

TWA Construction Review Checklist

General / Miscellaneous

- ☐ Two sets of plans (Forward one set to Gary Basham for Review)
- ☐ Cover sheet with project name, location, vicinity map, Parcel ID, and engineer & owner contact info
- ☐ Site survey with existing utilities
- ☐ Demolition plan with affected utilities
- ☐ Landscape & Irrigation plan (Forward to Water Conservation Coordinator for Review & Approval)
- ☐ New wells for irrigation are not allowed under any circumstance as a condition of TWA service
- ☐ Interior plumbing plan for projects with the potential for hazardous waste
- ☐ Current TWA Standard Construction Notes
- ☐ Current TWA Standard Details
- ☐ Email addresses for the owner/developer, general contractor, utility contractor and project engineer
- ☐ Residential Projects are required to meet Florida Water Star. Add a comment to plans to have the developer contact the Water Conservation Coordinator to discuss.
- ☐ After plan acceptance provide inspectors 2 sets of plans and keep 1 set on file.

Existing Utilities

- ☐ Proposed storm, sanitary, water, reuse, irrigation, cable, telephone, or gas lines in conflict with existing utilities
 - ☐ Storm, sanitary, reuse & water crossings and parallel runs should adhere to FDEP crossing standards as described in Florida Administrative Code 62-555.314 (Standard Detail TWA-16)
 - ☐ Gas crossings should utilize PVC pipe or PE wrapped D.I. pipe
 - ☐ Crossings should be measured from outside edges of pipe
 - ☐ Pipe encasement not permitted for conflict crossings
- ☐ Proposed landscaping in conflict with existing utilities: 5' minimum horizontal separation required for trees
- ☐ Proposed wall or fence in conflict with existing utilities: Unavoidable crossings require casing as defined by Standard Detail TWA-21
- ☐ Proposed storm or sanitary structure in conflict with existing utilities: 6' minimum horizontal separation required, more dependent on depth of structure and existing utility
- ☐ Proposed pole (sign, traffic, light, power) in conflict with existing utilities: 5' minimum horizontal separation required, more dependent on depth of existing utility
- ☐ New roadway, turning lane, or other paved surface in conflict with existing utilities: 3' minimum depth of cover from bottom of road base
- ☐ Valve cans and sanitary manholes within the limits of construction shall be brought to grade via TWA approved methods (Standard Details TWA-07 & TWA-17)
- ☐ Proposed building in conflict with existing utility: 10' minimum separation required, more dependent on depth of existing utility
- ☐ Existing utilities slated for relocation
 - ☐ Work shall be done at night
 - ☐ 48 hours advance notice to affected customers
 - ☐ Existing pipe shall be restrained per Standard Detail TWA-20

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Sanitary Sewer – Gravity Sewer

- ☐ Connection to sanitary sewer is not permitted without connection to water
- ☐ Proposed connections to existing manholes
 - ☐ Existing rim & invert elevations
 - ☐ Core drill
 - ☐ Laterals shall match crown elevation of existing discharge invert
 - ☐ Drop connections permitted only when unavoidable conflicts exist
 - ☐ Drop connections require a minimum 5' (60") diameter manhole
- ☐ Proposed connections to existing mains
 - ☐ Proposed line must be 6" lateral, no 8" connections directly to mains are permitted
 - ☐ Where possible, laterals should connect directly to manholes
 - ☐ Wet tap or cut in wye with Fernco adapters
 - ☐ Connection to VCP must use ridged adapters for PVC transition
- ☐ Connections within a proposed system shall comply with Standard Details TWA-05, TWA-07, & TWA-08
 - ☐ Where possible, laterals should connect directly to manholes
 - ☐ Drop connections permitted only when unavoidable conflicts exist
 - ☐ Drop connections require a minimum 5' (60") diameter manhole
- ☐ Minimum pipe slope
 - ☐ Measure slopes of pipe and ensure consistency throughout plans
 - ☐ 1.0% for sanitary laterals (6")
 - ☐ 0.7% for sanitary mains (8" or more)
 - ☐ Minimum slope can be altered as long as the following criteria are met

<u>Peak Flow (GPD)</u>	<u>Minimum Slope</u>	<u>Minimum Slope w/ Site Constraints</u>
0 – 82,800 (0-75 SFH)	0.70%	0.55%
82,801 – 93,840 (76-85)	0.65%	0.55%
93,841 – 110,400 (86-100)	0.55%	0.50%
Over 110,401 (Over 100)	0.40%	0.40%

- ☐ Measure lengths of pipe and ensure consistency throughout plans
 - ☐ Mains not to exceed 400' between manholes
 - ☐ TWA owned laterals not to exceed 100'
- ☐ Rim & invert elevations are consistent throughout plans
- ☐ All lots & buildings are provided with sanitary sewer services
- ☐ Proposed storm, sanitary, water, reuse, irrigation, cable, telephone, or gas lines in conflict with proposed sanitary sewer
 - ☐ Storm, sanitary, reuse & water crossings and parallel runs should adhere to FDEP crossing standards as described in Florida Administrative Code 62-555.314 (Standard Detail TWA-16)
 - ☐ Gas crossings should utilize PVC pipe or PE wrapped D.I. pipe
 - ☐ Crossings should be measured from outside edges of pipe
 - ☐ Pipe encasement not permitted for conflict crossings
- ☐ Proposed sanitary sewer shall be located within an existing or proposed utility easement or right-of-way
- ☐ Proposed building in conflict with proposed sanitary sewer: 10' minimum separation required, more dependent on depth of proposed sanitary sewer
- ☐ Proposed landscaping in conflict with proposed sanitary sewer: 5' minimum horizontal separation required for trees
- ☐ Proposed wall or fence in conflict with proposed sanitary sewer: Unavoidable crossings require casing as defined by Standard Detail TWA-21
- ☐ Proposed storm or sanitary structure in conflict with proposed sanitary sewer: 6' minimum horizontal separation required, more dependent on depth of proposed structure and sanitary sewer
- ☐ Proposed pole (sign, traffic, light, power) in conflict with proposed sanitary sewer: 5' minimum horizontal separation required, more dependent on depth of proposed sanitary sewer
- ☐ Proposed sanitary sewer mains and laterals shall not be permitted under dumpster or air conditioning pads
- ☐ TWA owned sanitary sewer mains shall be 8" minimum
- ☐ TWA owned sanitary sewer laterals shall be 6" minimum

- ☐ Hazardous waste review
 - ☐ Sizing calculations for the structure
 - ☐ Architectural floor & plumbing plans
 - ☐ 750 Gallon minimum, 1,250 Gallon maximum for the largest chamber for grease and oil interceptors
 - ☐ Silver recovery shop drawings
 - ☐ Sand/mud traps upstream of oil interceptor where applicable
- ☐ Dumpster drains connecting to sanitary sewer shall require a minimum 1,250 gallon grease interceptor and locking drain cap
- ☐ Sanitary sewer lateral cleanouts shall be provided at the edge of property lines, easements, or rights-of-way
- ☐ Sanitary sewer stub-outs shall terminate with a manhole at least 4' beyond the edge of curb or pavement
- ☐ All manholes within 400 linear feet of a drop connection or within 400 linear feet of a lift station junction manhole shall be coated with a TWA approved liner
 - ☐ New manholes require cast-in-place HDPE
 - ☐ Existing manholes can use spray-in liner
- ☐ Pool leachate drains shall not connect to the sanitary sewer

Sanitary Sewer – Force Mains

- ☐ Connection to sanitary sewer is not permitted without connection to water
- ☐ Minimum TWA owned force main size is 4"
- ☐ Minimum privately owned force main size is 2" at the connection point to the TWA system
- ☐ 90° bends are not permitted on the force main
- ☐ Proposed connections to existing manholes
 - ☐ Existing rim & invert elevations
 - ☐ 5' minimum diameter manhole, larger dependent on piping size and quantity of drop connections
 - ☐ Connection shall be via core drill
 - ☐ Connection manhole and all manholes upstream and downstream within 400' of connection manhole shall be coated with an approved liner system
- ☐ Proposed connections to existing mains
 - ☐ Connection shall be via wet tap
 - ☐ Size on Size taps and taps to asbestos cement pipe shall utilize a full body ductile iron mechanical joint tapping sleeve and valve.
- ☐ Proposed force main roadway crossing
 - ☐ Gate valves shall be provided on each side of the crossing
 - ☐ Open cut shall adhere to Standard Detail TWA-15 and any applicable regulatory agency standards
 - ☐ Jack and bore shall adhere to Standard Detail TWA-21
 - ☐ Pipe casing material and thickness
 - ☐ Carrier pipe shall be restrained C-900 PVC
 - ☐ Directional boring
 - ☐ DR17 HDPE DIP size or CertainTeed C-900 PVC or approved equivalent
 - ☐ Interior pipe diameter of HDPE shall match interior pipe diameter of connecting pipe
- ☐ Proposed storm, sanitary, water, reuse, irrigation, cable, telephone, or gas lines in conflict with proposed force main
 - ☐ Storm, sanitary, reuse & water crossings and parallel runs should adhere to FDEP crossing standards as described in Florida Administrative Code 62-555.314 (Standard Detail TWA-16)
 - ☐ Gas crossings should utilize PVC pipe or PE wrapped D.I. pipe
 - ☐ Crossings should be measured from outside edges of pipe
 - ☐ Pipe encasement not permitted for conflict crossings
- ☐ Gate valves are required at a maximum distance of 2,000' along roadways
- ☐ Proposed force main shall be located within an existing or proposed utility easement or right-of-way
- ☐ Proposed building in conflict with proposed force main: 10' minimum horizontal separation required, more dependent on depth of proposed force main
- ☐ Proposed landscaping in conflict with proposed force main: 5' minimum horizontal separation required for trees
- ☐ Proposed wall or fence in conflict with proposed force main: Unavoidable crossings require casing as defined by Standard Detail TWA-21
- ☐ Proposed storm or sanitary structure in conflict with proposed force main: 6' minimum horizontal separation required, more dependent on depth of proposed structure and force main
- ☐ Proposed pole (sign, traffic, light, power) in conflict with proposed force main: 5' minimum horizontal separation required, more dependent on depth of proposed force main
- ☐ Proposed force mains shall not be permitted under dumpster or air conditioning pads
- ☐ Force mains 16" or larger
 - ☐ Adequate cover shall be provided for proper gate valve operation
 - ☐ Side actuated valves shall provide adequate horizontal separation
- ☐ Lift station/force main calculations
 - ☐ Manufacturers pump curve with plotted system curve
 - ☐ System curve calculations
 - ☐ Pump cycle times, average and peak
 - ☐ Buoyancy calculations
 - ☐ Consistency in pump selection, size, wet well, etc. with plans.
 - ☐ A "C" factor of 100
 - ☐ Flow demands consistent with plans and TWA Standards

Sanitary Sewer – TWA Lift Stations

- ☐ Design of lift station yard shall adhere to Standard Detail TWA-30
 - ☐ Easement width equal to 2x depth of lift station plus wet well diameter
 - ☐ Single gravity connection to wet well, multiple connections shall be through the junction manhole
 - ☐ Gravity connection to wet well shall be 180° to the outlet piping
 - ☐ Pipe between junction manhole and wet well shall be DR-11 HDPE
 - ☐ 2" water service with 2" RPZ backflow
- ☐ Design of lift station wet well shall adhere to Standard Detail TWA-30
 - ☐ Minimum 8' diameter
 - ☐ Influent invert and bottom of wet well shall have 4.5' minimum separation
 - ☐ Alarm on elevation shall be equal to or less than influent invert
 - ☐ Top elevation shall be at least 6" above the surrounding grade and shall be above the 100 year flood plane
- ☐ Elevations included on the LS detail elevation table
 - ☐ Top
 - ☐ Bottom of wet well
 - ☐ Pumps off
 - ☐ Lead pump on
 - ☐ Lag pump on
 - ☐ Alarm on
 - ☐ Influent invert
- ☐ Pumps shall be 5 hp minimum and manufactured by Flygt, ABS, or Wilo-EMU
- ☐ Stations within 50 feet of a habitable structure or with a pumping capacity exceeding 1,500 GPM shall require an odor control unit
- ☐ Cross section of driveway complying with Section 46.13 of TWA Standards & Specs
- ☐ Lift station/force main calculations
 - ☐ Manufacturers pump curve with plotted system curve
 - ☐ System curve calculations
 - ☐ Pump cycle times, average and peak
 - ☐ Buoyancy calculations
 - ☐ Consistency in pump selection, size, wet well, etc. with plans.
 - ☐ A "C" factor of 100
 - ☐ Flow demands consistent with plans and TWA Standards

Sanitary Sewer – Private Lift Stations

- ☐ Top elevation of wet well shall be at least 6" above the surrounding grade and shall be above the 100 year flood plane
- ☐ Service contract with manufacturer or approved repair/maintenance facility
- ☐ Ensure the lift station is equipped accordingly
 - ☐ Emergency pump-out
 - ☐ Audible alarm
 - ☐ Visible sign with responsible party and owner contact information
 - ☐ Auto-dialer programmed with the responsible party's 24-hr/day phone number
- ☐ Provide a shut-off valve at the property line, utility easement line or right-of-way
- ☐ Private lift stations shall only serve a single property owner; multiple owner sanitary sewer connections at the lift station are not permitted.
- ☐ Private lift stations will not be permitted for residential projects, including single family subdivisions, multi-family complexes, timeshares, short term rental communities, or condominiums.

Reuse Mains

- ☐ All residential and large commercial projects are required to install a reuse system regardless of reuse availability
- ☐ Other alternative water supplies shall be investigated by the owner as a primary source of irrigation water, reuse should be a secondary option, and potable water third
- ☐ All reuse services shall be metered
- ☐ Proposed connections to existing mains
 - ☐ Connection shall be via wet tap
 - ☐ Size on Size taps and taps to asbestos cement pipe shall utilize a full body ductile iron mechanical joint tapping sleeve and valve.
- ☐ Reuse services smaller than 2"
 - ☐ Double strap tapping saddle
 - ☐ Corporation stop
 - ☐ Purple PE tubing
 - ☐ No fittings allowed between corp. stop and curb stop
- ☐ Proposed reuse main roadway crossing
 - ☐ Gate valves shall be provided on each side of the crossing
 - ☐ Open cut shall adhere to Standard Detail TWA-15 and any applicable regulatory agency standards
 - ☐ Jack and bore shall adhere to Standard Detail TWA-21
 - ☐ Pipe casing material and thickness
 - ☐ Carrier pipe shall be restrained DI
 - ☐ Directional boring
 - ☐ DR11 HDPE DIP size or CertainTeed C-900 PVC or approved equivalent
 - ☐ Interior pipe diameter of HDPE shall match interior pipe diameter of connecting pipe
- ☐ Proposed storm, sanitary, water, reuse, irrigation, cable, telephone, or gas lines in conflict with proposed reuse main
 - ☐ Storm, sanitary, reuse & water crossings and parallel runs should adhere to FDEP crossing standards as described in Florida Administrative Code 62-555.314 (Standard Detail TWA-16)
 - ☐ Gas crossings should utilize PVC pipe or PE wrapped D.I. pipe
 - ☐ Crossings should be measured from outside edges of pipe
 - ☐ Pipe encasement not permitted for conflict crossings
- ☐ Gate valves are required at a maximum distance of 500' in subdivisions and residential and commercial complexes
- ☐ Gate valves are required at a maximum distance of 1,000' along roadways
- ☐ Proposed reuse main shall be located within an existing or proposed utility easement or right-of-way
- ☐ Proposed building in conflict with proposed reuse main: 10' minimum horizontal separation required, more dependent on depth of proposed reuse main
- ☐ Proposed landscaping in conflict with proposed reuse main: 5' minimum horizontal separation required for trees
- ☐ Proposed wall or fence in conflict with proposed reuse main: Unavoidable crossings require casing as defined by Standard Detail TWA-21
- ☐ Proposed storm or sanitary structure in conflict with proposed reuse main: 6' minimum horizontal separation required, more dependent on depth of proposed structure and reuse main
- ☐ Proposed pole (sign, traffic, light, power) in conflict with proposed reuse main: 5' minimum horizontal separation required, more dependent on depth of proposed reuse main
- ☐ Proposed reuse mains shall not be permitted under dumpster or air conditioning pads
- ☐ Reuse mains 16" or larger
 - ☐ Adequate cover shall be provided for proper gate valve operation
 - ☐ Side actuated valves shall provide adequate horizontal separation
- ☐ Valves shall be provided at all crosses and tees where the reuse system is looped
- ☐ Valves are required on the downstream side of crosses and tees where the reuse system is not looped
- ☐ Minimum TWA owned reuse main size is 4"
- ☐ All lots & buildings are provided with reuse services
- ☐ Backflow prevention is not required unless chemical injection is used or an alternate water source is connected to the same system

- ☐ Reuse stub outs
 - ☐ Terminate with a gate valve, cap or plug, and 2" blow-off assembly
 - ☐ Terminate at least 4' from the edge of curb or pavement
- ☐ Cul-de-sacs require a 2" loop that adheres to Standard Detail TWA-04, hydro-guard not required
- ☐ Meter flow range calculations to justify the size requested
- ☐ All single family residential developments require an un-billed master meter at the entrance(s) for reuse consumption tracking
- ☐ Hydraulic calculations for subdivisions, large commercial, and multi-family projects

Water Mains

- ☐ All water services shall be metered
- ☐ Individual tenants, spaces, and units shall be individually metered, master meters are permitted on timeshares, short-term rentals, and multi-family buildings with 4 stories or more
- ☐ One or two meters shall be designed per Standard Details TWA-01 and TWA-01.1
- ☐ Three or more meters shall utilize CDR meter vaults per Standard Details TWA-03.0, TWA-03.1, and TWA-03.2
- ☐ Proposed connections to existing mains
 - ☐ Connection shall be via wet tap
 - ☐ Size on Size taps and taps to asbestos cement pipe shall utilize a full body ductile iron mechanical joint tapping sleeve and valve.
- ☐ Water services 2" and smaller
 - ☐ Double strap tapping saddle
 - ☐ Corporation stop
 - ☐ Blue PE tubing
 - ☐ No fittings allowed between corp. stop and curb stop
- ☐ Proposed water main roadway crossing
 - ☐ Gate valves shall be provided on each side of the crossing
 - ☐ Open cut shall adhere to Standard Detail TWA-15 and any applicable regulatory agency standards
 - ☐ Jack and bore shall adhere to Standard Detail TWA-21
 - ☐ Pipe casing material and thickness
 - ☐ Carrier pipe shall be restrained DI
 - ☐ Directional boring
 - ☐ DR11 HDPE DIP size or CertainTeed C-900 PVC or approved equivalent
 - ☐ Interior pipe diameter of HDPE shall match interior pipe diameter of connecting pipe
- ☐ Proposed storm, sanitary, water, reuse, irrigation, cable, telephone, or gas lines in conflict with proposed water main
 - ☐ Storm, sanitary, reuse & water crossings and parallel runs should adhere to FDEP crossing standards as described in Florida Administrative Code 62-555.314 (Standard Detail TWA-16)
 - ☐ Gas crossings should utilize PVC pipe or PE wrapped D.I. pipe
 - ☐ Crossings should be measured from outside edges of pipe
 - ☐ Pipe encasement not permitted for conflict crossings
- ☐ Gate valves are required at a maximum distance of 500' in subdivisions and residential and commercial complexes
- ☐ Gate valves are required at a maximum distance of 1,000' along roadways
- ☐ Proposed water main shall be located within an existing or proposed utility easement or right-of-way
- ☐ Proposed building in conflict with proposed water main: 10' minimum horizontal separation required, more dependent on depth of proposed water main
- ☐ Proposed landscaping in conflict with proposed water main: 5' minimum horizontal separation required for trees
- ☐ Proposed wall or fence in conflict with proposed water main: Unavoidable crossings require casing as defined by Standard Detail TWA-21
- ☐ Proposed storm or sanitary structure in conflict with proposed water main: 6' minimum horizontal separation required, more dependent on depth of proposed structure and water main
- ☐ Proposed pole (sign, traffic, light, power) in conflict with proposed water main: 5' minimum horizontal separation required, more dependent on depth of proposed water main
- ☐ Proposed water mains shall not be permitted under dumpster or air conditioning pads
- ☐ Water mains 16" or larger
 - ☐ Adequate cover shall be provided for proper gate valve operation
 - ☐ Side actuated valves shall provide adequate horizontal separation
- ☐ Valves shall be provided at all crosses and tees where the water system is looped
- ☐ Valves are required on the downstream side of crosses and tees where the water system is not looped
- ☐ Dedicated fire hydrant services lines require a valve only at the tee/tap
- ☐ Fire Department Connections (FDC) shall be located downstream of the fire line backflow device
- ☐ Minimum TWA owned water main size is 4"
- ☐ All lots & buildings are provided with water services

- ☐ Backflow prevention
 - ☐ All water services except residential services 2" and smaller
 - ☐ Sites with existing wells to remain in service
 - ☐ Commercial sites with unknown uses require RPZ devices minimum
 - ☐ All potable irrigation services require double check devices minimum
 - ☐ Dedicated fire lines require DCDA devices minimum
- ☐ Water stub outs / Dead ends
 - ☐ Terminate with a gate valve, cap or plug, and 2" blow-off assembly
 - ☐ Terminate at least 4' from the edge of curb or pavement
 - ☐ Dead ends should be avoided where possible
 - ☐ Dead ends require hydro-guard devices
- ☐ Cul-de-sacs require a 2" loop that adheres to Standard Detail TWA-04
- ☐ Meter flow range calculations to justify the size requested
- ☐ Hydraulic calculations for large subdivisions, large commercial, and multi-family projects
 - ☐ Max day + fire flow meeting 20 PSI minimum
 - ☐ Peak day meeting 40 PSI minimum
 - ☐ Fire flow test report or confirmed minimum starting pressure of 45 PSI
 - ☐ ISO fire flow calculations
 - ☐ A "C" factor of 120
 - ☐ Consistency in pipe size and layout with construction plans