APPLICATION FOR THE CONSTRUCTION OF AN ADDITIONAL PARKING SPACE

DORCHESTER PHASE 1, PLOT 21

ARBORICULTURAL IMPACT ASSESSMENT, PROTECTION PLAN AND METHOD STATEMENT

ON BEHALF OF THE DORCHESTER GROUP

BS5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION AND CONSTRUCTION – RECOMMENDATIONS'

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REVISIONS:

Date	Rev	Description	Initials
08.10.15	A	First issue	MGP
14.10.15	B	Updated layout	MGP

1. INTRODUCTION AND SCOPE

Scope of instruction

1.1 Pegasus Group have been instructed by Dorchester Living to provide and Arboricultural Method Statement in support of a planning application for the construction of an additional parking bay relating to Plot 21 as part of approved Phase 1 proposals.

1.2 The scope of the instruction was to evaluate potential arboricultural impacts associated with parking bay construction and provide a method statement to set out appropriate working methodologies to ensure the impacts are avoided or minimised.

2. ARBORICULTURAL IMPACT ASSESSMENT

Description of site and proposals

2.1 Proposals seek the construction of a single parking bay opposite Plot 21 within the Heyford Park Phase 1 development. The bay will be located to the front of Plot 21 to the south of Camp Road, between two silver birch trees which are part of G19 and G20 (Category B). The proposed location for the parking bay is currently comprised of grassland and would be accessed from the gravel driveway to the south of the proposed location. Proposals are shown on the Tree Protection Plan.

APPENDIX 1 - TREE PROTECTION PLAN

Discussion of potential impacts

2.2 A review of proposals identifies that the proposed parking bay encroaches into the outer eastern edge of the Birch tree of G19 and the western edge of the RPA of the birch tree that is part of G20. Parking bay construction has the potential to cause root severance and soil compaction in these areas. To avoid damage to the root zones of these trees and allow for future root development it is recommended that parking bay construction follow a no-dig methodology as set out within the Arboricultural Method Statement (see Section 3).

2.3 In order to deter further encroachment into the RPAs of G19 and G20 tree protection fencing to BS.5837:2012 would also need to be set up prior to construction, as shown on the TPP. To ensure there is sufficient working space it is likely that a 1m buffer area between the edge of the proposed parking bay and tree protection fencing would be required. This 1m buffer zone would require the use of temporary ground protection in order to prevent compaction of the soil within the trees' rooting area by site operatives.

2.4 The location of the proposed parking bay is also situated under the canopy lines of both G19 and G20. Following a site visit (5th October 2015) it was observed that past pruning works have lifted the canopy in this area to a sufficient height that would allow parking bay construction and occupancy without the requirement for further pruning works.

3. ARBORICULTURAL METHOD STATEMENT (AMS)

Purpose

3.1 The aim of the AMS is to prevent and/or minimise the impacts of parking bay construction works on retained trees (G19 and G20). It gives step-by-step guidance and specifications for works which have the potential to result in loss of, or damage to, retained trees.

Contacts

- Barry Dell – Project Manager (Dorchester Group) 01869 238410/07548 650556 b.dell@dorchestergrp.com
- Jon Brewin – Arboricultural Officer (Cherwell DC) 01295 221708 / 07854 216783 jon.brewin@cherwellandsouthnorthants.gov.uk
- Mike Paginton – Arboriculturist (Pegasus Group) 01285 641717 / 07899 895369 mike.apginton@pegasuspg.co.uk

Abbreviations Used

3.2 The following abbreviations and definitions apply in relation to this document:

- AIA – Arboricultural Impact Assessment
- AMS – Arboricultural Method Statement
- RPA – Root Protection Area
- CEZ – Construction Exclusion Zone
- TPP – Tree Protection Plan

Informative - how tree damage can occur

3.3 Above the ground.

Damage can occur as a result of contacts between branches and/or tree trunks. This is often but not always associated with machine operations, groundworks excavations, teleporters, high sided vehicles and crane use. Other forms of

above ground damage include fixings to trunk and unauthorised cutting back of branches.

3.4 Below the ground

It is often not appreciated that the majority of most tree roots are generally located within the top 600mm of the ground. On this basis it needs to be understood that damage to roots can occur in two ways:

- Root severance can occur as a result of, for example, soil stripping during site clearance or excavations for services.
- Root dieback and death can result from compaction of the soil. Compaction can occur surprisingly easily as a result of vehicle weight, weight of stored materials or increased pedestrian access. Compaction crushes out soil pore space and prevents tree respiration from occurring (respiration requires gas exchange between the ground and the atmosphere). Compacted soil is denser and therefore inhibits/prevents any further new root growth.

3.5 The effects of these impacts can be disfiguring to a tree's appearance and also weaken a tree making it more liable to attack by pest and diseases. In addition, root damage or death results in corresponding decline above the ground with dieback occurring within the tree crown.

3.6 The effects of damage to trees generally take some time to become fully apparent. In many cases, damaged trees decline slowly after the completion of a new development, until they eventually need to be removed due to ill health.

3.7 Tree protection barriers and load distributing 'no-dig' parking space are specified in order to prevent soil compaction from taking place.

3.8 Remember that trees are an important part of this development. They must be kept undamaged so that they can fully benefit the finished project well into the future.

Key personnel and individual responsibilities

3.9 The Developer (Dorchester Living) shall hold overall responsibility for the project and shall appoint professionals and delegate responsibility in relation to the Scheme of Tree Protection as follows:

Project Site Manager shall hold responsibility to ensure that all key contractors and all other persons working on site have a responsibility to be aware of trees and to abide by tree protection procedures set out on the Tree Protection Plan and the Arboricultural Method Statement.

Project Arboriculturist shall be responsible for independently monitoring/supervising the effectiveness of tree protection at regular intervals and report all findings in writing back to the developer, the project site manager and the local planning authority. He/she shall also be instructed to provide additional advice should unforeseen circumstances develop. He/she must hold a recognised qualification in arboriculture to NQF Level 4 or higher.

3.10 Other appointed individuals and their contact information shall be recorded as part of the on-site pre-commencement site meeting.

How the AMS must be used

3.11 The AMS must be used as a reference source for site operatives in order to guide tree-related aspects of the construction process. A precautionary approach is required.

3.12 The AMS must be referred to by site managers during the construction process itself. A copy of this document must therefore be kept available in the main Site Office for quick and easy reference.

Site induction

3.13 Prior to commencing works on site, all site operatives must be briefed by the Site Manager in relation to site procedures and rules that relate to retained/protected trees as well as the content of the AMS. Site operatives shall sign to confirm that they understand and will abide by these requirements. The Site Manager shall

retain copies of these site induction statements for future reference as may be necessary.

APPENDIX 2 – SITE INDUCTION FORM - TREE AWARENESS

3.14 The site operations must be sequenced in accordance with the over-arching timetable of work stages set out within the AMS. Should any change to the sequence of operations be necessary, or if any other incidents occur, the Project Arboriculturist must be consulted. The Project Arboriculturist shall then evaluate any potential arboricultural impacts that could arise and specify additional tree protection/remediation measures as required. Confirmation that the proposed changes are acceptable within the context of relevant planning permission must be obtained in writing from the local planning authority prior to any new operations on site.

3.15 Where site operations have potential to result in more substantial impacts on retained and protected trees, an arboricultural watching brief shall be required.

General site rules for tree protection

3.16 In simple terms: do not carry out any work within any Construction Exclusion Zone (CEZ) without prior liaison with the Project Arboriculturist and written authorisation from the Local Planning Authority.

3.17 Within the CEZ:

- No mixing of cement
- No soil/turf stripping, raising/lowering of ground levels, deposit or excavation of soil or rubble
- No excavations for services or installation of services
- No storage of materials, machinery fuel, chemicals or other materials of any other description
- No parking/use of tracked or wheeled machinery
- No siting of temporary structures including hard standing areas, portaloos, site huts

- No lighting of fires or disposal of liquids.

3.18 Fires on site should be avoided if possible. Where they are unavoidable, they must not be lit in a position where heat could damage foliage or branches. Fires must be a minimum of 20m from the trunk of any retained tree or the centre line of any hedgerow to be retained.

3.19 No signs, cables, fixtures or fittings of any other description shall be attached to any part of a retained tree.

Work Phases

3.20 The table below lists and describes the sequence of works that must be followed in order to minimise damage to retained trees.

Work stage	Job description
1	Pre-commencement site meeting
2	Installation of tree protection barriers and notices and ground protection
3	Installation of 'no dig' parking bay
4	Removal tree protection barriers and ground protection
5	Landscape Planting

Pre-Commencement Site Meeting

3.21 The purpose of the meeting is to enable all relevant parties within the development team to meet, to be aware of the requirements of the AMS, and to agree a co-ordinated approach to the project.

3.22 The meeting shall be pre-arranged, and the Local Planning Authority Tree Officer shall be given five working days' written notice and invited to attend.

3.23 Required attendees:

- Site manager
- Project Arboriculturist

- Contractors (including arborist and landscaping operatives) and other relevant parties

3.24 Matters to be addressed:

- Identification of persons present and exchange of contact information
- Familiarisation with all aspects of the AMS
- Familiarisation with the site in relation to the AMS

3.25 The Project Arboriculturist shall provide written confirmation to the Local Planning Authority Tree Officer that the meeting has occurred and that specified matters have been addressed.

Installation of Tree Protection Barriers and Notices

3.26 All tree protection barriers must be installed in accordance with the default BS5837:2012 specification that is shown on the TPP (Appendix 1).

3.27 Tree protection barriers must be erected prior to the commencement of any other construction phase-related site operations. They must remain in place for the duration of the parking bay construction.

3.28 All barriers are to be installed in locations as specified on Tree Protection Plan.

3.29 All weather A2-sized notices reading, "CONSTRUCTION EXCLUSION ZONE – NO ACCESS" shall be attached to tree protection barriers in the positions indicated on the Tree Protection Plan.

3.30 The project arboriculturalist must approve the condition and positioning of fencing and temporary ground protection and report to LPA Tree Officer prior to commencement of further stages in the construction process. At this stage, the Project Arboriculturist should also identify any other unanticipated remedial tree works that may be necessary in relation to tree crown spread beyond erected tree protection. These works must be specified in writing and carried out by the authorised tree work contractor

3.31 On completion of all construction works, the project arboriculturalist shall approve site conditions prior to removal of barriers and provide the LPA Arboricultural Officer with one week's written notice of intention to remove barriers.

3.32 Temporary ground protection between the proposed parking bay and the tree protection fencing (CEZ), creating a 1m working area buffer, should be installed after the erection of the tree protection fencing. It is considered that a 100mm layer of bark chip atop a geotextile membrane then overlain by scaffold boards would be suitable to provide temporary ground protection during parking bay construction.

Installation of load distributing 'No Dig' parking bay

3.33 The proposed parking bay will adopt a no dig methodology as shown in Appendix 3. It is recommended that a product such as Cellweb (http://www.geosyn.co.uk/product/Details/cellweb-tree-root-protection/f8b9be29-d617-4de2-9486-99ec382b00e7) or another similar approved alternative is used to construct the No-Dig parking bay. Installation of the parking bay shall be in accordance with the manufacturer's method statement.

APPENDIX 3 – TYPICAL 'NO DIG' DRIVEWAY DETAIL

APPENDIX 4 – CELLWEB INSTALLATION METHOD STATEMENT

3.34 The sequence of operations for path installation is set out below.

Work stage	Job description	Notes
1	Remove any protruding stones/rubble and surface vegetation	All works to be carried out by hand.
2	Level ground	Fill major hollows with clean sharp sand. Do not grade off high points. Work by hand.
3	Install geotextile membrane	Work in accordance with manufacturer's instructions
4	Set out cell web and pin into place	Work in accordance with manufacturer's instructions
5	Fill cell web with clean angular, washed 40/20 road stone containing **no fines.**	Work into the site from outside the RPA so that no activity occurs anywhere except on previously filled cell web. Work in accordance with manufacturer's instructions
6	Add permanent wearing course	None

Removal of tree protection barriers and ground protection

3.35 All operations relating to parking bay construction must be completed prior to the commencement of this phase of tree protection.

3.36 The Project Arboriculturist shall be briefed so as to be able to provide the LPA with 5 working days notice of commencement of tree protection barrier removal.

3.37 All works associated with protection barrier removal and ground protection removal must take place from outside of CEZs. Barriers must be removed by hand. Any mechanical plant used must not enter into CEZs.

Landscape Planting

3.38 Following the completion of parking bay construction, shrub planting will take place around the parking bay to distinguish levels change and edging board. Planting will comprise 36 No. *Buxus sempervirens,* as detailed within Pegasus Drawing BIR.4322_17L Phase 1 Landscape Proposals. All planting is to be undertaken using hand tools only.

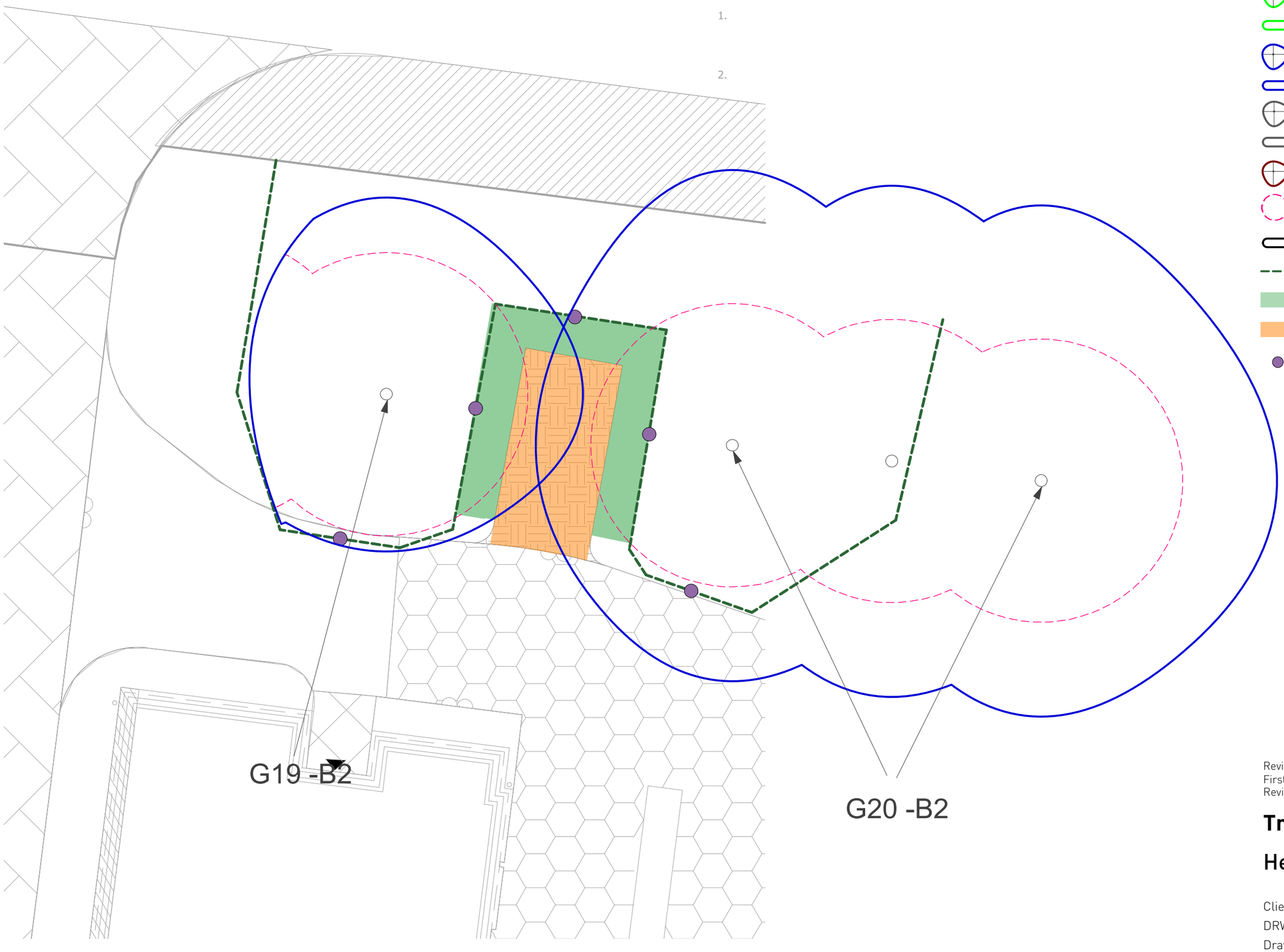
Arboricultural Monitoring.

3.39 A summary of arboricultural site monitoring requirements is set out below:

Work stage	Job description	Project Arboriculturist Action
1	Pre-commencement site meeting	Report to LPA that meeting has occurred and that specified matters have been addressed. Confirm the set out positions of tree protection barriers, ground protection and no dig parking bay.
2	Installation of tree protection barriers, notices and ground protection	Report to LPA that tree protection is in place according to Tree Protection Plan
3	Installation of no dig parking bay	Oversee installation of parking bay. Provide advice as necessary. Report to LPA that parking bay is in place according to Tree Protection Plan

APPENDIX 1

TREE PROTECTION PLAN



KEY **BS 5837 : 2012 Categories**

- Tree Category A - High Quality
- A Category - Hedgerow, Group, Woodland
- Tree Category B - Moderate Quality
- B Category - Hedgerow, Group, Woodland
- Tree Category C - Low Quality
- C Category - Hedgerow, Group, Woodland
- Tree Category U - Unsuitable for Retention
- Root Protection Area to BS 5837:2012
- Shrub Mass / Offsite Tree
- Tree Protection Barrier to BS 5837:2012
- Temporary Ground Protection to BS 5837:2012
- Area of 'No Dig' Construction to BS 5837:2012
- All weather information notices to read 'Construction Exclusion Zone - Keep out' A2 in size. To be attached to tree protection barriers

Revisions:
First issue - A - 07/10/2015 TD
Revised Layout - B - 14/10/2015 TD

Tree Protection Plan - Plot 21

Heyford - Phase 1

Client: Dorchester Group
DRWG No: **D.0341_80** Sheet No:_ REV: B
Drawn by : TD Approved by: MP
Date: 14/10/2015
Scale: 1:100 @ A3

Pegasus Environment

0 10m

N

APPENDIX 2

SITE INDUCTION FORM - TREE AWARENESS

TREE AWARENESS – SITE INDUCTION

SITE NAME:

DATE OF INDUCTION:

Trees are an important part of this development. They must be kept undamaged so that they can fully benefit the finished project well into the future. All persons working on this site have a responsibility to be aware of trees and to abide by tree protection procedures.

How trees can be damaged – think roots!

Above the ground – contacts and impacts with branches and trunk (machine operations eg teleporters, high-sided vehicles, crane use, fixings to trunk, unauthorised cutting back of branches)

Below the ground – root severance (eg soil stripping during site clearance, excavations) and root damage resulting from compaction of soil near trees (eg vehicles, pedestrian, storage of materials). Effects of root damage take time to become obvious, but will result in disfiguring dieback of leaves and branches, or even tree death.

Tree protection procedures

Provided that the simple steps are followed most tree protection is straightforward:

- Stay out of tree Construction Exclusion Zones (CEZs). These are the areas of ground surrounding retained trees that are protected by barriers. If you need to go into a CEZ, you must first gain authorisation from the Site Manager
- No construction activity of any description within CEZs, eg soil stripping, cement mixing, services installation, storage of materials etc
- No fires within 20m of trunk of any retained tree
- If authorised to work within a CEZ, work to the **Arboricultural Method Statement**, eg demolition, construction, landscaping works etc
- If damage occurs, inform the Site Manager.

Remember

Planning Authority enforcement action needs to be avoided:

- 'Breach of Conditions' notices can prevent a site from being signed-off.
- 'Temporary Stop Notices' halt site operations and result in associated high costs.
- Wilful damage/destruction of TPO/Conservation Area trees can result in company and/or individual prosecutions - fines can me anything up to £25,000 (County Court fines can be higher). Remember that fines apply to the person committing the offence as well as the site owner and main contractors!

Be aware of tree protection and stick to the procedures. Tree protection is straightforward. If in doubt –ask!

I have received site induction in tree awareness and tree protection procedures

PRINT NAME

SIGN

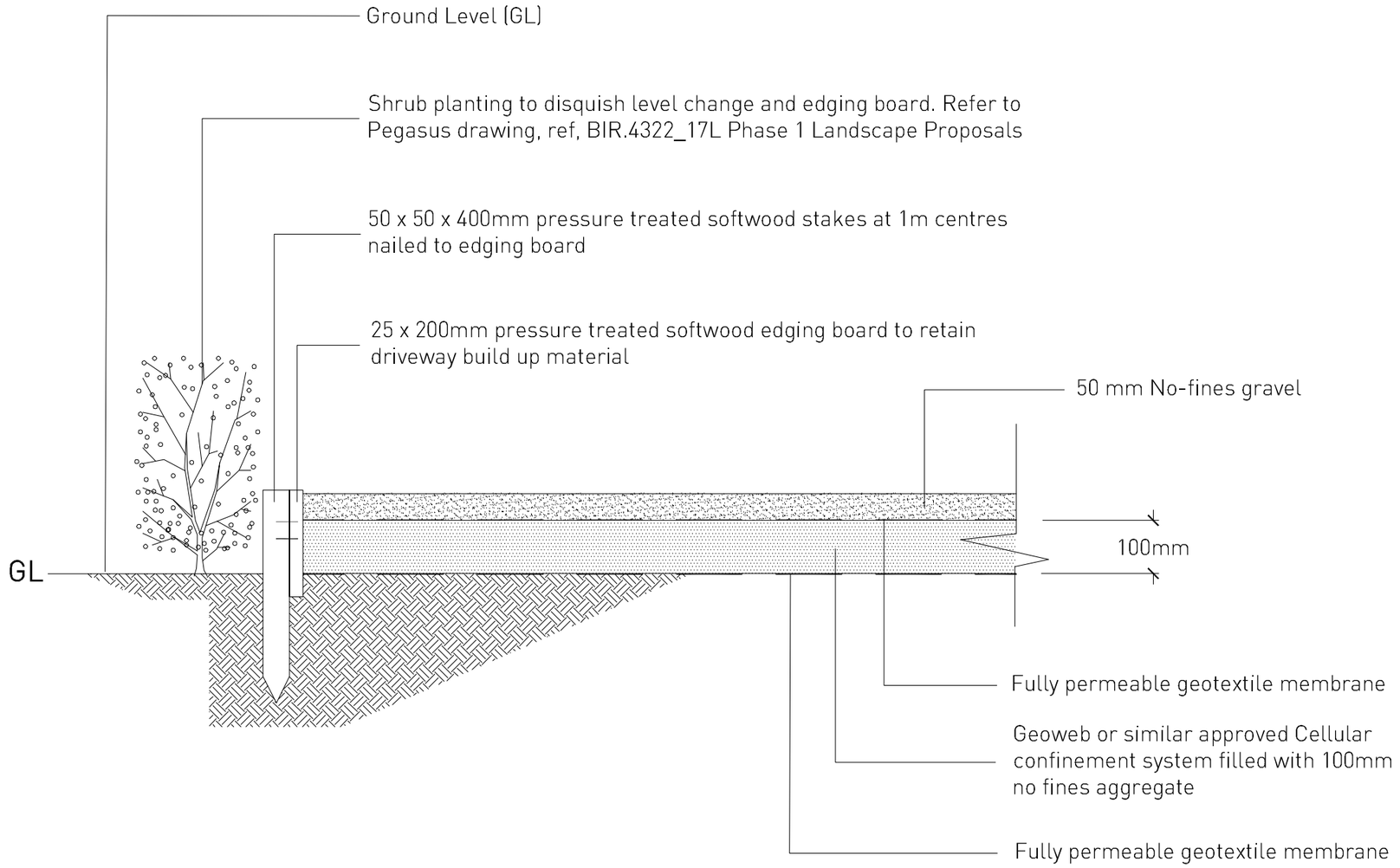
DATE

APPENDIX 3

TYPICAL 'NO DIG' DRIVEWAY DETAIL

NOTES

- All operations to be 'no dig' and in accordance with BS 5837: 2012 'Trees in relation to design, demolition and construction' and Arboricultural Practise Note 12 'Through the Trees to Development (APN12).
- All products to be installed to manufacturers specification.



NORTH

Phase 1 - Heyford Park, Upper Heyford

Typical 'No Dig' Driveway Detail

Drawing Ref: **BIR4322_28**

Client: Dorchester Group

Date : 05/10/2015
Drawn by : AP
1:10 @ A3

Pegasus Design

PLANNING | DESIGN | ENVIRONMENT | ECONOMICS

APPENDIX 4

CELLWEB INSTALLATION METHOD STATEMENT

Geosynthetics Ltd
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sales@geosyn.co.uk
www.geosyn.co.uk

Method Statement

For The Installation of Cellweb Tree Root Protection System.

When considering damage to tree roots, in applications of vehicular access and parking, the risk of oxygen depletion caused by compaction of subsoil's, site clearance damaging the root source and type of reinforcement are areas which need to be given due consideration.

Other risk factors are:

- Creating an impermeable surface
- Causing a rise in the water table due to construction
- Increasing ground level
- Contamination of subsoil's

1. Compaction

When looking at site conditions and use, the following information should be considered to enable a load bearing structure capable of supporting traffic to be proposed:

- Californian Bearing ratio (CBR) – Standard test method for measuring soil strength
- Soil types
- Water table
- Maximum load (vehicles)
- Acceptable rut depth
- Reinforcement type — Cellweb Cellular Confinement 150mm deep
- Type and Depth of engineered infill material — Clean, angular. Usually 40mm to 20mm.

2. Dig (site strip)

Site stripping does damage some root structure prior to construction; however, the use of no-dig construction elevates the access road requiring edge protection.

3. No dig

3.1. Remove surface vegetation	Use a suitable herbicide suitable for the specific vegetation and not harmful to the tree root system
3.2. Place geotextile separation filtration layer	Use a Treetex T300 non woven Goetextile over the prepared sub-grade. Overlap dry joints by 300mm. The three dimensional cell structure, is formed by ultrasonically welding polyethylene (perforated) strips / panels together to create a three dimensional network of interconnecting cells. A high degree of frictional interaction is developed between infill and the cell wall, increasing the stiffness of the system
3.4. Edge restraint	A treated timber edging is usually acceptable.

4. Cellular Confinement and Backfill Material.

Expand the Cellweb 2.56m wide panels to the full 8.1 metre length. Pin the Cellweb panels with staking pins to anchor open the cells and staple adjacent panels together to create a continuous mattress. Infill the Cellweb with a no fines angular granular fill (typically 4-20mm) within each open cell. The use of cellular confinement reduces the bearing pressure on the subsoil by stabilising aggregate surfaces against rutting under wheel loads. Comparisons between cellular confinement and traditional aggregate and geogrid-reinforced structures demonstrate a 50% reduction in construction thickness of the granular material.

5. Surfacing Options

Block Paving:
5.1. Lay second layer of Treetex T300 Geotextile separation fabric over the infilled Cellweb sections
5.2. Lay sharp sand bedding layer compacted with a vibro compaction plate to recommended depth.
5.3. Place block paviors as per manufacturers instructions.

Tarmac:
Place 25mm surcharge of the granular material above the Cellweb system and lay the bitumen base and wearing courses.

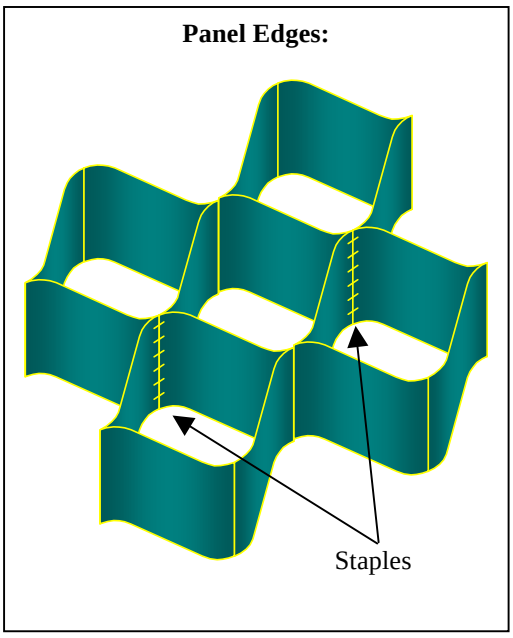
Loose Gravel:
5.4. Ensure Cellweb is completely filled.
5.5. Place decorative aggregate to required depth
NOTE: A treated timber edge should be provided to restrict gravel movement.

Grass Blocks:
5.6. Place second layer of Treetex T300 Geotextile separation fabric over the infilled Cellweb sections
5.7. Place 50/50 rootzone bedding layer to the required depth
5.8. Lay recycled Duo Block 500 Grass Protection System infilled with 50/50 rootzone mix.
5.9. Seed as per architects instructions.
(Alternatively the Grass Blocks may be infilled with gravel.)

Concrete Slab
6.0 Lay Cellweb as previous and place second layer of Treetex Geotextile directly over the filled panels. Pour concrete base as specified.

Below are illustrations of the correct stapling procedure for joining both edges and ends of panels together;

Panel Edges:



Panel Ends: