

## **6.0 STANDARDS AND PROCEDURES FOR CONSTRUCTION AND DEVELOPMENT OF WATER, WASTEWATER, AND DRAINAGE FACILITIES**

### **6.1 Purpose**

The Board of Directors has determined that it is in the best interest of the District and its residents for all Development plans including Subdivisions and re-Subdivisions to be reviewed and approved to ensure the integrity of systems and to plan for future needs. These procedures provide for uniform and standard criteria for project Development and construction.

### **6.2 General Construction and Connection Procedures**

The design, construction, and maintenance of all water and wastewater facility Developments within the District shall comply with all requirements of the City of Austin or the City of Lakeway, as applicable, TCEQ, and Travis County standard specifications as modified by the District.

Alterations, modifications, or expansion of existing facilities shall only be done upon approval from the Board of Directors. Step by step procedures for construction Development and approval are outlined in this policy. If construction has not started on an approved set of plans within six (6) months, and changes have been made to construction standards or standard details, the Developer will be required to follow the new standards.

The District General Manager, with advice from the District Engineer, shall have the authorization to approve construction and easement variances in the best interest of the District.

#### **6.2.1 Feasibility Studies**

- a. Upon submission of required information and payment by a Developer of the fees specified, the District, in its discretion, may require a feasibility study for any tract of land within the District's Service Area to determine if there exists sufficient capacity in the District's System to serve a proposed Subdivision or Development, or if a need exists for an expansion to capacity, production, storage, or general purpose transmission facilities, or a combination to serve the proposed Subdivision, or Development. Each feasibility study shall include the following:
  1. A map or plat showing the proposed Subdivision, its proximity to existing general purpose transmission facilities, and those improvements necessary to connect such facilities. The map or plat must show the legal description and the dimensions of the lots and/or tracts that result from the Subdivision of the property. The map or plat must be signed and sealed by a licensed surveyor or registered professional engineer.
  2. The intended land use of the Subdivision or Development, including detailed information concerning the types of land uses proposed.

3. The ultimate projected water demand of the Subdivision or Development, anticipated water demands for each type of land use, and a projected growth schedule tied to the demand for water.
4. A proposed calendar of events, including design, plat approval, construction phasing and initial occupancy, and the approximate date upon which service from the District will first be needed.

Because of factors such as the size of the Subdivision or Development or unique topographic features, after initial review of the request, the District Engineer may determine that additional information will facilitate evaluating the proposed project. The Developer shall submit such additional information on a case by case basis.

- b. The following fee schedule shall be applied depending on the size and complexity of the project:

1 - 2.5 LUE	\$ 30.00 - \$100.00
3 - 5 LUEs	\$ 300.00
6 - 20 LUEs	\$ 700.00
Above 20 LUEs	\$1,000.00

This fee shall be paid upon invoice from the District, and will be used to compensate the District for expenses incurred in reviewing such requests, including, but not limited to engineering, legal, and plan review research. Any costs in excess of the original fee shall also be paid by the Developer.

- c. The request for a feasibility study will be submitted by the General Manager to the District Engineer for review and evaluation. Under normal circumstances and where sufficient information is submitted with the request the District Engineer will complete the feasibility study and provide a report within thirty (30) days. The report produced will include preliminary engineering information including size of line required and capacities.
- d. For large projects, or out of District projects, the request for feasibility study and the engineer's report shall be submitted to the Board of Directors for its consideration. If the Board of Directors determines that providing service to the proposed Subdivision appears feasible, the Board shall adopt a resolution indicating the District's ability to provide service to the Subdivision and setting forth any special terms and conditions to such service, and the General Manager shall provide the Developer a written estimate of the cost and charges for providing service to the proposed Subdivision, and will set forth any special terms and conditions to such service. Following review and approval by the General Manager or Board of Directors, of a Subdivision or re-Subdivision plan, the District shall issue a letter to the Developer confirming the availability of water and/or wastewater services to the property. Service availability confirmations issued by the District shall be

subject to all the terms and conditions of the District's policies and procedures including payment of any Impact Fees or service fees due. Such confirmation shall not constitute a commitment or guarantee a specific quality or level of utility service.

### **6.2.2 General Facilities Construction**

The following guidelines apply to all facilities construction:

- a. Any Person desiring to make a connection to or receive service from the District Systems shall comply with the applicable sections of these Rules.
- b. It shall be the responsibility of each user of the District Systems to maintain the water and wastewater lines leading from the points of connection to the District Systems to the building or premises served. Wastewater facilities shall be maintained so as to prevent infiltration of water to or exfiltration of wastewater from the wastewater line. Gutters, drains, downspouts, or other sources of rain and storm water shall not be connected to the plumbing or wastewater line of the building or premises served.
- c. In order to ensure proper maintenance, the District requires that the following remain public and be maintained by District staff: (i) water mains located in a street and, (ii) wastewater collection facilities, with the exception of commercial grinder stations. Developer(s) installing waterlines and wastewater facilities will be required to convey the facilities to the District for operation and maintenance. If roads within a subdivision are to be private, developer(s) will be required to provide easements to the District for access to the facilities. Owner(s) of private commercial grinder stations are responsible for proper maintenance of their station by a maintenance provider with a minimum of a TCEQ D Operator license, and owner(s) shall grant permission to the District to engage in direct communications with the private maintenance provider regarding the operation and maintenance of the station. Owner(s) will be required to adhere to a specified maintenance schedule for the grinder station, as provided by the District and amended from time to time.
- d. The Person proposing to actually make a connection shall be responsible for determining the location of all utilities and services in the work area and shall be responsible for the immediate repair of any damage to the utilities, services, and facilities that may result from the work. The utilities, facilities, and services to which this provision applies include, but are not limited to, street lights, electric lines, boxes and transformers, natural gas facilities, television cable facilities, water lines, wastewater lines, telephone facilities, curbs and concrete flat work, and irrigation systems.
- e. Under no circumstances should a monument sign, or permanent structure be placed over a waterline or force main.

- f. After a connection is made to the District Systems pursuant to authorization granted by the District Representative, and before the connecting line and connections are covered or enclosed with dirt or any other material, the District Representative shall inspect the lines to ensure compliance with requirements. The contractor performing the work shall be responsible for covering or enclosing the connecting line and connections with proper materials authorized and approved by the District Representative.
- g. The Person or company making a tap or installing a service line shall backfill any cuts made in paved streets. The cuts shall be filled with sand, road base, and cement materials which shall be compacted to a standard acceptable density as established by the controlling authority or the District Representative and shall be covered with paving material in a manner acceptable to the District and the County, if applicable.
- h. Water meters shall be furnished by the District upon payment of applicable fees and charges and shall remain the property of the District.
- i. Prior to installing underground cables or facilities in the area of the District's water and wastewater lines, representatives of all utility companies shall be required to meet with the District Representative to file construction plans and schedules with the District, and to review the engineering plans illustrating the location of the District's lines. No parallel utility lines shall be located within five (5) feet either side of a water main or service line. Utility crossings shall maintain at least a two (2) foot separation from water lines. **ELECTRIC LINES WILL NOT BE PLACED IN THE SAME TRENCH WITH WATER LINES UNDER ANY CIRCUMSTANCES.**
- j. All dry and gas utilities must maintain a five (5) foot horizontal separation from all wet utilities.
- k. All gas lines must stay two (2) feet below waterlines and services at all times.
- l. No valves will be opened which connect new services to the existing system without prior District approval and a **District Representative present**. Sewer Lines will be flushed and water lines will be properly disinfected and tested prior to connecting to the existing system.
- m. All water lines which are dead-ended shall have fire hydrants or approved 2" blow off valves installed for flushing.
- n. All water lines regardless of material will be marked with 12" detectable tape for ease of location. The tape should be no more than two feet deep.
- o. All valves will be installed or have extensions or risers to within one (1) foot of finished grade.

- p. All fire hydrants will have isolation valves and National Standard or City of Austin standard threads installed depending on the project location. Fire hydrant spacing will be 500 feet maximum with six (6) inch minimum pipe size. Fire hydrants will be painted silver with the caps color-coded in accordance with flow test using National Fire Code standards.
- q. Buried water lines shall have a maximum of four (4) feet of cover and be installed above storm sewer lines. Every effort shall be made to keep sewer force mains within four (4) feet and gravity mains within ten (10) feet of grade. All gravity mains shall be green color only.
- r. Water lines which are stubbed out shall have a valve and a 20-foot section installed for future use. **All valves and fittings shall be mega lugged or restrained.**
- s. If any water or wastewater main or service line is intended to be constructed under a wall or other structure which would render the line inaccessible for repair, that line shall be sleeved for the entire length of the construction. The sleeve shall allow for the removal of the length of line under the construction.
- t. All gravity mains shall have a grade no less than 0.50% and no more than 8.5% without prior District approval.

### **6.2.3 Construction Inspections**

The District shall inspect the installation of all water mains, gravity wastewater trunk lines, lift stations and/or force mains, which are connected to the District Systems. District inspectors shall make periodic checks during all phases of construction to see that the contractor, Developer, or Applicant is complying with the construction standards and following the engineering plans approved by the District's engineer. Any deviation or revision to the approved engineering plans shall be made in writing by the Developer or Applicant's engineer and submitted to the District staff for approval prior to the actual field change. These inspections do not relieve the engineer of record who designed the water or wastewater facilities of any design or other professional responsibilities that obligate the engineer to design the facilities in accordance with generally accepted engineering practices, the rules and regulations of the TCEQ, and the design standards of the District.

### **6.2.4 Inspection Procedures**

- a. All Developers must agree to allow entry by the District Representative on the land or premises for the purpose of inspection of conditions on the premises during the approval stage and during Development and construction.
- b. Each Developer shall provide the District with the name and current street address of one designated agent to which any notice required shall be given.

- c. Each Developer shall notify the District Engineer and District Manager and, give notice at least 48 hours prior to:
  - 1. conducting a pre-construction conference;
  - 2. placing erosion controls; or
  - 3. making any connection to the District's systems.
  
- d. The District inspector shall inspect and approve of all workmanship and materials utilized or involved in the construction of any and all water/wastewater and drainage facility improvements. Workmanship and materials shall comply with all applicable District requirements. The District's inspector shall inspect and approve (i) all materials used in the work, (ii) the completed trench for each section of work, (iii) all pipe and tubing after underbedding installation, over bedding, and laying of detectable tape, (iv) each and every fitting, fixture, and appurtenance after installation and blocking, if required, but before bedding or backfill is placed, (v) all required tests, (vi) a final inspection, and (vii) any other inspections deemed necessary by the inspector.

The District requires that all Sewer Lines connected to the District Systems be videotaped for internal inspection. Compaction and density tests of land surrounding water and Sewer Lines are required every 500 feet at 98%. Land surrounding valve boxes and wet wells will require four 98% compaction tests. Mandrill tests for deflection at 5% are required. All manholes must be vacuum tested and coated.

It shall be the contractor's responsibility to schedule and obtain all required inspections.

#### **6.2.5 Preliminary Inspections**

In unusual circumstances, the District may grant a preliminary wastewater inspection. This preliminary inspection is only for authorization to discharge plumbing test water into unfinished wastewater facilities or system and does not authorize the Applicant, Developer, or contractor to discharge raw wastewater into the facilities or system. It should be noted that it shall be the responsibility of the Applicant, Developer, or contractor to pump dry and dispose of effluent in an acceptable manner prior to requesting a final inspection. At no time will the District be obligated to accept wastewater for treatment prior to final inspection.

#### **6.2.6 Final Inspections**

Prior to the discharging of any wastewater effluent into the District's wastewater collection system, or connecting to the District's water system, the Developer or Applicant shall comply with all the construction criteria and standards of the District and obtain final inspection and acceptance.

#### **6.2.7 Testing**

Pressure testing of wastewater lines shall be the responsibility of the contractor and he shall notify the District's inspectors of his scheduled time for such tests so that the tests can be witnessed.

Soil analyses for clay/sand content to determine acceptability of site soil for bedding material shall be the responsibility of the Developer, Applicant, or contractor, and the District inspector shall approve all material to be used for bedding.

#### **6.2.8 Change Orders**

All change orders for work on water, wastewater, and drainage facilities shall be presented to and approved by the District Engineer, General Manager, and Board of Directors. Every effort shall be made by the project engineer to obtain such approval prior to initiation of the work under any such change order, however, should it be determined by the General Manager that the work under a change order must be done prior to a regular meeting, the General Manager may approve the work. If the work is funded by the District, payment shall not be made unless the change order is approved by the Board. Any costs for work under a change order increasing project costs which have not been approved shall not be included in the final costs of the project. Field changes and shop drawings shall be approved by the General Manager and the District Engineer, prior to initiation of any work.

#### **6.2.9 Water Service For Construction**

Water service may be provided to the contractor through a District-approved water facility or the water facility under construction in accordance with terms and conditions deemed appropriate and necessary by the General Manager. The District's inspector shall require metering, if possible, or make estimates of the amount of water used for the work including filling, flushing, and testing if such amounts are not metered. The Contractor responsible for use of such water shall pay the District for such water at the District's normal residential water rate.

#### **6.2.10 Acceptance of Facilities for Operation and Maintenance**

- a. All facilities constructed as part of the District Systems shall be constructed in a good and workmanlike manner and all material used in such construction shall be free from defects and fit for its intended purpose. Upon completion of construction, the District shall be provided with:
  1. Final "as built" drawings of the project's water and wastewater facilities approved and certified by the project engineer.
  2. Certificate of completion from the engineer who designed the facilities certifying that the construction of the facilities has been completed in accordance with the plans and specifications approved by the District; that the required "as-built" drawings have been furnished to the District, and that the facilities are clear of construction material, dirt, and debris.
  3. Contractor's affidavit of bills paid.

4. Electronic Plat map of the project on a USB drive in DXF format showing property boundaries, location of utility lines, valves, fire hydrants, and survey registration points.
5. Maintenance bond between the District and the contractor's bonding company to make required repairs within the first year. This bond shall be for 100% of the costs of installation.
6. Utility conveyance agreement from owner to the District.
7. Any required easements.

No facilities shall be accepted for operation or maintenance by the District until they have been cleared of all foreign materials, dirt, and debris generated by the construction, and the cleanup has been approved by the District Manager.

- b. As soon as possible after approval of the facilities, the District shall accept the system and drainage facilities through conveyance and assignment of such facilities to the District.

#### **6.2.11 Easements**

Prior to acceptance of water, wastewater, or drainage facilities or prior to construction of any drainage ways through land without right-of-way, an appropriate easement must be filed.

No water or wastewater line will be accepted by the District for operation and maintenance unless it is in a public right-of-way, public utility easement, or in a private easement. All easements shall be a minimum of fifteen (15) feet in width. Conveyance of all easements shall be at no cost to the District and shall be in accordance with the applicable local, state, and federal laws and regulations. An appropriate easement is either a public utility easement or drainage easement completed and executed by the landowner including a complete and acceptable metes and bounds description and location map of the easement by the registered surveyor.

- a. If the District determines that right-of-way easements for facility sites outside the Applicant's property are required, the District may require the Applicant to secure easements or title to facility sites on behalf of the District. All right-of-way easements and property titles shall be researched, validated, and filed by the District at the expense of the Developer or Applicant.
- b. If necessary, the District may acquire any essential land or easements by eminent domain in order to provide service to a project. The Developer or Applicant shall pay all expenses associated with such condemnation proceedings, including legal, engineering, the award of the Commissioners or the Court, and the like.
- c. The District shall require an exclusive dedicated right-of-way for wastewater lines on the Developer or Applicant's property (as required by the size of the planned facilities and as determined by the District) and easements on or title to property



required for other On-site facilities.

- d. Easements and facility sites shall be prepared for the construction of the District's pipeline and facility installations in accordance with the District's requirements and at the expense of the Developer or Applicant.

The District Engineer and General Manager shall approve such easements prior to filing.

The District will file easements, however, the Person or entity constructing the facilities will be responsible for all costs associated with filing.

#### **6.2.12 Release of Easements**

The District will comply with the request of another party to release, or partially release, an existing water line easement, or the District's interests in a platted public utility easement within a Subdivision, after the following requirements have been fulfilled:

- a. A written request submitted by the requesting party to the District office for the specific easement in need of release by completion of the Request of Easement form with all required attachments.
- b. Processing fee of \$30.00 paid to the District at the time the request is submitted.
- c. The release request will be researched by District staff for feasibility.
- d. Approval by the General Manager or Board of Directors for the release of easement.

Once all requirements have been complied with, the request will be researched. If such request is found feasible, a release of easement document will be executed and then filed of record. Once the release has been recorded, a copy will be delivered to the requesting party. If such request is not feasible, the processing fee will be refunded.

### **6.3 Standards for Water Service Lines and Connections**

This section governs the installation of service connections to the District's water systems. These regulations are intended as a supplement to the Uniform Plumbing Code. Where these regulations conflict with the Uniform Plumbing Code, the decision of the District's General Manager, through consultation with the District's engineer, shall resolve the conflict. In addition to compliance with these rules, all connections shall comply with the Rules and Regulations for Public Water Systems promulgated by the Texas Commission on Environmental Quality ("TCEQ Rules"). In the event of a conflict between these Rules and TCEQ Rules, the more stringent rule shall apply.

The following requirements apply to water connection facilities:

- a. Water pipe and fittings shall be of brass, copper, ductile iron, or other approved materials such as high density PE-SDR9 200 psi.

- b. Any service over 2" shall be C-900 DR14 or D.I. 200 psi.
- c. Piping and tubing installed shall be new material.
- d. Valves up to and including two (2) inches in size shall be of brass and other approved material. Sizes over two (2) inches may have cast iron or brass bodies. Each gate valve shall be an AWWA approved full-way type with working parts of non-corrosive material.
- e. Water Service Lines or any underground water pipe shall not be run or laid in the same trench with non-metallic sewer or drainage piping, except as provided below. Water Service Lines and wastewater service lines shall be not less than nine (9) feet apart horizontally and shall be separated by undisturbed or compacted earth. **Refer to TCEQ Rules for detailed specifications.**
- f. Any wastewater line mains (laterals or service lines) which cross a water line shall be placed below the water line, or if this is not possible, then water and wastewater lines shall cross at the center of pipe sections and the wastewater line shall be sleeved and sealed at both ends with approved material. Any variations to this procedure must be approved by the District Field Supervisor.
- g. The Water Service Line may be placed in the same trench with the wastewater service line provided all four of the following conditions are met:
  - 1. The wastewater line is constructed of approved material.
  - 2. The bottom of the Water Service Line at all points shall be at two (2) feet above the top of the wastewater service line.
  - 3. The Water Service Line shall be placed on a solid shelf excavated at one side of the common trench and the two lines shall be separated by a minimum of eighteen (18) inches.
  - 4. The Water Service Line shall be installed with watertight joints tested to line pressure.
- h. A minimum of four (4) feet of type "L" soft copper or approved material pipe shall be installed at the end of the Water Service Line at the connection to the water meter. This connection shall not be made with a female PVC coupling.
- i. Water Service Lines shall be bedded in washed sand or approved gravel bedding to provide six (6) inches of cushion below the line, and twelve (12) inches above. Water meters shall be installed in ground which has an elevation no higher than four (4) feet from finished grade street level. Meters located on high ground or up on steep slopes are not permitted. The Water Service Line shall be bedded properly in the sand before the District inspection is requested, and the sand for the cover shall be on the site at the time. The trench bottom and walls shall be cleared of all protruding rocks which could damage the pipe before the sand bedding is placed. Washed sand shall be filled to the same elevation as the top of the adjacent curb and shall be compacted to a Proctor density of 90%. No rocks or other material over three (3) inches in diameter shall be used for backfill over the sand. Water lines which must be run under walls or other obstructions making them inaccessible for repair will be sleeved to allow removal of damaged sections.
- j. Isolation valves in Water Service Lines will be set no more than twenty-four (24) inches back from the meter angle stops. Isolation valves will not be set under or near sidewalks or curbs where they cannot be located. Isolation valves will be of the ball valve curb stop type.
- k. A District-owned water meter and a District-approved meter box shall be installed for each water connection at the location specified by the District's representative. If the water

meter box subsides or tilts more than one (1) inch within one year after it is installed, the Person or firm who installed it shall be obligated to raise or straighten the meter box to the proper position. The following materials may be used for the installation of the water meters, service lines, and meter boxes in the District:

**WCID 17 STANDARD SERVICE DETAILS**

**USE PART NUMBERS SPECIFIED OR APPROVED EQUIVALENT**

**SINGLE SERVICE**

1 ½” Corp Stop	FB 1100-6G
1 ½ “ Ball Valve	B41-666WG
54 Insert Where Appropriate	
1 ½ “Poly E SDR 9	200 psi
1 ½ “ x 1” Reducer Bushing	
1” Poly E SDR 9	200 psi
1” MIPXC.FA	C84-44G
1” Meter Angle Stop	KV43-444WG
Tap Saddle	317-D5

1 - Single Meter Box – 34 P14 with cast iron lid and ring.

**DOUBLE SERVICE**

Corp Stop	FB-1100-6G	1½ MIP x 1 ½ Compression
1 ½” Poly E SDR 9	200 psi	
Ball Valve	B41-666WG	1½ Compression x 1 ½ FIP
Y-Branch	Y48-246G	2 – 1” Compression x 1 x 1 ½ MIP
1 ½” Poly E SDR 9	200 psi	
Angle Stop	KV43-444WG	1” Compression x Meter Swivel Nut 1”
54 Insert		

2 - Single 34P14 with cast iron lid and ring.

The above list is a typical service list to connect either 5/8", 3/4" or 1” meters. Installation of larger meters shall use the same quality materials above with appropriate increases in size.

1. The District will supply the meter, meter nipple, and meter box unless supplied by a Developer’s contractor. This equipment will become the property of the District upon project completion. The water nipple will be a 3/4" pipe with male threads. The Customers will be responsible for installing a Customer cut off valve, a pressure regulating valve (“PRV”), and a backflow preventer (if required) in that order on the Yard Line. PRV's shall be all brass construction and installed to code.

Pressure regulating valves are required on all new construction. The Customer will submit construction plans to the District so that the Yard Line can be properly sized. Gate valves, PRVs, and backflow preventers shall be protected by boxes for ease of location and access.

- m. Yard Lines shall be at least 12 - 18 inches (12" - 18") deep and constructed of PVC schedule 40 or better. These pipes must be placed at least 10 feet from any septic drain field. Bedding material for the Yard Line shall be sand, sandy loam, or fines from a rock saw. Yard Lines shall be pressurized and inspected before they are covered. Yard Lines will not be permitted to cross property lines unless the properties are to be used as a single lot. The owner will be required to sign restrictive covenants to that effect.
- n. Outside hose bibbs shall be protected by vacuum breakers.
- o. Potable water supply piping, water discharge outlets, backflow prevention devices and similar equipment shall not be located where they could be submerged in any contaminated or polluted liquid substance.
- p. Irrigation systems should be equipped with approved reduced pressure zone ("RPZ") backflow prevention devices in accordance with the District's determination of the system's level of hazard to the public system. Irrigation systems using raw lake water may only be connected to the potable water system if a properly tested RPZ backflow prevention device is installed. Backflow prevention devices must be tested within ten (10) days of installation. The District's water supply shall be protected from swimming pool make up water by means of an approved backflow preventer or adequate air gap.

#### **6.4 Standards for Wastewater Service Lines and Connections**

This section governs the installation of all wastewater connections with the wastewater system serving the District. They are intended as a supplement to the Uniform Plumbing Code. Where these regulations conflict with the Uniform Plumbing Code, the decision of the District's Engineer shall resolve the conflict. In addition to compliance with these rules, all connections shall comply with the Rules and Regulations for Public Water Systems promulgated by the TCEQ Rules. In the event of a conflict between these Rules and TCEQ Rules, the more stringent rule shall apply.

- a. Only one Service Line connection to the District's wastewater collection system is permitted for each residential or commercial building.
- b. Only the following types of pipe and fitting materials are approved for constructing Service Lines. Pipe and fittings in each individual Service Line shall be of identical material:
  - 1. Poly-vinyl Chloride PSM ("PVC") pipe conforming to ASTM Specification D3034 and installed in accordance with ASTM D2321.
  - 2. Ductile-Iron pipe conforming to ANSI A21.51 with rubber gasket joints, conforming to ANSI A21.11 and installed in accordance with the manufacturer's recommendations.
- c. A PVC Schedule 40 or SDR 26 4" x 6" increaser shall be used at the property line for all wastewater connections to increase the size of the service line to tie into the wastewater service stub.
- d. The Service Line shall be installed with watertight joints.

- e. Maximum and minimum grades shall be in compliance with the Uniform Plumbing Code and the City of Austin Plumbing Ordinance.
- f. Service Lines shall be constructed to true alignment and grade. Warped and/or sagging lines will be not permitted. Sewer Service Lines shall be bedded in approved bedding material before the District inspection is requested, and the material for the cover shall be on the site at the time of the inspection. The trench bottom and walls shall be cleared of all protruding rocks which could damage the line before the sand bedding is placed in the trench. Approved material shall be filled to the same elevation as the top of the adjacent curb and shall be compacted to a Proctor density of 98%. No rocks or other material over three inches (3") in diameter shall be used for backfill over the sand.
- g. The building tie-on connection will be made directly to the stub-out from the building plumbing at the foundation on all waste outlets.
- h. Water-tight adapters of a type compatible with the materials being joined will be used at the point of connection of the Sewer Service Line to the building plumbing. No cement or grout materials will be permitted.
- i. Existing service connections, stubs, wyes, or stacks must be utilized for connection of the service line to the District's wastewater collection line unless an exception is approved by the District's representative.
- j. Where a wastewater tap is intended to serve two properties, and there are no existing stub-outs, the first plumber on site shall install connections for both houses stubbing and capping the second connection if it is not to be used immediately. If existing stub-outs are too deep, the plumber may install his own wye connections to the District's line three (3) to four (4) feet below grade. A Customer cleanout will be installed approximately two (2) to four (4) feet from the house foundation and cut to grade. The District's stub out will then be cut to no more than eighteen (18) inches below grade and capped with a removable cap with a metallic locator attached for ease of location. Screwcaps are acceptable.
- k. No residential swimming pool will be connected to the District's wastewater system.
- l. No rain gutter or down spout will be connected to the District's wastewater system.
- m. No bends or turns at any point in the service line may be greater than forty-five (45) degrees.
- n. Each horizontal service line will be provided with a cleanout at its upper terminal, and each run of piping which is more than ninety (90) feet in length will be provided with a cleanout for each ninety (90) feet or fraction thereof, in the length of such piping.
- o. Each cleanout will be installed so that it opens in a direction opposite to the flow of the waste and, except in the case of wye branch and end-of-the-line cleanouts, cleanouts will be installed vertically above the flow line of the pipe.
- p. Cleanouts at the District's service connection will have a metal lid or approved means of locating the cleanout fitting.
- q. All manholes in new construction shall be coated with a La Farge aluminum silicate lining system to 0.5 inch minimum or District approved equivalent. Developers tying in to existing manholes will coat the existing manhole as above.

#### **6.4.1 Wastewater Lift Stations and Grinder Pump Stations**

The Development of wastewater lift stations within the District shall be in accordance with the City of Austin water and wastewater design requirements, with the following

exceptions:

- a. An engineering design report shall be prepared for each lift station to document average flows, peak flows, pump selection, storage capacity, force main capacity, and system pump curve. The average daily flows as calculated at the wastewater treatment facility may be used in lieu of the City of Austin standards. Lift stations and grinder pump stations shall be constructed using the drawing detail(s) and specifications provided.
- b. All lift stations shall be designed with permanent On-site emergency generators with automatic transfer switch. If less than fifty (50) GPM capacity, three (3) hours of emergency holding capacity at peak output above the “all pumps on” level and below the inlet pipe elevation shall be provided.
- c. Level controls for pump operation shall be approved by District personnel prior to installation.
- d. Amp and voltmeters shall be supplied on the control panels for main service voltage, and ammeters will be supplied for each pump. Panel mounted voltmeter shall read incoming phase to phase voltage.
- e. Explosion proof pump and motor need not be provided and standard non-clog design is acceptable.
- f. All TCEQ Chapter 317 provisions shall be complied with.
- g. Force mains shall be a minimum of four (4) inches in size unless grinder pumps are used. Pipe material may be PVC C-900 DR-14 or ductile iron for buried piping. DR-14 WHITE COLOR ONLY – Force mains must be wrapped in brown poly wrap printed with "Force Main".
- h. Check valves on force mains will have counter weighted swing arms installed with the valve.
- i. Security lights will not be installed in the jib cranes’ swing radius.
- j. Wet Well vents will be located so as not to interfere with access to the pumps and motors.
- k. Inside the fenced area of the lift station a continuous reinforced concrete slab shall be provided for access to the wet well, valve box, and electrical panel area.
- l. The lift/grinder station shall have an all-weather access road capable of accommodating a truck of sufficient size to remove and deliver pumps.
- m. Lift Station wet wells shall be reinforced concrete coated with a La Farge aluminum silicate lining system or approved equivalent to one-inch (1”) thickness, polymer concrete (un-lined), or when approved fiberglass. Valve boxes shall be coated to 80 mils.
- n. See District Lift Station Standards sheets for further detail.
- o. Force main clean-outs shall be spaced at 500 feet intervals unless a waiver is granted. Cleanouts shall be bi-directional.

#### **6.4.2 Residential Grinder Pump Stations Serving Single Property**

- a. Residential Grinder Pumps to be E-One Systems in accordance with WCID17 Standard Details for Simplex or Duplex Grinder Pump Station (as applicable) and Grinder Pump Station Control Panel.

- b. Note that the systems specified by WCID 17 have a check valve installed internal to the tank (on the pump) and do not require an additional check valve to be installed outside the wet well.
- c. 1 ¼” male iron pipe braided stainless steel discharge piping installed on outlet side of GP tank.
- d. Second Vent: 3” pipe sized vent to be installed from the upper 1/3 of GP tank.
- e. Residential establishments with seven or more bathrooms must install a dual pump system.

#### **6.4.3 Commercial Grinder Pump Stations Serving Single Property**

- a. All Commercial establishments slated to install grinder systems must follow WCID 17 Commercial Grinder Pump Station Standard and have dual centrifugal grinder pumps. No positive displacement pumps allowed. Pumps shall be as manufactured by Wilo, Barnes or ABS.
- b. Commercial grinder systems may be equipped with a transmission device that will relay a warning signal to the client’s telephone.

### **6.5 Drainage**

The District’s drainage systems, including, without limitation, all drainage easements, channels, storm sewer facilities, and all other facilities owned, maintained, or controlled by the District for the purpose of collecting, controlling, storing, or distributing storm and flood waters or run-off, shall be protected from abuse. Prior to construction of any improvements within the District, proper erosion control devices, as required by the District’s Engineer, shall be installed. Such devices shall be maintained in place during construction and, upon completion, all construction debris and rubbish shall be removed from the site, and any damage to the District’s easements or facilities shall be repaired at the expense of the Developer or builder. It shall be a violation of these rules to cause to be placed, deposited, or discharged any foreign materials or debris into the District’s drainage systems which could interfere with the proper functioning thereof, including, but not limited to: motor oil, grass or tree clippings, or construction debris.

Drainage areas within Subdivisions shall be constructed so as to minimize maintenance. Outfalls shall be constructed with sufficient ground clearance to preclude clogging with mud, roots, or other debris.

Greenbelts and drainage areas shall be made accessible to heavy equipment to provide for necessary maintenance without destruction of a homeowner’s property.

## **6.6 Construction and Development Review and Approval Procedures**

### **6.6.1 Water, Wastewater, and Drainage Facility**

#### **a. Plan Review**

1. Developer's Engineer and planner's/project manager meet with District's General Manager and District Engineer at project conception to discuss preliminary plans, feasibility, and options. The following issues will be addressed:
  - (i) Location of Development area - in/out of Service Area and District;
  - (ii) Annexation requests;
  - (iii) General layout and plan;
  - (iv) Approximate number of LUEs required;
  - (v) Closest service lines and any preliminary service plans;
  - (vi) Feasibility of conceptual service plans;
  - (vii) Fire protection requirements; and
  - (viii) Pressure plane required.
2. If required by the General Manager, Developer presents preliminary plans to the Board of Directors for preliminary approval and authorization to proceed.
3. The District will issue a letter of intent to provide service for the specified capacity. This letter will include annexation forms (if required) and contain a request for detailed information and plans to be submitted to the District Engineer so that a service plan can be developed.
4. Developer's request for annexation goes before the District Board of Directors. Annexation procedures are started (if necessary).
5. Developer establishes a preliminary deposit account with the District to cover engineering, administrative, and legal costs of plan review and Development. This cost will be based on the size and complexity of the project and estimated services required.
6. District Engineer develops a service plan (how the District intends to provide service) based on information provided by the Developer's Engineer. This plan will include any required expansion or alteration of existing facilities, impact on plant capacity, and tie-in locations.
7. Final engineering plans (3 sets) submitted to General Manager and District Engineer with specifications for review and comment. The District uses City of Austin public works specifications. These plans should include:
  - (i) Subdivision plats, if applicable;
  - (ii) Easement dedications;
  - (iii) Major service lines marked;
  - (iv) Valve locations;
  - (v) Construction specifications;
  - (vi) Timetable for restoration of service following disruption of service or temporary alteration of District facilities;



- (vii) City/Council plan approvals; and
  - (viii) Preliminary construction schedules.
8. If required, District staff responds with comments/questions.
  9. Developer responds to District comments/questions, submits revisions and/or updates, if necessary.
  10. District General Manager and District Engineer present plans and specifications for consideration and approval by Board of Directors. If plans include temporary alteration of District facilities, the Developer will place in escrow with the District an amount of money sufficient to accomplish the alterations and subsequent repairs, or sign a contract to the effect that repairs will be made upon project completion. The Developer will be responsible for the completion of these repairs, and any associated District expenses will be drawn from the account. Upon completion of the work, the balance of this account will be refunded to the Developer.
  11. Upon approval, the President of the Board of Directors or the District General Manager signs and dates plans' cover sheet. Any approved project not started within 6 months of approval must resubmit plans for re-evaluation.

b. Construction

1. Developer's Engineer arranges pre-construction conference with District General Manager. For large projects with multi-phases, this conference should be scheduled for each phase. The following issues should be addressed:
  - (i) Contractor contracts;
  - (ii) Water shut-off/tie-ins;
  - (iii) Schedules; and
  - (iv) Inspections required.
2. District personnel may inspect the installation of water and wastewater facilities as often as deemed necessary. Water and wastewater inspections will be required in accordance with TCEQ Rules and the Uniform Plumbing Code (with amendments) as most recently adopted by the Board of Directors. Inspection fees will be assessed as a percent of the project cost and will be paid in advance. These fees will cover water/wastewater and drainage construction inspections, flushing, water sampling, and administrative and engineering fees.
3. Developer's Engineer will keep District Engineer informed of any planned changes to approved plans affecting water/wastewater facilities. Board approval may be required for major changes as determined by the District Engineer.
4. Upon project or construction phase completion, Developer's Engineer will schedule a final inspection of water/wastewater facilities with the District Representative, and notify General Manager and District Engineer. A letter of substantial completion will be issued; however, water service will be contingent upon submission of required documentation below.

5. After satisfactory completion and Developer acceptance, Developer's Engineer shall submit:
  - (i) Engineer's certificate of completion;
  - (ii) Owner's acceptance letter;
  - (iii) Contractor's affidavit of bills paid;
  - (iv) Complete set of "as built" reproducible drawings for water/wastewater facilities;
  - (v) Plat map of project in DXF format on 3.5 disk showing property boundaries, location of utility lines, valves, fire hydrants, and survey registration points;
  - (vi) Maintenance bond (if applicable) between District and Contractor's bonding company to make required repairs to facilities within the first year;
  - (vii) Settlement of any final costs (bacteriological samples, line flushing, etc.); and
  - (viii) Utility conveyance agreement conveying ownership of the utilities to the District.
6. If required, District General Manager will schedule final acceptance of improvements at the next regular Board of Directors' meeting.

#### **6.6.2 Defined Area Water, Wastewater, and Drainage Facility**

##### a. Plan Review

1. Developer's Engineer and planners/project manager meet with District Manager and District Engineer at project conception to discuss preliminary plans, feasibility, and options. For large projects, a 20% and 80% completion design meeting may be required. The following issues will be addressed:
  - (i) Location of Development area - in/out of Service Area and District;
  - (ii) Annexation requests;
  - (iii) General layout and plan;
  - (iv) Approximate number of LUE required;
  - (v) Closest service lines and any preliminary service plans;
  - (vi) Fire protection requirements; and
  - (vii) Pressure plane required.
2. Developer presents preliminary plans to the Board of Directors for preliminary approval and authorization to proceed.
3. District will issue a letter of intent to provide service to a specified capacity. This letter will include annexation forms (if required) and contain a request for detailed information and plans to be submitted to the District Engineer so that a District service plan can be developed.
4. Developer's request for annexation goes before District Board of Directors. Annexation procedures are started (if necessary).

5. Developer establishes a preliminary deposit account with the District to cover engineering, administrative, and legal costs of plan review and Development. This cost will be based on the size and complexity of the project, and estimated requirements.
6. District Engineer develops a service plan (how the District intends to provide service) based on information provided by the Developer's Engineer. This plan will include any needed expansion or alteration of existing facilities, impact on plant capacity, and tie-in locations.
7. Defined Area bond issuance procedures are initiated in accordance with Texas Water Code and TCEQ requirements. See District bond issuance and bond reimbursement procedures.
8. For large projects with multi-phases, an annual update of planned construction and reimbursement will be provided.
9. Final engineering plans submitted to General Manager and District Engineer with specifications for review and comment. For large projects, these plans may be completed as phases. These plans should include:
  - (i) Subdivision plats;
  - (ii) Easement dedications;
  - (iii) Major service lines marked;
  - (iv) Valve locations;
  - (v) Construction specifications;
  - (vi) Timetable for restoration of service following disruption of service or temporary alteration of District facilities;
  - (vii) City/County plan approvals; and
  - (viii) Preliminary construction schedules.
10. District staff responds with comments/questions.
11. Developer responds to WCID 17 comments/questions, submits revisions and/or updates, if necessary.
12. District General Manager and District Engineer present plans and specifications for consideration and approval by Board of Directors. If plans include temporary alteration of District facilities, the Developer will place in escrow with the District an amount of money sufficient to accomplish the alterations and subsequent repairs. The Developer will be responsible for the completion of these repairs, and any associated District expenses will be drawn from the account. Upon completion of the work, the balance of this account will be refunded to the Developer.
13. Upon approval, the President of the Board of Directors signs and dates plans' cover sheet.

b. Bidding Contract Award for Defined Area Construction Projects

1. Construction contracts for water and wastewater and drainage must be advertised for competitive bids.
2. Advertisements should be published once a week for three (3) weeks with the first being at least twenty-one (21) days before bid opening.

3. Developer's Engineer will request an affidavit of publication from the newspaper and file a copy with the District.
  4. District General Manager and District Engineer will be notified of date, time, and place of bid opening.
  5. Developers may advertise and receive bids prior to District plan approval subject to changes required by the District.
  6. After receipt of bids, Developer's Engineer will prepare a bid tabulation and letter recommending construction contract award. Copies of the bid tabulation and recommendation letter will be submitted to the District General Manager and District Engineer.
  7. District General Manager and District Engineer will present the recommended contract award for consideration and approval at the next scheduled Board of Directors' meeting.
- c. Construction - refers to water/wastewater and drainage facilities and does not include building construction.
1. Developer's Engineer arranges pre-construction conference with District Manager. Pre-construction conference is attended by General Manager and District Engineer. For large projects with multi-phases, this conference should be scheduled for each phase. The following issues should be addressed at a minimum:
    - (i) Contractor contracts;
    - (ii) Water shut-offs/tie-ins;
    - (iii) Schedules;
    - (iv) Inspections required; and
    - (v) Coordination with District personnel for required testing of water and wastewater lines.
  2. District personnel may inspect the installation of water and wastewater and District facilities as often as deemed necessary. Water and wastewater facility inspections will be required in accordance with TCEQ rules and the Uniform Plumbing Code, (with amendments) as most recently adopted by the Board of Directors. Inspection fees will be assessed at a percent of the proven project cost, and will be paid in advance.
  3. Developer's Engineer will keep District personnel informed of any field changes to approved plans affecting water/wastewater facilities, and the District Engineer will review and approve all shop drawings by stamp and signature.
  4. Developer's Engineer will approve pay estimates and provide monthly reports to District Engineer.
  5. District General Manager and District Engineer review and approve all change orders.
  6. District General Manager and District Engineer inspect construction sites to verify pay estimates.
  7. District General Manager and District Engineer present pay estimates and change orders to the Board of Directors for approval.

8. Developer's Engineer will sign all certifications, pay estimates, inspection reports, change orders, and documents officially submitted to the District. District Representative will sign as approving authority.
9. Upon project or construction phase completion, the Developer's Engineer will schedule a final inspection of water/wastewater facilities with the District Representative, and notify District General Manager and District Engineer. District will issue a Certificate of Substantial Completion and a final list of items to be completed.
10. After satisfactory completion and Developer acceptance, Developer's Engineer shall submit:
  - (i) Engineer's certificate of completion;
  - (ii) Owner's acceptance letter;
  - (iii) Contractor's affidavit of bills paid;
  - (iv) Complete set of "as built" reproducible drawings for water/wastewater facilities;
  - (v) Plat map of project in DXF format on 3.5 disk showing property boundaries, location of utility lines, valves, fire hydrants, and survey registration points;
  - (vi) Maintenance bond between city/county and District, as required, and contractor's bonding company to make required repairs to facilities within the first year;
  - (vii) Settlement of any final costs (bacteriological samples, line flushing, etc.); and
  - (viii) Utility conveyance agreement conveying water utilities to the District.
11. District General Manager will schedule final acceptance and approval of final pay estimates of improvements at the next regular Board of Directors' meeting.

### **6.6.3 Qualifications Required to Install Infrastructure**

No one shall be allowed to install or construct water, wastewater, or drainage infrastructure in the District unless he or she has been verified to be qualified by District staff.

For the construction of any central facilities, (water treatment plants, pump stations, lift stations, or wastewater treatment plants) or any water or wastewater line above 8" in diameter or over 500 feet in length, a contractor must be licensed as a contractor and bonded. In addition, contractors must demonstrate that they:

1. Have adequate financial resources to perform the work;
2. Are able to comply with the proposed schedule;
3. Have a satisfactory performance record;
4. Have a satisfactory record of integrity and business ethics;
5. Have the necessary organization, experience, accounting and operational controls, technical expertise, testing and safety programs; and
6. Have the necessary production, construction, and technical equipment to

perform the work.

Installation of water lines 8" or less in diameter and under 500 feet in length may be installed by licensed plumbing contractors or other small experienced contracting businesses under the direct supervision of District Staff.