

5.0 CONSTRUCTION METHODOLOGY AND PROGRAMME

Introduction

- 5.1 This chapter describes the anticipated construction methodology and programme for the Development. Consideration of likely significant effects on the environment that may arise during the construction phase and any necessary mitigation measures are provided within the respective technical chapters of this ES (Chapters 6 and 7).
- 5.2 Planning for construction is necessarily broad at this stage and may be subject to modification once detailed design is carried out after determination of the planning application and the principal contractor is appointed. This initial assessment is based on reasonable assumptions and experience and allows assessment of the “worst case” construction phase effects.

Anticipated Programme

- 5.3 The construction programme for the Development is anticipated to span approximately four years between 2022 and 2028. The Development is expected to be built out in one phase and will include clearance, site enabling, levelling and construction works.

Anticipated Construction Methodology

- 5.4 The construction methodology is provided in outline at this stage.

Construction Machinery

- 5.5 Consideration has been given to the types of plant that are likely to be used during the construction works. The plant and equipment likely to be associated with the construction process is set out in Table 5.1.

Table 5.1: Plant Used During the Construction Process

Type of Equipment
Tracked/wheeled 360 degree excavators
Excavator mounted hydraulic breakers
Excavator mounted hydraulic crushers
Dumpers
Concrete crushing plant
Mobile cranes and lifting equipment
Hand held tools including breakers (pneumatic and hydraulic)
Power tools including percussion drills, cutting disks, pipe-threaders
Wheel washing plant

Type of Equipment
Scaffold
Mobile access platforms
Delivery trucks
Skips / Skip trucks
Forklift trucks
Ready mix concrete wagons
Concrete placing booms & pumps
Road sweepers
Piling Rigs

Site Preparation

5.6 Site preparation will involve the establishment of parking provision within the construction site and any construction worker facilities including site compound area with offices and welfare facilities for management and construction workers, in addition to:

- Installation of site hoarding;
- Ground modelling works including any topsoil stripping and stockpiling for later use;
- Installation of temporary and/or permanent surface water management measures;
- Tree removal and tree protection; and
- Ecological works.

Infrastructure

5.7 Appropriate infrastructure to serve the Development will be installed including:

- The main access roads into the site, including roads, footways, cycleways, on-street parking, verges, and lighting;
- Internal roads;
- Provision of connections, diversions and improvements to the utilities network;
- Sustainable drainage systems and foul drainage; and
- Strategic landscaping; and
- Installation of advance traffic signs indicating HGV route(s)

Drainage

5.8 All site works will be undertaken in accordance with CIRIA (2001) Control of Water Pollution from Construction Sitesⁱ which promotes environmental good practice for control of water pollution arising from construction activities.

5.9 Construction vehicles will be properly maintained to reduce the risk of hydrocarbon

contamination and will only be active when required. Construction materials will be stored, handled and managed with due regard to the sensitivity of the local water environment and thus the risk of accidental spillage or release will be minimised.

- 5.10 In accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001ⁱⁱ, any tanks storing more than 200 litres of oil will have secondary bunding. Bunding will be specified having a minimum capacity of *"not less than 110% of the container's storage capacity or, if there is more than one container within the system, of not less than 110% of the largest container's storage capacity or 25% of their aggregate storage capacity, whichever is the greater."* Any above ground storage tanks will be located on a designated area of hardstanding. No underground storage tanks will be used during the construction period. Storage of liquids such as degreasers, solvents, lubricants and paints will be in segregated, bunded enclosures.
- 5.11 The construction drainage system will be designed and managed to comply with BS6031 "The British Standard Code of Practice for Earthworks"ⁱⁱⁱ, which details methods that should be considered for the general control of drainage on construction sites. Further advice is contained within the Geotechnical Design, General Rules (BS EN 1997)^{iv} which should be read in conjunction with Basis of Structural Design (BS EN 1990)^v.
- 5.12 The following control measures will also be incorporated into the Construction Environmental Management Plan (CEMP):
- Temporary surface water management system, for example oil interceptors, holding tanks to remove suspended sediment before discharge etc;
 - Equipment maintenance;
 - Wheel washing equipment for large vehicles prior to site egress;
 - stockpile management; and
 - Storage of substances in accordance with applicable legislation
- 5.13 Further information on the CEMP is provided below.

Construction of Substructure

- 5.14 This will involve foundation excavation, the installation of below ground services and construction of new foundations. Substructure works may involve:
- Localised re-grading within the Site to create level development platforms for the structures; and

- Excavation for foundations.

- 5.15 Piled foundations will be required to found buildings in areas of poor ground, including wooded, previously wooded, and previously filled areas.

Construction of Superstructure

- 5.16 This stage will involve the construction of the residential dwellings, and associated neighbourhood facilities using clay bricks, concrete blocks, timber and steel framing, traditional roof coverings, glazing, incorporating eco-friendly measures where practical.

Fit Out

- 5.17 Fit out of the Development will involve the installation of block work party walls, dry lining to internal walls, internal walls, domestic mechanical and electrical installations, and fitted kitchens and bathrooms.

Landscaping

- 5.18 Landscaping works will involve the establishment of landscaping and other open space within the Site including soil preparation, tree and vegetation planting and seeding. There will be a number of formal landscape and open space areas including a village green and entrances to development features, together with retained woodland, sports pitches, pedestrian connectivity, ecological corridors, play areas, and wetland features. The landscape works will also include noise attenuation fencing.

Materials

- 5.19 The aim for the Development would be for its overall environmental impact to be minimised through the specification of sustainable materials and components. Materials with low overall environmental impact could be selected for the key building elements in the proposed scheme, targeting A/A+ ratings where possible, from the BRE Green Guide to Specification^{vi}. The Green Guide rates the environmental impact of different materials and components over their lifecycle, taking into account factors like toxicity, ozone depletion, extraction, ease of recycling, waste disposal etc.
- 5.20 Materials could be selected where possible from responsible suppliers, who can provide environmental certificates for the manufacturing processes of their products (including the supply chain processes), i.e. ISO 14001^{vii}, BES 6001^{viii} or equivalent certificates. Recycled

materials could be specified where possible and it will be ensured that for all new raw materials being used, as much as possible can be recycled at the end of the buildings' life. Specifying materials with a high-recycled content is a method of saving processing or manufacturing energy. The recycled content of a material can be described as either post-consumer or post-industrial to indicate at what point in the life cycle a material is reclaimed. Some typical building materials that can contain a high percentage of recycled material include reinforcing and framing steel, concrete masonry units, gypsum wallboard, acoustic ceiling panels and their suspension system. Given the outline nature of the planning application, it is not possible to estimate with any degree of accuracy, the materials quantities that will be required for construction. The above principles will minimise materials use and associated impacts, where feasible.

Construction Traffic

- 5.21 The management of construction routes can be an important determinant in mitigating the effects of construction activities on the areas surrounding the Site. The majority of construction traffic movements will be generated from construction workers' cars and vans, having a largely incidental impact on the surrounding highway network. In addition, a relatively smaller number of construction HGVs will be generated by the Development. It is anticipated that construction traffic will be managed through implementation of a Construction Traffic Management Plan (CTMP), which will, among other things, seek to direct the route of construction vehicles.
- 5.22 Construction traffic will generally be encouraged to use the existing highway hierarchy for its intended purpose and will thereby limit the use of lower order or less suitable roads. A routing strategy will be defined in consultation with the highway authority to minimise the impact on existing settlements and/or other sensitive areas.
- 5.23 If abnormal or oversized loads are required to deliver materials to the Site, notice would be given to WCBC, the Police, the Fire Brigade, and other emergency services, sufficiently in advance of the required closure or diversion dates.
- 5.24 Measures that would be adopted in the CTMP include:
- Policy of re-use of materials on-site to minimise the amount of external transfer or import. Crushing of existing hard-standing and grading for aggregate re-use in construction.
 - Supporting road signage supporting the routing strategy;
 - Consolidation of loads for delivery to site in order to reduce the number of HGVs

- travelling to/from Site;
- An on-site storage yard to facilitate storage of materials, as appropriate and manage exits from the Site;
- Wheel cleaning facilities to mitigate against any material transfer onto the surrounding highway network; and
- Car sharing for regular employees, minimising overall movements.

Controls to Protect the Environment

5.25 The environmental controls (or mitigation measures) to eliminate, reduce or offset likely significant adverse effects on the environment during the construction phase (as identified above) are identified below. It is anticipated that these controls will be secured by appropriately worded planning conditions or obligations:

- Preparation of a CEMP, including the CTMP, which clearly sets out the methods of managing environmental issues for all involved with the construction works, including supply chain management;
- Requirement to comply with the CEMP included as part of the contract conditions for each element of the work. All contractors tendering for work will be required to demonstrate that their proposals can comply with the content of the CEMP and any conditions or obligations secured through the planning permission;
- In respect of necessary departures from the above, procedures for prior notification to WCBC, as appropriate, and affected parties will be established;
- Establishing a dedicated point of contact and assigning responsibility to deal with construction related issues if they arise. This will be a named representative from the construction team;
- Production of a newsletter to be circulated to the surrounding neighbours and authorities regarding the progress being made on-site and any specific access arrangement or temporary works that could impact the locale; and
- Regular dialogue with WCBC and the local community.

5.26 The preparation of a CEMP is an established method of managing environmental effects resulting from construction works.

5.27 The CEMP will be submitted to WCBC (and other statutory authorities) prior to the commencement of the works. Compliance with the CEMP will be to be secured by planning condition. The structure of the CEMP will include the following:

- A table showing the objectives, activities (mitigation/optimisation measures), and

responsibilities for the implementation of those activities;

- The broad plan of the work programme including working hours and delivery times;
- Details of prohibited or restricted operations (location, hours etc.);
- Institutional arrangements for its implementation and for environmental monitoring: responsibilities, role of the environmental authorities, participation of stakeholders;
- Contact during normal working hours and emergency details outside working hours;
- Provision for reporting, public liaison, and prior notification of particular construction related activities;
- The mechanism for the public to register complaints and the procedures for responding to such complaints; and
- The details of proposed routes for HGVs travelling to and from the Site.

5.28 The final CEMP will be prepared and submitted in support of reserved matters applications.

Hours of Work

5.29 Working hours on the Site will be agreed with WCBC through the CEMP. However, it is likely that the standard hours of work will be adhered to. These are:

- Monday to Friday, 8am to 6pm;
- Saturday, 8am to 12pm; and
- Sunday and Bank Holidays, no noisy activities on-site.

5.30 Night-time working will be restricted to exceptional circumstances, and work internally with buildings. By arrangement, there may be some out of hours construction deliveries made to the Site.

Management of Construction Works

5.31 All contractors will be required to complete a method statement and risk assessment and obtain a works permit from the Appellants prior to commencement on Site. Principal contractors will be required to comply with the Considerate Constructors Scheme.

Response to Complaints

5.32 Any complaints will be logged on-site and, where necessary, reported to the relevant individual within WCBC (and vice versa) as soon as practicable.

Prior Notice

- 5.33 In the event of unusual activities or events, these will be notified to WCBC and relevant property owners or occupiers in advance. The relevant activities will be agreed with WCBC once the detailed programme of construction is defined. This will include:
- Necessary night-time, weekend or evening working (outside core areas) of a type which may affect properties; and
 - Road or footpath closures/diversions and movements of wide loads (unlikely to be required, given the previously restricted nature of the site).
- 5.34 The community would be kept informed during the construction phase through appropriate methods.

REFERENCES

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- ⁱ CIRIA C532 (2001) Control of Water Pollution from Construction Sites Guidance for consultants and contractors
 - ⁱⁱ The Control of Pollution (Oil Storage) (England) Regulations 2001, Statutory Instrument 2001 No. 2954
 - ⁱⁱⁱ British Standards Institution (December 2009) BS6031:2009 Code of Practice for Earthworks
 - ^{iv} British Standards Institution (December 2004) BS EN 1997-1:2004 Eurocode 7. Geotechnical Design. General Rules.
 - ^v British Standards Institution (2002) BS EN 1990: 2002 Basis of Structural Design
 - ^{vi} <https://www.bregroup.com/greenguide/podpage.jsp?id=2126>
 - ^{vii} <https://www.iso.org/iso-14001-environmental-management.html>
 - ^{viii} <https://www.bsigroup.com/en-GB/bes-6001-responsible-sourcing-of-construction-products/>