

Construction and Access

Inchinnan Solar Park

Site Address Houston Road
Inchinnan
Renfrewshire
PA4 9LX

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Introduction

- 1.1. This report describes the construction phase of the project, including transport routes, traffic numbers, site access, environmental risks of construction, and best practice. Operational phase access and traffic volumes are also set out.

Legislation and Policy

The Construction (Design and Management) Regulations 2015

- 1.2. Construction is a highly regulated process in the United Kingdom, and this has environmental benefits. The CDM regulations will require a construction phase plan to be produced for this project if planning permission is granted and construction is to proceed. This will focus on health & safety, but will also consider environmental matters and construction legislation such as:
 - The Health and Safety at Work Act (1974)
 - The Management of Health and Safety at work Regulations (1992)
 - The Construction (Design and Management) Regulations (2007)
 - The Provision and use of Work Equipment Regulations (1992)
 - The Construction (Health, Safety and Welfare) Regulations (1996)
 - The Confined Spaces Regulations (1997)
 - The Control of Substances Hazardous to Health (COSHH) (1999)
 - Environmental Protection Act 1990

Guidance

- 1.3. The Scottish Environment Protection Agency (SEPA), together with other UK environment agencies, publish the PPG and GPP series of guidance for various business activities including construction projects¹. Of particular relevance are:
 - GPP 1: Understanding your environmental responsibilities - good environmental practices
 - GPP 5: Works and maintenance in or near water
 - PPG 6: Working at construction and demolition sites
 - GPP 21: Pollution incident response planning
 - GPP 22: Dealing with spills
- 1.4. Relevant guidance in other series includes:
 - Avoiding Danger from Underground Services, HSG47, HSE, 2014.
 - Avoidance of danger from overhead powerlines, GS6, HSE, 2013.

¹ PPG = 'Pollution Prevention Guidelines' and GPP = 'Guidance for Pollution Prevention'. The older PPG series is being replaced by the new GPP guidance. <https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/guidance-for-pollution-prevention-gpps-full-list/>

Planning Policy

- 1.5. All of the following documents include references to the need to reduce and manage construction waste: Scottish Planning Policy (2020), National Planning Framework 3 (2014)², Renfrewshire Local Development Plan (2021).

Pre-Application Consultation with the Council

- 1.6. This planning application has been preceded by an EIA screening process.
- 1.7. The EIA screening opinion provided by Renfrewshire Council on 6th December 2021, stated an Environmental Impact Assessment for the proposed development is not required.³ Details on traffic and access were requested as part of the planning process.

Description of the Construction Phase

- 1.8. The construction programme is outlined below.

Table 1: Estimated Construction Programme

	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Construction Phase						
Site Start						
Tracks and access constructed						
Major equipment orders readied						
PV site civils and groundworks						
Electrical contractor installation						
Piling and frame installation						
Panel installation						
Switchgear delivered, installed						
G99, energisation, export of electricity						

Hours

- 1.9. Construction activities are expected to take place between the hours of 07:30 and 18:00 Monday to Friday. Some Saturday working may be required.

Civils and Groundworks

- 1.10. This phase involves preparation of the site and the building of those items within or on the ground. For example, building access tracks and hardstandings, cable trenching, and foundations for substation and inverter stations.

² Scotland's Third National Planning Framework, June 2014, Part 4.

³ 21/1620/EA Screening Response, 6th December 2021

Electrical Contractor Installation

- 1.11. This phase includes electrical cable installation and delivery and installation of inverter stations, substations etc.

Piling and Frame Installation

- 1.12. This phase includes driving frame uprights into the ground using a small piling machine, assembling the frames, and mounting the solar panels.
- 1.13. With some frame systems the maximum piling depth for solar panel frame support legs is 2 metres, and this is the maximum for this project. Other systems penetrate to 1.5m and this is more common. The actual depth required will depend on the ground conditions and weather modelling (wind dictates the forces on the panels). The support leg is a u-shaped post of 15 x 5 cm approx.

Final Phases and Commissioning

- 1.14. This period involves the last two rows in the table above. It includes the delivery of switchgear and other electrical equipment, the final electrical tests to ensure grid compatibility, and finally energisation and export of clean green renewable electricity to the grid.

Description of Road Access and Track

- 1.15. The proposed site layout shows two points for vehicle access from the public roads to the development site. The main site access will be from the south and will be constructed as detailed in the planning drawings, this is where construction and delivery traffic will enter the site. The additional access in the north is pre-existing.
- 1.16. Visibility from the pre-existing main southern access point is currently good and will only require minimal management of the surrounding vegetation.
- 1.17. No abnormal vehicle sizes are expected to be required for construction phase deliveries. As such, the main access point is expected to be suitable for all vehicle types required to construct and operate the proposed development.
- 1.18. The entrance will have a tarmac surface to minimise the likelihood of dirt or loose material moving from within the site, onto the public road. The rest of the access track will be compacted aggregate material.
- 1.19. The security gate in the south will be set back 6 meters from the public road, and open inwards towards the site, in accordance with the SCOTS National Roads Development Guide⁴. It will remain open during working hours of the construction phase. These measures will ensure vehicles are not required to wait on the road while the gates are being opened.
- 1.20. Turning circles and passing places will be constructed near the north and south access points, as well as along the length of the tracks to allow traffic to pass freely.

⁴ SCOTS, National Roads Development Guide, 2015

- 1.21. Further details of the access track specifications can be found in the drawings provided with this planning application. A broader written description of the project is provided within the 'Description of the Proposed Development' report.

Construction Traffic

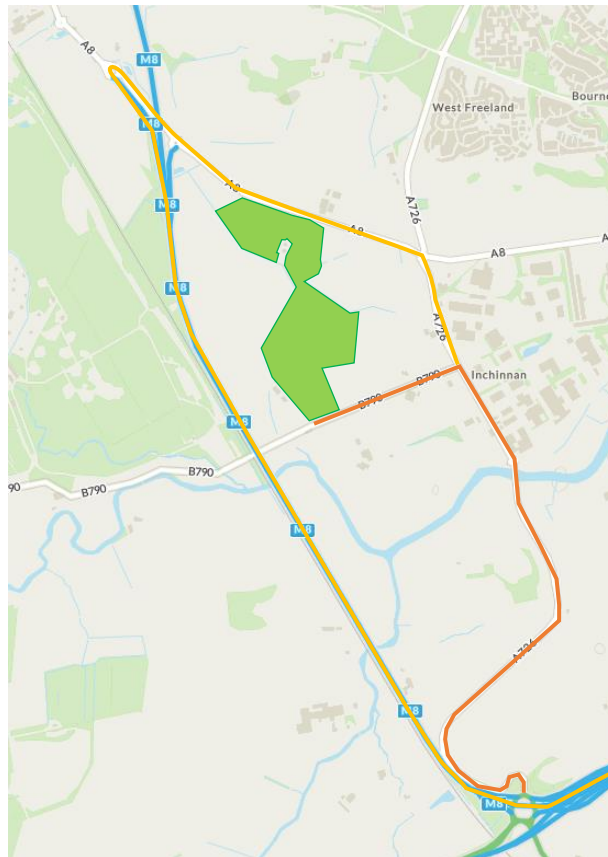
- 1.22. The majority of HGV movements are expected to be rigid HGVs. Some articulated HGV movements may also be required. A crane will be required to lift and position the power converters.

Transport Route

- 1.23. The route highlighted orange on the map below would be used for delivery and construction vehicles. This route allows easy access to the main access points. Plant and equipment would arrive and depart along this route to and from the M8.
- 1.24. Alternatively, the yellow route could be used. The route utilises more of the M8 and allows easy access to the entire site.

Figure 1: Construction Traffic Route

The orange line marks the intended route, with an alternative route in yellow. OS Opensource Map Data



Traffic Numbers

- 1.25. The table below shows the delivery trip numbers. Each delivery represents one return and departure vehicle movement. It is estimated that a total of 704 deliveries will be required during the construction phase.

Table 2: Delivery Trip Numbers

Activity	Total Loads
Materials for access track ⁵	435
Cable	5
Fencing	15
Sand	58
Concrete	10
Disposal of excavated material	0
Containerised and prefabricated units	9
Mounting system frames and solar panels	172
Total	704

- 1.26. The construction period will be approximately 6 months in duration. The frequency of traffic movements is estimated in the table below. This is based on the tracks and hardstandings being built first.

Table 3: Traffic Frequency

Month	1	2	3	4	5	6
Two-way delivery trips per month	145	145	145	90	90	90
Deliveries per working day in this month assuming 22 working days per month	6.6	6.6	6.6	4.1	4.1	4.1
Deliveries per hour assuming 8 hour working day	0.82	0.82	0.82	0.51	0.51	0.51

- 1.27. The road network close to the site appears to experience a steady volume of traffic such that the temporary addition of the vehicle numbers described above can be accommodated without a significant percentage increase.
- 1.28. During the operational phase the energy systems will be controlled remotely, and the site will not be staffed. Occasional site visits for maintenance will occur. The required service vehicles will usually be cars or vans. Based on experience at other sites which are operational, the frequency of site visits is expected to be between 1 and 2 visits per month.

⁵ Includes the hardstanding areas, turning circles and passing places

Potential Risks During the Construction Phase and their Mitigation

- 1.29. There are several risks that can present themselves during a construction project. These will be fully considered within the Construction Phase Plan with reference to the legislation and policy described here. COSHH regulations will also be observed at all times on site.
- 1.30. What follows is an indication of some of the main risks and mitigation proposals for this project, it is not anticipated that all of the following risks will manifest themselves, and good construction practise will be considered at all times.

Site Management

- 1.31. On site the Principal Contractor will be responsible for all contractors and any issues/conflicts should be brought to their attention in the first instance. The overall project programme is the responsibility of the Project Manager, in consultation with the Principal Contractor and the Client. Any wider technical and programme issues will be managed by the Project Manager.
- 1.32. The potential environmental risks during the construction phase will be mitigated by good site management. Good environmental practice on site has many benefits; environmental, social, and economic. The Principal Contractor is responsible for the management of environmental issues on site, including a site induction system, spill and contamination procedures, protection of nearby rivers and groundwater, and waste management.
- 1.33. Poorly trained, inexperienced, or unqualified staff could pose a risk to the environment. It is the Principal Contractor's responsibility to ensure that all those on site are trained and qualified to carry out the work which they are undertaking.

Excavations and Earthworks

- 1.34. During construction appropriate practise will be followed to avoid known below-ground infrastructure.
- 1.35. Appropriate mitigation measures will be adopted to reduce the formation and impact of dust during excavations.

Site Waste and Toilet Facilities

- 1.36. There is a risk of environmental consequences if site litter control and cleanliness are not maintained. During the construction phase of the project appropriate messing, washing and toilet facilities will be in place for the number of staff on the site.

Materials

- 1.37. Materials including construction materials, packaging, and fuel pose risks such as waste material accumulation, litter, and pollution respectively. The site management team will be responsible for ordering and managing the correct quantity and delivery method of materials, and ensuring appropriate packing materials, unloading, and storage of deliveries.
- 1.38. Any non-hazardous waste produced, primarily relating to packaging and off cuts, will be stored in a covered skip and disposed of appropriately.

- 1.39. It is unlikely that excavations for this project will create excess topsoil which requires removal from site. The site is a large area of land on to which topsoil can be redistributed.

Pollution from Silt and Run-off

- 1.40. Silty run-off can cause adverse environmental impacts and relevant guidance⁶ should be followed. Water / river crossings pose a particular risk⁷. The current access track crosses over a small burn at a well-established bridged crossing. It will not need any alterations, avoiding the risks associated with establishing river crossings.
- 1.41. Grass will be established across the site prior to the construction phase. Grass binds the surface and reduces silty run-off.
- 1.42. The site is relatively flat, and this reduces the likelihood that silt will be flushed toward watercourses by moving surface water.

Access Tracks

- 1.43. New access tracks will be built around the site. These will not climb or traverse steep slopes or rough ground. This reduces the speed of any surface water flow along, across or near the tracks, and reduces the need for cut and fill.

Dust

- 1.44. In dry conditions a significant amount of dust can be caused by construction sites, principally due to the disturbance of dry ground.
- 1.45. Much of the site will not be subject to surface disturbance. For example, the solar panel framework supported on shallow piles can be driven into grassed land and has a 'pin-point' presence on the ground itself. The grass surface has already been established on site and this will reduce the risk of dust.
- 1.46. Good practice measures will be adopted at the construction site to control the generation and dispersion of dust such that significant impacts on neighbouring receptors and habitats are minimised. The hierarchy for mitigation will be prevention, suppression, then containment.

Overhead Lines

- 1.47. There are two overhead electrical lines on the site, indicated on the accompanying drawings.
- 1.48. Height marker barriers (height restriction 'goalposts') will be used on site around these areas to prevent high vehicles going beneath these lines.

⁶ GPP 5: Works and maintenance in or near water , especially Section 2 – Silt, SEPA's template letter for windfarm EIA scoping responses, SEPA's Good Practise Guide to River Crossings, NatureScot. 'Constructed tracks in the Scottish Uplands', Guidance. September 2015.

⁷ GPP 5, Works and maintenance in or near water, page 9. & Paragraph 2.1 of SEPA's template letter for windfarm EIA scoping responses.

Emergency Procedures

- 1.49. In the unlikely event that an emergency environmental event occurs an adequate response will reduce the likelihood of the event persisting or escalating and mitigate the overall impact.
- 1.50. The Principal Contractor will have a nominated site manager who will be responsible for dealing with any emergency that may occur.
- 1.51. A list of emergency contact numbers will be pinned to the site office notice board.
- 1.52. Any emergency should be recorded on an incident report. In the unlikely event of a major pollution incident, the incident will be reported via the relevant online reporting portal and by phone to the local SEPA office:

SEPA Environmental Event Reporting Portal

<https://www2.sepa.org.uk/EnvironmentalEvents>

Local SEPA office

Law House

Todd Campus

West of Scotland Science Park

Maryhill Road

Glasgow

G20 0XA

Tel: 0141 945 6350

Summary and Conclusions

- 1.53. An existing road access at the southern end of the site will be used as the main construction entrance. There is also an existing road access in the north. Improvements will be made to the southern access.
- 1.54. A delivery route along nearby public roads has been identified which is suitable for rigid and articulated HGVs. A total of 704 two-way deliveries are expected over the 6-month construction period. Deliveries are expected to peak at 7 per day. The operational phase will produce very few vehicle movements.
- 1.55. As with many construction projects, worst-case poor construction practices could cause adverse environmental effects, but construction methods and management practices for the reduction of environmental risks have been set out and these form the starting point for a responsible construction process.
- 1.56. The site characteristics do not themselves raise notable or unusual environmental concerns associated with the construction phase.
- 1.57. It can be concluded that the proposed Inchinnan Solar Park can be built without the construction process causing adverse effects on the environment.