



Comhairle Contae Mhaigh Eo
Mayo County Council

Tourism, Recreation and Amenity



Upgrade of Clew Bay Cycle Track

Clare Island, Co. Mayo.

Volume A – Works Requirements

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PREAMBLE TO THE WORKS REQUIREMENTS

The Specification referred to in the Contract shall be the 'Specification for Works' (SPW), published by the Transport Infrastructure Ireland (TII) on the TII Standards website (<http://www.tiipublications.ie/>) as Specification for Works (SPW), Volume 1 of the Manual of Contract Documents for Road Works current on the date 10 working days prior to the tender returns date or, if applicable, the extended tender returns date and incorporating all amendments current on that date and as extended by the following:-

- (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 Numbered Appendices listed in Appendix 0/3;
- (iv) Appendix 0/4 containing a list of the drawings referred to in the Specification.

An Additional Clause as indicated by a suffix "AR" in Appendix 0/1 is a Contract-specific alteration.

A Substitute Clause as indicated by a suffix "SR" in Appendix 0/1 is a Contract-specific alteration. A Cancelled Clause as indicated by a suffix "CR" in Appendix 0/1 is a Contract-specific alteration.

Insofar as any of the Numbered Appendices may conflict or be inconsistent with any provision of the Specification for Road Works the Numbered Appendices shall always prevail.

Any reference in the Contract to a Clause number or Appendix shall be deemed to refer to the corresponding Substitute Clause number or Appendix listed in Appendix 0/1 or 0/2.

Where a Clause is altered, any original Table/Figure referred to in the Clause shall apply unless the Table/Figure is also altered. Where a Table/Figure is altered, any reference in a Clause to the original Table/Figure shall apply to the altered Table/Figure.

Where a Clause in the Specification relates to work goods or materials which are not required for the Works it shall be deemed not to apply.

Any Appendix referred to in the Specification which is not used shall be deemed not to apply.

References in the Specification to "TII Road Construction Details" shall be taken to refer to "Standard Construction Details (SCD)" as published by Transport Infrastructure Ireland (TII) on the TII Standards website (<http://www.tiipublications.ie/>) as Standard Construction Details of the Manual of Contract Documents for Road Works current on the date 10 working days prior to the tender returns date or, if applicable, the extended tender returns date.

Text shown in grey highlight applies only to Contracts where the applicable Conditions are either the Public Works Contract for Civil Employer's Representative Works Designed by the Employer or the Public Works Contract for Minor Building and Civil Employer's Representative Works Designed by the Employer.

Text shown in square brackets immediately following text shown in grey highlight, if any, is deemed to replace the text in grey highlight for Contracts where the applicable Conditions are the Public Works Contract for Civil Employer's Representative Work Designed by the Contractor.

Throughout the Specification and Appendices to the Specification, the following interpretations shall apply:

“Base Course” shall mean “Binder Course” “Roadbase” shall mean “Base”

“Wearing Course” shall mean “Surface Course”

“UK Department of Transport” shall mean “UK Highways Agency”

Chainages and locations referred to in the Contract relate to those shown on the ‘Area Provided by the Employer’ series of drawings referred to as such and listed in Appendix 0/4 of the Specification.

Any reference to Left (L) and Right (R) or Left side and Right side of any road or any carriageway referred to within the Contract shall be relative to the direction of increasing chainage of the relevant road alignment.

Without prejudice to the other provisions of the Contract, the execution and completion of the Works shall comply with and shall be carried out in accordance with the requirements and provisions of all the Works Requirements and the Contract.

Subject to the other provisions of the Contract, the execution and completion of the Works (including materials and workmanship) shall comply with and where the context applies shall be carried out in accordance with all of the following:

- (1) the TII Design Manual for Roads and Bridges (DMRB)
- (2) the TII Manual of Contract Documents for Roadworks (MCDRW)
- (3) the TII Interim Advice Notes (IAN)
- (3) the UK DMRB
- (6) the UK Manual of Contract Documents for Highway Works (MCHW)
- (7) the Traffic Signs Manual (TSM)
- (8) the TII Environmental Assessment and Construction Guidelines (EACG)
- (9) the Statutory Consents
- (10) all other Consents
- (11) the requirements of all relevant Authorities and Statutory Undertakers
- (12) the Certification Procedure and
- (13) any other specific standards and the like referenced to elsewhere in the Contract including the Works Requirements.
- (14) Waste Action Plan for a Circular Economy: Ireland’s National Waste Policy 2020 – 2025.

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

List of Additional Clauses, Tables and Figures

Clause No.(etc.)	Title
116.6 AR	Privately and Publicly Owned Services or Supplies
116.7 AR	Eir (EIR)
116.8 AR	ESB
116.9 AR	Irish Water (Watermains)
137 AR	Safety File Content
202.8AR	Existing Vegetation
206 AR	Invasive Species

List of Substitute Clauses, Tables and Figures

Clause No.	Title
	None

List of Cancelled Clauses, Tables and Figures

Clause No.	Title
	None

Additional Clauses, Tables and Figures

Clause No.	Title and written text
116.70 AR	Privately and Publicly Owned Services or Supplies
116.70.1 AR	Prior to and during the construction of the Works, the Contractor shall liaise with and adhere to the requirements of the various Authorities and Utilities who are affected by the Works. These shall include but not be limited to; • Electricity Supply Board (Overhead & Underground Low to Medium Voltage). • Eir (international, national, regional and local circuits).

Clause No.	Title and written text
	Mayo County Council (Sewers, Water Pipelines and the Existing Road Network). • Irish Water • Privately owned Watermains • Publicly owned Watermains • Privately owned Sewers
116.70.2 AR	The Works requirements for Authorities and Utilities are set out on the following drawings; a) Civil Engineering Drawings b) TII Standard Construction Details and/ or Scheme Specific Details show standard details with respect to eir, E.S.B., Irish Water, Public Lighting and Watermains. In addition the contractor shall adhere to any additional items and detailing required by the various Authorities and Utilities. It is the responsibility of the Contractor to confirm the location of existing services of the various Authorities and Utilities.
116.70.3 AR	The Contractor shall, on appointment, assume full responsibility for liaison and shall arrange where necessary, for temporary and/or permanent diversion of any service underground or overground and co-ordinate any service alterations to facilitate construction of the Works. The Contractor shall include for the programming consequences of all temporary and permanent diversions in his own construction programme to the satisfaction of the Employer's Representative and each of the Authorities and Utilities. The Contractor shall also carry out his own investigations concerning the location of all overground and underground services and shall make provisions in his rates for all precautions necessary and all restrictions which may be caused to his operations due to their proximity. The Contractor shall notify all the relevant Authorities and Utilities sufficiently (min. 2 weeks) in advance of his excavation Works at each location so that all necessary precautions may be taken.
116.70.4 AR	The requirements of each Authority and Utility in so far as they are known are set out herein and are described in detail on the drawings.

Clause No.	Title and written text
	mentioned above and within this Specification. It shall be a condition of this Contract that the Contractor shall be solely responsible for the safeguarding and diversion of all services affected by the Works.
116.70.5 AR	The Contractor shall be solely responsible for liaison during construction. The Contractor shall issue formal orders for all necessary diversions to Eir, ESB, and all other Authorities and Utilities. The Contractor shall order ducting, pipelines and fittings only after checking the requirements with the various utilities. All discussions/meetings between the Contractor and the Authorities and Utilities shall be notified in advance to the Employer's Representative. The Employer's Representative may attend such discussions/meetings. The content of any communications between the Contractor and utilities shall be notified simultaneously to the Employer's Representative.
116.70.6 AR	EIR
116.71 AR	<u>Eir Requirements:</u> 1. <u>Records:</u> Before commencing any work or moving heavy plant or equipment over any position on the site, the Contractor shall acquaint himself of the location of all Eir equipment in the area. Eir will provide details of such records as are available on request, but cannot vouch for the accuracy of the records. There may be some departures from the depth and course of the plant as shown or indicated. The information is given, therefore, without prejudice to the legal rights of Eir to compensation, should Eir equipment be damaged. The Contractor shall therefore, be liable for the cost of repair of all damage to Eir equipment throughout the area covered by this Contract. 2. <u>Damage:</u> Eir shall deem the Contractor liable for the safety and security of Eir equipment from malicious or other damage, where the Works cause it's disturbance or exposure.

Clause No.	Title and written text
	3. <u>Accidental Damage:</u> In the event of damage to Eir equipment, however small or insignificant it may seem, the Contractor shall notify Eir immediately. Prompt reporting of the damage may limit the extent to which the damage may develop and this in turn will be reflected in the cost of repair. Details of Eir Emergency Services will appear at the end of this section. 4. <u>Protection of Plant:</u> Where heavy machinery is to work over or across existing cables Eir will specify special protection measures to be adopted to protect the cables. These measures may involve encasing Eir equipment in concrete and/or the use of heavy steel plates. 5. <u>Emergency Services:</u> Dial 1901 to report any damage to the Eir equipment be it accidental or malicious and remember prompt reporting of any damage will minimise the costs of any repairs.
116.72 AR	ESB
116.72.1 AR	<u>ESB Requirements:</u> All Works for ESB or in the vicinity of ESB infrastructure shall be carried out in accordance with the ESB Networks booklet entitled "Code of Practice for Avoiding Danger from Overhead Electricity Lines".
116.73 AR	Irish Water
116.73.1 AR	<u>Watermain Works</u> All/any Works for Mayo County Council in relation to Water-Mains shall be carried out in accordance with Appendix 27/1 and the Work Requirements Drawings.
170 AR	Safety File Content
170.1 AR	The Contractor shall be required to comply fully with the following regulations:

	(1) The Safety, Health and Welfare at Work Act, 2005 and all other applicable legislation (2) (Health and Welfare at Work (Construction) Regulations 2013 (SI No. 291 of 2013) The Project Supervisor Design Process for the civil Employer's Representative works for the project being undertaken in this Contract is Mayo County Council, Áras an Chontae, The Mall, Castlebar, Co. Mayo, F23 WF90. The Contractor must comply with any particular requirements with regard to Safety File contents or formats for Irish Water. The Contractor shall provide information to the Employer's Representative in both hardcopy and digital format. The Contractor shall, in accordance with the requirements of the Regulations provide the following information for inclusion in the Safety File, but not limited to: PART A – AS-BUILT DRAWINGS The Contractor shall provide The Employer's Representative with all information required to compile and complete the As-Built Drawings. The As-Built Drawings shall be an updated revision of the Drawings listed in Book 1 of Volume A of the Works Requirements in AutoCAD format. The As-Built Drawings shall incorporate all as-constructed details including any Contractor Designs. The As-Built topographical survey is to be supplied in 3D AutoCAD format with each feature on a separate layer. Survey points shall be supplied at a maximum 10m spacing and shall include all new construction features and existing fences, walls and gates within or immediate to the Area Provided by the Employer. PART B – DESIGN INFORMATION The following information shall be provided as appropriate: I. Design Information for Contractor Designed Structures.
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Clause No.	Title and written text
	II. Design information relating to Contractor Design Structural Elements and Other Features. III. Copies of all surveys and investigations undertaken in advance and during the works, including ground investigations, topographical surveys, drainage surveys, etc. IV. Road Safety Audits (for element for which the Contractor was responsible for design). PART C – MATERIALS Provide details of materials and products used in the project. This shall list all suppliers by name, address and material product supplied. Where products or materials are covered by the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001 (SI No. 619 of 2001) -full details of the product or material specification shall be given. Where subcontractors were responsible for operations involving the installation or application of products or materials, names and addresses shall be given. This information in respect of structures is contained in the structural records prepared in accordance with BD 62 of the UK DMRB. PART D – MAINTENANCE FACILITIES/PROCEDURES 1. Full information on maintenance facilities, procedures and manuals for structures will be included in the structural records prepared in accordance with BD 62 of the UK DMRB. 2. A maintenance manual shall be provided for any plant, machinery or equipment forming part of the permanent Works for the project which is not required as part of a structure. The manual shall detail the methodology for comprehensive testing, routine maintenance, fault repair and testing. 3. Details shall be provided of any features incorporated into the project to facilitate future maintenance operations to be undertaken other than on structures, e.g. access. 4. Demolition requirements and method statements, for example tensioned material such as safety barrier or hazardous material. PART E - OTHER INFORMATION 1. Any other information for inclusion in the Safety File and any additional information reasonably required by the PSCS or PSDP to allow fulfilment of obligations under the Regulations.

Clause No.	Title and written text
202.70 AR	Existing Vegetation
202.70.1 AR	The Contractor shall not cut, fell, trim or lop any tree or branch unless specified otherwise or instructed by the Employer's Representative, whose prior written approval shall be sought before the commencement of any such work. Final cuts shall be clean and into living wood and located to avoid the formation of moisture holding pockets.
270 AR	Invasive Species
270.1 AR	In the event, that any Noxious Weeds and Non-Native Invasive Plant Species are within the Area Provided by the Employer for the Works during the Contract, the Contractor shall treat, remove and dispose of all. The Contractor shall comply with "The Management of Noxious Weeds and Non-Native invasive Plant Species on National Roads" published by TII.
507.70 AR	Chambers
507.70.1	1. Class D 400 units shall incorporate a permanent non-rock feature either triangular point suspension or machined faces. 2. Bolts supplied for loosely coupling sections of covers and grating shall be steel hexagon headed, complying with the requirements of ISO 4016, 4018 and 4034. They shall not be less than size M16 complete with Hexagon nut and shall be provided with means to prevent undue tightening of unit sections.
Clause No.	Title and written text
	3. All covers gratings and frames shall be supplied coated by dipping, or other equivalent means, using a hot applied coal tar based material complying with the requirements of BS 4164. Alternatively, at the option of the manufacturer, a cold applied black bitumen material complying with the requirements of BS3416 may be used. No coating shall be applied to any casting unless the surfaces of the casting are clean, dry and free from rust.

Substitute Clauses, Tables and Figures

Clause No.	Title
	None

APPENDIX 0/2

CONTRACT SPECIFIC MINOR ALTERATIONS TO EXISTING CLAUSES, TABLES AND FIGURES INCLUDED IN THE CONTRACT

Clause No.	Title
	None

APPENDIX 0/3

LIST OF NUMBERED APPENDICES REFERRED TO IN THE SPECIFICATION AND INCLUDED IN THE CONTRACT

This Appendix 0/3 is comprised of a list of the Numbered Appendices referred to in the Specification and included in the Contract.

Responsibility for the compilation/completion of the appendices is indicated by the following symbols:

- E Employer compiles
- C Contractor to compile and return to the Employer's Representative
- E/C Employer partially compiles and Contractor completes and returns to the Employer's Representative
- T Tenderer compiles and returns with his Tender
- P The symbol 'P' indicates the appendix is a national pro-forma and the format must not be altered

Where a Contractor or Tenderer is required to compile/complete an Appendix, the Contractor or Tenderer shall do so in accordance with the Notes for Guidance on the Specification for Road Works, and providing information similar to that stated in the sample appendices as a minimum.

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 Road

Works with those not adopted marked 'Not Used'. Those identified by the letters T or C shall be completed by the Tenderer or Contractor respectively.

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

List 'A': List of Numbered Appendices Referred to in the Specification for Road Works

Completed By	Appendix	Title
		PREAMBLE
		Preamble to the Works Requirements
		INTRODUCTION
E	0/1	Contract-specific Additional, Substitute & Cancelled Clauses, Tables & Figures Included in the Contract
E	0/2	Contract-specific Minor Alterations to Existing Clauses, Tables and Figures Included in the Contract
E	0/3	List of Numbered Appendices Referred to in the Specification and Included in the Contract
E	0/4	List of Drawings Included in the Contract
		PRELIMINARIES
N/A	1/1	Accommodation and Equipment for the Employer's Representative
N/A	1/2	Vehicles for the Employer's Personnel
N/A	1/3	Communication System for the Employer's Representative
N/A	1/4	Working and Fabrication Drawings
E	1/5	Testing to be Carried out by the Contractor
E	1/6	Supply and Delivery of Samples to the Employer's Representative
E	1/7	Site Extent and Limitations on Use
N/A	1/8	Operatives for the Employer's Representative
E	1/9	Control of Noise and Vibration
N/A	1/10	Structures to be Designed by the Contractor
N/A	1/11	Structural Elements and Other Features to be Designed by the Contractor
E	1/12	Setting Out and Existing Ground Levels
E	1/13	Programme of Works
E	1/14	Monthly Statements
E	1/15	Accommodation Works
E	1/16	Privately and Publicly Owned Services and Supplies
E	1/17	Traffic Safety and Management
E	1/18	Temporary Diversions for Traffic
E	1/19	Routing of Vehicles
N/A	1/20	Recovery Vehicles for Breakdown
E	1/21	Project Information Boards
E	1/22	Progress Photographs

E	1/23	Substances Hazardous to Health
E	1/24	Quality Management Schemes
E	1/25	Product Certification Schemes
E	1/26	NSAI Agreement Certificates
Completed By	Appendix	Title
		SITE CLEARANCE
N/A	2/1	List of Buildings and Structures to be Demolished or Partially Demolished
E	2/2	Filling of Trenches & Pipes
E	2/3	Retention of Material Arising from Site Clearance
N/A	2/4	Explosives and Blasting
E	2/5	Hazardous Materials
		FENCING AND ENVIRONMENTAL NOISE BARRIERS
E	3/1	Fencing, Gates and Stiles
E	3/3	Fencing: S148 of the Department of Agriculture, Food and Marine
		SAFETY FENCES, SAFETY BARRIERS AND PEDESTRIAN GUARDLINES
N/A	4/1	Safety Barriers
N/A	4/2	Pedestrian Restraint Systems
N/A	4/3	Safety Barrier Terminals
N/A	4/4	Safety Barrier Maintenance
N/A	4/5	Anti-Glare Screens
N/A	4/6	Safety Barriers: TII Standard Construction Details
N/A	4/7	Vehicle Parapet Systems
		DRAINAGE AND SERVICE DUCTS
E	5/1	Drainage Requirements
E	5/2	Service Duct Requirements
N/A	5/3	Surface Water Channels and Drainage Channel Blocks
N/A	5/4	Fin Drains, Narrow Filter Drains and Geotextiles for Filter Drains
N/A	5/5	Combined Drainage and Kerbing Systems
N/A	5/6	Linear Drainage Channel Systems
E	5/7	Drainage and Service Ducts: TII Road Construction Details
N/A	5/8	Thermoplastic Structural Wall Pipes and Fittings
N/A	5/9	Attenuation
		EARTHWORKS
E	6/1	Requirements for Acceptability & Testing of Earthworks Materials
E	6/2	Requirements for Dealing with Class U2 Unacceptable Material
E	6/3	Requirements for Excavation, Deposition, Compaction (Other than Dynamic Compaction)

N/A	6/4	Not Used
N/A	6/5	Geotextiles Used to Separate Earthworks Materials
N/A	6/6	Fill to Structures & Fill Above Structural Foundations
Completed By	Appendix	Title
E	6/7	Sub-Formation & Capping & Preparation & Surface Treatment of Formation
E	6/8	Topsoiling, Grass Seeding and Turfing
N/A	6/9	Earthwork Environmental Bunds, Landscape Areas, Screening Mounds, Strengthened Embankments
N/A	6/10	Ground Anchorages, Crib Walling and Gabions
N/A	6/11	Swallow Holes and Other Naturally Occurring Cavities & Disused Mine Workings
N/A	6/12	Instrumentation and Monitoring
N/A	6/13	Ground Improvement
		ROAD PAVEMENTS – GENERAL
E	7/1	Permitted Pavement Options
E	7/2	Excavation and Reinstatement of Existing Surfaces
E	7/3	Surface Dressing I.A.T Guidelines
E	7/4	Bituminous Sprays
E	7/5	Road Pavements; TII Road Construction Details
E	7/6	Breaking up or Perforation of Existing Pavement
N/A	7/7	Not Used
N/A	7/8	Not Used
N/A	7/9	Cold Milling (Planing) of Bituminous Bound Flexible Pavement
N/A	7/10	Microsurfacing
N/A	7/11	High Friction Surfacing
N/A	7/12	Low Energy Bound Mixtures
N/A	7/21	Recipe Surface Dressing
		KERBS, FOOTWAYS AND PAVED AREAS
N/A	11/1	Kerbs, Footways and Paved Areas
N/A	11/2	Access Steps
N/A	11/3	Kerbs, Footways & Paved Areas: TII Standard Construction Detail
		TRAFFIC SIGNS
E	12/1	Traffic Signs: General
N/A	12/2	Traffic Signs: Reflective Markers
N/A	12/3	Traffic Signs: Road Markings and Studs
N/A	12/4	Traffic Signs: Cones, Cylinders, FTD's and other traffic delineators
N/A	12/5	Traffic Signs: Traffic Signals
N/A	12/6	Traffic Signs: Special sign requirements on Gantries

N/A	12/7	Traffic Signs: Preparation and Finish of Metal and other surfaces
		ROAD LIGHTING COLUMNS AND BRACKETS
N/A	13/1	Description of Lighting Columns & Brackets
N/A	13/2	Typical Column and Bracket Data
Completed By	Appendix	Title
N/A	13/3	Instructions for completion of column and bracket data sheets
N/A	13/4	Certification For Lighting Columns
N/A	13/5	Road Lighting Columns And Brackets: TII Road Construction Details
		ELECTRICAL WORK FOR ROAD LIGHTING AND TRAFFIC SIGNS
N/A	14/1	Site Records
N/A	14/2	Location of Lighting Units and Feeder Pillars
N/A	14/3	Temporary Lighting
N/A	14/4	Electrical Equipment for Road Lighting
N/A	14/5	Electrical Equipment for Traffic Signs
N/A	14/6	Preparation and Finish of Metal and Other Surfaces
* Series 1500/1600/1700/1800/1900/2000/2100/2200/2300 are not relevant to these set of Work Requirements		
		BRICKWORK, BLOCKWORK AND STONWORK
E	24/1	Brickwork, Blockwork and Stonework
E	24/2	Brickwork, Blockwork and Stonework, TII Road Construction Details
		MISCELLANEOUS
E	26/1	Ancillary Concrete
N/A	26/2	Bedding Mortar
N/A	26/3	Cored Thermoplastic Node Markers
		WATERMAINS, UTILITIES AND ACCOMMODATION WORKS
N/A	27/1	Water mains
N/A	27/2	Water mains: TII Road Construction Details

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

Completed By	Appendix	Title
E	3/3	DEPT OF AGRICULTURE, FOOD & THE MARINE - S 148 MINIMUM SPECIFICATION FOR FARM FENCING
E	5/10	Standard Specifications for ESB MV/LV Network Ducting

APPENDIX 0/4**LIST OF DRAWINGS INCLUDED IN THE CONTRACT****1. Contract Specific Drawings supplied to each Tenderer**

No.	Drawing Name	Drawing Number
1	Clew Bay Cycle Track – Site Location Map.	CBC 001
2	Clew Bay Cycle Track – Works Requirements.	CBC 002
3	Clew Bay Cycle Track – Works Extents.	CBC 003

2. Standard Drawings**(i) Supplied To Each Tenderer**

NOT USED

(ii) Inspected by Tenderers

NOT USED

(iii) Brought into the Contract by Reference

The TII Standard Construction details contain the following drawings brought into the Contract by reference. Unless otherwise stated below the list refers to the most current revision and the whole drawing is brought into the Contract. SCD's referred to in these drawings are also brought into the contract.

TII Publication Number	TII Publication Title	Historical Reference
CC-SCD-00502	DRAINAGE CHAMBER TYPE A	RCD/500/2
CC-SCD-00511	DRAINAGE IN-SITU CONCRETE AND BLOCKWORK GULLIES	RCD/500/11
CC-SCD-00512	DRAINAGE GULLY GRATING	RCD/500/12
CC-SCD-00513	DRAINAGE CHAMBER FITTINGS - LADDER, TYPICAL ARRANGEMENT HANDHOLD AND SAFETY CHAIN	RCD/500/13
CC-SCD-00514	DRAINAGE TYPICAL CHAMBER DETAILS	RCD/500/14
CC-SCD-00521	DRAINAGE SURFACE WATER DRAINS - TRENCH AND BEDDING DETAILS	RCD/500/21
CC-SCD-00523	DRAINAGE CHANNEL BLOCK TYPES A, BAND C	RCD/500/23
CC-SCD-00609	EARTHWORKS FILL TO STRUCTURES	RCD/600/9

CC-SCD-00701	Pavement - Free Pavement Edge Detail	RCD/700/1
CC-SCD-00702	Pavement - Kerbed Pavement Edge Detail	RCD/700/2
CC-SCD-00703	Pavement – TRANSVERSE JOINT BETWEEN NEW CONSTRUCTION AND EXISTING CONSTRUCTION	RCD/700/3
CC-SCD-00704	LONGITUDINAL JOINT BETWEEN NEW CONSTRUCTION & EXISTING ROAD	RCD/700/4
CC-SCD-00705	PAVEMENT TRENCH REINSTATEMENT	RCD/700/5
CC-SCD-01101	KERBS. FOOTWAYS AND PAVED AREAS - PRECAST KERBS	RCD/1100/1
CC-SCD-01103	KERBS. FOOTWAYS AND PAVED AREAS - DROPPED KERB RAMP	RCD/1100/3
CC-SCD-01301	ROAD LIGHTING - LIGHTING COLUMNS - FASTENER HEAD IN DOOR RECESS AND KEY	RCD/1300/1
CC-SCD-01302	ROAD LIGHTING - STEEL LIGHTING COLUMN DOOR	RCD/1300/2
CC-SCD-02403	WALLS - TYPICAL MASONRY FACED BLOCKWORK WALL	RCD/2400/3
CC-SCD-05125	ZEBRA CROSSING - ROAD MARKINGS AND GENERAL LAYOUT	N/A
CC-SCD-05137	TACTILE PAVING DETAIL AND RECOMMENDED GRADIENTS - CONTROLLED PEDESTRIAN CROSSING	N/A
CC-SCD-05138	BELISHA BEACON POLE DETAIL	N/A
CC-SCD-05145	RAISED TABLE DETAIL	N/A

SERIES 100

PRELIMINARIES

**APPENDIX 1/1
ACCOMMODATION AND EQUIPMENT FOR THE EMPLOYER'S REPRESENTATIVE**

NOT REQUIRED

**APPENDIX 1/2
VEHICLES FOR THE EMPLOYER'S REPRESENTATIVE**

NOT REQUIRED

**APPENDIX 1/3
COMMUNICATION SYSTEM FOR THE EMPLOYER'S REPRESENTATIVE**

NOT REQUIRED

**APPENDIX 1/4
STANDARDS, QUALITY ASSURANCE SCHEMES, AGREEMENT CERTIFICATES & OTHER APPROVALS**

As required by sub-clauses 1 – 10 of Clause 104 of CC/SPW/00100

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

In addition to the requirements sub-clauses 1-7 of clause 105 of CC/SPW/00100 Routine Sampling and Testing to be undertaken by the Contractor:

- (i) The Contractor shall be responsible for the taking of samples, and the subsequent testing at the frequency stated in the schedule. All test results shall be passed to the Employer's Representatives Representative in accordance with Clause 105.2.
- (ii) The Contractor shall arrange for each sample taken to be given a unique reference number which shall be entered into a site register, a copy of which shall be provided to the Employer's Representatives Representative.
- (iii) The test results shall be delivered to the Employer's Representatives Representative within 3 days of the tests being carried out.
- (iv) With regard to the surfacing to be laid by the Contractor, he shall arrange for the production of a schematic plan that correlates the site setting out system with laid materials and with received test results
- (v) (IL) indicates that an Irish National Accreditation Board (ILAB) test report or certificate is required.
- (vi) All testing shall be in accordance with CC-SPW-00900 - Specification for Road Works Series 900 - Road Pavements - Bituminous Materials dated January 2016.

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
CC-SPW-00300 - Specification for Road Works Series 300 - Fencing and Environmental Barriers (including Erratum No. 1, dated March 2011)					
306	Permanent fencing			Required	Quality management scheme applies
	Concrete components	Cover to reinforcement	1 per consignment (maximum 1 per 100 components)		
308	Gates and stiles				Quality management scheme applies
	Reinforced Concrete posts	Cover to reinforcement	1 per consignment (maximum 1 per 100 components) (BS 3470)		
310	Environmental Noise Barriers				
	Post Foundations	Load test on site	As required in Sub-clause 310.18		Evidence of design calculations required
		Deflection test on site	As required in Sub-clause 310.18		
	Preservation of Timber	Moisture Content	As required in clause 4	Required	Quality management scheme applies]
	Vandal resistance	Destruction testing	As required in sub-clause 310.3		See sub-clause 310.11
311	Preservation of timber	Moisture content	As required in Clause 4	Required for each batch	Quality management scheme applies

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
CC-SPW-00500 - Specification for Road Works Series 500 - Drainage and Service Ducts (and Amendment No. 1, dated May 2015)					
501	Pipes for drainage and service ducts				
	Vitrified clay				Product certification scheme applies
	Concrete - PC/SRC				
	Concrete - Pre-stressed				
	Iron - cast				
	Iron - ductile				
	UPVC				
	Plastics (see Table 5/1)				
	Corrugated steel	(Manufacturer's tests)		Required (AASHTO)	
	Corrugated steel bitumen protection				
	Concrete PC/SRC exceeding 900mm dia	(Manufacturer's tests)	As per Clause 509.10	Required	
	Other materials			Required	NSAI Agreement Certificate or equivalent applies
503	Pipe bedding				
		Grading and fines content (Washing and sieving method to be used)	1 per week(min of 3)	Required	
		Water Soluble Sulphate (WS) content (IN)	5 per source		
		Resistance to fragmentation (IL)	1 per source		
505	Filter medium backfill				

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
		Plastic index (IL)	1 per source	Required	
		Grading and fines content (Washing and sieving method to be used)	1 per 500 tonnes		
		Water Soluble Sulphate (WS) content (IL)	5 per source		
		Resistance to fragmentation (IL)	1 per source		
506	Sealing existing drains				
	Concrete				
	Grout				
507	Chambers				
	Precast concrete	(Manufacturer's tests)			Product certification scheme applies
	Corrugated galvanised steel			Required	Product certification scheme applies
	Manhole steps				Product certification scheme applies
	Steel fitments				
	Covers, grates and frames				Product certification scheme applies
	Cover bolts				Quality management scheme applies
508	Gullies and pipe junctions				Product certification scheme applies
	Precast concrete				
	Cast iron and steel				
509	Watertightness of joints	Air test	All pipelines with watertight joints	Required	
512	Backfill to pipe bays	Grading	1 per 50 tonnes (min of 3)		
			5 per source		

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
513	Permeable backing to earth retaining structures				
	Granular Material	Piping Ratio (as Cl 513)	1 per 100 tonnes (min of 3)		
		Permeability (as Cl 513)			
	Precast hollow concrete blocks	(Manufacturer's tests)		Required	
514	Fin Drains	(Manufacturer's tests)		Required	INAB (or equivalent) certification applies
515	Narrow Filter Drains				
	Geotextile, pipes and fittings	(Manufacturer's tests)		Required	INAB (or equivalent) certification applies
	Granular fill	Plastic Index (IL)	1 per source	Required	
		Resistance to fragmentation (IL)			
		Water soluble sulphate (WS) content (IL)	5 per source		
		Oxidisable sulphides (OS) content and total potential sulphate (TPS) content (IL)			
		Grading and fines	1 per week (min of 3)		
		Permeability (IL)	1 per source		
516	Combined drainage and kerb systems	Load test	A minimum of 1 test per 1000m for each type and source	Required	Certification that the system complies with Clause 516 is required
		(Manufacturer's tests)		Required	
517	Linear drainage systems	Load test	A minimum of 1 test per 1000m for each type and source	Required	Certification that the system complies with Clause 517 is required
518	Thermoplastic structured wall pipes and fittings	(Manufacturer's tests)		Required	INAB (or equivalent) certification applies
519	Geotextiles for filter drains	(Manufacturer's tests)	1 per source	Required	Certification that the system complies with Clause 519 is required

Clause	Work, Goods or Material			Test	Frequency of Testing	Test Certificate	Comments	
CC-SPW-00600 - Specification for Road Works Series 600 - Earthworks (including Erratum No. 1, dated June 2013)								
601 631 to 633 635 to 637 640	Acceptable material							
	Class	General Description						
	1	General granular fill		Grading	1 test per 1,000 m³ for each source			
				Uniformity Coefficient	1 test per 1000 m³ for each source			
				MCV	As required			
				MC	1 test per 1000 m³ for each source			
			1C only	LA Coefficient (IL))	1 test per 1,000 m³ for each source (min of 2 total per source)			
	2	General cohesive fill		Grading	1 test per 1,000 m³ for each source		Refer to Appendix 6/1	
				Plastic Limit	1 test per 1000 m³ for each source			
				MC	1 test per 500 m³ for each source			
				MCV	1 test per 500 m³ for each source			
				Undrained Shear Strength	1 test per 1,000 m³ for each source (min of 2 total per source)			
				Effective Angle of Internal Friction and Effective Cohesion	1 test per 1,000 m³ for each source (min of 2 total per source)			

Clause	Work, Goods or Material			Test	Frequency of Testing	Test Certificate	Comments
601 631 to 633 635 to 637 640 (Contd)		4	Landscape fill	Grading (IL)	1 test per 2,000 m ³ for each source		
				MC (IL)	1 test per 2,000 m ³ for each source		
				MCV (IL)	1 test per 1,000 m ³ for each source		
		5	Topsoil	Grading	1 test per 500 m ³ (min of 1 per day during topsoiling works)		
		6	Selected granular fill (Class 6A, 6B & 6C)				
				Grading	1 test per 1,000 m ³ for each source		
				Uniformity Coefficient	1 test per 1,000 m ³ for each source		
				Plastic Limit (IL)	1 test per 2,000 m ³ for each source		
				LA Coefficient	1 test per 1,000 m ³ for each source (min of 2 total per source)		
				(Class 6C Only)	Moisture Content (IL)	1 test per 2,000 m ³ for each source	
			(Class 6A & 6C Only)	Slake Durability (IL)	1 test per 1,000 m ³ for each source (min of 2 total per source)		
			(Class 6F1, 6F2 & 6F3)	Grading	1 test per 500 m ³ for each source		

Clause	Work, Goods or Material				Test	Frequency of Testing	Test Certificate	Comments
601 631 to 633 635 to 637 640 (Contd)				(Class 6F1, 6F2 & 6F3)	LA Coefficient (IL)	1 test per 1,000 m ³ for each source		
					Slake Durability (IL)	1 test per 1,000 m ³ for each source		
					Total Sulfur Content (IL)	1 test per source (source approval)		
					Class RA (asphalt) content (IL)	2 per source		
					Bitumen Content (IL)	2 per source		
				(Class 6G)	Grading	1 test per 250 m ³ for each source (min of 2 total per source)		
					LA Coefficient (IL)	1 test per 500 m ³ for each source (min of 1 total per source)		
				(Class 6H Only)	Grading	1 test per 200 m ³ for each source		
					Plastic Limit (IL)	1 test per 200 m ³ for each source		
					LA Coefficient (IL)	1 test per 200 m ³ for each source		
						1 test per 200 m ³ for each source		
					MC (IL)	1 test per 200 m ³ for each source		
					MCV (IL)	1 test per 200 m ³ for each source		
					pH Value (IL)	Source approval and 1 test per 500 m ³ for each source (min 1 test per week)		

Clause	Work, Goods or Material				Test	Frequency of Testing	Test Certificate	Comments
601 631 to 633 635 to 637 640 (Contd)					Chloride Ion Content (IL)	Source approval and 1 test per 500 m ³ for each source (min 1 test per week)		
					Water soluble sulphate content (IL)	Source approval and 1 test per 500 m ³ for each source (min 1 test per week)		
					Oxidisable sulphides (IL)	Source approval and 1 test per 500 m ³ for each source (min 1 test per week)		
					Resistivity (IL)	1 test per source (source approval)		
					Redox Potential (IL)	1 test per source (Source approval)		
			(Class 6I & 6J Only)		Grading	1 test per 200 m ³ for each source		
					Uniformity Coefficient	1 test per 500 m ³ for each source		
					MC (IL)	1 test per 200 m ³ for each source		
					MCV (IL)	1 test per 200 m ³ for each source		
					Effective Angle of Internal Friction and Effective Cohesion (IL)	1 test per 200 m ³ for each source (min of 1 test per week)		
					Coefficient of friction and adhesion (IL)	1 test per source (source approval)		
					pH Value (IL)	Source approval and 1 test per 500 m ³ for each source (min 1 test per week)		

Clause	Work, Goods or Material				Test	Frequency of Testing	Test Certificate	Comments
601 631 to 633 635 to 637 640 (Contd)					Chloride Ion Content (IL)	Source approval and 1 test per 500 m ³ for each source (min 1 test per week)		
					Water soluble sulphate content (IL)	Source approval and 1 test per 500 m ³ for each source (min 1 test per week)		
					Oxidisable sulphides (IL)	Source approval and 1 test per 500 m ³ for each source (min 1 test per week)		
					Resistivity (IL)	1 test per source (source approval)		
					Redox Potential (IL)	1 test per source (source approval)		
					Organic Content (IL)	1 test per source (source approval)		
					Microbial Activity (IL)	1 test per source (source approval)		
					LA Coefficient (IL)	1 test per 200 m ³ for each source		
					Slake Durability (IL)	1 test per 500 m ³ for each source		
				(Class 6K, 6L & 6M)	Grading	1 test per 200 m ³ for each source		
					Plastic Limit (IL)	1 test per 500 m ³ for each source		
					Resistivity (IL)	1 test per source (source approval)		
					Water soluble sulphate content (IL)	Source approval and 1 test per 500 m ³ for each source (min 1 test per week)		

Clause	Work, Goods or Material				Test	Frequency of Testing	Test Certificate	Comments
601 631 to 633 635 to 637 640 (Contd)					Oxidisable sulphides (IL)	Source approval and 1 test per 500 m ³ for each source (min 1 test per week)		
					Chloride Ion Content (IL)	Source approval and 1 test per 500 m ³ for each source		
					pH Value (IL)	Source approval and 1 test per 500 m ³ for each source (min 1 test per week)		
				(Class 6k & 6M Only)	Uniformity Coefficient	1 test per 500 m ³ for each source		
					Optimum MC (IL)	1 test per 200 m ³ for each source		
					MC (IL)	1 test per 200 m ³ for each source		
					MCV (IL)	1 test per 200 m ³ for each source		
					LA Coefficient (IL)	1 test per 200 m ³ for each source (min 1 total per source)		
				(Class 6N1, 6N2 & 6P)	Grading	1 test per 200 m ³ for each source		
					LA Coefficient (IL)	1 test per 200 m ³ for each source		
					Undrained Shear Strength (IL)	As Required		
					Effective Angle of Internal Friction and Effective Cohesion (IL)	Source approval and 1 test per 500 m ³ for each source (min 1 test per week)		
					Permeability (IL)	Source approval and 1 test per 500 m ³ for each source		

Clause	Work, Goods or Material				Test	Frequency of Testing	Test Certificate	Comments
601 631 to 633 635 to 637 640 (Contd)					MC	1 test per 200 m ³ for each source		
					MCV (IL)	1 test per 200 m ³ for each source		
					pH Value (IL)	Source approval and 1 test per 500 m ³ for each source		
					Water soluble sulphate content (IL)	Source approval and 1 test per 500 m ³ for each source (min 1 test per week)		
					Oxidisable sulphides (IL)	Source approval and 1 test per 500 m ³ for each source (min 1 test per week)		
					Slope Stability (IL)	Source approval and 1 test per 500 m ³ for each source		
					Slake Durability (IL)	1 test per 200 m ³ for each source		
				(Class 6Q)	Testing and frequency as per Class 1 Material with the addition of the following			
					Water soluble sulphate content (IL)	1 test per 200 m ³ for each source (min of 1 total per source)		
					Oxidisable sulphides (IL)	Source approval and 1 test per 500 m ³ for each source (min 1 test per week)		
					Chloride Ion Content (IL)	1 test per 200 m ³ for each source (min of 1 total per source)		
					pH Value (IL)	1 test per 200 m ³ for each source (min of 1 total per source)		

Clause	Work, Goods or Material			Test	Frequency of Testing	Test Certificate	Comments
601 631 to 633 635 to 637 640 (Contd)		7	Cohesive Material (Class 7H)	Testing and frequency as per Class 2 Material with the addition of the following:		Required	Results demonstrating suitability to be submitted prior to use.
				Water soluble sulphate content (IL)	Source approval and 1 test per 500 m ³ for each source		
				Oxidisable sulphides (IL)	Source approval and 1 test per 500 m ³ for each source		
				Chloride Ion Content (IL)	Source approval and 1 test per 500 m ³ for each source		
				pH Value (IL)	Source approval and 1 test per 500 m ³ for each source		
		8	Miscellaneous fill	MC	Source approval and 1 test per 500 m ³ for each source		
				MCV (IL)	Source approval and 1 test per 500 m ³ for each source		
601.11 & 601.12	Fill adjacent to cementitious material or metallic items			Water soluble sulphate content (IL)	1 test per 250 m ³ (min of 1 total per location)		
				Oxidisable sulphides (IL)	1 test per 250 m ³ (min of 1 total per location)		
602.20	Material within 350mm of designed final surface of road or central reserve			Frost heave (IL)	1 test per 5,000 m ³ (min of 1 total per source)		
609	Geotextiles Used to Separate Earthworks Materials			Durability	1 test per source/supplier		Refer to Appendix 6/5 and/or Appendix 6/9
				Tensile Load	1 test per 500 m ² (min of 1 total per source/supplier)		
				CBR Puncture Resistance	1 test per 500 m ² (min of 1 total per source/supplier)		
				Permeability	1 test per 500 m ² (min of 1 total per source/supplier)		
				Pore size	1 test per 500 m ² (min of 1 total per source/supplier)		

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
612	Compaction of fills				
	Method compaction	Field dry density (IL)	1 test per 10,000 m ²		
		Optimum MC (IL)	1 test per each class of material and each source		
	End product compaction	Field dry density (IL)	1 test per 250 m ³		
618	Topsoiling and grass seeding	Rate of spread of fertiliser	1 per 1000 square metres		
		Rate of spread of seeding			
		Chemical analysis of fertiliser	1 per source		
		Grass seed germination and purity (Manufacturer's test)	1 per source	Required prior to sowing	
622	Earthworks for reinforced earth and anchored earth structures	Redox potential	5 locations within the affected area		
	Reinforcing Elements	Coefficient of friction	1 test for each type of element with each type of fill		
	Anchor Elements	Adhesion			
624	Ground Anchorages	Proof Landing	Every anchor		
626	Gabions	Gabion mesh	Source Approval	Required	
642	Earthworks materials adjacent to structures	Constrained soil modulus (M)*	3 on each side of structure		
614	Lime and Cement Improvement – U1	Water soluble sulphate content	Source Approval		
		Organic Content	Source Approval		
		Rate of spread	1 test per 500m ²		

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
CC-SPW-00800 - Specification for Road Works Series 800 - Road Pavements - Unbound and Cement Bound Mixtures					
801 802 804 805	Unbound mixtures placed within 500mm of cement bound materials, concrete pavements, structures or products	Water soluble sulphate (WS) content (IL)	1 per 200 m ³ for each source (min of 5 total per source)	Required	Where Required
806 807 808 809	Unbound mixtures placed adjacent to metallic structural elements forming part of the Works	Oxidisable sulphides (OS) content (IL)	1 per 200 m ³ for each source (min of 5 total per source)		
		Water-soluble sulfate (WS) content (IL)	1 per 200 m ³ for each source (min of 5 total per source)		
		Oxidisable sulfides (OS) content (IL)	1 per 200 m ³ for each source (min of 5 total per source)		
	Unbound mixtures	Grading and fines content	1 per 1000 tonnes or minimum of 2 per day	Required	Results of routine control tests from the factory production control system operated by the producer to be provided
		Flakiness index (IL)	1 per week		
		Los Angeles Coefficient (IL)	2 per year		
		Methylene Blue (IL)	1 per week		
		Water absorption (IL)			
		Magnesium Sulphate Soundness (IL))	1 per 2 years		
801 802 804 805 806 807 808 809	Types A, B, C & D granular material	OMC (IL)	2 per year		Declared values from the factory production control system operated by the producer to be provided
		Moisture Content	1 per 1000 tonnes or minimum of 2 per day		
		Types B, C, D & E granular material	Liquid Limit (IL)		
		Types A & C granular material	CBR (IL)		
		Density (IL)	2 per year		
		Type C granular material	Percentage of crushed or broken particles and of totally rounded particles in coarse aggregates		
	Type A granular material	Plasticity index (IL)	1 per week		

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
810 821 822 823 824 825 826	Cement Bound Mixtures	Water soluble sulphate (WS) content (IL)	1 per 200 m ³ for each source (min of 5 total per source)		
		Oxidisable sulphides (OS) content (IL)	1 per 200 m ³ for each source (min of 5 total per source)		
		Tests for control and checking of HBM	Test specified in Table 8/15 and Table 8/16		
		Coefficient of Linear expansion (IL)	As Required		
		Test for laboratory mixture design	As specified in Clause 826		

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
CC-SPW-00900 - Specification for Road Works Series 900 - Road Pavements - Bituminous Materials					
2.2	Constituent materials				
3		Bond and tack coats	Requirements per Tables 15	As per Type Test report applicable to the Contract	Required Constituent materials include aggregate, binder, fillers, additives, chippings, pre-coated chippings, reclaimed asphalt, and all other materials that comprise the product. For products not covered by a Harmonised Technical Specification, material properties to be tested at the beginning of the contract to verify the values declared. Tables refer to those contained in TII Series 900.
4		Bituminous mixtures	Requirements per Tables 1, 2, 4, 5, 7, 8, 10, 11 & 14 Clause 4.2.4 for pre-coated chippings	As per Type Test report applicable to the Contract	
5		Aggregate for Surface Courses – Bituminous Mixtures	Friction After Polishing Test (IS EN 12697-49)	1 test per property per source (source approval)*	
6		Surface dressing	Requirements per Tables 15, 17 & 18	As per Type Test report applicable to the Contract	
7.2		Surface Dressing - Aggregate	Friction After Polishing Test (IS EN 12697-49)	1 test per property per source (source approval)*	
7.3		High friction surfacing – binders	Requirements per Table 23a	1 test per property per source (source approval)*	
8.1		High friction surfacing – manufactured aggregates	Requirements per Table 23b		
8.4					
8.6					
9					

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
	High friction surfacing – natural aggregates	Requirements per Table 23c			
	Low energy bound mixtures – Paving Grade and Polymer Modified Bitumens	Requirements per Table 14	1 test per property per source (source approval)*		
	Low energy bound mixtures – Virgin Aggregates and Virgin Filler	Requirements per Table 24a			
	Low energy bound mixtures – Cationic Bitumen Emulsions	Requirements per Table 24b			
	Permanent repair material systems	Requirements per Table 26a	1 test per property per source (source approval)*		
	Emergency repair material systems	Requirements per Table 28a	1 test per property per source (source approval)*		
	Reclaimed asphalt	Requirements per Tables 13a & 13b	As per Type Test report applicable to the Contract		

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
3	Product Composition				
4	Bituminous mixtures – All mixtures	Grading (IL)	A minimum of 1 per 600 tonnes or minimum 2 per five day period or part thereof whichever is greater.	Required	IS EN 13108-21 Factory Production Control (FPC) procedures apply. The samples shall be taken in conjunction with the product manufacturer. Portions of the same samples shall be split between the manufacturer, contractor and the Employer's Representative to enable subsequent test results to be compared.
5		Binder content (IL)			
6		Combined grading (IL)	1 per day*	Required	The samples shall be taken in conjunction with the product manufacturer. Portions of the same samples shall be split between the manufacturer, contractor and the Employer's Representative to enable subsequent test results to be compared.
8.1		Binder content (IL)			
8.4	Permanent repair material systems	Requirements per Table 26b	1 test per property per source (source approval)*		
8.6					

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
9 10	Works	Bituminous mixtures - All mixtures	Temperature of mixture at time of delivery	Per delivery	
			Layer thickness	1 pair of cores every 1,000 linear metres laid per lane.	Measurement taken for each core extracted for in situ air void analysis.
			Temperature of mixture at time of rolling	Continuously	
			Air void content (IL)	1 pair of cores every 1,000 linear metres laid per lane.	Required Cores taken from the wheel tracks. A minimum of three pairs of cores shall be taken.
			Water sensitivity (IL)	1 per Contract	
		Bituminous mixtures – Containing >10% reclaimed asphalt	Recovered penetration (IL)	As required per Series 900	Required
			Recovered softening sub-clause (IL)		
			Indirect tensile strength (IL)		

Clause	Work, Goods or Material		Test	Frequency of Testing	Test Certificate	Comments
			Moisture induced sensitivity test conditioning (IL)			Requirement is to make available to the Employer's Representative
			Rheology (IL)			Requirement is to make available to the Employer's Representative
		Bituminous mixtures - Asphalt Concrete base and binder course specific	Permanent Works – In situ air void content within 100mm of joint (IL)	1 pair of cores every 250 linear metres laid	Required	Cores centred 100mm from the final joint position. A minimum of three pairs of cores shall be taken.
			In situ air void content at refusal (IL)	1 pair of cores every 1,000 linear metres laid per lane		Cores taken from the wheel tracks. A minimum of three pairs of cores shall be taken.
			Resistance to permanent deformation (IL)			
			Stiffness (IL)	1 pair of cores per site between 3,000m ² up to 10,000m ² , 1 pair of cores per 10,000m ² thereafter		
		Bituminous mixtures - Asphalt Concrete surface course specific	Macrotexture - Volumetric Patch (IL)	10 over 50 metres lane length	Required	Refer to Series 900 for requirements regarding minimum test coverage.

Clause	Work, Goods or Material		Test	Frequency of Testing	Test Certificate	Comments
		Bituminous mixtures - Hot Rolled Asphalt surface course specific	Resistance to permanent deformation (IL)	6 cores from the first kilometre length of material from each source; 1 core from each subsequent lane kilometre	Required	
			Rate of Spread of Chippings for shoulder-to-shoulder cover	At Contract start		Refer to Series 900 for requirements of repeating measurements.
			Rate of Spread of Chippings for mechanical chipping spreader	1 per 100m or 1 per day		Refer to Series 900 for requirements of repeating measurements.
			Macrotexture - Volumetric Patch (IL)	10 over 50 metres lane length	Required	Refer to Series 900 for requirements regarding minimum test coverage.
		Bituminous mixtures - Stone Mastic Asphalt binder course specific	Resistance to permanent deformation (IL)	6 cores from the first kilometre length of material from each source; 1 core from each subsequent lane kilometre	Required	
		Bituminous mixtures - Stone Mastic Asphalt surface course specific	Macrotexture - Volumetric Patch (IL)	10 over 50 metres lane length	Required	Refer to Series 900 for requirements regarding minimum test coverage.

Clause	Work, Goods or Material		Test	Frequency of Testing	Test Certificate	Comments
			Resistance to permanent deformation (IL)	6 cores from the first kilometre length of material from each source; 1 core from each subsequent lane kilometre		
		Bituminous mixtures - Porous asphalt surface course specific	Relative hydraulic conductivity (IL)	Every 1,000 linear metres laid per lane and fraction thereof*	Required	
		Bond and Tack Coat	Rate of spread of binder	1 every 20,000 square metres or 1 ever month, whichever is greater		
			Accuracy of spread of binder	1 every 6 months		
		Surface Dressing	Rate of spread of binder	As required per Series 900		
			Accuracy of spread of binder			
			Rate of spread of chipping			
			Accuracy of spread of chipping			
			Volumetric patch (IL)	10 over 50 metres lane	Required	Refer to Series 900 for requirements

Clause	Work, Goods or Material		Test	Frequency of Testing	Test Certificate	Comments
				length		regarding minimum test coverage.
		High friction surfacing	Volumetric patch (IL)	10 over 50 metres lane length	Required	Refer to Series 900 for requirements regarding minimum test coverage.
			Surface shear strength of installed system (IL)	2 per substrate type		At least 1 test measured in the wheel track zone. Test locations at least 20 metres apart.
		Low energy bound mixtures	Moisture content (IL)	1 core every 50 linear metres laid per lane.	Required	
			Relative in-situ density (IL)			
			Air voids content (IL)			
			Indirect tensile stiffness modulus (IL)	1 pair of cores every 250 linear metres laid per lane.		1 core per pair taken from the wheel track zone.
		Repair systems (PRMS, LSRS, ERMS)	Volumetric patch (IL)	1 per discrete area	Required	Methodology described in IS EN 13036-1 should be followed with number of test measurements to suit size of repair.

CC-SPW-01100 - Specification for Road Works Series 1100 - Kerbs, Footways and Paved Areas						
Clause	Works, Goods or Materials		Test	Frequency of Testing	Test Certificate	Comments
1101	Precast concrete kerbs, channels, edgings and quadrants		Bending strength	Minimum of 8 per 1000 units of each product (IS EN 1340)	Required	
1102	In situ asphalt kerbs		Grading	1 test per 500 metres laid	Required	
			Binder Content			
1104	Precast concrete flags		Bending strength	Minimum of 8 per 1000 units of each product (IS EN 1339)	Required	
	Bedding	Granular material				
		Mortar				
1107	Concrete block paving		Compressive strength	Minimum of 8 per 1000 units of each product (IS EN 13389)	Required	
1108	Clay pavers		Bending strength	Minimum of 8 per 1000 units of each product (IS EN 1344)	Required	
			Skid resistance	Minimum of 8 per 1000 units of each product (IS EN 1344)		
1109	Cellular grass paving systems					NSAI Agrément certificate or equivalent scheme applies

CC-SPW-01200 - Specification for Road Works Series 1200 - Traffic Signs and Road Markings					
Clause	Works, Goods or Materials	Test	Frequency of Testing	Test Certificate	Comments
1202	Permanent traffic signs	Test specified in the Standard/Specification given in Clause 1202		Required	I.S. EN 12899-4 Factory Production Control procedures apply.
1213	Permanent traffic cones and traffic cylinders	Part 7 of I.S. En 13422		Required	Quality management and product certification schemes apply
1215	Traffic signals				Quality management scheme applies. Statutory approval of equipment applies
	Cables				Product certification scheme applies
	Controllers (Other equipment)	Tests specified in Appendix 12/5	Each controller before delivery to Site and again after installation		
	Cabling	Tests a, b, c, e, f, g, h, j as defined in sub-clause 1424.2	Each traffic signals installation	Required	Certification that the installation complies with the National Rules for Electrical Installations is required.
1216	Thermoplastic road marking materials	Tested for the requirements of the specification in accordance with I.S. EN 1436 initially on application and as detailed during the guarantee period.		Required	Quality management and product certification schemes apply.
1217	Retroreflecting road studs	Test specified in the Standard/Specification given in Clause 1217		Required	Quality management and product certification schemes apply.

CC-SPW-01300 - Specification for Road Works Series 1300 - Road Lighting Columns and Brackets						
Clause	Works, Goods or Materials		Test	Frequency of Testing	Test Certificate	Comments
1305	Anchorage for use in drilled holes		Tensile load (Manufacturer’s tests)		Required	To provide well attested and documented evidence
1306	Anchorage in drilled holes to columns with flange plates		Loading test on site	1 per 50 anchorages		
1310	Welding		Welding procedures (manufacturer’s tests)	(Every seven years)		Quality management scheme applies
			Welding qualification (Manufacturer’s tests)	(Every two years)		
			Production testing (Manufacturer’s tests)	(Clause 1310 (7.1.4))		
	Welded joints		Destructive testing	See sub-clause 1310 (7.15)		(IL)
1313	GFRP laminates		Loss on ignition	1 per 200 production columns		
			Colour fastness	1 per batch		
			Electric strength			
			Water absorption			
			Impact strength			
1314	Brackets for laminating GFRP lighting columns					
		Polyurethane foam	Bulk density	1 per batch		
			Surface hardness			
			Apparent bulk density	2 per batch		
			Impact strength			
			Flexural stress			

CC-SPW-01400 - Specification for Road Works Series 1400 - Electrical Work for Road Lighting and Traffic Signs					
Clause	Works, Goods or Materials	Test	Frequency of Testing	Test Certificate	Comments
1421	Cable				Product certification scheme applies
1424	Lighting Units	Tests specified in Clause 1424	Each unit	Required	Product certification scheme applies. Certification that the installation complies with the National Rules for Electrical Installations is required
	Networks	Tests specified in Clause 1424	Each network	Required	Certification that the installation with the National Rules for Electrical Installations is required

CC-SPW-02400 - Specification for Road Works Series 2400 - Brickwork, Blockwork and Stonework					
Clause	Works, Goods or Materials	Test	Frequency of Testing	Test Certificate	Comments
2401	Masonry cement			Required (IS EN 413-2)	Quality management scheme applies
		Chloride content	Monthly		Test to be carried out by the manufacturer and results included on the test certificate
2402	Sand			Required per consignment (IS EN 13139)	
		Chloride content	Monthly		Test to be carried out by the manufacturer and results included on the test certificate
2404	Mortar admixtures			Required (IS EN 934-3)	Product certification scheme applies
2405	Lime			Required (IS EN 459-1)	
2406	Bricks				Product certification scheme applies
	Clay	Active soluble salt content (IS EN 772-5) Compressive strength (IS EN 772-1) Water absorption (IS EN 772-7) Freeze/thaw resistance			<i>[Tests/samples (in accordance with IS EN 771-1 should be scheduled as required)]</i>
	Calcium silicate			Required IS EN 771-2)	
	Concrete			Required (IS EN 772-2)	
2407	Blocks				
	Concrete			Required (IS EN 772-2)	
2408	Manufactured Stone	In accordance with IS EN		Required	

CC-SPW-02400 - Specification for Road Works Series 2400 - Brickwork, Blockwork and Stonework					
		771-5			
Clause	Works, Goods or Materials	Test	Frequency of Testing	Test Certificate	Comments
2410	Stainless Steel				
2411	Wire/fabric			Required (IS EN 10088-1)	
	Bars			Required (BS 6744)	

CC-SPW-02600 - Specification for Road Works Series 2600 - Miscellaneous					
Clause	Works, Goods or Materials	Test	Frequency of Testing	Test Certificate	Comments
2601	Bedding mortar materials			Required for each batch	Certification in accordance with Clause 2601 is required
	Bedding Mortar	Flow cone test	Each batch		
		Flow between glass plates			
		Compressive strength			
		Expansion test			
		Water absorption			
		Elastic stability	1 per source		
		Flow cone test Compressive strength	Each load		Site control tests
2604	Plastic coating to fencing posts, gates and ancillaries	Impact test Adhesion Retention of adhesion Salt spray Accelerated weathering (Manufacturer's tests)		Required (BS 1722-16)	Records of all tests to be available for inspection

CC-SPW-02700 - Specification for Road Works Series 2700 - Watermains, Utilities and Accommodation Works					
Clause	Works, Goods or Materials	Test	Frequency of Testing	Test Certificate	Comments
2703	Polyethelene Pipes				
	Butt fusion joints	Tensile test to WIS 4-32-08	As required in Appendix 27/1		Test Report to be made available to the Employer's Representative
	Electrofusion joints	Double cantilever cleavage test to WIS 4-32-08	As required in Appendix 27/1		Test Report to be made available to the Employer's Representative
2708	Integrity of pipes, joints and fittings	Pressure drop test to IS EN 815	As required in Appendix 27/1		Test Records to be made available to the Employer's Representative
2709	Watermain disinfection	Chlorine residual test	Each watermain		Test Records to be made available to the Employer's Representative
		Bacteriological testing	Each watermain		Test Records to be made available to the Employer's Representative

Notes:

1. Tests comparable to those specified in this Appendix will be necessary for any equivalent work, goods or materials proposed by the Contractor (See sub-clause 105.4)
2. (IL) indicates that an ILAB test report or certificate is required.
3. 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.
4. Cube strength tests are not required for concrete complying with Clause 2602.
5. 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.
6. Testing to be carried out by the Contractor in accordance with this Appendix 1/5 shall be undertaken in a laboratory approved by the Employer's Representative. The Contractor shall provide details of his proposed laboratory / laboratories to the Employer's Representative within 1 week of the Starting Date.

Supply and Delivery of samples to the Employer

1. Samples of materials shall be provided to the Employer's Representative as follows:-

Series	Description	Frequency of Sampling	Delivery Location
500	Samples of Aggregates	1 sample per 250m ³	Mayo County Council, Machinery Yard, Castlebar, Co. Mayo.
800	Samples of road pavements bound materials	1 per 500 tonnes or minimum of 2 per week	Mayo County Council, Machinery Yard, Castlebar, Co. Mayo.
900	Samples of bituminous mixtures including cores and other samples	1 per 500 tonnes or minimum of 2 per week	Mayo County Council, Machinery Yard, Castlebar, Co. Mayo.
900	Samples of Coated Chippings for application to HRA (Cl.915)	1 per 75 tonnes or minimum of 3 for Contract	Mayo County Council, Machinery Yard, Castlebar, Co. Mayo.

Notes:

- 1 Samples comparable to those specified in this Appendix will be necessary for any equivalent work, goods or materials proposed by the Contractor (See sub-clause 105.4).
- 2 Unless otherwise shown in this Appendix, samples of work, goods or materials as scheduled under any one Clause are required for all such work, goods or materials in the Works.
- 3 Unless otherwise scheduled under Clause 2602 samples of concrete complying with that Clause are not required.
- 4 (IL) indicates INAB laboratory accreditation is required for sampling.

APPENDIX 1/6 DESIGN OF PERMANENT WORKS BY THE CONTRACTOR

NOT REQUIRED

APPENDIX 1/7 SITE EXTENT AND LIMITATIONS ON USE

1 Extent of the Site

- 1.1 The extent of the Site shall include the lands identified as Chainage 0m to 1600m on the drawing No. CBC 003.
- 1.2 The extent of the Site shall include:-
 - Public roads & footpaths within the Lands identified as "Site Extents" may be used for the purpose of temporary traffic & pedestrian control measures subject to requirements of Appendix 1/17 & 1/18.
 - Public Roads & footpaths outside of lands made available by the Employer which shall be used for removal or installation of Traffic Signs, Road Markings, Road Studs and the like.
 - Public roads & footpaths outside of the lands made available by the Employer which may be used for Authority and Utility diversions.
 - Any other land which the Employer may make available during the course of the Works.
 - Lands owned or occupied by third parties where such lands are permitted to be accessed to reasonably facilitate the construction of Accommodation Works, Authority and Utility connections and Boundary Fencing.
- 1.3 The Contractor shall maintain access for all property owners at all times during the course of the Works.
- 1.4 The Contractor shall always maintain access to business premises and agricultural entrances during the course of the Works.
- 1.5 The Contractor shall be responsible for providing lands for site compounds and any temporary site facilities.
- 1.6 The Contractor is limited to the use of Access Routes by means of public roads to the site as stated in Appendix 1/19.

2 Limitations on Use of the Site:

- 2.1 The lands made available by the Employer shall be used solely for the execution of the Works.

- 2.2 Prior to entering onto the lands made available by the Employer the Contractor shall erect suitable temporary fencing taking into account adjacent land usage to maintain site security and to exclude the general public from the Works area.
- 2.3 The Contractor shall maintain adequate routes for traffic across the site for public roads or temporary diversions in accordance with Clauses 117, 118 and 119 of the Specification for Works.
- 2.4 The Contractor shall ensure that all areas of land, which have been temporarily occupied, are reinstated to the satisfaction of the affected landowner, occupier and the relevant Authorities and Utilities.
- 2.5 Accommodation Works and Works to lands behind the proposed boundary walls and fences are to be completed as soon as possible so that inconvenience to the property owners is minimised. No site accommodation is to be erected on such lands or close to entrances to such lands unless agreed otherwise with the Landowner.
- 2.6 Equivalent parking facilities are required to be maintained during the Works and access for pedestrians, cyclists and vehicular traffic is to be maintained to all properties along the route and along each carriageway.
- 2.7 Notwithstanding other provisions of the Contract, the Contractor shall not have exclusive use of the lands made available by the Employer and shall be aware that third parties may be operating within the extents of the lands made available by the Employer.
- 2.8 The Contractor shall note the constraints listed in all other parts of the Specification and Specification Appendices which may also limit the site extents and the use of the site.
- 2.9 The Contractor should be aware that the anticipated start and end date are outlined in Volume B.

3.0 Archaeological Investigations

- 3.1 The Contractor shall not execute work in Archaeological exclusion Zones until all archaeological resolution works shall have been completed in these areas and shall take cognisance of this when programming the Works. Notwithstanding any other provision of this Contract, the Contractor shall consult and comply with the Project Archaeologist regarding the archaeological exclusion zones, until the necessary resolution works shall have been completed. In this respect the Contractor shall refer to:

Archaeological exclusions zones: N/A

4.0 Adjacent Works

(None at time of going to tender)

5.0 Licences

(None at time of going to tender)

5.0 Additional Particular Limitations on the Use of Certain lands

(None at time of going to tender)

APPENDIX 1/8 OPERATIVES FOR THE EMPLOYER'S REPRESENTATIVE

As required under sub-clauses 2 of Clause 108 of CC/SPW/00100.

APPENDIX 1/9 CONTROL OF NOISE AND VIBRATION

In addition to sub-clauses 1-3 of Clause 109 of CC/SPW/00100

1 Noise Control

- 1.1 The Contractor shall comply with the contents and recommendations of BS 5228: Code of Practice for Noise and Vibration Control on Construction and Open Sites together with the specific requirements of this Appendix 1/9. Further to Clause 109 of the Specification, the Contractor's attention is particularly drawn to sections 5, 8 and 10 of the British Standard. Notwithstanding the above, the Contractor shall employ Best Practicable Environmental Option (BPEO) in accordance with CIRIA Report 64, to minimise noise.
- 1.2 The normal working hours within the Site for pavement operations shall be **Monday to Friday between 08.00 hours and 18.00** hours with no working on weekends or public holidays. The normal working hours within the Site for all other works shall be **Monday to Friday between 08.00 hours and 19.00** hours with no working on weekends or public holidays. Exceptionally the Employer's Representative's consent for work outside these hours may be given after any necessary consultation. Seven days notice is required from the Contractor when seeking such consent.
- 1.3 The Contractor shall employ the best practical means to minimise noise produced by his operations including plant maintenance.

- 1.4 All vehicles and mechanical plant used on the Works shall be fitted with effective exhaust silencers and shall be maintained in good and efficient working order for the duration of the Works. Machines in intermittent use shall be shut down in the periods between Works or throttled down to a minimum. The Contractor shall remove from the Works any item of plant which in the opinion of the Employer's Representative is ineffectively silenced. All compressors shall be "sound reduced" models fitted with properly lined and sealed acoustic covers which shall be kept closed whenever the machines are in use and all ancillary pneumatic percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturers. Pumps and mechanical static plant shall be enclosed by acoustic sheds or screens where directed by the Employer's Representative.
- 1.5 Noise levels shall be monitored by methods set out in Appendix B of BS 5228. All measurements shall be made 1m outside the facade of each building in question. The Contractor shall monitor sound levels at selected other locations specified by the Employer's Representative on site during the progress of the Works.
- 1.6 Any plant such as generators and pumps that are required to work outside the hours of 08.00 - 19.00 shall be surrounded by an acoustic enclosure to the approval of the Employer's Representative that shall restrict the noise levels to not less than 5db(A) below levels quoted in the Table 1.9.1.
- 1.7 The Contractor shall organise his operations with regard to the positioning of plant and the location of haul routes, etc., so it minimises construction noise to adjacent properties.

Table 1.9.1: Schedule of Noise Levels

Period	Hours	Total Noise Levels at Control Stations		
		Ambient Noise Level, L_{Aeq} measured at Control Station dB(A)	Period of Hours over which L_{Aeq} is applicable	Maximum Sound Level (see Note (iv) below measured at Control Station: dB(A)
Monday to Friday (day time working)	8.00 - 1900	70	1	80
Monday to Friday (night time working)	1900 - 2200	60	1	65
All unattended plant night time work hours working hours	1900 - 2200	60	1	65
Night time working	2200 - 0700	50	1	55

Notes:

- i. Noise levels relating to free field conditions. Where noise control stations are located 1 metre from facades of buildings, the permitted noise levels can be increased by 3dB(A).
- ii. The ambient noise level, LAeq, at a specific location is the total LAeq from all the noise sources in the vicinity over the specified period.
- iii. The existing ambient noise level, LAeq, at a specific location is the total LAeq from all the noise sources in the vicinity over the period prior to the commencement of the Works.
- iv. Maximum sound level is the highest value indicated on the sound level meter

2 Vibration Control

- 2.1 Vibration generated by the Contractor's activities shall not adversely affect the structural and serviceability of any building, wall or structure. The maximum permitted peak particle velocity generated by the construction of the Works shall be 8mm/second at low velocities (less than 10Hz) measured at the building, wall or structure closest to the operations being carried out. Allowable levels increase to a maximum of 12.5mm/s at 50Hz and 20mm/s at 100 Hz.
- 2.2 Ground borne vibrations shall not be permitted at sites of freshly placed concrete, i.e. concrete less than 48 hours old.
- 2.3 The Contractor shall employ the best practical means to minimize vibration produced by his activities, including plant selection and maintenance, and shall comply with the recommendations in BS 5228 (Noise and Vibration Control on Construction and Open Sites; Part 1: Code of Practice for basic information and procedures for noise and vibration control).
- 2.4 Monitoring shall be undertaken by the Contractor using a digital seismograph as described in paragraph 2.6 below. Monitoring shall be undertaken at the building, wall or structure closest to the operations being carried out. If necessary, as a result of the Contractors proposed method of work, additional monitoring shall be undertaken at sensitive locations. The Contractor shall obtain all necessary permissions for any additional stations he considers necessary and shall report all findings to the Employer's Representative.
- 2.5 Each vibrograph shall be certified as being in proper working order and shall record vibrations in three directions simultaneously with a print out showing the amplitude and frequency of the vibrations.
- 2.6 Vibration Monitoring Equipment. The type of instrumentation suitable for monitoring vibration shall be a digital seismograph having the following minimum specification:
 - i) Minimum sampling rate 1000 samples/second/channel;

- ii) Capable if recording PPV (Directly), Peak Acceleration (Calculated), Peak Displacement (Calculated), Frequency at the Peak Velocity (Calculated);
 - iii) Dual Mode instrument having (i) Self Triggering Mode and (ii) Continuous Monitoring Mode;
 - iv) Transducer – 3 orthogonally mounted transducers on one mounting unit;
 - v) Frequency Range – 4.5 to 200Hz;
 - vi) Minimum Resolution – 0.05mm/second, velocity;
 - vii) Range – 0 to 100mm/second, velocity;
 - viii) Record of Events – hard copy printout and storage on solid state memory disc for subsequent printout and;
 - ix) Power – 240 volt mains for continuous unattended operation plus internal battery with minimum of 24 hours capacity.
- 2.7 The Contractor shall monitor ground vibrations at selected other locations specified by the Employer's Representative on site during the progress of the Works.

APPENDIX 1/10 STRUCTURES TO BE DESIGNED BY THE CONTRACTOR

NOT REQUIRED

APPENDIX 1/11 EXISTING GROUND LEVELS

As per sub-clause 1 of Clause 111 of CC/SPW/00100

APPENDIX 1/12 SETTING OUT

As per sub-clauses 1-3 of Clause 112 of CC/SPW/00100

1. The Contractor shall be fully responsible for the setting out of the Works and shall be supplied with the information necessary to establish the lines and levels of the Works.
2. The Contractor shall, within one week prior to commencement of the Works, survey the permanent ground markers to verify their integrity, and supply the results of the survey to the Employer's Representative.
3. The Contractor shall ensure that all permanent ground markers and secondary

ground markers are fully protected during the construction of the Works.

4. The Contractor shall not destroy any Permanent Ground Marker (PGM) until a replacement control marker has been established in a position agreed with the Employer's Representative.
5. Where the Contractor establishes permanent control markers, a schedule of all such markers, detailing colour coding or any other distinguishing features, shall be supplied to the Employer's Representative.
6. The Contractor shall, within one week prior to commencement of Works, set out the centre line at longitudinal intervals of 10 metres and at offsets of 1.5 metre, 3.0 metres, 4.5m (or as specified) and road edge from the centreline on both carriageways and level these points. The Contractor shall agree levels with the Employer's Representative prior to commencement of Works. These points shall be maintained for the duration of the works and shall be set out by the Contractor for each layer so that levels can be checked in a joint survey with the Employer's Representative prior to the Contractor proceeding to the next layer of construction.
7. The centreline of the Works shall co-ordinate and be continuous with the centreline of adjacent works or the existing road. The Contractor shall, when instructed by the Employer's Representative, make any adjustments necessary to satisfy this requirement.
8. The design, execution and completion of the Works shall ensure that footways/driveway/carriageway levels tie in satisfactorily to provide a smooth transition to existing.

APPENDIX 1/13 PROGRAMME OF WORKS

1. The Contractor shall provide a programme of Works in accordance with the Contract in the form of a Gantt/Bar Chart produced using Microsoft Project. The programme shall show the level of detail appropriate to each section of the Works. All activities shall be given a short title and numbered. The relevant resources to undertake each activity shall also be shown. The programme must be updated in advance of each progress meeting to show the actual progress against the programme, and the adjustments necessary to achieve Contract completion. The Programme shall be provided in hard copy and in electronic format if required.
2. The following list of Constraints is not exhaustive and should be developed by the Contractor in preparing his programme.
 - Working Hours and Limitations on use of the lands made available by the Employer included in Appendix 1/7 and 1/9 of the Specification.

- The work to privately and publicly owned Public Services and Supplies in Appendix 1/16 of the Specification.
 - "Traffic Safety and Management" requirements are outlined in Appendix 1/17 of the Specification and the requirements for "Temporary Diversions for Traffic" are outlined in Appendix 1/18 of the Specification. The requirements of these clauses and of Appendices 1/17 and 1/18 are to be considered in the preparation of the programme and detailed programmes are to be prepared and submitted to the Employer's Representative, for each area of tie-in with the existing road network.
 - The "Permitted Access Routes" to and from the Site are outlined in Appendix 1/19 of the Specification. The Contractor shall allow for the construction of access routes to site and restrictions on access to and from the site in his programme of Works.
 - Compliance with technical approval procedures in relation to structures, and structural elements and other features to be designed by the Contractor including quality approvals, resubmissions and modifications.
 - The Contractor will be required to obtain approval from Mayo County Council, An Garda Síochána and the Employers Representative of his proposals for traffic management, including the traffic management measures for controlling access to and from the Site of his construction traffic, in accordance with Appendices 1/17, 1/18 and 1/19 of the Specification.
 - The Contractor is required to complete property condition surveys prior to commencement in accordance with Appendix 1/9.
 - Before any Works to services are carried proposals for protection, diversions and temporary support to services are to be agreed and approved by the relevant Authority or Utility provider.
 - Maintenance of access for traffic, pedestrians and cyclists during the Works.
 - Constrained nature of the site.
 - The Contractor shall facilitate other Contractors, Local Authorities, Authorities or Utilities.
3. The programme of Works shall be subdivided as follows:-
- Mobilisation.
 - Installation and commissioning of traffic management measures.
 - Site Clearance.
 - Earthworks.
 - Drainage.
 - Base Course, Binder Course and Surface Dressing showing the quantity of each type of material to be placed each day.
 - Fencing and installation of gates as agreed on site.
 - Accommodation Works.
 - Soiling, Landscaping and Finishing Works.

APPENDIX 1/14 PAYMENT STATEMENTS

- 1 The monthly statements submitted by the Contractor to the Employer's Representative shall, whenever dealing with matters covered by the Pricing Document, be set out under Part and Section headings similar to those in the Pricing Document and shall separately identify each item and specify, quantity, unit, rate and value.

APPENDIX 1/60 ACCOMMODATION WORKS

In addition to sub-clauses 1-4 of Clause 115 of CC/SPW/00100

1. Accommodation Works are detailed on the drawings.
2. The Contractor shall complete the Accommodation Works in an expeditious manner. The Contractor shall give the Employer's Representative at least ten days notice of the date on which he intends to start Accommodation Works.
3. The Contractor shall take precautions to avoid damage to land and property outside of the Area Provided by the Employer, and on completion of the Accommodation Works, the Contractor shall at his own cost, repair and make good to the satisfaction of the Employer's Representative any such damage resulting from both temporary occupation of land necessary for the carrying out of the work and gaining access to the Site of the Accommodation Works. All authorised work carried out by the Contractor outside of the authorised Site shall be at the Contractor's own expense and with the written approval of the landowner concerned. The Contractor shall take all necessary precautions to safeguard all existing buildings and Works from damage by construction activity, plant operation, ground movement and settlement, and all other activities associated with the execution of the Contract. The Contractor shall make all necessary records (photographic or otherwise) of existing structures and other properties that could be affected by execution of the Works prior to the commencement of construction.
4. All drains and services interfered with during the Works shall be reinstated, unless stated otherwise.
5. The Contractor shall provide access at all times to domestic and commercial properties unless otherwise agreed in writing with the property owner.

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

In addition to clauses 1-5 of Clause 116 of CC/SPW/00100

1. Details of the preliminary arrangements that have been made with Authorities, Utilities and others for the alteration of services affected by the Works are listed in this Appendix.
2. The Contractor shall make arrangements with the Authorities, Utilities 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.
3. The Contractor shall take measures for the locating all services prior to commencing Works on Site and for support and full protection of pipes, cables and other apparatus during the progress of the Works and for keeping the Employer's Representative informed of all arrangements he makes with owners of privately owned services, Authorities, Utilities and Public Authorities as appropriate and for ensuring that no existing mains and services are interrupted without the written consent of the appropriate Authority, Utility or management of other publicly or privately owned service or supply.
4. The Contractor shall be responsible for all temporary diversions of mains or services whether listed in this Appendix or not.
5. Should any leakage or damage to any service be discovered, the Contractor shall immediately notify the Employer's Representative and the owners of the service, and the Contractor shall afford every facility for repair or replacement of the apparatus affected.
6. Construction traffic, including all traffic at site accommodation areas, shall only be permitted to transverse buried services after protective measures to be agreed with the Employer's Representative have been implemented. The Contractor shall restrict construction traffic to approved designated crossing points only.
7. Private services to individual properties have not generally been listed or shown on the Drawings. The Contractor shall make arrangements with the Authorities, Utilities and others concerned for the phasing of all necessary disconnections and diversions of private services affected by the Works.
8. Disconnected apparatus shall be removed by the Contractor only with the prior consent of the Authority concerned.
9. The names and telephone numbers of the authorities / bodies serving in the locality are listed in Table 1.16.1;

Table 1.16.1 - Schedule of Contacts for Private and Publicly Owned Services

Names	Contact Details
Uisce Éireann / Irish Water.	• PO Box 860, South City Delivery Office, Cork City, Co. Cork. • Web: www.water.ie • Telephone: 1800 278 278 (General) / 0818 778 778 (Business)
Mayo County Council, Westport - Belmullet Municipal District	• Westport Civic Offices, Altamont Street, Westport, Co. Mayo, F28 W248. • Phone: 094 9064600 • Email: westmayomd@mayococo.ie
Eir	• For queries on orders and faults please email customercare@openeir.ie • Eir plant such as poles, lines etc. that are damaged due to storms or accidents, please call 1800 245 245 to report. • Options around moving, removing or relocating Eir poles, manholes, joint boxes, or cabinets temporarily or permanently, please contact Eir plant alterations department at plantalterations@eir.ie • For a contractor, builder or planner building a development of more than 4 homes, and you want to plan ahead re your fibre broadband connectivity please email openeirheu@secto.ie
ESB Networks	• For Faults/Emergencies (24/7 service) Ring 1800 372 999.

10. Table 1.16.2 - Water Services Required by the Works.

Water Services Required by the Works				
Approx. Location	Description of Works Required	Group **	Drawing No.	Notice to Relevant Body Required to Commence*
Ch 0m to Ch 1600m	Raising and lowering of valve, hydrant and meter covers etc. to suit proposed cycleway and reinstated road levels. No diversions or watermains work anticipated unless damage occurs. The Contractor must immediately repair any damage to water services caused by the works in accordance with Appendix 27/1.	F	CBC 002	Irish Water. Mayo County Council.

***Notes:** The period of '*Notice to Relevant Body Required to Commence*' is the period after:

- a) Liaising with the relevant personnel within the Authority or Utility including technical meetings on-site and;
- b) Agreement has been reached with the Authority or Utility on the extent of the works operation and measures to be taken for traffic control measures and safe working and;
- c) Formal notice has been issued by Contractor following completion of a) and b).

**** Group Descriptions**

- A Work expected to be completed before commencement of the Works.
- B Work required in the Contract, which does not require prior work by the Contractor.
- C Work required by the Contract, which does require work by the Contractor.
- D Work expected to be under construction at the commencement of Works.
- E Work required to be carried out jointly by the Contractor and the Authority or Utility in close liaison and co-operation with each other.
- F Work to be wholly undertaken by the Contractor (in liaison with the Authority or Utility).
- G Services for which work is not required but due care and attention is required to protect the services during the execution of the Work

11. Table 1.16.3 - Road Services Required by the Works.

Road Services Required by the Works				
Approx. Location	Description of Works Required	Group **	Drawing Series.	Notice to Relevant Body Required to Commence*
Ch 0m to Ch 1600m.	Road Strengthening, Road Surfacing drainage and trench reinstatement.	F	As per appendix 0/4.	2 weeks

***Notes:** The period of 'Notice to Relevant Body Required to Commence' is the period after:

- a) Liaising with the relevant personnel within the Authority or Utility including technical meetings on-site and;
- b) Agreement has been reached with the Authority or Utility on the extent of the works operation and measures to be taken for traffic control measures and safe working and;
- c) Formal notice has been issued by Contractor following completion of a) and b).

**** Group Descriptions**

- A Work expected to be completed before commencement of the Works.
- B Work required in the Contract, which does not require prior work by the Contractor.
- C Work required by the Contract, which does require work by the Contractor.
- D Work expected to be under construction at the commencement of Works.
- E Work required to be carried out jointly by the Contractor and the Authority or Utility in close liaison and co-operation with each other.
- F Work to be wholly undertaken by the Contractor (in liaison with the Authority or Utility).
- G Services for which work is not required but due care and attention is required to protect the services during the execution of the Works

12. Table 1.16.4 – ESB Networks & Eir Services and Supplies affected by the Works

ESB Networks and Eir Services and Supplies affected by the Works				
Approx. Location	Description of Works Required	Group **	Drawing Series.	Notice to Relevant Body Required to Commence*
Ch 0m to Ch 1600m.	Raising and lowering of Eir/ ESB chambers and covers etc. to suit proposed Cycleway and reinstated road levels. The Contractor must immediately repair any damage to Eir or ESB services caused by the works in consultation with all Statutory Authority.	F	As per appendix 0/4.	2 weeks

***Notes:** The period of 'Notice to Relevant Body Required to Commence' is the period after:

- Liaising with the relevant personnel within the Authority or Utility including technical meetings on-site and;
- Agreement has been reached with the Authority or Utility on the extent of the works operation and measures to be taken for traffic control measures and safe working and;
- Formal notice has been issued by Contractor following completion of a) and b).

**** Group Descriptions**

- Work expected to be completed before commencement of the Works.
- Work required in the Contract, which does not require prior work by the Contractor.
- Work required by the Contract, which does require work by the Contractor.
- Work expected to be under construction at the commencement of Works.
- Work required to be carried out jointly by the Contractor and the Authority or Utility in close liaison and co-operation with each other.
- Work to be wholly undertaken by the Contractor (in liaison with the Authority or Utility).
- Services for which work is not required but due care and attention is required to protect the services during the execution of the Work

13. Table 1.16.5 - Privately Owned Services affected by the Works

Approx. Location	Description of Works Required	Group	Drawing Series.	Notice to Relevant Body Required to Commence
Ch 0m to Ch 1600m.	Protect privately owned services in situ for the duration of the Works or until such time as any replacement services are ready to be operational in liaison with the relevant owner of the service.	F	As per appendix 0/4.	N/A

***Notes:** The period of '*Notice to Relevant Body Required to Commence*' is the period after:

- Liaising with the relevant personnel within the Authority or Utility including technical meetings on-site and;
- Agreement has been reached with the Authority or Utility on the extent of the works operation and measures to be taken for traffic control measures and safe working and;
- Formal notice has been issued by Contractor following completion of a) and b).

**** Group Description.s**

- H Work expected to be completed before commencement of the Works.
- I Work required in the Contract, which does not require prior work by the Contractor.
- J Work required by the Contract, which does require work by the Contractor.
- K Work expected to be under construction at the commencement of Works.
- L Work required to be carried out jointly by the Contractor and the Authority or Utility in close liaison and co-operation with each other.
- M Work to be wholly undertaken by the Contractor (in liaison with the Authority or Utility).
- N Services for which work is not required but due care and attention is required to protect the services during the execution of the Work.

APPENDIX 1/17

TRAFFIC SAFETY AND MANAGEMENT

In addition to sub-clauses 1-28 of Clause 117 of CC/SPW/00100

1.0 Traffic Safety and Management Requirements

- 1.1 The Contractor shall be responsible for the planning, design, implementation, maintenance and removal of traffic safety and management measures required in order to facilitate the work.
- 1.2 The Contractor shall comply at all times with the requirements of Chapter 8 of the Department of the Environment Traffic Signs Manual, current edition, published by The Stationery Office, and available from the Government Publications Office, Sun Alliance House, Molesworth Street, Dublin 2, Guidance for the Control and Management of Traffic at Road Works (July 2007) prepared by the Local Government Management Services Board and any additional requirements detailed in the Design Manual for Roads and Bridges.
- 1.3 If the contractor decides to utilise the initial traffic management proposal as prescribed by the PSDP, he shall further develop it as set out herein under and finalise its inception through the PSCS and Employers Representative. In the event that an alternative plan is proposed, it shall as a minimum meet the requirements as set out above and herein under. The PSDP shall additionally be consulted prior to its inception.
- 1.4 The Contractor shall submit three weeks prior to the commencement of each traffic management phase of the works to the Employers Representative detailed traffic management plans, including the following information as a minimum:
 - (a) Phasing of the works at each location;
 - (b) Drawings showing the traffic management layout, including:
 - (i) Geometric Design
 - (ii) Width of Lanes
 - (iii) Working Areas
 - (iv) Safety Zones
 - (v) Access and exit locations for construction vehicles
 - (vi) Barriers
 - (vii) Signing
 - (viii) Road markings
 - (ix) Temporary lighting
 - (x) Provision for pedestrians
 - (xi) Provision for emergency service
 - (c) Timing of operations.

(d) Road lighting.

- 1.5 Drawings showing the Contractor's Traffic Management plans shall be to a scale not less than 1/2000, supplemented by drawings at 1/500 scales as necessary, or as required by the Employers Representative.
- 1.6 The Contractor's traffic management proposals shall take account of the work area required for paving and the location of construction joints.
- 1.7 The Contractor shall be subject to the full statutory procedures outlined in the Temporary Closing of Roads Regulations. The period of closure shall be the minimum to facilitate construction of the works. All applications relating to road closures, lane occupations, signs or signals must be submitted to the Employers Representative in writing and require the following notice:
 - i) For making road closures 6 weeks
 - ii) For non-prescribed signs 4 weeks
 - iii) For temporary traffic signals 4 weeks

A temporary road closure shall only be permitted in circumstances where the Contractor can demonstrate to the Employers Representative that such a closure is absolutely necessary for the execution of the works and in accordance with a risk assessment report.

- 1.8 The Contractor shall be responsible for the maintenance of all public roads, site access roads and temporary diversions within the site until issue of the certificate of Substantial Completion. The Contractor shall constantly monitor the public roads while any Lane and/or Carriageway Occupations are in force during the execution of the Works. Any defects identified shall be rectified immediately to the satisfaction of the Employers Representative.
- 1.9 The Contractor shall keep a daily record of all defects, the times when they were identified or reported to him, the action taken to correct the defects, and the times when they were successfully corrected. A copy of this record shall be forwarded to the Employers Representative on the following day, until the completion of those Works requiring the Lane or Carriageway Occupation.
- 1.10 The Contractor shall provide and maintain access to all existing properties adjacent to the Works.
- 1.11 In the event of a traffic accident occurring adjacent to any of the Works, the Contractor shall immediately contact the Gardaí and the Employers Representative informing them of the following:

- a) Location of the accident
- b) The seriousness of the accident and whether any persons are trapped, whether the collision involves vehicles carrying inflammable, corrosive or hazardous substances, whether there is a possibility of ignition from leaking fuel or chemicals.

1.12 Liaison with Traffic Gardaí shall be through the following Office:

Louisburgh Garda Station,
Long Street,
Louisburgh,
Co. Mayo

098 66055

The Contractor shall provide telephone numbers of a minimum of 3 employees who can be contacted by the Gardaí and/or Employers Representative, both during and outside normal working hours, and who shall be responsible for initiating whatever action shall reasonably be required in the event of an emergency.

- 1.13 All drivers including those delivering plant and materials must be given clear instructions regarding the traffic arrangements applicable at any particular time.
- 1.14 The Contractor shall be responsible for maintaining the running traffic carriageway and any pedestrian routes adjacent to the Works in a clean and safe condition at all times.
- 1.15 The Contractor shall assist the Gardaí in moving wide/abnormal loads through the Works by modifying the signing/coning as necessary. Signs/cones so moved shall be replaced immediately the abnormal loads have passed through the Works.
- 1.16 Heavy Goods Vehicles used on Site by the Contractor, his Sub-Contractors or suppliers must be fitted with an audible reversing warning device.
- 1.17 Suitable locations shall be agreed with the Gardaí and the bus service operators for temporary bus stops where existing facilities are affected by the works.

2.0 Minimum Provisions for Vehicular Traffic

- 2.1 Maintain access and egress to lighthouse and farm access points for residents and visitors. Ensure ongoing consultation with all stakeholders for duration of works

- 2.2 Ensure that all stakeholders are notified of the agreed programme of works.
- 2.3 Coordinate the traffic management plan for access and egress with all stakeholders.

3.0 Pedestrian Traffic

- 3.2 The Contractor shall programme the works with the aim of ensuring the safety of pedestrians/cyclists at all times and keeping disruption to pedestrians/cyclists to an absolute practical minimum, and shall submit to the Employers Representative a method statement to demonstrate how he intends to achieve that aim.

4.0 Details of Events that could have a Bearing of the Works

None

Roads including footpaths, cycle tracks and other traffic routes, described above or listed in Appendix 1/19 are the responsibility of:

Road No. L-5896-1 and side roads.
Authority Mayo County Council, Westport - Belmullet Municipal District.
Address: Westport Civic Offices,
Altamont Street,
Westport,
Co. Mayo,
F28 W248.
Tel No: 094 9064600

APPENDIX 1/18 TEMPORARY DIVERSIONS FOR TRAFFIC

In addition to sub-clauses 1-8 of Clause 118 of CC/SPW/00100

Temporary Diversions for Traffic Specified by the Employer's Representative:

The successful contractor will be required to apply for any required road closures once his works programme has been submitted.

Temporary Diversions Proposed by the Contractor:

(i) Notice Requirements:

For obtaining the Employer's Representative's consent in accordance with Clause 118.5 - 2 weeks
See also Notice Requirements in Appendix 1/17.

(ii) Details of Constraints;

The standard of construction of temporary diversions shall in all respects be suitable for the class or classes of traffic using them.

The Contractor shall provide temporary diversion of traffic at all locations where the Works will interfere with existing public or private roads or other ways over which there is a public or private right of way for any traffic.

APPENDIX 1/19 ROUTING OF VEHICLES

(i) Permitted Access Routes to and from the Site

Access to and from the Site shall be by sharing road space with through traffic.

(ii) The use of Permanent Works by Construction Traffic

The Contractor shall take every precaution to prevent dirt, mud or other material being dropped or spread by traffic associated with the works on roads being part of the works, which are made available for public use by the Contractor, whether such traffic is the Contractor's own vehicles, his sub-contractors or his suppliers or vehicles hired by any of the above. The Contractor shall clean roadways of any such dirt, mud or other materials, which may be spilt or spread by traffic travelling to or from the site in connection with the works, whether such traffic belongs to the Contractor, his sub-contractors or his suppliers. The Contractor shall clean all public roads within a distance of 500m of the site and will employ a road suction sweeper where necessary. Such cleaning operations shall be carried out notwithstanding road cleaning work being carried out by the Employer or other Contractors to the Employer.

(iii) Movement of Machinery and Plant across Public Roads

The Contractor shall take care to avoid damage to roads, footpaths, grass margins, and other surfaces within or outside of the authorised site, and shall be liable for the cost of repairing, to the satisfaction of the Employer's Representative and the owner, all such damage caused by his operations. The Contractor shall take precautions to prevent spillage of diesel fuel or other solvents. He shall also prohibit the use of tracked plant on road surfaces outside of the site unless suitably approved protective measures are taken to safeguard the integrity of the road surfaces. Any damage so caused shall be made good by the Contractor at his own expense.

The Contractor shall comply with the maximum legal permissible loads for public roads in Ireland and where requested by the Employer's Representative, the Contractor shall provide evidence of compliance with regard to delivery of material to site. The Contractor shall also prohibit the use of tracked plant on road surfaces outside of the site unless suitably approved protective measures are taken to safeguard the integrity of the road surfaces. Pumping of water onto a public road or private property shall not be permitted. Heavy discharges to gullies and storm drains shall have silt traps incorporated in the temporary discharge arrangement. Any damage so caused shall be made good by the Contractor at his own expense.

(iv) Temporary Structures for Construction Traffic Spanning Areas Used by the Public

Prior approval from the employer will be necessary before constructing any temporary structures in areas used by the public. The contractor will demonstrate that such works are necessary and are safe and suitably designed for use in areas used by the public.

**APPENDIX 1/20
RECOVERY VEHICLED FOR BREAKDOWNS**

NOT REQUIRED

**APPENDIX 1/21
PROJECT INFORMATION BOARDS**

NOT REQUIRED

APPENDIX 1/22 PROGRESS PHOTOGRAPHS

In addition to sub-clauses 1-3 of Clause 122 of CC/SPW/00100

Contractor to provide all progress photographs in electronic format. Progress photographs shall be made available to the Employer's Representative as and when required.

**APPENDIX 1/23
SUBSTANCES HAZARDOUS TO HEALTH**

in addition to sub-clauses 1-8 of Clause 124 of CC/SPW/00100

Risks to Health and Safety from Materials or Substances

The Contractor must comply with the recommendations of the Site Investigation, all Health and Safety Policies, and the requirements of COSHH (Control of Substances Hazardous to Health Regulations 2002).

The Contractor shall ensure that all sub-contractors, public utilities and visitors to the site are made aware and allowed every opportunity to see any risk assessments, COSHH statements pertaining to the site.

1. Protection from Nuisance due to the Works
 - a) Roads to be kept clean:

All roads used by construction traffic shall be kept free of all dirt, mud or any other materials dropped from plant vehicle's tyres and tracks.

The Contractor shall provide, maintain and keep available at all times, equipment incorporating a

brush suction device with collection compartment and such other plant, labour and equipment necessary to keep the roads clean.

b) Nuisance from Dust:

The Contractor shall take all necessary measures to prevent dust arising from the works causing nuisance to traffic and property. He shall keep available at all times plant, labour and equipment capable of preventing dust arising from the works. When excessive dust is emitted from operations within the works, they are to cease on the instruction of the Roads Authority. Also, when traffic speed through the works is limited to less than 10 mph, operations emitting dust must cease when the prevailing wind speed and direction is causing a hazard to virtually standing traffic. The Contractor is to monitor air quality at all times and when assessed as hazardous, he shall cease work immediately and certainly on the instruction of the Roads Authority.

APPENDIX 1/24
QUALITY MANAGEMENT SYSTEMS

To the relevant sub clauses of Clause 104 of CC/SPW/00100

APPENDIX 1/25
PRODUCT CERTIFICATION SCHEMES

To the relevant sub clauses of Clause 104 of CC/SPW/00100

APPENDIX 1/26
IRISH AGREEMENT BOARD ROADS AND BRIDGES CERTIFICATES

To the relevant sub clauses of Clause 104 of CC/SPW/00100

SERIES 200

SITE CLEARANCE

APPENDIX 2/1 LIST OF BUILDINGS, ETC, TO BE DEMOLISHED

Not required

APPENDIX 2/2 FILLING OF TRENCHES AND PIPES

As per sub-clauses 1-10 of Clause 505 of CC/SPW/00500

APPENDIX 2/3 RETENTION OF MATERIAL ARISING FROM SITE CLEARANCE

Description	Location	Delivered to:	Requirements
All Road Signs (excluding poles)	Within the site extents	To be retained safely on site	Signs to be retained to be re-installed on completion of the works as identified on the Work Requirements Drawings
Field Gates	Within the site extents	To be retained safely on site	All existing field gates to be retained by contractor for collection by relevant land owners if required
Building Stone	Within the site extents	To be retained safely on site	All stone from demolition works to be retained and reused in facing retaining walls.

Table 2.3.1 - Retention of Materials Arising from Site Clearance

APPENDIX 2/4 EXPLOSIVES AND BLASTING

NOT REQUIRED

APPENDIX 2/5 HAZARDOUS MATERIALS

The Contractor must ensure that all hazardous waste is handled, collected, transferred and disposed of in compliance with the Waste Management (Hazardous Waste) Regulations (1998) and any subsequent amendments. The Contractor shall outline methodology in this regard in their Waste Management Plan.

SERIES 300

FENCING AND ENVIRONMENTAL NOISE BARRIER

**APPENDIX 3/1
FENCING, GATES & STILES**

Fencing and Gates to be installed in accordance with specification S148 Farm Buildings and Structures, Department of Agriculture, Food and Marine.

**APPENDIX 3/2
TII STANDARD CONSTRUCTION DETAILS**

NOT REQUIRED

**APPENDIX 3/3
DEPT OF AGRICULTURE, FOOD & THE MARINE - S 148 MINIMUM SPECIFICATION FOR
FARM FENCING**

Fencing and Gates to be installed in accordance with specification S148 Farm Buildings and Structures, Department of Agriculture, Food and Marine.

APPENDIX 3/4

NOT REQUIRED

SERIES 400

ROAD RESTRAINT SYSTEMS (VEHICLE AND PEDESTRIAN)

APPENDIX 4/1 SAFETY BARRIERS

NOT REQUIRED

APPENDIX 4/2 PEDESTRIAN RESTRAINT SYSTEMS

NOT REQUIRED

APPENDIX 4/3 SAFETY BARRIER TERMINALS

NOT REQUIRED

APPENDIX 4/4 SAFETY BARRIER MAINTENANCE

NOT REQUIRED

APPENDIX 4/5 ANTI-GLARE SCREENS

NOT REQUIRED

APPENDIX 4/6 SAFETY BARRIERS: TII STANDARD CONSTRUCTION DETAILS

NOT REQUIRED

APPENDIX 4/7 VEHICLE PARAPET SYSTEMS

NOT REQUIRED

SERIES 500

DRAINAGE AND SERVICE DUCTS

APPENDIX 5/1 DRAINAGE REQUIREMENTS

In addition to the requirements of Clauses 501 to 509 of CC/SPW/00500:

1. The Contractor shall ensure as far as possible that no harmful material is allowed to enter any of the watercourses on or around the sites. In particular, no pumping of contaminated groundwater or leachate from excavations into the watercourses shall be allowed. In addition provisions should be made to ensure that any sediment generated during the works does not reach any drainage systems adjacent to the site and located within the site as indicated in the Contract Drawings.
2. Fuel required for mechanical excavators and generators on site shall be contained in a designated fuel point of the Contractor's choice to ensure that surface water and ground water is protected from potential adverse impacts. The fuel storage facility is to be double bunded.
3. Drainage shall be provided as discussed on site.
4. Bedding details for Carrier Drains shall be in accordance with TII CC-SCD-00521 Surface Water Drains, Trench and Bedding Details Type F. Trenches under trafficked areas to be backfilled with Clause 804 material.
5. Gullies to be installed as per CC-SCD-00511 & CC-SCD-00512.
6. All existing drainage pipes/channels that are to be retained shall be cleaned out and unblocked. All material removed shall be disposed off site by the Contractor.

APPENDIX 5/2 SERVICE DUCT REQUIREMENTS

Not required.

APPENDIX 5/3 SURFACE WATER CHANNELS AND DRAINAGE CHANNEL BLOCKS

Not required.

APPENDIX 5/4**FIN DRAINS, NARROW FILTER DRAINS AND GEOTEXTILES FOR FILTER DRAINS**

In addition to the requirements of Clauses 501 to 506 and Clause 509 of CC/SPW/00500:

1. The Contractor shall ensure as far as possible that no harmful material is allowed to enter any of the watercourses on or around the sites. In particular, no pumping of contaminated groundwater or leachate from excavations into the watercourses shall be allowed. In addition, provisions should be made to ensure that any sediment generated during the works does not reach any drainage systems adjacent to the site and located within the site as indicated in the Contract Drawings.
2. Fuel required for mechanical excavators and generators on site shall be contained in a designated fuel point of the Contractor's choice to ensure that surface water and ground water is protected from potential adverse impacts. The fuel storage facility is to be double bunded.
3. Bedding and backfill details for Filter Drains shall be in accordance with TII CC-SCD-00520 Filter Drains, Trench and Bedding Details - Type K.

APPENDIX 5/5**COMBINED DRAINAGE AND KERB SYSTEMS**

NOT REQUIRED

APPENDIX 5/6**LINEAR DRAINAGE CHANNEL SYSTEMS**

NOT REQUIRED

APPENDIX 5/7**DRAINAGE AND SERVICE DUCTS: TII STANDARD CONSTRUCTION DETAILS**

As per Appendix 0/4.

APPENDIX 5/8

NOT REQUIRED

THERMOPLASTIC STRUCTURAL WALL PIPES AND FITTINGS

NOT REQUIRED

APPENDIX 5/9 ATTENUATION

NOT REQUIRED

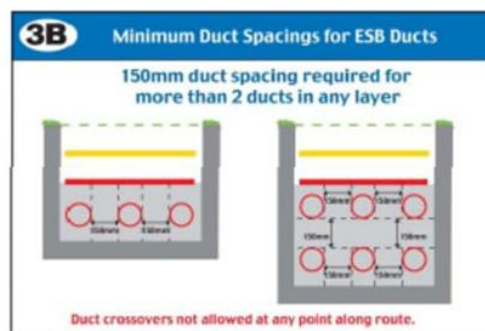
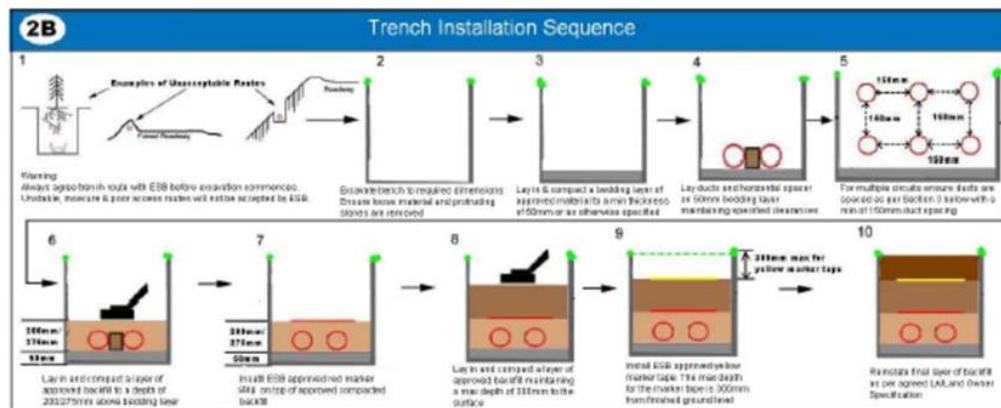
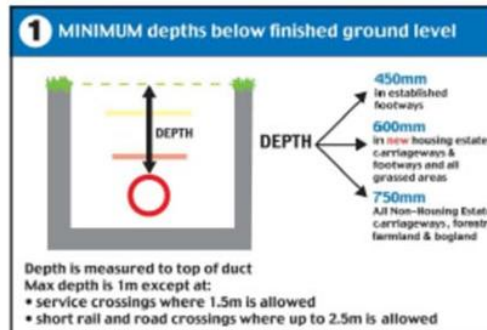
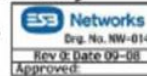
APPENDIX 5/10

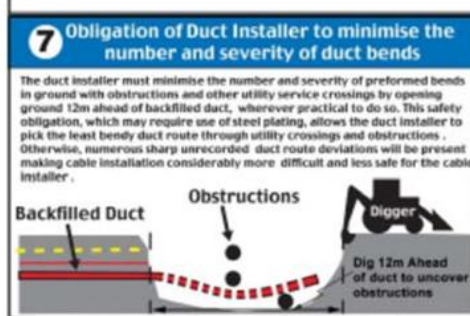
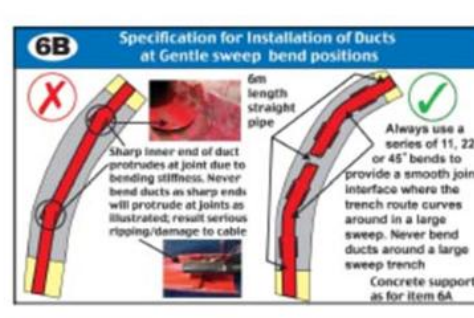
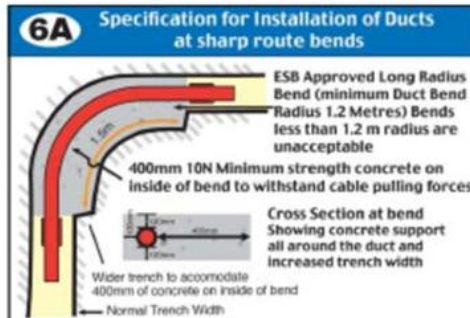
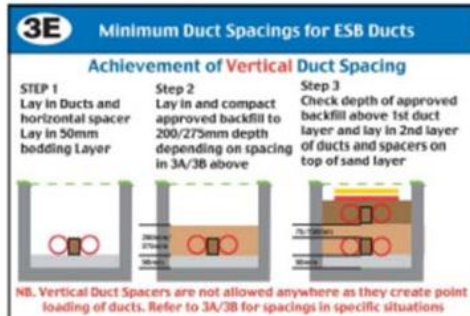
STANDARD SPECIFICATIONS FOR ESB MV/LV NETWORK DUCTING

Standard Specification for ESB MV/LV Networks Ducting (Minimum Standards)

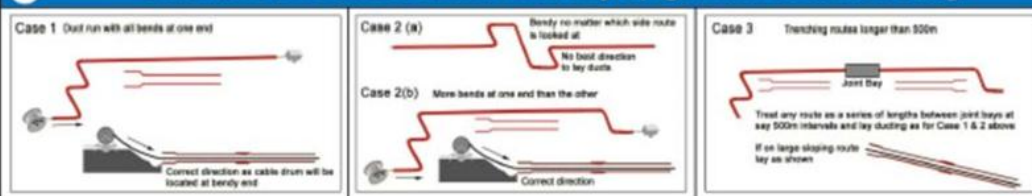
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Note 1: ESB Networks reserves the right not to accept ducting which does not conform to these standards and dimensions
 Note 2: Refer to ESB Networks for Specific Job Specification. These instructions do not apply to 38kV/110kV/220kV cable
 Note 3: All materials (ducts, marker tapes/strips, duct surrounds, mandrels and brushes) must be ESB approved materials





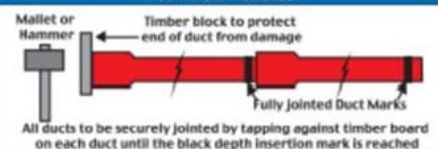
9 Guidance on Correct Direction to Lay Spigot and Socket Ducting



10 Approved ESB Ducting for MV/LV Cables

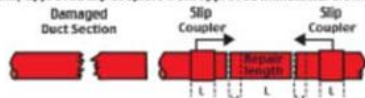
- Use only solid wall high impact resistance ESB approved PVC red ducting to IS 370 code standards and ESB specification 16113 (3.9mm minimum wall thickness). Discoloured or unidentified ducting not acceptable. All duct material must be approved by ESB Network.
- Lightweight flexible corrugated twinwall ducting is not acceptable to ESB irrespective of manufacturer.
- Current approved Duct and duct bend manufacturers are: Lynplast (bend fittings only), Radius Systems, Waxin, Quality Plastics, MFP Plastics, Cork Plastics, Entelle.

11 Specification for Duct Jointing for MV/LV Cables



12 Repair of Existing Ducts

Use only approved slip couplers from approved manufacturers in section 9



- Cut out damaged section of duct and ensure all cut surfaces are square and free from sharp edges
- Slide, position and centre the repair couplers on the centering marks

13 Sealing of Ducts

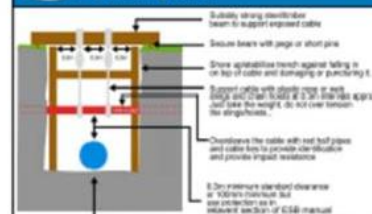
All ducts to be permanently sealed at both ends of duct run
Ducts to be temporarily sealed during installation
using endcaps provided with each bale



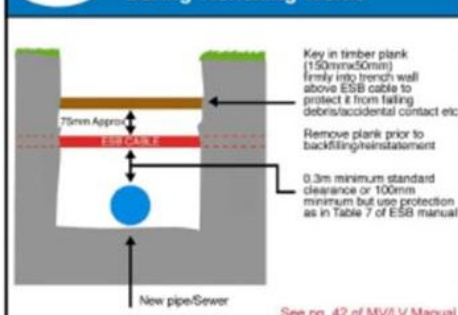
14A Cross-Sectional Drawing of Backfilling in Front of MV Sub

**14B** Plan View of Ducting in Front of Substation

17A Supporting ESB Cables/Ducts During Trenching Works



17B Supporting ESB Cables/Ducts During Trenching Works

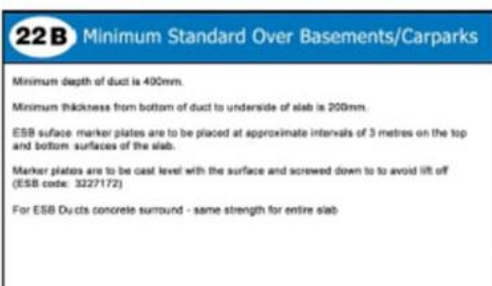
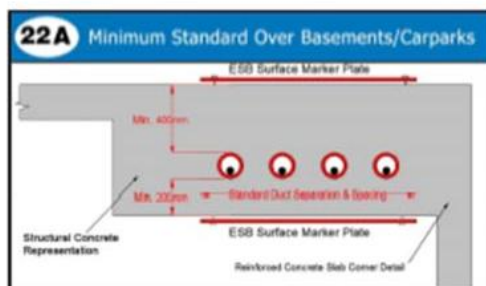
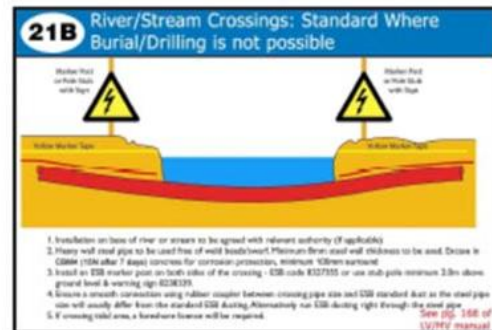
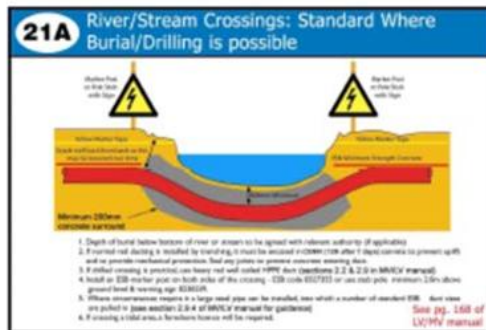
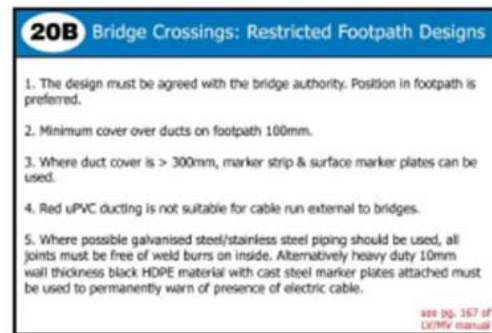
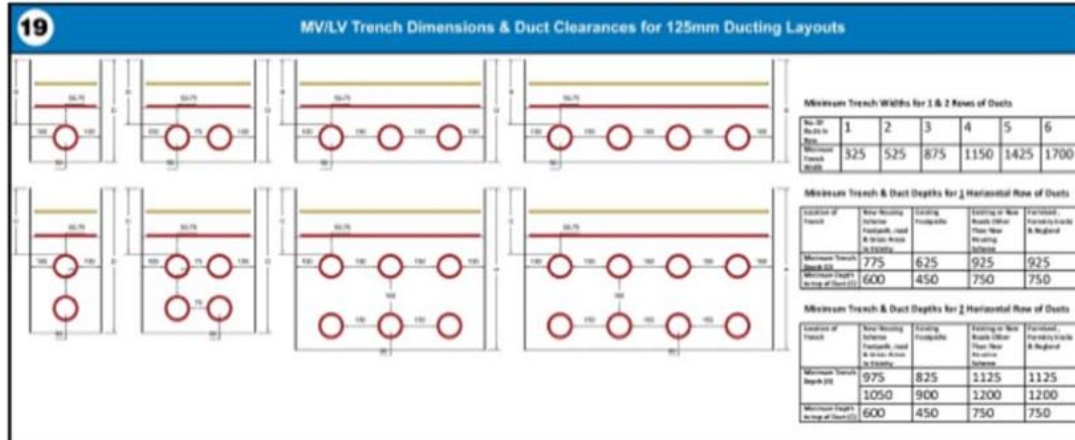


18 Avoidance of Cable Damage Due to Improper Backfilling at Cable Crossings

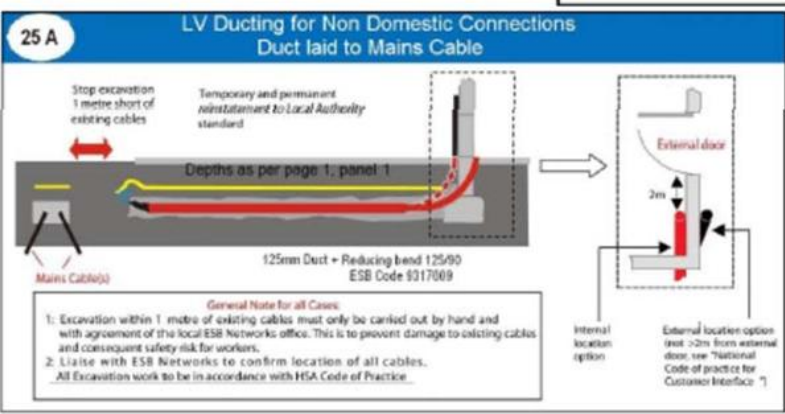
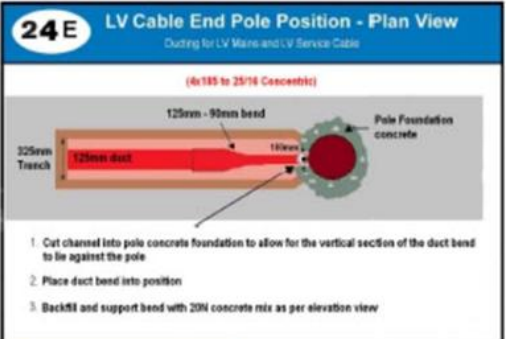
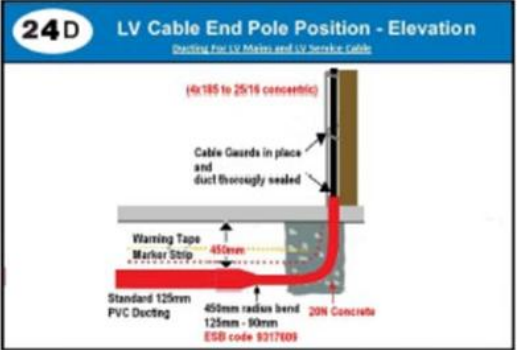
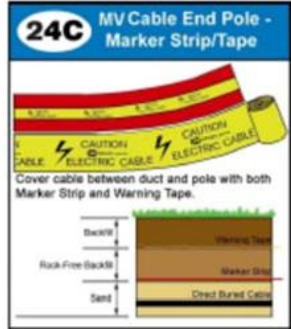
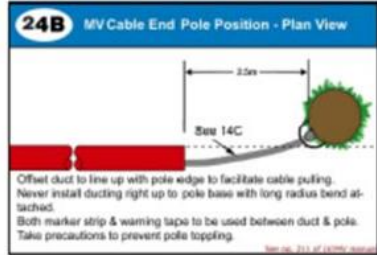
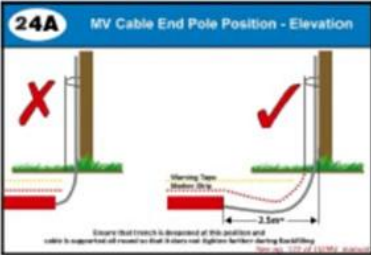
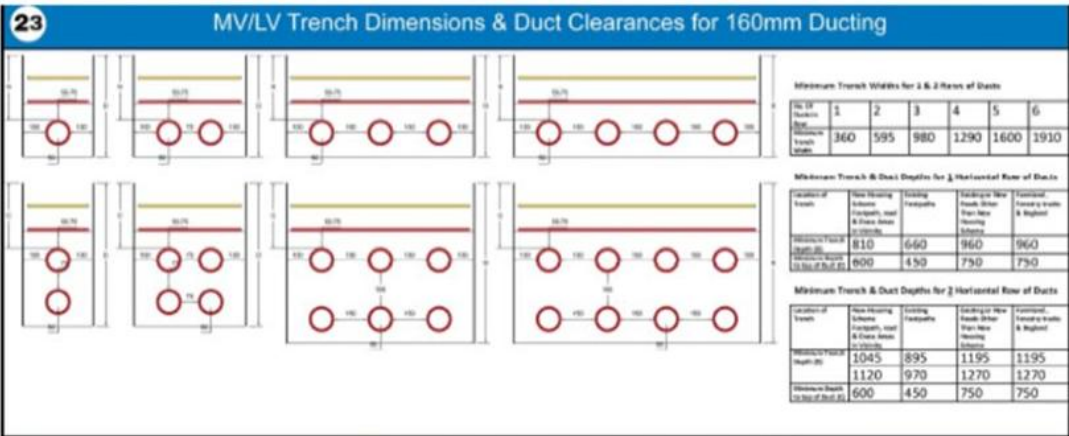


Standard Specification for ESB MV/LV Networks Ducting (Minimum Standards) cont

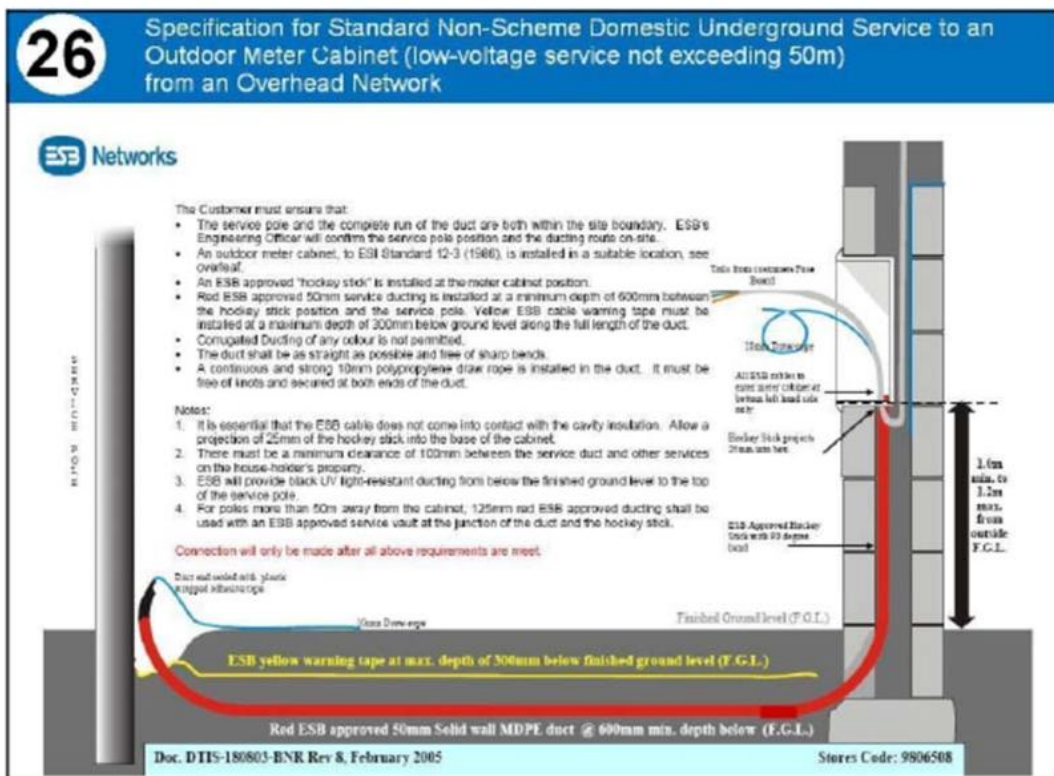
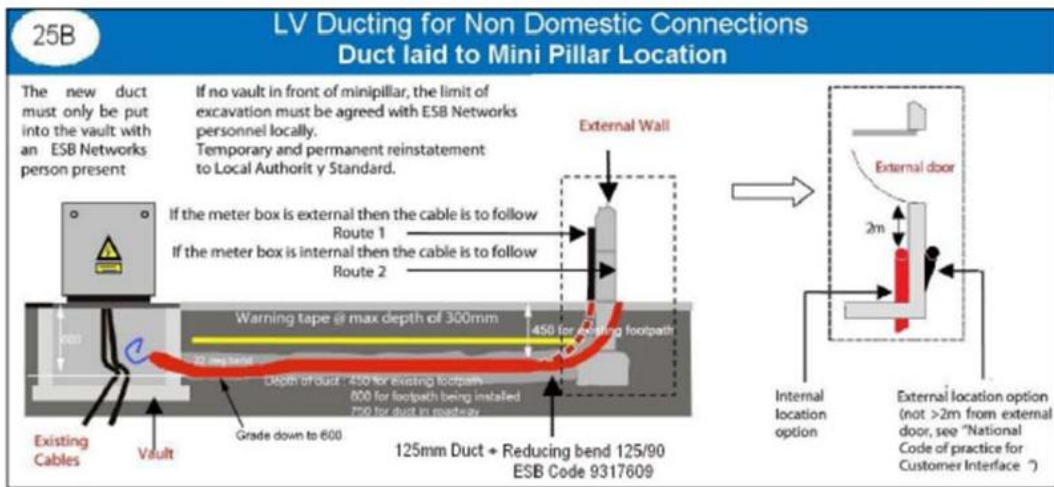
Page 4 of 6



Standard Specification for ESB MV/LV Networks Ducting (Minimum Standards) (cont.) Page 5 of 6



Standard Specification for ESB MV/LV Networks Ducting (Minimum Standards) Cont. Page 6 of 6



SERIES 600

EARTHWORKS

APPENDIX 6/1**REQUIREMENTS FOR ACCEPTABILITY & TESTING OF EARTHWORKS MATERIALS**

NOT REQUIRED

APPENDIX 6/2**REQUIREMENTS FOR DEALING WITH CLASS U2 UNACCEPTABLE MATERIAL**

For the purpose of the Contract, Unacceptable Material Class U2 shall be as defined in Clause 601 (3) of the Specification, where hazardous chemical properties shall be defined as containing biodegradable (putrescible) material (i.e. capable of producing landfill gas), containing leachate, capable of producing leachate, containing asbestos or containing petroleum products.

Contaminated materials or groundwater are not anticipated on this site. Should such materials be found or suspected the Contractor shall immediately notify the Employer's Representative who will issue appropriate instructions for dealing with it.

Provisional Measures for Dealing with Unacceptable Material Class U2

In the event that the Contractor encounters any area where the presence of Unacceptable Material Class U2 is suspected, the Contractor shall cease any excavation work in that area immediately. The Contractor shall make arrangements to have an approved Sub-Contractor, specialising in the identification of such material, carry out testing and sampling on suspected hazardous material.

Where this material is identified as Class U2, the Contractor shall make arrangements for this material to be excavated and removed off site by a specialist waste-disposal Contractor approved by the Employer's Representative. The material shall be disposed of at the properly licensed landfill site subject to the approval of the appropriate Waste Regulation Authority. No materials shall leave the site without the approval of the Employer's Representative. The Contractor shall keep records of the materials removed and shall obtain the Employer's Representative's authentication of the records.

Excavations into or adjacent to Unacceptable material or wastes may encounter concentrations of landfill gas or other hazardous substances. The Contractor shall take all measures necessary to protect site staff, adjacent landowners and members of the public from any harmful effects arising from his operations.

The Contractor shall prepare appropriate Method Statements and safety plans to cover any such operations, which will be subject to the approval of the Employer's Representative.

Groundwater/leachate from contaminated areas shall not be discharged to public or private surface water or foul sewers, or to watercourses without prior approval from the appropriate authority. Should groundwater or leachate be found in contaminated areas, it shall be contained so as to prevent contamination of uncontaminated ground, prior to disposal off site.

APPENDIX 6/3

REQUIREMENTS FOR EXCAVATION, DEPOSITION, COMPACTION

In addition to the requirements of Clauses 601 to 617 of CC/SPW/00600

1. Excavations shall be formed as required
2. Excavations must be programmed, planned and executed taking particular, but not exclusive, account of the constraints given in the other parts of these Specification Appendices.

APPENDIX 6/4 NOT USED

NOT REQUIRED

APPENDIX 6/5 GEOTEXTILES

Non-woven geotextile manufactured from UV stabilised, high tenacity, virgin polypropylene fibres that have been both mechanically and thermally bonded. Terram T2000 or similar approved. To be laid under capping throughout cycleway.

APPENDIX 6/6

FILL TO STRUCTURES

NOT REQUIRED

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

In addition to sub-clauses 1-13 of Clause 613 of CC/SPW/00600

Capping

1. Where identified, capping material is to be provided
2. Capping shall be Class 6F2 only.

Excavation below Formation Level

Excavation below formation level shall generally be 420mm to allow for the construction of the capping layer. Further excavation below the proposed base of capping is not expected although local soft spots may be identified. Soft spots shall be excavated and backfilled to a level directed by the Employer's Representative with acceptable material deposited and compacted using plant and a working method which are suitable to the materials to be handled and traversed. Where, in these circumstances, such backfill has to be deposited below standing water, the Contractor shall use only Class 6A material. Such material shall be deposited below water without the associated use of compaction.

APPENDIX 6/8**TOPSOILING, GRASS SEEDING AND TURFING**

As per sub-clauses 1-13 of Clause 618 of CC/SPW/00600

APPENDIX 6/9**EARTHWORK ENVIRONMENTAL BUNDS, LANDSCAPE AREAS, SCREENING MOUNDS STRENGTHENED EMBANKMENTS**

NOT REQUIRED

APPENDIX 6/10

GABION RETAINING WALLS

NOT REQUIRED

APPENDIX 6/11

SWALLOW HOLES AND OTHER NATURALLY OCCURRING CAVITIES AND DISUSED MINE WORKINGS

NOT REQUIRED

APPENDIX 6/12

INSTRUMENTATION AND MONITORING

NOT REQUIRED

APPENDIX 6/13

GROUND IMPROVEMENT

NOT REQUIRED

SERIES 700

ROAD PAVEMENTS – GENERAL

APPENDIX 7/1**PERMITTED PAVEMENT OPTIONS**

In addition to Clauses 701 and 702 of CC/SPW/00700

Location: Ch 0m to Ch 1600m Cycleway resurfacing

Layer	Material Type and Depth (mm)
Regulating	Clause 804 granular material, compacted in accordance with Series 800 of the TII Specification for Road Works, 70mm thick, laid and compacted to the required line and level.
Binder	Clause 804 granular material, compacted in accordance with Series 800 of the TII Specification for Road Works, 100mm thick, laid and compacted to the required line and level.
Surface	Double Surface Dressing as per Design summary 7 of the I.A.T guidelines for surface dressing in Ireland.

APPENDIX 7/2**EXCAVATION AND REINSTATEMENT OF EXISTING SURFACES**

In addition to Clauses 706 and 707 of CC/SPW/00700

Where excavation/planing of any existing road or footpath is undertaken by the Contractor, the outline of excavation shall be formed using a road saw. Any excavated material shall be replaced with equivalent material to the satisfaction of the Employer's Representative. Joints in bituminous surfaces shall be coated with tar prior to backfilling.

1. All gulleys, pots and chambers which are not being retained shall be removed prior to any surfacing taking place.
2. All voids left in the existing surface as a result of removing gulleys, pots and chambers shall be filled Cl. 804 prior to any surfacing taking place.

3. Trench excavations in the road carriageway/ hardshoulder or hardstrip for Carrier Drains identified are to be reinstated following the principles of CC-SCD-00705 (RCD/700/5), Trench Reinstatement.

APPENDIX 7/3 SURFACE DRESSING

In addition to Clause CC-SPW-00900

APPENDIX 7/4 BITUMINOUS SPRAYS

Location	As required
Type of binder	Sprayed grade Cationic 70% Bitumen emulsion as per design summary 7 of the I.A.T Guidelines for Surface Dressing in Ireland
Rate of Spread	2.2 litres/m ²
Blinding Material	In accordance with Clause 920.6

APPENDIX 7/5

ROAD PAVEMENTS: TII STANDARD CONSTRUCTION DETAIL

Clause No.	Road Construction Detailed Drawing No.
701	RCD/700/1, 2, 3, 4, 5, 6

APPENDIX 7/6

BREAKING UP OR PERFORATION OF EXISTING PAVEMENT

As per Clauses 706 and 707 of CC/SPW/00700

APPENDIX 7/7

NOT USED

APPENDIX 7/8

NOT USED

APPENDIX 7/9

COLD MILLING (PLANING) OF BITUMINOUS BOUND FLEXIBLE PAVEMENT

Not Required

APPENDIX 7/10 MICROSURFACING

NOT REQUIRED

APPENDIX 7/11

HIGH FRICTION SURFACING

Not required

APPENDIX 7/12

LOW ENERGY BOUND MIXTURES

NOT REQUIRED

APPENDIX 7/21

RECIPE SURFACE DRESSING

In addition to Clause CC-SPW-00900

SERIES 1100

KERBS, FOOTWAYS AND PAVED AREAS

APPENDIX 11/1

KERBS, FOOTWAYS AND PAVED AREAS KERBS

1. Not required

FOOTWAYS AND PROPOSED BUILD OUTS6/8

1. Not required

APPENDIX 11/2 ACCESS STEPS

NOT REQUIRED

APPENDIX 11/3

KERBS, FOOTWAYS AND PAVED AREAS: TII STANDARD CONSTRUCTION DETAIL

As per Appendix 0/4.

SERIES 1200

TRAFFIC SIGNS

APPENDIX 12/1

TRAFFIC SIGNS: GENERAL

1. All signage to be in accordance the Department of the Environment Traffic Signs manual.
2. Traffic signs shall comply with;
 - The Traffic Signs Manual, published by the Department of Transport
 - TS4: Guidelines, Certification Scheme and Specification for the Construction of Traffic Signs, issued by the Department of the Environment & Local Government

Where the contractor proposes to use prescribed temporary traffic signs, he shall obtain the approval of the Employer's Representative to their intended location.

Regulatory signs in the Design shall comply with the requirements of:

- The Roads Traffic Signs Regulations 1997
 - The Road Traffic (Signs) (Amendment) Regulations 1998
 - The Road Traffic (Signs) (Amendment) Regulations 2003
 - The Road Traffic (Signs) (Amendment) Regulations 2004
 - Road Traffic (Speed Limit – Traffic Signs) Regulations 2005
 - The requirements for the conversion to "Metric Speed Limits" as identified by the TII.
3. The depth to the top of all sign foundations shall be 150mm. In-situ concrete shall be Mix ST2.
 4. Signs are to be installed at a 95° orientation to the carriageway.
 5. The minimum distance between the nearest edge of all signs and the edge of the carriageway shall be 1.2 metres on turf edged carriageways and 0.6 metres on kerbed carriageways.
 6. The design of sign posts shall be in accordance with BS 873: parts 6 and 7
 7. The design of concrete foundations shall utilise the wind loading described in BS 873: part 1
 8. All sign faces shall be made from fully retroreflecting class 1 material and their size and detailed design approved by Roads Authority in advance of manufacture.

9. Where cyclists are likely to pass under the sign, the desirable mounting height of the lower edge of the sign is 2500mm. See Figure 1.22.

APPENDIX 12/2**TRAFFIC SIGNS: REFLECTIVE MARKERS**

NOT REQUIRED

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

Not Required

Road Studs

N/A

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

Traffic cones, cylinders, Flat traffic delineators shall conform to the Traffic Signs Manual 2010, Chapter 8.

APPENDIX 12/5**TRAFFIC SIGNS: TRAFFIC SIGNALS**

Shall conform to the Traffic Signs Manual 2019, Chapter 8.

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

NOT REQUIRED

APPENDIX 12/7**TRAFFIC SIGNS: PREPARATION AND FINISH OF METAL AND OTHER SURFACES**

Traffic signs shall be manufactured and constructed in accordance with "Guidelines, Certification Scheme and Specification for the Construction of Traffic Signs" – TS4'. Certification to this effect shall be provided to the Employer's Representative.

SERIES 1300

ROAD LIGHTING COLUMNS AND BRACKETS

**APPENDIX 13/1
DESCRIPTION OF LIGHTING COLUMNS & BRACKETS**

Not required

**APPENDIX 13/2
TYPICAL COLUMN AND BRACKET DATA**

Not required

**APPENDIX 13/3:
INSTRUCTIONS FOR COMPLETION OF COLUMN AND BRACKET DATA SHEETS**

Not required

**APPENDIX 13/4:
CERTIFICATION FOR LIGHTING COLUMNS**

Not required

**APPENDIX 13/5:
ROAD LIGHTING COLUMNS AND BRACKETS: TII ROAD CONSTRUCTION DETAILS**

Not required

**APPENDIX 13/6:
CABLE & DUCTING SPECIFICATION**

Not required

SERIES 1400

ELECTRICAL WORKS FOR ROAD LIGHTING & TRAFFIC SIGNS

APPENDIX 14/1 SITE RECORDS

As per clause 1402 of the Transport Infrastructure Ireland (TII) Specification for Roadworks.

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

Not required

APPENDIX 14/3 TEMPORARY LIGHTING

Not required

**APPENDIX 14/4
ELECTRICAL EQUIPMENT FOR ROAD LIGHTING**

Not required

**APPENDIX 14/5
ELECTRICAL EQUIPMENT FOR TRAFFIC SIGNS**

NOT REQUIRED

**APPENDIX 14/6
PREPARATION AND FINISH OF METAL AND OTHER SURFACES**

NOT REQUIRED

SERIES 2400

BRICKWORK, BLOCKWORK AND STONework

APPENDIX 24/1

BRICKWORK, BLOCKWORK AND STONework

1. Not Used.

SERIES 2600

MISCELLANEOUS

APPENDIX 26/1 ANCILLARY CONCRETE

Location	Grade
Bedding and backing to pre-cast concrete kerbing and edging	ST1
Blinding	ST1
Foundations for Traffic Signs	ST2
Drainage Systems	In accordance with manufacturers recommendations.

All concrete mixes shall be in accordance with BS8500-1:2002 and BS8500-2:2002 and the additional requirements of this Clause.

APPENDIX 26/2 BEDDING MORTAR**Bedding Mortar – General**

1. Proprietary bedding mortars shall be mixed, placed and cured in accordance with the manufacturer's detailed instructions.

Early Loading Requirements

2. The maximum stress in bedding mortar should not exceeding 12N/mm² at the time of loading.

**APPENDIX 26/3
CORED THERMOPLASTIC NODE MARKERS**

NOT REQUIRED

SERIES 2700

WATERMAINS, UTILITIES AND ACCOMMODATION WORKS

APPENDIX 27/1 WATERMAINS

Not required

**APPENDIX 27/2:
WATERMAINS: TII ROAD CONSTRUCTION DETAILS**

Clause No.	Road Construction Details
2704.2	RCD/2700/4 & RCD/2700/5
2704.4	RCD/2700/6
2704.6	RCD/2700/7, RCD/2700/8, RCD/2700/9, RCD/2700/10
2704.7	RCD/2700/7 and RCD/2700/8
2707	RCD/2700/1 to RCD/2700/3
2710.2	RCD/12700/13

**APPENDIX 27/3:
ACCOMMODATION WORKS: TII ROAD CONSTRUCTION DETAILS**

TII Standard Drawing No.	Road Construction Details
CC-SCD-02753	Accommodation Works: Domestic Entrance.
CC-SCD-02754	Accommodation Works: Field Access.
CC-SCD-02755	Accommodation Works: Cattle Grid.
CC-SCD-02756	Accommodation Works: Water Troughs.