



Your Reference: MP SSD-4964
Our Reference: NCA/2/2012
Contact: Kate Lafferty
Telephone: 9806 5393
Fax: 9806 5901

Director, Urban Assessments
Department of Planning
GPO Box 39
Sydney NSW 2001

Attention: Ashley Cheong

23 January 2014

Dear Mr Cheong,

**Subject: Response to Public Submissions
Veolia Materials Recycling Project – 37 Grand Avenue, Camellia**

I refer to your correspondence dated 21 December 2013 advising Council that the Proponent for the above application has lodged a response to submissions received during the public exhibition of the proposal.

Council officers have reviewed this submitted documentation.

In accordance with Council's resolution at its meeting on 22 April 2013 and Council's previous submission dated 22 May 2013, strong objection is raised to the proposed development on the following basis:

1. Pollution - especially smell, noise and dust pollution

Concern is raised that the odour and noise pollution from the proposal would unacceptably impact on surrounding businesses and residential properties in the wider area. The odour and noise issues are likely to adversely effect the amenity of the area and discourage other more appropriate businesses from locating in this desirably located precinct

2. Traffic congestion at the entrance to the peninsula

There are currently significant issues with the capacity of the Grand Avenue Bridge to cope with existing volumes of traffic in the area. This development that will generate significant traffic volumes should not proceed until either the Grand Avenue Bridge is expanded with appropriate lane widening also occurring at the intersection of James Ruse Drive or a link road from the end of Grand Avenue to the Olympic precinct provided.

Department of Planning
Received
24 JAN 2014
Scanning Room

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ARABIC

إذا لم تستطع فهم هذه الرسالة، الرجاء الاتصال بخدمة الترجمة الهاتفية على رقم ١٣١ ٤٥٠ وأسألهم أن يتصلوا بالبلدية على رقم ٩٨٠٦ ٥٠٥٠. دوام ساعات العمل هي من الساعة ٨:٣٠ صباحاً إلى ٤:٣٠ بعد الظهر من الاثنين إلى الجمعة.

CHINESE

如您看不懂此信，請打電話給「電話翻譯服務台」(131 450) 請他們聯絡市政廳 (市政廳電話 9806 5050)。市政廳辦公時間，星期一至星期五，上午八點半至下午四點半。

CROATIAN

Ako ne razumijete ovo pismo, molimo nazovite Službu prevodilaca i tumača (Translating and Interpreting Service – na broj 131 450) i zamolite ih da nazovu Općinu (na 9806 5050). Radno vrijeme je od 8.30 ujutro do 4.30 popodne, od ponedjeljka do petka.

FRENCH

Si vous avez des difficultés à comprendre cette lettre, vous pouvez contacter le service d'interprètes par téléphone au 131 450 et leur demander de contacter la mairie (Council) au 9806 5050. Les bureaux de la mairie sont ouverts du lundi au vendredi de 8h30 à 16h30.

GERMAN

Wenn Sie diesen Brief nicht verstehen können, rufen Sie bitte den Telefon Dolmetscher Dienst (Telephone Interpreter Service) (131 450) an und lassen Sie sich vom Personal mit dem Gemeinderat (Council) in Verbindung setzen (9806 5050). Geschäftsstunden sind von 8:30 bis 16:30 Uhr, montags bis freitags.

GREEK

Αν δεν καταλαβαίνετε αυτό το γράμμα, σας παρακαλούμε να τηλεφωνήσετε την Τηλεφωνική Υπηρεσία Διερμηνέων (131 450) και να τους ζητήσετε να επικοινωνήσουν με το Δημοτικό Συμβούλιο (9806 5050). Τα γραφεία του είναι ανοιχτά από τις 8.30 πμ μέχρι τις 4.30 μμ, από Δευτέρα μέχρι και Παρασκευή.

HINDI

अगर आप इस पत्र को पढ़कर समझ नहीं पाते हैं तो टेलीफोन अनुवादक सेवा (फोन नंबर १३१ ४५०) को फोन कीजिए और उन्हें काउंसिल (फोन नंबर ९८०६ ५०००) से बात कराने के लिए कहिएगा। ऑफिस का समय प्रातः ८:३० से सायं ४:३० बजे प्रतिदिन सोमवार से शुक्रवार ।

ITALIAN

Se non comprendi questa lettera, telefona al Servizio traduzioni e interpreti al numero 131 450 chiedendo di essere messo in contatto con il Comune (telefono 9806 5050). Orario d'ufficio: ore 8.30-16.30, dal lunedì al venerdì.

KOREAN

만일 이 편지를 이해하지 못하시면, 전화 통역 서비스 (131 450) 에 전화하여 카운슬 (9806 5050) 에 연락해 달라고 부탁드립니다. 근무 시간은 월~금, 오전 8시 30분부터 오후 4시 30분까지입니다.

MALTESE

Jekk na tifhimx din-l-ittra, jekk jogħġbok ċempel lis-Servizz ta' l-Interpretù (131 450) u itlobhom biex jikkuntatjaw lill-Kunsill (9806 5050). Il-hinijiet ta' l-Uffiċċju huma mit-8.30 a.m. sal-4.30 p.m., mit-Tnejn sal-Ġimgħa.

POLISH

Jeśli nie rozumiesz treści niniejszego pisma, zadzwoń do Telefonicznego Biura Tłumaczy (Telephone Interpreter Service) pod numer 131 450 i poproś o telefoniczne skontaktowanie się w Twoim imieniu z Radą Miejską pod numerem 9806 5050. Godziny urzędowania: 08.30-16.30 od poniedziałku do piątku.

SPANISH

Si Ud. no entiende esta carta, por favor llame al Servicio Telefónico de Intérpretes (131 450) y pídale que llamen a la Municipalidad (Council) al 9806 5050. Las horas de oficina son de 8:30 am a 4:30 pm, de lunes a viernes.

TAGALOG

Kung hindi ninyo maunawaan ang liham na ito, tawagan lamang ang Telephone Interpreter Service (131 450) at makiusap na makipag-alam sila sa Konseho para sa inyong kapakanan (9806 5050). Oras ng trabaho 8.30 n.u. hanggang 4.30 n.h., Lunes hanggang Biyernes.

TURKISH

Bu mektubu anlayamazsanız, lütfen Telefonla Tercüme Servisi'ne (131 450) telefon ederek, Belediye ile (9806 5050) ilişkiye geçmelerini isteyiniz. Çalışma saatleri Pazartesi — Cuma günleri arasında saat sabah 8.30'dan öğleden sonra 4.30'a Kadar'dır.

VIETNAMESE

Nếu quý vị không hiểu thư này, xin điện thoại Telephone Interpreter Service (Dịch Vụ Thông Nhân bằng Điện Thoại) ở số 131 450 và nhờ họ liên lạc với Council (Hội Đồng) số 9806 5050. Giờ Làm Việc từ 8 giờ 30 sáng đến 4 giờ 30 chiều, Thứ Hai đến Thứ Sáu.

National Relay Number: 133 677

Callers who are deaf or have a hearing impairment or speech/communication impairment may call through the National Relay Service using modem or textphone (TTY) by dialling 133 677 and quoting Parramatta City Council's Customer Service Number, 9806 5050.

3. The development may result in an adverse impact to Council's future study on the Camellia Precinct.

Given the sites central location within Sydney and its proximity to the Parramatta CBD, Council is currently at the preliminary stages of considering allowing the area to be utilised as a business park, that would allow campus style commercial developments similar to those at North Ryde or within the Norwest Business Park. This industrial use would be incompatible with this vision.

In addition to the above, concerns are also raised with respect to the following matters:

- Catchment management and stormwater conveyance
- Landscaping
- Road restoration works on Grand Avenue.

These issues are discussed in further detail below.

Catchment Management & Stormwater Conveyance

Council's previous comments regarding catchment management and stormwater conveyance have been addressed in the Response to Submissions Report prepared by CH2MHILL. It is noted that the main body of the report text includes a summary of our response items, including the flooding/floodplain development and stormwater conveyance matters. Both matters are also dealt with in detail within the report's accompanying Appendices D and E.

Council's review is therefore focussed on reviewing the latest related submissions provided in Appendices D and E of the project's Response to Submissions Report. Since the various contents of Appendices D and E directly respond to Council's previous submission, this current review has been prepared by inserting new text into our previous comments (the latest review words are presented in red font).

Please refer to Appendix A for Council's response to all matters raised with regard to catchment management and stormwater conveyance.

Landscaping

Council's previous comments raised concern that there is an area located within the front setback of the site which is proposed to be landscaped, however no details of this landscaping had been provided. Although a landscape plan has been submitted it is concept only and does not provide any details on the pot sizes, number of plantings, maintenance and so on. A detailed landscape plan needs to be submitted.

Road Restoration Works on Grand Avenue

Council is concerned with the state of disrepair of Grand Avenue as a result of heavy truck movements along this road.

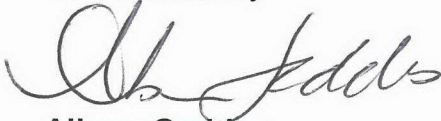
Given the continued and increased truck movements associated with this proposal, it is considered that Veolia upgrade 50% of the public road adjoining the subject site

as part of this application. This road upgrade may be provided in the form of a monetary contribution or physical works. This road upgrade should be provided in addition to the Section 94A contributions required for the proposal.

Council appreciates the opportunity to comment on the above application and looks forward to further consultation on this matter.

Should you wish to discuss the above matter, please contact Council's Senior Development Assessment Officer, Kate Lafferty on 9806 5393.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Alison Geddes', written in a cursive style.

Alison Geddes
Acting Manager – Development & Outcomes
Parramatta City Council

APPENDIX A

REVIEW OF FLOOD AFFECTATION, FLOODPLAIN DEVELOPMENT AND STORMWATER CONVEYANCE ISSUES

The submission involves the construction of a large building (and ancillary works) to facilitate the processing of up to 200,000 tonnes per annum of general solid (non-putrescible) waste on an industrial site in Camellia. The northern boundary of the site is adjacent to the foreshore of the Parramatta River.

Council's flood map shows that the property lies within the 100 year floodplain of the Parramatta River.

Project Review to Date

Council's previous comments regarding catchment management and stormwater conveyance have been addressed in the Response to Submissions Report prepared by CH2MHILL. It is noted that the main body of the report text includes a summary of our response items, including the flooding/floodplain development and stormwater conveyance matters. Both matters are also dealt with in detail within the report's accompanying Appendices D and E.

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Flood Levels & Hydraulic Hazard

Lower Parramatta River flood levels show the following:

CH 6387 Flood Levels upstream of the upstream boundary of No. 37 Grand Avenue

20 year ARI	3.13m AHD
100 year ARI	3.67m AHD
PMF	6.12m AHD

CH 6598 Flood Levels downstream of the downstream boundary of No. 37 Grand Avenue

20 year ARI	3.04m AHD
100 year ARI	3.57m AHD
PMF	6.00m AHD

The associated flood inundation map shows that the whole of the property is inundated in the 100 year event.

The hydraulic hazard map shows that almost all of the property lies within the *Low Hydraulic Hazard* zone. Only a small area immediately adjacent to the river – and seemingly beyond the area that will be occupied by the proposed building works – lies within the *High Hydraulic Hazard* zone.

1. Relevant Project Information used for this review

The following information was downloaded from the Department of Planning's Major Projects website:

- (a) The Director-General's Requirements (DGRs) for SSD-4964 as set out in a NSW Planning & Infrastructure letter dated 17 February 2012; and
- (b) The *Camellia Recycling Centre Environmental Impact Statement (EIS)* report prepared by CH2MHILL and dated February 2013.

Very recently the project's *Response to Submissions Report* prepared by CH2MHILL and dated 3 December 2013 was sourced from the Department (through Council). Of direct relevance to this review is the following:

- The report includes as its Appendix D contents a report (also prepared by CH2MHILL) titled *Camellia Recycling Centre Flood Study (Rev 1)* and dated 3 December 2013. This appendix directly responds to the Council comments re flooding and floodplain development; and
- The report includes as its Appendix E contents a report prepared by Hyder Consulting titled *Camellia Recycling Centre Civil Engineering and Water Management Report* and dated 2 December 2013. Appendix E of the Hyder report directly responds to Council comments re: stormwater conveyance.

Review of February 2012 DGRs

Matters regarding stormwater and flooding are covered under the heading of *Soil & Water* (as a sub-heading under *Key Issues*) as follows:

- "The proposed stormwater management system"; and
- "Consideration of theflooding....impacts of the development."

Hence it follows that the DGRs only address stormwater and flood issues in a very generic way.

2. Review of February 2013 EIS Report

4.1 Relevant Sections of the Report

Stormwater and flood matters are dealt with in the following sections of the report:

- Under the sub-heading of *Hydrology and Flooding* within the *Executive Summary*;
- Reference is made to Council's *Local Floodplain Risk Management Policy 2006* within *Sub-section 3.5.9*; and
- Stormwater, flooding and other water-related matters are dealt with under *Section 7.8 Hydrology*.

4.2 Review of Floodplain Risk Management Analysis

In both the *Executive Summary* and *Section 7.8*, the report "suggests" that the existing kerb bounding the site along the Parramatta River is higher than the 100 year ARI flood level and hence it is asserted that the site is not expected to be affected by Parramatta River flooding for events up to and including the 100 year event. The *Executive Summary* then refers to the implementation of the recommended mitigation measures will likely result in minimal

changes in flood levels, flood flows and velocities and hence “it is not expected that the risk to human life would be increased as a result of the proposed development”.

In *Sub-section 3.5.9* the report lists most of the underlying principles of Council’s *Local Floodplain Risk Management Policy 2006* and then states how *Section 7.8* details how the proposal addresses those principles.

4.2.1 Assessment of Precinct given Council’s *Local Floodplain Risk Management Policy*

The report identifies that as a resource recovery facility, the proposal can be considered to be a Commercial or Industrial development and that it lies within a medium flood risk precinct. (We concur with all those assessments, noting in particular that Figure 7-2 of the *2005 Lower Parramatta River Floodplain Risk Management Study* report defines the major portion of the site which is occupied by the proposed works as being within the Medium Flood Risk Precinct.)

The report then states that “the relevant development controls....would be applied to the design of the Proposal, where possible” and then directs the reader to *Section 7.8* for more details.

4.2.2 Flood Proneness Assessment

In *sub-section 7.8.1*, the report states that the interpolated 100 year flood level for the site has been determined to be RL 3.63m AHD (and we agree with that determination). The report goes on to say that the kerb that runs along the boundary of the site with the Parramatta River has top levels which vary between 3.67m and 3.86m and hence it considers that the existing kerb would prevent ingress of floodwaters from the river for events up to and including the 100 year flood event. They consider that the Council flood mapping – which shows all of the property being inundated in the 100 year event – is “based on topographical data that does not include these kerb levels and therefore could overestimate the impact of the 100 year ARI flood event on the site”. (However we note that the site has ground levels that are quite significantly lower than RL 3.7m and is drained by two stormwater pipe systems which discharge their flows to the river. The plan showing those details (reference Figure 5.4 of the *EIS* report) does not indicate whether either system has a flap valve at its outlet. If there are no such valves it follows that in any river flood event up to and including the 100 year event, the floodwaters could enter the site through back-flooding up the pipe systems. It is also noted that the report refers to two isolation valves (located on the larger of the two pipe systems) which are designed to limit/prevent contaminated water from leaving that part of the site. Possibly both valves could be manually operated in times of impending river flood so as to limit the backflow potential (whilst also noting that such closure of the pipe system would prevent any site runoff during that time of likely heavy rain from leaving the site and hence result in unintended ponding within the site) but it is unknown whether the site has any such procedure in place. Given the above description, it is our conclusion that the height of the kerb at the river frontage end of the site would likely have no positive bearing on the site’s proneness to inundation up to and including the 100 year event. (Original review comments are not contested in the latest submission. No further action is required.)

Although the report has assessed that the river frontage kerb would act as a levee and so preclude any site inundation in the 100 year event it also looks at the possibility of “kerb failure” resulting in site inundation. (We concur with the report’s assessment that the resultant flood inundation regime would correspond to “low hazard” conditions.)

It is noted that the report includes only very brief acknowledgement or examination of issues related to floods greater than the 100 year ARI event. (With regard to flood modelling, it is

acknowledged that the PMF event has been included in the latest submission although the site development has not been explicitly modelled and hence the concluding statement that the development has no impact on the passage of the PMF event is considered to be erroneous. With regard to floodplain development matters, the report's Appendix D provides some discussion of floods bigger than the 100 year event.)

4.2.3 Climate Change Potential Impacts

While the report acknowledges that Council is currently examining the potential impacts of climate change on flooding and flood levels, it nonetheless goes on to state that climate change impacts have already been addressed in Council's *Local Flood Risk Management Policy* by quoting the policy's definition of "freeboard".

However in response we note that the freeboard definition refers to compensation "for uncertainties" and since the current flood modelling will be removing one "uncertainty" we recommend that the project formally examine the impacts of climate change flood levels when they become available from Council. (It is noted that the potential impacts of climate change have been addressed in the report's Appendix D. The analysis estimates that the increase in 100yr flood levels would be between 0.17m and 0.25m. Given that range Council might consider that since they constitute 'at worst' a halving of the design 500mm freeboard that such a scenario is satisfactory for an industrial building.)

4.2.4 Assessment of Development Controls as per Council's *Floodplain Matrix*

While Table 7-15 of the report deals with compliance issues related to each of the Objectives and Principles contained in Council's *Local Flood Risk Management Policy* (and as part of this examines some of "Council's prescriptive controls"), the report itself makes no reference to Council's *Floodplain Matrix* and the full suite of planning and development controls which would apply to such a development as this. This is considered to be a major omission. It is noted that this omission has been corrected within the report's Appendix D {reference Chapters 5 & 6}. The submission is generally satisfactory although there are three areas of 'particular concern' and some areas where clarification comments are now made.

The three areas of particular concern are as follow:

- (a) With respect to Structural Soundness, the report 'only' looks at structural certification associated with the 100 year plus freeboard event. Given that it is intended that the new building provide vertical flood-time evacuation for on-site personnel for all major and extreme flood events, up to and including the PMF event, it is both necessary and very important to recognise that the structural certification should apply to the **PMF event**. Council might consider that this requirement could be covered by way of a development consent clause;
- (b) With respect to Management and Design, the report fails to prepare even an outline of a Site Emergency Response Flood Plan and rather says that it "will be prepared once development approval is granted". While it is recognised that the potentially very complex issue of achieving refuge to above PMF flooding for vehicles has effectively been waived by Council, it is seen to be desirable that at least the outline of a Site Emergency Response Flood Pan be prepared as part of the development approval phase of the project (and under such circumstances a fully detailed plan should be provided at the next stage of approval); and
- (c) With respect to Building Components and Method, the report makes reference to the construction of fences "along the northern and eastern boundaries" and how they "will be designed to be flood compatible in a way that they allow floodwaters (inc. in the PMF) to be safely conveyed without fence-line failure". While we concur with those proposed fence treatments it is unclear what is happening along the southern

and western boundaries. Any proposed fence treatments along those boundaries should also be similarly treated.

Other comments/points of clarification are made with respect to the latest submission re floodplain development matters, as follow:

- (i) The Chapter 5 text states that the “development includes flood mitigation measures that ensure existing flood levels are not increased”. This statement fails to acknowledge that the project-specific flood modelling has identified minor increases in riverine flood levels between the ‘base case’ and ‘design’ scenarios. However it is recognised that subject to verification that the ‘design event’ modelling has been satisfactorily undertaken (as also mentioned below in this Sub-Section), the proposed flood mitigation works appear to achieve a substantial reduction in Grand Avenue locality flood levels. Hence it could be argued that the project potentially achieves a net benefit with regard to addressing the site’s flood-proneness;
- (ii) The Chapter 5 text states that the “flood investigations indicate that the Site is immune from riverine flooding up to and including the 100 year ARI event”. Since elsewhere in the report it is recognised that currently backflooding from the river can only be prevented by manual closure of stormwater system valves, it is most likely that typically the current site is prone to backwater riverine flooding in the 100 year ARI event;
- (iii) The Chapter 5 text states that “the proposed development will not result in an increase to flood levels published in the LPR-FRMS for the PMF”. While the report has identified some fundamental shortcomings in the circa 2005 PMF flood model, rather than make adjustments for the PMF event as part of its modelling of 20 year and 100 year project impacts, it has then used the 2005 results to “determine” that the project will have no adverse impacts on the passage of that flood event. This is considered to be a substantially flawed statement;
- (iv) In addressing issues related cumulative impacts, the Chapter 5 text makes reference to little change in the magnitude of the project work force and truck movements to seemingly argue that there is effectively no cumulative impact associated with the site itself. This line of argument is seen to be at odds with the ‘cumulative impact’ intent in the LFRMP report assessment requirement which relates to the overall picture of floodplain development in the locality, and is not site-specific. It is considered that the report has failed to provide “certification” re matters related to ‘cumulative impact’ for this project since there has been no attempt model such potential impacts. Nonetheless it is important to appreciate that the site is located on the very fringe of the 100 year floodplain. Furthermore, it is noted that the project is expecting to produce very positive changes in the local flood regime in Grand Avenue;
- (v) In addressing issues associated with Car Parking and Driveway Access, the Chapter 5 text states that the maximum site 100 year flood depth (of about 0.8metres) is related to the depth of water relative to the invert of the proposed property frontage inlet structure. This is quite erroneous since the depth of water over the grate of that structure is about 0.7 metres (since the flood level is about RL 3.63m and the grate level is RL 2.95m) while the depth of water relative to the invert (where the IL is about RL 1.6m) is about 2.0 metres.

With regard to Table 7-15 we consider that there are a number of errors and/or omissions, as follows:

- (a) In response to Objective 2 (and its minimal risk issues), the table states “the site provides similar or better flood immunity and access to that of the primary access road to the site”. While this is true the report fails to acknowledge that this situation is actually creating an “island effect” in time of major to catastrophic flooding. In other

words, the site becomes cut off from potential evacuation routes (It is noted that the Chapter 5 text states that Council previously advised the project team that the issue of personnel evacuation was the principle issue relative to vehicular evacuation. Based on that advice, it follows that issues related to vehicular evacuation are no longer 'critical'.);

- (b) Within its response to Objective 5, the table provides responses to some of Council's "prescriptive controls for a medium flood risk precinct". With regard to having a minimum floor level being equal or greater than the 100 year flood level plus 500mm freeboard, the table states that the floor level **may** be raised to be above the 100 year flood level by 200mm rather than the standard 500mm. Under this scenario, the floor slab of the building would be 3.83m AHD. (It is unclear to a reader of the report as to why the table is not being definitive about the proposed floor level.) The table then examines several of Council's prescriptive controls related to finished levels for car parking spaces/carports and access driveway levels. It states that the driveways and carports "would remain at existing levels as the site is not expected to flood during the 100 year ARI flood" – hence implying that the prescriptive controls do not apply to the project. (However as detailed in Sub-section 4.2.2 of this memo, we do not agree with the report's assessment that the works area is not subject to inundation in the 100 year ARI event. Additionally we do not understand how the table can state that the driveway and carports would remain at existing levels given the likelihood of the building floor level being at a level of at least RL 3.83m; that is, the driveway, etc levels would presumably need to be at least partially raised in order to accommodate vehicular access to the main building? The table also states that any raising of carports and driveways would exacerbate "localised flooding" of the site but the reasoning behind this statement is not documented.) (i) The report states/clarifies that the proposed building will have a finished floor level - of RL 4.13m AHD – such that the Council standard freeboard of 500mm would be achieved; and (ii) 'all new' flood modelling has been undertaken of the local catchment issues associated with runoff being conveyed to the river and this modelling is documented in the report's Appendix D. The modelling appears to show that the proposed flood mitigation works - which were not mentioned or discussed in the EIS report – will improve conveyance of local catchment runoff to the river and hence the raising of site ground levels will not have any adverse impact on that local flow regime.

While the report's modelling shows that the works would improve the local area situation, it is strongly recommended that this finding be further reviewed prior to the project's flood mitigation works being approved. It is recommended that this review look closely at the 2D modelling of the proposed 'flood mitigation works' since (i) the text suggests that the works have been assessed using DRAINS and then the DRAINS flows imported into the 2D model. Such a situation would be unsatisfactory since key aspects of the works involve confirmation of the flow regime in the vicinity of the major inlet structure, the performance of the inlet system itself and the performance of the valves at the river bank and these can only be properly examined/assessed using a well-structured 2D model and (ii) the flood impact maps appear to paint an optimistic/incorrect picture of the change in 20y and 100y flood levels within the site. That is, the impact mapping should reflect areas "once dry now wet" and "once wet now dry" to present a truer picture of 'impacts'.

- (c) Within its response to Objective 7 (and its related risk to life issues), the table assumes that "the site would be vacated well before flooding occurs through the application of OH&S emergency evacuation procedures". In relation to Objective 8 (and related damage to property including motor vehicles), the table recognises that there is no flood warning system for the Camellia peninsula but then asserts that "there will be adequate time to visually inspect rising flood waters and implement evacuation procedures prior to motor vehicles being at risk of flooding". (Since the

only vehicular route off the peninsula is cut quite early in a major flood event (as mapped in the *Lower Parramatta River Floodplain Risk Management Study*), it is considered that issues related to site evacuation beyond the site are most unlikely to be easily solved.) However it is also noted that in its response to Objective 7, the table states how refuge from probable maximum flood inundation would be available for on-site persons by them accessing either the elevated viewing/access walkway or the second floor of the two storey main office building. (We therefore consider that the project provides satisfactory and complying flood-time refuge for personnel. Nonetheless, if Council has significant concerns with regard to vehicle evacuation issues, it is recommended that more information be sought regarding the intended strategy for flood evacuation of vehicles.) (As noted earlier in this memo, it is noted that the Chapter 5 text states that Council previously advised the project team that the issue of personnel evacuation was the principle issue relative to vehicular evacuation. Based on that advice, it follows that issues related to vehicular evacuation are no longer 'critical'.);

- (d) In its response to Principle 1, the table states "there is no loss of flood storage at the site...". (However since it is our conclusion that the site is somewhat impacted in the 100 year event, we also conclude that the project works will result in currently inundated areas of the site being occupied by buildings, etc. and therefore there would be some loss of floodplain storage. While that site loss would be insignificant in relation to the passage of the 100 year Parramatta River flood, it is noted that Council's Floodplain Matrix also calls for consideration of "cumulative impacts" and this has not been addressed by the report.) (This same matter is discussed earlier in this memo);
- (e) In its response to Principle 2 (re the potential for broader community flood damage costs), the table states "emergency evacuation, including the removal of motor vehicles and securing loose materials" would serve to prevent "potential debris being transported from the site during extreme flood events greater than the 100 year ARI event". Difficulties related to evacuation of motor vehicles have already been discussed in (c) above, but it is also unclear what "securing of loose materials" implies (re "loose materials", the Appendix D summary treatment refers the reader to Chapter 5 of the appendix and says that goods "would be secured inside buildings". It is noted that Chapter 5 refers to "all goods... will be stored in the proposed CRC buildings ... or existing structures". Since the new building will have a floor level which 500mm above the 100 year flood level clarification should be sought – and also translated into the Site Emergency Response Flood Plan - that the closure of doors will also prevent the escape of loose material in floods whose peak levels higher than the floor level.); and
- (f) In its responses to Principles 3, 5 and 6, the table states that "a site evacuation plan would be developed for the proposal prior to the commencement of its operational phase". This matter (as detailed in (c) above) is seen to be of quite critical importance if motor vehicles need to be evacuated to a flood free area. It therefore follows that if Council has significant concerns with regard to vehicle evacuation issues, it is recommended that details regarding the site's evacuation plan be provided at an early stage of the approval process rather than at the commencement of the operational phase. (As noted earlier in this memo, the Chapter 5 text states that Council previously advised the project team that the issue of personnel evacuation was the principle issue relative to vehicular evacuation. Based on that advice, it follows that issues related to vehicular evacuation are no longer 'critical'.).

Aside from Table 7-15, sub-section 7.8.4 proposes certain flood-proofing measures. Firstly, it proposes raising the river frontage kerb to a top level of RL 4.13m AHD which would mean that the kerb would be 500mm higher than the 100 year ARI flood level. There are several concerns with this proposal: (i) the report states that this is proposed in order to be consistent "with the recommended freeboard in Council's LFRMP of 500mm above the 100

year ARI event flood level". Since the kerb is proposed to be acting as a levee it is unclear what consistency is being achieved with Council's policy (*The Appendix D report clarifies that the kerb is no longer being proposed to be raised since the building's floor level will achieve the standard 500mm freeboard requirement.*), and (ii) for the raised kerb to act as a levee, it follows that the river frontage kerb works need to be complimented by other works which would serve to exclude all such floodwaters (by also having top levels which correspond to the 100 year ARI flood level plus 500mm height) from entering the site. There is no discussion of what those complimentary works might consist of (*This matter is no longer an issue since the building floor level has been raised*); and (iii) if the works therefore theoretically exclude 100 year ARI flood plus 500mm water levels from entering the site, there is no accompanying discussion of the implications of such works on the passage of floods greater than the 100 year ARI event. (*This has been briefly dealt with in the report's Appendix D but as detailed earlier in this memo there has been no attempt to formally model the re-developed site impacts on the passage of PMF floodwaters.*)

Secondly, having proposed the raised kerb protection scheme, the report sees the potential construction of the main building "on a pad that provides 200mm freeboard above the 100 year ARI flood level" as "a further flood measure, if required". It appears to justify the 200mm freeboard approach by asserting that "200 mm is commonly adopted for buildings that are not directly affected by floodwaters". Regarding this matter, please refer to our findings presented in (b) above. (*This has been addressed, as per the red font text inserted in (b) above.*)

4.3 Review of Stormwater Conveyance Documentation

In the *Executive Summary* the report briefly describes the several stormwater pipe systems which currently convey the site runoff to the Parramatta River. It goes on to say that the proposed development's stormwater "will be managed through kerb and guttering around the new CRC building that will connect into the existing central outlet".

Sub-section 7.8.1 (and accompanying Figure 5.4) also provides a general description of the current series of pipes draining the site.

Sub-section 7.8.4 makes reference to the new stormwater works which includes the installation of two rainwater tanks (each with a capacity of approx. 50,000L) which will collect roofwater from the main building plus two leachate tanks (with a capacity of approx. 20,000L) to collect all the water from within the building for treatment and disposal offsite.

The report seeks to demonstrate how there will be minimal trench works given the difficulties of working in contaminated soil conditions. Hence the installation of the two rainwater tanks plus the use of new kerb and gutter works around the main building is seen to serve to significantly reduce (or eliminate?) the need for new buried pipe work and hence reduce (or eliminate) the need for trenching to be undertaken.

Given the following combination of factors it is unclear just how much the extent of new buried pipework (& associated trenching) can be absolutely reduced:

- The main building has a very large area so is all of its roofwater pipework intended to be "hung" within the building so as to convey all the roofwater directly to the rainwater tanks (both of which are shown to be located at the river frontage end of the main building)? *The report's Appendix E confirms that this is what will be done.*;
- Similarly, given the extent of proposed hard stand area and the associated total length of kerb and gutter works around the main building how will all the hard stand runoff be carried towards the river frontage disposal system without installing new buried pipe work? *(The report's Appendix E states (in its own Appendix E) that as*

much as possible of the new pipework will be placed in areas of new fill, hence limiting excavation in contaminated soil areas.);

- How will the roofwater from the roof of the adjacent main office building be disposed of without resorting to the installation of new buried pipe work? (The report's Appendix E states (in its own Appendix E) that as much as possible of the new pipework will be placed in areas of new fill, hence limiting excavation in contaminated soil areas.)

It follows that if the full extent of intended new buried pipework is of particular importance (due to the need for trenching in contaminated soils); it is recommended that more definitive information be sought by Council. (Current level of documentation is regarded as satisfactory. It is recommended that the proposed stormwater works be fully reviewed at the design review stage of the project.)

5 Conclusions

As detailed in these comments, the following concerns relate to this project:

- (i) With regard to floodplain risk management issues, Sub-section 4.2.4 of this memo lists a number of concerns. While we recommend that all those concerns be addressed, our major concern relates to the failure of the report to acknowledge and address the set of relevant development controls which are listed in Council's Floodplain Matrix. Of those controls, the issues related to floodtime evacuation of vehicles are seen to be particularly complex (but as documented in this memo this is no longer seen to be a 'critical' issue). Hence it follows that if Council requires safe refuge for vehicles as well as personnel, it is recommended that those evacuation issues be adequately addressed. It is recommended that the project address all of the relevant Floodplain Matrix controls at this stage of the approval process. While it is acknowledged that the latest submission addresses all the Council floodplain control requirements, we have seen the need to list items (a)-(c) and (i)-(v) in Sub-Section 4.2.4. Items (a) to (c) are considered to be such that they should be either addressed at this point in time or explicitly covered within development consent clauses. Council might also be of the view that some of the (i)-(v) items should be more formally documented; and
- (ii) With regard to stormwater conveyance issues (reference Section 3.3 of this memo); it is recommended that additional information be submitted at this stage of the approval process if the full extent of project sub-soil trenching is a critical factor. (As per the review completed in this memo, reference Sub-Section 4.3, it is considered that sufficient information has been provided at this stage of the project. However a formal detailed review should be undertaken at a later stage of the project.)

As detailed in Sub-Section 4.2.4 of these comments, we consider that insufficient information has been provided regarding the process of modelling the proposed flood mitigation works. It is recommended that this be addressed prior to the currently proposed flood mitigation works being approved.

We also note that we reviewed the floodplain aspects related to the proposed site permeable reactive barrier works along the river bank (under DA/54/2013). It is presumably important to create a continuous barrier and on that basis we note that we have not sighted any commentary regarding the 'accommodation' of the newly proposed trunk drainage outlet works within those barrier works. It is recommended that this matter be addressed by the provision of additional information by the applicant or covered explicitly by consent clause wording.