

Our Ref 8902/9.6

Contact Ben Williams

10 July 2009

Gosford City Council
49 Mann St
GOSFORD NSW 2250

Attention: Mr Brian McCourt

Dear Sir

RA205.2005 - PARKSIDE, KINGS AVE, TERRIGAL

Thankyou for the opportunity to meet with you and your water and sewerage staff to discuss the issues raised in your letter dated 19 February 2009. Further to our meeting on the 26 May 2009, we understand that Council's primary concerns are as follows;

1. Who will own and manage the water and sewerage infrastructure for the project;
2. How will the sewage flows from the proposed site be managed to ensure Council's sewerage system is not overloaded, particularly during failure or maintenance of the proposed recycled water treatment plant.

Before addressing these concerns individually, we advise that we have been directed by Crighton Properties to consider feasible options for the efficient sewer servicing of the Parkside site, and not to solely pursue the recycled water treatment plant (RWTP) option for the site.

We can confirm that at this stage it would appear that at least 3 clear options may be available for consideration;

1. A recycled water treatment plant (RWTP) to service the entire site
2. Downstream augmentation of Councils sewer system to provide additional sewer capacity.
3. A combination of 1 and 2 above.

With respect to the RWTP option please see the comments below.

Ownership of water & sewer assets

It is proposed that the roads within the site be dedicated as Public Roads and become Council owned and managed assets.

All sewerage infrastructure, being gravity mains, sewage pump stations and rising mains would generally be located within the road reserves and reticulated to the recycled water treatment plant, if adopted. All sewerage infrastructure would be installed at the developers' cost and in accordance with Gosford City Council's Specifications. Upon completion of these works, the gravity mains, sewage pump stations and rising mains would be handed to Council and become Council owned and managed assets.



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All recycled water infrastructure including pipes, metered connections and recycled water treatment plant (RWTP) will be owned and maintained by the Community Title Group. The recycled water infrastructure would generally be located within private property with typical road crossings where required. The recycled water treatment plant and reticulation will be operated and maintained under a commercial arrangement in accordance Water Industry Competition (Access to Infrastructure Services) Regulation 2007. The proprietary company providing the RWTP will hold a Water Industry Competition Act (WICA) licence to operate in compliance with the Department of Water and Energy (DWE) requirements.

All potable water mains, including valve and hydrants, would be installed at the developers' cost and in accordance with Gosford City Council's Specifications. The potable water mains would generally be located within the road reserve.

Upon completion of the potable water main works, the mains would be handed to Council and become Council owned and managed assets.

Management of sewage flows from the proposed development

The proposed RWTP will have a substantial buffer tank at the inlet works, to balance flows and accommodate periods when the plant is off line. Power outages will be overcome onsite with a backup generator system.

Cardno's original June 2005 report confirmed that the existing sewerage system would not have sufficient capacity to cater to the proposed 150 ET development and 100% development of the existing catchment. The proposed RWTP is expected to provide a flow reduction to Council's sewerage system of approximately 30%, via the recycling of effluent throughout the development.

The desktop analysis confirms that without recycling, the down stream augmentation of the following sewer assets will be required to accommodate the full development and 100% development of the existing catchment:

- Upgrade of the existing 150DN sewer line to a 225DN main, connection to GA/3 from Kings Ave;
- Upgrading of the sewer gravity line BA/9 – BA/14 to 300DN sewer main
- Upgrading of the sewer gravity line BA/14 – GA/3 to 300DN sewer
- Contribution toward the future upgrade of the existing SPS C18;
- Contribution toward the provision of retention tank provisions at SPS C18;
- Contribution to the upgrade of sections of the existing rising main to 250DN which are presently under sized.

We note that our preliminary analysis indicates that no augmentation would be necessary if an RWTP was constructed.

There is also the option that the western catchment of the development would be developed last (approx. 75 lots), with a dedicated recycled water system only. The eastern catchment would have no recycled water system and be connected directly to Council's sewerage system. This arrangement would have a lower impact on the down stream sewer system and require no augmentation to the BA carrier sewer line, although the future upgrade of SPS C18 and RM would be required.

Crichton Properties intention has always been in developing an innovative outcome for this development which included a water recycling scheme. Cardno have carried out preliminary budget estimates which indicate the cost of a full recycling system for the development is marginally greater than the above nominated augmentation works. However, this is dependent on the quantum of contributions and works required by Council attributable to the development. If Council considers

that downstream augmentation is necessary, regardless of the arrangements of recycling water on site, then it may be the developer's preference to proceed without any RWTP and simply undertake the augmentation works.

In any case, the proposed development can be accommodated within the downstream sewerage system with either a RWTP, augmentation of the existing sewerage system or a combination of both. We do not consider that the provision of water and sewer infrastructure would prevent development of this site.

If you require any additional information regarding the water and sewerage infrastructure at the development, please don not hesitate to contact the undersigned.

Yours faithfully,



Ben Williams
Senior Civil Engineer – Central Coast
for **Cardno (NSW) Pty Ltd**

cc: Peter Childs - Crighton Properties
Brian Cahill - Cahill and Cameron Surveyors