Nick Holroyd
Kirkbymoorside Town Council
Church House
7 High Market Place
Kirkbymoorside
YORK
YO62 6AT

For the attention of Nick Holroyd

Our Ref: KIR-JBAU-00-00-QU-EN-0001

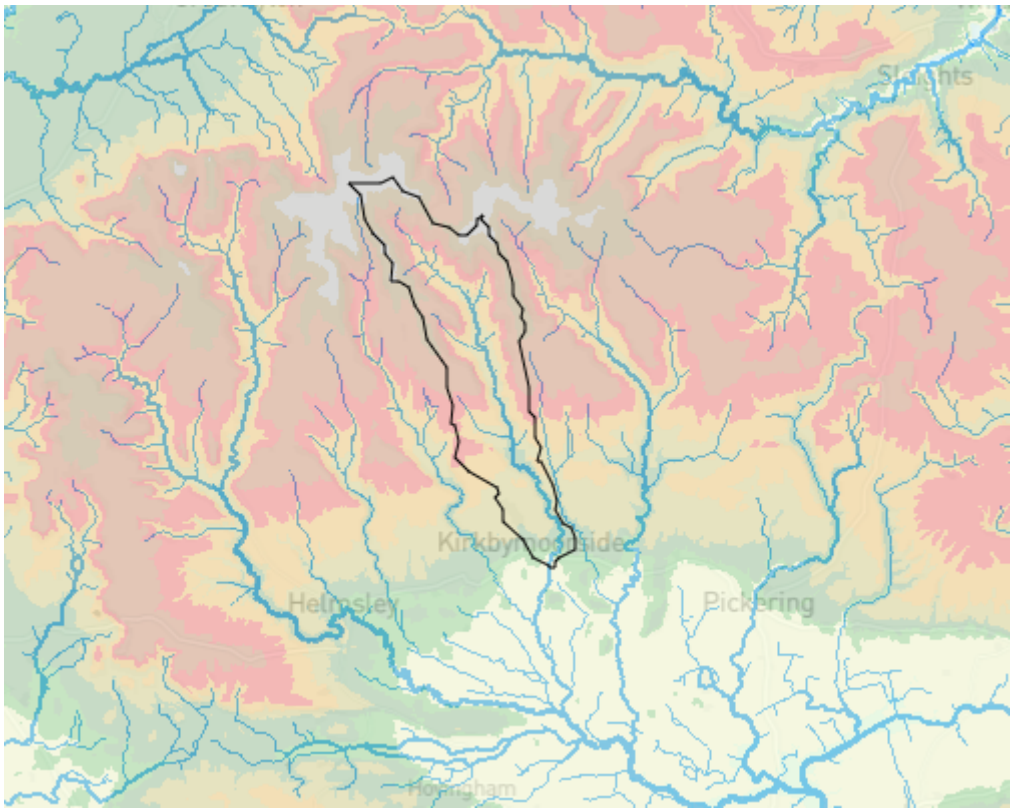
06 July 2021

Dear Sir,

River Dove Natural Flood Management Feasibility – Proposal

1 Introduction

Thank you for the opportunity to submit an outline proposal and cost estimate to support a Natural Flood Management (NFM) feasibility catchment assessment of the River Dove.



We understand that the aim of the project is to provide potential flood mitigation options to the residents of Keldholme/Kirby Mills through catchment scale NFM potential. The potential NFM findings are likely to be supplied to respective agencies (East Yorkshire Rivers Trust/Environment Agency) in order to mitigate the flood risk to the affected properties in the area.

JBA has a large team of NFM specialists, hydrogeologists, geomorphologists, ecologists, modellers and engineers across the company, specialising in river restoration and

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catchment management. The proposed project team is drawn from our NFM specialists, with speciality skills and experience in this discipline, with wider support from our Catchment Management and River Restoration Team (CRRT). https://www.jbaconsulting.com/what-we-do/environmental-services/natural-flood-management/.

Ryan Jennings (NFM Analyst) will co-ordinate this work, having initially worked on the flood risk assessment at Ravenswick Hall boating lake. The River Dove catchment above Kirkbymoorside is a 59km² Rural catchment with moorland headwaters compromising of complicated Jurassic limestone, clays and sandstone geology. Therefore, this assessment will be supported by Eleanor Williams (Chartered Senior Hydrogeologist) who will provide hydrogeological conceptualisation and analysis.

We have over 10 years' experience in NFM since 2009 and are recognised leaders of this science in the UK. A recent referee from the River Trust is presented below, should you wish to enquire our JBA project work.

Dan Turner, Project Manager, The Rivers Trust
Dan.Turner@theriverstrust.org

We are in an exceptionally strong position with respect to NFM in the delivery of nationally recognised projects, namely:

- Multi-Objective Flood Management Demonstration Project (Defra, Environment Agency (EA), National Trust (NT)) on the Holnicote Estate in West Somerset.
- NFM Handbook (Scottish Environment Protection Agency (SEPA)) – Practical guidance for lead local flood authorities, non-government organisation and practitioners.
- Mapping and Modelling Catchment Processes (EA)
- Working with Natural Processes (WwNP) (EA) – developing the evidence base and identifying catchment/coastal laboratories

Enclosed in our proposal is JBA's Experience with NFM (Natural Flood Management) document.

2 Our proposed methodology

Upon contract award we will arrange a virtual start-up meeting with you and key members of the team, and stakeholders if required and deemed beneficial. If lockdown constraints have been lifted by the time this is held, we will agree with you if a face to face meeting would be preferred and if so, provide revised costs and expenses associated with this. This meeting will provide an opportunity to discuss the project, its objectives and key deliverables as well as to reaffirm your aspirations.

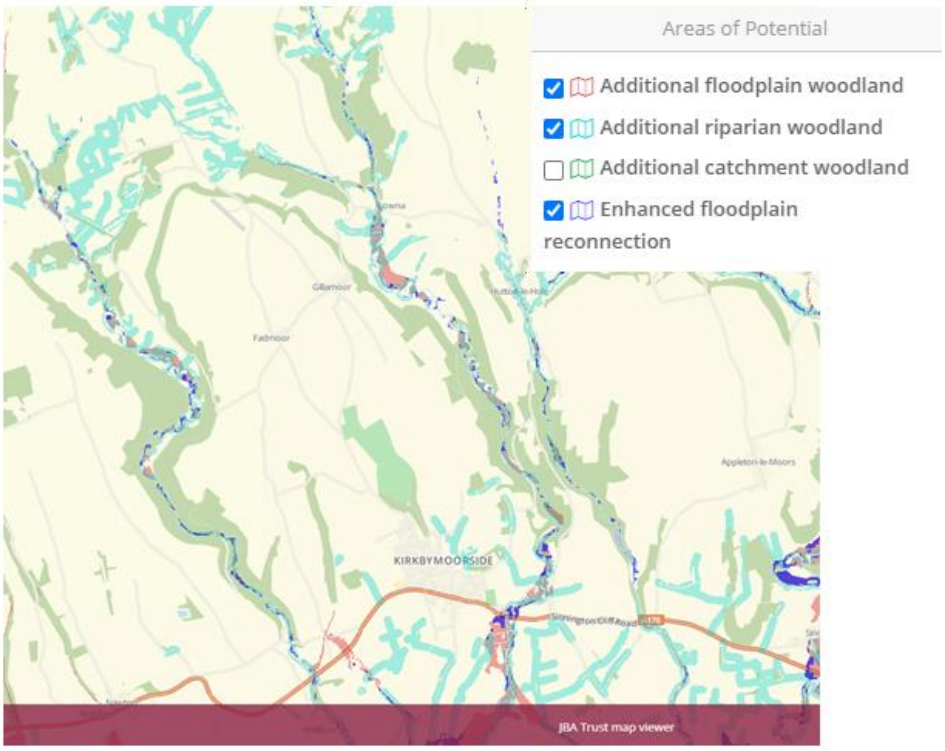
3 Step 1: Desk-based assessment

Following data acquisition (to be discussed during the project start up meeting), we will carry out a desk-based assessment to review existing data and gap analysis to identify additional data collection requirements and any future studies which we feel may be

required to support this study. We will communicate any additional data requirements and suggestions for any additional studies to you at the earliest opportunity.

The desk-based approach (DBA) will be undertaken to identify possible locations for appropriate NFM measures within the catchment. The desk-based study will make use of relevant available publications and reports, together with web-based information such as aerial photographs, Light Detection and Ranging (LIDAR) data and historic maps. There is currently limited LIDAR coverage across the catchment. The best topographic information available is likely to be the 5m NextMap Digital Terrain Model (DTM) flown in 2013. This may affect the NFM potential analysis of the catchment due to the limited detailed topographic data, especially when analysing the smaller interconnecting flow paths within the headwaters. We recommend therefore that the catchment walkover is undertaken to ground truth the desk-based findings to improve overall confidence in the NFM potential locations. The EA has a 1m LiDAR DTM project planned (National LiDAR Programme) across 2019-2021 and therefore these data should be updated in the near future. This would provide high resolution topographic analysis of the catchment which are currently not available. This would affect the resulting quality of any catchment modelling study undertaken within the River Dove catchment. Therefore, should modelling be required it may be best to delay until the high-quality DTM data becomes available from the EA. JBA can discuss this with KTC at a later stage.

We will also use the latest (WwNP potential maps and datasets developed by JBA for the EA in 2017, (https://naturalprocesses.jbahosting.com) to identify high potential areas. We will also review freely available data using MAGIC Map to complete a high-level assessment for ecology, heritage, and soils/geology.



A high-level hydrological review of the catchment will be undertaken to identify likely flood flow conditions. This will make use of the EA river flow gauge slightly downstream of the site (27042 - Dove at Kirkby Mills) which has an extensive record including past flooding events.

4 Step 2: Site-based assessment / Ground Truthing

Following this DBA, a specialised site walkover survey (1 day) will be conducted by a JBA NFM specialist. This walkover will be specifically targeted at ground truthing the NFM potential within the catchment as identified within the DBA. In addition, further potential locations will be identified during the walkover along with the recording of specific design considerations. We would very much appreciate it if a suitable representative of Kirkbymoorside Town Council (KTC) could accompany us on some/all of this site visit in order that we can discuss the approach further, collect valuable further local knowledge and identify all known constraints within the study area. This could potential be treated as a continuing professional development (CPD) activity for you on the basis that we would anticipate being able to disseminate a significant amount of information about NFM process during the visit.

We will utilise our internally developed iOS iPad application "GISmapp" (https://www.jbaconsulting.com/knowledge-hub/asset-data-collection-tool-gismapp/) to provide a standardised field recording proforma that allows accurate and efficient recording of existing forms, processes and opportunities in the field using global positioning system (GPS), including geo-referenced photographs. This is an efficient and effective method as approaches because it allows direct downloading of field data to ESRI's ArcGIS that reduces back office post-processing time, improves consistency and the like. It also provides a robust QA audit trail as part of the technical review for each location.

5 Step 3: Project Outcomes

We will provide a concise report, including recommended NFM interventions and summary of potential wider benefits for the scheme along with high level design considerations. We will take a soft/green design approach to the initial suggestion of NFM interventions incorporating, where possible, interventions that could be constructed by suitably trained volunteers. In addition, map visualisations of the catchment will be delivered, setting out a suite of distributed NFM interventions that may help to provide the valuable flood mitigation for each of the identified downstream communities at risk.

Future recommendations will be identified from which JBA can support Kirkbymoorside Town Council, if required, in terms of:

- Catchment based feasibility NFM modelling to quantify potential benefits.
- What permits or consents would be required.
- Detailed on-site topographic surveys and Drone (see https://www.linkedin.com/posts/jba-consulting-ltd-jeremy-benn-_drone-a-new-jba-service-provision-activity-6813789043218751488-_9jk/) topographic surveying. Our in-house surveying team can carry out any topographic surveys to your specifications.
- Proportionate ground / site investigations if required and carried out by our hydrogeology team to test if the local soils are available and suitable to be used during the construction (if, for example, runoff attenuation features are proposed).
- Detailed design outputs in the form of visuals such as maps, plans, typical sections and elevations.
- Additional engagement support.

- Design visualisation from our landscape team.
- Geomorphology/River Restoration/Ecological advice/design input.

6 Project Management

Steve Maslen (Director and JBA Head of Environment) will act as the Project Director. Ryan Jennings (NFM Analyst) will be the Project Manager and will provide a single point of contact with the client and internal project team; provide regular summary reports on project progress and programme; and deliver the contract management activities. Ryan is an experienced project manager and has completed intensive JBA Project Management Level 1 and 2 training and will be supported by Steve Rose (Technical Director and JBA NFM Lead). Steve Maslen will confirm that the project is undertaken in accordance with the agreed Project Quality Plan, budget, programme and internal Quality Assurance and Environmental Management Systems procedures.

Steve will continuously review work to confirm that it is completed to your satisfaction. There will be a systematic approach to record and feedback quality and value issues to the project. We are committed to the continued improvement of our services and our approach will ensure that this can be achieved. Steve Maslen is a JBA Director and will see that the resources required for the project are made available for example to cover for illness and other unforeseen circumstances. The Project Manager and Project Director will both oversee the project outputs and will be involved in the technical review of the draft and final reports.

7 Project Programme

Our proposed project programme in summary is attached. We will agree and finalise the project programme with you at our start up meeting. Clearly some flexibility will be needed in the light of the prevailing Covid-19 guidance and associated restrictions on business working, travelling, social distancing, etc., and we have made allowances for this.

8 Project Risks

Identified Risk	Proposed Preventive or mitigation action
General project risks	
Changes of client project manager	Early warnings by client project manager.
Changes of JBA project manager or project team (e.g. staff sickness)	Early warnings by JBA. Within our Hydroecology team (and wider within JBA) we have the resources and available to manage project team changes.
Any delays in receiving datasets from client/stakeholders	JBA to notify client project manager of required datasets at start up meeting.
Delays in consenting statutory and landowner agreements.	Early warnings by client project manager.
Poor weather delays site work	Keep a close eye on weather forecast.
Covid-19	Our staff are working from a combination of home and the office. In the case of the latter we operate under an Office Risk Assessment and Safe System of Works respecting Govt guidelines.

9 Key Assumptions

These include the following:

- JBA will not be undertaking any design work or producing any design drawings.
- We assume the site is accessible for site visits. (Kirkbymoorside Town Council will be responsible to arrange this if required).
- We have made no allowance to act as Principal Designer under Construction Design and Management Regulations (CDM).
- We have made no allowance to collect any Ground Investigations (GI)
- We have made no provision for hydraulic modelling at this stage.

10 Costs

The cost of this work is £4,985 including expenses but excluding VAT at the prevailing rate.

This cost would be made of a number of tasks as follows:

Project Management	£705.
Desk Based Assessment + Hydrology Review	£1,365
Site Walkover Assessment + Travel	£1,645
Deliverables (Reporting + Maps)	£1,085
Total	£4,799

11 Additional Work

Should additional work be required this will be undertaken at the rates shown below. No additional work would be commenced without your prior written approval. The hourly charge rates (excluding. VAT) for the key JBA staff involved are:

Steve Rose (Technical Director/NFM Lead):	£85.00
Ryan Jennings (NFM Analyst):	£40.00
Eleanor Williams (Senior Hydrogeology):	£70.00

It is recommended that catchment scale hydraulic modelling be undertaken for the River Dove catchment in order to quantify the potential flood mitigation options on the downstream communities at risk. We have an extensive record of catchment scale NFM hydraulic modelling including being appointed by the EA to lead on the NERC NFM Research Programme (QNFM and Landwise NFM). (https://landwise-nfm.org/about/) (https://www.lancaster.ac.uk/lec/sites/qnfm/). However, due to the limited topographic data currently available, it is best to consider this at a later date once this data become available. The findings from this feasibility assessment could be used to apply for funding through the EA for this type of further work.

JBA can provide support for this, along with a detailed estimation of potential modelling costs which is likely to vary between £3,000-£10,000. We appreciate that this is broad

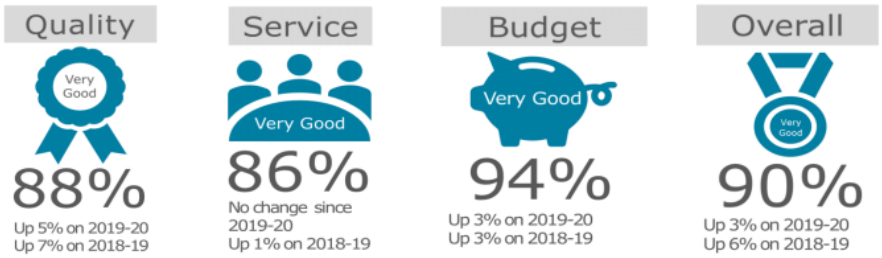
range of values, but it is dependant on level of detail required which could vary significantly.

12 Terms and Conditions

We would propose that our JBA Standard Terms and Conditions are used for the delivery of this project. A copy of these are attached. Should you wish to use your own terms and conditions then we would be happy to consider these but would reserve the right to review our proposed fees should any of the requirements prove to be more onerous than those we have assumed.

13 Quality Assurance

JBA Consulting are independently accredited to the Quality Management Standard BS EN ISO 9001:2000. The company has further developed an Integrated Management System that encompasses the guidelines and requirements of the Environmental Management System BS EN ISO 14001:2004 and the Occupational Health and quality standards are maintained and monitored. To achieve this consistency requires and involves 100% management commitment and a culture embracing continual improvement. All work carried out on this project will be subject to JBA's QA procedure, with Steve Maslen (Project Director) overseeing delivery.



14 Sustainability

JBA will aim to reduce the environmental impacts of this project as part of our ISO14001 environmental management system. Central to this and our IMS Environmental Objectives is to reduce environmental impacts in undertaking the study work and also to work to maximise the environmental and sustainability outcomes that might be derived from the project when implemented. In delivering the project we will adhere as relevant to our hierarchy of modes of transport (depending on Covid-19 restrictions). In addition, we will use our web conference facilities (MS Teams) with you, and for internal meetings. Copies of our Environmental, Energy Use and Sustainability policies can be made available on request.

15 Biosecurity

JBA recognises the importance of having a stringent biosecurity policy and we employ effective biosecurity measures to demonstrate to our staff, the public and customers that we take this responsibility seriously. We abide by our own Biosecurity Policy and Guide to Biosecurity (available on request), ensuring appropriate biosecurity control measures are undertaken by all staff.

If you have any queries on this quotation, please do not hesitate to contact us.

Yours faithfully,
For Jeremy Benn Associates Limited

[redacted]

Ryan Jennings
NFM Analyst
ryan.jennings@jbaconsulting.com

Encs. Quotation approval form
JBA Consulting (UK) Terms and Conditions of Business
JBA NFM Experience Documentation
Staff CVs

Proposed Program