



# Large On-site Sewage Systems (LOSS) Engineering Report Checklist

**Intended for internal use for submittal review. Posted for use as guidance.**

Project Name:	New LOSS <input type="checkbox"/> Existing LOSS <input type="checkbox"/>
Owner Name:	Telephone: (     )
Owner Email:	County:
Engineer Name:	Telephone: (     )
Engineer Email:	County:

## ENGINEERING REPORT

WAC 246-272B	Item	Yes	No	N/A	Comments
02100(1)	Stamped, signed & dated by design engineer				SEND COPY TO DAHP IF OWNER HASN'T
02100(1)	One electronic copy				Use FTP site for large file transfers

General		Yes	No	N/A	Comments
04000(4)(t)(ii)	Project site address, county, tax parcel number, and legal description				
04000(4)(t)(i)	Name, phone, fax, address and email of the following:				
04000(4)(t)(i)(A)	Owner - contact information				
04000(4)(t)(i)(B)	Authorized representative - contact information				
04000(4)(t)(i)(C)	Legal owner of property where LOSS is proposed to be installed				
04000(4)(t)(i)(D)	Design engineer - contact information				
04000(4)(t)(i)(E)	Certified operator - if known				

Executive Summary & Narrative		Yes	No	N/A	Comments
04000(4)(a)(ii)	Location of LOSS				
04400(4)(a)(i)	Nature of project – new, expansion, phased development				
04000(4)(a)(iv) & 04000(4)(b)(i)	Facilities served when project / development complete				
04000(4)(a)(v)	Design flow				
04000(4)(a)(vi) & 04000(4)(b)(ii)	Existing or anticipated wastewater characteristics and strength				
04000(4)(a)(vii)	Site and soil characteristics; DAHP review/permit?				
04000(4)(a)(viii) & 04000(4)(b)(iii)	Treatment and dispersal method proposed				



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04000(4)(a)(iii)	Proposed ownership and management				
04000(4)(b)(iv)	Availability of public sewers				
04000(4)(b)(v)	Existing sewer or water systems on property				
04000(4)(b)(vi)	Source of drinking water and water system purveyor				
<b>Consistency</b>					
04000(4)(c)(i)	Applicable portion of city, town, or county comprehensive plans or development regulations for property LOSS will be sited and development it serves				
04000(4)(c)(ii)	Applicable portion of city, town, county, or LHJ requirements for property to connect to public sewer				
04000(4)(d) & 04000(4)(e)	Statement & explanation how LOSS and development are consistent with comprehensive plan, land use, development regulations, and sensitive & critical areas				
04000(4)(f)	SEPA checklist and determination Other environmental review - DAHP				
<b>Maps</b>					
04000(4)(g)	Vicinity Map				
04000(4)(h)	Development plan map-(to scale-include total development, not just disposal area) Include:				
04000(4)(h)(i)	Total development area				
04000(4)(h)(ii)	Proposed primary and reserve drainfield areas				
04000(4)(h)(iii)	Surface waters, wetlands, and / or wells within 1,000 feet of drainfield perimeter				
04000(4)(h)(iv)	Topographic contours and elevations at ten feet or less				
04000(4)(h)(v)	Drainage basins and drainage patterns throughout the development site				
04000(4)(h)(vi)	Any existing or proposed storm water systems or retention basins on the development site				
04000(4)(h)(vii)	Location of 100 year flood boundaries within 1,000 feet of drainfield perimeter				
04000(4)(h)(viii)	Existing or proposed structures, roads, parking areas adjacent to drainfield				
04000(4)(h)(ix)	Location of existing and proposed encumbrance affecting system placement				

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04000(4)(h)(x)	All water, sewer, greywater, reclaimed water, storm water, irrigation lines within 10 feet of the project or property boundaries.				

Soils & Treatment					
04000(4)(i)	Analysis of site's capacity to treat and dispose of proposed quantity and quality of sewage				
04000(4)(j)	SRS (Site Risk Survey), if one was completed				
04000(4)(k)	HGR, (Hydrogeology Report) if one was completed				
04000(4)(l)	Soil characterization using USDA NRCS Soil classification system, if updated from approved pre-design report				
04000(4)(m)	Discussion of proposed treatment process addressing:				
04000(4)(m)(i)	Wastewater characterization, flow patterns, and any site specific constituents of concern				
04000(4)(m)(ii)	Treatment standard approved by DOH & expected treatment performance of proposed technology				
04000(4)(m)(iii)	Proposed O&M activities				
04000(4)(m)(iv)	Any alternative treatment processes evaluated				

Design Criteria & Calculations					
04000(4)(n)	Minimum land area – report must show calculation				
04000(4)(o)(i)	Design flow				
04000(4)(o)(ii)	Soil type and hydraulic loading rate				
04000(4)(o)(iii)	Pipe sizes				
04000(4)(o)(iv)	Hydraulic evaluation and drainfield dosing calculations, used to determine dose volume, orifice size, spacing, residual head				
04000(4)(o)(v)	Pump selection and system curves				
04000(4)(o)(vi)	Tank sizes				
04000(4)(o)(vii)	Treatment component design calculations and supporting performance information, if applicable				
04000(4)(p)	Proposed monitoring and sampling for influent and effluent, and, if necessary, water quality monitoring to demonstrate treatment standards will be met on an ongoing basis				



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WAC 246-272B	Item	Yes	No	N/A	Comments
	<b>Construction</b>				
04000(4)(s) & 05000	Installer qualifications and responsibilities				
04000(4)(s)	Design engineer inspections:				
05100(1)(a)	Verify LOSS construction and materials conform with approved plans				
05100(2)(a)	Poured in place tanks, if any				
05100(2)(b)	Installation of proprietary and public domain treatment and dispersal components				
05100(2)(c)	Installation of LOSS components in difficult conditions				
05100(2)(d)	Placement of sand or other fill material				
04000(4)(s) & 05100(3)	Design engineer must conduct or witness:				
05100(3)(a)	Water tightness testing of all tanks				
05100(3)(b)	Pressure testing of all new collection and conveyance piping				
05100(3)(c) & 05100(3)(d)	Pressure and flow testing of subsurface drip or pressure testing of drainfield				
	<b>Operation &amp; Maintenance / Management</b>				
04200	Draft O&M Manual (see O&M checklist)				
04000(4)(q)	Description of how LOSS will be owned and managed after construction				
04000(4)(r)	Copy of legal title or recorded easements to the property where the LOSS will be located showing that the owner retains legal control of the drainfield and LOSS components. If there will be sewage tanks on individual lots, include a plan for obtaining easements.				
04000(4)(u) & 04100(1)	<b>Management Plan</b> including following:				
04100(1)(a)	Identify legal ownership, single owner, or collection of individual owned lots				



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04100(1)(b)	Identify the management entity, public or private management (third party public entity guarantor if private management)				
04100(1)(c)	A copy of agreement, ordinance, covenant, or other legal document explaining rights and responsibilities of users , owner, management entity, or others				
04100(1)(d)	Narrative of management entity's experience managing LOSS and OSS				
04100(1)(e)	Contact info for management entity, its primary contact & third-party guarantor				
04100(1)(f)	Copy of all recorded LOSS and LOSS component easements				
04100(1)(g)	Specific duties of management entity				
04100(1)(h)	Contingency plan to operate maintain, and manage LOSS during transition of management entity				
04100(1)(i)	Signed notarized management agreement between owner & management entity				
04100(1)(j)	Maintain records of performance & inspection				
04100(1)(k)	Proof of an accounting & audit system set up and maintained				
04100(1)(l)	Description of how the owner or management entity will obtain & maintain adequate current and future funding for LOSS operations & capital improvements				
04100(2)	If lots are individually owned must also provide:				
04100(2)(a)	Articles of incorporation and bylaws, including procedures to amend existing agreements for homeowner associations, corporations, or other associations of owners				
04100(2)(b)	Name of association's or corporation's registered agent				
04100(2)(c)	Copies of recorded easements to the LOSS and all components, including sewage tanks on individual lots				
04200(17)	<b>Monitoring &amp; Report Plan</b> - included in draft O&M Manual				
04300(1)	Constituents of sewage or effluent that must be tested to assure that treatment components are meeting treatment level requirements				
04300(2)	Values or ranges that must be met				



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WAC 246-272B	Item	Yes	No	N/A	Comments
04300(3)	Sampling frequency, including time and day samples will be taken				
04300(4)	Procedures for decontamination sampling equipment and sample ports				
04300(5)	Field test methods				
04300(6)	Sampling methods				
04300(7)	Well purging methods, if applicable				
04300(8)	Handling and labeling of containers				
04300(9)	Holding times				
04300(10)	Quality assurance and quality control procedures				
04300(11)	Transport of samples				
04300(12)	List of equipment that will be used in sampling and field testing				
04300(13)	Test method for each constituent				
04300(15)	Map or schematics showing monitoring wells and all sample points				
04300(16)	Plans and construction specifications for monitoring wells, monitoring points, and piezometers				
04300(17)	Response plan for abnormal or elevated sampling results				
04300(18) & 04300(20)	Any report forms and recordkeeping procedures				
04300(19)	Procedures for submitting required monitoring results				

	Send copies to LHJ				
	LHJ permits needed				
	Archaeological/historic preservation permit				
	<b>Other</b>				
	Waivers				
	Easements – plans to sign & record				

Reviewed By: _____	Date: _____
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Comments: