

ATTACHMENT A

DOCUMENTATION FOR REVISIONS - 2019

The original Utility Construct Standard drawings were created in AutoCad and date back prior to 2004. They have been revised nine times. The last Indian River County Board of County Commissioners (BCC) approved revision was the March 2018 Water, Wastewater and Reclaimed Water Construction Standards, which was a comprehensive revision. The March 2019 Standards have far fewer technical revisions. The drawings have been formatted using a template with standard layer properties. Each drawing has been revised with consistent font and size for notes and dimensions. Arrow heads used in notes have a consistent size. Drawing line type, color and weight are consistent.

CONSTRUCTION STANDARDS 2019			
AUTOCAD LAYER PROPERTIES			
NAME	COLOR	LINE TYPE	LINE WEIGHT
0	WHITE/BLACK	CONTINUOUS	DEFAULT
CENTERLINE	WHITE/BLACK	CENTERLINE	0.9
HATCH	GREY	CONTINUOUS	DEFAULT
HIDDEN	BLUE	DASHED2	0.15
PHANTOM	MAGENTA	PHANTOM2	0.15
TEXT	RED	CONTINUOUS	0.15
TITLE BLOCK	WHITE/BLACK	CONTINUOUS	DEFAULT
VIEW	WHITE/BLACK	CONTINUOUS	DEFAULT

Typically, the AutoCad drawings are converted to a Portable Document Format (PDF) for electronic transfer or downloading. A larger Arial font has been used in an effort to keep the print legible. In many cases, the notes that accompany the drawing have been moved, for clarity, to the following page as stand-alone notes.

TITLE BLOCK

All drawings have been moved to a new title block. The County logo has been removed. 'Indian River County Department of Utility Services' remains in the title block. An Arial font has been used for all lettering. This new title block matches the style of the drawings.

LIST OF REVISIONS

Drawings that were renumbered or created new have been referenced in the List of Revisions. Some drawings have been re-drawn or re-scaled for clarity.

W-1 - Fire Hydrant and Valve Locations. Deleted call-out note, "Main Under Construction". Deleted call-out note, "Reflective Pavement Marker". Reflective pavement markers (RPM's) have been removed as a requirement except of fire hydrants. This change is prompted at the direction of IRC Public Works, which is the department charged with roadways. The Notes section has been moved to a new drawing W-1A.

W-1 A - Fire Hydrant and Valve Notes. New drawing. Notes are from W-1. Re-worded note 6 and deleted reference to RPM's. Note 10 has been revised to reflect correct referenced drawing numbers.

W-2 - Fire Hydrant Detail. Fire hydrant clearance has been revised from 4' to read 7'-6". A "House Keeping Pad" has been added in each view. An expansion joint has been added to the concrete pad around the hydrant. The reference fire hydrant guard was revised to read "Bollard". The Notes section has been moved to a new drawing W-2 A.

W-2 A - Fire Hydrant Detail Notes. New drawing. Notes are from W-2. Note 1, hydrant guard revised to read "Bollards". Note 7, has been revised to reflect correct referenced drawing numbers. Note 10, has been revised to reflect correct referenced drawing numbers. Note 11, revised to read: "IRCDUS may require housekeeping pad".

Note: The water meter box shown in drawings W-3 thru W-7 are Open Bottom (W-5). An Open Bottom Meter Box best represents the type typically specified for construction by local Developers/Engineers. The pre-plumbed Meter Boxes are optional and acceptable for use. See, Drawing, W-5 A.

W-3 - Manual 2" Blow-Off. The symbol used for 3/4" gravel has been changed. This change better defines the drawing.

W-4 - Water Service (Inside Right-of-Way). Drawing has been re-oriented from a portrait to a landscape title block. The roadway detail was enlarged to better illustrate the curb etched with "W". Moved Note section to W-4 B.

W-4 A - Water Service (Outside Right-of-Way). This drawing has been re-numbered from W-5 to W-4 A. The roadway detail was enlarged to better illustrate the curb etched with "W".

W-4 B - Water Service Notes. New drawing. Notes from W-4, W-6 and W-7 have been compiled to eliminate repetition. Note 7 has been revised to reflect correct referenced drawing numbers. Note 11 has been added. Open bottom and pre-plumbed (enclosed) meter boxes are acceptable.

W-5 - Meter Box Typical Open Bottom. This drawing was re-numbered from W-7 A to W-5.

W-5 A - Meter Box Typical Pre-Plumbed (Enclosed). This drawing has been re-numbered from W-7 to W-5 A.

W-6 - Meter Box Typical Installation. The Elevation View has been scaled down to align with the Top View(s). The call-out notes deleted the use of P.E. and now reads "PEX-A". The gravel symbol has been revised. Moved all Notes to W-4 B.

W-6 A - Meter Box Access. New drawing. This illustrates a "Clear Zone" to be free of vegetation other than sod.

W-7 - Temporary Hose Bibb (For Construction). This drawing has been re-numbered from W-6 A to W-7. Two call-out notes have been added: "Meter with Backflow Preventer by IRCDUS" and "Pex-A Service Lateral". The meter has been re-drawn in hidden lines. Note 1 has been reworded.

W-8 - Temporary Sampling Point (Bacteriological). Call-out notes have been revised. Copper tubing has been revised to read: "P.E. 1" Ball Valve or Curb Stop". Note "Water Main or Service" has been added. Note 1 has been revised. Added Note 5.

W-9 - Full Bore Flushing. New Title Block and Font was the only revision.

W-10 - Double-Detector Check Valve Assembly. All Notes have been moved to a new drawing W-10 A.

W-10 A - Double-Detector Check Valve Assembly Notes. New drawing. Notes are from W-10.

W-11 - Reduced Pressure Backflow Preventer (RPZ). New Title Block and Font was the only revision.

W-12 - Master Meter Combination Assembly (3" or Larger). All Notes have been moved to a new drawing W-12 A.

W-12 A - Master Meter Combination Assembly. New drawing. Notes are from W-12. Note 2 has been revised to read: "By-pass pipe diameter shall be determined per Engineer of Record".

W-13 - Temporary Jumper Detail. Drawing re-oriented from portrait to landscape. Curb stops (2) and the associated call-out notes have been removed. Tees (2) for sample points have been added. All Notes have been moved to a new drawing W-13 A.

W-13 A - Temporary Jumper Detail Notes. New drawing. The Notes are from W-13 and W-14, and have been edited and combined into W-13 A. Drawing W-14, Temporary Jumper Detail Notes (Continued), has been eliminated. To Note 8, the words "sodium hypochlorite" has been added to further define the liquid chlorine to be used.

S-1 - Standard Lateral (Shallow Sewer). The roadway detail has been enlarged to better illustrate the curb etched with "S". A sidewalk detail has been added. Call-out notes have been revised to reference the correct drawings. The Notes section has been moved to new drawing S-1 A.

S-1 A - Standard Lateral Notes (Shallow Sewer). New drawing. Notes are from S-1.

S-2 - Modified Riser Lateral (Deep Sewer). The roadway detail has been enlarged to better illustrate the curb etched with "S". Call-out notes have been revised to reference the correct drawings. The Notes section has been moved to new drawing S-2 A.

S-2 A - Modified Riser Lateral Notes (Deep Sewer). New drawing. Notes are from S-2.

S-3 - Sewer Lateral Riser Details. New Title Block and Font is the only revision.

S-4 - Standard Manhole Casting. A typo in the Plan View has been corrected (an inadvertent note copied and pasted twice).

S-5 - Manhole Notes. Note 6 has been revised to read "2 coats black EW-1". Note 8 has been revised. Deleted engineer to read "IRC Inspector in field". Note 22, Depth of Manhole Chart, has been revised to read "Less Than 10'-Diameter 4' ". And "6'-10'" has been deleted and revised to read "Greater than 10'-Diameter 5' ".

S-6 - Manhole Standard-Shallow. A typo in the note across the drawing panel bottom has been corrected to read: "To be used when cut classification is 6'-0" or less". In the Elevation View, "5'-0"" ID has been revised to read "4'-0"".

S-7 - Manhole Slab-Top. The call-out note in the Elevation View regarding the ID of the manhole has been revised from "5'-0" ID to read "Varies". Revised call-out note regarding the reinforcing bars."

S-8 - Manhole Standard-Deep. The call-out note in the Elevation View regarding the ID of the manhole has been revised from "5'-0" ID" to read "Varies". A call-out note has been added and reads: "Eccentric Manhole 6" Deep and Greater Only". The note just above the title block has been revised to read: "To be used when the cut classification is over 6'-0" deep".

S-9 - Manhole Outside-Drop. The call-out note in the Elevation View regarding the ID of the manhole has been revised from "5'-0" ID" to read "Varies".

S-10 - Manhole Inside-Drop. The call-out note in the Elevation View regarding the ID of the manhole has been revised from "5'-0" ID" to read "Varies".

S-11 - Pipe Opening in Manhole Detail. New Title Block and Font is the only revision.

S-12 - Manhole Influent & Effluent Piping Detail. New Title Block and Font is the only revision.

S-13 - Force Main Tie-In to Manhole. The call-out note in the Elevation View regarding the ID of the manhole has been revised from "5'-0" ID" to read "Varies".

NOTE: The drawings S-14 and S-15 contained too much information. The elements, concrete and mechanical, have been broken into separate drawings that helps provide clarity and better illustrates the minimum standard required. Drawings S-14 Plan View and S-14 A Section View illustrate the concrete construction details. Drawings S-15 Plan View and S-15 A Section View illustrate the pump, piping and mechanical details.

S-14 - Wetwell/Valve Vault – Concrete Structure Details - Plan View - Typical Wastewater Pumping Station. Wetwell and valve vault have been highlighted with the pump and piping in the background. Location of the electrical conduits have been revised to reflect how they enter the wetwell. Only concrete notes have been used.

S-14A - Wetwell/Valve Vault – Concrete Structure Details - Section View -Typical Wastewater Pumping Station. New drawing. The concrete structure has been highlighted. Only concrete notes have been used.

S-15 - Wetwell/Valve Vault - Pump, Piping and Mechanical Detail – Plan View - Typical Wastewater Pumping Station. Pump and piping have been highlighted with the concrete structure in the background. Only pump and piping notes have been used.

S-15A - Wetwell/Valve Vault - Pump, Piping and Mechanical Detail – Section View - Typical Wastewater Pumping Station. New drawing. Only pump and piping notes have been used.

S-16 - Site Plan – Alternate “A” - Typical Wastewater Pumping Station. Drawing has been re-oriented from a portrait to a landscape title block. The Site Plan- Alternate B has been moved to a new drawing S-16 A. A call-out note has been added: “Data flow tower foundation top shall be 6” above finished grade. Location to be approved by IRCUDS”. The Notes section has been moved to a new drawing S-16 B.

S-16A - Site Plan – Alternate “B” - Typical Wastewater Pumping Station. This is a new drawing separating Alternate “A” and “B”, which provides clarity to an otherwise busy drawing.

S-16B - Site Plan Notes - Typical Wastewater Pumping Station. New drawing. All Site Plan Notes have been moved to this drawing. Note 9 has been revised to read: “Data tower foundation top shall be 6” above finished grade.”

S-17 - Electric Service Entrance - Meter/Panel Box - Typical Wastewater Pumping Station. The notes regarding the conduits from the control panel to the pump station have been revised to read: “Underground shall be SCH 80 PVC. Above ground shall be SCH 80 aluminum”. The note for the control panel has been revised to read: “Powder coated 316 Stainless Steel”.

S-18 - Control Panel Inner Door Layout. The drawing title has been re-named. The box note in red has been revised to read: “Refer to Specifications Section 10.”.

S-18 A - Control Panel Back Panel Layout. This drawing has been re-numbered from S-19 to S-18A. The drawing title has been re-named. The box note in red has been revised to read: “Refer to Specifications Section 10.”.

S-19 - Pumping Station General Notes - Typical Wastewater Pumping Station. This drawing has been re-numbered from S-20 to S-19. Note 16 has been revised to include: “All access drives shall be a minimum of 45’ long”. Note 21, which pertains to location of the lift station, has been revised from 200’ to read “50’ away from homes”. The box note in red has been revised to read: “Refer to Specifications Section 10.”.

S-19A - Pumping Station General Notes (Continued) - Typical Wastewater Pumping Station. This drawing was re-numbered from S-20 to S-19A and is a continuation of General Notes. Note 25 has been revised to call-out the correct referenced drawings. Note 30 has been revised to include “Powder Coated 316 Stainless Steel”. Note 35 has been revised by deleting “City of Vero Beach” (as a power supply). County Pumping Stations only have FP&L. The box note in red has been revised to read: “Refer to Specifications Section 10...”.

S-20 - Pumping Station Electrical Notes - Typical Wastewater Pumping Station. This drawing is new. The Electrical Notes have been moved to a stand-alone page. The box note in red has been revised to read: “Refer to Specifications Section 10.”.

S-21 - Generator Notes and Float Controls - Typical Wastewater Pumping Station. This drawing is new. The Generator Notes were moved to a stand-alone page. The Float Control System chart has been enlarged for clarity. The box note in red has been revised to read: “Refer to Specifications Section 10.”.

S-22 - Force Main Service Line for Private Pumping Station. New Drawing. The drawing illustrates the minimum requirement to be accepted by IRCUDS for privately constructed/owned pump stations.

R-1 - Reclaimed Water Meter/Valve Assembly Detail. The Notes section has been moved to R-2 A.

R-2 - Reclaimed Water Discharge and Stilling Well Assembly Detail. The Notes section has been moved to R-2 A.

R-2 A - Reclaimed Water Notes. New drawing. Notes from R-1 and R-2 have been combined and edited for clarity.

M-1 - Trench Detail (Unpaved Easements). The Notes section has been moved to a new drawing M-1 A. The call-out note for Detection Tape has been revised to reference the correct drawing. Two notes have been added for "Compaction" and Restoration" requirements.

M-1A - Trench Detail Notes. New drawing. The Notes from M-1 and M-2 have been combined and edited for clarity.

M-2 - Trench Detail (Paved Areas & Shoulders). The Notes section has been moved to new drawing M-1A. A new Note Section has been added with notes that pertain to this drawing. Note 4 allows for flowable fill with approval.

M-3 - Restrained Pipe Lengths and Schedule Notes. Restrained length charts have been re-created in an Excel format and imported into the drawing for clarity of font. A Note has been added to the bottom of the drawing panel and reads: "All in-line valves shall be treated."

M-4 - Utility Crossings. The Drawing has been revised by adding one length of pipe on either side of conflict crossing piping and inserting the dimension 3'0" minimum on each side of conflict. Note 7 has been added and reads: "IRCDUS may require air release valves."

M-5 - Tapping Sleeve and Valve Assembly. New drawing.

M-6 - Valve and Box Detail. This drawing has been re-numbered from M-5 to M-6. A call-out note has been revised to include lime rock, "or flowable fill". A call-out note has been added along with "Valve Box Stabilizer". All Notes have been moved to M-6A.

M-6A - Valve and Box Detail Notes. New drawing. Notes are from M-6. Note 2 has been deleted, and notes have been re-numbered. (Re-numbered) Note 4 has been revised to reference the correct drawing. (Re-numbered) Note 6 has been revised to reference the correct drawing.

M-7 - Valve Box Pad. This drawing has been re-numbered from M-6 to M-7. Note 3 has been revised to reference the correct drawing. Note 4 has been revised to reference the correct drawing.

M-8 - Air Release Valve Manhole Below Ground. This drawing has been re-numbered from M-7 to M-8. Note 3 has been revised to reference the correct drawing. Note 4 has been revised to reference the correct drawing. A downward facing screened vent for potable application has been added, along with a call-out note to the air release valve.

M-9 Air Release Valve Assembly Above Ground. This drawing has been re-numbered from M-8 to M-9. Note 3 has been revised to reference the correct drawing.

M-10 - Valve Marker. This drawing has been re-numbered from M-9 to M-10. A pipe detail has been added to the Elevation View with a Note "Place over pipe at valve location". The drawing has been revised with the inclusion of a Plan View to illustrate the orientation of the valve marker, which is to be placed perpendicular to roadway. Note 1 has been added regarding marker to be placed perpendicular to the roadway.

M-11 - Jack and Bore Detail Casing Insulator/Spacer. This drawing has been re-numbered from M-10 to M-11.

M-12 - Casing Installation Details. This drawing has been re-numbered from M-11 to M-12.

M-13 - Jack and Bore Casing Vent & End Seal Detail. This drawing has been re-numbered from M-12 to M-13.

M-14 - Trace Wire Details. This drawing has been re-numbered from M-13 to M-14. The trench sketch in the Plan View has been deleted. The meter box has been revised from a pre-plumbed (enclosed) box to an open bottom meter box.

M-15 - As-Built Record Drawing (Example). This drawing has been re-numbered from M-14 to M-15.

M-16 - As-Built Record Drawing General Notes. This drawing has been re-numbered from M-15 to M-16. Note 9 has been incorporated into Note 8. The following change was inserted into **Drawing M-16, As-Built Record Drawings, Note 9**. Electronic copies of record drawings shall be formatted with all newly constructed IRCDUS utilities in the following AutoCad layer states:

AUTOCAD LAYER NAME	IRCDUS UTILITY
WATER	WATER MAINS, WATER VALVES, HYDRANTS, WATER SERVICE LINES AND WATER METERS
SEWER	SEWER FORCE MAINS, SEWER VALVES, GRAVITY SEWER, SEWER SERVICE LINES
R/O CONCENTRATE (BRINE)	R/O CONCENTRATE MAINS, R/O VALVES
RECLAIMED WATER	RECLAIMED WATER MAINS, RECLAIMED WATER VALVES

M-16 A - As-Built Record Drawing Notes (Continued). This drawing has been re-numbered from M-16 to M-16 A. The General Notes are continued from M-16.

M-17 - Route Survey Requirements. Note 1 has been reworded to reference excessive layers found in incoming Route Surveys. The highlighted sentence has been inserted to address excessive layers in surveys received.

1. ALL INCOMING ROUTE SURVEYS THAT ARE REQUIRED FOR ENGINEERING DESIGN USE SHALL BE RECEIVED ON A CD, AS AN ELECTRONIC COPY, AUTOCAD 2015 FORMAT, OR LATEST VERSION. ELECTRONIC COPY OF ROUTE SURVEY SHALL NOT CONTAIN EXCESSIVE AUTOCAD LAYER STATES OR LAYERS WITH INFORMATION THAT DOES NOT PERTAIN TO THE ROUTE SURVEY REQUESTED. ALONG WITH AN ELECTRONIC VERSION, (3) **THREE** (24"x36") SIGNED AND SEALED COPIES OF ROUTE SURVEYS SHALL BE SUBMITTED AND SHALL BE IN A MINIMUM SCALE OF 1"=40'.

M-17 A - Route Survey Requirements (Continued) New Drawing

AS-BUILT RECORD DRAWINGS

GIS Mapping Staff maintains a County-wide base map of all water, wastewater, reclaimed water and R/O concentrate mains, appurtenances and associated infrastructure. When a Utility project is completed, IRCDUS receives As-Built Record Drawings from the Contractors' Surveyor in AutoCad, electronic format files. County GIS Mapping Staff converts the lines of the newly constructed utility infrastructure into shape files, which are imported to the County-wide base map. To help streamline the process, the Contractors' Surveyor, charged with providing As-Built Record Drawings to IRCDUS, will create AutoCad layers formatted with specific named layers. The purpose is to streamline the conversion process. All water related infrastructure to be in one layer named Water. All wastewater infrastructure to be in one layer named Sewer, etc.

ROUTE SURVEYS - AUTOCAD LAYER STATES

The Department of Utility Services receives AutoCad, electronic format files, of Route Surveys from consultants that are used in design of water and wastewater projects. Generally, the larger the survey file, the more cumbersome the design task becomes. IRCDUS has received AutoCad files with an excessive number of drawing layers where many of the layers are unused. Staff is asked to delete the unused layers and slowly sift through the layers to "clean the drawing".

At one time the County received (5) five copies of all surveys and As-built record drawings. For paper copies, the number of AutoCad layers used was irrelevant. As we transition even more toward using electronic format drawings for design and base mapping, style and format becomes much more important. Drawing M-17, Route Survey Requirements, is specific to the survey requirements. When the County request Surveys from a Consultant, the Consultants shall use drawing M-17 as a guide and deliver route surveys to IRCDUS utilizing only layers specific to that survey

SPECIFICATION SECTION – REVISIONS

The following Sections have been revised.

Section 4 – Gravity Sanitary Sewers Ductile Iron (DIP) and Fittings

Section 6 – Wastewater Force Mains Ductile Iron (DIP) and Fittings

Section 8 – Reclaimed Water Mains Ductile Iron (DIP) and Fittings

Section 11 – Miscellaneous Valves and Appurtenances

Section 13 – Testing and Inspection of Water Mains; Reclaimed Water Mains, Wastewater Force Mains and Gravity Sewer Lines

Section 14 – General Design and Construction Data

Section 18 - Approved Manufacturers' Product List