APPENDIX 6-ARBORIST REPORT PREPARED BY JACE ELLARD

REPORT

ADDITIONS TO HOTEL/MOTEL, BEGA STREET, TATHRA

Compiled by Jace Ellard, Horticulturalist

4 December 2006

Purpose of this Report

The purpose of this Report is to make recommendations to ensure the well-being and retention of an established Norfolk Island Pine which is situated near a proposed new motel wing at the Tathra Hotel Motel, Bega Street, Tathra (Lot 30 DP 606559 and Lot 31 DP 600836).

Recommended Exclusion Zone

The purpose of setting up an exclusion zone is for the long-term retention and general preservation of the established tree, and for the reduction of potential hazards to individuals and their property.

The root system which results from a Araucaria heterophylla, common name Norfolk Island pine, is not generally intrusive outside the extremities of the canopy. A handy guide to root zone extremity is the drip line of the canopy.

This section considers the reciprocating effect that the tree and construction projects would have on each other.

It is recommended that a development exclusion zone, where deep excavations are required for the construction of buildings, laying of electrical, plumbing and sewerage pipes, is restricted to areas outside the drip zone. Shallower excavations for footpaths, garden retaining walls, general landscaping and driveways should not be closer than 2 m from the base of the trunk of the tree.

Araucaria heterophylla

Common Name

Norfolk Island pine

General Information

The Norfolk Island Pine is a large evergreen which has a single upright trunk, tiered branching habit, and a narrow pyramidal or columnar shape, reaching a height of about 50 – 70 m. The dark green, 1/2-inch-long, individual leaves on young trees are lanceolate and look somewhat like spruce or fir needles at first glance. Mature leaves are somewhat contorted on twisted branches. Both leaf types appear on the tree at the same time. The trunk is often curved and swollen at the base and black. The large, spiny, 10 to 15-pound cones are rare in cultivation. Male and female cones are usually found on separate plants.

Description

A conical tree 50-70 m. tall, 1.25-1.75 m. in girth. Bark gray-brown, exfoliating in fine scales. Branches in a flat horizontal plane, sometimes pendent, branchlets in whorls of 4-7. Foliage dimorphic. Juvenile leaves awl-shaped, incurved, green, needle-like, to 1.2 cm. long. Adult leaves scale-like, 4-5 mm. long, incurved, densely arranged, bright dark green; on fertile branchlets overlapping, broadly ovate, spine-tipped, 6 mm. long by 4-6 mm. wide. Male cone in clusters, elongated, 4 cm. long, yellowish-brown or reddish; microsporophylls acute, margins ciliate, denticulate. Female cone broader than long, 12-15 cm. long, with triangular scales and a long incurved bract. Seeds 2.5-3 cm. long by 1.2 cm. wide, with broad wings. Cotyledons 4, epigeal.

Watering: Allow the soil to dry out between waterings. Araucaria does not like damp soil. Over watering results in sporadic bright yellow needle clusters that dislodge very easily, and don't grow back.

Feeding: Any complete, soluble fertilizer or organic fertilizer can be applied in spring and autumn. Norfolk Island pines don't require frequent fertilization and the manufacturer's recommendations should be followed. Fertilizing older plants every three to four months can be beneficial but is not required.

Soil tolerances: Clay; loam; sand; acidic; alkaline; well-drained. This species grows well in deep sandy soils but will tolerate a heavier clay soil, as long as it receives reliable water when young. This, and its tolerance of salt and wind, makes it ideal for coastal situations.

Drought tolerance: Very high.

Pruning: These are not easily pruned. As Norfolk pines grow upward, the trunk thickens and the pine limbs increase in size. The only maintenance pruning to be done is the removal of dead lower branches.

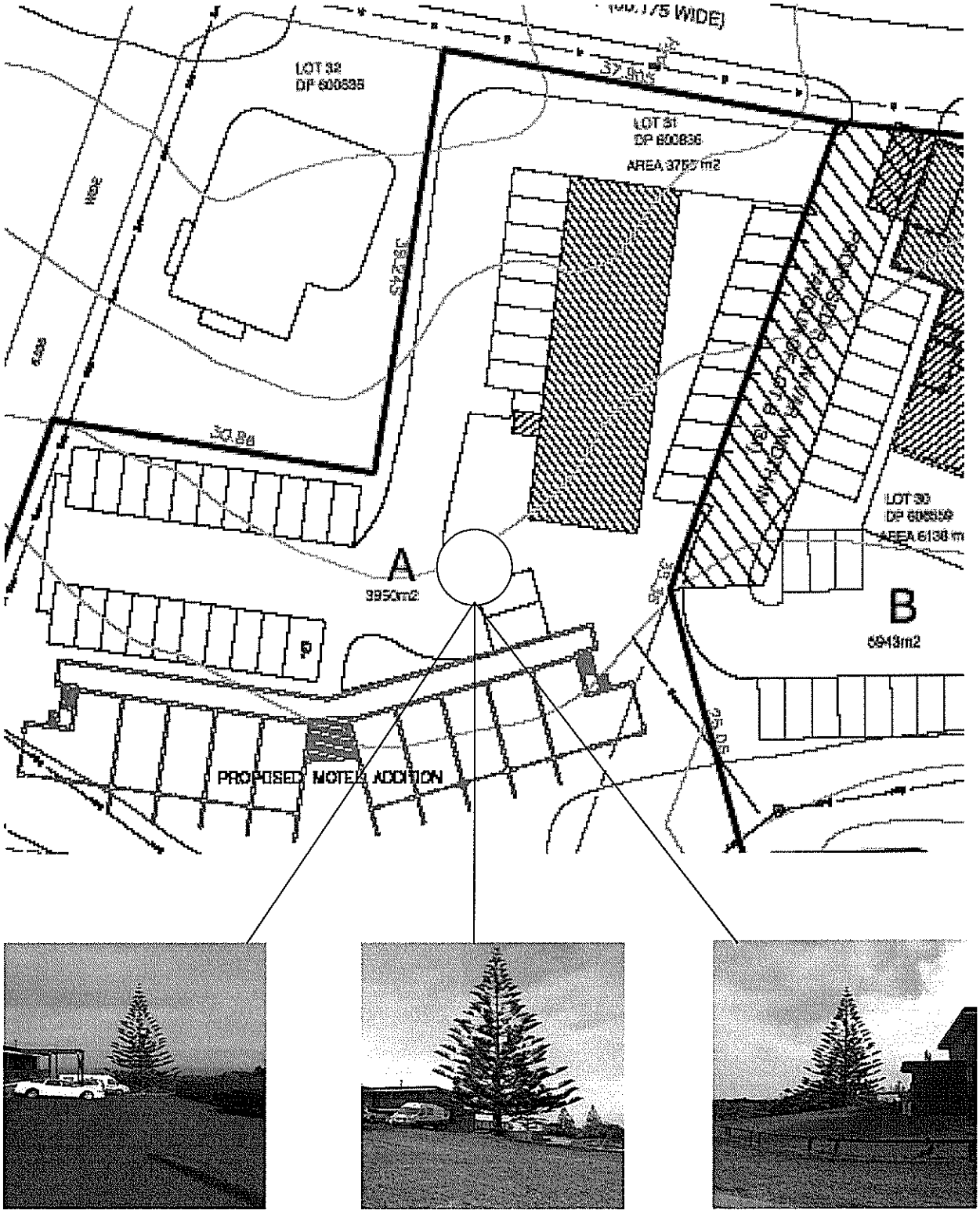
Breakage: The pine's tolerance of high winds results in very little breakage of limbs.

Roots: Surface roots can lift sidewalks or interfere with mowing.

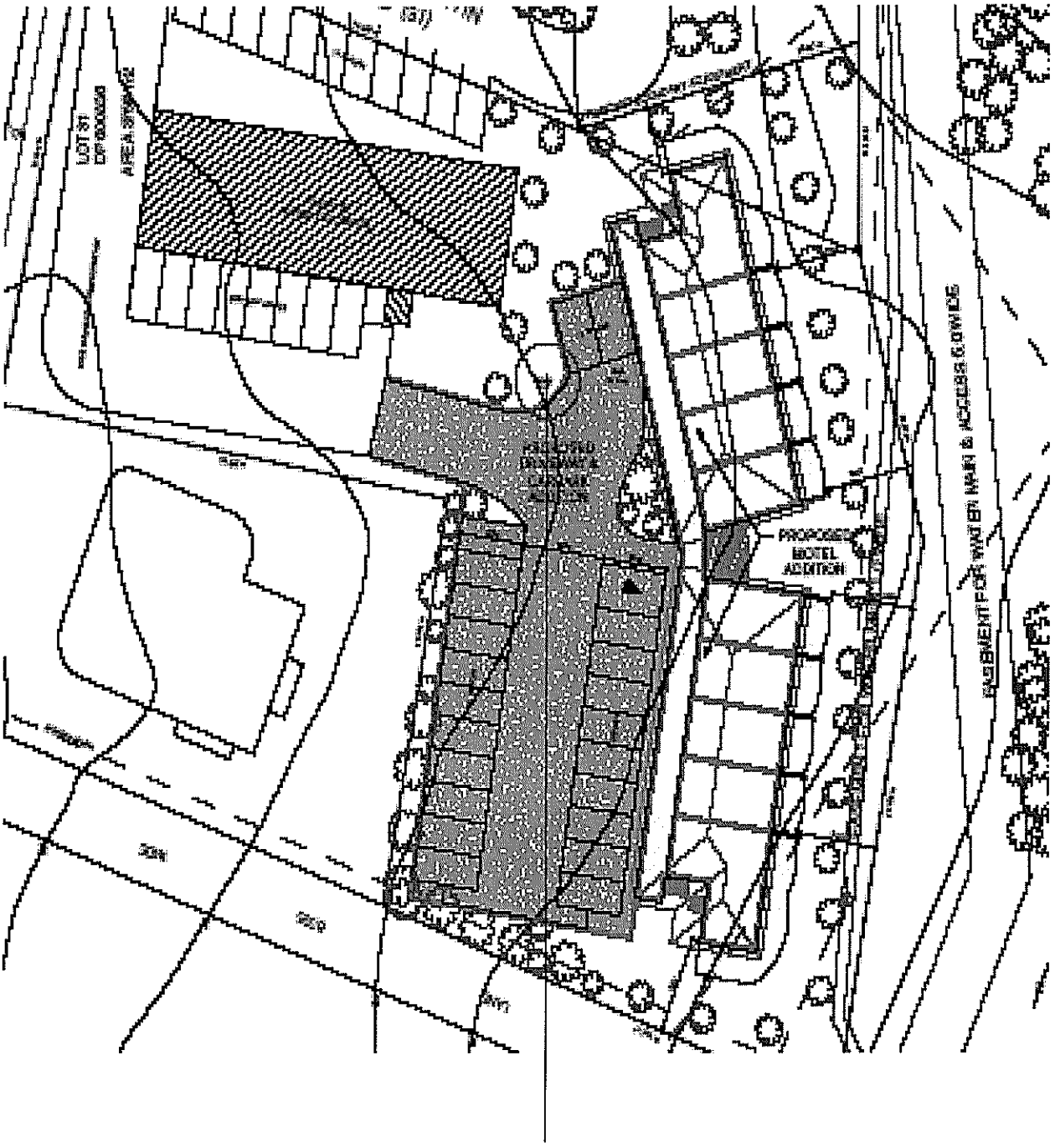
Pest/Disease resistance: Long-term health is usually not affected by pests and disease. Scale, sooty mold and leaf spot are minor problems.

This relatively young specimen appears to be a healthy tree with none of the usual problems which affect Norfolk Island Pines. Norfolk Island Pines have been known to have a life expectancy in excess of a hundred years.

Proposed Plan Showing the Location of the Norfolk Island Pine



Proposed Plan Showing the Potential Landscaping and Including the Norfolk Island Pine Drip Line



As shown on this plan, the boundaries of the driveway encroach on the drip line of the Norfolk Island Pine. As a result, there will be little to no effect on the overall well-being and retention of the specimen. However, there is the potential for the roots of the tree to lift the driveway.

Recommendations During the Development Stage

In a situation where excavations or ground disturbance occurs on the up-hill side of a tree, erosion barriers/silt traps must be erected to prevent topsoil or other materials from settling within the perimeters of the drip zone of the tree. Any additional layers of material can severely hinder the absorption of moisture through the soil profile to the root system, as well as greatly reducing the air exchange from atmosphere to soil. A silt trap will also collect any potentially hazardous material, eg lime, that may affect the pH of the soil surrounding the tree, consequently reducing the vigour of the species.

Excavations deeper than 500 mm within the drip zone will disturb the roots and have a detrimental effect on the tree and therefore are not recommended. No excavations should be done within a 2 metre radius of the trunk.

It should be noted that there is the potential for the root system to lift any pavement or structure that encroaches onto the drip zone.

Drains or gutters should be positioned so as to prevent the flow of water from entering the drip zone area of the tree as waterlogging may occur. Any excess water must be allowed to drain away freely.

On-going Care and Maintenance

Little or no after-care or maintenance is required to ensure the longevity of this species of tree. They are very hardy and as long as these recommendations are followed the tree's health will not be affected by the impending development.

sustainability and environmental performance

PROPOSED MOTEL ACCOMMODATION BUILDINGS
AT THE TATHRA HOTEL MOTEL

AT LOT 31 DP 600836
BEGA STREET
TATHRA

hallahan & associates
building design and energy ratings
1 ryan place
moruya nsw 2537
02 44 744 046
hallahan@westnet.com.au

sustainability and environmental performance

This report has been prepared in response to The Director General's requirements seeking certification that the building incorporates best practice environmental outcomes for water, energy and sustainability. It shall be read in conjunction with architectural drawings prepared by KL & CM Gordon Drafting Service for proposed Motel accommodation buildings at The Tathra Hotel / Motel, Bega Street, Tathra.

Objectives
The objectives of the Director General's requirements are that development shall incorporate best practice sustainability principles with the goal of producing minimal impact on the environment.

Siting of the proposal provides adequate solar access with good exposure to eastern windows, while the western aspect of the buildings are well shaded by a common verandah areas.

1. WATER EFFICIENCY

Water efficiency measures that are recommended to satisfy sustainability principles are :

- All installed tap fittings to basins shall be fitted with 3 Star or 'AAA' fittings
- Shower head to be 3 Star or 'AAA' fitting
- Toilet cisterns and matching pan to be 6/3 litre flushing unit.
- All roof water to be captured and stored in 1 x 10000 litre water tank per building (2 x 10000 litres for the complete development) Captured roof water shall be sourced from tanks to supply toilet cisterns and landscape garden watering with facility for mains 'top up' in accordance with Bega Valley Council requirements.
- Pavement runoff to be dealt with in accordance with Council requirements.

2. THERMAL EFFICIENCY

Thermal efficiency measures are based on the construction of the building using double brick external walls, concrete flooring, trussed roof to the upper floor with aluminium windows throughout. External walls are shaded with eaves of 450 mm minimum width.

- Fit weather strips and draught excluders to all external doors
- Fit either Comfortplus glass (or similar) or heavy drapes and pelmets to Eastern windows

- Install R3.0 Insulation to areas where ceiling is framed with trusses (ie upper floor)
- Install Anticon blanket under roofing
- Install Sisalation to outer face of inside brickwork skin to each unit located at the ends of building (four units in total).

3. ENERGY EFFICIENCY

The energy efficiency of the building is underpinned by the philosophy of installing energy efficient fittings and appliances

- Reverse cycle air conditioning if installed shall be a minimum of 3.5 Star rating for both heating and cooling cycles
- If heating only is installed, this shall be a minimum of 3.5 Stars
- Exhaust fans installed to wet areas shall be fitted with manual on/off switching
- Hot water units shall consist of gas instantaneous units or heat pump units or solar hot water. Electric off peak storage and electric instantaneous units shall not be used
- Installed lighting shall be fitted with fluorescent globes or LED lights where possible. External lighting shall be kept to a minimum and fitted with fluorescent globes. External lighting shall be shielded to limit impact of light pollution.
- Any clothes washing facilities shall be fitted out with energy and water efficient appliances. An external clothes drying area shall be provided if clothes washing facilities are provided