Environment Agency

NEC4 Professional Service Contract (PSC)

Appraisal Scope

Project / contract information

Project name	Send Marsh Asset Improvement
Project SOP code	ENV0003449C
Contract number	33213
Date	25/03/22

Assurance

Author	Project Manager ([redacted])	Date: 22/09/2021
Consulted	Senior User ([redacted])	Date: 30/09/2021
Reviewed	Project Executive ([redacted])	Date: 29/09/2021
Reviewed	Commercial Lead ([redacted])	Date: 29/09/2021
Checked prior to issue	Commercial Services Manager ([redacted])	Date: 09/03/2022

Revision History

Revision date	Summary of changes	Version number
30/09/2021	First issue	1
01/11/2021	Second Issue (with Jacobs comments)	2
08/03/2022	Third issue containing accepted assumptions and results	3
09/03/2022	Fourth issue post- Commercial Services Manager review	4
15/03/2022	Fifth issue – JUK legal	5
17/03/2022	Sixth issue – final amendments post-CSM review and post-Jacobs review	6
21/03/2022	Seventh issue – Jacobs final comments	7

25/03/2022	Eighth issue – EA modellers' amendments incorporated	8

This Scope shall be read in conjunction with the version of the Minimum Technical Requirements current at the Contract Date. In the event of conflict, this Scope shall prevail. The *service* is to be compliant with the following version of the Minimum Technical Requirements:

Document	Document Title	Version No	Issue date
LIT 13258	Minimum Technical Requirements	MTR V12	30/12/2021
LIT 56326	Fluvial Modelling Standards		July 2021
LIT 18686	NEC4 Minimum Technical Requirements for Modelling		12/08/2021

1 Overview

1.1 Background

The Send Marsh Asset Improvement project is located at the East Clandon Stream, Send Marsh, near Woking, within the Borough of Guildford, Surrey. Send Marsh has been subject to a number of flooding events over the past 40 years. In October 2000, there was a significant flood event in which 16 properties were flooded.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

The section of the flood defence at risk includes the flood defence wall constructed on the west bank of the East Clandon stream between the Portsmouth Road culvert and the Send Marsh Road culvert. At this location, several sections of the watercourse bank revetments have collapsed, posing a risk to the integrity of the flood defence wall (approximately 370m in length) and its ability to protect the 33 at-risk properties.

The Send Marsh Asset Improvement project seeks to restore the design life of the failing asset and thereby mitigate the significant legal liability, financial losses and adverse reputational consequences that would come to bear on the Environment Agency if no intervention is made to address the issues relating to the failing asset. As the flood defence is a failing asset, it is categorised as being Below Required Condition (BRC) and is reported as such on the EA's asset management system.

The proposed work is to appraise long-term sustainable engineering options for addressing the failing flood defence at Send Marsh village.

1.2 Previous Studies

In undertaking the *service* the *Consultant* shall take account of the previous studies detailed in the table below and produce a short technical summary explaining how best use will be made of historical data.

Report	Date	Format
East Clandon Stream Feasibility Report	Jun 2005	Digital
Factual Report on Ground Investigations Send Marsh	Jan 2006	Digital
East Clandon Stream Send Marsh As-Built Drawings	May 2008	Digital
East Clandon Stream Health and Safety File	Apr 2009	Digital
East Clandon Stream Flood Defence Topo Survey	Mar 2018	Digital
East Clandon Stream Modelling Study	Jun 2020	Digital
Initial Condition Assessment Report	Sep 2020	Digital
Geomorphological Assessment of East Clandon Stream	Nov 2020	Digital
Strategic Outline Busines Case (SOC)	May 2021	Digital
EA_East_Clandon_review_v3	2020	Digital

The previous studies have been undertaken by or for the *Client* using reasonable skill and care and have been accepted. The *Consultant* shall review the information provided and notify the *Client* of any deficiencies in its adequacy. Following this review, and completion of any work required to rectify the deficiencies identified, the *Consultant* shall take the risk of any deficiencies in existing data quality and quantity which have not been notified to the *Client*.

1.3 Objective

The *Client*'s wider objective for the overall project is to provide a long-term sustainable option which will address the existing health and safety hazards, increased flood risk and progressing bank erosion. [redacted]

The *Client* considers that the following sub-objectives will ensure successful project delivery and as a result requires the *Consultant* to contribute to the achievement of these by carrying out the *services* set out in this Scope including the requirements detailed in Section 2. The aspects that are most relevant to this commission are highlighted in bold (they are linked to the *service* detailed in Section 2 below).

1. **Provide a new flood defence that addresses the current reasons of asset failure and is designed with consideration of site factors, so that it adequately addresses the flood risk in the study area**
2. **Deliver value for money**
3. **Minimise carbon footprint of improved asset**
4. **Contribute to delivery of Water Framework Directive (WFD)**
5. **Maximise environmental opportunities and Biodiversity Net Gain**
6. **Contribute to national outcome measure targets for flood risk and environmental benefits (OM2)**
7. **H&S prioritised in decision making through the whole lifecycle of this project**
8. **Seek opportunities for upstream water management to reduce flood risks and erosion**
9. **Maximise savings and contribute to EA efficiency targets**

[redacted]

11. Maintain proactive stakeholder engagement and develop strong partnerships
12. Handover of the asset to the landowner

A sustainable flood risk management option is required which would address the causes of the current asset failure and reduce flood risk at the project location to an acceptable level.

An asset condition survey undertaken by CSF consultants in September 2020 confirmed that the underlying cause of asset failure appeared to be related to uncontrolled bank erosion. In addition, 65% of the flood defence was in Fair to Very Poor condition and 50% of the asset had a risk of failure in winter 2020/21 of Medium to High, so is in need of urgent repairs.

A geomorphological desk study to investigate the underlying cause of asset failure was carried out by the EA in October 2020. The study concluded that the extensive erosion and scouring

was enabling the continuous process of stream bed lowering and incision. This uncontrolled lowering of the stream bed is contributing to the loss of the banks and hence the undermining of the flood defence.

To prevent the continued deterioration of the flood defence, the construction of a resilient and permanent flood defence on the degrading west bank of the stream is required. In addition, it will be important to reduce the stream energy during higher flows, and thereby the rate of stream bank and bed erosion.

This could be achieved by upstream attenuation, potentially through Natural Flood Management (NFM) measures (e.g. leaky dams etc.) and also on-site changes to the channel cross section e.g. creation of a 2-stage channel, restoring the bed with natural substrate and slowing the flow using large woody debris. This could also provide benefits to the catchment including enhanced ecology, landscape and water quality, thereby helping meet environmental obligations such as biodiversity net gain and WFD improvements.

[redacted]

[redacted]

[redacted]

For the avoidance of doubt and notwithstanding any other terms of this Scope the *Consultant*'s obligation is to use the skill and care referred to in 20.2 of the NEC4 PSC to Provide the Service in accordance with the Scope.

2 The service[1]

2.1 Outcome Specification

The *Consultant* shall deliver the *service* such that it meets the outcomes listed in this section.

[1] For the avoidance of doubt the *service* is not limited to this section 2 and also includes sections 3 -11 of this Scope.

The *Consultant* shall demonstrate sustainability leadership through fully considering and contributing to achieving the *Client*'s environment and sustainability ambitions and targets. These are set out in the EA2025 Action Plan, e:Mission 2030 Strategy, the Defra 25 Year Environment Plan and are in line with the principles of sustainability as described by the United Nation's Sustainable Development Goals.

The *Consultant* shall design the scheme taking into account the environmental sensitivities and opportunities of the sites and involving key environmental specialists as appropriate within the *Consultant's* and the *Client's* organisations. The *Consultant's* focus should be on cost effectiveness when undertaking this task.

The *Consultant* shall ensure the optioneering process fully considers and addresses sustainability including carbon reduction as strategic outcomes. The EA business case template further requires separate option appraisals of sustainability benefits and whole-life carbon to compare with the economic appraisal and promotes a preference for the most sustainable option.

The *Consultant* shall ensure the optioneering process fully considers environmental mitigation and opportunities to further conserve and enhance as per the *Client's* legal and policy obligations but to also contribute to the *Client's* ambitions. This includes delivery against OM4 to achieve Biodiversity Net Gain. The *Consultant* shall ensure the optioneering process avoids where possible, minimises and compensates or offsets any adverse environmental effects.

The *Consultant* shall analyse the scour and sediment flow in the stream to understand the prevailing geomorphology and so the preferred option is appropriately designed. The quantitative assessment of erosion risk should be carried out using the most appropriate techniques.

The *Consultant* shall produce an outline design which seeks to provide the optimum economic, technical, social and environmental/sustainability/carbon outcomes, supported by evidence that will enable the *Client* to produce an Outline Business Case. The *Consultant's* approach shall be based on cost effectiveness and shall be consistent with the prerequisites of the Minimum Technical Requirements (MTR). The critical outputs shall be developed in collaboration with relevant project team members, particularly with the contractor with respect to the buildability of the scheme.

The *Consultant* shall produce an appraisal report and outline design that enables the *Client* to achieve efficiency targets set for this commission and future stages of the project using the Combined Efficiency Reporting Tool (CERT).

The *Consultant* shall ensure that the options and final solution take into consideration all relevant guidance and legislation and seek to minimise long-term asset/land management and maintenance costs and carbon.

The options will also demonstrate that the *Consultant* has learnt from best practice and demonstrate how optimum flood risk reduction, natural processes, carbon reduction, recreation, good ecological water quality and visual amenity can be combined.

This commission must consider planning permission and all other necessary permissions/licences to be obtained at detailed design stage. The outline design shall feasibly be able to obtain planning permission.

The *Consultant* shall appraise the shortlist of options developed in the pre-SOC stage and identify a preferred option and develop this option, its impacts, planning and Environmental Impact Assessment (EIA) requirements, scoped to a level that it can be priced.

The *Consultant* shall assume that the options shortlisted in the OBC will be aligned with the strategy identified in the SOC. However, the *Consultant* shall not assume that the preferred option will necessarily be the same as that identified at the SOC stage.

The *Consultant* shall compile the supporting technical documentation required for the *Client* to obtain a screening opinion from the local planning authority.

The appraisal is to be delivered based on a cost effectiveness approach which should recommend the least whole life cost option. The *Consultant* is therefore not required to value the benefits (of either the reduction in flood damages or other environmental/social impacts delivered by the project). However, the *Consultant* shall be explicit about the benefits that the Send Marsh project can deliver, in particular any OM2, OM4 or other environmental benefits. These should be described and recorded in an Appraisal Summary Table and physically quantified where possible.

An interactive planning session for detailed design stage programming may be required, which will present a forum for the whole project team to develop a programme to deliver the FBC for the preferred option. If required, this will be instructed by the *Client* via a Compensation Event.

The *Consultant* shall make appropriate use of existing data, to avoid duplicating work already undertaken (for example geomorphology reports). In addition, any other existing sources known to the *Consultant* should be utilised.

The *Consultant* shall not exceed the forecast of the total of the Prices for providing the *Services* without obtaining the *Client's* prior written confirmation to proceed and raising an Early Warning

The *Consultant* shall not discuss the project's study area's risk or environmental status with any stakeholders without previous agreement from the *Client.*

[redacted]

***Consultant* Project Management**

In managing the *service* the *Consultant* shall follow all the requirements as set out in the Collaborative Delivery Framework schedules and the relevant content of the Minimum Technical Requirements.

In managing the *service* the *Consultant* shall:

- Contribute monthly to the updates to the project risk register.
- Provide input to project efficiency CERT Form.
- Attend progress meetings and prepare record minutes within a week for the *Client* to issue.
- Produce monthly financial updates and forecasts meeting the *Client's* project reporting timetable together with progress reports. Monthly financial updates and forecasts to meet *Client* deadlines shall be provided by no later than the 10th day of each month, or as otherwise agreed at the project start up meeting.
- Deliver a monthly progress report in the *Client's* standard template (Link) (or as otherwise agreed with the *Client*) giving progress against programme, deliverables received and expected and financial and carbon summary against programme.
- Attend project board meetings as required.
- Ensure quarterly input into framework performance assessment/environmental Performance Measures.
- Ensure the *Consultant's* environmental lead provides monthly progress and risk reviews to the *Client* and attends progress meetings, as invited.
- Maintain and show how accurate and up to date information on the whole-life cost and carbon of options is driving optimum solutions at all stages of design development.
- Capture lessons learnt relevant to scheme delivery for the *Client's* Project Manager to include in the scheme lessons learnt log to be appended to the OBC.

The contract will be administered using FastDraft.

Outputs and Deliverables

The *Consultant* shall provide input to product descriptions for key outputs and deliverables that they shall produce during the appraisal stage. The *Consultant* shall agree the list of products with the *Client* and submit the product description for the *Client's* approval before commencing work on the product.

The *Consultant* shall produce the following key documents for this commission:

- Modelling report.
- Economics report.
- Options appraisal report.
- Documentation of the environmental process and considerations including risks and opportunities (e.g. Scoping Report).
- Outline Design(s) including adequate information for pricing.
- Carbon Optimisation Report.
- Programme showing milestones to construction completion for the preferred option including funding and environmental constraints and opportunities. The Programme shall take account of the timeframe required for all approvals necessary for mitigation and enabling works to be carried out in advance of main construction.
- Draft text within the relevant sections of the OBC.

3 Site Investigation

Topographic Survey

3.1.1 The *Consultant* will review previous topographic survey to identify gaps in existing data. The Consultant will use this to inform the scope of supplementary topographic survey required.

3.1.2 The *Consultant* shall work with NEAS to ensure that environmental and sustainability constraints within the likely scheme footprint are identified and included in the survey and to determine if efficiencies can be made by joint working.

3.1.3 A topographical survey of the stream in the immediate vicinity of the failing flood defence is required in order to provide further details to enable optimal alignment of the flood defence and to facilitate design. Specific requirements are:

- Preparation of a brief and procurement of the survey in accordance with the current version of the Environment Agency's National Standard Technical Specifications for Surveying Services, to enable the above.
- Review and agree surveyors' site risk assessment.
- Supervision and management of the topographic survey.
- Review data / checking deliverables.
- The *Consultant* shall undertake the topographic survey necessary to be able to assess the shortlist of options and complete an outline design. The cost for undertaking the survey will not be included in the contract target price but will instead be instructed by the *Client* via a Compensation Event.

3.1.4 The *Consultant* shall use the outputs from the topographic survey in their modelling and option appraisal, as required.

3.1.5 The *Consultant* shall provide the final output of the survey as a survey report in paper/digital format, together with the survey data in digital ASCII format ready to be imported into a GIS system.

Ground Investigation

3.1.6 The *Consultant* shall scope the Ground Investigation required to be able to undertake an options appraisal and detailed design and agree the scope with the *Client.*

3.1.7 The *Consultant* shall ensure that the environmental risks and opportunities associated with the Ground Investigation, including the collection of environmental evidence to support Appraisal and Assessment, are identified and addressed.

3.1.8 In scoping the Ground Investigation works the *Consultant* shall include the necessary works to facilitate efficient and sustainable materials management planning and re-use within the project.

3.1.9 The *Consultant* shall identify any contaminated land within the area of the project and specify testing within the Ground Investigation scope such that it can be classified properly for disposal.

3.1.10 The *Consultant* shall clearly communicate the scope of the Ground Investigation to the Lot 2 contractor for the Lot 2 contractor to undertake.

3.1.11 The *Consultant* shall supervise the Ground Investigation undertaken by the Lot 2 contractor. The supervision activity will be instructed by the *Client* via a Compensation Event.

3.1.12 The *Consultant* shall produce a summary of key interpretative decisions for the Ground Investigation undertaken by the Lot 2 contractor.

Services Search

3.1.13 The *Consultant* shall obtain services data from utility companies and shall ensure services data is requested from relevant landowners. This shall include direct costs of obtaining data. This shall be incorporated into the appraisal, including preparation of plans.

4 Hydrology and Hydraulics

General

4.1.1. The existing modelling is identified in the table in Section 1.2. The extents of the modelling and assumptions made are within the Modelling Study referred to in Section 1.2.

4.1.2. The *Consultant* shall verify the suitability of the model for achieving the project objectives with quality and extent checks.

4.1.3. Any improvement to the hydrology or schematisation of drainage networks or representation of topography identified / recommended from model quality and extent checks shall be instructed by the *Client* via a Compensation Event.

4.1.4. Modelling of the defence wall ‘Breach’ scenario is required to determine the extent of the flood risk to the affected properties, as required by the NPAB review of July 2021. The *Consultant* is also required to provide the *Client* with information on the upstream and downstream transfer of flood risk, to ensure that there is no transfer of risk elsewhere. (Please refer to LIT56413 – Breach of Defences Guidance.)

4.1.5. Assessment will assess one iteration of four scenarios comprising, a breach of the existing defence, Option 1, Option 2 and Option 3 (refer to section 7). Any option development / refinement shall be instructed by the *Client* via a Compensation Event.

4.1.6. Determination of the preferred option will be based on assessment against the following annual exceedance probability events 50%, 5% 2%, 1%, 1% plus climate change and 0.5%. Results of flood depth and extent and velocity will be generated as gridded data compatible with geographical information systems only.

4.1.7. The preferred option will be selected based on a range of environmental and sustainability criteria informed by information from the hydraulic model pertaining to flood risk (including durations) and risk of exacerbating scour risk upstream and/or downstream of the subject site.

4.1.8. The preferred option design will be developed to the final design case through consideration of the following additional low flow conditions: Q95 and Q50 (the low flow data for Q95 and Q50 will be provided by the Environment Agency).

4.1.9. Additional runs shall be allowed for the final design case to give a sensitivity analysis on up to three key model parameters.

4.1.10. The output shall be designed to interface with the economic analysis to allow for depths and durations of flooding to be determined.

4.1.11. Hydraulic model results of flood extent, depth and velocity and depth and velocity difference mapping for the final design case shall be provided as mapped deliverables.

4.1.12. The *Consultant* shall report on the existing flow capacity of the channel, the potential maximum flow from the catchment (from already available hydrological estimates associated with the hydraulic model) and the volume of attenuation required in the catchment to limit to the channel capacity. This shall support any requirement for flow attenuation by Natural Flood Management (NFM) or other measures to manage surface water flows during storm events. All tasks related to the determination of upstream flow attenuation and NFM requirements will be instructed by the *Client* via a Compensation Event.

4.1.13. Computational Fluid Dynamics (CFD) modelling of the scour and sediment flow in the stream may be required to understand the prevailing geomorphology. However, this modelling activity does not form part of this Scope, and if required, shall be instructed by the *Client* via a Compensation Event.

5 Economics Appraisal

The Economics appraisal will follow a Cost Effectiveness Analysis (CEA) approach.

The *Consultant* shall undertake a cost effectiveness analysis (CEA) approach to establish the least cost method of fulfilling the obligations, rather than a full cost benefit analysis (CBA). The *Consultant* shall recommend the least whole life cost option and is not required to value the benefits (of either the reduction in flood damages or other environmental/social impacts delivered by the project). However, the *Consultant* shall be explicit about the benefits that the Send Marsh project can deliver, in particular any OM2, OM4 or other environmental benefits. These shall be described and recorded in an Appraisal Summary Table and physically quantified where possible.

Costs will be the whole life expenditure including, design, investigation, construction, operation and maintenance. Costs can be devised in the most efficient but accurate manner and Early Supplier Engagement (ESE) input is required form the Lot 2 contractor. The *Client* will provide support and costs where possible to complete this estimate.

Carbon will be whole-life emissions of an asset including embodied (construction), operation, maintenance and end of life emissions. The values will be calculated from the carbon tool (OI 120_16) to help optimise all options through all stages of design and business case development.

Risk and Optimism Bias allowances shall be calculated in accordance with Risk Guidance for Capital Flood Risk Management Projects. The *Consultant* shall attend and facilitate a risk workshop.

Selection of the preferred option shall be undertaken in accordance with the FCERM-AG decision rules including consideration of the most sustainable and lowest carbon options following the EA business case template and guidance.

The assessment shall include for sensitivity tests to look at the effects of any changes to key parameters / beneficiaries and to demonstrate the robustness of any key assumptions made.

Economic, Sustainability and Carbon Appraisal Deliverables

The *Consultant* shall provide the results of this section of the study in an economics report which shall feed into the economics appendix of the OBC. This will provide a clear view of the process in order that the economic lead for the review team can review the process. As a minimum this will include, but not be limited to:

- Overview of methodology adopted.
- Parameters considered and not used together with reasons.
- Key receptors/major beneficiaries.
- Assumptions made.
- How the decision rules have been applied.
- What sensitivity tests have been applied and why.
- Treatment of climate change, carbon reduction and sustainability benefits.

6 Environmental Assessment

The *Consultant* shall agree the expected environmental outputs following consultation with NEAS. The outputs identified shall take into account proportionality whilst supporting the achievement of the *Client*'s wider aspirations.

The *Consultant* shall give due consideration to the environmental and sustainability risks and opportunities throughout the design evolution of the project to maximise the delivery of *Client* and project objectives.

The *Consultant* shall ensure that the project level assessment sits within the context of any previous strategic environmental assessment and supporting information for the area and brings forward all relevant information and conclusions.

The *Consultant* shall establish and understand the baseline and the legal and policy context to identify the key environmental/sustainability risks and opportunities. This shall support the options appraisal and justify the need for any future environmental assessment activity.

The *Consultant* shall report the findings of the scoping exercise as required which will form an Appendix to the OBC with relevant summary details incorporated into the relevant section(s) of the OBC main text.

AD: The *Consultant* shall report on the CEEQUAL assessment in accordance with the hub workload plan.

7 Option Development

Two options have been brought forward for appraisal following the long list to shortlist exercise completed in the pre-SOC stage.

In addition, as recommended by the FCRM Appraisal Guidance and Investment and Funding teams, a third option will be appraised which will look at the feasibility of removal of the flood defence entirely and reinstating the stream bank back to its original position.

The three shortlisted options are:

Option 1:

- Full height modular retaining wall (e.g. Porcupine blocks or similar) up to crest level
- Stream bank and bed modifications (e.g. 2-stage channel, bed reinstatement etc.)
- NFM for upstream flow attenuation and environmental benefit

Option 2:

- Half-height modular retaining wall (e.g. Porcupine blocks or similar), with modular green block system (or similar) on top of wall up to crest level
- Stream bank and bed modifications (e.g. 2-stage channel, bed reinstatement etc.)
- NFM for upstream flow attenuation and environmental benefit

Option 3:

- 'Put Back to Original' - removal of existing flood defence and reinstating the original stream bank configuration

The *Consultant* shall confirm the options shortlist and undertake an appraisal of the three shortlisted options.

For Options 1 and 2, NFM will be required to provide flow attenuation upstream of the flood defence; this is to mitigate the scour-related element of the structure failure. However, the extent of the required NFM is not yet defined and some additional modelling may be required beyond the existing model extents to allow for NFM. This additional modelling and the associated assessment work required to identify suitable locations for NFM will not form part of this scope but will allow costs to be developed and will be instructed by the *Client* via a Compensation Event.

Options appraisal shall include engagement with the Lot 2 ESE contractor on pricing, buildability and maintainability and also with the *Client*, including Field Services and Area FCRM.

The *Consultant* shall analyse and appraise the carbon footprint of options as outlined in Section 11.

The *Consultant* shall seek options that support the e:Mission 2030 sustainability targets.

The *Consultant* shall use these outputs to select a preferred option. The *Consultant* shall facilitate a risk workshop to produce a risk register with analysis in accordance with LIT 14847 Risk Guidance for Capital Flood Risk Management Projects.

The *Consultant* shall develop the business case for the preferred option and the outline design including provision of specification, drawings and documentation required for Early Supplier Engagement.

The *Client* shall draft the scope for the next stage of the project (OBC-FBC) and the *Consultant* shall support the *Client* to produce the scope.

8 Stakeholder Engagement

The *Consultant* shall review the stakeholder engagement plan (SEP) prepared by the *Client* in the Initial Assessment stage. The *Consultant* shall ensure that the results from the stakeholder engagement inform the appraisal.

The *Consultant* shall provide technical support, prepare information for and attend a key stakeholder meeting as well as preparing information and reviewing external communications prepared by others (e.g. quarterly newsletters).

The *Consultant* will be requested to provide landowner engagement support relating to delivery of the NFM component. The extent of this support will be instructed separately by the *Client* via the NFM Compensation Event.

9 Health and Safety

Health, Safety and Wellbeing (HSW) is the number one priority of the *Client*. The *Consultant* shall promote and adopt safe working methods and shall strive to deliver design solutions that provide optimum HSW to all.

The *Consultant* shall follow and comply with the requirements outlined in the Safety, Health, Environment and Wellbeing (SHEW) Code of Practice (LIT 16559).

The *Consultant* shall supply designer risk assessments, drawings and any other data required to fulfil their duties under CDM.

The works on site included in the geotechnical section will be subject to notification to the Health and Safety Executive (HSE). Appraisal work to outline design shall be treated as if it was notifiable.

The *Consultant* shall fulfil the Principal Designer (PD) role and discharge the duties in accordance with the requirements of regulations 8, 9, 11 and 12 of the Construction Design Management Regulations 2015.

The PD must be a lead or active designer who can either demonstrate relevant Skills, Knowledge and Experience to undertake the role or have access to relevant support to discharge their duties.

The PD will demonstrate their compliance with their CDM duties by preparing and updating the Pre-Construction Management Tool on a monthly basis (or more frequently for start of construction activities) and liaising with the CSF Resident Principal Designer.

The PD will identify and track significant risks, scrutinise the quality of treatment of risks with regards to the principals of prevention, co-ordinate other designers' mitigation and handover designs which can be constructed safely.

The PD shall ensure there is effective liaison and coordination between phases with the Principal Contractor.

10 Business Case Submission

The *Consultant* shall aggregate all of the work undertaken from this commission into a business case document – the Outline Business Case. The format of this document and guidance on the contents is detailed in Write a Business Case LIT 55124 (Link) and the Business Case templates.

The *Consultant* shall be responsible for dealing with responses to queries during the approval process and any resubmission required.

The OBC delivery is to be in accordance with the *Client's* submission programme for the National Project Assurance Service (NPAS). The *Client* shall be kept up to date of progress and submission dates in order that the delivery of this to the review team can be programmed and a place booked at the appropriate review meeting.

This section of the study shall conclude with the final approval of OBC using latest EA Guidance including all appendices and FSoD approval following submission to NPAS.

11 Carbon

Carbon emissions shall be identified and assessed on a strategic whole life basis (cost and benefit) in the economic appraisal of options and also as a specific operational target (carbon budget) of the *Client*.

The capital carbon budget for the project has been calculated at 106 t CO_2e. The *Consultant* is required to work with the *Client* and the Lot 2 ESE contractor to reduce the project carbon footprint by at least 45% by readiness for service.

The *Consultant* shall demonstrate how they have met the corporate requirement for carbon reduction using the Carbon Tool, 'ERIC' and by:

- Identifying carbon differentials between alternative solution options at appraisal stage.
- Ongoing updates to the carbon calculator and use of the carbon calculator to inform design and construction methodology decisions.
- Completion and submission of the carbon calculator at the pre-defined stages.
- Inclusion of a whole-life carbon appraisal to ensure optimisation of lowest carbon in short-listed and preferred options in OBC.

12 General

N/A

13 Relevant guidance

The *Consultant* shall deliver the *service* using the following guidance, as appropriate:

Ref	Report Name	Where used
LIT 16559	Safety, health environment and wellbeing (SHEW) Code of Practice	Throughout
183_05	Data management for FCRM projects	Mapping and modelling
379_05	Computational Modelling to assess flood and coastal risk	Modelling
LIT 14847	Risk Guidance for Capital Flood Risk Management Projects	Option development
OI 120_16	Whole-life Carbon Planning Tool	Option development
LIT 14284	Whole Life (Construction) Carbon Planning Tool User Guide	Option development
	Access for All Design Guide	Option development
	Project Cost Tool	Costs
LIT 12982	Working with Others: A guide for staff	Consultation & Engagement
Gov.uk	Appraisal Guidance Manual	OBC
672_15_SD03	Business case template – 5 case Model	OBC
672_15_SD02	Short Form Business case template	OBC
LIT 4909	Flood and Coastal Erosion Risk Management appraisal guidance (FCERM-AG)	OBC
	Flood and Coastal Erosion Risk Management: A Manual for Economic Appraisal (the 'Multi Coloured Manual')	~~OBC~~
OI 1334_16	Benefits management Framework	OBC
LIT 15030	The Investment Journey	OBC
LIT 55124	Write a Business Case	OBC
LIT 14953	FCRM Efficiency Reporting – capital and Revenue	OBC
LIT 12280	Lessons Log template	OBC

Ref	Report Name	Where used
LIT 55096	Integrated Assurance & Approval Strategy	Approvals

14 Requirements of the Programme

The *Consultant* shall provide a detailed programme in Microsoft Project format version 13 or later, meeting all requirements of Cl.31 of the Conditions of Contract.

The *Consultant* shall provide a baseline programme for the project start up meeting and shall update the programme monthly for progress meetings with actual and forecast progress against the baseline. The programme shall also include alignment and submission of the BIM Execution Plan (BEP) and Master Information Delivery Plan (MIDP).

The programme shall cover all the activities and deliverables in the project and include all major project milestones from commencement to the end of the reporting, consultation and approvals stage.

The programme shall include review and consultation periods for drafts, scoping letters, statutory consultation etc.

The programme shall identify time risk allowance on the activities and float.

The following are absolute requirements for Completion to be certified:

- Population of the *Client's* latest version of the Project Cost and Carbon Tool, or its successor
- Transfer to the *Client* of BIM data
- Clause 11.2(2) work to be done by the Completion Date

15 Services and other things provided by the *Client*

Access to Environment Agency systems and resources including:

- Asite.
- FastDraft.
- Collaborative Delivery Community SharePoint access.

Letter of Appointment of CDM Advisor and Principal Designer.

Site access authorisation letter(s).

Previous studies listed in Section 1.2. The *Client* will provide the previous studies within two weeks of contract award.

16 Data

The handling of project data by the *Consultant* shall be in accordance with the requirements as contained in the Collaborative Delivery Framework schedules.

17 *Client's* Advisors

The *Client* for the Contract is represented by the Programme & Contract Management (PCM) team, primarily the EA Project Manager, acting as the Service Manager, and in their absence the Project Executive. Instructions may only be given by these staff.

The *Client* has a number of advisory departments. Instructions will only be deemed enacted from them when they are confirmed by an Instruction from the *Client*. These departments include Asset Performance, Partnership & Strategic Overview, NEAS, etc.

The *Client's* organisation has a regulatory function. Communications from the Environment Agency in its capacity as a regulator are not to be confused with communications as the *Client*.

18 *Client* Documents the *Consultant* Contributes to

The *Client* maintains several project documents. The *Consultant* is required to contribute to these *Client* owned documents:

- Project Risk Register.
- Project Efficiency CERT Form.
- Scheme Lessons Learnt Log.
- Cost and Carbon Tool (CCT).

Appendices

Appendix 1 – BIM Protocol

The *Consultant* shall adhere to the Environment Agency's Employers Information Requirements (EIR) framework level minimum technical requirements.

All *Client* issued information referenced within the Information Delivery Plan (IDP) requires verifying by the *Consultant* unless it is referenced elsewhere within the Scope.

https://www.asite.com/login-home

The *Consultant* shall register for an Asite Account and request access to the project workspace to view the IDP.

Appendix 2 – Modelling Technical Scope

N/A – project-specific approach agreed between modellers from *Client* and *Consultant.*