HABITAT SOLUTIONS

Bushland Assessment

177-183 Greenwich Rd, Greenwich NSW 2065

Winten Property Group

November 2024

Version 2

Contents

1 PURPOSE OF THE REPORT

A high-density residential redevelopment of the R4 zoned portion of the site (as described below) is proposed, subject to a planning proposal to amend the density controls, which will adjoin vegetated land zoned C2.

Part H Bushland Protection of the Lane Cove Development Control Plan 2009 (the DCP) will be relevant to the proposed future residential development. In particular, H.6, 6.2.1 requires a buffer area to bushland with a minimum depth of 10m (with some flexibility allowed).

We have been asked to consider to what extent the C2 land adjoining the R4 zoned land meets the definition of "bushland" for the purposes of Part H of the DCP.

2 SUMMARY OF FINDINGS

We note that the C2 land is currently, and has historically been, in the same ownership as the adjoining R4 zoned land, which contain residential dwelling houses.

The vegetation on the R4 land, as well as a portion of the C2 land adjoining the R4 land contains introduced fill soils that has significantly altered the natural vegetation of the land. This vegetation is not representative of the structure and floristics of the natural vegetation, as the ground cover and understory species are predominantly exotic and there are very few canopy species within this zone that are naturally occurring. The topography through this area has been significantly modified as a result of historical filling and gardening practices, as well as the construction of retaining walls, and sewerage infrastructure.

The vegetation within this area does not meet the definition of "bushland" for the purposes of Part H of the DCP.

We have mapped below (figure 1), in green, the part of the vegetation that meets the definition of "bushland", as well as the required 10m buffer from this bushland.

Figure 1: Bushland boundary with 10m buffer.

3 SITE DESCRIPTION

The subject site(s) are Lot 1 DP 100205, Lot 1 DP 1164656, Lot 2 DP 1144468, Lot 1 DP1144468, Lot 1 DP 329254, Lot 100 DP1181414 and Lot 1 DP 701766, situated within the Local Government Area (LGA) Lane Cove Council. The site is bound by Greenwich Rd to the East & the Lane Cove River to the West, Jago Street Reserve is to the North and Greenwich Point Reserve to the South. As can be seen in Figures 2 and 3.

Figure 2: Site location

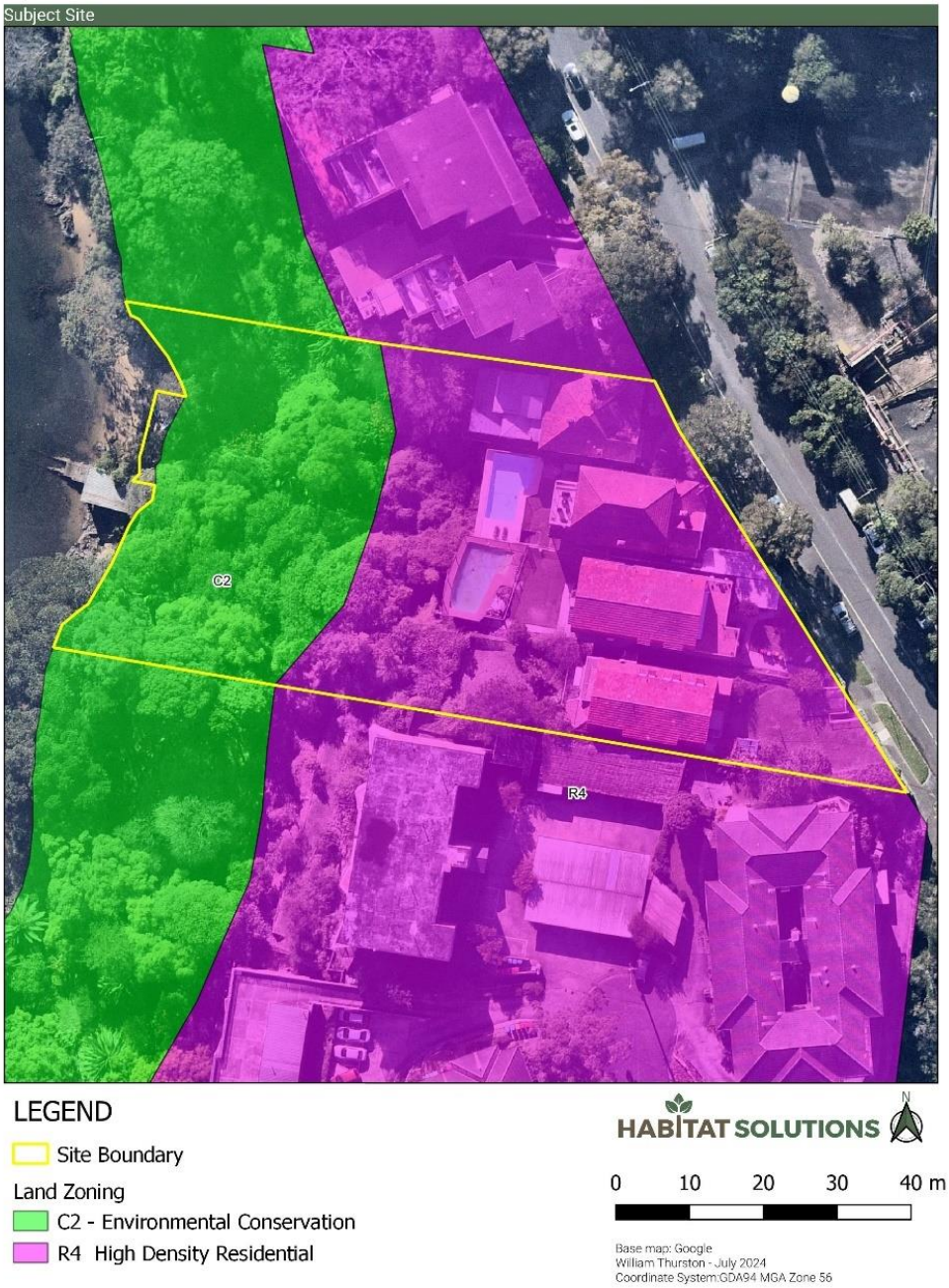
Figure 3: Subject site Illustrating lot boundaries

4 ZONING

In accordance with the Lane Cove Local Environmental Plan 2009 (2010 EPI49) - current version for 10 November 2023 to date (accessed 10 July 2024) the subject site has been divided into two (2) Zones (figure 4):

- Zone R4 High Density Residential
- Zone C2 Environmental Conservation

Figure 4: Land zoning.



5 LANE COVE DEVELOPMENTCONTROL PLAN 2009

Part H and Part J 5.4 of the DCP provides special controls relating to bushland protection.

H.3 of the DCP provides that:

> *This Part applies to all parcels of land (both public and private) within the Lane Cove Local Government Area that contain bushland and/or adjoining bushland. See DCP Dictionary for definition of "Bushland" and "adjoining land".*

The DCP Dictionary contains the following relevant definitions:

> *Bushland means land (private or public) on which there is vegetation which is either a remainder of the natural vegetation of the land or, if altered, is still representative in part of the structure and floristics of the natural vegetation and which contains topographic and natural features. (Bush)*

> *Adjoining land means land that has a boundary in common with the site on which the development is proposed or land that is separated from the site by not more than a pathway, driveway, laneway, roadway or similar thoroughfare.*

H.6 provides controls relating to the siting of buildings in relation to bushland, which may limit the achievable density of development on land adjoining bushland.

Relevantly, the controls include:

6.2 Buffer Area

Objective

The objective of buffer areas is to provide a transition area between the building and bushland area so as to reduce the impacts of development upon bushland.

Provisions

6.2.1 In Residential Areas This is that part of the site which separates bushland from the building area – Refer to Figures 1 and 2.

a) All work should have minimal to no adverse impact on bushland.

b) Buildings, including swimming pools and enclosed garden rooms, are not permitted within this area. This area can be used for structures and/or works such as:

   I. Paved areas, decking, lawn areas and garden beds,

   II. stormwater detention/absorption pits and associated landscaping,

   III. temporary storage of building materials, and

   IV. bushfire fuel breaks.

c) Paving and decking is not to exceed 25% of this area and should be permeable.

d) Excavation must be kept to a minimum and must not impact upon any trees or bushland.

e) The size of the buffer area will be a minimum depth of 10 metres. This area may change if shallow bedrock occurs and/or the establishment of any works defined under provision c) of this section cannot be achieved.

f) Where there is insufficient space for a buffer due to the orientation, size or location of the site, then the applicant must show how the adjoining bushland can be adequately protected according to the aims and objectives of this Plan.

On the understanding that the site may contain some bushland, as defined by the DCP, we have been asked to determine the location of the bushland, in order to determine the required buffer area, which may limit the buildable area of the R4 zoned land.

6 BUSHLAND CONDITION MAPPING

The subject site has been mapped in accordance with methods designed by the National Trust, based on the site inspection which was on 5th June 2024. The following table illustrates how the percentage of weed is stratified.

Table 1: Bushland condition mapping

% Weed Biomass	Colour Code	Bushland Condition	Description
>80	Red	Very Poor	Areas where bushland has been completely replaced by exotic plant species. OR Bushland where only mature specimens of the dominant highest stratum of the pre-urban plant community remain and seedlings and/or saplings of those dominants are absent due to the infestation of the understorey by exotics or by invading native plant species.
40 - 80	Orange	Poor	Areas where bushland is severely infested by exotics and/or invading native plant species. AND / OR Where the regeneration of the dominant species of the plant community is being significantly suppressed (has poor resilience and one of the levels has most probably gone).
10 - 40	Blue	Fair	Areas of bushland with minor infestations of exotics and/or invading native plant species (has good resilience and regeneration is happening).
<10	Green	Good	Areas of bushland virtually free of exotic plants where the native communities display the structure and species composition and diversity typical of those communities in non-urban situations.

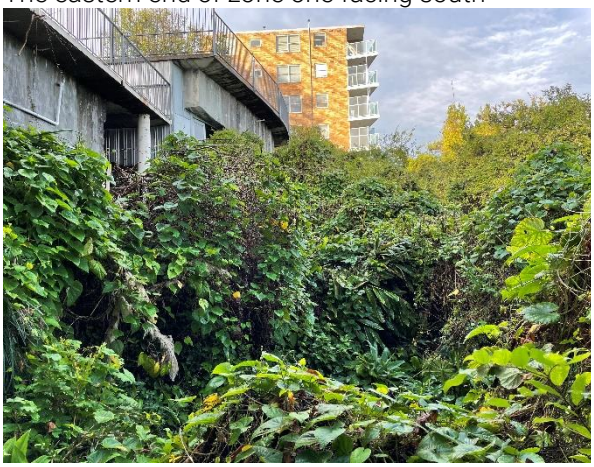
Figure 5: Bushland condition map

Zone 1: R4 High Density Residential

The urban - bushland interface is the source of the majority of weed species present on the subject site, of the sixty (60) recorded species, thirty-four (34) are present in this Zone. The private property boundaries do not exhibit a natural soil profile and is the source of the weeds in this zone including many garden variety weeds and dense exotic vine growth.

The western end of zone one facing east

The eastern end of zone one facing south



Zone 2: C2 Environmental Conservation

The vegetation is in poor condition, of the sixty (60) recorded weed species, thirty-three (33) are present in this Zone. The vegetation is steep in areas continuing from the interface zone down to the shoreline. Majority of the area is dominated by exotic grasses and vines.

The Southern end of zone two facing south

The Northern end of zone two facing north

Table 2: Weed species present per zone.

Zone 1: R4 High Density Residential

Scientific Name	Family	Common Name
Agapanthus praecox	Amaryllidaceae	Agapanthus
Agave spp.	Asparagaceae	Agave
Asparagus aethiopicus	Asparagaceae	Asparagus Fern
Aucuba japonica	Garryaceae	Gold Dust Plant
Azalea spp.	Ericaceae	Azalea
Bougainvillea spp.	Nyctaginaceae	Bougainvillea
Camellia sasanqua	Theaceae	Sasanqua Camellia
Canna indica	Cannaceae	Canna Lily
Cardiospermum grandiflorum	Sapindaceae	Balloon Vine
Celtis australis	Ulmaceae	European Hackberry
Cinnamomum camphora	Lauraceae	Camphor Laurel
Citrus trifoliata	Rutaceae	Trifoliate Orange
Crinum asiaticum	Amaryllidaceae	Crinum Lily
Dietes spp.	Iridaceae	Dietes
Euphorbia pulcherrima	Euphorbiaceae	Poinsettia
Geranium spp.	Geraniaceae	Geranium
Hedera canariensis	Araliaceae	Canary Ivy
Hedychium gardnerianum	Zingiberaceae	Ginger Lily
Ilex aquifolium	Aquifoliaceae	Holly
Ipomoea purpurea	Convolvulaceae	Morning Glory
Juniperus chinensis	Cupressaceae	Chinese Juniper
Lagerstroemia indica	Lythraceae	Crape Myrtle
Magnolia grandiflora	Magnoliaceae	Little Gem Magnolia
Magnolia × soulangeana	Magnoliaceae	Saucer Magnolia
Monstera deliciosa	Araceae	Monstera
Murraya paniculata	Rutaceae	Orange Jessamine
Musa spp.	Musaceae	Banana
Nephrolepis cordifolia	Lomariopsidaceae	Fishbone Fern
Nerium oleander	Apocynaceae	Oleander
Cortaderia selloana	Poaceae	Pampas Grass
Parietaria judaica	Urticaceae	Asthma Weed
Persea americana	Lauraceae	Avocado
Phormium tenax	Asphodelaceae	New Zealand Flax
Plumeria spp.	Apocynaceae	Frangipani

Zone 2: C2 Environmental Conservation

Scientific Name	Family	Common Name
Agapanthus praecox	Amaryllidaceae	Agapanthus
Ageratina adenophora	Asteraceae	Crofton Weed
Anredera cordifolia	Basellaceae	Madeira Vine
Asparagus aethiopicus	Asparagaceae	Asparagus Fern
Callisia fragrans	Commelinaceae	Inch Plant
Canna indica	Cannaceae	Canna Lily
Cardiospermum grandiflorum	Sapindaceae	Balloon Vine
Celtis sinensis	Ulmaceae	Chinese Hackberry
Conyza bonariensis	Asteraceae	Fleabane
Ehrharta erecta	Poaceae	Veldt Grass
Eriobotrya japonica	Rosaceae	Loquat
Euphorbia pulcherrima	Euphorbiaceae	Poinsettia
Hedera helix	Araliaceae	English Ivy
Hedychium gardnerianum	Zingiberaceae	Ginger Lily
Hibiscus rosa-sinensis	Malvaceae	Chinese Hibiscus
Hypochaeris radicata	Asteraceae	Cat's Ear
Ipomoea purpurea	Convolvulaceae	Common morning-glory
Jacaranda mimosifolia	Bignoniaceae	Blue Jacaranda
Lantana camara	Verbenaceae	Lantana
Ligustrum lucidum	Oleaceae	Large Leaved Privet
Ligustrum sinense	Oleaceae	Chinese Privet
Monstera deliciosa	Araceae	Monstera
Ricinus communis	Euphorbiaceae	Castor Oil Plant
Rogiera amoena	Rubiaceae	Rogiera
Parietaria judaica	Urticaceae	Asthma Weed
Phoenix canariensis	Arecaceae	Canary Island Date Palm
Sansevieria trifasciata	Asparagaceae	Mother-in-Law's Tongue
Setaria palmifolia	Poaceae	Palm Grass
Sida rhombifolia	Malvaceae	Paddy's Lucerne
Silybum marianum	Asteraceae	Milk Thistle
Senna pendula var. glabrata	Fabaceae	Cassia
Tetrapanax papyrifer	Araliaceae	Rice Paper Plant
Tradescantia fluminensis	Commelinaceae	Trad

Of the 67 flora species identified on the site, 58 were exotic (see appendix A – Flora List).

7 PLANT COMMUNITY TYPE

Based on a desktop review of the NSW State Vegetation Map, BioNet records and site inspection conducted on the 5th June 2024, a 20m X 20m quadrat was completed on site resulting in one (1) Plant Community Type (PCT) being identified on site within the C2 land. The native vegetation within the site has been identified as the following Plant Community Type (PCT):

- PCTID 3594 Sydney Coastal Sandstone Foreshores Forest

Which is described by the NSW Government as a tall, occasionally very tall, sclerophyll open forest with a mixed understorey of dry shrubs and mesic small trees found along the foreshores of major waterways and coastal escarpments of Sydney. The tree canopy is very frequently dominated by Angophora costata with occasional local stands of Eucalyptus botryoides or rarely other eucalypt species. A sparse taller layer in the mid-stratum commonly includes Banksia integrifolia or Allocasuarina littoralis and occasionally Ficus rubiginosa.

A combination of hardy mesic small trees including Pittosporum undulatum, Glochidion ferdinandi and Elaeocarpus reticulatus are almost always present with Notelaea longifolia also common. In the suburban environment, the proliferation of these mesic species in the understorey at long unburnt sites has generated considerable debate, particularly as there appears to be strong correlation between time since fire and their density. Our data suggests these species are also more common in these littoral zones than other sheltered sandstone forests situated further away from the coast. Sclerophyll shrubs are less frequent however include Acacia longifolia, Acacia suaveolens, Breynia oblongifolia and Monotoca elliptica.

The ground layer is characterised by a mid-dense cover of ferns, graminoids, climbers and grasses. The low elevations adjoining major waterways expose the vegetation to a maritime influence brought by salt laden southerly winds. This PCT is mainly distributed between the Hacking River and Pittwater. With increased elevation and distance from waterways this community typically grades into PCT 3592.

The eastern part of the site is very degraded however the western section of the subject site aligns with PCTID 3594 due to the presence of the following species.

- *Allocasuarina torulosa*
- *Angophora costata*
- *Ficus macrophylla*
- *Glochidion ferdinandi*
- *Melaleuca quinquenervia*
- *Pittosporum undulatum*

Although heavily infested with weeds, mature specimens of the natural vegetation remain close to the shoreline, and the natural topography of this part of the site appears to have been retained. The extent of this PCT is shown in Figure 6 below.

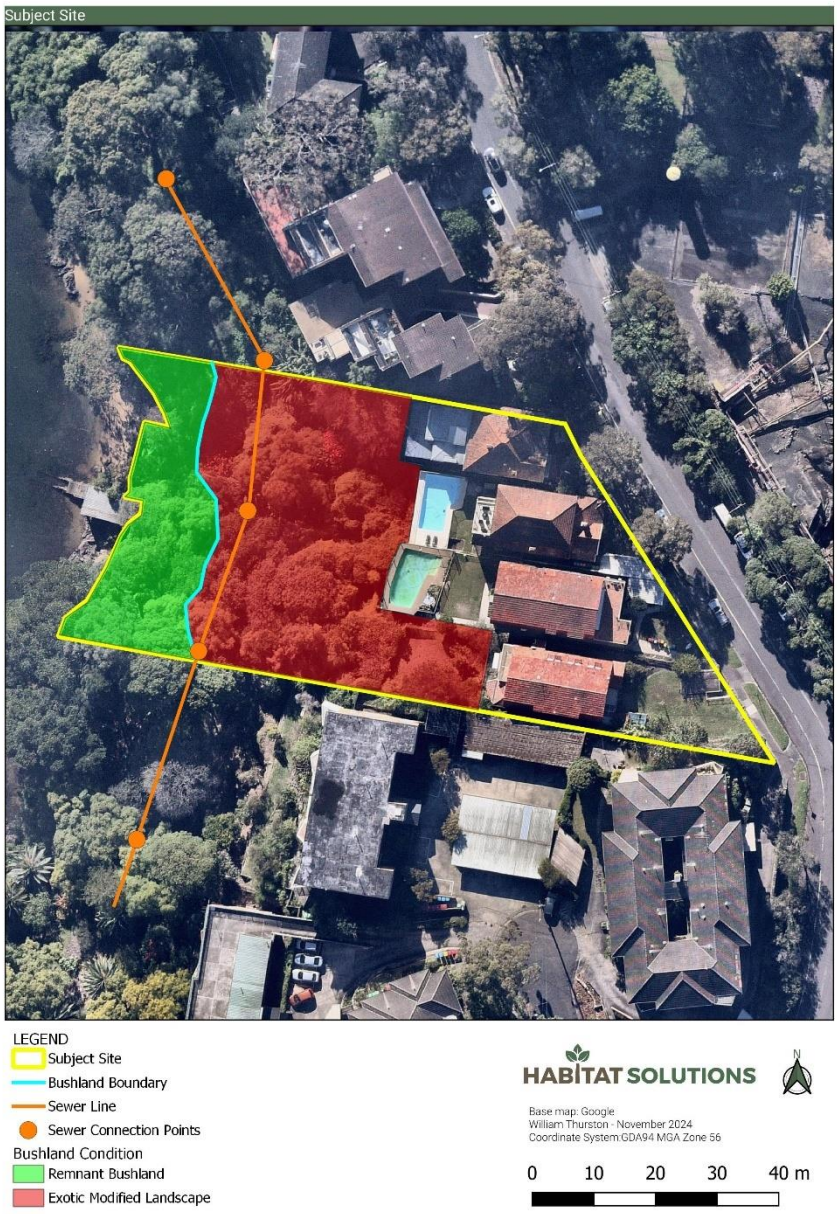
Figure 6: Extent of PCT 3594 within the subject site

8 BUSHLAND EXTENT

The natural topography of the site involves considerable fall from east to west. Parts of the site been historically filled with imported material and "benched" to provide level gardens and platforms. It is evident that between the rear of the building and the bushland boundary that this area has had a historical change to the natural soil profile.

The area within the C2 Zone to the east of the bushland boundary contains vegetation which is significantly altered from the natural vegetation of the land occurring on introduced fill soils. It is not representative in part of the structure and floristics of the natural vegetation, as the ground cover and understory species are predominantly exotic and there are very few canopy species within this zone that are naturally occurring. The topography through this area has been significantly modified as a result of the historical filling and gardening practices as well as the construction of retaining walls and sewerage infrastructure (figure 7) that have taken place and it would appear this has been the cause of the loss of remnant vegetation in this area. The presence of this fill would also make it highly unlikely there would be a seed bank representative of the remnant vegetation within this area.

Figure 7: Sewer line and connection points within the subject site



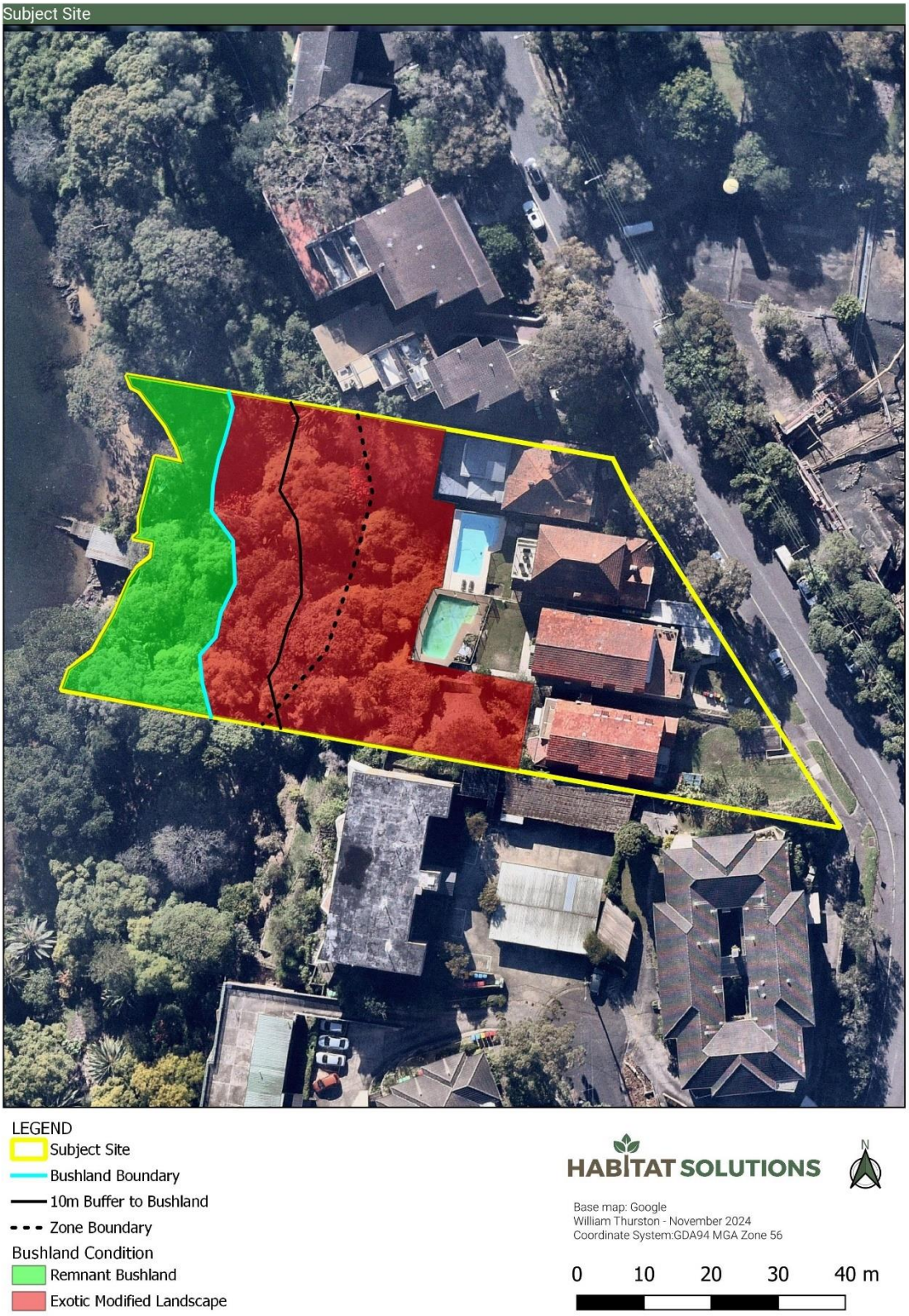
The historic clearing and filling of this part of the land is evident in historical photographs such as Figure 8 below.

Figure 8: 1965 historical image showing the site had been extensively cleared and filled.

Based on the findings of our site investigation the bushland boundary represents the Eastern extent of the 'bushland' area. To illustrate the relationship between the bushland boundary as the eastern extent of the 'bushland' area, and the buffer which forms the transitional area, a map of the area has been prepared in figure 9.

Although the bushland area is heavily infested with weeds, it nevertheless contains remnant natural vegetation and retains its original topography and natural features. Parts of the bushland area align with PCT 3592, albeit in a degraded state.

Figure 9: Remnant bushland with 10m buffer.



9 APPENDIX A – Flora List

Flora species identified during the site inspection conducted on 5th June 2024.

Scientific Name	Family	Common Name	Exotic Species
Agapanthus praecox	Amaryllidaceae	Agapanthus	X
Agave spp.	Asparagaceae	Agave	X
Ageratina adenophora	Asteraceae	Crofton Weed	X
Allocasuarina torulosa	Casuarinaceae	Forest Oak	
Angophora costata	Myrtaceae	Smooth-Barked Apple	
Anredera cordifolia	Basellaceae	Madeira Vine	X
Asparagus aethiopicus	Asparagaceae	Asparagus Fern	X
Aucuba japonica	Garryaceae	Gold Dust Plant	X
Azalea spp.	Ericaceae	Azalea	X
Bougainvillea spp.	Nyctaginaceae	Bougainvillea	X
Brachychiton acerifolius	Malvaceae	Flame bottletree	
Callisia fragrans	Commelinaceae	Inch Plant	X
Camellia sasanqua	Theaceae	Sasanqua Camellia	X
Canna indica	Cannaceae	Canna Lily	X
Cardiospermum grandiflorum	Sapindaceae	Balloon Vine	X
Celtis australis	Ulmaceae	European Hackberry	X
Celtis sinensis	Ulmaceae	Chinese Hackberry	X
Cinnamomum camphora	Lauraceae	Camphor Laurel	X
Citrus trifoliata	Rutaceae	Trifoliate Orange	X
Conyza bonariensis	Asteraceae	Fleabane	X
Cortaderia selloana	Poaceae	Pampas Grass	X
Crinum asiaticum	Amaryllidaceae	Crinum Lily	X
Dietes spp.	Iridaceae	Dietes	X
Ehrharta erecta	Poaceae	Veldt Grass	X
Eriobotrya japonica	Rosaceae	Loquat	X
Eucalyptus saligna	Myrtaceae	Sydney Blue Gum	
Euphorbia pulcherrima	Euphorbiaceae	Poinsettia	X
Ficus macrophylla	Moraceae	Moreton Bay Fig	
Geranium spp.	Geraniaceae	Geranium	X
Glochidion ferdinandi	Phyllanthaceae	Cheese Tree	
Hedera canariensis	Araliaceae	Canary Ivy	X
Hedera helix	Araliaceae	English Ivy	X
Hedychium gardnerianum	Zingiberaceae	Ginger Lily	X
Hibiscus rosa-sinensis	Malvaceae	Hibiscus	X
Hypochaeris radicata	Asteraceae	Cat's Ear	X
Ilex aquifolium	Aquifoliaceae	Holly	X
Ipomoea purpurea	Convolvulaceae	Common morning-glory	X
Jacaranda mimosifolia	Bignoniaceae	Blue Jacaranda	X
Juniperus chinensis	Cupressaceae	Chinese Juniper	X

Lagerstroemia indica	Lythraceae	Crape Myrtle	X
Lantana camara	Verbenaceae	Lantana	X
Ligustrum lucidum	Oleaceae	Large Leaved Privet	X
Ligustrum sinense	Oleaceae	Chinese Privet	X
Lophostemon confertus	Myrtaceae	Brush Box	
Magnolia grandiflora	Magnoliaceae	Little Gem Magnolia	X
Magnolia × soulangeana	Magnoliaceae	Saucer Magnolia	X
Melaleuca quinquenervia	Myrtaceae	Broad-leafed Melaleuca	
Monstera deliciosa	Araceae	Monstera	X
Murraya paniculata	Rutaceae	Orange Jessamine	X
Musa spp.	Musaceae	Banana	X
Nephrolepis cordifolia	Lomariopsidaceae	Fishbone Fern	X
Nerium oleander	Apocynaceae	Oleander	X
Pittosporum undulatum	Pittosporaceae	Sweet Pittosporum	
Ricinus communis	Euphorbiaceae	Castor Oil Plant	X
Rogiera amoena	Rubiaceae	Rogiera	X
Parietaria judaica	Urticaceae	Asthma Weed	X
Persea americana	Lauraceae	Avocado	X
Phoenix canariensis	Arecaceae	Canary Island Date Palm	X
Phormium tenax	Asphodelaceae	New Zealand Flax	X
Plumeria rubra	Apocynaceae	Frangipani	X
Sansevieria trifasciata	Asparagaceae	Mother-in-Law's Tongue	X
Setaria palmifolia	Poaceae	Palm Grass	X
Sida rhombifolia	Malvaceae	Paddy's Lucerne	X
Silybum marianum	Asteraceae	Milk Thistle	X
Senna pendula var. glabrata	Fabaceae	Cassia	X
Tetrapanax papyrifer	Araliaceae	Rice Paper Plant	X
Tradescantia fluminensis	Commelinaceae	Trad	X