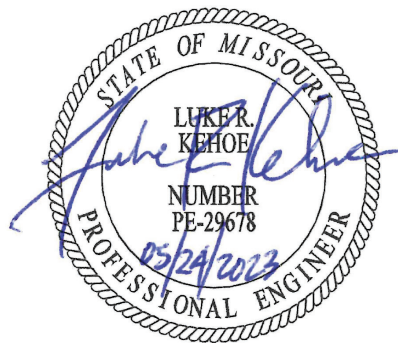


# Rules, Rates, and Regulations



Revised –May 2023

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## CHAPTER 1. DEFINITIONS

In addition to words and terms that may be defined elsewhere in this manual, the following words and terms shall have the meanings defined below:

AASHTO:	American Association of State Highway and Transportation Officials.
Area Pump Station:	A Pump Station located and upsized to serve multiple properties within a Service Area.
Basement:	Means any area of the Building Structure having its floor subgrade (below ground level) on all sides.
Base Flood:	The flood having a one percent chance of being equaled or exceeded in any given year. This is the regulatory standard also referred to as the "100-year flood."
Base Flood Elevation:	The computed elevation to which floodwater is anticipated to rise during the base flood. Base Flood Elevations (BFEs) are shown on Flood Insurance Rate Maps (FIRMs) and on the flood profiles.
Bedding:	The material on which the pipe or pipe fitting is supported and protected.
B.O.D.:	“Biochemical Oxygen Demand”: the quantity of oxygen utilized in the biochemical oxidation of organic matter in 5 days as determined by Standard Methods and expressed in milligrams per liter (mg/L).
Board:	The Board of Trustees of the DCSD.
Branch Main:	A sewer pipe to which building laterals are connected. Also called a collection main or sewer main.
Building Structure:	A walled and/or roofed structure, to include all residential, commercial and industrial structures, above or below ground, and of either temporary or permanent nature. Also structures generally having, proposed to have or may have sanitary sewer facilities or piping connections to the sanitary sewer system. Also, any attached or detached structures for which a City or County building permit is required.
CADD:	Computer Aided Design Drawing with electronic file name ending with (.dwg).
C.O.D.	Chemical Oxygen Demand (COD) shall be defined in accordance with, and shall be measured as prescribed in, the latest edition of “Standard Methods for the Examination of Water and Wastewater”.

Cost Center:	A service area established by the District in which all fees and special assessments are independent and based upon the District's costs associated with providing service to that area.
Crown/Intrados:	The inside top, or crown, of the sewer pipe.
Culvert:	A closed conduit for the free passage of surface drainage water under a highway, railroad, or other embankment.
Customer:	Any person, firm, corporation, individual partnership, association or governmental agency owning or occupying the premises being provided with wastewater disposal service by the DCSD.
Dedication:	The process by which the owner transfers the ownership or title of DCSD approved sanitary sewer mains and facilities, such as lift stations and treatment plants, to DCSD for DCSD acceptance for maintenance, operation and public use.
Developer:	Any property owner, professional, or company that prepares land for development, typically with the intention of building homes, commercial buildings, or other types of structures on the land.
District:	Duckett Creek Sanitary District
DCSD:	Duckett Creek Sanitary District.
Director:	The Executive Director of the Duckett Creek Sanitary District or their designee.
Drop-manhole:	A structure permitting sanitary flows to pass from an incoming pipe at a higher elevation to an outgoing pipe at a lower elevation.
Engineer:	An individual registered as a Professional Engineer currently certified by law in the State of Missouri.
FEMA:	Federal Emergency Management Agency.
Flood Insurance Study:	The Official Report provided by the FEMA containing flood profiles; flood boundaries; floodway maps and the water surface elevation of the base flood.
Flood Plain:	A geographic area susceptible to periodic inundation from the overflow of natural waterways during the base (100-year) flood.
Floodway:	The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot and so delineated in the Flood Insurance Study.

Floodway Maps:	Current maps from the FEMA Flood Insurance Study.
Force Main:	A pressurized sewer carrying wastewater.
Freeboard:	The difference in elevation (expressed in feet) between the hydraulic grade line elevation and the top of structure elevation.
Grinder Pump:	A pump used to lift wastewater from an individual Building Structure.
Hydraulic Grade Line:	A line coinciding with the level of flowing water at any given point (along an open channel); or the level to which water would rise in a vertical tube connected to any point along a pipe or closed conduit flowing under pressure.
HS-10:	The live truck wheel loads as designated by the AASHTO Specifications.
HS-20:	The live truck wheel loads as designated by the AASHTO Specifications.
Industrial Waste:	The water-borne wastes, including contaminated cooling water, from industrial processes, as distinct from normal domestic sanitary wastewater.
Industrial Waste Survey:	DCSD Form to be submitted to the Engineering Department of DCSD for review and recommendations.
Interceptor Sewer:	A sewer with the primary purpose of transporting wastewater from a number of other large sewers or outlets (not sewer laterals) and serves as a transmission main to a pumping station or treatment facility .
Intrados/Crown:	The inside top, or crown, of the sewer pipe.
Lateral Sewer and/or Customer's Sewer Service	A private pipeline used to serve a single, individual premise and located between the premise and the point of service connection to the sanitary sewer main. Each individually owned premise must have its own individual lateral from the premise to the public main.
Lift Station:	That portion of the wastewater system which is used to lift the wastewater to a higher elevation.
Low Flood Elevation:	Lowest floor elevation of building structure including basement floor.
Low Pressure Sewer System:	Pressurized wastewater collection system comprised of standardized, individual grinder pumps discharging into a common collector line.

Main Sewer:	A pipeline which is owned and maintained by the DCSD, located on public property, right-of-way or easements, and used to transport wastewater to a central point for transfer into a Trunk Sewer line for conveyance to a treatment facility.
May:	Is permissive; “Shall” is mandatory.
MBR:	Membrane Bio-Reactor treatment plant.
MDNR:	The Missouri Department of Natural Resources.
"n" Value:	A dimensionless coefficient used in the Manning's Equation to account for frictional losses in steady uniform flow.
Non-Residential Connection:	Any connection by the Owner to the District’s system other than a “Residential Connection”.
Normal Domestic Wastewater:	Wastewater that has a BOD5 concentration of not greater than 250 mg/L and a suspended solids concentration of not greater than 300 mg/L, and a COD concentration of not greater than 400 mg/L and which does not require special or extraordinary treatment, to prevent or eliminate abnormal ill-effect upon the District’s wastewater system.
Operation and Maintenance:	All expenditures during the useful life of the treatment facilities for materials, labor, utilities, and other items which are necessary for managing and maintaining the wastewater facilities to achieve the capacity and performance for which such facilities were designed and constructed.
Outfall:	The point location or structure where wastewater or drainage discharges.
Outlet:	A service sewer connection to the collecting sewer main.
Owner:	A person, firm, corporation, individual partnership, association, governmental agency, or properly authorized agent, holding title to a tract of land, building or structure.
Person:	Any individual, partnership, co-partnership, firm, company, public or private corporation, association, joint stock company, trust, estate, political subdivision or any agency, board, department or bureau of the state or federal government, or any other legal entity whatever, which is recognized by law as the subject of rights and duties.
Premise:	A wholly owned building or part of a building with its appurtenances (tract of land).
Private Sewer:	A sewer not accepted for public maintenance as determined by the reviewing agency.



Public Sewer:	A sewer, which has been accepted for public maintenance, as determined by the reviewing agency.
Reach:	A distance, in pipe between two identified points.
Replacement:	Expenditures for obtaining and installing equipment, accessories, or appurtenances necessary during the useful life of any system to maintain the capacity and performance for which such systems were designed and constructed. The term “operation and maintenance” includes replacement.
Residence:	A building or other type of shelter intended or used for human habitation as a permanent, vacation or recreational home or building.
Residential Connection:	A Connection to the District’s system by the Owner, for a permanent structure intended to serve as a place of residence and used for normal domestic wastewater.
Resolution:	Any motion duly adopted by the Board of Trustees of the District.
Sampling Tee:	A riser section installed in the lateral for purposes of monitoring wastewater discharged.
Sanitary Detention:	An "On-Site" private facility to collect and store the sanitary wastewater of a development for such time as may be required until it can be pumped or otherwise discharged into the downstream sanitary sewer system.
Sanitary Sewer:	A sewer which carries wastewater.
Sanitary Wastewater:	Wastewater emanating from the sanitary conveniences, including toilet, bath, laundry, lavatory, and/or kitchen sink, of residential and non-residential sources, as distinct from industrial waste.
Semi-Public:	Open to some persons outside the regular constituency; having some features of a public institution.
Separate Sewer:	A sewer intended to receive only wastewater or storm water runoff.
Service Area:	A geographic area in which all customers in that area are served by a common collection and treatment facility.
Service Connection:	The point at which the Customer’s sewer service is connected to the main through a wye branch or saddle.
Sewage:	See Wastewater.
Sewer:	A pipe or closed conduit carrying wastewater.
Sewer Service:	The removal and treatment of wastewater from a premise.

Sewer System:	All of the public infrastructure used to treat wastewater from a service area, including the collection system, plant and personal property necessary to operate the system.
Shall:	Is mandatory; “May” is permissive.
Single Family Residence:	Any structure or dwelling which is intended for or is used by a single household.
Springline:	The line or plane in which an arch rises from its impost. In circular pipes, the horizontal plane is through the midpoint of the section.
Standard Construction Specifications:	Plans and specifications of structures or devices or pump stations or low pressure sewer systems or construction details commonly used on DCSD work and referred to in the construction plans or in the specifications.
Standard Methods:	Latest edition of Standard Methods for the Examination of Water and Wastewater, published jointly by The American Public Health Association (APHA), The American Water Works Association (AWWA) and The Water Environment Federation (WEF).
Steady Flow:	The quantity of water passing a cross section is constant, i.e.; has patterns and magnitudes which do not vary with time.
Sub-watershed:	A drainage area within a watershed.
Suspended Solids:	Solids that either float on the surface of, or are in suspension in, water, wastewater, or other liquids and which are removable by laboratory filtering.
Total Suspended Solids (TSS):	All matter in water, wastewater, or other liquids; that is retained on a filter as determined by Standard Methods and expressed in milligrams per liter (mg/L). Total Suspended Solids is also known as Non-filterable Residue (NFR).
Travel Time:	The time it takes for the wastewater to flow through the sewer system from one point of reference to the next point of reference.
Treatment:	The reduction or elimination of pollutants in wastewater prior to discharge to waters of the State.
Trunk Sewer:	A sewer that receives wastewater from branch mains (not sewer laterals) and serves as a transmission main to an intercepting sewer or treatment facility.
Uniform Flow:	The flow in a pipe having a uniform cross-section and velocity at every location within a given reach.
Useful Life:	The estimated period during which a treatment facility will be operated.
User Charge:	A charge levied on users of a wastewater treatment facility for the user’s proportionate share of the costs of operation, maintenance and replacement of the treatment works.
USGS	United States Geological Survey

- Utilities: Public service facilities for supplying gas, electricity, water, power, steam, cable T.V., telephone and telegraph communication, railway transportation, and the like. Sewers are sometimes considered utilities.
- Wastewater: (Sewage) Water which carries or contains pollutants or contaminants such as ground garbage, human and animal excretions and other liquid wastes from any source (residential, commercial or industrial).
- Wastewater Facility: Any structure, equipment or machinery, in whole or in part, that is made or installed to retain, stop, move, convey, regulate, control, treat or dispose of wastewater.
- Wastewater System: The entire public owned sanitary sewer system owned and operated by the DCSD for the collection, storage and treatment of wastewater to serve the needs of the DCSD and its inhabitants and others, including all appurtenances and facilities connected therewith or relating thereto, together with all extensions, improvements, additions and enlargements thereto made or acquired by the DCSD. The District's wastewater system is a Publicly Owned Treatment Works (POTW) as defined at 40 CFR Part 122 and is therefore subject to all provisions of State and Federal regulations applicable to POTWs.
- Wastewater Treatment Facility: Any facility, method or process which removes, reduces or renders less obnoxious pollutants or water contaminants released from any source. It is also any device or system for the storage, treatment, recycling, and reclamation of municipal wastewater, domestic wastewater, or liquid industrial wastes. These include intercepting sewers, outfall sewers, wastewater collection systems, individual systems, pumping, power, and other equipment and their appurtenances; extensions improvement, remodeling, additions and alterations thereof; elements essential to provide a reliable recycled supply such as stand-by treatment units and clear well facilities; and any works, including site acquisition of the land that will be an integral part of the treatment process or is used for ultimate disposal of residues (bio solids) resulting from such treatment (including land for composting sludge, temporary storage of such compost, and land used for the storage of treated wastewater in land treatment systems before land application); or any other method or system for preventing, abating, reducing, storing, treating, separating, or disposing of municipal waste or industrial waste, and being a part of the sewer system.
- Water Meter: A water volume measuring and recording device, furnished and/or installed by the DCSD or furnished and/or installed by a user and approved by the DCSD.
- Watershed: The area of land from which rainfall (and/or snow melt) drains into a single point. Watersheds are also sometimes referred to as drainage basins or drainage areas. Ridges of higher ground generally form the boundaries between watersheds. At these boundaries, rain falling on one side flows toward the low point of one watershed, while rain falling on the other side of the boundary flows toward the low point of a different watershed.

## **CHAPTER 2. GENERAL INFORMATION**

### **2.010 Projects Requiring Review by District**

All public or private wastewater facilities proposed to be constructed, altered or reconstructed by any person or corporation, public or private, within the District boundaries, require review by the District.

### **2.020 Regulations Governing the Use of Public and Private Wastewater Facilities**

The current Resolutions, and Rules, Rates, and Regulations in effect shall be considered the governing documents and should be consulted for elaboration. Requests for variances or clarification of these regulations should be addressed to the attention of the Director of Engineering with information supporting the request. A request for variance will be reviewed by the Director of Engineering and shall be presented to the Director and/or Board of Trustees for consideration.

#### **2.020.01 Right to Modify**

The District reserves the right, to prescribe additional rules and regulations or to alter existing rules and/or regulations, as it may from time to time deemed necessary or proper.

#### **2.020.02 Unlawful Discharges and Wastewater Disposal**

1. Discharges and deposits of any wastewater, industrial wastes, garbage, polluted water or any other substance that constitutes a nuisance or hazard to the public health or welfare into any natural outlet, drainage channel, or watercourse, are prohibited.
2. No cesspool, septic tank or other facility intended or used for the disposal of wastewater shall be installed.

#### **2.020.03 Public Sewer Available**

At such time that public sewers become available to homes or businesses, the District shall inform the appropriate governmental entity (city or county). If a private wastewater disposal system is being abandoned, it shall be done in accordance with St. Charles County Building Code or appropriate City Code regulations. Where an extension of public sewer systems is required as determined by the District, such extension shall be made public to ensure other areas within the District of adequate sanitary disposal.

#### **2.020.04 Prohibited Discharges and Waste Disposal into Sanitary Sewers**

The following requirements for the use of the sanitary sewer system shall be observed. Violations of these requirements will result in the discontinuance of service to the Customer and/or charges for damages.

1. No person shall discharge or cause to be discharged any storm water, surface water, ground water, roof water runoff, sub-surface drainage, uncontaminated cooling water or unpolluted industrial process water to any of the District's sanitary sewer mains.
2. No person shall discharge or cause to be discharged any of the following described waters or wastes to the District's sanitary sewer mains.
  - (a) Any liquid or vapor having a temperature higher than 140 degrees Fahrenheit (60 degrees Celsius).

- (b) Any water or waste which may contain more than 100 milligrams per liter (mg/L) by weight, of fat, oil or grease.
- (c) Any water or waste which may contain more than 25 milligrams per liter (mg/L) by weight, of soluble oils.
- (d) Any gasoline, benzene, naphtha, fuel oil, or other flammable or explosive liquid, solid or gas.
- (e) Any garbage that has not been properly shredded.
- (f) Any ashes, cinders, grit, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, paunch manure, or any solid or viscous substance capable of causing an obstruction to the flow in the sewers or other interference with the proper operation of wastewater facilities.
- (g) Any waters or wastes having a pH lower than 5.5 or higher than 11.5 or having any other corrosive property capable of causing damage or hazard to structures, equipment, humans or animals.
- (h) Any waters or wastes containing a toxic or poisonous substance in sufficient quantity to injure or interfere with any wastewater treatment process, constitute a hazard to humans or animals, or create any hazard in the receiving waters of the wastewater treatment plant.
- (i) Any waters or wastes containing Biochemical Oxygen Demand (BOD) or suspended solids (S.S.) of such character and quantity that unusual attention or expense is required to handle such materials at the wastewater treatment plant, except as discussed in 2.020.06, herein.

#### **2.020.05 Grease, Oil or Grit Interceptors**

Grease, oil, or grit interceptors shall be provided and installed by the Customer when, in the opinion of the District, they are necessary for the proper handling of liquid wastes, grit, and other harmful ingredients; except that such interceptors shall not be required for private living quarters or dwelling units. All interceptors shall have adequate capacity and ability to produce an acceptable discharge to the sewer and shall be located so as to be readily and easily accessible for cleaning and inspection; and, in the case of grease, located an adequate distance from the source to allow the grease to solidify. Such facilities shall be subject to inspection by the District at all times. Grease and oil interceptors shall be constructed of impervious materials capable of withstanding abrupt and extreme changes in temperature. They shall be of substantial construction, water tight, and equipped with easily removable covers which when bolted in place shall be gas tight and water tight. Any installed grease, oil or grit interceptors shall be maintained by the customer, at his/her expense, in continuously efficient operation at all times.

#### **2.020.06 Discharges Which Overload or Adversely Affect the Operations of a Wastewater Treatment Plant**

Approval from DCSD shall be obtained to discharge to the District wastewater facilities with any or all of the following characteristics or constituents.

1. A five (5) day Biochemical Oxygen Demand (BOD<sub>5</sub>) greater than 250 mg/L.

2. Total suspended solids (TSS) concentration greater than 300 mg/L.
3. A chemical oxygen demand (COD) greater than 400 mg/L.
4. Any quantity or substances having characteristics or constituents described in sub paragraph (2) of 2.020.04 herein.
5. An average daily flow greater than two (2) percent of the average daily wastewater flow of the system.

#### **2.020.07 Preliminary Treatment**

1. Where necessary, in the opinion of the DCSD, the customer shall provide at his/her expense such preliminary treatment required to:
  - (a) Reduce the BOD<sub>5</sub> to 250 mg/L.
  - (b) Reduce the TSS to 300 mg/L.
  - (c) Reduce the COD to 400 mg/L.
  - (d) Remove or reduce objectionable characteristics or constituents to within the maximum limits provided in the sub paragraph (2) of 2.020.04 herein.
  - (e) Control the quantities and rates of discharges of waters or wastes.
2. Construction plans, specifications, and any other pertinent information relating to proposed preliminary treatment facilities shall be submitted for the approval of the District. No construction of such facilities shall commence until approval is obtained in writing from the District.
3. Where preliminary treatment facilities are provided for any waters or wastes, they shall be maintained continuously in satisfactory and effective operation, by the Customer at his/her expense or through an agreement with the District.

#### **2.020.08 Samples, Measurements, Tests and Analysis**

1. When required by the District, the Customer at his/her expense shall provide means to monitor any waters or wastes that are discharged into any public sewer or any treatment facility maintained and operated by the District. Such means, in general, shall consist of a sampling tee or control manhole located on the Customer's service lateral sewer (if possible) to facilitate observation, sampling and measurement of the discharge. The sampling tee or control manhole shall be maintained by the Customer or through an agreement with the District, so as to be safe and accessible at all times.
2. All discharges may be subject to the analytical inspection and approval of the District. Measurements, tests and analyses of the characteristics of the waters and wastes to which reference is made in sub paragraph (2) of 2.020.04 and paragraph 2.020.06 herein, shall be determined in accordance with the current edition of Standard Methods for Examination of Water and Wastewater. Other approved testing methods as specified by the United States Environmental Protection Agency in 40 CFR PART 136 may also be used.

3. Any measurements, tests or analyses shall be made upon suitable samples taken at the sampling tee or control manhole. In the event no sampling “T” or no control manhole is available, the control manhole shall be considered to be the downstream manhole in the public sewer nearest to the point at which the Customer’s service sewer lateral is connected.

#### **2.020.09 Furnishing Records**

It shall be the duty of every person, public utility or institution holding a permit to operate a sewer system or wastewater treatment plant to furnish records as may be required by the DCSD to ascertain compliance with the rules and regulations of the DCSD.

#### **2.020.10 Liability of the District**

1. The District shall not be liable to any Customer or to any third person for any damage resulting from any failure to remove wastewater, from any interruption of sewer service, from any wastewater backup or from any other malfunction of the District’s sanitary sewer system caused solely by storm water, acts of God (i.e. storms, floods, tornadoes), vandalism or other acts which could not be anticipated and/or controlled by the District.
2. The District shall not be liable to any Customer or to any third person for any damages caused by defective piping and/or appliances on the Customer’s premises, nor shall the District be liable for damages to, or making repairs on, any broken sewer mains and/or appurtenances for which it is not the legal owner or for which the contributor has failed to provide proper and adequate easements.
3. The District shall accept monetary liability of up to \$5,000 for damages to private property when any contributing factor can be traced to a problem with District equipment.
4. The District shall accept monetary liability of damage to personal property if the damage was caused solely by intentional or unintentional negligence of the District and without any negligence on the part of the Customer or third party.
5. Employees or agents of the District are expressly forbidden to demand or accept any payment or compensation for any service rendered to its Customers except as covered in these Rules and Regulations. No employee or agent of the District shall have the right or authority to bind it by any promise, agreement or representation contrary to the letter or intent of these Rules and Regulations or not provided for in these Rules and Regulations, unless such authority is in writing and is signed by the authorized representative or agent of the District.

#### **2.030 Submission, Review and Approval of Construction Plans and Specifications**

Designs, construction plans and specifications of all wastewater facilities proposed to be constructed, altered or reconstructed by any person or corporation, private or public, within District boundaries, shall be submitted to the District for review, revision, approval or rejection. In addition, for projects with facilities requiring industrial pretreatment, an

Industrial Wastewater Survey Form must be completed and a set of construction plans submitted to the Engineering Department of the District. Such designs, construction plans and

specifications (excluding house connections, curb cuts, etc.) shall be prepared and sealed by a Professional Engineer, registered in the State of Missouri, and shall meet the minimum standards of the District and Missouri Department of Natural Resources before approval is granted.

## **2.040 Procedures for Submission of Construction Plans**

### **2.040.01 Preliminary Conferences**

At any time prior to submitting project construction plans, the owner's Engineer may arrange for a preliminary conference to obtain informal guidance in project plan preparation. Preliminary conferences are encouraged, especially in unique or unusual situations, to expedite the subsequent formal review and approval process

### **2.040.02 Required Submittals by the Engineer**

Individuals should refer to the information in this section for detailed submittal information. Plan review may be delayed if all required information is not provided. To facilitate the review of construction plans before approval for construction, the Engineer shall submit with the construction plans all necessary data, maps, computations and checklists in Chapter 12 in support of the designs and construction plans. The following list of requested information is a minimum and may be supplemented by any additional information, which the Engineer considers to be helpful in the review process.

1. The following information shall be provided, as applicable:
  - a. Engineer's name, mailing address, telephone number, fax number and contact name.
  - b. Owner and/or Developer's name, mailing address, telephone number, fax number and contact name.
  - c. Accurate location of property relative to an intersection.
  - d. The St. Charles County Locator Number for the property, and the property address.
  - e. Total acreage of property.
  - f. Land use of the improvement area, i.e., commercial, residential, etc.
  - g. Connection fee calculations for projects connecting to a sewer system; total number of dwelling units or lots, and potable water tap size.
2. If the submittal is a revision or addendum to a previous project, the previous project shall be properly identified, and the particulars of the revision or addendum shall be described.
3. Number of Copies of Construction Plans and Supporting Data to be submitted.

A complete set of construction plans shall be one (1) hard copy set of construction plans and one (1) digital (.pdf) set of construction plans required for an initial review by the District.

4. For a pump station one (1) additional set of construction plans and one (1) copy of



the pump station report and specifications shall be required for an initial review by the District.

#### **2.040.03 Subdivisions**

For proposed subdivision projects, a subdivision plat shall be provided substantially ready for filing, adequately dimensioned and located from well-established points and lines to permit accurate platting on record maps. The Engineer shall provide a statement concerning the established zoning requirements of the governing municipality or St. Charles County, as appropriate, together with any other pertinent informational.

#### **2.040.04 Projects Normally Requiring Only a Sewer Connection**

Construction plans for connections to existing sanitary sewers for commercial, industrial, public or private non-residential projects and for multiple-dwelling projects shall show thereon:

1. Location, size and elevations of the existing sanitary sewer to which connections for the project are to be made.
2. The location, size and elevation of the required sanitary sewer connection at the point of origin.
3. Private sewers requiring permits from municipalities or St. Charles County may require project approval by such municipality for the County prior to executing a connection agreement with District.
4. Recorded easements for sanitary sewer lines as required making connection across property not owned by the owner requesting connection.
5. At the discretion of the District, additional easement for sanitary sewers may be required for future sanitary sewer connections.
6. Refer to Chapter 10 for additional requirements.

#### **2.040.05 Return of Construction Plans Without Review**

Construction plans lacking the required information or those that are incomplete or difficult to read or interpret due to poor drafting, poor arrangement or poor writing, will be returned without review for correction, additional information, or redrafting as may be required.

#### **2.040.06 Return of Construction Plans for Revision**

On completion of the review, one set of construction plans or a letter with comments with requested revisions and notations will be returned to the Engineer for revision of the original drawings. One (1) hard copy set of construction plans and a digital (.pdf) set of revised construction plans for further review for final approval must be resubmitted.

#### **2.040.07 Failure to Revise or Correct Construction Plans Promptly**

1. Construction plans returned to the Owner's Engineer for revision, correction or additional information shall be modified and returned to the District within **six (6)**

**months** for final approval or the project will be considered abandoned. Further review will be

continued only upon re-submittal as a new project, complete with all necessary data. An additional application fee will be required.

2. If an engineer fails to make recommended and/or required corrections in two re-submittals, an additional application fee may be assessed for the third submittal.

#### **2.040.08 Application Fees**

See Chapter 7 for fees associated with plan review and approval.

### **2.050 Construction Plan Requirements**

#### **2.050.01 Drawing Sizes**

Plan sizes shall be uniform for each set. Where practical, plan and profile sheets 24" x 36" are preferred. No drawings shall exceed 36" x 42". When the sheet size is considerably smaller than 24" x 36", a size which is a multiple of 8 1/2" x 11" or 8 1/2" x 14" is preferred for filing convenience. White line prints on blue background will not be approved. Good drafting practice, either manual or automated, at a suitable scale to facilitate the plan review and field construction shall be followed. The scale for a residential subdivision shall be fifty (50) feet to the inch unless otherwise authorized by the District.

#### **2.050.02 Plan Content Requirements**

1. Location of the project with respect to arterial roads, local streets, or subdivisions.
2. Key map of the entire project to scale, showing easements, sewer lines and facilities, both existing and to be constructed.
3. Recorder of Deeds book and page from St. Charles County for existing recorded easements when not part of a recorded subdivision plat.
4. Construction plans including plans and profiles of each sewer line showing location, size, flow line elevations, design flows for all segments, construction gradients, hydraulic grade lines, materials, proposed and original ground lines, boring information and rock elevations along the proposed sewer line, location, depths and sizes of adjacent or crossing sewer lines and utilities and special construction requirements such as a concrete cradle or encasement, type of backfill, etc.
5. All elevations shall be based upon USGS datum with location of the benchmark indicated in the construction plans. Acceptable benchmarks include those established by St. Charles County or Missouri State Highway and Transportation Departments.
6. Details of special structures transitions, headwalls, aprons and junction chambers, all adequately detailed and dimensioned, including placement of steel in reinforced concrete structures. Unless otherwise indicated, standard DCSD structures are assumed to be utilized.
7. Profiles of storm sewers, swales, ditches or channels.

8. Grading plans showing original and proposed topography, to include existing and proposed Base Flood Elevation where applicable.
9. A subdivision plat, dimensioned and substantially complete and ready for filing.
10. The location of all utilities anticipated to be encountered during construction shall be shown. Construction plans must be submitted to all utility companies for verification of conflicts. Storm and sanitary sewers shall be located to comply with State laws and regulations governing such placement.
11. A hydraulic analysis for low pressure sewer systems (LPSS).

**2.060 Sanitary Sewer Design Data, Maps and Computations (See Chapter 3 “Design Requirements for Sanitary Sewers”)**

**2.060.01 General Criteria**

Sufficient information shall be provided as to location, elevations, sizes, slopes, capacities, downstream pump stations and treatment facilities of the proposed project

**2.060.02 Basic Design Considerations**

1. Delineation of land use type(s).
2. Persons per dwelling unit.
3. Average and peak flow rate per person and per non-residential connection.
4. Industrial Waste Letter (if applicable)
5. Population equivalent for industrial/commercial areas, schools, parks, hotels/motels, institutions, and/or public buildings
6. Point of connection to existing or proposed sewer and capacity of outfall system.
7. Allowances for future extension of proposed sewer to serve upstream areas of the watershed shall include both capacity and physical access. Extension of proposed sewer(s) to the property boundary may be required for future expansion. Lowest floor elevations of homes near the project or along an outfall line may be required.
8. Treatment facility to receive flows.

## **CHAPTER 3. DESIGN REQUIREMENTS FOR SANITARY SEWERS**

### **3.010 General**

This section gives the minimum technical design requirements of the District for sanitary sewers and wastewater treatment facilities. Adherence to these will expedite review and acceptance of construction plans. In general, the formulae presented herein for hydraulic design represent acceptable procedures not necessarily to the exclusion of other sound and technically supportive formulae. Any departure from these design requirements should be brought to the attention of the District and discussed before submission of construction plans for approval, and should be justified. All construction details pertaining to sanitary sewer improvements shall be prepared in accordance with the District Standard Construction Specifications unless otherwise noted. Please contact the District for current standards and specifications.

### **3.020 General Requirements of Sanitary Sewer Construction**

All sanitary sewers shall meet the following general requirements:

#### **3.020.01 Size and Shape**

The minimum diameter of pipe for sanitary sewers shall be eight (8) inches. Sewers, in general, shall not decrease in size in the direction of the flow. Any deviation shall be documented for review and approval by the District.

#### **3.020.02 Materials**

All materials shall conform to the District Standard Construction Specifications.

#### **3.020.03 Bedding**

The construction plans and specifications shall indicate the specific type or types of bedding, cradling, or encasement required in the various parts of the sanitary sewer construction if different than the current District Standard Construction Specifications.

Special provisions shall be made for pipes laid under or over fills or embankments in shallow or partial trenches either by specifying Ductile Iron pipe for the additional loads due to differential settlement, or by special construction methods, including ninety (90) percent modified proctor compaction of fill, to prevent or to minimize such additional loads.

Compacted granular backfill shall be required in all trench excavations within public (or private) paved streets or areas where a paved street is anticipated. Under areas to be paved the compacted granular backfill shall be placed to the sub-grade of the pavement. Under unpaved areas in the rights-of-way, the compacted granular backfill shall be placed to within two (2) feet of the finished grade. Pipes having a cover of less than three (3) feet shall be Ductile Iron Pipe and/or encased in concrete.

If the storm and sanitary sewers are parallel and in the same trench, the upper pipe shall be placed on an undisturbed shelf adjacent to the lower pipe and the lower pipe shall be bedded in compacted granular fill to the flow line of the upper pipe.

### **3.020.04 Pipe or Conduit Under Streets and Pavements**

Any pipe or conduit material beneath a highway, road, street, or pavement, or with reasonable probability of being so located, shall have ample strength for all vertical loads, including the live load required by the highway authority having jurisdiction, but in no case shall provide for less than an AASHTO HS-20 loading. For other locations, the minimum live load shall be the HS-10 loading. Special considerations may be required for adverse conditions. Compacted granular backfill shall be utilized to the base of the pavement.

### **3.020.05 Joints**

The joint type required for the type of pipe used and the application shall conform to the latest standards set forth in the Standard Construction Specifications of the District or as approved by the District. All Polyvinyl Chloride (PVC) to Ductile Iron Pipe (DIP) connections shall use a pre-manufactured adapter. Rubber boot/Mission-type couplings will not be allowed.

### **3.020.06 Monolithic Structures**

Monolithic reinforced concrete structures shall be designed structurally as continuous rigid units.

### **3.020.07 Alignment**

Sanitary sewer alignments are normally limited by the available easements, which in turn should reflect proper alignment requirements.

Sanitary sewers shall be aligned:

1. To be in a straight line between structures for all pipe sizes thirty (30) inches in diameter and smaller.
2. To be parallel with or perpendicular to the centerlines of straight streets unless otherwise unavoidable. Deviations may be made only with approval of the District.
3. To avoid meandering, offsetting and unnecessary angular changes.
4. To make angular changes in alignment in a manhole located at the angle point.
5. To avoid angular changes in direction greater than necessary and to avoid any exceeding ninety (90) degrees.
6. Straight alignment shall be checked by either using a laser beam or lamping.

### **3.020.08 Location**

Sanitary sewer locations are determined primarily by the requirements of service and purpose. It is also necessary to consider accessibility for construction and maintenance, site availability and competing uses, and effects of easements on private property.

Sanitary Sewers shall be located:

1. To serve all property conveniently and to best advantage.
2. In public streets, roads, alleys, rights-of-way, or in sewer easements dedicated to the District.
3. In easements on private property only when unavoidable.
4. On private property along property lines or immediately adjacent to public streets, avoiding crossing through the property.
5. At a sufficient distance from existing and/or proposed buildings (including footings) and underground utilities or other sewers to avoid encroachment and reduce construction hazards.
6. To avoid interference between house connections to sanitary sewer mains.
7. In unpaved or unimproved areas whenever possible.
8. To avoid, whenever possible, any locations known to be, or probably to be, beneath curbs, paving or other improvements, particularly, when laid parallel to centerlines.
9. To avoid sinkholes and creeks.
10. No sanitary lateral clean outs or sampling "T's" shall be placed within the area of the storm water overflow path.
11. To avoid interference with free flow discharge of flood flows of a stream.

**3.020.09 Flowline**

The flowline of sanitary sewers shall meet the following requirements:

1. The flowline shall be straight or without gradient change between the inner walls of connected structures.
2. Gradient changes in successive reaches normally shall be consistent and regular, with small or insignificant differences in successive reaches. Gradient designations less than the nearest 0.001 foot per foot, except under special circumstances and for larger sewers, shall be avoided.
3. For sanitary sewers, the hydraulic grade line shall not rise above the crown (intrados) of the pipe.
4. When the grade of a sewer is fifteen (15) percent or greater, an anti-slip collar located at each pipe joint is required to control pipe slippage. The concrete shall penetrate at least one (1) foot into virgin (undisturbed) soil on both sides and below. Grades shall not exceed fifty (50) percent.

### 3.020.10 Manholes

Manholes provide access to sewers for purposes of inspection, maintenance and repair. They also serve as junction structures for connecting lines. Requirements of sewer maintenance determine the main characteristics of manholes. Lamp holes are not acceptable.

1. Manholes shall be located at the terminus of a sewer line, changes in direction, changes of pipe size, changes of flowline gradient, and at junction points with connecting sewers.
2. For sewers thirty-three (33) inches in diameter and larger, manholes shall be located on special structures at junction points with other sewers and at changes of size or gradient.
3. Spacing of manholes shall not exceed four hundred (400) feet for pipe sizes thirty-six (36) inches in diameter and smaller, five hundred (500) feet for pipe sizes forty-two (42) inches in diameter and larger, except under special approved conditions. Spacing shall be approximately equal, whenever possible.
4. Manholes on sanitary sewers eight (8) inches in diameter shall have a minimum inside diameter of forty-two (42) inches. Manholes on sanitary sewers ten (10) inches through thirty-six (36) inches in diameter shall have a minimum inside diameter of forty-eight (48) inches. Manholes on sanitary sewers greater than thirty-six (36) inches in diameter shall be built in accordance with the District Standard Specifications. Drop manholes shall have a minimum inside diameter of forty-eight (48) inches. The District may require manholes to have a minimum inside diameter of forty-eight (48) inches for future main extensions.
5. All manholes on sanitary sewers that are located in paved areas, the 100-year flood limits, the stormwater overflow path, or in other areas determined to be subject to flooding or vandalism shall be provided with lock-type watertight manhole covers.
6. Manholes must be precast concrete conforming to ASTM C478 and C497 unless an alternate is approved by the District.
7. Brick shall not be used on manholes.
8. Waterproofing: Waterproofing will be required on the exterior of all manholes. The bitumen shall consist of two coats of asphalt, coat-tar pitch, or a coating meeting American Society for Testing and Materials (ASTM) D-41. Asphalt shall conform to the requirements of ASTM D 449. Coal-tar pitch shall conform to the requirements of ASTM D-450. Coating shall be 31 mils in thickness.
9. All pipes shall have positive drainage through manholes. No flat invert structures are allowed.

### 3.030 Design Requirements

#### 3.030.01 General

All sanitary sewers shall be designed and constructed so as to conform to the following design requirements. Hydraulic calculations **must** be submitted as part of the plan review for all public sewer construction. Calculations must be submitted for the existing and ultimate upstream development condition.

### 3.030.02 Gradients

The following minimum slopes of sanitary sewers are those giving at least three (3) feet per second velocities flowing full based on Manning's formula using an "n" value of 0.013 unless otherwise directed by the District. Slopes greater than these minimums shall be used wherever possible.

Pipe Size	District Minimum Slopes in Feet per 100 Feet (% Grade)
8	1.0
10	0.6
12	0.5
15	0.4
18	0.3
21	0.3
24	0.2
27	0.2
30	0.2
36	0.1

Pipes larger than thirty (36) inches in diameter shall maintain a cleansing velocity of three (3) feet per second.

### 3.030.03 Depth and Minimum Cover

Sewer depths shall be determined primarily by the requirements of pipe size, utility obstructions, required connections, future extensions, and adequate cover. The minimum depth requirements shall be as follows:

1. For sewers which may be extended in the future, the minimum depth shall be nine (9) feet below the finish grade to flowline, except where upstream topography indicates that this depth is not necessary as determined by the District.
2. The minimum depth of sewers shall be not less than three (3) feet plus the sewer diameter. The flowline of the sewer must have a vertical distance from the low point of a basement or of the lowest floor, of not less than 2.5 feet plus the sewer diameter. The minimum depth shall be increased as required to ensure a minimum of two (2) percent slope and three (3) feet of cover for a customer service house lateral.
3. At stream and channel crossings, a minimum depth of three (3) feet shall be allowed where greater depths cannot be achieved. Schedule 50 Ductile Iron pipe with restrained joints must be used unless otherwise directed by the District. Stream and channel crossings must be protected with a rock blanket on the stream bank slopes and the bottom of the stream or channel.



4. Sewer depths at manholes shall be sufficient to ensure the use of standard manholes. Special manholes will only be allowed upon approval by the District.

**3.030.04 Flow Design**

All sanitary sewer mains shall be designed on the basis of an average per capita use of not less than one hundred (100) gallons per day, and on that basis shall be designed with capacities of four hundred (400) gallons per capita per day at peak flow unless otherwise directed by the District. Sanitary flow from day schools with gymnasiums, showers and cafeterias shall be computed on the basis of thirty (30) gallons per capita per day discharged in eight (8) hours (90 gallons per capita per day discharged in 24 hours). On this basis the daily peak flow rate shall be 90 x 4 gallons per capita per day for the lateral sewers. Sanitary flow from tourist camps and trailer courts shall be computed on the basis of 2.5 persons per each unit for each twenty four (24) hour period at fifty (50) gallons per capita per day times a peak factor of four (4). Sanitary flow from apartments, boarding schools and condominiums and other smaller facilities shall be computed at the same rate as residential property. Sanitary flow from all other types of institutions, commercial property, industrial plants, etc., shall be separate and individual studies based on a conservative ultimate anticipated flow multiplied by the peak factors applicable to each case. In the case of industrial flow, when the rate and volume can be predetermined with a reasonable degree of accuracy, no dilutions or diminishing factor shall be applied against this flow in the outfall or trunk sewers.

**3.030.05 Population Factors**

Family population factors for the various areas in the District are to be determined from the latest United States Census Tracts. An acceptable figure is 3.7 persons per household unit.

**3.30.06 Sanitary Flow Table**

POPULATION UNIT	CUBIC FEET/SEC
One Person @ 400 Gallons per Day	0.00062
One Household Unit @ 3.7 Persons @ 400 G/C/D	0.00229

\*Basic Formula: Flow in Cu. Ft./Sec. = Population x Flow (in G/C/D) / 646,317

**3.030.07 Hydraulic Grade Line**

1. Hydraulic Grade Line Limits

The hydraulic grade line for sanitary sewers shall not rise above the pipe crown (intrados).

The beginning point for the hydraulic grade line computations shall be the higher elevation as determined below:

For connection to existing pipe systems

- (a) Top of pipe crown (intrados) of one reach downstream of the connection point of the existing system; or
- (b) The hydraulic grade line computed for the existing system.

## 2. Computation Methods

Sanitary sewers shall be designed to flow not more than 80% full at ultimate peak design flow conditions. The hydraulic grade line shall be computed to show its elevation at manholes, transition structures, and junction points of flow in pipes, and shall provide for the losses and the differences in elevations as required below.

### (a) Friction Loss

The major energy loss in a sanitary sewer will be the energy loss due to friction. It is determined by the equation:

$$hf = L \times S_h$$

Where:

- Hf = difference in water surface elevation, or head expressed in feet) in a pipe of length L
- L = length (in feet) of pipe
- S<sub>h</sub> = hydraulic slope required for a pipe of given diameter and for a given roughness "n", expressed as feet of slope per foot of length

From Manning's formula:

$$S_h = [(V)(n) / (1.486 R^{0.667})]^2$$

Where:

- R = hydraulic radius of pipe (in feet)
- V = velocity of flow (in feet per second)
- n = Manning's value for coefficient of roughness;  
where n = .013 for concrete, vitrified clay and plastic pipe;
- n = .012 for concrete pipe greater than forty eight (48) inches in diameter

### (b) Turn Loss

Head losses in manholes due to change in direction of flow (turns) will be determined in accordance with the following:

Change in Direction Of Flow (A)	Multiplier of Velocity Head Of Water Being Turned (K)
90 Degree	0.7
60 Degree	0.55
45 Degree	0.47
30 Degree	0.35
15 Degree	0.18
0 Degree	0.00

*\* See following page for applicable formula*

Formula:  $H_L = K(V_L)^2/2g$

Where:

$H_L$  = Feet of head lost in manhole due to change in direction of the flow in the sanitary sewer main

$V_L$  = Velocity of flow in the pipe (in Ft./Sec.)

$g$  = Acceleration of gravity, (32.2 Ft./Sec./Sec.)

$K$  = Multiplier of Velocity Head of water being turned

(c) Junction Chamber Loss

A sewer junction occurs for large pipes or conduits too large to be brought together in a forty-two (42) inch diameter manhole where one or more branch sewers enter a main sewer. Allowances should be made for head loss due to curvature of the paths and due to impact at the converging streams.

Losses in a junction chamber for combining large flows shall be minimized by setting flowline elevations so that pipe centerlines (spring lines) will be approximately in the same planes.

At junction points for combining large flows, a manhole with a lock-down cover shall be required.

A computation method for determining junction chamber losses is presented below:

$H_j = \Delta y + V_{h1} - V_{h2}$

Where:

$H_j$  = junction chamber loss  
 $\Delta y$  = change in hydraulic grade line through the junction in feet  
 $V_{h1}$  = upstream velocity head  
 $V_{h2}$  = downstream velocity head

Where:

$$\Delta y = \frac{\{(Q_2 V_2) - [(Q_1 V_1) + (Q_3 V_3 \cos \theta_3) + (Q_n V_n \cos \theta_n)]\}}{0.5(A_1 + A_2)g}$$

Where:

$Q_2$  = Discharge (in cfs) at the exiting pipe  
 $V_2$  = Velocity (in fps) at the exiting pipe  
 $A_2$  = Cross sectional area of flow (in sq. ft.) for the exiting pipe  
 $Q_1$  = Discharge (in cfs) for the incoming pipe (main flow)  
 $V_1$  = Velocity (in fps) for the incoming pipe (main low)  
 $A_1$  = Cross sectional area of flow (in sq. ft.) for the incoming pipe (main flow)  
 $Q_3, Q_n$  = Discharge(s) (in cfs) for the branch pipe(s)  
 $V_3, V_n$  = Velocity(ies) (in fps) for the branch pipe(s)  
 $\theta_3, \theta_n$  = The angle between the axes of the exiting pipe and the branch pipe(s)  
 $g$  = Acceleration of gravity, (32.2 ft/sec/sec.)

Where:

$\theta$  = The angle between the axes of the outfall and the incoming pipe(s)

(e) Losses at Junctions of Several Flows in Manholes

The computation of losses in a manhole with several flows entering the structure should utilize the principle of the conservation of energy. This involves both the elevation of water surface and momentum (mass times the velocity head). Thus, at a manhole with two or more incoming pipes, the sum of the energy content for inflows is equal to the sum of the energy content of the outflows plus the additional energy required by the turbulence of the flows passing through the structure.

The upstream hydraulic grade line may be calculated as follows:

$$H_u = [V_D^2/2g] - \{((Q_U/Q_D)(1-K)(V_U^2/2g)) + ((Q_{L1}/Q_D)(1-K)(V_{L1}^2/2g)) + ((Q_{LN}/Q_D)(1-K)(V_{LN}^2/2g))\} + H_D$$

Where:

- $H_U$  = Upstream hydraulic grade line (in feet)
- $Q_U$  = Upstream main line discharge (in cubic feet per second)
- $Q_D$  = Downstream main line discharge (in cubic feet per second)
- $Q_{L1}-Q_{LN}$  = Pipe discharges (in cubic feet per second)
- $V_U$  = Upstream main line velocity (in feet per second)
- $V_D$  = Downstream main line velocity (in feet per second)
- $V_{L1}-V_{LN}$  = Pipe velocities (in feet per second)
- $H_D$  = Downstream hydraulic grade line (in feet)
- $K$  = Multiplier of velocity of water being turned
- $g$  = Acceleration of gravity (32.2 ft./sec./sec.)

The above equation does not apply when two (2) almost equal and opposing flows, each perpendicular to the downstream pipe, meet and no other flows exist in the structure. In this case the head loss is considered as the **total** velocity head of the downstream discharge.

(f) Transition Loss

The relative importance of the transition loss is dependent on the velocity head of the flow. If the velocity and velocity head of the flow are quite low, the transition losses cannot be very great. However, even small losses may be significant in flat terrain. The sewer design shall provide for the consideration of the necessary transitions and resulting energy losses. The possibility of objectionable deposits is to be considered in the design of transitions.

For design purposes it shall be assumed that the energy loss and changes in depth, velocity and invert elevation, if any, occur at the center of the transition. These changes shall be distributed throughout the length of the transition in actual detailing. The designer shall carry the energy head, piezometric head, and invert as elevations, and work from the energy grade line.

(g) Closed Conduits

Transitions in small sewers may be confined within a manhole. Special structures may be required for larger sewers. The energy loss in a transition shall be expressed as a coefficient multiplied by the change in velocity head ( $\Delta V^2/2g$ ) in which  $\Delta V$  is the change in velocity before and after the transition. The coefficient may vary from zero to one, depending on the design of the transition.

If the areas before and after a transition are known, it is often convenient to express the transition loss in terms of the area ratios and either the velocity upstream or downstream.

For an expansion:

$$H_L = K(V_1 - V_2)^2 / 2g \quad \square \quad \{K(V_1)^2 / 2g\} [1 - (A_1 / A_2)]^2$$

Where:

$H_L$  = the energy loss;  
 $K$  = a coefficient for a sudden expansion = 1  
for a well-designed transition = 0.2  
 $V_1$  = Velocity before transition  
 $V_2$  = Velocity after transition  
 $g$  = Acceleration of gravity 32.2 Ft./Sec./Sec.  
 $A_1$  = Area before transition  
 $A_2$  = Area after transition

For a contraction:

$$H_L = K[(V_2)^2/2g][(1/C_c)-1]^2 \square K[(V_2)^2/2g][1-(A_2/A_1)]^2$$

Where:

$H_L$  = The energy loss  
 $K$  = Coefficient for a well-designed transition = 0.5  
 $V_2$  = Velocity after transition  
 $g$  = Acceleration of gravity 32.2 Ft./Sec./Sec.  
 $C_c$  = Coefficient of contraction  
 $A_1$  = Area before transition  
 $A_2$  = Area after transition

The above equations may be applied to approximate the energy loss through a manhole for a circular pipe flowing full. If the invert is fully developed, that is, semi-circular on the bottom and vertical on the sides from one-half depth up to the top of the pipe, for the expansion  $A_1/A_2 = 0.88$ , and for the contraction  $A_2/A_1 = 0.88$ . The expansion is sudden; therefore,  $K = 1$ . The contraction may be rounded if the downstream pipe has a bell or socket. In this case,  $K$  may be assumed to be 0.2.

The expansion energy loss is  $0.014 [(V_1)^2/2g]$  and the contraction energy loss is  $0.010 [(V_2)^2/2g]$ . Thus it may be seen that if the invert is fully developed, the manhole loss is small.

### 3.030.08 Infiltration

An additional amount of flow due to infiltration shall be evaluated. All sanitary sewers shall be limited to a maximum of one hundred (100) gallons per inch of diameter per day per mile of line, as required by MDNR Specifications, when tested by appropriate water or low-pressure air. In addition, there shall be no visible leaks.

### 3.030.09 Special Situations and Design Requirements

#### 1. Connections to Manholes

- (a) When it is necessary that wastewater flow enter a manhole at a height more than two (2) feet above its flowline, an inside drop is to be used, and a forty-eight (48) inch diameter manhole is required. The last length of pipe of a sewer main that enters above the flowline on the manhole shall be Ductile Iron Pipe (DIP). Two inside drops are not allowed into one manhole unless authorized by the District. An outside drop is required for incoming pipe diameters larger than twelve (12) inches. Sewer lines shall not enter the manhole in the transition conical section, or through a joint. Manhole inverts shall be shaped to ensure proper flow through drop structures. No sewer, service connection or drop manhole pipe shall discharge onto the surface of the bench in manholes.
- (b) If it is necessary to enter a manhole with a force main this shall be done no greater than twelve (12) inches above the flowline of the manhole, unless authorized by the District, and the manhole invert should be shaped to ensure proper flow through the structure.

Due to the detention time of the wastewater in the wet well and in the force main, and the potential detrimental effects of the release of hydrogen sulfide from the force main on the concrete structure of the manhole, the concrete manhole shall be protected by a liner or epoxy coating.

- (c) The number of lines coming into one manhole shall be kept to a minimum. A special detail may be required to ensure the proper constructability and maintenance of the structure.
- (d) The projection of the centerline of pipes entering and existing manholes at the flowline shall pass through the center point of the manhole (the center line of the pipes extend radially from the manhole) and the manhole invert shall be shaped to ensure proper flow through the structure.
- (e) All connections to manholes are subject to District review and approval and shall be made at the District's discretion. (Such connections should be made at an elevation that will prevent wastewater from the larger sewer backing up and standing in the smaller sewer).
- (f) Connections to existing structures may require rehabilitation or reconstruction of the structure being utilized. This work shall be considered part of the project being proposed.

#### 2. Adjusting Manholes to Grade

When a project requires a manhole to be adjusted to grade, the maximum distance allowed from the top of the cone section to grade is eighteen (18) inches of rise and the maximum distance allowed from the top manhole step to grade is 31 inches. When adjustments to raise or lower a manhole are required, the method of adjustment must be stated in the construction plans and approved by the District. Brick shall not be used.

3. Customer Service Laterals - Also see Chapter 10.

- (a) House Laterals shall have a minimum diameter of four (4) inches.
- (b) Commercial and Industrial Laterals shall have a minimum diameter of six (6) inches.
- (c) Connection to Manholes

The connection of building laterals is generally made directly to the sanitary sewer main with a tee or wye. Connection to a manhole may be authorized by the District. Such a connection should be at an elevation to eliminate wastewater standing in the building lateral. In such situations an invert in the manhole base must be constructed.

- (d) A clean out with metal frame and cover at grade shall be provided at a minimum of every 100 feet and at every change in direction or slope.

4. Swimming Pools

Swimming pool backwash connections to the sanitary sewer must not exceed fifty gallons per minute (50 gpm). Backwash shall be connected to the sanitary sewer main through the house lateral (preferable through the house plumbing which in turn is connected to the house lateral and sanitary sewer main). Commercial swimming pools will require a Missouri State Operating Permit.

5. Storm Sewers Crossing Sanitary Sewers

When a storm pipe crosses over a sanitary sewer and the vertical clearance is less than two (2) feet, the sanitary sewer must be Ductile Iron Pipe (DIP) or concrete encased through the crossing and for ten (10) lineal feet each side of the crossing unless otherwise directed by the District.

When a storm pipe crosses under a sanitary sewer, the sanitary sewer must be Ductile Iron Pipe (DIP) through the crossing and for ten (10) lineal feet each side of the crossing unless otherwise directed by the District.

6. Location in Conjunction with Water Service

- (a) Protection of Water Supplies:
  - i. Water Supply Interconnections: Any physical connection between a public or private potable water supply system and a sanitary sewer, or appurtenances thereto which would permit the passage of any wastewater or polluted water into the potable supply shall not be allowed. No water pipe shall pass through or come in contact with any part of a sanitary sewer manhole.
  - ii. Relation to Water Supply Structures: Sewers shall be laid at least fifty feet (50') in a horizontal direction from any existing or proposed public water supply well or other water supply sources or structures.



(b) Relation to Water Mains and Potable Water Sources:

- i. Horizontal Separation: Sanitary sewer mains shall be laid at least 10 feet horizontally from any existing or proposed water main. The distances shall be measured outer surface to outer surface. Where it is not possible to maintain a 10-foot separation, any alternate proposal must be submitted for review by the District for approval. Such a deviation may allow installation of the sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on one side of the sewer and at an elevation so the bottom of the water main is at least 18 inches above the top of the sewer.
- ii. Crossings: Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer. The water main shall cross above the sewer. The crossing shall be arranged so that the sewer joints will be equidistance and as far as possible from the water main joints. Where it is not possible for the water main to cross over the sewer, any alternate proposal must be submitted for review by the District for approval.
- iii. Special Conditions: When it is impossible to obtain proper horizontal and vertical separation as stipulated above, the sewer shall be Ductile Iron Pipe (DIP), and shall be pressure tested to (150 psi) to assure water tightness prior to backfilling.
- iv. The distance between wastewater pumping stations and all potable water sources shall be at least fifty feet (50')

7. Sanitary Sampling Tee

A sanitary sampling tee or control manhole is required for non-residential, commercial, and industrial projects. The tee must be a minimum of six (6) inches in diameter. The tee or control manhole must be located in the private building lateral and in an easement or public right-of-way as directed by the District. A detail of the tee or control manhole must be provided in the construction plans.

8. Abandonment of Sanitary Sewer Services

Any abandoned sanitary sewers and/or appurtenances must either be removed or filled with grout as directed by the District. Sanitary sewer laterals, from buildings to be demolished, shall be removed or filled with grout unless the lateral is to be used for the replacement building. The connection to the sanitary sewer main must be broken in an easement or public right-of-way as close as possible to the sewer main. A cap and/or plug must be used to seal out any potential inflow or infiltration into the sanitary sewer main. A detail must be provided for review and approval by the District. The District must be notified to inspect the work.

#### 9. Private Force Main Connections

Private force main connections to the public sewer and LPSS will only be considered where site topography does not allow for gravity lateral service to the sanitary sewer or the gravity extension of the sanitary sewer is not feasible. See current publication of the District Low Pressure Sewer System Design Requirements (LPSSDR). The District will consider the construction of a public pump station. See the District Pump Station Design Requirements for public pump stations.

For proposed low pressure sewer systems, a gravity sewer extension feasibility study, (economic analysis) including projected design and construction costs and easement requirements for both the gravity and LPSS system, must be submitted for review by the District and approval.

All LPSS, grinder pumps and wastewater force main installations must be designed and constructed in accordance with the District and local building code requirements. The ownership, operation and maintenance of the grinder pump and pressure discharge lateral shall be the responsibility of the property owner. All mains and valve boxes of the LPSS shall be located in proper dedicated easements.

#### 10. Oil/Gas Separators and Grit Traps

If required by the District, grease, oil, grit and sand interceptors or traps shall be provided when such devices are necessary for the proper handling of liquid wastes containing grease or oil in excessive amounts or any flammable wastes, grit and sand, or other harmful materials which can be trapped. Such interceptors or traps shall not be required for private dwelling units. Prior to the installation of any interceptor or trap, drawings and specifications shall be submitted to the District for approval. All interceptors and traps shall be located so as to be readily accessible for cleaning and inspection, and in the case of grease, an adequate distance from the source to permit cooling of the mixture.

Grease and oil interceptors or traps shall be constructed of impervious materials capable of withstanding sudden and extreme changes in temperature. All such devices shall be of substantial construction, watertight, and equipped with easily removable covers which, when bolted in place, shall be gas tight and watertight, unless otherwise approved by the District.

All grease, oil and sand interceptors or traps shall be installed and maintained in effective operation at all times by and at the expense of the user.

#### 11. Stream Crossing

- (a) Sanitary sewer crossings of streams shall be by burial below the streambed. Ductile Iron Pipe (DIP) shall be used for all stream crossings and concrete encasements may be required. The DIP shall extend a minimum of ten (10) feet beyond the top of the stream bank. Pre-manufactured adapters shall be used at all Polyvinyl Chloride (PVC) to DIP connections. Rubber boot/Mission-type couplings will not be allowed. It is recommended that manholes be located on both sides of the crossing at the point of change in pipe material. The manholes should be a

minimum of ten (10) feet from the top of the bank on both sides of the crossing. The trench backfill in the stream bottom and bank shall be compacted. Grouted riprap shall be constructed as required on the plan. The minimum width of riprap shall be the width of the trench and may include all disturbed slopes. The surface of the riprap shall be flush with adjacent grade. All edges of the riprap shall have a one (1) foot wide toe wall extending a minimum of two (2) feet below grade. Grout shall be high slump concrete. Riprap rock shall be 6" - 12" clean (MSD-5). Larger stone may be required as specified by the District.

- (b) Aerial crossings may be authorized for special situations, but will require detailed site-specific installation drawings for review and approval.

#### 12. Shared Customer Service Laterals

Shared (or common) customer service laterals (house laterals) **will only be allowed** by District authorization and only for single owner multi-family structures (condominiums/apartments). In all other cases, each building shall be provided with a separate lateral sewer from the building to the public or private sanitary sewer main within the boundaries of the property line extensions. The lateral shall be installed in accordance with the local building code.

#### 13. Conflict With Other Underground Utilities

Gas, water and other underground utilities shall not conflict with the depth or horizontal location of existing or proposed sanitary and storm sewers, including house laterals.

#### 14. High Groundwater Conditions

Buoyancy of sewers shall be considered in their design and the flotation of sewer pipes and appurtenances shall be prevented with appropriate construction.

#### 15. Pump Station Considerations

All pump stations shall use submersible pumps. Dry well or suction lift stations shall not be permitted.

Housed Wet Wells shall include well ventilation be in accordance with 10 CSR 20-8.140(8)(j).

#### 16. Grinder Pump Station Ownership and Maintenance

Multiple unit grinder pump stations must be owned, operated, and maintained by an approved continuing authority. Commercial or HOA owners of grinder pump stations shall be a registered corporation in good standing with the Office of the Missouri Secretary of State.

### **3.040 Sanitary Detention Requirements**

#### **3.040.01 Surcharged Sanitary Sewers**

When it has been determined that the outfall sewer or the downstream system serving a proposed development is overcharged, the District may require the Developer to provide special facilities that the District deems necessary. For example, a sanitary holding tank (detention) for eighteen (18) hours of storage with discharge during the off-peak hours, or upgrading the downstream system to provide additional capacity, may be required.

In the design of such facilities, consideration should be given for the protection of structures and equipment against corrosive and/or explosive gasses that may result from the detention of wastewater.

## **CHAPTER 4.**

**4.010 Reserved**

## **CHAPTER 5. EASEMENTS**

### **5.010 General**

All sanitary sewers shall be constructed in easements with working room and suitable ingress and egress. Before existing easements without designated working room may be used, temporary construction easements must be negotiated with the respective property owner(s). All public sanitary sewers shall be constructed in public rights-of-way or in easements. In the event proper easements are not established prior to construction, the owner (Developer/contractor) proceeds at his/her own risk. All easements and record plats shall be submitted to the District for review and approval prior to recording. The owner shall be responsible for acquiring and recording all necessary easements. All easements shall be irrevocable, of clear title and free of defect, liens, encumbrances or adverse claims. Should the Developer/contractor be unable to obtain a necessary easement for future public sewer lines, the District may assist in acquiring the easement if the District's Board of Trustees finds that it will be an overall benefit to the District. In all situations the owner shall be responsible for all costs associated with the acquiring of easements.

### **5.020 Use of Existing Easements**

Every existing easement to be used shall be shown in the construction plans submitted for review and comment. The information in the construction plans shall include the St. Charles Co. book and page numbers of the recorded instrument.

All restrictive clauses as to the use of the easements, i.e. for utility purposes, storm sewers only, sanitary sewers only, etc. shall be noted on the plan adjacent to the pertinent easement. Construction of a sewer in the same easement with a water or gas main will not be approved unless the easement is of such size that the locations of the sewer and utility relative to each other comply with dimensional clearances required by the regulatory authorities.

### **5.030 Location of Easements**

In locating easements, consideration shall be given to the property owner's interests. Undue splitting and angling across property shall be avoided. Easement locations shall be fixed by distances to known property lines or public right-of-way lines and, where necessary, by angles.

### **5.040 Width of Easements**

The width of the easement shall be sufficient to allow proper access for maintenance of the sewer. Easement widths shall provide a two and one half (2'6") minimum clearance between outside limit of structures to easement line with a ten (10) foot minimum width. All easements shall include additional space adjacent to the right-of-way so granted as may be required for working room. Increased easement widths may be required for sewers deeper than ten (10) feet, oversized pipes or structures and/or in areas with restricted or confined working room.

### **5.050 Wording of Easements**

Easements should be prepared on District standard forms which carry the proper wording for the easement dedication. (There are various forms, some for easements on property owned by an individual or individuals, and some for corporate owners.) Easement verbiage for sanitary sewer easements acquired by the owner, which are to be granted and dedicated to the District, shall be as per standard format. Any extraordinary terms, conditions, stipulations or demands pertaining to the acquisition of the easement by the owner, shall not be entered onto the District easement documents. It is recommended that said extraordinary terms, conditions, stipulations or demands be documented by separate contract between the owner and easement grantor(s). Variations in wording are acceptable only where necessary, and approved by the District. Print and original signatures and initialing shall be in black or dark blue ink. A standard Easement Plat labeled "Exhibit A" shall also be initialed and dated in ink by grantor(s).

## **5.060 Easement Plat Preparation Information Guidelines**

### **5.060.01 Label Established Lines Affecting Tract and/or Mentioned in its Legal Description:**

Property corners shall be located in relation to known corners along the above listed established lines. The following lines shall be shown, where pertinent:

- (1) Lot lines.
- (2) Subdivision lines (affected, adjacent, or near).
- (3) Section lines (or sub-section lines).
- (4) U.S. Survey lines.
- (5) Street, road, highway and/or alley lines.

### **5.060.02 Identify Parcel or Tract:**

*The following written information shall be shown, where pertinent:*

1. Legal subdivision name, with Lot and Block, Plat Book and Page; if in a recorded subdivision.
2. For metes and bounds described parcels, the current owner with Book and Page labeled across tract; add N/F (Now or Formerly) preceding owners' names.
3. Fully dimension owner's property (or as much as shown).
4. Show "North" arrow and scale with "North" to top or side of plat.
5. Above owner's name indicate property locator number per current assessor's records.

### **5.060.03 Provide Accurate Title Box Information:**

The following information shall be shown, where pertinent:

1. Label as "Easement Plat".
2. Describe only where easement is sought, not wherein the entire owner's land lies.
3. Use as applicable in St. Charles County:
  - (a) Subdivision name, Lot Number, Block Number, and Plat Book Number and Page Number, followed by municipality (if incorporated), followed by "St. Charles County, MO"; or
  - (b) Section Number (or fractional section), followed by Township and Range, followed by Municipality (if incorporated), followed by "St. Charles County, MO"; or

- (c) U.S. Survey No., followed by Township and Range, followed by Municipality (if incorporated), followed by "St. Charles County, MO".

**5.060.04 Easement Plat Drafting Guidelines** (Refer to current District guidelines that elaborate on the following):

1. General

- (a) The standard blank plat labeled "Exhibit A" is to be used in preparation of easement plats or temporary construction licenses. Mylars will not be accepted.
- (b) Use line weights, symbols, style, and size of lettering in uniform directions that will make an uncluttered, easy-to-read plat; i.e. show all that is necessary, but nothing extraneous.

For clarity purposes, dark blue or black lettering and lines should be used.

- i No lettering shall be smaller than (10) point print or #100 "Leroy" lettering guide, assuming easement is not to be reduced when recorded.
- ii The resultant easement plat or temporary construction license should be easily understandable by property owners and portray all information necessary for a surveyor, with adequate field notes, to stake it out on the ground.
- (c) No title blocks of any kind, other than shown in examples, shall be used.
- (d) At the top left-hand corner, outside of plat border, indicate the District's exact project name and reference number as appropriate.
- (e) In the bottom left-hand corner outside of the plat border, indicate the date of the most recent version of the Easement Plat.

2. Show complete location and alignment of Easement required with:

- (a) Distances along intersected property line to nearest property corners.
- (b) Bearing (or angle) and distance for each course of easement across property.
- (c) All calculated and set distances are to be to the nearest hundredth of a foot and bearings to the nearest second.
- (d) Indicate easement width(s), and information so that a metes and bounds description for the easement could be written and the area calculated. Show existing easements and indicate appropriate Deed Book and Page, or Plat Book and Page.
- (e) Show only pertinent information. Do not show items such as building lines, sewers, areas, etc.



### **5.070 Vacation of Easements**

The District shall consider vacating its rights within an easement or public right-of-way when it determines that the easement or right-of-way is not required for any existing or future wastewater facility.

The vacation of an easement or the District's rights within a public right-of-way requires the written approval of the District. In order to determine if the easement or right-of-way may be vacated, the following information must be provided to the District:

1. An application from the property owner stating the reason for the request to vacate.
2. A legal description of the area to be vacated and an Easement Vacation Plat prepared in the format outlined in Section 5.060.

If the District determines that there is no future need for the easement or right-of-way in question, the petitioner shall record the vacation within fourteen (14) days of the District's execution/authorization to vacate. The petitioner will be required to submit verification of the recordation of the vacation document.

If the District determines that it is necessary to retain its rights within the easement or public right-of-way in question; the petitioner will be notified in writing that the request has been denied.

### **5.080 Easement Encroachment**

The District shall consider allowing the encroachment of a structure over or onto an easement in which it has rights, only in cases when there is no reasonable way to relocate the existing sewer.

The District may require that the structure which would encroach over or onto an easement be constructed with a pier and grade beam foundation design, with the piers extending a minimum of two (2) feet below the flowline of the sewer.

In addition, the District may require that the sewer be structurally rehabilitated before allowing such encroachment. All costs associated with this rehabilitation will be the responsibility of the petitioner and The following information must be submitted before the District will consider an encroachment:

1. A letter of request from the petitioner stating the reason for the encroachment.
2. One (1) hardcopy and one (1) digital copy of construction plans showing the existing sewer, the existing easement, the proposed structure, and the proposed foundation design in plan and profile relative to the sewer. The foundation design calculations must also be submitted. All data for the proposed structural/foundation improvements shall be prepared by an engineer.

Upon receipt of this information, the existing sewer will be inspected to determine its condition. Based on this inspection and a review of the construction plans, the District will determine if the encroachment will be allowed and what, if any, sewer rehabilitation, will be required.

If the encroachment is to be allowed, the property owner will be required to enter into an "Encroachment Agreement" with the District. The property owner will also be required to submit a recording fee for the recording of this document.

If the encroachment is denied, the petitioner will be notified in writing of this denial.

## **CHAPTER 6. APPROVAL AND DEDICATION OF PROJECTS WITH PUBLIC SEWERS**

### **6.010 General**

The District will accept for dedication, all public sewers, pump stations and wastewater treatment facilities within easements dedicated to the District that have been constructed to District standards and for which the requirements stated herein have been met.

The maintenance of these public facilities will remain the responsibility of the project Owner until such time that they have been accepted for dedication by the District.

### **6.020 Requirements for Plan Approval**

#### **6.020.01 Agreement to Dedicate and Use**

An executed "Agreement to Dedicate and Use" will be required for projects with public sewer facilities. The District will provide three (3) copies of this document to the Owner as part of the plan review process. The dedication forms must be executed by the record Owner and returned to the District. The District will execute the documents and return one (1) copy to the Owner. **Plan Approval** will not be given for a project having public sewer facilities until the "Agreement to Dedicate and Use" has been executed by both parties.

#### **6.020.02 Construction Escrow and Escrow Agreement**

Prior to the issuance of construction authorizations, a construction escrow for all public facilities shall be required as stated in Chapter 7.

### **6.030 Acceptance of Public Dedication of Sewer Facilities**

#### **6.030.01 Construction Inspection**

All sewer facilities dedicated to the public must be inspected and accepted by the District. It is the responsibility of the Owner's Contractor to contact the District's Engineering Department to arrange for this inspection. The District will not accept the public dedication of any sewer facilities that are not constructed in accordance with the District-accepted construction plans and specifications or pursuant to District-accepted field changes.

The District shall not allow the physical connection of the new public sanitary sewer construction to the existing District system until construction plans have been accepted for construction. Occupancy permits for all structures to be served by sanitary sewers dedicated for acceptance by the District as public sanitary sewers shall be withheld by St. Charles County or the local municipality until the District has reviewed and accepted the proposed construction plans and specification for said sanitary sewers.

### **6.030.02 Field Changes and Construction Plan Revisions**

It is the intent and purpose of the District's acceptance of "Field Changes" to minimize the need for a formal construction plan revision for minor changes to District-accepted construction plans, and to minimize delays in construction. The following are the general procedures for processing a Field Change.

1. Initial requests for a field change may be made verbally to the District Engineering Department by the Owner, the Owner's Engineer or the Owner's Contractor, and followed up in writing stating the requested field change(s) and the reason for the field change(s).
2. Upon receipt of the request, the District shall evaluate the proposed field changes to determine if proposed changes are acceptable. In addition, if the request is made by someone other than the Owner's Engineer, the petitioner must contact the Owner's Engineer to obtain written authorization for the change, and submit a copy of such written authorization to the District.
3. If determined to be acceptable by the District, revised hydraulic calculations may be required to be submitted by the Owner's Engineer for review by the District.
4. If the change is acceptable to the District, the Owner's Engineer shall submit one (1) digital copy of the revised construction plans indicating the change.
5. The District shall notify their field inspector of the accepted field change and provide copies of the revised construction plans marked as "Accepted for Construction" to the appropriate District personnel, the Owner, and Engineer.
6. The Owner shall be responsible for payment of all applicable inspection fees prior to District acceptance of any field change.
7. All field changes shall be indicated on as-built drawings for review and acceptance by the District.
8. The Contractor proceeds at his own risk for making field changes that not accepted for construction by the District.

### **6.030.03 As-Built Drawings**

As-built drawings certified by a professional land surveyor or professional engineer licensed in the State of Missouri, shall be submitted to the District for review and acceptance prior to the District's acceptance of dedication for all proposed sanitary sewer facilities. At a minimum, the following information shall be provided in the as-built drawings:

1. Sanitary Sewers
  - (a) As-built drawings shall indicate the vertical and horizontal location of the sanitary sewers and structures in plan and profile view.
  - (b) Provide electronic copy of as-built drawings in AutoCAD (dwg) format in the Missouri Coordinate System, East Zone.

## 2. Pump Station Construction

- (a) As-built drawings shall indicate the physical location of the pump station, retention, access road and other related structures.
- (b) Shop drawings of all structures are required.
- (c) Equipment manuals and pump operating curves for any items which differ from the original design as a result of a field change are required.

## 3. Subdivision Plats

A recorded copy of the subdivision plat **must** be submitted with the As-built drawings. Street addresses **must** be shown on each lot.

## 4. Geotechnical Engineer's Certification

Geotechnical Engineer's Certification will be required verifying that all work associated with the treatment of sinkholes, placement of compacted fill, and other soil-related work was completed in accordance with any District accepted Geotechnical Report.

### **6.030.04 Notification of Acceptable Construction**

The District will notify the Owner when construction is deemed acceptable.

### **6.040 Acceptance of Dedication and Release of Construction Escrow**

1. Escrow Agreement — Releases. Any required escrow agreement entered into with the District, shall require the Developer to agree to fulfill the obligations imposed by this Section and shall have such other terms as the District may require consistent with this section. The agreement shall authorize the District to release or reduce the obligation secured under the required escrow agreement as permitted herein.
  - (a) Upon completion of the entire approved project sanitary sewers (including jetting for compaction of all bedding and backfill), the District shall perform an initial inspection upon receipt of a written request from the Developer. Mandrel tests will be required as part of this inspection. These tests must be performed by the Owner or his representative (e.g., Contractor) in the presence of a District inspector.
    1. If there no deficiencies are found (successful inspection), the District will typically release, within fourteen (14) days of the successful inspection, ninety percent (90%) of the construction monies held in escrow. The District shall withhold escrow release(s) for non-functional or incomplete systems.
    2. If deficiencies are noted within the system, the Owner has thirty (30) days to correct these deficiencies.
      - a. If the deficiencies are not corrected within this period, the District may contact St. Charles County or the local municipality and request that all un-issued building permits and occupancy permits be withheld until the deficiencies are corrected. Extensions may be granted for inclement weather or other extenuating circumstances. A subsequent re-inspection

of the entire system may be required.

- i. Upon correction of the deficiencies, the Owner will be responsible for requesting a re-inspection of the system.
- ii. Upon District re-inspection of the system and subsequent inspection approval, the District will release escrow in accordance with sub paragraph (1) of 6.040 herein.

(b) Final Inspection and Acceptance of Public Dedications

i. Prior to final field inspections and before acceptance of any public dedications of sanitary sewers, as-built drawings and copies of recorded easement documents shall be submitted for review and acceptance by the District. Upon completion of one hundred (100) percent of the entire construction project (all finish grading, final manhole adjustments, recorded subdivision plat showing easements and the District's acceptance of as-built drawings for the project) and within two (2) years of the execution of the escrow agreement, the District shall perform a final inspection upon receipt of a written request from the Owner.

1. Prior to acceptance of dedication of facilities to the District, it is the Owner's responsibility to provide sanitary sewer mains and easements of clear title, without any known defects, liens, encumbrances or adverse claims.
2. The District shall release the remaining ten percent (10%) of the construction escrow within fourteen (14) days of the final inspection provided that
  - a. If there are no deficiencies found (successful inspection),
  - b. Required as-built drawings and recorded easement documents have been accepted by the District
  - c. A final Sanitary Sewer Dedication Agreement for the project has been executed by both the Owner and the District.
3. If deficiencies are noted within the system (unsuccessful inspection), the Owner shall correct these deficiencies request a reinspection by the District within the .

(c) Upon correction of the deficiencies, the Owner will be responsible for requesting a re-inspection of the system.

- i. The District will release within fourteen (14) days of the second inspection the remaining ten per-cent (10%) of the monies held in escrow, provided all deficiencies have been corrected to the District's satisfaction, and the Final Dedication Agreement is executed by both the Owner and the District.
2. If the sanitary sewer construction and/or its related documents are not completed within two (2) years of the execution of the escrow agreement, at the sole discretion of the District, the remaining escrow will not be returned to the Owner and will be used to complete the sanitary sewer facilities or correct any deficiencies. (See 8.010.02).
3. Such releases or reductions may occur upon completion, inspection, and acceptance by the District of

all sanitary sewer facilities accepted for construction by the District, provided, however, that:

- a. Releases — general. The Developer shall submit a written request for approval of release of the required construction escrow as to all or any part of the Developer's obligation only after construction, completion, and testing of some phase of work on the improvements indicated on the District-accepted construction plans, receipt of requisite written notification from the appropriate inspecting public authority and approval by the District and only in the amounts permitted herein.
- b. Extension of completion period. If, at the end of the improvement completion period, all the improvements shown on the approved construction plans have not been completed, the Developer may request and the District may grant an extension to the improvement completion period for a period of up to two (2) years if after review by the District such longer period is deemed necessary to facilitate adequate and coordinated provisions sewerage or other public improvements, facilities or requirements, so long as all guarantees are extended and approved by the District; provided, that the District may require as a condition of the extension execution of a new agreement, recalculation of escrow amounts or satisfaction of new District requirements or other reasonable conditions as may be needed to ensure that the extended agreement fully complies with the terms of this Section.
- c. Deficient improvements. No approval of required improvements shall be granted for improvements that fail to meet the specifications established herein or otherwise adopted by the District.
- d. Appeals. If the Developer believes that a release or certificate of completion has been improperly denied, an appeal shall be filed with the Director, and no such denial shall be deemed final until the Director has ruled on the appeal, which ruling shall be no later than thirty (30) days after the date of receipt of the appeal by the Director.
- e. Failure to Complete Improvements.
  - i. The obligation and rights of the Developer to construct, complete, install and maintain the improvements indicated on the approved construction plans and provide for street maintenance shall not cease until the Developer shall be finally released by the District, nor shall any escrow agreements or obligations hereunder be assignable or transferable by the Developer. Furthermore, in the event of default, abandonment, or failure of the Developer to complete the improvements, no other person, firm or entity shall acquire (whether by contract, judicial foreclosure or other means) any rights to the remaining escrow funds as a Developer without entering into a separate escrow agreement with the District. If, after the initial improvement completion period or after a later period as extended pursuant to this Section, the improvements indicated on the approved construction plans are not constructed, completed, installed, accepted and maintained as required or if the Developer shall violate any provision of the escrow agreement, the District may notify the Developer to show cause within not less than ten (10) days why the Developer should not be declared in default. Unless good cause is shown, no building or other permit shall be issued to the Developer in the subdivision during any period in which the Developer is in violation of the escrow agreement or this Chapter relating to the subdivision. If the Developer fails to cure any default or present compelling reason why no default should be declared, the District shall declare the Developer in default and may take any one (1) or more of the following acts:

1. Deem the balance under the escrow agreement not theretofore released as forfeited to the District, to be then placed in an appropriate trust and agency account subject to the order of the District for such purposes as letting contracts to bring about the completion or maintenance of the improvements indicated on the approved construction plans or other appropriate purposes in the interest of the public safety, health and welfare; or
  2. Require the Developer or surety to pay to the District the balance of the surety not theretofore released; or
  3. Require the Developer to submit an additional cash sum sufficient to guarantee the completion or maintenance of the improvements indicated on the approved construction plans after recalculation in order to allow for any inflated or increased costs of constructing or maintaining the improvements.
- f. The failure of a Developer to complete the improvement obligations within the time provided by the agreement (or any extension granted by the District), and including the payment of funds to the District due to such failure or an expiration of a letter of credit, shall be deemed an automatic act of default entitling the District to all remedies provided in this Section without further or prior notice. It shall be the sole responsibility of the Developer to timely request an extension of any escrow agreement if the improvements are not completed in the original time period provided by the escrow agreement, and no right to any extension shall exist or be assumed.
- g. Other Remedies for Default. If the Developer or surety fails to comply with the District's requirements for payment as described above or fails to complete the improvements as required or otherwise violates the escrow agreement provisions and there is a risk that development will continue in the subdivision without the timely prior completion of improvements or compliance with escrow agreement provisions, the District may in addition or alternatively to other remedies:
- i. The District shall not thereafter authorize construction of District-inspected improvements to take place contrary to the order. The suspension shall be rescinded in whole or in part only when the District is convinced that completion of the improvements is adequately assured in all or an appropriate part of the subdivision and a guarantee of public street maintenance has been provided; or
  - ii. Suspend the rights of the Developer or any related entity to construct structures in any development platted after the effective date of such suspension throughout the Duckett Creek Sanitary District's jurisdiction. The District shall give the Developer ten (10) days' written notice of an order under this clause with a copy to sureties known to the District to have obligations outstanding on behalf of the Developer or related entities and shall record an affidavit of such notice with the Recorder of Deeds. If, within the ten-day period after notice is given, the District is not convinced by compelling evidence that completion of the improvements is adequately assured and maintenance of streets assured as provided herein, the District shall order construction suspended. The order shall be served upon the Developer with a copy to the surety, as appropriate, and a copy recorded with the Recorder of Deeds. The District shall not thereafter authorize construction to take place contrary to the District's order. The suspension shall be rescinded only when the District is convinced that completion of the improvements is adequately assured and maintenance of the District-inspected improvements is assured.

- iii. Suspension of Development Rights. From and after the effective date of this Section, if a Developer or any related entity has a subdivision development improvement guarantee that is in default, as determined by the District, including any escrow or bond under any prior version of this Section:
  1. The District shall be authorized, but not be limited, to thereafter pursue the remedies of this Section; and
  2. The rights of the Developer or any related entity to receive development approval, which approval shall include, but not be limited to, approval of any construction plans or escrow agreement for new or further development in the District's jurisdiction, shall be suspended. The suspension shall be rescinded only when the District is convinced that completion and maintenance of the improvements is adequately assured.
- h. Additional Remedies. If any party fails to comply with any obligation of this Section, the District may take appropriate legal action and may also withhold any construction permits to this Developer or related entities until such compliance is cured. The District shall also have the right to partially or wholly remedy a Developer's deficiencies or breached obligations under this Section by set-off of any funds or assets otherwise held by the District of the Developer to the maximum extent permitted by law. Such set-off shall occur upon written notice of such event by the District to the Developer after the Developer has failed to timely cure the deficiencies. It shall be deemed a provision of every Escrow Agreement authorized under this Section that the Developer shall pay the District's costs, including reasonable attorneys' fees, of enforcing such agreement in the event that the Developer is judicially determined to have violated any provision herein or in such agreement. The Developer may appeal any decision taken pursuant to this Section by filing an appeal to the Duckett Creek Sanitary District Director whose decision shall be final.

#### **6.050 Payment of Inspection Fees**

The Owner(s) of all projects with public sanitary sewer facilities will be responsible for payment of District Inspection Fees. Inspection hours will be logged on each project by District inspectors. Prior to final escrow release, the District will notify the Owner of the total amount of inspection hours and respective inspection fees due for final escrow release and District acceptance of public dedication. District receipt of inspection fee payment is required **prior to final escrow release** and acceptance of public dedication of the project.

#### **6.060 Abandonment of Work**

Upon receipt of a written statement from the Owner that further work on the project has been abandoned, the District shall determine whether or not the uncompleted work is required to ensure the public health, safety and welfare. Should it be determined that completion of the work is necessary, the District shall utilize the monies of the construction escrow for the project to complete this work.

Should the District determine that the completion of the work is not required; the construction escrow monies shall be released in accordance with Section 6.040.



## **CHAPTER 7. FEES AND ESCROW ESTABLISHMENT REQUIRED BEFORE CONSTRUCTION PLANS ARE ACCEPTED**

### **7.010 Fees Required Before Construction Plan Acceptance**

The District will require that certain fees be paid prior to the acceptance of the construction plans for review, or the subsequent acceptance of these plans for construction. Failure to submit the fees in a timely manner could delay the review and approval of the plans. **No construction plans shall be accepted by the District until all required fees have been paid.**

#### **7.010.01 Application Fee**

The District will charge a fee to review the construction plans for a project. **(See Chapter 13 for current fee structure)**

#### **7.010.02 Connection and System Development Fees**

A Connection Fee shall be required for all projects which require sanitary sewer service. This fee will be determined in accordance with the District's current rates and fees. **(See Chapter 13 for current fee structure)**

#### **7.010.03 Recording Fees**

The Owner will be responsible for paying the recording fees for all documents to be recorded with the Recorder of Deeds for St. Charles County. **(See Chapter 13 for current fee structure)**

### **7.020 Escrow Establishment Required Before Construction Plan Acceptance**

For projects with public sewer facilities, or private facilities requiring District construction inspection, certain construction escrows shall be required prior to the acceptance of construction plans. All construction escrows shall be in accordance with the District's typical Escrow Agreement and guaranteed by the agreement terms with an acceptable bonded/insured bank, savings and loan, title company or other recognized financial institution.

#### **7.020.01 As-Built Cost**

The cost to prepare and submit as-built drawings shall be included in the required construction escrow.

#### **7.020.01 Construction Guarantee Required**

1. Before the construction plans may be accepted by the District for construction, the Developer shall guarantee the completion of all sanitary sewer facility improvements proposed in the construction plans ("required improvements") by establishing an escrow under an escrow agreement with the District guaranteeing the construction, completion, and installation ("construction escrow") as required herein and for the improvements proposed in the construction plans within the improvement completion period approved by the District. The required escrow shall be in 100% of the amount of the entire proposed public and private sanitary sewer facilities to be constructed under District

inspection and pursuant to the District-accepted construction plans and engineer's estimate of probable construction cost. This performance security shall not be fully released by the District until a final inspection has been made and the sewer facilities guaranteed by the construction escrow are been found to be in compliance with District regulations, the District-accepted construction plans, and any District-accepted field changes, if any. In the event the sewer facilities are to remain privately owned, provisions shall be made by the Developer to assure perpetual maintenance. Construction guarantees shall be in the form of an irrevocable letter of credit, cash escrow, or certified check held in the favor of the District by an acceptable financial institution as follows:

- i. The instrument may not be drawn on any financial institution with whom the Developer or a related entity has any ownership interest or with whom there is any joint financial connection that creates any actual or potential lack of independence between the institution and the Developer. For purposes of this Section, "related entity" shall mean that a Developer is a related entity of another person if either has a principal or controlling interest in the other; or if any person, firm, corporation, association, partnership or other entity with a controlling interest in one has a principal or controlling interest in the other. The identification of related entities shall be supported by documentation from the Secretary of State's office, Jefferson City, Missouri.
- ii. As a condition to the acceptance of an irrevocable letter of credit by the District, the financial institution must certify to the District, in writing, that it was assigned a composite rating of either "1" or "2" under the Uniform Financial Institutions Rating System ("UFIRS"), as set forth in 62 FR 752-01, as amended, in the most recent examination of such financial institution's financial condition and operations by an appropriate agency of the United States Government. The financial institution need not explicitly disclose its composite rating; it need only disclose that it was assigned a composite rating meeting the requirements of this subsection.
- iii. Subsequent to issuing an irrevocable letter of credit and during the entire term thereof, any financial institution issuing an irrevocable letter of credit to the benefit of the District pursuant to this section shall maintain a composite rating of "1" or "2." If prior to release of such letter of credit such financial institution is assigned a composite rating of "3," "4" or "5" under the UFIRS by an appropriate agency of the United States Government, the financial institution must notify the Developer and the District, in writing, that it no longer complies with this subsection. Upon receipt of such notice, or written notice from the District to the financial institution and the Developer upon the District's discovery that the financial institution no longer complies with the requirements of this subsection, the Developer must establish a replacement guarantee with the District, guaranteeing improvements pursuant to the provisions of this section. If the Developer fails to establish a replacement guarantee within thirty (30) days from the Developer's receipt of notice required herein, the District shall declare the Developer to be in default, and the District shall be entitled to any remedies available to it under this section.
- iv. The letter of credit shall provide that the issuing institution will pay on demand to the District such amounts as the District may require to fulfill the obligations herein and may be reduced from time to time by a writing of the District. The letter of credit shall be irrevocable for at least two (2) years and shall state that any balance remaining

at the expiration shall automatically be deposited in cash with the District, unless a new letter of credit is issued and agreed to by the District or the District issues to the institution a written release of the obligations for which the letter of credit was deposited. The Developer shall pay a non-refundable fee of two hundred dollars (\$200.00) to the District with submission of a letter of credit and one hundred dollars (\$100.00) for any amendment or extension thereto to partially reimburse the District's administration and review costs in accepting and maintaining such letter of credit.

2. Releases of the construction escrow will be made pursuant to Chapter 6.

## **CHAPTER 8. CONSTRUCTION AUTHORIZATION AND PERMITS**

### **8.010 General**

#### **8.010.01 Construction Permits Required**

Any person, firm or corporation desiring to construct, install, relocate, connect or reconnect any sanitary sewer, whether public or private, within the boundaries of the District shall cause construction plans and specifications to be prepared by a professional engineer licensed in the State of Missouri, and shall cause the same to be submitted to the District for examination, revision, and accepted by the District in accordance with the regulations and design standards of the District. Such approval shall be subject to the execution of a connection agreement (including payment of connection fees), an agreement to dedicate and use, and an escrow agreement. No such facilities shall be constructed without a District-issued construction permit. All such construction plans and specifications shall be prepared in such form and manner as may be prescribed by the District.

#### **8.010.02 Defaults**

No person shall be entitled to District acceptance of construction plans while such person is in default in the performance of any of the obligations to the District with respect to previous construction project, deficiencies of required construction escrow(s), or any fees for District-rendered service.

### **8.020 Fees and Construction Escrows**

The fees and construction escrows required for plan approval are stated in Chapter 7.

#### **8.020.01 Connection Agreement and Fees**

Prior to executing a connection agreement with the District, the connection fees must be paid and the construction plans and specifications for the project must be accepted by the District. Illicit (unpermitted) connections to District sanitary sewer facilities are prohibited. Under no circumstances shall sanitary sewer connections be left open, unsealed, or incomplete in a manner that permits storm water, ground water, or surface water to enter any District sanitary sewer facility. Any person found guilty of violation is subject to fine, placement of a lien on the subject property, potable water shut off and/or disconnection from the District's sanitary sewer system.

#### **8.020.02 Connection to Existing Sanitary Sewer**

In all cases where a connection is to be made to an existing sanitary sewer, the District Engineering Department shall be contacted at least 48 hours prior to the connection to allow scheduling of inspections by the District. All connections to the District sanitary sewer system shall occur only under a construction permit duly issued by the District. All required connection fees shall be paid prior to making any connection to the District sanitary sewer system.

### **8.030 Expiration and Extension of Construction Permits**

Construction permits issued by the District, but wherein construction has not commenced, shall be shall expire after **one year from the date of issuance**, at which time the construction permit shall expire. Construction plan revisions and additional construction escrow requirements may be required for reissuance of the expired construction permit. Written requests for an extension of this one-year period or reissuance of an expired construction permit shall be at the discretion of the Director of Engineering and Operations and no more than one extension shall be granted on any single development project.

### **8.040 Cancellation of Construction and Refund of Fees**

#### **8.040.01 Prior to the Start of Work**

A refund of the connection fees and cancellation of the plan approval may be made for **any plan approval which has not expired** upon receipt of a written statement from the Owner that the project has been abandoned. The plan approval letter with the written statement must be submitted to the District Engineering Department.

No refund of the Application Fee shall be made.

### **8.050 Construction Permits**

#### **8.050.01 Issuance of Construction Permit**

1. Construction permit will not be issued until plan approval, applicable fees have been paid and required agreements have been executed.
2. Issued construction permits will be valid for the specified project and period (not to exceed two (2) years) or such time project has been formally dedicated and accepted by the District

#### **8.050.02 Work Performed Without Construction Permit**

1. Owner is held responsible for obtaining construction permit prior to starting work. Failure to do so may result in fines and/or unveiling covered work for inspection at the owner's expense.
2. Final dedication and acceptance of the project by the District may be delayed until issue is resolved to the District's satisfaction.

### **8.060 Inspection Fee Payment**

All construction, installation, relocation, connection or reconnection to any sanitary sewer within the boundaries of the District shall be subject to inspection by the District. The District shall determine when payment of inspection fees will be due. Payment of inspection fees will be required prior to final approval and acceptance of the work.

### **8.070 Final Determination of Construction Inspection Fees**

Upon completion of construction of a project, receipt of final as-built documents, and after the permittee has complied with all other terms of these rules and regulations, the District shall compute the actual inspection fee based on field measurements. The District shall be paid or refund shall be made to the permittee, as the case may be. All outstanding fees must be made before final construction approval is given.

## CHAPTER 9. INSPECTION, INFILTRATION & DEFLECTION

### 9.010 General

A Field inspection by District personnel shall be made to verify that such works have been installed and constructed in accordance with the District-accepted construction plans, designs, and specifications.

Before final acceptance of any public dedication to the District of a constructed sewer facility, the District shall determine whether or not all requirements due under terms of any and all approvals and authorizations issued by the District and contracts with the District with respect to such sewer facilities have been satisfied.

### 9.020 Field Tests – Infiltration/Deflection

1. The Contractor shall be responsible for the following:

- Performing and recording all tests on sanitary sewer system.
- Furnishing all equipment, mandrels, hoses, water, piping connections, test pumping equipment, pressure gauges, pumps, bulkheads, regulators, and any other miscellaneous items as required. Certification of gauges will be required from the gauge manufacturer. Certification and calibration data shall be available to the District whenever air tests are performed.
- Any by-pass pumping as required.
- Making any corrections required as a result of tests. Having corrections inspected and accepted and completing retesting of any part of the system that failed during any initial tests.
- Payment of all costs associated with field tests or retesting unless otherwise indicated in project specifications.

2. Reach Integrity Testing

All sanitary sewers shall sustain a maximum leakage limit of 100 gallons/inch of pipe diameter/mile of line/day, as required by the Missouri Department of Natural Resources Specifications. To ensure compliance, leakage tests are required and shall be performed for sanitary sewers by low pressure “Air Testing”, “Infiltration/Exfiltration Testing”, or “Joint Testing” as indicated in the following paragraphs and accepted by the District. If the groundwater level requires a test pressure greater than 6 psi gauge, or if groundwater level is two (2) feet or more above top of pipe at the upstream end, an “Infiltration Test” shall be used. All visible leaks shall be repaired from the exterior of the pipe or structure.

- a. Replacement of Existing Sewers/Test Method Modifications. Where existing sewers are being replaced with new sewers in the same location as the existing sewers, modifications to the methods of testing will be considered and tests will be performed as approved and directed by the District.
- b. Air Testing. Air testing shall be performed after completion of the backfill operation. As applicable, for pipe diameters eight (8) inch through 27 inch, the air test for leakage shall conform to ASTM 1417-11a(2015) or installation acceptance of plastic non-pressure Sewer lines using low-pressure air or ASTM C1103-14 for joint acceptance testing of installed precast concrete pipe sewer lines or ASTM F1417 for acceptance of plastic gravity sewer lines using low pressure air.

The air tests shall not be conducted unless the pipe is secured so that the application of air pressure will not separate the pipe joints. Air testing shall start with a stabilized test pressure of 3.5 psi. If the pressure drops more than 1.0 psi during the test time, the line is presumed to have failed the test. The test time for each type of pipe shall be as indicated in the appropriate ASTM specification. For example, the testing times for 400 feet of plastic pipe sewer lines shall be as follows: 8-inch diameter 10:08 (min:s); 10-inch diameter 15:49 (min:s); 12-inch diameter 22:47 (min:s).

- c. Infiltration/Exfiltration Testing. After completion of the backfill operation, if infiltration/exfiltration testing is used, it shall follow the procedures as outlined in ASTM C-969-17 for infiltration and exfiltration acceptance testing of installed precast concrete pipe sewer lines. This procedure shall be used for all types of pipe materials as applicable. The length of total reaches tested shall not exceed 700 feet. For infiltration testing, the ground water must be at least two (2) feet above the crown of the pipe for the entire length of the test section. If the ground water level is less than two (2) feet above the crown of the pipe from the highest elevation of the sewer, the exfiltration test shall be used. In either case, measurement of leakage shall not exceed 100 gallons/inch of pipe diameter/mile of line/day. For exfiltration testing, the leakage loss shall be measured over a timed test period as directed by the District. In any case, the testing time period for the exfiltration test shall be no less than one hour.
- d. Joint Testing. Joint tests for sanitary sewer using air or water shall be performed on all types of pipe materials larger than 27 inches in diameter following the procedure of ASTM C-1103 for Joint acceptance testing of installed precast concrete pipe sewer lines. Each joint will be tested at the time of installation prior to complete backfilling of the trench. The sewer shall be kept clean prior to testing so that equipment used in conducting the test can properly seal against the pipe. The test shall not be conducted unless the pipe is secured so that the application of air or water pressure will not separate the pipe joint. The equipment used for conducting the test shall span the joint and be securely placed. Air or water pressure shall be applied into the joint test area at a minimum pressure of 3.5 psi greater than the pressure exerted by ground water above the pipe. Maintain the pressure for at least 10 seconds after established pressure has been reached and stabilized. A maximum pressure drop of one (1) psi is allowable. In addition, after backfilling and prior to acceptance, any visible leaks are to be repaired for acceptance by the District.

### 3. Mandrel Testing

Prior to final construction inspection, after completion of the backfill operation and the jetting or compaction processes, all flexible pipe shall be tested, by the use of an approved nine (9) arm mandrel to ensure that no pipe deflection has occurred greater than 5% of the inside diameter of the pipe. These tests shall be performed without mechanical pulling devices and without additional cost to the District. Ductile iron pipe will not require a mandrel test unless required by the construction plans and specifications.

### 4. Manhole Testing

For the purpose of leakage tests, all precast concrete and poured in place concrete sanitary sewer manholes shall be considered pipe of equivalent diameter and shall be tested by an appropriate test method such as exfiltration or vacuum testing after the complete installation.

- a. Vacuum Testing. A vacuum test shall be in accordance with ASTM C-1244-11(2017)

standard test method for concrete sewer manholes by the negative air pressure (vacuum) test prior to backfill. The required test period is one (1) minute (minimum) for all sized and manhole depths. After the complete installation of the manhole, including the frame installation, a vacuum test shall be performed at 10" Hg (mercury). After the pressure has stabilized, a maximum of 1" Hg drop in a minimum of one (1) minute will be allowed for manholes up to 48" in diameter. For larger manholes, the time for a maximum of 1" Hg drop shall be a minimum of two (2) minutes. If the vacuum test fails to meet the above requirements, repeat test after all leaks and defects have been repaired.

- b. Exfiltration Testing. If exfiltration testing is used, it shall follow the procedures as outlined in ASTM C-969-17 for infiltration and exfiltration acceptance testing of installed sewer lines. For exfiltration testing, the allowable leakage limit is 100 gallons/inch of pipe diameter/mile of line/day when the average head on the test section is three feet or less. After plugging all inlet and outlet pipes, the structure shall be filled with water to the top of the manhole frame. After allowance for water absorption or refilling, if required, the leakage loss shall be measured over a timed test period as directed by the District. In any case, the testing time period for the exfiltration test shall be no less than one (1) hour.

#### **9.030 Low Pressure Sewer System Collector Main Testing Requirements**

Successful Field Pressure Testing of the Common Collector Main system shall be required prior to initial 90% Escrow Release. Contractor shall perform test in presence of District Inspector.

1. Pressure tests shall be made only after the completion of backfilling operations and after the concrete thrust blocks have set for at least thirty-six (36) hours.
2. The pipeline shall be slowly filled with water. During filling of the pipe and before applying the specified pressure, all air shall be expelled from the pipeline via exercise of the Air Release Valves, Valve Vault Valve Sets and/or Cleanouts. Contractor to verify said Air Release Valve operation.
3. The specified pressure measured at the lowest point of elevation shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Design Engineer and/or Inspector.
4. Test pressure of seventy (70) PSI to ninety (90) PSI shall be maintained for a duration of one (1) hour unless otherwise directed by the Engineer and/or Inspector. Minimum allowable pressure shall be fifty (50) PSI.

#### **9.040 Privately Constructed Sewers and Treatment Facilities**

All privately constructed sewers and wastewater treatment facilities shall be subject to District inspection, testing, and acceptance. All privately constructed sanitary sewers and wastewater treatment facilities shall be subject to the rates, rules and regulations of the District as required for consideration of District acceptance of public dedication. These sewers and facilities shall have had as-built drawings submitted for final review and acceptance prior to the acceptance of dedication to the District for public use. Without public dedication or District acceptance of that public dedication all private sanitary sewer facilities within the District's boundaries shall remain privately owned and maintained.



### **9.050 Maintenance and Operation Inspection**

Operation and maintenance of any private, semi-public or industrial wastewater disposal or treatment facility that are located within the District boundaries or that discharge to the District sanitary sewer system shall be subject and open to inspection by the District at all times.

### **9.060 Fees**

The Owner of a sanitary sewer facility or wastewater treatment facility approved by the District or subject to District inspection shall be responsible for payment of inspection fees for District inspection of construction of said facilities. Inspection fees provided in Chapter 14 shall be required.

### **9.070 Completion of Sanitary Sewer Construction Without Inspection**

Failure to obtain construction inspection of a sanitary sewer facilities that are connected to the District's sanitary sewer system by a District inspector shall require the Owner of such facilities to provide the District a District-acceptable method of proof that the work has been installed and constructed in accordance with the District-accepted designs, construction plans, and specifications. This may involve exposing any and/or all of the work at the Owner's sole responsibility and expense for inspection, testing and acceptance or rejection by the District.

## **CHAPTER 10. CUSTOMER SERVICE CONNECTIONS**

### **10.010 General**

A written application or contract, properly executed, may be required for new service connection prior to commencing of construction of facilities to be connected to the District's sanitary sewer mains.

### **10.020 Location, Quality and Quantity of Wastewater.**

1. The Customer shall, upon request of the District, present in writing to the District the location of the building and the quality and quantity of the wastewater to be discharged to the District's mains. The District will then advise the type or form and character of the waste collection and treatment facilities available.
2. The Customers service connection will be made through a wye branch or "saddle type connection" (saddle type and "inserta tee" connections require District review and acceptance) at the sanitary sewer main which shall be located in dedicated sanitary sewer (utility) easement or public right-of-way. The location and type of the connection shall be reviewed by the District for acceptance.
3. Any change in the location of an existing service connection requested by the Customer shall be made at the Customer's expense.
4. Customer service will not be extended along public streets or roadways or through property of others, except within dedicated easements, for connection with sanitary sewer mains. If a service connection is requested at a point not already served by a sanitary sewer main or a sanitary sewer main of adequate capacity, the sanitary sewer main may be extended or modified. Any sanitary sewer main extension or modification shall be submitted to the District for review and acceptance.

### **10.030 Change of Quality or Quantity**

Any substantial change of the quality or quantity of the wastewater discharged to the District sanitary sewer system shall be submitted in writing to the District for review and acceptance.

### **10.040 Inspection of Service Connection**

The Customer or the Customer's plumbing contractor shall notify the District forty eight (48) hours in advance of commencing excavation for connecting the Customer's service connections to the District's sanitary sewer main(s) in order that the District may inspect such connection. Failure of Customer to provide for the inspection may result in connection(s) being uncovered at the Customer's expense in order that the connection(s) may be inspected by District personnel for proper installation. Furthermore, the Customer, Customer's contractor or subdivision owner shall locate all manholes located on the tract of land for which a service connection is being requested and shall make certain that all such manholes are brought to proper grade and elevation and shall be inspected at the time of inspection of the service connection. In the event that it is determined subsequently that a manhole has been covered, not accessible or brought to grade, the District shall notify the Customer, Customer's contractor or subdivision owner of such deficiency, and they shall be required to correct such condition. Failure to correct such condition shall cause the District to take appropriate action to bring such manhole to proper grade and level. In such event, the District shall assess to the Customer, Customer's contractor or subdivision owner the costs incurred by the District in locating or raising such manholes to acceptable grade and level. The minimum cost assessed shall be \$300.00.

### **10.050 Notification of Proper Agencies**

The District on completion of an application and/or contract for a new service connection shall notify the proper St. Charles County or City Authorities when major water users or new subdivisions are to be supplied with sanitary sewer service, or its acceptance of the new customer service connection and the availability of facilities for continuous service for the specified Customer location.

### **10.060 Construction Plan Review**

The District shall review all construction plans for service connections and shall submit the construction plans within a reasonable length of time.

### **10.070 Inside Piping and Customer Sewer Service**

The customer will provide his/her lateral sewer service at his/her expense and risk.

#### **10.070.01 Contingencies for Lateral Sewer Service**

As a condition of service, inside piping and building lateral sewer construction must meet all of the requirements of the latest editions of Plumbing Rules and Regulations of St. Charles County Missouri, at the time of connection to the sanitary sewer system. The District shall deny service where footing drains, downspouts, or other sources of uncontaminated water are permitted to enter the system through either the inside piping or through the building sewer.

#### **10.070.02 Separate and Independent Lateral Sewer for Each Customer**

A separate and independent lateral sewer shall be required for every building, except where one building stands at the rear of another on an interior lot and no private sewer is available or can be constructed to the rear building through an adjoining alley, court yard, or driveway, the lateral sewer service from the front building may be extended to the rear building and the whole considered as one lateral sewer service, provided that the secondary building sewer service is solely owned by and for the use of the occupants of the main building as part of their quarters. See sub paragraph (12) of 3.030.09 herein.

#### **10.070.03 Reuse of Old Existing Lateral Sewer**

Old lateral sewer services may be used in connection with new buildings only when they are found on examination and test to meet all requirements of the District, and/or criteria indicated in Section 10.070.01 as deemed necessary by the District.

#### **10.070.04 Pipe Materials**

The lateral sewer service shall be Ductile Iron Pipe, plastic pipe, or equal or other suitable material reviewed and accepted by the District, all meeting ASTM specifications. Joints shall be tight and water proof. Any part of the Customer's lateral sewer service that is located within ten feet (10') of a water service pipe shall be constructed of Ductile Iron Pipe with leaded or neoprene gasket joints. Ductile pipe with neoprene gasket or lead joints may be required where the lateral sewer service is exposed to damage by tree roots. If installed in filled or unstable ground, the lateral sewer service shall be of Ductile Iron Pipe, except that non-metallic material may be accepted if laid on a suitable concrete bed or cradle as reviewed and accepted by the District.

#### **10.070.05 Pipe Size and Slope**

The size and slope of the lateral sewer service shall be subject to the review and acceptance of the District, but in no event shall the diameter be less than four (4) inches. The slope of such four (4) inch pipe shall not be less than one-fourth (1/4) inch per foot (2% slope). The diameter of all non-residential sewer laterals shall be no less than six (6) inches.

#### **10.070.06 Location, Elevation, Grade and Alignment**

Whenever possible the Customer's lateral sewer service shall be brought to the building at an elevation below the basement floor. No building sewer shall be laid parallel to or within three (3) feet of any bearing wall. The depth shall be sufficient to afford protection from frost. The lateral sewer service shall be laid at a uniform grade and in straight alignment insofar as possible. Changes in direction shall be made only with proper fittings and clean-out provisions.

#### **10.070.07 Lift Required for Building Wastewater Discharge**

When any building lateral sewer is too low to permit gravity flow to the District's main, the sanitary wastewater carried by such lateral sewers shall be lifted by District-accepted artificial means and discharged to the building sewer. Wastewater ejector shall not be used. Where individual private pressurized sewer lateral(s) connect to gravity sanitary sewer main(s), the connection shall be at a manhole and as accepted by the District. See sub paragraph (9) of 3.030.09 herein.

#### **10.070.08 Excavation and Backfill**

All excavations required for the installation of a Customers lateral sewer service shall be open trench work. Pipe laying and backfill shall be performed in accordance with the latest published Engineering Specifications of the Manufacturer of the materials used and the St. Charles county Plumbing Code. An aggregate bedding is recommended to maintain proper slope and alignment. All connections to the District's public sanitary sewer main require an inspection and acceptance by the District. Only those jointing materials and methods acceptable to the District may be used.

#### **10.070.09 Connection to the Main Sewer**

1. The connection of the Customers lateral sewer service into the main sewer shall be made at a wye branch, if such branch is available at a suitable location. If there is no properly located wye branch and if the District's sanitary sewer main is twelve (12) inches in diameter or less, a wye branch must be installed. Where the District's main is greater than twelve (12) inches in diameter, and no properly located wye branch is available to receive the Customer's lateral sewer service, a wye branch shall be installed with entry in the downstream direction at an angle of about forty-five (45) degrees and the flow line being approximately at the spring line of the District's main. A smooth neat joint or connection shall be made, and the joint or connection made secure and watertight by encasement in concrete. Special fittings may be used for the connection or joint only when approved by the District. Lateral sewer service connections to manholes may be allowed only with the District's prior authorization and inspection.

2. Alternative sewer systems, such as septic tank effluent pumped (STEP) sewers or septic tank effluent gravity (STEG) sewers shall not be permitted.

**10.080 Applicant's Responsibility**

1. All facilities above described are to be constructed and maintained by the applicant, and shall be subject to the inspection for acceptance or rejection by the District, and shall be in accordance with the rules and regulations of the District, or other governing authority, which are in effect at that time. The more stringent codes shall apply. However, repairs or replacement of existing facilities must be in accordance with current codes and regulations.
2. It is the owner's responsibility to secure, establish and provide proof of established permanent easements and/or rights-of-way for sewer lateral facilities located off of the owner's property.

**10.090 Right of Entry**

On taking of service from the District, customers agree to provide access to the premises during reasonable hours in order that the District may inspect and sample discharges via sanitary sewer facilities at the premises that are connected to the District's sanitary sewer system.

## **CHAPTER 11. APPLICATION AND CHECK LISTS FOR PROJECT SUBMISSION FOR REVIEW**

### **11.010 General**

The submittal of all project information for all wastewater projects shall be verified by the Check Lists provided herein. It shall be the responsibility of the submitting Engineer to see that all applicable information listed on the Check Lists is provided to District. This includes the design information as well as information in the construction plans and specifications. One (1) copy of the Check List shall be submitted with the design information and the construction plans and specifications.

#### **11.010.01 Sewer Facility Projects**

All Sewer Facility Project submittals should include Check List #1 and Check List #2. For any Check List item not pertinent to the specific project being submitted for review, the submitting Engineer shall insert the letters "N.A." for Not Applicable.

### **11.020 Project Review Information Form**

This Form is required on ALL Project submittals. A copy is included in this manual. Separates will be available for Owners, Developers and Design Engineers.

### **11.030 Sanitary Sewers Design Data, Maps & Computations - Check List No. 1**

A copy is included in this manual. Separates will be available for Owners, Developers and Design Engineers.

### **11.040 Sanitary Sewer Contract Drawings - Check List No. 2**

A copy is included in this manual. Separates will be available for Owners, Developers and Design Engineers.

### **11.050 Application For Construction Permit Application Form**

An Application and Fee must be submitted with design information and the construction plans and specifications prior to review of project. The application fee is nonrefundable. Refer to Section 7 for the required fees and construction escrow(s) required before construction plans are accepted by the District for construction.

### **11.060 Engineer's Estimate of Probable Construction Cost.**

An estimate of probable construction cost to construct the proposed public sewer facilities prepared by a professional engineer registered in the State of Missouri shall be submitted to the District for review and acceptance. Three (3) certified contractors' bid may be submitted in lieu of an engineer's estimate of probable construction cost.

### **11.070 Hydraulic Analysis, as needed, for Low Pressure Sewer System.**

Hydraulic calculations shall be submitted and sealed by the engineer certifying flow calculations used to determine line sizes for the complete system to include any future expansions.

## CONSTRUCTION PLANS REVIEW INFORMATION SHEET

Complete this information sheet in its entirety; submit with required number of sets of plans (see page two)

1. Engineer's Name: \_\_\_\_\_  
Street: \_\_\_\_\_ City \_\_\_\_\_  
State: \_\_\_\_\_ Zip Code \_\_\_\_\_ Phone: ( ) \_\_\_\_\_  
Contact: \_\_\_\_\_ Fax ( ) \_\_\_\_\_
  
2. Owner's Name: \_\_\_\_\_  
Street: \_\_\_\_\_ City \_\_\_\_\_  
State: \_\_\_\_\_ Zip Code \_\_\_\_\_ Phone: ( ) \_\_\_\_\_  
Contact: \_\_\_\_\_ Fax ( ) \_\_\_\_\_
  
3. Type of ownership (circle one) Corporate Individual Partnership
  
4. Location Information
  - a. Accurate Location of property relative to an intersection: \_\_\_\_\_  
\_\_\_\_\_  
(If not at an intersection, the distance from the property to the nearest intersection)
  - b. St. Charles County Parcel ID \_\_\_\_\_
  - c. Street Address of Project \_\_\_\_\_
  
5. Acreage of Improvement \_\_\_\_\_ Total Acreage of Property \_\_\_\_\_
  
6. State usage of development (commercial, industrial, apartments, condominiums, subdivision, etc.)  
\_\_\_\_\_  
\_\_\_\_\_

7. Size of water meter required for proposed non-residential facilities, to include subdivision recreation area, clubhouse, etc.

\_\_\_\_\_

Domestic Size \_\_\_\_\_ Fire/Irrigation \_\_\_\_\_

Number of Apartment Units, Condos or Lots \_\_\_\_\_

8. If this submittal is a revision and/or addendum to a previous project, please note Duckett Creek Sanitary District Permit Number P# \_\_\_\_\_, and describe below. *(Changes should be delineated in the construction plans accordingly.)*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

WORKSHEET TO DETERMINE NUMBER OF REQUIRED SETS OF CONSTRUCTION PLANS		
PLEASE CHECK	REQUIRED #	USE
_____	<u>  1  </u>	Minimum Number Required for initial Duckett Creek Sanitary District review.
_____	<u>  1  </u>	Project has Pump Station or Low Pressure Sewer System.
	_____	Total Required for this Project.

***\*Failure to submit the correct number of construction plan sets may result in the delay or rejection of project for review.***

***Please note that a minimum of one (1) hard copy and a digital copy (.pdf) complete construction plan set is required for final Duckett Creek Sanitary District "Accepted for Construction" stamp and signature.***





**DESIGN INFORMATION**

A. Population or number of lots to be served by this extension: \_\_\_\_\_

B. Estimated flow to be contributed by this extension: \_\_\_\_\_

C. Industrial Waste: Type \_\_\_\_\_

Flow \_\_\_\_\_

D. Receiving Sewer: Size \_\_\_\_\_

Capacity \_\_\_\_\_

E. Will 5 acres or more of land be disturbed? \_\_\_\_\_

If yes, was a Land Disturbance Stormwater Permit obtained by MDNR? \_\_\_\_\_

**RECEIVING TREATMENT FACILITY NAME OR TYPE OF TREATMENT PLANT**

Location of Treatment Facility \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Has the continuing authority that operates the treatment facility and/or flow collection system approved or agreed to accept the additional sewage flow? Yes \_\_\_\_\_ No \_\_\_\_\_

I CERTIFY THAT I AM FAMILIAR WITH THE INFORMATION CONTAINED IN THE APPLICATION, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF SUCH INFORMATION IS TRUE, COMPLETE AND ACCURATE, AND IF GRANTED THIS PERMIT, I AGREE TO ABIDE BY THE DUCKETT CREEK SANITARY DISTRICT RULES, REGULATIONS, ORDERS AND DECISIONS, SUBJECT TO ANY LEGITIMATE APPEAL AVAILABLE TO APPLICANT UNDER THE RULES AND REGULATIONS OF THE DUCKETT CREEK SANITARY DISTRICT.

\_\_\_\_\_  
APPLICANT'S SIGNATURE (see instructions)

\_\_\_\_\_  
DATE

\_\_\_\_\_  
NAME PRINTED

\_\_\_\_\_  
TITLE OR CORPORATE POSITION

## **INSTRUCTIONS FOR FILLING OUT APPLICATION FOR CONSTRUCTION PERMIT - SEWER EXTENSION**

Construction permit fees shall be tendered together with this application. Incomplete construction permit applications and related engineering documents will be returned by the district if they are not completed in the time frame established by the district in a comment letter to the owner. Construction permit fees for returned applications shall be forfeited. Construction permit fees for applications being processed by the district that are withdrawn by the applicant shall be forfeited. The construction permit fees are as follows:

**\$75 For a Sewer Extension Under 1,000 feet in length**

**\$300 For a Sewer Extension Over 1,000 feet in length or for construction of a lift station**

**NOTE:** Applicants proposing to build more than one construction unit are only required to pay the highest fee. Example: If two lift stations and 2,000 feet of sewer line were being constructed, the construction permit fee would only be the highest number of \$300. If 500 feet of sewer line and one

Different application and construction fees are applicable if a sewage treatment device is to be constructed.

1. Give the name of the project or the name of the subdivision in which the sewers are being constructed.
2. Describe the location by street name or give the most accurate alternative geographic information.
3. Legal name and address of the owner or applicant.
4. Briefly describe the project by providing the following information:
  - a. Total number of manholes
  - b. Size of sewers and the total lineal feet of each size.
  - c. Number of lift stations and design average and peak flow capacities of each lift station.
  - d. Size and length of force mains.
5. Provide the name and address of the treatment facility. If the treatment facility has no address provide the most accurate geographic information. In the alternative the treatment facility may be described as a 3-cell wastewater stabilization pond, 40,000 gallons-per-day extended aeration treatment facility, etc.
6. If the continuing authority has not agreed to accept the additional flow or in some cases to accept the sewer extension, this application will be considered incomplete.

7. All applications must be signed as follows:
  - a. For a corporation, by an officer of at least the level of plant manager;
  - b. For a partnership or sole proprietorship, by a general partner or the proprietor;
  - c. For a municipal, state, federal, or other public facility, by either a principal executive officer or ranking public official.

This completed form, along with the construction permit fee should be returned to the address shown at the top of page one of the application form.

If there are any questions concerning this form, please direct your questions to:

Duckett Creek Sanitary District  
Attention: Engineering Department  
3550 Highway K  
O'Fallon, MO 63368-8384  
(636) 441-1244 FAX (636) 498-8150

## **CHAPTER 12. UPSIZING PUMP STATIONS AND/OR SANITARY SEWER PIPES TO SUPPORT FUTURE DEVELOPMENT**

### **12.010 Procedure for Sanitary Sewer Systems Upsizing**

If it is in the best interest of the District and the public for upsized pump stations or sanitary sewer pipes for future development to a part of a proposed development project, the Director shall develop a plan and present it to the Board of Trustees. If the plan is approved by the Board of Trustees, a contract may then be developed between the District and the Developer of the proposed development project that details the responsibilities of both the District and the Developer in the design, construction, and cost of the system.

### **12.020 Service Area Approach to Sanitary Sewer System Upsizing**

When any upsized sewer system is considered, the District shall take a Service Area approach in determining the location and size of the upsized Pump Station and/or sewer pipe. The District shall analyze the area surrounding the proposed development to ascertain the potential need to provide sanitary sewer service to these surrounding lands. The plan for the Service Area shall identify all potential lands to be served, the systems necessary to provide sanitary sewer service, and a financial analysis of the upsized system cost.

### **12.030 Establishing a Cost Center for Upsized Sanitary Sewer Systems**

Each sanitary sewer system that includes an Area Pump Station and/or upsized sanitary sewer pipes to accommodate future development shall be an individual Cost Center that reflects the increased costs and the lands that will be served by these improvements. A supplemental fee shall be established for each Cost Center based on the overall cost to the District to upsize the system. The District shall recoup special assessment fees from future development within each Cost Center on a per acre basis in addition to fees and charges as described in Chapter 13.

### **12.040 Contract with Developers for Upsized Sanitary Sewer Systems**

A standard contract may be established between the District and the Developer when the District requires the construction of upsized systems in, near, or adjacent to a proposed development. When a contract is prepared, it shall detail the responsibilities of both the District and the Developer and any eligible costs to be reimbursed by the District to the Developer for the additional design and construction costs associated with the upsized system. Upon acceptance of a contract by the District's Board of Trustees, the Developer shall be eligible for up to 100% reimbursement of their upsizing costs based on available budget. Reimbursement by the District may take the form of reduced connection fees for the proposed development in lieu of direct payment by the District.

## **CHAPTER 13. RATES FOR RENDERING SERVICE**

### **PRELUDE**

It is determined and declared to be necessary and conducive to the protection of the public health, safety, welfare and convenience of the Duckett Creek Sanitary District (the District) to collect charges from all users who contribute wastewater to the District's treatment facilities. The proceeds of such charges so derived will be used for the purpose of operating, maintaining, replacement and retiring the debt for such public wastewater treatment facilities.

The District will review the user charge system annually and revise user charge rates as necessary to ensure that the system generates adequate revenues to pay the costs of operation and maintenance including debt service and replacement.

### **13.010 USER CHARGE SYSTEM**

The annualized user charge system shall generate adequate annual revenues to pay the cost of operations and maintenance and equipment replacement of the treatment facilities along with the reserve accounts and required debt service.

### **13.020 RATE STRUCTURE**

#### **13.020.01 Classes of Users and Charges**

The following classes of users and charges are hereby established:

1. Residential Users: \$26.75 per month for operation and maintenance and equipment replacement and reserves and debt service.
2. Non-residential Users: \$4.40/1000 gallons of less than or equal to normal domestic strength wastewater based on water meter readings for operation and maintenance and equipment replacement and reserves and debt service. The minimum charge will be \$26.75 per month.

#### **13.020.02 Surcharge**

1. Users who contribute greater than normal strength wastewater with Biochemical Oxygen Demand (BOD) concentration greater than 250 mg/L and/or Total Suspended Solids (TSS) concentration greater than 300 mg/L and/or a Chemical Oxygen Demand (COD) concentration greater than 400 mg/L shall be subject to a surcharge as follows:

\$0.43/pound BOD in excess of normal wastewater

\$0.15/pound TSS in excess of normal wastewater.

2. An additional surcharge may be assessed to users/customers in a special use situation to recover additional charges for actual treatment and capital costs..

**13.020.03 Wastes Causing Increased Cost of Operations and Maintenance**

Any user who discharges any pollutants which cause an increase in the cost of managing the effluent or the sludge from the District's treatment facilities, or any user which discharges any substance which singly or by interaction with other substances causes identifiable increases in the cost of operation, maintenance, or replacement of the treatment facilities, shall pay for such increased costs. The charge to each user will be as determined by qualified personnel and approved by the Director.

**13.020.04 Other Charges**

The District may establish other charges to provide for the cost of services it incurs in the various collection functions. Those costs may include but are not limited to charges for insufficient fund checks, lien filings and releases, credit card transaction fees, water company letter fees associated with disconnection activities and certified mailing postage. Additional rates, fees and charges may be added to amounts established in this chapter for costs incurred by Chapter 12: New Sewer Systems/Area Pump Stations.

**13.030 BILLING**

**13.030.01 Frequency of Billing**

1. Designated residential users shall be billed monthly or quarterly.
2. Nonresidential and designated surcharge users shall be billed monthly or bi-monthly.

**13.030.02 Delinquency**

All billings shall be delinquent if not paid within thirty (30) days of the due bill date.

**13.030.03 Delinquent Charge**

Any delinquent account shall be subject to a three and one-half percent (3.5%) late charge per month. Income generated by these delinquent charges may be utilized in a manner consistent with the Revised State Statues.

**13.040 FEES**

**13.040.01 Application Fees**

The following fees shall be due upon initial application for the review of construction plans for the purpose of obtaining a construction permit:

Sanitary Sewer Main Extensions

Less than or equal to 1,000 linear feet \$75

Greater than 1,000 lineal feet \$300

Lift Stations \$300

Treatment Plants Review of Treatment Plants to be processed through the Missouri Department of Natural Resources.

**13.040.02 Connection and System Development Fees**

1. The Connection Fee is based upon domestic water meter size as per the following Fee Schedule.

Water Meter Size	TP1, TP2, Augusta, and SAR WWTFs	Riverdale WWTF	Wyndgate WWTF	TP4 WWTF
Less than or equal to ¾ inch	\$800	\$1,500	\$2,000	\$2,000
1 inch	\$3,340	\$3,340	\$3,340	\$3,340
1 ½ inch	\$6,600	\$6,600	\$6,600	\$6,600
2 inch	\$10,660	\$10,660	\$10,660	\$10,660
3 inch	\$23,340	\$23,340	\$23,340	\$23,340
4 inch	\$40,000	\$40,000	\$40,000	\$40,000
Greater than 4 inch	\$90,000	\$90,000	\$90,000	\$90,000

2. Unknown Water Meter Size

If all water meter size(s) for project site to be permitted are unknown prior to issuance of District Construction Permit, Sanitary Sewer Connection Fee may be determined by calculation of developed acreage multiplied by \$14,000 per acre and/or in combination with platted metered areas. In cases where acreage calculation was utilized, and prior to expiration of District Permit, the Developer of the project may submit to the District actual meter sizes for platted areas within the permitted project, to determine calculation and/or adjustment of Connection Fee amount. The term “developed acreage” shall mean acreage of entire project site to be permitted, less that acreage in flood plain, retention or detention basins, park-lands and open-air sports fields.

**13.040.03 Inspection Fees**

A project inspection fee shall be paid to the District at the rate of \$55.00 per hour.

**13.050 DISCONTINUANCE OF SEWER SERVICE BY THE DISTRICT**

The District reserves the right to discontinue sewer services for any of the following reasons:

1. For failure to comply with terms of sewer contract
2. For nonpayment of sewer bill or connection fee.
3. For resale of sewer service.
4. For unauthorized sewer connection to District sewer mains, unauthorized opening of sewer mains during construction or permitting entry of storm water, ground water or other objectionable materials.
5. For unauthorized connection of footing drains, downspouts or connections permitting surface water, ground water or storm water entry into sanitary sewer.
6. For violation of any District Rules or Regulations.



**13.050.01 Violation**

In the event a Customer is in violation of any of District Rules or Regulations the District shall have the right to disconnect and/or plug the customer's or violator's sanitary sewer lateral within the District's easement in which event the total cost of disconnection and re-establishment of service shall be at the expense of the customer, but in an amount not less than \$250.00.

**13.050.02 Collection of Additional Costs**

Discontinuance of sewer service to a premise for any reason shall not prevent the District from pursuing any lawful remedy or action of law for the collection of monies due. The District shall have the right to recover costs associated with collections, disconnection or reconnection collection charges, reasonable attorney fees, and any other charges incurred for the collection of such debt.

**13.050.03 Renewal of Disconnection**

When wastewater service to a customer has been terminated for any reason other than temporary vacancy of the premises, it will be renewed only after the conditions, circumstances or practices which caused the service to be discontinued are corrected to the satisfaction of the District and upon payment by the customer to the District of all applicable fees and charges set forth in these Rules, Rates, and Regulations.

**13.050.04 Notification**

Prior to physical discontinuance of sewer service, the District will mail or deliver a dated notice giving the customer ten (10) days to conform to the Rules and Regulations of the District, except as set forth below and shall state the violation. The ten (10) days written notice may be waived where discharge of materials into the District sewer main may be judged to be detrimental to the public health and safety, cause damage to the sewer facilities or is illegally or unlawfully connected.

**13.050.05 Right of Refusal**

The District has the right to refuse or to immediately disconnect sewer service to any premise to protect itself against fraud, abuse, and improper or unauthorized connections or to protect District's facilities from physical or process harm.

**13.060 BILLS FOR SEWER SERVICE**

The charges for wastewater service shall be at the rates specified in the applicable rate schedules. The point of assumption of a customer's wastewater shall be at the sewer main or lateral service connection.

**13.060.01 Customer Liability**

A customer who has made application or is being provided with sewer service to a premise shall be held liable for all sewer service furnished to such premise until the customer notifies the District in writing to discontinue service.

**13.060.02 Customer Responsibility**

Each customer is responsible to notify the District that they are using the services of the District and for furnishing the District with his/her correct address. Failure to receive a bill for wastewater service shall not be considered an excuse for non-payment nor reason to permit an extension of the date when the account would be considered delinquent.

**13.060.03 Customer Address for Billing**

Bills and notices relating to the District or its business will be mailed or delivered to the customer's mailing address unless the District is notified in writing by the customer of a change of address.

**13.060.04 Payments**

Payments will be accepted at District Administrative Offices via U.S. Mail or by acceptable electronic methods. Payments may be made in the form of cash, money order, check or acceptable credit card.

**13.060.05 Billing Mistakes or Errors**

The District will not be bound by bills rendered under mistake of fact as to the quantity of service rendered or as a result of clerical error.

**13.060.06 Payment by Location**

A separate bill shall be rendered for each **customer** location except for charges where multiple locations are billed to one customer.

**13.060.07 Estimated Meter Readings**

Where water usage determines wastewater charges and an actual meter reading is not available, an estimated meter reading will be used for billing calculations. The estimated bill will be calculated based on three (3) prior actual reads. The District, at its discretion, will bill based on prior months estimates. At such time as actual readings are available, the customer billing amount will be adjusted accordingly.

**13.060.08 Partial Billing Periods**

*When bills are rendered for a period of less than a complete billing period due to the connection or termination of service, the billing shall be for the proportionate part of the charge.*

**13.060.09 Meter Water Not Entering the Sanitary Sewers**

All customers whose wastewater service charges are in excess of 30,000 gallons of water per month, and who can show to the satisfaction of the District that a portion of the water does not and cannot enter the sanitary sewer system, the District may determine the percentage of metered water entering the sanitary sewer system. Such percentage shall then constitute the basis of wastewater service charges. The District, at its discretion, may require or permit the installation of additional meters at the expense of the customer in such a manner as to determine the quantity of wastewater actually entering the sewer system.

**13.060.010 Multiple Accounts at One Address**

Where both residential and commercial classes of service are supplied through one service to the same customer on the same premises, the service shall be billed as one commercial customer.

**13.070 OBLIGATIONS OF THE CUSTOMER AND DISTRICT**

Every customer, upon signing an application for service rendered by the District, or upon taking of service, shall be considered to have expressed consent to be bound by District rates. The District reserves the right, to prescribe additional rates, or to alter existing rates, as it may from time to time deem necessary or proper to cover its costs.

**13.080 NOTIFICATION OF RATES**

**CURRENT DISTRICT  
 RATE AND FEE SCHEDULE**

**Application Fees**

Sanitary Sewer Main Extension	
Less than or equal to 1,000 linear feet	\$ 75
More than 1,000 linear feet	\$ 300
Lift Stations	\$ 300

**Connection Fees**

Water Meter Size	TP1, TP2, Augusta, and SAR WWTFs	Riverdale WWTF	Wyndgate WWTF	TP4 WWTF
Less than or equal to ¾ inch	\$800	\$1,500	\$2,000	\$2,000
1 inch	\$3,340	\$3,340	\$3,340	\$3,340
1 ½ inch	\$6,600	\$6,600	\$6,600	\$6,600
2 inch	\$10,660	\$10,660	\$10,660	\$10,660
3 inch	\$23,340	\$23,340	\$23,340	\$23,340
4 inch	\$40,000	\$40,000	\$40,000	\$40,000
Greater than 4 inch	\$90,000	\$90,000	\$90,000	\$90,000

<b>Unknown Meter Size (By Acre<sup>1</sup>):</b>	\$14,000
<b>Inspection Fees (By the Hour)</b>	\$55.00

**User Rates**

Residential	\$26.75 per Month
Non-Residential	\$4.40 per 1,000 Gallons
Surcharge Rates <sup>2</sup>	Based on Cost Center

<sup>1,2</sup> See “Rules, Rates, and Regulations Handbook for specific application of this fee

## CHAPTER 14. SANITARY LATERAL REPAIR PROGRAM

### PRELUDE

On April 5, 2016, the eligible voters in the Duckett Creek Sanitary District voted on Proposition L, a proposal to fund a sewer lateral repair program. Voters authorized the fee, not to exceed \$36.00 to be placed on their annual property tax bill to fund the program. The District has decided to initially set the fee at \$28 per year and this fee will first appear on the 2016 property tax notices sent by the St. Charles County Collector's Office.

#### 14.010 Definitions

**Residential Property.** Real estate within the Duckett Creek Sewer District of St. Charles County, Missouri, consisting of property identified by a single locator number in which the St. Charles County Assessor's Office classifies as: Class One – Single Family Residence (r), Class Thirteen – Duplex (r), Class Fourteen – Condo Residential (r), Class Nineteen – Single Unit Apartment (r), Class Thirty-One - Residential Triplex (r), Class Forty-One - Four Unites (r), Class Fifty-Four - Five Units (r), or Class Sixty-Four – Six Units (r). Included are lateral sewer service lines serving six or fewer dwelling units on such residential property and condominiums that have six or fewer condominium units per building and any condominium responsible for its own individual lateral sewer line. Also included is any property included in Section 249.424 RSMo. Excluded from this definition is any property in the Duckett Creek Sewer District that is located within any city, town, village or unincorporated area of a county that already imposes a lateral fee under Section 249.422 RSMo, or other relevant statutes.

**Sanitary Lateral.** That portion of the residential property's sanitary sewer piping that runs between the sewer main and the foundation of the dwelling unit or units.

#### 14.020 Sewer Lateral Repair Fee

An annual fee up to \$36.00 shall be collected from all eligible residential properties that are customers of Duckett Creek Sewer District and are within the Duckett Creek Sewer District of St. Charles County, Missouri except that the fee shall not be imposed on property in the sewer district that is located within any city, town, village or unincorporated area of a county that already imposes a fee under section 249.422 RSMo, or other relevant statutes for the purposes of paying the cost of certain repairs of defective lateral sewer service lines, and the reasonable costs to administer the program. The fee shall initially be set at \$28 but may be modified from time to time by the Board of Trustees. The Sewer Lateral Repair Fee will be placed on the annual property tax bill, collected by the St. Charles County Collector and remitted to Duckett Creek.

#### 14.030 Sewer Lateral Repair Fund

A Special account shall be created solely for the purpose of paying for all or a portion of the costs reasonably associated with and necessary to administer and carry out the defective lateral sewer service line

repairs. All interest generated on deposited funds shall accrue to the special account established for the repair of lateral sewer service lines, and shall be known as the Sewer Lateral Repair Fund. The Duckett Creek Sewer District Director of Finance and Administration or her/his designee shall administer and disburse funds from this fund upon authorization of the Director or his/her designee.

#### **14.040 Availability of Funds**

Administration of the Sewer Lateral Repair Program shall be contingent upon the availability of funds collected or anticipated to be collected pursuant to the yearly fee imposed by Section 14.020 above.

#### **14.050 Rules and Regulations**

##### **14.050.01 Amendments**

The Director shall propose to the District's Board of Trustees amendments to the rules and regulations to carry out the purposes and intent of the Sewer Lateral Repair Program to protect the public safety, health and welfare and to administer the program in an effective, efficient and timely manner.

##### **14.050.02 Owner Participation in the Sewer Lateral Repair Program**

- A. Complete the Application titled "Residential Sanitary Sewer Lateral Repair Program Application".
- B. If the sewer lateral crosses into a neighbor's yard, the neighbor may be required to sign an application giving consent for access to their property dependent upon location of lateral repair work. Failure to obtain consent may cause denial of application.
- C. Applicant must be current on payment of St. Charles County Property Taxes, Sewer Lateral Repair Fee and District's billing accounts. Application will be denied until issue is remedied.

##### **14.050.03 District Participation in the Sewer Lateral Repair Program**

- A. District will solicit Time and Material bids from qualified contractors prior to each fiscal year beginning on January 1st and ending on December 31<sup>st</sup> to perform this work. The District intends to select a minimum of 3 (three) contractors to perform lateral repair work generated from approved sewer lateral repair applications throughout the fiscal year. The District intends to bundle multiple repair work from the repair-list and award work based on evaluation of the cost for each individual repair.
- B. Sewer Lateral Repair Program will provide up to \$7,500 on repair work for each qualified application per fiscal year. Repair costs exceeding \$7,500 shall require approval of the Director.