

SHASTA COUNTY LAND DIVISION STANDARDS FOR PARCELS SERVED BY ONSITE WASTEWATER TREATMENT SYSTEMS

Land division of parcels served by Onsite Wastewater Treatment Systems (OWTS) are regulated with these Land Division Standards. These Land Division Standards are in addition to the provisions of the Shasta County Ordinance-Code, Chapter 8.41, Onsite Wastewater Treatment Systems, and the Shasta County Local Agency Management Program (LAMP). References to the Shasta County LAMP include the Technical Standards Manual incorporated into the LAMP. The Shasta County Director of Environmental Health (Director) has jurisdiction and references herein to the Director include his/her designee.

1.0 LAND DIVISIONS NOT SERVED BY PUBLIC SEWER

1.1 Dispersal Area

1.1.1. Each parcel shall contain one or more designated effluent dispersal areas totaling, in square feet, that amount of useable dispersal material required to install a leach field plus 100 percent replacement/repair area, in a feasible construction layout, meeting all applicable setbacks.

1.1.1.1. Dispersal areas for residential properties shall be calculated using the design flow rate for a four-bedroom dwelling constructed at the site, based on the average of the two slowest percolation rate tests for soils within the designated dispersal area.

1.1.1.2. Dispersal areas for commercial properties shall be calculated using the design peak flow rate of 600 gallons per day unless a greater peak flow rate is anticipated based on the future use of the proposed parcel. The dispersal area shall be calculated with the peak design flow rate, using the soil application rate located in Table 2 of the Shasta County LAMP's Technical Standards Manual, based on the average of the two slowest percolation test rates for soils within the designated dispersal area.

1.1.1.3. The identified dispersal area shall be used exclusively for effluent dispersal and shall remain free of all structures, roads, driveways, parking areas, impervious surfaces, and vehicle travel.

1.1.2. Dispersal area shall not include the following:

1. Land subject to flooding. In case of disputes concerning flooding potential, the flooded area shall be determined by calculating the expected 10-year frequency flood.
2. Land closer than 200 feet from a pond, lake or reservoir, measured from the high-water line or 100 feet if down slope from the pond, lake or reservoir.
3. Land closer than 200 feet from any spring, or 100 feet if downhill from the spring.

4. Land within 100 feet of any existing or proposed well site for the parcel or any adjoining parcel. This setback increases to 150 feet for public wells.
5. Land closer than 100 feet from an intermittent, seasonal, or perennial waterway measured from the top of the bank or other physically evident high-water line. An intermittent stream is one which may continue to flow for five or more consecutive days, is hydraulically connected to any water table or is identified on a United States Geological Service Topographic Map, whether named or unnamed.
6. Land closer than 50 feet from an ephemeral stream, measured from the edge of a channel. An ephemeral stream is one which flows for less than five consecutive days. It contains no water from a spring, snow, or other long-continuing surface source, is not hydraulically connected to any shallow water table and does not discharge directly to a perennial aquifer.
7. Land closer than 100 feet uphill or 50 feet downhill from an irrigation ditch or canal that flows for five or more consecutive days or 50 feet uphill or 25 feet downhill from an irrigation ditch or canal that flows for less than five consecutive days.
8. Land closer than 50 feet uphill from an existing or proposed cut.
9. Land with a grade steeper than 30 percent.
10. Filled land unless the fill is engineered for sewage dispersal and approved by the Director.
11. Dredger tailings.
12. Gravel bars of very porous materials adjoining a stream or body of water.
13. Land used for utility or road easements. Overhead utility easements may be included if the utility, entity, or agency holding the easement gives a permanent and unconditional release, easement, or license for sewage dispersal within the easement.
14. Land closer than 1,200 feet from a public water system intake point.

1.2 Dispersal Material Characteristics

Useable dispersal material has both the following characteristics:

1. Percolation rates between 1 and 120 minutes per inch, at 12 to 36 inches in depth, when percolation tests are conducted by the method specified in Section C of the Technical Standards Manual portion of the Shasta County LAMP, and Section 1.3.1. of these Land Division Standards.

2. Depth to a limiting layer, including, but not limited to, a seasonal water table, as determined by the procedures in the Shasta County LAMP, and Section 1.3.3. of these Land Division Standards, shall be greater than two feet and at least eight feet for lots of less than one acre.

A limiting layer is a soil condition that will likely prevent an onsite wastewater treatment system from properly functioning which may include saturated and redoximorphic soils, hard pan, bed rock or other impervious soil types, highly permeable soil types (i.e. coarse sand, gravels, cobbles and dredger tailings) and groundwater.

1.3 Percolation Test, Test Pits and Groundwater Monitoring

1.3.1. Percolation Tests

Three percolation tests shall be completed at the greatest depth possible to obtain the required vertical separation to a limiting layer for standard leach lines in compliance with the Shasta County LAMP. Depths may range from 12 inches to 36 inches. The appropriate soil percolation test depths are determined after examining soil profile pits and limiting layer(s) have been identified or after groundwater monitoring has been completed to determine depth to seasonal groundwater. Percolation testing shall be completed at 36 inches in depth if no limiting layer or groundwater has been identified.

To allow for the installation of a Standard OWTS, percolation tests shall be completed at a depth consistent with the following separation requirements:

1. Percolation rate >5 to 10 minutes per inch (mpi): Must maintain a minimum separation distance of five feet from the bottom of the percolation test hole to the limiting layer.
2. Percolation rate >10 to 30 mpi: Must maintain a minimum separation distance of four feet from the bottom of the percolation test hole to the limiting layer.
3. Percolation rate >30 to 120 mpi: Must maintain a minimum separation distance of three feet from the bottom of the percolation test hole to the limiting layer.

If the separation requirements for a Standard OWTS cannot be achieved, and it is determined that an alternative dispersal or supplemental treatment system is required for a particular site, soil percolation tests depths shall be such that there is at least 24 inches of separation between the test depth and the limiting layer, with no test completed shallower than 12 inches below ground surface.

1.3.2. Test Pit

At least one test pit shall be excavated in each proposed dispersal area. Test pits shall be at least two feet wide and eight feet deep for lots of one or more acres. Test pits shall be at least nine feet deep for lots less than one acre. Test pits do not need to extend past the depth at which the first limiting layer/condition is observed. Test pits shall slope towards one end at a rate no greater than 3:1. The soil profile shall be logged

by a qualified professional, as defined in the Shasta County LAMP, then backfilled. At the request of the Director, additional pits may be required for examination by the Shasta County Environmental Health Division (SCEHD). SCEHD staff will not enter pits greater than five feet in depth. However, after entering and inspecting a pit five foot deep or less, SCEHD staff may request that pits be extended to a depth greater than five feet so that this soil may be inspected as it is excavated.

1.3.3. Groundwater Monitoring

1.3.3.1. The height of the seasonal high groundwater of each proposed designated effluent dispersal area shall be determined by wet weather testing when any of the following is present:

1. Vegetation tolerant of, or indicative of, a high-water table present or in the vicinity of the project parcel.
2. High groundwater has previously been found in the vicinity.
3. The test pits show cracked or creviced formations but no clear delineation of the top of the water table.
4. Other conditions or historical data preclude accurate determination of the groundwater levels by dry weather observations.
5. The test pit indicates less than four feet of the dispersal material over an impervious stratum or eight feet for lots less than one acre.
6. Free water from seepage is observed in the test pit.
7. Redoximorphic soil features are observed in the first three feet of soil below ground surface.

1.3.3.2. The height of the seasonal high groundwater shall be determined by actual measurements of observation wells during periods of maximum soil moisture content, or by mathematical modeling after sufficient precipitation has occurred to meet or exceed field capacity of the soil and produce a response in observation wells acceptable to the Director.

1.3.3.2.1. Observation Well Construction

Observation wells shall be located where groundwater is anticipated to be nearest to ground surface, such as a low-lying area of the designated dispersal area. Observation wells shall be constructed by drilling or boring to the desired depth. If present, all smeared fine grain soil resulting from drill/boring activities shall be removed prior to installation of perforated pipe and filter pack. A perforated pipe is placed into the hole with clean course #8 sand or pea gravel placed around the perforated pipe. Additional construction requirements include the following:

1. Perforations of casing shall be saw slots, rather than drilled holes;

2. Filter fabric shall be used to cover the perforations in screened portion of well casing;
3. Well casing shall consist of solid pipe from top of casing to one and one-half feet below grade. Well casing shall be perforated from one and one-half feet below grade to the bottom of the well casing;
4. A minimum of 12 inches of cement or concrete shall be placed in the first 12 inches of the annular space of drilled/bored wells;
5. At no time shall a bored/drilled hole extend through a limiting layer;
6. Alternative monitoring well design, for the purposes of mathematical modeling as defined in Section 1.3.3.2.3., may be approved by the Director if requested by the certified hydrogeologist performing the modeling analysis; and
7. No observation well shall be constructed in the location of a former test pit or other excavation.

1.3.3.2.2. Direct Observation

Measurements shall be taken at the time and intervals specified by the Director in response to local conditions. Except as otherwise directed, measurements, excluding land within the Anderson-Cottonwood Irrigation District and other irrigated lands, shall be taken at approximately monthly intervals from January 1 to April 30. Land requiring groundwater monitoring caused by irrigation water and within the Anderson-Cottonwood Irrigation District or other irrigated areas shall have monthly measurements taken beginning May 1 and ending August 31.

At least one observation well shall be included within each proposed dispersal area suspected of having groundwater less than three feet below the ground surface, except where a nearby monitoring well shows groundwater contours representative of the proposed dispersal area.

For a site to be acceptable for a land division without mathematical modeling, groundwater, during the monitoring period, shall be at a depth greater than two feet below ground surface. Weekly observations shall be recorded throughout the remainder of the wet weather season if depth to groundwater is observed between two and four feet below ground surface. If seasonal rainfall up to the April 30 cutoff date has not exceeded 80 percent of the normal rainfall, as determined by the nearest rainfall reporting station approved by the Director, during the period from December 1 to April 30, testing shall be continued the next year or the site may be evaluated by mathematical modeling or "Conditions Associated with Saturation." However, the Director may accept monitoring in years with less than the required amount of rainfall if the results appear to represent the highest groundwater depth for the site.

1.3.3.2.3. Mathematical Modeling

1.3.3.2.3.1. Approval of mathematical monitoring is based on the results of calculations that demonstrate that the site meets the conditions required in section 1.3.3.2.2. for groundwater monitoring. All groundwater monitoring observations and calculations shall be completed by a California-licensed Certified Hydrogeologist and be based on use of a 10-year rainfall return interval for the most critical situations.

1.3.3.2.3.2. Monitoring wells necessary to complete mathematical modeling require special design and observation to be determined by the qualified professional, as defined in 1.3.3.2.3.1.

1.3.3.3. All soil testing, except Mathematical Modeling, shall be performed by, or under the supervision of, a California-licensed Professional Civil Engineer, a California Registered Environmental Health Specialist, or a Soil Science Society of America Certified Professional Soil Scientist.

The results of all percolation tests and groundwater monitoring shall be reported, and the logs of all excavations shall be submitted to the Director. Percolation test and groundwater monitoring results shall be accompanied by a scaled plot plan showing the locations of percolation test holes, monitoring wells, and soil pits. The map shall include five-foot contour intervals. The Director may disregard any test, log, or monitoring results that, in his/her opinion, does not represent the soil conditions of the parcel.

1.4 Soil Evaluation for Conditions Associated with Saturation

As an alternative to direct observation or mathematical modeling, an application may be submitted to the Director for individual evaluations utilizing “Conditions Associated with Saturation.”

1.4.1. Conditions Associated with Saturation include:

1. Reddish brown or brown soil horizons with gray (chromas of three or less) and/or red or yellowish red redoximorphic features; or
2. Gray soil horizons, or gray soil horizons with red, yellowish red, or brown redoximorphic features; or
3. Dark-colored highly organic soil horizons; or
4. Soil profiles with concentrations of soluble salts at or near the ground surface.

1.4.2. Should conditions associated with saturation not occur in “soil with rapid or very rapid permeability,” saprolite or fractured bedrock, prediction of the highest level of the water table shall be based on direct observations or mathematical modeling as defined in sections 1.3.3.2.2. and 1.3.3.2.3.

1.4.3. “Soil with Rapid or Very Rapid Permeability” means the following:

1. Soil which contains 35 percent or more of coarse fragments two millimeters in diameter or larger by volume with interstitial soil of sandy loam texture or coarser; or
2. Coarse textured soil (loamy sand or sand and as classified in a Soil Textural Classification Chart); or
3. Stone, cobbles, gravel and rock fragments with too little soil material to fill interstices larger than one millimeter in diameter.

1.4.4. Saprolite means weathered material underlying the soil that grades from soft thoroughly decomposed rock to rock that has been weathered sufficiently so that it can be broken in the hands or cut with a knife. It does not include hard bedrock or hard fractured rock. It has rock structure instead of soil structure.

1.4.5. Site evaluation procedures for determination of groundwater using “Conditions Associated with Saturation.” Applications for site evaluation shall be made to the Director on approved forms. Each application must be completed in full, signed by the owner or his legally authorized representative, and be accompanied by all required exhibits and appropriate fee. Applicants shall provide at least two test pits of at least two feet wide which slope toward one end at a rate no greater than 3:1 and be five feet deep and located approximately 75 feet apart and within the designated effluent dispersal area on each individual parcel or proposed parcel. A new application and fee shall be submitted for each additional set of two test pits per parcel.

For a site to be acceptable under this method for a land division, groundwater shall be greater than two feet below the ground surface.

Lots less than one acre in size shall be evaluated using either direct observation or mathematical modeling as defined in sections 1.3.3.2.2. and 1.3.3.2.3.

The Director shall be the sole determiner of groundwater levels based on “Conditions Associated with Groundwater.” This shall not preclude the applicant from conducting direct observations or mathematical monitoring as defined in sections 1.3.3.2.2. and 1.3.3.2.3.

1.5 Limitations

1.5.1. No lot shall be created for which a seepage pit is the only feasible method of sewage disposal.

1.5.2. The requirement for a designated effluent dispersal area cannot be waived for land divisions except for lots created for uses which will not generate liquid wastes.

1.6 Lots created for uses which will not generate liquid wastes

1.6.1. Lots proposed and suitable for agricultural, commercial, industrial, or recreational uses that will not generate liquid wastes and do not require the regular presence of workers or employees are not subject to the dispersal area or testing requirements of the above portions of this subsection.

1.6.2. Each of these parcels shall be identified on the recorded map with this statement: “This parcel is not approved for any use that will generate liquid waste. No permit to dispose of sewage or other liquid waste generated by the uses on this property will be issued until the property is in compliance with applicable provisions of state and local law the Shasta County LAMP, these Land Division Standards, and County Ordinance-Code, including but not limited to, Chapter 8.41 and Title 15, as amended.”

1.7 Tentative and Final Maps

1.7.1. Tentative Maps

All tentative maps shall show for each parcel the location, boundaries, and calculated square feet of the designated effluent dispersal area(s). The test results shall be submitted concurrently with the tentative land division application. If individual wells are proposed, the map shall show all existing and proposed well sites and include a 100-foot radius around each well. The map shall be to scale and show the topography of the proposed parcel and the designated effluent dispersal area at no more than five-foot contour intervals. The tentative map shall also include all locations of the test pits, percolation test holes, and groundwater monitoring wells.

1.7.2. Final Maps

1.7.2.1. For each parcel, the area(s) qualifying as dispersal area shall be clearly delineated and labeled on the final map. If recordation of a map is waived and developable parcels are proposed, a plot plan showing equivalent information shall be attached as an exhibit to, and recorded with, the notice of approval of waiver of parcel map. The face of each map or plot plan shall be annotated: “An onsite wastewater treatment system shall be located only within the designated effluent dispersal area indicated for each parcel unless an alternative site is specifically approved by the Director.”

1.7.2.2. Final maps creating residential parcels shall be annotated with, “Designated effluent dispersal areas are sized for a maximum of a four-bedroom dwelling. Dwellings containing more than four bedrooms shall be demonstrated to comply with the Shasta County LAMP. The identified dispersal area shall be used exclusively for effluent dispersal and shall remain free of all structures, roads, driveways, parking areas, impervious surfaces, and vehicle travel.”

1.7.2.3. Final maps creating non-residential parcels shall be annotated with, “Designated effluent dispersal areas are sized for a maximum peak design flow rate of 600 gallons per day. Structures and operations anticipated to exceed a peak design flow rate of 600 gallons per day shall be demonstrated to comply with the Shasta County LAMP. The identified dispersal area shall be used exclusively for effluent dispersal and shall remain free of all structures roads, driveways, parking areas, impervious surfaces, and vehicle

travel.” If individual wells are proposed, the map shall show all existing and proposed well sites with a 100-foot setback radius clearly shown for each well.

1.8 Subdivision of Parcels with Permitted Existing Sewage Disposal Systems

Lots with septic systems installed with a valid sewage disposal system permit issued prior to November 20, 2001, may be divided without demonstrating that the existing OWTS is in compliance with Subsections 1.1 through 1.7, but must demonstrate substantial compliance with the State OWTS Policy and the Shasta County LAMP. Lots with septic systems installed pursuant to a valid sewage disposal system permit issued on or after November 20, 2001, must demonstrate compliance with the requirements of sections 1.1 through 1.7, and the Shasta County LAMP.