

SJ Stephens Associates

ARBORICULTURAL, LANDSCAPE & MANAGEMENT CONSULTANTS

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Arboricultural Impact Assessment

- Tree Survey
- Tree Protection Plan
- Arboricultural Method Statement

<u>At:-</u>

Sion Court Twickenham TW1 3DD

On behalf of:-

Moreland Residential (UK) c/o Tal Arc Ltd 2a Crescent Road London N3 1HP

Prepared by:

Simon Stephens MA Oxon, Dip Arb(RFS), MArborA, C Env. MICFor Email: <u>simon@sjstephens.co.uk</u>

Survey Date: Report Date: Project no: 13th January 2023 19th June 2024 1393

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1 BACKGROUND

- **1.1** This Arboricultural Impact Assessment has been instructed by Tal Arc Ltd, on behalf of Moreland Residential (UK) to assess the arboricultural impact of the proposed demolition of existing garages and construction of new dwellings at Sion Court.
- **1.2** Trees were surveyed, with findings shown in the Tree Schedule in Appendix B and shown plotted on the Tree Protection Plan in Appendix A. This also includes tree protection measures, which are specified in the Arboricultural Method Statement in section 5 below. The arboricultural impact is assessed in section 6, which assumes that these recommendations are followed.
- **1.3** The tree survey was undertaken, and this report has been prepared, by Simon Stephens MA Oxon, Dip Arb (RFS), MArborA, C Env, MICFor a Registered Consultant with the Arboricultural Association, with over 20 years relevant experience.
- **1.4** This survey and report have been prepared in accordance with recommendations provided in BS 5837:2012, Trees in relation to design, demolition and construction Recommendations.
- **1.5** Documentation supplied:
 - Tal Arc, Proposed Ground Floor Plan: drawing no SC-PP4-05
 - Outline Drainage Strategy

2 SURVEY DETAILS AND SCOPE

- **2.1** The site survey included trees and shrubs, within influencing distance of the proposed development, with a stem diameter over 75mm at 1.5m height, located within the area shown on the Tree Protection Plan, included as Appendix A.
- **2.2** Tree inspection took place from ground level with the use of binoculars, sounding hammer and metal probe using the Visual Tree Assessment method (Mattheck & Breloer 1994). The presence and condition of bark and stem wounds, cavities, decay, fungal fruiting bodies and any structural defects that could increase the risk of structural failure were noted.
- **2.3** Tree diameters were measured using a girthing tape and tree heights were measured using a hypsometer. Where use of a tape was restricted by site factors, diameters were estimated, with the diameter recorded in the tree schedule as eg "est 300".
- **2.4** At the time of the survey, the weather was fine, with no restrictions to visibility. Broadleaf trees were in not in leaf.
- **2.5** The suitability of trees for inclusion in the future development was considered, in particular considering the safe useful life expectancy, and sustainability, of trees on the site after development is completed.
- **2.6** Tree details have been added to the plan received, which is included as Appendix A. Tree locations have been taken from the topographical survey provided. Where not included on the topographical survey, they have been determined by measuring distances from features shown on the plan, using a laser measuring device. The following information was recorded for each tree, and is shown in the Tree Schedule included as Appendix B:
 - Number: an identity number for each tree, prefixed with a "T", which cross references locations shown on the plan with the schedule in Appendix B. Where a number of trees, normally of the same species, are located close together and are similar in character and requirements, they have been treated as a Group under a single Number, prefixed with a "G".
 - **Species**: common name.
 - **Tree height**: approximate height in metres.
 - **Stem diameter**: diameter in millimetres, taken at 1.5m above ground. Where there are a number of stems, stem diameters are recorded in the condition column.
 - **Branch spread**: approximate spread in metres to N,S,E and W of the trunk. The approximate branch spread is drawn on the plan.
 - **Canopy clearance**: approximate height of the canopy above ground. Where a significant, low lateral branch is present, its height and direction of growth is included in the Condition column.
 - **Age class**: Young, Semi-mature, Early mature, Mature, Over-mature, Veteran.
 - **Condition**: features that affect the safe useful life expectancy and amenity of the tree, including the presence of decay or any physical defect.

- **Management Recommendations**: recommendations to ensure the health and safety of the tree, within the future development.
- Estimated Remaining Contribution: <10 years, 5-15 years, 10-20 years, 15-30 years, 20-40 years, >40 years.
- **Category grading**: tree classification taken from BS 5837:2012, Trees in relation to design, demolition and construction (see Appendix C for details), as follows:
 - Category U: Unsuitable for retention, trees with less than 10 years life expectancy, normally recommended for removal (Red)
 - Category A: high quality trees, able to make a substantial contribution for at least 40 years, normally retained unless there is an over-riding reason for removal and appropriate mitigation. (Green)
 - Category B: moderate quality trees, able to make a significant contribution for at least 20 years, normally retained. (Blue)
 - Category B/C: an intermediate category between categories B and C (not specifically described in BS5837). Trees, which should be retained wherever possible, providing retention does not unreasonably constrain the layout. (Blue)
 - Category C: low quality, in adequate condition to remain for at least 10 years, or young trees <150mm stem diameter. Trees which can be removed to allow the desired layout or new planting. (Grey)

For category A, B and C trees, a subcategory has been allocated, providing information on the reasons for selection of a specific category, as follows:

- Subcategory 1: mainly arboricultural values.
- Subcategory 2: mainly landscape values.
- Subcategory 3: mainly cultural values, including conservation.
- Trees have been classified irrespective of the possible proximity to future construction. The BS 5837 category is colour coded, as indicated above, on the plan included as Appendix A.
- **Protection Distance:** the protection distance in metres required to provide the Root Protection Area recommended in BS 5837, assuming a circular area centred on the tree.
- Root Protection Area (RPA): the area in m², as recommended in BS 5837, to provide sufficient rooting area to ensure tree survival and which, in most situations, should be fenced off to prevent root damage from construction activities.

3 SURVEY LIMITATIONS

- 3.1 No internal decay devices, or other invasive tools to assess tree condition, were used.
- **3.2** No soil excavation or root inspection was carried out.

- **3.3** This survey has not considered the effect that trees or vegetation may have on the structural integrity of future building through subsidence or heave.
- **3.4** The tree survey has been undertaken for planning purposes. Although any obvious structural defects have been noted, a Tree Hazard Assessment has not been carried out. Mature trees close to highly populated areas or public highways should normally be checked for safety annually, by a suitably qualified person.

4 LEGAL PROTECTION OF TREES

- 4.1.1 The Sycamore (T1) is protected by a Tree Preservation Order and the whole site falls within a Conservation Area. No tree work must therefore be undertaken without the approval of the Local Planning Authority.
- 4.1.2 Once planning permission has been granted, provided the application clearly shows any trees to be removed, this overrides protection provided by Tree Preservation Orders or Conservation Areas.

5 ARBORICULTURAL METHOD STATEMENT

5.1 Site Overview

- 5.1.1 The proposal is for the demolition of existing garages and construction of new dwellings at Sion Court. The proposed site plan is included as Appendix F and is also shown, along with tree details, on the Tree Protection Plan attached as Appendix A.
- 5.1.2 There is an early mature sycamore (T1) growing immediately adjacent to the garage block. The garages are collapsing. Rather than rebuilding the garages, the proposal is to demolish them and replace them with soft landscape.
- 5.1.3 The soil on the site is defined by the National Soil Resources Institute (NSRI) at Cranfield University. (www.landis.org.uk) as a free draining, slightly acid loam.

5.2 Tree Work

- 5.2.1 Details of proposed tree works are included in the Tree Schedule included as Appendix B.
- 5.2.2 Two trees, a hedge and a shrub group are proposed for removal, as detailed in section 6.1 below. In addition, some minor pruning may be required to allow construction access for the adjacent new build.

5.2.3 All tree work must be undertaken to the standards set out in BS 3998:2010 Tree work – Recommendations.

5.3 Root Protection Areas

- 5.3.1 Root Protection Areas are shown for all trees in the tree schedule attached as Appendix B. They are also shown for all retained trees, as circular areas centred on the trunk, on the Tree Protection Plan attached as Appendix A. This shows the distance from a tree in which all construction activity must normally be excluded, to provide the Root Protection Area as per BS 5837, unless appropriate protection measures are implemented.
- 5.3.2 For tree number T1, where the road/garages within the Root Protection Area will have inhibited root growth, the Root Protection Area has been offset by 25%, away from the road/garages, to more closely reflect the likely actual root spread.

5.4 Tree Protection Fencing

- 5.4.1 Tree Protection Fencing must be erected where shown on the Tree Protection Plan, attached as Appendix A. This will provide full protection of the Root Protection Areas of all retained trees, other than for:-
 - areas hatched cyan on the Tree Protection Plan, indicating Ground Protection Areas, where roots must be protected, as described in section 5.5 below.
 - the area cross hatched red on the Tree Protection Plan, where there will be excavation at the edge of the Root Protection Area of T1, but where hand excavation must be used, as described in section 5.6, to minimise potential root damage.
- 5.4.2 Tree Protection Fencing must be from weldmesh panels, at least 2m high, securely fixed, with wire or scaffold clamps, to a rigid framework. This framework must be constructed from scaffold tubes with vertical tubes, at a maximum interval of 3m and driven into the ground at least 0.6m. The structure must be well braced to resist impacts, constructed as per Figure 2 of BS5837:2012, which is reproduced in Appendix D.
- 5.4.3 After erection of Tree Protection Fencing, 2 days notice must be given to the Local Planning Authority before demolition or construction, starts on site. Tree Protection Fencing must be maintained and retained for the duration of the works, or until such time as agreed in writing with the Local Planning Authority.

5.4.4 Weatherproof notices must be fixed to the Tree Protection Fencing, and maintained, stating:-

TREE PROTECTION AREA

KEEP OUT

TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND A TREE PRESERVATION ORDER CONTRAVENTION MAY LEAD TO CRIMINAL PROSECUTION THE FOLLOWING MUST BE OBSERVED BY ALL PERSONS:

- The Protection Fence must not be moved
- No person or machine must enter the area
- No materials or spoil must be deposited
 - No excavation must be permitted

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

5.5 Ground Protection Areas

- 5.5.1 The Ground Protection Areas, which are hatched cyan on the Tree Protection Plan, contain hard surfacing or garages which are protecting any underlying roots. Hard surfacing within Ground Protection Areas must be left in situ during the main construction period to protect underlying roots.
- 5.5.2 In the majority of these areas, the hard surfacing is to be lifted and replaced by soft landscaping. In these areas, after the completion of major construction works, an excavator can only be used for the removal of the existing hard surfacing within the Ground Protection Areas, if it can work only from areas of hardstanding, or from outside the Root Protection Areas. A banksman must be present during this operation and excavation must go no deeper than the existing base course and must cease immediately if roots are found. Once hard surfacing has been removed, the area must immediately be topsoiled using good quality topsoil supplied to BS3882:2015.
- 5.5.3 An excavator must only be used for the demolition of the garages within the Ground Protection Area of T1, if it can work only from areas of hardstanding, or from outside the Root Protection Areas. A banksman must be present during this operation and excavation must go no deeper than the foundations.
- 5.5.4 The concrete slab under the garages will need to be removed. This can be carried out using an excavator, however if the sub-base under the slab needs to be removed, it must be removed by hand, retaining any tree roots, and the areas must immediately be topsoiled using good quality topsoil supplied to BS3882:2015.
- 5.5.5 Where existing hard surfacing in Ground Protection Areas is to be replaced by new hard surfacing. Where possible the existing sub-base should remain in place and new permeable surfacing laid.

5.5.6 If the existing sub-base has to be replaced, following removal, ground protection must be laid immediately and then No Dig Construction, (as per section 5.5.2) used for the build up. No excavation must be permitted beneath the base course in these areas.

5.6 Hand Dig Area

- 5.6.1 A Hand Dig trench is shown cross-hatched red on the Tree Protection Plan, where a drainage pipe is to be laid at the edge of the Root Protection Area of the Sycamore, T1.
- 5.6.2 This trench must be hand dug, retaining all roots greater than 25mm diameter and as many smaller roots as possible. Either hand tools or an air spade can be used. The drainage pipe must then be threaded between any roots, before backfilling the trench with the excavated soil. The trench must be left open for as short a time as possible, with any exposed roots covered with hessian to prevent desiccation or frosting.

5.7 Services

- 5.7.1 The location of the proposed attenuation tank and drainage pipes is shown on the TPP. One stretch of drain pipe will be at the edge of the Root Protection Area of T1, where hand digging has been specified.
- 5.7.2 Any other service trenches must be kept outside all Root Protection Areas.

5.8 New tree planting

- 5.8.1 A comprehensive landscape design will be prepared, for approval by the Local Planning Authority, before work on site starts. This will include the tree planting indicated on the Tree Planting Plan included as Appendix G, together with shrub planting.
- 5.8.2 Nine new trees must be planted in the positions shown on the Tree Protection Plan. These must be:
 - a 25-30cm girth, Golden Rain Tree, Koelruteria paniculate, supplied in a minimum of a 250litre container
 - 3no 16-18cm girth Birch, Betula albosinensis Walnut, Fascination, supplied in a minimum of a 65litre container
 - a 14-16cm girth flowering cherry, Prunus pandora, supplied in a minimum of a 45litre container.
 - a 14-16cm girth Tibetan cherry, Prunus serrula Tibetica, supplied in a minimum of a 45litre container.
 - a 14-16cm girth flowering thorn, Crataegus prunifolia Splendens, supplied in a minimum of a 45litre container.
 - a 12-14cm girth Amelanchier, Ballerina, supplied in a minimum of a 45litre container.

- a 14-16cm girth Crab apple, Malus hupehensis, supplied in a minimum of a 45litre container.

Trees must be double staked and planted in 1m by 1m tree pits, the same depth as the rootball but with the base and sides of the pit broken up, incorporating 160litres of tree planting compost with each.

- 5.8.3 A feature tree will be planted in the centre of the lawn. The species selected is a Golden Rain Tree (sometimes known as the Pride of India), Koelreutaria paniculate. This will grow to around 10m in height with a wide spreading canopy and has attractive foliage and seed pods, and spectacular yellow flowers. They are currently available as 20-25cm girth container grown trees, which will be approximately 5-6m in height. This is considered a more appropriate species than the Monkey puzzle presently on site and will provide a spectacular centre piece for the site.
- 5.8.4 The three birch selected are Betula albosinensis Fascination, which has attractive stem colouration. Further smaller growing trees have been selected to provide year round interest as part of the landscape scheme.
- 5.8.5 Planting of trees within the existing lawn must be carried out during the first planting season (December to March) after the start of construction. Other trees must be planted within 1 month of completion of construction. Should any tree die within 5 years of planting it must be replaced during the next planting season with a tree of the same species and planting size.
- 5.8.6 The quality of all nursery stock, standards of workmanship and maintenance must comply with the relevant sections of British Standard BS 8545:2014 Trees: from nursery to independence in the landscape Recommendations.

5.9 General measures

- 5.9.1 No construction activity whatsoever, including routing of underground services, storage of materials or on-site parking, must be allowed within Root Protection Areas, other than that specifically described above.
- 5.9.2 No mixing or storage of cement, concrete, oil, fuel, bitumen or other chemicals must be permitted within 10m of the trunk of any retained trees, nor in any position where the slope of the ground could lead to contamination of the Root Protection Area.
- 5.9.3 Fires must not be lit in a position where their flames could extend to within 10m of foliage, branches or trunk.
- 5.9.4 Landscape works carried out within Root Protection Areas must be undertaken with great care so as not to damage shallow roots. Rotovators or other heavy mechanical cultivation must not be used within the Root Protection Areas.

- 5.9.5 If any retained tree is removed, uprooted, destroyed or dies, another tree shall be planted at the same place, at a size and species and planted at such time, that must be agreed in writing with the Local Planning Authority.
- 5.9.6 A copy of this report and the Tree Protection Plan must be kept on site and must be fully understood by the Site Agent.

5.10 Bat roosts

5.10.1 The current legislation makes it a criminal offence to disturb, damage or destroy any bat roost or hibernation area. Contractors must be reminded of their responsibilities and should contact the relevant authorities if any signs of bats are found.

5.11 Birds

5.11.1 The current legislation makes it a criminal offence to disturb nesting birds. The nesting season is generally assumed to be from 1st March to 31st July, however this can vary depending on species and location. During these months a careful inspection must be made before work commences and works must be postponed if active nests are found.

5.12 Arboricultural Supervision

- 5.12.1 A qualified Arboricultural Consultant must be retained during the period of construction to carry out the following:
 - to liaise with the contractor, prior to demolition starting on site, to ensure this Arboricultural Method Statement is fully understood and can be complied with in full. If any revisions are required, a revised Arboricultural Method Statement must be approved by the Local Planning Authority, prior to construction or demolition starting on site.
 - to inspect Tree Protection Fencing prior to construction or demolition starting on site.
 - to inspect the hand dug trench before the drainage pipe is laid.
 - as necessary, to advise on any issues at the request of the local planning authority, the developer, architect or contractor.

The details of each site visit must be recorded using a site visit proforma, with copies circulated to the contractor, developer and the local authority Tree Officer within 3 working days of the visit.

6 ARBORICULTURAL IMPACT ASSESSMENT

- 6.1 The following trees categorized as per BS 5837 (see Appendix C for details), will be removed:
 - Category C low quality:
 - T2 a 2m monkey puzzle, to allow new tree planting
 - G3 a low hedge, to allow new landscaping
 - \circ T4 a 1.9m dwarf, weeping willow
 - G5 a group of elder
- **6.2** No trees of any significance are proposed for removal. Trees to be removed are shown in the photos attached in appendix E.
- **6.3** Protection measures have been specified to protect the Root Protection Areas of all retained trees.
- **6.4** The most important tree on the site is the sycamore (T1) which is protected by a Tree Preservation Order. A drain will be installed at the edge of the Root Protection Area. Although it is unlikely that any significant roots will be found the other side of an expanse of hard surfacing, hand digging has been specified as a precautionary measure. Removal of the adjacent garages and conversion of this area, and existing hard surfacing, to soft landscape will benefit the tree.
- **6.5** The canopy of T1 will oversail the new build by approximately 1m. The approximate extent of the new building has been marked up on the photos in Appendix E, showing that the extent of pruning, if required, will be minor. The tree has been managed as a pollard in the past. If it continues to be managed in this way, periodically pruning back to the previous pollard points, the canopy will never extend too far over the new build. Alternatively, the tree could be allowed to grow out, in which case it will grow up and over the new build.
- **6.6** Provided the recommendations in this report are followed, the arboricultural impact of this development on existing tree cover is considered acceptable. No trees of any significance will be removed. The rooting environment of the protected sycamore, T1, will be improved and new trees will be planted, which will result in a significant arboricultural benefit for the site.

7 REFERENCES

- BS5837:2012 Trees in relation to design, demolition and construction Recommendations.
- BS3998:2010 Tree Work. Recommendations.
- BS8545:2014 Trees: from nursery to independence in the landscape. Recommendations.



Tree/ Group No.	Species	Height (m)	Stem Diam. at 1.5m (mm)	Branch Spread (m)				Canopy Cleara -nce (m)	Age Class	Observations	Management Recommendations	Estimated Remaining Contribution (years)	BS 5837 Category Grading	Protect -ion Distnce (m)	Root Protect. Area (m2)
				Ν	S	Е	W								
T1	Sycamore	17	550	6.5	6.5	6	6	3.5	Early mature	Immediately adjacent to garages. Main stem bifurcates at 2.5m. Well shaped canopy. Surface rooting in lawn to north-west. Canopy reduced to 14.5m 3-4 years ago - strong regrowth.	Minor pruning, if required, to clear new build.	20-40	B2	6.6	137
T2	Monkey puzzle	2	75	1	1	1	1	0.1	Young	Showing good vigour. Inappropriate species for location.	Remove to allow new tree planting	>40	C2	0.9	3
G3	Hedge	0.7-1.1	30					0.0	Early mature	Stem diameter 10-30mm. Low hedge containing blocks of different species including Lonicera, laurel, cotoneaster and box. Regularly pruned.	Remove part to allow relandscaping.	10-20	C2	0.4	0
T4	Willow	1.9	70	1.3	1.3	1.3	1.3	0.2	Early mature	Dwarf, weeping variety. Compact crown.	Remove to allow relandscaping.	10-20	C2	0.8	2
G5	Elder	4-7.5	100-140					0.5	Mature	Stem diameter 50-100mm.	Remove to allow relandscaping.	10-20	C2	1.7	9
Т6	Вау	5.5	60	1	1	1	1	0.3	Semi- mature	Drawn up. Leaning to north then straightens.		20-40	C2	0.7	2
Τ7	Eucalyptus	12	est 500	3	3	4.5	2.5	1.5	Early mature	Growing in adjacent site- base not inspected. Growing approximately 0.5m below site level. Crown reduced approx 2 years ago. Dense ivy to mid canopy. Good vigour.		15-30	B2	6.0	113
Т8	Birch	14.5	210	3	3.5	2	2.5	1.7	Early mature	Twin stem from base- 140 and 160mm dia. Drawn up but an attractive tree.		15-30	B-C2	2.5	20
Т9	Вау	3	110	1	0.5	0.5	1	0.2	Semi- mature	Five stems from base- average 50mm. Showing good vigour.		20-40	C2	1.3	5

BS 5837:2012, Table 1 Cascade chart for tree quality assessment

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Category and definition	and definition Criteria (including subcategories where appropriate)									
Trees unsuitable for retention	(see Note)									
Category U Those in such a condition	 Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) 									
be retained as living trees in	Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline									
the context of the current land use for longer than	 Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality 									
To years	NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7 .									
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation							
Trees to be considered for rete	ention									
Category A	Trees that are particularly good	Trees, groups or woodlands of particular	Trees, groups or woodlands	See Table 2						
Trees of high quality with an estimated remaining life expectancy of at least 40 years	examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	visual importance as arboricultural and/or landscape features	of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)							
Category B	Trees that might be included in	Trees present in numbers, usually growing	Trees with material	See Table 2						
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	conservation or other cultural value							
Category C	Unremarkable trees of very limited	Trees present in groups or woodlands, but	Trees with no material	See Table 2						
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	merit or such impaired condition that they do not qualify in higher categories	without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	conservation or other cultural value	64.5						

British Standard BS 5837:2012 Default specification for protective barrier

Figure 2

Key

- 1 Standard scaffold poles
- 2 Heavy gauge 2 m galvanised tube and welded mesh infill panels
- Panels secured to uprights and cross-members with wire ties
- 4 Ground level
- 5 Uprights driven into the ground until secure (minimum depth 0.6 m)
- 6 Standard scaffold clamps



Examples of above-ground stabilising systems

Figure 3a

Stabiliser strut with base plate secured with ground pins





Figure 3b Stabiliser strut mounted on block tray



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Appendix Ei)



Appendix Eii)



Appendix F

storage (#

3.82**

3.62~

3.62%*

3.62%*

2.69~*

Added

27

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TAL ARC LTD.

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Proposed ate amenity (m²) t

22**

21.5m²

21.5mf

21.5mf

67mt



