

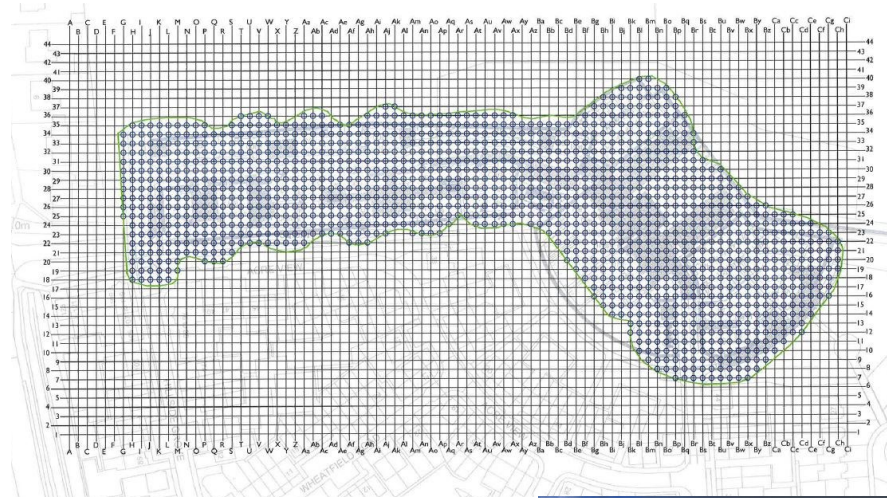
# The Drum Phase 6, Bo'ness, South Queensferry

## Project Profile

**Client:** Stuart Milne Homes

**Designer:** Mason Evans

**Value:** £500K



This scheme was undertaken to infill the 'Red' coal seam, at 22-28m depth, over the entire development area (as shown on the grid layout plan above) and to treat one located mineshaft which was around 70m deep. Overlying superficial deposits were up to 20m deep requiring the use of specialist geotechnical rigs and drilling techniques. 5 drilling rigs were resourced to site.

Water flush drilling used due to the close proximity of neighbouring properties however as the site was significantly higher than the surrounding area, great care was taken to ensure that there was no surface water run-off from the site which would impact adjacent properties and a surface water drainage control system comprising perimeter ditches, sumps, overpumping and settlement ponds was installed to ensure removal of suspended solids prior to re-use of the collected water or controlled discharge.

The site compound (welfare, accommodation, parking) with grout materials storage and mixing plant area was set up in the North West corner of the site to minimise any noise and dust disturbance to the neighbouring properties and residents.

Treatment grids were serviced with; water feed, drill flush return and grout pipelines from the compound. The single compound allows full control over grout materials deliveries, storage, mixing and quality control.

- 1100 boreholes drilled (31,000m of drilling) on a 3.5m treatment grid
- 2,800t of grout mixed and placed (8:4:1 PFA: SAND:OPC)
- 70m deep shaft drilled with C6 rotary drilling rig working from a 12m long steel framed drilling platform, 240t grout injected (7:2:1 mix)
- Grout holes were drilled with 101mm OD rotary percussive steel casing drilled and sealed into rockhead followed by drilling a 75mm open hole allowing insertion of a 50mm MDPE grout tremmie pipe.
- Water flush was piped to drilling rigs via a delivery main along the treatment areas. The rigs are also equipped with on board water pumps to ensure optimum hole flushing.
- Grout was mixed in a 50m<sup>3</sup>/hr continuous mixer, held in an agitators and pumped directly to treatment area grout holes
- Continuous monitoring and recording of injected grout quantity and pressure was carried out together with extensive quality control and testing of mixed grout.

