

14 November 2023

Blake Cansdale
Chief Operating Officer
Darkinjung Local Aboriginal Land Council
PO Box 401
Wyong, NSW 2259

Re: Reeves Street, Somersby Planning Proposal - Additional information to the Planning Panel on upland swamps

Dear Blake,

We understand that the Planning Panel has raised some concerns regarding potential impacts to the Coastal Upland Swamps arising from the future development of land at Lot 481 DP 1184693, Reeves St, Somersby NSW (the site). Specifically, these concerns relate to potential indirect impacts to Coastal Upland Swamps both within the residual part of the land proposed to be rezoned to C4 – Environmental Living, outside of the building envelopes, as well as upland swamps outside of the C4 zoned land which will be rezoned to C2 – Environmental Conservation from changes in water quality and quantity.

Assumptions of the biodiversity assessment

It is important to note that the flora and fauna assessment (FFA) has assumed complete clearing of all vegetation within the C4 zoned land, including areas of Coastal Upland Swamp. This is a conservative assumption which overestimates the overall impacts of the rezoning.

The intention is to designate a building envelope within each lot, portions of which will be completely cleared for a dwelling as well as accommodating on-site sewage disposal (OSSM), with the residual land to accommodate an asset protection zone (APZ), landscaping, etc. Whilst some level of impact is expected it is likely that areas of native vegetation will be retained in these areas (see lots to the east of the site as an example). Nonetheless, complete clearing has been accounted for in the FFA.

With regards to the Coastal Upland Swamps to be retained within the C4 zoned land, the revised layout indicated in the planning proposal has avoided and minimised impacts to native vegetation and the Coastal Upland Swamps with a reduction in impacts of 5.93 ha (57%) compared to previous layouts. A key driver here has been to minimise impacts to the largest and most intact patch of swamp at the western end of the site.

If indirect impacts to areas of Coastal Upland Swamps in the C4 zoned land do result, they will be accounted for and offset.

Changes in water quality and quantity

The key mechanism for indirect impacts to Coastal Upland Swamp, both within the C4 zoned land and C2 zoned land, will occur due to changes in hydrology at the site and establishment of invasive species due to changes in nutrient loads.

With regards to water quantity, the FFA discusses stormwater management in some detail, and outlines measures to ensure significant changes in run-off do not lead to the establishment of nick points and erosion. The future development applications for the site will require measures to suitably manage stormwater in accordance with typical mitigation measures for rural residential developments, with roof water runoff to be harvested for onsite reuse, and all opportunities for collection to be optimised. The post-developed impervious fraction for each lot is anticipated to be less than 5% with any overflow from collection facilities controlled and returned to sheet flow to mimic natural conditions. Sheet flow will be allowed to infiltrate within the approximately 50 m buffer between the building envelope and the boundary (the areas shown as the APZ on each lot).

Each lot will have a designated On Site Sewer Management (OSSM) system to treat and dispose of sewer. Depending on the location of future dwellings on each lot, it is expected that the OSSM system will be constructed within the building envelope or within the upper reaches of the APZ area. OSSM disposal areas are to be located more than 40 m away from the boundaries of lots that border Upland Swamp. The key potential impact from OSSM systems will be increased nutrients such as nitrogen and phosphorous, encouraging the establishment of invasive species downstream of lots. A number of options are available for primary and secondary treatment of sewage to minimise this risk. Options include surface spraying, below ground drip lines, or constructed landscaped mounds (often referred to as 'Turkey Mounds') to appropriately treat runoff to a level required to avoid any impacts off lots. OSSM systems could even be configured to pump to the front of lots should dwellings be located at the rear of building envelopes. The design of future OSSM systems will be in accordance with Australian Standards, Public Health and Council regulations. The detailed design of OSSM systems will be further explored at the development application stage, with a focus on ensuring all impacts are mitigated over the approximately 50 m APZ with negligible impacts at or before the property boundary.

The construction of a dwelling upslope of the Coastal Upland Swamps is highly unlikely to result in any interception of or impacts to either shallow groundwater in the upper Hawkesbury or deeper regional aquifers.

Impacts to Coastal Upland Swamps

The mitigation measures outlined above to manage stormwater runoff are expected to ensure negligible increases in volumetric run-off, with a negligible increase in wetting of Coastal Upland Swamps anticipated. The controlled run-off via sheet flow will ensure nick points and erosion areas do not develop even within Coastal Upland Swamps retained within the C4 zoned land. Given negligible impacts within the C4 zoned land, no impacts due to changes in water quantity are anticipated in C2 zoned land.

OSSM may result in increased levels of nutrients in upland swamps within the C4 zoned land, particularly immediately adjacent to the designated building envelope in which the OSSM will be constructed with reducing levels of nutrients through the residual part of the lot. This has potential to facilitate invasive species, particularly in areas of higher nutrient load adjacent to the designated building envelope. However, these areas will be maintained as an APZ within the lots and will be landscaped. It is highly likely that these impacts will have a more detrimental effect on the Coastal Upland Swamps than changes in water quality. The FFA has anticipated these impacts, assuming a conservative position of complete clearing within the C4 zoned land.

Individual Coastal Upland Swamps are connected hydraulically through the soil profile, with groundwater solely percolating through this soil profile, seeping into deeper groundwater systems of exiting the downstream extent of the swamp as surface water. The soil profile acts as a filter, absorbing excess sediments and nutrients with a general reduction in both through the gradient of the swamp. As a result, it is anticipated that these impacts will

be restricted to C4 zoned land, with negligible detectable changes in nutrient loads at the lot boundaries of the C4 zoned land.

Other than the larger swamp in the western portion of the site, the majority of Coastal Upland Swamps within the C4 zoned land site have shallower soils and lower moisture levels, and occur as discrete, unconnected patches. These areas are considered lower condition forms of the community and have lower levels of stored water and thus hydrological connectivity. These areas are considered at negligible risk of impacts.

To further mitigate the risk of impact, Coastal Upland Swamps within the C2 zoned land will be actively managed and monitored under a Biodiversity Stewardship Agreement (BSA).

The building envelopes are larger than required for the construction of dwellings and, even though exact locations on site for dwellings and supporting infrastructure isn't known, it is considered that ample space is available for the management of stormwater and sewer within the site boundaries.

Further assessment

As a part of the Biodiversity Certification of the site, further assessment will be undertaken to quantify the potential impacts of the OSSM to upland swamps with different treatment methodologies. This will include a cumulative assessment examining the potential for off-lot discharge (both surface and subsurface) of effluent under a proposed development scenario. Site specific soil parameters will be included in modelling to test the suitability and sensitivity of each site, and modify the type and size and buffers required of any OSSM to achieve design outcomes for Coastal Upland Swamps.

This information will be documented in the Biodiversity Certification Assessment Report (BCAR) that is being prepared in parallel with the planning proposal and which would be finalised prior to finalisation of the planning proposal.

Summary

In summary:

- Changes in water quality and quantity have potential to impacts on Coastal upland Swamps if not appropriately managed and mitigated.
- Stormwater management measures will be incorporated into future development to ensure runoff is suitably managed. It is anticipated this will result in a very small (5% approx.) increase in the impervious fraction with runoff collected for reuse and any runoff controlled within the lot and returned to sheet flow prior to leaving the lot. This will ensure nick points and erosion areas do not develop.
- OSSM systems will be constructed more than 40 m away from the boundaries of lots that border Upland Swamp and in line with Australian Standards, Council and Public Health Guidelines. This may result in increased nutrient levels in Coastal Upland Swamps within the C4 zoned land, particularly adjacent to the building envelopes. However, this will be managed within the residual portion of the lots with negligible detectable changes at the boundary of the C4 zoned land.
- The FFA takes a conservative approach, assuming complete loss of all biodiversity value within the C4 zoned land ensuring any and all impacts are offset (noting significant avoidance of impacts to date). However, the development of the land is unlikely to result in complete clearing, with this residual land managed as an APZ and landscaped, but not completely cleared.
- Native vegetation within C2 zoned land, including the Coastal Upland Swamp, will be actively managed and monitored under a BSA. This will further minimise and mitigate the risk of any off-site impacts.

Yours sincerely

A handwritten signature in blue ink, appearing to be 'N Garvey', with a stylized flourish at the end.

Nathan Garvey

Associate Director

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