

Thongsbridge Mills,
Holmfirth

Ecological Design Strategy

July 2018

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1 Introduction and Background

- 1.1.1.1 This report presents an Ecological Design Strategy (EDS) in relation to a consented development at Miry Lane, Thongsbridge, Holmfirth, HD9 7RW. The site is centred at approximate grid reference SE14710967.
- 1.1.1.2 Planning permission (application number 2017/60/90207/W) was granted on 21st January 2018 by Kirklees Council for the following development at the site:
- Outline Application for Erection of B1 light Industry
- 1.1.1.3 Condition 12 of planning permission 2017/60/90207/W states:
- Plans and particulars of the Reserved Matters (Landscaping) shall include an ecological design strategy (EDS) including a sensitive lighting strategy to include provision of an area of native planting. The EDS shall include the following:
 - a) Purpose and conservation objectives for the proposed works.
 - b) Review of site potential and constraints.
 - c) Detailed design(s) and/or working method(s) to achieve stated objectives.
 - d) Extent and location/area of proposed works.
 - e) Type and source of material to be used.
 - f) Timescale for implementation, demonstrating that works are aligned with the proposed phasing of construction.
 - g) Persons responsible for implementing the works.
 - h) Initial aftercare and long-term maintenance.
 - i) Disposal of any wastes arising from works.
- 1.1.1.4 This EDS has been prepared by Gemma Longman ACIEEM. Background information is presented in the preliminary ecological appraisal prepared in support of the planning application:
- Quants Environmental Ltd (2017). Luke Lane, Land off Huddersfield Road, Thongsbridge, Holmfirth. Preliminary Ecological Appraisal, November 2017.

Figure 1: Satellite Image of Site (Dated May 2016 - approximate redline boundary only).



2 Purpose and Conservation Objectives

2.1 *Purpose*

- 2.1.1.1 The purpose of the EDS is to achieve the Conservation Objectives set out below and to ensure that ecological impacts are avoided / minimised during the construction and operation phases of the development.

2.2 *Conservation Objectives*

- 2.2.1.1 The Conservation Objectives are listed as follows:

1. Provision of an area of native planting
2. Provision of a sensitive lighting strategy
3. Provide replacement trees to replace those being lost.
4. Avoid damage, destruction or disturbance of protected species:
 - a) Nesting birds.
 - b) Badger.
 - c) Bats.
5. Avoid the spread of non-native invasive weeds.

3 Review of Site Potential and Constraints

3.1 *Nationally & Locally Designated Sites*

- 3.1.1.1 The proposed development will not occur within a nationally or locally designated site and development impacts are highly unlikely to have an adverse impact on any designated sites or conservation interests within the surrounding area.

3.2 *Birds*

- 3.2.1.1 The site supports a typical range of bird species. Three species listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 as Species of Principal Importance for the conservation of biodiversity in England were found to breed in the woodland within 50 metres of the site boundary: dunnock, bullfinch and song thrush.
- 3.2.1.2 A range of common birds may nest in trees, shrubs or brambles within the site.

3.3 *Badger*

- 3.3.1.1 A potential outlying badger sett was observed on the site boundary. The sett was monitored and did not appear to be in use. It is possible that the sett may be used or new setts may be excavated within or near the site in the future.

3.4 *Bats*

- 3.4.1.1 No evidence of bat roosts has been observed at the site. The site is of low value to bats and the change in land use is unlikely to affect the distribution or abundance of bats within the area. It is recommended to retain the boundary trees where possible. No such trees were observed to contain bat roost features. The River Holme will be an important commuting and foraging route for bats and it is recommended to maintain the river as a dark corridor through the avoidance of lighting and by limiting unnecessary light spill.

3.5 *Reptiles*

- 3.5.1.1 There are no records of reptiles within the area and reptiles are uncommon within the region. Whilst there are certain features within the site that are suitable for reptiles.

3.6 *Invasive Weeds*

- 3.6.1.1 Himalayan balsam is present at the site.
- 3.6.1.2 Measures for the containment, control and removal of Himalayan balsam will be presented separately in an Invasive Non-Native Species Protocol which is required under Condition 11 of planning permission 2017/60/90207/W.

4 Detailed Design and Working Methods

4.1 *Extent and Location of Proposals*

4.1.1.1 See Appendix 1.

4.2 *Habitats*

4.2.1.1 Condition 12 of the planning consent (2017/60/90207/W) requires native planting and a lighting design strategy.

4.2.1.2 The lighting design strategy plus the measures presented below will seek to avoid impacts on the native planting, adjacent river and potential biodiversity of the site.

4.3 *Tree Planting*

4.3.1.1 In order to enhance the biodiversity value of the site, 131 new trees and 241 shrubs will be planted at the locations shown in the Landscape Plan in Appendix 1. The trees will be planted as 'whips' or plugs at a density of 3no plants per linear metre, planted in double staggered row with rows 300mm apart and plants 500mm apart and in species groups of minimum and maximum of 5no and 8no respectively.

4.3.1.2 Each plant will be planted using standard planting techniques during the winter months (1st November to 31st March) if possible. If planting during the winter period is not possible, the trees will be watered sufficiently to encourage the successful establishment of the trees. The trees will be fitted with rabbit protection if considered necessary. The trees will be of native British stock and provenance and will be sourced from a reputable supplier. A list of reputable suppliers of suitable native trees can be found at: <http://www.floralocale.org/HomePage>

4.3.1.3 Proposed species mix:

- Field maple *Acer campestre* (10-20%)
- Alder *Alnus glutinosa* (10-50%)
- Silver Birch *Betula pendula* (up to 25%)
- Hawthorn *Crataegus monogyna* (up to 50%).
- Beech *Fagus sylvatica* (10%)
- Holly *Ilex aquifolium* (up to 25%).
- Wild cherry *Prunus avium* (10-20%)
- Bird cherry *Prunus padus* (10-20%)
- White willow *Salix alba* (10-20%)
- Rowan *Sorbus aucuparia* (up to 25%)
- Dog wood *Cornus sanguinea* (up to 25%).
- Dog rose *Rosa canina* (up to 25%).
- Guelder Rose *Viburnum opulus* (up to 25%).
- Blackthorn *Prunus spinosa* (up to 25%).
- Hazel *Corylus avellana* (Up to 50%)
- Aspen *Populus tremula* (up to 25%).
- Pedunculate oak *Quercus robur* (up to 25%).
- Wych elm *Ulmus glabra* (up to 25%).

4.4 *Grassland Creation*

4.4.1.1 Any areas that become disturbed or result in bare-ground during the construction phase, e.g. through ground works will be seeded with Emorsgate EM1 Basic General Purpose Meadow Mixture which comprises the following native species of local provenance:

- Yarrow *Achillea millefolium*.
- Common Knapweed *Centaurea nigra*.
- Wild Carrot *Daucus carota*.

- Lady's Bedstraw *Galium verum*.
- Oxeye Daisy *Leucanthemum vulgare*.
- Selfheal *Prunella vulgaris*.
- Meadow Buttercup *Ranunculus acris*.
- Common Sorrel *Rumex acetosa*.
- Red Campion *Silene dioica*.
- Common Bent *Agrostis capillaris*.
- Crested Dog's-tail *Cynosurus cristatus*.
- Slender-creeping Red-fescue *Festuca rubra*.
- Smaller Cat's-tail *Phleum bertolonii*.

4.5 Sensitive Lighting Strategy

- 4.5.1.1 Measures for floodlighting details and measures proposed to control lighting and light spill are presented separately in a lighting layout plan which is which is required under Condition 20 of planning permission (2017/60/90207/W).
- 4.5.1.2 Measures of floodlighting details and measures proposed to control lighting and light spill are therefore not presented in this EDS.
- 4.5.1.3 Condition 12 of the planning consent (2017/60/90207/W) requires native planting and a lighting design strategy.
- 4.5.1.4 The lighting design strategy plus the measures presented below will seek to avoid impacts on the existing and new native planting and adjacent to the river (to avoid disturbance to potential biodiversity; particularly in relation to bats).
- 4.5.1.5 Temporary lighting will be directed away from watercourses and will maintain an unlit corridor of 50m either side of watercourses.
- 4.5.1.6 To minimise the impacts of artificial lighting on bats the following steps will be taken:
 - Where possible low pressure sodium lamps will be used instead of high pressure sodium or mercury lamps;
 - if the use of mercury lamps cannot be avoided then they will be fitted with UV filters;
 - the brightness will be as low as legally possible considering health and safety requirements;
 - the times during which lighting will be used will be limited to provide some dark periods;
 - light will be directed to where it is needed to avoid light spillage;
 - upward lighting will be minimal to avoid light pollution;
 - where practical light will be restricted to selected areas by fitting hoods which direct the light below the horizontal plane, at an angle of less than 70 degrees; and,
 - there will be limited use of height lighting columns with light directed at a low level to reduce the ecological impact of the light.

4.6 Badger

- 4.6.1.1 No evidence of badger has been observed at the site. There are previous records of badgers in the wider area and it is possible that new setts may be excavated within or near the site in the future.
- 4.6.1.2 In the unlikely event that evidence of badger is identified during the construction phase, work will stop immediately and advice sought from a suitably qualified ecologist. If necessary, a licence would be obtained from Natural England before work recommences.

4.7 Bats

- 4.7.1.1 The lighting design strategy will seek to avoid lighting of the River Holme and existing and new tree planting in order to avoid impacts on bats and other wildlife.

4.8 *Invasive Weeds*

- 4.8.1.1 Himalayan balsam is present at the site. Measures for the containment, control and removal of Himalayan balsam will be presented separately in an Invasive Non-Native Species Protocol which is required under Condition 11 of planning permission 2017/60/90207/W
- 4.8.1.2 Measures for the containment, control and removal of Invasive weeds are therefore not presented in this EDS.

5 Type of Materials

5.1.1.1 Tree planting mix:

- Field maple *Acer campestre* (10-20%)
- Alder *Alnus glutinosa* (10-50%)
- Silver Birch *Betula pendula* (up to 25%)
- Hawthorn *Crataegus monogyna* (up to 50%).
- Beech *Fagus sylvatica* (10%)
- Holly *Ilex aquifolium* (up to 25%).
- Wild cherry *Prunus avium* (10-20%)
- Bird cherry *Prunus padus* (10-20%)
- White willow *Salix alba* (10-20%)
- Rowan *Sorbus aucuparia* (up to 25%)
- Dog wood *Cornus sanguinea* (up to 25%).
- Dog rose *Rosa canina* (up to 25%).
- Guelder Rose *Viburnum opulus* (up to 25%).
- Blackthorn *Prunus spinosa* (up to 25%).
- Hazel *Corylus avellana* (Up to 50%)
- Aspen *Populus tremula* (up to 25%).
- Pedunculate oak *Quercus robur* (up to 25%).
- Wych elm *Ulmus glabra* (up to 25%).

5.1.1.2 Grassland seed mix:

- Emorsgate EM1 Basic General Purpose Meadow Mixture:
 - Yarrow *Achillea millefolium*.
 - Common Knapweed *Centaurea nigra*.
 - Wild Carrot *Daucus carota*.
 - Lady's Bedstraw *Galium verum*.
 - Oxeye Daisy *Leucanthemum vulgare*.
 - Selfheal *Prunella vulgaris*.
 - Meadow Buttercup *Ranunculus acris*.
 - Common Sorrel *Rumex acetosa*.
 - Red Campion *Silene dioica*.
 - Common Bent *Agrostis capillaris*.
 - Crested Dog's-tail *Cynosurus cristatus*.
 - Slender-creeping Red-fescue *Festuca rubra*.
 - Smaller Cat's-tail *Phleum bertolonii*.

6 Aftercare and Maintenance

6.1 Trees

6.1.1 Retained Trees

- 6.1.1.1 The retained trees at the site will be managed through minimal intervention. The retained trees do not currently pose a threat to biodiversity at the site, e.g. through over-shading of key habitats and therefore the management regime of optimal benefit for biodiversity is to retain the trees and enable their biodiversity value to be retained and enhanced as the trees grow and develop additional features of biodiversity value over time such as natural rot holes.

6.1.2 New Tree Planting Areas

- 6.1.2.1 12-24 months after planting, any dead or severely damaged trees will be removed and replaced like-for-like.
- 6.1.2.2 5 years after planting, any rabbit protection measures will be removed.
- 6.1.2.3 Long-term management of the New Tree Planting Areas will involve minimal intervention. The trees will be left untrimmed and the grassland will be left uncut to encourage a natural ground flora to establish which will become dominated by shade-tolerant species as the tree canopy closes in over time.

6.2 Grassland

- 6.2.1.1 Grassland management will involve minimal intervention, with a single late-summer mow to allow species to flower and set seed:
- The grassland areas will be cut once per year between 1st September and 15th October to approximately 5 cm above ground level.
 - Remove all cuttings: All grass cuttings will be left in a single large cuttings pile on the edge of the main grassland area to provide refugia for fauna, e.g. invertebrates, amphibians and small mammals.

6.3 Remedial Measures

6.3.1 Trees

- 6.3.1.1 If any of the retained trees either: a) fall; b) lose major limbs; c) are deemed to be unsafe; or d) are causing deleterious over-shading of habitats: The material of tree(s) in question will be used to create biodiversity log piles at the site margins. Log piles should be situated in a shady area and should be partially buried to a depth of 200 mm.

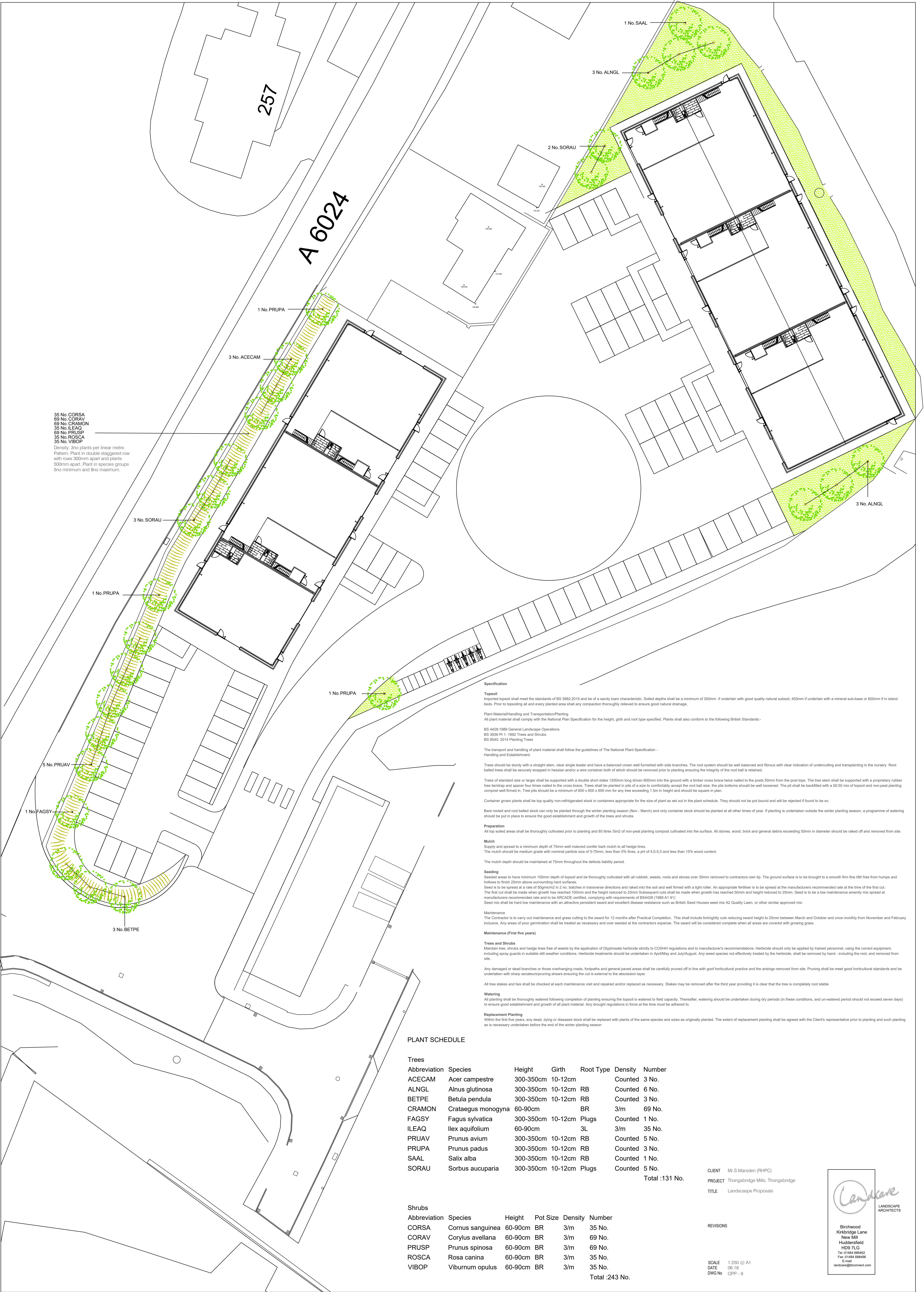
6.3.2 Grassland and Invasive Weeds

- 6.3.2.1 In the event that the grassland areas or any other areas have become dominated by undesirable species such as nettles, thistles, brambles, docks or willowherbs; it may be necessary to either: a) implement weed control measures; or b) increase the frequency of the cutting regime.

6.4 Persons responsible

- 6.4.1.1 The long-term implementation and maintenance of native planting will be secured by means of a management agreement between the site owner (Mr S Marsden, Unit 1, Thongsbridge Mills, Thongsbridge, Holmfirth HD9 7RW) and the management body responsible for the landscape design (Landcare; Landscape architects).

Appendix 1. Landscape Design Showing Areas of Native Planting



35 No. CORSA
69 No. CORAV
69 No. CRAMON
35 No. ILEAQ
69 No. PRUSP
35 No. ROSCA
35 No. VIBOP
Density: 3no plants per linear metre.
Pattern: Plant in double staggered row
with rows 300mm apart and plants
500mm apart. Plant in species groups
8no minimum and 8no maximum.

Specification

Topsoil
Imported topsoil shall meet the standards of BS 3882:2015 and be of a sandy loam characteristic. Soiled depths shall be a minimum of 300mm if underlain with good quality natural subsoil, 450mm if underlain with a mineral sub-base or 600mm if in island beds. Prior to topsoiling all and every planted area shall any compaction thoroughly relieved to ensure good natural drainage.

Plant Material/Handling and Transportation/Planting
All plant material shall comply with the National Plan Specification for the height, girth and root type specified. Plants shall also conform to the following British Standards:-
BS 4428:1989 General Landscape Operations
BS 3936 Pt 1: 1992 Trees and Shrubs
BS 8545: 2014 Planting Trees

The transport and handling of plant material shall follow the guidelines of The National Plant Specification - Handling and Establishment.

Trees should be sturdy with a straight stem, clear single leader and have a balanced crown well furnished with side branches. The root system should be well balanced and fibrous with clear indication of undercutting and transplanting in the nursery. Root balled trees shall be securely wrapped in hessian and/or a wire container both of which should be removed prior to planting ensuring the integrity of the root ball is retained.

Trees of standard size or larger shall be supported with a double short stake 1200mm long driven 600mm into the ground with a timber cross brace twice nailed to the posts 50mm from the post tops. The tree stem shall be supported with a proprietary rubber tree tie/strap and spacer four times nailed to the cross brace. Trees shall be planted in pits of a size to comfortably accept the root ball size, the pits bottoms should be well loosened. The pit shall be backfilled with a 50:50 mix of topsoil and non-peat planting compost well firmed in. Trees pits should be a minimum of 600 x 600 x 600 mm for any tree exceeding 1.5m in height and should be square in plan.

Container grown plants shall be top quality non-refrigerated stock in containers appropriate for the size of plant as set out in the plant schedule. They should not be pot bound and will be rejected if found to be so.

Bare rooted and root balled stock can only be planted through the winter planting season (Nov - March) and only container stock should be planted at all other times of year. If planting is undertaken outside the winter planting season, a programme of watering should be put in place to ensure the good establishment and growth of the trees and shrubs.

Preparation
All top soiled areas shall be thoroughly cultivated prior to planting and 80 litres /5m² of non-peat planting compost cultivated into the surface. All stones, wood, brick and general debris exceeding 50mm in diameter should be raked off and removed from site.

Mulch
Supply and spread to a minimum depth of 75mm well matured conifer bark mulch to all hedge lines.
The mulch should be medium grade with nominal particle size of 5-75mm, less than 5% fines, a pH of 4.5-5.5 and less than 15% wood content.
The mulch depth should be maintained at 75mm throughout the defects liability period.

Seeding
Seeded areas to have minimum 150mm depth of topsoil and be thoroughly cultivated with all rubbish, weeds, roots and stones over 30mm removed to contractors own tip. The ground surface is to be brought to a smooth firm fine tilth free from humps and hollows to finish 25mm above surrounding hard surfaces.
Seed is to be spread at a rate of 50gms/m² in 2 no. batches in transverse directions and raked into the soil and well firmed with a light roller. An appropriate fertiliser is to be spread at the manufacturers recommended rate at the time of the first cut. The first cut shall be made when growth has reached 100mm and the height reduced to 25mm Subsequent cuts shall be made when growth has reached 50mm and height reduced to 25mm. Seed is to be a low maintenance amenity mix spread at manufacturers recommended rate and to be ARCADE certified, complying with requirements of BS4428 (1989 A1 91)
Seed mix shall be hard low maintenance with an attractive persistent sward and excellent disease resistance such as British Seed Houses seed mix A2 Quality Lawn, or other similar approved mix.

Maintenance
The Contractor is to carry out maintenance and grass cutting to the sward for 12 months after Practical Completion. This shall include fortnightly cuts reducing sward height to 25mm between March and October and once monthly from November and February inclusive. Any areas of poor germination shall be treated as necessary and over seeded at the contractors expense. The sward will be considered complete when all areas are covered with growing grass.

Maintenance (First five years)

Trees and Shrubs
Maintain tree, shrubs and hedge lines free of weeds by the application of Glyphosate herbicide strictly to COSHH regulations and to manufacturer's recommendations. Herbicide should only be applied by trained personnel, using the correct equipment, including spray guards in suitable still weather conditions. Herbicide treatments should be undertaken in April/May and July/August. Any weed species not effectively treated by the herbicide, shall be removed by hand - including the root, and removed from site.
Any damaged or dead branches or those overhanging roads, footpaths and general paved areas shall be carefully pruned off in line with good horticultural practice and the arisings removed from site. Pruning shall be meet good horticultural standards and be undertaken with sharp secateurs/pruning shears ensuring the cut is external to the abscission layer.
All tree stakes and ties shall be checked at each maintenance visit and repaired and/or replaced as necessary. Stakes may be removed after the third year providing it is clear that the tree is completely root stable

Watering
All planting shall be thoroughly watered following completion of planting ensuring the topsoil is watered to field capacity. Thereafter, watering should be undertaken during dry periods (in these conditions, and un-watered period should not exceed seven days) to ensure good establishment and growth of all plant material. Any drought regulations in force at the time must be adhered to.

Replacement Planting
Within the first five years, any dead, dying or diseased stock shall be replaced with plants of the same species and sizes as originally planted. The extent of replacement planting shall be agreed with the Client's representative prior to planting and such planting as is necessary undertaken before the end of the winter planting season

PLANT SCHEDULE

Trees						
Abbreviation	Species	Height	Girth	Root Type	Density	Number
ACECAM	Acer campestre	300-350cm	10-12cm		Counted	3 No.
ALNGL	Alnus glutinosa	300-350cm	10-12cm	RB	Counted	6 No.
BETPE	Betula pendula	300-350cm	10-12cm	RB	Counted	3 No.
CRAMON	Crataegus monogyna	60-90cm		BR	3/m	69 No.
FAGSY	Fagus sylvatica	300-350cm	10-12cm	Plugs	Counted	1 No.
ILEAQ	Ilex aquifolium	60-90cm		3L	3/m	35 No.
PRUAV	Prunus avium	300-350cm	10-12cm	RB	Counted	5 No.
PRUPA	Prunus padus	300-350cm	10-12cm	RB	Counted	3 No.
SAAL	Salix alba	300-350cm	10-12cm	RB	Counted	1 No.
SORAU	Sorbus aucuparia	300-350cm	10-12cm	Plugs	Counted	5 No.
						Total :131 No.

Shrubs						
Abbreviation	Species	Height	Pot Size	Density	Number	
CORSA	Cornus sanguinea	60-90cm	BR	3/m	35 No.	
CORAV	Corylus avellana	60-90cm	BR	3/m	69 No.	
PRUSP	Prunus spinosa	60-90cm	BR	3/m	69 No.	
ROSCA	Rosa canina	60-90cm	BR	3/m	35 No.	
VIBOP	Viburnum opulus	60-90cm	BR	3/m	35 No.	
						Total :243 No.

CLIENT Mr.S.Marsden (RHPC)
PROJECT Thongsbridge Mills, Thongsbridge
TITLE Landscape Proposals

REVISIONS
SCALE 1:250 @ A1
DATE 08.19
DWG No OPP - 9

