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03 September 2010

Department of Planning
GPO Box 39
SYDNEY NSW 2001

Attention: Haley Rich

Dear Haley,

**Additional Documentation-Stormwater and Drainage
K Mart Warehouse and Distribution Centre**

Reference is made to your letter of 24 August 2010 and accompanying plans giving Council an opportunity to comment on the amended drainage plans for the K Mart Warehouse and Distributions Centre.

The following items replace the previous numbered items 1 to 21 on pages 3, 4 and 5 of Council's letter of 23 August 2010. All other sections remain unchanged.

1. A catchment plan is to be prepared prior to release of the Construction Certificate based on the approved subdivision plan showing what areas of the proposed site drain to which detention basin within the subdivision. A catchment plan is then to be prepared for the proposed development that clearly demonstrates that the post development areas draining to the regional detention basins are the same as the subdivision plan. Note the details shown on C81-E show the original subdivision catchment boundary as a sloping line whereas Council's records show this boundary as a line with a step in it.
2. The internal pipe network is to be designed in accordance with the current Council's Engineering Guide for Development to carry the 20 year ARI storm flows without surcharge. On site detention is not required internally as detention is provided in a regional basin.
3. Details are to be provided for the safe conveyance of overland flows within the site in the 1 in 100 year ARI event to ensure a minimum 300 mm freeboard to the industrial floor level when the pipe and pit capacity is exceeded.
4. Details are to be provided for the safe conveyance of overland flows within the site in the 1 in 100 year ARI event to ensure a minimum 150 mm freeboard to the retaining walls or mounds along the side and rear boundaries when the pipe and pit capacity is exceeded to ensure such flows are contained within the site.

inlet pits with lintels at 0.5 for sags and 0.2 for pits on grade. For grate only inlets the blockage factor should be 0.5 minimum.

7. An amended DRAINS electronic model 10726.01 – FOR DA-Recess Dock.drn was provided separately to Council. Based on this model the following amendments are required:
 - a) Each pipe discharging to the front street assumes a free discharge whereas the water level from the subdivision design will create a downstream HGL condition and backwater effect and needs to be included when running DRAINS.
 - b) Each pipe discharging to the interallotment systems at the rear assumes a free discharge whereas the water level from the subdivision design will create a downstream HGL condition and backwater effect and needs to be included when running DRAINS.
 - c) Each of the pits in the recess dock need to have an overflow link from each pit and an ultimate high level escape route.
 - d) The DRAINS model incorrectly connects the flow from most of the carparks to the junction pit in the vehicle accessway when they must be directed to the bioswale pit itself with a spur pipeline back to the junction pit. Consider the active storage above the overflow level of the pit. Also need to consider where the overflow will go in a major storm event and how this will reach the street and not overflow to neighbouring properties.
 - e) The pit in the south east corner be named under the convention for the remainder of the site.
8. The proposed development is to achieve the objectives of Council's current Water Quality Control Policy for a site over 5 Ha prior to release of the Construction Certificate.
9. A drainage catchment plan is required to indicate what areas are draining to specific Stormwater Quality Improvement Devices.
10. A minimum of 40% and preferably up to 80% of the non-potable water use for the proposed development is to be met through rainwater.
11. To improve reliability for rainwater reuse and improve water quality, the two first flush systems from the roof at the north west corner of the development must be combined and the overflow directed to a minimum 100 kL rainwater tank prior to release of the construction certificate. To improve reliability for rainwater reuse and improve water quality, the two separate first flush systems from the roof near the south west corner of the development should be reconfigured and combined and the overflow directed to a minimum 100 kL rainwater tank.
12. Prior to release of the construction certificate the first flush tanks are to be redesigned to ensure the base of the tank, other than at the 900 x 900 silt trap, is at or above the level at the centreline of the orifice to assist with safe access for maintenance by keeping it dry. Provide a minimum 900 mm x 900mm grated access with step irons together with a confined space warning sign.
13. Prior to release of the Construction Certificate detailed plans are to be provided to demonstrate the symphonic connection of roof water to the first flush system and rainwater tanks. Such details are to include cleanout and inspection points. The pipe materials and joints are to be capable of withstanding the associated pressure.
14. Prior to release of the Construction Certificate amended drainage plans are required that:
 - a) Include details of bioswale storage and overflow pit, including the reduced levels of all these pits and the bioswales themselves;
 - b) Correct the reference of the drainage plans to bioswale pits set 250 mm above

- base level of bioswale when MUSIC uses 300 mm;
 - c) Include details on Enviropods and Stormfilters
 - d) Include details of low flow diversion pits;
 - e) Include the size of the downstream outlet pipe on drawing 44G on the plan;
 - f) Confirms that the 1:20 year storage flow is contained within the front boundary level of the bioswales without overflow to the street;
 - g) Amend the pit schedule on drawing 40F to include pit depths. All pits over 2.5 m deep are to be minimum 900 mm x 1200 mm.
15. Prior to release of the Construction Certificate a hydraulic engineer is to prepare a non-potable water supply and pipe plan for the site. This includes mains water bypass or rainwater tank top up, filters, pumps, pipe sizes and fixtures together with appropriate warning labels on pipes and taps.
 16. MUSIC modelling is to be undertaken prior to release of the Construction Certificate, to confirm that the water quality and rainwater reuse provisions have been met. This applies to both surface and roof flows. In particular the 45% annual removal of TN needs to be achieved for the site. Such modelling is to be undertaken in accordance with Council's draft guidelines. This includes the recent amended MUSIC nodes for Enviropods and Stormfilters. An amended Stormwater Management Plan is then to be provided.
 17. MUSIC does not consider hydrocarbons. The Water Quality policy states that you need to achieve the greater of 90% of the total annual load, or TPH < 10 mg/L from the whole site at all times. The Stormwater Management Plan needs to address this
 18. The bioretention swales should be in accordance with the information available from www.monash.edu.au/fawb
 19. The vegetation species specified for the bioretention swales are to be in accordance with Council's Draft IWCM HANDBOOK PART 5: VEGETATION SELECTION GUIDE FOR bioretention swales prior to release of the Construction Certificate.
 20. MUSIC modelling is required to include the first flush roof systems, proposed Stormwater 360 products and bioretention swales in accordance with the MUSIC guidelines. Note MUSIC defines the surface area of the bioretention system storage (ie. the surface storage above the infiltration medium) in m² as the surface area at half the extended detention depth.
 21. Where Council is not the Certifying Authority an independent engineering consultant is to assess the final drainage plans and certify that the pipe systems and water quality requirements meet Council's design standard and the consent conditions prior to release of the construction certificate.
 22. A Maintenance Schedule is to be prepared for each Stormwater Quality Improvement Device, including the First Flush System, prior to release of the Construction Certificate.
 23. A Geotechnical Engineer is to undertake insitu Saturated Hydraulic Conductivity Testing of each of the bioretention systems in accordance with Practise Note 1 of the FAWB guidelines. Such testing to be undertaken immediately prior to occupation when all building and pavement works are complete and the plants established. Where the hydraulic conductivity is less than the rate specified in MUSIC, remediation works will be required over the whole filter area to restore the conductivity and the test repeated until the minimum hydraulic conductivity is achieved. A Geotechnical Engineer is to then certify prior to occupation, that in accordance with Practise Note 1 of the FAWB guidelines, the Saturated Hydraulic

Conductivity is above the minimum specified in MUSIC for each of the bioretention systems.

24. A Positive Covenant is to be provided over the Stormwater Quality Improvement Devices as per Council's Engineering Guide for Development, prior to occupation.
25. Prior to occupation, the hydraulic engineer is to certify that all the provisions of the non potable water supply plan have been installed as per the approved plan and are operational.
26. Prior to occupation, the hydraulic engineer is to certify that all the Stormwater Quality Improvement Devices (including the bioretention swales) and stormwater pipes and pits have been installed as per the approved plan.

Should you require any further information regarding this matter, please contact me on 9839 6348.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Merrilees', with a long horizontal flourish extending to the right.

Tony Merrilees
Senior Engineer (Drainage) Developments