Cedar Chase EV Charging Proposal for Phase 1

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Background

- The number of pure electric vehicles kept at Cedar Chase continues to increase, but many residents cannot charge vehicles from their home supply. This is starting to limit people's choice of vehicles.
- Residents have expressed support for the installation of EV chargers as long as this does not result in parking spaces being reserved solely for electric vehicles.
- The 2024 AGM agreed unanimously that Cedar Chase should own and operate any EV chargers installed on communal land.
- We will not allow the public to use our chargepoints. Each resident will have a charging account, and the chargers will be unlocked with a keyfob, smartcard or mobile-phone app.
- There are Government grants to support the installation of EV charging infrastructure and we will claim as much as we can.
- Our aim is to provide electricity much cheaper than public chargepoints do, though it is unlikely that we will be able to match the best domestic tariffs.
- We plan to install AC chargers with Type-2 sockets. These should work with almost every electric vehicle and plugin-hybrid sold in the UK and EU.

Outline Plan

To avoid conflict over parking spaces we need to enable charging in as many spaces as possible in the first phase. The best way to do this is to install a charger between each pair of bays in the main car-park plus one for the unmarked bay to the left of the entrance. This will enable 9 spaces using 5 chargepoints. We will use posts capable of holding two chargers each, so it will be very easy to expand to 9 chargers at a later date.

We will need a new 3-phase electricity supply to support this, and have approached SSEN for a quote to install one. This requires a street cabinet, which will be dark green and surrounded by the existing Viburnum shrubbery. SSEN will need to dig up the footpath outside #7, and they will lay new tarmac when they have finished.

There will need to be excavation in and around the main car-park to install the equipment and cables. This will take about a week. We will aim to make the disruption as short as possible, and will take the opportunity to flatten and re-gravel the whole area.

Appearance

The chargers we plan to install are small black units made by Easee. They will be mounted on slender black steel posts. Vehicle owners will use their own cables, so everything will be neat and well-contained when not in use. You can see some Easee chargers in Taplow already: there is one on the wall at West Bapsey (on the path to Taeppa's Mound) and one on a post at Mill Lane beside the Jubilee River. We will initially have one real charger and one dummy on each post, which allows for an easy upgrade later.



Figure 2: Easee Charge

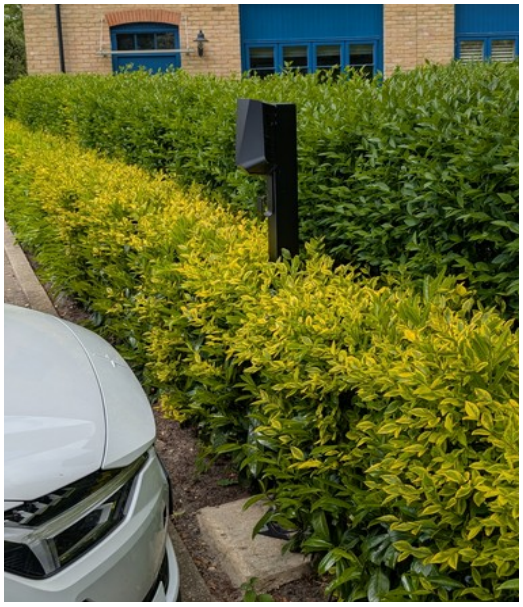


Figure 3: Charger installed at Mill Lane



Figure 1: Chargepoints for the top four spaces

Supply cabinet

This is a standard dark green piece of street furniture. It is 1m high, 1m wide and 0.3m deep. It will be embedded in the Viburnum area at the back of the lower parking space.



Figure 4: Supply cabinet and chargepoints in bottom two spaces of the main car-park

Planning Permission

We do not need to apply for planning permission.

Installing chargepoints in off-street parking areas has been ‘permitted development’ since 2011. Associated street furniture like supply cabinets became permitted development in May 2025.

- *The Town and Country Planning (General Permitted Development) (Amendment) (England) Order 2011*
- *The Town and Country Planning (General Permitted Development) (England) (Amendment) Order 2025*



Figure 5: Cabinet and post

This allows us to install chargepoints provided they are not facing a public road, and to install one cabinet provided it is at least 5m from the nearest public road and 10m from the curtilage of the nearest house. Properties in Cedar Chase do not own the front gardens, so the curtilage line is the front wall of the house. A cabinet in the position shown here will be 11m from the nearest house wall.

Cost Estimates

These figures assume that we use local contractors from our existing list and that we do the overall project management ourselves. VAT is included.

Item	Cost
Enabling works:	
SSEN provision of new electricity supply	3528
Street cabinet	1000
Trenches foundations and other groundworks	2000
SUBTOTAL	6528
Installation:	
Chargers and mounting hardware	6000
Cables and switchgear	2500
Electricians	2000
SUBTOTAL	10500
TOTAL	17028

We will manage the enabling works ourselves, as this is the most disruptive part.

The OZEV grants pay up to 75% of eligible costs, but with a limit of £500 per parking space served plus £350 per charger actually installed. 9 spaces and 5 chargers gives a maximum grant of 4500+1750 = £6250 provided the eligible costs exceed £8300. It is not clear whether this is calculated pre-VAT or VAT-inclusive, but either way the installation part is large enough to claim it. This should bring the cost to Cedar Chase down to about £11,000 and we already have that much reserved in the budget.

Running Costs

Once the system is installed we will be committed to paying the electricity standing charge (currently about £160 per year).

We will also need to have the system inspected by a qualified electrician periodically. This should be done at least every 5 years and probably more often given the type and location. Cost about £150 each time.

The cost of the electricity used will be collected from the people who charge vehicles here.

Ongoing Maintenance

The charging system will become part of the infrastructure of Cedar Chase. We will arrange periodic inspections by a qualified electrician. We will manage the cost of repairs and replacements in the same way that we budget for other things around the estate.

Working Life

The electricity supply will be maintained by the network operator as long as we pay the standing charge, so this element has infinite life unless we choose to move it.

The underground cables have a working life of at least 50 years.

AC chargers have a working life of 10-20 years depending on how often they are used and factors like exposure to extreme weather.

If we take a pessimistic view and allow for replacing all 5 chargers after 10 years then we see a cost of £17000+£5000 = £22000 over 20 years, equating to £1100 per year or £220 per charger per year at current prices. If we upgrade to 10 chargers and then replace all 10 after 10 years the cost is £17000+£5000+£10000 = £32000, or £160 per charger per year. In a 20-year timescale we might also need to replace the mounting posts.

We also want the installation to be future-proof: capable of supplying enough electricity and not becoming obsolete too quickly. Our chargers will have Type-2 connectors which can be used by the vast majority of UK and EU electric vehicles so there is no problem there. The chargers will be able to deliver 22kW if the vehicle can accept that much so an 8-hour overnight charge could theoretically deliver 176kWh – much more than any current car can hold. Even for vehicles limited to 7kW charging, an 8-hour session could provide 56kWh which is enough for 150-200 miles. Most drivers seem to do about 10,000 miles per year so they would only need to charge once or twice per week. It seems unlikely that EVs will get less efficient with time, so we do not have an obsolescence problem.

If every house on the estate has an EV and does 10,000 miles per year then we might expect to need 3000kWh per house per year, or 72,000kWh total. Allowing for uneven use throughout the week, we might need 300kWh per day, and if charging is concentrated into an 8-hour slot overnight we would need to draw 38kW. The supply we have asked for is rated at 60kW so we will not have a problem with that. In practice by the time there are 24 EVs on the estate we will probably have installed more chargers and more electricity supplies too.

Sequence of Work

1. Obtain quote for new electricity supply (completed June 2025)
2. Obtain quote for electrical installation work (In progress June 2025)
3. Obtain quote for excavation work or plant hire (In progress June 2025)
4. Order new electricity supply from SSEN. We must pay for the new supply at this point. The lead time to deliver new supplies is 4-6 weeks, and we need to do a lot of preparation work in that time.
5. SSEN provide an MPAN reference number a few days after the order. We then choose an electricity supplier to install a meter and give them the MPAN. The lead time to install new meters is 4-6 weeks.
6. Groundworks: we must pay for the excavation, materials and cabinet at this point. The main part of the work is expected to take 7 days.

(a) Receive bulk materials and plant. Bottom parking space blocked off for this.
Make OSB templates for cabinet base and chargepoint posts.
1 day

(b) Dig foundations for supply cabinet, chargepoints, inspection chambers. Remove two viburnum bushes to make way for the cabinet. Dig trench for main supply duct.
Bottom 2-3 parking spaces blocked off.
1 day

(c) Dig trenches across car-park for cable runs and ducts.
Immediately install these and back-fill so that the car-park can be used.
Flatten out any dips and hills in the car-park and distribute new gravel.
Entire car-park blocked off for 1-2 days.
2 days

(d) Build the foundations for the cabinet and the chargepoints. Build the inspection chambers. Install ducting in the cabinet foundations. Re-instate the lines of setts marking off the spaces if these were disturbed.
Bottom 2 parking spaces remain blocked off, and all remaining spaces are shortened temporarily.
2 days

(e) Install the supply cabinet

(f) Bottom space remains blocked off and all spaces are shortened for a few days while concrete sets around the inspection chamber and the granite setts.

(g) Distribute new gravel or pea-shingle across the car-park.

(h) Move any surplus bulk materials to storage behind the climbing frame area.

(i) Hired plant to be collected after 7 days. Bottom space remains blocked or shortened to allow work to continue in the supply cabinet.

7. SSEN install supply into cabinet. This will involve digging up the path outside number 6 or 7. There will be a large hole and the path may be blocked for 2-3 days before the tarmac is re-laid.
8. Metering supplier installs meter: we start paying a standing charge at this point.
9. Electricians install consumer unit and chargepoints and connect them up. We pay for the electrical work and the chargepoints at this point.
5 days
10. Set up online billing system.
11. Write instructions for users

Overall, the groundworks are expected to take about 7 days and we should have working chargers within 4 weeks of starting to dig the first hole.

Paying for Electricity

Confusion alert! We have to charge (money) to people who charge (electrically) their vehicles.

There are a number of companies providing automated billing services for EV charging. Most of them require chargepoint owners to pay a monthly fee for each chargepoint. This would be an unwanted cost for us, particularly in the early stages where few people are using the chargers. Fortunately there are some that make their money by adding a small percentage to the bill received by users.

Tap Electric is one company that operates this way, and I have some experience with their service at Adam Court in Henley. Users install a mobile phone app and register a payment card or bank account. Various options are available with the markup on cost ranging from zero to 5% depending on the monthly subscription paid. Thus an occasional user might choose to pay a higher rate for electricity and a heavy user might choose to pay a monthly subscription to get cheaper charging. The same app provides access to a lot of public chargers as well.

Our chargepoints will be controlled such that users must be a member of the Cedar Chase Residents group to unlock them.

The supply to the chargepoints will have a dedicated meter so we will be able to choose a tariff that is good for EV charging. This is likely to have a cheap period each day, and users will be able to direct their vehicles to charge during that period. Note that it may not be possible to get a full charge during the cheap rate period.

We will be able to set the cost per kWh and this can vary with time of day. We would set the cost slightly above what we pay for the electricity with the aim of covering the running costs but not making a profit or trying to recoup the capital costs.

Charging Speed

We plan to install 22kW AC chargers. This is the fastest type of AC charger available. They will have Type-2 sockets and should work with all UK/EU electric vehicles. The chargers will not have attached cables: residents will use the cable that comes with their vehicle.

The actual rate of charge will depend on several factors:

- How full the EV battery is. Charging usually slows down when the battery is above 80%.
- Temperature: a cold battery charges more slowly.
- The design of the vehicle. Very few vehicles can charge at 22kW from AC: it depends on what charging circuit the manufacturer decides to install. Most vehicles are limited to 11kW or lower. For comparison, the maximum charge rate from a 13A socket is 3kW.
- Other charge users. The electricity company sets an overall limit on how much power we can draw, and there are limits in the infrastructure on our side. The proposed design can deliver at least 22kW per pair of chargers.

Future Options

More Chargers

The installation is designed so that we can easily upgrade it to have one charger for every space in the main car-park. This will allow for 9 cars to be on charge at once. It will not require any new structures or groundworks: we just need to replace the dummy chargers with real ones.

Second Car-Park

We will eventually need chargepoints for the parking area at the end of the road. There are 5 gravel parking spaces that we own and control plus some on-road spaces. At the moment we are not allowed to provide chargers for vehicles on the adopted road (or at least, not without full planning permission).

It would be possible to do a similar scheme for these spaces. We could either run a cable from the main car-park and under the footway or we could request a new supply at that end of the estate.

Garages without electricity

Garages 9,10,11,12,14 have no electricity supply. We could consider providing a supply with the option to install EV chargers in the garages as part of the second car-park project. As these would be for the sole use of the garage owners those people would have to carry the bulk of the cost.

Garages 1-8

There is already a shared electricity supply here. One option would be to use that to provide single-phase (7kW AC) chargers. This would be quick and easy to do but charging would be very slow if everyone plugged in at the same time.

Another option would be to get the supply upgraded to 3-phase. We would need to build another meter cupboard above the existing one by garage 1 to make this possible. We could then provide 22kW AC chargers.

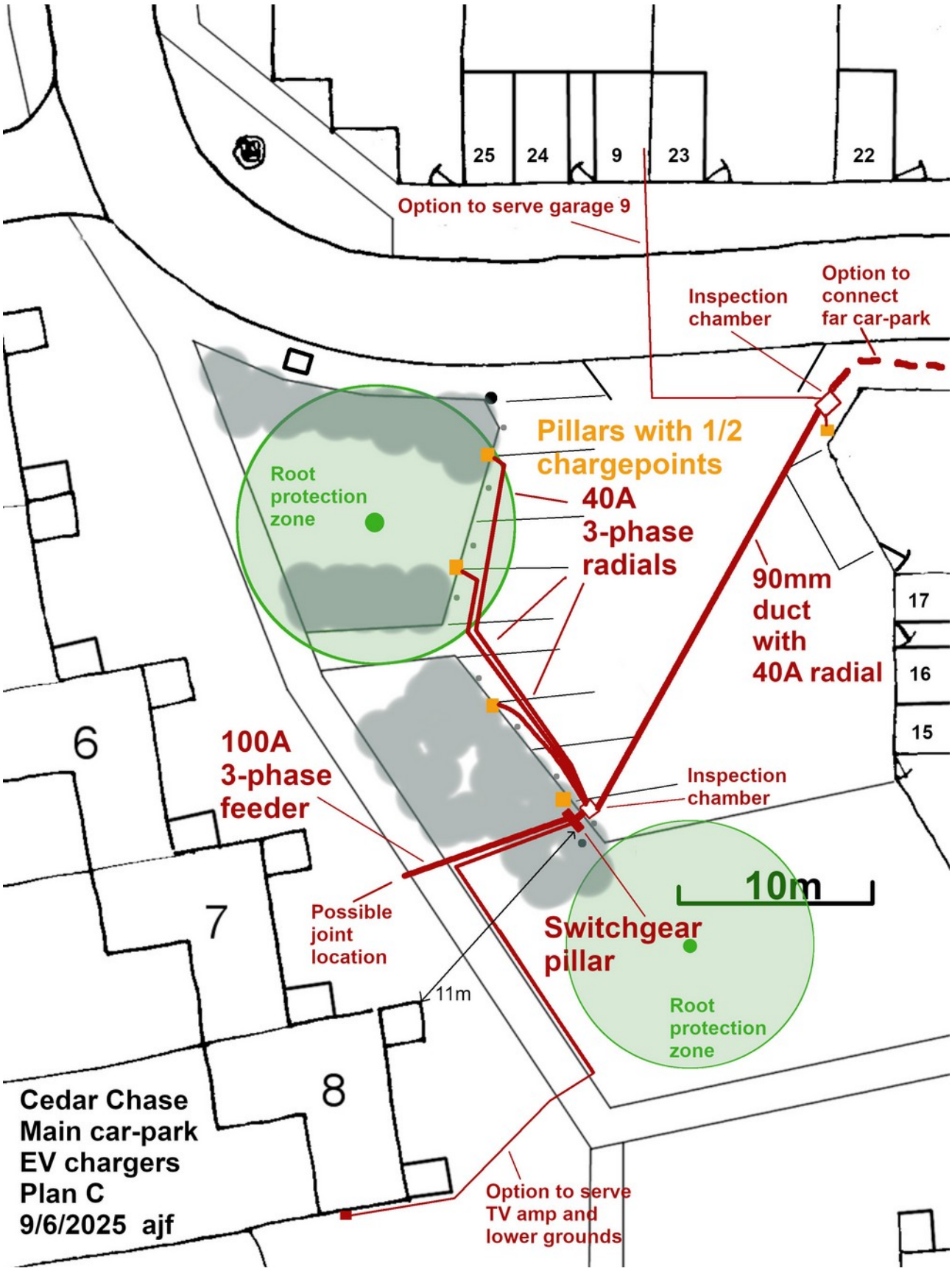
TV Amplifier and Lower Grounds supply

These services are in boxes on the end wall of #8. Since the estate was built they have been fed by an unmetered streetlight supply. We pay a yearly charge based on the connected equipment.

Unfortunately the only company that handles this sort of service is SSE, and every few years they do something odd to the billing system and try to charge us thousands of pounds for the very few units of electricity that we actually consume.

We could consider laying a cable from the new EV-charging supply to this equipment, and then cancelling the unmetered supply contract.

Detailed Drawings



Document History

12/6/2025	First draft circulated to committee
17/6/2025	Comments incorporated. SSEN quoted cost added.
18/6/2025	More detail in the project plan and timing. To committee again.
19/6/2025	Added running costs and mention re-surfacing of car-park. Added whole-life costs and future-proofing discussion.
20/6/2025	Added page numbers Increased allowance for hardware in costs

~/docs/cedar-chase/EV-charging/CC-EV-charging-proposal-phase-1.odt

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