

SSTS Basic Designer Task Analysis

Subsurface Sewage Treatment System (SSTS) Program

Doc Type: Task Analysis

Basic Designer Task Analysis		
I.	Become certified as a Basic Designer	
	I.A	Complete training
	I.B	Pass certification exam
	I.C	Apply for certification
	I.D	Complete experience with mentor
	I.E	Complete continuing education
	I.E.1	Complete soils-specific continuing education
II.	Obtain Basic Design business license	
	II.A	Apply for a business license
	II.A.1	Employ a Designated Certified Individual (DCI)
	II.A.2	Maintain appropriate SSTS surety bond and general liability insurance
	II.A.3	Remit appropriate business license fee
	II.B	Renew business license
III.	Complete preliminary site evaluation	
	III.A	Communicate with client about desires/preferences
	III.B	Contact local unit of government
	III.B.1	Obtain legal description of property, including Township, Range, and Section
	III.B.2	Determine property lines, easements, and proposed or existing improvements
	III.B.3	Determine location and status of proposed or existing water supply wells and pipes in vicinity
	III.B.4	Identify local SSTS program requirements
	III.B.5	Identify all applicable administrative authorities
	III.C	Determine dwelling or group of dwellings flow
	III.D	Determine flow for other establishment
	III.E	Estimate if waste strength exceeds domestic strength
	III.E.1	Assess waste suitability (domestic, non-domestic - suitable for discharge into soil, non-domestic - not suitable for discharge into soil, hazardous)
	III.E.2	Identify at-risk and high strength waste streams
	III.E.3	Determine necessity for source segregation due to waste characteristics
	III.F	Complete preliminary site report
	III.F.1	Determine applicable setbacks
	III.F.2	Confirm authorization to perform basic design activities
	III.G	Assess risk based on preliminary site report
IV.	Complete field evaluation	
	IV.A	Contact Gopher One and locate utilities
	IV.B	Investigate property
	IV.B.1	Establish lot lines to satisfaction of owner and local unit of government
	IV.B.2	Identify current and proposed improvements, setbacks, & easements
	IV.B.3	Investigate site for initial and replacement soil treatment areas
	IV.C	Identify surface features and soils characteristics for initial and replacement soil treatment area location, size, and depth
	IV.D	Complete field evaluation report
	IV.D.1	Prepare detailed site map
	IV.D.2	Define benchmark and elevations of soil observations, percolation tests, proposed SSTS components and soil treatment area locations, and the media/soil interface of the soil treatment area
	IV.D.3	Coordinate soils verification by local government

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	IV.E	Assess risk based on field evaluation report	
		IV.E.1	Recognize potential for groundwater mounding
	IV.F	Determine if a variance is necessary and warranted	
	IV.G	Communicate with client about suitable system options	
V.	Create design report		
	V.A	Use preliminary and site evaluation to determine basic design specifications	
		V.A.1	Use depth to limiting layer to choose treatment system
			V.A.1.1 Account for rock fragments
		V.A.2	Use texture and structure or percolation rate to determine absorption area (hydraulic) loading rate and absorption area size
		V.A.3	Use texture and structure or percolation rate to determine acceptable contour loading rate
		V.A.4	Determine ISTS source classification and type
		V.A.5	Determine appropriate application of design considerations to mitigate risks
		V.A.5.1	Specify design requirements to mitigate non-domestic waste sources
		V.A.5.2	Specify design requirements to mitigate variation in flow
		V.A.5.3	Specify design requirements to mitigate high risk site conditions
		V.A.5.4	Specify design requirements to mitigate high risk soil conditions
		V.A.5.5	Specify design requirements to mitigate small lot conditions
	V.B	Identify special design parameters for graywater, Type II & Type III systems	
		V.B.1	Identify how use of a graywater system will impact design
		V.B.2	Identify how placing a system in floodplain will impact design (Type II)
		V.B.3	Identify how placing a system in cut, filled or compacted soils will impact design (Type III)
		V.B.4	Identify how down-sizing a system will impact design (Type III)
		V.B.5	Identify how placing a system in less than 12" unsaturated soil will impact design (Type III)
	V.C	Design privy (Type II)	
	V.D	Determine design specifications for collection systems ≤ 2500 gpd	
		V.D.1	Design conventional and septic tank effluent - gravity (STEG) gravity collection
		V.D.2	Design gravity collection with lift stations
		V.D.3	Design for inflow and infiltration (I&I)
	V.E	Determine design specifications for tank(s) using MN Rules Chapter 7080 and Registered Sewage Tanks List	
		V.E.1	Specify septic tank design requirements for Type I-III ISTS ≤ 2500 gpd, including required capacity, use of compartments or multiple tanks, baffles, insulation, burial depth limitations, effluent screens, and access.
		V.E.2	Specify septic tank design requirements for Type I-III ISTS ≤ 2500 gpd for STEG applications.
		V.E.3	Specify holding tank (Type II) design requirements for ISTS
		V.E.4	Specify storage capacity design requirements for Type I-III ISTS ≤ 2500 gpd using flow equalization
		V.E.5	Specify pump tank design requirements for Type I-III ISTS ≤ 2500 gpd
		V.E.6	Calculate potential for tank flotation and specify restraint options when appropriate
	V.F	Determine design specifications for soil treatment system	
		V.F.1	Design trench treatment system using registered distribution media
		V.F.2	Design bed treatment system using registered distribution media
		V.F.3	Design at-grade treatment system using registered distribution media
		V.F.4	Design mound treatment system using registered distribution media
		V.F.5	Understand design principles and site conditions in which drip distribution is appropriate
	V.G	Determine design specifications for pump and distribution system	
		V.G.1	Design supply pipe to distribution system
		V.G.2	Design gravity distribution system
		V.G.3	Design pump specifications & dosing volumes
		V.G.3.1	Design demand dosed distribution
		V.G.3.2	Design timed dosed distribution
		V.G.3.3	Design for flow equalization
		V.G.3.4	Design specifications for duplex pumps

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		V.G.4	Design pressure distribution system
		V.G.4.1	Design level pressure distribution
		V.G.4.2	Design non-level pressure distribution
		V.G.4.3	Design flow-splitting/zoned distribution system
	V.H	Determine system and site layout	
		V.H.1	Specify ISTS component elevations and locations on site map relative to defined benchmark
		V.H.2	Verify chosen contour loading rate and acceptable system geometry
	V.I.	Complete and submit design report	
		V.I.1	Write and submit risk-based management plan for all systems
		V.I.2	Confirm applicable rules and regulation compliance with certified signature
		V.I.3	Submit all required design documents to local authority for review, revision, and approval
		V.I.4	Coordinate permitted design through installation process