

Walsall Arboretum Slope Stabilisation

Client: Willmott Dixon/Walsall Council

Designer: URS

Date: April—July 2014

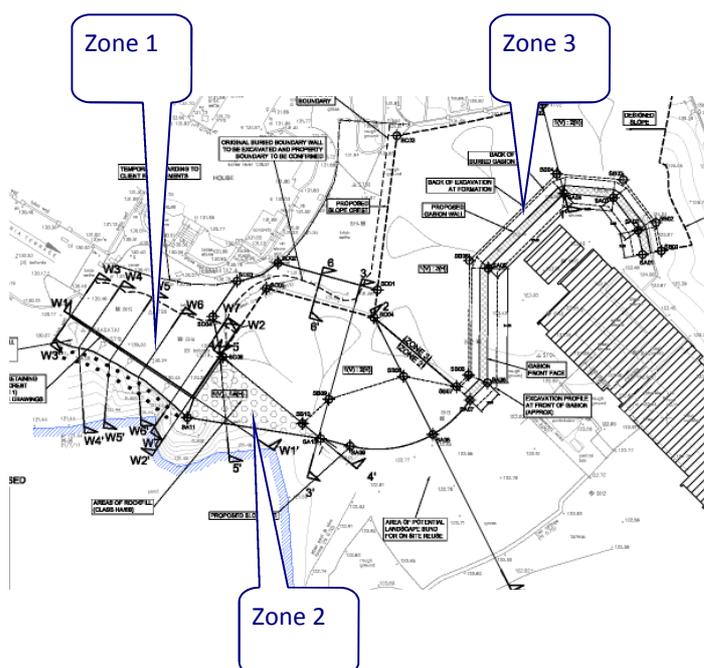
Value: £560k

The Arboretum and its lakes used to be Limestone quarries and now collapsed Limestone mines. In 2010 Walsall Council secured funding for a £7.6million restoration programme in the historic core area of the Arboretum park. The fifth and final phase to build a new £2.3million visitor centre was awarded to Willmott Dixon for completion late 2014. Willmott Dixon subsequently awarded Forkers the contract to undertake the embankment stabilisation and retaining wall replacement work to a dilapidated corner of the park, then used as a storage compound, which was to be the site of the new visitor centre.

This section of the Arboretum is overlooked by Victorian terraced housing and one of the owners had over a period of several years increased the area their property by forming a makeshift, unstable retaining wall structure which was retaining a 9m high embankment rising above the lower Arboretum level. The stability of the embankment was further compromised by the presence of a deep, steep sided lake at the base of this embankment.

Our contract was split into 3 zones (as detailed below in the order they were completed) and phased with the Visitor Centre construction to ensure we were able to maintain a ramped access in zone 2 from the site compound to avoid using the un-adopted narrow stone road in serving the adjacent Victorian Terraced Houses which would have resulted in disruption to the Residents and/or damage to the road.

- **Zone 3**
 - ◇ Remove loose material and vegetation from the NE side of the embankment and create a compacted 6N foundation for the 44 lin m of gabion basket wall at the new embankment toe.
 - ◇ Compact imported 1A material in layers stepping into existing virgin material to form stable 1:2 batter 9m high.
 - ◇ Demolish boundary wall and private out buildings to construct 33 lin m of new brickwork wall and pillars.
 - ◇ Place topsoil to the new slope profile with biodegradable erosion control matting (1,000m²)



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- Zone 1

- ◇ Clear existing surface hard standing and brick walls built by the property owner.
- ◇ Excavate behind the existing makeshift reinforced concrete, gabion basket and timber retaining walls in 1m layers to create a working platform and a safe batter to the house frontage.
- ◇ From this platform install 23nr x 6m long grouted ground anchors to ensure the stability of the underlying weathered limestone below the foundation of a new modular block retaining wall.
- ◇ Provide anchor head plates, slope mesh and erosion control matting to the new slope surface as far as the lake edge.
- ◇ A pontoon, silt curtain, scaffold hand railing and timber walkways were installed at the waters edge for safe access and pollution control.
- ◇ Complete demolition of the lowest section of makeshift retaining wall to construct a 3m wide reinforced concrete foundation for the new modular retaining wall.
- ◇ Place 155 blocks to form 91m² x 4.5m high modular retaining wall, backfilling with class 1A material in layers to maintain access and also provide drainage to back of the new wall with gravel & 150mm perforated pipe.
- ◇ Surface finishing works to recreate house frontage to the legal boundaries including rebuilding the brick wall, gate and railing entrance, installing kerbs, ACO drainage and paladin fence to the remaining boundary.

- Zone 2

- ◇ Benched the excavated face above the lake to the south side of the new retaining wall and place 600t of 6B graded rock to a to form a 1:1.25 batter.
- ◇ Blind with 6N and remove access ramp creating 1:2 batter to new profile.
- ◇ Install outfall drainage pipework from the drainage layer at the rear of the retaining wall and also new surface water drainage
- ◇ Place 150mm topsoil and erosion control matting to 600m² of newly created safe slope.

