From:	Holly Palmer
To:	Emily Dickson
Cc:	Brendon Roberts
Subject:	Eastern Creek Business Hub (SSD 5175 MOD 4 and SSD 8588 MOD 2) - Rooty Hill Road South, Eastern Creek - BCC Response
Date:	Thursday, 16 May 2019 2:28:33 PM
Attachments:	image003.png image004.png image008.png SSD 5175 MOD 4 and SSD 8588 MOD 2 - Notification of Modification Letter to Council.pdf

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Hi Emily,

Further to my emails below, our drainage engineer has requested that the conditions to SSD 5175 are amended as shown below. There are no changes required for SSD 8588 MOD 2.

We have no further comments regarding these modification applications.

SSD 5175

These amendments are based on the updated civil drawings by Henry and Hymas 17D83_S96_C Series dated 20/03/19 for the proposed business development drainage basins.

The existing Part B condition 27 is to be modified as follows:

Amended drainage plans by a suitably qualified Civil Engineer, are to be provided to meet the requirements under Councils DCP Part ~~R 2006~~ J 2015 and Councils Engineering Guide for Development 2005. The plans are to be in accordance with the Civil Engineering Works plans by Henry and Hymas Series 17D83_S96_C dated 20/03/19 except where amended by this consent.
The amended plans must address the following:
a) ~~Provide additional detailed sections through each of the channels clearly identifying batter slopes and finishes.~~
~~b) Redesign the culvert crossing of channel 01 to Pad 1 to assume a 50% blockage in the culvert. Where no blockage was previously assumed it is acceptable to double the culvert size to compensate. Details are to be provided.~~
~~c) The channelization of the 100 year flows through Channel 01 to the existing creek will lead to increased scour and deterioration of the existing creek as previous high flows would have spread over a much wider area. A review of the geomorphology of the existing creek to cope with the increased flow is to be undertaken with recommended improvements detailed such as ponds and riffles, bank armouring of bends, scour protection, etc. as required.~~ Amend Sections 18 and 19 on drawing C111(03) to have a minimum berm width of 1 m while reducing the external batters to 1V:3H or flatter.
d) The rainwater tanks are required to all the developments and are to be designed to achieve a minimum 80% of non-potable demand to be met through rainwater. When sizing the rainwater tank increase the calculated volume by 20 % to account for anaerobic zones, mains water top up levels and overflow levels. Where the 80% demand cannot be met through rainwater alone waterless urinals are to be installed. Provide a hydraulic plan to detail how the rainwater is distributed throughout the site including water meters on pump flow and mains bypass to determine actual non-potable percentage water use.
e) To protect the bioretention systems from harmful sediments and pollutants a Gross Pollutant Trap (GPT) is required for any discharge from future developments in Pads 1, 2, 3, or 4 to the external drainage system, including discharges direct to basin 2. The GPTs are to remove a minimum 50% TSS and have an oil baffle able to trap and contain oil or hydrocarbons and sized to treat a minimum six month ARI flow. On drawing C251(03) amend the wording for each of the four notes for the Pad Treatments to say "….GPT TO PREVENT SEDIMENT AND HYDROCARBONS ENTERING …..".
~~f) To provide a water source to ensure ongoing viability of the bioretention plants a saturated zone is required comprising a 300 mm transition layer and a gravel layer sized as the larger of 200 mm, or 50~~

~~mm above the largest subsoil pipe. The saturated zone is set to the underside of the filter media and standard pit details are available from Council. On Costin Roe Plan CD12693.00-DA45(C) under "TYPICAL BIO-RETENTION DETAIL" amend the detail to match this requirement.~~

~~g) The un-socked subsoil drains within the saturated bioretention filter bed can be laid flat, however any non-slotted collection pipes discharging the subsoil flows away from the basin are to have a minimum grade of 0.5 %. Where subsoil lines connect with a larger subsoil collection pipe, the subsoil pipes are to connect via two 45 degree bends with a minimum 300 mm straight section between to allow for rodding. The collection pipe is to have its own rodding point. Provide details of sizing to ensure a minimum of twice the capacity based on both pipe capacity and flow through the slots.~~

h) On ~~Costin Roe Plan CD12693.00-DA45(C) under~~ drawings C231(03) and C241(03) provide a "TEMPORARY BIO-RETENTION PROTECTION DETAIL" ~~set the geotextile immediately above the transition layer (i.e. no filter media at all) with "COARSE SAND & TURF, NOM 100 - 150" above plus previous amendments as above. The bioretention notes are to be adjusted to match~~ in accordance with the Stage 2 requirements on Council WSUD Drawings A(BS)175M. The temporary details are to be constructed prior to occupation of the first upstream stage of pads 2, 3, or 4;

~~i) Provide a detail of a subsoil riser for flushing and maintenance of the subsoil collection pipe. The riser is to include two 450 bends with a short section of un-slotted straight (minimum 300 mm) in between. The vertical riser is to stop 50 mm above the filter mediaand sealed with a removable screw cap.~~

~~j) Provide an intermediate riser detail for long subsoil lines, or subsoil collection pipes at maximum 20 m intervals.~~

~~k) Provide a separate pit for the collection of flows from the bioretention subsoil drainage from Basin 2 that is independent of the overflow pit or discharge control pit for on-site detention. The top of the pit is to be either sealed or set a minimum of 100 mm above the top of the 1 in 100 year detention storage. The subsoil drainage is to discharge downstream of the discharge control pit. Provide a separate subsoil collection pit for bio basin 1.~~

~~l) Provide minimum 3.5 m maintenance access tracks into bio basin 1, basin 1 and Basin 2. Tracks greater than 5% must be concreted, but must not exceed 10%. A minimum 3 m wide access track must be provided at the base of the embankment for the basin 2 bioretention system to allow for future bioretention maintenance set to 100 mm above the extended detention depth. Provide a general vehicular maintenance access plan.~~

~~m) The existing outlet control for basin 2 is incorrect. Electronic hydrologic models are to be provided for the detention basin design to ensure that the predevelopment flows do not exceed the post development flows for all storm durations and for all ARIs from 1 year to 100 year. Allow for an initial pervious loss of 15 mm for the pre development case and the post development losses (5 mm) as per the Engineering Guide for Development. RAFTS itself or the RAFTS hydrological model in DRAINS is preferred to allow for the 15 mm initial loss. There are currently no modelled pre development nodes for this catchment to compare to. Review storages which is not to be less than 5600 m3 that excludes the bioretention extended storage.~~

n) Both detention basins are to install a concrete cutoff wall under the full extent of the spillways to minimise risk of seepage flows and failure. Amend drawings C230(03) and C240(03) by extending the cutoff wall a minimum of 400 mm below the bottom of the scour protection.

~~o) Provide a stilling basin at the base of the downstream spillway of both detention basins.~~

The existing Part B condition 28 is to be modified as follows:

Maintenance schedule requirements are to be provided for each of the Stormwater Quality Improvement Devices including the rainwater tank. For bioretention systems these are to include the temporary bio-retention system and ultimate bioretention system replacement. Where these devices are located in roadway/parking areas these are to include traffic management requirements. The existing Henry and Hymas Stormwater Maintenance Manuals are to be amended to include the requirements of Council's "WSUD Inspection and Maintenance Guidelines" available on the Council website. Where there is any conflict the Council provisions shall prevail. The designer of the stormwater treatment system must prepare the Maintenance schedule and this schedule must show the designer's name, signature and date on it.

Feel free to contact me with any questions.

Regards,

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