

A19 / A1058 Coast Road Junction Improvement Scheme

**TENDER DOCUMENTS
VOLUME 3C**

**WORKS INFORMATION - SPECIFICATION
(RETAINING WALL)**

June 2015

WORKS INFORMATION – SPECIFICATION

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Preamble to the Specification

- 1 The Specification referred to in the Tender shall be the 'Specification for Highway Works', published by the Stationery Office (formerly HMSO) as Volume 1 of the Manual of Contract Documents for Highway Works, as modified and extended by the following contract specific items:
 - (i) Appendix 0/1: Contract specific Additional, Substitute and Cancelled Clauses, Tables and Figures;
 - (ii) Appendix 0/2: Contract specific minor alterations to existing Clauses, Tables and Figures;
 - (iii) The contract specific Numbered Appendices listed in Appendix 0/3;
 - (iv) Appendix 0/5: Special National Alterations of the Overseeing Organisation of Scotland, Wales or Northern Ireland.

Appendix 0/4 contains a list of the Drawings.
- 2 The relevant publication date of each page of the Specification for Highway Works is given in the Schedule of Pages and Relevant Publication Dates.
- 3 An Additional Clause as indicated by a suffix 'A' in Appendix 0/5 is an alteration originating from the Overseeing Organisation of Scotland, Wales or Northern Ireland. An Additional Clause as indicated by a suffix 'AR' in Appendix 0/1 is a contract specific alteration.
- 4 A Substitute Clause, as indicated by the suffix 'S' in Appendix 0/5 is an alteration originating from the Overseeing Organisation of Scotland, Wales or Northern Ireland. A Substitute Clause as indicated by a suffix 'SR' in Appendix 0/1 is a contract specific alteration.
- 5 A Cancelled Clause as indicated by a suffix 'C' in Appendix 0/5 is an alteration originating from the Overseeing Organisation of Scotland, Wales or Northern Ireland. A Cancelled Clause indicated by a suffix 'CR' in Appendix 0/1 is a contract specific alteration.
- 6 Insofar as any of the contract specific Numbered Appendices may conflict or be inconsistent with any provision of the Specification for Highway Works the Numbered Appendices shall always prevail. Additionally, Numbered Appendices 0/1 and 0/2 shall take precedence over Numbered Appendix 0/5.
- 7 Any reference in the Contract to a Clause number or contract specific Appendix shall be deemed to refer to the corresponding Substitute Clause number or contract specific Appendix listed in Appendix 0/1, 0/2 or 0/5.
- 8 Where a Clause is altered any original Table/Figure referred to in the Clause shall apply unless the Table/Figure is also altered. Where a Table/Figure is altered any reference in a Clause to the original Table/Figure shall apply to the altered Table/Figure.
- 9 Where a Clause in the Specification relates to work goods or materials which are not required for the Works it shall be deemed not to apply.
- 10 Any Appendix referred to in the Specification which is not used shall be deemed not to apply.
- 11 Where a Clause in the Specification is prefixed by an # this indicates that this particular Clause has a substitute National Alteration for one or more of the Overseeing Organisations of Scotland, Wales or Northern Ireland. Substitute or additional National Clauses shall be used within countries to which they

specifically apply and they are deemed to replace corresponding Clauses in the main text of the Specification as appropriate. The substitute National Clauses are located at the end of the relevant Series together with the additional National Clauses of the Overseeing Organisations.

- 12 Other than where references to the Overseeing Organisation are made in the context of the Overseeing Organisation granting statutory or type approvals, the roles and functions of the Overseeing Organisation shall be undertaken by the *Supervisor*.

Where the Specification requires the provision of documentation to the Overseeing Organisation for statutory or type approval such documentation shall be provided to the *Supervisor*.

- 13 If the Specification is used in conjunction with a Contract under which the *Contractor* is responsible for the design of any part of the Permanent Works, the delegation of the roles and functions of the Overseeing Organisation as stated in paragraph 12 above shall be further amended as follows:
- (i) 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 *Supervisor*.
 - (ii) 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 above shall exercise such decisions in accordance with the Secretary of State's requirements stated in the Contract. 4
- 14 Where Standards and other documents are incorporated into the Contract by reference the respective edition used shall be that which is current on the Contract Reference Document Date 06/05/15 unless otherwise stated in the Specification.

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

PART A: VOLUME 1 SPECIFICATION

List of Additional Clauses, Tables and Figures

Clause Number (etc.)	Title	Written on Page Number following
127 AR	Protection from Nuisance due to the works	5
128 AR	Publicity and Disclosure of Information	5
180 AR	Working with Others	6
181 AR	Health and Safety Requirements	7
182 AR	Documents	8
183 AR	Handover Documents at Completion	8
184 AR	Provision of Cost Information	8

List of Substitute Clauses, Tables and Figures

Clause Number (etc.)	Title	Written on Page Number following
None		

List of Cancelled Clauses, Tables and Figures

Clause Number (etc.)	Title
None	

Additional Clauses, Tables and Figures

Clause Number (etc.)	Title and written text
127 AR	<p><u>Protection from Nuisance due to the works</u></p> <p>Existing roads, footways, rights of way, accesses to adjacent properties, buildings, etc., and any new roads and drains, whether part of the Site or not, which are being used by any of the Contractor's or his Sub-Contractors' or Suppliers' vehicles or items of plant in connection with the works, shall be kept clean and free from all dirt, mud and material dropped from vehicles or tyres and tracks.</p> <p>Suitable wheel washing facilities shall be provided and used at all Contractor's, Sub-Contractors' and Suppliers' points of entry onto the public highway from the Site. No vehicle which is likely to deposit mud or other material on the road surface shall be permitted back onto the public highway. In meeting his obligations under the Conditions of Contract, the Contractor shall provide, maintain and use as necessary suitable equipment, including mechanical/vacuum road sweepers throughout the duration of the works. Road sweepers propelled by tractors and with the brush at an angle to the road will not be permitted.</p>
128 AR	<p><u>Publicity and Disclosure of Information</u></p> <ol style="list-style-type: none"> 1. The Contractor shall not give any information concerning the works for publication in the press or on radio, television or screen or elsewhere without the written approval of the Employer. 2. All advertisements and Contractor's or Sub-Contractors' name-boards to be erected within the Site by the Contractor or by any Sub-Contractor shall first be approved by the Employer. 3. The Contractor shall not take or cause to have taken any photographs of the works without the permission of the Employer. <p>If such permission is given, the Contractor shall supply to the Employer, free of charge, duplicate copies of all photographs taken by him and shall print on the reverse side of such photographs the date of exposure, the section of the works shown, any reference number and the address and contact details for where the original file is stored.</p>

Clause Number (etc.)	Title and written text
180 AR	<p data-bbox="440 347 695 380"><u>Working With Others</u></p> <ol data-bbox="464 392 1358 965" style="list-style-type: none"><li data-bbox="464 392 1358 582">1. The Contractor shall<ul data-bbox="544 436 1358 582" style="list-style-type: none"><li data-bbox="544 436 1358 504">• register the Site under the Considerate Constructor Scheme and<li data-bbox="544 515 1358 582">• comply with the Considerate Constructor Scheme's Code of Considerate Practice in Providing the works<li data-bbox="464 593 1358 660">2. The Contractor complies with the special requirements of Statutory Undertakers as stated in the Works Information.<li data-bbox="464 672 1358 965">3. The Contractor cooperates with, and shares the Working Areas with the following organisations:<ul data-bbox="544 750 1358 965" style="list-style-type: none"><li data-bbox="544 750 1358 817">• The Employer's other contractors including the Area 14 MAC (currently A One +)<li data-bbox="544 828 1358 896">• Utility companies (Northern Gas Networks) carrying out works required by this contract<li data-bbox="544 907 1358 965">• Any other organisation identified by the Overseeing Organisation

Clause Number (etc.)	Title and written text
181 AR	<p><u>Health and Safety Requirements General</u></p> <ol style="list-style-type: none"> 1. Requirements for health and safety include those given in Numbered Appendices 1/17, 1/18, 1/19 and 1/23. 2. The Contractor operates an occupational health management system in line with the requirements of HSE's construction occupational health management model. <p><u>Client</u></p> <ol style="list-style-type: none"> 3. In accordance with the Conditions of Contract Highways England will undertake the role of the Client under the Construction (Design and Management) Regulations 2015. <p><u>Principal Contractor</u></p> <ol style="list-style-type: none"> 4. The Employer appoints the Contractor to act as Principal Contractor and Principal Designer for the purposes of the Construction (Design and Management) Regulations 2015. <p><u>Pre-construction Health and Safety Information</u></p> <ol style="list-style-type: none"> 5. The Principal Designer shall develop the Pre-Construction Information Pack which shall be prepared in accordance with Regulation 11 of the CDM (2015). 6. Before commencing the construction phase of the works, the Contractor confirms to the Project Manager that adequate welfare facilities are in place. <p><u>Health and Safety File</u></p> <ol style="list-style-type: none"> 7. The Principal Contractor shall forward information for the Health and Safety File to the Principal Designer. The Contractor will be required to invite the Principal Designer to design meetings. 8. The Principal Designer issues the information in the Health and Safety File to the Project Manager at Completion. 9. The Contractor issues the information in the Health and Safety file to the Project Manager in accordance with Highway England's handover procedures as described in the Works Information. Accident Reporting 10. The Contractor reports to the Overseeing Organisation and the Project Manager as soon as he is aware, and in any event within twenty four hours, details of any incidents on the Site which: <ul style="list-style-type: none"> • involve any person being injured or killed in connection with the works on the Site; • result in unplanned lane closures; • have an impact on the operations of a third party; <p>The Contractor reports such incidents verbally and by email, and additionally reports all incidents through the Highway's England Accident and Incident Reporting System. (HA AIRS).</p>

Clause Number (etc.)	Title and written text
182 AR	<p><u>Documents</u></p> <ol style="list-style-type: none"> 1. The Contractor returns the Works Information or any other material relating to the works to the Employer at the defects date 1. Any paper the Parties use in connection with this contract is to contain at least 80% post consumer waste and be printed on both sides where appropriate. 2. Except where otherwise noted the Contractor shall submit two hard copies and one electronic copy of all submissions. The electronic copy shall be in a format and stored on media to be agreed with the Project Manager.
183 AR	<p><u>Handover Documents At Completion</u></p> <ol style="list-style-type: none"> 1. The Contractor provides the handover documents at the time required by and in accordance with Highways England current procedures and in accordance with the requirements in the Works Information.

Substitute Clauses, Tables and Figures

Clause Number (etc.)	Title and rewritten text
None	

PART B: VOLUME 2 NOTES FOR GUIDANCE ON THE SPECIFICATION FOR HIGHWAY WORKS

List of Additional Clauses, Tables and Figures

Clause Number (etc.)	Title	Written on Page Number following
None		

List of Substitute Clauses, Tables and Figures

Clause Number (etc.)	Title	Written on Page Number following
None		

List of Cancelled Clauses, Tables and Figures

Clause Number (etc.)	Title
None	

Additional Clauses, Tables and Figures

Clause Number (etc.)	Title and written text
None	

Substitute Clauses, Tables and Figures

Clause Number (etc.)	Title and rewritten text
None	

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

PART A: VOLUME 1 SPECIFICATION

Clause Number (etc.)	Alterations to be made
None	

**PART B: VOLUME 2 NOTES FOR GUIDANCE ON THE SPECIFICATION FOR
HIGHWAY WORKS**

Clause Number (etc.)	Alterations to be made
None	

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

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

List 'A' is a complete list of the Numbered Appendices referred to in the Specification for Highway Works and used in the Contract. Those identified by the letters 'T' or 'C' shall be compiled by the Tenderer or the Contractor respectively.

List 'B' gives a list of Contract-specific Numbered Appendices devised for the Contract.

List A – Contract Specific Numbered Appendices Referred to in the Specification for Highway Works and Included in the Contract

Volume Number	Completed By	Appendix Number	Title
			INTRODUCTION
3C	Co	0/1	Contract specific Additional, Substitute and Cancelled Clauses, Tables and Figures Included in the Contract
3C	Co	0/2	Contract specific Minor Alterations to Existing Clauses, Tables and Figures Included in the Contract
3C	Co	0/3	List of contract specific Numbered Appendices Referred to in the Specification and Included in the Contract
3C	Co	0/4	List of Drawings Included in the Contract
	Not Used	0/5	Special National Alterations of the Overseeing Organisations of Scotland / Wales / Northern Ireland
			PRELIMINARIES
3C	Co	1/1	Temporary Accommodation and Equipment for the Overseeing Organisation
	Not Used	1/2	Vehicles for the Overseeing Organisation
	Not Used	1/3	Radio Communication System for the Overseeing Organisation
3C	Co	1/4	Working and Fabrication Drawings
3C	Co	1/5	Testing to be Carried out by the Contractor
	Not Used	1/6	Supply and Delivery of Samples to the Overseeing Organisation
3C	Co	1/7	Site Extent and Limitations on Use
	Not Used	1/8	Operatives for the Overseeing Organisation
3C	Co	1/9	Control of Noise and Vibration
	Not Used	1/10	Permanent Works to be Designed by the Contractor
3C	Co	1/11	Temporary Works Design
3C	Co	1/12	Setting Out and Existing Ground Levels
3C	Co	1/13	Programme of Works
3C	Co	1/14	Payment Applications
	Not Used	1/15	Accommodation Works
3C	Co	1/16	Privately and Publicly Owned Services and Supplies
	Not Used	1/17	Traffic Safety and Management
	Not Used	1/18	Temporary Highways for Traffic
	Not Used	1/19	Routeing of Vehicles
	Not Used	1/20	Recovery Vehicles for Breakdowns
	Not Used	1/21	Information Boards

List A – Contract Specific Numbered Appendices Referred to in the Specification for Highway Works and Included in the Contract Continued

Volume Number	Completed By	Appendix Number	Title
	Not Used	1/22	Progress Photographs
3C	Co	1/23	Risks to Health and Safety
3C	Co	1/24	Quality Management System
	Not Used	1/25	Temporary Closed Circuit Television (CCTV) System for the Monitoring of Traffic
	Not Used	1/26	Not Used
	Not Used	1/27	Temporary Automatic Speed Camera System for the Enforcement of Mandatory Speed Limits at Road Works (TASCAR)
	Not Used	1/70	List of Buildings to be Surveyed
	Not Used		SITE CLEARANCE
	Not Used	2/1	List of Buildings, etc, to be Demolished or Partially Demolished
	Not Used	2/2	Filling of Trenches and Pipes
	Not Used	2/3	Retention of Material Arising from Site Clearance
	Not Used	2/4	Explosives and Blasting
	Not Used	2/5	Hazardous Materials
			FENCING
	Not Used	3/1	Fencing, Gates and Stiles
			ROAD RESTRAINT SYSTEMS (VEHICLE AND PEDESTRIAN)
3C	Co	4/1	Road Restraint Systems (Vehicle and Pedestrian)
3C	Co/C	4/2	Information Required to Demonstrate Compliance of Road Restraint Systems to BS EN 1317-1, BS EN 1317-2, BS EN 1317-3 and DD ENV 1317-4: 2002
			DRAINAGE AND SERVICE DUCTS
	Not Used	5/1	Drainage Requirements
	Not Used	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
	Not Used	6/1	Requirements for Acceptability and Testing etc. of Earthworks Materials

List A – Contract Specific Numbered Appendices Referred to in the Specification for Highway Works and Included in the Contract Continued

Volume Number	Completed By	Appendix Number	Title
	Not Used	6/2	Requirements for Dealing with Class U1B and Class U2 Unacceptable Materials
	Not Used	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 and Fill Above Structural Foundations
	Not Used	6/7	Sub-formation and Capping and Preparation and Surface Treatment of Formation
	Not Used	6/8	Topsoiling
	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 and Disused Mine Workings
	Not Used	6/12	Instrumentation and 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
	Not Used	7/1	Permitted Pavement Options
	Not Used	7/2	Excavation, Trimming and Reinstatement of Existing Surfaces
	Not Used	7/3	Surface Dressing - Performance Specification
	Not Used	7/4	Bond Coats, Tack Coats and Other Bituminous Sprays
	Not Used	7/5	In Situ Recycling - The Remix and Repave Processes
	Not Used	7/6	Breaking Up or Perforation of Existing Pavement
	Not Used	7/7	Slurry Surfacing Incorporating Microsurfacing
	Not Used	7/8	Not Used
	Not Used	7/9	Cold-Milling (Planing) of Bituminous Bound Flexible Pavement
	Not Used	7/10	Not used
	Not Used	7/11	Overband and Inlaid Crack Sealing Systems
	Not Used	7/12	Arrester Beds

List A – Contract Specific Numbered Appendices Referred to in the Specification for Highway Works and Included in the Contract Continued

Volume Number	Completed By	Appendix Number	Title
	Not Used	7/13	Saw-Cut Crack 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
	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 Falling Weight Deflectometer (FWD) Measurements Made on Concrete Pavements Treated by Fractured Slab Techniques
	Not Used	7/20	Not Used
	Not Used	7/21	Surface Dressing - Recipe Specification
	Not Used	7/22	Repairs to Potholes
			ROAD PAVEMENTS - CONCRETE AND CEMENT BOUND MATERIALS
	Not Used	10/1	Plant and Equipment for the Construction of Exposed Aggregate Concrete Surface
			KERBS, FOOTWAYS AND PAVED AREAS
	Not Used	11/1	Kerbs, Footways and Paved Areas
	Not Used	11/2	Access Steps
			TRAFFIC SIGNS
	Not Used	12/1	Traffic Signs: General
	Not Used	12/2	Traffic Signs: Marker Posts
	Not Used	12/3	Traffic Signs: Road Markings and Studs
	Not Used	12/4	Traffic Signs: Cones, Cylinders, FTD's and Other Traffic Delineators
	Not Used	12/5	Traffic Signs: Traffic Signals
	Not Used	12/6	Traffic Signs: Special Sign Requirements on Gantries

List A – Contract Specific Numbered Appendices Referred to in the Specification for Highway Works and Included in the Contract Continued

Volume Number	Completed By	Appendix Number	Title
			ROAD LIGHTING COLUMNS and BRACKETS, CCTV MASTS AND CANTILEVER MASTS
	Not Used	13/1	Information to be Provided When Specifying Lighting Columns and Brackets
	Not Used	13/2	(Specification for Highway Works) Typical Lighting Column and Bracket Data Sheets 1 and 2
	Not Used	13/3	Instructions for Completion of Lighting Column and Bracket Data Sheets
	Not Used	13/4	Information to be Provided When Specifying CCTV Masts
	Not Used	13/5	(Specification for Highway Works) Typical CCTV Mast Data Sheet
	Not Used	13/6	Instructions for Completion of CCTV Mast Sheets
	Not Used	13/7	Information to be Provided When Specifying Cantilever Masts
	Not Used	13/8	(Specification for Highway Works) Typical Cantilever Masts Data Sheets 1 and 2
	Not Used	13/9	Instructions for Completion of Cantilever Masts Data Sheets
			ELECTRICAL WORK FOR ROAD LIGHTING AND TRAFFIC SIGNS
	Not Used	14/1	Site Records
	Not Used	14/2	Location of Lighting Units and Feeder Pillars
	Not Used	14/3	Temporary Lighting
	Not Used	14/4	Electrical Equipment for Road Lighting
	Not Used	14/5	Electrical Equipment for Traffic Signs
			MOTORWAY COMMUNICATIONS
	Not Used	15/1	Motorway Communications
	Not Used	15/2	Cable Duct Requirements
			PILING AND EMBEDDED RETAINING WALLS
3C	Co	16/1	General Requirements for Piling and Embedded Retaining Walls
	Not Used	16/2	Precast Reinforced and Prestressed Concrete Piles and Precast Reinforced Concrete Segmental Piles
	Not Used	16/3	Bored Cast-in Place Piles
	Not Used	16/4	Bored Piles Constructed using Continuous Flight Augers and Concrete or Grout Injection through Hollow Auger Stems

List A – Contract Specific Numbered Appendices Referred to in the Specification for Highway Works and Included in the Contract Continued

Volume Number	Completed By	Appendix Number	Title
	Not Used	16/5	Driven Cast-in-Place Piles
	Not Used	16/6	Steel Bearing Piles
	Not Used	16/7	Reduction of Friction on Piles
	Not Used	16/8	Non-Destructive Methods for Testing Piles
	Not Used	16/9	Static Load Testing of Piles
	Not Used	16/10	Diaphragm Walls
	Not Used	16/11	Hard/Hard Secant Pile Walls
	Not Used	16/12	Hard/Soft Secant Pile Walls
	Not Used	16/13	Contiguous Bored Pile Walls
	Not Used	16/14	King Post Walls
3C	Co	16/15	Steel Sheet Piles
	Not Used	16/16	Integrity Testing of Wall Elements
	Not Used	16/17	Instrumentation for Piles and Embedded Walls
	Not Used	16/18	Support Fluid
			STRUCTURAL CONCRETE
3C	Co	17/1	Schedule for the Specification of Designed Concrete
	Not Used	17/2	Not Used
3C	Co	17/3	Concrete - Surface Finishes
3C	Co	17/4	Concrete - General
	Not Used	17/5	Buried Concrete
	Not Used	17/6	Grouting and Duct Systems for Post-tensioned Tendons
	Not Used	17/7	Precast Concrete Elements
			STRUCTURAL STEELWORK
	Not Used	18/1	Requirements for Structural Steelwork
			PROTECTION OF STEELWORK AGAINST CORROSION
	Not Used	19/1	(Specification for Highway Works) Form HA/P1 (New Works) Paint System Sheet
	Not Used	19/2	Requirements for Other Work
	Not Used	19/3	(Specification for Highway Works) Form HA/P2 Paint Data Sheet
	Not Used	19/4	(Specification for Highway Works) Form HA/P3 Paint Sample Despatch List: Sheets 1 and 2

List A – Contract Specific Numbered Appendices Referred to in the Specification for Highway Works and Included in the Contract Continued

Volume Number	Completed By	Appendix Number	Title	
3C	Not Used	20/1	WATERPROOFING FOR CONCRETE STRUCTURES Waterproofing for Concrete Structures	
	Not Used	21/1	BRIDGE BEARINGS Bridge Bearing Schedule	
	Not Used	22/1	PARAPETS Not Used	
	Co	Not Used	23/1	BRIDGE EXPANSION JOINTS AND SEALING OF GAPS Bridge Deck Expansion Joints Schedule
			23/2	Sealing of Gaps Schedule (Other than in Bridge Deck Expansion Joints)
	Not Used	24/1	BRICKWORK, BLOCKWORK AND STONEMASONRY Brickwork, Blockwork and Stonemasonry	
	Not Used			SPECIAL STRUCTURES
			25/1	Requirements for Corrugated Steel Buried Structures
			25/2	Requirements for Reinforced Soil and Anchored Earth Structures
			25/3	Requirements for Pocket - Type and Grouted - Cavity Reinforced Brickwork Retaining Wall Structures
			25/4	Environmental Barriers
	Not Used		25/5	Requirements for Buried Rigid Pipes for Drainage Structures
				MISCELLANEOUS
			26/1	Ancillary Concrete
			26/2	Bedding Mortar
			26/3	Cored Thermoplastic Node Markers
				LANDSCAPE AND ECOLOGY
3C	Co	Not Used	30/1	General
		Not Used	30/2	Weed Control
		Not Used	30/3	Control of Rabbits and Deer
		Not Used	30/4	Ground Preparation
		Not Used	30/5	Grass Seeding, Wildflower Seeding and Turfing
		Not Used	30/6	Planting
		Not Used	30/7	Grass, Bulbs and Wildflower Maintenance
		Not Used	30/8	Watering

List A – Contract Specific Numbered Appendices Referred to in the Specification for Highway Works and Included in the Contract Continued

Volume Number	Completed By	Appendix Number	Title
	Not Used	30/9	Establishment Maintenance for Planting
	Not Used	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 Works) Form HA/P1 (Maintenance) Paint System Sheet
	Not Used	50/2	Requirements for Other Work
	Not Used	50/3	(Specification for Highway Works) Form HA/P2 Paint Data Sheet
	Not Used	50/4	(Specification for Highway Works) Form HA/P3 Paint Sample Despatch List: Sheets 1 and 2
	Not Used	50/5	General Requirements

List B: List of Contract-specific Numbered Appendices devised for the Contract

Volume Number	Appendix Number	Appendix Title
		None

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

1 Contract-specific Drawings supplied to each Tenderer

Drawing Number	Title
A19/DWG/CIV/S02/2000/0020	A19 SILVERLINK SOUTHBOUND OFFSLIP RETAINING WALL. CROWN ESTATE DEVELOPMENT PLAN AND EXTENT OF THE PROPOSED WALL
A19/DWG/CIV/S02/2000/0023	A19 SILVERLINK SOUTHBOUND OFFSLIP RETAINING WALL. PROPOSED GENERAL ARRANGEMENT OF THE SHEET PILED WALLS
A19/DWG/CIV/S02/2000/0024	A19 SILVERLINK SOUTHBOUND OFFSLIP RETAINING WALL.CAPPING BEAM SETTING OUT DETAILS SHEET 1 OF 2
A19/DWG/CIV/S02/2000/0025	A19 SILVERLINK SOUTHBOUND OFFSLIP RETAINING WALL.CAPPING BEAM SETTING OUT DETAILS SHEET 2 OF 2
A19/DWG/CIV/S02/2000/0026	A19 SILVERLINK SOUTHBOUND OFFSLIP RETAINING WALL.CAPPING BEAM CONCRETE AND DIMENSION DETAILS
A19/DWG/CIV/S02/2000/0027	A19 SILVERLINK SOUTHBOUND OFFSLIP RETAINING WALL.CAPPING BEAM REINFORCEMENT DETAILS
A19/DWG/CIV/S02/2000/0027-001 (bar bending schedule)	A19 SILVERLINK SOUTHBOUND OFFSLIP RETAINING WALL DESIGN – BAR BENDING SCHEDULE
A19/DWG/CIV/S02/2000/0028	A19 SILVERLINK SOUTHBOUND OFFSLIP RETAINING WALL.STATUTORY UNDERTAKERS NORTHERN GAS NETWORKS
A19/DWG/CIV/S02/2000/0029	A19 SILVERLINK SOUTHBOUND OFFSLIP RETAINING WALL.STATUTORY UNDERTAKERS NORTHERN POWERGRID
A19/DWG/CIV/S02/2000/0030	A19 SILVERLINK SOUTHBOUND OFFSLIP RETAINING WALL.STATUTORY UNDERTAKERS BT OPEN REACH
V12588 L01	LANDSCAPE PLAN (NOTE DRAWING PROVIDED BY THE CROWN ESTATE DEVELOPER)

2 Standard Drawings

2(i) Supplied to Each Tenderer

Drawing Number	Title	Volume Number
None		

2(ii) Inspected by Tenderers

The following drawings are made available for inspection by Tenderers at:

WSP UK,

Three White Rose Office Park,
Millshaw Park Lane, Leeds,
West Yorkshire
LS11 0DL

between the following dates: 18th May 2015 to 22nd May 2015 inclusive

and at the following times: 10am until 4pm

One copy will be supplied to the Contractor.

Drawing Number	Title
50111/100	SITE LOCATION PLAN
50111/101	EXISTING IP MAIN ROUTE COMPARISONS
50111/102	PROPOSED DIVERSION ROUTE
50111/103	RESPONSIBILITIES FOR ABANDONED PIPE
50111/104	UTILITIES
50111/105	AS SURVEYED GAS MAIN POSITION & PROPOSED RETAINING WALL
50111/106	PROPOSED STOPPLE PIT POSITIONS / EXISTING GAS MAIN – COMPOSITE PLAN
50111/107	PROPOSED LAY-DOWN AREAS / TRAFFIC MANAGEMENT PLAN
50111/108	PIPE DIVERSION ROUTE
50111/109	PIPE DIVERSION ROUTE CROSS SECTIONS
50111/110	PIPELINE EASEMENT
50111/201	STOPPLE PIT 1 (NORTHERN END) PLAN & SECTIONS
50111/202	STOPPLE PIT 2 (SOUTHERN END) PLAN & SECTIONS
50111/203	INDICATIVE SITE ESTABLISHMENT, TEMPORARY WORKS – NORTH COMPOUND

Drawing Number	Title
50111/204	INDICATIVE SITE ESTABLISHMENT, TEMPORARY WORKS – SOUTH COMPOUND
50111/205	TYPICAL REINSTATEMENT FOR PIPE TRENCH
50111/206	CONCRETE COVER SLAB
50111/701	STOPPLE PIT 1 (NORTHERN END) PLAN & SECTIONS
50111/702	STOPPLE PIT 2 (SOUTHERN END) PLAN & SECTIONS
50111/703	PURGE ASSEMBLY DETAIL
50111/704	MECHANICAL GA

2(iii) Brought into the Contract by Reference

HCD published by The Stationery Office as Volume 3 of the Manual of Contract Documents for Highway Works contains the following drawings brought into the Contract by reference. Unless otherwise stated below the whole drawing is brought into the Contract.

Drawing Number	Title	Date	Aspect required if not whole Drawing
None			

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

1 Accommodation Required

It is the intention that the Contractor shall provide office space within this site accommodation for the Supervisor in accordance with the requirements of this Numbered Appendix. No other accommodation is required for the Overseeing Organisation. In line with the programme requirements stated within Appendix 1/13 it is the intention that the Contractor's Offices, Workshops and Mess facilities will be utilised during the time period between the completion of Phase 1 and the commencement of Phase 2 of the Sheet Piling Works.

It is not the intention that any facilities will be shared with the Contractor for the proposed Crown Estate Development.

1.1 Temporary Initial Accommodation

1.1.1 No temporary initial accommodation shall be required by the Overseeing Organisation.

1.2 Principal Office

1.2.1 The layout of the principal offices shall be as agreed by the Project Manager and shall be shared accommodation with the Contractor.

1.2.2 The accommodation shall include a joint entrance and shared messing facilities, car parking and security arrangements.

1.2.3 The Supervisor and the Contractor who are carrying out comparable duties shall be integrated into the same office

1.2.4 Complete security, privacy and confidentiality shall be ensured at all times in the room which shall be provided for the Supervisor.

1.2.5 The Principal Offices shall be newly executed, weatherproof, vermin proof and newly decorated internally.

1.2.6 No advertisements or company names shall be displayed.

1.2.7 The Principal Office shall be served by an access road and have a hard standing for use as a car park adjacent and within view.

1.2.8 Access to and from the public roads shall be executed to the requirements of the relevant roads authority.

1.2.9 The Contractor shall provide an electrical supply to the Principal Office

1.2.10 An adequate supply of chilled potable water shall be provided to the Principal Office.

1.2.11 The Contractor shall supply sanitary facilities to the Principal Office

1.2.12 A water supply shall be provided to the Principal Offices with clean running hot and cold water and all pipes and tanks to be adequately lagged.

1.2.13 Toilets shall be in the Principal Office. Each toilet shall be maintained in a clean condition. Chemical toilets will not be permitted. Wash basins and sinks shall be supplied with clean running hot and cold water, soap and clean towels.

- 1.2.14 Waste connections shall be made to the local sewer system or septic tank in accordance with Environmental Agency guidelines and to the approval of the local authority. The Contractor shall service this system during the full period of the Contract including the Defects Period.
- 1.2.15 On Substantial Completion of the Works, the Contractor shall restore all ground levels including backfilling of any sewerage treatment system.
- 1.2.16 The Contractor shall insure the contents of all offices, including goods and chattels belonging to:
- (i) the Employer
 - (ii) the Supervisor and
 - (iii) the Supervisor's Personnel
- against fire, burglary, theft and other risks ordinarily insured against.
- Minimum amount of cover as follows:
- £15,000 for any one incident with no limit on number of incidents.

2 Duration of Time Accommodation Required

- 2.1 All accommodation complete with fittings and contents, shall be ready for occupation and use from one week prior to the commencement of the Works until eight weeks after the issue and acceptance of the Construction Certificate.

3 Fittings and Furnishings of Accommodation, and other Equipment Required

3.1 Lighting and Heating

- 3.1.1 The minimum level of artificial illumination shall be 400 lux with lighting provided in all rooms and corridors. A minimum window area of 20% is required in all rooms excluding toilets and corridors. Windows shall open to provide adequate ventilation.
- 3.1.2 The principal offices shall have electric heaters with room thermostats capable of maintaining a minimum room temperature of 21°C. All heaters shall be fitted with timer units. In the event of power failures, the Contractor shall provide an alternative means of power supply (e.g. portable generators) within 2 hours.
- 3.1.3 Office units shall have a minimum standard of thermal insulation to the following levels:

Floor	0.39	W/m ² K
External Walls	0.43	W/m ² K
Roof	0.45	W/m ² K

3.2 Cleaning and Laundry

- 3.2.1 The principal offices shall be cleaned by a dedicated cleaner once per site working day (excluding Saturdays, Sundays and Bank Holidays). Cleaning shall include for the disposal of all waste including surface water and foul sewage to the requirements of the Local Authority.

- 3.2.2 The car park area shall be thoroughly cleaned weekly.
- 3.2.3 Laundering of tea towels shall be carried out on a weekly basis.
- 3.2.4 The main cleaning and services shall be carried out outside normal Site working hours.

3.3 General

- 3.3.1 The Principal Office shall comply in all respects with the provisions of the Building Regulations 2010; the Health, Safety and Welfare at Work (Construction) Regulations 2013 and any other relevant legislation.
- 3.3.2 Blinds and mesh guards shall be provided at all external windows.
- 3.3.3 Floor coverings shall be heavy-duty linoleum.
- 3.3.4 A heat and smoke detection system shall be provided in all offices and corridors.
- 3.3.5 Each office, store and toilet shall be equipped with a fire extinguisher. In addition, one fire extinguisher shall be located in the Principal compound car park, clearly marked "Fire Safety Point".
- 3.3.6 Doors shall be signed as directed.
- 3.3.7 An adequate supply of electrical sockets shall be provided. Extension leads and adapters shall be supplied on request.

3.4 Security

- 3.4.1 For the security of the Principal Office, the Contractor shall provide
 - (i) a galvanised steel palisade fence 2.4 metres high with steel posts at 2.75 metre centres and corrugated pales with triad heads
 - (ii) a 500-watt external security light, waterproofed and fitted with grills, one attached to each façade, which shall be switched from a central position and shall be controlled using a 24 hour, 7 day timer and
 - (iii) the Contractor shall supply manned security at the Principal Office out of the site working hours detailed in Appendix 1/7 of the Specification. The security personnel shall maintain records of all access taken outside of the site working hours.

3.5 Schedule of Furnishings and Fittings

- 3.5.1 The Contractor shall be responsible for the cleaning and maintenance of all equipment and instruments including the payment of all charges in connection with maintenance and repair in accordance with the maker's specification. The Contractor shall promptly replace unsatisfactory, unserviceable or damaged items. All equipment shall be supplied with plugs or batteries as appropriate. Items marked * are to be retained by the Employer.

- 3.5.2 Principal Offices - 1 room with 12 m² floor area)

- 1 Number Single pedestal desk. Minimum working top size shall be 1.8 metres x 0.75 metres. Desk shall have integral cable management system and support shall be I frame complete with modesty panel. Desk legs shall be adjustable.

- 1 Number Chair with arm rest, lumbar support.

1 Number	Cupboard, 2.0 metres high by 1.0 metres wide by 0.5 metres deep with 4 Number shelves. Lockable
1 Number	3 square metre Dry marker notice board wall mounted
5 Number	4 – tier “beanstalk” letter tray with base
6 Number	Brass finish coat hooks
1 Number	Wastepaper bin

3.5.2 Equipment

Item	Internet connection with a minimum 2Mb download speed including all necessary hardware
Item	Access to photocopier capable of reducing/enlarging/scanning and using A3/A4 paper sizes (can be shared with Contractor)

3.5.3 Kitchen Facilities (shared facilities with Contractor)

1 Number	Domestic cooker with 4 rings, separate grill and oven compartment
1 Number	Domestic fridge freezer 10 cubic foot capacity, 3* freezer
1 Number	2-litre capacity automatic electric kettle
1 Number	Microwave oven. Turntable type, 1000 Watt
1 Number	Dishwasher
1 Number	Hood and extractor fan to cooker
1 Number	3 square metre notice board wall mounted
1 Number	Work top (5 linear metres) with kitchen units incorporating sink and cupboards for food and kitchen consumables storage (see below)
1 Number	Sink unit with double drainer plumbed for hot and cold running water and connected to the foul water system
3 Number	Under sink cupboards for kitchen consumables
4 Number	Food storage cupboards
4 Number	Saucepans, various sizes
2 Number	Carrying Tray (300 by 600 millimetres)
1 Number	bin

1 Number	Fire Blanket.
Item	Supply of clean tea towels and hand towels
Item	Sufficient Mugs, cutlery (knife, fork, dessert spoon & teaspoon) for the number of persons using the kitchen

3.5.4 Site Meeting Room (to be shared with Contractor)

Adequately sized to accommodate suitable furniture and a minimum of 12 occupants

3.8 Surveying Equipment

3.8.1 The Contractor shall afford the Supervisor the use of any survey equipment available on site as required by the Supervisor.

3.9 Personal Protective equipment

3.9.1 The Contractor shall provide the Supervisor with office consumables as required by the Supervisor.

3.9.2 1No. set of the following shall be supplied new for use by the Supervisor at the commencement of the task.

- i. Band and Brace Hi-Visibility long sleeved jacket in high conspicuity yellow to EN 471:2003 Class 3
- ii. Band and Brace Hi-Visibility weather-proof jacket and over trousers, with detachable linings or thermal jackets in high conspicuity yellow to EN 471:2003 Class 3
- iii. Pair of safety wellingtons with steel toe cap and sole, to BS1870 Part 2
- iv. Pair of safety boots with steel toe cap and sole to BS 1870 Part 1
- v. Boot stockings
- vi. Pair of heavy duty rigger gloves
- vii. Safety helmet to BS 5240, coloured white with integrated eyewear approved to grade B medium energy impact
- viii. Safety helmet to BS 5240, (marked "Visitors"), coloured yellow
- ix. Pair of ear protectors.

3.10 Miscellaneous

3.10.1 The Contractor shall provide the Supervisor with office consumables as required by the Supervisor.

50m and 8m steel measuring tapes as required

Road marking aerosols (yellow) as required

APPENDIX 1/4: WORKING AND FABRICATION DRAWINGS

Table 1/4.1: Working and Fabrication Drawing Requirements

Series	Description of works	Minimum Period for submission of drawings
	All instances where, alternatives to the specification are proposed by the Contractor	5 days
400	Proposed new N1 parapet setting out and fixing details to the capping beam	4 weeks prior to installation

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

Notes:

- 1 Unless otherwise stated above, all sampling and testing in this Appendix shall be by the Contractor.
- 2 Tests comparable to those specified in this Appendix will be necessary for any equivalent work, goods or materials proposed by the Contractor.
- 3 (N) indicates that a UKAS or equivalent accredited laboratory sampling and test report or certificate is required.
- 4 Unless otherwise shown in this Appendix tests for work, goods or materials as scheduled under any one Clause are required for all such work, goods or materials in the Works.
- 5 Cube strength tests are not required for concrete complying with Clause 2602.
- 6 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.

Table 1/5: Testing to be carried out by the Contractor

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
Series 400					
402	Welding	Welding procedures (Manufacturer's tests)	(Every seven years)	Required	Requirements here are applicable only to systems not falling under the Construction Products Regulation (CPR). Quality management scheme applies
		Welder qualification (Manufacturer's tests)	As required in sub-Clause 402.6(iii)		
		Production testing (Manufacturer's tests)	As required in sub-Clause 402.6(iv)		
	Welded joints	Destructive testing	See sub-Clauses 402.6(v) and 402.6(vi)		
	Wire rope terminals	Tensile tests (Manufacturer's tests)	Annually and when production technique changed	Required	To provide evidence of tests by a testing laboratory Requirements here are applicable only to systems not falling under the CPR.
403	Anchorage and attachment systems for use in drilled holes	Ultimate tensile load (Manufacturer's tests)		Required	To provide well attested and documented evidence
404	Anchorage in drilled holes	Loading test on site	As required in contract specific Appendix 4/1	Required	
	Post foundations			Required	
406	Vehicle parapets			Required	Quality management scheme applies - applicable only to systems not falling under the CPR.
407	Anchorage and attachment systems for use in drilled holes	Ultimate tensile load (Manufacturer's test)		Required	To provide well attested and documented evidence for systems not falling under the CPR.

Table 1/5: Testing to be carried out by the Contractor Continued

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
Series 400 (Continued)					
409	Vehicle parapet posts	Production testing as specified in BS 6779-1 1998 (Amd No 14290, 21 March 2003) (Manufacturer's tests)		Required	Certification in accordance with Clause 409 is required for systems not falling under the CPR.
410	Anchorage in drilled holes	On-site tensile load test	As required in contract specific Appendix 4/1	Required	
Series 1600					
1601	Soil samples In situ soil tests			Required	
1602 to 1606 1610 to 1615	Concrete Grout Reinforcement Prestressing Steelwork Welding Protection against corrosion			Required	
1606	Coatings for protection against corrosion	Adhesion	As required in Appendix 16/6		
1607	Reduction of friction on piles				
1608 1616	Integrity testing Dynamic testing				
1609	Static load testing of piles			Required	
1612	Self hardening slurry mixes				
1617	Instrumentation				
1618	Support fluids	To be proposed by the Contractor			

Table 1/5: Testing to be carried out by the Contractor Continued

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
Series 1700					
1707	Hardened concrete – Identity testing	Cube strength (N) – as described in contract specific Appendix 17/4	Prestressed concrete- two cubes from 12 m ³ or 2 batches whichever represents the lesser volume	Required	Contractor to cast and test sufficient additional cubes to demonstrate cube strength before transfer
			Reinforced concrete- two cubes from 24 m ³ or 4 batches whichever represents the lesser volume		
1707 Cont'd			Mass concrete- two cubes from 50 m ³ or 50 batches whichever represents the lesser volume	Required	Contractor to cast and test sufficient additional cubes to demonstrate cube strength before transfer
			Additional cubes for special purposes		
			Density		
	Fresh concrete – Identity Testing	Consistence (slump or flow) (N)	Each batch	Required	
			Air content		
Density			As required		
Water/cement ratio					
1710	Concrete packing Mortar packing Epoxy resin bonding agent				
	Precast concrete not conforming to any Product Standard or to BS EN 13369	Cube strength (Manufacturer's tests)			Contractor to make available records of tests by the manufacturer. See sub-Clause 1710.8

Table 1/5: Testing to be carried out by the Contractor Continued

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
Series 1700 (Continued)					
1711	Grouting and Duct Systems for Post-tensioned tendons				Product acceptance scheme or equivalent applies
		Full scale trials, where required in the contract			See sub-Clause 1711.1 and Appendix 17/6
		Duct assembly verification tests			See sub-Clause 1711.4 and Appendix 17/6
		Fluidity	In accordance with BS EN 447 and BS EN 446		See sub-Clause 1711.2 and sub-Clause 1711.3
		Bleeding			
		Volume change			
		Cube strength			
		Sieve			
		Density			
Time Setting					
1712	Reinforcement				
	Steel bars			Required (BS 4449)	Product certification scheme or equivalent applies
	Steel wire			Required (BS 4482)	
	Steel fabric			Required (BS 4483)	
	Stainless steel			Required (BS 6744)	
1713	Fabricated reinforcement			Required (BS 8666)	Certification that fabricated reinforcement complies with the routine inspection/testing requirements of BS 8666 is required if the fabrication is not covered by a product certification scheme or equivalent
1716	Reinforcement jointing systems	Permanent elongation characteristic strength (Manufacturer's tests)		Required for each type of connection	Product acceptance scheme or equivalent applies

Table 1/5: Testing to be carried out by the Contractor Continued

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
Series 1700 (Continued)					
1717	Reinforcement – Welding	Welding procedure approval (BS EN ISO 17660)	As required in BS EN ISO 17660		Tests should be carried out by an independent testing body
		Welder approval (BS EN ISO 17660)			
1718	Prestressing tendons				Product certification scheme or equivalent applies
		Steel wire and strand		Required (BS 5896)	
		Steel bar		Required (BS 4486)	
		Prestressing steel (all types)	Proof load Breaking load Elongation Ductility Relaxation Modulus of elasticity		†
	Other than lowest strength wire or strand to BS 5896	0.1% proof load	Each reel		†
1724	Post-tensioning anchorages	Tests in accordance with BS EN 13391 (Manufacturer's tests)		Required (BS EN 13391)	Product certification scheme or equivalent applies
1726	Stainless steel bar			Required (BS 6744)	Product certification scheme or equivalent applies
1727	Inspection and testing of structures and components				

APPENDIX 1/7: SITE EXTENT AND LIMITATIONS ON USE

1 Extent of the Site

- 1.1 The extent of the site boundary/location of the work is shown on drawing number A19/DWG/CIV/S02/2000/0020. Prior to commencement of the works a fence will have been erected by the Contractor for the Crown Estate Developer that defines the site extent in relation to the construction of the sheet pile wall.
- 1.2 In addition, and subject to the agreement of Highways England and / or the Local Highway Authority and written approval of the Overseeing Organisation, the extent of the Site shall include areas required for local traffic control measures by the Contractor, as and when necessary.

2 Limitations on Use of the Site

- 2.1 The Site shall be used solely for the execution and completion of the Works including but not limited to remedying of Defects in the Works.
- 2.2 The normal working hours shall be Monday to Friday between 08:00 and 18:00 hours, and 08:00 and 14:00 hours on Saturdays with no working on Sundays and public holidays. Exceptionally, the Supervisor's written consent for work outside these hours may be given after consultation with the local planning authority. Seven days' notice shall be required from the Contractor when seeking such consent.
- 2.3 The Contractor's attention is drawn to Appendix 1/9 of the Specification concerning limitations on noise and vibration.
- 2.4 The Contractor shall ensure that all areas of land, which have been temporarily occupied, shall be reinstated to the satisfaction of the affected landowner, occupier and the relevant Authorities, Utilities, Service Providers and Private Utility Services and other Companies.
- 2.5 No area of the local highway network shall be used for parking of vehicles used by or on behalf of the Contractor. The Contractor shall not obstruct any lane, road junction vehicular or pedestrian access.
- 2.6 The Contractor, his agents, servants or workmen shall not erect nor allow his sub-contractors, their agents, servants, or workmen to erect within the Site any advertisement. Should any advertisement be erected without such approval, the Project Manager shall have power to order in writing the Contractor to remove it forthwith. If the Contractor shall fail to comply with such order within 24 hours of its delivery to him, the Employer shall be entitled to employ and pay other persons to carry out the same and all expenses consequent thereon or incidental thereto shall be borne by the Contractor and shall be recoverable from him by the Employer or may be deducted by the Employer from any monies due or which become due to the Contractor.
- 2.7 The Contractor, or any agent or servant in his employ shall not give any information concerning the Works for publication in the press or broadcast on radio, television, cinema screen, or elsewhere without the written approval of the Overseeing Organisation.

- 2.8 The Contractor shall prevent trespass by his own or his sub-contractor's employees onto any property adjoining the Site defined for the sheet piling works.
- 2.9 The Contractor shall ensure that no steps, ladders or other plant are left accessible so as to permit unauthorized access to the Works.
- 2.10 The Contractor shall maintain the Site defined for the sheet piling works in a clean and tidy state by removing rubbish and other debris arising from the works to a tip off Site. All materials and plant for the Works shall be stored neatly. On completion of the works the Contractor shall remove all surplus materials and leave the Site in a clean and tidy condition.
- 2.11 The programming of any remedial works required after the actual Completion Date for a Task Order shall be agreed with the Project Manager before commencement of those works.
- 2.12 Each goods vehicle used by the Contractor or his Subcontractors in connection with the contract shall display the vehicle license disc relevant to the goods operator's license under which the vehicle is operated or, in the absence of an operator's license disc, shall carry documentation giving the operator's license number, name, and address.
- 2.13 Liquid storage - All oil or chemical storage containers/drums including any such waste materials shall be stored in a compound with an impervious base with the floor constructed in such a manner that the contents of the largest container/drum are retained in the vent of a spillage. All waste materials such as oils, solvents, slurries or chemicals shall be disposed of at a site licensed to receive such materials.
- 2.14 Liquid storage - Any oil or liquid chemical storage tanks shall be located within a bund having a capacity of not less than 110% of the largest tank or the combined tank volume if a number of tanks are interconnected. The floor and walls of the bund shall be impervious to water and the stored liquid and all inlet, outlet and vent pipes and gauges shall be agreed in writing by the County Planning Authority for the disposal of any contaminated water within the bund.
- 2.30 This shall be followed by the submission of written proposals for the preservation in situ, or for the investigation, recording and recovery of archaeological remains and the analysis and publishing of the findings, it being understood that there shall be a presumption in favour of their preservation in situ wherever feasible. These proposals shall be approved by the LPA in writing, and implemented before any development authorised by this permission shall commence.

3 Availability

- 3.1 Availability is subject to the specific requirements in the schedule of constraints in Appendix 1/13.
- 3.2 The Contractor shall be aware of the constraints imposed on the availability of specific areas of the Site by the proposed gas main diversion. For further details refer to Numbered Appendices 1/13 and 1/16.
- 3.3 The Contractor shall ensure that, in order to mitigate any potential complaints due to the nuisance of the works, any properties within 250m of the site extents are letter-dropped a minimum of 5 days prior to

commencement of the works or any changes to the normal working hours. The letter shall provide details of the date, working hours and nature of the works as well as a contact name and telephone number.

- 3.4 The content of any letter or advertisement is to be approved by the Project Manager prior to publication or issuing.
- 3.5 The contact number given in any letter-drops shall be manned during all working hours.
- 3.6 Copies of the letters issued by letter-drop shall be given to the Local Authority. Contacts detailed to be provided by the Overseeing Organisation.
- 3.7 There shall be no establishment of a site compound, site clearance, demolition, excavation or depositing of material in connection with the construction of the development on site until proposals have been submitted to and approved in writing by the Overseeing Organisation, for the provision of:
- (i) appropriately located parking capable of accommodating all staff and sub-contractors vehicles clear of the operational public highway;
 - (ii) appropriately located materials storage area(s) capable of accommodating all materials required for the operation of the site.
- 3.8 The approved areas listed in 3.7 above shall be kept available for their intended use at all times that the construction works are in operation. No vehicles associated with on-site construction works shall be parked on the operational public highway or outside the application site.

4 Access

- 4.1 Access to and from the Site shall be from the highway network only. There shall be no establishment of a site compound, site clearance, demolition, excavation or depositing of material in connection on the site until details of the routes to be used by HGV construction traffic have been submitted to and approved in writing by the Overseeing Organisation. Thereafter the approved routes shall be used by all vehicles connected with the construction site.
- 4.2 There shall be no access or egress by any vehicles between the public highway and the site until details of precautions to be taken to prevent the deposit of mud, grit and dirt on public highways by vehicles travelling to and from the site have been submitted to and approved by the Overseeing Organisation. These precautions, including wheel washing facilities, shall be made available before any excavation or depositing of material in connection with the construction commences on the site and be kept available and in full working order until a paved surface has been provided for use by site vehicles.

APPENDIX 1/9: CONTROL OF NOISE AND VIBRATION

1 General

1.1 The Local Authority having responsibility for the area is:

North Tyneside Council, Environmental Health,

Public Protection Services, Quadrant (East), Silverlink North,

Cobalt Business Park, North Tyneside, NE27 0BY

Tel: 0191 6436100

Email: environmental.health@northtyneside.gov.uk

1.2 The measures detailed in this Appendix are given as a guide; however it is for the Contractor to decide whether to seek the Local Authority's formal consent to his proposed methods of work and to the steps he proposes in order to minimise noise.

2 Restrictions on Working Hours

2.1 Normal working hours on Site shall be as given in Appendix 1/7 of the Specification.

3 Noise

3.1 The Contractor shall consult with the Local Authority with regards to his proposed methods of Works, the plant and equipment to be utilised, the phasing of the operations and the steps he proposes in order to minimise noise. The Contractor shall obtain the written agreement of the Local Authority prior to the commencement of Works on the Site to such methods and steps, and shall obtain consents or other approvals where required by the Local Authority.

3.2 Prior to the commencement of any Works in connection with the project, the Contractor shall submit a formal Section 61 application under Part III of the Control of Pollution Act 1974 to the local Environmental Health Department. No Works shall commence on Site until the local Environmental Health Department shall have approved the Section 61 application, subject to such conditions as they consider reasonable.

3.3 Once approved, the Section 61 Consent shall be complied with in full; any amendments to the methods of operation required as the project progresses shall be discussed with the local Environmental Health Department, and their agreement in writing shall be gained prior to any variations taking place.

3.4 It is for the Contractor to agree the measurement locations in detail with the Local Authority, together with the measurement frequency and duration of measurement exercises. The Contractor shall take cognisance of the following locations that were used for pre-construction noise monitoring:

- (i) Silverdale School.
- (ii) Dwellings in Tiverton Close.
- (iii) Dwellings in Melrose Gardens.

- (iv) Dwellings in Henley Gardens.
- (v) McDonalds.
- (vi) Travelodge Hotel (currently vacant).
- (vii) Dwellings in Blakhill Avenue.
- (viii) Dwellings in Bewick Park.

3.5 In order to ensure that the Works progress within the noise limits noted above, the Contractor shall arrange to undertake noise measurement during the Works. All measurements shall be undertaken by a Noise Specialist who is a full member of the Institute of Acoustics, with relevant post qualification experience in noise assessment. This Noise Specialist shall also be involved in the investigation of complaints, should any occur.

4 Vibration

- 4.1 The use of explosives is not permitted.
- 4.2 The Contractor shall select and utilise methods of working and items of plant so that the maximum measured ground vibrations do not exceed a peak particle velocity of 1mm per second at any occupied property and 3mm per second at any other property or structural element.
- 4.3 In exceptional circumstances the Contractor may exceed the specified limit of ground vibration, providing the Contractor demonstrates that he intends to take all reasonable measures to mitigate the nuisance and obtains the prior written approval of the Local Authority and the Project Manager.
- 4.4 The Contractor shall provide instrumentation suitable for monitoring vibration if any of the following occur:
 - (i) There is reasonable concern that the limits might be exceeded.
 - (ii) There are complaints from the public.
 - (iii) When required by the Supervisor.
- 4.5 Such monitoring shall include locations outside the limits of the Site, and shall be undertaken by the Noise Specialist noted above to be engaged on the project.

APPENDIX 1/11: TEMPORARY WORKS DESIGN

1. The Contractor is responsible for the design and installation of all temporary works to complete the permanent works. This shall include:
 - Design of the temporary platform upon which the piling rig shall operate.
 - Any protection requirements to excavated faces

APPENDIX 1/12: SETTING OUT AND EXISTING GROUND LEVELS

1. The setting out of the Works and proposed levels are shown on the drawings listed in Appendix 0/4 of the Specification.
2. The Contractor shall be responsible for the setting out of all parts of the works including all information necessary to allow this to be set out properly.
3. The Contractors attention is drawn to the following critical setting details, details of which shall be provided to the Project Manager for review.
 - Proposed Line and level of the sheet pile wall
 - Line and level of the proposed capping beam to the sheet pile wall
 - Line of the proposed N1 parapet to be fixed to the capping beam. As specified in Appendix 1/4 the contractor shall submit details of the proposed post fixing positions to the new capping beam.
4. A topographical survey has been undertaken of the site and this has been used to define the location of the works by co-ordinates relative to a local grid. The design of the proposed works has been undertaken in MX and Genio models of the existing and proposed models and a CD copy of Setting out Information in the form of Auto Cad 3D will be supplied to the Contractor. Permanent ground markers used in undertaking the topographical survey are identified and referenced on Drawing DWG-0100-03.
5. The Project Manager is to be afforded the opportunity to inspect / check all aspects of setting out for the proposed works. The Contractor shall provide at least 24 hours' notice to the Project Manager to allow for the inspection / checking of setting out information.
6. Permanent ground markers and Secondary markers established by the Contractor to set out parts of the works shall be carefully preserved and protected against damage. Where the destruction or disturbance of a permanent marker becomes necessary the Contractor shall notify the Project Manager of his intention to render the marker unserviceable. Such a marker shall be replaced by a new marker at an agreed adjacent location. The Contractor shall submit to the Project Manager original field sheets and calculations to establish the co-ordinates and level of the replacement marker before the original marker is made unserviceable. Permanent ground markers used in undertaking the topographical survey are identified and referenced within the Survey.
7. As soon as possible after commencement of the Works the Contractor shall check the existing permanent ground markers established to carry out the topographical survey for position and level, and provide chainage markers at 10 metre intervals over the full length of the proposed works.
8. The Contractor shall report any errors, discrepancies or ambiguities or lack of fit of the works prior to commencement of the works.
9. Setting out pegs shall be colour coded according to their purpose using a colour code to be approved by the Project Manager. Any marking paints used by the Contractor shall be lead free and not use chloro-fluorocarbons. The Contractor shall exercise care in the use of site marking paint to avoid the permanent disfigurement of walls, fences, paving etc.
10. Measures to protect Statutory Undertakers equipment in accordance with their requirements will be required where they conflict with the Works.

APPENDIX 1/13: PROGRAMME OF WORKS

1 Form of Programme

- 1.1 The Contractor shall provide the programme in a form of a bar chart produced as a result of a 'critical path analysis' and must abide by the constraints below. It shall show the level of detail appropriate to each stage of the Works and all activities and restraints, 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 list the start and end times of all shifts planned for each working day.
- 1.2 The programme is to be supplied on paper and in Microsoft Project format. All revision/updates to the above stated programme shall be supplied in hardcopy and digital formats to the Supervisor.

2. Schedule of Constraints

- 2.1 The constraints stated below shall not be considered exhaustive and all other constraints suggested or implied within the Contract or required by the Contractor for whatsoever reason including but not limited to following his inspection of the Site shall be taken into account by him in producing his programme.
- 2.2 The Contractor shall allow sufficient time within his programme of Works to allow for the written consent by the Supervisor of sub-contractors and all other approvals, acknowledgements of receipt and the like as shall be required in accordance with the provisions of the Contract.
- 2.3 The start date for the Phase 1 of the sheet piling works as identified on Drawing A19/DWG/CIV/S02/2000/0020 is the 21st September 2015. The Contractor shall not take possession of any part of the Site prior to this date unless agreed in writing with the Project Manager.
- 2.4 Phase 1 of the sheet piling works as identified on Drawing A19/DWG/CIV/S02/2000/0020 shall be completed by 18:00 hours on Friday 30th October 2015.
- 2.5 Phase 2 of the sheet piling works as identified on Drawing A19/DWG/CIV/S02/2000/0020 shall commence on 8th February 2016 and be completed by 18:00 hours on Friday 18th March 2016.
- 2.6 The hours of working for the Site shall be;
- **Monday to Friday – 08:00 to 18:00**
 - **Saturday – 08:00 to 14:00**
- 2.7 No driving of sheet piles shall be undertaken on a Saturday.
- 2.8 Limitations on the use of the Site are given in Appendix 1/7.
- 2.9 Requirements for liaison with public and other bodies are given in Appendices 1/7, 1/9 and 1/17.
- 2.10 The requirements of Appendix 1/9 shall be observed with respect to noise and vibration.

- 2.11 The Contractor shall allow for other works by third parties that may take place within or adjacent to the site. Such works may include but not be limited to;
- 2.12 There are no restrictions arising from the use of substances hazardous to health.
- 2.13 There is no requirement for the provision of environmental protection prior to the main construction operations (environmental barriers, etc.).
- 2.14 There is no requirement for trials and demonstrations in advance of main construction.
- 2.15 Submission by the Contractor of road restraint systems for acceptance, including awaiting acceptance and resubmission shall be as defined in Appendices 1/4, 1/11 and 4/1.
- 2.16 The schedule of testing of materials shall be as defined within Numbered Appendix 1/5 unless defined within a specific Numbered Appendix.
- 2.17 The Contractor shall give the Project Manager not less than 24 hours' notice in writing of his intentions to commence any item of work to enable the Project Manager to make his arrangements for carrying out his supervision and inspections.
- 2.18 4 working hours' notice is required for each inspection request unless otherwise specified.

APPENDIX 1/14: PAYMENT APPLICATIONS

- 1 The payment applications submitted in accordance with the Conditions of Contract by the Contractor shall, whenever dealing with matters covered by Activity Schedules, be set out under group headings similar to those in the Activity Schedules and shall separately identify each activity and specify activity price, percentage completed and value (either 0% or 100% of activity price).

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

- 1.1 This Appendix contains details of services and supplies affected by the Works, details of preliminary arrangements that have been made with Statutory Undertakers, utility companies and others for the alteration of services and supplies affected by the Works, and details of any orders already placed. Refer to drawing no. A19/DWG/CIV/S02/2000/0028-0030 for details of services located within the vicinity of the proposed works.
- 1.2 The Contractor shall make arrangements with the Statutory Undertakers, utility companies and others concerned, for the co-ordination of his work with all work which needs to be done by them or their contractors concurrently with the Works. Compliance with the periods of notice given in this Appendix does not relieve the Contractor of his obligations.
- 1.3 Private services to individual properties have not generally been listed or shown on the Drawings. 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.
- 1.4 The names, addresses and contact details of the Statutory Undertakers, utility companies and authorities serving in the locality are listed below.

Table 1/16.1: List of Statutory Undertakers, utility companies and Authorities

Names	Address	Contact Details
BT Openreach	PP 4AB Newcastle Central TE Carloli Square Newcastle Tyne and Wear NE 1BB	
Northumbrian Water Ltd.	Leat House Pattinson Road District 15 Washington Tyne Upon Wear NE38 8LB	
Northern Powergrid (North East) Ltd.	New York Road Shiremoor Newcastle upon Tyne NE27 0LP	

Table 1/16.1: List of Statutory Undertakers, utility companies and Authorities Continued

Names	Address	Contact Details
Northern Gas Networks	1100 Century Way Thorpe Park Business Park Colton, Leeds LS15 8TU	
Northern Gas Networks	1100 Century Way Thorpe Park Business Park Colton, Leeds LS15 8TU	
Virgin Media	Diversionsary Works Team Access Network Planning 1 Dove Wynd Strathclyde Business Park Bellshill, ML4 3AL	
A-one+ Area 14 MAC	Unit A Derwenthaugh Industrial Estate Derwenthaugh Road Swalwell Tyne & Wear NE16 3BQ.	
Atkins Telecoms For: Cable/ Wireless & Energis Communications	The Hub, 500 Park Avenue, Almondsbury, Bristol, BS32 4RZ	
Environment Agency	North East Team Tyneside House Skinnerburn Road Newcastle-upon- Tyne, NE4 7AR	

Table 1/16.1: List of Statutory Undertakers, utility companies and Authorities Continued

Names	Address	Contact Details
INSTALCOM Specialists in Civils & Cabling Installation	Plant Protection Administrator Instalcom House Borehamwood WD6 1QH	
North East Technology MAC Amey LG Ltd.	The Sherard Building Oxford Science Park Edmund Halley Road Oxford, OX4 4DQ	
SSE – Scottish and Southern Contracting Group	Unit 7 Franklin Industrial Estate Blaydon Tyne & Wear NE21 5TL	
North Tyneside Council	Community Services Directorate The Silverlink North Cobalt Business Park North Tyneside NE27 0BY	

1.5 The following services and supplies are affected by the Works:

Table 1/16.2: List of Services and Supplies affected by the Works Continued

Location	Description	Group*	Drawing No.	Details
A19 Southbound Diverge Slip Road	Divert existing intermediate pressure gas main	C	Refer to relevant NGN diversion drawings as detailed in Appendix 0/3	Diversion to be designed and installed by NGN.

*

- A Work expected to be completed before the commencement of the Works.
- B Work required after commencement of the Works which does not require prior work by the Contractor, but does require the Contractor to undertake liaison and coordination.
- C Work required after commencement of the Works which does require prior work by the Contractor.
- D Work expected to be in progress at the commencement of the Works.
- E Work to be wholly undertaken by the Contractor.

APPENDIX 1/23: RISKS TO HEALTH AND SAFETY

1. General

- 1.1 The COSHH regulations shall be strictly enforced on handling and use of any hazardous material.
- 1.2 The Contractor shall take all reasonable steps to prevent members of the public being affected by substances hazardous to health such as existing pavement tars, saline, bridge deck waterproofing systems, paints, ground, air or water borne contaminants or any other hazardous substances due to any operation.
- 1.3 The Contractor shall inform the Project Manager at all stages of his proposed actions in respect of dealing with hazardous substances. The Contractor shall provide the Project Manager with copies of his assessments undertaken in accordance with COSHH and other relevant regulations, together with written details of his proposals for implementing the requirements of this Appendix.

2. Restrictions in relation to traffic management measures

- 2.1 The Contractor shall maintain all traffic movements when planning measures to protect the public from substances hazardous to health.

3. Restrictions in relation to working practices

- 3.1 The Contractor shall make available all necessary personal protective equipment and other safety equipment necessary for the protection of persons who may be exposed to hazardous substances in connection with the Works. The Contractor shall ensure that all of his staff and sub-contractor's staff requiring such protection are fully trained in the use of the equipment and that the appropriate equipment is used by such persons when there is a risk of exposure to substances hazardous to health.
- 3.2 Materials containing isocyanurates shall only be sprayed by operatives wearing suitable respiratory equipment as recommended by the manufacturer and approved by the Project Manager. No person shall enter the 'area of spray application' without suitable respiratory equipment. The 'area of spray application' shall be defined as an ellipsoidal area 4 metres up-wind, 4 metres to each side and 10 metres down-wind of the spray gun.
- 3.3 In cases where this ellipsoidal shape extends over an adjacent trafficked carriageway special precautions will be required. If traffic within the 'area of spray application' comes to a standstill or is travelling at a speed lower than 20mph, spraying of materials containing isocyanurates shall immediately cease.
- 3.4 On roads, which have permitted pedestrian access, no member of the public shall be allowed to enter the 'area of spray application'. This shall be achieved either by signing a temporary diversion route or by stationing two responsible members of the Contractor's staff at a safe distance from the works (one at each end of the area of spray application) in radio communication with the spray applicator. The spray applicator shall be instructed to cease spraying as soon as practicable and a period of at least 3 minutes shall elapse before allowing pedestrians to pass the works

- 3.5 Work shall be curtailed where wind causes spreading of hazardous deposits.
- 3.6 Free floating dust shall be kept to a minimum and if required by the Project Manager shall be dampened with water sprays.
- 3.7 Plant should be sited and screened where necessary to minimise dust emission to adjoining areas.
- 3.8 All stockpiles should be covered to prevent the generation of dust.
- 3.9 The Contractor shall take all measures necessary to prevent spillage on to roads adjoining the site and shall prevent mud from the site being carried on to the highway.
- 3.10 Details of noise and vibration restrictions and working hours are given in Appendix 1/9.
- 3.11 The Contractor shall take appropriate measures to check all substances that may be hazardous to health which include:
 - (ii) Dust, fumes and smoke created during the removal of road markings
 - (iii) Any dust in substantial concentrations
- 3.12 Substantial concentrations shall be taken as one of the following;
 - (i) A concentration of 10mg/m³, 8 hour time-weighted average, of total inhalable* dust or;
 - (ii) A concentration of 3mg/m³, 8 hour time-weighted average, of total respirable* dust where there is no need for a lower value.

* see current edition of Health and Safety Executive Guidance Note EH40 Occupational Exposure Limits for explanation of "inhalable" and "respirable" dust.

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

- 4.1 Measures to be taken to protect members of the public are detailed in the following table. Adequate warning signs shall be provided as necessary.

Table 1/23.1: Measures to be taken to protect members of Public Continued

<u>Substance</u>	<u>Hazard</u>	<u>Operation</u>	<u>Special Measures</u>
Phenolic, alkyd and acrylated rubber paints	Harmful/flam mable	Coating to steel	Erect signs, barriers and screens to protect from overspray. Restrict access until dry.
Bitumen joint sealing compounds		Sealing joints	Site pre heaters away from public. Restrict access during use and until set.
Cementitious mortars and grout	Irritant	Grouting, bedding concrete repair	Restrict access during application & until set
Concrete	Irritant	General construction	Restrict access during application & until set
Dust generated cutting concrete	Irritant	Cutting cement products	Restrict access during cutting.
Concrete curing agents	Flammable/h armful	Curing Concrete	Restrict access during use and until dry.
Silane	Harmful	impregnation of concrete	Restrict access, erect screens to protect public
Dust generated during the cutting of hard woods	Harmful	Cutting/sanding	Restrict access during cutting/sanding operations
Epoxy based paints	Flammable/h armful	Coatings to street lights	Erect signs, barriers and screens to protect from overspray. Restrict access until dry.
Galvanising Paints	Flammable/h armful	Coatings to parapets etc.	Restrict access during application
Asphaltic materials - Coated roadstone	Harmful	Highway construction	Restrict access during laying and until set.
Thermoplastic	Harmful	Line marking	Site preheaters well away from public, restrict access during application and until dried.
Cement	Irritant	General Construction	Restrict access during mixing and application until dried
Bitumen	Harmful	Tack coat, Bridge Deck Waterproofing	Restrict access during application & until set.
Treated timber	Low	Fencing, environmental barriers	Restrict access if timber wet and when cutting or sanding
Dust generated during the cutting of soft woods	Low	Fencing, environmental barriers	Restrict access during cutting/sanding operations
Dust generated during cutting of macadams and asphalts	Low	Cutting	Restrict access while cutting
Siliceous material	Low	Earthworks	Damp down, control operations and site traffic
Dust generated during milling/planing	Harmful	Milling/Planing	Restrict access during milling/planing operations
Flying debris	Harmful	Excavation, milling, hydrodemolition, etc.	Restrict access, erect screens
High Pressure Water	Harmful	Hydrodemolition	Restrict access, erect screens to work areas and hosing to protect public from jets. Emergency plan for equipment failures
Spray, waste water	Low	Hydrodemolition	Adequate screening, water seals on overhead gantries, etc. Emergency plan for seal failures etc.

- 4.2 Additional measures to be taken to protect members of the public. The Contractor shall advise the Project Manager of the measures he proposes to undertake to safeguard the general public and the owners and occupiers of properties adjacent to the Works from the effects of hazardous materials.

5. Monitoring to be undertaken by the Contractor

- 5.1 The Contractor shall monitor fumes produced adjacent to public areas. All proprietary products shall be used strictly in accordance with the manufacturer's instructions.
- 5.2 Depending on the substances and processes, air quality monitoring may be required where traffic, pedestrians or properties are adjacent to or close to the works.

6 Note

- 6.1 It should be noted that nothing contained in this Appendix shall relieve the Contractor of his obligations under the Contract.

APPENDIX 1/24: QUALITY MANAGEMENT SYSTEM

1. General

- 1.1 The Contractor shall institute and operate a quality management system complying with BS EN ISO 9001 and Clause 104. The Quality Plan shall be submitted to the Project Manager for acceptance not later than twenty one days after award of the Contract.
- 1.2 The Contractor shall submit method statements etc. prior to commencement of any related work or activity and to a timetable included in the Quality Plan.
- 1.3 The Quality Plan shall include details on the following as a minimum:
- (i) Contractor's Organisation and Management.
 - a. Including the organisation of the contract, line command and communication links between parties involved in the Contract on and off site.
 - b. Names, roles, responsibilities and authority of principals and key personnel.
 - (ii) Identification of the parts of the Contractor's Quality Management System relevant to the Works.
 - (iii) Supply Chain Management
 - a. Including details of control and communications processes, assessment of the supplier's and subcontractor's quality management systems and quality control capabilities, monitoring arrangements, review and acceptance of work items being undertaken by the subcontractor or supplier.
 - b. Details and scheduling of Quality Plans required by relevant National Highways Sector Schemes or other quality management schemes.
 - c. Details of registration to relevant National Highway Sector Schemes or other quality management schemes.
 - (iv) Document Control
 - a. Controls relevant to the Works, including the control and processing of testing results, materials and workmanship certification and quality records
 - b. The management of quality records as required in sub-Clause 104.7
 - c. The control and scheduling of all documentation to be submitted to the Project Manager as required by the Specification throughout the Works.
 - (v) Resource Management
 - a. Including details of relevant skills and experience of personnel involved in the Works.
 - b. The relevant training and/or competency assessment certificates and/or registration/skills cards as required by sub-Clause 104.10 or scheduling of when they will be provided.

- (vi) Method Statements
 - a. Method Statements for initial items of work and scheduling for all other method statements required.
 - b. This scheduling shall include times for submission of method statements such that they are submitted a minimum of fourteen days prior to the commencement of the relevant work.
- (vii) Contractors Hold Points
 - a. points where no further work shall proceed without the written approval of a designated person of the Contractor's management, who shall be named in the Quality Plan
- (viii) Employer's Hold Points
 - a. points where no further work shall proceed without the written approval of a designated representative of the Project Manager.

2 Contractor's Organisation and Management

2.1 This section of the Quality Plan shall include:

- (i) Definition of the Contract and its documentation.
- (ii) The organisation of the Contract, including the line of command and communication links between parties involved in the Task Order. [An annotated chart is an effective means of illustrating the organisational relationships]
- (iii) Names, roles, responsibilities and authority of principals and key personnel. [These will include the roles commonly attributed to the Contracts Manager, Site Agent/Contractor's Project Manager, Management Representative for Quality, Sub-agents, General Foreman, foreman, Chief and Senior Engineers and Quantity Surveyor.]
- (iv) Control of liaison and meetings with third parties. [e.g. meetings with the police, statutory undertakers, local authorities, landowners and others.]
- (v) Identification of the Contractor's own staff responsible for overseeing each major activity. [Particular reference is to be made to the main Contractor's staff responsible for subcontracted activities.]
- (vi) The main Contractor's control of subcontracts. [This must include the assessment of the subcontractor's quality assurance and quality control capabilities, the identification and implementation of additional controls needed on them to fulfil the Contractor's obligations in respect of quality assurance, monitoring arrangements and the review and acceptance of 'deliverables'.]
- (vii) Document control.
- (viii) Programme for submission of method statements and Organisations' Quality Plans.

- 2.2 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. [Adequate time shall be allowed for the Project Manager to examine these plans prior to commencement of the activity.]
- (i) The quality plans for subcontractors and suppliers of work, goods and materials which are the subject of quality management schemes. [(11/03) Organisations' Quality Plans are required for schemes listed in Appendix A of the SHW. Organizations' Quality Plans should be based on the model.]
 - (ii) Procedure for the preparation, review and adjustment of programmes for the effective progression of the Works and the recording of this.
 - (iii) Control and approval of purchases of materials.
 - (iv) Control of off-site activities (where appropriate).
 - (v) Procedures for the regular review and recording by the Contractor of the quality of the Works.
 - (vi) Control of personnel selection, based on their care, skill and experience.
 - (vii) Management review/audits to monitor and exercise adequate control over the implementation of the quality plan.
 - (viii) Any other relevant item.

3 Contractor's Method Statements and Construction Procedures

- 3.1 This section of the Quality Plan shall include:
- (i) Detailed method statements for each major activity whether directly controlled or subcontracted. The method statements shall identify hold points and invoke the following for all activities that might affect the quality of the permanent and temporary works.
 - work instructions
 - quality control procedures
 - compliance testing/inspection arrangements
 - and work acceptance procedures
 - (ii) Method statements are required for the following principal activities
 - Driving of sheet piles
 - Provision of road restraint system
 - Provision of capping beam
 - (iii) Method statements may be quite brief but should describe each stage of the construction, identify the plant and materials to be used, temporary works, safety measures, working space considerations, and where appropriate the requirements for skilled labour and/or special supervision etc.

- (iv) Where work is subject to environmental control, e.g. temperature, noise control, working hours, traffic conditions etc., these should be stated.
- (v) Hold points should be identified i.e. the stages at which checks are necessary before continuing. The authority for release of the hold point shall be identified.]
- (vi) Identify the relevant construction procedures in the Contractor's own Quality Management System (and provide copies on request). [These procedures invoked by method statements will typically include, from the quality controls required by the contractor's construction quality control:
 - Control, identification and traceability of materials, including any material or samples temporarily or otherwise removed from site for testing or other reasons.
 - Procedure for the prevention of inadvertent use, installation or covering up of non-conforming work.
 - Other corporate and/or Task specific work instructions to be applied.]

4 Contractor's Construction Quality Control

4.1 This section of the Quality Plan shall include:

- (i) Statement of the Contractor's organisation for quality control. 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. These statements will normally be expected to include:
 - the responsibility for the initiation and updating of the Quality Plan.
 - responsibility of the 'Management Representative' for quality for monitoring compliance with it.
 - responsibility for the adequacy of the quality records produced.]
- (ii) Arrangements for 'receiving' and 'in-process' testing.
- (iii) Control of test laboratories.
- (iv) Control of test, measuring and inspection equipment.
- (v) Document control. These controls should include their identification, traceability requirements, control of document issues and their status. They should also include the control of documents recording the verification review, approval, release and amendment of the works.]
- (vi) Procedure for monitoring and recording the inspection, test and approval status of the constructed/installed work. [These should also identify 'hold points'.]
- (vii) 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 Task Order documents. [These procedures should identify the proforma and/or database to be used for recording the inspection and test results, and the proforma to be used for recording the certification of compliance of all items of the Works by authorised key personnel. Each submission should be separately identified.]

- (viii) Procedure for the review of work submitted for review but not accepted as conforming to the Task Order documents. [These procedures should include options for identification of non-conforming work and proposals for reworking and remedial work.]
- (ix) Procedure for the collation of quality records as identified in BS EN ISO 9001 and provision of copies when requested by the Project Manager. [Reference should be made to those records listed in the SHW Appendix H.]

5 Organisations' Quality Plans

5.1 The Quality Plan shall include:

- (i) Definition of the product or service to be provided.
 - (ii) 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. [(11/03). An annotated chart is an effective means of illustrating the organisation structure. This must address all activities, including those sublet. Names of any subcontractors and organisations involved in the production shall be provided.]
 - (iii) *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 Project Manager on request). [(11/03) It is important for the Overseeing Organization to be aware of the Organisation's quality control procedures, in order to decide on its own level of inspection and testing.]
 - (iv) 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. [(11/03) The Organizations shall provide evidence that the training and experience requirements given in the appropriate Quality Assessment Schedule are being met. CVs may be appropriate.]

5.2 Specific procedures for the following:

- (i) *Receipt and examination of certificates of conformity and test results for purchased products.
- (ii) *Product identification and traceability. [Each piece or bundle of delivered product shall be indelibly marked and where appropriate, the lot identification shall be included on each package.]

*Handling, storage, packaging and delivery to site and storage and handling on Site. [Instructions for repair of damaged products may be needed.]
- (iv) Quality records. [These shall include documents to demonstrate,

the achievement of the requirement standard, e.g. site logs, records of visits, records of verification, review and release, certificates of conformity and records of all design modifications to products and specifications.]

Items marked * where available and appropriate, copies of the Organisation's quality system/general procedures may be acceptable.

6 Supply of Information to the Overseeing Organisation

6.1 Items 2, 4 and 5 of the Quality Plan as detailed above shall be submitted to the Project Manager for its acceptance not later than 21 days after award of the Task Order.

6.2 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).

APPENDIX 4/1: ROAD RESTRAINT SYSTEMS (VEHICLE AND PEDESTRIAN)

1 Location:

1.1 Vehicle Restraint Systems

- (i) The location, Containment Level, Impact Severity Level (ISL), and Working Width Class requirements for vehicle parapets are shown on drawing no. A19/DWG/CIV/S02/2000/0023

1.2 Pedestrian Restraint Systems

None

2 Other Details:

Vehicle Parapets Including Anchorages and Attachment Systems

- 2.1 The Contractor shall comply with the requirements of Clauses 401 and 406 of the Specification of Highway Works.
- 2.2 The Contractor shall ensure the proposed parapet fixing locations are such that they do not encroach with 500mm of the ends/joints between adjacent capping beam sections.

3 Testing

Destructive Testing

- 3.1 The Contractor shall provide copies of certified reports of destructive tests as required by Clauses 402.6(v) and 408 of the Specification for Highway Works before any such item is installed in the Works.

Site Testing on Post Foundations

- 3.2 The Contractor shall comply with the requirements for site load tests on safety barrier, terminal and transition post foundations in accordance with Clause 404 of the Specification for Highway Works.

Inspection and Testing of Vehicle Parapet Posts

- 3.3 The Contractor shall comply with the requirements of Clause 409 of the Specification for Highways Works.

Site Testing on Anchorages in Drilled Holes

- 3.5 The Contractor shall comply with the requirements of Clause 404 and 410 of the Specification for Highways Works.

4. Schedule of Road Restraint Systems (Vehicle and Pedestrian)

Location	Start Chainage (m)	Finish Chainage (m)	Type of Road Restraint System	Containment Level	Impact Severity Level (ISL)	Working Width Class	Other Requirements / Comments
A19 Silverlink S/B Offslip and the adjacent Crown Estate Development Site	CH 1270	CH 1450	Vehicle Parapet	N1	A	W1/W2	Refer to Drawing No. A19/DWG/CIV/S02/2000/0023 System to incorporate a anti climb infill mesh.

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

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

EUROPEAN COMMITTEE FOR STANDARDIZATION (CEN) COMPLIANCE¹

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

1. Test report in accordance with BS EN1317-1, clause 9 (and including any additional test data required under BS EN 1317-3, clauses 7.3 and 7.4 and DD ENV 1317-4:2002, clauses 7.3 and 7.4).
2. Video / high speed film of test annotated showing date, test number and performance class.
3. Still photographs of complete installation including anchorage points.
4. Still photographs of vehicle before and after impact.
5. Full drawings of tested items.
6. Certification from the manufacturer that the item tested complies with drawings supplied.
7. Certificate from test house accredited in accordance with the requirements of Series 400 (MCHW 1.400).

Additional information, which will be required on acceptance of initial type test prior to installation.

8. Manufacturer's specification.
9. Installation drawings.
10. Manufacturer's installation instructions including foundation requirements and test methods to verify their performance.
11. Manufacturer's repair and maintenance manual.
12. Certificate of compliance with the Quality Management Scheme 1 for the Manufacture of Fencing Components.²
13. Compliance with the Quality Management Sector Scheme 2 - Supply and Installation of Fences:
 - (i) Sector Scheme 2B for Vehicle Restraint Systems.²
14. Certificate of compliance for the Quality Management Sector Scheme 5 for the Manufacture and Installation of Bridge Parapets and Cradle Anchorages.³
 - (i) Sector Scheme 5A for the Manufacture of Parapets for Road Restraint Systems; and
 - (ii) Sector Scheme 5B for the Installation of Parapets for Road Restraint Systems.
15. Nominal loads (direct forces, moments and co-existent shears) to be transferred from the parapet to the structure or foundation.^{2 & 3}

Notes:

1. All documents, which are not in English, will have to be translated. If they are in a language other than French or German the promoter will be required to supply a full translation.
2. Items 12 and 13 are required for safety barrier systems and transitions
3. Items 14 and, 15 are required for vehicle parapets. See also Note 1 under Sector Scheme B in Appendix A of the Specification for Highway Works.

Sheet 1 of 4

SUBMISSION FOR COMPLIANCE WITH BS EN 1317-1, BS EN 1317-2, BS EN 1317-3 and DD ENV 1317-4:2002			
TYPE OF VEHICLE RESTRAINT SYSTEM:			
CONTAINMENT PERFORMANCE CLASS/PERFORMANCE LEVEL/PERFORMANCE CLASS (*):			
TEST REPORT NUMBER:		(Test of)	
Test Type: (Primary/Complementary Test) (*)			
TEST NUMBER:		TEST DATE: (*) delete as appropriate	
COMPANY NAME:			
CONTACT:			
ADDRESS:			
Tel: / Fax:/ E-mail:			
PRODUCT NAME:			
Initial submission documents to be supplied for consideration of Initial Type Test (ITT).			
Item	Comment	Item Received (Y or N)	Date Requested
1	Test report		
2	Video/high speed film		
3	Still photographs		
4	Still photographs		
5	Drawings		
6	Certification from the Manufacturer		
7	Confirmation from test house		
Additional information, which will be required on acceptance of initial type test prior to installation.			
8	System specification		
9	Installation details		
10	Installation procedures		
11	Maintenance Manual		
12	Certificate of compliance		
13	Certificate of compliance		
14	Certificate of compliance		
15	Support loads		
Notes:			
1	All documents, which are not in English, will have to be translated. If they are in a language other than French or German the promoter will be required to supply a full translation.		
2	Items 12 and 13 are required for safety barrier systems and transitions.		
3	Items 14 and 15 are required for vehicle parapets. See also Note 1 under Sector Scheme B in Appendix A of the Specification for Highway Works.		
Signature:		Name:	
Date:			

Sheet 2 of 4

SUBMISSION FOR COMPLIANCE WITH BS EN 1317-1, BS EN 1317-2 and DD ENV 1317-4:2002 TYPE OF VEHICLE RESTRAINT SYSTEM: Safety Barrier, Vehicle Parapet or Transition (*) CONTAINMENT PERFORMANCE CLASS/PERFORMANCE LEVEL/PERFORMANCE CLASS (*): TEST REPORT NUMBER: (Test of) Test Type: (Primary/Complementary Test) (*) TEST NUMBER: TEST DATE: (*) delete as appropriate						
COMPANY NAME: CONTACT: ADDRESS: Tel: / Fax/ E-mail: PRODUCT NAME:						
			Specified	Actual	Satisfactory (Yes or No)	Compliance
BS EN 1317-1 Table 1	Vehicle Details	Impact Conditions				
		Total Vehicle Mass (kg)(± ...)			
		Speed (kmh) (0, +7%)			
		Angle (degrees) (-1, + 1.5)			
Centre of Gravity						
Vertical height (m) (± 10%)					
Longitudinal (m) (± 10%)					
		Lateral (m)	±			
		Model				N/A
BS EN 1317-2, Clause 4.3	Vehicle Behaviour	1) The centre of gravity (CG) of the vehicle shall not cross the centreline of the deformed system. 2) The vehicle shall remain upright during and after impact, although moderate rolling, pitching and yawing are acceptable. 3) The vehicle shall leave the VRS after impact, so that the wheel track does not cross a line parallel to the initial traffic face of the VRS, at a distance A (2.2 m) plus vehicle width + 16% of the length of the vehicle within a distance B (10 m) from the final intersection (break) of wheel track with the initial traffic face of the VRS.				
BS EN 1317-2, Clause 5.3.2	Installation	1) The length of the VRS shall be sufficient to demonstrate the full performance characteristics of the system. 2) If the VRS has to develop tension, end anchorages shall be provided in accordance with the VRS specification. Post foundation shall meet the design specification.				
BS EN 1317-2, Clause 4.4	Severity Indices	SPECIFIED THIV Limit 33 km/h PHD Limit 20g ASI Limit 1.4	ACTUAL THIV Km/h PHD G ASI			
BS EN 1317-2, Clause 5.7, Figure 3	Photographic Coverage	1) Photographic coverage shall be sufficient to clearly describe behaviour and vehicle motion during and after impact. 2) High speed cameras shall be operated at a minimum of 200 frames per second and stills. 3) As recommended in clause 5.7 and Figure 3.				
	Drawings	Drawings Included				
					N?A = Not Applicable	
FULLY COMPLIES WITH STANDARD: BS EN 1317-1, BS EN 1317-2, DD ENV 1317-4:2002						
Signature:				Name:		
Date:						

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SUBMISSION FOR COMPLIANCE WITH BS EN 1317-1 and BS EN 1317-3						
TYPE OF VEHICLE RESTRAINT SYSTEM:		Crash Cushion		(Redirective [R] or Non-redirective [NR])(*)		
TEST REPORT NUMBER:		TEST TYPE:		(Primary / Complimentary Test) (*)		
PERFORMANCE LEVEL:		VELOCITY CLASS:		(Test of)		
TEST NUMBER:		TEST DATE:		(*) delete as appropriate		
COMPANY NAME:						
CONTACT:						
ADDRESS:						
Tel: / Fax:/ E-mail:						
PRODUCT NAME:						
			Specified	Actual	Satisfactory (Yes or No)	Compliance
BS EN 1317-1	Vehicle Details	Impact Conditions Total Vehicle Mass (kg) Speed (kmh) Angle (degrees)(± ...) (0, +7%) (-1, + 1.5)			
		Centre of Gravity Vertical height (m) Longitudinal (m) Lateral (m) (± 10%) (± 10%) ±			
		Model				N/A
BS EN 1317-3, Clause 6.2	Crash Cushion Behaviour	1) Elements of the crash cushion shall not penetrate the passenger compartment of the vehicle. Deformations of, or intrusions into, the passenger compartment that could cause serious injuries are not permitted. 2) No major element of the crash cushion, having a solid mass greater than or equal to 2.0kg, shall become totally detached, unless this is required by the working of the crash cushion. No major element of the crash cushion shall impede the path of adjacent traffic. The final position of the detached element shall be considered to determine the displacement classification.				
BS EN 1317-3, Clause 6.3	Vehicle Behaviour	1) The vehicle shall remain upright during and after the collision although yawing and moderate rolling and pitching are acceptable. The post-impact trajectory of the test vehicle shall be controlled by means of the exit box shown in Figure 2 and specified as detailed in Tables 11 and 12.				
BS EN 1317-3, Clause 7.3.2	Installation	1) The installation of the crash cushion for the test shall comply with the structural design details and the on-road system details as given in the design specification.				
BS EN 1317-3, Clause 5.4 and Table 4	Impact Severity Levels	SPECIFIED Level A: THIV ≤ 44 km/h (Tests 1, 2 & 3) THIV ≤ 33 km/h (Tests 4 and 5) ASI ≤ 1.0 Level B: THIV ≤ 44 km/h (Tests 1, 2 & 3) HIV ≤ 33 km/h (Tests 4 and 5) ASI ≤ 1.4 Levels A & B: PHD ≤ 20g		ACTUAL		
BS EN 1317-3, Clause 7.7, Figure 4	Photographic Coverage	4) High speed cameras shall be operated at a minimum of 200 frames per second 5) stills. 6) As recommended in clause 7.7 and Figure 4.				
	Drawings	Drawings Included				
					N?A = Not Applicable	
FULLY COMPLIES WITH STANDARD: BS EN 1317-1 and BS EN 1317-3						
Signature:				Name:		
Date:						

SUBMISSION FOR COMPLIANCE WITH BS EN 1317-1 and DD ENV 1317-4:2002							
TYPE OF VEHICLE RESTRAINT SYSTEM:		Terminal					
PERFORMANCE CLASS:		(Test of)					
TEST TYPE:		(Primary / Complimentary Test) (*)					
TEST TYPE NUMBER:							
TEST NUMBER:		TEST DATE: (*) delete as appropriate					
COMPANY NAME:							
CONTACT:							
ADDRESS:							
Tel: / Fax:/ E-mail:							
PRODUCT NAME:							
			Specified	Actual	Satisfactory (Yes or No)	Compliance	
BS EN 1317-1, Table 1, DD ENV 1314-4:2002, Clauses 7.4 and 7.5	Vehicle Details	Impact Conditions					
		Total Vehicle Mass (kg)(± ...)				
		Speed (kmh) (0, +7%)				
		Angle (degrees) (-1, + 1.5)				
		Centre of Gravity					
		Vertical height (m) (± 10%)				
		Longitudinal (m) (± 10%)				
		Lateral (m)	±				
		Model				N/A	
DD ENV 1314-4:2002, Clause 5.4 and 5.5.2	Terminal Behaviour	<ol style="list-style-type: none"> Elements of the terminal shall not penetrate the passenger compartment of the vehicle. Deformations of, or intrusions into, the passenger compartment that could cause serious injuries are not permitted. No major part of the terminal shall become totally detached and come to rest outside the permanent lateral displacement zones defined in clause 5.4. Anchorage and fixings shall perform to the terminal design specifications and other specified requirements as listed in the test report. 					
DD ENV 1314-4:2002, Clause 5.5.3	Vehicle Behaviour	<ol style="list-style-type: none"> The vehicle shall not overturn, although rolling, yawing and moderate pitching may be accepted. For the Performance Class P1 rolling onto a side may be accepted. The exit box values for the specified test are as defined in Figures 5.6 and 7 (as appropriate). 					
DD ENV 1314-4:2002, Clause 7.3.2	Installation	<ol style="list-style-type: none"> The terminal shall conform to the structural design details and with the system installation details as given in the design specification of the manufacturer. 					
DD ENV 1314-4:2002, Clause 5.5.4 Table 5	Impact Severity Levels	SPECIFIED Level A: THIV ≤ 44 km/h (Tests 1, 2 & 3) THIV ≤ 33 km/h (Tests 4 and 5) ASI ≤ 1.0 Level B: THIV ≤ 44 km/h (Tests 1, 2 & 3) HIV ≤ 33 km/h (Tests 4 and 5) ASI ≤ 1.4 Levels A & B: PHD ≤ 20g		ACTUAL			
DD ENV 1314-4:2002, Clause 7.7 and Figure 7	Photographic Coverage	<ol style="list-style-type: none"> Photographic coverage shall be sufficient to describe clearly terminal and vehicle motion during and after impact. High speed cameras shall be operated at a minimum of 200 frames per second stills. 					
	Drawings	Drawings Included					
					N?A = Not Applicable		
FULLY COMPLIES WITH STANDARD: BS EN 1317-1 and DD ENV 1317-4:2002							
Signature:					Name:		
Date:							

APPENDIX 16/1: GENERAL REQUIREMENTS FOR PILING AND EMBEDDED RETAINING WALLS

1.0 General Requirements:

- 1.1 The retaining wall to be installed, as shown on drawings listed in Appendix 0/4, shall be constructed in accordance with the 'Standards for Highway Works: The Manual for Contract documents for Highway Works (MCHW) Volume 1 Specification for Highway Works Series 1600 Piled and Embedded Retaining Walls', and BS EN 12063:1999 'Execution of Special Geotechnical Work – Sheet Pile Walls'
- 1.2 This specification follows in accordance with MCHW Vol. 1 'Specification for Highway Works Series 1600 Piled and Embedded Retaining Walls'.

2.0 Layout, design and construction:

- 2.1 The embedded retaining wall will take the form of a 'cantilever type' steel sheet pile retaining wall.
- 2.2 The steel sheet piles are not end-bearing. A capping beam will be fixed to the steel sheet pile at cut off level as shown on the relevant drawings.
- 2.3 The design is based on borehole data as shown on the relevant drawing listed in Appendix 0/4. A full geotechnical detail of the sheet pile design is provided in the Geotechnical Design Statement, Reference A19T-REP-GEO-S03-0600-0005.
- 2.4 Refer to the following Approval in Principal for details of the structural design requirements associated with the sheet pile wall design, Reference A19T-REP-CIV-S00-1600-0006-A AIP.

3.0 Damage

- 3.1 Piling activities shall not have a negative or detrimental effect on any adjacent structure including, but not limited to, the following:
 - Existing A1058 Tyne tunnel east and west bridges
 - existing utilities;
 - all proposed structures;
 - nearby private property.
- 3.2 The Contractor's attention is drawn to the services that are present in the area (450mm diameter intermediate gas main). In addition to this the Contractor must carry out all necessary searches to locate and avoid any underground services.
- 3.3 The Contractor shall be responsible for any disruption to services caused by any part of the piling works.

4.0 Piling method

- 4.1 The piling Contractor shall supply all details of the method intended to progress sheet piles at the commencing surface, details of plant and monitoring equipment, and of any piling platform. The Contractor is required to have control over the verticality of the piling equipment to ensure that the pile toe is not deflected (either the pile driving machine to have guides or proper driving gates to be installed).

5.0 Records

- 5.1 Copies of piling records, including records of ground preparation work (e.g. trial driving, pre-augering) and any testing of steel undertaken, are to be provided to form a record of work. The scope of driving records will be in accordance with BS EN 12063:1999 Clause 9 and Clause 10, and with MCHW Vol. 1 Series 1600.
- 5.2 Installation method will be selected by the Contractor. The Contractor shall liaise with the relevant authority to ensure project compliance requirements regarding noise and vibration levels. The contractor is required to establish where preaugering is required and the depth of preaugering.
- 5.3 A construction protocol/sequence for sheet pile installation shall be agreed with the piling Contractor prior to the commencement of works to avoid delays.

APPENDIX 16/15: STEEL SHEET PILES

1. Requirements for sheet piles

Table 16/15.1: Steel Sheet Pile Requirements

Series NG 1600	Notes	Sheet Pile
	Intended working life of structure	120years
A	Performance criteria for movement under lateral loads.	Not Applicable
B	Steel Grade	S355GP
C	Minimum Section Modulus (Elastic)	Piles should have the minimum section modulus as indicated on the relevant drawings listed in Appendix 0/4
C	Web Thickness	16.2mm (Chainage. 1270 - 1290) 19.0mm (Chainage. 1290 - 1310) 20.5mm (Chainage. 1310 - 1350) 12.1mm (Chainage. 1350 - 1410) 9.80mm (Chainage. 1410 - 1450)
	Piling Handbook 2008 Classification	Non-aggressive
	Maximum sacrificial thickness (Ground)	2mm
D	Surface Preparation	None required
E	Coating	None required
F	Thickness of primer and coats	None required
G	Head preparation	Piles must be trimmed to uniform level. Pile heads must be prepared for installation of capping beam (see Specification Appendix 17/1).
G	Toe preparation	Not Applicable
H	Minimum length	Piles should be driven to the design lengths indicated on the relevant drawings listed in Appendix 0/4.
i	Water retention	Piles are not required to control groundwater. Weep holes are not required.
j	Working hours	09:00-17:00
k	Pile shoe	Not Applicable
l	Penetration	Piles should be driven to the design depths indicated on the

Series NG 1600	Notes	Sheet Pile
		relevant drawings listed in Appendix 0/4.
l	Founding Level	Piles should be driven to the design depths indicated on relevant drawings listed in Appendix 0/4.
m	Driving resistance	Not Applicable
n	Preaugering /jetting	Preaugering may be required. The contractor is required to establish when preaugering is required and the depth of preaugering.
o	Driving records.	<p>Information to be recorded shall include but not be limited to;</p> <ul style="list-style-type: none"> Depth of Refusal Type/depth of preparatory works (e.g. Preaugering) Pile type, grade of steel, reference number or location Pile length Type of hammer Date of driving Commencing surface level Depth driven Length of offcuts Length of pile extensions <p>If required, the measurement of driving resistance at appropriate depths.</p> <p>All information regarding interruptions, unexpected changes in driving characteristics, obstructions and times taken in overcoming.</p>

- 2 There is no requirement for a clutch sealant. However the Contractor shall ensure that the clutch compatibility/interlock between the proposed piles, particularly those of different size and type (e.g. U to Z pile) maintain the same centreline. The Contractor is responsible for the fabrication of any special junction piles required to ensure clutch compatibility/common centreline between the U to Z piles.
- 3 The Contractor shall assess the proximity of the existing structures and select suitable sheet piling method.

APPENDIX 17/1: SCHEDULE FOR THE SPECIFICATION OF DESIGNED CONCRETE

Requirement	Schedule
	WSP Mix Ref. A Capping Beam
Intended Working Life of Structure	120 years
Nominal Cover to Reinforcement (mm)	Indicated on the relevant drawings listed in Appendix 0/4
Applicable Exposure Classes (Excluding DC-class)	XD3
Compressive Strength Class of Concrete	C40/50
Minimum Cement Content (kg/m ³)	380
Maximum Free Water/Cement Ratio	0.40
Required Group or Type and Class of Cement or Combination (where a DC-class has not been specified)	CEM-1, IIA, IIB-S, SRPC
Maximum Aggregate Size, mm	20
Chloride Content Class	Cl 0,30
For Lightweight Concrete, the Density Class or Target Density	N/A
For Heavyweight Concrete, the Target Density	N/A
Special Type or Class of Cement or Combination	N/A
Required Source/Special Type of Aggregate	N/A
Required Admixture	-
Air Entrainment Required	No
Minimum or Maximum Temperature of Fresh Concrete °C	In accordance with Clause 1710(3)
Sampling and Testing	See Appendix 1/5
Other Requirements	None

Unless stated otherwise, the minimum grade standard mix concrete shall be in accordance with BS8500: Part 1 2002 according to location and purpose in the table below.

Location & Purpose	Standard Mix
Blinding layer for new reinforced concrete capping beam (75mm thick)	ST2 (C8/10)

APPENDIX 17/3: CONCRETE – SURFACE FINISHES

- 1 The surface finish to new concrete elements (RC Capping Beam) shall be as per the information provided on the relevant drawings listed in Appendix 0/4.

APPENDIX 17/4: CONCRETE – GENERAL

- 1 Refer to drawing no. A19/DWG/CIV/S02/2000/0024&0025 for details of the setting out for the concrete capping beam.
- 2 The concrete to be used is shown on the relevant drawings listed in Appendix 0/4 and shall be in accordance with Appendix 17/1.
- 3 Stainless steel tying wire as described in Clause 1714.1 shall be used throughout. Soft annealed wire shall not be used.
- 4 All reinforcement shall comprise B500B deformed bars and shall be in accordance with BS 4449 & BS EN 10080. Reinforcement shall be cut and bent in accordance with BS8666.
- 5 The post anchorages (parapet fixings) shall be installed in the capping beam in accordance with the manufacture guidance. Fixing of anchorage by drilling shall not be used.
- 6 The construction joints capping beam units shall be filled/sealed in accordance with Appendix 23/2.
- 7 The requirements for sampling and testing are given in Appendices 1/5

**APPENDIX 23/2: SEALING OF GAPS SCHEDULE (OTHER THAN IN
BRIDGE DECK EXPANSION JOINTS)**

- 1 The location and details of joint/gaps to be sealed between capping beam units are shown on drawing number A19/DWG/CIV/S02/2000/0024-26
- 2 Joint material (sealant/filler board) shall be applied in accordance with the manufacturer's recommendation.
- 3 All voids to receive sealant are to be cleaned of dust, dirt and are to be dry.
- 4 The Contractor shall submit details of the proposed joint materials (sealant/filler board) to be applied.

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

- 1 Refer to drawing number V12588-L01 for full specification requirements associated with the wildflower seeding works to be undertaken as part of the retaining wall advanced works
- 2 The Contractor is only responsible for the extent of the wildflower (meadow) seeding works to the traffic face of the new sheet pile retaining wall. All other landscape and ecology works on the Crown Estate site will be the responsibility of others.