

## NEW TESCO STORE - QUEENSBURY

### SITE:

Brighthouse Road, Queensbury, Bradford



### CONTRACT SUM:

£ 0.5 M

The project involved the construction of a new Format F20 retail superstore, together with associated access, car parking, landscaping, ancillary plant and equipment for Tesco Stores Ltd at Queensbury, Bradford. Extensive sewer diversions and on site storage of surface water (in the form of underground tanks) was required for the proposed development.

The site is approximately 1.2ha in area.

Green Remediation Ltd were contracted to achieve the development levels via a cut and fill operation, and to remediate that part of the site that was contaminated as a result of its former use as a gasworks. The programme for these works was 10 weeks.

Green Remediation Ltd were responsible for:

- Initial site clearance, disposal off site of any unsuitable materials arising from this operation
- The breaking out of all artificially hard materials present at surface and crushing for reuse under the store footprint as 6F2 graded materials.
- The bulk excavation and placement of materials to achieve the designed remediated levels to form the development platform.
- Cut and Fill operation to leave the site at 400mm below the development level.
- The removal of all made ground to its full depth, along with any obstructions beneath the footprint of the new store, and replaced with granular material suitable for vibro compaction ground improvement. All oversize artificially hard material removed during excavation was crushed to a 6F2 grading for reuse on site.
- The treatment on site of hydrocarbon impacted soils, to the former gasworks area of the site.
- A CBR of 5% was provided on the remediated surface beneath the footprint of the new access road and all proposed hard surfaced areas of the development.
- Cut/Fill operation 11,500m<sup>3</sup>

### Project Particulars

1. Careful collection of surface soils that contained fragments of asbestos cement materials (ACMs). As the material was geotechnically unsuitable as a structural fill the material was removed off site and disposed of at an appropriate facility.



2. Vegetation and topsoil strip. This material was geotechnically unsuitable as a structural fill for reuse beneath proposed development areas and was removed from site.
3. Excavation of the predominantly made ground. This area comprised tarmac, concrete and stone at surface which was excavated together with the underlying granular made ground identified as containing ash, brick, gravels etc. Made ground depth approximately 1m and excavation taken down to expose the natural clay or the sandstone bedrock. Relict structures/foundations relating to the former gasworks were also encountered and broken out as part. Hydrocarbons and tars (initially identified by visual and olfactory evidence) that were present and any impacted materials segregated and temporarily stockpiled in a bunded area on hardstanding. All oversize (>125mm) artificially hard and chemically clean materials separated out and temporarily stockpiled on site for crushing. Remaining granular materials temporarily stockpiled on site for subsequent loose placement beneath the proposed store footprint for subsequent ground improvement by the introduction of vibrated stone filled columns.
4. Excavation of the cohesive (clay) made ground and cohesive (clay) natural subsoil for placing in compacted layers beneath proposed service yard, access road and car parking areas. A minimum CBR of 5% had to be achieved for subsequent pavement construction. Excess material from this excavation operation disposed of offsite.
5. Excavation of the underlying sandstone to proposed formation.
6. Excavation of the granular made ground infill to the smaller of the 2 historic unfilled gas holders. Made ground was excavated to just below the level of the perched water and temporarily stockpiled for sorting and reuse. Perched water pumped out and discharged to foul sewer under a temporary discharge consent obtained from Yorkshire Water. Internal walls of the gasholder broken out to 2m below existing ground level and the infill excavated to expose puddle clay base (approximately 4m deep). Gasholder was refilled with granular materials, compacted in layers. A geogrid (SS30) and geofabric (Terram) installed across the surface of the gasholder prior to filling to formation to minimise future settlement across the retained 'high wall'.



7. Excavation of the granular made ground to infilled gasholders. Infill was excavated to puddle clay layer (at circa 5.5m deep) and the clay excavated. Gasholder upfilled with granular materials loosely placed (as located beneath store footprint) for subsequent improvement by the installation of vibrated stone filled columns.
8. The treatment on site of hydrocarbon/ tar impacted soils removed during the excavation.
9. Crushing of all clean artificially (and natural) hard materials obtained from excavations to a 6F2 grading for reuse as granular bulk fill. The prime use of the granular fill was for vibro improvement beneath the proposed store footprint. Excess 6F2 graded material obtained used at near surface levels to achieve the minimum 5% CBR required to external pavement areas.
10. Ripping/loosening by excavation of sandstone bedrock present at shallow depth. Keller Ground Engineering requested this be undertaken to reduce the potential for differential settlement between areas of shallow and deep fill.
11. The offsite disposal of excess materials generated from all of the foregoing excavation operations to achieve the overall mass balance.

