

Case study

360MW 2-hour Battery Energy Storage System (BESS)

Alan Wood & Partners were appointed to deliver civil engineering design services for a new 360MW Battery Energy Storage System (BESS) and associated 400kV substation in Staythorpe, Nottinghamshire (currently under construction). Working in collaboration with Mitie Power & Grid, the project required a resilient design to meet operational demands and environmental challenges. Our team provided a comprehensive solution, ensuring the infrastructure supported this large-scale energy facility while addressing site-specific flood risk concerns and requirement for compensation storage modelling.

Scope of Work

- **Flood Compensation Storage Modelling:** Developed to offset floodplain impacts and maintain compliance with regulatory requirements.
- **Drainage Design:** Engineered surface water drainage networks to manage runoff effectively and prevent localised flooding.
- **Earthworks & Platform Design:** Formation of BESS and substation platforms, optimised for cost-effective earthworks while meeting key flood risk requirements.

Challenges

- Designing for flood resilience while maintaining cost efficiency.
- Managing settlement risks for heavy battery and transformer installations.
- Integrating access and drainage solutions within a constrained site layout.

The project delivered a robust, flood-resilient platform and infrastructure capable of supporting a 360MW energy storage facility, ensuring compliance with standards and long-term operational reliability



Location:
Staythorpe,
Nottinghamshire



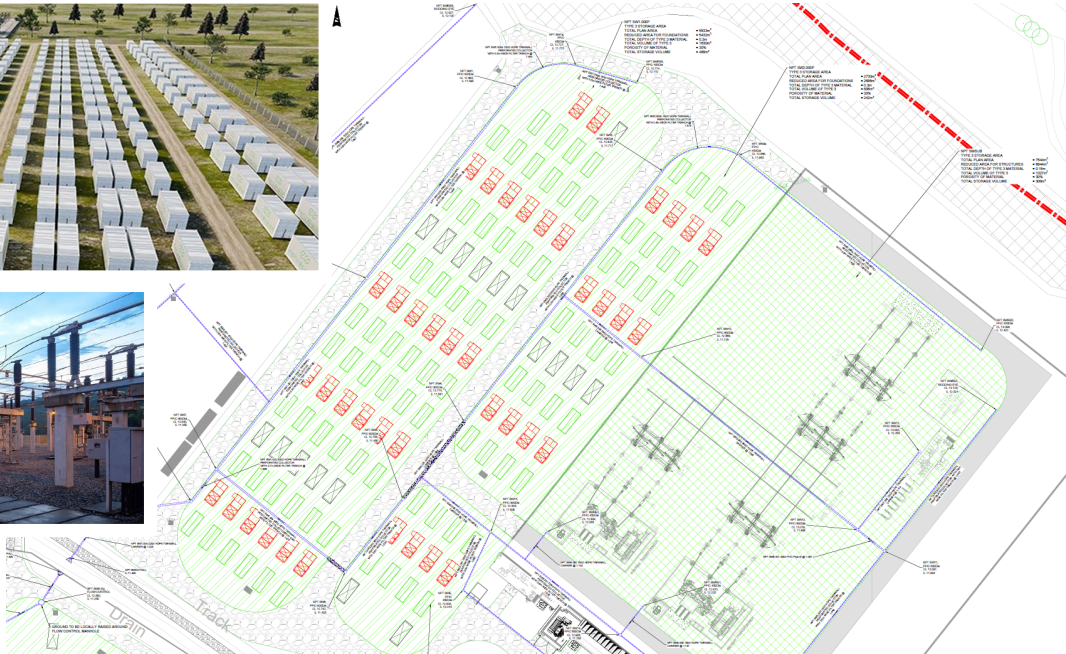
Client:
Elements Green



Architect:
Mitie Power & Grid



Value:
£75m



Civil
Engineering

Engineer/
Manage/
Deliver/