

EA Job: J00355
Your ref:
Date: 18/01/2016



FAO: Survey Manager

JOB TITLE: RIVER WYE (LOWER) FLOOD MODELLING SURVEY

I would be pleased if you would provide a fixed price lump sum quotation for the survey works detailed in the enclosed Survey Brief and annotated on the enclosed map.

Works are to be complete and all documentation submitted to this office by the 31st March 2016.

The work is to be carried out in accordance with the Environment Agency National Standard Contract and Specification for Surveying Services, Version 3.2.

Please submit your quotation to me by **noon on Monday 1st February 2016**. Your quotation must include a method statement and risk assessment for this project. Please show that you have relevant experience and expertise for carrying out this kind of survey. If you have any queries regarding the scope of this survey please contact me.

Yours sincerely,

A handwritten signature in black ink that reads "B. Cackett".

PP: Niall Hall
niall.hall@environment-agency.gov.uk
07801 348985

SURVEY BRIEF

The Conditions of Contract are as stated in the *Invitation to Tender*, Instructions to Tenderers, Conditions of Contract and Contract Data of the Environment Agency National Standard Contract and Specification for Surveying Services V3.2; with additional Conditions of Contract as stated in this document.

This Survey Brief amplifies and amends the Environment Agency National Standard Contract and Specification for Surveying Services (**Version 3.2**) and must be read in conjunction with these specifications.

Job Title: River Wye (Lower), Flood Modelling Survey

Job Number: J00355

Employer's Address: Environment Agency, Riversmeet House, Newtown Industrial Estate, Northway Lane, Tewkesbury, GL20 8JG

Nominated Employer's Representative: Niall Hall

The Sections of Part II Standard Technical Specifications, which shall apply to this Contract, are as follows:

Section I, Section II, Section IV and Section XV

Purpose of Survey: Provide river cross sections and bank crest data to be used for flood modelling.

Location and Extent of Survey: See attached MapInfo/ESRI GIS layers/DXF data.

River Wye (Symonds Yat to Ganarew)

Downstream at approx 353144, 215535

Upstream extent is at approx 356074, 215817

River Wye (The Fence to Brockweir)

Downstream extent is at approx 353730, 201360

Upstream extent is at 354121, 205659

River Wye (Tintern to Severn Estuary)

Downstream extent is at approx 354243, 190435

Upstream extent is at 353556, 200055

Background

The Environment Agency has existing survey and various hydraulic flood models for various parts of the River Wye, however the view is not totally joined up, as can be seen from the illustrations shown at the end of this document. Therefore the main focus of this request is to infill survey for those locations not benefiting from any previous survey of which there are three main sections. It's important that the survey is carried out the following order;

1. "Symonds Yat" to "Ganarew".
2. "The Fence" to "Brockweir".
3. "Tintern" down to the "Severn Estuary",

The third section poses significant health and safety issues due to the tidal nature of the watercourse along this section and the presence of mud. Also there is an MOD base on the left bank towards the bottom of this section at Beachley, which may need special permission for access.

There are a number of weirs identified (identified from OS base mapping) however the understanding is that these weirs no longer exist in their original form of construction as they have fallen into disrepair over many years. Therefore the detail of actually what remains is unknown and they may just now resemble rubble weirs or nothing at all. Therefore it may well be difficult to define measurements upon these structures however attempts should be made where a structure is found to be holding water back in some way or other.

GIS layers have been provided in MapInfo and ESRI ArcMap format plus a copy converted to AutoCAD (DXF) identifying the locations of these points where they intersected the centre line of the River.

Sections are also required at three river gauging station on the River Wye:

- Redbrook approx 352769, 211077 (This is not within any of the three main survey sections but sits between The Symonds Yat – Ganarew & The Fence – Brockweir sections)
- Tintern approx 352984, 200257 (again this is not within one of the main survey sections but is close to both the The Fence – Brockweir & Tintern to the Severn Estuary section.
- Chepstow Bridge approx 353626, 194309 This is within the final section of survey Tintern – Severn Estuary

Delivery Schedule:

TENDER SUBMISSION DATE: MONDAY 1ST FEBRUARY 2016

COMPLETION DATE FOR THE WHOLE SERVICES: 31ST MARCH 2016

Delay Damages: n/a

Deliverable Information and Materials to be supplied by the Surveyor: BY THE COMPLETION DATE ABOVE:

Digital data

Report of Survey

Self Certification Form(s)

AFTER APPROVAL:

Amended data as required

Known Hazards: Working in or near water. Mud lots of Mud at the bottom end and might be safer working from a boat at higher tide states. After heavy rainfall high levels can be expected in the channel. In some places the banks are steep when entering/exiting the watercourse. Slips, trips, falls. Manual handling. Water-borne infections/Weils Disease. Cattle. Traffic on adjacent roads. Overhead services. Sharp objects in the watercourse or on the bank. Hypodermic needles. Do not enter confined spaces such as culverts.

Site Conditions/Restrictions, Access and Public Relations:

The Environment Agency will provide a letter of introduction to be shown to landowners.

Please be courteous to property owners and the public.

ID to be visible, worn at chest height.

All survey pegs should be flush with ground level or removed after the survey is complete.

Any debris from light vegetation clearance should be left well clear of the channel.

Existing Survey Control See map and please refer to our benchmark layer (151224-SHWG_Benchmarks). The existing witness diagrams have not been presented here as relevant EABM level information is provided in the attribute of the GIS layer provided. However, if required and available, EABM witness diagrams can be provided upon request.

Technical Requirement

All survey results including the survey report are to be delivered as a zipped file email attachment if the zipped file is smaller than 10Mb or on CD / DVD for larger data deliveries.

The following is to be copied and pasted into the survey report as a record of the survey requirement.

Section I General Requirements applicable to all surveys.

All submitted documents shall have the EA job number in the file name.

Drawing files shall be named A-J00355-BB.dwg where A may be:

Letter	Meaning
L	Long section
X	Cross sections
T	Topographic map
H	Hydrographic chart

BB is a sequential sheet number – 01, 02 etc.

The surveyor will be responsible for downloading the OS Mapping required for the project from the EA Geostore / Datashare website and are bound by the conditions of that site.

Weekly progress reports are to be prepared and delivered to EA Project Manager by email / telephone.

Section II Survey Control

Tenderers to submit details of proposed survey control layout and observation method with their tenders.

RINEX data for all reference and rover observations are to be submitted with the survey report.

The contractor is responsible for verifying all existing control along the route of the works before channel surveys commence. Significant discrepancies (>30mm) should be reported to Niall Hall at the Environment Agency.

Exact locations of any new benchmarks will be left to the surveyor's discretion so that they can contribute to the works as well as enhance the EA's network of benchmarks.

Any new permanent EABMs introduced should be marked with a EABM survey marker and will require a witness diagram, please refer to the survey specification "Nat_Spec_v3.2" provided.

The naming convention for any newly introduced EABM's should match the following format:

The new EABM identification should be formed of the "Survey control... recognising the six grades of control" (E1, E2, E3, E4, E5 & E6) as a prefix followed by the grid reference (In National Grid Reference, two letter and 6 number format) for that location. So for example an E2 grade station newly formed at the following example easting and northing point... 390895 23328 would appear like this: **E2_SO908332**

The use of network RTK corrections is allowed for this work. If used, please provide comparisons with EABMs at the beginning and end of each survey day.

EACS description cards to be supplied as .pdf.

Section IV Channel Surveys

Section Spacing, generally every **200m** (Unless otherwise stated... please consult the GIS layers provided where we have given some guidance ideas about where cross sections might be considered however ultimately this will need to be decided on site and via the experience of the surveying team given local conditions and access), with:

- Sections upstream and downstream of structures including farm crossings. Pipe-crossings and bridges less than 1m only require one section (Upstream face).
- Sections where there is a notable change in profile e.g. weirs. (This includes natural drops of more than 0.5m). Weirs are to be surveyed as three sections: immediately downstream, weir crest and immediately upstream.
- Sections where there is a notable change in width i.e. bottlenecks. Sections either side of the constriction are also required.
- Bar spacing and thickness of any debris screens are to be labelled.

Section Extents: Each cross section is to extend the full width of the channel and beyond top of bank by a linear distance of at least 5m. If a defence wall or earth embankments border the watercourse then the section should extend 5m beyond the outer toe.

Both soft and hard bed levels are to be shown.

Section Presentation: All sections looking downstream (even DS face of structures). This is to avoid errors when producing model files. "All cross-sections viewed looking downstream" is to be clearly noted on each sheet. It is important that the long section gives a clear picture of in-bank capacity. Left and Right Banks should be the top of the defences either side of the watercourse. If there are no defences (or high ground) then left and right bank is either side of the open channel. Cross-section numbering is to be of the format X.YYYYYY where X is a number 1-10 indicating channel number (1 for main watercourse, 2etc for braids and subsidiary channels) and YYYYYY is cross-section chainage starting with 00000 at downstream end of job and increasing upstream (using Detailed River Network centreline from Datashare to derive channel chainage).

Bank Crests: Left and Right Bank strings are required as two xyz files. Spacing should be approximately every 25m and can incorporate points from the cross sections. They must include any obvious low-spots where spill could occur or sudden changes in direction of the channel.

Section XV Surveys of Gauging Weirs

River Gauges

Sections adjacent to river gauges should be in-line with the transducer pipe and/or weir crest. Water levels at the gauge should be spirit-levelled or with a total station (not GNSS) and the date and time noted on the cross section. This is so hydrologists can cross-check telemetry records for the site. Any gauge-boards and dip-plates should be spirit levelled (or total station) and projected onto the cross section so that gauge datum relative to ODN can also be checked.

Presentation of Data

Scale: Plan with Longitudinal section plotted underneath 1:1250
Cross section 1:100 V and 1:100 H

Digital Data Format

- Drawings: AutoCAD.DWG (EA now using v2014) **and PDFs**
- Cross sections in ISIS format.
- EACSD format is required.
- RINEX files of all GNSS observations for new control points.
- A spreadsheet of all control points used – including any TBMs used.
- Survey Report

Digital Data Delivery Media: e-mail/EA Sharefile or CD/DVD

Hard Copy Plots: Not required

Drawing Data Format: Plans are to be delivered on OS Mastermap

Photographic Record: Digital photographs at cross sections & structures.

Ordnance Survey Copyright

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Signed: Niall Hall

Date: 13/01/2016



