

REVISION HISTORY

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ABBREVIATIONS AND TERMS

DCP	Development Control Plan
EPBC	Federal <i>Environment Protection and Biodiversity Conservation Act 1999</i>
FM	NSW <i>Fisheries Management Act 1994</i>
HCRCMA	Hunter Central Rivers Catchment Management Authority
LGA	Local Government Area
LHRCP	Lower Hunter Regional Conservation Plan 2009
SEPP	State Environmental Planning Policy
SOE	Statement of Environment Report
SRZ	Structural Root Zone
TPZ	Tree Protection Zone
TSC	NSW <i>Threatened Species Conservation Act 1995</i>
VMP	Vegetation Management Plan

TECHNICAL SIGNS AND SYMBOLS

cnr	Corner
m	Metre
mm	Millimetre
°	Degrees

1 INTRODUCTION

1.1 AIM

These Guidelines build on the Tree Preservation and Native Vegetation Management provisions of Council's Development Control Plan (DCP). It aims to protect and enhance trees and native vegetation within the Lake Macquarie Local Government Area (LGA).

1.2 OBJECTIVES

The objectives of these Guidelines are to:

- a Define Council's responsibilities and requirements with respect to the protection, retention and replacement of trees and native vegetation;
- b ensure that proper consideration is given to culturally significant trees and native vegetation in planning, designing and constructing development;
- c minimise unnecessary injury to, or destruction of, culturally significant trees, native trees and vegetation;
- d retain healthy individual trees of local amenity and aesthetic value;
- e facilitate the removal of undesirable exotic, dangerous trees; and other inappropriate plantings; and to replace these with suitable local indigenous species which will positively contribute to visual and environmental amenity, biodiversity and ecological sustainability; and
- f retain viable representative samples of native vegetation which have an intact structure and complete floristic wherever practicable.

2 WHEN IS CONSENT REQUIRED TO REMOVE TREES AND NATIVE VEGETATION?

2.1 WHEN IS CONSENT REQUIRED FOR TREE OR NATIVE VEGETATION REMOVAL?

Development consent is required to clear, injure, remove, ring bark, cut down, top, lop, or wilfully destroy:

- a Any species of vegetation that existed in the State of NSW prior to European settlement;
- b a tree which is listed in Council's Significant Tree Register;
- c tree/s or native vegetation listed as Heritage Items or located within a Heritage Conservation Area; or
- d a Norfolk Island Pine Tree (*Araucaria heterophylla*) that is greater than three metres in height, or that has a trunk diameter of 75 mm or greater, measured at ground level.

2.2 WHEN IS CONSENT NOT REQUIRED?

The circumstances when consent is not required are provided below.

Apart from in emergency situations, none of the exemptions below apply to marine vegetation, trees or native vegetation listed on the Significant Tree Register (Appendix 10.2), trees or native vegetation listed as a Heritage Item, located within a Conservation Area, or required by a development consent to be retained.

Exemption 1

Development consent is not required to ring bark, cut down top, lop, remove, injure, willfully destroy or clear a tree or native vegetation, if:

- i. The tree or native vegetation is within five metres of the outermost projection of a lawfully used building (that is not exempt or complying development) and is on the same allotment as the building, or
- ii. The tree or native vegetation is within one metre of a sealed driveway to a lawfully used building (that is not exempt or complying development) and is on the same allotment as the building, or
- iii. The tree or native vegetation is within five metres of the outermost projection of a lawfully used building (that is not exempt or complying development) on an adjoining allotment as the building and owners of both properties reach a written agreement that is submitted to Council prior to the removal.

Note: For the purposes of clauses 2 and 3 the distance must be measured from the trunk of a tree or shrub measured at 1.4m above ground to the outer most projection of the building or sealed driveway.

Note: A sealed driveway is a driveway or car park with an impervious surface such as concrete, pavers, or bitumen. A gravel driveway is not classed as a sealed driveway.

Note: A lawfully used building does not include drainage, excavation, a garden shed or jetty, but does include an underground water storage structure or septic tank.

Note: Consent is required to ring bark, cut down, top, lop, remove, injure, wilfully destroy or clear a tree or native vegetation if it is located in North Wallarah Peninsula and is located outside of the Development Envelope defined on the Deposited Plan of Subdivision of the lot. Certain exemptions are outlined in DCP 2014 – Part 12 – Area Plans – 12.16 – North Wallarah Peninsula, but consent is otherwise required even if the native trees or native understorey vegetation are within five metres of the outermost projection of a lawfully used building or within one metre of a sealed driveway to a lawfully used building in accordance with Exemption 1i above.

Exemption 2

Except in the E2 Environmental Conservation Zone, development consent is not required to remove, injure, wilfully destroy or clear native vegetation (excluding native trees or shrubs over three metres in height), only if:

- i The work is for the purpose of landscaping understorey vegetation and lawn areas where the area to be cleared is less than 600 m² (in total), and is on the same allotment as, and within the curtilage of an approved dwelling;
- ii the soil surface exposed in any period of 90 consecutive days is less than 250 m²;
- iii the slope of the land is less than 15 degrees;
- iv the area is not subject to a development consent that requires the native vegetation to be retained; and
- v the work does not involve the disturbance of habitat for threatened species.

Exemption 3

Development consent is not required for removal of a tree or native vegetation if Council is satisfied beforehand that the tree or native vegetation:

- i Is dead and is not required as the habitat of native fauna; or
- ii is a risk to human life or property.

Note: Evidence to support removal should be forwarded to Council in accordance with Section 3 of these Guidelines. Council's Tree Assessment Officer may undertake a site inspection to verify that these conditions are satisfied.

Note: Habitat required for native fauna includes native vegetation and trees (including dead or dying trees) support hollows, spouts, splits, nests and roosts.

Exemption 4

Development consent is not required for removal of a tree or native vegetation if:

- i The tree is in danger of imminent failure and there is risk to life or property; and
- ii evidence to support its removal is forwarded to Council following the removal, in accordance with Section 3 of these Guidelines.

Exemption 5

Development consent is not required for removal of invasive species as part of bush regeneration practices provided these practices have minimal environmental impact and do not disturb native vegetation. To ensure minimal environmental impacts, and no loss of native species, bush regeneration techniques should be adopted in preference to mechanical clearing.

Exemption 6

Development consent is not required for minor hand clearing of native vegetation for the purpose of enabling survey to be carried out by a registered surveyor, provided that no alternative survey method is feasible and that, in accordance with Section 20 of the *Surveying Act 2002*, as little damage as possible is done.

Exemption 7

Development consent is not required to clear, injure, remove, ring bark, cut down, top, lop or wilfully destroy a native tree if the tree is:

- i Not located within other native vegetation, and
- ii is under three metres in height, and
- iii has a trunk diameter less than 75 mm measured at ground level.

Note: This exemption applies to juvenile trees or shrubs that are isolated from other native vegetation that includes other native trees, native ground covers, native understorey plants etc.

Exemption 8

Development consent is not required to clear, injure, remove, ring bark, cut down, top, lop or wilfully destroy species listed in Appendix 10.5. Many of these species are introduced, however; there is a limited number of NSW native species on the list that have become, or have the potential to become, environmental weeds in this area.

Exemption 9

Development consent is not required to clear the minimum amount of native vegetation, excluding trees, that is necessary to comply with an order issued under section 124 of the *Local Government Act 1993*.

2.3 HOW DO I APPLY TO REMOVE TREES OR NATIVE VEGETATION?

Either a tree application or development application should be lodged with Council.

A **Tree Application** is an abbreviated form of development application that can be lodged for the proposed removal of up to twenty trees, subject to ecological constraints and other environmental factors.

A **Development Application** is likely to be required for the removal of native vegetation and / or more than twenty trees.

The proposed removal of trees for a particular development eg a dwelling, will be assessed as part of a Development Application for that development.

3 TREE APPLICATIONS

3.1 WHEN WILL COUNCIL CONSIDER A TREE APPLICATION?

Generally, Council will only provide consent to a tree application if the tree poses a significant safety hazard or risk, or is causing property damage.

Council will generally not consider the following as valid reasons for tree removal:

- a leaf drop (into gutters and downpipes, pools, lawns and the like);
- b to reduce shade or increase natural light if the tree existed prior to the construction of an affected dwelling, establishment of a garden area, or installation of solar appliances;
- c to improve street lighting of private property;
- d to enhance views;
- e to reduce fruit, resin or bird droppings on cars, driveways and clothes lines / washing
- f minor lifting of driveways and paths by tree roots;
- g to erect a fence;
- h bushfire hazard control that has not been verified by Council;
- i potential damage to sewer mains unless supported by written expert advice and only where reasonable alternatives are not feasible eg relocation or encasement of main, and the trees causing the damage can be identified;
- j solar access where the tree is not between the affected dwelling or solar appliance to the northern aspect within 45 degrees to the west or east of true north: Refer to Council's Solar Access Evaluation Checklist available at: <http://www.lakemac.com.au/natural-environment/trees>
- k the solar appliance is receiving four hours in winter and six hours in summer: Refer to Council's Solar Access Evaluation Checklist available at: <http://www.lakemac.com.au/natural-environment/trees> .

Note: Council's refusal of a tree application will only be reconsidered where satisfactory evidence is supplied by a suitably qualified person.

Note: It is the responsibility of the applicant to substantiate any application with evidence such as accurate plans and photos etc.

3.2 WHAT IS REQUIRED WHEN MAKING A TREE APPLICATION?

The following general information is usually required to be submitted with a tree application.

- a The prescribed tree application form which can be downloaded at: <http://www.lakemac.com.au/>
- b The written consent of the owner of the land on which the tree is situated.
- c Details as to the reasons for the removal of the tree.
- d A description of existing trees and vegetation including the following:
 - i A plan of the site showing the location of the tree/s to be removed and retained in relation to all buildings, paved areas, drainage and sewer mains, and overhead power lines;
 - ii Species type (botanical names and common names if known);
 - iii Approximate height, canopy spread of individual trees (or groups of trees), and trunk diameter at 1.4m above ground.
- e A description (as above), of existing trees and native vegetation on adjoining land including:
 - i Their location within five metres of the site boundaries (including the road reserve or any adjoining public land, street trees); and
 - ii Where the canopy of a tree overhangs the site boundaries.

- f Where the application will cause (or potentially could cause) injury to a culturally significant tree, a report from a suitably qualified arborist is required.
- g Any specified fees applicable.

Note: Trees to be inspected should be identified on site with a ribbon, tape, or non-permanent marker.

3.3 WHEN IS AN ARBORIST'S REPORT REQUIRED?

A report from a suitably qualified arborist is required to support the tree application if:

- a a tree listed in Council's Significant Tree Register, or a tree/s or native vegetation listed as a heritage item, or that is located within a Heritage Conservation Area, is proposed to be removed;
- b a request to review Council's determination of an application for tree pruning or removal is made; or
- c Council determines that the tree application may cause significant impacts on native trees or native vegetation.

A suitably qualified arborist who prepares an arborist report for Council should have the following:

- a. The Australian Qualification Framework Level 5 (AQF5) in Arboriculture or equivalent; and
- b. No employment / arrangement to remove the tree or vegetation.

The following information is required to be included in the arborist's report:

- a the name, address, telephone number, qualifications and experience of the arborist carrying out the inspection and report;
- b address of the site containing trees;
- c whom the report is prepared for, and aims of the report;
- d methods and / or techniques used in the inspection;
- e a plan to scale that clearly shows:
 - i The location, diameter, canopy spread, condition and species of each tree on the site;
 - ii all trees to be removed;
 - iii all trees to be retained;
 - iv all trees with habitat hollows
 - v tree protection zones for all trees to be retained (if applicable);
 - vi the location of the proposed development (if applicable);
 - vii existing buildings, access ways, car parking and drainage; and
 - viii any asset protection zones (if applicable);
- f a table showing for each tree to be injured:
 - i The number of the tree as indicated in the plan and on-site;
 - ii species name;
 - iii age class;
 - iv height;
 - v trunk diameter at 1.4 m;
 - vi canopy spread;
 - vii health and condition, and estimated useful life expectancy;
- g a discussion of other relevant information, including tree structure / weaknesses, root form and distribution, pests and diseases, tree hazards, details of tree hollows for wildlife and value of the tree in relation to native vegetation corridors (see Appendix 10.3);

- h supporting evidence such as photographs and laboratory results to confirm presence of soil pathogens, or to support soil assessment, where relevant;
- i proposed replacement plantings, landscaping and soil remediation;
- j tree protection measures and a post-construction tree maintenance program which can be used as conditions, should the application be approved (if applicable);
- k sources of information referred to in the report; and
- l any other relevant matters.

Habitat trees may also be required to be assessed by a suitably qualified flora and fauna specialist.

3.4 WHEN IS A FLORA AND FAUNA REPORT REQUIRED?

A flora and fauna assessment is likely to be required if a tree application:

- a proposes tree removal in a native vegetation corridor; or
- b involves the removal of tree hollows, nest or roost trees; or
- c involves the removal of threatened species, populations or endangered ecological communities; or
- d involves trees located within 40 m of a wetland, wetland vegetation community, waterbody, waterway, littoral or riparian habitat, or rainforest.

If a flora and fauna assessment is required, it should be completed in accordance with Councils Flora and Fauna Survey Guidelines (see <http://www.lakemac.com.au/>). The Flora and Fauna Survey Guidelines include different levels of assessment depending on the location, amount, and quality of vegetation to be impacted. Small sites and minor developments that clear less than 1,000 m² require a lower level of assessment.

3.5 WHAT EVIDENCE IS REQUIRED FOR EMERGENCY REMOVAL OF DANGEROUS TREES?

Except for specified emergency situations, expert advice should always be obtained with respect to dangerous trees to confirm their condition and to ensure that they do not provide habitat for protected species. Otherwise, their cutting or removal might be in breach of the Environmental Planning and Assessment Act.

Where a dangerous tree is removed (in an emergency situation) due to obvious instability or hazard, then evidence of the tree's condition is to be forwarded to Council. Such evidence includes:

- a photographs of the tree, and
- b a report by a consulting arborist, or
- c a written statement from the State Emergency Service, if the Service carried out the emergency tree works at the owner's request.

3.6 WHAT EVIDENCE IS REQUIRED FOR REMOVAL OF EXOTIC TREES OR EXOTIC NATIVE VEGETATION?

Where an exotic or undesirable species is proposed to be removed, Council may require evidence to verify the species and ensure its removal will cause minimal impact. The evidence required may include:

- a photographs of the tree or exotic vegetation prior to clearing;
- b a written statement from a person qualified in plant identification to verify that the vegetation was consistent with an exotic or pest species identified by the Council; and
- c replacement planting of suitable native species. Such plantings are to be appropriately maintained to ensure their establishment and stabilisation of the soil.

Where there is substantial clearing of exotic or undesirable species, evidence will be required that:

- a the clearing was not conducted on slopes in excess of 15°, the amount of soil surface exposed at any time being was not more than 250m²; and appropriate soil retention methods were employed to minimise the potential for erosion to occur and control runoff from the site;
- b replacement planting of suitable native species. Such plantings are to be appropriately maintained to ensure their establishment and stabilisation of the soil.

Appendix 10.5 lists undesirable tree and shrub species. Council's web site contains a more extensive list of environmental weeds (<http://www.lakemac.com.au/>).

4 DEVELOPMENT APPLICATIONS PROPOSING NATIVE VEGETATION REMOVAL

4.1 WHEN WILL COUNCIL CONSIDER A DEVELOPMENT APPLICATION INVOLVING NATIVE VEGETATION REMOVAL?

Generally, clearing will only be permitted where it is ancillary to and necessary for undertaking or conducting an approved use of the land.

It is important to note that:

- a Clearing will only be allowed where it is necessary to enable a use permitted on the land that is consistent with the objectives of the land use zone. Council will not permit any clearing to be carried out as an activity in itself for an unspecified end-use.
- b Council does not general support removal of native vegetation listed as significant species, vegetation community, or habitat, in Appendix 10.3.

4.2 WHAT IS REQUIRED WHEN MAKING A DEVELOPMENT APPLICATION THAT INVOLVES REMOVAL OF NATIVE VEGETATION?

The following information is usually required to be submitted with an application to remove native vegetation:

- a the written consent of the owner of the land;
- b a flora and fauna assessment in accordance with Councils Flora and Fauna Survey Guidelines, and
Note: *The Flora and Fauna Survey Guidelines include different levels of assessment depending on the location, amount, and quality of vegetation to be impacted. Small sites and minor developments that clear less than 1,000 m² require a lower level of assessment.*
- c sufficient information to support and address matters and requirements identified in Chapter 5 (i.e. so that Council can determine the application).

5 DETERMINATION OF TREE APPLICATIONS AND DEVELOPMENT APPLICATIONS PROPOSING NATIVE VEGETATION REMOVAL

5.1 WHAT DOES COUNCIL CONSIDER WHEN DETERMINING APPLICATIONS TO REMOVE TREES AND NATIVE VEGETATION?

In assessing a tree application or development application to clear, injure, ringbark, cut down top, lop remove, or destroy native vegetation, Council will consider the following matters (as are relevant to the specific circumstances of that application and the site to which it relates).

- a The extent of tree/s and vegetation that are proposed to be **removed**, the purpose / justification of such removal, and the proposed method of clearing eg the size and type of machinery to be used;
- b the extent of tree/s and vegetation that are proposed to be **retained**, including the purpose / justification of such retention such as semi-natural open spaces, buffer and exclusion zones, filter / protection, and / or riparian strips;
- c the extent of tree/s and vegetation that are proposed to be **impacted**, including impacts associated with:
 - i roads, driveways, asset protection zones and associated edge effects,
 - ii cut and fill,
 - iii works that alter existing hydrological flows including drainage works, installation of barriers to natural drainage, bund walls, dams, trunk drainage works, effluent treatment devices and subsidence impacts;
 - iv utility installations eg underground and overhead lines, where known - final locations and installation works should be consistent with vegetation retention proposals; and / or
 - v future buildings where known;

Note: *A soil and altered ground levels report is likely to be required to adequately detail the extent of these impacts.*

Note: *Adequate justification is required to demonstrate that all opportunities to avoid impacts have been identified and adopted.*

- d the significance of the tree/s or vegetation including:
 - i Whether any species or communities present are listed in Council's Significant Tree Register (Appendix 10.2), or recognised as a Significant Species, Habitat, Vegetation Community (Appendix 10.3), or Corridor (see Appendix 10.4).
 - ii the condition, maturity and useful life expectancy of remnant trees and native vegetation to be retained;
 - iii whether the tree/s or vegetation is subject to a condition of development consent aimed at the retention of the native vegetation or trees;
 - iv whether the vegetation forms part of a native vegetation corridor (see Appendix 10.4);
 - v the role of the native vegetation and tree/s in stabilising the soil and the prevention of land degradation eg slopes in excess of 15°, rocky outcrops, ridges and erosion areas should be identified;
 - vi the role of the native vegetation and tree/s in water quality and associated ecosystems such as streams, rivers and waterways;
 - vii whether the tree/s is of cultural or historical significance;
 - viii whether the tree/s or native vegetation is of visual or amenity significance;

- e the significance and severity of the proposed impact including the following:
 - i effects on natural ecosystems, wildlife, wildlife habitats and whether fauna needs protection;
 - ii the significance of the impact to a tree/s or native vegetation that is, or is habitat for, a threatened species, endangered population, or endangered ecological community;
 - iii whether permanent mitigation measures (such as bund walls, catch drains and stilling ponds) to contain nutrient flows and minimise weed spread need to be installed eg in non-urban zones or on sites adjoining remnant bushland or semi-natural open spaces;
 - iv the long term effect of the development on the viability and quality of the bushland, in particular, the likelihood of soil erosion, siltation of streams, wetlands and other water bodies, direct or indirect alterations to drainage patterns, fire hazard reduction regimes, the spread of weeds, undesirable and exotic species in the bushland, rubbish dumping, and incursion by domestic or feral animals; and
 - v impacts on scenic and visual amenity;
- f the effectiveness of measures proposed to mitigate any adverse impacts including:
 - i the adequacy of retained vegetation by providing:
 - o buffer zones as screening to roads or for the protection of identified core habitats, wetlands, littoral and other rainforests;
 - o filter and protection strips to natural drainage lines, watercourses, streams, foreshores or constructed drainage corridors;
 - o riparian (watercourse) habitat strips;
 - o wildlife and other native vegetation corridors connecting remnant patches of vegetation; and
 - o exclusion zones for preserving vulnerable and / or significant remnant vegetation and species;
 - ii the need to install temporary tree / vegetation protection measures prior to clearing works eg protective fencing;
 - iii the need for periodic or full time supervision of clearing works to protect environmental values or oversee relocation of native animals;
 - iv the need to salvage and relocate tree hollows or supplement habitat with nest boxes;
 - v the need to rehabilitate any tree or vegetation adversely affected by clearing or construction works;
 - vi whether a bond should be required to secure the protection of native vegetation or trees that may be impacted by the development;
 - vii whether a Vegetation Management Plan (VMP) is required in accordance with Councils VMP Guidelines <http://www.lakemac.com.au>;
 - viii whether a Landscape Plan is required in accordance with Councils Landscape Design Guidelines <http://www.lakemac.com.au>;
- g additional matters such as:
 - i any comments made by a public authority including, where appropriate, the Rural Fire Service, the Department of Planning and Infrastructure, the Office of Environment and Heritage or the Hunter and Central Rivers Catchment Management Authority (HCRCA), and the Department of Primary Industries.
 - ii whether the vegetation is affected by the provisions of any other Act, Regulation or State Environmental Planning Policy applying to the land.

5.2 REVIEW OF REFUSED APPLICANTS

S82A of the *Environmental Planning and Assessment Act (1979)* provides that an applicant may request Council to review the determination of an application. This means that an application, which has been refused, by Council, or the conditions attached to an approved application, may be reconsidered under this section of the Act.

To seek reconsideration by Council, the following must be provided:

- 1 A completed 'Review of Determination' of Development Application Form (available from <http://www.lakemac.com.au>); and
- 2 The provision of satisfactory supporting evidence by an expert in the field of the grounds for refusal, for example, a consulting arborist, ecologist or structural Engineer (as is relevant to the case);
- 3 The payment of the appropriate fee, as identified in Council's Fees and Charges Document.

The submission of the s82A request does not guarantee that the proposed tree works will be approved. Assessment of the original application and additional information submitted under this section will be based on the merits of the proposal; therefore the original determination may be upheld.

5.3 OTHER APPROVAL AUTHORITIES

Other approvals may also be required from other authorities. Such authorities include:

- 1 The HCRCMA who administer the *Native Vegetation Act 2003*. Further information with regard to the *Native Vegetation Act 2003* can be found on the HCRCMA website at <http://www.hcr.cma.nsw.gov.au>;
- 2 the Office of Environment and Heritage who administer the components of the *Threatened Species Conservation Act 1995*; and
- 3 the Department of Primary Industries who administer the *Fisheries Management Act 1994*.

Other relevant legislation that may also require application for tree removals, vegetation management and clearing, include the:

- ***National Parks and Wildlife Act 1974*** - protected fauna and plants
- ***Threatened Species Conservation Act 1995*** – endangered ecological communities, critical habitat, endangered and vulnerable species, key threatening processes, recovery plans
- ***Native Vegetation Act 2003*** – clearing native vegetation in non-urban areas, property vegetation plans
- ***Fisheries Management Act 1994*** - prohibits cutting of mangroves
- ***Water Act 2000*** - a permit is required under Section 3A of this Act for excavation or removal of vegetation within 40 m of the mean high water mark of any creek, river, lake, lagoon or wetland prior to commencement of any excavation or removal of vegetation in these areas
- ***Rural Fires Act 1997*** - authorised removal of fire hazards
- ***New South Wales Heritage Act 1977*** - sites under conservation and orders, relics
- ***Noxious Weeds Act 1993*** - clearing of noxious weeds

NSW legislation can be viewed at: <http://www.legislation.nsw.gov.au/> .

6 WHAT IS REQUIRED DURING CONSTRUCTION AND CLEARING / TREE REMOVAL?

6.1 TREE PROTECTION GUIDELINES

Successful long term retention of trees on development sites depends largely on an acceptance and acknowledgement of the constraints and benefits that established trees generate. The adequate protection of trees incorporated into the landscape design of any development may influence design and construction costs and should be considered when projecting budgets and contracts.

The Australian Standard '*Protection of trees on development sites*' (AS 4970 - 2009) provides guidelines for individuals and organisations interested in the integration between trees and construction. AS 4970 - 2009 describes the best practices for the planning and protection of trees on development sites.

The document provides guidance on the principles for protecting trees on land subject to development, from the planning stages to implementation. The following planning and implementation guidelines should be used as an indicative measure only. Further detail of requirements should be sought through review of AS 4970 - 2009 in its entirety.

Planning and the tree management process

1. Site survey - A detailed topographical survey plan should include the location of all individual trees or groupings including trees located on adjacent to the development site that may be impacted by development. Crown spread, measured and drawn to scale should also be included on plans along with other features such as waterways and other vegetation types.
2. Preliminary tree assessment - A consulting Arborist should be engaged to undertake this initial assessment at the beginning of the project, with the purpose of providing quantitative and qualitative information on the trees as identified in the site survey. Specific information such as species identification, vigour, structure and retention value should be assessed and documented. Heritage and ecological factors and constraints should also be addressed where applicable.
3. Preliminary arboricultural report - This report should provide details collected from the initial tree assessment and categorise trees based on their respective retention suitability. The trees suitable for retention (or removal) should be clearly identified and marked on the survey plan. This plan should also show the location of projected optimum Tree Protection Zones (TPZ).
4. Development design and review - The development layout should take into consideration the preliminary arboricultural report. The project arborist should be actively involved in this process, to assist in determining potential impact on trees proposed for retention.
5. Arboricultural impact assessment – Once the final layout is complete, this assessment will explain design and construction methods proposed to minimise impact on retained trees where there is encroachment into the calculated TPZ. It will also recommend measures necessary to protect trees throughout all demolition and construction stages.

Note: The above process is a guide only and may not be required in all instances.

6.2 MEASURES REQUIRED TO PROTECT TREES AND NATIVE VEGETATION DURING CONSTRUCTION

It is expected that all reasonable measures shall be undertaken to protect trees and adjoining native vegetation to be retained during construction of clearing works. Measures for protecting trees and native vegetation include, but are not limited to the following.

- a Installing exclusion fencing around trees and vegetation that are to be retained ie including trees and native vegetation that adjoin the construction area. Exclusion fencing is to be installed prior to commencement of works and maintained in good working order for the duration of works. The applicant shall notify Council's Development Planner Flora and Fauna when exclusion fencing has been installed;

- b Prohibiting compaction and the placement of fill within five metres of trees and native vegetation that are to be retained;
- c Keeping all vehicles, construction materials, and refuse within areas approved for buildings, structures, access ways and car parks;
- d Limiting the number of access points;
- e Salvaging useable trees and shrubs which are felled for re-use, either in log form, or as woodchip mulch for erosion control and / or site rehabilitation - non-salvageable material such as roots and stumps may only be disposed of at an approved site;
- f Notifying all contractors, sub-contractors, and personnel of vegetation protection requirements of this condition; and
- g Where habitat trees are removed, measures (such as nest boxes) must be implemented to mitigate against injury or loss of native fauna and habitat.

Note: The Australian Standard, '*Protection of trees on development sites*' (AS 4970 - 2009), provides guidance on the principles for protecting trees on land subject to development, from the planning stages to implementation. Further detail of requirements should be sought through review of AS 4970 - 2009.

6.3 HOW DO I CALCULATE THE TREE PROTECTION ZONE (TPZ) AND STRUCTURAL ROOT ZONE (SRZ)?

The Tree Protection Zone (TPZ) is the principal means of protecting trees on development sites. Essentially, it is an area isolated from construction disturbance, so that the tree remains viable.

The radius of the TPZ is calculated for each tree by multiplying its DBH X 12 (DBH is the trunk diameter measured at 1.4m above ground).

A TPZ should not be less than 2 m (radius from trunk) regardless of tree size.

The Structural Root Zone (SRZ) however, is the area required for tree stability and only needs to be calculated when major encroachment into the TPZ is proposed. A larger area is required to maintain a viable tree. (Refer to AS 4970 – 2009 for formula and further information.)

Non-destructive root investigation may also be required to provide information on the extent or location of the SRZ.

Variations to the TPZ

Encroachments into the TPZ can be considered minor if less than 10%, and is located outside of the SRZ. The area lost to such an encroachment should be compensated for elsewhere if possible. If the proposed encroachment is greater than 10% of the TPZ, the project arborist must demonstrate that the tree/s would remain viable and consider all potential impacts including soil characteristics, species tolerance, age, size, and vigour of tree, amongst other related factors such as the structural design of the development.

The crown protection of trees should be addressed by the project arborist when determining the TPZ. This may include specifying any pruning works required or tying back of branches to enable construction works to take place. Pruning works should be carried out in accordance with Australian Standard, '*Pruning of amenity trees*' (AS 4373 – 2007) where applicable.

6.4 MAINTAINING THE TPZ

The TPZ is a restricted area usually delineated by protective fencing. Australian Standard 4687 - 2007 '*Temporary fencing and hoardings*' (AS 4687 - 2007) specifies applicable fencing requirements. The type of fencing specified should be installed prior to site establishment and remain intact until completion of the works. Shade cloth or similar should be attached to the protective fencing to reduce the transport of particulate matter and liquids into the protected area. The TPZ should also be clearly sign posted advertising the purpose of fence. Trunk and ground protection measures may also need to be applied in instances where encroachments into the TPZ are expected.

Some approved works may have to be undertaken within the TPZ. Where it is identified that roots need to be pruned, manual excavation should be carried out under the supervision of the project arborist. Where roots require pruning, cuts are to be made with sharp tools such as secateurs, handsaws or chainsaws. Pruning wounds should not be treated with dressings or paints.

It is not acceptable for roots within the TPZ to be 'pruned' with machinery such as backhoes or excavators. Advice should be sought from the project arborist when carrying out any activity within the TPZ.

The area within the TPZ should be mulched where suitable (except grassed areas etc). Mulch depth of 50 mm–100mm must be maintained and the TPZ may require to be adequately watered during all stages of construction.

6.5 INSTALLATION OF UNDERGROUND SERVICES

In the case where underground services must be routed within the TPZ, they should be installed by directional drilling or in manually excavated trenches (directional drilling bore should be at least 600 mm deep). Advice should also be sought from the project arborist in relation to boring or excavation works.

6.6 BONDS AND GUARANTEES

For site development / construction activities within sensitive areas containing remnant vegetation or significant trees, Council will levy a bond or guarantee on the applicant to ensure protection of the tree/s or vegetation. The sum of the bond will be a reasonable estimate of the cost of rectifying any damage to trees or tree groups caused by a failure on the applicant's part to provide protection to the tree/s or vegetation.

For trees on Council's Significant Tree Register that might be affected by development works, a condition to require the placement of a bond or bank guarantee of \$10,000 for the first significant tree and \$2,000 for each significant tree thereafter will be required. This bond is to be submitted prior to release of the construction certificate and released at the end of works subject to a certificate being provided by a qualified arborist stating that the works have not adversely affected the designated significant tree.

6.7 FORFEIT OF DEPOSIT / GUARANTEE THROUGH BREACH OF CONSENT

Where trees and / or remnant bushland, identified for retention and protection, are damaged or die as a result of the building or development works, Council will actively pursue the breach of consent and seek to apply the deposit or guarantee in order to minimize loss of amenity and / or habitat value as follows;

- a To ensure that installation of fencing and soil erosion treatments are completed;
- b to provide remedial tree care to affected tree/s;
- c to replace damaged or dead trees; or
- d to rehabilitate / regenerate disturbed bushland.

6.8 PERIOD OF DEPOSIT / GUARANTEE AND REFUND

The deposit or guarantee will be released no earlier than 12 months and no later than two years after practical completion of the development. Release of the deposit /guarantee will be contingent upon receipt of a report prepared by a properly qualified arborist certifying that the significant tree/s / vegetation nominated for protection have been adequately protected and are in satisfactory condition.

The period for holding of the deposit / guarantee will be not be less than 12 months to allow adequate time for the developmental impact on significant tree/s and / or remnant bushland to be assessed properly. For release of the deposit / guarantee, significant tree/s and / or remnant bushland will need to display vigour, integrity, sustainability of natural processes, and no signs of increased decline, “die-back”, disease or pathogens.

7 VEGETATION MANAGEMENT PLANS

7.1 WHAT IS A VEGETATION MANAGEMENT PLAN?

A VMP comprehensively addresses protection, maintenance, rehabilitation, removal, and / or replanting of trees and native vegetation on a particular site.

A suitably qualified and experienced person must prepare a VMP.

Council may grant development consent for a VMP for implementation over a period of 2-10 years, depending on the scope and complexity of the program and the size of the site. No further consents are required where works comply with an approved VMP.

A guide to the preparation of a VMP is included in Appendix 8.4 of Councils Flora and Fauna Survey Guidelines <http://www.lakemac.com.au>

7.2 WHEN IS A VEGETATION MANAGEMENT PLAN REQUIRED?

A VMP will be required when Council is of the opinion that the proposed clearing or tree works are of a type needing a comprehensive site-specific plan of management. The VMP will provide analysis and a strategy to address issues relating to the staging of works, cumulative impact, long-term vegetation monitoring, and management of progressive tree works for the same site over an extended period.

Submission of a VMP is preferred to the making of separate successive applications for works on / or removal of individual trees for the same site.

8 PENALTIES

Under Section 629 of the *Local Government Act 1993*, on-the-spot fines may apply to the injury or unnecessary disturbance of trees and native vegetation on public land including road reserves. This specifically relates to street trees and native vegetation on foreshore reserves and public open spaces.

Where there is clear evidence that native vegetation on public land has been deliberately poisoned or injured, Council may erect a sign and / or other large temporary structure, such as a tarpaulin, in place of, or adjacent to, the dead or injured tree, marine or native vegetation.

Under section 125 -127A of the *Environmental Planning and Assessment Act 1979*, on the spot fines or court proceedings may apply to the injury, unnecessary disturbance, or removal of trees, and native vegetation.

Fines and court proceedings are also possible under the *Threatened Species Conservation Act 1995* where listed threatened species, populations and communities have been harmed, and the *Fisheries Management Act 1994* where marine vegetation is involved.

9 REFERENCES

- AS 4970 - 2009, Australian Standard 4970-2009, *Protection of trees on development sites*, 26 June 2009'
- AS 4687 – 2007 Australian Standard 4687 - 2007 *Temporary fencing and hoardings*, 18 October 2007
- AS 4373 – 2007 Australian Standard 4373 – 2007 *Pruning of amenity trees*, 14 March 2007
- Baxter N. & Mac Donald K. (1984) *Flora of the Redhead – Dudley - Jewells Area*, In B. Gilligan (ed) Awabakal Nature Reserve reference handbook, NSW Department of Education, Awabakal Field Studies, Dudley.
- Benson D.H. (1986) *The Vegetation of the Gosford and Lake Macquarie 1:100,000 map sheet*, *Cunninghamia* 1(4) 467-489.
- Briggs J.D. and Leigh J.H. (1988) *Rare or Threatened Australian Plants*, Revised Edition, Special Publication No 14 Australian National Parks and Wildlife Service, Canberra.
- Briggs J.D. and Leigh J.H. (1996) *Rare or Threatened Australian Plants*, 1995 Revised Edition, CSIRO & Australian Nature Conservation Agency, Canberra.
- DECCW (2010) *Regional Coastal Planning - Lower Hunter Mapping Methodology for Biodiversity Conservation Lands*, Department of Environment Climate Change and Water NSW, 15 May 2010.
- LMCC 2009 *State of the Environment Report 2009*, Lake Macquarie Council
- Payne (1998a) *Lower Hunter and Central Coast Regional Biodiversity Strategy Stage 1*, prepared by R. Payne for NSW Department of Urban Affairs and Planning draft February 1998.
- LMCC (2004a) Lake Macquarie City Council Development Control Plan No. 1 (DCP No. 1)
- LMCC (2004b) Lake Macquarie City Council Tree Preservation Guidelines (in DCP No.1)
- LMCC (2004c) Lake Macquarie City Council Local Environmental Plan 2004 (LMLEP 2004)

10 APPENDICES

10.1 DEFINITIONS

"arboriculture" means cultivating and managing trees as individuals and in small groups for amenity purposes

"bushland" means land on which there is vegetation which is either a remainder of the natural vegetation of the land or, if altered, is still representative of the structure and / or floristic of the natural vegetation.

"clear" includes:

- kill, destroy, poison, ring bark, uproot or burn a tree or native vegetation, or
- cut down, fell, thin, log or remove a tree or native vegetation, or
- underscrub a tree or native vegetation, or
- sever or lop a branch, a limb, a stem or a trunk of a tree or native vegetation, or
- damage a tree or native vegetation in any other way, or
- cause or permit any of the above

"crown maintenance pruning" is as defined in Australian Standard AS 4373, 2007, *"Pruning of Amenity Trees"*, and is considered to involve a reduction in tree foliage and branches ie the airspace occupied by the tree, by up to 10% in any five years with no reduction in the height of the main trunk

"destroy" means any activity leading to the death, disfigurement, or mutilation of a tree

"culturally significant tree" includes a tree listed on Council's Significant Tree Register, a tree listed as a Heritage Item or within a Conservation Area or a tree that has value for people indigenous to the area

"indigenous vegetation" is any vegetation that existed in the State before European settlement

"injury" means damage to a tree or native vegetation and includes:

- a lopping and topping;
- b poisoning including applying herbicides and other plant toxic chemicals to a tree or spilling (including washing off or directing water contaminated by oil, petroleum, paint, cement, mortar and the like onto the root zone);
- c cutting and tearing of branches and roots that is not carried out in accordance with accepted arboricultural practices, does not qualify as "pruning", or is done for invalid reasons;
- d ring barking, scarring the bark when operating machinery, fixing objects eg signs by nails, staples or wire, using tree climbing spikes in healthy trees marked for retention (except for access to an injured tree worker), or fastening materials that circle and significantly restrict the normal vascular function of the trunk or branches;
- e damaging a tree's root zone by compaction or excavation, asphyxiation (including unauthorised filling or stockpiling of materials);
- f underscrubbing or slashing unless very minor in extent and carried out by hand tools such as brush cutters and the like

"lopping" means cutting between branch unions or at internodes on young trees (but does not refer to lopping solely for the purpose of feeding stock in an officially drought declared area)

"native vegetation" has the same meaning as in the *Native Vegetation Act 2003* which means any of the following types of indigenous vegetation:

- trees (including any sapling or shrub, or any scrub)
- understorey plants
- groundcover (being any type of herbaceous vegetation)

- plants occurring in a wetland
- marine Vegetation

Vegetation is indigenous if it is a species of vegetation or if it comprises species of vegetation that existed in the State before European settlement

"non-urban zone" means all land identified by Lake Macquarie Local Environmental Plan 2004 as being within a Rural, Environmental Protection, Infrastructure and Recreation zones

"Marine vegetation" includes mangroves, seagrasses or any other type of marine vegetation to which Section 205 of the *Fisheries Management Act 1994* applies

"prune or pruning" is defined as all other pruning which is not "crown maintenance pruning" and includes "crown modification" as defined in Australian Standard AS 9373, 2007, *"Pruning of Amenity Trees"*

"remnant tree or vegetation" means a native tree or any patch of native vegetation that remains in the landscape after removal of most or all of the native vegetation in the immediate vicinity

"significant species and communities" are species listed in the Schedules to the *Threatened Species Conservation Act 1995*, and species referred to Appendix 10.3 of these Guidelines

"significant tree" means any native tree or exotic species listed on the Significant Tree Register (Appendix 10.2)

"significant tree register" means Council's Register of Significant Trees maintained to facilitate the preservation of trees that have recognised cultural significance - significant trees are those which exhibit aesthetic, historic, scientific, environmental or social value for past, present or future generations

"remove" means to cut down, take away, or transplant a tree from its place of origin

"topping" means cutting away part or all of the tree canopy leaving a trunk and stubbed main branches

"tree" includes a native sapling and a native shrub and any tree listed in the Significant Tree Register (Appendix 10.2)

"undesirable species" means plants that have characteristics that may lead to poisoning, weed infestation, brittle and dangerous wood, excessive spread of roots, or bushland invasion

"vegetation management plan" means a structured program adopted by the Council for the protection, maintenance, restoration and replacement of trees and native vegetation

10.2 SIGNIFICANT TREE REGISTER

10.2.1 SIGNIFICANT TREE REGISTER

Significant trees are those which exhibit aesthetic, historical, scientific or social value for past, present or future generations. Inclusion of trees on the “**Significant Tree Register**” shall not preclude removal but flag the need for especially careful appraisal of any proposal to prune or remove them. The list of Significant Trees has been provided in Table 1.

This list of Significant Trees is as at the date of the preparation of this Plan. Other Significant Trees may have been identified and listed. Contact Council’s Tree Preservation Officer to view the most recent version of the Significant Tree Register.

Table 1 - Significant Tree Register

Significant Tree Register Item No	Suburb	Address	Tree
0001	Argenton	Lake Road – Waratah Golf course entrance	Canary Island Date Palm
0002	Balcolyn	1A Queen Street – Shingle Splitters Point – accessed at the end of Queen Street	Norfolk Island Palm
0003	Barnsley	Appletree Road – cnr Northville Drive	Canary Island Date Palm
0004	Blackalls Park	19 Blackalls Avenue	Canary Island Date Palm
0005	Bonnells Bay	71 Harbord Street	<i>Angophora costata</i>
0006	Cardiff	393 Main Road	<i>Cedrus deodara</i>
0007	Cardiff	248 Main Road – next to house number 242 – former Stationmasters House – next to railway station	Canary Island Dale Palm
0008	Cardiff	Cnr Main Road & Macquarie Road – zoned as road - next to Lot Prt1, DP 17169, 304 Main Road	Pine tree
0009	Cardiff	Cnr Myall Road & Macquarie Road – outside Cardiff RSL	Norfolk Island Pines
0010	Charlestown	Pearson Street – very top of Hilltop Plaza, near Rebel Sport – zoned as road - Pearson Street	Plane Tree
0011	Charlestown	Jennifer Street – end of Jennifer Street in Winding Creek Reserve behind houses 71 & 73 at end of cul-de-sac	<i>Eucalyptus Fergosomi</i>
0012	Dudley	Boundary Street – Dudley Public School – first gate on right after you turn into Boundary Street	Canary Island Date Palm
0013	Eraring	Cnr Rocky Point Road & Foreshore Street	Bunya Pines
0014	Eraring	45 Payten Street	Gums & Bunya Pines
0015	Eraring	Payne Street	Figs
0016	Eraring	Point Piper Road – strung out along Point Piper Road in the area indicated on the map below	<i>Melaleuca</i>
0017	Glendale	Main Road – Cardiff Railway Workshops – now occupied by Clyde Engineering - entrance from Main Road across from Glendale Road - photos taken from back of railway workshops	Canary Island Date Palms
0018	Holmesville	94 Seaham Street	Canary Island Date Palms
0019	Marong Point	George Street	Norfolk Island Pines
0020	Morisset	Bridge Street – entrance road to Morisset Hospital	Cristina Convert
0021	Morisset	Bridge Street – Morisset Hospital grounds	
0022	Morisset	Macquarie Street	Morisset’s tree
0023	Rathmines	Stilling Street – foreshore park	Norfolk Island Pines
0024	Redhead	1 Collier Street – Lambton Colliery	Norfolk Island Pines
0025	Redhead	11 Beach Street	Norfolk Island Pines
0026	Redhead	2a Beach street – Redhead Surf Club Carapook	Norfolk Island Pines
0027	Redhead	87 Redhead Road – “The Gables”	Canary Island Palm
0028	Redhead	87 Redhead Road – “The Gables”	Tea Tree hedge
0029	Teralba	5 Victoria Street	Canary Island Date Palm
0030	Teralba	52 James Street	<i>Cedrus deodara?</i>
0031	Teralba	7 Racecourse Road – across from Teralba Bowling Club	Canary Island Date Palms
0032	Toronto	Cnr Victory Parade & Cary Street	Canary Island Date Palms

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Significant Tree Register Item No	Suburb	Address	Tree
0033	Toronto	1 Day Street – right on water – lefthand side at end of Day Street	Canary Island Date Palms
0034	Toronto	Renwick Street – on Renwick Street around house numbers 5-11	Norfolk Island Pines
0035	Toronto	Renwick Street – along both sides of Renwick Street from Bay Street to Day Street	Jacarandas
0036	Toronto	The Boulevard – south side of The Boulevard from Victory Parade to Cary Street (retail section)	Figs
0037	Toronto	The Boulevard – north side of The Boulevard from Victory Parade to Cary Street (retail section)	Canary Island Date Palms
0038	Toronto	28 Victory Parade – foreshore park - straight across from the end of The Boulevard on lake's edge	Canary Island Date Palms
0039	West Wallsend	41 Brown Street – at front of Uniting Church in Brown Street	Canary Island Date Palm
0040	West Wallsend	40 Boundary Road – across from the entrance to Sugar Valley Golf Course	Bunya Pine
0041	West Wallsend	Cnr Carrington Street & George Booth Drive – on reservoir & pumping station site – north west cnr of intersection	Bunya Pine
0042	West Wallsend	Location to be confirmed	Silky Oaks
0043	West Wallsend	Location to be confirmed	Coral Trees
0044	West Wallsend	Location to be confirmed	Canary Island Date Palms
0045	Rathmines	Location to be confirmed	Figs
0046	Rathmines	Location to be confirmed	<i>Melaleuca</i>
0047	Catherine Hill Bay	Hale Street – across the road from Surf Club	Norfolk Island Pines
0048	Catherine Hill Bay	26A Flowers Drive – behind school	Norfolk Island Pines
0049	Caves Beach	155A The Esplanade – Caves Beach Surf Club	Norfolk Island Pines
0050	Swansea	Wallarah Road – in and around caravan park on headland	<i>Melaleuca</i>
0051	Swansea	12 Channel Street – in Burragallana Reserve - tees dotted around soccer fields	Melaleucas
0052	Swansea	2 Chalmers Street – in yard of house right next door to Swansea RSL	<i>Magnolia grandiflora</i>
0053	Swansea Heads	9 Northcote Avenue	Norfolk Island Pines
0054	Swansea	Bowman Street	Canary Island Date Palms
0055	Little Pelican	Little Pelican Road? – about halfway along road to Little Pelican on left side mainly	<i>Melaleuca</i>
0056	Blacksmiths	2 Gommera Street – on left before Swansea bridge	Canary Island Date Palms
0057	Blacksmiths	Pacific Highway – along east side of road between Maneela Street & Tiriki Street in reserve	<i>Melaleuca</i>
0058	Pelican	5 Soldiers Road – Cnr Pacific Highway & Soldiers Road – north west cnr of intersection	Cabbage Tree Palms
0059	Pelican	Lakeview Parade – foreshore park near boat ramp	Cabbage Tree Palms
0060	Pelican	Lakeview Parade – foreshore reserve - can be accessed via a path across from 72 Lakeview Parade	Mangroves
0061	Pelican	53A Karog Street – cnr Karoburra Street & Piriwal Street – paperbarks are on Piriwal Street side of Pelican Public School	<i>Melaleucas</i>
0062	Pelican	864 Pacific Highway – Pelican Airport - Aeropelican	Cabbage Tree Palms
0063	Marks Point	2A Village Bay Road – cnr Village Bay Road and Marks Point Road – in park on right hand side as you drive down Marks Point Road	Figs
0064	Marks Point	81 Marks Point Road – on right just after park - <i>may not be the correct tree</i>	Hoop Pine
0065	Belmont South	Pacific Highway – foreshore park between Paley Crescent & Cold Tea Creek	Coral Tree
0066		Deleted due to Council recommendation.	
0067	Belmont	23 Bellevue Road	<i>Magnolia grandiflora</i>
0068	Belmont	1 Ada Street	Hoop Pine
0069	Belmont	25 Brooks Parade – foreshore park on Brooks Parade	Canary Island Date Palms
0070	Belmont	25 Brooks Parade – foreshore park on Brooks Parade	Figs

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Significant Tree Register Item No	Suburb	Address	Tree
0071	Belmont	50 Brooks Parade – cnr Marks Street & Brooks Parade – in park on cnr	Norfolk Island Pines
0072	Belmont	142 Ross Street	Norfolk Island Pines
0073	Belmont	Cnr Evans Street & Ross Street – across from Belmont 16ft'ers Club in Laughlin Park	Canary Island Date Palms
0074	Valentine	151A Dilkera Avenue – Green Point Reserve - can be accessed at the end of Dilkera Avenue Valentine or Ross Street Belmont	<i>Casuarina</i>
0075	Valentine	151A Dilkera Avenue – Green Point Reserve – can be accessed at the end of Dilkera Avenue Valentine or Ross Street Belmont	Rainforest elements
0076	Warners Bay	John Street – in Westpac carpark behind The Esplanade Shops – off John Street	Eucalypt
0077	Warners Bay	The Esplanade – across from shops	Canary Island Date Palms
0078	Warners Bay	The Esplanade – across from shops	Figs
0079	Warners Bay	Fairfax Road - on cnr Fairfax Road and Medcalf Street	Canary Island Date Palm
0080	Warners Bay	50 Fairfax Road – just up from Warners Bay Private Hospital – on same side	Canary Island Date Palms
0081	Speers Point	380 The Esplanade – 3 or 4 houses up on Speers Point side of Fairfax Street & The Esplanade intersection	Canary Island Date Palms
0082	Speers Point	328 The Esplanade	Canary Island Date Palms
0083	Speers Point	290 The Esplanade – between Thompson Street & Morse Street	Canary Island Date Palm
0084	Speers Point	288 The Esplanade – between Thompson Street & Morse Street	Canary Island Date Palm
0085	Speers Point	284 The Esplanade – between Thompson Street & Morse Street	Canary Island Date Palm
0086	Speers Point	276 The Esplanade – between Thompson Street & Morse Street	Canary Island Date Palm
0087	Speers Point	The Esplanade – between Thompson Street & Morse Street	Canary Island Date Palms
0089	Speers Point	The Esplanade – between Thompson Street & Morse Street	Canary Island Date Palms
0090	Speers Point	208 The Esplanade	Canary Island Date Palm
0091	Speers Point	The Esplanade – Speers Point Park – access from the end of Main Road	Norfolk Island Pines
0092	Belmont	The Shores Way (Reserve)	Magenta Lilly Pilly
0093	Blacksmiths	Pacific Highway	Canary Island Date Palm
0097	Fassifern	2 Teralba Street	Henneana
0099	Kotara South	37 Stuart Street	<i>Angophora costata</i>
0100	Marks Point	Kindiamanna Park	<i>Melaleuca</i> (3)
0101	Mirrabooka	146 Dandaraga Road	<i>Eucalyptus robusta</i> and <i>Eucalyptus globiodes</i>
0104	Pelican	Swansea Channel (East)	Mangroves
0105	Pelican	Public School	Melaleucas
0106	Speers Point	374 The Esplanade	Canary Island Date Palm
0108	Wangi Wangi	79 Beach Road	<i>Corymbia maculata</i>

10.2.2 CRITERIA FOR LISTING A TREE

The criteria for listing a tree, either native or exotic, on the “Significant Tree Register” shall include:

- Historic
- Contribution to landscape / townscape
- Commemorative tree
- Belonging to a historic building / garden / park
- Exceptionally old or fine specimen
- Curious growth habit or physical appearance
- Horticultural / scientific value
- Unusually large
- Rare to area
- Outstanding aesthetic quality
- Fauna / bird habitat tree

Procedure for Permanent Listing of Trees on the Significant Tree Register

- 1 Nominations for additions or nominations for removal of trees on Council's Significant Tree Register can be made in writing from any member of the community, a government organisation, landowner, Councillor or Council Officer. The correspondence should outline the reasons for listing or delisting.
- 2 The listing of the tree on the register, or removal of the tree from the register, is to be investigated by Council's Tree Assessment Officer in consultation with other Council officers, or relevant experts.
- 3 The landowner is to be notified in writing and given the opportunity to respond to the proposed listing or delisting.
- 4 A report is to be prepared for Council indicating the reasons for listing or delisting, the landowner's response (if any), and the results of the assessment.
- 5 Council resolves to make the listing / delisting or not to list / delist the tree on the Significant Tree Register.

Procedure for Interim Listing of Trees on the Significant Tree Register

- Where Council, or the General Manager, is satisfied that a tree which could qualify as a significant tree, is under threat of damage or removal, interim listing of the tree on the Register may occur for three months.
- The landowner is to be notified of the interim listing and given the opportunity to comment.
- The listing is to be investigated by Council's Tree Assessment Officer in consultation with other Council officers or relevant experts.
- A report is to be prepared for Council indicating the reasons for listing, the landowner's response (if any), and the results of the assessment.
- Council resolves to make the interim listing a permanent listing or not to permanently list the tree.

The Significant Tree Register may be formally updated and recognised by Council every two years, or earlier if deemed necessary.

10.3 SIGNIFICANT SPECIES, HABITAT AND VEGETATION COMMUNITIES

Significant Flora and Fauna Species:

- Flora and fauna species of National significance covered by the *Environmental Protection and Biodiversity Conservation Act 1999* (Threatened Species listed in the Schedules and / or Migratory Species listed under international agreements);
- Flora and fauna of State significance listed in the Schedules to the *Threatened Species Conservation Act 1995* and the *Fisheries Management Act 1994*;
- Flora and fauna of regional significance listed in Payne (1998a)[#];
- Flora listed in *Rare Or Threatened Australian Plants (ROTAP)* (Briggs and Leigh 1996)[#];
- Flora listed by Benson (1986)[#];
- New Flora Species[#]; and
- Flora and fauna identified by other reputable sources or by the on-site survey as being of significance in Lake Macquarie City.

[#] **NOTE:** Refer to Appendix 8.3 of Council's Flora and Fauna Survey Guidelines <http://www.lakemac.com.au>

Significant Vegetation Communities:

- Ecological communities of national significance covered by the *Environmental Protection and Biodiversity Conservation Act 1999* (listed in the Schedules);
- Vulnerable or endangered ecological communities or populations of State significance listed in the Schedules to the *Threatened Species Conservation Act 1995* and the *Fisheries Management Act 1994*;
- Areas defined by State Environmental Planning Policy No 14 Coastal Wetlands and State Environmental Planning Policy No 26 Littoral Rainforest;
- Vegetation communities identified in Council's 2009 State of the Environment Report: <http://www.lakemac.com.au/page.aspx?pid=126&vid=1> ;
- Vegetation communities identified in the Lower Hunter Regional Conservation Plan (DECCW 2010) <http://www.environment.nsw.gov.au/newparks/hunterdraft.htm> ; and
- Native Vegetation Corridors (see Appendix 10.4).

Significant Habitat:

- Vegetation communities identified in Council's 2009 State of the Environment Report <http://www.lakemac.com.au/page.aspx?pid=126&vid=1> ;
- Vegetation identified in the Lower Hunter Regional Conservation Plan (DECCW 2010); <http://www.environment.nsw.gov.au/newparks/hunterdraft.htm>
- Aquatic habitat;
- Habitat for the significant species listed above including rock outcrops, hollow bearing trees, mudflats, dead stags and intertidal areas ;
- Native Vegetation Corridors (see Appendix 10.4);

10.4 NATIVE VEGETATION CORRIDORS

Corridors are strips of native vegetation continuous between adjacent bushland fragments. By linking bushland fragments, their combined ecological viability increases. Once joined, fragments function more effectively for the:

- 1 Movement of plant pollinators,
- 2 dispersal of juvenile fauna,
- 3 re-colonisation after fire,
- 4 escape during fire, and
- 5 transfer of genetic diversity between species (which can be quite irregular)

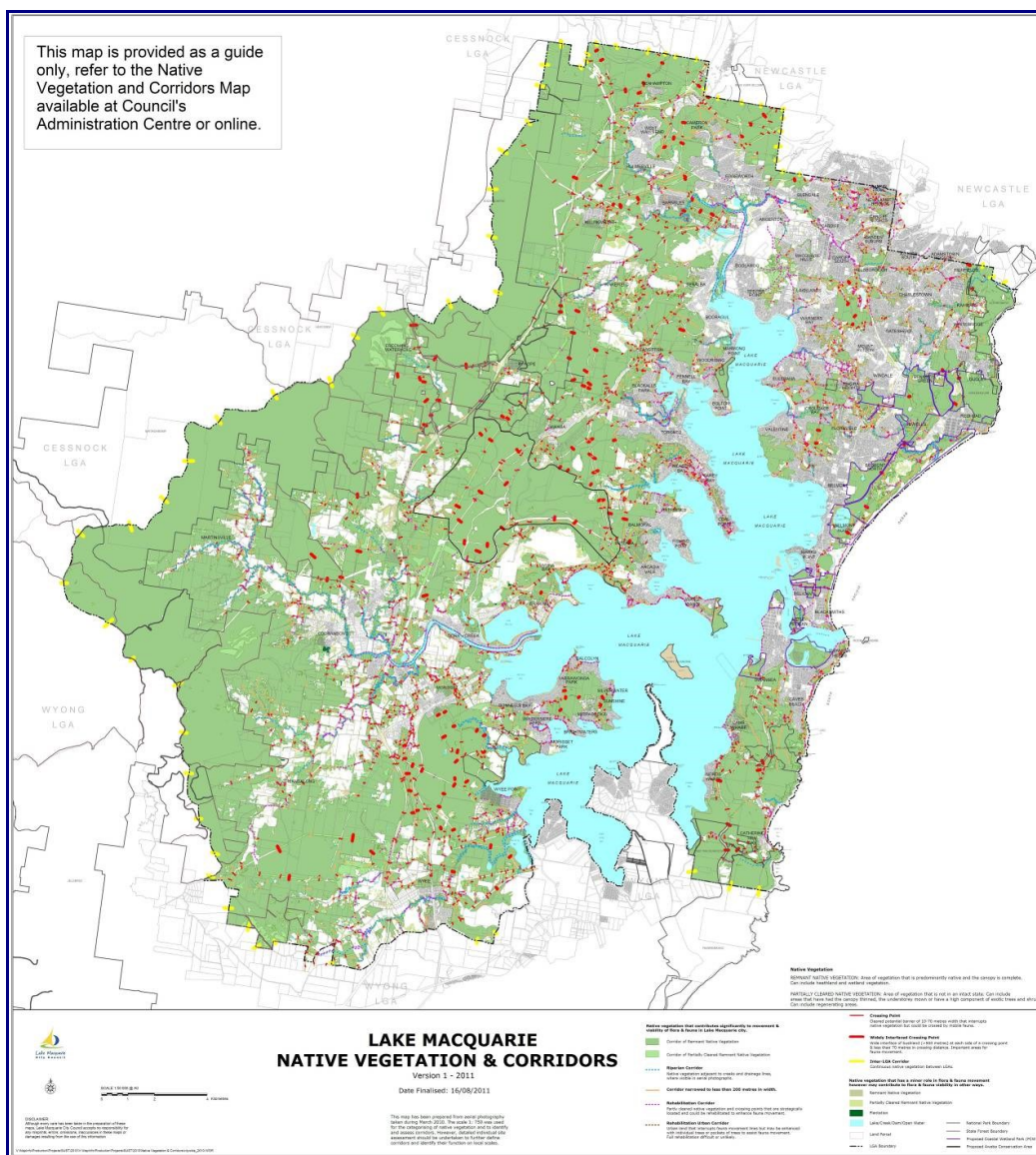


Figure 1 - Native Vegetation and Corridors Map

The maintenance of corridors is fundamental to the long-term maintenance of the ecological resources of the City.

Council has prepared a detailed Native Vegetation and Corridors Map that can be used to identify corridors. Figure 1 is an indicative version of the map which can be found at:

<http://www.lakemac.com.au/page.aspx?pid=109&fid=284&ftype=File&vid=1&dlp=True>

This map is updated as suitable new remote sensing data becomes available. However, individual site assessment must be undertaken to identify any corridors that are not mapped, to further define existing corridors on a particular site and identify their function.

The LHRCP (DECCW 2009a) conceptually identifies corridors of state significance including corridors for squirrel gliders and corridors in western Lake Macquarie.

10.4.1 HOW DO I ASSESS IMPACT TO A NATIVE VEGETATION CORRIDOR?

10.4.2 CORRIDOR ASSESSMENT

A Corridor Assessment is required to ensure corridors are adequately protected from potential development impacts. The assessment should include the following.

1 A map to scale, that:

- identifies native vegetation that is connected to the corridor as well as outlying fragments and patches of vegetation that may also play a role in movement of wildlife;
- identifies the condition of the native vegetation within the corridor;
- identifies the patch size of native vegetation fragments and the distance between patches / fragments;
- distinguishes differing vegetation communities within the corridor vegetation identified on site;
- identifies the quality of habitat within the corridor eg areas that have no mid or understorey vegetation, areas of old growth that have trees with habitat hollows; and
- defines the proposed area of impact, including areas expected to be affected by edge impacts.

Note: Corridors should be identified on the vegetation or habitat maps submitted with the development proposal.

Note: Edge impacts will vary, dependent on the development type but generally are evident up to 20 m from disturbed areas (but may extend further).

2 A description of the flora and fauna known and expected to benefit from the use of the corridor now and in the future. As a minimum, this should be based on:

- A survey of species that benefit from the corridor,
- an evaluation of connectivity to larger patches of remnant vegetation, and
- an evaluation of fauna species (including plant pollinators and seed dispersal agents) expected to move between these areas.

3 An assessment of the proposed impact to the corridor. Corridor widths should be determined with reference to core habitat areas and potential edge effects as well as the species likely to be using them, both now and in the future. Effort should be made to retain:

- all vegetation communities represented in the corridor;
- core areas of habitat that are adequately buffered from edge impacts; and
- key habitat features such as habitat hollows, drainage lines and key foraging areas - these features may require the corridor to be of variable width.

- 4 Impacts on native vegetation corridors should be avoided. Any proposed mitigation measures should aim to enhance corridor width and function. Mitigation measures can include, but are not limited to, proposed rehabilitation using native vegetation indigenous to the local area to establish a self-sustaining ecosystem as close as possible to the natural state, glide poles, and artificial wildlife crossing.

Note: To fully quantify the impacts of a development proposal on a native vegetation corridor, data collection and survey may be required over several years.

10.4.3 CORRIDOR WIDTHS

Generally, the wider and shorter the corridor, the better. However, even a narrow corridor is better than no corridor at all. The wider and more diverse the vegetation within a corridor, the greater the range of species that will use it. Duplication of corridors is also required to allow alternative routes for movement, especially where a corridor or connections become fragmented or narrow.

Whilst corridor widths and configurations can be limited by existing constraints and landuses, Council will generally not support narrowing of a native vegetation corridor without a very high level of justification and impact assessment.

Riparian corridors are corridors of vegetation along the edge of a waterway, wetland, drainage line, or water body. This corridor performs numerous functions including maintaining microclimate, filtering run-off, and providing habitat for fauna. However, greater widths are often required to satisfy biodiversity requirements than water quality requirements.

10.5 UNDESIRABLE TREE / SHRUB SPECIES – ENVIRONMENTAL WEEDS

Development consent is not required to remove any of the species listed in Table 4.1. Most of these species are exotic (introduced) or have become naturalised in NSW since European settlement. However, some NSW native species (as indicated on the list below with an *) have become, or have the potential to become, environmental weeds in the Lake Macquarie LGA.

Table 2 - Undesirable Tree/Shrub Species

Scientific Name	Common Name
<i>Acaia baileyana</i> *	Cootamundra Wattle
<i>Chrysanthemoides monilifera</i>	Bitou Bush
<i>Cinnamomum camphora</i>	Camphor Laurel
<i>Comprosa repens</i>	Mirror Plant
<i>Conifer sp.</i>	Pine Tree
<i>Cotoneaster spp.</i>	Cotoneaster
<i>Cytisus scoparius</i>	English/Scotch Broom
<i>Erythrina crista-galli</i>	Cockspur Coral Tree
<i>Erythrina X sykesii</i>	Coral Tree
<i>Ficus elastica</i>	Rubber Tree
<i>Grevillea robusta</i> *	Silky Oak
<i>Jacaranda mimosifolia</i>	Jacaranda
<i>Lagunaria pattersonii</i>	Norfolk Island Hibiscus
<i>Lantana camara</i>	Lantana
<i>Ligustrum lucidum</i>	Broadleaved (Large-leaved) Privet
<i>Ligustrum sinense</i>	Small-leaved (Chinese) Privet
<i>Nephrolepis cordifolia</i>	Fishbone Fern
<i>Ochna serrulata</i>	Ochna (Mickey Mouse Plant)
<i>Olea europaea subsp. africana</i>	African Olive
<i>Phoenix canariensis</i>	Canary Date Palm
<i>Phyllostachys spp.</i>	Bamboo
<i>Pinus radiata</i>	Radiata Pine
<i>Polygala mytifolia</i>	Polygala
<i>Ricinus communis</i>	Castor Oil Plant
<i>Schefflera actinophylla</i>	Umbrella Tree
<i>Schinus terebinthifolia</i>	Broad-leaf Pepper Tree
<i>Senna pendula</i>	Cassia
<i>Solanum mauritianum</i>	Wild Tobacco Tree
<i>Syagrus Sp.</i>	Cocos Palm
<i>Tecoma stans</i>	Yellow Tecoma

* NSW Native Species