To submit a comment on a draft open for Public Comment please register with the Standards Hub and submit your comments online. Only registered Standards Hub users can submit comments. Drafts that are open for Public Comment can be accessed here: https://www.hub.standards.org.au/hub/public/listOpenCommentingPublication.action

All comments are required to be submitted online, any comment not submitted online prior to the close of comment date will not be considered for review by the committee.

Please do not modify or change this template, including its table headings, columns or structure, as doing so will result in the system rejecting your comment.

Fields marked with an asterisk (*) are mandatory and if not populated will result in the system rejecting your comment. Any supporting documentation can be updated after the successful submission of comments.

The "Section Identifier" should be laid out as per the examples below. If you use other formats (such as 2-3, 2/3 etc.) the system will reject your comment.

The "Comment Detail" field should describe the issue you feel should be addressed, and a justification for the proposed change.

The "Proposed Change" field should set out the specific text, figured etc. you propose to be added, removed or altered.

Example: How to complete the comment form:

*Sect./ Subsect.[1]	*Sect. ID	Para./Table /Fig./Comm ./Note	*Page No.	*Comment Type[2]	*Comment Detail	*Proposed Change
Clause	2.3	Table 1	16	Editorial	"diagram" incorrectly spelt	Correct spelling error
Appendix	C15.6		62	Technical	AS 5100.7 incorrectly referenced	Reference should be AS 5100.2

[1] Options include: Clause, Title, Table of Contents, Preface, Foreword, Introduction, Appendix, Bibliography or Index.

[2] Options include: Editorial, General or Technical.

*Section[1]	*Section Identifier	Paragraph/ table/ figure/ commentary/ note	*Comment Type[2]	*Page No	*Comment Detail	*Proposed Change
Preface	1.1		General	4	We support the inclusion of all secondary treatment systems and believe sand filter treatment could be included to encompass all secondary treatment systems.	Consider design aspects of sand filter treatment system.
Preface	1.2		General	4	Testing and test protocols proposed is supported along with theoretical calculations not being permitted. It is important in promoting and maintaining industry standards	
Preface	1.3		Editorial	4	The exclusion of toilet amenity blocks is not supported. Some situations exist which may require the use of a STS and it follows a STS should be capable of adjustment to suit this particular wastewater management scenario.	Amend or delete 1.3(b)
Preface	1.6.3		General	5	It is very important that the industry and STS owner are conscious of the regulatory responsibilities which this clause acknowledges	
Preface	1.8.9		Editorial	7	Domestic wastewater includes household fixtures other but excludes spa pools. There is no definition of a spa pool. Typically spa pools should be treated like swimming pools but may be confused with a spa bath, or, bath with aeration units eg <200L	Define spa pools and/or bath such that they are clearly excluded or included
Preface	1.8.10		Editorial	7	This definition confuses the reader on precisely what constitutes a domestic system. Is it <3000L/d or up to 10,000L/d?	Provide uniformity in the flow capacity/characteristics of a domestic STS

[1] Options include: Clause, Title, Table of Contents, Preface, Foreword, Introduction, Appendix, Bibliography or Index.

[2] Options include: Editorial, General or Technical.

*Section[1]	*Section Identifier	Paragraph/ table/ figure/ commentary/ note	*Comment Type[2]	*Page No	*Comment Detail	*Proposed Change
Preface	1.8.18		Editorial	7	How does a Manufacturer who constructs/assembles their STS in situ have their STS assessed for, or accredited, as compliant?	Clarify what it means to assemble a STS
Preface	1.8.28		Editorial	8	This definition makes no provision for a person or entity empowered by statute.	Edit definition to included person/s empowered by statute.
	1.8.29		Editorial	8	Scum is better defined without the term “lighter”. It can also form in areas other than the primary treatment tank.	Delete “lighter than water” and reference to primary treatment tank or chamber.
	1.8.30		Editorial	8	It is unnecessary to state that secondary treatment follows primary treatment.	Amend the definition without reference to following primary treatment.
	1.8.42		Editorial	9	1.8.42 and 1.8.46 may be best combined to define how UV light can be measured as it passes through water	Review whether the two definitions are necessary and can be combined.
Clause	1.9.2		Editorial	10	The use of the term “representative” could open the Test for assessment of compliance to unfavourable loopholes. It could lead to disputes as to whether the STS is, or is not, a representative example of the design model. The consumer must be assured that the test conducted was not compromised in any way.	The last sentence should read: “The test STS shall be the example of the design model.”
Clause	1.9.3		Editorial	10	The wording in this section is too loose. In 1.9.3(i) for example it is not clear what size refers to. Is it STS, air volume, power consumption, output pressure?	Clarify wording to avoid misinterpretation.
Clause	1.9.3		Editorial	10	Further consideration for modifications triggering retest.	Materials, fixtures or sealants used in construction; Changes to installation operation or maintenance;

*Section[1]	*Section Identifier	Paragraph/ table/ figure/ commentary/ note	*Comment Type[2]	*Page No	*Comment Detail	*Proposed Change
					Further consideration for modifications not triggering retest.	Changes to influent BOD/SS loading; Modifications to aeration delivery location design; Changes to pump chamber irrigation pump; Replacing or upgrading control panels; Replacing or upgrading alarm systems.
Clause	2.2.2	Table 5	Technical	14	The operating parameters and the method by which they are measured or logged and reported are inconsistent. DO measurement specifically requires a digital probe. No other measurement method/device is detailed.	All parameters being measured should detail the method/device to be used including the accuracy of measurements made.
Clause	2.2.5		Technical	15	The service life of a STS is highly dependent on numerous factors. It is debatable whether there is any real benefit in indicating any timeframe whatsoever. There is unlikely to be any guidance from the controlled 42 week test period nor is there any evidence that existing STS are capable of consistently delivering a 15 year service life. Moreover any claim for compensation, should the STS prematurely fail, would be subject to verification or contest at every conceivable stage of operation and maintenance from commissioning the STS and throughout its scheduled service life.	Delete clause.
Clause	2.3.1		Technical	15	In subclause (j) annual sludge and scum accumulation is measured as L/capita. Why not per person as with other measure.	Clarification or amend measure

*Section[1]	*Section Identifier	Paragraph/ table/ figure/ commentary/ note	*Comment Type[2]	*Page No	*Comment Detail	*Proposed Change
Clause	2.3.2		Technical	16	Design considerations must include those that prevent the STS from floating out of the ground as discussed in 2.3.4.	Add design consideration to prevent STS floating
Clause	2.3.2		Technical	16	The specification of “regular” maintenance should be more specific and amended to reflect manufacturer requirements. Deign considerations to protect against high and low water temperature is discussed in Cl 2.3.3	‘Regular’ should be replaced by ‘perform with minimal maintenance in accordance with manufacturer specifications.’
Clause	2.3.3		Technical	16	The temperature range for optimum treatment of wastewater is clearly a critical element. To suggest that insulating the sides and the lid of the STS appropriate to the local climate needs clarification and some level of design/specification. It may also be worthwhile recommending that some STS are unsuitable for some climactic conditions. A requirement for heating elements or installation within an artificial environment may be warranted.	Specify insulation materials and/or alternative STS selection and design considerations for a STS sited in unfavourable climates.
Clause	2.3.4		Technical	17	The prevention of tank float and overturning is a design consideration applicable to 2.3.2	Add to 2.3.2
Clause	2.3.7		Editorial	18	Emergence should read emergency	Write ‘emergency’
Clause	2.3.8		Technical	18	The Note does not make sense. Is there to be a gap of 20mm or not? The gap is irrelevant if it is to be sealed	Review wording/purpose of this design Note
Clause	2.3.9		Editorial	19	The Note offers another design consideration	Add to 2.3.2
Clause	2.3.10		Editorial	19	Another design consideration.	Add to 2.3.2 by way of opening sentence to clause

*Section[1]	*Section Identifier	Paragraph/ table/ figure/ commentary/ note	*Comment Type[2]	*Page No	*Comment Detail	*Proposed Change
Clause	2.3.11		Editorial	19	The Standard is, among other things, about performance of the STS	Replace effectiveness with performance. And consider this a design consideration for 2.3.2
Clause	3.2.1		Technical	21	The marking for minimal information should also include the those parameters the STS has been certified for namely hydraulic and organic loads as well as BOD5, TSS, N, & P.	Include in minimal marking hydraulic and organic load, BOD5, SS, N & P.
Clause	3.2.2		Technical	21	Where insulating materials are installed will there be provision for replicating the minimal information on the insulation especially given the make and model of the STS is likely to be concealed.	Note may read attached to the tank or insulating material.
Clause	4.2		Technical	22	Each of the sub clauses has a requirement for documentation to be provided. To whom is this documentation supposed to be relevant or given? There is also no verification process for whether the documentation is fit for purpose.	Detail who the document will be provided to and in what way the documentation will be deemed suitable for its intended user.
Appendix	A2		Technical	23	A general overall point is that the test facility in many respects represents a “best case” scenario for the STS. There will be a high level of scrutiny on the installation, operation and ongoing maintenance of the test facility which is not replicated in the field. The STS will be new and in operation for less than 12 months so the likelihood of mechanical failure is much reduced, compared with an STS in operation for many years. In practice STS units are not inspected in the field by anyone other than service technicians, no more frequentlyand often less than every 3 months. There will be operational differences which may have significant impact on STS performance. Ambient temperature, as discussed below is an example. A STS which meets the Australian	

*Section[1]	*Section Identifier	Paragraph/ table/ figure/ commentary/ note	*Comment Type[2]	*Page No	*Comment Detail	*Proposed Change
					Standard as tested for in Queensland may fail to meet the standard in a cold alpine location in the southern states. From the perspective of the responsible authorities (i.e. council) who regulate STS installations and their ongoing operation, a critical question is how they perform under a range of conditions in the field. To this end, there would be real value in having an ongoing monitoring program encompassing those STS units most commonly in operation across a range of environments and in variable operating conditions. This could be partnered by various councils within each state together with the relevant state government regulator (in Victoria this is the Environmental Protection Authority). The monitoring program need not be complex, simply taking grab sample of the treated wastewater and testing for BOD, suspended solids and *E. coli* on a regular basis would be all that is required.	
Appendix	A3.2		Technical	23	A general first point regarding the operation of an aerobic wastewater treatment plant – in a commercial scale setup the minimum expectation is to have continuous and online recordable monitoring of dissolved oxygen, temperature, and pH. More sophisticated plants can measure a much wider range of parameters but these three are the minimum. It could be useful to have these parameters recording continuously in the aerobic reaction chamber of the STS to improve the general understanding of how the system is operating. Note however that this increased monitoring (which would not be available to the	

*Section[1]	*Section Identifier	Paragraph/ table/ figure/ commentary/ note	*Comment Type[2]	*Page No	*Comment Detail	*Proposed Change
					typical home owner) may possibly result in improved performance as they will be able to respond to issues far more quickly (e.g. a drop in dissolved oxygen). The test facility in (c) states 'No trade waste ... and only limited commercial waste." Many STS have a commercial application where higher BOD and SS is discharged to the STS. It is unclear whether the test facility will be capable of evaluating the performance of a STS where BOD and TSS are higher than the maximum range provided in Table A1 of 750mg/L.	Make provision for a test facility that enables testing of STS certified for commercial use or higher BOD/TSS, N & P
Appendix	A5.2.2		Technical	25	The influent shall be between 300 and 600mg/L over the test period. How is this verified? This comment relates to the statement: "Where an influent parameter is above or below the range in Table A1, performance evaluation testing shall be suspended until the constituents are within the range." Note that in practice, the BOD5 test has around a 8-10 day turnaround if you consider that it takes 1 day to collect the sample (24 hour composite), 1 day to transport it to the laboratory and have it registered, 5 days to conduct the test, and 1-2 days for the test result to be reported back to customer (i.e. Australian Standards). So if the influent is outside the range for BOD5, then in practice Australian Standards will not know this for typically 10 days, and then they will have to	Clause A5.4.1 should specify that influent grab samples shall be tested for the required parameters.

*Section[1]	*Section Identifier	Paragraph/ table/ figure/ commentary/ note	*Comment Type[2]	*Page No	*Comment Detail	*Proposed Change
					wait a further 10 days for the resample result to be made available.	
Appendix	A5.2.4		Technical	26	If temperature is to be adequately addressed as a STS performance characteristic the temperature of the effluent should be monitored. There is no detail as to what is required in this clause. Further to this point regarding operating temperature, with A5.2.4 it would be useful to have an average, minimum, maximum of air temperatures at the test facility over the 42 week test period. Measuring the temperature of the aeration chamber could also be useful. Furthermore it states that “regulatory authorities may require approved systems to be insulated when installed in climates with cool or cold winters”. How are authorities (i.e. Councils) able to make an informed decision as to whether insulation is necessary? What is the minimum temperature pattern, for how long, for what system…? If the temperature profiles of the air and the effluent chamber are recorded [as is stipulated in A5.12 (m) and (n)] then at least the standard could be issued on this basis with a caveat that at lower temperatures in the field the performance could decline and possibly not meet the standard.	Specify how and what the temperature monitoring requirements are and what influence insulation may have on this test, if any.
Appendix	A5.3.1		Editorial	26	The requirement to fill the first chamber(primary) with raw wastewater will invariably not replicate what will occur in the field at commissioning phase. Inevitably the STS will be commissioned with potable water in all chambers prior to occupation of the dwelling/building.	Reconsider

*Section[1]	*Section Identifier	Paragraph/ table/ figure/ commentary/ note	*Comment Type[2]	*Page No	*Comment Detail	*Proposed Change
					It is questionable that there is a provision for extending the commission phase past 8 weeks, with no maximum period specified, if the STS does not achieve the target effluent quality. If the STS is not capable of generating suitable effluent after 8 weeks then does it deserve to pass the standard? Note that in the field, there will be no commissioning phase.	
Appendix	A5.8	Table A5	Editorial	32	There is no requirement to sample and verify parameters for influent or effluent namely the key parameters that validate the STS is receiving and delivering wastewater in accordance with its performance criteria.	Add testing for BOD/TSS, N & P
Appendix	B1		Editorial	37	Disinfection is also achieved to some extent prior to disinfection by chlorine or UV. An inclusion should be made to make it known that BOD5 and TSS concentration reduction should be at 20/30 or 30/45 standard prior to chemical disinfection. Chlorination influences the results of these parameters and not all STS will require or need to rely on chlorination to achieve compliance with BOD or TSS	Include statement that output requirements prior to chlorination and/or UV should be 20/30.
Appendix	B2.1		Editorial	37	The statement that a 'FAC should be determined by an in-line free chlorine analysing probe' should be elaborated upon to specify it is measuring not analytical device. Analysing probes are notorious for only providing an indication of FAC by way of Oxidation reduction Potential (ORP), are high maintenance and require regular calibration.	Include a Note that states the performance of analysing/measuring probes require calibration and should be verified by chemical test equipment.

*Section[1]	*Section Identifier	Paragraph/ table/ figure/ commentary/ note	*Comment Type[2]	*Page No	*Comment Detail	*Proposed Change
					"High levels of turbidity, ammonia and nitrogen concentrations, and pH outside the range of 6-8 promote the production of total chlorine which is less effective than FAC in reducing pathogens." This statement is slightly confusing as the issue with turbidity, ammonia and pH is that it they can promote the conversion of FAC into other forms of chlorine, which are less effective than FAC in disinfecting pathogens. The issue then is that the amount of FAC in solution is reduced with a commensurate reduction in disinfection effectiveness.	"High levels of turbidity, ammonia and nitrogen concentrations, and pH outside the range of 6-8 convert FAC into other forms of Chlorine which are less effective in reducing pathogens."
Appendix	B3.1		Editorial	38	The first sentence needs rewording	Where UV light is the only disinfection method, it shall only be used in advanced STS's due to the inability of UV light to effectively penetrate solids in secondary treated effluent.
Appendix	B3.1		Editorial	39	Statement is incorrect in '…organic content from BOD,….'It should read BOD is from organic content.	Amend statement to read '…BOD is from organic content…'