Framework: Collaborative Delivery Framework
Supplier: Ove Arup & Partners Ltd
Company Number: [redacted]

Geographical Area: North East
Contract Name: East Yorkshire Environmental Outcomes Study
Project Number: [redacted]

Contract Type: Professional Service Contract
Option: Option C

Contract Number: TBC

Stage: SOC_to_OBC

Revision	Status		Originator		Reviewer		Date

PROFESSIONAL SERVICE CONTRACT under the Collaborative Delivery Framework
CONTRACT DATA

Project Name East Yorkshire Environmental Outcomes Study

Project Number [redacted]

This contract is made on
between the *Client* and the *Consultant*

- This contract is made pursuant to the Framework Agreement (the "Agreement") dated 01st day of April 2019 and Framework Agreement Extension dated 1st April 2023 between the *Client* and the *Consultant* in relation to the Collaborative Delivery Framework. The entire agreement and the following Schedules are incorporated into this Contract by reference

- Schedules 1 to 23 inclusive of the Framework schedules are relied upon within this contract.

- The following documents are incorporated into this contract by reference
  Scope East Yorkshire Sustainablity Outcomes and Requirements Study V4

Part One - Data provided by the *Client*

Statements given in all Contracts

1 General

The *conditions of contract* are the core clauses and the clauses for the following main Option, the Option for resolving and avoiding disputes and secondary Options of the NEC4 Professional Service Contract June 2017.

Main Option	Option C	Option for resolving and avoiding disputes	W2

Secondary Options

X2: Changes in the law

X9: Transfer of rights

X10: Information modelling

X11: Termination by the *Client*

X18: Limitation of liability

X20: Key Performance Indicators

Y(UK)2: The Housing Grants, Construction and Regeneration Act 1996

Y(UK)3: The Contracts (Rights of Third Parties) Act 1999

Z: *Additional conditions of contract*

The *service* is To appraise the likely sustainability impacts of the East Yorkshire programme.

The *Client* is [redacted]

Address for communications [redacted]

Address for electronic communications [redacted]

The *Service Manager* is [redacted]
Address for communications [redacted]

Address for electronic communications [redacted]

The Scope is in
Scope East Yorkshire Environmental Outcomes Requirements Study V4

The *language of the contract* is English

The *law of the contract* is
the law of England and Wales, subject to the jurisdiction of the courts of England and Wales

The period for reply is 2 weeks

The *period for retention* is
6 years following Completion or earlier termination

The following matters will be included in the Early Warning Register

Early warning meetings are to be held at intervals no longer than 2 weeks

2 The *Consultant's* main responsibilities

The *key dates* and *conditions* to be met are *conditions* to be met	*key date*
'none set'	'none set'
'none set'	'none set'
'none set'	'none set'

The *Consultant* prepares forecasts of the total Defined Cost plus Fee and *expenses* at intervals no longer than 4 weeks

3 Time

The *starting date* is 02 September 2024

The *Client* provides access to the following persons, places and things

access	*access date*
[redacted]	[redacted]

The *Consultant* submits revised programmes at intervals no longer than 4 weeks

[redacted]

The period after the Contract Date within which the *Consultant* is to submit a first programme for acceptance is 4 weeks

4 Quality management

The period after the Contract Date within which the *Consultant* is to submit a quality policy statement and quality plan is 4 weeks

The period between Completion of the whole of the *service* and the *defects date* is 26 weeks

5 Payment

The *currency of the contract* is the £ sterling

The *assessment interval* is Monthly

The *Client* set total of the Prices is £59,558.15

The *expenses* stated by the *Client* are as stated in Schedule 9

[redacted]

[redacted]

[redacted]

6 Compensation events

These are additional compensation events

1. [redacted]
2. 'not used'
3. 'not used'
4. 'not used'
5. 'not used'

8 Liabilities and insurance

These are additional *Client's* liabilities

1. 'not used'
2. 'not used'
3. 'not used'

The minimum amount of cover and the periods for which the *Consultant* maintains insurance are

EVENT	MINIMUM AMOUNT OF COVER	PERIOD FOLLOWING COMPLETION OF THE WHOLE OF THE *SERVICE* OR TERMINATION
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	

Resolving and avoiding disputes

The *tribunal* is litigation in the courts

The *Adjudicator* is	'to be confirmed'
Address for communications	'to be confirmed'
Address for electronic communications	'to be confirmed'
The *Adjudicator nominating body* is	The Institution of Civil Engineers

Z Clauses

Z1 Disputes

Delete existing clause W2.1

Z2 Prevention

The text of clause 18 Prevention is deleted.
Delete the text of clause 60.1(12) and replaced by:
The *service* is affected by any of the following events
• War, civil war, rebellion, revolution, insurrection, military or usurped power;
• Strikes, riots and civil commotion not confined to the employees of the *Consultant* and sub consultants,
• Ionising radiation or radioactive contamination from nuclear fuel or nuclear waste resulting from the combustion of nuclear fuel,
• Radioactive, toxic, explosive or other hazardous properties of an explosive nuclear device,
• Natural disaster,
• Fire and explosion,
• Impact by aircraft or other aerial device or thing dropped from them.

Z3 Disallowed Costs

Add the following in second bullet of 11.2 (18) add:
(including compensation events with the Subcontractor, i.e. payment for work that should not have been undertaken).
Add the following additional bullets after 'and the cost of ' :
• Mistakes or delays caused by the *Consultant's* failure to follow standards in Scopes/quality plans
• Reorganisation of the *Consultant's* project team
• Additional costs or delays incurred due to *Consultant's* failure to comply with published and known guidance or document formats
• Exceeding the Scope without prior instruction that leads to abortive cost
• Re-working of documents due to inadequate QA prior to submission, i.e. grammatical, factual arithmetical or design errors
• Production or preparation of self-promotional material
• Excessive charges for project management time on a commission for secondments or full time appointments (greater than 5% of commission value)
• Any hours exceeding 8 per day unless with prior written agreement of the *Service Manager*
• Any hours for travel beyond the location of the nearest consultant office to the project unless previously agreed with the *Service Manager*
• Attendance of additional individuals to meetings/ workshops etc who have not been previously invited by the *Service Manager*
• Costs associated with the attendance at additional meetings after programmed Completion, if delay is due to *Consultant* performance
• Costs associated with rectifications that are due to *Consultant* error or omission
• Costs associated with the identification of opportunities to improve our processes and procedures for project delivery through the *Consultant's* involvement
• Was incurred due to a breach of safety requirements, or due additional work to comply with safety requirements
• Was incurred as a result of the *Client* issuing a Yellow or Red Card to prepare a Performance Improvement Plan
• Was incurred as a resulting of rectifying a non-compliance with the Framework Agreement and/or any call off contracts following an audit

Z4 Share on termination

Delete existing clause 93.3 and 93.4 and replace with:
93.3 In the event of termination in respect of a contract relating to services there is no *Consultant's* share'

Z6 The Schedule of Cost Components

The Schedule of Cost Components are as detailed in the Framework Schedule 9.

Z7 Consultant's share

54.1 The *Service Manager* assess the *Consultant's* share of the difference between the Aggregated Total of the Prices and the Aggregated Price for Service Provided to Date.
The difference is divided into increments falling within each of the share ranges. The limits of a share range are the Aggregated Price for Service Provided to Date divided by the Aggregated Total of the Prices, expressed as a percentage. The *Consultant's* share equals the sum of the products of the increment within each share range and the corresponding *Consultant's* share percentage.
54.2 If the Aggregated Price for Service Provided to Date is less than the Aggregated Total of the Prices, the Consultant is paid its share of the saving. If the Aggregated Price for Service Provided to Date is greater than the Aggregated Total of the Prices, the *Consultant* pays its share of the excess.
54.2A If, prior to Completion of the whole of the service, the Price for Service Done to Date exceeds 111% of the total of the Prices, the amount in excess of 111% of the total of the Prices is retained from the Consultant.
54.3 If, prior to the Completion Date, the Price for Service Provided to Date exceeds 110% of the total of the Prices, the amount in excess of 110% of the total of the Prices is retained from the *Consultant* .
54.4 The *Service Manager* makes a preliminary assessment of the *Consultant's* share at Completion of the Whole of the service using forecasts of the final Aggregated Price for Service Provided to Date and the final Aggregated Total of Prices. This share is included in the amount due following Completion of the whole of the services.
54.5 The *Service Manager* makes a final assessment of the *Consultant's* share, using the final Aggregated Price for Service Provided to Date and the final Aggregated Total of the Prices. This share is included in the final amount due.
93.3 If there is a termination except if Z4 applies, the *Service Manager* assesses the *Consultant's* share after certifying termination. The assessment uses as the Aggregated Price for Service Provided to Date the sum of
• the total of
– the Defined Cost which the *Consultant* has paid and
– which it is committed to pay for work done before termination
and
• the total of
– the Defined Cost which the *Consultant* or *Contractor* has paid and
– which it is committed to pay
in the *partner contract* before the date the termination certificate is issued under this contract.
The assessment uses as the Aggregated Total of the Prices the sum of
• the total of
– the lump sum price for each activity which has been completed and
– a proportion of the lump sum price for each incomplete activity which is the proportion of the work in the activity which has been completed
and
• the total of
– the lump sum price for each activity which has been completed and
– a proportion of the lump sum price for each incomplete activity which is the proportion of the work in the activity which has been completed
in the *partner contract* before the date the termination certificate is issued under this contract.
Add:
11.2(25) The Aggregated Total of the Prices is sum of
• the total of the Prices and
• the total of the Prices in the *partner contract*

11.2(26) The Aggregated Price for Service Provided to Date is the sum of
• the Price for Service Provided to Date and
• the Price for Service Provided to Date or the Price for Work Done to Date in the *partner contract* .

Z23 Linked contracts
Issues requiring redesign or rework on this contract due to a fault or error of the *Consultant* will neither be an allowable cost under this contract or any subsequent contract, nor will it be a Compensation event under this contract or any subsequent contract under this project or programme.

Z24 Requirement for Invoice
Add the following sentence to the end of clause 51.1:
The Party to which payment is due submits an invoice to the other Party for the amount to be paid within one week of the *Service Manager's* certificate.
Delete existing clause 51.2 and replace with:
51.2 Each certified payment is made by the later of
• one week after the paying Party receives an invoice from the other Party and
• three weeks after the assessment date, or, if a different period is stated in the Contract Data, within the period stated.
If a certified payment is late, or if a payment is late because the *Service Manager* has not issued a certificate which should be issued, interest is paid on the late payment. Interest is assessed from the date by which the late payment should have been made until the date when the late payment is made, and is included in the first assessment after the late payment is made

Z25 Risks and insurance
The *Consultant* is required to submit insurances annually as Clause Z4 of the Framework Agreement

Z 29 Payment for Service Provided to Date
Delete existing clause 11.2 (21) and replace with:
"11.2 (21) The Price for Service Provided to Date is the total Defined Cost which the *Service Manager* forecasts will have been paid by the *Consultant* before the next assessment date plus the Fee. The Price for Service Provided to Date shall not exceed the forecast for the same as provided under clause 20.5"

Z111 PSC - Fee adjustment for non compliance with Scope
Delete existing 11.2 (8) and replace with the following clause
The Fee is the amount calculated by applying the fee percentage to the amount of the Defined Cost excluding the cost of Subcontractors that have not complied with procurement by best value processes as defined in the Scope. 80% of the fee percentage is applied to the amount of the Defined Cost for Subcontractors that have not complied with procurement by best value processes as defined in the Scope.

Secondary Options

OPTION X2: Changes in the law

The *law of the project* is the law of England and Wales, subject to the jurisdiction of the courts of England and Wales

OPTION X10: Information modelling

The period after the Contract Date within which the *Consultant* is to submit a first Information Execution Plan for acceptance is 2 weeks

OPTION X18: Limitation of liability

The *Consultant's* liability to the *Client* for indirect or consequential loss is limited to [redacted]

The *Consultant's* liability to the *Client* for Defects that are not found until after the *defects date* is limited to [redacted]

The *end of liability* date is 6 years after the Completion of the whole of the *service*

OPTION X20: Key Performance Indicators (not used with Option X12)

The *incentive schedule* for Key Performance Indicators is in Schedule 17

[redacted]

Y(UK)2: The Housing Grants, Construction and Regeneration Act 1996

[redacted]

Y(UK)3: The Contracts (Rights of Third Parties Act) 1999

term	*beneficiary*
No terms under this contract	No beneficiary under this contract

Part Two - Data provided by the *Consultant*

Completion of the data in full, according to the Options chosen, is essential to create a complete contract.

1 General

The *Consultant* is

Name: Ove Arup & Partners Ltd

Address for communications: [redacted]

Address for electronic communications: [redacted]

The *fee percentage* is: Option C — [redacted]

The *key persons* are

Name (1) [redacted]
Job
Responsibilities
Qualifications
Experience

Name (2) [redacted]
Job
Responsibilities
Qualifications
Experience

Name (3) [redacted]
Job
Responsibilities
Qualifications
Experience

Name (4)
Job
Responsibilities
Qualifications
Experience

Name (5)
Job
Responsibilities
Qualifications
Experience

Name (6)
Job
Responsibilities
Qualifications
Experience

Name (7)
Job

Responsibilities
Qualifications
Experience

The following matters will be included in the Early Warning Register

3 Time

The programme identified in the Contract Data is

5 Payment

The *activity schedule* is

Resolving and avoiding disputes

The *Senior Representatives* of the *Consultant* are

Name (1) [redacted]
Address for communications

Address for electronic communications [redacted]

Name (2)
Address for communications

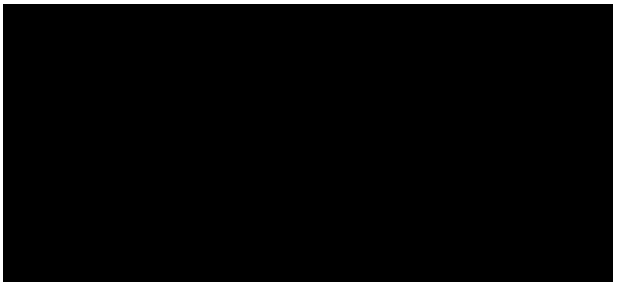
Address for electronic communications

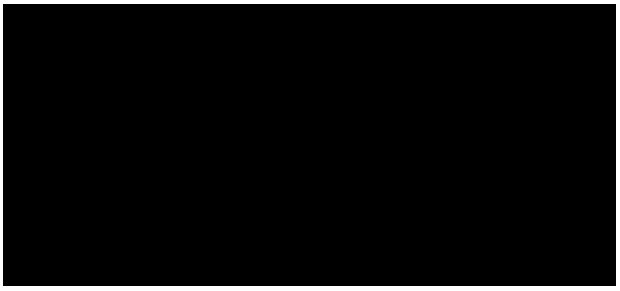
X10: Information Modelling

The *information execution plan* identified in the Contract Data is

Contract Execution

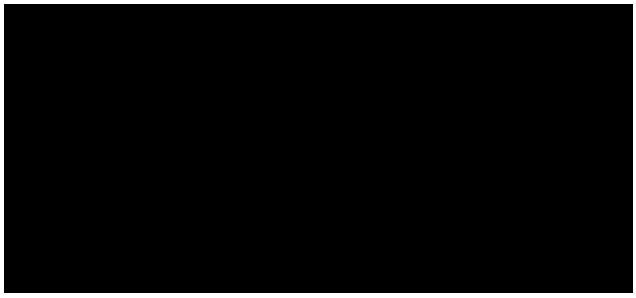
Client **execution**

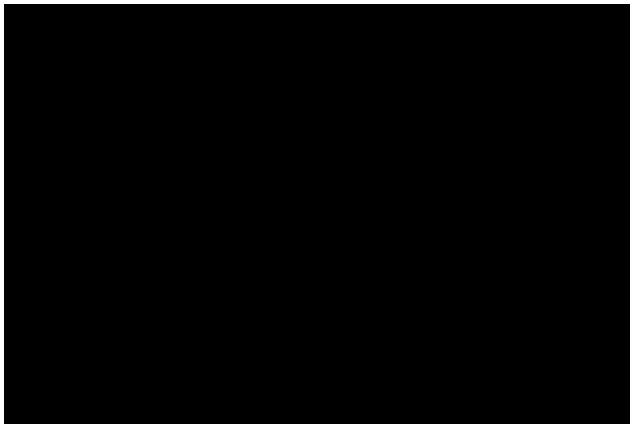




Contractor **execution**

Consultant **execution**





Environment Agency

NEC4 Professional Service Contract (PSC)

Scope

Project / contract information

Project name	East Yorkshire Capital Maintenance Programme: Sustainability Outcomes Study
Project SOP code	[redacted]
Contract number	
Date	02/07/2024

[redacted]

Revision History

Revision date	Summary of changes	Version number
18/04/2024	First issue	1.0
02/07/2024	Second Issue following consultant review	2.0
02/08/2024	Third issue following client review	3.0
19/08/2024	Fourth Issue addressing remaining comments around data	4.0

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:

1 Overview

1.1 Background

1.1.1 The Environment Agency's (EA) East Yorkshire Collaborative Delivery Team (CDT) are responsible for delivery of the programme of capital works across the sub-region. In the near term, this primarily includes projects which seek to maintain and improve existing assets protecting communities in the region. The scope of this programme specifically includes assets within the Upper Middle River Hull and Middle Humber areas. The existing defences consist predominantly of earth embankments, which form part of a network of assets that reduce fluvial and tidal flood risk to thousands of residential and commercial properties and extensive areas of agricultural land.

1.1.2 A Strategic Outline Case (SOC) has now been approved for the Middle Humber and the process is underway to produce a SOC for the River Hull area. Between these two programmes there are a total of 30 separate intervention sites. This programme scale approach has been adopted with the aim of delivering a range of efficiencies in design and delivery in comparison to individual project business case submissions. A prioritisation assessment has been completed and packages of works identified based on vulnerability, urgency and flood risk impact.

1.1.3 The Environment Act 2021 and the Environment Agency e:Mission 2030 Sustainability Plan have placed greater emphasis on the Environment Agency also delivering wider environmental enhancements when undertaking its statutory duties to manage flood risk. This includes realisation of Biodiversity Net Gain (BNG), which aligns closely with environmental objectives linked to Water Environment (Water Framework Directive) (England and Wales) Regulations compliance, carbon reduction, wider social benefits, Outcome Measure 4 (OM4) partnership funding and the habitat creation Key Performance Indicators (KPI).

1.1.4 The CDT have recognised the challenges associated with achieving the EA's sustainability targets, as set out in e:Mission 2030 and are seeking to apply a strategic approach to support the delivery of benefits relating to carbon, social value and nature (accounted for as Biodiversity Net Gain (BNG) and improvements in the context of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.

1.1.5 Specifically, this strategic approach seeks to apply holistic thinking at a programme scale, rather than focus on delivery against sustainability targets at an individual project scale. This is likely to provide greater opportunities to deliver positive environmental outcomes, therefore meeting the EA's targets, whilst also providing greater value for money and deliver efficiencies, particularly during latter project development stages.

1.1.6 The basis for the study, which is intended to be phased, will be the Upper Middle Hull Embankment Repairs (UMHER) and Middle Humber (also referred to as Strategic Review of Middle Humber Embankment Repairs – SRoMH) Capital Maintenance Programmes. At the time of writing, the numbers of individual intervention packages totals 30 (17 Upper Middle Hill and 13 Middle Humber Packages). It is noted that however that many of these packages include a number of separate sub-sites, over relatively large areas, particularly packages 12 and 13 of SRoMH. The specific packages are listed in Appendix 2.

1.1.7 This scope relates to the 1st phase of the planned approach, focused on improving understanding of likely impacts at a programme scale and the associated mitigation and enhancement measures that are likely to be required, including indicative estimation of potential cost impacts.

1.2 Previous Studies

1.2.1 **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.**

1.2.2 **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 Objectives

1.3.1 The overarching environment and sustainability objectives for the East Yorkshire Capital Maintenance Programme are:

- Seek to sustain the standard of protection, which is provided by existing assets 'Apply a strategic approach to support the delivery of benefits relating to carbon, social value and nature (accounted for as Biodiversity Net Gain (BNG) and improvements in the context of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.
- To apply holistic thinking at a programme scale, rather than focus on delivery against sustainability targets at an individual project scale. This is likely to provide greater opportunities to deliver positive environmental outcomes

1.3.2 Based upon these strategic scale objectives, the primary aim of this Commission is to provide a high-level estimate of the environmental outcome requirements for the East Yorkshire capital maintenance programme. Specifically, this should include:

A. Estimation of the likely number and type of offsite BNG units which may be required (statutory and non-statutory);

B. Identification of likely Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (also referred to as WFD Regulations) mitigation required; and

C. Gap analysis of available carbon footprint data to support a programme scale carbon forecast;

D. Identify potential options for delivering wider community benefits within study area.

1.3.3 The strategic study will also review alternative design, construction and management approaches which could be adopted in order to reduce the investment required in additional/off-site mitigation and enhancement measures (to meet the EA's sustainability targets).

2 The Service

2.1 Outcome Specification

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

2.1.1 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.

2.1.2 The *Consultant* shall take into consideration all relevant guidance and legislation and seek to minimise long-term asset/land management and maintenance costs and carbon.

2.1.3 The outputs will 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.

2.1.4 This scope of works relates to the 1st phase of a planned 2 phase approach, drawing on available spatial data to explore the two key factors which will influence the sustainability outcomes of the programme:

1) What are the likely impacts of planned interventions upon existing habitats and the wider receiving environment, based upon the location, extent and existing characteristics of the planned Sites?

2) What strategic opportunities exist to deliver environmental enhancements at a broader geographic scale based upon partnership opportunities, local needs and best value investment?

Step 1A - Indicative Impact Calculations

Biodiversity Net Gain

2.1.5 **Characterising Interventions -** Currently available GIS mapping of the assets which are within the scope of the UMHCAMP and MHCAMP programmes and the associated extents of defect locations will be integrated within a combined GIS workspace. It is assumed that only basic data processing will be required utilising existing GIS data layers. This will include the collation of existing data, direct import into an integrated GIS workspace, clipping of data to the study area and review of attributes. The scope does not include further refinement of data layers regarding the location and extent of defect locations.

2.1.6 A high-level calculation of the potential scale of total biodiversity unit requirements will be calculated using a series of generic calculations based upon typical asset types. This exercise will be based upon precedent experience of capital maintenance interventions and refinement of associated assumptions, based upon input from the Client and Contractor teams.

2.1.7 The indicative BNG calculations will not be based upon specific site by site details, rather a series of proxy calculations based upon generic sections of standard asset types and assumed maintenance solutions. Specifically, the following assets have been identified based upon the Initial Assessments. This exercise will assume the application of repair and maintenance interventions only, rather than material improvement of assets which would alter their scale and footprint (e.g. crest widening, slope regrading, raising of defence level):

1) Earth embankment – topping up of low spots/slope stabilisation/reinstatement of animal burrows etc.

2) Earth embankment – sheet-pile cut-off

3) Flood wall – repair of cracking/expansion joints etc.

4) Bank stabilisation/erosion control – rock armour (river)

5) Bank stabilisation – sheet pile installation (river)

6) Bank stabilisation – rock armour (estuary)

7) Haul Roads

2.1.8 A series of generic assumptions regarding each of these asset types and assumed solutions will be captured within a simple assumptions log and shared with the Client for review and comment. Specifically, for each of the asset types listed above, the following characteristics will be captured based upon typical construction arrangements.

- Temporary works area/haul road extents (offsets from asset footprint);

- Type and condition of existing habitats within temporary and permanent working areas (e.g. generic assumption for embankment will be managed grassland)

- Likely extent of habitat clearance (estimated % of site area);

- Where works can be classified as 'temporary' (full recovery within 2 years) and therefore no loss of habitat units;

- Potential impacts to high value habitats (e.g. intertidal habitat for bank stabilisation works);

- Site reinstatement assumptions (assumed % of site habitat to be reinstated and associated species mix);

- Ongoing site management assumptions, including the mowing/vegetation management regime and any third party influences, such as grazing rights.

2.1.9 **Characterising Site Baseline Conditions –** Existing and readily available environmental spatial data will be collated by the *Consultant* to provide a visual tool to facilitate appropriate characterisation of each proxy site from an environment and sustainability perspective, in the absence of detailed site survey or site specific analysis. Previous environmental screening information collated in support of the Initial Assessments will also be reviewed with the aim of identifying whether the intervention sites interact (directly or within the study area for Upper Middle Hull and Middle Humber as provided by the *Client*) with any protected sites, irreplaceable habitats or habitats of high value (high and very high distinctiveness habitats).

2.1.10 This exercise will not repeat the environmental screening reporting completed in support of Initial Assessments which is already available (see Section 2.1), and instead focus on sites where a bespoke approach is warranted. This exercise will inform the assumptions log and proxy BNG calculations. It will also be used to flag to the Client team high risk considerations for BNG which must be considered to ensure compliance with the rules and principles of the Biodiversity Metric. This information will include the following:

- Priority Habitat mapping;

- Readily available aerial photography/satellite data;

- Broad habitat maps (e.g. Living England);

- OS Water Network (available through the EA under license);

- Strategic Significance data sets (e.g. LPA wildlife habitat networks);

- Statutory and Non-statutory designated site mapping;

- Publicly available WFD Water Body Data via the Catchment Data Explorer;

- Water Framework Directive Mitigation Measures Assessment data;

- WFD Transitional and Coastal Waterbodies (TraC) Cycle 2;

- Countryside Stewardship Agreement Management Areas.

2.1.11 All datasets utilised for the study will be captured in a project data catalog including all information about copyright statements, usage limitations etc. The *Consultant* will undertake any required communications with data owners to secure license agreements and clarify any usage limitations.

2.1.12 It is not proposed that any site surveys are conducted at this stage of assessment. Such instances may include where a project is located in a sensitive area or where there is potential for loss of priority habitats or ancient woodland, given a site visit would provide a better resolution to potential outcomes.

2.1.13 **Quantifying Likely BNG Impacts and Offset/Enhancement Requirements -** Indicative baseline habitat mapping will be produced for each of the generic asset types, based upon a proxy site for a 20m section (i.e. a representative section of each asset based upon typical conditions). This will not be informed by detailed survey of the sites (BNG baseline surveys), rather the available desk-top information and desktop review which indicates the most likely types of habitat present within the Site extents at a broad programme scale.

2.1.14 The condition of habitats will not be assessed in detail using desk-top information, instead a reasonable assumption will be applied to enable completion of the Biodiversity Metric. This approach will also be applied to all habitat types including area habitat and linear habitat (watercourses and hedgerows). Watercourse type will be assumed to be river and the TraC layer will be used to demarcate the downstream boundary of watercourses and where watercourses are then represented as subtidal estuarine areas.

2.1.15 The assumed extents of habitat clearance and site reinstatement assumptions agreed within the Assumptions Log will be utilised to calculate an assumed post development outcome for biodiversity units for each proxy Site. Where there is significant uncertainty around the project, which prevents a reasonable assumption of the potential impacts to habitats present, a precautionary approach may be applied in agreement with the Client, where all habitats within the proxy site boundary are assumed to be impacted.

2.1.16 This process will provide an indicative number of baseline biodiversity units within each proxy site, for each of the identified asset types (2.1.7). Existing GIS data will then be analysed to determine the total overall length of defects areas for each asset type across the 30 packages. A multiplier adjustment will be applied based upon the BNG outcomes calculated for each representative 20m section of the identified asset types. Data will be presented in a tabulated format to indicate the potential scale of the BNG baseline units and post development BNG outcomes, based upon the agreed reinstatement assumptions. These figures will be indicative only given site conditions may be materially different to the assumptions upon which the calculations are based. The intended outcome is to provide the East Yorkshire CDF with an indication of the approximate scale of BNG unit requirements (across the capital maintenance programme) which may be necessary to achieve the EA's 20% BNG target, assuming a business as usual approach (i.e. maintain assets using 'traditional' methods and maintain like for like habitats).

Whole-Life Carbon Emissions

2.1.17 Any detailed quantification (bottom up calculations) of carbon impacts at such an early stage of project development is considered to be dis-proportionate. However, collation and summary of the Carbon Modelling Tool (CMT) outputs should be utilised to determine initial projections of the indicative whole life carbon emissions across the entire programme of planned works.

2.1.18 Given that existing carbon calculations (CMT) have been produced for some, if not all, of the projects within the scope of the study, the *Consultant* will collate all existing CMT calculations for the 30 sites and undertake a gap analysis and consistency review, to determine whether a common approach has been applied at an individual project scale and where supplementary calculations may be required. This will include review of which carbon tools have been utilised to generate carbon forecasts. This process will require support from the EA's cost and carbon team. Outcomes of the gap analysis will be captured in a programme scale carbon calculations log, to provide a resource for managing subsequent delivery of carbon data and potential assurance risks relating to comparison of carbon forecasts and budgets.

2.1.19 Following gap analysis and confirmation of those individual sites for which carbon calculations have not yet been produced, supplementary CMT calculations may be required. Given current uncertainty, allowances for undertaking these calculations are excluded from this scope of works.

2.1.20 The cumulative whole-life emissions across all 30 sites will be collated within a summary sheet and key risks identified where potential discrepancies in data inputs have been identified. These outputs are intended to inform discussions regarding the robustness of the baseline calculations against which future carbon performance will be assessed. Additionally, cumulative presentation of the whole-life carbon projections will provide an indication of potential offsetting/carbon capture requirements to align with net zero targets.

Water Framework Directive Measures

2.1.21 A high-level initial screening exercise will be completed based upon review of the assumed intervention at each site as set out within the documentation produced in support of the Strategic Outline Case stage. This will consider where identified interventions are most likely to introduce a risk of conflict with WFD objectives. This exercise will not include consideration of any detailed data regarding the current WFD status of affected waterbodies. The initial screening step will be based entirely on the nature of the identified solutions at the SOC stage and the likelihood of these requiring mitigation based upon the following factors:

- Location of the asset in relation to the river channel;
- Potential for direct impacts upon river bed;
- Potential for direct modifications to river-banks, marginal habitats and floodplains;
- Other potential changes in river morphology and changes to flow dynamics.

2.1.22 Given that WFD Screening and Scoping Assessment remains likely to be required during the latter stages of project delivery, this step will therefore avoid any detailed assessment which may prove abortive. The focus of this initial assessment will instead focus on a simplistic screening exercise to identify the potential for adverse impacts and therefore the proportion of the 30 sites which are anticipated to require remedial measures.

2.1.23 Where information setting out WFD Mitigation Measures is available and provided within the required timescales, this data will be collated into a suite of recommendations for further consideration early in the OBC stage during option appraisal.

Quantifying Indicative Costs

2.1.24 Utilising the BNG unit requirements calculations, an indicative cost of achieving the EA's BNG targets will be determined based upon a standardised monetary unit costs to be agreed with the Client. To inform appropriate assumptions, Local Planning Authorities associated with the programme Sites will be contacted to understand availability of habitat banks and cost per unit for habitat unit types including watercourses. This will provide a comparative baseline against which to consider potential strategic alternatives, which are intended to be developed in further detail through future workstreams. This baseline will be presented as a range to reflect the variation between the costs of credits delivered by the EA in comparison to the cost of statutory credits.

2.1.25 Similarly, a standardised cost per unit volume of carbon ~~can~~ will be utilised to better understand the implications of offsetting the carbon emissions of the programme, based on the Yorkshire Carbon Absorption Study. It is noted in this context that potential opportunities to achieve carbon

absorption within the EA estate have been considered through the Yorkshire Carbon Absorption Study and therefore alternative measures to deliver carbon offsetting are available. These will be provided by the *Client.*

Step 1B – Strategic Opportunities – Alternative On-site Approaches

2.1.26 The *Consultant* will produce an advice note, to be embedded within the broader project reporting outputs. This will identify specific, tangible alternatives and innovations which could be adopted to enhance biodiversity value and support WFD aims within the extents of existing defences/EA land. The *Consultant* will ensure recommendations are specific to the context of the 30 sites included within the scope of the study, and the currently assumed remedial measures identified during Step 1A, this will include a focus on measures such as bioengineering or alternative planting and asset management strategies within EA owned land that could improve environmental outcomes when compared to 'business as usual' solutions.

2.1.27 This exercise will not constitute an exhaustive option appraisal exercise, rather a targeted indication of key alternative approaches which are considered most applicable to the planned programme of works, based upon existing precedents. This output should be designed to inform wider discussions with the EA regarding existing blockers and enablers to the adoption of such practice. The *Consultan*t should draw upon relevant existing evidence produced by the Client and other partners in collating this information. Where data is readily available, quantitative benefits of the alternative approaches should be presented, such as CO_2e savings, resource efficiency or biodiversity units.

2.1.28 This exercise will seek to strengthen the evidence base and where appropriate, challenge existing business as usual approaches which may be prohibiting the maximisation of biodiversity value, improvements to the water environment, carbon efficiency or wider benefits within sites. The *Consultant* will ensure the output can be utilised in future option appraisal processes across the East Yorkshire capital maintenance programme, with the aim of reducing the need for off-site measures which are reliant on third parties agreements/partnerships. It will also provide an opportunity to highlight synergies between WFD mitigation measures for the relevant watercourses and potential alternatives to the assumed 'maintain existing assets' option. In completing this task, the *Consultant* team will undertake targeted consultation with internal EA teams, including representatives from FBG, Asset Performance and Field Teams.

2.2 Constraints, Assumptions and Limitations

Constraints

This study is trying to influence the two Capital Maintenance Programmes (Upper Middle Hull Embankments and Middle Humber Embankments) therefore need to ensure that the study is adding benefits to both.

Assumptions

- The Client will provide existing spatial data in a suitable format which can be readily integrated with the Consultant's GIS mapping systems;
- Existing GIS asset and defect mapping layers are available across both the UMHCAMP and MHCAMP programmes;
- The Study will be based upon an assumed 30no. of projects within the East Yorkshire capital maintenance programme as listed in the Appendix of this document;

- The study will be based upon 7x asset types only as set out in paragraph 2.1.7;
- No site survey work will be required for Workstream 1, which will be desk-based only;
- Data requested from the client and other 3rd parties will be provided within 21 days (3 weeks);
- Client progress meetings will be bi-weekly.
- Version 4.0 of the Defra Biodiversity Metric will be used;
- The Client review period will be 10 working days with comments provided within a single outputs (e.g. comments log).

Limitations

- Any quantification of post development BNG units and carbon offsetting requirements is indicative only. Following baseline surveys and detailed designs to be completed at a later stage, conditions may differ to those assumed based upon desk-top survey and indicative calculations only and therefore environmental outcomes have potential to materially differ to those indicated through completion of this early strategic study;
- The ability to calculate carbon forecasts at a programme scale will be dependent upon availability of Carbon Modelling Tool outputs and cost information for each of the sites;
- Coarse assumptions may need to be made given the early stages of the programme and lack of associated details, resulting in a reasonable worst case representation of potential impacts upon biodiversity;
- The methodology proposed is dependent on the availability of data inputs. Where data is not forthcoming within a reasonable timescale following requests (3 weeks), it will not be utilised within the study;
- Consideration of risks associated with the Water Framework Directive will be indicative only based upon what are considered the most likely solutions to common defects (i.e. there will be no consideration of site specific impacts and mitigation).

2.3 *Consultant* Project Management

2.3.1 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.

2.3.2 In managing the *service* the *Consultant* shall (strike through any of the following that are not required for the project):

- Contribute monthly to the updates to the project risk register.
- Produce monthly financial updates and forecasts meeting the *Client's* project reporting timetable together with progress reports. Monthly financial updates and forecasts to meet

EA deadlines provided by no later than the 10th day of each month, or otherwise agreed at the project start up meeting.

- Deliver a monthly progress report in the *Client's* standard template (Link) 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 EA PM to include in the scheme lessons learnt log. ~~to be appended to the OBC.~~

2.3.3 The contract will be administered using FastDraft.

2.4 Outputs and Deliverables

2.4.1 The *Consultant* will provide the primary outputs of the study in a report format (issued in word and pdf format). The report will provide a summary of both the early assessment of indicative impacts and the potential alternative approaches which could be adopted to reduce these impacts further.

2.4.2 The *Consultant* will provide the *Client* with a template report document in advance of fully developing the deliverable. The *Client* will provide associated comments to ensure the structure and content of the output is aligned with the *Client* scope.

2.4.3 The *Consultant* will provide an Assumptions Log setting out the assumed baseline site characteristics which underpin the indicative BNG calculations. The Assumptions Log will also set out key assumptions relevant to the scope of this study with respect to the permanent remedial works and associated temporary works.

2.4.4 The *Consultant* will provide a Carbon Calculations Tracker for the programme based upon review of the currently available carbon calculations produced in support of the Strategic Outline Case stage. This will record which tools have been utilised, version, date and any identified risks and issues.

2.4.5 A project data catalog will be provided to the Client identifying all datasets utilised in completing the study and relevant information about copyright statements and usage limitations etc. Raw GIS datasets will not be required by the Client.

3 Stakeholder Engagement

3.1.1 No stakeholder engagement with external parties (to the Environment Agency) will be required. Should it be identified at a later date that consultation with external parties would be beneficial,

3.1.2 The *Client* will facilitate engagement with internal stakeholders in accordance with the scope, including liaison with area engineering teams, asset management teams and Fisheries, Biodiversity and Geomorphology. The *Consultant* shall provide technical support and prepare associated information.

4 Health and Safety

4.1.1 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.

4.1.2 The *Consultant* shall follow and comply with the requirements outlined in the Safety, health environment and wellbeing (SHEW) Code of Practice (LIT 16559), where applicable.

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Ref	Report Name	Where used
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
Gov.uk	Partnership Funding Calculator Guidance	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
LIT 55096	Integrated Assurance & Approval Strategy	Approvals

6 Requirements of the Programme

6.1.1 The *Consultant* shall provide a detailed programme in Microsoft Project 2023 meeting all requirements of Cl.31 of the Conditions of Contract.

6.1.2 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.

6.1.3 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.

6.1.4 The programme shall include review and consultation periods for drafts and deliverables.

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

6.1.6 The following are absolute requirements for Completion to be certified:

- Transfer to the *Client* of BIM data
- Clause 11.2(2) work to be done by the Completion Date

7 Services and other things provided by the *Client*

7.1.1 Access to Environment Agency systems and resources including:

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

7.1.2 Previous studies listed in Section 1.2.1. The *Client* will provide the previous studies within two weeks of contract award.

8 Data

8.1.1 No specific requirements outside of Asite upload.

9 *Client's* Advisors

9.1.1 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.

9.1.2 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.

9.1.3 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*.

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 – Scope of Study – Capital Maintenance Sites