

Advisory Note 6 – May 2021

Passive Disposal Systems (PDS) Single Domestic On-site Wastewater Management

1. Introduction

Advisory Note 6 considers the role, context and function of Passive Disposal Systems (PDS) in Single Domestic On-site Wastewater Management, i.e., wastewater management in single unsewered houses.

2. Passive Disposal System (PDS)

A PDS is a soil based effluent disposal system which receives primary treated effluent usually from a septic tank. They may also be known as a soil system, or a soil mound system or an amended soil system or mound. A PDS is a type of “land application system” and a “related effluent application area”. A PDS interfaces directly with the soil and there is no barrier or impervious membrane which completely separates the soil from the PDS.

PDS have been available for many years and include systems known as Wisconsin Mounds, Amended Earth Systems, Reed Beds and Sand Filters. More recent PDS include brands such as Ecomax, Advanced Enviro Septic, Aquatech, and Eljen Geotextile Sand Filter System. All these systems provide some varying degree of treatment prior to percolation directly into the natural soil. PDS can be constructed to lower nitrogen and phosphorous concentrations in wastewater.

While PDS are not Secondary Treatment Systems as suggested by some organisations and suppliers, they do provide varying levels of treatment of effluent to reduce the pollutant impact of primary treated effluent in sub-soil environments.

A description of Amended Soil Mounds may be found in Section 8 the Water NSW publication “Designing and Installing On-Site Wastewater Systems (Nov 2019)”:

https://www.watarnsw.com.au/data/assets/pdf_file/0003/58251/Designing-and-Installing-On-Site-Wastewater-Systems-WaterNSW-CRP-2019.pdf

Reference is also made to Section 9, Sand Mounds, in the above publication.

3. Local Council Role and Legal Context

In NSW the local council is the regulator of the installation of single domestic on-site wastewater management systems under Section 68 of the Local Government Act, 1993, and the Local Government (General) Regulation 2005.

Clause 3 of the Regulation defines a “sewage management facility” to mean:

“(a) a human waste storage facility, or
(b) a waste treatment device intended to process sewage,
and includes a drain connected to such a facility or device.”

A PDS does not fit within this definition and is therefore not a sewage management facility as it is neither a human waste storage facility nor a device. Sewage management facilities which fall within this definition include primary and secondary treatment systems; collection wells, sewage ejection pump stations and composting toilets.

As PDS are not sewage management facilities, accreditation by NSW Health is not required under Clauses 40 and 41 of the Regulation.

Clause 3 of the Regulation also defines a related effluent application area, which “in relation to a sewage management facility, means the area of land (if any)—

(a) where it is intended to dispose of the effluent and any by-products of sewage from the facility, or

(b) to which the effluent and by-products are intended to be applied.”

PDS clearly fit under this definition and their installation is considered by the local council with the approval of installation of a sewage management facility primary treatment system.

4. Australian Standards

Because PDS are not “sewage management facilities”, but rather “related effluent application areas”, their design requirements do not come under AS1546.3:2017 “On-site

domestic wastewater treatment units: Part 3 Secondary treatment systems” as asserted by some PDS suppliers. In any case, PDS do not comply with the performance criteria and design requirements of this Standard.

Instead PDS should be designed in accordance with AS/NZS 1547:2012 “On-site domestic wastewater management”.

Further, the sizing, positioning and use of PDS should also be determined by the local council during application of the Regulation and the local council’s policies and guidelines in relation to on-site single domestic wastewater management.
