
VOLUME A
DOCUMENTS DESCRIBING THE WORKS
SPECIFICATION

IBE1907-TT-XX-XX-SP-C-0001 T00 – 03/09/2026

Revision No	Amendment	Date of Issue
Rev T00	Tender Issue	03/09/2026

Volume A – Documents Describing the Works

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VOLUME A1
DOCUMENTS DESCRIBING THE WORK
INTRODUCTION TO THE SPECIFICATION

Introduction to the Specification

1. The Contractor will be deemed to possess a copy of the "*Specification for Works*" published by the TII as a collective group of documents under the Construction and Commissioning activity within the online TII Publications system (<http://www.tiipublications.ie>) and to have knowledge of all its contents.
2. The Specification for Works is modified and extended by contract-specific Clauses and Tables set out in the Appendices contained within the Document.

Preamble to the 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:-

- i) Appendix 0/1: Contract-specific Additional, Substitute and Cancelled Clauses, Tables and Figures;
- ii) Appendix 0/2: Contract-specific minor alterations to existing Clauses, Tables and Figures;
- iii) The Numbered Appendices listed in Appendix 0/3;
- iv) Appendix 0/4 containing a list of the drawings referred to in the Specification.

together with the associated Specification Appendices, as modified revised and extended herein.

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 SPW the Numbered Appendices shall always prevail.

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

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

Where a part of the SPW 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 SPW that is not used shall be deemed not to apply.

References in the SPW to “NRA Road Construction Details” shall be taken to refer to Standard Construction Details (SCD) 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.

Text shown in grey highlight applies only to Contracts where the applicable Conditions of Contract is the Public Works Contract for Civil Engineering Works Designed by the Employer, the Public Works Contract for Minor Building and Civil Engineering Works Designed by the Employer.

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

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DOCUMENTS DESCRIBING THE WORKS

SPECIFICATION FOR WORKS APPENDICES

APPENDIX 0/1

Contract Specific - Additional, Substitute and Cancelled Clauses, Tables & Figures

Specification Appendix 0/1

CONTRACT SPECIFIC ADDITIONAL, SUBSTITUTE AND CANCELLED CLAUSES, TABLES AND FIGURES INCLUDED IN THE CONTRACT

List of additional Clauses, Tables & Figures

Note where additional clauses are added to the existing Contract Specification Series, Clause numbers commence with the 70th clause of that series.

Clause	Title
CC-SPW-000	General
CC-SPW-000-070AR	Background
CC-SPW-000-071AR	Title of Contract
CC-SPW-000-072AR	Location of Works
CC-SPW-000-073AR	Description of the Works
CC-SPW-000-074AR	Construction Environmental Management Plan
CC-SPW-000-075AR	Protection of Works from Weather and Sea Action
CC-SPW-000-076AR	Works Reasonably Inferred by Specification & Drawings
CC-SPW-000-077AR	Topographical Survey
CC-SPW-000-078AR	Method Statement
CC-SPW-000-079AR	Substantial Completion
CC-SPW-000-080AR	Interference with Traffic & Adjoining Properties
CC-SPW-000-081AR	Consents Responsibility
CC-SPW-000-082AR	Statutory Compliance
CC-SPW-000-083AR	Soils Geology and Contamination
CC-SPW-000-084AR	Product Collateral Warranties
CC-SPW-000-085AR	Subcontractor Warranties
CC-SPW-000-086AR	Statutory Orders
CC-SPW-000-087AR	Site Tidiness
CC-SPW-000-088AR	Services
CC-SPW-000-089AR	Removal Of Material and Reconstruction of Revetment Adjacent (if required)
CC-SPW-000-090AR	Working Hours
CC-SPW-000-091AR	Weather Down Time and Other Standing Time
CC-SPW-000-092AR	Safety, Health and Welfare at Work (Construction) Regulation 2013
CC-SPW-000-093AR	Safety and Security

Clause	Title
CC-SPW-100	Preliminaries
CC-SPW-100-170AR	Structures Adjoining Works
CC-SPW-100-171AR	Disclosure of Information and Advertising

Clause	Title
CC-SPW-600	Earthworks
CC-SPW-600-70AR	Off Site Tipping of Surplus Materials
CC-SPW-600-72.1AR	Fill Material for use in the Works
CC-SPW-600-72.2AR	Imported Filling to Structures (if required)
CC-SPW-600-73AR	Compaction of Fill Material
CC-SPW-600-74AR	Rock Armour & Rock Underlayer

Specification Appendix 0/1

Additional Clauses, Tables & Figures

CC-SPW-000 - General

CONTRACT SPECIFIC ADDITIONAL, SUBSTITUTE AND CANCELLED CLAUSES, TABLES AND FIGURES INCLUDED IN THE CONTRACT.

CC-SPW-000-070AR Background

This project is for the emergency works at the current Strandhill beachfront, which will involve placing c. 2,500 Tonne of 1–3 T rock armour with a suitable underlayer and geotextile matting on the existing shingle foreshore. This material, similar to the primary armour used in the existing town revetment, will be installed along a 90m length at various slopes in accordance with drawing series IBE 1907-TT-ZZ-ZZ-DR-C-1003. These emergency works are required to ensure that the current defenses are not outflanked by wave action during extreme storm events whilst consent and planning is progressed for the permanent long-term works.

Without the emergency works, there is a risk that coastal erosion would result in the loss of hinterland and built assets

This document provides a description of the Works, the Specification for the Works, and details various constraints or requirements which apply.

The Contractor will be deemed to have familiarised himself with the available geotechnical information, with all published Admiralty and Port Authority Charts and tidal information relating to the Site and with the prevailing range of weather, seismic, wave and current conditions experienced in the area and all other such information that is, or may be, relevant to the execution of the Works in accordance with the Contract.

The Contractor shall be deemed to have inspected the Site prior to submitting his tender and to have satisfied himself as to the extent and conditions of the Works. The Contractor shall ensure that his tender includes costs associated with all activities necessary to complete the Works.

CC-SPW-000-071AR Title of Contract

The title of this Contract will be “Strandhill Emergency Coastal Works”.

CC-SPW-000-072AR Location of Works

The proposed Works are located at Shore Road, Strandhill, Sligo F91, Co. Sligo, Ireland. The Location of the Works is shown on Drawing IBE 1907-TT-ZZ-ZZ-DR-C-1000.

CC-SPW-000-073AR Description of the Works

The following description of the Works is included to provide general information on the nature of the Works for guidance, but the full and detailed requirements for the Works are to be ascertained from the Contract as a whole. For the avoidance of doubt the detailed

requirements in the Contract and this Specification and Drawings take precedence over the following description.

The proposed emergency protection works comprises, but is not limited to, the following main construction elements;

- Construction of approximately 90m long Revetment extension, placing approximately 2,500 Tonne of 1-3T rock armour stones, with suitable underlayer, filter layer and geotextile mating on existing shingle foreshore.
- Revetment slopes to be installed in accordance with Drawing Series IBE 1907-TT-ZZ-ZZ-DR-C-1003.
- The base of the Revetment toe shall be a minimum of 1.0m below the existing ground profile. The extent of the revetment toe **must not** exceed the planning boundary.

All other Works included within the Documents Describing the Works are required by the Contract.

CC-SPW-000-074AR Construction Environmental Management Plan

The Contractor shall prepare a Construction Environmental Management Plan (CEMP) in accordance with the requirements set out in Specification Appendix 1/7 that will be developed and implemented as the Works proceed. The CEMP will provide a framework for the management and implementation of construction activities incorporating the mitigation measures identified in the relevant chapters of this Outline CEMP, including dust and odour. The CEMP will be reviewed regularly, and revised as necessary, to ensure that the measures implemented are effective.

The Tenderer will be required to submit a draft Construction Environmental Management Plan (CEMP) to fulfill the requirements of the relevant conditions of the planning decision with his Tender. The Contractor is required to finalise his CEMP within 7 days from the date of the Letter of Acceptance.

CC-SPW-000-075AR Protection of Works from Weather and Sea Action

All work and materials which may be affected by the sea and weather shall be adequately protected by the Contractor to minimise loss. The Contractor shall be held responsible for any loss due to weather conditions and shall protect all temporary works as necessary.

CC-SPW-000-076AR Works Reasonably Inferred by Specification & Drawings

The Contract includes all works reasonably inferred, or to be inferred, by or from the documents describing the Works to achieve the Works.

CC-SPW-000-077AR Topographical Survey

The Contractor shall carry out a topographical survey of the existing Site to confirm levels against the Drawings. The complete survey results shall be agreed with the Employer's Representative and presented in 3D format compatible with AutoCAD 2019 at an appropriate scale to highlight details. The survey and drawings shall be related to both Ordnance Datum Malin Head and Chart Datum and related to ITM Co-ordinates.

CC-SPW-000-078AR Method Statement

The Contractor shall provide the Employer's Representative with Method statements for all elements of the Works at least 14 days in advance of any Works commencing unless otherwise agreed with the Employer's Representative. The Contractor's method statements shall be in sufficient detail to allow the Employer's Representative to satisfy himself that the Works will be carried out in a safe and expedient manner and shall be linked to the program. The Contractors method statements shall include but not be limited to the following aspects of the Works:

- Filter layer
- Geotextile laying
- Underlayer installation
- Rock armour revetment installation/construction
- General earthworks
- Traffic Management

CC-SPW-000-079AR Substantial Completion

The Works will be deemed complete for the purposes of the Employer's Representative issuing a Substantial Completion Certificate, under Clause 2.4 of the Conditions of Contract, when the Contractor completes all of the Works identified in the Drawings and Specifications and submits, as a minimum, the following documentation for acceptance by the Employer's Representative:

Completion of the Works

Civil and Marine Works:

- Maintenance Manuals for all specified elements of the Works.
- Test Certificates for all specified elements of the Works.
- As Built Drawings.
- Information for the Safety File.
- As built survey of the interfaces accepted by the Employer's Representative in accordance with the dimensional positions and tolerances shown in the documents describing the Works.
- All warranties shall be in place from the following as appropriate:
 - Contractor
 - Subcontractors
 - Suppliers
 - Subcontractors with Design Input

Document Format

The Contractor is to provide the final versions of the Maintenance Manual and the Safety File no later than 5 working days prior to the issue of the Substantial Completion Certificate, in the following format:

- Format: A4 size, plastics covered, loose leaf, four-ring binders with hard covers, each indexed, divided and appropriately cover titled.
- Numbers of copies: 1 no. hard copies of each document and 1 no. electronic copy on CD. The electronic copy is to include all drawings in CAD & pdf format.

- Drawing larger than A4, to be folded and accommodated in the binders so that they may be unfolded without being detached from the rings.
- As-built drawings.

The precise structure and content for each of the Contractor's Document will be agreed with the Employer's Representative at Pre-Completion meetings.

CC-SPW-000-080AR Interference with Traffic & Adjoining Properties

1. The Contractor shall programme and execute the work as to ensure the safety of the general public and cause the minimum of inconvenience to road or marine users. Whenever the Works interfere with existing public or private roads, footpaths or other ways over which there is a public or private right of access the Contractor shall ensure that there are alternative routes which shall include alternative accesses for vehicular and pedestrian traffic constructing temporary diversion routes or roads or footpaths where necessary with a clear sign system installed of a similar standard to the existing. A care and maintenance system must be introduced by the Contractor on a daily basis to ensure that all footpaths, roads and accesses are safe, level and effective for the duration of the Works.

The Contractor shall ensure that his plant does not cause public nuisance due to fumes, dust, water pollution, noise, leakages, or causing an obstruction.

The Contractor shall maintain as far as reasonably practicable the free flow of traffic in the vicinity of the Works. If the Contractor wishes to carry out any work which will cause restriction of the traffic flow beyond the limits set out in the Specification and Drawings, he shall seek, in writing, the permission of the Employer's Representative and Garda during any period of restriction and he shall ensure that vehicles passing are allowed through with the very minimum of delay.

Before commencing works on the road verge or footway along any public roads the Contractor should seek the relevant permission from National Roads Authority or the local Authority. The Contractor shall be entirely responsible for ensuring that the public roads in the vicinity of the Works are kept clear of mud and other debris falling from vehicles connected with the Works or spreading on the public road as a result of the Works in any way. Refer to Appendix 1/7 for further details.

A section of surface water pipe and its outfall structure lies within the confines of the Site (along the southern perimeter of the Site boundary). Measures shall be taken by the Contractor to protect this infrastructure during the Works. Refer to IBE1907-TT-ZZ-ZZ-DR-C-1001 Existing Site Layout for reference.

2. The Contractor shall carry out and complete all work and duties specified in Appendix 1/7 associated with the use of the Site or required to enable the Contractor to have use or optimum use of the Site in accordance with the Contract.
3. The Contractor shall comply with all Statutory Orders concerning the Site and the use or operation of the Site for the Works and in particular with the requirements and directions of Sligo County Council concerning access to, and use of the Site and/ or restrictions thereto.

CCI-SPW-000-081AR Consents Responsibility

The Statutory Orders, approvals and the like, obtained by the Employer are listed in the Background Information documents which do not form part of the Contract.

CC-SPW-000-082AR Statutory Compliance

In preparing his methodologies the Contractor must comply with all the Statutory Orders, conditions and constraints in relation to the Works. The following have been obtained by the Employer:

Planning Permission

The Contractor must comply with all planning conditions set out in the pending planning decision which will be issued when received.

CC-SPW-000-083AR Soils, Geology & Contamination

The Contractor shall prepare and implement a Groundwater Management Plan based on CIRIA C515 Groundwater Control – Design and Practice if required by the Employer.

Any contaminated groundwater encountered during earthworks shall be disposed off-site to a licensed waste disposal facility or treated by passing it through a three stage interceptor and discharged to sewer under license from the Local Authority, which the Contractor shall be responsible for obtaining.

Material imported onto the Site must be tested and assessed to ensure that contamination is not introduced to the Site.

CC-SPW-000-084AR Product Collateral Warranties

The Contractor shall provide product collateral warranties in terms and a form acceptable to the Employer's Representative for the following elements of the Works and for the periods stated:

Table A - Service Life

Element	Service Life (Years)		Notes
Geotextiles	60 years	Service Life	-
Rock armour (Granite)	20 years	Service Life	-

CC-SPW-000-085AR Subcontractors Warranties

The Contractor shall provide Sub-contract warranties in the form set out below in respect of all Subcontractor's carrying out significant parts of the Works where applicable.

CC-SPW-000-086AR Statutory Orders

The Works are required to meet the requirements of and be consistent with the Mitigation Measures set out in the Planning Permission, and ameliorative measures as well as other Statutory Orders.

All references in Statutory Orders to obligations of the Sligo County Council or the developer, or the applicant, or otherwise shall (to such extent as the context allows) be deemed for the purpose of the Contract to be obligations of the Contractor.

CC-SPW-000-087AR Site Tidiness

The Contractor shall maintain the Site in a clean, safe and orderly condition at all times throughout the contract. The Contractor shall:

- 1- Remove all waste materials, packaging, surplus materials, and debris from the Site regularly to prevent accumulation.
- 2- Store construction materials, rock armour, geotextile, plant, fuel, and equipment in designated areas to avoid obstruction of access routes and minimise environmental impacts.
- 3- Maintain suitable spill response equipment on Site and immediately clean up any fuel, oil, hydraulic fluid, or chemical spills.
- 4- Ensure that all debris arising from the Site shall be disposed of to a suitably licenced Facility.

Rock stockpiles shall be kept stable and positioned above tidal influence unless otherwise approved.

Geotextile rolls shall also be securely stored to prevent damage from wind or tidal action.

The Contractor shall ensure that no waste or loose material enters the sea.

CC-SPW-000-088AR Services

The Contractor shall be responsible for identifying, locating, protecting and maintaining all existing services that may be affected by the works, including but not limited to:

- Electrical cables
- Water mains
- Sewerage infrastructure
- Telecommunication cable
- Gas mains
- Existing drainage systems
- Existing lighting, ducts and associated infrastructure

It is Contractor responsibility to review all available utility records before commencing the works.

During the execution of the Works the Contractor shall take all reasonable steps to prevent damage to mains, service pipes, sewers, drains, cables, wires, overhead telephone lines, poles, etc., and shall provide for protecting and supporting all existing services to the satisfaction of the Engineer and the responsible Authorities. Any Consultations with and compliance with the responsible Authorities/service providers required will be at the Contractors expense.

If any damage is caused, then the Contractor shall make good the damage and pay any costs incurred. The Contractor shall satisfy himself by his own enquiries and observations as to the precise position of all existing services. He shall take full responsibility in connection with

them and shall hold the Employer indemnified against claims and/or loss and expense that may arise from any damage caused to such services by his operations, whether such loss/expense is incurred by the Employer or third parties.

CC-SPW-000-089AR Removal of Material and Reconstruction of Revetment Adjacent (if required)

The Contractor shall ensure the proposed armour is adequately secured to the existing armour at each tie in point. The location of the proposed revetment and the tie in points is shown on Drawing IBE 1907-TT-ZZ-ZZ-DR-C-1001. The Contractor shall reconstruct this area using imported material to construct the revetment in accordance with the Drawings and Specification Clause CC-SPW-600-71AR to CC-SPW-600-74AR. Where the material is not appropriate for use in the Works it shall be disposed of in accordance with Clause CC-SPW-600-70AR. The existing rock armour is understood to comprise Limestone, with individual armour stones unit weighing approximately 1-3t.

CC-SPW-000-090AR Working Hours

Normal working hours for the Works shall be 7:00am to 7:00pm, Monday to Friday and 7.00am to 1.00pm on Saturday unless otherwise agreed by the Employer's Representative in writing.

CC-SPW-000-091AR Weather Downtime and Other Standing Time

The Price shall include for all downtime and standing time due to poor weather conditions and other reasons. No additional payments will be made in respect of weather downtime or standing time for whatever reason.

CC-SPW-000-092AR Safety, Health and Welfare at Work (Construction) Regulations 2013

The works shall be constructed in accordance with the requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2013 and the associated Code of Practice. For the purposes of these regulations a PSDP has already been appointed by the Employer.

It is the responsibility of the Project Supervisor Design Process (PSDP) to compile the Preliminary Safety & Health Plan. It shall be the responsibility of the Project Supervisor Construction Stage who will be the Contractor for the Works to develop the Safety File and to have continuing liaison with the PSDP throughout construction of the works.

CC-SPW-000-093AR Safety and Security

From the commencement until the Time for Completion of the Works the Contractor shall secure the site and maintain all lights and other signs as may be required by the Employer, the Employer's Representative or any authority having jurisdiction in connection with the Site for the protection of the Works, the temporary works, the construction plant, for the safety and convenience of the public or others.

The Contractor shall be responsible for the security of the Site. The location of all temporary fences and gates shall be agreed with the Employer's Representative before

erection. The Contractor shall supply to the Employer's Representative with a list of all Site key holders, where applicable, who may be contacted outside normal Working Hours.

CC-SPW-100 - Preliminary

CC-SPW-100-170AR Structures Adjoining Works

The Contractor shall take all necessary care to prevent damage to existing structures during the execution of the Contract and shall make good at his own expense and to the satisfaction of the Employer's Representative any subsidence, cracks or other damage which may occur.

The Contractor must ensure that his operations do not interfere with any adjacent works, or any access to and from the adjacent site if applicable.

CC-SPW-100-171AR Disclosure of Information and Advertising

1. Disclosure of Information:

Otherwise than as required by law, the Contractor shall not, without the written consent of the Employer's Representative, disclose particulars of the Contract to any person, or furnish or publish, or permit to be furnished or published any information with regard to the Works, Contract or business of the Employer to any person, save insofar as may be necessary for the due performance of the Contract, and shall preserve strict confidence with regard to any information of a confidential or secret nature received from the Employer or Employer's Representative.

2. Advertising and Publicity:

No advertising whatsoever on either temporary or permanent hoardings or any other parts of the Works shall be permitted. No photographs shall be taken or details describing the Works published without the written consent of the Employer's Representative.

CC-SPW-600 - Earthworks

The following specified earthworks requirements of Clauses CC-SPW-600-70AR to 600-75AR shall, in the event of any conflict, take precedence over Specification Clauses CC-SPW-600-01 to 042 (inclusive) and Specification Appendix 6/1.

CC-SPW-600-070AR Off Site Tipping of Surplus Material

All surplus material excavated and not reused in the Works shall be disposed off-site to licensed tips provided by the Contractor. Should any hazardous material be encountered in the Works it shall be disposed of in accordance the current legislation. The Contractor will be responsible for obtaining all necessary permissions, consents and paying all costs and charges in connection with these operations.

In the event that a surplus of material excavated results; written acceptance shall be sought from the Employer's Representative prior to any temporary stock piling on Site of the material. The stockpile location shall be determined by the Contractor and agreed with the Employer's Representative.

Stockpiling of Surplus and material shall be carried out in accordance with Appendix 70/1 Clause 18 Storage of Materials.

CC-SPW-600-072.1AR Fill Material/subbase for use in the Works (if required)

All fill material/subbase used in the Works shall be imported fill class 6N and must comply with Table 6/1 of the Specification and the following parameters: (as required by App 6/1).

- Effective angle of internal friction shall be minimum of 36° on the fraction less than 5mm based on 1nr shear box test result per 500m³,
- Upper Moisture content limit shall be the optimum moisture content,
- Lower Moisture content limit shall be the optimum moisture content - 2%, and
- 10% fines value to be minimum 50kN.

Evidence of compliance with these parameters must be provided at the rate of 1 test per 500 tonnes of fill.

No fill material shall be deposited in open waters.

CC-SPW-600-072.2AR Imported Filling to Structures (if required)

Imported material for use as fill to structures shall be stable uncontaminated fill class 6N1 in accordance with Clause CC-SPW-600-010 of the Specification.

CC-SPW-600-073AR Compaction of Fill Material

Compaction shall be carried out in layers to Clause CC-SPW-600-012 of the Specification with additional compaction requirement (as measured on Site) of 95% of maximum dry density as measured by insitu density levels to BS1377.

End Product Compaction

End product compaction shall be carried out in accordance with CC-SPW-600-012 sub-Clauses 12 to 15.

CC-SPW-600-074AR Rock Armour & Rock Underlayer

Rock Armour and Rock Underlayer utilised in the Works shall be imported rock armour and rock underlayer. All rock armour and rock underlayer must comply with the following:

1. Rock Armouring and Rock Underlayer

Material for rock armour and armour underlayers shall be sound, durable and hard stone. It shall be free from laminations, cleavages, weathering or any other inherent weakness and shall be of such character that it will not disintegrate or erode from prolonged action of air, frost, sea water abrasion or in handling and placing. Stone used shall have a maximum Aggregate Impact Value/ Los Angeles Coefficient of 16, a maximum Magnesium Sulphate Soundness value of 12% and a maximum Water Absorption content of 2.5%. All stone shall be angular in shape; the greatest dimension shall not be greater than twice the least dimension for more than 50% of the stones in any sample and shall never be greater than three times the least dimension.

The Contractor shall submit for acceptance to the Employer's Representative, the names of the quarries from which he proposes to obtain the armour and armour underlayer material together with a report from a qualified Geologist acceptable to the Engineer classifying the rock in each quarry. No stone shall be placed until the Employer's Representative has inspected the source and accepted the material for use in the Works. Stones shall be prismoidal in shape placed in layers with each stone sizes as shown on the Drawings. The specific gravity of each batch of stones used shall be measured and submitted to the Employer's Representative for his acceptance before the use of any material will be permitted.

The specific density of rock armour shall be 2650 kg/m³ or greater and the required weights of the armour stones to be used shall conform to Table 674 below of the Specification. The specific density of the armour underlayers shall be not less than 2650 kg/m³. The rock underlayer beneath the rock armour shall conform with Table 674 below and drawing IBE 1907-TT-ZZ-ZZ-DR-C-1003-1 and IBE 1907-TT-ZZ-ZZ-DR-C-1003-2.

TABLE 674: Armouring and Underlayer Stone Density of 2650 kg/m³ and above
Heavy, light and coarse European EN 13383 standard grading requirements

Class Designation	Class Designation	ELL	NLL	NUL	EUL	Mem	
Class	Passing requirements (kg)	< 5% (kg)	< 10% (kg)	< 70% (kg)	< 97% (kg)	lower limit (kg)	Upper limit (kg)
Heavy	1000-3000	700	1000	3000	4500	1700	2100
Light	60-300	30	60	300	450	130	190

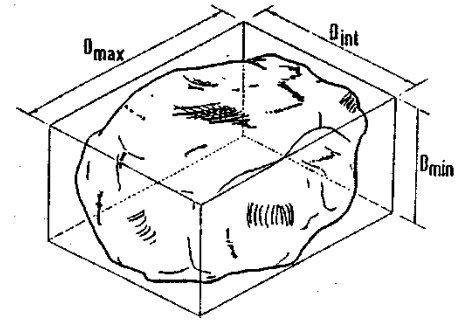
For each stone type listed above, 75% of all armouring stones used shall weigh between the nominal weight specified and the maximum weight.

2. Rock Armouring and Rock Underlayer - Determination of Grading

Two methods shall be used by the Contractor to produce the required Site control for the weight/size of rock armouring:

- (i) The first method shall be by weight measurement of the armouring stones. Individual stones shall be weighed and recorded at the time of loading at the quarry. The gross and net lorry weights shall also be recorded at a certified weighbridge (the Contractor may construct a temporary weighbridge on Site at a location agreed with the Employer's Representative to carry out this operation). A copy of each "individual stone weight docket" and each gross and nett lorry weight dockets shall be given to the Employer's Representative prior to unloading any stone on Site. The weights of the stones shall lie within the tolerances stated in Table 674 of the Specification. In addition, 75% of all stones used shall weigh between the nominal weight specified and the maximum weight.
- (ii) The second method shall be by physical measurement of stone dimensions. Stone size shall be defined by orthogonal dimensions to determine the greatest and the least dimension of each stone. The third dimension shall be measured perpendicular to the other two dimensions to define the rectangular prism which encloses the stone.

The orientation of this set of three dimensions shall be such that the volume of the containing prism is a minimum. The least greatest and intermediate dimensions shall be called D_{min} , D_{max} and D_{int} , respectively. The required nominal size of stone D_{nom} shall be defined by:



$$D_{nom} = \sqrt{D_{min} \times D_{int}}$$

For stones with density of w_r kg/m^3 the approximate relationship between the weight and the nominal dimension already defined is as follows:

$$W = k \times w_r \times (D_{nom})^3$$

Past experience has indicated that, for angular quarry stone, an average value for the constant k is 0.73. Using the specific density of $2,650 \text{ kg/m}^3$ the nominal dimensions of the armouring stones have been derived and are quoted in Table 674 of the Specification.

To confirm the boulder weight to size relationship for the particular quarries selected by the Contractor a selection of boulders will be weighted and measured prior to the commencement of armour placing.

1. Shape Factor Conditions

In addition to the above weight criteria for Site control of rock armouring and underlayer, the stones shall also conform to the shape factor conditions viz: the greatest dimension shall not exceed twice the least dimension for more than 50% of the stones in a sample and shall never exceed three times the least dimension.

2. Placing Armour

All rock armouring to form the revetment and toe protection shall be carefully placed in position to the line and levels shown on the drawing. The envelopes shown on the Drawings represent the average line of the face of the stones. Rock armouring shall be placed such that the average line of the relevant face of the stone layer shall not lie below the nominal line shown on the Drawings. Individual stones shall be placed such that their relevant faces lie within $\pm 0.2\text{m}$ of the average line. All armouring stones shall be individually placed and packed in position by hydraulic excavator.

The number of armouring boulders required per square metre, N_v , for each layer of armouring shall be calculated from the formula.

$$N_v = n \times k_v \times (1-P) (w_r/W)^{2/3}$$

where:

- n is the number of stone layers
- k_v is the layer coefficient
- P is the porosity of the layer
- w_r is the density of the stone (kg/m^3)
- W is the nominal armouring boulder weight (kg)

It has been found from past experience that for angular quarry stones, P shall be taken as 0.37 and k_v shall be taken as 1.00.

$$\therefore N_v = n \times 0.63 (w_r/W)^{2/3}$$

Layers of armouring referred to above can mean - depending on their location in the Works - either one or two individuals 'layers' of stones - thus N_v is the number of individual stone layers making up this armouring layer'.

The placing density described above is mandatory and in order to achieve this, the Contractor shall be required to place all armouring boulders in a close and tightly packed arrangement.

The above formula shall apply to all cases and values of w_r and shall be those of the particular boulders being supplied for the layer under construction.

The Employer's Representative shall be given due notice of completion of each stage of the armouring for any section of the Works, and no further work shall be carried out on that section until it has been inspected and accepted by the Employer's Representative.

Such notice shall be given and inspections carried out for the following stages in armour placing for each section of the Works:

1. Revetment sloping surface including subbase/filter
2. Geotextile placing
3. Armour underlayer
4. Rock armour, first stone layer
5. Rock armour, second layer

The Contractor shall give at least 24 hour's notice of areas available for inspection and shall provide assistance for the Employer's Representative.

Work shall be done by placing rather than dropping stone/rocks and a method statement shall be submitted for acceptance showing mitigation for excessive noise.

Throughout the revetment works the Contractor will be obliged to carry out their operations to the best practicable means in so far as to minimise the propagation of noise from the Site particularly those Works carried on outside normal working hours and necessitated as a result of tidal movements.

Stone Filter Layer

The stone filter layer shall comprise clean, hard, durable and angular crushed rock, free from any clay or organic matter. The material shall have a nominal diameter of 45 to 125mm and shall be well graded within the specified range to provide an effective filter layer beneath the overlying rock armour and under layer. The filter layer shall be placed and spread carefully to the levels and thickness shown on drawings series IBE 1907-TT-ZZ-ZZ-DR-C-1003-1 and IBE 1907-TT-ZZ-ZZ-DR-C-1003-2. The placement shall be carried out in a manner that avoids damage to any underlaying geotextile and minimise disturbance or displacement of the prepared formation. The completed filter layer shall provide a stable, continuous and reasonably uniform surface for placement of the overlying rock layers.

It is proposed that the existing shingle materials present at Strandhill will be retained and reused as part of the filter layer. Where there is insufficient existing shingle material, imported 45-125mm stone shall be used to make up any shortfall.

Geotextile

Geotextile shall be provided over areas of exposed ground at the crest where no existing shingle material is present. Where an adequate layer of shingle material is present, geotextile will not be required. For detail refer to drawing series IBE 1907-TT-ZZ-ZZ-DR-C-1003-1 and IBE 1907-TT-ZZ-ZZ-DR-C-1003-2.

Specification Appendix 0/2

Contract Specific – Minor Alterations to Existing Clauses

Specification Appendix 0/2

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

LIST OF CLAUSES, TABLES AND FIGURES WITH MINOR ALTERATIONS

Clause No.	Title
CC-SPW-000	General
02AR	Terms and Abbreviations

Clause No.	Title
CC-SPW-100	Preliminaries
CC-SPW-100-105.1A	Goods, Materials, Sampling and Testing
CC-SPW-100-105.8	Samples
CC-SPW-100-105.9	Test Certificates and Test Reports.
CC-SPW-100-107.2	Site Extent and Limitations on Use
CC-SPW-100-112.4	Setting Out and Checking
CC-SPW-100-118	Temporary Diversion of Traffic
CC-SPW-100-125.3	Site Compound
CC-SPW-100-125.4	Contractor's Offices, Stores, etc.
CC-SPW-100-125.5	Sanitary Conveniences
CC-SPW-100-125.6	Electricity Supply to Site
CC-SPW-100-125.7	Water Supply to Site
CC-SPW-100-127.4	Safety Supervisor
CC-SPW-100-127.5	Safety, Health and Welfare at Work
CC-SPW-100-130	Health and the Environment

Clause No.	Title
CC-SPW-200	Site Clearance
CC-SPW-200-201	Clearing

Clause No.	Title
CC-SPW-600	Earthworks
CC-SPW-600-04	Excavation for Foundations
CC-SPW-600-20	Landscape Areas

CLAUSES, TABLES AND FIGURES WITH MINOR ALTERATIONS

CC-SPW-000: Introduction.

CC-SPW-000-02AR Terms and Abbreviations

Unless specifically defined otherwise the definitions of terms used in the Specification and associated documents are those in BS 6100, Glossary of Building and Civil Employer's Engineering Terms.

Notwithstanding BS6100, for the purposes of Specification Clause 116 and Appendix 70/4 only, the following terms shall be defined as follows:

"Road Authority" means Sligo County Council and/or the National Roads Authority/Transport Infrastructure Ireland, as the context requires.

For the purposes of the Contract, the term "rock" in relation to excavation and or dredging shall apply to solid rock as distinct from disintegrated or broken rock and shall apply to rock which requires fragmentation by blasting or chiseling or hydraulic machinery before it can be excavated or requires the use of specialised rock equipment to remove it.

CC-SPW-100: PRELIMINARIES

CC-SPW-100-105.1A Goods, Materials, Sampling and Testing

Add new sub-clause:

- 1A When requested by the Employer's Representative, samples of Materials to be used shall be submitted to the Employer's Representative for acceptance prior to their placement in the Works. The Contractor shall make all arrangements for such testing.

CC-SPW-100-105.8 Samples

Add new sub-clause:

8. When requested by the Employer's Representative, samples of materials to be disposed shall be submitted to the Employer's Representative for acceptance prior to disposal. The Contractor shall make all arrangements and pay all cost for such disposal if required.

CC-SPW-100-105.9 Test Certificates and Test Reports.

Add new sub-clause:

9. All test certificates and test reports shall constitute or shall be deemed to be Contractor's Documents and shall be included in the As-Built Documentation.

CC-SPW-100-107.2 Site Extent and Limitations on Use

2. The Contractor shall carry out and complete all work and duties specified in Appendix 1/7 associated with the use of the Site or required to enable the Contractor to have use or optimum use of the Site in accordance with the Contract.

The Contractor shall comply with all Statutory Orders concerning the Site and the use or operation of the Site for the Works in particular the use of the Site and/or restrictions thereto.

The Contractor shall note that the Works are being carried out in the vicinity of an open body of water, which is used for leisure activities, and shall take all necessary measures to allow the surrounding activities to continue unimpeded, and the limitations on the use of the Site that such activities may cause.

CC-SPW-100-112.4 Setting Out and Checking

4. The Contractor shall be responsible for accurately setting out all the Work and he shall make good any defects arising from errors in lines or levels. He shall also provide and maintain all survey and testing equipment necessary for the Employer's Representative to supervise and monitor the progress of the Works.

CC-SPW-100-118 Temporary Diversions of Traffic

Add new sub-clauses:

- 9 The Contractor shall also arrange his work as to cause the minimum of delay or inconvenience to vehicular or pedestrian traffic. Access to individual premises must be maintained at all times during the Works. The surface to be water bound macadam well maintained. The Contractor shall refer to the requirements contained in Appendix 1/7.
- 10 The Contractor shall construct and maintain temporary diversion ways for pedestrian traffic wherever the Works will interfere with the use of the existing footpaths by members of the public.
- 11 Diversion ways must be constructed in advance of any interference with existing ways and shall be maintained in a condition satisfactory to the Employer's Representative for as long as required.
- 12 The provisions of this Clause shall not apply to any temporary access, or accommodation works which the Contractor may construct for his sole use in the execution of the Works.

CC-SPW-100-125 Contractor's Temporary Accommodation

Add new sub-clauses:

3 Site Compound

The site compound will be used for site offices, plant storage, and materials storage.

The Contractor shall be responsible for setting up the site compounds, maintaining them throughout the duration of the Works and reinstating them to the satisfaction of the Employer's Representative following the issuing of the Substantial Completion Certificate. Reinstatement shall include, re-levelling the land, sewing grass if applicable. The location and extent of the Contractors site compound at Strandhill is shown on Drawing IBE1907-TT-ZZ-ZZ-DR-C-1002.

4 Contractor's Offices, Stores, etc.

The Contractor shall provide and maintain all offices, stores, toilets facilities, fuel supplies etc. as are necessary for the execution of the Works in a suitable location within the site compound to be agreed by the Employer's Representative. On completion of the Contract all temporary buildings provided for the purpose of the Contract, including offices, sheds, stores and shelters shall be removed by the Contractor and the sites made good and left clean and tidy to the satisfaction of the Employer's Representative.

5 Sanitary Conveniences

1. The Contractor shall provide and maintain proper and adequate sanitary conveniences for the use of persons on the Site throughout the Contract; he shall remove these on completion. Where water closets cannot be provided, the Contractor shall provide suitable chemical closets that shall be to the acceptance of the Employer's Representative and local Public Health Authority. The Contractor shall prevent the workmen from committing nuisances on the Works or adjacent lands.
2. The Contractor shall equip these conveniences with chemical or water closets of approved pattern and shall keep them and maintain them in a proper and sanitary condition during the progress of the Contract.
3. On removal of the conveniences the sites shall be properly disinfected and the ground restored to the entire satisfaction of the Employer's Representative and Authorities.

6 Electricity Supply to Site

The Contractor shall, at his own expense, make all arrangements with the E.S.B. for supplies required during the execution of the Works. The Contractor shall be responsible for the installation and maintenance of supplies in accordance with the appropriate statutory requirements.

7 Water Supply to Site

The Contractor shall provide an adequate supply of fresh water for use on the Works from a source to be accepted by the Employer's Representative.

CC-SPW-100-127 Safety

Add new sub-clauses:

2. Project Supervisor Construction Stage - Health and Safety

The Contractor shall notify the Employer's Representative in writing, before the Starting Date, of the name of the person, resident on Site responsible for carrying out the duties of Project Supervisor, in compliance with clauses 2.4 and 7.5 of the Conditions of Contract, and with responsibility for carrying out the Contractor's duties as PSCS.

3. Safety, Health and Welfare at Work

The Contractor shall comply with the safety provisions set out in Specification Appendix 70/1. Notwithstanding any other provision of the Contract, nothing in Specification Appendix 70/1 shall limit the Contractor's legal obligations with regard to safety and/or limit the Contractor's obligations to comply with the safety Regulations.

CC-SPW-100-130 Health and the Environment

Add new sub-clauses:

3. Safety Health and Welfare at Works

The Works shall be constructed in accordance with the requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2013 and amendments thereof and the associated Code of Practice. For the purposes of these regulations a PSDP has already been appointed by the *Employer*.

The PSDP has compiled the Preliminary Safety and Health Plan. It shall be the responsibility of the Project Supervisor Construction Stage who will be the Contractor for the Works to develop the Safety file and Site Specific Safety Statement to comply with the Regulations and the Special Requirements in relation to Safety, Health and Welfare at Work, Appendix 70/1 of the Specification.

CC-SPW-200: SITE CLEARANCE

CC-SPW-200-201 Clearing

Delete paragraph 1 of sub-clause 6 and insert the following:

6. Subject to the provisions of Clause 7.8 of the Conditions all material arising from the clearance which are not required or unacceptable for use in the Works, other than archaeological finds/fossils and not included in Appendix 2/3 shall become the property of the Contractor and shall be disposed of by him.

Add new sub-clause:

13. Burning of materials on Site shall not be permitted.

CC-SPW-600: EARTHWORKS

CC-SPW-600-04 Excavation for Foundations

Add new sub-clause:

4. The Contractor shall ascertain the precise location of all mains, services and local connections which may be affected by the excavation operations and shall take care to avoid interruption or damage to them by hand excavation where necessary or the construction of temporary supports. Where damage is caused, the Contractor shall liaise with the appropriate Statutory Authority to ensure that repairs are affected as quickly as possible.

CC-SPW-600-20 Landscape Areas

Add new sub-clauses:

6. **Topsoil (BS 3882:1965)**

The topsoil shall be clean and free from all broken brick, concrete, perennial weeds, roots and any other extraneous material. It shall be medium textured with a high proportion of loamy material and have a neutral pH.

The topsoil shall have a stone content of less than 30% (dry weight), with the maximum stone size being 80mm dia.

The topsoil may be sources locally or imported; however, the nature and location of the topsoil source shall be subject to acceptance by the Employer's Representative and the Department of Environment and Local Government, National Parks and Wildlife Service.

Specification Appendix 0/3

List of Numbered Appendices Referred to in the Specification & Included in the Contract

Specification - Appendix 0/3

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

Symbols

Volume	Volume of Contract Documents in which Appendix may be found (e.g. Volume2).
N/U	Appendix not used within this Contract.
(E)	Employer's Representative compiles.
(E/C)	Employer's Representative partially compiles and Contractor completes and returns to the Employer's Representative.
(E/T)	Employer's Representative partially compiles and Tenderer completes and returns with Tender.
(C)	Contractor completes and returns to the Employer's Representative.
(I)	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			
Volume No.	Completed By	Appendix No.	Title
Introduction			
A2	(E) {	0/1	Contract- specific, Additional, Substitute and Cancelled Clauses, Tables and Figures Included in the Contract.
A2		0/2	Contract specific Minor Alterations to Existing Clauses, Tables and Figures Included in the Contract.
A2		0/3	List of Numbered Appendices Referred to in the Specification and Included in the Contract.
A2		0/4	List of drawings Included in the Contract.

Volume No.	Compiled/ Completed By	Appendix No.	Title
			Preliminaries
A2	(E)	1/1	Accommodation and Equipment for The Employer's Representative
	N/U	1/2	Vehicles for the Employer's Personnel
	N/U	1/3	Communications System for the Employer's Personnel
	N/U	1/4	Working And Fabrication Drawings
A2	(E)	1/5	Testing to be Carried out by the Contractor
A2	(E)	1/6	Supply and Delivery of Samples to the Employer's Representative
A2	(E)	1/7	Site Extent and Limitations on Use
	N/U	1/8	Operatives for the Employer's Representative
A2	(E)	1/9	Control of Noise and Vibration
	N/U	1/10	Structure to be Designed by the Contractor
A2	(E)	1/11	Structural Elements and Other Features to be Designed by the Contractor
A2	(E)	1/12	Setting Out and Existing Ground Levels
A2	(E)	1/13	Programme of Works
A2	(E)	1/14	Monthly Statements
	N/U	1/15	Accommodations Works
A2	(E)	1/16	Privately & Publicly Owned Services and Supplies
A2	(E)	1/17	Traffic Safety & Management
A2	(E)	1/18	Temporary Diversions for Traffic
A2	(E)	1/19	Routeing of Vehicles
	N/U	1/20	Recovery Vehicles for Breakdowns
	N/U	1/21	Information Boards
	N/U	1/22	Progress Photographs
A2	(E)	1/23	Substances Hazardous to Health
A2	(E)	1/24	Quality Management System
	N/U	1/25	Product Certification Schemes
	N/U	1/26	NSAI Agrément Certificates

Volume No.	Compiled/ Completed By	Appendix No.	Title
			Site Clearance
	N/U	2/1	List of Buildings, etc., to be Demolished Or Partially Demolished
	N/U	2/2	Filling of Trenches and Pipes
A2	(E)	2/3	Retention of Material Arising from Site Clearance
A2	(E)	2/4	Explosives and Blasting
A2	(E)	2/5	Hazardous Materials
			Fencing and Environmental Noise Barriers
	N/U	3/1	Fencing, Gates and Stiles
	N/U	3/2	Fencing: TII Publications Standard Construction Details
			Road Restraint Systems (vehicle and pedestrian)
	N/U	4/1	Safety Barriers
	N/U	4/2	Pedestrian Restraint Systems
	N/U	4/3	Safety Barrier Terminals
	N/U	4/4	Safety Barrier Maintenance
	N/U	4/5	Anti-Glare Screens
	N/U	4/6	Not Used
	N/U	4/7	Vehicle Parapet Systems
			Drainage and Service Ducts
	N/U	5/1	Drainage Requirements
	N/U	5/2	Service Duct Requirements
	N/U	5/3	Surface Water Channels, Swales and Drainage Channel Blocks
	N/U	5/4	Fin Drains and Narrow Filter Drains and Geotextiles for Filter Drains
	N/U	5/5	Combined Drainage and Kerb Systems
	N/U	5/6	Linear Drainage Channel Systems
	N/U	5/7	Drainage and Service Ducts: TII Standard Construction Details
	N/U	5/8	Thermoplastics Structural Wall Pipes and Fittings
	N/U	5/9	Attenuation
			Earthworks
A2	(E)	6/1	Requirements for Acceptability & Testing of Earthworks Materials

Volume No.	Compiled/ Completed By	Appendix No.	Title
A2	(E)	6/2	Requirements for Dealing with Class U2 Unacceptable Material
A2	(E)	6/3	Requirements for Excavation, Deposition, Compaction (other than Dynamic Compaction)
	N/U	6/4	Not Used
A2	(E)	6/5	Geotextiles Used to Separate Earthworks Materials
A2	(E)	6/6	Fill to Structures & Fill Above Structural Foundations
	N/U	6/7	Sub-formation & Capping & Preparation & Surface Treatment of Formation
	N/U	6/8	Topsoiling, Grass Seeding and Turfing
	N/U	6/9	Earthwork Environmental Bunds, Landscape Areas, Strengthened Earthworks and Reinforced Soil Structures
	N/U	6/10	Earthworks for Corrugated Steel Buried Structures, Grouted Anchors, Soil Nails and Rock Bolts, Crib Walling and Gabions
	N/U	6/11	Swallow Holes & Other Naturally Occurring Cavities & Disused Mine Workings
	N/U	6/12	Instrumentation & Monitoring
	N/U	6/13	Soil Treatment With Lime and/or Hydraulic Binders and Ground Improvement
			Road Pavements – General
	N/U	7/1	Permitted Pavement Options
	N/U	7/2	Excavation & Reinstatement of Existing Surfaces
	N/U	7/3	Surface Dressing Product (End Performance)
	N/U	7/4	Bituminous Spray
	N/U	7/5	Road Pavements: NRA Road Construction Details
	N/U	7/6	Breaking Up or Perforation of Existing Pavement
	N/U	7/7	Not Used
	N/U	7/8	Not Used
	N/U	7/9	Cold Milling (Planning) of Bituminous Bound Flexible Pavement
	N/U	7/10	Microsurfacing
	N/U	7/11	High Friction Surfacing
	N/U	7/12	Low Energy Bound Mixtures
	N/U	7/21	Recipe Surface Dressing

Volume No.	Compiled/ Completed By	Appendix No.	Title
			Kerbs, Footways and Paved Areas
	N/U	11/1	Kerbs, Footways and Paved Areas
	N/U	11/2	Access Steps
	N/U	11/3	Kerbs, Footways and Paved Areas: NRA Road Construction Details
			Traffic signs
A2	(E)	12/1	Traffic Signs: General
	N/U	12/2	Traffic Signs: Reflective Markers
A2	(E)	12/3	Traffic Signs: Road Markings & Studs
A2	(E)	12/4	Traffic Signs: Cones And Cylinders
A2	(E)	12/5	Traffic Signs: Traffic Signals
	N/U	12/6	Traffic Signs: Special Sign Requirements on Gantries
A2	(E)	12/7	Traffic Signs: Preparation and Finish of Metal and Other Surfaces
			Road Lighting Columns & Brackets
	N/U	13/1	Information to be Provided by the Designer when Specifying Lighting Columns
	N/U	13/2	Typical Lighting Column And Bracket Data Sheets 1 & 2
	N/U	13/3	Instructions for Completion of Lighting Column And Bracket Data Sheet
	N/U	13/4	Information to Be Provided When Specifying CCTV Masts
	N/U	13/5	Typical CCTV Mast Data
	N/U	13/6	Instructions for Completion of CCTV Mast Data Sheet
	N/U	13/7	Installation Certificate For Lighting Column
	N/U	13/8	Installation Certificate For CCTV Mast
			Electrical Work for Road Lighting and Traffic Signs
A2	(E)	14/1	Site Records
	N/U	14/2	Location of Lighting Units and Feeder Pillars
A2	(E)	14/3	Temporary Lighting
	N/U	14/4	Electrical Equipment For Road Lights
	N/U	14/5	Electrical Equipment for Traffic Signs
			Motorway Communications

Volume No.	Compiled/ Completed By	Appendix No.	Title
	N/U	15/1	Motorway Communications
			Piling and Embedded Retaining Walls
	N/U	16/1	General Requirements for Piling and Embedded Retaining Walls
	N/U	16/2	Precast Reinforced and Prestressed Concrete Piles and Precast Reinforced Concrete Segmental Piles
	N/U	16/3	Bored Cast-in-Place Piles
	N/U	16/4	Bored Piles Constructed Using Continuous Flight Augers and Concrete or Grout Injection Through Hollow Auger Stems
	N/U	16/5	Driven Cast-in-Place Piles
	N/U	16/6	Steel Bearing Piles
	N/U	16/7	Reduction of Friction on Piles
	N/U	16/8	Non-Destructive Methods for Testing Piles
	N/U	16/9	Static Testing of Piles
	N/U	16/10	Diaphragm Walls
	N/U	16/11	Hard/Hard Secant Pile Walls
	N/U	16/12	Hard/Soft Secant Pile Walls
	N/U	16/13	Contiguous Bored Pile Walls
	N/U	16/14	King Post Walls
	N/U	16/15	Steel Sheet Piles
	N/U	16/16	Integrity Testing of Wall Elements
	N/U	16/17	Instrumentation for Piles and Embedded Walls
	N/U	16/18	Support Fluid
			Structural Concrete
	N/U	17/1	Schedule For The Specification Of Designed Concrete
	N/U	17/2	Concrete – Impregnation and Coating Schedule
	N/U	17/3	Concrete – Surface Finishes
	N/U	17/4	Concrete – General
	N/U	17/5	Not Used
	N/U	17/6	Grouting and Duct Systems for Post-Tensioned Tendons
	N/U	17/7	Precast Concrete Products

Volume No.	Compiled/ Completed By	Appendix No.	Title
			Structural Steelwork
	N/U	18/1	Requirements for Structural Steelwork
			Protection of Steelwork against Corrosion
	N/U	19/1	(Specification for Road Works) Sheet No. Form BE/P1 (New Works) Paint System Sheet
	N/U	19/2	(New Works) Requirements for Other Work
	N/U	19/3	(Specification for Road Works) Form BE/P2 Paint Data Sheet
	N/U	19/4	(Specification for Road Works) Form BE/P3 Paint Sample Despatch List: Sheet 1 And Sheet 2
	N/U	19/5	(New Works) General Requirements
	N/U	19/6	(Specification for Road Works) Form BE/PE1 (Maintenance) Paint System Sheet 1 And Sheet 2
	N/U	19/7	(Maintenance) Requirements for Other Work
	N/U	19/8	(Maintenance) General Requirements
			Waterproofing for Concrete Structures
	N/U	20/1	Waterproofing for Concrete Structures
			Bridge Bearings
	N/U	21/1	Bridge Bearing Schedule
			Bridge Expansion Joints and Sealing of Gaps
	N/U	23/1	Bridge Deck Expansion Joint Schedule
	N/U	23/2	Sealing of Gaps Schedule (other than in Bridge Deck Expansion Joints)
			Brickwork, Blockwork and Stonework
	N/U	24/1	Brickwork, Blockwork and Stonework
	N/U	24/2	Brickwork, Blockwork and Stonework: NRA Road Construction Details
	N/U	24/3	Requirement For Masonry Repointing And Reconstruction Of Historic Structures
			Special Structures
	N/U	25/1	Requirements for Corrugated Steel Buried Structures
	N/U	25/2	Requirements for Reinforced Soil and Anchored Earth Structures
	N/U	25/3	Requirements for Reinforced Clay Brickwork Retaining Walls of Pocket Type and Grouted Cavity Construction Structures

Volume No.	Compiled/ Completed By	Appendix No.	Title
	N/U	25/4	Requirement for Access Underpasses
			Miscellaneous
	N/U	26/1	Concrete For Ancillary Purposes
	N/U	26/2	Bedding Mortar
	N/U	26/3	Cored Thermoplastic Node Markers
			Watermains, Utilities and Accommodation Works
	N/U	27/1	Requirements for Watermains
	N/U	27/2	Watermains: Road Construction Details
			Trenchless Installation of Road Drainage & Service Ducts
	N/U	28/1	Trenchless and Minimum Dig Techniques
			CCTV Survey of Road Drainage Systems
	N/U	29/1	CCTV Survey of Road Drainage Systems

LIST 'B' List of Contract - Specific Numbered Appendices Devised for the Contract

Volume No.	Completed By	Appendix No.	Title
A2	(E)	70/1	Safety & Site Security
A2	(E)	70/2	Special Conditions in Relation to Working with Owners of Public and Private Services and Suppliers; Works in connection with Services and Suppliers
A2	(E)	70/3	Geotextiles and Geogrids
A2	(E)	70/4	Document Management & Process
A2	(E)	70/5	Proformas

Appendix 1/1: Accommodation and Equipment For The Employer's Representative

A Temporary Accommodation and Equipment for the Employer's Representative

Prior to the commencement of any work on Site the Contractor shall provide and maintain an office for the use of the Employer, Employers Personnel, Employer's Representative and his staff. The office shall be not less than 30 m² floor area and shall be located within the site compound area identified on drawing IBE 1907-TT-ZZ-ZZ-DR-C-1002.

Car parking facilities for the use of the Employers Personnel and his staff shall be provided adjacent to the office and maintained until completion of the Works.

Throughout the duration of the Contract the Contractor shall supply, hot and cold water, electricity, light etc. required and make arrangements for the office to be regularly and properly cleaned and maintained.

Duration of Time Accommodation Required

Temporary Accommodation for the Employer's Representative shall be provided for the duration of the Works.

Offices - General

The offices shall be constructed of substantial material, fully weatherproofed, lined and insulated. The wall construction shall be suitably finished internally and externally, and have a minimum U-value of 0.852W/m²°C. The minimum U-value of the roof shall be 1.186W/m²°C. The floors shall be timber, covered with heavy-duty linoleum. The air space between the timber floor and the existing ground shall not be less than 375mm and the underside of the floor shall be insulated with an accepted material. Windows shall be casement type with adequate opening. The offices shall be cleaned daily.

Services

Electricity:	A mains electricity supply sufficient to operate simultaneously all electrical equipment and power outlets provided.
Water:	An adequate supply of potable water with all pipes and tanks properly lagged.
Drainage:	Waste connections made to the local sewer system or septic tank, to the acceptance of the local Authority.

Offices – Heating & Lighting

Minimum room temperature in offices: 21°C

Artificial lighting intensity - General Office Areas: 500 Lux

Insurances

The Contractor shall insure the contents of the offices, including goods and chattels belonging to:

- i) the permanent site supervisory staff (Employer's Representatives/ archaeologists, etc);
- ii) the Employer's permanent site supervisory staff; and,
- iii) other visiting supervisory and testing staff;
- iv) against fire, burglary, theft and other risks ordinarily insured against. The minimum amount of cover shall be as follows:

Item i)	Euro 100,000;
Item ii)	Euro 100,000;
Item iii)	Euro 15,000;

for any one incident with no limit on the number of incidents.

Setting Out

The Contractor shall also provide and maintain all survey and testing equipment necessary for the Employer's Representative to supervise and monitor the progress of the Works, as detailed in Specification Appendix 1/1.

The Contractor shall provide all labour, assistance, poles, pegs, instruments and other apparatus as required by the Employer's Representative or his staff for setting out and checking, measuring up or testing the Works and Materials, and for any other purpose in connection with the Contract.

Pegs used by the Contractor for setting out purposes shall be painted in distinguishing colours and carefully identified as to their nature and location by a method to be agreed with the Employer's Representative and which, being agreed, shall be adhered to during the continuance of the Contract.

The Contractor shall provide such miscellaneous consumable materials and assistance as might reasonably be required by the Employer's Representative in checking the setting out of the Works.

List of Consumable Stores - To be supplied by the Contractor for the duration of the Contract

Printer cartridges and paper
Tea bags, instant coffee powder and sugar as required
Hand towels or paper towels
Tea towels, Dish cloths, pot scourers
Soaps, detergents
Washing-up liquid
Toilet rolls
Nail brushes
Light bulbs
First Aid box
Height-of-Collimation level books
Paper clips, staples, drawing pins

Appendix 1/2: Vehicles For The Employer's Personnel

N/A

Appendix 1/3: Communications System For The Employer's Personnel

N/A

Appendix 1/4: Working And Fabrication Drawings

N/A

Appendix 1/5: Testing To Be Carried Out By The Contractor

1. Tests carried out by the Contractor to demonstrate compliance with the Specification, shall be carried out in a suitably accredited laboratory accepted by the Employer's Representative.
2. (IL) indicates that an INAB test report or certificate is required.
3. The tables on the following pages give the minimum frequency of testing to be carried out by the Contractor to demonstrate compliance with the Specification. Testing shall be carried out immediately after sampling and results shall be passed to the Employer's Representative on completion of testing.
4. Additional testing shall be carried out by the Contractor as and when directed by the Employer's Representative.
5. Where the table shows (N) this means that an "UKAS test report" is required. A relevant European Accreditation Bodies test report satisfies this requirement.
6. Samples taken at source shall be witnessed by all parties involved, i.e., the Employer's Representative, the Contractor and (where applicable) the manufacturer or supplier and the method of sampling and testing shall be in accordance with the appropriate British Standard/Irish/European Standard. In the event of conflict, the method of sampling and testing shall be as directed by the Employer's Representative.
7. An acceptable proportion of the sample from the source shall be retained by the Employer's Representative
8. Unless otherwise shown in this Appendix tests for work, goods or materials as scheduled under any one Clause are required for all such work, goods or materials in the Works.
9. Unless otherwise shown in this Appendix test certificates for work, goods or materials as scheduled under any one Clause are required for all such work, goods or materials in the Works.
10. The Contractor shall carry out further tests required by the Specification but not specifically listed in the attached table.
11. The Contractor will be responsible for the cost of all sampling and testing, including, as applicable, providing an on Site laboratory or transport of samples to an off Site laboratory, testing, test materials and reporting of results.

Appendix 1/5: Testing To Be Carried Out By The Contractor						
CC-SPW-600 EARTHWORKS						
Clause	Work, Goods or Material		Test	Frequency of Testing	Test Certificate	Comments
601 631 to 637 640	Class	General Description				
	1A&B	General granular fill	Grading/ Uniformity coefficient	1 test per 1,000m ³ for each source		Reduce to weekly after 3 months and/or as agreed by the Employer's Representative
			mc / MCV (N)	2 per 100m ³ up to max of 5 per day in order to set a calibration thereafter 1 per 4000m ³ up to max of 5 per day as agreed by ER	Required	Calibration of mc to OMC to be established prior to reduction to 1 per 4000m ³ , as determined by the ER
			OMC (N)	3 per source and fortnightly		
			SMC of chalk (N)	Twice a week		
			C'Ø' by Shearbox	2 per source *		
	1C only		LA Coefficient CBR	Weekly per source * 1 per 1500m ³	Required	Refer to requirement in Appendix 6/1
	2	General cohesive fill	Grading	1 test per 1,000m ³ for each source		
			Mc/ MCV /PL Undrained shear strength(N)	2 per 1000m ³ up to max of 5 per day		
			SMC of chalk (N)	Twice a week		
			Bulk density (PFA) (N)	2 per 1000m ³ up to max of 5 per day		(cross reference should be made to any requirements in Appendix 6/1)

Appendix 1/5: Testing To Be Carried Out By The Contractor						
Clause	Class	General Description	Test	Frequency of Testing	Test Certificate	Comments
601 631 to 643	4	Landscape fill	Grading/mc/MCV (N)	Daily		
618	5	Topsoil	Grading	Daily	Required	
			Visual Inspection	Daily		
			Topsoil quality	1 per 1m ³ as requested by Employer's Representative	Required. Topsoil to conform to BS 3882	
			Depth of topsoil	Daily		Inspection report to ensure correct depths of topsoil being applied to appropriate areas
			Chemical analysis of fertilizer	1 per source		
			Rate of spread of fertilizer	1 per 1000 square meters		
			Planting Inspection	Annual		Annual inspection of planting
618		Grass seeding, wildflower seeding and turfing	Grass seed germination and purity (official seed testing stations)	1 per source and mix variety	Required prior to sowing works	
			Rate of spread of seeding	1 per square meter		
601 631 to 643	6	Selected Granular Fill 6N1 & 2 6F1 & 2	Grading/ Uniformity coefficient	1 per 250m ³ up to a max of 3/day		

Appendix 1/5: Testing To Be Carried Out By The Contractor						
Clause	Class	General Description	Test	Frequency of Testing	Test Certificate	Comments
601 631 to 643		Structural fill	LA Coefficient	1 test per 2,000m ³ for each source		Class 6 testing to be reviewed by the ER and frequencies varied as necessary to provide confirmation that materials and material sources are compliant
			PI/LL (N)	Daily		
			10% Fines value/SMC (N)	Weekly		
			Omc /mc/ MCV (N)	1 per 250m ³ up to a max of 3/day		
			Organic matter/water soluble or total sulphate content (N)	Weekly		
			PH/chloride ion content	Weekly		
			Resistivity (N)	3 per source		
			Organic matter / water soluble sulphate content (N)	5 per source or as agreed with Employer's Representative		
			Oxidised sulphides (OS) and total potential sulphate (TPS) content (N)	5 per source or as agreed by DSR		
			Redox potential (N)	3 per source if required (or as agreed with Employer's Representative)		
			Drained shear strength parameters (effective angle of internal friction (ϕ'), and effective cohesion (c')) (N)	2 per source or as agreed by DSR		
			Permeability (N)	3 per source if required (or as agreed with ER		

Appendix 1/5: Testing To Be Carried Out By The Contractor						
Clause	Class	General Description	Test	Frequency of Testing	Test Certificate	Comments
		Acceptable material				
601,631 634 to 636	6A	Selected well graded granular material	Grading/uniformity	1 per 1000m ³ for each source	Required	
			Plasticity Index (IL) (N)	1 per 2000m ³ for each source		
			Los Angeles coefficient (IL)	1 test per 1,000m ³ for each source (min of 2 total per source)		
			Slake durability	1 test per 1,000m ³ for each source (min of 2 total per source)		
			Effective friction angle by shearbox 1	1 per 500m ³ up to a max of 3/day		
	6C	Selected uniformly graded material	Grading/Uniformity	1 per 1000m ³ for each source	Required	
			Plasticity index (IL)	1 per 2000m ³ for each source		
			Los Angeles coefficient (IL)	1 test per 1,000m ³ for each source (min of 2 total per source)		
			Optimum moisture content (IL)	1 per 250m ³ up to a max of 3/day		
			Slake durability (IL)	1 test per 1,000m ³ for each source (min of 2 total per source)		
			Effective friction angle by shearbox	1 per 500m ³ up to a max of 3/day		

Appendix 1/5: Testing To Be Carried Out By The Contractor						
Clause	Works, Goods or Materials		Test	Frequency of Testing	Test Certificate	Comments
602	Earthworks material beneath surface of a road or paved central reserve		Frost Heave (N)	1 per 5000m ³	Required	For materials within 450mm depth of pavement surface
609	Geotextiles		Tensile	1 per 2500 square metres	Required	Proprietary product Quality Management scheme applies as directed by the ER.
			Permeability	1 per 2500 square metres	Required	
			Pore Size	1 per 2500 square metres	Required	
612	Compaction of fills					
		Method compaction	Field dry density (N)	5 per day per scheme		
		End product compaction	Optimum mc (2.5kg rammer/vibrating hammer method	Each class or subclass of material		Not Applicable
			Nuclear density tests	5 per compacting layer		
			Field dry density (N)	5 per day per scheme		
			California bearing ratio (plate load tests) 1	1 per 500m ³ and at least 1 per every metre lift		
	Form capping		Field dry density cement (N)	1 per 400 tonnes of cement spread		
613	Sub-formation		CBR ¹ (using Cone Penetrometer or PLT or other test agreed with the Employer's Representative) (N)	A. hand held DCP tests shall be carried out once every 50m2 with plate load tests every 200m ² . One laboratory CBR tests is required every 100m of 1500m ³ of fill. Or b. plate load tests every 100m. One laboratory CBR tests is required every 100m or 1500m ³ of fill.		CBR (or equivalent) test to be carried out on completed surface of sub-formation. Note correlation testing to be carried out to confirm validity of test correlations, see Appendix 6/1.

Appendix 1/5: Testing To Be Carried Out By The Contractor					
Clause	Works, Goods or Materials	Test	Frequency of Testing	Test Certificate	Comments
622 638 639	Earthworks for reinforced earth and anchored earth structures	Redox potential	5 locations within the affected area		
	Drainage layers	Grading	1 per 400 tonnes *		
		Chemical analysis			
	Reinforcing elements Anchor elements	Coeff of friction	Each type of element with each type of fill		
	Adhesion				

Appendix 1/6: Supply and Delivery of Samples to the Employer's Representative

Clause	Sample Description	Frequency of Sampling	Delivery Location	Comments
631-635	All classes of material	1 per location	"	In presence of <i>Employer's Representative</i>

Notes

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

APPENDIX 1/7: Site Extent and Limitations On Use

1 Extent of Site

1.1 Site Extent

The Site, and the extent of the Site, is defined on drawing IBE 1907-TT-ZZ-ZZ-DR-C-1000 to IBE 1907-TT-ZZ-ZZ-DR-C-1003.

The Contractor shall have temporary use of the Site for the purposes of the Contract, and shall confine all his operations, storage etc. within this area. The Contractor should note the restrictions on access to and possession of the Site detailed on the drawing IBE 1907-TT-ZZ-ZZ-DR-C-1002 described in the following Section B Limitations on the Use of the Site (and/or requirements for the operation or use of the Site).

1.2 Access and Possession

It is anticipated that the Contractor will be granted access to and possession of the Site detailed on the drawing IBE 1907-TT-ZZ-ZZ-DR-C-1000 to IBE 1907-TT-ZZ-ZZ-DR-C-1003 for the duration of the Works.

2 Limitations on the Use of the Site (and/or requirements for the operation or use of the Site)

There are a number of limitations on the use of the Site (and/or requirements for the operations or use of the Site). These are set out in paragraphs 1 – 8 of this Section 2 and on drawing series IBE 1907-TT-ZZ-ZZ-DR-C-1000 to IBE 1907-TT-ZZ-ZZ-DR-C-1003-2.

1. Limitation of Construction Activity

The Contractor shall plan and execute the works such that all temporary and permanent construction activities are undertaken within the Site Boundary shown in IBE 1907-TT-ZZ-ZZ-DR-C-1003. The Contractor shall programme the works to account for tidal conditions where applicable.

Works whether Temporary or Permanent **must** be undertaken within the Site Boundary.

A section of the surface water pipe lies within the confines of the Site (along the southern perimeter of the Site boundary). Measures shall be taken by the Contractor to protect this infrastructure during the Works.

Works within a Coastal Environment

The Works are being constructed in a Coastal Environment and therefore the existing ground levels may vary. The Contractor must ensure the toe of the embankment is maintained within the Site Boundary. This may require minor adjustments to the slope gradient. If minor adjustments are required on Site, the Contractor must inform the Employer's Representative immediately and agree the adjusted gradient with the Employer's Representative before proceeding with this element of the Works. The Contractor must include in his costs for any such adjustment. For the avoidance of doubt there will be no additional costs for this element of the Works.

2. Working Hours

Normal working hours for the Works shall be 08:00 to 18:00 Monday to Friday and 08:00 to 13:00 on Saturday unless otherwise agreed by the Employer's Representative in writing. No working is permitted on Sundays or Public Holidays.

Should the Contractor require a deviation from the above Working Hours at any time a request must be submitted to the Employer's Representative at least 1 week in advance of the relevant work. The Employer and the Employer's Representative shall assess the Contractor's submission and determine at his absolute discretion whether the request for extended Working Hours is acceptable.

3. Key Interfaces

The following outlines the background to some of the key interfaces which the Contractor shall manage during the Contract. The responsibilities of the Contractor are detailed under the interface headings below; however, failure to include any other interface issue required under the Contract or for the Works will not relieve the Contractor from his responsibilities under the Contract.

A number of these interfaces have been identified and details are set out below to assist the Contractor in ensuring the Works are co-ordinated and integrated. The information provided is not intended to be exhaustive and the Contractor will need to consider the interfaces more fully and develop his own methodology for ensuring that the interfaces are properly managed. Nothing in this section relating to interfaces absolves the Contractor from or in any way diminishes his responsibility for the satisfactory execution and completion of the Works in accordance with the Contract.

3.1 Existing Services

Any clash of existing services with the Works shall be resolved by the Contractor by way of consultation and compliance with the relevant statutory body, and acceptance by the Employer's Representative. Any costs of same will be to the Contractor's expense.

3.2 Stockpiling

The Contractor shall note the various interfaces and the inherent programming constraints in respect of the stockpiling of rock armour and other construction materials. The Contractor shall make due allowance for these interfaces.

3.3 Public Access

Any areas that require public access shall be maintained at all times throughout the duration of the Works.

4. Access to the Site

The Contractor shall access the Works using the access routes indicated on drawing IBE 1907-TT-ZZ-ZZ-DR-C-1003.

The access/egress route to beach will be via a dedicated 20x20m section at the southwestern corner of Strandhill Caravan Park and Camping site.

All Works and access locations must be within the Site Boundary.

The Contractor shall allow the Employer and the Employer's representative to access the Site identified on drawing IBE 1907-TT-ZZ-ZZ-DR-C-1003 throughout the duration of the Works.

Contractor and Employer accommodation must be located within the Site Compound identified in on drawing IBE 1907-TT-ZZ-ZZ-DR-C-1002 and 1003.

5. Marine Ecology, Terrestrial Ecology, Ornithology,

The Contractor shall comply with the Statutory Orders in all respects as relates to Marine Ecology, Terrestrial Ecology and Ornithology, Water Environment and Water Quality.

6. Water Environment and Water Quality

The Contractor shall include details of all measures to be implemented on Site to provide for the protection of water quality. The plan shall include programmes for environmental and ecological monitoring and supervision, as appropriate to the Site. The plan shall be prepared to accord with recognised standard best practice CIRIA Guidance No C532 – Control of Water Pollution from Construction Sites. All works on site shall be implemented in accordance with the final agreed plan.

7. Lighting

The Contractor must employ a lighting control system which shall be used to reduce the amount of light spill, sky glow, and visual appearance during periods of low activity throughout the Works caused by the Contractors temporary lighting where applicable.

8. Construction Environmental Management Plan

The Planning Conditions may require the Contractor may require to prepare a Construction Environmental Management Plan (CEMP) which the Contractor will develop and implement as Works proceeds. The CEMP will provide a framework for the management and implementation of construction activities incorporating the mitigation measures identified in the relevant chapters of the Outline CEMP. The CEMP will be reviewed regularly, and revised as necessary, to ensure that the measures implemented are effective.

The Contractor should note that the CEMP will be subject to the approval of the Sligo County Council. It is the responsibility of the Contractor to obtain the said approval. Refer to Background Information, Planning Condition, for details. The Contractor shall provide a draft CEMP with his tender and this draft requires to be finalised within 7 days from the date of the 'Letter of Acceptance'. The final CEMP shall be submitted to the Employer's Representative.

The typical requirements for the CEMP are provided below:

The construction shall be managed in accordance with this Construction Environmental Management Plan, which shall be based on the draft plan included in the background information and shall also provide the details of intended construction including the following details as a minimum:

- (a) Location of the Site and materials compound(s).
- (b) Location of areas for construction Site offices and staff facilities.

- (c) Details of Site security fencing and hoardings.
- (d) Details of on-Site car parking facilities for Site workers during the course of construction.
- (e) Details of the timing and routing of construction traffic to and from the construction Site and associated directional signage, to include proposals to facilitate the delivery of abnormal loads to the Site.
- (f) Measures to obviate queuing of construction traffic on the adjoining road network.
- (g) Measures to prevent the spillage or deposit of clay, rubble or other debris on the public road network.
- (h) Proposals for the suppression of on Site noise.
- (i) Proposals for the suppression of dust from the Site.
- (j) Proposals for the suppression of vibration (associated with tipping, rock breaking or piling).
- (k) Proposals to minimise light pollution during construction.
- (l) Proposals to minimise odours
- (m) Proposals to ensure that operations (including handling of any fill material brought ashore) provide proper control and treatment of surface water to avoid any discharge of polluting substances.
- (n) Containment of all construction-related fuel and oil within specially constructed bunds to ensure that fuel spillages are fully contained. Such bunds shall be roofed to exclude rainwater.
- (o) Management of construction/site waste, including area(s) identified for the segregation and storage of construction refuse and details of how it is proposed to manage excavated material.

The plan shall include a comprehensive monitoring plan to include inter alia noise, vibration, and dust with regular reporting to the planning authority. The plan shall also include:

- (a) Proposals for the storage of fuel and lubricants for construction vehicles, preferably in a bunded area within a site compound not on and of the intertidal habitats.
- (b) All construction vehicles should be inspected for oil leaks and any found should be repaired.
- (c) All surface run-off from the site compound should be directed to a hydrocarbon interceptor before discharge, if that discharge is to be to the shoreline.

A record of daily checks that the Works are being undertaken in accordance with the Construction Environmental Management Plan (CEMP) shall be kept for inspection by the Employer's Representative, the Planning Authority, or other relevant third parties.

Appendix 1/8: Operatives For the Employer's Representative

N/A

Appendix 1/9: Control Of Noise and Vibration

1. General:

The Contractor shall note and comply fully with the requirements of the Contract and other statutory requirements for the control of dust, debris and odour.

The Contractor shall be responsible for implementing all measures necessary to mitigate the effects of any dust, debris or odour arising from the Works on the activities of the Employer and third parties.

Without prejudice to this section, the Contractor shall comply with the recommendations of the statutory consents and with the recommendations set out in BS 5228: 2009+A1:2014 for the control of noise and vibration, with the following requirements.

The Contractor shall comply with the recommendations included in BS 5228:2009+A1:2014, Code of Practice for Noise and Vibration Control on Construction and Open Sites (Parts 1 and 2) and the National Roads Authority (NRA) Guidelines for the Treatment of Noise & Vibration in National Road Schemes (2004) and (NRA) Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (2014).

The Contractor shall be responsible for monitoring and analysing the levels of noise and vibration resulting from all significant construction Works.

Normal working hours for the Works shall be 7:00am to 7:00pm, Monday to Friday and 7:00am to 1:00pm on Saturday unless otherwise agreed by the Employer's Representative in writing.

2. Noise:

As a minimum, all construction phase noise levels associated with the Works must be in compliance with the recommended noise threshold limits as specified in National Roads Authority (NRA) Guidelines for the Treatment of Noise and Vibration in National Road Schemes (2004), (NRA) Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (2014) and British Standard BS5228:2009+A1:2014 Noise and Vibration Control on Construction and Open Sites. The NRA Guidelines threshold limits are presented in one-hour L_{Aeq} and instantaneous maximum values for the various relevant days and times. The BS5228:2009+A1:2014 threshold limits are presented for the various portions of the day.

Table 1: Maximum Permissible Noise Levels at the “Façade of Dwellings” During Construction (NRA Guidelines, section 2.3.2, Table 1))

Days & Times	L _{Aeq} (1 hr) dB	L _{pA(max)slow} dB
Monday to Friday 08:00 – 18:00hrs	70	80
Monday to Friday 18:00 – 22:00hrs	60*	65*
Saturday 08:00 – 16:30hrs	65	75
Sunday Bank Holidays 08:00 – 16:30hrs	60*	65*

* Construction activity at these times. Other than that required in respect of emergency works, will normally require explicit permission of the relevant local authority.

Table 2: Noise Threshold Limits at “Nearest Sensitive Receptors” (BS5228:2009+A1:2014, Annex E, section E.3.2., Table E.1)

	Threshold Limits [dB(A)]		
	Category A	Category B	Category C
Night-time (23:00 - 08:00)	45	50	55
Evening and Weekends (19:00 - 23:00 Weekdays, 13:00-23:00 Saturdays, 07:00-23:00 Sundays)	55	60	65
Weekday daytime (08:00-18:00) and Saturdays (08:00-13:00)	65	70	75

Table 2 outlines the applicable noise threshold limits that apply at the nearest noise sensitive receptors. The determination of what category to apply is dependent on the existing baseline ambient (L_{Aeq}) noise level (rounded to the nearest 5dB) at the nearest noise sensitive property. For daytime, if the ambient noise level is less than the Category A threshold limit, the Category A threshold limit (i.e. 65dB) applies. If the ambient noise level is the same as the Category A threshold limit, the Category B threshold limit (i.e. 70dB) applies. If the ambient noise level is more than the Category A threshold limit, the Category C threshold limit (i.e. 75dB) applies.

In order to ensure compliance with the noise threshold limits in Tables 1 and 2, the Contractor must undertake noise monitoring as appropriate at the nearest noise sensitive properties (or an appropriate representative location as agreed with the local council). All noise monitoring must be completed in accordance with BS7445: Description and Measurement of Environmental Noise and ISO 1996: Acoustics - Description, Measurement and Assessment of Environmental Noise.

The onus is on the Contractor to reduce construction noise levels from the construction phase to the lowest possible levels to ensure that no significant noise impact is experienced at the nearest noise sensitive receptors. The Contractor must comply with all of guidance included in British Standard BS5228:2009+A1:2014 – Noise and Vibration Control on Construction and Open Sites:

Part 1 - Noise in relation to reducing construction noise levels.

A complaints procedure must be operated by the Contractor throughout the construction phase and all efforts should be made to address any noise issues at the nearest noise sensitive properties.

The Contractor shall be responsible for all the consequences arising from failure to comply with the contractual obligations relating to noise control.

3. Vibration:

The NRA Guidelines for the Treatment of Noise & Vibration in National Road Schemes (2004) recommend that vibration is limited to the values set out in Table 3 in order to ensure that there is little or no risk of even cosmetic damage to buildings. As a minimum, the Contractor shall comply with the recommended threshold limits included in this table.

Table 3: Recommended Vibration Level Thresholds for NRA Schemes (NRA Guidelines, section 2.3.4, Table 2)

Allowable Vibration Velocity (Peak Particle Velocity) at the Closest Part of Any Sensitive Property to the Source of Vibration, at a Frequency of:		
Less than 10Hz	10 to 50 Hz	50 to 100 Hz (and above)
8mm/s	12.5mm/s	20mm/s

Should any complaints about vibration arise they will be investigated, vibration measurements taken and where necessary work practices modified. The Contractor shall be responsible for all the consequences arising from failure to comply with the contractual obligations relating to vibration control.

4. Best Practicable Means:

The Contractor shall have a general duty to use the “best practicable means” to minimise nuisance from noise. The noise limits specified in this section must not be regarded as a licence to make noise up to the allowable limit. Best practicable means is defined by reference to the following provisions in section 79(9) of the UK Environmental Protection Act 1990:

- “(a) ‘practicable’ means reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to the financial implications;*
- (b) the means to be employed include the design, installation, maintenance and manner and periods of operation of plant and machinery, and the design, construction and maintenance of buildings and structures;*
- (d) the test is to apply only so far as compatible with any duty imposed by law;*
- (e) the test is to apply only so far as compatible with safety and safe working conditions, and with the exigencies of any emergency or unforeseeable circumstances”.*

In practical terms, use of the best practicable means is an attempt to strike a balance between the operational imperatives of the Works proceeding unhindered, and the need to employ reasonable care to mitigate the environmental impacts arising from the Works, in order to protect the interests of those in the vicinity.

Prior to the Start Date neighbouring and commercial premises shall be leafleted. The leaflet should contain a contact name and number for enquiries and complaints, details of the Works and their

likely duration. A leaflet can greatly help minimise any complaints as it will show that the noise has a finite duration and will provide assurance that there will be someone to respond should any distress be caused.

Where consent is given for Works outside of the core hours, the local Authority shall be given a contact name and number of the Site manager overseeing the Works. Additional leaflet drops may be required outside of the permitted hours when required.

1. Mitigation Measures

As a minimum, the Contractor must adopt the following specific mitigation measures:

- Localised noise barriers must be used adjacent to noisy works areas where practicable.
- All vehicles and mechanical plant used for the purpose of the work shall be fitted with effective exhaust silencers and shall be maintained in good and efficient working order.
- All compressors shall be “sound reduced” models fitted with properly lined and sealed acoustic covers which shall be kept closed whenever the machines are in use, and all pneumatic percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturers.
- All machines in intermittent use shall be shut down in the intervening periods between works or throttled down to a minimum. Noise emitting equipment which is required to run continuously shall be housed in a suitable acoustic enclosure (see BS 5228: 2009+A1:2014)
- Items of plant shall be maintained in good working condition so that extraneous noises from mechanical vibration, creaking and squeaking are reduced to a minimum.
- Plant must be certified to meet relevant current legislation.
- All Subcontractors must be familiar with current legislation and the guidance in BS 5228: 2009+A1:2014 (Parts 1 and 2) which will form a prerequisite of their appointment.
- Loading and unloading of vehicles or moving equipment or materials around the Site must be conducted in such a manner as to minimise noise generation and where practical will be conducted away from noise sensitive areas.
- Noise complaints or exceeding of action levels will be reported to the *Employer’s Representative* and Local Authority and immediately investigated.
- Equipment and materials will be delivered and waste will be removed during the daytime, where practicable.
- Noisy plant or equipment shall be sited as far away as is practicable from sensitive buildings. Barriers, such as soil bunds, site huts, acoustic sheds or partitions to screen noise-sensitive areas, will be used wherever practicable.
- Adequate planning will be undertaken to avoid noise emissions from double handling of materials and overlapping of high noise activities where practicable.
- The use of reverse beepers shall be avoided as far as reasonably practicable consistent with safe operating practices.

5. Dust

The Building Research Establishment (BRE) Guidance on the Control of Dust from Construction and Demolition Activities shall be followed.

The Contractor shall provide, maintain and operate wheel washing facilities throughout the duration of the Works.

6. Monitoring

All monitoring completed for noise, vibration and dust (where required) must be submitted to the Employer's Representative within one week of the recovery of such data from the relevant item of equipment

The Contractor shall indemnify the Employer against all third-party claims in respect of the effects of dust, debris and odour arising from the Works.

APPENDIX 1/10: Structure To Be Designed By The Contractor

N/A

Appendix 1/11: Structural Elements And Other Features to be Designed by the Contractor

1. General

The following tables include elements of the Works for which some degree of Contractor design is, or may be, required. The list provided is non exhaustive and the Contractor shall refer to the Specification generally for the full extent of work to be designed by the Contractor (including Subcontractors and Suppliers).

Element	Responsibility	Location	Design Specification
Temporary Works	Contractor	Contractor to determine	

2. Details of Temporary Works

The Contractor shall submit the design of all Temporary Works, including but not limited to temporary offloading arrangements, temporary building and protection measures and the like to the Employer's Representative and none of these works shall be put into service unless and until the design, materials and workmanship have been submitted to the Employer's Representative. Notwithstanding the foregoing the whole of the Temporary Works of whatever nature adopted and the plant, equipment and appliances used shall be the sole responsibility of the Contractor in regard to their design, construction, sufficiency, safety, maintenance and removal and the Contractor shall indemnify the Employer against any liability for injury or damage arising from the adoption and use of such Temporary Works.

The Contractor shall consider the necessity for temporary armouring of working bunds or structures and maintenance of same if so, required for the works methodology.

Appendix 1/12: Setting Out and Existing Ground Levels

Specific Requirements for Setting Out

- 1 The Contractor shall keep updated schedules and drawings of all bench marks (which shall be based on Ordnance Datum Malin Head and Chart Datum) used in setting out and shall make these available to the Employer's Representative when required.
- 2 All levels and contours shown on the Drawings and quoted in the Documents relate to Ordnance Datum. (Unless indicated otherwise).

The Contractor shall note that there may be variations in water/ground levels due to the influence of storm, estuarine and environmental conditions and he shall notify the Employer's Representative of any such variance.
- 3 The Contractor shall provide all labour, assistance, poles, pegs, instruments and other apparatus as required by the Employer's Representative or his staff for setting out and checking, measuring up or testing the Works and Materials, and for any other purpose in connection with the Contract.
- 4 Pegs used by the Contractor for setting out purposes shall be painted in distinguishing colours and carefully identified as to their nature and location by a method to be agreed with the Employer's Representative and which, being agreed, shall be adhered to during the continuance of the Contract.
- 5 The Contractor shall ensure the proposed armour is adequately tied-in to the existing rock armour revetment to the south and the coastline to the north. The location of the proposed revetment and the tie in points is shown on Drawing IBE 1907-TT-ZZ-ZZ-DR-C-1001. The Contractor shall make any adjustments to achieve this as directed by the Employer's Representative.
- 6 The Contractor shall provide such miscellaneous consumable materials and assistance as might reasonably be required by the Employer's Representative in checking the setting out of the Works.
- 7 Within three weeks of receiving the Letter of Acceptance the Contractor shall check the setting out information and satisfy himself that it is correct. If any discrepancies are found the Contractor shall immediately inform the Employer's Representative and agree with him any revisions that may be necessary. In addition, the Contractor shall notify the Employer's Representative at this time of any outstanding setting out information required for the Works.
- 8 The Contractor shall ensure that where necessary, in order to maintain his programme, line and levels are set out in such time as to enable third party owned plant and other publicly or privately owned services or supplies to be installed, altered or removed.
- 9 The line and levels of filter layer, geotextile matting, under layer, and rock armour shall be carefully set out and frequently checked, care being taken to ensure that correct gradients and cross-sections are everywhere obtained as indicated in drawings series IBE 1907-TT-ZZ-ZZ-DR-C-1003.

10 Refer to Drawings and Specification for Setting out information.

Appendix 1/13: Programme of Works

1. The Contractor shall submit his programme for the Works in accordance with the following requirements.
2. The Contractor shall provide the Programme for the Works in a form of a Network Diagram produced as a result of a 'Critical Path Analysis' and must abide by the constraints stated below or implied in the Contract. It shall show the level of detail appropriate to each stage of the Works and all activities and constraints, each of which shall be given a short title. All events shall be numbered and annotated with earliest and latest event dates.
3. At the time of presentation of the programme the Contractor shall also provide a mass-haul diagram showing his intended earthworks movements and locations and capacities of anticipated plant and other resource input.
4. The Contractor shall ensure the programme adheres to the following:

The programme shall be of a quality that will permit effective monitoring of the Works and shall, except to the extent that the document describing the Works say or the Employer's Representative agrees that anything may be omitted, include details of all of the following:

- i. when the Contractor will require any instructions, or other information to be given by the Employer, or anything else the Contract requires the Employer, the Employer's Representative or others to give the Contractor.
- ii. the order in which and times at which the Contractor proposes to execute the Works, including details of procurement, manufacture, delivery, installation, construction, testing, commissioning and trial operation of Works or a part of the Works and the sequencing and timing of inspections and of tests.
- iii. when Contractor's Documents will be submitted to the Employer's Representative (if applicable).
- iv. the methods by which the Contractor proposes to execute the Works and any Temporary Works.
- v. the Contractor's estimate of each category of Contractor's Personnel, plant and material expected to be on Site for each period and for each part of the Works.
- vi. work to be carried out at the Site by the Employer's Personnel or third parties as provided in the document describing the Works.
- vii. current critical path, critical resources, floats and other flexibility.
- viii. details of last review made of programme logic and durations, and of the purposes of any changes.
- ix. anything else required by the document describing the Works.
- x. The programme shall also include the sequence and timing of inspections and tests specified in the Contract

The Contractor's programme shall allow reasonable periods of time for the Employer, and the Employer's Personnel to comply with their obligations under the Contract.

If the Contractor's most recently updated programme submitted to the Employer's Representative does not correspond with actual or reasonably projected progress or the Contractor's obligations, the Contractor shall, if so, directed by the Employer's Representative, submit to the Employer's

Representative a revised programme that complies with this Sub-Clause and the other provisions of the Contract, showing actual progress and progress projected by the Contractor. If the Contractor asserts that it is not possible to reach Substantial Completion of the Works or a Section by its Date for Substantial Completion, the revised programme shall show Substantial Completion by the earliest possible date. [Neither the programme nor its review will limit the Contractor's or liability for delay.] If the Contractor fails to submit the revised programme within 15 days of a request from the Employer's Representative, the Employer shall be entitled to withhold from the Contractor 15% of any payment to be made to the Contractor until the revised programme is submitted.

5. The Contractor shall include in its programme any contingency.
6. All revision/updates to the above stated programme shall be supplied in hardcopy and digital formats.
7. A monthly update of the programme is required throughout the duration of the Contract for discussion at Progress Meetings. This is to be forwarded to the Employer's Representative at least one week in advance of all the Site meetings.

7. **Programme Constraints**

The Time for Completion of the whole of the Works is 2 Months from the date of the Letter of Acceptance. However other Sections of the Works are required to be completed at an earlier date. These Sections are described in Appendix 1/7.

The Contractor shall make programme provision for all the programming limitations and constraints to the timing, execution and completion of the Works contained in the Contract generally (including Statutory Orders) Planning Conditions and the Employer's Requirements and Specification Appendix 1/7 in particular.

Schedule of Stated Constraints

i) Work to privately and publicly owned services and supplies

Refer to Appendix 70/4 & 70/5 for details

ii) Possession (property, wayleave, etc.).

Refer to drawing IBE 1907-TT-ZZ-ZZ-DR-C-1001

iii) Traffic safety and management including interference with Traffic & adjoining Properties

The Contractor shall programme and execute the work as to ensure the safety of the general public and cause the minimum of inconvenience to road or marine users. Whenever the Works interfere with existing public or private roads, footpaths or other ways over which there is a public or private right of access, the Contractor shall ensure that there are alternative routes which shall include alternative accesses for vehicular and pedestrian traffic constructing temporary diversion routes or roads or footpaths where necessary with a clear sign system installed of a similar standard to the existing. A care and maintenance system must be introduced by the Contractor on a daily basis to ensure that all footpaths, roads and accesses are safe, level and effective for the duration of the Works.

The Contractor shall ensure that his plant does not cause public nuisance due to fumes, dust, water pollution, noise, leakages, or causing an obstruction.

The Contractor shall maintain as far as reasonably practicable the free flow of traffic in the vicinity of the Works. If the Contractor wishes to carry out any work which will cause restriction of the

traffic flow beyond the limits set out in the Specification and Drawings, he shall seek, in writing, the permission of the Employer's Representative and Garda during any period of restriction and he shall ensure that vehicles passing are allowed through with the very minimum of delay.

The Contractor shall be entirely responsible for ensuring that the public roads in the vicinity of the Works are kept clear of mud and other debris falling from vehicles connected with the Works or spreading on the public road as a result of the Works in any way. Refer to Appendix 1/7 for further details.

The Contractor shall carry out and complete all work and duties specified in Appendix 1/7 associated with the use of the Site or required to enable the Contractor to have use or optimum use of the Site in accordance with the Contract.

The Contractor shall comply with all Statutory Orders concerning the Site and the use or operation of the Site for the Works and in particular with the requirements and directions of Cork County Council concerning access to, and use of the Site and/or restrictions thereto.

The Contractor shall note that the Works are being carried out in and around a live working harbour and shall take all necessary measures to allow the harbour activities to continue unimpeded, and the limitations on the use of the Site that such operations may cause

iv) Statutory Compliance

In preparing his methodologies the Contractor must comply with all the Statutory Orders, conditions and constraints in relation to the Works.

The following have been obtained by the Employer:

v) Planning Permission

The Contractor must comply with all planning conditions set out in the pending planning decision which will be issued when received.

8. The Contractor shall submit his programme to the Employer's Representative at least 15 days before the Starting Date.

The programme level of detail shall be consistent with the foregoing requirements and shall not be less than the following:

Level 1 - Detailed Programme - The submitted programme shall be sufficient to demonstrate the planned timely design (where applicable) and construction of the work in question, including the submission of all required Contractor Documents, and be sufficient also to monitor the progress, execution and completion of the Works, for each of the following parts of the Works:

- Site Clearance & Demolition
- Rock Armour Revetments
- Repairs and Mitigation Works

Level 2

Further breakdown of programme activities items for individual trades or operations and other details as may be required

Programme, Revised Programmes and Related Documents

Each activity is to be segmented to indicate activity duration, time risk allowances, float, health and safety requirements and any other milestones or dates required by the Contract.

Each activity is to show predecessor and successor dependencies.

Each activity is to be identified by its own unique sequential number, increasing in increments of five on the first issue of the programme.

Free float, total float and end float are to be shown on the Programme relative to the critical path analysis, planned completion and the date for Substantial Completion of the Works.

Any revised programmes issued for the Employer's Representative's acceptance must be accompanied by a narrative identifying the critical path operations and a schedule detailing the changes since the last programme. Any programme issued to the Employer's Representative showing progress should be of the vertical drop line type, re-scheduled to indicate any revised planned Completion.

9. The following documents in particular are related to the programme:

(i) **Inspection Test and Sample Schedule (ITSS)**

The Contractor's programme shall take account of the document describing the Works for testing, inspection and sampling of the Works and the Contractor shall prepare and programme a *Schedule of Testing and Inspections* to achieve that.

The *Schedule of Testing and Inspection* shall be linked to the detailed programme to enable the Employer's Representative and/or Employer's Personnel to agree and plan attendances at testing and inspection of the key elements of the Works as required by this Specification.

The ITSS shall be fully co-ordinated with the programme and submitted at the same time as the programme submitted to the Employer's Representative. A revised ITSS should be issued each and every time a revised programme is issued to the Employer's Representative.

(ii) **Schedule of Information Required**

A Schedule of Information Required from the Employer's Representative shall be prepared by the Contractor and submitted to the Employer's Representative which shall be linked to the detailed programme as will enable the Employer's Representative *and/or* Employer's Personnel to review dates proposed by the Contractor for receiving any outstanding information required for the timely design (where applicable) execution and completion of the Works, and the various parts thereof.

(iii) **Method Statements**

The Contractor's programme shall programme the preparation and submission of the method statements required for the Works. The Contractor's method statements shall be in sufficient detail

to satisfy the Employer's Representative that the Works will be carried out in accordance with the Contract and with the specific requirements stated in Appendix 1/13. Method statements shall be provided for but not limited the elements or parts of the Works listed in Specification clause 078AR.

The Contractor shall programme the submission, review, acceptance, times and periods for all method statements required by the Contract. The Contractor shall note the provisions of the Conditions of Contract dealing with Contractor's Documents and the review procedures and periods set out therein.

(iv) Financial Expenditure Profile

A Contract Price expenditure profile shall be prepared and submitted to the Employer's Representative, linked to the programme that will enable the Employer's Representative to keep the Employer advised of projected future monthly expenditure. It shall include a detailed breakdown of the anticipated monthly expenditure throughout the project. This document is for information and for the Employer's forward financial planning only.

The Contractor shall provide to the Employer's Representative with each revised programme a revised expenditure profile.

Appendix 1/14: Monthly Statements

1. The monthly statements submitted by the Contractor to the Employer's Representative in accordance with the Conditions shall, whenever dealing with matters covered by the Quantified Schedule of Rates, be set out under Part and Section headings similar to those in the Quantified Schedule of Rates and shall separately identify each item and specify quantity, unit, rate and value.
2. Where required by the Contract, the Contractor shall allow the Employer's Representative to inspect invoices for goods or materials included in the statement as may be required.
3. Where the Contractor considers compensation event is due as a result of extra or varied work, or otherwise, then he shall include for these in his monthly statements in the month of the commencement of any of the varied or additional work, or in which the event arose, and shall update these particulars monthly as the work or event continues.
4. Where the Contractor's monthly statements include items for which the Contractor considers extra payment is due, then reference to orders given by the Employer's Representative, notices by the Contractor in accordance with the Contract, and to relevant records shall be stated.

Appendix 1/15: Accommodation Works

N/A

Appendix 1/16: Privately And Publicly Owned Services And Supplies

- 1 The names, addresses and telephone numbers of the publicly owned and other public and private owners of services and supplies serving in the locality are listed below.
- 2 The Contractor shall make arrangements with the publicly owned and other public and private owners of services and supplies, for the co-ordination of his work and 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 will not relieve the Contractor of any other obligations under the Contract.
- 3 Services to individual properties have not been listed or shown on the Drawings. The Contractor shall make arrangements with any publicly owned and other public and private owners of services and supplies concerned for the phasing of all necessary disconnections and diversions of services to such properties if affected by the Works.
- 4 Disconnected apparatus can be removed by the Contractor only with the prior written approval of the owner of such public or private concerned.
- 5 Contact names, address and telephone numbers of the owners of services and supplies are detailed below:

Owner; Contact Name, Address & Telephone Numbers

OWNERS	CONTACT NAME	ADDRESS	TELEPHONE
Electricity Supply Board	ESB Head Office	Cranmore, Sligo, Co. Sligo F91Y36K	+353 1 676 5831
Telecommunications; Eircom Ltd (trading as) Eir	eir Head Office	Sligo District Office Rathedmond, Sligo, Connacht, Ireland	+353 7160055
Water (Provider)	Uisce Éireann	Colvill House 24/26 Talbot St Dublin 1 D01 NP86	+353 1 707 2827
Cable	ESB Head Office	27 Fitzwilliam Street Lower Dublin 2 D02 KT92	+353 1 676 5831
Gas	Bord Gáis Energy	1 Warrington Place Dublin 2 D02 XP29	+353 1 611 0101

6. Privately and Publicly Owned Services or Supplies

1. The Contractor shall satisfy himself as to the exact position of third parties and other publicly and privately owned services or supplies affected by the Works.
2. The Contractor shall, during the progress of the Works liaise with and take all measures required by any third parties of the management of other publicly or privately owned services or supplies,

for the support and full protection of all such services or supplies but subject to any instructions or contrary directions by the Employer's Representative. The Contractor shall keep the Employer's Representative informed of liaison and measures. No such services or supplies shall be interrupted without the written consent of the appropriate authority or owner. Where any service or supply is affected by the Works the Contractor shall provide a satisfactory alternative before interrupting the existing service or supply unless otherwise stated in this Appendix.

3. The Contractor shall include for the programming consequences of all temporary and permanent diversions of services and supplies, where applicable.
4. Where privately or publicly owned services or supplies affected by the Works are subject to alteration, removal or addition, the Contractor shall include such work in their programme and shall be responsible for all arrangements with the owners and/or their agents for the execution and phasing of such works in accordance with his programme and the payment of any costs associated with such alteration, removal or addition.
5. Where work is being undertaken on a road the Contractor shall take all measures required by the Road Authority for the location and protection of all cabling, ducts and other devices which form part of the road communications system or other systems of the Road Authority. Where the road communications system or other systems will be affected by the Works, the Contractor shall ensure that an alternative system as described in this Appendix are fully operational prior to interrupting the existing systems. Any connections or disconnections to the existing systems may only be undertaken by the authority or owner concerned or their authorised agents. The Contractor shall be responsible for liaising with the authority or owner concerned and shall keep the Employer's Representative informed in writing of such liaison.
6. The Contractor shall construct and provide to the satisfaction of the owner of any publicly or privately owned services or supplies, all works necessary for the prevention of damage or interruption of services. If, in the execution of works, by reason of any subsidence caused by, or any act or neglect or fault of the Contractor, any damage to such publicly or privately owned services or supplies or any interruption of or delay to the provision of, any service is caused the Contractor shall bear and pay the cost reasonably incurred by the owner concerned in making good such damage, and shall make full compensation to the owner for any loss sustained by reason of such interruption or delay.
7. The Contractor shall, at all times during the progress of the Works, afford facilities to the other owners or the agents of the owners of any Statutory or other public or private owner of services or supplies for access to all or any of their apparatus situated in or under the Site, as may be necessary for inspecting, reporting, maintaining, removing or altering such apparatus in connection with the construction of the Works or for another purpose whatsoever.
8. The positions of third parties and other public and privately owned mains, services, and drains and sewers included in the Background Information have been based on information extracted by the Employer's Representative from the records of the various bodies and is unwarranted by either or both the Employer (Authority) and the Employer's Representative. The Employer's Representative does not guarantee either the accuracy of the information or that the location of such apparatus is as shown on the Drawings, or no warranty must be implied as to the position, depth, size or gradient thereof. The Contractor must make his own enquiries of the Statutory and other publicly and privately owners of services and supplies and satisfy himself by exploratory excavations and otherwise as to the exact position of such apparatus, service or supplies and the depth, size and gradient thereof and their likely effect on the Works.

7. Services within Site Boundary

During the execution of the Works the Contractor shall take all reasonable steps to prevent damage to mains, service pipes, sewers, drains, cables, wires, overhead telephone lines, poles, etc., and shall provide for protecting and supporting all existing services to the satisfaction of the Employer's Representative and the responsible Authorities. Any Consultations with and compliance with the responsible Authorities/service providers required will be at the Contractors expense.

If any damage is caused, then the Contractor shall make good the damage and pay any costs incurred. The Contractor shall satisfy himself by his own enquiries and observations as to the precise position of all existing services. He shall take full responsibility in connection with them and shall hold the Employer indemnified against claims and/or loss and expense that may arise from any damage caused to such services by his operations, whether such loss/expense is incurred by the Employer or third parties.

8. Public and Privately Owned Services

Whilst initial service enquiries have been carried out by the Employer's Representative on behalf of the Employer, the Contractor will be responsible for obtaining updated information from the owners of all public and privately owned services and supplies. In addition to the provisions of clause 116, the Contractor will also be responsible for establishing the exact position of all apparatus, the depths, size and gradient verified if marked on Site by such owners.

9. Street Furniture and other redundant installation or equipment

The Contractor shall provide access for owners to remove their street furniture or other above ground installations or equipment listed below, which are not to be retained, altered, or incorporated into the Works. Where the owner requires the Contractor to carry out the removal on his behalf, the Contractor shall remove these items to owner's depots at no cost to the Employer. Any materials etc. not required by the owner shall be removed and disposed of by the Contractor off the Site. All street furniture, installations or equipment shall, where so required by the owners, be left in position until the Contractor requires to commence the Works in that area and such owners shall be given at least 14 days written notice of the Contractor's need for removal of these items. The Contractor may, arrange subject to the agreement of the owners concerned to maintain such items as street lighting or road signs, etc. in use during the course of the Works, provided that these items are removed prior to completion of the Works and the Contractor pays all costs and charges in connection therewith (if any). The Street Furniture and other redundant installations or equipment includes:

- i) Traffic signs and posts, litter bins, service covers - the Contractor shall remove these items and transport to the Employer's premises or dispose as otherwise directed by the Employer's Representative.
- ii) Overhead electrical distribution cabling and poles, street lighting poles, lanterns, and fitting and ancillary electrical control boxes and equipment and the like - the Contractor shall allow access to the Electricity Supply Board to disconnect alter and/or remove these items as required for the execution and completion of the Works.
- iii) Telephone lines and poles, telephone kiosks, cabinets, pillars and the like - the Contractor shall allow access to Eir to remove these items as required for the execution and completion of the Work.

- iv) Bus shelters, signs, posts and fittings - the Contractor shall allow access to Bus Eireann to remove these items as required for the execution and completion of the Works.

Appendix 1/17: Traffic Safety And Management

The Contractor is responsible for the traffic safety and management and associated work as described in Clause 117 of the "Specification for Road Works":

The Contractor shall appoint a Traffic Safety and Control Officer as described in Clause 117.

1. Traffic Management Requirements

Traffic management for the construction phase is applicable to all forms of vehicles associated with the construction phase. This includes deliveries, construction vehicles, staff vehicles and abnormal loads.

2. Traffic Safety and Control (Traffic Safety Measures)

Traffic flows must be maintained on existing roads during the course of the Works. Where single file traffic is necessary on a road by reason of the construction of the Works, the Contractor shall provide and maintain a minimum carriageway width of 3.65m or wider where necessary at curves and junctions. Any requirements of Sligo County Council, and requirements of the HSA with regard to Safety at Roadworks and obligations under Regulation 97, S.I. 291) in this regard shall be complied with. For two-way traffic a minimum width of 7.5m shall be provided. When alternate one-way (shuttle) working of traffic is required, the Contractor shall provide and maintain vehicle activated electric traffic control signals and such traffic signs as may be accepted by the Employer's Representative. The Contractor shall ensure that provision is made for both vehicular and pedestrian traffic, constructing temporary diversion routes where necessary.

During periods when single lane traffic is in operation the Contractor shall, in the event of unacceptable delays and queuing, or obstruction of vehicle lanes resulting from vehicle breakdown or traffic accidents, or when required for use by emergency vehicles, or when special events and holidays generating extraordinary traffic volumes are anticipated, cease his operations in the area adjoining and allow the creation of a second traffic lane for use by vehicular traffic.

Unacceptable traffic delays and queuing are defined for the purposes of this clause as a delay exceeding 10 minutes or a stationery traffic queue exceeding 300m in length. The Contractor shall have to provide manual traffic control at periods of peak traffic flows or at times as directed by the Gardai or the Employer's Representative.

3. Maintenance Requirements

With the exception of traffic cones, cylinders and other types of delineators all signs used in connection with the Works shall be reflectorised by the application of Class 1 retroreflective material as detailed in Table 1 of BS EN 12899-1:2007 'Fixed Vertical Road Signs'.

The Contractor shall be responsible for the traffic management measures described below which shall be in place before commencement of the Contract.

Site supervisors and operatives should be fully conversant with all the procedures to be adopted for the setting up, operation, maintenance and removal of signing systems at road works, including the appointment of look-outs where appropriate. Appropriate means must be adopted of allowing workers to enter and leave the Site safely at the beginning and end of each shift or working day and in an emergency.

The Contractor shall maintain all accesses listed in the Schedule of Public and Private Roads and other ways affected by the Works at all times throughout the Contract. Accesses shall not be stopped up until alternative accesses have been provided.

3.1 Cleanliness on Site and on Haulage Routes

The Contractor shall take every precaution to prevent dirt and mud or other material being dropped or spread by traffic from or associated with the Works on roads in public use. Particular attention shall be paid to the loading of lorries carrying bulk materials onto the Site to ensure that these are not overloaded, nor loaded in such a way that spillage occurs.

Any dirt or mud adhering to the tyres or chassis of **any** vehicle, including employees' and visitors' vehicles, shall be thoroughly cleaned off before the vehicle is permitted to leave the Site. The Contractor shall provide wheel wash facilities within the Site at a location to be agreed with the Employer's Representative. In the case of delivery to the Site, vehicles shall be thoroughly cleaned before they leave their point of departure to the Site. The Contractor shall also be responsible for the vehicles of his Subcontractors and Suppliers. Accordingly, before permission is given for operations to start, the Contractor shall be required to provide facilities for cleaning as specified below.

(a) Site Operations

The Contractor shall also provide equivalent cleaning facilities within the Site at a location to be agreed with the Employer's Representative

While the intent of this clause is to prevent the spilling and spreading of dirt and mud and other materials on roadways, nevertheless the Contractor shall also clean the roadways of any such dirt, mud and other materials as may be spilled or spread by traffic travelling to or from the Site in connection with the Works whether such traffic is the Contractor's, his Subcontractors or his Supplier's.

Any cleaning work which may be ordered by the Employer's Representative shall be carried out during hours which will reduce interference with public traffic to a minimum. The Contractor shall be required to maintain a high standard of cleanliness on the haulage routes notwithstanding the normal road cleaning operations of the Employers.

4. Use of Existing Roads

Where it is necessary to use existing roads the Contractor shall be entirely responsible for ensuring that the roads in the vicinity of the Works or on the Site are kept clear of mud and other debris falling from vehicles connected with the Works or spreading on such roads as a result of the Works in any way. The Contractor shall also be responsible for reinstating all roads to their original condition and repairing any damage caused as a consequence of the Works.

5. Traffic Management Details

The Contractor will be required to submit the traffic management details the Employer's Representative for acceptance.

Appendix 1/18: Temporary Diversions for Traffic

No specific temporary traffic diversions are anticipated as part of the works. The Contractor shall, however, make due allowance for any temporary traffic management measures necessary to safely accommodate construction traffic.

Appendix 1/19: Routeing Of Vehicles

1. Permitted Access Routes To and From the Site

Permitted vehicle and pedestrian access to the Site shall be in accordance with, Drawing IBE 1907-TT-ZZ-ZZ-DR-C-1002 and all the relevant Health and Safety Authority guidelines.

APPENDIX 1/20: Recovery Vehicles For Breakdowns

N/A

APPENDIX 1/21: Information Boards

N/A

APPENDIX 1/22: Progress Photographs

N/A

Appendix 1/23: Substances Hazardous To Health

i) Restriction in relation to traffic management measures: N/A

ii) Restriction in relation to working practices:

Night working shall not be undertaken unless expressly permitted by the Employer Representative and carried out in accordance with the Contract. Where night working is permitted, it is the Contractor responsibility to provide adequate lighting, guarding, signage and supervision to ensure the safe execution of the Works.

Working involving dust, loose materials, and lifting operation shall be planned and controlled having regard to wind speed and weather conditions. It is the Contractor's responsibility to monitor weather conditions and if necessary, suspend the Works or move the schedule to an appropriate time to ensure safe execution.

Materials liable to become airborne, including dust and debris, waste, and Siliceous materials shall be securely store, covered or otherwise controlled. No materials shall be handled, placed, sprayed or discharged where prevailing wind could carry it beyond the working boundaries or into the marine environment.

iii) Measures to be taken to protect members of the public

The Contractor shall ensure that all substances which are hazardous to health are adequately labelled, screened and secured from the Public throughout the duration of the Works.

SUBSTANCE	HAZARD	OPERATION	SPECIAL MEASURES
Siliceous Material	Low	Earthworks	Damp down, control Site traffic.
All Substances	All excluding low	Disposal	All containers to be removed at end of shift/operation and disposal of in accordance with manufacturer's instructions.

iv) Monitoring to be undertaken by the Contractor: N/A

Appendix 1/24: Quality Management System

1. The Contractor shall institute and operate a quality management system complying with BS EN ISO 9002 and Spec CI 104. The quality management system shall be described in a Quality Plan that shall be submitted to the Employer's Representative for his acceptance.

The Quality Plan shall cover the following items:

- (i) Contractor's organisation and management
 - (ii) Contractor's method statements and construction procedures
 - (iii) Contractor's construction quality control
 - (iv) Suppliers' Quality Plans
2. Items i) and iii) of the Quality Plan shall be submitted to the Employer's Representative for his acceptance not later than 21 days after the date of the Letter of Successful Tender.

The Contractor shall submit other parts of the Quality Plan prior to commencement of any related work or activity and to a timetable included in item i).

Notwithstanding the requirements of Clause 104.3 and 104.4 for a list of Quality Management Schemes all principle parts of the Works require to be covered by the appropriate Quality Management System for that element of the Works and must be acceptable to the Employer's Representative. The following is a list of certain accepted Quality Management Schemes in addition to those listed in the Specification for Road Works:

Scheme

1.	Description:	Supply and Erection of Fences		
	Certification Bodies:	Name(s)	BSI	National Standards Authority of Ireland
		Address(es)	389 Chiswick High Road, London, W4 4AL	1 Swift Square, Northwood, Santry, Dublin 9, Ireland, D09 A0E4
	Specification:	General fencing shall be in accordance with the 300 Series of the Specification and the following British Standard or Equivalent Irish Equivalent. BS 1722 Specification for Fences, Parts 1 to 13. Safety fencing shall be in accordance with the 400 Series of the Specification and the Drawings referred to in the Contract. Note: This Scheme applies for general fencing and safety fencing. The part of this Scheme which relates to safety fences requires training on an approved course run through the Local Government Management Board or the Construction Industry Training Board.		
2.	Description:	Traffic Sign Manufacture		
	Certification Bodies:	Name(s)	BSI	National Standards Authority of Ireland
		Address(es)	389 Chiswick High Road, London, W4 4AL	1 Swift Square, Northwood, Santry, Dublin 9, Ireland, D09 A0E4
	Specification:	All works shall be in accordance with the relevant clauses of the 1200 series of the Specification.		
3.	Description:	Waste Acceptance Criteria		
	Certification Bodies:	Name(s)	National Standards Authority of Ireland	
		Address(es)	1 Swift Square, Northwood, Santry, Dublin 9, Ireland, D09 A0E4	
	Specification:	Waste Acceptance Criteria shall be in accordance with Series 000 of the Specification and the Drawings referred to in the Contract.		
4.	Description:	Marking and Lighting of Operations		
	Certification Bodies:	Name(s)	International Maritime Organization	International Association of Lighthouse Authorities
		Address(es)	4 Albert Embankment, London, SE1 7SR, UK	10 Rue des Gaudines, 78100, St Germain en Laye, France
	Specification:	Marking and Lighting of Operations shall be in accordance with Series 100 of the Specification and the Drawings referred to in the Contract.		
5.	Description:	Marking and Lighting of Operations		
	Certification Bodies:	Name(s)	Marine Survey Office	
		Address(es)	Department of Transport, Tourism and Sport, Leeson Lane, Dublin 2, D02 TR60	
	Specification:	Marking and Lighting of Operations shall be in accordance with Series 100 of the Specification and the Drawings referred to in the Contract.		
6.	Description:	Earthworks		
	Certification Bodies:	Name(s)	BSI	
		Address(es)	389 Chiswick High Road, London, W4 4AL	
	Specification:	Earthworks shall be in accordance with Series 600 of the Specification and the Drawings referred to in the Contract.		

Appendix 1/25: Product Certification Schemes

N/A

Appendix 1/26: NSAI Agrément Certificates

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

The following is a list of certain work, goods or materials for which proprietary products are required to have an Irish Agrément Board Roads and Bridges Certificate: -

Description	Series
Safety fences and barriers	400

Details of products conforming to the above requirements are listed in the Index of Current Publications, which may be obtained from the Publications Department, Irish Agrément Board.

Where types of work, goods or materials for which proprietary products are required to have an Irish Agrément Board Roads and Bridges Certificate, a British Agrément Board Roads and Bridges Certificate shall be acceptable.

APPENDIX 2/1: List of Buildings, etc., To Be Demolished Or Partially Demolished

N/A

APPENDIX 2/2: Filling of Trenches And Pipes

N/A

Appendix 2/3: Retention Of Material Arising From Site Clearance

1. General

Where any part of the working area is trafficked by construction vehicles, the Contractor shall ensure that the ground is returned to its original condition on completion of the Works at his own expense. If this should be by the provision of haul routes, the Contractor shall be responsible for the removal and storage of suitable uncontaminated topsoil separately from that retained for the remainder of the Works. He shall also be responsible for the import and subsequent removal of suitable haul route materials, the replacement of the topsoil from this stockpile and/or the import of suitable replacement topsoil if, in the opinion of the Employer's Representative, any or all of the retained material is unsuitable for inclusion in the Works.

Uncontaminated Topsoil

All uncontaminated Topsoil removed in the course of the Temporary and Permanent Works shall be retained for reuse in a segregated stockpile located within the Site and as far away from the sea as is possible.

2. Removal and Retention of Rock Armour for Reuse

It may be necessary for the Contractor to excavate a small volume of the shingle material on the upper foreshore in order to achieve the proposed slopes along the face of the rock material. Any material displaced during these works will be used to bury the toe and wave action zone of the revetment. In doing so the Contractor must ensure that the stability of the existing slope is not compromised. The rock armour shall be separated by size and stored in individual stockpiles within the Site for potential reuse as armour at toe or underlayer on the revetment provided it meets the requirements of Clause CC-SPW-600-74AR. Any material not meeting these requirements shall be disposed off Site to a licensed tip provided by the Contractor.

The reuse of the existing Rock Armour shall be supplemented as necessary by imported rock armour and under layer in accordance with Clause CC-SPW- 600-74AR.

APPENDIX 2/4: Explosives And Blasting

N/A

APPENDIX 2/5: Hazardous Materials

N/A

Appendix 3/1: Fencing, Gates and Stiles

N/A

Appendix 3/2: Fencing: TII Publications Standard Construction Details

N/A

Appendix 4/1: Safety Barriers

N/A

Appendix 4/2: Pedestrian Restraint Systems

N/A

Appendix 4/3: Safety Barrier Terminals

N/A

Appendix 4/4: Safety Barriers Maintenance

N/A

Appendix 4/5: Anti-Glare Screens

N/A

Appendix 4/6: Not Used

N/A

Appendix 4/7: Vehicle Parapet Systems

N/A

Appendix 5/1: Drainage Requirements

N/A

Appendix 5/2: Service Ducts Requirements

N/A

Appendix 5/3: Surface Water Channels, Swales and Drainage Channel Blocks

N/A

Appendix 5/4: Fin Drains and Narrow Filter Drains And Geotextiles for Filter Drains

N/A

Appendix 5/5: Combined Drainage and Kerb Systems

N/A

Appendix 5/6: Linear Drainage Channel Systems

N/A

Appendix 5/7: Drainage and Service Ducts: TII Standard Construction Details

N/A

Appendix 5/8: Thermoplastics Structural Wall Pipes and Fittings

N/A

Appendix 5/9: Attenuation

N/A

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

CLASS			GENERAL MATERIAL DESCRIPTION	TYPICAL USE	PERMITTED CONSTITUENTS	MATERIAL PROPERTIES				Compaction requirements in Clause 612
						Property	Test	Acceptable Limits within		
								Lower	Upper	
1	A	-	Well graded Granular material	General fill	Any material, or combination of material, other than material designated as Class 3 in the Contract	(i) grading (ii) uniformity co-efficient (iii) mc (iv) MCV (v) Optimum mc	BS:1377:Part 2 BS:892 BS:1377:Part 2 Clause 632 BS:1377:Part 4	Tab. 6/2 10 Opt. mc -2% 9 -	Tab. 6/2 Opt. mc +3% -	Tab. 6/4 Method 2
1	B	-	Uniformly graded granular material	General fill	Any material, or combination of material, other than material designated as Class 3 in the Contract	(i) grading (ii) uniformity co-efficient (iii) mc (iv) MCV (v) Optimum mc	BS:1377:Part 2 BS:892 BS:1377:Part 2 Clause 632 BS:1377:Part 4	Tab. 6/2 - Opt. mc -2% 9 -	Tab. 6/2 10 Opt. mc +3%	Tab. 6/4 Method 3
1	C		Coarse granular material	General fill	Any material, or combination of material, other than material designated as Class 3 in the Contract	(i) grading (ii) uniformity co-efficient (iii) 10% fines value	BS:1377:Part 2 BS:892 Clause 632	Tab. 6/2 5 50kN	Tab. 6/2 - -	Tab. 6/4 Method 5
2	A		Wet cohesive material	General fill	Any material, or combination of material, other than material designated as Class 3 in the Contract	(i) grading (ii) Plastic limit (PL) (iii) MCV (iv)Undrained shear strength of remoulded material	BS:1377:Part 2 BS:892 Clause 632 Clause 633	Tab. 6/2 - 9 60kN/m²	Tab. 6/2 - 15 175kN/m²	Tab. 6/4 Method 1 except: (i) for materials with liquid limit greater than 50, determined by BS1377 Test 2. only tampering or grid rollers shall be used

CLASS			GENERAL MATERIAL DESCRIPTION	TYPICAL USE	PERMITTED CONSTITUENTS	MATERIAL PROPERTIES				Compaction requirements in Clause 612
						Property	Test	Acceptable Limits within		
								Lower	Upper	
2	B		Dry cohesive material	General fill	Any material or combination of material, other than chalk.	(i) grading (ii) Plastic limit (PL) (iii) MCV (iv)Undrained shear strength of remoulded material	BS:1377:Part 2 BS:892 Clause 632 Clause 833	Tab. 6/2 - 9 60kN/m²	Tab. 6/2 - 15 175kN/m²	Tab. 6/4 Method 2
2	C	-	Stony cohesive material	General fill	Any material, or combination of material, other than Chalk	(i) grading (ii) Plastic Limit (PL) (iii) MCV (iv) Undrained shear strength of remoulded material	BS:1377:Part 2 BS:1377:Part 2 Clause 632 Clause 633	Tab. 6/2 - 8.5 50 kN/m²	Tab. 6/2 - 15 175kN/m²	Tab. 6/4 Method 2
2	D	-	Silty cohesive material	General fill	Any material, or combination of material, other than Chalk	(i) grading (ii) MCV (iii) Undrained shear strength of remoulded material	BS:1377:Part 2 BS:632 Clause 633	Tab. 6/2 8.5 50 kN/m²	Tab. 6/2 15 175kN/m²	Tab. 6/4 Method 3
6	A	-	Selected well graded granular material	Below water	Natural gravel, crushed gravel, crushed rock other than argillaceous rock ^[1] or gravel, crushed concrete or any combination thereof.	(i) grading (ii) uniformity (iii) Plasticity index (iv) Los Angeles coefficient	BS 1377: Part 2 BS 892 BS 1377: Part 2 Clause 635 Clause 634	Tab 6/2 10 Non-plastic - 95%	Tab 6/2 - Non-plastic 50	No compaction

					(Properties (iv) and (v) only apply when material is described as argillaceous as defined in Clause 601.5)	(v) Slake durability (vi) Effective angle of internal friction	Clause 636	38° (Type 1) 40° (Type 2) 33° (Type 3) 42° (6A Underneath Rock armour)	- -	
6	C	-	Selected uniformly graded material	Starter layer	Natural gravel, crushed gravel, crushed rock other than argillaceous rock ^[1] or gravel, crushed concrete or any combination thereof. (Properties (vi) only applies when material is described as argillaceous as defined in Clause 601.5)	(i) grading (ii) uniformity (iii) Plasticity index (iv) Los Angeles coefficient (v) Slake durability (vi) Effective angle of internal friction	BS 1377: Part 2 BS 892 BS 1377: Part 2 Clause 635 Clause 634 Clause 636	Tab 6/2 10 Non-plastic - 95% 38° (Type 1) 40° (Type 2) 33° (Type 3) 42° (6A Underneath Rock armour)	Tab 6/2 - Non-plastic 50 - -	Tab. 6/4 Method 2
6	F	1	Selected Granular material (Site won)	Capping	Natural gravel, crushed gravel or combination of both excluding argillaceous rock. Recycled aggregates with not more than 50% by mass of recycled bituminous plainage and granulated asphalt, but excluding materials that contain tar and tar-bitumen binders.	(i) grading (ii) optimum mc (iii) mc (iv) Los Angeles Coefficient (v) total sulphur content	BS:1377:Part 2 BS:1377:Part 4 (vibrating hammer method) BS:1377:Part 2 Clause 635	Tab. 6/2 - - - -	Tab. 6/2 - Optimum mc 50 1%	Tab 6/4 Method 6

					Property (vii) in the next column shall not apply if the Class Ra (asphalt) content of recycled aggregate is 20% or less Property (v) as set out in SR21:2009 (Property (vii) only applies when material is described as argillaceous as defined in Clause 601.5)	(vi) Class RA (asphalt) content (vii) bitumen content (viii) Slake durability	IS EN 1744-1:2009 Test 11 BS EN 933-11 BS EN 12697-1 or BS 12697-37 Clause 634	- - 95%	50% 2% -	
6	F	2			Crushed rock (other than argillaceous rock) and crushed concrete. Recycled aggregates with not more than 50% by mass of recycled bituminous plainags and granulated asphalt, but excluding materials that contain tar and tar-bitumen binders. Property (vii) in the next column shall not apply if the Class Ra (asphalt) content of recycled aggregate is 20% or less Property (v) as set out in SR21:2009	(i) grading (ii) optimum mc (iii) mc (iv) Los Angeles coefficient (v) total sulphur content (vi) Class RA (asphalt) content (vii) bitumen content (viii) Slake durability	BS:1377:Part 2 BS:1377:Part 4 BS:1377:Part 2 Clause 635 IS EN 1744-1:2009 Test 11 BS EN 933-11 BS EN 12697-1 or BS 12697-37 Clause 634	Tab. 6/2 - - - - - 95%	Tab. 6/2 - Optimum mc 50 1% 50% 2% -	Tab 6/4 Method 6

					(Property (vii) only applies when material is described as argillaceous as defined in Clause 601.5)					
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CLASS			GENERAL MATERIAL DESCRIPTION	TYPICAL USE	PERMITTED CONSTITUENTS	MATERIAL PROPERTIES				Compaction requirements in Clause 612
						Property	Test	Acceptable Limits within		
								Lower	Upper	
6	N	1	Selected Granular Fill	Fill to Structures	Crushed Rock other than argillaceous rock and crushed concrete	(i) grading (ii) Plastic Limit (PL) (iii) MCV (iv) Undrained shear strength of remoulded material	BS:1377:Part 2 BS:1377:Part 2 Clause 632 Clause 633	Tab. 6/2 - 8.5 50 kN/m²	Tab. 6/2 - 15 175kN/m²	Tab. 6/4 Method 2
6	N	1	Selected Granular Fill	Fill to Structures Filling behind Quay Wall	Crushed rock other than argillaceous rock and crushed concrete (Property (xii) only applies when material is described as argillaeous as defined in Clause 601.5	(i) grading (ii) Los Angeles Coefficient (iii) Undrained shear parameters (c and Ø) (iv) Effective angle of internal friction (Ø') and effective cohesion (c') (v) Permeability (vi) mc (vii) MCV (viii) pH value	BS:1377:Part 2 Clause 635 Clause 633 Clause 636 Clause 640 BS1377:Part 3 Clause 632 BS1377:Part 3 IS EN 1744-1:2009 Test 11 and Test 12	Tab. 6/2 - 50 kN/m² 36 ° - Optimum moisture content - 2% 8.5 6	Tab. 6/2 50 150 kN/m² - - Optimum moisture content 15 9	End product 95% of maximum dry density of BS 1377: Part 4 (vibrating hammer method)

						(ix) water soluble sulphate content (x) oxidisable sulfides (xi) slope stability test (where required in Ap 6/6) (xii) Slake durability	IS EN 1744-1:2009 Test 11 and Test 12 Clause 610 Clause 634	- - App 6/6 95%	1.5 gms/litre SO ₄ 0.3% SO ₄ App 6/6	
6	N	2	Silty cohesive material	General fill	Any material, or combination of material, other than Chalk	(i) grading (ii) MCV (iii) Undrained shear strength of remoulded material	BS:1377:Part 2 BS:632 Clause 633	Tab. 6/2 8.5 50 kN/m ²	Tab. 6/2 15 175kN/m ²	Tab. 6/4 Method 3
6	N		Selected well graded granular material	Fill to structure	Natural gravel, natural sand, crushed gravel, crushed rock other than argillaceous rock, crushed concrete, slag, well burnt colliery spoil or any combination thereof	(i) grading (ii) uniformity co-efficient (iii) 10% fines value (iv) effective angle of internal friction (o) and effective cohesive (c) (V) Slope stability test (where required in App 6/6)	BS:1377:Part 2 BS:892 Clause 635 Clause 638 Clause 610	Tab. 6/2 10 100ICN 37° Clause 810	Tab. 6/2 - - -	End product 95% of maximum dry density of Test 14 BS1377

Note: Material defined as argillaceous in accordance with Clause 601.5 may be permitted for incorporations in the permanent works, provided that it is demonstrated by slake durability and LA abrasion testing that the material will be sufficiently durable. Where acceptable limits in this regard are not provided in Table 6/1 they shall be included in Appendix 6/1.

Appendix 6/2: Requirements For Dealing With Class U2 Unacceptable Material

Provisional Measures for Dealing with Unacceptable Material Class U2

1. 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 and notify the Employer's Representative. The Contractor shall make arrangement for testing and sampling on suspected hazardous material and provide copies of test results to the Employer's Representative for his information, and shall include copies of the test results in the as built documents.
2. 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 accepted by the Employer's Representative and disposed of at a properly licensed landfill site subject to the approval of the appropriate Waste Regulation Authority. No such material shall leave the Site without the acceptance of the Employer's Representative. The Contractor shall keep records of the materials removed and shall obtain the Employer's Representative's authentication of the records.

The Contractor shall prepare appropriate Method Statements and safety plans (to the acceptance of the Employer's Representative) to cover any such operations.

3. Special Requirements for dealing with leachate and contaminated water.

Groundwater/Leachate from contaminated areas shall not be discharged to public or private surface water or foul sewers, nor 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)

1. General

Refer to drawings IBE 1907-TT-ZZ-ZZ-DR-C-1003-1 and IBE 1907-TT-ZZ-ZZ-DR-C-1003-2 (long sections and cross sections) for earthworks requirements.

Refer to drawings IBE 1907-TT-ZZ-ZZ-DR-C-1003-1 and IBE 1907-TT-ZZ-ZZ-DR-C-1003-2 (long sections and cross sections) for typical revetment toe details.

It may be necessary to excavate a small volume of the shingle material on the upper foreshore in order to achieve the proposed slope along the face of the rock material. Any material displaced during these works will be used to bury the toe within the wave action zone of the revetment.

The Contractors shall re-grade the existing shingle foreshore where necessary before excavating the beach material to facilitate the placing of rock material in the revetment toe.

The rock underlayer and 1 – 3 T primary rock armour material shall then be imported to the site (or transported from the temporary site compound) and placed on a suitable underlayer and geotextile matting.

Appendix 6/4: Not Used

N/A

Appendix 6/5: Geotextiles Used To Separate Earthworks Materials

1. General

Refer to drawing IBE 1907-TT-ZZ-ZZ-DR-C-1003-1 and IBE 1907-TT-ZZ-ZZ-DR-C-1003-2 for location of geotextiles.

- a. The material on which the geotextiles are installed upon shall be free of any sharp protrusions which may damage the fabric. The geotextile shall be in continuous contact with the surface on which it is installed and shall not bridge or be stretched over hollows or lumps.
- b. The Contractor shall provide evidence to the designer that the geotextiles shall be sufficiently durable when installed in contact with the material to be separated. The geotextiles shall be resistant to the long-term effects of damp, cementitious materials. The Contractor shall be required to provide manufacturers data to substantiate performance in this respect. The materials shall maintain its integrity for a period of at least 60 years.
- c. Installation of geotextiles shall be in accordance with Clause CC-SPW-600-04 and Appendix 70/3.

2. Whether geotextiles are to be of synthetic or other fibres

Geotextiles to be used shall be Terram 2000 or equivalent accepted by the Employer's Representative. Geotextiles shall be manufactured from no-woven polypropylene fibres and fused into standard sheets using a thermal bonding technique. The fibres are to be needle punched to form a stable platform that retains dimensional stability relative to each other.

3. Minimum life expectancy

60 years durable design life in accordance with BE EN 6349 and BS 8006-1.

4. Numbers of samples for subsequent testing

Testing to be in accordance with the CIRIA guidance C683 Rock Manual Chapter 3 and all standards as noted in Clause CC-SPW- 600-09.

- (i) Tensile load - minimum of 5 test specimens used for both machine direction and cross machine direction.
- (ii) Static puncture test (CBR) - 5 samples to be taken at random for testing in accordance with EN ISO 12236:2006
- (iii) Water flow testing - 5 test specimens are to be taken from the sample, each of suitable dimensions for the water permeability apparatus to be used.
- (iv) Pore size testing - 5 test specimens are to be taken from the sample, each of suitable dimensions for the sieve apparatus to be used.

All test samples to be divided into specimens are to be prepared in accordance with ISO 9862.

5. Additional testing criteria not included in Clouse CC-SPW- 600-09

	EN ISO 9864 MIN WEIGHT	EN ISO 9863-1 THICKNESS	EN ISO 12236 PUNCTURE RESISTANCE	LOCATION
Polypropylene	320 g/m ²	1.7mm	2750 N	Geotextile separator to original ground

6. Details of laying and lapping if other than in sub-Clause Clouse CC-SPW- 600-9.5

Adjacent geotextile panels shall be overlapped by a minimum of 1000mm and secured using acceptable in-situ heat bonding technique.

7. Number of tests on samples

Testing should be carried out in accordance with all standards noted in Clouse CC-SPW- 600-09.

- (i) Tensile load - the 5 test specimens used for both machine direction and cross machine direction in accordance with EN ISO 12236.
- (ii) Static puncture test (CBR) - 5 specimens are to be tested in accordance with EN ISO 12236:2006
- (iii) Water flow testing - 5 test specimens are to be tested with 5 varying head losses as described in BS EN ISO 11058.
- (iv) Minimum of three of the five samples should be tested. Further testing should be carried out pending the results of the first three samples. The test procedure is outlined in ISO 12956.

Appendix 6/6: Fill To Structures, Fill Below Structures And Fill Above Structures

1. General

Fill required adjacent to or above existing structures and foundations, and fill required to achieve the lines and levels of the proposed revetment, shall comprise suitable material complying with the requirements of Series 600 and the relevant Contract-specific Appendices.

Prior to placement of fill, the receiving surface shall be cleared of loose, soft, unsuitable material and prepared to provide a stable formation. Any unsuitable material encountered shall be removed and replaced with suitable material as agreed with the Employer's Representative.

Suitable excavated material arising from the Works may be reused as fill where it complies with the specified material requirements. Where suitable site-won material is not available, approved imported fill shall be provided.

Particular care shall be taken during placement adjacent to existing structures and within the toe excavation. The Contractor shall select appropriate plant and methods to avoid damage, displacement or instability of existing structures and the retained revetment.

The completed fill shall be trimmed to the lines, levels and profiles shown on the Contract Drawings, including the proposed revetment profile, where applicable, and shall provide a firm and even formation suitable for subsequent placement of the geotextile, underlayer and rock armour.

2. Drawing references for fill to structures and fill above structural foundations:

The extent of fill to structures and fill above structural foundations is shown on the Drawings. Drawings showing the extent of fill to structures and fill above structural foundations include but are not limited to the following:

IBE 1907-TT-ZZ-ZZ-DR-C-1003

IBE 1907-TT-ZZ-ZZ-DR-C-1003-1

IBE 1907-TT-ZZ-ZZ-DR-C-1003-2

Appendix 6/7: Sub-Formation and Capping and Preparation and Surface Treatment of Formation

N/A

Appendix 6/8: Topsoiling, Seeding and Turfing

N/A

Appendix 6/9: Earthwork Environmental Bunds, Landscape Areas, Strengthened Earthworks and Reinforced Soil Structures

N/A

Appendix 6/10: Earthworks for Corrugated Steel Buried Structures, Grouted Anchors, Soil Nails and Rock Bolts, Crib Walling and Gabions

N/A

Appendix 6/11: Shallow Holes and Other Naturally Occurring Cavities and Disused Mine Workings

N/A

Appendix 6/12: Instrumentation and Monitoring

N/A

Appendix 6/13: Soil Treatment With Lime and/or Hydraulic Binders and Ground Improvement

N/A

Appendix 7/1: Permitted Pavement Options

N/A

Appendix 7/2: Excavations And Reinstatement of Existing Surfaces

N/A

Appendix 7/3: Surface Dressing Product (End Performance)

N/A

Appendix 7/4: Bituminous Sprays

N/A

Appendix 7/5: Road Pavements: NRA Road Construction Details

N/A

Appendix 7/6: Breaking Up or Perforation of Redundant Pavement

N/A

Appendix 7/7: Not Used

N/A

Appendix 7/8: Not Used

N/A

Appendix 7/9: Cold-Milling (Planing) of Bituminous Bound Flexible Pavement

N/A

Appendix 7/10: Microsurfacing

N/A

Appendix 7/11: High Friction Surfacing

N/A

Appendix 7/12: Low Energy Bound Mixtures

N/A

Appendix 7/21: Recipe Surface Dressing

N/A

Appendix 11/1: Kerbs, Footways and Paved Areas

N/A

Appendix 11/2: Access Steps

N/A

Appendix 11/3: Kerbs, Footways and Paved Areas: NRA Road Construction Details

N/A

Appendix 12/1 Traffic Signs: General

1 General

- 1.1** The exact location of each traffic sign shall be determined on Site with the agreement of the Employer's Representative.
- 1.2** Traffic Signs shall comply with TS4: Guidelines, Certification Scheme and Specification for the Construction of Traffic Signs, issued by the Department of the Environment and Local Government, January 2006.
- 1.3** Signs should be positioned so as not to obscure pedestrian walkways with the sign front face set back a minimum of 1.2m from the running carriageway.
- 1.4** The Contractor shall establish the exact locations of existing services and drainage at all sign foundation locations by excavating trial holes and/or slit trenches at least 10 working days in advance of their construction. He shall also mark out the locations of proposed services and co-operate with the Employer's Representative in minor adjustments to the foundation location and /or design to avoid clashes with either existing or proposed services and drains.
- 1.5** There should be approximately a 100mm clearance between the top of the existing service or drain and the bottom of the sign foundation.
- 1.6** All traffic signs shall be reflectorised with Class RA2 material in accordance with EN 12899_1:2007.
- 1.7** All foundations shall be excavated and backfilled with concrete on the same day. No excavation shall be left open overnight. The foundations shall be sealed off from Public access using suitable barriers until reinstatement of surface is complete.
- 1.8** All posts used shall be galvanised steel posts and shall be in accordance with TS4.
- 1.9** Any proposals to install posts/supports at centres other than those specified on the Contract Drawings must be agreed in advance with the Employer's Representative.
- 1.10** Posts/supports shall be installed such that they do not protrude above the top of the sign face, and such that brackets and pole caps can be attached directly to the post/support without any cutting.
- 1.11** Where a new sign is being installed in front of the corresponding existing sign, posts shall not be installed until the new sign face is ready for erection.
- 1.12** Where retention sockets are specified, they shall be installed flush with the surrounding ground surface (e.g. traffic island) and shall not protrude above ground level.

- 1.13** Temporary covering of signs shall be in accordance with Clause 1207 of the Specification.
- 1.14** Overall size of the directional, warning and regulatory signs, sign description, mounting height and size of post are listed in the schedules to this Appendix and are referenced to the figure numbers in the Department of the Transport Traffic Signs Manual (2010) where applicable.
- 1.15** Post and Foundation details for signs associated with the 'Gateway' are contained in Appendix 2 of the Guidelines on Traffic Calming, Rev B February 2005, published by the NRA.

1.16 Schedule of Warning and Regulatory Signs

	No. Required	Traffic Signs Manual Ref.	Reflective Class	Size (mm) W x H	Mounting height (mm)	Foundation (mm) (W x L x D)	Pole Dia. (mm) and No.
30km/h Speed Limit	1	RUS 044	Class 2	750	2500	Passively designed posts - The posts and foundations are to be designed by the manufacturer	
Yield	7	RUS026	Class 2	750	2500	Passively designed posts - The posts and foundations are to be designed by the manufacturer	

Appendix 12/1: Traffic Signs: General

N/A

Appendix 12/2: Traffic Signs: Reflective Markers

N/A

Appendix 12/3: Traffic Signs: Road Markings & Studs

N/A

Appendix 12/4: Traffic Signs: Cones and Cylinders

N/A

Appendix 12/5: Traffic Signs: Traffic Signals

N/A

Appendix 12/6: Traffic Signs: Special Sign Requirements on Gantries

N/A

Appendix 12/7: Traffic Signs: Preparation and Finish of Metal and other Surfaces

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

Appendix 13/1: Information to be Provided by the Designer when Specifying Lighting Columns

N/A

Appendix 13/2: Typical Lighting Column And Bracket Data Sheets 1 & 2

N/A

Appendix 13/3: Instructions for Completion of Lighting Column and Bracket Data Sheet

N/A

Appendix 13/4: Information to Be Provided When Specifying CCTV Masts

N/A

Appendix 13/5: Typical CCTV Mast Data

N/A

Appendix 13/6: Instructions for Completion of CCTV Mast Data Sheet

N/A

Appendix 13/7: Installation Certificate For Lighting Column

N/A

Appendix 13/8: Installation Certificate For CCTV Mast

N/A

Appendix 14/1: Site Records

1. The Contractor shall supply as-built drawings in AutoCAD or other computerised format acceptable to the Employer's Representative. The Contractor shall supply 4 No. copies which shall include information as noted in Section 2 of Series 1400 of the Specification.
2. The drawings shall show column positions and numbers, mini-pillar positions and numbers, underground cable duct runs (including depths) and mini-pillar schematic layouts. The mini-pillar schematic layouts shall show the size and type of all cables installed and shall show the switching, earthing, control and protection circuits, circuit identification and loading.

Appendix 14/2: Location of Lighting Units and Feeder Pillars

N/A

Appendix 14/3: Temporary Lighting

1. Temporary lighting may be required at any part of the new works site where works shall be undertaken. All temporary lighting shall be provided in accordance with the applicable standards. The installation of temporary lighting shall comply with the relevant Acts and Regulations (without limitation), the Electricity at Work Regulations and Wiring Regulations IS10101:2020. It shall not form a hazard to users.
2. If applicable, no existing road lighting shall be disconnected until it has been replaced by either the new permanent lighting arrangement or a temporary lighting system provided to the satisfaction of the employer's representative. The temporary lighting shall remain in operation until the new permanent lighting arrangement is brought into use. Temporary lighting arrangements shall require

the approval of the Employer's representative prior to the commencement of works in the affected area.

3. Any temporary lighting that is required shall match the illumination levels of any existing lighting.
4. Any temporary lighting installation shall be considered by the Contractor as part of his overall Detailed Traffic Management plan put in place to facilitate the Works.

Appendix 14/4: Electrical Equipment for Road Lights

N/A

Appendix 14/5: Electrical Equipment for Traffic Signs

N/A

Appendix 15/1: Motorway Communications

N/A

Appendix 16/1: General Requirements for Piling and Embedded Retaining Walls

N/A

Appendix 16/2: Precast Reinforced and Prestressed Concrete Piles and Precast Reinforced Concrete Segmental Piles

N/A

Appendix 16/3: Bored Cast-in-Place Piles

N/A

Appendix 16/4: Bored Piles Constructed Using Continuous Flight Augers and Concrete or Grout Injection Through Hollow Auger Stems

N/A

Appendix 16/5: Driven Cast-in-Place Piles

N/A

Appendix 16/6: Steel Bearing Piles

N/A

Appendix 16/7: Reduction of Friction on Piles

N/A

Appendix 16/8: Non-Destructive Methods for Testing Piles

N/A

Appendix 16/9: Static Testing of Piles

N/A

Appendix 16/10: Diaphragm Walls

N/A

Appendix 16/11: Hard/Hard Secant Pile Walls

N/A

Appendix 16/12: Hard/Soft Secant Pile Walls

N/A

Appendix 16/13: Contiguous Bored Pile Walls

N/A

Appendix 16/14: King Post Walls

N/A

Appendix 16/15: Steel Sheet Piles

N/A

Appendix 16/16: Integrity Testing of Wall Elements

N/A

Appendix 16/17: Instrumentation for Piles and Embedded Walls

N/A

Appendix 16/18: Support Fluid

N/A

Appendix 17/1: Schedule For The Specification Of Designed Concrete

N/A

Appendix 17/2: Concrete – Impregnation and Coating Schedule

N/A

Appendix 17/3: Concrete – Surface Finishes

N/A

Appendix 17/4: Concrete – General

N/A

Appendix 17/5: Not Used

N/A

Appendix 17/6: Grouting and Duct Systems for Post-Tensioned Tendons

N/A

Appendix 17/7: Precast Concrete Products

N/A

Appendix 18/1: Requirements for Structural Steelwork

N/A

Appendix 19/1: (Specification for Road Works) Sheet No. Form BE/P1 (New Works) Paint System Sheet

N/A

Appendix 19/2: (New Works) Requirements for Other Work

N/A

Appendix 19/3: (Specification for Road Works) Form BE/P2 Paint Data Sheet

N/A

Appendix 19/4: (Specification for Road Works) Form BE/P3 Paint Sample Despatch List: Sheet 1 and Sheet 2

N/A

Appendix 19/5: (New Works) General Requirements

N/A

Appendix 19/6: (Specification for Road Works) Form BE/PE1 (Maintenance) Paint System Sheet 1 and Sheet 2

N/A

Appendix 19/7: (Maintenance) Requirements for Other Work

N/A

Appendix 19/8: (Maintenance) General Requirements

N/A

Appendix 20/1: Waterproofing For Concrete Structures

N/A

Appendix 21/1: Bridge Bearing Schedule

N/A

Appendix 23/1: Bridge Deck Expansion Joint Schedule

N/A

Appendix 23/2: Sealing of Gaps Schedule (other than in Bridge Deck Expansion Joints)

N/A

Appendix 24/1: Brickwork, Blockwork and Stonework

N/A

Appendix 24/2: Brickwork, Blockwork and Stonework: NRA Road Construction Details

N/A

Appendix 24/3: Requirement For Masonry Repointing And Reconstruction Of Historic Structures

N/A

Appendix 25/1: Requirements For Corrugated Steel Buried Structures

N/A

Appendix 25/2: Requirements For Reinforced Soil Structures

N/A

Appendix 25/3: Requirements for Reinforced Clay Brickwork Retaining Walls of Pocket Type and Grouted Cavity Construction Structures

N/A

Appendix 25/4: Requirement For Access Underpasses

N/A

Appendix 26/1: Concrete For Ancillary Purposes

N/A

Appendix 26/2: Bedding Mortar

N/A

Appendix 26/3: Cored Thermoplastic Node Markers

N/A

Appendix 27/1: Requirements for Watermains

N/A

Appendix 27/2: Watermains: Road Construction Details

N/A

Appendix 28/1: Trenchless and Minimum Dig Techniques

N/A

Appendix 29/1: CCTV Survey of Road Drainage Systems

N/A

Appendix 70/1: Safety & Security

Safety, Health and Welfare at Work

1. General Safety

The Contractor shall comply with all National Safety Standards and Regulations.

The Contractor shall also comply with all requirements and shall take any necessary or requested action from the Employer/Employer's Representative to observe the agreed procedures as laid down in the Employer's Major Emergency Plan, a copy of which is available for inspection at the Sligo County Council's Offices.

2. Safety and Health Regulations

The Contractor's attention is drawn to its Contract and legal obligations arising under the Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. No. 291 of 2013) and any amendment thereof ("*the Regulations*").

Unless previously furnished, the Contractor shall, at the latest, 7 days before Commencement Date submit the following documentation to the Employer's Representative:

- the proposed Site-specific Safety Statement for the Project
- the developed Safety file

3. Project Supervisor (Construction Stage)

The Project Supervisor shall mean the person or persons appointed in accordance with the provisions of regulation 6 of SI 291 of 2013.

The Contractor shall employ a competent person to act as Project Supervisor (Construction Stage) ((PSCS)) to carry out the duties and responsibilities described in the Safety, Health and Welfare at Work (Construction) Regulations 2013. The Safety file and the Site-Specific Safety Statement shall comply with the Regulations and with the Conditions of Contract. The Preliminary Safety and Health Plan is included in the Background Information.

For the avoidance of doubt the Contractors role as PSCS will continue in respect of other Contractors on Site.

4. Safety Statements & Safety Supervisor

On receipt of the Letter of Acceptance the Contractor shall confirm to the Employer's Representative that he possesses a Safety Statement in accordance with section 12 of the Safety Health and Welfare at Work Act, 2005. The Contractor shall ensure that any Subcontractor employed by him on the Works possesses a Safety Statement covering the services of the Subcontractor to the Employer.

5. Safety Meeting

At an early date following the Letter of Acceptance and before the Commencement Date, the Contractor shall make himself available for a minuted meeting with Sligo County Council and Employer's Representative in charge of the project to discuss safety.

The basic agenda of this meeting shall be for the Contractor to give to the Employer's Representative information regarding hazards being brought to Site in the form of work operations, equipment, chemicals, flammable materials, power, explosives etc., together with

controls in force to counteract these hazards. The Contractor and Employer's Representative shall subsequently pass on this information on hazards to their respective staffs.

6. Accident Reporting

All accidents reported under The Safety, Health and Welfare at Work Regulations shall be reported immediately to the Employer's Representative. A copy of the subsequent written report to the Health and Safety Authority shall also be provided.

The Contractor shall initially report verbally to the Employer's Representative and Employer Safety Representative all accidents, "*near misses*", loss and damage to any personnel or third party whether caused by his own employees or by any other person on Site IMMEDIATELY these occur. The Contractor shall within 2 working days submit a written account of the incident to the Employer's Representative and Employers Safety Representative.

Such reporting to the Employer's Representative will not absolve the Contractor from his statutory responsibilities on accident reporting to the relevant statutory authorities and/or insurers.

7. Site Works

The Contractor shall provide industrial safety helmets for use by all personnel on the Works, and he shall ensure that these helmets are worn at all times. The helmets shall be to a standard not less than that provided under BS 5240 or acceptable equivalent.

The Contractor shall maintain adequate stocks of protective clothing and other safety equipment and distribute these to his employees and other visitors to the Site as and when required.

The Contractor shall provide high visibility, reflective vests or coats to Class 2 EN471 and ensure that his employees, Subcontractors and all staff or visitors to the Site wear such safety clothing

The Contractor shall provide and maintain an adequate first aid kit. The Contractor shall ensure that at least one of his staff, fully qualified in the administration of first aid, is present on Site while work is progressing. This includes shift overtime, Sunday and Bank Holiday working.

Labour working in or above water shall be protected with adequate safety harnesses, life lines and buoyancy aids, and when working in unprotected, unfenced areas above or in the water, there shall be a fully manned rescue boat standing by.

The Employer's Representative shall have full authority to stop the Works if Site staff are not compliant with this clause or the Contractor fails to discharge his responsibility under this clause. The cost of such stoppage shall be borne by the Contractor.

8. Plant Safety

All Contractor's Plant, whether mobile, floating or stationary and including but not limited to excavators, rock breakers, cranes, forklift trucks, tractors, shovels and the like shall be equipped with all proper safety devices applicable to the type and class of plant. Cranes and lifting equipment shall not be used without evidence of current certification having been presented to the Employer's Representative. Safety devices shall at all times be operative and shall be properly maintained during the progress of the Works.

9. **Public Safety**

The Contractor shall take such measures to ensure the safety of the harbour users and other members of the public adjacent to the Works and shall warn them by suitable signs. The Contractor shall also provide and maintain at his own expense suitable safety fencing, notice boards, lighting and watchmen when or where necessary as required by the Employer's Representative or by any competent statutory or other authority to protect people, property and the works from injury or damage. All barriers breached or otherwise disturbed during the execution of the Works shall be immediately repaired or replaced.

10. **Marking and Lighting of Operations**

The Contractor shall place satisfactory marks, lights and notices in accordance with "*The International Regulations for the Prevention of Collision at Sea*" and "*International Association of Lighthouse Authorities*" and agree with Sligo County Council and the Employer's Representative to warn vessels moving in the vicinity of the Works.

12. **Operational Safety precautions**

The following measures, if applicable, shall be included in safety precautions undertaken by the Contractor to protect representatives of the Employer while present at the Contractor's work site or premises in connection with the Contract:

- (a) Adequate lighting.
- (b) Adequate workspace. Area to suit amount of equipment present.
- (c) A tidy work surface free of any substance or materials likely to cause slipping, tripping or falling.
- (d) Adequate shelter.
- (e) Safe work practices with a safe limit to the number of hours worked.
- (f) Adequate first aid facilities.
- (g) Telephone or radio in case of emergency.
- (h) Life buoy rings with easy safe access in prominent positions on the land.

13. **Working with Due Care and Attention**

The Contractor shall take such precautions as are necessary to prevent damage occurring to existing structures, drains, tarmac areas etc., whilst working in or around these features. The Contractor's methodology shall include all necessary protection of these structures. Any subsidence, cracks or other damage caused by the Contractor shall be made good to the satisfaction of the Employer's Representative at the expense of the Contractor.

14. **Safety Equipment**

All safety equipment necessary for the protection of personnel must be provided by the Contractor and used by his staff. Safety hats and steel toe capped footwear are to be worn at all times by **ALL** personnel on Site including visitors. When there is a risk to eyes suitable goggles must be worn. Other protective clothing or breathing equipment must be worn when required. Reflective jackets must be worn when working in the vicinity of roadways and railways. Lifejackets must be worn at all times, suitable for the purpose and person intended. Other protective clothing or breathing equipment must be worn when required.

15. Buoys, Lights/Screening of Lights etc

The Contractor shall provide and maintain any lights, buoys or markers as required by the Department of Agriculture, Food and the Marine and Sligo County Council or Commissioner of Irish Lights. Such lights or markers shall be to the characteristics required by the Port Authority or Commissioners and shall be displayed on marine plant and on Temporary or completed Works as required.

All lights provided by the Contractor shall be so placed and/or screened so as not to cause confusion with or interfere with any vessels in the harbour or vehicles and persons using adjacent roads and footpaths.

16. Site Security

Further to the provisions of Clause 7.5 of the Conditions of Contract the Contractor shall also be responsible for the security of the Site and must ensure he does not compromise the requirements of the International Ship and Port Facility Security (ISPS). The location of all fences and gates shall be agreed with the Employer's Representative before erection. The Contractor shall supply to the Employer's Representative a list of all Site key holders who may be contacted outside normal working hours. Details of Site security shall be supplied to the Employer's Representative within 7 days of the Letter of Acceptance.

17. Safety and Security

Further to the provisions of Clause 7.5 of the Conditions of Contract the Contractor shall secure the Site and maintain all lights and other signs as may be required by the Employer, the Employer's Representative or any authority having jurisdiction in connection with the Site for the protection of the Works, the Temporary Works, the constructional plant, whether on-shore or afloat and for the safety and convenience of the public or others. All lights provided by the Contractor shall be so placed or screened so as not to interfere with any permanent navigation lights or adversely affect navigation in the channel.

The Contractor shall be responsible for the security of the Site. The location of all fences and gates shall be submitted to the Employer's Representative within 7 days of the Letter of Acceptance for acceptance by the Employer's Representative before erection. The Contractor shall supply to the Employer's Representative a list of all Site key holders who may be contacted outside normal Working Hours.

18. Storage of Materials

Materials stored on Site for immediate use shall be stacked in small loads and fenced off from access by the public. Stacking and stockpiling of materials shall be done in such a manner as to prevent them from collapsing, and shall be situated such that even if a collapse should occur no materials will cause injury or damage to persons and property adjacent to the Site.

19. Site Tidiness

The Contractor shall maintain the whole of the Site and the area of his offices and stores free from rubbish and in a clean, tidy and safe condition. All materials, tools, plant etc. must be neatly stacked or parked in such a manner so as not to impede or to cause any danger to personnel using the areas. The Contractor shall take all precautions required by the current regulations to protect workmen employed in connection with the Works and all personnel employed or visiting the location and shall, where necessary, provide warning lights and barriers within the vicinity of the Works. He shall remove from the roadway any debris arising from the Works and shall refrain from discharging any oil, solid or noxious material into the Site.

20.

Vermin Control

Aspects of the Works will involve the disturbance of materials which may attract vermin. The Contractor must take all necessary steps to ensure pest control during the course of the Works. This will include the development and implementation of a vermin control programme that will be reviewed regularly and revised as necessary to ensure the measures implemented are effectively.

Appendix 70/2: Special Conditions in Relation to Working with Owners of Public and Private Services and Suppliers; Works in connection with Services and Suppliers

70.3.1 Introduction

In addition to the other provisions of the Contract, before the Starting Date and as necessary thereafter, it is the Contractor's obligation and responsibility to consult with all the Owners and to establish and comply with all the requirements of such Owners in executing and completing of the Works (and any Temporary Works) and to pay all costs and expenses in connection therewith.

70.3.2 Special Requirements In Relation To Electricity Supply Board for Working In The Vicinity Of Transmission and Distribution Equipment

Working in the Vicinity of ESB Equipment

1. To avoid grave danger to persons working, or persons operating mechanical equipment, in close proximity to live overhead high and low voltage power lines and high and low voltage underground cables and any other electrical equipment and persons working in the vicinity of such power lines, cables and equipment, the Contractor shall at all times be responsible for ensuring the safety of and shall do everything necessary to secure the safety of all persons upon or in the vicinity of the execution of work (whether upon the Site or elsewhere) in or in connection with the performance of this Contract. The Contractor shall in particular draw the attention of persons operating mechanical equipment to the existence and location of such power lines, cables and notices and devices designed to make safe the operation of such equipment are aware of and constantly reminded of the presence of such lines, cables and electrical equipment.
2. The Contractor is deemed to have knowledge of:
 - (a) The location, route and safe working area adjacent to any overhead power lines;
 - (b) The ordnance datum height location route and depth below existing ground level of any underground cables; and
 - (c) the nature and position of any other electrical equipment; passing through under over on or in proximity to the Works and shall be deemed to have obtained all necessary information relating to such power lines, cables and other electrical equipment from the Electricity Supply Board, hereinafter called "the Service".
3. The Contractor shall ensure that no person, mechanical equipment or other thing is or comes within:
 - (a) the relevant minimum clearances from the live conductors as set out in the table below; and such clearances shall be measured from the live conductors, after taking into account variations in the vertical and horizontal position of the conductors which may occur due to atmospheric and loading conditions.

Line Voltage	Minimum Clearances			
	Horizontal		Vertical	
	(ft)	(m)	(ft)	(m)
275,000	20	6.1	15	4.6
110,000	20	6.1	15	4.6
33,000	15	4.6	10	3.0
11,000	15	4.6	10	3.0
230;400	15	4.6	10	3.0

And,

- (b) such clearances from any underground cables and/or electrical equipment as the Service may require and shall ascertain such clearance from the Service.

4. Overhead lines, underground cables and other electrical equipment may have to be altered or moved and when necessary, such alteration or moving of equipment will be carried out by the Service:

(a) at the Contractor's request and expense to give the necessary Statutory Clearances to the completed Works and in any such case the Contractor will inform the Employer's Representative of any such proposed alteration of the position of such lines, cables or equipment and will also inform the Employer's Representative of the completion of such alterations;

- or (b) at the Contractor's request to give increased clearance or deviation and any necessary reinstatement shall be at the Contractor's expense, and it shall be the Contractor's responsibility to determine whether or not such alterations have been carried out.

- 5 No work shall be done inside the said working areas specified in paragraph 3(a) (or to which paragraph 3(a) refers) or within the relevant clearances required under paragraph 3(b) unless the appropriate lines, cables and equipment have been made dead by the Service. It must be fully understood that it may not always be practicable to render dead such lines, cables and equipment. The Contractor shall be responsible for making such arrangement for the rendering dead, where practicable, of any line, cable and equipment by the Service and the Contractor shall, not less than seven days (or other notice period required by the Service) before he desires to commence work within the said relevant clearances, make to the Service his request for any such line, cable and equipment to be made dead and after agreement by the Service the work shall be done under and strictly in accordance with the provisions of a Permit-to-Work issued to the Contractor by an Employer's Representative of the Service authorised by the Service to issue such Permit-to-Work. It must be understood that the Contractor may have to arrange his programme of work to suit the requirements of the Service as to the time or times at and during which such lines, cables and equipment will be rendered dead. The Contractor shall be responsible for any charge made or expense incurred by the Service for or in connection with or in consequence of rendering dead and returning to service any lines, cables and equipment made dead for the purposes of the work referred to in this paragraph.

- 6 All persons who may require to work upon the construction maintenance alteration or repair of power lines, underground cables and other electrical equipment or on any other work related thereto for the Service shall be afforded all the facilities necessary for such work by the Contractor and his workmen.
- 7 The Contractor shall not carry out any works in the vicinity of the existing services without prior agreement in writing of the Service or allow any buildings or spoil heaps to be erected or anything to be placed within 50ft/15.3m of overhead lines, underground cables or other electrical equipment.
8. If, by accident, or through inadvertence, materials, equipment, appliances or tools used by your workmen come into contact with equipment belonging to the Service whether or not this is carrying current at any time, work in the vicinity should be discontinued forthwith and a responsible official from the Service advised as soon as possible so that consideration may be given as to what steps it may be necessary to take.
- 9 All civil works to be carried out by the Contractor shall be free of any charge to ESB Networks or the Employer.
- 10 Civil works requested by ESB Networks to be carried out shall be in accordance with the ESB Networks specification and with reference to any enclosed design mark-up drawing.
- 11 Commencement of civil works for the ESB shall take place only following consultation with ESB Networks construction supervisor detailed by ESB.
- 12 Reinstatement to be carried out by the Contractor of all areas where ESB carry out pole and stay removal.
- 13 Permission for installation of ESB minipillars against properties and permission for the affixing of ESB cables and other equipment to buildings to be obtained by the Contractor.
- 14 Construction of substation plinths, vaults and installation of minipillars and vault covers/frames to be carried out by the Contractor at locations where required.
- 15 Opening and reinstatement of all necessary cable jointing pits to be carried out by the Contractor where required for the Service.
- 16 Provision by the Contractor of necessary steel conduits to protect ESB cables rising along the front of buildings shall be undertaken at no cost to the Employer where required.
- 17 These works may result in removal of ESB network poles which support public lighting.
- 18 ESB shall not be accepting responsibility for repairing or repainting of buildings (if applicable) which shall be undertaken by the Contractor.
- 19 ESB approved manhole covers, ducts, marker tapes and other cabling materials to be provided by the Contractor where required for the Works. Details and layouts of these will be provided by the local ESB Construction Supervisor or Designer.
- 20 ESB will detail the requirements for the supervision and installation of earthing materials along excavated trenches and in the vicinity of minipillars/Poles and other electrical equipment.

- 21 The Contractor agrees to provide 'as built' drawings showing actual ducting routes to ESB Networks.
- 22 Where work is being carried out by the Contractor to lay ducts or make preparations for and/or to install or, minipillars, underground vaults and services or any other work, (underground and overhead), the Contractor shall be liable for and shall indemnify ESB against any and all liability, loss, damages, claim, costs, expenses or proceedings for injuries or damage to any person or property insofar as any such injury or damage directly or indirectly arises out of or in the course of or by reason of the execution of such works.
- 23 Removal of the existing services when abandoned by ESB shall be carried out by the Contractor as specified elsewhere.

In no circumstances should ESB equipment be interfered with.

Appendix: 70/3: Geotextiles & Geogrids

The requirements of this Appendix 70/3 shall take precedence over Clause CC-SPW-600-09 in the event of conflict.

70.3.1. Geotextile Manufacture

Geotextiles to be used as separation layers shall be manufactured from non-woven polypropylene fibres and fused into standard sheets using a thermal bonding technique. The fibres are to be needle punched to form a stable platform that retains dimensional stability relative to each other. Geotextiles shall be Terram 2000 or equivalent unless otherwise stated on the Drawings.

70.3.2. Geotextile Installation

Geotextiles shall be installed strictly in accordance with the manufacturer's instructions copies of which shall be submitted to the Employer's Representative for his acceptance 21 days prior to delivery to Site of geotextile materials, and include properties detailed in 70.3.4.

Adjacent geotextile panels shall be overlapped by a minimum of 1000mm and secured using an acceptable in-situ heat bonding technique.

The required bond/lap length of 1m.

Geotextiles on inclined surfaces are to be secured in accordance with the following Drawings and subsequently backfilled with acceptable earthworks materials.

IBE 1907-TT-ZZ-ZZ-DR-C-1003-1

IBE 1907-TT-ZZ-ZZ-DR-C-1003-2

Preparation

The formation on which it is to be laid shall be flat without ruts and sharp undulations.

Delivery, Handling Transport & Storage

Geotextiles shall be delivered in polyethylene wrappers to protect from harmful effects of ultraviolet rays. It shall remain wrapped until it is to be used. The unwrapped product shall be completely covered within 14 days after installation to avoid exposure to UV radiation.

Rolls must be handled and stored in accordance with the manufacturer's instructions.

70.3.3 Geotextiles Manufacturer's QA/QC Procedures

The following criteria must be conformed to by the Contractor for the geotextile chosen.

1 Cushioning

The Contractor must submit calculations showing that local straining in excess of 6% occurring. A maximum loading 20kN/m² may be assumed.

2 Friction Angles

A series of large (300 mm x 300 mm) shear box tests must be carried out for the geotextile chosen to estimate the internal friction angle between the following:

Geotextile/existing material;
 Geotextile;

The above calculations and test results must be submitted to the Employer's Representative for acceptance prior to ordering geotextile materials.

The Contractor's geotextile supply source shall not be changed without notifying the Employer's Representative and furnishing new calculations and test reports for straining and shear box tests

The Contractor shall submit to the Employer's Representative the following information for each separate consignment of each material delivered to the Site:

- (a) Product name and grade/no.
- (b) Name and address of producer/supplier.
- (c) Batch or code number.
- (d) Manufacturing characteristics.
- (e) Consignment number and delivery date.

Each consignment shall be numbered and the delivery date recorded. A consignment is considered to be the number of rolls or packages delivered at one time and may be split into batches for the purposes of sampling and testing.

The above consignment information together with samples of the consignment materials shall be submitted to the Employer's Representative's for testing at a laboratory selected by the Employer's Representative for compliance with respect to weight and thickness. The Contractor shall pay and/or bear all the costs of this sampling and testing. The second sample shall be offered to the Employer's Representative for archiving, with the third being retained by the Contractor.

If the laboratory compliance test results are deemed unsatisfactory, then the Contractor's sample shall be tested at his own expense. Failure of this second sample shall either result in further testing by the Contractor, to the satisfaction of the Employer's Representative's Representative or exclusion of that batch number for use within the Works. All associated cost shall be borne by the Contractor.

70.3.4 Separation Geotextile Schedule

	EN ISO 9864 WEIGHT	EN ISO 9863-1 MIN THICKNESS	EN ISO 12236 MIN PUNCTURE RESISTANCE	LOCATION
Polypropylene	320 g/m ²	1.7mm	2750 N	Geotextile to toe of Breakwater

70.3.5 QA Procedures

The Contractor shall submit to the Employer's Representative for his acceptance particulars and details of the Contractor's supplier(s) for geotextiles, and those suppliers shall not be changed without the Employer's Representative's prior agreement.

The Contractor shall ensure that the manufacturer or supplier of each geotextile shall provide the following documentary information for each separate consignment of each material delivered to the Site:

- (a) Product name and grade number.
- (b) Name and address of manufacturer and supplier.
- (c) Batch or code number.
- (d) Manufacturing characteristics.
- (e) Consignment number and delivery date.

Each consignment shall be numbered and the delivery date recorded. A consignment is considered to be the number of geotextile rolls or packages delivered at one time and may be split into batches for the purposes of sampling and testing.

The foregoing documents shall be deemed to be Contractor's Documents and shall also be included in the Contract As-Built Documents.

The Contractor shall take samples of the materials as the Employer's Representative shall direct for testing at a laboratory for weight and thickness compliance. A second sample shall be submitted to the Employer's Representative for archiving, with a third sample being retained by the Contractor.

If the laboratory compliance test results fail unsatisfactory, then the Contractor's sample shall be tested. In the event of failure of this second sample, the Employer's Representative at his absolute discretion, may either direct further material sampling and laboratory testing, to the expectance of the Employer's Representative or exclude that batch number for use within the Works.

The Contractor shall pay or bear all costs associated with the foregoing sampling and testing.

Appendix 70/4: Document Management & Progress

Management of Design Information

An Electronic Document Management System (EDMS) will be used during the course of the Contract by the Employer/Employer's Representative. The Contractor will be expected to consult with Employer's Representative and comply in a manner that facilitates the efficient use of the system such as forwarding receiving information to inform the Employer's Representative in a manner, format, type etc, to the acceptance of the Employer's Representative.

Design Information

The Contractor should note that all information relating to design must be received both as an email and a hard copy. Drawings must be received in both DWG and DWF format and be compatible with AutoCAD 2016.

Receipt of Information

Information received during the Contract must be presented on the following proformas, and received both as a portable document file (pdf) by email and a hard copy:

Information Type	Proforma No
<i>Employer's Representative's</i> Instruction – Green	Proforma SCP1
Interim Payment Certificate – Pink	Proforma SCP2
Substantial Completion Certificate- Blue	Proforma SCP3
Defects Certificate– Blue	Proforma SCP4

These proformas are included in Appendix 80/7

Briefing Meeting

Approximately one week after award of Contract the Employer, Employer's Representative and Contractor will meet to discuss the Contract Requirements.

Progress Meetings

Progress meetings between the Employer, Employer's Representative and the Contractor will be held on Site at a minimum on a monthly basis. The Employer's Representative will be responsible for preparing the Agenda and Minutes for these meeting. The Contractor must prepare a progress report to be circulated at these meetings. A progress report template must be submitted in the format described in Clause 4.10 of the Conditions of Contract. The Contractor may wish to propose changes to or an alternative form of progress report. This should be submitted for acceptance by the Employer's Representative as soon as the Contract is awarded.

Technical & Progress Meetings	
Attendees	Employer, Employer's Representative , Employers Personnel and Contractor
Timing	every 4 weeks after commencement of the Contract until further notice
Purpose	To update the <i>Employer</i> and <i>Employer's Representative</i> on progress
Contractors Input	- To present progress and future programmed work - To report against programme - To update on variations and progress - To propose mitigation if behind programme - To report on Health & Safety - Any other information requested by the <i>Employer's Representative</i>

Additional progress meetings may be called by the Employer's Representative if required and the Contractor shall make allowance for this.

Site Meetings

Technical meetings between the Contractor and the Employer's Representative will be held via Teams on a fortnightly basis. The Employer's Representative will be responsible for preparing draft agenda and minutes for the meeting.

Site Meetings	
Attendees	Employer, Employer's Representative, M&E Employer's Representative, Clerk of Works, Employers Personnel and Contractor and any other relevant party.
Timing	every 2 weeks after commencement of the Contract until further notice
Purpose	To discuss technical issues, review early warnings, delineate risks, solve existing problems and avoid potential problems. Review Actions
Contractors Input	Raise early warnings, potential problems and assist in the solutions to these and other technical issues.

Record Drawings

The Contractor shall provide record drawings in AutoCAD 2019 format and pdf format. The Contractor shall also maintain on Site an up to date record of all drawings, variations and other communications given under the Contract.

Appendix 70/5: Proformas

[illegible]

INTERIM PAYMENT CERTIFICATE



Project

Project Ref:

Certificate No:	
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Consulting Employer's Tel: 028 9066 7914
Representatives Fax: 028 9066 8286
74 Boucher Rd www.tetrattech.com
BELFAST

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Payment Due Before _____

Date _____

SCP2 PINK

SUBSTANTIAL COMPLETION CERTIFICATE					
Project:					
Project Ref:		Date:	Tt TETRA TECH Consulting Employer's Representatives74 Boucher RdBELFASTTel: 028 9066 7914Fax: 028 9066 8286www.tetrattech.com		
Employer ☐	Contractor ☐	RE	☐	File	☐
Employer: Contractor:					
In accordance with Clause 2.4 of the Conditions of Contract we hereby certify that the Works as described below have been completed.					
General description of Works to which this certificate refers: Date of Completion: Defects Date:					
Schedule of Exceptions:					
Signed by: For: Date:					

Tel: 028 9066 7914
Fax: 028 9066 8286
www.tetrattech.com

3.97

DEFECTS CERTIFICATE



TETRA TECH

Consulting Employer's
Representatives Tel: 028 9066 7914
74 Boucher Rd Fax: 028 9066 8286
BELFAST www.tetrattech.com

Project:

Project Ref:

Date:

Employer

☐

Contractor

☐

Employer's Representative

☐

File

☐

Employer:

Contractor:

In accordance with Clause 3.15 of the Conditions of Contract we hereby certify:

All notified defects have been corrected

☐

The following defects remain uncorrected

☐

DN	Brief Description

Signed by:

For:

Date:

SCP4 BLUE

Rates of Pay and Conditions of Employment Certificate

To:	The Employer		
	Address of Employer		
	For the attention of		
Date:			
From:	The Contractor		
Regarding	The Contract		
Period of Interim statement	From	To	

The Contractor hereby certifies the following and confirms that this will be observed by-employers of all work persons on the Site:

- The rates of pay and the conditions of employment (including in relation to pension contributions) of each work person comply with all applicable statutory provisions, and those rates and conditions have been no less favourable than those for the relevant category of work person in any employment agreements registered under the Industrial Relations Acts 1946 to 2004.
- All wages and other money due to each work person have been paid in accordance with the Payment of Wages Act 1991 and have not been more than 1 month in arrears or unpaid.
- Payments due to be paid on behalf of each work person (including pension contributions, where applicable) have been paid.
- All pension contributions and other amounts due to be paid on behalf of each work person, have been paid
- All deductions from payments to work persons required by law have been made and paid on, as required by Law
- In relation to the employment of work persons on the Site, the Safety, Health and Welfare at Work Act, 2005 and all employment law including the Employment Equality Act 1998, the Industrial Relations Acts 1946 to 2004, the National Minimum Wage Act 2000, regulations, codes of practices, legally binding determinations of the Labour Court and registered employment agreements under those Laws have been observed.

Signed by

Name of Contractor	
Signature of Contractor	

Specification Appendix 0/4

List of Drawings Included in the Contract

List of Drawings included in the Contract

Drawing Number		Drawing Title	Rev	Issued
General Plans				
IBE 1907-TT-ZZ-ZZ-DR-C-	1000	Site Location Map	C01	04/09/2026
IBE 1907-TT-ZZ-ZZ-DR-C-	1001	Existing Site Layout	C01	04/09/2026
IBE 1907-TT-ZZ-ZZ-DR-C-	1002	Site Constraint & Compounds Layout	C01	04/09/2026
IBE 1907-TT-ZZ-ZZ-DR-C-	1003	Proposed Site Layout	C01	04/09/2026
IBE 1907-TT-ZZ-ZZ-DR-C-	1003-1	Site Section Sheet 1	C01	04/09/2026
IBE 1907-TT-ZZ-ZZ-DR-C-	1003-2	Site Section Sheet 2	C01	04/09/2026