Appendix Four

Council's further review of additional bushfire impact

COUNCIL'S FURTHER REVIEW OF BUSHFIRE IMPACT

PLANNING PROPOSAL TO REZONE LAND AT 95 – 97 STANHOPE ROAD, KILLARA

Ku-ring-gai Council August 2018

Planning for Bushfire Protection 2006 (NSW Rural Fire Service) identifies the existing and proposed Seniors Housing land use on the site as a 'Special Fire Protection Purpose Development' and provides details on the requirements for such infill developments. It provides Performance Criteria that must be satisfied in the assessment of such development. This Performance Criteria can be satisfied in two different ways:

- Use of acceptable solutions listed within the Planning for Bushfire Protection 2006; or
- By demonstrating another solution satisfying the specific objectives and Performance Criteria listed within the Planning for Bushfire Protection 2006. This solution is referred to as a Performance Solution.

This document provides a review of the planning proposal with consideration of additional advice prepared by Eco Logical Australia (Attachment 10 of the Stockland Cover Letter), and largely summarised within the Stockland Cover Letter (pg.12 – 16), which seeks to support the proposed alternate solution approach as contained within the Bushfire Protection Assessment prepared as part of the Planning proposal by Eco Logical Australia (Attachment D).

1. Bush Fire Design Brief (BFDB) and Engagement with NSW Rural Fire Services (RFS)

The Stockland Cover Letter (pg.16) and the Eco Logical Australia (ELA) additional advice *(*pg.2, Attachment 10) state:

"The bushfire issues related to the Planning Proposal are complex and the rezoning application specifically sought to work through these matters through a Bushfire Design Brief process with the NSW Rural Fire Service (RFS).

The Bushfire Protection Assessment prepared by ELA (Attachment D) nevertheless provided information that demonstrated that a Bush Fire Design Brief (BFDB) could produce a development compliant with the performance solutions within Planning for Bushfire Protection 2006".

The Stockland Cover Letter states:

- (pg.12) *"the Bushfire Protection Assessment, prepared by Eco Logical Australia (Attachment D), has identified the proposed use as suitable for the site, subject to the implementation of strategies to manage the bushfire prone nature of the site."*
- (pg.13) *"The Bushfire Protection Assessment provided information that demonstrates that the northern part of the site is capable of accommodating redevelopment with appropriate bushfire measures including a BFDB which could produce a development compliant with the performance solutions within Planning for Bushfire Protection 2006".*
- *(pg.14) "The Planning Proposal offers the potential for a highly bushfire resilient and legislative complaint retirement village and importantly, will replace a bushfire vulnerable village with a national best practice bushfire resilient one. Therefore, it is recommended that the Planning Panel allow the bushfire risk assessment of the Planning Proposal proceed to a BFDB".*

Council maintains that the Bushfire Protection Assessment prepared by ELA (Attachment D) has not demonstrated that a Bush Fire Design Brief (BFDB) could produce a development compliant with the performance solutions of Planning for Bushfire Protection 2006, that are acceptable by the NSW Rural Fire Service (RFS); and as such has not demonstrated that the proposed use / design is suitable for the site.

The ELA additional advice *(pg. 2,* Attachment 10) states:

"As a BFDB is a new and yet to be formalised process of bushfire performance solution evaluation by the RFS, a Planning Proposal approval was sought conditional on the BFDB being prepared and approved. However, the applicant was not given the opportunity to speak with the RFS following the Bushfire Protection Assessment submission, nor is it known if this Assessment was forwarded to the RFS".

Council cannot support a planning proposal for Gateway, whose inherent location carries a significant bushfire risk, and proposed design provides no option other than a Bush Fire Design Brief (BFDB) to justify a performance solutions approach, without a preparation / provision of a BFDB or written RFS support / approval of the proposed methodology. The proposed approach:

- Would effectively defers the assessment of bushfire risk till after Gateway, thereby restricting planning authorities from truly evaluating a planning proposal's impacts and benefits holistically (cumulative impact).

- Fails to allow adequate feedback from the RFS to inform determining authorities and the proposals design and validity.

- Fails to provide determining authorities with a sufficient understanding of the proposed performance solutions validity and as such the resultant risk to future occupants, visitors and local residents.

It is not Council's usual practice to consult refer Planning Proposals to the RFS for comment prior to the issuing of a gateway determination. However, due to the very serious nature of bushfire hazard, Council engaged an independent bushfire consultant (Australian Bushfire Protection Planners) to advise on the viability of the performance methodology presented and whether it demonstrated sufficient diligence around the safety of the populations that would result from the proposal.

Councils Independent bushfire consultant discussed (verbally) their concerns with the RFS regarding the proposed lowered Forest Fire Danger Index (FFDI) (also referred to as Fire Danger Index, FDI), and received a written email response confirming that the RFS will not accept lowering the FDI for the site from 100 to 55, as proposed in the ELA Bushfire Protection Assessment (as outlined within pg. 12 and 20 of Australian Bushfire Protection Planners, April 2018 forming Attachment A20 to Council's 22 May 2018 Report).

Following receipt of Stockland Cover Letter (pg.16) and the ELA additional advice (Attachment 10), Council has made enquiries with RFS to verify the content of the review material. As a courtesy, the following relevant bushfire documents were forwarded to David Boverman, Manager Development Planning & Policy, Rural Fire Service:

- Stockland Cover Letter (July 2018)
- Attachment 10 to Cover letter - FINAL Letter of Advice in Response to Councils Bushfire Comments - 29 June 2018.
- Planning Proposal Attachment D: Bushfire Protection Assessment by EcoLogical Australia (May 2017).
- Council Report Attachment A20: Independent Review Of Bushfire Impact by Australian Bushfire Protection Planners, April 2018.

Council is in receipt of an email from. Mr Boverman (at Appendix 3), it confirmed RFS does not support a reduced FDI at this location, and raised concern regarding the planning proposal intensification of population on this site saying:

> *"the proponent has made several statements and conclusions during our meeting with them and in the submission you sent us (the bush fire report and cover letter) which we disagree with.*
>
> *These include the acceptability of using modified Fire Danger Indices……...*
>
> *Additionally, there are issues with increasing the occupant numbers and also potential design issues with the proposed multi-storey building(s).*
>
> ***Finally, it should be noted that the Bush Fire Design Brief Process needs to occur and be completed before any planning proposals are acted on, and this process is yet to be successfully completed by the proponent."***

It is also noted that in addition, the proponent's own Bushfire Protection Assessment (Attachment D) includes a letter from RFS also not supporting the original proposal tabled with them. In response to those RFS concerns it appears the proponent removed the 8 residential flat buildings to the south of the site (although their Urban Design Study (page 11) includes the below diagram as an "indicative future proposal for the development of the southern portion of the site", as provided within Figure 1.

Figure 1

2. Level of bushfire threat

The Stockland Cover Letter (p16) states, *"the Bushfire Protection Assessment and supplementary advice (Attachment 10 to this letter) demonstrates the site is not an inappropriately high bushfire risk site as the site is located within a large urban region with a* ***relatively small exposure to bushfire attack largely from the south and east****; directions which pose a much lower risk and frequency of bushfire attack compared to where hazards are located to the north-west, west or south west of a development."*

Council (as supported by their independent bushfire consultant), maintain that the site is subject to significant exposure to bushfire attack from the south, east and also from the **north east.**

The site adjoins more than 38,500 ha of bushfire prone bushland, contains areas of steep terrain and "*is exposed to a* ***1.2 Kilometre fire path from the northeast with a potential head width of more than 300 metres.*** *The fire*

path from the southeast has a length of more than 450 metres with a potential head width of more than 250 metres" (pg.9 -10, Australian Bushfire Protection Planners April 2018), as outlined within figure 2 and 3 (below).

Figure 2 - Plan of Potential Fire Paths

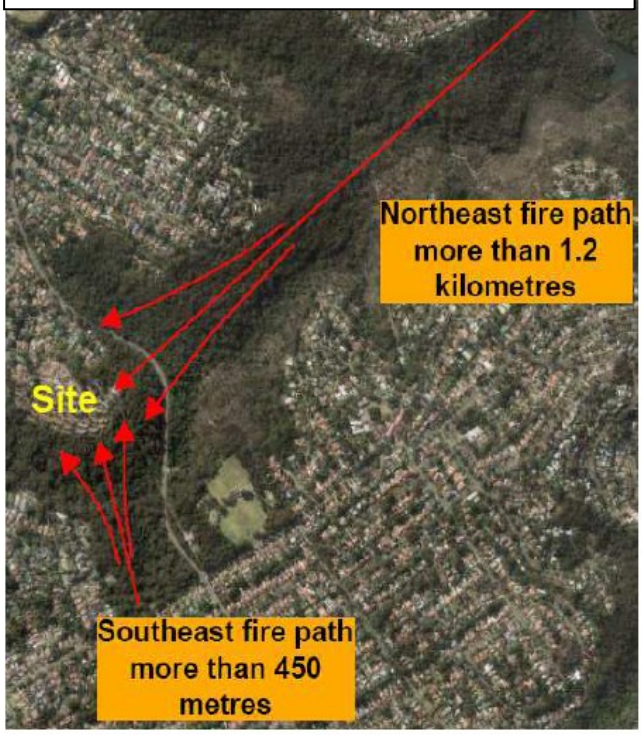
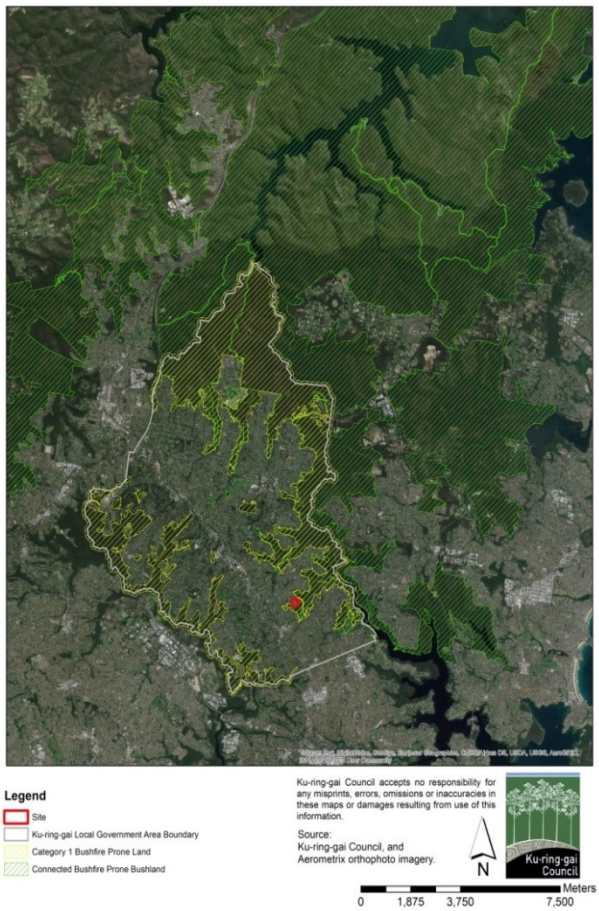


Figure 3 -
95 Stanhope rd, Killara Bushfire Prone Land Connectivity



3. Inappropriate / *Wrong Fire Danger Rating (FFDI) used and therefore an inadequate Asset Protection Zone*

ELA's additional advice *(pg. 2,* Attachment 10), seeks to provide additional support to their FDI methodology stating, *"a detailed weather data analysis process using a Generalised Extreme Value (GEV) was used to determine the Forest Fire Danger Index on the subject site".* It then outlines that the GEV methodology has been independently reviewed by Dr Grahame Douglas and that (pg. 3) "*The GEV weather analysis process used by ELA was also endorsed as appropriate by the RFS at a meeting on the 29 June 2018…….. The subject Planning Proposal use of FFDI has followed exactly the same process as that approved by peer review and the RFS for a site at Wollstonecraft."*

This is new information. Details of the Wollstonecraft site are not available to council for comparison, nor has any written evidence of RFS support regarding this approach been provided.

The ELA additional advice *(pg. 3,* Attachment 10),then goes on to state *"It is therefore expected for the subject Planning Proposal that a performance solution reliant on a reduced FFDI will be accepted by the RFS during the BFDB process and its use in the Planning Proposal is correct and therefore will not itself alter the APZs proposed".*

Council maintains that an assumption of RFS adoption based upon consultation undertaken within other sites is inappropriate and provides little backing for RFS acceptance. A stance supported by advice from the RFS, David Boverman (Manager Development Planning & Policy, Appendix 3) which states:

> *"the proponent has made several statements and conclusions during our meeting with them and in the submission you sent us (the bush fire report and cover letter) which we disagree with.*
>
> *These include the acceptability of using* modified Fire Danger Indices".

In respect to the RFS's stance on the issue of FFDI, Council's independent bushfire consultant provides the following support to Councils claim that the proposed FFDI is inappropriate. The paper 'Gridded return values of McArthur Forest Fire Danger Index across NSW' (prepared by S.A. Lewis – NSW Severe Weather Section of the Bureau of Meteorology [BOM]), from the Australian Meteorological and Oceanographic Journal 64 (2014)

"examines, in detail, the weather information/FDI across NSW over a number of years, tests the findings and produces a series of maps (on Page 260). These maps identify the FDI for 1 year, 5 years, 10 years, 20 years, 50 years and 100 years.

Planning for Bushfire Protection 2006 [Page 57 – Table A2.3] identifies that the FDI figures contained in Table A2.3 are assumed as a 1:50 year event.

Figure 'e' in the BOM paper (pg. 260) identifies the Sydney has an FDI of 80 – 90 for a 1:50 year event and figure 'f' (pg. 260) identifies an FDI of 90 – 100 for a 1:100 year event. This does not equate to the FDI 55 used by Eco Logical Australia".

Site APZ requirements were recalculated by Council's independent bushfire consultant, *"at FDI 80 which confirmed that the APZ widths proposed by Ecological do not satisfy the 10kW/m2 at the exterior of the building/s required for Special Fire Protection Purpose Developments".*

4. Bushfire evacuation risk

The Bushfire Protection Assessment, prepared by ELA (Attachment D), stated:

- *(pg. 17) "The NSW RFS Development Assessment and Planning Officer Josh Calandra after a site inspection on the 6.10.16 agreed with the author's assessment that Stanhope Road is not a bushfire evacuation concern, nor was the increased potential evacuees under the planning proposal considered to exacerbate evacuation risks of the neighbourhood"*.

  No evidence from the RFS supporting this position was provided as part of the planning proposal.

- *(pg. 14) "The proposed development increases the number of persons on site, but shifts a significant proportion of the existing residents and proposed additional residents into resilient buildings with an* ***improved onsite and off-site evacuation plan"****.*

  Council has raised concern regarding effective evacuation capacity of the local road network. In response to this the ELA additional advice (pg.4, Attachment 10), has introduced additional data stating that, *"the risk with the highest consequence and greatest likelihood is a fire impact within a period of time less than that required for evacuation. As evacuation of the existing facility would take at least 6 hours, off-site evacuation is highly unlikely to be completed prior to the impact of a bushfire"*.

  Council again raises concerns regarding the planning proposals:
  - significant increase in occupation densities (particularly by seniors who are highly vulnerable to the effects of bushfire and are difficult to evacuate in the event of bushfire); and
  - reliance on engineered (built) solutions (including the requirement / reliance on the proposed building/s to provide onsite refuge / evacuation areas).

  The planning proposal or additional material has provided no detail regarding the proposed on site evacuation location/s or an assessment of the buildings capability to function / serve this purpose.

The response from David Boverman, Manager Development Planning & Policy, RFS (Appendix 3), also expresses concern regarding the proposed increase in occupant numbers, stating:
"Additionally, there are issues with increasing the occupant numbers and also potential design issues with the proposed multi-storey building(s)."

5. Council's evacuation risk assessment

Within the Stockland Cover Letter (p16) and the ELA additional advice (Attachment 10), the proponent has presented information disputing Council's evacuation risk assessment forming Attachment A21 to Council's Report of 22 May 2018.

Council officers have contacted RFS to obtain the documents referred to in the proponent's Cover letter and the ELA additional advice (Attachment 10) and to verify the statements made. A response from David Boverman, Manager Development Planning & Policy, RFS has been received by Council's officers and included at Appendix 3. RFS has confirmed the inaccuracy of content in these documents and states:

"there was no 'silver-bullet' evacuation risk model that was found. There were components but not a stand-alone model that could be used for land-use planning for bush fire issues.

That being said, even if there were one then the proponent would need to gain our concurrence on its use, assumptions and limitations, bounding conditions, acceptance criteria, etc, before it would have a valid application".

The discussion that Council had with Mr Boverman indicates that only a preliminary literature review of evacuation method and model has been conducted and the CSIRO methodology referred to in the proponent's letter and by Ecological has not been rated as implied by the proponent. There also is no RFS endorsed evidence of the rating that the proponent has given to the Cova methodology that is utilised by Ku-ring-gai Council across all bushfire prone areas within the LGA.

Since there is no RFS approved methodology to assess bushfire evacuation risk and no preferred assessment tool by RFS, the Cova methodology which has been employed and applied across the Ku-ring-gai Council area, with RFS concurrence, remains relevant in the assessment of evacuation risk for this site.

6. Slope

The PP made statements on concurrence from the RFS on slope assessment, whilst the ELA additional advice (pg.2, Attachment 10), states *"the slopes used in the Bushfire Protection Assessment were recommended by the RFS after onsite inspection of the numerous small cliffs that break up the grade of the slopes".*

No written evidence from the RFS has been attached to verify concurrence from the RFS regarding slope.

The ELA additional advice (pg.2, Attachment 10), states *"The independent reviewer did not…..assess the 'inter-cliff slopes' and therefore concluded the slopes were incorrect. The process of analyzing slope between small cliffs is a commonly used and RFS approved performance solution. The slopes are therefore correct and therefore they have not adversely affected the calculation of the required APZ."*

In respect to ELA's additional advice (pg.2, Attachment 10) assertion, that the landscape has a number of rocky cliff/scarp-lines that affect the effective slope for the purpose of determining the width of the APZ, Council's independent bushfire consultant (Australian Bushfire Protection Planners) revisited the site 8 August 2018 to re-inspect the landform. He determined that *"the topography of the area consists of a broad ridge on which the Retirement Village an adjoining residential development is located. To the east and southeast of the village the landform falls consistently into the valley – with no substantial rocky cliffs/scarp-lines. The north-eastern point of the ridge contains a rocky scarp-line which 'raps' around the north-eastern corner, lessening in significance to the west. Below this top scarp-line the landform fall consistently to the valley floor. The slopes in this area are 18 – 20 degrees which means that a fire burning up slope, from the* valley floor, will present a crown fire which will extend across and over to scarp-line, towards the village.

Council's independent bushfire consultant therefor maintains that the effective slopes contained within Councils independent bushfire review (Australian Bushfire Protection Planners April 2018) are correct and as such there are minor discrepancies in the effective slope used within the planning proposal bushfire assessment.

7. Various issues related to bushfire attack on multi-storey buildings requires assessment

The ELA additional advice (Attachment 10), addresses council concerns regarding the apparent inadequate consideration of multi-storey buildings within the Bushfire Protection Assessment prepared by ELA (Attachment D), by stating "*Draft PBP (2107) provides no guidelines on the risk assessment of multistory building and simply flags it as an issue to consider. As there has been no qualification of the risk or published information from the RFS on how this risk is to be assessed, it can only be considered under the performance assessment process of a BFDB."*

Council do not disagree with this but raise concern that this issue was not highlighted as a point of consideration within the Bushfire Protection Assessment (Attachment D), prepared as part of the Planning Proposal. Again demonstrating how consideration of this issue after Gateway again reduces the determining authorities' ability to fully gauge the validity of the proposal. This is particularly pertinent as the proposed multi-storey buildings are a key item of concern within the planning proposal and may be subject to unknown additional constrains on building design (aesthetics / construction materials / location).

Correspondence from the RFS (David Boverman, Manager Development Planning & Policy, Appendix 3), suggest that "*there are issues with increasing the occupant numbers and also potential design issues with the proposed multi-storey building(s)".*