Uttlesford District Council
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For the attention of Andrew Taylor

Our Ref: ADC\Q15-3531-X-L001-2

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Dear Sirs,

Uttlesford District Council Level 1 SFRA update

Thank you for your email of 4th May 2015 and your enquiry to provide an updated to the Uttlesford District Council Strategic Flood Risk Assessment (SFRA). We are writing to confirm that we will be pleased to accept a professional appointment to assist you and have prepared this letter to describe our approach for a quotation to the value of [redacted] exclusive of VAT.

Summary of Study Scope

We understand that you require a review and update to the existing SFRA for the Uttlesford District Council area and that the key objectives of the update will be to:

- critically review the 2007 Strategic Flood Risk Assessment and to provide an update, taking into account the latest flood risk information and any updates to legislation and policy;
- provide an individual flood risk analysis of the major urban and strategic development sites identified within the district as part of the local plan preparation; and
- provide a comprehensive set of maps which subdivide the study area into Flood Risk Zones in accordance with the provision of national flood risk guidance

There have been significant changes to legislation relating to both flood risk and planning policy since the existing SFRA was published in 2007 including the Flood Risk Regulations (2009), Flood and Water Management Act (2010), the National Planning Policy Framework (NPPF) (2012), the Localism Act (2011) and the Climate Change Act (2008). In addition there has been recent guidance published in April 2015 regarding the role of LLFAs, Local Planning Authorities and the Environment Agency with regards to SuDS approval.

We have identified that there have been a number of changes to the available flood risk data since the publication of the existing SFRA including:

- Improved knowledge of flood risk through modelling and other studies e.g. North Essex, and Great Ouse Catchment Flood Management Plans, Essex Preliminary Flood Risk Assessment (2011), and the Essex Local Flood Risk Management Strategy (2013)

- River Cam Tributaries fluvial modelling study (2013),
- Availability of the updated Flood Map for Surface Water (uFMfSW)

It is noted that at this time the council has not identified any new locations for growth and that at this stage the SFRA is intended to review the existing situation and will consider existing development sites when assessing flood risk in the district.

Our Approach

Data Collection

Data collection is a critical phase of the SFRA process and it is vital that comprehensive data set of all sources of flood risk is developed. Currently available data, including previous flood risk management modelling, mapping, strategies and studies, historical records of flooding, Flood Zones Maps etc. will be collated and reviewed and the ability to clearly identify strategic flooding issues from all sources evaluated.

Identification of all sources of flooding

The data collected will be used to produce appropriately scaled plans showing the sources of flooding including the following:

- Fluvial Flooding: We will utilise existing information and datasets to derive flood zones, climate change and hazard information for the SFRA area. These datasets include, EA hydraulic models, existing EA Flood Zones where detailed hydraulic models are not available and National Flood Risk Assessment (NaFRA) outputs, which will be used to assess flood hazard across the district
- Surface Water Flooding: Technology and our understanding of surface water mapping have improved considerably over the last couple of years. The updated Flood Map for Surface Water (uFMfSW) has been developed by the EA and was distributed to Lead Local Flood Authorities in October 2013 and intended as a comprehensive replacement to the existing FMfSW and other national surface water flood risk mapping products such as the Areas Susceptible to Surface Water Flooding map (AStSWF).
- Ground Water: Areas Susceptible to Groundwater Flooding (AStGWf) is a strategic scale map showing groundwater flood areas on a 1km square grid. It was developed specifically by the Environment Agency for use by Lead Local Flood Authorities (LLFAs) for use in Preliminary Flood Risk Assessment (PFRA) as required under the Flood Risk Regulations. However it is equally suited for use by other Local Authorities (LAs) for use in SFRAs. The data was produced to annotate indicative Flood Risk Areas determine whether there may be a risk of flooding from groundwater and provide a broad feel for the wider areas which might be at risk from groundwater flooding.
- Reservoir Inundation: Following publication of the 2008 SFRA the National Reservoir Inundation Mapping was undertaken in December 2009. We will use this data to present the risk of reservoir inundation to the study area.
- Sewer Flooding: We will review what data was collected for the previous SFRA and work closely with you and Thames Water and Anglian Water to provide an assessment of flooding from sewers. We will base this assessment on record of sewer flooding incidents as recorded in water companies' DG5 register. 'DG5 flooding' is flooding from the 'public' sewer system ('public' in this context

meaning assets under the control of Water & Sewerage Companies (WaSC) in England & Wales). Incidents of flooding are recorded in a register which is made available to the Director General of OFWAT the industry register.

- Historic Flooding: We will request and collate historic records of flooding from you, the Environment Agency, Essex County Council, and the WaSCs to provide a comprehensive map of recorded historic flooding in the study area.

Definition and mapping of flood risk

- Functional Floodplain

The NPPF Planning Practice guidance states that Local planning authorities should identify areas of functional floodplain in the SFRA, in agreement with the Environment Agency and that they should not be defined solely on rigid probability parameters but take into account local circumstances. We propose using outputs from new and updated Environment Agency models for the 20-year (or 25-year) return period event where available.

Where no updated hydraulic models are available we will discuss with you whether a precautionary approach to setting functional floodplain should be taken (by assuming it is equal to Flood Zone 3a) or whether the requirement to define functional floodplain should be set out in the "Guidance for Flood Risk Assessments" section of the SFRA. Alternatively we are able to undertake some additional 2D modelling of these watercourses as outlined below.

- Climate change

We will undertake an assessment of the potential increase in flood risk due to climate change using existing hydraulic models, where available. We will follow guidance laid out in the National Planning Policy Framework (NPPF) Planning Practice guidance notes (which replaced the NPPF Technical Guidance in March 2014) as well as the Environment Agency's "Climate Change allowances for planners" guidance document published in September 2013 to support the NPPF. These documents suggest a value of 20% be added to peak river flows or a 30% increase in rainfall intensity. An appropriately scaled plan will be produced showing the potential increase in flood risk due to climate change.

Reporting

The SFRA report will be carefully documented with feedback sought from Council planners to ensure that the terminology adopted is appropriate to the intended end users of the documents (i.e. the planning and developer communities). It will contain clear and simple language.

The report will be based around the methodology and findings described in this methodology but also develop the background policy and guidance to flood risk, its management and provide useful guidance and recommendations towards Sequential and Exception Testing and further flood risk investigation. The report will also include guidance on the preparation of FRAs (including SUDS techniques), guidance on appropriate flood risk policies, and information on challenges to flood zones. We can discuss the preferred report structure at the inception meeting.

A non-technical executive summary will be included within the report and it is assumed that the document will be issued in digital format; however printed copied can also be supplied at a cost of £50 + VAT.

To support the SFRA report a suite of flood risk maps will be produced as a main output of the SFRA process. These will provide users of the SFRA with a visual representation of flood risk throughout the study area and produce the necessary tools for spatial planners and development management officers to assess risk to communities and help identify potential development sites during the application of the Sequential and Exception Tests.

The suite of flood risk maps produced will focus on the proposed allocation sites and include but not limited to:

- Flood Zones - showing Flood Zones 2, 3a, 3b and development sites
- Maps of increase in flood risk due to climate change
- Surface Water Flooding
- Groundwater flooding
- Historical flood incidents
- Flood warning coverage
- Fluvial flood depths, velocities and hazards at the development sites and within the extents of modelling, where data exists - for a range of return periods including climate change

All GIS deliverables can be provided in either MapInfo or ArcGIS formats.

Additional Services

We have noted that detailed hydraulic models do not exist for the entire flood zone coverage within the SFRA study area. Where detailed hydraulic models do not exist, the flood zone data is currently based on the Environment Agency's National Flood Outlines (Flood Zone 2 and 3). JBA can use JFlow+ to easily produce the 1:20 (Flood Zone 3b) and climate change (1:100 + 20%) outlines for areas currently covered by the existing Environment Agency Flood Zones within and adjacent to the allocation sites. This follows the methodology used to define the existing Environment Agency datasets.

Additionally we can use JFlow+ to re-run the 1:100 (Flood Zone 3a) and 1:000 (Flood Zone 2) to produce depth, hazard and velocity maps for the areas around existing development sites, which can be used to advise a Level 2 assessment, whilst also ensuring that all flood mapping uses and is consistent with the latest digital terrain models held by the EA.

The JFlow+ modelling will require use of a suitable Digital Terrain Model (DTM). We have undertaken an initial assessment of LIDAR coverage in the study area which has shown the coverage is complete and will not require supplementing.

Please note that we have not included a cost to undertake the additional modelling within the fee for the study, but can provide a cost should you wish to proceed, once the necessary extents are established.

Project Team

The project manager and main point of contact for this study will be Anna Beasley. Anna is a Principal Flood Risk Analyst with will be supported by a team based in our Wallingford office. Project Director Paul Eccleston has managed several SFRAs and Water Cycle Studies for local authorities and will ensure that the project team are appropriately resourced. An independent review of deliverables will also be conducted by Claire Gardner, who is a Senior Analyst with extensive experience of SFRAs. CVs can be provided upon request.

Programme

We anticipate that our study may take in the region of 6 weeks to complete (upon receipt of all data requirements), based on current workload we have staff available to begin the study immediately following appointment.

Costs of Study

Based on the information you have supplied our fee for undertaking the work as described is £[redacted] excluding VAT.

Any additional work (which we would agree with you prior to undertaking) would be charged at the following hourly rates:

- Paul Eccleston *(Project Director)*: £[redacted] **per hour.**
- Anna Beasley (*Principal Analyst)*: £[redacted] **per hour.**
- Elizabeth Gorton *(Assistant Analyst):* £[redacted] **per hour.**

Additional JBA services

At JBA we are able to offer a number of additional services that can supplement an SFRA including:

- **Emergency planning:** SFRAs can have a tendency to brush over emergency planning and as a result often unpractical/ unreasonable assumptions are placed on Councils. For these reasons JBA can offer our experience Emergency Planning team to complete this section of the SFRA. It would be their aim to provide practical and realistic recommendations.
- **Water Cycle Study:** The information used to develop a Strategic Flood Risk Assessment compliments requirements to develop a Water Cycle Study. JBA have completed several Water Cycle studies alongside SFRAs and we would be happy to discuss your requirements in this regard to support your local plan.

Terms & Conditions

We would require a formal written instruction to proceed. We would issue monthly invoices reflecting the work completed to date. A final invoice for the remainder of our fees would be issued upon completion of our draft report. Payment terms are strictly 28 days from date of issue. We reserve the right to halt work if payment of fees is delayed. We would require a formal written instruction to proceed (via email or post).

We would propose that JBA's standard Terms and Conditions would apply and a copy of these is attached for your information. The Professional Indemnity Insurance cover offered would be £33,000 and the limit of our liability is set at the same amount.

Any additional work, which is agreed to be outside the scope of the study as defined herein, would incur additional fees.

We trust we have interpreted your requirements correctly and that you will find our proposal to be of interest. We await your further instructions, but if you have any queries in the meantime, please do not hesitate to contact me.

Yours faithfully,
For **Jeremy Benn Associates Limited**

Alistair Clark
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Encs. JBA Terms and Conditions