

Tree Constraints Plan

For

Bulwark Road, Chepstow

Prepared By



Ref: TDA/2613/TCP/RhC/04.21)

April 2021

Tree Constraints Plan

For

Bulwark Road, Chepstow

On behalf of

Lidl

Prepared by

Tirlun Design Associates Ltd
The Granary
Newland Fawr Farm
Llangan
CF35 5DN

Tel : 01446 789367

Fax : 01446 448119

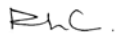
E-Mail: admin@tirlun-design.co.uk

Document Approval

This document has been prepared and checked in accordance with Tirlun Design Associates' quality control system

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Author: **Mr. Rhodri Crandon**

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1.0 Supporting Information

1.1 INTRODUCTION

1.11 Generally

Trees are of vital importance to the landscape and are essential for enhancing the rural and urban environment. They provide scenic character, visual amenity and are vital habitats for dependent wildlife populations.

The retention of existing trees not only benefits a site and its surroundings but also raises the overall quality of an area and enhances property value.

Trees which are damaged, or their immediate environment significantly changed may subsequently decline and die resulting in all positive benefits being lost.

1.12 Purpose of Tree Constraints Plan

Following the completion of a Pre-Development Tree Survey and Assessment of land at Bulwark Road, Tirlun Design Associates were instructed by Lidl to prepare a Tree Constraints Plan for the site.

The purpose of this plan is to provide the client with an accurate record of above and below ground constraints presented by the existing retained trees.

These constraints are illustrated by drawing no. TDA.2613.02 which shows the locations and assessed category of retained trees together with their crown spread, root protection areas (RPA) and shadow patterns.

1.2 METHODOLOGY

1.21 Generally

The Pre-Development Tree Survey & Assessment of the Bulwark Road site was carried out during April 2021 by Tirlun Design Associates and information gathered during this survey was subsequently used to inform the Tree Constraints Plan.

1.22 Tree Categorisation

It is intended that the Tree Constraints Plan reduces the need for reference to the text within the Pre-Development Tree Survey & Assessment prepared by Tirlun Design Associates, document ref: TDA/2613/TS&A/RhC/04.21.

The user of the plan can clearly identify the merit of each tree from the drawings and, if required, refer to the specific notes in the Tree Survey Schedule included in the Pre-Development Tree Survey & Assessment.

The drawings identify the trees by number and category as follows:

Category A	High Quality and Value	Retention Most Desirable
Category B	Moderate Quality and Value	Retention Desirable
Category C	Low Quality and Value	Could Be Retained

1.23 Below Ground Constraints

To enable the successful retention of existing trees identified as categories A-C by the Pre-Development Tree Survey & Assessment it is essential that the rooting environments of these trees are not damaged.

In order to achieve this, Root Protection Areas (RPA) should be plotted around all category A, B and C trees. This is the minimum area, in square metres, which should be left undisturbed around each tree to be retained to ensure their successful retention.

The RPA's for retained trees at the Bulwark Road site have been calculated in accordance with Section 4.6 of BS5837:2012 – Root Protection Area. (See Appendix 1)

For single stem trees, this is equivalent to a circle with a radius 12 times the stem diameter (measured at 1.5m above ground level during the on-site survey).

Any deviation in the RPA from the original circular plot should take account of the following factors whilst still providing adequate protection to the root system:

- A) The morphology and disposition of the roots, when influenced by past or existing site conditions (e.g. the presence of roads, structures and underground apparatus).
- B) Topography and drainage.
- C) The soil type and structure.
- D) The likely tolerance of the tree to root disturbance or damage, based on factors such as species, age, condition and past management.

Stem diameters used to calculate the RPA's for existing retained trees at the Bulwark Road site can be seen in the Pre-Development Tree Survey and Assessment prepared by Tirlun Design Associates, document ref: TDA/2613/TS&A/RhC/04.21.

1.24 Above Ground Constraints

In addition to constraints below ground, the Tree Constraints Plan illustrates above ground constraints which comprises both the extent of existing tree crowns and the shadow patterns created by existing trees.

The branch spread of each tree was based on measurements to the cardinal points and included in the Pre-Development Tree Survey and Assessment prepared by Tirlun Design Associates, document ref: TDA/2613/TS&A/RhC/04.21.

These measurements were used to create an accurate spread for each tree which has been plotted onto the Tree Constraints Plan and coloured according to Tree Categorisation.

In order to represent the shadow patterns created by existing trees to be retained, their heights were calculated during the on-site survey using a clinometer.

These were then used to plot a 'shadow segment' for each retained tree on the Tree Constraints Plan. This segment with a radius from the centre of the stem, equal to the height of the tree, is drawn from due north west to due east to indicate the shadow pattern through the main part of the day.

Shadow segments have been split into three categories considering the different characteristics of individual trees assessed during the on-site survey. These are:

Heavy Shade	Existing evergreen trees	Purple
Medium Shade	Existing deciduous trees with dense crowns	Royal Blue
Light Shade	Existing deciduous trees with light crowns	Sky Blue

The shadow segments also consider the crown clearance for each of the retained trees. This clearance (measured with a 10m tape during the on-site survey) is illustrated by removing a piece of the shadow segment, which has a radius equal to the crown clearance, adjacent to the main stem.

Tree heights, crown clearances and other characteristics used to calculate the 'shadow segments' for existing retained trees at the Bulwark Road site can be seen in the 'Pre-Development Tree Survey and Assessment' prepared by Tirlun Design Associates, document ref: TDA/2613/TS&A/RhC/04.21.

2.0 Conclusion

2.1 SUMMARY OF TREE CONSTRAINTS PLAN

In order to identify the above and below ground constraints presented by existing retained trees at the Bulwark Road site, the locations, numbers and assessed category of these trees, together with their crown spread, root protection areas (RPA) and shadow patterns, have been summarised and plotted on to the Tree Constraints Plan, drawing no: TDA.2613.01 at a scale of 1:200 @ A1. This drawing is included in Appendix 2.

Where possible, development proposals for the site will need to accommodate both the above and below ground constraints illustrated by the Tree Constraints Plan to successfully retain existing trees.

Furthermore, development proposals should seek to include adequate space between existing trees and new structures to avoid any future management conflicts/issues.

Where removal of existing trees is unavoidable; their loss should be compensated by the planting of new native trees in-keeping with the arboricultural character of the area.

3.0 Appendix 1

Calculating The RPA

Root protection area (RPA)

4.6.1 For single stem trees, the RPA (see 3.7) should be calculated as an area equivalent to a circle with a radius 12 times the stem diameter. For trees with more than one stem, one of the two calculation methods below should be used. In all cases, the stem diameter(s) should be measured in accordance with Annex C, and the RPA should be determined from Annex D. The calculated RPA for each tree should be capped to 707 m².

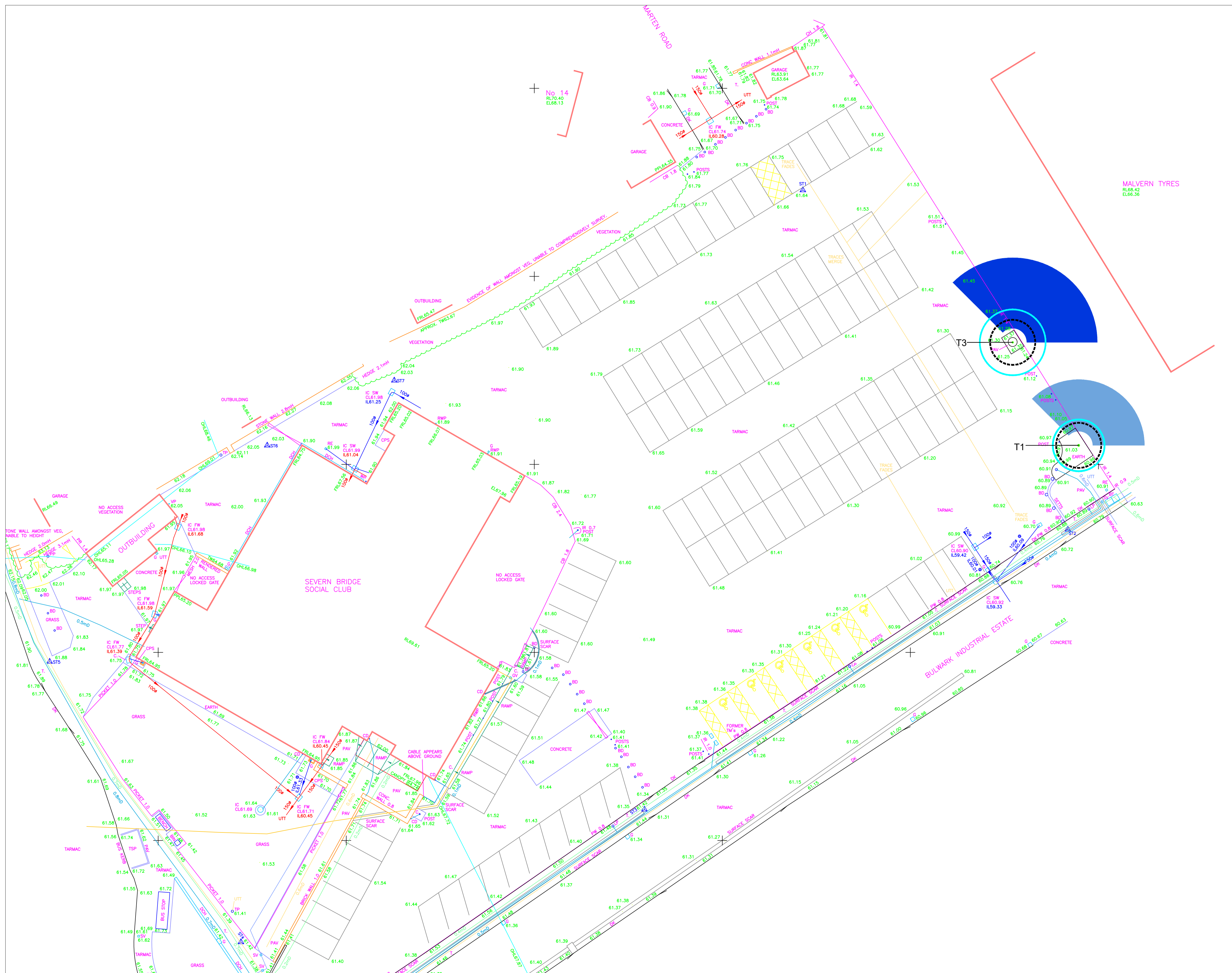
- a) For trees with two to five stems, the combined stem diameter should be calculated as follows:

$$\sqrt{(\text{stem diameter } 1)^2 + (\text{stem diameter } 2)^2 \dots + (\text{stem diameter } 5)^2}$$

- b) For trees with more than five stems (not illustrated in Annex C), the combined stem diameter should be calculated as follows:

$$\sqrt{(\text{mean stem diameter})^2 \times \text{number of stems}}$$

4.0 Appendix 2



KEY :
Assessment of trees in accordance with BS 5837: 2012

- A. High Quality and Value
- B. Moderate Quality and Value
- C. Low Quality and Value
- Root Protection Area Based on BS5837.2012
- ◐ Shadow Pattern of Existing Deciduous Trees with Light Crowns
- ◐ Shadow Pattern of Existing Deciduous Trees with Dense Crowns
- ◐ Shadow Pattern of Existing Coniferous Trees with Dense Crowns


NOTE :

Plan indicates average spread of tree crowns. (Refer to 'Pre Development Tree Survey & Assessment', document ref: TDA/2613/TS&A/RhC/04.21, for accurate dimensions.)

The exact location of each tree is to be verified on site.

See 'Pre-Development Tree Survey & Assessment', document ref: TDA/2613/TS&A/RhC/04.21, for identification of tree species, height and condition/characteristics.

The original of this drawing was produced in colour. A monochrome copy should not be relied upon.

REV			
TDA THE GRANARY NEWLAND FAWR FARM LLANSAN CF35 5DN TEL: 01446 7789367			
CLIENT		LIDL	
DRAWING NUMBER	TDA.2613.02	SCALE	1:200 @ A1
DRAWN	RHC/AMP	DATE	APRIL 2021
PROJECT		BULWARK ROAD, CHEPSTOW	
DRAWING TITLE		TREE CONSTRAINTS DRAWING	