Frank Parsons
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Arboricultural Report

Client: Littlehaven Nursery –
Castlehaven Community Association

Site: Littlehaven Nursery, Castlhaven Road, London NW1 8RU

Survey undertaken: Trees in relation to design, demolition and construction – Recommendations.

Author: Frank Parsons
RFS certificate in Arboriculture
AA Technicians certificate in Arboriculture
(Level 4 Diploma in Arboriculture)

15th August 2022

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Appendices

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1. Background:

This report is in conjunction to the tree survey attached, which has been undertaken to identify any trees within or affected by the proposed development at the site address that should be removed or retained and therefore protected during the proposed development. This report will outline tree categorization methodology with reference to BS 5837:2012. The proposed site is within a conservation area. The local authority is The London Borough of Camden.

2. Clients Brief:

- To undertake a tree survey within the rear gardens of affected properties. Plan supplied by Squarefeet architects Ltd.

- To provide an Arboricultural report identifying the trees to be retained, removed or worked on within the proposed development and outline and evaluate the constraints posed by the trees retained on site via:

- Root Protection Area (RPA) – Layout design tool indicating the area surrounding a tree that contains sufficient rooting volume to ensure the survival of a tree, shown in plan form.

- Construction Exclusion Zone – Area based on the RPA, identified by an arboriculturalist, to be protected during development, including demolition and construction work, by the use of barriers and or ground protection, fit for purpose to ensure the successful long term retention of a tree.

- Tree Protection Plan (TPP) – Scale drawing prepared by an arboriculturalist showing the finalized layout proposals, tree retention and tree landscape protection measures detailed within the arboricultural method statement (AMS), shown in plan form.

- Arboricultural Implications Assessment – Study undertaken by an arboriculturalist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

- Arboricultural method statement (AMS) – Methodology for the implementation of any aspect of development that has the potential to result in loss or damage to a tree. N.B. The AMS is likely to include details of an on site tree protection monitoring regime, construction traffic management plan in relation to trees and a tree pruning schedule.

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3. Scope:

The survey has been conducted in accordance with BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations.

4. Site Observations:

Littleahaven Nursery is located within Castlehaven open space, surrounded by a community park off Castlehaven Road in the London borough of Camden. The site consists of one main building and a large outdoor play area. The outdoor area consists of tarmac and lawn, climbing frame apparatus, children's play activity areas and storage sheds. Mature plane trees surround the semi circular site and some smaller ornamental trees are planted outside of the fence boundary. The canopy of one Plane tree overhangs the outdoor play area to the south east of the site. This tree grows in a raised planting bed in between a footpath and the nursery grounds. There is a private access road adjacent to the nursery and railway arches to the other side of this road. The weather at the time of survey was clear with no wind.

5. The Proposed Development:

An extension to the existing nursery building located where the storage sheds are in the south east corner of the site, adjacent to the private access road. The proposed building would be 11m by 8m with a separate entrance, children's WC and small kitchen. Double doors to open out onto a veranda into the outdoor play area space. The proposed extension would add an extra 66sq.m of internal space to cater for increased numbers of children using the nursery and facilities. Please refer to the architects plans for a more detailed description of the proposed development. Drawing number: 2211_SK_01.

Below: Table 1 – Cascade chart for tree quality assessment

Table 1 **Cascade chart for tree quality assessment**

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• 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) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • 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 *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see **4.5.7**.*			See Table 2
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good 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)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in 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	Trees present in numbers, usually growing 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	Trees with material conservation or other cultural value	See Table 2
Category C **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	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

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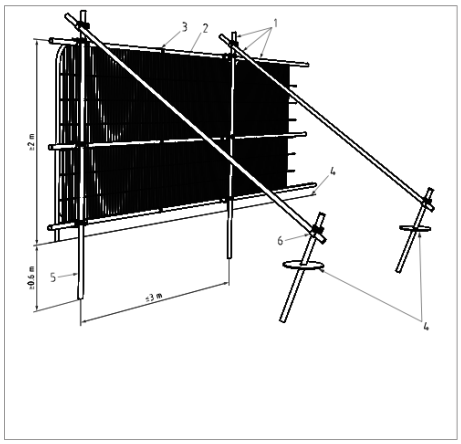
6. Tree Protection Methodology
(i) *Construction Exclusion zones (CEZ's):*

Barriers and/or ground protection should protect trees that are being retained on or off site before any materials or light machinery are brought onto the site, and before any demolition, development or stripping of soil commences. Where all activity can be excluded from the RPA, vertical barriers should be erected to create a construction exclusion zone. Erection and retention of a 2m high sturdy secure temporary fence, typically heras style, on a scaffold framework should be positioned along the CEZ calculated along side the RPA's of retained trees.
Barriers should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree. Barriers should be maintained to ensure that they remain rigid and complete. Pins should be driven in to the ground to ensure rigidity and demarcation of barriers with spray will indicate whether or not the barriers have been moved. The mixing and storage of materials is prohibited within the construction exclusion zones, contractors and machinery are also prohibited within CEZ's to mitigate soil compaction. This should be communicated via the project manger at commencement of each stage of the development.

Fig.1 BS 5837:2012:

Example of typical tree protection fencing used to demarcate the calculated construction exclusion zone.



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(ii) ***Recommendations to mitigate or eliminate damage to tree roots within RPA's***

To mitigate root desiccation during excavation and the installation of new foundations within the RPA of T1 specialist methods should be used:
Extraction of existing soil and foundations within the RPA should be followed by the installation of root barrier or plastic membrane pinned to the retained soil profile exposed to ensure the exposed roots are protected from drying out and or exposure to concrete or other materials. Subterranean activities should consider the rooting area of the protected tree throughout the project and majority proportions of RPA's must be kept free of excavation and construction activity.
Designs for foundations that would minimize adverse impact on the tree should include particular attention to existing levels, proposed finished levels and cross-sectional details. In order to arrive at a suitable solution, site-specific and specialist advice regarding foundation design should be sought from the project architect, developer and an engineer.

(iii) ***Appropriate measures to eliminate or mitigate severance of roots for construction of a utility service***:

Mechanical trenching for the installation of underground apparatus and drainage severs any roots present and can change the local soil hydrology in a way that adversely affects the health of the tree. For this reason, particular care should be taken in the routing and methods of installation of all underground apparatus. Wherever possible, apparatus should be routed outside RPAs. Where this is not possible, it is preferable to keep apparatus together in common ducts. Inspection chambers should be sited outside the RPA.
Where underground apparatus is to pass within the RPA, detailed plans showing the proposed routing should be drawn up in conjunction with the project arboriculturalist. Trenchless insertion methods should be used with entry and retrieval pits being sited outside the RPA. Provided that roots can be retained and protected, excavation using hand-held tools might be acceptable for shallow service runs where applicable.

7. Arboricultural Implications Assessment:

The proposed extension is situated underneath the canopy of a London Plane tree (T1) and is within the calculated root protection area (RPA). Approximately 25% of the RPA is within nursery grounds, the proposed extension footprint overlaps the RPA by 18sq.m, which equates to approximately 12.5% of the RPA being impacted by the proposed development.

T1 grows in a raised planting bed constructed of bricks and is 1m above ground level. Many primary structural roots will be contained within this planter and some will have grown into the soil profiles beneath for anchorage and nutrient and water uptake. It is reasonable to assume that primary and secondary roots will have grown into the nursery site despite the barriers to growth and these roots should be considered during the proposed development.

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Excavation of soil for foundations can remove fibrous and woody roots causing detrimental effects to the physiological condition of the tree. The development is far enough away not to have structural implications on the rooting area of the Plane tree.

The proposed extension will be at least 1m away from the site boundary line fence closest to T1, this gap will be essential for build space and roots should also be considered in this area. Chemical seepage into the soil can desiccate roots therefore mixing and storage of materials and contaminants should be positioned outside the RPA of T1.

The north aspect of the tree canopy grows over the nursery grounds and one low limb extends 6m into the airspace above the site and proposed extension. Although the extension is single storey this limb may prevent logistical problems with construction operations such as crane operations or HIAB deliveries. The limb is overlong and protrudes outside the main canopy line, I would recommend pruning back this proportion of the tree by at least 3m to suitable growth points to eliminate the likelihood of mechanical damage from such operations.

T1 is a healthy, vigorous tree specimen and with suitable foundation methodology the impact of the proposed development would be minimal in terms of its structural and physiological health.

8. Site Observations

Photo 1: The nursery provides excellent care and facilities for local children in the area all year round. The amount of children needing to use the space is increasing and the proposed extension would cater for these increased numbers. The space is within a quiet leafy park area, ideal for learning and outdoor exploration. There are no trees within the site however many mature trees surround the boundary lines making it a very green location for children to learn and enjoy the space.

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Photo 2: T1. London Plane – One large mature tree overhangs the proposed site with no significant defects and no history of crown reduction. Some lateral limbs overhang the nursery grounds. The physiological condition of the tree is good and the structural condition is fair (remedial defects present). The tree provides a high landscape contribution and is one of many parkland trees that grow in the surrounding open space.

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Photo 3: Illustrates proportion of canopy of T1 that overhangs the nursery grounds. A specification for a lateral reduction of the canopy will be set out in the AMS of this report.

The canopy has not been reduced before therefore pruning cuts should be to growth points and suitable junctions so as not to cause unbalance or unnecessary large wounds in the tree canopy.

The pruning work would make space for crane operations and also mitigate potential branch failure into school grounds from a hazard assessment perspective.

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Photo 4: Illustrates the outside space available for children who attend the nursery. The new extension would be located to the south of the existing building.

Photo 5: Taken from outside the nursery from the adjacent park. T1 can be seen in the top right corner of the photo and is the only tree that would be impacted by the proposed development.

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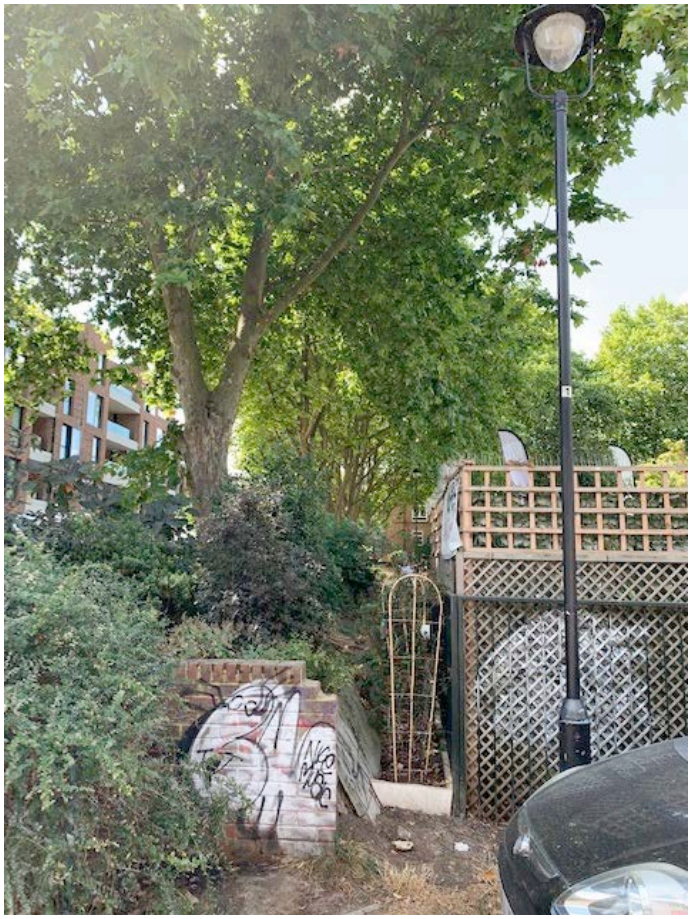
Photo 6: (Left) T1 grows in raised planter 3m away from the boundary fence line of the nursery. Proposed extension footprint is 1m further from the boundary fence.



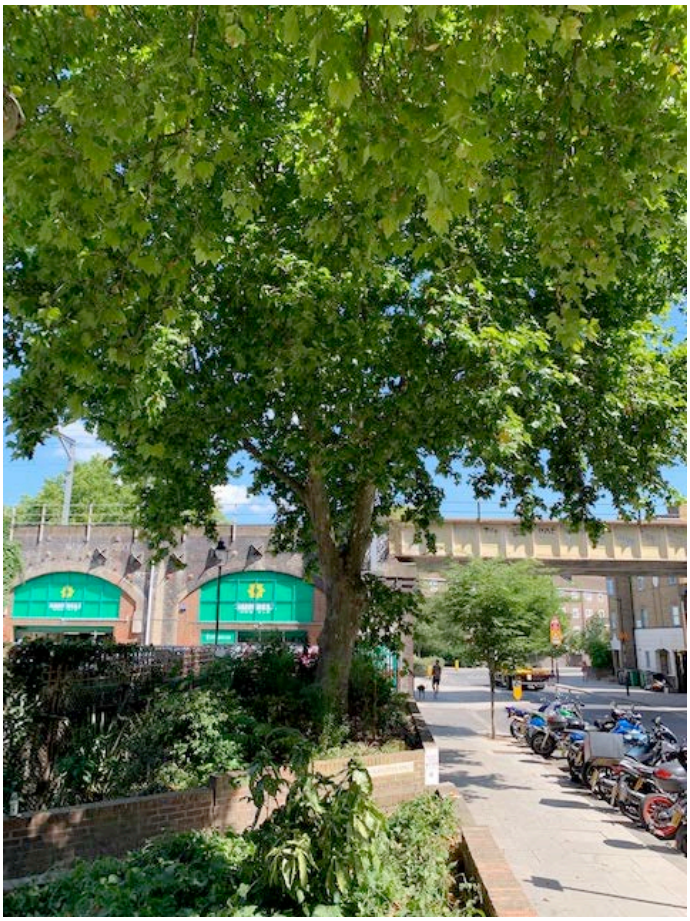


Photo 7: (Right) Illustrates position of T1 in relation to public footpath, planting bed and surrounding structures.

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9. Arboricultural Method Statement:

To ensure the health and existing vitality of the tree that grows outside the proposed site, the AMS should be used in conjunction with the tree protection plan attached to this report. (*TPP Littlehaven Nursery*) See below for trees that require protection, pruning or removal prior to demolition and construction.

T1 – London Plane: 12.5% of RPA impacted by excavation for foundations for proposed extension building. (See TCP Littlehaven nursery)

3 Trial pits at 2m intervals along the south boundary of proposed footprint would allow us to make a decision on foundation design. I recommend having an approved contractor dig these pits post planning approval to ensure there are no significant roots extending into the site. Once confirmed, the project engineer can agree a suitable foundation solution. All excavations within the RPA must be hand dig only.

(i) **Pruning:**
I would recommend a lateral reduction of the branches that overhang the nursery grounds:
"Crown reduce overlong lateral spread protruding from main canopy line over nursery grounds by 3m to suitable growth points and pruning junctions." Root pruning may be required should the project gain planning which a qualified and insured arboriculturalist should undertake.

(ii) **Installation of services and utility runs:**
At this stage it is not clear where the service runs and inspection chambers will be installed. From proposed plans, there is an existing drain channel running through the site that is outside the RPA of T1. All services running through RPA's must be installed by hand dig only with arboricultural supervision.

(iii) **Construction exclusion zones:**
2m high 'Heras' fencing with pins driven into the soil to ensure rigidity will barrier off construction activity within RPA's as per the tree protection plan. There is adequate space on site for storage of materials and site welfare cabins outside RPA's. Site monitoring should take place monthly by the project arboriculturalist.

(iv) **Site access:**
The site access is via the tarmac private road running adjacent to the site and provides excellent access for the proposed extension. The access is outside the RPA of T1 and materials could be craned over the boundary fence. A pre fabricated build construction may be a suitable option for the proposed extension.

10. CTMP – construction traffic management plan with regards to soil and rubble extraction.

The private access road adjacent to the nursery will offer ample space for site access and to extract and import materials, without the need for traffic management on Castlehaven Road. The road is

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load bearing and sufficient for the scale of project proposed.

11. Conclusion

The proposed development of Littlehaven Nursery would have a low arboricultural impact on the surrounding trees in the area. T1 would be affected by the development. A marginal amount of the rooting area is compromised, leaving over 75% of the RPA completely unaffected.

The raised planter in which the tree grows will act as a barrier to rooting activity into the school grounds however it is likely that roots will extend into the area of development. This is why I propose digging of trial pits to ascertain the extent of rooting activity. If no roots are found, the engineer can adopt any foundation design that is suitable, if significant roots were found throughout the site, pile foundations would have to be considered to limit excavation within the RPA of T1.

The pruning work set out in the AMS is not significant and would reduce the likelihood of branch failure in nursery grounds as well as clearing the airspace above the proposed extension building.

I do not forsee this development having a detrimental affect on the London Plane tree adjacent to site. No other trees would require protection should the project go ahead as there are simply none in the immediate vicinity of the proposed extension. There would not be any requirement to remove any existing trees to facilitate this development.

Should tree roots be present during trial pit investigations; tree root pruning should be carried out in accordance with British Standards 3998:2010.

The Tree Protection Plan annotates measures to protect T1 during the proposed development as per BS 5837:2012. Should the project gain planning; I would oversee the tree protection prior to works commencing, during and after the proposed development for continuity.

This report is to be submitted in conjunction with ***Tree Survey*** *– FP_TS_278* ***Site Plans*** *– TMS Littlehaven Nursery, TCP Littlehaven Nursery, and TPP Littlehaven Nursery.*

12. (i) Tree Survey
Attached as a separate pdf documents: Reference - ***FP/TS/278***

(ii) Survey Map *- attached as a separate pdf document identifying tree numbers and BS Tree Categories: Reference –* ***TMS Littlehaven Nursery***

(iii) Tree Constraints Plan:
Attached as a separate pdf drawing: Reference ***TCP Littlehaven Nursery***

(iv) Tree Protection Plan:
Attached as a separate pdf drawing: Reference ***TPP Littlehaven Nursery***

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13. References:

- BS 5837:2012 – Trees in relation to design, demolition and construction – Recommendations
- Original scale site survey supplied by Sceales Gunn Design Ltd.

Tree Survey

Client: Littlehaven Nursery
Site: Castlehaven Road London NW1 8PU
Date of Survey: 08/08/2022
Job reference: FP/TS/278

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Tree ID	Species	Height	Branch spread	DBH	Crown clearance	Age class	Physiological condition	Structural condition	Landscape Contribution	Estimated contribution	BS Cat'	Protection Radius
T1	Platanus X hispanica (London plane)	18.00m	N 8m E 6m S 8m W 6m	684.09mm	5m	Mature	Good. No significant defects.	Fair. No significant defects. No history of crown reduction. Grows in raised planting bed 1m above ground level. North side of canopy extends over nursery.	High	40+	A	8.21m

Notes

1 Height describes the approximate height of the tree in meters from ground level.

2 The Branch Spread refers to the crown radius in meters from the stem centre and is shown on each of the four compass points (i.e. N, E, S, W).

3 DBH is the diameter of the stem measured in millimeters at 1.5m from ground level or just above ground level for multi stemmed trees. The diameter may be estimated (e), where access is restricted. An average is taken for tree groups.

4 Crown Clearance is the height in meters of crown clearance above adjacent ground level.

5 Physiological condition – Good (normal growth), Fair (below normal), Poor (sparse/weak), Dead (dead or dying tree). Individual observations are included in this section.

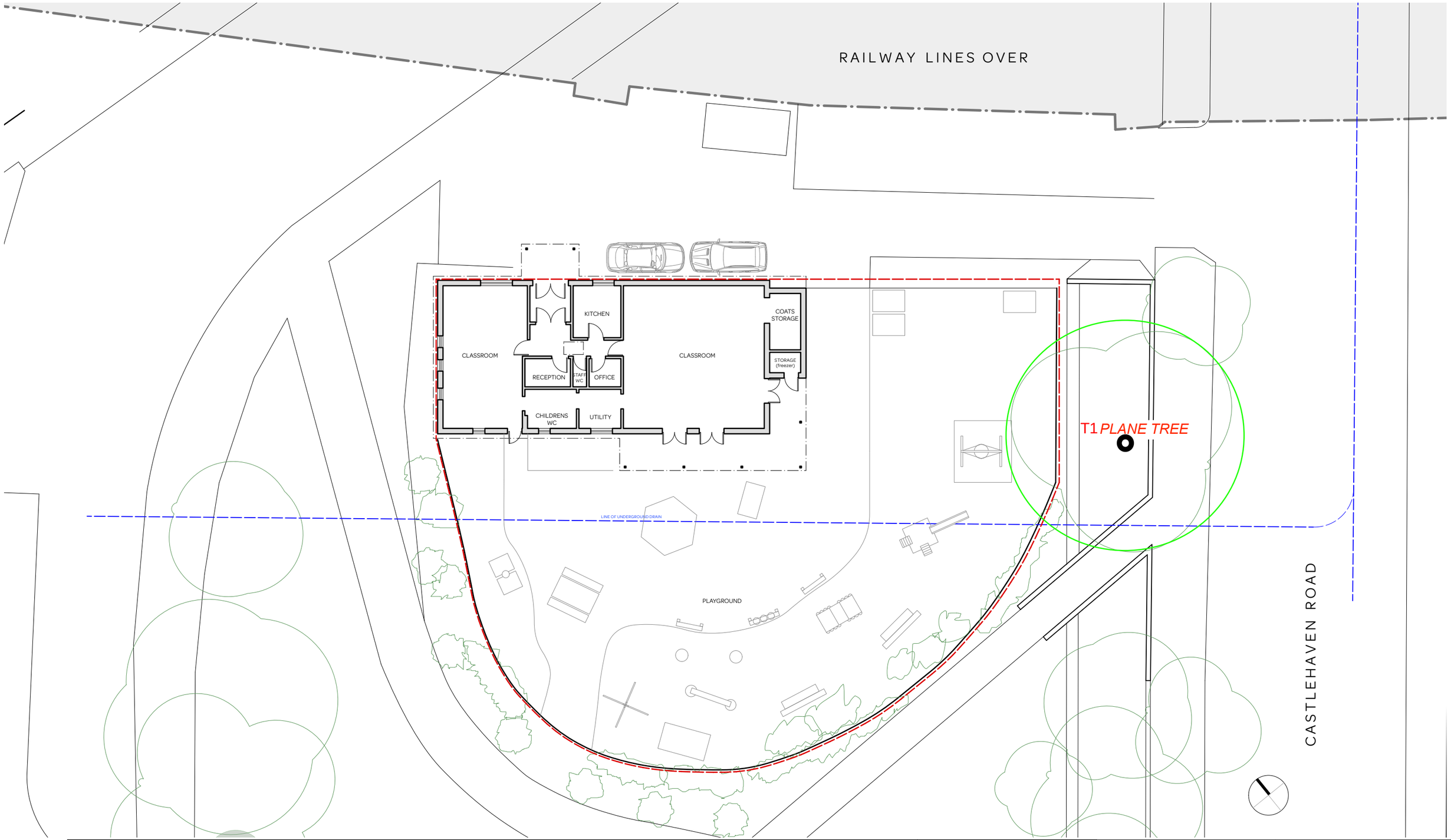
6 Structural Condition - Good (no or only minor defects), Fair (remediable defects), Poor – (major defects present or suspected), No significant defects – (defects of no concern present), Dangerous – (dead, diseased or dangerous). Individual observations are included in this section.

7 Landscape Contribution - High (prominent landscape feature), Medium (visible in landscape), Low (secluded/among other trees).

8 Estimated contribution is the tree's estimated remaining effective contribution in years.

9 BS Cat refers to British Standard 5837:2012 Table 1 category and refers to tree/group quality and value; 'A' - High, 'B' - Moderate, 'C' - Low, ‘U’ - Remove or very poor quality.

10 Protection Radius is a radial distance measured from the trunk centre and is used to calculate the BS RPA.



notes:

General notes:
1. Do not scale drawings. Dimensions govern.
2. All dimensiions are in millimeters unless noted otherwise.
3. All dimensions shall be verified on site before proceeding with the work.
4. Square Feet Architects shall be notified in writing of any discrepancies.

Revision - 15/08/22 TMS Littlehaven Nursery
Scale 1:200@A3
BS Category tree survey map:
U - Red
A - Green
B - Blue
C - Grey

revision:

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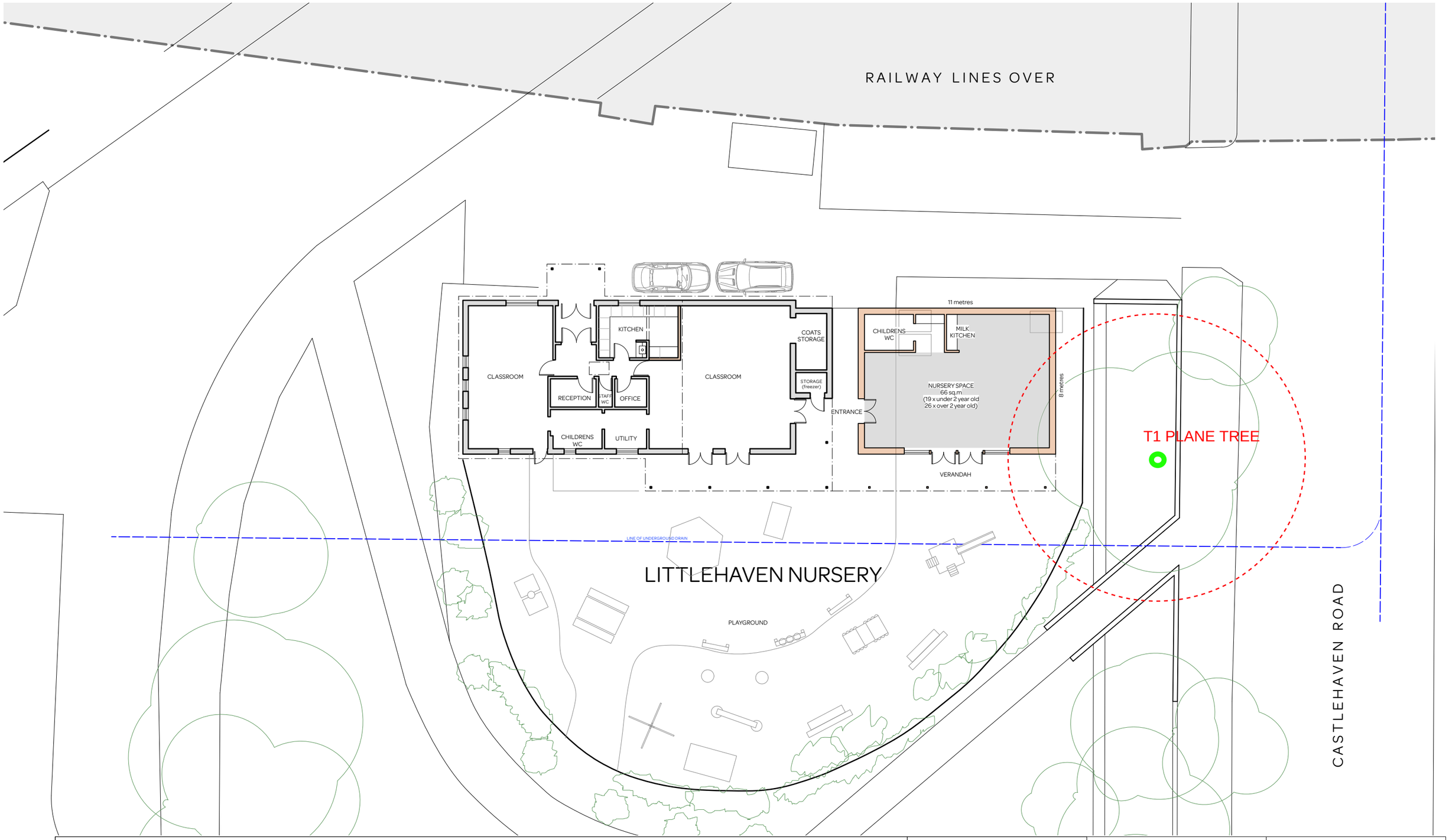
drawing title: Existing site plan
client: Castlehaven Community Association
project: Littlehaven Nursery
date: June 2022
scale: 1:200@A3
drawing number: 2211_S_02
revision: *



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REVISED DRAWING 15/08/22
KEY: Tree Constraints Plan
TCP Littlehaven Nursery
NOTES:
Root Protection Area - Red dashed circle
Trees to be retained - Inner Green Circle

0 10 20 M

revision:

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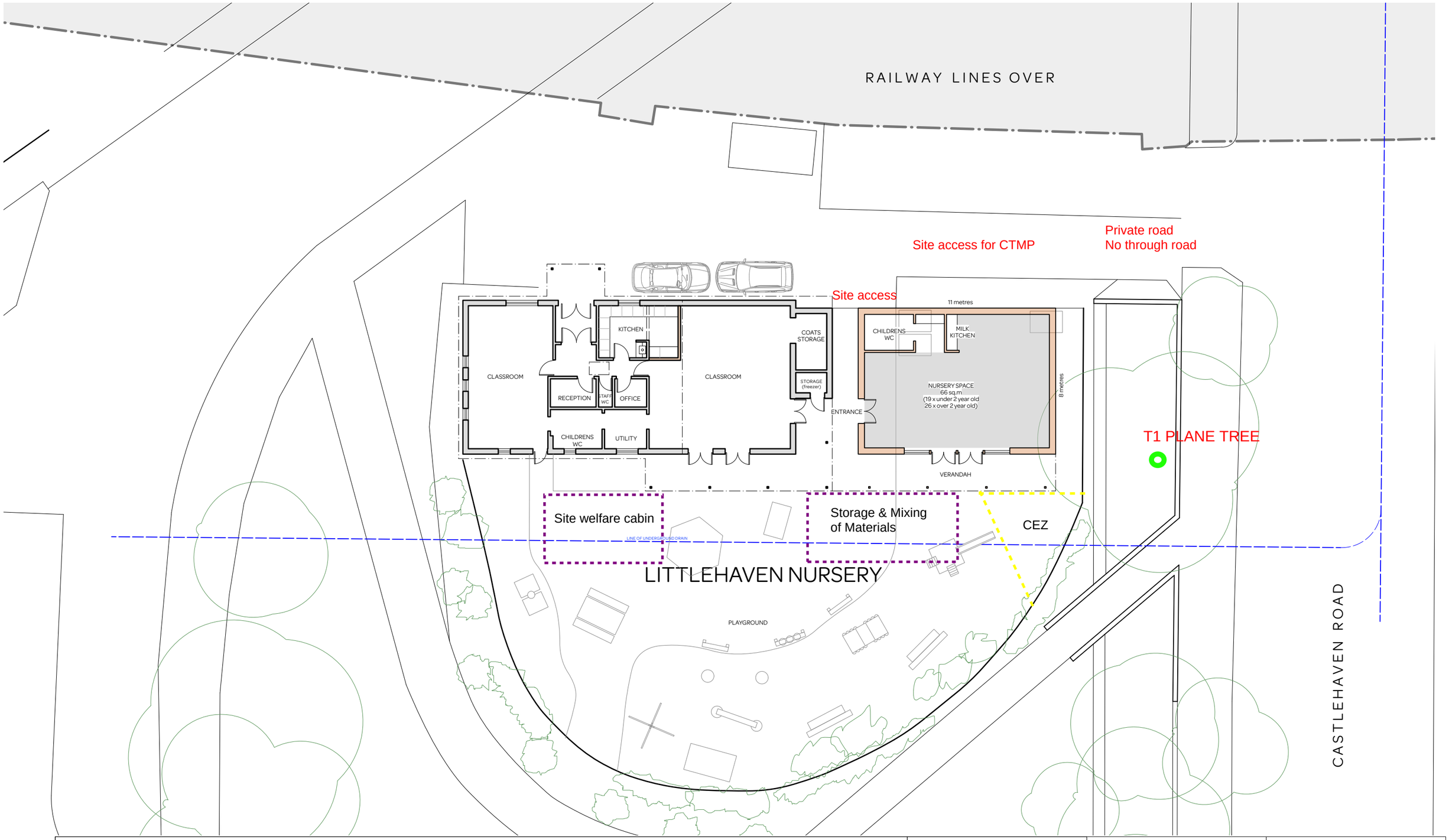
drawing title: Proposed site plan
client: Castlehaven Community Association
project: Littlehaven Nursery
date: June 2022
scale: 1:200@A3
drawing number: 2211_SK_01
revision: *



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REVISED DRAWING - Tree Protection Plan
15/08/2022
TPP Littlehaven Nursery
KEY:
Trees to be retained - Green
Trees to be removed - Red
****
CEZ (construction exclusion zone) - Yellow dotted line
Storage and mixing of materials - Purple dotted line

0 10 20 M

revision:

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