Highways England Company Limited

Area 12

Maintenance and Response Contract

Specification

CONTENTS AMENDMENT SHEET

Amend No.	Revision No.	Amendments	Initials	Date
0	0	Tender Issue	SOS	05/06/2020
1	1	Replaced references to “Service Information” with “Scope”	SOS	15/07/2020
2	2	• Various minor errors corrected: Replaced Contractor with *Contractor*, Service Manager spelling errors and changed to *Service Manager*, Changed ADAMR to GM701-ADAMr, Corrected inconsistent font sizes within paragraphs, Changes sub-Contractor to Subcontractor. Changes “his” to “its”.	SOS	29/07/2020

PREAMBLE TO THE SPECIFICATION

1. The Specification referred to in the Tender shall be the 'Specification for Highway Works', published by The Stationery Office (formerly HMSO) as Volume 1 of the Manual of Contract Documents for Highway Works, as modified and extended by the following:
   - Appendix 0/1: Contract-specific Additional, Substitute and Cancelled Clauses, Tables and Figures;
   - Appendix 0/2: Contract-specific minor alterations to existing Clauses, Tables and Figures;
   - The contract specific Numbered Appendices listed in Appendix 0/3;
   - Appendix 0/4: contains a list of Drawings;
2. The relevant publication date of each page of the Specification for Highway Works is given in the Schedule of Pages and Relevant Publication Dates in Table 0/1.
3. An Additional Clause as indicated by a suffix 'AR' in Appendix 0/1 is a Contract-specific alteration.
4. A Substitute Clause as indicated by a suffix 'SR' in Appendix 0/1 is a Contract-specific alteration.
5. A Cancelled Clause indicated by a suffix 'CR' in Appendix 0/1 is a Contract-specific alteration.
6. Insofar as any of the Numbered Appendices may conflict or be inconsistent with any provision of the Specification for Highway Works the Numbered Appendices shall always prevail. Additionally, Appendices 0/1 and 0/2 shall take precedence over Numbered Appendix 0/5.
7. Any reference in the Contract to a Clause number or Appendix shall be deemed to refer to the corresponding Substitute Clause number or Appendix listed in Appendix 0/1 or 0/2.
8. Where a Clause is altered any original Table/Figure referred to in the Clause shall apply unless the Table/Figure is also altered. Where a Table/Figure is altered any reference in a Clause to the original Table/Figure shall apply to the altered Table/Figure.
9. Where a Clause in the Specification relates to work goods or materials which are not required for the Works it shall be deemed not to apply.
10. Any Appendix referred to in the Specification, which is not used shall be deemed not to apply.
11. Any reference in the Contract or Specification to a British or European Standard or Code of Practice is deemed to refer to the latest update, revision or superseded version current at the date of tender.
12. Other than where references to the Overseeing Organisation are made in the context of the Overseeing Organisation granting statutory or type approvals, the roles and functions of the Overseeing Organisation shall be undertaken by the *Service Manager*. Where the Specification requires the provision of documentation to the Overseeing Organisation for statutory or type approval such documentation shall be provided to the *Service Manager*.
13. For references to the *Contractor*, the roles and functions of the *Contractor* shall be undertaken by the *Contractor*.
14. If the Specification is used in conjunction with a Contract under which the *Contractor* is responsible for the design of any part of the Permanent Works, the delegation of the roles and functions of the Overseeing Organisation as stated in paragraph 12 above shall be amended as follows:

- If any agreement, consent or approval required to be obtained from the *Service Manager* impacts on the health and safety of the general public, the environment or any property or equipment not owned or operated by the *Contractor* or the Design Build Finance and Operate concessionaire, such agreement, consent, approval shall be obtained from the *Service Manager*.

Where the Specification provides for the Overseeing Organisation to require test, waive the requirement for a test or alter testing frequency, the party to whom the *Service Manager*'s roles and functions have been ascribed by paragraph 12 shall exercise such decisions in accordance with the above construction requirements/employer's requirements stated in the Contract.

15. Where Standards and other documents are incorporated into the Contract by reference the respective edition used shall be that which is current on the date on which the Final Tender Submission shall be submitted unless otherwise stated in the Specification.
16. British Standards and British Standard Codes of Practice incorporated in this Contract by a reference which does not include a date shall be the respective editions current on the date on which the Final Tender Submission shall be submitted.
17. References to the Works Package/Works Instruction means:
    - The *Contractor*s Accepted Plan to Provide the Services or
    - An instruction to undertake works from the *Service Manager*.
18. Reference to GM701-ADAMR means reference to GM701 Asset Delivery Asset Maintenance Requirements.
19. References to the Works/Work shall have the same meaning as Services/Service where applicable.

Table 0/1 Schedule of Pages and Relevant Publication Dates

Series / Appendix	Page Number	Publication Date
000	1 to 3	May 2014
000	6 to 7F	February 2016
000	4 to 5	July 2019
100	1 to 2, 4 to 9, 12 to 29F, WF1, N2 to N11F	May 2014
100	3, 10 to 11, N1	December 2014
200 300 300 300	1 to 3F 1 4 2 to 3, 5 to 6F	February 2016 May 2001 November 2002 May 2008
400	1 to 24F	May 2017
500	23 to 24, 26	November 2004
500	28F	May 2005
500	3, 22, N1F	May 2006
500	2, 5, 27	November 2006
500	6, 25	November 2007
500	1, 4, 7 to 21	November 2009
600	1 to 68, 70 to 77F, S1 to S4F, W1 to W4F, N1 to N5F	February 2016
600	69	February 2017
700	1 to 36F, N1 to N6F	February 2016
800	1 to 31F	February 2016
900	1 to 3, 5 to 7	May 2018
900	4, 8 to 79F	July 2019
1000	1 to 45F	February 2016
1100	N1F	November 2006
1100	3	August 2008
1100	1 to 2, 4 to 6F	February 2017
1200	5	May 2001
1200	2 to 3, W1F	August 2003
1200	1, 14 to 16F	May 2004
1200	4, 9 to 11, 13	May 2005
1200	12	November 2006
1200	6 to 7, N1 to N4F	November 2007
1200	8	May 2008
1300	N2F	November 2003
1300	3 to 4	November 2004
1300	1, 5 to 10, 12F	November 2005
1300	2, 11 and N1	May 2006
1400	2, N1F	May 2001
1400	1, 3 to 9F	May 2006
1500	1 to 31F	February 2017
1600	1, 4 to 5, 9, 15, 17 to 18, 24 to 26, 29 to 31, 35, 38, 49F	March 1998
1600	2, 6 to 8, 10 to 14, 16, 19, 27 to 28, 32 to 34, 36 to 37, 39 to 42, 44 to 48	November 2003
1600	3, 20 to 23, 43	November 2005
1700	1 to 27F	December 2014
1800	1 to 35F	August 2014
1900	1 to 35F, S1 to S2F	August 2014

2000	1, 3 to 4F	May 2001
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2100	1 to 2F	February 2016
2300	1	March 1998
2300	2 to 3F	May 2001
2400	1, 4, 7F	May 2005
2400	2	May 2006
2400	3, 5 to 6	May 2008
2500	1	May 2001
2500	2, 8, 11F	November 2003
2500	10	November 2004
2500	6 to 7, 9	May 2005
2500	5	May 2006
2500	3 to 4	November 2006
2600	1	March 1998
2600	2 to 4	November 2003
2600	5	November 2004
2600	6	May 2005
2600	7F	November 2006
3000	4 to 7, 10, 12 to 17, 19, 22 to 27F	May 2001
3000	20	November 2004
3000	2 to 3	May 2006
3000	8 to 9, 11, 18, 21	May 2008
5000	1, 4 to 19F, S1F	May 2005
5000	2 to 3	November 2008
Appendix A	1 to 4F	May 2014
Appendix B	1 to 3F	May 2014
Appendix C	1 to 2F	May 2014
#Appendix D	1F	May 2014
Appendix D (NI)	N1F	May 2014
Appendix E	1F	May 2014
Appendix F	1 to 54F	July 2018
Appendix G	Not used	
Appendix H	1	May 2004
Appendix H	2	November 2005
Appendix H	3	November 2006
Appendix H	4 to 9F	November 2008

APPENDIX 0/1: CONTRACT - SPECIFIC ADDITIONAL, SUBSTITUTE AND CANCELLED CLAUSES, TABLES AND FIGURES INCLUDED IN THE CONTRACT

PART A: VOLUME 1 SPECIFICATION

List of Additional Clauses, Tables and Figures

Clause No (etc.)	Title	Written on Page No
3075AR	Special Ecological Measures	35

List of Substitute Clauses, Tables and Figures

Clause No. (etc.)	Title	Written on Page No. following
946SR	Local Repairs	27
947SR	Depressions	29
1526SR	The Inspection and Testing of Electrical Installations	42

List of Cancelled Clauses, Tables and Figures

Clause No. (etc.)	Title
None	

Additional Clauses, Tables and Figures

Clause No Title & Written Text

SERIES 100 Preliminaries

171 AR Mobile Elevating Work Platforms

1. Where the *Contractor* utilises Mobile Elevating Work Platforms (MEWPs) to Provide the Services, the *Contractor* shall comply with the requirements of this Clause.
2. MEWPs shall comply with the requirements of BS EN280:2001 and with the codes of practice and other requirements listed in Appendix 1/17. Further, when required to be used on or adjacent to the highway, each MEWP shall comply with the requirements of Appendix 1/17.
3. Operators of MEWPs shall wear protective clothing and equipment in accordance with Appendix 1/17. This shall include the use of full body harness, where applicable, in accordance with BS EN 361 and lanyard in accordance with BS EN 254 or fall arrest lanyard BS EN 355.
4. Where specified in Appendix 1/3 MEWPs shall be equipped with a means of communication for the *Contractor*'s use which shall be fully compatible with the Overseeing Organisation's system and shall operate on the same frequency. Such equipment shall be made available to the *Service Manager* when so requested.

172 AR Temporary Access Scaffolding

1. All scaffolding provided shall comply with the requirements of the following:
    I. Common Scaffold – BS12811 – 1 :2003;
    II. Suspended Scaffold – BS 5974;
    III. Special Scaffold Structures – BS 12811 – 1 :2003
2. Scaffolding work shall be undertaken under the immediate supervision of a competent person with adequate experience of this type of work.
3. A method statement describing the proposed methods of access and sheeting shall be submitted by the *Contractor*, in writing, at least 7 days before it is programmed to be used. When the scaffold is complete, certification stating the time and date the scaffold is ready for use shall be maintained.
4. The imposed load adopted in the calculation shall be not less than 2.0kN.m$^{2.}$ Wind loading shall also be considered.
5. Full details of the safe working load shall be attached to the scaffolding giving details of the correct distribution of personnel, plant and materials and the allowable depth of debris.
6. If suspended access scaffolding supported on the Temporary Support Steelwork has been included by the *Contractor* in his proposed methods for executing the Works, it shall be in accordance with sub-Clause 1870AR.10.

7. The elevation area to be used in calculating the horizontal transverse wind force on the temporary access scaffolding shall be the total length of the access scaffolding multiplied by its overall height.

8. The *Contractor* shall be responsible for the design of all temporary access scaffolding where it overhangs any public access and or private property and for obtaining 'Technical Approval' (TA) by completing the 'Approval In Principle' (AIP) document in accordance with 'The Department of Transport, Design Manual for Roads and Bridges, Standards – Bridges and Structures BD 2/05'. Any 'Departures from Standard' that may be required should be detailed on the standard form and attached to this AIP. Examples of a partially completed AIP and a Departure from Standard form are included in Appendix 1/72.

9. On full completion of all parts of the AIP which are shown "To be completed by the *Contractor*" to the agreement of the *Service Manager*, then the *Contractor* shall submit the agreed AIP and its attachments to the *Service Manager*. The *Service Manager* will then check for compliance with the Contract scheme, sign and issue the AIP to the TA Authority (TAA). The *Contractor* shall allow in his programme 5 full working weeks from receipt by the *Service Manager* of the agreed AIP and Departures from Standard for the TAA to approve and sign these documents.

   If there are no 'Departures from Standard' required for the design of the temporary access scaffolding, the time period for approval may be reduced to 3 full working weeks.

10. On obtaining the approved and signed AIP document from the TAA, the *Contractor* shall commence the detailed design and drawings.

11. The *Contractor* shall only submit to his checking team (as stated within the approved AIP) a full set of detailed drawings prepared by the design team, i.e. no design calculations are to be passed to the checking team. The checking team is then to carry out a 'Category II' level of check as defined in BD 2/05Part 1. The checking team is to carry out the check independently, with only the necessary consultation and will produce their own separate design calculations.

    The check team will not be required to submit the detailed drawings or their design calculations with the 'Check Certificate D' but must contain a schedule of such drawings.

12. A 'Design Certificate C' and a 'Check Certificate D' must be completed and signed by the respective team leaders in accordance with BD 2/05 Part 1. Both certificates must each be countersigned by a director of the *Contractor* (or a representative who has the written authority to sign on behalf of the *Contractor*). The certificates are to generally follow the form shown in the examples given in Appendix 1/72.

13. The *Contractor* should note that the adequacy of the whole and all parts of the structure including any foundation bases, at all stages of installation, will require being underwritten.

14. In the event that a scaffolding Subcontractor is employed by the *Contractor* and the certificates are completed by this Subcontractor , they must be countersigned by a director of the employing *Contractor*, as detailed above.

15. The design and check engineers shall be appropriately qualified, that is Chartered, or of equivalent professional status, civil or structural, and the scaffolding Subcontractor shall be a member of the National Association of Scaffolding *Contractor*s or otherwise produce evidence of competence and experience.

16. The *Contractor* shall submit the original signed documents to the *Service Manager*, who will pass these onto the TAA, as follows:-

    I. Design Certificate C

    II. Check Certificate D

III. Additional Departures from Standard (if required)

17. If during the design or at the checking stage any further Departures from Standard are required, a revised AIP shall be submitted, to include these departures. The *Contractor* shall allow in his programme a minimum of 4 full working weeks from receipt by the *Service Manager* of any revised AIP and the Design and Check Certificates, for the TAA to approve and sign all these documents.

18. If there are no additional Departures from Standard then no revision to the AIP is required and only the two certificates are to be submitted to the *Service Manager*, who will issue them to the TAA. The *Contractor* shall allow in his programme a minimum of 2 full working weeks from receipt by the *Service Manager* of the Certificates for the TAA to approve and sign these documents.

19. No work on site shall commence until the TAA has approved and signed the Design and Check Certificates.

20. In addition to the above, the *Contractor* shall submit detailed drawings, design calculations and a fully detailed method statement for the installation and removal of all temporary access scaffolding, to the *Service Manager* for approval 3 full working weeks before work commences on site.

173AR Statutory Undertakers Special Requirements

1. Statutory Undertakers special requirements can be found in Appendix 1/16 of the Works Information.

174AR Sweeping and Cleaning

1. The *Contractor* shall be responsible for the sweeping of the Affected Property to the standards as set out in the following paragraphs, GM701-ADAMR.

2. The grades of cleanliness to be achieved by the *Contractor* for any sweeping activities issued by the *Contractor* shall be in accordance with the Code of Practice for Litter and Refuse 2006 (CoPLR) and as summarised below;

   Grade A: - No detritus
   Grade B: - Predominately free of detritus except for some light scattering
   Grade C: - Widespread distribution of detritus with minor accumulations
   Grade D: - Heavily affected by detritus with significant accumulations

3. For each Works Instruction issued by the *Service Manager* the *Contractor* shall ensure on completion of any sweeping activities the following standard is achieved;

   Grade A: - All paved areas including carriageways, roundabouts, central reservations, hard shoulders, hard strips, channels, nose, paved verges and footways.

4. For each Works Instruction the *Service Manager* shall inform the *Contractor* of;

   - the current cleanliness grading of the area to be swept (cl.4000.2) and
   - the cleanliness grading to be achieved after sweeping (cl.4000.3)

5. The *Contractor* shall agree a schedule of works with the *Service Manager* to maintain areas of the Affected Property at the levels stated above and where instructed by the *Service Manager* will undertake any sweeping to return the affected areas to the desired level of cleanliness within a period agreed with the *Service Manager*.

6. The *Contractor* shall note sweeping should not be undertaken where salting / gritting operations have recently been undertaken.
7. The *Contractor* shall notify the *Service Manager* immediately of any fly tipping and/or waste (hazardous and/or asbestos) found during sweeping activities. Where such waste is located the area will be made safe immediately by the *Contractor* and take to an approved tip licenced to accept such waste. The *Service Manager* shall issue a further Works Instruction for the removal of this waste.
8. The *Contractor* shall note the content of Section 10 of the Scope – Network Occupancy.
9. The *Contractor* shall implement a reporting procedure to monitor the performance and output of all sweeping activities. This procedure should utilise the capabilities of a GPS tracking device and report on a daily basis to the *Service Manager*.
10. The *Contractor* shall note that no licensed waste facilities will be provided by the *Service Manager*.
11. The *Contractor* is required to provide the *Service Manager* with copies of all Waste Transfer Notes giving details of estimated weights for any waste movement involving the use of the sweeper arising's. All waste transfer notes should be completed accurately including all relevant information (date, vehicle registration, material, location of collection and disposal location/time,).
12. Where, instructed by the *Service Manager*, the *Contractor* shall be responsible for the safe application of a weed control treatment to the affected property whilst undertaking sweeping activities.
13. Unless otherwise agreed with the Service Manger the application of a weed control treatment shall be applied during Spring and Autumn every year between both of the time periods stated below;
    - Spring application 1st May – 15th June
    - Autumn application 15th August – 15th September
14. Two weeks in advance of commencing weed treatment the *Contractor* shall submit to the *Service Manager*, for approval, the proposed treatment type and method of application. The *Contractor* shall be responsible for ensuring that the chosen method of control and method of application is effective in controlling weed growth in the treated areas.
15. The *Contractor* shall treat all hard surfaces within the identified areas including kerb front and top lines, back edges of footpaths and pavements with a boundary wall or enclosed boundary fencing and paved areas including front face and paving blocks.
16. The *Contractor* shall provide the *Service Manager* with daily reports of areas sprayed and complete whilst weed spraying operations are in progress.

175AR Litter Picking

1. The *Contractor* shall be responsible for the removal of all litter from the Affected Property to the standards set out in the following paragraphs, the GM701-ADAMR.
2. The grades of cleanliness to be achieved by the *Contractor* for any litter picking activities shall be in accordance with Code of Practice on Litter and Refuse 2006 (CoPLR) and as summarised below;
    - Grade A: - No litter or refuse
    - Grade B: - Predominantly free of litter and refuse apart from some small items
    - Grade C: - Widespread distribution of litter and/or refuse with minor accumulations

- Grade D: - Heavily affected by litter and/or refuse with significant accumulations

3. The *Contractor* shall ensure on completion of any litter picking activities the following standards are achieved;

   - Grade A: - All paved areas including carriageways, roundabouts, central reservations, hard shoulder, hard strip, nose, traffic islands, paved verges and footways.
   - Grade A: - Roundabouts, lay-bys, including approach and slip road verges
   - Grade A: - Amenity Areas
   - Grade B: - All grassed verges

4. For each Works Instruction the *Service Manager* shall inform the *Contractor* of;

   - the current cleanliness grading of the area to be litter picked (cl.4000.2) and
   - the cleanliness grading to be achieved after litter picking (cl.4000.3)

5. The *Contractor* shall agree a schedule of 'cyclic' works with the *Service Manager* as defined in the GM701-ADAMR to maintain areas of the affected network at the levels stated above and where instructed by the *Service Manager* will undertake litter picking 'repair works' to return the affected areas to the desired level of cleanliness within a period agreed with the *Service Manager*. The *Contractor* shall ensure that all litter picking is completed in advance of any grass cutting activities

6. The *Contractor* shall note that for the avoidance of doubt, litter is deemed to include anything up to and including 1 cubic metre of material in any discrete location.

   Litter examples would include:
   - Dead animals (road kill)
   - Dog/ animal faeces
   - Cigarette waste & cigarette packets
   - Beverage and drinks containers
   - Food containers or utensils
   - Publications, magazines and newspapers
   - Shopping and other bags
   - Illegal deposits of bagged commercial and household waste
   - Removal of fallen branches, wood, metal and plastic objects
   - Other similar waste types up to 1 cubic meter

7. The *Contractor* shall during any litter picking operation;

   - Remove any hazardous litter which would include: blood, urine, body fluids, drug related materials etc.
   - Weeds and plant growth on the affected property

8. The *Contractor* shall note that litter picking of any part of the Affected Property may include litter removal from;

   - bridges,
   - steps,
   - subways,
   - uneven ground/slopes,

9. The *Contractor* shall note that where possible dead cats, dogs and obvious pets are to be kept, and they are to be scanned for any microchips (and owners are to be notified) and the dead animal stored in a suitable container (working freezer) for a period of one week to allow owners to claim the carcass. The *Contractor* in providing this service shall be responsible for

the provision of adequate scanning, storage and disposal facilities for dealing with such animals.

10. The *Contractor* shall agree a schedule of works with the *Service Manager* to ensure cleanliness levels are maintained to an acceptable standard throughout the duration of the Contract and that all litter picking is completed in advance of any grass cutting activities.
11. The *Contractor* shall notify the *Service Manager* immediately of any fly tipping and/or waste (hazardous and/or asbestos) found during litter picking activities. Where such waste is located the fly tipping is to be removed to a licenced tip approved to accept such material and the area will be made safe immediately by the *Contractor*. The *Service Manager* shall issue a further Works Instruction for the removal of this waste.
12. The *Contractor* shall check any littering which indicates the name of the person or organisation which may be responsible for its origin; photograph and record as evidence the litter and notify the *Service Manager* of the findings within five working days.
13. Whilst undertaking litter picking activities the *Contractor* shall in his custodian role note any defects to the Affected Property that may affect the Affected Property's performance; and report the defect to the *Service Manager*.

176 AR Minor Fly Tipping

1. The *Contractor* shall be responsible for the removal of all minor non-hazardous fly tipping from the affected property in accordance with the guidance stated in the following paragraphs, the GM701-ADAMR.
2. The *Contractor* shall note that "minor fly-tipped" is deemed to include anything up to and including 3 cubic metres of material in any discrete location 'which could be lifted by two people.
3. On receipt of a Works Instruction from the *Service Manager*, the *Contractor* shall clear the affected area within 5 working days of receiving the Works Instruction and dispose of the waste at a registered waste facility.
4. Fly-typing which indicates the name of the person or organisation which may be responsible for its origin shall be photographed and recorded as evidence and notified to the Coordinator the same working day.
5. The *Contractor* shall notify the *Service Manager* on the same working day, of any fly-tipping which in his opinion is outside the scope of minor fly tipping. Where fly tipping is reported or found that cannot be removed (fly tipping more than 3m3 or hazardous materials the *Contractor* shall remove the waste in accordance with clause 4003.

177AR Fly Tipping

1. The *Contractor* shall be responsible for the removal and disposal of fly tipping (waste deposits over 3m3 or where it is deemed to be hazardous) from the Affected Property in accordance with the guidance stated in the following paragraphs, the GM701-ADAMR.
2. On receipt of a Works Instruction from the *Service Manager*, the *Contractor* shall clear the affected area within 5 working days of receiving the Works Instruction and dispose of the waste at a registered waste facility. For any identified hazardous waste the *Contractor* shall provide appropriate signing and guarding to protect the site until the waste is cleared.
3. Prior to commencing the removal of any hazardous waste the *Contractor* shall confirm to the *Service Manager* in writing the proposed disposal facility to be used for the cleared waste.

All disposal facilities to be used must be registered for the management of hazardous waste products.

4. The *Contractor* is responsible for the completion, liaising and managing the process for the removal of hazardous waste, including any correspondence with statutory bodies i.e. Environment Agency.

178AR Litter Bins

1. The *Contractor* shall be responsible for the emptying of all litter and dog faeces bins on the Affected Property and the disposal of all subsequent waste and replacement of all bin liners.
2. The *Contractor* shall agree with the *Service Manager* a programme of emptying activities within the 'cyclic' works programme to ensure all bins are emptied prior to them overflowing or causing littering or a nuisance /safety issue (odours etc.).
3. The *Contractor* shall note that frequencies of empties shall be determined by the *Service Manager* and that any programme of emptying shall be developed and amended as usage of the bins is assessed throughout the duration of the contract.
4. The *Contractor* shall maintain a schedule of all bins emptied detailing;
    - Location
    - Type of Bin
    - Date of empty
    - Condition of Bin

5 The *Contractor* shall report to the *Service Manager* within 24 hours any bin that is no longer considered fit for purpose and shall replace the bin on receipt of a Works Instruction from the *Service Manager* within five working days.

6 Any bin that is found to be overflowing or causing littering or a nuisance issue (odours etc.) by the *Service Manager* shall be emptied within 24 hours from date of receipt of the Works Instruction.

7 The *Contractor* shall in his custodian role note any bin that is overflowing or causing littering or a nuisance issue (odours etc.) and make the necessary arrangements to empty the bin either immediately or within 24 hours; reporting the defect to the *Service Manager* within 24 hours.

179AR Graffiti and Poster Removal

1 The *Contractor* shall be responsible for the removal of all graffiti and posters from the affected property as instructed by the *Service Manager*.

2 The *Contractor* shall note that only on receipt of a Works Instruction from the *Service Manager* shall any graffiti or posters be removed from the affected property.

3 On receipt of any Works Instruction to remove any item the *Contractor* shall agree a method of removal with the *Service Manager* and complete the removal within five working days. If the items contain abusive and/or offensive material, removal shall be completed immediately and/or within 24 hours.

4 The *Contractor* shall note that graffiti removal may involve hand cleaning, power 'jet' cleaning and/or 'painting' over.

5 The *Contractor* shall in his custodian role report any graffiti and/or posters found on the affected property to the *Service Manager* within 24 hours. Where possible the *Contractor*

shall, where the graffiti or posters indicate the name of the person or organisation which may be responsible for its origin; photograph and record the details as evidence; and present the details to the *Service Manager*.

180AR Precautionary Salting

1 The Specification requirements for precautionary salting, snow clearance and all severe weather events are set out in the Severe Weather Plan.

SERIES 400 Road Restraint Systems

471AR - Road Restraint System (RRS)

1 The *Contractor* shall be responsible for all RRS repairs on the affected property as instructed by the *Service Manager* to the standards set-out in the following paragraphs. This will include making safe of defects identified by the *Service Manager* during programmed RRS inspections and RRS damage following road traffic collisions (RTC).

2 All repair works shall be undertaken in accordance with Series 400 of the Specification for Highways Works. In particular the *Contractor* shall take note of the content of the following Clauses in providing this service;

- Clauses 401 and 402: - General Requirements.
- Clauses 403, 404 and 405: - Safety Fencing, terminals, Transition and Crash Cushions.
- Clauses 406, 407, 408, 409 and 410 - Vehicle Parapets
- Clause 411, Pedestrian Restraint Systems.

3 In particular the *Contractor* shall note the content of Clauses 401.4 and 401.5 concerning the need to provide a Certificate of Compliance to the *Service Manager* for any proposed vehicle restraint system to be used; plus the development of a Quality Plan in accordance with Clause 104 to support the provision of this service. Additionally the *Contractor* shall note the requirement that the following quality management schemes must be adopted for the provision of this service;

- NHSS Scheme 2B : The Supply, Installation, Maintenance and Repair of Vehicle Restraint Systems
- NHSS Scheme 5A : The Manufacture of Parapets for Road Restraint Systems
- NHSS Scheme 5B : The Installation of Parapets for Road Restraint Systems

4 For each Works Instruction the *Service Manager* shall provide the *Contractor* with a schedule of works in a format as shown in Appendix 4/1 Paragraph 5 of the Notes for Guidance for the Specification for Highway Works.

5 The *Service Manager* shall confirm on each Works Instruction the response time to repair the defective restraint system. This may include making the site safe through close coning/temporary barriers and/or temporary signing and/or temporary traffic management (lane closures) whilst works are programmed for another time when traffic flows are lower. In general, however, the following guidance shall be applied;

- High Risk Areas - Permanent repair within a period agreed with the *Service Manager*
- Medium Risk Areas - Permanent repair within a period agreed with the *Service Manager*
- Low Risk Areas – Permanent repair within a period agreed with the *Service Manager*

6 Unless otherwise agreed with the *Service Manager* no materials shall be reused for any repairs.

7 The *Contractor* is required to provide the *Service Manager* with copies of all Waste Transfer Notes giving details of estimated weights for any waste movement involving the disposal of RRS materials and in particular the percentage of the waste recycled. All waste transfer notes should be completed accurately including all relevant information (date, vehicle registration, material type, location of collection and disposal location/time).

8 In addition to providing a reactive ‘repair’ service the *Contractor* shall provide a ‘cyclic’ inspection including tightening or replacing screws and bolts and re-tensioning service to the following clauses the GM701-ADAMR.

9 The *Contractor* shall agree with the *Service Manager* a programme of ‘cyclic’ activities to ensure that the inspection and re-tensioning frequencies as stated in GM701-ADAMR.

472AR Tensioned Corrugated Beam Safety Barrier

1 Tensioned Corrugated Beam Safety Fence shall be re-tensioned in accordance with BS 7669: Part 3, Section 2.1 and to the frequencies stated in GM701-ADAMR .

2 At other times the *Service Manager* shall instruct the *Contractor* of each length where the slack shall be required to be removed.

3 Tensioning between any two limits shall not proceed until each limit shall be anchored sufficiently securely to resist the load effects due to tensioning.

4 At the boundaries of the Affected Property, retensioning shall be to the nearest adjuster or anchorage assembly outside of the Affected Property boundary.

5 Tensioning shall be undertaken only when the ambient temperature shall be between 25°C and -5°C.

6 Adjuster assemblies shall be located not more than 70.5 metres apart and each installation shall incorporate at least one adjuster assembly.

7 On completion of tensioning, the centre of each screw securing beams to posts shall not be closer than 25 mm ±2 mm to the end of the slotted hole in the beam.

473AR Wire Rope Safety Barrier

1 Wire Rope Safety Fence shall be re-tensioned in accordance with BS 7669: Part 3, Section 2.5., the GM701-ADAMR .

2 Only one rope between anchorages to be de-tensioned at any one time.

3 The tensioning between any two limits shall not proceed until each limit shall be anchored sufficiently securely to resist the load effects due to tensioning.

4 Tensioning shall be undertaken only when the ambient temperature shall be between 30°C and - 10°C.

5 Before tensioning the ropes the ambient temperature shall be agreed by the *Service Manager*.

6 The tension shall be measured using a tension indicating device approved in writing by the *Service Manager*.

7 Before putting the safety fence into service the tension in each rope shall be checked and it shall be re-tensioned if necessary.

474AR Tensioned Rectangular Hollow Section

1 Tensioning shall be carried out in accordance with BS 7669: Part 3, Section 2.4 at the frequencies stated in GM701-ADAMR .

2 At other times the *Service Manager* shall instruct the *Contractor* of each length where the slack shall be required to be removed.

3 Tensioning between any two limits shall not proceed until each limit shall be anchored sufficiently securely to resist the load effects due to tensioning and that the safety fence has been completely assembled and connected to the anchorages.

4 Tensioning shall be undertaken only when the ambient temperature is between 10°C and 20°C.

5 Tensioner assemblies shall be located not more than 70.5 m apart and each installation shall incorporate at least one tensioner assembly

SERIES 500 Drainage

571AR Maintenance of Gullies, Catchpits, Interceptors, Soakaways, Manholes and Oil Separators

1 Cleaning of gullies and covers, catchpits, interceptors, soakaways (including both priority and non-priority), manholes and oil separators shall be carried out in accordance with clauses 520 and clause 521.

2 The cleaning frequency for gullies and covers, catchpits, interceptors, soakaways, manholes and oil separators will be as stated in GM701-ADAMR.

3 The outlet pipe shall be jetted with clean water to ensure that it is flowing freely.

4 Polluted water shall not be used to jet, surcharge or to refill gullies.

5 All collected sediment debris and polluted water shall be disposed of at a licensed Special Waste Management Facility

6 Polluted water shall not be used to dislodge compacted materials in the gully pot if there is any risk of that water being discharged into the drainage system.

7 Oil separators shall be cleansed to avoid pollution.

8 On completion of cleaning each gully, the *Contractor* will spray a spot of paint in the corner of the gully grating. The colour of the paint shall differ for each cycle of cleaning.

9 Details of the Site Operations including the Scheme Identification, Operations Instruction, road name and number of gullies and chambers emptied and any Defects found in respect to blockages or damages to the drainage system or components together with the location of those Defects shall be recorded and delivered to the *Service Manager* within 5 working days.

10 Any damage or Defects to gullies chambers or components shall be repaired or made safe immediately if considered a danger to the public after an instruction from the *Service Manager*.

572AR Cyclic Maintenance of Drainage Grips and Counterfort Drains

1 Drainage grips shall be cut and maintained across verges such that free flow of water off the carriageway shall not be impeded and water does not stand on the carriageway adjacent to the drainage grip.

2 Care shall be taken not to disturb the soil beneath or alongside the drainage grip.

3 The cutting of new drainage grips shall be to the profiles required to allow for the discharge of surface water from the carriageway.

4 All arisings from the cutting of new drainage grips shall be removed to a licensed disposal facility unless it is appropriate to spread and level the arisings on the verge. Any arisings that are spread on the verge, will be spread only on the right hand side of the drainage grip.

5 The cleaning frequency of grips and counterfort drains shall be carried out in accordance with GM701-ADAMR.

573AR Maintenance of Linear Drainage Systems and Culverts

1 Cleaning of linear drainage systems shall include piped drains, culverts (less than 900mm in diameter), combined drainage and kerb systems, linear drainage channel systems, slot drains, kerb or channel outlet pipes and piped grips, and shall, when required, be carried out in accordance with Clauses 520, 521 and the following:

a. Additional cleaning may be carried out by drawing through a mandrel with a diameter 20mm less than the nominal diameter of the pipe or nominal minimum area of the "waterway area" of the block

b. Where necessary a root cutter attachment shall be used with the high pressure water jet where root infestation is apparent.

c. Any damage to drainage systems or components shall be repaired or made safe immediately if it is considered to be a danger to the public after an instruction from the *Service Manager*.

d. Any suction system used shall comply with Clause 576.

e. Where trash screens have been fitted across the ends of culverts, these will be cleared in accordance with the frequency stated in GM701-ADAMR, and the arisings disposed off site.

574AR Cyclic Maintenance of Filter Material

1 The location within the filter material of any obstruction that cannot be removed shall be recorded and the *Service Manager* informed.

2 The filter media of filter drains shall be loosened and all weed growth removed in accordance with Clause 3002(2).

3 The filter material shall be loosened to a minimum depth of 200mm over the full width of the drain so as to minimise retention of water within this depth.

4 Any build-up of detritus between the edge of the carriageway and the filter drain which impedes the free flow of water from the carriageway to the filter drain, shall be removed at the same time and disposed, off site at the frequency stated in GM701-ADAMR.

575AR Cyclic Maintenance of Drainage Structures (Ditches, Balancing Ponds, Swales, Basins, grassed Surface Water Channels etc.)

1 Balancing ponds and associated feeder pipes or ditches are provided for flood control and anti-pollution purposes and are sometimes situated some distance from Trunk Roads.

2 The *Contractor* shall pay particular attention when Providing the Service to the following issues and report any defects to the *Service Manager*:

- Silting, litter and debris causing a loss of storage capacity or impairment of operation,
- damage or erosion to the banks, walls or bunds,
- damage or obstruction to the outlet which affects or may affect the controlled rate of discharge, and
- safety aspects, including the maintenance of fences to prevent public access.

3 Balancing ponds and ditches can become important sites for nature conservation. Prior to any maintenance of a balancing pond or ditch, the *Contractor* shall consult the *Service Manager* to ascertain whether specialist environmental advice is required. The *Contractor* shall when instructed by the *Service Manager* carry out maintenance of balancing ponds and ditches in accordance with GM701-ADAMR and the following.

- Maintenance of balancing ponds shall include weed control in accordance with clause 3002 of the Specification.
- Amenity grass 35-50mm for access, paths and visual requirements

- Grass cut to pond edges, access and overflows 75-100mm and not to exceed 150mm
- Wetland, meadow or rough grass cut at 50mm and remove to wildlife or compost piles
- Cut pond vegetation if required and no more than 30% 100mm above pond base and remove to wildlife or compost piles
- Inspect and clear inlets, outlets and control structures
- Remove sediment from forebay structures if present and site apply subject to agreement with the EA
- Review silt accumulation and remove as required subject to agreement with the EA
- Removal of tree or shrub growth within 5m of pond edge
- Repair or replace inlets, outlets or control structures to design detail
- Ensure that each open end of the drainage structure including any ancillary drainage items is free of vegetation and other obstructions including any material disturbed during cleaning.
- Where the invert of any drainage structure at inlet and/or outfall is below the invert of an adjacent watercourse, the watercourse shall be excavated to the invert level of the drainage structure to facilitate flow from the drainage structure.
- The *Contractor* shall maintain a daily record sheet during cleaning operations giving drainage structure locations and any Defects found and the *Contractor* will make safe and report any situation considered a safety hazard to the *Service Manager*.
- All collected sediment debris and polluted water shall be disposed of to a licensed Special Waste Management Facility and shall take all necessary precautions to prevent contamination of adjacent watercourses or ponds.
- The *Contractor* shall maintain a record of any defects found during maintenance operations and shall report any hazards immediately to the *Service Manager*.

4. Cleaning of swales, basins, grassed surface water channels, reservoir pavements (with pervious surface) and wetlands, and their cleaning frequency shall be carried out in accordance with GM701-ADAMr.

5. A grass cut of the swale and the grassed areas of the basin shall be undertaken to maintain the grass sward between 100mm and 200mm in height. For all areas of the grassed surface water channel, the grass sward at a maximum of 75mm in height shall be maintained.

576AR Cyclic Maintenance of Ancillary Drainage Items

1 Ancillary drainage items shall be cleared of all vegetation and debris and shall be cleaned to remove all silt, loose obstructions and other detritus.

2 In the case of sluices, tidal flaps, penstocks, valves, pumps and other specialist equipment the *Contractor* shall check that all mechanisms are functioning as required and shall lubricate any moving parts in accordance with any manufacturer's written instructions.

3 The *Contractor* shall maintain a record of any defects found during maintenance operations and shall report any hazards immediately to the *Service Manager*.

SERIES 1200 Road Markings and Traffic Signs

1270AR Maintenance of Traffic Signs and Marker Posts

1 Traffic signs shall be maintained by cleaning the entire sign face and reference numbers, in accordance with CS125, and using methods recommended by the sign face manufacturer which do not damage the face.

2 Cleaning shall not be carried out when the ambient temperature is 2°C or less and falling or when the Operations are likely to result in the formation of ice on the footway or carriageway.

3 Cleaning operations to be undertaken in accordance with the Working at Height Regulations 2015, and all relevant Health and Safety regulations. Ladders shall not be leant against sign faces.

4 The *Contractor* shall maintain a daily record sheet during cleaning operations giving sign locations, and submit to the *Service Manager*.

5 Any damage or Defects to traffic signs shall be repaired or made safe immediately if considered a danger to the public following an instruction from the *Service Manager*.

1271AR Replacement of Road Markings

1 Road Markings shall be replaced following the completion of all construction operations, or as instructed by the *Service Manager*, within a period agreed with the *Service Manager*.

2 The *Contractor* shall be responsible for risk assessing the condition of the road surface programmed for road marking and/or road stud operations. If operations cannot commence for whatever reason the *Contractor* shall inform the *Service Manager* and the time restriction under sub-clause (1) reviewed.

SERIES 1300 Cyclic Maintenance of Road Lighting Units

1301AR Cyclic Maintenance of Road Lighting Units

1 The cyclic maintenance of road lighting units shall be carried out in accordance with TD 23/99 of the DMRB, and to the testing frequency stated in GM701-ADAMR.

The following tasks shall be undertaken

i. thorough cleaning of all photo electric control units luminaire external surfaces internal surfaces and any other components affecting the optical performance of the luminaire. The cleaning methods and materials shall be in accordance with Clause 1371AR. The *Contractor* shall ensure that the internal surfaces and any other components affecting the optical performance of luminaires with an ingress protection rating of IP65 shall not normally be cleaned. Cleaning materials shall not cause harmful effects to the range of materials and surfaces to be cleaned

ii. the degreasing lubrication and operation of all toggles wing nuts hinges door locks and any raising and lowering gear

iii. correct alignment of the bracket luminaire and luminaire optical equipment with respect to the carriageway.

iv. tightening of all grub screws locking devices and the like in accordance with the manufacturer's written instructions

v. a report of any damage or corrosion

vi. a report of any electrical component showing signs of overheating fracture condensation ingress of moisture or tracking

vii. the removal of the lamp(s) during the luminaire cleaning process. The lamp(s) to be refitted shall be the existing or new as appropriate

viii. replacement of lamps either by bulk replacement or individually following burn to extinction. (Bulk replacement required on motorways and dual carriageways with a speed limit in excess of 40 mph.)

ix. marking all new lamps indelibly with date of installation

x. identifying faults on any lighting unit which fails to operate or undertaking minor repairs or reporting such failure

xi. spraying of all isolated electrical components with a demoisturising spray.

xii. checking of all electrical connections any Defects shall be recorded

xiii. checking of all earthing connections any Defects shall be recorded

xiv. removal of all debris from 1 metre radius of column base or foundation

xv. cleaning of the column flange

xvi. repair of grouting

xvii. raising and lowering of columns including provision and operation of all necessary specialist equipment and

xviii. cleaning of all warning and numbering labels.

2 The electricity supply shall be isolated at the cut-out before lamp removal and fitting and all maintenance Operations.

3 Disposal of lamps shall be in accordance with Clause 1372.

4 All labour employed on electrical or associated Site Operations shall comply with the requirements of Appendix 14/71.

SERIES 1500 Maintenance of Roadside Technology

1570AR Maintenance of CCTV

1 Fixed Hard Shoulder Monitoring (HSM) cameras shall be maintained by ensuring the camera housing window is clean, where a wash / wipe facility is provided as part of the installation this system can be used to clean the camera housing window.

2 Cleaning materials and re-filling of wash / wipe reservoirs shall be undertaken using methods recommended by the equipment O&M manuals which do not damage the camera housing and wash / wipe system.

3 Cleaning operations to be undertaken in accordance with the Working at Height Regulations 2015, and all relevant Health and Safety regulations.

4 Inspection of winch and mast ropes shall be carried out as defined by the equipment O&M manuals, greasing of mechanisms and re-filling of oil baths shall use the materials specified or equivalent that will not damage the winch and mast rope assembly. Where braking systems are installed these shall be tested in accordance with the equipment O&M manuals. Any defects identified shall be made safe immediately if considered a danger to the public following an instruction from the *Service Manager*.

5 Repair / replacement of CCTV equipment shall be instructed by the *Service Manager*. Replacement equipment shall be tested and configured prior to its installation on site to ensure that once installed the correct camera identification is being displayed to the CCTV operator. All camera functions for the particular site including any infra-red facilities are to be tested following installation on site. Any Infra-red testing shall follow the requirements of the O&M manual and shall not include any direct visual exposure.

6 Re-alignment of HSM cameras on a link shall be instructed by the *Service Manager*. Cameras are to be aligned in line with the scheme HSM CCTV ‘Shot Book’ records from when the scheme was commissioned. Confirmation of alignment will be required from an ROC operator to complete the activity.

1571AR Maintenance of Telephones

1 Emergency Roadside Telephones (ERT) and All-Purpose Trunk Road Telephones (APTR) shall be maintained ensuring that the Exterior of the telephone housing and the interior of the Telephone pod are clean, and all labelling is clearly visible.

2 Cleaning materials used shall be in accordance with the equipment O&M manuals or equivalent to prevent damage to the plastics of the ERT housing and telephone handset.

3 Cleaning of the top of the telephone is essential to ensure the solar panel contained within the beacon can continue to charge the telephone battery.

4 Care should be undertaken when cleaning the internal of the telephone pod to ensure that liquid does not penetrate the earpiece or microphone.

5 Repair / replacement of ERT and APTR telephones shall be instructed by the *Service Manager*. Replacement of the complete unit or any other component part of the telephone (including GSM Telephones and SIM cards) shall be configured on site to correctly address the telephone. A ring in and Ring out test shall be performed with the ROC to confirm correct operation. All labelling shall be checked to ensure it is correct and clearly visible.

6 Any defects identified shall be reported to the *Service Manager*.

1572AR Maintenance of Environmental Sensor Stations

1 Environmental Sensor Stations (ESS) connected to the Highways England Severe Weather Information System (SWIS) shall be calibrated in accordance with the equipment manufacturers recommendations.

2 Any defects identified shall be reported to the *Service Manager*.

3 Repair / replacement of any component part of an ESS site shall be instructed by the *Service Manager*. Following replacement of any component part correct operation shall be confirmed with the Highways England National Winter and Severe Weather Team.

1573AR Maintenance of Meteorological Sites

1 Meteorological (MET) Sites connected to the ROC shall be maintained ensuring the Fog sensors are kept clean.

2 Cleaning materials used shall be in accordance with the equipment O&M manuals or equivalent to prevent damage to the sensor.

3 Repair / replacement of any component part of a MET site shall be instructed by the *Service Manager*.

1574AR Maintenance of Signals

1 Repair / replacement of MS1, Lane Control Signals and Advanced Motorway Indicators (AMI) shall be instructed by the *Service Manager*. Replacement of the complete Signal or any other component part or peripheral equipment shall be in accordance with the manufacturers O&M manual and configured on site to correctly address the signal.

2 Repair / replacement operations to be undertaken in accordance with the Working at Height Regulations 2015, and all relevant Health and Safety regulations.

1575AR Maintenance of Message Signs

1 Remote Operated Temporary Traffic Management Signs (ROTTM) shall be maintained by inspection and cleaning of battery connectors, changing batteries and cleaning sign Faces in accordance with the manufacturers O&M manuals. Ladders shall not be leant against sign faces. Any defects identified shall be made safe immediately if considered a danger to the public following an instruction from the *Service Manager*.

2 Fixed Text Message Signs (FTMS) shall be maintained by inspection, clean and grease motor assemblies and rotate sign prisms in accordance with O&M manuals. Greasing of motor assemblies shall use the materials specified or equivalent that will not damage the units. Any defects identified shall be made safe immediately if considered a danger to the public following an instruction from the *Service Manager*.

3 Repair / replacement of Message Signs shall be instructed by the *Service Manager*. Replacement of the complete Message Sign or any other component part or peripheral equipment shall be in accordance with the manufacturers O&M manual and configured on site to correctly address the sign.

4 Repair / replacement operations to be undertaken in accordance with the Working at Height Regulations 2015, and all relevant Health and Safety regulations.

1576AR Maintenance of Midas Equipment

1 Optimisation of Midas detectors (Loops and Radar) shall be in accordance with MCH 2584) and undertaken by Highways England. Any defects identified from this optimisation activity requiring roadside attendance shall be instructed to the *Contractor* by the *Service Manager*.

2 Repair / replacement of Midas equipment and detectors shall be instructed by the *Service Manager*. Replacement of any component part, cable, cable joint or peripheral equipment

shall be in accordance with the manufacturers O&M manual and configured on site to correctly address the equipment and associated detectors.

3 Inspection and testing of detector interfaces, components and sensitivity tests / changes to Midas Loop settings shall be instructed by the *Service Manager*.

4 Repair / replacement operations of Radar Heads on fixed poles is to be undertaken in accordance with the Working at Height Regulations 2015, and all relevant Health and Safety regulations.

1577AR Maintenance of NTIS Equipment

1 Repair / replacement of NTIS ANPR, TAME and TMU equipment shall be instructed by the *Service Manager*. Replacement of any component part, cable or peripheral equipment shall be in accordance with the manufacturers O&M manual and configured for correct site set up and to correctly address the site using the existing SIM card from the defective equipment.

2 Replacement of TAME or TMU Loops shall be in accordance with NTIS specification and guidance documentation and instructed by the *Service Manager*.

3 Alignment of ANPR cameras shall be instructed by the *Service Manager* and in accordance with NTIS specification and guidance documentation.

4 Repair / replacement operations of ANPR cameras to be undertaken in accordance with the Working at Height Regulations 2015, and all relevant Health and Safety regulations.

1578AR Maintenance of Road Traffic Signal Equipment

1 Inspection of Traffic Signals shall be in accordance with TM101 and TS101. Checking of Signal alignment, operation of rotating tactile devices and site condition shall be undertaken in accordance with the Manufacturers O&M manuals. Any defects identified shall be made safe immediately if considered a danger to the public following an instruction from the *Service Manager*.

2 Repair / replacement of any component part and / or peripheral equipment of a Traffic Signal site shall be instructed by the *Service Manager*.

3 Repair / replacement operations of Traffic Signal Heads to be undertaken in accordance with the Working at Height Regulations 2015, and all relevant Health and Safety regulations.

1579AR Maintenance of Ramp Metering Equipment

1 Checking of Signal alignment and site condition shall be undertaken in accordance with the Manufacturers O&M manuals. Any defects identified shall be made safe immediately if considered a danger to the public following an instruction from the *Service Manager*.

2 Repair / replacement of any component part and / or peripheral equipment of a Ramp Metering site shall be instructed by the *Service Manager*. The System shall be in accordance with the manufacturers O&M manual and configured on site to correctly calibrate the equipment and associated detectors.

3 Repair / replacement operations of Traffic Signal Heads to be undertaken in accordance with the Working at Height Regulations 2015, and all relevant Health and Safety regulations.

1580AR Maintenance of Over height and high vehicle detectors

1 Repair / replacement of Over height and high vehicle detectors shall be instructed by the *Service Manager*. Replacement of any component part, cable, cable joint or peripheral

equipment shall be in accordance with the manufacturers O&M manual and configured on site to correctly calibrate the equipment and associated detectors.

2 Repair / replacement operations to be undertaken in accordance with the Working at Height Regulations 2015, and all relevant Health and Safety regulations.

1581AR Maintenance of Traffic Detector equipment

1 Repair / replacement of Traffic Detector equipment shall be instructed by the *Service Manager*. Replacement of any component part, cable, cable joint or peripheral equipment shall be in accordance with Clause 1523 and the manufacturers O&M manual and configured on site to correctly address the equipment and associated detectors. Any defects identified shall be made safe immediately if considered a danger to the public following an instruction from the *Service Manager*.

1582AR Maintenance of Barrier Systems

1 Repair / replacement of Barrier Systems shall be instructed by the *Service Manager*. Replacement of any component part, cable, cable joint or peripheral equipment shall be in accordance with the manufacturers O&M manual and configured on site to correctly address the equipment. Any defects identified shall be made safe immediately if considered a danger to the public following an instruction from the *Service Manager*.

1583AR Maintenance of Electrical Supplies and Distribution Cables

1 Inspection and testing of Electrical Installation and distribution cables shall be carried out in accordance with Clause 1526. Any defects identified shall be made safe immediately if considered a danger to the public following an instruction from the *Service Manager*.

2 Repair / replacement of Power distribution cables shall be instructed by the *Service Manager*. Replacement of Power cables shall be installed and tested in accordance with BS 7671 and the cable supplied shall comply with Highway England Specification TRH 2583.

1584AR Maintenance of Tunnel Equipment

1 Inspection and testing of Tunnel equipment shall be undertaken during scheduled tunnel closures and in accordance with the specific tunnel maintenance plan. Routine replacement of any component part, cable, cable joint or peripheral equipment associated with the tunnel operation shall be in accordance with the manufacturers O&M manual and configured on site to correctly set up and calibrate the equipment and any associated detectors. Any defects identified shall be made safe immediately if considered a danger to the public following an instruction from the *Service Manager*.

2 Repair / replacement of any Tunnel equipment shall be instructed by the *Service Manager*. Replacement of any component part, cable, cable joint or peripheral equipment associated with the tunnel operation shall be in accordance with the manufacturers O&M manual and configured on site to correctly set up and calibrate the equipment and any associated detectors.

3 Repair / replacement operations to be undertaken in accordance with the Working at Height Regulations 2015, and all relevant Health and Safety regulations.

1585AR MCY As-built Drawings

1 MCY drawings detailing the as-built records shall be provided by schemes as part of the MCH1349 handover process and form part of the Health and Safety File. Updates to MCY

drawings can be obtained from the NRTS contract as specified in section 7.3 of NRTS Design Guide TLT/RGD/TSP/0420.

SERIES 3000 Landscaping and Soft Estate

3071AR Weed Control

1 The *Contractor* shall control all injurious weed species which shall be defined for this Appendix as being those listed in sub-Clause 3002.1 with the addition of Oil Seed Rape and Rosebay Willowherb within the Affected Property and throughout all Annual Periods in accordance with GM701-ADAMR, to restrict their growth and prevent their spread.

2 In locations where effective weed control shall be possible and practicable by other means allowed within this Contract there shall be a presumption against the use of chemical herbicides.

3 The *Contractor* shall apply contact, translocated or residual herbicide for total weed control at all locations instructed by *Service Manager*.

4 All Structures, paved areas, kerbs, hard-standings, filter drains and gravel areas (including but not limited to gravelled central reservations).

5 The *Contractor* shall apply herbicides in accordance with GM701-ADAMR to eliminate weed growth in these areas throughout the duration of this Contract.

6 The *Contractor* shall use a translocated herbicide approved by the Environmental Agency in or near water for the total control of vegetation in all filter drains and any other areas adjacent to water and requiring weed control.

7 The application shall be as directed by GM701-ADAMR , with the aim of eliminating weed growth throughout the duration of this Contract.

8 The *Contractor* shall apply herbicide for the selective control of all weeds listed in paragraph 1 above in all non-hardened verges and central reserves, planted areas and other grassed areas throughout the Affected Property including but not limited to embankments and cuttings.

9 Where any of the weeds listed in paragraph 1 of this Appendix are controlled using herbicide, the application shall be by spot treatment in accordance with the manufacturer's written instructions unless otherwise consented to in writing by the *Service Manager*.

10 Spot treatment shall typically be via controlled droplet application of a type appropriate to the manufacturers requirements for the herbicide being used the species being treated and the location of the treatment.

11 The *Contractor* shall hand weed as necessary and at sufficient frequency to eliminate weed growth throughout the duration of this Contract in the following locations

i. Ornamental shrub beds where the application of herbicide may cause damage.

ii. Hedgerow planting where herbicide application may cause damage.

iii. Around planting stations in existing woodland within the Affected Property.

iv. Within plant protectors and tree/shrub shelters.

v. Within wildflower areas or areas of nature conservation value

vi. Where necessary throughout or associated with the Affected Property for the control of Ragwort and Oil Seed Rape and

vii. In areas densely populated with desirable broadleaved species or areas of wildflowers where the application of herbicide may cause damage.

12 The *Contractor* shall cut weeds listed in paragraph 1 of this Appendix throughout or associated with the Affected Property that have become unsightly, or a nuisance, or to prevent such weeds

13 Any arisings from weed control operations shall be removed from Affected Property and disposed of to a licensed disposal facility.

14 Where weed control operations result in the production of controlled waste products typically from Ragwort and Japanese Knotweed the arisings shall be placed in waterproof bags sealed and removed from the Affected Property to a licensed disposal facility.

15 The *Contractor* shall be responsible for removing any dead or dying weeds at the appropriate time following herbicide application.

3072AR Grass, Bulbs and Wildflower Maintenance

1 The *Contractor* shall maintain all the grass and wildflower grass areas, including the frequencies of grass cutting, within the Affected Property in accordance with Clause 3007 and as identified in the Network Information, the GM701-ADAMR.

2 No grass cutting shall be carried out within 250 mm of unprotected trees and shrubs.

3 Strimmers shall not be used for cutting grass within unprotected planted areas without the written consent of the *Service Manager*.

4 Notwithstanding the other requirements of Clause 3007, the *Contractor* shall cut all areas indicated within, and in accordance with the frequency's set out in GM701-ADAMR.

5 Additional cuts within these areas may be instructed by the *Service Manager*.

6 Visibility splays in front of road signs shall be cut in accordance with the requirements of GM701-ADAMR.

7 Maintain and preserve CCTV camera operational visibility splays annually at timing stated in GM701-ADAMr.

8 The extent of cutting shall be in accordance with sub-Clause 3007.20.

9 Weed control shall be carried out by the *Contractor* in accordance with Clause 3002.

3073AR Maintenance of Established Trees, Shrubs and Hedgerows

1 All areas of established planting/vegetation to be maintained each year throughout the period of this Contract shall be as shown within the Network Information and in accordance with GM701-ADAMR.

2 Trees and shrubs shall receive weed control treatment by the *Contractor* in accordance with Clause 3002 at the frequencies stated in GM701-ADAMR.

3 Maintenance of habitat integrity, including removal of scrub encroachment is to be in accordance with the frequency stated in GM701-ADAMR.

4 Any grass and weed growth within ornamental shrub beds shall be removed by hand or by chemical means.

5 For the purposes of this Appendix individual trees shall be defined as feathered, standard and extra heavy trees growing within the Affected Property t and shall include lone trees where there is no interlocking canopy with the nearest neighbours, and sporadic trees where there is a loose arrangement of established trees with occasional interlocking canopies.

6 Healthy arisings from pruning, cutting or felling of woody plants shall be treated in accordance with sub-Clause 3010.4 paragraphs (ii), (iv), (vi), (vii) and (viii).

7 Treatment in accordance with sub-Clause 3010.4 paragraph (ii) shall take place only where there shall be sufficient area within the verges to spread the chippings out to a maximum depth of 25mm.

8 This treatment shall not be permitted where it shall be likely that the chippings shall affect the growth of desired grass and/or plant species.

9 Chippings shall not be spread on sloping ground where they may inhibit vegetation growth which would otherwise help stabilise the slope.

10 If this shall not be possible in the general locality of the operations the arisings shall be removed from the Affected Property to a licensed disposal facility.

11 Species grown for coloured stems shall be cut in accordance with sub-Clause 3010.8 paragraph. The cutting frequency shall be in accordance with GM701-ADAMR .

12 Overgrown shrubs within all ornamental shrub areas shall treated in accordance with sub-Clause 3010.8 paragraph (vii).

13 The maintenance of hedgerow/hedge, and the frequency and timing of cutting shall be as stated in the table in GM701-ADAMR.

14 If any hedge laying shall be required it shall be undertaken in an appropriate style in order to reflect the adjacent or local appearance.

15 Where any significant gap shall exist in a hedge after it has been laid or cut, the *Contractor* shall make recommendations to the *Service Manager* for the appropriate plants to fill the gap including but not limited to species size, planting density and pattern.

16 Where trees are to be removed, the stump shall be cut as close to the ground as possible or where the tree is growing in a hedge or fence line the stump shall be left level with the top of the hedge or fence.

17 Any root removal, either by stump grinding, stump grubbing or stump killing herbicide shall be subject to a specific order from the *Service Manager*.

18 Thinning and coppicing shall be carried out in areas of establishing and maturing woodland where identified as being required through the Network Information, the GM701-ADAMR.

19 Woodlands and trees, including veteran trees, to be maintained at the frequency and timing in accordance with GM701-ADAMR.

20 Scrub control shall be undertaken where identified as being required through the Network Information, the GM701-ADAMR.

21 Tree and shrub species to be controlled shall typically have a stem diameter of between 0 – 75 mm and a height of between 0.75 – 2.5 metres.

22 Where scrub control is required the specified species shall be cut down to 50 mm above ground level and the plants allowed to re-grow.

23 The *Contractor* shall then apply a translocated herbicide during the period of active growth in accordance with Clause 3001.

24 Tree size shall be categorised using the following method:

a. Key factors relating to tree size/habit and taken to the nearest whole metre.

b. Height of Tree - measured in metres from ground level to the apex of the crown.

c. Mean Crown Spread - calculated by adding the measurements in metres of the spread of the tree's crown along the north-south and east-west axes and by dividing by two.

d. Branch Density Factor shall be taken as: - 1.00 for Normal Branch Density and 1.25 for Heavy Branch Density.

25 For all evaluation and other purposes in connection with the Contract individual tree species should be classified as having Normal or Heavy Branch Density in accordance with Table 30/6 of this Appendix which reflects average circumstances.

26 Where appropriate, removal of scrub encroachment on rock scree shall be carried out at the frequency stated in GM701-ADAMR.

27 The maintenance of habitat integrity, including removal of scrub encroachment and tree saplings throughout, shall be carried out for heath and moorland at the frequency stated in GM701-ADAMR.

3074AR Management of Waterbodies

1 The *Contractor* shall maintain all water bodies within the Affected Property in accordance with Clause 3011, GM701-ADAMR and the *Service Manager's* requirements.

2 The frequency and timing of waterbodies and wetlands, including reedbeds, marsh and wet grassland maintenance shall be as stated in the table in GM701-ADAMR.

3 The *Contractor* shall inspect all water bodies and associated inlets and outlets within and associated with the Affected Property in accordance with the requirements of GM701-ADAMR.

4 The *Contractor* shall be responsible for monitoring the depth of silt within all water bodies throughout and associated with the Affected Property at the frequency specified in sub-Clause 3011.7 and shall report their condition to *Service Manager*.

5 The *Contractor* shall eliminate injurious weeds as listed in Clause 3002 growing within or immediately adjacent to water bodies.

6 Where silt shall be affecting the intended operation of a water body or shall be deemed to have the potential to affect the intended operation of a water body the silt shall be removed in accordance with sub-Clause 3011.8.

7 The *Contractor* shall be responsible for consulting with the Environment Agency and any other relevant body prior to undertaking any Operations affecting a water body.

8 All new marginal plants planted as part of the Operations or as part of a Works Contract shall be maintained by the *Contractor* for the duration of the period of Establishment Maintenance with any failed or defective plants replaced in accordance with sub-Clause 3006.6 -90 inclusive.

9 All existing marginal vegetation shall be inspected in accordance with GM701-ADAMR and their condition reported to *Service Manager*.

3075AR Special Ecological Measures

1 Protected habitats or designated sites to be maintained in line with current statutory body requirements at frequency stated in GM701-ADAMR.

2 Protected species to be maintained in line with current species–specific legalisation and current mitigation guidance, at frequency stated in GM701-ADAMR.

3 Wildlife structures and tunnels to be maintained at frequency stated in GM701-ADAMR.

Substitute Clauses, Tables and Figures

Clause No Title & Written Text

SERIES 900 Road pavements – bituminous bound materials

946SR Local Repair

General

1 A local repair is defined as the reinstatement of surface course, binder course and base if necessary, over a relatively small area in carriageways, footways or cycleways. It is a legitimate treatment option to restore or prolong the service life of the pavement and due attention must be paid to the planning and execution of the works.

2 Areas of defectiveness in carriageways greater than 1m2 to be repaired in carriageways by inset replacement over a length and width in accordance with SHW 702.10(iv) and SHW 903.21. Areas of defectiveness up to 1m2 in surface area in carriageways may be repaired using an inset patch. Guidance on the appropriate repair technique is given in Table 9/7

3 Areas of defectiveness in footways and off road cycleways greater than 1m2 can be repaired with an inset patch using a similar material to that of the rest of the footway or cycleway.

4 Areas of defectiveness less than 1m2 are classed as inset patches and will be swept out to remove all loose material and water, a tack coat applied and an instant repair material approved by the *Service Manager* can be used. The compaction is to be in accordance with the repair material's manufacturer's instructions. The final surface to be level with the adjacent surface level.

5 All local repairs to be in accordance with Table 9/7 below.

Table 9/7: Guidance on Appropriate Repair Technique

Size (approx. m^2)	Application	Repair technique
Up to 1.0	Individual pothole or road stud hole. Discrete area of local defectiveness	Inset patch
In excess of 1.0 or several closely adjacent areas less than 1.0.	Wide area of local defectiveness.	Replacement for minimum length of repair in accordance with SHW 702.10 (vi). Full lane width or less where practicable [SHW 903.21].

Inset Patch Repair ≤ 1.0m2

Preparation

1 The edges of the repair shall be saw-cut or planed in a neat rectangular shape in sound material at a distance of at least 0.25m beyond the defective area. The saw-cut or planed opening shall have vertical straight edges and extend for the full depth of surface course. For repairs that extend into the binder course and/or base these lower layers may be removed by the use of a mechanical breaker. An offset stepped detail for the binder and base layers shall be used to ensure that vertical joints do not pass through more than one layer at the same location. A minimum horizontal step of 100mm shall be provided at all layer interfaces.

2 All existing material within the saw-cut or planed perimeter of the repair area shall be removed and the base and sides of the cavity thoroughly cleansed of all loose material and moisture to provide clean and dry surfaces throughout.

3 The prepared vertical joints and the base of the cavity shall be treated in accordance with SHW 903.22.

Repair Materials

1 Repair materials for binder course and base layers shall be selected and installed to be consistent with the requirements of Appendix 7/1 for the surrounding material.

2 For surface course repairs, the specification for the repair material shall be consistent with the requirements of Appendix 7/1 for the surrounding surface course material.

3 Repairs to thin surface course systems where supplied in accordance with Clause 942 should be carried out in accordance with the instructions and guidance presented in the product documentation provided by the material supplier. Generally thin surface course systems are not suitable for hand laying.

4 Repair materials for patches in hot rolled asphalt surfacing should be in accordance with SHW 911.

Construction

1 Construction of the repair should commence at the patch edges and progress inwards with particular care for full compaction especially in the vicinity of the vertical joint faces. All construction layers shall be laid and compacted such that on completion each layer shall be at the same level as the adjacent course.

2 The repair material must be compacted using rollers, vibrating plates and/or tampers as appropriate for the size of the repair. The corners of the repair are the most vulnerable to distress and particular care must be taken to achieve full compaction in these areas.

Repair Areas >1.0m2

1 Areas over 1m2 in area shall only be repaired with materials installed using full scale self-propelled paving machinery. The extent of the repair area shall be as described in SHW 702.10(iv) with appropriate longitudinal and transverse joints in accordance with SHW 903.21.

2 Repairs to large areas in thin surface course systems shall be undertaken in accordance with the instruction stated in contract specific Appendix 7/1.

3 Repair materials shall comply with the specification requirements stated in contract specific Appendix 7/1. Unless otherwise stated in contract specific Appendix 7/1 repair materials shall be consistent with, and compatible to, the surrounding materials.

4 Areas over 1m2 in existing hot rolled asphalt surfacing shall be repaired using hot rolled asphalt material in accordance with SHW 911.

5 Placing and compaction shall be in accordance with SHW 903 and BS594987 with use of bond coat in accordance with SHW 920.

Proprietary Materials and Techniques for Repairs ≤ 1.0m2

1 Evidence from an accredited materials laboratory evaluation report must be provided to demonstrate that the proprietary repair materials and/or techniques comply with the following performance criteria:

- Stiffness: ≥1 GPa after 28 days when tested in accordance with BS EN 12697-26 (ITSM method 20 °C).

- Resistance to permanent deformation: Classification No. 1 as defined in Table D.2 of BSI PD 6691.

2. Data from a representative area of the material and/or technique, for a local repair >2m2 in size, must be provided to demonstrate that the finished surface to be trafficked complies with the following:

   - The initial surface texture shall be not less than 0.9mm when measured using the volumetric patch method described in BS EN 13036-1.
   - The minimum wet Skid Resistance value shall be not be less than 60 when determined using the portable skid resistance tester (pendulum) in accordance with BS EN 13036-4.

947SR - Depressions

1 Where an area of carriageway has sunk/dropped and the surface course is not cracked or damaged and the depression requires to be removed, a key will be cut around the sides of the depression by either a breaker or planer.

2 All excavated material is to be removed and the area of the depression swept thoroughly.

3 An approved tack coat is applied to the area of the depression and allowed to ‘break’ before the application of any material.

4 .The size of the aggregate within the surface course, or base course to be used should be such that the average mean depth of the depression is 2.5 times the size of the aggregate, and it is never less than twice the minimum depth.

5 Once the depression has been fully compacted the new surface course shall be at the same level as the adjoining surface course.

SERIES 1500 Roadside Technology Maintenance

1526SR The Inspection and Testing of Electrical Installations

1 The *Contractor* shall carry out the inspection and testing of electrical installations in accordance with BS 7671. The *Contractor* shall provide inspection and completion certificates to the Overseeing Organisation in accordance with BS 7671 and to notice periods determined in contract Maintenance Requirements Plan.

APPENDIX 0/2 - CONTRACT-SPECIFIC MINOR ALTERATIONS TO EXISTING CLAUSES, TABLES AND FIGURES INCLUDED IN THE CONTRACT

Clause No. (etc)	Alterations to be made.
	None

APPENDIX 0/3: LIST OF NUMBERED APPENDICES REFERRED TO IN THE SPECIFICATION AND INCLUDED IN THE CONTRACT

Appendix 0/3 is comprised of two lists, A and B, of Numbered Appendices as follows:

List "A" is a complete list of the Numbered Appendices referred to in the Specification for Highway Works with those not adopted marked "Not Used" or "N/U". For each set of Works Package, those identified by the letters T or C shall be completed by the Tenderer or *Contractor* respectively.

Additional Requirements may be included in the Works Package

Guide to types of Numbered Appendices - who compiles/completes

Symbol

(T) Tenderer completes and returns with Tender

(C) *Contractor* completes and returns to Overseeing Organisation

(I) For *Contractor*'s Information Only

List "B" is a list of Numbered Appendices devised for the Contract.

List 'A': List of Numbered Appendices Referred to in the Specification for Highway Works and Included in the Contract.

Used / Not Used	Completed By	Appendix No.	Title
			INTRODUCTION
Used	I	0/1	Contract-specific Additional, Substitute & Cancelled Clauses, Tables and Figures Included in the Contract
Used	I	0/2	Contract-specific Minor Alterations to Existing Clauses, Tables and Figures included in the Contract
Used	I	0/3	List of Numbered Appendices Referred to in the Specification and included in the Contract
Used	I/C	0/4	List of Drawings Included in the Contract
Not Used		0/5	Special National Alterations of the Overseeing Organisation of Scotland, Wales or Northern Ireland
			PRELIMINARIES
Not Used		1/1	Temporary Accommodation and Equipment for the Overseeing Organisation
Not Used		1/2	Vehicles for the Overseeing Organisation
Not Used		1/3	Communication System for the Overseeing Organisation
Not Used		1/4	Working and Fabrication Drawings
Used	I/C	1/5	Testing to be Carried out by the *Contractor*
Used		1/6	Supply and Delivery of Samples to the Overseeing Organisation
Used	I	1/7	Site Extent and Limitations on Use
Not Used		1/8	Operatives for the Overseeing Organisation
Used	I	1/9	Control of Noise and Vibration
Not Used		1/10	Structures to be Designed by the *Contractor*
Not Used		1/11	Structural Elements and Other Features to be Designed by the *Contractor*
Not Used		1/12	Setting Out and Existing Ground Levels
Not Used		1/13	Programme of Works
Used	I	1/14	Payment Applications
Not Used		1/15	Accommodation Works
Used	I/C	1/16	Privately and Publicly Owned Services and Supplies
Used	I/C	1/17	Traffic Safety and Management
Used	I/C	1/18	Temporary Diversions for Traffic
Used	I/C	1/19	Routing of Vehicles
Not Used		1/20	Recovery Vehicles for Breakdowns
Not Used		1/21	Information Boards
Not Used		1/22	Progress Photographs
Used	I/C	1/23	Risks to Health and Safety from Materials or Substances
Not Used		1/24	Quality Management System
Not Used	I	1/25	Temporary Closed Circuit Television (CCTV) System for the Monitoring of Traffic
Not Used	I	1/26	Temporary Automatic Speed Camera System for the Enforcement of Mandatory Speed Limits at Road Works (TASCAR)
Not Used		1/27	Temporary Automatic Speed Camera System for the Enforcement of Mandatory Speed Limits at Road Works (TASCAR) – Particular Requirements
Not Used		1/71	Security of Site
			SITE CLEARANCE

Used / Not Used	Completed By	Appendix No.	Title
Not Used		2/1	List of Buildings to be Demolished
Used		2/2	Filling of Trenches and Pipes
Not Used	I/C	2/3	Retention of Material Arising from Site Clearance
Not Used	I	2/4	Explosives and Blasting
Used	C	2/5	Hazardous Materials
			FENCING AND ENVIRONMENTAL BARRIERS
Used	I/C	3/1	Fencing, Gates and Stiles
			ROAD RESTRAINT SYSTEMS (VEHICLE AND PEDESTRIAN)
Used		4/1	Road Restraint Systems (Vehicle and Pedestrian)
Used		4/2	Information Required to Demonstrate Compliance of Road Restraint Systems to BS EN1317-1, BS EN 1317-2, BS EN 1317-3, and DD ENV 1317-4:2002
			DRAINAGE AND SERVICE DUCTS
Used	I/C	5/1	Drainage Requirements
Used		5/2	Service Duct Requirements
Used		5/3	Surface Water Channels and Drainage Channel Blocks
Used		5/4	Fin Drains and Narrow Filter Drains
Used		5/5	Combined Drainage and Kerb Systems
Used		5/6	Linear Drainage Channel Systems
Not Used		5/7	Thermoplastics Structural Wall Pipes and Fittings
			EARTHWORKS
Used	I/C	6/1	Requirements for Acceptability & Testing etc. of Earthworks Materials
Not Used		6/2	Requirements for Dealing with Class U2 Unacceptable Material
Used	I/C	6/3	Requirements for Excavation, Deposition, Compaction (Other than Dynamic Compaction)
Not Used		6/4	Requirements for Class 3 Material
Not Used		6/5	Geotextiles Used to Separate Earthworks Materials
Not Used		6/6	Fill to Structures & Fill Above Structural Foundations
Not Used		6/7	Sub-formation & Capping & Preparation & Surface Treatment of Formation
Used		6/8	Top soiling
Not Used		6/9	Earthwork Environmental Bunds, Landscape Areas, Strengthened Embankments
Not Used		6/10	Ground Anchorage's, Crib Walling and Gabions
Not Used		6/11	Swallow Holes & Other Naturally Occurring Cavities & Disused Mine Workings
Not Used		6/12	Instrumentation & Monitoring
Not Used		6/13	Ground Improvement
Not Used		6/14	Limiting Values for Pollution of Controlled Waters
Not Used		6/15	Limiting Values for Harm to Human Health and the Environment
			ROAD PAVEMENTS – GENERAL
Used	I/C	7/1	Permitted Pavement Options (Sheets 1,2 & 3)
Used	I/C	7/2	Excavation, Repair and Reinstatement of Existing Surfaces
Not Used		7/3	Surface Dressing Sheets 1 & 2
Used	I/C	7/4	Bituminous Sprays
Not Used		7/5	In Situ Recycling: the Remix and Repave Processes
Not Used		7/6	Breaking Up or Perforation of Existing Pavement
Not Used		7/7	Slurry Surfacing Incorporating Microsurfacing (Sheets 1, 2 & 3)
Not Used		7/8	Not used
Used		7/9	Cold-Milling (Planing) of Bituminous Bound Flexible Pavement
Used	I/C	7/10	Worksheet Pro Forma for Results of Testing for Constituent Materials in Recycled Coarse Aggregate and Recycled Concrete
Used		7/11	Over banding and Inlaid Crack Sealing Systems
Not Used		7/12	Arrester Beds
			ROAD PAVEMENTS – GENERAL (Continued)

Used / Not Used	Completed By	Appendix No.	Title
Not Used		7/13	Saw-Cut and Seal Bituminous Overlays on Existing Concrete Pavements
Not Used		7/14	Preparation of Jointed Concrete Pavements Prior to Overlaying and Saw-Cut and Seal of Bituminous Overlay
Not Used		7/15	Saw-Cut, Crack and Seat Existing Jointed Reinforced Concrete Pavements
Not Used		7/16	Cracking and Seating of Existing Jointed Un-reinforced Concrete Pavements and Hydraulically Bound Mixture (HBM) Bases
Not Used		7/17	Cracking Plant and Equipment Progress Record
Not Used		7/18	Site Specific Details and Requirements for Cold Recycled Bitumen Bound Material
Not Used		7/19	Site Specific Details and Requirements for Recycled Cement Bound Material
Not Used		7/20	NOT USED
Not Used		7/21	Surface Dressing – Recipe Specification
Used		7/22	Local Repairs
			ROAD PAVEMENTS - CONCRETE AND CEMENT BOUND MATERIALS
Not Used		10/1	Plant and Equipment for the Construction of Exposed Aggregate Concrete Surface
			KERBS, FOOTWAYS AND PAVED AREAS
Used		11/1	Kerbs, Footways and Paved Areas
Not Used		11/2	Access Steps
			TRAFFIC SIGNS
Used	I/C	12/1	Traffic Signs : General
Used	I/C	12/2	Traffic Signs : Marker Posts
Used	I/C	12/3	Traffic Signs : Road Markings and Studs
Not Used		12/4	Traffic Signs : Cones, Cylinders, FTD's & Other Traffic Delineators
Not Used		12/5	Traffic Signs : Traffic Signals
Not Used		12/6	Traffic Signs : Special Sign Requirements on Gantries
			ROAD LIGHTING COLUMNS AND BRACKETS
Not Used		13/1	Information to be Provided When Specifying Lighting Columns and Brackets
Not Used		13/2	Columns and Bracket Data Sheets 1 and 2
Not Used		13/3	Instructions for Completion of Column & Bracket Data Sheet
Not Used		13/4	Information to be Provided When Specifying CCTV Masts
Not Used		13/5	Typical CCTV Mast Data Sheet
Not Used		13/6	Instructions for Completion of CCTV Mast Sheets
Not Used		13/7	Information to be Provided When Specifying Cantilever Masts
Not Used		13/8	Typical Cantilever Masts Data Sheets 1 and 2
Not Used		13/9	Instructions for Completion of Cantilever Masts Data Sheets
			ELECTRICAL WORK FOR ROAD LIGHTING AND TRAFFIC SIGNS
Used	I/C	14/1	Site Records
Used	I/C	14/2	Location of Lighting Units & Feeder Pillars
Not Used		14/3	Temporary Lighting
Not Used		14/4	Electrical Equipment for Road Lighting
Used	I/C	14/5	Electrical Equipment for Traffic Signs
			MOTORWAY COMMUNICATIONS
Used	I/C	15/1	Motorway Communications
Not Used		15/2	Cable Duct Requirements
			PILING AND EMBEDDED RETAINING WALLS
Not Used		16/1	General Requirements for Piling and Embedded Retaining Walls
Not Used		16/2	Precast Reinforced and Prestressed Concrete Piles and Precast Reinforced Concrete Segmental Piles
Not Used		16/3	Bored Cast-in Place Piles
Not Used		16/4	Bored Piles Constructed using Continuous Flight Augers and Concrete or Grout Injection through Hollow Auger Stems
Not Used		16/5	Driven Cast-in Place Piles

Used / Not Used	Completed By	Appendix No.	Title
Not Used		16/6	Steel Bearing Piles
Not Used		16/7	Reduction of Friction on Piles
Not Used		16/8	Non-Destructive Methods for Testing Piles
Not Used		16/9	Static Load Testing of Piles
Not Used		16/10	Diaphragm Walls
Not Used		16/11	Hard/Hard Secant Pile Walls
Not Used		16/12	Hard/Soft Secant Pile Walls
Not Used		16/13	Contiguous Bored Pile Walls
Not Used		16/14	King Post Walls
Not Used		16/15	Steel Sheet Piles
Not Used		16/16	Integrity Testing of Wall Elements
Not Used		16/17	Instrumentation for Piles and Embedded Walls
Not Used		16/18	Support Fluid
			STRUCTURAL CONCRETE
Not Used		17/1	Concrete - Classification of Mixes
Not Used		17/2	Concrete - Impregnation Schedule
Not Used		17/3	Concrete - Surface Finishes
Used	I/C	17/4	Concrete – General
Not Used		17/5	Buried Concrete – Sulphate Attack
Not Used		17/6	Grouting and Duct Systems for Post-tensioned Tendons
			STRUCTURAL STEELWORK
Not Used		18/1	Requirements for Structural Steelwork
			PROTECTION OF STEELWORK AGAINST CORROSION
Used	I/C	19/1	Form HA/P1 (New Works) Paint System Sheet
Not Used		19/2	Requirements for Other Works
Used	I/C	19/3	Form HA/P2 Data Sheet
Used	I/C	19/4	Form HA3 Paint Sample Despatch List, sheets 1 & 2
Used	I/C	19/5	General Requirements
			WATERPROOFING FOR CONCRETE STRUCTURES
Not Used			Waterproofing for Concrete Structures
			BRIDGE BEARINGS
Not Used		21/1	Bridge Bearing Schedule
			PARAPETS
Not Used		22/1	Parapet Schedule
			BRIDGE EXPANSION JOINTS AND SEALING OF GAPS
Not Used		23/1	Bridge Deck Expansion Joint Schedule
Not Used		23/2	Sealing of Gaps Schedule (Other than in Bridge Deck Expansion Joints)
			BRICKWORK, BLOCK WORK AND STONEWORK
Used		24/1	Brickwork, Block work and Stonework
			SPECIAL STRUCTURES
Not Used		25/1	Requirements for Corrugated Steel Buried Structures
Not Used		25/2	Requirements for Reinforced Soil and Anchored Earth Structures
Not Used		25/3	Requirements for Pocket Type Reinforced Brickwork Retaining Wall Structures
Not Used		25/4	Environmental Barriers
Not Used		25/5	Requirements for Buried Rigid Pipes for Drainage Structures
			MISCELLANEOUS
Not Used		26/1	Ancillary Concrete
Not Used		26/2	Bedding Mortar
Not Used		26/3	Cored Thermoplastic Node Markers
			LANDSCAPE AND ECOLOGY
Not Used		30/1	General, sheets 1, 2 &3
Used	I/C	30/2	Weed Control
Not Used		30/3	Control of Rabbits and Deer
Not Used		30/4	Ground Preparation
Used		30/5	Grass Seeding, Wildflower Seeding and Turfing

Used / Not Used	Completed By	Appendix No.	Title
Not Used		30/6	Planting, sheets 1 & 2
Used	I/C	30/7	Grass, Bulbs and Wildflower Maintenance
Not used		30/8	Watering
Not used		30/9	Establishment Maintenance for Planting
Used	I/C	30/10	Maintenance of Established Trees and Shrubs
Used	I/C	30/11	Management of Water bodies
Not Used		30/12	Special Ecological Measures
Used	I/C	50/1	FORM HA/P1 (MAINTENANCE) PAINT SYSTEM SHEET
Not Used		50/2	REQUIREMENTS FOR OTHER WORK
Used	I/C	50/3	FORM HA/P2 PAINT DATA SHEET
Used	I/C	50/4	FORM HA/P3 PAINT SAMPLE DESPATCH LIST: SHEET 1 and 2.
Not Used		50/5	**GENERAL REQUIREMENTS**

List 'B' Contract-specific Numbered Appendices devised for the Contract

Volume No.	Appendix No.	Appendix Title
None		

APPENDIX 0/4: LIST OF DRAWINGS INCLUDED IN THE CONTRACT

1. Contract-specific Drawings Supplied to Each Tenderer

Drawing Number	Title
None	

2. Standard Drawings

1. 2(i) Supplied to Each Tenderer

Drawing No.	Title	Volume No.
None		

2. 2(ii) Inspected by Tenderers

Drawing No.	Title	Aspect required if not whole Drawing
None		

3. 2(iii) Brought into the Contract by Reference

Highway Construction Detail published by The Stationery Office as Volume 3 of the Manual of Contract Documents for Highway Works current on the date on which the Final Tender Submission shall be submitted, is brought into the Contract by reference, unless otherwise stated elsewhere in the specification.

APPENDIX 1/5: TESTING TO BE CARRIED OUT BY THE *CONTRACTOR*

1 The *Contractor* shall be responsible for carrying out the testing in accordance with the tests described in Volume 1 Specification for Highway Works and its own quality plan as accepted under this contract. Detailed testing schedule can be found in Table NG1/1, Volume 2 Notes for Guidance on the Specification for Highway Works.

2 Results from the tests shall be made available on request to the *Service Manager*.

APPENDIX 1/6: SUPPLY & DELIVERY OF SAMPLES TO THE *SERVICE MANAGER*

1 Samples of materials and products for testing by the *Service Manager* to establish compliance with the following Clauses shall be supplied as the *Service Manager* may reasonably require.

i. CLAUSES 503, 505, 512.

ii. SERIES 600, 700, 800, 900, 1100, 1700, 2400, 3000.

iii. CLAUSES 2003, 2004

APPENDIX 1/7: SITE EXTENT AND LIMITATIONS ON USE

1 Extent of the Affected Property

The extent of the Affected Property is defined in the Network Information.

2 Limitations on the Use of the Affected Property

The *Contractor*'s use of any area of the Affected Property in his possession will be limited by the requirements of Clause 117 Traffic Safety and Management and the following conditions:

i. The safety zone specified in Chapter 8 of the Traffic Signs Manual shall be maintained between the edge of any traffic lane and the works, constructional plant or materials.

ii. No area of the Trunk Road shall be used for parking of vehicles used by or on behalf of the *Contractor*. The *Contractor* shall not obstruct any lane, road junction vehicular or pedestrian access which has not been closed to traffic

iii. The *Contractor* shall allow for any working areas within the boundaries of the highway to be used by vehicles requiring to stop in an emergency.

a. The *Contractor* shall inform the *Service Manager* and the Police of the name(s) and telephone number(s) of a responsible person(s) who can be contacted at any time in an emergency.

iv. The *Contractor*, his agents, servants or workmen shall not erect nor allow its Subcontractor, their agents, servants or workmen to erect within the Site any advertisement without the prior written approval of the *Service Manager* which will include the period the advertising approval period. . Should any advertisement be erected without such approval the *Service Manager* shall have power to order in writing the *Contractor* to remove it forthwith. If the *Contractor* shall fail to comply with such order within 24 hours of its delivery to him, the *Service Manager* shall be entitled to employ and pay other persons to carry out the same and all expenses consequent thereon or incidental thereto shall be borne by the *Contractor* and shall be recoverable from him by the *Service Manager* or may be deducted by the *Service Manager* from any monies due or which become due to the *Contractor*.

v. All advertisements, approved under the previous sub-clause, within the site shall be removed not later than the advertising approval period, unless the *Service Manager* approves in writing any advertisement to remain for a further period.

3 The *Contractor*, or any agent shall not give any information concerning the Contract for publication in the press or radio, television or cinema screen or elsewhere without the written approval of the *Service Manager*.

4 The *Contractor* shall prevent trespass by his own or its Subcontractor employees onto any property adjoining the Affected Property.

5 The *Contractor* shall make his own provision for doing work beyond these areas of Affected Property as required to Provide the Service.

6 Traffic management layouts extending beyond the boundaries of the Affected Property shall be in accordance with Appendix 1/17. Any Traffic management layout extending beyond the boundaries of the Affected Property should be discussed and agreed with the *Service Manager*.

APPENDIX 1/9: CONTROL OF NOISE AND VIBRATION

Noise

1 The *Contractor* is to decide whether to seek the Local Authority's formal consent to his proposed methods of work and to the steps he proposes in order to minimise noise.

2 The noise levels (see Note (i) below) scheduled below for periods outside the normal working hours will only be permitted when consent has been given to exceptional working.

3 The ambient noise level, Leq (see Note (ii) below) from all sources when measured 2.0m above the ground 1m from the facade of any occupied building shall either not exceed the appropriate level given in the Schedule or not exceed by more than 3dB (A) the existing ambient noise level, Leq (see Note (iii) below), at the building measured over the same period, whichever level is the greater. The maximum sound level at any building due to the *Contractor*'s operations shall not exceed the level given in the Schedule. Exceptionally, the *Contractor* may be given permission to carry out works which exceed the noise levels in the Schedule, provided that 14 days' notice of the date and timing of these works is given to the *Service Manager* and the *Contractor* demonstrates that he intends to take all reasonable measures to mitigate the noise nuisance. After consultations with the Local Authority and any other interested bodies a decision will be given within 14 days of receipt of the notice.

Schedule		**Total Noise Levels at Occupied Building**		
Period	**Hours**	**Ambient Noise Level. Leq measured 1m from the façade of any occupied building dB(A)**	**Period of Hours over which Leq is applicable**	**Maximum Sound Level (see Note (iv) below) measured at the building; dB(A)**
Mondays to Fridays	0700 - 0900	65	2	70
Mondays to Fridays	0900 - 1900	75	10	85
Mondays to Fridays	1900 - 2200	65	3	70
Saturdays	0700 - 0900	65	2	70
Saturdays	0900 - 1300	75	4	85
Saturdays	1300 - 2200	65	9	70
Sundays	0700 - 0900	50	2	55
Sundays	0900 - 1700	65	8	70
Sundays	1700 - 2200	50	5	55
Nights	2200 - 0700	50	9	55

Notes:

i. Noise levels relate to free field conditions. Where noise control stations are located 1m from facades of buildings, the permitted noise levels can be increased by 3 dB(A).

ii. The ambient noise level, Leq, is the total Leq from all the noise sources in the vicinity over the specified period. (Sampling time to be minimum 5 minutes duration).

iii. The existing ambient noise level, Leq, is the total Leq from all the noise sources in the vicinity over the specified period prior to the commencement of the Works. (Sampling time to be minimum of 20 minutes duration).

iv. Maximum sound level is the highest value indicated on a sound level meter which meets the requirements of BS EN 61672 Parts 1 and 2 Type 1 or 2 set to SLOW response and frequency weighting A or on an integrating - averaging sound level meter to BS EN 61672 Parts 1 and 2

4 Without prejudice to the generality of the *Contractor*s' obligations under Clause 109 Noise Control, the *Contractor* shall comply in particular with the following requirements:

i. The *Contractor* shall provide and use items of plant and equipment that have been specifically designed or modified to reduce the noise of normal operations. Items of plant and equipment shall be maintained in good and effective working order so that extraneous noises from mechanical vibration, creaking, squeaking etc. shall be reduced to a minimum.

ii. All vehicles and mechanical plant shall be fitted with effective exhaust silencers maintained in good working order.

iii. All compressors shall be "sound reduced" models fitted with properly lined and sealed acoustic covers kept closed whenever the machines are in use. All ancillary pneumatic tools shall be fitted with mufflers of the type recommended by the manufacturers.

iv. Machines in intermittent use shall be stopped in the periods intervening when not required.

v. The sound levels shall be monitored by methods set out in Appendix B of BS 5228.

vi. The *Contractor* shall adhere to the codes of practice for construction and piling given in BS 5228.

5 The *Contractor* shall furnish such information as may be required by the *Service Manager* in relation to noise levels emitted by plant or equipment used or installed on the Affected Property or which the *Contractor* intends to use or install on the Affected Property.

6 The *Contractor* shall afford all reasonable facilities to enable the *Service Manager* to carry out such noise monitoring as may be required, including the temporary cessation of works required for the monitoring of the "existing ambient noise level".

7 The responsible Authorities for Environmental matters are detailed in the Works Package.

Vibration

1 The *Contractor* shall comply with BS 6472: 2008 Evaluations of Human Exposure to Vibration in Buildings (1Hz-80Hz). Any vibration monitoring carried out shall also be in compliance with BS 6472: 2008.

APPENDIX 1/14: PAYMENT APPLICATIONS

1 The payment applications submitted to the *Service Manager* shall be in accordance with the Conditions of Contract and Schedule of Cost Components.

2 The payment application shall separately identify each compensation event.

3 The *Contractor* shall allow the *Service Manager* to inspect invoices for goods or materials included in the statement as may be required.

APPENDIX 1/16: PRIVATELY AND PUBLICLY OWNED SERVICES AND SUPPLIES

1 Generally motorways do not contain any privately or publicly owned services or supplies other than:

i. cabling for the Overseeing Organisations' communication systems,
ii. cabling for road lighting and lit signs on the Unit,
iii. overhead power lines crossing the motorways, and
iv. a small number of major pipelines and cables which cross the motorways in ducts.

2 Subject to the other provisions of this Contract, Strategic Road Network may contain in addition to all types of Undertakers' equipment and services, cabling for communications systems, variable message signs, automatic traffic counters, closed circuit television systems, road ice prediction sensors, road lighting systems, lit signs and other cabled plant.

3 There may be overhead power and communication cables.

4 The *Contractor* shall co-ordinate Operations with work required to be carried out by Undertakers or their *Contractor*s or other third parties.

5 The *Contractor* shall maintain a register of apparatus installed following the grant of permission in writing pursuant to Section 109 of the New Roads and Street Works Act, showing details of the location and nature of the apparatus, the persons to whom permission has been granted, and any conditions to which the granting of permission shall be subject.

6 The *Contractor* shall update the register with any such apparatus and relevant associated information that it becomes aware of while he Provides the Service.

7 The *Contractor* shall make arrangements with the Undertakers and others concerned for the phasing of any disconnections and diversion of private services affected by the Services.

8 The *Contractor* shall make all arrangements in accordance with the quality plan as part of this Contract with the Statutory Undertakers and others concerned, for the co-ordination of his work with all work which needs to be done by them or its Subcontractor concurrently with the Works.

9 The *Contractor* shall make arrangements with the Statutory Undertakers and other concerned for the phasing of all necessary disconnections and diversion of private services affected by the Works/*Services*.

10 Disconnected apparatus shall be removed by the *Contractor* only with the prior consent of the Authority concerned.

11 The names, addresses and telephone numbers of the Statutory Undertakers that may have their plant and apparatus within the Affected Property are included in the Network Information.

Method Statement "Suggested Format" for Working in Accordance with H&S Guidance HSE Guidance Note GS6

(Avoidance of Danger from O/H Electric Lines)

Site Location _____

GPU Site Visit Date _____

GPU Report

Cable Voltage _____

Height Above Ground _____

Minimum Clearance _____

Maximum Working Height Restriction _____

Site Engineer in Charge _____

Foreman/Charge hand _____

Banks man _____

Machine Operator _____

Plant to be used _____

Description of Work _____

_____

Safety Precautions to be taken _____

_____

Signed _____

Date _____

This completed form should be sent (Scanned and emailed / Faxed) to the relevant incident centre or as directed by the Service Manager.

APPENDIX 1/17: TRAFFIC SAFETY AND MANAGEMENT

1. Traffic Safety and Management

   1.1. All traffic management required for all works/Services associated with this Contract must comply with the Traffic Signs Manual 2009 Chapter 8 - Traffic Safety Measures and Signs for Road Works and Temporary Situations.

2. Traffic Safety and Management Requirements

   2.1. The *Contractor* shall be responsible for the design and implementation of all traffic management measures required under Clause 117 having regard to Appendix 1/17 and the following requirements.

   2.2. The *Contractor* shall comply with the requirements and recommendations of the following publications:

   - Highways England's Managing Network Occupancy Performance Requirement
   - Chapter 8 of the Traffic Signs Manual 2009 & Notes for Guidance on 'Safety at Road works'
   - Highways England's Speed Limit Enforcement at Roadworks: Guidance and Best Practice which offers advice on procedures to follow when carrying out this activity.
   - Highways England's Safety Camera Partnership Guidance (Highways England involvement) 2006/07" provides guidance on working with partnerships operating speed cameras.
   - Highways England's Interim Advice Note 115/08 Revision 2. Requirements and Guidance for Works on the Hard Shoulder and Road Side Verges on High Speed Dual Carriageways
   - Highways England's Interim Advice Note 188/16. Guidance on Omission of Warning Lights (Road Danger Lamps) for Relaxation Works on Dual Carriageways
   - Highways England's Interim Advice Note 187/15. Use of a Convoy Control Vehicle for Controlling Traffic through Guide Islands at Relaxation Works on Dual Carriageways
   - Highways England's Interim Advice Note 181/14. Guidance on the Use of Impact Protection Vehicles for Temporary Traffic Management.
   - Highways England's Interim Advice Note 180/14. Guidance for the selection of remote controlled temporary traffic management signs for use on the Highways Agency trunk road and motorway network
   - Highways England's Interim Advice Note 179/14. Guidance on the Use of Vehicle Mounted High Level Variable Message Signs to provide advance warning of lane closures for Relaxation Works on Dual Carriageways with a Hard Shoulder.
   - Highways England's Interim Advice Note 163/12. Alternative Entry Taper at relaxation Scheme temporary traffic management on high speed roads.

   2.3. The alignment of the traffic lanes and the crossovers must comply with the requirements of TD 9/93 Highway Link Design

   2.4. Restrictions on the phasing and timing of works shall take into account embargo periods and any events resulting in additional restrictions and also comply with the requirements of Network Occupancy. Any additional restrictions on the phasing and timing of works shall be as stated on the Works Instruction.

2.5. Traffic data to be used for the design of traffic management shall be stated on the Works Instruction.

2.6. Traffic shall not be diverted until after the approval of each stage by the *Service Manager*. No personnel or items of plant (other than required for the signing and coning operations) shall enter a newly closed carriageway traffic lane until such time as the traffic has been satisfactorily diverted and approval to commence work given by the *Service Manager*. The *Contractor* shall not alter traffic management measures during the peak traffic periods defined on the Works Instruction.

2.7. The *Contractor*'s attention is drawn to the need to assess the risks and develop and operate safe working practices when vehicles and plant are reversing on Site, whether or not they are on part of the highway. Rule 129 of The Highway Code 1993 is relevant but the *Contractor*'s practices and procedures should take account of the different conditions, which will occur on Site. The reversing and positioning of vehicles to a specific operation or item of plant shall only be undertaken under the direction of a competent marshal or banks man who escorts the vehicle whilst reversing. The *Contractor* shall erect signs at each works access to inform drivers of this requirement that all such reversing of vehicles shall be undertaken under the direction of the competent marshal. The *Contractor* shall supply details of his proposed sign to the *Service Manager* for approval. The *Contractor* must comply with the requirements of Appendix 1/9 regarding the control of noise.

2.8. Where the circumstances of any particular case are not covered by the Traffic Signs Manual, these publications and the drawings, the *Contractor* shall submit proposals for dealing with such situations to the *Service Manager* for approval. Compliance with this Clause shall not relieve the *Contractor* of any of his other obligations and liabilities under the Contract and under the relevant provisions of the Highways Acts.

2.9. The *Contractor* shall not commence any permanent work which affects the Affected Property until all traffic safety measures necessitated by the work are fully operational.

2.10. In the event of an accident occurring on the trafficked lanes, in the vicinity of the site, the Police may direct operations. The *Contractor* shall provide replacements for and properly reinstate to the original approved layout, as necessary, all signs, cones, cylinders, bollards, barriers and lights when directed by the Police. The *Contractor* shall ensure that sufficient stock of spare signs and cones etc. is always available to make good all reasonably foreseeable damage to the traffic control system. The *Service Manager* may also direct the *Contractor* to assist in the removal of debris, to restore the road surface to a serviceable condition, to reinstate safety fencing and anchorage's, for all of which a full record of plant, labour and materials shall be submitted to the *Service Manager* within 24 hours.

2.11. The *Contractor* should note that the highway may be open to traffic, though in restricted capacity, during the whole period that the Works are in progress. Without prejudice to the other provisions of this Contract the *Contractor* must ensure that no actions by him or his employees or Subcontractor or his suppliers or his haulers or their employees are executed in such a manner as to constitute hazards or safety risks to traffic or themselves.

2.12. No area of carriageway shall be re-opened until a safe surface, free from debris and of sufficient skidding resistance, is available for traffic. All ironwork and steps in construction shall be ramped. The maximum amount that ironwork may be proud of the adjacent carriageway area for temporary ramping is 50mm and all ramps shall have an incline of not exceeding 10%.

2.13. The *Contractor* shall liaise with the relevant local authority and provide assistance in respect of access for refuse collection to properties bounding the site (one day per week).

2.14. Vehicular and Pedestrian access to side roads, accesses and to all properties shall be maintained unless otherwise directed in the Works Instruction.

2.15. The *Contractor* shall notify the *Service Manager* of his requirement to shut down any traffic signals a minimum of 7 days before the date on which the signals will be shut down. The *Contractor* shall supply and erect temporary signs to TSRGD no P7019 at the locations described in the Works Instruction when the signals are not in use.

2.16. Temporary Signing, Road Markings and Studs:

- The *Contractor* is to supply and erect/fix all the signs, cones, temporary road studs and markings required, for the Works in accordance with Chapter 8.

2.17. Where 'Hard shoulder closure' traffic management arrangements are required, these shall be provided in accordance with Chapter 8 of the Traffic Signs Manual 2009 Part 1 Section D6.10

2.18. Where 'Carriageway Closure' traffic management arrangements are required, these shall be provided in accordance with Chapter 8 of the Traffic Signs Manual 2009 Part 1 Section D6.20

2.19. Where 'Medium Duration Inspection Stop' traffic management arrangements are required, these shall be provided in accordance with Chapter 8 of the Traffic Signs Manual 2009 Part 1 Section D3.31

2.20. Workforce crossing carriageway and live lane working:

- The *Contractor* is to eliminate carriageway crossing and live lane working in accordance with Highway England policy
- Where it is deemed that a carriageway crossing or live lane working is unavoidable this is to be notified to the *Service Manager*
- Live carriageway crossings and live lane working by foot occurrences are classed as Level 4 events in Interim Advice Note 128/12
- The *Contractor* is to submit a fully populated live carriageway crossing and live lane working data entry sheet each month by Working Day 4 (WD4) along with the near misses data entry sheet to the *Service Manager* and to NDD Performance@highwaysengland.co.uk

2.21. Emergency, Accident or Other Incident

- The *Contractor* is to carry sufficient stocks of materials manufactured for use as a diesel lift in the event of spillages in the trafficked lanes;
- The *Contractor* is to remove debris and restore the road surface to a serviceable condition;
- The *Service Manager*, his representative and traffic safety nominee appointed by the *Service Manager* and notified to the *Contractor* shall have the unqualified right to instruct the *Contractor*'s workmen and/or Subcontractor on any matters relating to traffic safety and control during an emergency, accident or other incident.
- The *Contractor* should seek the advice of the *Service Manager* with regard the requirements for gritting and snow ploughing operations.

2.22. Site Safety, Working Areas and Safety Zones:

- Working areas and safety zones shall be as defined in Chapter 8 of the Traffic Signs Manual 2009.
- Vehicles may only enter or leave the working area at the designated entry or exit points and must do so in the direction of the traffic flow.
- Site traffic shall only be allowed to travel in either direction on a length of carriageway that has been completely closed to public traffic. In all other cases, site traffic shall comply with the Road Traffic Regulations.
- A method of merging Site Traffic with Public Traffic shall be agreed prior to commencement. These arrangements may only be amended with the agreement or at the direction of the *Service Manager*

2.23. Temporary lighting is required whenever specified in the Works Instruction Traffic Safety and Control Officer (TSCO)

3.1. In order that all matters of traffic safety and control in relation to the control of traffic and the works comply with the necessary requirements, the *Contractor* shall appoint a Traffic Safety and Control Officer and a deputy,

3.1.1. One of either shall be available at all times in case of emergency.

3.1.2. Their names and telephone numbers shall be supplied to the *Service Manager* and to the Police.

3.1.3. They shall be direct employees (and not a Subcontractor) who shall be entirely responsible for arranging and agreeing lane closures, liaison with the *Service Manager* and the Police in all matters relating to traffic control, controlling traffic during periods of time when traffic restrictions are necessary and ensuring that all traffic requirements are met.

3.2. The responsibilities of the Traffic Safety and Control Officer are to ensure that all traffic requirements are met which shall include liaison with the *Service Manager* and the Police concerning the following matters:

3.2.1. Control of entry and exit of the Works site traffic onto the carriageway in general use.

3.2.2. For controlling the safe working of plant, machinery and men immediately adjacent to the carriageway open to traffic.

3.2.3. To notify the *Contractor*'s Agent and of any deterioration of safety precautions, including any part of the Traffic Management Scheme, traffic signs and carriageway road surface.

3.2.4. The setting up and maintenance of an Emergency Traffic Route, as follows, and ensuring that the emergency services are kept aware of the current route at all times.

3.2.5. The *Contractor* shall provide and maintain at all times an Emergency Route of minimum width 2.4 metres as follows:

a) A delineated route through the entire length of the carriageway which is for use by the Police, emergency services and maintenance vehicles;

b) The route shall also be available as a diversion route for traffic in the interests of road safety, e.g. during serious accidents;

c) Site vehicles may only use the emergency route as a means of access from one part of the site to another, but shall give priority to emergency vehicles;

3.2.6. Where the route follows normal carriageway lanes, cones shall be maintained in accordance with TSM Chapter 8 at all times. In other circumstances:-

- where the route deviates from the normal carriageway alignment, it shall be delineated with cones and road danger lamps at 3m intervals between points 50m outside the limits of the divergence, laid to a minimum radius of 50m on its inside edge;
- where excavations, stock piles, parked plant etc. are adjacent to the route, the cones and road danger lamps shall be maintained at 1.5m intervals. Where excavations, stock piles, parked plant etc. are adjacent to the route, the cones and road danger lamps shall be maintained at 1.5m intervals.

3.2.7. Monitoring, with the assistance of sufficient mobile personnel and of sufficient other suitable and appropriate aids, the flow of traffic within the Affected Property and within the period defined for the operation of the vehicle recovery service;

3.2.8. Ensuring that, within 5 minutes of the occurrence of an incident, as defined below, resulting in stationary vehicle(s) on a highway open to the public, the incident is reported to the vehicle recovery service;

3.2.9. Recording and logging all incidents and all movements of recovery vehicles and, when called, all movements of the emergency services. For the purposes of this Appendix, an “incident” is defined as a shed load, vehicle breakdown, vehicle abandonment or traffic accident, whether or not the latter involves personal injury.

3.2.10. The Traffic Safety and Control Officer shall be in 24 hour contact with all recovery vehicles by a radio system and in addition by land line or mobile telephone system.

4. Vehicular and Pedestrian access to side roads, accesses and to all properties shall be maintained unless otherwise directed by the *Service Manager*.

5. The *Contractor* shall liaise with the local authority and provide assistance in respect of access for refuse collection to properties bounding the Affected Property.

6. No area of carriageway shall be re-opened until a safe surface, free from debris and of sufficient skidding resistance, is available for traffic. All ironwork and steps in construction shall be ramped. The maximum amount that ironwork may be proud of the adjacent carriageway area for temporary ramping is 50mm and all ramps shall have an incline of not exceeding 10%.

7. The *Contractor* shall maintain pedestrian crossing points or provide and sign in accordance with chapter 8, safe alternative crossing point(s). Walkways may be existing footways or specifically barriered walkways. Temporary walkways shall be 1.5m wide or more where possible. Footways less than 1.5m wide will only be permissible for short lengths with passing places at either end, and with the agreement of the *Service Manager*. The footway width shall be free from obstructions, such as barrier feet, ice, mud, sand etc. or anything which may cause injury to pedestrians. The walkways shall be suitably signed to enable pedestrians to negotiate themselves past the works. The *Contractor* shall ensure that any pedestrians having difficulty using the walkways is suitably aided.

8. Bus stops shall be temporarily relocated to a suitable site to the approval of the *Service Manager* when the *Contractor*’s working restricts their use. The *Contractor* shall erect temporary bus stop signs and notices to bus users, when the temporary bus stops are in operation. Where a bus stop is to be closed, the *Contractor* shall erect the appropriate

signs informing bus users of the closure and provide the necessary safe unobstructed diversion route to the next bus stop. The *Contractor* shall notify the Bus Companies and details of the bus lay-by closures, the position of the temporary bus stops and of the diversions that are required.

9. The *Contractor* shall notify the *Service Manager* of his requirement to shut down any traffic signals a minimum of 7 days before the date on which the signals will be shut down. The *Contractor* shall supply and erect temporary signs in accordance with TSRGD and Chapter 8 or TSM and agree Temporary Traffic Management layout with the *Service Manager* when the signals are not in use.

10. Traffic Management 'Convoy System'.

    10.1. In order to Provide the Service, where the proposed works will leave insufficient space to provide a minimum 0.5m wide Safety Zone, then a 10mph speed restriction or as agreed with the *Service Manager*, shall be applied by a Temporary Traffic Regulation Order. In order to physically enforce the speed restriction order, the *Contractor* shall use a convoy system as described below to escort vehicles through the works.

    10.2. The *Contractor* will work collaboratively with the *Service Manager* to arrange for a temporary speed restriction order to allow the *Contractor* to safely complete the works by the use of a 10mph (or a speed restriction as agreed with the *Service Manager*) convoy system to escort vehicles through the works. The *Contractor* must allow time for the implementation of the Order in accordance with the Notice requirement in paragraph 12 below.

    10.3. `STOP/GO' boards and operators should be available for use where directed by the *Service Manager*.

    10.4. Failure to achieve the lane widths detailed in Chapter 8 will require the 'convoy system' to remain in operation until such time as the through lane width is achieved.

    10.5. The convoy escort vehicles should comply with Chapter 8 of TSM and shall be small hatchback type cars in either white or yellow and have a tight turning circle to turn around in carriageway if required. They should have good visibility with wing mirrors on both sides, have hazard lamps and an amber roof mounted 'flashing' beacon. Class 2 retro-reflectorised signs reading ‘Convoy Vehicle' on the front and **'Convoy Vehicle – No Overtaking'** to the rear (or mounted back-to-back below the flashing beacon). They should also have side mounted reflective transfers reading 'Convoy Vehicle' and no other wording or markings.

11. Temporary Signing, Road Markings and Studs

    11.1. The *Contractor* is to supply and erect/fix all the signs, cones, temporary road studs and markings required, to Provide the Service in accordance with TSM Chapter 8 2009 .

    11.2. Existing permanent traffic sign faces shall be masked by an opaque material, approved by the *Service Manager*, when not required or when giving conflicting information to drivers or as directed by the *Service Manager*.

    11.3. All signs shall be in Class 1 reflective material and shall be regularly cleaned. Signs shall be mounted 2.1m high over footways and 1.5m high elsewhere as a minimum. The *Contractor* is to submit any proposals for the affixing of signs on the Affected Property to the *Service Manager* 7 days prior to installation. Temporary signs to be attached to existing lighting columns shall be fixed so as not cause any damage to the protective coating of the column.

11.4. All conflicting road markings shall be removed or obscured with black self-adhesive line material or black paint whilst temporary working is in operation.

11.5. The *Contractor* shall design and erect appropriate diversion and information signs in accordance with Traffic Signs Manual Chapter 8 2009 and Traffic Signs Regulations and General Directions(TSRGD) 2016 for the closure of any roads, junctions or accesses

12. Temporary Traffic Regulation Orders and other Statutory Orders. Notice required by the *Service Manager* for him to arrange for:

- Amending or making temporary traffic orders .....12 weeks
- Authorising of non-prescribed signs…… .....4 weeks
- Authorising temporary traffic signals .....2 week

13. Driver Information Signs. Driver Information Signs to the Traffic Signs Regulations and General Directions 2016 detailed below shall be erected in accordance with Clause 117 and above paragraphs.

13.2. Where required to Provide the Service:

a) Sign 7001.3 WORKFORCE IN ROAD SLOW to be erected before any member of the workforce crosses a live carriageway. *Contractor* should comply with Highways England Aiming for Zero policy.
b) Sign 7002A shall read “MAJOR ROAD WORKS ON”.
c) Sign 7003.1 shall read “WORK STARTS HERE dd mm FOR xx WEEKS”.
d) Sign 7004 shall read “Replacing worn out road” or similar where required.
e) Sign 7005 shall read “Delays possible until dd mm”
f) Sign 7006 to be located at the end of road works in each direction.
g) Sign 7006.1 to be located approximately 50m after all end Datums on all Type A traffic management layouts and in appropriate locations on exit slip roads.
h) The dd (date), mm (month) and xx (number) are to be agreed with the *Service Manager*.
i) Size of all signs used on the Affected Property should comply with TSM Chapter 8 2009 and TSRGD 2016.

14. Emergency, Accident or Other Incident. The *Service Manager*, his representative and traffic safety nominee appointed by the *Service Manager* and notified to the *Contractor* shall have the unqualified right to instruct the *Contractor*’s workmen and/or Subcontractor on any matters relating to traffic safety and control during an emergency, accident or other incident.

15. Site Safety, Working Areas and Safety Zones. Working areas and safety zones shall be as defined in Chapter 8 of the Traffic Signs Manual 2009.

15.2. Vehicles should only enter or leave the working area at the designated entry or exit points and must do so in the direction of the traffic flow.

15.3. Site traffic shall only be allowed to travel in either direction on a length of carriageway that has been completely closed to public traffic. In all other cases, site traffic shall comply with the Road Traffic Regulations (1984).

16. A method of merging Site Traffic with Public Traffic shall be agreed prior to commencement. These arrangements may only be amended with the agreement or at the direction of the *Service Manager*.

APPENDIX 1/18: TEMPORARY DIVERSIONS FOR TRAFFIC

1. Diversion Routes

Temporary diversion routes to be agreed with the *Service Manager* and any other affected organisations.

2. Schedule of Prescribed and Non Prescribed Signs to be supplied by the *Contractor*

The *Contractor* shall supply, install and maintain the diversion and information signs in accordance with the Traffic Signs Manual(TSM) Chapter 8 2009 and the Traffic Signs Regulations and General Directions(TSRGD) 2016.

APPENDIX 1/23: Risks to Health and Safety from Materials or Substances

1. General

i. The *Contractor* is required to inform the *Service Manager* at all stages of the actions and steps to be taken by the *Contractor* with regard to the proper use of substances hazardous to the health.

ii. The *Contractor* is to provide the *Service Manager* with a copy of his assessments undertaken as required by COSHH, CAW and CLAW Regulations together with written details of his proposals for implementing the specific requirements described in Appendix 1/23.

2. Restrictions in relation to working practices

i. Work shall be curtailed where wind causes spreading of hazardous deposits.

ii. During the Work operations care should be taken to protect members of the public particularly during:
- Site clearance and excavations;
- Concreting
- Any other operation likely to generate dust, noise or result in hazardous or unhealthy substances being released.

iii. The *Contractor* shall employ banksmen during any operations that could affect the safety of members of the public passing through the site, and is to temporarily suspend operations where required whenever possible to facilitate the safe movement of the public.

iv. The *Contractor* shall comply with the requirements of Pollution Prevention Guideline No. 2 'Above Ground Oil Storage Tanks', Pollution Prevention Guideline No. 5 'Works in, Near or Liable to Affect Watercourses' and Pollution Prevention Guideline No. 6 'Working at Construction and Demolition Sites' published by the Environment Agency.

v. *Contractor* shall make available all necessary personal protection equipment and other safety equipment necessary for the protection of all persons who may be exposed to substances hazardous to health in connection with the Works. The *Contractor* shall ensure that all staff and Subcontractor staff requiring such protection are fully trained in the use of the equipment and that the appropriate equipment is used by such persons when there is a risk of exposure to substance hazardous to health.

vi. The *Contractor* shall submit detailed method statements, to the satisfaction of the *Service Manager*, stating how the *Contractor* will ensure that the public are not affected by substances hazardous to health which may be used during the construction of the Works. Such method statements shall state the proposed methods to prevent, control and monitor exposure of the public to the above substances when used or generated in or about the Works.

3. Dust, Fumes and Smoke

a. The *Contractor* shall not cause excessive dust, fumes or smoke from the following operations:

i. Removal of Thermo-plastic white lines

ii. Milling bituminous surfacing

iii. Sweeping of carriageways and footways

b. The free floating dust shall be kept to a minimum and if required by the *Service Manager* shall be dampened with water sprays.

c. Equipment should be sited and screened where necessary to minimise dust emission to adjoining areas.

d. The *Contractor* shall take all measures necessary to prevent spillage on to roads adjoining the works and in wet weather shall prevent mud from the works being carried on to the highway

e. All stockpiles should be covered to prevent the generation of dust.

f. Other measures shall be detailed on the Works Package.

4. Measures to be taken to protect members of the public

i. Measures to be taken to protect members of the public are scheduled below. Adequate warning signs shall be provided.

Substance	Hazard	Operation	Special Measures
Bitumen joint sealing compounds		Sealing joints	Site pre heaters away from public. Restrict access during use and until set.
Cementitious mortars and grout	Irritant	Grouting, bedding concrete repair	Restrict access during application and until set
Concrete	Irritant	General construction	Restrict access during application and until set
Dust generated during cutting of concrete	Irritant	Cutting cement products	Restrict access during cutting.
Concrete curing agents	Flammable / harmful	Curing Concrete	Restrict access during use and until dry.
Dust generated during the cutting of hard woods	Harmful	Cutting/sanding	Restrict access during cutting/sanding operations
Asphaltic materials - Coated road stone	Harmful	Highway construction	Restrict access during laying and until set.
Thermoplastic	Harmful	Line marking	Site pre-heaters well away from public, restrict access during application and until dried.
Cement	Irritant	General Construction	Restrict access during mixing and application until dried
Bitumen	Harmful	Tack coat, Bridge Deck Waterproofing	Restrict access during application and until set.

Treated timber	Low	Fencing, environmental barriers	Restrict access if timber wet and when cutting or sanding
Dust generated during the cutting of soft woods	Low	Fencing, environmental barriers	Restrict access during cutting/sanding operations
Dust generated during the cutting of macadams and asphalts	Low	Cutting	Restrict access while cutting
Dust generated during milling/planning	Harmful	Milling/Planning	Restrict access during milling/planning operations
Flying debris	Harmful	Excavation, milling, hydrodemolition, etc.	Restrict access, erect screens
High Pressure Water	Harmful	Hydrodemolition	Restrict access, erect screens to work areas and hosing to protect public from jets. Emergency plan for equipment failures
Spray, waste water	Low	Hydrodemolition	Adequate screening, water seals on overhead gantries, etc. Emergency plan for seal failures etc.

ii. Nothing in this Appendix shall relieve the *Contractor* of his obligations under the Control of Substances Hazardous to Health Regulations 1998 (COSHH) and his responsibility for the development of safe working practices.

iii. Additional measures to be taken to protect members of the public will be scheduled in the Works Package.

5. Monitoring to be undertaken by *Contractor*

i. The *Contractor* shall monitor fumes produced adjacent to public areas. All proprietary products shall be used strictly in accordance with the manufacturer's instructions.

ii. The *Contractor* shall prepare and maintain a register of all substances hazardous to health which is brought on to the Site. The *Contractor* shall operate a documented system to control the issue and use of such material in connection with the Works subject to the agreement of the *Service Manager*.

iii. No specific monitoring will be required but the *Contractor* should consider the above and his general obligation under the COSHH Regulations and take action to eliminate or reduce problems that occur due to his site operations.

iv. The *Contractor* is required to keep records of all materials taken from the site and must record the location of tips and the nature of the material deposited in them from the site. These records shall be available for inspection by the *Service Manager* on demand.

APPENDIX 2/3: RETENTION OF MATERIALS ARISING FROM SITE CLEARANCE

1 Unless otherwise stated on the Works Package, all materials from site clearance is to be disposed to tip off site in accordance with current waste acceptance criteria and appropriate permit/licenses.

APPENDIX 2/4: EXPLOSIVES AND BLASTING

1 Explosives shall not be used.

APPENDIX 3/1: FENCING, GATES AND STILES

1 Details of any fencing, gates and stiles to be replaced will be provided in the Works Package. Existing fencing, gates and stiles are included in Network Information.

2 Details of fencing, gates and stiles are as shown on Highway Construction Details drawings H1 to H48.

3 Fencing for the protection of planted areas shall be hexagonal wire netting fencing complying with BS 1722-2 Section 8 and in accordance with Highway Construction Details (HCD) Drawing Number H39 Fencing Type 1.

4 Any replacement fencing, gates or stiles should be constructed in accordance with Series 300 of 'Specification for Highway Works' Volume 1 of the Manual of Contract Documents for Highway Works.

5 Fencing for the protection of planted areas shall be hexagonal wire netting fencing complying with BS 1722-2 Section 8 and in accordance with Highway Construction Details (HCD) Drawing Number H39 Fencing Type 1.

6 Where required, wire mesh shall be attached to permanent or existing fencing in accordance with HCD Drawing Numbers H46 or H47.

7 Any defective and damaged parts of any existing or temporary mammal proof fencing shall be immediately repaired by the *Contractor* after receiving instruction from *Service Manager*. The specification for the repair or replacement of mammal proof fencing shall be as follows:

Badger fencing shall be in accordance with the following specification or as agreed with the *Service Manager*:

Post and mesh fences in accordance with British Standard 1722 part 2: 1989 Specification for rectangular wire mesh and hexagonal wire netting fences with a rectangular steel wire mesh having maximum openings of 25 millimetres X 50 millimetres and wires of not less than 3 millimetres diameter in accordance with British Standard 4102: 1990 "Specification for steel wire and wire products for fences" and galvanised to British Standard BS 729: 1971 (1994) A specification for hot dip galvanised coatings for iron and steel articles. The mesh shall be securely stapled to the posts and (where present) rails of the highway boundary fences installed along the scheme roads. Where the highway boundary fence is post and wire, stobs shall be spaced no more than 1.8 metres apart. The mesh shall extend a minimum of 1.0 metre above ground level and be buried vertically to between 300 millimetres and 500 millimetres below ground and turned at right angles from the bottom of the buried section towards the direction from which badgers are expected to approach for a further 300 millimetres. The return shall consist of a separate roll of mesh attached with clips to the bottom of the vertical mesh. The vertical mesh shall be secured at ground level by a galvanised wire not less than 5 millimetres in diameter. The fencing shall also include a wire mesh overhang of at least 300 millimetres at the top of the fence positioned in the direction from which badgers are expected to approach and should protrude at an angle of between 45 degrees and 90 degrees. Fixings for attachment to Structures shall use a resin fixed replaceable bolt system.

Badger Gates shall be constructed in accordance with the RSPCA publication Problems with Badgers All badger gates shall incorporate concrete sills to prevent digging or erosion.

Otter Fencing shall be in accordance with the following specification or as agreed with the *Service Manager*:

Post and mesh fences in accordance with British Standard 1722 part 2: 1989 Specification for rectangular wire mesh and hexagonal wire netting fences with a rectangular steel wire mesh having maximum openings of 50 millimetres X 100 millimetres and wires of not less than 3 millimetres diameter in accordance with British Standard 4102: 1990 Specification for steel wire and wire products for fences and galvanised to British Standard 729: 1971 (1994) A specification for hot dip galvanised coatings for iron and steel articles. The mesh shall be securely stapled to the posts and (where present) rails of the highway boundary fences installed along the scheme roads. Where the highway boundary fence is post and wire, stobs shall be spaced no more than 1.8 metres apart. The mesh shall extend a minimum of 1.2 metres above ground level and be buried vertically to a depth of between 250 and 350 millimetres and turned at right angles from the bottom of the buried section towards the direction from which otters are expected to approach for a further 250 to 350 millimetres. In areas of uneven ground or soft soil, the buried section of the fence should extend to a depth of 500 millimetres and include a horizontal return of 500 millimetres. The return shall consist of a separate roll of mesh attached with clips to the bottom of the vertical mesh. The fencing shall also include a wire mesh overhang of at least 300 millimetres at the top of the fence positioned in the direction from which otters are expected to approach and should protrude at an angle of between 45 degrees and 90 degrees. The vertical mesh shall be secured at ground level by a galvanised wire not less than 5 millimetres in diameter and a galvanised barbed wire shall be securely stapled to the posts of the fence 25 millimetres above the top of the mesh. Fixings for attachment to Structures shall use a resin fixed replaceable bolt system.

A higher specification fencing featuring taller fence netting (1450 millimetres) as recommended in DMRB Otter Revised Advice Note HA 81/99 should be used where otter activity is higher and there is an increased likelihood of fence breaches and road traffic accidents, around culverts, underpasses and watercourses.

Where there is a requirement for combined badger and otter fencing, the fence shall be built to the height specifications of the otter fencing but shall have the smaller rectangular steel mesh specified for the badger fencing.

Should there be a need to install additional bat bridges then they shall be in accordance with the following specification or as agreed with the *Service Manager*:

The bat bridge shall be composed of six stainless steel wire cables, with a minimum diameter of six millimetres, suspended over the carriageway between two timber poles. The cables shall be arranged in three rows over the carriageway, with each row separated vertically by 1000 millimetres. The top row of cables shall be separated horizontally by 900 millimetres, the middle row of cables by 1450 millimetres and the bottom row of cables horizontally by 2000 millimetres to create a triangular bridge profile. Two timber poles supporting the steel cables shall be provided, 2000 millimetres apart, on each side of the road beyond the verge. The timber poles shall include anti-climbing measures. Each timber pole shall be set in concrete and anchored using six stainless steel wire cables with a minimum diameter of 12 millimetres. Anchor cables for the timber poles shall be set into concrete anchor blocks. The minimum height above the carriageway of the cables, including sag, shall be higher than the maintained headroom of the route. Plastic spheres, with a minimum diameter of 200 millimetres, shall be located approximately 2000 millimetres apart horizontally on each cable. These will be offset on each row vertically by 700 millimetres. Planting shall be provided around the base of the timber poles and around anchor cables as shown on the Indicative Landscape Design drawings as listed in Appendix 0/4 to the Specification.

APPENDIX 4/1 ROAD RESTRAINT SYSTEMS (VEHICLE AND PEDESTRIANS)

1. General

I. All Road Restraint Systems, shall be as defined in the BS EN 1317(both part 1 and 2), CE marked, shall conform to DMRB TD19/06 and Series 400 of MHCW Volume 1.

II. All Road Restraint Systems new or replacement installed in Affected Property, must be installed and maintained by qualified personnel in accordance with Sector Schemes 2B and 5B (see Appendix A of MCHW-1), where these schemes are applicable. VRS, such as bridge and pedestrian parapets or cast in-situ concrete barriers, that are not covered by these Sector Schemes must be installed and maintained by suitably trained and experienced personnel.

III. Any Defects requiring alteration, replacement, connection to existing non-proprietary road restraint systems, should be in accordance with BS 7669-3. Any Defects requiring alteration, replacement, connection to existing proprietary road restraint systems should be in accordance with the manufacturer's recommendations.

IV. All new or replacement pedestrian parapets and pedestrian guardrails should comply with BS 7818 and MCHW Volume 1 Series 400 clause 411.

V. Anti-glare screen system shall conform to BS EN 12676-1 and BS EN 12676-2 and clause 412 of MCHW Volume 1 Series 400.

2. Location:

I. Location of existing Road Restraint Systems and Anti-glare screen system are included in Network Information.

3. Testing

I. The *Contractor* shall supply details of proposed Vehicle Restraint Systems in accordance with Clause 401, 402, and 403.

II. The *Contractor* is to provide testing equipment and carry out testing in accordance with Clauses 404, 406, 407, 409, and 410 and Appendix 1/5 as appropriate.

III. The *Contractor* shall allow in his rates for the testing of post foundations at the rate of one per section of new barrier and 2 per section of existing barrier into which it is proposed to connect new barrier.

IV. The Principal *Contractor* shall agree the precise locations for test foundations with the *Service Manager*.

V. Upon completion of the loading tests the *Contractor* shall remove the test posts and foundations and reinstate the finished ground to the satisfaction of the *Service Manager*.

VI. All Road Restraint Systems shall be tested in accordance with the Highways Agency approved system which conforms to BS EN1317.

4. Temporary Safety Barriers

I. Temporary Safety Barriers are to be provided in accordance with MCHW Volume 1 Series 4 Clause 401 and 405 and as instructed by the *Service Manager*.

APPENDIX 4/2: INFORMATION REQUIRED TO DEMONSTRATE COMPLIANCE OF ROAD RESTRAINT SYSTEMS TO BS EN 1317-1, BS EN 1317-2, BS EN 1317-3 AND DD ENV 1317-4:2002

The *Contractor* shall submit the following supporting information demonstrating compliance with BS EN 1317-1, BS EN 1317-2, BS EN 1317-3 and DD ENV 1317-4:2002 to the *Service Manager* for acceptance:

EUROPEAN COMMITTEE FOR STANDARDIZATION (CEN) COMPLIANCE[1]

Initial submission documents to be supplied for consideration of initial type tests are as follows:

1) Test report in accordance with BS EN1317-1, clause 9 (and including any additional test data required under BS EN 1317-3, clauses 7.3 and 7.4 and DD ENV 1317-4:2002, clauses 7.3 and 7.4).
2) Video/high speed film of test annotated showing date, test number and performance class.
3) Still photographs of complete installation including anchorage points.
4) Still photographs of vehicle before and after impact.
5) Full drawings of tested items.
6) Certification from the manufacturer that the item tested complies with drawings supplied.
7) Certificate from test house accredited in accordance with the requirements of MCHW Volume 1 Series 400.

Additional information, which will be required on acceptance of initial type test prior to installation are as follows:

1) Manufacturer's specification.
2) Installation drawings.
3) Manufacturer's installation instructions including foundation requirements and test methods to verify their performance.
4) Manufacturer's repair and maintenance manual.
5) Certificate of compliance with the Quality Management Scheme 1 for the Manufacture of Fencing Components[2].
6) Compliance with the Quality Management Sector Scheme[2] - Supply and Installation of Fences:
    a. Sector Scheme 2B for Vehicle Restraint Systems[2]
7) Certificate of compliance for the Quality Management Sector Scheme 5 for the Manufacture and Installation of Bridge Parapets and Cradle Anchorages.[3] : (11/06)
    a. Sector Scheme 5A for the Manufacture of Parapets for Road Restraint Systems; and (11/06)
    b. Sector Scheme 5B for the Installation of Parapets for Road Restraint Systems. (11/06)
8) Nominal loads (direct forces, moments and co-existent shears) to be transferred from the parapet to the structure or foundation[2 & 3].

Notes:
1. All documents should be in English.
2. Required for safety barrier systems and transitions
3. required for vehicle parapets. See also Note 1 under Sector Scheme B in Appendix A of the Specification for Highway Works.

				Sheet 1 of 3	
SUBMISSION FOR COMPLIANCE WITH CLAUSE 401 **TYPE OF TRANSITION:** **Ref(s) used in contract specific Appendix 4/1 Schedule of RRS:** **CONTAINMENT PERFORMANCE CLASS/PERFORMANCE LEVEL/PERFORMANCE CLASS (*):** **TEST REPORT NUMBER:** **(Test of)** **Test Type: (Primary/Complementary Test) (*)** **TEST NUMBER:** **TEST DATE:** (*) delete as appropriate					
COMPANY NAME: CONTACT: ADDRESS: Tel: / Fax:/ E-mail: PRODUCT NAME:					
Initial submission documents to be supplied for consideration of Initial Type Test (ITT).					
Item		**Comment**		**Item Received (Y or N)**	**Date requested**
1	Test report	In accordance with either BS EN 1317-2:2010, Annex A or DD ENV 1317-4:2002, clause 7.8.			
2	Video/high speed film	Of test coverage as specified in relevant part of DD ENV 1317-4:2002. Annotated showing date, test number and performance class			
3	Still photographs	Of complete installation.			
4	Still photographs	Of vehicle before and after impact.			
5	Drawings	Fully detailed drawings of tested item.			
6	Certification from the manufacturer	Confirming that the item tested complies with drawings supplied.			
7	Confirmation from test house	That the test conforms to the relevant requirements of BS EN 1317-1:2010 and BS EN 1317-2:2010 and DD ENV 1317-4:2002 for transitions.			
Additional information, which will be required on acceptance of initial type test prior to installation.					
8	System specification	Manufacturer's specification.			
9	Installation details	Manufacturer's drawings.			
10	Installation procedures	Manufacturer's installation instructions or installation manual.			
11	Maintenance Manual	Manufacturer's inspection, repair and maintenance instructions.			
12	Certificate of registration	National Highways Sector Scheme 2B for the Supply and Installation of Vehicle Restraint Systems for each organisation installing the transition.			
13	Additional information	Any additional information required in contract specific Appendix 4/1.			
Notes:					
1. All documents are to be in English.					
Signature:			Name:		
Date:					

SUBMISSION FOR COMPLIANCE WITH CLAUSE 401 (cond.)

TYPE OF TRANSITION:

Ref(s) used in contract specific Appendix 4/1 Schedule of RRS:

CONTAINMENT PERFORMANCE CLASS/LEVEL(*)

TEST REPORT NUMBER: **(Test of)**

Test Type: (Primary/Complementary Test) (*)

TEST NUMBER: **TEST DATE:** (*) delete as appropriate

COMPANY NAME: CONTACT: ADDRESS: Tel: / Fax:/ E-mail: PRODUCT NAME:	

			Specified	Actual	Satisfactory (Yes or No)	Compliance
BS EN 1317-1: 2010, Table 1	Vehicle Details	**Impact Conditions** Total vehicle mass (kg) Speed (km/h) Angle (degrees) Combination of tolerances meets Figure 6 of ENV1317-4:2002	..... (± ...) ..... (0, +7%) ..... (-1, + 1.5) Refer to Figure 6 of ENV1317-4:2002			
		Centre of Gravity Vertical height (m) Longitudinal (m) Lateral (m)	..... (± 10%) ..... (± 10%) ±			
		Model				N/A
BS EN 1317-2: 2010, clause 4.2	Vehicle Restraint System (VRS) transition Behaviour	1) The transition shall contain the vehicle without breakage of any of the principal longitudinal elements of the system. 2) All totally detached parts of the transition with a mass greater than 2,0 kg shall be identified, located and recorded in the test report with their size. 3) Elements of the transition shall not penetrate the passenger compartment of the vehicle. Deformations of, or intrusions into the passenger compartment that can cause serious injuries shall not be permitted. 4) Foundations, ground anchorages and fixings shall perform according to the design of the VRS transition.				
BS EN 1317-2: 2010, clause 4.3	Vehicle Behaviour	1) During and after the impact, no more than one of the wheels of the vehicle shall completely pass over or under the transition. 2) The vehicle shall not roll over (including rollover of the vehicle onto its side), during or after impact. 3) For tests with Heavy Goods Vehicles and buses, not more than 5 % of the mass of the ballast shall become detached or be spilt during the test up to the time when the wheel tracks of the vehicle leaves the exit box 4) The vehicle shall leave the transition after impact so that the wheel track does not cross a line parallel to the initial traffic face of the system, at a distance A (2.2m for cars, 4.4m for other vehicles) plus the width of the vehicle plus 16 % of the length of the vehicle within a distance B (10m for cars, 20m for other vehicles) from the last (namely closest to the downstream end of the barrier) point P, where the last of the vehicle wheel tracks re-crosses the original line of the traffic face of the barrier after initial impact.				
BS EN 1317-2: 2010, clause 5.3.2	Installation	1) The length of the transition shall be sufficient to demonstrate the full performance characteristics of the system. 2) Post foundation shall meet the design specification. 3) Description of impact point location (with explanation of the choice of impact point if not at 3/4L for the light vehicle test and L/2 for the heavy vehicle test)				
BS EN 1317-2: 2010, clause 4.4	Impact Severity Level	**SPECIFIED** THIV Limit 33 km/h ASI Limit 1.4	**ACTUAL** THIV ..... km/h ASI			
BS EN 1317-2: 2010, clause 4.4	Transition Deformation	**DEFORMATION CHARACTERISTIC** Dynamic Deflection Working Width Vehicle Intrusion	**MEASURED (m) [Class]**	**NORMALISED (m) [Class]**		
BS EN 1317-2: 2010, clause 5.6, Figure 4	Photographic coverage	1) Photographic coverage shall be sufficient to clearly describe behaviour and vehicle motion during and after impact. 2) High speed cameras shall be operated at a minimum of 200 frames per second and stills. 3) As recommended in clause 5.6 and Figure 4. 4) Still Photography shall also be provided.				
	Drawings	Drawings included				
					N/A = Not Applicable	

FULLY COMPLIES WITH STANDARD: BS EN 1317-1:2010 , BS EN 1317-2:2010 , DD ENV 1317-4:2002

Signature:	Name:
Date:	

			Sheet 3 of 3			
SUBMISSION FOR COMPLIANCE WITH CLAUSE 401 **TYPE OF TERMINAL:** **Ref(s) used in contract specific Appendix 4/1 Schedule of RRS:** **PERFORMANCE CLASS:** (Test of) **Test Type: (Primary/Complementary Test) (*)** **TEST TYPE NUMBER:** **TEST NUMBER:** **TEST DATE:** (*) delete as appropriate						
COMPANY NAME: CONTACT: ADDRESS: Tel: / Fax:/ E-mail: PRODUCT NAME:						
			Specified	**Actual**	**Satisfactory (Yes or No)**	**Compliance**
BS EN 1317-1: 2010, Table 1 and DD ENV 1317-4: 2002, clauses 7.4 and 7.5	Vehicle Details	**Impact Conditions** Total vehicle mass (kg) Speed (km/h) Angle (degrees) Combination of tolerances meets Figure 6 of ENV1317-4:2002	..... (± ...) ..... (0, +7%) ..... (-1, + 1.5) Refer to Figure 6 of ENV1317-4:2002			
		Centre of Gravity Vertical height (m) Longitudinal (m) Lateral (m)	..... (± 10%) ..... (± 10%) ±			
		Model				N/A
DD ENV 1317-4: 2002, clauses 5.4 and 5.5.2	Terminal Behaviour	1) Elements of the terminal shall not penetrate the passenger compartment of the vehicle. Deformations of, or intrusions into, the passenger compartment that could cause serious injuries are not permitted. 2) No major part of the terminal shall become totally detached and come to rest outside the permanent lateral displacement zones defined in clause 5.4 of DD ENV 1317-4:2002. 3) Anchorages and fixings shall perform to the terminal design specifications and other specified requirements as listed in the test report. 4) The permanent lateral displacement zone for the terminal shall be reported after the test.				
DD ENV 1317-4: 2002, clause 5.5.3	Vehicle Behaviour	1) The vehicle shall not overturn, although rolling, yawing and moderate pitching may be accepted. For the terminal Performance Class P1 rolling onto a side may be accepted. 2) The exit box values for the specified test are as defined in Figures 5 and Tables 7 and 8. (as appropriate).				
DD ENV 1317-4: 2002, clause 7.3.2	Installation	1) The terminal shall conform to the structural design details and with the system installation details as given in the design specification of the manufacturer.				
DD ENV 1317-4:2002, clause 5.5.4 and Table 5	Impact Severity Level	**SPECIFIED** Level A: THIV ≤ 44km/h (Tests 1 and 2) THIV ≤ 33km/h (Tests 4 and 5) ASI ≤ 1.0 Level B: THIV ≤ 44km/h (Tests 1 and 2) THIV ≤ 33km/h (Tests 4 and 5) ASI ≤ 1.4	**ACTUAL**			
DD ENV 1317-4:2002, clause 7.7, Figure 7	Photographic coverage	1) Photographic coverage shall be sufficient to describe clearly terminal and vehicle motion during and after impact. 2) High speed cameras and/or high speed video cameras at a minimum of 200 frames per second. 3) Still photography shall also be provided.				
	Drawings	Drawings included				
					N/A = Not Applicable	
FULLY COMPLIES WITH STANDARD: BS EN 1317-1 and DD ENV 1317-4:2002						
Signature:		Name:				
Date:						

APPENDIX 5/1: DRAINAGE REQUIREMENTS

1. Cleaning of existing drainage system

i. Location and details of existing drainage system is included in Network Information.

ii. Existing drainage systems shall be cleaned in accordance with MCHW Volume 1 Series 500 clauses 520 and 521, Series 6100 and Schedule 7 Part 1.

iii. An alternative method to cleaning by jetting should be used for porous concrete or perforated pipes to avoid a risk to the structural integrity of the porous pipes and the risk that exfiltration will enter the unbound pavement layers and wash out fine material in both instances.

iv. Where jetting is used, work shall be carried out in accordance with MCHW Volume 1 Series 500 Clause 521.

   a. Jet heads with nozzles set at approximately 20o to the pipe surface have a low jet angle and are unlikely to cause damage to the pipeline. Fan jets have low jet angles and are widely dissipated and hence unlikely to cause damage to the pipeline.
   b. The use of a high pressure lance may be used externally to clear gratings or slots of linear drainage systems.
   c. The pipeline should be deemed to be clean when the silt content of the cross-sectional area of the pipe is between 0 and 10% for pipes 600 mm diameter or less and between 0 and 5% for pipes over 600 mm diameter.
   d. Suitable measures such as stanks or stoppers shall be positioned downstream of the drainage system to be cleaned to minimise the risk of sediment causing contamination of watercourses or soakaways.

v. To achieve the performance requirements of the drainage systems the cleaning of open surface water drainage channels, grips, balancing ponds, headwalls, ditches, outfalls and the like shall include the clearance and removal of any full or partial blockages resulting from siltation, erosion, detritus, refuse, rubble and vegetation growth including root systems.

vi. All arisings from the cleaning process shall be disposed of in an environmentally sensitive manner in accordance with current legislation.

2. Plastic Pipes

i. Ultimate pipe stiffness (STES) in excess of 1400 N/m 2 when tested in accordance with BS4962.

ii. Resistance to impact complying with BS4962 except that the striker used in the test shall have a mass of 1kg and a 25mm hemispherical radius.

iii. Joints in surface water drains shall be watertight. The requirement for watertight joints and use of rigid joints shall be determined by the *Contractor* in accordance with MCHW Volume 1 Series 500 clause 504.

iv. Existing land drains severed by the works are to be connected into the drainage system in accordance with Cl. 511.

3. Covers to Chambers and Gullies including replacement of covers, gratings.

Covers to chambers and gullies to be used shall comply with BS EN 124 as appropriate to the location and as follows:

Chambers

i. BS Ref D400 comprising: Ductile heavy duty, double triangular, three point suspension, non-rocking cover suitable for trunk roads. Opening to be square.

ii. Ductile medium duty double triangular three point suspension non rock cover Class B225.

iii. Triple two piece gully type gratings Class D400 with waterway area 3330 cm².

Gullies

i. Single piece hinged gully grating Class C250 with waterway area 1240 cm².

ii. Double triangular two piece non rock gully grating Class D400 with waterway area 1870 cm².

Rodding Eyes

i. Ductile non-rocking cover Class D400, B225 or C250 as appropriate to the location. The required loading category shall be determined by the *Contractor*.

4. Adjustment of level to covers and frames.

i. Where covers and gratings are being adjusted or replaced, they shall be bedded using a proprietary quick setting high strength mortar in accordance with clause MCHW Series 500 clause 507.18.

ii. Manhole and chamber covers shall be set or reset to the final levels prior to the laying of the uppermost wearing course or, if no surfacing activities are being undertaken, to the level of the surrounding ground surface.

iii. Gully frames shall be set 6 mm below the level of the adjacent surface.

iv. Covers and frames together with any shims, tiles, brick or other authorised material used to adjust the level shall be bedded using polyester epoxy or ultra-rapid hardening cementitious mortar applied in accordance with the manufacturer's written instructions or i above.

5. Connections

i. Requirements for connections to existing drains shall be determined by the *Contractor* and should conform to MCHW Volume 1 Series 500.

ii. All gully connections and outfalls from Combined Kerb and Drainage Units shall receive Type Z bed and surround.

4.

6. Chambers

i. Chambers and Manholes shall be constructed in accordance with MCHW Volume 3 Highway Construction Details, the requirements of MCHW Volume 1, DMRB Volume 4 Section 2 HA 104/09, BS EN 124 and BS 7903.

ii. All concrete for ancillary purposes shall conform to MCHW Volume 1 Clause's 2601 and 2602.For porous "No Fines" Concrete refer to MCHW Volume 1 clause 2603

5.

7. Schedule of concrete for ancillary purposes:-

6. Purpose	7. Mix (Minimum) (All cement shall be sulphate resisting to BS 4027)
Blinding concrete, backfill for of post holes and preparation of formation to MCHW Volume Clause 616	8. ST2 (or above)
Bedding and backing to precast concrete kerbs, channels, edgings and quadrants	9. ST2

i. Gullies shall be trapped and shall be constructed in accordance with MCHW Volume 3 Highway Construction Details. Gully tops shall comply with BS EN 124, BS 7903 and DMRB Volume 4 Section 2 HA 104/09. The stopper shall comply with the requirements of BS 5911: Part 2.

8. Abandoned Gullies

i. Where existing gullies are to be abandoned the gully grating, frame and riser brickwork is to be removed and the gully pot to be filled with ST2 concrete.

9. Filter Drains

i. Any replacement Filter drains(combined carrier filter or filter) shall be constructed in accordance with MCHW Volume 3 Highway Construction Details and MCHW Volume 1, 500 series at the locations and invert levels as shown in the works package, when instructed by the *Service Manager*.

ii. Location and details of existing Filter drains(combined carrier and filter drains and filter drains) in the Affected Property are included in the Network Information

iii. Any filter drains shall discharge directly into catchpit chambers prior to the flow entering the carrier drain network.

- Precast concrete elements shall have been produced from sulphate resisting Portland cement.
- Joint rings in sewers and drains shall be resistant to sulphate attack.
- Mortar shall be made with sulphate resisting Portland cement.

iv. Filter drains are to be constructed with perforated or slotted pipes, to be laid with the perforations or slots upwards, and shall have the minimum strength requirement specified in the British Standards for pipes without perforations.

10. Testing the Drainage System

i. All new carrier, foul, filter drains and linear drainage but excluding all fin and narrow filter drains shall be surveyed by Closed Circuit Television (CCTV) and records handed over to the *Service Manager*.

ii. During the progress of the Works all existing chambers, gullies and rodding eyes shall be kept clean and free from obstruction. On completion of the whole of the Works, all new chambers, gullies and drains including verge/surface water drains and filter drains

excluding all fin and narrow filet drains shall be flushed from end to end with water and left free from obstructions. Catch pit chambers shall be left clean and free from silt.

iii. The *Contractor* shall comply with Clause 516 for any Combined Drainage and Kerb System which is installed. The *Contractor* shall perform a Load Test on the installation at a frequency of a minimum of 1 test and not less than 1 test per 1000m of each type and source. The *Contractor* shall supply certification of compliance to the *Service Manager*

iv. The *Contractor* shall comply with Clause 517 for any Linear Drainage System which is installed. The *Contractor* shall perform a Load Test on the installation at a frequency of a minimum of 1 test and not less than 1 test per 1000m of each type and source. The *Contractor* shall supply certification of compliance to the *Service Manager*.

v. The *Contractor* shall comply with Clause 518 for any Thermoplastic Structured Wall pipes and fittings used. The *Contractor* shall supply certification of compliance to the *Service Manager*

11. Filter material replacement of existing drainage systems

i. Details of existing filter drainage systems to have filter material replaced are shown in the Works Package.

ii. Unless detailed in the Works Package the *Contractor* is to determine the type of filter drain in use and select the appropriate detail for filter material replacement.

SCHEDULE OF PIPE/BED COMBINATIONS - CARRIER DRAINS

Pipe Dia. (mm)	Pipe Group No.	Vitrified Clay			Precast Concrete			Asbestos Cement			Unplasticised PVC		
		S	ES	SS	L	M	H	L	M	H		Nominal Diameter	
												(mm)	(in)
150	5	A,S, B,F	A,S, B,F	A,S,B, F,N	A,S, B,F	A,S, B,F,N				A,S, B,F,N	S	160	6
150	99	Z	Z	Z	Z	Z				Z	Z	160	6
225	5	A,S, B	A,S, B,F	A,S,B, F	A,S, B	A,S,B, F				A,S, B,F,N	S		9
300	5	A,S	A,S, B	A,S,B, F	A,S, B	A,S,B			A,S, B,F	A,S, B,F,N	S	315	12

Trench and bedding details shown on drawing HCD F1.

SCHEDULE OF PIPE/BED COMBINATIONS - FILTER DRAINS

Pipe Dia. (mm)	Pipe Group No.	Vitrified Clay			Precast Concrete				Unplasticised PVC		
		S	ES	SS	S/L	ES	M	H		Nominal Diameter	
										(mm)	(in)
150	1	G,H,I, J,L,L, M	G,H,I, J,L,L, M	G,H,I ,J,L,L ,M	G,H,I, J,L,L, M		G,H,I, J,L,L, M		G,H,I,J, L,L,M	160	6
225	1	G,H,I, J,L,L, M	G,H,I, J,L,L, M	G,H,I ,J,L,L ,M	G,H,I, J,L,L, M		G,H,I, J,L,L, M		G,H,I,J, L,L,M		9
300	1	G,H,I, J,L,L, M	G,H,I, J,L,L, M	G,H,I ,J,L,L ,M	G,H,I, J,L,L, M		G,H,I, J,L,L, M		G,H,I,J, L,L,M	315	12

Trench and bedding details shown on drawing HCD F2.

Pipe schedule

Pipe diameter (mm)	Average depth (m)	Carrier/Filter	Construction Group	Drawing No.
150	1.00	Carrier	5	HCD F1
150	1.50	Carrier	5	HCD F1
150	2.00	Carrier	5	HCD F1
150	1.00	Carrier	99	HCD F1
150	1.50	Carrier	99	HCD F1
150	2.00	Carrier	99	HCD F1
225	1.00	Carrier	5	HCD F1
225	1.50	Carrier	5	HCD F1
225	2.00	Carrier	5	HCD F1
300	1.00	Carrier	5	HCD F1
300	1.50	Carrier	5	HCD F1
300	2.00	Carrier	5	HCD F1
150	1.00	Filter	1	HCD F2
150	1.50	Filter	1	HCD F2
150	2.00	Filter	1	HCD F2
225	1.00	Filter	1	HCD F2
225	1.50	Filter	1	HCD F2
225	2.00	Filter	1	HCD F2
300	1.00	Filter	1	HCD F2
300	1.50	Filter	1	HCD F2
300	2.00	Filter	1	HCD F2

Chamber Schedule

Chamber Type	Drawing No.	Depth to Invert of lowest pipe (m)
Type 3a	HCD F5	1.00
Type 3a	HCD F5	1.50
Type 3a	HCD F5	2.00
Type 7	HCD F11	1.00
Type 7	HCD F11	1.50
Type 7	HCD F11	2.00

APPENDIX 5/5: COMBINED DRAINAGE AND KERB SYSTEMS

Combined Drainage and Kerb System

i. Width of top of system to match width of type HB or SP kerb.

ii. Profile of system to match type HB or SP kerb.

iii. System to permit lateral entry of surface water from the channel either continuously or at intervals not exceeding one metre.

iv. System shall be suitable for its intended purpose. The *Contractor* shall provide evidence of such suitability.

v. Proprietary systems shall be installed in accordance with manufacturer's specification and recommendations.

vi. The system shall be cleaned out by high pressure water jetting or other appropriate means on completion of the Works. The system shall be left clean and free from all obstructions.

vii. Outfalls shall be trapped and be provided with an access cover.

viii. Any Defects requiring alteration, replacement, connection to existing system should be of same size, profile and constructed using the manufacturer's specification.

APPENDIX 6/1: REQUIREMENTS FOR ACCEPTABILITY AND TESTING ETC. OF EARTHWORKS MATERIALS, AND OTHER MATERIALS AND PRODUCTS

10.

12. Classification of existing materials

b. The *Contractor* shall be responsible for the assessment and selection of materials in earthworks and shall be responsible for the classification of materials on Site, or off Site, as appropriate.

c. The acceptability and classification of earthworks materials shall be determined by compliance with the MCHW Volume 1 Specification, including Table 6/1.

d. Fill materials shall be assessed at the place of excavation or deposition, as required by the *Contractor*.

e. Class 3 material shall not be used.

f. Material for disposal shall be removed to a licensed disposal facility.

13. Excavation of Hard Material

g. The following material shall be classified as hard material:

h. Existing bituminous pavement/footway layers

i. Existing concrete sub-base layers

j. Concrete to central reserve construction

k. Existing kerbs and foundations

APPENDIX 6/3: REQUIREMENTS FOR EXCAVATION, COMPACTION (OTHER THAN DYNAMIC COMPACTION)

1. General Information

i. Refer to Works Package.

2. Excavation

i. The adequacy of the extent of excavation on site will be checked and confirmed by the *Service Manager*.

ii. Blasting is not permitted as an alternative to normal excavation methods.

iii. Faces of cuttings which are to receive topsoil shall have measures carried out in accordance with Clause 603.7 as appropriate.

3. Compaction

i. Compaction of backfill will be in accordance with Table 6/4 and Clause 612.

APPENDIX 6/6: FILL TO STRUCTURES AND FILL ABOVE STRUCTURAL FOUNDATIONS

1. Unless otherwise stated backfill to all new structures and replacement of backfill to all existing structures shall be class 6N.
2. Class 6N fill not be permitted for use for reinstatement of cutting slopes unless a slope stability test as defined by clause 610.6 has been successfully carried out.

APPENDIX 7/1: PERMITTED PAVEMENT OPTIONS

1. Permitted Pavement Options – Schedule 1

Schedule 1: Permitted Pavement Options			
Drawing Ref:	**Area**	**General Requirements**	**Permitted Pavement Option**
As instructed			

2. General Requirements – Schedule 2

Schedule 2A: General Requirements		
Grid for checking surface levels of pavement courses	Longitudinal Dimension	10.0m
	Transverse Dimension	2.0m
Surface Regularity	Category of Road:	A
Interval for measurement of longitudinal regularity		As Table 7/2
Interval for measurement of transverse regularity		Each wheel track
Surface texture is required. Measurement of surface texture shall be in accordance with clause 921.		

2.

3. Permitted Construction Materials – Schedule 3

Schedule 3: Permitted Construction Materials		
Pavement Layer	Material Ref (s)	Thickness (mm)
Surface Treatment	HFS1	See Works Package
Surface Course	WC1, WC2	See Works Package
Binder Course	BC1	See Works Package
Base	BA1	See Works Package
Subbase	SB1, SB2, SB3	See Works Package
Regulating	RC1	See Works Package

3.

4. General Requirements for Construction Materials – Schedule 4

Schedule 4: General Requirements for Construction Materials	
Clause	Requirement

5. Requirements for Construction Materials – Schedule 5

Schedule 5: Requirements for Construction Materials			
Material Ref	**Clause**	**Description**	**Requirement**
SB1	803	Type 1 Unbound mixture	
SB2	805	Type 3 (open graded) Unbound Mixtures	
SB3	806	Category B (close graded) Unbound Mixtures	
RC	907	Regulating Course	Regulating material should match the binder course used on the particular site or part of the site with an aggregate grading to suit the layer thickness
BA1	929	Dense Base Asphalt Concrete (Design Mixtures)	Base Mixture Designation: AC 32 HDM base 40/60 des.
BA3	929	EME2 Base Course Asphalt Concrete	Base Mixture Designation: AC 20 EME2 base 15/25 des.
BA4	930	EME2 Base Course Asphalt Concrete	Base Mixture Designation: AC 10 EME2 base 15/25 des.
BC1	929	Dense Binder Course Asphalt Concrete (Design Mixtures)	Binder Course Mixture Designation: AC 20 HDM bin 40/60 des.
BC2	930	EME2 Binder Course Asphalt Concrete	Binder Mixture Designation: AC 14 EME2 bin 15/25 des.
BC3	930	EME2 Binder Course Asphalt Concrete	Binder Mixture Designation: AC 10 EME2 bin 15/25 des.
WC1	942	Thin Surface Course Systems	BBA HAPAS Road and Bridges Certification Type C (10mm & 14mm) (To be specified on works instructions) Traffic Count: see Network Information, GM701-ADAMR . Site definition and stress level: see Network Information Minimum declared PSV category in accordance with BS EN 13043, clause 4.2.3 = see works instructions Maximum aggregate abrasion value: see the Works instructions Minimum wheel-tracking level required on British Board of Agreement HAPAS Roads and Bridges Certificate: 3 Road/tyre noise level relative to hot rolled asphalt required on British Board of Agreement HAPAS Roads and Bridges Certificate: 2 The macrotexture depth shall be in accordance with clause 942.13 Surfacing Integrity performance requirements shall be in accordance with clause 942.16

WC2	909	Close Graded Asphalt Concrete Surface Course	Footway/Cycleway/local Repairs Surface Mixture Designation:AC6 close surf 100/150 des Minimum declared PSV category in accordance with BS EN 13043, clause 4.2.3 = see works package Maximum aggregate abrasion value: see the Works Package
WC5	943	Hot Rolled Asphalt Surface Course (Performance Related Design Mix) with coated chippings (915)	Resistance to permanent deformation in accordance with Table C.3 of BSI PD 6691 : Level 2 Coated Chippings: 14/20 Size BSI PD 6691 Annex C Cl C.2.8 Coated Chippings Minimum declared PSV category = PSV65 Coated Chippings Maximum declared AAV category: See the Works Package Minimum delivery temperature shall be in accordance with sub-Clause 945.4 Maximum wind speed and minimum air temperature shall be in accordance with sub-Clause 945.4 Test temperature for wheel-tracking and rut depth tests shall be 60ºC.
WC6	911	Hot Rolled Asphalt Surface Course (Design Mixtures)	Surface Mixture Designation: HRA 35/14 F surf 40/60 des Stability: 6-10KN Traffic Count: see Network Information, GM701-ADAMR . Site definition and stress level: see Network Information, GM701-ADAMR . Minimum declared PSV category in accordance with BS EN 13043, clause 4.2.3 = 45 Maximum aggregate abrasion value: 12 The macrotexture depth shall be in accordance with clause 942.13 Surfacing Integrity performance requirements shall be in accordance with clause 942.16 Minimum delivery temperature shall be in accordance with sub-Clause 945.4 Maximum wind speed and minimum air temperature shall be in accordance with sub-Clause 945.4
WC8	911	Hot Rolled Asphalt Surface Course (Design Mixtures)	Traffic Count: see Network Information Site definition and stress level: see Network Information, GM701-ADAMR . Minimum declared PSV category in accordance with BS EN 13043, clause 4.2.3 = 65/see work instruction. Maximum aggregate abrasion value; see the Works Package The macrotexture depth shall be in accordance with clause 942.13 Surfacing Integrity performance requirements shall be in accordance with clause 942.16 Minimum delivery temperature shall be in accordance with sub-Clause 945.4 Maximum wind speed and minimum air temperature shall be in accordance with sub-Clause 945.4

WC8	915	Coated Chippings	Coated Chippings: 14/20 Size BSI PD 6691 Annex C Cl C.2.8 Coated Chippings Minimum declared PSV category = PSV65 Coated Chippings Maximum declared AAV category: See the Works Package Minimum delivery temperature shall be in accordance with sub-Clause 945.4 Maximum wind speed and minimum air temperature shall be in accordance with sub-Clause 945.4 Test temperature for wheel-tracking and rut depth tests shall be 60ºC.
HFS1	924	High Friction Surface	Type Classification: Type 1 Minimum declared PSV category in accordance with BS EN 13043, clause 4.2.3 = PSV68 Maximum AAV in accordance with BS EN 13043, clause 4.2.4.= AAV10 Colour: Varies Where thin surface course is to be covered by high friction surfacing (HFS), the *Contractor* shall reduce the texture of the area of the thin wearing course system to between 1 and 2mm as measured by the sand patch test. This may be achieved by any suitable means, as detailed in HD 37/99. Where the surfacing is to be trafficked prior to the application of HFS, 3mm grit shall be applied and rolled in to provide enhanced short-term skid resistance, as detailed in HD 37/99. If the surface course is opened to traffic before High Friction Surfacing is laid, the *Contractor* shall erect temporary road signs as approved by the *Service Manager*.
LC	1030	Wet Lean Concrete 1 to 4	Strength as Clause 1030.1
FWSC	1105	Flexible surfacing and for footways	Bituminous mixtures used in flexible surfacing shall be made in accordance with BS EN 13108, the detailed requirements from the example specifications in BS PD6691 and Clause 901

6. Thin Surface Course Systems: Information to be provided by the *Contractor*

The *Contractor* shall provide the following information with his tender:

i. A copy of the British Board of Agreement HAPAS Roads and Bridges Certificate or Certificates for the thin surface course system or systems that are proposed for use in the works, together with a copy of the Quality Plan and Installation Method Statement associated with each Certificate.

ii. For any Certificate that covers several variants of one thin surface course system, proposed variant or variants of the system to be used in the Works.

iii. If requested, or of the thin surface course system is not produced under a Sector Scheme, the proposed component materials to be used in the thin surface course system and their proportions for each proposed system.

iv. Proposed source or sources of coarse aggregate together with a statement of its properties including polished stone value, ten percent fines value, aggregate abrasion value and flakiness index.

v. If regulating material is to be used, evidence of its deformation resistance either independently or in combination with the thin surface course system.

7. Modified Binder and Mixture Data Requirements

The following data shall be provided to the *Service Manager* for modified binders as required in sub-Clauses 937.4 and 943.4. The data should not be more than 12 months old. A table in which the binder data may be recorded is given at the end of this section.

For work carried out for the *Service Manager*, a copy of the results should be handed to the *Service Manager*, to be forwarded to: Pavement Engineering Team at Employer, Woodlands, Manton Lane, Manton Industrial Estate, Bedford, MK41 7LW.

i. Binder Samples
Bituminous binders shall be sampled from the delivery according to BS EN 58. For modifiers blended with the other component materials of the mixture at the mixer a simulated binder shall be prepared. Such modifiers are generally less intimately mixed with the bitumen and less well dispersed throughout the mixture than when pre-blended. Evidence that the simulated binder offers the same performance as the binder produced when the modifier is added at the mixer shall be provided.

ii. Penetration
Binder penetration at 25°C (BS EN 1426), 100g 5 seconds, and at 5°C, 200g 60 seconds, before and after hardening in the Rolling Thin Film Oven Test (RTFOT) in accordance with BS EN 12607-1, or alternatively, after RTFOT and after RTFOT and Ageing in accordance with Clause 955.

iii. Product Identification Test and Rheological Properties
Results for the binder(s) proposed shall comprise rheological data for each binder in the form of complex shear (stiffness) modulus (G*) and phase angle (δ) determined in accordance with Clause 956 for binder as supplied, after RTFOT and after RTFOT and Ageing in accordance with Clause 955.

iv. Storage Stability Test
All binders shall be stored strictly in accordance with the manufacturer's instructions. Polymer modified binders claimed to remain homogeneous in storage without agitation shall be tested for storage stability in the manner described in Clause 958. The mean of the differences in softening point between the top and bottom samples, of not less than five pairs of such samples shall not exceed 5°C. Manufacturers of pre-blended modified binders shall state what precautions are necessary to ensure that adequate homogeneity is maintained during storage.

v. Photomicrograph
A typical photomicrograph of the modified binder and binder using ultra-violet or other technique to provide maximum contrast of the polymer structure to the binder before modification shall be supplied together with details of sample preparation techniques.

vi. Cohesion
Vialit Pendulum cohesion test curve of the binder, in accordance with Clause 957 for the binder as supplied, after RTFOT and after RTFOT and Ageing in accordance with Clause 955.

vii. FRAASS Brittle Point
FRAASS brittle point measured using BS EN 12593 shall be provided on the binder as supplied, after RTFOT and after RTFOT and Ageing in accordance with Clause 955.

8. Summary of binder data

Manufacturer of Binder:	Product name		
Binder type:		Batch ref:	
Binder source:			
Softening point difference in storage stability test			
Test	Supplied binder	After RTFOT	After Ageing
Penetration at 25°C 0,1 mm (100g and 5 secs)			
Penetration at 5°C 0,1 mm (200g and 60 secs)			
Vialit pendulum cohesion see Clause 939 maximum peak value J/cm2	#	#	#
Product identification test	#	#	#
Complex shear (stiffness) modulus (G*) and phase angle (δ) data. See Clause 928			
Fraass brittle point			
Other properties the *Contractor* considers useful			

Where indicated with # the *Contractor* shall attach a graphical output to this schedule.

9. Mixture Data Requirements

The following data should be provided to the *Service Manager* for materials designed in accordance with Clause 901.17 and Clause 929 in respect of the proposed mixture. For work carried out for the *Service Manager*, a copy of the results should be handed to the *Service Manager*, to be forwarded to: Pavement Engineering Team at Employer, Woodlands, Manton Lane, Manton Industrial Estate, Bedford, MK41 7LW.

I. Saturation Ageing Tensile Stiffness (SAT S) ratio – as described in Clause 953.

Appendix 7/22: Local Repairs

The *Contractor* shall repair potholes in carriageways, footways, and cycleways when instructed by the *Service Manager* as a local repair.

1. General

I. Remove all loose material before filling the hole.

II. All standing water shall be removed before filling the holes.

III. Tack coat is to be applied to all bottom and side surfaces in accordance with cl.920.

IV. The filling material shall be compacted to refusal to the agreement of the *Service Manager*.

V. The use of instant road repair material or equivalent will be with the agreement or by the direction of the *Service Manager*.

VI. The depth of layers shall be appropriate to the depth of the hole.

a. The surface of the compacted material shall be level with that of the adjacent carriageway, footway or cycleway.

2. Road Stud Holes & Holes in Paved Areas

I. Fill road studs socket with AC 6 DENSE SURF 100/150 or 160/220 (6mm Dense Bitumen Macadam) wearing course in accordance with the Specification or BBA HAPAS certified instant road repair material or equivalent i.e. laid and compacted in layers not exceeding 75mm in prepared hole with all arisings and loose material removed.

II. Tack Coat is to be applied to all bottom and side surfaces in accordance with cl.920.

III. Holes shall be backfilled with materials compacted to refusal with a circular headed vibrating hammer in layers not exceeding 75mm thick.

APPENDIX 7/2: EXCAVATION AND REINSTATEMENT OF EXISTING SURFACES

1. Milled surfaces that are to receive live traffic shall not be greater than 50mm below the adjacent running lane.
2. Typical trench reinstatement details are shown on HCD Drawing No K4.
3. Where a trench is excavated through an existing road pavement reinstatement shall consist of 50mm wearing course (with 14/20 chippings) to Clause 911, 60mm binder course to Clause 905 or 906 and 240mm base to Clause 929 (Type 1 reinstatement). Where the existing surface is to be overlaid, reinstatement shall consist of 300mm base to Clause 929 (Type 2 Reinstatement).
4. Planed areas shall be overlaid by the end of the working shift.

APPENDIX 7/4: BOND COATS, TACK COATS AND OTHER BITUMINOUS SPRAYS

1 Bond or tack coats shall be applied between all pavement layers. The *Contractor* shall ensure that a suitable bond or tack coat is provided for use with proprietary thin surface course systems in accordance with Clause 920.1.

2 All surfaces shall be kept clean and uncontaminated in accordance with SHW sub-clause 903.3.

3 All surfaces (except new pavement layers) should be mechanically suction swept before application of tack and bond coats.

4 Bond or tack coat shall be supplied and laid in accordance with BS 594987.

5 The *Contractor* shall submit evidence of the suitability of the bond or tack coats intended for use when overlaying concrete surfaces, in accordance with SHW sub-clause 920.5.

6 Existing ironwork, kerbs and street furniture shall be masked using self-adhesive masking material before application starts and removed on completion of works.

7 Before spraying is commenced, the surface shall be free of all loose material and standing water. Surface preparation shall be carried out in accordance with BS 594987.

8 Rate of spread should comply with SHW sub-clause 920.8.

9 Accuracy of application should comply with SHW sub-clause 920.9.

10 The *Contractor* shall provide the following information prior to the commencement of the work:

   a. The product or products he proposes to use together with their data sheets, product identification data, and cohesively data as specified.

   b. For each product, a copy of the BS EN ISO 9001 certificate showing the name of the manufacturer, the name of the certification body and the reference number and date of the certificate.

   c. The spraying equipment proposed, and a test certificate.

   d. The source or sources of blinding material proposed.

   e. Contingency plans in the event of any breakdown.

   f. The results of any other tests or other data the *Contractor* considers would assist in assessing the technical merit of the treatment such as:

      1. Tackiness test and/or trafficability time and methods of test

      2. Breaking time test results for different weather conditions and substrates

      3. Test results for bond to newly laid concrete. The data supplied should not be more than 6 months old.

Binder Data Sheet – Appendix 7/4 (08/08)	**Bond Coats, Tack Coats and Other Bituminous Sprays**	
Manufacturer of Binder:	Product name:	
Binder type:	Batch no:	
Binder Grade (highlight as required) Conventional Intermediate Premium Super-premium Non-tack Other		
Binder Source →	**Recovered Binder**	**Recovered Binder after Ageing Test**
Test ↓	Recovered in accordance with Clause 955	Aged in accordance with Clause 955
Penetration at 25°C 0,1 mm (100g and 5 secs)		
Penetration at 5°C 0,1 mm (200g and 60 secs)		
Vialit pendulum cohesion see Clause 957 maximum peak value J/cm^2	The Contractor shall attach a Report and graphical output to this schedule as specified in Clause 957.	The Contractor shall attach a Report and graphical output to this schedule as specified in Clause 957.
Product identification test. **The provision of data for identification and ageing is optional for unmodified bituminous emulsions to BS 434 and for bitumen to BS EN 12591 and cutback bitumen to BS 3690.** Complex shear (stiffness) modulus (G*) and phase angle (δ) data. See Clause 956.	The Contractor shall attach a Report and graphical output to this schedule as specified in Clause 956.	The Contractor shall attach a Report and graphical output to this schedule as specified in Clause 956.
Other properties the Contractor considers useful: Minimum Binder Content Binder temperature range for spray application Emulsion Properties and Viscosity Break time Breaking Agent type Weather limits - information from binder manufacturer: road or air temperatures; humidity; wind chill adjustment; tolerance of surface dampness; etc. Temperature max: Temperature min: Other:		

APPENDIX 7/10: WORKSHEET PRO-FORMA FOR RESULTS OF TESTING FOR CONSTITUENT MATERIALS IN RECYCLED COARSE AGGREGATE AND RECYCLED CONCRETE AGGREGATE

RESULTS OF TESTING FOR CONSTITUENT MATERIALS IN RECYCLED COARSE AGGREGATE AND RECYCLED CONCRETE AGGREGATE

Sample reference	
Date	
Tested by	

Mass of test portion, M_{total}, Duplicate 1	
Mass of test portion, M_{total}, Duplicate 2	

Category	Mass $M_{subscript}$		Percentage $P_{subscript}$		
	Duplicate 1	Duplicate 2	Duplicate 1	Duplicate 2	Mean
Asphalt (Class A)					
Masonry (Class B)					
Concrete and concrete products (Class C)					
Glass (Class G)					
Lightweight particles (Class L)					
Unbound aggregate (Class U)					
Other particles (Class X)					
Sum*					

*Sum is the total of $M_A + M_B + MC + M_G + M_L + M_U + M_X$. If Sum is not within 1% of M_{total}, repeat the test.

APPENDIX 11/1: KERBS, FOOTWAYS AND PAVED AREAS

1. Kerbs, Edgings and Channels

a. Precast concrete kerbs, edgings and channels shall be designated in accordance with BS EN 1339. They shall be laid and bedded in accordance with clause 1101. The thickness of the concrete bed and surround shall be not less than 150mm.

2. Paved Area Type 1

a. Formation to be treated with weed killer prior to reconstruction.

PWC1	25mm	AC 6 dense asphalt surface course 100/150. to Clause 909
PBC1	75mm	AC 20 dense binder 100/150 rec. to Clause 906
PSC1	150mm	Sub base to Clause 803 Type 1

b. All materials shall be machine laid where possible. Where hand laid flexible surfacing to paved areas shall comply with level tolerance requirements of British Standard 594987 Table 7.

3. Footway Type 1

a. Formation to be treated with weed killer prior to reconstruction.

FWC1	25mm	AC 6 dense asphalt surface course 100/150. to Clause 909
FBC1	75mm	AC 20 dense binder 100/150 rec. to Clause 906
FSC1	150mm	Sub base to Clause 803 Type 1

b. All materials shall be machine laid where possible. Where hand laid flexible surfacing to footways and cycleways shall comply with level tolerance requirements of British Standard 594987 Table 7.

1.1 Flag and Block Paving

a. Concrete slab and clay block paving elements shall be natural coloured and rectangular in shape. Slabs shall be 50mm thick and clay blocks 75mm thick.

b. Mortar bedding shall be 10mm thick (nominal).

APPENDIX 11/2 – ACCESS STEPS

Details of access steps to feeder pillars, communications, cabinets, traffic counter cabinets, and other monitored apparatus shall be as shown on Standard Drawing Number MCX 0138 or as agreed with the *Service Manager*.

APPENDIX 12/1: TRAFFIC SIGNS: GENERAL

1. The maintenance of traffic signs, including bulk lamp changes, inspection and testing shall be in accordance with DMRB CS 125.
2. Retroreflective Sign face material - sign faces manufactured using glass bead sheeting;
    a. BS EN 12899-1; 2007 Class RA2
    b. Sign face sheeting shall comply with the following as appropriate
    c. Table 1 Class CR1 Chromaticity & luminance for Retroreflective signs
    d. Table 4 Class RA2 Coefficient of retroreflection
    e. Table 16 Class NR1 Chromaticity & luminance for Non-retroreflective signs
3. Durability;
    a. Clause 7.2.1 Retroreflective signs
    b. Clause 7.2.2 Non-retroreflective signs
    c. Clause 7.2.2 Impact resistanceAll Grey backboards shall be non-reflective.

5. All signs should have a dew resistant film applied, where manufacturing processes permit, the total sign face will be overlaid with the dew resistant film, otherwise the dew resistant film must be applied to all retro-reflective text, symbols and borders.

6. Additional InformationNo verge sign under 10m^2 shall be manufactured from extruded aluminium plank.

    b. Steel constructions and steel mounting elements shall conform to EN 1993-1-1.

    c. All plate signs shall be sheet aluminium in accordance with BS EN 1999-1-1.

    d. The sign face sheeting and any screen printing inks, coloured overlay films and non-retroreflective sheeting should carry a minimum 12 year warranty, be from a single sheeting supplier and supported by the sheeting suppliers written traffic sign warranty.

    e. Where any sign face material applied in accordance with a manufacturer's application and fabrication procedures fails in terms of its guaranteed performance levels during the first three quarters of its warranty period, the manufacturer shall be liable for returning the sign to its original effectiveness.

    f. Signs taken down from site and re-erected on new posts shall have their faces cleaned immediately prior to the completion date. The construction team is required to follow the cleaning recommendations of the sign face supplier to ensure that cleaning methods and material do not cause damage.

    g. The sign face material manufacturer's instructions regarding transportation; storage, erection and cleaning shall be adhered to.

    h. Posts shall not protrude above the top of the sign unless supporting an external luminaire, in which case the protrusion shall be kept to a minimum.

    i. Typical post foundation details are shown below.

j. All traffic signs mounted on a singular tubular steel post or lighting column shall be attached using anti-rotational clips.

k. Where passively safe posts are identified in the schedule the *Contractor* shall obtain the details of the design of posts and pre-cast foundations from the Manufacturer. The pre cast foundation is to be installed in accordance with manufacturer's recommendations. All Passively safe posts shall be non-energy absorbing category NE and speed class 100 kph in accordance with BS EN 12767. Passively safe posts may satisfy any of the four occupant safety levels specified in Table 5 of BS EN 12767. Where signs are mounted on passive sign posts, the minimum mounting height shall be 1800 mm.

l. All sockets formed in foundations shall be flush to the top of the foundation and the method used to form the socket shall be approved by the *Service Manager*.

m. Each individual sign shall have a label in accordance with BS EN 12899-1:2007

n. Where signs are to be temporarily, fully or partially covered over, this shall be in accordance with Clause 1209.4 of the Specification and only upon agreement with the *Service Manager*.

o. Two keys per locked traffic sign housing or feeder pillar shall be provided.

p. For illuminated signs the electrical equipment shall be enclosed in an integral base housing of inside diameter not less than 130 mm. The central access opening shall face away from the carriageway. Entry to the interior of such compartments shall be by means of a weatherproof door having tamper-resistant key fastenings of a type acceptable to the *Service Manager*. Six keys shall be supplied to the *Service Manager* for each type of lock. The door opening shall be not less than 100 mm x 400 mm unless agreed otherwise and shall afford easy access. The lower edge of the door shall be positioned so that, when the post is installed as intended, it is not less than 300 mm above ground level.

q. An internal baseboard of dimensions not less than 80 mm x 300 mm x 12 mm manufactured from substantially non-hygroscopic and rot-resistant material shall be fixed in the box and an earthing screw or bolt shall be provided. The distance from the face of the baseboard to the inside front of the housing shall be of sufficient size to allow installation of a suitable cut out. A suitable cable entry shall be provided below ground level.

r. All existing signs that are to remain are to be checked to ensure that sufficient working width can be achieved between the sign and any new road restraint system. Where the required working width cannot be achieved the *Contractor* shall relocate the sign to achieve working width.

APPENDIX 12/2 TRAFFIC SIGNS: MARKER POSTS

1 Hazard marker posts shall be as detailed in MCHW Volume 3 Highway Construction Details Drawing E Series.

APPENDIX 12/3 TRAFFIC SIGNS: ROAD MARKINGS AND STUDS

1 A minimum skid resistance of PSV 55 is required for all permanent road markings.

2 Permanent Road Markings – General. White road markings shall comply with the following.

(ii) Proposed road markings to comply with Regulations: TSRGD 2002

(iii) Performance Standard: - BS EN 1436:2007 +A1:2008 (Road marking materials - Road marking performance for road users).

(iv) Thermoplastic material. Product Standard:- BS EN 1871:2000 Road marking materials – Physical properties;

(v) Component Standard:- BS EN 1423:2012 Road marking materials - Drop on materials - Glass beads, anti-skid aggregates and mixtures of the two; BS EN 1424:1998 Road marking materials - Premix glass beads.

(vi) Road markings shall have the following minimum standard of performance for the duration of their functional life (as defined in BS EN 1436:2007 +A1:2008)

2.2 White markings

Property	BS EN 1436 Reference	Requirement	Value
Colour	Table 6	White	x,y co-ordinates given
Luminance Factor	Table 2	Class B3	0.4
Skid Resistance	Table 7	Class S3	55
Retro reflectivity	Table 3, Classes of R_L for dry markings	Class R2	100

2.3 When there is a requirement of enhanced visibility for road markings during wetness the following retro-reflectivity performance shall be specified:-

Retro reflectivity	Table 4, Classes of R_L for road markings during wetness	Class RW3	>=50
Retro reflectivity	Table 5, Classes of R_L for road markings during rain	Class RR3	>=50

2.4 Unless otherwise stated, road markings shall not be laid more than 6mm thick.

2.5 The length and width of the road markings shall be as specified in the Works Package in accordance with Traffic Signs Regulations and General Directions 2016 with a permitted tolerance as shown in Table below

Dimension shown in the diagrams	Allowable tolerance

3m or more.	Up to 15% greater than or 10% less than the specified dimensions.
300mm or more, but less than 3m	Up to 20% greater than or 10%. Less than the specified dimensions
50mm or more, but less than 300mm	Up to 30% greater than or 10% less than the specified dimensions.

2.6 Temporary road markings when laid on permanent carriageways shall be removable and shall be Departmental Type Approved.

3 Temporary removal of road markings. Road markings shall only be removed by scabbling technique.

4 Temporary removal of road studs. Removal of existing road studs shall be carried out without damage to the road surface and with a minimum of residue.

5 Road Studs. Locations will be specified in the Work Package.

5.2 The *Contractor* shall provide details of the proposed reflecting road studs together with a copy of the statutory type approval certified for each type for approval by the *Service Manager*.

5.3 All road studs on a public road in the UK must fully comply with the Traffic Signs Regulations and General Directions 2016 (TSRGD) Directions 57 and 58 and the classes prescribed therein through testing and certification to BS EN 1463 parts 1 (BS EN 1463-1:2009) and 2 (BS EN 1463-2:2000).

5.4 All road studs shall be laid in accordance with manufacturer's specifications.

APPENDIX 14/1: SITE RECORDS

1 As-built drawings, where required, shall be produced by the *Contractor* using AutoCAD or other approved compatible program.

2 The as-built drawings shall include inserts to a larger scale when layouts are complex.

3 The as-built drawings shall include cable wiring schematic drawings.

4 If during construction the longitudinal location measurements have to be related initially to contract chainages the *Contractor* shall convert them to refer to permanent highway features such as bridge abutments or marker posts when these are defined.

APPENDIX 14/2: LOCATION OF LIGHTING UNITS AND FEEDER PILLARS

1 The *Contractor* shall be responsible for liaison and co-ordination with the Distribution Network Operator for the supply connections to the new feeder pillars.

2 Inspection and maintenance of road lighting including testing shall be in accordance with DMRB TD 23/99.

APPENDIX 14/4; ELECTRICAL EQUIPMENT FOR ROAD LIGHTING

1. ELECTRICAL EQUIPMENT FOR ROAD LIGHTING

a. The *Contractor* shall insert in the tables below details of the equipment which he proposes to use in this Maintenance and Response Contract and shall submit the information as soon as the Contract has been awarded to the *Contractor*.

2. Luminaires and Lamps

a. The luminaires shall be compatible with the columns and brackets offered in Appendix 13/2 and the information shall include the lamp type and wattage and luminaire circuit wattage.

Table 14/4/1 Luminaires and Lamps

Manufacturer	Cat. No.	Glare Control		IP Rating		PECU Socket	Design Table Ref. No.	(Isoluminance Template Ref. No.)
		Luminous Intensity Class	Glare Index Class	Optical Housing	Control Gear Housing			
URBIS	Ampera	M3	G3	IP66	IP43	N/A-Group Controlled	N/A	N/A
Philips	DecoFlood² LED	N/A	N/A	IP66	N/A	N/A-Group Controlled	N/A	N/A

* Or similar and approved

Table 14/4/2 Ancillary Equipment

Clause	Item	Manufacturer	Catalogue or Type No.	Requirements
1408	Lamps			LED
1409	Photo-electric control units			As per existing feeder pillar.
1410	Shorting plugs			
1411	Time switches			
1416	Cut Outs Fuse (Links) MCBs			
1419	Wiring			

* Or similar and approved

3. Chambers

a. Chambers shall be Type A, B or C as MCX drawing 0815.

Table 14/4/3: Electrical Equipment for Road Lighting

Lighting Unit Cut Out Termination's		
Termination Type	*Contractor* To Complete	
	Manufacturer	Cat No.
T1		
T2		
T3		
T4		
T5i		
T6i		
NOTES; 1. Completed Data Sheets shall be provided as soon as the Contract has been awarded. 2. Details of the Road Lighting Columns are given on Table 13/1/1.		

* Or similar and approved.

Table 14/4/4 Cable and Cable Joint Schedule

Column No.	Joint Type	Joint Man	Cat No.	Cable Type	Cable Man	Cat No.
Not Applicable						

*Or similar or approved

4. Cables and Cable Joints

a. Cable trenches shall be as MCX drawings 0141 for armoured cable and 0814 for ducted cables.
b. All new cabling to be installed in accordance with BS 7671:2008 and any amendments. The colour coding of new cables for all fixed wiring and all cable cores to be identified with appropriate sleeving, identification numbers and labelling as detailed in BS7671: 2008 Regulation 514.

c. Where an alteration is made to an existing cabling installation wired in old colours with an addition or extension in new colours, unambiguous identification is required and cores shall be marked as detailed in BS 7671: 2008.

Neutral Conductors – old and new conductors = N

Phase Conductors – old and new conductors = L1, L2, L3 (single or three phase).

Correct coloured sleeving shall also be installed at the terminations.

d. Where old and new cable cores are used within an installation a caution notice shall be fixed on or near to the distribution board in the highway lighting feeder pillar for each circuit affected. The caution notice to be in accordance with BS 7671: 2008 Regulation 514-14-01.

e. The indicative positions of all new cabling shall be as agreed with *Service Manager*. The cables shall be laid as close as possible to the positions shown and shall be in accordance with Clause 1421. All cables to be laid in ducting.

f. Positions of cable ducts shall be agreed with *Service Manager*.

g. Armoured cables shall be terminated in accordance with clause 1423. Cable glands in accordance with BS 6121 shall be installed. Jubilee type securing clamp arrangements for cable armouring terminations are not permitted.

Table 14/4/5 Cable and Cable Joint Schedule

Cable		
Cable Type	***Contractor* To Complete**	
	Manufacturer	**Cat No.**
10mm sq. 3 core Cu XLPE/PVC/SWA/****		
6mm sq. 3 core Cu XLPE/PVC/SWA/****		
2 Core Flex cable for Separate Extra Low Voltage system		
NOTES; 1. Completed Data Sheets shall be provided as soon as the Contract has been awarded.		

***The outer sheath shall be either PVC or MDPE but must comply with clause 1421

APPENDIX 14/5: ELECTRICAL EQUIPMENT FOR TRAFFIC SIGNS

1. Requirements for wiring and installation of components within posts and Lit Sign Units shall be as described in the Works Package.

2. Inspection and maintenance of electrical equipment for traffic signs shall be in accordance with DMRB CS 125.

APPENDIX 15/1: Location of Communication Power Supplies

1. The *Contractor* shall be responsible for liaison and co-ordination with the Distribution Network Operator for the supply and connection to the existing Communication Electrical Interface cabinets (excluding supplies maintained by NRTS).
2. Where metered supplies are installed the *Contractor* shall ensure that the asset information is recorded on the asset database. Any changes are to be highlighted to the *Service Manager*.

APPENDIX 19/3:- FORM HA/P2 PAINT DATA SHEET

(SPECIFICATION FOR HIGHWAY WORKS)
FORM HA/P2 PAINT DATA SHEET

Sheet No.

Manufacturer :

Item No :

Registered Description :

Brand Name and Reference No :

Consistency and Method of Application :

Weight per 5 Litres (kg) :

For two pack paints :

Base: Activator : Mixed components:

Volume Solids % :
For two pack paints volume solids % for mixed paint:

Manufacturer's Minimum
Dry Film Thickness Range
Recommended lower mdft :
Recommended upper mdft :

Full Application Instructions :

Flash Point :

		5^0C	10^0C	20^0C	30^0C
Drying Times (hours)	Surface Dry				
	Hard Dry				
Over coating Times (hours)	Minimum				
	Maximum				
Pot Life (hours)					

Cleaning Solvent :

State effect on Drying Times of
Temperatures below 20°C :

Manufacturer's Application
Restrictions, e.g. for Temperatures or
Humidity :

Manufacturer's General
Recommendations :

APPENDIX 19/4: FORM HA/P3 PAINT SAMPLE DISPATCH LIST SHEETS 1 & 2

(SPECIFICATION FOR HIGHWAY WORKS)
FORM HA/P3 PAINT SAMPLE DISPATCH LIST: SHEET 1

Contract Title……

Structure Name ……. Structure No. ……

Client Name: Employer

Supervising Firm……..

Supervising Firm's Representative Name ……Tel no. …….

Painting Inspection Firm…….

Samples Despatched From……. (Note 1) Date Despatched……

Inspector's Name …… Tel no. ……..

Inspector's Signature ……..

Samples: (Numbered A1, A2 etc. or B1, B2 etc.) (Note 2)					
Sample No	**Item No**	**Manufacturer's Reference No**	**Batch No**	**Colour BS 4800 reference (Note 3)**	**Sp.G. (Notes 4 and 5)**

Paint Manufacturer ……..

APPENDIX 19/4 : (SPECIFICATION FOR HIGHWAY WORKS) FORM HA/P3 PAINT SAMPLE DISPATCH LIST: SHEET 2

Inspector to complete Form HA/P3 and to forward single copies to each of the following within 24 hours of dispatch of samples by the *Contractor* to DERA

1. ESG
   Coatings Team
   Derwent House
   Bretby Business Park
   Ashby Road
   Burton on Trent
   Derbyshire DE15 0XD

2. Employer
   Paint Specialist
   NetServ
   Piccadilly Gate
   Store Street
   Manchester M1 2WD

- Inspector to forward Form(s) HA/P1 Paint System Sheet(s) with the first Form HA/P3 to both addresses.
- Inspector to select "A" samples and to ensure that manufacturer's labels on tins comply with specification.
- Inspector to take and mark each "B" sample tin with Item No. manufacturer's name and brand reference No, batch No, sample No and colour (NOTE 2).

CONTRACTOR to CLIP DOWN LIDS of all tins and to pack, address and dispatch samples. In addition to address, *CONTRACTOR* to label each case (or tin sent loose): "HA (State structure name) and DATE (date of dispatch as noted above)".

Notes

1 State whether from shop or site (give name and address).
2 Batch samples comprising unopened tins to be marked A1, A2, etc. Control samples in 0.5 litre tins to be marked B1, B2, etc. Samples No to run consecutively, i.e. A1 and B1 onwards.
3 Colour reference to BS4800 to be given, as stated on Form HA/P1 (New Works) Paint System Sheet, e.g. 18 B 25
4 For "A" samples specific gravity (Sp.G.) to be measured by Inspector from separate tins of the same batch. For "B" samples Sp.G. to be measured by Inspector when taking samples. Samples will be rejected unless Sp.G. is filled in above by Inspector.
5 If Sp.G. differs appreciably from data sheet do not dispatch "A" or "B" samples.

APPENDIX 19/5: GENERAL REQUIREMENTS

Lighting Columns

1 The protective system for planted and flange mounted lighting columns with bracket arms shall be G2a and the environmental, accessibility and durability requirements is as described in Sheet 1 of Appendix 19/1.
2 The ‘ground level’ shall be the actual ground level for each column.
3 The colour of finish shall be as described in the Works Package.
4 Paints for any one system shall be obtained from the same manufacturer.

APPENDIX 30/1 – GENERAL

1. The *Contractor* shall give notice (period agreed with *Service Manager*) to the *Service Manager* of the intention to commence any of the Operations listed in Sub-clause 3001.2 to take place at the locations listed below:
    i. Sites of Special Scientific Interest,
    ii. Special Areas of Conservation including candidate sites,
    iii. Special Protection Areas including candidate sites,
    iv. Ramsar sites,
    v. Sites of Interest for Nature Conservation, and
    vi. Any site of Archaeological interest which may be affected by the Operations.
2. The *Contractor* shall also ensure that the appropriate Statutory Environment bodies (for example Natural England) shall also be advised of the intended Operations prior to the Operations commencing in the Affected Property.
3. Pesticide record (form format as agreed with the *Service Manager*) shall be submitted to the *Service Manager*.
4. The bird nesting season shall be generally accepted as being from the end of March to the end of July but shall be confirmed by the *Contractor* after consultation with Statutory Environment bodies.
5. Evidence of this consultation shall be provided by the *Contractor* to the *Service Manager* prior to any applicable Service commencing on Site.
6. Inspection Reports are required for the activities carried out under clauses 3007, 3009 and 3010 in a format (form) agreed with *Service Manager* below.
7. Inspection Reports shall be submitted to the *Service Manager* at intervals and frequencies agreed and confirmed with *Service Manager*.

APPENDIX 30/2: WEED CONTROL

1 The *Contractor* shall control all injurious weed species which shall be defined for this Appendix as being those listed in MCHW Volume 1 Series 3000 sub-clause 3002.1 within or associated with the Affected Property at frequencies identified in GM701-ADAMr, Scope and this Specification to restrict their growth and prevent their spread.

2 The *Contractor*'s programme of weed control shall ensure there shall be a significant reduction in the occurrences and extent of these species each successive year for until the Service End Date wherever they occur.

3 Weed control shall be carried out in accordance with MCHW Volume 1 Series 3000 clause 3002.

4 Refer to Network Information for details and location.

5 The *Contractor* shall apply contact, translocated or residual herbicide for total weed control at all Structures, paved areas, kerbs, hardstandings, filter drains and gravel areas (including soft central reserves). The *Contractor* shall apply herbicides at frequencies identified in GM701-ADAMR to eliminate weed growth in these areas until the Service End Date.

6 The *Contractor* shall use a translocated herbicide approved Environment Agency in or near water for the total control of vegetation in all filter drains and any other areas adjacent to water and requiring weed control.

7 Within wildflower areas or areas of nature conservation value the *Contractor* shall eliminate any injurious weeds that cannot be effectively controlled by chemical means without causing damage to other vegetation by hand pulling in accordance with sub-clauses 3002.8 and 3002.10 and at the frequency stated in GM701-ADAMR.

8 The *Contractor* shall hand weed as necessary and at frequencies identified in GM701-ADAMR to eliminate weed growth in the locations within Affected Property where the application of herbicide may cause damage.

9 Any arisings from weed control shall be removed and disposed of to a licensed disposal facility.

   i. Where weed control results in the production of controlled waste products typically from Ragwort and Japanese Knotweed the arisings shall be placed in waterproof bags sealed and removed to a licensed disposal facility.

   ii. The *Contractor* shall remove the remnants of any dead or dying weeds at the appropriate time following herbicide application.

10 The following information is provided in the Works Package where required.

- Locations and frequencies for control operations for the injurious weed species listed and names of any other species to be controlled under the same regime.
- Locations and frequencies for total weed control operations on areas of paving and hardstanding's and around street furniture.
- Locations and frequencies for selective control of broadleaved weeds using herbicides in verges, central reserves, planted areas and other grassed areas.
- Locations, species and frequencies for weeding by spot treatment with herbicide.
- Locations and frequencies for weed control by cutting. If this method is only to be applied to certain plants, e.g., Japanese Knotweed, state species.
- Locations from which the *Contractor* is required to remove arisings from weed control operations. Where weed control is by herbicide, period of time for removal of dead weeds after herbicide application.

APPENDIX 30/3 – CONTROL OF RABBITS AND DEER

1 The *Contractor* shall carry out rabbit, hare and deer control in all areas of new planting or seeding undertaken under this Contract for the duration of the period of establishment maintenance in accordance with MCHW Volume 1 Series 3000 clause 3003.

2 For all other areas within or associated with the Affected Property the *Contractor* shall undertake rabbit, hare and deer control when instructed by the *Service Manager*.

3 No guns or snares shall be used for the control of rabbit, hare and deer without the written consent of the *Service Manager*.

4 The *Contractor* shall be responsible for contacting adjacent landowners regarding their obligation to control infestations on their own land and thereafter to liaise as necessary to control co-ordination and report any further complaints in writing to the *Service Manager*.

5 Areas of brambles and herbage that interfere with the control of rabbit or deer shall be cut.

6 The arisings shall either be used to form habitat piles or chipped and spread around the Site in locations within the Site where the habitat piles and/or the chippings shall not be likely to become visually intrusive or interfere with access or maintenance.

7 No clearance of brambles or herbage shall be undertaken during the bird nesting season without the completion of a comprehensive bird survey by appropriately qualified ecologists and the submission of a corresponding report for the written consent of the *Service Manager*.

8 For all areas of new planting or seeding the *Contractor* shall maintain the planting enclosures free of rabbits, rabbit burrows including exit/entry holes and deer for the duration of the period of establishment maintenance.

9 For all areas of new planting or seeding the *Contractor* shall replace all plants damaged by rabbits, hares and/or deer and maintain them for the entire duration of the period of establishment maintenance.

APPENDIX 30/4 – GROUND PREPARATION

1 Prior to treatment with an appropriate herbicide, the *Contractor* shall cut all areas to be planted or seeded to a height of between 50 – 75 mm, and remove the arisings from the Affected Property to a licensed disposal facility.
2 The *Contractor* shall apply herbicide to all areas to be planted or seeded with the exception of areas in existing woodland and on rock faces.
3 Prior to spreading topsoil the *Contractor* shall rip the sub-soil in all areas to be planted other than on rock faces.
4 The minimum depth of ripping shall be 450 mm unless otherwise consented to by the *Service Manager*.
5 The spacing between tine furrows used for ripping shall be 500 mm.
6 The requirements of sub-clauses 3004.8 to 3004.11 shall apply to subsoil to be seeded or topsoil spread.
7 Stones brought to the surface during final preparation of soils shall be retained and used to form habitat piles in locations where the habitat piles are not likely to become visually intrusive or interfere with the cyclic maintenance.
8 All inorganic foreign matter shall be removed off the Affected Property.

APPENDIX 30/5: GRASS SEEDING, WILDFLOWER SEEDING AND TURFING

1 Immediately prior to any sowing of grass and wildflower seed, hydraulic seeding or laying turf, with the exception of rock faces and inaccessible areas, the *Contractor* shall reduce the upper 50 mm of soil to a fine tilth by use of a chain harrow, rotovator or other suitable construction equipment.

2 Wildflower seeding shall be undertaken typically in early Spring or early Autumn or as agreed with the *Service Manager* and following best horticultural practice appropriate to the species involved.

3 Fertilisers and organic soil improvers may be used with the written consent of the *Service Manager* to aid initial grass establishment in areas where this may be difficult to achieve. The use of such additives is not permissible in areas of proposed wildflower seeding.

4 Grass and wildflower/grass seed mixtures shall be selected by the *Contractor* and submitted to the *Service Manager* for written consent prior to ordering. An example Seed mixture for grass seeding could be as below, however should be agreed with *Service Manager*:

   i. 60% Lorina Perennial Ryegrass;

   ii. 35% Logro Slender Creeping Red Fescue;

   iii. 5% Highland Browntop Bent;

5 The selection shall take account of the following criteria:

   i. Intended work location – the choice of grass and/or wildflower species may vary depending on the relative location of application,

   ii. Proximity to any areas of nature conservation interests – the *Contractor* shall consult with Statutory Environment bodies if the intended area of Affected Property for seeding lies in or adjacent to an area of conservation interest,

   iii. Biodiversity interests – including the specification of wildflower species native to England or the UK and of local provenance,

   iv. Deer interests – deer can often be attracted to the road side by the presence of new grass seeding and some areas may be more likely to have regular deer activity near to the road. The *Contractor* shall consider a choice of grass and wildflower seed that is less palatable to deer, and

   v. Future maintenance requirements – the choice of seed type shall balance the need for good establishment with reduced long term maintenance, particularly in less accessible areas such as central reserves. For wildflower/grass mixtures the ratio of grass seed to wildflowers shall be 80% to 20% respectively. No single species of wildflower shall be less than 10% of the wildflower component with the exception of Ox Eye Daisy (Leucanthemnum vulgare) that, if specified, shall be limited to 3% of the wildflower component.

   vi. All seed shall be delivered in bags sealed by the supplier.

   vii. A label shall be attached to each bag giving details of species and percentage breakdown. The same details shall also be enclosed within the bag.

   viii. Each bag shall be numbered differently and relate to the label and documents within the bag.

   ix. The documents within the bag shall be retained by the *Contractor* for inspection by the *Service Manager*.

   x. The wild flower seeds shall be of UK native origin

xi. The *Contractor* shall complete and submit to the *Service Manager* the appropriate Wildflower Seed Provenance Certificates in the format agreed with the *Service Manager*

6 The grass seed mixture shall be sown at a rate of not less than 20g/m^2 for side slopes of cuttings and embankments and 15g/m^2 elsewhere or as agreed with the *Service Manager*. Wildflower/grass mix shall be sown at a rate of not less than 10 g/m^2 or as agreed with the *Service Manager*.

7 Hydraulic seeding shall be undertaken only with the prior written consent of the *Service Manager*.

8 It shall typically be undertaken on areas such as rock and scree slopes but may be utilised elsewhere as appropriate.

9 Seeding rate of application for grass seed mix and wildflower/grass mix shall be the same as for conventional sowing.

10 The number of establishment cuts for all newly-established/sown grass shall be 4 for high amenity areas and 2 for all other grass areas or as agreed with the *Service Manager*.

APPENDIX 30/6 – PLANTING

1 All planting Works shall be carried out in accordance with MCHW Volume 1 Series 3000 clause 3006.
2 All new plant stock to be used within the Affected Property shall conform to BS 3936: Parts 1 to 10 as relevant, BS 4043, the National Plant Specification, published by the Horticultural Trades Association or as agreed with the *Service Manager*.
3 Plant stock types, planting densities and sizes shall be agreed with the *Service Manager*.
4 All areas of new planting undertaken by the *Contractor* shall be subject to a period of establishment maintenance for a minimum duration as agreed with *Service Manager*.

APPENDIX 30/7: GRASS, BULBS AND WILDFLOWER MAINTENANCE

1 Maintenance shall be carried out on all areas in Affected Property in accordance with MCHW Volume 1 Series 3000, clause 3007 at frequencies stated in GM701-ADAMR and in accordance with this specification.

2 Location and details are included in Network Information.

3 Where Instructed following details will be provided in the Works Package:

- The locations of grass and wildflower areas to be maintained.
- Minimum distance of cutting around individual plants.
- Any special disposal requirements for grass clippings and arisings.
- For grass areas to be cut the frequency regime and height and their locations.
- Any areas where selective additional cuts are or may be required.
- Locations where selective additional cuts are or may be required on the swathe from the edge of carriageway.
- Locations where selective additional cuts are or may be required on the visibility splay in front of road signs.
- Location of areas where cutting of wildflower areas and areas of nature conservation value and the operations described in the specification are to be carried out.
- Locations and frequency of spot herbicide treatment for weed control in wildflower areas.

4 Delete existing sub-clause 3007.19 on page 16 of MCHW Volume 1 series 3000 and replace with the new sub-clause below:

- 19 A single cut of 2m width from the edge of the carriageway shall be undertaken once per year. Additional selective full width cuts shall be undertaken within sight lines at hazardous bends, junctions, roundabouts, some central reservations, major accesses, bus stops and laybys and any other areas as required in Appendix 30/7 or instructed by the Overseeing Organisation.

APPENDIX 30/10: MAINTENANCE OF ESTABLISHED TREES AND SHRUBS

1 Location and details or area with established Trees and Shrubs are included in Network Information.
2 Maintenance shall be carried out in the Affected Property in accordance with MCHW Volume 1 Series 3000, clause 3010 at frequencies stated in GM701-ADAMR and in accordance with this specification.
3 Trees and shrubs shall receive weed control treatment in accordance with MCHW Volume 1 Series 3000, clause 3002 at the frequencies stated in clause 3010.
4 Grass and weed growth within ornamental shrub beds shall be removed by hand or by chemical means.
5 Healthy arisings from pruning, cutting or felling of woody plants shall be treated in accordance with MCHW Volume 1 Series 3000, sub-clause 3010.4 paragraphs (ii), (iv), (vi), (vii) and (viii).
6 Treatment in accordance with MCHW Volume 1 Series 3000, sub-clause 3010.4 paragraph (ii) shall take place only where there shall be sufficient area to spread the chippings out of sight from the road and to a maximum depth of 25 mm. This treatment is not permitted where it is likely that the chippings will affect the growth of desired grass and/or plant species.
7 Chippings shall not be spread on sloping ground where they may inhibit vegetation growth which would otherwise help stabilise the slope.
8 Where arisings are treated in accordance with MCHW Volume 1 Series 3000, sub-clause 3010.4 paragraph (viii) the locations selected within the Site area shall not be visible from the road.
9 If it is not possible to deposit the arisings in the general locality of the Operations, the arisings shall be removed to a licensed disposal facility.
10 Species grown for coloured stems shall be cut in accordance with MCHW Volume 1 Series 3000, sub-clause 3010.8 paragraph The cutting frequency shall be every two years.
11 Overgrown shrubs within all ornamental shrub areas shall treated in accordance with MCHW Volume 1 Series 3000, sub-clause 3010.8 paragraph (vii).
12 Tree size shall be categorised in as agreed with *Service Manager*. To be classed as a tree, vegetation must have a stem diameter of more than 100 mm.
13 Stumps shall be cut as close to the ground as possible or where the tree is growing in a hedge or fence line the stump shall be left level with the top of the hedge or fence.
14 Thinning and coppicing shall be carried out in areas of the Affected Property in accordance with DMRB Volume 10 and MCHW Volume 1 Series 3000.
15 Tree and shrub species to be controlled as scrub shall have a stem diameter of less than 75 mm and a height of between 0.75 – 2.5 metres. The specified species shall be cut down to 50mm above ground level and the plants allowed to re-grow. A translocated herbicide shall be applied during the period of active growth in accordance with clause 3001
16 Scrub control is required on rock ledges and scree where appropriate.
17 Where Instructed following details will be provided in the Works Package:

- Frequency of hedge cutting.
- Extent of cutting back required if hedges have previously been unmanaged (i.e., if hedge is to be cut back more than “to previous cut”. Any alternative shapes required for hedge cutting profiles and the locations where they are required.

- Locations and identification of trees which require crown lifting and the height to which lower branches and branchlets of the tree shall be removed.
- Locations and identification of trees which require crown thinning.
- Locations and identification of trees which require crown reduction or reshaping.
- Any requirement for tree wounds to be treated with a sealant; and type to be used.
- Method(s) and locations for disposal of healthy arisings.

APPENDIX 30/11: MANAGEMENT OF WATERBODIES

1 Location and details or Waterbodies in the Affected Property are included in Network Information.

2 The *Contractor* shall maintain all water bodies within the Affected Property in accordance with MCHW Volume 1 Series 3000, clause 3011.

3 The *Contractor* shall eliminate injurious weeds as listed in clause 3002 growing within or immediately adjacent to water bodies.

4 Where silt is affecting the intended operation of a water body or is likely to have the potential to affect the intended operation of a water body the silt shall be removed in accordance with sub-clause 3011.8.

5 The *Contractor* shall consult with the Statutory Environment bodies and any other relevant body prior to undertaking any works affecting a water body and shall apply for all necessary licences including as a minimum all licences required.

6 All reed beds and marginal plants planted shall be maintained by the *Contractor* for the duration of the period of establishment maintenance with any failed or defective plants replaced in accordance with sub-clauses 3006.6 to 3006.90 inclusive.

7 All existing reed beds and marginal vegetation shall be inspected twice annually in accordance with sub-clause 3011.9.

8 Locations and details/nature of Service to be carried out will be provided in the Works Package or will be instructed by the *Service Manager*.

APPENDIX 50/1: FORM HA/P1 (MAINTENANCE) PAINT SYSTEM SHEET

As per MCHW Notes for Guidance Series 5000. Form HA/P1 from Notes for Guidance Appendix 50/1 is to be completed. Some of the information will be included as part of the Works Instruction. The *Contractor* will also have to complete part of the form.