
| D. Reconciled Fixed Fee (5%) | $ 806,642 |
| E. Reconciled Owner's Allowance Account | $ 182,958 |
| Total GMP 1 for BARC Central | $ 18,981,656<br>~~Amount approved by the Board~~ |

11. Article 1, Definitions, Section 1.10 is hereby amended as follows:

A. Pre-Construction Services Cost
B. Direct Construction Cost
~~B.~~ C. General Conditions Cost
~~C.~~ D. Fixed Fee
~~D.~~ E. Owner's Allowance Account

12. Article 7, Owner's Allowance Account, Section 7.5 is hereby amended as follows:

> 7.5 Owner's Allowance Account: The Owner's Allowance Account is available at the discretion of Contract Administrator to cover increases to the scope of the Work due to differing site conditions, reconciliation of Direct Construction Cost after bidding, ~~or~~ for errors and omissions in the Contract Documents, or Owner-requested changes.

13. The Agreement is further amended to include the following attachments hereto which are incorporated herein by reference:

- Summary of Terms and Conditions GMP 2
- Exhibit A, Scope of Services, Attachment 1 GMP 2, Preliminary Project Schedule
- Exhibit A, Scope of Services, Attachment 2 GMP 2, BIM & Electronic Media Submittal Requirements
- Exhibit B-E, Estimated GMP 2
- Exhibit B-R, Reconciled GMP 2
- Exhibit 1-E, Estimated Direct Construction Cost GMP 2
- Exhibit 1-R, Reconciled Direct Construction Cost GMP 2
- Exhibit 2-E, Estimated Contractor's General Conditions GMP 2
- Exhibit 2-R, Reconciled Contractor's General Conditions GMP 2
- Exhibit 3, Prevailing Wage Determination, General Decision Number FL190197, Dated 03/15/2019 GMP 2
- Exhibit 4, List of Pricing Documents: Specifications and Drawing Index GMP 2
- Exhibit 5, Statement of CBE Assurance GMP 2
- Exhibit 6, Letter of Intent GMP 2
- Exhibit 7, Minimum Insurance Requirements GMP 2
- Form 1, Certificate of Substantial Completion GMP 2
- Form 2, Form 00922: STATEMENT OF COMPLIANCE, (PREVAILING WAGE RATE ORDINANCE NO. 83-72 GMP 2
- Form 3, Final Certificate of Payment GMP 2
- Form 4, Form of Final Receipt GMP 2
- Form 5, Form of Performance Bond GMP 2
- Form 6, Form of Payment Bond GMP 2
- Form 8, Form 00735. Performance and Payment Guaranty Form Unconditional Letter of Credit GMP 2
- Form 11, Scrutinized Companies List Certification GMP 2

14. Except as set forth in this Second Amendment, all other terms, conditions and covenants contained in the Agreement shall remain in full force and effect.

15. In the event of any conflict or ambiguity between this Second Amendment and the Agreement, the Parties agree that this Second Amendment shall control.

16. This Second Amendment may be executed in multiple originals, and may be executed in counterparts, each of which shall be deemed to be an original, but all of which, taken together, shall constitute one and the same agreement.

(REMAINDER OF PAGE IS INTENTIONALLY LEFT BLANK)

IN WITNESS WHEREOF, the parties hereto have made and executed this Agreement on the respective dates under each signature: Broward County through its Board of County Commissioners, signing by and through its Mayor and Vice-Mayor, authorized to execute same by Board action on the ____ day of June, 2019 and Contractor, James B. Pirtle Construction Company, Inc., d/b/a Pirtle Construction Company, signing by and through its President/Vice President duly authorized to execute same.

County

ATTEST:

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

BROWARD COUNTY, by and through
its Board of County Commissioners

By_____
Mayor

____ day of _____, 2019

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

Insurance requirements
approved by Broward County
Risk Management Division

By: _____
Tim Crowley Date
Property Specialist

By: _____
Jordan S. Nadel Date
Assistant County Attorney

By: _____
Michael J. Kerr
Date
Deputy County Attorney

Second Amendment to the Agreement between Broward County and James B. Pirtle Construction Company, Inc. d/b/a Pirtle Construction Company, Managing General Contractor for New BARC Central Facility, Contract No.: R1144703P1

CONTRACTOR

ATTEST:

James B. Pirtle Construction Company, Inc., d/b/a Pirtle Construction Company

_____
(Secretary)

By _____
(Signature & title)

(Corporate seal)

_____
(Typed name & title, as signed above)

_____ day of _____, 20__.

Witnesses:

_____
Signature of Witness

_____
Printed or Typed Name of Witness

_____
Signature of Witness

_____
Printed or Typed Name of Witness

**SECOND AMENDMENT**

| | |
|---|---|
| **Project Title:** | Nancy J. Cotterman Center |
| **Location:** | 2995 Dixie Highway, Oakland Park, FL |
| **RFP Number:** | R1144703P1 |
| **Contract Number:** | R1144703P1 |
| **Project Number:** | CMD Project No. 100522 |

## SUMMARY OF TERMS AND CONDITIONS GMP 2

| | |
|---|---|
| **Managing General Contractor:** | James B. Pirtle Construction Company Inc., d/b/a Pirtle Construction Company |
| Contractor Address: | 5700 Griffin Road, Suite 200, Davie, FL 33314 |
| Federal Identification No.: | 59 - 1211364 |

| | |
|---|---|
| **Contract Administrator:** | Ariadna Musarra |
| Contract Administrator Address: | 115 S. Andrews Ave. Room A-550, Fort Lauderdale, FL 33301 |

| | |
|---|---|
| **Consultant:** | Saltz Michelson Architects |
| Consultant Address: | 3051 Griffin Road, Fort Lauderdale, FL 33312 |

| Article | Description | Unit |
|---|---|---|
| 6 | Preconstruction Work:<br><br>NTP for: Preconstruction Services through initiation of Permitting Process; Exhibit A, Article 3.1 through Article 3.8<br><br>NTP for: Bidding through GMP Reconciliation: Exhibit A, Article 3.9 | <br><br>431 Days from NTP<br><br><br><br>90 Days from NTP |
| 8.2.2-8.2.3 | NTP for: Preliminary Activities, Articles 8.2.2-8.2.3 | 60 Days from NTP |
| 8.6 | NTP for: Construction through Substantial Completion | 365 Days from the Project Initiation Date in NTP |
| 1.9 | Completion | 60 Days from Substantial Completion |
| 8.3 | Liquidated Damages for each calendar day after time specified in Notice to Proceed | $ 0 per day |
| 8.3.1 | Liquidated Damages for each calendar day after time specified for Substantial Completion | $ 800 per day (unchanged) |

| | | |
|---|---|---|
| 8.3.2 | Liquidated Damages for each calendar day after time specified for Final Completion | $ 0 per day |
| | Liquidated Damages for each calendar day after time specified for interim Milestones (or phase):<br><br>[Milestones 1, 2, 3, etc.: Division 1, Section _____] | Interim Milestone #1<br>$ 0 per day |
| | | Interim Milestone #2<br>$ 0 per day |
| | | Interim Milestone #3<br>$ 0 per day |
| 9.3.1 | Compensable Excusable Delay for each calendar day beyond the Contract Time. | $ 500 per day (unchanged) |
| 26.5 | The parties designate the following as the respective places for giving of notice: | For County: |
| | | Contract Administrator<br>Construction Management Division<br>115 S. Andrews Ave. A-550 , 33301<br>Attn: Ariadna Musarra |
| | | For Contractor: |
| | | Pirtle Construction Company<br>5700 Griffin Rd. Suite 200, 33314<br>Attn: Mike Geary, President |
| 26.7 | ☒County Business Enterprise (CBE) commitment<br>☐Disadvantaged Business Enterprise (DBE) goal commitment<br>(check box) | As awarded<br>24 % |
| Exhibit A | LEED Rating System / Certification | Building Design and Construction / Gold |

**SECOND AMENDMENT**

**EXHIBIT A SCOPE OF SERVICES GMP 2**

**ATTACHMENT 1: Preliminary Project Schedule**

| | |
|---|---|
| Project No: | CMD 100522 |
| Project Title: | Nancy J. Cotterman Center |
| Facility Name: | Nancy J. Cotterman Center<br>The required project schedule milestones for this project are presented below. Items marked undetermined require additional development and submittal of Consultant's Project Development Schedule as required by the Professional Services Agreement for this project. |

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Preconstruction Services through 100% CD's..... 431 days

Bidding through GMP reconciliation…….. 90 days

Preliminary Activities…….... 60 days

Construction Phase……365 days

Final Completion…….60 days

**EXHIBIT A - SCOPE OF WORK**

**ATTACHMENT 2:**

# BIM and Electronic Media Submittal Requirements

## Preamble

The Contract Administrator will be utilizing electronic media as the principal way it develops, communicates and archives information concerning its various construction programs. 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 encourages Building Information Model (BIM) based design and documentation to the maximum extent possible, especially for all major projects including all new construction.

For projects utilizing BIM delivery, Consultant and Contractor will include native BIM format and Industry Foundation Class (IFC) BIM deliverables at all project milestones. The Consultants will derive any supplementary 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. Consultants and Contractors shall initiate and jointly develop BIM and COBie information throughout all phases of the project. Requirements for these media are presented below.

**Table of Contents for - Exhibit A - Scope of Work, Attachment 2:**



## Section 1 Definitions and Identifications

The following definitions and identifications set forth below apply unless the context, the Agreement, Exhibit A, Scope of Work 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 **BIM:** Building Information Model(ing). BIM is not a specific product or technology, instead it's a collection of software applications designed to facilitate coordination and project collaboration. BIM is a digital representation of physical and functional characteristics of a facility and is used as a process for developing design and construction documentation by virtually constructing a building, bridge or other form of infrastructure – before anything is built.

1.5 **BIM Project Execution Plan (BIMPxP / 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 as outlined in the BIMPxP.

1.6 **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.

1.7 **CAD/CADD**: Computer Aided Design/Computer Aided Design and Drafting. Interchangeably used terms interpreted as 2D, (Two Dimensional) representations in electronic format.

1.8 **CIM / Sub-Surface**: Civil Information Modeling and subsurface utility mapping that relates and is coordinated with the building modeling.

1.9 **Clash detection/ Clash Rendition:** Rrendition of the native-format model file is be used specifically for spatial coordination processes. Used to achieve clash avoidance or for clash detection (between, for example structure and services) between Building Information Models prepared by different disciplines. The key benefit is in reducing errors, and hence costs, pre-construction commencement.

1.10 **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.

1.11 **Code Validation**: A process in which code validation software is utilized to check model parameters against specific codes.

1.12 **Commissioning:** The process of verifying, in new construction agreed upon building systems to achieve Owners project requirements.

1.13 **Compatible Data**: Data that can be accessed directly by the target BIM or 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.

1.14 **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.

1.15 **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, tie-backs, etc.) in order to improve planning.

1.16 **Cost Analysis**: A process in which a BIM model can offer a preliminary analysis of the costs of constructing a Project during the design process and provide cost 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.

1.17 **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.

1.18 **Design Authoring:** A process in which 3D software is used to develop a BIM model 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.

1.19 **Design for Maintenance:** An evaluation process where each object selected during design for inclusion in a BIM are evaluated for maintenance issues, such as clearances to perform routine maintenance activates to include complete replacement of the object or any of its components.

1.20 **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.

1.21 **Digital Fabrication**: A process that utilizes machine technology to prefabricate objects directly from a 3D Model.

1.22 **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.

1.23 **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.

1.24 **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.

1.25 **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.

1.26 **Existing Conditions Modeling:** A process in which a project team develops a 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.

1.27 **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.

1.28 **Federated BIM Model:** A single 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.

1.29 **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

1.30 **Information Manager:** The CIC BIM Protocol refers to and provides for the appointment of an 'Information Manager' by the employer. This is the project manager, or BIM Manager who is responsible for managing the delivery of the asset using BIM procedures and methods. This is expected to form part of a wider set of duties under an existing appointment and is likely to be performed either by the Design Lead or the Project Lead.

1.31 **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.

1.32 **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.

1.33 **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.

1.34 **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.

1.35 **LOD:** Level Of Development Specification for Building Information Models. See Section 3 – BIM/CADD Standards of Care and the current edition (2017 or later), of the BIMForum LOD Specification for additional information. http://BIMForum.org/lod

1.36 **Maintenance & Repair Information:** A function to allow the collection and storage of maintenance and repair information about objects brought into a BIM.

1.37 **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.

1.38 **Model Progression Schedule:** A worksheet that is a guide for the project team to define model creation scope of work and model level of development. 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, and meet schedule requirements for the project.

1.39 **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. Most recent release date May 16, 2012. OmniClass uses MasterFormat and UniFormat as the basis of its Tables wherever possible. http://www.omniclass.org/about

1.40 **Owner Approval**: A business process which takes advantage of information stored in a BIM to help validate progress as well as observing that the owner's intent for the facility is being honored both conceptually and contractually.

1.41 **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, or to show the construction sequence and space requirements on a building site.

1.42 **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 analyze space and understand the complexity of space standards and regulations. Critical decisions are made in this phase of design and brings the most value to the project when needs and options are discussed with the client and the best approach is analyzed.

1.43 **PxP:** Abbreviated form of (BIMPxP). See definition for BIM Project Execution Plan.

1.44 **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.

1.45 **Quantity Take Off:** Quantity take-off's (QTO) are a detailed measurement of materials and labor needed to complete a construction project. Estimators review drawings, specifications and BIMs to find these quantities.

1.46 **Record BIMs:** The updated BIMs generated by the Architecture Engineering Team of record that includes the contractors As-constructed BIMs.

1.47 **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.

1.48 **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).

1.49 **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.

1.50 **Space Management:** A process in which BIM is utilized to effectively allocate, manage, and track assigned workspaces and resources.

1.51 **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.

1.52 **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.

1.53 **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.

1.54 **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.

1.55 **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.

1.56 **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.

1.57 **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 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 CADD Graphic Formats:

2.2.1 Provide all CADD data in Autodesk, Inc.'s AutoCAD release 2018 or higher for Windows in native .dwg electronic digital format. CADD data required for Contract submittals shall be provided in native .dwg format. Provide copies of all drawing sheets or other 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 2018 or higher. Provide all BIM and data in any of the following software formats:

a. Autodesk, Inc. Revit 2018 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 native .rvt 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 must be approved in writing in advance by the County's Contract Administrator and 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 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 BIM & CAD Content:

a. Provide all Building Information Modeling (BIM) models 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.
b. See also Attachment – 2a, BIM/CADD Standards of Care.

2.2.9 CADD Standards:

a. Standard plotted drawing size: 24-inch x 36-inch sheets (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.

2.2.10 CADD Layering:

a. Conform to the guidelines defined by the American Institute of Architect's (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.

2.2.11 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.

2.2.12 Federated Models: The following colors shall be utilized for all federated models including Design, Construction, Coordination, As-Built, 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

2.2.13 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 3-D 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 uses and information systems.
b. No deviations from the Contract Administrator's established BIM/CADD standards will be permitted unless prior written approval of such deviation has been received from the Contract Administrator.
c. County or its Owner's Designated Representative 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. County or its Owner's Designated Representative also reserves the right to review, accept or reject Facility Data deliverables when required by contractual agreements. To ensure successful integration into County's computer aided facility management 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 BIMPxP, 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.

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, bit-map 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, bit-map 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, bit-map 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., or DVD media. Flash drives are acceptable alternatives and shall contain identifying County project information in their disk name. Other media will not be accepted without Contract Administrators approval.

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

2.5.4 The external label 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 BIM/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. For each drawing, provide one bound file containing drawing sheet with associated XREFs and one un-bound file containing the associated XREFs.
c. 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 to the Contract Administrator with the delivery media.
d. 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 to the Contract Administrator as a part of the electronic digital deliverables.
e. 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.
f. 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.

g. Include any standard sheets (i.e., abbreviation sheets, standard symbol sheets, or other listing) necessary for a complete project.
h. 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 Submittal:

2.7.1 Document any fonts, tables, or other similar customized drawing element developed by Consultant or not provided among the Contract Administrator-furnished materials. The contractor shall obtain Contract Administrator approval before using anything other than the Contract Administrator's standard fonts, line-types, tables, blocks, or other drawing elements available from the Contract Administrator.

2.8 Submittals / Deliverables:

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

2.8.2 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.

2.8.3 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.

2.9 Ownership:

2.9.1 County has ownership and all rights to all finished or unfinished Digital Deliverables developed for this Project. Any Digital Deliverables generated under any County design and construction Contract, 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.

2.9.2 County will have unlimited rights under the Professional Services 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.

2.9.3 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 Consultant except where otherwise limited within the Contract.

2.9.4 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.

2.9.5 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.

2.10 Contract Administrator-Furnished Materials to the Construction Contractor:

2.10.1 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 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-built drawings at the Contractor's option. Make electronic file drawings available on media in conformance with Section 2.5 of this Attachment.

2.11 Other Digital Information:

2.11.1 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.

2.11.2 Consultant shall facilitate and participate in this digital exchange of information by conforming to the standards expressed above and as further described in attachments and Exhibit A Scope of Works.

## 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-built construction conditions. The deliverable 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 Model 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 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.

3.1.4 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 call-outs.
- **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.

3.1.5 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 200 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 & Schematic Design Phase 0 & 1 (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 and orientation 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.).
   3. Schedule: The Model may be used for project phasing and overall duration.

3.2.2 **LOD 200**: Design Development Phase (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 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 Document Phase (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 Phase (Contractor to provide this LOD using Consultants 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 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 preliminary COBie data.
    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.
   2. Elevator Equipment. All necessary equipment and control systems, including necessary intelligence to produce accurate plans, sections and elevations depicting these design elements.

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., security, mass notification, public address, 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, 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, relevant existing and proposed support utility lines and equipment with necessary intelligence to produce accurate plans, details and schedules.
6. 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. All fire protection piping shall be modeled.

i. **Security**. Both facilities require a level of security to ensure record and evidence integrity. 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 WiFi, FIBS/BIDS boards, phone chargers, lighting, Public Art, induction systems, way-finding, solar PV, wind, and other systems.
6. Bi-Directional Antenna systems (BDA) – Antennas, trunk lines, branch line, control boxes, repeaters, emergency or redundant power sources, primary interface components, & home run room.

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 (¼" = 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.

l. **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, including upgrades thereto, including necessary intelligence to produce accurate plans and profiles for the Project site.

3. Storm Water and Sanitary Sewers. All existing and new sewer structures and piping, including upgrades thereto, with necessary connections to mains or other distribution points as appropriate, including necessary intelligence to produce accurate plans and profiles.
4. 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.
5. Roads and Parking. All necessary roadways, parking lots, and parking structures, including necessary intelligence to produce accurate plans, profiles and cross-sections.

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 model to the A/E Consultant for the extraction of COBie in Excel format.

3.4 **As Constructed Model Content Requirements**

a. Model Content Requirements. Model Elements are modeled 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 information completed with all requested information developed to Construction Operations Building Information Exchange (COBIE) standards.

b. Potential Uses:

1. Facility & Construction Management. The Model may be utilized for maintaining, altering, and adding to the Project.
2. Project Record Documents. As-built 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 (BIMPxP or PxP)**

3.6.1 The BIMPxP template is included in this Attachment 2, as "Section 4 - Project Execution Plan (BIMPxP). The Consultants BIMPxP 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 BIMPxP subject to review and written approval by County prior to proceeding with the process. The BIMPxP 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, Design Team and all sub-consultants 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

3.6.6 To promote efficiency and continuity, the 2D construction documents must be extracted directly from the Design BIMs 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 BIMs.

## 3.7 **BIM Use Agent Responsibility Matrix**

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 should be explained by the Consultant in the BIMPxP, Section F. Roles, responsibilities and timing are to be documented.

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 |
| Building System Analysis | Optional |
| Code Analysis | Optional |
| Construction System Design | Optional |
| Digital Fabrication | Optional |
| Disaster Planning | Optional |

| BIM Use | County Intent |
|---|---|
| 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 |

## 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. 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 Design 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 “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. Cost estimating – Level 1 thru 4
e. Construction Schedule & Duration
f. 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 Design 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 (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 BIMPxP or JBIMPxP 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 templates.

## 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 Construction 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 CM@Risk shall be responsible for providing the County a federated as-built Model that includes all building systems. The Model shall be coordinated and "clash free" except as noted.
b. CM@Risk shall provide a native file of the final federated as-built Model for building systems used in the multi-discipline coordination process (version as agreed in BIM PxP)
c. CM@Risk shall identify native file formats used in the final federated as-built Model for building systems for the multi-discipline coordination process (version as agreed in BIM PxP)
d. CM@Risk shall provide IFC files (ISO 16739) of as-built models (version as agreed in BIM PxP)
e. CM@Risk 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 heavy 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 | ☑/☒ |
| 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 workset 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. | ☐ |

| BIM Compliance Checklist | |
|---|---|
| 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. | ☐ |

## 3.13 **Responsibilities Related to the Final As-Built Model**

### 3.13.1 Design Team Responsibilities

a. The Design Team will update the Architectural and Structural model(s) through the end of the construction phase, incorporating all updates and/or revisions to the model(s) as necessary to reflect design changes initiated by Architectural Supplemental Instructions (ASI), Request for Information (RFI), Conformed Documents, Owner Changes, or coordination with existing conditions.

### 3.13.2 Construction Team Responsibilities

a. During the construction phase, the Construction Team will maintain "red-line" as-built drawings.
b. In preparation for Substantial Completion, the Construction Team will:
    1. Make all necessary updates and/or revisions to the model(s) to reflect the as-built information to the tolerance specified in the Standard or agreed upon in the BIMPxP. It is the responsibility of each subcontractor to keep accurate "red-line" markups and records from the field in order to produce accurate as-built models and drawings.
    2. Final updates to material/equipment data and properties where installations differ from the "basis of design" included in the Design Team Model(s).
    3. Incorporation or linking of certain 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 the required close out deliverables shall be transmitted to the County (as agreed in BIM PXP).

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**Section 4 BIM Execution Plan**

# BIM PROJECT EXECUTION PLAN (BIMPxP)

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 (BIMPxP) as required by Contract.***

***Consultants 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*

## BIMPxP Table of Contents

## 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 (BIMPxP) 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 BIMPxP within 30 days of contract execution. This plan shall identify the entire project team including consulting engineers, specialty consultants and contractors. The BIMPxP 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 BIMPxP 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 BIMPxP 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 BIMPxP 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: Managing General Contractor (CM@Risk)
5. Brief Project Description: Refer to Exhibit A, Scope of Work
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 | | | |
| BIMPxP 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 | | | | |
|---|---|---|---|---|
| **CONSULTING ARCHITECTURE AND ENGINEERING TEAM** | | | | |
| **Phase** | **Deliverable** | **Include Y/N** | **Due** | **File Type** |
| Contract Award | BIMPxP | | 30 days of ATP | Native & PDF |
| Programming / Feasibility Models | Massing models & Narrative<br>Space & Program Validation Report | | Per BIMPxP | Native & IFC & PDF<br>Native & PDF |
| Planning | Design Models - | | Per BIMPxP | Native & IFC (2x3) files |
| Schematic Design | Design Models - | | Per BIMPxP | Native & IFC (2x3) files |
| Design Development | Existing Conditions Model<br>Design & Analysis Models - | | Per BIMPxP | Native & IFC (2x3) files<br>Native & IFC |

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

**Schedule of Deliverables to Broward County Construction Management Division**

**CONSTRUCTION TEAM**

| Phase | Deliverable | Include Y/N | Due | File Type |
|---|---|---|---|---|
| Contract Award | BIMPxP | | Within 30 days | Native & PDF |
| Pre-Construction | Coordination BIMs<br>BIM Compliance Checklist | | Per BIMPxP | |
| Project Close out | COBie Data Set – Del 3<br>As-Constructed BIMs<br>BIM Compliance Checklist<br>Coordination Report<br>Federated As-Constructed BIM<br>Final BIMPxP | | Per BIMPxP | COBie2 2.40<br>Native & IFC (2x3)<br>PDF<br>PDF<br>.NWD<br>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 BIMPxP 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 | • BIM Oversight and Compliance Reviews | • 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 & C. | **Required** | X | X | X | |
| 3D Coordination | | **Required** | X | 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 | | | | | | |
| 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 | | **Required** | | | X | |
| 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 | | | | X | |
| Building System Analysis | | | | | | |
| Asset Management | | | | | | |
| 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 be used as required to address the needs of the project and the best practices of the External Project Team.*

*The executed MPS shall be attached to this BIMPxP.*

# 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 Preliminary Asset Type List for Broward County Construction Management Division Projects. This list should be used and further detailed in the BIMPxP 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 |
| CONSULANT | 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.

| | DESIGN INTENT MODELS | | | |
|---|---|---|---|---|
| MEETING TYPE | 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-built BIMs for close-out. |
| Construction Phase BIM Kick-off Meeting | STAGE | FREQUENCY | LOCATION | COMMENTS / PARTICIPANTS |
| 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-built 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 NORMALIZATI ON / MAXIMO | Weekly then monthl y |
| 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-BUILT MODELS | INTERIORS NOT RELATED TO CODE | ACCURATE TO +/- (1/8") OF ACTUAL SIZE ACCURATE TO +/- (2") OF ACTUAL LOCATION |
| AS-BUILT MODELS | INTERIORS RELATED TO | ACCURATE TO +/- (1/8") OF ACTUAL SIZE ACCURATE TO +/- (1/4") OF ACTUAL LOCATION |

| PHASE | DISCIPLINE | TOLERANCE |
|---|---|---|
| | CODE | |
| AS-BUILT MODELS | CIVIL INTERIORS<br>ENVELOPE STRUCTURAL<br>M**EP FP** | ACCURATE TO +/- (1/16”) OF ACTUAL SIZE<br>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 BIMPxP 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-Built Models
    - Federated As-Built 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 overlayed instead of attached unless the project team makes a strong case for alternate strategies.*

1. **DESIGN PHASE MODEL STRUCTURE:**

**2. CONSTRUCTION PHASE MODEL STRUCTURE:**

## Section M.3 - Measurement and Coordinate Systems:

Broward County Construction Management Division will provide a CAD file indicating the Broward County Construction Management Division Site Origin Point and the footprints of the buildings on the campus. 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 | 1st 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 BIMPxP Attachments here*
2.

(REMAINDER OF PAGE IS INTENTIONALLY LEFT BLANK)

## Approvals:

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

| DISCIPLINE | NAME | SIGNATURE | DATE |
|---|---|---|---|
| Broward County Construction Management | | | |
| Architect | | | |
| Mechanical Engineer | | | |
| Electrical Engineer | | | |
| Plumbing Engineer | | | |
| Fire Protection Engineer | | | |
| Structural Engineer | | | |
| Civil Engineer | | | |
| Surveyor | | | |
| Geotech/ Soil borings | | | |
| BIM Consultant | | | |
| Construction Manager | | | |
| Construction Consultants | | | |
| Other | | | |

**End of Section 4 BIM Execution Plan**

**Section 5 BIM Model Progression Schedule**

(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 practioners 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 Once agreed upon, this document will become a contract document and will be attached to the teams BIMPxP.

5 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.

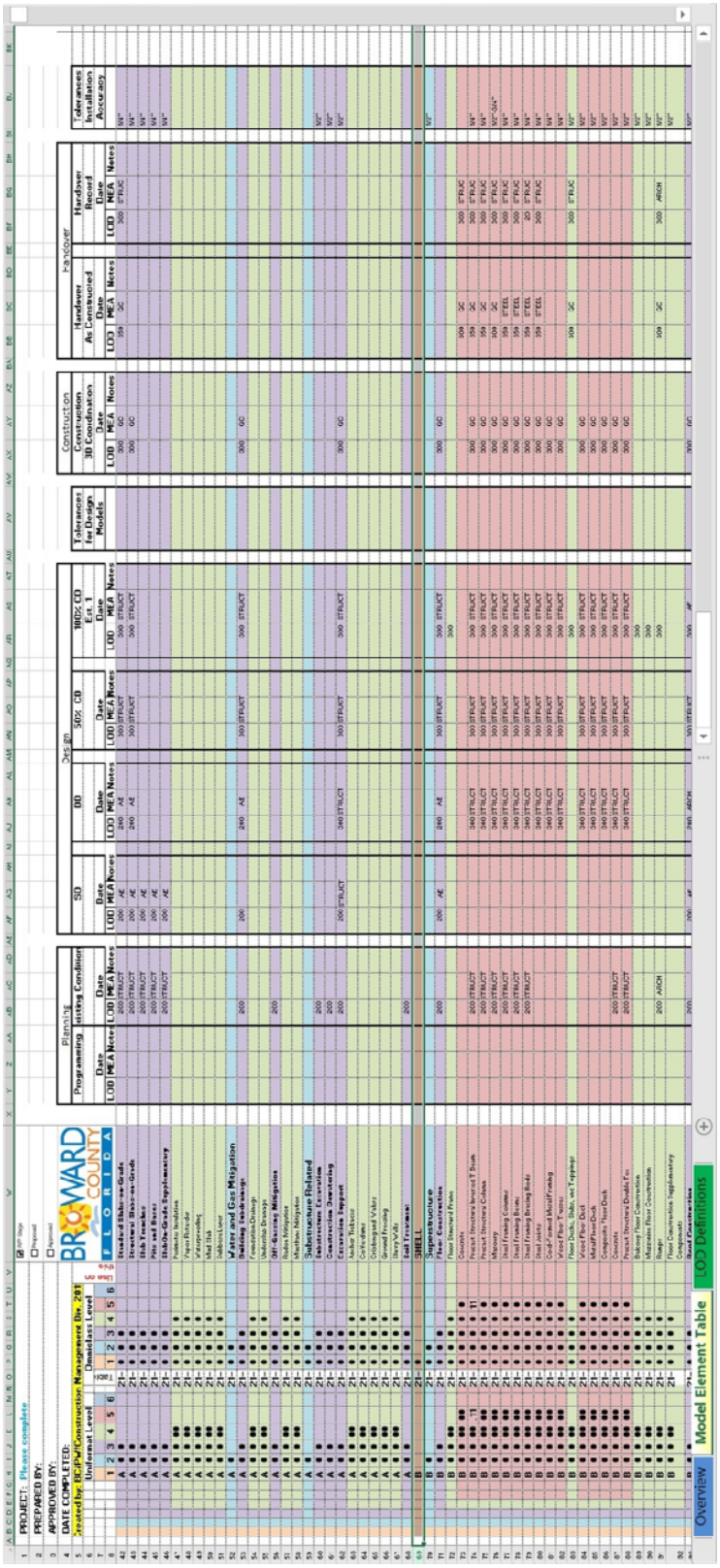
**Proposed:** The Design or Construction Professional changes the status to "Proposed" for all elements that are to be included in the project models.

**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)



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

## Fundamental LOD Definitions

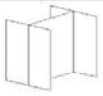
**LOD 100 - Massing / Planning Level**

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**

**SECOND AMENDMENT – NANCY J. COTTERMAN CENTER**

**Exhibit B-E**
**Estimated GMP 2**

The following amounts reflect the Estimated Contract Price Elements and Approved GMP 2

| Contract Price Element | Estimated Value |
|---|---|
| A. Pre-construction Services | $ 199,632 |
| B. Estimated Direct Construction Cost | $ 9,007,008 |
| C. Estimated General Conditions Cost | $ 1,626,075 |
| D. Estimated Fixed Fee (5%) | $ 531,654 |
| E. Estimated Owner's Allowance Account | S 602,000 |
| Total GMP 2 for Nancy J. Cotterman Center | $ 11,966,369 |

**SECOND AMENDMENT**

**Exhibit B-R**
**Reconciled GMP 2**

The following amounts reflect the Reconciled Contract Price Elements and GMP Amounts, following the bidding process in Exhibit A:

| Contract Price Element | Reconciled Value |
|---|---|
| A. Pre-Construction Services | $ |
| B. Reconciled Direct Construction Cost | $ |
| C. Reconciled General Conditions Cost | $ |
| D. Reconciled Fixed Fee (5%) | $ |
| E. Reconciled Owner's Allowance Account | $ |
| Total GMP 2 for Nancy J. Cotterman Center | $ Amount approved by the Board |

**SECOND AMENDMENT**

**Exhibit 1-E: Estimated Direct Construction Cost GMP 2**

Project Name: Nancy J. Cotterman Center

Project Number: CMD 100522

| # | DESCRIPTION | | ESTIMATED VALUE |
|---|---|---|---|
| 1 | Division 2- Demolition | $ | 323,832 |
| 2 | Subtotal for Divisions 3 thru 33 | $ | 7,551,176 |
| 3 | Fixtures, Furniture and Equipment | $ | 700,000 |
| 4 | Security : CCTV Cameras, Alarm | $ | 100,000 |
| 5 | Technology; Fiber other exterior infrastructure | $ | 91,000 |
| 6 | Telecommunications : Cable trays, racks, etc. | $ | 91,000 |
| 7 | PV Solar/Wind Systems | $ | 150,000 |
| 8 | | $ | |
| 9 | | $ | |
| 10 | | $ | |
| 11 | | $ | |
| 12 | | $ | |
| 13 | | $ | |
| 14 | | $ | |
| 15 | | $ | |
| 16 | | $ | |
| 17 | | $ | |
| 18 | | $ | |
| 19 | | $ | |
| 20 | | $ | |
| 21 | | $ | |
| 22 | | $ | |
| 23 | | $ | |
| 24 | | $ | |
| 25 | | $ | |
| 26 | | $ | |
| 27 | | $ | |
| 28 | | $ | |
| 29 | | $ | |
| 30 | | $ | |
| 31 | | $ | |
| 32 | | $ | |
| 33 | | $ | |
| 34 | | $ | |
| 35 | | $ | |
| | **TOTAL ESTIMATED DIRECT CONSTRUCTION COST** | **$** | **$9,007,008** |

**SECOND AMENDMENT**
**Exhibit 1-R: Reconciled Direct Construction Cost GMP 2**
Project Name: Nancy J. Cotterman Center
Project Number: CMD-100522

| # | DESCRIPTION | RECONCILED VALUE |
|---|---|---|
| 1 | | $ |
| 2 | | $ |
| 3 | | $ |
| 4 | | $ |
| 5 | | $ |
| 6 | | $ |
| 7 | | $ |
| 8 | | $ |
| 9 | | $ |
| 10 | | $ |
| 11 | | $ |
| 12 | | $ |
| 13 | | $ |
| 14 | | $ |
| 15 | | $ |
| 16 | | $ |
| 17 | | $ |
| 18 | | $ |
| 19 | | $ |
| 20 | | $ |
| 21 | | $ |
| 22 | | $ |
| 23 | | $ |
| 24 | | $ |
| 25 | | $ |
| 26 | | $ |
| 27 | | $ |
| 28 | | $ |
| 29 | | $ |
| 30 | | $ |
| 31 | | $ |
| 32 | | $ |
| 33 | | $ |
| 34 | | $ |
| 35 | | $ |
| | **TOTAL RECONCILED DIRECT CONSTRUCTION COST** | **$** |

**SECOND AMENDMENT**
**Exhibit 2-E: Estimated Contractor's General Conditions GMP 2**
Project Name: Nancy J. Cotterman Center
Project Number: CMD 100522

| # | DESCRIPTION | ESTIMATED VALUE |
|---|---|---|
| 1 | Staffing | $ 905,992 |
| 2 | General Conditions | $ 333,104 |
| 3 | **Demolition Phase:** | |
| 4 | Demolition General Conditions | $ 37,171 |
| 5 | Demolition Staffing | $ 53,908 |
| 6 | | $ |
| 7 | | $ |
| 8 | | $ |
| 9 | | $ |
| 10 | | $ |
| 11 | | $ |
| 12 | | $ |
| 13 | | $ |
| 14 | | $ |
| 15 | | $ |
| 16 | | $ |
| 17 | | $ |
| 18 | | $ |
| 19 | | $ |
| 20 | | $ |
| 21 | | $ |
| 22 | | $ |
| 23 | | $ |
| 24 | | $ |
| 25 | | $ |
| 26 | | $ |
| 27 | | $ |
| 28 | | $ |
| 29 | *This is not an all-inclusive list. Values to be determined at reconciliation. | $ |
| 30 | Builder's Risk @.75% | $ 88,900 |
| | **SUB TOTAL ESTIMATED GENERAL CONDITIONS** | $ |
| 31 | Insurance & Bond +/- (1.75%) of Direct Costs | $ 207,000 |
| | **ESTIMATED GENERAL CONDITIONS TOTAL** | $1,626,075 |

**SECOND AMENDMENT**

**Exhibit 2-R: Reconciled Contractor's General Conditions GMP 2**

Project Name: Nancy J Cotterman Center

Project Number: CMD 100522

| # | DESCRIPTION | RECONCILED VALUE |
|---|---|---|
| 1 | | $ |
| 2 | | $ |
| 3 | | $ |
| 4 | | $ |
| 5 | | $ |
| 6 | | $ |
| 7 | | $ |
| 8 | | $ |
| 9 | | $ |
| 10 | | $ |
| 11 | | $ |
| 12 | | $ |
| 13 | | $ |
| 14 | | $ |
| 15 | | $ |
| 16 | | $ |
| 17 | | $ |
| 18 | | $ |
| 19 | | $ |
| 20 | | $ |
| 21 | | $ |
| 22 | | $ |
| 23 | | $ |
| 24 | | $ |
| 25 | | $ |
| 26 | | $ |
| 27 | | $ |
| 28 | | $ |
| 29 | | $ |
| 30 | | $ |
| 31 | | $ |
| 32 | | $ |
| | **SUB TOTAL RECONCILED GENERAL CONDITIONS** | $ |
| 33 | Insurance & Bond | $ |
| | **RECONCILED GENERAL CONDITIONS TOTAL** | $ |

**SECOND AMENDMENT**
**EXHIBIT 3: Prevailing Wage Determination**
Project Name: Nancy J. Cotterman Center
Project Number: CMD 100522

General Decision Number FL190197, Dated 3/15/19 is included in this Amendment by reference and attached (see below).

General Decision Number: FL190197 03/15/2019 FL197

Superseded General Decision Number: FL20180241

State: Florida

Construction Type: Building

County: Broward County in Florida.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.60 for calendar year 2019 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.60 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2019. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

| Modification Number | Publication Date |
|---|---|
| 0 | 01/04/2019 |
| 1 | 02/01/2019 |
| 2 | 03/15/2019 |

ASBE0060-001 03/02/2016

| | Rates | Fringes |
|---|---|---|
| ASBESTOS WORKER/HEAT & FROST INSULATOR | $ 34.58 | 12.57 |

CARPI809-001 06/01/2015

| | Rates | Fringes |
|---|---|---|
| CARPENTER (Includes Acoustical Ceiling Installation, Drywall Finishing/Taping, Drywall | | |

Hanging, Form Work, Metal
Stud Installation).....$ 25.95 8.65

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CARP1809-002 08/01/2016

| | Rates | Fringes |
|---|---|---|
| CARPENTER: PILEDRIVERMAN.....$ | 25.20 | 10.36 |

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* ELEC0728-008 03/01/2019

| | Rates | Fringes |
|---|---|---|
| ELECTRICIAN (Including Low Voltage Wiring).....$ | 32.63 | 12.23 |

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ELEV0071-002 01/01/2019

| | Rates | Fringes |
|---|---|---|
| ELEVATOR MECHANIC.....$ | 44.45 | 33.705 |

FOOTNOTE:

A: Employer contributes 8% basic hourly rate for 5 years or more of service or 6% basic hourly rate for 6 months to 5 years of service as Vacation Pay Credit; Paid Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Veteran's Day; Thanksgiving Day; plus the Friday after Thanksgiving; and Christmas Day.

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ENGI0487-019 07/01/2016

| | Rates | Fringes |
|---|---|---|
| OPERATOR: Backhoe/Excavator/Trackhoe.....$ | 23.75 | 9.20 |

---

ENGI0487-020 05/01/2016

| | Rates | Fringes |
|---|---|---|
| OPERATOR: Concrete Pump.....$ | 26.04 | 9.23 |

---

ENGI0487-021 07/01/2016

| | Rates | Fringes |
|---|---|---|
| OPERATOR: Crane | | |
| All Cranes 160 Ton Capacity and Over.....$ | 33.05 | 9.20 |
| All Cranes Over 15 Ton Capacity.....$ | 32.05 | 9.20 |
| OPERATOR: Forklift.....$ | 23.25 | 9.20 |
| OPERATOR: Mechanic.....$ | 32.05 | 9.20 |
| OPERATOR: Oiler.....$ | 23.50 | 9.20 |

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IRON0272-001 10/01/2017

| | Rates | Fringes |
|---|---|---|
| IRONWORKER, STRUCTURAL | $ 24.89 | 10.10 |

IRON0402-001 10/01/2018

| | Rates | Fringes |
|---|---|---|
| IRONWORKER, ORNAMENTAL | $ 23.69 | 12.70 |

* PLUM0719-002 03/01/2019

| | Rates | Fringes |
|---|---|---|
| PLUMBER | $ 29.00 | 12.15 |

PAID HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day providing the employee works the scheduled work day preceding and after the holiday.

* PLUM0725-001 07/16/2018

| | Rates | Fringes |
|---|---|---|
| PIPEFITTER (Includes HVAC Pipe, Unit and Temperature Controls Installations) | $ 35.63 | 14.15 |

SFFL0821-004 01/01/2019

| | Rates | Fringes |
|---|---|---|
| SPRINKLER FITTER (Fire Sprinklers) | $ 28.38 | 19.44 |

SHEE0032-001 12/01/2013

| | Rates | Fringes |
|---|---|---|
| SHEET METAL WORKER, Includes HVAC Duct Installation | $ 23.50 | 12.18 |

SUFL2014-005 08/16/2016

| | Rates | Fringes |
|---|---|---|
| CEMENT MASON/CONCRETE FINISHER | $ 13.06 | 0.70 |
| IRONWORKER, REINFORCING | $ 17.72 | 0.00 |
| LABORER: Common or General, Including Cement Mason Tending | $ 12.79 | 0.00 |
| LABORER: Pipelayer | $ 13.56 | 1.34 |
| OPERATOR: Bulldozer | $ 15.40 | 1.90 |
| OPERATOR: Grader/Blade | $ 18.97 | 0.00 |

| | | |
|---|---|---|
| OPERATOR: Loader | $ 16.00 | 2.82 |
| OPERATOR: Roller | $ 14.43 | 4.78 |
| PAINTER: Brush, Roller and Spray | $ 16.00 | 3.48 |
| ROOFER | $ 19.98 | 4.77 |
| TILE SETTER | $ 18.01 | 0.00 |
| TRUCK DRIVER: Dump Truck | $ 13.22 | 2.12 |
| TRUCK DRIVER: Lowboy Truck | $ 14.24 | 0.00 |

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

---

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

**SECOND AMENDMENT**
**Exhibit 4: List of Pricing Documents GMP 2**
Project Name: Nancy J. Cotterman Center
Project Number: CMD 100522

The following is an enumeration of the drawings and specifications that form the basis of the GMP:

SPECIFICATION INDEX

**Division 1 – General Requirements**

Section XXXXX Section Title
Section XXXXX Section Title
Section XXXXX Section Title

**Division 2 – Sitework**

Section XXXXX Section Title
Section XXXXX Section Title
Section XXXXX Section Title

**Division 3 – Concrete**

Section XXXXX Section Title
Section XXXXX Section Title
Section XXXXX Section Title

**Division 4 – Masonry**

Section XXXXX Section Title
Section XXXXX Section Title
Section XXXXX Section Title

**Division 5 – Metals**

Section XXXXX Section Title
Section XXXXX Section Title
Section XXXXX Section Title

**Division 6 – Wood and Plastics**

Section XXXXX Section Title
Section XXXXX Section Title
Section XXXXX Section Title

**Division 7 – Thermal and Moisture Protection**

Section XXXXX Section Title
Section XXXXX Section Title
Section XXXXX Section Title

**Division 8 – Windows and Doors**

Section XXXXX Section Title
Section XXXXX Section Title
Section XXXXX Section Title

**Division 9 – Finishes**

Section XXXXX Section Title
Section XXXXX Section Title
Section XXXXX Section Title

**Division 10 – Specialties**

Section XXXXX Section Title
Section XXXXX Section Title
Section XXXXX Section Title

**Division 11 – Equipment**

Section XXXXX Section Title
Section XXXXX Section Title
Section XXXXX Section Title

**Division 12 – Furnishings**

Section XXXXX Section Title
Section XXXXX Section Title
Section XXXXX Section Title

**Division 13 – Special Construction**

Section XXXXX Section Title
Section XXXXX Section Title
Section XXXXX Section Title

**Division 14 – Conveyances**

Section XXXXX Section Title
Section XXXXX Section Title
Section XXXXX Section Title

**Division 15 -- Mechanical**

Section XXXXX Section Title
Section XXXXX Section Title
Section XXXXX Section Title

**Division 16 – Electrical**

Section XXXXX Section Title
Section XXXXX Section Title
Section XXXXX Section Title

**DRAWING INDEX GMP 2**

Project Name: Nancy J. Cotterman Center

Project Number: CMD 100522

| Drawing Number | Drawing Title |
|---|---|
| **GENERAL** | |
| G-001 | Cover Sheet and Drawing Index |
| G-002 | Survey |
| G-003 | Life-Safety Plan |
| **CIVIL** | |
| C-1 | Civil Sheet Title |
| C-2 | Civil Sheet Title |
| C-3 | Civil Sheet Title |
| **LANDSCAPE** | |
| L-1 | Landscape Sheet Title |
| L-2 | Landscape Sheet Title |
| IR-1 | Irrigation Sheet Title |
| IR-2 | Irrigation Sheet Title |
| **ARCHITECTURAL** | |
| A-1 | Architectural Sheet Title |
| A-2 | Architectural Sheet Title |
| A-3 | Architectural Sheet Title |
| **INTERIOR DESIGN** | |
| ID-1 | Interior Design Sheet Title |
| ID-2 | Interior Design Sheet Title |
| ID-3 | Interior Design Sheet Title |
| **STRUCTURAL** | |
| S-1 | Structural Sheet Title |
| S-2 | Structural Sheet Title |
| S-3 | Structural Sheet Title |
| **MECHANICAL** | |
| M-1 | Mechanical Sheet Title |
| M-2 | Mechanical Sheet Title |
| M-3 | Mechanical Sheet Title |

| Drawing Number | Drawing Title |
|---|---|
| **ELECTRICAL** | |
| E-1 | Electrical Sheet Title |
| E-2 | Electrical Sheet Title |
| E-3 | Electrical Sheet Title |
| **PLUMBING** | |
| P-1 | Plumbing Sheet Title |
| P-2 | Plumbing Sheet Title |
| P-3 | Plumbing Sheet Title |
| **FIRE PROTECTION** | |
| FP-1 | Fire Protection Sheet Title |
| FP-2 | Fire Protection Sheet Title |
| FP-3 | Fire Protection Sheet Title |

**SECOND AMENDMENT**
**Exhibit 5: Statement of CBE Assurance GMP 2**
(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: _____

**SECOND AMENDMENT**
**Exhibit 6: Letter of Intent (CBE) GMP 2**
Project Name: Nancy J. Cotterman Center -
Project Number: CMD 100522

**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 RFP/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: _____

**SECOND AMENDMENT**
**Exhibit 7: Minimum Insurance Requirements GMP 2**

INSURANCE REQUIREMENTS

Project: Managing General Contractor Services for New Nancy J Cotterman Center
Agency: Construction Management Division

| TYPE OF INSURANCE | ADDL INSD | SUBR WVD | MINIMUM LIABILITY LIMITS | | |
|---|---|---|---|---|---|
| | | | | Each Occurrence | Aggregate |
| **GENERAL LIABILITY - Broad form**<br>☑ Commercial General Liability<br>☑ Premises–Operations<br>☑ XCU Explosion/Collapse/Underground<br>☑ Products/Completed Operations Hazard<br>☑ Contractual Insurance<br>☑ Broad Form Property Damage<br>☑ Independent Contractors<br>☑ Personal Injury<br>**Per Occurrence or Claims-Made:**<br>☑ Per Occurrence ☐ Claims-Made<br>**Gen'l Aggregate Limit Applies per:**<br>☐ Project ☐ Policy ☐ Loc. ☐ Other _____ | ☑ | ☑ | Bodily Injury | | |
| | | | Property Damage | | |
| | | | Combined Bodily Injury and Property Damage | **$2,000,000** | **$4,000,000** |
| | | | Personal Injury | | |
| | | | Products & Completed Operations | | |
| | | | | | |
| **AUTO LIABILITY**<br>☑ Comprehensive Form<br>☑ Owned<br>☑ Hired<br>☑ Non-owned<br>☑ Any Auto, If applicable<br>*Note: May be waived if no driving will be done in performance of services/project.* | ☑ | ☑ | Bodily Injury (each person) | | |
| | | | Bodily Injury (each accident) | | |
| | | | Property Damage | | |
| | | | Combined Bodily Injury and Property Damage | **$1,000,000** | |
| ☐ **EXCESS LIABILITY / UMBRELLA**<br>**Per Occurrence or Claims-Made:**<br>☐ Per Occurrence ☐ Claims-Made<br>***Note: May be used to supplement minimum liability coverage requirements.*** | ☑ | ☑ | | | |
| ☑ **WORKER'S COMPENSATION**<br>*Note: U.S. Longshoremen & Harbor Workers' Act & Jones Act is required for any activities on or about navigable water.* | N/A | ☑ | Each Accident | **STATUTORY LIMITS** | |
| ☑ **EMPLOYER'S LIABILITY** | | | Each Accident | **$1,000,000** | |
| ☐ **PROFESSIONAL LIABILITY (ERRORS & OMISSIONS)**<br>**Including all engineering, surveying and design professionals.** | N/A | ☑ | If claims-made form: | | |
| | | | Extended Reporting Period of: | 5 years | |
| | | | *Maximum Deductible: | $100,000 | |
| ☑ **POLLUTION/ENVIROMENTAL LIABILITY**<br>***For Environmental Consultant during Demolition Phase** | ☑ | ☑ | If claims-made form: | **$2,000,000** | |
| | | | Extended Reporting Period of: | 2 years | |
| | | | *Maximum Deductible: | $10,000 | |
| ☑ **BUILDERS RISK**<br>*Note: Coverage must be "All Risk", Completed Value.*<br>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

cpounall@broward.org
cn=cpounall@broward.org
2019.05.23 13:34:46 -04'00'

Risk Management Division

**SECOND AMENDMENT**
**Form 1: CERTIFICATE OF SUBSTANTIAL COMPLETION GMP 2**

| | | | |
|---|---|---|---|
| PROJECT: Nancy J. Cotterman Center<br>2995 North Dixie Highway<br>Oakland Park, FL 33343 | | Consultant: | Saltz Michelson Architects, Inc. |
| | | BID/ CONTRACT NUMBER: | R1144703P1 |
| Project Number: | CMD 100522 | | |
| | | CONTRACTOR: | |
| DATE OF ISSUANCE: | _____ | NOTICE TO PROCEED DATE: | _____ |
| TO (County): | Director, Construction Management Div. | CONTRACT FOR: | _____ |

PROJECT OR DESIGNATED PORTION SHALL INCLUDE:

The Work performed under this Agreement 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 hereby established as _____ _____which is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

_____

DATE OF SUBSTANTIAL COMPLETION

The date, as certified in writing by Consultant and as finally determined in the sole discretion of Contract Administrator, on which the construction of the Work, or a portion thereof, as designated by the Contract Administrator, 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 (CO) or a Temporary Certificate of Occupancy (TCO) or other alternate municipal/county authorization for limited or conditional occupancy or use by County acceptable to the Contract Administrator must be issued for Substantial Completion to be achieved; however, the date of issuance of a Certificate of Occupancy or the date the Project is available for County's use is not to be determinative of the achievement or date of Substantial Completion.

_____

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

| | | |
|---|---|---|
| Saltz Michelson Architects, Inc. | _____ | _____ |
| Consultant | BY | DATE |

In accordance with the Summary of Terms and Conditions, Contractor will complete or correct the work on the list of items attached hereto within the specified number of days from the Date of Substantial Completion.

| | | |
|---|---|---|
| Pirtle Construction Company | _____ | _____ |
| CONTRACTOR | BY | DATE |

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

| | | |
|---|---|---|
| BROWARD COUNTY BOARD | _____ | _____ |
| OF COUNTY COMMISSIONERS | 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:

**SECOND AMENDMENT**
**Form 2: Form 00922: STATEMENT OF COMPLIANCE**
**(PREVAILING WAGE RATE ORDINANCE NO. 83-72) GMP 2**

Contract No. R1144703P1

Project Title: Nancy J. Cotterman Center
Project No.: CMD

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 in accordance with Broward County Ordinance No. 83-72 as amended from time to time.

Dated _____, 20___, Pirtle Construction Company
Contractor

By_____
(Signature)

By_____
(Name and Title)

STATE OF _____
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:

_____ SEAL
(Signature)
_____ My commission expires:_____
(Print Name)

**SECOND AMENDMENT**
**Form 3: FINAL CERTIFICATE OF PAYMENT GMP 2:**

PROJECT: Nancy J. Cotterman Center
2995 North Dixie Highway
Oakland Park, FL 33343

CONSULTANT: Saltz Michelson Architects, Inc.

BID/
CONTRACT
NUMBER: R1144703P1

CONTRACTOR: Pirtle Construction Company

TO (County): Contract Administrator
Construction Management Div.
115 S. Andrews Ave. Rm A550
Fort Lauderdale, FL 33301

CONTRACT FOR: Managing General Contractor

NOTICE TO PROCEED DATE:

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 this Agreement, 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 BOARD
OF COUNTY COMMISSIONERS

_____ _____
By Contract Administrator DATE

**SECOND AMENDMENT**

**Form 4: FORM OF FINAL RECEIPT GMP 2**

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

**FINAL RECEIPT FOR CONTRACT NO. R1144703P1**

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:

_____
Corporate Secretary or other person authorized to attest

(CORPORATE SEAL OR NOTARY)

CONTRACTOR NAME

By: _____
Authorized Signor

_____
Print Name and Title

_____ day of _____, 20___

[If not incorporated sign below.]

CONTRACTOR

WITNESSES: _____
(Name)

_____

By_____

_____

Date: _____

**SECOND AMENDMENT**
**Form 5: FORM OF PERFORMANCE BOND GMP 2**
Project Name: Nancy J. Cotterman Center
Project Number: CMD 100522

BY THIS BOND, We _____, as Principal, hereinafter called CONTRACTOR, located at:

Business Address: _____

_____

Phone: _____

and _____, as Surety, under the assigned Bond Number _____, are bound to the Board of County Commissioners of 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 entered into a Contract, Bid/Contract No.: _____, awarded the _____ day of _____, 20____, with COUNTY which Contract Documents are by reference incorporated herein and made a part hereof, and specifically include provision 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 _____, the Contract being made a part of this Bond by reference, at the times and in the manner prescribed in the Contract; and
2) Pays COUNTY all losses, liquidated damages, expenses, costs and attorney's fees including

appellate proceedings, that COUNTY sustains as a result of default by CONTRACTOR under the Contract; and

3) Performs the guarantee 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 declared by COUNTY to be, in default under the Contract, COUNTY having performed COUNTY obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

a) Complete the Project 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, 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 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 _____ day of _____, 20_____.

ATTEST:

_____
(Name of Corporation)

_____
Secretary

By_____
(Signature and Title)

(CORPORATE SEAL)

_____
(Type Name and Title Signed Above)

IN THE PRESENCE OF:

_____

_____

INSURANCE COMPANY:

By_____
Agent and Attorney-in-Fact

Address: _____
(Street)

_____
(City/State/Zip Code)

Telephone No.: _____

**SECOND AMENDMENT**
**Form 6: FORM OF PAYMENT BOND GMP 2**
Project Name: Nancy J. Cotterman Center
Project Number: -CMD 100522

KNOW ALL BY THESE PRESENTS:

That we _____, as Principal, hereinafter called Contractor, and _____, as Surety, are bound to the Board of County Commissioners of 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 entered into a Contract, Bid/Contract No.: _____, awarded the _____ day of _____, 20_____, with County for _____ in accordance with the Contract Documents prepared by _____ which Contract Documents are by reference made a part hereof, and for the 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 attorney's 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 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 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 (2.1) and (2.2) 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), 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: _____
(Name of Corporation)

_____
Secretary

By_____
(Signature and Title)

(CORPORATE SEAL)

_____
(Type Name and Title signed above)

IN THE PRESENCE OF:

_____

_____

INSURANCE COMPANY:

By_____
Agent and Attorney-in-Fact

Address: _____
(Street)

_____
(City/State/Zip Code)

Telephone No.:_____

**SECOND AMENDMENT**
**Form 8: Form 00735. PERFORMANCE AND PAYMENT GUARANTY FORM UNCONDITIONAL LETTER OF CREDIT GMP 2:**

Beneficiary:

Broward County through its Broward County Board of County Commissioners
County Administrator
Governmental Center
115 South Andrews Avenue
Fort Lauderdale, FL 33301

Date of Issue: _____

Issuing Bank's No. _____

Applicant: _____

Amount: _____

Expiry: _____

Bid/Contract Number: _____

in United States Funds

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 Administrator's authorized representative that the drawing is due to default in performance of certain obligations on the part of _____ agreed upon by (contractor, applicant, customer) 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. _____ of _____ 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

_____.
(contractor, applicant, customer)

This Credit is subject to the "Uniform Customs and Practice for Documentary Credits," International Chamber of Commerce (1984 revision), Publication No. 400 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

**SECOND AMENDMENT**
**Form 11: SCRUTINIZED COMPANIES LIST CERTIFICATION GMP 2**

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 _____
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:

_____ SEAL
(Signature)
_____ My commission expires:_____
(Print Name)