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St. Mary's County Metropolitan Commission  
43990 Commerce Avenue, Hollywood, MD 20636

Potable Water Distribution & Wastewater  
Collection/Treatment

<b>STAFF ONLY</b>
INITIALS: _____
DATE: _____

## ***WATER AND SEWER CONSTRUCTION PLAN REVIEW CHECKLIST***

### **MINIMUM REQUIREMENTS**

*Instructions: All Water and Sewer Construction Plan submissions shall at a **minimum** contain the requirements stated below. Any construction plan submissions brought to the St. Mary's County Metropolitan Commission with missing or incomplete information may be rejected and not reviewed until all necessary information has been provided. It should be noted that not all items contained below will necessarily be required for every project.*

*Consulting Engineer shall place one of the following marks (as appropriate) on each line (METCOM reviewer shall verify each mark): N/A - not applicable ✓ - provided*

*Note: The following checklist is provided to assist the design engineer in developing a complete utility plan set to expedite the review process. All water and/or sewer construction plans submitted for review are to include a copy of this checklist signed by a MD registered Professional Engineer. Submittals without a completed checklist **will be returned** without review or comments. Compliance with the checklist, however, in no way is meant to relieve the design professional of responsibility for project design.*

**PROJECT NAME:** \_\_\_\_\_

**DEVELOPER:** \_\_\_\_\_

**ENGINEERING FIRM:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

**PHONE:** \_\_\_\_\_ **FAX:** \_\_\_\_\_

**DEPT. OF LAND USE AND GROWTH MANAGEMENT (LUGM) NUMBER:** \_\_\_\_\_

**SUBMITTAL #** \_\_\_\_\_ **DATE:** \_\_\_\_/\_\_\_\_/\_\_\_\_

#### **A. General Requirements**

- \_\_\_\_\_ 1. Each page is signed, sealed and dated by a MD Registered Professional Engineer.
- \_\_\_\_\_ 2. EDU's have been determined and are indicated on plans.  
Number of EDU's = \_\_\_\_\_
- \_\_\_\_\_ 3. Construction Plan Review Fees are enclosed or have already been submitted to METCOM.
- \_\_\_\_\_ 4. A minimum of two sets of construction plans are enclosed for METCOM review.

- \_\_\_\_\_ 5. A METCOM stamp approval block (3 in. x 3 in.) is provided on each page where water and sewer approvals are required (open area - no signature line is required).
- \_\_\_\_\_ 6. All drawings in a set of construction plans are the same size sheet, and are 36 in. wide by 24 in. high. Drawings have a 1 ½ in. margin on the left edge and have a ½ inch margin along the top, bottom and right edges.
- \_\_\_\_\_ 7. North arrow and grid ticks are provided on each plan sheet.
- \_\_\_\_\_ 8. Plans and Profiles contain sufficient vertical and horizontal references and information to allow stakeout and construction of proposed work by reference to the plans alone.
- \_\_\_\_\_ 9. Profiles have a horizontal scale of 1 in. = 50ft. and a vertical scale of 1 in. = 5ft. Scale is clearly marked.
- \_\_\_\_\_ 10. Profiles are located under the corresponding plans on the same sheet.
- \_\_\_\_\_ 11. Profiles for all water and sewer mains are shown.
- \_\_\_\_\_ 12. Stationing is shown on plans. Stationing on plans increase from left to right across the drawing. (Road centerline stationing can be used when water/sewer lines are located in/along roads).
- \_\_\_\_\_ 13. Call-out locations are provided for fire hydrants, meter settings, blow-offs, manholes, clean-outs, tees, bends, valves, reducers, grinder pumps, flushing connections and witness posts.
- \_\_\_\_\_ 14. Existing and proposed grade over the mains are indicated on the profile.
- \_\_\_\_\_ 15. Minimum of 10ft. of horizontal separation between sanitary sewer and water lines is maintained.
- \_\_\_\_\_ 16. Minimum of 5ft. horizontal separation from storm drain structures or other utility structures is maintained.
- \_\_\_\_\_ 17. Minimum 1ft. vertical clearance from all crossing utilities is maintained.
- \_\_\_\_\_ 18. Proposed and existing water and sewer utilities are accurately and clearly shown on the plan and profiles using standard symbols and accentuated by bold, heavy line weight to distinguish it from other utilities.
- \_\_\_\_\_ 19. All public right-of-ways and easements are shown and dimensioned. Where water and/or sewer mains leave the public road right-of-way, an all weather access roadway is provided.
- \_\_\_\_\_ 20. All lot lines are clearly shown.
- \_\_\_\_\_ 21. All specifications, shop drawings, design data and calculations, are provided on an 8 ½ x 11 in. sheet, bound in a folder suitable for filing, and labeled for identification by the title, LUGM number, tax map, grid and parcel.

**B. Title Sheet**

- \_\_\_\_\_ 1. Vicinity Map – Minimum Scale 1 in. = 2000 ft., with clearly labeled intersecting roadway names is provided.
- \_\_\_\_\_ 2. Vicinity Map shows major roads or streets, major streams, towns, large institutions, north arrow, etc. and the site location. The site to be constructed is shaded.

- \_\_\_\_\_ 3. Location Plan – Scale 1 in. = 600 ft. Location Plan shows overall subdivision layout to scale, section limits, right-of-ways, adjacent subdivisions, property owners, existing and proposed street names, and at least two (2) permanent bench mark locations and descriptions. The section to be constructed is clearly labeled.
- \_\_\_\_\_ 4. Title Information – Subdivision/site name, type of plan, section number, phase, election district, County and State is provided.
- \_\_\_\_\_ 5. Owner’s certificate, name and address, with the owner’s name printed under the signature line is provided and signed.
- \_\_\_\_\_ 6. Engineer’s and/or surveyor’s certificate, name, address, phone number, signature, and seal is provided and signed.
- \_\_\_\_\_ 7. A legend is provided of the specific graphic special symbols applicable to the project. Standard symbols are used to the fullest extent possible.
- \_\_\_\_\_ 8. List of abbreviations applicable to the project are provided.
- \_\_\_\_\_ 9. Horizontal and vertical control references are specified (State plane, U.S. Coast & Geodetic Surveys, etc.).
- \_\_\_\_\_ 10. Source of the topography used for the preparation of the plans is provided.
- \_\_\_\_\_ 11. Revision block includes the date and reference of each revision.
- \_\_\_\_\_ 12. LUGM control number is provided.
- \_\_\_\_\_ 13. Sheet index is provided.

**C. General Notes**

At a minimum, the following General Notes for Water and Sewer Construction have been provided:

- \_\_\_\_\_ 1. All water and sewer construction shall be done in accordance with the St. Mary’s County Metropolitan Commission Standards and Specifications for Water and Sewerage Construction. Contractor to contact the Engineering Department, St. Mary’s County Metropolitan Commission, forty-eight (48) hours prior to start of construction. Phone number 301-373-4733. Contractor to also contact the Engineering Department before restarting work after work has stopped for more than five days.
- \_\_\_\_\_ 2. All fire hydrants that are set in the ground, that are not yet operational, shall have an “out of service” disk placed on the 4 ½” discharge outlet. It shall be the responsibility of the Contractor to furnish and install the “Out of Service” disk.
- \_\_\_\_\_ 3. Contractor shall not tap or otherwise penetrate existing water or sewer main lines without prior approval from METCOM. Contractor is responsible to avoid spillage of raw sewage. Contractor shall provide all sewer plugging and pumping equipment necessary to avoid spillage. Violations are subject to fines and penalties and will be enforced to the full extent of the Law.
- \_\_\_\_\_ 4. Contractor is responsible for maintenance of traffic on existing roadways in accordance with St. Mary’s County and S.H.A. Standard Specifications latest edition.
- \_\_\_\_\_ 5. Water and sewer main construction shall not commence until involved roadways, storm drains, and utility easements have been graded and contoured to approximately final grade. Property corners of all lots are required to be staked by a licensed surveyor prior to installing water and sewer service connections.

- \_\_\_\_\_ 6. Only the amount of trench that can be opened, worked in and then stabilized in a work day shall be done so. If stabilization does not occur at the end of the work day, then appropriate erosion controls, sediment controls and safety controls shall be installed.
- \_\_\_\_\_ 7. A Pre-Construction meeting is required prior to start of construction. Materials delivered to the site for water and sewer construction must be inspected prior to start of work.
- \_\_\_\_\_ 8. All pipes shall be cleaned before they are laid and shall be kept clean until acceptance of the completed work by METCOM. Open ends of pipes shall be fitted with water tight stoppers to prevent entrance of foreign matter when pipe-laying operations are interrupted.

**D. General Sewer Plan and Profile Requirements**

- \_\_\_\_\_ 1. A minimum 20 ft. easement width centered over the main is clearly shown and identified.
- \_\_\_\_\_ 2. Direction of flow is shown on the plans.
- \_\_\_\_\_ 3. Manhole and sewer pipe schedule is provided.
- \_\_\_\_\_ 4. The following sewer main data and calculations are enclosed: wastewater flow projections (average, peak and design flows); projected velocities and pressures within the pipelines; pumping station and wet well design (if applicable).
- \_\_\_\_\_ 5. Sewer allocation table is provided.
- \_\_\_\_\_ 6. Minimum velocity of 2 ft/s is maintained. Minimum velocities are based on the average flow, including infiltration for gravity sewer. Force main velocities are determined by pump performance and pipe sizes.
- \_\_\_\_\_ 7. All sewer main crossings with other utilities are properly shown and called-out with minimum clearance dimensioned. Minimum vertical clearance of 1ft. from other utilities and/or storm drains is shown.
- \_\_\_\_\_ 8. Sewer mains shall be a minimum of 1ft. below water main to prevent conflicts with service laterals and crossings.
- \_\_\_\_\_ 9. Manholes in low lying areas have watertight lids.

**E. Collecting Sewers (Gravity)**

- \_\_\_\_\_ 1. Pipe sizes and material type is shown on plans (SDR 35 or glass-lined D.I.P. if the depth is greater than 18 feet).
- \_\_\_\_\_ 2. Collecting sewers are a minimum of 8 inches in diameter and are designed to carry present and projected future flows.
- \_\_\_\_\_ 3. Gravity sewer is placed at a 0.4% grade. (Grades between 0.4% and 6% may be approved on a case-by-case basis only.)
- \_\_\_\_\_ 4. Minimum cover on gravity sewer is 4 ft.
- \_\_\_\_\_ 5. A 6 in. water tight clean out is provided for each sewer service connection. A road bearing clean-out is provided in areas of vehicular traffic.

\_\_\_\_\_ 6. A terminal manhole is provided at the end of each line.

**F. Sewers, Force Main (Pressure Sewers)**

- \_\_\_\_\_ 1. All force main sewer pipe is either PVC (DR-18 or SDR-21), or ductile iron.
- \_\_\_\_\_ 2. Minimum size of force mains is 1 ½ in. inside diameter.
- \_\_\_\_\_ 3. Minimum cover above force mains is 3 ½ ft. Maximum cover is 6 ft.
- \_\_\_\_\_ 4. An automatic air and vacuum relief valve is placed at each high point along the force main pipeline.
- \_\_\_\_\_ 5. A continuous positive or negative grade, not less than 0.2%, is maintained between each high point of the force main and a successive low point.
- \_\_\_\_\_ 6. Low point clean outs and flushing connections are fabricated as shown in the Standard Detail.
- \_\_\_\_\_ 7. Flushing connections are provided at a 400 foot maximum spacing as well as at the end of the force main.
- \_\_\_\_\_ 8. Witness posts are provided at flushing connections and road crossings.
- \_\_\_\_\_ 9. Force mains enter the gravity sewer system at a point not more than 2 ft. above the receiving manhole invert.
- \_\_\_\_\_ 10. Minimum cover above force mains is 3 ½ ft.; maximum cover is 6 ft.
- \_\_\_\_\_ 11. Tapping sleeve and valves are provided when making service connections to an existing sewer main. The main being tapped is at least one pipe size larger than the branch main.

**G. Water Plan and Profile Requirements**

- \_\_\_\_\_ 1. Water main sizes are indicated (minimum of 8 in. for fire protection). A fire hydrant is provided at the end of all mains.
- \_\_\_\_\_ 2. Water main materials are indicated (C900 or DIP).
- \_\_\_\_\_ 3. Water valves are spaced at a maximum of 800 ft. for 8 in. and 12 in. lines.
- \_\_\_\_\_ 4. Single water services are provided to each dwelling, business, warehouse or proposed lots, buildings and parcels.
- \_\_\_\_\_ 5. Fire hydrants are spaced at a maximum of 450ft. for single family residential developments and a maximum of 300ft. for multi-family and commercial developments. The bury depth is provided on the profile.
- \_\_\_\_\_ 6. Where a water main is in a casing under a roadway or crosses under a stream bed, valves are placed on each side.
- \_\_\_\_\_ 7. All valves, tees, bends, fire hydrants, etc. are shown with a symbol and called-out with size, type and station. Valves immediately adjacent to tees do not need stations.
- \_\_\_\_\_ 8. There are no 90 degree bends shown on any water main.

- \_\_\_\_\_ 9. The following water main data and design calculations are enclosed: average day, maximum day, and peak hour demands, fire flow requirements, future requirements, probable pressures, losses, and computations for determining pipe sizes.
- \_\_\_\_\_ 10. Water Allocation Table with fire flow requirements is shown.
- \_\_\_\_\_ 11. Minimum cover of 42 in. for water mains is maintained.
- \_\_\_\_\_ 12. Three (3) valves are provided at each water main tee. Four (4) valves are provided at each water main cross.
- \_\_\_\_\_ 13. Tapping sleeve and valves are provided when making service connections to existing water main. The main being tapped is at least one pipe size larger than the branch main. (If the branch main is the same size as the main line, then a tee shall be cut into the main line.)

***Applicant's Certification***

*I, the undersigned, hereby certify that the attached Water and Sewer Construction Plans include all items required by the St. Mary's County Metropolitan Commission. I understand that if any of the items required are found to be missing from the submittal, the Water and Sewer Plan will not be acceptable for approval and will be returned as incomplete. I am aware of these criteria and will accept all responsibility for delays due to incomplete submittals. I am enclosing an explanation for each item which I feel is not required and, therefore, has not been included in this submittal package.*

\_\_\_\_\_  
Professional Engineer's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Professional Engineer's Printed Name

SEAL

***MD LICENCED PROFESSIONAL ENGINEER MUST SIGN AND SEAL THIS CHECKLIST***