

Section	Page	Comment	Reviewer Details (name, position, section/division, organisation, contact telephone/email)
General	General	<p>The purpose of the document appears to be to manage the operational phase (e.g. once the site is operating) impacts of stormwater upon the environment. It appears that the document distinguishes between sites that have a high potential to erode during the operational phase (high erosion sites) and those with a low potential to erode during the operational phase (low erosion sites). It appears to do this because the methods applied to high and low erosion potential sites differ.</p> <p>The methods applied to 'high erosion sites' appear, on the surface to be very similar to the methods used to mitigate the impact of construction phase (e.g. building sites) erosion on waterways. Unfortunately the result is that the document is unclear about whether it applies to the construction or operational phases.</p> <p>Suggestion - Add additional wording to the introduction to make it clear that the document applies only to the operational phase, and in no way reduces the requirements of development with respect to construction phase erosion and sediment control</p> <p>Suggestion - Rename the two types of sites (e.g. 'low erosion' and 'high erosion'). Doing so will also reduce any confusion about why 'low erosion' sites then manage pollutants other than sediment. Consider simply renaming 'type 1' and 'type 2', then defining what each is.</p>	<p><b>Stormwater Queensland</b></p> <p>Please send correspondence on this document to the Stormwater Queensland Advocacy and Engagement Sub-Committee care of Jack Mullaly (3177 9100 and jack.mullaly@healthywaterways.org)</p> <p>All other correspondence to Julie McGraw or Katherine Ducker Association Secretariat Phone: (02) 9744 5252 Fax: (02) 9747 8366 Email: siaqadmin@stormwater.asn.au</p>
General	General	<p>The guideline includes numerous design specifications drawn from other guidelines (e.g. Table 2 hard wires in the load reductions derived from the 2010 Urban Stormwater Quality Planning Guidelines). As a result, this guideline will become out-dated as soon as one of these other guideline is updated. An approach which is more responsive to changes in the industry would be to reference relevant guidelines and only include specifications where there is any variation from industry-accepted standards. This would also make the guideline more streamlined and minimise any conflicts with other standards.</p>	As above
	3, 4, 8, 9 and 11	<p>Page 3 states that:</p> <p>"These objectives are that for industrial development which constitutes an ERA to be planned and executed such that:</p> <ul style="list-style-type: none"> <li>• the environmental values of waters are enhanced or protected; and</li> <li>• the water quality objectives and management goals of waters are achieved." <p>Page 4 states that:</p> <p>"... and mitigate geomorphic stream damage"</p> <p>Tables 1 and 2 do not list any geomorphic requirements.</p> <p>Suggestion - Given the intent of the document does not appear to be to manage the geomorphic impacts of stormwater upon waterways, remove this from the management principles on page 3.</p> </li></ul>	As above
Information to be provided with an application for an ERA	5	<p>The term 'suitably qualified professional' is used, whilst in definitions section, the term 'suitably qualified person' is used. Terminology should be consistent. See further comments later for more information.</p>	As above
Last paragraph (beginning with 'Part 2 Low erosion sites)	5	<p>States 'or &gt;95% of the site is effectively stabilised and the area that is stabilised does not exceed 2,500m<sup>2</sup>'. Should that instead read 'or &gt;95% of the site is effectively stabilised and the area that is <b>unstabilised</b> does not exceed 2,500m<sup>2</sup>'</p>	As above
Last two paragraphs	5	<p>Can a site be both High erosion and low erosion? For example what about a site with large amounts of exposed soil AND a large amount of hardstand? In this instance should we be managing both aspects?</p>	As above

		<p>Page 6 states:</p> <p>"erosion protection and sediment control measures must be installed and maintained, for all stages of the activity to effectively minimise any likelihood of erosion and release of sediments from the approved place."</p> <p>It is not actually possible to achieve "any likelihood of erosion and release of sediments".</p> <p>Suggestion - Remove the word "any" to make the statement more accurate.</p>	
	6		As above
Relevant requirements	6 and onwards	While sufficient guidance is provided addressing Principles 2 and 3 (Source and Structural Controls) it's not clear what the proponent should/could be providing/considering/achieving in regard to Principles 1 (Preservation) and 4 (Receiving Waters Management - if necessary)	As above
		The reference to the AWQG is inconsistent with the "relevant requirements" section which calls up the Qld WQG instead.	
3rd para	6	Suggestion - the Qld WQG is best as it in turn calls up the toxicants section of the AWQG, and also because the AWQG including the sediment guidelines is being revised currently.	As above
		<p>Page 6 states:</p> <p>"ERA sites where the contaminant(s) of concern are not capable of being treated by conventional sediment basins."</p> <p>It appears that the intent is to articulate some exclusion from the guideline, although what exactly is not clear.</p> <p>Given the sizing of sediment basins required later in the document, it could be argued that the contaminants of concern are never capable of being treated, simply because the impost of building the basin will be too large.</p>	
First paragraph	6	Suggestion - Reword this section to more clearly articulate what it is that is outside the scope of the guideline	As above
		Following on from the above, there is no obvious site where the stormwater from a 'low erosion' site could not be managed by a stormwater quality improvement device. It is possible to foresee situations where a spill of a contaminant (e.g. oil) made its way into the stormwater quality improvement device and damage the device, but this does not mean the device could not manage the stormwater.	
First paragraph	6	Suggestion - Reword to clarify what is considered 'out of scope'.	As above
		This section talks about 'treated by conventional sediment basins (Part 1)' and 'operational phase stormwater quality improvement devices (Part 2)'. The use of the term operational to refer to Part 2 implies by default that Part 1 of the document is about the construction phase (as most sediment basins are). However in this case both Part 1 and Part 2 are actually operational phase. I suspect this confusion of terminology may be present throughout the document. Suggest adopting a consistent approach.	
First paragraph	6		As above
Relevant requirements		The document ' <i>Water Sensitive Urban Design, Book 4 Maintenance, Landcom 2009</i> ' is not the most recent maintenance reference document. Remove.	As above
Relevant requirements		Add the MUSIC modelling guideline: <a href="http://waterbydesign.com.au/musicguide/">http://waterbydesign.com.au/musicguide/</a>	As above
Relevant requirements		Add the Bioretention Technical Design Guideline: <a href="http://waterbydesign.com.au/techguide/">http://waterbydesign.com.au/techguide/</a>	As above
Relevant requirements		Add the C&E guideline: <a href="http://waterbydesign.com.au/ceguide/">http://waterbydesign.com.au/ceguide/</a>	As above
Relevant requirements		Add the maintenance guideline: <a href="http://waterbydesign.com.au/maintenanceguide/">http://waterbydesign.com.au/maintenanceguide/</a>	As above
Relevant requirements		Add the rectification guideline: <a href="http://waterbydesign.com.au/rectificationguide/">http://waterbydesign.com.au/rectificationguide/</a>	As above
Relevant requirements		Add the asset handover guideline: <a href="http://waterbydesign.com.au/transferguide/">http://waterbydesign.com.au/transferguide/</a>	As above
Relevant requirements		Possibly add the standard drawings (somewhat out of date): <a href="http://waterbydesign.com.au/standarddrawings/">http://waterbydesign.com.au/standarddrawings/</a>	As above
Relevant requirements		There is a draft 2013 version of QUDM available which supercedes the 2007 version listed	As above

Footnote 1		6 Change 'GPT' to 'proprietary devices' (GPTs are a limited subset of the manufactured devices available)	As above
Pat 1 - High Erosion Sites	Pages 6 to 10	Local government experience has shown approving sediment and erosion control plans can be problematic. Often a plan cannot show sufficient detail to prevent actual harm from taking place (even if the plan is implemented 100%). When local governments attempt to take compliance actions, developers then respond that by implementing the plan they have fulfilled their duty. This document includes a lot of language such as 'must' and 'need to'. Is this setting us up for a situation where a site implements everything exactly as per this guideline and still causes harm and there is then no basis with which to suggest they do more? Suggest that the language is softened to provide suggestions rather than mandating solutions.	As above
Part 1 High erosion sites		7 Item g ... doe the 'storage volume' include the 'sediment storage zone'. Please clarify.	As above
Part 1 High erosion sites		7 item i.... How can this be proved ?	As above
Part A, Part 1, (e)		7 Arrangement of dot points is confusing. Suggest the first two dot points be merged in to one.	As above
Part A, Part 1, (e) - footnote 4		7 A little unclear. Suggest "An alternative basin design to the relevant 24 hour 1 in 10 or 1 in 5 ARI . . . "	As above
		8 Table 1 ... TSS maximum limit - for what sized events ? Should specify.	As above
Part A, Part 1, (k)		9 Not all RPEQs have experience in stormwater treatment and erosion control. See further related comments below.	As above
		11 Page 11 states " <i>must be designed, constructed and operated such that it satisfies the design objectives specified in Table 1</i> ". This appears to be a typo. Should it read " <i>Table 2</i> "?	As above
Footnote 13		Also design in accordance with the Bioretention Technical Design Guidelines: <a href="http://waterbydesign.com.au/techguide/">http://waterbydesign.com.au/techguide/</a>	As above
Part 2 Low erosion sites		11 "a) Stormwater quality and its potential impact on receiving waters must be numerically modelled to determine treatment requirements (design objectives)." Terminology is not appropriate. Numerical modelling (at least by MUSIC, etc) does NOT assess the impact on receiving waters (this is what receiving water quality modelling does).  Suggest something to the effect of "Stormwater quantity and quality (and the associated performance of the proposed treatment strategy) must be numerically modelled, demonstrating compliance with relevant stormwater management targets".	As above
		11 "b) A treatment train must be designed, constructed and operated such that it satisfies the design objectives specified in Table 1.". Note refers to the WSUD TDG, but this guideline only really relates to design. Other Water By Design guidelines (e.g. construction and establishment, maintenance, etc) could/ should be referred to as well. In addition, bioretention design, previously covered by the WSUD TDG is now covered by a separate guideline the Bioretention Technical Design Guideline.	As above
Part A, Definitions		12 Suitably qualified person(s) should also need skills/experience in stormwater treatment modelling and design using MUSIC. Suggest include " <i>Has demonstrated experience in modelling (using MUSIC) and design and detailing of stormwater treatment systems.</i> "	As above
Definitions		12 A list of documents is provided that a suitably qualified person should have knowledge of. It makes sense that this list should be the same as the list of relevant requirements on page 6.	As above
Definitions		12 While it is common to request that a person has 'at least three years experience' (or similar), it is questionable whether this is appropriate. If a person meets all the other criteria but has less than three years experience they would still be appropriate to complete the work. Vice versa, a person with more than three years but no skills would not be appropriate to complete the work. Most companies will get around this by having an experienced officer review the work of a junior. Suggest remove the minimum work experience requirement as it provides no benefit.	As above
Part B, Part 1	2nd box on page 13, 1st dot point	" . . to be release . . " should read " . . to be released . . "	As above
Part B, Part 1, 2.2.3 a) - 1st dot point		17 " . . with an ARI of one in 10 years ; . . " should be " . . with an ARI of one in 10 years (landfills) or one in 5 years (quarries) . . "	As above
Part B, Part 1, 2.2.3 notes		18 "An alternative basin design to the 24 hour, 1 in 10 (landfills) / 1 in 5 . . ." would be better as "An alternative basin design to the 24 hour, 1 in 10 (landfills) or 1 in 5 . . ."	As above
Part B, Part 1, 2.2.3 - 2nd box on page 18		18 "(b)" should probably be "(d)"	As above
Part B, Part 1, 2.2.3 - last paragraph on page 18		18 2nd line - missing comma between "spillways" and "basin"	As above
Part B, Part 1, 2.2.4 - "Notes" - last paragraph on page 20		20 3rd dot point - delete "it" after "captured on site"	As above

Part B, Part 1, 2.2.4 - "Notes" - last paragraph on page 20	20	3rd, 4th & 5th dot points should one indented one level deeper. 5th is on page 21	As above
First box	23	Requires a validation report from an RPEQ. Simply being an RPEQ does not provide someone with the skills to provide such a report. Given that a 'suitably qualified person' has already been defined, and that they are appropriate to design the system, surely such a person is equally able to validate the system. Suggest replacing requirement for RPEQ with requirement for a suitably qualified person.	As above
Dot point 3	23	Is water quality monitoring really necessary? In the case of a proprietary product, we should only be installing systems for which stringent testing has proven their effectiveness. Such a system, appropriately installed should perform as anticipated. In the case of a vegetated asset such as a bioretention system, so long as it is designed correctly and meets certain functional indicators (similar to those listed on p24) it should perform as anticipated. More importantly though, to test the performance of a bioretention system in a manner that produces usable results is very costly. For an example of the methods see ( <a href="http://eprints.qut.edu.au/34119/1/Nathaniel_Parker_Thesis.pdf">http://eprints.qut.edu.au/34119/1/Nathaniel_Parker_Thesis.pdf</a> ). This money would be far better spent by mandating that the owner undertakes maintenance and provides maintenance reports to the state on a regular basis. If the maintenance is done appropriately it will cost tens of thousands of dollars LESS than the testing will.	As above
Part B, Part 2, 1.1 a) - 2nd line	23	see comments above about the use of 'suitably qualified' vs 'RPEQ'	As above
Part B, Part 2, 1.1 a) - 3rd line	23	"was design" should be "was designed"	As above
Part B, Part 2, 1.1 Notes - 3rd paragraph	23	Delete this paragraph. If monitoring is to be required it should only apply to high risk sites (possibly a sub-set of high erosion sites?). Due to the high temporal variability, where sites are to be monitored, a statistically valid monitoring and testing regime should be implemented. "Monitoring 20 events" is an inadequate description?? Proper monitoring is very expensive and should only be required on high risk sites discharging to environmentally critical waters where the costs are in line with the benefits.	As above
Part B, Part 2, 1.1	23	A section similar to this (design, construction and operation of a treatment train modelled in MUSIC) should be included in Part B, Part 1 High Erosion Sites also.	As above
Part B, Part 2, 2	24	4th dot point - re-phrase to "sediment <i>forebays and</i> basins that are de-silted . . "	As above
2nd last paragraph	24	More up to date maintenance checklists are available in Maintaining Vegetated Stormwater Assets: <a href="http://waterbydesign.com.au/maintenanceguide/">http://waterbydesign.com.au/maintenanceguide/</a>	As above