ARBORICULTURAL IMPACT REPORT

ROYAL FAR WEST
CORNER WENTWORTH STREET AND SOUTH STEYNE
MANLY NSW

28 MARCH 2011

PREPARED FOR ROYAL FAR WEST

Prepared by:
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1. BACKGROUND

Landscape Matrix Pty Ltd has been engaged by Royal Far West to prepare an Arboricultural report in respect to 6 trees potentially affected by the proposed redevelopment of the Royal Far West site at Manly (the site). The trees assessed for this report are located on the Wentworth Street nature strip frontage of the site and on the adjoining property to the southwest.

This report has been prepared by Guy Paroissien a Director of Landscape Matrix Pty Ltd. The site was inspected on 12 January 2011. The assessment of the trees is based upon a visual inspection of the trees from ground level using elements of the Visual Tree Assessment (VTA) method described by Mattheck & Breloer (1994). The Safe Useful life Expectancy (SULE) categories identified in the report follows Barrell (1996).

The visual inspection included examination of the trees' dimensions, foliage density and foliage health, form, structure, structural condition, overall health and vigour and landscape significance. The inspection was limited to visual inspection of the trees without dissection, probing or coring. No aerial inspection of the trees was carried out and the assessment did not include any woody tissue testing or subterranean root investigation.

The tree heights and canopy spreads were estimated and are expressed in metres and the tree diameters at breast height (DBH) was measured using a standard metal tape at approximately 1.4 metres above ground level and are expressed in millimetres. (DBH for trees on adjacent properties were estimated from the closest boundary and are prefixed with 'ca.' to indicate an approximate dimension)

Measurements from the trees referred to in this report are to be taken as if measured from the centre of the trees' trunks.

2. TREES ASSESSED FOR THIS REPORT

Six mature to mature trees have been assessed in preparing this report. The trees assessed for this report are located on the Wentworth Street nature strip frontage of the site and on the adjoining property to the southwest. The location and context of the site and tree numbers 1, 2 and 3 is illustrated in the photograph on the cover page of this report.

A summary of these trees, their dimensions, condition, Safe Use and Life Expectancy (SULE) and landscape significance is attached in Appendix A. The SULE categories identified in Appendix A follow those of Barrell (1996). The locations of the trees are shown on the attached Survey Plan prepared by Summit Geomatic Pty Ltd dated 13/4/2007 and identified as sheet 1 of 1, reference number 2605, issue C of 28/6/2007.

The six trees are summarised in table 1 as follows:

Table 1: Summary of trees assessed at Royal Far West Manly

Tree Number	Species and Common Name	Summary
1	*Araucaria heterophylla* (Norfolk Island Pine)	A mature, single trunked specimen approximately 21 metres in height with a canopy spread of 14 metres and a diameter at breast height (DBH) of 850mm. In good health and significant in the landscape. The tree is considered to be structurally suspect - there is a significant wound in the basal trunk area on the north side with evidence of extensive decay and, possibly, past termite damage - reaction wood present indicative of internal decay - further investigation and testing (e.g. Resistograph test) is required to confirm the tree's structural integrity due to the high target value in the failure zone for the tree. Located within road reserve with evidence of recent excavation within close proximity to the tree - excavation technique and potential damage to roots unknown.
2	*Araucaria heterophylla* (Norfolk Island Pine)	A mature, single trunked specimen approximately 20 metres in height with a canopy spread of 13 metres and a DBH of 780mm. In good health and significant in the landscape. There is evidence of past wound in the north side of the trunk (mechanical damage from vehicle impact?) - exposed heartwood present but appears sound. Located within road reserve
3	*Araucaria heterophylla* (Norfolk Island Pine)	A mature, single trunked specimen approximately 22 metres in height with a canopy spread of 11 metres and a DBH of 900mm. In good health and significant in the landscape. The tree displays signs of instability with evidence of decay in the lower trunk following past wounding (mechanical damage) on the north side - the sound of the exposed heartwood when tapped indicates possible decay - further investigation to determine the e extent of decay is recommended. Located within road reserve
4	*Ficus sp* (appears to be *F. benjimina* - Benjamin's Weeping Fig)	A mature, multi trunked specimen approximately 8 metres in height with a canopy spread of 13 metres and DBH of up to ca. 340mm (ca. 670mm above the root flare). In good health and of moderate landscape significance. The tree displays signs of instability with multiple trunks from 1 metre with evidence of poor attachment in junctions - the junctions are weak points in the tree with increased risk of failure.
5	*Schefflera actinophylla* (Umbrella Tree)	A mature, multi trunked specimen approximately 8.5 metres in height with a canopy spread of 7 metres and DBH of up to ca. 150mm (ca. 500mm above the root flare). In good health and an environmental weed species. The tree displays signs of instability with multiple trunks from near ground level with evidence of poor attachment in junctions - the junctions are weak points in the tree with increased risk of failure.
6	*Araucaria heterophylla* (Norfolk Island Pine)	A mature, single trunked specimen approximately 13 metres in height with a canopy spread of 6 metres and a DBH of ca. 400mm. In good health and of high landscape significance. Masonry wall at boundary 2.3 metres in height is adjacent to the tree and within its structural root zone - it is probable the footing of the wall forms an important part of the tree's structural support.

None of the trees assessed for this report is listed individually as a threatened species under the NSW *Threatened Species Conservation Act 1995* or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. Observations regarding the trees are illustrated in the photographs in Appendix A.

3. IDENTIFICATION OF SETBACKS FOR THE TREES

A number of methods to determine the likely extent of root zones and appropriate setbacks for tree root protection zones for trees on development sites have been developed in the past. The key criteria used in determining setbacks is the tree's trunk diameter at breast height (DBH) in conjunction with other factors including the sensitivity of the species in question to environmental disturbance/change, the age of the tree and the tree's health and vigour at the time.

Harris et al (2004) provide formulae for calculating tree protection zones based on the above criteria and modified from the 1991 British Standard for protection of trees on construction sites (BS 5837:1991). The 2005 version of the British Standard (BS 5837:2005) recommends a radius of 12 times the tree's DBH. For multi trunked trees BS 5837:2005 recommends a setback of 10 times the basal trunk diameter.

The *Australian Standard AS 4970-2009 Protection of Trees on Construction Sites* also identifies a 'Tree Protection Zone' of 12 times the tree's DBH. The Australian Standard also provides a formula for calculating the "Structural Root Zone' of trees on development sites. In regard to palms, other monocots, cycads and tree ferns the Standard identifies the Tree Protection Zone should not be less than 1 metre outside the crown projection. (Australian Standards Association 2009)

The tree protection zones identified below have been calculated using the *Australian Standard AS 4970 Protection of Trees on Construction Sites* and are the optimum setback from the trees where disturbance (e.g. soil level changes, compaction, excavation etc) should be minimised to reduce potential impacts on the long term health of the trees.

Preferably, no more than 10% of the root protection zone should be disturbed with compensation made by extension of other areas of the RPA to compensate for the area(s) disturbed. Where greater than 10% of the tree protection zone is potentially disturbed the tree's viability needs to be investigated and demonstrated by the project arborist.

The structural root zone is the area required for stability and where disturbance of any sort should be avoided.

The tree protection zones are identified in table 2 as follows:

Table 2: Tree Protection Zones - Royal Far West Manly

Tree Number	Species and Common Name	Tree Protection Zone	Structural Root Zone
1	*Araucaria heterophylla* (Norfolk Island Pine)	10.2 metres	3.7 metres
2	*Araucaria heterophylla* (Norfolk Island Pine)	9.4 metres	3.4 metres
3	*Araucaria heterophylla* (Norfolk Island Pine)	10.8 metres	3.6 metres
4	*Ficus sp* (appears to be *F. benjimina* - Benjamin's Weeping Fig)	8 metres	2.8 metres
5	*Schefflera actinophylla* (Umbrella Tree)	6 metres	2.5 metres
6	*Araucaria heterophylla* (Norfolk Island Pine)	4.8 metres	2.3 metres

4. POTENTIAL IMPACTS ON THE TREES

The extent of impacts to the trees has been assessed on the basis of the information provided in). The locations of the trees are shown on the attached Site Plan prepared by …….. Pty Ltd dated …… and identified as, project number ……, drawing number ……. .

The extent of potential impacts to the trees is identified in the table 3 as follows:

Table 3: Summary of potential impacts on the trees - Royal Far West Manly

Tree Number	Species and Common Name	Summary
1	*Araucaria heterophylla* (Norfolk Island Pine)	The proposed basement carpark area is located 7.22 metres from the tree at the closest point. Allowing for a 0.5 metre over-excavation the basement is calculated to potentially impact on 13.11m^2 or 4.01% of the tree's identified tree protection zone (TPZ) - this is a low level of impact and within an acceptable threshold for the tree.

2	*Araucaria heterophylla* (Norfolk Island Pine)	The proposed basement carpark area is located 6.79 metres from the tree at the closest point. Allowing for a 0.5 metre over-excavation the basement is calculated to potentially impact on 25.11m^2 or 9.13% of the tree's identified TPZ - this is a low level of impact and within an acceptable threshold for the tree.
3	*Araucaria heterophylla* (Norfolk Island Pine)	The proposed basement carpark area is located 6.39 metres from the tree at the closest point. Allowing for a 0.5 metre over-excavation the basement is calculated to potentially impact on 62m^2 or 16.93% of the tree's identified TPZ - this is a moderate level of impact and within an acceptable threshold for the tree.
4	*Ficus sp* (appears to be *F. benjimina* - Benjamin's Weeping Fig*)*	The proposed basement carpark area is located 3.1 metres from the tree at the closest point. Allowing for a 0.5 metre over-excavation the basement is calculated to potentially impact on 50.18m^2 or 24.72% of the tree's identified TPZ - this is a moderate to high level of impact with potential to impact on the tree's long term health and reduce its SULE. In addition, as the excavation will be within the tree's identified structural root zone (SRZ) the potential for damage to structural roots and impacts on stability is considered likely.
5	*Schefflera actinophylla* (Umbrella Tree)	The proposed basement carpark area is located 3.46 metres from the tree at the closest point. Allowing for a 0.5 metre over-excavation the basement is calculated to potentially impact on 22.14m^2 or 19.59% of the tree's identified TPZ - this is a moderate level of impact and within an acceptable threshold for the tree.
6	*Araucaria heterophylla* (Norfolk Island Pine)	The proposed basement carpark area is located 3.36 metres from the tree at the closest point. Allowing for a 0.5 metre over-excavation the basement is calculated to potentially impact on 10.17m^2 or 14.06% of the tree's identified TPZ - this is a low to moderate level of impact and within an acceptable threshold for the tree.

The potential impacts can be summarised as follows:
The level of impact to tree numbers 1 and 2 is considered to be in the low range and within an acceptable threshold for these trees.
The level of impact to tree number 14 is considered to be in the low to moderate range and within an acceptable threshold for this tree.
The level of impact to tree numbers 3 and 5 is considered to be in the moderate range and within an acceptable threshold for these trees.
The level of impact to tree number 4 is considered to be in the moderate to high range and at a level with potential to impact on the tree's long term health and reduce its SULE. In addition as works are within the tree's structural root zone the potential for impacts on structural roots (and stability) is considered likely.

5. TREE PROTECTION MEASURES

The following generic tree protection measures are recommended to assist in minimising potential impacts that may arise during the demolition and construction phases if the precinct is to undergo redevelopment (including the implementation of landscape works on the site).

A. Measures to be implemented prior to the commencement of any works on the site.

1. Tree to be retained are to be clearly identified by signage as protected trees.

2. The tree protection zones of trees to be retained are to be protected by fencing during the entire construction period except for specific areas directly required to achieve construction works.

3. The tree protection fence shall be constructed of galvanised pipe at 2.4 metre spacing and connected by securely attached chain mesh fencing to a minimum height of 1.8 metres and shall be installed prior to work commencing.

4. The tree protection fencing shall be installed as closely as possible to the alignment of the identified tree protection zone and shall be approved and certified by the site arborist prior to commencement of any construction or demolition works on the site.

B. Measures to be implemented and maintained during the life of construction works on the site.

5. Any excavation within the identified root protection zones of trees to be retained shall be carried out by hand to minimize disturbance to tree roots. Roots greater than 25mm are not to be damaged or severed without prior assessment by an arborist to determine likely level of impact and the restorative actions required to minimise the impacts of root damage.

6. Tree roots between 10mm and 25mm diameter, severed during excavation, shall be cut cleanly by hand by an experienced Arborist/Horticulturist with a minimum qualification of the Horticulture Certificate or Tree Surgery Certificate.

7. The following activities/actions are prohibited from the tree protection zones:

- Soil cut or fill including excavation and trenching
- Soil cultivation, disturbance or compaction
- Stockpiling storage or mixing of materials
- The parking, storing, washing and repairing of tools, equipment and machinery
- The disposal of liquids and refueling
- The disposal of building materials
- The sitting of offices or sheds
- Any action leading to the impact on tree health or structure

8. Canopy pruning of trees identified for protection which is necessary to accommodate approved building works shall be undertaken by an experienced Horticulturist/ Arborist, with a minimum qualification of the Horticulture Certificate or Tree Surgery Certificate and in accordance with *Australian Standard 4373-2007 'Pruning of Amenity Trees'*.

6. CONCLUSION

Six mature trees have been assessed for this report. The trees assessed for this report are located on the Wentworth Street nature strip frontage of the site and on the adjoining property to the southwest.

The trees are planted exotic specimens. All of the trees were in good health at the time of inspection and tree numbers 2, 4, 5 and 6 did not exhibit any visual evidence of significant pest or disease. Tree numbers 1 and 3 exhibited evidence of decay in their basal trunks following past wounding (most probably arising from mechanical damage caused by vehicular impacts)

Tree number 1 is considered to be structurally suspect with a significant wound in the basal trunk on the north side with evidence of extensive decay and, possibly, past termite damage - further investigation and testing of this area is required to confirm the tree's structural integrity due to the high target value in the failure zone for the tree.

The potential impacts of the proposed development works can be summarised as follows:

- The level of impact to tree numbers 1 and 2 is considered to be in the low range and within an acceptable threshold for these trees.
- The level of impact to tree number 14 is considered to be in the low to moderate range and within an acceptable threshold for this tree.
- The level of impact to tree numbers 3 and 5 is considered to be in the moderate range and within an acceptable threshold for these trees.
- The level of impact to tree number 4 is considered to be in the moderate to high range and at a level with potential to impact on the tree's long term health and reduce its SULE. In addition as works are within the tree's structural root zone the potential for impacts on structural roots (and stability) is considered likely

Tree protection measures are identified in section 5 of the report.

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28 March 2011

BIBLIOGRAPHY/REFERENCES

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Harris et al (2004). Harris RW, Clark JR, Matheny NP: Arboriculture – Integrated Management of Landscape Trees Shrubs and Vines 4TH Edition. Prentice Hall, New Jersey 07458.

Mattheck & Breloer (1994) – The Body Language of Trees – a handbook for failure analysis - Research for Amenity Trees No. 4. Published by TSO (The Stationary Office) Norwich UK.

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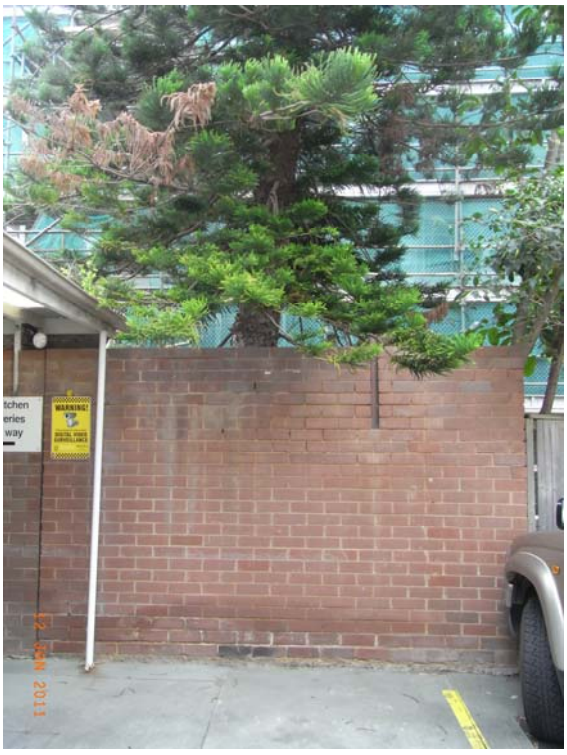
APPENDIX A - PHOTOGRAPHS

Photograph 1- Tree # 1 - Illustrating the significant wound in the basal trunk on the north side with evidence of extensive decay and, possibly, past termite damage.

Photograph 2 - Tree # 1 - Illustrating the evidence of recent excavation in close proximity to the tree and within its identified structural root zone.

Photograph 3- Tree # 3 - Illustrating the past wounding of the basal trunk on the north side - sounding of this area indicated possible decay that requires further investigation.



Photograph 4 - Tree # 6 - Illustrating masonry wall 2.3 metres in height adjacent to and within the tree's identified structural root zone.

APPENDIX B - TREE DATA SUMMARY - ROYAL FAR WEST SITE - MANLY

Tree No.	*Genus, Species (Common Name)*	Height (m)	Canopy (m)	DBH (mm)	DBH for TPZ	DGL for SRZ	Foliage Condition	Age Class	Trunk	Trunk Lean	Crown balance	Past Pruning	Stability	Branch Attachment	Health	Vigour	Dead Wood	Pest or disease	SULE	Landscape Significance	Retention Value*	Comments
1	*Araucaria heterophylla* (Norfolk Island Pine)	21	14	850	850	1300	Fair foliage condition	Mature	Single trunk	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 8 metres	Stability is suspect	Sound branch attachment	Good health	Fair vigour	5%	Decay (and possible termite damage) in basal trunk	3 Short (5 to 15 years)	Significant in the landscape	3	The tree is considered to be structurally suspect - there is a significant wound in the basal trunk area on the north side with evidence of extensive decay and, possibly, past termite damage - reaction wood present indicative of internal decay - further investigation and testing (e.g. Resistograph test) is required due to the high target value in the failure zone for the tree.
2	*Araucaria heterophylla* (Norfolk Island Pine)	20	13	780	780	1050	Good foliage condition	Mature	Single trunk	Moderate trunk lean to the NW	Balanced canopy area	Lower limbs pruned in past to 4 metres	Appears stable	Sound branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	1 Long (> 40 years)	Significant in the landscape	1	There is evidence of past wound in the north side of the trunk (mechanical damage from vehicle impact?) - exposed heartwood present but appears sound
3	*Araucaria heterophylla* (Norfolk Island Pine)	22	11	900	900	1200	Good foliage condition	Mature	Single trunk	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 2 metres	Displays signs of instability	Sound branch attachment	Good health	Good vigour	<5%	Possible decay in lower trunk following past wounding (mechanical damage)	2 Medium (15 to 40 years)	Significant in the landscape	1	The tree displays signs of instability with evidence of decay in the lower trunk following past wounding (mechanical damage) on the north side - the sound of the exposed heartwood when tapped indicates possible decay - further investigation to determine the e extent of decay is recommended.
4	*Ficus sp* (appears to be *F. benjimina* - Benjamin's Weeping Fig)	8	13	up to ca. 340 (ca. 670mm above the root flare)	670	670	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 3 metres on north side over carpark area within the site	Displays signs of instability	Fair branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	2 Medium (15 to 40 years)	Moderate landscape significance	2	The tree displays signs of instability with multiple trunks from 1 metre with evidence of poor attachment in junctions - the junctions are weak points in the tree with increased risk of failure.
5	*Schefflera actinophylla* (Umbrella Tree)	8.5	7	up to ca. 150 (ca. 500mm above the root flare)	500	500	Good foliage condition	Mature	Multi trunked	Upright trunk	Balanced canopy area	No evidence of significant past pruning	Displays signs of instability	Fair to poor branch attachment	Good health	Fair vigour	<5%	No visual evidence of significant pest or disease	1 Long (> 40 years)	Environmental pest species	4	The tree displays signs of instability with multiple trunks from near ground level with evidence of poor attachment in junctions - the junctions are weak points in the tree with increased risk of failure.
6	*Araucaria heterophylla* (Norfolk Island Pine)	13	6	ca. 400	400	440	Good foliage condition	Mature	Single trunk	Upright trunk	Balanced canopy area	Lower limbs pruned in past to 2.5 metres	Appears stable	Sound branch attachment	Good health	Good vigour	<5%	No visual evidence of significant pest or disease	1 Long (> 40 years)	High landscape significance	1	Masonry wall at boundary 2.3 metres in height is adjacent to the tree and within its structural root zone - it is probable the footing of the wall forms an important part of the tree's structural support.

ca = approximate diameter at breast height (DBH) estimated from nearest property boundary or fence where trees were located on adjoining properties

* Retention Values: 1 - High (Priority for retention); 2 - Moderate (Consider for retention); 3 - Low or short Sule (Not warranting specific design consideration) and 4 - Remove (very short SULE, structurally unsound, weed species etc)

NOTES:

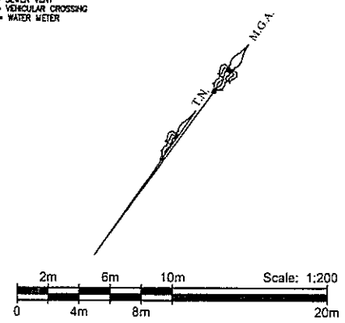
* THIS PLAN HAS BEEN PREPARED FOR ROYAL FAR WEST FROM A COMBINATION OF FIELD SURVEY AND EXISTING RECORDS FOR THE PURPOSE OF SHOWING THE PHYSICAL FEATURES OF THE LAND TO ASSIST IN DESIGNING FUTURE DEVELOPMENT, AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.
* THE TITLE BOUNDARIES SHOWN HEREON WERE NOT VERIFIED OR MARKED AT THE TIME OF SURVEY BUT WERE DETERMINED BY EXISTING TITLE DIMENSIONS AND OCCUPATION (WHERE AVAILABLE), NOT BY FIELD MEASUREMENT. AS SUCH, THESE DIMENSIONS COULD BE OUT OF DATE AND INCORRECT BY MODERN STANDARDS. THIS PLAN SHOULD NOT BE USED FOR BUILDING TO BOUNDARY, OR TO PRESCRIBED SET-BACKS WITHOUT FURTHER BOUNDARY SURVEY.
* LOT AREA SHOWN AS PER TITLE DIAGRAM UNLESS OTHERWISE STATED. CALCULATED AREA FROM BEARINGS AND DISTANCES SHOWN MAY DIFFER.
* CURRENT TITLE SEARCH SHOULD BE PERFORMED PRIOR TO ANY PLANNING OR WORKS BEING UNDERTAKEN TO CONFIRM EXISTENCE OR OTHERWISE OF EASEMENTS, RESTRICTIONS, COVENANTS OR ANY OTHER NOTIFICATIONS ON THE TITLE.
* DO NOT SCALE OFF THIS PLAN - RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A FURTHER BOUNDARY SURVEY.
* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* NO SERVICE SEARCH HAS BEEN UNDERTAKEN. SERVICES SHOWN ARE BASED ON SURFACE INDICATORS EVIDENT AT THE DATE OF SURVEY DURING FIELD SURVEY & CHARTED AS A GUIDE TO THE POSITION & NATURE OF THE SERVICE.
* BEFORE STARTING ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON THE SITE, THE RELEVANT PERSON SHOULD MAKE AN INDEPENDENT AND UPDATED ENQUIRY OF 'DIAL BEFORE YOU DIG' (Ph.1100) AND ANY RELEVANT SERVICE PROVIDERS TO ASCERTAIN THE EXISTANCE OF FURTHER SERVICES (IF ANY) AND THE ACCURATE LOCATION OF THOSE NOT ABLE TO HAVE BEEN SURVEYED AT THE TIME OF PREPARING THIS PLAN (OR DATA).
* NO RESPONSIBILITY CAN BE ACCEPTED BY SUMMIT GEOMATIC PTY LTD FOR ANY DAMAGE CAUSED TO ANY UNDERGROUND SERVICE OR ANY LOSS OR INJURY SO SUFFERED IF ENQUIRY AND VERIFICATION HAVE NOT BEEN COMPLETED IN ACCORDANCE WITH THIS NOTE.
* ONLY VISIBLE SERVICES AND FEATURES EVIDENT AT THE DATE OF SURVEY HAVE BEEN OBSERVED.
* FLOOR LEVEL HAS BEEN TAKEN AT ACCESSIBLE POINT INDICATED. (eg. THRESHOLD) INTERNAL FLOOR LEVELS MAY DIFFER FROM INDICATED LEVEL AND SHOULD BE CONFIRMED IF CRITICAL.
* ROOF, EAVE AND GUTTER HEIGHTS HAVE BEEN OBTAINED BY AN INDIRECT METHOD AND ARE ACCURATE FOR PLANNING PURPOSES ONLY.
* ADJOINING BUILDINGS AND DWELLINGS HAVE BEEN PLOTTED FOR DIAGRAMMATIC PURPOSES ONLY.
* THE SPREAD AND HEIGHT OF EACH TREE IS INDICATIVE ONLY.
* ORIENTATION IS ON MAP GRID OF AUSTRALIA (M.G.A.)
* DATUM OF LEVELS PM 803 RL 3.713 OBTAINED FROM SCIMS 27/09/2006.
* THIS NOTE IS AN INTEGRAL PART OF THIS PLAN/DATA. REPRODUCTION OF THIS PLAN OR ANY PART OF IT WITHOUT THIS NOTE BEING INCLUDED IN FULL WILL RENDER THE INFORMATION SHOWN ON SUCH REPRODUCTION INVALID AND NOT SUITABLE FOR USE.

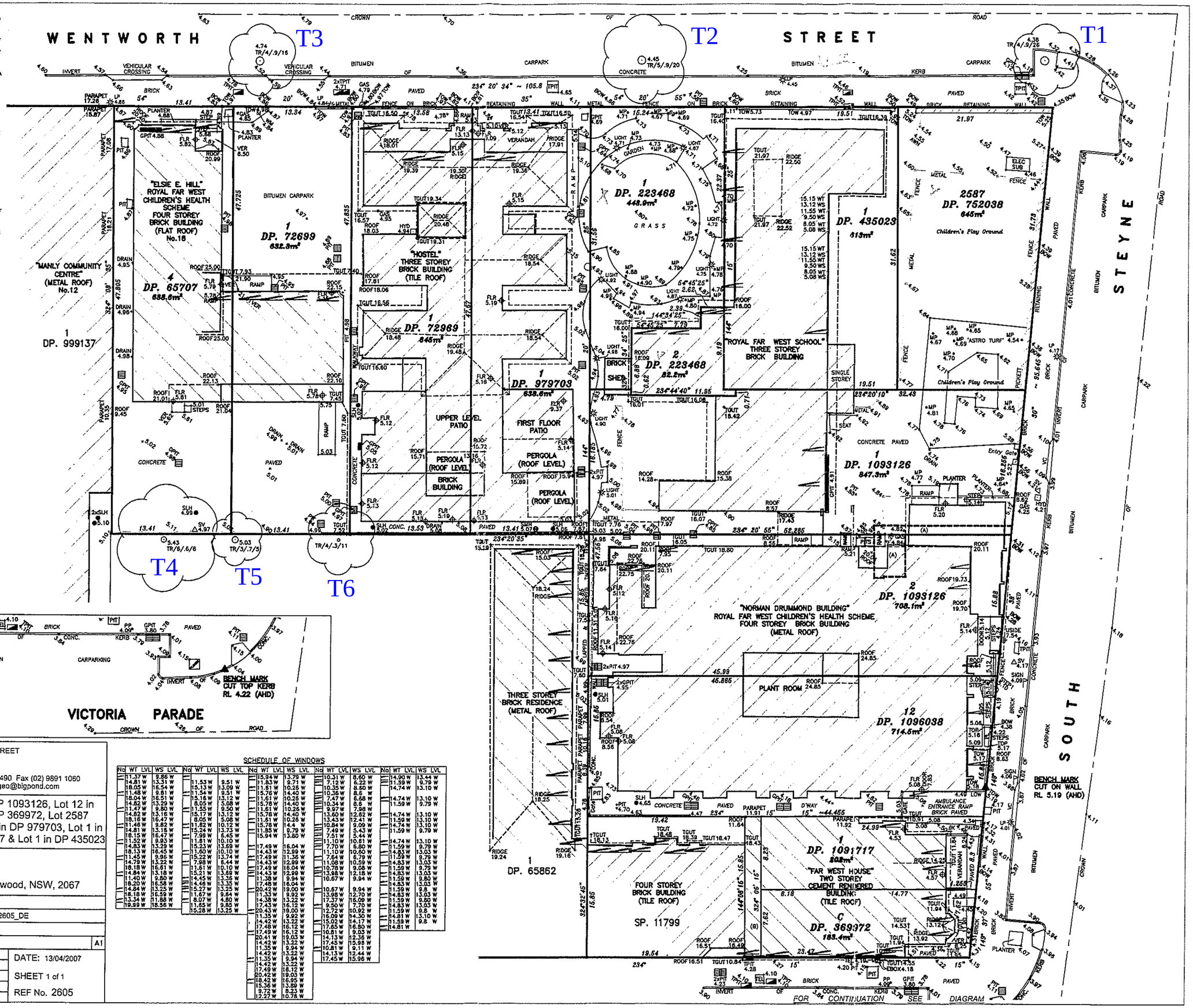
(A) EASEMENT FOR ELECTRICITY 1.0 & 3.5 METRES WIDE (VIDE DP 598887)

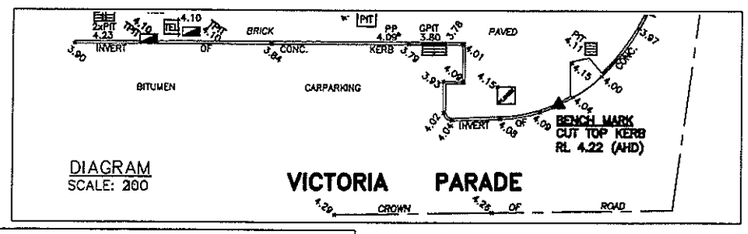
(B) EASEMENT FOR MAINTENANCE 1.83 METRES WIDE (VIDE DP369972) AND EASEMENT FOR MAINTENANCE OF EXISTING PARTS OF BUILDINGS ENCROACHING THEREON, ACCESS & DRAINAGE.

LEGEND:

TR/4/3/16 = TREE 4m Radius Spread / 0.3m Dia Trunk / 16m High
WT= WINDOW TOP
WS= WINDOW SILL
WL= WINDOW LEVEL
FL= FLOOR LEVEL
VER= VERANDAH
TGUT= TOP OF GUTTER
PP= POWER POLE
LP= LAMP POLE
MP= METAL POST
PL= PLANTER
SV= SEWER VENT
VC= VEHICULAR CROSSING
WM= WATER METER
SMH= SEWER MANHOLE
SLH= SEWER LAMP HOLE
GPIT= GRATED PIT
EBOX= ELECTRICITY BOX
TEL / TPIT= TELECOMMUNICATION PIT
BOW= BOTTOM OF WALL
TOW= TOP OF WALL







SCHEDULE OF WINDOWS

No	WT	LVL	WS	LVL
1	11.37 W		9.86 W	
	14.81 W		13.31 W	
	16.05 W		16.54 W	
	11.48 W		9.81 W	
	16.04 W		16.51 W	
	14.82 W		13.29 W	
	11.47 W		9.80 W	
	14.82 W		13.16 W	
	16.16 W		16.47 W	
	11.52 W		9.93 W	
	14.83 W		13.29 W	
	16.13 W		16.45 W	
	11.45 W		9.95 W	
	14.79 W		13.22 W	
	16.18 W		16.61 W	
	14.84 W		13.18 W	
	11.40 W		9.80 W	
	16.20 W		16.58 W	
	14.84 W		13.25 W	
	16.18 W		16.59 W	
	13.34 W		11.88 W	
	19.99 W		18.56 W	
2	11.53 W		9.51 W	
	14.13 W		13.09 W	
	11.54 W		9.91 W	
	15.16 W		15.12 W	
	8.05 W		5.08 W	
	11.55 W		9.50 W	
	15.17 W		15.12 W	
	7.99 W		6.45 W	
	11.61 W		10.10 W	
	15.23 W		13.69 W	
	11.60 W		10.10 W	
	15.22 W		13.74 W	
	7.98 W		6.44 W	
	11.61 W		10.10 W	
	15.21 W		13.68 W	
	14.45 W		13.36 W	
	14.46 W		13.35 W	
	15.27 W		13.25 W	
	11.67 W		9.64 W	
	8.07 W		4.80 W	
	11.65 W		9.65 W	
	15.28 W		13.25 W	
3	15.94 W	13.79 W		
	11.83 W	8.71 W		
	15.81 W	10.26 W		
	15.76 W	14.40 W		
	11.61 W	10.26 W		
	15.78 W	14.40 W		
	11.61 W	10.26 W		
	15.78 W	14.4 W		
	11.89 W	8.73 W		
	15.94 W	13.80 W		
	17.49 W	16.04 W		
	14.43 W	12.99 W		
	17.49 W	11.36 W		
	14.43 W	12.99 W		
	17.49 W	16.04 W		
	14.43 W	12.99 W		
	17.48 W	16.04 W		
	20.42 W	19.00 W		
	11.33 W	9.92 W		
	14.38 W	13.22 W		
	17.43 W	16.12 W		
	20.43 W	19.00 W		
	11.35 W	9.92 W		
	14.42 W	13.22 W		
	17.49 W	16.12 W		
	20.42 W	19.03 W		
	17.49 W	16.12 W		
	20.41 W	19.03 W		
	14.42 W	13.22 W		
	11.35 W	9.94 W		
	14.42 W	13.22 W		
	17.49 W	16.12 W		
	20.42 W	19.03 W		
	18.42 W	16.95 W		
	15.36 W	13.89 W		
	9.72 W	8.23 W		
	12.22 W	10.76 W		
4	10.31 W		8.60 W	
	7.12 W		6.22 W	
	10.35 W		8.60 W	
	10.36 W		8.6 W	
	7.37 W		6.68 W	
	10.24 W		8.6 W	
	9.97 W		7.98 W	
	13.60 W		12.82 W	
	12.55 W		12.41 W	
	10.84 W		9.09 W	
	7.51 W		5.43 W	
	11.10 W		10.61 W	
	11.10 W		10.60 W	
	7.64 W		6.79 W	
	10.59 W		9.08 W	
	13.98 W		12.18 W	
	10.67 W		9.94 W	
	10.67 W		9.94 W	
	12.70 W		12.70 W	
	17.37 W		16.09 W	
	9.50 W		7.20 W	
	12.72 W		10.92 W	
	16.09 W		14.30 W	
	15.02 W		14.17 W	
	17.65 W		16.80 W	
	10.81 W		9.03 W	
	14.13 W		12.38 W	
	17.45 W		15.98 W	
	10.81 W		9.11 W	
	14.13 W		12.44 W	
	17.45 W		15.96 W	
5	14.90 W		13.44 W	
	11.59 W		9.79 W	
	14.74 W		13.10 W	
	11.59 W		9.79 W	
	14.74 W		13.10 W	
	11.59 W		9.79 W	
	14.74 W		13.10 W	
	11.59 W		9.79 W	
	14.74 W		13.10 W	
	11.59 W		9.79 W	
	14.83 W		13.03 W	
	11.59 W		9.79 W	
	14.83 W		13.03 W	
	11.58 W		9.79 W	
	14.83 W		13.03 W	
	11.59 W		9.80 W	
	14.83 W		13.03 W	
	11.59 W		9.8 W	
	14.83 W		13.03 W	
	11.59 W		9.80 W	
	14.83 W		13.03 W	
	11.59 W		9.8 W	
	14.81 W		13.10 W	
	11.59 W		9.8 W	
	14.81 W			

summit GEOMATIC
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69 MARION STREET
HARRIS PARK
N.S.W. 2150
Ph. (02) 9891 1490 Fax (02) 9891 1060
Email: summit-geo@bigpond.com

Plan of Detail and Levels Over Lots 1 & 2 in DP 1093126, Lot 12 in DP 1096038, Lot B in DP 1091717, Lot C in DP 369972, Lot 2587 in DP 752038, Lots 1 & 2 in DP 223468, Lot 1 in DP 979703, Lot 1 in DP 72969, Lot 1 in DP 72699, Lot 4 in DP 65707 & Lot 1 in DP 435023

CLIENT DETAILS: ROYAL FAR WEST
c/o BOFFA ROBERTSON GROUP
Suite 7, Level 1 "EPICA" 9 Railway Street, Chatswood, NSW, 2067

SURVEY: S.B.	DRAWN: S.S.
CHECKED: G.B.	CAD FILE No.: 2605_DE
CONTOUR INTERVAL: N/A	DATUM: AHD
ORIGIN OF RL'S: PM 803	SCALE: 1:200 A1

REVISIONS	
Dwg:	DATE:
C Revised Drawing bdy dist added	28-06-2007
B Amend Client detail	08-05-2007
A Drawing Issued	30-04-2007

DATE: 13/04/2007
SHEET 1 of 1
REF No. 2605