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To whom it may concern,

Narla Environmental Pty Ltd (Narla) was engaged by Sydney Water (the Proponent) to prepare this addendum ecological assessment to the original Biodiversity Assessment prepared by Alison Hunt and Associates (2020), for 15-17 Mona Street, Mona Vale 2103 (Lot 100 DP1273408; 'the Subject Property'). This addendum report as well as the original Biodiversity Assessment are to be submitted to Council as part of a rezoning application to allow for four (4) new residential allotments to be created (**Figure 1**; **Appendix A**), as well as a pedestrian loop track. This addendum report has been prepared to provide the additional information requested by Northern Beaches Council following a Pre-lodgement Meeting on the 2nd of September 2021. This additional information includes:

- Vegetation integrity survey plots to be conducted in accordance with BAM 2020;
- Vegetation integrity scores to be provided in accordance with BAM 2020; and
- Additional justification of the merits of the proposal, including whether the proposal will exceed the Biodiversity Offset Scheme clearing threshold and the steps taken to avoid and minimise impacts.

Vegetation Integrity Survey Plots

A site assessment was undertaken by experienced Narla Ecologist and Accredited Biodiversity Assessor (BAAS21009) Chris Moore on Thursday the 24th of February 2022.

In addition to areas of exotic dominated vegetation, one Plant Community Type (PCT) was identified within the Subject Property:

- PCT 1234: Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion (Endangered Ecological Community).

This PCT was identified by Alison Hunt and Associates (2020) and reconfirmed by Narla, as existing in two (2) condition classes (**Figure 2**):

- Vegetation Zone 1: Estuarine Swamp Oak Forest; and
- Vegetation Zone 2: Parkland Vegetation.

Areas identified as disturbed exotic vegetation were found to contain minimal, if any native species and were therefore excluded from the assessment.

One Vegetation Integrity Survey (VIS) Plot was conducted within each condition class of PCT 1234. Data gathered for each attribute used to assess the function of the Subject Property, vegetation are detailed in **Appendix B**. Vegetation Integrity Scores represented by existing vegetation within each vegetation zone are detailed in **Table 1.**

Table 1. Vegetation integrity scores for each identified condition of PCT 1234 produced by the BAMC (DPIE 2021).

Vegetation Communities	Survey Effort	Potential Impact Area	Composition Condition Score	Structure Condition Score	Function Condition Score	VI Score	Hollow bearing trees
Vegetation Zone 1: PCT 1234 - Estuarine Swamp Oak Forest	1 x 1000m^2 (20m x 50m) VIS Plot	0.08ha	23.7	18.6	42.9	26.7	0
Vegetation Zone 2: PCT 1234 - Parkland Vegetation	1 x 1000m^2 (20m x 50m) VIS Plot	0.07ha	15.3	21.8	15.1	17.2	0

Figure 1. Proposed future layout of the Subject Property.

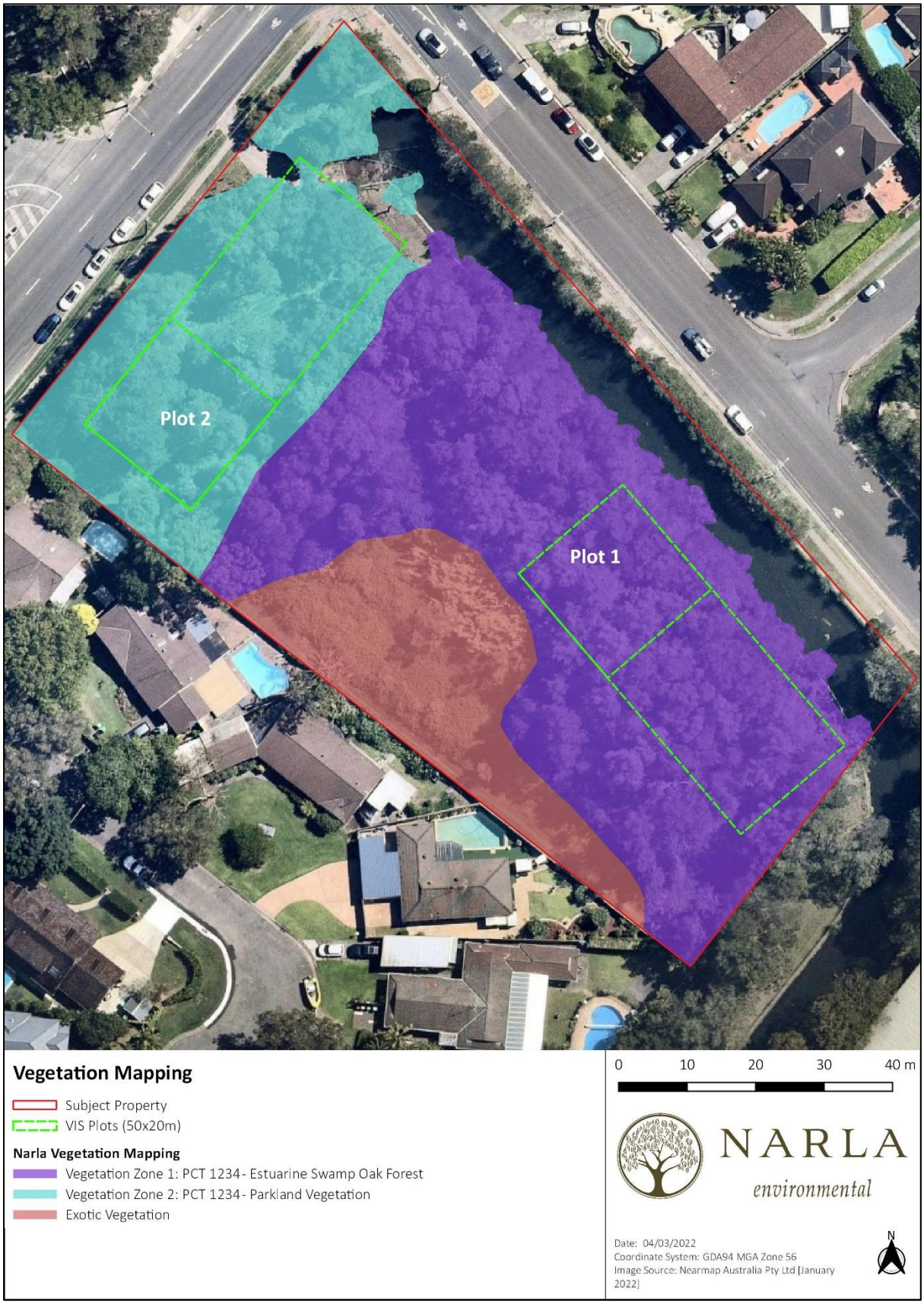

Figure 2. Vegetation mapping within the Subject Property and the location of the VIS plots.

Plate 1. Representative photo of Estuarine Swamp Oak Forest (PCT 1234) within the Subject Property.

Plate 2. Representative photo of Parkland (PCT 1234) within the Subject Property.

Plate 3. Representative photo of exotic vegetation within the Subject Property.

Avoid and Minimise Impacts

The proposed dwellings, accessways and pedestrian loop track, suggested by the proponent will result in impacts to approximately 0.15ha of native vegetation and 0.03ha of exotic vegetation, keeping the project below the impact threshold of the Biodiversity Offset Scheme (0.25ha). The proponent has focussed the majority of the impacts within the western portion of the site to avoid any potential fragmentation of habitat within the Subject Property. The design of the planning proposal will also see approximately 0.15ha of the remnant Estuarine Swamp Oak Forest, retained and protected within the broader Subject Property.

Recommendations for Further Mitigation

Following the rezoning of the Subject Property, a Vegetation Management Plan (VMP) should be prepared by a suitably qualified ecologist, that details how the vegetation to be retained by the planning proposal will be enhanced and protected into the future. The VMP should be prepared prior to any development occurring within the Subject Property to ensure the core vegetation proposed to be retained is protected.

The VMP should include at a minimum:

- Existing site conditions;
- Identify all vegetation to be retained and removed;
- Appropriate management actions to be carried out e.g. weed works, annual vegetation monitoring;
- Specify locations for protective fencing if necessary;
- Identify key performance indicators required to be met;
- Identify the triggers and thresholds for remedial action should key performance indicators not be met; and
- Be implementable by a Bush Regeneration Professional.

Conclusion

The proposal has been designed in a manner that minimises impacts to ecology within the Subject Property. The impacts associated with proposed works have been kept below the threshold for the Biodiversity Offset Scheme, which indicates that a significant impact is unlikely to occur as a result of the proposal.

Whilst 0.15ha of native, endangered, vegetation representative of PCT 1234 will require removal, this vegetation was found to be in poor condition (Table 1), with high percentages of exotic vegetation present throughout. Based on the areas of native vegetation proposed to be retained in conjunction with a VMP to be prepared following the rezoning, which will detail the restoration of the retained vegetation, it is considered the proposed works would have a minimal ecological impact and will result improved access for ongoing vegetation management which will see an overall improvement in ecological features across the site.

Kind regards,

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References

Alison Hunt and Associated Pty Ltd (2020) Site Compatibility Certificate: 15-17 Mona Street Mona Vale.

Department of Planning, Industry and Environment (DPIE) (2021) Biodiversity Assessment Method Calculator Version 1.4.0.00

Department of Planning, Industry and Environment (DPIE) (2020) Biodiversity Assessment Method

NSW Government Spatial Services (NSW SixMaps) (2022) NSW Government Land & Property Information Spatial Information Exchange map viewer, https://six.nsw.gov.au/

PlantNET (2022) The NSW Plant Information Network System, Royal Botanic Gardens and Domain Trust, Sydney. http://plantnet.rbgsyd.nsw.gov.au

RJK Architects (2022) Proposed Layout Option H

Appendix A . Proposed layout: option H (RJK Architects 2022)

Appendix B. BAM Site - Field Survey Forma (copied directly from Electronic Data Sheet).

BAM Site – Field Survey Form					
Date:	24.02.2022	**Plot ID:**	Plot 1	**Photo #:**	0
Zone:	56H	**Plot Dimensions:**	50x20	**Easting:**	342821.33 m E
Datum:	GDA94	**Middle bearing from 0m:**	149	**Northing:**	6273174.24 m S
PCT:	PCT 1234: Estuarine Swamp Oak Forest				

Growth Form	Scientific Name	Cover	Abundance
Tree (TG)	*Casuarina glauca*	30	50
High Threat Exotic (HTE)	*Lantana camara*	10	100
High Threat Exotic (HTE)	*Cestrum parqui*	4	100
High Threat Exotic (HTE)	*Asparagus aethiopicus*	2	30
Exotic	*Jasminum polyanthum*	10	1000
High Threat Exotic (HTE)	*Tradescantia fluminensis*	0.5	50
High Threat Exotic (HTE)	*Phoenix canariensis*	1	1
High Threat Exotic (HTE)	*Bidens pilosa*	0.2	20
High Threat Exotic (HTE)	*Ehrharta erecta*	25	10000
Forb (FG)	*Tetragonia tetragonioides*	0.5	20
Exotic	*Solanum nigrum*	0.1	3
Tree (TG)	*Brachychiton acerifolius*	0.3	1
Other (OG)	*Livistona australis*	1	1
Exotic	*Acacia saligna*	0.2	1
Other (OG)	*Cayratia clematidea*	0.2	5
Forb (FG)	*Commelina cyanea*	0.2	15
Exotic	*Sonchus oleraceus*	0.1	3
Exotic	*Sida rhombifolia*	0.1	5
High Threat Exotic (HTE)	*Ligustrum lucidum*	0.3	2
Exotic	*Passiflora subpeltata*	0.5	10
High Threat Exotic (HTE)	*Araujia sericifera*	0.1	1
High Threat Exotic (HTE)	*Olea europaea*	1	2
Exotic	*Conyza bonariensis*	0.1	2
Tree (TG)	*Ficus rubiginosa*	0.2	1
High Threat Exotic (HTE)	*Senna pendula*	0.1	1
High Threat Exotic (HTE)	*Acetosa sagittata*	0.2	20
Exotic	*Viola oderata*	0.1	1

DBH	# Tree Stems Count	# Hollow Bearing Trees
80+cm	0	0
50-79cm	0	
30-49cm	present	
20-29cm	present	
10-19cm	present	
5-9cm	present	
<5cm	present	

Length of Logs (m)	0

BAM Attribute (1x1m)	Litter Cover (%)
1 (5m)	6
2 (15m)	10
3 (25m)	10
4 (35m)	80
5 (45m)	30
Average	27.2

Growth Form	Composition Data (Count of Native Cover)	Structure Data (Sum of Cover)
Tree	3	30.5
Shrub	0	0
Grass	0	0
Forb	2	0.7
Fern	0	0
Other	2	1.2
High Threat Exotics	12	44.4

BAM Site – Field Survey Form					
Date:	24.02.2022	**Plot ID:**	Plot 2	**Photo #:**	0
Zone:	56h	**Plot Dimensions:**	50x20m	**Easting:**	342753.60 m E
Datum:	GDA 94	**Middle bearing from 0m:**	49	**Northing:**	6273198.30 m S
PCT:	PCT 1234: Parkland Condition				

Growth Form	Scientific Name	Cover	Abundance
Tree (TG)	*Casuarina glauca*	15	20
Grass & grasslike (GG)	*Oplismenus aemulus*	7	1000
Forb (FG)	*Dichondra repens*	0.2	100
Grass & grasslike (GG)	*Cyperus gracilis*	3	1000
#N/A	*Hypochaeris radicata*	0.5	100
High Threat Exotic (HTE)	*Ehrharta erecta*	2	100
High Threat Exotic (HTE)	*Stenotaphrum secundatum*	10	1000
High Threat Exotic (HTE)	*Senna pendula*	0.3	1
Exotic	*Sida Rhombifolia*	0.1	1
Exotic	*Taraxacum officinale*	0.3	30
Grass & grasslike (GG)	*Cynodon dactylon*	5	500
Exotic	*Modiola caroliniana*	0.1	10
Exotic	*Sonchus oleraceus*	0.1	5
Exotic	*Daucus carota*	0.1	5
Exotic	*Trifolium repens*	0.1	10
Tree (TG)	*Grevillea robusta*	1	1
Forb (FG)	*Commelina cyanea*	0.1	10
Exotic	*Bromus catharticus*	0.1	5
Exotic	*Potentilla indica*	0.1	10
High Threat Exotic (HTE)	*Paspalum dilatatum*	0.2	20

	# Tree Stems Count	# Hollow Bearing Trees
80+cm	0	0
50-79cm	0	
30-49cm	present	
20-29cm	present	
10-19cm	present	
5-9cm	absent	
<5cm	absent	

Length of Logs (m)	2

BAM Attribute (1x1m)	Litter Cover (%)
1 (5m)	1
2 (15m)	4
3 (25m)	1
4 (35m)	10
5 (45m)	2
Average	3.6

Growth Form	Composition Data (Count of Native Cover)	Structure Data (Sum of Cover)
Tree	2	16
Shrub	0	0
Grass	3	15
Forb	2	0.3
Fern	0	0
Other	0	0
High Threat Exotics	4	12.5

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