

Winchburgh, West Lothian, — Block 'L' Mine Workings Consolidation

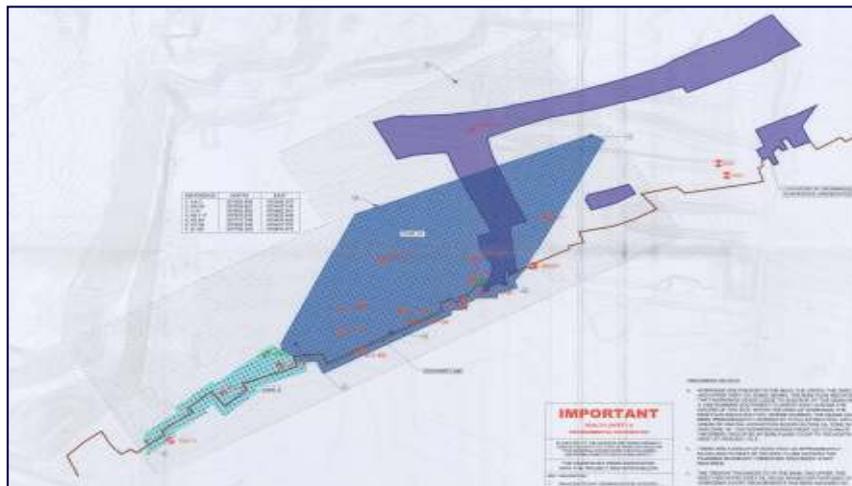
Project Profile

Client: Winchburgh
Developments Limited

Designer: SWECO

Date: Jan 2020—August 2020

Value: £1.3m



The contract was undertaken to treat multiple shallow Oil Shale workings beneath a large development site in Winchburgh, West Lothian. 3G sports pitches will be installed in this area of the development site which will form part of a new campus to be shared by three school developments. Treatment designs, specifications and drilling grids were developed by SWECO and were based on treating the affected site areas by completing a 3.5m drilling and grouting treatment grid. SWECO also supervised the site works.

In summary the mine workings treatment work included;

- 2,050 boreholes drilled (35,800 metres of drilling)
- 13,501 tonnes of grout (8:4:1 PFA:SAND:OPC)
- A number of test holes were completed to validate treatment
- During the workload peak, up to 10 drilling rigs were resourced to site together with a large grout mixing set up requiring a maximum of 30 personnel.
- All drilling and grouting plant and equipment was resourced from our specialist in-house plant fleet.
- Holes were drilled with 101mm OD rotary percussive steel casing drilled and sealed into rockhead followed by drilling a 75mm open hole to allow for tremmie insertion and grout injection.
- Air flush was used due to the time of year (i.e. winter months, so frequent freezing temperatures), difficult ground conditions and nearby water courses



Some inclined drilling was required to treat areas below haul roads utilised by I & H Brown during their earthworks. Specialist Casagrande C6 geotechnical drilling rigs with versatile kinematics were utilised for more difficult drilling angles as they are capable of angles up to 55 degrees

Grout was mixed using a Bellmix continuous mixer which was capable of mixing up to 450 tonnes of grout per day with cement fed from a 30 ton horizontal silo. Grout was continually monitored and tested for quality control.

A largescale earthworks project was undertaken concurrently by I & H Brown and we worked together with I & H Brown to ensure zones of working were kept separate and safety remained a priority at all times. We also worked closely with SEPA, producing risk assessments and grouting methods to ensure the works adhered to BRE509 Stabilising Mine Workings with PFA Grouts - Environmental Code of Practice.

The site works were impacted by the COVID-19 pandemic with the site shut down between March and June, in line with Scottish government guidelines. Once guidelines were lifted, we restarted the site quickly and efficiently with extra safety measures implemented such as permanent on-site cleaners and extra site cabins to allow for social distancing.