

Bristol City Council - Eastville Park

Case Study: Energising Bristol's first ever rapid charging hub with EV supply pillars.

Project Summary

Project name: Energising Bristol's first ever rapid charging hub with EV supply pillars

Location: Eastville Park, Bristol UK

Completed: 2019

Products used: 1 x LZ EV Supply Pillars 2 x empty shells

Background:

In November 2019 Bristol City Council announced the launch of its Revive public EV charging network. The launch of the council-owned network, which serves EV drivers in Bristol, Bath and North East Somerset, South Gloucestershire and North Somerset, was marked with the opening of the region's first EV charging hub; located in Bristol's Eastville Park.

The hub, the first of four planned in the region, houses six rapid-charge connections that can each charge an EV up to 80% from 30 minutes' charging. The Eastville Park project also includes the installation of a new toilet, as well as bird and bat boxes and several new trees.

This ongoing project involves the installation 120 new or replacement charge point connections across the region. Many of the new charge points will be supplied with 100% renewable energy from Bristol Energy, Bristol City Council's own energy supply company.



Challenge:

In order to support the project, Lucy Zodion was enlisted to help the council and the charge point manufacturers ensure adequate power was available to all charge points, while not interrupting the existing electric network throughout the region.

At the flagship site, Eastville Park, the main challenge was ensuring there was enough electrical capacity for the new charge points and that the existing electrical infrastructure was not compromised. This meant Bristol City council had to apply for a new substation with the Distribution Network Operator (DNO) Western Power Distribution (WPD) along with coming to Lucy Zodion to provide the LV distribution, where there was a requirement to trench out of the park for access to the main low voltage supply.

This meant that the work was able to go ahead with relative ease as one of few industry recognised suppliers in that area.

Key Objectives:

The Eastville Park project took place to fulfil a number of objectives, both on a local and regional scale. The main objectives for the flagship charging hub were for:

- **Accessible Charging:** At Eastville Park, as well as all other ‘Revive’ sites, a key priority was to provide accessible EV charging for drivers. This meant not only ensuring that a reliable charging infrastructure was in place, but that each charge point was easy to access and use upon arrival to the site.
- **Rapid Charging Facilities:** A key aim for the Revive public charging network is to ensure EV drivers have charging facilities that are able to provide 80% charge or more, within 30 minutes; rapid charging. By making rapid charging available, it not only encourages drivers to use local facilities to charge their electric vehicles but gives them the opportunity to explore local green spaces while their vehicle is charging. Creating a more circular economy. This means the solution needed to accommodate with a safe and reliable power supply.

• **Simultaneous Charging:** To encourage more people to use green spaces, it was important for Bristol City Council to be able to provide multiple EV charging points that could simultaneously charge a number of vehicles at the same time, without compromising charging speed. Therefore, the solution had to consider the need for multiple live connections.

Results:

The pillar provides the council with a solution that not only enables the DNO to connect to and manage supply, but also acts as a distribution hub that feeds power to two rapid EV charge points, installed by Volker in Eastville Park, Bristol. It met project objectives in the following way:

- **Accessible Charging:** Lucy Zodion was able to ensure accessible charging by working with the Council to ensure pillars were located in an optimal position. When carrying out the site survey it was evident that there was a requirement for a new sub-station, to ensure the EV Chargers had the capacity required.

Solution:

Lucy Zodion designed an EV supply pillar, which was equipped by the in-house Design Centre, to provide a consistent power supply for the provision of six EV charging connections, to supply 6 twin Charge Points.

The solution was cost effective, to match the Council’s budget, and was available to install in line with the project’s delivery schedule. The installation timeline of the pillars was upheld and, once the EV supply pillar arrived on site, it provided the DNO with the connection space required. This ensured the project was completed on time for the launch of the Revive Network.

The specification of the pillar is:

- EV supply pillar (GRP)
- 600A incoming supply
- 6 x 125A Charge Point Supplies
- TT Earthing System
- Anti-condensation heater and service light
- Class 2 internals (non-conductive)
- 2 x empty shells to be equipped on site by Bristol City Council

Sources:

<https://news.bristol.gov.uk/news/new-and-improved-electric-vehicle-charging-network-launches>

<https://www.bristolpost.co.uk/news/bristol-news/bristols-first-ever-rapid-electric-3558006>

This meant the park and surrounding streets had to undergo a certain level of trenching to reach the main LV supply. While this caused disruption to residents initially, it was quickly addressed and meant that EV charging points were accessible to drivers at the Eastville Park Car Park, with updated infrastructure to accommodate a growing network of EV charging points.

The EV supply pillars are located close to both the charge points and the empty pillar shells provided by Lucy Zodion, making service and maintenance to the entire Eastville Park EV ecosystem accessible.

- **Simultaneous Charging:** To ensure the council was able to provide multiple EV charging points that could simultaneously charge a number of vehicles at the same time, Lucy Zodion installed a series of 125A EV Charging circuits within the pillars. This gave each charge point an independent feed, for a consistent and constant supply.

The EV supply pillar was also designed with available space for additional circuit boards and electrical components, to accommodate an anticipated demand for the installation of further charge points. In addition to this, the empty shells also gave Bristol Council the flexibility to install additional components that would further support the Park’s enhancement.

This, combined with the provision of the new sub-station, makes not only the Pillars, but the entire ecosystem, futureproof and scalable for further electric and EV charging requirements.

- **Rapid Charging Facilities:** In order to uphold the Revive Public Charging Network’s need for providing Rapid charging facilities, Lucy Zodion identified the electrical and infrastructure requirements very early on in the project. This meant that the in-house Design Centre could develop drawings that matched project requirements.

Lucy Zodion proposed a GRP pillar that supplies power for twin charge points. The pillar included 6 x 125A MCBs that would aid supply for the charge points installed in the car park, as well as a 630A DNO connection, providing a link between the charge point and the DNO.



Conclusion:

The successful launch of the Revive Public Charging Network and its flagship site means that the solutions Lucy Zodion were able to offer met Bristol City Council's expectations. The Network is now able to continue creating similar sites across the West of England, providing drivers with a streamlined pay-as-you go EV Charging service that is both simple to use and kind on the environment.

Once all Revive hubs are in place, the Council hopes it will dispel any range and reliability anxiety, so more people are encouraged to switch to clean electric vehicles. This is in support of the Network's aim for addressing the climate emergency and delivering a carbon neutral Bristol by 2030.

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