



Real-time compaction on a former landfill site

West Midlands

Client: Countryside Partnerships

Site area: 2.7ha

Timeframe: 16 weeks

Challenge

Our housebuilder client planned to regenerate this 2.7ha former landfill site and create approx. 80 much-needed new homes.

However, the combination of impacted made ground, potential settlement issues, mine workings, and a site that was surrounded by residential properties, raised multiple challenges.

We needed to find a solution that would tackle geotechnical issues, while minimising both disturbance to the landfill and disruption to local people.

Solution

Our team managed a site wide in-depth investigation, including trial pitting. We pre-classified materials chemically and physically before works began, maximising potential for re-use on site.

This also allowed us to advance discussions with regulators, including the Environment Agency and Environmental Health.

We set site levels to minimise disruption to the landfill and complement the foundation solution. Our team agreed an innovative Rapid Impact Compaction method with regulators, which would remove latent settlement issues and reduce need to excavate and transport landfill material to offsite disposal locations.

Rapid Impact Compaction is a safe, accurate, and controlled method. A hydraulic hammer repeatedly strikes an impact plate at rates of 40-80 blows per minute, compacting loose, granular soils to a depth of up to 5m.

This is a highly efficient way to compact the ground. It provides an alternative to excavation and re-compaction/replacement of the existing made ground, and/or any follow-on surcharging mounds to induce settlement.

We put measures in place to isolate the site and prevent excess vibrations from travelling beyond the boundary. Vibration, air, dust, and noise were monitored in real-time using our multi-functional environmental base stations.

Our team kept residents and stakeholders informed about the project through public evening meetings, which took place before and during the works.

RESULTS

- Completed project on time and on budget
- Minimised disruption to the landfill through Rapid Impact Compaction
- Produced real-time compaction data for the client
- Minimised disruption to the local road network
- Diverted 36,000m³ material from landfill, avoiding 4,000 HGV movements in the local area
- Engaged regularly with local residents