

Submission to the Blue Mountains City Council regarding the Development Application for the Staged Subdivision of Lots 2 and 3 in DP 133438 at 168 Hawkesbury Road Springwood (St Columba's)

Development Application No: S/30/2013

Date lodged: 17/09/2013

It is understood that at the time of writing this submission that the Exhibition time for the subdivision proposal has ended and that Blue Mountains City Council planners are currently considering the Application. It is however considered that there are important environmental issues and impacts that have been inadequately addressed by the proponents and their consultants and we wish to bring these to the attention of Council staff.

1. The Development

The St Columba's property at Springwood is acknowledged as significant for its natural and cultural values. The proposed Development precinct forms part of a site *comprised of land with high natural value including escarpment areas, areas of steep slope, riparian corridors and significant vegetation ... valuable evidence of pre-1890 Aboriginal occupation ... [and] ... watercourses on the site that feed into the Hawkesbury-Nepean catchments* (Statement of Environmental Effects 2013, p.11).

Nevertheless Trustees of the Roman Catholic Church for the Diocese of Parramatta have submitted a Development Application for the Staged Subdivision of Lots 2 and 3 in DP 133438 at 168 Hawkesbury Road Springwood. The accompanying aerial photograph provides an outline of the location of the proposed subdivision.

It is understood that the following stages of development will provide for 43 housing blocks of > 1200 sq metres for "high quality housing":

- Stage 1: 7 lots
- Stage 2: 4 lots
- Stage 3: 32 lots
- Stage 4: Residue lot to be retained by the Church for possible future development

There is additionally a Riparian Zone of 40 metres width along Blue Gum Swamp Creek that flows between Stages 1 and 2.

Water management from the development sites will be provided by bio-retention swales. Asset Protection Zones in an area of known bushfire risk will fringe each development stage.

Most of the land under consideration is currently zoned **Living – Bushland Conservation** (LEP 2005). The first two aims of that zone are:

(a) To allow for residential development in the form of single detached dwellings where this development is within the capacity of the environment to sustain such development and is undertaken in a manner that minimises impact on environmentally sensitive areas

(b) To preserve and re-establish native bushland in areas that exhibit a predominantly bushland character, where consistent with the protection of assets from bushfire

2. Supporting Studies

Supporting studies include:

2.1 The Ecological and Riparian Assessment Report (SLR Consulting Australia Pty Ltd Aug 2013)

This report detailed previous and current assessments of flora and fauna on the St Columba's land holding generally and specifically on the proposed subdivision Lots. Study techniques included:

- ◆ A review of previous site studies particularly those of Smith and Smith (1995) and Gunninah (1997).

It is important to note here that according to the LinkedIn web page of F Dominic Fanning, Gunninah Environmental Consultants was Mr Fanning's business until he merged it with Whelans Insites in August 2006. Since 2011 Mr Fanning has been the Technical Director – Ecology with SLR Consulting Australia. So the current consultant (Mr Fanning of SLR) has authorised the *Ecological and Riparian Assessment Report* in which his previous work as Gunninah is quoted frequently as, it is assumed, an authoritative ecological study. Whelans Insites who prepared the Development Application, are the former employers of F Dominic Fanning.

- ◆ An inspection of Blue Mountains City Council vegetation maps though these have not been fully transferred to the St Columba's property map (buffer zones have been left out).
- ◆ Extraction of the Office of Environment and Heritage Atlas of NSW Wildlife records. **At least one endangered plant population (*Pultenaea villifera*) and another endangered plant species (*Leucopogon fletcheri*)** which are listed in both the OEH Atlas of NSW Wildlife and Australia's Virtual Herbarium **are missing from the results of SLR Consulting's search.** In Appendix B of the SLR Consulting Report that details the results of a search of the OEH Wildlife Atlas search for "threatened species" with 10km of the development site there are **551** records of *Pultenaea villifera* and **171** records of *Leucopogon fletcheri*; they are listed in one or both of the above databases as occurring on the St Columba's property **but neither appears in the Flora list (Appendix D) that accompanies the Report.**
- ◆ Vegetation surveys on the 20th April 2012 and from 23rd to 25th July 2013 (post-hazard reduction fire). This mostly involved walking over the site (Random Meander), taking photographs and analysing just five 20 x 20m quadrats. **No quadrat surveys were undertaken in Stage 1** of the proposed development.

- ◆ The collection of an opportunistic fauna species list based on “extensive” (though undated) diurnal walks over the subject site and nocturnal surveys over two nights in late July 2013; mapping of hollow-bearing trees and recently dropped hollow logs; cage traps etc. Figure 9 of the ‘Ecological and Riparian Assessment Report’ indicates that there were **limited fauna observations in Stage 1**.

- ◆ **Plants and Vegetation Communities**

- Survey work for the **flora list** that accompanies the Ecological and Riparian Assessment Report, and the designation of plant communities was conducted using the Random Meander technique (Cropper 1993) and quadrat surveys on 20th April 2012 and from the 23rd to 25th July 2013. As stated above there were **no quadrats undertaken in Stage 1** of the Development.

There was also **heavy reliance on previous studies** including that of Smith and Smith (1995) but **particularly Gunninah** (1997) which as noted above was the Technical Director – Ecology of SLR (F Dominic Fanning) in a previous business life. **Heavy reliance on previous studies** that are now 19 and 17 years old respectively **is a problem for a number of reasons**, but in this case because all of the communities, the plant population and individual species listed under the Threatened Species Conservation Act 1995 for this property, were gazetted after both the Smith and Smith (1995) and Gunninah (1997) surveys were conducted. Gazettal dates include, for example, Shale/Sandstone Transition Forest 11th Sept 1998 (Endangered Community); Sydney Turpentine Ironbark Forest 16th Oct 1998 (Endangered Community State; Critically Endangered Commonwealth); *Leucopogon fletcheri* subsp. *fletcheri* 24th Dec 1999 (Endangered Species); and the Endangered Population in the Blue Mountains of *Pultenaea villifera* 23rd August 2002.

- It is understood that the Blue Mountains City Council required a vegetation resurvey by the present consultant who was asked to look for evidence of *Pultenaea villifera* as it was apparently known from other parts of the property. **Of significance to the latter survey is the hazard reduction conducted over the site of the proposed subdivision on the 27th and 28th October 2012 just 8 months prior to the re-survey dates**. Regeneration has been relatively slow and many newly regenerating species like *P. villifera* may have been missed in the final surveys.
- Overall in the proposed development area just 173 plants were report by the SLR Consulting surveys; 143 natives and 30 weeds. It is herein considered that **if a resurvey was conducted now more species would have regenerated** following the hazard reduction and the list of natives especially would be greater. The count would also be assisted by quadrat studies actually being carried out in Stage 1, as well as the correct reporting of all species known to be present on the property.
- It is important to note that **although SLR Consulting claims to present in their Appendix D a full “Flora List for the St Columba’s landholding at Springwood” it is in fact not a**

complete list of the species known to occur there. Appendix D is compiled from previous studies and SLR Consulting's more recent surveys so, for example, a full listing of the species noted by Smith and Smith (1995) should be recorded. This appears not to be the case however. Smith and Smith (1995 p.7) report a total of 235 native plants from their survey which was conducted soon after the Grose Valley wildfire of January 1994. A count of Appendix D plants indicates that only 211 of these plants made it into the SLR Consulting flora table.

Absent from Smith and Smith's 1995 list **are the endangered species *Leucopogon fletcheri* and the endangered population of *Pultenaea villifera***. This can be explained by the known slowness of recovery of both species post-fire. However recovery should have been advanced enough for Gunninah to have included both species in 1997 but we do not have access to their records to check. Regardless both species are now known from the property (please refer to above comments about the NSW Wildlife Atlas records and the AVH database). **Both of these endangered species are glaringly absent from the SLR Consulting flora list in Appendix D.**

Following the required **resurvey for the endangered population of *Pultenaea villifera*** SLR Consulting reported that no specimens were located in the study area. It is to be reasonably expected however that this species would have been found in the area of Stage 3 given that this part of the subdivision would be on the shale ridge that occurs in this part of Springwood (Penrith 1: 100 000 Geological Map Sheet). This species prefers similar shale-based ridges in other parts of the Lower Blue Mountains where it is found. However as noted above **there is the seriously limiting problem that the resurvey was undertaken post-hazard reduction fire and the plants may not then have recovered**. Regardless this is no reason for this species not to be listed in the whole property Flora List of Appendix D.

There is **no mention at all of *Leucopogon fletcheri*** in the SLR Consulting Report and accompanying Flora list **despite its recorded presence on the property** in both the NSW Wildlife Atlas records and the AVH database. This will be commented on further in Section 3 Stage 3 below.

- SLR Consulting (2013) go to great lengths to explain that there are no **“threatened species” of flora or “endangered ecological communities on the subject land”**. At the end of each community description is the statement that *this community does not display characteristics of any “threatened ecological community” known to occur in the locality and is not considered to form part of any “endangered ecological community” currently listed in either the TSC Act or EPBC Act.*

SLR Consulting appears to be somewhat **critical (sceptical) of the mapped distributions of threatened ecological communities in the region**. On page 13 of their report it is stated that a *number of “threatened ecological communities” have been listed in the Blue Mountains area since 2000 or are alleged to occur in the area. They say in support of their exclusion of TECs from the proposed development area that the Blue Mountains City*

Council has not mapped any TECs on that land (SLR Consulting 2013 p.13). In viewing the BMCC interactive maps for St Columba's that statement does appear to be technically correct BUT the **BMCC does not appear to have mapped any vegetation community for the land under question??** SLR Consulting superimposed the **BMCCs significant vegetation map over a recent aerial image** of the area in Figure 6 of their Report, **but they have left out the buffer to two TECs**, Sydney Turpentine Ironbark Forest and Shale/Sandstone Transition Forest that is extensive on the St Columba's property. There is a buffer, for example, to Sydney Turpentine Ironbark Forest at the southern edge of Stage 4 of the proposed development that is clearly evident on the BMCC map but that is missing from SLR Consulting's Figure 6.

There is **additional reliance on the vegetation mapping of Gunninah** (1997) and this is presented in Figure 7 of the Consulting Report. **Gunninah's map is too generalised however and in could be argued, inaccurate, and certainly outdated as it pre-dates the TSC Act community gazettal's as noted above.** For example, **Stage 1** of the Proposal was mapped by Gunninah as Sydney Sandstone Ridgetop Woodland. Much of that site is instead on shale (Penrith 1: 100 000 Geological Map), it is upper valley slope topography not ridgetop (Springwood 1: 25 000 topographic map), and the community (as viewed from the verge of Halcyon Avenue) is fire-recovering forest not woodland. There is additionally a very large amount of the St Columba's property that is mapped as "Cleared or Disturbed" in Figure 7 (including sections of the Proposed Subdivision) and this is not correct either.

It is quite apparent that given the location, the influence of shale and the sample of the vegetation that can be seen from the road verge of Halcyon Avenue and the end of Yandina Crescent, that the Endangered Ecological Community of **Shale/Sandstone Transition Forest** is present in **Stage 1** of the proposed subdivision. It also appears from the BMCC interactive map of the property that **Shale/Sandstone Transition Forest** together with a buffer zone is actually mapped on the western part of Stage 3. It is considered herein that this community is to be expected there because of topography and the shale geology. Remnants of **Sydney Turpentine-Ironbark Forest** are also found in various locations but are not mapped where they occur in the development area . This will be further discussed in Section 3 below.

- As they **apparently found no "threatened species" of flora or "endangered ecological communities on the subject land"** SLR Consulting concluded (2013, p.25) that *there is no requirement for the preparation of a Species Impact Statement (SIS) for the proposed subdivision. This will be disputed in section 4 of this report.*

◆ Fauna Studies

- The **fauna list** compilation relied heavily on previous studies. Apparently "extensive" diurnal walks were undertaken (no dates are given though – apologies if they were missed) but there were only two nights of nocturnal studies in late July 2013. SLR consultants at

least acknowledge that cold weather and the 2012 hazard reduction may have reduced sightings!

- In the 2013 surveys, **just 18 native bird species were observed** over the proposed subdivision area, all apparently “common in urban and peri-urban environments” according to the consultants. Eighteen native birds is a poor record for the area. **A combination of the impact of the 2012 hazard reduction, the season of survey (July?) and limited time spent in the field can account for the paucity of species observed.**
- **According to SLR Consulting (2013 p.15) no threatened bird species have apparently ever been recorded here despite a “tentative” record of a Powerful Owl** by Smith and Smith (1995). The “tentative” record was actually an indirect observation of a regurgitated **Powerful Owl** pellet (Smith and Smith 1995, p.8). Smith and Smith (1995, p.8) also reported local resident sightings of Glossy Black-Cockatoos in the forested land of St Columba’s. Listed in Appendix B of the SLR Consulting Report are the results of a search of the OEH Wildlife Atlas for “threatened species” reported with 10km of the subject site. Fifteen records of the Powerful Owl (*Ninox strenua*) are reported together with the “Habitat” notes stating that they need *Areas of old growth forest that contain mature hollow-bearing trees*. Figure 9 of the SLR Consulting Report shows a plotting of “Important Habitat Trees”. These are (were) concentrated in the south-eastern part of the site ie Stage 1 but SLR Consulting does not mention the possibility that this TSC Act listed species might make use of these tree hollows.

Similarly Smith and Smith (1995) recorded the sighting of the **Varied Sitella** (*Daphoenositta chrysoptera*). This bird has since been declared a **Vulnerable Species** (12th Feb 2010 TSC Act). It does appear in the NSW Wildlife Atlas search results presented in Appendix B (SLR Consulting 2013) but there is no further mention of it in the Report. The Habitat notes for this bird in Appendix B indicate that it needs *Eucalypt woodlands and forests rough-barked trees like stringybarks and ironbarks or mature trees with hollow or dead branches*. Despite the presence of stringybarks on the development sites and, at least prior to the hazard reduction of 2012, mature trees especially in the area of Stage 1(as reported by SLR) no mention is made of there being even the possibility of suitable habitat for the Varied Sitella in any of the subdivision stages. There is no indication that its presence was sought.

- The **hazard reduction fire** in 2012 **had a significant impact on old-growth trees** with hollows. SLR Consulting (2013 p. 14) report that Gunninah (2002) recorded a relatively consistent cover of tree hollows across the St Columba’s land but *habitat investigations during the 2013 surveys identified that some **previously known hollow-bearing trees have been burnt and felled during the recent fires** on the subject land, further decreasing habitat features*. This could have contributed to the limited bird and mammal sightings. Powerful Owls, Gloss-Black Cockatoos and Varied Sitellas for example, need tree hollows.
- SLR Consulting (2013 p.23) recognise that the loss of tree-hollows is a key threatening process (TSC Act 1995) and that it is planned to implement the “Hollow-bearing Tree

Protocol” by salvaging tree hollows and re-deploying them elsewhere within the subdivision and on other St Columba’s land (p.29). There is no suggestion as to how residents will be stopped from chopping them up for firewood or later clearing them from Asset Protection Zones.

- A list of previously recorded species of mammals, bats and reptiles is presented, though again SLR Consulting report “nothing special” except that the Red-crowned Toadlet has previously been found in the study area (Vulnerable Species under the TSC Act). The SLR Consulting survey found no Toadlets, just one mammal (Brush-tailed Possum) and two reptiles (skinks). They do at least acknowledge that a combination of cold (late July) and the 2012 fire could account for this paucity of record.
- The **SLR Consulting report goes to great lengths to emphasise that there is nothing special about either the fauna or habitat potential of any of the land subject to the subdivision proposal**. On page 15 is the statement that: *Whilst the “subject site” does contain suitable habitat features and elements for native fauna (such as ephemeral drainage lines, hollow-bearing trees and dense understorey vegetation), there are vast areas of similar habitat and resources within the remainder of the St Columba’s land, as well as the vast expanse of conserved land in the locality.*
- SLR Consulting do state (p.20) that two groups of threatened fauna could utilise the proposed development land:
 - *highly mobile and wide-ranging species* like the Swift Parrot, and
 - *more sedentary species not recorded in the surveys* like the Brush-tailed Phascogale

However they then emphasise further the small extent of the development sites, the great extent of suitable habitat elsewhere in the locality, and the mobility of bird species who apparently have wide ranging habitats or are migratory and/or occupy very large home ranges. After all they say, *the proposed development will only remove a minute and insignificant area of native vegetation relative to that which is present in the immediate vicinity and general locality* (SLR Consulting 2013 p.22). Tough luck about the poor sedentary Phascogale or the migratory birds who return to find houses instead of expected roosting/feeding sites and have to muscle in on the already utilised territories of others.

2.2 The **Vegetation Management Plan** (SLR Consulting Australia Pty Ltd Sept 2013)

The purpose of the Vegetation Management Plan is to provide a *means of salvaging vegetation from within the footprint of clearing and to guide staged rehabilitation of retained riparian corridor and other areas of adjoining native bushland* (VMP 2013, p.1). **It is not clear how vegetation will be ‘salvaged’**. The Plan’s implementation will require the employment of a Plant Ecologist, a Bush Regeneration Contractor and a fencing contractor over a two year period. Issues to be given attention include:

- ◆ Management of the riparian zone that is heavily weed infested (see below).
- ◆ Provision of a 20 metre buffer zone to the north of the development to manage edge effects
- ◆ Manage weed issues along Halcyon Avenue that would hinder other rehabilitation
- ◆ Provide for habitat maintenance for the Red-crowned Toadlet that may or may not still be found on the site (further surveys are suggested)

There are no details as to what will happen to the management of these issues once the two year salvaging and rehabilitation period is over. The problem of invading weeds will always remain a serious one on the fringe of a newly developed estate that will take this problem further into bushland and even closer to the Blue Mountains National Park/World Heritage Area. There also seem to be **no further details about how the ‘Hollow-bearing Tree Protocol’ will be carried out.**

2.3 St Columba’s Winmalee Stormwater Management Report (Cardno NSW/ACT Pty Ltd 2013)

This report indicated that the proposed subdivision is drained by two small tributaries of Blue Gum Swamp Creek. Creek 1 carries stormwater from the existing suburban area centred on Yandina Avenue. Creek 2 flows north-east from proposed Stage 3 of the development through a larger area of bushland.

As well as the expected road drainage engineering details the Stormwater Management Report indicated that:

- ◆ There is need for a riparian zone, particularly along Creek 1, that would be established, restored and managed in conjunction with the development of Stages 1 and 2 of the subdivision.
- ◆ Bio-retention swales are proposed as part of the overall water management model adjacent to the downslope road verge and as part of the Asset Protection Zones, to mitigate development impacts.
- ◆ The **bio-retention swales** should be planted with grasses, sedges and other nutrient absorbing low plants and shrubs (to be consistent with APZ aims). There is **no detail provided as to which species would be used and there must therefore be concern that these will not be local natives but instead more plants with weed potential.**
- ◆ Such on-site detention will apparently produce positive water quality benefits for existing surrounding waterways **but how will these facilities be managed.**
- ◆ Remediation works to deal with significant weed growth associated with Creek 1 should be carried out in conjunction with the stormwater management and quality control measures

2.4 St Columba's Springwood Aboriginal Heritage Management Strategy (Godden Mackay Logan Heritage Consultants and Jo McDonald CHM Aug 2013).

The Aboriginal Heritage Management Strategy was finalised following a field inspection on 29th April 2013 with six Registered Aboriginal Parties. **Areas for future attention that must be followed up** include:

- ◆ The need for further archaeological investigations *mid-slope from the ridgeline in the north-west corner of the study area to Blue Gum Swamp Creek [that] has been mapped as having high potential for shelter and occupation deposit sites*. This is referred to as the "area of high archaeological sensitivity" and is located in the north-eastern corner of Stage 3 of the development.

The Statement of Environmental Effects (2013, p31) notes that when the study of Aboriginal Heritage on the subdivision site was conducted, an ***accurate assessment of the significance of identified Aboriginal sites and the area of high archaeological sensitivity within the current study area cannot be determined at this time. Further archaeological investigation is required to determine the significance and thus conservation of sites ... within the area of high archaeological sensitivity.***

- ◆ The need for **additional investigations of the riparian zone**. The Statement of Environmental Effects (p. 32) reports the request for an **expanded riparian corridor to encompass the area of high archaeological potential [sensitivity] and of Site SC19 that are not currently adequately protected**. The report states that there should be no impacts to original soil horizons and that there should be restrictions on re-planting in that zone. If revegetation has to happen there a further detailed investigation must occur including the digging of an investigative trench.
- ◆ The proponent is asked to proceed with caution if there is an unexpected discovery of an Aboriginal object/s. All work is to cease in the area of the artefact and advice on appropriate management sought. This requirement should be strictly adhered to.

3. Site Characteristics

3.1 Present Characteristics of the Development Stages

It was not possible to inspect the full development site but some idea of the characteristics could be gained from the road verge of Halcyon Avenue, and the ends of the public roads of Paulwood and Yandina Avenues Springwood. The following observations are thus limited by methodology.

Stage 1: Halcyon Avenue – 7 lots

- ◆ There are **two Threatened Ecological Communities** on this site:
 - A **Sydney Turpentine-Ironbark Forest** remnant occurs where the St Columba's land adjoins existing houses; trees include an Ironbark possibly *Eucalyptus crebra*, Turpentine *Syncarpia*

glomulifera and either Stringybarks or perhaps Blue Mountains Mahogany. This is an **Endangered Ecological Community** under the State **TSC Act 1995** and a **Critically Endangered Ecological Community under the Commonwealth EPBC Act 1999**. It appears to be used as an access laneway to existing properties. It is not clear from figure 3.3 in the Statement of Environmental Effects what will happen to this stand of trees but it does not seem likely that they will survive given the layout of the development here.

- Most of the site appears to be **Shale/Sandstone Transition Forest** (an **Endangered Ecological Community** TSC Act 1995). This community has been **mapped by the SLR consultant as “Dry Open Forest – with Turpentine, Smooth-barked Apple, Red Bloodwood, Stringybark and Mountain Mahogany”**. **These are the species you would expect to find in Shale/Sandstone Transition Forest in this part of Springwood/Winmalee.**

No flora quadrat analysis was conducted in this forest within Stage 1 land as far as can be ascertained from Figure 4 of the SLR Consulting Report so it is not possible to determine other species from the published data to support the presence of the two EECs.

- Some weed incursions are evident where road drainage is channelled into the bush from the Hawkesbury Road end of Halcyon Avenue (including from the Springwood Garden Centre) and from side streets including Bundah Street. Otherwise the bush seems to be regenerating well following the hazard reduction of October 2012.
- ◆ **Shale/Sandstone Transition Forest supports a diversity of faunal species** some of which are listed under the Threatened Species Conservation Act 1995. These include the **Vulnerable Glossy Black Cockatoo, Varied Sittella and Grey-headed Flying Fox**. They are important forest habitats for migrating birds such as Yellow-faced Honeyeaters which move through this area in Autumn.
- ◆ As indicated above, SLR Consulting mentions habitat trees (with hollows), their Figure 9 shows a concentration of trees with hollows in Stage 1, and the OEH Wildlife Atlas records indicate observations of hollow-dependant Powerful Owls in the area. The possible presence of this bird must be considered in this part of the development.
- ◆ It is of concern that habitat trees with hollows do not seem to have been investigated for evidence of Aboriginal presence. It is often the case that **large habitat trees also bear the signs of Aboriginal usage (trunk scars, hollowed out bases etc)**. A re-survey for such evidence should be undertaken especially in Stages 1 and 3 and in the riparian zone. SLR Consulting indicated that a number of habitat trees had been felled in **Stage 1** following the 2012 hazard reduction. It would seem likely that **this would be a good place to start to look for such evidence** before these felled trees are removed and chipped (or cut up for firewood by local residents). **Large felled trees and their remnant bases on the northern boundary of Stage 1 as well as on the actual development site should be carefully investigated for prior Aboriginal usage by an expert in Aboriginal scarred trees.**

Stage 2: End of Paulwood Avenue

- ◆ A narrow fringe of trees separate Stage 2 from the houses in Paulwood Ave. These seem to be mostly Turpentines but between the fire impacts and the inability to go onsite it could not be determined if there were any Ironbarks. It does however seem likely that this was probably once part of the **Sydney Turpentine Ironbark Forest** noted in Stage 1, and also found along Hawkesbury Road. Sawmilling occurred in the area, including one operation on the land now occupied by St Columba's, and it may have been that the Ironbarks were preferentially logged.
- ◆ There seems to be a **remnant of Shale/Sandstone Transition Forest** on the northern edge of Stage 2 where it adjoins Stage 3. This can be seen on the site plan attached to the end of this document.
- ◆ The remainder of Stage 2 is grassland undoubtedly with introduced species (weeds) probably as a result of prior farming activities (Elmhurst). Of concern here is Whisky Grass (*Andropogon virginicus*) that can be seen even at a considerable distance.

Stage 3: East of St Columba's Drive

- ◆ The actual site of this stage could not be viewed at all. However it was determined from a desk survey using existing published and web-based material that:
 - The southern edge is a continuation of the grassed 'paddocks' of Stage 2 (see attached site plan)
 - Based on the BMCC interactive maps it appears that much of the ridge near Stage 3 supports the Endangered Ecological Community **Shale/Sandstone Transition Forest**. As indicated above this would be also indicated by the flatter ridge (Springwood topographic map) with shale-based clay soils (Penrith Geological Map). Sydney Turpentine Ironbark Forest (a Critically Endangered Ecological Community) may also be present as St Columba's Road is approached. If these communities are present the comments about fauna as noted for Stage 1 would also apply here.

SLR Consulting reported a number of communities to be present in Stage 3 with the predominant one again being the **"Dry Open Forest – with Turpentine, Smooth-barked Apple, Red Bloodwood, Stringybark and Mountain Mahogany"** as found in Stage 1. Quadrat 2 located in this community in Stage 3 was analysed and is included in the SLR written report and in their Appendix D. The species reported by SLR are listed in the following Table 1. SLR do not identify the Stringybark found but in photographs elsewhere in their Report (Appendix E) they name the White Stringybark as well as the Narrow-leaved Ironbark in this Forest type so these are included in the following table. **Although the plant list in Table 1 is principally from one quadrat it indicates plants typical of Shale/Sandstone Transition Forest** in the development area.

Table 1: Plants Recorded principally in Quadrat 2 Stage 3 St Columba's Development

(Source: SLR Consulting 2013 Table 1 and Appendix E)

Trees

<i>Angophora costata</i>	Smooth-barked Apple
<i>Corymbia gummifera</i>	Red Bloodwood
<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark
<i>Eucalyptus globoidea</i>	White Stringybark
<i>Eucalyptus notabilis</i>	Mountain Mahogany
<i>Syncarpia glomulifera</i>	Turpentine

Shrubs

<i>Acacia linifolia</i>	Flax Wattle (White Wattle)
<i>Allocasuarina littoralis</i>	Black She-oak
<i>Bossiaea heterophylla</i>	Variable Bossiaea
<i>Hakea dactyloides</i>	Broad-leaved Hakea
<i>Grevillea mucronulata</i>	Green Grevillea
<i>Grevillea sericea</i>	Pink Spider Flower
<i>Leucopogon muticus</i>	Blunt-beard Heath
<i>Lissanthe strigosa</i>	Peach Heath
<i>Lomatia silaifolia</i>	Crinkle Bush
<i>Pimelea linifolia</i>	Slender Rice-flower
<i>Pultenaea scabra</i>	Rough Bush-pea

Herbs, Ferns, Grasses

<i>Anisopogon avenaceus</i>	Oat Spear Grass
<i>Dianella caerulea</i>	Blue Flax Lily
<i>Entolasia marginata</i>	Bordered panic
<i>Lomandra obliqua</i>	Twisted Mat-rush
<i>Pomax umbellata</i>	Pomax
<i>Pratia purpurascens</i>	Whiteroot
<i>Schizaea bifida</i>	Forked Comb Fern

- The **shale ridge of Stage 3 is also the most likely location for *Pultenaea villifera*** (Endangered Population TSC Act 1995). It has already been noted that the Blue Mountains City Council instructed the consultant to search for this plant but it was not found. The search however was conducted post-hazard reduction when regenerated specimens of this slow-to-recover plant may not then have been apparent.
- The Springwood Topographic Map and accompanying Orthophoto Map suggest that slope increases as Blue Gum Swamp Creek tributaries incise into the sandstone geology (Penrith Geological Map) on the northern and eastern sides of Stage 3. Where this occurs everywhere else in the Springwood/Winmalee area **sandstone benches** predominate.

Appendix E in the SLR Consulting Ecological and Riparian Assessment Report shows such a sandstone ledge in the photograph for Spot Assessment 27. Sandstone ledges should be protected from development as disturbance can produce land instability, erosion and loss of habitat for both plants and rock-loving fauna such as a range of reptiles including the **Broad-headed Snake** (*Hoplocephalus bungaroides*). This snake is listed as **Endangered in NSW** (TSC Act 1995) and **Vulnerable at a Commonwealth level** (EPBC Act 1999). It appears in SLR Consulting's search results of the NSW Wildlife Atlas (Appendix B) together with the notes that **it prefers north facing sandstone outcrops and ridges**. The apparent north-facing sandstone ledges of Stage 3 are not suggested in the SLR Consulting report as a possible habitat for this threatened species. Interestingly no snakes are recorded by SLR Consulting, perhaps as a result of surveys being conducted in the depths of winter.

- Between the assumed sandstone ledges and the tributary creeks (part of the Riparian Zone) sandy alluvial soil would occur as it does in other similar situations in the region. SLR Consulting have classified the plant community here as **Riparian Open Forest** (page 9) that is dominated by *Eucalyptus piperita* (Sydney Peppermint) and *Eucalyptus sparsifolia* (Narrow-leaved Stringybark) together with occasional *Angophora costata* (Smooth-barked Apple) and *Corymbia gummifera* (Red Bloodwood). **A diverse range of understorey shrubs, ferns and groundcover plants** is reported from an analysis of quadrat no. 1 (page 9 and Appendix D of the SLR Report).

Of particular concern on page 9 and in Appendix D, is the presence of at least one **protected terrestrial orchid** *Cryptostylis erecta* (Bonnet Orchid) in the Riparian Open Forest. The Bonnet Orchid is identifiable all year round because it has permanent basal leaves. However it rarely occurs as the only representative of the Orchidaceae family in an area and undoubtedly **further survey work at different times of the year would reveal additional genera that might only have leaves when flowering**. A Riparian forest such as this might, for example, be expected to have Greenhood species (*Pterostylis*) and even Pixie Caps (*Acianthus*).

It is of concern then that the Asset Protection Zone of Stage 3, as drawn in Figure 13.1 of the Statement of Environmental Effects will intrude into this area that is in itself part of the Riparian Zone for Creek 1.

- On the **northern fringe of Stage 3** where the Springwood topographic map and other paper or online sources, suggest that the Creek 2 tributary of Blue Gum Swamp Creek has formed an incised valley with north-facing slopes (and presumably ledges in sandstone as noted above) a search should be conducted for the **endangered** *Leucopogon fletcheri*. This plant grows on north facing slopes below sandstone ledges in the catchment of the more easterly tributary of Blue Gum Swamp Creek near Whitecross Road Winmalee. The northern part of stage 3 should be investigated for similarly suitable habitat and the presence of that listed plant as post-hazard reduction regeneration of the area continues. ***Leucopogon fletcheri* is not included in the SLR Consulting Flora list** although it is recorded on the St Columba's property (OEH Wildlife Atlas). It is another species that seems to have a slow recovery following fire.

Stage 4: East of St Columba's 'Drive', south of Stage 3 and north of St Aquinas School Precinct

- ◆ The site mostly consists of grassed 'paddocks' as noted in Stages 2 and 3
- ◆ The western edge could not be investigated but given that **Sydney Turpentine-Ironbark Forest** extends along St Columba's Drive the cluster of trees noted there on the aerial photograph may be (or have been prior to the October 2013 fire and clearance) part of that EEC.

3.2 Blue Gum Swamp Creek

- ◆ The defined channel of a tributary of this stream (Creek 1) flows northwards into the Blue Mountains National Park from the southern part of the development area between Stages 1 and 2 (Yandina Avenue). However the channel cannot be seen from the end of Yandina Avenue because of a thick wall of weeds that include amongst others Canadian Fleabane (*Conyza canadensis*), Cobbler's Pegs (*Bidens pilosa*), Crofton Weed (*Ageratina adenophora*), Large-leaved Privet (*Ligustrum lucidum*), Mist Flower (*Ageratina riparia*), Senna (*Senna* sp.), Trad (*Tradescantia fluminensis*) and Wild Tobacco Bush (*Solanum maritimum*).
- ◆ In the *Vegetation Management Plan* SLR Consulting (2013 p.2) indicate that there is substantial weed invasion in the upper reaches of Blue Gum Swamp Creek some species of which are noxious (SLR Table 1) including Crofton Weed, Privet and Camphor Laurel.
- ◆ It is uncertain how far the weeds extend along Creek 1 towards the Blue Mountains National Park/World Heritage Area, but the photographs that accompany the *Ecological and Riparian Assessment Report* (SLR Consulting 2013) suggest that they extend for at least the length of the Creek through the development area. Problems SLR highlighted photographically include:
 - Appendix A Photo 6: Weed invasion along the centre of Blue Gum Swamp Creek
 - Appendix A Photo 9: "Exotic Lily along Blue Gum Swamp Creek in south-eastern corner of the subject land". This photograph actually shows a large stand of tall growing Arum Lily (*Zantedeschia aethiopica*) that appears to be fully occupying the stream channel.
 - Appendix E Spot Assessment 4: Disturbed creek with Arum Lily and Trad
 - Appendix E Spot Assessment 6: Fairly dense weeds including Camphor Laurel (*Cinnamomum camphora*). This is a noxious weed.
 - Appendix E Spot Assessment 25: Drainage line with ... Crofton Weed and Senna

4. comments, Questions and Recommendations

4.1 Native Plants and Vegetation Communities

- 4.1.1 The presence of **Shale/Sandstone Transition Forest** in Stage 1 and 3 necessitates the completion of a **Species Impact Statement** as outlined in Section 110 of the

Threatened Species Conservation Act 1995, contrary to the denial of this requirement by the SLR Consultant as outlined above.

- 4.1.2 There is more limited evidence of the possible presence of **Sydney Turpentine-Ironbark Forest** in Stages 1, 2 and 4 because of the depauperate nature of the remnants resulting from previous land uses, the impact of the October 2013 fire and subsequent clearing that particularly affected Stage 4, but these remnants should still be investigated. It seems likely that the western edge of Stage 3 may have (or have had pre-October 2013) the most intact stands of this community on the development site and again its presence should be confirmed. Regardless of how degraded the remnants are, they should be assessed by a **Species Impact Statement**.
- 4.1.3 Before Stage 3 development on the shale-capped ridge occurs, further surveying for the post-fire regeneration of *Pultenaea villifera* should be carried out.
- 4.1.4 The presumed sandstone-based north facing slopes of Creek 2 in Stage 3 should be investigated for the presence of *Leucopogon fletcheri* and if it is found then no development related activities should be allowed there.
- 4.1.5 The Flora species list presented by SLR Consulting (Appendix D) needs to include all species recorded for the site – both native and weeds. The endangered population of *Pultenaea villifera*, and the endangered species *Leucopogon fletcheri* are glaring omissions. Arum Lily (*Zantedeschia aethiopica*) is not on the list although its photograph appears in the relevant Report (Photo 9).
- 4.1.6 The Blue Mountains City Council must improve its vegetation mapping. There are errors and blank spaces on these maps which are then taken advantage of by developers and their consultants.
- 4.1.7 SLR Consulting, in superimposing the BMCC vegetation map over the property aerial photograph must also include the buffer zones of areas with significant/listed vegetation otherwise a false impression is conveyed of the area for possible development. A BMCC GIS expert needs to check Figure 6 of the SLR Consulting Report to ensure that the superimposition of the BMCC vegetation map over the aerial photograph of the Property is accurate.

4.2 Fauna

- 4.2.1 The paucity of fauna sightings by SLR Consulting is to be deplored. To undertake such studies over a short period in the cold of July would appear to demonstrate an intention to downplay biodiversity on the sites.
- 4.2.2 Additional fauna studies are needed over a longer period of time with particular attention being paid to the times when TSC Act listed species like the Powerful Owl,

Glossy-black Cockatoo, Grey-headed Flying Fox, Varied Sitella, Broad-headed Snake and Red-Crowned Toadlet are likely to be active on-site.

- 4.2.3 If work conducted according to the 'Hollow-bearing Tree Protocol' is successful who will manage the re-located and/or artificial 'tree hollows' once the development is completed?

4.3 Vegetation Management Plan

- 4.3.1 **Removal of stream channel weeds is required immediately** in the Riparian Zone but with due consideration being given to the requirements of Aboriginal site protection. The property owner should be required to carry out necessary weed removal now especially if the development is slow in proceeding. While noxious weed removal must be given priority, all species require attention.
- 4.3.2 The full extent of the weed problem along Blue Gum Swamp Creek should also be ascertained and removal carried out to as far as that problem extends given the downstream **proximity of the Blue Mountains National Park/World Heritage Area and the presence there of the River-flat Eucalypt Forest Endangered Ecological Community.**
- 4.3.3 Channel and stream bank weed removal must be balanced with stabilising plantings of local natives. No plantings of introduced species whether native or "exotic" should be permitted in the Riparian Zone.
- 4.3.4 Who will manage weed issues in surrounding bushland and along all streams after the development is completed?
- 4.3.5 A buffer zone of at least 20 metres north of each development stage must be established to manage edge effects (as noted in the SLR Consulting Report). The extension of the Asset Protection Zone of Stage 3 into the Riparian Zone must not happen.

4.4 Water and Nutrient Management

- 4.4.1 There are a number of issues related to the **bio-swailes** that have been designed to store some of the stormwater and to remove nutrients from that flow. For example:
- ◆ Is there enough storage capacity in the bio-swailes to ensure that during a storm event polluted and nutrient laden water does not spill directly into Creeks 1 and 2?
 - ◆ The minimisation of increased runoff as impermeable surfaces replace bushland and the weedy grassed areas must occur to ensure stream bank and channel stability. Will the bio-swailes guarantee that this will happen?

- ◆ Will the species that are to be planted in the bio-swales be local or will they be new intruders into the natural biodiversity. This is of particular concern as Blue Gum Swamp Creek flows directly into the Blue Mountains National Park/World Heritage Area.
- ◆ Who will maintain the bio-swales once the development is completed? How will collected sediment be removed and treated particularly as pollutants and excess nutrients will quickly accumulate in these structures?

4.5 Other issues related to Stages in the Development

4.5.1 It is of some concern that parts of Lots 2 and 3 in DP 133438 at 168 Hawkesbury Road Springwood are to be developed at all regardless of the presence of Threatened Ecological Communities. Much of Stage 1 and a substantial proportion of Stage 3 appear to contain reasonable quality bushland areas that will be almost completely eliminated by the proposed subdivision and its Asset Protection Zones.

This would surely contradict Aims (a) and (b) as quoted on page 1 of this report, of the zone of **Living – Bushland Conservation** (LEP 2005). It should have been that in 2005 some of this land would have been better placed under Environmental Protection – Private. While Stage 2 and the cleared areas of Stage 3 may be of poor quality it is of concern that the remaining bushland will be sacrificed in this way. The attitude conveyed by the Consultants is that St Columba is a large property and that there is plenty of protected bushland elsewhere. This is a very cavalier approach to conservation in a zoning where even during development bushland is supposed to be valued and protected.

4.5.2 It is considered that the presumably sandy area between the eastern side of Stage 3 and the Creek 1 tributary of Blue Gum Swamp Creek should not be developed in any way. From the published maps the designated Riparian Zone does not appear to extend completely into this area. Sandy soils are highly erodible and the vegetation would form part of a continuous wildlife corridor through to the National Park/World Heritage area, there are probable Aboriginal sites, and there may be species of **terrestrial orchids** that were not located in the one quadrat analysed here. The SLR Consulting Flora Species List in Appendix D noted the presence of the **Bonnet Orchid**, *Cryptostylis erecta*, in this location. This orchid is usually found growing with other Orchidaceae genera so further investigation is suggested there as well as a prohibition of disturbance (refer to point 3.1 Stage 3 above).

4.5.3 It is thus of concern that the Asset Protection Zone from Stage 3 would in part extend to almost the western bank of Creek 1 as indicated in Figure 13.1 of the Statement of Environmental Effects. Stage 3 should be redesigned to ensure that this does not happen.

- 4.5.4 To add further protection to the area discussed in point 4.5.2 and 4.5.3, it is considered that development in Stage 3 should be kept well upslope away from where the Springwood Topographic Map and accompanying Orthophoto Map suggest that slope increases as the stream incises into the sandstone geology (Penrith Geological Map). Where this occurs everywhere else in the Springwood/Winmalee area sandstone benches predominate (Appendix E in the SLR Consulting Ecological and Riparian Assessment Report indicates a sandstone ledge in the photograph for Spot Assessment 27). These should not be impacted on by development (produces land instability, erosion and loss of habitat including potentially for the Broad-headed Snake). This may require a reduction in the number of lots of the subdivision of Stage 3.
- 4.5.5 More information about the actual location, size and nature of the **Asset Protection Zones** around each development stage is required. It is of concern that these zones may impact considerably on bushland remaining after house site clearance and, given the extent of protection requirements following the 2013 fire, it is likely that bushland well beyond the development area may be detrimentally affected. As already noted in 4.5.3 the eastern side of the APZ of Stage 3 will encroach on the supposedly protected Riparian Zone of Creek 1 (Figure 13.1). This must not occur.
- 4.5.6 Given the proximity of all Stages to tributaries of Blue Gum Swamp Creek, the angle of slopes (that all dip towards the creek) and the presence of erodible shale and sandstone soils, well thought out and maintained provisions must be made during construction to ensure minimal erosion and subsequent sedimentation in the creek.

4.6 Aboriginal Heritage Management

- 4.6.1 It is essential that all recommendations presented in the 'St Columba's Springwood Aboriginal Heritage Management Strategy' (as summarised on page 8 above) be carried out. This includes further archaeological studies where requested especially in the "area of high archaeological sensitivity" and in the riparian zone. Excavation and soil disturbance must not be carried out in either of these special areas as part of normal development activities.
- 4.6.2 Given that the entire St Columba's property was occupied by Aboriginal People it would be desirable to have either an archaeologist and/or an appropriately appointed Aboriginal person present whenever surface disturbance by any means occurs. It may not be enough to just ask the proponent to follow a standard procedure of continuing even with caution if an artefact is discovered, then ceasing work in the place so affected and seeking appropriate advice. Closer scrutiny would appear to be warranted on the St Columba's development sites.
- 4.6.3 It is of concern that trees do not seem to have been investigated for evidence of Aboriginal use. It is often the case that large habitat trees also bear the signs of Aboriginal usage (trunk scars, hollowed out bases etc). A re-survey for such

evidence should be undertaken especially in Stages 1 and 3 and in the riparian zone. SLR Consulting indicated that a number of habitat trees had been felled in Stage 1 following the 2012 hazard reduction. It would seem likely that this would be a good place to start to look for such evidence before these felled trees are removed and chipped. Such a search should be conducted by an expert in Aboriginal tree scars, not an archaeologist who deals in stone tools and rock shelters.

- 4.6.4 New residents should be alerted to the possibility of finding Aboriginal artefacts in the course of soil disturbance for normal residential activities. Information on procedures for the reporting of such findings should be distributed to them.

4.7 Hazard Reductions and Development Applications

- 4.7.1 It has become clear that the **hazard reduction carried out in October 2012** on the **land subject to this development application** has presented a number of problems:

- ◆ Flora and fauna studies by the Consultants have been compromised by fire effects on biodiversity
- ◆ As part of the fire “management” larger old-growth trees were felled. These are the trees containing hollows that will no longer be available for wildlife. The non-recording of hollow-using fauna such as Powerful Owls and various gliders could partly be related to this loss. Some of these trees may also have borne the scars of Aboriginal usage as noted in 4.6.3 above.
- ◆ The endangered population and plant species, *Pultenaea villifera* and *Leucopogon fletcheri*, appear to be slow to recover post-fire and may not therefore have been recorded by Flora Consultants (we accept that they may not have been in any of the sites anyway).
- ◆ **It is very difficult for the veracity of the supporting documents to be appropriately accessed if all of the evidence has been incinerated.**

- 4.7.2 Consideration should be given then by the Blue Mountains City Council to the prohibition of the carrying out of fire hazard reduction and/or slashing or other means of clearing land that is subject to a Development Application, before, during and for some time after that D.A. is submitted.

- 4.7.3 If a genuine wildfire impacts on a proposed development site then the Blue Mountains City Council must ensure that this is not used as an excuse to chainsaw and bulldoze away all evidence of the ecological communities affected.

Thank you for your consideration of this submission,
Blue Mountains Conservation Society
May 2014



Plan of St Columba's Proposed Subdivision as accompanied Development Application No: S/30/2013 (referred to in text)