



Poole Park Access Improvements

SPECIFICATION APPENDICES





TYPE OF DOCUMENT (FOR TENDER) CONFIDENTIAL

PROJECT NO. 70051460

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PREAMBLE

- The Specification referred to in the Tender shall be the
 - 'Bournemouth, Christchurch and Poole Council Specification for Roadworks, Street Lighting and Traffic Signals' for those items detailed in Volume 2A.

or

- for all remaining items it 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 (www.dft.gov.uk/ha/standards/mchw/vol1) as modified and extended by the following:
 - a. Appendix 0/1: Contract-specific Additional, Substitute and Cancelled Clauses, Tables and Figures;
 - b. Appendix 0/2: Contract-specific minor alterations to existing Clauses, Tables and Figures;
 - c. The Numbered Appendices listed in Appendix 0/3;

Drawings can be found in Vol 3 – Works Information.

- 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 Volume 2 of the Manual of Contract Documents for Highway Works.
(www.dft.gov.uk/ha/standards/mchw/vol2)
- An Additional Clause as indicated by a suffix 'AR' in Appendix 0/1 is a Contract-specific alteration.
- A Substitute Clause as indicated by a suffix 'SR' in Appendix 0/1 is a Contract-specific alteration.
- A Cancelled Clause indicated by a suffix 'CR' in Appendix 0/1 is a Contract-specific alteration.
- 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.
- 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.
- 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.

- 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.
- Any Appendix referred to in the Specification which is not used shall be deemed not to apply.
- Other than where references to the Overseeing Organisation (Bournemouth, Christchurch and Poole (BCP) Council) 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 Project 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 Project Manager.
- Where 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 10 above shall be further amended as follows:
- If any agreement, consent or approval required to be obtained from the Overseeing Organisation impacts on the health and safety of the general public, the environment or any property or equipment not owned or operated by the Contractor, such agreement, consent, approval shall be obtained from the Project Manager.
- Where the Specification provides for the Overseeing Organisation to require a test, waive the requirement for a test or alter testing frequency, the party to whom the Overseeing Organisation's roles and functions have been ascribed by paragraph 12 shall be the Employer.

PROJECT SPECIFIC APPENDICES TO THE SPECIFICATION

VOLUME 5 SECTION 8 PART 2 SERIES 8000 8008

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

Table 1 – List of Additional Clauses and Tables

| Clause No | Title | Page No |
|-----------|-------|---------|
| | | |

Table 2 – List of Substitute Clauses and Tables

| Clause No | Title | Page No |
|-----------|-------|---------|
| | | |

Table 3 – List of Cancelled Clauses and Tables

| Clause No | Title |
|-----------|-------|
| | |

Table 4 – Additional Clauses and Tables

| Clause No | Title and Written Text |
|-----------|---|
| 960AR | <p>IMPRINT FLEXIBLE SURFACING</p> <p>1 General</p> <p>1.1 Imprint Flexible Surfacing shall be used to overlay flexible surfacing to provide the appearance of modular paving.</p> <p>2 Aggregate</p> <p>2.1 Coarse aggregates in the mix shall have a minimum resistance to polishing category of PSV₅₀ determined in accordance with BS EN 1097-8 and shall have a colour as agreed by the Overseeing Organisation.</p> <p>3 Binder</p> |

3.1 The binder shall have a colour as agreed by the Overseeing Organisation.

3.2 The Contractor shall provide the Overseeing Organisation with samples of the material in the specified colour for approval (in an unworn condition and worn condition so that the aggregate is clearly visible).

3.3 Samples shall be of at least 100 mm diameter size and shall comprise the same constituent materials, mixed in the same proportions, as will be used for the site works. When applied, the surfacing shall be of a uniform colour that matches the samples supplied to the Overseeing Organisation.

4 Layer Thickness

4.1 When required the minimum and/or maximum thickness of the Imprint Flexible Surfacing shall be as specified in Appendix 7/1.

5 Imprinted Pattern

5.1 The design and layout of the imprinted pattern shall be as indicated on the contract drawings.

5.2 The imprinted pattern shall have an indentation depth of between 5 mm and 10 mm.

6 Deformation Resistance

6.1 The resistance to permanent deformation of the mixture shall be in accordance with the following requirements, determined in accordance with BS 598-110: 1998:

| Test | Wheel tracking requirements | | | |
|-------------|-----------------------------|---------|----------------|---------|
| Temperature | Rate (mm/hr) | | Rut depth (mm) | |
| (°C) | Mean | Maximum | Mean | Maximum |
| 60 | 5.0 | 7.5 | 7.0 | 10.5 |

| | |
|--|--|
| | <p>7 Surface Preparation</p> <p>7.1 Existing surfaces to be covered shall be prepared in accordance with the manufacturers requirements, without causing damage to the surrounding surface.</p> <p>8 Temperatures</p> <p>8.1 Surface/air temperatures and material application temperatures shall be in accordance with the manufacturer's instructions.</p> <p>9 Weather</p> <p>9.1 The material shall only be laid in weather conditions suitable for carrying out the work as stated in the manufacturer's instructions.</p> <p>10 Performance Specification</p> <p>10.1 Imprint Flexible Surfacing shall be deemed to be acceptable if the minimum standards of performance are achieved and maintained for a period of 24 months from the date the surfacing is open to traffic.</p> <p>10.2 Performance shall be monitored by the Overseeing Organisation and shall be evaluated in terms of the following properties:</p> <p>Imprinted Pattern</p> <p>10.3 The material shall not deform such that the indentation depth of the imprinted pattern reduces to less than 5 mm at any point.</p> <p>Skid Resistance</p> <p>10.4 The skid resistance of the surfacing may be measured by the Overseeing Organisation using a 'Pendulum' skid tester in accordance BS EN13036-4.</p> <p>10.5 The surfacing shall be deemed to be acceptable if the average skid resistance value as measured by the pendulum tester at a</p> |
|--|--|

| | |
|--|---|
| | <p>minimum of 3 locations exceeds 55 and that no individual reading is below 50.</p> <p>De-lamination</p> <p>10.6 The material shall not de-laminate from the underlying surface.</p> |
|--|---|

Table 5 – Substitute Clauses and Tables

| Clause No | Title and Rewritten Text |
|-----------|--------------------------|
| | |

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

Table 6 – Part A Volume 1 Specification

| Clause No | Alterations to be made |
|-----------|------------------------|
| | |

Table 7 – Part B Volume 2 Notes for Guidance on the Specification for Highway works

| Clause No | Alterations to be made |
|-----------|------------------------|
| | |

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

This 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 for the series listed above. Those not adopted are marked 'Not Used'. Those identified by the letter C shall be completed by the Contractor.

List 'B' is a list of the contract-specific additional Appendices.

Table 8 – List “A” – Numbered Appendices referred to in the Specification for Highway Works

| | App. No. | Title |
|----------|---------------------|---|
| | | INTRODUCTION |
| | 0/1 | Contract-specific Additional, Substitute and Cancelled Clauses, Tables and Figures Included in the Contract |
| | 0/2 | Contract-specific Minor Alterations to Existing Clauses, Tables and Figures Included in the Contract |
| | 0/3 | List of Numbered Appendices Referred to in the Specification and Included in the Contract |
| | 0/4 | List of Drawings Included in the Contract |
| Not used | 0/5 | Special National Alterations of the Overseeing Organisations of Scotland/Wales |
| | | PRELIMINARIES |
| | 1/1 | Temporary Accommodation and Equipment for the Overseeing Organisation |
| Not used | 1/2 | Vehicles for the Overseeing Organisation |
| Not used | 1/3 | Communications System for the Overseeing Organisation |
| | 1/4 | Working and Fabrication Drawings |
| | 1/5 | Testing to be Carried out by the Contractor |
| Not used | 1/6 | Supply and Delivery of Samples for the Engineer |
| | 1/7 | Site Extent and Limitations on Use |
| Not used | 1/8 | Operatives for the Overseeing Organisation |
| | 1/9 | Control of Noise and Vibration |
| Not used | 1/10 | Permanent works to be Designed by the Contactor |
| Not used | 1/11 | Temporary Works Design |
| | 1/12 | Setting Out and Existing Ground Levels |
| | 1/13 | Programme of Works |
| | 1/14 | Payment Applications |

| | App. No. | Title |
|----------|-----------------|--|
| | 1/16 | Privately and Publicly Owned Services and Supplies |
| | 1/17 | Traffic Safety and Management |
| Not used | 1/18 | Temporary Highways for Traffic |
| | 1/19 | Routeing of Vehicles |
| Not used | 1/20 | Recovery Vehicles for Breakdowns |
| | 1/21 | Information Boards |
| | 1/22 | Progress Photographs |
| | 1/23 | Substances Hazardous to Health |
| | 1/24 | Quality Management System |
| Not used | 1/25 | Quality Management System |
| Not used | 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 |
| | 1/70 | ADDITIONAL: Environmental Protection Act 1990, Duty of Care |
| | 1/71 | ADDITIONAL: CDM Regulations |
| | | SITE CLEARANCE |
| Not used | 2/1 | List of Buildings, etc. to be Demolished or Partly Demolished |
| | 2/2 | Filling of Trenches and Pipes |
| | 2/3 | Retention of Material Arising from Site Clearance |
| | 2/4 | Explosives and Blasting |
| | 2/5 | Hazardous Materials |
| | 2/6 | Environment and trees |

| | App. No. | Title |
|----------|---------------------|---|
| | | FENCING |
| | 3/1 | Fencing, Gates and Stiles |
| | | ROAD RESTRAINT SYSTEMS (VEHICLE AND PEDESTRIAN) |
| Not used | 4/1 | Road Restraint Systems (Vehicle and Pedestrian) |
| | | DRAINAGE AND SERVICE DUCTS |
| | 5/1 | Drainage Requirements |
| | 5/2 | Service Duct Requirements |
| Not used | 5/3 | Surface Water Channels and Drainage Channel Blocks |
| Not used | 5/4 | Fin Drains and Narrow Filter Drains |
| Not used | 5/5 | Combined Drainage and Kerb Systems |
| Not used | 5/6 | Linear Drainage Channel Systems |
| Not used | 5/7 | Thermoplastics Structural Wall Pipes and Fittings |
| | | EARTHWORKS |
| | 6/1 | Requirements for Acceptability & Testing etc. of Earthworks Materials |
| Not used | 6/2 | Requirements for Dealing with Class U2 Unacceptable Material |
| | 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 |
| | 6/7 | Sub-formation & Capping & Preparation & Surface Treatment of Formation Top soiling |
| | 6/8 | Top soiling |

| | App. No. | Title |
|----------|-----------------|--|
| Not used | 6/9 | Earthwork Environmental Bunds, Landscape Areas, Strengthened Embankments |
| Not used | 6/10 | Ground Anchorages, Crib Walling and Gabions |
| Not used | 6/11 | Swallow Holes and 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 |
| | 7/1 | Permitted Pavement Options |
| | 7/2 | Excavation, Trimming and Reinstatement of Existing Surfaces |
| Not used | 7/3 | Surface Dressing – Performance Specification |
| | 7/4 | Bond Coats, Tack Coats and Other Bituminous Sprays |
| Not used | 7/5 | In Situ Recycling – The Remix and Repave Process |
| | 7/6 | Breaking Up or Perforation of Existing Pavement |
| | 7/7 | Slurry Surfacing incorporating Micro surfacing |
| Not used | 7/9 | Cold Milling (Planing) of Bituminous Bound Flexible Pavement |
| | 7/11 | Overband and Inlaid Crack Sealing Systems |
| Not used | 7/12 | Arrester Beds |
| Not used | 7/13 | Saw-Cut and Seal Bituminous Overlays on Existing Jointed Concrete Pavements |
| Not used | 7/14 | Preparation of Jointed Concrete Pavements Prior to Overlaying and Saw-Cut and Seal of the Bituminous Overlay |

| | App. No. | Title |
|----------|-----------------|---|
| Not used | 7/15 | Saw-Cut, Crack and Seat Existing Jointed Reinforced Concrete Pavements |
| Not used | 7/16 | Cracking and Seating of Existing Jointed Unreinforced 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 | Back-Analysis of Gallings Weight Deflectometer (FWD) Measurements Made on Concrete Pavements Treated by Fractured Slab Techniques |
| Not used | 7/21 | Surface Dressing – Recipe Specification |
| Not used | 7/22 | Repairs to Potholes |
| Not used | | ROAD PAVEMENTS – CONCRETE AND CEMENT BOUND MATERIALS |
| | | KERBS, FOOTWAYS AND PAVED AREAS |
| | 11/1 | Kerbs, Footways and Paved Areas |
| Not used | 11/2 | Access steps |
| | | TRAFFIC SIGNS AND ROAD MARKINGS |
| | 12/1 | Traffic Signs: General |
| Not used | 12/2 | Traffic Signs: Marker Posts |
| | 12/3 | Traffic Signs: Road Markings and Studs |
| Not used | 12/4 | Traffic Signs: Cones, Cylinders, FTDs & Other Traffic Delineators |
| | 12/5 | Traffic Signs: Traffic Signals |
| Not used | 12/6 | Traffic Signs: Special Sign Requirements on Gantries |
| | | ROAD LIGHTING COLUMNS AND BRACKETS, CCTV MASTS AND CANTILEVER MASTS |
| | 13/1 | Information to be Provided when Specifying Lighting Columns and Brackets |

| | App. No. | Title |
|----------|---------------------|---|
| | | MOTORWAY COMMUNICATIONS |
| Not used | 15/1 | Motorway Communications |
| | | PILING AND EMBEDDED RETAINING WALLS |
| Not used | 16/1 | General Requirements for Piling and Embedded Retaining Walls |
| | | STRUCTURAL CONCRETE |
| Not used | 17/1 | Concrete – Classification of Mixes |
| | | STRUCTURAL STEELWORK |
| Not used | 18/1 | Requirements for Structural Steelwork |
| | | WATERPROOFING FOR STRUCTURES |
| Not used | 20/1 | Waterproofing for Concrete Structures |
| | | BRIDGE BEARINGS |
| Not used | 21/1 | Bridge Bearing Schedule |
| | | PARAPETS |
| Not used | 22/2 | Parapet Schedule |
| | | BRIDGE EXPANSION JOINTS AND SEALING OF GAPS |
| Not used | 23/1 | Bridge Deck Expansion Joints Schedule |
| Not used | 23/2 | Sealing of Gaps Schedule (Other than in Bridge Deck Expansion Joints) |
| | | BRICKWORK, BLOCKWORK AND STONWORK |
| Not used | 24/1 | Brickwork, Blockwork and Stonework |
| | | SPECIAL STRUCTURES |
| Not used | 25/1 | Requirements for Corrugated Steel Buried Structures |
| | | MISCELLANEOUS |
| Not used | 26/1 | Ancillary Concrete |

| | App. No. | Title |
|----------|-----------------|--|
| Not used | 26/2 | Bedding Mortar |
| Not used | 26/3 | Cored Thermoplastic Node Markers |
| | | LANDSCAPE AND ECOLOGY |
| | 30/1 | General |
| Not used | 30/2 | Weed Control |
| Not used | 30/3 | Control of Rabbits and Deer |
| | 30/4 | Ground Preparation |
| | 30/5 | Grass and Wildflower Seeding |
| | 30/6 | Planting |
| | 30/7 | Grass, Bulbs and Wildflower Maintenance |
| | 30/8 | Watering |
| Not used | 30/9 | Establishment Maintenance for Planting |
| | 30/10 | Maintenance of Established Trees and Shrubs |
| Not used | 30/11 | Management of Waterbodies |
| Not used | 30/12 | Special Ecological Measures |
| | | MAINTENANCE PAINTING OF STEELWORK |
| Not used | 50/1 | (Specification for Highway Work) Form HA/P1 (Maintenance) Paint System sheet |

List 'B' gives the list of Contract Specific Numbered Appendices devised for the Contract

| | | |
|--|------|--|
| | 1/70 | Environmental Protection Act 1990, Duty of Care |
| | 1/71 | Construction (Design and Management) Regulations |

APPENDIX 0/4 LIST OF DRAWINGS INCLUDED IN THE CONTRACT

The list of drawings is included in Volume 3 – Drawings.

SPECIFICATION APPENDICES SERIES 100

APPENDIX 1/1: TEMPORARY ACCOMMODATION AND EQUIPMENT FOR THE OVERSEEING ORGANISATION

1. There are no requirements for the Contractor to provide temporary accommodation for exclusive use of the Client.
2. The Contractor shall make available to the Project Manager and Supervisor as required any surveying equipment required for checking of setting out lines and levels.

APPENDIX 1/4: WORKING AND FABRICATION DRAWINGS

1. All working and fabrication drawings shall be submitted to the Overseeing Organisation two weeks prior to the commencement of construction activities unless otherwise stated.
2. Where proprietary products are used the Contractor shall provide the Overseeing Organisation with product details for approval.

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

1. In the following schedules are details of testing to be carried out by the Contractor and test certificates to be supplied by the Contractor.

Notes to the schedules -

- (i) Tests comparable to those specified in this Appendix shall be necessary for any equivalent work, goods or materials proposed by the Contractor.
 - (ii) (N) indicates that a UKAS or equivalent accredited laboratory sampling and test report or certificate is required.
 - (iii) Unless otherwise shown in this Appendix, tests for work, goods or materials under any one Clause are required for all such work, goods or materials in the Works.
 - (iv) Cube strength tests are not required for concrete complying with Clause 2602 of the SHW.
 - (v) Unless otherwise shown in this Appendix, test certificates for work, goods or materials as scheduled under any one Clause are required for all such work, goods or materials in the Works.
2. As part of the provision of samples and testing undertaken by the Contractor, the Contractor shall keep a daily record of samples of goods and materials taken by or on behalf of the Contractor for testing. Records shall be in sufficient detail to record the nature and the source of goods and materials, and shall identify the locations and means of selection and sampling. A copy of the daily record shall be provided by the Contractor on the next working day for retention and use by the Overseeing Organisation.
 3. Test reports and certificates shall bear suitable identification compatible with the Contractor's registration of the samples tested, and shall indicate the edition dates of specifications used for compliance evaluation.
 4. If the Contractor fails to carry out any testing to the required frequency, or to supply the results thereof in a correct and timely manner, the Overseeing Organisation may carry out such tests

as they consider necessary to determine the acceptability of the works/materials employed and shall recover the costs thereof from the Contractor.

5. The Contractor shall give 48 hours' notice of all tests to provide opportunity for testing to be witnessed by the Overseeing Organisation or their Representatives.
6. In addition to any testing carried out by the Contractor in accordance with the preceding paragraphs, the Overseeing Organisation may require the Contractor to carry out tests on an ad-hoc basis for which the Contractor shall be reimbursed if the test is successful in demonstrating that materials and workmanship comply with the Contract.

| Clause | Works, Goods or Material | Test | Frequency of Testing | Test Certificate | Comments |
|-------------------|--------------------------|--------------------------|---|-------------------------|-----------------------------------|
| Series 300 | | | | | |
| 306 | Permanent fencing | | | | Quality management scheme applies |
| | Concrete components | Cover to reinforcement | Min 1 per consignment, max 1 per 100 components (BS1881-204) | Required | |
| 308 & 311 | Preservation of timber | Full sapwood penetration | As required in sub-Clause 311.2(v) | Required for each batch | Quality management scheme applies |

| Clause | Works, Goods or Material | Test | Frequency of Testing | Test Certificate | Comments |
|-------------------|--------------------------------------|---|--------------------------|-------------------|---|
| Series 500 | | | | | |
| 501 | Pipes for drainage and service ducts | | | Required | Product certification scheme applies. |
| | | Vitrified clay | | | |
| | | Concrete-PC/S RC | | | |
| | | Not exceeding 900mm diameter | | | |
| | | Concrete Pre-stressed | | | |
| | | Iron-cast | | | |
| | | Iron-ductile | | | |
| | | PVC-U | | | |
| | | GRP | | | |
| | | Plastics, see Table 5/1 | | | |
| | | Corrugated steel | (Manufacturer's tests) | Required (AASHTO) | |
| | | Corrugated steel bitumen protection | | | |
| | | Not exceeding 900mm diameter | | | |
| | | Other materials | | Required | BBA certification (or equivalent) applies |
| 503 | Pipe bedding | Grading and fines content (N) | 1 per week (min of 3) | Required | Results of routine control tests from the factory production control system operated by the producer to be provided (see Annex C of BS EN 13242:2002+A1:2007) |
| | | For a recycled content see Clause 710 (N) | | | |
| | | Water-soluble sulphate (WS) content (N) | 5 per source at approval | Required | Minimum to allow for natural variability of sulphur compounds. |

| Clause | Works, Goods or Material | Test | Frequency of Testing | Test Certificate | Comments |
|-------------------|--------------------------|---|---------------------------|------------------|--|
| Series 500 | | | | | |
| | | Oxidisable sulfides (OS) content and total potential sulphate (TPS) content (N) | 5 per source at approval | Required | |
| | | Resistance to fragmentation (N) | 1 per source* at approval | | LA category |
| 505 | Filter medium backfill | Plastic index (N) | 1 per source at approval | Required | Results of routine control tests from the factory production control system operated by the producer to be provided (see annex C of BS EN 13242:2002+A1:2007 and Annex D of BS EN 13285) |
| | | Resistance to fragmentation (N) | 1 per source at approval | Required | |
| | | Water soluble sulphate (WS) content (N) | 5 per source at approval | Required | Minimum to allow for natural variability of sulphur compounds. |
| | | Oxidisable sulfides (OS) content and total potential sulphate (TPS) content (N) | 5 per source at approval | Required | Minimum to allow for natural variability of sulphur compounds. |
| | | Grading and fines content (N) | 1 per source at approval | Required | Results of routine control tests from the factory production control system operated by the producer to be provided (see Annex C of BS EN 13242 and Annex D of BS EN 13285) |
| | | For a recycled content see Clause 710 | | Required | |
| 507 | Chambers | | | | |
| | Pre-cast concrete | Evidence of CE Mark or BBA Agreement Cert. | Each type and source | Required | Product certification scheme applies |

| Clause | Works, Goods or Material | | Test | Frequency of Testing | Test Certificate | Comments |
|------------|----------------------------|-----------------------------|---|--------------------------------------|------------------|---|
| Series 500 | | | | | | |
| | | Corrugated galvanized steel | (Manufacturer's tests) | | Required | Product certification scheme applies |
| | | Chamber steps | | | | |
| | | Steel fitments | | | | |
| | | Covers, grates and frames | BS EN 124 Tests | 1 per type and source | Required | Product certification scheme applies |
| | | Cover bolts | | | | Quality Management scheme applies |
| 508 | Gullies and pipe junctions | Pre-cast concrete | Evidence of CE Mark or BBA Agreement Cert | 1 per type and source | Required | Product certification scheme applies |
| | | Clay | | | | BBA certification applies |
| | | Plastic | | | | |
| | | | | | | |
| 509 | Watertightness of joints | | Air test | All pipelines with watertight joints | Required | To be observed by the Overseeing Organisation |
| 512 | Backfill to pipe bays | | Grading and fines content (N) | 1 per 50 tonnes (minimum of 3)* | Required | Minimum to allow for natural variability of sulphur compounds |
| | | | For a recycled content see Clause 710 | | | |
| | | | Water-soluble sulphate (WS) content | 5 per source | | |
| | | | Oxidisable sulfides (OS) content and total potential sulphate (TPS) content (N) | 5 per source | Required | |
| 514 | Fin drains | | (Manufacturer's tests) BBA Agreement Cert | | Required | BBA certificates (or equivalent) applies |

| Clause | Works, Goods or Material | Test | Frequency of Testing | Test Certificate | Comments |
|-------------------|--|--|----------------------|------------------|---|
| Series 500 | | | | | |
| 518 | Thermoplastic structured wall pipes and fittings | (Manufacturer's tests) BBA Agreement certificate | | Required | BBA certification (or equivalent) applies |

| Clause | Works, Goods or Material | | Test | Frequency of Testing | Test Certificate | Comments |
|-----------------------------|--------------------------|-----------------------|---|--------------------------------------|------------------|---|
| Series 600 | | | | | | |
| 601 631 to 637 640 | Acceptable material | | | | | |
| | Class | General Description | | | | |
| | 1 | General granular fill | Grading/ uniformity coefficient (N) | Twice a week* | Required | [For recycled aggregate, see sub-Clauses 601.12, 601.18 and Clause 710] |
| | | | mc/MCV (N) OMC Max. dry density | 2 per 1000m³ up to max of 5 per day* | | |
| | | | SMC of chalk (N) | Twice a week* | | |
| | | 1C only | Resistance to fragmentation (N) | Weekly* | | LA Category |
| | 2 | General cohesive fill | Grading (N) | Twice a week* | Required | |
| | | | mc/MCV/PL Undrained shear strength (N) | 2 per 1000m³ up to max of 5 per day* | | |
| | | | SMC of chalk (N) | Twice a week* | | |
| | | | Bulk density (pfa) (N) | 2 per 1000m³ up to max of 5 per day* | | |
| | 3 | General chalk fill | mc (N) | 2 per 1000m³ up to max of 5 per day* | Required | |
| | | | SMC (N) | Daily* | | |
| | 4 | Landscape fill | Grading/mc/MCV (N) | Daily* | Required | |
| | 5A | Topsoil | Grading (N) | Daily* | Required | |
| | 5B | Topsoil (imported) | Grading (N) | Daily* | Required | |

| Clause | Works, Goods or Material | | Test | Frequency of Testing | Test Certificate | Comments |
|------------------------------------|--------------------------|------------------------|---|--|------------------|---|
| Series 600 | | | | | | |
| | | | Full analysis to BS 3882 - determination of nitrogen content - extractable phosphate content -extractable potassium content - extractable calcium content - extractable magnesium content - extractable sodium content - extraction of exchangeable cations - calculation of exchangeable sodium percentage -determination of loss of mass on ignition - determination of mineral carbonate content - soil texture recommendation for handling and use | 1 full suite of tests at approval and 1 per source or per 400 tonnes thereafter. | | |
| 601 631 to 637 640 cont'd | Acceptable material | | | | | |
| | Class | General Description | | | | |
| | 6 | Selected granular fill | Grading/uniformity coefficient | 1 per 400 tonnes* | Required | |
| | | | PI/LL (N) | Daily* | | |
| | | | Resistance to fragmentation (N) | Weekly for on-site material* | | LA category. Only 1 per source for Class 6F4 and 6F5 |
| | | | SMC (N) | Weekly* | | |

| Clause | Works, Goods or Material | Test | Frequency of Testing | Test Certificate | Comments | |
|------------------------------------|--------------------------|------|---|------------------------|---|---|
| Series 600 | | | | | | |
| 601 631 to 637 640 cont'd | | | omc/mc, mc or MCV (N) | 1 per 400 tonnes* | 1 per source for Class 6F4 and 6F5 | |
| | | | Organic matter/water soluble sulphate (WS) (N) | Weekly* | At least 5 tests per source for sulphur compounds over the course of the contract in accordance with TRL Report 447, tests 1- 5 | |
| | | | Oxidisable sulfides (OS) and total potential sulphate (TPS) content (N) | Weekly* | | |
| | | | pH/chloride ion content (N) | Weekly* | | |
| | 6F3 | | Bitumen content | Daily | Required | |
| | 6F4 and 6F5 | | Size designation and overall grading category (N) | 1 per week* | Required | Results of routine control tests from the factory production control system operated by the producer to be provided for Class 6F4 and Class 6F5 (see Annex C of BS EN 13242 and Annex D of BS EN 13285) |
| | | | Maximum fines and oversize categories (N) | 1 per week* | | |
| | | | Volume stability of blast furnace slag | 6 monthly | | |
| | | | Volume stability of steel (BOF and EAF) slag | 6 monthly | | |
| | | | Other aggregate requirements | Annex C of BS EN 13242 | | |
| | | | Laboratory dry density and optimum water content (N) | Weekly | | Declared values from the factory production control system operated by the producer to be provided for Class 6F4 and Class 6F5 – see Annex C of BS EN 13285 |
| | | | Water content (N) | Daily | | |
| | Acceptable material | | | | | |

| Clause | Works, Goods or Material | | Test | Frequency of Testing | Test Certificate | Comments |
|------------|--------------------------|------------------------|--|---|------------------|--|
| Series 600 | | | | | | |
| | Class | General Description | | | | |
| | 6H, I, J | | Redox potential, microbial activity index | To be agreed if material proposed | | As required in Table 6/3 |
| | 6K and 6LL | | Sulphides and hydrogen sulphide | To be agreed if material proposed | | Standard textbook hydrogen sulfide qualitative inorganic analysis |
| | 6N and 6P | | Los Angeles coefficient | To be agreed if material proposed | | |
| | | | Permeability | | | |
| | | | Effective angle of internal friction (ϕ') and effective cohesion (c') | | | |
| | | | Slope stability test (clause 610) | To be agreed if material proposed | | |
| | 7 | Selected cohesive fill | Grading/mc/ MCV/bulk density (N) | 1 per 400 tonnes* | Required | |
| | | | SMC of chalk (N) | Twice a week* | | |
| | | | PI/LL (N) | Daily* | | |
| | | | Organic matter/ water soluble (WS) sulphate content (N) | Twice a week* or daily where sulphates are expected | | At least 5 tests per source for sulphur compounds over the course of the contract in accordance with TRL Report 447, tests 1-5 |
| | | | Oxidisable sulfides (OS) and total potential sulphate (TPS) content (N) | Twice a week* or daily where | | |

| Clause | Works, Goods or Material | | Test | Frequency of Testing | Test Certificate | Comments |
|------------------------------------|--------------------------|----------------------|--|--------------------------------------|------------------|----------|
| Series 600 | | | | | | |
| | | | | sulphates are expected | | |
| | | | pH/chloride ion content (N) | Weekly* | Required | |
| | | | Resistivity (N) | To be agreed if material proposed | Required | |
| | | | Undrained and drained shear parameters (N) | To be agreed if material proposed | Required | |
| | | | Permeability (N) | To be agreed if material proposed | Required | |
| 601 631 to 637 640 cont'd | 7A | | Effective angle of internal friction and effective cohesion (clause 636) | To be agreed if material proposed | Required | |
| | 7B | | Coefficient of friction and adhesion (clause 639) | To be agreed if material proposed | Required | |
| | | | Slope Stability test (clause 610) | | | |
| | 7C | | Redox potential | To be agreed if material proposed | Required | |
| | 8 | Miscellaneous fill | mc/MCV (N) | Daily* | | |
| | 9 | Stabilised materials | Pulverisation | 1 per lane width per 200m in length* | Required | |
| | | | mc/MCV (N) | | | |
| | | | Target compacted density | | | |
| | | | Bearing ratio (N) | | | |
| | Pulverised fuel ash | | Chemical analysis | 1 per consignment* | Required | |

| Clause | Works, Goods or Material | Test | Frequency of Testing | Test Certificate | Comments |
|-------------------|--|--|---|------------------|--|
| Series 600 | | | | | |
| | Incinerator bottom ash aggregate (IBAA) | Grading (N) | Weekly* | | |
| | | Organic content, | 1 per source | | BS 1377 : Part 3 |
| | | pH level, | Weekly* | | BS 1377 : Part 3 |
| | | Water Content | Weekly | | BS EN 1097-5 |
| | | Resistance to Fragmentation, | 6 Monthly | | BS EN 1097-2 |
| | | Optimum Water Content, (Vibrating Hammer Method) | At Approval* | | BS EN 13285 Clause 5.3 – declared values |
| | Environmental Assessment. | Each Location | | | Suppliers Test |
| | Fill adjacent to cementitious material or metallic items | Water-soluble sulphate (WS) content, oxidisable sulfides (OS) content and total potential sulphate (TPS) content (N) | 5 per 400 tonnes or per location if less than 400 tonnes* | | At least 5 tests per source for sulphur compounds over the course of the contract in accordance with TRL Report 447, tests 1-5 |
| 602 | Earthworks material beneath surface of a road or paved central reserve | Frost heave (N) | | Required | |
| | Off site source | | 1 every four months* | | |
| 609 621 | Geotextiles | Tensile load | 1 per source and type | Required | Manufacturer's certification required to demonstrate compliance with Appendices 6/5 or 6/9 |
| | | Permeability | | | |
| | | Pore size | | | |
| 612 | Compaction of fills | | | Required | |
| | Method compaction | Field dry density (N) | | | |
| | End product compaction | Optimum mc (2.5kg rammer/ vibrating hammer method) (N) | Each class or sub-class of material* | | |
| | | Field dry density (N) | 1 per 400 tonnes* | | |

| Clause | Works, Goods or Material | Test | Frequency of Testing | Test Certificate | Comments |
|-------------------|--|---|--|------------------|--|
| Series 700 | | | | | |
| 702 | Longitudinal and transverse surface regularity | Rolling straight edge or 3m straight edge | As required in Clause 702 | Required | ++Overseeing Organisation notified in advance to enable observation of the testing |
| | Texture depth (N) | BS598-105 or BS EN 13036-1 | Min 1, 50m section or as required in Annex B of BS EN 13036-1:2010 | Required | As per Clause 921 |
| | Bump integrator | As TRL SR 26 UC | As required on any lengths of 250m or more | Required | To be called up by the Overseeing Organisation in accordance with Clause 702 or Appendix 7/1 as appropriate |
| 710 | Constituent materials in recycled aggregate | Quality control (N) | Checks are to be carried out by the <i>Contractor</i> in accordance with the procedure set down in 'Quality Control - Production of Recycled Aggregates' and with those in this Clause | Required | <p>The suppliers results of all quality control checks shall be supplied to the Overseeing Organisation in lieu of Contractor testing.</p> <p>The quality control procedure should be in accordance with the 'Quality Control - Production of Recycled Aggregates' published by Waste and Resources Action Programme which is available from WRAP website http://www.wrap.org.uk.</p> |
| | | Constituents (N) | 1 for approval (<i>see comments</i>) and 1 per week during works for each material supplied | | |

| Clause | Works, Goods or Material | Test | Frequency of Testing | Test Certificate | Comments |
|------------|--|--|---|------------------|--|
| Series 800 | | | | | |
| 801 803 | General requirements for unbound mixtures for adjacent to cement bound materials, concrete pavements, structures or products | Water soluble sulphate (WS) content(N) (Not required for IBAA) | 1 per 400 tonnes or per location if less than 400 tonnes* | Required | |
| | | Oxidisable sulfides (OS) content and total potential sulphate (TPS) content (N) (Not required for IBAA) | | | |
| | Unbound mixtures beneath surface of a road or paved central reserve | Frost heave (N) | 1 per source* | Required | Results of routine control tests from the factory production control system operated by the producer to be provided (see Annex C of BS EN 13242) |
| | | Grading and fines content (N) | 1 per week* | | |
| | | For recycled content see Clause 710 | | | |
| | | Crushed, broken or rounded test | | | |
| | | Plastic index (N) | | | |
| | | pH of IBAA (N) BS 1377-3 | | | |
| | | Water Content (N) | Daily* | | |
| | | Organic Content (N) | 1 per source | | |
| | | Resistance to fragmentation (N) | 6 monthly* | | LA category |
| | | Resistance to freezing and thawing (magnesium sulphate soundness (N) | 1 per source * | | |
| | | Water absorption (N) | 1 per source * | | |
| | | Volume stability of blast furnace slags | 6 monthly | | |

| Clause | Works, Goods or Material | Test | Frequency of Testing | Test Certificate | Comments |
|---|---|---|----------------------|----------------------------|---|
| Series 800 | | | | | |
| | | Volume stability of steel (BOF and EAF) slags | 6 monthly | | |
| | | OMC/mc (N) | | | Declared values from the factory production control system operated by the producer to be provided – see Annex C of BS EN 13285 |
| | | Density (N) | | | |
| Series 900 | | | | | |
| 901 902 925 937 938 942 943 | Aggregates for bituminous materials | | | Required at approval stage | National quality management sector schemes apply |
| | Resistance to fragmentation (hardness) | Resistance to fragmentation (N) | Monthly* | | |
| | Resistance to freezing and thawing (durability) | Soundness (N) | 1 per source* | | |
| | | Water absorption (N) | 1 per source* | | |
| | Cleanliness | Sieve test (mass passing 0.063mm sieve) (N) | Monthly* | | Washing and sieving method to be used |
| | Shape | Flakiness index (N) | Monthly* | | |
| | Blastfurnace slag | Bulk density (N) | 1 per 500 tonnes* | | [BS EN 1097-3] |
| | | Soundness | Once every 4 months | Required | |
| | | Dicalcium silicate disintegration (N) | 1 per 500 tonnes* | | These are for air-cooled blastfurnace slag |
| | | Iron disintegration (N) | | | |
| | Steel slag | Bulk density (N) | 1 per 500 tonnes* | | |
| | | Volume stability (N) | 1 per 500 tonnes* | | |

| Clause | Works, Goods or Material | Test | Frequency of Testing | Test Certificate | Comments |
|-------------------|--------------------------------------|--|---------------------------------------|------------------|-----------------------------|
| Series 800 | | | | | |
| | Coarse aggregate for surface courses | Resistance to polishing (PSV) (N) | 6 per source at approval as Cl. 915.2 | Required | As required in Cl. 915.2 SR |
| | | Resistance to surface abrasion (AAV) (N) | 1 per source at approval | | |

| Clause | Works, Goods or Material | Test | Frequency of Testing | Test Certificate | Comments |
|---|---|--|---|-------------------------------------|--|
| Series 800 | | | | | |
| 901 902 925 937 938 942 943 cont'd | Binders for bituminous materials | Penetration (N) | 1 per source* | Required | |
| | | Softening point (N) | 1 per source* | | |
| 903 to 907 909 to 912 914 916 925 926 929 937 938 942 943 946 to 948 | Bituminous mixtures | Laying records including rolling temperature | Each load | Required | National quality management sector schemes apply |
| | | Grading (N) | 1 per 100 tonnes (min 1 per material per day) | | |
| | | Binder Content (N) | | | |
| 929 | Base and Binder Course Asphalt Concrete | Refusal air void content (N) | 1 per source at approval and as required | | If the Job Mixture Approval Trial has been carried out off site then the results shall be supplied at least 10 working days before use on site. Otherwise JMA trial will be required on site |
| | | Binder volume (N) | | | |
| | | Grading (N) | | | |
| | | Binder content (N) | | | |
| | | | In situ air void content (N) | Min 1 per set and 1 per 500m lane m | Required |

| Clause | Works, Goods or Material | Test | Frequency of Testing | Test Certificate | Comments |
|-------------------|--|--|--|------------------|--|
| Series 800 | | | | | |
| 911 | Rolled asphalt surface course (design mix) | Stability value (N) Flow value (N) Density (N) with combinations and sources of constituents | 1 per source | Required | National quality management sector schemes apply. Provide results, at least 10 working days before use, with all graphs. The design shall be less than 12 months old. This information must be for exactly the same mixture as that proposed for the works |
| 921 | Surface macrotexture | BS EN 13036-1 Volumetric Patch Technique (N) or SMTD or BS EN 13036-1:2010 Sand patch test | 50m sections including a minimum one third of the scheme | Required | Where surface texture is required in Appendix 7/1 |
| | | System coverage | As required by Clause 924SR | | |
| | | Tensile testing on thermosetting binder BS EN ISO 2039-1:2003, BS 2782-3: Method 365D:1997 | 2 samples per shift | | |
| | | Aggregate | Resistance to polishing (PSV) (N) | | |
| | | | 6 per source* and as required for coated chippings in Clause 915.2 | | Only 1 per source per year for calcined bauxite |
| 920 | Bond coats and other bituminous sprays | | | | |
| | Binder | Product identification | At approval | Required | Tests are expected to be repeated every two years |
| | | Vialit cohesion | At approval | Required | Tests are expected to be repeated every two years |
| | | Penetration at 25°C and 5°C (N) | At approval | Required | Manufacturer's QA test results may be submitted |

| Clause | Works, Goods or Material | Test | Frequency of Testing | Test Certificate | Comments |
|-------------------|----------------------------|--|--|------------------|--|
| Series 800 | | | | | |
| | | Accuracy of spread calibration of binder distributor (N) | Certificate to be less than 6 months old | Required | Not more than 6 weeks prior to start of work and one per month |
| | | Rate of spread Carpet tile test | 1 set per site* | Required | |
| 960AR | Imprint Flexible Surfacing | | | | |
| | | Manufacturers tests | 1 per source | Required | Certificates to be provided to confirm fitness for purpose |
| | | Skid Resistance PSV(N) | | | |
| | | Wheel-tracking rate (N) | | | |
| | | Wheel-tracking rut depth (N) | | | |

| Clause | Works, Goods or Material | | Test | Frequency of Testing | Test Certificate | Comments |
|-------------|--|-------------------|--|---|------------------|--|
| Series 1100 | | | | | | |
| 1101 | Pre-cast concrete kerbs, channels, edgings and quadrants | | Bending strength (N) | Minimum of 8 per 1000 units of each product at approval (BSEN 1340) | Required | Test certificates less than 12 months old to be supplied |
| | | | Skid resistance (PPTV Test) BS 7932 (N) | Duplicate tests at approval | | |
| | | | Water absorption and or freeze/thaw resistance (N) | At approval | | |
| 1104 | Pre-cast concrete flags | | Bending strength (N) | Minimum of 8 per 1000 m² of each product BS EN 1339) | Required | Test certificates less than 12 months old to be supplied |
| | | | PPTV (N) | At approval | | |
| | | | Water absorption and or freeze/thaw resistance (N) | At approval | | |
| | Bedding / jointing | Granular material | Grading and Fines content (N) | 1 per 50 tonnes or part of. | Required | |
| | | Mortar | Compressive strength (N) | 1 set of 2 cubes per day | | |
| 1107 | Concrete block paving | | Compressive strength (N) | Minimum of 8 per 1000 m² of each product (BS EN 1338) at approval | Required | |
| | | | Shape and dimensions (N) | 1 per source | | |
| | | | Abrasion resistance (N) | 1 per source at approval | | |
| | | | PPTV (N) | 2 per source at approval | | |

| | | | | | |
|--|---|--|--------------------------|----------|--|
| | | Water absorption and or freeze/thaw resistance (N) | 1 per source at approval | | |
| | Footpath gravel and Self binding path gravel system | Grading, PI, m/c, (N) | 1 per source | Required | |
| | | Plasticity Index (N) | 1 per source | | |
| | | Optimum m/c (N) | 1 per source | | |

| Clause | Works, Goods or Material | | Test | Frequency of Testing | Test Certificate | Comments |
|-------------------------|--------------------------|-------------------------------|------------------------------|---------------------------------------|--|---|
| Series 1200 | | | | | | |
| 1202 | Permanent traffic signs | | | 1 per type and source | Required | Quality management scheme applies; Certification that the traffic sign is passing the tests in BS 8442:2006, BS EN 12899-1:2007, BS EN 1463-1:2009, BS EN 1463-2:2000 is required |
| 1212 SR | Road markings | | | | Required | Quality management scheme applies |
| | | Approval | Colour | 1 per material per source at approval | Required | Copy of BS EN 1824 road trial certificate |
| | | | Luminance factor | | | |
| | | | Skid resistance | | | |
| | | | Dry retroreflectivity | | | |
| | | | Wet retroreflectivity (RW) | | | |
| Pavement marking paints | | Tests specified in BS EN 1871 | 1 set per source at approval | Required | Quality management and product certification schemes apply | |

APPENDIX 1/7: SITE EXTENT AND LIMITATIONS ON USE

Extent of the Site and Working Areas

- 1.1 The site is that portion of the highway network placed in the non-exclusive possession of the Contractor to undertake the Works. The area of the site is deemed to be the areas shown on drawings numbered XXXX.

Limitations on the Use of the Site

- 2.1 No equipment, plant, materials or other items shall be permitted to remain or to be placed on areas which are not part of the Site as defined in this Appendix with the exception of items needed to control traffic which have been placed in positions agreed by the Overseeing Organisation.
- 2.2 The Contractor shall take all due care to avoid damage to the grass verges, footways and the drainage system, providing sleeper or other protection whenever he requires plant or vehicles to cross these features. Any damaged areas of verge shall be reinstated with topsoil and seeded in accordance with the specification. Any damaged or disturbance to drains shall be reinstated by the Contractor within 24 hours or such other time as the Overseeing Organisation may agree in writing, and works to check adjacent lengths of drains possibly damaged by Contractor's plant shall be carried out concurrently if the Overseeing Organisation so directs. Other areas of the Site, including the Contractor's accesses shall be reinstated to the original condition on completion of the Works.
- 2.3 Access to park concessions are to be maintained at all times where practicable, the Contractor is to liaise with the client Project Manager in advance should works interfere with access points.
- 2.4 No materials shall be allowed to be stored on areas designated as public highway without the prior consent of the Overseeing Organisation.
 - No advertisements, contractors and sub-contractors name-boards shall be erected within the Site or on the Highway unless approved by the Overseeing Organisation. Advertisements and name-boards shall not be allowed in the vicinity of traffic lanes where in the opinion of the Overseeing Organisation such would distract drivers or conflict with statutory traffic signs. All advertisements and nameboards shall be removed once the Works have been completed or when instructed by the Overseeing Organisation.
- 2.5 The Contractor shall afford all reasonable facilities and services for any other contractors employed by the Overseeing Organisation and their workmen and of any properly authorised authorities or statutory bodies who may be employed in the execution on or near the Site and Working Areas of any work not in the Contract or of any contract which the Overseeing Organisation may enter into in connection with or ancillary to the Works. In this context services shall include for the setting out of the Works and the checking thereof necessary for others to carry out their works compatibly with the Works described in the Contract.
- 2.6 Roads, accesses, footways rights of way, etc., to which the public has access and are being used for the purpose of constructing the works shall at all times be kept clean and clear of all dirt, mud debris and materials. The Contractor shall provide, maintain and use suitable equipment for this purpose. Where necessary for safety of the public, paths shall be swept.

- 2.7 In carrying out the Works the Contractor shall ensure that all highway drains, and gullies be kept clear of any spoil, mud, slurry or other material likely to impede the free flow of water therein. The Contractor shall remove any such contamination immediately when instructed to do so.
- 2.8 Safe pedestrian routes and footways must be maintained at all times, especially to park concessions and facilities.

APPENDIX 1/9: CONTROL OF NOISE AND VIBRATION

Compliance with this Appendix shall not relieve the Contractor of any of his other obligations and liabilities under the Contract.

The Contractors attention is drawn to the Control of Pollution Act 1974: it is for the Contractor to decide whether to seek the Local Authority's formal consent to his methods of work and to the steps he proposes in order to minimise noise. The Local Authority reserves the right to take formal action under the Control of Pollution Act.

Without prejudice to the Contractors obligations under the preceding paragraph the Contractor shall comply with the following requirements.

Working Hours

- 1.1 The normal working hours within the site shall be Monday to Friday between 07:30 hours and 18:30 hours, Saturdays between 0800 hours and 1700 hours. These times are subject to agreement with The Client. Work outside of these hours, including Sundays or Bank Holidays, may be permitted with prior approval from the Project Manager, if required for the purposes of the programme. The Project Manager will require a minimum of 14 days' notice of any such works.
- 1.2 Approval of additional hours is at the discretion of the Project Manager and refusal or subsequent withdrawal of approval will not entitle the Contractor to any recourse under the Contract. The Contractor may apply to the Project Manager for agreement of additional working hours and such applications shall be treated in all reasonableness.

Noise and Vibration

- 2.1 An indication of acceptable noise levels is given in the table below, but the Contractor should ensure that his operations comply with the specific requirements of the Local Authority's Environmental Health Officer. The Contractor must inform the Overseeing Organisation if he exceeds or expects to exceed the noise levels in the table below. In this circumstance the Contractor should not proceed with the noisy operations until agreed with the Overseeing Organisation.
- 2.2 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

Overseeing Organisation 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 shall be given within 14 days of receipt of the notice.

2.3 The Contractor must produce a comprehensive noise and vibration plan (within a Construction Environmental Management Plan or similar) setting out how work will be carried out to current best practice and with due regard to the relevant national standards for control of noise and vibration on construction sites. Method statements for any particularly noisy operations should include control measures for noise and vibration.

2.4 Work at night may be permitted, with prior discussion and agreement with the Project Manager, if essential for the expedient completion of the project. The Project Manager will require a minimum of 14 days' notice of any such works. Noisy works in particular should be kept to an absolute minimum.

| 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) |
| Monday to Friday | 0730 -1830 | 72 | 12 | 82 |
| Monday to Friday (Urban) | 0730 -1830 | 65 | 12 | 80 |
| Monday to Fridays | 1830-2200 | 57 | 3 | 62 |
| Monday to Friday | 2200-0730 | 47 | 3 | 52 |
| Saturday | 0000-0800 | 47 | 3 | 52 |
| Saturday | 0800-1400 | 67 | 6 | 75 |
| Saturday | 1400-1700 | 57 | 3 | 62 |
| Saturday/Sunday | 1700-0900 | 47 | 3 | 52 |
| Sunday | 0900-1700 | 57 | 3 | 62 |
| Sunday/Monday | 1700-0730 | 47 | 3 | 52 |

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, L_{eq} , is the total L_{eq} from all the noise sources in the vicinity over the specified period prior to the commencement of the Works. (Sampling time to be a 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 60651 Type 1 or 2 set to SLOW response and frequency weighting A or on an integrating - averaging sound level meter to BS EN 60804.
- (v) An Urban area is defined as being within 30 metres of permanent residential habitation, commercial or retail premises.

2.5 Without prejudice to the generality of the contractors' 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 between works.
- (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.

2.6 The Contractor shall furnish such information as may be required by the Overseeing Organisation in relation to noise levels emitted by plant or equipment used or installed on the Site or which the Contractor intends to use or install on the Site.

2.7 The Contractor shall afford all reasonable facilities to enable the Overseeing Organisation 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".

2.8 The Contractor shall provide the Overseeing Organisation with the telephone number of a named person (or persons), in a senior position of authority on the site, who can be contacted at any time while works are being carried out. The names and telephone numbers of these representatives shall be provided 14 days prior to the commencement of works. The Contractor shall at the same time formally notify the local authorities of the commencement date for the works.

Vibration

- 3.1 The Contractor shall comply with BS 6472: 1992 Evaluations of Human Exposure to Vibration in Buildings (1Hz-80Hz). Any vibration monitoring carried out shall also be in compliance with BS 6472.

Liaison

- 4.1 The Client will engage with Poole Park stakeholders, park users and where required local residents. The Client expects to work positively with the Contractor in order to minimise disturbance to park users and local residents, including joint working where required to explain works to the public.

APPENDIX 1/10: PERMANENT WORKS TO BE DESIGNED BY THE CONTRACTOR

Not Used

APPENDIX 1/11: TEMPORARY WORKS DESIGN

Not Used

APPENDIX 1/12: SETTING OUT AND EXISTING GROUND LEVELS

General

- 1.1 The Overseeing Organisation shall supply the Contractor with the setting out details that are available prior to commencement of the Works.
- 1.2 Unless agreed otherwise with the Overseeing Organisation, the Contractor shall not scale from drawings in order to set out the Works. The exact position of kerb lines, lighting columns, traffic signs, road markings, signal poles etc. shall be agreed with the Overseeing Organisation on site.
- 1.3 No temporary setting out marks are to be made on finished materials using permanent markers, paint or the like. Any finished materials marked in such a way shall be replaced or repaired, at the Contractor's expense, to the satisfaction of the Overseeing Organisation.
- 1.4 On occasion the Overseeing Organisation shall provide the Contractor with co-ordinates for the purposes of setting out. These shall normally be provided as strings generated by Autodesk AutoCAD Civil 3D. The position of string points shall be given in X,Y,Z format; rather than in distance & bearing or chainage & offset formats.
- 1.5 Prior to the commencement of the Works, the Overseeing Organisation shall provide survey stations for setting out. Once the Contractor has occupied the Site, they shall have sole responsibility for providing/maintaining sufficient survey stations required to set out all of the Works. If the Contractor requests the Overseeing Organisation to re-establish any survey stations, the Overseeing Organisation shall recover his costs from the Contractor.

- 1.6 Setting out details will be provided in the form of electronic file containing 3D strings with X,Y,Z coordinated. The file shall be in .dxf format.
- 1.7 All dimensions and coordinates are to be confirmed by the Contractor on site. The Contractor is to satisfy themselves as to the accuracy of the available survey information.
- 1.8 Longsection and cross section (at 10m centres) drawings have been provided. This information can be found on drawing numbers 70051460-WSP-HML-0000-DR-CH-0201 to 0204 and 70051460-WSP-HML-0000-DR-CH-0301 to 0308.

APPENDIX 1/13: PROGRAMME OF WORKS

- 1.1 In accordance with Clause 31 of the Conditions of Contract the Contractor shall provide the Programme of Works in the form of a Network Diagram or Bar Chart produced as a result of a Critical Path Analysis. It shall show the level of detail appropriate to each stage of the works and all activities and constraints, each of which shall be given a short title. All events shall be numbered and annotated with earliest and latest event dates. The programme shall be submitted with the tender documents in MS Project format electronically and on paper.
- 1.2 The Programme provided under this Appendix is additional to the programme information required under Appendix 1/17.

Constraints

- 1.3 Account should be taken of the following constraints.
 - (i) As detailed in Pre-Construction Information section 3.4.1 there are various premises within Poole park requiring access and egress for their business use.
 - (ii) Park maintenance operations will continue throughout the works meaning access requirements for vehicles, tractors and a range of different machinery. The parks team will work alongside and support the contractor wherever possible.
 - (iii) Poole Park is currently closed to vehicles between 6am and 10am Monday to Saturdays. Exceptions to this closure are for maintenance, deliveries and events, so contractors should be able to utilise a quiet period for vehicles in the park, but recognise it is not an absolute closure
 - (iv) Other improvements to Poole Park may overlap with The Contractor's works, such as the construction of new play areas at Westfield and next to The Ark and the refurbishment of the miniature railway attraction. These are programmed to be tendered by the end of 2019 and The Contractor shall be notified at the earliest opportunity if significant works will be taking place and impact in any way.
 - (v) The Contractor's traffic management responsibilities are described in Appendix 1/17. As part of those responsibilities, the Contractor shall coordinate and agree access arrangements so that Concessions and stakeholders will continue to have access to the park to operate as usual, this includes the following non-exhaustive list:
 - a) Staff access, deliveries and waste collection to The Ark and The Kitchen, including movements between the two businesses.

- b) Access for the Crazy golf, Bowls club, tennis and Rockley Watersports as required, although the timing of works through the winter minimises the use by these concessions
- c) Every Saturday morning at 9am ParkRun operates, based from the cricket pavilion, up to 900 joggers undertake two laps of the lagoon and other routes to complete a 5km run. The route of the run throughout the works can be altered and the contractor's programme needs to be understood in advance in order to communicate the impact of works to the ParkRun team, in order for the works and the run to continue.
- d) Poole Park hosts a range of public activities and events, the majority of which are in the summer months, the client may receive new event requests and these will be discussed with the contractor if within the contract programme.

Known events at the time of tendering include:

- i. Charity Run – 25th of April 2020
- ii. Charity Run – 16th of May 2020
- iii. Event on cycle track – 20th of May 2020
- iv. Poole Festival of Running – 21st & 22nd of June 2020

APPENDIX 1/14: PAYMENT APPLICATIONS

1. The payment applications submitted by the Contractor to the Overseeing Organisation in accordance with the Conditions of Contract shall use the Bill of Quantity to identify activities completed and the price for each. The Contractor shall allow the Overseeing Organisation to inspect invoices for goods or materials included in applications as may be required.

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

1. The Overseeing Organisation has provided C2 Information within the site information pack. The Contractor shall refresh the C2 information prior to commencement of the Works
2. The Overseeing Organisation has undertaken C3 discussions with Openreach, SGN, SSE, Virgin Media and Wessex Water. Following the C3 discussions; SGN, SSE, Virgin Media and Wessex Water confirmed no diversionary works were required to their apparatus. The Contractor shall liaise with Openreach with regard to their C3 response which suggested a site visit would be required to determine if any works are required.
3. The Contractor shall make arrangements with the Statutory Undertakers and others concerned, for the co-ordination of his work with all work that needs to be done by them or their contractors concurrently with the Works. Compliance with the periods of notice given in the Contract does not relieve the Contractor of his obligations.

4. Private services to individual properties shall not generally been listed or shown in the Contract. The Contractor shall make arrangements with the Statutory Undertakers and others concerned for the phasing of all necessary disconnections and diversion of private services affected by the Works.
5. Disconnected apparatus shall be removed by the Contractor only if they have the prior consent of the Authority concerned.

APPENDIX 1/17: TRAFFIC SAFETY AND MANAGEMENT

General

- 1.1 The Contractor shall agree his proposed traffic safety and management with the Overseeing Organisation, Police and any other relevant statutory body. Such agreement shall be secured prior to any work being carried out.
- 1.2 The Contractor's proposed traffic management installation shall allow for the requirements of vehicular, pedestrian, cycle and equestrian traffic.
- 1.3 The Contractor's proposed traffic management installation shall allow for access to be maintained to all properties and businesses affected by the works.
- 1.4 The Contractor's proposed traffic management installation shall allow for access by emergency vehicles at all times during the works.
- 1.5 The Contractor shall ensure traffic does not run on planed surfaces without the prior agreement of the Overseeing Organisation.
- 1.6 Temporary traffic control signals shall not be powered by a generator between 1900 and 0800 hours. During this period the power supply shall be by suitable batteries capable of providing a continuous 24 hours operation.
- 1.7 The Overseeing Organisation shall have the unqualified right to instruct work persons and/or subcontractors on any matter relating to traffic safety and management including their immediate removal from site.

Requirements for Traffic Management

- 2.1 The Contractor shall be responsible for:
 - i. the installation, maintenance and removal of the Traffic Management system.
 - ii. ensuring illumination of signs to standards required in BS 873: Part 5, or in compliance with particular requirements of the Contract. Taking steps to avoid dazzle.
 - iii. avoid damage statutory undertaker's plant when erecting posts for signs.
 - iv. liaison with the Statutory Authorities and Police Authority.
- 2.2 Sign faces shall be to BS EN12899-1 using Class 2 reflective materials.
- 2.3 The signs are to be new or in good second-hand condition and shall be made available for inspection and approval by the Overseeing Organisation prior to use.
- 2.4 The Overseeing Organisation may require the exact positions of signs to be agreed on site.

- 2.5 Reinstatement of post holes in verges shall be carried out by filling the post hole to ground level with as dug material.
- 2.6 Where one-way working is required it shall be controlled by temporary traffic signals in accordance with Chapter 8 of The Traffic Signs Manual and Safety at Street and Road Works – A Code of Practice. Should there be a contradiction then the guidance of the Code of Practice shall govern. At peak hours these shall be manually controlled by a suitably trained person. STOP/GO boards shall be provided and be ready for immediate use in the event of signal failure.
- 2.7 The Contractor shall allow for operations to be carried out under Police supervision as required by the Overseeing Organisation.

Working Areas and Safety Zones

- 3.1 Working areas and safety zones shall be as defined in Chapter 8 of the Traffic Signs Manual and Safety at Street and Road Works – A Code of Practice. Should there be a contradiction then the guidance of the Code of Practice shall govern.

Phasing of the Works

- 4.1 At least seven days prior to the commencement of the Contract, the Contractor shall submit to the Overseeing Organisation for approval, a programme detailing the proposed method and phasing for the execution of the Traffic Safety and Management requirements of the work and the timing of all activities and resources to be utilised.

This shall include the following information

- i. Traffic management drawings indicating phasing of works
- ii. Confirmations of road space bookings

Traffic Management Layouts

Traffic management layouts will conform with the following:

- 2.1 The recommendations contained in Chapter 8 of the Traffic Signs Manual published by The Stationary Office and any amendments thereto. The following variations to the layouts shown in Chapter 8 of the Traffic Signs Manual are required when a mandatory speed limit is imposed at roadworks, the Contractor shall give notice for the relevant Temporary Traffic Order; provide warning signs (7290) on both sides of the carriageway in advance of the speed restriction.
- 2.2 The recommendations contained in The Department of Transport Trunk Road Maintenance Manual (TRMM) Volume 1 Highway Maintenance Code and any amendments thereto.
- 2.3 The recommendations contained in the County Surveyor's Society, DoT Notes for Guidance, Safety at Roadworks 3rd Edition and any amendments thereto, excluding the techniques using mobile lane closures for setting out and removing elements of traffic management schemes.

- 2.4 The recommendations contained in DfT, Safety at Street and Road Works – A Code of Practice.
- 2.5 TD 38 and TA 62 – Night Mobile Lane Closures on Trunk Roads with Hardshoulders
- 2.6 TA 61 Currency of Traffic Signs Manual
- 2.7 TD49 The Mobile Lane Closure Technique
- 2.8 TA63 Convoy Working.
- 2.9 Safety zones in accordance with the requirements of Chapter 8 of the Traffic Signs Manual shall be provided for each traffic control layout.
- 2.10 Where the circumstances of any particular case are not covered by the above standards, the Contractor shall submit proposals for dealing with such situations to the Overseeing Organisation for agreement at least 10 days prior to installation of the traffic management measures.

Notice Periods for Traffic Regulation Orders and Authorisations

- 6.1 Temporary traffic orders required under the Road Traffic Regulation Act 1984 shall be applied for by the Overseeing Organisation. If the Contractor requires temporary orders to facilitate the construction of the Works, he shall give sufficient notice to allow for the Overseeing Organisation to arrange the traffic order. The following notice periods apply:

| | |
|--|----------|
| Amending or making traffic orders | 10 weeks |
| Authorisation of non-prescribed sign | 10 weeks |
| Authorisation of three-way signal control | 8 weeks |
| Authorisation of four-way signal control | 8 weeks |
| Authorisation of Mobile Lane Closure | 2 weeks |
| Moving permanent sign to be compatible with the state of the works as described in Clause 117/11 | 8 weeks |

Restrictions on Traffic Management Operations

- 7.1 Traffic management operations that restrict the carriageway, by reducing the number of available running lanes, or impeding the movement of traffic, shall not be left in place outside of the hours stipulated in the Works Order (emergency and urgent work excepted). Outside of these hours all equipment and materials shall be removed from the highway, unless otherwise agreed with the Overseeing Organisation.
- 7.2 If temporary signs and cones, are required to be re-installed in the same location within 24 hours the Contractor may lay his signs down flat in the verge and remove cones and signs to the verge. All signs and cones treated in this manner shall be left so that they do not cause a hazard to any motorist, cyclist or pedestrian. Frames for signs shall not be leant against safety fences or bridge parapets etc, and shall have any legs pointing away from oncoming traffic.
- 7.3 Any materials or equipment stored on the highway shall be suitably lit and protected from the public.
- 7.4 The Contractor shall deem the permissible hours to be 07:30 to 18:30 Monday to Friday.

TABLE 1/17/1 PERMISSIBLE HOURS FOR TRAFFIC MANAGEMENT OPERATIONS

| | |
|--------------------------------|---------------|
| Monday – Friday (Unrestricted) | 07.30 – 18.30 |
| Monday - Friday (Restricted) | 09:30 – 16:30 |
| Saturday | 07.30 – 18.30 |
| Sunday | 07.30 – 18.30 |
| Nightwork: Monday – Thursday | 18.30 – 07.30 |
| Nightwork: Friday | 18.30 – 07.30 |
| Nightwork: Saturday | 18.30 – 07.30 |
| Nightwork: Sunday | 18.30 – 07.30 |

Signs

- 8.1 The Contractor shall provide, erect, maintain and remove driver information boards.
- 8.2 Unless otherwise agreed by the Overseeing Organisation, all warning and mandatory signs shall have a mounting height of 1.2m. The Contractor shall forward details of his proposed method of mounting signs to the Overseeing Organisation for approval. The sign position shall be visible to traffic and not obstructed by street furniture, structures and traffic management equipment.
- 8.3 All traffic cones in connection with the works shall be a minimum of 750mm high. The Contractor is to refer to table A1.3 of Chapter 8 of The Traffic Signs Manual for conditions where cones of a greater height are required.

Traffic Safety and Control Officer

- 9.1 The Contractor shall provide a 'Traffic Safety and Control Officer'. This Officer shall be immediately contactable at all times that traffic management is on the highway; shall be suitably qualified to implement, maintain and remove traffic management systems. He shall be authorised to organise and implement any remedial works to the traffic management notified to him by the police or the Overseeing Organisation, within a period of two hours of such notification. Details and arrangements for the provision of a Traffic Safety and Control Officer shall be agreed with the Overseeing Organisation.

Lighting

- 10.1 When required by the Overseeing Organisation, the Contractor shall supply and maintain lighting at work areas, standing areas and floodlighting at contra flow crossover points during night time. The lighting shall be of sufficient intensity to illuminate any hazards for the safety of all traffic and site personnel but shall not dazzle adjacent traffic. This lighting shall in any case be a minimum of 15 lux at road level. All lighting shall be available at all times for use during adverse weather conditions or as directed by the Overseeing Organisation. Gas bottles are prohibited for illuminating signs.

Vehicles

- 11.1 Vehicles travelling within work areas shall observe a speed limit of 15 mph at all times.
- 11.2 Only vehicles essential for carrying out the works shall be permitted within any works area. Any vehicle deemed by the Overseeing Organisation to be non-essential, especially private cars, and any vehicle not complying with Clause 117 shall not be permitted to remain within the works area.

Convoy Working

- 14.1 When safety clearances are not otherwise available the Contractor shall provide traffic control by convoy working in accordance with TA63.
- 14.2 When convoy working is required, the Overseeing Organisation and Contractor shall agree the number of convoy vehicles required to operate the system safely and in accordance with the above advice note. At least one standby convoy vehicle shall be available at all times over and above the number agreed for operation of the system.
- 14.3 The operation of a convoy working system shall be in addition to the appropriate traffic management layout.
- 14.4 All vehicles involved in convoy working, the operators of the traffic signals (or stop/go boards), and the Overseeing Organisation shall be equipped with a dedicated two-way radio communication system. The Overseeing Organisation shall direct operations using this communication system.
- 14.5 Convoy working layouts shall be
- Layout A TA 63, Figure 2 Convoy Working – Single carriageway roads
 - Layout B TA 63, Figure 3 Convoy Working – Dual carriageway roads

Control of Dust and Mud on the Road

- 15.1 The Contractor shall keep all roads, accesses and rights of way, leading to, from or crossing the site free from mud, slurry or other hazardous substance that is deposited through his operations. Any such substance deposited by the Contractor or his sub- contractors shall be removed by the Contractor at his own expense.
- 15.2 The Overseeing Organisation shall have the authority to close any site access if such a substance deposited is not promptly removed by the Contractor and any losses or expenses incurred as a result shall be borne by the Contractor.

Reopening Traffic Lanes

- 16.1 Before reopening any traffic lane or lanes the Contractor shall ensure that, if required, they have complied with the following:
- Temporary ramping to longitudinal joints shall be at 1 in 20 or flatter relative to the transverse plane of the road surface;

- Temporary ramping to transverse joints shall be at 1 in 20 or flatter relative to the longitudinal plane of the road surface;
- All personnel, plant, items of equipment and materials have been cleared from traffic lane(s), footways etc.
- Areas open to the public have been cleaned and traffic lanes have been suction swept.
- Appropriate permanent or temporary signing shall be in place.

Road closures and diversion routes

- 17.1 Should road closures be required the Contractor shall inform the Overseeing Organisation at least 7 days in advance in order to notify stakeholders and park users.
- 17.2 Diversion signs shall generally be erected in 'A'-frames, suitably weighted with sand- bags or the like, or on existing posts. The Contractor shall maintain signs for the duration required by the Overseeing Organisation, and replace any damaged or stolen signs.
- 17.3 When necessary, the Contractor is to provide gatemen to control access and egress to the closure.

Details of Events that could have a bearing on the Works

- 18.1 The Work Order shall advise of known details of events that could have a bearing on the Works.

Remedial Works

- 19.1 In order to carry out any remedial works, traffic restrictions and traffic management shall be to the standard required to the main works and all associated costs shall be borne by the Contractor.
- 19.2 At least 7 days' notice shall be given to the Overseeing Organisation prior to the commencement of any such work

APPENDIX 1/19: ROUTEING OF VEHICLES

Permitted Access Routes to and from the Site

- 1.1 Except for direct access to and from quarries, tips or suppliers, all site traffic shall be routed via the M, A or B Class highway network unless written approval is first obtained.
- 1.2 The Contractor shall take measures to prevent vehicular damage to Highways during disposal of materials operations. It may be necessary to determine routes different for access to and return from a licensed tipping site and to construct maintain and remove and reinstate on completion of the Works any temporary works to the access routes as required by and to the satisfaction of the Overseeing Organisation.

Movement of Machinery and Plant Across Public and Private Rights of Way

- 2.1 All crossings shall be kept clear of mud and debris to prevent danger to the public.

- 2.2 Warning signs shall be erected to warn drivers, pedestrians and machine/plant operators of crossing points. Temporary diversions shall be treated in the same manner as the original route. Where frequent crossings are required at the same location then the carriageway or footpath construction shall be strengthened as agreed in advance with the Signs, barriers, etc., shall be erected as agreed in advance with the Overseeing Organisation and the crossing point manned during the site working hours.
- 2.3 When a crossing point is not in use it shall be fenced off to prevent unauthorised access to the site.

The use of Permanent Works by Construction Traffic

- 3.1 If the Contractor intends to use any part or section of the permanent works prior to those times detailed in any other Clause or Appendix or intends to use machinery or plant that is heavier than the designed loads for the carriageway and structures, then the Contractor shall submit details of his proposals to prevent any damage being incurred to the carriageway and structures. Site Traffic shall use the designated site access roads and exit points agreed with the Overseeing Organisation.

Access for Third Parties

- 4.1 Safe vehicular site egress and exit is the responsibility of the Contractor particularly delivery vehicles, and should not significantly impair the flow of highway traffic. Routeing of vehicles, pedestrians, cyclists and horse riders within the site is the responsibility of the Contractor, and a plan detailing this is required for discussion and approval by the Overseeing Organisation as per Appendix 1/17. Attention is drawn to the need to provide safe routes for pedestrians and cyclists during the works.
- 4.2 The Contractor shall be responsible for the co-ordination and agreement with Park concessions for deliveries and access to allow their businesses to continue.
- 4.3 The Contractor is to note the requirements of Appendix 1/13.

APPENDIX 1/21: INFORMATION BOARDS

1. The Contractor shall provide multi-functional information boards which shall consist of basic sign faces with the capability of having additional plates bolted to the face, showing the following information: -
 - (i) Agreed logo
 - (ii) Works description
 - (iii) Works start date, week commencing and duration.
 - (iv) Contact phone number
2. The Contractor shall store sufficient quantities of the signs and their associated add-on plates to allow for a minimum use of two signs at each scheme location.
3. When ordered by the Overseeing Organisation, the Contractor shall take from store, erect, maintain and remove the information boards at each agreed location as part of his Traffic

Safety and Management System. An information board shall be sited at the agreed locations at least 14 days before Works commence.

4. The Contractor shall ensure that the information boards are erected and positioned so as to expose the face to the approaching traffic at all times during the works. Also, that they are erected in the most suitable manner to minimise risks to the public and prevent theft/vandalism.

APPENDIX 1/22: PROGRESS PHOTOGRAPHS

1. The following photographic records are required:
 - i. The condition of the site and land adjacent to the site that will be affected by the works or over which the Contractor will require access is to be recorded prior to the commencement of any works on site. This record is to be agreed with the Project Manager and Site Supervisor.
 - ii. A set of referenced digital progress photographs taken by the Contractor is to be provided monthly consisting of photographs at locations to be agreed with the Project Manager and Site Supervisor.
2. The photographs shall be provided digitally, referenced with date taken in the file title, with a minimum resolution of 300dpi, and provided on labelled and date referenced CD/DVD, USB drive or online file transfer system, to be agreed with Project Manager and Site Supervisor.

APPENDIX 1/23: SUBSTANCES HAZARDOUS TO HEALTH

General

- 1.1 The following does not absolve the Contractor, their employees or their appointed sub-contractor of their duties under law to protect themselves, their employees or the public from hazards arising from materials, substances or working practices employed in the Works.
- 1.2 The Overseeing Organisation is to be notified immediately should an omission be noted in this Appendix.
- 1.3 Prior to commencing any operation or activity that is deemed to create a risk to the public, the Contractor shall erect and maintain suitable enclosures and take all necessary precautions to reduce that risk.

Restriction of Working Practices

- 2.1 The Contractor shall ensure that its operatives and site staff comply with the following with the respect to the restriction of working practices:-
 - (i) Food and Environment Protection Act 1985 (FEPA);
 - (ii) Control of Pesticides Regulations 1986;
 - (iii) Health and Safety at Work Act HASAW;
 - (iv) Control of Substances Hazardous to Health Act COSHH;

- (v) Suitable training shall be given to operatives and staff that use substances hazardous to health during the performance of their duties;
- (vi) A Certificate of Competence is required in respect of (v), which may be requested by the Overseeing Organisation so as to demonstrate the competency of the operatives.

Measures to be Taken to Protect Members of the Public

3.1 The general public shall be protected from exposure to the following materials until they have set, cured or are no longer considered harmful:-

- (i) Bituminous joint sealer;
- (ii) Cements, concrete, mortars and grouts and any additives;
- (iii) Solvent based curing agents;
- (iv) Bituminous pavement materials;
- (v) Bituminous waterproofing systems;
- (vi) Grit blasting debris;
- (vii) Dust from cutting hardwoods;
- (viii) Dust from cutting pipes (concrete or clay);
- (ix) Dust from cutting concrete or brickwork.
- (x) U1B and U2 materials
- (xi) Removal of road markings by thermal or abrasive methods.

3.2 Access shall be restricted until materials are cured. Consideration shall be given to wind, strength, temperature and traffic speed when assessing the foregoing.

Existing Watercourses and Drains

4.1 The Contractors attention is drawn to the possible hazard of waterborne diseases, for example Leptospirosis (Weil's disease).

4.2 The Contractor shall ensure the following;

- (i) The implementation of the 'Card' system to alert the Health Services that the operative has been exposed to work in watercourses, drains and sewers;
- (ii) That all operatives and staff have received the appropriate inoculation;
- (iii) That all operatives and staff on site, whether the Contractor's personnel or ones working for other bodies have access to a full and high standard of facility for personal hygiene;
- (iv) The use of personal protective equipment and proper cleaning and maintenance of the same particularly to avoid exposing the skin to the hazard;

- (v) That all operatives and staff have had suitable training and been informed of the substances they are liable to come into contact with, and risk to health that could result from such contact.

APPENDIX 1/24: QUALITY MANAGEMENT SYSTEM

1. The Contractor's system for managing quality shall be described in a Quality Plan that shall be submitted to the Project Manager for acceptance prior to commencement on site.
2. The Quality Plan shall cover the following items:
 - i. Contractor's organisation and management
 - ii. Contractor's method statements and construction procedures
 - iii. Contractor's construction quality control
 - iv. Organisations' Quality Plans
3. Items i) and iii) of the Quality Plan shall be submitted to the Project Manager for its acceptance not later than 21 days after the award of the Contract.
4. The Contractor shall submit other parts of the Quality Plan prior to commencement of any related work or activity and to a timetable included in item i)
5. Method statements are required for the works and shall be submitted for acceptance 2 weeks prior to commencement of the particular operation, and once accepted shall form part of the Quality Plan.
6. The method statements are to reflect the activities on site, depending on the construction type.
7. The Contractor shall provide additional method statements for works items not listed in the Pre-construction Health and Safety Plan, as required, at the request of the Project Manager or their representative.

CONTRACTOR'S ORGANISATION AND MANAGEMENT

- 8.1 This section of the Quality Plan shall include:
- Definition of the Contract and its documentation.
 - The organisation of the Contract, including the line of command and communication links between parties involved in the Contract.
 - Names, roles, responsibilities and authority of principals and key personnel.
 - Control of liaison and meetings with third parties.
 - Identification of the Contractor's own staff responsible for overseeing each major activity.
 - The main Contractor's control of subcontracts.
 - Document control.
 - Programme for submission of method statements and Organisations' Quality Plans. The Quality Plan shall identify procedures (which may be a part of the Contractor's general procedures) that cover the topics listed below. Copies of these procedures shall be made available to the Project Manager on request.

- The quality plans for subcontractors and suppliers of work, goods and materials which are the subject of quality management schemes.
- Procedure for the preparation, review and adjustment of programmes for the effective progression of the Works and the recording of this.
- Control and approval of purchases of materials.
- Control of off-site activities (where appropriate).
- Procedures for the regular review and recording by the Contractor of the quality of the Works.
- Control of personnel selection, based on their care, skill and experience.
- Management review/audits to monitor and exercise adequate control over the implementation of the quality plan.
- Any other relevant item.

CONTRACTOR'S METHOD STATEMENTS AND CONSTRUCTION PROCEDURES

9.1 This section of the Quality Plan shall:

- Include detailed method statements for each major activity whether directly controlled or subcontracted.
- Identify the relevant construction procedures in the Contractor's own Quality Management System (and provide copies on request).
- The method statements shall identify hold points and invoke:
 - i. Work instructions
 - ii. Quality control procedures
 - iii. Compliance testing/inspection arrangements
 - iv. Work acceptance procedures

for all activities that might affect the quality of the permanent and temporary works.

CONTRACTOR'S CONSTRUCTION QUALITY CONTROL

10.1 This section of the Quality Plan shall include:

- Statement of the Contractor's organisation for quality control.
- The Quality Plan shall identify procedures that cover the topics listed below. Copies of these procedures shall be made available to the overseeing organisation on request
- Arrangements for 'receiving' and 'in-process' testing.
- Control of test laboratories.
- Control of test, measuring and inspection equipment.
- Document control.
- Procedure for monitoring and recording the inspection, test and approval status of the constructed/installed work.
- Procedures for tests and inspections for the purpose of the Contractor certifying that prior to covering up, each part of the Works is complete and conforms to the Contract.
- Procedure for the review of work submitted for review but not accepted as conforming to the Contract.
- Procedure for the collation of quality records as identified in BS EN ISO 9001 and provision of copies when requested by the Project Manager.

ORGANISATIONS' QUALITY PLANS

11.1 The Quality Plan shall include:

- Definition of the product or service to be provided.
- The organisation organogram shall describe the line of command and stating the name of the senior manager responsible for the contracted Work and the name of the Organisation's on-site Management representative. Contact addresses, telephone numbers etc shall be provided.
- Identification of the relevant parts of the Organisation's quality system relevant to the product or service being provided. (Copies to be provided to the Overseeing Organisation on request).
- The control of personnel selection (at works and on site), including special requirements for skilled personnel e.g. certification of welders, training of operatives, experience requirements etc.

11.2 Specific procedures for the following:

- Receipt and examination of certificates of conformity and test results for purchased products (*).
- Product identification and traceability (*).
- Handling, storage, packaging and delivery to site and storage and handling on Site (*).
- Quality records.

11.3 Where available and appropriate, copies of the Organisation's quality system/general procedures may be acceptable for items above marked with (*).

APPENDIX 1/70: ENVIRONMENTAL PROTECTION ACT 1990, DUTY OF CARE

1. The Employer may be defined as a co-producer or broker of waste (depending on circumstances) as far as the Environmental Protection Act 1990 is concerned.
2. Pursuant to this Act, the Contractor shall comply with the following:
 - Obtain a Controlled Waste Transfer Note from the Employer prior to the commencement of the Works.
 - Provide a copy of the Waste Management Licence (or evidence of a valid exemption) for the recipient of the surplus material to be disposed off-site.
 - Provide a copy of the Registered Waste Carrier Certificate for all carriers (including sub-contract hauliers, owner drivers and self-employed drivers) or surplus material to be disposed off-site. Also, make available original certificates for inspection by the Overseeing Organisation upon request.
 - Make available to the Overseeing Organisation for inspection, copies of all Controlled Waste Transfer Notes.
3. A list of licensed waste management sites is available from the Environment Agency (formerly the Waste Regulation Authority).

APPENDIX 1/71: CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS

1. The management of Health and Safety on the works shall be undertaken in conformity with the requirements of the Construction (Design & Management) Regulations 2015 (The CDM Regulations) and the corresponding Approved Code of Practice.
2. The appointed Contractor shall be the Principal Contractor for the Works on Site. The Principal Contractor shall develop the Pre-Construction Information in accordance with the requirements of the CDM Regulations prior to the commencement of Works on Site. This development of the Construction Phase Plan shall set out the arrangements which, taking account of the risks of health and safety involved, will ensure, so far as it is reasonably practicable, the health and safety of all persons at work on the project or who might be affected by the Works. The consideration of health and safety risks in the Principal Contractor's development of the Construction Phase Plan shall not be limited to those particular risks identified in the Pre-Construction Information but shall include consideration of all reasonably foreseeable risks. The development of the Construction Phase Plan shall include the arrangements for the management of the construction works and for monitoring compliance by all persons with the requirements of relevant statutory provisions.
3. The Pre-Construction Information (document number: 70099101-BBH-RP-PCIP-001) is in Volume 5, including the Designer's Risk Assessment. The Construction Phase Plan must be adequately developed by the Principal Contractor, as far as is reasonably practicable allowing for any phasing of works, etc., and be submitted to the Project Manager for comment not less than one week before the commencement of Works on Site. In the case of phased works the Plan relating to the work content of any phase must be adequately developed and submitted for approval prior to the commencement of work on the project.
4. Construction work shall not commence until the Construction Phase Plan has been accepted as conforming to the requirements of the CDM Regulations.
5. The Principal Contractor shall be deemed to have included in his Tender for:
 - Conformance with the duties of the Principal Contractor in accordance with the CDM Regulations
 - The provision for adequately controlling the risks to health and safety arising out of matters identified in the Construction Phase Plan
 - The monitoring and control of all contractors in respect of health and safety
 - The carrying out of all duties under all relevant statutory health and safety legislation, including the recommendations of all relevant health and safety codes of practice, guidance and advisory notes produced by the Health and Safety Executive or other relevant authorities, trade bodies etc.
6. All contractors shall complete appropriate assessments of the risks to health and safety in respect of their works as required under applicable statutory legislation, including the Management of Health & Safety at Work Regulations 1999 and the Control of Substances Hazardous to Health Regulations 2002.
7. The Principal Contractor shall review, and revise as necessary, the project Construction Phase Plan in line with any information received from other contractors or any changes in the requirements of the project. Any changes shall be promptly advised to all relevant contractors and the Project Manager as appropriate.

8. The Principal Contractor will be responsible for co-ordinating co-operation between contractors, employees and self-employed persons who are at work on the construction of the project. The Principal Contractor shall ensure, so far as is reasonably practicable, that all contractors, employees and self-employed persons conform with the requirements of the project Construction Phase Plan.
9. The Principal Contractor shall appoint a competent person on the site to manage health and safety during construction.
10. The Principal Contractor shall ensure, so far as is reasonably practicable, that all persons employed on, or visiting, the site are adequately informed instructed, trained, supervised and equipped such that they are able to carry out their duties safely.
11. The Principal Contractor shall take the steps necessary to ensure that only authorised persons are allowed into any construction area.
12. The Principal Contractor shall produce "as-built" records during the course of the work. He shall ensure that similar information is produced by all sub-contractors and suppliers. This information is to be passed to the Project Manager within one calendar month of completion – in digital.
13. The Health and Safety File will contain all the necessary information for the proper maintenance, repair and operation of the completed works. Details of construction methods and materials that may present significant residual hazards with respect to maintenance or demolition will be included together with Layout Drawings, specifications, manufacturer's literature, maintenance instructions, loading limitations, guarantees, warranties, certificates, and all other relevant details.

SPECIFICATION APPENDICES SERIES 200

APPENDIX 2/1: LIST OF BUILDINGS, ETC., TO BE DEMOLISHED OR PARTIALLY DEMOLISHED

Not Used

APPENDIX 2/2: FILLING OF TRENCHES AND PIPES

1. Voids shall not be left under the carriageway or paved areas or under or within 1.0m of such areas. Disused drains, sewers, cables, ducts and pipes under or within 1.0m of the carriageway and paved areas shall either be removed or completely filled with grout. Plugging with concrete or grouting of the annulus of disused drains, sewers, ducts and pipes will not be permitted unless otherwise agreed.
2. Any redundant pipe or service located within 1m of the formation level of carriageway shall be broken out and back filled to road formation level with granular sub-base material type 1 to Clause 803 or type 4 to Clause 807.
3. All trenches are to be backfilled in accordance with Clause 505.
4. The Contractor shall ensure that any disused drains, sewers, ducts and pipes over 1m depth below formation which show evidence of damage or collapse, shall be removed or completely filled with grout in order to avoid any risk of future subsidence.

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

1. Components and materials arising from site clearance shall be the property of the Contractor except where otherwise noted. Materials shall be removed from site as work proceeds when materials are not to be reused or recycled for site use.
2. Items arising from site clearance which are to be set-aside or store for reuse shall be re-erected in accordance with the relevant drawings series.
3. Items which are to be taken-up or down and removed to store shall be transported to a location as agreed by the Overseeing Organisation.
4. All electrical supplies to items shown for site clearance shall be disconnected and made safe by a suitably competent electrical engineer.
5. Items to be taken off site shall not be double handled and care shall be taken to ensure they are not stored or handled in a manner which may cause damage.
6. Items which are stored on site prior for re-use or awaiting transport shall be stored so that the items do not suffer damage. This shall include; but is not limited to; stacking with spacers to avoid items resting on surfaces, storing slender items horizontally to prevent bending, buckling or warping etc.

7. Following the removal of items, any residual voids shall be filled immediately and care shall be taken to prevent the ingress of water.

The following treatments are required;

- a. If the void is located in an area proposed for carriageway construction then the void shall be filled with sub-base material type 1 (clause 803) or type 4 (clause 807).
 - b. If the void is located in an area proposed for footway or shared cycleway then the void shall be filled with sub-base material type 1 (clause 803) or type 4 (clause 807).
 - c. If the void is located in an area proposed for grassed verge then the void shall be filled with generic fill material.
8. There are several gully gratings located within the site which are deemed to have historic value by the Client and as such all gully gratings shall be retained for re-use unless the Project Manager Instructs disposal.

APPENDIX 2/4: EXPLOSIVES AND BLASTING

Explosives and blasting shall not be used.

APPENDIX 2/5: HAZARDOUS MATERIALS

1. Should any materials be located that are considered hazardous, the Contractor shall notify the Overseeing Organisation and comply with any relevant legislation and industry guidance.
2. Pavement cores have been undertaken in areas of full depth pavement reconstruction and tested for TAR in accordance with ADEPT guidance. The results confirmed the presence of TAR. The results of the testing have been included with the tender documents and highlight areas where positive results were recorded.

In areas where coal tar is present and subsequently requires removal from site, it shall be treated as the following European waste designation: 17 03 01* bituminous mixtures containing coal tar

If you have waste, you have a legal 'Duty of Care'. The Duty of Care applies to everyone involved in handling the waste: from the person who produces it to the person who finally disposes of or recovers it.

This means that the road owner/operator and the contractor as well as any subcontractors have a legal duty to ensure that waste produced from a site is handled correctly, carried by authorised carriers and disposed of at a licensed site. In general, a duty of care cannot be delegated to another company or contractor. (Extract from Managing Reclaimed Asphalt Guidance Note ADEPT 2016/1)

3. Consideration for mitigating the removal of TAR arisings from site as hazardous waste shall be considered. The ADEPT Guide "Managing Reclaimed Asphalt" (2016) must be consulted in relation to removal of arising containing TAR.

APPENDIX 2/6: ENVIRONMENT AND TREES

1. The safe clearance of the specified trees and vegetation will be the responsibility of the Contractor. Drawing numbers 70051460-WSP-HSC-0000-DR-CH-0001 to 0009 inclusive indicate the Site Clearance requirements and extent of vegetation which is due to be removed. The Client's Project Manager shall confirm exact tree and vegetation extents which are to be removed through marking them on site prior to the commencement of any removal works. Any vegetation not indicated to be removed shall be retained.
2. The Project Manager and the Contractor will agree the form and programming of this work in advance. The vegetation to be retained shall have suitable fencing or other measures put in place to ensure their protection – to be detailed in method statements.
3. All tree removal works shall be carried out with supervision of a suitably competent Arboriculturalist.
4. Any over excavation as result of the removal of established trees shall be made good to formation level. This shall be achieved through placing the material in layers and compacted in accordance with SHW Clause 612.
5. The Contractor shall establish the exact location of any buried services located within proximity of trees shown as to be removed. Existing buried services shall be suitably protected during the removal of trees.

SPECIFICATION APPENDICES SERIES 300

APPENDIX 3/1: FENCING, GATES AND STILES

- 1 Temporary Fencing
 - 1.1 Temporary fencing shall be as per HCD H2 Type 3 unless otherwise stated by the Overseeing Organisation.
- 2 Permanent Timber Fencing
 - 2.1 There are no specific requirements for permanent timber fencing.

SPECIFICATION APPENDICES SERIES 500

APPENDIX 5/1: DRAINAGE REQUIREMENT

1 General Requirements for Drains

- 1.1 All drainage works shall be carried out in accordance with the Specification for Highway Works Series 500 and all other relevant Contract Documents.
- 1.2 All precast and in-situ concrete shall be capable of resisting Class 3 sulphate attack as defined in BRE Special Digest 1:2005.
- 1.3 All pipes located beneath proposed carriageway which are less than 900mm below finished road level (measured from finished road level to soffit of pipe) shall be encased in concrete (conforming to SHW clause 503.3) Concrete thickness to be a minimum of 150mm, except for perforated drains intended to drain the pavement foundation. Backfilling shall not be carried out until the concrete has cured and achieved strength
- 1.4 For thermoplastic pipes included in the Detailed Design, the ultimate pipe stiffness shall be 1400 N/sqm when tested in accordance with BS4962 and the resistance to impact shall comply with BS4962 with a striker mass and a 25 mm spherical radius dropped from a height of 1m and the creep ratio for PVC-U pipes shall not exceed 2.5 and for PP pipes and PE pipes shall not exceed 4.0 in accordance with BS EN ISO 9967.
- 1.5 All carrier drains, where identified in the drainage schedule, shall be surveyed with Closed Circuit Television (CCTV) in accordance with SHW clause 509.5.
- 1.6 Unless otherwise specified or agreed by the Project Manager, only one type of pipe shall be used within any individual drain length between manholes, gullies, or catch-pits.
- 1.7 Soft spots in the bottom of drainage excavations shall be removed and the resulting void immediately back-filled with Type 1 sub-base material or pipe bedding material to paragraph 2.2 or with ST2 Mix/C10 Grade concrete to Clause 509 as directed by the Project Manager.
- 1.8 The following shall be made good at the Contractor expense, as directed by the Project Manager:
 - (i) Any additional excavation at or below the bottom of drainage trenches if the Contractor allows the trench to become soft or otherwise unsuitable for the construction of a pipeline;
 - (ii) Any excavation greater than the net volume required for the drainage works below the upper level of any pipe surround.

2 Specific Requirements for Carrier Drains

- 2.1 Immediately following the excavation of the trench, the pipes shall be laid and jointed on the pipe bed. Pipes shall be laid so that each one is in contact with the bed throughout the length of its barrel. The bed shall be cut away and removed at each socket and sleeve in the case of socketed, or sleeve jointed, pipes to give a clearance of at least 50mm so that the socket or sleeve does not bear on the bed.

- 2.2 Permitted pipe and bedding options for surface water carrier drains are shown on HCD standard detail number F1.
 - 2.3 All carrier drain pipe joints shall be flexible and watertight in accordance with SHW clause 504.3. The Contractor shall carry out air and/or water tests, where identified in the drainage schedule or at the request of the Project Manager, in accordance with SHW clause 509.
 - 2.4 Trenches and all trench/drainage works shall be completed prior to the construction of the sub-base, base, binder, and surface courses.
 - 2.5 Backfilling to drains in carriageway shall be Type 2 sub-base (SHW clause 803) or normal density concrete C16/C20 (SHW clause 1043). Where Type 2 sub-base is used it shall not contain more than 50% of bituminous plannings. Backfilling of drains shall be to the underside of the bituminous material, hard paving or topsoil.
 - 2.6 Saddled joints are permitted for connections into the existing system, the Contractor is to submit saddle joint details to the Overseeing Organisation/Supervisor prior to installation. Joints shall be of the same material of the existing pipe and preformed.
- 3 Specific Requirements for Filter Drains
 - 3.1 Filter drains shall be constructed in accordance with HCD standard detail drawing F2 – option type G.
- 4 There are no specific requirements for chambers to be constructed as part of the works.
- 5 Specific Requirements for Gullies
 - 5.1 Gullies shall be trapped and constructed in accordance with HCD standard detail drawing F13.
 - 5.2 Gully gratings shall be in accordance with BS EN 124:2015 and shall be a minimum classification of D400.
 - 5.3 All gullies shall be cleaned, to the satisfaction of the Project Manager prior to handover/completion.
- 6 Existing Drainage
 - 6.1 The Contractor shall maintain all existing drainage within the site and adjacent areas until the new permanent drainage is installed and functioning or shall provide temporary measures so that the drainage to the carriageway and surrounding areas are not impaired.
 - 6.2 Connections to and from the existing drainage network shall be as detailed on the layout drawings.
 - 6.3 Existing sewers and drains shall be properly extended, connected and jointed to new sewers, culverts, drains or channels. All such connections shall be made during the construction of the new main sewer, drain or other work and their positions recorded in the as-built documentation.

- 6.4 Pipe connections shall be made in accordance with SHW clause 506.
- 6.5 Before connecting new drains into the existing network, trial pits shall be dug to ascertain the exact level of the existing pipe and check on the levels to ensure there will be no resultant backfall present on the new drainage assets.
- 6.6 Before entering or breaking into an existing sewer or drain, the Contractor shall give notice of his intention and obtain approval to do so to the Authority responsible for the pipeline to which the connection is to be made.
- 6.7 Existing drainage which is no longer required shall be treated in accordance with the Series 200 Specification Appendices.
- 6.8 It is not anticipated to encounter any existing land drains, should they be discovered during the Works, the Contractor shall notify the Project Manager immediately and seek clarification on how to proceed.
- 6.9 All existing covers located within the works shall be raised/lowered to suit finished ground level.

APPENDIX 5/2: SERVICE DUCT REQUIREMENTS

- 1 All ducting works shall be carried out with consideration towards Health and Safety Executive (HSE) guidance document HSG47.
- 2 There are no specific requirements for permanent marker blocks or location posts for service ducts.
- 3 The colour of ducting shall be in accordance with the guidance outlined in The National Joint Utilities Group (NJUG) – Guidelines on the Positioning and Colour Coding of Underground Utilities' Apparatus. The following is an extract from the guidance, this information shall be checked to ensure it is still current at the commencement of the works.

| Utility | Duct | Cable | Marker System | Recommended Minimum Depths | |
|--------------------------|--------------|---------------------|---|------------------------------|-------------|
| | | | | Footway/Verge | Carriageway |
| Electricity High Voltage | Black or Red | Red or Black | Yellow with Black | 450-1200mm | 750-1200mm |
| Electricity Low Voltage | Black or Red | Black or Red | Yellow with Black | 450mm | 600mm |
| Gas | Yellow | N/A | Black legend on PE pipes every linear meter | 600mm footway 750mm verge | 750mm |
| Communications | Light Grey | Light grey or black | Yellow and Black | 250-350mm | 450-600mm |
| Street lighting | Orange | Black | Yellow and Black | 450mm | 600mm |

| | | | | | |
|-----------------|-------------------------------------|--------|------------------|--|--|
| Traffic Control | Orange and marked 'Traffic Signals' | Orange | Yellow and Black | | |
| CCTV | Green | | | | |

- 4 Chamber covers shall be in accordance with BS EN 124 and the following classifications shall be used:
 - (i) Chamber covers located within areas of carriageway shall be D400 as a minimum.
 - (ii) Chamber covers located in footway/cycleway within 500mm from the edge of carriageway shall be C255.
 - (iii) Covers located in verge or footway greater than 500mm from adjacent carriageway shall be B125.
- 5 Pipes used for service ducts shall have a smooth internal bore without any sharp edges to the ends of the pipes. All ducts shall be appropriately colour-coded for each utility and to the depth in accordance with arrangement of utilities.
- 6 Pipes for ducts shall be joined so that no silt, grit, grout or concrete surround is able to enter the duct. Pipes with flush fit joints shall have a register to ensure that the joint is fully pushed home.
- 7 Each duct shall be fitted with a pigmented, stranded polypropylene draw rope of 5.3kN breaking load, the ends of which shall be made fast to galvanized screw-in eyes as described in the Agreement. Immediately after laying, the position of the ducts shall be marked and the ends sealed by removable stoppers.
- 8 All existing covers located within the Works shall be raised/lowered to suit finished ground level and reviewed against paragraph 5.2.
- 9 All covers located within areas of tactile blister paving shall incorporate the proposed tactile surfacing.

APPENDIX 5/3: SURFACE WATER CHANNELS AND DRAINAGE CHANNEL BLOCKS

Not used.

APPENDIX 5/4: FIN DRAINS AND NARROW FILTER DRAINS

Not used.

APPENDIX 5/5: COMBINED DRAINAGE AND KERB SYSTEMS

Not used.

APPENDIX 5/6: LINEAR DRAINAGE CHANNEL SYSTEMS

Not used.

APPENDIX 5/7: THERMOPLASTICS STRUCTURAL WALL PIPES AND FITTINGS

Not used.

SPECIFICATION APPENDICES SERIES 600

APPENDIX 6/1: REQUIREMENTS FOR THE ACCEPTABILITY AND TESTING ETC. OF EARTHWORKS MATERIAL

1. Classification and acceptable limits for fills

- 1.1 Acceptability limits and permitted Classes for earthwork materials are given in Table 6/1.
- 1.2 Imported fills used for the earthworks construction shall be Class 6C, for backfill to capping layer to new pavement construction Class 6F1 or 6F2, unless otherwise shown on the Contract Drawings.
- 1.3 The classification and confirmation of acceptability of the earthworks materials shall be carried out by the Contractor prior to excavation for on-site materials, and at the point of deposition for imported materials. Trial pit locations for classification purposes shall be agreed with the Project Manager in advance. If in the opinion of the Project Manager the material has altered its classification or become unacceptable for whatever reason, the Contractor may be required to repeat the classification and acceptability tests given in Table 6/1 located in Appendix 6/1.
- 1.4 The minimum requirements for earthworks material testing shall be in accordance with Specification Appendix 1/5.
- 1.5 The Contractor shall be responsible for monitoring the continuing acceptability of the earthworks materials in accordance with the frequency of testing given in Appendix 1/5 of the Specification, Earthworks.
- 1.6 The Contractor shall be responsible for monitoring the continuing acceptability of the earthworks materials in accordance with the frequency of testing given in Appendix 1/5 of the Specification, Earthworks: Frequency of Acceptability Testing. Where the quantity of material used in the Works is less than that stated in the frequency schedule the Contractor shall perform a minimum of two number tests of each type required on the quantity used.
- 1.7 Dynamic Cone Penetrometer (DCP) testing if instructed by the Project Manager shall be undertaken in accordance with IAN 73/06 Revision 1 (2009) Design Guidance for Road Pavement Foundations (Draft HD 25) and the results submitted to the Project Manager prior to the placement of the pavement.
- 1.8 Any material imported shall not contain slag, or burnt colliery shale. Imported recycled aggregate is permissible, but shall comply with the WRAP protocol.
- 1.9 All material imported shall be tested at source for contaminants.
- 1.10 Material excavated and determined as potentially Class U1 or Class U2 shall be tested in accordance with Appendix 1/5 and Appendix 6/2 and either removed off site or processed to render the material acceptable.
- 1.11 All disposal of material off Site shall be undertaken by the Contractor in accordance with the requirements of the Waste Management Licensing Regulations 2005.

2. Class 3 Material

- 2.1 No material within the Works Extents is designated as Class 3.

3. Requirements for processing unacceptable material to render it acceptable

3.1 Not used.

4. Requirements for groundwater lowering

- 4.1 No requirements for groundwater lowering have been specified for design purposes or to render unacceptable material into acceptable material.
- 4.2 Earthworks shall be kept free of groundwater, infiltration and effects of weather and the subgrade shall be protected against water infiltration in accordance with Clause 613 of SHW.

5. Minimum MCV for Class 9D material

5.1 Not used.

6. Requirements for unburnt colliery spoil

6.1 Unburnt colliery spoil is not expected to be encountered within the Works Extents.

7. Permitted use of MCV rapid assessment procedure

7.1 Not used.

8. Removal of acceptable material off site or retention of surplus material

8.1 Removal off site of excavated acceptable material or unacceptable material shall be undertaken in accordance with Clause 602.3 and 602.5 of SHW.

9. Permitted use of material for other than acceptable general fill

9.1 The use of Type 4 (Clause 807) material for re-use as sub-base will be subject to approval by the Project Manager.

10. Requirements for In Situ Resistivity Tests

10.1 Not used.

11. Requirements for In Situ Redox Potential Tests

11.1 Not used.

12. Bearing ratio requirements for 6R and 7I materials

12.1 Not used.

13. Requirements for assessment of effects of sulphates and sulphides

- 13.1 Testing of samples to determine limiting values for soluble sulphate, total sulphate, total sulphur, chloride, magnesium and pH are mandatory for materials that are within 500mm of concrete or steel elements i.e. bridge and retaining wall structures, footings for the safety barrier and soil nails. Testing shall be in accordance with Clause 644 of the Specification for Highways works Series 600 and Clause NG644 of Notes for guidance on the Specification for Highways works Series NG 600.

14. Requirements for magnesium sulfate soundness test

- 14.1 Not used.

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

1. Excavation

- 1.1 Excavations shall be excavated to the lines and levels stated on the contract drawing(s).
- 1.2 All topsoil shall be completely removed prior to the excavation of acceptable material.
- 1.3 Explosives and blasting for excavation shall not be permitted.
- 1.4 There are no specific requirements for the treatment of cutting faces.
- 1.5 There are no specific requirements for excavations for the clearance of redundant watercourses shall be described on the contract drawings.
- 1.6 There are no specific requirements for excavations for new and enlarged watercourses shall be described on the contract drawings.

2. Depositions and Fills

- 2.1 Fills, including embankments, shall be constructed to the lines and levels stated on the contract drawings.
- 2.2 All topsoil shall be completely removed prior to the deposition of acceptable material.

3. Embankments

- 3.1 Embankment side slopes shall not be steeper than 1:4 when tying in from the back of the proposed footway edging and existing ground level.

4. Benching

- 4.1 Benching shall be carried out as described below unless stated otherwise.

- 4.2 Where the existing ground is required to be benched on the contract drawings then:
- (i) loose surface materials are to be excavated up to a depth of 200mm below existing ground levels over the area indicated on the drawings: and
 - (ii) the area of the existing slope of gradient greater than 1v:6h is to be benched in 0.5m vertical steps unless otherwise directed on the drawings.
- 4.3 Temporary slopes in existing ground or fill areas shall be benched as part of the temporary works.
- 4.4 Interfaces between different classes of fill (except topsoil) or fill placed at different times shall be benched as follows unless otherwise shown on the drawings.
- 4.5 The interface shall be benched in 0.5m to 1.0m vertical steps so as to maintain the average slope/interface line shown on the drawings. Vertical interfaces or interfaces sloping at less than 1v:6h do not required benching

5. Cuttings

- 5.1 Cutting side slopes shall not be steeper than 1:4 when tying in from the back of the proposed footway edging and existing ground level.

6. Compaction

- 6.1 The Contractor's attention is drawn to Clause 612 and Table 6/4 which give the approved methods of compaction for the highway embankments.
- 6.2 The Contractor shall ensure that the plant used and method of compaction employed for the compaction of layers of material overlying geotextile materials shall not cause harm to, or reduce the properties of, the geotextile material.

7. Disposal of materials

- 7.1 The Contractor shall have title to materials from site clearance, excavations and demolitions, unless described in the Work Order. The Contractor should seek to reuse or recycle material where possible to minimise waste.
- 7.2 Subject and without prejudice to the provisions of the Conditions of Contract, expressions 'run to spoil in tips provided by the Contractor', 'haulage and deposition in tips off Site provided by the Contractor', 'disposal of material' and the like, both in this Series and in any other Series of the Specification shall be deemed to have the meanings of requiring the use of waste carriers registered and tipping sites licensed under the Control of Pollution Acts and in compliance with the Environmental Protection Act.
- 7.3 The Contractor shall, before commencing any part of the Works, submit to the Overseeing Organisation a list of locations of tips off Site that they propose to use for the disposal of materials arising from the temporary and permanent works. The list shall be updated to represent actual practice.
- 7.4 The Contractor shall whenever required produce to the Overseeing Organisation information to show that the disposal sites have current licences or planning consents as appropriate together with details of any conditions or constraints upon their use and that

the nature of materials for disposal together with the manner rates and timings of the disposals are acceptable to the waste regulation and disposal authorities, the licensed waste managers, and the local planning authorities, as appropriate.

- 7.5 The Contractor shall be required to provide copies of all Controlled Waste Transfer Notes relating to the disposal of materials arising from the temporary and permanent works.

8. Soft Spots and Other Voids

- 8.1 Except for areas requiring subsequent ground treatment, soft spots below embankments shall be replaced with Class 6C material unless otherwise stated.

9. Watercourses

- 9.1 There are no works required on any of the existing watercourses. The Contractor shall ensure no materials from the works are allowed to enter the watercourses.

10 New Ditches

- 10.1 Not required.

APPENDIX 6/7: SUB-FORMATION AND CAPPING AND PREPARATION AND SURFACE TREATMENT OF FORMATION

1. Capping

- 1.1 There are no specific requirements for capping. Soft spots below the pavement shall be treated in accordance with specification appendices 6/3

2. Sub-Formation

- 2.1 In general, the sub-formation shall have the same longitudinal gradient and cross fall as the formation. However, at flat areas of transition the sub-formation shall be so constructed as to provide falls of 1v:100h towards the edge of carriageway.

3. Formation

- 3.1 The formation shall have the same longitudinal gradient and cross fall as the finished pavement.
- 3.2 The formation of all footways shall be sterilised by spraying with total eradicator weedkiller comprising sodium chlorate solution or equivalent as approved by the Overseeing Organisation. The concentration of the solution shall be as recommended by the supplier but shall guarantee the complete destruction of seeds or roots held in the formation materials.

APPENDIX 6/8: TOPSOILING

1. Topsoil

- 1.1 Topsoil is required to be stripped in areas where required to construct the permanent works.
- 1.2 Wherever possible existing topsoil shall be re-used on site. Topsoil and turf to be designated as Class 5A material is described in Appendix 6/1.
- 1.3 Stockpiling of stripped and imported topsoil shall not exceed 1.0m high and shall be treated with a suitable herbicide at appropriate intervals to prevent the seeding of weeds.
- 1.4 Imported topsoil Class 5B is required where stated.

2. Topsoiling

- 2.1 Topsoiling shall be carried out in the areas as shown on drawings 70051460-WSP-ENG-0000-DR-CH-0001 to 0009 inclusive.
- 2.2 Constraints on excavating topsoil from stockpiles are those stated in Clause 618.3 and any additional constraints stated.
- 2.3 Unless stated otherwise, topsoil shall be spread 150mm thick.
- 2.4 Grass seeding and turfing shall be as described in Appendix 30/5 and weed control as Appendix 30/2.

SPECIFICATION APPENDICES SERIES 700

APPENDIX 7/1: PERMITTED PAVEMENT OPTIONS

1. Permitted pavement options – Schedule 1

| Drawing Ref. | Area | General Requirements | Permitted Pavement Option |
|--|--|----------------------|---------------------------|
| 70051460-WSP-HPV-0000-DR-CH-0001 to 0009 70051460-WSP-GEN-0000-DR-CH-0002 | Flexible carriageway full depth construction | Schedule 2 | A1 |
| | Flexible carriageway surfacing | Schedule 2 | A2 |
| | Raised tables | Schedule 2 | A3 |
| | Imprint surfacing | Schedule 2 | A4 |
| 70051460-WSP-HPV-0000-DR-CH-0008 70051460-WSP-GEN-0000-DR-CH-0002 | Area B Cycle path | N/A | B1 |

2. General requirements – Schedule 2

| Schedule 2: General Requirements – Area [A1 and A2] | | |
|---|-------------------------|------|
| Grid for checking surface levels of pavement courses [702.4]: | Longitudinal dimension: | 10 m |
| | Transverse dimension: | 2 m |
| Surface regularity [702.5, Table 7/2] | Category of Road: | B |
| Continuous along each wheel track in each lane on sections of 300m length where possible, otherwise sections of 75m length. | | |
| Transverse regularity measurement at 10 m | | |
| Schedule 2: General Requirements – Area [A3 and A4] | | |
| Grid for checking surface levels of pavement courses [702.4]: | Longitudinal dimension: | 2 m |
| | Transverse dimension: | 2 m |
| Surface regularity [702.5, Table 7/2] | N/A | |

3. Permitted Construction Materials – Schedule 3

| Schedule 3: Permitted Construction Materials | | | | | | | | |
|--|----------------------|----------------|----------------------|----------------|----------------------|----------------|----------------------|----------------|
| Pavement Layer | Pavement Option [A1] | | Pavement Option [A2] | | Pavement Option [A3] | | Pavement Option [A4] | |
| | Material Ref. | Thickness (mm) | Material Ref. | Thickness (mm) | Material Ref. | Thickness (mm) | Material Ref. | Thickness (mm) |
| Surface Course | SC1 | 40 | SC1 | 40 | SC3 | 40 | SC4 | 40 |
| Base | B1 | 100 | | | B1 | 100 | B1 | 100 |
| Sub base | SB1 | 200 | | | SB1 | 200 | SB1 | 200 |
| Total Thickness | | 350 | | 40 | | 350 | | 350 |

| Pavement Layer | Pavement Option [B1] | |
|-----------------|----------------------|----------------|
| | Material Ref. | Thickness (mm) |
| Surface Course | SC2 | N/A |
| Base | | |
| Sub base | | |
| Total Thickness | | |

4. General Requirements for Construction Materials – Schedule 4

| Schedule 4: General Requirements for Construction Materials | |
|---|---|
| Clause | Requirement |
| 801.2 | Limiting distance for deposition of unbound mixtures referred to in sub-Clause 801.2 |
| 801.3 | Limiting distance for deposition of unbound mixtures referred to in sub-Clause 801.3 |
| <u>802.4</u> | Material up to 225 mm compacted thickness shall be spread in one layer so that after compaction the total thickness is as specified. |
| <u>920</u> | Prior to placing bituminous material on any new or existing bound substrate, a bond coat only shall be applied in accordance with Clauses 920 of the Specification for Highway Works (SHW). |
| <u>903.22</u> | Faces of cold upstanding edges shall follow the requirements of <u>903.22</u> and shall be treated with hot elastomeric polymer-modified bituminous binder. |
| <u>903.24</u> | Sealant shall be applied to the top surface of all base and binder course joints. |
| 903.25 | Sealant shall be applied to any freestanding edge of the finished pavement. |
| 925 | Refer to Appendix 1/5 and Schedule 5 below. |

5. Requirements for Construction Materials – Schedule 5

| Schedule 5: Requirements for Construction Materials | | | |
|---|--------|------------------------|--|
| Material Ref. | Clause | Description | Requirement |
| SB1 | 803 | Type 1 unbound mixture | Mixtures containing crushed gravel coarse aggregate: |

| | | | |
|------------|-------|---|---|
| | | | – not permitted [803.6]: natural gravel |
| B1 | 906 | Dense Base and Binder Course Asphalt Concrete (Recipe Mixtures) | Mixture designation [906.1]: AC 20 dense bin 40/60 rec |
| SC1 | 912 | Close Graded Asphalt Concrete Surface Course | <p>Mixture designation [912.1]: AC 10 close surf 70/100</p> <p>Required declared PSV category [912.2]: 50</p> <p>Required maximum AAV category [912.2]: 14</p> <p>Whether surface macrotexture measurement is required [921.1]: 10 measurements of 2 m spacings across a diagonal line</p> <p>Initial texture depth, if not in accordance with Table 9/3 [921.2]: 1.0</p> |
| SC2 | 922 | Surface Dressing | See Appendix 7/3 |
| SC3 | 912 | Close Graded Asphalt Concrete Surface Course | <p>Binder Colour Required: Buff</p> <p>Aggregate Colour Required: Buff</p> <p>Mixture designation [912.1]: AC 10 close surf 70/100</p> <p>Required declared PSV category [912.2]: 50</p> <p>Required maximum AAV category [912.2]: 14</p> <p>Whether surface macrotexture measurement is required [921.1]: 10 measurements of 2 m spacings across a diagonal line</p> <p>Initial texture depth, if not in accordance with Table 9/3 [921.2]: 1.0</p> |
| SC4 | 960AR | Imprint Flexible Surfacing | <p>Colour : To be agreed with the Overseeing Organisation</p> <p>Pattern : To be agreed with the Overseeing Organisation</p> |

6. Thin Surface Course Systems: Information to Be Provided By The Contractor – Schedule 6

6.1 Not applicable.

7. Binder Data Requirements [937.3 And 943.4] – Schedule 7

7.1 Not applicable.

8. Mixture Data Requirements – Schedule 8
 - 8.1 The following data should be provided to the Overseeing Organisation for materials designed in accordance with Clause 901.17 and Clause 929 in respect of the proposed mixture.
9. Grass reinforcement
 - 9.1 Combined grass paving (grass reinforcement) is required to construct an overflow carpark. A propriety product shall be selected which is suitable for light vehicle loading and shall be constructed in accordance with the manufacturer's guidance.
 - 9.2 A typical amenity grass seed mix shall be applied to the combined grass paving and the grass shall be allowed to establish prior to vehicle loading.

APPENDIX 7/2: EXCAVATION, TRIMMING AND REINSTATEMENT OF EXISTING SURFACES

- 1 Locations and estimated areas of existing paved areas which require to be trimmed, regulated and reinstated to match levels where new and existing pavements abut or where new construction overlays existing pavement. Are shown in drawing 70051460-WSP-HPV-0000-DR-CH-0001 to 0009 inclusive.
- 2 Tie in details are shown in drawing 70051460-WSP-GEN-0000-DE-CH-0002.

APPENDIX 7/3: SURFACE DRESSING – PERFORMANCE SPECIFICATION

SHEET 1: Information to be provided by the compiler

- 1 Location [922.1] **cycle path**
- 2 Traffic count in cv/l/d [922.1] **1 commercial vehicle per day**
- 3 Traffic speed, 85th percentile [922.2] **<10 m/h**
- 4 Site Category **Category 1 (lightly trafficked)**
- 5 System(s) of Surface Dressing permitted **Any**
- 6 Special traffic control requirements **No**
- 7 Surface Macrotexture Performance Requirements [922.19] **0.8**
- 8 Maximum percentage decrease in macrotexture between 12 months and 24 months after start of trafficking [922.2 and 922.19] **40%**
- 9 Surfacing Integrity Performance Requirements if not in accordance with Clause 922.3: **5 years**
- 10 Required declared PSV category of chippings [922.8] **50**
- 11 Required maximum AAV of chippings [922.8] **14**
- 12 Limitations on binder recovered by evaporation from cationic bituminous emulsions -cohesivity by pendulum [922.6 and Table NG 9/13] **4**
- 13 Accuracy category of binder sprayer required [922.7] **1**

- 14 Accuracy category of chipping spreader required [922.9] 1
- 15 Tolerance category for design rate of spread of binder [922.7] 1
- 16 Tolerance category for design rate of spread of chippings [922.] 1
- 17 Existing surface type [922.1] Micro Surfacing (slurry seal)
- 18 Existing surface macrotexture [922.1] <0.5mm
- 19 Existing road hardness [922.1, Road Note 39 and BS 598-112] Not known
- 20 Category of fatting up, tracking and bleeding acceptable [922.20] 1
- 21 Category of scabbing and tearing acceptable [922.20] 1
- 22 Category of fretting [922.20] 1
- 23 Category of streaking [922.20] 1
- 24 Special restrictions [922.13, 922.15 and 922.16] No

SHEET 2: Information to be provided by the Contractor

The Contractor shall provide the following information with his tender:

- 25 The declaration of performance for the surface dressing in accordance with BS EN 12271. [922.2, 922.4]
- 26 Proposed binders together with their declaration(s) of performance as specified. [922.5 and 922.6]
- 27 A method statement for each site or group of similar sites showing how it is proposed to carry out the works in conformance with the specification. *[The Contractor will be expected to commit enough resources to carry out the proposed design in one single continuous pass, for example, if a double dressing is proposed on a heavily trafficked road then 2 sprayers, 2 chip spreaders, 2 rollers and 2 sweepers will be a minimum requirement. The type of plant, age and number should be detailed for example 2 computer controlled sprayers three years old].*
- 28 Proposals for traffic control and aftercare for each site, and reaction times for carrying out remedial measures, sweeping and site visits with the Overseeing Organisation. [922.12, 922.15, 922.16, 922.17]
- 29 Contingency plans in the event of any breakdown of plant or failure of the dressing and provision for dusting. [922.16]
- 30 A statement of relevant experience and expertise, naming managers supervisors and teams responsible for and allocated to the Contract. [922.4]
- 31 Design proposal for Surface Dressing for each location. [922.2]
- 32 Estimated design life of the Surface Dressing for each location. [922.2]
- 33 For the performance specification, the results of any other tests or other data the Contractor considers would assist the Overseeing Organisation in assessing the technical merit of the design.
- 34 An 'As Built Manual' as specified. [922.18]

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

SHEET 1: Information to be provided by the compiler

- 1 A bond coat shall be applied to the prepared surface before laying any bituminous layer in order to achieve sound adhesion between layers.
- 2 The bond or tack coats required for the thin surfacing course system and its application shall be in accordance with the British Board of Agreement HAPAS Roads and Bridges Certificate. The bond coat or tack coat required for other purpose should comply Clause 920 and NG Clause 920 unless otherwise agree with the Overseeing Organisation.
- 3 Surface preparation shall be as specified in Clause 920.6.

- 4 Street furniture, drop-kerbs shall be masked using self-adhesive masking material before application starts and removed prior to the completion of the works.
- 5 Rate of spread shall be in accordance with BS 594987:2015+A1:2015 as appropriate unless otherwise agreed with the Overseeing Organisation.

SHEET 2: Information to be provided by the Contractor

The Contractor shall provide the following information with his tender, or prior to the commencement of the work:

- 1 The product or products he proposes to use together with their declaration(s) of performance, as specified. [920.2, 920.3, 920.4, 920.5]
- 2 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.
- 3 The spraying equipment proposed, and a test certificate. [920.7, 920.9]
- 4 (The source or sources of blinding material proposed. [920.12]
- 5 Contingency plans in the event of any breakdown.

APPENDIX 7/5: IN SITU RECYCLING – THE REMIX AND REPAVE PROCESS

Not used.

APPENDIX 7/6: BREAKING UP OR PERFORATION OF EXISTING PAVEMENT

Not used.

APPENDIX 7/7: SLURRY SURFACING INCORPORATING MICROSURFACING

Not used.

APPENDIX 7/9: COLD-MILLING (PLANING) OF BITUMINOUS BOUND FLEXIBLE PAVEMENT

- 1 Where the cold milling of bituminous bound flexible pavement is required, the area of carriageway to be milled shall be profile planed to the specified depths by a milling machine approved by the Project Manager.
- 2 In accordance with Clause 709, 48 hours prior to planing, the Contractor shall carry out a check of the areas to locate any buried services within the layer to be planed. The check shall be carried out with electronic detection equipment suitable for the purpose. Should the check for services not be done, construction should not take place due to possible health and safety risks.
- 3 The Contractor shall allow for working around drainage channels, chamber covers, gully gratings, expansion joints and the like by cutting out and removal of material by pneumatic tools or other suitable methods.
- 4 The edge of the area requiring cutting out by other suitable methods shall be saw cut back and the edges left neat, vertical and in straight lines.
- 5 Immediately after milling, surplus materials shall be removed by a machine of suitable and

efficient design. The milled surface shall be swept and must be clean and dry, and free from ice, frost, loose aggregate, oil, grease, road salt and other loose materials prior to overlaying.

- 6 Where compressed air is used to clean dust, dirt and other debris from the prepared faces of existing concrete and bituminous pavement, which are otherwise ready for reinstatement, only oil-free compressed air shall be used and this shall be at a pressure of not less than 0.5 N/mm².
- 7 Should tar-bound materials be encountered during the course of the works, cold milling work must be immediately suspended and the Designer's Site Representative informed.

APPENDIX 7/10: NOT USED

Not used.

APPENDIX 7/11: OVERBAND AND INLAID CRACK SEALING SYSTEMS

Not used.

APPENDIX 7/12: ARRESTER BEDS

Not used.

APPENDIX 7/13: SAW-CUT AND SEAL BITUMINOUS OVERLAYS ON EXISTING JOINTED CONCRETE PAVEMENTS

Not used.

APPENDIX 7/14: PREPARATION OF JOINTED CONCRETE PAVEMENTS PRIOR TO OVERLAYING AND SAW-CUT AND SEAL OF THE BITUMINOUS OVERLAY

Not used.

APPENDIX 7/15: SAW-CUT, CRACK AND SEAL EXISTING JOINTED REINFORCED CONCRETE PAVEMENTS

Not used.

APPENDIX 7/16: CRACKING AND SEATING OF EXISTING JOINTED UNREINFORCED CONCRETE PAVEMENTS AND HYDRAULICALLY BOUND MIXTURE (HBM) BASES

Not used.

APPENDIX 7/17: CRACKING PLANT AND EQUIPMENT PROGRESS RECORD

Not used.

APPENDIX 7/18: SITE SPECIFIC DETAILS AND REQUIREMENTS FOR COLD RECYCLED BITUMEN BOUND MATERIAL

Not used.

APPENDIX 7/19: BACK-ANALYSIS OF FALLING WEIGHT DEFLECTOMETER (FWD) MEASUREMENTS MADE ON CONCRETE PAVEMENTS TREATED BY FRACTURED SLAB TECHNIQUES

Not used.

APPENDIX 7/21: SURFACE DRESSING – RECIPE SPECIFICATION

Not used.

APPENDIX 7/22: REPAIRS TO POTHOLES

1. General
 - 1.1 All loose material shall be removed before filling the hole.
 - 1.2 All standing water shall be removed before filling the hole.
 - 1.3 The filling material shall be compacted by a suitable means.
 - 1.4 The surface of the compacted material shall be level with that of the adjacent road.
2. Holes in Paved Areas
 - 2.1 For holes less than 0.5 m² – fill with 6 mm permanent cold lay surfacing material or equivalent.
 - 2.2 For holes greater than 0.5 m² – fill with 6 mm nominal size dense bitumen macadam surface course.
 - 2.3 Holes shall be backfilled with materials compacted to refusal with a circular headed vibrating hammer in layers not exceeding 75 mm thick.

SERIES 1100: KERBS, FOOTWAYS AND PAVED AREAS

APPENDIX 11/1: KERBS, FOOTWAYS AND PAVED AREAS

- i. The extents of the kerbs, footways and paved areas works are shown on drawing number 70051460-WSP-HKF-0000-DR-CH-0001 to 70051460-WSP-HKF-0000-DR-CH-0009.
- ii. The dimensions, type designations and performances and classes of precast concrete kerbs, channels, edgings and quadrants shall be as per standard detail drawing 70051460-WSP-GEN-DE-CH-0001.
- iii. There are no specific requirements for precast concrete kerbs to be bonded to the pavement surface.
- iv. There are no specific requirements for joints in the kerb line to coincide with the location of the joints in the bridge deck.
- v. There are no specific requirements for in-situ asphalt kerbing or in-situ concrete kerbing, channels and edgings.
- vi. Concrete curing requirements shall be as per Clause 1027.
- vii. Precast concrete or natural stone paving slabs shall be in accordance with standard detail drawing 70051460-WSP-GEN-DE-CH-0001.
- viii. There are no specific requirements for bonding precast paving slabs.
- ix. Bedding for all precast concrete paving slabs and natural stone paving shall be as per standard detail drawing 70051460-WSP-GEN-DE-CH-0001.
- x. Flexible footway/cycleway construction shall be as follows:

| Footway Type 1 (FW1) : Flexible Footway (full depth construction) | | | | | |
|---|--------|-------------------------|-----------------|----------------|----------------------|
| Material Course | Clause | Material | Grade of Binder | Thickness (mm) | Special Requirements |
| Surface | 1105 | AC 6 Dense Surf 100/150 | 160/220 | 20mm | |
| Binder | 1105 | AC 20 Dense Bin 40/60 | 160/220 | 50mm | |
| Subbase | 803 | Type 1 | - | 100mm (200mm)* | |
| | | | | 170mm (270mm)* | Total thickness |

*Subbase depth to be increased to 200mm in areas where vehicle crossovers are required.

| Footway Type 2 (FW2) : Footway resurfacing | | | | | |
|--|--------|-------------------------|-----------------|----------------|----------------------|
| Material Course | Clause | Material | Grade of Binder | Thickness (mm) | Special Requirements |
| Surface* | 1105 | AC 6 Dense Surf 100/150 | 160/220 | 20mm | |
| Existing Surface | - | - | - | - | |
| | | | | 20mm | Total thickness |

*existing surface course to be overlaid or existing surface course to be planned out to a depth of 20mm, and replaced with surface course where indicated on drawing 70051460-WSP-HKF-0000-DR-

CH-0001 to 70051460-WSP-HKF-0000-DR-CH-0009. Ensure that existing surface is free from debris and loose material prior to applying overlay.

| Footway Type 3 (FW3) : Decorative surface dressing (proprietary product to be submitted for approval) | | | | | |
|---|--------|-------------------------------|-----------------|----------------|--|
| Material Course | Clause | Material | Grade of Binder | Thickness (mm) | Special Requirements |
| Surface Dressing ▪ | - | 10 mm crushed stone aggregate | - | 20 | Fawn colour (FibreDec or similar approved) |
| Existing Surface / Proposed Footway Construction | - | - | - | - | |
| | | | | 20mm | Total thickness |

▪ Surface course to be overlain with decorative resin bound surfacing product, Fibredec or similar approved. Ensure that existing surface is free from debris and loose material prior to applying overlay and installed in accordance with manufacturer's guidelines.

- xi. Required depth of thickness of surfacing and subbase shall be as stated above. There are no requirements for a performance design.
- xii. There are no specific requirements for in-situ concrete areas.
- xiii. There are no specific requirements for strength class of in-situ concrete areas.
- xiv. Precast concrete paving block and modular footway construction shall be as follows:

| Footway Type 4 (FW4) : Concrete Slab Paving (full depth construction) | | | | | |
|---|--------|------------------------------|-----------------|----------------|---|
| Material Course | Clause | Material | Grade of Binder | Thickness (mm) | Special Requirements |
| Surface | 1104 | Precast Concrete Paving Slab | - | 65mm | 400x600mm laid in stretcher bond. Light grey colour conservation slab (Marshalls Conservation range or similar approved. Sample to be provide for acceptance. |
| Bedding | 1104 | Class 1 cement mortar | - | 30mm | |
| Subbase ** | 803 | Type 1 | - | 100mm | |
| | | | | 175mm | Total thickness |

** Existing sub-base may be utilized in areas where existing flexible footway is to be removed.

| Footway Type 5 (FW5) : Tactile Paving (full depth construction) | | | | | |
|---|--------|--|-----------------|----------------|----------------------|
| Material Course | Clause | Material | Grade of Binder | Thickness (mm) | Special Requirements |
| Surface | 1104 | Precast Concrete Blister Tactile Paving Slab | - | 50mm | Colour Buff |
| Bedding | 1104 | Class 1 cement mortar | - | 30mm | |
| Subbase ** | 803 | Type 1 | - | 100mm | |
| | | | | 180mm | Total thickness |

** Existing sub-base may be utilized in areas where existing flexible footway is to be removed.

| Footway Type 6 (FW6) : Purbeck Slab Paving | | | | | |
|--|--------|-----------------------|-----------------|----------------|---|
| Material Course | Clause | Material | Grade of Binder | Thickness (mm) | Special Requirements |
| Surface | 1104 | Purbeck Slab | - | 50mm | 400mm wide by random length pattern (between 400mm to 1000mm) with textured finish. Suttles Stone quarries or similar approved. |
| Bedding | 1104 | Class 1 cement mortar | - | 30mm | |
| Subbase*** | 803 | - | - | 150mm | - |
| | | | | 225mm | Total thickness |

** Existing sub-base may be utilized in areas where existing flexible footway is to be removed.

- xv. There are no specific requirements for clay pavers.
- xvi. All precast concrete paver layouts shall be as shown on the kerbs, footways and paved areas layout plans (drawing 70051460-WSP-HKF-0000-DR-CH-0001 to 70051460-WSP-HKF-0000-DR-CH-0009).

| Footway Type 7 (FW7) : Stabilised gravel dressing | | | | | |
|---|--------|------------------------------|-----------------|----------------|--|
| Material Course | Clause | Material | Grade of Binder | Thickness (mm) | Special Requirements |
| Surface Dressing | - | 6-10 mm angular beach gravel | - | 40 | Gravel to be placed in Bodpaver 40 plastic paver or similar approved |
| Formation | - | - | - | - | Formation level to be sprayed with a proprietary weed killer |
| | | | | 40mm | Total thickness |

| Footway Type 8 (FW8) : Cellular gravel footway | | | | | |
|--|--------|----------------------------|-----------------|----------------|--|
| Material Course | Clause | Material | Grade of Binder | Thickness (mm) | Special Requirements |
| Surface | - | 4-20mm clean angular stone | - | 100 | Cellweb or similar approved. |
| Subbase / Formation | - | - | - | - | Subbase or formation shall be treated in accordance with manufacturer's guidelines |
| | | | | 100mm | Total thickness |

APPENDIX 11/2: ACCESS STEPS

Not used.

SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS

APPENDIX 12/1: TRAFFIC SIGNS GENERAL

- i. Location of all permanent road traffic signs are shown on drawing number 70051460-WSP-HSN-0000-DR-CH-0001 to 70051460-WSP-HSN-0000-DR-CH-0009.
- ii. All traffic signs shall be in accordance with Traffic Sign Regulations and General Directions 2016. Diagram numbers are stated on the sign schedule (drawing number 70051460-WSP-HSN-0000-DR-CH-0010).
- iii. Overall sizes of signs plates are included on the sign schedules (drawing number 70051460-WSP-HSN-0000-DR-CH-0010).
- iv. Traffic signs shall be in accordance with BS EN 12899-1:2007 and CE marked.
- v. Reinstatement of the foundation excavation shall be either topsoil and grass seed or paving construction as stated on the kerbs, footways and paved areas drawing (number 70051460-WSP-HKF-0000-DR-CH-0001 to 70051460-WSP-HKF-0000-DR-CH-0009).
- vi. Posts shall be circular hollow section steel and hot dipped, galvanised and offer a guaranteed life of not less than 20 years.
- vii. Electrical compartments shall be in accordance with BE EN 12899-1.
- viii. All traffic signs shall be RA2 class retro-reflective material in accordance with BS EN 12899-1:2007 as shown in the Traffic Sign Manual.
- ix. The following applies to signs requiring direct illumination;
 - a. Existing illuminated signs which are being relocated as part of the works shall use existing luminaire units and bulbs. The existing cable duct and cabling shall be extended to suit the proposed location.
 - b. Proposed signs requiring illumination shall be illuminated using external luminaires. The mean illuminance of the sign shall conform to Class E3 of Table 22 in BS EN 12899:2007 and the uniformity of illuminance to Class UE1 in Table 23 for signs exceeding 1.5m² and UE2 for signs not exceeding 1.5m².
 - c. Electrical equipment for illuminated verge signs shall be housed in the base of the sign post where applicable. The access opening shall face away from the carriageway and the door shall be not less than 100x400mm with the lower edge located not less than 300mm above finished ground level. The Contractor shall supply keys to the Overseeing Organisation or their nominated Supervisor (quantity to be confirmed).
 - d. All works shall be carried out in accordance with Series 1300 and 1400 of the Specification for Highway Works.
- x. For existing illuminated signs which are to be relocated, the method of switching illumination shall be as currently provided. Proposed signs which require direct illumination require a photo-electric cell control for the switch method.
- xi. Bollards are not required to be internally illuminated. Bollards shall be as per the typical construction detail shown on drawing number 70051460-WSP-HSN-0000-DR-CH-0010 and be either blank faced or incorporate a sign face diagram to TSRGD as stated.
- xii. Temporary traffic signs are the responsibility of the Contractor and shall be in accordance with the Traffic Signs Manual.
- xiii. Removable bollards shall be 1250mm high, 125mm square pointed top oak bollards (FSC certified timber). Bollards shall be installed in 300mm deep steel socket to allow for bollards to be removed. Bollards to have a rebated and white reflective band. Supplier shall be Broxap or similar approved.

ADDITIONAL INFORMATION

- i. There are no specific requirements for covering of signs during the works. However, the Contractor may cover signs which conflict with temporary traffic management as required.
- ii. Sign fabrication drawings are required and shall be submitted to the Overseeing Organisation for approval prior to erecting.
- iii. There are no specific requirements for traffic sign housings.
- iv. There are no proposed location markers for the works.
- v. Filling of pockets in concrete foundations shall be in accordance with Clause 1208.4

TRAFFIC SIGNS SCHEDULE

| Sign Ref. | Sign Face Details | | | | | | | | | Foundation Details | | | | | | |
|-----------|----------------------|-------------|-------------------------|--------------------|---------------|-------------|------------|----------------------|-----------------------------|--------------------|------------------|------------|--------------|------------|--------------|------------------|
| | TSRGD Diagram number | Shape | Area of sign plate (m2) | Sign Face Material | x-height (mm) | Height (mm) | Width (mm) | Mounting Height (mm) | Illumination required (Y/N) | No. of Posts | Post length (mm) | Width (mm) | Breadth (mm) | Depth (mm) | Concrete mix | Earth Cover (mm) |
| RS1 | 670 | Circular | 0.7 | Class RA2 | N/A | 300 | 300 | 2400 | N | 1 | 3300 | 600 | 600 | 600 | ST2 | 300 |
| RS2 | S4-4&5 | Rectangular | 0.2 | Class RA2 | N/A | 400 | 500 | 1200 | N | 1 | 2200 | 600 | 600 | 600 | ST2 | 300 |
| RS3 | S4-4&5 | Rectangular | 0.2 | Class RA2 | N/A | 400 | 500 | 1200 | N | 1 | 2200 | 600 | 600 | 600 | ST2 | 300 |
| RS4 | S5-1-1 | Rectangular | 0.14 | Class RA2 | N/A | 375 | 375 | 2400 | N | 1 | 3375 | 600 | 600 | 600 | ST2 | 300 |
| RS5 | 816 | Rectangular | 0.16 | Class RA2 | N/A | 400 | 400 | 2400 | N | 1 | 3400 | 600 | 600 | 600 | ST2 | 300 |
| RS6 | S4-4-2 | Rectangular | 0.3 | Class RA2 | N/A | 500 | 600 | 1200 | N | 1 | 2300 | 600 | 600 | 600 | ST2 | 300 |
| RS7 | S4-4-2 | Rectangular | 0.3 | Class RA2 | N/A | 500 | 600 | 1200 | N | 1 | 2300 | 600 | 600 | 600 | ST2 | 300 |
| RS8 | 616 | Circular | 0.47 | Class RA2 | N/A | 300 | 300 | 2400 | Y | 1 | 3300 | 600 | 600 | 600 | ST2 | 300 |
| RS9 | S4-4-2 | Rectangular | 0.3 | Class RA2 | N/A | 500 | 600 | 1200 | N | 1 | 2300 | 600 | 600 | 600 | ST2 | 300 |
| RS10 | S4-4-2 | Rectangular | 0.3 | Class RA2 | N/A | 500 | 600 | 1200 | N | 1 | 2300 | 600 | 600 | 600 | ST2 | 300 |
| RS11 | S4-4-2 | Rectangular | 0.3 | Class RA2 | N/A | 500 | 600 | 1200 | N | 1 | 2300 | 600 | 600 | 600 | ST2 | 300 |
| RS12 | S4-4-2 | Rectangular | 0.3 | Class RA2 | N/A | 500 | 600 | 1200 | N | 1 | 2300 | 600 | 600 | 600 | ST2 | 300 |
| RS13 | S4-4-2 | Rectangular | 0.3 | Class RA2 | N/A | 500 | 600 | 1200 | N | 1 | 2300 | 600 | 600 | 600 | ST2 | 300 |
| RS14 | S4-4-2 | Rectangular | 0.3 | Class RA2 | N/A | 500 | 600 | 1200 | N | 1 | 2300 | 600 | 600 | 600 | ST2 | 300 |

APPENDIX 12/2: TRAFFIC SIGNS: MARKER POSTS

Not used.

APPENDIX 12/3: TRAFFIC SIGNS: ROAD MARKINGS AND STUDS

- (i) The location for permanent road markings shall be as shown on drawing number 70051460-WSP-HSN-0000-DR-CH-0001 to 70051460-WSP-HSN-0000-DR-CH-0009.
- (ii) Road marking colour shall be as required by the Traffic Sign Regulations and General Directions 2016. Road markings are shown in black/blue on the layout plans for illustration purposes only.
- (iii) No raised rib road markings are proposed.
- (iv) There are no locations where a skid resistance Class S3 to BS EN 1436 is required for permanent road markings.
- (v) The Contractor may propose temporary road marking materials to the Overseeing Organisation. Removal of temporary road markings shall not damage any new pavement surface course proposed as part of the works.
- (vi) No reflectorised road studs are required.
- (vii) There are no specific requirements for covering of road studs are markings unless this conflicts with the temporary traffic managements.
- (viii) Road markings are not required to meet Class R2 (table 2 of BS EN 1436).
- (ix) No transverse raised ribs are required.

ROAD MARKINGS SCHEDULE

LONGITUDINAL MARKINGS

| DIAG. NO.* | LINE | GAP | WIDTH | COLOUR |
|---------------|------------|------|-------|--------|
| 1003A | 0.6m | 0.3m | 0.2m | White |
| 1004 | 0.4m | 0.2m | 0.1m | White |
| 1009A | 0.6m | 0.3m | 0.1m | White |
| 1018.1 | Continuous | N/A | 0.05m | Yellow |
| 1028.4 | 0.6m | 0.4m | 0.05m | White |
| Miscellaneous | Continuous | N/A | 0.05m | Yellow |

Note that suffix [A] refers to ancillary ('hatch') markings; suffix [B] refers to boundary markings.

* 'Diag. No.' refers to diagram numbers given in the Traffic Signs Regulations and General Directions 2016.

SYMBOL MARKINGS

| SYMBOLS AND MISCELLANEOUS ITEMS | | | | |
|---------------------------------|---------------------------|----------|-------|--------|
| DIAG. NO.* | TYPE | LENGTH § | WIDTH | COLOUR |
| 1038 | Arrow (left only variant) | 4m | - | White |
| 1057 | Cycle | 0.1215m | 0.75m | White |
| 1062 | Road hump | 0.18m | 0.75m | White |
| 1046 | No Entry | 1.60m | 4.0m | White |
| Ancillary | Disabled bay hatch | N/A | 0.05m | Yellow |
| Ancillary | Disable bay hatch | N/A | 0.05m | White |

* 'Diag. No.' refers to diagram numbers given in the Traffic Signs Regulations and General Directions 2016.

§ 'Length' may also be taken as 'height'.

APPENDIX 12/4: TRAFFIC SIGNS: CONES, CYLINDERS, FTDS AND OTHER TRAFFIC DELINEATORS

Not used.

APPENDIX 12/5: TRAFFIC SIGNS: TRAFFIC SIGNALS

Not used.

APPENDIX 12/6: TRAFFIC SIGNS: SPECIAL SIGN REQUIREMENTS ON GANTRIES

Not used.

SERIES 1300 ROAD LIGHTING COLUMNS AND BRACKETS, CCTV MASTS AND CANTILEVER MASTS

1. The street lighting and all related works were designed by DW Windsor, for details refer to drawing number 13004-1.

SERIES 3000: LANDSCAPE AND ECOLOGY

Reference numbering in the 30 Series Appendix is to the corresponding Series 3000 document in the Specification for Highway Works.

APPENDIX 30/1: GENERAL

The Contractor shall give at least 48 hours' notice to the Overseeing Organisation of the intention to commence any of the following operations

(i) Grass or wildflower seeding or turfing (ii) Tree felling (iii) Arboricultural works.

This notice shall be repeated subsequent to periods when the operations have been temporarily suspended.

Peat or peat-based products shall not be used,

APPENDIX 30/2: WEED CONTROL

Not used

APPENDIX 30/3: CONTROL OF RABBITS AND DEER

Not used.

APPENDIX 30/4: GROUND PREPARATION

Final Preparation of Soils

Any consolidated material is to be broken up to 300 mm depth and the top 50 mm of all soil reduced to a tilth suitable for final shaping with a grading blade (particle size 10 mm and below). All undesirable material brought to the surface including stones larger than 50 mm in any dimension, roots, tufts of grass and foreign matter is to be removed off Site.

When material is reasonably dry and workable it shall be graded in accordance with the Drawings.

Finished levels of material after settlement shall be: (i) as shown on the Drawings adjoining pavings, kerbs or grass areas; (ii) not less than 150 mm below damp proof course of adjoining buildings; (iii) at the same level as adjoining soil areas.

Once material has been spread and/or graded, the area shall not be traversed by machinery or used for storage purposes.

Soil Contaminated During the Contract

Where the Contractor has contaminated the ground with cement slurry, oil, tar or any material harmful to plant life, soil shall be excavated to a depth of 1.0 m and removed off Site. Uncontaminated subsoil and topsoil shall be used for backfilling, to the finished profiles required under the Contract.

APPENDIX 30/5: GRASS AND WILDFLOWER SEEDING

Season

Grass seed shall be sown during the period 1 March to 31 May or 1 September to 31 October

Final Cultivations

Immediately prior to sowing or hydraulic seeding or laying turf the upper 50 mm of soil shall be reduced to a fine tilth by use of a chain harrow or other suitable plant.

Fertiliser or other soil ameliorants shall be evenly incorporated into the upper 50 mm of soil during final cultivations following the manufacturer's instructions.

Seed

Grass seed shall comply with BS 4428.

Grass seed shall be a tested mixture and certificates of germination and purity obtained from an Official Seed Testing Station not more than six months prior to sowing shall be provided to the Overseeing Organisation before sowing, together with the names of the varieties used in the mixture. The information on seed certificates and seed bag labels shall correspond.

Conventional Sowing

Sowing shall be carried out by evenly distributing the seed at a rate of not less than 20 g/m² for side slopes of embankments and cuttings and not less than 15 g/m² elsewhere.

Sowing shall be immediately followed by lightly raking the surface of the soil to cover the seeds, by use of a chain harrow or other suitable plant.

Grass Seed Germination

The seeding shall be repeated as necessary until an evenly distributed dense sward is established over the seeded area. The Contractor shall allow for maintenance of all grass areas in accordance until establishment of a healthy sward has been achieved. Establishment shall be regarded as achieved when at least 80% of quadrant sub-divisions are recorded as 'filled' when tested in accordance with Annex A3 of BS 3969.

Compost or fertiliser shall be deposited over planting areas, for incorporation into the soil during ground cultivation, or incorporated into soil during pit preparation and backfilling.

Compost shall be peat-free organic composted material graded less than 25 mm particle size and free from any non biodegradable material, weed material or plant pathogens. It shall have organic matter content greater than 35% on a dry matter basis and readily available trace elements. The pH, conductivity and nutrient composition shall be as required in Appendix 30/6. The compost shall be supplied with a volume tolerance of less than 5%.

APPENDIX 30/6: PLANTING

Planting of Trees

Tree pits are to be installed under supervision of the manufacturer, free of charge, and in accordance with drawing number GBU-2116. Digital photographs shall be provided to the employer of each tree pit at each stage of construction, including once excavated, with crates installed, once backfilled and with the planted tree. Each tree requires approval by the employer to certify completion.

A tree planting design has been produced to identify the trees that are to be felled and removed as shown on the site clearance layout plans, positions for new planting in the road-side verge and in areas of soft landscaping laid out to amenity grass. The trees in Poole Park define its character and the existing stock date back to late 1800's and early 1900's when the park was designed and planted. These works are the most significant to the tree stock since their original planting and are therefore of upmost importance to the overall success of the works.

Trees are to be sourced by the contractor and approved in advance of ordering by the Employer. As a minimum three photographs of each tree species should be supplied in advance for the Employer to inspect tree size and form. The Employer should be notified of the tree nursery supplier details and if possible a visit to the nursery shall be made to select the trees.

Tree Works Programme

Tree felling and removal is to be undertaken during winter months and outside of bird nesting season, April to September inclusive.

Tree planting shall be undertaken in the dormant season only, from the start of November and no later than the end of February. The Contractor shall provide a works programme which achieves these restrictions.

Tree Species

Tree species and numbers are shown in Table 3000-1. All trees are to be standards, defined as trees with a substantially upright stem, clean of lateral growths, supporting a well branched crown. The crown may have a central leader or a branched head, and branching appropriate for species or cultivar, with no main branches crossing in the crown semi-mature. They shall be root-balled and a minimum size of 20-25cm girth, the girth being measured as the circumference of the stem one metre from ground level.

Table 3000-1

| Species | Number required |
|----------------------------|------------------------|
| Carpinus betulus | 20 |
| Tilia Cordata 'Greenspire' | 12 |
| Quercus Palustris | 5 |
| Quercus Robur | 12 |
| Aesculus hippocastum | 3 |
| Total | 52 |

No planting or preparatory operations shall take place when the ground is frost bound, covered by snow, excessively wet or waterlogged or in excessively dry or windy conditions.

There are two different types of planting requirement, they are trees to be planted in the road-side verges using a crate system to provide sufficient rooting volume, and those planted in amenity grass areas.

The specification for all tree planting and proprietary systems shall be as per drawing reference GBU2116 and as shown on the highway landscaping plans 70051460-WSP-ENG-0000-DR-CH-0001 to 0009 and the contractor shall follow the manufacturers instructions at all times. Supplied by GreenBlue Urban, or similar approved. GreenBlue Urban Ltd, Northpoint, Compass Park, TN32 5BS. www.greenblue.com

Planting in the road-side verge using crate system

34No. Trees shall be planted in pits in the verge, pit dimensions excavated to a minimum of the rootball plus 400mm in each direction. The subsoil in the pit base shall be broken up to a further depth of 200mm. Any excavated topsoil shall be set aside to be used as backfill. Arisings from planting pits and trenches not suitable for re-use shall be disposed of to a licenced tip.

Adjacent load bearing units of 2.0m x 1.0m area in plan that extend under the footway to give the trees a good quality route to the adjacent additional soft landscape area shall be constructed. Load bearing units shall be 600mm depth (1 Cell deep) complete with twin walled geonet & open reinforcing mesh.

The load bearing units must have a minimum load bearing capacity of 25 tonnes per square meter in plan. The product shall be manufactured in the UK to minimise carbon footprint impact. The solution must be manufactured from 100% recycled plastic. The accessible rootable void ratio must be in excess of 95% per volume. The structure must integrate diagonal strutted uprights for lateral stability and increased fibrous root development. The supporting deck shall be laterally aerated to prevent anaerobic soil conditions and root die back developing.

Root barriers shall be provided at the time of planting, in order to constrain the growth of tree roots. Root barriers shall be 600mm deep with ribs per linear metre, supplied and installed in accordance with the manufacturer's instructions.

All wrappings, insulation and padding shall be removed from rootballs immediately before backfilling. No wire or plastic mesh containers may be left in position. Any damaged or torn roots shall be cut back cleanly to sound wood prior to planting.

Aeration systems shall be fitted in the footway to provide the rooting area with oxygen under the hard surface. Aeration vents shall be 150mm square, including cast aluminium lift and swivel inlets suitable for overrun, with 750mm down pipe and moveable mounting plate for flexibility with paving.

Each tree shall be planted with 3.0m of 60mm diameter perforated flexible plastic irrigation pipe with heavy duty inlet and tee circulating around the rootball during planting, free of kinks and any impediment.

Trees shall be secured with a strapped anchor system with drive in large, extra heavy duty composite anchors and webbing strap, installed to manufacturer's instructions, ensuring wires do not cut into the rootball and they are securely locked in position.

Each tree shall have the top of the pit filled with a minimum of 600mm of premium blend of quality sandy loam topsoil to provide good quality, un-compacted topsoil.

Planting in soft landscape areas

18 No trees shall be planted in soft landscape areas with an underground anchor system to be used leaving the trees free of above ground clutter and fixings.

Pits shall be excavated to a minimum of the rootball plus 400mm in each direction. The subsoil in the pit base shall be broken up to a further depth of 200mm. Any excavated topsoil shall be set aside to be used as backfill. Arisings from planting pits and trenches not suitable for re-use shall be disposed of to a licenced tip.

All wrappings, insulation and padding shall be removed from rootballs immediately before backfilling. No wire or plastic mesh containers may be left in position. Any damaged or torn roots shall be cut back cleanly to sound wood prior to planting

Each tree shall be planted with 3.0m of 60mm diameter perforated flexible plastic irrigation pipe with heavy duty inlet and tee circulating around the rootball during planting, free of kinks and any impediment.

Trees shall be secured with a strapped anchor system with drive in large, extra heavy duty composite anchors and webbing strap, installed to manufacturer's instructions, ensuring wires do not cut into the rootball and they are securely locked in position.

Each tree shall have the top of the pit filled with a minimum of 600mm of premium blend of quality sandy loam topsoil to provide good quality, un-compacted topsoil

Mulches: Ground Preparation

Before application of any mulch the planting areas and/or tree positions which are to be mulched shall be free of grass and weed growth.

Timber mulch should be a product certified under the Forest Stewardship Council (FSC), as an appropriate grade for the site. Two types may be used: (i) Chipped conifer bark, size

range 25-75 mm, maximum 15% fines, composted for a minimum of six weeks prior to delivery; or (ii) An organic mulch comprising composted wood chips or bark, free of fungi and diseases, methyl bromide contamination or foreign material. It shall be matured for a minimum of 16 weeks, naturally heated by the process of decomposition to temperatures exceeding 50°C for a minimum period of 14 days, followed by a period of stabilisation.

Where organic mulch is to be used it shall be spread evenly over the planting bed, or over a 1 m diameter circle around trees, to a depth of 75 mm after settlement.

Organic mulch shall be hollowed out where necessary to ensure low branches and foliage are not covered. The mulch surface shall be left even, tidy, and sloping down at bed edges.

APPENDIX 30/7: GRASS, BULBS AND WILDFLOWER MAINTENANCE

Grass cutting requirements for newly established areas following reinstatement shall be as follows:

- (i) First cut after Winter/Spring. The areas shall be cut when the grass reaches a height of 50 - 75 mm to a height between 25 - 40 mm and the cuttings removed off Site.
- (ii) Subsequent cuts. The areas shall be cut to a height between 25 - 30 mm, at least 12 times per year during the growing season.

APPENDIX 30/8: WATERING

Establishment Watering

The Contractor shall water all tree planting undertaken under the Contract at the frequency necessary to ensure establishment, survival and for the trees to thrive, until all planting works are completed and to the point of practical completion.

APPENDIX 30/9: ESTABLISHMENT MAINTENANCE FOR PLANTING

Not used.

APPENDIX 30/10: MAINTENANCE OF ESTABLISHED TREES AND SHRUBS

Arisings from Pruning, Cutting or Felling of Woody Plants

Any infected (diseased or pest) prunings or timber arisings shall be removed off Site immediately after cutting and burned or buried at a depth of no less than 2.0 m in a location to be approved in writing by the Overseeing Organisation.

In the event of a plant disease epidemic, diseased arising shall be disposed of in accordance with the current recommendations of the Department for Environment, Food and Rural Affairs (DEFRA), or the Forestry Commission.

Healthy arisings shall be dealt with in one or more of the following ways:

- (i) Chippings shall be retained on the Site, the chipper shall produce chippings in the size range 0-75 mm, with storage locations to be agreed in advance with the Overseeing Organisation.
- (ii) All arisings shall be processed immediately using a woodchipper. All remaining arisings from felling that cannot be chipped shall be removed off Site.

Arboriculture: General

All work specified in this Clause shall be undertaken in accordance with BS 3998, except that cuts and wounds shall not be treated with a fungicidal sealant, bitumen or latex paint. Poole Park is in a Conservation Area and all arboriculture works within the contract have been approved by the Local Authority planning committee.

The Contractor shall comply with the current Forestry and Arboriculture Safety & Training Council (FASTCO) recommendations in relation to all aspects of the arboricultural works. If any defect is found within a tree during the course of carrying out work which would render the specified work inappropriate or inadequate, the Contractor shall cease work and notify the Overseeing Organisation who shall agree any appropriate alternative action which is to be taken. Where such a defect constitutes an imminent threat to public safety or property, the Contractor shall take appropriate action to exclude the public from the area of danger, notify the Overseeing Organisation immediately, and protect the location until the Overseeing Organisation issues further instructions.

No tree work shall be carried out during periods of extreme weather except in emergency situations. Except in an emergency incident, the removal of live wood from any species shall not be undertaken during periods of severe frosts. In such cases, the work carried out shall be the minimum required to render the tree safe or to allow removal from the carriageway.

Except in an emergency incident, tree surgery and felling operations shall only be undertaken within the dormant season and outside the bird nesting season.

All mature trees shall be checked for bat roosts in any cavities, before arboricultural works are carried out. Any bat roosts shall be reported to the Overseeing Organisation and no works shall be carried out on any tree in which bat roosts are located without further written instructions from the Overseeing Organisation. The inspection for bat roosts and any subsequent action thereon must be carried out by appropriately licensed personnel provided by the Employer.

All tools shall be surface sterilised with methylated spirits after use on trees which are known or suspected be diseased.

When using tower wagons or cranes the Contractor shall ensure that manufacturer's safety limits are not exceeded. Demountable towers shall have all fastening brackets secured and shall only be used on the appropriate vehicle.

Climbing irons shall not be used in the pruning of live trees and shall only be used during felling or dismantling operations when this is necessary during emergency works.

No trees are to be used as winch anchors without the prior consent of the Overseeing Organisation and these shall be protected. Alternative types of winch anchor may be used provided they are appropriate for the conditions prevailing at the Site and the task to be undertaken and are of a recognised arboricultural type.

Tree Felling

Trees being felled require the complete root, including buttress and surface roots arising from or near to its base, shall be removed, either by:

- (i) stump grinding to a minimum depth of 300 mm; or
- (ii) stump grubbing by means of excavation or winching.
- (iii) or by other means agreed by the Overseeing organisation in advance.

Following removal of stumps by any means, the void shall be filled with topsoil to match existing levels in grassed areas or made safe until the new tree is planted if in the same location. In paved areas the material shall be removed down to formation level to allow full reinstatement of the paved area. All arisings shall be disposed of as required in Appendix 30/10.

APPENDIX 30/11: MANAGEMENT OF WATERBODIES

Not used.



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