



Comhairle Contae Dhún na nGall

Donegal County Council

TENDER FOR THE MAINTENANCE OF SCHOOL SAFETY SIGNAGE IN COUNTY DONEGAL

WORKS REQUIREMENTS DOCUMENT

July 2026

TABLE OF CONTENTS

1.0 GENERAL

- 1.1 GLOSSARY OF TERMS**
- 1.2 PRELIMINARY PARTICULARS**
- 1.3 RESTRICTIONS AND OBLIGATIONS**
- 1.4 PROJECT SUPERVISOR & HEALTH & SAFETY**
- 1.5 FORM OF CONTRACT**
- 1.6 CONTRACTORS DOCUMENTS**
- 1.7 QUALITY OF MATERIALS**
- 1.8 LOSS AND DAMAGE OF MATERIALS**
- 1.9 WARRANTY**
- 1.10 WASTE MATERIALS, WEEE REGULATIONS AND LITTERING**

2.0 MAINTENANCE SPECIFICATION

2.1 SETTING UP

- 2.1.1. Resources assigned to Contract**
- 2.1.2 Management of Contract**
- 2.1.3 Programming the Works**

2.2 WORKS TO BE CARRIED OUT

- 2.2.1 General Maintenance**
- 2.2.2 Removals and Installations**
- 2.2.3 Modifications/Alterations/Upgrades**
- 2.2.4 Fault Monitoring and Reporting**
- 2.2.5 Civil Works**
- 2.2.6 Tree Pruning**
- 2.2.7 Invasive Species**

2.3 SAFETY MEASURES

2.4 INSPECTION OF WORKS BY EMPLOYER'S REPRESENTATIVE

3.0 MATERIALS SPECIFICATION

3.1 GENERAL

- 3.1.1 Electrical System**

3.2 SIGNS

3.3 TWIN AMBER BEACONS

3.4 SOLAR PV PANEL

- 3.5 BATTERY & ELECTRICAL CABINET
- 3.6 NEW CONTROLLER UNITS
- 3.7 SUPPORTING COLUMNS
- 3.8 LABELLING AND LOCATION
- 3.9 DUCTING
- 3.10 EARTHING
- 3.1 CABLES
 - 3.11.1 Underground Cables
 - 3.11.2 Column Cables
- 3.12 CABLE JOINTS
- 3.13 FLASHER UNITS
- 4.0 SPECIFICATION OF MAINTENANCE WORKS
 - 4.1 STANDARDS AND REGULATIONS
 - 4.2 HEALTH & SAFETY REGULATIONS
 - 4.3 TRENCHING AND DUCTING WORKS
 - 4.4 SFAL UNITS & ASSOCIATED COMPONENTS
 - 4.5 SERVICE PILLARS
 - 4.6 EARTHING & BONDING
 - 4.7 SFAL UNITS ALIGNMENT AND WIRING
 - 4.8 UNDERGROUND CABLING
 - 4.9 COMPLETION CERTIFICATES
 - 4.10 SURFACE REINSTATEMENT

1.0 GENERAL

1.1 GLOSSARY OF TERMS

Council shall mean Donegal County Council as the contracting authority for this contract.

Applicant shall mean a person (or group of persons) that has decided to tender for the project.

Candidate shall mean a person (or group of persons) that has submitted a tender and Suitability assessment material and who has not yet been assessed for suitability at evaluation stage.

Contract shall mean the contract that may be awarded by the Contracting Authorities for the Services at the end of the competition.

Tender shall mean a tender for the Contract, including the completed Form of Tender, completed Schedules and other information as requested by the Contracting Authority.

Tenderer - a candidate that has submitted a tender is designated a tenderer [2004/18/EC Article 1(8) and S.I. No. 329 of 2006 Regulation 3(1)]

The Council, County Council or Employer shall mean the County Council, and shall include their successors and assigns.

The Employers Representative shall mean the Director of the Council or any of his/her agents with the responsibility for School flashing amber lights or any Employers Representative acting with the authority of or by the direction of the Employers Representative in connection with this Contract.

The Authorised Officer shall mean the Officer appointed by the Employers Representative to act as Authorised Officer for the purposes of this Contract.

The Contractor shall mean the Registered Owner of the Company supplying the maintenance, repair & associated services for School flashing amber lights to the Council, whose tender, has been accepted by the Council and includes the Contractor's personal representatives, successors or assigns.

Contract Works shall mean the execution of works by the Contractor in accordance with these Specifications and as directed by the Employers Representative.

School Flashing Amber Lights shall mean the entire flashing light amber unit including the sign, housing unit, control unit, lights, supporting columns, wiring, etc. and shall be denoted as [SFAL]

Periodic LED Speed Limit Sign shall mean the entire flashing light amber unit including the sign, the LED unit, housing unit, control unit, lights, supporting columns, wiring, etc. and shall be denoted as [PLSLS]

1.2 PRELIMINARY PARTICULARS

These lights are provided for the convenience and safety of the public. Donegal County Council now requests tenders from suitably qualified contractors for the provision of works for these school flashing amber lights as set out in these documents.

The limit of the works is indicated below:

- SFAL powered by solar panel with backup battery.
- PLSLS powered by solar panel with backup battery

The lights are mounted on stand-alone columns located adjacent to roads. Appendix D gives a summary of the inventory and location of each school where signs are installed; all of which are in the administrative area of the County Council.

This Contract requires the Contractor to perform the associated services for the supply and installation works for the signs in accordance with the conditions and specifications contained herein.

The Pricing Document must allow for all the requirements defined in the Specification. The minor civil works rate shall include for:

- (a) Any minor civil engineering works that may be required,
- (b) Any traffic management works required,
- (c) All Health and Safety Requirements,
- (d) Supervision of the works,
- (e) Any necessary liaison with public utility companies & the Council.
- (f) Any necessary liaison/communications with the Schools.

1.3 RESTRICTIONS AND OBLIGATIONS

The normal working hours will be between 08.00 to 18.00 hours, Monday to Saturday. If a contractor wishes to work outside these hours, this can only happen with the prior agreement with the council.

1.4 PROJECT SUPERVISOR & HEALTH & SAFETY

The Contractor will be appointed Project Supervisor Construction Stage using Model Form PW-CF6 which is contained in Appendix B – Preliminary Safety and Health Plan (Appendix 4) of the documents.

1.5 FORM OF CONTRACT

The form of contract is Donegal County Councils Open Procedure Request For Tender For A Contract – see Appendix A – SAMPLE General Terms and Conditions.

1.6 CONTRACTORS DOCUMENTS

The following is the documentation required to be returned by the Tenderer as part of the Tender Submission:-

Tender Response Document (TRD)

Pricing Document – Appendix C

Further information is required in order to assess the tenders in relation to personal circumstances, statutory obligations, previous contracts, health and safety, quality assurance, environmental management, finance, staffing and methodology as set out in the “Request For Tender For A Contract” documents. Once the tenderers have submitted the relevant documentation and are deemed qualified/competent, the award criteria shall be based on the Quantitative and Qualitative aspects of the request.

1.7 QUALITY OF MATERIALS

The quality of materials supplied shall be as detailed in Section 3–Specification of Materials. The Council requires **strict adherence** to all details.

Tenderers should note that any parts or materials used in respect of this contract to repair or replace any parts of the School Flashing Amber Lights will be of a generic nature available commercially to purchase without restriction on the open market.

1.8 LOSS AND DAMAGE OF MATERIALS

The Council will accept no responsibility for damage to, loss or theft of any signs unit, materials installed or left on site before or during repair works to an installation, nor for damage to the installation occurring before the Employers Representative has certified its completion.

1.9 WARRANTY

The Contractor shall guarantee all repairs and materials for a minimum of 24 months from the date of the works and all civil works for a period of 24 months from the date of reinstatement. Warranty repairs shall be carried out promptly as requested by the Employers Representative.

1.10 WASTE MATERIALS, WEEE REGULATIONS AND LITTERING

All redundant, surplus waste and damaged materials shall be removed from site and safely disposed of by the Contractor at licensed facilities in accordance with all regulations in force pursuant to the Waste Management Act 1996, the Waste Management (Amendment) Act 2001 and all subsequent amendments to the act during the duration of this Contract. The Contractor and any sub-contractors he employs shall have valid Waste Permits relating to collection/transport/storage of both electrical and non-electrical waste.

The Contractor shall pay particular attention to the safe storage, handling and disposal of used lamps and any other items containing potentially toxic material.

The Waste Management (Restriction of Certain Hazardous Substances in Electrical and Electronic Equipment) Regulations 2005 and Waste Management (Restriction of Certain Hazardous Substances in Electrical and Electronic Equipment) (Amendment) Regulations 2008 apply to all replacement electrical/electronic equipment used by the Contractor.

In particular the Council requires that only Electrical and Electronic Equipment (EEE) from producers/retailers in compliance with Waste Management (Waste Electrical and Electronic Equipment) Regulations 2005, as amended by Waste Management (Waste Electrical and Electronic Equipment) (Amendment) Regulations 2008 shall be used in this Contract. All producers/retailers of electrical/electronic equipment used by the Contractor must be validly registered with the WEEE Registry.

Any waste disposal costs shall be deemed to be included in the Materials Items in the attached Bill of Quantities. The Contractor shall ensure that his staff does not litter any work site.

The Contractor shall remove any cable ties or other devices attached to a column when a light is visited for any purpose. There moved devices are to be disposed of properly. If there is any concern about any device attached to a column the contractor shall discuss with the Employers Representative.

2.0 MAINTENANCE SPECIFICATION

2.1 SETTING UP

2.1.1. Resources assigned to Contract

The successful Tenderer shall demonstrate to the satisfaction of the Employers Representative that he has the capacity in terms of plant, equipment, stores and experienced personnel to competently undertake the Contract.

Tenderers, as part of their tender submission, shall submit details of plant and personnel to be assigned to the Contract.

The Contractor shall provide at his expense suitable local premises from which the Maintenance Contract will be conducted. This shall include adequate accommodation to house his staff, stores, maintenance equipment, vehicles, office equipment, filing and record systems for the satisfactory execution of the Contract.

The Contractor shall maintain adequate supplies of materials at all times and shall not be allowed to claim lack of materials as are as on for not effecting repairs on time.

2.1.2 Management of Contract

The Contractor shall establish an agreed supervisory system for monitoring quality and quantity of work done and achievement of the agreed programme.

2.1.3 Programming the Works

The Contractor shall establish an interface agreement with the local authority. The interface agreement shall provide the local authority with direct lines of communication to the Contractor for reporting faults. All faults reported by the local Authority shall be classified by severity and shall be repaired as per the table below unless stated otherwise by the reporting authority. Faults classified as requiring emergency response shall be determined to be Severity Level 1 Faults and shall be repaired by the Contractor within 1 week. The table below identifies the repair response time according to severity level:

Severity Level	Description	Repair Response Timeframe
1	Equipment is not operational and no workaround exists	Within 1 Week
2	Equipment is impaired, but it is operational	Within 4 weeks
3	Minor services problems or functionality questions	Within 8 weeks
4	Enhancement request or cosmetic problems	Within 12 weeks

All works shall be carried out according to the programme agreed in advance between the Employers Representative and the Contractor. In the event of other improvement and repair works a programme of these works must be agreed with the Employers Representative before any of these additional works are carried out.

The Employers Representative shall carry out such inspections, checks and reviews, as he may

deem necessary to monitor that these works are properly and promptly completed. The Contractor shall inform the Employers Representative promptly if at any time he is unable to keep to the programme.

2.2 WORKS TO BE CARRIED OUT

The successful contractor is not guaranteed the works detailed in the Pricing Document of this contract. The figures documented in the Schedule of Rates are estimates based on previous years maintenance works. A Task Order will be issued by the Contracting Authority to the contractor each time maintenance works are deemed necessary by the Employers Representative. The rates submitted by the contractor in the Pricing Document will be used for tender assessment purposes by the Contracting Authority.

The range of Works to be carried out under this Contract includes:

2.2.1 General Maintenance

The contractor shall undertake a general maintenance survey of the SFAL units at each location. This general maintenance inspection of all SFAL units in the county shall take place once a year. General maintenance shall include the following:

- checking the SFAL is fully operational.
- checking timer and switch times are functioning and set to the agreed periods, the School Principal should be consulted on opening and closing times for each school – section 3.6. Works Requirements Document. Where possible the unit should be programmed for the maximum number of years available on the control unit from date of site visit.
- compiling a list of contact details for each school where a SFAL is located to include a contact name and telephone number and the agreed opening and closing times and forwarding the completed list to the Employer
- clean all amber beacons inside and outside of bowl and refit and reseal if required. check all beacons are functioning – section 3.3.
- check signage, electrical cabinet, solar panel and battery are secured.
- check supporting columns.
- check electrical cabinet is in good condition, vent is clear and locking mechanism is functioning. Include for hovering and cleaning inside of cabinet and greasing of hinges and locking mechanism.
- ensure identification label is intact.
- in solar panel powered SFAL check voltage of battery and record. Check and clean battery connections.
- check all wiring and wiring connections in electrical cabinet and replace any wiring if necessary.
- check that no electrical cables are damaged
- Uploading of all information onto a database (excel sheet) provided by the Donegal County Council

2.2.2 Removals and Installations

Where instructed by Donegal County Council the removal of old sign units and installations may be required.

All new signs shall be indelibly marked by the Contractor using the agreed reference number, (this work has been completed by the Council on existing SFAL, but may require maintenance or up-grade from time to time. The on site attendance shall be included in the data recording sheet informing the Council of the commencement date of the guarantee/ warrantee expiry date based on manufacturer's data.

2.2.3 Modifications/Alterations/Upgrades

In addition to Removals and Installations, the Employers Representative may issue instructions for the installation/modification/alteration/upgrading of existing sign units. The Contractor's rates shall include for this design work. Payment shall be based on the "Tender Pricing Document", (Appendix C).

2.2.4 Fault Monitoring and Reporting

- Monitoring of Dashboard and Alarm Management (24/7) system.
- Review and tune alarm thresholds and routes monthly.
- Validate time synchronization health weekly; rectify drifts beyond threshold.
- Audit notification channels quarterly (email/SMS/app).
- Refresh device inventory and tags quarterly.

2.2.5 CivilWorks

These works will comprise excavation and both temporary and permanent reinstatement of various areas to access cable ducts and column roots as part of repair/replacement of ducts, service pillars and columns and as detailed below under "Installation Procedures".

The contractor shall reinstate all broken surfaces in accordance with the requirements of the Employers Representative.

Details of any Sub-contractors must be included in the Tender Return Documentation.

2.2.6 TreePruning

This covers **minor pruning** only in order to create clear access to signs, to allow a clear and unobstructed view of the sign from the roadway by on-coming traffic, to prevent the solar panel from shading and to prevent damage to the sign units from being struck by overhanging branches. The Contractor shall safely and properly dispose of all trimmings. **Only the Employers Representative will arrange heavy pruning of trees. If in doubt the Employers Representative shall be consulted**

2.2.7 Invasive Species

The contractor must be aware of the risks associated with invasive species such as Japanese Knotweed, Giant Hogweed etc. Should the contractor suspect such planting in areas along road verges, that are within their works area, then they must report it to the Employers Representative immediately and await clarification and further instruction.

2.3 SAFETY MEASURES

The Contractor shall comply with all safety requirements as indicated by the Safety Health and Welfare at Work Act 2005 legislation. The Contractor shall take all precautions appropriate to the nature, location and hazards of his works, Including the display of such notices, signs, warning lights, cones, etc. As may be necessary, to maintain traffic flows and to ensure the safety of the Contractor's personnel, pedestrians and vehicular traffic during the course of his work, and all to the satisfaction of the Employers Representative .

All vehicles shall be equipped with flashing/rotating amber beacons and be conspicuously liveried to ensure high visibility. In addition they shall be equipped with suitably positioned directional signage to assist approaching vehicles in passing. All vehicles shall display contact details of the Contractor and indication to identify SFAL maintenance.

All traffic management and signage shall comply with Chapter 8 of the Traffic Signs Manual published by the Irish Department of Transport.

Each site will have a safe System of Work Plan,(SSWP), available for inspection.

All signs to warn, inform and direct passing traffic shall be erected by staff who carry Signage, Lighting and Guarding at Roadworks 3 day Ticket.

The Contractor shall liaise with the Employers Representative regarding traffic management requirements. The Council's Transportation, Department will normally approve any proposed traffic management plan that may be required to create a safe working area. The Contractor shall not cause any restriction to traffic lanes other than as agreed in advance with the Employers Representative and shall not commence works before all agreed signage and coning is in place.

The Contractor shall ensure that all employees are provided with and at all times use all required Personal Protective Equipment(PPE), including distinctive high-visibility fluorescent jackets/waterproof clothing, steel toecap shoes/boots and safety helmets. When using concrete saws and jackhammers, operators and those adjacent to the work shall wear hearing protectors, dust masks and goggles.

Each member of an aerial crew shall use an individual safety harness when working in a hoist at height.

All installations and trafficked areas shall be left in a safe condition overnight, including any necessary signage, if works cannot be completed that day. In general temporary reinstatements shall be done for incomplete works involving excavations.

To assist with Health and Safety management the Contractor shall use appropriate Safe System of Work Plans (SSWP) or equivalent as agreed with the Employers Representative to manage the day to day risks and hazards arising during the course of his works. These forms shall be kept on file for inspection by the Employers Representative. In addition there will be at least a monthly meeting to discuss and review Health and Safety management and issues. This meeting may be combined with the general management meeting for the Contract as a whole.

2.4 INSPECTION OF WORKS BY EMPLOYERS REPRESENTATIVE

The Employers Representative and his staff shall have access at all times to any works being carried out for the purposes of supervision, inspection and verification of works carried out including joint investigations with the Contractor's staff.

3.0 MATERIALS SPECIFICATION

3.1 GENERAL

Materials used for replacement, repair and maintenance shall comply with the following general requirements and shall generally match existing equipment at that location as directed by the Employers Representative.

3.1.1 Electrical System

In the case where no electrical supply is available the alternative power source will be solar energy complete with a battery back-up system. The solar energy will be captured using a photovoltaic (PV) panel and stored in a battery. The electrical system shall consist of solar PV panel with battery storage powering twin amber beacons and controlled by a programmable timer unit.

The system shall be designed as a whole including solar calculations to determine the required output of the PV panel and storage capacity of the battery to operate the selected amber beacons. These calculations shall allow for a minimum operational time of the beacons at full intensity of 3 hours per day throughout the year. They should be calculated at latitude of 53°N and for average weather conditions in the North Midlands of Ireland.

Consideration should be given to the limited daylight hour's available and poor weather conditions during the winter months.

3.2 SIGNS

Manufactured signs and fittings to comply with

- TS4 –Guidelines, Certification Scheme, and Specification for the Construction of Traffic Signs as published by the Department of Environment & Local Government 2012.
- Specification for Road Works Series 1200 – Traffic Signs and Road Markings
- The Department of the Transport, Tourism and Sport, *Traffic Signs Manual* 2010.
- EN – 12899 – 1 (2007)

The School Signs with Flashing Amber Beacons shall be 900mm wide x 1200mm high and manufactured from one sheet. The sign shall be grey with a "School Ahead" (SignW141) diamond warning sign as described in Section 6.17 of the Traffic Sign Manual and the twin amber beacons described below. The sign shall contain no text. Sign face sheet material shall be reflective Class1 in accordance with TS4.

The warning sign shall be diamond in shape with a 600mm side. The warning sign shall have a 15mm black border encompassing the black pictorial representation of the hazard on a yellow background all as described in Chapter 6 of the Traffic Sign Manual. The sign shall be fixed to the pole with minimum of three anti-rotation brackets.

The Periodic LED Speed Limit shall be in accordance with section 1.4 of the Traffic Sign Manual. The sign shall be 900mm wide x 2045mm high and manufactured from one sheet. The sign shall be grey with a "School Ahead" (Sign W 141) diamond warning sign as described in Section 6.17 of the Traffic Sign Manual and the twin amber beacons described below. Sign face sheet material shall be reflective Class1 in accordance with TS4. The LED Speed Limit Roundel should be 750mm and have a range of displays in 30, 50, 60 or 80Km/h.

3.3 TWIN AMBER BEACONS

The twin amber beacons shall be as described in Section 6.17, Chapter 6 of the Traffic Signs Manual. For the SFAL signs and the School Sign with Flashing Amber Beacons and the twin amber beacons shall be mounted directly below the diamond sign. For the Periodic LED Speed Limit sign the twin amber beacons shall be mounted directly above the diamond sign.

The beacons shall consist of high intensity LED clusters. Replacement of incandescent lamps shall be with new LED lamps.

The twin amber beacon shall be contained in a black UV and impact resistant unit(s). The lenses shall have a minimum diameter of 200mm and flash at a rate of between 60-80 flashes per minute. Flashes in each amber light shall oscillate and overlap so that one Light is always showing when in operation as controlled by the timer unit.

3.4 SOLAR PV PANEL

The solar PV panel shall be of a suitable output as calculated by the tenderer. The solar panel shall be IP66 or similar approved and of shatterproof construction. The solar panel frame shall be manufactured from an anodized aluminum or galvanized steel.

The solar PV panel shall be mounted on a galvanized bracket on top of the pole. The bracket shall be such that the panel is fixed at the appropriate angle for maximum solar efficiency at the latitude indicated above.

The bracket shall allow rotation through 360° to allow the panel adjustment to face south and must have a suitable anti-rotation device to allow to be fixed in this position after adjustment.

3.5 BATTERY & ELECTRICAL CABINET

The battery shall meet the manufactures recommended for the controller contained in the SFAL and shall be of suitable size and calculated by the tenderer. The battery shall be deep cycle, non-spill and maintenance free. The charging of the battery shall be controlled by a regulator to prevent over charging.

The battery shall have a minimum life of five years from the commissioning date. The commissioning date and the expected life of the battery shall be clearly marked on the battery as commissioning. The life expectancy shall be verified by manufacturer's technical data sheets or direct correspondence.

This regulator, the battery, and the controller shall be contained in an electrical cabinet mounted on the pole at the rear of the sign. The cabinet shall be fitted to the rear of the sign but shall not protrude below the sign.

The cabinet shall be IP65 rated and corrosion resistant. The cabinet shall have minimum internal dimensions of height 380mm x width 280mm x depth 120mm and shall be lockable. All electrical cabinets shall include all the appropriate warning labels.

3.6 NEW CONTROLLER UNITS

The new controller units to be Theben model controller or similar approved. The controller units shall switch on and off the twin amber beacons at set times during the day when the school is open. The controller shall allow a minimum of 4 on and 4 off switching times per day. The open and closed days of the school are to be stored in the controller's calendar.

The controller shall be programmed by a laptop PC or Handheld PC with either a wireless or wire connection, where a wire connection is used the cable shall have sufficient length to allow programming from the ground. The controller shall have an internal independent back up so the programme is stored in the event of a failure of the electrical system.

The controller shall be programmable for twenty five (25) years, or as far as practicable, after the date of commissioning. The controller shall automatically adjust for summer and wintertime. The switching times for each school shall be agreed by the successful tenderer and the school principal.

The programme for each sign shall be stored separately in a computer file organized by sign number and given to the Council after commissioning.

3.7 SUPPORTING COLUMNS

The supporting columns of the Sign units shall meet the requirements of TS4 and EN ISO - 1461 and be hot-dipped galvanized. They shall have an anti-rotation device in the underground section.

The supporting columns shall be capped on top and have a 10mm drainhole located approx 25mm above finished ground level. They shall have sufficient holes to allow the routing of cables as required, where cables enter the pole a proprietary cable compression gland shall be used. All holes shall be drilled prior to galvanizing.

3.8 LABELLING AND LOCATION

Each sign shall be individually labeled with black text on white background stick on labels. One label shall be fixed to the rear of the sign and the other internally on the electrical cabinet door. The labels shall be 150mm x 50mm and shall be UV resistant. The label detail shall be agreed with the Employers Representative prior to contract commencement.

3.9 DUCTING

All cable ducts used shall be RED in colour and stamped with the legend 'SCHOOL FLASHING AMBER LIGHTS ELECTRIC CABLES' or other acceptable markings to clearly distinguish the use from that of any power supply company

Ducting shall be, either 50mm or 100mm nominal size, as directed by the Employers Representative, and of uPVC complying with BS3506 Class B or High Density Polythene LS. 135 Class B.

The Contractor shall sleeve underground cables extending from any main longitudinal duct to each column with 50mm red duct extended through the column cable entry. The cost of this duct shall be included in the Contractor's price for column erection.

'Electrical Hazard' warning tape, black legend on yellow background, shall be buried at the appropriate depth directly above all ducts.

3.10 EARTHING

The Earth Electrode shall be a bare copper or hot dipped galvanized iron rod 16 mm in diameter. Earth electrodes shall be installed in general within the service pillar. Where the rod is placed outside the service pillar a suitable inspection box shall be provided.

A stranded copper earthing conductor shall be connected between the Main Earthing Terminal in the Service Pillar and the earthrod. The size of this conductor shall be a minimum 10 sq.m.m. as per ET101:2000 and ET102.

3.11 CABLES

ALL CABLING SHALL COMPLY FULLY WITH THE NEW EUROPEAN HARMONISED CABLE CORE COLOUR CODE AS PUBLISHED BY THE ETCI.

3.11.1 Underground Cables

Cables shall be NYCY-type construction to V.D.E. Specification 0271/5, or equivalent as approved by the Employers Representative. All cables shall have a full size neutral and the conductors shall be copper.

In cases where old supporting columns are being replaced on existing underground circuits approved joints, e.g. Scotch Castor equivalent approved by the Employers Representative, may be required to extend the existing cables in replacement columns. **This will require careful attention to core colour assignment.**

3.11.2 ColumnCables

The earth continuity conductor for the lantern shall be 2.5sq.mm PVC single core Stranded copper conductor. All other cables shall be 2.5sq.mrn PVC/PVC single core cable with stranded copper conductors.

Alternatively, a single 4-core Heavy Duty PVC/PVC flexible cable with 2.5sq.mm stranded copper conductors may be used. **This cable must include two Brown cores, together with Blue/Neutral and Green-Yellow/Earth. A three-phase and earth cable is not acceptable.**

3.12 CABLEJOINTS

Cable joint kits shall be of a type approved by the Employers Representative, e.g.3M, Scotch-Cast or similar. The joints shall be suitable for power cables and use in-line crimped power cable connectors to joint the full conductor cross-section. Screen/ armour continuity shall be sured by using an approved earth continuity/bonding kit.

3.13 FLASHERUNITS

In the case where separate flasher unit controls the operation of the amber beacons replacement shall be of similar approved unit.

4.0 SPECIFICATION OF MAINTENANCE WORKS

4.1 STANDARDS AND REGULATIONS

Unless otherwise detailed in this document, erection and testing details shall be in accordance with the latest editions of and amendments to:

- (a) ET 101:2008: National Rules for Electrical Installations. Fourth Edition
- (b) National Code of Practice for Customer Interface 4th Edition 2007 published by ESB

Documents (a) and (b) are published by the Electro-Technical Council of Ireland.

4.2 HEALTH & SAFETY REGULATIONS

The Works will usually be carried out on roads and footpaths open to use by the general public. The Contractor shall employ systems of work which do not endanger the health, safety or welfare of his own employees, the employees of other contractors, the Council employees or members of the public. The Contractor shall adhere to all applicable regulations as detailed in Safety Health and Welfare at Work Act 2005.

A Traffic Management Plan will be designed by a competent and qualified individual for each site and will be available on site for inspection.

For the duration of the works all adjacent areas as used by the general public shall be kept clear of clay and stone spillages and left clean and safe at the end of each day's work. Where necessary, appropriate barriers, fencing, warning signs and hazard lights shall be provided to facilitate all foot and vehicular traffic in the area.

During the works Safety and Traffic Control shall be the responsibility of the appointed Contractor to the satisfaction of the Employers Representative. In this regard reference may be made to the Irish Department of Environment "TRAFFIC SIGNS MANUAL, Chapter 8 - Temporary Traffic Measures and Signs for Road-works (2008).

Any proposed traffic control measures shall be approved in advance by the Employers Representative. The Contractor shall comply with all current regulations enacted under both the Road Traffic Acts 1993 and 2004 as amended and the Safety, Health & Welfare at Work Act 2005 and shall comply with any future regulations that may come into force in the period of the Contract.

4.3 TRENCHING AND DUCTING WORKS

As instructed by the Employers Representative the Contractor will be required to carry out excavation and backfilling in order to repair or replace damaged sections of duct or cable. The Contractor shall ensure that no underground services are damaged or otherwise adversely affected by such work.

Prior to any excavation the Contractor shall carry out any necessary enquiries and/or appropriate scanning or investigation to establish the presence of other services in the area of the proposed excavation.

In 'hard surfaced' areas a concrete saw shall be used to cut through the full depth of the surface on both sides of any duct line or other opening.

In settled landscaped grassed areas and verges the Contractor shall use planking and/or lightweight machines to minimize any damage.

Excavations and cable works associated with them shall be so coordinated that no excavation is left open overnight. All adjoining areas, e.g. paths, driveways and roads, shall be kept clean of clay, stone and sand spillages.

Replacement duct sections shall be the same size as existing ducts and shall be installed to be continuous with existing ducts by using appropriate connectors where required. Complete replacement duct runs shall be installed to achieve the minimum buried depths of NYCY or SWA cable in HD Polythene pipe as indicated in Section 522 and Table 52 BofET 101:2000: National Rules for Electrical Installations. Electrical hazard warning tape shall be laid vertically above all ducting at the appropriate level.

Ducting shall be laid on a bed of sand and surrounded by sand. The compacted thickness of sand above and below the duct shall be a minimum of 50mm and at each side of the duct 25mm. The remainder of the trench shall be back filled to ground level using selected material free of any large or sharp stones greater in size than 50 mm.

4.4 SFAL UNITS & ASSOCIATED COMPONENTS

The Contractor may be required to strip down and remove/reposition existing damaged SFAL units and associated components, or may require the installation of a supplementary permanent or temporary SFAL unit as the Employers Representative directs from time to time.

This will entail disconnection and making safe of underground cables, stripping down the existing SFAL unit, and carefully removing the SFAL unit from its foundation. If the damaged/corroded components of the SFAL unit is not to be immediately installed temporary reinstatement shall be carried out to ensure public safety.

All damaged components of the SFAL unit shall be removed from site and disposed of safely by the Contractor in accordance with Item 1.10 of the Works Requirements Document. Scrap value, if any, shall be credited to the Council.

In general, supporting columns of the SFAL unit shall be erected by planting their root portions in excavations of appropriate size. The method of excavation is for the Contractor to decide. Excavations for supporting column roots shall be backfilled uniformly around the column with concrete up to the cable entry slot. The cable entry shall at all times be kept free of concrete or other obstructions. The column shall be supported in a true vertical position until secure.

The concrete used shall be in accordance with the Department of the Environment Specification for Road Works, Clause 1502, Concrete for Ancillary Purposes (ClassE).

Before commencing excavation, the Contractor shall satisfy himself that he is aware of the location of existing underground services. Any damage to such services arising from the Contractor's excavations shall be entirely his responsibility to remedy and the entire cost of same shall be borne by him. If the excavations expose other services, care shall be taken not to encase them in concrete used to secure the columns. If necessary, a separating barrier shall be used.

4.5 SERVICE PILLARS

Pillars shall be secured in place using concrete in accordance with the Department of the Environment Specification for Road Works, Clause 1502, Concrete for Ancillary Proposes (ClassE).

4.6 EARTHING & BONDING

The bonding stud on columns or service pillars is not an acceptable earthing terminal.

The Earth Electrode shall be sunk to a minimum depth of 1200mm and a 10sq.mm stranded copper earth conductor shall be connected between pillar/column main earth terminal block and the earth rod.

Earth rods shall be installed in general within the section pillar. In the case where the rod is for an injection column or outside the section pillar, suitable inspection traps shall be provided to facilitate the inspection of the earth conductor connection to the rod. If the Electrode is within the section pillar it shall be easily accessible to permit inspection of the earth connection.

The pillar enclosure shall be bonded to the main earthing terminal link block. The School flashing amber lights column shall be bonded to the main earthing terminal link block.

4.7 SFAL UNITS ALIGNMENT AND WIRING

The Contractor shall ensure that the SFAL unit is properly aligned with the oncoming traffic. Where SFAL units are incorrectly aligned or can be approved, such proposals shall be brought to the attention of the Employers representative for the purpose of seeking approval for the works.

Each SFAL unit shall be individually fused.

Where flexible 4-core cable is used for internal wiring for the SFAL unit, the cable shall be firmly secured at each end by fixed cable grips.

4.8 UNDERGROUND CABLING

Each underground cable shall be run in PVC ducting and terminated in the BICC-type links or other approved cut-out terminal block in the base of each column or fused outlet in each service pillar. Strands of the screen of NYCY cables or any of the armour wire of SWA

Cables or the copper wires of the cable conductors shall not be snipped out to reduce size for termination.

Ducting shall be accessed by **cutting with a saw** to allow cables to be drawn out and entered into pillars or columns. Ducts shall not be broken by striking with a hammer or other implement. Cables shall be protected by Hydrotare-type tubing extending from the exit point of the main duct into the cable entry of column or section pillar.

The metallic sheath/screen of all NYCY type cable shall be plated and securely connected to the main earth terminal in each section pillar and column.

If SWA cable is used as replacement, or required to be re-terminated, a proprietary bonding kit shall be used to ensure that the armouring is effectively and securely connected to the column/pillar earth terminal.

Where lugs are used each bonding conductor shall have its own correctly sized crimped lug.

4.9 COMPLETION CERTIFICATES

In some circumstances a Completion Certificate may be required which the Employers Representative will submit to the Supply Authority to achieve connection/reconnection of supply. The Contractor shall carry out all required tests and shall complete this Certificate to the satisfaction of the Employers Representative and the Supply Authority.

On completion the work will be inspected by the Employers Representative as a preliminary to forwarding an order for connection/reconnection to the Supply Authority. The Contractor at his expense must rectify any defects discovered and if necessary a new Completion Certificate covering the complete installation submitted to the Council.

4.10 SURFACE REINSTATEMENT

The Contractor may subcontract surface reinstatement work to a specialist sub-contractor. In any case the Contractor is responsible for ensuring satisfactory completion of this work and for indemnification of the Council as detailed in Item 1.9 of the Instructions to Tenderers.

All reinstatement works shall be carried out in accordance with the **Department of Transport, Tourism and Sport, “PurpleBook” Guidelines on the Opening, Backfilling and Reinstatement of Trenches in Public Roads, Second Edition September 2015**

The Council normally requires that all reinstatements of trenches in footpaths and driveways will be full bay reinstatements and those on roads are 1650mm. The Tenderer should note that the quantities listed in the Bill are in square meter