

## Division 19 – Stormwater

### 7.70 Stormwater Code

The provisions in this division comprise the Stormwater Code. They are:

- Compliance with the Stormwater Code (section 7.71);
- Overall outcomes of the Stormwater Code (section 7.72);
- Specific outcomes and probable solutions for the Stormwater Code (section 7.73).

### 7.71 Compliance with the Stormwater Code

Development that is consistent with the specific outcomes in section 7.73 complies with the Stormwater Code.

### 7.72 Overall Outcomes of the Stormwater Code

- The overall outcomes are the purpose of the Stormwater Code.
- The overall outcome sought for the Stormwater Code is:
  - cumulative impacts of discharged water from new development does not adversely affect the quality, environmental values or ecosystem functions of downstream receiving waters;
  - contamination of stormwater and the release of pollutants in runoff is prevented;
  - the structure and condition of drainage lines and riparian areas is maintained or improved;
  - stormwater is managed to minimise the impact of flooding; and
  - development occurs where the impact of flooding is minimised.

### 7.73 Specific Outcomes and Probable Solutions for the Stormwater Code

The specific outcomes sought for the Stormwater Code are included in column 1 of table 7.24. Probable solutions for code assessable development are included in column 2 of table 7.24.

| Table 7.24<br>Stormwater Code (Part 7 Division 19)   |  |
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| Column 1<br>Specific outcomes  | Column 2<br>Probable solutions   |
| <b>Quality - Assessment, Planning and Design</b>   |  |
| <b>SO1</b><br>Development design optimises the prevention of pollutant mobilisation and transportation, minimises the production of runoff and promotes natural drainage to surface and groundwater. | <b>S1.1</b><br>Stormwater quality treatment measures designed in accordance with the Planning Scheme Policy No.4 – Design and Development Manual, Part A, Section 8.   |
| <b>Note:</b> A Site Based Stormwater Management Plan (SBSMP) may be required to be undertaken in accordance with the Planning Scheme Policy 19 Stormwater.   | <b>S1.2</b><br>On site water re-use is promoted.   |
|  | <b>S1.3</b><br>The development design layout utilises existing contours and environmental constraints.   |
|  | <b>S1.4</b><br>Drainage lines are maintained and/or rehabilitated utilising local native species that reflect the structural and floristic diversity of Significant Vegetation or Wetland Vegetation on the site or surrounds. |
| <b>Quality – Construction</b>  |  |
| <b>SO2</b><br>Best practice erosion and sediment control measures prevent the transportation of pollutants off-site during construction.   | <b>S2.1</b><br>Buffer strips are maintained around drainage lines and installed in other relevant areas prior to construction works.   |
|  | <b>S2.2</b><br>Design and construction of storage basins: <ol style="list-style-type: none"> <li>integrates the structures with water quality controls;</li> <li>has minimal risk to public safety and property.</li> </ol>    |
|  | <b>S2.3</b><br>Best practice erosion and sediment control measures such as check dams, sediment fencing and sedimentation ponds are installed and maintained until   |

| Table 7.24  |   |
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| Stormwater Code (Part 7 Division 19)  |   |
| Column 1<br>Specific outcomes   | Column 2<br>Probable solutions  |
|   | post construction surface stabilisation is achieved.  |
| <b>Quality - Receiving Waters</b>   |   |
| <p><b>SO3</b><br/>Environmental values and integrity of receiving waters are protected or enhanced.</p> <p><b>Note:</b> Iron, Phosphorus, Nitrogen and Organics contribute to the growth of <i>Lyngbya majuscula</i> (a toxic marine blue-green algae). In order to protect receiving environments and mitigate <i>Lyngbya</i> blooms, stormwater treatment practices should include measures to reduce Iron, Nitrogen, Phosphorus and Organic (Total Organic Carbon) concentrations in stormwater, particularly where stormwater is discharged to marine or estuarine environments.</p>  | <p><b>S3.1</b><br/>Source control measures take preference over end of pipe/in-stream pollution control techniques.</p> <p><b>S3.2</b><br/>Stormwater quality improvement measures, including (Stormwater Quality Improvement Devices) optimise the prevention, interception, retention and removal of pollutants mobilised and transported in stormwater such as:</p> <ul style="list-style-type: none"> <li>(a) sediments;</li> <li>(b) organic matter;</li> <li>(c) nutrients;</li> <li>(d) iron;</li> <li>(e) metals;</li> <li>(f) litter;</li> <li>(g) and hydrocarbons.</li> </ul> <p><b>Note:</b> Design, selection and installation of Water Sensitive Urban Designs and Stormwater Quality Improvement Devices should be in accordance with the Caboolture Shire Planning Scheme Policy 4 Design and Development Manual.</p> <p><b>S3.3</b><br/>Development is set back from the edge, top of bank or HAT level (whichever is the greater) of a Waterway or Wetland a distance of:</p> <ul style="list-style-type: none"> <li>(a) At least 40.0 metres to all Catchment Protection Minor Waterways;</li> <li>(b) At least 100.0 metres to Catchment Protection Major Waterways;</li> <li>(c) At least 100.0 metres to Wetland Protection Areas.</li> </ul> |
| <b>Quality - Water Quality Control</b>  |   |
| <p><b>SO4</b><br/>The total effect of permanent water quality control measures achieve reductions in the mean annual load generated by the development site at a minimum of:</p> <ul style="list-style-type: none"> <li>(a) 80% for Suspended Sediment;</li> <li>(b) 45% for Total Nitrogen;</li> <li>(c) 45% for Total Phosphorus.</li> </ul> <p><b>Note:</b> Should the overall effectiveness of the optimal treatment train for the development catchment not meet mean annual load reduction targets, specific concentrations, as defined by local water quality objectives or in the absence of local water quality objectives Brisbane City Council Water Quality Guidelines, should be used as the water quality objective for stormwater discharging from development sites (refer to current Brisbane City Council Water Quality Guidelines, also outlined in the Model of</p> | <p><b>S4.1</b><br/>Maximise the number of treatment measures in a treatment train to achieve desired mean annual load reductions.</p>   |

| Table 7.24   |   |
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| Stormwater Code (Part 7 Division 19)   |   |
| Column 1   | Column 2  |
| Specific outcomes  | Probable solutions  |
| <i>Urban Stormwater Improvement Conceptualisation (MUSIC).</i>   |   |
| <b>Quantity - Drainage Easements</b>   |   |
| <b>S05</b><br>Council and inter-allotment pipelines, overland flow paths and open drains through private property cater for fully developed upstream catchment flows and are able to be maintained.  | <b>S5.1</b><br>Drainage easements are provided in accordance with the requirements of Planning Scheme Policy 4 <i>Design and Development Manual</i> , Part A Section 8.<br><br><b>S5.2</b><br>Council and inter-allotment pipelines, overland flow paths and open drains are designed in accordance with the requirements of Planning Scheme Policy No.4 – Design and Development Manual, Part A, Section 8.  |
| <b>Quantity - Flood Storage</b>  |   |
| <b>S06</b><br>Development that involves earthworks in a floodplain must result in no net loss of flood storage for all storm events up to and including a 1 in 100 year ARI event and adjoining properties must remain free draining with no resultant increase in flood levels.<br><br><b>Note:</b> A certified flood study may need to be prepared by an RPEQ. | <b>S6.1</b><br>No solution provided.  |
| <b>Quantity - Floor Levels</b>   |   |
| <b>S07</b><br>Building floor levels are constructed above the nominated flood contour.<br><br><b>Note:</b> Performance criteria for setting building floor levels are set out in the <i>Standard Building Regulation and Building Code of Australia</i> .  | <b>S7.1</b><br>Building floor levels are at least 300mm above the 100 year ARI flood level.<br><br><b>S7.2</b><br>In areas affected by overland flow paths, building floor levels are at least 50mm above the depth of the flow during a 100 year ARI storm event.<br><br><b>S7.3</b><br>For residential development, building floor levels of garages and non-habitable rooms are constructed at a height above the 100 year ARI flood level.  |
| <b>Quantity – Community Infrastructure</b>   |   |
| <b>S08</b><br>Essential services infrastructure (eg in site electricity, gas, water supply, sewerage and telecommunications) maintains its function during a flood event.  | <b>S8.1</b><br>Any components of essential service infrastructure that are likely to fail to function or may result in contamination when inundated by flood water (eg electrical switchgear and motors, water supply pipeline air valves) are:<br>(a) Located above the 100 year ARI flood level; or<br>(b) Designed and constructed to exclude floodwater intrusion/infiltration; and<br>(c) Infrastructure is designed and constructed to resist hydrostatic and hydrodynamic forces as a result of inundation by a flood event. |
| <b>Quantity - Health and Safety</b>  |   |
| <b>S09</b><br>Development does not result in any of the following:<br><br>(a) Increase the number of people calculated to be at risk from flooding;<br><br>(b) Increase the flood levels on any other property;  | <b>S9.1</b><br>No solution provided.  |

| Table 7.24<br>Stormwater Code (Part 7 Division 19)   |   |
|--|---|
| Column 1<br>Specific outcomes  | Column 2<br>Probable solutions  |
| <p>(c) Increase the number of people likely to need evacuation;</p> <p>(d) Shorten flood warning times;</p> <p>(e) Negatively impact on the ability of traffic to use evacuation routes or unreasonably increase traffic volumes on evacuation routes;</p> <p>(f) Place additional burdens on Council's resources or emergency services;</p> <p>(g) Increase the duration of flooding, unless that increase is part of a Council approved flood mitigation strategy.</p> <p><b>Note:</b> The stormwater drainage system should be designed and constructed in accordance with Planning Scheme Policy No.4 – Design and Development Manual.</p> |   |
| <p><b>SO10</b><br/>Development provides sufficient access to enable evacuation during a range of floods up to and including the 100 year ARI flood level.</p> <p><b>Note:</b> The stormwater drainage system should be designed and constructed in accordance with Planning Scheme Policy No.4 – Design and Development Manual.</p>  | <p><b>S10.1</b><br/>Development provides opportunities for evacuation by access that is a road constructed at the level greater than the 100 year ARI flood level less 200mm.</p> <p><b>S10.2</b><br/>The ingress or egress does not create, in the event of a flood, a sudden change in flow distributions, flood level or velocity that could result in:</p> <p>(a) the breaking of a levee;</p> <p>(b) the establishment of blockage of a breakout;</p> <p>(c) excessive scour;</p> <p>(d) sedimentation;</p> <p>(e) increased flood hazard.</p> |
| <p><b>SO11</b><br/>Bridges and culverts minimise traffic disruption, allow for terrestrial and aquatic habitat and fauna movements, bikeways and walkways.</p> <p><b>Note:</b> The stormwater drainage system should be designed and constructed in accordance with Planning Scheme Policy No.4 – Design and Development Manual.</p>   | <p><b>S11.1</b><br/>The road crossing is constructed to ensure that the road remains trafficable during a 100 year ARI storm event.</p> <p><b>Note:</b> The limiting criterion of depth by velocity product of less than 0.6 shall be applied to overtopping of roads during the 100 year ARI storm events.</p>   |
| <b>Quantity - Overland Flow paths</b>  |   |
| <p><b>SO12</b><br/>Overland flow paths have adequate capacity to contain and convey a design major stormwater flow of specified ARI.</p> <p><b>Note:</b> The stormwater drainage system should be designed and constructed in accordance with Planning Scheme Policy No.4 – Design and Development Manual.</p>   | <p><b>S12.1</b><br/>Within Residential, Rural Residential, Industry and Centre Zones overland flow paths are provided to cater for the major storm event with a 100 year ARI.</p>   |
| <b>Quantity - Roof and Allotment Drainage</b>  |   |
| <p><b>SO13</b><br/>A roof and allotment drainage system is provided for all lots within Residential,</p>   | <p><b>S13.1</b><br/>The roof and allotment drainage system is designed in accordance with</p>   |

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|--|---|
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| Column 1<br>Specific outcomes  | Column 2<br>Probable solutions  |
| <p>Centre and Industry Zones and for all lots with an area of less than 3000m<sup>2</sup> within the Rural Residential Zone.</p> <p><b>Note:</b> The stormwater drainage system should be designed and constructed in accordance with Planning Scheme Policy No. 4 – Design and Development Manual.</p>  | <p>Planning Scheme Policy 4 <i>Design and Development Manual</i>.</p> <p><b>S13.2</b><br/>A minimum of two (2) pre-cast kerb adapters per allotment are placed in the kerb at the time of construction of the kerb.</p>   |
| <b>Quantity - Stormwater Discharge</b>   |   |
| <p><b>SO14</b><br/>Stormwater discharge is disposed of adequately and achieves the following:</p> <ul style="list-style-type: none"> <li>(a) No worsening of downstream conditions;</li> <li>(b) No adverse impacts on adjoining or upstream lots;</li> <li>(c) Discharge from the site does not cause nuisance to any person, property, or premises;</li> <li>(d) Any discharge onto downstream properties does not result in an increase in concentration of stormwater;</li> <li>(e) Any discharge does not cause erosion.</li> </ul> <p><b>Note:</b> Details of the proposed methods of control and disposal of stormwater from the site including the method of control of runoff from access roads parking areas and roofs should be indicated.</p> <p><b>Note:</b> The stormwater drainage system should be designed and constructed in accordance with Planning Scheme Policy No. 4 – Design and Development Manual.</p> | <p><b>S14.1</b><br/>A detention system is provided to control the discharge of stormwater from the site so as to restrict the peak flow discharge to pre-development flows for all ARI storm events up to and including the 100 year ARI event.</p> <p><b>S14.2</b><br/>The drainage is carried to a point at which it may be lawfully discharged.</p>  |
| <b>Quantity - Underground Drainage</b>   |   |
| <p><b>SO15</b><br/>Underground drainage has adequate capacity to fully contain and convey a design minor stormwater flow of specified ARI.</p> <p><b>Note:</b> The stormwater drainage system should be designed and constructed in accordance with Planning Scheme Policy No. 4 – Design and Development Manual.</p>  | <p><b>S15.1</b><br/>The standard of drainage through parks is the same as the standard of drainage through lots.</p> <p><b>S15.2</b><br/>Within the Rural Zone the storm event with a 5 year ARI is piped under roads. Stormwater discharge from a critical storm with a 5 year ARI is piped under a road or site access formation where the depth of a table drain exceeds 300mm.</p> <p><b>S15.3</b><br/>Within the Rural Residential, Residential A and Residential B Zones, runoff from a minor storm event with a 10 year ARI is piped through the development.</p> <p><b>S15.4</b><br/>Within all Centre and Industry Zones, the storm event with a 20 year ARI is piped through the development.</p> <p><b>S15.5</b><br/>Afflux of stormwater from any bridge or culvert does not cause flooding of upstream properties.</p> |

| Table 7.24  |   |
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| Column 1<br>Specific outcomes   | Column 2<br>Probable solutions  |
| <b>Quantity - Water Flow</b>  |   |
| <b>S016</b><br>An overland flow path free of obstruction is provided through the property.<br><br><b>Note:</b> <i>The stormwater drainage system should be designed and constructed in accordance with Planning Scheme Policy No.4 – Design and Development Manual.</i> | <b>S16.1</b><br>Overland flowing stormwater is allowed free passage between the street and any waterway at the rear of the property.<br><br><b>S16.2</b><br>Outdoor storage areas are located above the 100 year ARI flood level. |