

Council should seek the following information from a proponent to assist with the assessment of a development application for a small package sewage treatment plant:

Information sought	Specific details	Rationale/Reason
<p>Project description</p> <p>A broad outline of the proposal.</p>	<p>Type and size of facility to be served. Proposed installation. Means of utilisation or disposal of the final effluent.</p>	<p>To facilitate a quick initial understanding of the proposal.</p>
<p>Site plans</p> <p>A locality plan.</p> <p>A contoured site plan.</p>	<p>Showing the site location in relation to public roads or places and any natural or artificial waters and proposed buffer zones.</p> <p>Showing the location of the proposed plant and land application area or discharge point, if applicable, in relation to the principal buildings and the boundaries of the premises.</p>	<p>To show the system in relation to adjoining properties and sensitive off-site receptors.</p> <p>To facilitate site inspection. To show the system in relation to the on-site structures.</p>
<p>Drainage and stormwater management plans</p>	<p>Flood Levels. Proposed stormwater management measures, including any proposal to divert stormwater around the site. In the case of industrial and commercial premises a drainage diagram and in the case of a residential development or municipal sewerage scheme a sewerage compilation plan.</p>	<p>To ensure stormwater is kept clear of the treatment system and land application area. To ensure wastewater systems and drainage systems are kept separate and are appropriately treated.</p>

<p>Flow and load assessment</p> <p>Details of processes generating load. Size and type of facility to be served.</p>	<p>List each load generating process (e.g. domestic, commercial kitchen, laundry etc.) Type of facility(ies) served and per capita flow calculation (L/day) and BOD₅ load (g/day) Calculation of peak flow and average flow.</p>	<p>To assess hydraulic, nutrient and organic load.</p> <p>To determine flow balancing requirement.</p>
<p>Expected wastewater quality</p> <p>Quantification of expected influent wastewater quality.</p>	<p>Analysis of or estimated quality of expected wastewater load in terms of: Temperature pH BOD₅ at 20°C Suspended solids (non-filtrable residue) Faecal coliforms Radioactivity Oil, grease and floating solids Infectious or contagious materials Restricted substances/inhibitors Nutrient content (N and P).</p>	<p>To ascertain the composition of the wastewater and any special provision required of the treatment system.</p>
<p>System selection</p> <p>Rationale for and justification of type of system selected.</p>	<p>Consider advantages and disadvantages of various system types and limitations of systems.</p>	<p>To ensure appropriate system selection and sizing.</p>

<p>Treatment process description</p> <p>Description of treatment process selected.</p>	<p>Schematic flow diagram to show stages in treatment process.</p> <p>Details of major components of treatment system equipment, such as Primary settlement, aerators, disinfection, balance tanks, flow meter, pumps, sprays, etc. and their operating efficiencies.</p>	<p>To ensure integrity and effectiveness of chosen design.</p>
<p>Validated performance data</p>	<p>Test data on system performance; BOD₅, TSS, nutrient, pathogens.</p> <p>Test data on similar system/technology and similar sized plant in similar setting in Australia if possible, or overseas, if new technology/system/brand/model.</p>	<p>To provide representative data for similar system and setting. Provides some indication/assurance that necessary performance criteria can reasonably be met. Beware inflated or unsupported claims.</p>
<p>Staged development plan</p> <p>Description of staged development, if planned.</p>	<p>Indication of the size and timing of stages of the development served by the package treatment plant.</p>	<p>To ensure compatibility of the overall development with the planned growth of the package treatment plant.</p>
<p>Drawings</p> <p>Plan and section drawings of the proposed plant, ponds and baffles, land application area or discharge point.</p>	<p>Inlet and outlet arrangements.</p> <p>Major chambers and components.</p>	<p>To illustrate proposed system type and means of operation.</p>
<p>Estimated load for land application or discharge</p> <p>Quantification of expected load for land application or discharge.</p>	<p>Expected maximum volume of load to be land applied or discharged (L/day).</p> <p>Expected average volume of load to be land applied or discharged (L/day).</p>	<p>To calculate the size of the required land application area.</p> <p>To calculate necessity for and size of wet weather storage or balancing.</p>

	<p>Proposed method of measurement and reporting of load to be land applied or discharged.</p> <p>Description of sludge disposal method and estimated quantity of sludge to be generated.</p>	<p>To calculate load based licence charge.</p> <p>To determine appropriate sludge disposal method.</p>
<p>Expected treated wastewater quality</p> <p>Quantification of expected treated wastewater quality.</p>	<p>Analysis of or estimated quality of expected wastewater load in terms of:</p> <p>Temperature</p> <p>pH</p> <p>BOD₅ at 20°C</p> <p>Suspended solids (non-filtrable residue)</p> <p>Faecal coliforms</p> <p>Radioactivity</p> <p>Oil, grease and floating solids</p> <p>Infectious or contagious materials</p> <p>Restricted substances</p> <p>Nutrient content (N and P).</p>	<p>To ascertain the composition of the treated wastewater prior to land application or discharge.</p>
<p>Disinfection</p> <p>Description of selected disinfection system.</p>	<p>Consideration of necessity for disinfection and, if required, relative merits of disinfection options.</p> <p>Description of the chosen method of disinfection appropriate for selected land application or discharge.</p>	<p>To provide appropriate disinfection in the light of the final land application or disposal option selected.</p> <p>To confirm suitable effluent quality for effective disinfection.</p>

<p>Land application or disposal system selection</p> <p>Rationale for and justification of type of land application or disposal system selected.</p>	<p>Consider advantages, disadvantages and suitability of various land application and disposal systems.</p> <p>A schematic flowsheet of the land application or discharge method proposed.</p> <p>A longitudinal section along the outfall drain pipe or diffuser for the disposal of effluent to waters body</p>	<p>To ensure suitable land application or disposal system is chosen to provide the necessary public health and environmental protection.</p>
<p>Land application system sizing</p> <p>Site and soil assessment for land application area sizing.</p>	<p>Soil characteristics:</p> <ul style="list-style-type: none"> • Soil profile - description of horizons • Soil textural analysis • Soil hydraulic conductivity • Assign appropriate loading rate • Erosion potential • Emerson test <p>Topography:</p> <ul style="list-style-type: none"> • Gradient • Slope form • Flood potential • Aspect <p>Description of climate:</p> <ul style="list-style-type: none"> • Rainfall • Evaporation • Storm intensities • Prevailing wind 	<p>To ensure suitable land application location and sizing.</p>

**Land application system sizing
(continued)**

Vegetation:

- Cover/proposed cover
- Crop factor

Water balance calculation

Nutrient balance calculations (N and P)

Groundwater:

- Depth to groundwater
- Location of existing wells
- On-site
- Adjacent to site
- Current use of groundwater
- Is the site a groundwater recharge area?
- Groundwater chemistry

Surface waters:

- Proximity
- Current use
- Flow characteristics

Pre-treatment:

- Design of pre-treatment systems
- Effect on constituents loads
- Disinfection method
- Implications for soil

Proximity to dwellings, road, etc.

**Land application system sizing
(continued)**

Proximity to sensitive receptors, pools, washing line, play area etc.

Type of irrigation system: flood, spray, trickle or furrow, surface or subsurface, or other: trenches, beds, mounds etc.

Plan of irrigation system.

A schematic diagram of the system controls including pipes, pumps valves, timers and alarms.

