

## Blackhill Quarry - Summary of Key Elements

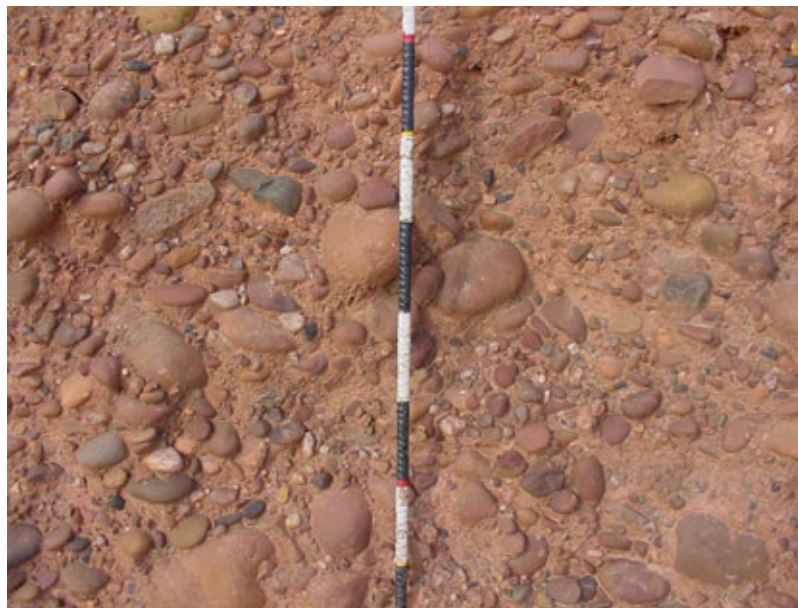
<b>Location:</b>	About 3 Km NNE of Exmouth, East Devon.
<b>Operated by:</b>	Bardon Aggregates, a subsidiary company of Aggregate Industries
<b>O.S. Grid Ref:</b>	SY 029 858 (quarry office)
<b>O.S. Map Nos:</b>	1:25 000 Explorer Sheet 115, Exmouth & Sidmouth 1:50 000 Landranger Sheet 192 Exeter & Sidmouth.
<b>BGS Map No:</b>	1:50 000 Sheet 325, Exeter and Sheet 339, Newton Abbot.
<b>Status:</b>	Is wholly within an area of Outstanding Natural Beauty (AONB). Is wholly within a County Wildlife Site (CWS). Is partly within and surrounded by a Site of Special Scientific Interest (SSSI). Is partly within and surrounded by a Special protection area (SPA). Is partly within and surrounded by a Candidate Special Area of Conservation (cSAC)
<b>General Geology:</b>	Red-brown fluvial conglomerates and finer sediments of the Budleigh Salterton Pebble Beds Formation (BSPBF), basal member of the Sherwood Sandstone Group of Triassic age about 240 to 230 million years old. The beds dip gently to the east at around 3° and rest on the Littleham Mudstone.
<b>Geodiversity Highlights:</b>	<ul style="list-style-type: none"> <li>• About <a href="#">30m thickness</a> of unconsolidated conglomerates with beds of sand and silty and clayey sand.</li> <li>• <a href="#">Well rounded pebbles</a>, cobbles and occasional boulders, predominantly quartzite with minor proportions of vein quartz and quartz tourmaline rocks.</li> <li>• Abundant <a href="#">sedimentary structures</a> associated with fluvial deposits including cross bedding and washout structures.</li> <li>• Near-surface <a href="#">periglacial</a> features.</li> <li>• Surface glacial <a href="#">outwash gravels</a>.</li> <li>• Quarry faces stand at <a href="#">steep angles</a>.</li> </ul>
<b>Geodiversity Context:</b>	<ul style="list-style-type: none"> <li>• Outcrop of the BSPBF extends south-north across Devon from coast to coast.</li> <li>• Extensive river deposit with quartzite clasts originating mainly from the south as a result of erosion and braided fluvial transport into a large piedmont flood plain in a semi-arid climate.</li> <li>• The quartzite pebbles occasionally contain shelly fossils which have been matched with closely similar rocks of Ordovician age in northern France.</li> <li>• The top surface of the BSPBF represents a desert pavement, which was exposed to wind blown sand erosion. This created faceted ventifacts on exposed pebbles prior to being covered by fluvial and aeolian sands of the Otter Sandstone Formation.</li> <li>• Reworking of near surface BSPBF in the Pleistocene by glacial meltwaters incorporating flints originating from the Chalk into the top of the deposit.</li> </ul>

**Loc 03 Pit 4 Bedding and Red Colouration*****Grid Ref SY 03006 85323******Photo BL03a******Facing SSE***

Pit 4 at Blackhill Quarry. Photo shows red, brown fluvial conglomerates of the Budleigh Salterton Pebble Bed Formation (BSPBF), formed in the Triassic about 240 million years ago by a large braided river system flowing into a large piedmont flood plain. The pit is currently used for clean water storage. Note Steepness of faces despite the deposit being relatively uncemented. The bedding is planar and persistent in nature.

**Loc 07 BSPF Ridge*****Grid Ref SY 02930 85253******Photo BL07a******Facing N***

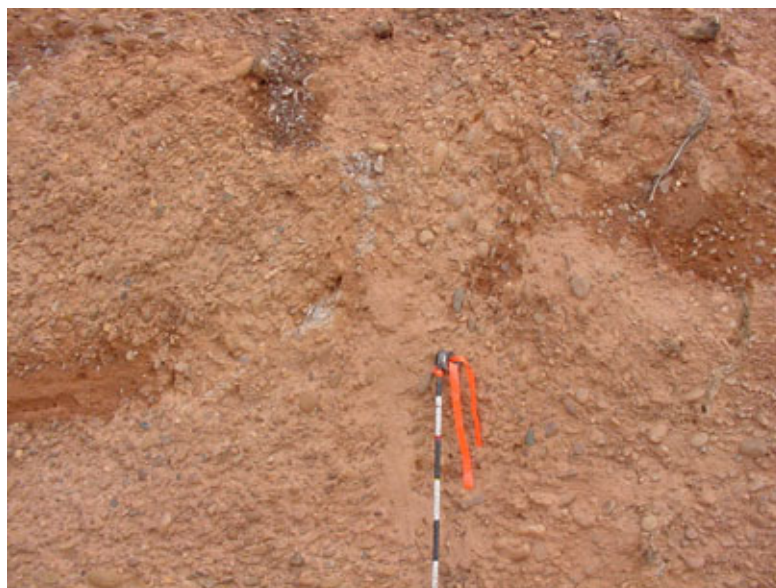
The BSPBF forms a topographic ridge that trends northwards towards Woodbury Castle in the background. (wooded area)

**Loc 09 BSPF Bedding detail****Grid Ref SY 03465 85259****Photo BL09b****Facing NW**

The BSPBF comprises reddish brown, poorly sorted, well rounded quartzite, vein quartz, sandstone and tourmaline gravel in a sandy matrix. The deposit is generally relatively uncemented although some iron cementation occurs towards the base of the deposit.

**Loc 12 Bedding Structures****Grid Ref SY 03673 85281****Photo BL12a****Facing NW**

Photo shows a thick persistent bed of sand 1.10 metres thick with internal cross bedding features picked out by coarser clasts. The base of the sand horizon is gradational displaying fining upwards. The top in contrast is in sharp contact with the overlying gravels. These features are typical of sedimentary structures associated with fluvial deposits.

**Loc 13 Periglacial Feature****Grid Ref SY 03615 85306****Photo BL13d****Facing NE**

Small periglacial feature showing folding of beds into a sub vertical position. This occurred in the Pleistocene during the last ice age as a result of ice and frost heave. Note how some of the pebbles are aligned to the near vertical.

**Loc 13 Glacial Terrace Gravel Deposit****Grid Ref SY 03615 85306****Photo BL13b****Facing NE**

The photo shows detail of a glacial terrace deposit. The bulk of the deposit comprises re-worked material from the BSPBF and looks similar to photo **BL09b** above. However, the pale coloured angular clasts seen in the photo are flints eroded from the Chalk Formation that is Cretaceous in age. Note that the Chalk formed some 100 million years after the BSPBF. The flints became mixed in with the re-worked BSPBF deposit during the Pleistocene probably as the result of glacial melt water action in the ice age.