22503 ECOLOGICAL SERVICES FRAMEWORK 3 (EcoSF3)

SCHEDULE B PROJECT FORM AND CONFIRMATION OF INSTRUCTIONS
PART 1
PROJECT DETAILS, SPECIFICATION AND EVALUATION CRITERIA

To be completed by Contracting Authority Project Manager

Project title: [redacted] **Harehope River Restoration - LIFE WADER – LIFE20** [redacted]

Bravo project ref: project_35499

Date: 08 February 2022

Contracting Authority (Environment Agency; Natural England; Defra etc)	Environment Agency		
Project Manager:	[redacted]	**Phone number:**	[redacted]
Budget holder:	Environment Programme – North East	**Cost code:**	[redacted]
Commercial Contact (if applicable):	[redacted]	**Email:**	[redacted]
Project Start Date		04/04/2022	
Project Completion Date		01/08/2023	
For any projects over £10k, full competition is required (i.e. all suppliers on the Lot invited to quote).	**Direct Award**		**Mini-comp** X

Call off from Lot number (please tick)	1		2		3		4	X
Proposal return date: ***(no less than 10 working days from current date)***	09/03/2022							

Evaluation criteria:		
Price	**Weighting**	**50%**
Quality	**Weighting**	**50%**
Quality Sub-Criteria Weightings:		
Approach & Methodology • Describe the proposed methodology and confirm deliverables; including ensuring geomorphology aspects, environmental issues and health and safety are given appropriate attention. • The proposed methodology should include identification of key project risks and how they will be mitigated. A summary risk table should be included.		**35%**

• The methodology should also highlight any innovation or value added opportunities.		
Proposed Staff (inc Pen Portraits) and Contractor's experience/accreditations. • Proposed staff working on this project must demonstrate appropriate skill and competency. Please detail any previous experience for proposed staff. • CVs or pen portraits to demonstrate this experience is acceptable to supplement this application		**30%**
Project Management (including project plan) • A full programme plan to include milestones		**25%**
Sustainability Considerations (e.g. Travel management, reduction of carbon footprint, bio-security etc.) • Inclusion of any sustainability principles relating to travel. • Details provided on how they will work to reduce the carbon emissions when conducting site visits and surveys.		**10%**

Specification

Please detail the Contractor's required Limitation of Liability. If no sum is stated, the Contract Price for the Services performed or to be performed under the Contract or five million pounds whichever is the greater will apply.

1. Description of work required – overall purpose & scope (including reporting requirements)

Background

The River Till is a major tributary of the River Tweed and drains much of north Northumberland and a small area of the Scottish Borders region. The Till flows east from the Cheviot Hills, before flowing north then west onto the Milfield Plain, a former glacial lake and now a significant agricultural area. The river continues northeast to join the Tweed near Coldstream. It's worth noting that in the upper catchment the River Till is known as the River Breamish, with it becoming the River Till just downstream of the Harehope project area at Bewick Bridge.

The River Till and its tributaries have been designated as the nationally important River Tweed Catchment Rivers (England: Till Catchment) Site of Special Scientific Interest (SSSI) and, because of their international importance, they are also designated as part of the River Tweed Special Area of Conservation (SAC).

The Till Catchment Rivers have experienced a long history of modification as a result of changes in river and floodplain use. As designated rivers, they should provide favourable habitat conditions for their characteristic biological communities but none of the seven Till SSSI units are currently in 'favourable condition'.

The lower catchment of the Breamish, under reference conditions, would have been characterised with a pool-riffle to wandering channel morphology, migrating across its floodplain as it reworked glacial sediment laid down during the Quaternary Period. Historical river management practices (i.e. straightening, embankments) have significantly impacted natural fluvial processes which in turn has altered the physical habitat of the River Breamish limiting its ecological diversity, (River Breamish Concept Design, 2019, cbec eco-engineering UK Ltd).

The reach (approximately 3km project area with a 2km straightened reach) of the Breamish between New Bewick Bridge and Bewick Bridge was straightened in the late 18th/early 19th Century. The 1st Edition OS map and aerial photos of the area below tantalisingly hint at the old planform of the river.

(Note, river flows from bottom right to the top left)

The straightened reach of the Breamish is flanked by floodbanks. The floodbanks along the right bank are generally higher, set back from the river and in a better state of repair. The floodbanks on the left bank are generally lower, located along the top of the riverbank, and have been breached in a number of places. Stone pitching along the toe of both banks is common throughout the whole reach, extending down to Bewick Bridge.

These modifications have contributed to a reach that is over-deepened, has limited floodplain connection and limited morphological diversity that supports many of the designated site interest features.

Active management of the reach has now largely ceased, allowing pockets of erosion and deposition to occur. These pockets of increased physical diversity tend to be located where the embankments have either been breached or eroded creating a wider river corridor. Agricultural land, especially on the left bank is now at greater risk from flooding and poor field drainage.

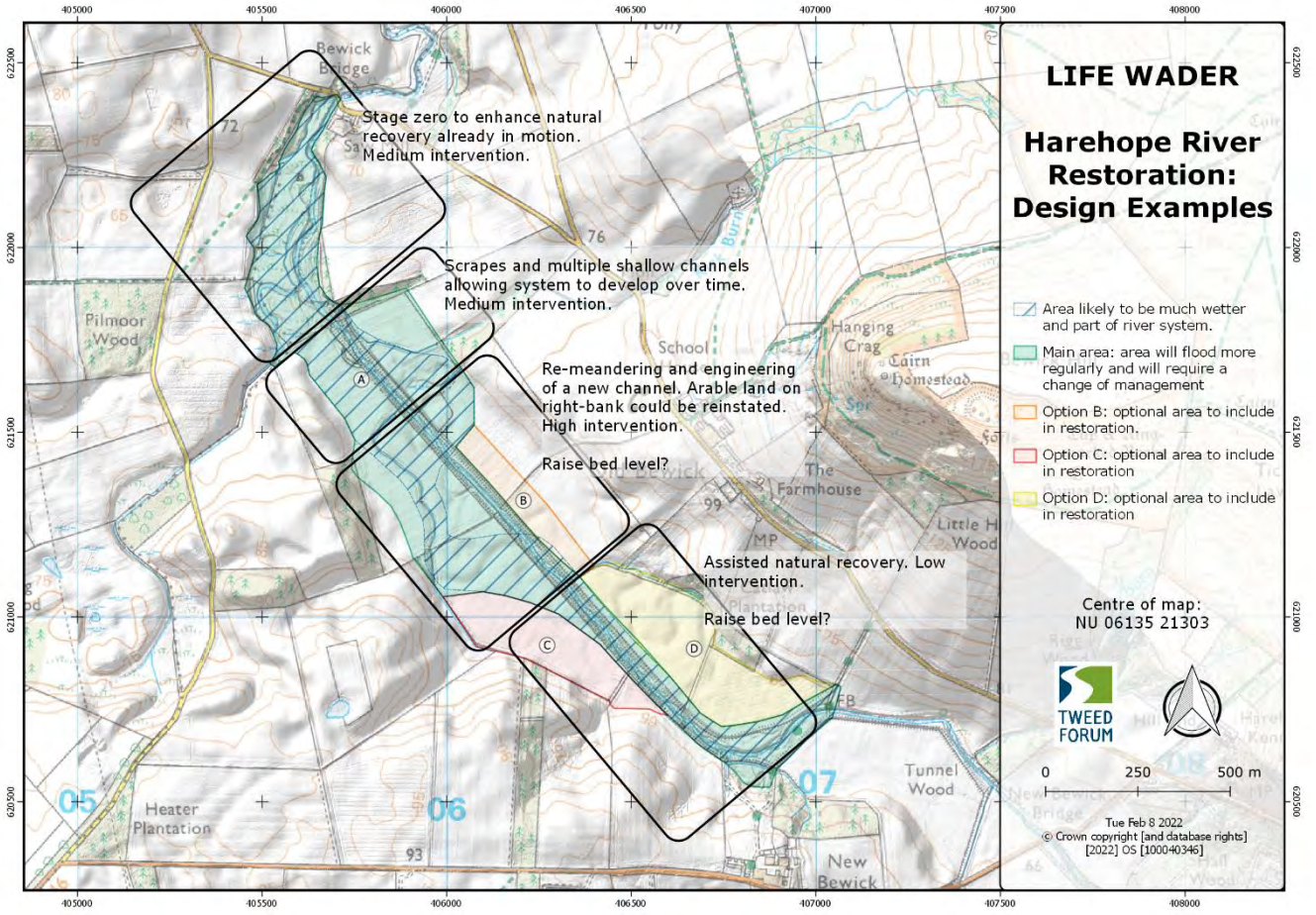
Working with Harehope Estate, the project board for the Till River Restoration Strategy (TRRS) https://tweedforum.org/our-work/projects/river-till-restoration-strategy/, which includes the Environment Agency (EA), Natural England (NE) and Tweed Forum (TF), employed cbec in Dec 2017 to undertake a study to identify the most site-appropriate restoration options for the reach, with the aim of improving the physical condition of the river whilst protecting land and infrastructure, (River Breamish Concept Design, 2019, cbec eco-engineering UK Ltd).

Following a review of the options, cbec were asked to produce outline designs for two of the options:

- Option 3, Enhanced natural recovery - removal of embankments and bank protection, large wood placement and native tree planting.
- Option 4, Full scale intervention – removal of embankments and bank protection, large wood placement, native tree planting and channel remeandering.

Working in partnership with NE, TF and Newcastle University, the EA have been successful in securing funding through an EU LIFE bid. LIFE WADER will run from October 2021 to 2026. The project will seek to improve water quality and ecology conditions to different habitats in the River Tweed catchment, estuary and Northumberland Coast. One aspect of the project is to test the hypothesis that river restoration improves water quality, specifically in, specifically in relation to nutrient loadings by allowing more fine sediment to settle on the floodplain. The specialist monitoring required to test this hypothesis is part of a separate suite of works, but there may be some cross-over (such as the use of the Digital Terrain Model and ecology surveys required through Planning).

Taking on board the options developed by cbec, and after discussions with the Estate and geomorphologists within the EA and NE, a blend of Options 3 and 4 is considered the best way forward.
The plan below reflects some of the options/techniques that have been discussed for the four reaches. Note this plan does not reflect any preferences the project team may have. It is simple a guide to demonstrate the range of techniques we have discussed and considered.



Objectives

The required outcome of this commission is to carry out the detailed design for the restoration of the River Breamish between New Bewick Bridge and Bewick Bridge, such that it meets the project objectives and enables the scheme to be priced and constructed. A plan showing the core area, with further options for expanding the proposals can be found in Appendix 1.

The successful applicant will work with the Estate and the TRRS project board to develop a restoration plan that:

- Supports the delivery of Action C1 from EU LIFE WADER which states the project will address water quality in the River Tweed SAC, through a series of river restoration, habitat and land management interventions
- Does not compromise agricultural land adjacent to the project area
- Returns the reach to reference conditions, or puts in place measures that will enable this
- Will enable the reach to self-recover, requiring no or limited future maintenance, both within and outside the project area
- Maximises the area and frequency of floodplain connection
- Reflects the EA's commitment to cut carbon emissions
- Considers latest river restoration techniques appropriate for this reach
- Improves the reach for the designated site target species

Deliverables

The project will be delivered in 2 phases:

- Delivery of a detailed and costed design which has agreement from the Estate and Client
- Preparation of planning documents and planning permission secured

Phase 1

This first phase will see the production of a detailed design for the restoration of the River Breamish. The design shall be supported by a narrative based on geomorphological principals, which explains and justifies the design and measures presented. Any limitations on the design will be highlighted, along with any appropriate measures to address them. The Consultant shall ensure that the detailed design takes into consideration all relevant guidance and legislation and seeks to minimise long-term land management, maintenance costs and whole life carbon.

Construction risks during the development of the detailed design, should be, where possible designed out. Consideration of the potential risks to surrounding assets (roads, bridges, power lines, services, land etc), land use and ecology must also be assessed and quantified in Phase 1. As well as consideration to the construction methodology, e.g. an indication of construction access routes, site compound location, and ground condition. An outline ground investigation survey will be required at key locations prior to construction.

The CDM Regulations must be followed. The Consultant will undertake the role of Principal Designer under the Construction Design and Management Regulations (2015).

Given the dynamic nature of the river, and to ensure that the final design is stable (in the short and medium term) it will be necessary to undertake a geomorphological dynamic assessment based on the outputs from the hydraulic model. It is critical that we understand (as best we can) how the newly restored channel will evolve and what the equilibrium state of the new channel will be. The model should be run for a range of single events, and over a series of variable high flow events. The Consultant shall use their experience and expertise to determine which flow events to use and which modelling software is most appropriate for use in this project, taking into consideration the area of interest and the study objectives. Please provide an explanation to back up your recommendations.
A flood risk assessment, as per the EA guidance will be needed. This will need to show that there is no increase in off- site flood risk.

To aid in the understanding of the design and how the riverscape will change over time, an artist's impressions/visualisations depicting current and post implementations scenes will be produced, including cross sections across the floodplain. This shall be used as an engagement tool.

Working with the Client, the Consultant shall be responsible for ensuring the design is acceptable to the Estate, is designed to gain planning approval and any other associated approvals and to be acceptable to statutory and key stakeholders. Sufficient review periods will be included to allow discussion and feedback from the Client and the Estate.

During Phase 1, pre-app advice should be sought from the Planning Authority.

Summary of deliverables during Phase 1:

- A short technical report based on geomorphological principals, which explains and justifies the design and measures presented
- Model outputs along with descriptive narrative
- Non-technical drawings and visualisations to help with promoting the design
- Ecological surveys including Protected & Notable species and habitats, in addition to Invasive Non-native Species (INNS), to inform an Ecological Impact Assessment (EcIA) & Biodiversity Net Gain Assessment (BNG) utilising the River Metric & UK Habitat Classification (UKHab). Ecological data will be sourced from the Local Environmental Records Centre (LERC) to inform the aforementioned surveys.
- Archaeological assessment
- River MoRPh survey to inform BNG Assessment
- Detailed description of proposal, to include:
    - Bill of quantities and detailed project costs
    - Predicted hydromorphological changes and timescales
    - Future land management requirements

- A summary of the wider ecological benefits
- Identification of any risks, including buildability, stability/robustness, and those to the ecology, land management, infrastructure, and any other factor which could arise due to the implementation of the works.
- Where spoil will be disposed of and the acceptability of this aspect
- The views of stakeholders including landowners, farmers, angling clubs, planners etc.
- Drawings and specifications
- Utilities search - 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 design, including preparation of plans.
- Undertake Boreholes or trial pits to understand material before construction
- Pre-app advice sought ahead of planning submission
- Fish rescue methodology

Phase 2

This commission must result in the required permissions, licences and all other necessary permissions required for construction being identified and obtained. This includes the preparation of a single planning application covering the proposed construction works and shall submit these to the relevant Planning Authority for Planning Consent. The Consultant shall be responsible for submitting the required documents through the Planning Authority portal. The services exclude the payment of Planning Fees.

The documents produced in Phase 2 are to provide a sufficient level of detail to enable a construction tender exercise to be undertaken without further development.

Summary of Phase 2 deliverables:

- Products of documents required for planning which may include, but are not limited to, Design drawings, completion of formal scoping process for EIA, Flood Risk Assessment. (Pre-app advice should be sought in Phase 1)
- Environmental Assessment to include but not limited to an Environmental Statement supported by the EcIA, shadow Habitats Regulations Assessment (HRAS) & Biodiversity Net Gain Assessment using the Defra Metric 3.0 and BNG River Metric.
    - Protected species licencing requirements, species & habitats method statements & RAMS where required
- Secured planning permission
- Aftercare plan and a simple, robust plan to enable the site to be monitored.
- Production of documentation sufficient for a contractor to set out and construct the works. The detailed design should include but not be limited to:
    - Calculations
    - Drawings (including landscape/ ecological design drawings/ planting schedules)
    - Specifications (including any additional clauses to Environment Agency standard specifications - e.g. Environment Agency NEAS Landscape Specification template)
    - Design philosophy statement, giving design process, standards used, and assumptions made to the satisfaction of the Client. This should demonstrate compliance with the Client's sustainability targets
    - Design report, including asset schedule, buildability statement and maintenance plan
    - Designer's Risk Assessments
    - Public Safety Risk Assessments
    - Pre-construction information
    - Application for all necessary consents, permits and permissions required
    - Environmental Action Plan
    - Materials Management Plan

- Involvement with experienced contractor to identify practical constraints, timescales, working methods and verification of costs

Information to be provided

The Environment Agency will provide the following:

- Previous deliverables from [redacted] include topographic survey, modelling files (including raw data) and CAD drawings
- Optioneering report
- Option 3&4

2. Information to be returned by the Contractor and the section of Part 2 the information should be provided in.

Approach and Methodology (including Health & Safety, Sustainability and Quality Assurance unless being evaluated separately):

- Identify proposed methodology and confirm deliverables, ensuring geomorphology aspects, environmental issues and health and safety are given appropriate attention. This should include any assumptions made and any exclusions.
- Identification of key project risks and how they will be mitigated. A summary risk table should be included in your reply.
- The methodology should also highlight any innovation, value added opportunities and cost savings.

Project Management (including programme plan):

- Programme shall include, but not limited to, the milestone dates in the payment schedule defined in section 3 of this form. Sufficient detail should be provided to evidence a planned approach to delivering the various elements of the project within the required timeframes. Appropriate time for project review periods should be built in to allow review with the EA. The programme should also allow time to attend progress meetings and to provide monthly financial updates
- For project Staff, please demonstrate appropriate skill and competency and relevant previous experience of undertaking similar projects
- Should sub-contractors be required these should be outlined
- Your reply should also include details of how you will manage risks relating to the ongoing Covid19 situation pandemic from a business continuity perspective and operationally

Sustainability

- Inclusion of any sustainability principles relating to travel
- Details provided on how they will work to reduce the carbon emissions when conducting site visits and surveys.

2. Required skills / experience from the contractor and staff. Include any essential qualifications or accreditations required to undertake the work. Please provide details for any sub-contractors being used.

- Experience of fluvial geomorphological assessment
- Experience in complex, high profile river restoration schemes, on designated or high value rivers
- Experience of scheme appraisal in line with FCRM and treasury guidance
- Experience of feasibility and design of solutions to implement WFD mitigation measures
- Experience appraising and delivering catchment scale solutions to WFD and Environmental issues
- Experience of EcIA, UK Habitat Classification, Biodiversity Net Gain baseline and calculation using the Defra Biodiversity Metric & BNG river metric
- Full or Chartered Member of the Chartered Institute of Ecology and Environmental Management (CIEEM)
- Stakeholder Engagement
- Project Management
- CDM competency

Information to be returned by the Contractor in Part 2 Section 3

3. Proposed programme of work and payment table (Detailing specific tasks, key milestones, deliverables & completion date where appropriate) Payment schedule should detail the % amount that will be paid after delivery of each task

Please note that AECOM has proposed an amended payment schedule more aligned to monthly payments, which we hope is acceptable to the Environment Agency.

Task no.	Task and deliverable	Completion date	Payment schedule
1	Pre-start meeting with the project board and the Harehope Estate and review of existing information	31/04/2022	[redacted]
1a	Baseline assessments	30/05/2022	
2	Agreed outline restoration plan for the project area	30/06/2022	
3a	Phase 1 design and planning	8 x monthly	
3	Completion of Phase 1 deliverables	23/02/2023	
4a	Phase 2 design and construction packs	Monthly	
4	Completion of Phase 2 deliverables	01/08/2023	
5	Project Completion	01/08/2023	

4. Health and Safety Requirements
***Note**: Only include if high risk activities being undertaken e.g. working at height, near or over water). Do not request RAMS or similar risk assessments are returned with submissions. These should only be requested at contract award.*

Information to be returned by the Contractor in Part 2 Section 4

5. Sustainability Considerations
***Note:** Only include if project has high risk/impact sustainability considerations e.g.travel, carbon footprint, specific bio-security risks etc. that need to be managed.*

Information to be returned by the Contractor in Part 2 Section 5
6. Quality Assurance **Note:** *Only use if there are specific QA requirements that need to be evidenced e.g. specific UKAS accreditations, chain of custody, reporting protocols etc. Do not request details of standard ISO accreditations. .*
Information to be returned by the Contractor in Part 2 Section 6

22503 ECOLOGICAL SERVICES FRAMEWORK 3 (EcoSF3)
SCHEDULE B PROJECT FORM AND CONFIRMATION OF INSTRUCTIONS

PART 2
TASK QUOTATION SHEET

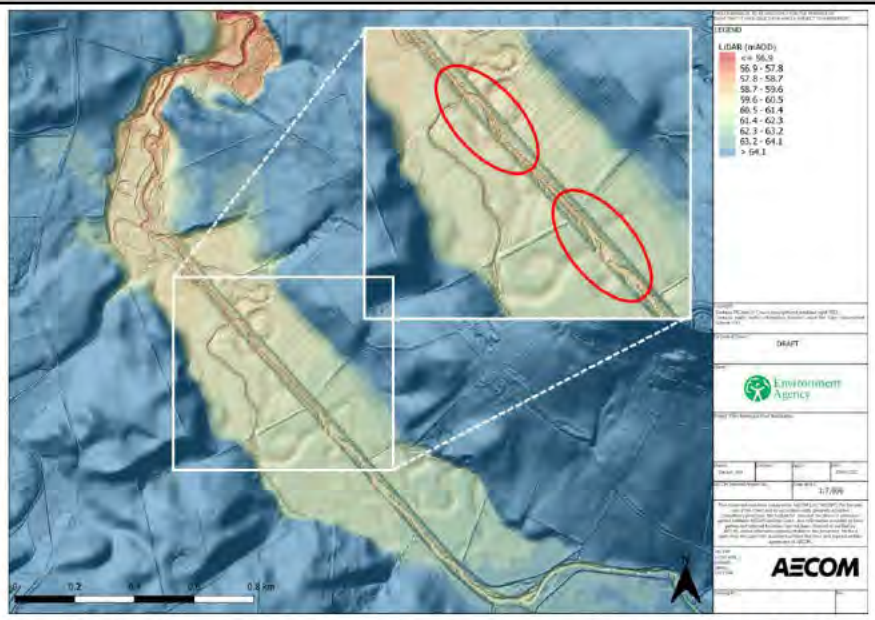
To be completed by Framework Contractor			
Framework Contractor name		**AECOM I&E Ltd**	
Contractor Project Manager name		[redacted]	
Contractor project manager phone number:	[redacted]	**Contractor project manager e-mail address:**	[redacted]

Note: **Your proposal must not exceed 6 sides of A4 plus the Costs Proposal in Section 4 (unless otherwise indicated in project client's specification above). Attachments must not be included unless requested with the exception of a programme diagram and full cost schedule if you consider these would support your proposal.**

Do not make or append Caveats and Assumptions in your proposal – any points of uncertainty must be raised as a clarification point prior to submitting the proposal. Where assumptions are to be made, these will be stated by the Authority's Project Manager.

1. Approach & Methodology

PROJECT UNDERSTANDING



The straightened reach of the River Breamish at Harehope, part of the currently unfavourable condition Tweed-Till SSSI, is realigned between failing flood banks. LiDAR rendering shows how the high energy river is close to breaching its confinement back toward a reference typology where the straightened path crosses natural palaeochannels. The Till River Restoration Strategy (TRRS) project board seeks to work with this incipient self-recovery to avoid a potentially sudden and dangerous breach-avulsion event, and restore high quality morphology, sediment-associated water quality and ecology with managed floodplain reconnection. High quality options have already been developed for the site. AECOM can deliver the agreed best option by bringing outstanding river restoration track record into partnership with the TRRS and the Harehope Estate.

WHY AECOM? AECOM's river restoration team has delivered many high profile river restoration projects including Goldrill Beck, which was a very similar project to restore a confined, straightened and scoured flood channel to a dynamic and wandering gravel-bed floodplain river. We have direct knowledge of the River Breamish, having previously analysed potential replacement of hard bank protection with engineered log jams at Powburn Road Bridge, and the potential for weir removal at Hedgeley. We have provided geomorphological analysis, designs, and contractor supervision for award winning projects including Ennerdale Mill weir removal (Wild Trout Trust Conservation Awards 2018) and the River Keekle (River Restoration Centre UK River Prize Winner 2021). We have designed and delivered a wide range of naturalisation schemes ranging from installation of large woody materials to kickstart process recovery, to full scale river realignments over several kilometres.

We recognise the requirements for a self-sustaining design requiring no or limited future maintenance and carbon costs, that maximises the area and frequency of floodplain connection, and improves habitat conditions. These requirements would all function in synergy, and in principle can be achieved quite simply by removing the westerly embankments and encouraging the reach to self-recover. Key to deliverability is detailed geomorphological dynamics assessment, understanding the temporal and spatial scale of the river's response when it is released from engineering constraints, and detailed experience of developing (de)engineering schemes that 'work with' the river. We have successfully delivered many similar restorations in many similar rivers including in the River Ure, Goldrill Beck, Swindale Beck, the River Caldew, the River Eden, Applethwaite Gill, Mill Beck, the River Lyvennet, and the River Nent, and this exemplary track record in delivering river restoration is based on unparallel field experience of several thousands of kilometres of field walkover studies.


River Breamish (2018): constrained self-recovery


River Coquet: morphological analogue for River Breamish


AECOM's restored Goldrill Beck

Our vision for the River Breamish at Harehope is a naturally functioning and self-sustainable gravel bed river, restored towards the reference character of the Breamish upstream at Beanley and Brandon. Here, there are high grade salmonid channel habitats, coupled with a well-connected floodplain-wetland mosaic where fine sediment and carbon can sequester out of aquatic habitats. Rejuvenation of the river at Harehope appears achievable with low cost (de)engineering for high ecological benefit, although the same gravel expanses may not be achievable, possibly due to the A697/Hedgeley weirs and/or nearby gravel mining, or possibly the typology shifts slightly. Strategic intervention to enhance natural recovery and channel re-meandering would enable the river to recover its own form and process via removal of embankments and bank protection, and triggering with large wood placement and native tree planting. The resultant form of the river is fairly predictable according to highly visible palaeochannels, and with removal of the

western embankment, the river should do the geomorphological work to restore itself at low capital and carbon cost. The site is rural, and risks to infrastructure appear low. It is likely that embankments will need to be removed rather than breached, since breaching could leave unsafe mid-floodplain islands in rising floods that inundate at flood peaks. Cut material won from excavating embankments should be suitable for re-purposing into a non-public, non-vehicular floodplain egress ramp to the westerly hillside if the EA and the Estate agrees to this, which would avoid the need to export off site and should help manage the costs of delivery.

A high energy, high sediment supply river will not form a steady state, but is likely to form a dynamic equilibrium by wandering within an active process zone, similar to that seen at Beanley and Brandon. It is likely that processes will operate primarily within a gravel corridor as upstream, but flooding will be reinstated across the westerly valley floor, and the river may continue (and should be allowed) to evolve in the future by migrating across its floodplain. It is important to emphasise this to local stakeholders so that they understand and buy-in to the project. To maximise natural recovery and minimise capital costs, the river should be encouraged to evolve with strategic large wood flow deflectors rather than being more formally diverted into excavated channels, and the images above illustrate how the river is likely to re-find its reference form. As stated in the Brief, we will use detailed geomorphological analysis and modelling to understand (as best we can) how the newly restored channel may evolve spatially and temporally.

We understand from the Brief and Clarifications that all flood embankments are to remain in place east of the river, to protect agricultural land and avoid risks of scouring towards a National Grid gas pipeline situated to the west. This effectively excludes the Option B and D areas on ITT Appendix 1 at this stage. Opening the Appendix 1 'Core Area' to the west and north will reduce flood pressure on eastern embankments and should manage the risk of breaching to the east, although the risk of failure of aging and un-managed embankments will not be eliminated. This project does not seek to maintain flood defences, and we have not included options for expansion from the core area.

Increasing trends in flood and erosion frequency, duration and intensity are already being observed in association with climate change. These are likely to mean that there are changes to the River Breamish and river risks to near-channel assets outside of the project study area and outside the control of the project. As per the brief, we will work with the Client to communicate the Harehope design, objectives, natural processes and residual risks to the Estate. Our understanding is that the EA will manage the expectations of other catchment landowners and stakeholders on the designed option. Making Space for Water in designated restoration zones within the Estate will require a change in land use, and an understanding that the westerly floodplain is likely to become unsuitable for arable agriculture, and that the project aims for the area to naturally flood and erode without constraint.

We will use engagement workshops with audited minutes to record agreements that the design is acceptable to the Estate. We will be pleased to present the scheme and record the views of stakeholders including landowners, farmers, angling clubs, planners etc. We will seek pre-app advice from Northumberland County Council (NCC) to enable rapid approvals, and we understand the Client will cover any consultation costs. We will use hydraulic modelling, mapping and animations, and restoration visualisations and case studies, to illustrate the project objectives and outcomes. We believe that river community collaboration is best shared in the field, and we propose a discussion day with the TRRS, the Estate and any other invited stakeholders to walkover key features on site and upstream that help explain the river processes and Harehope scheme objectives.

INCEPTION. Before work begins, a start-up meeting will be held via Teams to exchange key information, and discuss the project objectives and approach. We will describe how we believe restoration can be achieved through a modelled embankment removal scheme that seeks to work with natural processes to re-establish a dynamic fluvial system with appropriate interaction between the watercourse and its floodplain. This would rejuvenate valley bottom habitats and diversify vegetation communities, maximise the environmental gains through using targeted, low intervention techniques and will offer considerable cost savings above traditional green and grey engineering options. We will use the inception meeting to arrange a baseline walkover; ideally a collaborative visit with the TRRS and the Estate.

We will utilise historic mapping, audit and modelling information in the cbec 2019 report and supplement this with information gathered during our review of site imagery, topography (LiDAR), vegetation community distribution and site walkover, so that we can gather a detailed understanding of system functioning and likely response to realignment. As added value, we will also use the LiDAR data to inform sediment sources and quantify change over time in the contributing catchment to benchmark sediment supply as a fundamental aspect of system rehabilitation.

We expect the River Breamish to rejuvenate active meandered forms and process with well-developed pools, bars and riffles quite quickly, and it could even substantially adjust back to the palaeoform that can observed in LiDAR within a matter of a few years and/or large flood events. To help verify these initial predictions, we will undertake augering in lieu of boreholes or trial pits across the site, focussing on strategic points along the cutoff channels, with further investigations across the floodplain. Coarse sediment retrieved will be used as a guide to the size of material likely to form the new bed of the channel, and compared with shear stress data from hydraulic modelling to determine the relative stability of the new channel bed and to inform any necessary augmentation with larger material. We have not included for contaminant testing. We recommend augering because it is a less disruptive and more cost-effective approach than digging trial pits based on our experience of schemes at Goldrill, Skiddaw, Lyvennet and the River Beane. Our approach is always safety first, and we have included for utilities scanning of any ground that would be

broken in these investigations. A utilities search of the restoration area (accounting for construction / enabling, access routes and any construction temporary works) will be undertaken early in the programme to ensure this is fully appraised against the predicted development of the natural recovery channel.

PHASE 1: DETAILED AND COSTED DESIGN

As Principal Designer, we will work with the TRRS and the Estate to develop an agreed design based on geomorphological analysis that takes into consideration relevant guidance and legislation and seeks to minimise long-term land management, maintenance costs and whole life carbon. By modelling morphological response and the extents of fluvial reconnection, we would manage understanding of risks to surrounding assets and design these out where possible in liaison with the Estate. The design will include indicative construction access routes and site compound location, and the outline ground investigation survey at key locations. We have engaged Ebsford Limited as our ECI partner, on the strength of our successful delivery of the Goldrill scheme, and we have already discussed options, access, construction activities material handling and potential risks and mitigation. We will use this to deliver a short technical report which explains and justifies the design in an illustrative and engaging way, including non-technical drawings and visualisations, and predicted hydromorphological changes and timescales.

Modelling is critical to design and engagement, and we will build a fully 2-D TUFLOW hydraulic model of the study area to illustrate channel and floodplain flow patterns at a grid resolution of 1-2m. The model will be run for the baseline and design scenarios to map and illustrate scheme effects and benefits, and to verify no increase in off-site flood risks. A restored scenario floodplain topography with removed embankments and reconnected relict channels will be drawn by our geomorphologists to model for thematic maps and flood animations. Modelling will enable storage volumes to be quantified for the reconnected floodplain, with NFM benefits calculated, and this should verify our proposed approach of re-using cut material at the floodplain edge rather than exporting. We have included for up to five rounds of iterative model design to allow for localised adjustment around palaeochannels in order to check and mitigate any increases to flood risk / channel stability or increased threat to infrastructure and surrounding land use.

TUFLOW outputs flow depths, velocities, shear stresses and other variables that can be used to visualise hydraulically-driven morphological processes. 1m LiDAR reveals details of existing channel bed, floodplain and palaeoforms at good resolution (see above), and we will input hydrology from the 2019 cbec report (50%, 10%, 1% Annual Exceedance Probability (AEP) events), plus a 103% climate change allowance on the 1%AEP event in accordance with the Till Management Catchment peak river flow allowances. Our approach means all the required model input data are already available at zero cost. For added value, we will run the Q_{95}, Q_{50}, and Q_{30} 'habitat' flows for the baseline and the design, since Froude number can be used to map and quantify biotopes (pool, glide, run, riffle, rapid) and thereby measure habitat benefits.

Important ecological benefits will be generated from restoration of physical and physico-chemical habitats, the latter by enabling sequestration of sediment and associated substances to the floodplain. We will undertake desk-based ecological surveys for Protected & Notable species and habitats and INNS, and provide a fish rescue methodology, understanding from the brief that the parallel EU LIFE WADER project includes specialist monitoring and ecological surveys required through planning, and this commission will be able to make use of those surveys. Our Ecological Impact Assessment will be augmented with biotope mapping for added value, and BNG assessment including MoRPh Aquatic BNG. Our archaeological assessment will be desk based, and we will consult the County Archaeologist for pre-app advice. We have allowed for data costs from LERC and Northumberland Historic Environment Record.

For transparency, please note that desk assessments and pre-app may identify requirements for field surveys, impact assessments and mitigation, and documents for planning, that we are not able to anticipate or cost at this stage, and if this is the case we would discuss options and additional fees with the Client. We have included time for pre-app consultation ahead of planning submission in Phase 2, so Phase 1 includes formal scoping process for EIA with allowance for two Teams meetings with NCC and the Client. Pre-app and scoping will define the exact requirements for planning submission, and we have listed the planning documents included in our price in Phase 2 below.

Our design will be justified with detailed descriptions of the proposals, including drawings and specifications, bill of quantities and detailed project costs and where spoil will be disposed / re-purposed. The design justification will include identification and mitigation of any risks, including buildability, stability/robustness, and risks and/or benefits to infrastructure, land management, and ecology. Detailed construction cost estimates will be based on an activity schedule with key quantities as conventional for this type of environmental contract (as opposed to a CESMM4 bill of quantities used for built infrastructure), and will include an estimate of labour time, site compound requirements, temporary works, reinstatement etc, and any assumptions / allowances. We will use our significant construction delivery experience to inform these costings.

We will continually work closely with the TRRS and the Estate, but a key milestone will be to arrange a site meeting for AECOM to present the design to the partners and any other stakeholders TRRS and the Estate wish to invite. We will use this meeting to summarise the outline design and the assessment work described above and agree details before progressing to detailed design. AECOM will prepare a presentation and circulate this before the meeting. In our experience there is considerable value in presentations and site walkovers that allow stakeholders to better appreciate local issues and constraints and to visualise potential opportunities, and for them to raise any questions that need to be incorporated into planning submissions and construction designs.

PHASE 2: SUBMISSION OF PLANNING DOCUMENTS

The planning submission will be screened during pre-app consultation. For transparency, we highlight that the exact planning requirements cannot be known at this stage. On the understanding that the Harehope Estate, NCC, and the TRRS are all supportive of the project, and that the overarching aim is clearly for environmental benefits and only concise planning evidence is needed, our proposal is to include for the following documents only: WFD assessment; Flood Risk Assessment; concise Environmental Statement supported by Ecological Impact Assessment (Water Resources, Heritage, Ecology only); shadow Habitats Regulations Assessment, BNG Assessment (Defra Metric 3.0 and River Metric); and protected species licencing requirements and method statements. Our labour and expenses for the production of planning documents is limited to 240 hours and [redacted] and we would require additional fees for any unforeseen additional work.

We will produce detailed designs and associated documentation for the agreed design for submission for consents and permissions. Our proposed project team are fully aware of their duties under the new Construction (Design and Management) Regulations 2015. Health and safety issues will be foremost requirements throughout the design process. AECOM is experienced in discharging its duties as Designer, and assisting clients to discharge their duties. Following agreement of the preferred design we will produce construction drawings and all associated assessments and documentation. This will include details likely to be needed by a contractor in order for them to verify and undertake the work, including site layout and access, utilities, annotated long sections and cross sections for changes to flood embankments, the channel, and the floodplain, temporary works / site compound reinstatement etc.). We will compile and finalise the Phase 1 assessments into a single planning application covering the proposed construction works and submit these to NCC (based on pre-app advice undertaken in Phase 1). The design documents shall be of sufficient detail to go to construction tender, and to form the basis of the construction phase contract.

The detailed design handover pack will include Specifications (excluding Environment Agency NEAS Landscape Specifications as per the ITT clarifications), design philosophy and sustainability statements, design report including asset schedule, buildability statement and maintenance plan, Designer's Risk Assessments, Pre-construction information, Environmental Action Plan, Materials Management Plan, and Public Safety Risk Assessment (PSRA). For the latter, in accordance with the Safety, Health, Environment and Wellbeing (SHEW) Code of Practice, we understand that our Designer's PSRA will be signed off by the EA Senior Assessor, with the EA as the river asset owner. We have produced many of these documents before for environmental restoration projects and will be able to produce site specific documentation quickly and efficiently for Harehope. All documentation will be drafted and submitted to the TRRS and the Estate for review and to take forwards as site owners. We will liaise with our ECI partner Ebsford Limited to identify practical constraints, timescales, working methods and verification of costs and ensure that the design documents are of sufficient detail for an appropriate contractor to deliver. The Designer's Risk Assessments will ensure full compliance with the CDM 2015 Regulations, fulfilling our role as Designer that highlights key risks and assumptions, Health and Safety requirements, and will include development of a risk register. This will highlight where risks have been removed as part of the design but also where risks remain linked to site constraints / client requests and what potential mitigation measures would be required.

2. Project Management (inc Project plan). A project plan may be provided as an attachment with your **reply** *(delete if not required)*

Project Management. We manage projects using our four stage Project Delivery System (PDS), certified to ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 relevant to consultancy. Our PDS aligns with PRINCE2 methodology and enables our project team to focus on critical issues. [redacted] will Project Manage (PM) the work as the lead contact. [redacted]

Ongoing Management. [redacted] will set up, agree and maintain a Communication Plan from the outset, ensuring the processes and lines of communication for achieving a successful project are agreed and documented. Details set out in this plan will include communication mediums to be used, communication security and approval procedures, type and frequency of information to be communicated and appropriate contacts. We have planned for fortnightly progress calls to be undertaken throughout the duration of the project, as well as technical 'modification and mitigation' calls.

Indicative Programme Plan. Our proposed project programme is shown in Appendix 1. We will firstly arrange an inception meeting to discuss the project objectives, the development of the site ambitions to date, and how best to acquire relevant data. We will then work closely with the TRRS and Estate with regular meetings to ensure consistent progress and turnover of assessments. It is imperative to work closely to achieve an agreed, deliverable scheme.

Risk Management. An initial risk register is summarised below. This will be discussed and updated at each progress meeting to identify potential changes and enable actions to be agreed and acted upon.

Key Risk	Owner	Consequence	Mitigation
Interpretation of client needs is inadequate	AECOM	Outputs fail to meet client expectations	Minuted inception meeting at start of project to discuss methodology and project aspirations. Maintain close liaison with the EA Project Manager to inform on progress and make sure deliverables will meet the client needs.

Change in scope	Environment Agency	Programme delay and fee increase	Discuss and confirm brief / methodology with EA PM and hold regular updates. Agree Change Orders where necessary for agreed increases in scope.
Protected species and habitats	AECOM & Environment Agency	Programme delay and fee increase	We are not aware of protected areas on the site that would constrain options. Baseline assessments may identify these and require additional (seasonally limited) surveys and design adaptation, necessitating .
Covid-19	AECOM & Environment Agency	Fieldwork restrictions, key staff absence	AECOM has managed Covid-19 impacts very successfully to date. Please refer to see Section 4 Health and Safety.
Delivery targets not met	AECOM	Failure to deliver project on time	Key project milestones are dependent on consistent turnover throughout the project year. The risk of extensions or delays raised as early as practicable (and key reasons given).
Wider river processes / adjacent landowner buy-in	Environment Agency	Stakeholder perceptions	The River Breamish will flood and erode, not just within the restoration site. Trends are increasing with climate change, and natural change events are likely in the short and medium term after restoration. Catchment stakeholders may seek to link these events to activities at the site. EA to communicate the project and climate change impacts to wider catchment partners.
Surrounding agricultural land	AECOM, Environment Agency, Estate	Stakeholder perceptions	Collaborate with the Estate. Model and communicate anticipated changes, flood extents and residual risks.
Un-managed embankments	Environment Agency, Estate	Stakeholder perceptions	Eastern embankments are not part of this project, although they may benefit from removal of western embankments.
Gas Pipeline/ other utilities	Environment Agency	Stakeholder perceptions	Embankments between the river and the pipeline might fail, extreme floods may overtop embankments erode around the pipeline. Both scenarios are outside this scope.
Potentially high volumes of cut material	Environment Agency, Estate	Material handling costs	Costs may be prohbitive if material not re-used on site, e.g. for flood egress to adjacent hillslope. Estate will need to allow reuse. Method statements to include for material handling and silt control in the channel and floodplain.
Working in aquatic SSSI	AECOM & Environment Agency	Pollution	Experienced designers and ECI. Method statements to include for material handling and silt control in the channel and floodplain.

3. Proposed Staff who will do the work and briefly state previous relevant qualification/experience. Contractors experience of undertaking similar projects and accreditations (if requested)

We have carefully selected a core team on the strength of their similar project experience and proven success in river restoration. Having a focussed core team will enable us to build strong relationships with the TRRS and Estate to work effectively and efficiently. The risk of key staff downtime with regards to Covid19 is becoming lower, but if necessary we are able to substitute in skilled resources from our wider AECOM teams of more than 60 Water Environment specialists, and 130 water engineers and planning practitioners. AECOM has specialists in every sector that we are able to draw upon to support the Environment Agency as necessary.

Our [redacted]

[redacted]

4. Health & Safety (only complete if requested in defined evaluation criteria)

General. We operate under a global Safety, Health and Environment (SHE) policy, which includes a centralised SHE management system. We develop site and project specific SHE plans for all fieldwork, which detail pre-requisite training and how risks will be managed. A Task Hazard Assessment will be carried out by the lead surveyor at the start of each site visit to identify activities, safe plans, and how to manage dynamic risks. All AECOM staff are empowered to stop work if they see a situation they believe to be unsafe. We conduct fieldwork in pairs for safety reasons. All staff will check in with allocated safety monitor colleagues when leaving home, arriving at site and arriving home safely, via a dedicated H&S Whatsapp group.

Working near or over water. AECOM operates a policy of no lone working when working in or within 2m of water. Project specific PPE, e.g. lifejackets and throw lines will be utilised, where appropriate, and staff have received specialised Water Safety training in their use.

Covid-19 and government guidelines. AECOM has strict protocols that have been used to successfully and safely deliver site and desk work and minimise business disruption throughout 2021 and 2022. All work for this project will be undertaken in line with the latest government guidelines, adhering to any local restrictions. Individual travel and fieldwork will be socially distanced, and project meetings to be online. In view of the emerging omicron variant of Covid-19, we will require our surveyors to travel individually without car sharing, and they will not knock on doors to ask for access. This for our safety first approach and care for our staff, and also mitigates risks of staff becoming unavailable with the project programme.

5. Sustainability (only complete if requested in defined evaluation criteria)

We operate under a UKI **Sustainability** policy under our Global SHE Policy, in which we embrace sustainability by striving to make a lasting and positive impact on society and the environment. Sustainable solutions and innovation are at the core of what we do and how we operate. Our vision is to build a better world. In accordance with our Global SHE Policy, we strive to make a lasting and positive impact on society and the environment. A sustainable world depends on physical and social infrastructure that advances economic opportunity, protects our environment and improves people's lives. The EA and AECOM share **ambitious carbon reduction targets**. AECOM UK&I have calculated and offset our operational emissions for FY21-22 and are certified as a CarbonNeutral® company in line with The CarbonNeutral Protocol – the leading global framework for carbon neutrality. Our Sustainable Legacies Playbook sets out how AECOM aim to achieve our intention to be operationally net zero in 2021 and to reach science-based net zero by 2030. Applying carbon reduction methodologies to our projects is becoming normal practice. We use the EAs Carbon Calculator on the majority of our EA projects and have allowed for completion of the EA carbon calculator tool for the detailed design.

6. Quality Assurance (only complete if requested in defined evaluation criteria)

The successful delivery of this project will be achieved through the adoption of robust and bespoke **quality management and control procedures**. Our quality systems are developed from ISO 9001 certified corporate quality assurance, and environmental (ISO 14001) and occupational health and safety (BS OHSAS 18001) management. Our Integrated Management System incorporates Quality, Environmental and Health and Safety processes for the management, measurement, monitoring and review of performance and attaining our business objectives using appropriate indicators. Technical Quality Reviews are required for all deliverables, and Omar, Neil and Anna as the project delivery team will constantly monitor how best to meet and exceed the Environment Agency's expectations for this project, safeguarding technical quality and ensuring a 'right first time' approach. Our proposal is based on unparalleled field-based experience comprising several thousand kilometers of morphological field surveys, and the successful delivery of a large number of very similar river restoration schemes, making AECOM the ideal delivery partners for the TRRS and Harehope Estate.

7. Cost Proposal

Please use day rates, including any applicable discounts, as agreed under the framework contract. A full cost schedule may be attached to support the costs summarised below.

[redacted].

Task No.	Name	Framework grade	Day rate	No. of Days or part thereof	Cost
Project Management & Meetings	[redacted]				
Baseline, Option Design and Stakeholder Consultation					
Planning Submission					
Construction Pack incl Principal Designer, ECI					
				Total staff costs	**£66,242.50**
Expenses (please detail type ie travel, accommodation etc)		Travel, ecology and heritage data, equipment for augering			**£3,555.00**
				Total overall cost	**£69,797.50**

8.-Terms & Conditions

Note to contractor – All call off contracts under the Ecological Services Framework are subject to the terms and conditions agreed at framework award, including the Prior Rights Schedule and GDPR Schedule completed at award of the call-off contract.

Notes	You must have a purchase order number from the Contracting Authority before you start any work in connection with this proposal. **If you have carried out a protected species survey, data collected must be uploaded onto the NBN network. Please take account of this in your quote.**

By signing this form AECOM I agree to provide the services stated above for the cost set out in your Cost Proposal and in accordance with the Ecological Services Framework 3 Agreement Terms and additional appendices (if used).		
Contractor Project Manager:	[redacted]	
Signature:		
Date:	31 March 2022	

9. Confirmation of Instructions (Contracting Authority Project Manager to complete)	
Notes	All agreed post submission amendments to scope, proposal, timetable or costs must be updated in the sections above prior to accepting the proposal. **A commission code must be obtained from Stephen Perriss prior to confirming award and must be quoted on your purchase order.** A Bravo ECM reference should be obtained from Commercial if the project has been issued via Bravo and quoted on your purchase order.

Authorisation	**Name**	**Signature**	**Date**
Contracting Authority Project Manager	[redacted]	[redacted]	06/04/2022
Authorised Contracting Authority Signature	[redacted]		
DgC Authorised Signature (if required)	[redacted]		05/04/2022

Commission Code	
Purchase order no.	
Bravo ECM Ref (if applicable)	

The completed Project Form should be returned to the Contractor as authorisation to commence work. A copy must be provided to the named Commercial Lead if the award has been conducted via Bravo.

22503 ECOLOGICAL SERVICES FRAMEWORK 3 (EcoSF3)
SCHEDULE B PROJECT FORM AND CONFIRMATION OF INSTRUCTIONS

PART 3
CHANGE CONTROL SCHEDULE

Notes	**To be completed by Contracting Authority Project Manager** **Any extensions, price changes or amendments to existing orders need to be discussed with Stephen Perriss before being agreed with the Contractor**. Please remember to amend your Purchase Order in SOP if necessary. The table below should be used to record and authorise the agreed changes throughout the project. A Change Control Notice (CCN) should be completed for substantial changes to the project and a summary provided in the table below. Send a copy of the revised Project Form and CCN (if used) to the Contractor once the change has been agreed and approved. A copy should also be sent to your Commercial Lead if a Bravo ecm reference has been provided.

10. Change Control
All amendments to project scope, timetable or costs must be submitted to and approved by the Contracting Authority PM prior to implementing the change.

Change Details	CCN Ref. (if applicable)	Revised completion date (if applicable)	Revised Project Cost (if applicable	Approved by (Contracting Authority's PM) / Date

APPENDIX 1: PROGRAMME

ID	Task Name	Duration	Start	Finish
1	**Harehope River Restoration**	**346 days**	**Mon 04/04/22**	**Mon 31/07/23**
2	Project Management and Progress Meetings	346 days	Mon 04/04/22	Mon 31/07/23
3	Inception Meeting	5 days	Mon 04/04/22	Fri 08/04/22
4	Baseline walkover	10 days	Mon 11/04/22	Fri 22/04/22
5	Fieldwork for MoRPh & Augering	35 days	Mon 11/04/22	Fri 27/05/22
6	Utilities search and Mapping	35 days	Mon 11/04/22	Fri 27/05/22
7	Archaeology desk study	35 days	Mon 11/04/22	Fri 27/05/22
8	Ecology (desk based INNS, EcIA, data from LERC; fish rescue method, protected species method, HRAS)	35 days	Mon 11/04/22	Fri 27/05/22
9	Baseline and Preferred Option (including initial modelling)	58 days	Mon 11/04/22	Wed 29/06/22
10	Outline Plan Presentation	0 days	Thu 30/06/22	Thu 30/06/22
11	Detailed Modelling, Morphological Design, Flood Risk Assessment	66 days	Fri 01/07/22	Fri 30/09/22
12	BNG, Design Net Gain Calcs relative to baseline MoRPh	45 days	Mon 01/08/22	Fri 30/09/22
13	Engineering (Buildability and Risk Assessments, Key quantities, Costs)	66 days	Mon 01/08/22	Mon 31/10/22
14	CAD Drawings	87 days	Mon 01/08/22	Tue 29/11/22
15	Visualisations	64 days	Thu 01/09/22	Tue 29/11/22
16	Monitoring Strategy	42 days	Mon 03/10/22	Tue 29/11/22
17	Stakeholder Consultation and Pre-Application Advice	0 days	Wed 30/11/22	Wed 30/11/22
18	Completion of Phase 1 Deliverables	61 days	Wed 30/11/22	Wed 22/02/23
19	Phase 1 Complete	0 days	Thu 23/02/23	Thu 23/02/23
20	Early Contractor Involvement	90 days	Wed 01/06/22	Wed 31/05/23
21	Construction Pack (report, methods statement, risk asssessment, pre-construction info, environment plan, materials)	112 days	Thu 23/02/23	Fri 28/07/23
22	Delivery of Phase 2 Deliverables	0 days	Fri 28/07/23	Fri 28/07/23
23	Project Completion	0 days	Mon 31/07/23	Mon 31/07/23