

DONEGAL COUNTY COUNCIL

Comhairle Contae Dhún na nGall



Bridge Strengthening Programme

Bridge Replacement Works
Contract 6.0, 2026

Volume A

Bryan Cannon
Director of Services for Roads and Transportation,
County House,
Lifford,
Co. Donegal

Road Design,
Lifford,
County Donegal,
Tel: 074 9172360,
Fax: 0749141793

Road Design Office, Lifford Document Control Sheet

Client Details	Road Design Team
	Works on behalf of the Road Design Office

Project Title	Bridge Replacement Works
Project Name	Contract 6.0
Location	Knockbrack, Co. Donegal

Project Ref:	P1146
File Path:	Q:\Bridges & EIS\Bridges\P1146 Bridge Strengthening Programme\2026\Contract 6.0
Job Code	

Rev.No	Status	Report Date	Author(s)	Reviewed By	Approved By
F-01	Final	17/06/2026	MQ	MMG	

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WORK REQUIREMENTS

1.1 Contract Overview

The following section outlines the works requirements for a bridge replacement located at Knockbrack, Co. Donegal. Table 1 provides summary information on the bridge within the contract scope.

Contract Reference	Bridge Reference	Road Reference	Bridge Name	Municipal District
6.01	DL-L1064-B-020	L1064	Knockbrack	Letterkenny

Table 1; Bridge information summary

The subsequent section outlines the individual works requirements for the bridge however the following tasks are also required at this location;

- (a.) Accept appointment as Contractor.
- (b.) Accept appointment as PSCS.
- (c.) Fulfill duties as Project Supervisor Construction Stage (PSCS).
- (d.) Road closure may be required and is the responsibility of the contractor. Contractor to agree dates minimum of 7 weeks in advance of works with Donegal County Council
- (e.) Provision for traffic safety and control.
- (f.) Develop and implement Traffic Management Plan.
- (g.) Develop and implement Site Specific Risk Assessments.
- (h.) Make provision for site establishment and welfare.
- (i.) Make provision for temporary access, access platforms and temporary works.
- (j.) Make provision for suitable measures to safeguard fish stock.

A Site Location Map is attached within the Information Pack.

The following list is a summary and not an exhaustive activity schedule. The Contractor shall read the following sections in conjunction with Volume C, the pricing document and the Contract Drawings outlined in Appendix 0/4.

1.2 Knockbrack Bridge

The following tasks are required at Knockbrack Bridge;

- (a.) Works may be undertaken during a road closure. Exact dates to be confirmed.
- (b.) Remove existing structure and tree adjacent to bridge.
- (c.) Place precast concrete headwalls (HW-XLT1 By FP MCCann) or similar approved.
- (d.) Place Cl.503 bedding material for pipe
- (e.) Install 4kN 1.2m dia twinwall pipe between headwalls.
- (f.) Backfill around pipe using CGBM concrete backfill material.
- (g.) Rubbing strip to be formed with a Type C kerb and 200mm thick layer of C32/40 concrete as per drawings and specification. Cross fall gradient to be no less than 1:20.
- (h.) Build blockwork parapet wall to upstream and downstream sides of bridge; 1.2m high, 0.45m wide with half round coping and smooth plaster finish.
- (i.) Supply and install warning sign directly to the leading edge of the masonry parapets. Warning Sign to be W183 "Barrier Board – 3 bars", 300mm x 1000m in size, oriented vertically
- (j.) Resurface roadway as per drawings and specification.
- (k.) Regrading of embankments and riverbed following works.
- (l.) Supply and place topsoil & grass seed to the verges to return to original condition.

PREAMBLE TO SPECIFICATION

The Specification referred to in the Contract shall be the Specification for Works (SPW) in TII Publications (Standards) published by TII as a collective group of documents under the Construction and Commissioning activity within the online TII Publications system (<http://www.tiipublications.ie/>), 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:-

- Appendix 0/1: Contract-specific Additional, Substitute and Cancelled Clauses, Tables and Figures;
- Appendix 0/2: Contract-specific minor alterations to existing Clauses, Tables and Figures;
- The Numbered Appendices listed in Appendix 0/3.
- Appendix 0/4 containing a list of the Contract 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 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 Contractor shall make adequate allowance for the most onerous condition when submitting the Volume C pricing document. The successful Contractor has an onus to highlight any inconsistencies in writing to the Engineer 7 days prior to any programme implications.

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 that are not required for the Works it shall be deemed not to apply.

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

References in the Specification to "NRA Road Construction Details" shall be taken to refer to "Road Construction Details" as published by the National Roads Authority in March 2000 and including all amendments to the Standards.

Throughout the Specification and Appendices of the Specification the following interpretations shall apply:

"Construction" shall mean **"execution and completion"**.

"Maintenance" shall include Defects correction in the Works.

"plant" shall mean "Goods".

"Engineer" shall mean "Employer's Representative"

"Date for Commencement of the Works" shall mean "date of commencement of the execution of the Works"

"Maintenance Certificate" shall mean **"Defects Certificate"**

"the Permanent Works" shall mean **"the Works excluding temporary works for the Works"**

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	Written on Page No. following
APPENDIX 100/3	ENVIRONMENTAL HABATIT CONSIDERATION	NA

List of Substitute Clauses, Tables and Figures

Clause No. (etc.)	Title	Rewritten on Page No. following
	Not Used	

List of Cancelled Clauses, Tables and Figures

Clause No. (etc.)	Title
	Not Used

Additional Clauses, Tables and Figures

Clause No. (etc.)	Title and written text

Appendix 0/2

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

Clause / Table / Figure No. (etc.)	Title and written text
117.1	Delete 'Guidance for the Control and Management of Traffic at Road Works' and Replace with 'Chapter 8 of the Traffic Signs Manual',

Appendix 0/3

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

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

List 'A' is a complete list of the Numbered Appendices referred to in the Specification for 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.

Guide to types of numbered appendices – who compiles/completes

Symbol

- (E) Engineer Compiles: Identified in the Notes for Guidance examples by the term 'Sample' included in their title.
- (E/C) Engineer partially compiles and Contractor completes and returns to Engineer
- (E/T) Engineer partially compiles and Tenderer completes and returns with Tender
- (C) Contractor completes and returns to Engineer
 - For Contractors information only
- (P) This indicates the Appendix is a national proforma and format must not be altered

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

Completed By	Appendix	Requirement	Completed By	Appendix	Requirement
(E)	0/1	Required	(E)	6/1	Required
(E)	0/2	Required	(E)	6/2	Required
(E)	0/3	Required	(E)	6/3	Required
(E)	0/4	Required	(E)	6/4	Not Used
(E)	1/1	Required	(E)	6/5	Not Used
(E)	1/2	Not Used	(E)	6/6	Required
(E)	1/3	Not Used	(E)	6/7	Required
(E)	1/4	Not Used	(E)	6/8	Required
(E)	1/5	Not Used	(E)	6/9	Not Used
(E)	1/6	Not Used	(E)	6/10	Not Used
(E)	1/7	Required	(E)	6/11	Required
(E)	1/8	Not Used	(E)	6/12	Not Used
(E)	1/9	Required	(E)	6/13	Not Used
(E)	1/10	Not Used	(E)	7/1	Required
(E)	1/11	Not Used	(E)	7/2	Not Used
(E)	1/12	Required	(E)	7/3	Not Used
(E)	1/13	Required	(E)	7/4	Required
(E)	1/14	Required	(E)	7/5	Required
(E)	1/15	Required	(E)	7/6	Not Used
(E)	1/16	Required	(E)	11/1	Required
(E)	1/17	Required	(E)	12/1	Not Used
(E)	1/18	Required	(E)	12/2	Not Used
(E)	1/19	Required	(E)	12/3	Required
(E)	1/20	Not Used	(E)	12/4	Not Used
(E)	1/21	Not Used	(E)	12/5	Not Used
(E)	1/22	Required	(E)	12/6	Not Used
(E)	1/23	Required	(E)	12/7	Not Used
(E)	1/24	Required	(E)	13/1	Not Used
(E)	1/25	Required	(C) (P)	13/2	Not Used
(E)	1/26	Required	(P)	13/3	Not Used
(E)	2/1	Not Used	(E/C) (P)	13/4	Not Used
(E)	2/2	Not Used	(E)	13/5	Not Used
(E)	2/3	Required	(E)	14/1	Not Used
(E)	2/4	Not Used	(E)	14/2	Not Used
(E)	2/5	Not Used	(E)	14/3	Not Used
(E)	3/1	Required	(E/C)	14/4	Not Used
(E)	3/2	Required	(E)	14/5	Not Used
(E)	4/1	Not Used	(E)	14/6	Not Used
(E)	4/2	Not Used	(E)	15/1	Not Used
(E)	4/3	Not Used	(E/C or E/T)	16/1	Not Used
(E)	5/1	Required	(E)	17/1	Required
(E)	5/2	Required	(E)	17/2	Not Used
(E)	5/3	Not Used	(E)	17/3	Required
(E)	5/4	Not Used	(E)	17/4	Required
(E)	5/7	Required	(E)	17/7	Required

Completed By	Appendix	Requirement		Completed By	Appendix	Requirement
(E)	18/1	Not Used		(E)	25/1	Not Used
(E)	19/1	Not Used		(E)	25/2	Not Used
(E)	19/2	Not Used		(E)	25/3	Not Used
(E)	19/3	Not Used		(E)	26/1	Not Used
(E)	19/3**	Not Used		(E)	26/2	Not Used
(E)	19/3**	Not Used		(E)	26/3	Not Used
(E)	19/4	Not Used		(E)	27/1	Required
(E)	19/5	Not Used		(E)	27/2	Not Used
(P)	19/6	Not Used		(E)	27/3	Not Used
(C) (P)	19/7	Not Used		(E)	28/1	Not Used
(C) (P)	19/8	Not Used		(E)	29/1	Not Used
(E)	19/9	Not Used		(E)	55/1	Required
(C) (P)	20/1	Not Used				
(E)	20/2	Not Used				
(E)	21/1	Not Used				
(E)	22/1	Not Used				
(E)	23/1	Not Used				
(E)	23/2	Not Used				
(E)	24/1	Required				

Notes to Compiler: ** These Appendices relate to alternatives in the Sample Appendices where the choice is to be made by the Contractor and all appropriate alternatives should be listed in List A.

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

Completed By	Appendix	Requirement		Completed By	Appendix	Requirement
(E)	100/1	Not Used				
(E)	100/2	Not Used				
(E)	100/3	Required				

List C: List of Numbered Appendices Referred to in the Specification for Road Works which are not used within the Contract.

APPENDIX	DESCRIPTION
PRELIMINARIES	
1/2	Vehicles for the Employer's Personnel
1/3	Communications System for the Employer's Personnel
1/4	Working and Fabrication Drawings
1/5	Testing to be Carried out by the Contractor
1/6	Supply and Delivery of Samples to the Employer's Representative
1/8	Operatives for the Employer's Representative
1/10	Principal Structures to be Designed by the Contractor
1/11	Structural Elements and Other Features to be Designed by the Contractor
1/20	Recovery Vehicles for Breakdowns
1/21	Information Boards
1/22	Progress Photographs
1/23	Substances Hazardous to Health
1/24	Quality Management Systems
1/25	Product Certification Schemes
1/26	Irish Agreement Board Roads and Bridges Certificates
SITE CLEARANCE	
2/1	List of Buildings, etc. to be Demolished
2/2	Filling of Trenches & Pipes
FENCING	
3/2	Fencing: NRA Road Construction Details
SAFETY BARRIERS AND PEDESTRIAN GUARDRAILS	
4/2	Pedestrian Restraint Systems
4/3	Safety Barrier Terminals
4/4	Safety Barrier Maintenance
4/5	Anti-Glare Screens
4/6	Safety Barriers: NRA Road Construction Details
4/7	Vehicle Parapet Systems
DRAINAGE AND SERVICE DUCTS	
5/3	Surface Water Channels and Drainage Channel Blocks
5/4	Fin Drains and Narrow Filter Drains and Geotextiles for Filter Drains
5/5	Combined Drainage and Kerb Systems
5/6	Linear Drainage Channel Systems
5/8	Thermoplastic Structural Wall Pipes and Fittings
5/9	Attenuation
EARTHWORKS	
6/4	Not used
6/5	Geotextiles used to Separate Earthworks Materials
6/9	Earthwork Environmental Bunds, Landscape Areas, Screening Mounds, Strengthened Embankments
6/10	Ground Anchorages, Crib Walling and Gabions
6/12	Instrumentation & Monitoring
6/13	Ground Improvement
ROAD PAVEMENTS – GENERAL	

7/2	Excavation & Reinstatement of Existing Surfaces
7/3	Surface Dressing
7/4	Bituminous Sprays
7/6	Breaking Up of Perforation of Redundant Pavement
7/7	Not Used
7/8	Not Used
7/9	Cold Milling (Planing) of Bituminous Bound Flexible Pavement
KERBS, FOOTWAYS AND PAVED AREAS	
11/2	Access Steps
11/3	Kerbs, Footways and Paved Areas: NRA Road Construction Details
TRAFFIC SIGNS	
12/1	Traffic Signs: General
12/2	Traffic Signs: Reflective Markers
12/4	Traffic Signs: Cones, Cylinders, FTD's and Other Traffic Delineators
12/5	Traffic Signs: Traffic Signals
12/6	Traffic Signs: Special Sign Requirements on Gantries
12/7	Traffic Signs: Preparation and Finish of Metal and Other Surfaces
ROAD LIGHTING COLUMNS AND BRACKETS	
13/1	Information to be Provided by the Designer for the Road Lighting Works When Specifying Lighting Columns & Brackets
13/2	Column and Bracket Data Sheets 1 & 2
13/3	Instructions for Completion of Column and Bracket Data Sheets
13/4	Certification for Lighting Columns
13/5	Road Lighting Columns & Brackets: NRA Road Construction Details
ELECTRICAL WORK FOR ROAD LIGHTING AND TRAFFIC SIGNS	
14/1	Site Records
14/2	Location of Lighting Units & Feeder Pillars
14/3	Temporary Lighting
14/4	Electrical Equipment for Road Lighting
14/5	Electrical Equipment for Traffic Signs
14/6	Preparation and Finish of Metal and Other Surfaces
MOTORWAY COMMUNICATIONS	
15/1	Motorway Communications
PILING AND EMBEDDED RETAINING WALLS	
16/1	General Requirements for Piling and Embedded Retaining Walls
16/2	Precast Reinforced and Prestressed Concrete Piles and Precast Reinforced Concrete Segmental Piles
16/3	Bored Cast-in-Place Piles
16/4	Bored Piles Constructed Using Continuous Flight Augers and Concrete or Grout Injection Through Hollow Auger Stems
16/5	Driven Cast-in-Place Piles
16/6	Steel Bearing Piles
16/7	Reduction of Friction on Piles
16/8	Non-Destructive Methods for Testing Piles
16/9	Static Testing of Piles
16/10	Diaphragm Walls
16/11	Hard/Hard Secant Pile Walls
16/12	Hard/Soft Secant Pile Walls
16/13	Contiguous Bored Pile Walls

16/14	King Post Walls
16/15	Steel Sheet Piles
16/16	Integrity Testing of Wall Elements
16/17	Instrumentation for Piles and Embedded Walls
16/18	Support Fluid
STRUCTURAL CONCRETE	
17/1	Schedule for the Specification of Designed Concrete
17/3	Concrete – Surface Finishes
17/4	Concrete – General
STRUCTURAL STEELWORK	
18/1	Requirements for Structural Steelwork
PROTECTION OF STEELWORK AGAINST CORROSION	
19/1	(Specification for Road Works) Sheet No. Form BE/P1 (New Works) Paint System Sheet
19/2	(New Works) Requirements for Other Work
19/3	(Specification for Road Works) Form BE/P2 Paint Data Sheet
19/4	(Specification for Road Works) Form BE/P3 Paint Sample Despatch List: Sheet 1
19/4	(Specification for Road Works) Form BE/P3 Paint Sample Despatch List: Sheet 2
19/5	(Specification for Road Works) Form BE/PE1 (Maintenance) Paint System Sheet 1
19/6	(Specification for Road Works) Form BE/P1 (Maintenance) Paint System Sheet 2
19/7	(Maintenance) Requirements for Other Work
19/8	(Maintenance) General Requirements
WATERPROOFING FOR CONCRETE STRUCTURES	
20/1	Form PWS Proprietary Waterproofing System Data Sheet (1991 & Annex 'A')
20/2	Waterproofing for Concrete Structures
BRIDGE BEARINGS	
21/1	Bridge Bearing Schedule
BRIDGE EXPANSION JOINTS AND SEALING OF GAPS	
23/1	Bridge Deck Expansion Joint Schedule
23/2	Sealing of Gaps Schedule (other than in bridge deck expansion joints)
BRICKWORK, BLOCKWORK AND STONEMASONRY	
24/2	Brickwork, Blockwork and Stonemasonry: NRA Road Construction Details
SPECIAL STRUCTURES	
25/1	Requirements for Corrugated Steel Buried Structures
25/2	Requirements for Reinforced Soil and Anchored Earth Structures
25/3	Requirements for Clay Brickwork Retaining Walls of Pocket Type and Gravity Construction Structures
MISCELLANEOUS	
26/1	Ancillary Concrete
26/2	Bedding Mortar
26/3	Cored Thermoplastic Node Markers
WATERMANS, UTILITIES AND ACCOMMODATION WORKS	
27/2	Watermains: NRA Road Construction Details
TRENCHLESS INSTALLATION OF ROAD DRAINAGE & SERVICE DUCTS	
28/1	Trenchless and Minimum Dig Techniques
CCTV SURVEY OF ROAD DRAINAGE SYSTEMS	
29/1	CCTV Survey of Road Drainage Systems

STRUCTURAL CONCRETE REPAIR	
55/1	Repair product – additional and modified requirements
55/2	Additional requirements for reinforcement
55/3	Requirements for execution of concrete repairs
55/4	Additional requirements for sprayed concrete
55/5	Additional requirements for crack injection
55/6	Requirements for survey of structure
55/7	Additional requirements for galvanic anodes

Appendix 0/4

LIST OF DRAWINGS INCLUDED IN THE CONTRACT

CONTRACT SPECIFIC DRAWINGS SUPPLIED TO EACH TENDERER

Drawing No.	Bridge Name	Bridge Reference	Drawing Title	Municipal District
6.01	Knockbrack	490	Existing Layout Plan & End Sections	Letterkenny
6.02	Knockbrack	490	Existing Longitudinal Section	Letterkenny
6.03	Knockbrack	490	Proposed Layout	Letterkenny
6.04	Knockbrack	490	Proposed End Sections	Letterkenny
6.05	Knockbrack	490	Proposed Longitudinal Section	Letterkenny

DRAWING BROUGHT TO INTO THE CONTRACT BY REFERENCE

Unless directed by Contract Specific drawings outline herein, all works shall be completed in accordance with relevant TII Standard Construction Details (SCD) in Volume 4 of Contents for NRA Manual of Contract Documents for Road Works (GE-GEN-01002).

Appendix 1/1

ACCOMODATION AND EQUIPMENT FOR THE ENGINEER

Temporary Accommodation and Equipment for the Engineer including duration of time the accommodation shall be available

Accommodation Type	Requirements	Duration
Temporary initial accommodation	Not required	N/A
Principal Office	Not required	N/A
Laboratory	Not required	N/A
Subsidiary static office	Not required	N/A
Subsidiary portable office	Not required	N/A

a. Fitting and Furnishings of Accommodation

Items	Quantity
General Office Equipment	Not required
Equipment for Kitchen Area	Not required
Toilet Equipment	Not required

b. Accommodation and Equipment for the Engineer (which shall become property of the Engineer at the end of the Maintenance Period)

Accommodation Required - (None Required)

Appendix 1/7

SITE EXTENT AND LIMITATIONS ON USE

EXTENT OF THE SITE

The extent of the Site shall include inter alia:

- a. The lands made available for Bridge Replacement Schemes by the Engineer shall be detailed in Contract Drawings listed within Appendix 0/4 of the Specification.
- b. In addition and subject to the agreement of the Engineer, the Extent of the Site shall include areas required for advance coning and temporary traffic signing by the Contractor in compliance with Clauses 1/17 and 1/18 of the Specification where approved.
- c. Areas required for the amendment and/or removal of plant for statutory or other bodies. The use of these areas will be limited by the terms of the way-leaves acquired by the statutory or other bodies for execution of the Works.
- d. The Contractor shall keep open and maintain access facilities to properties for all landowners during the course of the Works.
- e. The Contractor is limited to the use of access routes by means of public roads to the site as stated in Appendix 1/19.
- f. Lands exceeded the site extents may not be made available by the Employer.

LIMITATIONS ON THE USE OF THE SITE

- g. Prior to entering parcels of land not acquired in their entirety, the Contractor shall erect suitable temporary/permanent fencing taking into account the requirements of adjacent land usage.
- h. Where public roads are included within the extent of the Site, the Contractor shall maintain adequate traffic routes across, within and through the Site, or temporary diversions for traffic in accordance with Appendix 1/17 & Appendix 1/18 of the Specification.
- i. The Contractor is limited in the use of public roads as a means of access to the Site as stated in Appendix 1/19.
- j. The Site shall be used solely for the execution of the Works.
- k. The Contractors attention is drawn to Appendix 1/9 of the Specification concerning noise and vibration. The normal working hours on the Site shall be Monday to Friday between limitations on noise 0800 and 1800 hours with no working on Sundays and Public Holidays, unless otherwise restricted to comply with traffic management restrictions in appendices 1/17, 1/18 and 1/19. Exceptionally, the Engineer's consent for work outside these hours may be given after necessary consultation and written approval. A minimum of 5 days notice shall be required from the Contractor when seeking such consent.
- l. The Contractor should be aware that Works outside of normal working hours may be necessary to lessen the impact on local businesses and to ensure the substantial completion date can be achieved. Out of hours work of this nature shall be reflected by the rates provided in Volume C.
- m. The Contractor shall note and have regard to the presence of other contractors on parts of and adjacent to the site.

- n. The Contractor shall not use areas of land with a temporary right of access for any purpose other than the execution and completion of the Works. The Contractor shall minimize the area of land occupied to that, which is essential for the safe execution, and completion of such part of the Works.
- o. The Contractor shall reinstate all areas of land, which have been temporarily occupied to the satisfaction of the affected landowner, occupier and the relevant Authorities, Utilities Service Providers and Private Utility Services and other companies.
- p. Access for pedestrians, cyclists and vehicular traffic shall be maintained to all properties affected by the Works.
- q. Accommodation Works on lands not made available by the Engineer shall be executed and completed as soon as possible so that inconvenience to the property owners and occupiers shall be minimised
- r. Where the execution and completion of the Works affects lands and property the Contractor shall provide suitable temporary access having regard to the use of the lands and property
- s. Notwithstanding the other provisions of the Contract the Contractor shall not have exclusive use of the Site and shall be aware that third parties shall be operating within the extent of the Site. Without limiting the previous sentence, those areas defined in Appendix 1/13 of the Specification and within this Appendix 1/7 shall not be for the sole use of the Contractor.
- t. The Contractor's use of the Site shall be limited to the constraints and restrictions contained within this Appendix 1/7, Appendix 1/13, Appendix 1/17, and Appendix 1/19 of the Specification
- u. The Contractor shall undertake the Works in such a manner as to avoid degradation of the water quality of any of the rivers affected by the Works by pollution as a consequence of site operations.
- v. If Sprayed Concrete or Cementitious Grout Pumping is specified within the bridge structure, the Contractor shall ensure all associated work activities are completed after the diversion of the watercourse by a suitably approved methodology. The desired methodology shall include damming the watercourse and water pumping to produce water free conditions. Watercourse diversions during cementitious work shall be continued during the works and the initial curing period until all excess material is removed. The appropriate Fisheries/River Authority responsible for the watercourse shall be notified of the intend works via a detailed Method Statement which shall be submitted for approved 2 weeks period to the worked commencing onsite.
- w. The attention of the Contractor is drawn to the requirements of the appropriate Fisheries Authority concerning fish trapped by damming/restrictive methodology. Best practice guidance provided by the aforementioned Authority shall be adopted to safeguard fish stocks by the prevention of cementitious materials entering the watercourse. On completion, all temporary works shall be removed in full from the watercourse and surrounding area to a suitably approved licensed facility. The watercourse shall be reinstated to its original levels.

CONSTRUCTION COMPOUNDS

- x. The contractor shall be responsible for making all arrangements for providing any land required for temporary site welfare facilities.

Appendix 1/9

CONTROL OF NOISE AND VIBRATION

The Engineer has informally agreed that the following measures would be appropriate and these are given as a guide; however it is for the Contractor to decide whether to seek the Engineer's formal consent to his proposed methods of work and to the steps proposes in order to minimise noise.

- a. The normal working hours within the site shall be Monday to Friday between 0800 and 1800 hours with no working on Sundays or Public Holidays. Exceptionally, the Engineer's consent for work outside these hours may be given after any necessary consultation. Five days notice is required from the Contractor when seeking such consent.
- b. The noise levels (see Note (i) below) scheduled below for periods outside the normal working hours will only be permitted when consent has been given to exceptional working.
- c. The ambient noise level, L_{Aeq} (see Note (ii) below) from all sources when measured 2.0 m above the ground at locations determined by the Engineer shall either not exceed the appropriate level given in the Schedule or not exceed by more than 3dB(A) the existing ambient noise level, L_{Aeq} (see Note (iii) below), at the control station measured over the same period, whichever level is the greater. The maximum sound level at any noise control station shall not exceed the level given in the Schedule. Exceptionally the Contractor may be given permission to carry out works, which exceed the noise levels in the Schedule, provided that 3 days notice of the date and timing of these works is given to the Engineer, and the Contractor demonstrates that he intends to take all reasonable measures to mitigate the noise nuisance. After consultations with the Local Authority and any other interested bodies a decision will be given within days of receipt of the notice.

Schedule	Total Noise level at Control Stations			
Period	Hours	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	0800 -1800	70	9	80
Saturday	0900 -1600	65	9	75
Sunday and Public Holidays.	1000 -1600	65	8.5	75
All unattended plant outside normal working hours.	1900 - 2200	60		65

Notes:

- I. Noise levels relate to free field conditions. Where noise control stations are located 1m from facades of buildings, the permitted noise levels can be increased by 3dB(A).
- II. The ambient noise level, L_{Aeq} , at a noise control station is the total L_{Aeq} from all the noise sources in the vicinity over the specified period.
- III. The existing ambient noise level, L_{Aeq} , at a control station is the total L_{Aeq} from all the noise sources in the vicinity over the specified period prior to the commencement of the Works.
- IV. Maximum sound level is the highest value indicated on a sound level meter which meets the requirements of BS 5969 Type 1 or 2 set to SLOW response, and frequency weighting A.

VIBRATION

Vibration generated by the Contractor's activities shall not adversely affect the structural and serviceability performance of any building or structure outside the boundaries of the site.

Ground borne vibrations shall not be permitted at sites of freshly placed concrete, i.e. concrete less than 48 hours old.

The Contractor shall employ the best practical means to minimise vibration produced by his operations, including plant maintenance, and shall comply with the recommendations in BS 5228 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration.

CONTROL OF DUST

The contractor shall provide, use, maintain and keep available plant and equipment necessary to minimise the formation and accumulation of dust arising from the works, normally in dry weather conditions.

Appendix 1/12

SETTING OUT AND EXISTING GROUND LEVELS

- a. The Contractor shall set out the Works by reference to ordnance datum Malin Head ordnance survey data and to which all levels quoted on the drawings refer.
- b. The Contractor shall verify the integrity of all control stations in advance of any construction works being undertaken.
- c. The Contractor shall verify existing kerb alignments at tie-in points and notify the Engineer of any discrepancy so that the alignments may be adjusted to provide a smooth transition to existing.
- d. The Contractor shall confirm the existing carriageway levels at all tie-in points to ensure that the existing vertical alignment of the carriageway is maintained upon completion of the refurbishment works.
- e. Where the Contractor establishes subsidiary permanent control markers, such markers shall be of a substantial type and construction, to the approval of the Engineer. A schedule of all such subsidiary markers, detailing colour coding or any other distinguishing features shall be supplied to the Engineer.
- f. The Contractor shall not destroy any Permanent Ground Marker (PGM) or Permanent Bench Mark (PBM) until a replacement subsidiary permanent control marker has been established in a position agreed with the Engineer.
- g. Co-ordinates are to the Irish National Grid. All levels are in metres to ordnance datum Malin.
- h. Tenders may retrieve design co-ordinates from the following location prior to tender submission with 7 days written notice.

	Details
Local Authority / Consultants Office:	Donegal County Council
Address:	Road Design Office, County House, Lifford, Co. Donegal
Tel No:	074 9153900

- i. The Contractor shall be fully responsible for the setting out of the works. The Engineer shall be supplied with sufficient information to establish the lines and levels of the Works.
- j. The precise location of the proposed alignment and the relevant co-ordinates shall be supplied by the Engineer within one week of receiving a written request from the Contractor.
- k. The Contractor shall, within 1 week of the date of commencement of the Works, set out the Works and supply to the Engineer the co-ordinates and level values of all the control points in order that the Engineer may check and agree the co-ordinates.
- l. Prior to commencing construction, the Contractor shall set out centre lines and offset lines in sufficient detail to ensure that the work is fully compatible with existing features and any proposed constructions. The centre lines of the Works shall be perfectly co-ordinate with

and shall be continuous with the centre lines of the adjacent works or existing carriageway. The Contractor shall, when instructed by the Engineer, make any adjustments necessary to satisfy these requirements.

- m. The Engineer accepts no responsibility for replacing any of the setting out control points or master pegs removed or displaced during the course of the Works. The Contractors attention is drawn to Clause 7.7 of the Conditions of Contract in this regard.

Appendix 1/13

PROGRAMME OF WORKS

The Contractor shall provide the programme in the form of a network diagram with should include a "Critical Path Analysis". The analysis must abide by the constraints stated or implied in the Contract. It shall show the level of detail appropriate to each stage of the Works, and all activities and restraints, each of which shall be given a short title. All events shall be numbered and annotated with earliest and latest event dates. The programme must show plant and labour resources, as well as anticipated outputs for each activity and required each flows. The critical path analysis referred to above shall be provided to the Engineer.

SCHEDULE OF STATED CONSTRAINTS

This list of Constraints is not exhaustive and all other constraints suggested or implied by the Contract Documents or considered prudent by the Contractor following his inspection of the Site shall be taken into account by him in formulating his programme.

- a. Work to privately and publicly owned services and supplies. Many of the proposed alterations to existing services require ducting or other works to be undertaken by the Contractor prior to undertaking such alterations. In some cases the services may need to be altered temporarily for a period before the permanent alterations can be undertaken.
- b. Possession (3rd party access consent, way leave etc.)
- c. Traffic safety and management including statutory notice period requirements.
- d. Restrictions arising from the use of substances hazardous to health.
- e. Provision of environmental protection prior to the main construction operation
- f. Approvals by the Engineer of domestic sub-contractor nominations
- g. In river works shall be completed between 1st June to 30th September in the same year as the award of contract unless agreed and confirmed in writing to the Engineer with Inland Fisheries Ireland.
- h. The Contractor is required to consult and comply with the requirements of the National Parks and Wildlife Service (NPWS).
- i. Compliance with technical approval procedures in relation to structures designed by the Contractor, including awaiting approvals, resubmissions and modifications

PROGRAMME LEVEL DETAIL

The programme shall include the following example activates. Tender party shall make reference to works outline in Volume C, pricing document. However this list is not exhaustive. Contractors are encouraged to include additional key task identified while formalising their construction methodology at tender stage.

- a. Establishment of Traffic Management
- b. Site establishment including welfare
- c. Formation of access and egress
- d. Removal of existing structure
- e. Installation of concrete headwalls.
- f. Installation of pipe.
- g. Backfilling of excavation.
- h. Installation of parapet and fencing.
- i. Complete road carriageway re-surfacing & reinstatement of verges.
- j. Making good of entire Site Extents including removal of waste

FORMAT OF REPORTS

All programmes and reports specified herein shall be submitted to the Engineer, unless expressly stated otherwise.

The size, number of copies and electronic format of copies of the programmes and reports to be submitted by the Contractor as specified herein shall be as agreed with the Engineer.

All programmes shall be submitted electronically by the Contractor together with a paper copy at a size that is appropriate to the information contained on such programmes.

Appendix 1/14***MONTHLY STATEMENTS***

The monthly statements submitted to the Engineer in accordance with Clause 7 of the Conditions of Contract by the Contractor shall, when ever 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 1/15

ACCOMMODATION WORKS

Schedule of Accommodation Works already determined and included in the Tender Documents

The schedule of Accommodation works are shown on Relevant Drawings of the Works Requirements drawings Volume A

The Contractor shall complete the Accommodation Works in an expeditious manner and within the time stated for the completion of the works in the contract clauses. The Contractor shall give the Engineer at least ten days notice of the date on which he intends to start Accommodation Works.

The Contractor shall take precautions to avoid damage to land and property outside of the authorised site, and on completion of the accommodation works, the Contractor shall at his own cost, repair and make good to the satisfaction of the Engineer any such damage resulting from both temporary occupation of land necessary for carrying out of the Works 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.

Copies of the Schedule of Accommodation Works and details which may be agreed during the tender period will be made available at:

	Details
Local Authority / Consultants Office:	Donegal County Council
Address:	Road Design Office, County House, Lifford, Co. Donegal
Tel No:	074 9153900

Appendix 1/16

PRIVATELY AND PUBLICLY OWNED SERVICES AND SUPPLIES

In applicable locations, preliminary arrangements have been made with Statutory Undertakers and others for the alteration of services affected by the works are listed in this Appendix.

The Contractor shall make arrangements with the Statutory Undertakers and others concerned, for the co-ordination of his work with all work, which needs to be done by them or their contractors concurrently with the Works. Compliance with the periods of notice given in this Appendix does not relieve the Contractor of his obligations.

Private services to individual properties have not generally been listed or shown on the Drawings. The Contractor shall make arrangements with the Statutory Undertakers and others concerned for the phasing of all necessary disconnections and diversion of private services affected by the Works.

The Contractor only with the prior consent of the Authority concerned shall remove disconnected apparatus.

The names, addresses and telephone numbers of the authorities serving in the locality are listed below:

Schedule of Contacts for Private and Publicly Owned Services and Suppliers

Names	Addresses	Contact	Details
Eir	Eircom Ltd. AEH Kilty, Leterkenny, Co. Donegal	Mr Sean Mac Intyre jjmacintyre@openeir.ie 074 9128464	Details in relation to Eir ducts & other details
ESB	Central Site ESB Networks, Osprey House, Lower Grand Canal Street, Dublin 2	Mr John Finnegan 01 702 6449	Details in relation to ESB Network
Donegal County Council Water Services	Donegal County Council Water Services, County House, Lifford, Co. Donegal	Water Services Reception 074 91 53900 info@donegalcoco.ie	Donegal County Council Water Services
Donegal County Council Roads	Donegal County Council Road Services, County House, Lifford, Co. Donegal	Road Services Reception 074 91 53900 info@donegalcoco.ie	Donegal County Council Roads Service

Appendix 1/17

TRAFFIC SAFETY AND MANAGEMENT

TRAFFIC SAFETY AND MANAGEMENT REQUIREMENTS

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.

- a. 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.
- b. If the contractor decides to develop the preliminary traffic management plan, they shall develop the concept to include the level of detail set out herein and submit to the client for approval.
- c. Alternatively, the Contractor shall design an alternative plan to minimum requirements set out herein for approval by the Engineer and PSDP.
- d. Prior to the commencement of each traffic management phase of the works, the Contractor shall submit four weeks in advance to the Engineer detailed traffic management plans, including the following information as a minimum:
 - Phasing of the works at each location;
 - 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 Provision for emergency service
 - XI. Timing of operations
 - XII. Road lighting
- e. 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 Engineer.
- f. The Contractor's traffic management proposals shall take account of the work area required for paving and the location of construction joints.
- g. 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 Engineer 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

- h. A temporary road closure shall only be permitted in circumstances where the Contractor can demonstrate to the Engineer that such a closure is absolutely necessary for the execution of the works and in accordance with a risk assessment report.
- i. 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 Engineer.
- j. 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 Engineer on the following day, until the completion of those works requiring the lane or carriageway occupation.
- k. The Contractor shall provide and maintain access to all existing properties adjacent to the Works.
- l. In the event of a traffic accident occurring adjacent to any of the Works, the Contractor shall immediately contact the Gardaí and the Engineer informing them of the following:
 - I. Location of the accident
 - II. 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.
- m. Details for the local Traffic Gardaí station should be included within the Contractors approved Health and Safety Plan and Method Statement.
- n. The Contractor shall provide telephone numbers of a minimum of 3 employees who can be contacted by the Gardaí and/or Engineer, 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.
- o. All drivers including those delivering plant and materials must be given clear instructions regarding the traffic arrangements applicable at any particular time.
- p. 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.
- q. 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.
- r. Heavy Goods Vehicles used on Site by the Contractor, his Sub-Contractors or suppliers must be fitted with an audible reversing warning device.
- s. 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.
- t. The Contractor shall comply with notification period requirements outlined within Use of Traffic Lights 2007 guidance.

MINIMUM PROVISIONS FOR VEHICULAR TRAFFIC

- u. Where the existing available carriageway width is sufficient, two 3m (minimum) wide traffic lanes are to be kept open for two-way traffic at all times during the course of the Works.
- v. Where the existing available carriageway width is not sufficient to maintain 2-way traffic, alternate one-way (shuttle) working will be permitted provided:
 - I. An optimal carriageway width of 3.5m is maintained at all times. An absolute minimum width of 2.7m shall be permitted in exceptional circumstances. The minimum width shall only be considered where “follow –me” convoy vehicles are provided to assist guiding vehicles through the works during site working hours.
 - II. The one-way shuttle system shall be designed to operate on the basis of a maximum time delay per vehicle of 6 minutes and a maximum queue length of 35 vehicles.
 - III. If unacceptable traffic congestion disruption occurs as defined above, or where queuing traffic affects the operation of another junction, the shuttle working is to be removed forthwith and an alternative method employed.
 - IV. Flagmen shall be used to provide variable ‘green’ time commensurate with actual demand at all times during working hours. Outside working hours temporary traffic signals may be considered, subject to a risk assessment.
 - V. At all times when one-way shuttle working is in operation, a sufficient number of suitable operatives are to be in attendance solely for traffic management duties.
 - VI. The overall length of road subject to shuttle working shall be designed to satisfy the requirements of the above paragraphs and should be in the range of 250m to 750m in length, with inter-visibility (where practicable) between flagmen and traffic signals. The geometry of the road including bends and junctions shall be taken account of when planning and implementing the shuttle system.

PEDESTRIAN TRAFFIC

- w. 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 Engineer a method statement to demonstrate how he intends to achieve that aim.

Appendix 1/18

TEMPORARY DIVERSIONS FOR TRAFFIC

The Contractor shall provide for the design and construction of all temporary road surfaces that are deemed necessary for the temporary diversion of traffic where construction interferes with existing public or private roads or other ways over which there is a public or private right of way, whether vehicular or pedestrian.

- a. Before proposing any temporary traffic diversions, the Contractor shall consult with the Engineer, the Gardaí and Bus Éireann and shall then submit an outline of his requirements to the Engineer for his comments. Following this, the Contractor shall submit a formal application to the Engineer for any statutory orders required to be made or notices required to be published. The Contractor shall allow an appropriate notice period as outlined in Appendix 1/17 for the orders to be made and notices to be published.
- b. Temporary diversions shall include carriageway closure and lane diversions to complete the works including design, construction and maintenance and removal of contra flows.
- c. In the event that temporary roadways are required. Temporary roadways shall be constructed to an alignment and design approved by the Engineer with a pavement consisting of not less than 100mm thick dense bitumen macadam on 150mm thick sub-base to Clause 804 on a firm foundation with adequate drainage.
- d. The minimum carriageway width and headroom for temporary diversion and temporary roads shall be as follows unless otherwise specified by the Engineer:

	Headroom (m)	Width (m)
Trafficked areas single lane	5.3m	3.25m
Trafficked areas two lane	5.3m	6.0m*
Footpaths	2.5m	1.5m
Access road	4.25m	4.0m

Appendix 1/19

ROUTING OF VEHICLES

PERMITTED ACCESS ROUTES TO AND FROM THE SITE

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

THE USE OF PERMANENT WORKS BY CONSTRUCTION TRAFFIC

- b. 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 other Contractors employed by the Employer.

MOVEMENT OF MACHINERY AND PLANT ACROSS PUBLIC ROADS

- c. 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 Engineer 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 Engineer, the Contractor shall provide evidence of compliance with regard to delivery of material to site. 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.

TEMPORARY STRUCTURES FOR CONSTRUCTION TRAFFIC SPANNING AREAS USED BY THE PUBLIC

- d. Prior approval from the Engineer 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 1/23

SUBSTANCES HAZARDOUS TO HEALTH

Risks to Health and Safety from Materials or Substances

- a. 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) or latest edition.
- b. 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.
- c. 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 Engineer.
- d. 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 Engineer.
- e. The following list details materials which may require such particular precautions:
 - Concrete dust
 - Cement dust
 - Bituminous dust arising from planning
 - Spray applied waterproofing
 - Volatile materials (i.e.; primers, paints, sealants etc.)
 - Stonework dust
 - Polyurethane Resin
 - Epoxy Based Concrete

This list is not fully comprehensive and further materials will fall within the scope of this requirement. The Contractor shall submit to the Engineer his proposals for complying with the above requirements 14 days in advance of the use of the potentially hazardous material.

Appendix 1/24

QUALITY MANAGEMENT SCHEMES

The Contractor shall institute, maintain and operate a quality management system complying with BS EN ISO 9001 or BS EN ISO 9002 as appropriate. The quality management system shall be described in a Quality Plan that shall be submitted to the Engineer if requested.

The Quality Plan shall cover but not be limited to the following items:

The Contractor's organisation and management of the Contract;
The Contractor's method statements and construction procedures for the Works;
The Contractor's construction quality control for the Works;
The nominated Subcontractor's and Material Supplier's Quality Plans;

METHOD STATEMENTS AND CONSTRUCTION PROCEDURES FOR THE WORKS

This section of the Quality Plan shall include but not be limited to:

Detailed method statements for each major activity whether the Contractor directly controls such activities or subcontracted and shall include those major activities listed in sub-clause 4 below.

The method statements shall identify suitable hold points for all activities including:

- work instructions;
- quality control procedures;
- compliance testing/inspection arrangements such as Cementitious Grout Pumping or Sprayed Concrete application; and
- work acceptance procedure.

Method statements shall describe site management procedures, emergency procedure, environmental management procedures, each stage of the construction, the layout of the Works, identify the plant and materials to be used, temporary works with design certificates, safety measures, working space considerations, and where appropriate the requirements for skilled labour and/or special supervision and the like.

Where work is subject to environmental requirements, for example, working in close proximity, noise and dust control, working hours, traffic conditions, vehicle routings, screening and the like, these shall be stated.

Appendix 1/25

PRODUCT CERTIFICATION SCHEMES

- a. All products used shall be compliant with the Construction Products Regulation (CPR).
- b. Products covered this scheme shall have a Declaration of Performance (DoP) for the product, and the CE mark affixed.
- c. All products used within this scheme shall have kitemark or Irish Standard Mark ISM
- d. Certification body: The Certificate and Inspection Department, National Standards Authority of Ireland,
Eolas, Glasnevin, Dublin 9, Ireland.

Appendix 1/26

IRISH AGREEMENT BOARD ROADS AND BRIDGES CERTIFICATES

Approved Body: Irish Agrément Board,
NSAI,
Glasnevin,
Dublin 9

Appendix 2/3

RETENTION OF MATERIAL ARISING FROM SITE CLEARANCE

Any road construction materials that can be sourced within the site extents may be used in the formation of river embankments if deemed suitable by the Engineer. Tender parties to assume there will be no site won material when completing tender submissions.

- a. Topsoil sourced on site will be used for landscaping and those areas will be planted with grass or shrubs as appropriate
- b. Unsuitable excavated material at the discretion of the Engineer shall be deposited to an approved off-site licensed facility. Without limiting the previous sentences, Contractors shall take this limitation into consideration when submitting their rates within Volume C pricing document.
- c. Unless specified otherwise, the Contractor shall remove all vegetation, algae, creepers and trees within and surrounding the structure (within 4m) as directed by the Engineer. The area affected is to be reinstated with topsoil and sown out with grass seed and trees chopped into 1m lengths and left in an easily accessible location for landowner. All trees, bushes and shrubs, etc shall be carefully removed from the structure in such a manner as to avoid any damage to the masonry. As far as possible, all roots shall be removed and the resultant void treated with 3 No. applications of an approved type of weedkiller at 24-hour intervals. Any voids in the masonry shall be made good in masonry and/or by pointing under the appropriate items.
- d. Extra care shall be taken to completely remove all growths in the vicinity of existing pointing which could have a deleterious effect on repointing work.
- e. Invasive roots shall be removed insofar as possible. Invasive roots not able to be fully removed in their entirety, shall be cut back as far as possible and treated with a suitable systemic herbicide, as approved by the Engineer, such as to prevent regrowth. Material removed of this nature, shall be transported to an approved off-site licensed facility.
- f. As directed by the Engineer, all vegetation shall receive three applications of an approved weedkiller at 24-hour intervals. Source approval shall be obtained from the Engineer prior to application. All weedkiller shall be carefully controlled to prevent pollution of the watercourse and shall be kept in an approved lockable store. Application shall be by pressure spray.

Appendix 3/1

FENCING, GATES AND STILES

- a. Unless specified otherwise within the Works Requirements, Timber post and wire fence, with galvanised stockproof mesh to TII Publication number: CC-SCD-00304 with suitably preserved timber, include for priming, undercoat & woodstain.
- b. Unless specified otherwise within the Works Requirements, Steel Single Field Gates, to TII Publication number: CC-SCD-00309, include all fixtures & fittings and additional post where specified all steel to fixtures and fittings to be galvanised.

Appendix 4/1

ROAD RESTRAINT

- a. Road Restraint works requirements are outlined within Volume C pricing document and contract drawings outlined in Appendix 0/4. All works shall be conducted in accordance with the Specification for Road Works Series 400 - Road Restraints Systems (Vehicle and Pedestrian)
- b. Temporary safety barriers shall be provided by the Contractor if deemed necessary by the Site Specific Risk Assessment.

Appendix 5/1

DRAINAGE REQUIREMENTS

Drainage works requirements are outlined within Volume C pricing document and contract drawings outlined in Appendix 0/4. All works shall be conducted in accordance with the Specification for Road Works Series 500 - Drainage and Service Ducts unless amended in the following points;

- a. The values of pipe stiffness and impact resistance for plastic pipes are as follows:
 - I. ultimate pipe stiffness (STES) in excess of 1400 N/m² when tested in accordance with BS 4962; and
 - II. resistance to impact complying with BS 4962 except that the striker used in the test shall have a mass of 1kg and a 25mm hemispherical radius.
- b. Joints in surface water drains may be partly watertight as Clause 504.4.
- c. Existing land drains severed by the Works shall be extended to the nearest road drainage pipe and connected to same.
- d. Manhole chamber types A, B and C, which is used in the Works, are shown on drawings CC-SCD-00502, CC-SCD-00503 and CC-SCD-00504 respectively.
- e. Manhole covers and frames shall be manufactured from either grey iron or ductile iron and shall conform to the requirements of EN124 Specification. Class D400 to be used.
- f. Cast iron and steel gully gratings shall have a minimum nominal size of 300mm and shall have minimum area of waterway of 50,000 mm². They shall be similar to CC-SCD-00512.
- g. The grouting of all ironworks to conform to BS 7533 "Instarmac" rapid set (or similar approved by the Engineer).

Appendix 5/2

SERVICE DUCT REQUIREMENTS

Drainage works requirements are outlined within Volume C pricing document and contract drawings outlined in Appendix 0/4. All works shall be conducted in accordance with the Specification for Road Works Series 500 - Drainage and Service Ducts unless amended in the following points;

- a. All ducts must be installed in accordance with the Statutory Undertakers requirements.
- b. Ducting shall be installed in accordance with the TII Road Construction Details.
- c. Draw cords shall be left in all service ducts with their ends securely tethered to the marker block following completion of the installation of the cabling.
- d. Ducts in verges for cabling to lighting columns shall be 125mm diameter with 600mm minimum cover and shall be constructed in accordance with Public Lighting drawings. Ducting with insufficient ground cover may be surrounded in concrete unless an alternative is approved by the Engineer.
- e. Ducts under carriageways for cabling to lighting columns shall be 125mm diameter with 750mm minimum cover and shall be constructed in accordance with Public Lighting drawings. The number of ducts at each location is detailed in the Schedules to this Appendix.
- f. Ducts in verges, to be installed by the Contractor in connection with privately and publicly owned services, are detailed in the Schedules to this Appendix and shall be constructed in accordance with the requirements set out in the drawings in the Contract.
- g. Ducts under carriageways, to be installed by the Contractor in connection with privately and publicly owned services, are detailed in the Schedules to this Appendix and shall be constructed in accordance with CC-SCD-00561.
- h. Two-Way Ducts and more shall be constructed to the details shown on CC-SCD-00561 and as listed in the Ducting Schedules. 3-way ESB ducting shall be treated similarly to the layout for 2-way ducting.
- i. Marker Tape shall be provided to ducts as follows:
 - I. Public Lighting ducts: As Specification Clause 1421.14 / 573
 - II. ESB ducts: As Specification Clause 573
- j. Colour coded ducting shall be used for the following companies:
 - ESB Red
 - Eircom Black
 - Water Services Blue
 - Telecommunication Green
- k. Chambers for Eir ducts shall be constructed in accordance with Eir requirements.
- l. At tie into existing ESB underground cable the cable shall be exposed and a jointing put forward by the Contractor to enable ESB to undertake required connection.

Appendix 5/7

DRAINAGE AND SERVICE DUCTS: NRA ROAD CONSTRUCTION DETAILS

- a. Unless directed by Appendix 0/4, all works shall be completed in accordance with this appendix and TII Road Construction Details CC-SCD-00501 to CC-SCD-00567.

Appendix 6/1

REQUIREMENTS FOR ACCEPTABILITY & TESTING ETC. OF EARTHWORKS MATERIALS

The earthworks for the scheme shall be carried out within the site extents.

- a. The Contractor shall note that his earthworks construction must be planned and carried out taking account of the following particular constraints:
 - I. The site extents and limitations on use as specified in appendix 1/7
 - II. The limitations on noise/vibrations and dust control measures are required in Appendix 1/9
 - III. Rerouting of services and supplies as detailed in Appendix 1/16
 - IV. Maintaining safe traffic flows as specified in Appendices 1/17 and 1/18
 - V. The limitations in the use of public roads as stipulated in Appendix 1/19
- b. Where U1 unacceptable materials are not processed and reused, it shall be removed and disposed of off site at an approved location. The Contractor shall obtain a landfill licence or any other necessary permit or planning permission or an exemption from the Environmental Protection Agency (EPA) or the Planning Department of the Local Authority within whose jurisdiction the Contractor intends to dispose of the unacceptable U1 materials.
- c. The permitted classes, acceptable limits and material properties required for acceptability for fills appropriate to this contract are given in Table 6/1 of the Specification except as amended by the Engineer. Grading requirements for each class of material are given in Table 6/2 of the Specification. Compaction requirements are given in Table 6/4 of the Specification unless otherwise amended by the Engineer.

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.

- a. Contaminated materials or groundwater are not anticipated on this site. Should such materials be found or suspected the Contractor shall immediately notify the Engineer who will issue appropriate instructions for dealing with it.
- b. Provisional Measures for Dealing with Unacceptable Material Class U2
- c. 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.
- d. 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 Engineer. 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 Engineer. The Contractor shall keep records of the materials removed and shall obtain the Engineer's authentication of the records.
- e. 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.
- f. The Contractor shall prepare appropriate Method Statements and safety plans to cover any such operations, which will be subject to the approval of the Engineer.
- g. 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 (OTHER THAN DYNAMIC COMPACTION)

The requirement for excavation, deposition and compaction are shown on the relevant drawings and included in the Works Requirement (Volume A Part 1).

BLASTING FOR EXCAVATION

- a. Blasting for excavation is not permitted.

CUTTING FACES

- b. Undercutting Restrictions
 - I. Excavation of undercuttings shall comply with Clause 603 of this Specification. Undercuttings at the toe of slopes shall be adequately supported to prevent the failure of the slope. These cuttings shall be kept free of all standing water, with dewatering if required, to be in a controlled manner so as not to disturb the fines in adjacent soils.
 - II. Drainage trenches in temporary cuttings are not permitted.
 - III. In general the Contractor shall ensure that undercuttings at the toes of slopes are adequately supported to prevent slope failure.

SLOPE ANGLES

- c. All cut off drains and ditches alongside cuttings shall be completed and outfalls provided prior to the commencement of any adjacent earthworks excavation or filling operations. Excavation supports and struts shall be removed progressively as backfilling occurs, except where otherwise shown on drawings or directed by the Engineer.

Temporary unsupported slopes in cutting for excavations other than trenches shall not be constructed steeper than 1 horizontal:1 vertical for excavations exceeding 1.5 metres deep but not exceeding 3 metres deep.

Temporary unsupported slopes in cutting for excavations greater than 3 metres deep shall not be constructed steeper than 1 horizontal:2 vertical.

When cutting is located in rock the slope angle of the cutting face may be altered in agreement with the Engineer to suit the bedding and dip of the rock.

CLEARING LOOSE MATERIAL

- d. In areas of excavated rock, all loose material shall be cleared from the finished rock face by airline hose or water hose with a maximum pressure of 7.5bar.

MAKING GOOD PRIOR TO TOPSOILING

- e. Isolated patches of soft/fragmented or insecure material shall be excavated and filled by well ramming in a class of fill with similar characteristics to the surrounding intact material.

EMBANKMENT CONSTRUCTION - LIMITS ON OVERSTEEPENING OR IN INCREASE IN WIDTH

- f. Side slopes of embankments and other areas of unsupported fills constructed with Class 1 material shall not be constructed with a side slope greater than 2 horizontal : 1 vertical. Side slopes of embankments and other areas of unsupported fills constructed with Class 6 material shall not be constructed with a side slope greater than 1.5 horizontal : 1 vertical. Side slopes of landscape fill areas, excluding landscape bunds, and other areas of unsupported fills constructed with Class 4 material shall not be constructed with a side slope greater than 2 horizontal : 1 vertical.

The width of embankment construction shall not exceed the limits of the earthworks outline indicated on the earthworks related drawings except where Clause 608.5 permits.

STARTER LAYERS

- g. Starter layers of Class 6B or 6C material shall be deposited as the first layer of fill above existing ground level following the removal of topsoil. The Starter Layer shall have a minimum thickness of 500mm as indicated on the drawings.
Starter Layer Material Class 6C shall be sourced by the Contractor prior to the commencement of Embankment construction.
Where processing of unacceptable material is required to obtain Class 6C material, this shall be undertaken in due time prior to the need to use such material in embankment construction.

EXCAVATIONS THAT ARE PERMITTED TO BE BATTERED

- h. Excavations for the construction of structure foundations may be battered.
Excavations for the clearance of watercourses and ditches are permitted to be battered.
Excavations of soft spots and voids are permitted to be battered.
Benching prior to backfilling shall be to a method determined by the Contractor and subject to approval by the Engineer.

Benching to Receive Fill

When fill is to be placed against natural slopes and earthworks sloping faces greater than 1 vertical:5 horizontal the slope receiving fill shall be benched. For benching the height of each step shall be at least 0.5 metres and the width of each berm should be approximately 1 metres.

COMPACTION

- i. In areas of embankment construction where any material below the natural ground level (once topsoil has been removed) requires further excavation in the opinion of the Engineer and in locations other than those identified as watercourses, ditches, solution infill features, swallow holes and other voids and treated accordingly, the material shall be excavated and backfilled with Class 1 material to the underside of any following Starter Layer or to the natural ground level that has been established following the removal of topsoil.
Plant and working method of isolated excavations shall be suited to the scale of each excavation and the materials to be handled and traversed.
All cuttings in areas which do not have rock present at formation level (where formation level is defined by a sub-base thickness of 150mm) will require further excavation to provide for a 600mm depth of Class 6F1 or 6F2 capping material under all locations of pavement construction.
Where rock is not encountered in cuttings during excavation of the capping layer, a 350mm depth of excavation will be required. Rock encountered during excavation of the capping layer shall be treated in accordance with Appendix 6/7.

EXCAVATION BELOW EMBANKMENTS & BELOW FORMATION LEVEL IN CUTTINGS

- k. Compaction of fill materials shall meet the requirements of Clause 612 of the Specification.

Appendix 6/6

FILL TO STRUCTURES AND FILL ABOVE STRUCTURAL FOUNDATIONS.

- a. Fill to structures shall be provided to the depths and extents illustrated on Contract Drawings in Appendix 0/4. Fill to structures will be Coarse Granular Class 6N material to Specification, table 6/1, unless otherwise detailed.

Appendix 6/7

SUB-FORMATION AND CAPPING AND PREPARATION AND SURFACE TREATMENT OF FORMATION

- a. Capping shall be provided to the depths and extents illustrated on Contract Drawings in Appendix 0/4. The capping width shall extend beyond the edge of pavement as illustrated on CC-SCD-00701 for Pavement Type A in to support the sub-base construction and also extend to the edge of the road embankment to provide sub-surface drainage.

Appendix 6/8

TOPSOILING, GRASS SEEDING AND TURFING

The expected depth and extent of topsoil to be stripped in cuttings and under areas of embankments is shown on Contract Drawings in Appendix 0/4.

- a. All Class 5A topsoil arising from the site in excess of the requirements for topsoiling shall be disposed off site by the Contractor.
- b. Topsoil is to be spread to a depth of no less than 150mm unless agreed with the Engineer.

Appendix 6/11

SWALLOW HOLES AND OTHER NATURALLY OCCURRING CAVITIES AND DISUSED MINE WORKINGS

Not Used.

Appendix 7/1

PERMITTED PAVEMENT OPTIONS

Permitted pavement option is described in the following table in compliance with Series 700, the TII Road Construction Details listed in Appendix 7/5 and the appropriate Clauses of Series 800, 900 and 1000. Option 1 or 2 will be outlined in Volume C pricing document.

Location:	Knockbrack Bridge - refer to Contract Drawings in Appendix 0/4				
Ref No	Performance request			Requirement	
1	Grid for checking surface levels of pavement courses, if different from the requirements of CI 702.4:			N/A	
2	Surface regularity (CI 702.7 and CI 702.8):			N/A	
3	Additional Requirements for coarse aggregates – Polished Stone Value (PSV), Aggregate Abrasion Value (AAV) (Series 900 CI 3.2.2, 5.2.2, 6.2.2, 8.4.1.1, 8.6.1.1):			N/A	
4	Requirements for pre-coated chippings – Polished Stone Value (PSV) for general use mixtures, PSC for mixtures for roundabouts, Aggregate Abrasion Value (AAV) (Series 900 CI 4.2.4):			60 PSV 12 AAV	
5	Requirements for testing for Polished Stone Value using the friction after polishing test (NRA HD 300 Clause 2.25)			N/A	
6	Freezing and thawing (soundness) category if different from the requirements of CI 901.6:			Yes	
7	Compaction control and extraction of cores if different from the requirements of Series 900 CIs 10.1.9, 10.1.9.1, 10.1.9.2, 10.1.9.3, 10.1.9.4			N/A	
8	Requirements for monitoring resistance to permanent deformation of HRA (Series 900 CI. 10.1.10.1)			N/A	
9	Sealant to be applied to the whole of any freestanding edge on the outside of the finished pavement on the low side of the camber (Series 900 CI 10.1.8):			Yes	
10	Any tests additional to those required by IS EN 13108–20, IS EN 13108–21 or the relevant SRW (Series 900 CI 1.2 and 1.3):			N/A	
11	Whether subbase material may be spread in more than one layer (CI 802.4)].			No	
OPTION 1					
Pavement Course	Clause	Mixture Designation / Material		Thickness (mm)	Other Requirements
Surface Course	4.1.2	HRA 35/14F surf 40/60 des		45	
Binder Course	3.1.4	AC 20 Dense bin 70/100 dec		55	
Base	3.1.1	AC32 dense base 40/60 des		110	
Sub-base	804	Granular material type B		Min 90	
Total Pavement Thickness (excluding sub-base)				300	

OPTION 2				
Pavement Course	Clause	Mixture Designation / Material	Thickness (mm)	Other Requirements
Surface Course	3.1.7	AC 14 Close Surf 70/100 rec	45	
Binder Course	3.1.4	AC 20 Dense bin 70/100 dec	55	
Base	3.1.1	AC32 dense base 40/60 des	110	
Sub-base	804	Granular material type B	Min 90	
Total Pavement Thickness (excluding sub-base)			100	

Appendix 7/4

BITUMINOUS SPRAYS

Bituminous spray tack coats are to be applied on base-course and/or binder course where:

- a. The surfaces are left exposed for more than 4 weeks before the covering layer is applied in the case of base course and 1 week in the case of binder course and/or
- b. Where the surface has been soiled by construction activity and/or other vehicular traffic.

The binder shall be spraying grade cationic bitumen emulsion to Clause 10.1.4 for which the rate of application shall be 1.1 to 1.5kg per m² or at an alternative rate of spray determined from bitumen spraying trials.

The binder in bond coat shall be spraying grade cationic bitumen emulsion to Clause 10.1.4 and the rate of application shall be 5.5 to 7.0kg per 10m².

Appendix 7/5

ROAD PAVEMENT: TII ROAD CONSTRUCTION DETAILS

Clause No.	Road Construction Detailed Drawing No.
701	CC-SCD-00701, 2, 3, 4, 5, 6

Appendix 11/1

KERBS, FOOTWAYS AND PAVED AREAS

Concrete kerbs shall be precast and shall be constructed to the details shown on Contract Drawings in Appendix 0/4.

If not specified elsewhere, footway shall be constructed to CC-SCD-01104 & CC-SCD-01105. Precast Kerbs shall be Type C as specified in CC-SCD-01101.

Appendix 12/3

TRAFFIC SIGNS: ROAD MARKINGS AND STUDS

The extent of Road Markings and Studs shall be outlined in the Contract Drawings in Appendix 0/4. All works road shall comply with Specification for Road Works Series 1200 - Traffic Signs and Road Markings and Traffic Signs Manual 2010 (as amended) unless a relaxation is granted by the Engineer.

Conflict within the aforementioned documents shall be identified by the Contractor and detailed to the Engineer for clarification prior to programme implications.

Appendix 17/1

SCHEDULE FOR SPECIFICATION OF DESIGNED CONCRETE

These mixes shall be supplied designed mixes in accordance with the clauses of IS EN 206-1 and Series 1700 of the Specification for Road Works, taking the most onerous requirements as appropriate.

The compliance criteria stated in Clause 1707 shall override those stated in IS EN 206-1. Kerbing bedding and 'Blinding Concrete' shall be ST4 mix. See Annex NB of IS EN 206-1 for further details.

Mix Reference		MIX 1	MIX 2
Strength class		C32/40	C20/25
Nominal Maximum Size of Aggregate (mm)		20	20
Type of aggregate - Coarse - Fine	IS EN 12620	Yes Yes	Yes Yes
Sulphate Class		XA1	XA1
Cement Type		CEM I OR CEM II/B-V OR III/A	CEM I OR II
Exposure Class		XS3	XC2
Chloride Class		CL 0.30	CL 0.30
Minimum Cement Content (kg/m³)		400	280
Maximum Free Water/Cement Ratio		0.45	0.55
Quality Assurance Requirements		Third Party Certification	Third Party Certification
Rate Of Sampling		See Clause 1707 of the Specification	See Clause 1707 of the Specification
Consistency – Slump Class		S3	S4
Admixtures		Contractor to submit for approval	Contractor to submit for approval

Appendix 17/3

CONCRETE – SURFACE FINISHES

Concrete Surface finishes shall be F2 and U3 for formwork liners and exposed surface finishes respectively in accordance with Specification of Road Works Clause 1708.

Appendix 17/4

CONCRETE GENERAL

- a. Concrete shall be supplied by a CE accredited source or suitably approved alternative accreditation. The Contractor shall obtain source approval from the Engineer.
- b. Consistency of the concrete include no segregation of aggregate shall be maintained during delivery and placement.
- c. Concrete should be suitably compacted by vibration or other approved methodology to prevent air voids forming within the concrete. If the finished product contains air-voids, the Contractor shall notify the Engineer prior to completing the agreed remedial action.
- d. The Engineer should receive from the Contractor details of the proposed methodology of curing and protecting the concrete. The method of curing and its duration should be such that the concrete will have the satisfactory durability and strength and the member will suffer a minimum of distortion, be free from excessive efflorescence and undue cracking.
- e. Except in aspects where this specification demands otherwise, all permanent formwork shall satisfy all requirements of Department of Transport (UK) given in advice Note BA36/90. Details and calculations confirming compliance with structural requirements shall be submitted to the Engineer for approval well in advance of use of permanent formwork on site. Details shall include details of materials, section properties, and dimensional tolerances. Panels which vary from the manufacturers stated dimensions by more than the tolerances shall be rejected.

Appendix 17/7

PRECAST CONCRETE

Precast concrete products to be manufactured and designed in accordance with a relevant European Product Standard or with I.S. EN 13369 'Common rules for precast concrete products'. The allowable dimensional tolerance of precast elements shall be in accordance with Clause 1728.

Concrete "Kelly" Blocks shall be in accordance with the contract specific drawing "Standard Kelly Block Detail" as outlined in Appendix 0/4 or suitable alternative approved by the Engineer.

Appendix 24/1

BRICKWORK, BLOCKWORK AND STONEMWORK

The extent of Brickwork, Blockwork and Stonework (including pointing) shall be outlined in the Contract Drawings in Appendix 0/4. All works shall comply with Specification for Road Works Series 2400 - Brickwork, Blockwork and Stonework unless a relaxation is granted by the Engineer.

- a. Sub-clauses 2401 to 2416 of the Series 2400 shall be used for brickwork, blockwork and stonework within new construction. In alternative documents references to Masonry stonework or Masonry work shall be taken as Stonework for the benefit of this specification.
- b. Sub-clauses 2450 to 2465 of the Series 2400 shall be used for stonework repointing and reconstructing of historic structures where a lime mortar is specified in Volume C pricing document or Appendix 0/4.
- c. If not specified elsewhere within Appendix 0/4, new parapets shall be Concrete Blockwork be constructed in accordance with CC-SCD-02401 with a single exception, the parapet shall be 460mm wide (including render). Render finish shall be Fairfaced unless otherwise agreed by the Engineer and be formed with two layers. As part of the construction detail, a half round mortar coping shall be formed on top of blockwork parapet with a central height of 150mm.
- d. Stonework Parapets may be detailed within Appendix 0/4. If specified, remedial rebuilding works or new construction shall be completed in accordance with SCD-02407, CC-SCD-02403 and CC-SCD-02404.
- e. Unless directed by Appendix 0/4, parapets shall have a minimum height of 1200mm above the finished road/footpath surface level.
- f. Building stone shall comply with IS EN 771-6 and be of the type and quality as the original structure. The Contractor shall propose a suitable certified source for approval by the Engineer. The Engineer may request a sample at the Contractors cost. Contractors shall take this source approval process into consideration when providing rates within Volume C.
- g. As outlined in Series 2400, cement mortar shall be of designation (ii) with the appropriate mortar mix proportions shall be selected from Table 24/1. Lime in mortar designation (i).
- h. Where pointing is required in Appendix 0/4, the joint shall be raked out to a minimum depth of 12 mm and/or to a solid foundation prior to the application of any new mortar. There will be no maximum depth limitation for pointing/jointing.
- i. In reference to Sub-clause 2455 within Series 2400, method of application shall be outlined by Volume C pricing document.
- j. Joints shall be 'fully filled' flush with the surrounding masonry or to the weathered edge unless otherwise directed by the Engineer. Once the surface of the mortar is firm (usually the day after application) the surface should be tamped with a stiff brush or lightly scraped to expose the aggregate to improve the appearance of the mortar. Any overspill/splashback remaining on the face of the stone shall be cleaned to remove all traces of excess mortar.
- k. Prior to pointing / jointing works, all vegetation, trees and algae shall be removed for the structure. Invasive roots shall be removed insofar as possible. Those not able to be fully removed shall be removed or cut back as far as possible and treated with a suitable systemic herbicide, as approved by the Engineer, such as to prevent regrowth. All loose mortar, soil, deleterious material etc., shall be removed from the joint and the joint cleaned prior to repointing. In structures subject to significant water ingress no repointing works shall be undertaken until measures have been taken to prevent further water ingress.

Appendix 27/1

WATERMAINS, UTILITIES AND ACCOMMODATION WORKS

The extent of Watermains, Utilities and Accommodation Works shall be outlined in the Contract Drawings in Appendix 0/4. All works shall comply with Specification for Road Works Series 2700 - Watermains, Utilities and Accommodation Works unless a relaxation is granted by the Engineer.

- b. Unless directed by Appendix 0/4, all works shall be completed in accordance with this appendix and TII Road Construction Details CC-SCD-02701 to CC-SCD-02752.

Appendix 55/1

REPAIR PRODUCT – ADDITIONAL AND MODIFIED REQUIREMENTS

The extent of Structural Concrete Repair Works shall be outlined in the Contract Drawings in Appendix 0/4. All works shall comply with Specification for Road Works Series 5500 - Structural Concrete Repair Works unless specified otherwise.

The contractor shall comply in full with the manufacturer's instructions for the product specified in preparation, recommended treatments, application and curing.

CLEANING DOWN EXPOSED STEEL BEAMS & REINFORCEMENT

The exposed steel beams & reinforcement shall be cleaned by wet grit blasting, or other approved method, to remove all scale, any loose rust, and all visible contaminants in accordance with IS EN ISO 8501-1, preparation standard Sa 2½.

PREPARATION OF DECK SURFACE

The existing area of the deck soffit is to be scabbled to remove existing smooth concrete finish to improve the bonding of the final surface treatment layer.

Scabbling to be carried out by mechanical or air operated scabbling equipment giving a concrete surface profile grade CSP6 or higher in accordance with the Guideline for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion, 310.1R-2008 published by the International Concrete Repair Institute

The surface of the exposed concrete in the repair area shall be cleaned of all dust and grit using a mains pressure water jet, properly filtered oil-free airline or other approved method. Any loose aggregate shall be removed.

APPLICATION OF PRIMER FOR STEEL

All steel beams & reinforcement must have Fosroc® Nitro prime Zincrich Plus anti-corrosion primer for exposed steel or similarly approved complying with EN1504-7: Reinforcement corrosion protection method 11.1 applied to the entire circumference as per the manufactures strict specification prior to the application of any reinstatement mortar.

APPLICATION OF BONDING AGENT

The entire area of the exposed concrete within the saw cut area must have Fosroc® Nitobond AR and HAR 0519 or similarly approved bonding agent complying with ASTM C881: Type II, grade 2 class C used to bond new cementitious materials to existing cementitious surfaces applied as per the manufactures strict specification prior to the application of any reinstatement mortar.

APPLICATION OF REPAIR MORTAR

Fosroc® Renderoc DSR high performance reinstatement mortar or similarly approved complying with class R3 according to EN1504-3, repair methods 3.1,3.3,4.4,7.1 and 7.2 is to be used for the reinstatement of the concrete deck in accordance with the manufactures strict specification.

A smooth trowel finish is required to all repaired surfaces.

Appendix 55/2

ADDITIONAL REQUIREMENTS FOR REINFORCEMENT

Installation Of new Rebar

All new rebar to be 18mm dia.

All bars to be fixed to exiting longitudinal rebar by means of tying wire or fasteners to existing steel or fixed to concrete. Where rebar is being spliced for fixing alongside remaining sound rebar, overlap must be 40 times the diameter of the rebar.

All rebar to be installed must have Nitro prime Zincrich Plus applied to the entire circumference prior to installation.

Appendix 55/5

ADDITIONAL REQUIREMENTS FOR CRACK INJECTION

APPLICATION CRACK INJECTION & REPAIR

The complete area of the crack to be power washed as far as practical to allow cleaning out of the crack area.

The total area of the crack to be filled with Fosroc ®Nitofill TH or similarly approved applied as per manufactures strict specification. Where possible plastic drinking straws to be in inserted into the crack at 200mm centre to centre, straws to be used for the injection process and have to be broken off after hardening with the area being reinstated with Fosroc ®Nitokit surface treatment or similarly approved.

Fosroc ®Nitokit Surface Treatment or similarly approved to be applied to surface area of the crack to create a smooth surface finish.

Appendix 100/3

ENVIRONMENTAL HABITAT CONSIDERATION

BATS

Bats and their habitats are protected under the 1976 Wildlife Protection Act. It is an offence to intentionally kill, disturb, handle, sell or offer for sale any bat whether dead or alive.

The Contractor must liaise with National Parks & Wildlife Service on measure to protect bats. The Contractor must confirm with the local Wildlife Ranger and the Engineer that all bats have been removed from the bridge prior to commencement of Works.

Bat boxes to be erected as directed by the Engineer. Bat boxes must be attached to a bridge after strengthening works have been completed only when there are no alternative naturally roosting sites.

Bat Boxes shall be 1GS Schwegler Bat Tube or suitable alternative approved by the Engineer as outlined in Appendix 0/4.

As directed by the Engineer, incorporate of bat roosting devices into bridges during remedial is a desirable outcome.

The contractor must notify the relevant NPWS body for the area one week prior to works commencing and comply with all statutory regulations in relation to the matter.

PEARL MUSSELS

The Contractor shall confirm with National Parks & Wildlife Service that there are no pearl mussels in the river. If such mussels are found the contractor must liaise with National Parks & Wildlife Service on measures to protect the mussels