National Asset Delivery

Technical Surveys and Testing

Works Information for 603426 M5 J25 MP206.7&8 Blackbrook IC North and South Decks – Trial Holes and Soil Contamination Testing

CONTENTS AMENDMENT SHEET

Amend. No.	Revision No.	Amendments	Initials	Date
0	0	Original version issued with tender	ET	27/01/21

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LIST OF ANNEXES

1 DESCRIPTION OF THE WORKS

1.1 Project objectives

1.1.1 The principle objective of this project is

(1) To undertake the trial holes at the locations shown on drawings HE603426-KIER-VGN-M5_BR_1856-SK-CB-0101 and HE603426-KIER-VGN-M5_BR_1857-SK-CB-0101 to allow samples to be taken for soil contamination testing in accordance with the details outlined in the specification.

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

1.2 Scope of works

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

(1) Undertake 4no trial holes (2 per structure) shown on drawings HE603426-KIER-VGN-M5_BR_1856-SK-CB-0101 and HE603426-KIER-VGN-M5_BR_1857-SK-CB-0101 to allow soil contamination testing to be carried out (8no samples). These 4no proposed holes are to be completed in the soft estate. However, the contractor should ensure suitable equipment/tools are available to complete the excavations. Soil contamination testing should be completed in line with the details set out in section 6 and Appendix A

(2) Undertake 16no trial holes (8 per structure) shown on drawings HE603426-KIER-VGN-M5_BR_1856-SK-CB-0101 and HE603426-KIER-VGN-M5_BR_1856-SK-CB-0101 to measure the depth of surfacing over the deck joint upstands.

(3) Report back results/findings of all trial holes including contamination testing results in accordance with section 6 – specification of works.

(4) The contractor is to ensure that on completion of all excavation works the trial holes are infilled and compacted properly up to existing level before the TM is removed. Any excavated material taken from the central reservation should be set aside and reused for infill in accordance with Section 6 – specification of works.

1.3 Deliverables

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

(1) Trial Pits – Central Reservation - The contractor is to provide detailed description and geometrical dimensions of the trial pits (with photos) and confirm the depths that each sample was taken at for contamination testing. If any ducts, STATs or other features are

identified within the trial hole then is should be documented with measurements including the following:

i. Exact location of trial holes
ii. Diameter
iii. Colour
iv. Number of ducts
v. Depth
vi. Distance from parapet edge beam or other fixed reference point.
vii. Photos (File to be named with location of taken photograph)
viii. Sketches
ix. Type of material excavated (soil, stones, subbase, dry mix concrete, concrete etc.)

(2) Trial Pits – Carriageway - The contractor is to provide detailed description and geometrical dimensions of the trial pits (with photos) and confirm the depths of surfacing.

i. Exact location of trial holes in relation to the deck movement joint
ii. Overall dimensions of trial holes
iii. Depth
iv. Distance from parapet edge beam or other fixed reference point.
v. Condition of waterproofing
vi. Photos (File to be named with location of taken photograph)
vii. Sketches
viii. Type and layer depth of material excavated (bituminous road surfacing, sand carpet etc)

2 EXISTING INFORMATION

Refer to the site information documentation for further details not covered below.

2.1.1 Existing STATS

Motorway Communication cables located in the Southbound carriageway verge

Note: the successful survey contractor should consult with the Principal Contractor of the M5 Queue Detection scheme during mobilisation to determine if any new services have been installed as part of the works but not noted on the STATS returns yet.

See drawings HE603426-KIER-SBR-M5_BR_1856-DR-CB-010003 and HE603426-KIER-SBR-M5_BR_1857-DR-CB-010003 for more information on the existing STATS

2.1.2 Asbestos

The initial AAP's for Blackbrook Interchange North and South were completed in March 2010. There were further Asbestos Management surveys completed

in October 2016 on the centre reservations on both structures, then additional testing was completed on the remainder of the structures in July 2018.

Identified ACMS include a bitumen coating at the back of the bearing shelf which tested positive as an ACM.

Presumed ACM's include a number of drainage features on both the North and South structure that were excluded from the survey as they were blocked.

2.1.3 **Tar**

PAK testing has been carried out previously on Blackbrook Interchange North, North bound carriageway. Additional testing is proposed as part of this survey.

The Drawings listed below apply to this contract

Existing As-builts

Scheme Drawings

Drawing Number	Title	Rev
HE603426-KIER-SBR-M5_BR_1856-DR-CB-010001	Blackbrook Interchange North – Location Plan	C1
HE603426-KIER-SBR-M5_BR_1856-DR-CB-010003	Blackbrook Interchange North – Statutory Undertakers Plant	C1
HE603426-KIER-VGN-M5_BR_1856-SK-CB-0101	Blackbrook Interchange North – CCTV Drainage Survey, Asbestos Testing, Trial holes and Soil Contamination	C1
HE603426-KIER-SBR-M5_BR_1857-DR-CB-010001	Blackbrook Interchange South – Location Plan	C1
HE603426-KIER-SBR-M5_BR_1857-DR-CB-010003	Blackbrook Interchange South – Statutory Undertakers Plant	C1
HE603426-KIER-VGN-M5_BR_1857-SK-CB-0101	Blackbrook Interchange South – CCTV Drainage Survey, Asbestos Testing, Trial holes and Soil Contamination	C1

3 CONSTRAINTS ON HOW THE CONTRACTOR PROVIDES THE WORKS

3.1 General

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

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

3.1.3 The *Contractor* submits information detailing how the *Contractor* will provide the Works to the *Employer* prior to the *works* commencing. This information will include any lifting plans, risk assessments, method statements, the *Contractor'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 are anticipated to be 21:00-05:00, working under a series of lane closures with a temporary speed limit of 50mph. The anticipated working hours are dependent on the carriageway traffic counts.

3.2.2 **Work Constraints**

(1) Blackbrook Interchange North and South carries the M5 over J25 at Taunton. The local authority manages the roundabout under the structure. As such, the local authority should be made aware of the proposed works before starting on site.

(2) On and off slips for Junction 25 are in close proximity to the worksite and may require closing. The *Employer* will confirm requirements following discussions with allocated contractors.

(3) The method of works used for the survey should eliminate any risk of material or equipment falling from the bridge onto the carriageway below. Special care and measures are to be implemented when working directly adjacent to the bridge joints (transverse and longitudinal), in the carriageway.

3.3 Health, Safety and Environment & Risk Management

Health and Safety requirements

3.3.1 In Providing the Works the *Contractor* meets the requirements of Annex 2 of the supplementary constraints in relation to health and safety duties.

3.3.2 When implemented, the *Contractor* 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 is included as part of the TST package.

3.3.4 Before commencing the construction phase of the *works*, the *Contractor* confirms to the *Employer* that adequate welfare facilities are in place. Where the facilities detailed in section 5 are not deemed adequate, the *Contractor* provides all necessary facilities to Provide the Works and to comply with the minimum requirements set out in HSE guidance document L153.

Environmental requirements

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

(1) Currently the area is clear due to vegetation clearance undertaken for the queue detection scheme. However, areas within the footprint of the surveys have the potential to support dormice and nesting birds (depending on the time of year the survey works are carried out). The surveying contractor is to consult with the *Employer* during mobilisation to confirm if the vegetation needs re-cutting and if there are any specific restrictions/constraints once a survey date is confirmed.

Risk Management

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

3.3.7 The *Contractor* submits a risk register, which captures all risks associated with the delivery of the *works* including those identified by the *Employer*, with his tender and maintains it for the contract period.

The contractor should refer to the Pre-construction information and Design Hazard Checklist and Risk Reduction Schedule provided as part of the TST package.

4 REQUIREMENTS FOR THE PROGRAMME

4.1.1 The *Contractor* submits programme to the *Employer* with his tender.

4.1.2 The *Contractor* Provides the Works 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 *Employer* (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) dates and times associated with the project, including the *starting date*, *completion date* & *Contractor'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) Adjacent site activities
(iv) When information will be provided back to Highways England

4.1.5 The *Contractor* updates the programme every week. The *Contractor* submits an updated programme to the *Employer* upon request.

5 SERVICES AND OTHER THINGS PROVIDED BY THE *EMPLOYER*

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

(1) A series of lane closures with a temporary speed limit of 50mph If works are being completed in the Hard shoulder/Lane 1 then Lane 2 should also be closed with Lane 3 open to traffic. If works are being completed in Lane 3 and the Central Reservation then Lane 2 should also be closed with traffic running in lane 1. A lane 3 closure should also be provided on the opposite carriageway when works are being completed in the Centre reservation.

(2) (2) Traffic management requirements will be finalised during mobilisation with the successful contractor.

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

(1) Welfare facilities will be provided by the principle contractor.

6 SPECIFICATION FOR THE WORKS

6.1.1 The *Contractor* shall undertake the works in accordance with:

MCHW Volume 5, Section 3, Part 4, Chapter 6 'Contract Documents for specialist activities – Ground Investigation – Specification – Pits and Trenches. 6.1.2

Exploratory holes in accordance with BS 5930:2015 – Ground Investigations.

GG184 – Highways England CAD and Data Standard.

6.1.2 Trial Pits – Central Reservation – Soil Sampling

The report should show the following information:

- The dates and location of where the trial pits were taken;
- Comment on the weather conditions;
- Trial pit photographic records should include one or more faces and the spoil heap; all photographs should include a suitable and legible reference board. Artificial or flash lighting is normally required and photographs to be time stamped as well;
- Trial pits are to be hand dug to avoid striking any unknown statutory services.
- These trial pits are to take samples for soil contamination testing
- Measurements are to include depth from ground level and the offset of each element as well as measurements from a fixed point.
- Any features found in the trial pits (ducts, cables, concrete etc.) that is not currently identified on the drawing should be highlighted within the trial pit logs with photos. Measurements should then be taken to a fixed point so this 'feature' can be located again in future.
- *Contractor* to produce a survey report to clarify the findings of the trial holes, including suitable cross section drawings/sketches to reference for the design and construction.

(i) Excavations shall be undertaken using the following methodology:

1. Prior to excavation clear vegetation if required, (currently the area is clear due to vegetation clearance undertaken for the queue detection scheme – see 3.3.5 for further detail);
2. Remove the top 100mm of topsoil
3. Carry out excavation to the specified depth. All subsoil must be kept in a separate pile from the topsoil.

(ii) Trial pit reinstatement:

1. 100mm – 1000mm depth – On completion of works, backfill trial pits with subsoil in layers no greater than 150mm thick and well compacted.
2. 0 – 100mm (soft verge) – Replace previously removed topsoil and lightly compact.

(iii) Soil testing (Standard Waste Suite (WM3)) – As shown below

- Date test carried out and when soil samples were taken (including weather conditions);
- Location of soil samples;
- Hazardous Classification report;
- List of contaminates tested for (See appendix A);
- The levels of contaminates presents in soil and whether they exceed the allowable threshold.

Location of samples

Sample ID/Trial Pit	Lab testing	Location Approximate – use to closest trial holes.	Depth	No of containers
TH-X North Bridge	**WM3**	**MP 206/7 North side of structure Within CR soft estate**	**300mm**	**2 x plastic tub, 1 x 250ml amber jar, 1 x 60ml amber jar**
TH-X North Bridge	**WM3**	**MP 206/7 North side of structure Within CR soft estate**	**1000mm (or as deep as possible)**	**2 x plastic tub, 1 x 250ml amber jar, 1 x 60ml amber jar**
TH-Y North Bridge	**WM3**	**MP 206/7 South side of structure Within CR soft estate**	**300mm**	**2 x plastic tub, 1 x 250ml amber jar, 1 x 60ml amber jar**
TH-Y North Bridge	**WM3**	**MP 206/7 South side of structure**	**1000mm (or as deep as possible)**	**2 x plastic tub, 1 x 250ml amber jar, 1 x 60ml amber jar**

		Within CR soft estate		
TH-X South Bridge	**WM3**	**MP 206/8 North side of structure Within CR soft estate**	**300mm**	**2 x plastic tub, 1 x 250ml amber jar, 1 x 60ml amber jar**
TH-X South Bridge	**WM3**	**MP 206/8 North side of structure Within CR soft estate**	**1000mm (or as deep as possible)**	**2 x plastic tub, 1 x 250ml amber jar, 1 x 60ml amber jar**
TH-Y South Bridge	**WM3**	**MP 206/8 South side of structure Within CR soft estate**	**300mm**	**2 x plastic tub, 1 x 250ml amber jar, 1 x 60ml amber jar**
TH-Y South Bridge	**WM3**	**MP 206/8 South side of structure Within CR soft estate**	**1000mm (or as deep as possible)**	**2 x plastic tub, 1 x 250ml amber jar, 1 x 60ml amber jar**

6.1.3 Trial Pits – Carriageway – Surfacing depths

The report should show the following information:

- These trial pits are to confirm the depth of surfacing over the bridge deck upstands and on the bridge deck, also to test the surfacing in the carriageway for the presence of tar
- The dates and location of where the trial pits were taken;
- Measurement of width of airgap between end of bridge deck and abutment
- Comment on the weather conditions;
- Trial pit photographic records should include one or more faces and the spoil heap; all photographs should include a suitable and legible reference board. Artificial or flash lighting is normally required and photographs to be time stamped as well;
- Measurements are to include depth from ground level and the offset from the kerb and parapet edge beam

- *Contractor* to produce a survey report to clarify the findings of the trial holes, including suitable cross section drawings to reference for the design and construction.

(i) Excavations shall be undertaken using the following methodology:

1. Prior to excavation clear any surface vegetation/debris
2. Saw cut and remove the top 40-50mm of the surfacing.
3. Carry out excavation to the specified depth.
4. PAK test surfacing sample
5. Sample to be sent for PAH Analysis if the PAK test is positive

(ii) Trial pit reinstatement:

1. Resurface and compact with suitable bituminous surfacing material. In accordance with MCHW series 1100 cl. 1105

(iii) Testing for the presence of tar using PAK marker spray and to be in accordance with PAK marker manufacturer's instructions.

Appendix A - Standard Sampling Suite (SSS)

	Determinand	Limit of detection	Unit
	Chromatogram (TPH)		
	pH		
	ACM Type		
	Asbestos Identification	0.001	%
Heavy Metals	Antimony	2	mg/kg
	Molybdenum	2	mg/kg
	Barium	10	mg/kg
	Zinc	0.5	mg/kg
	Selenium	0.2	mg/kg
	Nickel	0.5	mg/kg
	Mercury	0.1	mg/kg
	Lead	0.5	mg/kg
	Copper	0.5	mg/kg
	Chromium	1	mg/kg
	Cadmium	0.1	mg/kg
	Arsenic	1	mg/kg
	Chromium (Trivalent)	5	mg/kg
	Chromium (Hexavalent)	0.5	mg/kg
Hydrocarbons	Fuel Type	N/A	mg/kg
	Aliphatic TPH >C5-C6	1	mg/kg
	Aliphatic TPH >C6-C8	1	mg/kg
	Aliphatic TPH >C8-C10	1	mg/kg
	Aliphatic TPH >C10-C12	1	mg/kg
	Aliphatic TPH >C12-C16	1	mg/kg
	Aliphatic TPH >C16-C21	1	mg/kg
	Aliphatic TPH >C21-C35	1	mg/kg
	Aliphatic TPH >C35-C44	1	mg/kg
	Total Aliphatic Hydrocarbons	5	mg/kg
	Aromatic TPH >C5-C7	1	mg/kg
	Aromatic TPH >C7-C8	1	mg/kg
	Aromatic TPH >C8-C10	1	mg/kg

	Aromatic TPH >C10-C12	1	mg/kg
	Aromatic TPH >C12-C16	1	mg/kg
	Aromatic TPH >C16-C21	1	mg/kg
	Aromatic TPH >C21-C35	1	mg/kg
	Aromatic TPH >C35-C44	1	mg/kg
	Total Aromatic Hydrocarbons	5	mg/kg
	Total Petroleum Hydrocarbons	10	mg/kg
PAH speciated	Naphthalene	0.1	mg/kg
	Acenaphthylene	0.1	mg/kg
	Acenaphthene	0.1	mg/kg
	Fluorene	0.1	mg/kg
	Phenanthrene	0.1	mg/kg
	Anthracene	0.1	mg/kg
	Fluoranthene	0.1	mg/kg
	Pyrene	0.1	mg/kg
	Benzo[a]anthracene	0.1	mg/kg
	Chrysene	0.1	mg/kg