Section 01720

FINAL RECORD DRAWINGS

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PART 1 **RECEIVABLES:**

1.1 1 - CD or DVD in a jewel case. The disk label shall include the following:

- 1.1.A. Engineering and/or Survey Company Name with prepared by statement
- 1.1.B Project Name
- 1.1.C City of WPB Project Number
- 1.1.D Date the data is burned onto disk
- 1.1.E Designate if it is a "Preliminary Record Drawing" or "Final Record Drawing".
- 1.1.F Four - 24" by 36" hard copies, signed and sealed

1.2 Progress record drawings shall be submitted with each pay application for City Capital Projects. Site Development projects shall submit progress record drawings on the first of every month. All equipment, material, or work completed during the previous month shall be represented in the "preliminary as-built" and shall be provided in an electronic PDF format. PDF format refers to an Adobe vector portable document format, spatially enabled, and geo referenced. This allows the PDF to function similarly to AutoCAD.

1.3 AutoCAD Files must be submitted in DWG format minimally. It is highly recommended that you use the etransmit", AutoCAD command to create your files to be transmitted. AutoCAD refers to AutoCAD 2007 or later edition. Design in Model space shall be on a 1 to 1 scale, Paper Space scale shall be a maximum of 1" equals 30'.

1.4 Each file should be for one section of development and one layer included in the table listed in Part 3.10. Multiple sections will not be accepted in one (1) file

1.5 Phased projects shall submit preliminary record drawings corresponding to the phased sections of the project. Files shall be placed in separate folder directories on the disk that correspond to the phase in which the work was completed.

1.6 File names shall correspond to the approved Infrastructure Naming & Labeling Standard as maintained by the Engineering Services Department. Appendix A.

1.7 All pertinent drawing elements will reside in the primary drawing file. There shall be no external reference files (x-refs) attached to the drawing.

1.8 Separate layers are required, with a logical description for each layer. Layers shall include Cover Sheet, Index Sheet, Demolition, Survey / Topographic, Architectural, Structural, Potable Water, Gravity Sewer, Force Main Sewer, Lift Station, Stormwater /Drainage, Landscape, Irrigation, Street Lighting, Traffic Design, Roadway / Parking, Pollution Control Plan, and Details / General Notes.

1.9 Separate file folder with a PDF of the as-builts and all other documents.

1.10 In conjunction with ProjectDox digital plan submission, all plans, shop drawings, and submittal documents shall be signed and sealed by the Engineering of Record utilizing Professionals' Electronic Data Delivery System (PEDDS). This system allows for the electronic transfer of applicable documents, such as plans, shop drawings and record drawings. Information for the program, training, and a link to a free download of the software can be found at:

http:www.dot.state.fl.us/ecso/downloads/publications/applications/pedds/default.shtm

1.11 The City GIS Division of MIS will review all final record drawings for compliance of these standards and has the authority to send drawings back for clarification and revision.

1.12 These record drawing requirements are applicable to permits issued by the Engineering Services Department (ESD). Permits issued by the Construction Services Department (CSD) shall be subject to the record drawings requirements, as determined by the Chief Building Official.

PART 2 DATUM:

2.1 Horizontal datum utilized for design and represented on the record drawings, shall be geo-referenced to North American Datum of 1983, on the High Accuracy Regional Network (HARN) 1990 adjustment for Florida Transverse Mercator - East Zone. Coordinates shall be rounded off to the tenth of a foot. All point features must use State Plane Coordinates in the electronic datum.

2.2 Vertical datum utilized for design and represented on the record drawings, shall be referenced to the National Geodetic Vertical Datum of 1929. Elevation data shall be shown to the hundredth of a foot. Slopes shall be rounded off the nearest thousandth of a foot.

2.3 Baseline shall be established as centerline of right-of-way or easement.

2.4 Tie in to section corners will be shown in the Florida State Plane Coordinate System to insure proper orientation. Section corner information can be obtained from the Palm Beach County Survey Section web page.

2.5 All easements shall be represented and drawn as closed poly-lines representing aggregate areas.

2.6 The coordinate location of the items listed in the following (Part 4 thru 14) shall be obtained by field survey and with vertical data that meets survey grade accuracy.

PART 3 GENERAL:
(FOR ALL LAYERS)

3.1 All references to "proposed" and "plan" are to be removed from the final record drawing, hand written notes, penciling in and crossing out will not be allowed

3.2 All lines, structures, and other items that are relocated from the "plan design" to the "record design" will be moved and digitally positioned in the actual location. Vertical changes/deviations of one tenth of a foot (0.1') and horizontal changes of one foot (1.0') shall be the maximum allowable tolerance.

3.3 All record drawings will be signed and sealed by a Registered Land Surveyor or Professional Engineer licensed to practice in the State of Florida, complying with applicable Florida Statutes. A "Third Party Disclaimer" will not be accepted.(i.e. all of the data shall be collected by the same party who is preparing the record drawings)

3.4 If certified by a Surveyor, the Engineer of Record (P.E.) will provide a written certification stating that the record drawings were verified for accuracy.

3.5 Clearly label existing infrastructure which is to remain.

3.6 Clearly mark existing infrastructure which has been abandoned. Drawing profile note shall include where and how the infrastructure was abandoned. (cut and plugged, filled with grout, removed)

3.7 Clearly label the station, elevation, length, width and depth of flowable fill used within the project.

3.8 Record drawings are to be no greater than 1" equals 30'.

3.9 An increase in the amount of record drawings sheets may have to be created if the Information becomes illegible due to a high density of data. The font size and font style may need to be changed to make the record drawing readable. Larger scale details may be required for some of the work, such as large meter installations.

3.10 Separate record drawing sheets will be submitted with the following content information :

3.10.A Potable Water, Gravity Sewer, Force Main, Lift Station:		**3.10.B Roadways / Parking and Stormwater / Drainage:**		**3.10.C Street Lights:**	
Water Mains	ON	Roadway	ON	Street Light	ON
Force Mains	ON	Stormwater	ON	Cover Sheet	OFF
Sanitary Mains	ON	Traffic Design	ON	Index Sheet	OFF
Lift Station	ON	Pollution Control	ON	Irrigation	OFF
Cover Sheet	OFF	Cover Sheet	OFF	Traffic Design	OFF
Index Sheet	OFF	Index Sheet	OFF	Pollution Control	OFF
Irrigation	OFF	Irrigation	OFF	Details / Gen. Notes	OFF
Traffic Design	OFF	Details / Gen. Notes	OFF	All Other Layers	GHOSTED
Pollution Control	OFF	All Other Layers	GHOSTED		
Details / Gen. Notes	OFF				
All Other Layers	GHOSTED				
3.10.D Landscaping:		**3.10.E Irrigation:**		**3.10.F Demolition, Survey / Topographic, Architectural, Structural:**	
Landscaping	ON	Irrigation	ON	Survey / Topo	ON
Cover Sheet	OFF	Traffic Design	OFF	Architectural	ON
Index Sheet	OFF	Pollution Control	OFF	Structural	ON
Traffic Design	OFF	Details / Gen. Notes	OFF	Roadways	ON
Pollution Control	OFF	All Other Layers	GHOSTED	Cover Sheet	OFF
Details / Gen. Notes	OFF			Index Sheet	OFF
All Others Layers	GHOSTED			Traffic Design	OFF
				Pollution Control	OFF
				Details / Gen. Notes	OFF
				All Others Layers	GHOSTED

3.11 Scale shall be shown on each sheet next to a compass designating "North". All record drawings shall have the north arrow at the top or right side of each sheet

3.12 Electronic file copies shall correspondence in size to the hard copy plans. (Min. 24” x 36”)

3.13 All applicable cover, key and detail sheets shall be included with each record drawing

3.14 Provide all surveys of the project area and/or property. The survey shall show, all easements, property lines, and public rights-of-way. as identified by ORB/Pg or Plat Book/Page.

3.15 Provide a table within the detail sheets of all applicable permit numbers, including ROW, DEP, PBC HD, SFWMD, CSD, NPBID, FDOT, ESD, etc.

3.16 Provide letters Adobe PDF format of acknowledgement of completion from all agencies permitting any of the work.

3.17 The complete title block shall correspond to the latest edition of the Engineering Services Department Plan Submittal Checklist and shall label final record drawings as "Record Drawing". All revisions shall be shown in the revision block, with the date of the final record drawing and the dates the systems were put into service and accepted.

3.18 Phase limits shall be clearly labeled.

3.19 Represent and label all casings for future use and note their intended uses.

3.20 Street Names including "FKA" (Formally Known As) and "AKA" (Also Known As)

3.21 Label all buildings/structures by address.

3.22 Label all project encompassed properties by Property Control Numbers (PCN).

3.23 Project construction limits shall be clearly represented.

3.24 All horizontal deflections of 11 1/4 –degrees (11 ¼°) or greater, in a twenty linear foot (20') run section of pipe, shall be clearly labeled. Straight runs of pipe shall be labeled at an interval of no less than one hundred linear feet (100')

3.25 All vertical deflections of 5% or greater, in a twenty linear foot (20') run section of pipe, shall be clearly labeled. Straight runs of pipe shall be labeled at an interval of no less than one hundred linear feet (100')

3.26 Length of all pipe runs will include: pipe material type, size, lining (if applicable) of pipe material, and calculated percentage of slope for the run of pipe (if applicable)

3.27 Represent all applicable ADA and Handicap access required or proposed elements.

3.28 "Ghost in" all underground and overhead utilities.

3.29 Represent walls and fences.

3.30 Provide existing and proposed topographic contours, including surrounding properties in 1' vertical and 50' horizontal increments.

3.31 Provide a corresponding Legend on the first sheet of each separate plan set section. (i.e. Water, Landscape, Irrigation)

3.32 Provide a Location Key for each sheet for record drawings of 50 plan sheets or greater. Larger projects may require a separate key sheet, if the key is too large to fit within individual record drawing sheets.

3.33 Labeling for final record drawings shall conform to the City of West Palm Beach Infrastructure Naming & Labeling Standard (INLS). Revisions to the INLS are applicable at time of plan submittal. See Appendix A.

PART 4 <u>WATER MAINS:</u>

4.1 Represent all proposed construction and existing utility mains in both plan and profile view.

4.2 Clearly identify and label the location of all valves, tees, bends, reducers, caps, plugs, fire hydrants, air release valves (ARV), service lines, meter boxes, and other associated appurtenance.

4.2 Clearly identify and label the location of restrained joint pipe.

4.3 Clearly identify and sequentially number (#) the location of all valves.

4.4 Clearly identify and sequentially number (#) the location of all sample points utilized during Palm Beach County Health Department sampling.

4.5 Clearly identify and sequentially number (#) the location of all hydrants. Provide hydrant flow test reports for each hydrant.

4.6 **POTABLE WATER SERVICES AND UNMETERED FIRE SERVICES:**

4.6.A Clearly identify and sequentially number (#) the location of all water service lines.

4.6.B Represent variations of five feet (5') or greater in horizontal offset stationing between the corporation (tap) compared to the location of the meter box.

4.6.C Clearly label the size and length of all water service lines.

4.6.D Clearly label the location, size, and type of backflow preventer.

4.6.E Clearly label all utility services by usage. (i.e. fire, domestic, irrigation, cooling tower, sanitary, etc)

4.6.F Clearly identify and label Fire Department Connections (FDC), AKA "Siamese".

PART 5 SANITARY SEWERS:

5.1 Clearly identify and sequentially number (#) the location all manholes.

5.2 Represent the location of sanitary service wyes with station and offset referenced to a baseline established between the sanitary manholes, together with the invert elevation (at clean-out), station and offset, pipe size, material and length. Also, include the type of connection made if tying into an existing lateral.

5.3 Clearly identify and label all grease traps, with type, size, capacity, model and manufacturer listed. Detail clean-out location each side trap.

5.4 **LIFT STATIONS & FORCE MAIN**

5.4.A Represent location of the power source and conduits to control/meter panel for lift station.

5.4.B Provide information of the lift station, water service line and backflow preventer.

5.4.C Provide information on the Control Panel(s) type and manufacturer.

5.4.D Clearly identify and label all Private lift stations. Labeling shall include manufacturer, wet well capacity, pump(s), discharge pipe size ad material, valves, telemetry, and communications.

5.4 E Represent all proposed construction and existing utility mains in both plan and profile view.

5.4 F Clearly identify and label the location of all valves, tees, bends, reducers, caps, plugs, air release valves (ARV), and other associated appurtenance.

5.4 G Clearly identify and sequentially number (#) the location of all valves.

PART 6 WATER / SANITARY / STORM PIPE CROSSINGS AND SEPARATIONS:

6.1 Separation Point / Conflict Crossing: Vertical or horizontal distance proximity between two different utility systems. Clearly identify and sequentially number (#) the location of all separation points or conflict crossings in conformance with Palm Beach County Health Department utility separation guidelines.

6.2 Provide a Utility Separation Chart. Chart shall include sequential numbering, type of utility (water, sewer, stormwater, etc), pipe size, pipe type, label upper pipe and lower pipe (not required for horizontal separation), distance between bottom of upper pipe and crown of lower pipe.

PART 7 CONFLICT STORM/WATER / SANITARY STRUCTURES:

7.1 Provide vertical distance of top and bottom of casing.

7.2 Provide type of casing material.

7.3 Provide type of transmission pipe material.

7.4 Provide detailed structure information. (i.e. height, width, length, number openings (pipes), vertical elevation of top of structure and floor elevation, etc.)

PART 8 CASINGS:

8.1 Provide vertical distance of top and bottom of casing.

8.2 Provide type of casing material.

8.3 Provide information on total lay length and the location of any vents or taps.

PART 9 ROADWAYS:

9.1 Provide road cross section in profile.

9.2 Provide peak of gutter in intervals of fifty feet (50')(where storm water runs to catch basins).

9.3 Provide station, offset, and elevation for curb / gutter in intervals of fifty feet (50') or at every grade change.

9.4 Provide centerline in intervals of fifty feet (50') or at every grade change.

9.5 Provide back of sidewalk elevation in intervals of fifty feet (50') or at every grade change

9.6 Clearly label sidewalk widths in intervals of one hundred feet (100') or at every change in width of one foot (1') or greater.

9.7 Clearly identify and label all curbs, bollards, planters, and speed tables. Provide element type and dimension.

9.8 Clearly identify and label all driveway approaches. Provide station and offset for width of approach.

9.9 Provide all curb returns and PI elevations.

9.10 **SIGNAGE, AND PAVEMENT MARKING:**

9.10.A Clearly identify and sequentially number (#) the location of all pedestrian and traffic signs. Provide a table with the following information, including existing signage to remain:

1. Information on sign.
2. Direction facing.
3. Station and offset.

9.10.B. Reflective Pavement Marks (RPM's):

1. Color(s).
2. Locations.

9.10.C Pavement Markings:

1. Color.
2. Width.
3. Amount.
4. Usage.
5. Material (thermoplastic, paint).

9.11 Clearly label the limits of public rights-of-way.

9.12 Clearly identify and sequentially number (#) the location of all parking spaces. (bicycle, compact, handicap, loading)

9.13 Provide radius information for all curbs.

9.14 Represent all ADA compliance elements, including detectable warning surfaces, access routes, and loading zones.

9.15 **STORM SEWERS:**

9.15.A Clearly identify and sequentially number (#) the location of manholes and catch basins. Include station, offset, rim elevation, invert elevations, direction, weir elevations, bottom of manholes and catch basins (sumps).

9.15.B Represent all outfalls and headwalls. Include station, offset, and top of wall elevation.

9.15.C Clearly identify and sequentially number (#) the location of service connections (without manholes) referenced to a baseline established between the storm manholes, together with the invert elevation, pipe diameter and pipe material.

9.15.D Provide dimensional information for all dry retention, wet retention, dry detention, and wet detention areas. Include design width, length, depth, bank or shore slope, top and toe of berm.

9.15.E Provide dimensional information for all exfiltration trenches. Include design width, length, height, material (i.e. RCP pipe, HDPE pipe), and flow direction arrow.

9.15.F Provide a table indicating the pre and post pervious/impervious data in square feet.

9.15.G Provide a cross section for all stormwater management retention or detention areas and discharge receiving jurisdiction.

9.15.H All stormwater lift stations / pump stations shall be constructed utilizing the same standards as applicable for like sized sanitary lift stations.

9.15.I All stormwater transmission mains shall be constructed utilizing the same standards as applicable for like sized water or force main.

PART 10 STREET LIGHTS:

10.1 Clearly identify and sequentially number (#) the location of all poles. Provide a table with the following information: pole manufacturer, pole model name and number, fixture manufacturer, and fixture model name and number.

10.3 Clearly label all pull boxes. Include station and offset.

10.4 Clearly identify and label lighting conduit. Include section length, diameter size of conduit between boxes, and type of material.

10.5 Clearly identify and label lighting wiring. Include color, type of wire, and gauge of wiring.

10.6 Clearly identify and label all service connection panels, aerial services feeds, down poles, drops, conduit runs, directional services bores, and disconnects. Elements shall be identified by descriptive ownership. (FP&L owned, City metered, etc.)

10.7 Provide information for all control panel(s). Include panel / cabinet manufacturer, model of panel / cabinet, detail of panel rack or mounting location, label and number all panel boxes, service voltage, disconnect type, and clearance setbacks.

PART 11 IRRIGATION:

11.1 Control valve size, zone number and GPM for each zone. Provide station and offset for all valves.

11.2 Clearly identify and label main line piping. Provide size and material in minimum intervals of 100' or change in pipe size.

11.3 Clearly identify and label spray or rotary heads. Provide head type (1/4, half, 3/4, full circle) and zone.

11.4 Clearly identify and label Control location.

11.5 Clearly identify and label backflow location.

11.6 Clearly identify and label electrical service panel.

11.7 Wiring, gauge, length, colors

11.8 Clearly identify and label electrical or control wiring conduit piping. Provide size and material in minimum intervals of 100' or change in pipe size.

11.9 Clearly identify and label hand holds and valve boxes.

PART 12 LANDSCAPING:

12.1 Clearly identify and label all plant material. Identify landscape material by both nomenclature and symbol.

12.2 Provide a landscape material legend. Legend shall conform to final project installation material and quantities. Legend shall, at minimum, provide botanical name, common name, quantity, container size, overall height, overall width / spread, and caliper (where appropriate).

12.3 A landscape material legend shall provide specific information for all hardscape fixtures and elements (tree grates, trash receptacles, benches, etc.) Legend shall, at minimum, provide label, manufacturer, model, color, and size dimensions.

12.4 When utilized, Structural Soils shall be noted in the legend material quantities by cubic foot of material and shall be depicted in the record drawings. Legend shall, at minimum, provide location of soil and depth and width at location.

12.5 Clearly identify and label all berm(s) by providing top and toe elevation in minimum intervals of 50'.

PART 13 PRIVATE CONSTRUCTION: (including all data listed in sections 1 thru 12)
(LOCATED ON THE ROADWAY LAYER)

13.1 **IMPACTS TO RIGHT-OF-WAY:**

13.1.A Clearly identify and label all private utility or easements in the City ROW's or on City property. Clearly identify and label all improvements within an easement. Labeling shall include, at minimum, owner, utility description, location within easement, material components (conduit, cabinet, structure, etc.)

13.1.B Clearly identify and label all privately owned items in the City right-of-way, including, but not limited to, lighting, irrigation and landscaping. All private utilities or materials shall require execution of an easement agreement, franchise agreement, or revocable permit.

13.1.C Clearly identify and label all aerial and underground footer easements encroaching public easements or right-of-way. All private utilities or materials shall require execution of an aerial facade / footer revocable permit.

13.2 **BUILDING SITE:** (including all data listed in sections 1 thru 12)

13.2.A Clearly identify and label all structure and building foot print(s). Include in roadway layer.

13.2.B Clearly identify and label all structure and building Finished Floor Elevation (FFE). Include in roadway layer.

13.2.C Clearly identify and label all structure and building any alteration to FFE, such as at patios, walkways, decks. Include in roadway layer.

13.2.D Clearly identify and label all site details, such as dumpster enclosure, parking space details, handicapped access routes. Include in roadway layer.

13.2.E Clearly identify and label all sidewalk and common areas. Include cross slope and running slope information in minimum intervals of 50'.

Provide design flow direction for stormwater flow on surface.

13.2.F Oil/water separators, with type, size, capacity, model and manufacturer listed. Showing a clean-out on each side and the minimum of two manholes in the top of the separator(s)

13.2.G Provide sump with bottom elevation, pump on and pump off elevation and discharge elevations.

13.2.H Clearly identify and label all cisterns or rain water storage elements. Include material type, size, capacity, model and manufacturer.

13.2.I Clearly identify and label all retaining walls, decorative walls, fences, etc. Information shall include, at minimum, building material, elevation height, and for retaining walls provide finished grade elevation for each side of the wall.

13.2.J Clearly identify and label all booster pumps on fire, domestic, air conditioning towers, and irrigation. Provide maximum gallon per minute and maximum discharge pressure.

13.2.K Clearly identify and label all wells / pumps for domestic, irrigation or other uses.

PART 14 MISCELLANEOUS:

14.1 Blank

END OF SECTION

REVISION LIST

Do not list resetting printers (margins). Just do not save document