PRELIMINARY IMPACT ANALYSIS

PROPOSAL:

This proposal seeks to review joint Australian and New Zealand Standard (AS/NZS) 3500, *Plumbing and drainage:*

- *Part 2: Sanitary plumbing and drainage;* and,
- *Part 3: Stormwater drainage*

The proposal seeks to increase the range of materials that can be used to construct wet wells.

Responsible Technical committee: Australian Standard Committee WS-014, *Plumbing and Drainage*

NCC REFERENCE: For revisions or amendments to existing National Construction Code (NCC) referenced documents, provide additional information			
	BCA Volume One:	AS/NZS 3500.2	N/A
		AS/NZS 3500.3	F1.1
	BCA Volume Two:	AS/NZS 3500.2	N/A
		AS/NZS 3500.3	3.1.3.0, 3.1.3.4, 3.5.3.0, 3.5.3.3 and 3.5.3.5.
	PCA Volume Three:	AS/NZS 3500.2	C1.3, CV2.2, C2.3, C2.4
		AS/NZS 3500.3	N/A (Victorian and Tasmanian Variations).

PROPONENT:		
	Nominating organisation:	N/A
	Nominating individual:	Fred Reynolds
	Position:	Independent Chair WS-014
	Contact email:	fredreyn@tpg.com.au

DATE OF PIA: To differentiate between versions include the		
	Date:	20 Jan 2020
	Version:	1
	Status:	DRAFT

document date and/or version number	

NATURE AND EXTENT OF THE PROBLEM:

Since the first release of AS/NZS 3500 Part 2 and Part 3 in 1990 there has been no updates to the allowable wet well materials.

The restriction to only allow the installation of wet wells manufactured from reinforced concrete, corrosion resistant metals, brickwork or glass-reinforced plastic materials limits the ability of other materials being used under the deemed-to-satisfy (DTS) pathway. A range of prefabricated wet wells made from modern materials including, Polyethylene (PE), High Density Polyethylene (HDPE), Unplasticised Polyvinyl Chloride (UPVC) and Polypropylene (PP) are currently on the market and not able to comply with the current provisions.

In situations where other materials are being used, a Performance Solution is required, adding unnecessary cost and complexity to the project.

Use of modern plastics is common in the urban water supply network so much so that the Water Services Association of Australia (WSAA) has developed a standard covering design and performance requirements for maintenance shafts (WSAA WSA 137 "*Un-plasticized poly (vinyl chloride) (PVC-U), polypropylene (PP) and Polyethylene (PE) maintenance shafts, maintenance chambers and maintenance holes for sewerage*"). Compliance with this standard is a common path for most Performance Solutions in the absence of provisions in AS/NZS 3500 Part 2 and Part 3.

OBJECTIVES:

The objective of this change is to expand the list of suitable materials for the construction of wet wells to include prefabricated plastics such as HDPE, PP and UPVC.

OPTIONS:

Option 1.Status Quo

This option would result in no change being made to AS/NZS 3500 Part 2 and Part 3 and use of prefabricated plastic wet wells will continue to require a Performance Solution. Only wet wells of the currently listed materials will be installed as a DTS solution under AS/NZS 3500 Part 2 and Part 3.

Option 2 Non regulatory solution.

This option would see guidance included in the relevant parts of AS/NZS 3500 Part 2 and Part 3 to advise plumbing practitioners that other materials can be used. The guidance could also be extended to the regulatory process required to allow their installation.

Option 3 Certification to AS/NZS 1546.1:2008

This solution would reference AS/NZS 1546.1 as a secondary referenced document and would allow the installation of products certified to this specification. A more appropriate alternative to this option would see AS/NZS 1546.1 referenced for wet wells under the WaterMark Schedule of Products.

NOTE: The proponent (with the support of a number of other organisations) identified the need for change and proposed Wet Well vessel construction be certified to Section 5, and Section 6, or

Section 7, or Section 8 or Section 9 of AS/NZS. 1546.1:2008 On-site domestic wastewater treatment units Part 1: Septic tanks.

Option 4 Amend AS/NZS 3500 Parts 2 and 3

The proposed changes would amend both the sanitary drainage (AS/NZS 3500.2) and stormwater drainage (AS/NZS 3500.3) parts of the AS/NZS 3500 series.

The amendment would expand the materials suitable for use for the construction of wet wells and also allow the use of prefabricated wet wells. The performance and material requirements of prefabricated wet wells is intended to be covered under the product specification.

IMPACT ANALYSIS (OF ALL OPTIONS):

Option 1. Status Quo

If no change is made, costs to the industry will continue to occur and increase as prefabricated plastic units become more popular. This additional costs will negate the cost savings from the use of cheaper prefabricated products. This option will also continue to result in competition being restricted, favouring traditional construction methods of wet wells over modern methods.

Option 2 Non regulatory solution.

If guidance material was implemented, there would not be any cost savings or advantages. This information would remain voluntarily and may confuse practitioners as to what materials are suitable for use.

This option would also not allow the cost savings and convenience of prefabricated wells to be realised under the DTS pathway. Use of advisory notes or handbooks does not remove the requirement for reinforced concrete, corrosion resistant metals, brickwork or glass-reinforced plastics to be used.

Hence, there is no clear path to resolve the issue through a non-regulatory solution.

Option 3 Certification to AS/NZS 1546.1:2008

This option was reviewed and considered by both WS-014 and PCC but was rejected (certification not appropriate in this situation as septic tanks which have different properties to wet wells) in favour of the simpler solution outlined above. On this basis the option has been discontinued from further analysis.

Option 4 Amend AS/NZS 3500, Parts 2 and 3

This option involves changes to Clause 12.5 in AS/NZS 3500.2 and Clause 8.3 in AS/NZS 3500.3. See Attachment A.

With this change there will be a general reduction in costs across the industry. Apart from not needing a Performance Solution, plumbing practitioners will have the ability to use prefabricated wells of materials suitable to the specific application through a DTS solution and will simplify design and reduce on-site installation costs.

Savings will result from flexibility in the installation and use of wet wells. Performance Solutions will no longer be required and prefabricated wells offer a viable alternative to the more expensive on-site construction.

The cost savings are considered to vary across Australia and New Zealand due to the variances of administration costs for the submission and assessment of Performance Solutions.

TRANSITIONAL MEASURES

Transitional measures are not considered necessary since this is not a restriction on or addition to the requirements.

CONSULTATION:

The original proposal raised the issue during the last revision of AS/NZS 3500.

WS-014 members were consulted and while supporting the proposal to allow additional wet well materials, disagreed with the original proposed solution (Option 3). They supported the simpler solution to the problem (Option 4).

The ABCB's Plumbing Code Committee (PCC) reviewed and supported the project proposal.

The document will be release by Standards Australia for a period public consultation.

CONCLUSION AND RECOMMENDED OPTION:

There will be a net benefit, cost reduction and increased flexibility for plumbing practitioners through Option 4, as such this is the recommended option.

IMPLEMENTATION AND REVIEW:

The proposed amendment will be implemented as part of the 2022 NCC revision cycle.

LIST OF ATTACHMENTS:

Attachment A – Schedule of Major Changes

Attachment A: SCHEDULE OF MAJOR CHANGES

3500.2

SANITARY PLUMBING AND DRAINAGE

12.5 WET WELLS

12.5.1 General

Wet wells shall be fit for purpose and installed in an accessible location.

12.5.2 Construction

The structure shall be precast, moulded or cast in situ and shall be sound and constructed of materials that will resist corrosion from the sewage and sewage gases internally and aggressive soils externally.

NOTES:

1. Suitable materials include reinforced concrete, corrosion resistant metals, fibre glass, or suitable plastics such as HDPE or polypropylene.
2. When using plastics, care should be taken to ensure that the design and installation addresses durability and avoids problems with buckling and long term creep. WSAA WSA 137 provides further information on the design and performance requirements for maintenance shafts.

12.5.3 Base

The base shall be constructed of….

3500.3

PART 3: STORMWATER DRAINAGE

8.3 Wet wells

8.3.1 General

Wet wells, for submersible or non-submersible type pumps, shall be installed in accessible locations.

8.3.2 Construction and materials

The structure shall be precast or cast in situ and shall be sound and constructed of materials that are capable of resisting corrosion from groundwater and aggressive soils.

NOTES:

1. Suitable materials include precast or cast in situ reinforced concrete, corrosion-resistant metals, glass-reinforced plastics or suitable plastics such as HDPE or polypropylene.
2. When using plastics, care should be taken to ensure that the design and installation addresses durability and avoids problems with buckling and long term creep. WSAA WSA 137 provides further information on the design and performance requirements for maintenance shafts.

8.3.3 Base

The base shall be constructed of….