



STAFF ONLY

Permit No. _____

Revision No. _____

Date _____

Water and Sewer Checklist
(W & S - 1)

Instructions: All utility plan submissions shall contain the following information. Any submissions brought to the County with missing or incomplete plans, 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 (engineering reviewer shall verify each mark).

N/A - not applicable Y - provided

Note: The following checklist is provided to assist the design professional in developing a complete utility plan set to expedite review by the Department. All final water and/or sewer plans submitted for review are to include a copy of the checklists(s) signed by a registered design professional in responsible charge with the firm. Submittals made that do not include the checklist will be returned without review, comments, or approval. Compliance with the checklist, however, in no way is meant to relieve the design professional of responsibility for project design.

I. Cover Sheet (note: a separate cover sheet will be required when the utility plan set consists of three or more sheets.)

a) Title block (Anne Arundel County Office of Planning and Zoning title block required on all sheets) shall include:

- 1) Project Name,
- 2) Project Title
- 3) Project Type,
- 4) Scale,
- 5) Date,
- 6) Tax Map, Block, and Parcel,
- 7) Subdivision name and lot number,
- 8) Assessment District,
- 9) Site Zoning,
- 10) Zip Code, and
- 11) signature and seal of a design professional registered in the State of Maryland (Comar, Section 14-101).

b) Vicinity Map (minimum 4" x 4")

- 1) vicinity map shall be located in upper right hand corner.
- 2) vicinity map shall be oriented with north to the top.
- 3) scale is shown (generally: 2000' = 1").
- 4) state and county roads are shown and labeled.
- 5) site is shown, shaded, and labeled.
- 6) north arrow shown.

c) Location Plan (show limits of project area or limits of proposed subdivision)

- 1) scale shall be 1-inch to 200 feet (note: consultant must get county staff approval for use of a smaller scale)
- 2) north arrow shown.
- 3) existing and proposed sewer lines and water lines, valves, and appurtenances are located and labeled.
- 4) existing and proposed manholes are located and labeled.
- 5) existing and proposed fire hydrants and coverages are located and labeled.
- 6) all flood plain limits have been shown.
- 7) coverage of individual plan sheet is delineated.
- 8) all road names are shown.

d) Index of Drawings Table

- 1) all drawing titles are shown in table and labeled accordingly.

e) General Notes

- 1) appropriate general notes have been added (note: see W&S General Notes List).
- 2) project specific notes added (such as meter note, jacking note, etc.)

- 3) phone number and agency titles correct.
- 4) pipe material and material class correct.

2. **Plan Sheets**

a) *General Information*

- 1) Recorded plat reference.
- 2) Street names and alignment.
- 3) Lot dimensions, lot numbers, and street address numbers.
- 4) Owners and tax account numbers in all areas up to 60 feet beyond end of main.
- 5) Road surface: symbol and label.
- 6) Existing sewer manhole numbers and inverts checked against Record Drawings.
- 7) Show significant existing and proposed features, i.e. streams, swales, stormwater management facilities, wetlands, woods, etc.
- 8) State road labeled on plan, where such roads are shown.
- 9) No woody landscaping (trees) provided within easements or rights-of-way for utilities.
- 10) Dimensions between street lines and curb lines.
- 11) Arc Radii of curvatures along property lines if proposed main is crimped.
- 12) Existing utilities using proper symbols.
- 13) Label all existing utility lines with the appropriate County Public Drawing numbers.
- 14) Existing water, sewer and drains checked against Record Drawings.
- 15) Distance of existing dead ends from street centerline, property line or macadam edge.
- 16) Check with BGE, Bell Atlantic, and Cable Television for existing utilities in all traveled roads.
- 17) Engineer to contact BGE, Bell Atlantic, and Cable Television for necessary relocations of existing utilities.
- 18) Other proposed utilities checked against construction plans of same.
- 19) Right-of-way reference.
- 20) North Arrow - Scale - Coordinate Ticks (3).
- 21) Scales shown in proper location.
- 22) Mark limits of proposed or existing paving under this contract.
- 23) Proposed and/or existing curb gutter - show symbol.
- 24) Benchmark - B. M. No. (if any) description and elevation.
- 25) Soil boring/water table data shown.
- 26) Engineer's seal and signature.

b) *Sewer Plan*

- 1) Proposed utilities accentuated by bold, heavy line weight.
- 2) Proposed sewer services to be at least 10 feet minimum distance from existing or proposed water connections.
- 3) Proposed sewer shall be 4 feet from the edge of existing pavement in existing development without curbs.
- 4) Sewer shall not be placed under existing or proposed curb except under extremely unusual situations.
- 5) "Full Trench Compaction" - special bedding requirements indicated where required.
- 6) Call out method of connection to existing sewer, (*for example, "Kor-n-Seal" process, existing stub, proposed manhole over existing sewer*).
- 7) House connections
 - (a) shown for all lots, improved and unimproved.
 - (b) typical house connection detail shown.
 - (c) minimum sewer house connection size correct (*note: 4 inch*).
 - (d) drop connections shown with top elevation at stack.
 - (e) shall be at low end or middle of lot frontage.
 - (f) connected to manholes where possible with no more than three per manhole.
 - (g) connection does not interfere with electric transformer.
 - (h) 4-inches and larger identified by type of service (for example; combined, fire, domestics, separate fire and domestic)
 - (i) standard detail called out where appropriate.
- 8) Mains extended to limits of property either along frontage or through the site in public easements, as required in the AACo Water and Sewer Master Plan.
- 9) Distance of proposed sewer main from macadam edge to centerline or property line.
- 10) Distance of proposed water from proposed sewer: minimum 10 feet horizontal.
- 11) Restrictions, if any, as to number of connections in this particular service area.
- 12) Right-of-way (*for sizing see attached policy*)
 - (a) provided where sewer is not located within road R/W.
 - (b) right-of-way or easement width is correctly based on depth of utility (*note: minimum right-of-way 15 feet*).
 - (c) to be indicated on plan and clearly labeled as to existing, proposed, or future.
 - (d) all required off-site easements have been acquired or easement documents have been submitted.
- 13) Utilities - proposed
 - (a) crossing and parallel lines shown and record drawing checked.

- (b) coordinates shown for each manhole
 - (c) proposed sewer encased in concrete where appropriate.
- 14) Collection sewer
- (a) size, type, and kind.
 - (b) checked for minimum grades and maximum manhole spacing.
 - (c) manholes numbered and stationed.
 - (d) extended to limit of property.
 - (e) minimum sewer main size correct (*note: 8 inch*).
 - (f) manhole at the end of all collection sewer lines. No terminal clean-outs are permitted.
 - (g) dimensioned for location (minimum 10 feet horizontal from water main).
 - (h) size between manholes shown.
 - (i) drop manholes shown and type labeled - drop distance checked to determine Type A or Type B.
 - (j) clearance between cellar elevation and sewer invert checked.
 - (1) in case of pumping station failure, limit of surcharge and location of over-flow point identified, (planned over-flows are not permitted).
 - (k) pipe material identified (DIP shown where appropriate).
 - (l) watertight manholes provided in non-traveled rights-of-way, and clearly identified.
 - (m) restraining structures provided for steep slopes.
- 15) Grinder pumps
- (a) Sewer Study submitted.
 - (b) sewer lines labeled 'public' or 'private.'
 - (c) grinder pumps labeled as 'public' or 'private' (if commercial they must be private duplex pumps).
 - (d) all public grinder pumps shown in right-of-way or in 20' by 20' easement.
 - (e) first floor elevations shown (sewer must flow by gravity to grinder pump).
 - (f) gravity sewer connection line from building to pump shall be 4" minimum diameter.
 - (g) service valve shown at property line.
 - (h) grease traps/oil & grit separators shown on commercial sites.
 - (i) access depth from finished grade to grinder pump inlet shall not exceed 10 feet.
 - (j) public grinder pump electrical control panel shall be located in line of sight from grinder pump without any sight obstructions.
 - (k) all existing and proposed discharge manholes must be shown and labeled.
 - (l) notes requiring first two downstream discharge manholes must be epoxy coated inside and outside are shown.
 - (m) design flow shown.
 - (n) velocity in low pressure sewer is between 2.5fps and 15fps.
 - (o) maximum head for grinder pump checked against manufacturers specifications.
 - (p) computations checked for hydraulic profile and all assumptions for the design numbers of simultaneous pumps operating at the same times.
 - (q) checked against County Standards.
- 16) Pumping Station
- (a) required in accordance with Sewer Study.
 - (b) checked against County Standards.
- c) *Sewer Profile* (shown at 1"= 40' horizontal scale and 1"= 4' vertical scale)
- 1) Proposed utilities accentuated by bold, heavy line weight.
 - 2) Proposed sewer crossings to be at least 1 foot minimum below existing or proposed waterlines..
 - 3) "Full Trench Compaction" - special bedding requirements indicated where required.
 - 4) First floor elevations shown on profile.
 - 5) Review sewer manhole elevation against possible Pumping Station failure to protect from backing up into basement or first floor.
 - 6) Call out method of connection to existing sewer, (*for example, "Kor-n-Seal" process, existing stub, proposed manhole over existing sewer*).
 - 7) House connections
 - (a) shown for all lots, improved and unimproved.
 - (b) minimum sewer house connection size correct (*note: 4 inch*).
 - (c) shown where connected to manholes or at 'y' connections to main.
 - (d) standard detail called out where appropriate.
 - 8) Utilities - proposed
 - (a) crossing and parallel lines shown and record drawing checked.
 - (b) proposed sewer encased in concrete where appropriate.
 - 9) Collection sewer
 - (a) size, type, kind and grade of pipe (grades to be multiples of .04%).
 - (b) checked for minimum grades and maximum manhole spacing.

- (c) manholes numbered and stationed.
 - (d) size between manholes shown.
 - (e) manhole inverts labeled (upstream and downstream).
 - (f) minimum sewer main size correct (*note: 8 inch*).
 - (g) invert elevations correctly and grades checked (*invert at sewer main is equal to house first floor elevation minus 2 feet plus 2% times the distance from the main to the farthest point on the house or [FFE - (2' + (0.02)d)]*).
 - (h) profile labeled "street name" or R/W.
 - (i) pipe checked for allowable maximum and minimum cover.
 - (j) drop manholes shown and type labeled - drop distance checked to determine Type A or Type B.
 - (k) pipe material identified (DIP shown where appropriate).
 - (l) watertight manholes provided in non-traveled rights-of-way, and clearly identified.
- d) *Water Plan*
- 1) Proposed utilities accentuated by bold, heavy line weight.
 - 2) Proposed water services to be at least 10 feet minimum distance from existing or proposed sanitary connections.
 - 3) "Full Trench Compaction" - special bedding requirements indicated where required.
 - 4) Call out all valves that must be closed to make necessary tie-ins.
 - 5) Coordinates and bearings shown along centerline of waterline.
 - 6) Proper location and distribution of valves and hydrants (*Fire Code #H-8, F-1, F-43, and F-5*).
 - 7) Crimp radius and beginning and ending stations and offsets for curved water lines are shown.
 - 8) Dead end water mains do not exceed maximum length for size (see Design Manual Chapter IX, Section II, E.)
 - 9) Adequate cover over pipe is provided..
 - 10) House connections
 - (a) shown for all lots, improved and unimproved.
 - (b) Minimum water house connection size correct (*note: 1-1/2 inch—meter W25 or W25A*).
 - (c) Minimum water main size correct (*note: 4 inch*).
 - (d) shall be at high end or middle of lot frontage.
 - (e) connection does not interfere with electric transformer.
 - (f) twin service connections used where feasible.
 - (g) 4-inches and larger identified by type of service (for example; combined, fire, domestics, separate fire and domestic)
 - (h) standard detail called out where appropriate.
 - (i) shall be 15 feet from property line unless twin is to be used.
 - 11) Fire Hydrants
 - (a) as a blow-off shall be located at the end of each line (tee'd off five feet prior to end cap).
 - (b) shall be located at road intersections (whenever possible).
 - (c) Three (3) valve shut-off provided to eliminate flow to a hydrant.
 - (d) Spacing
 - (1) for Residential lots less than 20,000 sq. ft.
 - 1. shall not be spaced more than 750 feet apart along an improved roadway.
 - 2. shall be within 500 feet of the center of any improved lot.
 - (2) for Residential lots larger than 20,000 sq. ft.
 - 1. shall not be spaced more than 1,000 feet apart along an improved roadway.
 - 2. shall be within 500 feet of the center of any improved lot.
 - (3) for Residential townhouses or garden apartments (3 story or less)
 - 1. shall not be more than 500 feet apart and 300 feet from any dwelling.
 - (4) for Commercial structures
 - 1. shall not be spaced more than 300 feet apart along an improved roadway.
 - 2. shall be located so that all exterior portions of a structure are less than 300 feet away from any fire hydrant measured along an improved roadway or path or clear unobstructed area..
 - 3. shall be located at least 40 feet from any portion of a structure, but shall be located within 100 feet of a Fire Department connection.
 - 12) Fire Lane
 - (a) vehicular access shall be provided by a roadway or fire lane so that no exterior portion of the building/structure is more than 150 feet from roadway or fire lane.
 - (b) Fire lane design requirements shall be met.
 - 13) Minimum water main size with fire hydrant correct (*note: 8 inch*).
 - 14) Mains extended to limits of property either along frontage or through the site in public easements.
 - 15) Bill of Materials Table showing
 - (a) quantity,
 - (b) type, and
 - (c) size of all lines and appurtenances.
 - 16) Size of proposed mains shown and labeled.

- 17) Right-of-way (*for sizing see attached policy*)
 - (a) provided where water is not located within road R/W.
 - (b) right-of-way or easement width is correctly based on depth of utility (*note: minimum right-of-way 15 feet*).
 - (c) to be indicated on plan and clearly labeled as to existing or future.
- 18) Traffic type meter frame and cover for setting located in existing or future driveway or roadway.
- 19) Contractor's work clearly state as to limits in "Abandon existing water and transfer...." cases.
- 20) Restrictions, if any, as to number of connections in this particular Service Zone.
- 21) Fittings shown on plan -- symbol, size and label.
- 22) Crossing detail -- crossovers numbered and computed.
- 23) Future crossing detail -- profile and elevation values.
- e) *Engineered Dewatering Plan* – well points or trench dewatering.
- f) *Water Profile*
 - 1) Proposed utilities accentuated by bold, heavy line weight.
 - 2) Proposed water services to be at least 10 feet minimum distance from existing or proposed sanitary connections.
 - 3) "Full Trench Compaction" - special bedding requirements indicated where required.
 - 4) Call out all valves that must be closed to make necessary tie-ins.
 - 5) Coordinates and bearings shown along centerline of waterline.
 - 6) Proper location and distribution of valves and hydrants.
 - 7) House connections - shown for all lots, improved and unimproved.
 - 8) Size of proposed mains shown and labeled.
 - 9) pipe material identified (DIP shown where appropriate).
 - 10) Contractor's work clearly state as to limits in "Abandon existing water and transfer...." cases.
 - 11) Fittings shown on profile -- symbol, size and label.
 - 12) Future crossing detail -- profile and elevation values.
- g) *Traffic Control Plan* – all projects involving existing County roads (*See Chapter III, Appendix P, Anne Arundel County Dept. of Public Works Design Manual, January 2001*).
- h) *Cost Estimate* - completed (prior to County signatures on plans) See Chapter III, Anne Arundel County Dept. of Public Works Design Manual, January 2001.
- i) *Waivers* - All utility waivers must be approved prior to county signatures on plans.

Applicant's Certification

I, the undersigned, hereby certify that the attached Water and Sewer Plans submittal includes all items required by Article 21 of the Anne Arundel County Code. 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 review and will be returned as incomplete. The applicant is aware of this 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.

Design Professional's signature

Date

NOTE: DESIGN PROFESSIONAL MUST SIGN AND SEAL THIS CHECKLIST

SEAL

Review Engineer's signature

Date