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# AS 3500.3 PUMP SYSTEM REQUIREMENTS

SECTION9 PUMPEDSYSTEMS 9.1 SCOPE OF SECTION This Section specifies criteria for pumped systems. 9.2 GENERAL Pumped systems are for areas normally less than 2000 m2 where it is not possible for the stormwater to be discharged by gravity through the available gravitational point of connection. The pumping equipment shall include a wet well, pumps and motors, pipework and electrical equipment and be located to facilitate easy connection to either the surface water system or the pumped point of connection. NOTE: An illustration of the application of this Section is given in Appendix L. 9.3 WET WELLS 9.3.1 General Wet wells, for submersible or non-submersible type pumps, shall be installed in accessible locations. 9.3.2 Construction and materials The structure shall be sound and constructed of materials that will resist corrosion from

ground water and aggressive soils.

Authorized materials include pre-cast or cast in situ reinforced concrete, corrosion-resistant metals, brickwork or glass-reinforced plastics.

9.3.3 Base The base shall be constructed of materials compatible with the walls and shall maintain a self-cleansing gradient towards the pump inlet. The base shall be supported on stable ground.

9.3.4 Cover

The cover shall be constructed of similar materials to that of the wet well and shall have removable access openings sized for maintenance purposes. If the access opening is airtight, a breather pipe with a non-corrodible screen shall be installed. 9.3.5 Ladders

Where a wet well exceeds a depth of 1.2 m, a ladder, in accordance with Clause 8.6.5.4, shall be installed.

9.3.6 Combined effective storage

The capacity of the pumped system shall be achieved by a combination of pump capacity and wet well storage between the high and low working levels of the wet well. The combined effective storage comprising the volume able to be pumped in 30 min plus the

wet well storage shall not be less than the volume of the run-off from the storm of ARI = 10 years and duration of 120 min, or as otherwise directed by the authority having jurisdiction. The maximum pump capacity shall be as detailed in Clause 9.4(a). The minimum wet well storage between the high and low working levels expressed in cubic metres shall be 1% of the catchment area in m2 but in any case shall not be less than 3 m3. NOTE: The minimum pump capacity should be 10 L/s. 9.3.7 Alarm

High-level and low-level alarms shall be installed in each wet well and located clear of the discharge from the inlet pipe so that false alarms are prevented. The high level alarm should be set no higher than 100 mm above the invert of the inlet pipe, provided that flooding of habitable or storage areas and vehicle garages shall be avoided. Where flooding could occur the overflow and high-level alarm shall be lowered accordingly to prevent flooding.

9.3.8 Inlet The invert of the inlet pipe to the wet well shall be located at least 100 mm above the level of the Design Top Water Level.

9.3.9 Sealing All pipes or apparatus passing through a wall or cover of a wet well shall be sealed with a compatible material.

9.4 PUMPS The pumps shall be suitable for unscreened stormwater and shall be installed as follows:

(a) Pumps shall be in duplicate. The maximum capacity of each pump shall be selected so that the capacity of the system receiving the discharge is not exceeded. The pump controls shall be set up to enable alternate pump operation at each start. In the event that a pump fails to operate when the water level in the wet well reaches the pump start, the other pump shall be activated and a visible alarm initiated. In the event that

both pumps fail to operate, an audible alarm shall be initiated. (b) Pumping equipment shall be securely fixed to the wet well using corrosion-resistant fixings.

(c) Pumps shall be fitted with a gate valve and non-return valve on the delivery side of each pump.

(d) Pumps shall have flanges or unions installed to facilitate removal.

(e) Pumps shall be controlled so as to limit the number of starts per hour to within the capacity of the electrical motors and equipment, and shall, as far as practicable, empty the contents of the wet well at each operation.

(f) The required pumping rate shall be calculated based on an assessment of the expected inflow and, where appropriate, the allowable discharge rate.

9.5 RISING MAINS

Rising mains shall comply with the relevant Sections of AS/NZS 3500.1 and this Standard, and connect to-

(a) a stormwater or inlet pit; or

(b) direct to a stormwater drain. 9.6 ELECTRICAL CONNECTION

All electrical motors and equipment shall be installed in accordance with AS/NZS 3000.

BASEMENT DRAINAGE











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DRAWING : Job No : Drawing No 210903 SW5<sub>DA</sub> STORMWATER MANAGEMENT **DETAILING 3 Document Certification** Barrenjoey Consulting Engineers pty ltd per LUCAS MOLOY MILA CPEng NER Director

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