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Registered Consultant

Licensed User

Tree Survey, Constraints & Feasibility Study and Arboricultural Impact Assessment with Preliminary Tree Protection Plan for land at:

City College, Kings Road Centre, Plymouth, Devon PL1 5QG

Client: City College

Reference:	2486-Landscaping-TSE

Date of report: 14 November 2016

Surveyed &prepared by: Tim Scott-Ellis BSc Hons (For), Dip Arb (RFS), F Arbor A,

Purpose of Report:

MICFor, MRICS. We have been instructed to provide a landscaping plan to satisfy the condition attached

to the planning consent notice.

1 LANDSCAPE PROPOSALS

- 1.1 This landscaping plan proposes new planting along the embankment to the south east of City College on land under their ownership. This land is being developed as part of the edible campus theme that has already seen allotments and vegetable planting throughout the campus.
- 1.2 The trees removed for the construction of the new facilities were primarily smaller species that were constrained in the car parking areas. Other species lost were medium sized species including Norway maple and field maple.
- 1.3 9 trees have been removed and therefore we propose to plant 12 new fruit trees along the corridor running to the south-east from the site. This will provide for some of the loss of leaf area from the larger species tree lost. The new will be local varieties suited to the area. Of the 12 trees, we propose three of these will be cherries (again culturally appropriate to the Tamar Valley) and 3 will be pears. These have the potential to reach a greater size than the apples (depending on root stock and management).
- 1.4 I have enclosed a list of the local verities of each of the fruit species at Appendix C. The new trees should be chosen from this list or similar and the actual varieties will need to be selected based on availability and what has already been selected. The local climate has traditionally favoured apples on root stocks capable of developing into larger trees, where possible this should be favoured.
- 1.5 The details of the proposals, including the methodology and specifications are at Appendix A.
- 1.5.1 Therefore, species, sizes and positions shall be agreed at the pre-contact meeting and shall be marked on the landscape plan. The arboricultural consultant shall oversee planting.
- 1.5.2 BS 8545:2014 Trees from nursery to establishment, Recommendations provides recommendations on tree species selection and note must be given to section 5.5 and 5.6. All landscaping design and implementation will be undertaken in accord with British Standard 4428:1989 Code of practice for general landscape operations (excluding hard surfaces) and current best practice.
- 1.6 Tree protection measures will need to be considered based on the potential risk to the trees. The smaller the tree stock the more readily it will establish but this must be balanced against the likelihood, or not, of damage or theft.
- 1.7 The protection of the trees should account for people damage, squirrels though I suspect deer will be significantly less of a threat here than found in more rural situations.

- 1.8 I have considered the relevant site factors and the information provided to reach the conclusions above. If the issues I have detailed are taken into account I am confident this scheme will be considered acceptable in arboricultural terms.
- 1.9 I am a Fellow of the Arboricultural Association, a Chartered Arboriculturist and a Chartered Surveyor. I hold an honours degree in Forestry and the Royal Forestry Society Professional Diploma in Arboriculture. I have been working as a full-time professional arboriculturist since 1999.

Tim Scott. Elis

Tim Scott-Ellis BSc Hons (For), Dip Arb (RFS), F Arbor A, MICFor, MRICS Evolve Tree Consultancy

The authority of this Report ceases when any site conditions change, or pruning or other works unspecified in the Report are carried out to, or affecting, the Subject Tree(s). The statements made in this Report do not take into account the effects of extremes of climate, vandalism or accident, whether physical, chemical of fire. Evolve Tree Consultancy cannot therefore accept any liability in connection with these factors, nor where prescribed work is not carried out in a correct and professional manner in accordance with current good practice.

The recommendations within this report remain valid for the period stated for reinspection or twelve months from the date of survey.

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APPENDIX A - Guidance for Tree Planting

Introduction

The purpose of this statement is to provide guidance for successful tree planting and establishment. Trees given a good start stand a far greater chance of survival than poorly planted and neglected trees.

There is advice and guidance regarding tree planting available in British Standard 8545:2014 Trees: from nursery to independence in the landscape – Recommendations. This document is used to provide the guidance below.

Planting of replacements for removed trees or new plants shall be done at the end of the construction phase or a time agreed with the LPA. Species, sizes and positions shall be agreed at the pre-contact meeting and shall be marked on the landscape plan. The arboricultural consultant shall oversee planting.

The Planting Season

For successful establishment trees must be handled gently as they are very susceptible to physical damage, drying winds, dry and waterlogged or frosted ground. If a tree cannot be immediately planted it can be stored successfully if the roots are adequately covered, kept moist and not allowed to freeze. Bare rooted trees, shrubs and hedging plants can be heeled into the ground directly, whilst container grown trees should be stored in a ventilated shed away from direct sunlight, heat and frost.

Type of Planting Stock

Bare root & root balled stock Container grown stock Evergreen material Magnolia species & cultivars Eucalyptus species

Date/period most suitable for planting

November to March inclusive October to April inclusive October/November to March/April April/May June/July

Planting

- Ensure area to be planted is clear of services.
- Where possible remove competing vegetation e.g. grass, prior to planting.
- Inspect the tree for damage; carefully prune out any damaged branches or roots using a sharp saw or secateurs. Damaged branches should always be pruned back to just above the next live, healthy bud.
- Dig a square hole large enough to take the roots comfortably when spread out and deep enough for the soil mark on the main stem to be at ground level. Roots must not be coiled or bent to fit the hole; instead the hole should be enlarged. Trim excessively long roots with secateurs before planting.
- Do not plant into waterlogged soils or in frosty conditions.
- Ensure containerised stock the root-ball is thoroughly soaked before planting.
- Ensure the roots are kept moist and are not allowed to dry out. Bare root trees must have their roots protected before planting e.g. with a plastic bag.
- **Root-balled/Containerised trees**. Place the tree in the hole with the ball intact ensuring the root ball is disturbed as little as possible. Loosen the

wrapping if it is a material which degrades very quickly, or remove it if it is plastic or heavy canvas. **Do not** break up the root-ball.

- Firm the soil around the plants by treading in with the heel. Ensure bark is not damaged and the trees stay vertical. Avoid leaving a depression around the stem where water can collect.
- Attach the stake to the tree using a proprietary pad and tie at approximately 1/3 of the height of the tree.
- No soil ameliorates, such as compost, a loam-leaf-mould mixture or well-rotted manure, are to be used.
- Fill the hole in stages. Ensure the stem of the tree is vertical and the soil mark at ground level. Firm around the roots after the addition of every 100-150 mm of soil. Lighter soils will need to be firmed much more strongly than heavy soils. Continue adding soil until the pit has been filled and slightly mounded at the level of the root collar. (Failures are often due to lack of firming). In heavy soils do not firm so the soil becomes compacted.
- Mulch around the tree to a minimum distance of 1 m radius from the stem, to a depth of 100-150 mm of organic material. Mulch must be kept clear of the stem of the tree.

Notch Tree Planting

The success of any planting scheme is enhanced by careful plant handling during lifting and packing at the nursery, transportation to site and planting. Bad handling damages plants, causes losses and increases establishment costs.

Many nurseries now deliver plants in co-extruded bags, which are designed to reduce the risk of overheating.

When handling bagged plants it is important not to:

- Throw, drop or handle bags roughly.
- Keep trees bagged for more than three weeks after delivery.
- Stack bags upon each other.
- Sit or stand on bagged plants.
- Leave bagged plants in direct sunlight or exposed to frost.

Plants should be inspected when delivered. Insecticide dipped trees should be ventilated by loosening the bag seal.

Planting may be by one of three methods (Figure 1), the choice being dictated by the size of the root and the soil condition:

- A single (or 'V') notch.
- A double notch, 'L' or 'T'.



Figure 1 - Notch Planting Methods

Single notch planting: A single slot is made with a suitable planting spade. The spade is inserted to the required depth and rocked backwards and forwards to open a slot so that the roots can be inserted. The spade is withdrawn and the slot closed using the ball of the foot.

Double notch planting: A double slot is made using a suitable planting spade. The slots can either be 'L' or 'T' shaped. The purpose of a double slot is to lift up the soil and create space to allow the roots to be distributed evenly. Once the tree has been positioned in the slot, the spade is removed and the soil is firmed with the ball of the foot.

It is important that the plant roots are distributed evenly (Figure 2).

If the soil is too heavy to open adequately with a single notch, or the roots are too big for the notch, the root system will be compressed and bent into the slit. This will affect early survival rates and future growth, form and stability and it will be more appropriate to use a double 'L' or 'T' notch. A double planting slit ensures good root distribution in heavier soils.

If the root system is too big for a double notch, the plant must be pit planted.

Pit Planting. Dig a square hole large enough to take the roots comfortably when spread out and deep enough for the soil mark on the main stem to be at ground level. Roots must not be coiled or bent to fit the hole; instead the hole should be enlarged. Trim excessively long roots with secateurs before planting.





Ensure that roots are pushed down as far as possible

Withdraw the transplant slightly to spread roots





Gently firm with foot to exclude air pockets

Transplant in correct position

Figure 2 - Tree Insertion

Screefing may be required to:

- Mark the planting spot for a follow-up weeding.
- Remove a heavy humus layer to ensure that trees are planted to the correct depth in the soil.
- Level the planting position and bare the soil so that if a tree shelter is fitted, it can be properly sealed to the ground.

APPENDIX B – Tree & Shrub Planting Specification and Methodology

All landscaping design and implementation will comply with arboricultural and horticultural best practice including British Standard (BS) 8545:2014 Trees from nursery to landscape – Recommendations; BS 4428:1989 Code of practice for general landscape operations (excluding hard surfaces) and other relevant documents.

Tree & shrub planting may then be undertaken. Care will be taken to ensure that the new planting does not cause any damage to the existing trees. Within the Construction Exclusion Zone the following points shall be observed:

- Ground levels will not be changed.
- No heavy plant or equipment such as tractors shall enter the protected areas.
- No fuels or chemicals shall be brought into or stored within these areas.
- If any digging is necessary within the protection areas (for fence posts etc.) this shall be done by hand. Any roots over 50 mm in diameter that are encountered shall not be cut; any smaller roots will be cut cleanly. All areas where roots are exposed will be back-filled with sharp sand on the same day they are uncovered.
- Unwanted vegetation shall be removed manually or by using chemicals that cannot damage the roots of the trees and that have been agreed by the Arboricultural Consultant prior to application.
- No drainage pipes or other underground services shall be installed within the root protection areas.

All proposed trees are to be left to grow to maturity.

All native woodland trees and shrubs to be notch planted.

Trees to be planted by appropriately qualified and experienced specialist sub-contractor.

Tree pits design advice and specification can be provided.

All trees to be planted with horticultural best practice; and have at least a 12 months (the Defects Liability Period (DLP)): dead or dying plants and trees to be replaced during the DLP.

No planting to be carried out during wet, frozen or very dry weather conditions.

The arboricultural consultant will visit the site at regular intervals to monitor the integrity and effectiveness of the protective fencing and ground protection. Non-compliance notices will be issued to the contractor in any cases of substantial deviation from this method statement, and will record instances in his final report to the client.

Tree & Shrub Planting Maintenance Schedule - Year 1: **City College**, **Plymouth**. During the initial twelve month period after Practical Completion.

Allow for 8 (eight) maintenance visits (6 during the growing seases season). A visit shall be defined as the period of time required b all maintenance items specified in the Schedule of work below.	
Tidy up areas removing rubbish, litter, etc from planted areas.	Repeat at each maintenance visit.
Keep a 1 m weed free zone around the tree at all times.	Repeat at each maintenance visit.
Check that the plant material is firmly planted and firm in where required.	Repeat at each maintenance visit.
Water all trees and shrub beds to maintain healthy growth.	As necessary and accounting for seasonal variations indicate a need for supplementary watering in addition to the above requirements this must be supplied.
Keep areas clear of weed growth by hand weeding. Do not mechanically remove weeds from around the tree, pull by hand.	Four times as appropriate from mid-April to late September.
Replace mulch.	At least twice a year, or as required, in spring or autumn.
Check shelter guards and re-firm / replace when required. Remove weed growth from within shelters.	Repeat at each maintenance visit
Check, adjust and replace stakes and ties as necessary. Prune dead and damaged wood.	As necessary
Edge up planted areas to maintain soil level 25 mm below adjacent hard surfaces and kerbs. Any soil washed on to hard surfaces to be cleaned off.	Repeat at each maintenance visit.
Treat pests and diseases.	As necessary.
Prune shrubs as required to prevent invasive species smothering less aggressive species.	As necessary
Prune dead, dying or diseased wood from plant material.	As necessary

ITEM OF WORK	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
GENERAL	All work as				
Tidy up areas removing rubbish, litter, etc from planted	above				
areas. Repeat at each maintenance visit.					
Check that the plant material is firmly planted and firm in		2 times			
where required.					
Check shelter guards / rabbit protection and re-firm /		4 times	4 times	2 times	2 times
replace as required including removing weed growth from					
within. Consider removal at years 4 to 5.					
Treat pests and diseases as necessary.					
Remove diseased or dead plants with replacements as					
appropriate.					
Keep areas clear of weed growth by hand weeding and		4 times	4 times	4 times	2 times
herbicide treatment as appropriate from mid-April to late					
September.					
Keep ornamental shrub areas clear of weed growth by hand		8 times	8 times	6 times	6 times
weeding or spot herbicide treatment.				_	
Prune shrubs as necessary to prevent invasive species					
smothering less aggressive species and to prevent shrubs					
overhanging footpaths and other areas of hard paving.	-			_	
Fertilizer application as appropriate to ensure establishment					
of planting.	-				
Check, adjust, replace stakes and ties as necessary. Remove					
stakes after approximately 3 years if appropriate. Prune and water as necessary.					
Remedial tree surgery as necessary to remove any dead,	1				
dying or diseased branches and to allow the tree to achieve					
full stature. All works to be carried out in accordance with					
BS 3998:2010: Recommendations for Tree Work and BS					
8545:2014 Trees from nursery to landscape.					

Tree & Shrub Planting Maintenance Schedule - Work Matrix - 5 Year Period

APPENDIX C – Fruit Tree Species and Variety list.

The trees should be selected from this (or similar) list for local varieties that will be most suited to site.

	A collection of heritage var	ieties r	escued fi	rom old orchards and gardens, mainly in the Tamar Valley. Not entirely Devon
	and Cornwall varieties but			
				DESCRIPTION
pple				
	American Mother	2	Des	Flavour is distinct, sweet, perfumed and aromatic. Often compared to pear drops.
			_	Trouble free. Pick Sept, store until Dec.
	Banana Pippin		Des	Cornish. Last recorded 1906. yellow, soft flesh, juicy, crisp, sweet sub-acid. Very rare
	Ben's Red	2	Des	Flat fruit, flushed and striped red with russett dots. Sweet. Trannack 1830.
	Black Dabinett	4	Cider	Late cider with heavy crops of large blue-black fruit. High quality cider.
	Breadfruit		C/D	Syn. Bloody Butcher. 2nd early/mid-season. Green with faint stripe, sweet, slightly
				sharp. Strawberry flavour when ripe Ready Oct. Origin; Rezare.
	Captain Broad		C/cider	Bitter sweet. Very vigorous & healthy. Pale green fruit with slight flush and russet.
			<u> </u>	Once popular in Golant.
	Catshead	3	Cook	Was "the" midseason cooker for dumplings. Good cropper . Brownish flush/ purple stripes.
	Colloggett Pippin		C/Cid	Midseason. Large pale greenish/yellow apple with red flush, bold stripes. Early to flow
	Cornish Aromatic	4	Des	Golden yellow fruit, red flush, flesh crisp. Aromatic, Good flavour and cropping. Use December/March. Origin 1813.
	Cornish Honeypin	3	Des	Mid-late. Sweet dessert. Healthy and strong growth, scab resistant.
	Cornish Gilliflower	4	Des	Very late. Feb/March. Greenish to Orange yellow with dull red flush, some russetting.
	Cornish Longstem 1	3	Cook	Very late. Green, with hard flesh. Very healthy and keeps until June. slightly acid.
	Carrich Mather		Dee	Origin: Linkinhorne.
	Cornish Mother Cornish Pine	3	Des Des	Midseason, sweet and aromatic. Origin: Wadebridge. Midseason. Fruit orangey with red and russet. Ready late October/ November.
	Comisir Fine	5	Des	Pineapple flavour.
	Devonshire Buckland	4	Cook	Very healthy, vigorous and prolific. Fruit is flat shaped, pale yellow, with pink flush.
				Use October to January. Origin Rezare.
	Devon Crimson Queen	2	Des	"Queen". 2nd early, dark red, flat apple , with faint darker stripes. Sweet, aromatic an juicy. Origin: St. Dominic.
	Early Blenheim		Des	2nd to Mid season. A Somerset apple lost since 1955. Origin: Landrake. Like Blenhei
				Orange but earlier, with good, sweet flavour.
	Early Bower		Des	Syn. Sack and Sugar. 2nd early . Pale green apple, turning to pale yellow. Honey flavoured, little acidity and distinctive beautiful scent. Origin Burraton.
	Endsleigh Beauty		C/D	Similar to Blenheim Orange, yellow with orange flush.
	Fair Maid of Devon	3	Cider	Full sharp flavour. Makes quality juice. Mid season fruiting.
	Golden Jubilee		C/D	Found at Woodtown, Dunterton. Nice flavoured cooker, sweetening towards
				Christmas.
	Hocking's Green	4	C/D	Mid to late season. Cooker from November. Dessert in late December. found at Illan
				Farm, Coads Green.
	Improved Keswick		C/D	Mid to late season. Yellow with faint fush. Cooker in October. Dessert in November a
			- (F	December. Origin Tamar Valley.
	King Byerd	4	C/D	Very late . Green fruit turning yellow with red streaks and grey russet. Heavy cropper, good keeper. cooker in November. Dessert at Christmas.
	Kingston Black	Mid	Cider	Mid-season, medium bittersharp. Probably the best vintage cider variety.
	Lady Henniker	4	C/D	Late September to October. Reliable cropper, good keeper, even on exposed sites.
				Healthy
	Lady's Fingers	4	C/D	Large, ribbed, green apple with red flush and stripes.Healthy and prolific Origin:
			_	Calstock.
	Lady Sudeley	3	Des	Early apple, bright yellow, flushed orange-red and prominent stripes. Not a Cornish variety, but was widely grown here.
	Link Mondan			
	Link Wonder		C/D	Hant 1906.Med/large, yellow, flushed/striped orange-red. Mid/late, bakes well, distinct flavour
	Long keeper		Des	Mid to late season, sweet sub acid, firm, chewy. Found as a single tree in a hedge at
			2.00	at Luckett.
	Lucombe's Pine	4	Des	Mid season to late. Fruit yellow, ideal for apple juice making. Healthy and moderate
				of moderate vigour.
	Miel D'Or		Des	Small apple, yellow with a dull red flush and some russetting. Very sweet. Origin
				Gunnislake, may be the oldest apple in the U.K.
	Morgan Sweet	early	D/cider	Sweet early apple. Heavy cropper with high juice yield.
	Mylor Pyke		Des	Crisp and sweet red apple. November. From the garden of Mrs. Pyke, Mylor.
	Oaken Pin	3	Des	Mid-late. Juicy, sweet and aromatic. Once common on Exmoor. Good bearer.
	Opalescent	3	Des	Mid season. Red skin and sweet flavour. Bears well.
	Pear Apple/Snub Nose		Des	Early apple with the classic concave shape. Pleasant apple, slightly sweet, subacid.

	Pendragon		D/C/cid	800 year old Cornish apple with dark red fruit, red flesh and stems. Deep pink blossom.
			_	Recent research has shown it to have exceptional health giving properties.
-	Pig's Nose (Helston)		Des	Syn. Golden Spire. 2nd early. Pretty pale yellow apple , sweet and refreshing.
	Pig's Nose 1		Des	2nd early. Pretty apple, speckled orange with fine, dull red stripes. Honey sweet. Bitter skin. Ready late August to early September.
	Pigs Snout.	4-5	D/Cid	Mid season, sweet and juicy with cidery flavour. Late flowering variety. Eat in October.
	Pineapple Russet of Devon		Des	Firm, pale yellow flesh, with a definite flavour of pineapple. Sweet, yet plenty of acidity.
	Plympton Pippin		C/D	Late season, green with a dull red flush,faint stripes.Dessert when kept.
	Queen's(Slew)		Des	2nd early to mid season. Medium sized apple, red with darker streaks. Sweet and juicy.
				Tall growing. Origin:Veitches of Exeter. 1883.
	Rough Pippin	2	Des	Mid to late season. Greenish yellow with orangey-red flush, refreshling sweet. Very healthy. Somerset apple.
	Royal Russett		Des	Cornish 1906.Yellow,soft flesh, juicy, crisp, sweet. Very rare.
	Saw Pit		C/D	Syn Peter Lock. Late, similar to Newton Wonder. Keeps to after Christmas. Tamar valley.
	Slack-ma -Girdle	2	cid/des	Late apple sweet flavour. Early flowering. Devon apple
	Sops-in-Wine	2	cid/des	Purple foliage and flowers. Dark red fruit inside and out.
	Snell's Glass Apple		Cook	Mid-season, yellow cooker, Modest vigour. Bred at St. Dominick.
	Star of Devon	2	Des	Oct-Mar. Pretty little red apple, crisp, sweet and juicy.
	Tamar Beauty		Des	Small to medium size, yellow with orange-red flush. Keeps until Christmas. Firm and
				juicy. Raised by Mrs. Marie Martin. Cornwall.
	Tan Harvey	3	Cider	Syn Teignharvey. Smallish, yellow with orange flush. Very popular in the Tamar Valley. Shaldon, Devon.
	The Rattler		C/D	2nd early. Pale yellow. Sharp refreshing and nice. Late August/Sept.
	Tommy Knight		Cid/Des	Green turning yellow with a red flush, stripes and russetting. Sweet and juicy. Pick October, keeps until June. Found at St. Agnes.
	Tom Putt	2	C/cid	2nd early to mid season. Flushed orangey-red and striped. Quite sharp, but light and sweet when cooked
	Upton Pyne	3	C/D	Late to very late, crisp and juicy with a subacid, aromatic flavour. From Devon. High resistance to scab.
	Venus Pippin		D/Cid	Early to 2nd early. Very tender flesh, Juicey but slightly acid and sweet.
	Werrington Wonder		Des	Early. A pale yellow withsoft sweet flesh. Best eaten off the tree. Werrington.
	Whitpot Sweet		D/Cid	Recent discovery. Bude cider apple. History back to 1901. Sweet enough to eat.
	Winter Red		C/D	Late. Flushed dark red Not acid. 1600
	Woolbrook Pippin	3	Des	Sidmouth 1903. Sweet and aromatic. mid to late season.
	Woolbrook Russet	3	Cook	Oct-Mar.Large russet. Sharp, mellowing to rich sweet-sharp taste
Cherry			C/D	Early. Good black cherry on smaller trees than others. Raised at Birchenhayes Farm St. Dominic.
	Bullion		Cook	Large, almost black fruit. Not quite as sweet as others.
	Burcombe		C/D	Mid to late season, black soft and juicy, late flowering. Raised at Burcombe Farm, St.
	Fice		Des	Dominic. Vigorous broad tree. The blackest, juiciest, and best flavoured of all, but is a light cropper. Raised at St.
	Jan James	_		Dominic. Like Birchenhayes.
	Juli Julies			
Pear	Harvest Pear(Lanson)		Des	Similar but rounded in shape and russetted yellow. August
	Morwellham		Des	Unknown variety found on the lime kiln at Morwellham .Pink new growth. Small sweet fruit.
	'Red Pear			Unknown. found at North Ward Farm, Bere Alston, one twig saved from a bonfire.
				large, pretty pink and russet. Good for cooking early/mid Oct. Pretty red young growth.
<u> </u>				
Plum	Кеа		C/D	Old Cornish variety. Small dark plums similar to damsons but sweeter. Free fruiting.
	Codes-Des=Dessert Cook=cooking			Apples and PearsPot-grown maidens (approximately 5-7ft) £13.95 CherriesPot-grown maidens (approximately 4-6ft) £19.95
	C/D=cooking+dessert	-		Older trees may be available in some varieties starting at £20.95
	C/Cid=cooking+cider			ender store may so available in some varieties starting at 220.30
	D/Cid=dessert+cider			
	P/G=pollination group			
p			1	1