

HARROGATE 47

Ground Improvement & Enabling Earthworks

VertaseFLI was appointed by Durkan & Sons Limited to carry out ground improvement and embankment construction works for a proposed link road at their site adjacent to junction 47 of the A1(M) near Harrogate, North Yorkshire. The new link road was being constructed to serve a new business park, comprising of commercial and industrial units.

CLIENT: DURKAN & SONS LTD
LOCATION: HARROGATE, NORTH YORKSHIRE
PROJECT VALUE: £260K
DURATION: 6 WEEKS
SERVICES PROVIDED: TECHNICAL SUPPORT TO THE CLIENT AND DESIGNER, LIAISON WITH NORTH YORKSHIRE COUNTY COUNCIL HIGHWAYS DEPARTMENT, GROUND IMPROVEMENT WORKS IN A CHALLENGING GEOTECHNICAL ENVIRONMENT, EXCAVATION AND ONSITE MANAGEMENT OF UNSUITABLE STRATA, REINSTATEMENT OF IMPORTED AGGREGATE TO SHW600 & GEOTECHNICAL VERIFICATION, PLACEMENT OF GEOTEXTILE, CONSTRUCTION OF NOISE ATTENUATION BUND.



Site History:

The new link road was located on a thin strip of land, running between two areas of woodland. Historically, the site was largely undeveloped, although a former paintball building was present on the northern boundary. The site of the proposed business park is located on former agricultural land. Ground conditions at the site were challenging, comprising running sands and highly plastic pockets of silt up to a maximum depth of 3mbgl. Groundwater at the site is shallow (circa 0.5mbgl).

VertaseFLI Role:

VertaseFLI excavated topsoil and overburden made ground and / or natural strata to earthworks sub-formation level. The ground was assessed geotechnically, which demonstrated that earthworks sub-formation was geotechnically non-compliant with the design.

Following discussions between key stakeholders, a further 500mm was excavated. Any soft spots in the

new sub-formation level were excavated to competent strata to a maximum depth of 3mbgl. Soft spots were reinstated with SHW600 Class 6C materials, after which, Lowtrack Base geotextile was placed.

Levels were constructed to the original earthworks sub-formation level with class 6C material. Tensar TX160-G geogrid was placed over this.

Finally, the embankment was constructed using imported Class 1A general fill to highway sub-formation level, ready for placement of capping by the client.

All site-won materials were reused on site to construct noise attenuation bunds along the A1(M) for the new business park.

VertaseFLI works were geotechnically verified in situ to both the client's and North Yorkshire County Councils Highways Department's satisfaction, through SRD and CBR tests.



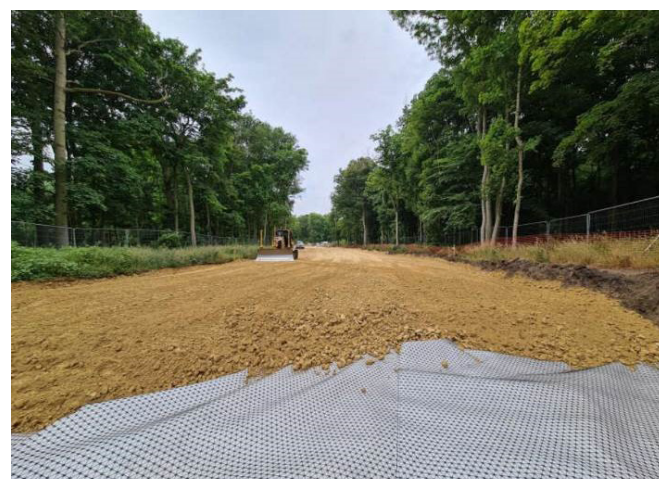
EXCAVATION OF SOFT SPOTS WHERE EARTHWORKS SUB-FORMATION UNSUITABLE FOR CONSTRUCTION



SOFT SPOTS EXCAVATED AND REPLACED WITH 6C IN ACCORDANCE WITH THE DESIGN



PLACEMENT OF GEOTEXTILE SEPARATOR LAYER OVER EARTHWORKS SUB-FORMATION LAYER FOLLOWED BY CLASS 6C MATERIALS



PLACEMENT OF TENSAR TX160-G OVER CLASS 6C MATERIALS AND PLACEMENT OF GENERAL FILL IN ACCORDANCE WITH SHW600



COMPLETED PRODUCT – TOP OF CAPPING LAYER



EARTHWORKS VALIDATED IN SITU BY SRD AND CBR TESTS