



## BS 5837:2012 Arboricultural Impact Assessment and Arboricultural Method Statement

Cellars Clough- Access Road

for:

Cellars Clough Properties Ltd.

SHF.1130.001.AR.R.002



## Contact Details:

Enzygo Ltd.  
1<sup>st</sup> Floor, Samuel House,  
5 Fox Valley Way,  
Stocksbridge,  
Sheffield,  
S36 2AA

tel: +44 [0]114 321 5151  
email: [verena.meyer@enzygo.com](mailto:verena.meyer@enzygo.com)  
web: [www.enzygo.com](http://www.enzygo.com)

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Project:	Cellars Clough- Access Road
For:	Cellars Clough Properties Ltd.
Status:	Final
Date:	October 2018
Author:	Verena Meyer Dipl.Ing. CMLI MArborA – Senior Arboriculturist
Reviewer:	Carolyn Gratty BA [Hons] Dip LA CMLI – Principal Landscape Architect

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Enzygo Limited Registered in England No. 6525159

Registered Office Stag House Chipping Wotton-Under-Edge Gloucestershire GL12 7AD

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## 1.0 Objectives

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### 1.1 Introduction

1.1.1 Enzygo Limited [Enzygo] has been commissioned by Cellars Clough Properties Ltd. to prepare an Arboricultural Impact Assessment and Arboricultural Method Statement for the installation of a new public footpath and the improvement of the access road into the Cellars Clough residential development off Manchester Road in Marsden.

1.1.2 The following section describes the existing site and is followed by a summary for the structure of this report.

### 1.2 Site Overview

1.2.1 The site is located approximately 1.2km north-east of Marsden in a rural location. There is an existing access track leading to the site of the former Cellars Clough Mill on the River Colne which runs past the site in the north. Manchester Road lies to the south of the site. The site falls within the Kirklees District of West Yorkshire.

1.2.2 The access track lies within a steep wooded embankment and the site comprises both the track and the land immediately to the north and south of the track as well as land to the east potentially affected by proposals for improved visibility splays at the junction of the access track and Manchester Road.

### 1.3 Arboricultural Survey

1.3.1 An Arboricultural Survey Report for the trees potentially affected by the development in accordance with BS 5837:2012 was prepared by Enzygo Ltd. in September 2018.

1.3.2 30 trees, two tree groups and one hedgerow have been surveyed within the site and within 15m of the site boundary. They are predominantly mature native beech and goat willow as well as naturalised sycamore, the majority of which are of moderate landscape value, with younger trees or trees of poorer quality scattered amongst them.

1.3.3 The report includes a full tree survey schedule which describes each tree in accordance with BS 5837:2012 clause 4.4.2.

### 1.4 Structure of the Report

1.4.1 [Chapter 2.0](#) describes the methodology adopted for the Arboricultural Impact Assessment and Arboricultural Method Statement.

- 1.4.2 **Chapter 3.0** outlines the impact the proposed development is expected to have on existing trees and what the likely effect would be on the wider landscape.
- 1.4.3 **Chapter 4.0** then provides full details of any methodologies to be adopted in order to adequately protect any retained trees during construction and safeguard the health and safety of the trees in the future.
- 1.4.4 **Chapter 5.0** provides a non-technical summary whilst the appendices include a fully detailed Tree Protection Plan and specifications for no-dig construction in accordance with BS 5837:2012.

## 2.0 Methodology

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### 2.1 Introduction

2.1.5 This report and all methodologies adopted to carry out the Arboricultural Impact Assessment and Arboricultural Method Statement are based on recommendations outlined in *British Standard (BS) 5837:2012 Trees in relation to design, demolition and construction- Recommendations*. This was published by BSI Standards Limited and came into effect on 30<sup>th</sup> April 2012. It supersedes BS 5837:2005 which is withdrawn.

### 2.2 Arboricultural Impact Assessment (AIA)

2.2.1 Once the Tree Survey and Tree Constraints Plan has been prepared and a site layout is available, these are superimposed to establish the potential impact of the development, including the construction phase, on the existing tree stock.

2.2.2 The requirement for tree removal is ascertained where tree stems are located within or very close to proposed building footprints and hard landscape and/or within areas with significant proposed level changes and other works requiring soil movement (incl. excavations).

2.2.3 In a second stage an assessment is carried out of the impact both the construction operations and the development proposals may have of retained trees, including hard landscape in RPA, vertical structures and tree canopies

2.2.4 Using information provided by the client on construction operations, including site access, construction vehicle and plant movement and location of the site compound and material storage areas, the potential impact on both below and above ground parts of retained trees is assessed.

2.2.5 In addition to assessing the impact of the development on existing trees, Enzygo also includes an assessment of the impact of existing trees on the future use of the site, including shading, spatial constraints and the use of gardens, open spaces, paths and roads. Potential conflicts between trees and the safety of the site have also been analysed.

### 2.3 Arboricultural Method Statement (AMS)

2.3.1 The Arboricultural Method Statement (AMS) gives an overview on all methodologies to be adopted to minimise the effects the development, including construction operations, are expected to have on retained trees.

2.3.2 The AMS further includes a full specification for all methodologies which are necessary to protect retained trees.

2.3.3 Methods include protective barriers installed to create a Construction Exclusion Zone (CEZ) around retained trees, temporary ground protection where Root Protection Areas (RPA) cannot be fully fenced off, access facilitation pruning where there are conflicts between parts of the canopy and the development, specialist construction methods for buildings within the RPA and any methodologies to be adopted for utilities within the RPA.

## 3.0 Arboricultural Impact Assessment (AIA)

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### 3.1 Development proposals

3.1.1 This AIA is based on the development proposals as shown on Paragon Highways Provisional Layout drawing ref. 1048.101A dated October 2018, including all associated long-sections. This shows the location of a new public footpath along the southern verge of the existing track and retaining walls which are necessary to retain land on the southern verge of the road, as well as a vehicle restraint system along the northern edge.

### 3.2 Tree removal

#### *Footpath installation and use of the road*

3.2.1 Five trees (2x Category B, 3x Category C) must be removed along the southern road edge to enable the footpath construction, the use of the road and the new path.

### 3.3 Residual impact of development on retained trees

3.3.1 The construction of hard landscape within the RPA is likely to have an adverse effect on the rooting environment of retained trees, in particular of moderate and high value trees 14- 19.

3.3.2 Any built structures, including retaining walls and boundary treatments (vehicle restraint system) which require foundations within the RPA of retained trees may have an adverse impact on the health and growth of these trees of trees 14- 19.

### 3.4 Recommendations

3.4.1 All methodologies specified in the Arboricultural Method Statement (AMS) in [Chapter 4.0](#) should be implemented to ensure any retained trees are adequately protected during construction.

3.4.2 All site managers and site operatives should be aware of the potential impact of the works on retained trees and follow the protection methodologies specified in the AMS in [Chapter 4.0](#).

## 4.0 Arboricultural Method Statement (AMS)

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### 4.1 Tree Removal

- 4.1.1 This AMS should be read in conjunction with [Appendix 1 – Tree Protection Plan](#).
- 4.1.2 Prior to the site being set-up, a qualified arborist will remove only the trees listed in 3.2 above. Any tree works should be carried out in accordance with *BS 3998:2010- Tree works recommendations*.
- 4.1.3 Any tree works should be preceded by a nesting bird and roosting bat check during their respective survey seasons, carried out by a suitably qualified ecologist.
- 4.1.4 A list of Registered Contractors and suitably qualified tree surgeons is held by the Arboricultural Association.

### 4.2 Removal of hard landscape

- 4.2.1 Where necessary, areas of hard landscaping should be taken up carefully and without disturbing the ground within the RPA of existing trees. Where new hard landscaping is proposed in the same location, the existing sub-base should be retained.

### 4.3 Level Changes

- 4.3.1 The reduction of ground levels and the skimming of ground within the RPA of retained trees is not permitted.
- 4.3.2 Where it is required to raise levels within the RPA of retained trees, this should be achieved by use of an inert granular material which remains gas and water-permeable throughout its design life.

### 4.4 No-dig construction methodologies for new hard surfaces

- 4.4.1 New hard surfaces should not be installed within the RPA of veteran trees and may not exceed 20% of the RPA of all other retained trees.
- 4.4.2 New hard surfaces proposed within the RPA of retained trees should be installed without any excavations but should be built up on top of existing ground levels.
- 4.4.3 A geotextile membrane will be laid out on top of the existing ground, which may be cleared of all vegetation and loose organic matter. Then a three-dimensional Cellular Confinement System (CCS) specified and approved by the relevant Project Engineer will be installed and filled with inert granular material which allows free drainage and gas exchange (min. 4mm, no fines or sand).

4.4.4 With the CCS acting as a sub-base, all remaining layers required by the Project Engineer can be installed on top, finishing with a permeable wearing course which will ensure gas and water exchange between the air and the root zone.

4.4.5 An example detail is included in [Appendix 7 – Example no-dig construction detail](#).

4.4.6 Kerbing which requires excavations within the RPA of existing trees should be avoided. Peg and board edging may be acceptable for light structures. Where traditional kerbs are unavoidable, excavations for foundations should be carried out carefully and by hand, making sure no roots larger than 25mm diameter are severed. Foundations for traditional kerbs should be installed leaving gaps, allowing the kerb stones to bridge over significant roots.

#### **4.5 Installation of Boundary Treatments**

4.5.1 Where the installation of a vehicle restraint system is proposed within the RPA of retained trees, excavations should be kept to a minimum and be carried out carefully by hand.

4.5.2 If possible, posts should be supported by metal post support spikes. Alternatively, a semi-dry postcrete mix may be acceptable for post foundations.

## 5.0 Non-technical summary

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### 5.1 Arboricultural Survey

5.1.1 The site is the existing access track into the former Cellars Clough Mill site, off Manchester Road in Marsden. It runs through a steep wooded embankment which continues to the east and west along Manchester Road. The tree survey for the site was prepared by Enzygo Ltd. in September 2018, recording 30 trees, two tree groups and one hedgerow along both sides of the track. They are predominantly mature native trees of low and moderate value and form part of the woodland belt along Manchester Road.

### 5.2 Arboricultural Impact Assessment

5.2.1 The installation of a new public footpath along the southern verge of the road and the improvement of the track will require the removal of five trees.

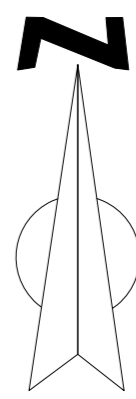
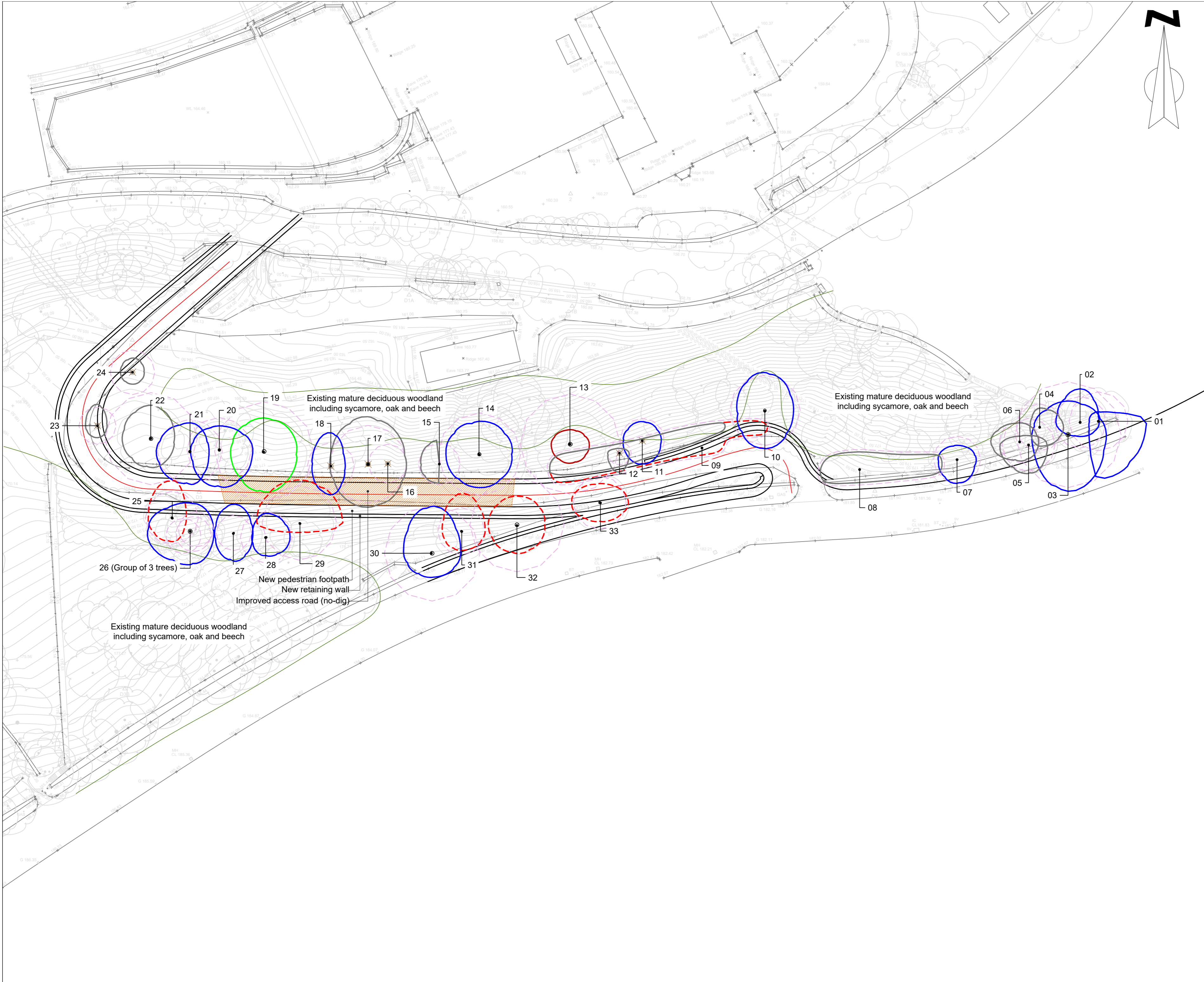
5.2.2 Operations linked to the development are further expected to have an adverse effect on any retained trees on site unless adequate protection measures are provided.

### 5.3 Arboricultural Method Statement

5.3.1 Protective measures include No-Dig Construction methods for proposed new hard landscape and specialist engineering solutions for the proposed vehicle restraint system.

## 6.0 Appendix 1 – Tree Protection Plan

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- KEY - Tree Protection Plan**  
**Tree Categories BS 5837 (2012)**
- Tree Category A
  - Tree Category B
  - Tree Category C
  - Tree Category U
  - Tree to be removed
  - Root Protection Area (RPA)
  - Tree location (Topographic survey)
  - Tree location (Estimated by Enzygo Ltd.)
  - No-dig construction BS 5837 (2012) clause 7.4

Existing mature deciduous woodland including sycamore, oak and beech

Existing mature deciduous woodland including sycamore, oak and beech

Existing mature deciduous woodland including sycamore, oak and beech

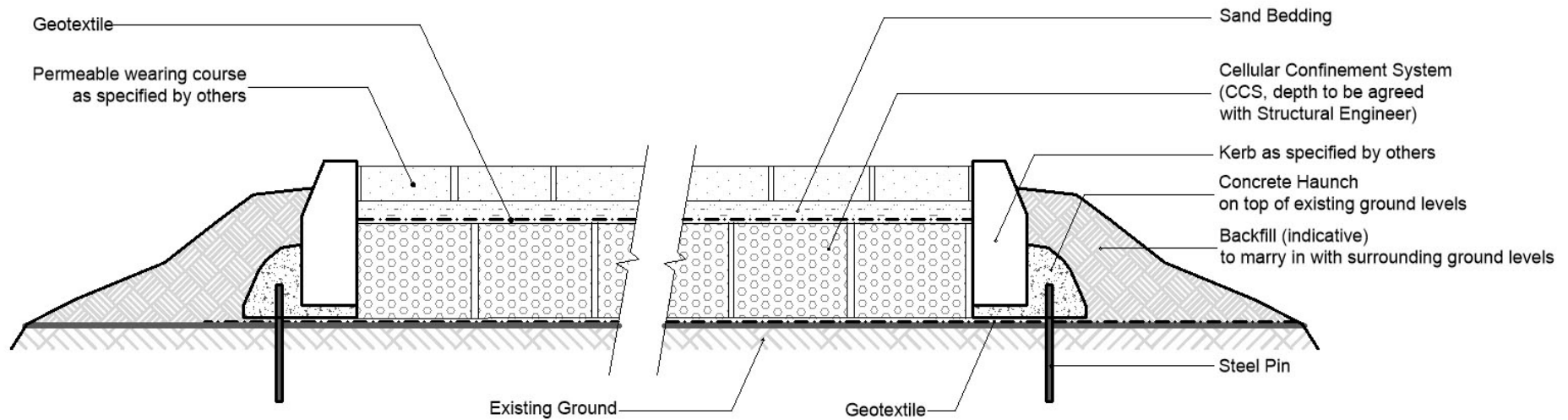
New pedestrian footpath  
 New retaining wall  
 Improved access road (no-dig)



Samuel House, 5 Fox Valley Way, Stocksbridge, Sheffield, S36 2AA

CLIENT:		Cellars Clough Properties Ltd.
SCALE:	PROJECT REF:	
1:500@A2	SHF.1330.001	
DRAWN:	CHECKED:	DATE:
VM	CG	Oct 2018
PROJECT:		
Cellars Clough		
TITLE:		
Tree Protection Plan- Access Road		
FIGURE NO:		
SHF.1330.001.Ar.D.002		

## 7.0 Appendix 2 – Example no-dig construction detail



**PLEASE NOTE:** For illustrative purposes only to show that hard surfaces are to be installed on top of existing ground levels and therefore do not require any excavations. Full detail to be agreed with relevant engineer to ensure suitable strength for traffic expected to use the surface



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**BRISTOL OFFICE**

The Byre  
Woodend Lane  
Cromhall  
Gloucestershire GL12 8AA  
Tel: 01454 269 237

**SHEFFIELD OFFICE**

Samuel House  
5 Fox Valley Way  
Stocksbridge  
Sheffield S36 2AA  
Tel: 0114 321 5151

**MANCHESTER OFFICE**

First Floor  
3 Hardman Square  
Spinningfields  
Manchester M3 3EB  
Tel: 0161 413 6444

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[enzygo.com](http://enzygo.com)