**Electric Vehicle Charging Point (EVCP)**

**NOS Development Consultation**

BSE Skills Ltd, in partnership with ECA and SELECT, has been contracted to research and develop a suite of technical National Occupational Standards (NOS) for those whose role includes working on **Electric Vehicle Charging Points (EVCPs)** across the UK.

Draft NOS have been developed (see below) by a team of UK industry experts (employers, training providers, trade associations, unions and other key UK stakeholders) to capture the relevant TECHNICAL COMPETENCES.

|  |  |
| --- | --- |
| **NOS Ref.** | **NOS Title** |
| BSEEVCP01 | Install and connect enclosures, electrical cables, conductors and wiring for EVCP systems and equipment |
| BSEEVCP02 | Inspect, test and commission EVCP systems and equipment |
| BSEEVCP03 | Identify and rectify faults in EVCP systems and equipment |
| BSEEVCP04 | Maintain EVCP systems and equipment |

Taking part in this important consultation is quick and easy – just follow these three simple steps:

* **STEP 1**: Read through the Draft NOS (see Appendix 1)
* **STEP 2:** Complete the Consultation Framework(on page 2)by telling us:
	+ Section 1: a little bit about yourself and your organisation (just the basics)
	+ Section 2: whether the NOS are fit for purpose (FFP) or could be improved (CBI) and what that improvement should be
	+ Section 3: anything further which is not accommodated elsewhere
* **STEP 3:** Return the completed Consultation Framework in Microsoft Word to**alan.mcdonald7@ntlworld.com**by **noon on Friday 18 November**

**Section 1: About You**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Position (job title)** | **Organisation** | **Location (HQ in UK)** | **No. of (direct) employees** | **Email** |
|  |  |  |  |  |  |

**Section 2: Your feedback on the EVCP NOS (mark X in FFP or CBI column)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NOS Ref.** | **NOS Title** | **FFP** | **CBI** | **Suggested Improvement** |
| **Performance Criteria** | **Knowledge/Understanding** | **Scope** |
| BSEEVCP01 | Install and connect enclosures, electrical cables, conductors and wiring for EVCP systems and equipment |  |  |  |  |  |
| BSEEVCP02 | Inspect, test and commission EVCP systems and equipment |  |  |  |  |  |
| BSEEVCP03 | Identify and rectify faults in EVCP systems and equipment |  |  |  |  |  |
| BSEEVCP04 | Maintain EVCP systems and equipment |  |  |  |  |  |

**Section 3: Additional Feedback/Detail**

|  |  |  |
| --- | --- | --- |
| **Q** | **Question** | **Response** |
| 1 | What should be added to the list of NOS? |  |
| 2 | What should be removed for the list of NOS? |  |
| 3 | Other comments/feedback? |  |

Many thanks for participating in this project. Your personal data will be destroyed at the end of the project.

**Appendix 1: NOS for Review**

|  |  |  |
| --- | --- | --- |
| **Ref** | **Title** | **Page** |
| BSEEVCP01 | Install and connect enclosures, electrical cables, conductors and wiring for EVCP systems and equipment | 4 |
| BSEEVCP02 | Inspect, test and commission EVCP systems and equipment | 10 |
| BSEEVCP03 | Identify and rectify faults in EVCP systems and equipment | 17 |
| BSEEVCP04 | Maintain EVCP systems and equipment | 23 |

**BSEEVCP01**

**Install and connect enclosures, electrical cables, conductors and wiring for EVCP systems and equipment**

**Overview**

This standard is for those who assemble and erect enclosures and install and connect electrical cables, conductors, wiring systems, equipment, accessories and components for electrical systems for Electric Vehicle Charging Points (EVCPs).

The person carrying out this work must be able to comply with the procedures and methods for assembly and erection of enclosures and the installation and connection of electrical cables, conductors, wiring systems, equipment, accessories and components in accordance with the current versions of the appropriate industry standards and regulations, the specification, industry recognised working practices, the working environment and the natural environment.

They must know and understand the different types of enclosures, cables, conductors, wiring systems, equipment, accessories and components, their limitations, applications and the techniques for their positioning, fitting, fixing and connection.

**Performance criteria - You must be able to:**

1. confirm a programme of work with the relevant others in accordance with organisational procedures
2. confirm before work starts that the work location and work area can be accessed safely and has been checked for the risk to other personnel on the site, and take appropriate action if a risk is present
3. determine and obtain the resources and other equipment, accessories and consumables required to undertake installation and connection of enclosures, electrical cables, conductors and wiring for EVCP systems and equipment
4. confirm that the resources and other equipment, accessories and consumables are fit for purpose and have a current calibration certificate
5. comply with industry practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades affected by installation and connection of enclosures, electrical cables, conductors and wiring for EVCP systems and equipment
6. select enclosures and confirm that they are of the right type and size and are fit for purpose in accordance with the EVCP system design
7. select electrical cables, conductors, wiring systems and confirm that they are of the right type and size and are fit for purpose in accordance with the EVCP system design
8. measure and mark out the locations for fitting and fixing the selected enclosures**,** electrical cables, conductors and wiring systems components and accessories in accordance with the EVCP system design and manufacturers’ instructions
9. assemble and erect the selected enclosures its components and accessories in accordance with the EVCP system, design industry recognised methods and manufacturer instructions
10. install, fix and connect electrical cables, conductors and wiring systems and their associated equipment, accessories and components in accordance with the requirements of the EVCP system design, industry recognised methods and manufacturer instructions
11. inspect and test the connections and joints of the electrical cables, conductors and wiring systems and their associated equipment, accessories and components to ensure they are of proper construction in terms of conductance, insulation, mechanical strength and protection, and ensure that they are identified correctly and in accordance with the requirements of the EVCP system
12. complete and safely store all relevant documentation
13. communicate information to relevant others at the appropriate time
14. resolve issues and problems within your area of responsibility and report those that cannot be resolved
15. implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with suppliers’ and manufacturers’ instructions

**Knowledge and understanding - You need to know and understand:**

1. how to confirm a programme of work with the relevant others
2. the operation, applications, advantages and limitations of different EVCP systems
3. the appropriate industry standards and regulations relevant to installing and connecting enclosures, electrical cables, conductors, wiring systems, associated equipment, accessories and components
4. how to produce a risk assessment and method statement for the work to be carried out, including the identification and use of personal protective equipment, in accordance with the EVCP system design and organisational procedures
5. how to verify that job information and documentation is current and relevant, and that the plant, instruments, access equipment and tools are fit for purpose
6. the applications, advantages and limitations of types of personal protective equipment
7. the practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades affected by installation and connection of enclosures, electrical cables, conductors and wiring for EVCP systems and equipment
8. how to determine and obtain the resources and other equipment, accessories and consumables required to undertake installation and connection of enclosures, electrical cables, conductors and wiring for EVCP systems and equipment
9. how to confirm that the resources and other equipment, accessories and consumables are fit for purpose and have a current calibration certificate
10. the applications, advantages and limitations of types of enclosures, electrical cables, conductors, wiring systems, associated equipment, accessories and components
11. the industry recognised methods for determining the type, size and rating of electrical cables, conductors, wiring systems, associated equipment, accessories and components in relation to the EVCP system design
12. how to interpret diagrams and drawings for the EVCP system to locate site services
13. how to interpret diagrams and drawings for the EVCP system to identify the planned location of the enclosures, electrical cables, conductors, wiring systems, associated equipment, accessories and components
14. the methods and techniques for assembling and erecting enclosures
15. the methods and techniques for marking out, installing, fixing and connecting electrical cables, conductors, wiring systems, associated equipment, accessories and components in accordance with the EVCP system design and manufacturer instructions
16. the different types and methods of joining and connecting electrical cables, conductors, wiring systems
17. the organisational procedures for:
* completion of the relevant documentation
* the recording of relevant data and information
* communicating with relevant others
* addressing issues and problems identified
* safe transport and/or disposal of waste

**Scope - the contexts and circumstances below identify where and when the NOS could apply:**

**Working environments (internal and/or external)**

* general (including):
	+ commercial
	+ domestic
	+ educational
	+ industrial
	+ pre-1919 traditional/historic buildings
	+ residential
* buildings open to the public (including):
	+ art galleries
	+ community centres
	+ leisure and entertainment
	+ medical and care facilities
	+ museums
	+ public houses
	+ public services establishments
	+ religious buildings
* special (including):
	+ agricultural/horticultural
	+ caravan parks
	+ filling stations
	+ highway power supplies
	+ marinas

**EVCP systems**

* Mode 1
* Mode 2
* Mode 3
* Mode 4

**Current carrying conductors**

* Single-phase
* 3-phase

**Site**

* an existing building or structure
* new build construction – building or structure

**Site services**

* communications (wireless or cabled)
* drainage
* electricity
* gas
* oil
* water

**Plant**

* access equipment
* lifting equipment
* mobile generators
* battery-powered tools

**Resources**

* instruments
* labour
* materials and other consumables
* plant and equipment

**Equipment, accessories and components**

* arc fault detection devices (AFDDs)
* cable glands
* consumer units
* control panels/devices – electrical; electronic; electro-mechanical
* distribution boards and/or panels
* earthing protection
* isolators
* over-current protection (circuit breakers, fuses, RCBOs etc)
* over-voltage protection (SPDs)
* socket-outlets
* supports and fixings
* switches

**Enclosures**

* basket and ladder systems
* cable tray
* ducting systems
* PVC and steel conduit (flexible and rigid)
* PVC and steel trunking

**Electrical cable, conductors and wiring systems**

* armoured cables and cords (single wire, multicore, braided, flexible)
* data cables (fibre optic, copper)
* earth screened metallic cable
* mineral insulated cables
* pre-fabricated conductor, cable and wiring systems
* single and multicore thermoplastic and thermosetting insulated cables

**Organisation procedures**

* accident reporting
* communication with relevant others
* customer services
* emergencies
* implementing and monitoring health and safety requirements and issues
* implementing and monitoring issues relating to the natural environment
* information management
* project management
* risk assessment
* risk management

**Relevant others**

* client representatives
* customers/clients
* members of the public
* other contractors/trades
* site/contract manager
* supervisors
* work colleagues

**BSEEVCP02**

**Inspect, test and commission EVCP systems and equipment**

**Overview**

This standard is for those who inspect, test and commission Electric Vehicle Charging Point (EVCP) systems and equipment.

The person carrying out this work must be able to comply with the processes and procedures for initial verification and periodic inspection and testing of an EVCP system in accordance with the current versions of the appropriate industry standards and regulations, the specification, industry recognised working practices, the working environment and the natural environment.

They must also be able to comply with the processes and procedures for the commissioning and handing over of an EVCP system.

They must know, understand and apply the correct methods and procedures for the inspection and testing of EVCP systems and equipment, including the:

* identification and use of the correct test instruments
* completion of the relevant documentation
* recording of relevant data and information
* identification and consideration of the customer’s need for EVCP systems and equipment configuration
* planning of the resources required to carry out the commissioning process

**Performance criteria - You must be able to:**

1. confirm a programme of work with the relevant others in accordance with organisational procedures
2. confirm before work starts that the work location and work area can be accessed safely and has been checked for the risk to other personnel on the site, and take appropriate action if a risk is present
3. determine and obtain the resources and other equipment, accessories and consumables required to undertake inspection, testing and commissioning of EVCP systems and equipment
4. confirm that the resources and other equipment, accessories and consumables are fit for purpose and have a current calibration certificate
5. comply with industry practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades affected by inspection, testing and commissioning of EVCP systems and equipment
6. confirm the existing electrical supply is suitable for the EVCP system
7. identify the correct means of electrical isolation prior to commencing the inspection, testing and commissioning processes
8. complete safe isolation as and when required to ensure the safe inspection, testing and commissioning of electrical cables, conductors and/or wiring system and the associated equipment, accessories and components
9. conduct a visual inspection on the enclosures for cables, conductors and wiring systems to confirm they are located and secured correctly and are electrically and mechanically sound
10. conduct a visual inspection on the electrical cable, conductor and wiring systems to confirm they are located and secured correctly and electrically and mechanically sound
11. conduct a visual inspection on the equipment, accessories and components to confirm they are located and secured correctly and identified and/or labelled correctly
12. perform the appropriate tests that ensure safe and efficient operation of the EVCP system
13. perform tests in the correct sequence for initial verification testing that ensure safe and efficient operation of the EVCP system
14. perform appropriate tests for periodic inspection testing
15. confirm that conditions are suitable for commissioning to take place
16. carry out the commissioning process
17. record and assess information in accordance with organisational procedures
18. ensure that the results are recorded in the appropriate information systems and passed to the relevant others
19. ensure that the EVCP system and equipment is ready for hand over to the customer/client
20. identify and explain any variations
21. obtain customer/client acceptance of the EVCP system and equipment in accordance with organisational procedures
22. complete and safely store all relevant documentation
23. communicate information to relevant others at the appropriate time
24. resolve issues and problems within your area of responsibility and report those that cannot be resolved
25. implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with suppliers’ and manufacturers’ instructions

**Knowledge and understanding - You need to know and understand:**

1. how to confirm a programme of work with the relevant others
2. the operation, applications, advantages and limitations of different EVCP systems
3. the appropriate industry standards and regulations relevant to inspecting, testing and commissioning EVCP systems and equipment
4. how to produce a risk assessment and method statement for the work to be carried out, including the identification and use of personal protective equipment, in accordance with the EVCP system design and organisational procedures
5. how to verify that job information and documentation is current and relevant, and that the plant, instruments, access equipment and tools are fit for purpose
6. the applications, advantages and limitations of types of personal protective equipment
7. the practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades affected byinspection, testing and commissioning of EVCP systems and equipment
8. how to interpret diagrams and drawings of the EVCP systems and equipment
9. how to access and interpret design and installation specifications
10. how to confirm the existing electrical supply is suitable for the EVCP system
11. the application process and role of DNO
12. regulations for Smart EV install/maintenance
13. how to determine and obtain the resources and other equipment, accessories and consumables required to undertake inspection, testing and commissioning of EVCP systems and equipment
14. how to confirm that the resources and other equipment, accessories and consumables are fit for purpose and have a current calibration certificate
15. the correct procedures for safe isolation
16. the methods and procedures for conducting a visual inspection on the enclosures for cables, conductors and wiring systems to confirm they arelocated and secured correctly and are electrically and mechanically sound
17. the methods and procedures for conducting a visual inspection on the electrical cable, conductor and wiring systems to confirm they are located and secured correctly and are identified and/or labelled correctly
18. the methods and procedures for conducting a visual inspection on the equipment, accessories and components to confirm they are located and secured correctly and are identified and/or labelled correctly
19. the methods and processes to carry out correctly the initial verification and tests that ensure safe and efficient operation of the EVCP system
20. the correct methods and organisational procedures for implementing the commissioning process
21. the organisational procedures for:
* completion of the relevant documentation
* the recording of relevant data and information
* obtaining customer/client acceptance of the EVCP system and equipment
* communicating with relevant others
* addressing issues and problems identified
* safe transport and/or disposal of waste

**Scope - the contexts and circumstances below identify where and when the NOS could apply:**

**Working environments (internal and/or external)**

* general (including):
	+ commercial
	+ domestic
	+ educational
	+ industrial
	+ pre-1919 traditional/historic buildings
	+ residential
* buildings open to the public (including):
	+ art galleries
	+ community centres
	+ leisure and entertainment
	+ medical and care facilities
	+ museums
	+ public houses
	+ public services establishments
	+ religious buildings
* special (including):
	+ agricultural/horticultural
	+ caravan parks
	+ filling stations
	+ highway power supplies
	+ marinas

**EVCP systems**

* Mode 1
* Mode 2
* Mode 3
* Mode 4

**Current carrying conductors**

* Single-phase
* 3-phase

**Site**

* an existing building or structure
* new build construction – building or structure

**Site services**

* communications (wireless or cabled)
* drainage
* electricity
* gas
* oil
* water

**Plant**

* access equipment
* lifting equipment
* mobile generators
* battery-powered tools

**Resources**

* instruments
* labour
* materials and other consumables
* plant and equipment

**Equipment, accessories and components**

* arc fault detection devices (AFDDs)
* cable glands
* consumer units
* control panels/devices – electrical; electronic; electro-mechanical
* distribution boards and/or panels
* earthing protection
* isolators
* over-current protection (circuit breakers, fuses, RCBOs etc)
* over-voltage protection (SPDs)
* socket-outlets
* supports and fixings
* switches

**Information**

* contractual
* customer/client information – drawings; diagrams; user instructions; specifications
* functional – operational instructions
* statutory consents
* technical – design documentation; plans; installation specifications; equipment specifications; manufacturers’ data; manufacturers’ instructions; BIM data

**Tests**

* additional protection (RCD operation)
* continuity of CPC
* continuity of ring final circuits
* earth fault loop impedance
* functional testing
* insulation resistance
* phase rotation
* polarity
* prospective fault current

**Enclosures for cables, conductors and wiring systems**

* basket and ladder systems
* cable tray
* ducting systems
* PVC and steel conduit (flexible and rigid)
* PVC and steel trunking

**Electrical cable, conductors and wiring systems**

* armoured cables and cords (single wire, multicore, braided, flexible)
* data cables (fibre optic, copper)
* earth screened metallic cable
* mineral insulated cables
* pre-fabricated conductor, cable and wiring systems
* single and multicore thermoplastic and thermosetting insulated cables

**The commissioning process**

* configuration
* hand-over
* inspection and testing
* trials

**Documentation**

* electrical installation certificates
* electrical installation condition reports
* handover agreements
* industry checklists
* manufacturers’ instructions
* minor electrical installation works certificates
* operational instructions
* schedules of circuit details
* schedules of inspection
* schedules of test results

**Organisation procedures**

* accident reporting
* commissioning
* communication with relevant others
* customer services
* emergencies
* implementing and monitoring health and safety requirements and issues
* implementing and monitoring issues relating to the natural environment
* information management
* project management
* risk assessment
* risk management

**Relevant others**

* client representatives
* customers/clients
* members of the public
* other contractors/trades
* site/contract manager
* work colleague

**BSEEVCP03**

**Identify and rectify faults in EVCP systems and equipment**

**Overview**

This standard is for those who identify and rectify faults in Electric Vehicle Charging Point (EVCP) systems and equipment.

The person carrying out this work must be able to carry out the processes and procedures for the identification and rectification of faults in accordance with the current versions of the appropriate industry standards and regulations, the specification, industry recognised working practices, the working environment and the natural environment.

They must understand and apply the correct methods and procedures when identifying and rectifying faults in EVCP systems and equipment, including:

* the identification and use of the correct instruments
* how to identify and locate faults
* how to rectify the faults that are identified, located and diagnosed
* the completion of the relevant documentation
* the recording of relevant data and information

**Performance criteria - You must be able to:**

1. confirm a programme of work with the relevant others in accordance with organisational procedures
2. confirm before work starts that the work location and work area can be accessed safely and has been checked for the risk to other personnel on the site, and take appropriate action if a risk is present
3. determine and obtain the resources and other equipment, accessories and consumables required to undertake fault finding and rectification in EVCP systems and equipment
4. confirm that the resources and other equipment, accessories and consumables are fit for purpose and have a current calibration certificate
5. comply with industry practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades affected by fault finding and rectification in EVCP systems and equipment
6. identify the correct means of electrical isolation prior to commencing the fault finding and rectification in EVCP systems and equipment
7. complete safe isolation as and when required to ensure the safe fault finding and rectification in EVCP systems and equipment
8. obtain clear and detailed information about the reported fault(s) and any components which need to be replaced from relevant sources of information, documentation and inspection/testing
9. advise the relevant others clearly and accurately about the potential disruption and consequences of carrying out the processes and procedures for the identification and rectification of faults
10. identify and locate fault
11. diagnose and rectify fault
12. repair, remove and replace electrical cables, conductors and/or wiring system, equipment, accessories and components in accordance with industry recognised methods and procedures
13. ensure the safety of the relevant electrical cables, conductors and/or wiring system, equipment, accessories and components if the fault(s) cannot be corrected immediately
14. inspect and test the repaired and/or replaced electrical cables, conductors and/or wiring system, equipment, accessories and components as appropriate and in accordance with industry recognised methods and practices
15. complete and safely store all relevant documentation
16. communicate information to relevant others at the appropriate time
17. resolve issues and problems within your area of responsibility and report those that cannot be resolved
18. implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with suppliers’ and manufacturers’ instructions

**Knowledge and understanding - You need to know and understand:**

1. how to confirm a programme of work with the relevant others
2. the operation, applications, advantages and limitations of different EVCP systems
3. the appropriate industry standards and regulations relevant to fault finding and rectification in EVCP systems and equipment
4. how to produce a risk assessment and method statement for the work to be carried out, including the identification and use of personal protective equipment, in accordance with the EVCP system design and organisational procedures
5. how to verify that job information and documentation is current and relevant, and that the plant, instruments, access equipment and tools are fit for purpose
6. the applications, advantages and limitations of types of personal protective equipment
7. the practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades affected byfault finding and rectification in EVCP systems and equipment
8. how to interpret diagrams and drawings of the EVCP systems and equipment
9. how to access and interpret design and installation specifications
10. how to access and interpret detailed information about the reported fault(s) and any components which need to be replaced from relevant sources of information, documentation and inspection/testing
11. the methods and techniques to identify, locate, diagnose and rectify faults
12. how to repair, remove and replace in accordance with industry practices:
13. how to ensure, if the fault(s) cannot be corrected immediately, the safety of the relevant electrical cables, conductors and/or wiring system, equipment, accessories and components
14. the methods and processes to inspect and test, as appropriate and in accordance with industry practices, the repaired and/or replaced electrical cables, conductors and/or wiring system, equipment, accessories and components
15. the organisational procedures for:
* completion of the relevant documentation
* the recording of relevant data and information
* obtaining customer/client acceptance of the EVCP system and equipment
* communicating with relevant others
* addressing issues and problems identified
* safe transport and/or disposal of waste

**Scope - the contexts and circumstances below identify where and when the NOS could apply:**

**Working environments (internal and/or external)**

* general (including):
	+ commercial
	+ domestic
	+ educational
	+ industrial
	+ pre-1919 traditional/historic buildings
	+ residential
* buildings open to the public (including):
	+ art galleries
	+ community centres
	+ leisure and entertainment
	+ medical and care facilities
	+ museums
	+ public houses
	+ public services establishments
	+ religious buildings
* special (including):
	+ agricultural/horticultural
	+ caravan parks
	+ filling stations
	+ highway power supplies
	+ marinas

**EVCP systems**

* Mode 1
* Mode 2
* Mode 3
* Mode 4

**Current carrying conductors**

* Single-phase
* 3-phase

**Site**

* an existing building or structure
* new build construction – building or structure

**Site services**

* communications (wireless or cabled)
* drainage
* electricity
* gas
* oil
* water

**Plant**

* access equipment
* lifting equipment
* mobile generators
* battery-powered tools

**Resources**

* instruments
* labour
* materials and other consumables
* plant and equipment

**Equipment, accessories and components**

* arc fault detection devices (AFDDs)
* cable glands
* consumer units
* control panels/devices – electrical; electronic; electro-mechanical
* distribution boards and/or panels
* earthing protection
* isolators
* over-current protection (circuit breakers, fuses, RCBOs etc)
* over-voltage protection (SPDs)
* socket-outlets
* supports and fixings
* switches

**Electrical cable, conductors and wiring systems**

* armoured cables and cords (single wire, multicore, braided, flexible)
* data cables (fibre optic, copper)
* earth screened metallic cable
* mineral insulated cables
* pre-fabricated conductor, cable and wiring systems
* single and multicore thermoplastic and thermosetting insulated cables

**Enclosures for cables, conductors and wiring systems**

* basket and ladder systems
* cable tray
* ducting systems
* PVC and steel conduit (flexible and rigid)
* PVC and steel trunking

**Documentation**

* electrical installation certificates
* electrical installation condition reports
* handover agreements
* industry checklists
* manufacturers’ instructions
* minor electrical installation works certificates
* operational instructions
* schedules of circuit details
* schedules of inspection
* schedules of test results

**Organisation procedures**

* accident reporting
* communication with relevant others
* customer services
* emergencies
* implementing and monitoring health and safety requirements and issues
* implementing and monitoring issues relating to the natural environment
* information management
* project management
* risk assessment
* risk management

**Relevant others**

* client representatives
* customers/clients
* members of the public
* other contractors/trades
* site/contract manager
* work colleagues

**BSEEVCP04**

**Maintain EVCP systems and equipment**

**Overview**

This standard is for those who maintain Electric Vehicle Charging Point (EVCP) systems and equipment.

The person carrying out this work must be able to carry out maintenance activities in accordance with proceduresandthe current versions of the appropriate industry standards and regulations, the specification, industry recognised working practices, the working environment and the natural environment.

They must understand and apply the correct methods and procedures for the maintenance of EVCP systems and equipment, including:

* routine and non-routine maintenance
* the identification and use of the correct instruments
* how to identify and locate faults
* how to rectify the faults that are identified, located and diagnosed
* the completion of the relevant documentation
* the recording of relevant data and information.

**Performance criteria - You must be able to:**

1. confirm a programme of work with the relevant others in accordance with organisational procedures
2. confirm before work starts that the work location and work area can be accessed safely and has been checked for the risk to other personnel on the site, and take appropriate action if a risk is present
3. determine and obtain the resources and other equipment, accessories and consumables required to undertake inspection, testing and commissioning of EVCP systems and equipment
4. confirm that the resources and other equipment, accessories and consumables are fit for purpose and have a current calibration certificate
5. comply with industry practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades affected by maintenance activities
6. identify the correct means of electrical isolation prior to commencing the maintenance activity
7. complete safe isolation as and when required to ensure the safe inspection, testing and commissioning of electrical cables, conductors and/or wiring system and the associated equipment, accessories and components
8. complete the specified maintenance activity in accordance with industry recognised methods and practices
9. repair, remove, replace and/or maintain in accordance with industry practices electrical cables, conductors and/or wiring systems, equipment, accessories and components
10. ensure the safety of the relevant electrical cables, conductors and/or wiring system, equipment, accessories and components if the maintenance activity cannot be completed immediately
11. inspect and test the maintained electrical cables, conductors and/or wiring system, equipment, accessories and components as appropriate and in accordance with industry recognised methods and practices
12. complete and safely store all relevant documentation
13. communicate information to relevant others at the appropriate time
14. resolve issues and problems within your area of responsibility and report those that cannot be resolved
15. implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with suppliers’ and manufacturers’ instructions

**Knowledge and understanding - You need to know and understand:**

1. how to confirm a programme of work with the relevant others
2. the operation, applications, advantages and limitations of different EVCP systems
3. the appropriate industry standards and regulations relevant to maintenance of EVCP systems and equipment
4. how to produce a risk assessment and method statement for the work to be carried out, including the identification and use of personal protective equipment, in accordance with the EVCP system design and organisational procedures
5. how to verify that job information and documentation is current and relevant, and that the plant, instruments, access equipment and tools are fit for purpose
6. the applications, advantages and limitations of types of personal protective equipment
7. the practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades affected by maintenance of EVCP systems and equipment
8. how to interpret diagrams and drawings of the EVCP systems and equipment
9. how to access and interpret design and installation specifications
10. how to access and interpret maintenance documentation about any components which need to be replaced from relevant sources of information, documentation and inspection/testing
11. the methods and techniques for the maintenance of EVCP systems and equipment including how to identify, locate, diagnose and rectify faults
12. how to maintain, repair, remove and replace electrical cables, conductors and/or wiring system, equipment, accessories and components in accordance with industry practices
13. how to ensure, if the fault(s) cannot be corrected immediately, the safety of the relevant electrical cables, conductors and/or wiring system, equipment, accessories and components
14. how to ensure, if the maintenance activity cannot be completed immediately, the safety of the relevant electrical cables, conductors and/or wiring system and equipment, accessories and components
15. the methods and processes to inspect and test, as appropriate and in accordance with industry practices, the repaired and/or replaced electrical cables, conductors and/or wiring system, equipment, accessories and components
16. the organisational procedures for:
* completion of the relevant documentation
* the recording of relevant data and information
* obtaining customer/client acceptance of the EVCP system and equipment
* communicating with relevant others
* addressing issues and problems identified
* safe transport and/or disposal of waste

**Scope - the contexts and circumstances below identify where and when the NOS could apply:**

**Working environments (internal and/or external)**

* general (including):
	+ commercial
	+ domestic
	+ educational
	+ industrial
	+ pre-1919 traditional/historic buildings
	+ residential
* buildings open to the public (including):
	+ art galleries
	+ community centres
	+ leisure and entertainment
	+ medical and care facilities
	+ museums
	+ public houses
	+ public services establishments
	+ religious buildings
* special (including):
	+ agricultural/horticultural
	+ caravan parks
	+ filling stations
	+ highway power supplies
	+ marinas

**EVCP systems**

* Mode 1
* Mode 2
* Mode 3
* Mode 4

**Current carrying conductors**

* Single-phase
* 3-phase

**Site**

* an existing building or structure
* new build construction – building or structure

**Site services**

* communications (wireless or cabled)
* drainage
* electricity
* gas
* oil
* water

**Plant**

* access equipment
* lifting equipment
* mobile generators
* battery-powered tools

**Resources**

* instruments
* labour
* materials and other consumables
* plant and equipment

**Equipment, accessories and components**

* arc fault detection devices (AFDDs)
* cable glands
* consumer units
* control panels/devices – electrical; electronic; electro-mechanical
* distribution boards and/or panels
* earthing protection
* isolators
* over-current protection (circuit breakers, fuses, RCBOs etc)
* over-voltage protection (SPDs)
* socket-outlets
* supports and fixings
* switches

**Electrical cable, conductors and wiring systems**

* armoured cables and cords (single wire, multicore, braided, flexible)
* data cables (fibre optic, copper)
* earth screened metallic cable
* mineral insulated cables
* pre-fabricated conductor, cable and wiring systems
* single and multicore thermoplastic and thermosetting insulated cables

**Enclosures for cables, conductors and wiring systems**

* basket and ladder systems
* cable tray
* ducting systems
* PVC and steel conduit (flexible and rigid)
* PVC and steel trunking

**Documentation**

* electrical installation certificates
* electrical installation condition reports
* handover agreements
* industry checklists
* manufacturers’ instructions
* minor electrical installation works certificates
* operational instructions
* schedules of circuit details
* schedules of inspection
* schedules of test results

**Information**

* contractual
* customer/client information – drawings; diagrams; user instructions; specifications
* environmental considerations
* functional – operational instructions
* health and safety
* statutory consents
* technical – design documentation; plans; installation specifications; equipment specifications; manufacturers’ data; manufacturers’ instructions; BIM data

**Organisation procedures**

* accident reporting
* communication with relevant others
* customer services
* emergencies
* implementing and monitoring health and safety requirements and issues
* implementing and monitoring issues relating to the natural environment
* information management
* project management
* risk assessment
* risk management

**Relevant others**

* client representatives
* customers/clients
* members of the public
* other contractors/trades
* site/contract manager
* work colleagues