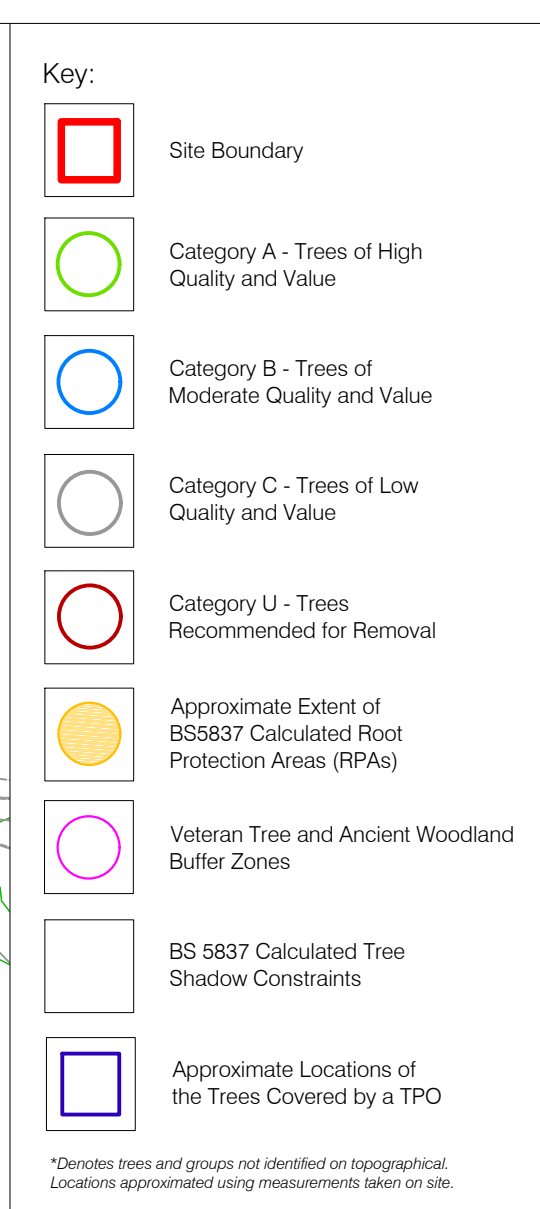
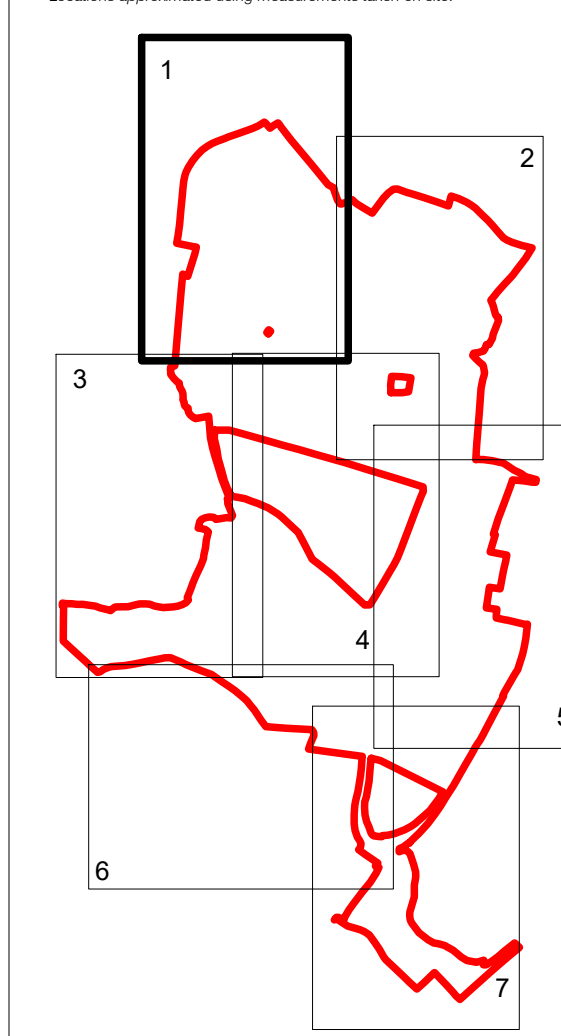
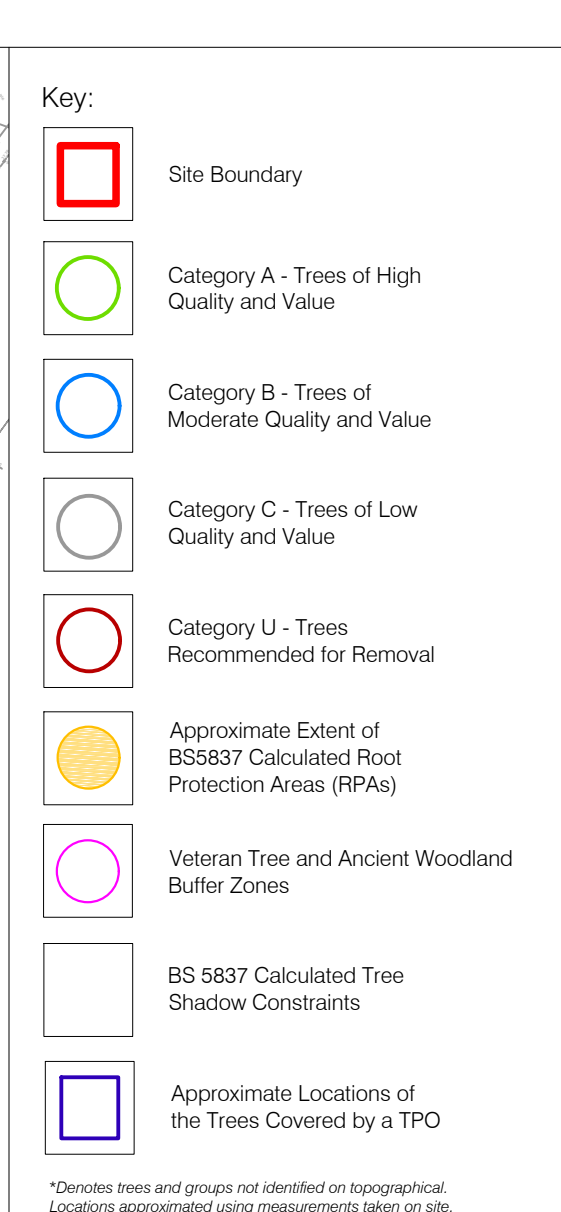




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Approximate location of trees covered by a Tree Preservation Order (TPO). Exact location to be confirmed.

Rev D - updated tree survey data 19.02.21 RA
Rev E - update to survey data and ARI buffers added
Rev B - update site following October 2020 walkover 18.11.20 JP
Rev A - Additional trees added 16.10.19 LB

Project Name

Land at Horton Heath

Drawing Title

Tree Constraints Plan


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Drawing No.	Revision
17/20/P01	D -



Key

- Site Boundary
- Category A - Trees of High Quality and Value
- Category B - Trees of Moderate Quality and Value
- Category C - Trees of Low Quality and Value
- Category U - Trees Recommended for Removal
- Approximate Extent of BS5837 Calculated Root Protection Areas (RPAs)
- Veteran Tree and Ancient Woodland Buffer Zones
- BS 5837 Calculated Tree Shadow Constraints
- Approximate Locations of the Trees Covered by a TPO

*Overlaps trees and groups not identified on topographical. Locations approximated using measurements taken on site.

Rev D - updated tree survey data 19.02.21 BA
Rev C - update to survey data and RPAs added
Rev B - update data following October 2020 walkover 08.11.20 JP
Rev A - additional trees added 16.10.18 LB

Project Name
Land at Horton Heath

Drawing Title
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Rev C - update to survey data and A&J buffers added
Rev B - update site boundary, October 2020 walkover 08.11.20 JP
Rev A - additional trees added 16.10.19 LB

Project Name

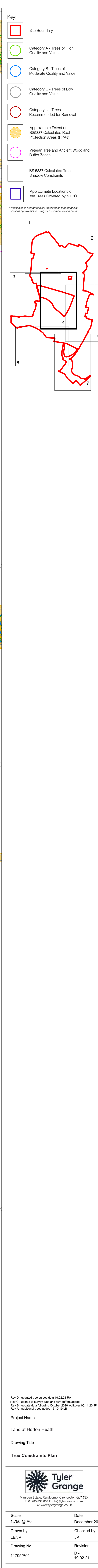
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Rev D - updated tree survey data 15.02.21 RA
Rev C - update to survey data and A&J buffers added
Rev B - update site history, October 2020 walkover 08.11.20 JP
Rev A - additional trees added 16.10.19 LB

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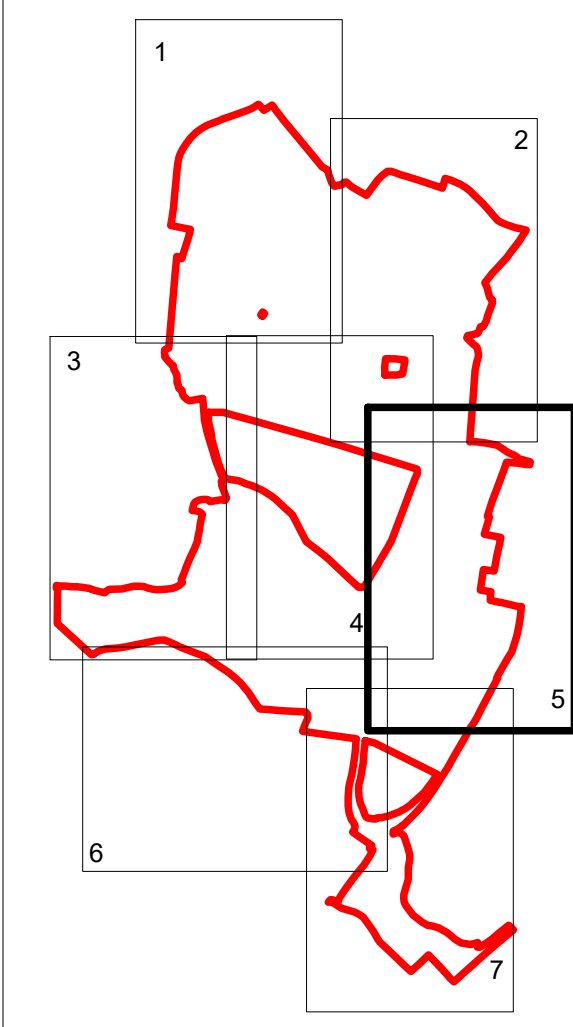
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Key

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- Approximate Extent of B55837 Calculated Root Protection Areas (RPAs)
- Veteran Tree and Ancient Woodland Buffer Zones
- BS 5837 Calculated Tree Shadow Constraints
- Approximate Locations of the Trees Covered by a TPO

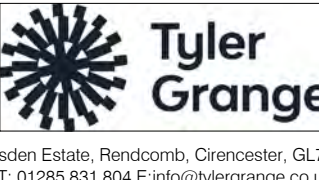
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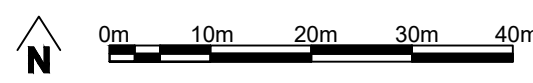
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Rev C - update to survey data and RPAs added
Rev B - update data following October 2020 walkover 08.11.20 JP
Rev A - additional trees added 16.10.19 LB

Project Name
Land at Horton Heath

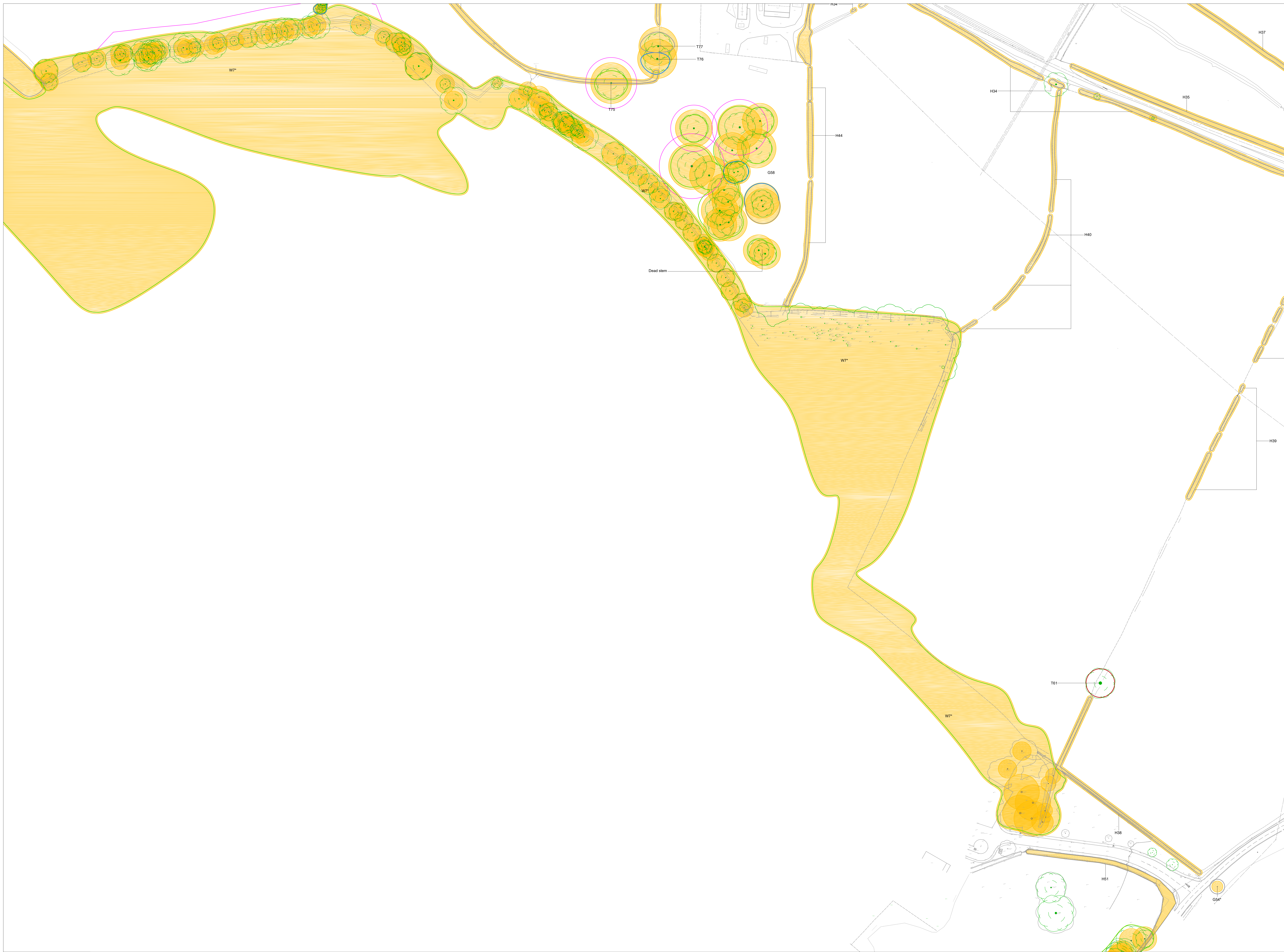
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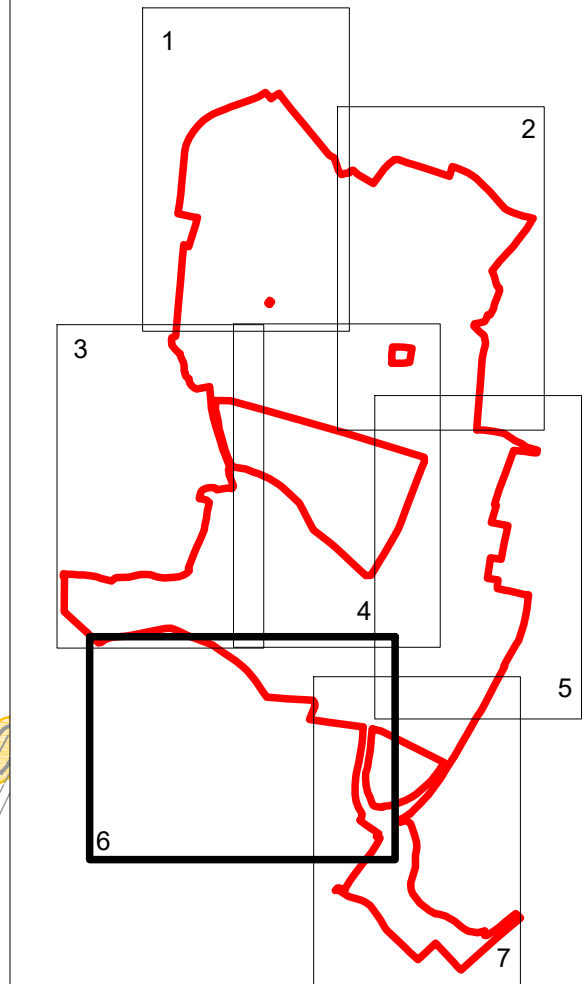
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- Veteran Tree and Ancient Woodland Buffer Zones
- BS 5837 Calculated Tree Shadow Constraints
- Approximate Locations of the Trees Covered by a TPO

Overlaid trees and groups not detailed on this plan. Locations approximately using measured data or site.



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Rev D - updated tree survey data 19.02.21 RA
Rev C - update to survey data and ARI buffer added.
Rev B - update data following October 2020 walkover 06.11.20 JP
Rev A - additional trees added 16.10.19 LB

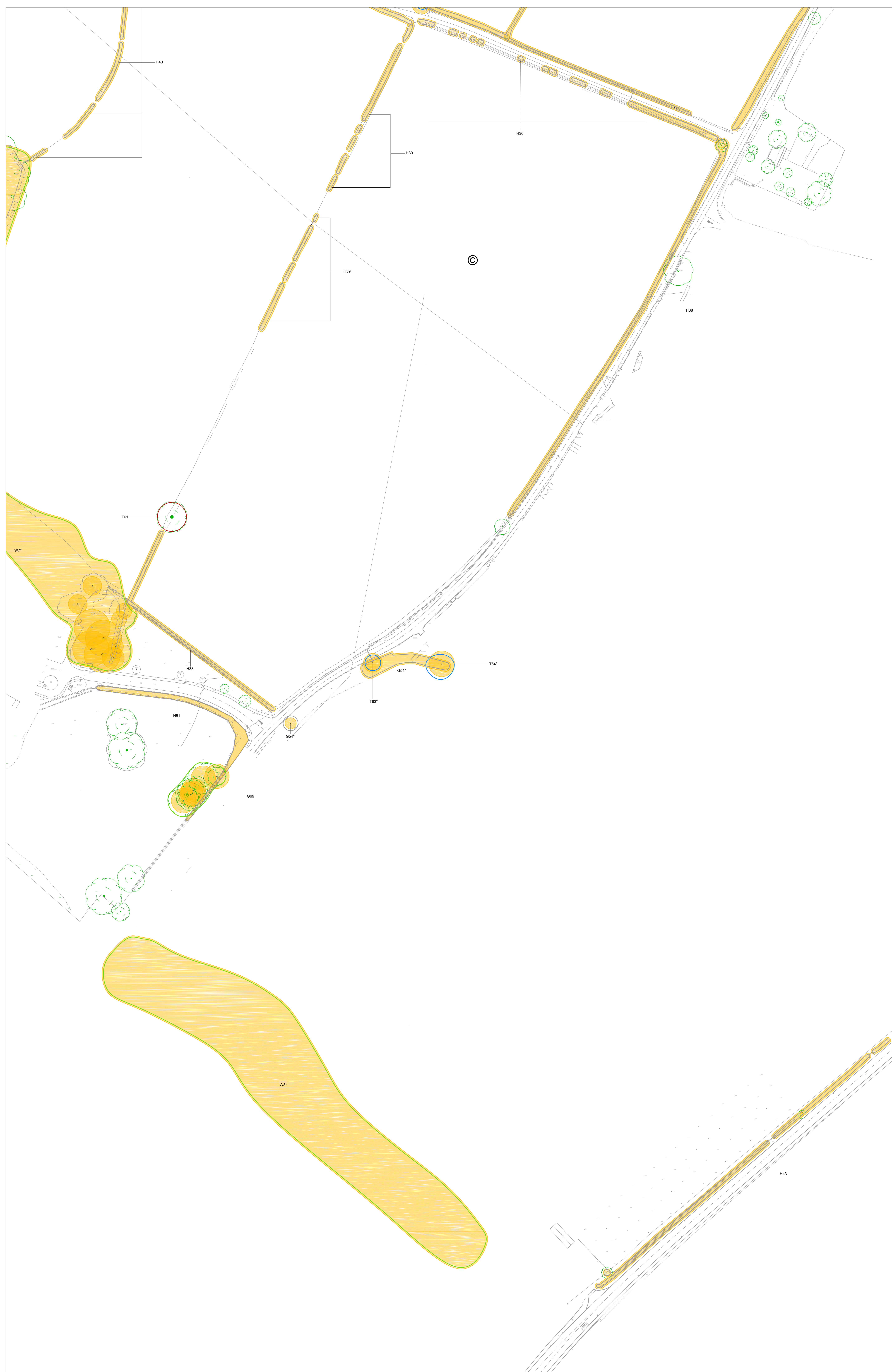
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- Veteran Tree and Ancient Woodland Buffer Zones
- BS 5837 Calculated Tree Shadow Constraints
- Approximate Locations of the Trees Covered by a TPO

*Denotes trees and groups not identified on topographical. Locations approximated using measurements taken on site.

Rev D - updated tree survey data 19.02.21 RA
Rev C - update to survey data and ARI buffer added
Rev B - update after February October 2020 software BS 11.20 JP
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Project Name
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Drawing No. 11705/P01	Revision D - 19.02.21

Appendix D – Bird Hazard Management Plan

One Horton Heath

Bird Hazard Management Plan Final

J00532 V1.0

Client: Eastleigh Borough Council

Date: April 2021

DOCUMENT CONTROL

Report prepared for:

Eastleigh Borough Council

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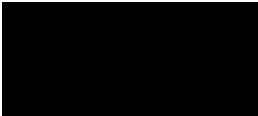
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DOCUMENT REVISIONS

Version	Details	Date
1.0	Bird Hazard Management Plan - Draft	05/03/2021

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1 INTRODUCTION

1.1 BACKGROUND

Eastleigh Borough Council has commissioned Johns Associates to undertake work to support the preparation of a Bird Hazard Management Plan (BHMP) for the first residential development parcel as part of the One Horton Heath Project.

The development falls within the 13km radius of an aerodrome in which bird strike risk is considered a hazard. This 13km radius forms the safeguarding zone when aircraft are on approach to land or at take-off. Within this zone aircraft are at lower altitudes and at an increased risk of bird strikes. Within the safeguarding zone, consultation is required for potential bird attractant developments.

The First Residential Development parcel of the One Horton Heath Project (from here on referred to as the "Site") is at its closest point located 3.25km south-east from Southampton Airport, and falls within the inner Horizontal Surface (IHS) which is designed to protect approaching and departing aircraft at lower levels which are positioning to land or depart.

Pre-planning application advice has been sought from Southampton Airport due to the proximity of the development to the airport. The pre-planning advice from Southampton airport highlighted that a bird hazard management plan will be requested as part of the planning process and outlines measures to be included within the Bird Hazard Management Plan.

This BHMP aims to set out specific measures to be implemented during and after the construction phase of the project. As such, this Draft BHMP:

- Sets out the requirements for and principals of the BHMP;
- Considers potential bird hazard risks from the development that could impact Southampton Airport.
- Sets out general suitable principals for habitat management requirements to reduce the perceived potential risks to tolerable levels.

This report necessarily draws on and at times reproduces specific text/guidance from CAP772, regarding safeguarding aerodromes from wildlife hazards.

This BHMP forms part of the management documentation and site procedures for the proposed development.

This BHMP complies with advice note 3 <https://www.aoa.org.uk/wp-content/uploads/2016/09/Advice-Note-3-Wildlife-Hazards-2016.pdf>

The Bird Hazard Management Plan shall be implemented as approved, during construction and after completion of the first development parcel and shall remain in force for the life of the development. No subsequent alterations to the plan will take place unless first submitted to and approved in writing with Eastleigh Borough Council.

Figure 1: Site Location with Respect to the 13km Bird Safeguarding Area



2 BIRD HAZARD GUIDANCE

The design and management of the new features is informed by the following guidance, noting the existing baseline environment and populations of hazardous birds within the semi-natural and agricultural character of the site prior to development (i.e. agricultural pasture and arable habitats, woodland, hedgerows and trees).

2.1 AIRPORT OPERATORS AUTHORITY (AOA) SAFEGUARDING ADVICE NOTES (PREVIOUSLY BAA) - 2007

- Advice Note 3: Potential Bird Hazards from Amenity Landscaping and Building Design;
- Advice Note 6: Potential Bird Hazards from Sustainable Urban Drainage Schemes (SUDS);
- Advice Note 8: Potential Bird Hazards from Building Design

2.2 CIVIL AVIATION AUTHORITY (CAA)

- Advice note 3 – Wildlife hazards around aerodromes - 2016

2.3 CAA CAP 772 WILDLIFE HAZARD MANAGEMENT AT AERODROMES

CAA CAP 772 sets out guidelines for the management of wildlife hazards in and around aerodromes. This document focuses on risks posed to aircraft by birds as they are the greatest wildlife risk. It refers to land or water within 13km of an aerodrome to which hazards are considered to represent a bird strike risk. The first residential development area of One Horton Heath is at its closest point located 3.25km from Southampton Airport.

The main threat in relation to bird strike relates to certain large, higher flying species such as Canada Geese *Branta canadensis*, and to a lesser extent Greylag Geese *Anser anser*, which is evident from the publication of the CAA Safety Regulation Group document "Large Flocking Birds – An International Conflict Between Conservation and Air Safety" that specifically addresses this threat. The objective of CAP 772 is to reduce the potential for roosting and to make sure that landscape areas are not attractive to such large flocking bird species, which also include gulls or corvids. Smaller birds that do not form dense flocks have a lower hazard potential.

3 BASELINE DATA

3.1 SITE LOCATION

The Site is approximately 13.5ha in size located in the borough of Eastleigh in Hampshire which lies approx. 3.25km east of Southampton International Airport. Between the Site and the airport lies Itchen Country Park, The River Itchen and tributaries which form part of the River Itchen SSSI and SAC, flow through the country park and then out into the Solent. The Country Park also has a series of large open waterbodies present and water meadows. Following the river Itchen upstream to the north there are several other large water bodies including Hampshire Carp Fisheries which has a series of ponds for breeding fish stock, grid reference - SU 47451 20315 and Fishers Pond grid reference - SU 49051 21131. This network of large waterbodies located along the river Itchen catchment is likely to form flight line running from north to south located between the Site and Southampton Airport to the west.

The network of wetland habitats along the River Itchen, open waterbodies and water meadows running north to south located to the east of the Site, and the relative absence of similar habitats within the Site means the Site is very unlikely to attract birds. Notably large wetland bird species which are likely to pose a bird strike risk to aircraft. This is supported by the limited bird species observed within the Site boundary see section 3.3.

3.2 SITE HABITATS

Pre-construction the habitat types present within the Site boundary are comprised of farmland, mainly improved grassland fields for cattle grazing and smaller areas of poor semi-improved grassland divided by hedgerows. The northern section of the site has a steep sided slow-moving stream heavily covered with scrub that runs from east to west and has areas of marshy grassland adjacent to it, see Figure 2 for a Phase 1 Habitat Map of the existing Site habitats.

The fields within the Site are not low lying and rarely collect standing water which could be an attractant to wintering wading bird species.

Prior to development the site there were no areas of permanent standing water present within the Site boundary. One water body was present off-site to the north-west, a pond located within the Chalcroft Farm complex. This waterbody is known to have small numbers of breeding mallards *Anas platyrhynchos* and moorhen *Gallinula chloropus* present.

Other water attractants to bird species include a wet ditch offsite between Chalcroft Business park to the west and the site boundary, however this is heavily shaded and only mallards have been observed within this area.

3.3 BIRD BASELINE DATA

3.3.1 Data Search

Results from a data search from HBIC in 2020 returned 1224 bird records within a 2km radius of the Site. Most of the records relate to specific sites such as Itchen valley country park, Allington Gravel Pit which now holds water and is located next to Itchen valley country park, Eastleigh sewage works which is 900m north-west of Southampton airport and Moorgreen farm which is south-west of the Site located south of the trainline. Many of the bird records in these locations relate to birds that are considered common hazardous bird species (see section 0)

3.3.2 Previous surveys

Ecologica Ltd conducted a wintering bird survey for the entire one Horton Heath site with incorporated the first residential development boundary. The survey was conducted over seven months from September 2013 to March 2014. Common species, not subject to special protection or under threat, were not recorded during the surveys. The species recorded comprised of species listed on Annex 1 of the Birds Directive, Schedule 1 of the Wildlife and Countryside Act, NERC species, UKBAP species and BoCC Red and Amber species.

A total of 28 species were recorded across the Site, no wintering species for which the Solent and Southampton water special protection area (SPA) is designated for were observed (Teal, Dark-bellied Brent geese, black tailed godwit and ringed plover. Of the species observed during the surveys the following hazardous bird species were observed;

- Herring gull, Black head gull, Common gull and Lesser black-backed gull were all observed flying high over the Site in low numbers, a single black headed gull was the only gull species observed onsite near Chalcroft Farm. Common gull was observed in the greatest number flying over the Site with a peak count of 41 in November.
- One group of six little egrets were observed in December resting in a field near Chalcroft farm.
- Mallards were observed across the site during most surveys, mainly around Chalcroft Farm pond with a peak count of 19 in March.
- On a single occasion in October a group of 38 Greylag geese were observed in a field south of Chalcroft Farm.
- A single lapwing was observed circling over a field east of the solar farm to the North of the Site in March. Two single snipes were observed rising from a watercourse in March.
- A single kestrel observed flying over the Site in April was the only bird of prey observed during the surveys.
- Starlings were observed on site during every survey with numbers ranging between 48 and 274 they were scattered around the site but there was a concentration observed around Chalcroft Farm.
- No other hazardous bird species were observed during the wintering bird surveys.

Ecologica also carried out a Breeding bird survey over three months in April, May and June 2014. Common species, not subject to special protection or under threat, were not recorded during the surveys. The species recorded comprised of species listed on Annex 1 of the Birds Directive, Schedule 1 of the Wildlife and Countryside Act, NERC species, UKBAP species and BoCC Red and Amber species.

A total of 20 species were recorded across the Site, no wintering species for which the Solent and Southampton water special protection area (SPA) is designated for were observed and no Annex 1 or Schedule 1 species were recorded. Of the species observed during the surveys the following hazardous bird species were observed;

- Herring gull, Common gull and Lesser black-backed gull were all observed flying high over the Site in small numbers <5, no evidence of any of these species breeding on Site.
- A single snipe was observed outside of the Site boundary within a rushy field west of Chalcroft Farm in April.
- Mallards were observed across the Site during every survey visit, clusters around Chalcroft Farm pond. Two broods were observed, one on Chalcroft farm and one on the southern watercourse.
- A single kestrel observed flying over the Site in June was the only bird of prey observed during the surveys. No evidence of breeding onsite.

- Starlings were observed on site during every survey with numbers ranging between 24 and 137 they were scattered around the site but there was a concentration observed around Chalcroft Farm.
- No other hazardous bird species were observed during the breeding bird surveys.

The historical bird surveys were carried out by Ecologica in 2013 and 2014 of the wider development Site, prior to submission of the previous planning applications, the surveys did not identify large conglomerations of larger bird species. The largest species observed was Greylag goose, which were only observed on one occasion in a group of 38. Gull species were observed in greater numbers during the wintering bird surveys, with common gull being the most frequently observed flying high over the site. The most frequently found hazardous birds onsite were mallards in small numbers and starlings in great numbers in larger concentrations around the Chalcroft Farm complex, which is located to the north-east of the Site boundary.

As these surveys omitted common species there is a lack of data on hazardous species such as corvids and pigeons. Existing woodlands adjacent to Site, waterbodies and grasslands do provide opportunities for these species to gather.

3.3.3 Breeding Bird Surveys 2020

Johns Associates undertook breeding bird surveys in 2020 across the wider Horton Heath Site, spaced evenly between the months of April and June. The surveys were carried out following the standard BBS methodology. Surveys were started within 2 hours of sunrise, in suitable weather conditions where possible. A transect covering all areas of suitable habitat within the Site was walked at a slow pace in an alternating direction between survey visits. Birds were identified visually using binoculars and identified through song. All singing and non-sing birds, and birds carrying food or nesting material, were recorded using standard BTO registrations. Records during each visit were marked upon separate maps, and then records for each species were combined upon a single map to allow identification of habitat areas used by individual bird species and to allow estimation of the number of bird territories.

25 bird species were observed within the wider Horton Heath Site across the survey period. The majority of the species recorded were not considered to be a hazardous bird species so are not included in this assessment. Detailed below are species that are listed as aviation hazards found within or adjacent to the first residential site boundary;

- Nine starling registrations were recorded on and adjacent to the Site in small numbers. Whilst this species has the potential to be hazardous in large aggregations, they are not considered to represent a bird strike risk as only low numbers were recorded on site with a maximum count of 20 in one post breeding flock. They would only pose an aviation hazard when murmuring in larger flocks, and no large murmurations or aggregations of this species have been recorded on site throughout the suite of 2018 - 2020 surveys. Numbers of this species are not considered likely to increase post-development.
- A rookery is present immediately north east of the Chalcroft Farm complex.
- A single pair of moorhens bred successfully on Chalcroft pond.
- A total of nine Wood Pidgeon registrations were recorded across the wider Site. The nearest observation to the Site was within the Chalcroft Farm complex to the west
- Mallards were observed on a single survey outside of the site boundary to the west, in a wet ditch.

No other birds considered to present a bird strike risk were identified within or adjacent to the Site boundary during any of the breeding bird surveys undertaken in 2020.

Figure 2: Phase 1 Habitats Pre-Development

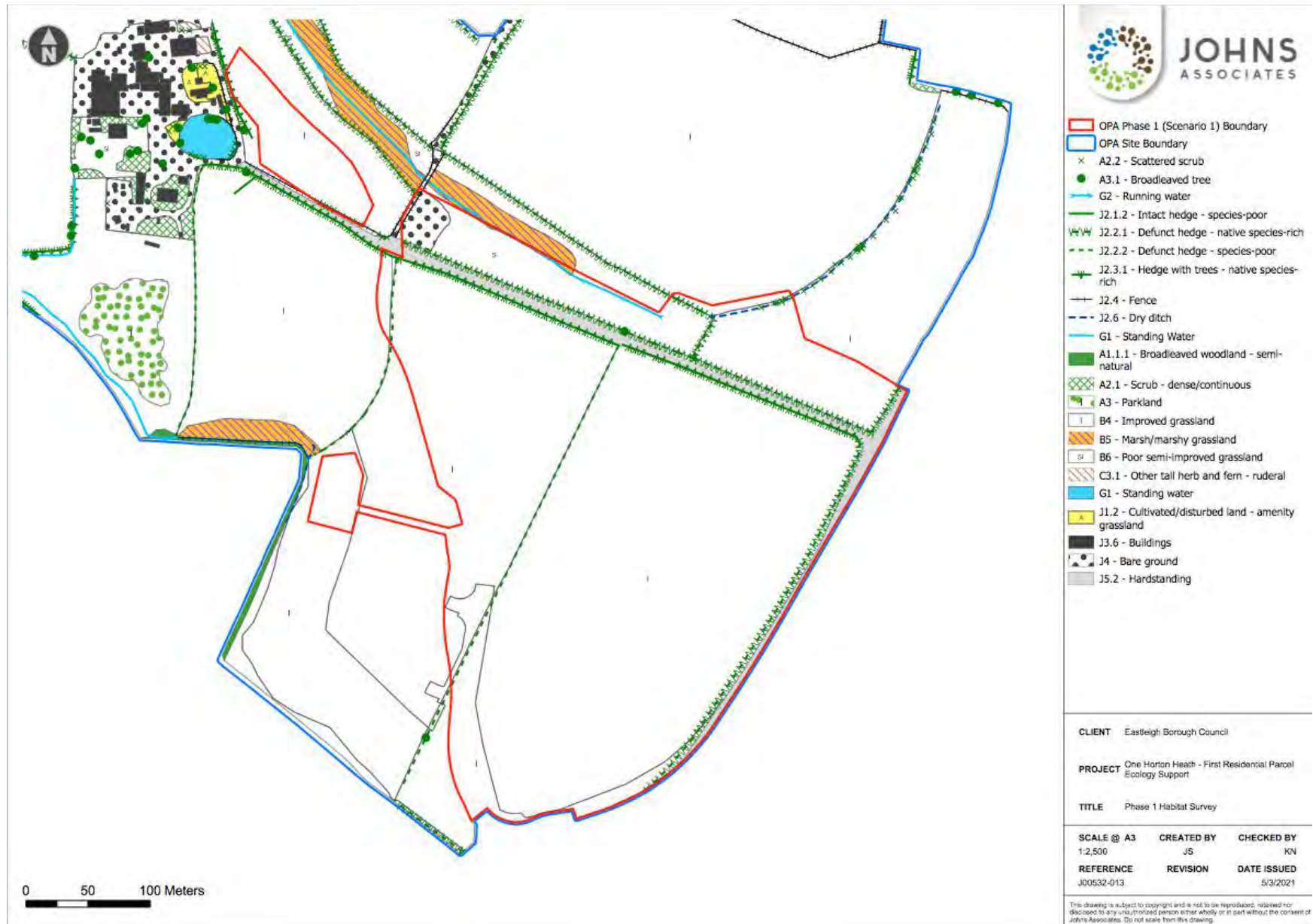
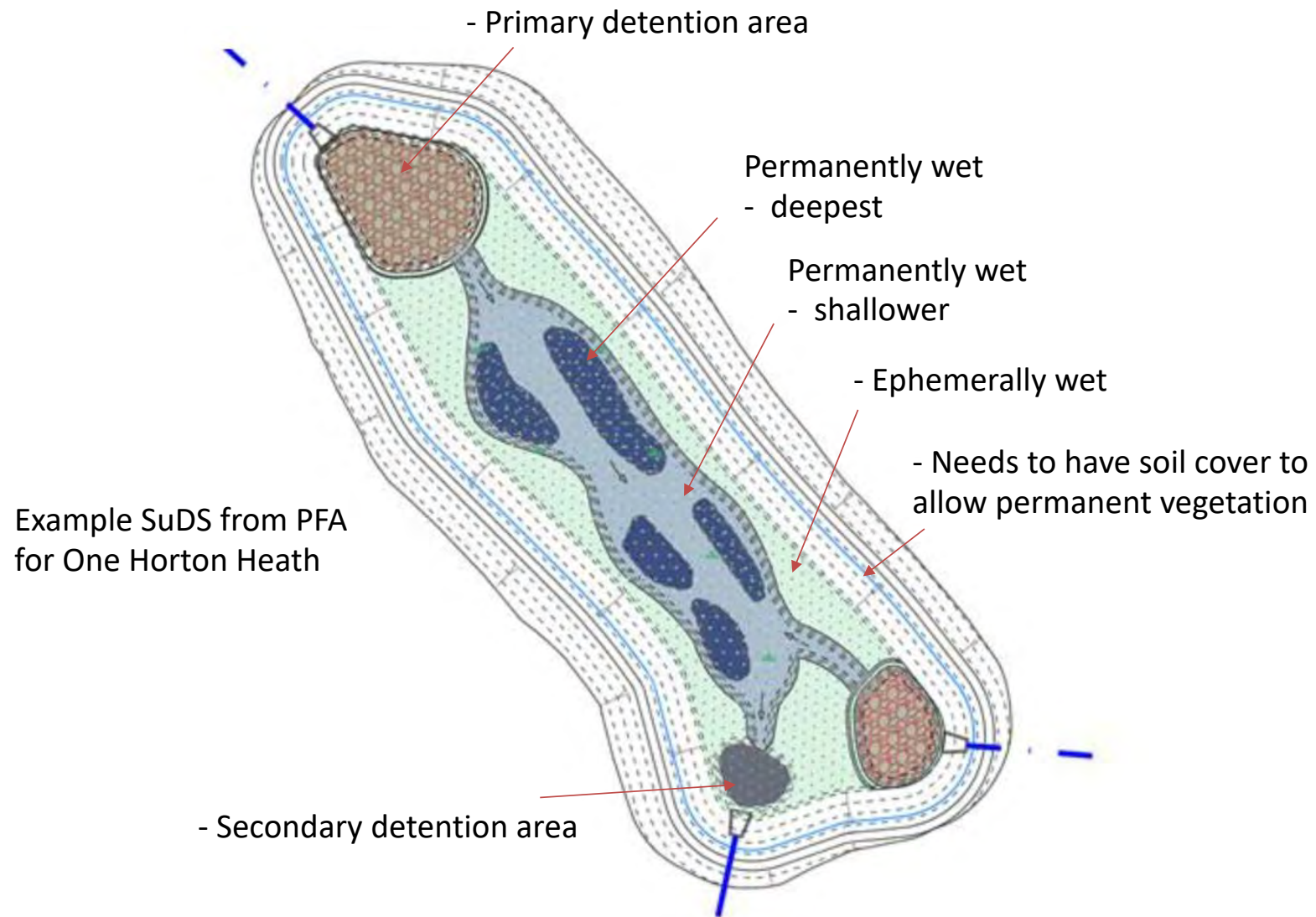


Figure 3 Post Construction Habitat Plan



Figure 4 SuDs Basin Concept Plan



4 BIRD HAZARD ASSESSMENT

In the UK, airfield safeguarding areas (ASAs) are designated for areas that fall within 13km of an airfield. ASAs ensure that the operation and development of both civil and military airfields is not inhibited by developments, including those which have the potential to increase the number of birds and the 'bird strike' risk. ASAs are based on a statistic that 95% of bird strikes occur below 2,000ft, and that an aircraft approaching an aerodrome on a normal approach would descend below 2,000ft approximately 13km from the runway, reflecting historic angles of take-off and approach.

The Site lies wholly within the 13km ASA and will need to consider bird strike risk and how it can be mitigated.

4.1 BIRDS THAT POSE RISK

Listed below are some common hazardous birds' species as highlighted in Advice note 3 - Wildlife Hazards around Aerodromes. In general, large birds and flocking species present the greatest hazard, although other species may also have the potential to increase the hazard equally.

Common Hazardous Birds include:

- All wildfowl (Ducks, Geese and Swans)
- All large waterfowl (Herons, Egrets, Cormorants)
- Gamebirds (Pheasants & Partridges)
- Birds of prey
- Large waders (Lapwing, Curlew and Golden Plover)
- All Gull species
- All Pigeon species
- All Corvid species (crow family)
- Starlings

4.2 RISK ASSESSMENT

Table 1 Bird Hazard Assessment

Summary of Likely Bird Populations Pre and Post Development				
Hazardous Species/genus/group	Pre-Development	Post-development	Forecast change	Comments
Game Birds	Low population of game birds present on site.	Very low population of game birds present on site.	Negligible	

Waterfowl	Absent	SuDs features created. Whilst these will be designed to provide ecological and biodiversity benefits, the suitability of these features for waterfowl is expected to be limited by the small extent of semi-permanent standing water.	Negligible	Due to the absence of breeding or wintering waterfowl on site, there is likely to be a small increase but this is expected to be a maximum of 2 pairs of mallard, moorhen or coot given the urban nature of these features.
Large Waders	Absent	Absent	Negligible	The site is currently unsuitable for wading birds and will become less suitable as a result of the development despite the inclusion of ecologically beneficial SuDS.
Birds of Prey	One pair of breeding barn owl. No records of breeding buzzard or red kite.	Breeding barn owl retained.	Negligible	The site has some suitability for large, high flying raptors (buzzard, red Kite) but no nest recorded. The site will become less suitable as a result of the development despite the small extension of the parkland present on site due to the increased levels

				of recreational disturbance.
Gulls	No records associated with the site despite meat processing facility present adjacent to the site in Chalcroft Farm	Designs follow AOA guidance to avoid opportunities for gulls in the build environment. No commercial units included within this phase. Meat processing facility to be relocated off site as part of wider scheme.	Negligible	No additional nesting opportunities provided by scheme. Waste tightly controlled and contained within specific bin storage.
Pigeons	There are no records any pigeon species within the site boundary	Designs follow AOA guidance to avoid opportunities for nesting pigeons in the build environment. No ledges or similar architectural features will be included within the scheme.	Negligible	Over the lifespan of the project, a very small increase in suitable nesting habitat will be delivered by extending the parkland and ancient woodland habitats. Given the very limited extent of this area of new habitat, this is only expected to provide suitable nesting habitat for 1-2 breeding pairs.
Corvids	There are no records of breeding corvid species within the site boundary	Designs follow AOA guidance to avoid opportunities for nesting pigeons in the build environment. No ledges or similar architectural	Negligible	No additional nesting opportunities provided by scheme. Waste tightly controlled and contained within specific bin

		features that would provide potential nest locations will be included within the scheme.		storage.
Starlings	There are no records of breeding or wintering/flocking starling within the site boundary although the site is likely to provide foraging resource for starling breeding within the wider area.	Given the established severe declines in this species and its status as a NERC s41 priority species, it is the intention of the development to include provision for this species in order to compensate for the loss of foraging habitat.	Negligible	The scheme will include provision of nest boxes for starling, swift and house sparrow (10 no. each species) on units around the periphery of the development. The inclusion of these features in the scheme is considered appropriate given the conservation status of these species and the very limited hazard presented by low numbers of these species.

4.2.1 Waterbodies

Whilst the proposed drainage attenuation ponds will be planted to provide some ecological interest, they have been designed solely for drainage attenuation purposes and will hold low levels of water all year round, although their levels are expected to fluctuate considerably as a result of weather conditions. Planting schemes around these SuDS features should encourage tall marginal vegetation which will deter large flocks of species such as gull, geese and wading species. Rather than one large feature, 5 ponds have been designed in order to limit the extent of open water and thus reduce the attractiveness to flocking birds, thereby avoiding potential congregation activity. As such, it is not considered that they would act as a significant attractant for additional water birds such as Ducks, Geese, Swans, Herons, Coots and Cormorants and will not be of a size considered suitable for roosting Gull populations.

Creation of new SuDS scheme is not considered likely to attract large number of bird species. Site lies between Southampton airport and the Site which has a large series of waterbodies as well as the river Itchen running through the area, so creation of a new flight path is not expected as a result of the creation of the SuDS features, the design and planting of the attenuation basins will be created as to deter waterfowl and wading bird species.

5 BIRD HAZARD MANAGEMENT PLAN

Based on the baseline data and the site risk assessment bird numbers are not expected to significantly change as a result of the development, and therefore it is not considered that the development will cause a significant bird hazard risk. However, the measures described in the Bird Hazard Management Plan (BHMP) below will be implemented into the site design and management to ensure that bird hazard risk is kept to a minimum at the site, and that any bird hazards would be detected and dealt with swiftly if it was to occur.

Eastleigh Borough Council are developing the Site and are currently responsible for the ongoing implementation of the BHMP. Responsibility will be passed to site management companies and/or any other relevant parties.

The duration of this BHMP is linked to the Site and not the site owner or operator.

5.1 DESIGN

Whilst the proposed development is not considered to result in an overall increase in bird populations, both during the construction phase and post construction, which would present a likely bird strike risk. As a precaution, a number of measures should be incorporated into the BHMP to ensure that hazardous birds and congregations of birds are not attracted to the Site as a result of the proposed development. Details of these measures are discussed below.

5.1.1 Landscape planting

The Pre-Application Planning Advice Received from Southampton Airport in relation to the full outline planning application states:

"The Inner Horizontal Surface has a maximum height AMSL of 54.34m and therefore, taking a worst-case scenario, in the SE of the site with a ground height of 38 metres to avoid penetration of this surface buildings should not exceed 16.4m AGL."

"As the site sits within the boundary of the Inner Horizontal Surface, tree planting at centers of 4 meters or greater is acceptable, but the following species must be excluded; Scots Pine Pinus Sylvestris, Oak Quercus sp. and Beech Fagus Sylvatica."

It is the aspiration of the scheme to include oak in the landscape planting in specific areas where it provides and extension to the existing oak woodland and parkland on site on the following basis:

- The parkland habitat is a UK BAP habitat and there is a rare opportunity associated with this development to provide an extension to the existing veteran oak parkland. The proposed extension is 0.72 ha of oak parkland with oaks planted at 4m centers with the intention to thin to existing density (~15m centers) as the trees mature. The existing area of this habitat is estimated as 3ha across Eastleigh Borough¹ so this opportunity presents a significant (~25%) increase in this priority habitat at a strategic level in an area of existing habitat with excellent connectivity to a designated woodland.
- The site is located within the Chalcroft Priority Biodiversity Link as identified in the Eastleigh Biodiversity Action Plan and woodland/parkland planting seeks to enhance this corridor and effectively extend the Chalcroft Business park woodland SINC.
- Significant areas of designated Lowland mixed Deciduous Woodland (UKBAP priority habitat, SINC and

¹ Eastleigh Borough Council – Biodiversity Action Plan 2012-2022 (EBC, 2012)

ancient woodland) comprising significant oak trees exist both on site and immediately adjacent to this phase and the proposed planting follows the species mix present in the existing valuable habitats. The proposed planting is not considered to present a visual feature or trees that will penetrate the Inner Horizontal Surface

- The increase in hazardous birds is expected to be very low on the basis that these areas will be adjacent to a high-density residential development and, as such, the suitability of the new habitats for nesting large raptors is very low due to disturbance effects.
- LIDAR (2019 1m DTM) shows that the ground level in the area proposed for parkland oak planting is 19-20m AMSL ground level. This leaves a clearance of 34.34m between the ground level and the Inner Horizontal Surface. *Q. robur* has a maximal height of 30m implying that oak planting in this area would not compromise the Inner Horizontal Surface. Mitigation is proposed to manage the potential height of these oak trees to a maximum height of 20m (e.g. leader removal and vertical stem management) to ensure that the inner horizontal surface is not compromised by these trees and there is a negligible change in terms of the appearance of this area over time given the presence of large, mature oak trees in the immediate vicinity of the new planting.

Berry/fruit bearing planting (trees and shrubs) dispersed throughout the scheme, will be subject to a maximum of 15% of the total planting.

5.1.2 Sustainable Urban Drain Schemes (SuDS)

Basins

A Drainage Strategy has been developed for the Site, which includes a sustainable urban drainage system (see a concept plan of the SUDs basins in Figure 4), in the first residential parcel there will be five drainage basins, swales and permeable paving will be used throughout.

The SuDs design has not been finalized however, some of the SuDs ponds will be planted for biodiversity and wildlife interest and will retain water throughout the year. The concept designs for the SuDs features (see fig XX) show small areas will be deep permanent water, larger areas permanent shallow water, edges of ephemeral wet land and planted with permanent vegetation cover around the feature, planting will include tall marginal species and ensure the water levels are maintained at a low level to deter larger bird species.

One SuDs basin will be positioned on the western boundary of the Site adjacent to Round copse wood. Due to the location of this SUDs basins on the edge of woodland, the basin will be overshadowed by trees making it less attractive to waterfowl.

The other four SuDs ponds will be located to the North of the development boundary along and next to the existing stream that flows east to west, additional scrub planting in these areas is recommended to further deter larger flocking bird species.

Swales

Swales are being designed within the main developed area, where these features will be highly disturbed, grassed over and maintained at a short amenity length to deter use by birds.

5.1.3 Building design

Flat and shallow-pitched roofs have the potential to present a hazard for multiple species.

The building designs for the Site have avoided incorporating any buildings that have flats or shallow pitched roofs to avoid creating potential bird attractants. Protruding ledges have been specifically excluded from this scheme.

The following practical options will be integrated into the building designs to avoid attracting nesting, loafing and roosting birds.

- Roofs should be of a steep pitch to deter loafing and nesting birds, choice of roof material, tiles that have smooth surfaces and limited vents will reduce breeding opportunities.
- Roof overhangs will be kept to a minimum, with ledges beneath overhangs and external protrusions being avoided where possible.
- Any exposed ledges will be fitted with bird spikes at a density suitable to exclude feral pigeons and larger birds.
- If necessary netting will be used to proof roofs and exclude hazardous species.
- Any flat or shallow pitched roofs that cannot be bird proofed must be accessible to monitor and manage birds if considered necessary.
- Lighting structures designed or proofed to deter roosting birds

5.2 MANAGEMENT

5.2.1 Construction Phase

Control of construction drainage and earth works during the construction phase should ensure that wide areas of permanent open water do not develop which can attract geese, gulls and wading species.

If necessary, bare loose soil should be compacted to reduce its suitability for bird species.

The timing of all significant earthworks, particularly topsoil spreading and grading, shall be notified to the airport (Airfield Operations) in advance and scheduled, where possible, at times of lower flying activity.

Grass seeding should be done in phased sections if the area to be seeded is larger than 150m² rather than all at once. Intervals between discrete blocks should ideally be in the order of 3 days. This will produce staggered germination, reducing the amount of seed available to pigeons, reducing the area affected at any one time and allowing better deployment of passive deterrent measures.

Blocks of ground where construction work has been completed shall be reinstated or covered and re-seeded (where applicable) at the earliest opportunity.

Waste control and disposal for the Site, including food waste, should be controlled to avoid the build-up of scavenging bird species such as gulls and corvids. Waste should be placed in covered skips and bins to reduce risk.

5.2.2 Post-construction

Trees/Shrubs

Existing and newly created hedgerows within and surrounding the development that contain fruiting species such as Hawthorn *Crataegus monogyna* and Blackthorn *prunus spinosa* will be trimmed yearly to limit berry production.

Grassland Management

Grassland in amenity areas throughout the Site will be maintained as a short sward.

Areas of existing diverse grassland habitats within the Site will have a reduced cutting regime. Arisings from these areas should be removed for the benefit of biodiversity and to remove seeds which may attract flocking birds.

SUDS

Swales used within the Site as part of the SUDS scheme will be monitored to ensure that they are quick draining. Grass within the swales will be regularly cut to ensure it is maintained as a short sward, to ensure they are kept as unattractive features for hazardous bird species.

SuDS basins that hold water on a non-permanent basis are to be managed to control any bird hazard as appropriate.

SuDs basins that are designed to hold water at a low level on a permanent basis will be planted with tall marginal species such as common reed *Phragmites australis* and reedmace *Typha latifolia* or *Typha angustifolia* which will limit the amount of open water which will naturally reduce the appeal of the water body to species such as gulls, geese and cormorants. Additional scrub and hedgerow planting around SuDs will be allowed to grow with minimal management.

Putrescible Waste

This development phase will include residential properties only. The following precautions will be implemented during construction and operation to minimise bird attraction;

- All waste will be stored in private bins and bin storage facilities on site.
- Signs will be erected in public places informing the public that they should not feed the birds, in places birds are likely to cause an issue, e.g. SuDs pond. This situation will be monitored quarterly as part of the BHMP (or outside these checks if concerns are raised by a residents) and if it is considered to be an issue, then further steps will be taken to inform the public, for example by distributing informative leaflets. Residential bird feeders are not covered under this as they are not expected to pose a risk. Public feeding of flocking birds such as feral pigeons and gulls is to be discouraged through information pack issued to residents.

5.3 MONITORING AND DISPERSAL

Regular monitoring and reporting will be undertaken by an agent appointed by Eastleigh Borough Council. Annual reviews of the records of bird and potential bird hazards will be undertaken by the project ecologist and reported back to Eastleigh Borough Council. Any emerging hazards will be reported to National Air Traffic System (NATS) based at Southampton Airport. Should unacceptable potential risks be encountered, management intervention will occur to reduce the potential risk to an agreed acceptable level in consultation with NATS.

5.3.1 Monitoring

Construction phase monitoring will specifically include:

- A log book will be kept providing an auditable record of all BHMP information to be maintained detailing: dates, times and description of monitoring carried out, species and number of birds recorded, control effort provided and the results of any control.
- Numbers and species of bird present across the Site to be recorded in a log book. The frequency of the monitoring will be undertaken under the direction of the bird management consultant and will be

dictated by the level of bird activity and time of year. If required advice would be sought from a bird control specialist if levels are seen to increase.

- The general attractiveness of the site for birds will also be monitored on an ongoing basis with any measures (such as landscape/habitat management, surveillance/dispersal strategies) adopted where required to render the site unattractive for birds.
- SUDS features will be checked quarterly to monitor bird populations and identify if management will be required to reduce the numbers of birds if this is observed to increase.
- Southampton International Airport will also be able to independently verify that the objectives of the BHMP are being met, and an inspection of the records and Site can be made without notice to Eastleigh Borough Council, access to all areas of the Site will be made available to ensure that inspections can be carried out.
- Contact would be made with the Southampton Airport Air Traffic Control team should any bird issues arise.
-

5.3.2 Remedial Management Options

- If bird activity of larger flocking species (such as gulls, wildfowl or corvids) is recorded during on-going monitoring of the proposed SUDs attenuation ponds, a bird control specialist will be contacted, and appropriate control measures would be undertaken if deemed appropriate.
- Consideration will be given to the use of wider bird deterrent measures to encourage dispersal, e.g. distress calls, gas cannons.
- Following monitoring and any recommendations from consultation with the retained ecological consultants, habitat management (targeted landscape management) and surveillance/dispersal strategies would be adopted if deemed necessary.
- Any control measures considered necessary, after site monitoring and consultation with the project ecologists, must be to be carried out under an appropriate licence as necessary.
- Existing and newly planted hedgerows, trees and shrubs throughout the Site in community open spaces will be managed yearly.

Should the Site manager have concerns about bird numbers and activity due to unexpected or seasonal bird activity following adoption of aforementioned measures, the activity shall be recorded in the logbook and contact shall be made with the project ecologists and Southampton Airport for advice.

The project ecologist will undertake audits across the development site and the wider One Horton Heath Site, once per month during the construction phase and yearly thereafter subject to satisfactory performance.

Figure 5: Site Design



6 CONCLUSIONS

This BHMP concludes that there is no significant increase in bird strike risk associated with the first residential parcel of one Horton Heath on Southampton International Airport, should the measures included herein be delivered as required.

Southampton Airport lies in close proximity to an identified bird fly way to the east of the airport which runs north to south along the River Itchen corridor. The Site lies to the east of the river Itchen, the development is not expected to attract common hazardous bird species to the Site or alter the pre-existing bird fly ways identified if measures laid out within the BHMP are followed.

Recommendations have been made to design out potential attractant habitat for birds within the development design. Also, management measures during and post-construction have been made to further lower risk of bird strike hazards.

The high level of human occupancy across the site post construction has been considered to be a deterrent to larger wading birds such as geese, herons, egrets, cormorants, lapwing, curlew and golden plover. Despite the increase of wetland SuDs features, human disturbance is likely to deter these species in larger numbers that are considered to be an aviation hazard.

The proposed measures will be continually reviewed in line with the BHMP, through site monitoring and reporting to Southampton International Airport, thereby ensuring that a robust and pro-active approach to any risks of increased bird strike. The Site management and monitoring will be ongoing throughout the life of the development or as long as there is an operational aerodrome within 13km of the Site.

Overall it is considered that in accordance with best practice the mitigation measures detailed in this document are sufficient to ensure that any risks of bird strike associated with the development of the first residential parcel of the One Horton Heath development have been reduced as low as reasonably practicable.

Appendix E – Site specific CEMP Controls – TEMPLATE

Project/Task title: **Phase 3 Link Road**

Principal Contractor: **TBC**

Start date: **TBC**

Duration: **TBC**

Site Manager: **NAME AND CONTACT DETAILS TBC**

Site Environmental Representative: **NAME AND CONTACT DETAILS TBC**

Environmental / Ecological issues	Best practicable means control measures to be implemented - examples, not limited to:	Location of control measures	Comments
Noise and vibration	Noise assessment & identification of noisy plant/works to be undertaken. Use of low noise/vibration equipment (procurement strategy). Separation of noisy & vibrating equipment (prevention at source)- acoustic barriers. Location of equipment away from sensitive receptors. Maintenance of equipment. Avoid machinery idling. Traffic management plan – hours of work. Noise awareness campaign and toolbox talks.	TBC	
Lighting	Lighting faces downwards and into site to avoid spilling onto adjacent habitats. No lighting on boundary of sensitive areas (TBC). Lights turned off at night.	TBC	
Dust / air quality	Avoid unprotected spoil heaps – seeding/cover if long term storage required. Dust suppression to be used where necessary (run off to be captured and treated/settled prior to discharge) – any discharge to be in accordance with EA permit.	TBC	
Bird hazard management	See bird hazard management plan (BHMP). Construction of SuDS basins to prevent attracting wading and water birds.	TBC	

	Notification of grass seeding to the airport authorities – See section 5.2 of the BHMP Full details of arrangements to be added.		
Soil stabilization – use of cement / lime	TBC - Details of arrangements to be added.	TBC	
Use of chemicals / fuel on site.	All fuel and chemicals to be stored in a secured container on an impervious base with sufficient bunding capacity to prevent ground contamination in the event of failure. All chemicals must be properly labelled. All fueling in designated area away from water courses. Drip trays must be used for all fueling operations. All hoses and valves to be checked regularly for damage/wear and tear. Spill kits must be available AND all operatives trained in their use. Emergency procedures must be in place and all operatives trained in them. All spillages must be reported to the site manager AND the site Environmental Representative as soon as possible. A record of all incidents must be kept and reported to the Client as soon as possible.	TBC	
Water quality – dewatering / discharge (sediment control)	Control of sediment and runoff will be managed in accordance with the principles set out in the CIRIA SuDs Manual. The use of methods including, retaining grass and vegetation for as long as possible, in disturbed areas, controlling erosion via the use of straw bale barriers, geotextile silt fences and sediment basins (with regular clearing out of excess sediment off-site) and ensuring that the runoff from the disturbed area passes through sediment control systems before discharge. Any discharge to be in accordance with EA permit.	TBC	
Water quality/mud transfer – wheel wash and cement washout.	Wheel wash and cement slurry to be in purpose-built system to ensure water is reused, silt, sediment and invasive species are prevented from transfer or contamination or water courses.	TBC	

	Cement wash-out to be retained and returned to supplier – or contained for treatment - TBC.		
Stream / watercourse diversions.	Stream diversion requirements including damming and temporary rerouting the stream – details TBC	TBC	
Tree removal and tree root protection	Tree removal in the area of the stream must be undertaken in accordance with the EA permit requirements. Tree route protection requirements set out in the relevant arboricultural reports will be implemented.	Detail specific root protection zones on plan.	
Waste management	Waste management strategy to be prepared and implemented following the waste hierarchy – prevention, reuse, recycling, energy recovery, disposal. Soil from the Phase 3 Road is to be used on the First residential parcel to avoid the requirement for importing soil.	To be prepared	
Prevention of run-off (spoil storage)	Location of spoil heaps to be furthest from watercourses and bunded/water capture used to prevent silt run off.	TBC	
Great Crested newts	GCN licenses are in place for the northern area and Chalcroft (to be submitted/approved). All works must comply with the license requirements.	TBC	
Owls	Nesting barn owls are present in Chalcroft farm and there are two active nest boxes present on site to the south of Chalcroft and in the center of Foxwood.	TBC	
Nesting birds	Nesting birds must not be disturbed. Where possible, removal of trees and hedgerows should not be undertaken during the nesting season. If works must be undertaken during this time, then a pre-works check by a competent ecologist must be made to ensure that no nesting birds are present.	TBC	
Bats	A number of tree roosts are present across the site. The location of which will be made available to the Principal Contractor, and these will be updated/reassessed as required.	TBC	
Dormice	Foxwood supports hazel dormice. All works around Foxwood Stream will be undertaken in accordance with the dormouse license is being prepared (and will be attached to this CEMP	TBC	

Invasive species - Japanese knotweed (<i>Fallopia japonica</i>) and Himalayan balsam (<i>Impatiens glandulifera</i>).	There are areas of Himalayan balsam (adjacent to Quobleigh stream) which must not be spread across the site or downstream . A method statement for removal or treatment to be agreed in writing by the local planning authority PRIOR to any works in this or adjacent areas. Biosecurity measures including: Timing of removal. Vehicle and personal decontamination (wheel wash and footwear washing). Cleaning and disinfecting tools. Signage and training for all operative.	TBC	
OTHER			

Appendix F – CEMP weekly inspection/monitoring form DRAFT (see EHS Management system currently under review)

Project/Task title: Phase 3 Link Road

Date of inspection: **TBC**

Time of inspection: **TBC**

Details of person undertaking inspection: **TBC**

Principal Contractor: **TBC**

Site Manager: **NAME AND CONTACT DETAILS TBC**

Site Environmental Representative: **NAME AND CONTACT DETAILS TBC**

Licenses and permits;

License/Permit	Number	Issue date	Issued by
Great Crested Newt License	TBC	TBC	Natural England
Bat License	TBC	TBC	Natural England
Dormouse License	TBC	TBC	Natural England
Ordinary water course consents	TBC	TBC	Hampshire County Council
Tree removal (Quobleigh Stream)	TBC	TBC	Environment Agency
Bridge and outfall application (Quobleigh Stream)	TBC	TBC	Environment Agency
OTHERS			

Environmental / Ecological issues	Control measures checked AND adequate YES/NO	Signed / dated	Actions required / Comments
Noise and vibration			
Lighting			
Dust / air quality			
Bird hazard management			
Soil stabilization – use of cement / lime			

Use of chemicals / fuel on site.			
Water quality – dewatering / discharge (sediment control)			
Water quality/mud transfer – wheel wash and cement washout.			
Stream / watercourse diversions.			
Tree removal and tree root protection			
Waste management			
Prevention of run-off (spoil storage)			
Great Crested newts			
Owls			
Nesting birds			
Bats			
Dormice			
Biosecurity - Invasive species - Japanese knotweed (<i>Fallopia japonica</i>) and Himalayan balsam (<i>Impatiens glandulifera</i>).			
OTHERS			

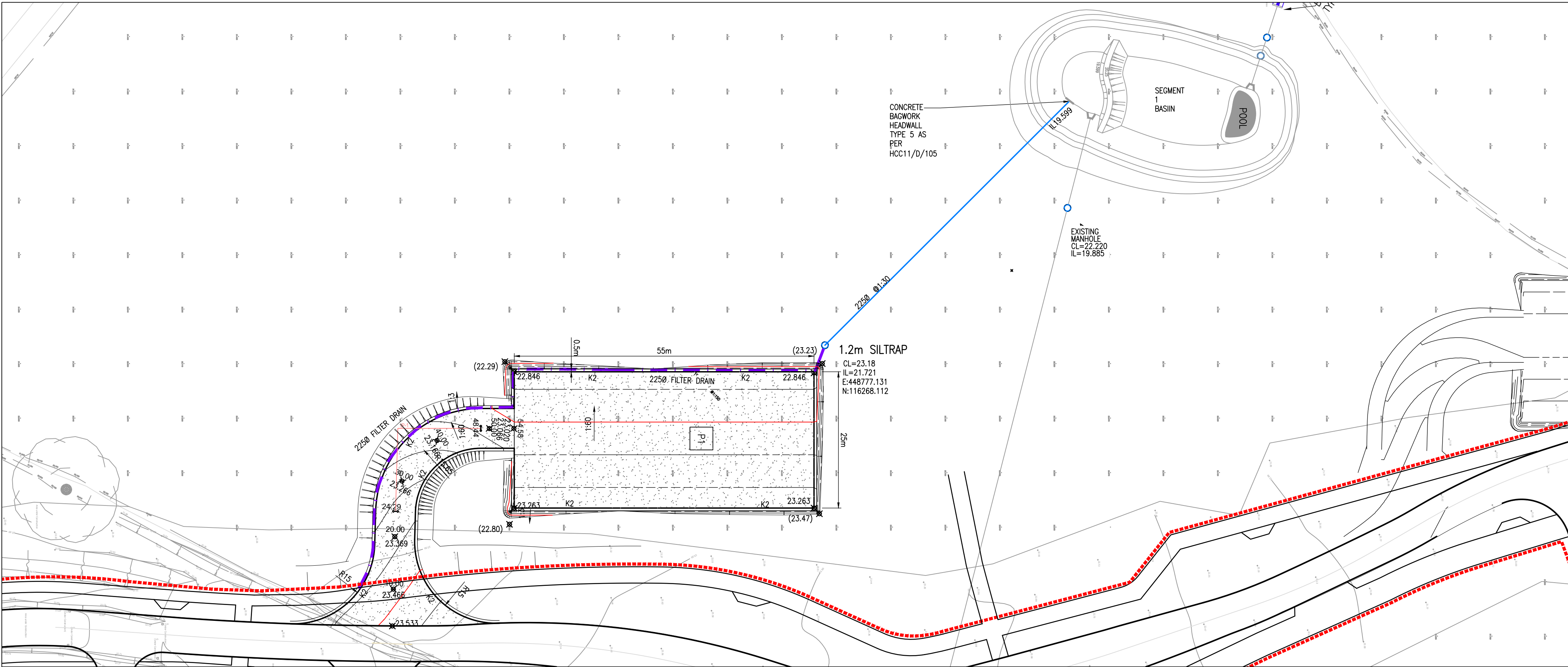
Incidents/accidents/near misses reported this week:	
Toolbox talks undertaken this week:	
Actions required from this inspection:	
Inspection findings reported to:	<i>Name, role and date.</i>
Additional Comments:	
Signature:	

NOTE: This form must be completed WEEKLY and submitted via iAuditor OR via ohh_hsereports@eastleigh.gov.uk

Appendix G– Further relevant documents

Document	Author	Reference/Date/Version/Link
Bird Hazard Management plan	John's Associates	Appended
Tree Constraints Plan	Tyler Grange	Assessment reference 11705_R05a_JP_HM dated 15 December 2020
Construction Traffic Management Plan	PBA	August 2021 (appended)
Environmental Mitigation and Management Plan (EMMP)	Johns Associates	
OHH Environmental Strategy Chapter 8.	Johns Associates	
OHH Environmental Strategy Chapter 10 - Landscape and Ecological Mitigation Masterplan (LEMP)	Johns Associates	ES Appendix 10.12 Landscape and Ecological Mitigation Masterplan, 11th May 2021. Johns Associates
OHH Environmental Strategy Chapter 11.	Johns Associates	ES Appendix 11.5 One Horton Heath: Water Quality Outline Monitoring and Management Plan. Johns Associates
Pollution Prevention Guidelines - Works and maintenance in or near water: PPG5		https://www.netregs.org.uk/media/1418/gpp-5-works-and-maintenance-in-or-near-water.pdf
Biosecurity and management of invasive non-native species for construction sites and Controlled Activities		https://www.sepa.org.uk/media/163480/biosecurity-and-management-of-invasive-non-native-species-construction-sites.pdf
CIRIA C741 – Environmental Good Practice on Site – 4 th Edition 2015		https://www.ciria.org/CIRIA/CIRIA/Item_Detail.aspx?iProductcode=C741&Category=BOOK
Control of Pollution Act 1974		Legislation
BS 5228 Code of practice for noise and vibration control on construction and open sites		BSi
Air Quality Monitoring in the Vicinity of Demolition and Construction Sites		Institute of Air Quality Management
Assessment of dust from demolition and construction 2014		Institute of Air Quality Management

Appendix H – Site compound and sales office location plan.



- NOTES**
1. THIS DRAWING IS COPYRIGHT.
 2. DO NOT SCALE THIS DRAWING.
 3. THE CONTRACTOR IS TO BRING TO THE NOTICE OF THE ENGINEER ANY DISCREPANCIES CONTAINED IN THIS DRAWING PRIOR TO WORK COMMENCEMENT.
 4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALIST SUB-CONTRACTORS DRAWINGS AND THE SPECIFICATION.
 5. ALL SETTING OUT TO BE IN ACCORDANCE WITH THE ENGINEERS DRAWINGS. CONTRACTOR TO CHECK AND IDENTIFY ANY DISCREPANCIES TO ENGINEER. DIMENSIONS MUST NOT BE SCALED.

HEALTH & SAFETY:

ALL WORKS TO BE CARRIED OUT BY A CONTRACTOR COMPETENT TO UNDERTAKE THE CONSTRUCTION OF WORKS AS INDICATED ON THIS DRAWING. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE JOB SPECIFIC RISK ASSESSMENT. THE HAZARDS NOTED ARE IN ADDITION TO THE NORMAL HAZARDS AND RISKS FACED BY A COMPETENT CONTRACTOR WHEN DEALING WITH THE TYPE OF WORKS DETAILED ON THIS DRAWING.

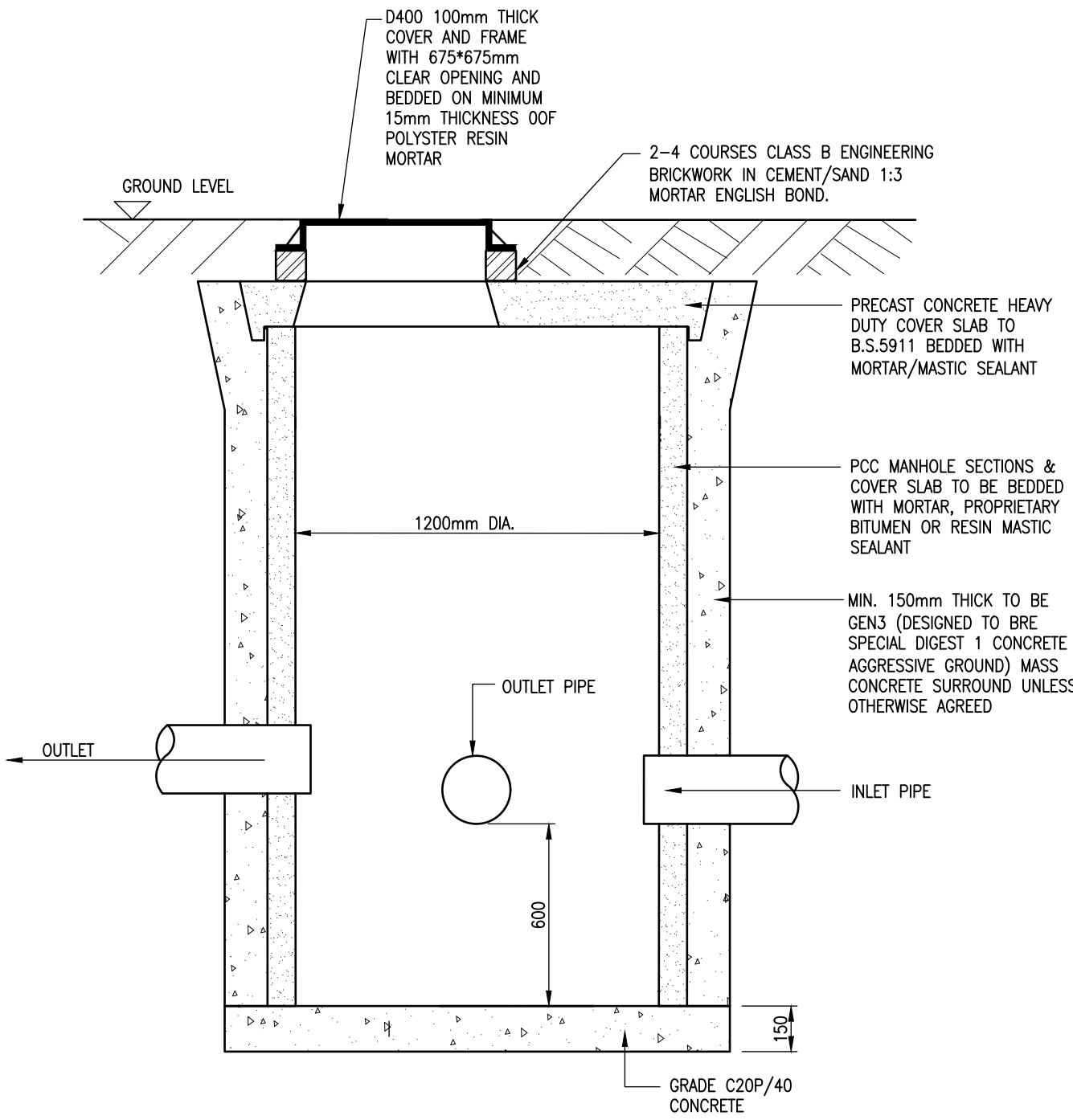
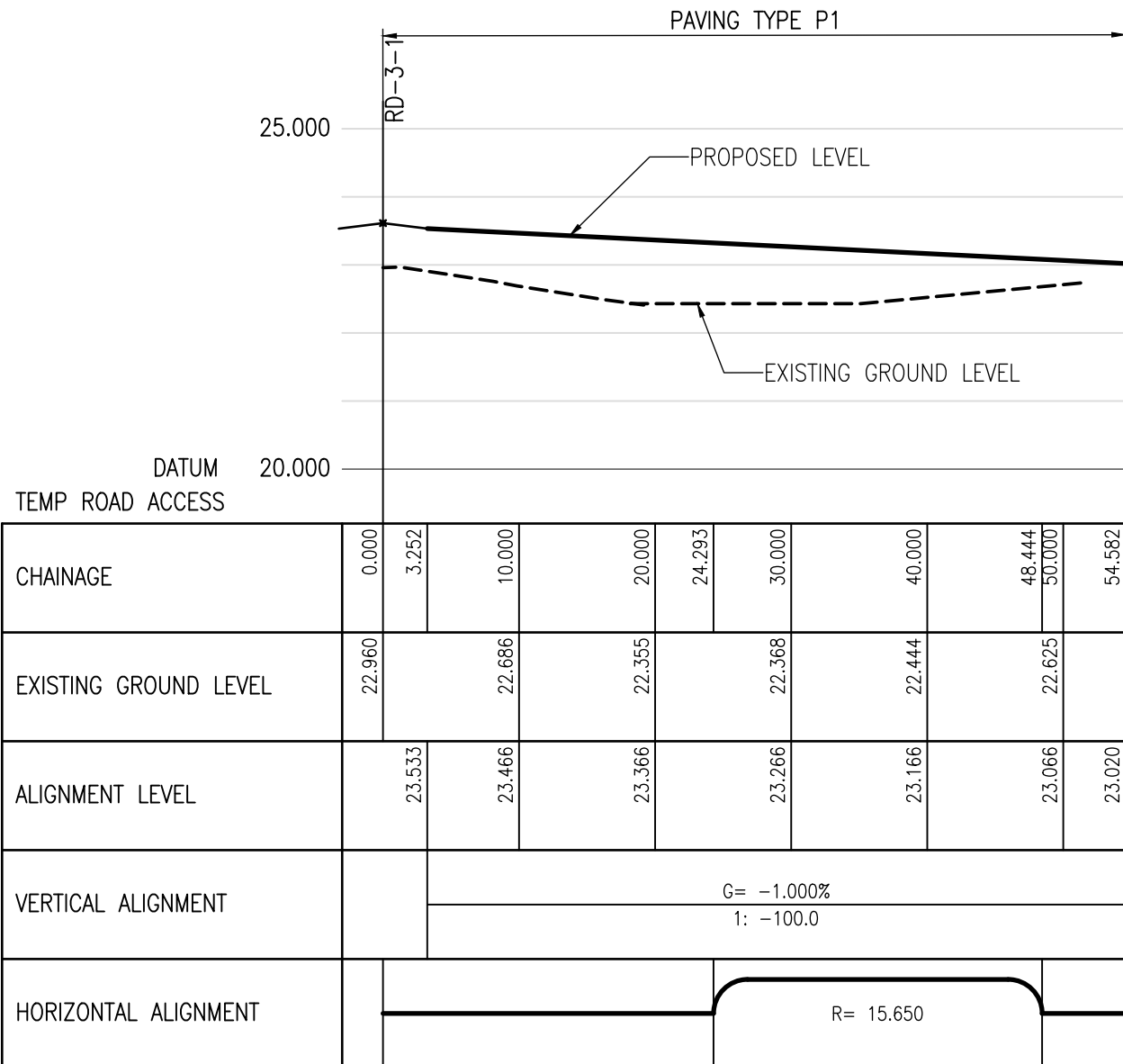
LEGEND

- ◆ 32.167 DENOTES PROPOSED LEVEL
★ (26.143) DENOTES EXISTING LEVEL
P1 PAVING TYPE 1
CARRIAGEWAYS ASPHALT CONSTRUCTION
--- DENOTES RED LINE BOUNDARY
--- DENOTES PROPOSED CONTOURS
--- DENOTES 1 IN 3 BATTER

SALE CENTER AND SITE COMPOUND

SCALE 1:500.

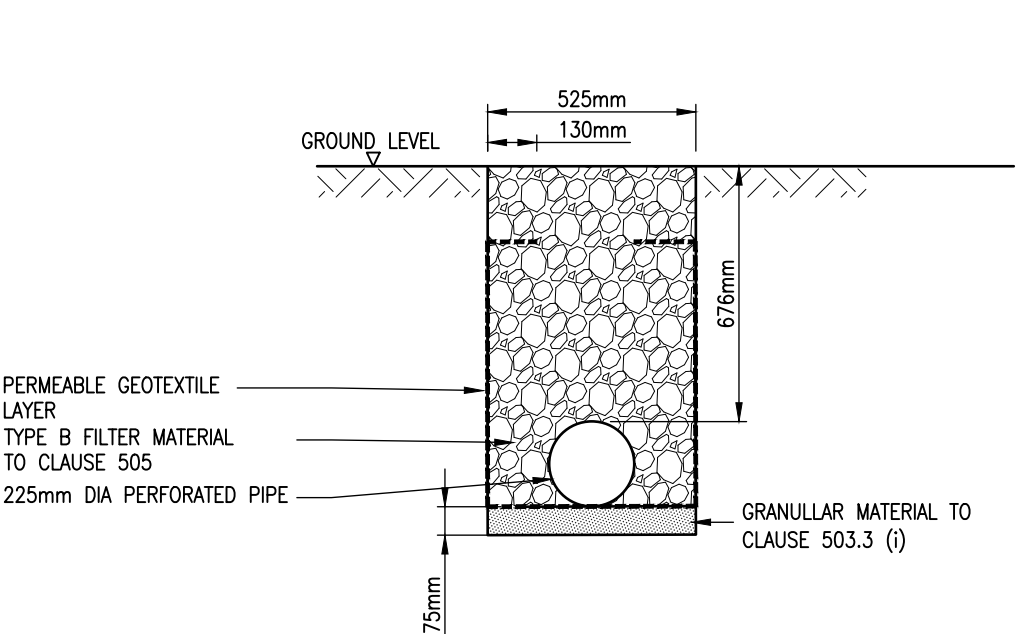
ALIGNMENT		COMPOUND						
LOCATION	CHAINAGE	EASTING	NORTHING	RADIUS	BEARING	ANGLE	ARC LENGTH	TANL
JPCOMPOUND-2	0.000	448831.888	116188.657	15.650	271.58216	88.41784	24.151	15.224
CPCOMPOUND-1	10.000	448821.892	116188.934					
CPCOMPOUND-2	20.000	448811.896	116189.210					
TPCOMPOUND-1a	24.293	448807.604	116189.328					
IPCOMPOUND-1		448792.386	116189.749					
CPCOMPOUND-3	30.000	448802.053	116190.511	0.00000	0.00000	0.00000	0.00000	0.00000
CPCOMPOUND-4	40.000	448794.609	116196.932					
TPCOMPOUND-1b	48.444	448792.386	116204.972					
CPCOMPOUND-5	50.000	448792.386	116206.528					
EPCOMPOUND-2	54.582	448792.386	116211.110					



- NOTES**
1. ROCKER PIPES 600mm LONG FOR 100 TO 450 DIA PIPEWORK (1000mm LONG UP TO 750 DIA) ON OUTLET AND EACH ENTRY STARTING 150mm FROM CONCRETE SURROUND.

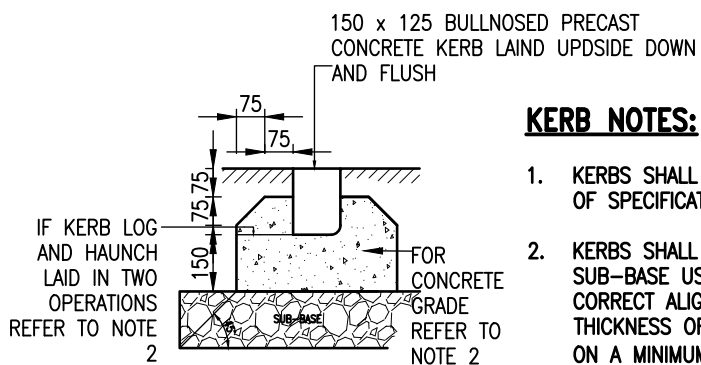
PRECAST CONCRETE SILT TRAP

SCALE 1:20



FILTER DRAIN TYPE 1A

SCALE 1:20



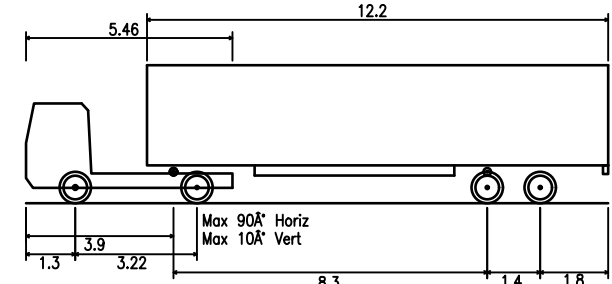
BULLNOSED KERB (K2)

SCALE 1:10

KERB NOTES:

1. KERBS SHALL BE PRECAST CONCRETE KERBS COMPLYING WITH BS EN 1340 AND CLAUSE 1101 OF SPECIFICATION FOR HIGHWAY WORKS.
2. KERBS SHALL BE LAID ON A CONCRETE KERB BEAM CAST IN-SITU ON THE CARRIAGEWAY SUB-BASE USING MIX S14 CONCRETE, PROPERLY SHUTTERED AND TAMP FINISHED TO THE CORRECT ALIGNMENT AND LEVEL. THE KERB BEAM SHALL HAVE A MINIMUM CONSOLIDATED THICKNESS OF 150mm AND A WIDTH OF 425mm, AND THE KERBS SHALL BE SET CENTRALLY ON A MINIMUM BED OF 12mm OF CEMENT MORTAR DESIGNATION (I). THE KERBS SHALL BE CONTINUOUSLY BACKED WITH MIX S14 CONCRETE 150mm WIDE, PROPERLY SHAPED AND COMPACTED.
3. THE MAXIMUM GAP BETWEEN KERBS SHALL BE 3mm. ANY GAP WIDER THAN 3mm SHALL BE FLUSH POINTED WITH CEMENT MORTAR.
4. THE APPROPRIATE 914mm LONG PRECAST CONCRETE TRANSITION KERB SHALL BE INSTALLED AT EACH CHANGE IN KERB TYPE, TIE-INS TO EXISTING AND TERMINATIONS.
5. THE MINIMUM LENGTH OF ANY CUT KERB SHALL BE 450mm.

VEHICLE DETAILS AND LEGEND

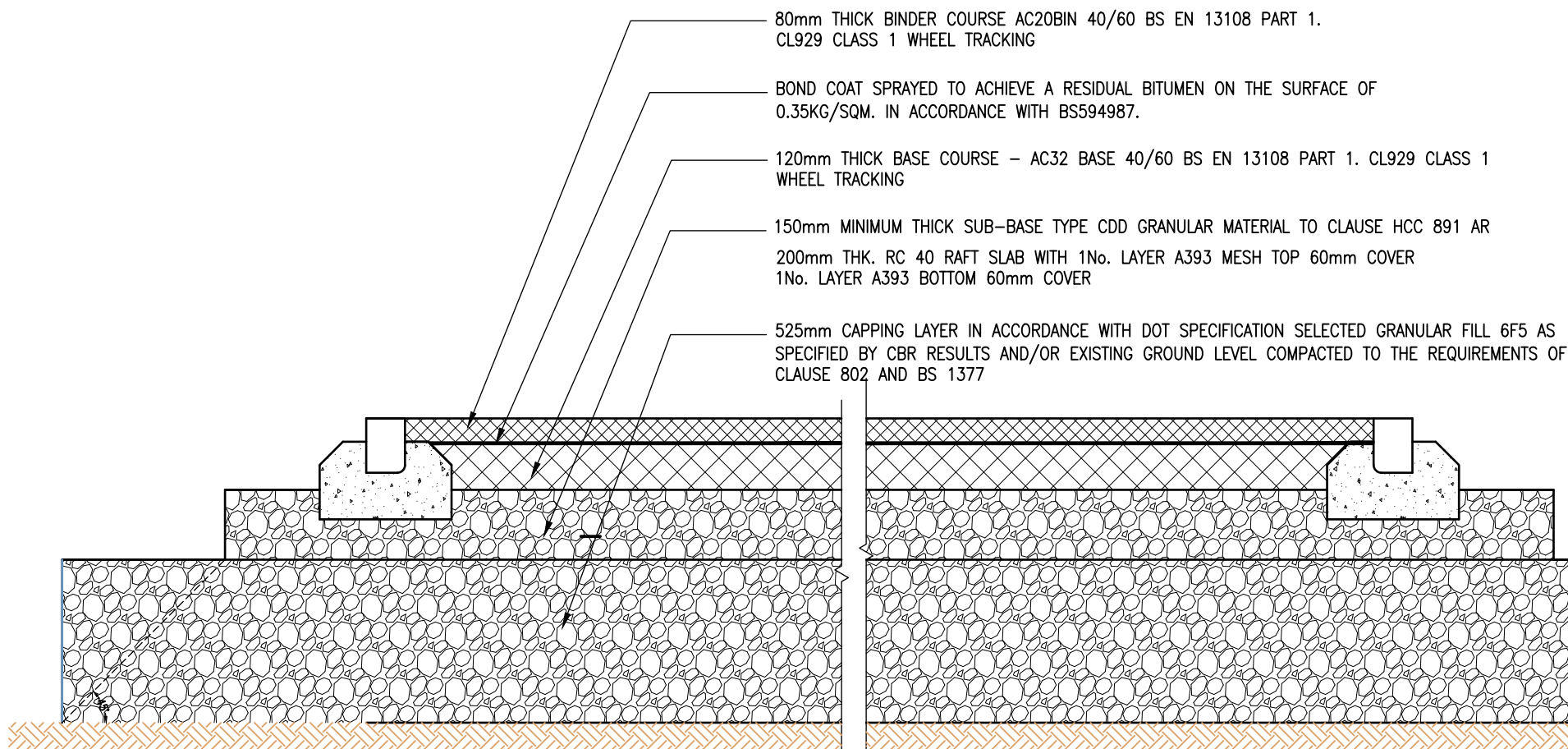
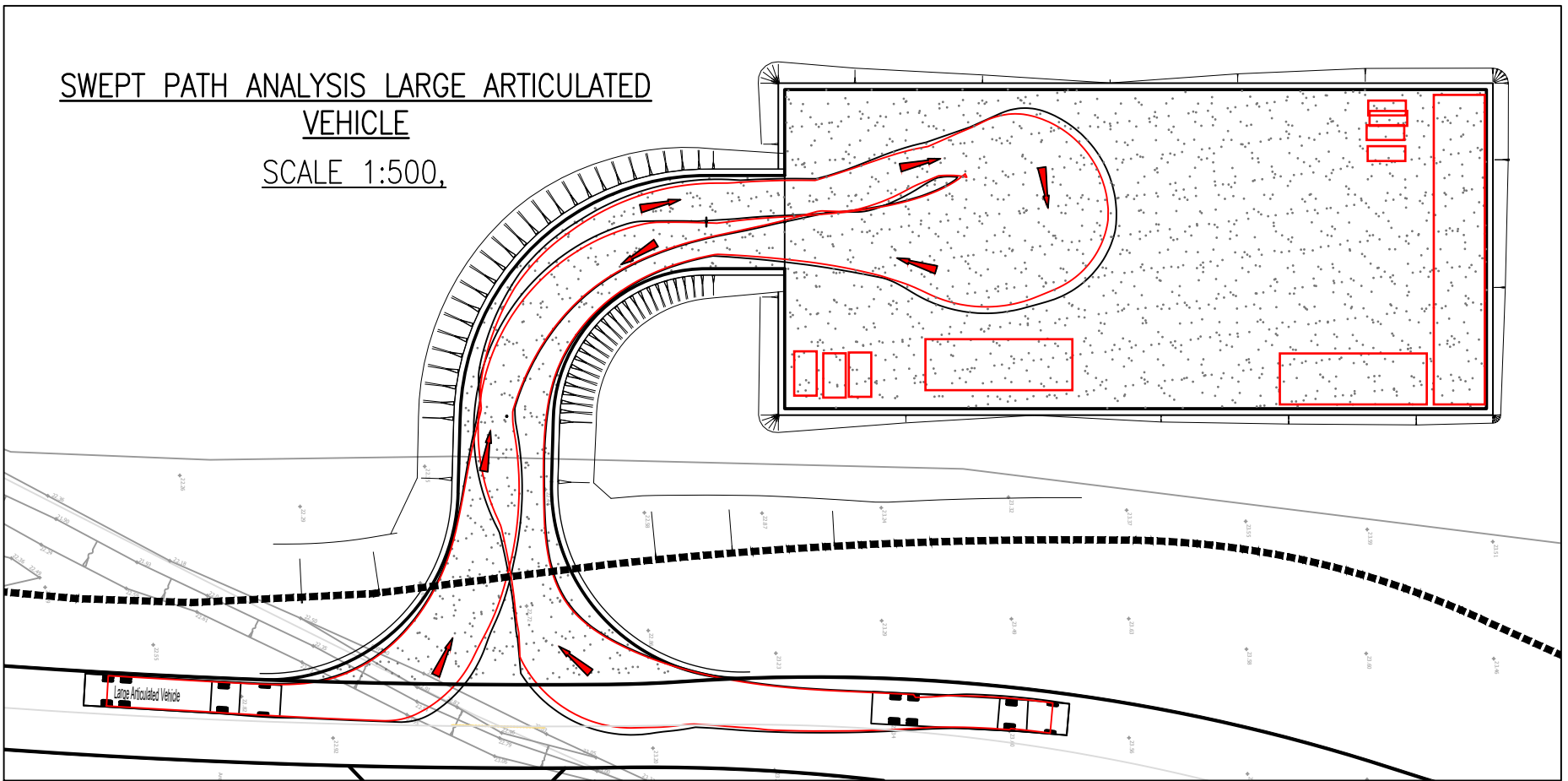


LARGE ARTICULATED VEHICLE
OVERALL LENGTH 15.400m
OVERALL WIDTH 2.500m
OVERALL BODY HEIGHT 3.652m
MIN BODY GROUND CLEARANCE 0.406m
TRACK WIDTH 2.376m
LOCK TO LOCK TIME 6.00s
KERB TO KERB TURNING RADIUS 6.610m

- WHEEL OUTLINE
--- BODY OUTLINE
--- PROPOSED PATH

SWEPT PATH ANALYSIS LARGE ARTICULATED VEHICLE

SCALE 1:500.



TYPICAL ROAD SECTION CBR LESS THAN 2% PAVING TYPE P1

SCALE 1:20

P1 PRELIMINARY 19/11/21 PN
Rev. Description. Date. Initial.

Drawing Status: PRELIMINARY

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ONE HORTON HEATH

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Site: ONE HORTON HEATH
Address: SEGMENT 3
Org Title: SALE CENTRE AND SITE COMPOUND

Scale: AS NOTED Page Size: A1 Date: NOV 21

Drawing No: 10413-SEG3-514 Drawn: PN Checked: MD Revision:

10413-SEG3-514 P1

Appendix I – Construction Traffic Management Plan.



ONE HORTON HEATH, PHASE 3 ROAD

CONSTRUCTION TRAFFIC MANAGEMENT PLAN

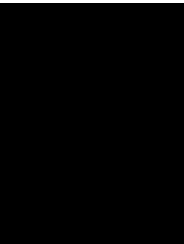
August 2021

One Horton Heath (on behalf of Eastleigh Borough Council)

INFRASTRUCTURE
ONE HORTON HEATH
PHASE 3 ROAD

CONSTRUCTION TRAFFIC MANAGEMENT PLAN

CONTROLLED DOCUMENT

<i>Document No:</i>		131.0008/CTMP/2	
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<i>Prepared by:</i>	Jessica Lloyd		August 2021
<i>Checked by:</i>	Mark Smith		August 2021
<i>Approved by:</i>	Mark Smith		August 2021

Revision Record

<i>Rev.</i>	<i>Date</i>	<i>By</i>	<i>Summary of Changes</i>	<i>Chkd</i>	<i>Aprvd</i>
2	20.08.21	JL	Client Comments	MS	MS

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INFRASTRUCTURE
ONE HORTON HEATH
PHASE 3 ROAD

CONSTRUCTION TRAFFIC MANAGEMENT PLAN

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Figure 1 – Approximate Site Location

Figure 2 – Proposed Construction Routes

Appendices

Appendix A – Proposed Site Compound Layout

1. INTRODUCTION

- 1.1 This Construction Traffic Management Plan has been prepared by Paul Basham Associates on behalf of One Horton Heath (on behalf of Eastleigh Borough Council (EBC)) to support a live planning application (App Ref: F/21/91185) for the *'construction of road between Allington Lane and Burnetts Lane with associated footway, cycle paths, water crossings, drainage and landscaping'* on Land between Burnetts Lane and Allington Lane, Eastleigh. The approximate site location is shown in **Figure 1**.

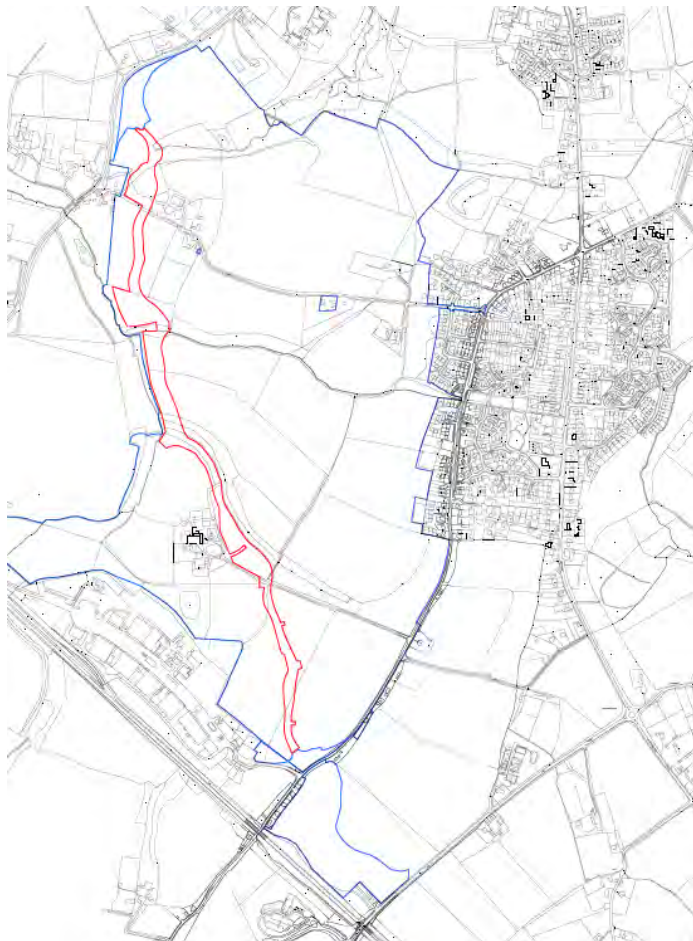


Figure 1: Approximate Site Location

- 1.2 The site subject to this CTMP sits within a wider development area which includes extant permissions which collectively secured 1,404 residential dwellings, a secondary school, primary school, local centre and commercial land uses as well as an A to B link road which provided a connection between Bubb Lane, Burnetts Lane and Allington Lane. The wider site is also included within EBC's Emerging Local Plan (2016-2036).
- 1.3 In addition, a separate Outline Planning Application (OPA) has been submitted alongside this Full Planning Application for *'a phased mixed-use development comprising: up to 2,500 residential units in total; a primary Local Centre (and supporting secondary local centres) comprising mixed-use*

residential/retail/leisure/community/employment/day nursery/food establishment uses, office, commercial and industrial uses; a Primary School; public open space including formal sports facilities and informal provisions; relocation of solar panels; key infrastructure and utilities provision including new roads, footpaths and cyclepaths and improvements to the existing road junction at Fir Tree Lane/Burnetts Lane; and ecological, landscape, site preparation and demolition works’.

- 1.4 As part of the OPA, the principle of the A to B link road is also being re-established with an altered alignment to the extant consent which still connects between Bubb Lane, Burnetts Lane and Allington Lane. The full details of the link road can be found under application reference F/21/91185.
- 1.5 The purpose of this document is to clarify how potential impacts from construction traffic would be minimised for local residents and businesses and explain how highways safety is to be maintained within the vicinity of the construction site. This CTMP therefore considers the site access, compound and layout, routing of construction vehicles and management of construction traffic. This CTMP is to act as a framework to establish these key principles which will be developed in more detail when further details associated with the contractor are available.

2. SITE CONDITIONS AND ACCESSIBILITY

- 2.1 Phase 3 of the proposed link road runs through the proposed One Horton Heath development north west to south east between Allington Lane and Burnetts Lane. At the north western end, the link road would connect onto the new Allington Lane roundabout which then allows travel north towards Fair Oak and south towards Southampton. At the south eastern end, Phase 3 of the link road connects onto the new Burnetts Lane roundabout which also then connects onto a new section of the link road between Burnetts Lane and Bubb Lane, with a new roundabout in place at Bubb Lane.

Access Arrangement

- 2.2 The proposed link road would route through the site northwest to southeast to act as an A to B distributor road with minimal delays en-route. The extant permissions proposed the link road had a minimum width of 6m with a continuous 2m footway flanking the western side of the link road and a 3m wide footway/cycleway flanking the eastern side of the link road.
- 2.3 The proposed link road would be accessed from the two newly constructed roundabouts to the north (Allington Lane) and south (Burnetts Lane) which would form the access to the construction of the link road.
- 2.4 The Burnetts Lane/Link Road Roundabout constitutes a four-arm roundabout with an Inscribed Circle Diameter (ICD) of 50m with a two lane approach on each arm of the roundabout. This roundabout provides access onto the link road to the east and west of Burnetts Lane and an access into Chalcroft Business Park, with the arm to the west of Burnetts Lane providing access into the proposed development. The Bubb Lane/Link Road roundabout is a three-arm roundabout with an ICD of 40m with two lanes on all approaches.
- 2.5 The Allington Lane/Link Road roundabout is a three-arm roundabout with all arms including a two-lane approach and has an ICD of 44m.

Local Road Network

- 2.6 Bubb Lane runs northeast to southwest and connects with infrastructure which leads into West End in the southwest, Hedge End in the south and Horton Heath to the north. The majority of Bubb Lane is subject to a 50mph speed limit with a circa 3m wide footway/cycleway along the eastern side of the carriageway with a main carriageway width around 7m.
- 2.7 At the Bubb Lane/Bubb Lane/Tollbar Way Priority Junction, Bubb Lane continues west past Wessex Vale Crematorium and ends at the Burnetts Lane/Bubb Lane/Moorgreen Road Priority Junction. This section of Bubb Lane is more rural in nature with no footways present and instead the carriageway is flanked

by vegetation. National speed limit restrictions are also in place for this section of Bubb Lane and the carriageway reduces in width to some 5.8m.

- 2.8 Between the Burnetts Lane/Bubb Lane/Moorgreen Road Priority Junction and the site, Burnett's Lane is a single lane carriageway subject to a 40mph speed limit. The carriageway measures approximately 5.2m in width and provides access to Chalcroft Business Park, situated to the south of the proposed development.
- 2.9 Tollbar Way has an approximate north-south alignment and extends between the Charles Watts Way/Tollbar Way/Turnpike Way Roundabout and the Bubb Lane /Bubb Lane/Tollbar Way Priority Junction via Hedge End Retail Park.
- 2.10 Between the Bubb Lane/Bubb Lane/Tollbar Way Priority Junction and Botley Road/Tollbar Way/Bradbeers Roundabout, Tollbar Way is single lane with large carriageway widths and a footway/cycleway on the eastern side of the carriageway. To the south of the Bradbeers roundabout Tollbar Way has two lanes in both directions to accommodate the flow of traffic and therefore becomes more strategic in nature. Tollbar Way is subject to a 40mph speed limit for its entirety.
- 2.11 Allington Lane runs north to south from the Allington Lane/Fair Oak Road Priority Junction in the north to the Allington Lane/Swaythling Road (A27)/Townhill Way Roundabout in the south. Allington Lane is subject to a 40mph speed limit for the majority (except the northern 450m section which is subject to a 30mph speed limit upon approach to the urban/residential area) as well as a 6'-6" width restriction (except for access). Allington Lane may be used for those wishing to access Southampton to the south, Eastleigh to the north west and Fair Oak to the north east.

Strategic Road Network

- 2.12 The proposed development is well located to access the Strategic Road Network with the M27 motorway located to the south of the development and the M3 motorway located to the north west. The M27 runs between Cadnam in the west and Portsmouth in the east with primary destinations along the route including Southampton, Fareham, Whiteley and Portsmouth. From the proposed development site the M27 can be accessed most readily via Junction 7.
- 2.13 The M3 motorway runs north east to south west from Sunbury-on-Thames in Surrey to Eastleigh in Hampshire with key destinations along the route including Basingstoke, Winchester and Aldershot. From the site, the M3 can be accessed via Junction 13 at Eastleigh or via Junction 11 in Twyford at the Hockley Link.

3. SITE ACCESS, COMPOUND AND LAYOUT

- 3.1 Two compound areas are proposed with one to the east and one to the west of the new link road through the site, which are demonstrated in **Appendix A**. The link road is proposed to have a minimum width of 6.5m, and the construction access will be of sufficient width to allow for two-way vehicle movements in and out of the site.
- 3.2 The compound area would provide ample space for large articulated vehicles to turn on-site, material storage and a material drop off zone. Wheel washing facilities would be provided at the exit of the site to avoid mud being deposited onto the highway and toilet facilities would also be provided within the compound.
- 3.3 The exact location of the compound is to be determined once the contractor has been appointed, however, the position will be sensitively placed to minimise impact and disturbance to local residents and businesses and thus will be placed away from existing residents.
- 3.4 It is confirmed that the Burnetts Lane/Link Road roundabout, Allington Lane/Link Road roundabout, Bubb Lane/Link Road and the section of Link Road between Burnetts Lane and Bubb Lane would be fully constructed and operational before works begin on construction of phase 3 of the link road. It is the intention that the section of link road between Burnetts Lane and Bubb Lane in its current state is to be primarily used as access to the Chalcroft Business Park and residents of Burnetts Lane to the north of the roundabout.

Parking

- 3.5 The compound area would also be large enough to accommodate vehicle parking associated with contractors. If any of the workforce are unable to park on-site (although this is unlikely), they will be encouraged to travel to the site using sustainable modes such as car sharing.
- 3.6 Should any unlawful parking occur, the site manager will retain a log of inconsiderate parking and take appropriate action.

4. CONSTRUCTION TRAFFIC ROUTING

- 4.1 The local highway network has been assessed in terms of its' suitability for the movement of HGV vehicles to and from the site, associated with the recycling/disposing of waste and for the delivery of materials associated with construction work.

Route from Strategic Road Network

- 4.2 Having reviewed the available routes it is proposed that the majority of construction traffic would access the site from the south via the M27, either from Junction 5 at Eastleigh or Junction 7 at Hedge End. The only occasion in which vehicles may route via Eastleigh is if goods are arriving by train.
- 4.3 **Figure 2** displays the proposed HGV routes from the Strategic Road Network (SRN) to the proposed development site. The red route demonstrates the main construction route to the south of the site and follows the M27 at Junction 7, Charles Watts Way, Tollbar Way, Bubb Lane and the new link road. This route is considered to be the most suitable, avoiding constrained roads where possible. To access the northern parcel of the site it is likely the green route would be used which involves Junction 5 of the M27, A335, Wide Lane, the A27/Mansbridge Road and Allington Lane. Both routes were proposed and used as part of previous CTMPs prepared by Paul Basham Associates to support the Allington Lane/Link Road roundabout and Bubb Lane/Link Road/Burnetts Lane roundabouts construction and are therefore considered acceptable routes.
- 4.4 In addition, for materials arriving by rail (if required) vehicles would use Tower Lane, Chickenhall Lane, Bishopstoke Road, B3037, Botley Road, Bubb Lane and the new link road. All routes avoid the use of the Burnetts Lane and should instead utilise the new section of link road currently under construction between Bubb Lane and Burnetts Lane (demonstrated in yellow within **Figure 2**).



Figure 2: Proposed Construction Routes

- 4.5 Construction traffic will be asked to follow the routes outlined within this CTMP, with details sent with any orders and directional signage installed to assist drivers. Construction vehicles are not anticipated to have an adverse effect on the operation of the local highway network and it is not anticipated that any road closures or diversions will be required for the construction process, however this would be discussed at a later stage.
- 4.6 It is confirmed through this CTMP that the proposed construction route does not include Blind Lane. All delivery/construction vehicles associated with the development would be routed away from Blind Lane.

5. CONSTRUCTION TRAFFIC MANAGEMENT AND MITIGATION

5.1 For the purpose of this CTMP, the following assumptions have been made:

- The Phase 3 link road consists of 1.8km in length
- The link road would take around 12 months of construction
- An average of 40 daily workers would visit the site
- An average of 20 daily deliveries/tipper lorries would visit the site

Working Practice On-Site

5.2 All materials (earth) for removal would be contained in designated areas within the site and during the construction phase, all materials would be stored within the construction compound. All materials would be loaded and unloaded safely by trained personnel. Hard hats would be compulsory on-site, with signage provided within the compound to this regard. In addition, all site visitors would be required to sign in at the site office to ensure adequate safety measures are met.

Working / Delivery Hours

5.3 Whilst the exact construction timescales are not yet known, working hours will be considerate of local residents and businesses. In addition, and wherever possible, deliveries would be carried out during the week, outside of peak periods (8am-9am and 5pm-6pm), in the construction phase, but in some cases, it may be necessary to work outside these prescribed working hours.

Vehicle Movements

5.4 Any vehicles arriving to transport waste materials away from the site would be provided with an allocated timeslot to ensure no vehicles wait on the local road network. Vehicles wanting to deliver materials to the site during the construction phase would also be provided with an allocated timeslot to the same effect. Further detail on the exact number of daily trips and the types of vehicles anticipated to be used for the groundwork and construction works will be confirmed upon appointment of a contractor.

5.5 Any defects caused to the highway or associated grass verges as a result of the construction traffic and associated works shall be made good once the construction phase is completed. This is likely to be secured via a condition survey prior to commencement.

Wheel Wash Facilities

- 5.6 To ensure that mud and debris are not carried onto the surrounding highway network, wheel washing facilities would be provided on site. The wheel washing station would be located at the site egress point to reduce the spread of dust and dirt. A vehicle marshal would be used to inspect the wheels of all vehicles prior to leaving the site, and hose off mud, dust or silt contaminated prior to the vehicle leaving the site. A standard hose will be used as it is more controllable than other methods and uses less water. Water arising from wheel cleaning would be filtered within the site prior to being positively drained. No water arising from wheel cleaning should discharge onto the public highway.
- 5.7 In the event that either the nature of the works or weather conditions mean that there is a likelihood of wheel washing not being sufficient, or if formal complaints from Eastleigh Borough Council (EBC) are received, then a road sweeper will be employed.

Mitigation of Dust

- 5.8 A water truck would be driven on-site as required spraying water over affected areas in order to prevent dust becoming airborne (if works are to be completed during dry/dusty months). The developer would ensure that there is no discharge of surface run-off arising from the water spray onto the public highway. Again, should formal complaints be received, a road sweeper will be employed.

Use of Banksmen

- 5.9 Banksmen are operatives trained to direct vehicle movements on or around the site. Large construction vehicles would require some assistance whilst manoeuvring within the site compound. Banksmen would be used to ensure these, and other manoeuvres are conducted in a safe manner if required.

Consultation with Local Residents

- 5.10 The client recognises it is important to ensure residents are aware of the construction traffic and residents' comments regarding the construction are addressed. Local residents and stakeholders will therefore be informed of the works programme via a letter which will include further information on:
- A summary of the works being carried out;
 - When construction work will commence, as well as the expected duration; and
 - A contact number for queries and complaints.

6. SUMMARY AND CONCLUSIONS

- 6.1 This Construction Traffic Management Plan has been prepared by Paul Basham Associates on behalf of One Horton Heath (on behalf of Eastleigh Borough Council (EBC)) to support a live planning application (App Ref: F/21/91185) for the *'construction of road between Allington Lane and Burnetts Lane with associated footway, cycle paths, water crossings, drainage and landscaping* on Land between Burnetts Lane and Allington Lane, Eastleigh.
- 6.2 The site compound would be accessed via the new section of link road. The compound would be large enough to accommodate large vehicles turning on site, material storage and drop off, and an area for contractor vehicle parking which is anticipated to accommodate all vehicles associated with this phase of development.
- 6.3 The proposed HGV route to the site primarily follows the M27 at Junction 7, Charles Watts Way, Tollbar Way, Bubb Lane, Burnetts Lane and the new link road. This route is considered to be the most suitable, avoiding constrained roads where possible. Where materials arrive by rail, vehicles may access the site from Bishopstoke Road, B3037, Botley Road, Bubb Lane and the new link road. To confirm the route does not include Blind Lane and delivery/construction vehicles associated with the development will be routed away from Blind Lane.
- 6.4 A number of other measures would be implemented to ensure safety and reduce disturbance from demolition and construction traffic. These include:
- Wheel wash facilities and use of banksmen for movements internally;
 - Management of deliveries using allocated timeslots;
 - Regular inspections of safety hoarding and signs; and
 - Consultation with local residents.
- 6.5 Whilst some disruption is inevitable, it is considered that the above measures would provide significant steps to ensure the effects of construction traffic on the local road network are minimised.

Appendix A

PRELIMINARY

03/08/21 - EBC site compound area mark-up 3 of 3

45	SUDS BASINS AND RED BOUNDARY UPDATED	27/03/23	PC
46	FOOTPATH REVERSED	02/07/23	PC
49	ENC COMMENTS	18/06/23	PC
72	HORIZ. ALIGNMENT REVISSED, LEVELS ADDED	24/05/23	PC
81	PRELIMINARY ISSUE	18/12/20	JP

PRELIMINARY

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ONE HORTON HEATH
SEGMENT 3

19 SITE LAYOUT SHEET 4 OF 12
"THE AVENUE"

Scale	1:200	Age	30	Date	NOV 20
		Age	30	Date	NOV 20

10413-SEG3-204 P5

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Appendix J – Permits and licences.

Append and update as received:

Environment Agency permits

- Tree removal (Quobleigh Stream)
- Bridge and outfall application (Quobleigh Stream)

Hampshire County Council Permits

- Ordinary water course consents – See planning drawings Northern and Southern Sections

Natural England Licenses:

- Great Crested Newt License
- Bat License
- Dormouse License

Eastleigh Borough Council

The Control of Pollution Act 1974 (CoPA) gives the Council powers to control noise and vibration from construction sites and other works. Section 61 allows contractors to apply for Prior Consent and agree working hours, site noise levels and other measures prior to work starting.

Appendix K – Environmental Audit Template

Section 1 - Pollution prevention and response



Pollution is the release of any substance that can harm people or animals, plants, soil, water or air. Common pollutants from construction sites include: silt, oil (including fuel), cement, concrete, grout, chemicals, sewage, waste materials, dust or smoke.

Common causes of pollution include: illegal discharges, burning waste, pollutants carried by rainwater runoff, poor maintenance or supervision, accidental spillage and vandalism.

The water environment is vulnerable, pollution can kill fish and affect other users such as farmers, industry and drinking water abstraction. Surface and groundwaters have legal protection. It is an offence to pollute them. This can occur through less obvious methods such as silt or oil entering rivers via surface water drainage systems or groundwater by percolating through soil and permeable rocks.

Land and soil support a wide range of biodiversity including legally protected species and is a hugely valuable resource. Biodiversity can be directly affected by chemical and oil pollution or changes to pH. Soil quality can be affected in the same way with potential effects to agricultural crops and human health.

Emissions to air (e.g. gas, dust or odour) can affect people's health, be a nuisance to site neighbours and have an impact on ecology.

Noise, light and vibration can all create nuisance-affecting people's quality of life and health, as well as affect biodiversity and other resources.

The Principal Contractor's primary approach to minimise these risks is one of pollution prevention and response.

Pollution Prevention and Response are based on best practice guidance and relate to the safe storage, handling, disposal of chemicals and other materials and pollution response procedures¹ as well as the Principal Contractor Site Environment plan.

Table 1 sets out the individual EQS and auditing results (to be completed during the primary site audit) associated with each section.

Table 1. Section 1 - Pollution prevention and response - standards and auditing results

Reference	Standard	Auditing results (Y=yes / N- No)
Section 1 - Pollution Prevention Planning		
	a) Have you consulted with the project environmental advisor / manager (if one has been appointed)? b) Have you reviewed your Environmental Management System (EMS) if you have one? c) Are you diverting water on site? If yes, have you received permission from the Environment Agency to do so? d) Have you identified: a. the potential pollutants? b. the potential to cause pollution on site? c. any historical contamination? If so, where is risk management documented? d. control measures to prevent pollution? e) Are pollution prevention methods recorded? If so, where? f) Have pollution prevention requirements been communicated to those working on site? g) Have you identified pollution prevention communication & awareness sessions for those working on site, e.g. Tool Box Talks? h) Have you identified drainage on site? i) Has drainage been colour coded? j) Have you identified all surface water and groundwater on, under and around the site? k) Have you contacted local regulators? l) Have you invited them to visit the site if appropriate? m) Have pollution incidents been planned for and do you have an incident plan? n) Have you nominated a 'responsible person' for pollution prevention on site? o) Have site personnel been trained to use spill kits?	

Reference	Standard	Auditing results (Y=yes / N- No)
	p) Have you considered how to minimise and manage your waste on site? q) Have you identified local weather conditions and the means to keep updated throughout the project? r) Have you developed a site inspection routine to check for pollution incidents or potential problems?	
1:2 Vehicles and Deliveries		
	a) Is a Traffic Management Plan in place? b) Has a location for deliveries (the delivery point) been identified? c) Is the delivery point located away from watercourses, drains and hazards? d) Have times for deliveries been identified to avoid disruption to operations or neighbours? e) Have suppliers and staff been informed of the delivery point and delivery times? f) Has a designated 'responsible person' been identified to supervise deliveries? g) Has the condition of drums, containers or tanks been inspected and verified fit for purpose before accepting the delivery? h) Are emergency response plans and spill kits located at delivery points? i) Have you planned how you will prevent mud being taken off site by delivery vehicles?	
1:3 Materials Storage, Stockpiles and Exposed Ground		

Reference	Standard	Auditing results (Y=yes / N- No)
	a) Are stockpiles located to minimise the risk of pollution? b) Are appropriate methods in place to safeguard the condition, structure and quality of top and sub soils during stripping, handling, storage and reinstatement. c) Are they away from watercourse, ditches or drains? d) Are stockpiles protected or damped down to reduce dust? e) Are stockpiles covered and/or protected to reduce or intercept silt runoff? f) Are contaminated stockpiles located in an appropriate area? g) Are there arrangements for containing packaging waste?	
1:4 Oil² Storage, Use and Refuelling		
	a) Is there documentation to demonstrate compliance with legal requirements for oil storage, use and refuelling. b) Are oil storage areas away from high risk areas?³ c) Are oil storage areas on an impermeable surface? d) Are tanks, drums or containers in good condition with no sign of damage or corrosion? e) Have oil stores and containers for secondary containment? f) Is secondary containment sufficient to contain contents of the containers? g) Are bunds/drip trays being kept up to date for oil and rainwater leaks? h) Are oil store maintenance and inspection records being kept up to date? i) Is refuelling equipment stored within secondary containment when not in use? j) Are oil storage containers and stores secure e.g. kept lock	

² Oils, biofuels, lubricating and hydraulic oils, synthetic and mineral oils.

³ Risk of damage from impact or collision, within 50m of a spring well or borehole, within 10m of a watercourse, ditch or drainage channel, where spillages could enter open drains, loose fitting manhole covers or unmade ground, where spillages could run over hardstanding to enter a watercourse, unmade ground or drain, where a tank vent pipe can't be seen from its filling point, or on roofs.

Reference	Standard	Auditing results (Y=yes / N- No)
	shut when not in use? k) Are emergency plans and spill equipment available at oil storage areas? l) Are emergency plans and spill equipment available at refueling areas? m) Have staff been trained in the use of spill kits and in emergency procedures? n) Has a responsible person been designated to oversee implementation of the emergency plan?	
1:5 Cement, Concrete and Grout – NA		

Reference	Standard	Auditing results (Y=yes / N- No)
	a) Have control measures been put in place to prevent cement, grout or concrete wash-off entering watercourses or drains? b) Are staff aware that they shouldn't let cement, grout or concrete washings enter surface waters or surface water drains? c) Are designated wash-off areas provided? d) Are wash areas contained and sited away from surface waters and surface water drains? e) Has the treatment and disposal of wash-off effluent been considered? f) Is cement powder stored carefully on site to prevent leaks and dust? g) Have you considered the products ordered, quantities and timing?	
1:6 Chemicals and Hazardous Substances – NA		
	a) Do you only order and store the quantities you need? b) Are chemicals and hazardous substances stored in bunded areas away from watercourses and drains? c) Are storage facilities located to avoid damage from site traffic or vandalism? d) Are the storage facilities locked when not in use? e) Are all chemicals and hazardous substances clearly labelled? f) Is a spill kit or emergency response equipment kept at the storage point? g) Have you produced an emergency plan for the site? h) Are all staff trained in how to deal with chemicals or hazardous substances they use as part of their job? Do they know how to prevent pollution in an emergency? i) Are the Safety Data Sheets provided by the supplier stored with the emergency plans?	

Reference	Standard	Auditing results (Y=yes / N- No)
1:7 Excavations		
	a) Has the site been investigated for contamination? b) If there is contaminated soil, do you have procedures in place to manage it? c) Have you checked with the Environment Agency if you need permission for extraction, dewatering or discharge? d) Do you have any necessary permissions in place before you start work? e) Have you taken measures to prevent water entering excavations? f) Have the staff working on excavations been made aware of risks and control measures? g) Have you identified all watercourses culverts and drains on or close to the site? h) Have you got vegetation corridors alongside the watercourse or drain to act as a buffer to help prevent silt entering them? i) Have you the necessary permissions if you plan to dispose of water to a drain or watercourse?	
1:8 Site Environment Plan		
	a) Has The Principal Contractor Site Environment Plan been completed/being updated regularly, as required?	

Section 2: Nuisance Emissions



Nuisance emissions include those associated with the production of smoke (e.g. from burning waste, which should not occur), noise (typically unavoidable as construction inevitably results in noise generating activities and equipment, but can be controlled), vibration (can be limited in extent and duration), lighting (e.g. security lights, which can be minimised) and dust (can be prevented using tried and tested methods).

Some of these emissions are a 'statutory nuisance' and the conditions, which define whether there is a statutory nuisance are set out in legislation. In addition, there are also non-statutory nuisances that can affect other environmental receptors such as wildlife (e.g. lighting and its effect on roosting bats). These may also have legal implications if the species affected are themselves legally protected.

The Environment Agency describe the most common nuisances as being:

“• **Dust** – e.g. if there's the potential to generate dust on site, can you erect a physical barrier at the site boundary to prevent it becoming a nuisance to your neighbours?

• **Light** – this can cause disturbance to adjacent residents and ecology, especially temporary lighting. This nuisance can be prevented through screening, effective programming of work, directional lighting and type of lights used, amongst others.

• **Noise** – this can be generated throughout construction activities. Establish baseline noise levels, the noise levels before you start work, and identify who and what may be affected by noise, i.e. neighbours and ecology. If you expect to generate considerable noise – above the baseline – throughout the contract or for specific activities, such as piling, then consider applying for a Section 61 consent with the relevant local council. A Section 61 consent is a process whereby the local council approves your working methods, including methods to reduce and manage noise, before work starts. Approval for a Section 61 can take time and you will need to fully consider the work and methods to reduce noise. Once approved, you must complete the work in accordance with the approved methods, including monitoring requirements. Note that Section 61's only apply to nuisance and don't consider disturbance to ecology.

• **Insects and vermin** – standing water, or unclean sites, can lead to insects and vermin breeding and creating a nuisance.

• **Emissions/smoke** – this can be caused by poorly maintained plant, exhausts near to neighbours and/or property (nuisance only). There should be no reason for generating smoke on site through normal activities. But if you expect to generate smoke, contact your regulator to approve the method of work before work starts.

• **Vibration** – this is caused by the same sources as noise, but travelling through solid objects. This can cause a nuisance to neighbours and to ecological habitats. The potential to cause vibration nuisance should be identified in line with noise.”

The Principal Contractor's primary approach to minimise the risks associated with nuisance emissions is based on its own well-established good practice principles, pollution prevention and response, adopting the key recommendations made by the Environment Agency in PPG6 and through their own Environmental Plan and site supervision.

The EQS for the site, associated with EQSA 2: Nuisance Emissions are based on recent best practice guidance and common sense and relate to the avoidance of activities (unless unavoidable) that will generate unacceptable levels of the principal nuisance emissions of dust,

smoke, lighting, noise and vibration. As such, the EQS are qualitative (e.g. is burning prohibited on site?).

Table 2 sets out the auditing results (to be completed during the primary site audit)

Table 2. Nuisance Emissions

Reference	Standard	Auditing results
Section 2 - General Good Practice		
	a) Have you identified potential nuisances before starting work? b) Have you put in place a control measure to minimise each nuisance that you've identified? c) Have you found out and complied with any restrictions such as working hours and noise levels? d) Have you a procedure for dealing with complaints from neighbours? e) Has the scope of work been communicated to neighbours? f) Have you made site workers and sub-contractors aware of nuisance restrictions? g) Is nuisance monitoring required? If so, do you have monitoring equipment and a programme in place? h) If your monitoring shows you have a problem, put it right!	
2:2 Site Environment Plan		
	a) Has the The Principal Contractor Site Environment Plan been completed/being updated regularly, as required?	

Section 3: Emissions to water



Formal drainage systems (e.g. gully pots, slot drains, French drains, swales) can act as a pathway to spread pollutants, particularly to watercourses. Such pollution is unlawful and can result in prosecution. Other informal drainage pathways can also result in the same consequences.

These types of pathway could include ruts caused by vehicles, permeable ground (e.g. type 1 stone), sloping ground, as well as other features such as ditches. Small amounts of pollutants (such as oil) can spread large distances in water. Drains can also make pollution invisible: a large-scale pollution incident can happen on site without it being recognized. It is essential therefore, that as a primary action to prevent water pollution, all drains and drainage pathways are identified and controlled appropriately.

Formal discharges (e.g. of site runoff or overflow from sedimentation lagoons) to ditches, watercourses or to ground require formal consent from the Environment Agency.

Typical construction activity can also generate silt-laden water through the removal of surface vegetation, exposure of soils to rainfall, and the disruption of existing soil drainage systems. Silt pollution is a key risk to the health and quality of watercourse causing significant damage to habitats, fish and other organisms.

Other construction activities can also result in pollution, which can then enter watercourses.

The Principal Contractor's primary approach to minimise the risks associated with emissions to water is based on its own well-established good practice principles, pollution prevention and response, adopting key recommendations made by the Environment Agency in the former PPG6 and through its own Environmental Plan and site supervision.

Emissions to Water are based on recent best practice guidance and common sense and relate to pollution prevention (see section 1) and the careful management of drainage pathways.

Table 3 sets out the individual auditing results (to be completed during the primary site audit)

Table 3. Section 3 : Emissions to Water

Reference	Standard	Auditing results
3:1 Silty Water		

Reference	Standard	Auditing results
	a) Can you avoid exposing areas of bare ground until you need them? b) Have you got vegetation corridors along any watercourse or drain to act as a buffer to help prevent silt entering them? c) Have you identified all the potential sources of silty water on site? d) Have you the necessary permissions in place if you plan to dispose of water to a drain or watercourse? e) Are silt controls in place to prevent silt entering watercourses or drains? f) Have you installed cut-off trenches or other features to minimise the amount of run-off on site? g) Are you required or have you considered using SuDS? h) Do you have an inspection and maintenance programme for all your silt treatment systems? i) Are plant, wheel and boot washing facilities sited at least 10 metres away from surface waters?	
3:2 Drainage		
	a) Have all drains on site been located, and identified as either surface water or foul? b) Have drains been checked for existing protection? c) Have pollution risks to the drains been identified? d) If anything will be discharged to drains, have you applied for a permission? e) Have plans been put in place to prevent pollution entering watercourses in emergencies? f) Are spill kits located near drains? g) Are you required to use or have you considered using SUDS? h) Have silt traps and oil separators been identified / installed? i) Has an inspection & maintenance schedule for drains and protections measures been established?	
3:2 Site Environment Plan		

Reference	Standard	Auditing results
	a) Has the The Principal Contractor Site Environment Plan been completed/being updated regularly, as required?	

Section 4: Ecology



Construction sites typically support a range of plants and animals that can include those with legal protection as well as others which are also valued because of their rarity, importance, public interest and/or wider biodiversity value. There is also the potential for a construction site to be located within land that is afforded either a statutory or non-statutory designation.

Construction activities have the potential to have very significant effects on ecology. This includes the injury or killing of animals, loss of valued vegetation and damage or destruction of habitats from vegetation removal, excavation and other groundworks, demolition, exposure to pollutants, disturbance from noise, vibration or lighting as well as a change in land use or introduction of physical barriers.

Due to the legal protection afforded to a wide range of wildlife, there is a significant risk of criminal offences occurring if the appropriate safeguarding measures have not been put in place. It is essential that this is completed before any works commence on site.

The Principal Contractor 's primary approach to minimise the risks associated with ecology is based on its own well-established good practice principles, any ecological method statements, mitigation strategies and licences associated with a site and through its own Environmental Plan and site supervision.

Section 4 - Ecology is based on recent best practice guidance and common sense, relate to those presented elsewhere in terms of pollution and disturbance and in particular, relate to site specific ecological plans. As such, the EQS are qualitative (e.g. is the reptile fencing intact?).

Table 4 sets out the auditing results (to be completed during the primary site audit)..

Table 4. Section 4: Ecology

Reference	Standard	Auditing results
4:1 General Good Practice		

Reference	Standard	Auditing results
	a) Have all ecological surveys been completed and reports issued? b) Have all necessary method statements/mitigation strategies been produced and approved by the appropriate regulator? c) Have all ecological licences been issued? d) Do the construction phasing plans take into account seasonal ecological constraints? e) Are there detailed drawings/descriptions covering any habitat creation/planting etc proposals? f) Has a project ecologist been appointed (by The Principal Contractor or the Client) if necessary? g) Have all the pre-construction mitigation measures been completed? h) Has an ecological toolbox talk been provided to site staff? i) Is there an ecological checklist available to all staff (e.g. in the canteen)? j) Is the site fencing intact and in good condition? k) Is there a provision for a daily check of the reptile fencing? l) Are there plans for regular site checks from the project ecologist? m) Are there procedures to check the (legally) agreed ecological method statement and programme against the evolving construction timetable, including when/how to extend/modify any licences? n) Are there good communication methods to inform the project ecologist of any changes in construction methods or timing?	
4:2 Site Ecological Method Statements/Mitigation Strategies		
	a) Have the site-specific ecological method statements/mitigation strategies been implemented? / being updated regularly, as required? b) Have protected species (e.g. water vole,) been excluded from the working area in accordance with agreed mitigation strategies, planning conditions and Natural England licences? c) Have all habitat creation measures been implemented at the correct time? d) Have all replacement habitats been erected?	

Reference	Standard	Auditing results
	e) Has all habitat creation been undertaken in accordance with the plans? f) Is a mechanism in place to hand over management of newly created habitats to WWT/land owner (including any modifications to the required management)?	
4:2 Site Environment Plan		
	a) Has The Principal Contractor Site Environment Plan been completed/being updated regularly, as required?	

Section 5: Landscape & Trees



Construction activity can have a significant effect on the local landscape. This can arise from the removal or change in vegetation cover (e.g. removal of trees and exposure of topsoil), changes to landforms and topography (e.g. introduction of large soil stockpiles), introduction of buildings and other built features such as roads and changes in night time lighting. These can have a negative effect on the character and quality of the landscape, with associated implications for visual receptors and views.

Works may also occur in designated landscape areas such as nationally important Areas of Outstanding Natural Beauty (AONB) or National Parks or locally important areas. Certain landscape features may also have statutory protection (e.g. Scheduled Monuments, hedgerows important under the Hedgerow Regulations 1997 or trees protected by Tree Preservation Orders).

Works can also damage trees, shrubs and hedgerows through compaction of the root protection zone (RPZ), damage to roots, trunks and branches from machine operation or trenching etc. Changes to soil drainage can also impact on trees.

A construction project will normally have an associated landscape plan and precautionary method statement that will govern the necessary consideration and safeguarding provided to landscape features and effects and trees, hedgerows and other vegetation⁴.

⁴ N.B these features are also usually of ecological value - see EQS4.

In addition, these plans (and those associated with the main design drawings) will illustrate the expectations for the final restored site once all construction work is complete and landscape planting has been implemented.

The Principal Contractor's primary approach to minimise the risks associated with landscape and trees is based on its own well-established good practice principles, any landscape and arboricultural method statements, and relevant permissions associated with a site and through its own Environmental Plan and site supervision.

Section 5: Landscape and Trees are based on good practice guidance and common sense and in particular, relate to site specific landscape and arboricultural plans. As such, the EQS are qualitative (e.g. are the tree protection measures intact?).

Table 5 sets out the auditing results (to be completed during the primary site audit).

Table 5. Section 5 : Landscape & Trees

Reference	Standard	Auditing results
5:1 Landscape		
	a) Have all landscape surveys been completed and reports issued? b) Are there any sensitive or protective landscape issues/designations and if so, have these been dealt with through relevant permissions/agreements? c) Have all necessary landscape designs, planting schedules/method statements/been produced and approved by the appropriate regulator? d) Has the role of landscape contractor been appointed? e) Do the construction phasing plans take into account seasonal landscaping constraints? f) Are there detailed drawings/descriptions covering any landscape/habitat creation/planting etc proposals? g) Have all the pre-construction mitigation measures been completed? h) Has a toolbox talk been provided to relevant site staff? i) Is the site demarcation fencing intact and in good condition? j) Is there a provision for a daily check of the fencing? k) Are there procedures to check the agreed landscape method statement and programme against the	

Reference	Standard	Auditing results
	evolving construction timetable, including when/how to extend/modify any restoration proposals? l) Are there good communication methods to inform the landscape contractor of any changes in construction methods or timing? m) Has the site landscape been restored/re-planted in accordance with the detailed landscape designs associated with the planning permission? n) Is a mechanism in place to hand over management of newly created landscapes to WWT/landowners (including any modifications to the required management)?	
5:2 Arboriculture		
	a) Have the site-specific arboricultural method statements/tree protection plans been implemented? b) Have Root Protection Zones for retained trees been marked out? If not, why not? c) Has tree protection fencing been installed (if appropriate)? d) Have the trees associated with the site been left/managed in accordance with the detailed arboricultural proposals associated with the planning permission? e) Has all tree surgery required as part of the construction activity been completed? f) Has all tree planting (as part of the landscape design) been completed? g) Is a mechanism in place to hand over management of trees back to WWT/Landowner (including any modifications to the required management)?	Y
5:2 Site Environment Plan		
	a) Has the Principal Contractor Site Environment Plan been completed/being updated regularly, as required?	

Section 6: Land Contamination and Invasive Species



Construction sites can often be contaminated by a range of pollutants derived from historic land uses, particularly on brownfield sites. Contaminants can be present in the soil, in buildings or other structures as well as surface and groundwater, or all of these locations.

Common contaminants include asbestos, hydrocarbons, and hazardous heavy metals and solvents. The risk of contamination needs to be established in advance of any contamination in order that appropriate remedial solutions can be put in place to avoid harm to human health (including the workforce) as well as the wider environment. It is equally important to ensure that the construction activities themselves do not result in future land contamination. If this occurs, prosecution may occur and significant financial penalties may be levied to remediate any contamination. Close working with the local regulator is necessary to avoid these risks.

A number of plants growing in the UK are considered as invasive non-native species. Many have a significant impact on construction sites as they spread easily, are difficult to eradicate, can damage structures, contaminate soil and also damage the local native ecology. Invasive plants can be either land or water based e.g. Japanese Knotweed, Himalayan Balsam and Giant Hogweed. The owner / occupier of a site is required by law to manage and prevent the spread of invasive plants. If you knowingly spread, or allow these plants to spread, through the construction activities an offence will occur. In the same way as land contamination, it is important to establish the presence of such plants in advance of construction so that an appropriate management or eradication plan can be developed and implemented.

The Principal Contractor's primary approach to minimise the risks associated with land contamination and invasive species is based on its own well established good practice principles, pollution prevention and response, adopting the key recommendations made by the Environment Agency in PPG6 and through its own Environmental Plan and site supervision.

Table 6 sets out the individual EQS and auditing results (to be completed during the primary site audit)

Table 6. Section 6 : Land Quality and Invasive Species

Reference	Standard	Auditing results
6:1	General Good Practice	

Reference	Standard	Auditing results
	a) Have you investigated the site history to check for potential land contamination? b) Have areas of land contamination or invasive plants been identified before starting work? c) Are all areas of land contamination and/or invasive species marked on site drawings? d) If there are contaminants, have you contacted the Environment Agency to discuss how you will deal with them? e) If there are invasive plants on site, are you confident you can manage them effectively and comply with your duty of care? f) If you plan to treat invasive plants in or near water with herbicides, have you contacted the Environment Agency for permission? g) Is it necessary to gain expert advice to deal with any land contamination? h) Is there a remediation strategy for dealing with any contamination? i) Are control measures in place to ensure contaminants or invasive plants are not spread within or outside the site? j) Are staff aware of how to recognise land contamination, and what to do if they find any? k) Are staff aware of how to recognise invasive plants, and what to do if they find any? l) Have you planned for stockpiling contaminated materials carefully to prevent spread of pollution? e.g. more than 10 metres away from watercourses, on impermeable surface, bunded and covered. m) If contaminated soil needs to be removed from site or treated on site it may be considered waste	
6:2 Site Waste Management Plan		
	a) Has the The Principal Contractor Site Waste Management Plan been completed/being updated regularly, as required?	
6:3 Site Environment Plan		

Reference	Standard	Auditing results
	a) Has the The Principal Contractor Site Environment Plan been completed/being updated regularly, as required?	

Section 7: Waste



Construction activities can generate and use a wide range of materials that can be considered as waste. Waste has a complex legal definition that includes discarding of materials that are not longer wanted, as well as its recovery and reuse.

A lack of, or inappropriate waste management can cause pollution at construction and demolition sites, which can also be transported offsite by water, wind or by vehicles. This can arise from air pollution from illegal waste disposal such as burning on site, soil and water pollution from the breakdown of waste materials, risks to human and wildlife health from contaminants within a waste

There is a wide range of legislation and policy associated with waste that The Principal Contractor will comply with.

The Principal Contractor's primary approach to minimise these risks is one of meeting its 'duty of care' requirements, implementing robust pollution prevention and response measures, adopting the key recommendations made by the Environment Agency in PPG6 and the adoption of its project specific Site Waste Management Plan.

Section 7: Waste procedures are based on recent best practice guidance and The Principal Contractor's project specific Waste Management Plan.

Table 7 sets out the auditing results (to be completed during the primary site audit).

Table 7 Section 7: Waste

Reference	Standard	Auditing results
7:1 General Good Practice		
	a) Do you have copies of all waste carriers' registration certificates?	
	b) Are waste carriers' registrations in date?	
	c) Have you identified your most common European Waste Catalogue (EWC) codes / List of Waste Codes (in England	

Reference	Standard	Auditing results
	and Wales) to help people on site complete waste transfer notes and consignment notes correctly? d) Do you have a system for keeping waste transfer notes and consignment notes? e) Have you made plans to secure all waste in vehicles leaving site and skips are covered where appropriate? f) Is waste contained securely and safely on site to prevent escape? g) Are waste containers (skips, bins) impermeable to prevent liquid wastes leaching? h) Have you allocated sufficient space on site for waste storage and segregation? i) Are skips and bins on site labelled for different waste types to help segregation, and checked regularly?	
7:2 Site Waste Management Plan		
	a) Has the Principal Contractor 's Site Waste Management Plan been completed/being updated regularly, as required?	

Appendix L – Code of Conduct for Construction - Ciria guidance document C741: Environmental Good Practice on Site

Environmental good practice on site guide (fourth edition)





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- **Local Authority Contaminated Land (LACL) network**
LACL helps local authority officers to address responsibilities and duties involving land contamination and redevelopment.
- **European Marine Sand And Gravel Group (EMSAGG)**
EMSAGG provides a forum for the marine aggregate industry across Europe to discuss sector issues and exchange ideas and learning.

Where we are

Discover how your organisation can benefit from CIRIA's authoritative and practical guidance – contact us by:

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Summary

Environmental impacts will arise at any construction project, irrespective of the location, size or nature of the development, and have the potential to affect the immediate neighbour, and also the natural and built environment. Impacts can take many forms, such as noise or pollution, and can affect surrounding flora and fauna. Good environmental practice enables these issues to be managed positively.

The task of preventing impacts or minimising the risk of potential impacts is becoming increasingly the responsibility of site-based staff. This greater accountability at site level demands higher standards of environmental awareness and education by all site staff. Though training and using experienced staff, environmental issues can be effectively managed with the speed and urgency that is often required.

This guide is a user-friendly reference tool and training aid, which provides practical advice about managing construction on site to minimise environmental impacts. It is relevant to all concerned within the construction process.

Robust project planning and a collaborative approach enables environmental issues to be positively managed. The whole project team and construction supply chain have responsibilities for good environmental management.

Good environmental practice starts with planning for good site management.

The guide is divided into four chapters:

Chapter 1 Environmental benefits and obligations

- outlines the link to sustainability
- outlines those obligations that a site operates under in terms of both legislative and contractual conditions
- presents the reasons for adopting good environmental practice on site
- introduces several emerging issues for future consideration.

Chapter 2 Project activities

- identifies the environmental issues that need to be considered when carrying out the various pre-construction, construction, post-construction activities, and also other project-based considerations.

Chapter 3 General project management

- explains how the overall establishment and management of the site forms the basis of environmental good practice
- covers management responsibility, from the initial set up of the site through to project completion and demobilisation as recognition of the projects whole life cycle.

Chapter 4 Environmental issues

- advice on how to manage impacts for a range of environmental issues. Each issue includes an introduction to the topic highlighting its importance, followed by guidance and sources of further guidance, and an overview of current legislation
- guidance is supported by legal examples, case studies, photographs, diagrams and good practice checklists.

The appendices provide lists of useful contacts including for the UK environmental regulators, and information on regulatory pollution prevention guidance (UK-wide), advisory notes (Wales) and advice notes (Scotland).

Further information to support that provided in the guide including links to further guidance, site-based toolbox talks and legislation are provided on the dedicated environmental good practice web page: **www.ciria.org/egpos**

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Glossary

Abatement notices	A local authority has a duty under legislation to serve an abatement notice where it is satisfied that a statutory nuisance exists. The powers of an abatement notice include being able to stop work on the project.
Abstraction	The removal of water from groundwater or surface waters, either temporarily or permanently. Abstraction permits/licences are required from the local regional environmental regulator.
Asbestos	Banned material due to severe health implications associated with exposure. Found in many buildings as insulation material, fire retardant, used in floor and ceiling tiles, gaskets etc. Requires specialist removal and disposal by licenced organisations. Asbestos survey required when presence is suspected before demolition.
Biodiversity	A term used to describe the variety of living things on earth. Maintaining or increasing biodiversity is a positive outcome.
Brownfield site	As opposed to a 'greenfield' site, a brownfield site is a generic term for land used previously for an industrial or commercial purpose, being available for redevelopment towards new industrial, commercial or residential use. The level of remediation or clean-up necessary may vary significantly.
Chain of Custody	Evidence that the material used in a final product has been sourced from a certified sustainable supplier. This demonstrates traceability throughout the supply chain.
Climate change	The consequences upon the naturally occurring greenhouse effect arising out of man's industrial and domestic practices. There is accepted evidence that man's influence upon climate change is a reality.
Consent/licence/permit (discharge to water)	In England and Wales any intended discharge to 'controlled waters' will require permission from the environmental regulator over granting of an environmental permit. Any intended discharge to the water environment in Scotland will require permission from the Scottish Environment Protection Agency (SEPA) for granting a Controlled Activity Regulation (CAR) point discharge license. See <i>Trade effluent consent</i> for discharge to sewers.
Controlled waters/water environment	Almost all natural waters in the UK. This includes surface water (rivers, streams, lakes, reservoirs, ditches, ponds), including those temporarily dry, and groundwater (aquifers), as well as coastal waters up to three miles out. It is an offence to pollute such waters. Responsibility for policing controlled waters is placed with the regulators.
Contaminated land	Land that meets the Part IIA/Part III definition of contaminated, being <i>"any land that appears to the local authority in whose area it is situated to be in such a condition by reason of substances in, on or under the land, that:</i> <i>1 Significant harm is being caused or there is a significant possibility of such harm being caused</i> <i>2 Pollution of controlled waters is being or is likely to be caused."</i>

Dust	Airborne solid matter up to about 2 mm in size. Along with noise and odour, dust is probably the most commonly complained about issue or ‘statutory nuisance’ from construction sites.
Duty of care for waste	A legal responsibility to ensure that production, storage, transporting and disposal of business waste is carried out without harming the environment.
EU Ecolabel	European award for products and services that meet the highest environmental standards.
Ecology	All living things, such as trees, flowering plants, insects, birds and mammals, and their habitats.
Enforcement notices	In England, Wales, Northern Ireland and Scotland, the environmental regulator has the power to serve a works notice/ consent on a site to prevent or remedy water pollution. Such notices/ consents can be served before pollution has occurred if, in the opinion of the environmental regulator, a polluting substance is likely to enter surface waters or groundwater. The environmental regulator may serve a works notice/consent to ensure that waters are cleaned up after pollution has occurred.
Environmental permit (water)	Any intended discharge to ‘controlled waters’ in England and Wales will require permission from the Environment Agency over granting of an environmental permit. See <i>Trade effluent consent</i> for discharge to sewers.
Environmental aspect	Element of an organisations activities or products or service that can interact with the environment.
Environmental impact	Any change to the environment, whether adverse impact or beneficial, wholly or partially resulting from an organisation’s environmental aspects.
Environmental indicator	A measure of an environmental parameter, which can be used to assess the present state of the environment by looking at trends over time.
Environmental management plan (EMP)	An EMP is a project-specific plan developed to ensure that all necessary measures are identified and implemented in order to protect the environment and comply with environmental legislation. The coverage on an EMP is wider than just site-level as it can refer to decisions made before works start (eg designing out waste). Possible alternatives include Construction Environmental Management Plan (CEMP) or Site Environmental Management Plan (EMP).
Environmental receptor	Any feature, habitat, area or living organism that potentially can be negatively affected by site activities.
European Waste Catalogue Codes/ List of Waste (LoW) Codes	Codes to identify various types of waste, for example Cat. 17 02 01 Wood.
Forest Stewardship Council	An organisation that sets out international standards for the responsible management of forests in accordance with ecological, social and economic criteria.

Greenhouse gases	Naturally present and man-made gases, which contribute to the greenhouse effect. These gases include carbon dioxide, methane, and chlorofluorocarbons (CFC's).
Greywater	Lightly contaminated water captured and reused for a second purpose, eg water from wash basins used to flush toilets.
Groundwater	Water beneath the ground's surface.
Groundwater source protection zones	Zones where there is a risk of contamination from any activities that might cause pollution in the area. The closer the activity is to the source, the greater the risk. Used in conjunction with the groundwater protection policy to set up pollution prevention measures in areas that are at higher risk, and to monitor the activities of potential polluters nearby.
Heritage bodies	These bodies have a general duty to conserve heritage, to carry out scheduling of historic remains, and to undertake research. They comprise Historic England, Cadw, Historic Environment Scotland and the Northern Ireland Environment Agency (NIEA).
Landfill tax	A tax payable to HM Revenue and Customs (HMRC) by the operator, on all waste materials going to landfill. Landfill tax from 1 April 2014 is £80 per tonne for active waste, and £2.50 for inert or inactive waste.
Local biodiversity action Plan (LBAP)	Used by local authorities and others to identify ecological objectives and targets. Aimed at ensuring sustainable development in relation to processes such as planning, the LBAP helps conserve and save valuable habitats as well as plant or animal species. LBAPs link to a national biodiversity plan set by government.
Local planning authority (LPA)	Based within local councils, the LPA is responsible for local planning issues including control of building works and development of land, protection of hedgerows and trees and listed buildings.
Mitigation	Refers to the actions and measures that may be taken to eliminate or reduce the effect of a scheme's development or operation.
Noise	Often described as being a sound that is 'not desired'. Sound is a wave motion carried by air particles between the source and the receiver (usually the ear).
Noise abatement zones	Local authorities have the power to set up a noise abatement zone as an area-based approach for controlling commercial and industrial noise.
Polluter pays principle	Also known as extended polluter responsibility (EPR) is an environmental principle that requires that polluting parties are made liable to pay for the damages they cause to the natural environment.
Pollution	Any emission as a result of human activity that may: ● be harmful to human health or the quality of the environment ● cause offence to a human sense ● result in damage to material property ● impair or interfere with amenities and other legitimate uses of the environment.

Prescribed processes	Any activities carried out on premises, or by means of mobile plant (eg concrete crusher), capable of causing pollution to the environment. Nearly always requires a local authority or environmental regulator licence/permit.
Recycling	Collecting and separating materials from waste and processing them to produce useable products.
Remediation notice(s)	Having identified any contaminated land within its area, the environmental regulator or the local authority may serve on an 'appropriate person' such a notice, specifying what needs to be done to remediate the land and the timescale for it to be done.
Section 60 notice	Legal enforcement action issued under the Control of Pollution Act 1974 by the local authority to control noise pollution and nuisance on construction sites. If raised, the conditions must be complied with until revoked or successfully appealed against.
Section 61 consent	An agreement with the local authority issued under the Control of Pollution Act 1974 to permit activities with the potential to cause nuisance (eg noise on site to occur).
Sewerage provider	Regional wastewater utility company (Scottish Water for Scottish residential customers, and NIEA in Northern Ireland) responsible for removal and treatment of foul water/sewage.
Stakeholders	Persons or groups who are directly or indirectly affected by a project, as well as those who may have interests in a project and/or the ability to influence its outcome, either positively or negatively.
Statutory consultees	Organisations that must be consulted at the planning stage of projects. These organisations include regulators, heritage bodies and nature conservation bodies.
Statutory Nature Conservation Bodies	Natural England, Natural Resources Wales (NRW), Scottish Natural Heritage (SNH) and NIEA have regional responsibility for promoting the conservation of wildlife and natural features.
Sustainable development	"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Bruntland, 1987).
Sustainable timber	Wood that is obtained from a sustainably-managed forest.
Trade effluent consent	A consent that must be sought from the relevant water and sewerage company or authority before an organisation can discharge trade effluent to a public foul sewer or to a private sewer that connects to a public sewer.
Transfer document	Required as a legal evidence describing the transfer of inert and non-hazardous waste between duty-holders.
Transfer station	Facility where waste is transferred from collection vehicles to larger vehicles or onto rail or river for onward transport for disposal. Also refers to a facility that segregates waste.
Waste	Any substance or object that the holder discards, intends to discard or is required to discard: ● controlled waste – household, commercial and industrial waste

- directive waste – material that the producer or holder discards
- inert waste – material that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, eg clean bricks or concrete
- non-hazardous waste – material that does not have any significant hazardous properties, but is not inert and could cause problems if not dealt with properly due to the fact it may biodegrade, eg paper, cardboard or plastic
- hazardous/special waste – can be harmful to the environment and human health so cannot be disposed of by conventional methods, eg paints, solvents, oil and pesticides.

**Waste minimisation/
resource efficiency**

The reduction of waste at source by understanding and changing processes to minimise its production. It includes the substitution of less environmentally harmful materials in the production process.

Wildlife corridor

A linear habitat, or range of habitats in which species can survive, and along which they can move to other wildlife areas. Examples include rivers and streams, hedges and shelterbelts, field and road margins.

Works notice

See *Enforcement notices*.

Acronyms and abbreviations

A&I	Aspects and impacts
AGL	Aggregates Levy
ANC	Association of Noise Consultants
AONB	Area of Outstanding Natural Beauty
ASBP	Alliance for Sustainable Building Products
ASSI	Area of Special Scientific Interest (Northern Ireland)
BCT	Bat Conservation Trust
BIM	Building Information Modelling
BOT	Build-operate-transfer
BPM	Best practicable means
BRE	Building Research Establishment
BREEAM	Building Research Establishment Environmental Assessment Method
BS	British Standard
BTU	Barhale Trant Utilities
Cadw	Welsh Historic Monuments
CAR	Controlled Activity Regulation
CBM	Cement bound material
CCL	Climate Change Levy
CCS	Considerate Constructors Scheme
CCTV	Closed circuit television
CD&E	Construction, demolition and excavation
CECA	Civil Engineering Contractors Association
CEMP	Construction Environmental Management Plan
CEN	European Committee for Standardization
CFCs	Chlorofluorocarbons
CHAS	Contractors Health and Safety Assessment Scheme
CIEH	Chartered Institute of Environmental Health
CIfA	Chartered Institute for Archaeologists
CIP	Construction Industry Publications
CITB	Construction Industry Training Board
CL:AIRE	Contaminated Land: Applications In Real Environments
CLR	Contaminated land report
CoC	Chain of Custody
CoPA	Control of Pollution Act 1974
COPD	Chronic obstructive pulmonary disease
COSHH	Control of Substances Hazardous to Health
CPA	Construction Products Association
CSCS	Construction Skills Certification Scheme
CSM	Conceptual site model
CWS	County Wildlife Sites
DARD	Department of Agriculture and Rural Development (in Northern Ireland)
dB	Decibel
DBFO	Design, Build, Finance and Operate

DCAL	Department of Culture, Arts and Leisure (in Northern Ireland)
DCLG	Department for Communities and Local Government
D&B	Design and build
Defra	Department of Environment Food and Rural Affairs
DOENI	Department of Environment Northern Ireland
DREAM	Defence Realm Environmental Assessment Methodology
DSR	Dark Sky Reserve
EAN	Electricity Alliance North
EAP	Environmental Action Plan
ECOW	Ecological Clerk of Works
EDOC	Electronic duty of care
EHO	Environmental health officer
EIA	Environmental Impact Assessment
EMAS	Eco-Management and Audit Scheme
EMP	Environmental Management Plan
EMS	Environmental Management System
EPR	Extended polluter responsibility
ES	Environmental statement
ETI	Ethical Trading Initiative
EU	European Union
EWG	European Waste Catalogue
FBA	Furnace bottom ash
FIR	Fairness, inclusion and respect
FSC	Forest Stewardship Council
GCN	Great crested newt
GHG	Greenhouse gas
GPLC	Guiding principles for land contamination
GRI	Global Reporting Initiative
HWCN	Hazardous Waste Consignment Note
HELM	Historic Environment Local Management
HMRC	HM Revenue and Customs
HSE	Health and Safety Executive
HVAC	Heating, ventilating and air conditioning system
IAGM	Institute of Air Quality Management
IAI	Institute of Archaeologists of Ireland
IBA	Incinerator bottom ash
IDA	International Dark-Sky Association
IFC	Issued for construction
IHBC	Institute of Historic Building Conservation
INNS	Invasive Non-Native Species
IPC	Integrated Pollution Control
ISO	International Standards Organisation
JIT	Just-in-time
KPI	Key performance indicator
LAPC	Local Authority Pollution Control
LBAP	Local biodiversity action plan
LCA	Life cycle analysis
LED	Light-emitting diode

LEED	Leadership in Energy & Environmental Design
LLFA	Lead Local Flood Authority
LNR	Local Nature Reserve
LoW	List of Wastes
LPA	Local planning authority
LPG	Liquefied petroleum gas
MDF	Medium density fibreboard
MLP	Materials Logistic Plan
MOLA	Museum of London Archaeology
MRF	Material recovery facility
MS	Method statement(s)
MVHR	Mechanical ventilation heat recovery system
NBS	National Building Specification
NGO	Non-Governmental Organisation
NIEA	Northern Ireland Environment Agency
NNR	National Nature Reserve
NORM	Naturally occurring radioactive material
NRW	Natural Resources Wales
NSA	National Scenic Area (Scotland)
NVQ	National Vocational Qualification
PAN	Planning Advice Note (Scotland)
PEFC	Programme for Endorsement of Forest Certification
PFA	Pulverised fuel ash
PFI	Private Finance Initiative
PLC	Permits/licenses/consents
PPC	Pollution Prevention and Control
PPE	Personal protective equipment
PPG	Pollution Prevention Guidelines
PPP	Polluter pays principle
PSG	Project steering group
PSNI	Police Service Northern Ireland
PVC	Polyvinyl chloride
RA	Recycled aggregate
RAMSAR	Wetlands of international importance
RAP	Recycled asphalt plantings
RCA	Recycled concrete aggregate
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Enforcement Regulations 2008 (as amended)
RIGS	Regionally Important Geological Sites
RMP	Resource Management Plan
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SEATS	Site Environmental Awareness Training Scheme
SEMP	Site Environmental Management Plan
SEPA	Scottish Environment Protection Agency
SIC	Standard Industrial Classification
SINC	Site of Importance for Nature Conservation
SLINC	Site of Local Importance for Nature Conservation

SLNCI	Site of Local Nature Conservation Importance
SMC	Scheduled monument consent
SNCI	Sites of nature conservation interest
SNCO	Statutory Nature Conversation Organisation
SNH	Scottish Natural Heritage
SPA	Special Protection Area
SSSI	Sites of Special Scientific Interest
SuDS	Sustainable drainage systems
SWMP	Site waste management plan
TAN	Technical Advice Note (Wales)
TMP	Traffic management plan
TPO	Tree Preservation Order
UEA	University of East Anglia
UXO	Unexploded ordnance
VSU	Victoria Station Upgrade
WAC	Waste acceptance criteria
WAP	Waste acceptance procedures
WEEE	Waste Electrical and Electronic Equipment
WHS	World Heritage Site
WSI	Written Scheme of Investigation
WTN	Waste Transfer Note
WRAP	Waste and Resources Action Programme

How to use this guide

This guide provides advice on environmental good practice for each construction stage and is aimed primarily at site-based staff including subcontractors, and applicable to all levels of construction.

The guide is intended to be a reference book and a training aid. A companion pocket book (CIRIA C715) presents key advice on working on construction sites, and is specifically designed to be given to site-based staff as a reference aid.

The content of this guide provides the basis of CIRIA's one-day environmental good practice on site training course.

Adoption of the good practice presented in this guide by a broader group of construction professionals could have a significant effect on construction activities and the ability of site-based staff to meet their legislative and contractual obligations to the environment.

Such professionals include:

- construction planners within contractors' main offices
- contractors
- project managers/directors
- designers
- developers
- local authority engineers
- construction managers
- quantity surveyors
- planning supervisors and principal contractors
- environmental regulators.

Use this guide with:

- Pollution Prevention Guidelines (PPG) 6, which provides practical advice and guidance to help in preventing pollution (EA, NIEA, SEPA, 2012).
- Toolbox talks produced by CIRIA on behalf of the Civil Engineering Contractors Association (CECA), BUILD UK and Construction Industry Publications (CIP), which concentrate on the issue or construction activity most relevant to the work taking place at any given time.

Links to access PPG6 (and others related to construction) is given in **Appendix A3**, and copies of the site-based toolbox talks are available from **www.ciria.org/egpos**