

Council's Traffic Section do not consider a pedestrian crossing of Willoughby Road south of Small Street impractical. In addition it is considered that the additional pedestrian crossing is required as a result of the redevelopment in order to provide convenient access from the southern side of Artarmon Road across to the southern side of Small Street, and the facilities in the vicinity such as Bicentennial Reserve (with the children's cycle path, passive and active recreation options), the Willoughby Leisure Centre and the Incinerator Art Gallery and cafe. Therefore the additional pedestrian crossing should be provided.

The results of the analysis are summarised from P. 12 of the report:

- In the PM peak hour (5-6pm), the intersection level of service goes from:
 - B with a 400 dwelling development to C with a 510 dwelling development
 - C with a 510 dwelling development to D with a 510 dwelling development + adjacent development
- In the Saturday peak hour (11am-12pm), the intersection level of service goes from:
 - C with a 400 dwelling development to D with a 510 dwelling development
 - D with a 510 dwelling development to D with a 510 dwelling development + adjacent development
- In the PM and Saturday peak hours, the intersection degree of saturation rises to above 1 (i.e. over capacity) when moving from a 400 to a 510 dwelling development. The high degree of saturation is related to the right turn movement from Willoughby Road (southbound) into Artarmon Road. The remaining movements operate with spare capacity.
 - When a 510 dwelling development + adjacent development is considered, The high degree of saturation is related to the right turn movement from Willoughby Road (southbound) into Artarmon Road as well as the right turn from Artarmon Road (eastbound) into Willoughby Road. The remaining movements operate with spare capacity.
- In the Saturday peak, the increase to 510 dwellings will result in vehicles experiencing increased delays and queue lengths on Artarmon Road – with queues forecast to extend back nearly 170m.

Arup have concluded in regards to queue lengths:

"should the intersection upgrade proceed as per the applicant's proposal, queue lengths on Artarmon Road are expected to extend back to the site access point (roundabout) 40m west of Scott Street. However, should a pedestrian crossing on the southern approach of the intersection be provided (as RMS generally require), queue lengths extend back nearly 170m on Artarmon Road. This queue length has the potential to impact the ingress and egress of vehicles into and out of the site."

Arup conclude:

- *"The intersection upgrade does significantly improve vehicle travel times and reduce delays for vehicles on Small Street – more than halving delays compared to the current situation."*
- *Should the Willoughby Road / Artarmon Road intersection upgrade not proceed in any form, the intersection will not operate at satisfactory levels and the additional development of the site would not be appropriate."*

Council considers the responsibility of the upgrade of the Artarmon Road / Willoughby Road intersection as the responsibility of the proponent, due to the increased pressure on this intersection coming as a result of the development.

The original approval contained the following condition:

- "33. *Future Development Application/s for each stage of development shall include a traffic study which includes figures on the current number of vehicles movements through the Artarmon Road / Willoughby Road / Small Street intersection. The traffic study is to be carried out to the RMS's and council's satisfaction and shall model the impact of the anticipated increase in vehicle traffic for that stage. Where the study reveals that the proposal would result in an unacceptable deterioration of the level of service at the intersection, concept design of the upgrade or modification of the intersection to mitigate those impacts is to be included with the Development Application. If considered appropriate by RMS and council, the works are to be completed by the proponent prior to occupation of any of that stage.*"

Following the Arup study, Council considers that there is a deterioration in the intersection and places the responsibility for the upgrade on the owner as this is a matter directly linked to the existing approval as well as the modification. Council does not support inclusion of the cost of this upgrade in any Voluntary Planning Agreement, including any acquisition required, utility service adjustments, any associated construction and any new features such as the pedestrian crossing.

8. Open Space/ Site Linkages

The Modification has been referred to Council's Open Space Section who advise as follows:

"The amended design removes the corner park and two other internal parks, replacing them with a central public space with the addition of a southern cliff top park (Village green) and a new Village Square.

Conceptually this is considered a positive, however reservations are raised with regard to the real public benefit of the proposal in light of the increased density being sought under the amended plans and the Applicant's Public Benefit Offer. In addressing public benefit, consideration has been given to both the broader public and the future residents of the site.

The central spine park appears positive in site planning terms, however, the height of the buildings proposed, with particular reference to the tallest of the towers, dominate the space far more than built form does to the main public park on the Artarmon Road frontage of the approved scheme.

The actual resultant greenspace is relatively narrow in consideration of the proposed building height. The space is less obviously public than the approved street front park, both in terms of exposure to the public interface, topography and the perceived privatisation of the space by the towers and other residential blocks overlooking the space.

If the proposed central spine is to be provided as a realistically comfortable, inviting and useable public space, either the quantum of green space provided should be greater (i.e. wider) or the height of building reduced, to provide a more human scale and publically inviting and useable space."

The width of the majority of the central spine park is approximately 30 metres, when gardens being part of the proposed buildings are excluded. Buildings D and E are shown as having four levels 35 metres apart, with a further 7 and 8 levels above with minimal setback. This is compared to the existing approval, which had a 127.5 metre wide by 25 metre deep reserve on the Artarmon Road and Richmond Avenue corner. In addition this park was further setback from the surrounding proposed 3, 4 and 6 storey buildings by internal pathways and roads (between 12 and 16 metres). It is considered that the public usability of the proposed park is inferior to the approved park, although the opening up of the site to southern views is of merit (see further comment below).

The amended public open space quantum is stated in the Modification Application prepared by JBA (P.16 & P.18) as increasing by 28%. This statement is not supported by the figures provided in the documentation.

Drawings 5.25 CAD Calculation Approved Scheme and 5.26 CAD Calculation Proposed Scheme contained in the Masterplan Report prepared by CHOFRI indicate that the total soft and hard Public Open Space (POS) increase by only 9.1% and that the area of soft landscape in the POS actually decreases by 8.3%. (Table 1)

Additionally, the proposal indicates in the amended Terms of Approval at Clause A5 that the Gross Floor Area for New Residential is proposed to be increased by 24.3% and the number of proposed dwellings at Clause A6 to be increased by 27.5%. (Table 1)

	Previous Scheme	Proposed Scheme	%
Soft POS	5,642m ²	5,173m ²	8.3% decrease
Hard POS	788m ²	1,844m ²	134% increase
TOTAL POS	6,430m ²	7,017m ²	9.1% increase
Dwellings	400	510	27.5% increase
GFA New residential	35,886m ²	44,617m ²	24.3% increase

Table 1 – Public Open Space, Dwellings and Gross Floor Area, approved and proposed. Source Masterplan Report S75W Submission - CHOFRI

Council's Open Space Section has commented:

"It is apparent from these figures that the increased density of the proposed modification is not supported by a corresponding increase in the public open space provided and that proportionally the POS is less than that provided in the approved scheme. The conclusion drawn from this is that the private benefit of an increase in site density and yield is not supported by a proportionally equivalent public benefit.

Whilst it is agreed that the development has the capacity to provide a meaningful link to the open space network below the site, the proposal is quite vague with regard to the provision of the link. If it is the intent of the proposal to rely on this link as a justification for increased density and height on the site as a public benefit, more information is required.

The offer provided in the Applicant's Public Benefit Offer of \$1m to provide the link and improvement to the public open space is vague as no breakdown of cost is provided. It is apparent that the works required to provide access through the reserve to the access network below requires significant engineering and rehabilitation works to both realise and maintain.

If the proposal is to rely on the increase in density with public benefit to support such increased density, the quantum of contribution to public benefit needs to be clearly elucidated. Based on the information provided, such benefit to the public has not been adequately established."

A further difficulty in achieving a link to the regional network to Artarmon Reserve to the west is that a portion of the land required is in private ownership (being 21 Chelmsford Avenue which abuts the Gore Hill Freeway wall). This property or part thereof would need to be purchased to enable this to happen. No evidence has been provided by the proponent to suggest this is likely to happen, or acquisition costing provided. In addition, if linking a pathway / cycleway on the northern side of the Gore Hill Freeway is not possible, no detail or costing is provided on possibilities of linking to the existing pathway / cycleway on the southern side of the Gore Hill Freeway.

The Open Space Section has concluded:

"In summary, the information provided with the application is not considered to support a proportional public benefit to both the broader public and the new residents of the site that justifies increased density compared to the approved scheme."

Further, regarding the Applicant's Public Benefit Offer:

"The offer indicates that the applicant defers costs of maintenance of the publically accessible open space and indicates that the costs should be borne by Council. (Paragraph 7)."

In the original Council submission on the Concept, Council stated that it did not want the land to be dedicated to Council because of the long term maintenance costs and because the park was also for the use of the redevelopment site. It is surprising that the proponent says in the Public Benefit Offer:

"it may be more appropriate that this land be dedicated to Willoughby City Council to be owned by the whole community in perpetuity. This is to be negotiated with Council prior to the commencement of works."

The existing approval states:

"13. The future Development Application for the park is to incorporate an appropriate legal mechanism for creating a right of public access to the open space, with the relevant instrument/s to be executed prior to occupation of any part of Stage 2. The future Development Application is also to incorporate appropriate measures to ensure the park is managed and maintained to a high standard by the future body corporate."

Council continues to support all publicly accessible land on the site being owned by the proponent, with all open space provided by the development being maintained in the future by the development.

The Public Benefit Offer also indicates that management of the Council owned open space below the site be subject to a management strategy for the reserve as agreed with Council. (Point (b), Page 2). This is not acceptable with regard to the public interest being subject to the agreement of the private beneficiary. Any management strategy for the Walter Street Reserve is to be determined solely by Council.

The staging of publicly accessible open space areas is discussed under Point 16 Development Staging below.

The drawings provided with the proposed scheme indicate an extension of a landscape element beyond the subject site over the public open space to the south. The element appears to be a viewing platform suspended over the steep drop of the adjoining Walter Street Reserve.

Council raises concerns regarding liability and maintenance issues of a structure over public land and would prefer that the viewing platform be excised from any plans being considered for approval.

It is noted that the Willoughby Road / Artarmon Road intersection upgrade proposed in the Modification requires the acquisition of land owned by Council and making up part of open space forming part of Bicentennial Reserve. Any assessment of public benefit should have regard to the cost of this loss of open space and affected trees to the community. Concern is raised with the loss of any public open space intended to address the traffic impacts directly the result of a proposed development. Concern is also raised with the loss of trees in this area, which provide a green screen to Bicentennial Reserve beyond. Within close proximity is the children's cycling path and picnic area as well as playing fields.

9. Tree management

An Arboricultural Impact Statement has been provided with the Modification. The Report indicates that in addition to trees to be removed under the previous scheme, 4 additional trees are to be removed to accommodate the development. The trees are identified in the report as Trees 25, 26, 32 and 96.

T25 & T26 were rated as High Significance with Moderate retention Value and T32 and T96 rated as High Significance and High Retention Value.

T32, a Sydney Blue Gum (*Eucalyptus saligna*), was retained in the previous scheme in an open space area indicated on the approved plans as Tree 32 Park. This tree is now proposed to be removed to accommodate amended building footprints.

Appendix E of the Arboricultural Impact Statement shows trees to be retained to be located around the boundary of the site, with all trees within the site to be removed.

Concern is raised with the removal of all existing mature trees within the main part of this large site. While it is noted that approximately 100 replacement trees of varying heights at maturity are proposed to be planted following construction, it will take some years before the new plantings reach anything close to maturity. The Council sees value in the retention of the existing T32 tree, being a Sydney Blue Gum (*Eucalyptus saligna*), retained in the previous scheme and protected within an open space area indicated on the approved plans as Tree 32 Park. The removal of this tree is considered a negative outcome of the Modification. The existing design ensures the retention of this tree. The new design would result in the loss of this tree.

10. Developer contributions

The existing approval does refer to Section 94 Contributions and the like as follows:

"34. Future Development Applications shall be required to pay developer contributions to the council towards the provision or improvement of public amenities and services. The amount of the contribution shall be determined

by council in accordance with the requirements of the Contributions Plan current at the time of approval."

Willoughby Council's S94A Plan was approved in 2011 and commenced in Feb 2012, as such, a contribution of 1% of the proposed cost of development is payable on the entire development as finally approved.

Separate to the issue of Public Benefit, the Proponent is liable for:

- Section 94A contribution of 1% of development cost; and
- Affordable Housing contribution of 4% of overall residential GFA.

11. Telecommunications tower transmissions

On 8 October 2007, while the telecommunications transmission tower was part of the Channel 9 site, Council resolved to advocate for the cessation of EMR transmissions from the tower and its demolition, unless such cessation gave rise to significant increased radiation hazard elsewhere. It should be noted that this position has not changed.

In 2011 the tower was subdivided from the lot at 14 Artarmon Road and became known as Lot 11 DP 1162507. The site is now owned by TX Australia (a joint venture company of the Seven, Nine and Ten television networks).

It is Council's understanding that while discussions may have occurred regarding the removal of the telecommunications transmission tower, the tower currently functions in this capacity and will continue to do so into the foreseeable future.

In the original application, a Radiofrequency Hazard Report dated 9 November 2012 was undertaken by Kordia Solutions. A hazard assessment was undertaken with an on-site field survey of the electric field generated by communication equipment mounted on the tower. The consultant concluded that *"measurements found that the electric field readings were within the General Public Reference Level" as set by the Australian Protection and Nuclear Safety Agency (ARPANSA).*

An Electromagnetic Radiation Analysis dated 29 June 2016 has been prepared by Kordia Solutions and is submitted with the Modification.

The JBA report summarises as follows:

"The revised readings undertaken as part of this application have confirmed that there is no substantial increase in the maximum radio frequency field level, which is anticipated to be approximately 5% of the general public reference level at the roof level of the proposed development site. This remains well within the ARPANSA standard, the General Public Reference Level, re-confirming that the proposal for residential accommodation, small scale commercial uses and a child care centre can be suitably accommodated on the site."

Kordia Solutions have concluded there is no science based reason to exclude from the site or establish an exclusion zone on this site regarding uses such as child care centres. Based on the current television tower and measurements taken, the radio frequency levels to be expected at readily accessible areas at or near ground levels of the Modification would be below 1% of the General Public Reference Level. This is well below safety limits.

The existing approval states:

- "40. Future Development Applications shall include electromagnetic radiation reports and incorporation of appropriate building design measures to demonstrate that residents of all new dwellings will not be exposed to radiation levels (general public reference levels) as recommended by ARPANSA and meet the requirements of Australian Standard RP3 (Electromagnetic Radiation – Human Exposure Standard 2003)."*

The Modification was referred to Council's Environmental Health Section who advised that:

Based on the policy of prudent avoidance the lack of information for Council to confirm or deny the short term effects of ERM, and that this development is in such close proximity to the broadcast tower, information should be required in relation to the sensitive increased residential use of this site and the establishment of a child care centre both now and at DA stage to avoid any possible risk to human health from exposure to the adjacent towers broadcasting function.

It is therefore considered necessary to require prior to any approval and not just at DA stage, more detailed information specific to this modification which satisfactorily addresses the intent behind the existing Approval condition. This would include an explanation of how the Concept design has responded to the telecommunications tower, including residential buildings, the location of publicly accessible areas with particular regard to open space and any child care centre.

If it is decided that such information should be provided later at DA stage, then the condition in the existing approval should be amended to include specific mention of sensitive uses such as child care, commercial uses and publicly accessible areas.

12. Social impact and infrastructure considerations

In its previous submission, Council raised concern about the increased demand of the redevelopment of the Channel 9 site on schools in the area. Council argued that leaving public school capacity to consideration at the state level was an unsatisfactory position given the expected school age population of the development and the existing and likely future pressures on public schools in the area. The approval was granted with no condition or commitment that further addressed this issue.

The Modification seeks to increase the number of dwellings on the site to 510.

The proponent argues:

"It is not the policy of the NSW Government to levy private developers for the cost of education infrastructure within established urban areas. The Department of Education is aware of the current approval for the redevelopment of the site, and will have sufficient time to plan for the projected minor increase in student enrolments arising from new dwellings on the site ... It is not expected that the first stage of dwellings on the site would be occupied until 2022/23 at the earliest."

The following points are made in regard to school infrastructure:

- The NSW Department of Education should be notified of this Modification at exhibition stage and comments invited to ensure appropriate long term planning.
- It is considered that limiting the number of dwellings on the site to what has already been approved would mitigate the likely impacts of the approval on local school services.

- If an approval is to be given to the Modification, it is considered reasonable for the proponent to financially contribute to a local public school in the area to contribute to the additional demand. To this end, it is requested that consideration by both the NSW Department of Planning and Environment and Department of Education occur prior to any further approval on this site.

It is considered that the proposal will have infrastructure impacts on the immediate surrounding footpath and road network. Council's Engineers require the reconstruction of footpaths as well as road pavements in the surrounding streets fronting the subject site after construction. These matters need to be addressed in the terms of approval as notice for subsequent development applications.

13. Loss of employment generating lands

In its previous submission, Council raised concern with the loss of employment generating lands. An approval was granted despite the concern raised by Council.

Regarding the Modification Council supports the proposed non-residential uses on the site (being The Loft building and 500m²), subject to the other issues such as television tower emissions being addressed.

Council restates its original position that the continuation of Channel 9 on the site is encouraged as part of the site redevelopment or alternatively in the nearby Artarmon industrial area where a number of businesses associated with television production exist. The loss of Channel 9 from the City will result in the loss of approximately 600 jobs on the site, as well as impact on the associated television production activities in Artarmon, potentially leading to further job losses in the City.

14. Heritage

A Supplementary Heritage Impact Statement has been submitted with the Modification. The Supplementary Heritage Impact Statement was referred to Council's Heritage Architect for comment, who advised:

"The subject site is located to the east and south-east of the Artarmon Conservation Area with the eastern section of the Conservation Area one block west of the development. As noted previously, the statement of significance for the Artarmon Conservation Area is as follows:

The Conservation Area is outstanding for its intactness, with few unsympathetic intrusions occurring. The wide range of largely intact Californian and Inter-war bungalows as well as Federation housing in general good condition, occur in either groupings of consistent styles or subtle blends of successive periods to produce a mix of interesting and varied streetscapes. The area is significant as a harmonious and unified 1910-1920's lower North Shore residential area whose development relates to the development of the railway

The increased height of the modified development will have a visual impact as viewed from within streetscapes and other areas of the public domain, that is the greatest visual impact of the modified 12 storey buildings would be from the south-eastern portion of the Artarmon Conservation Area, where the proposed towers would have a greater additional heritage impact on the visual setting. It is accepted, however that the extra height is, to some degree, mitigated by the design of the lower

scale 2 storey buildings with a third storey setback to Richmond and Artarmon Road which along with landscaping assists in screening a portion of the towers.

I concur with the accompanying modified heritage impact statement, the modification of the arrangement of the proposed buildings whereby the taller buildings are concentrated in the centre of the site and smaller scale buildings along the street edge will have a positive impact in reducing heritage streetscape impact, but on balance the additional height of the 12 storey towers will have a detrimental visual impact on the south-eastern portion of the Artarmon Conservation Area."

15. Aboriginal Heritage

An Aboriginal Archaeological Due Diligence Report was submitted with the original application. This report considered the site to have very low to no level of potential for containing subsurface Aboriginal archaeological deposits.

This Report was referred to Council's Aboriginal Heritage Officer who provided the following additional comments:

"Should any Aboriginal sites be uncovered during earthworks, works should cease and Council, the NSW Office of Environment and Heritage (OEH) and the Metropolitan Local Aboriginal Land Council should be contacted".

The Modification does not differ from the Approval regarding the boundary of the site and where development or works are generally to occur.

The existing approval includes in the accompanying Statement of Commitments regarding archaeology:

"If Aboriginal objects are identified during the development, works must stop immediately and the Office of Environment and Heritage and an archaeologist be contacted."

There is no request to change this Commitment in the Modification. The retention of this Commitment continues to be supported by Council.

16. Contamination

A Remedial Action Plan was submitted with the original application.

The original application was referred to Council's Environmental Health Section, as was this Modification. The comments made still stand.

The existing approval states:

"39. Future Development Applications shall demonstrate compliance with the requirements of SEPP 55 and are to include a detailed contamination assessment including detailed remedial action strategy, and incorporation of any necessary remediation as part of future Development Applications."

It is therefore considered that prior to any approval of this Modification:

- An independent review of all stages of site investigation process be conducted. A site audit should be undertaken to review the preliminary investigation, detailed investigation, remedial action plan and validation report. Therefore a site auditor

accredited by the EPA under the Contaminated Land Management Act should be engaged to review all contamination matters.

Furthermore, a Site Audit Statement should be issued by the site auditor prior to any approval of the Concept Plan.

- Potential contamination from lead based paint used to paint the TV tower should be included in any contamination documentation provided by the proponent and considered in any compliance with SEPP 55, and contamination strategy and any independent review of contamination issues.

17. Affordable housing

The existing approval states:

"36. Future Development Applications shall provide dwellings equivalent to a minimum of 4 percent of new residential floor space to council at no cost, to be made available by council as affordable housing consistent with the Willoughby Local Environmental Plan 2012."

The Modification does not propose to change this condition.

Concern is raised with the affordable housing reference in the Modification to number of units and not m² – which may result in an affordable housing provision being less than expected in WLEP 2012. Based on the proposed residential floor space of 44,626m², a total affordable contribution of 1,785m² is required. The number of units will be determined at development application stage, following consultation with Council to determine an appropriate unit mix of bedrooms and therefore size.

This should be clarified at this stage with the proponent to ensure no misunderstanding and reinforced in any approval.

18. Adaptable housing

The existing approval states:

"35. Future Development Applications shall provide a percentage of adaptable housing consistent with the Willoughby Development Control Plan."

The Modification does not propose to change this condition or the section on accessibility and adaptable housing in the Statement of Commitments.

19. Sustainability

The Modification states that the approved concept plan established principles for ESD performance on the site and that these principles continue to be reflected and are able to be achieved.

Council's submission on the original application recommended that the Terms of Approval and Statement of Commitments included a requirement for the applicant to incorporate in the design:

- Provision for stormwater harvesting from hard surfaces and roof tops for landscaping irrigation (particularly the park), toilet flushing and laundry services for units;
- Solar gas boosted hot water facility for all units;
- Solar collectors for lighting of communal areas and basement parking;

- The first application to outline how the development will meet the principles of sustainable design including:
 - o Green Building Council minimum 5 star rating;
 - o Demonstrating that the passive design will reduce the demand for electricity, water and gas;
 - o Some form of renewable energy onsite or other decentralised energy systems;
 - o Water Sensitive Urban Design on site.

The existing approval states:

"28. Future Development Applications are to incorporate an ESD plan to demonstrate the incorporation of best practice ESD principles in the design, construction and ongoing operation phases of the development."

The existing approval also states in the accompanying Statement of Commitments regarding sustainability:

"Future Development Applications for residential development on the site will demonstrate that the project exceeds the minimum BASIX targets."

The Council requests that the specific requirements previously identified be included in any approval.

20. Development staging

The Modification proposes staging the development into 3 stages:

- Stage 1 - Part of site fronting onto Artarmon Road and majority of Richmond Avenue.
- Stage 2 - Middle section of site.
- Stage 3 – Rear of site, remnant section of site fronting onto Richmond Avenue, section of site having boundary with Castle Vale to east.

This staging is also qualified as being dependent on market conditions.

The proposed public and communal open space within each of the above stages is proposed to be completed prior to issuing of an Occupation Certificate for the dwellings within that stage.

As Council raised in its submission on the original application, public open space areas should be provided in Stage 1 of the development, to service the recreational needs of the residents of the first stages of the development, the needs of the locality with potential access via Richmond Avenue and any linkages through the Walter Street Reserve, and to ensure that it is in fact provided. If left to the last stage, concern exists that these public open space areas may not be constructed and that they may not be available for a number of years.

The development is expected to be subdivided with a Community Title scheme with an Owners Corporation to oversee community property such as roads and open space areas and potentially other separate residential body corporate entities. Reciprocal rights between lots for stormwater, services, access and waste collection will be required. Planning for reciprocal rights should be explained in detail for each stage.

21. Stormwater Management

The existing approval also states in the accompanying Statement of Commitments regarding stormwater and flooding:

"Future applications for development shall include a detailed Stormwater Management Plan addressing on-site stormwater detention measures, opportunities for rainwater reuse, water quality management measures to be implemented including Water Sensitive Urban Design."

Council's development engineers have provided the following comments in relation to stormwater management. These matters need to be addressed in the terms of approval as notice for subsequent development applications:

"A preliminary review of the Part 3A concept plan and the Integrated Water Management (IWM) Plan prepared by Cardno have identified the following concerns with regard to on-site stormwater management which shall be considered/addressed with future development applications:

It is noted from the submitted IWM Plan that the subject site is defined by 4 stormwater catchment areas. As such, comments have been made to each catchment area as follows:

Catchment A

i. Council's catchment map revealed that there is no apparent overland flow path within the Council Reserve (Walter Street Reserve). In order to minimise any adverse impacts to the Council Reserve caused by the proposed development, all stormwater runoff generated from this catchment shall be collected and discharged to Richmond Ave via an approved on-site detention (OSD) system and rainwater retention and reuse system. The finished level of the internal road and buildings shall be designed and graded in such a way that gravity drainage to the Richmond Ave is achievable.

ii. In light of point (i) above, Council's records indicate that there is existing drainage infrastructure at the end of Richmond Ave. As such, stormwater that discharges to Richmond Ave shall be connected to the existing kerb inlet pit via the extension of an appropriate size of reinforced concrete pipe. The existing kerb inlet pit shall also be upgraded to cater for the proposed development.

iii. In order to partially offset the total required OSD volume by installing the rainwater retention and reuse system, roof water from the rainwater retention and reuse system shall be connected to non-potable use such as garden irrigation as well as toilet flushings and laundry cold water devices to all units. The applicant is required to submit a Total Stormwater Management Plan including a water balance analysis with the development application. Note that a maximum of 25% offset (to OSD) is given if the Total Stormwater Management Plan is considered satisfactory.

iii. An OSD system shall be provided to collect stormwater runoff generated from all hard surface areas including internal roads and discharged to the street drainage system in Richmond Ave.

Catchment B and D

i. Stormwater runoff generated from this catchment shall be collected and discharged to the underground drainage system in Artarmon Road via an approved OSD system and rainwater retention and reuse system. The applicant is required to construct a new kerb inlet pit within the frontage of the site via the extension of an appropriate

size of reinforced concrete pipe from the existing kerb inlet pit located in the intersection of Artarmon Road and Willoughby Road. This existing kerb inlet pit shall be upgraded to cater for the proposed development. The applicant shall submit supporting calculations with the formal application demonstrating that the new pipeline will have adequate capacity to cater for the runoff generated from the development site.

ii. In order to partially offset the total required OSD volume by installing the rainwater retention and reuse system, roof water from the rainwater retention and reuse system shall be connected to non-potable use such as garden irrigations as well as toilet flushings and laundry cold water devices to all units. The applicant is required to submit a Total Stormwater Management Plan including a water balance analysis with the formal application. Note that a maximum of 25% offset is given if the Total Stormwater Management Plan is considered satisfactory.

iii. An OSD system shall be provided to collect stormwater runoff generated from all hard surface areas including internal roads and discharged to Artarmon Road.

Catchment C

i. For any stormwater runoff generated from this catchment which is to be discharged to Walter Street via the "interallotment drainage line", the applicant shall submit documentary evidence by way of title documents with the formal application demonstrating that the subject property benefits from such interallotment drainage line.

ii. The applicant shall also demonstrate by way of supporting calculations that the interallotment drainage pipeline has sufficient capacity to cater for the uncontrolled stormwater runoff generated from the catchment for storm event up to 1 in 100 yr ARI. The interallotment drainage pipeline shall be upgraded if it is found to be under capacity.

iii. The existing kerb inlet pit in Walter Street where the interallotment drainage pipeline is connected to shall be upgraded to cater for this proposed development.

iv. An OSD system shall be provided to collect stormwater runoff generated from all hard surface areas including internal roads and discharged to Walter Street via an approved and legalised interallotment drainage easement.

Detailed stormwater management plans including a Total Water Management Plan and water balance analysis addressing the above mentioned matters shall be submitted with the formal application for assessment."

The engineering comments are recommended to be reflected in Terms of Approval.

22. Noise

Council's Environmental Health Section previously required the provision of a noise report as follows:

"The proposal ... has the potential to increase traffic and therefore increase noise on the existing local road network. A noise assessment at concept plan stage should be made with reference to the NSW Road Noise Policy published by the Department of Environment, Climate Change and Water NSW, March 2011 (now known as the Office of Environment & Heritage). Therefore, an acoustic report prepared by a suitably qualified acoustic consultant should be undertaken which addresses the