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**Contact: Phillip Johnston**

**Ref: SSD-88004956**
**Council Ref: S15383**

30 July 2026

Department of Planning Housing and Infrastructure
Locked Bag 5022
PARRAMATTA NSW 2124

Via: NSW Major Projects Portal
**Attention:** Aaron Hogan

**RE: SUBMISSION TO SSD-88004956**

Dear Aaron Hogan,

Thank you for the opportunity to comment on State Significant Development (SSD) application (**SSD-88004956**) for redevelopment of the Lourdes Retirement Village, including refurbishment of the existing residential care facility and construction of new independent living unit buildings with resident facilities at 95-97 Stanhope Road, Killara.

This correspondence should be considered an **objection** to the proposed development.

**Attachment 1** provides a detailed explanation of the grounds of this objection. In summary, the key issues include:

i. Bushfire risk – topography/climate change
ii. excessive excavation
iii. loss of flora and fauna
iv. traffic
v. visual presentation/character of locality
vi. heritage
vii. waste room designs
viii. additional information required

Should the Applicant submit a response to submissions (RtS), Council respectfully requests the opportunity to review and comment on any amendments or additional information provided prior to determination of the application. Following this review, Council will advise whether the matters its raised have been satisfactorily addressed.

Further to the above, Council can assist and provide recommended conditions of consent upon request.

Subject to the satisfactory resolution of the issues, Council may withdraw its objection to the proposal.

If you have any questions in relation to this matter, please contact Phillip Johnston on 02 9424 0989.

Yours sincerely,

Shaun Garland
**Manager Development Assessment**

**ATTACHMENT 1**

**Ku-ring-gai Council's objection to SSD-88004956 at 95-97 Stanhope Road, Killara.**

## Strategic Issues

The current design provides some improvements from the previous planning proposal. These include, removing built form on the site perimeter with consideration to onsite asset protection zones, height reductions to 4 and 5 storeys, and removal of roadway previously proposed along the single dwelling boundary to the west. However, as commented below it is requested that the development maintain a maximum 2-storey appearance:

- to ensure a reduction of onsite population to reduce risk to these and existing neighbouring residents, and

- to ensure the built form is able to assimilate into the landscape character of this prominent and highly visible bushland setting, adjacent to heritage items and the national park.

- For this reason, the built form should be kept to 3 storey, with minimal 4-storey elements, and definitely not 5-storey on any part of the site, as indicated in the elevations.

**Impacts due to housing vulnerable populations on a high risk site**

This site has been the subject of extensive consideration under the planning proposal process, commencing in 2015 with the final refusal by the Minister's delegate in June 2024.

The site is intrinsically not suited to housing a vulnerable aged population; however, due to existing use rights, the landowner is able to pursue a renewal of the facility.

Council has strongly objected to any increase in aged population numbers on this site as Council's detailed investigations has demonstrated the inability to successfully evacuate the onsite population and the risks posed to neighbouring residents; and the questionable approach of sheltering onsite given human behaviour and the natural tendency to run rather than be engulfed by fire.

Council's bushfire expert presented evidence to the SNPP rezoning review on human behaviour and the high likelihood that people would choose to escape from the site and would not be able to be forced to stay within a shelter under bushfire threat. This proposal does not provide substantiated evidence to demonstrate how this volume of population would be kept onsite, and consequently not impact the escape of other neighbouring residents.

During the planning proposal process the following were established as the actual existing dwelling counts. It is unclear how the proponent's current report now states a figure of 172 aged dwellings on the site.

| Current residencies – PP 2022 658 | | |
|---|---|---|
| Housing Type | Number of Dwellings | |
| Independent Living Units | 108 | Total Units: 157 |
| Serviced Apartments | 49 | |
| Residential Aged Care Facility Beds | 83 | |
| Town Houses | 0 | |

It is noted that the proposal seeks to provide 145 ILUs reducing the number of dwellings. This is supported, however, it is also noted that the units comprise 2-bedroom + study and 3-bedroom, effectively 145x3 room units, suggesting a population of minimum 2 people plus space for visitors.

The proponent must state population numbers alongside its dwelling numbers, and cannot ignore the populations that live in the excised buildings including the RAC fronting Stanhope Road, these numbers must be included in assessing bushfire risk and evacuation. Population numbers will illustrate the volumes of people on the site and the requirements to keep them safe.

In addition, the resident numbers are important as the site is not well located in terms of accessibility to transport and services due to its out of centre location. Future residents of the site and employees will continue to rely on private cars to access jobs, basic services and facilities.

- A transparent analysis is required on the number of people that were accommodated in the existing units, now to be removed, and the number of people that are likely to be accommodated in the new development. This will provide a clear indication of the volumes to be evacuated/housed on site, and the risks posed to the surrounding community that share the road network. It will also demonstrate that the population number (not dwellings) will be reduced on the site.

- It will also demonstrate weather this proposal conflicts with the local and state level policy seeking to place populations within 800m of local centres where there is access to facilities and services, and whether it is trying to create a pseudo neighbourhood or local centre on the site.

- Details of a substantiated back-up evacuation plan (including impacts on surrounding residents) needs to be provided, given human behaviour and their natural tendency to escape and not remain in place when fire dinger is imminent.

- Bushfire threat and evacuation are still a primary concern for onsite and neighbouring residences. Transparency is required on evacuation management and destination displacement locations. As required during the planning proposal process, input from Fire and Rescue and NSW Health on evacuation or on-site retention of this volume of elderly people during a bushfire event must be sought to ensure there is inbuilt resilience in the proposal.

**Impacts to neighbouring single dwelling at 91 Stanhope Road**

Entry/exit into the basement at this proposed western boundary location will highly impact the amenity of the adjacent neighbouring dwelling and its rear garden private open space with the majority of vehicles entering/exiting at this point. This volume of traffic movement accelerating and braking adjacent to the dwelling and its private open space will highly impact the amenity of this dwelling.

- The proposed vehicular access into the basement adjacent to the single neighbouring dwelling at the western boundary at 91 Stanhope Road must be moved into the site away from that boundary and enter into the basement footprint of the onsite buildings, not into the landscaped area.

- The proposal's basement parking should be designed to be located under the building footprint with multiple access points into basements rather than consolidating the access and concentrating impacts of noise and pollution to one location adjacent to the private open space of the neighbouring single dwelling at 91 Stanhope Road.

**Impacts on local character, heritage items and scenic and cultural landscape**

While the proposal has reduced its heights, it still fails to integrate into the prevailing Ku-ring-gai landscape character of built form beneath the tree canopy particularly at this ridgeline location directly adjacent to and highly visible from 3 heritage items. This character is intact and currently dominates this location, assimilating the low density residential character, the heritage character

and its bushland character.

The fact that the centre of the site is at the highest point within the locality, sitting on the ridge plateau at an RL106.5, means that placement of the intended building envelope will inevitably make it a visually prominent interruption to the scenic landscape as viewed from the heritage bushland to the south and east, from the low density residential character to the north and west along Stanhope Road and beyond, and as juxtaposed with Headfort House, recognised as having heritage listing value. The “missing tooth” appearance of the denuded site conflicts with the local character, the bushland interface and the setting of heritage items.

The proposal will result in a built form that will extend above the tree canopy due to the stripping of canopy trees to accommodate development at this bushfire risk location. This will alter views and vistas to the ridgeline and impact area views, and impact the scenic landscape value of the area, particularly as the site forms the backdrop to the adjacent Heritage Item (Seven Little Australians Park) and sits adjacent to the Heritage Conservation Area.

Given the bushfire vulnerability of the site and expected resultant removal of onsite vegetation, the site and any buildings will become highly visible as the backdrop to the Heritage Item bushland at Seven Little Australians and within the landscape context of views from Heritage Item Soldier’s Memorial Park. The site will also be highly visible along the Eastern Arterial from Roseville/Lindfield.

- For this reason, the roof forms of the development must continue to be hip and gable and utilise dark colours of roofs and walls that merge into the hillside, not cut across the landscape with flat roofs and parapets and light coloured walls that will be highly visible and concentrate vies on this development rather than the landscape setting. The existing development managed to get this aspect right, with the roof form assimilation into the hillside and not standing out on this ridgeline bushland location. This should be reflected in the current proposal at its greater heights.

- The top stories must be delivered within a hipped and gabled roof form with dormer windows. In addition, if there is unsubstantiated evidence that the population count (residents, workers and include patients in the high care units not part of this proposal bust still part of the village) results in population numbers that cannot be proved to be kept safe during a bushfire incident, and threaten the safety of the surrounding population to evacuate in a timely manner, then the building heights should be limited to 3-stories, with the top storey having hipped roofs that merge into the bushland landscape.

- The landscaping that is to be provided on the site is highly inadequate. The trees that are cited do not count as “tall” trees that are fundamental to the Ku-ring-gai character, particularly at this fringe location adjacent to bushland heritage items and national park. Species that are able to extend above the proposed building height must be provided to maintain canopy at this prominent location and provide some semblance of that canopy at the bushland ridgeline.

- In relation to this, it is vital that sufficient deep soil be provided, particularly to the centre of the site, to sustain tall tree planting and healthy growth into the future when the expected heat island effects will rise and place this community and this location at greater risk. The basement parking should be designed to be located under the building footprint with multiple access points into basements rather than consolidating the access and impacting provision of deep soil.

**Impacts on the locality’s heritage significance, Items and Conservation Area**

The curtilage and heritage listing of this building was set during the planning proposal process. Council instigated the planning proposal to list the historic building which the planning proposal itself showed had value, and set the heritage listing when Council’s requests were ignored by the

landowner in their planning proposal.

- The curtilage of the Headfort House must be better considered as should the redevelopment and reinstatement of Headfort House heritage features.

**Impacts to the community and community concerns**

Clarification on service provision for residents is important, it is unclear if they will continue to provide the 3-tier provision under the current contracts – independent units, serviced apartments and high care bedrooms. This was a key concern raised, disputed and won by onsite residents during the planning proposal process when the Tribunal required Levande to reinstate the serviced apartments within the development. The onsite community, now depleted, made multiple representations to Council on this aspect.

The surrounding community have been extremely concerned about the redevelopment of this site and have approached Council regarding the notification of residents. They have been informed that Council is not responsible for the notification process and whilst they are able to seek investigation of Council's records through a GIPA, it the Department that is responsible for community notification and transparency and their enquiries should be directed there.

- To ensure the site continues to provide housing choice and ageing in place on the site, the three tier service provision must be retained. The Department is requested to condition the development and any subdivision, to retain the three-tier provision on this site to avoid displacement of fragile aged people having to move away from familiar surrounds and networks to access improved services, and vacate units to enable a lucrative turnover at the cost of the fragile residents.

- In the interests of transparency, we request the Department make clear the extent of notification of this proposal to the community.

## Bushfire Issues

In terms of bushfire, consideration has been made to the Bushfire Assessment Report, prepared by Building Code & Bushfire Hazard Solutions P/L. Previous proposals for redevelopment of the site have been considered, however, have not eventuated. The current proposal provides an improvement in that, the current proposal has moved development from areas identified as being BAL 40 and BAL Flame Zone, thus ensuring some parts of the development having better bushfire protection for residents/structures than the current situation. However, concerns have been identified, as discussed below:

- The Bushfire Assessment Report states:

  > "*In this instance the site is highly constrained by the application of the minimum required APZs for new SFPP development due to the existing allotment configuration and proximity to hazardous vegetation*."

  The subject site cannot accommodate any genuine renewal of the site that satisfies the minimum required APZs for new SFPP development under PBP. As the Acceptable Criteria cannot be achieved under PBP 2019, the report then argues for a suite of Performance Solutions, using Section 6.4 (Development of existing SFPP facilities') to argue for the reduction of minimum required APZs. However, PBP 2019 (Section 6.2) states:

  > "*Due to the vulnerable nature of the occupants of SFPP developments, there is more reliance on the provision of an APZ and emergency management*."

  In addition, **the premise of enhanced APZ width (100m) in SFPP developments is for**

**radiant heat levels of greater than 10kW/ m² (calculated at 1200K) will not be experienced on any part of the building. However, Figure 10 of the consultants report (p.25) demonstrates that the majority of building footprints are in BAL 19, BAL 29 – and even some building fronts/corners in the BAL 40 zone. Such an arrangement of structures in the 60m to 100m sector (distant from the hazard) means that radiant heat impacts will be far more excessive than the required <10/KWsqm** (bold emphasis added). Most structures may experience radiant heat levels of 19-29KW/sqm. As previously discussed within **Attachment 2**, Councils view is that predicted higher radiant heat impacts could be experienced.

**Table 6.8a**

Performance criteria and acceptable solutions for APZs and construction for SFPP development.

| PERFORMANCE CRITERIA | ACCEPTABLE SOLUTIONS |
|---|---|
| The intent may be achieved where: | |
| radiant heat levels of greater than 10kW/ m² (calculated at 1200K) will not be experienced on any part of the building. | the building is provided with an APZ in accordance with Table A1.12.1 in Appendix 1. |

Our view is that, as the Acceptable solution for the APZ width in an SFPP (100m) cannot be achieved (see Tables A1.12 and A1.12.1 in PBP 2019) the proposed performance measures proposed by the consultant (pages 30-31) may not be sufficient to achieve the specific SFPP needs at the site.

- The Bushfire Assessment Report states at page 15:

> "*All fire catchments available to the subject site would require a fire burning against the prevailing fire weather for this area*.'

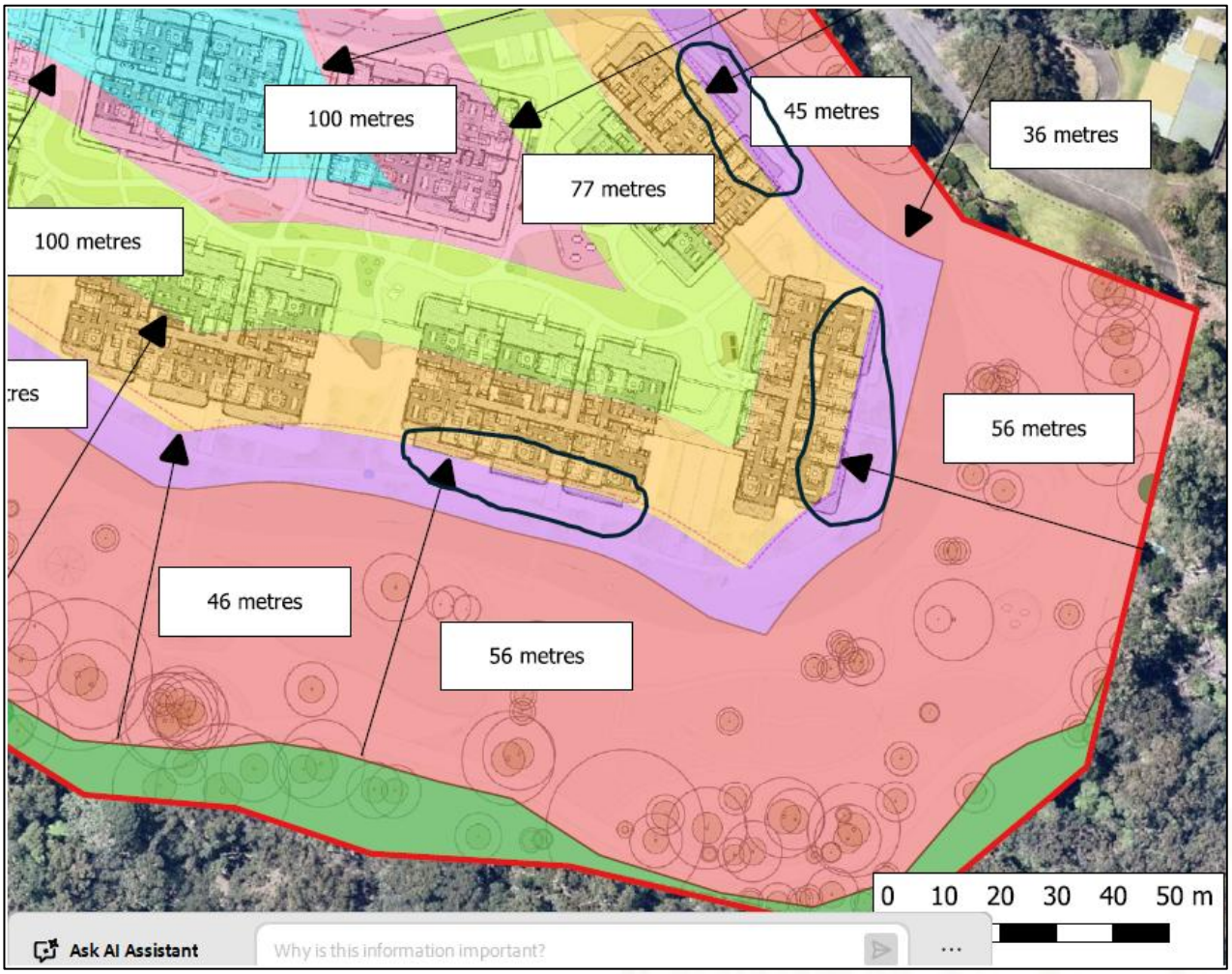
In Councils view, this statement is disputed, as the ridge/gully topography, coupled with channeling of strong winds, would readily provide significant fire paths in the vicinity and the slopes below the subject land would even further enhance potential bushfire impacts. The consultant has not provided any atmospheric modelling to support their statement. In 2024 I undertook a Strategic Bushfire Study for the subject site, which demonstrated the potential level of bushfire attack, and intensity, of future wildfire activity.

- The Bushfire Assessment Report states at page 18, based on the consultant's analysis of the NPWS Fire History dataset, the consultants conclude that

> "*The subject site is therefore not considered to be within a known fire path. Furthermore, in consideration of the previous bushfire history the likelihood of a bushfire occurring within the immediate area is considered unlikely."*

Within **Attachment 2**, the Strategic Bush Fire Study of the subject site indicates that both the probability and intensity of potential wildfire impacts must be considered in this SFPP redevelopment.

- At page 25 within the Bushfire Assessment Report it shows, within Figure 10, a BAL Overlay showing proposed building locations. The figure indicates that most building footprints are in BAL 29 and BAL 19 zones, which are still high ember attack areas, with protection needs. Our view is that, if the proposed arrangement of building footprints were considered acceptable in terms of PBP 2019, then the 'edge' building footprints in the sectors outlined in black (below) should either be built to BAL 40 specifications – or the footprints should be retreated fully into the BAL 29 zoning.




**Conclusion**

Councils view is that the proposed redevelopment layout does provide better protection for residents than the existing structures on the site, and whilst the consultants Bushfire Assessment Report recommends a number of measures to further enhance residents safety, the reduced APZ widths, recommended by PBP 2019 to be 100m) – on a vulnerable location means that radiant heat impacts, from any potential wildfire, will impact upon structures and importantly, residents. All protective measures must be implemented to enhance residents' safety.

## Ecological Issues

**1. Purpose of this Review**

This assessment has been prepared to review the ecological aspects of the proposed redevelopment of Lourdes Retirement Village, with regard to the Biodiversity Conservation Act 2016, the Biodiversity Assessment Method 2020 and the adequacy of the submitted Biodiversity Development Assessment Report (BDAR).

The purpose of the review is to determine whether the BDAR adequately identifies the biodiversity values present on and adjoining the site, accurately defines the development footprint and associated impacts, demonstrates that impacts have been avoided and minimised, and provides a reliable basis for the calculation of biodiversity credit obligations and the assessment of potential serious and irreversible impacts.

The review has focused on the internal consistency of the BDAR, the adequacy of the assessment methodology, the treatment of planted and remnant native vegetation, threatened

species assessment, serious and irreversible impact assessment, and the relationship between the ecological assessment and the proposed development, asset protection zones and associated construction works.

## 2. Documents Reviewed

The following documents were reviewed as part of this assessment:

- Biodiversity Assessment Method 2020, Department of Planning, Industry and Environment.
- Biodiversity Assessment Method 2020 Operational Manual - Stage 2, Department of Planning and Environment, 2023.
- Biodiversity Development Assessment Report, Lourdes Retirement Village, prepared by Biosis for Levande, dated 25 May 2026.
- Figures, vegetation mapping, threatened species mapping and biodiversity credit report contained within the BDAR.
- Microbat Assessment Report included as Appendix 7 of the BDAR.
- Serious and Irreversible Impact assessments for Sydney Turpentine-Ironbark Forest and Swift Parrot included as Appendix 5 of the BDAR.

The example ecological review prepared for SSD-95747716, which has been used as the formatting basis for this review.

The BDAR has been reviewed to determine whether the assessment is sufficiently clear, complete and internally consistent to support determination of the State Significant Development application.

## 3. Relevant Legislative and Assessment Framework

The proposal is State Significant Development and entry into the Biodiversity Offsets Scheme is mandatory. The biodiversity impacts of the proposal are therefore required to be assessed in accordance with the Biodiversity Conservation Act 2016 and the Biodiversity Assessment Method 2020 by an accredited assessor.

The BAM requires biodiversity values to be identified and assessed across the subject land and requires direct, indirect and prescribed impacts to be identified, avoided or minimised and, where applicable, offset. Stage 2 of the BAM applies the avoid, minimise and offset hierarchy and requires the BDAR to document the combined outcomes of the biodiversity assessment and impact assessment (BAM Chapters 7-10 and Appendix L).

Where a proposal may affect an entity identified as being at risk of a serious and irreversible impact, the BDAR must provide sufficient information to allow the consent authority to determine the nature and consequence of the residual impact after avoidance and minimisation measures have been applied.

The Streamlined Assessment Module for small areas modifies the assessment requirements but does not remove the requirement to accurately identify the subject land and development footprint, assess relevant direct, indirect and prescribed impacts, substantiate PCT and TEC identification, assess SAII entities, and demonstrate avoidance and minimisation (BAM Appendix C and Appendix L, Table 27).

## 4. Findings of the Review

### 4.1 Document Control, Certification and Identification Errors

The BDAR contains several inconsistencies in its document control and certification information that should be corrected before the report is relied upon.

- The front cover identifies the document as a Draft Report dated 25 May 2026, while the document control table records a Final version issued on 22 May 2026. It is therefore unclear whether the submitted document is a draft or final report.
- The document information page identifies the accredited assessor as Callan Wharfe (BAAS25013), while the summary, body of the report and certification page identify Callan Wharfe as BAAS18138. The BAM case reference also contains BAAS25013. The correct accreditation number and the assessor responsible for the assessment must be confirmed throughout the report and BAM case.
- The certification page retains alternative conflict-of-interest declarations separated by “OR” and does not identify which declaration applies. The final report should contain one completed declaration only.
- The report title and application references should be checked against the formal SSD application number. The uploaded file is labelled SSD-88004, while the BDAR refers to SSD-88004956.

These matters are not merely editorial. The accreditation and certification details identify the person taking professional responsibility for the BAM assessment and should be unambiguous in the final report.

**4.2 Definition of the Subject Land and Development Footprint**

The BDAR defines the development footprint as approximately 2.4 hectares and defines the subject land as the development site plus a 20 metre buffer. Under the BAM, the subject land is the land subject to the development proposal; it is not a standardised indirect-impact buffer. The separate assessment area is the subject land plus the prescribed 1,500 metre landscape buffer.

The BDAR should therefore justify the mapped subject land by reference to the actual extent of the proposal and its direct, indirect and prescribed impacts (BAM Section 2 and Operational Manual Stage 2, Section 2).

The development footprint and subject land mapping should capture all permanent and temporary impacts associated with buildings, basement excavation, roads, services, stormwater infrastructure, construction access, laydown areas, retaining structures, tree protection encroachments and the full extent of APZ establishment and ongoing management. The BAM expressly requires the operational footprint and construction footprint, including temporary and ancillary construction facilities and infrastructure, to be identified. A generic 20 metre buffer does not demonstrate that the mapped subject land captures the actual impacts.

The BDAR should be reconciled with the final architectural, civil, landscape, arboricultural and bushfire plans. A consolidated impact plan should identify all trees and vegetation to be removed, retained or modified, including vegetation affected by APZ specifications. Without this reconciliation, the reported impact areas and credit obligations cannot be verified.

**4.3 Native Vegetation Mapping and Plant Community Type Classification**

The BDAR maps three Plant Community Types: PCT 3262 Sydney Turpentine Ironbark Forest, PCT 3592 Sydney Coastal Enriched Sandstone Forest and PCT 3595 Sydney Coastal Sandstone Gully Forest. The BAM requires PCT identification to be supported by systematic plot-based floristic survey and information demonstrating how survey effort sampled expected environmental variation and filled gaps in existing mapping. It also requires information supporting the PCT assignment, including quantitative analysis of survey data and matching to PCTs in BioNet Vegetation Classification (BAM Sections 4.2.1 and 4.2.3). Although one plot per zone may satisfy the minimum plot number for zones below 2 hectares, additional plots may be required where condition varies or a single plot is not representative (BAM Section 4.3.4).

The justification for PCT 3262 is brief and primarily relies on soil landscape, several canopy species and broad structural characteristics. The vegetation is described as isolated trees or small stands with a predominantly exotic midstorey and ground layer. Given the modified condition and the proximity of sandstone vegetation, the report should provide a more transparent comparison with alternative candidate PCTs and explain how the final PCT assignment was determined. Any Plot to PCT Assignment Tool outputs or other quantitative classification material should be appended.

There are also a number of internal errors that reduce confidence in the vegetation assessment:

- The report refers to “PCT 3236” when discussing the Commonwealth condition thresholds for PCT 3262.
- The photograph heading for PCT 3592 is incorrectly labelled “PCT 3292 photos”.
- The justification heading for PCT 3595 incorrectly states “Sydney Turpentine Ironbark Forest”.

Table 6 records 0.12 hectares of Sydney Turpentine-Ironbark Forest under the heading “Development footprint”, whereas the summary, direct impact table and credit calculations identify only 0.06 hectares as being impacted. The table appears to report the total subject land extent rather than the impact extent.

The mapped vegetation areas, zone areas, direct impact areas and tables should be corrected and cross-checked so that the same figures are used consistently throughout the BDAR and BAM Calculator case.

### 4.4 Use of the Small Area Assessment Module and Grouping of PCTs

The BDAR applies the Streamlined Assessment Module for small areas and states that the BAM Calculator only permits two PCTs to be entered. PCT 3592 has therefore been grouped with PCT 3595 for the purpose of calculating ecosystem credits. The BAM Appendix C confirms that the small area module applies where the prescribed area limit is met, but the specific grouping process relied upon is an administrative BAM-C approach rather than a step set out in the gazetted BAM itself. The report should therefore cite the applicable BAM-C User Guide or written BOS Help Desk advice and demonstrate that the selected surrogate is conservative.

The report does not provide sufficient detail to demonstrate that this grouping produces a conservative and technically appropriate result. PCT 3592 and PCT 3595 are separate PCTs with different landscape positions, descriptions and percent-cleared values. The BDAR should identify the precise BAM Calculator guidance relied upon, explain why PCT 3595 is the appropriate equivalent PCT, show the area and vegetation integrity score of each original vegetation zone, and demonstrate that grouping does not understate the credit obligation or alter the ecosystem credit class.

The biodiversity credit report should be accompanied by a clear reconciliation table showing each actual PCT and vegetation zone, its impact area, its vegetation integrity score, the zone into which it was grouped and the resulting credit calculation. The current presentation makes it difficult for the consent authority to independently verify the calculation.

### 4.5 Treatment of Planted Native Vegetation

The BDAR identifies approximately 1.17 hectares of planted native vegetation and applies Appendix D of the BAM so that this vegetation is assessed under the planted native vegetation module rather than as a PCT for ecosystem credits. Appendix D permits this pathway for vegetation planted for functional, aesthetic or horticultural purposes, but expressly requires evidence demonstrating application of the decision-making key. The report concludes that the

vegetation was likely planted for aesthetic and functional reasons but provides no historical planting records, landscape plans, aerial photograph analysis or other supporting evidence.

The site has a long history of institutional and retirement village use and contains a mosaic of remnant, planted and regenerating native vegetation. The distinction between planted vegetation that can be excluded under Appendix D and modified native vegetation that should be assigned to a PCT is therefore important. The BDAR should provide a map showing the areas assessed under each branch of the Appendix D decision pathway and the evidence used to distinguish planted from remnant or naturally regenerating vegetation.

The treatment of planted vegetation also requires clarification. Under Appendix D.2, the relevant task is to assess suitability for use by threatened species and record incidental sightings or evidence of species credit species. The absence of hollows, stick nests or evidence of occupation does not necessarily mean that the vegetation has no habitat value. The report also acknowledges potential foraging and dispersal use by mobile threatened species and the Commonwealth Swift Parrot assessment refers to planted vegetation as potential habitat. The report should distinguish habitat suitability, evidence of occupation, mitigation requirements under BAM Section 8.4 and the separate rule that species credits are not generated solely for impacts assessed under Appendix D.2.

### 4.6 Threatened Species Assessment

The threatened species assessment is modified by the small area module. Under BAM Appendix C, candidate species credit species at risk of SAII must be assessed further, while non-SAII candidate species generally do not require targeted assessment unless incidentally recorded. This places greater importance on accurate habitat-feature mapping, incidental records and correct delineation of the development footprint.

Nine hollow-bearing trees are reported within the subject land and mature trees and flowering resources occur throughout the site. Although these trees are stated to be outside the direct development footprint, the BDAR does not provide a tree-by-tree impact assessment demonstrating that they will be retained without unacceptable encroachment, canopy pruning, APZ modification or indirect impacts. The hollow-bearing trees should be linked to the arboricultural assessment and final plans, with tree numbers, hollow size, species, retention status and protection measures clearly identified.

The report identifies buildings as potential microbat habitat but discounts them based on external inspection and an absence of obvious entry points, guano, staining or audible calls. The proposal involves staged demolition of a large number of buildings. Before demolition, a more precautionary building inspection and pre-clearance protocol should be required, including internal inspection where safe and practicable and inspection immediately prior to demolition by a suitably qualified ecologist.

Little Bent-winged Bat and Large Bent-winged Bat were detected during acoustic surveys. The report concludes that the records represent foraging or commuting activity and that breeding habitat is absent. This conclusion may be reasonable in relation to breeding habitat, but the detected use of the site should still be reflected in mitigation measures addressing lighting, staged vegetation removal, retention of movement corridors and construction timing.

### 4.7 Swift Parrot Important Habitat and Species Polygon

The BDAR assumes Swift Parrot to be present because mapped Important Area habitat occurs within the subject land and identifies a direct impact to 0.03 hectares, generating one species credit. The assessment contains inconsistencies regarding the location and extent of this habitat.

- Section 2.1.9 refers to Swift Parrot Important Areas within the subject land and directs the reader to Figure 15, although the relevant threatened species mapping is also presented in Figures 9, 10 and 16.

- The appendices describe the impacted Important Area as being in the north-eastern corner of the development footprint, while other text refers to impacts within the southern part of the site. The mapped location should be described consistently.

- The Significant Impact Criteria assessment refers to 0.03 hectares of mapped Important Area and a larger area of planted native vegetation as habitat, while the main report states that planted native vegetation did not contain threatened species habitat.

The species polygon should be clearly overlaid with the final tree removal plan and should identify the individual feed trees and vegetation strata contributing to habitat. Avoidance should be demonstrated at the tree and patch scale rather than relying solely on the small mapped area generated by the BAM Calculator.

**4.8 Avoidance and Minimisation**

The avoidance and minimisation section is general and does not provide sufficient quantitative evidence to demonstrate robust exploration of reasonable alternatives. The BAM requires analysis and justification of alternative modes or technologies, routes, locations and sites within the property, together with reasonable design measures. The Operational Manual further requires the evolution of the proposal, feasible alternatives, spatially identified avoided areas, supporting analyses and reasons why measures were not adopted to be documented (BAM Section 7.1; Operational Manual Stage 2, Sections 3.1-3.3).

The report relies heavily on comparison with an earlier planning proposal that reportedly had greater vegetation impacts. This comparison is relevant evidence of design evolution, but it does not by itself demonstrate that reasonable alternatives for the current proposal have been thoroughly explored. The assessment should compare realistic current alternatives, including building envelopes, basement extents, road alignments, APZ configurations, temporary works and staging options, and explain why lower-impact options were not feasible or practical.

The BDAR should include a design iteration table showing, for each option, the area of each PCT and TEC affected, the number of trees and hollow-bearing trees affected, the area of Swift Parrot Important Area affected and the reason the lower-impact options were not adopted. It should also explain why the remaining 0.06 hectares of Sydney Turpentine-Ironbark Forest and 0.03 hectares of Swift Parrot Important Area cannot be avoided.

The proposed APZ is a major component of the development and is expressly identified by the BAM as a site constraint that should be mapped and considered in the location and design analysis. The BDAR should state the vegetation management specification for each APZ area and quantify whether the impact involves complete clearing or partial clearing, including selective tree removal, canopy separation, understorey removal, litter or log removal and ongoing fuel management. The Operational Manual recognises that partial clearing may reduce vegetation integrity and requires the affected attributes and residual impact to be assessed, rather than treating APZ works simply as landscaping.

**4.9 Direct, Indirect and Prescribed Impacts**

The direct impact tables identify 0.06 hectares of PCT 3262 and a combined 0.20 hectares of PCT 3592/PCT 3595 as requiring ecosystem credits. These figures should be verified against the final plans and corrected tables.

The assessment of indirect impacts is broad and relies substantially on standard construction management measures. BAM Section 8.2 and the Operational Manual require the nature, extent,

frequency, duration, timing and consequences of indirect impacts to be described. The assessment should more specifically address edge effects on retained high-condition vegetation adjoining the southern and eastern boundaries, including altered drainage, excavation and retaining-wall effects, soil moisture changes, lighting, weed and pathogen spread, noise, human access, domestic animals, wind exposure, canopy pruning and long-term APZ maintenance.

The retained vegetation is connected to a larger bushland patch extending toward Garigal National Park. The potential prescribed impact on habitat connectivity should be assessed against the actual before-and-after canopy and understorey configuration. Statements that connectivity will be retained should be supported by scaled plans and minimum corridor widths.

The report should also confirm whether rock outcrops, sandstone crevices and the nearby first-order watercourse will be affected by excavation, blasting, retaining structures, altered runoff or construction access. Prescribed impacts must be assessed both within and beyond the subject land, and where an impact is considered unlikely the Operational Manual requires evidence supporting that conclusion. For each relevant prescribed impact, the BDAR should identify the affected entities and describe the nature, extent, frequency, duration, timing and consequences of the impact (BAM Chapter 6 and Section 8.3; Operational Manual Stage 2, Section 4.3).

### 4.10 Serious and Irreversible Impact Assessment

Sydney Turpentine-Ironbark Forest and Swift Parrot are correctly identified as entities requiring SAII consideration. However, the SAII assessment should provide a clearer site-specific evaluation of the residual impact after all avoidance and minimisation measures have been exhausted.

For Sydney Turpentine-Ironbark Forest, the assessment should quantify the extent and condition of the community within the site, the area retained, the area directly and indirectly affected, the number and size of diagnostic canopy trees removed, the effect on patch configuration and connectivity, and the feasibility of redesign to avoid the impact. The current assessment places considerable weight on the small impact area and degraded condition but does not sufficiently address the cumulative loss of small urban remnants of a critically endangered community.

For Swift Parrot, the assessment should identify the specific foraging resources being removed and whether mature preferred feed trees are affected. The conclusion that the impact is unlikely to be significant should not rely principally on the species being highly mobile or the availability of habitat elsewhere. The mapped Important Area is specifically intended to identify habitat of elevated importance and requires a clear explanation of why direct impact is unavoidable and why the residual impact is not likely to contribute significantly to extinction risk.

The consent authority should be provided with a concise SAII summary that identifies the residual impact, uncertainty, avoidance options considered, mitigation limitations and the assessor’s conclusion against each relevant principle in clause 6.7 of the Biodiversity Conservation Regulation 2017.

### 4.11 Mitigation, Management and Biodiversity Outcomes

Many mitigation measures are expressed as commitments to be addressed later through a Construction Environmental Management Plan. BAM Section 8.4 and Appendix L require the BDAR to identify the techniques, timing, frequency and responsibility for mitigation measures, identify measures with a risk of failure, evaluate residual consequences and document any adaptive management strategy. The measures should therefore be enforceable and outcome-focused, with performance and completion criteria, monitoring, triggers and corrective actions where relevant.

At a minimum, the mitigation framework should include:

- A final Biodiversity Management Plan or equivalent plan prepared before construction and tied to the approved impact footprint.
- Survey and permanent marking of clearing limits, retained vegetation, hollow-bearing trees and no-go areas before works commence.
- Pre-clearance surveys and staged clearing under ecologist supervision, including fauna rescue procedures and building demolition protocols.
- Tree protection measures consistent with the arboricultural assessment and protection of retained root zones from excavation, services, stockpiles and vehicle access.
- Detailed APZ management specifications that avoid unnecessary canopy removal and retain habitat features where compatible with bushfire requirements.
- Weed, pathogen, lighting, erosion, sediment and stormwater controls directed specifically to the adjoining high-condition bushland.
- Measurable restoration and landscaping targets, including locally indigenous species, replacement of lost canopy and understorey structure, survival criteria, weed thresholds, monitoring periods and corrective actions.

Any proposed revegetation should be described as mitigation and site rehabilitation. It should not be presented as replacing the ecological value of the TEC or mapped Important Area unless the BAM provides a lawful mechanism for that outcome.

The comments below distinguish between matters required by the BAM and matters requested to allow the decision-maker to verify that those requirements have been met. References to the Operational Manual are used as guidance for applying and documenting the gazetted BAM requirements.

**5. Recommendations**

Based on the information reviewed, the following actions are recommended before the BDAR is accepted:

1. Require a revised final BDAR that addresses the minimum information requirements in BAM Appendix L, Table 27, and resolves the document status, SSD number, accredited assessor number, certification and conflict-of-interest declaration.

2. Require a consolidated and fully reconciled development footprint prepared from the final architectural, civil, landscape, arboricultural and bushfire plans, including all APZ, service, excavation, construction and indirect impact areas.

3. Correct all inconsistencies in vegetation areas, PCT references, table headings, figure references and impact calculations throughout the report and BAM Calculator case.

4. Provide additional evidence supporting the classification and mapping of PCT 3262, PCT 3592 and PCT 3595, including quantitative comparison with alternative PCTs and any Plot to PCT Assignment Tool outputs.

5. Provide a transparent reconciliation of the grouping of PCT 3592 with PCT 3595 under the small area module and demonstrate that the approach does not understate ecosystem credit obligations.

6. Substantiate the application of the planted native vegetation decision pathway with historical evidence and mapping, and resolve the inconsistent statements regarding threatened species habitat within planted vegetation.

7. Reconcile the ecological assessment with the arboricultural report and provide a tree-by-tree schedule for all retained and removed habitat trees, feed trees and hollow-bearing trees.

8. Clarify and remap the Swift Parrot Important Area species polygon, identify the habitat elements being removed and demonstrate why the impact cannot be avoided.

9. Expand the avoidance and minimisation assessment to compare realistic current design alternatives and quantify the biodiversity impact of each alternative, including APZ impacts.

10. Strengthen the assessment of indirect and prescribed impacts on retained high-condition vegetation, habitat connectivity, rock habitat and the nearby watercourse.
11. Revise the SAII assessments to provide a concise, site-specific evaluation of residual impacts after avoidance and minimisation, including uncertainty and cumulative loss.

12. Prepare enforceable biodiversity mitigation and monitoring measures, including pre-clearance, demolition, fauna rescue, tree protection, APZ management, weed control and measurable restoration outcomes.

**Conclusion**

The submitted BDAR identifies biodiversity values within and adjoining the Lourdes Retirement Village site, including Sydney Turpentine-Ironbark Forest, high-condition sandstone vegetation, hollow-bearing trees, mapped Swift Parrot Important Area and habitat connected to a larger bushland corridor.

The report provides a substantial amount of ecological information and has calculated ecosystem and species credit obligations. However, it contains material inconsistencies in document control, accreditation details, vegetation areas, PCT references and habitat descriptions. The treatment of planted native vegetation, grouping of PCTs, definition of the impact footprint, avoidance and minimisation analysis and SAII assessment also require further clarification and substantiation.

In its current form, the BDAR does not provide a sufficiently clear and internally consistent basis to verify the full extent of biodiversity impacts or the resulting credit obligations. A revised final BDAR should be required before the ecological impacts of the State Significant Development are determined.

## Landscaping Issues

**Tree removal**

The proposal results in extensive tree removal across the site in total 366 trees as per the arborists reporting. The tree removal, while extensive, is generally acceptable as many of the trees are located in close proximity to the existing dwellings to be demolished and exempt under Part 13 of the DCP. Trees are also generally smaller to intermediate sized trees and while providing internal amenity, they do not have broader landscape significance beyond the site.

Generally, the most significant and high value trees located on-site and those viewed from the public domain are viably retained, with the exception of trees: 8, 93 and 98.

Existing street trees proposed for removal have poor structural form due to pruning for overhead wires, and their removal is acceptable.

The removal of the following trees is not acceptable:

- **Tree 8: Araucaria hetrophylla (Norfolk island Pine)** – in good health and condition,

23m in height and significant with a high priority for retention that contributes to the public domain. The tree is a natural constraint to development requiring design modification.

- **Tree 93: Angophora costata (Sydney Red Gum)** in good health and condition, 17m high, of high landscape significance and identified as having priority for retention. The tree is a natural constraint to development requiring design modification to enable its viable retention. The species is endemic and has ecological value.

- **Tree 98: Lophostemon confertus (Brushbox)** in good health and condition, 18m high, of high landscape significance and identified as having priority for retention. The tree is a natural constraint to development requiring design modification to enable its viable retention.

Tree removal is also acceptable in balance with fire safety IPA/APZ requirements, except for trees mentioned above.

**BASIX inconsistency**

Certificate 1847694M_02 dated 22/05/2026 is submitted.

The development proposal and the submitted BASIX certificate appear to be inconsistent.

The following inconsistency is identified:

- Areas of private garden and lawn proposed for numerous dwellings which is not included within the tables on pages 3 & 4 of the certificate.

No BASIX landscape area compliance plans are submitted. To verify that the landscape proposal is consistent with BASIX areas of garden and lawn, it is recommended compliance plans be provided that clearly identify the following:

- Calculable area of common lawn
- Calculable area of common garden areas including green roof areas
- Calculable areas of private garden and lawn

Therefore the BASIX certificate fails to accurately reflect the development and the projected water use. An amended BASIX certificate consistent with the development proposal is required by the SEPP.

**Fire**

The site is bushfire prone land. The applicants fire consultant has recommended:

> *“At the commencement of building works and in perpetuity all grounds for a minimum of 56 metres to the south and to the subject boundary in all other directions shall be managed as an inner protection area (IPA) as outlined within Appendix 4 of 'Planning for Bush Fire Protection 2019' and the NSW Rural Fire Service's document 'Standards for asset protection zones'. Note: The existing pocket of trees in the north-eastern portion of the site can be retained. Continued understorey management consistent with an Inner Protection Area is required”.*

The report concludes:

> “*It is our opinion that the proposal, inclusive of reduction in capacity and the Bushfire Protection Measures outlined above, will result in an overwhelming better bushfire safety outcome than the existing development and therefore afford its occupants (residents and staff) a far greater level of protection.*

*It is of our opinion that the proposal can satisfy all relevant specifications and requirements of PBP".*

The development works includes replenishment tree plantings and restorative landscape works across the site. The Bushfire Assessment report fails to address the proposed landscape works and importantly has not reviewed the landscape plans or certified that the proposed landscape works are in accordance with fire safety outcomes and can be realistically achieved.

To ensure the proposed landscape design can be achieved in balance with fire safety outcomes, it is recommended the applicants fire consultant review the landscape plan/s and provide a statement / certification that the landscape work proposed is consistent with fire safety requirements and can be achieved.

Should there be an inconsistency, the landscape plans will require amendment.

**Arborists Report**

SEARS requires root mapping to be undertaken if the proposal involves significant impacts to tree protection zones of retained trees identified as being significant.

Development encroachment occurs within the structural root zone (SRZ) of retained significant trees, which is assessed as major when reviewed against AS4970-2025 Protection of trees on development sites. No root mapping has been undertaken and the proposal fails to demonstrate that these trees can be viably retained due to insufficient detail.

Design amendments are likely to be required to ensure trees identified for retention can be viably retained.

**Landscape proposal**

A landscape plan is submitted with the development proposal. The landscape plan fails to address the SEARS requirements due to:

- No planting plan submitted that includes location, number and species of plantings.

Detailed planting plans as required by SEARS is to be submitted.

The following inconsistencies are also identified:

- The landscape plans fail to detail proposed plantings within the areas of private courtyards.
- The landscape plan fails to provide planting details for the rooftop / green roof gardens.
- The landscape plan fails to provide planting details for elevated and podium plantings
- No planting plan for planting across the site is submitted, therefore planting outcomes cannot be accurately assessed for consistency with safety requirements such as Fire IPA/APZ.
- Some tree locations in close proximity to dwellings is impractical and inconsistent with fire safety IPA/APZ requirements as defined by Planning for Bush Fire Protection 2019.
- Some identified tree species are inconsistent with fire safety as defined by Appendix 4: Planning for Bush Fire Protection 2019.

Amended landscape plans are recommended to be submitted.

## Urban Design and Planning Issues

**Built form and character**

Part 5, Division 5, Section 97 (2) of SEPP (Housing) 2021 states *"Development consent must not be granted to development for the purposes of seniors housing unless the consent authority is satisfied the design of the seniors housing demonstrates that adequate consideration has been given to the design principles for seniors housing set out in Schedule 8."*

The following provisions have been used:

- **State Environmental Planning Policy (Housing) 2021;**
  i. Chapter 3 Part 5- Housing for seniors and people with a disability (Clauses 79-97 & 106-108)
  ii. Schedule 8 Design Principles for Seniors Housing
  iii. Schedule 4 Standards concerning accessibility and usability for hostels and independent living units

  all referred to from hereon in as **SEPPH 2021**

- Seniors Housing Design Guide, November 2023, NSW Department of Planning and Environment referred to from hereon in as **SHDG**

- NSW Planning and Environment Apartment Design Guide referred to from hereon in as **ADG**

- Ku-ring-gai LEP 2015 referred to from hereon in as **KLEP**

**Exclusions**

- Communal facilities (non-residential) are not assessed, as part of this report.

**Key Urban Design Issues that must be resolved:**

- The proposed development does not recognise desirable qualities of local character.
- The proposed development should be modified to reflect the desirable elements of the neighbourhood character including the design of roofs and penthouses.
- Photomontages should be provided to assess the resultant appearance with viewpoints from neighbouring hilltops.
- The proposed development presents as a group of institutional buildings and less as residential buildings.
- Site analysis is inadequate.
- Drawings are inadequate.
- The proposed development overshadows itself resulting in insufficient solar access to the proposed development's apartments and private open spaces.
- Shadow diagrams and analysis are inadequate.
- Excessive removal of trees.
- Inadequate window sun shading.
- Lack of detail in materials selection and specification.
- Multiple sustainability issues.
- No bicycle parking provided.

**Insufficient information**

- **Inadequacy of site analysis**
- **Site analysis plan to show;**
  Each element in of "*Appendix 1- Site analysis checklist"* of the Apartment Design Guide to be addressed.

**Inadequacy of drawings**

- Streetscape elevations to be provided for 89 – 91 Stanhope Rd. and Proposed Building ”I”; i.e. elevations of 89 Stanhope Road and 91 Stanhope Road and Killara Glades Care Community to be added to DA 302 /3 Overall Elevation North.
- All plans to show Stanhope Road and footpaths, and street numbers of neighbouring properties and proposed building identification numbers / letters.
- Montages to be provided show neighbouring buildings including Nos. 89 Stanhope Road and 91 Stanhope Road, and Killara Glades Care Community.
- Montages to be provided show streetscape views, i.e. looking down and up streets on the site.
- Clarify North point as shown is true north or magnetic/ grid north.
- Viewed from the sun diagrams at larger scale to be provided.
- Viewed from the sun diagrams at half hour intervals to be provided to clarify applicant’s claims of compliance.

Each element in *“APPENDIX 3 Development application – recommended documentation checklist”* of the Apartment Design Guide is to be addressed.

**Site and Context**

The site is very large and densely vegetated with many mature trees, shrubs and natural rock givinges much landscape amenity to the neighbourhood. The existing neighbouring houses include single storey Sydney School houses and earlier houses from the 1950s through to the 200s, all of which which have low pitched tiled (typically terracotta) roofs, face brick walls , varied fenestration and a minimum of painted surfaces

**SEPPH 2021; Clause 93 Location and access to facilities and services—independent living units**

> *“(1) Development consent must not be granted for development for the purposes of an independent living unit unless the consent authority has considered whether residents will have adequate access to facilities and services—*
> *(a) by a transport service that complies with subsection (2), or*
> *…. access is adequate if -*
> *(a) the facilities and services are, or the transport service is, located at a distance of not more than 400m from the site, and*
> *(b) the distance is accessible by means of a suitable access pathway, and*
> *(c) the gradient along the pathway complies with subsection (4)(c).”*

The proposed development appears to comply with Site related requirements for independent living units (SEPPH 2021; 93 Location and access to facilities and services—independent living units).

The following provisions were used for consideration, as per:

**State Environmental Planning Policy (Housing) 2021;**
**Chapter 3 Part 5 Housing for seniors and people with a disability**
**SEPPH Schedule 8 Design principles for seniors housing**

1 Neighbourhood amenity and streetscape
2 Visual and acoustic privacy
3 Solar access and design for climate
4 Stormwater
5 Crime prevention
6 Accessibility
7 Waste management

## SEPPH Schedule 8 Design principles for seniors housing:

**Design Principle 1** - **Neighbourhood amenity and streetscape**

Seniors housing should be designed as follows—

*(a) to recognise the operational, functional and economic requirements of residential care facilities, which typically require a different building shape from other residential accommodation,*

*(b) to recognise the desirable elements of—*
*(i) the location's current character, or*
*(ii) for precincts undergoing a transition—the future character of the location so new buildings contribute to the quality and identity of the area,*

*(c) to complement heritage conservation areas and heritage items in the area,*

*(d) to maintain reasonable neighbourhood amenity and appropriate residential character by—*
*(i) providing building setbacks to reduce bulk and overshadowing, and*
*(ii) using building form and siting that relates to the site's land form, and*
*(iii) adopting building heights at the street frontage that are compatible in scale with adjacent buildings, and*
*(iv) considering, where buildings are located on the boundary, the impact of the boundary walls on neighbours,*

*(e) to set back the front building on the site generally in line with the existing building line,*

*(f) to include plants reasonably similar to other plants in the street,*

*(g) to retain, wherever reasonable, significant trees,*

*(h) to prevent the construction of a building in a riparian zone.*

The following comments are made:

The proposal does not meet SEPPH Schedule 8 Design principles for seniors housing Design principle 1 Neighbourhood amenity and streetscape, as follows:

- The local neighbourhood character of the site is of low-density suburbia on the outskirts of Sydney adjacent to wild bushland areas.
- The area is characterised by single storey houses and two storey houses that read as villas in the round within generous landscape settings.
- The proposed development achieves poor to moderate outcomes when assessed in relation to neighbourhood amenity and streetscape.

**Neighbourhood character**

As per SEPPH Schedule 8 Design Principle 1(b) proposals are *"To recognise the desirable elements of—*

*(i) the location's current character, or*
*(ii) for precincts undergoing a transition—the future character of the location so new*

*buildings contribute to the quality and identity of the area,"*

- as per SHDG Design Principle 4.3.2 proposals are *"To develop new buildings in an established historical context… that complements the existing urban character and adds value".*

- as per SHDG 4.4 Height - Design Principle 4.4.1 proposals are *"To provide variance of roof forms….to provide articulation and modulation of the building envelope".*

- as per SHDG 4.4 - Design Principle 4.4.4 proposals are *"Design articulated roofs that add visual interest to the building outline".*

- as per SHDG 4.6 Social Infrastructure - Objective 4.6.1 proposals are *"To provide development that is acceptable to neighbours and the local community, considers existing and desired future character."*

- as per SHDG 4.7 Local character - Objective 4.7.5 proposals are to *"Observe and understand the uniqueness of the character, identity, and heritage values of the surrounding built environment."*

The following comments are made:

- The proposed development has not been designed to reflect the desirable elements of the location's current character as can be seen in the lack of analysis and site analysis; more consideration has been given to the location's future character or rather that the general contemporary nature of the location's future character allows more freedom of architectural expression. However, none of the examples given of the location's possible future character are within eyesight of the site.

- The roofs of the proposed development will be the most visible elements in the streetscape and landscape.

- The proposed buildings read as a cluster of contemporary uniform style contemporary apartment buildings in a heritage streetscape.

  This does not satisfy SHDG Objective 4.1.1, which requires development:

  *"to take cues from the surrounding neighbourhood to introduce a materiality and articulated built form that is complimentary (sic) but provides a building with its own unique character and identity,*:

  and SHDG Design Guidance 4.1.3:

  *"provide design excellence that inspires and is proudly integrated with the local neighbourhood,"*

  and SHDG Objective 14.1.2:

  *"to integrate with the surrounding built form context and local character"*

  and SHDG Design Principle 4.3.2:

  *"To develop new buildings in an established historical context… that complements the existing urban character and adds value".*

**Neighbourhood character- design guidance**

**Landscape**

The strongest character on this site is of native, healthy bush, and of Sydney School bungalows sitting harmoniously following the contours amongst the trees in a picturesque way.

The landscaping on site is quintessential Sydney School/ bush school / Bruce Mackenzie and should give strong design cues.

The landscaping should be recognised to retain more of the arising landform. Significant quarried stone sections on the site must be preserved/reused.

The one way existing shared path on site with its 10km/h, is appropriate for this site both as being appropriate for seniors living, but also for a site at the end of a quiet road on the edge of bushland. This is to be retained as a two-way road with speed limit signage to meet requirements of the locality.

The view is that the amendments will assist in meeting SHDG Design Objective 3.1.3, which is:

> *"To manage and preserve existing natural features such as trees, overland flow paths, riparaian corridors, and sensive enevironmenst."*

The following comments are made:

- The proposed penthouses and plant rooms appear as boxes dropped on top of each building and should be re-designed with pitched roofs, skillion roofs and roof features complementary to adjacent buildings as per ADG Objective 4N-1 Roof Design and SHDG Design Objective 4.4.1-4.4.3 and Design Guidance 4.4.4- 4.4.6.

- Photomontages should be provided to assess the resultant appearance with viewpoints from neighbouring hilltops, with the preferred result being terracotta tiled roofs in the natural bush.

**Materials**

The following comments are made:

- The proposed finishes do not sufficiently "*take cues from the surrounding neighbourhood to introduce a materiality…"*

- The proposed wall finishes are denoted as brick types without names or exact specifications ("light brick, dark brick, red brick") and similarly vague render colours, stone colours and metal colours.

**Neighbourhood character - Materials - Design Guidance**

The following comment is made:

- The design should be modified to incorporate materials and finishes such as polychromatic textured coloured face brick, not dissimilar to some of the neighbouring houses. Bricks, render colours and metal finishes should be specified by name and type and texture.

**Fenestration**

The following comments are made:

- The proposed development has a limited number of types of external windows and doors.

- Full height glazing composed of awning windows with fixed panels below or full height sliding doors. The result of this is to reinforce the appearance of the buildings as being unlike anything in the neighbourhood and of the buildings appearing to be a medical institution with different blocks denoted by different colours.

**Neighbourhood character – Fenestration- design guidance**

The following comments are made:

- A variety of window types and sizes with varying sill and head heights should be considered appropriate to orientation, views and privacy which will also animate the façade, be sympathetic to its neighbourhood context and be appropriate to residential buildings.

- Clear, detailed streetscape elevations should be provided along Stanhope Avenue including neighbours, and along First Avenue north showing design changes (the streetscape elevations in the EIS have very little detail and are almost illegible).


***Figure 1 showing façade elevations***


***Figure 2 showing façade elevations***


***Figure 3 showing façade elevations***

***Figures 4 and 5 showing façade elevations***

**Neighbourhood character - Materials - Design Guidance**
**Neighbourhood character - Fenestration- design guidance**

As shown within **Figures 1**; **2**, **3**, **4**, and **5** the elevations of the proposed development are characterised by uniformity in heights, in window and door types, balustrade details and differentiated only by different monotone brickwork colours.


***Figure 6 showing Building J and Headfort House***

**Neighbourhood character - Materials - Design Guidance**
**Neighbourhood character - Fenestration- design guidance**

Referring to **Figure 6**; the elevations of the proposed Building J show detailed brickwork in dialogue with the heritage building 'Headfort House', which is to be commended and this attention to detail in a different form could be extended to the other nine buildings. This theme is discussed further within this submission.

**Setbacks**

The following are to be considered:

> ***(d) to maintain reasonable neighbourhood amenity and appropriate residential character by—***
>
> ***(i) providing building setbacks to reduce bulk and overshadowing, and***

as per SHDG Design Principle 4.3.1: *"maximise landscape curtilage… and creation of useful outdoor spaces."*

as per SHDG Design Principle 4.3.2: *"To develop new buildings in an established historical context… that complements the existing urban character and adds value".*

as per SHDG Design Principle 4.3.4: *"Provide setbacks to respect neighbours privacy, overshadowing and existing amenity".*

**Neighbourhood character - Setbacks - design guidance**

The following are to be considered:

*1(e) "to set back the front building on the site generally in line with the existing building line,"*

The following comments are made:

- Street setbacks to First Avenue (north) appear to be approximately 2 metres, which is not generous for the neighbourhood –with improving solar access to the southern blocks and to the communal open space, and is acceptable.

- The proposed development meets the **Neighbourhood character – Setbacks - design guidance**, which is acceptable.

**Neighbourhood character - Trees - design guidance**

As per SHDG Design Principle 15.1.3 and SEPPH Schedule 8 Design Principle 1(g), the provision is:

> *"to retain, wherever reasonable, significant trees".*

The following comments are made:

- The current landscape environment is of villas surrounded by mature trees and planting, giving much landscape amenity to the neighbours. The arborists report recommends 366 trees to be removed. Trees proposed over the basement carpark will have a limited soil depth (approximately 800 mm) which will impede growth and may not reach full maturity.

- Landscape design should be re- designed to retain additional significant trees and to provide more soil depth or pockets of soil depth above the basement carpark. This is reflected within comments referred to above under the heading **Landscape Issues**.

**Neighbourhood character -Building form and siting / existing natural physical characteristics**

> *(d) to maintain reasonable neighbourhood amenity and appropriate residential character by—*
> *(i) providing building setbacks to reduce bulk and overshadowing, and*
> *(ii) using building form and siting that relates to the site's land form, and*
>
> as per SEPPH Schedule 8 Design Principle 1(b):
>
> > *"to maintain reasonable neighbourhood amenity and appropriate residential character by -(ii) using building form and siting that relates to the site's land form,*
>
> and
>
> as per SHDG Design Principles 3.1.3, 3.1.6 and 3.1.10 and 3.2 to retain existing overland flow paths.

The following comment is made:

- The proposed development appears to comply with Neighbourhood amenity and streetscape; Building form and siting, which is acceptable.

**Neighbourhood amenity and streetscape**; **Entries**

As per SHDG Design Principles 15.1.5 proposals are:

> *"to provide clearly identifiable and accessible shared pedestrian and vehicular entries, driveways and paths."* and 15.1.6 *"Provide a safe, well-lit accessible path to an easily identifiable entrance lobby."*

The following comment is made:

- The proposed development appears to comply with Neighbourhood amenity and streetscape; Entries subject to submission of a lighting design.

**Neighbourhood amenity and streetscape**; **Entries- Design Guidance**

The following comment is made:

- The proposed development appears to comply with Neighbourhood amenity and streetscape; Entries, which is acceptable.

**Design principle 2**; **Visual and acoustic privacy:**

*Seniors housing should be designed to consider the visual and acoustic privacy of adjacent neighbours and all residents of the seniors housing by -*
*(a) using appropriate site planning, including considering the location and design of windows and balconies, the use of screening devices and landscaping, (emphasis added).*

The following comments are made:

- The proposed development achieves moderate outcomes when assessed in relation to visual and acoustic privacy.

  - as per SEPPH Schedule 8 Design Principle 2(a) the location and design of windows and balconies should be considered to ensure privacy, and

  - as per the apartment Design Guide ADG 2F: *Minimum separation distances for buildings are: (for) up to four storeys (approximately 12m):*

    - *12m between habitable rooms/balconies*
    - *9m between habitable and non-habitable rooms*
    - 6m between non-habitable rooms.

2 Visual and acoustic privacy
*Seniors housing should be designed to consider the visual and acoustic privacy of adjacent neighbours and all residents of the seniors housing by—*

*(a) using appropriate site planning, including considering the location and design of windows and balconies, the use of screening devices and landscaping, (emphasis added)*

as per SHDG Design Principle 15.1.3 and SEPPH Schedule 8 Design Principle 1(g) is:

*"to retain, wherever reasonable, significant trees".*

The following comment is made:

- The current landscape environment is like an oasis; a villas surrounded by a forest of mature trees and planting, giving much landscape amenity as well as screening to the neighbours.

- In terms of landscape design, refer to comments under the heading Landscape Issues.

**Visual and acoustic privacy- Design Guidance**

The following comments are made:

- Trees proposed over the basement carpark will have a limited soil depth ((approximately 800 mm) which will impede growth, they will be unlikely to reach full maturity. Landscape design should be re- designed to retain additional significant trees and to provide more soil depth or pockets of soil depth above the basement carpark thus proving screening for visual privacy.

- Additional screening to be provided to the southern facades of Blocks B and C and to the northern facades Blocks E and F which overlook each other.

- When modifying the design to improve the non-compliant solar access to apartments, private open space and communal open space, detailed design of windows, screens and other devices should be developed to improve privacy to Blocks B, C, E and F.

2 Visual and acoustic privacy

Seniors housing should be designed to consider the visual and acoustic privacy of adjacent neighbours and all residents of the seniors housing by –

*(a) ensuring acceptable noise levels in bedrooms of new dwellings by locating them away from driveways, parking areas and paths.*

The following comment is made:

- The proposed development appears to comply with 'Visual and acoustic privacy'.

**Design principle 3 Solar access and design for climate**

The design of seniors housing should—

"*(a) for development involving the erection of a new building—provide residents of the building with adequate daylight in a way that does not adversely impact the amount of daylight in neighbouring buildings, and*

*(b) involve site planning, dwelling design and landscaping that reduces energy use and makes the best practicable use of natural ventilation, solar heating and lighting by locating the windows of living and dining areas in a northerly direction.*"

As per SEPPH 2021 Part 5, Section 108 (g) states:

*"at least 70% of the dwellings receive at least 2 hours of direct solar access between 9 am and 3 pm at mid-winter in living rooms and private open spaces,"*

The following comments are made:

- ***Solar access to proposed dwellings***

  - Our assessment is that only 76 of 145 = 52% of apartments receive at least 2 hours of direct solar access between 9 am and 3 pm at mid-winter in living rooms and a similar amount of private open spaces do not receive at least 2 hours of direct solar access between 9 am and 3 pm at mid-winter.

    (Block A – 9 apartments, Block B – 8 apartments, Block B – 8 apartments, Block C – 8 apartments, Block D – 5 apartments, Block E – 12 apartments, Block F – 10 apartments, Block H – 12 apartments. Block I – 3 apartments, Block J – 3 apartments have been assessed as non -compliant)

***Solar access to proposed communal open space***

The communal open space in the middle of the site is largely overshadowed between 9 am and 3 pm at mid-winter. However what seems to the principal communal open apse which is well located between Blocks D, F and H does receive 2/ 3? hours of direct solar access 9 am and 3 pm at mid-winter.

**Design guidance - Solar access and design for climate**

The following comments are made:

- The building design should be modified to permit compliant solar access to well over 70% of apartments. In a low rise bushland development on a very large site, to achieve almost 100% compliance with solar access must be considered.
- It should be noted that solar access is even more important for seniors and users with disabilities who spend a lot of time at home and who are likely to have mobility issues.
- Solar access should be increased to communal open space.
- Appropriate sun shading should be provided to all east and west facing bedroom windows.
- Viewed from the sun diagrams at larger scale and at half hour intervals should be provided to clarify applicant's claims of compliance.

As per SEPPH Schedule 8 Design principles for seniors housing, Design principle 3 Solar access and design for climate states:

> "*the design of seniors housing should –*
>
> *(b) involve site planning, dwelling design and landscaping that reduces energy use and makes the best practicable use of natural ventilation, solar heating and lighting by locating the windows of living and dining areas in a northerly direction.*

**Design guidance - Solar access and design for climate**

The following comment is provided:

- The building design should be modified to include more apartments with northern orientation. Kitchens, bathrooms and laundries on external walls should be re-designed to have natural light and natural ventilation, reducing energy use and resembling more closely a typical residential house that many of the residents will be downsizing from.

**<u>Design principle 4 Stormwater</u>**

The design of seniors housing should aim to—

> *(a) control and minimise the disturbance and impacts of stormwater runoff on adjoining properties and receiving waters by, for example, finishing driveway surfaces with semi-pervious material, minimising the width of paths and minimising paved areas, and*
>
> *(b) include, where practical, on-site stormwater detention or re-use for second quality water uses.*

as per SEPPH Schedule 8 Design Principle 1(b), which reads:

*"to maintain reasonable neighbourhood amenity and appropriate residential character by -*

*(ii) using building form and siting that relates to the site's land form,"*

and as per SHDG Design Principles including 3.1.3, which reads:

*"to manage and preserve existing natural features such as trees, overland flow paths, riparian corridors and sensitive environments"* as well as 3.1.6 and 3.1.10 and 3.2 retain existing overland flow paths

In terms of overland flow paths and flooding – refer KRG engineers report

**Design principle 5 - Crime prevention**

Seniors housing should –

*(a) be designed in accordance with environmental design principles relating to crime prevention,*

as per SEPPH Schedule 8, which reads:

*(i) site planning that allows observation of the approaches to a dwelling entry from inside each dwelling and general observation of public areas, driveways and streets from a dwelling that adjoins the area, driveway or street, and*
*(ii) providing dwellings designed to allow residents to see who approaches their dwellings without the need to open the front door.*

and as per SHDG Design Principles:

*15.1.5 "to provide clearly identifiable and accessible shared pedestrian and vehicular entries, driveways and paths."*

and

*15.1.6 "Provide a safe, well-lit accessible path to an easily identifiable entrance lobby."*

and Design principle 6 Accessibility, which reads:

*(b) provide safe environments for pedestrians and motorists with convenient access and parking for residents and visitors.*

The following comment is provided:

- The proposed development appears to comply with **Design principle 5** – **Crime prevention.**

**Design principle 6 Accessibility**

Seniors housing should –

*(a) have obvious and safe pedestrian links from the site that provide access to transport services or local facilities, and*

*104 Accessibility (b) provide attractive, yet safe, environments for pedestrians and motorists with convenient access and parking for residents and visitors.*
*and* as per SHDG Design Principles

15.1.5 *"to provide clearly identifiable and accessible shared pedestrian and vehicular entries, driveways and paths."*

The following comments are made:

- The proposed development appears to comply with **Design principle 6 Accessibility**

**Design principle 7 - Waste management**

*Seniors housing should include waste facilities that maximise recycling by the provision of appropriate facilities*.

The following comment is made:

- Matters relating to waste management are discussed separately, as outlined below under Waste Issues.

## Sustainable Design

Needs to be improved by:

- paying more attention to retention of existing landscape and landscape features, thus reducing damage to existing hydrogeology.
- Institute measures to cut down construction waste.
- Installation of photovoltaic systems.
- Installation of rainwater harvesting measures and storage.
- Re-using and recycling building materials as per SHDG Design Guidance 2.4.3 "To reduce the impact on the environment, by recycling materials and/or reusing existing buildings that may be suitable for adaptation or reuse. "
- Provide more naturally ventilated and lit kitchens, bathrooms and laundries as per SHDG Design Guidance 2.4.4 "*Design buildings that have operable windows, other measures may include high performance insulation, double glazing and generous shading to glazed windows and doors*."
- No outdoor clothes drying areas appear to be provided. This does not meet the requirements of ADG 4U-1 2. This aspect should be addressed.

**Ku-ring-gai Local Environmental Plan (KLEP) 2015**

- **Building height**
- **Floor Space Ratio**

The Department should confirm GFA and Floor Space Ratio having regard to the definition in Section 82 of SEPP (Housing) 2021. Areas to check include –

- parking spaces in excess of 1 space per dwelling, noting excess parking numbers (see (b) of Section 82 of SEPP (Housing);
- whether storage areas that are excluded are "ancillary storage spaces", and
- screening to a number of the balconies, where walls may exceed 1.4m

to meet the definition of "gross floor area".

Under the KLEP provisions, the proposed building height and FSR are non-compliant. Where inconsistencies occur between planning instruments, the Housing SEPP would ordinarily prevail.

However, consideration must be made, and the proposal is not satisfactory in this regard for the reasons articulated throughout this submission. Accepting the need to meet the required bushfire

requirements with setbacks, this has necessitated non-compliance. The character of the locality will change from 2-storey to 5-storey development, which is not supported.

It is noted that seeking the maximum building height and FSR is not an automatic right for any type of development. The consent authority must consider other planning controls and impacts of the development in accordance with Section 4.15 of the EP and A Act 1979. However, seeking the maximum FSR is not an automatic right for any type of development, particularly for seniors housing.

**Local Infrastructure Contributions**

The applicable s7.11 contributions plan is Ku-ring-gai Contributions Plan 2010, and the current inflated contributions rates can be found on councils' website and on the planning portal. These are updated quarterly.

The applicant seeks an exemption, however, as a private developer the site is owned by Levande Pty Ltd and is not listed on the register of Community Housing Provider (CHPs), exemptions are not supported. The grant of any exemption, full or partial, may be perceived as conferring a pecuniary advantage on one developer over others and creating an undesirable precedent. As such an exemption is not supported unless there are absolute meritorious circumstances that would also distinguish the case of this development from any other. Any applications for merit exemption need to address this issue.

**Visual presentation**

The proposed development is akin to an 'oasis', with use of palm trees, at its entrance, and external visual presentation, as shown within **Figure 7**. which is not characteristic of the prevailing streetscape character. Palm trees are not endemic to the locality and are not supported.

The perimeter of the site is provided with predominantly native vegetation with colour green canopy, which reflects the surrounding environment. The colour palette used within the 'Fisnishes and Schedule, drawing number "DA400 Issue B" does not incorporate the use of natural green colours. Control 16 of Part 23.4 of Councils DCP provides that "*Material and finish selection is to be in accordance with Part 23.3 to ensure low environmental impact*".

With the increase in building heights from predominantly 2-story to 5-storey, concern is raised as to the use of proposed external colours, which will be visible from adjoining properties and nearby ridgelines. The predominant material and colour use reflects the natural environment whereas the current use of


***Figure 7 showing Artist's Impression of the proposed development***

## Engineering Issues

The proposal is not supported, as outlined below. Refer to recommendations below.

**Water Management**

- Civil Engineering Drawings D00-D31 prepared by NDY A Tetra Tech Company.
- Stormwater Management Plan dated 26 May 2026 prepared by NDY A Tetra Tech Company.
- BASIX Certificate for stage 1 dated 22 May 2026.
- BASIX Certificate for stage 2 dated 24 May 2026.
- BASIX Certificate for stage 3 dated 24 May 2026.
- Survey Plan prepared by Norton Survey Partners dated 7/10/2025.

Part 24A. Site Design for Water Management

According to Council's mapping system, the site area is approximately 5ha located on the ridge, where there is about 4m of fall towards the Stanhope Street frontage and 16m of fall towards the rear. Site is not constraint with any of Council easements and is outside the flood planning area.

The stormwater management plan proposes to utilize three existing denetion basins for the stormwater management of the site. The stormwater report states that "*the design proposed to direct flows to the existing stormwater detention basins to the southern portion of the property and ultimately to Gordon Creek*". However, the report does not clarify what is the the legal point of dischrge for this proposal.

The adjacent property to the site is Council's owned land. Council requires that the discharge of stormwater flows from the subject development site must be controlled to Council's public drainage system / watercourse without causing any nuisance and uncontrolled runoff directed to adjoining and downstream properties. Clarification is sought in relation with the existing or proposed point of discharge for the proposed development.

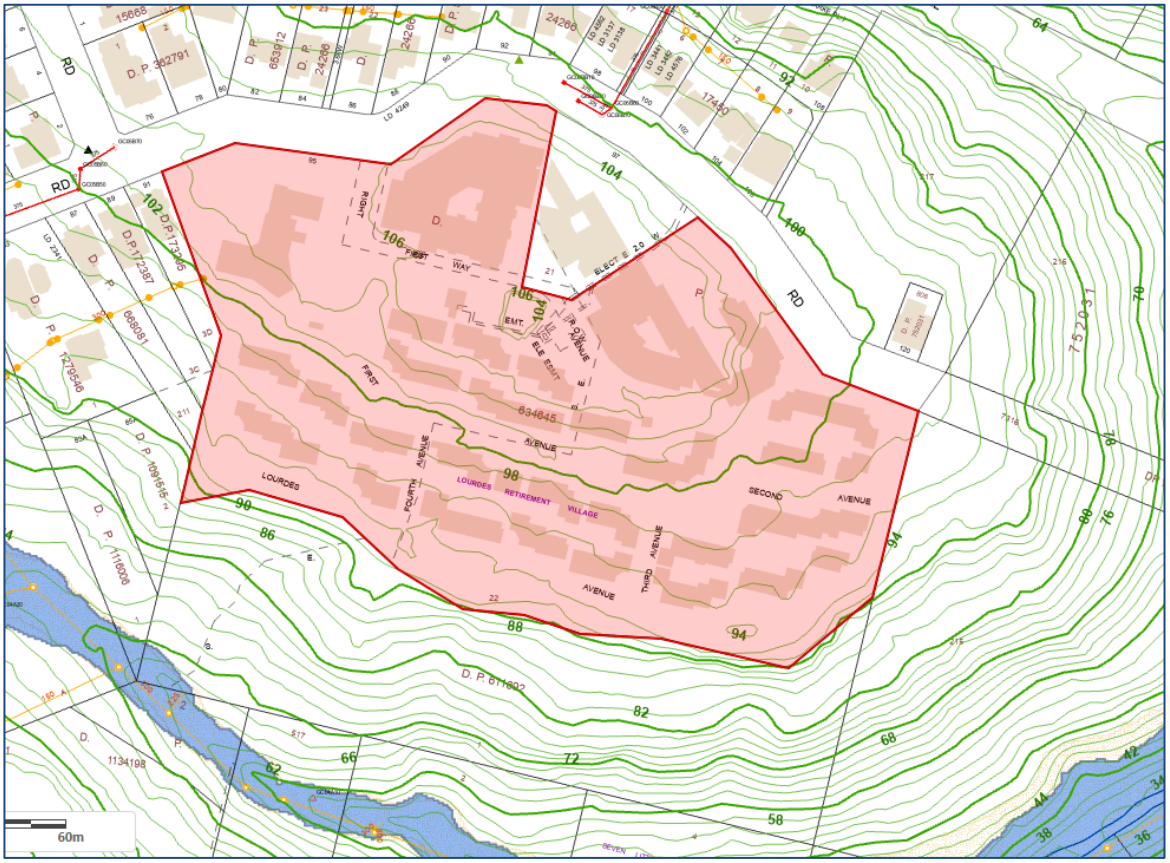



***Figure 8 showing site shaded red and contours***

Part 24C. 5 Controls for On-site Detention

The Stormwater Management Report proposes utilizing three existing stormwater detention basins within the site with combined detention volume of 170m$^3$, to mitigate peak post-development flow rates so that they do not exceed pre-development conditions.

The peak discharge from both the pre-development and post-development catchments was modelled using DRAINS. The results indicate that the post-development peak discharge is lower than the pre-development discharge for the 5% AEP event. However, for the 1% AEP event, the detention basins are unable to reduce the post-development peak flows to pre-development levels.

Part 24C.5 of the KDCP requires that the discharge from the site does not exceed the Permissible Site Discharge (PSD), which is not equivalent to simply comparing pre-development and post-development peak discharges. The PSD for each site is determined based on the site location and site area.

Although the KDCP provides an on-site detention (OSD) calculation sheet based on 60% of the site area, it is also acceptable to use a DRAINS model to determine the storage volume required to achieve the specified PSD.

The detail cross section of each detention basin with the outlet configuration, Top water level at 1% AEP storm event and orifice sizing are required to be provided as part of stormwater plans.

In providing the DRAINS modelling, hydrological model is required to be confirmed. The DRIANS model is to be provided to Council.

Part 24C.4 On-site Stormwater Management

Three BASIX Certificates for Stage 1 to Stage 3 have been submitted with no water

commitments required. The stormwater plan shows a total of 60,000L rainwater tank storage volume with re-use to be provided for toilets and irrigation purposes. The design engineers water demand for the site has been checked against Council's water balance model which suggests that a roof area of 4911m$^2$ and irrigating an area of 1000m$^2$ proposes to reduce the site runoff days by 68% which would satisfy Council's streamflow objectives under Part 24C.3 of the Ku-ring-gai DCP.

Part 24C.6 Stormwater Quality Control

Compliance with the pollutant load reduction targets prescribed under Part 24C.6 of the Ku-ring-gai Development Control Plan (DCP) has been demonstrated through MUSIC modelling. The proposed stormwater quality treatment strategy comprises 30 OceanProtect OceanGuard proprietary stormwater treatment devices, Filterra raingardens with a total biofiltration area of 120m², and a 60,000L rainwater reuse tank. Collectively, these stormwater quality measures are proposed to achieve the required pollutant reduction targets and improve the quality of stormwater runoff discharged from the subject site.

Notwithstanding the above, further information is required to adequately assess the proposed stormwater quality treatment strategy. Specifically, the applicant is requested to provide the following:

- The location of the proposed Filterra raingardens, clearly identified on the relevant engineering and landscape plans.
- Details of the proposed Filterra raingarden design, including typical cross-sections, dimensions, hydraulic configuration, and any other relevant design specifications.
- A legible MUSIC model layout plan clearly identifying the treatment train, catchments, and the location of each proposed stormwater quality treatment measure.

**Impacts on Council Infrastructure**

The proposed development does not include any works outside the subject site and is wholly contained within the site boundaries. Accordingly, the development is not expected to adversely impact Council's infrastructure.

**Geotechnical Investigation**

A geotechnical report based on boreholes drilled to below basement level is to be submitted with the DA. The report is to contain recommendations for excavation methods and support, vibration monitoring, dilapidation survey etc. Groundwater levels are to be recorded to determine if permanent dewatering will be required, in which case the DA may require referral to NSW Office of Water for licensing conditions (Integrated).

The geotechnical report prepared by JKGeotechnics dated 21 May 2026 has been submitted to assess the subsurface conditions and provide preliminary recommendations for the excavation of the basement. It is inferred that approximately 4.2 to 8.5m of excavation is required for the proposed development.

The fieldwork comprised the drilling of nine (9) cored boreholes with the depths ranging from 4.10-15.19m, within the depth of investigative boreholes and installation of three (3) groundwater well at BH101, BH107 and BH108 location.

The report states that based on the groundwater level monitoring results, the proposed basement excavations will partially extend below the measured groundwater levels. Groundwater seepage inflows into the proposed basement excavations are therefore expected and will need to be controlled by a sump and pump and/or gravity drainage systems. A WSW approval will need to be obtained from the relevant authority to allow for the drainage and discharge. In order to obtain the WSW approval, a DMP will need to be prepared.

The report states that from groundwater seepage analyses, drained basement structures appear geotechnically feasible. And the report has assumed that drained basement structures will be permitted.

A Groundwater Seepage Analysis has also been prepared in the report. The report states that from the results of their analyses, the long-term total groundwater inflows into the proposed basement excavations are expected to be in the order of 0.30ML/year to 2.24ML/year and as a result, a drained basement solution are considered feasible for the site. Whilst this may be the case, in the event that groundwater will be encountered and the fact that Council's drainage network is under capacity, a condition should be imposed that prior to the issue of any Construction Certificate, the Certifier is to be satisfied that the basement has been designed as a fully tanked structure as per the requirement of Part 24 C.3(8) of the Ku-ring-gai DCP, and any Dewatering Water Supply Work Approval has been obtained from WaterNSW.

The geotechnical recommendations regarding excavation support, vibration monitoring, dilapidation reporting of adjoining buildings and foundation design shall be carried out during construction as specified within the report.

**Preliminary Groundwater Quality Screening**

A Preliminary Groundwater Quality Screening prepared by JKGeotechnics dated 21 May 2026 has been submitted. The scope of work included the following:

- Sampling from nine monitoring wells installed at the site by JKG;
- Analysis of groundwater samples for a range of contaminants and parameters;
- Interpretation of the results with reference to relevant screening criteria;
- Data quality assessment; and
- Preparation of a report.

The groundwater samples analysed for the screening identified elevated concentrations of selected metals (cadmium, copper, lead, total mercury, nickel, zinc and aluminium), TRH F2 in MW104 outside the SAC adopted for this screening. The pH of all primary samples excluding MW104 were outside the range for recreational and fresh waters. The results indicate that the groundwater will require treatment prior to off-site disposal to the stormwater during construction phase dewatering.

The report states that a specialist contractor must be contacted to design an appropriate water treatment system to facilitate the disposal of groundwater during temporary construction dewatering, should off-site disposal of groundwater to stormwater be required.

**Recommendations**

The proposal is not supported by sufficient information.

**Water Management**

1. The stormwater report states that "*the design proposed to direct flows to the existing stormwater detention basins to the southern portion of the property and ultimately to Gordon Creek*". However, the report does not clarify what is the the legal point of dischrge for this proposal. Council requires that the discharge of stormwater flows from the subject development site must be controlled to Council's public drainage system / watercourse without causing any nuisance and uncontrolled runoff directed to adjoining and downstream properties. Clarification is sought in relation with the existing and/or proposed point of discharge for the proposed development.

2. Part 24C.5 of the KDCP requires that the discharge from the site does not exceed the Permissible Site Discharge (PSD), which is not equivalent to comparing pre-development and post-development peak discharges (as proposed in the stormwater report). The proposed

detention basin are required to provide a minimum storage volume to attenuate the peak discharge from the site up and including 1% AEP to the required PSD.

3. The detail cross section of each detention basin with the outlet configuration, top water level at 1% AEP storm event and orifice sizing are required to be provided as part of stormwater plans.

4. The DRIANS model is to be provided to Council.

5. The location of the proposed Filterra raingardens, clearly identified on the relevant engineering and landscape plans.

6. Details of the proposed Filterra raingarden design, including typical cross-sections, dimensions, hydraulic configuration, and any other relevant design specifications are to be provided.

7. A legible MUSIC model layout plan clearly identifying the treatment train, catchments, and the location of each proposed stormwater quality treatment measure.

8. The MUSIC model is to be provided to Council.

**Groundwater and Dewatering Management Plan**

1. Council notes that the applicant seeks to provide a drained basement as referred to within the Groundwater Seepage Analysis part of geotechnical report. In the current circumstance, Council cannot support a drained basement design that proposes permanent discharge of ground water into Council's public drainage system, as Council's drainage network is at capacity. As the applicant does not propose to upgrade Council's system, the drained basement solution will not be supported. In accordance with KDCP 22.3(4), the basement must be tanked.

2. An appropriate water treatment system to facilitate the disposal of groundwater during temporary construction dewatering is to be submitted, should off-site disposal of groundwater to stormwater be required. A dewatering management plan prepared by a specialist dewatering contractor is to be carried out. The details and the location of the holding tanks / basins / treatment system and strategy to capture groundwater inflows to be used for the temporary construction dewatering is to be provided. The location of the existing Council infrastructure to which connection is proposed must be shown.

## Traffic Issues

**Traffic generation and associated impacts**

The Transport Impact Assessment (TIA) has calculated the traffic generation of the site using the industry accepted traffic generation rate for seniors residential developments (0.18 vehicle trips in PM peak hour) set out by Transport for NSW in the Guide to Transport Impact Assessments. Although not quantified in Transport for NSW in the Guide to Transport Impact Assessments, and AM peak hour traffic generation rate of 0.10 vehicle trips/dwelling was applied. Applying these rates to the proposed 145 independent living units would result in the following peak hour vehicle movements from the site:

- AM peak hour: 15 vehicle trips (2-way) per hour.
- PM peak hour: 26 vehicle trips (2-way) per hour.

The existing peak hour trips from the existing 172 independent living units would result in the

following peak hour vehicle movements from the site:

- AM peak hour: 18 vehicle trips (2-way) per hour.
- PM peak hour: 31 vehicle trips (2-way) per hour.

At full occupancy of the existing site, the proposal indicates a reduction in overall traffic generation. At the time of the preparation of the TIA, the transport consultant assessed the increased traffic generation of the proposal based on current occupancy of 35 independent living units. This would result in the following net additional peak hour vehicle movements from the site:

- AM peak hour: 11 vehicle trips (2-way) per hour.
- PM peak hour: 19 vehicle trips (2-way) per hour.

An operational assessment of the impacts to the intersection of Stanhope Road and Rosebery Road was analysed using SIDRA software was undertaken. The existing level of Levels of Service (LoS) was found to be A in the AM and PM peak (good operation), and with the addition of the 11 and 19 vehicle trips per hour in the AM and PM peak respectively, the intersection would still be performing at Level of Service A, with negligible additional delays at the intersection.

**Parking provision and design**

Car Parking

The following independent living unit breakdown was provided as part of the TIA:

| **Use** | **Seniors Living - ILU** |
|---|---|
| | |
| 1 bedroom | 0 |
| 2 bedroom | 76 |
| 3+ bedroom | 69 |
| **Total** | **145** |

Car parking provision has been assessed against the requirements of the Housing SEPP and the Ku-ring-gai DCP:

| **Parking type** | **Housing SEPP requirement** | **Ku-ring-gai DCP requirement** | **Proposed** |
|---|---|---|---|
| 1 bedroom ILU | 0 | | 287 (no breakdown provided) |
| 2 bedroom ILU | 76 | 97 | |
| 3+ bedroom ILU | 104 | | |
| Visitors | - | 29 | 25 |
| Staff | - | | 6 |
| **Total** | **180** | **126** | **319** |

The proposed residential parking provision meets the requirements of the Housing SEPP and the Ku-ring-gai DCP, but does not comply with the visitor car parking provisions of the Ku-ring-gai DCP. However, given that the existing residential aged care facilities on site are proposed to be retained, clarification is required as to where the parking requirements for those uses will be met.

The proposed provision of 287 residential parking spaces suggests that all of the 145 ILUs will effectively be allocated 2 car parking spaces, which is considered excessive. There is scope to substantially reduce ILU parking provision to improve affordability and reduce construction impacts, and car parking reductions can be supplemented through the implementation of on-site car share vehicles.

High on-site resident car parking provisions would also be detrimental to the ongoing viability of

the 556 route bus service that connects within the site, where bus stop utilisation data from Transport for NSW indicates current patronage from the internal bus stops is already extremely low.

Any additional vehicular requirements resulting from Council's assessment of the waste management provisions will need to be assessed for accessibility and manoeuvrability of the basement.

Electric Vehicles (EVs)

There is no mention of provision for electric vehicles in the TIA or the Environmental Impact Statement. It is recommended that EV readiness be provided for all ILU car parking spaces within the development, with design and construction (provision for conduits, switchboards, electrical capacity etc) to enable installation of electric vehicle charging points that are linked to each individual dwelling electricity meter.

**Access Point**

The proposal utilises the existing access point on Stanhope Road to provide access to the internal road network. Swept paths demonstrate access is satisfactory for up to 8.8m long medium rigid vehicles and a Rural Fire Service vehicle. However, any additional vehicular requirements resulting from Council's assessment of the waste management provisions will need to be assessed for accessibility.

**Bushfire evacuation**

An assessment was undertaken of the capacity of Stanhope Road to accommodate evacuation of the 145 ILUs. It found that if 75% of ILUs evacuate in the hour before a bush fire arrives, capacity utilisation of Stanhope Road would be 23% which assumes evacuation volumes overlaid with peak hour traffic volumes on Stanhope Road. However, an assessment should also be made of evacuation of the site overlaid with the evacuation of 75% of other residential dwellings in a notional evacuation catchment area in the hour before a bush fire arrives, as well as the residents of the aged care facility (if sheltering in place is not being considered).

**Preliminary Construction Pedestrian Traffic Management Plan**

A preliminary Construction and Pedestrian Traffic Management Plan (CTMP) has been prepared, to explore how construction traffic management may be carried out at the site.

The CTMP assumes the use of construction vehicles up to 12.5m long heavy rigid vehicles, which is reasonable. Site access will be provided where constriction vehicles will enter and leave in a forward direction, which is acceptable.

Construction vehicle routes include Pacific Highway and Stanhope Road, as well as Archbold Road/Eastern Arterial Road and Springdale Road/Rosebery Road. Given the availability of the Pacific Highway/Stanhope Road route and the length of travel on load limited roads through the use of the Archbold Road/Eastern Arterial Road route, Council would support only the Pacific Highway/Stanhope Road route.

No Works Zone is envisaged on Stanhope Road, as all loading/unloading operations are expected to be contained within the site.

Construction employee parking may be available on-site but this will be confirmed as part of the detailed Construction and Pedestrian Traffic Management Plan. It is requested that all construction employee parking be accommodated on-site to avoid impacts to surrounding residents on Stanhope Road.

**Conclusions:**

1. The proposed visitor car parking provision does not comply with the requirements of the Ku-ring-gai DCP.
2. Clarification is required as to how and where the parking requirements for the existing residential aged care facilities will be met.
3. The proposed provision of 287 residential parking spaces for the 145 ILUs is considered excessive. There is scope to substantially reduce ILU parking provision to improve affordability and reduce construction impacts, and car parking reductions can be supplemented through the implementation of on-site car share vehicles. Excessive on-site resident car parking provisions would also undermine the ongoing viability of the 556 route bus stops within the site, where bus stop utilisation data from Transport for NSW indicates current patronage from the internal bus stops is already extremely low.
4. Any additional vehicular requirements resulting from Council's assessment of the waste management provisions will need to be assessed for accessibility and manoeuvrability between the Stanhope Road access point and the loading area in the basement.
5. It is recommended that EV readiness be provided for all ILU car parking spaces within the development.
6. An assessment should also be made of bushfire evacuation of the site overlaid with the evacuation of 75% of other residential dwellings in a notional evacuation catchment area in the hour before a bush fire arrives, as well as evacuation of the residents of the aged care facility (if sheltering in place is not being considered).
7. The Archbold Road/Eastern Arterial Road and Springdale Road/Rosebery Road route for construction vehicle access is not supported.
8. Construction employee parking should be wholly contained within the site.

## Heritage Issues

From a heritage perspective the following concerns are made:

- The site contains a listed heritage item, *"Headfort House" building, interiors and grounds.* The established statement of significance in State Heritage Inventory (SHI), founds that (abridged) that it is *of local heritage significance in terms of its historical, associations, aesthetic/technical, social, rarity and representative value. This satisfies six of the Heritage Council criteria of local heritage significance for local listing.*

  Significant past uses include *schools, World War II training, hospitals and retirement, and the associated community groups and their descendants.*

- The LEP-listed curtilage of the item is Part of Lot 22 DP 634645. The remaining area of the Lot 22 DP 634645 is in same use and occupancy and thus presents setting of the heritage item; "grounds" are an integral part of the item, not setting. The whole complex is extended curtilage for the item. Additionally, the whole Lourdes site supports its community associations and historic connections.

  The proposal does not address subdivision of part of the Lot 22, which raises concern about the Objective 1 of the Part 19A of the DCP (Subdivision), *to ensure new subdivisions do not have an adverse impact upon the curtilage and setting of Heritage Items.*

  Additional information is required to assess how will future development on subdivided areas satisfy Objective 5 of this Part, which is *to provide a visual transition between medium/high density residential development and the Heritage Item.*

- Significance of the Chapel and impact on that significance was not fully addressed. State Heritage Inventory informs that *the present chapel wing was constructed between 1918 and 1921 and converted into a chapel in the 1980s.* Its use is closely related to past significant uses, especially *retirement and the associated community groups and their*

*descendants.* Physical changes to the Hartford house and the Chapel could have been avoided, and do not appear justified.

- The Chapel is an element of Exceptional value as component of the item. It is not adequately explained how future use of the Chapel will satisfy Objective 1 of the Part 19D.1 of the DCP (Adaptive Reuse) *to ensure that new uses for Heritage Items are compatible with the fabric and heritage significance of the Heritage Item.*

  Control 1 of this Part requires *preparation of a Conservation Management Plan (CMP) to guide change and ensure conservation of the Heritage Item* however, decisions were made without preparation of the CMP. Future use of the café should be explored in more detail, as it may imply additional installations and connections for services.

- Materials, forms, colours and details do not follow the character of the site but appear to be unrelated to it, which is additionally important in the context of extended curtilage of the item and its presentation to future users.

  It is of concern that proposal did not address Objective 1. of Part D.5 of the DCP, which is *to ensure the significant external features of a Heritage Item and its setting are retained and new development is sympathetic in terms of bulk, form, style, character, scale, and materials*. Additional information is required to address that proposal will satisfy Objective 3. of this Part of the DCP, *to ensure that the materials, finishes, and colours of new work enhance the identified significance of the Heritage Item*.

- Interpretation of European historic heritage significance and key historic events on the site should be specified. An Interpretation Plan should be provided with policies and details advising interpretation of heritage significance of the existing building and its site, including details about the interpretation media.

## Environmental Health Issues

### 1. NOISE

The submitted Noise and Vibration Impact Assessment prepared by E-LAB Consulting (Project No. P02872, Revision 003, dated 18 May 2026) has been reviewed.

The report identifies that the proposed development will incorporate centralised HVAC systems, condenser units and ventilation fans. However, the report does not identify the proposed locations of this mechanical plant, include a plant schedule, or provide a detailed acoustic assessment based on the final mechanical services design.

The submitted Environmental Impact Statement prepared by Beam Planning for Lourdes Retirement Village, 95–97 Stanhope Road, Killara (SSD-88004956) identifies that the basement levels will accommodate "building plant and services", "building plant" and hot water plant. However, it is not clear whether all significant mechanical plant associated with the development will be located within the basement or elsewhere on the site, including any rooftop or podium level plant areas.

It is therefore recommended that the applicant provide clarification regarding the proposed locations of all significant mechanical plant and equipment, including, where applicable:

- centralised HVAC plant and associated condenser units;
- basement supply and exhaust ventilation systems, including the location of all intake and discharge louvres;
- kitchen exhaust systems associated with the communal dining facilities, café and residential aged care facility;
- any mechanical plant associated with the indoor pool or other communal facilities where the equipment has the potential to generate external noise; and
- any other external mechanical plant or equipment with the potential to generate noise.

While it is acknowledged that the final mechanical services design may be developed following determination of the application, sufficient information should be provided at this stage to identify the proposed locations and nature of all significant mechanical plant and operational noise sources. This will ensure that the operational acoustic assessment has appropriately considered all plant associated with the development and demonstrates that the proposal is capable of operating without giving rise to offensive noise under the Protection of the Environment Operations Act 1997.

Assessment should be undertaken in accordance with the NSW Environment Protection Authority's Noise Policy for Industry (2017), with final equipment selections and verification of compliance able to be addressed during the detailed design and commissioning stages.

**2. CONTAMINATION**

The submitted Preliminary Site Investigation prepared by Prensa Pty Ltd (Job No. 113275S, dated June 2023) and Targeted Soil Contamination Assessment prepared by Prensa Pty Ltd (Job No. 148844S, dated May 2026) have been reviewed.

The Targeted Soil Contamination Assessment was undertaken in response to the recommendations of the Preliminary Site Investigation and included targeted intrusive investigations and laboratory analysis of soils within areas identified as having the greatest potential for contamination.

The submitted contamination investigations adequately address the requirements of Clause 4.6 of the State Environmental Planning Policy (Resilience and Hazards) 2021. Based on the findings of the investigations, contamination requiring remediation has not been identified, and the consultant concludes that the site is suitable for the proposed development.

Notwithstanding the above, the Targeted Soil Contamination Assessment prepared by Prensa Pty Ltd (Job No. 148844S, dated May 2026) notes that isolated contamination hotspots cannot be entirely ruled out and recommends that any unexpected contamination encountered during demolition or excavation works be managed through the implementation of an Unexpected Finds Procedure.

**3. OTHER ENVIRONMENTAL HEALTH MATTERS**

It is noted that the proposed development includes communal food preparation and dining facilities, a café, an indoor swimming pool and a retained residential aged care facility. These components of the development may be subject to separate legislative requirements under the Food Act 2003, Food Regulation 2025, Public Health Act 2010 and Public Health Regulation 2022, where applicable.

The Department should consider whether appropriate conditions of consent are required to ensure that the detailed design, operation and registration of these facilities comply with the relevant legislative requirements prior to occupation or operation.

## Waste Issues

**Waste and Recycling Requirements**

This development, containing 145 independent living communal facilities, requires allocation of waste and recycling bins based on the assumption that the generation rates of the 2–3-bedroom independent living. Additional bins and waste generation have been calculated for commercial operations and communal facilities on site as per the waste report.

For the residential land use the development must use Councils waste generation rates (DCP Part 25A.5 -13 pg 25-9), **NOT** as per the waste management plan, which has used the Council of Waverly generation rates.

The development will generate the following quantities of residential waste:

| **Waste Type** | **L Per unit / weekly** | **units** | **Total per week** | **Bin Size** |
|---|---|---|---|---|
| General Waste | 120 | 145 | 17,400 | 1100 |
| Container Recycling | 60 | 145 | 8,700 | 660 |
| Paper Recycling | 60 | 145 | 8,700 | 660 |
| Food | 25 | 145 | 3,625 | 660 |
| Bulky Waste | 15 m2 + 35m2 | | | 50m2 |

Based upon the submitted Waste Management Plan the following commercial waste will be generated:

Table 9 Waste Generation Assessment (Clubhouse)

| Use/Type | Total no. of units / Area m² | Waste Per Week | | |
|---|---|---|---|---|
| | | Garbage | Recycling | Organics |
| Consult/Medical | 27.5m² | 40L | 19L | - |
| Salon | 44.24m² | 155L | 124L | - |
| Gym | 94.5m² | 132L | 99L | - |
| Bar | 18.80m² | 69L | 69L | - |
| Restaurant/Dining Kitchen | 115.25m² | 1,613L | 2,259L | 1,613L |
| Total Waste Generated per Week | | 2,009L | 2,570L | 1,613L |

Table 10 Waste Generation Assessment (Café)

| Use/Type | Total no. of units / Area m² | Waste Per Week | | |
|---|---|---|---|---|
| | | Garbage | Recycling | Organics |
| Café | 226m² | 1,582L | 1,898L | 1,582L |
| Total Waste Generated per Week | | 1,582L | 1,898L | 1,582L |

Based upon the above the current development requires the following waste services:

| **Waste Type** | **Litres per week** | **Bin size** | **Bin Numbers- twice weekly** |
|---|---|---|---|
| General Waste | 17,400 | 1100 | 8 |
| Container Recycling | 8,700 | 660 | 7 |
| Paper Recycling | 8,700 | 660 | 7 |
| Food (FOGO) | 3,625 | 240 | 8 |
| Bulky Waste | | 50 m² | |
| Communal Areas (Clubhouse- incl salon, bar, gym restraint) | Waste - 2009 | 660 | 2 |
| | Recycling - 2570 | 660 | 2 |
| | Organics - 1613 | 240 | 4 |
| Cafe | Waste - 1582 | 660 | 2 |
| | Recycling - 1898 | 660 | 2 |
| | Organics - 1582 | 240 | 4 |
| Medical waste | | | |

NOTE 1: Additional rotational bins (240L recycling bins) will be supplied to for each floor to ensure there is bins on the floor on collection day.
NOTE 2: Council will consider twice weekly collections.

NOTE 3: Bins will be upsized for collection. The cleaners will need to decant each bin on each floor into larger bins for collection.

| Bin Type | Height | Width | Depth | Footprint | Approx max weight |
|---|---|---|---|---|---|
| 120 L | 940mm | 485mm | 530mm | 0.33m2 | 50kg |
| 240 L | 1080mm | 580mm | 735mm | 0.43m2 | 95kg |
| 360 L | 1160mm | 690mm | 745mm | 0.49m2 | |
| 660 L | 1250mm | 1370mm | 850mm | 1.16m2 | 310kg |
| 1100 L | 1470mm | 1370mm | 1245mm | 1.74m2 | 450kg |
| | | | | | |

NOTE: bin space / footprint calculations differ in the waste management plan compared to council calculations.

The following comments are made with regard to waste issues:

1. **FOGO**
   a. Allowance for the introduction of FO/FOGO service needs to be provided with regard to bin numbers and storage. Due to state government mandate.
   b. Food Organic bins will be required for the commercial kitchen areas.
   c. Onsite food processing may want to be considered.

   Recommended action:
   i. A revised bin room layout needs to be provided to indicate all bins can fit in the bin holding room.

2. **Unit waste infrastructure**
   a. There needs space in the kitchen area of each independent unit for waste separate bins. There needs provision for 4 separate bins.

   Recommended action:
   i. Separate waste bin for each kitchen will be conditioned.

3. **Loading Dock**
   a. Designed for HRV truck as per AS 2890.2 as per seniors housing design guided and KRG DCP
   b. Loading dock needs a 4.5m clearance for truck travel path (as per AS2890.2) and KRG DCP commercial services, including along full travel path.
   c. Access to Loading dock needs to be separate to residential vehicles as per Dept. of Planning Seniors Housing Design Guide section 12.
   d. HRV needs to forward in / forward out with max 1 reverse movement.
   e. Loading dock turning should not occur at the mouth of the driveway with residential car access as this is considered unsafe.

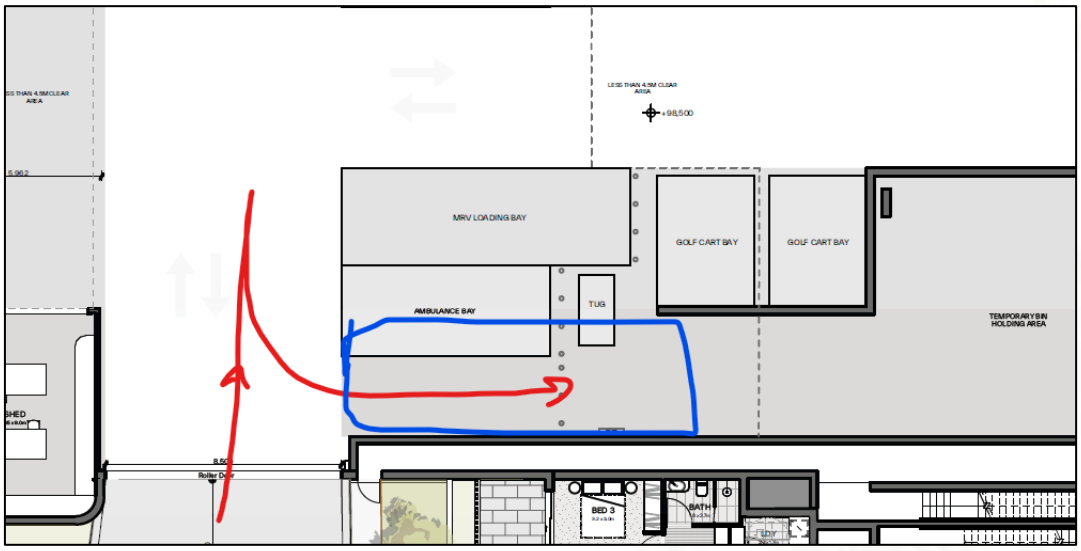
   Recommended action:
   i. Loading area to be design for council HRV waste truck as per AS2890.2
   ii. HRV needs to forward in down the drive then reverse into the loading dock then forward out. Only 1 reverse movement is allowed.
   iii. Separate collection area for bulky waste needs to be provided which the HRV truck can access directly.

4. **Truck access**
   a. Waste vehicles enter along Stanhope Road. Travel on the internal road to the lower basement loading dock.

b. Needs to be separate to residential vehicles.
c. Needs to be designed for HRV as per AS2890.2 (note waste plan say MRV)
d. There is potentially up to 16 waste services per week required + deliveries.

Recommended action:

i. Travel path for HRV needs to be provided and confirmed.
ii. Forward in/out needs to be provided.
iii. 4.5m clearance needs to be provided as per AS2890.2.
iv. All waste bins for all services are to be collected from the loading dock.




**5. Bin rooms on each floor**

a. Lack of recycling is provided on each floor
b. A room on each floor, for the independent living units, is best to store all bins and the chute. A chute facing the hallway is likely to emit smells if the waste is not disposed of properly and chute door left open. This ensures waste and recycling facilities are easily accessible for all residents.
c. Single chute for waste only – no recycling chute allowed.
d. Room is to be mechanically ventilated and drain to Sydney water.
e. Waste room is to be no further than 30m from any unit.
f. Needs to be sized to fit all bins and chute.

Recommended action:

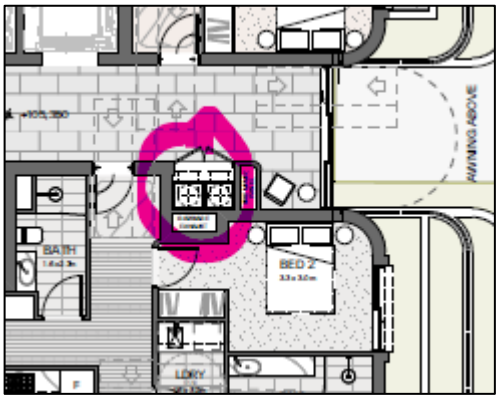
i. Each floor, of independent living needs a waste cupboard to include a waste chute/ container recycling and paper recycling in addition to a FO bin. – so, the equivalent space for waste chute and 3 bins needs to be provided within the one room.

**6. Chute System.**

a. A dual chute system is proposed. This is not best practice and is unacceptable
b. Appears to terminate at Lower Ground 2 floor
c. 1100L bins are acceptable under the waste chute – with no compaction
d. 3 days capacity must remain under the chute and a linear system may be required.

Recommended action:

i. Redesign for a single chute system for waste within a room with 3 recycling bins.




7. **Waste Rooms in basement.**
    a. A waste room in the basement for each building is proposed.
    b. 3 days capacity under chute. May need linear to mechanically move bins. No compaction of waste is allowed under this type of chute and bin system.
    c. These bins need to be moved to a bin holing room near the loading dock.

Recommended action:

i. Demonstrate waste room can fit all waste bins from under chutes.
ii. Safe carting path from waste room to bin storage room and truck loading area needs to be show.

8. **Bulky waste**
    a. Bulky waste storage is of insufficient size as per KRG DCP 25B .
    b. A HRV vehicle collects bulky waste. Collection will be via the loading dock and not via the driveway (as per DCP)
    c. Doorways are to be 2m wide.
    d. A smaller bulky waste room needs to be provided near the lifts for each building. This means independent living residents can cart the bulky items down the lift and place in bulky waste collection rooms. The manager then moves the items to the central bulky waste room for collection.
    e. A larger bulky waste collection room needs to be provided, where items are collected from by an HRV.

Recommended action:

i. Smaller bulky waste storage room (suggest 5-6m2) for each building needs to be provided.
ii. Larger central bulky waste collection room (36m2) needs to be provided. This is to be separate from the bin holding room but accessible directly from the loading dock.
iii. It must be demonstrated how the building manager will move the bulky waste from storage room to the collection location in a safe manner. Carting paths must be shown on plans.
iv. Truck access for HRV to the bulky waste collection room needs to be provided.

9. **Bin Holding room.**
    a. All bins for collection to fit within the bin holding room.
    b. All bins need to be shown within the bin holding room.
    c. Direct access to the bin holding room for a HRV needs to be provided.
    d. Separate storage room for the hazardous waste bins needs to be provided.

Larger compactor waste bins may want to be considered and discussed with council. Such as the image below. This is different to the usual bins supplied by council for under chutes.

10. **Building manager will be required to:**
    - Relocate full bins from bin rooms on each floor to bin holding room and decant into larger bins for collection.
    - Relocate bulky waste from storage room to presentation area near loading dock.

**NOTES:**
Council will be providing the waste services for this development as it will be rated residential.

11. **Other additional conditions**
    - All doorways must be 2m wide for bin rooms
    - All bin rooms to provide its own ventilation.
    - All waste rooms to provide floor waste connection to sewer.
    - All waste rooms to have tap and hose.

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**Conclusion**

Ku-Ring-Gai Council thanks the Department for providing Council with the opportunity to comment on the proposed SSD Application. As detailed in this submission, the Application submitted is entirely inappropriate has been prematurely submitted without adequate engagement by Council and the local community.

Council request that the DPHI not approve the application in its current form for the number of deficiencies raised in this submission.

Council does not support the applicant's proposal to vary the required affordable housing. Should this be supported it will set a negative precedent moving forward for all other residential development. Given this, Council strongly recommends that DPHI require the applicant provide the full contribution or require the monetary payment.

The Application needs to demonstrate a balanced land use outcome with both commercial and residential, to ensure social, environmental, and economic are cohesively achieved. The current scheme does not achieve this.

Council requests that the above issues outlined be addressed during the Response to Submission phase of the Assessment. This information is requested to be provided to Council for further review and comment.

Should the Applicant or the Department wish to engage with Council directly on the issues raised above, Council would welcome the opportunity to consult with the Applicant or the Department. Council **objects** to the application in its current form.

## Attachment 2

**Ku-ring-gai Council's objection to SSD-88004956 at 95-97 Stanhope Road, Killara.**

# Lourdes Retirement Village (92-95 Stanhope Rd, Killara):

# Bush Fire Strategic Study

**Mark Schuster (Bushfire Technical Officer) Ku-ring-gai Council**

## DOCUMENT TRACKING

| | |
|---|---|
| **Project Name** | Lourdes Retirement Village redevelopment proposal, Bush Fire Strategic Study |
| **Project Number** | |
| **Project Manager** | Sophia Findlay |
| **Prepared by** | Mark Schuster |
| **Reviewed by** | |
| **Approved by** | Antony Fabbro, A/Director, Strategy and Environment, Ku-ring-gai Council |
| **Status** | Final |
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### ACKNOWLEDGEMENTS

This document has been prepared by Ku-ring-gai Council with GIS/bushfire predictive analysis support from RedEye Pty Ltd.

*Disclaimer*

Template 2.8.1

# Contents

# List of Figures



# List of Tables

# Abbreviations

| Abbreviations | Description |
|---|---|
| APZ | Asset Protection Zone |
| BFSS | Bush Fire Strategic Study |
| EP&A Act | *Environmental Planning and Assessment Act 1979* |
| DPE | Department of Planning & Environment |
| | |
| GEV | Generalised Extreme Value |
| LEP | Local Environmental Plan |
| LGA | Local Government Area |
| NPWS | National Parks and Wildlife Service |
| NSP | Neighbourhood Safer Place |
| NSW | New South Wales |
| OEH | Office of Environment and Heritage |
| PBP | Planning for Bushfire Protection |
| RF Act | *Rural Fires Act 1997* |
| RFS | Rural Fire Service |
| SFAZ | Strategic Fire Advantage Zone |
| SFPP | Special Fire Protection Purpose |

# Executive Summary

The recently released *PBP2019* includes new guidance on Strategic Bush Fire Planning. The new PBP2019 calls for a Strategic Bush Fire Study (SBFS) at the earliest stages of the master planning process, this would likely include a rezoning application where reliance is placed on the findings of an urban design analysis and masterplan of the site. The SBFS follows the emergency management principles within the NERAG principles of establishing the context, carrying out a risk assessment and then applying risk treatment. The strategic nature of the bush fire study enables an assessment to be made of the overall appropriateness of allowing development within a particular landscape/bush fire risk context, essentially asking the question whether a future community in the proposed location would be resilient to bush fire attack.

The aim of this Study is to review the proposed Lourdes Retirement Village redevelopment Master Plan under the strategic planning requirements of PBP (RFS 2019) as well as in light of previous bushfire risk studies for the locality. The key objectives are to:

i Undertake a Bush Fire Strategic Study as per the strategic planning principles and assessment considerations outlined in Chapter 4 of PBP; and

ii Assess the proposed Master Plan against agreed 'benchmarks' established by previous bushfire risk studies and specifically those identified by stakeholders.

This Bush Fire Strategic Study has examined whether the Lourdes Retirement Village site is appropriate in the bush fire hazard context and details the strategic implications of future development for bush fire mitigation and management. The new Structure Plan has also been evaluated against the approach and findings in the earlier bushfire risk assessments (Eco Logical Australia 2010 and BlackAsh 2022) and previous Stakeholder agreed 'benchmarks' are met by the new Structure Plan.

This Study associated with the new Master Plan area revealed:

- Extensive areas of elevated bushfire risk exist in the broader landscape, with only some lower hazard areas across that landscape;
- The elevated risk areas are immediately adjacent to and not well separated from the redevelopment site;
- The bushfire hazard context on bushlands immediately adjoining the redevelopment site are generally a moderate - high level with strategic implications for future development and are not able to be appropriately managed under the Acceptable Solutions within PBP;
- Small internal bushfire hazards exist within the redevelopment site, but these are not well separated from landscape-wide hazards.

Given the high bushfire risk profile of the Lourdes Retirement Village redevelopment Proposal at a Strategic Level and the very limited evacuation data and analysis presented, satisfactory 'unassisted' on-site evacuation has not been demonstrated to be feasible.

Major conclusions of this Study are:

- The Master Plan does not comply with the Strategic Planning Principles of PBP 2019;
- The Master Plan triggers the "inappropriate" development exclusion requirements of PBP;
- That the Acceptable Solution bushfire protection measures within PBP2019 cannot be met by

the future development envisaged by the Master Plan and it does not offer opportunities for protection measures beyond the minimum compliance under PBP2019;
- Compliance with *PBP 2019* is partially reliant on the intervention/response by emergency services or hazard management on adjoining land (i.e. APZ requirements);
- 'unassisted' off-site evacuation has yet to be demonstrated to be achieved by the Bushfire Assessment reports.

These findings conclude that the level of residual risk after inclusion of the bushfire protection measures typically applied under PBP2019, is inadequate and the Master Plan does not meet the PBP strategic planning principles and requirements. Specifically, that the aims and objectives, acceptable solutions and performance requirements of PBP pertaining to risk to life and risk to property cannot currently be met or exceeded. Further, there is a reliance on emergency service response/intervention, and a reliance on fuel management on adjoining lands to provide the level of bushfire protection and residual risk.

Several recommendations are made, including:

- Ensuring that further bushfire assessment is undertaken when more detailed development designs are available in later stages of the planning pathway, and that these designs maintain the compliance with *PBP 2019* that the Master Plan facilitates;
- Explore mechanisms to provide an on-site evacuation building, which will provide additional bushfire protection redundancy;
- Residential design should provide for perimeter roads for all new development of buildings that abut bushfire hazard as prescribed by PBP;
- Continued consultation with relevant agencies regarding emergency management requirements and infrastructure provision;

# 1. Introduction

## 1.1 Background

This Bush Fire Strategic Study (BFSS) has been prepared to assist with the consideration of a new Master Plan redevelopment for the Lourdes Retirement Village site, located within the Ku-ring-gai Local Government Area (LGA). The proposal's Master Plan (Figure 1) primarily proposes medium and high density residential development (74 new dwellings, to 314 total assumed dwellings – including 141 Independent Living Units, 110 care rooms and 63 townhouses), infrastructure and associated open space. This Study provides assessment of the new Plan for the Lourdes Retirement Village redevelopment with regard to the strategic planning principles outlined in *Planning for Bushfire Protection* (PBP) 2019 and reflects on previous studies carried out for the former Master Plan.

In 2018 Ku-ring-gai Council received a Planning Proposal from Stockland to rezone land at 92 - 95 Stanhope Rd, Killara, also known as the Lourdes Retirement Village. This Planning Proposal was initially submitted to Council in 2018. It sought to facilitate the redevelopment of the site and significantly increase the number of seniors housing units on the site within apartment blocks.

In 2018 Council refused the proposal due to a number of issues. Bushfire and Bushfire Evacuation risk were a key factor in the refusal.

Following Council's refusal, the applicant applied for a rezoning review with the Sydney North Planning Panel to contest Council's decision. On 7 November 2018 the Sydney North Planning Panel decided in favour of the applicant. This enabled the proposal to be submitted to the Department of Planning and Environment (DPE) for a Gateway Determination. Council declined to take the role of Responsible Planning Authority (RPA) for a revised Planning Proposal due to unanimous opposition to the proposal. The RPA function now sits with the Panel and DPE.

On 10 May 2022 DPE issued a Gateway Determination enabling the exhibition of a revised Planning Proposal. The new proposal continues to enable increased seniors housing in apartment buildings, and also to now locate further general housing on the perimeter of the site adjacent to bushland.

The 2022 revised Planning Proposal for 95-97 Stanhope Street, Killara has not yet commenced public exhibition under the issued Gateway Determination; however, we believe commencement of exhibition is imminent and likely to start in August 2022.

The site is currently zoned R2 Low Density Residential under KLEP 2015.

The Planning Proposal seeks to:

- **rezone the land from R2 (Low Density Residential) to R3 (Medium Density Residential)**
- amend the Floor Space Ratio from 0.3:1 to 0.75:1
- amend the Maximum Building Height from 9.5m (2 storey) to increase heights across the site to range from 9.5m (2 storey) to 22m (6-7 storey)

The proposed amendments to the KLEP 2015 are to enable the owner to lodge a future Development Application for demolition and redevelopment of the site to a greater density.

The proposal will more than double the number of residents living on the site, including those with vulnerable lifestyle circumstances within seniors housing, and potential family groups in general housing.

The Planning Proposal's Illustrative Master Plan indicates enabling the following development:

- High density seniors housing development on the flatter land at the northern portion of the site comprising approximately:
  - 141 independent living units in apartment buildings
  - A new aged care facility with 110 beds
  - 1,400sqm of internal communal space
- Medium density development for the general population at the southern portion of the site comprising approximately 63 town houses.

A draft site specific DCP has also been prepared by the applicant to accompany their planning proposal. This outlines detailed built form controls which would guide future development on the site. The DCP has been modelled on the applicant's Urban Design Study attached to the planning proposal. The adoption of this DCP will overrule Council's DCP requirements and any controls regarding the treatment of the site and its consistency with development across the Ku-ring-gai area.

The current planning proposal documentation, including bushfire reports prepared by Blackash Bushfire Consulting and RFS emails, may be viewed on the DPE planning portal at the below link. DPE's Gateway Determination has requested further information from the applicant. We understand this information has been submitted and being assessed by DPE. It will be placed on the planning portal at exhibition.

https://pp.planningportal.nsw.gov.au/ppr/pre-exhibition/95-97-stanhope-road-killara-lourdes-retirement-village

The subject site consists of approximately 5.25 hectares of land located at 92 - 95 Stanhope Road, Killara, and comprises Lot 21 and Lot 22 in Deposited Plan 634645. The site is located on a ridge at the eastern edge of Killara and has frontage to Stanhope Road to the north and bushland to the south and east.

The site has steep topography falling approximately 13m from the northern boundary with Stanhope Road to the southern boundary. It has a distinct bushland character with a band of native vegetation within the front setback to Stanhope Road and scattered landscaping and tree planting across the site.

The site is located within an established low density residential area (single dwellings on large lots) to the north and west of the site, and established bushland to the south and east (Seven Little Australians Park forming part of Garigal National Park). It sits adjacent to a heritage conservation area C22 and adjacent to the *Seven Little Australians Park* Heritage Item.

The site is identified as a "buffer" on the Ku-ring-gai Council Bush Fire Prone Land Map (2017), although surrounded by Category 1 class vegetation (highest bushfire risk) on the southern and eastern boundaries. It is situated at the end of a topographic spur within the Middle Harbour catchment and surrounded on three sides by extensive tracts of bushfire prone lands, the site itself can be considered to be one of extreme risk to bushfire impacts (in terms of both likelihood and consequence).

The site currently operates as a retirement village (Lourdes Retirement Village) comprising 1-3 storey buildings. The uses include independent dwelling units, community uses, and an aged care facility. The complex is currently home to 260 residents in nursing home, semi-detached and detached independent living dwellings.

The land was developed for senior's housing in the early 1980s and has had subsequent additions. The most recent development adding to the number of dwellings on the site was in 2011, completed under the previous SEPP (Housing for Seniors or people with a Disability) 2004.

The site currently houses

- Independent living units

- Serviced apartments
- Hostel apartments
- Residential aged care facility
- Admin centre, café, community centre, pool facilities
- Croquet lawn, BBQ facilities
- Prayer chapel

The Planning Proposals, submitted in 2018 and now in 2022, seek to amend the Ku-ring-gai Local Environmental Plan 2015 (KLEP 2015) to enable the intensification of development on the site and to increase and expand the uses on the site.

In 2018, Council appointed Australian Bushfire Protection Planners (ABPP) to assess the 2018 planning proposal bushfire report, by Eco Logical Pty Ltd. ABPP's assessment indicated the high bushfire risks of the site and issues of evacuation.

The current 2022 Planning Proposal attaches a bushfire study prepared by Blackash Bushfire Consulting. This proposes a different bushfire strategy to the 2018 proposal. It puts forward a performance-based approach to increase density on the site and to allow for adequate protection from bushfire impacts.

The Planning Proposal also attaches emails from NSW Rural Fire Service (RFS) advising that it has no objection to the progression of this planning proposal based on the Blackash bushfire study. RFS appear to enable the matter as this is not a Development Application but a Planning Proposal, and defers detailed consideration to a later Development Application stage.

Council has concerns about this deferred approach by RFS as any adoption of this Planning Proposal will enable increased densities on the site. This will give future Development Applications sufficient grounds to argue that increased density has been agreed for the site through the Planning Proposal's amendment to the KLEP 2015; and further, pose argument for the achievement of the full site development potential, and hence the placement of increased populations in this bushfire prone area.

The recently released *PBP2019* includes new guidance on Strategic Bush Fire Planning. The new PBP2019 calls for a Strategic Bush Fire Study (SBFS) at the earliest stages of the master planning process, this would likely include a rezoning application where reliance is placed on the findings of an urban design analysis and masterplan of the site. The SBFS follows the emergency management principles within the NERAG principles of establishing the context, carrying out a risk assessment and then applying risk treatment. The strategic nature of the bush fire study enables an assessment to be made of the overall appropriateness of allowing development within a particular landscape/bush fire risk context, essentially asking the question whether a future community in the proposed location would be resilient to bush fire attack.


**Figure 1: 2022 Proposed Master Plan for the Lourdes Retirement Village Proposal**

## 1.2 Aims and Objectives

The aim of this Study is to review the proposed Lourdes Retirement Village Master Plan redevelopment Proposal under the strategic planning requirements of PBP (RFS 2019) as well as in light of previous bushfire risk studies for the locality. The key objectives are to:

i Undertake a Bush Fire Strategic Study as per the strategic planning principles and assessment considerations outlined in Chapter 4 of PBP; and

ii Assess the proposed Structure Plan against agreed 'benchmarks' established by previous bush fire risk studies and specifically those identified by stakeholders.

## 1.3 Legislative Framework

The legislative framework guiding the assessment of bushfire risk and the application of bushfire protection measures at the strategic level are the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Rural Fires Act 1997* (RF Act). Key aspects of these instruments are outlined below.

### 1.3.1 NSW Environmental Planning and Assessment Act (1979)

The NSW *EP&A* Act is the principal planning legislation for the state, providing a framework for the overall environmental planning and assessment of development proposals. Various legislation and instruments are integrated with the *EP&A Act*, including the *RF Act*.

Section 10.3 of the *EP&A Act* requires the identification of Bush Fire Prone Land (BFPL) and development of BFPL maps, which act as a trigger for bush fire assessment provisions for strategic planning and development.

When investigating the capability of BFPL to be rezoned, consent authorities must have regard to s.9.1 (2) Direction 4.4 – 'Planning for Bushfire Protection' of the *EP&A Act*. The objectives of Direction 4.4 are:

- To protect life, property and the environment from bushfire hazards, by discouraging the establishment of incompatible land uses in bush fire prone areas; and
- To encourage sound management of bush fire prone areas.

Direction 4.4 instructs the consent authority on bushfire matters to be addressed when drafting LEPs. This includes:

- Consultation with the Commissioner of the NSW Rural Fire Service (RFS), and consider any comments so made;
- Draft LEPs shall have regard to PBP*;* and
- Compliance with numerous bushfire protection provisions where development is proposed.

Further, there are various provisions within the *EP&A Act* that may be applicable to proposals on BFPL, including:

- Section 3.29 of the *EP&A Act* relates to the development of State Environmental Planning Policies (SEPPs) and within these policies, bushfire considerations may apply, for example:
  - Codes SEPP (Exempt and Complying Development Codes)

    - Primarily Clause 34 specifies complying development standards that prescribe compliance with PBP and AS3959, with development on BFPL not permitted within BAL-40 and BAL-FZ.
  - Seniors Housing SEPP (Housing for Seniors or People with a Disability)
    - Clause 27 of the SEPP requires PBP compliance and RFS consultation for development on BFPL
  - Infrastructure SEPP
    - Clause 16 of the SEPP requires RFS consultation for residential or Special Fire Protection Purpose (SFPP) development on BFPL
- Section 4.14 relates to infill and other development
  - Requires that all development on BFPL conforms to the specifications and requirements outlined in PBP (i.e. the specific requirements for residential infill in Chapter 7).
  - The consent authority should be satisfied that the development conforms to PBP, or otherwise consult with the RFS Commissioner.
- Section 4.46 relates to integrated development and triggers the *RF Act* and Clause 44 of the *Rural Fires Regulation 2013.*
  - Applicable to Subdivision, with specific requirements in chapter 5 of PBP;
  - Applicable to SFPP developments, with specific requirements in chapter 6 of PBP;
  - Requires a bush fire safety authority under section 100b of the *RF Act*.
- Section 9.1 relates to strategic or local planning
  - Applicable to land use planning that covers large areas and may include a variety of land uses and longer-term development objectives. Specific requirements are outlined in chapter 4 of PBP.

### 1.3.2 Rural Fires Act 1997 (RF Act)

The *RF Act* is integrated into the *EP&A Act* and triggered by Section 4.46 as outlined above. The key objectives of the Act are to provide for the:

- prevention, mitigation and suppression of bushfires;
- co-ordination of bush fire fighting and bush fire prevention;
- protection of persons from injury or death, and property from damage, arising from fires;
- protection of infrastructure and environmental, economic, cultural, agricultural and community assets from damage arising from fires; and
- protection of the environment by requiring certain activities have regard to the principles of ecologically sustainable development.

## 1.4 Assessment Approach

### 1.4.1 PBP Bush Fire Strategic Planning

A Bush Fire Strategic Study (BFSS) provides the opportunity to assess whether new development is appropriate in the bush fire hazard context. It also provides the ability to assess the strategic implications of future development for bush fire mitigation and management. Section 9.1 (2) of the *EP&A Act* triggers

consideration of PBP for strategic planning. Chapter 4 of PBP (RFS 2019) contains the broad principles and assessment considerations required for strategic planning proposals. The strategic planning principles are:

- **ensuring land is suitable for development in the context of bush fire risk;**
- **ensuring new development on Bush Fire Prone Lands (BFPL) will comply with PBP;**
- **minimising reliance on performance-based solutions;**
- providing adequate infrastructure associated with emergency evacuation and firefighting operations; and
- facilitating appropriate ongoing land management practices.

These principles require consideration of bushfire protection measures for development subsequent to the strategic planning stage, and to consider the suitability of future land uses within the broader bushfire hazard setting and that future land uses can meet the aim and objectives of PBP outlined below:

> *The aim of PBP is to provide for the protection of human life and minimise impacts on property from the threat of bush fire, while having due regard to development potential, site characteristics and protection of the environment.*
>
> *The objectives are to:*
>
> *i afford buildings and their occupants protection from exposure to a bush fire;*
> *ii provide for a defendable space to be located around buildings;*
> *iii provide appropriate separation between a hazard and buildings which, in combination with other measures, minimises material ignition;*
> *iv ensure that appropriate operational access and egress for emergency service personnel and residents is available;*
> *v provide for ongoing management and maintenance of bush fire protection measures; and*
> *vi ensure that utility services are adequate to meet the needs of firefighters.*

In addition, Chapter 4 of PBP prescribes that strategic planning should exclude "inappropriate development" in bush fire prone areas, where:

- the development area is exposed to a high bush fire risk and should be avoided;
- the development is likely to be difficult to evacuate during a bush fire due to its siting in the landscape, access limitations, fire history and/or size and scale;
- the development will adversely effect other bush fire protection strategies or place existing development at increased risk;
- the development is within an area of high bush fire risk where density of existing development may cause evacuation issues for both existing and new occupants; and
- the development has environmental constraints to the area which cannot be overcome.

As the Lourdes Retirement Village redevelopment site is situated on bush fire prone land (see Appendix A) this Study assesses the proposal in the context of the PBP strategic planning principles, exclusion of inappropriate development, and the study requirements and assessment considerations identified in Table 4.2.1 of PBP, summarised in Table 1 below.

**Table 1: Summary of requirements for a Bushfire Strategic Study (RFS 2019)**

| Issue | Bushfire Strategic Study Requirements |
|---|---|
| Bush fire landscape assessment | A bush fire landscape assessment considers the likelihood of a bush fire, its potential severity and intensity and the potential impact on life and property in the context of the broader surrounding landscape. |
| Land use assessment | The land use assessment will identify the most appropriate locations within the masterplan area or site layout for the proposed uses. |
| Access and egress | A study of the existing and proposed road networks both within and external to the masterplan area and site layout. |
| Emergency services | An assessment of the future impact of the new development on emergency services provision. |
| Infrastructure | An assessment of the issues associated with infrastructure provision. |
| Adjoining land | The impact of new development on adjoining landowners and their ability to undertake bush fire management. |

### 1.4.2 Assessment Framework

Investigation of the suitability for development within the Ingleside South Precinct has involved a complex and large array of bushfire-related issues and concepts. **Prioritisation of first principle bushfire risk considerations is critical**. The following bushfire assessment framework is relevant to guide the Study.

#### *1.4.2.1 Residual risk*

All Bush Fire Prone Land poses a bushfire risk. Complete removal of bushfire risk is not appropriate or possible in many instances, nor is it a policy setting under PBP. Determining whether the level of residual risk (i.e. the level of risk after application of bushfire protection measures) is a key factor in the strategic assessment of whether a development proposal is appropriate.

Development can occur with an appropriate level of safety on any Bush Fire Prone Land, provided the risk exposure is appropriately reduced. PBP outlines the measures to achieve bushfire risk reduction generally and establishes the NSW policy setting for appropriate bushfire protection. Experience and research has successfully demonstrated appropriate bushfire protection is feasible within a very wide range of bushfire risk situations. Nevertheless, development on Bush Fire Prone Land always has a residual bushfire risk e.g. from burning debris, regardless of the initial risk level and risk treatments. This Study acknowledges that the outcome of any potential development on BFPL includes a level of residual risk and explores the acceptability of that risk.

#### *1.4.2.2 Risk to life versus risk to property*

A lower residual risk is required for the protection of life than that required for the protection of built assets, due to the vulnerability of people exposed to bushfire attack and the pre-eminent value assigned to human life. Assessment of the residual risk has therefore considered life and property risks separately, in the first instance.

#### *1.4.2.3 Life protection and evacuation*

An appropriately low residual risk to human life is fundamentally important in bushfire protection. Whilst off-site evacuation potentially offers a safer destination, the risks associated with undertaking an off-site evacuation (travel) pose an additional risk. Also, the logistical challenges of off-site evacuation can be high and should not become an unacceptable burden on emergency services, and in a strategic planning context not adversely impact the demands of the existing emergency service evacuation management.

Early evacuation is the nationally accepted safest means for protection of life and Stakeholders from the previous Studies and in the current Study, required any off-site evacuation to be effective without the assistance of emergency services. Notwithstanding, early unassisted evacuation being a key risk assessment benchmark in the Study; experience and research has demonstrated that it is not fail-safe or always feasible. Research and post incident inquiries have also found that providing evacuees options (and warnings and information) is important to their survival.

Alternatives such as on-site evacuation / refuging are also not fail-safe, but design solutions exist to lower the residual risk to an appropriate level for both on and off-site options and a well-designed combination of the two may achieve the lowest residual risk; even if the on-site evacuation is considered a 'redundancy' in terms of bushfire risk planning.

#### *1.4.2.4 Emergency service response*

The acceptability of proposed development should not be reliant on emergency service response / intervention. However, an emergency service response is a legitimate risk lowering consideration, that can be viewed as protection redundancy in a strategic planning context.

#### *1.4.2.5 Adjoining lands*

Whilst fuel management (e.g. hazard reduction burning) lowers bushfire risk under most circumstances, during extreme bushfire attack and with increasing time after a burn, the life and property protection benefit is likely to be minimal. As fuel management programs achieving a satisfactory level of risk reduction cannot be guaranteed, they cannot be relied upon for life and property protection design, and certainly not in a strategic planning study.

### 1.4.3 Evaluation against previous bushfire assessment reports

Given the importance of the preceding bushfire studies and particularly their stakeholder input this Study has adopted the relevant BlackAsh report findings as part of this Study's benchmarks, and Section 8 assesses whether these 'benchmarks' have been met by the proposed Master Plan. This approach is consistent with comments from emergency services stakeholders in various consultations in late 2020.

### 1.4.4 Acceptance Criteria

A clear "pass mark" for an acceptable level of residual risk is important in assessing the appropriateness of a Strategic Planning proposal, however, PBP does not provide a clear "pass mark" for an acceptable level of residual risk or define 'inappropriate' development with measurable criteria. Without this clarity, the potential for errors in assessment increase and it can lead to "expert" opinion-based decisions or actions by proponents, stakeholders and assessors that are difficult to justify or reach agreement on.

Even the 'key criteria for risk acceptability and risk tolerance' used in the previous bushfire risk studies and within PBP 2019 (Chapter 4) rely on general criteria for the exclusion of 'inappropriate development' that are not clear or measurable e.g. a high bushfire risk is not defined and is a relative term that requires a context to be effective.

To respond to these limitations, the over-arching Acceptance Criteria for this Study are that:

- The aims, objectives and Performance Criteria in PBP for the protection of life and property are not adequately achieved;
- The Master Plan complies with the Strategic Planning Principles of PBP;
- The "inappropriate" development exclusion requirements of PBP are triggered by the development proposed by the Master Plan;
- The Acceptable Solution bushfire protection measures within PBP cannot be met by the future development envisaged by the Master Plan;
- Compliance with PBP is at least partially reliant on the intervention/response by emergency services or hazard management on adjoining land;
- Although the proposed development will not adversely impact the bushfire safety of occupants of nearby existing development, no data has been shown indicating that it is possible to lower the risk;
- The Master Plan does not support safety 'benchmarks' of the previous studies; and
- An appropriate level of safety has not been adequately demonstrated as possible from 'unassisted' off-site evacuation.

# 2. Bushfire Landscape Risk Assessment

The following sections builds on the bushfire risk assessments in the previous bushfire assessments by considering additional risk assessment data in a full landscape context and by specific analysis of all previous and new data specifically applying to the Lourdes redevelopment site in this respect. Nothing in this Study and analysis fundamentally dismisses the previous Eco Logical (2018) and BlackAsh (2022) study premises, but with the development footprint to the extent proposed, most, if not all, of the risk assessment outcomes are substantially altered. A fundamentally different bushfire landscape risk is apparent.

## 2.1 Study Area

The Study Area is comprised of the Subject Site, being the Lourdes Retirement Village complex, located in Ku-ring-gai LGA, in the suburb of Killara, immediately west of Eastern Arterial Road (see Figure 2 below). The Subject Site is adjoined by existing developed areas to the west, and extensive bushland reserves to the north, east and south.


**Figure 2. Location of the Subject land at Killara within a landscape context**

## 2.2 Bushfire Hazard

This bushfire hazard assessment has utilised the most recent vegetation community mapping from the Native Vegetation of the Sydney Metropolitan Area (OEH 2016), refined via desktop assessment using current ArborCarbon Imagery (captured 2020). Slope was determined using 2m contour data from Council's GEOCORTEX Mapping product using data coordinated by Council's GIS section.

### 2.2.1 Vegetation

The Subject Site is situated within a bush fire prone landscape with extensive undeveloped areas dominated by remnant sandstone ridgetop woodland and sandstone gully forest, to the north through to the south west with the largest contiguous tracts extending to the east. This contiguous vegetation, extending for many kilometres eastwards towards Middle Harbour and northwards to the Cowan catchment of the Hawkesbury drainage system has supported large bushfires and extensive fire runs – at least in European recorded history.

For assessment purposes, the predominant vegetation class is to be classified in accordance with *Ocean Shores to Desert Dunes* (Keith 2004). Vegetation has been classified into Keith Formations and Keith Class (Keith 2004) and assigned a **potential** total fuel load (tonnes/hectare) using Table A1.12.8 from *Planning for Bushfire Protection* (RFS 2019). Figure 3(below) depicts the vegetation formations, classes and potential fuel loadings.

**Table 2: Vegetation formations, classes and fuel allocations for vegetation adjoining the Subject Land**

| Vegetation formation | NSW OEH classification | Keith Class (PBP 2019) | Overall fuel including bark and canopy (t/ha)* |
|---|---|---|---|
| Forest (wet and dry sclerophyll) | **Coastal Sandstone Gully Forest** | Northern Hinterlands Wet Sclerophyll Forest (Grassy) | **36.1**<br>33.1 (PBP, 2019) |
| | | Northern Hinterlands Wet Sclerophyll Forest (Grassy) | **36.1**<br>33.1 (PBP, 2019) |
| Grassy and Semi-Arid Woodland | **Sydney North Exposed Sandstone Woodland** | Sydney Coastal Dry Sclerophyll Forest | 20.2<br>**27.3** (PBP, 2019) |

*Overall fuel load including Bark and Canopy from Table A1.12.8 from Planning for Bushfire Protection (RFS 2019)

It must be noted that the fuel loadings are potential fuel loads (i.e. the maximum t/ha that occurs when fuel accumulation curve reaches its peak). Much of the bushland adjoining the Subject Land is covered in a mix of Sydney Coastal Dry Sclerophyll Forests/Woodlands and Northern Hinterlands Wet Sclerophyll Forests– with potential fuel loadings varying between 20 – 36 tonnes/ha.

Personal observations and monitoring of Overall Fuel Hazard (OFH) ratings at a number of locations within SISPL and the surrounds, rate the OFH in the order of High – Extreme, with many ecological communities currently having fuel loads between 22 – 32 tonnes/ha, supporting the conclusion that in a number of sites adjoining the Subject Land fuel loads have reached and are currently near/at their maximum loading.

### 2.2.2 Slope

Whilst the slope within the Subject Site generally falls within the PBP slope class of *downslope, 0-5° downslope*, further away the landscape contains areas of much steeper slopes, *downslope, 10-15°*

*downslope* and *15-20° downslope,* generally associated with hydrological features and cliff lines, particularly to the east and south (see Figure 3 below).

### 2.2.3 Hazard Assessment

The classification of vegetation and slope in accordance with PBP criteria, is presented in Figure 3 (below).

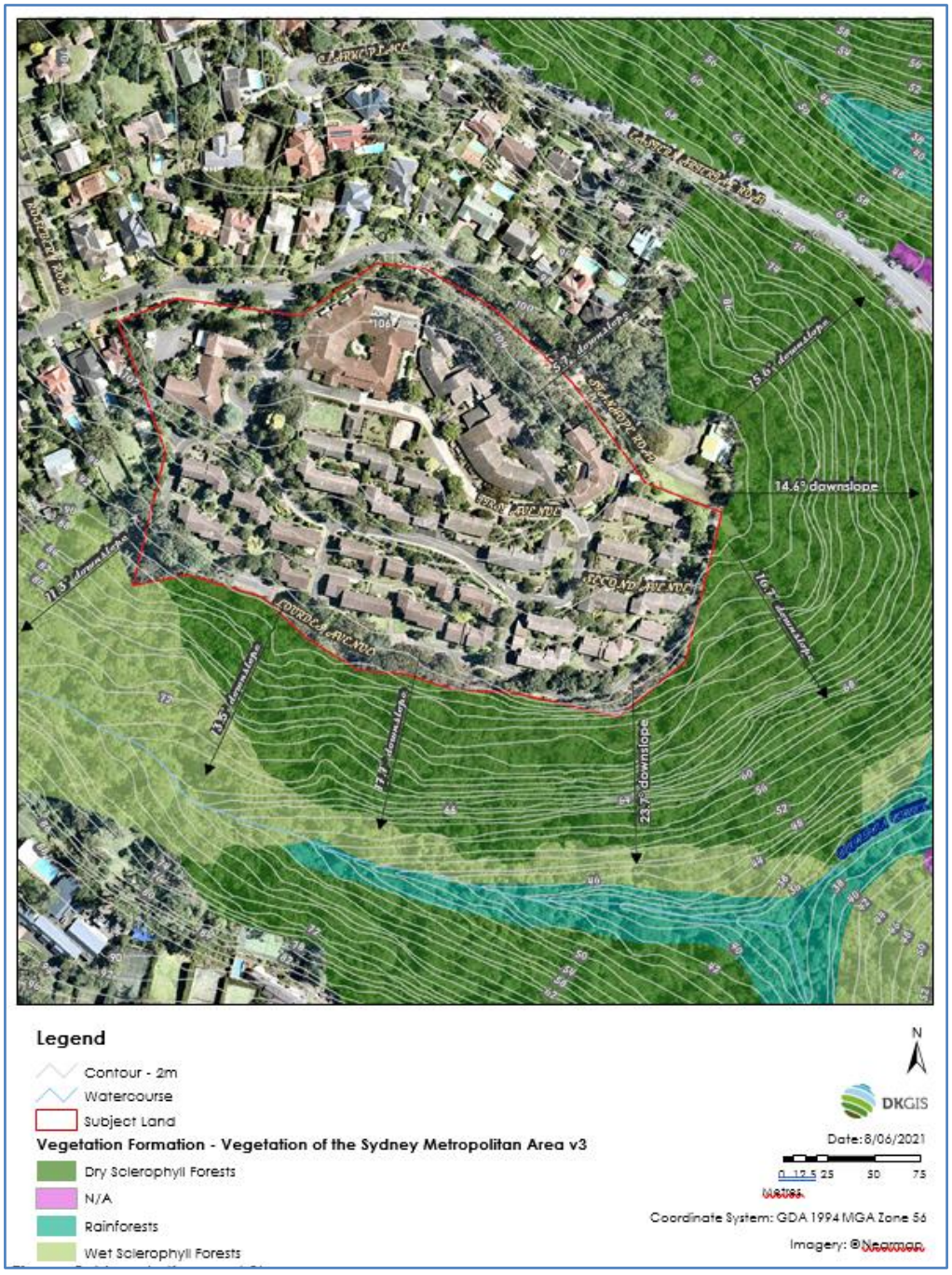


**Figure 3. Contours, Slope and Vegetation Categories at the Subject Land and Surround (after BlackAsh, 2022)**

## 2.3 Bushfire Risk Context

### 2.3.1 Wildfire History and Frequency

Whilst the risk of moderate - high intensity bushfire always exists in the landscape adjoining the Subject Site, fire history records indicate that wildfire impacting the site is relatively infrequent and especially in recent decades (see Figure 6). The Hornsby Ku-ring-gai Bush Fire Risk Management Plan (BFRMP)

estimates that on average there are 40 fires per year in this Bush Fire Risk Management Committee (BFRMC) area, major fires are generally only experienced every 7 to 10 years (Hornsby Ku-ring-gai BFRMC, 2016).

An examination of the wildfire records immediately surrounding the subject land, shows a very low incidence of wildfire with none recorded in 76 years of historical records. However (as shown in Figure 5) a number of wildfires – of varying size and intensity, have occurred in bushland to the northeast of the area from the 1990s, with the most recent wildfire in the 2013-2014 season. Due the prevalence of wildfires in bushlands to the north of the Subject Land, in Extreme – Catastrophic fire weather, prevailing N-NW winds could cause a fire progression in a path towards and impacting the Subject land.

The wildfire frequency to the north, north-east and east of the subject site suggests a higher risk of wildfire than has eventuated at the Subject Site. Historically, most of these fires to the north and east emanated from longer fire runs in the extensive bushland and varied terrain of Garigal National Park (Middle Harbour) and it appears that this ignition risk from within the National Park may have decreased in recent decades.

At a landscape level the wildfire history data (Figure 5) does indicate past wildfire pathways with wildfire footprints more likely to have been driven by ignition points and wind direction. However, fire scenario modelling (by RedEye) indicates that although even though there is a lack of recent fire history (records back to 1947), the probability of fire runs potentially impacting the Subject land is likely.

### 2.3.2 Fire Catchment

An indicative analysis of the potential extent of the fire catchment affecting the Study Area was undertaken (Figures 6-9). This helps to identify the location and size of potential fire attack scenarios and informs assessment of the risk profile of the Study Area and possibly different sectors of the subject land – in terms of bushfire risk. The majority of the Study Area is exposed to a larger fire catchment (longer arrows representing longer fire runs), hence having an elevated bushfire risk, the subject land is only buffered from potential longer fire runs by existing development in the west. The fire catchment analysis does not support recent wildfire history findings – and the Subject land will continue to have a moderate-high risk of landscape-scale wildfire attack.

#### *2.3.2.1 Ignition*

Intentional ignition is also a key source of wildfire in the Hornsby Ku-ring-gai BFRMC area (BFRMC 2016), with the Hornsby Ku-ring-gai BFRMC area contributing to the large wildfire catchment present to the north of the Study Area.

### 2.3.3 Bushfire Weather

The bushfire weather relevant to the Study Area was identified by Generalised Extreme Value (GEV) analysis of long-term historical weather records (ELA 2018). More recent data up to June 2020 was also analysed and yielded similar, but slightly lower results. As such the higher values of the 2018 analysis were adopted in this Study for conservatism.

Bushfire weather is often described in terms of the Forest Fire Danger Index (FFDI) and this metric has a direct influence on the intensity of a bushfire. The following was identified from the analysis:

- GEV FFDI for wind directions from the north to south-east was 63;
- GEV FFDI for wind directions from the south-east to south-west was 47; and
- GEV FFDI for wind directions from the south-west to north was 116.

This analysis indicates that there is variation in the potential Likelihood and Consequence of bushfire attack from different directions toward the Subject Site (Figure 6). Areas exposed to bushfire attack at higher FFDI are more likely to be impacted by fire as adverse fire weather will occur more often from those directions and a higher fire intensity is more likely as the weather conditions reach higher FFDI values. Areas exposed to bushfire attack at lower FFDI have a lower (but still significant) risk profile.

The Hornsby Ku-ring-gai BFRMC indicates the bushfire season runs from October to March each year, when north-westerly winds are predominant, along with higher daytime temperatures and low relative humidity. A north-westerly wind driven fire will directly impact the subject land, and the frequent late afternoon wind direction changes (i.e. termed the Southerly Buster) will further accentuate fire run activity from the extensive bushland tracts to the east and south-east.

### 2.3.4 Fire Intensity

Fire intensity models for the locality and surrounds where prepared by the predictive bushfire modelling agency, RedEye Pty Ltd using Phoenix fire modelling with enhanced spotting and wind-channelling modules (September 2022). The models provide an indication of the potential head fire intensity from the direction of attack for the scenario's being modelled. Bushfire intensity is a significant determinant of risk to life and property and the controllability of bushfires and therefore important in the consideration of the bushfire risk context. A number of modelling scenarios from RedEye (September 2022 scenarios) were considered in their predictive fire modelling, including the 'typical' fire run from the northerly direction:

- Bushfire attack from the north to north-east direction (clockwise) at FFDI 63 (see in Figures 8 & 9)

The eastern and south-eastern boundary area of the Subject Land is impacted most intensely by higher fireline intensities (see Figure 10) – due to the upslope runs and the significant continuity of bushland (hazard) to the north-east and east. The southern boundary is not indicated as having such a high fire activity – possibly due to the southerly (moister) aspect and moister vegetation types.

**Figure 4. Illustrating general topography surrounding the Subject Land (includes building footprints)**

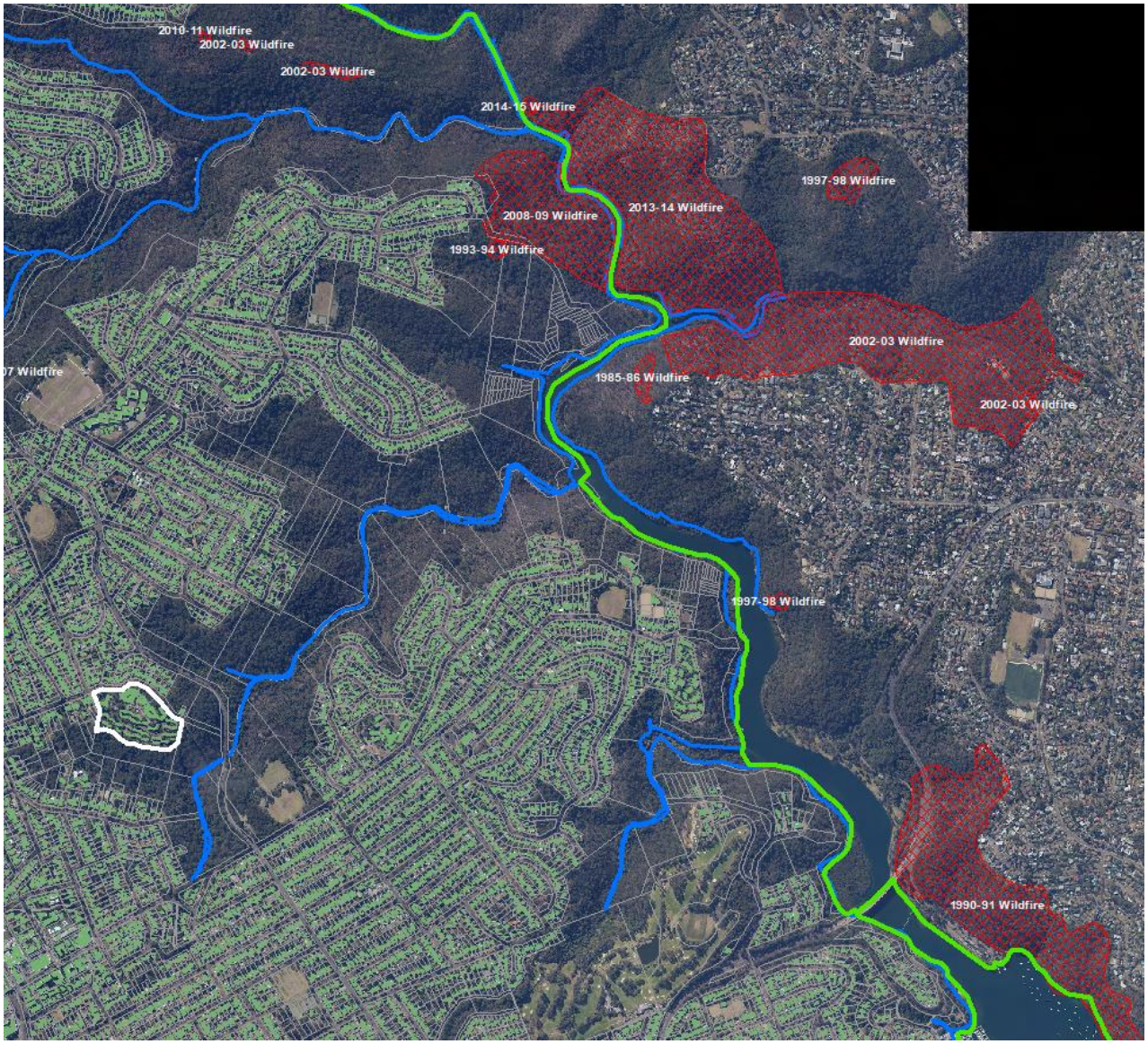


**Figure 5: Wildfire history within the wider Study Area and surrounds from 1947 onward (location of subject land displayed with white polygon in centre right of the image)**

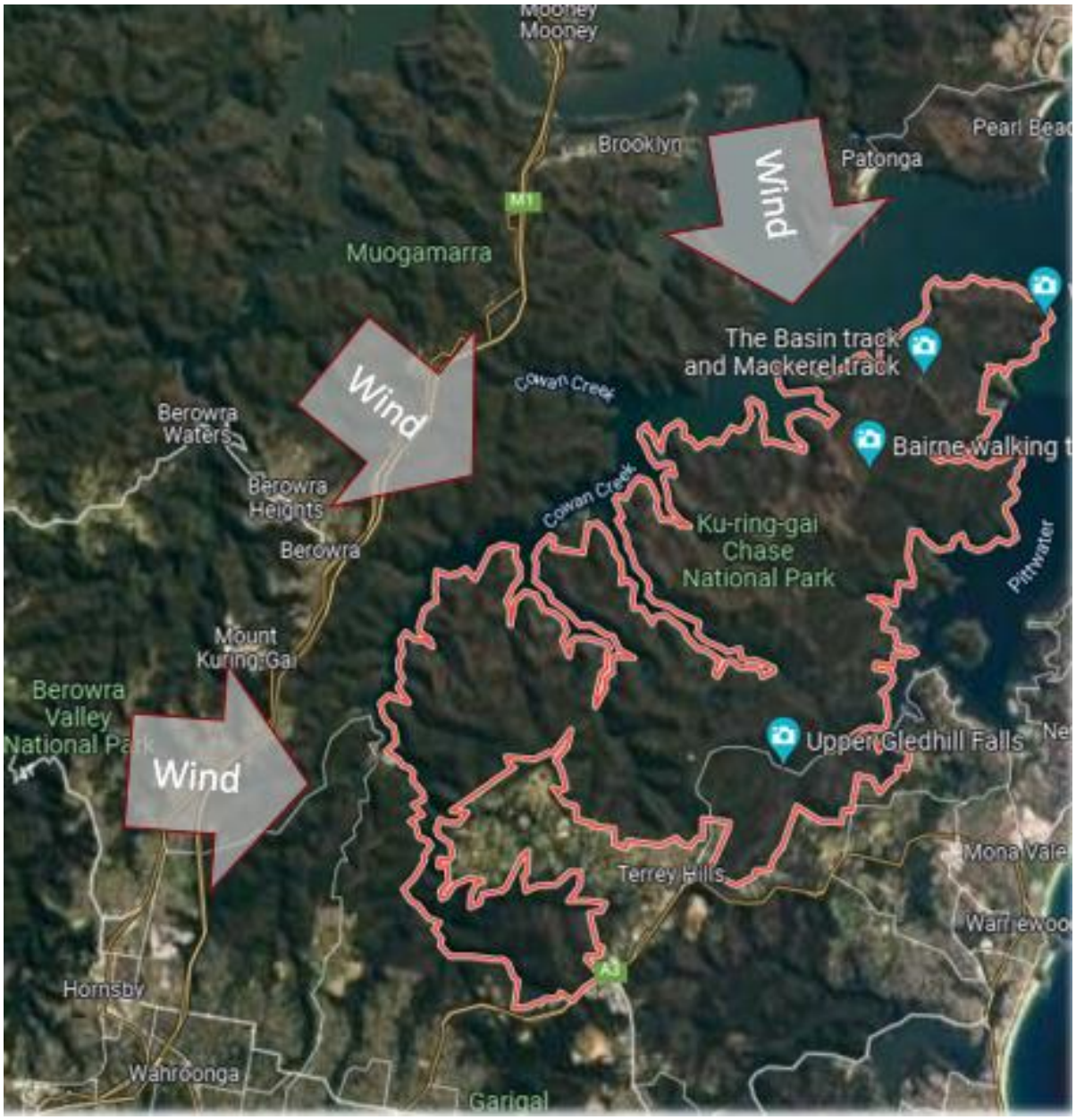


**Figure 6: Showing typical wind directions during fire season (October – March)**

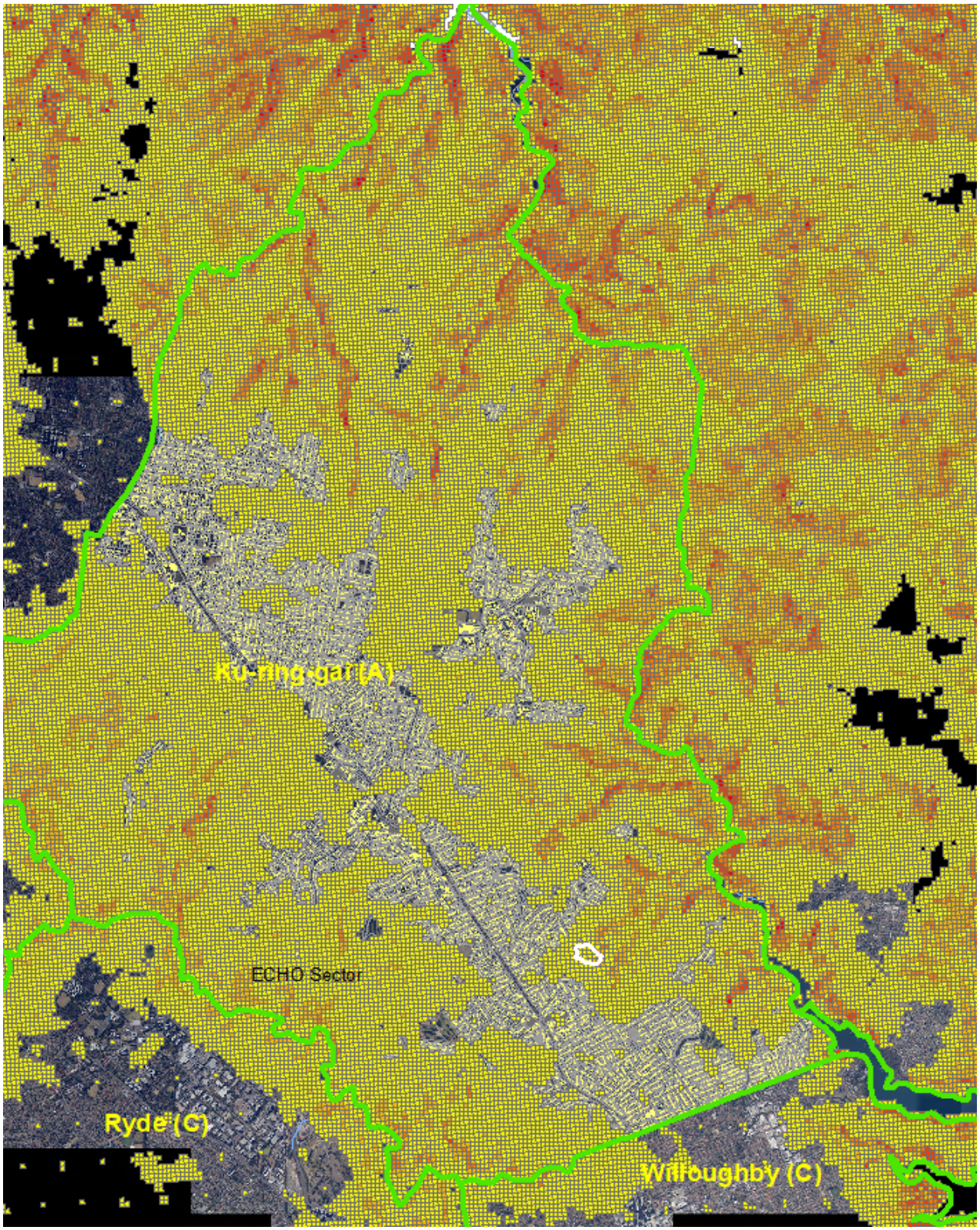


**Figure 7: Modelled Fire Intensity (north to south east wind, FDI 63+)**

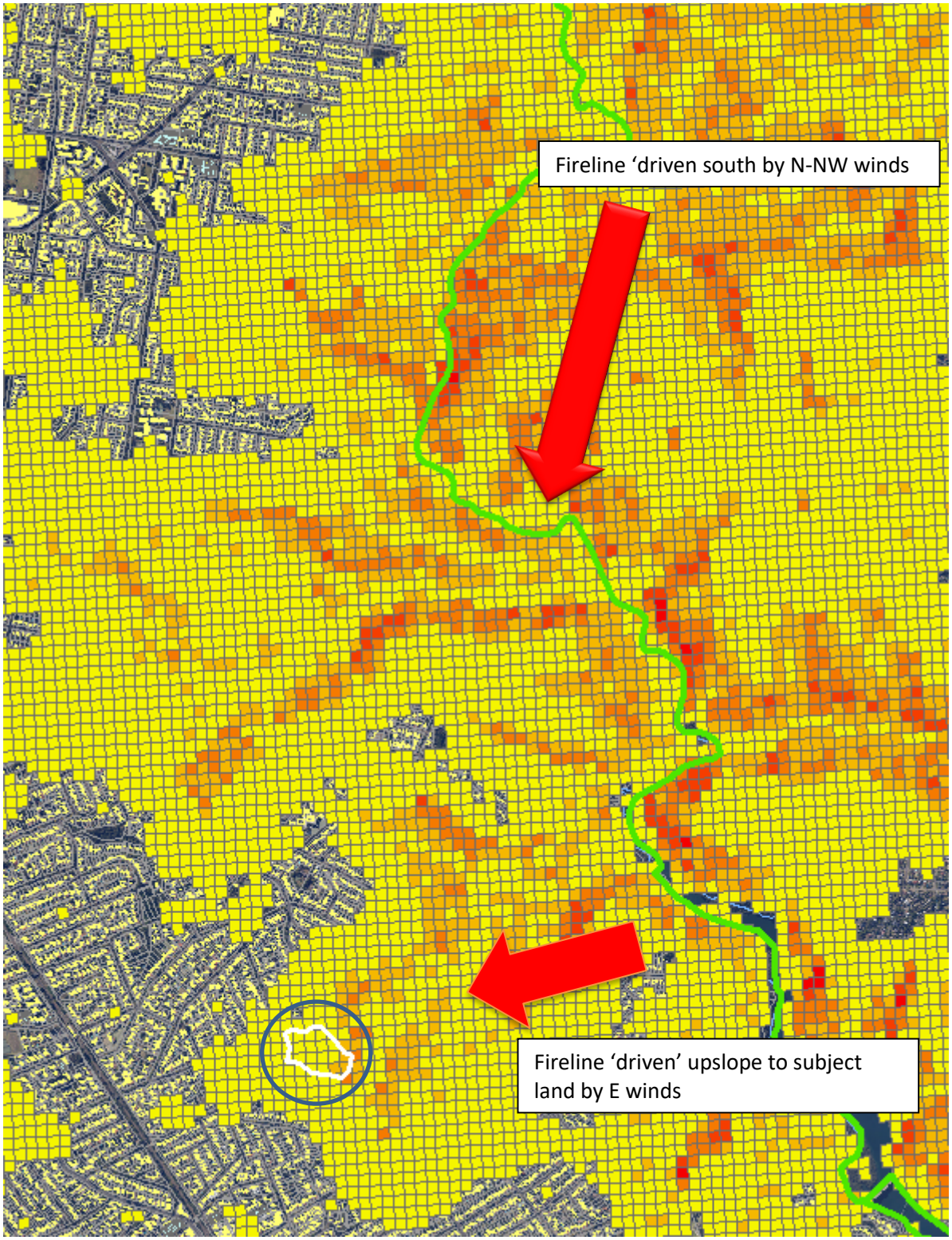


**Figure 8: Modelled Fire Intensity (fire runs from northerly wind, FDI 63+)**

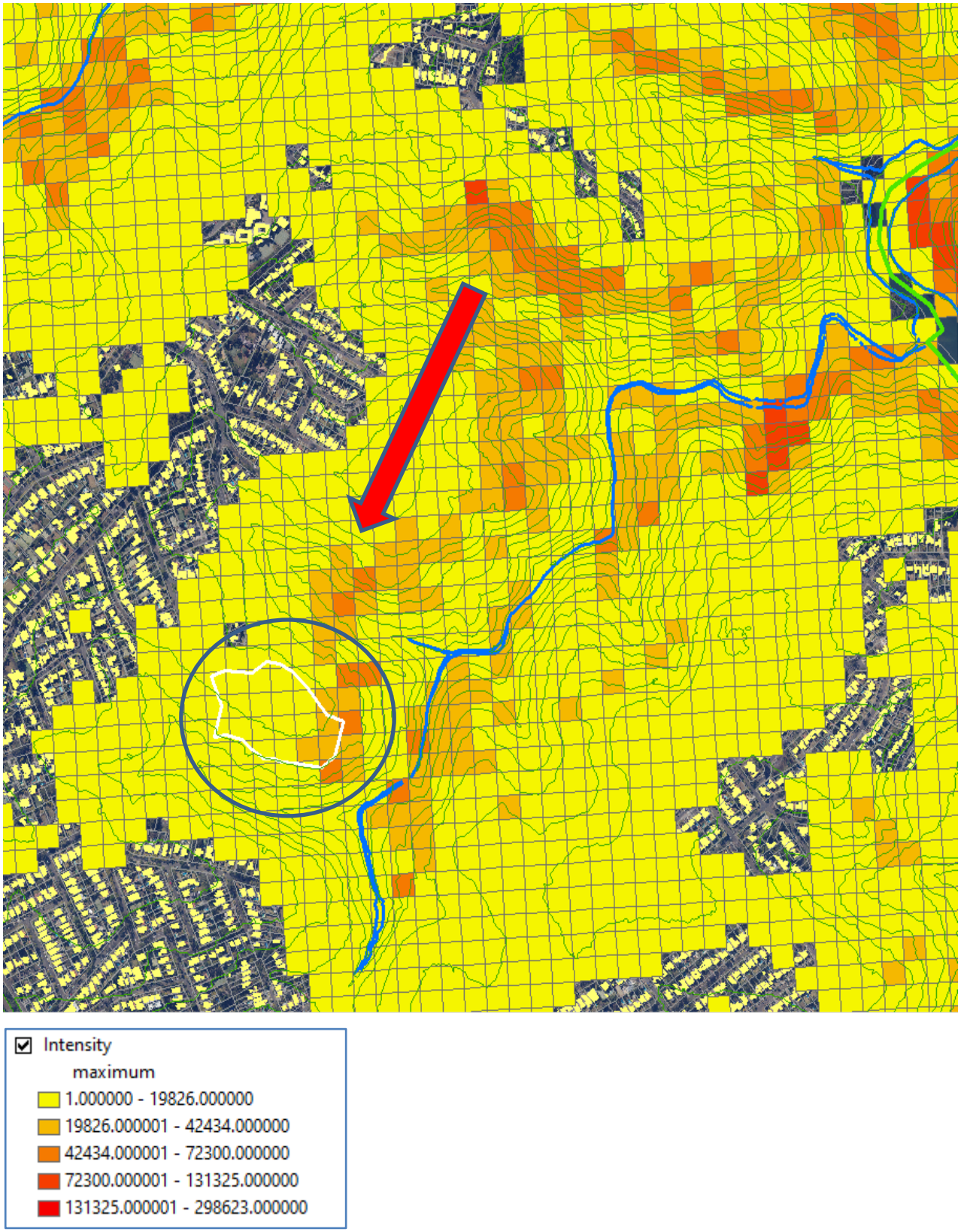


**Figure 9: Further (detailed) Fire Intensity impacts to Subject Site (northerly wind, FDI 63+)**

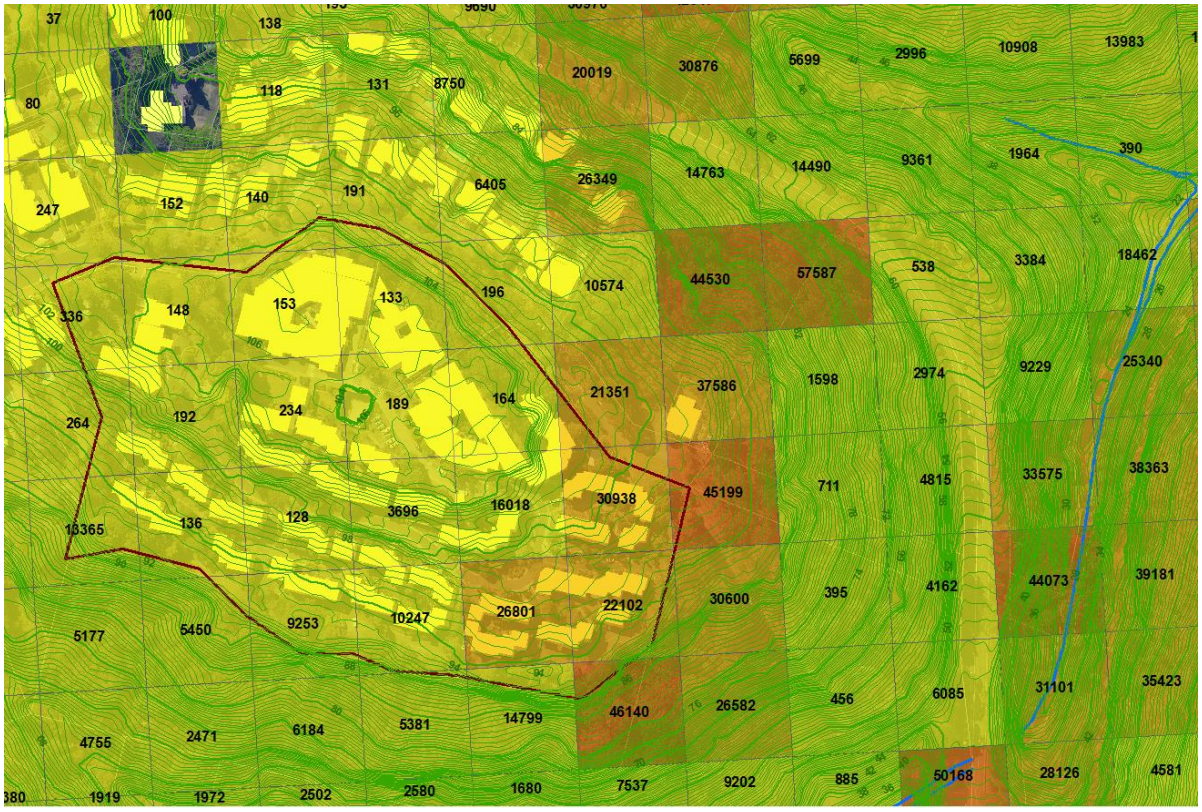


**Figure 10. Depicting Fireline Intensity calculations (PHOENIX Rapidfire (no mitigation) scenario from RedEye, 2022 - showing the eastern and northeast sectors of the Subject Land having highest fire intensity impacts.**

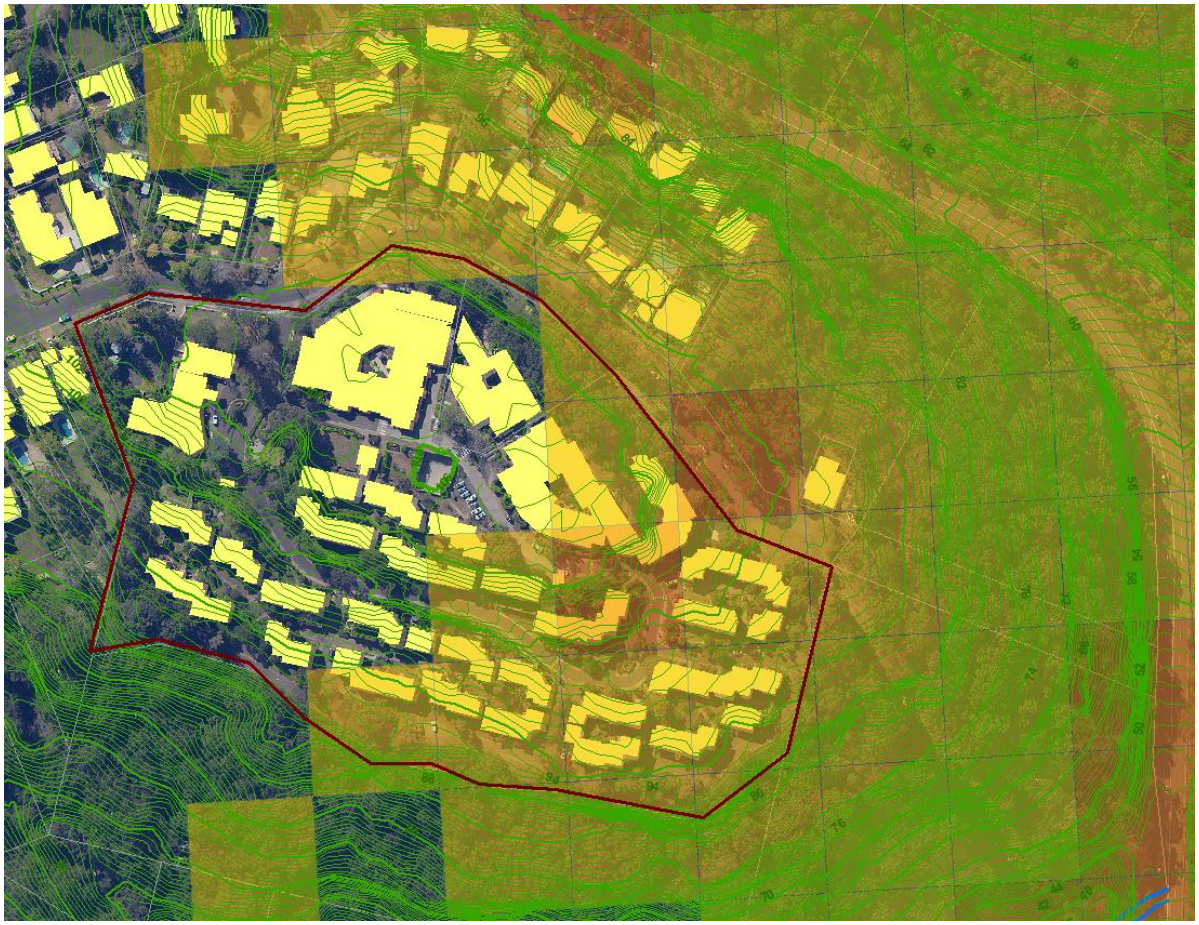

**Figure 11. Relative 'ember density' map of the Subject land (RedEye PHOENIX analysis) – depicting highest ember density at the northeast sector and high ember attack in the eastern portion of the site.**

## 2.4 Summary of Landscape Bushfire Risk Assessment

The landscape bushfire risk analysis indicates the potential for bushfire attack of the Lourdes Retirement Village proposal site is only partially mitigated by a variety of landscape features. Most notable in terms of risk is the topographic 'exposure' (i.e. ridge-top) of the Subject Land from north to north-easterly approaching wildfires - fires from these directions are most likely to be higher intensity, occur more often and have the greatest impact on life and property. The risk from the south is partially lowered because of the sheltering effects of a southerly (moister) aspect. However, in terms of fire behaviour, the frequent summer 'southerly buster' winds could redirect the attack of a NW-N driven fire-front into a direct frontal attack on the southern aspect of the Subject land.

The remaining directions of landscape bushfire risk on the western and south-west sectors of the site are not considered "high bushfire risk" as they have lesser exposure to the highest FFDI driven wildfires, and even when Generalised Extreme Value (GEV) FFDI figures from the north – south-east weather data analysis are considered the associated risk is well below that upon which PBP 2019 'benchmark protection measures' for the locality are based i.e. FFDI 100.

The western side of the site is not only exposed to lower FFDI, but the fire catchment is relatively small, meaning the likelihood of wildfire and the likelihood of higher intensity fire is reduced. The wildfire history records support this lowered risk and shows no fire front in 76 years having been recorded as impacting this interface of the Precinct (i.e. a fire front driven to this interface by winds from the north-east to southeast).

Although there are no known barriers to fire suppression on the Subject Land, aided by existing development having fragmentated the landscape-wide continuity of fuels, the modelled scenarios indicating Fire Intensity levels between 21,351 – 45,199 kw/m sq (see Figure 10) – particularly along the NE, E and SE perimeter, mean that on-ground suppression by fire crews may be unachievable and certainly hazardous to firefighter safety. In addition, nearby vegetation and terrain have the potential to carry high intensity fires these fires that are considered likely to be beyond the levels upon which the bushfire protection measures within PBP are founded.

In addition, potential ember attack from bushfire activity has been modelled by RedEye in its PHOENIX simulations (see Figure 11), indicating highest ember densities in the eastern sector of the Subject land – particularly at the north-eastern interface area.

The alignment of the highest potential risk – from BOTH radiant heat and ember attack in the NE, E and SE sectors of the Subject land indicates that bushfire protection measures are not in accordance with PBP 2019 requirements, which due to residual risk are a necessity within the Subject land and for this redevelopment proposal of Lourdes Retirement village.

***The overall conclusion of the landscape bushfire risk analysis strongly suggests the proposed Lourdes Retirement Village Proposal site should be excluded as inappropriate development under the Strategic Planning Principles or exclusion criteria within PBP.***

# 3. Land Use Assessment

The EP&A Act and the RF Act are the primary legislative instruments relevant to bushfire planning for the site. PBP is called up by these Acts as the Subject Site is mapped as Bush Fire Prone Land, and it is a primary tool for assessing the bush fire risk appropriateness of future development under the Structure Plan.

Chapter 4 of PBP outlines broad principles and assessment considerations for strategic planning. It also specifies that bushfire protection measures need to be considered at the strategic planning stage to ensure that the future development complies with PBP (under PBP Chapters 5-8).

**The feasibility of the Planning Proposal to comply with the bushfire protection measures identified within PBP is a fundamental consideration of the Study.** Whilst bushfire protection measures and their performance requirements are a benchmark for approval of a development, a strategic level study needs also to evaluate these measures within the landscape risk context. This Study has therefore considered the:

- Bushfire landscape (see previous Section);
- Pattern and potential bushfire resilience of the bushland interface;
- Potential cumulative risk associated with the bushfire protection measures;
- Risk profile of different areas and their appropriate land use; and
- Potential for application of innovative or emerging bushfire protection measures.

The following land use risk profile has been identified in the Study:

- The eastern sector of the Subject land proposed for development is deemed inappropriate from the landscape bushfire risk assessment;
- Special Fire Protection Purpose (SFPP) development, as required, can be located well beyond the minimum APZ requirements of PBP;
- Multiple access and egress points and perimeter roads are feasible within the developable area and there is scope to finalise these through design iterations;
- Complementary and consistent risk management through landscape controls and building design is also feasible.
- Development can be proposed in lower risk locations; and
- There is only limited opportunity within the Subject Site to provide APZ and other bushfire protection measures to meet the Acceptable Solutions within PBP and to improve the current risk associated with older housing stock and bushfire protection measures at the hazard interfaces;

## 3.1 Feasibility of Asset Protection Zones

Based on the landscape assessment of vegetation and slope an assessment of the feasibility of APZs that are compliant with the Acceptable Solutions in PBP cannot occur due to spatial restrictions with the Subject Land (i.e. the required APZ widths cannot be adequately placed within the current Master Plan layout). The APZ dimensions listed in Table 3 are the minimum required APZs under the PBP Acceptable Solutions for residential development (i.e. 29 kW/m$^2$) and SFPP development (i.e. 10 kW/m$^2$). **Figure 12 shows that for both these development types the PBP required APZ needs under PBP2019 (both the SFPP required 10kW/m$^2$ benchmark and for residential infill the 29kW/m$^2$ radiant heat level) cannot be comfortably achieved.**

The following considerations and assumptions are made in relation to the mapped APZs:

- Vegetation formation in the assessment is based on OEH mapping, updated via desktop assessment;
- Vegetation assessment has assessed the potential future vegetation hazard following any revegetation of environmental conservation or management zones;
- Site assessment may reveal slopes that are slightly (but not significantly) different to those used to plot the APZ;
- All APZs are assumed to be on land less than 18 degrees;
- Additional APZ and/or modification of the APZ in Figure 13 may be required if revegetation occurs beyond the vegetation hazard used to identify the APZ;

**In addition to the non-compliance with provision of APZs, the overall conclusion of the land-use assessment strongly suggests the proposed Lourdes Retirement Village redevelopment should be excluded as inappropriate development under the Strategic Planning Principles or exclusion criteria within PBP.**

**Table 3: PBP required Residential and SFPP APZs for varying slopes and vegetation classes**

| Vegetation Formation | Slope Class | Residential APZ (BAL-29)[1] | Special Fire Protection Purpose (SFPP) 10 kW/m² APZ[2] |
|---|---|---|---|
| **Forest** | Upslope/Flat | 24 m | **67 m** |
| | 0-5° downslope | 29 m | **79 m** |
| | 5-10° downslope | 36 m | **93 m** |
| | 10-15° downslope | 45 m | **100 m** |
| | 15-20° downslope | 56 m | **100 m** |
| Tall Heath | Upslope/Flat | 16 m | 50 m |
| | 0-5° downslope | 18 m | 56 m |
| | 5 -10° downslope | 20 m | 61 m |
| | 10-15° downslope | 22 m | 67 m |
| | 15-20° downslope | 25 m | 72 m |
| Woodland | Upslope/Flat | 12 m | 42 m |
| | 0-5° downslope | 16 m | 50 m |
| | 5-10° downslope | 20 m | 60 m |
| | 10-15° downslope | 25 m | 72 m |
| | 15-20° downslope | 32 m | 85 m |
| Low Hazard (Rainforest) | Upslope/Flat | 11 m | 38 m |
| | 0-5° downslope | 14 m | 47 m |
| | 5-10° downslope | 18 m | 57 m |
| | 10-15° downslope | 23 m | 69 m |
| | 15-20° downslope | 30 m | 81 m |

[1] TABLE A1.12.2 FROM PBP 2019, [2] TABLE A1.12.1 FROM PBP


Figure 12: Asset Protection Zone Feasibility Assessment (after CR Bushfire Summary Assessment, 2022)

# 4. Access and egress

Access to and egress from the Subject Site, is limited and only via Stanhope Road which runs west into the suburb of Killara. There are a range of existing internal and proposed roads, which provide various connections to this main access and egress route (Figure 13 below).

Perimeter roads are critical for separating developed areas from bushfire hazards, and in so doing provide a higher quality of hazard separation for buildings, bushfire control lines for firefighters, and safe access and egress during a bushfire event. All new development, for residential subdivisions of three or more allotments that abut bushfire hazard (as in this case), should provide perimeter roads. It is noted that there are some existing allotments within the Precinct, that aren't currently afforded perimeter roads. If these allotments are subject to future development of this nature, perimeter access meeting the requirements of PBP (and preferably perimeter roads) will likely be required.

An assessment of the Master Plan layout (Figure 1) indicates that where potential new roads (and specifically perimeter roads) are proposed, these roads can meet the Acceptable Solutions for residential subdivisions within Table 5.3b of PBP (see Table 11 Appendix B).

## 4.1 Evacuation

The safety of emergency responders and people within the Precinct exposed to bushfire attack is paramount. During the November 2020 consultation meetings, Emergency Service Stakeholders clearly indicated that any additional development associated with the Planning Proposal must not rely on emergency service assistance during evacuation.

However, every bushfire attack scenario is different, and designing for bushfire safety necessitates the provision of different options. If large landscape scale bushfire attack threatens the area, the evacuation analysis documents that offsite evacuation capacity is provided by Stanhope Road. However, little data or evidence is presented to support the logistics of such an evacuation operation.

This level of evacuation capacity is not consistent with the Strategic Planning requirements and does not meet the Acceptable Solutions of PBP.

However, an evacuation assessment is considered incomplete unless it also considers the potential effects of the Proposal on those who chose to stay and defend or do not evacuate early; particularly given research (Whittaker *et al.* 2013, Strahan *et al.* 2018, Whittaker 2018, Whittaker 2019) and experience clearly shows that 100% early voluntary evacuation never occurs.

The Study has only partially examined in any detail the viability of the three bushfire evacuation options and whether the Proposal is likely to exacerbate the risks associated with these options:

a. Early off-site evacuation (evaluated above);
b. Community refuges; and
c. In-situ sheltering (including a decision to stay and defend).

#### *4.1.1.1 Community refuges*

While community refuges are currently not formally recognised or encouraged in the planning of new development in PBP; bushfire evacuation patterns (Whittaker *et al.* 2013, Strahan *et al.* 2018, Whittaker 2018, Whittaker 2019) suggest these should be part of best-practice strategic planning consideration as they add options when early evacuation is not feasible (e.g. rapid on-set bushfires) and potentially

increase community safety and resilience in a broader range of bushfire attack scenarios. For these reasons, community refuges are encouraged within the Structure Plan as a bushfire protection design 'redundancy' i.e. a useful, but non-essential element that increases bushfire safety.

The provision of areas or the dedication of sites within the Precinct suitable for the establishment of an Evacuation building will increase the bushfire resilience of the community. Community refuge options such as an Evacuation Centre, Community Fire Refuge (as in Victoria) or Neighbourhood Safer Place (NSPs) – the standard locally and in NSW - require comprehensive design. The following documents offer some guidance on these approaches:

- RFS Bushfire Coordinating Committee Policy No. 1/2012 Community Safety and Coordinated Evacuations; and the
- State Emergency Management Plan Evacuation Management Guidelines, March 2014
- *Neighbourhood Safer Places guidelines for the identification and inspection of neighbourhood safer places in NSW* (RFS, 2017). NSPs can be provided as Open Space or Building NSPs and must be sighted to have a radiant heat exposure of less than 2 kW/$m^2$ and 10 kW/$m^2$ respectively;
  Australian Standard AS 3745:2010 Planning for emergencies in facilities; and
- Australian Standard AS 4083:2010 Planning for emergencies – Health care facilities

All three refuge types are acknowledged in the RFS NSP guideline document, but no standards have been established for Evacuation Centres and Community Refuges in NSW. Victoria is the only jurisdiction with a standard for Community Refuges and has already established four Community Refuges in higher bushfire-risk locations. Whilst Evacuation Centres and Community Refuges have not yet been approved in NSW, and processes/standards for these not yet developed, there are compelling reasons for them after the Black Summer bushfire experience.

Evacuation Centres offer a potentially valuable means of increasing the bushfire resilience of any new community. Importantly, they require engagement and support of emergency services agencies, typically through the District Bushfire Management Committee and the Local Emergency Management Committee (LEMC). Whilst these Committees normally focus on operational and not planning or development design matters; preliminary discussions with such groups elsewhere in NSW have shown support for the concept of strategically located and designed Evacuation Centres. To be financially viable and of greater value to the community, an Evacuation Centre would need to be multi-purpose e.g. a community centre. Substantial evidence would need to be gathered to justify the survivability and functionality of an onsite Evacuation Centre, but where viable these Centres may lower evacuation risks and increase community bushfire resilience.

Neighbourhood Safer Places (NSP) are an option that are suitable as a "refuge of last resort" and, unlike evacuation Centres, do not rely on welfare agencies (under the LEMC) to operate the facility in a bushfire emergency. There are importance differences between an Evacuation Centres, Neighbourhood Safer Places (NSP) and Community Fire Refuges. A NSP is considered a refuge of last resort and defined as:

> "*a building or a space within the community that has been designated as such by the Commissioner of the Rural Fire Service. It provides for improved protection of human life during the onset and passage of a bush fire. It is a location where people facing an immediate threat to their personal safety or property can gather and seek shelter from the impact of a bush fire.*"

Historically, NSP have been applied to existing communities, but in a Condition of Consent issued by the

Independent Planning Commission was applied to a new subdivision in 2020; a precedent that encourages this level of forward thinking and design for new communities on Bush Fire Prone Land.

The BlackAsh Bushfire Assessment Study identified potential locations where the minimum radiant heat for a NSP building exist and the NSP guidelines (RFS, 2017) for the selection of NSP sites can be met. In their Bushfire Assessment Report, BlackAsh stated:

*From the built form perspective, the unique layout and construction of the site will provide for radiant heat shielding and an integrated underground network of pedestrian accessways leading to the basement carpark and into the refuge building. This underground network and radiant heat shielding enables all residents to move safely to the onsite refuge.*

*The Bush Fire Emergency Management and Evacuation Plan will be designed to complement the built form. It will be designed so that the occupation of the site is managed to ensure residents aren't adversely exposed to bushfire events. This will include triggers for moving residents into the refuge area or off-site as appropriate on days of bad fire weather or if bushfires are expected to impact the site.*

The addition of an Evacuation Building to the Precinct offers the potential to enhance the safety of the existing community.

#### *4.1.1.2 In-situ sheltering*

Research has shown that not all people in recent bushfires evacuate early and some chose to stay and defend (Whittaker *et al.* 2013, Strahan *et al.* 2018, Whittaker 2018, Whittaker 2019). If 'stay and defend' practices were to occur relatively safely among existing residents a significant improvement in their bushfire protection measures would likely be required (e.g. APZ and building construction improvements). The introduction of newer buildings to the site and particularly in areas between older housing stock and the hazard offers significant opportunity to provide a more bushfire resilient community and urban bushland interface. This is possible because all new development requires bushfire resilient infrastructure and all new buildings are constructed to contemporary (i.e. AS3959-2019) bushfire standards.

The Master Plan currently lacks the intent to site the most appropriate and resilient buildings and uses in situations that meet contemporary design standards under PBP but also lower the bushfire risk in the existing community. A further improvement in bushfire resilience can also be enhanced by controls over landscaping and building envelopes.

### 4.1.2 Access and egress findings

A preliminary assessment of the Access and Egress or evacuation issues and requirements suggests that further assessment and either Acceptable or Performance-based solutions are required. Until fully documented the proposal should be excluded as inappropriate development under the Strategic Planning Principles or exclusion criteria within PBP.

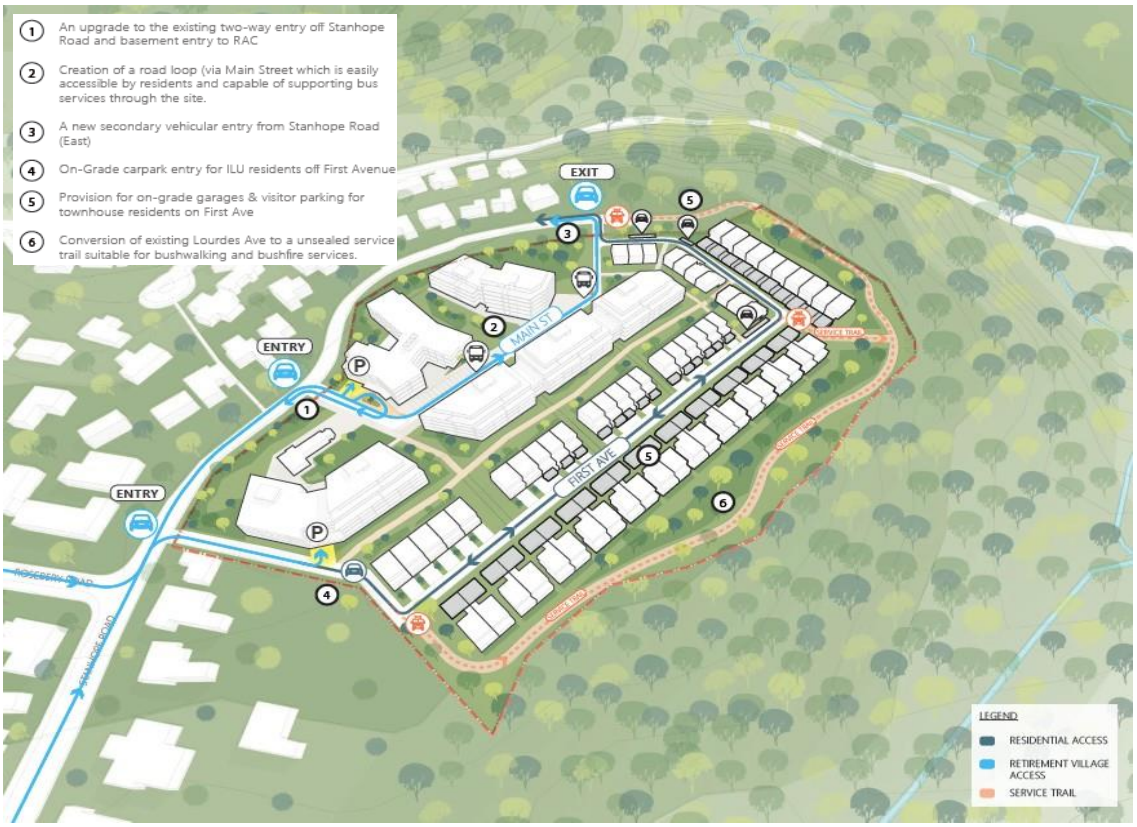

Figure 13: Existing and Proposed Road Network

# 5. Emergency Services

The Study has considered strategic emergency management planning.

The proposed Master Plan (Figure 1) shows a consolidation of the existing development footprint at the Subject site. This consolidation and increased development density, especially around the perimeter of the site, has the potential to alter the dynamics of the potential penetration of bushfire into the existing developed area. **A more 'bushfire resilient perimeter' of buildings around the site will also reduce the risk of house to house (and garden to garden) spread of fire if all new dwellings will have PBP compliant APZ and buildings.**

But of most importance for emergency service responders is the provision of perimeter roads from which to fight fires and defend properties. New development for the Site, as proposed by the Master Plan, can achieve these improvements, to an extent that is impossible for the existing community through piecemeal replacement of individual buildings over time.

As the Master Plan proposes the addition of 74 new dwellings, there is an increased demand on emergency services for routine fire and bushfire related services. There are fire and emergency response agencies within proximity, which include:

- Ku-ring-gai RFS Brigade (located approx. 4.5km north);
- Gordon Fire & Rescue (2 km north);

- Willoughby Fire & Rescue (4 km south);
- Proposed east Killara RFS Brigade (1km east)

Given the increase in the number of dwellings on Bush Fire Prone Land an improvement to the capacity of the existing RFS brigade at Ku-ring-gai is desirable and has been expressed by the RFS at Stakeholder meetings. An improvement in the capacity of the Ku-ring-gai brigade and relocation to East Killara is now progressing with specific and detailed design discussions, and this Study suggests that the provision of the new Brigade Station in East Killara (Koola Park) would be an appropriate level of contribution to an increase in the capacity/performance of the Ku-ring-gai RFS Brigade.

Additional NSW Fire and Rescue resources stationed at Gordon and Willoughby would also attend any fire related emergency, located approximately 2 km north-west and 4km south-east, respectively.

There is no part of the assessment of the future impact of new development on Emergency Services that suggests the proposed development should be excluded as inappropriate development under the Strategic Planning Principles or exclusion criteria within PBP. However, further discussions are required with emergency services stakeholders to finalise an appropriate response to the increase in demand for bushfire related emergency services.

# 6. Infrastructure

## 6.1 Water

An adequate water supply that meets the requirements of PBP must be afforded future development. There has been no evidence found in the Study that the water requirements within PBP cannot be met by the Structure Plan which will include a reticulated system potentially augmented by static water supplies (SWS) where appropriate. Two large (capacity unknown – however exceeding 500kl) water reservoirs, with associated pumping infrastructure, are located onsite.

It is feasible within the subject land for the location, number and sizing of hydrants to be determined using fire engineering principles and it is assumed compliance with AS 2419.1 – 2005 is also feasible. A test report of the water pressures anticipated by the relevant water supply authority will be required by the RFS. Fire hydrants should not be located within any road carriageway and all above ground water service are to be metal.

## 6.2 Electricity and gas

The future electricity supply to the new parts of the Precinct will be underground and compliant with PBP. It is also assumed that where any existing or future electrical transmission lines are above ground, it is feasible for no part of a tree is to be closer than 0.5 m to powerline conductors.

It is assumed by the Study that reticulated or bottled gas can be installed and maintained in accordance with Australian Standard AS/NZS 1596 'The storage and handling of LP Gas' (Standards Australia 2014) and the requirements of relevant authorities is feasible. Metal piping must be used in all above ground gas services.

There is no part of the assessment of the future impact of new development on electricity and gas supplies that suggests the proposed Lourdes Retirement Village redevelopment should be excluded as inappropriate development under the Strategic Planning Principles or exclusion criteria within PBP.

However, further discussions, at the DA stage, are required with supply authorities to confirm the requirements of PBP can be met.

# 7. Adjoining land

This Study has demonstrated that currently inadequate bushfire protection measures afforded to the development proposed by the Master Plan for the Lourdes Retirement Village redevelopment, such that the land management of adjoining lands will be adversely impacted (e.g. through prescribed burning or other fire management measures). The current Master Plan does not meet the criteria: **'All new development will be designed to meet the standards of PBP which achieve an appropriate level of bushfire resilience without any reliance on fuel reduction measures on adjoining lands'.**

The assessment of the bushfire related impacts from/on adjoining land, landowners and managers suggests the proposed Lourdes Retirement Village redevelopment should be excluded as inappropriate development under the Strategic Planning Principles or exclusion criteria within PBP.

# 8. Evaluation of Suitability

## 8.1 Assessment against PBP Bushfire Strategic Planning Requirements

This Section evaluates the Master Plan for the Lourdes Retirement Village redevelopment, against the bush fire strategic planning requirements of PBP (detailed in Section 1.4.1) based upon the assessment findings in the preceding sections of this Study to determine whether:

- the Structure Plan poses an unacceptable risk or provides for inappropriate development;
- the Structure Plan does not adequately respond to the bushfire threat, appropriate to the current stage of planning;
- adequate bushfire protection measures cannot be provided to reduce the residual risk to an appropriate level.

The evaluation is based upon PBP Chapter 4 and stakeholder advice collated within the BlackAsh Bushfire Assessment (2022) report and the Assessment Framework of this Study (Section 1.4.2) and is summarised in Table 7, Table 8 and Table 9. In addition to evaluating the Proposal against these matters, the evaluation specifically considers:

- Residual risk - the level of residual risk after the application of bushfire protection measures is a key determinant in the strategic assessment of whether proposed development is appropriate;
- Risk to life - an appropriately low residual risk to human life is fundamental;
- Risk to property – the residual risk to property should meet the Acceptable Solutions within PBP;
- Emergency service response - the acceptability of proposed development should not be reliant on emergency service response / intervention;
- Adjoining lands – the proposed development should not be reliant on fuel management on adjoining lands or effect those landowners ability to undertake such works.

**Table 4: Evaluation of the Development Proposal against the Strategic Planning Principles of PBP (RFS 2019)**

| PBP Strategic Planning Principle | Evaluation | Compliance |
|---|---|---|
| Ensuring land is suitable for development in the context of bush fire risk | The risk profile of the Lourdes Retirement Village locality is not uniform. The BlackAsh Report (2022) presented a Bushfire Risk Assessment for the subject land and identified that there are areas with elevated bushfire risk. Recent, additional fire scenario modelling (from RedEye, 2022) indicates a higher fireline intensity (I.e. higher) risk on the northeast and eastern sector of the Subject Land. Section 2 and Section 3 of this Study evaluates the specific bushfire risk of the subject land. Key findings include:<br>• There are areas of elevated bushfire risk beyond the Lourdes Retirement Village locality that are generally associated with:<br>  ○ wooded vegetation (i.e. sandstone ridgetop and gully forest) on or near steeper slopes;<br>  ○ connectivity to a larger fire catchment, which exist to the north, east and south-east – allowing for both long and short fire-runs;<br>  ○ exposure to the most problematic directions of bushfire attack (i.e. the north through to the southern sector based on FFDI bushfire weather analysis); and<br>  ○ areas where there is the potential exposure to larger fire fronts or extensive fire footprints, which typically exacerbate the risk. The fire history data indicates that the north to westerly sector are the areas with the greatest potential of landscape fire attack.<br>• The areas of elevated bushfire risk in the broader locality are contiguous and not well separated from the Subject Land;<br>• The bushfire hazards within the Subject Land are generally:<br>  ○ Not disconnected from bushfire hazard outside the Precinct; and<br>  ○ Low – Moderate hazard vegetation (i.e. narrow areas set aside for aesthetic (native garden) vegetation).<br><br>This Study has identified that the footprint proposed for future development is not confined to the lower risk portions of the Subject Land, and that these sectors have a bushfire risk context that does not support their suitability for development, considering:<br>• No removal of proposed development from locations with elevated bushfire risk that should be used for APZs;<br>• Proposed development areas are not significantly separated from locations with elevated bushfire risk, with minimal separation provided by managed lands, fuel reduced areas and/or low hazard vegetation. This lack of separation, but especially in the primary risk directions of the north through to the south-east, may lead to on-site bushfire impacts (particularly as the site is very close to upper slope ridge topography) ; | Not Compliant |

| PBP Strategic Planning Principle | Evaluation | Compliance |
|---|---|---|
| | • Clustering of development in lower risk settings (i.e. western and northern sector of the Subject land, with lower residual risk) and not adjoining areas of significant bushfire hazard, **has not been factored into the proposal**;<br>• Questionable ability of 'unassisted evacuation';<br>• The size and location of proposed land uses (and development footprint) does not permit the application of bushfire protection measures that meet or can exceed the Acceptable Solutions of PBP, thus not allowing the level of residual risk to be reduced to an acceptable level. | |
| ensuring new development on BFPL will comply with PBP | The Master Plan proposes land uses of a type, size or location that comply with PBP and this can be effectively managed in future development designs, at subsequent stages in the planning and development process. | Not Comp |
| minimising reliance on performance-based solutions | The Master Plan is largely reliant on any bushfire performance-based solutions under PBP. | Not Compliant |
| providing adequate infrastructure associated with emergency evacuation and firefighting operations | The evidence presented does not fully demonstrate the capacity for full, 'un-assisted' off-site evacuation that is not reliant on emergency services intervention.<br>Infrastructure for firefighting operations will include the road network, including perimeter roads, reticulated water supply and a large (existing) Static Water Supply (SWS) facility.<br>The proposed East Killara Rural Fire Brigade Station is to be located approximately 1 kilometre distant from the site and it is understood that the Department will continue to consult with emergency service agencies regarding whether any further physical infrastructure is required for the proposed development. | Compliant |
| facilitating appropriate ongoing land management practices | The Master Plan does restrict appropriate ongoing land management practices and is reliant on bushfire management of adjoining lands to support its bushfire protection. | Not Compliant |

**Table 5: Evaluation of the Development Proposal against the "inappropriate development" exclusion requirements of PBP (RFS 2019)**

| Inappropriate Development | Evaluation | Compliance |
|---|---|---|
| the development area is exposed to a high bush fire risk and should be avoided | The bushfire risk profile varies across the Subject Land (i.e. Fireline Intensity scenario analysis undertaken by RedEye). The development footprint, proposed by the Master Plan, is not actually sited in the lowest bushfire risk location within the locality. | Not Compliant |
| | Risk exposure that can be reduced to an appropriate level, through the application of bushfire protection measures in Accordance with and exceeding PBP requirements. | Not Compliant |
| The development is likely to be difficult To evacuate during a bushfire due to its Siting in the landscape, access limitations, History and/or size and scale | Due to the siting of the Subject Land at the end of a ridgetop, surrounded by fire prone vegetation with only one major road exit, large-scale evacuation of the many vulnerable residents from the site may experience operational difficulties and be lengthy in nature. Secondary evacuation routes are not available, Depending on the bushfire attack scenario faced, on-site evacuation may the preferable option and offer useful redundancy to greatly reduce the level of evacuation risk. Not Compliant | |
| the development will adversely effect other bush fire protection strategies or place existing development at increased risk | The proposed development will not adversely affect other bushfire protection strategies or place existing development at increased risk. Rather, it may benefit existing development, both within and outside of the Subject Land, particularly in consideration of:<br>• The on-site evacuation options available within the Site also reduce the level of evacuation risk to existing developments but are evaluated as risk design redundancy in this Study;<br>• An improvement to emergency services capacity (e.g. provision of the new RFS Brigade Station at East Killara) benefits existing residents. | Compliant |
| the development is within an area of high bush fire risk where density of existing Development may cause evacuation issues for both existing and new occupants | The proposal will increase the number of residents, including a vulnerable population, on-site. The increased density will further complicate the yet unsolved issues of on-site evacuation and measures to suitably achieve resident safety. | Not Comnt |
| the development has environmental constraints to the area which cannot be overcome | The environmental constraints are assessed by specialist(environmental) reports. It is not demonstrated that the Master Plan responds favourably to the environmental constraints within the Lourdes Retirement Village redevelopment. | Not Compliant |

**Table 6: Evaluation of the Development Proposal against the Strategic Planning Assessment Considerations of PBP (RFS 2019)**

| Issue | Detail | Evaluation | Compliance |
|---|---|---|---|
| Bush fire landscape assessment | A bush fire landscape assessment considers the likelihood of a bush fire, its potential severity and intensity and the potential impact on life and property in the context of the broader surrounding landscape | The Eco Logical Bushfire Assessment (2018) report presents a bushfire risk assessment for the broader locality.<br>The bushfire landscape risk relevant to the Lourdes Retirement Village redevelopment, is presented in Section 2 of this report. It details the bushfire hazard, potential bushfire behaviour and the bushfire risk setting of the Subject Land, including: recorded bushfire history and frequency, fire catchment characteristics, and potential bushfire attack scenarios.<br>The bushfire landscape risk context is outlined in Table 7 and is summarised below.<br>• There are areas of elevated (Moderate – Very High Overall Fuel Hazard ranking levels) bushfire risk in the broader locality.<br>• The areas of elevated risk in the locality are immediately adjacent to and not well separated from the Subject Land;<br>• The bushfire hazards within and immediately adjoining the Subject land are generally contiguous with the external hazard which is classified as Moderate-High hazard vegetation. | Not Compliant |
| Land use assessment | The land use assessment will identify the most appropriate locations within the masterplan area or site layout for the proposed land uses | The bushfire risk profile varies across the Subject Land. This Study has identified that the locations proposed for future development are not confined to the lower risk portions of the Subject Land (i.e. central and western sectors), and that the eastern sector has a bushfire risk context that renders them not suitable for development, considering:<br>• Removal of proposed development from locations with elevated bushfire risk;<br>• Proposed development areas are significantly separated from locations with elevated bushfire risk, with separation provided by managed lands, fuel reduced areas and low hazard vegetation. This separation is in all directions, but especially in the primary risk directions of the north-east through to the south-east;<br>• Clustering of development in lower risk settings (i.e. western, north-western and central sectors of the Subject Land) and not adjoining areas of significant bushfire hazard);<br>• Ability of 'unassisted evacuation';<br>• The size and location of proposed land uses permits the application of bushfire protection measures that meet or can exceed the Acceptable Solutions of PBP, thus allowing the level of residual risk to be reduced to a suitable level.<br><br>Whilst the Subject Land will retain a level of residual risk post-development (as do all areas proximal to bushfire hazard) the level of this residual risk in the western-central sector of the site is not unacceptable, such that the proposed land uses should be excluded, provided those land uses are afforded with an adequate combination of bushfire protection measures (i.e. Asset Protection Zones, building construction standards, an adequate road network and water supply etc.). Analysis of the Master Plan (Sections 3 to 7) indicates that an appropriate and PBP compliant combination of bushfire protection measures has not been demonstrated for the future development.<br>***Recommendation*:** Planning provisions and subsequent more detailed development design is required for the Lourdes redevelopment site to ensure that the bushfire protection measures are afforded to future development, in accordance with PBP requirements and to lower residual risk to residences and occupants. | Not Compliant |

| Issue | Detail | Evaluation | Compliance |
|---|---|---|---|
| Access and egress | A study of the existing and proposed road networks both within and external to the masterplan area or site layout | There has only been limited analysis of the existing and proposed road networks both within and external to the proposed development site with specific reference to off-site evacuation. The analysis has not included extensive stakeholder consultation with emergency services agencies and other experts to identify appropriate assumptions, model parameters and acceptance criteria. The analysis has not yet determined:<br>• The evacuation route options to off-site safer places;<br>• The priority evacuation routes based on potential bushfire attack scenarios and hazards proximal to the evacuation routes;<br>• That the capacity for the existing and proposed road network to deal with evacuating residents and responding emergency services, based on the existing and proposed community profile, is satisfactory (according to established evacuation guidelines)<br><br>***Recommendation*:** The provision of an on-site evacuation building is strongly recommended to be further explored (Section 5) to provide bushfire protection design redundancy.<br><br>There are a range of existing internal and proposed roads, which provide various connections to the main access and egress routes. Additional roads may be identified at subdivision design stages.<br>Assessment of the Structure Plan indicates that where potential new roads (and specifically perimeter roads) are proposed these roads can meet the Acceptable Solutions for residential and rural subdivisions.<br>***Recommendation*:** The Masterplan design must provide for perimeter roads for all new development of three or more allotments that abut bushfire hazard. | Not Compliant |
| Emergency services | An assessment of the future impact of new development on emergency services provision | The Master Plan proposes development of up to 74 new dwellings. This change may influence the demand on emergency services. The development proposed by the Master Plan may adversely impact on the ability of emergency services to carry out fire suppression in a bushfire emergency. However a well documented Master Plan will support it by formalisation of the hazard interface, provision of perimeter roads and water supply. | Compliant |

| Issue | Detail | Evaluation | Compliance |
|---|---|---|---|
| | | | |
| Infrastructure | An assessment of the issues associated with infrastructure provision | This Strategic Bush Fire Study concludes that provision of bushfire protection related infrastructure is adequate. | Compliant |
| Adjoining land | The impact of new development on adjoining landowners and their ability to undertake bush fire management | Future development as proposed by the Master Plan, should not be reliant on any off-site bushfire management measures such as hazard reduction burning or other fuel (reduction) management. Further, the proposed land uses will not have a deleterious impact on the ability for bushfire management activities to be undertaken on adjoining land. Given the adherence to *PBP 2019* and other land use planning requirements, the proposed land uses should not increase bushfire management needs for retained and/or adjoining bushfire prone vegetation, rather the development proposed by the Master Plan would result in a reduction in bushfire hazard. Further, given the provision of well-designed road networks for future development, the future land uses and infrastructure should help facilitate effective bushfire management operations. | Not Compliant |

# 9. Conclusion

This Bush Fire Strategic Study has examined the bushfire hazard affecting the Lourdes Retirement Village redevelopment and to assess the strategic implications of future development for bush fire mitigation and management. The evaluation of suitability has included assessment against the strategic planning principles, "inappropriate" development requirements and the assessment considerations of PBP. It has been evaluated against the approach and findings in the BlackAsh Bushfire Assessment report to assess whether the *PBP 2019* 'benchmarks' are met by the new Master Plan.

Given the high bushfire risk profile of the Lourdes Retirement Village redevelopment proposal at a Strategic Level, the findings of this Study are:

- The Master Plan fails to comply with the Strategic Planning Principles of PBP;
- The Master Plan does trigger the "inappropriate" development exclusion requirements of PBP;
- That the Acceptable Solution bushfire protection measures within PBP cannot be met by the future development envisaged by the Master Plan and does not offer opportunity for protection measures beyond the minimum compliance under PBP;
- Compliance with PBP is partially reliant on the intervention/response by emergency services or hazard management on adjoining land;
- 'unassisted' off-site evacuation has not been demonstrated to be achievable.

Further, the Study has found that overall, the proposed Lourdes Retirement Village Master Plan should be classed as inappropriate development under the Strategic Planning Principles and exclusion criteria within PBP. In addition, that the current Master Plan cannot meet the objectives of Direction 4.4 (s9,1(2) of the *EP&A Act*, specifically with regard to the protection of life, property and the environment from bushfire.

Recommendations from the Study, include:

- Ensuring that further detailed bushfire assessment is undertaken when more detailed development designs are available in later stages of the planning pathway, and that these designs maintain more comprehensive compliance and closer alignment with PBP Acceptable Solutions than the Master Plan currently facilitates;
- Performance-based mechanisms (fully tested and accepted/compliant with Australian Standards) be further explored to provide an on-site evacuation building(s), which will provide additional bushfire protection redundancy;
- Residential subdivision design must provide for perimeter roads for all new development that abut bushfire hazard as prescribed by PBP;
- Extensive consultation with relevant agencies regarding emergency management requirements and infrastructure provision; and

The Study also observed that:

- the Strategic Planning requirements of PBP can be improved with clearer Acceptance Criteria (development assessment 'pass marks') for Strategic Planning assessment.

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# Appendix A Bush Fire Prone Vegetation Status

# Appendix B Access Specifications

The following access specifications are reproduced from PBP (RFS 2019).

Intent of measures**:** To provide safe operational access to structures and water supply for emergency services while residents are evacuating an area.

**Table 6: Performance criteria for access for residential and rural residential subdivisions**

| Performance Criteria | Acceptable Solutions |
|---|---|
| The intent may be achieved where: | |
| firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation | property access roads are two-wheel drive, all-weather roads, and<br>perimeter roads are provided for residential subdivisions of three or more allotments; and<br>subdivisions of three or more allotments have more than one access in and out of the development; and<br>traffic management devices are constructed to not prohibit access by emergency services vehicles; and<br>maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient; and<br>all roads are through roads. Dead end roads are not recommended, but if unavoidable, dead ends are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end; and<br>where kerb and guttering is provided on perimeter roads, roll top kerbing should be used to the hazard side of the road; and<br>where access/egress can only be achieved through forest, woodland or heath vegetation, secondary access shall be provided to an alternate point on the existing public road system. |
| the capacity of access roads is adequate for firefighting vehicles | the capacity of perimeter and non-perimeter road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges/causeways are to clearly indicate load rating. |
| there is appropriate access to water supply | hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression;<br>hydrants are provided in accordance with AS 2419.1:2005;<br>there is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available. |
| access roads are designed to allow safe access and egress for medium rigid firefighting vehicles while residents are evacuating as well as providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface | perimeter roads are two-way sealed roads; and<br>8m carriageway width kerb to kerb; and<br>parking is provided outside of the carriageway width; and<br>hydrants are located clear of parking areas; and<br>there are through roads, and these are linked to the internal road system at an interval of no greater than 500m; and<br>curves of roads have a minimum inner radius of 6m; and<br>the maximum grade road is 15° and average grade is 10°; and<br>the road crossfall does not exceed 3°; and |

| Performance Criteria | Acceptable Solutions |
|---|---|
| | a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided. |
| access roads are designed to allow safe access and egress for medium rigid firefighting vehicles while residents are evacuating | minimum 5.5m width kerb to kerb; and<br>parking is provided outside of the carriageway width; and<br>hydrants are located clear of parking areas; and<br>roads are through roads, and these are linked to the internal road system at an interval of no greater than 500m; and<br>curves of roads have a minimum inner radius of 6m; and<br>the road crossfall does not exceed 3°; and<br>a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided. |
| firefighting vehicles can access the dwelling and exit safely | No specific access requirements apply in an urban area where a 70 metre unobstructed path can be demonstrated between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles (i.e. a hydrant or water supply).<br>In circumstances where this cannot occur, the following requirements apply:<br>minimum carriageway width of 4m;<br>in forest, woodland and heath situations, rural property access roads have passing bays every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m at the passing bay; and<br>a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches; and<br>provide a suitable turning area in accordance with Appendix 3; and<br>curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress; and<br>the minimum distance between inner and outer curves is 6m; and<br>the crossfall is not more than 10°; and<br>maximum grades for sealed roads do not exceed 15° and not more than 10° for unsealed roads; and<br>a development comprising more than three dwellings has formalised access by dedication of a road and not by right of way.<br>Note: Some short constrictions in the access may be accepted where they are not less than the minimum (3.5m), extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed. the gradients applicable to public roads also apply to community style development property access roads in addition to the above. |

# Appendix C Services Specifications

The following services specifications (provision of water, gas and electricity) are reproduced from PBP (RFS 2019).

Intent of measures**:** provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building.

**Table 7: Performance criteria for services provision for residential and rural residential subdivisions**

| Performance Criteria | Acceptable Solutions |
|---|---|
| The intent may be achieved where: | |
| a water supply is provided for firefighting purposes | reticulated water is to be provided to the development, where available;<br>a static water supply is provided where no reticulated water is available. |
| water supplies are located at regular intervals<br>the water supply is accessible and reliable for firefighting operations | fire hydrant spacing, design and sizing comply with the Australian Standard AS 2419.1:2005;<br>hydrants are not located within any road carriageway;<br>reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads. |
| flows and pressure are appropriate | fire hydrant flows and pressures comply with AS 2419.1:2005. |
| the integrity of the water supply is maintained | all above-ground water service pipes external to the building are metal, including and up to any taps. |
| location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings | where practicable, electrical transmission lines are underground;<br>where overhead, electrical transmission lines are proposed as follows:<br>lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas;<br>no part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 Guideline for Managing Vegetation Near Power Lines. |
| location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings. | reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used;<br>all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;<br>connections to and from gas cylinders are metal;<br>polymer-sheathed flexible gas supply lines to gas meters adjacent to buildings are not used;<br>above-ground gas service pipes are metal, including and up to any outlets. |

**Table 8: Water supply requirements for non-reticulated developments or where reticulated water supply cannot be guaranteed (Table 5.3d of PBP)**

| Development Type | Water Requirements |
|---|---|
| Residential lots (<1000m²) | 5000L/lot |
| Rural-residential lots (1000-10,000m²) | 10,000L/lot |
| Large rural/lifestyle lots (>10,000m²) | 20,000L/lot |
| Multi-dwelling housing (including dual occupancies) | 5000L/dwelling |

**End Submission**