National Asset Delivery

Technical Surveys and Testing

605788-P-006

Scope for Area 14 Falling Weight Deflectometer Surveys

CONTENTS AMENDMENT SHEET

Amend. No.	Revision No.	Amendments	Initials	Date
0	0	Original version issued with tender	LPM	25/11/2020

TABLE OF CONTENTS

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 survey and back analysis of collected data in accordance with CS 229 to support the development of the forward programme of pavement renewal schemes.

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:

General scope of the works to be provided	
Category	**Survey Description**
Pavement	Falling Weight Deflectometer (FWD) pavement surveys in accordance with CS 229.

1.3 Deliverables

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

A technical report to include the following:

- The date and the weather condition at the time of survey.
- Tabulated deflections with the determination of effective layer stiffness and an indication of the bound and unbound layer stiffness banded against the criteria in CS 229.
- A graph of the FWD deflections mapped against Highways England HAPMS chart sections and chainage.
- A graph of the effective layer stiffness mapped against Highways England HAPMS chart sections and chainage.
- Summary of pavement condition and recommendations.

2 EXISTING INFORMATION

2.1.1 The Consultant reviews any existing information, including previous shapefiles, prior to undertaking survey works.

2.1.2 Refer to the Site information for details of existing site conditions including ground conditions and limitation on access.

2.1.3 The location of the survey is as per the location and overhead cable plans listed below in Table 1 showing the extent of the survey.

2.1.4 The Drawings listed below apply to this contract.

Table 1 Existing Records and Plans

Drawing Number	Title	Revision/Date
Location & OHC Plans		
Appendix A – OH Plan (1)	A696 Kenton Bar – Prestwick Roundabout	02/06/2020
Appendix A – OH Plan (2)	A1 Highfields – Scottish Border	02/06/2020
Appendix A – OH Plan (3)	A19 Holystone – Killingworth	02/06/2020
Appendix A – OH Plan (4)	A1 West Cawledge – Denwick	02/06/2020
Appendix A – OH Plan (5)	A1 South Charlton – North Charlton	02/06/2020
Appendix A – OH Plan (6)	A1 Scremerston – Oxford	02/06/2020
Appendix A – OH Plan (7)	A1M J60-61	02/06/2020
Appendix A – OH Plan (8)	A66 Little Burdon – Long Newton	02/06/2020
Appendix A – OH Plan (9)	A66 Long Newton – Elton	02/06/2020
Appendix A – OH Plan (10)	A19 Fisher Lane - Moor Farm	02/06/2020
Appendix A – OH Plan (11)	A1 Fairmoore – Warreners House	02/06/2020
Appendix A – OH Plan (12)	A1 Burgham – West Moor	02/06/2020
Environmental Rag Plans		
Appendix B – Rag Plans (1)	A696 Kenton Bar – Prestwick Roundabout	02/06/2020
Appendix B – Rag Plans (2)	A1 Highfields – Scottish Border	02/06/2020
Appendix B – Rag Plans (3)	A19 Holystone – Killingworth	02/06/2020
Appendix B – Rag Plans (4)	A1 West Cawledge – Denwick	02/06/2020
Appendix B – Rag Plans (5)	A1 South Charlton – North Charlton	02/06/2020
Appendix B – Rag Plans (6)	A1 Scremerston – Oxford	02/06/2020
Appendix B – Rag Plans (7)	A1M J60-61	02/06/2020
Appendix B – Rag Plans (8)	A66 Little Burdon – Long Newton	02/06/2020
Appendix B – Rag Plans (9)	A66 Long Newton – Elton	02/06/2020

Appendix B – Rag Plans (10)	A19 Fisher Lane - Moor Farm	02/06/2020
Appendix B – Rag Plans (11)	A1 Fairmoore – Warreners House	02/06/2020
Appendix B – Rag Plans (12)	A1 Burgham – West Moor	02/06/2020
Public Access Map		
Appendix C – Public Access Maps (1)	A696 Kenton Bar – Prestwick Roundabout	02/06/2020
Appendix C – Public Access Maps (2)	A1 Highfields – Scottish Border	02/06/2020
Appendix C – Public Access Maps (3)	A19 Holystone – Killingworth	02/06/2020
Appendix C – Public Access Maps (4)	A1 West Cawledge – Denwick	02/06/2020
Appendix C – Public Access Maps (5)	A1 South Charlton – North Charlton	02/06/2020
Appendix C – Public Access Maps (6)	A1 Scremerston – Oxford	02/06/2020
Appendix C – Public Access Maps (7)	A1M J60 61	02/06/2020
Appendix C – Public Access Maps (8)	A66 Little Burdon – Long Newton	02/06/2020
Appendix C – Public Access Maps (9)	A66 Long Newton – Elton	02/06/2020
Appendix C – Public Access Maps (10)	A19 Fisher Lane - Moor Farm	02/06/2020
Appendix C – Public Access Maps (11)	A1 Fairmoore – Warreners House	02/06/2020
Appendix C – Public Access Maps (12)	A1 Burgham – West Moor	02/06/2020

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 *Contractor's* working hours for site works shall be within 20:00 – 06:00 hours once the traffic management has been installed.

3.2.2 The traffic management working window is 20:00hrs for earliest start of installation and removal of last cone by 06:00hrs. Late or early removal of traffic management or alteration to the length of closure may occur subject to the recorded on-site traffic flow.

3.2.3 The traffic management requirements shall be provided by Highways England's M&R Contractor, CHC.

3.2.4 See below for site specific constraints on methods and or conduct of the work.

Table 2 Site Specific Constraints

Plan. Ref.	Site Ref.	Shift Pattern	Traffic Management	Estimates No of Shifts
Appendix A – OH Plan (1)	A696 Kenton Bar – Prestwick Roundabout	Night shift	Lane closure, inner and outer ring closure.	7
Appendix A – OH Plan (2)	A1 Highfields – Scottish Border	Night shift	Lane closure	4
Appendix A – OH Plan (3)	A19 Holystone – Killingworth	Night shift	Lane closure	2
Appendix A – OH Plan (4)	A1 West Cawledge – Denwick	Night shift	Lane closure	7
Appendix A – OH Plan (5)	A1 South Charlton – North Charlton	Night shift	Traffic Signals	9
Appendix A – OH Plan (6)	A1 Scremerston – Oxford	Night shift	Traffic Signals	10
Appendix A – OH Plan (7)	A1M J60-61	Night shift	Lane closure	4
Appendix A – OH Plan (8)	A66 Little Burdon – Long Newton	Night shift	Lane closure	6
Appendix A – OH Plan (9)	A66 Long Newton – Elton	Night shift	Lane closure	7
Appendix A – OH Plan (10)	A19 Fisher Lane - Moor Farm	Night shift	Lane closure	5
Appendix A – OH Plan (11)	A1 Fairmoore – Warreners House	Night shift	Lane closure and TTRO slip	2
Appendix A – OH Plan (12)	A1 Burgham – West Moor	Night shift	Traffic Signals	7

3.2.5 For traffic signal working, the maximum distance between signal heads is 600m. Switching TM closure to opposing lane is achievable within a single shift, i.e. expected output to be a survey length of 1.2km/shift.

3.2.6 The programme duration has been estimated based upon an output of 3km per shift lane closure, and 600m/shift for traffic light traffic management set ups in order to complete by the end date.

3.2.7 The Contractor should consider and increase resource where achievable to reduce programme and associated traffic management costs.

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 Not used.

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.

Requirements for the programme

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

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

(i) **The *starting date, to be 4th January 2021,* and the *completion date for site work and reporting 31st March 2021.***

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

(iii) Weekly progress report to be submitted via e-mail to [redacted]

(iv) The access equipment provided by the *Employer* for the use of the *Contractor* to Provide the Works, including timing and duration.

(v) *The site survey and interpretive report are to be returned to the Client within 30 days of the completion of the associated site activity.*

(vi) The traffic management is to be supplied by the M&R Contractor CHC. All works are to adhere to the programme and traffic management provided.

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

3.3.11 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

3.3.12 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.

3.3.13 The *Consultant* updates the programme every week. The *Consultant* submits an updated programme to the *Client* upon request.

4 SERVICES AND OTHER THINGS PROVIDED BY THE *CLIENT*

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

(1) The traffic management requirements shall be provided by Highways England's M&R Contractor, CHC.

(2) FWD survey is to be undertaken through the lanes stated in Section 1.1 TST Site information.

(3) Refer to the table below for proposed traffic management.

Plan. Ref.	Site Ref.	Shift Pattern	Traffic Management	Survey Length
Appendix A – OH Plan (1)	A696 Kenton Bar – Prestwick Roundabout	Night shift	Lane closure, inner and outer ring closure.	20,032m
Appendix A – OH Plan (2)	A1 Highfields – Scottish Border	Night shift	Lane closure	11,284m
Appendix A – OH Plan (3)	A19 Holystone – Killingworth	Night shift	Lane closure	5,342m
Appendix A – OH Plan (4)	A1 West Cawledge – Denwick	Night shift	Lane closure	20,956m
Appendix A – OH Plan (5)	A1 South Charlton – North Charlton	Night shift	Traffic Signals	5,386m
Appendix A – OH Plan (6)	A1 Scremerston – Oxford	Night shift	Traffic Signals	5,778m
Appendix A – OH Plan (7)	A1M J60-61	Night shift	Lane closure	13,478m
Appendix A – OH Plan (8)	A66 Little Burdon – Long Newton	Night shift	Lane closure	19,232m
Appendix A – OH Plan (9)	A66 Long Newton – Elton	Night shift	Lane closure	21,449m
Appendix A – OH Plan (10)	A19 Fisher Lane - Moor Farm	Night shift	Lane closure	13,596m
Appendix A – OH Plan (11)	A1 Fairmoore – Warreners House	Night shift	Lane closure and TTRO slip	4,840m
Appendix A – OH Plan (12)	A1 Burgham – West Moor	Night shift	Traffic Signals	4,128m

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

(1) Mobile welfare facilities (including water and electricity) are to be provided by the, M&R Contractor, CHC acting as principle contractor. The facilities are to be provided for the entirety of the works.

5 SPECIFICATION FOR THE *SERVICES*

5.1.1 The *Consultant* shall Provide the Services in accordance with the Design Manual for Roads and Bridges CS 229, Section 4 Falling Weight Deflectometer Surveys

(1) FWD surveyors are to hold a current annual correlation certificate for all machines. A copy of the certificate is to be made available for review upon request.

(2) FWDs shall be operated in accordance with the Accreditation and Quality Assurance of Dynamic Plate Test Survey Devices document (AQA DPTSD [Ref 3.N]) available on the UKRLG website.

(3) The temperature categories for FWD stiffness evaluation testing on flexible pavements as set out in Table 4.4. CS 229 should be used.

(4) The data collected shall be referenced to the Overseeing Organisation's network referencing system.

(5) GPS co-ordinates shall be recorded and used to provide additional confirmation of the location of each test point.

(6) The pavement temperature, its location and time of determination shall be recorded and entered on the survey record at the start and finish of the survey and at least once every 30 minutes throughout the survey.

(7) During daytime surveys, temperatures shall also be recorded when passing into or out of continuously shaded areas on the carriageway and areas having significantly differing surface characteristics.

(8) Where back-analysis of FWD data is to be performed to provide estimates of pavement layer stiffness's. The back-analysis data should be applied using the standard rules in accordance with CS 229. The reasons for using an alternative back-analysis procedure shall be clearly stated.

(9) When the FWD survey has been carried out the information in Table 4.53, CS 229 shall be reported. Any additional reporting and/or processing of FWD data shall be undertaken in accordance with the relevant National Application Annex.