

**JAMES CITY SERVICE AUTHORITY
WATER AND SANITARY SEWER SYSTEM DESIGN CHECKLIST**

Project Name: _____

Project Address: _____

Developer: _____

Architect/Engineer: _____

Phone: _____ Fax: _____ E-mail: _____

Plan Preparer Signature: _____ Date: _____

JCC Case Number (if known): _____ Submittal # (Circle): 1 2 3 4 5

NOTE: This checklist shall be completed and accompany each water and sanitary sewer pipeline design submittal. The checklist shall be signed by the plan preparer certifying compliance of the design with JCSA and HRPDC standards as well as the requirements of this checklist. This checklist serves only as a guide for the preparer in developing the construction drawings and is not intended to be all encompassing. It is the responsibility of the engineer and/or surveyor to ensure the plans and calculations comply with all governing regulations, standards and specifications. Plans submitted without a completed checklist will be returned without review. Any Applicant response indicating "No" shall be explained on this checklist with the reason for noncompliance.

I. GENERAL:

	YES	NO	N/A
1. Developer's/Applicant's name, contact person(s), street address, phone number and fax number on title sheet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Engineer's/Surveyor's firm, address, phone number and fax number on title sheet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. North arrow and graphic scale bars provided on all applicable plan sheets.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Utility plan <u>clearly</u> depicts all existing and proposed site features, including contours. Legend provided on the plan which correctly reflects the development plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. An overall utility plan provided for large development areas and subdivisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. All existing and proposed right-of-ways and/or easements properly shown, labeled, dimensioned and, where applicable, recordation referenced. Refer to JCSA Criteria Section 2.5 for JCSA easement requirements.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		YES	NO	N/A
7.	JCSA standard General Notes for Water Distribution and Sanitary Sewer Systems (current edition) included in their entirety on the plan. Refer to JCSA Criteria Section 5.1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	All plan sheets sealed, signed and dated by engineer and/or surveyor overseeing the design. Refer to JCSA Criteria Section 1.2 for sealing requirements.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Vertical and horizontal datum established in accordance with JCSA Criteria Section 1.3. Benchmark established and identified on the plans for each project greater than 2500 lf from an existing and established benchmark.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Date of plan submittal and/or revision noted on the cover. Professional seal date shall reflect plan submittal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	Plan and profiles developed at a minimum scale of 1"=50' horizontal and 1"=5' vertical. Sheet size no larger than 24x36, folded, shall be submitted.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	A minimum horizontal separation of ten (10) feet, edge to edge, maintained between sanitary sewer lines and water lines, water service connections and sanitary sewer laterals, unless approved otherwise by JCSA.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	Provide call-outs, either individually or tabularized for all facility features, clearly referencing or labeling applicable JCSA and HRPDC details for the project (i.e. Typical Water Meter Installation, JCSA W13.0). Only provide those sanitary sewer or water system details on the plan which are either required by other regulatory agency review or have been modified from the standards.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	Provide profiles for all water and sanitary sewer mains to include stub-outs for future extensions. All utility crossings (water, sanitary sewer, storm, etc.) shall be shown on the profile.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	Engineer's/Surveyor's letter of response provided indicating how and where on the plans each JCSA comment has been addressed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	Miss Utility notation provided, including phone number.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.	Existing and proposed street names (label "Private" where applicable), lot and parcel numbers clearly labeled on the plans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	Existing water or sanitary sewer mains previously abandoned and/or removed are clearly labeled on the plan. Provide notes describing how existing facility is to be abandoned (i.e. grouted/ plugged, etc).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	Plat provided to JCSA for review and approval prior to recordation. Refer to Section 3 of this checklist.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.	Proposed JCSA utility lines are shown with reference distances from curb & gutter, edge of pavement, right-of-way, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21.	A minimum cover of 36-inches provided over all JCSA water and sanitary sewer force mains.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.	Existing utilities size and, if known, material shown an labeled.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

YES NO N/A

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| 23. | Proposed utility pipe lengths and structures shown on the Water and Sanitary Sewer System Data Sheets agree with the plan. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24. | Bore pit data such as bore location, length of bore, pit location, casing diameter and thickness are shown and labeled. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25. | All water service and/or sanitary sewer service lines are extended perpendicular from the respective main and are located within the right-of-way or a dedicated JCSA Utility Easement (except in cul-de-sacs). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 26. | Sanitary sewer and water mains within fill areas are designed in accordance with JCSA Criteria Section 2.32. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 27. | Transformer locations have been shown on the site plan and maintain required clearances from JCSA utilities. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

II. Sanitary Sewer System:

- | | | YES | NO | N/A |
|-----|---|--------------------------|--------------------------|--------------------------|
| 1. | Hydraulic Analysis shall be provided for all sanitary sewer force mains. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. | A completed Sanitary Sewer System Data Sheet submitted in accordance with JCSA Criteria Section 2.9B. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. | Plan clearly shows and describes proposed sanitary sewer connections to existing sewer. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. | Sanitary sewer service provided to each lot or parcel. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. | Required spacing of manholes and pipe slopes have been maintained. Refer to JCSA Criteria Section 2.15 and 2.17. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. | Pipe material (PVC or DIP), slope, direction of flow and length clearly labeled on plans. Structure inverts correctly calculate based on data shown. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. | Force main and/or pump station plans submitted to the Department of Environmental Quality (DEQ), Office of Wastewater Engineering for approval. DEQ approval is required prior to JCSA approval. Refer to JCSA Criteria Section 1.2 for regulatory submittal requirements. (A copy of the engineers DEQ transmittal must be attached to this checklist when submitted.) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. | Show and label existing septic system locations. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. | Manhole structure minimum slope difference between invert in and invert out elevation is maintained. Refer to JCSA Criteria Section 2.16 and 2.17. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. | Manholes greater than 12 feet deep and interior drop manholes are shown and labeled on the plan as 60" diameter. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. | Proper vertical separation provided between sanitary sewer facilities and other utilities. Refer to JCSA standards Section 2.21. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. | Manual air vent assemblies installed at all high points along force mains. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | YES | NO | N/A |

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|-----|--|--------------------------|--------------------------|--------------------------|
| 13. | Internal drop connections shown and labeled on the plan when a vertical drop exceeds 2 feet. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. | The engineer/surveyor has field verified the inverts of the existing manhole(s). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. | Ground coverage over sanitary sewer pipe meets minimum depth criteria. Refer to JCSA Criteria Section 2.19 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. | All sanitary sewer lines are designed with the entry into the manhole at an angle of 90-degrees or greater to the downstream line, unless otherwise approved by JCSA. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. | Sanitary sewers positioned at all manhole junctions in accordance with JCSA Criteria Section 2.16. Minimum elevation difference across manhole from inlet to outlet shall be 0.1 feet. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. | All gravity sanitary sewer lines and force mains located within roadways shall be located at the quarter point. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. | Force main thrust restraint requirements clearly shown and labeled on the plans or as a minimum, references by note JCSA standard detail JR.1 on <u>each</u> applicable profile sheet. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. | Pump stations designed in accordance to JCSA Standards and Specifications for Pump Stations manual, latest edition. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. | Grease trap locations and size clearly identified on the plan. Refer to JCSA Criteria Section 2.24 for requirements. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 22. | Calculations submitted for proposed force main and low pressure lines substantiating pipe size and velocity. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23. | Plans submitted to Hampton Roads Sanitation District (HRSD) for review and approval, when necessary. (The engineer shall prepare HRSD flow certificates for JCSA signature and make the submission to HRSD). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24. | Deflection angles or bearings of all gravity sanitary sewer lines are shown on the plans. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25. | All pipe between manholes are of a like material and class. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 26. | Baseline stationing provided on the plan and profile for cross-referencing. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 27. | Provide inverts of all sanitary sewer laterals connecting directly into a manhole as part of the structure description. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 28. | Design data shown on the plan(s) and profile(s) agree (i.e. inverts, line size, pipe material, etc). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 29. | Termination of proposed utilities for future extension/ phases is clearly shown on the plan and profile. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 30. | HRSD approval has been obtained for any waste flow containing chemicals discharging into the JCSA or HRSD sanitary sewer system. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 31. | Provide sanitary sewer manhole depth as part of the structure description. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

III. Water Distribution System: (Check here if system is Newport News Waterworks _____. If so, do not respond to the line items below. Plans shall be submitted to Newport News Waterworks for review and approval.)

	YES	NO	N/A
1. Hydraulic Analysis submitted in accordance with JCSA Criteria Section 2.8.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. A completed Water Data Sheet submitted in accordance with JCSA Criteria Section 2.9B.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Plan clearly shows and describes proposed water system connection(s) to the existing system.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Proposed fire hydrant locations meet the conditions of JCSA Criteria Section 2.26F & 2.26G and/or as specified by the James City County Fire Department.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Water service provided to each lot or parcel.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Proper vertical separation provided between water main and other utilities. Refer to JCSA Criteria Section 2.21.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Manual air vent assemblies installed at all high points along water mains. System designed to minimize manual air vents required (i.e. slight adjustment to pressure pipeline profile)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. All waterlines located within roadways shall be at the quarter point.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Dead-end waterlines provided with a blow-off assembly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Valve locations do not exceed 800 feet. Required valving at intersections shall be two (2) at each tee intersection and three (3) at crosses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Water main sizes shown on the plans meet the conditions set forth in JCSA Criteria Section 2.2 and agree with the Hydraulic Analysis.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Water meters shown and labeled, including proposed size. Provide calculations in accordance with JCSA Criteria Section 2.9A.5.b substantiating the proposed meter(s) sizing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Plan and profile show all fittings, water meters, fire hydrants and valves including sizes. Each appurtenance is properly labeled with stationing annotated for all sheets.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Water main stubs for future extensions are designed as specified in JCSA Criteria Section 2.7.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Location of water meter boxes are 18-inches minimum from driveways and/or drive paths, sidewalks and bike paths.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Submittal provided to the Virginia Department of Health (VDH) for review and approval in accordance with JCSA Criteria Section 1.2. VDH approval is required prior to JCSA approval. (A copy of the engineers VDH transmittal must be attached to this checklist when submitted.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. For waterline tie-ins, the existing valve(s) to be used for shut-off is shown and labeled on the plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

YES NO N/A

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|-----|---|--------------------------|--------------------------|--------------------------|
| 18. | Irrigation proposed for the development has been addressed according to JCSA Criteria Section 2.8K. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. | Proposed water production facilities or modifications thereto shall be submitted separately to the Chief Engineer of Water for review and approval. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. | A backflow prevention device is provided on domestic and fire service connections in accordance with JCSA Criteria Section 2.29 and the Commonwealth of Virginia, State Board of Health Waterworks Regulations. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. | Waterline thrust restraint requirements clearly shown and labeled on the plans or as a minimum, references by note JCSA Criteria detail JR.1 on <u>each</u> applicable profile sheet. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

IV. Subdivision Plat Submittals:

- | | | YES | NO | N/A |
|----|---|--------------------------|--------------------------|--------------------------|
| 1. | All subdivision plats proposing JCSA Utility Easements shall include the following note on the plat: "Easements denoted as "JCSA Utility Easements" are for the exclusive use of the James City Service Authority and the property owner. Other utility service providers desiring to use these easements with the exception of perpendicular utility crossings must obtain authorization for access and use from JCSA and the property owner. Additionally, JCSA shall not be held responsible for any damage to improvements within this easement, from any cause". | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. | The following note shall be included on all subdivision plats: " Any existing unused well(s) shall be abandoned in accordance with State Private Well Regulations and James City County Code". | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. | Add a note on the plat which clearly states whether or not the parcel(s) are served by Public Water and/or Public Sewer. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. | For family subdivisions, clearly show the location of all existing water and sanitary sewer service connections, if any. Any services requiring abandonment/relocation shall be done in accordance with the JCSA requirements. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. | Proposed easement widths and locations agree with the approved subdivision or site plan and meet the requirements of the JCSA Criteria Section 2.5. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. | All proposed subdivision grinder pump locations shall be clearly identified on the plat and meet the conditions of JCSA Criteria Section 2.35. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. | All professional seals and certificates on the plat are signed and dated. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |