Trailblazer Apprenticeship Standard - Highway Electrical Maintenance & Installation Operative Level 2

1. Occupation(s)

A **Highway Electrical Maintenance and Installation Operative** is a multi-skilled operative able to carry out both the installation of equipment (e.g. street lighting columns, traffic signal poles) and the maintenance of that equipment (e.g. correcting faults when equipment is non-operational, changing lamps upon or close to failure).

There are many sub-sectors within the highways electrics sector – e.g. street lighting, traffic signals, safety cameras, and highway communications. Each uses different equipment and processes, and the apprentice will choose one of these depending on the specialism of their employer. The general duties, skills, competencies and behaviours are common across the sub-sectors but the detail and application is sub-sector specific depending on the sub-sectors chosen (e.g. the installation of traffic signal poles is different to the installation of lighting columns, but the principles of safe excavation and safe working are common)

2. Occupational profile

The main duties and tasks of someone who is a competent Highway Electrical Maintenance and Installation Operative within the relevant sub-sector(s) are to:

- Install & maintain highway electrical support structures, equipment and systems (e.g. excavating and installing streetlight posts in the ground, installing traffic signal or safety camera poles, fitting Streetlighting lanterns or traffic signal heads, carrying out first line fault finding when items are reported as not working, carrying out routine replacement of lamps)
- Carry out first line (i.e. first on site) emergency attendance and emergency works (e.g. after a road traffic incident where a vehicle hits a streetlight ensuring the site is safe for traffic and pedestrians)
- Carry out work efficiently, effectively and safely to keep costs within budget, ensure works are completed in accordance with drawings, specification of works and instructions given by an experienced worker or manager and within the specified time duration to avoid delays and accidents
- Maintain effective working relationships with colleagues, managers and members of the public whilst carrying out the works
- Work on their own initiative and in small teams (which consist typically of 2 people)

Optionally: Apply surface protection

3. Requirements: Knowledge, Skills and Behaviours

This is the core of the Apprenticeship standard. The knowledge and skills that are required by employers for competent Highway Electrical Maintenance and Installation Operatives are shown below.

Knowledge and Skills	What is required
A. Transferable Knowledge and Skills Requirements (across all sub-sectors)	
Health, Safety and Environmental (Transferable across all sub-sectors)	Understanding the employer's health and safety and environmental requirements and procedures. Applying these requirements and procedures by hazard identification, site specific risk assessments and following safe systems of work and applying these to their own work in order to keep themselves, their colleagues, other workers, pedestrians and the travelling public safe.
Planning, preparing and organising works (Transferable across all sub-sectors)	Understanding the employer's requirements and identifying what work is required, what their responsibilities are and what plant, equipment, tools and materials are required. Applying this through the planning, preparation and organisation of their own works (e.g. by making sure the right materials are available) so that work can be carried out efficiently and without delay
Effective communication (Transferable across all sub-sectors)	Understanding the employer's requirements. Being courteous and polite; getting on with others and communicating verbally or in writing effectively
B. Unique Knowledge and Skills Requirements (to the particular sub-sector chosen)	
Highway Electrical Equipment and Systems (Unique to sub-sector)	Identification of the common types of highway electrical equipment and the underlying principles of how these are installed and maintained (e.g. street lights, traffic signals, traffic signs, safety cameras) – together with detailed specialised understanding on the chosen sub-sector(s). Applying this in practice by ensuring component parts are correctly assembled and installed; and by carrying out replacement of defective parts so that the equipment is safe and functions correctly
Installation Techniques (Unique to sub-sector)	Understanding of and applying the employer's requirements and typical installation techniques and hazards on site (including identifying and managing typical hazards e.g. traffic, members of the public, underground and overhead services (e.g. electricity, water, gas); Installing infrastructure equipment and some components (e.g. excavating and using lorry mounted

	cranes to install lighting columns or traffic signal posts; using steps or mobile elevated work platforms (MEWPs) to install street lighting lanterns or traffic signal heads) safely (including the use and operation of plant, equipment and tools; safe lifting and safe excavation and reinstatement)
Maintenance Techniques (Unique to sub-sector)	Understanding the practices of maintenance techniques both routine (e.g. regular inspections of internal wiring, structural inspection of the posts, changing lamps and cleaning streetlight bowls) and reactive (e.g. identifying typical faulty components such as lamps or fuses). Carrying these out in practice to ensure safe and efficient operations
Emergency Attendance (Unique to sub-sector)	Understanding the employer's requirements and procedures covering emergency attendance and emergency work. Following procedures on site to identify hazards and the actions required to ensure the site is safe - (e.g. after a road traffic incident where a vehicle hits a streetlight or traffic signal - liaising with emergency services and electricity company, ensuring the site is safe for traffic and pedestrians)
Optional - Apply Surface Protection (Transferable across all sub-sectors)	Understand how to identify and apply the appropriate systems of surface protection (e.g. applying paint to lighting columns) safely and how to dispose of waste appropriately; Carrying out appropriate surface preparation safely (e.g. using mobile elevated work platforms, ensuring the public and property are protected from injury); Apply appropriate systems of surface protection safely;

Behaviours (Transferable across all sub-sectors)	**What is required**
Health, Safety & Environment)	Promoting a positive Health, Safety and Environmental culture through being aware of hazards and the situation and how these might change, reporting unsafe practices and hazards and setting a personal example working safely and being alert so as to ensure no harm comes to employees and the public
Accepting responsibility	Taking responsibility for own actions and standards of work. Being aware of the limits of their own competence and seeking advice as and when required. Cooperating with the employer to ensure that their competence is maintained and up to date
Personal Effectiveness	Showing enthusiasm, consideration and commitment. Being able to work both on their own initiative to solve problems, seek out critical information and plan and organise work activities; and also being able to work in teams in a positive and constructive way

4. **Duration -** The typical duration of this Apprenticeship is 24 months for achievement of competence in the sub-sector chosen (e.g. streetlighting, traffic signals)

5. Entry requirements - Employers will set their own entry requirements when selecting candidates. Typically, candidates will have English and Maths qualifications at level 1.

6. Qualifications - This is a Level 2 Apprenticeship and achieving the standard will result in achieving the following:

- A mandatory knowledge Level 2 Certificate in Highway Electrical Work endorsed for the sub-sector chosen
- A Level 2 NVQ Certificate or Diploma - in Highway Electrical Systems endorsed for the sub-sector chosen
- To comply with industry standards, apprentices will complete their works in accordance with industry and employer Health, Safety & Environmental procedures including completing the Electrotechnical Certification Scheme (ECS) Highway Electrical version H&S test and requirements of the Highway Electrical Registration Scheme (HERS) (see www.highwayelectrical.org.uk/hers/) which results in the issuing of an ECS HERS Card being a licence to practice and work in the industry.

Successful apprentices may also be able to progress further onto the Level 3 Highways Electrician/Service Operative apprenticeship.

7. Link to professional registration - Completion of this Apprenticeship meets the requirements for registration to the Highway Electrical Registration Scheme (HERS), and a licence to practice evidenced by the issuing of an ECS HERS Competency Card together with registration as an Associate of the Institution of Engineering and Technology.

8. Review date - This apprenticeship standard should be reviewed no more than three years after approval of the standard