National Asset Delivery

Technical Surveys and Testing

Scope for

569906 - M5 J18-19 SB 143.8-145.5 Flood HS

Topographical Survey

CONTENTS AMENDMENT SHEET

Amend. No.	Revision No.	Amendments	Initials	Date
0	0	Tender Issue	JH	17/04/20
1	1	Changed drawing volume reference	MM	23/06/20

TABLE OF CONTENTS

LIST OF ANNEXES

1 PURPOSE OF THE *SERVICES*

1.1 Project objectives

1.1.1 The principle objective of this project is to carry out a topographic survey of a section of the M5 southbound carriageway and verge, and pond area as shown on drawing HE569906-KIER-VTO-M5_J18_J19-DR-CD-0100_02.

1.1.2 The specification that applies to the *services* is included in Section 6

1.2 Scope of *services*

1.2.1 The *services* to be provided under this contract are:

(1) Topographical Survey of the site. The extent of the survey is shown on drawing HE569906-KIER-VTO-M5_J18_J19-DR-CD-0100_02. Survey data to be provided in PDF and drawing (.dwg) file formats. Electronic drawing files to be to ordnance datum and include 2 and 3-dimensional CAD model files in accordance with the requirements of GG 184 Specification for the use of Computer Aided Design.

1.3 Deliverables

1.3.1 The *Consultant* is required to produce the following deliverables:

(1) Topographical Survey as shown on drawings HE569906-KIER-VTO-M5_J18_J19-DR-CD-0100_02. Survey data to be provided in PDF and drawing (.dwg) file formats. Electronic drawing files to be to ordnance datum and include 2 and 3-dimensional versions.

(2) Photographs of pond area to determine condition. Photographs to be in colour, in JPEG format as .JPG files, at a resolution of at least 1.0 megapixels.

2 EXISTING INFORMATION

2.1.1 The C2 statutory information has been obtained and enclosed with this document and are shown on drawing HE569906-KIER-VTO-M5_J18_J19-DR-CD-0100_02.

2.1.2 The Drawings listed below apply to this contract. Refer to the site information for details of existing site conditions including ground conditions, limitation on access, position of existing structures etc.

Drawing Number	Title	Revision / Date
HE569906-KIER-GEN-M5_J18_J19-DR-CD-0000_01	Location Plan	C2/ June 2020
HE569906-KIER-VTO-M5_J18_J19-DR-CD-0100_02	Topographic Survey Location Plan	C2/ June 2020

3 CONSTRAINTS ON HOW THE CONSULTANT PROVIDES THE SERVICES

3.1 General

3.1.1 The *Consultant* Provides the Services in such manner as to minimise the risk of damage or disturbance to or destruction of third party property.

3.1.2 The *Consultant* complies with the constraints and meets with the requirements outlined in Appendix 1.

3.1.3 The *Consultant* submits information detailing how the *Consultant* will provide the Services to the *Client* prior to the *services* commencing. This information will include any lifting plans, risk assessments, method statements, the *Consultant's* staff training information and any other relevant Health and Safety requirements.

3.2 Working hours & site specific constraints

3.2.1 The *Consultant's* working hours for site works shall be 20:00 – 05:00.

3.2.2 Contractor to remain within the Highways Boundaries for the duration of the works, except where agreed with both the Employer and the land owner in advance, as per clause 3.1.3.

3.2.3 Access to the site will be via the M5 carriageway traffic management. It is anticipated that hard shoulder and/or lane closure will be required as part of the traffic management. TM requirements are to be confirmed by the Contractor.

3.3 Health, Safety and Environment & Risk Management

Health and Safety requirements

3.3.1 In Providing the Services the *Consultant* meets the requirements of Annex 2 of the supplementary constraints relation to health and safety duties.

3.3.2 The *Consultant* shall comply with the requirements of Highways England's safety passport scheme and ensure that all of his employees, and any of his subcontractor's, are registered in accordance with the implementation of the scheme. Details on the scheme can be found here: http://www.highwayssafetyhub.com/safety-passport.html

3.3.3 For details of the CDM duty holders, refer to the pre-construction information which can be found here '569906 Designer's PCI - Topographic Survey & 569906 DH Checklist & RRS - Topographic Survey'.

3.3.4 Before commencing the construction phase of the *services*, the *Consultant* confirms to the *Client* that adequate welfare facilities are in place. Where the

facilities detailed in section 5 are not deemed adequate, the *Consultant* provides all necessary facilities to Provide the Services and to comply with the minimum requirements set out in HSE guidance document L153.

Environmental requirements

3.3.5 In Providing the Services the *Consultant* meets the requirements of Annex 2 of the supplementary constraints in relation to environmental duties.

3.3.6 Any vegetation clearance required to complete the Topographical Survey shall be undertaken by the Contractor.

Risk Management

3.3.7 The *Consultant* identifies, manages and mitigates risks in accordance with the principles of ISO31000.

3.3.8 The *Consultant* submits a risk register, which captures all risks associated with the delivery of the *services* including those identified by the *Client*, with his tender and maintains it for the contract period.

4 REQUIREMENTS FOR THE PROGRAMME

4.1.1 The *Consultant* submits programme to the *Client* with his tender.

4.1.2 The *Consultant* Provides the Services taking into account the following programme constraints:

(i) the *starting date* and *completion date* and any post site works, reporting and review period

(ii) The services and other things provided by *Client* (see Section 5)

4.1.3 The programme should be in the form of an activity and time related bar chart, produced as a result of a critical path analysis.

4.1.4 The programme should preferably be provided in either a PDF or MS Excel format and cover the full contract period including post site activities. Activities should be clearly defined and named and the programme should detail the following:

(i) the starting date, completion date & Contractor's planned completion.

(ii) for each activity, the proposed resources (plant & labour) expected to deliver each activity should be shown on the programme.

(iii) review periods for any reporting requirements.

(iv) key dates for the Employer to provide 'services and other things'.

(v) key dates for co-ordination with Others.

4.1.5 The *Consultant* should provide details of the proposed resources (plant, labour, subcontractors etc.) expected to deliver each activity. This information can either be shown on the programme itself or provided in an associated resource statement included in the Proposal for Providing the Services.

4.1.6 The *Consultant* updates the programme every 2 weeks. The *Consultant* submits an updated programme to the *Client* upon request.

5 SERVICES AND OTHER THINGS PROVIDED BY THE *CLIENT*

5.1.1 The following temporary traffic management will be provided by the *Client* to allow the *Consultant* to Provide the Works:

(1) The traffic management is anticipated to consist of hard-shoulder and/or lane closure and is to be installed after 20:00 and removed before 05:00. TM requirements are to be confirmed by the Contractor.

5.1.2 The other things that will be provided by the Employer are as follows:

(1) If the contractor will be working under a CDM principle contractor, state that the welfare facilities will be provided by the principle contractor.

6 SPECIFICATION FOR THE *SERVICES*

6.1.1 The *Consultant* shall Provide the Services in accordance with:

6.1.2 The Contractor must provide the works under a quality management system which is certified to ISO 9001 & BS 11000 and Environmental management system which works to ISO14001.

6.1.3 The Topographical Survey is to be carried out in accordance with the Design Manual for Roads and Bridges, Volume 5 Contract Documents for Specialist Activities, Section 1 Geodetic Surveys, Part 2 Specification for Geodetic Surveying Services.

6.1.4 Topographical Survey to be carried out to National Grid reference & levels.

6.1.5 Permanent control stations shall be established on site, these shall be clearly marked, on both the ground and the completed drawings. These control

stations shall be properly installed, x, y and z coordinates recorded and in a position such that they may be used to control future works.

6.1.6 Topographical Survey to include: -

- Profile of embankments, cuttings, culverts, drainage ditches, river channels etc.
- Highway furniture – type, dimensions, offset (e.g. marker posts, steps, guardrails, cabinets etc).
- Lighting columns (offset from kerb edge to front face of the column to be recorded).
- Structures including bridges, subways, gantries, retaining walls and parapets.
- Soffit level of overbridges to be recorded at traffic side of verge piers, above rear of hard strip, above hard strip/lane 1 marking, traffic side of central reserve piers.
- Depth of drainage chambers (pipe diameter and invert levels of all incoming and outgoing pipes).
- Distance to verge piers from back of hard shoulder.
- Trees, tree canopies, and areas of vegetation.
- Signs, including post positions, sizes and diameters, sign face dimensions, height of bottom of sign face from ground level and note if illuminated.
- Ironwork details to be recorded e.g. manhole covers (all corners), gullies (including type i.e. kerb inlet or carriageway), communications chambers, fire hydrants, stop-valves etc.
- Depth of non-drainage chambers (ducting diameter and invert levels of all incoming and outgoing ducting).
- Kerb channel level and top of kerb level to be recorded at 10m intervals.
- Carriageway edges i.e. edge of surfacing to be recorded at 10m intervals.
- Carriageway road markings to be recorded at 10m intervals as follows:

  i) Rib line marking between hard strip/lane 1 – record traffic side of line.

  ii) Double white lines marking between the eastbound and westbound lanes – record centre of lines.

- Carriageway levels to be recorded longitudinally at 10m centres along carriageway markings (+/- 2mm).
- Carriageway edge levels to be recorded longitudinally at 10m centres along back of hard strip (+/- 2mm).
- Type, level and location (front and back) of any carriageway drainage feature at 10m intervals (levels +/- 2mm), e.g. drainage channel.
- Toe of cutting slope levels to be recorded longitudinally at 10m centres along the back of verge (+/- 2mm).
- Top of cutting slope levels to be recorded longitudinally at 10m centres (+/- 2mm).
- Cutting slope intermediate levels to be recorded longitudinally at 5m centres (+/- 2mm).
- Cut off ditch (located at top of cutting slope), ground and invert levels to be recorded longitudinally at 10m centres (+/- 2mm).
- Traffic face of safety barrier in verge and central reserve to be recorded.
- Level of top of safety barriers to be recorded.
- Ground level adjacent to front of safety barrier to be recorded.
- Type of barrier to be recorded, i.e. steel OBB/TCB or concrete.
- Location and level of overhead cables.
- Location of cross carriageway ducts for street lighting (e.g. marker blocks, pegs).
- Location and colour of pegs identifying buried motorway communications infrastructure, if present, to be recorded.
- Unless otherwise specified, symbols and annotation in topographic survey drawings shall be suitable for presentation at 1:500 scale.
- Where the objects surveyed extend up or down from ground level, separate layers shall be provided for the ground level lines and the other vertical extent.

For example, the tops of walls, fences, ditches shall be in separate layers from their bases.

- Features at ground level shall not cross except at a common point.
- Features at ground level shall not be continuous across bridge decks. They shall stop and restart at the ends of the deck.
- Pond area perimeter, ground level to be recorded at 2m centres (+/- 2mm).
- Pond drainage (pipe diameter and invert levels of all incoming and outgoing pipes).
- Pond depth.
- Pond drainage features – type, dimensions, offset (e.g. headwall, inlet and outlet structure, gabion mattress etc).
- Features that represent closed boundaries shall be geometrically closed.
- Property information relating to point assets (spot levels, references etc) shall be provided as linked attributes, not as unrelated text. Within AutoCAD the association shall be achieved through attributed blocks and within Microstation through tags.
- ADMM codes to be used for Survey Asset Coding.

6.1.7 Output Specification:

- Output data to be in accordance with GG 184 (Specification for the use of Computer Aided Design).
- Layer naming convention to be added to survey drawings.
- Note/hatching to be added to drawings detailing any problematic areas identified during survey e.g. areas where access was difficult to obtain.
- Control Station coordinates list in suitable format (e.g. Word).

Photographs of pond to determine condition. Photographs to be in colour, in JPEG format as .JPG files, at a resolution of at least 1.0 megapixels.