



Framework:
Supplier:
Company Number:

Collaborative Delivery Framework
Ove Arup & Partners Ltd
[Redacted]

Geographical Area:
Project Name:
Project Number:

Midlands
Severn Valley Water Management Scheme - SOC
[Redacted]

Contract Type:
Option:

Professional Service Contract
Option E

Contract Number:

[Redacted]

Revision	Status	Originator	Reviewer	Date

PROFESSIONAL SERVICE CONTRACT under the Collaborative Delivery Framework
CONTRACT DATA

Project Name
Severn Valley Water Management Scheme - SOC

Project Number
[REDACTED]

- This contract is made on 01 June 2021 between the *Client* and the *Consultant*
- This contract is made pursuant to the Framework Agreement (the "Agreement") dated 01st day of April 2019 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 22 inclusive of the Framework schedules are relied upon within this contract.
 - The following documents are incorporated into this contract by reference
SVMWS PSC SOC Scope - 21052021

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 E	Option for resolving and avoiding disputes	W2
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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 Contract to produce a strategic outline business Case (SOC) for the Severn Valley scheme

The *Client* is
Address for communications

Address for electronic communications
The *Service Manager* is
Address for communications

Address for electronic communications
The Scope is in
SVMWS PSC SOC Scope - 21052021
The *partner contract* is
N/A

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

The *period for retention* is

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
'none set' key date
'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

3 Time

The starting date is
The Client provides access to the following persons, places and things access date

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

The completion date for the whole of the service is 31 March 2022

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 expenses stated by the Client are as stated in Schedule 9

The /
The /
The /
charge for the cost of support people and office All UK Offices
overhead are

6 Compensation events

These are additional compensation events

1. Additional Compensation Event COVID-19
2. Managing and mitigating the impact of Covid 19 and work in accordance with Public Health England guidance, as may vary from time to time, from '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	PERIOD FOLLOWING COMPLETION OF THE WHOLE OF THE SERVICE OR TERMINATION
The <i>Consultant's</i> failure to use the skill and care normally used by professionals providing services similar to the service	<div></div>	spect of ut limit to 12 years after Completion
Loss of or damage to property and liability for bodily injury to or death of a person (not an employee of the <i>Consultant</i>) arising from or in connection with the <i>Consultant</i> Providing the Service	<div></div>	respect of ut limit to 12 years after Completion
Death of or bodily injury to the employees of the <i>Consultant</i> arising out of and in the course of their employment in connection with the contract	<div></div>	respect hout limit claims <i>For the period required by law</i>
The <i>Consultant's</i> total liability to the <i>Client</i> for all matters arising under or in connection with the contract, other than the excluded matters is limited to	<div></div>	

Resolving and avoiding disputes

The <i>tribunal</i> is litigation in the courts	
The <i>Adjudicator</i> is	'to be confirmed'
Address for communications	'to be confirmed'
Address for electronic communications	'to be confirmed'
The <i>Adjudicator nominating body</i> 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

Z6 The Schedule of Cost Components

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

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 51.1.1:

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

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

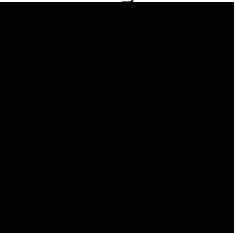
OPTION X10: Information modelling

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

The *Consultant's* liability to the *Client* for Defects that are not found under the *Contract* date is limited to



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

A report of performance against each Key Performance Indicator is provided at intervals of

3 months

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

The period for payment is 14 days after the date on which payment becomes due

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

term beneficiary

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

Address for communications

Address for electronic communications

The *fee percentage* is

The *key persons* are

Name (1)
Job
Responsibilities
Qualifications
Experience

Name (2)
Job
Responsibilities
Qualifications
Experience

Name (3)
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

Scope / ultimate deliverable is still not understood; potential for sc
Scope / ultimate deliverable is still not understood: it should be no
As discussed with EA PM 28/07/21, programme shows SOC submis
As discussed with EA PM 28/07/21, programme shows a data freez
As discussed with EA PM 28/07/21, cost and carbon assessment dr
As discussed with EA PM 28/07/21, Framework level BEP (upon wh

3 Time

The programme identified in the Contract Data is
to be issued within 4 weeks of contract date

Resolving and avoiding disputes

The *Senior*
Name (1)
Address fo
Address fo
Name (2)
Address fo

Address for electronic communications

X10: Information Modelling

The *information execution plan* identified
in the Contract Dat
Not applicable - see

Contract Execution

Client execution

Signed under hand by

for and on behalf of the Environment Agency

Signature

[Redacted Signature]

Consultant execution

Consultant execution

Signed under hand by

for and on behalf of

Ove Arup & Partners Ltd

[Redacted Signature]

Environment Agency

NEC4 Professional Service Contract (PSC)

Scope

Project / contract information

Project name	Severn Valley Water Management Scheme
Project SOP code	
Contract number	TBC
Date	21/05/2021

Assurance

Author		Date: 17/05/21
Consulted		Date:
Reviewed		Date:
Checked prior to issue		Date:

Revision History

Revision date	Summary of changes	Version number
17/05/2021	Draft issue	0
26/05/2021	First issue	1

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
412_13_SD01	Minimum Technical Requirements	9	29/08/2018

1 Overview

1.1 Background

Communities along the River Severn have a long history of flooding. Flooding in February 2020 resulted in approximately 1600 homes being flooded across the Severn catchment, with further impacts to communities being experienced during the recent January 2021 flood event. Whilst funding to deliver localised solutions has become limited, a group of influential partners across the entire catchment are now working together as part of the River Severn Partnership (RSP) to help people, businesses and the environment be prepared and resilient to the impact of future climate change.

The proposed Severn Valley Water Management Scheme (SVWMS), led by the Environment Agency (EA) but supported by the RSP, is one of the first projects to be considered. Whilst at a very early stage, the scheme is aiming to reduce flood risk to up to 3000 homes and 1000 businesses along the River Severn, whilst promoting sustainable growth as part of the UK's green recovery.

A Feasibility Study was undertaken in 2020 to consider one option to implement an FRMS (in conjunction with the proposed North West Relief Road around Shrewsbury). Following that further analysis was undertaken between August 2020 and January 2021 to explore that option further, but which ultimately concluded that there were too many risks and uncertainties to enable the FRMS to match the delivery timescales of the NWRR. These findings are currently being summarised in an addendum to the Feasibility Study.

In February 2021 a new Project Instruction Form was issued, requesting the project considered options for delivering the flood mitigation aims over a wider intervention area. The project will still look to deliver the same flood risk benefits but will work with major landowners and partners to understand how wide scale land use change and nature-based interventions can complement engineered solutions across a far greater area. A SOC is now required to present the preferred way forward available to deliver the required outcomes and gain assurance to continue to develop the options further. It is likely the options available will consist of a package of interventions across the study area, to be delivered by a range of partners rather than the Environment Agency alone.

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.

Report	Date	Format	Link to POL
Generalised (J-Flow) Model – whole catchment	?	Native	NRW held
1D FMP Model	?	Native	NRW held
1D-2D FMP-TUFLOW Model – Newtown	?	Native	NRW held
1D Only FMP River Severn Model – Worcester to Gloucester	2005	Native	EA held
Fluvial Severn Flood Risk Management Strategy	Oct 2006	pdf	To follow
1D Only FMP River Severn Model – Buildwas to Worcester	2009	Native	EA held
Severn Valley Flood Risk Management Scheme Pre-Feasibility	2009	pdf	To follow
1D-2D FMP-TUFLOW Model of the Severn and Vyrnwy Confluence	2011	Native	EA held
1D-2D FMP-TUFLOW River Severn Phase 1 Hydraulic Model	2020	Native	EA held
Pre-Feasibility Integration with NWRR: Opportunities & Risks	Jul 2020	Native	link

Initial Concept Design Visualisations	Nov 2020	Native	To follow
Water Resources Summary Note	Dec 2020	Native	link
DRAFT Environmental Survey and Assessment Strategy	Jan 2020	Native	link
Planning Strategy Note and Toolkit	Dec 2020	Native	To follow
Hydropower Options Study	Mar 2021	Native	link
Long and Shortlist Appraisal (NWRR)	Mar 2021	Native	link
Hydraulic Modelling Report Addendum	Apr 2021	Native	link
NWRR Feasibility Addendum	Apr 2021	Native	link
Compensation Estimates for NWRR Option	Apr 2021	Native	To follow
DRAFT Engineering Technical Note	Apr 2021	Native	link
Technical Report Addendum (Without Compensation Estimates)	Apr 2021	Native	To follow
Technical Report Addendum	May 2021	Native	To follow

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 be responsible for any deficiencies in existing data quality and quantity that have not been notified to the *Client*, as they relate to ongoing use of these data for this commission.

Please note there may be studies additional to those listed, which have been produced or collated subsequent to the drafting of this scope. The *Consultant* shall include an allowance for time to review, stating the assumptions used in their response.

1.3 Objective

The objective of this commission is to complete a Strategic Outline Case that delivers upon the Critical Success Factors for the project and meets the criteria of the *Client's* assurance Board. The Critical Success Factors are to be reviewed and their priority order agreed with the *Client* at the start of the commission.

Item	Critical Success Factor	Detail
1	Reduce Flood Risk	<ol style="list-style-type: none"> 1. Reduce flood risk to >2,000 properties along the River Severn by managing water upstream of Shrewsbury, 2. Support flood risk reduction for downstream communities at Ironbridge and Bridgnorth that are not currently economically viable. 3. Reduce revenue costs of flood incidents, including frequent barrier deployment at downstream sites. 4. Explore catchment-based initiatives that work with natural processes to reduce flood risk.
2	Financial decisions that work for the community and partners	<ol style="list-style-type: none"> 1. Deliver in line with partnership funding requirements. 2. Have a positive economic impact on communities. 3. Deliver Gross Value Added to the local economy.
3	Support sustainable and climate resilient growth and development	<ol style="list-style-type: none"> 1. Support partner needs to deliver a fundable solution 2. Seek opportunities to secure wider benefits for the community, including recreation, amenity and education 3. Reduce the long-term impacts on human wellbeing that flooding causes
4	Deliver long term sustainability	<ol style="list-style-type: none"> 1. Have a positive impact on carbon consumption 2. Increase resilience of communities and infrastructure to climate change 3. Mitigate year on year loss to the economy from flooding
5	Support the natural environment	<ol style="list-style-type: none"> 1. Deliver a solution that avoids and minimises impacts and exceeds our legal obligations for protecting and improving the environment 2. Achieve biodiversity net gain (20%) and maximises opportunities for outcome measure 4 (OM4) 3. Local communities, partners and stakeholders support a strategic landscape vision for environmental improvements 4. Optimise the use of resources and support a circular economy

2 The service

2.1 Outcome Specification

- 2.1.1 The *Consultant* shall deliver the *service* such that it meets the outcomes listed in this section
- 2.1.2 The *Consultant* shall produce a Strategic Outline business Case (SOC) which seeks to provide a preferred way forward that meets the aims and objectives of the project and of sufficient detail to satisfy the *Client's* Large Projects Review Group (LPRG) assurance board. Consideration shall be given to the economic, technical, social and environmental/sustainability/carbon outcomes, supported by evidence that will enable the derivation of preferred way forward. Current guidance on how to write a Business Case for the Environment Agency can be found in the appended guidance ([LIT55124](#)) alongside the standard Business Case template ([LIT14174](#)). The *Consultant* shall remain aware of new emerging guidance and shall raise with the *Client* if the requirements of the new guidance are beyond this current scope.
- 2.1.3 The *Consultant* shall demonstrate that consideration has been given to a long list of potential options, identified an appropriate shortlist and undertaken a proportionate level of appraisal to determine and evidence the preferred way forward. This assessment shall identify the magnitude of intervention required and the options that exist to provide the required outcomes. It is not envisaged that the preferred combination of options will be identified at this stage. This shall remain under review through regular discussion with the *Client* throughout this commission.
- 2.1.4 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. The SOC shall outline how the appraisal of options has considered all these aspects and identify how they shall be considered at OBC.
- 2.1.5 Working with the *Client* and Early Supplier Engagement (ESE) Contractor, the *Consultant* shall be responsible for ensuring the options presented are acceptable to the *Client* (gaining approval of Gateway 1).
- 2.1.6 The *Consultant* shall support the *Client* in identifying opportunities and appropriate mitigation to assist with the delivery of the Severn Valley Water Management Scheme programme requirements.
- 2.1.7 In addition to producing a SOC, this commission will also culminate in the delivery of a Catchment Context Paper, Constraints and Opportunities Mapping (and associated interactive GIS tool and Conceptual Modelling), Delivery Programme and a Landscape Catchment Vision. Some of these tasks may complete after submission of the SOC, although input from their development will be required as input into the SOC document. Programming of these items must be undertaken and agreed between the *Client* and the *Consultant* at the start of the commission. This discussion will determine the level of detail required from these items for input into the SOC.
- 2.1.8 The *Consultant* shall keep under review the opportunity to work with other wider catchment based initiatives and groups (both Environment Agency and non-Environment Agency led), including the River Severn Partnership, Demonstrators, Catchment Based Groups and any others the *Consultant* may be aware of.

- 2.1.9 The catchment area for consideration within this study covers areas within England and Wales. As such there will be cross border implications that will need to be considered and addressed as part of this commission. The initiation of contact with Natural Resources Wales (NRW) will be led by the *Client*, but the *Consultant* may be requested to assist in discussions or to help identify other contacts from NRW. The SOC will need to highlight any cross border constraints and opportunities identified for the delivery or development of the preferred way forward.
- 2.1.10 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.
- 2.1.11 The *Consultant* shall design the scheme taking into account the environmental sensitivities and opportunities of the site, involving key environmental specialists as appropriate within the *Consultant* and the *Client's* organisation. Due to the size of the study area, this appraisal shall be kept proportional to the catchment scale nature of the project and reflect the risks and opportunities found through option development in consultation with the *Client's* Environmental Project Manager.
- 2.1.12 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. This appraisal will be strategic in nature, enabling comparison between options to assist in identifying the preferred way forward, but will need to satisfy the requirements of the Business Case template and guidance. The *Consultant* will be responsible for undertaking the carbon optioneering and reporting. The carbon budget setting will be undertaken by the *Client's* Carbon and Cost Lead, based on design criteria provided by the *Consultant*.
- 2.1.13 The *Consultant* shall ensure the optioneering process fully considers environmental mitigation and opportunities to further conserve and enhance as per our legal and policy obligations but to also contribute to the Environment Agency's ambitions. This includes delivery against OM4, to achieve biodiversity net gain and to also consider wider sustainability opportunities. The *Consultant* shall ensure the optioneering process avoids where possible, minimises and compensates or offsets any adverse environmental effects.
- 2.1.14 The *Consultant* shall produce an appraisal report 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).
- 2.1.15 The *Consultant* shall ensure that the options and preferred way forward take into consideration all relevant guidance and legislation and seek to minimise long-term asset/land management and maintenance costs and carbon.
-

2.2 Constraints

- 2.2.1 All reports shall be written in a clear and open style that makes them suitable to be shared with partners and the public.
- 2.2.2 At this stage it is not envisaged that any surveys or site investigations will be undertaken, with all analysis based on a desk based assessment of existing data. Further Hydraulic Modelling will be limited as stated in Section 5 of this scope. Should the *Consultant* deem it necessary that further investigations are required they shall discuss with the *Client* at the earliest opportunity.
- 2.2.3 Survey delivery costs shall be managed as a compensation event. Large scale intrusive site investigations such as ground investigations or utility checks shall be delivered using the CDF Lot 2 contractor, delivery costs will be managed through the contract between the *Client* and the CDF Lot 2 contractor.
- 2.2.4 Some elements of this commission have already been contracted as a Compensation Event on the *Consultant's* existing Option E contract. The *Consultant* shall review that commission alongside this scope and highlight to the *Client* if they believe there is an overlap of the delivery tasks. All outputs from that Compensation Event shall be carried forward into this commission.
- 2.2.5 The SOC report is required for submission to LPRG by November 2021. The *Consultant* must highlight to the *Client* at the earliest opportunity if there are any elements of this scope that cannot be delivered by that deadline.
-

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:
- Contribute monthly updates to the project risk register. This includes the listing of risks and assignment of cost against these where feasible. Risk register to focus on risks going forward and how these can be mitigated.
 - Provide input to project efficiency CERT Form.
 - Attend progress meetings. Where there is an overlap between this scope and SMI 8 for the activities listed below, a negative CE will be raised against SMI 8 at the point of when this contract is raised. Including:
 - Attendance at weekly progress meetings (90 minutes), held via MS Teams
 - To attend and present key project options and decisions at the quarterly Project Board meetings, held via MS Teams.
 - Attendance at other ad-hoc meetings when requested by the *Client* (e.g. Area briefings, Partner meetings, programme reviews etc.). Assume 1 meeting per month with 2 attendees.
 - 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 5th day of each month.

- Assume attendance at 4 site visits.
- Deliver a monthly progress report using the *Consultant's* template as used to date giving progress against programme, deliverables received and expected and financial and carbon summary against programme.
- 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 monthly.
- Bi-weekly progress meetings with NEAS to be led by the *Consultant's* Environmental Lead.
- 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 SOC and recorded on Projects On Line.

2.3.3 The contract will be administered using FastDraft.

2.4 Outputs and Deliverables

- 2.4.1 The *Consultant* shall provide a list of products and deliverables for the *Client's* approval. The list of products shall be agreed, and the product description submitted for approval before commencing work.
- 2.4.2 The *Consultant* shall produce the following key documents for this commission (please note this list is currently indicative and shall be reviewed and agreed with the *Client* at the start of the commission).
- Visualisations of Existing Flood Risk, Climate Change impacts and Proposed Options and their Impact on the Catchment.
 - Catchment mapping (including benefit area, intervention area and sub catchments).
 - Interactive GIS Tool for Data Gathering plus associated data sets.
 - Catchment wide plan.
 - Catchment context paper.
 - Modelling report update (reflecting Do Nothing and Do Minimum Baseline outputs).
 - Hydraulic Modelling Strategy.
 - Options Appraisal Report, to include the following appendices:
 - NFM Feasibility Report;

- Land USE Change Feasibility Report;
 - Assessment and Quantification of Land Use Change and NFM Impacts;
 - Storage Solutions Feasibility Report;
 - Conceptual Modelling of Options; and
 - GIS mapping of Constraints and Opportunities.
- Environmental Monitoring Strategy.
 - Screening of environmental benefit/impact.
 - Geotech/Hydro Geology Assessment desk study.
 - Habitat Mapping.
 - Biodiversity Net Gain Assessment.
 - HRA Evidence Plan.
 - WFD Preliminary Assessment.
 - Environmental Survey list.
 - Cultural Heritage Assessment.
 - Natural and Social Capital Assessment.
 - CEEQUAL Scoping/Plan (exact specification to be agreed with NEAS).
 - Environmental Assessment Plan.
 - Carbon Strategy Plan (*Consultant* to lead, *Client's* Carbon and Cost Lead to support).
 - Catchment Landscape Vision and Strategic Masterplan.
 - Support the *Client* in drafting an Engagement Plan for post SOC (Gateway 1). The *Client* will lead on this with input from the *Consultant*.
 - SOC and associated appendices, including economic and financial assessments, but not including the Commercial Case.
 - Delivery Programme (in conjunction with the *Client*).

- 2.4.3 Where any of the above are unclear, the *Consultant* shall seek to establish the *Client's* needs and work collaboratively with them to deliver sufficient detail to achieve a satisfactory SOC submission.
- 2.4.4 As part of the options appraisal, the *Consultant* shall use Appraisal Summary Tables (AST) to present the impacts of the options, both positive and negative, this including the carbon impacts of the options.

3 Catchment Wide Mapping

- 3.1.1 The *Consultant* shall develop and host an externally facing interactive GIS tool to be used for data gathering as agreed in SMI-8. The *Consultant* is expected to assist in identifying additional information, which will be sourced through internal and external engagement. The *Consultant* shall update the below GIS layers to accommodate the results of this engagement:
- Inclusion of the GIS layers produced from the SMI-8 commission, updated with the results of external engagement undertaken by the *Client*.
 - Update the GIS layer covering current mechanisms/routes of flooding across all sources within the intervention area with the results from external engagement undertaken by the *Client*.
 - Update the GIS layer covering existing baseline environmental data.
 - Update the GIS layer covering current assets within the intervention area with the results from engagement undertaken by the *Client*. The *Consultant* shall also include consideration of design performance or improvement of existing assets and their benefit area as part of a wider programme of works. This review shall be mindful of the outcomes required for this project with a focus on the interventions most likely to result in the greatest benefit gain.
- 3.1.2 The *Consultant* shall assist the *Client* in obtaining all the datasets identified in SMI-8 for mapping of the catchment baseline.
- 3.1.3 The *Consultant* will be required to map sub catchments based on the results of the NFM, Land Use Mapping and FEH assessments. The specification for this shall be determined with the *Client*, but is likely to consist of the production of an initial sub-catchment plan suitable to enable discussions to capture the knowledge and input of local partners (e.g. Lead Local Flood Authority or local Wildlife Trusts).
- 3.1.4 The *Consultant* shall produce a GIS layer covering relevant partner activities and aspirations. This data will be collected by the *Client* through the engagement with the Demonstrator and shared with the *Consultant*.
- 3.1.5 The GIS tool must be designed to have the ability to extract selected outputs to form a Catchment Wide Plan. The specification for the plan is yet to be determined and will be added to this commission as a Compensation Event at a later date.
- 3.1.6 The *Consultant* shall update to the Catchment Context Paper being undertaken at part of the SMI-8 commission.

4 Site Investigation

At this stage, it is not envisaged that site investigations will be required as part of this commission. However, if any are deemed necessary these will be managed through a Compensation Event.

4.1 Topographic Survey

- 4.1.1 The *Consultant* is to use existing available information only. Should further information be considered by the *Consultant* to be necessary in achieving the *Client's* Objectives then the *Consultant* shall notify the *Client* at the earliest opportunity.

4.2 Ground Investigation

- 4.2.1 The *Consultant* is to use existing available information only. Should further information be considered by the *Consultant* to be necessary in achieving the *Client's* Objectives then the *Consultant* shall notify the *Client* at the earliest opportunity.

4.3 Services Search

- 4.3.1 If required, 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.
- 4.3.2 The *Consultant* is to use existing available information only. Should further information be considered by the *Consultant* to be necessary in achieving the *Client's* Objectives then the *Consultant* shall notify the *Client* at the earliest opportunity.
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5 Hydrology and Hydraulics

5.1 General

- 5.1.1 The existing modelling is identified in the table in section 1.2. The extents of the modelling and assumptions made are within the existing Hydraulic Modelling Report Addendum.
- 5.1.2 The *Consultant* shall produce a Hydraulic Modelling Strategy document incorporating a high-level review of existing models. The *Consultant* shall engage the *Client's* Evidence & Risk team to confirm status and maturity of hydraulic modelling information and suitability for use in the study. Liaison with NRW will be undertaken by the *Client*. This will include identification of further modelling required for SOC and beyond. The specification for this strategy document will be set following a Modelling Strategy meeting hosted by the *Client*. The *Consultant* will include NRW data if available, this data will be provided by the *Client*.
- 5.1.3 The hydraulic modelling required for the SOC shall be as agreed in the Hydraulic Modelling Strategy, but is likely to include the following:
- To run the Do Nothing baseline scenario for all three Severn models (updated 1D-2D model; 1D model from Buildwas to Worcester and 1D model from Worcester to Gloucester).
 - To run the Do Minimum scenario (with and without demountables)
 - The existing modelling report is to be updated with these results for inclusion within the SOC.
- 5.1.4 A separate cost is to be provided for the running of a Do Nothing scenario on the Vyrnwy and Confluence models. Once the *Client* has greater understanding of the cost and programme implications of this scope, the exact model specification will be determined.
- 5.1.5 There is no requirement for the hydraulic modelling of options within this scope.
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6 Environmental Assessment

- 6.1.1 The *Consultant* shall confirm in the activity schedule the expected environmental outputs agreed through engagement with the *Client's* NEAS representative. The activities identified shall take into account proportionality whilst supporting the achievement of the *Client's* wider aspirations. It is expected that an initial Environment Screening and Assessment exercise informs the Constraints and Opportunities mapping and subsequently the identification of a preferred way forward. The identification of the further Environmental Assessment required to develop the preferred way forward shall be outlined within the SOC for delivery at OBC.
- 6.1.2 The *Consultant* shall give due consideration of the environment and sustainability risks and opportunities throughout the design evolution of the project to maximise the delivery of *Client* and project objectives.
- 6.1.3 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.
- 6.1.4 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.
- 6.1.5 Prior to the commencement of any landscape product, the *Consultant* shall prepare a product description for agreement with the *Client*. The *Client* shall provide an outline template for the product description.
- 6.1.6 The *Consultant* shall undertake a high-level, catchment based desk based assessment to identify key environmental risks and opportunities (e.g. ecological, heritage and landscape) and produce a list of activities to be undertaken at OBC. This desk based assessment shall be based on existing information, form an integrated part of the GIS tool and the outputs used to inform the catchment level assessment of potential types/locations of possible interventions.
- 6.1.7 The *Consultant* shall produce a list of additional environmental surveys for consideration at OBC to develop the preferred way forward.
- 6.1.8 The *Consultant* shall undertake an appropriate level of desk based assessment (see 10.1.6) to identify potential risks and opportunities for meeting Biodiversity Net Gain requirements, including nationally and locally set. The assessment shall also recognise Environment Agency goals and aspirations on Biodiversity Net Gain. The risks and opportunities of all proposed interventions shall be considered and an outline plan included stating how risks and opportunities for Biodiversity Net Gain they would be approached within the OBC, including approaches to monitoring across the preferred way forward. The assessment shall include the identification of statutory designated sites and other irreplaceable habitats and plus other key environmental constraints to inform and refine the possible locations for the proposed interventions. It shall also identify areas of the catchment and stakeholder initiatives with potential opportunities for contributing to likely Biodiversity Net gain requirements and thus identifying potential target areas to deliver net gain. The BNG assessment is to be concluded at OBC to address any gaps and deficiencies requiring additional work, including ground truthing and further assessment.
- 6.1.9 The *Consultant* shall endeavour that the preferred way forward takes account of biodiversity net gain in line with the Sustainability Chapter of the Midlands IDT Annual Plan. Biodiversity net gain requirements associated with Local Planning Authority requirements shall also be considered by the *Consultant*).

- 6.1.10 The *Consultant* shall ensure the mitigation hierarchy is applied to the options appraisal so that Biodiversity Net Gain considerations are integrated at an early stage in the optioneering process. In considering Biodiversity Net Gain this shall take account of the approach set out in the Defra Biodiversity Metric 2.0 (or subsequent updates), supporting technical guidance (e.g. Biodiversity Metric 2.0 User Guide and other supporting documents and subsequent updates) and good practice principles (CIEEM).
- 6.1.11 The *Consultant* shall prepare a high-level environmental and hydrological monitoring strategy to cover both the river systems and wider environmental impacts. The assessment shall utilise available information and identify where additional information will be required to inform the OBC. The Monitoring Strategy shall be strategic at this stage, identifying the monitoring regimes currently in place and stating the need for additional monitoring required to gauge the impact of the proposed interventions. An estimate of the costs for implementing the monitoring strategy shall be included.
- 6.1.12 The *Consultant* shall undertake a Habitats Regulations Assessment (HRA) Evidence Plan. The HRA Evidence Plan shall be proportionate to the stage of the project and level of design and capable of informing the options appraisal and securing approval of key stakeholders (internal and external). The HRA Evidence Plan shall be focussed primarily on catchments with the highest risk but shall also consider potential benefits of interventions. Focus shall be given to the implications of the proposed interventions on European sites (both within and outside the study area) identified (also drawing upon the findings included in the NWRR Feasibility Assessment). The Plan is to include an outline as to how the designs shall be progressed at OBC to ensure compliance and where relevant deliver potential benefits. The HRA is to be concluded at OBC to address any gaps and deficiencies requiring additional work (e.g. consultation with Natural England).
- 6.1.13 The *Consultant* shall undertake habitat and landscape mapping at an appropriate level to identify risks and opportunities across the catchment and to inform potential interventions for managing flood risk. This shall be desk based, utilising readily available information, and feed into the GIS mapping tool. Any gaps or deficiencies in the data required to progress the option selection at OBC shall be identified.
- 6.1.14 The *Consultant* shall undertake a proportionate level Water Framework Directive (WFD) assessment, appropriate to the stage of the project and likely interventions, to inform the options appraisal, ensure compliance with the regulations and to identify any risks that the preferred way forward may pose to WFD objectives. The assessment shall identify the existing baseline condition of the water bodies within the catchment (of all relevant types) and consider the potential impact and opportunities of the proposed interventions using existing information such as available through the Catchment Data Explorer. The assessment shall also set out the approach to the next stage of the WFD assessment (both at catchment and local level) for the OBC, this including identifying where more detailed water quality assessments may be needed (making reference to the Monitoring Strategy outlined in Clause 6.1.11).
- 6.1.15 The *Consultant* shall actively seek opportunities for enhancement to water body status in addition to identifying any mitigation likely to be required to make the preferred way forward compliant.
- 6.1.16 The *Consultant* shall undertake a high-level Geotech / Hydro-Geology assessment (desk based) to map any key constraints or areas requiring further assessment. It shall be high level and based on the existing BGS data. The assessment is to be concluded at OBC to address any gaps and deficiencies requiring additional work to progress the selection or location of interventions.

- 6.1.17 The *Consultant* shall undertake a proportionate level cultural heritage baseline review (desk based), appropriate to the stage of the project and likely interventions. This shall be high level, feed into the GIS mapping and identify risks and opportunities at a catchment scale relevant to the likely interventions and set out the requirements for further assessment at the next stage within the SOC. Initial findings shall be included in the SOC, but this activity will be concluded at OBC to address any gaps and deficiencies requiring additional work.
- 6.1.18 The *Consultant* shall undertake a Natural and Social Capital desk based assessment. The assessment shall be strategic, capturing work completed to date, and capable of supporting stakeholder engagement and other relevant products such as Landscape Visioning (see clause 11.1.12). Consideration shall be given to using the Environment Agency's Natural Capital Register Tool, with an assessment to demonstrate at a high level the natural and social capital benefits that will be captured. Consideration shall be given to determine the suitable approach to expand/build upon this assessment in later stages of the project. Initial findings shall be included in the SOC, but this activity will be concluded at OBC to address any gaps and deficiencies requiring additional work.
- 6.1.19 The *Consultant* shall undertake a workshop with the *Client* to identify early opportunities to evidence and report on strategy elements of CEEQUAL in the development of the SOC. The SOC shall set out how CEEQUAL will be developed as the project progresses to OBC and to be agreed with the *Client*. If the workshop identifies that any further reporting or evidence gathering is required, then further work will be agreed with the *Client* as a Compensation Event to this commission.
- 6.1.20 The SOC shall include a plan identifying how the environmental assessment process shall be approached through the OBC/FBC to ensure compliance with relevant regulations (EIA or SEA).
- 6.1.21 The *Consultant* shall produce reports mentioned in this SOC scope to a length, content and scope which is proportionate to the environmental risk associated with the project. The *Consultant* shall set out the approach for each product within a product description template and agree this with the *Client* prior to commencement of the product.

7 Carbon

- 7.1.1 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*.
- 7.1.2 The *Consultant* shall undertake a Carbon Strategy Plan. The *Consultant* shall assist the *Client* in defining the scope for this.
- 7.1.3 The *Consultant* will be responsible for undertaking the carbon optioneering and reporting. The carbon budget setting will be undertaken by the *Client*'s Carbon and Cost Lead, based on design criteria provided by the *Consultant*. A workshop shall be held at the start of the commission to agree roles and responsibilities.
- 7.1.4 The *Consultant* shall work with the *Client* to demonstrate how they have met the corporate requirement for carbon reduction using the Carbon Tool, 'ERIC' and:
- 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 and Carbon Modelling Tool at the pre-defined stages.
 - Inclusion of a whole-life carbon appraisal to ensure optimisation of lowest carbon in short-listed and preferred way forward

8 Options Appraisal

8.1.1 This shall build upon the literature review being undertaken as part of the SMI-8 commission. Following conclusion of the literature review, the *Consultant* shall outline and agree their approach to Options Appraisal with the *Client*

8.1.2 The *Consultant* shall undertake an analysis of option selection and identification through production of a conceptual model, overlaying all the data gathered and mapping outputs produced within this scope. This purpose is to provide a catchment scale conceptual model to identify suitable combinations of interventions at a catchment scale which can in combination achieve the required outcomes. This will be referred to as the 'preferred way forward' within the SOC. The assessment and identifications of specific locations for delivery of the interventions will be undertaken at OBC. Details of suitability, modelling and locations will be discussed with partners during OBC development.

To inform the Options Appraisal, the *Consultant* shall undertake an NFM Feasibility Assessment, Land Use Change Feasibility Assessment, Storage Solutions Feasibility Assessment and GIS mapping as outlined below. The GIS mapping shall be incorporated into the Options Appraisal report, the feasibility assessments shall form appendices.

8.1.3 The *Consultant* shall develop the descriptors to be used in undertaking NFM and land use conceptual modelling to enable focussing on NFM / land management assessment. This includes utilisation of LiDAR data, land use data, soil type etc.

8.1.4 The *Consultant* shall produce an NFM Feasibility Report. This is a catchment wide study, specific to reducing flood risk in conjunction with other partner initiatives. The initial phase of this report shall consist of a high level assessment of the potential impact that NFM could have. Consideration must be given to the viability of proposals for land managers to enable implementation.

8.1.5 The *Consultant* shall create a high-level NFM GIS layer, the scope of which to be determined from the literature review. This layer will focus on the outputs from the catchment descriptors / conceptual mapping, including link to NFU, CLA etc. It will consist of top down datasets (available GIS and literature reviews) and bottom up (utilisation of the farm clusters that are being discussed in the River Severn Partnership Demonstrator – information on this will be provided by the *Client*).

8.1.6 The *Consultant* shall produce a Land Use Change Feasibility Report. This is a catchment wide study, specific to reducing flood risk in conjunction with other partner initiatives. The *Consultant* shall prepare the scope of this and agree with the *Client*. The initial phase of this report shall consist of a high level assessment of the potential impact that land management change could have on peak river flow. Consideration must be given to the viability of proposals for land managers and partners to enable implementation.

8.1.7 The *Consultant* shall create a high-level Land Use Change Potential GIS layer, the scope of which to be determined from the literature review and existing studies. This layer will focus on the outputs from the catchment descriptors / conceptual mapping, including link to NFU, CLA etc.

8.1.8 The *Consultant* shall undertake an assessment and quantification of Land Use Change and NFM impacts to determine the required storage volumes. The *Consultant* shall use this assessment to produce a report, focusing on the high- level range of benefits rather than detailed quantification of area and cost. The report must include assumptions and risks.

- 8.1.9 The *Consultant* shall produce a Storage Solutions Feasibility report, focusing on the potential for storage and generalised hydrologically possible and effective locations across the catchment. The report must also consider the potential for passive or offline storage.
- 8.1.10 The *Consultant* shall create a Storage Solutions Potential Mapping GIS layer for screening of potential strategic storage locations at a catchment scale.
- 8.1.11 The *Consultant* shall determine and consider geophysical, environmental, utilities and physical constraints based on existing data. The approach to this shall be proportionate to the scale of the study area and agreed with the *Client* at the start of the commission.
- 8.1.12 The *Consultant* shall produce an interactive GIS map of identified Constraints and Opportunities. This is to be compatible with the GIS Tool to create the final catchment vision. The constraints and opportunities information for digitisation will be provided by the *Client*.

9 Options Development

- 9.1.1 Following the Options Appraisal, the *Consultant* shall prepare a long list of options. Although the development of a long list will build upon previous assessment undertaken at Feasibility stage, the long list shall not be constrained by previous work and will be agreed with the *Client* at an options meeting. The *Consultant* shall screen and assess this long list of options for technical, environmental, sustainability, carbon and economic suitability, as considered appropriate.
- 9.1.2 Following this screening, the *Consultant* shall prepare a short list of viable options using portfolio prioritisation and stress testing for the *Client*'s approval, giving reasons for including or excluding each of the long list options. Consideration of sustainability shall be included within the matrix for shortlisting. On the agreement of the *Client*, the *Consultant* shall assess in detail these options for technical, environmental and economic suitability, as discussed in the relevant sections of this brief, utilising the evidence and data collated as part of this commission and to meet Critical Success Factors, Values and Ambitions.
- 9.1.3 Options appraisal and determination of the preferred way forward shall include engagement with the ESE contractor on pricing, buildability and maintainability and the *Client* including Field Services and Area FCRM.
- 9.1.4 The *Consultant* shall utilise the results of the carbon appraisal undertaken by the *Client* to analyse and appraise the carbon footprint of options as outlined in Section 7.
- 9.1.5 The *Consultant* shall seek options that support the e:Mission 2030 sustainability targets.
- 9.1.6 The *Consultant* shall use these outputs from the option development to select a preferred way forward.
- 9.1.7 The *Client* shall draft the scope for the next stage of the project (SOC-OBC) and the *Consultant* shall support the *Client* to produce the scope.
- 9.1.8 The *Consultant* shall assist with pricing and buildability which will be led by the ESE contractor.
- 9.1.9 The *Consultant* shall discuss with the *Client* where environmental information, landscape details, archaeological information, methodologies or on-site management deviate from that stated in the SOC environmental report or associated documents. This will enable any legal implications to be checked and for the environmental implications of the changes to be assessed.
- 9.1.10 The *Consultant* shall appoint a Principal Designer and ensure that the Principal Designer is engaged with the project, as required by the CDM regulations 2015. The Principal Designer will provide a high-level overview with no requirement to attend weekly progress meetings. The Principal Designer is expected to utilise 1 day per month. Should the project require sudden site mobilisation, the Principal Designer's time shall be managed through a Compensation Event and in agreement with the *Client*.
- 9.1.11 The *Consultant* shall consider Catchment Ecosystem Services and Landscape Visioning during determination of the preferred way forward. Specification for this activity shall be determined in consultation with the *Client*. This will be developed parallel to the SOC and finalised the end of 2021 / start of 2022.

- 9.1.12 The *Consultant* shall develop a Catchment Landscape Vision. This interactive online web interface will outline the concept design of case study areas and form the basis of project, including what is required and next steps. This will require landscape visioning applying the environmental elements and assessment of catchment ecosystem services. This Catchment Landscape Vision will be agreed with NEAS and developed parallel to the SOC, utilising all the outputs listed in Section 10 of this scope and finalised the end of 2021 / start of 2022. The *Consultant* shall host a landscape visioning workshop with the *Client* to agree the scope and use the information outlined in Appendix 2 (a draft scope) to support this. Cost for developing and agreeing the Product Description for the Landscape Vision (as outlined in Appendix 2) shall be included within this commission. The cost for production of the Landscape Vision and Strategic Masterplan will be managed as a Compensation Event on this contract.
- 9.1.13 A high level programme for delivery of the preferred way forward shall be included in the SOC. The programme shall highlight delivery mechanisms and timelines. Assistance will be provided by the *Client*.

10 Economic and Financial Appraisal

- 10.1.1 The *Consultant* shall undertake an economic appraisal in line with FCERM – Appraisal Guidance (FCERM-AG), Supplementary guidance and the HM Treasury ‘Green Book’. This will include a valuation of all the key benefits, both economic and environmental, carbon assessment and whole life costs in order to produce a cost benefit analysis that will be used to determine the preferred way forward.
- 10.1.2 The development of construction cost estimates shall be undertaken with support from the *Client’s* Carbon and Cost Lead. A workshop shall be held at the start of the commission to agree roles and responsibilities.
- 10.1.3 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. The *Client* will provide support and costs where possible to complete this estimate.
- 10.1.4 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. The calculation of carbon emissions and completion of the carbon tool will be carried out by the *Client*, the *Consultant* is required to provide the information needed to complete this.
- 10.1.5 Risk and Optimism Bias allowances shall be calculated in accordance with Risk Guidance for Capital Flood Risk Management Projects. The *Consultant* shall attend risk workshops facilitated by others to deliver the Scope.
- 10.1.6 Selection of the preferred way forward 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.
- 10.1.7 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.
- 10.1.8 The *Consultant* shall produce, and maintain through the project, the FCRM Partnership Funding Calculator for Flood and Coastal Erosion Risk Management Grant in Aid (The PF calculator). The PF calculator shall be updated at the request of the *Client* or when evidence obtained during the project suggests a significant change is likely. The *Consultant* shall inform the *Client* of any expected significant change in scheme choice or affordability at the earliest opportunity as the project develops.
- 10.1.9 The *Consultant* shall use this data to assist the *Client* in identifying suitable sources of external funding.
- 10.1.10 The *Consultant* shall undertake damage calculations for the preferred way forward for inclusion within the SOC. This is to be updated with the Do-Nothing and Do Minimum outputs but does not require further refinements over NWRR technical study. The benefits assessment shall consider wider benefits and include for the outcomes from the River Severn Partnership studies.

10.1.11 The *Consultant* shall estimate the mitigation costs.

10.1.12 Compensation estimates shall be provided by the *Client*.

10.1.13 A Funding Strategy will be provided by the *Client* for inclusion in the SOC.

10.1.14 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 SOC. This will provide a clear view of the process in order that the economic lead for the review team can review the process. This shall include the below deliverables, and anything additional beyond this will be managed through a Compensation Event.

- Overview of methodology adopted.
 - Parameters quantified and standards used (e.g. Multi-Coloured Manual).
 - Parameters considered and not used together with reasons.
 - Key receptors/ major beneficiaries.
 - Wider benefits.
 - 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.
 - FCERM-AG spreadsheets and PF calculator
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11 Stakeholder Engagement

- 11.1.1 Engagement planning and facilitation will be undertaken by the *Client*.
- 11.1.2 The *Consultant* shall take account of the stakeholder engagement plan in accordance with the EA guidance “Working with Others” including agreement of key stakeholders with discussion with the *Client*. The *Consultant* shall ensure that the results from the stakeholder engagement informs the appraisal.
- 11.1.3 The *Consultant* is required to assist the *Client* in drafting a plan of engagement requirements post SOC (for inclusion in the SOC report).
- 11.1.4 The *Consultant* shall provide technical support, prepare information for and attend a key stakeholder meetings.
- 11.1.5 The *Consultant* may be required to assist the *Client* in developing and hosting virtual engagement sessions. The specification and need for this is yet to be determined, so will be added as a Compensation Event at a later date, if required.
- 11.1.6 The *Consultant* has already been commissioned to develop visualisations of the existing flood risk. Further visualisations of the current flood risk, as well as the impact of climate change on flood risk and of the proposed options and their impact on the catchment may be required. The specification and need for this is yet to be determined, so will be added as a Compensation Event at a later date, if required.
- 11.1.7 The *Consultant* shall consider the following and document how they are addressed on this contract:
- Public diversity in engagement and perception of the project team.
 - Accessibility.
 - How inclusive environments are created for the project team.
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12 Health and Safety

- 12.1.1 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.
 - 12.1.2 The *Consultant* shall follow and comply with the requirements outlined in the Safety, health environment and wellbeing (SHEW) Code of Practice ([LIT 16559](#)).
 - 12.1.3 The *Consultant* shall supply designer risk assessments, drawings and any other data required to fulfil their duties under CDM.
 - 12.1.4 The works on site included in the geotechnical section will be subject to notification to the HSE. Appraisal work to outline design shall be treated as if it was notifiable.
 - 12.1.5 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.
 - 12.1.6 The PD must be a lead or active designer and can either demonstrate relevant Skills, Knowledge and Experience to undertake the role or have access to relevant support to discharge their duties.
 - 12.1.7 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.
 - 12.1.8 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.
 - 12.1.9 The PD shall ensure there is effective liaison and coordination between phases with the Principal Contractor.
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13 Business Case Submission

- 13.1.1 The *Consultant* shall aggregate all of the work undertaken from this commission into a long form business case document – the Strategic Outline Case. The *Consultant* shall request information required to complete the Commercial, Financial and Management cases from the *Client* and include these requests in the programme for this commission. 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.
- 13.1.2 The *Consultant* shall be responsible for dealing with responses to queries during the approval process and any resubmission required.
- 13.1.3 The SOC Delivery is to be in accordance with the *Client's* submission programme for the Large Projects Review Group (LPRG) for projects costing over £10m. 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.
- 13.1.4 This section of the study shall conclude with the final approval of SOC using latest EA Guidance including all appendices and FSoD approval following submission to NPAS or LPRG.
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14 General

No additional requirements further to the other sections of this scope.

15 Anticipated Compensation Events

- 15.1.1 It is expected that the below items may be required for the SOC submission and will be dealt with as a Compensation Event following agreement with the *Client*:
- Virtual Engagement Sessions for the community, partners and stakeholders
 - Visualisations of impact on climate change on flood risk
 - Visualisations of proposed options and impact on catchment
 - Map of sub-catchments based on result of NFM, Land Use Mapping and FEH
 - Delivery of the catchment wide plan following confirmation of the specification by the *Client*.
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16 Relevant guidance

The *Consultant* shall deliver the *service* using the following guidance:

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	SOC
672_15_SD03	Business case template – 5 case Model	SOC
672_15_SD02	Short Form Business case template	SOC
LIT 4909	Flood and Coastal Erosion Risk Management appraisal guidance (FCERM-AG)	SOC
	Flood and Coastal Erosion Risk Management: A Manual for Economic Appraisal (the 'Multi Coloured Manual')	SOC
OI 1334_16	Benefits management Framework	SOC
Gov.uk	Partnership Funding Calculator Guidance	SOC
LIT 15030	The Investment Journey	SOC
LIT 55124	Write a Business Case	SOC
LIT 14953	FCRM Efficiency Reporting – capital and Revenue	SOC
LIT 12280	Lessons Log template	SOC
LIT 55096	Integrated Assurance & Approval Strategy	Approvals

17 Requirements of the Programme

- 17.1.1 The *Consultant* shall provide a detailed programme in Microsoft Project format version 2016 and in pdf format meeting all requirements of Cl.31 of the Conditions of Contract.
- 17.1.2 The *Consultant* shall provide a high-level programme for delivery of the preferred way forward. This must include EA delivery, partner organisation delivery and timescale and will require input from the Demonstrator.
- 17.1.3 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 BIM Execution Plan is to be returned within 6 weeks of contract signing.
- 17.1.4 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.
- 17.1.5 The programme shall include review and consultation periods for drafts, scoping letters, statutory consultation etc.
- 17.1.6 The programme shall identify time risk allowance on the activities and float.
- 17.1.7 In conjunction with the main programme, the *Consultant* shall provide and maintain an aligned, detailed programme covering all environmental deliverables required to meet requirements for permissions and consents and construction delivery dates.
- 17.1.8 The *Consultant* shall produce a Programme such that the following milestone dates are achieved:

Date	Event
Autumn 2021	Submission of SOC
March 2022	Completion of Landscape Visioning, Catchment Ecosystem Services and Catchment Landscape Vision.
TBC	Completion of OBC
TBC	Completion of FBC
TBC	Start of Construction

- 17.1.9 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
-

18 Services and other things provided by the *Client*

18.1.1 Access to Environment Agency systems and resources including:

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

18.1.2 Letter of Appointment of Principal Designer.

18.1.3 Site access authorisation letter(s).

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

19 Data

19.1.1 Requirements for the handling of project data are covered by the framework schedules.

20 *Client's* Advisors

20.1.1 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.

20.1.2 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.

20.1.3 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*.

21 *Client* Documents the *Consultant* Contributes to

21.1.1 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 – DRAFT Landscape Vision scope
