

ARTICLE 4

SEWAGE AND SOLID WASTE DISPOSAL

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ARTICLE 4

SEWAGE AND SOLID WASTE DISPOSAL

SECTION 4-100 SANITARY SEWER DESIGN CRITERIA

4-110 Applicability

1. A complete sanitary sewer system shall be installed by the Developer to serve all lots and all new or existing buildings as stipulated in the Town Code, Chapter 34 and Division 5 of the Leesburg Subdivision and Land Development Regulations. The installation of sewers shall include the installation of public sewer laterals from the public sewer to the property line and private laterals from the property line to the building. This complete sanitary sewerage system shall be connected to the Town of Leesburg sewerage system which is approved by the Director of Utilities, and the Virginia Department of Environmental Quality (DEQ) as required by State law.
2. Special sewerage systems and sewage handling methods (i.e., private septic systems and pump stations) are permitted by the Town Code and by these regulations only in very limited and specific situations. Approvals from all outside agencies having jurisdiction over special sewerage systems and sewage handling methods (i.e., Loudoun County Health Department and DEQ) must be obtained by the owner or developer prior to construction drawing approval by the Director of Utilities.
3. Virginia Department of Environmental Quality (DEQ) approval is required for projects involving new systems or additions to existing systems designed to serve 400 or more persons (40,000 gpd). If the proposed gravity sewerage system extension involves pipe lines of 12 inches in diameter or less, the gravity sewerage system can be reviewed and approved by the Town of Leesburg under the Local Review Program which DEQ has approved. The review comments under Sewage *Collection and Treatment* Regulations constitute comments mandated by the Local Review Process.

For eligible sewerage systems, a Local Review Certificate to Construct will be completed by the Town and filed with DEQ when these comments are satisfied. Upon approval by DEQ, the Certificate is returned to the Town.

4. Contact the Department of Utilities for procedures that apply to projects ineligible for Local Review.
5. When sewers are to be served by the Town's Integrated Sewerage System, an "Application for Sewerage Service Requiring an Extension of Existing Facilities" (*refer to Town Code 34.123*) shall be executed by the owner or developer and approved by the Town Council.

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4-120 General

1. Type of Sewers

- A. The Town of Leesburg Sewerage System is designed to provide conveyance with total containment. New systems, extensions, or replacements, not designed to provide total containment for the design period shall not be permitted.
- B. Under no circumstances shall stormwater, surface water, ground water, roof runoff, subsurface drainage or untreated industrial process water be discharged into any sanitary sewerage system. *For other non-acceptable wastes, refer to Town Code, Section 34-118.*

2. Compliance with Design Criteria

The criteria established herein are minimum requirements for design and review under the Town of Leesburg's Subdivision and Land Development Ordinance. This criteria is required in order for the Town to comply with the Virginia National Pollutant Discharge Elimination System Permit authorizing the discharge of pollutants, under prescribed conditions, to State waters pursuant to the applicable regulations of the Virginia Department of Environmental Quality.

3. When development proposes to:

- a. Relocate existing sewer lines.
- b. Encroach upon existing sewer easements with physical improvements.
- c. Reduce cover over existing sewer lines to less than that specified by this Manual.
- d. Increase cover over existing sewer lines to more than that specified by this Manual.

The Developer shall be responsible for replacement of the sewer line in a new location during development of the property. Such replacement shall be to the standards and specifications set forth in this Manual, shall be approved by the Director of Utilities, and shall be at no cost to the Town.

4-130 **Design Criteria**

1. All sanitary sewer proposals shall comply with the approved Water and Sewer Master Plan concepts.

2. The adequacy of the existing sanitary sewer system receiving flows from the proposed project shall be determined prior to construction drawing approval. This determination should be completed at the preliminary stage to preclude unnecessary revisions to construction plans.
 - A. The designer shall provide calculations for the sanitary sewer system (on-site and off-site for both existing and proposed conditions as required) to the points of connection to the Town sanitary sewer system, and downstream to the nearest node of the Town's sanitary sewer model.

 - B. The Town will determine the adequacy of the sanitary sewer system downstream from the computer model node nearest the points of connection.
 - (1) Requests for computer modeling shall be addressed to the Director of Utilities, Town of Leesburg, Virginia.

 - (2) The request shall include the proposed flow at the point of connection to the model.

 - (3) The Director of Utilities will notify the designer in writing as to adequacy of the downstream system.

3. Tributary Population
 - A. Sewerage facilities shall be designed for the estimated ultimate tributary population. Consideration shall be given to domestic, commercial, institutional, and industrial wastes in determining the capacity of the system. The design shall be based on approved estimates of anticipated populations and flows for a period of 50 years hence, or the entire watershed shall be assumed to be completely developed according to the Town Plan and/or sewer master plan, whichever provides the greater sewerage flow, unless the Director of Utilities approves otherwise.

 - B. Design analysis shall be provided for all sewers on a form of the type illustrated in *Drawing SD-1 of this Article*. An overall map of the proposed sewer system should be submitted with the construction drawings.

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4. Sewage Flow

- A. Determining the average design flow shall be the first step in the sizing of sanitary sewerage systems. *Refer to Drawing SD-2 of this Article.* Actual design quantities may be substituted for the average design flows, provided supporting data is furnished to and approved by the Director of Utilities.
- B. Sewers shall be designed to carry a peak flow when full as determined by applying the appropriate peak flow factor to the average design flow. *Refer to Drawings SD-3 of this Article for the applicable peaking factors.*

5. Location of Sanitary Sewers and Manholes

- A. In general, sanitary sewers shall be located within legally established public streets or rights-of-way along the centerline of the street, and shall be equidistant from property lines or curb lines wherever possible.
 - (1) In order to reduce the number of manholes in curvilinear streets, manholes must be located within the pavement area but beyond the spread of stormwater gutter flow (*see Article 5, Section 243*) and a minimum of ten feet from the water and gas lines (outside edge to outside edge).
 - (2) All attempts shall be made to avoid locating sanitary sewer pipe and manholes within the paved portion of privately owned and maintained pipestem or common driveways without the prior approval of the Director of Utilities. This provision does not preclude the crossing of these driveways at generally 90 degrees with a sanitary sewer pipe.
 - (3) Separation of watermains and sanitary sewers
 - a. The horizontal and vertical separation between sanitary sewers and waterlines shall be in accordance with the requirements of the Virginia Waterworks Regulations.

b. Horizontal Separation

Sanitary sewers shall be laid at least 10' horizontally from a watermain. The distance shall be measured edge-to-edge. The 10' separation must also be observed at sanitary sewer manholes from the widest part of (diameter) manhole. This means that when a 4' manhole is proposed, the waterline must be laid at least 12' edge-to-edge from the sewer line. Variations to this requirement maybe granted where existing conditions prevent such provisions.

c. Vertical Separation – Crossings

Sanitary sewers shall cross under watermains such that the top of the sewer is at least 18 inches below the bottom of the watermain. When local conditions prohibit this vertical separation, the sanitary sewer shall be constructed of AWWA specified water pipe and pressure tested in place without leakage prior to backfilling. The hydrostatic test shall be conducted in accordance with the most recent edition of the AWWA Standard, with a minimum test pressure of 30 psi. Sewers crossing over watermains shall:

1. Be laid to provide a separation of at least 18 inches between the bottom of the sanitary sewer and the top of the watermain.
2. Be constructed of AWWA approved water pipe and pressure tested in place without leakage prior to backfilling, in accordance with the provisions of the most recent edition of the AWWA Standard, with a minimum test pressure of 30 psi.
3. Have adequate structural support to prevent damage to the watermain.
4. Have the sanitary sewer joints placed equidistant and as far as possible from the watermain joints and encase in concrete.

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d. Manholes

No water pipe shall pass through or come into contact with any part of a sanitary sewer manhole. Manholes shall be placed at least 10 feet horizontally from a watermain whenever possible. The distance shall be measured edge-to-edge of the pipes or structures (widest part of a manhole). When local conditions prohibit this horizontal separation, the manhole shall be of watertight construction and tested in place.

e. Nothing herein shall modify Virginia Department of Health requirements for lines and horizontal and vertical separation between waterlines and sanitary sewer manholes.

f. Doghouse manholes will be permitted on a case-by-case basis and as approved by the Director of Utilities. *Refer to Drawing SS-36 in Appendix A.*

(4) Sanitary sewers shall be designed such that they do not create skewed crossings with other utilities with an acute angle of less than 45 degrees, 90 degrees is preferred. Where skewed crossings are unavoidable due to existing utilities and/or where the crossing angle is greater than 45 degrees and involves a pipe larger than 48 inches in diameter, the crossing must be specifically designed and construction details provided.

(5) A table of bearings and distances shall be provided on all construction drawings for sanitary sewer construction, in order to accurately locate the utility for all sewers, which are contained in easements. The table of bearings and distances is not required on early submissions, but is required prior to final plan approval.

- (6) The deflection angle from the forward projection of the centerlines of inflow trunkline pipe to the outflow trunkline pipe at any junction shall not exceed 90 degrees.

- B. A sanitary sewer lateral shall be provided to all lots or individual buildings and shall be extended by the Developer to each lot or building in accordance with the provisions of this article unless further extension of service is required by the Director of Utilities. A sanitary sewer easement running to the Town for this lateral extension shall be platted and recorded if the line is outside the public right-of-way. If authorized by the Director of Utilities a lateral extension servicing a single residential unit may extend from the sewer main easement or road right-of-way across lands of another to the serviced property. In this specific case, the Town's easement and maintenance responsibilities shall end at the limits of the sewer main easement or road right-of-way, and a private easement, running to the benefit of the serviced property, shall extend from the end of Town maintenance to the serviced property. A project's lateral sizes shall be tabulated in a format similar to Drawing WS-6 and included on the approved construction drawings. *Refer to Drawings SS-1 and SS-2 in Appendix A.* For deep sewers, *Refer to Drawing SS-3 in Appendix A.*

- C. Proposed sanitary sewers to be publicly maintained shall not be located within the plane of influence of the building footing and in no case closer than one-half the required easement width from an existing or proposed building.

- D. Manholes for access to sanitary sewers shall be provided:

 - (1) At all intersections or connections of differing or same size sanitary sewer mains.
 - (2) At all points of change in alignment.
 - (3) At all points of change in grade.
 - (4) At points of industrial discharge as required by the Director of Utilities to facilitate observation and sampling.
 - (5) At the terminal end of the sanitary sewer line.
 - (6) At intervals not exceeding 400 feet on all sanitary sewers 15 inches in diameter or less, and not exceeding 500 feet on all sanitary sewers larger than 15 inches in diameter.

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- E. When it is necessary due to steep slopes, increased velocity, or invert elevation differences equal to or greater than 24 inches, a drop connection shall be employed to lower the elevation of the sewer at a manhole. This drop shall be made by means of an inside drop. When possible, an inside drop may also be used for conflicts in existing manholes requiring a drop greater than six feet deep only with prior approval of the Director of Utilities. The maximum difference in elevation, after the drop, permitted between the influent and effluent flows within the manhole itself shall be six inches. The minimum diameter manhole for use with an inside drop connection shall be four feet for pipes up to 8" in diameter, five feet for pipes 10" through 15" in diameter, and six feet for pipes larger than 15". *Refer to Drawings SS-4 and SS-6 in Appendix A.*
- F. Manholes for sewers up to 21 inches in diameter shall not be less than four feet, inside diameter. Manholes for sewers 24 inches and up to 36 inches shall have an inside diameter of not less than five feet. If the angle of deflection does not permit use of a four-foot inside diameter manhole, then a five-foot manhole or special manhole detail must be provided.
- G. For all new construction, line connection to the manhole shall be made with an approved flexible sleeve.
- H. When designing new sewers to tie into existing manholes, the bench of the existing manhole must be considered so that the invert of the new tie-in is not established lower than the existing bench.
- I. When the incoming (new or existing) sewer line into a manhole is smaller than the sewer line out, the invert of the smaller pipe shall match the centerline of the larger pipe. If the diameter of the smaller pipe is equal to or greater than one-half of the diameter of the larger pipe, then the crowns must match.
- J. Control of Infiltration and Inflow
 - (1) All sanitary sewer manholes shall be provided with an approved chimney seal installed to cover the joints at the frame adjusting rings and cone section. The chimney seal may be omitted only upon specific approval of the Director of Utilities in isolated locations when infiltration is highly unlikely. *Refer to Drawing SS-35 in Appendix A.*

- (2) All sanitary sewer manholes or appurtenances subject to inflow of ponded surface water and those with top elevations below the 100-year flood elevation shall be provided with watertight manhole frame and cover. *Refer to Drawing SS-8 in Appendix A.*
 - (3) Nothing in this paragraph shall be construed to permit the location of sanitary sewer manholes within the spread of stormwater gutter flow in paved areas.
 - (4) Manhole tops outside paved areas and or developed lawns shall be raised at least one foot above the finished grade.
 - (5) All manholes within easements shall be lock type cover.
- K. Ventilation of gravity sewers shall be provided where continuous watertight sections are greater than 1,000 feet in length. The vent shall be installed a minimum of one foot above the 100-year water surface elevation. *Refer to Drawing SS-9 in Appendix A.*
- L. All sanitary sewer manholes shall be precast concrete in accordance with ASTM-C478 consisting of precast reinforced sections, an eccentric conical section or sections, and a base section conforming with the typical manhole. *Refer to Drawing SS-7 as shown in Appendix A.* The exterior of all sanitary sewer manholes shall be asphalt coated.
- M. Sewers adjacent to or crossing streams, estuaries, lakes and reservoirs shall be designed, constructed and protected in accordance with the applicable regulations of the Virginia Department of Environmental Quality Sewerage Collection and Treatment Regulations., except that:
- (1) The connection of main sanitary sewer lines (not laterals) shall be made only at manholes. The use of adapters for a change in pipe type shall not be permitted. Connections to existing manholes shall be made by core borings.
 - (2) Sewer lines crossing streams shall be ductile iron pipe and provided with a minimum of one foot of cover where the stream is located in rock and three feet minimum cover where the stream is located in other materials. The cover requirements may be reduced with the approval of the Director of Utilities where the pipe is encased in concrete and located in an area, which will not interfere with future improvements to the channel bottom. *Refer to Drawing SS-10 in Appendix A.*

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- N. When an entire run of a sanitary line is constructed in a fill, the pipe shall be a continuous ductile iron (CL-50) run from manhole to manhole (i.e. no adapter). Fill material directly beneath pipe shall be select material (*Refer to Article 9*) compacted to 95 percent density at optimum moisture (ASTM Proctor Test).
- O. Sewers located in areas of unstable soil conditions or other special circumstances may need to be encased in concrete or relocated as required by the Director of Utilities. *Refer to Article 9 of this Manual.*
- P. All manholes deeper than four feet shall have steps. *Refer to Drawing SS-11 in Appendix A.*
- Q. Sewers crossing under a roadway or sewers crossing other utilities shall be designed to cross these at approximately 90 degrees. Where the crossing involves a pipe larger than 36 inches in diameter crossing above the sanitary sewer with a minimum clearance less than 18 inches, a concrete pier for the large sewer shall be used. *Refer to Drawing SS-12 in Appendix A.*
- R. Public sewers shall not be located in the rear of lots unless no other location will provide the sewer depth and slope requirements herein. Sewers so located must provide access for an AASHTO SU vehicle to all manholes.
- S. Building laterals, from multifamily buildings (condominiums and apartments only), may upon approval by the Director of Utilities connect to a single collector submain serving a single building before discharging into a public sewer.
- T. Sewer laterals shall connect to a sanitary sewer at the front street line of an interior lot or a corner lot; however, in unusual circumstances, laterals maybe located in areas other than front yards, if the Developer provides an “all weather” access way to the limits of Town maintenance for the lateral. Such access ways must be designed to accommodate an AASHTO SU vehicle, to bear the wheel loading of such vehicle without damage, and must be enclosed in an easement running to the Town.
- U. Where steel casing pipe is required by the Director of Utilities, or where an outside agency (e.g, VDOT, NVRPA, etc.) requires the installation of steel casing pipes for sanitary sewers, refer to Article 2, Section 2-330 *Highway Crossings for Water and Sewer Mains* for steel casing pipe requirements, materials and installation. *Refer to Drawings WS-10 and WS-11 in Appendix A.*

- V. Sewer lines shall not be located within stormwater management impoundment areas, within stormwater management embankment dams, or closer than 15 feet to the point of discharge for any outfall structure or spillway. In all cases, the sewer shall be located such that excavation on a 1:1 side slope, from the sewer invert to the proposed finished grade, will not disturb the impoundment area (defined as the 100-year water surface elevation), the embankment dam, the outfall structure, or the spillway. This requirement shall include wet and dry ponds.
 - W. When abandoning existing sanitary sewers (mains or laterals), they shall be capped at the active main.
 - X. The bottom of manholes located in fill shall be extended to undisturbed earth unless otherwise approved by the Director of Utilities with compaction requirements. Inside of manhole filled with non-shrink grout and provided with IS-1 shaping.
6. Sanitary Sewer: Laterals, Cleanouts, Grease, Oil and Sand Interceptors
- A. Sanitary Sewer Laterals
 - (1) For all subdivisions and development plans, the Developer, as part of the required public improvements, shall extend the sanitary sewer lateral from the main to the property line. *Refer to Drawing SS-1 in Appendix A.* Minimum lateral size shall be 4" in diameter.
 - (2) The sewer lateral pipe material shall be the same as the main sewer pipe material and shall have a smooth flow line.
 - (3) The extension of the lateral 5 feet beyond the sidewalk will allow the building plumber to install the sewer without undermining the sidewalk or curb and gutter.
 - (4) The cleanout, when required will be installed by the utility contractor.

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- (5) The sanitary sewer easement for the lateral and the Town responsibility for maintenance shall extend to the property line only.
- (6) The lateral table shall specifically list, for each lot, the length of the lateral, from the main to the end of lateral extension specified above, and the plan view shall agree with the lateral table.
- (7) Sanitary lateral connections tying to the public sanitary sewer main shall have a minimum spacing of two feet at the main.
- (8) Sanitary laterals shall have a minimum clearance of five feet from water service lines or other laterals.
- (9) Where possible, laterals shall discharge at manholes. In these instances, the cleanout at edge of easement or ROW will be waived.

B. Sanitary Sewer Lateral Cleanouts

- (1) Sanitary sewer cleanouts on sewer laterals shall be:
 - a. Located at the property line or at the edge of the easement.
Refer to Drawing SS-1 in Appendix A
 - b. Located, as required by the Town, at the limit of sanitary sewer lateral extension specified by this Article. *Refer to Drawing SS-1, SS-2 and SS-13 in Appendix A.*
- (2) Waiver of Town Required Sanitary Sewer Cleanout
 - a. In single family attached, detached, multi-family dwelling subdivisions and commercial buildings where the cleanout required by the Loudoun County Plumbing Code at the building face is within 20 feet of the cleanout required by the Town, the Town of Leesburg may waive the requirement for installation of a cleanout at the limit of lateral extension.
 - b. No requests for waiver of the Town required cleanout will be approved on laterals for deep sewers. Cleanouts must be provided on all sanitary laterals for deep sewers. *Refer to Drawing SS-3 in Appendix A.*

- c. Waivers to eliminate the Town required cleanout will be approved for whole townhouse blocks or entire multi-family buildings only. If 50% or more of the laterals in a townhouse block or multi-family building qualify for waiver, the entire block or entire building will receive the waiver. If any lateral in a block or building has a sanitary lateral for deep sewer, then no lateral in the block or building may receive a waiver. This uniform treatment will facilitate field installation and inspection.
- d. Requests for waiver of the Town required cleanout shall be recorded on the cover sheet for the project or by separate correspondence.
- e. Sanitary sewer lateral cleanouts shall be located at a maximum spacing of 100 feet and any change in direction of flow.

C. Grease, Oil / Water, and Sand Interceptors and Separators

In accordance with Town of Leesburg Sewer Use Regulations and the latest International Plumbing Code, the developer shall provide interceptors for oil, grease, sand, and other substances harmful or hazardous to the building drainage system, environment, the public sewer, or sewage treatment plant or processes. Interceptors and separators shall be provided for the proper handling of liquid wastes containing grease, or any flammable wastes, sand or other harmful ingredients.

- (1) Typical uses which will require interceptors are restaurants, commercial kitchens, food processors, carwashes, auto repair facilities, and other uses as determined by the Director of Utilities, and as required by the latest International Plumbing Code.
 - a. At repair garages, gasoline stations with grease racks, grease pits, or work racks, and factories where oily and flammable liquid wastes are produced, separators shall be installed into which all oil-bearing, grease-bearing, or flammable wastes shall be discharged before emptying in the building drainage system or other point of disposal. Parking garages are exempt.

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b. A grease interceptor shall be required to receive the drainage from fixtures and equipment with grease-laden waste located in food preparation areas, such as in restaurants, hotel kitchens, bars, factory cafeterias or restaurants and clubs. Food waste grinders shall not discharge to the building drainage system through a grease interceptor. *Refer to Drawing SD-10 in this article for suggested grease interceptor cleaning frequency.*

(2) The size, type and design of each interceptor and of each separator, shall be in accordance with the applicable requirements of the latest International Plumbing Code, and wastes other than those requiring treatment or separation shall not be discharged into any interceptor or separator. *Refer to Drawing SD-4 in this article for recommended sizing for facilities requiring grease interceptors.*

(3) In order to clarify approval jurisdiction and inspection responsibilities between the Town and County, all projects that require a grease, oil/water, and/or sand interceptor shall provide the following note on the construction drawing cover sheet:

“Town of Leesburg Sewer Use Regulations requires installation of grease, oil, and sand interceptors and separators on this site. Town approval of this device is limited to satisfaction of the Town Code requirement and does not express or imply approval of the grease, oil, and sand interceptors and separators construction details or installation methodology. Grease, oil, and sand interceptor and separator design shall be in accordance with the latest International Plumbing Code and is subject to Loudoun County approval with issuance of the Loudoun County Building Permit.”

(4) Interceptors shall not be required for private living quarters or dwelling units.

(5) All interceptors shall be located outside the building in an area readily and easily accessible for cleaning and inspection. Indoor interceptors will be evaluated on a case-by-case basis. In certain situations, as determined by the Director of Utilities, an inside grease trap may be acceptable. Normally, uses where fryers are not employed may be exempt from requirement of an exterior grease trap. Restaurants also must show the location of used grease containers and types of containment proposed.

A project's grease trap requirements shall be tabulated in a format similar to Drawing WS-6 and included on the approved construction drawings. *Refer to Drawings WS-6, SS-33, and SS-34 in Appendix A, Town of Leesburg Sewer Use Regulations, and the latest International Plumbing Code.*

7. Minimum Sewer Size

No public sewer shall be less than eight inches in diameter except that sewers serving six or fewer connections on residential cul-de-sacs may be six inches if engineering calculations and justifications indicate that such line size is adequate.

8. Hydraulic Criteria

The design and determination of sewer size shall be based on the following conditions:

- A. Sewers shall have a uniform slope and straight alignment between manholes.
- B. At all manholes where a smaller diameter pipe discharges into a larger one, the invert of the larger sewer shall be lowered so that the energy gradients of sewers at junction are at the same level. Generally, this condition will be met by placing the 0.8 depth of flow in each sewer at the same elevation.
- C. Sewers shall be designed to be free-flowing with the hydraulic grade below the crown and with hydraulic slopes sufficient to provide an average velocity of not less than 2.0 feet per second (fps). Calculations shall indicate that a cleansing velocity of 2.0 fps will be maintained at the designed peak flow condition as reported under "Proportional" Velocity on DCSM Drawing SD-1. Computations of velocity of flow shall be based on a coefficient of roughness "n" in the Manning formula of 0.013 for ductile iron pipe (DIP) or 0.010 for PVC based on actual material used.
- D. In no case shall terminal lines serving less than 8,000 gpd have a slope of less than 1 percent. Terminal lines 8 inches in diameter serving less than 8,000 gpd and having the required 1 percent slope or greater do not require calculations but sewer loading shall be shown in the design table.
- E. The maximum permissible velocity occurring with average flow shall be 15 feet per second (before applying peak flow factor) as reported under "Capacity of Pipe" on DCSM Drawing SD-1.

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- F. Where due to steep grades, velocity exceeds 15 feet per second, and/or where drop manholes are impractical for reduction of velocity, the sewer shall be of ductile iron or other abrasion resistant material meeting ASTM or AWWA specifications, and shall be anchored where appropriate. *Refer to Drawing SS-14 in Appendix A.*
- G. In general, the following are minimum slopes in feet per hundred feet to be provided for pipes flowing at full depth to one-half of full depth:

<u>Sewer Size</u>	<u>Minimum Slope in Feet per 100 Feet</u>
6 inch	0.62
8 inch	0.40
10 inch	0.28
12 inch	0.22
14 inch	0.17
15 inch	0.15
16 inch	0.14
18 inch	0.12
21 inch	0.10
24 inch	0.08
27 inch	0.067
30 inch	0.058
36 inch	0.046

- H. Benches in all manholes shall be built at a slope of not less than one inch per foot.
- I. Minimum Permissible Depth
 - (1) Sanitary sewers which may be subject to vehicular loading shall generally be placed with a minimum cover of six feet. Sanitary sewers with a depth of cover less than six feet shall require specific approval of the Director of Utilities. Requests for a modification of the six-foot cover requirement shall be recorded on the cover sheet.
 - (2) Sanitary sewers that are subject to vehicular loading, which have a depth of cover less than four feet, shall be ductile iron pipe, epoxy coated Class 50 to protect the sanitary lines from loads or effects of traffic based on HS-20 highway loading.

- (3) Sanitary sewer road crossing installed under pavements of roads classified as major arterial or higher shall be steel cased. Refer to Article 2, Section 2-330, "Highway Crossings for Water and Sewer Mains" in this Manual. The casing shall extend from edge of pavement to edge of pavement and must not be located within the intersection. Sanitary sewers shall not be installed longitudinally under the pavement of these roads. *Refer to Drawings WS-10 and WS-11 in Appendix A.*
 - (4) Minimum cover for sewers not subject to traffic loading shall be three feet.
- J. In general, the maximum allowable depths to inverts of various types and sizes of pipe are dependent on different types of bedding, earth loading, and live loading. Pipes with less than minimum cover and pipes with cover greater than 18 feet require pipe strength calculations to be submitted with the design. The maximum depth for all types of pipe shall be 18 feet. Under very unusual circumstances and with prior approval of the Director of Utilities, the depth of cover may be increased to 22 feet for short runs of ductile iron pipe. Request for a waiver of the 18-foot requirement shall be recorded on the cover sheet. *Refer to Drawings SD-6, SD-7, and SD-8 of this Article.*
- K. Slope Anchorage – Concrete anchors shall be placed on sanitary sewer lines with grades of 20 percent or greater. Minimum anchorage shall be provided such that anchors are not located over 36 feet center to center on grades from 20 to 35 percent. The maximum grade for sanitary sewers shall be 35 percent with anchorage. *Refer to Drawing SS-14 in Appendix A.*
- L. In general, the pipe diameter of sewers shall increase continually with increase in tributary flow. Where steep slopes would permit the use of a reduced pipe size and construction cost savings can be derived, the pipe size may be reduced one size at a manhole; however, appropriate hydraulic allowances shall be made for head loss of entry, increased velocity, and the effect of velocity retardation at the lower end where the flow will be on a flatter slope. Prior approval of the Director of Utilities is required for reduction in line sizes.
- M. Manholes which are located outside of paved areas shall be provided with locking covers. Locking covers will also be required in unusual situations as determined by the Director of Utilities. *Refer to Drawings SS-15 and SS-16 in Appendix A.*

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9. Sanitary Sewer Force Mains (Publicly operated and maintained)
 - A. The minimum size for force mains shall be four inches except when using grinder pumps.
 - B. At pumping capacity, a minimum velocity of two feet per second shall be maintained.
 - C. The maximum velocity shall be eight feet per second.
 - D. Force main shall terminate in manhole with its centerline elevation set as to ensure a smooth transition to gravity flow. The design shall be such as to prevent turbulence.
 - E. All pipe used for force mains shall be pressure type with pressure type joints.
 - F. Anchorage shall be provided where deemed necessary by the Director of Utilities, refer to the Manual of Practice, Section 22.07, Commonwealth of Virginia Sewerage *Collection and Treatment* Regulations, for testing and anchorage guidelines of force main sewers.
 - G. The connection of a private sanitary sewer pump facility to the Town's sewerage system shall be made by a minimum four-inch gravity flow line (one, four-foot section of pipe) at a minimum grade of one percent at a manhole.
 - H. Force mains must be provided with force main cleanouts at all major (45 degree and greater) changes in direction. *Refer to Drawing SS-17 in Appendix A.*
 - I. The receiving gravity flow sewerage system shall be analyzed for adequacy.
 - J. Force main high points shall be provided with an automatic air release valve. *Refer to Drawing SS-5 in Appendix A.*
 - K. Contact the Utilities Department for a copy of the Town's New Wastewater Pumping Station Development guidelines.
10. Sewage Pump Stations
 - A. Private sewage pump stations (i.e., those stations not accepted into the Town sewer inventory and privately maintained) will be approved under the following conditions:

- (1) Private pump stations may only accept flows from private sewer systems limited to:
 - a. Building laterals
 - b. Collector laterals
 - c. Private sewer system systems entirely on a single lot of record

- (2) Private pump stations serving **individual** single-family attached or detached units may be considered on a case-by-case basis **if and as approved by the Director of Utilities via a DCSM modification**. ~~In all such instances~~ **Generally**, the force main must transition to a gravity system prior to the area of the Town’s responsibility **unless the applicant provides a design as well as all applicable details, construction standards and any other information requested by the Director, as part of the Applicant’s Modification Request, to allow individual private pump stations serving single-family detached units to tie into a Town maintained public low flow forcemain, that is acceptable to the Director of Utilities. (Please be advised that not all modifications requested will be approved).**

- B. Public sewage pump stations shall be required whenever the pump station accepts flow from more than one lot of record. Public sewage pump stations must conform to the following:
 - (1) The design criteria and equipment specifications must meet the requirements of the Town’s New Wastewater Pumping Station Development Guidelines, DEQ, and the Dulles Area Watershed Policy.
 - (2) The entire facility, to include the building lot on which the station is located, must be dedicated at no cost to the Town of Leesburg.
 - (3) The pump station, if not shown on the Comprehensive Plan and Town’s Master Plan, must be approved by the Town Planning Commission and Council.

- C. Public or private interim sewage pump stations shall conform to the requirements above except for paragraph B(2), and shall conform to the additional requirements below:

4-130 TOWN OF LEESBURG DESIGN AND CONSTRUCTION STANDARDS

- (1) The ultimate sewerage facilities of all development must be in conformance with the Town's Water and Sanitary Sewer Master Plan. Design must provide for the ultimate connection. The Town will bear the burden of cost for the connection of publicly owned interim stations only.
 - (2) The developer proposing an interim sewage pump station shall remain as a contributor to the design and construction of the ultimate system as proposed in the Town's Water and Sanitary Sewer Master Plan. These future expenditures will be calculated by adoption of pro-rata and the developer will be required to pay such fees prior to start of construction.
11. Public or private sewage pumping stations constructed in the Town of Leesburg, and located in the Dulles Area Watershed shall be designed to meet Class I reliability criteria as established by the Commonwealth of Virginia Sewerage *Collection and Treatment* Regulations, Section 22.01.10.
 - A. Pumping stations should have a minimum 100-foot limited use zone surrounding them.
 - B. For type, number, size, and controls for the actual pumps, *refer to Commonwealth of Virginia Sewerage Collection and Treatment Regulations.*
 - C. All public and private pump stations are subject to review by the Town and the Virginia Department of Environmental Quality.
 - D. Public sewage pumping stations shall be protected using standard security fence. *Refer to Drawing SS-18 in Appendix A.*
12. Public Easements
 - A. Sanitary sewer mains may be constructed on private property provided that the owner has duly recorded a public easement. The owner shall have recorded easements from all parties possessing or having legal interest in an adequate right-of-way necessary for proper installation, maintenance, operation, or removal of sewage facilities.

- (1) Public easement width shall be determined based on a one to one side slope measured from the outside edge of pipe extending from the invert of the pipe at its lowest point below proposed grade between manholes and rounded up to the nearest foot. *Refer to Drawing WS-16 in the Appendix A.*
 - (2) The minimum public easement width for sanitary sewers shall be 15 feet. The maximum easement width shall be 30 feet for single pipes or 15 feet each side for multiple pipes. Pipes shall be centered in easements.
 - (3) Increased public easement widths may be required by the Director of Utilities.
- B. No privately owned permanent structure or landscaping other than shrubs shall be permitted within a public easement.
- C. Where deemed necessary by the Director of Utilities, and in order to ensure maximum utilization of public sanitary sewer systems, it will be required that appropriate public easements be provided to adjacent properties for access or extension of said public utility.
13. Test pits shall be shown at all utility crossing and at the points of connection to existing sanitary sewer mains. At least 10 days prior to construction activity the contractor must obtain its test pit data and coordinate with the Town Utility Inspector. If the test results show a potential conflict or non-compliance with the approved plan, revisions to the plans must be submitted for approval. In such instances, no work shall commence until conflicts are resolved and revisions approved. Such test pits must be completed before approval of construction drawings.

4-140 TOWN OF LEESBURG DESIGN AND CONSTRUCTION STANDARDS

4-140 Structural

1. General

The structural design of sanitary sewers shall conform with the methods set forth in the ASCE Manual No. 37, for the Design and Construction of Sanitary and Storm Sewers.

2. Bedding

A. The Class of bedding shall be determined by the engineer to provide the strength necessary for the soil and load conditions that will be encountered. *Refer to Drawings SD-5 and SD-9 of this Article.*

B. The bedding and backfill of PVC (AWWA C-900/905 DR 25) pipe shall comply with the following additional criteria:

(1) Class B - Bed bottom, 75 degrees (minimum) measured from the invert of the pipe, on a fine granular fill over shaped trench bottom. The trench shall then be backfilled and compacted.

(2) Class C - Bed bottom, 60 degrees (minimum) measured from invert of the pipe, on a fine granular fill over shaped trench bottom. The trench shall then be backfilled and lightly compacted.

(3) For all PVC pipe installation, a cushion of select fine grained material (VDOT fine aggregate grade A) shall be placed by hand to a depth of one foot over the top of pipe prior to the trench being backfilled with methods above. This material shall be VDOT crushed stone No. 68 or 78.

(4) The class of bedding shall be indicated on the construction drawings.

3. Allowable Working Strength

The allowable working strength shall be the field supporting strength multiplied by 0.65, thereby incorporating a factor of safety.

4. Backfill Load

Unless more specific data is available, the backfill load (w) shall be computed as $w = 130$ pounds per cu. ft. ($K_u=0.130$)

5. Live Load

- A. Sewers in public streets shall be designed for an HS-20 truck loading as specified by AASHTO for up to ten feet of cover.
 Concentrated Load: $P = 16,000$ pounds, (single dual wheel)
 Impact Factor: $I = 1.3$, 0'-0" to 1'-0"; 1.2 to 2'-0"; 1.1 to 3'-0"
- B. Length of Pipe: L = length of distributed load area at top of pipe parallel to longitudinal axis of pipe.

6. Permitted Materials

- A. Permitted sanitary sewer pipe materials shall include: Ductile Iron Epoxy Coated (Sewpercoat or equal) (minimum thickness Class 50) for sewers 20' or deeper. Sewers less than 20' in depth shall utilize PVC AWWA C-900/905 DR25.
- B. The thickness class of ductile iron pipe is minimum and shall be increased as required by individual trench loading considerations.
- C. All plastic pipelines (i.e. laterals) must be provided with a tracer wire and warning tape. The tracer wire shall be attached to the top of the pipe. *Refer to Drawing GN-2 in Appendix A.*

7. Joints

Joints in sanitary sewer pipe lines shall be designed to prevent infiltration and to prevent entrance of roots. The joint design shall conform to the appropriate ASTM specifications for the type of pipe and type of joint utilized. Joints for PVC pipes shall be flexible elastomeric seals ASTM D-3212. Joints for ductile iron pipe shall be single rubber gasket, AWWA C111.

8. Sewer Line Plugs

All newly installed sewers shall be plugged at their outfall and the plug removed only when the lines have been tested, flushed, and vacuumed. The plug shall be placed on the invert out of the manhole. All debris must be vacuumed from the manhole before the plug is removed.

4-150 TOWN OF LEESBURG DESIGN AND CONSTRUCTION STANDARDS

4-150 Acceptance Tests

1. An acceptance test shall be specified for all gravity sewer lines by the contractor and test schedule communicated with the Town's Utility Inspector. The test may be either a water test or an air test.
2. The contractor shall schedule all acceptance tests with the assigned Town's Utility Inspector at least 48 hours in advance of testing.
 - A. Each section of completed sewer shall be tested.
 - B. Generally, the sewers shall be tested from manhole to manhole.
 - C. No sewers or building spur connections shall be excluded from this testing procedure.
3. All sanitary sewers, including manholes, shall be inspected prior to acceptance testing using visual, television test, light test or other approved methods. Prior to this inspection, any trench dewatering pumps shall be disconnected and any noticeable trickle or leakage shall be corrected and eliminated prior to undertaking the acceptance test.
4. Acceptance tests shall not be made until the sanitary sewer, manholes and required building spurs, as shown on approved construction plans, have been installed, the sewer trenches backfilled to finish grade and compacted within easement areas and base paved in right of ways and easement areas.
5. The contractor shall furnish all equipment and materials necessary to perform these tests. All acceptance tests shall be conducted by the contractor in the presence of the Town's Utility Inspector.

4-151 Water Testing

1. Where water testing is specified (infiltration or exfiltration), the leakage inward or outward shall not exceed 100 gallons per inch of nominal pipe diameter per mile per day (2,400 gpd/mi maximum) for any section of the system including manholes. *Refer to Drawings SS-19, SS-20, SS-21, and SS-22 in Appendix A.*
 - A. The exfiltration test may be permitted by the Director of Utilities. When permitted, the line shall be subjected to a minimum of four feet of head, or head based on filling to the top of the manhole with water, whichever is the lesser, above the crown of the pipe at the upstream manhole of the section being tested. *Refer to Drawing SS-23 in Appendix A.*
 - B. All service laterals, stubs and fittings into the sewer lines being tested should be properly capped or plugged, and carefully braced to resist the thrust actions developed by the internal water pressure.
2. The upper manhole standpipe must be capable of handling from five to ten feet of water head to determine the tightness and soundness of the sewer line, as specified and directed by the Town Utility Inspector.
3. Water shall be introduced into the line at the downstream manhole until the standpipe in the upstream manhole has been completely filled. Care must be taken to minimize entrapped air by filling the pipe slowly.
4. After filling with water, the line must be allowed to stand for a minimum of 12 hours before beginning the test. After the water absorption has stabilized, the water level in the standpipe must be checked and water added if necessary.
5. After assuring stabilization, the drop in the standpipe shall be measured and recorded over a ten-minute period. The measured drop must be converted to leakage in terms of gallons per inch diameter per mile per day.
6. Caution shall be taken conducting exfiltration tests on sewer lines laid on steep grades. Consideration must be given to the downstream portion of the system to prevent excessive pressure in these lower lines.

4-152 TOWN OF LEESBURG DESIGN & CONSTRUCTION STANDARDS

4-152 Air Testing

1. Where air testing is specified, test methods and acceptability criteria shall be in accordance with the appropriate ASTM specifications. Air testing shall generally be acceptable for all types of pipe materials.
2. The contractor shall thoroughly clean and remove all debris, silt, earth, or other material from the sewer prior to acceptance testing. The pipe may be flushed or sprayed with water to facilitate this process. This water, including debris, shall be pumped and disposed of properly. Under no circumstances shall it be allowed to enter the existing sewer. (See Section 4-140 8.)
3. Test plugs shall be supplied and installed by the contractor within the pipe at each manhole or at suitable locations to test a section of the pipe. Each plug shall be securely braced.
4. If the pipe to be tested is expected to be below the ground water table, the contractor shall either:
 - A. Install a small diameter perforated vertical pipe from the invert elevation of the sewer to the surface prior to backfilling, or
 - B. Insert a pipe probe by boring or driving into the backfill material adjacent to the invert elevation of the pipe, and determine the depth of the ground water level above the pipe invert immediately prior to acceptance testing the sewer.
5. All gauge pressures in the test shall be increased by the amount of this back pressure due to ground water submergence over the end of the probe. In no case shall the starting test pressure exceed nine pounds per square inch.
6. The contractor shall add air slowly to the portion of the pipe under test until the internal air pressure is raised to four pounds per square inch greater than the average back pressure of any ground water above the invert of the pipe.
7. The contractor shall allow the air temperature to stabilize for at least two minutes to ensure accurate gauge pressure reading, thereafter adding only the amount of air required to maintain the four psi pressure.
8. If the internal air pressure decreases, the time required for the pressure drop from three and one-half to three pounds per square inch greater than the average ground water backpressure will be observed and recorded. This time interval shall be

compared with the established standards in accordance with the approved table of time and length for various diameters of sewer. *Refer to Drawing SS-24 in Appendix A.*

9. Pipe which fails to maintain the stipulated pressure for a period equal to or greater than the holding time shown in the approved tables shall be deemed to have failed to pass the low pressure air test and is unsatisfactory for acceptance by the Town of Leesburg. Any sewer or house connection that fails to pass this test shall be repaired by the contractor. Following corrections, the sanitary sewer shall be retested in accordance with the above procedures. *Refer to Drawing SS-25 in Appendix A.*
10. As a safety precaution, no one shall be allowed in a manhole after the air pressure is increased in the sewer line. If the Town Utility Inspector suspects that the test plug may be leaking, the pressure first shall be relieved before any adjustments are made to eliminate air leakage at the plug. The contractor may precoat the plug with a soap solution to check the plugs for leakage.
11. For accuracy and safety precautions, air tests shall be limited to the diameters of pipe and lengths of pipe indicated in the previously referenced air test timetable.
12. Pressure gauges used in the air test procedure shall have a minimum four inch diameter face, a range of zero to ten psi, shall be calibrated in divisions of 0.10 pounds per square inch, and have an accuracy of plus or minus one percent.
13. For air testing pipes of larger diameter than 36 inches, a thorough visual inspection shall be required and all joints shall be tested with a special joint testing device such as the Cherge "Joint tester" System, or approved equal. Testing procedure shall be as recommended by the manufacturer.
14. If air testing is employed, the manholes shall be tested by exfiltration.
 - A. Inflatable stoppers shall be used to plug all lines into and out of the manhole being tested.
 - B. The stoppers shall be positioned in the lines far enough from the manhole to ensure testing to those portions of the lines not air tested.
 - C. The manhole shall then be filled with water to a level four feet above the top of the pipe. A 24-hour soak shall be allowed.

4-152 TOWN OF LEESBURG DESIGN & CONSTRUCTION STANDARDS

- D. Leakage shall not exceed one-half gallon per hour. Manholes determined to be or suspected of poor quality jointing or construction practices by the Director of Utilities or Town Utility Inspector, shall be tested to the top of the manhole and repaired as necessary.

4-153 Vacuum Testing of Manholes

1. In those specific instances where a manhole is constructed or reconstructed astride an existing and active sewer line, and where conventional exfiltration would require pumping of the existing sewage flows around the newly constructed manhole, vacuum testing of the manhole may be authorized by the Director of Utilities.
 - A. This test method is only applicable to precast concrete manholes.
 - B. Manholes should be tested after assembly and prior to backfilling.
 - C. Stub outs, manhole boots, and pipe plugs shall be secured to prevent movement while the vacuum is drawn.
 - D. Installation and operation of vacuum equipment and indicating devices shall be in accordance with equipment specifications for which performance information has been provided by the manufacturer and approved by the Virginia Department of Health. Written confirmation of such approval shall be provided by the Developer to the Director of Utilities.
 - E. A measured vacuum of 10 inches of mercury shall be established in the manhole. The time for the vacuum to drop to nine inches of mercury shall be recorded.
 - F. Acceptance standards for leakage shall be established from the elapsed time for negative pressure change from ten inches to nine inches of mercury. The maximum allowable leakage rate for a four-foot diameter manhole shall be in accordance with the following:

<u>Manhole Depth</u>	<u>Minimum Elapsed Time for a Pressure Change of 1 inch Hg</u>
10 feet or less	60 seconds
> 10 feet but < 15 feet	75 seconds
> 15 feet but < 25 feet	90 seconds

For manholes five feet in diameter, add an additional 15 seconds and for manholes six feet in diameter, add an additional 30 seconds to the time requirements for four-foot diameter manholes.

- G. If the manhole fails the test, necessary repairs shall be made and the vacuum test and repairs shall be repeated until the manhole passes the test or the manhole shall be tested in accordance with the standard exfiltration test and rated accordingly.
- H. If a manhole joint mastic is completely pulled out during the vacuum test, the manhole shall be disassembled and the mastic replaced.

4-154 Certificate to Operate

- 1. No occupancy permit shall be issued for any building which connects to a newly constructed sewer line until the sewer line and the lateral have undergone and successfully completed acceptance testing as required by this Manual and as required by State regulations. Acceptance testing shall insure that the sewer construction conforms to all applicable criteria and specifications.

Television inspection shall not be used in lieu of specified acceptance testing. Television inspection will be utilized at the conclusion of acceptance testing to locate deficient areas of construction. Base pavement must be in place prior to TV inspection.

- 2. Structural repairs to pipe (i.e. holes, bellies, or slipped joints), required as a result of acceptance tests, shall be made in accordance with the industry standards and guidelines of this manual.

4-155 Repair Guidelines

- 1. Prior approval of the Town Utility Inspector is required for repairing damaged sanitary sewer pipe.
 - A. When repairs are required due to cracked pipe, leaky joints, or sagged pipe, the entire damaged area shall be replaced with new pipe.
 - B. Slipped or leaking joints shall be repaired by replacing the section of pipe.

4-155 TOWN OF LEESBURG DESIGN & CONSTRUCTION STANDARDS

- C. All clamps (Smith-Blair or equal) shall be made of stainless steel and have a minimum width of 12 inches.
- D. All excavation shall be done to afford proper protection to the line while the repair is made.
- E. Location of sanitary sewer pipe repairs will be noted on field drawings and made part of the as-built records.
- F. Location of each repair will be measured from the manhole on each side of the repair.
- G. The type of repair situation will be noted.
- H. When pipe is required to be removed and replaced, the length and number of repair clamps used will be noted.

4-156 Deflection Testing of PVC Pipes

1. Prior to acceptance of a PVC sanitary sewer line, the pipe shall be thoroughly flushed and cleaned. The deflection testing will be conducted by using a closed circuit television (CCTV) camera truck. If the CCTV shows standing water due to sags, the contractor will be required to correct the problem. At times, a mandrel test may also be required if the CCTV indicates excessive pipe deflection.

4-157 Final Approval

1. Approval for the utilization of the sanitary sewer system shall not be given until all site work and base asphalt is complete, the sewer line is tested and inspected by CCTV or other means. Final acceptance and approval will not be granted until the performance bond is released and as-built drawings are submitted and approved.

4-160 **Protection of Drinking Water Supplies and Cross Connection Control**

1. There shall be no cross connection between a drinking water supply and sewer, or appurtenances thereto. The Director of Utilities shall administer and enforce the Town Code Chapter 34, Division 3, Cross Connection and Backflow Prevention Control program, under direction of the Town Manager.

2. Sewers shall meet the requirements of the Virginia Waterworks Regulations with respect to minimum distances from water supply wells or potable water supply sources and structures. For all other potable water supply wells or potable water supply sources and structures, sewers shall meet the requirements of the Virginia Waterworks Regulations with respect to minimum distances from water supply wells or other water supply source or structure unless special construction and/or pipe materials are used to obtain adequate protection in accordance with the DEQ Sewerage Collection and Treatment Regulations and Virginia Department of Health Waterworks Regulations.

3. All proposed sewerage system designs shall identify and adequately address, in accordance with the DEQ Sewerage Collection and Treatment Regulations and Virginia Department of Health Waterworks Regulations, the protection of all public water supply wells, sources, and structures.

4-161 **Pretreatment Ordinance**

1. The Director of Utilities or his designee shall administer the provisions of ordinance number O-2003-018 which adopted Town of Leesburg’s Sewer Use Program. This ordinance permits the Town to identify all establishments whose discharge may have an adverse impact on Town’s sanitary sewer system. Such establishments may be required to provide on site treatment, alternative means of disposal, and/or routine sampling. Copies of the Sewer Use Program are available at the Town’s Utilities Department.

4-162 **Electronic Records**

1. To ensure accurate and updated Town sanitary sewer maps including the Town’s sanitary sewer computerized model, the Developer’s engineer is required to provide a computer-aided design (CAD) drawing which shall contain the proposed sanitary sewer mains, manholes and appurtenances only. Profiles of the sanitary sewer mains shall also be required in hard copy, PDF format, or CAD file to ensure accurate elevations and inverts for the sewer model. The CAD files shall be submitted in the version of AutoCAD that the Utilities Department is running at the time of submission.

4-170 TOWN OF LEESBURG DESIGN & CONSTRUCTION STANDARDS

4-170 General Utility Review

1. The plans for sewer extensions will be reviewed not only for compliance to regulations but also for construction and long-term maintenance related issues as well as safety concerns. These issues and concerns may not fall under a specific section of the DCSM but in judgment of the reviewer are of importance and concern for the long term operation and maintenance of the utility system. In these instances, we ask the designer's cooperation in accommodating compliance with these requests in order for the sewer infrastructure to be designed and built with regard to long-term maintenance and safety of our employees and Town citizens.

4-171 Utility Crossing Application Process

1. Proposed utilities crossing Town water and sanitary sewer lines within public right-of-way or public easement will require submission of a Town right-of-way permit application prior to commencement of activities. These applications are subject to review prior to start up.

(End of Section)

SECTION 4-200 PRIVATE SEWAGE (SEPTIC) DISPOSAL SYSTEMS

Anyone contemplating installation of an individual sewage (septic) disposal system must obtain the prior approval of the Director of Utilities. All private Sewage Handling Systems shall conform to the Town of Leesburg Code and to the Commonwealth of Virginia (DEQ) Sewerage Collection and Treatment Regulations specifically, Appendices P and Q, Sewage Handling and Disposal Regulations.

(End of Section)

TOWN OF LEESBURG DESIGN & CONSTRUCTION STANDARDS

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SECTION 4-300 **SOLID WASTE DISPOSAL**

1. A description of the methods of solid waste storage, collection and disposal shall be provided. The developer of each project is required to provide adequate provisions for solid waste disposal and indicate on the plat and plans how this is to be accomplished.
2. The number, size of containers, and the type of storage required shall be based on the type of occupancy of the development (i.e., food service, office, and multi-use) and projected volume of refuse.
3. The methodology used to determine the above capacity and number of containers shall be noted on the plans.

4-310 **Solid Waste Storage**

1. Plans shall contain a statement regarding which of the following methods shall be employed for solid waste storage:
 - A. Centralized refuse storage rooms.
 - B. Large, outside (commercial) containers.
 - C. Individual household containers.
2. Location of "A" and/or "B" above shall be noted on plans.
3. Alternate Systems: If any alternate storage and disposal system is employed, a description of such a system and note regarding its location must be shown on the plans.
 - A. Centralized refuse compactors
 - B. Refuse shredders
 - C. Recycling systems
4. All refuse and garbage shall be stored in watertight metal or plastic containers. The lids of these containers shall remain closed except when filling or emptying the container.

4-310 TOWN OF LEESBURG DESIGN & CONSTRUCTION STANDARDS

5. All commercial containers (i.e. Dumpsters) shall be provided with a concrete pad of sufficient size to accommodate the front wheels of the pickup vehicle and designed to withstand the anticipated impact loading.

4-320 Collection

1. Plans shall contain a statement regarding which of the following will provide solid waste collection:
 - A. Town of Leesburg
 - B. Private refuse collection company
 - C. Project owners or management

4-330 Disposal

1. Plans shall contain a statement of where the refuse will be disposed.
 - A. All refuse must be disposed of at a Town approved disposal site(s).
 - B. At the present time, the approved disposal site for solid waste is the Loudoun County Sanitary Landfill.
 - C. If any alternative method of disposal or alternative disposal site is being considered, a notation shall be provided regarding the alternative on the plans.
 - D. All development plans must show details of a typical garbage and trash storage area, the number of units to use each storage facility, and the frequency and type of pickup.

4-340 Screening

1. All commercial and industrial outdoor refuse storage areas shall be screened from all public streets and adjacent residential properties per Zoning Ordinance Section 12.8.8 Dumpster Screening. *Refer to the Town of Leesburg Zoning Ordinance.*
2. Screened storage areas shall be maintained to protect refuse from dispersal by wind and must be free of litter and refuse overflow.

(End of Section)