

Cory Decarbonisation Project

Design Approach Document

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Revision A - Part 3 of 3





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6.0 Design Code

6.1 Approach and Status

The Design Code contains different levels of instruction and prescription. They are a series of rules to be applied to the on-going design of the Project, and thereby help to steer some aspects of the design detail through to implementation of the Project. They help provide the next level of detail beyond those set out in the Project Parameters, which reflect Environmental Impact Assessment (EIA) decisions.

The Design Code provides clarity over what constitutes good design quality, highlight important design matters that will shape the project design outcomes; and provide a level of insight for designers and control for the planning authority.

The Design Code is submitted for Approval. Compliance with the Design Code will ensure a good design outcome is achieved. As the Design Code will form the basis of design assessment for the development of the Project as the detailed design comes forward through Requirement discharge, a Compliance Statement would be submitted to support the discharge of the detailed design Requirement which will report on compliance with both the Design Principles and the Design Code.

The Design Code is structured in five sections:

- Campus-Wide
- Carbon Capture Facility
- Nature Reserve and Open Land
- Thames Path and Jetties
- Norman Road

Campus-Wide

This section comprises codes DC_CW 1.1 - DC_CW 1.15.

The design codes in this section either refer to a project ethos, approach or priorities that should be applied holistically to development of the detailed design in subsequent stages or specific approaches to components that are relevant side wide or across numerous zones.

Carbon Capture Facility

This section comprises codes DC_CCF 1.1 - DC_CCF 1.33.

Design codes relating to the core CCF are in the main grouped into three types; codes that control layout and form, codes that are concerned with appearance, visual impact and aesthetic character, and codes that reinforce the project's environmental goals.

Key to the success of this project is the ability to elevate the facilities' industrial architecture beyond functional engineered solutions, creating a unique and legible new place, through controlled palettes of materials and organisation of technical equipment into consistent forms/ rhythms.

Nature Reserve and Open Land

This section comprises codes DC_LNR 1.1 - DC_LNR 1.17.

The design codes herein intend to protect the special character and qualities of the open land as experienced by its users, and coastal flood plain grazing marsh habitats for the benefit of the sites ecology, to be delivered by establishing a framework for mitigation and enhancement for this land and the CC Facility edges / boundaries.

Further, the code seeks to establish a new attractive 'sense of place', promoting quality design and materiality, enhancing access routes and by providing facilities for new user groups.

DC_XX 1.2 The codes are shown in blue boxes with each section having a different code prefix.

Thames Path and Jetties

This section comprises codes DC_TP 1.1 - DC_TP 1.6.

The Thames Path and Jetty codes are primarily concerned with uplift to quality of place and furthering the experience of a Cory Campus, also moves to promote better orientation / legibility through wayfinding / interpretation.

Norman Road

This section comprises codes DC_NOR 1.1 - DC_NOR 1.7.

These codes establish the specific enhancements required for improvement and activation of the Norman Road environment in-line with Cory Campus objectives and for the benefit of staff, wildlife and other user groups.

- Each code has associated bullet points which describe what the code will do and why it is needed, but those bullet points do not form part of the Code itself. These bullets mostly appear to the right of each code, however there are some cases where they will appear below.

6.2 Campus-Wide

DC_CW 1.1 Proposals coming forward should prioritise mitigation of impacts on the adjacent MOL and grazing marsh land as well as communities to the south, as opposed to the industrial land to the east.

DC_CW 1.2 Proposals coming forward should prioritise pedestrian/active travel route safety and inclusivity sitewide (through improved accessibility, lighting, wayfinding, activation, new connections, separation from vehicles, crossings).

DC_CW 1.3 The aesthetic of designed buildings, structures, landscape interventions, materiality, boundaries, signage/wayfinding, and branding are to be carefully controlled and consistent across the development.

- To maximise opportunities for separation between the Core CCF and open land.
- To respond to local character/context.
- For wellbeing of local stakeholders and community.
- To settle the development into its existing context with minimal perceived harm.
- For improved comfort and accessibility for local communities.
- For reduced crime and antisocial behaviour.
- For improved safety and wellbeing, community pride and positive identity for the area.
- To give a coherent aesthetic and identity aligned with the Cory campus Vision.
- To ensure the CCF is conceived and designed as a whole and avoid piece-meal approach.
- To respond to respective areas of distinctive local character such as the CLNR.



Figure 6.1 DC_CW 1.2, DC_CW 1.6, DC_CW 1.7 Design codes



Figure 6.2 DC_CW 1.6 - Example of drainage basin with diverse planting integrated



Figure 6.3 DC_CW 1.5 - Example of modern design of a hide for viewing wildlife

DC_CW 1.4 The materials used to construct the hard landscape and boundary treatments will be high quality, robust, and minimal maintenance.

DC_CW 1.5 Landscape design will deploy modern design and materials alongside local and natural materials.

DC_CW 1.6 Drainage basins, ditches, and swales are to be designed to accommodate planting and standing water and to be an integrated element of the landscape design.

DC_CW 1.7 Planting is to consist of native and indigenous species and wherever possible sourced from local provenance.

- To ensure durability, and good design/visual quality.
- To reflect the pioneering character of the CCF.

- To contribute to a strong network of existing habitats.
- To integrate the CCF into its drained marsh setting.
- To provide specific opportunities for target species habitats such as water vole.

- To increase local, regional, and national biodiversity.
- To address loss of habitats and species depletion.
- To contribute to a strong network of existing habitats.

DC_CW 1.8 Routing, specification and maintenance for the diversion and improvement of existing watercourses and the creation of new watercourses are to be defined in the full Landscape, Biodiversity, Access, and Recreation Delivery Strategy and Code of Construction Practice.

DC_CW 1.9 Operational security and safety measures must be sympathetically designed and integrated as part of the overall campus and be proportionate to the defined requirement.

- To safeguard species and habitats in proximity to site works.
- To reduce risk of pollution incidents.
- Confirmation of licensed translocating of priority species.

DC_CW 1.10 Create clear boundaries and security between public and private areas, service areas and access points. The materials, visual permeability, features, and security measures are to be considered and designed as an integral part of the CCF scheme design, and not addressed as after-thoughts or add-ons.

- To ensure boundaries, which can be visually prominent, are part of the family of design throughout the Site.

DC_CW 1.13 Street furniture (lighting, litter bins, bollards, etc.) is to be minimised and located with consistent materiality, location, spacing, and patterns, throughout the development.

- To minimise visual clutter and unnecessary visual impact.
- To ensure the Site is conceived and designed as a whole and avoid piece-meal approach across its extent.

DC_CW 1.11 Service ducts, access covers, and utility corridors are to be provided consistently and to a pre-determined strategy and spatial arrangement, making provision for installation of additional infrastructure where foreseeable.

- To ensure good access and does not require removal of any planting, impact on trees, and disturbance to hard landscape areas.
- To ensure the Project is conceived and designed across its extent and avoid disruption to established landscape.

DC_CW 1.14 The materials used for hard landscape and boundary elements will be as sustainable as possible regarding origin, embodied energy, maintenance requirements, and durability.

- To conserve natural resources.
- To reduce carbon emissions.

DC_CW 1.15 Create a consistent approach to planting and landscape features along the length of the boundaries.

- To ensure the CCF is conceived and designed as a whole and avoid piece-meal approach across its extent.
- To address the scale and extent of development with an appropriate scale of landscape response.
- That recognises the differences in location/area and context.

DC_CW 1.12 Structural 'urban' planting is to be large-scale, simple, and limited in variation.

- To break up visibility of the larger elements of the CCF.
- To add large scale landscape features consistent with the scale of the CCF.
- To provide a consistent framework for the Site, access, and operational infrastructure.



Figure 6.4 Illustrative sketch of an aerial view of the Proposed Scheme

6.3 Carbon Capture Facility - Form and Layout

DC_CCF 1.1 Development of the operational Carbon Capture Facility layout should prioritise efficiency of layout (land take).

- To express a well-considered, compact, and efficient footprint and not a sprawling development.
- To leave room for physical and visual separation from the neighbouring open land by way of green buffers.
- To provide opportunity for improved access and amenity in the south nearest to the Belvedere community.
- To create space inside of the CCF boundary for mitigation and buffering of the development, especially on the western and southern edges (as shown in the illustrative masterplan).
- To provide opportunity for habitat creation.

DC_CCF 1.2 Taller structures are to be located in the northern parts of the Site.

- To ensure when viewed from receptor viewpoints the CC Facility is seen in the context of existing tall structures/flues/buildings at Riverside 1 (and Riverside 2 under construction).
- As a natural visual hierarchy and visual sequence of built elements descending in height/scale from Riverside 1 and 2 in the north towards lower elements in the south reflecting the lower height of existing development to the south of the Site.

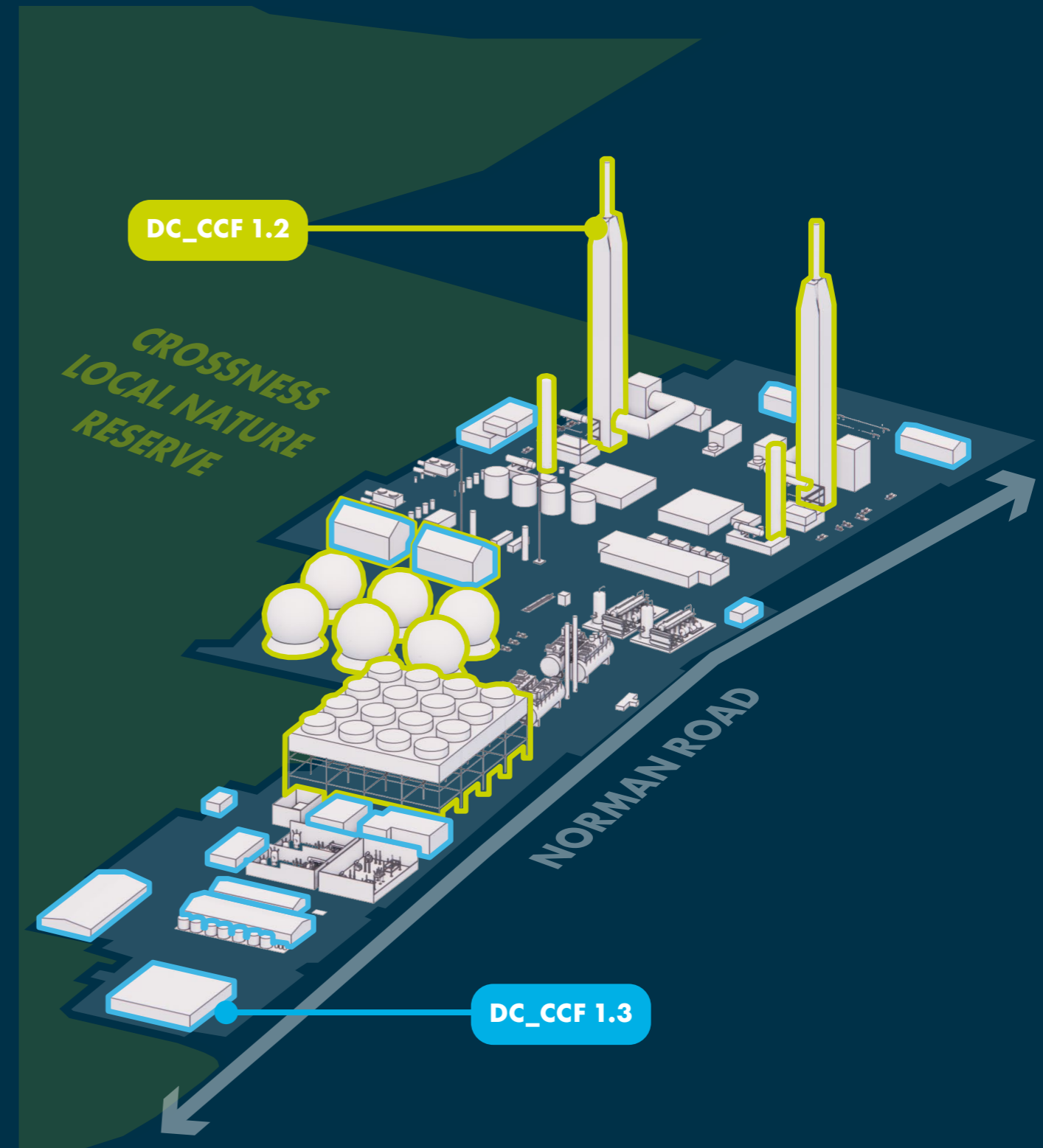


Figure 6.5 DC_CCF 1.2 and DC_CCF 1.3 Design codes - Illustrative diagram

DC_CCF 1.3 Roof shapes to minimise the visual impact of buildings with flat or low-pitched roofs, potentially in combination with simple traditional roof forms.

- To simplify the appearance of larger scale buildings and provide better built form integration in the setting.

DC_CCF 1.4 The roof cladding systems will be robust, easily maintainable, and should be appropriate to support the installation of rooftop photovoltaics.

- To ensure that the cladding will be minimal maintenance and robust.

DC_CCF 1.5 Where feasible utilise permeable or granular hard surfaces within the core Carbon Capture Facility.

- To provide opportunity for valued habitat coverage within the facility such as Open mosaic habitat (for BNG).
- To reduce embodied carbon and contaminants associated with sealed surfaces.
- For decreased run-off rates contributing to flood risk reduction.
- To allow surface water filtration and runoff pre-treatment at the source prior to discharge to watercourse.

DC_CCF 1.6 The buildings within the CCF will be built to high standards of sustainability where practicable. Factors such as embodied energy, provenance, and whether a material is renewable, should be considered during selection.

DC_CCF 1.7 The reusing of resources should be explored at construction as well as operation and, later-on, decommissioning phases.

DC_CCF 1.8 Measures should be put in place to mitigate the impact of noise and emissions generated from on site plant, and any inherent hazard risk, including minimum offsets and barriers.

DC_CCF 1.9 Back-up generators should be distanced from noise sensitive receptors.

- To be energy efficient.
- To not deplete natural resources.
- To be responsive to climate change.

- In line with the requirements set out in EN-1 to consider "all reasonable steps taken to mitigate and minimise potential adverse effects on health and quality of life".
- To limit the impact of residual noise and air pollution on the immediate environment and user groups.
- To reduce potential noise impacts on sensitive receptors.
- To reduce the impact of potential spills, and therefore pollution incidents.

DC_CCF 1.10 Provide attenuation and treatment for surface run-off on site through open landscaped features where possible, before releasing treated water to the grazing marsh ditch network.

- To increase local biodiversity.
- To reduce contribution to flood risks.
- For protection of the water quality within the grazing marsh and ditch habitats.

DC_CCF 1.11 Development platform embankments should be a maximum of a 1:3 gradient where planting/ tree planting is proposed.

- To minimise land-take for the CC Facility.
- To reduce imported material required.
- To maximise opportunity to plant into adjacent existing non-made-up ground levels and thereby avoid difficulties associated with planting into made up slopes.

DC_CCF 1.12 Fencelines should be located inbound of buffer zones wherever possible.

- To reduce visual impact of the security fence itself.
- For less onerous maintenance of secure CCF boundary line.

DC_CCF 1.13 Minimise the extent of raised platform levels across the CCF site.

- To minimise increasing flood impacts on neighbouring areas.
- To reduce land area removed from flood plain and minimise volume of imported fill material required for development platforms.
- To maximise efficiency of flow dynamics under flood conditions.
- To simplify points of access and ensure operational continuity.
- To provide a safe operational environment.

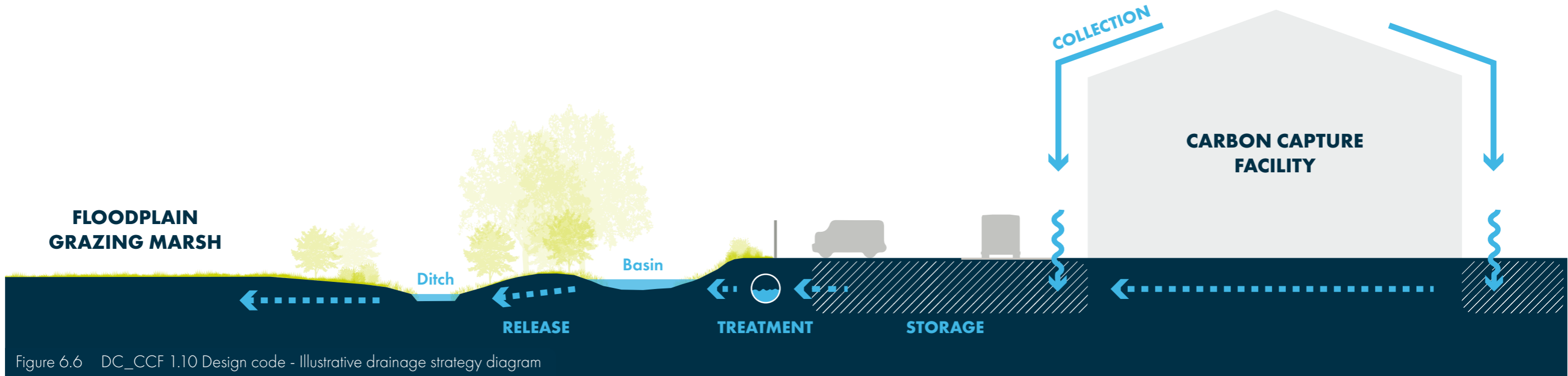


Figure 6.6 DC_CCF 1.10 Design code - Illustrative drainage strategy diagram

DC_CCF 1.14 Buildings to be located to match predominant orientation of buildings and road infrastructure of the adjacent retail distribution estate.

- To integrate with surrounding built context and minimise visual impact.

DC_CCF 1.15 The use of highly reflective materials should be avoided.

- To minimise visual impact.
- To minimise glare.

DC_CCF 1.16 Ventilation louvres and external plant or ducting to be avoided on visually sensitive sides of buildings and restricted to northern and eastern facades wherever practicable.

- To help conserve the visual character of the nature reserve and grazing marsh setting by reducing visibility of technical features.
- To simplify the appearance of larger scale buildings and provide better built form integration in the setting.

DC_CCF 1.17 Location of rooftop equipment should be where visual impact is lowest; size of equipment to be minimised and where possible, rooftop equipment to be clad in wall cladding or concealed behind parapet roof edges.

- To be visually balanced and minimise visual impact.

DC_CCF 1.18 External wall cladding/ finishes will be robust, easily maintainable, and replaceable materials appropriate for the environment.

- To ensure that the cladding will maintain its visual appearance over time.
- To establish a 'family of buildings' throughout the CCF site.
- To ensure that cladding is appropriately robust and can be easily replaced.

DC_CCF 1.19 Minimise window and door openings on western and southern elevations of CC process buildings, where internal lighting may spill out of openings.

- To reduce potential visual impact.
- To specifically control light emissions on elevations facing towards Crossness Nature Reserve.

DC_CCF 1.20 Glazing on upper levels to be restricted to elevations not subject to sensitive long-distance views.

- To minimise the visual impact caused by "interrupting" the elevation and undermining the blending from building and sky.

DC_CCF 1.21 Locate windows for occupied/office buildings to face towards the CLNR.

- To add visual interest and break up the scale of the building.
- To introduce human-scale elements where appropriate.
- To provide attractive outlook where possible for occupied buildings.

DC_CCF 1.22 Overhead ducts connect into R1, R2 and link CCF site with the export Jetty. Duct routes to these locations should minimise span over public space where practicable. Ducts and trestles should be located development-side of fence lines, ditches, and watercourses.

- To minimise overbearing relationship with public routes.
- To minimise visual impact/disturbance to nature reserve and habitats.

DC_CCF 1.23 Overhead duct routes should connect components of the development at a consistent datum where practicable, with minimum number of vertical steps and neat turning radii. Legs, connections, and bracings should be equally spaced where practicable.

- For visual connection, consistency, and legibility.
- To reduce maintenance requirement.

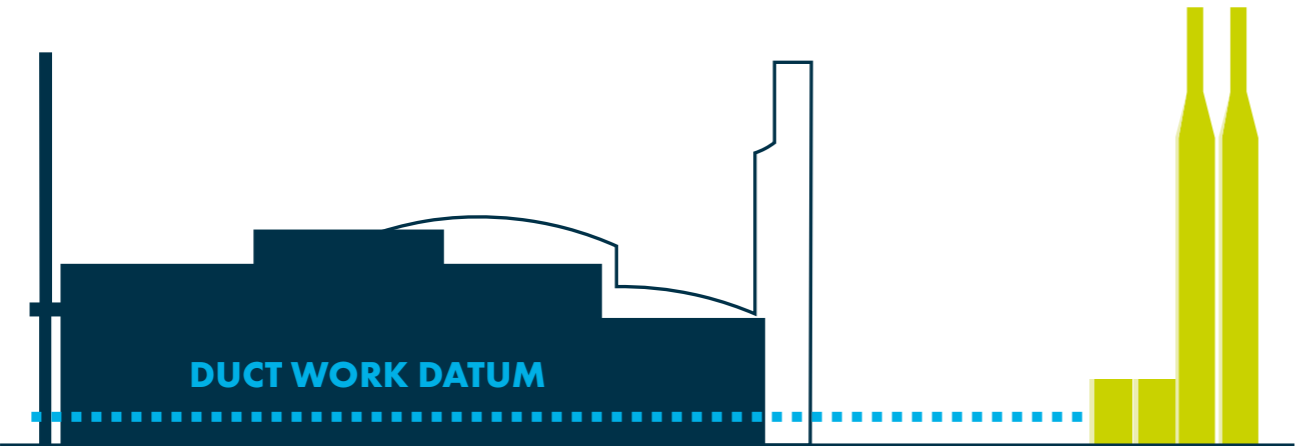


Figure 6.7 Illustrative diagram of a ductwork datum and Riverside 2

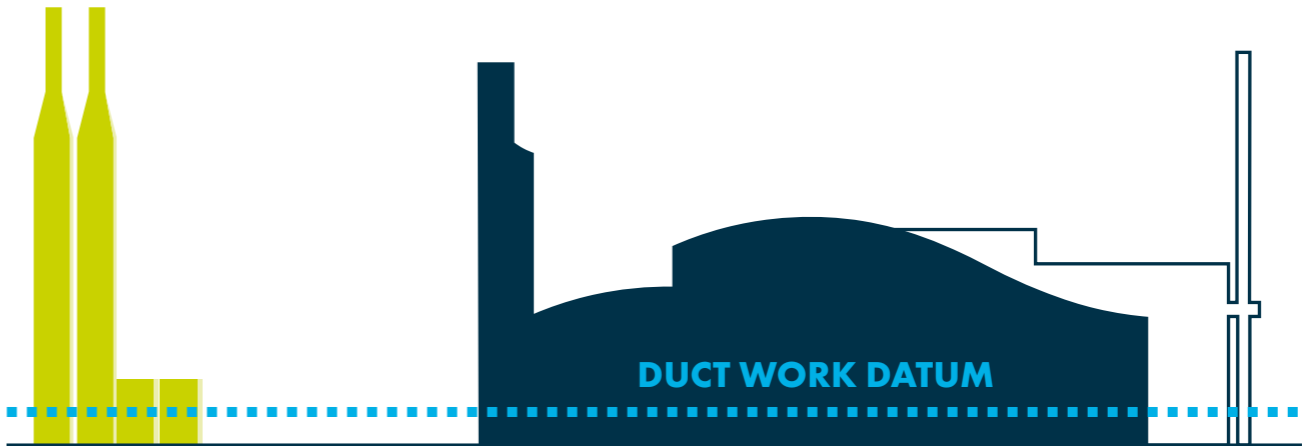


Figure 6.8 Illustrative diagram of a ductwork datum and Riverside 1



Figure 6.9 Visualisation example of Riverside 2 and ductwork



Materiality and Colour

DC_CCF 1.24 The key architectural/engineering components of the CCF should comprise a consistent palette of high quality, robust and minimal maintenance materials.

DC_CCF 1.25 Design of buildings closer to/facing the CLNR boundary to have appropriate façade treatments in response to the semi-natural/natural landscape.

- For visual coherence and appealing aesthetic.
- To ensure that the visual quality of the development is retained over time.
- To reduce need for applied finishes and onerous maintenance regimes that may not be carried out.
- Such as to CO₂ storage vessels, absorber columns, and flue ducts.
- To integrate buildings into the naturalistic grazing marsh setting.
- To extend habitat opportunities such as for invertebrates.
- To introduce landscape qualities to buildings and facilities.

Key

-  Material palette responding to the close proximity to the Crossness Local Nature Reserve
-  Material palette responding to Norman Road and the industrial nature of the Cory Campus

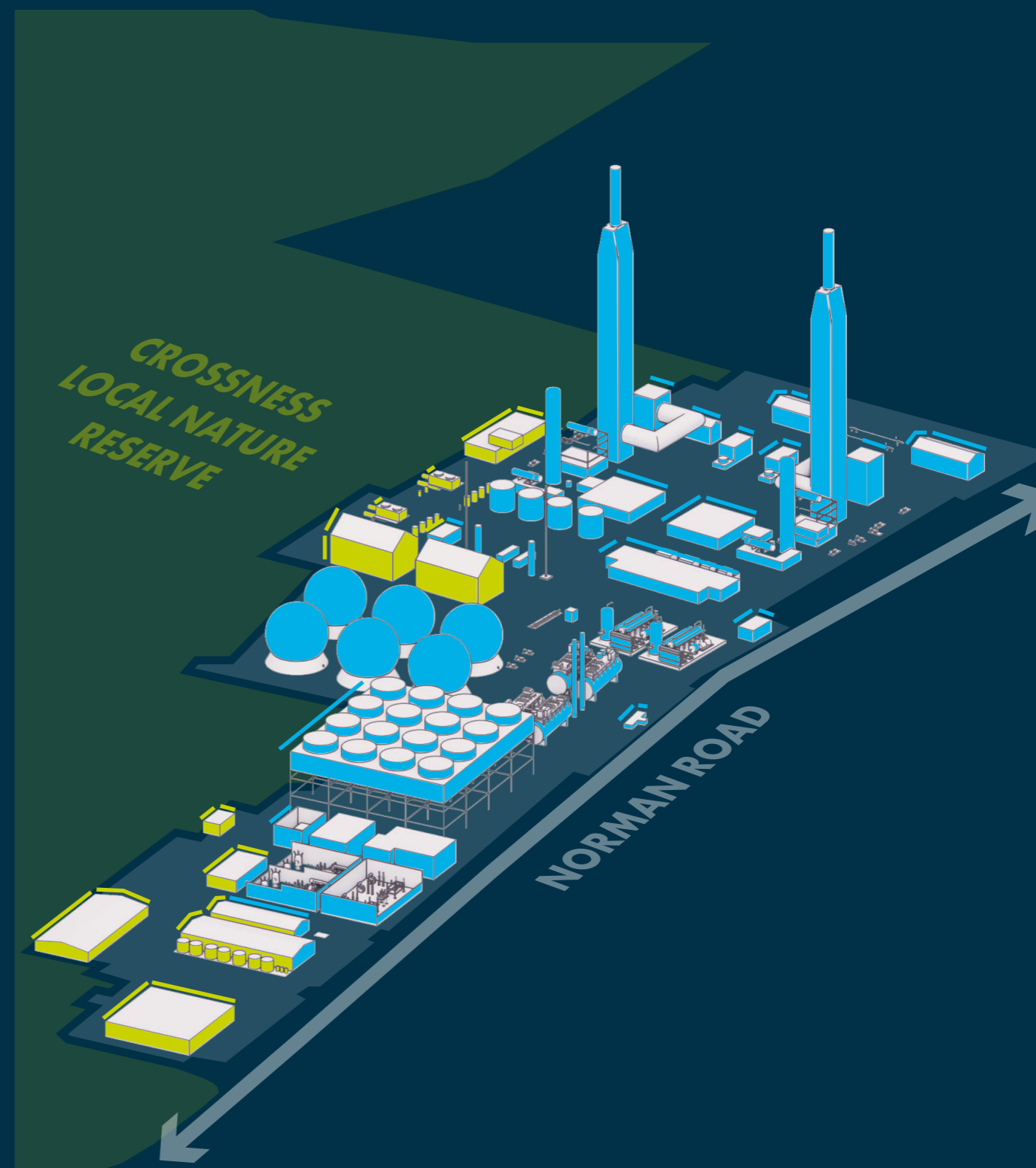


Figure 6.10 DC_CCF 1.24 and DC_CCF 1.25 Design codes - Illustrative diagram

DC_CCF 1.26 The materials will be carefully selected to support the overall architectural design approach and to offer contrast in texture, finish, and colour.

- To best mitigate the visual impact of the development.
- To add visual interest.

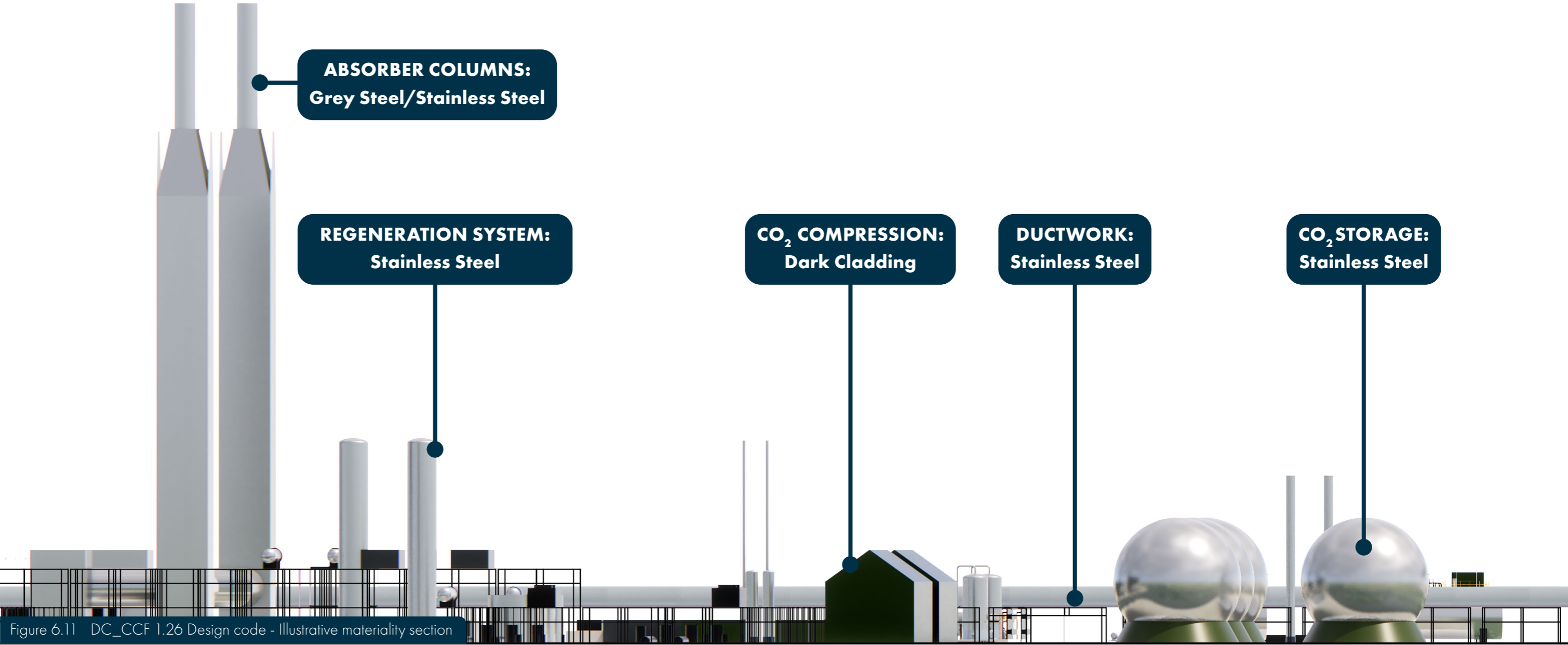


Figure 6.11 DC_CCF 1.26 Design code - Illustrative materiality section

DC_CCF 1.27 Where practicable proposed materials will be consistently applied across the CCF site.

- To maintain the clean lines and balanced appearance of the overall design.
- To maintain the appearance of a 'family of buildings' throughout the CCF site.

DC_CCF 1.29 Location of roller shutter doors and personnel doors to be considered and matched in colour; multiple doors should be equally spaced.

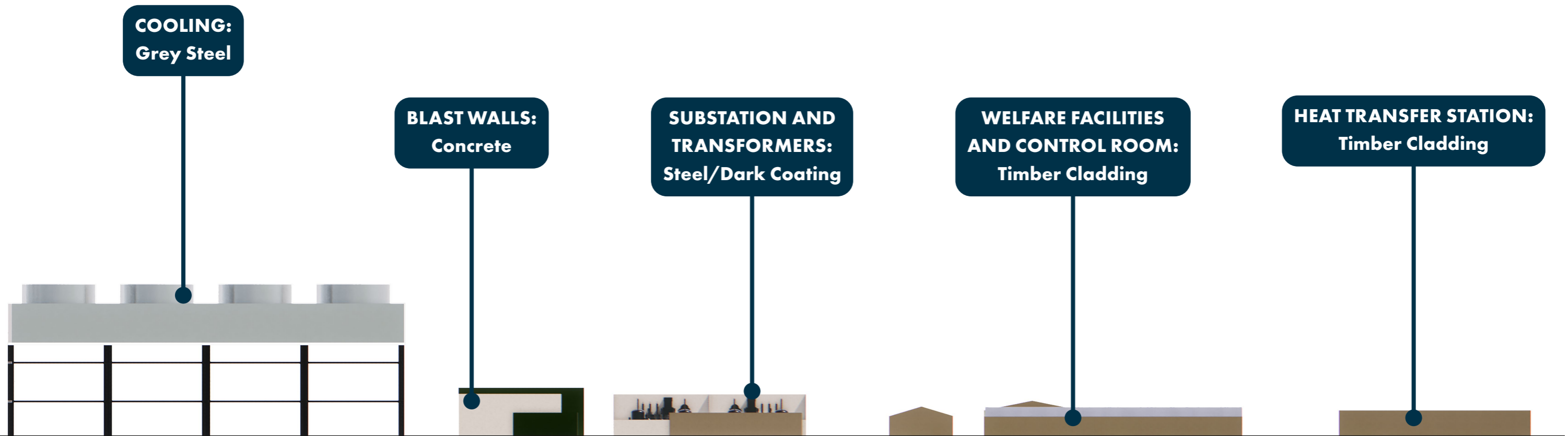
- To match and blend visually to surrounding cladding.
- Consistent contrasting colour for safety and emergency identification of accesses throughout the CCF.

DC_CCF 1.28 Built form to be visually structured/organised and treated systematically as component parts.

- To minimise visual impact, create visual composition, minimise visual clutter and disorganisation, and manage visual aspects of building/development-scale.

DC_CCF 1.30 For buildings closer to the CLNR boundary consider use of biodiverse green or brown roofs where practicable.

- To visually integrate buildings into the naturalistic grazing marsh habitat setting.
- To extend suitable habitat opportunities.
- To differentiate the supporting facilities from the family industrial infrastructure buildings.



DC_CCF 1.31 Colour of materials, applied colour, and coated finishes should be in line with a coherent palette of colours which will be subject to approval.

- For visual coherence and appealing aesthetic.
- For achieving safety and internal wayfinding strategies.
- To reduce the number of variants for maintenance operations.
- Responding to context/character areas.
- Could be applied to access routes, support structure, external stairs and railings, cranes, duct runs, etc.

DC_CCF 1.32 Lighting within the CCF site to be kept to a minimum as viewed from the LNR, Thames Path and open land, where practicable utilising low impact colour tones and bollard lighting distributed as required for functional purposes.

- To avoid light spill, glare, and impacts on the adjoining nature reserve.
- To create an informal/more random distribution of lighting more suited to the natural environment.
- To present a coherent and safe Cory Campus arrival zone along Norman Road.

DC_CCF 1.33 Lighting central to the CCF and facing on Norman Road should improve the quality and safety of Norman Road and facility entrances, and seek the opportunity to enhance the appearance of architectural forms and equipment.



Figure 6.12 View towards Riverside 1 from the Thames Path and associated colour swatches

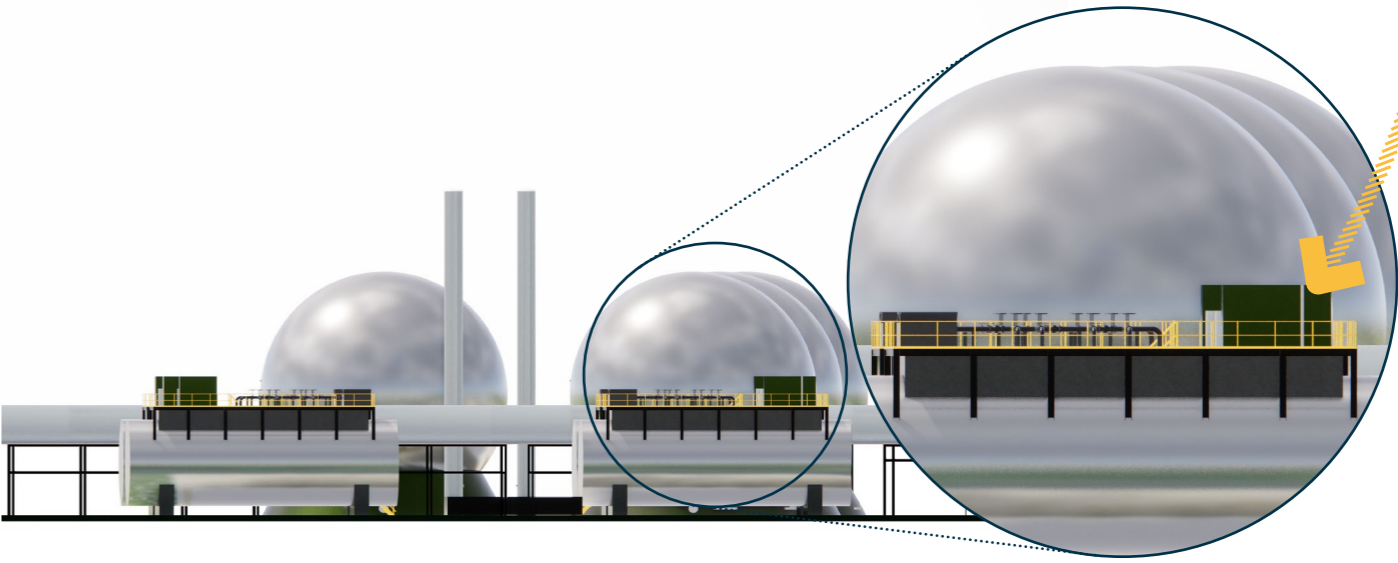


Figure 6.13 Example of yellow paint application to balustrades, stairs etc



Figure 6.14 View towards the site from Norman Road and associated colour swatches

Figure 6.16 View towards the site from Crossness Local Nature Reserve and associated colour swatches

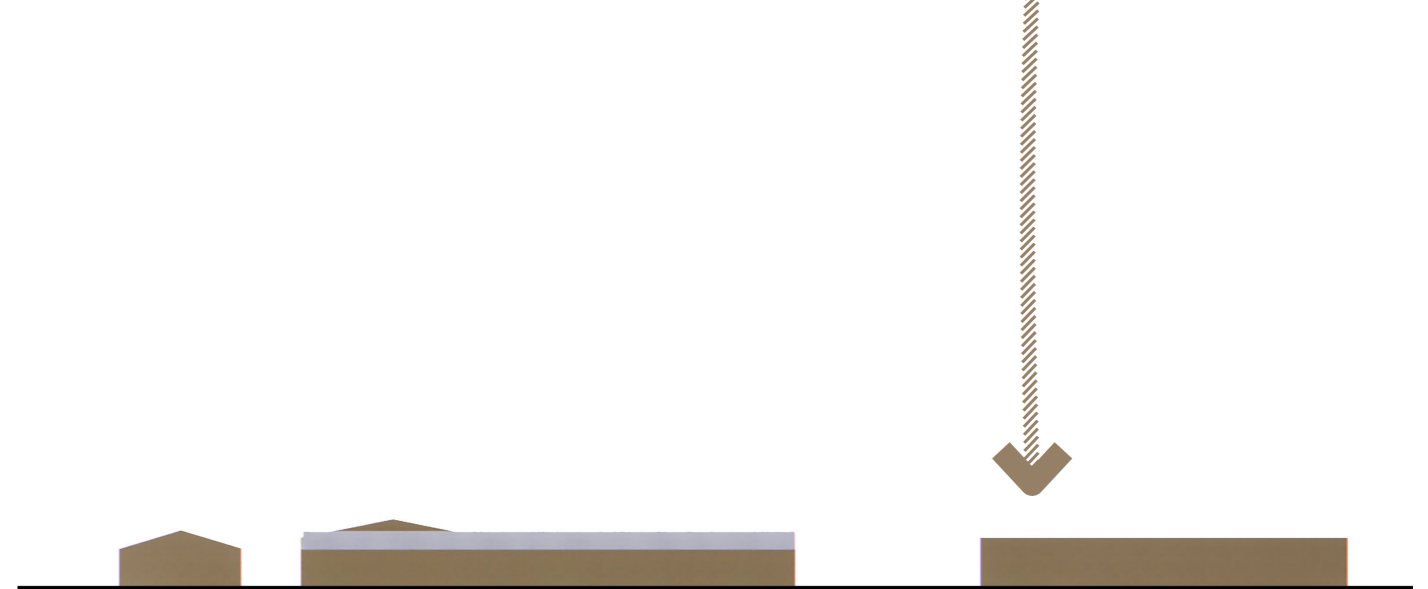
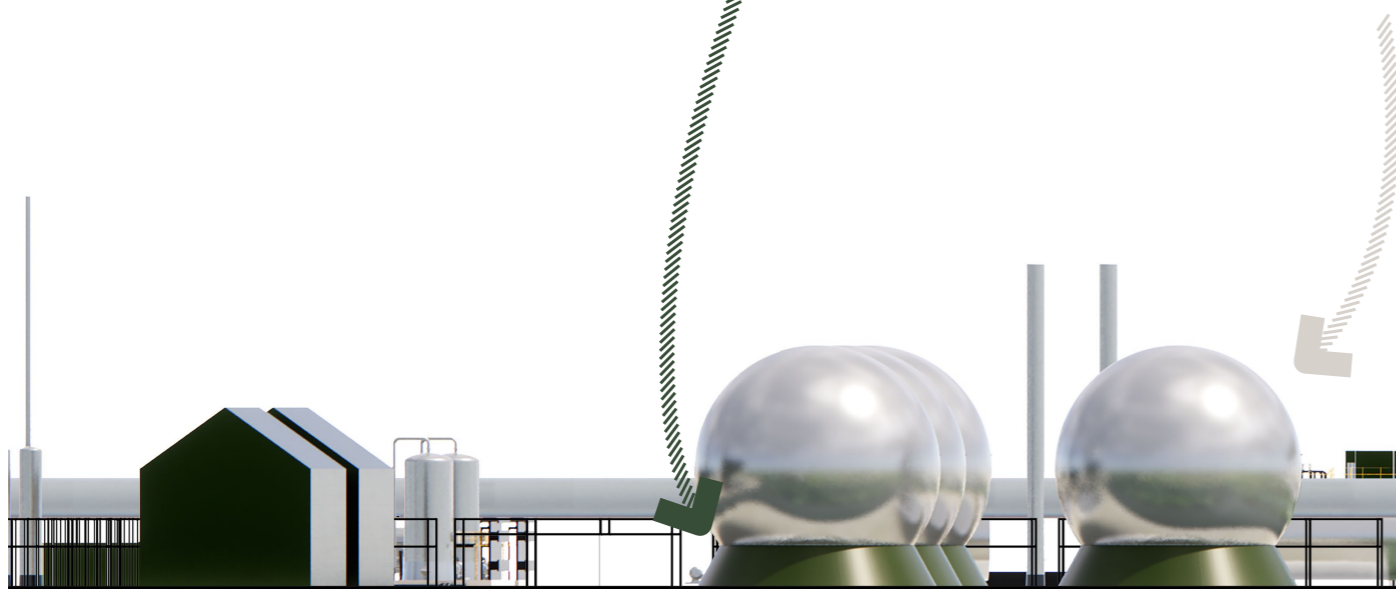


Figure 6.15 Example of stainless steel for technical equipment and using dark green or similar at low level

Figure 6.17 Example of timber clad buildings with traditional roof forms

6.4 Nature Reserve and Open Land

DC_LNR 1.1 Proposals coming forward should ensure the land is suitable for continued existing use, including by graziers, whilst delivering biodiversity enhancement.

- To support existing users' needs.
- To deliver grazing marsh habitat mitigation and biodiversity net gain.
- To ensure a sustainable solution can be delivered and maintained with longevity.

DC_LNR 1.2 Land adjacent to the CCF should contribute to visual mitigation/screening of the development through low density tree planting, without the loss of coastal floodplain grazing marsh habitat.

- For visual separation from the CCF.
- To deliver grazing marsh habitat mitigation and biodiversity net gain.
- To ensure a sustainable solution can be maintained long term.

DC_LNR 1.3 Landscape structure should reflect characteristic Thames Estuary flood plain landscape and local landscape patterns integrating vegetation and drainage.

- To integrate the development into the existing rectilinear flood plain landscape pattern.
- To help visually integrate the development and mitigation into the setting.
- To be efficient and organised over large areas.
- To be part of a deliberate design of systematic land use comprising plots; and drainage patterns, and planting.

DC_LNR 1.4 Vertical retaining walls should be positioned away from the CLNR boundary or with sufficient screening in front as a visual buffer. Landscaped gradients to be used where practicable instead of retaining walls.

- For visual separation from the CC Facility.
- To retain the existing character of the nature reserve and reduce the sense of enclosure or visual dominance of the development.

DC_LNR 1.5 Watercourses must be accessible on one side as a minimum with a clear 5m width offset working zone provided from top of bank.

- For maintenance access.
- For maintaining a buffer to sensitive habitats.

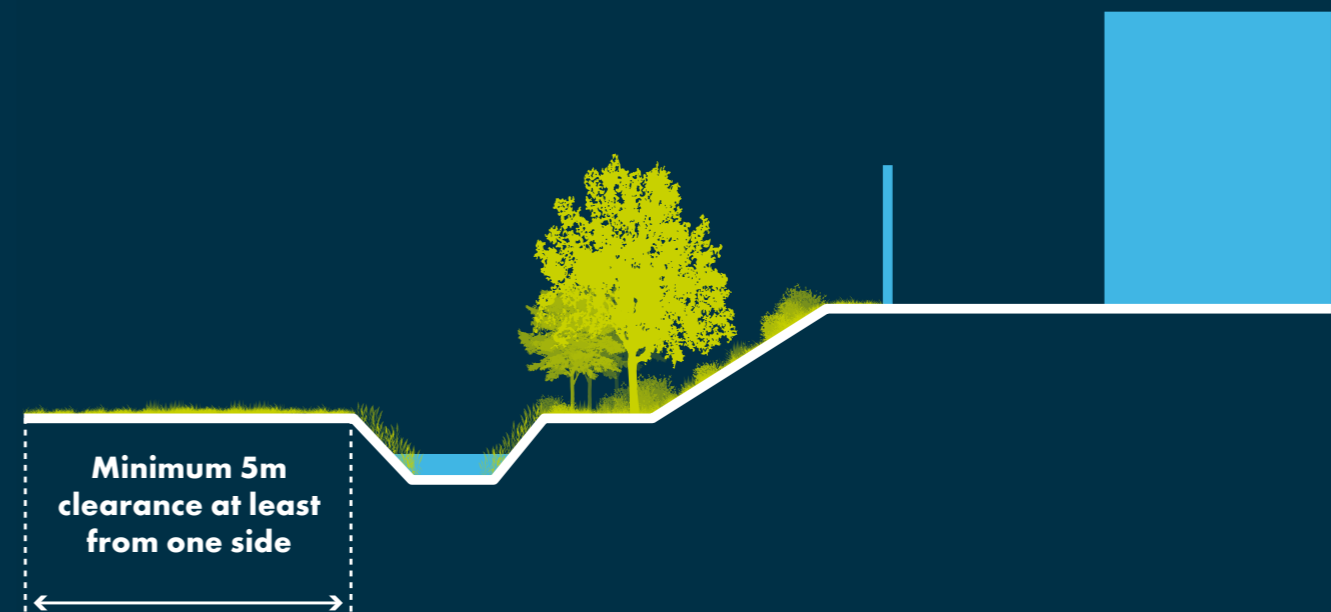


Figure 6.18 DC_LNR 1.5 Design code - Illustrative diagram

DC_LNR 1.6 Materiality should be largely natural or of natural colour tones experienced within the landscape, including natural timber, gravels, concrete, oxidised steel. Re use of recycled materials is to be considered.

- To complement the existing character of the setting.
- For sustainable low carbon sourcing and construction.

DC_LNR 1.7 Architectural forms should be contemporary but utilising natural materials and referencing typical forms seen across the landscape, such as bird hides or screens, sheds etc. Structures should appear low and hunkered down into the marsh for minimal visual disturbance.

- For minimal disturbance to existing wildlife.
- To appear embedded into the landscape, of this place and permanent.

DC_LNR 1.8 Structures should tread lightly on the ground, avoid need for large hard landscaped areas and large foundations. Place structures and boardwalks on legs floating above the marsh where necessary due to ground conditions.

- For year-round accessibility.
- Addressing risk to structures from flooding.
- To reduce embedded carbon cost of structures.

DC_LNR 1.9 Fences, gates, and furniture should be characteristic of the grazing marsh and environment and built for durability/longevity with minimal maintenance.

- For minimal visual intrusion where new fence lines are required.
- To reduce maintenance burden and risk of failure.

DC_LNR 1.10 All built forms should have visible identifiable character or mark unmistakably of this place, including parking, entrances gates, boardwalks, benches, and signage.

- Furthering the CLNR identity and appeal.
- To aid legibility and orientation for visitors.
- Use of local skills/designs fostering community ownership.



Figure 6.19 DC_LNR 1.6 - Example of natural materials used to complement the character of the setting

DC_LNR 1.11 Woodland/buffer planting and understorey to be entirely native species and reflect local grazing marsh scrub woodland type.

DC_LNR 1.12 Hedgerows to be entirely native species and reflect local hedgerows particularly historic hedgerows.

DC_LNR 1.13 Wetland planting to be naturalistic and comprise native species.

DC_LNR 1.14 Wildflower and riparian extensive planting to be entirely native species and where possible use seed from local provenance.

- To increase local biodiversity.
- To integrate the CC Facility into the existing pattern of vegetation and the setting.
- To reflect local landscape character and landscape types.

DC_LNR 1.15 Parking and improved access through the MOL/enhanced grazing marsh areas should be provided where practicable. This should create new links to nearby footpath network and all-weather routes including causeways, bridges, and boardwalks.

- For improved amenity value and accessibility.
- For improved access during wet periods/through winter months.
- To become part of a loop or river-side route connecting with other routes.
- To provide opportunities for interacting with nature, wetland wildlife, Thames Estuary habitat corridor, and areas of flood plain.

DC_LNR 1.16 New facilities for public, school groups, training and FoCLNR should be provided in the extended CLNR (such as outdoor classrooms, interpretation boards, wildlife hides, forest schools, shelters, dipping ponds etc).

- For improved local understanding of the area.
- For improved use/amenity value.
- For learning/education opportunities and to meet the needs of local people/schools with limited access to green spaces.

DC_LNR 1.17 Retained and any diverted public rights of way to be complemented by additional paths.

- To provide better connectivity and improved access to open spaces.
- To encourage active and healthy lifestyles.
- To provide points of engagement and benefit for local people.
- To promote walking and cycling to work to reduce carbon footprint of commuting travel.



Figure 6.20 Illustrative sketch of access improvements through Crossness Local Nature Reserve

6.5 Thames Path and Jetties

DC_TP 1.1 Public Realm along the Thames Path within the Site Boundary should be enhanced to signify arrival alongside the Riverside site, through materiality, signage, furniture, planting, art, interpretation, and level of care/maintenance.

- To give a coherent aesthetic and identity aligned with the Cory campus vision.
- To provide a sense of purpose, identity, and ownership.
- To ensure the CC Facility is conceived and designed as a whole and avoid piece-meal approach.

DC_TP 1.2 Links between the Thames Path and its vicinity, including the existing CLNR, Norman Road Field and PRow, should be improved where practicable to provide clear wayfinding and safe accessible connections.

- For user legibility, orientation, safety, comfort, and wellbeing.
- As part of promoted wider circular routes and connections.

DC_TP 1.3 Fencelines should be rationalised and where practicable set-back from routes.

- For reduced feeling of enclosure and better visual amenity .
- For user legibility, orientation, safety, comfort, and wellbeing.

DC_TP 1.4 Where practicable, the upper foreshore should be enhanced and maintained for its value as a wildlife habitat (including management of colonising vegetation).

- For enhanced appeal to estuarine wildlife and better-quality connections to the grazing marsh habitats.
- For enhanced understanding/interactions with wildlife along the Thames Path and wider circular routes.

DC_TP 1.5 Lighting frequency to be kept to the minimum practicable, distributed as required for function, at regular intervals. Lighting to be a mix of low level and taller fittings, avoiding upward light spill.

DC_TP 1.6 Lighting should improve the safety and legibility of routes and seek opportunity to enhance the appearance of architectural forms and equipment where practicable.

- To avoid impacts on the adjoining nature reserve and River Thames environment.
- To create a more formal sequence of lighting that depicts the linear characteristics of the Thames Path route.
- To deliver a safe, useable route/ environment.



Figure 6.21 Illustrative sketch of the Thames Path

6.6 Norman Road

DC_NOR 1.1 Improve activation of Norman Road to enable passive surveillance.

- To discourage anti-social behaviour and fly-tipping.
- To improve the feeling of safety for all users.

DC_NOR 1.2 Norman Road requires good visibility at CCF entrances and separated pedestrian routes with designated crossings associated with ped-flow desire lines.

- For pedestrian safety on links between adjacent facilities, crossings, and along Norman Road itself.

DC_NOR 1.3 Frontages onto Norman Road will have consistent and organised fence lines, gates, entrances, and access/arrival signage.

- To enable visual connectivity and legibility for visitors to the facilities.
- To ensure that there is a common approach to treatment of the public facing boundary of the CCF site, visual unity, and campus identity.

DC_NOR 1.4 Lighting along Norman Road and route linking to the Thames Path to be organised in a linear and regular sequence highlighting facility entrances and seeking opportunity to enhance the appearance of architectural forms and equipment.

- To reflect the straightforward linear road and CCF site boundary alignment.
- To create simple, functional, and uniform arrangement(s).
- To promote user safety.

DC_NOR 1.5 Norman Road drainage ditch network to be enhanced and extended, however no water should pass from these ditches into the grazing marsh network without prior attenuation and treatment on site.

- For protection of the water quality within the grazing marsh and ditch habitats.

DC_NOR 1.6 Frontages onto Norman Road will have consistent and organised arrangement of planting and allow intermittent approach views towards Riverside 1 and Riverside 2, and into the CCF site.

- To enable visual connectivity and orientation for public access and visitors to the facilities.
- To ensure that there is a common approach to landscape planting/treatment of the public facing boundary of the CCF site to help create visual unity to the variety of functions/built elements along the length of the CCF site edge.

DC_NOR 1.7 Norman Road margin planting to comprise native species, including the grasses/wildflowers alongside the mown road verge.

- To increase local biodiversity.
- To be appropriate for the local character.
- Grasses/wildflowers to be selected and managed to provide up to 1.5m height.
- To be a part of the systematic approach of new structural planting making up the features of the grazing marsh/flood plain landscape.
- To improve the experience travelling along the length of the Norman Road.

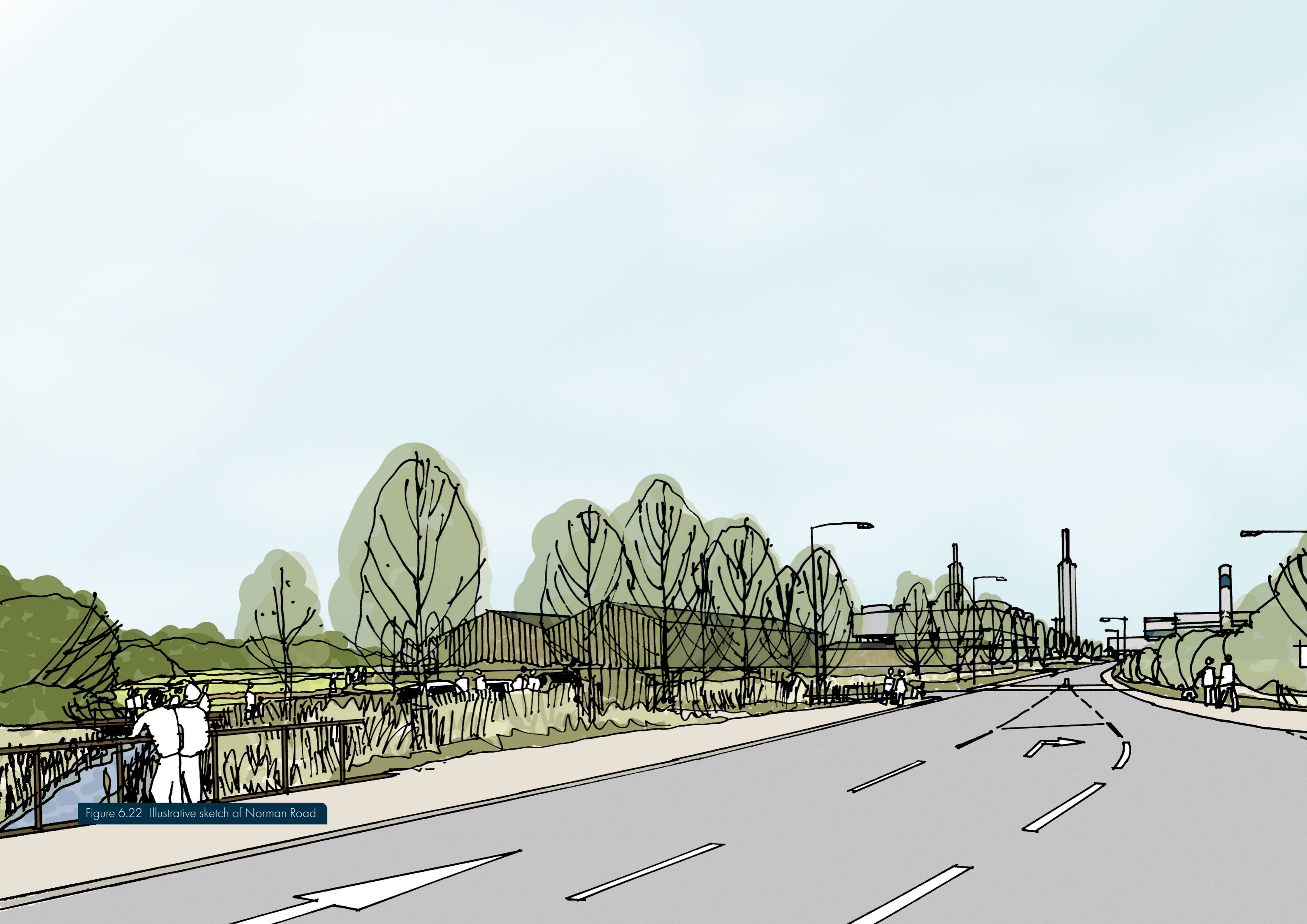


Figure 6.22 Illustrative sketch of Norman Road

7.0 Conclusion



7.1 Conclusion

Embedding 'Good Design'

The information included within this Design Approach Document and reflected across the DCO Application demonstrates compliance with the criteria for 'Good Design' and comprehensive alignment with NPS EN-1, the Overarching National Policy Statement for Energy (section 4.7).

Our approach complies with para 4.6.5 of NPS EN-1, which states that 'Design principles should be established from the outset of the project to guide the development from conception to operation', reinforced by the National Infrastructure Commission's (NIC) Design Principles guidance and the Design Principles within the Bexley Growth Strategy.

The Proposed Scheme (section 4.0) has had regard to good design from its earliest stage, including the organisation of the design process/ approach described in section 2.1, and through the development of the design (section 5.0). The approach to design governance is expressed through the use of principles, expressed in section 2.3, reflecting guidance published by the NIC and in accordance with recommendations in NPS EN-1. The different levels of principles are 'nested' and provided project level control from the outset through both the Project Principles and Optioneering Principles, using Design Principles and Design Code to control design through to delivery. The optioneering process is described in the DAD at section 5.1 and set out the reasons why the preferred masterplan was selected and the criteria (Optioneering Principles, which flowed from the Project Principles) used to inform that decision.

The approach to sustainability is explained in section 5.4, including how the Design Principles and Design Code align with the UN Sustainability Development Goals.

Cory appointed LDA Design as design leaders for the project who are recognised experts in infrastructure design and masterplanning and have advised the client on all elements of the project of relevance to design and environmental integration. The design process has been cognisant of design guidance published by London Borough of Bexley, outlined at section 1.5. The proposals have also been shaped by the consultation process that is outlined in section 2.4.

LDA Design has advised and supported the evolution of an integrated design that responds to its environment and in response to the Environmental Impact Assessment process to accord with IEMA's guidance, 'Shaping Quality Development' and to accord with para 4.6.12 of NPS EN-1. The assessment of the impacts of the Proposed Scheme expressed in the Environmental Statement (Document Reference 6.1 to 6.4), have been based on a proper understanding of the Proposed Scheme design and the level of commitment made in the DCO to embed the mitigation and design standards set out in the Design Principles and Design Code, in order to secure good design outcomes and minimise impacts.

Demonstrating 'Good Design'

The Proposed Scheme is founded on an appreciation of its context, set out in section 3.0. Indeed, Project Objectives, including proximity to the River Thames both to sustain the operational requirements of Riverside 1 and 2 and for the export of captured carbon, underpin the Proposed Scheme's siting. As a project of national significance, it is designed to be sensitive to place, addressing recognised impacts on land use, amenity, heritage and the natural environment. The proposals are designed to be attractive, durable, fit for purpose, and adaptable, not least to natural hazards including flooding. The proposals incorporate the operational, safety and security requirements of the Applicant.

The Carbon Capture Facility and Proposed Jetty have a clear functional appearance, aesthetic and purpose. The Design Principles and Design Code (Document Reference 5.7) address the visual appearance of the project infrastructure, buildings and structures and how they relate to the landscape and the surrounding environment, providing a strong and attractive naturalistic context.

The Proposed Scheme embeds opportunities for nature inclusive design, within the built form but primarily through provision for an expanded Crossness Local Nature Reserve supported by an improved water environment to support the improvement of the flood plan grazing marsh that characterises a substantial area of the Site.

The realisation of this project of national significance, will result in a direct loss of land designated under a number of biodiversity, open space and green infrastructure policies, considered in Chapters 7, 10 and 14 of the ES and in the Planning Statement. The Proposed Scheme acknowledges this loss and responds with integrated opportunities to improve the local environment, accessibility and connections, delivering BNG and providing appropriate resources to ensure their long-term management.

The Environmental Proposal (defined within the Outline LaBARDS) is underpinned by 3 main elements:

One Nature Reserve

Expand the existing Crossness Local Nature Reserve into the land immediately south and west of the Carbon Capture Facility providing a gain of 5 to 6ha for land under CLNR management.

Diverse Grazing Marsh and Biodiversity

Improving the distinctiveness and condition of existing valued flood plain grazing marsh habitats, delivered by raising water table and managed grazing densities, delivering direct mitigation for the physical loss of grazing marsh habitat.

Offsite Compensation

Areas of habitat lost due to the development would be re provided for and delivered onsite. Thamesmead Golf Course has been identified as one possible opportunity to enable 10% Biodiversity Net Gain (BNG) to be delivered.

The Proposed Scheme also aims to provide access and recreational benefit for local community and user groups as set out in section 4.4. This is in part achieved through optimising the operational facility footprint, pushing the development area required for the Carbon Capture Facility to the north end of Norman Road brings operational advantages, but also the potential to open up the point of arrival to the Accessible Open Land.

Changing the entry point at the southern end of Norman Road from a constrained, poorly signed entrance, to be accessible, informative and welcoming space, potentially with parking, will enhance user experience.

These, environmental and social benefits deliver a local focus to the global benefits of achieving decarbonisation, as set out in the Project Benefits Report (Document Reference 5.4). The Proposed Scheme is an example of the industry investment sought by government to make an important and relevant contribution to meeting the global, national, and local, legal and policy driven targets of achieving net zero by 2050. Capturing at least 95% of the Applicant's combined fossil and biogenic CO₂ emissions can deliver net emissions saving of 1.6 MtCO₂, represents around 6% of UK waste sector CO₂ emissions. Good design is demonstrated through the Proposed Scheme, a project with a payback period, 'the time it would take for carbon emissions calculated for the construction and operation phases to be offset by the savings in carbon emissions from the Proposed Scheme' of less than 5 weeks.

Delivering 'Good Design'

This DAD demonstrates the measures taken to enhance and contribute to the quality of the area and demonstrates the approach to secure a good aesthetic for both the built and landscape elements.

This integrated approach to built form and landscape design is controlled through to delivery by the Design Principles and Design Code (Document Reference 5.7) and the Outline LaBARDS (Document Reference 7.9) with both documents submitted for approval.

Aligned with the project Parameters, and Works Plans good design is demonstrated to be embedded across a suite of comprehensive controls for use by London Borough of Bexley at subsequent stages.

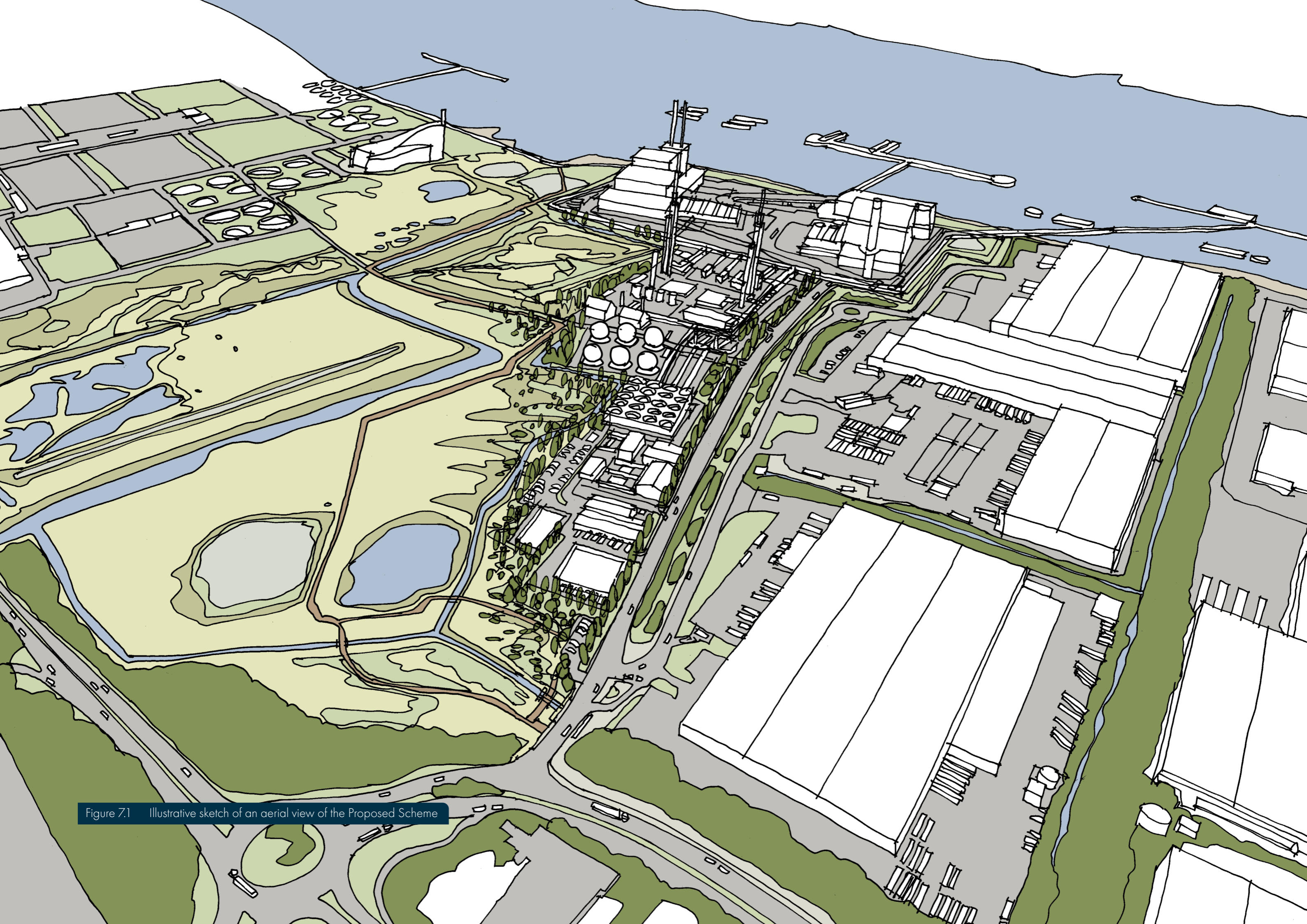


Figure 7.1 Illustrative sketch of an aerial view of the Proposed Scheme

8.0 Project Team

8.1 Project Team

Cory

- Client/Applicant

WSP

- Engineering services
- Planning consultancy
- EIA lead
- EIA technical disciplines
- Project management

Pinsent Masons

- Legal consultants

Camargue

- Engagement consultants

Ardent

- Land assembly

LDA Design

- Design leadership
- Masterplanning



Pinsent Masons



9.0 Appendices



9.1 Appendix A - London Borough of Bexley

Planning Application Requirements October 2018

LBB have published guidance on design and access statements. The following is noted: A design and access statement should be about— (a) the design principles and concepts that have been applied to the development; and, (b) how issues relating to access to the development have been dealt with. A design and access statement must— (a) explain the design principles and concepts that have been applied to the development; (b) demonstrate the steps taken to appraise the context of the development and how the design of the development takes that context into account; (c) explain the policy adopted as to access, and how policies relating to access in relevant local development documents have been taken into account; (d) state what, if any, consultation has been undertaken on issues relating to access to the development and what account has been taken of the outcome of any such consultation; and, (e) explain how any specific issues which might affect access to the development have been addressed. The level of detail required in a design and access statement will depend on the scale and complexity of the application, and the length of the statement will vary accordingly.

London Borough of Bexley Growth Strategy December 2017

LBB's Growth Strategy outlines the role of design principles and high level/broad and detailed principles (Appendix C), that the council will use in determining development proposals submitted for planning.

Urban Design Principles – Chapter 4 notes that design principles:

- help ensure the creation of healthy, high quality, sustainable, accessible, safe and durable place.
- design quality will be assessed through the planning process. The Council has in place a design review panel that will be used as part of the pre-application stage of development to help shape proposals. Developers will be expected to work with the London Borough of Bexley and the Greater London Authority to ensure relevant principles are applied. The design principles detailed here are to ensure that design is of the highest quality.

Broad design principles

LBB note that general design principles will facilitate the achievement of the highest quality architecture and urban design.

Relevant elements within the general (broad) principles identified by LBB include:

1. Ensure that new development is fully integrated with the existing area and has regard to the area's heritage
2. Create variety and add identity to instil a unique sense of place, taking inspiration from the existing character and context without being overly restricted by it. Where heritage assets are present, they should be protected and utilised, providing an important part of the context and inspiration for new development and being integrated into that new development wherever

possible.

5. Incorporate variations in heights and massing without creating abrupt differences and ensuring appropriate transitions.

Detailed Principles

(Examples of relevant elements within the detailed principles identified by LBB include):

Riverside development principles

1. Ensure Thames and Cray riverside developments contribute to the improvement and creation of a high quality river walkway.
3. Design in effective flood defence mechanisms... and protect the biodiversity of the riverside edge, and use development as an opportunity to enhance biodiversity.
4. Maximise the windows and doors onto the river frontage public realm.
5. Enliven river edges...Where appropriate, create green spaces to act as buffer zones between development and river's edge, to provide visual, amenity, and biodiversity benefits.
6. Provide appropriate lighting features for the river frontage and in key public spaces.
7. Preserve and incorporate riverside heritage features, including former industrial structures, wherever possible to add interest and variety, and take inspiration from the topography of the river including its bends and banks.

Green and blue infrastructure principles

1. Incorporate green roofs and walls, street trees and grass verges into the urban fabric to soften

the landscape, reduce surface water run-off and improve the environment. Planting should use native species as appropriate.

2. Create green links, including linear parks between neighbourhoods to promote access and improve biodiversity, aiming for a net increase in native species.

3. Create and improve connectivity to rivers and lakes.

4. Consider the use of water features and whether they could provide a flood attenuation function, where appropriate.

5. Use landscaping materials that are high quality and low maintenance.

Sustainable design principles

1. Make sustainable design standards integral to all development and consider them at the beginning of the design process.
3. Minimise flood risk through the integration of flood defences, the use of sustainable urban drainage systems and water saving measures.

Movement principles

5. Incorporate high quality and low maintenance landscaping where appropriate.
6. Provide pedestrian and cycle crossings along desire lines to the Thames riverside and other key locations.
9. Provide links for pedestrians and cyclists to key destinations including shops and services, transport links and amenity space.

9.2 Appendix B - NPS EN-1

4.6.2 Applying “good design” to energy projects should produce sustainable infrastructure sensitive to place, including impacts on heritage, efficient in the use of natural resources, including land-use, and energy used in their construction and operation, matched by an appearance that demonstrates good aesthetic as far as possible. It is acknowledged, however that the nature of energy infrastructure development will often limit the extent to which it can contribute to the enhancement of the quality of the area.

4.6.3 Good design is also a means by which many policy objectives in the NPS can be met, for example the impact sections show how good design, in terms of siting and use of appropriate technologies, can help mitigate adverse impacts such as noise.

4.6.4 Given the benefits of “good design” in mitigating the adverse impacts of a project, applicants should consider how “good design” can be applied to a project during the early stages of the project lifecycle.

4.6.5 To ensure good design is embedded within the project development, a project board level design champion could be appointed, and a representative design panel used should be established from the outset of the project to guide the development from conception to operation.

(Design principles should be established from the outset of the project to guide the development from conception to operation.)

4.6.6 Whilst the applicant may not have any or very limited choice in the physical appearance of some energy infrastructure, there may be opportunities for the applicant to demonstrate good design in terms of siting relative to existing landscape character, land form and vegetation. Furthermore, the design and sensitive use of materials in any associated development such as electricity substations will assist in ensuring that such development contributes to the quality of the area. Applicants should also, so far as is possible, seek to embed opportunities for nature inclusive design within the design process.

4.6.7 Applicants must demonstrate in their application documents how the design process was conducted and how the proposed design evolved. Where a number of different designs were considered, applicants should set out the reasons why the favoured choice has been selected.

4.6.8 Applicants should consider taking independent professional advice on the design aspects of a proposal. In particular, the Design Council can be asked to provide design review for nationally significant infrastructure projects and applicants are encouraged to use this service. Applicants should also consider any design guidance developed by the local planning authority.

4.6.9 Further advice on what applicants should demonstrate by way of good design is provided in the technology specific NPSs where relevant.

4.6.10 In the light of the above and given the importance which the Planning Act 2008 places on good design and sustainability, the Secretary of State needs to be satisfied that energy infrastructure developments are sustainable and, having regard to regulatory and other constraints, are as attractive, durable, and adaptable (including taking account of natural hazards such as flooding) as they can be.

4.6.11 In doing so, the Secretary of State should be satisfied that the applicant has considered both functionality (including fitness for purpose and sustainability) and aesthetics (including its contribution to the quality of the area in which it would be located, any potential amenity benefits, and visual impacts on the landscape or seascape) as far as possible.

4.6.12 In considering applications, the Secretary of State should take into account the ultimate purpose of the infrastructure and bear in mind the operational, safety and security requirements which the design has to satisfy. Many of the wider impacts of a development, such as landscape and environmental impacts, will be important factors in the design process.

4.6.13 (Design principles should take into account any national guidance on infrastructure design, this could include for example the Design Principles for National Infrastructure published by the National Infrastructure Commission, the National Design Guide and National Model Design Code, as well as any local design policies and standards.)

9.3 Appendix C - LBB SP8 - MOL, Open Space and GI

Bexley's green infrastructure, including open spaces and waterways will be protected, enhanced, restored and promoted as valuable resources to provide a healthy integrated network for the benefit of nature, people and the economy. Future development must support the delivery of a high-quality, well-connected and sustainable network of open spaces. In particular, this will be achieved by:

- a. protecting Metropolitan Open Land from inappropriate development;
- b. encouraging beneficial use of Metropolitan Green Belt such as opportunities for public access, outdoor sports and recreation, retaining and enhancing landscapes, visual amenity, biodiversity or to improve damaged and derelict land;
- c. protecting Urban Open Space, only allowing development where the public benefit of the development clearly outweighs any harm;
- f. working in partnership, seeking funding and supporting projects to promote the restoration and enhancement of open spaces, public realm and the waterway network within the borough;
- g. agreeing proposals for creating or improving habitat, implementing priorities for the recovery of nature outlined in the relevant local nature recovery strategies, borough strategies or studies on open space, green and blue infrastructure, including where appropriate, rivers and waterways restoration;
- h. supporting the role waterways can play as tools in place making and place shaping, contributing to the creation of sustainable communities;
- i. supporting the creation of new cycling and walking routes to connect publicly accessible open spaces to main destination points, such as Town Centres, public transport hubs, community facilities, and other publicly accessible open spaces;
- j. supporting the creation of new cycling and walking routes to connect publicly accessible open spaces to main destination points, such as Town Centres, public transport hubs, community facilities, and other publicly accessible open spaces;
- k. ensuring all new developments deliver a net increase to green infrastructure;
- l. seeking opportunities in new development, where appropriate, to provide new open space, either through direct provision of new open space or improvement of existing open space through planning obligations;
- n. protecting and enhancing the biodiversity, heritage and archaeological values of open spaces.....
- q. protecting green wildlife and ecological corridors, seeking opportunities to increase connectivity between the network of green spaces and habitats to enhance biodiversity and promote accessibility wherever appropriate.....

9.4 Appendix D - Consultation

STAKEHOLDER CONSULTATION *	FEB 23	MAR 23	APR 23	MAY 23	JUN 23	JUL 23	AUG 23	SEP 23	OCT 23	NOV 23	DEC 23	JAN 24
Friends of Crossness Local Nature Reserve												
Peabody												
Thames Water												
London Borough of Bexley												
TECHNICAL CONSULTATION												
Air Quality				London Borough of Bexley (LBB)								
Noise and Vibration												
Terrestrial Biodiversity	Thames Water		FoCLNR		Natural England	Thames Water		FoCLNR; Natural England; LBB		FoCLNR; Thames Water	FoCLNR; Thames Water	
Marine Biodiversity			Environment Agency					Natural England			Environment Agency	
Historic Environment								GLAAS	GLAAS			
Townscape and Visual	LBB									LBB		
Water Environment and Flood Risk		Port of London Authority	Environment Agency		LBB			Environment Agency; LBB			Environment Agency	
Climate Resilience										Environment Agency		
Greenhouse Gases												
Population, Health and Land Use						LBB	UK Health Security Agency		Thames Water	Peabody		
Socio-economics				LBB								
Materials and Waste												
Ground Conditions and Soil	LBB								LBB; Environment Agency		Environment Agency	
Landside Transport				LBB; RBG; DBC; KCC; TfL					LBB; RBG; DBC; KCC; TfL			
Marine Navigation		Port of London Authority	Port of London Authority			Port of London Authority	Port of London Authority			Port of London Authority		
Major Accidents and Disasters							Northern Gas Networks	Scotia Gas Networks				

* the stakeholder consultation section of this figure only includes the meetings held

