

**National Asset Delivery  
Technical Surveys and Testing**

**Scope for 570122 id 526  
M5 J26 – 27 SB 227 – 229.5 RS  
Falling Weight Deflectometer (FWD)  
Survey**

**CONTENTS AMENDMENT SHEET**

Amend. No.	Revision No.	Amendments	Initials	Date
0	0	Original version issued with tender	CC	25/05/21

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**LIST OF ANNEXES**

None

## **1 PURPOSE OF THE SERVICES**

### **1.1 Project objectives**

1.1.1 The principle objective of this project is to undertake a falling weight deflectometer (FWD) survey on the M5 southbound carriageway between MP 227 & 229.4 in lanes 1,2 and the HS as shown on the 526-M5 26 – 27 SB 227 – 229.5-RS-104-106 and provide subsequent report in accordance with the requirements detailed in the specification.

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) FWD survey of both wheel tracks of the hard shoulder, lane 1 and lane 2 of M5 southbound mainline carriageway, between marker posts 227 & 229.5
- (2) PDF colour-copy factual report

### **1.3 Deliverables**

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

- (1) A factual report detailing findings of site and analysis to CS 229

## 2 EXISTING INFORMATION

- 2.1.1 For information about the site refer to document 526-M5 26 – 27 SB 227 – 229.5 RS Site Information
- 2.1.2 For statutory undertaker's apparatus information refer to provided C2 returns in Pre-Construction Information pack.
- 2.1.3 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
526-M5 26 – 27 SB 227 – 229.5 RS-104	FWD Plan Sheet 1	C1 / 21/05/21
526-M5 26 – 27 SB 227 – 229.5 RS-105	FWD Plan Sheet 2	C1 / 21/05/21
526-M5 26 – 27 SB 227 – 229.5 RS-106	FWD Plan Sheet 3	C1 / 21/05/21

### **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 Access to the site for undertaking works will not be possible without the provision of traffic management (TM) – This will be provided by *the Employer* through the CWF
- 3.2.2 The *Consultant's* working hours for site works are 22:00 hrs to 04:00 hrs and subject to the installation and removal of TM
- 3.2.3 Due to the requirement for (TM) and specialist access, it is envisaged that the works will be restricted to night-time shifts. TM shall not be implemented prior to the hour of 20:00 hrs nor removed later than 06:00 hrs. Late installation / early removal of TM or alteration to the length of closure may occur subject to the recorded on-site traffic flow. It is anticipated that in most cases, TM removal will commence at 04:00 hrs to allow sufficient time for removal
- 3.2.4 TM layout to be lane closures with single lane running and to be in accordance with Traffic Signs Manual (TSM) Chapter 8
- 3.2.5 Survey to be undertaken concurrently with other surveys to minimise traffic management requirements and disruption to public.
- 3.2.6 Any site and task specific lighting shall be directed away from dense vegetation and shall be positioned such that it does not cause a hazard to on-coming road users.

#### **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 When implemented, 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.
- 3.3.3 For details of the CDM duty holders, refer to the pre-construction information which can be found here:

(1) 526-M5 J26 – 27 SB MP 227-229.5 RS Combined PCI

- 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.

#### Risk Management

- 3.3.6 The *Consultant* identifies, manages and mitigates risks in accordance with the principles of ISO31000.
- 3.3.7 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)
  - (iii) Survey to be undertaken concurrently with other surveys to minimise traffic management requirements and disruption to public. The programme is to take this into account.
  - (iv) Phasing and availability of TM
- 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) dates and times associated with the project, including the *starting date*, *completion date* & *Consultant's* planned completion, and any other dates or times that will specifically impact the delivery of the project
  - (ii) activities associated with delivering the project
  - (iii) key dates for co-ordination with Others
  - (iv) key dates for the Client to provide 'services and other things'
- 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 week. 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 *Employer* under the Construction Works Framework to allow the *Contractor* to Provide the Works:

- (1) Lane closures on the southbound carriageway leading up to and beyond works extent between Marker Posts 227.0-229.4. Works to take place at night.

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

- (1) Welfare facilities (to be provided by the Principal Contractor)
- (2) Site specific induction

## 6 SPECIFICATION FOR THE SERVICES

6.1.1 The *Consultant* shall provide the Services in accordance with Chapter 4 of Design Manual for Roads and Bridges CS 229. A report is required containing the following details:

6.1.2 Survey details:

- (1) The date and time of the survey and the identities of the operator and the company.
- (2) Location of the survey including road number, lane number, transverse position, geographical location, and precise details of the longitudinal referencing in relation to the network section reference.
- (3) Make, model and serial number of the FWD used.
- (4) The mass of the falling weight and the diameter of the loading plate.
- (5) Type, number and positions of the geophones.
- (6) Locations, depths (should be 100mm) and times of pavement temperatures recorded during the survey.
- (7) Test type
- (8) "Supplementary" and "F20" files to be provided for loading into the Highways Agency Pavement Management System (HAPMS).
- (9) In this particular scheme, it is specified that the longitudinal spacing of measurements is 20m.
- (10) In addition to the specified longitudinal spacings, there are 14no. points of interest that are to be included. These are highlighted on drawings 526-M5 26 – 27 SB 227 – 229.5-RS-104-106

6.1.3 Survey results

- (1) Tabulated deflections (normalised to 50KN).
- (2) Graphs of the deflection parameters d1, (d1-d4) and d6 (normalised to 50KN).
- (3) Temperature applicable to each test point.

6.1.4 Analysis details

- (1) Details of the FWD back-analysis program used (name, version, mode of operation).
- (2) Details of the model used (thicknesses for each layer, number of layers, type of material assumed, details of the source of the construction information used e.g. cores, GPR, as-built drawings etc.).

6.1.5 Analysis results

- (1) Tabulated back-analysed stiffnesses (including "as measured" and "adjusted to 20°C for asphalt layers).

- (2) Graphs of the layer stiffness results (asphalt layers adjusted to 20°C).
- (3) Tabulated layer thicknesses used for the analysis (i.e. for each test point)
- (4) AMD and RMS values for each test point.

6.1.6 PDF colour-copy factual report required within two weeks of agreed completion on site to detail the above results.

For Information Only  
Do not complete at this stage