

Land South of Warren Lane, Long Ashton

Construction Environmental Management Plan (CEMP)

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author **Daniel Alonso Jodar & Laurens
Dominicus**

date **06/08/2021**

approved **Trevor Curson**

signature



date **06/08/2021**

Contents

1	Introduction	5
1.1	Overview	5
1.2	Goal and objectives of the CEMP	5
1.3	Structure of the CEMP	5
1.4	Maintenance of the CEMP	6
2	Project description	7
2.1	Overview of the proposed development	7
2.2	Overview of the construction activities	9
2.3	Overview of the construction equipment	9
2.4	Overview of the project schedule and working hours	10
2.5	Temporary storage and site facilities	10
3	Legal requirements and guidelines	11
3.1	National legislation	11
3.2	Good practice guidance	13
3.3	Planning policy	14
4	Summary of baseline conditions	18
5	Environmental management and mitigation measures	20
5.1	Preliminary identification of potential impacts	20
5.2	Mitigation measures during construction activities on site	21
6	Roles and responsibilities	43
6.1	Overview	43
6.2	Main contractor management	43
6.3	Site manager	43
6.4	QHSE manager	43
6.5	Communications manager	43
6.6	Operators	44
7	Monitoring and auditing	45

7.1	Site inspections	45
7.2	Monitoring	45
7.3	Reporting	46
8	Environmental training	47
8.1	Environmental induction	47
8.2	Toolbox talks	48
8.3	Daily pre-start meetings	48
9	Stakeholder engagement and consultation	49
10	Environmental incidents	50
10.1	Types of environmental incidents	50
10.2	Responses to environmental incidents	51

Table of Tables

Table 3—1	Outline of key national legislation	11
Table 3—2	Outline of relevant good practice guidance	13
Table 3—3	Outline of key relevant policies from the North Somerset Council Core Strategy	15
Table 3—4	Outline of key relevant polities from the North Somerset Council Development Management Policies Sites and Policies Plan Part 1	16
Table 4-1	Summary of baseline conditions	18
Table 5-1	Summary of baseline conditions	20
Table 5-2	Mitigation measures during construction activities on site	22

Table of Figures

Figure 2-1	View of the proposed development site	7
Figure 2-2	Site Layout	8

1 Introduction

1.1 Overview

Buro Happold on behalf of Long Ashton Land Company Limited has developed this Construction Environmental Management Plan (hereinafter referred as CEMP) for the development south of Warren Lane in Long Ashton (hereinafter referred as “the proposed development”).

The CEMP is intended to be a specific and operative document, focused in the environmental management of the construction activities and facilitating the implementation of environmental mitigation measures.

The CEMP is also intended as a live document, which will be developed further as the planning process and the scheme design progress. This document is an outline CEMP, and because of this, it is anticipated that, in the case of the planning process being successful, the future main contractor working will have to update and take ownership of this CEMP as necessary. Where sections of this document will need to be completed at a later stage, these are presented in *italic text*.

1.2 Goal and objectives of the CEMP

The main goal of the CEMP is to reduce the risk of significant effects resulting from the proposed development on sensitive environmental resources, including minimising disturbance to local residents.

This is expected to be achieved by fulfilling the following objectives:

- Set out the mitigation measures to be applied throughout the construction activities;
- Provide guidance to contractors relating to the management measures required to mitigate the potential environmental impacts associated with the construction activities;
- Deliver the proposed development in accordance with industry best practice standards, legal requirements and in an environmentally sustainable manner;
- Outline, reduce and mitigate the effects of the proposed development by supporting the implementation of mitigation measures;
- Provide an overview of the environmental management required, together with necessary procedures for monitoring, auditing, communication and documentation of environmental activities; and
- Define roles and responsibilities of all relevant parties.

1.3 Structure of the CEMP

This CEMP is organised in the following ten sections:

- Section 1 outlines the overview and purpose of the CEMP;
- Section 2 provides a summary of the proposed development;
- Section 3 provides the framework of the relevant legal requirements;

- Section 4 provides a summary of the existing baseline conditions in the site where the proposed development is planned;
- Section 5 provides a description of the expected impacts on site and the mitigation measures that would be required to avoid and mitigate those impacts;
- Section 6 outlines potential roles and responsibilities to facilitate the implementation of the mitigation measures;
- Section 7 outlines the monitoring and auditing activities required in the CEMP to facilitate the implementation of the mitigation measures;
- Section 8 outlines the environmental training requirements to the personnel involved in the proposed development, to assure they are sufficiently competent to comply with their responsibilities, in terms of environmental management;
- Section 9 outlines the stakeholder engagement to be conducted during the proposed development; and
- Section 10 identifies potential environmental incidents and outlines the procedures to follow in an environmental incident event.

1.4 Maintenance of the CEMP

The future contractor is expected to complete this section, by describing:

- Additional updates of the CEMP: when they will happen and who will be responsible for such updates;
- Management of the CEMP document: preparation, review and approval of the document; and
- CEMP document available on site.

2 Project description

2.1 Overview of the proposed development

The proposed development sits within a site area of 2.22 ha and will comprise up to 35 dwellings, allotments and associated access, parking, drainage infrastructure and landscaping. The development site is located in the land to the south of Warren Lane, Long Ashton, located at about 7km SW Bristol (England, United Kingdom).

Figure 2-1 shows a general view of the site at this moment (photograph taken on 19th September 2019, in NW to SE direction). Figure 2-2 shows the latest available site layout.



Figure 2-1 View of the proposed development site



Figure 2-2 Site Layout

2.2 Overview of the construction activities

Although specific construction activities on site are yet to be confirmed at a later stage, the following activities correspond to a typical construction project:

- Establishment of site compounds (for offices and material stockpiling);
- Installation of erosion and sedimentation controls prior to any substantial construction in accordance with the erosion and sediment control procedure;
- Demolition, decommissioning and clean-up of existing redundant facilities;
- Management of waste, recycling and re-use products;
- Excavation and movement of material using excavators, bulldozers, scrapers and trucks;
- Stockpiling of excavated materials in a systematic way;
- Construction of new facilities;
- Rehabilitation and landscaping of the site; and
- Decommissioning of site compounds.

The future contractor is expected to complete this section, by confirming and describing in further detail the potential activities outlined above.

2.3 Overview of the construction equipment

Although details on the specific construction equipment on site are yet to be confirmed, the following equipment corresponds with a typical construction project:

- Utilities and four-wheel drive vehicles;
- Graders;
- Loaders;
- Tip trucks;
- Rollers;
- Mobile cranes;
- Excavators;
- Concrete pumps;
- Concrete trucks;
- Lighting towers;
- Piling rigs;

- Water pumps;
- Generators;
- Water blasters;
- Asphalt pavers;
- Site sheds;
- Skips; and
- Hand tools.

The future contractor is expected to complete this section, by confirming and describing in further detail the potential equipment outlined above. Complete equipment data sheets should be provided. Relevant information in terms of environmental management should include maintenance requirements and noise and air pollutant emissions.

2.4 Overview of the project schedule and working hours

Although specific information regarding the project schedule of works is yet to be confirmed at this stage, it will follow a clockwise approach:

- Installation of the road and the wildfire corridor on the eastern side of the site; and
- Completion of the development starting with the first four houses (Buildings 1 to 4) fronting onto Weston Road.

Although specific details about working hours are yet to be confirmed, good site working practices will be followed, as shown below:

- Monday to Friday: 08:00 – 18:00;
- Saturday: 08:00 – 13:00;
- No construction works in connection with the development shall take place on the site at any time on a Sunday or Bank Holiday. Should work outside of the approved hours be required, written permission from the Local Planning Authority must be obtained; and
- Should piling be required, these operations will only take place between 09:00 – 18:00 on weekdays (Monday – Friday).

The future contractor is expected to complete this section, by describing the project schedule and working hours considered for the construction activities.

2.5 Temporary storage and site facilities

The future contractor is expected to complete this section, by describing the location and characteristics of the temporary storage and site facilities. Location of the temporary storage and site facilities will be presented on a comprehensive site map.

3 Legal requirements and guidelines

This section of the CEMP outlines key environmental legislation, good practice and planning policies relating to the construction phase of the proposed development. Several tables have been provided describing each key piece of legislation, guidance or planning policy relevant to the proposed development.

The future contractor is expected to complete this section, by adding and describing any new key environmental legislation, good practice and planning policy that might be approved after the submission of the CEMP and before / during construction activities are taking place on site.

3.1 National legislation

Key national legislation governing construction environmental issues relevant to the proposed development are outlined in Table 3—1.

Table 3—1 Outline of key national legislation

Name of legislation	Brief description of legislation
National Planning Policy Framework (NPPF) 2012 (as amended, 2021)	The National Planning Policy Framework sets out the government’s planning policies for England and how these are expected to be applied. It provides a framework within which locally prepared plans for housing and other development can be produced. This includes guidance on a number of environmental topics, including meeting the challenge of climate change, flooding and coastal change, and conserving and enhancing the natural environment
National Planning Practice Guidance- Water Supply, Wastewater and Water Quality 2019	This National Planning Practice Guidance advises on how planning can ensure good water quality and the delivery of adequate water and wastewater infrastructure
Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019	The Conservation of Habitats and Species (EU Exit) Regulations 2019 seek to retain the requirements of the 2017 Regulations but with adjustments for the UK’s exit from the UK
Conservation of Habitats and Species and Planning (Various Amendments) (England and Wales) Regulations 2018	Whilst the Conservation of Habitats and Species Regulations 2017 remain valid, the legislation did not permit a competent authority to approve a neighbourhood plan, permission in principle, and certain development orders, where screening identifies a ‘likely significant effect.’ The People over Wind judgement meant that it is no longer possible to apply mitigation measures at the screening stage and therefore plans and orders where significant effects were identified could not progress. The Conservation of Habitats and Species and Planning Regulations 2018 amends the legislation to allow a competent authority to undertake an appropriate assessment to consider impacts and mitigation where significant effects on the environment are identified; allowing them to make a decision as to whether a plan or order should be approved
Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (the Habitat Regulations)	The Conservation of Habitats and Species Regulations 2017 requires EU governments to specify areas designated for protection and conservation of flora and fauna species. These are species and habitats which are considered to be of European interest. A specific regulation was implemented in 2019 to describe the applicability of this EU Regulation, considering the UK exit of the EU
The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017	The Water and Environment Regulations establish a legislative framework for the protection of surface waters (including rivers, lakes, transitional waters and coastal waters) and groundwater throughout the UK. These Regulations are based on the EU Water Framework Directive which aims to achieve the same for the whole of the EU. The level of applicability of the EU Regulation, considering the UK exit of the EU, is not clear yet

Name of legislation	Brief description of legislation
The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2011)	<p>The Air Quality Strategy does the following:</p> <ul style="list-style-type: none"> • Sets out a way forward for work and planning on air quality issues • Sets out the air quality standards and objectives to be achieved • Introduces a new policy framework for tackling fine particles • Identifies potential new national policy measures which modelling indicates could give further health benefits and move closer towards meeting the Strategy's objectives
Flood and Water Management Act 2010	The Flood and Water Management Act provides for better, more comprehensive management of flood risk for people, homes and businesses. It also helps safeguard community groups from unaffordable rises in surface water drainage charges, and protects water supplies to the consumer
The Noise Policy Statement for England 2010	The Noise Policy Statement for England sets out the long-term vision of government noise policy, to promote good health and a good quality of life through the management of noise
Natural Environment & Rural Communities Act 2006	The Natural Environment & Rural Communities Act places a duty to conserve biodiversity on public authorities in England. 'Conserving biodiversity' may include enhancing, restoring or protecting a population or a habitat. Additionally, the Secretary of State publishes and maintains lists of species and types of habitats which are regarded by Natural England to be of "principal importance" for the purposes of conserving biodiversity in England
Environmental Noise (England) Regulations 2006	The Environmental Noise (England) Regulations require the Secretary of State to identify and publish details of noise sources. The competent authority must then produce strategic noise maps and action plans to deal with these noise problems
The Contaminated Land (England) Regulation 2006	The Contaminated Land (England) Regulations make provisions for a contaminated land regime, in accordance with Part 2A of the Environmental Protection Act 1990, which includes actions for the remediation of such land. In addition, it provides a definition of special sites
Control of Noise at Work Regulations 2005	The Control of Noise at Work Regulations place a duty on employers within Great Britain to reduce the risk to their employees' health by controlling the noise they are exposed to whilst at work
Hedgerows Regulations 1997	The Hedgerows Regulations 1997 was created to protect hedgerows, in particular those over 30 years old. Since these regulations came into effects, it became a criminal offence to remove hedgerows in contravention to these regulations
The Environment Act 1995, Part IV	<p>The Environment Act created the agencies that set new standards for environmental management (Environment Agency, Scottish Environmental Protection Agency (SEPA) and National Park Authorities). Additionally, the Act also:</p> <ul style="list-style-type: none"> • Requires that the Secretary of State prepares a National air quality strategy, and provides the establishment of Air quality management areas • Requires that the Secretary of State prepares a National Waste Strategy, with power to impose obligations on producers in England & Wales • Requires SEPA to prepare a National waste strategy • Improved the current protection of hedgerows • Introduced new provisions in the Environmental Protection Act 1990 dealing with contaminated land and abandoned mines • Formalised the Sandford Principle

Name of legislation	Brief description of legislation
Protection of Badgers Act 1992	Under the Protection of Badgers Act it is an offence to: <ul style="list-style-type: none"> • Wilfully kill, injure or take a badger (or attempt to do so) • Cruelly ill-treat a badger • Dig for a badger • Intentionally or recklessly damage or destroy a badger sett, or obstruct access to it • Cause a dog to enter a badger sett • Disturb a badger when it is occupying a sett
Water Resources Act 1991	The Water Resources Act regulates water resources, water quality and pollution, and flood defence
Environmental Protection Act 1990	The Environmental Protection Act deals with issues relating to waste on land, defining all aspects of waste management and places a duty on local authorities to collect waste
The Wildlife and Countryside Act 1981 (as amended)	The Wildlife and Countryside Act gives protection to native species, controls the release of non-native species, enhances the protection of Sites of Special Scientific Interest (SSSIs) and builds upon the rights of way rules in the National Parks and Access to the Countryside Act 1949. The Act is split into the following four parts: <ul style="list-style-type: none"> • Part I: Wildlife. This includes protection of wild birds, their eggs and nests; protection of other animals; and protection of plants • Part II: Nature Conservation, Countryside and National Parks. This includes the SSSI, Limestone Pavements, National Nature Reserve, Marine Nature Reserve and National Park designations • Part III: Public Right of Way. This includes updates and changes to public rights of way • Part IV: Miscellaneous and General. This includes the provision of definitions for key terms relating to the Act
Control of Pollution Act 1974	The aim of the Act is to deal with a variety of environmental issues, including waste on land, water pollution, abandoned mines, noise pollution and the prevention of atmospheric pollution

3.2 Good practice guidance

Good practice environmental guidance relevant to the construction of the proposed development is outlined in Table 3—2.

Table 3—2 Outline of relevant good practice guidance

Name of guidance	Description of guidance
Pollution Prevention Guidelines (2014)	Pollution Prevention Guidelines (PPGs) are a series of documents developed by the Environment Agency for England and Wales. Each PPG is targeted at a particular type of business or activity and covers environmental good environmental practice to minimise pollution. They were withdrawn in December 2015. The UK Government instead provides pollution prevention guidance for the following topics: <ul style="list-style-type: none"> • Pollution prevention • Environmental incident reporting • Permits to discharge to surface or groundwater • Waste management • Oil storage regulations • Sewage discharge with no mains drainage • Working on or near water • Water management on land

Name of guidance	Description of guidance
BS 42020:2013 – Biodiversity: Code of practice for planning and development	BS 42020 provides clear recommendations and guidance to ensure that actions and decisions taken at each stage of the planning process are informed by sufficient and appropriate ecological information
BS 8233: 2014 – Guidance on sound insulation and noise reduction for buildings	BS 8233 provides guidance for the control of noise in and around buildings. These guidelines help define what is considered to be acceptable noise levels in different environments and ensures that residents of proposed new build or refurbished developments have adequate noise insulation and are suitably protected from noise outside.
BS 5228-1: 2009+A1:2014 - Code of practice for noise and vibration control on construction and open sites	Provides a code of practice for noise and vibration control on construction and open sites with a particular focus on noise
BS 5228-2: 2009+A1:2014 - - Code of practice for noise and vibration control on construction and open sites	Provides a code of practice for noise and vibration control on construction and open sites with a particular focus on vibration
Construction Industry Research and Information Association (CIRIA): Contaminated land risk assessment (C552)– A guide to good practice, 2001	Guidance that examines the risk assessment of contaminated land and explains the key elements of risk assessment practices and procedures. The book is intended to assist all practitioners to align their abilities at a common level to promote industry-wide consistency
BS 4142:2014+A1:2019 - Methods for rating and assessing industrial and commercial sound	Provides methods for rating and assessing sound of an industrial and/or commercial nature

3.3 Planning policy

The Local Planning Authority for the proposed development is North Somerset Council. There are two main documents that guide planning in this area, these being:

- North Somerset Council Core Strategy (2017) (Key policies applicable to the proposed development are outlined in Table 3—3); and
- North Somerset Council Development Management Policies Sites and Policies Plan Part 1 (2016) (Key policies applicable to the proposed development are outlined in Table 3—4).

It should be noted that North Somerset Council is preparing a draft Local Plan for consultation at the end of 2021. The Local Plan will set out North Somerset’s spatial development strategy; shaping investment and infrastructure funding to support new homes, workplaces and local facilities for the plan period up to 2038. Once adopted, the new Local Plan will replace the current Core Strategy, Development Management Plan and Site Allocation Plans. The new Local Plan will therefore become a material consideration in planning, once adopted. A further review of the policies set out in the new Local Plan will need to be undertaken, once adopted.

Table 3—3 Outline of key relevant policies from the North Somerset Council Core Strategy

Policy reference	Policy name	Description of policy
Core Strategy 1	Addressing climate change and carbon reduction	North Somerset Council is committed to reducing carbon emissions and tackling climate change, mitigating further impacts and supporting adaptation to its effects. This includes: <ul style="list-style-type: none"> • Reducing energy demand through good design • Utilising renewables where feasible • Encouraging sustainable transport, including walking and cycling • Improving green infrastructure • Protecting and enhancing biodiversity • Reduction, re-use and recycling of waste with particular emphasis on waste minimisation on development sites • Re-use of previously developed land • Opportunities for local food production • Improved resilient to the impacts of climate change, including flood defence and public realm enhancements • Water efficiency measures to reduce demand on water resources
Core Strategy 2	Delivering sustainable design and construction	New development should demonstrate a commitment to sustainable design and construction, increasing energy efficiency through design, and prioritising the use of sustainable low or zero carbon forms of renewable energy generation in order to increase the sustainability of the building stock
Core Strategy 3	Environmental impacts and flood risk management	Development that would result in air, water or other environmental pollution or harm to amenity, health or safety will only be permitted if the potential adverse effects would be mitigated to an acceptable level by other control regimes, or by measures included in the proposals. Additionally, development in zones 2 and 3 of the Environment Agency Flood Map will only be permitted where it is demonstrated that it complies with the sequential test set out in the National Planning Policy Framework
Core Strategy 4	Nature Conservation	The biodiversity of North Somerset will be maintained and enhanced by: <ul style="list-style-type: none"> • Seeking to meet local and national Biodiversity Action Plan targets taking account of climate change and the need for habitats and species to adapt to it • Seeking to ensure that new development is designed to maximise benefits to biodiversity • Seeking to protect, connect and enhance important habitats, particularly designated sites, ancient woodlands and veteran trees • Promoting the enhancement of existing and provision of new green infrastructure of value to wildlife • Promoting native tree planting and well targeted woodland creation, and encouraging retention of trees, with a view to enhancing biodiversity
Core Strategy 5	Landscape and the historic environment	The character, distinctiveness, diversity and quality of North Somerset's landscape and townscape will be protected and enhanced by the careful, sensitive management and design of development. Additionally, the council will conserve the historic environment of North Somerset, having regard to the significance of heritage assets such as conservation areas, listed buildings, buildings of local significance, scheduled monuments, other archaeological sites, registered and other historic parks and gardens
Core Strategy 6	Landscape and the historic environment	The character, distinctiveness, diversity and quality of North Somerset's landscape and townscape will be protected and enhanced by the careful, sensitive management and design of development. Additionally, the council will conserve the historic environment of North Somerset, having regard to the significance of heritage assets such as conservation areas, listed buildings, buildings of local significance, scheduled monuments, other archaeological sites, registered and other historic parks and gardens

Policy reference	Policy name	Description of policy
Core Strategy 7	Planning for Waste	North Somerset Council is part of the Joint Waste Core Strategy (JWCS), which sets out the strategic spatial planning policy for the provision of waste management infrastructure in the West of England. This provides a policy framework for waste streams, including municipal, commercial and industrial, construction, demolition and excavation waste
Core Strategy 9	Green infrastructure	The existing network of green infrastructure will be safeguarded, improved and enhanced by further provision, linking into existing provision where appropriate, ensuring it is a multi-functional, accessible network which promotes healthy lifestyles, maintains and improves biodiversity and landscape character and contributes to climate change objectives
Core Strategy 10	Transport and movement	Development proposals that encourage an improved and integrated transport network and allow for a wide choice of modes of transport as a means of access to jobs, homes, services and facilities will be encouraged and supported
Core Strategy 11	Parking	Adequate parking must be provided and managed to meet the needs of anticipated users (residents, workers and visitors) in usable spaces. Overall parking provision must ensure a balance between good urban design, highway safety, residential amenity and promoting town centre attractiveness and vitality
Core Strategy 12	Achieving high quality design and place making	High quality architecture and urban design will be sought from development demonstrating a robust design process to generate solutions that have clearly considered the existing context, and contribute to social, economic and environmental sustainability. As part of a comprehensive place-making strategy new development should function well, supporting sustainable land uses and seek to improve the image of the area

Table 3—4 Outline of key relevant polities from the North Somerset Council Development Management Policies Sites and Policies Plan Part 1

Policy reference	Policy name	Description of policy
Development Management 1	Flooding and drainage	All development must consider its vulnerability to flooding, taking account of all sources of flood risk and the impacts of climate change, up to 100 years ahead on residential or mixed-use sites. All development that would increase the rate of discharge of surface water from the site must consider its implications for the wider area, including revised or amended proposals. Essential flood prevention and drainage works for developments that include new housing must be completed at the latest prior to first residential occupation, except in the case of phased developments where alternative arrangements are agreed
Development Management 6	Archaeology	Archaeological interests will be fully considered when determining planning applications. Where an initial assessment indicates that the development site includes or has the potential to include heritage assets with archaeological interests, the council will seek an archaeological assessment and field evaluation. It is nearly always preferable that archaeological remains are preserved 'in situ' as even archaeological excavation means the total destruction of evidence, apart from removable artefacts. In some cases, applicants will be required to modify their proposal to take account of the archaeological remains, for example by using foundations which avoid disturbing the remains or by the careful siting of landscaped or open areas. In cases where the council decides that it is not necessary to preserve remains 'in situ', developers will be required to make appropriate and satisfactory provision for the excavation and recording of the remains before development commences
Development Management 7	Non-designated heritage assets	When considering proposals involving non designated heritage assets the council will consider their local significance and whether they warrant protection where possible from removal or inappropriate change including harm to their setting

Policy reference	Policy name	Description of policy
Development Management 8	Nature Conservation	Development proposals must take account of their impact on local biodiversity and identify appropriate mitigation measures to safeguard or enhance attributes of ecological importance. Where appropriate, proposals should seek to conserve the local natural environment by retaining, protecting, enhancing and linking existing wildlife habitats; by incorporating retained habitats sensitively into the development through appropriate design; and by ensuring that such retained and enhanced habitats are managed appropriately
Development Management 9	Trees	Development proposals affecting trees should: <ul style="list-style-type: none"> • Demonstrate that the retention, protection and enhancement of tree canopy cover has been considered throughout the design and development process • Evaluate the short and longer-term impacts that the development may have on existing trees • Achieve high quality design by demonstrating that the long-term retention of appropriate trees is realistic, and that the trees are viewed as an asset by new occupants rather than as an issue of conflict • Provide high quality physical protection of retained trees • Include, where practical, the introduction of appropriate new tree planting and woodland creation as an integral part of the design and landscaping of new developments, using native species of local origin wherever possible • Include, where appropriate, the provision of new large-growing street and open space trees that are planted in high-quality tree pit designs, which maximise tree health and minimise future maintenance of the street surface • Protect ancient woodland and veteran trees, particularly where these provide important habitats • Ensure the engineering requirements to accommodate tree planting and future tree growth in relation to building foundation design are complied with • Include, for larger-scale developments, an initial tree maintenance specification for new trees to ensure they thrive and grow to healthy maturity • Provide a plan for the management of wooded areas that balances the protection and enhancement of biodiversity with increased opportunities for recreation and play
Development Management 10	Landscape	All development proposals should: <ul style="list-style-type: none"> • Not have an unacceptable adverse impact on the designated landscape character of the district • Be carefully integrated into the natural, built and historic environment, aiming to establish a strong sense of place, respond to local character, and reflect the identity of local surroundings, whilst minimising landscape impact • Respect the tranquillity of an area • Include appropriate landscaping and boundary treatments in the scheme • Conserve and enhance natural or semi-natural vegetation characteristic of the area • Respect the character of the historic landscape including features such as field patterns, watercourses, drainage ditches, stone walls and hedgerows; and, adopt a lighting scheme which minimises obtrusive light
Development Management 19	Green infrastructure	Large-scale proposals in locations where there is a lack of green infrastructure or opportunities to create or improve green networks, will be required to contribute to the quality of the environment, through the creation of high quality well designed and accessible green infrastructure

4 Summary of baseline conditions

Existing baseline conditions for the proposed development site are summarized in Table 4-1, based on a review of existing development documentation and on a review of the DEFRA website (Department for Environment, Food and Rural Affairs).

Table 4-1 Summary of baseline conditions

Topic	Baseline conditions
Water resources and flood risk	<ul style="list-style-type: none"> Site is located entirely within an area categorised as having low probability of flooding from rivers or the sea (<0.1% in any year) Nearest watercourse to proposed development is the Land Yeo – flows in a westerly direction to the west of the site (at about 550 m from the western border of the site) There are also a number of significant water body features such as reservoirs, together with some wildlife-rich rivers and streams in the local area Existing surface water run-off is conveyed off site via overland flow and/or lost to infiltration No existing surface water drainage within the proposed site
Traffic and Transportation	<ul style="list-style-type: none"> Site is located on the western edge of Long Ashton The site is bounded by two public highways (Weston Road to the south, and Warren Lane to the east) Weston road is a good standard single carriageway road with a typical carriageway width ranging between 8.4 and 9.5m Weston road is oriented in a broadly east-west direction and connects with the BH3128 Ashton Road Site is considered to offer good access to the wider highway network, offering easy access to Bristol and to Weston-Super-Mare, as well as Nailsea and Backwell, and the M5 corridor
Ecology	<ul style="list-style-type: none"> The site is not the subject of a statutory designation. Five statutory sites are located within 10km and there are 14 non-statutory sites, termed 'Wildlife Sites' in North Somerset, within 2km of the site; however, adverse impacts on these sites are not anticipated as a result of the development The site is comprised of an arable field, bounded by narrow, species-poor field margins, and hedgerows on the north and east boundaries. A stone wall and scattered scrub are also present at the southern boundary. Arable land has negligible ecological importance and scattered scrub and stone wall is of ecological importance within the context of the site. The hedgerows on the northern and eastern boundaries are considered to be of local ecological importance. There are no priority habitats present on the site In terms of protected species, no badger setts have been recorded on site or within 30m of the site during any of the survey visits undertaken in 2014, 2017, 2018 and 2019. However, badgers were noted foraging on the site during the 2017 bat surveys Bat activity surveys were undertaken during the 2017 ecology season and in September 2019. The surveys have confirmed that the site is used by both greater and lesser horseshoe bats, both of which are features of the North Somerset and Mendips Bat Special Area of Conservation (SAC). As the site is within the consultation zones for the SAC, calculations were undertaken which confirm that there will be an increase in biodiversity units for both species post development and therefore no off-site compensation is required
Archaeology and cultural heritage	<ul style="list-style-type: none"> The site contains one historic statutory site (scheduled monument): Roman settlement, part of an associated field system and earlier Iron Age settlement remains in Gatcombe farm, covering an extensive area extending west of the application site. Within the application site some indeterminate archaeological features of low to zero heritage significance have been identified by geophysical survey and trial trenching. Off-site evidence of metal smelting, comprising iron tap-slag from an otherwise undated pit in the southern area of the site, together with a few fragments of tap-slag Crop marks and possible earthworks likely to be representative of medieval and later agricultural remains (rather than a Roman field system) Only indeterminate archaeological features of low to zero heritage significance have been identified below-ground

Topic	Baseline conditions
Lighting and light spill	<ul style="list-style-type: none"> • Due to the site's relatively rural location, it has been designated as being within Environmental Zone 'E2': Low District Brightness Area (Village or relatively dark outer suburban location) • Regarding the effect of light spill, residential properties and bats are the main sensitive receptors to take into consideration
Air quality	<ul style="list-style-type: none"> • DEFRA website includes estimated annual mean background air pollution data (modelled from a base year of 2018 based on ambient monitoring and meteorological data from 2018) for NO_x, NO₂, and PM₁₀ for each 1km by 1km OS grid square. Estimated pollutant concentrations for 2021 in the OS grid square in which the proposed development site lies (centred at 353500, 169500) are as follows: <ul style="list-style-type: none"> ○ NO_x – 11.3/m³ ○ NO₂ – 8.7µg/m³ ○ PM₁₀ – 13.2 µg/m³ • The estimated concentrations are below their corresponding annual average limits (40 µg/m³ - for both NO₂ and PM₁₀), this being an indicator of expected good air quality conditions on site
Soils, land quality and contamination	<ul style="list-style-type: none"> • Soil type for most of the site is known to be Mercia Mudstone • No contamination land risk assessment has been carried out to date as the site is considered to be at low risk of being contaminated • Within the local area, the generally thin soils support woodlands and limited areas of calcareous grassland that are characteristically species rich
Landscape	<ul style="list-style-type: none"> • The site is typical of the local area, which has a complex and varied landscape characterised by alternating ridges and broad valleys with some steep wooded slopes and open rolling farmland

5 Environmental management and mitigation measures

5.1 Preliminary identification of potential impacts

Construction activities are likely to result in impacts to the environment. A preliminary identification of potential impacts, organised receptors, is included in Table 5-1.

Table 5-1 Summary of baseline conditions

Receptor	Potential Impacts
<p>Water resources and flood risk</p> <p>The primary risk of flooding to the proposed development is from surface water run-off from the open field directly uphill of the site and generated on the site itself. Since the sites also slopes significantly, there is a potential risk of groundwater flooding within the residential buildings on the lower part of the site.</p> <p>Any pollution occurring on site could eventually infiltrate the ground without appropriate mitigation.</p>	<ul style="list-style-type: none"> • Degradation of water quality (on and off-site) from increased sediment loads from dewatering and surface water run-off • Accidental release of hydrocarbons and oils onto the ground that might find its way into the soil • Accidental leaks and spillages of significant amounts of hazardous materials migrating directly to a water body • Potential impacts caused by dust and debris management
<p>Traffic and Transportation</p>	<ul style="list-style-type: none"> • Delays to the construction programme • Traffic accidents compromising the safety of the community, pedestrians, cyclists, drivers and site personnel • Impacts from heavy vehicle movements on and off-site causing delays • Increased vehicle numbers and movements on public roads • Increase in parking requirements for project personnel
<p>Ecology</p> <p>Given the distances involved, direct impacts upon the statutory protected sites within 10km of the site would not be anticipated</p>	<ul style="list-style-type: none"> • Loss of arable habitats and the stone wall / scrub along the southern boundary • Potential for damage to the hedgerows during the construction period as a result of damage from machinery or storage of materials • Loss of trees and hedgerows to facilitate site access and development • Potential to affect protected fauna (e.g. badgers, reptiles, bats and nesting birds), if protected fauna access to the site
<p>Archaeology and cultural heritage</p>	<ul style="list-style-type: none"> • Impact on below-ground archaeological deposits within those areas identified for the location of deep excavations for building foundations, drainage and utility routes, and in those areas where there will be substantial stripping of top- and sub-soil for the purposes of landscaping and creation of roadbeds
<p>Lighting and light spill</p>	<ul style="list-style-type: none"> • General visual impacts caused by the lighting in the construction compound and site • Potential glare caused by poorly directed security and flood lighting • Potential light spill • Potential sky glow
<p>Noise and vibration</p> <p>During construction, noise from works may have potential to adversely affect occupiers of existing residences adjacent to the proposed development site</p>	<ul style="list-style-type: none"> • Increase in noise to surrounding neighbours including residents • Increased noise from movements of heavy equipment around the site • Increased noise from piling activities (if required) • Increased noise due to an increase of site personnel on site • Increase in noise from the concrete batching plant • Increase in traffic noise due to an increase in site vehicles and deliveries to site
<p>Air quality</p>	<ul style="list-style-type: none"> • Reduced air quality from an increase in dust from construction activities e.g. vehicle movements, ground works, waste disposal, construction of

Receptor	Potential Impacts
<p>The main potential effects during construction are dust deposition and elevated PM₁₀ concentrations from construction dust.</p> <p>The main cause of unmitigated dust generation on construction sites is from demolition, from vehicles using unpaved haul roads, and off-site from the suspension of dust from mud deposited on local roads by construction traffic</p>	<p>temporary roads, spillages of materials and storage of materials in stockpiles</p> <ul style="list-style-type: none"> • Elevated concentrations of PM₁₀ • Human health and nuisance impacts such as an increase in eye, nose and throat irritation from inhalation of fine particles • Settlement of dust on flora and fauna in the surrounding environment • Impacts on neighbour’s amenity including dust in living areas, and degradation of water quality and other aspects of the natural environment
<p>Soils, land quality and contamination</p>	<ul style="list-style-type: none"> • Leaching and mobilisation of contaminants residing within the shallow site soils resulting in contaminated surface run off impacting on local watercourses and groundwater • Contaminated surface run off and impact on local watercourses and groundwater from the migration of free product from spills or leakages such as petroleum hydrocarbons • Soil erosion and offsite sedimentation
<p>Sustainability</p>	<ul style="list-style-type: none"> • Energy consumption • Water consumption • Transport of construction materials and waste • Materials procurement

5.2 Mitigation measures during construction activities on site

Table 5-2 includes all possible mitigation measures. A mitigation measure is an action or group of actions required to be implemented in order to avoid, mitigate or compensate the consequences of a potential impact (i.e. its effects).

For each mitigation measure, the following additional information is included too, in order facilitate its implementation by the proposed development contractor:

- Timeframe: period when the mitigation measure is to be implemented;
- Responsible: roles involved in the implementation of the mitigation measure;
- Specific plan: additional plans to the CEMP required to the future contractor to facilitate the implementation of the mitigation measures;
- Monitoring: method of supervising the implementation of the mitigation measure; and
- Indicator: criteria to measure the success of the implementation of the mitigation measure.

The future contractor is expected to update and complete this CEMP. This process will include the review of the suggested mitigation measures, which have been included based in standard mitigation practices for construction activities.

Table 5-2 Mitigation measures during construction activities on site

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Lighting and light spill	Ensure no net increase in lighting spill onto boundary features	During all phases of construction	Site manager QHSE manager	Sensitive Lighting Strategy (SLS)	Documents review Periodical site environmental audit	Availability of appropriate SLS Audit findings about light on site
	Provide temporary lighting where lighting is inadequate					
	Specified working hours, uses of lighting, the location of temporary floodlights and construction compound will be agreed					
	Artificial lighting will be switched off when not required unless specifically needed for construction activities or for security / health and safety requirements					
	Ensure that light fittings are horizontally mounted and directed away from sensitive receptors					
	Temporary lighting fixtures will be installed and designed to provide full cut-off or will be directionally shielded to ensure that artificial light is controlled and substantially confined to the object intended to be illuminate					
	Avoiding poorly sited lights on the boundary of the site. Lighting will be located and directed so that it does not cause unnecessary intrusion to adjacent residential properties and distraction to adjacent road users					
	Use of modern flood lights with appropriate shields to avoid light spilling upwards					
	Use of LED sources / UV filters to reduce the attraction to insects from adjacent habitats or bat feeding areas					
	Use of LED sources / source light colour to further mitigate any UV light component and reduce the impact of artificial lighting on both invertebrates and bats					
Control of luminaires via a photocell to ensure that they are only switched on when required: the lighting should be switched on for dusk and off for dawn						

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Traffic and Transportation	<p>Any necessary time and route restrictions are expected to be controlled through a Construction Traffic Management Plan (CTMP) or equivalent, aiming to:</p> <ul style="list-style-type: none"> Minimise safety risks to pedestrians/road users/constructions workers Minimise loss of amenity Avoid obstruction of public roadways or restrict site access Control deliveries to the site 	During all phases of construction	Site manager QHSE manager Local authority	Construction Traffic Management Plan (CTMP)	Documents review	<p>Availability of appropriate CTMP</p> <p>Complaints by public about delays and / or traffic restrictions</p>
Noise	<p>Where residential occupiers are likely to be affected by noise, the hours of work will normally be restricted to:</p> <ul style="list-style-type: none"> Monday to Friday: 8 am–6 pm Saturday: 8 am–1 pm Sunday and Bank Holidays: No work where noise audible at site boundary 	During all phases of construction	Site manager Operators Comms. responsible	Construction Logistics Plan (CLP) Stakeholder Comm. Plan (SCP)	<p>Periodical site environmental audit</p> <p>Documents review</p>	<p>Availability of appropriate CLP and SCP</p> <p>Audit findings about hours of work on site</p> <p>Complaints by public about noise out of defined working hours</p>
	<p>All vehicles and plant arriving at and leaving the site should comply with the same restrictions on hours. The main contractor should be held responsible for ensuring these instructions are given to all drivers, including those delivering site materials</p>	During all phases of construction	Site manager Operators QHSE manager	Construction Traffic Management Plan (CTMP)	<p>Periodical site environmental audit</p> <p>Documents review</p>	<p>Audit findings about hours of work on site</p> <p>Complaints by residents about noise out of defined working hours</p> <p>Availability of appropriate CTMP</p>
	<p>In exceptional circumstances (for example, in the case of police traffic restrictions or in an emergency) work outside these hours may be unavoidable and, in such cases, surrounding residents will be notified of works of this type. Times of working may be reduced in the case of particularly noisy operations</p>	Limited to exceptional circumstances such as police traffic restrictions or emergencies	Site manager QHSE manager Comms. responsible	Emergency Response Plan (ERP) Stakeholder Comm. Plan (SCP)	Documents review	<p>Availability of appropriate ERP and SCP</p> <p>Register of notification to residents</p>

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Noise	<p>Initiate and maintain good community relations with nearby residents. Inform all occupiers of adjacent buildings about:</p> <ul style="list-style-type: none"> • Scale and nature of works • When they are to take place • Who to contact in case of disturbance 	During all phases of construction	Comms. responsible	Stakeholder Comm. Plan (SCP)	Documents review	Availability of appropriate SCP Register of notification to residents
	Shielding on the site	During all phases of construction	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about appropriate shielding on site
	Where possible, locate significant noise sources or activities generating high noise levels at locations remote from residents	During all phases of construction	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about effectiveness of locating significant noise sources away from residents
	Low noise attenuated exhaust system should be selected for excavators, dozers, dump, trucks and cranes	During all phases of construction	Site manager Operators	Construction Logistics Plan (CLP)	Documents review Periodical noise monitoring on site	Availability of appropriate CLP Levels of noise measured while machinery is operating
	Minimum use of crane engines: crane engines should be run as little as is necessary for the task to be completed	During all phases of construction	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about use of crane engines
	Noise reducing systems for piling (if piling applies): any pile driving is to be carried out by plant equipped with a recognised noise reducing system. In addition, use of continuous flight auger piling	Limited to piling activities	Site manager QHSE manager	Construction Logistics Plan (CLP)	Documents review	Availability of appropriate CLP and NMP

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Noise	methods, rather than percussive, driven piling are recommended as these typically generate lower noise levels			Noise Monitoring Plan (NMP)	Noise monitoring on site	Levels of noise measured while piling
	The use of conventional impact hammers should, wherever possible, be avoided	During all phases of construction	Site manager QHSE manager	Construction Logistics Plan (CLP) Noise Monitoring Plan (NMP)	Documents review Noise monitoring on site	Availability of appropriate CLP and NMP Levels of noise measured while machinery is operating
	HGVs should not be left idling and should only have engines turned on when specifically needed: 15 mins in every hour for engines on. Unnecessary revving of vehicles/plant engines should also be avoided.	During all phases of construction	Site manager Operators	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about HGVs left idling and with engines turned on
	Hand tools (particularly compressor powered tools) should be used with some element of shielding between the user and the receptor	During all phases of construction	Site manager Operators	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about hand tools used without shielding elements
	Shielding should completely cut line of sight between user and receiver	During all phases of construction	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about shielding elements
	Position site huts to provide additional screening of works	During all phases of construction	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about additional screening of works

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Noise	Use of electricity instead of diesel/petrol generators	During all phases of construction	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about types of generators on site
	All plant and equipment should be powered by mains electricity in preference to locally powered sources such as diesel generators. Hand tools should also be electrically powered rather than petrol or diesel driven	During all phases of construction	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about power sources on site
	Start-up plant sequentially and only when required, rather than simultaneously and ensure the plant is modified, where required, in accordance with manufacturers requirements to include noise control measures	During all phases of construction	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about power sources on site
	Regularly maintain and repair plant to ensure it does not generate any unnecessary noise.	During all phases of construction	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about power sources on site
	Substitute plant and/or methods with less obtrusive plant and/or methods	During all phases of construction	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about use of obtrusive plant / methods
	Where reasonably practical, move vibrating equipment away from identified noise sensitive receptors (NSRs)	During all phases of construction	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about distances between vibrating equipment and NSRs
Ground-borne construction vibration						

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Ground-borne construction vibration	Vibration isolation of stationary plant	During all phases of construction	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about isolation of stationary plant
	Selecting less intrusive methods of piling (if piling applies)	Limited to piling activities	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about methods of piling
	Employ cut-off trenches which are analogous to noise barriers	During all phases of construction	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about use of cut-off trenches
	Pre-auguring before installing the piles	Limited to piling activities	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about pre-auguring
	Inform all occupiers of adjacent buildings about: <ul style="list-style-type: none"> Scale and nature of works When they are to take place Who to contact in case of disturbance 	During all phases of construction	Comms. responsible	Stakeholder Comm. Plan (SCP)	Documents review	Availability of appropriate SCP Register of notification to residents
	Location of vibratory equipment far from sensitive receptors as possible	During all phases of construction	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about appropriate location of vibratory equipment
Noise – due to traffic	A construction method statement should include proposals to limit effects of construction traffic, e.g. timing of deliveries, routes used,	Before construction activities	Site manager QHSE manager	Construction Traffic	Documents review	Availability of appropriate CTMP

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
	<p>etc. This statement should be agreed with the local authority. Internal haul routes should also be kept well maintained</p>		Local authority	Management Plan (CTMP)		Complaints by public about delays and / or traffic restrictions
	<p>Minimise possible disturbance from audible reversing alarms where possible. The work site should be designed to reduce the need for reversing movement</p>	Before construction activities	Site manager QHSE manager	Construction Logistics Plan (CLP) and Construction Traffic Management Plan (CTMP)	Documents review	Availability of appropriate CLP and CTMP
Air quality – dust and pollutants emission	<p>Develop and implement a stakeholder communications plan that includes community engagement before work commences on site</p>	Before earthwork activities	Comms. responsible	Stakeholder Comm. Plan (SCP)	Documents review	Availability of appropriate SCP Complaints by public due to nuisances from dust
	<p>Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager</p>	Before earthwork activities	QHSE manager Comms. responsible	Stakeholder Comm. Plan (SCP)	Documents review	Availability of appropriate SCP
	<p>Display the head or regional office contact information</p>	Before earthwork activities	QHSE manager Comms. responsible	Stakeholder Comm. Plan (SCP)	Documents review	Availability of appropriate SCP
	<p>Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. The DMP may include monitoring of dust deposition, dust flux, real time PM₁₀ continuous monitoring and/or visual inspections</p>	Before and during earthwork activities	Site manager QHSE manager Local authority	Dust Management Plan (DMP)	Documents review Monitoring of dust deposition Periodical site environmental audit	Availability of appropriate DMP Levels of dust measured (PM ₁₀) during earthwork activities Audit findings about dust on site

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Air quality – dust and pollutants emission	Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken	During earthwork activities	Comms. responsible QHSE manager	Stakeholder Comm. Plan (SCP) Dust Management Plan (DMP)	Documents review	Availability of appropriate SCP and DMP Complaints by public due to nuisances from dust
	Make the complaints log available to the local authority when asked	During earthwork activities	Comms. responsible QHSE manager Local authority	Stakeholder Comm. Plan (SCP) Dust Management Plan (DMP)	Documents review	Availability of appropriate SCP and DMP Complaints by public due to nuisances from dust
	Record any exceptional incidents that cause dust / air emissions, either on- or off-site, and the action taken to resolve the situation in the logbook	During earthwork activities	Site manager QHSE manager Operators	Dust Management Plan (DMP)	Documents review	Availability of appropriate DMP Availability of records of environmental incidents regarding dust and/or air emissions
	Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked	During earthwork activities	Site manager QHSE manager Local authority	Dust Management Plan (DMP)	Documents review Monitoring of dust deposition Periodical site environmental audit	Availability of appropriate DMP Levels of dust measured (PM ₁₀) during earthwork activities Audit findings about dust on site
	Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked	During earthwork activities	Site manager QHSE manager	Dust Management Plan (DMP)	Documents review	Availability of appropriate DMP

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Air quality – dust and pollutants emission			Local authority		Monitoring of dust deposition Periodical site environmental audit	Levels of dust measured (PM ₁₀) during earthwork activities Audit findings about dust on site Availability of appropriate dust records from monitoring and / or audits
	Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions	During earthwork activities	Site manager QHSE manager	Dust Management Plan (DMP)	Documents review Monitoring of dust deposition Periodical site environmental audit	Availability of appropriate DMP Levels of dust measured (PM ₁₀) during earthwork activities Audit findings about dust on site
	Agree dust deposition, dust flux, or real-time PM ₁₀ continuous monitoring locations with the local authority. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction	During earthwork activities	Site manager QHSE manager	Dust Management Plan (DMP)	Documents review Monitoring of dust deposition Periodical site environmental audit	Availability of appropriate DMP Levels of dust measured (PM ₁₀) during earthwork activities Audit findings about dust on site
	On-road vehicles to comply with set emission standards and minimise movement of construction traffic around the site where possible	During all phases of construction	Site manager QHSE manager	Construction Logistics Plan (CLP)	Documents review	Availability of appropriate CLP and CTMP

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Air quality – dust and pollutants emission	All non-road mobile machinery (NRM) to use ultra-low sulphur tax exempt diesel (USLD) where available and be fitted with appropriate exhaust after treatment from the approved list			Construction Traffic Management Plan (CTMP)	Periodical site environmental audits	Audit findings about vehicular emissions and exhaust treatment
	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible	During earthwork activities	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about dust causing machinery and activities location on site
	Erect solid screens or barriers around dusty activities or the site boundary	During earthwork activities	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about barriers on site around dusty activities
	Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period	During earthwork activities	Site manager QHSE manager	Dust Management Plan (DMP)	Documents review Periodical site environmental audit	Availability of appropriate DMP Audit findings about enclosing site or specific dust causing operations
	Avoid site runoff of water or mud	During earthwork activities	Site manager QHSE manager	Dust Management Plan (DMP)	Documents review Periodical site environmental audit	Availability of appropriate DMP Audit findings about site runoff of water or mud
	Keep site fencing, barriers and scaffolding clean using wet methods	During earthwork activities	Site manager QHSE manager	Dust Management Plan (DMP)	Documents review Periodical site environmental audit	Availability of appropriate DMP

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Air quality – dust and pollutants emission	Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below	During earthwork activities	Site manager QHSE manager	Dust Management Plan (DMP)	Documents review Periodical site environmental audit	Availability of appropriate DMP Audit findings about dust causing materials not removed from site
	Cover, seed or fence stockpiles to prevent wind whipping. Surface of stockpiles will be minimised, and heights will be reduced where possible	During earthwork activities	Site manager QHSE manager	Dust Management Plan (DMP)	Documents review Periodical site environmental audit	Availability of appropriate DMP Audit findings about covering, seeding or fencing of stockpiles and the surface area/heights of stockpiles
	Ensure all vehicles switch off engines when stationary – no idling vehicles	During earthwork activities	Site manager Operators QHSE manager	Construction Traffic Management Plan (CTMP)	Documents review Periodical site environmental audit	Availability of appropriate CTMP Audit findings about idling vehicles
	Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable	During earthwork activities	Site manager Operators	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about idling vehicles

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Air quality – dust and pollutants emission	Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas	During earthwork activities	Site manager QHSE manager	Construction Traffic Management Plan (CTMP)	Documents review Periodical site environmental audit	Availability of appropriate CTMP Audit findings about speed limit signposts
	Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials	Before earthwork activities	Site manager QHSE manager	Construction Logistics Plan (CLP)	Documents review	Availability of appropriate CLP
	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems	During earthwork activities	Site manager QHSE manager	Dust Management Plan (DMP)	Documents review Periodical site environmental audit	Availability of appropriate DMP Audit findings about dust suppression techniques
	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate	During earthwork activities	Site manager QHSE manager	Dust Management Plan (DMP)	Documents review Periodical site environmental audit	Availability of appropriate DMP Audit findings about water supply for dust suppression techniques
	Use enclosed chutes, conveyors and covered skips	During earthwork activities	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about chutes, conveyors and skips
	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate	During earthwork activities	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about loading and handling operations

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Air quality – dust and pollutants emission	Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods	During earthwork activities	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about spillage cleaning equipment
	No bonfires or burning of waste materials	During earthwork activities	Site manager QHSE manager	Site Waste Management Plan (SWMP)	Documents review Periodical site environmental audit	Availability of appropriate SWMP Audit findings about bonfires
Loss of archaeological remains	A whole-area strip, map and record strategy will be required. The programme of archaeological work would need to be agreed with the North Somerset archaeological officer and with Historic England, who will determine any terms and conditions for Scheduled Monument Consent	Before and during all phases of construction	QHSE manager	Archaeological and Cultural Heritage Management Plan (ACHMP), where the referred strategy is to be included	Documents review Archaeological monitoring and recording Watching / Stopping brief	Availability of appropriate ACHMP Availability of Schedule Monument Consent from Historic England (if applicable) Availability of archaeological monitoring results and results of the watching / stopping brief
Contact with contaminated materials (including UXO)	Code of Construction Practice (CoCP) to include appropriate induction, PPE, welfare provisions and unforeseen contamination	During all phases of construction	QHSE manager	Code of Construction Practice (CoCP)	Documents review	Availability of appropriate CoCP
Contact with contaminated materials (including UXO)	UXO awareness / watching brief	During all phases of construction	Site manager QHSE manager	Site Training Plan (STP)	Documents review	Availability of appropriate STP Availability of training certificates

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Sustainability - water consumption	<p>To investigate opportunities to minimise and reduce the use of water, such as:</p> <ul style="list-style-type: none"> • Selection and specification of equipment • Implementation of staff-based initiatives such as turning off taps, plant and equipment when not in use both onsite and within site offices • Use of recycling water systems such as wheel washes, site toilets handwash • Use of a rainwater harvesting system for use in equipment and vehicle washing 	During all phases of construction	QHSE manager	Water Management Plan (WMP)	Documents review	Availability of appropriate WMP
Soil and water resources: erosion and offsite sedimentation	<p>Mimimise areas of exposed surface by only removing vegetation and hard standing when necessary and keep gradients of soil as shallow as possible to prevent large amounts of earth being washed away during periods of heavy rainfall. Areas which are exposed should be reseeded or surfaced as soon as practicable</p> <p>Stockpiles to be located on flat ground away from natural or man-made drainage systems</p> <p>A sediment fence or earth bund should be erected on the drainage channel side of the stockpile area to ensure sediment does not enter the drainage channel during rainfall events</p>	During all phases of construction	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about gradients of soil and exposed areas
	<p>Stormwater drains will be protected by sandbags and geotextile materials to ensure no materials enter the drainage system</p>	Before construction activities	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about water bodies near the site
	<p>Enforce tight control of site boundaries including minimal land clearance and restrictions on the use of machinery adjacent to water bodies. Where possible, do not locate stockpiles within 10 m of water bodies or drainage lines</p>	During all phases of construction	Site manager QHSE manager	Water Management Plan (WMP)	Documents review Periodical site environmental audit	Availability of appropriate WMP Audit findings about condition of stormwater drains
		Before and during construction activities	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about water bodies near the site

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Soil and water resources: erosion and offsite sedimentation	Wheel wash facilities should be provided at all entry and exits points. Water from wheel wash facilities must not be discharged into water bodies or the local surface water sewerage network	Before and during construction activities	Site manager QHSE manager	Water Management Plan (WMP)	Documents review Periodical site environmental audit	Availability of appropriate WMP Audit findings about location of wheel wash facilities and their discharge points
	Capture run off from site in perimeter cut off ditches, settlement lagoons and/or settlement tanks where possible	Before and during construction activities	Site manager QHSE manager	Water Management Plan (WMP)	Documents review Periodical site environmental audit	Availability of appropriate WMP Audit findings about perimeter structures to capture run off from site
	Any dewatering required from site excavations should be pumped into a settlement tank or lagoon and not discharge direct to a water body or the local surface water sewerage network	Before and during construction activities	Site manager QHSE manager	Water Management Plan (WMP)	Documents review Periodical site environmental audit	Availability of appropriate WMP Audit findings about management of water from excavations dewatering
	Sediment should be removed from water pumped during any extractions required. Sediment should be removed prior to discharges to the surface water network by a baffle tank system or equivalent	Before and during construction activities	Site manager QHSE manager	Water Management Plan (WMP)	Documents review Periodical site environmental audit	Availability of appropriate WMP Audit findings about management of water from excavations dewatering

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Soil and water resources: accidental release of chemicals (fuel, oils, etc.)	Incorporation of interceptors where appropriate/possible into the site drainage system at high risk areas, such as parking, unloading and refuelling areas, to remove hydrocarbons and oils from surface water prior to discharge	Before and during construction activities	Site manager QHSE manager	Hazardous Materials Management Plan (HMMP)	Documents review Periodical site environmental audit	Availability of appropriate HMMP Audit findings about interceptors to remove hydrocarbons and oils
	Other measures including drip trays under equipment such as generators, and wheel washing facilities should also be implemented to minimise the risk of pollutants infiltrating groundwater or the surface water drainage network	Before and during construction activities	Site manager QHSE manager	Hazardous Materials Management Plan (HMMP)	Documents review Periodical site environmental audit	Availability of appropriate HMMP Audit findings about drip trays under equipment and wheel washing facilities
	Provision of storage facilities and tanks and conduct refuelling of machinery within bunded areas, which should not be located within 10 m of water bodies or drainage lines	Before and during construction activities	Site manager QHSE manager	Hazardous Materials Management Plan (HMMP)	Documents review Periodical site environmental audit	Availability of appropriate HMMP Audit findings about storage facilities and tanks
	Storage and bunded areas to be constructed of impervious floors and walls with the capacity for the contents of the storage tank and an additional ten per cent safety margin	Before and during construction activities	Site manager QHSE manager	Hazardous Materials Management Plan (HMMP)	Documents review Periodical site environmental audit	Availability of appropriate HMMP Audit findings about storage and bunded areas
	Avoid stockpiling grossly contaminated materials on site (if present) and keep all stockpiles covered when not in use	During all phases of construction	Site manager QHSE manager	Hazardous Materials Management Plan (HMMP) and Dust	Documents review Periodical site environmental audit	Availability of appropriate HMMP and DMP Audit findings about

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Soil and water resources: accidental release of chemicals (fuel, oils, etc.)	As a remedial measure, spill containment equipment such as absorbent materials should be stored on site	Before and during construction activities	Site manager QHSE manager	Hazardous Materials Management Plan (HMMP)	Documents review Periodical site environmental audit	Availability of appropriate HMMP Audit findings about spill containment equipment
	Mixing of construction materials, such as cement, will be conducted in designated areas located away from water bodies and drainage lines	Before and during construction activities	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about designated areas for mixing of construction materials
	Provision and maintenance of temporary septic tank, cesspit and/or sewerage connection for disposal of sewage from the toilet facilities to reduce the likelihood of crude sewage infiltrating groundwater or migrating towards water bodies	Before and during construction activities	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about sewage system
	Any temporary toilet facilities will be positioned at least 10 m away from water bodies	Before and during construction activities	Site manager	Construction Logistics Plan (CLP)	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about sewage system
Water resources: flood risk	To prepare a flood emergency and contingency plan including arrangements to make safe any static plant, move any mobile plant, and to evacuate site operatives in a flood risk emergency	Before and during construction activities	QHSE manager	Flood Emergency and Contingency Plan (FECP)	Documents review	Availability of appropriate FECP
	Construction workers should be made aware of risks associated with excess surface water caused by overland flows and standing water	Before and during	QHSE manager	Site Training Plan (STP)	Documents review	Availability of appropriate STP

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Ecology	Noise and lighting will be managed in keeping with national guidelines (incl. Bat Conservation Trust guidelines) to avoid as much as possible, disturbance beyond the site boundary	construction activities				Availability of training certificates
	Avoidance of harm to birds, their nests and young to prevent an offence under legislation	Refer to mitigation measures stated about noise prevention and light management	QHSE manager	Habitat Management Plan (HMP)	Documents review Ecological Clerk of Works (ECoW)	Availability of appropriate HMP
	Vegetation clearance will be undertaken outside of bird nesting season (which is typically March to August, inclusive), wherever possible. If this is not possible, clearance will be carried out under an ecological watching brief, although if a nest is found, work will need to be stopped					
	Activities affecting protected species to follow licence requirements: for example, removal of a bat roost (if any is found on site), will take place in line with the mitigation plan agreed with Natural England and under supervision of an ecologist					
	Should any hedgehogs be encountered during site clearance or construction works they will be safely removed by hand placed in suitable and similar and nearby habitat to where originally located					
Where works are required that would disturb field margins (e.g. planting of new hedgerows), a precautionary approach would be adopted, in order to avoid impacts to reptiles. This would include phased strimming of grass margins under ECoW during the active reptile season (March/April to October inclusive and in suitable weather). This would allow individuals to move out of areas to be disturbed in advance						
Due to the badger foraging activity identified on site, and update badger survey should be conducted prior to the works. Should a new sett be discovered that is likely to be affected by the development, a mitigation strategy and licence from Natural England will be required	Before and during construction	QHSE manager	Habitat Management Plan (HMP)	Documents review Ecological Clerk of Works (ECoW)	Availability of appropriate HMP	
	Before and during construction	QHSE manager	Habitat Management Plan (HMP)	Documents review Ecological Clerk of Works (ECoW)	Availability of appropriate HMP	
	Before and during construction	QHSE manager	Habitat Management Plan (HMP)	Documents review Ecological Clerk of Works (ECoW)	Availability of appropriate HMP	
	Before and during construction	QHSE manager	Habitat Management Plan (HMP)	Documents review Ecological Clerk of Works (ECoW)	Availability of appropriate HMP	
	Before construction	QHSE manager	Habitat Management Plan (HMP)	Document review Update badger survey	Availability of appropriate HMP	

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Ecology	Hedgerows and trees should be retained wherever possible to ensure the habitat network is retained, therefore hedgerow removal to facilitate access should be kept to a minimum. This is particularly relevant for those boundary features found to be used by bats, which should also be retained, protected and enhanced to provide new opportunities for foraging bats (see also measures about habitat enhancements)	Before and during construction	QHSE manager	Habitat Management Plan (HMP)	Documents review Ecological Clerk of Works (ECOW)	Availability of survey report (if applicable) Availability of appropriate HMP ECOW findings
	Additional tree and hedgerow planting around the site as well as the provision of allotments and a strip of wildflower grassland on the western boundary (see also measure about habitat enhancements)	Before and during construction	QHSE manager	Habitat Management Plan (HMP)	Documents review	Availability of appropriate HMP
	Hedgerows will be protected using appropriate protective fencing meeting British Standards (BS 5837:2012) which provides a 3m buffer area around hedgerows	Before and during construction	QHSE manager	Habitat Management Plan (HMP)	Documents review Ecological Clerk of Works (ECOW)	Availability of appropriate HMP ECOW findings
	All retained mature trees will be fenced at canopy width according to the current British Standards before construction work commences where necessary, to protect roots from compaction. Fences should remain in place until construction work is complete within the vicinity of the trees. No development should occur underneath the canopy of any trees, or within the immediate area around the trees, unless agreed with the local planning authority. Root protection areas (defined in the report "Findings of Tree Quality Survey and Root Protection Area") will be considered and implemented	Before and during construction	QHSE manager	Habitat Management Plan (HMP)	Documents review Ecological Clerk of Works (ECOW)	Availability of appropriate HMP ECOW findings
	Implementation of habitat enhancements defined in the development design, as summarized below:	During construction	QHSE manager	Habitat Management Plan (HMP)	Documents review Ecological Clerk of Works (ECOW)	Availability of appropriate HMP ECOW findings
	<ul style="list-style-type: none"> New native hedgerow and tree planting along the south and east site boundaries New native tree planting along the western boundary New allotments surrounded by tree planting on the northern edge of the development which through appropriate management will deliver both community and wildlife benefits 					

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
Ecology	<ul style="list-style-type: none"> Creation of a wide strip of grassland along the western and eastern edges of the site, which will be seeded with a wildflower grass mix and informally managed to maximise its ecological importance Erection of bird and bat boxes on retained trees on the north boundary (e.g. Schwegler 3SV bird box and 1FF bat box) 					
All – waste management	<p>Waste materials will be separated on site by type, e.g. plastics, soil, hazardous, wood, general, and recyclable materials. Separate (labelled) skips will be used for different streams of waste materials and will be removed from site regularly. To ensure the safe handling of waste streams, site personnel will be equipped with sufficient PPE. Designated waste storage areas/skips will be located in areas away from drainage lines and will be covered at all times</p>	During all phases of construction	Site manager QHSE manager	Site Waste Management Plan (SWMP)	Documents review Periodical site environmental audit	Availability of appropriate SWMP Audit findings of waste storage facilities
	<p>Any unusual materials showing discolouration or odours will be treated as contaminated and further investigation will be carried out to determine the correct handling and disposal requirements</p>	During all phases of construction	Site manager QHSE manager	Site Waste Management Plan (SWMP)	Documents review Periodical site environmental audit	Availability of appropriate SWMP Audit findings of site waste investigations for unusual materials
	<p>Waste tracking logs will be kept by the appointed contractor. Licences of waste carriers, contractors and final disposal site and consignment notes will be inspected, and a copy kept on site at all times. Checks will be made to ensure wastes reach their correct destination</p>	During all phases of construction	Site manager QHSE manager	Site Waste Management Plan (SWMP)	Documents review Periodical site environmental audit	Availability of appropriate SWMP Audit findings of waste disposal by appointed contractor / carriers.
	<p>A number of waste reduction measures could be adopted to limit constraints on local was infrastructure capacity:</p> <ul style="list-style-type: none"> Off-site fabrication Reuse of any excavated material on-site Waste segregation Reuse/recycling of materials on-site where possible Use of standard sizing of materials to reduce off-cuts Use of sustainable materials 	During all phases of construction	Site manager QHSE manager	Site Waste Management Plan (SWMP)	Documents review Periodical site environmental audit	Availability of appropriate SWMP Audit findings of waste reduction during

Receptor	Mitigation measure	Timeframe	Responsible	Specific Plan	Monitoring	Indicator
	<ul style="list-style-type: none"> Prevention of major changes at later design stages 					construction works

6 Roles and responsibilities

6.1 Overview

Mitigation measures to be implemented in the proposed development refer to different levels of responsibility (see Table 5-2):

- Main contractor management
- Site manager;
- QHSE manager;
- Communications responsible; and
- Operators.

The future contractor is expected to complete this section, by providing specific information about the roles and responsibilities adopted under their organisation, including a project organigram and personnel contact information. The roles and responsibilities included below are tentative only and based in standard practices.

6.2 Main contractor management

The operational development management organisation is responsible for the overall performance of the proposed development, including its execution in compliance with the CEMP and other management documents.

6.3 Site manager

The Site manager is responsible for the daily project management of the proposed development, ensuring adequate resources are available not only for the proposed development progress, but also for the daily implementation of the CEMP, as applicable.

6.4 QHSE manager

The QHSE manager is responsible for the development and implementation of a QHSE Management System during the proposed development. The QHSE manager will be responsible for the update the present CEMP, integrating each of the mitigation measures in the corresponding procedure part of the QHSE Management System of the contractor, and preparation of applicable specific plans.

6.5 Communications manager

The Communications manager facilitates an appropriate communication process between the proposed development and the local community that may be affected by the activities on site. The Communication manager is therefore the most visible member of the project team, regarding the local community, being their main point of contact.

6.6 Operators

The operational development will include a number of specific tasks that will be conducted by different operators. Their responsibility will be to comply the assigned tasks, as instructed, but also to comply with the applicable procedures. The operators are expected to be trained in those aspects of the CEMP that could be related to the tasks they are to be assigned.

7 Monitoring and auditing

Mitigation / control measures to be implemented by the contractor during the construction activities at the proposed development will require an audit system to monitor their implementation. This audit system can be limited to a documentation review or can also involve a site environmental audit.

The audit system will be part of the QHSE Management System, with the QHSE manager being responsible for its coordination.

An adequate audit system, including reporting of the documentation review and environmental site audits, will allow the following:

- Identification of non-conformities with the CEMP;
- Identification of correction measures, including the update of the CEMP; and
- All together this will result in a continuous improvement of the QHSE Management System, including the compliance with the CEMP.

The audit system at the proposed development will have to consider the following:

- Site inspections;
- Monitoring; and
- Reporting.

The following sections provide a generic description of these activities.

The future contractor is expected to complete this section, by providing specific information about the audit system they will implement on site, monitoring activities, and reporting formats.

7.1 Site inspections

Regular site inspections are an important part of maintaining an on-site environmental presence and observing construction activities to ensure compliance with mitigation / control measures.

Standard site inspections in construction sites include, but are not limited to daily environmental inspection, weekly environmental inspection and topic-specific inspection (e.g. erosion / sediment inspection).

7.2 Monitoring

Monitoring is an integral part of the CEMP as it establishes how the project is performing. Monitoring activities on site enable to:

- Identify any negative impacts from construction activities;
- Assess the effectiveness of mitigation / control measures;
- Demonstrate compliance with regulatory conditions and objectives and targets; and

- Identify if further control or corrective action is required.

Monitoring activities may also be undertaken as a result of a complaint by a resident or stakeholder, a request by a statutory body or a trigger point in an inspection being exceeded.

Standard monitoring activities in construction sites include, but are not limited to, dust monitoring, noise monitoring, contaminated land monitoring and water quality monitoring.

7.3 Reporting

Reporting is an essential part of recording environmental performance during the construction period. It allows all incidents to be recorded and provides information that can be used to assess legal compliance.

Standard reporting in construction sites include, but are not limited to, daily environmental logs, monthly environmental reports, non-conformance reports, environmental incident reports, and complaints reports.

8 Environmental training

The successful training of project personnel in their environmental requirements is a key factor in ensuring compliance with the objectives of the CEMP. Records of competence and training records will be maintained for the duration of the project.

Standard environmental training on construction sites includes, but is not limited to:

- Environmental induction;
- Toolbox talks; and
- Daily pre-start meetings.

The following sections provide a generic description of these types of training.

The future contractor is expected to complete this section, by providing specific information about the environmental training activities they will implement on site.

8.1 Environmental induction

All project personnel, subcontractors and consultants will receive a general project induction prior to commencing work on the proposed development. This may include but is not limited to the following environmental topics:

- Compliance with legislation;
- The requirements for due diligence and duty of care;
- Environmental documentation;
- Environmental personnel and contacts;
- Procedures and guidelines;
- Erosion and sediment control;
- Water control including water discharge, water reuse and water use reduction;
- Ecology management;
- Waste management;
- Contamination including spill response and hazardous materials handling and storage; and
- Environmental incident management.

Records of all induction attendees will be available on site.

8.2 Toolbox talks

Toolbox talks covering specific environmental aspects will also be undertaken. Toolbox talks will be scheduled on a regular basis. The toolbox talk will be of adequate duration to cover relevant information and structured to encourage full participation by all personnel. Standard topics for toolbox talk in construction sites include, but are not limited to:

- Wash out procedures for concrete;
- Vehicle maintenance and refuelling;
- Erosion and sediment controls;
- Discovery of unexpected heritage items;
- Contamination issues;
- Chemical storage;
- Waste management and recycling; and
- Personal Protective Equipment (PPE).

8.3 Daily pre-start meetings

A daily pre-start meeting is used to inform the workforce of the day's activities, safe work practices, environmental protection practices, work area restrictions, activities that may affect the works, coordination issues, hazards and other information relevant to the day's work.

Daily pre-start meetings will include any relevant environmental issues that could potentially be impacted by or impact on the day's activities.

9 Stakeholder engagement and consultation

The role of stakeholder engagement is to communicate with people and institutions who may be affected by, or interested in the proposed development project during construction. Communication with external stakeholders, such as local residents, is an important part of any project to ensure all potentially affected stakeholders during construction are made aware of predicted or potential impacts and that an avenue for stakeholder input is made available.

In order to define a communication process, the contractor is required to identify all stakeholder groups that may be interested in and / or affected by the proposed development project. Stakeholders may be engaged through a range of media including, but not limited to official reports, meetings, website updates, stakeholder communication updates, notice boards, email distributions and phone.

The contractor must facilitate a complaints communication procedure, so that any stakeholder can raise any complain due to the construction activities on site. Those complains should be recorded and adequately managed, including the provision of formal responses.

The future contractor is expected to complete this section, by providing specific information about the stakeholder engagement and consultation activities they will implement on site.

10 Environmental incidents

Environmental incidents may occur at any time during construction works. Depending on the severity of the environmental incident, they might be referred as environmental accidents or environmental emergencies instead. Types of environmental incidents that could happen on site include, but are not limited to:

- Protected species found to be present;
- Unforeseen contamination or hazardous material;
- Handling and storage of hazardous substances and dangerous goods;
- Spills during refuelling of vehicles or transport of materials;
- Working near gas mains, sewer or water pipes;
- Uncontrolled release of water to the environment;
- Major failure of environmental control measures; and
- Fires.

Environmental incidents will be managed in compliance with a site-specific Environmental Emergency Response Plan. The Environmental Emergency Response Plan outlines any type of incident or activity that has the potential to result in material harm to the environment. The Environmental Emergency Response Plan provides guidance in the event of any environmental related incident, accident or emergency.

The Environmental Emergency Response Plan is required to be communicated to all employees on site as part of the environmental training on site. Staff on site is required to be adequately trained to respond to any environmental incident, as per the Environmental Emergency Response Plan.

Standard contents of an Environmental Emergency Response Plan include, but are not limited to:

- Types of environmental incidents; and
- Responses to environmental incidents.

The following sections provide a generic description of these standard contents.

The future contractor is expected to complete this section, by providing specific information about the Environmental Emergency Response Plan to be implemented on site.

10.1 Types of environmental incidents

Environmental incidents will be classified according to their urgency, severity and control resource requirement. Classification of incidents will be in the following four-tier system:

- **Level 4:** this includes incidents with low potential for impact on the environment where no material has escaped the site or caused material harm to the environment (e.g. minor fuel spill at a fuel station). The incident is easily cleaned up without additional assistance;

- **Level 3:** this includes incidents on-site event causing harm that is immediately recoverable or an on-site event with potential to migrate off-site.
- **Level 2:** this includes:
 - Off-site incidents that can cause harm but is recoverable or can be mitigated;
 - On site incidents that can cause severe harm and is not immediately recoverable; and
 - They might require other agencies and / or additional resources not available to local site management.
- **Level 1:** this includes:
 - Off-site incidents that cause widespread and long-term harm and is not recoverable;
 - On-site incidents that are irreversible or have the potential to migrate off-site; and
 - They will require other agencies and / or additional resources not available to local site management.

10.2 Responses to environmental incidents

The Environmental Emergency Response Plan will include:

- Roles and responsibilities in the Environmental Emergency Response Plan;
- Specific responses required for each of the environmental incidents that have been identified as potentially happening on site;
- Communication procedure with local emergency organisms: fire brigade, ambulance, police, etc.;
- Reporting procedures; and
- Incident investigation procedures.

Standard responses against environmental incidents are included below:

- All works should cease immediately if an environmental incident has occurred on site;
- The incident should be reported immediately;
- Prevent further environmental harm / pollution if safe to do so;
- Contain the environmental pollution / contamination / spill; and
- Clean up the environmental incident / pollution / contamination / spill;
- If required, emergency services or specialist resources will be contacted;
- When required, the incident should be reported to the regulatory authorities;
- Completion of an Environmental Incident Report;

- Incident investigations will be conducted, aiming to identify causes of the incident and corrective / preventative actions to implemented on site to reduce the risk of a reoccurrence of the incident; and
- Future toolboxes to describe the incident and the corresponding incident investigation.

Daniel Alonso Jodar & Laurens Dominicus
Buro Happold Limited
17 Newman Street
London
W1T 1PD
UK

T: +44 (0)207 927 9700

F: +44 (0)870 787 4145

Email: Laurens.Dominicus@BuroHappold.com