



07 May 2009

To NSW Sport and Recreation

Copy to

From Alex Horton

Tel 02 9239 7168

Subject Water Quality Control

Job no. 21/15073

John,

As requested we have set out below our concerns with the Southern Highlands Regional Shooting Complex consent condition regarding the sizing of the sedimentation ponds. The consent condition (B3 d)(i)) requires that the ponds be sized to accommodate the 100-year Average Recurrence Interval (ARI) 24 hour storm.

In the GHD Environmental Assessment (EA) and the subsequent Submissions Report the pond sizing has been based upon the guidelines contained in the "Blue Book" – Soils and Construction - Volume 1, Landcom, March 2004. The proposed pond sizing assumes a worst case of Type D/F soils and that the 5 day 85th %ile storm is captured, as this is considered conservative given the other measures in place to control erosion and contamination of downstream watercourses.

We do not believe that the 100-year ARI 24hour storm is an appropriate event on which to size the sedimentation ponds for the following reasons: -

1. A simple comparison of the volumes and area of clearing for the two alternate sizing methodologies indicates a significant difference in size. Attached is sketch SK024, which shows the two alternate pond sizes, overlaid on the site plan. As shown on the sketch, the ponds that are sized based upon the consent conditions contain seven times the storage volume of those sized using the Blue Book guidelines. More importantly, the ponds sized in accordance with the consent conditions require the clearing of an area 5.5 times greater than that of the Blue Book ponds (it should be noted that the 100-year ARI pond sizing has been undertaken using 10m interval contours as no detailed survey is available). This equates to an area of 8 hectares of land requiring clearing to provide erosion control to a cleared shooting complex area of 16 hectares.
2. The 100-year ARI storm is significantly greater than the requirements of the Blue Book, which is the most widely adopted guide for erosion control in NSW. We note that the consent condition requires that the Soil and Water Management Plan be developed in accordance with the Blue Book;
3. The adoption of the 100-year ARI storm sizing will require the clearing of an additional 7 hectares. Our aim when developing the project was to try and minimize the amount of clearing and in this case the amount of clearing will be increased by 50% with only limited benefit from the larger ponds. We note that the steep terrain where the ponds are to be built may mean that the larger ponds are physically impossible to build or will require a larger area of clearing;
4. The ponds sized in our EA have been designed to capture sediment during construction (vegetation cover is expected to be re-established within 6 months) and to act as a last line of protection to prevent lead leaving the site. A management strategy has been proposed (refer EA) that is designed



to capture lead on the ranges. A regime of regular testing is also proposed to ensure that lead does not leave the ranges, as excessive levels of lead in the various stopbutts will prompt remedial works.

5. The EA proposed limestone filter trenches at various locations around the ranges to prevent lead particles going into suspension, so the water storage volume does not need to be as large as particles of lead should not reach the ponds.
6. The consent condition B4 requires that Pond 6 in the shotgun range be relocated downstream of the range. We do not believe that it will be physically possible to build a 100-year ARI 24hr storm capacity pond downstream of the shotgun range due to the terrain.

Should you require any further information please contact the undersigned.

Regards

A handwritten signature in blue ink, appearing to be 'Alex Horton', written over a blue horizontal line.

Alex Horton

Senior Project Manager

Attach: Sketch SK024