

MARYLAND DEPARTMENT OF THE ENVIRONMENT
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WATER & SCIENCE ADMINISTRATION

**WASTEWATER PERMITS PROGRAM
ON-SITE SYSTEMS DIVISION**

**Design package submission specifications for Non-Conventional On-site
Sewage Disposal Systems (OSDS)**

These minimum specifications are applicable throughout the State of Maryland for plan submission of Non-Conventional OSDS design. The designer must have an adequate knowledge of on-site system design, general engineering practices and technology or methodology proposed. This is a specialized area of expertise and requires special training and experience. Qualified designers may include individuals with soils and on-site systems design experience including but not limited to Registered Professional Engineers, Private Soil Evaluators / Licensed Environmental Health Specialists, and/or other Environmental Consultants. Appropriate criteria should be incorporated into final plans and specifications. All design plans / packages submitted should include the following items:

General information:

- OSDS design packages must be typed and properly referenced (i.e., pages numbers, figures, plans, etc.)
- 11x17" size minimum for plan view sheets, or acceptable alternatives in which scale is not compromised. Plan views and figures must be original prints, survey overlay or similar computer-aided drafting software is desirable. Hand drawn figures and notes may be accepted if legible and to scale.
- Manufacturer information of all site / system specific components (i.e. panels, BAT specs, tanks, chambers and pumps) must be original prints (not copies or generic representations) that are clear and easy to read.
- Preliminary proposal and associated site evaluation and or hydrogeologic reports for initial review, comment(s) and or modification must include one (1) hard copy, and one electronic copy at the time of submission to both the Approving Authority and MDE Representative. Once site evaluation and or hydro-geologic reports and preliminary proposal review is completed the Approving Authority and or MDE Representative will provide a response to the designer.
- Final proposal / plan submission for permit approval must include (1) hard copy, and an electronic PDF file at the time of submission to both the Approving Authority and MDE Representative.

Design packages must include the following:

1. Summary of the design including:

- Project location (Tax Map designation(s), address, subdivision, or facility name as applicable)
- Facility type (i.e., residential or commercial). If commercial, provide a brief description of the type of facility to be served.
- Design flow.
- Soil loading rates along with justification, identification of treatment zone / groundwater and or limiting horizons.

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- Strength of wastewater influent if non-residential or $\geq 1,500$ gpd i.e. anticipated BOD, TSS and Nitrogen concentrations.
 - Full description of the system type including pretreatment.
 - Name / professional signature, Company name, address, phone number and email address of designer.
- 2. Plan view** – Scaled plan (1":20', 1":30', 1":40') prepared by the designer to include:
- Property boundaries (insets acceptable for large properties).
 - Field verified topography if applicable. Site plan should include contour intervals or spot elevations including field run, over proposed disposal area.
 - Sensitive receptor(s) and regulatory setbacks.
 - Existing property improvements.
 - Overhead and subterranean utilities and easements.
 - Any applicable easements.
 - Existing OSDS components.
 - Existing and proposed wells on site and within 100 ft., or 200 ft (if applicable for GPR Counties) of the subject property to include radius of separation / arc subject to regulation; include private and public water line locations if present. If no wells are present, add note.
 - All pertinent soil / site evaluation collection locations.
 - The proposed location of all OSDS components.
- 3. Cross Section Plan view** – cross-sections must be provided for the following:
- Proposed tanks, pump chambers and treatment tanks as applicable. Tank dimensions must be shown. For pumped systems, pump elevation and float tree settings must be shown along with piping detail from the pump and exiting the tank;
 - Scaled hydraulic profile noting key elevations / inverts and ground surface and system components, from the building to be served to the dispersal / disposal system.
 - Construction detail for at-grades, sand mounds and low pressure distribution trenches.
- 4. Calculations** – Calculations and related assumptions must be shown for the following (if applicable):
- Complete and inclusive system dimensions, depths and inverts.
 - System loading, flow rates and all pressure measurements.
 - System dosing calculations and all relevant dose, timer setting(s) and run times.
 - System performance curve calculations. Pump chamber volume calculations for float tree settings.
 - Buoyancy calculations.
- 5. Figures and Other Specifications** (as applicable)
- Pump specifications and pump performance curve.
 - Observation ports and lateral turn-up detail.
 - Lateral layout including orifice diameter and spacing.
 - Control panel specifications (including event counter and elapsed time meter) and location / height above grade.
 - Tank anchoring method(s).
- 6. Required Notes**

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- Request for pre-construction meeting with the designer, contractor, Approving Authority and or MDE; 72 hour notice required.
- A minimum 72 hour notice to all parties required via email prior to commencing with any construction.
- Detailed sequence of construction.
- Plan approval block with signature lines for Approving Authority and MDE Regional Consultant.
- All applicable operation and maintenance: and monitoring requirements.
- All applicable State, local, municipal and Approving Authority notations.