

# Water and Sewer Construction Site Plan Design Checklist Commercial and Residential

**Project name:** \_\_\_\_\_

Please indicate the location and page number(s) where each item below can be found in the plan submittal. If an item is not applicable, put N/A. The York County Engineering Department reserves the right to modify this checklist at any time. This checklist is not all inclusive of the requirements set forth by York County Engineering and/or SDHEC for water and sewer design standards. There may be design requirements that are not addressed in the following checklist. The water and sewer plan and design requirements may be found in the following locations: York County Ordinance [www.amlegal.com/yorkcounty\\_sc/](http://www.amlegal.com/yorkcounty_sc/) , Chapters § 51, § 154 and § 155; York County Sewer Specifications (YCSS) and York County Water Specifications (YCWS) [www.yorkcountygov.com](http://www.yorkcountygov.com) .

There may be design requirements that are not addressed in the following checklist.

**Checklist Completed by:**

Printed name: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**A. Title Page: (From York County Ordinance chapters § 154.045 (D)(1)(a), 1. and § 155.594 or as stated)**

- | Page<br>number |  |
|----------------|--|
| _____          | 1. Project name and/or subdivision name on cover sheet.  |
| _____          | 2. Engineer's seal and signature. York County requires that all development plans submitted for review be signed and sealed by a Professional Engineer licensed in the State of South Carolina.                      |
| _____          | 3. Vicinity Map.   |
| _____          | 4. Tax map and parcel numbers shown on the title sheet.  |
| _____          | 5. Name, address and phone number of developer/owner.  |
| _____          | 6. Legend of sanitary sewer and water lines, other utilities and structures, existing and proposed ground and pavement profile.  |
| _____          | 7. Summary of quantities of all water and sewer lines and appurtenances (i.e. lengths of lines with sizes and type, number of hydrants, valves, manholes, service connections and any other relevant appurtenances.) |
| _____          | 8. Sheet Index.  |

**B. General (§ 154.045 (D)(1)(a), 2. and § 155.594 or as stated)**

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|-------|---|
| _____ | 1. Special notes as appropriate.  |
| _____ | 2. Vertical Scale 1" = 4' and horizontal scale 1" = 40' or as approved by York County. Horizontal and vertical scale shown on each sheet. |
| _____ | 3. All designs conform to the latest York County, State and Federal regulations or standards.   |

- \_\_\_\_\_ 4. Plan and Profile sheets on 24" x 36" paper or as approved by York County.
- \_\_\_\_\_ 5. An overall plan of the water and/or sewer layout, indexed to sheet numbers and a vicinity map showing project location.
- \_\_\_\_\_ 6. Existing water and/or sewer lines labeled with size and length, and show the nearest existing valve(s) to be used for cut-off purposes.
- \_\_\_\_\_ 7. Location of all existing/proposed fire hydrants within 500 feet of the proposed development.
- \_\_\_\_\_ 8. Bench marks must be tied to NAD83 South Carolina State Plane, 1983, US Foot coordinate system and NADV88 vertical datum.
- \_\_\_\_\_ 9. All existing or proposed rights-of-way and construction easements are accurately located and must be shown on plans.
- \_\_\_\_\_ 10. All existing and proposed storm sewer lines, gas, telephone, power and other utility lines, which cross or run parallel to the sewer or water lines, must be shown with exact horizontal alignment. Subsurface exploration must be performed where potential conflicts exist and field changes are not practical.
- \_\_\_\_\_ 11. Proposed road and drainage projects must be shown.
- \_\_\_\_\_ 12. Road names, state and or county route numbers, and right-of-way widths must be shown.
- \_\_\_\_\_ 13. Plan and Profile are drawn in the same direction. Stations increase from left to right.
- \_\_\_\_\_ 14. Show proposed future water/sewer projects extended to property boundaries.
- \_\_\_\_\_ 15. Proposed water/sewer lines are shown with reference distances from right-of-way property boundary, buildings, other utilities, etc.
- \_\_\_\_\_ 16. All property corners must be shown.
- \_\_\_\_\_ 17. Location of existing houses, buildings, fences, wells, septic systems and other structures are shown on plans.
- \_\_\_\_\_ 18. Locations of special features must be shown.
- \_\_\_\_\_ 19. Adjacent property owner name(s) and tax map numbers must be shown on plans.
- \_\_\_\_\_ 20. North arrow on all sheets.
- \_\_\_\_\_ 21. Pre and post development topography of site.

**C. Water and Sewer**

- \_\_\_\_\_ 1. Where a line is to be bored or tunneled; indicate location and length of bore or tunnel and type of pipe and casing or tunnel liner. Casings should extend a minimum of 5' beyond the existing or proposed edge of pavement. Show the location of the boring pit and the receiving pit on the plans. (§ 154.045(D)(1)(a)(2)(u.))

- \_\_\_\_\_ 2. Water and sewer mains that are outside road rights-of-way must have easements that are a minimum of 20' in width. A combined 30' easement will be allowed if the water and sewer mains parallel each other. A 30' minimum easement will be required for utilities proposed off-site unless approved by the County Engineer. NOTE: If utility lines run longitudinally within a bufferyard, the width of the bufferyard must be increased by the same amount that is cleared for the placement of the utility lines. (§ 155.594(B)(41))
- \_\_\_\_\_ 3. A Non-Reimbursable Extension Agreement must be signed by the developer before approval of the utility plans. This will be completed when we have an approvable set of plans. Two (2) originals must be signed and returned for County signatures. (§ 154.045 (D)(4)(b) and §154.0460(B)(2)(3))
- \_\_\_\_\_ 4. Show all proposed water and sewer service connections and sizes. This information is necessary to determine proper fees and deposits for commercial projects.
- \_\_\_\_\_ 5. To avoid possible conflict with the location of driveways, show the water and sewer service lines in the center of the lots with 5' of separation unless the proposed location of drives are shown on the plans and no conflict will exist.
- \_\_\_\_\_ 6. Horizontal and vertical separation of water and sewer lines must meet current SC DHEC and York County specifications. Include detail 15.07 on plans. (YCSS & YCWS II, D). All conflicts with storm sewers and other utility lines must be shown with appropriate design changes.
- \_\_\_\_\_ 7. All exposed ductile iron piping must have mechanical joints. (§ 51.20 (E)(1)(b))
- \_\_\_\_\_ 8. Provide a typical placement detail for water and sewer lines within easements or right-of-ways. (§ 154: Appendix: Charts, drafts, figures and schedules, § 27)
- \_\_\_\_\_ 9. Show benches constructed within proposed utility easements where existing or finished slopes are 2:1 or greater. (§ 51.20 (E)(1)(b))
- \_\_\_\_\_ 10. A request for a water and sewer willingness and capability letter from York County must be submitted based on SC DHEC Unit Contributory Loadings Chart. (§ 154.045 (D)(4)(c))
- \_\_\_\_\_ 11. Submit a completed SCDOT encroachment application package for review and signature by the County Engineer. The water and/or sewer proposed for construction will ultimately be owned and operated by York County; therefore, SCDOT requires that the encroachment application be completed referencing York County rather than the developer. For SCDOT application instructions, visit [www.scdot.org/doing/permits/Encroachment.aspx](http://www.scdot.org/doing/permits/Encroachment.aspx) . For an example of the completed SCDOT encroachment form, visit [www.yorkcountygov.com](http://www.yorkcountygov.com) and go to utilities, forms. (SCDOT)
- \_\_\_\_\_ 12. Submit a completed York County encroachment application package for review to the York County Public Works, Road Maintenance Department. For application instructions, visit [www.yorkcountygov.com](http://www.yorkcountygov.com) and go to the Road Maintenance Department to view this form.
- \_\_\_\_\_ 13. All design of roads, sanitary sewer (gravity sewer piping), storm drain piping, and water quality and detention ponds shall be completed using ground profiles generated from field surveys. The field survey(s) shall be certified by a South Carolina professional land surveyor. Profiles generated from GIS information shall not be accepted. Field surveys are to be tied to the South Carolina State Plane Coordinate System as defined by the North American Datum of 1983 (NAD83), and mean sea level as defined by the North American Vertical Datum of 1988 (NAVD88). (Per York County Engineer, July 1, 2007) (§ 51.20 (E)(1)(b))

- \_\_\_\_\_ 14. Provide verification that any off-site easements have been conveyed from the property owner(s) to the developer. All supporting documentation must be submitted prior to plan approval. (§ 51.17, F, (4) & § 51.20, A, (1)(2))
- \_\_\_\_\_ 15. After site plan approval; submittal of 5 sets of shop drawings will be required with a title sheet from the supplier/ manufacture for the water and sewer design. The shop drawings must be received prior to the pre-construction meeting. (§ 51.20 (E)(1)(b))
- \_\_\_\_\_ 16. All water and sewer details must be the most current York County standard details with the York County data block and revision/drawn date. The details may be obtained online at [www.yorkcountygov.com](http://www.yorkcountygov.com) under the Engineering, utilities section. All required notes are also in a detail form and must be shown on the plans as well. Please assure that ALL water and sewer details and notes are in this format unless a specialty detail is needed. (YCWS, IV)
- \_\_\_\_\_ 17. If the site is located outside of the York County Utility Service area; a letter of approval for service from the servicing agency will be required prior to plan approval.
- \_\_\_\_\_ 18. Provide a copy of the application submitted to SCDHEC for the water and/or sewer Permit(s) to Construct. The copies will be required prior to York County Engineering plan approval and Permits to Construct must be received prior to construction. (§154.045(D)(1)(d))
- \_\_\_\_\_ 19. Place a note on the utility page that states where existing utility information and locations were obtained from if applicable.
- \_\_\_\_\_ 20. Place a note on the utility page that states: “All applicable water/sewer impact and meter fees must be paid before any building permits are issued.” In order to pay the fees, the Water and Sewer Account application must be completed by the entity responsible for payment. The ‘Water and Sewer Account Information for Commercial Projects’ form must be completed and returned to the Engineering Department. Failure to do so could result in a delay for releasing the building permit. This form can be accessed on our website at [www.yorkcountygov.com](http://www.yorkcountygov.com) under the Engineering/Utility department page.
- \_\_\_\_\_ 21. Note: You will be required to submit as-builts for the utility system after completion. All utility check list items must be addressed. The as-built check list and the utility check list (“Requirements for water and sewer acceptance”) can be obtained on line at [www.yorkcountygov.com](http://www.yorkcountygov.com) under the Engineering/Utility department.

**D. Water Plans (§154.045(D)(1)(a), 3 or as stated)**

- \_\_\_\_\_ 1. Plans must show all fittings, fire hydrants, and valves including sizes. Each appurtenance must be properly labeled. (There is no size 2 1/2” valve)
- \_\_\_\_\_ 2. The specified vertical clearance has been designed and obtained at all crossings of other utilities. Show clearance dimensions on the plan profile sheets. (YCWS, II, D) Provide York County detail 15.07.
- \_\_\_\_\_ 3. All water lines must have a minimum of 3.0' of cover, or protected as required. (YCWS, II, F, 2 & YC Detail, 15.05)
- \_\_\_\_\_ 4. Blow-offs or hydrants must be designed at the end of all lines. The location of hydrants must comply with guidelines outlined in design standards. Hydrants or blow-off valves are designed at major low places in the line where possible and air release valves are designed at the high points. (YCWS, I, D, 4.)
- \_\_\_\_\_ 5. All water services must be shown in accordance with the design standards.

- \_\_\_\_\_ 6. Plans must show all connections to the existing mains.
- \_\_\_\_\_ 7. Water system must be designed in accordance with available pressures and fire flow. Pressure calculations and supporting documents must be included with the utility plan submittal.
- \_\_\_\_\_ 8. Line location must be shown relative to back of curb or edge of pavement.
- \_\_\_\_\_ 9. Water pipe sizes and materials per York County specifications must be noted on plans.
- \_\_\_\_\_ 10. Water line stub-outs are to be installed at a minimum distance of three feet beyond the back of curb or proposed edge of pavement to provide for expansions to future phases or extended to the adjoining property line to serve undeveloped lands not part of the proposed site. (§154.046 (B)(2))
- \_\_\_\_\_ 11. When pressures will exceed 80 psi; it shall be noted as such on the plans for each lot exceeding this amount. A general note shall also be included on the site plan, preliminary plat and/or final plat stating that the home builder or contractor for those lots shall install a pressure reducing valve on the customer's side of the meter.
- \_\_\_\_\_ 12. Fire Hydrant locations must comply with design guidelines and installed along water main line extensions at intervals not to exceed 1,000 feet in residential areas, and 300 feet in commercial or industrial areas. Fire hydrants must be installed so as to be accessible by fire apparatus at all intersections. Fire hydrants shall, at all times, be connected to a water supply so as to provide water for purposes of combating fire. Fire hydrants connected to non-potable water sources are to be painted purple and labeled as a non-potable water source. (§ 51.17(C))
- \_\_\_\_\_ 13. All buildings requiring sprinkler systems must propose a fire line with a Double Detector Check Valve Assembly (DDCVA) with a 3/4" bypass meter. (§ 51.05, B (14)(a))
- \_\_\_\_\_ 14. Gate valves must be installed in the mainline in the vicinity of all proposed fire hydrants. Gate valves must be open-left. (YCWS, I, D) (§ 51.20 (E)(1)(b))
- \_\_\_\_\_ 15. Show an approved jumper-connector at the connection point of the proposed water line to the existing water line. Show on plan sheets as well as in the water details. (YCWS, III., 11.10)
- \_\_\_\_\_ 16. Water lines must extend straight thru cul-de-sacs and not traverse around them. (§ 51.20 (E)(1)(b))
- \_\_\_\_\_ 17. All water meters that are 1" or greater in size will require a separate back-flow preventer. Show the back-flow preventer located at the back of the meter outside of the easement or right-of-way. (YCWS, I, H, 2)
- \_\_\_\_\_ 18. All water meters not located in the right-of-way must be included in an easement. Easements must be shown to the back of the meter. (§155.242(B))
- \_\_\_\_\_ 19. Valves must be located in a soft area. Valves cannot be located in sidewalks, curbing or driveways or asphalt area. (YCWS, III., 10.02, 14) Proposed placement of valves in locations other than soft areas must be approved by York County Engineering.

**E. Sewer Plans (§154.045(D)(a)(1), 4. or as stated)**

- \_\_\_\_\_ 1. Manholes and structures must be labeled and standard detail reference included if applicable. Each manhole must be labeled with a unique/individual identification number.
- \_\_\_\_\_ 2. Proposed and existing sewer lines must be shown with flow directions.

- \_\_\_\_\_ 3. Special structures must be detailed.
- \_\_\_\_\_ 4. All conflicts with water mains must be shown with changes to DIP as required. Provide York County detail 15.07.
- \_\_\_\_\_ 5. All pipes must meet minimum cover requirements or are protected as required; PVC pipe must be replaced with ductile iron where there is less than 3.0 feet of cover or greater than 16' of cover. (YCSS, II, G, 3,c & YC Detail,15.05)
- \_\_\_\_\_ 6. All pipes must meet minimum and maximum slope requirements. (0.6% min. for 8" diameter and 12% max.) Maximum design velocities should not be less than 2 fps or greater than 10 fps at peak flow. (§ 51.20 (E)(1)(b))
- \_\_\_\_\_ 7. Aerial creek crossings or inverted siphons must be properly detailed.
- \_\_\_\_\_ 8. Bearings and distances between manholes must be shown on plan view.
- \_\_\_\_\_ 9. All pipes proposed for construction that are 15" or less in diameter must not exceed 400 feet in length between manholes. (§ 51.20 (E)(1))
- \_\_\_\_\_ 10. Sewer lines less than 100' from wells must be DIP and sewer lines must not be within 25 feet of any well. (SC DHEC Regulation 61-71)
- \_\_\_\_\_ 11. Proposed pipes and manholes must be shaded on profile view. (§ 51.20 (E)(1))
- \_\_\_\_\_ 12. Include the sewer tie-in detail 12.13 on the plans for connections into existing manholes. (YCSS II, B.)
- \_\_\_\_\_ 13. Sewer service laterals connecting to the mainline within 10' of a manhole must go directly into the manhole. Place a note and show this in the plans. (YCSS, II, H)
- \_\_\_\_\_ 14. Show angle measurements of pipes at all manholes. Angles must be 90 degrees or greater.(YCSS II, G, 1, d.)
- \_\_\_\_\_ 15. Eliminate proposed 90 degree bends in the sewer forcemain line if possible. Replace with the appropriate number of 45 or 22.5 degree bends. Label accordingly on the plans. (§ 51.20 (E)(1))
- \_\_\_\_\_ 16. Show plug valves every 2000' on sanitary sewer force main lines within road right-of-ways and at all major road intersections. (§ 51.20 (E)(1))
- \_\_\_\_\_ 17. Sewer mains and manhole stub-outs are to be installed at a minimum distance of three feet beyond the back of curb or proposed edge of pavement to provide for expansions to future phases or extended to the adjoining property line to serve undeveloped lands not part of the proposed site. (§154.046 (B)(3))
- \_\_\_\_\_ 18. Manhole rims outside street rights-of way and landscaped areas must be at least two feet above finished grade. Within street rights-of-way and in landscaped (lawn) areas, manhole rims must be flush with finished grade. (YCSS II, K)
- \_\_\_\_\_ 19. All proposed outside drop manholes must have a minimum of 18' ductile iron pipe extending from the influent side of the manhole. See York County's outside drop manhole. Indicate on profile as well as in the details. (YCSS II, K, 2.)
- \_\_\_\_\_ 20. Manholes deeper than 19' must be shown as 5' in diameter. (YCSS I, B, 4.)

- \_\_\_\_\_ 21. Show the 100 year flood elevation on the applicable sanitary sewer profiles.
- \_\_\_\_\_ 22. Manholes located within the 100 year flood plain must have steel vents installed. Minimum vent spacing of 1000'. (§ 51.20 (E)(1)) The vents must be a minimum of 2' above the 100 year flood elevation. (YCSS II, K, 7 & York County Details 12.05)
- \_\_\_\_\_ 23. Manholes within the 100 year flood plain must have waterproof, bolt-down lids. (YCSS I, B, 3.)
- \_\_\_\_\_ 24. Sanitary sewer clean-outs should be located in soft areas at the back of all easements and/or rights-of-ways where possible. (All sanitary sewer laterals must be terminated with a clean-out per York County Detail 12.10)
- \_\_\_\_\_ 25. Sanitary sewer pump station, generator and SCADA manufacture submittals must be submitted for review by York County. Send three (3) copies for review and approval. (YCSS, III, Material Specifications, D, 1 & §51.19 (C)(3))
- \_\_\_\_\_ 26. Sanitary sewer pump station grading plans must be submitted to assure any stormwater runoff will be directed away from the pump station site. (§154.045 D,(1)(a))
- \_\_\_\_\_ 27. Show the sanitary sewer pump station footprint on the plan sheets. (§154.045 D,(1)(a))
- \_\_\_\_\_ 28. Provide a detail of the access road to the sanitary sewer pump station. The developer will be responsible for maintaining proper access to the station site during construction of the project. (York County Detail 13.01)
- \_\_\_\_\_ 29. The final grade of the pump station site must be a minimum of one foot above the established 100 year flood elevation. (§ 51.20 (E)(1)(b))

**F. Low Pressure Sanitary Sewer (LPSS):** A letter of request addressed to the York County Engineer must be submitted for any project proposing a Low Pressure Sewer System (LPSS). Provide justification for the use of a LPSS system (e.g., topographic restrictions, low population density, etc.) and why a conventional gravity sewer system is not recommended. Upon approval of the LPSS by the York County Council, the following items must be addressed on the plan submittal.

- \_\_\_\_\_ 1. Include a table on the plans showing the following information for each lot that is to be served by the LPSS:
  - 1) Lot Number
  - 2) Anticipated pump elevation
  - 3) LPSS discharge elevation or critical elevation necessary to determine the static head
  - 4) Anticipated static head
  - 5) Anticipated head loss assuming this is the only pump running (can show only anticipated major head losses – you can neglect minor head losses due to bends and fittings)
  - 6) Anticipated Total Dynamic Head (TDH) assuming this is the only pump running
  - 7) Provide the anticipated head conditions and pumping rates on each of the pumps with maximum anticipated number of pumps running simultaneously
- \_\_\_\_\_ 2. Show air release valves at all high points in the LPSS force mains on a profile.
- \_\_\_\_\_ 3. No pipe half sizes will be allowed for any portion of the LPSS system that is intended to be owned by York County.
- \_\_\_\_\_ 4. The preliminary plat must symbolize each lot that is to be served by the LPSS system.

- \_\_\_\_\_ 5. York County must have the right of ingress/egress on each property to maintain each individual LPSS station. A blanket easement must be conveyed to York County by the developer prior to final acceptance of the LPSS system. Contact York County for this procedure.
- \_\_\_\_\_ 6. Cleanouts will be required at all high points, intersecting piping, bends, and end of lines. The cleanouts will provide maintenance access as well as a location to release accumulated air from the LPSS.
- \_\_\_\_\_ 7. All LPSS 2" and 3" piping shall be constructed of 1120 PVC pipe meeting ASTM standard D-2241; PC315, DR 13.5. All LPSS 4" and greater piping shall be constructed of 1120 PVC pipe meeting ASTM standard D-1785; PC200, DR 14. Exceptions to the above requirements are: The pressure sewer shall be encased in ductile iron (DIP) and the service lines routed beyond the encasement where the pressure sewer lines are placed within the 100-foot radius of a potable water well. In the case of multiple wells where radii overlap, SDR 13.5 pipe (for piping less than 4-inches in diameter) is to be used and the piping is to be tested to water main standards (AWWA C600) with no leakage. In no case is the proposed LPSS piping to be installed within 50 feet of a community well or within 25 feet of an existing individual or private well.
- \_\_\_\_\_ 8. Provisions must be made to provide future LPSS connections to any existing homes that are accessed directly from the developments road network. At a minimum, this must include connection to the LPSS main and installation of the service box.
- \_\_\_\_\_ 9. The LPSS details must be the most current York County standard details. The details may be obtained online at [www.yorkcountygov.com](http://www.yorkcountygov.com) under the Engineering, utilities section. (YCSS, IV).
- \_\_\_\_\_ 10. Submit copies of the developer's installation and service contractor's LPSS contracts for review and the developments covenants, codes and restrictions (CCR). The CCR must include language on how the Home Owners Association (HOA) will manage the required annual servicing of the individual LPSS pumps. Please note: Final Plat will not be approved until the LPSS portion of the CCR document is approved by York County.
- \_\_\_\_\_ 11. Indicate the pump type and size for each lot served by low pressure sewer on the construction plans, preliminary plat, final plat and as-builts.