Sand and gravel resources, Sheet 67 Stonehaven, Cainozoic of north-east Scotland

From Earthwise
Jump to navigation Jump to search

Merritt, J W, Auton, C A, Connell, E R, Hall, A M, and Peacock, J D. 2003. Cainozoic geology and landscape evolution of north-east Scotland. Memoir of the British Geological Survey, sheets 66E, 67, 76E, 77, 86E, 87W, 87E, 95, 96W, 96E and 97 (Scotland). Contributors: J F Aitken, D F Ball, D Gould, J D Hansom, R Holmes, R M W Musson and M A Paul.
□

Contents

Sheet 67 Stonehaven

Glacial and glaciofluvial features and the distribution of glacigenic deposits on Sheet 67 Stonehaven. P915381.

Limited spreads of sand and gravel occur on Sheet 67 (P915381), but their proximity to good road links with the expanding Aberdeen market, has led to exploitation of much of the more attractive material. Most of the resources from Stonehaven northwards, including those in the lower reaches of the valleys of the Cowie Water and Carron Water, were evaluated as part of Mineral Assessment Report 148; most of those in the south were included in MAR 149. The deposits in the Dee valley, were included in MAR 146. The sands and gravels that crop out around Inverbervie have not been

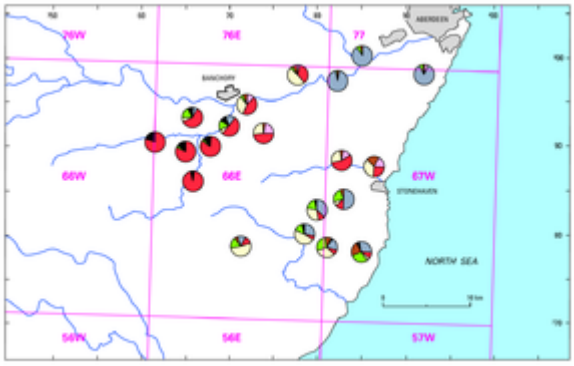
assessed in detail, but they are described in Carroll (1995b).

Apart from discontinuous terraced spreads in the valleys of the Cowie Water and the River Dee, most of the workable glaciofluvial deposits occur as isolated groups of mounds and ridges on the interfluves. Many of the Lower Devonian conglomerates which crop out to the south of Stonehaven are disaggregated to at least 5 m depth and form resources of cobble and boulder gravel. In places, the exposed conglomerates have been worked for use as fill, but extensive resources remain at the surface and beneath a thin overburden of till, which itself is very gravelly. Only minor discontinuous resources of coarse aggregate are present within the moundy glacial deposits in the northern half of the sheet.

Most of the thickest deposits of the sand and gravel in the valley of the Cowie Water are sterilised by urban development or are worked out. However, significant resources lying above the water table, do occur within fragmentary glaciofluvial terraces upstream of Ury House (NO 859 877) and in the moundy glaciofluvial deposits near Bogheadly (NO 812 888). Thick, but laterally impersistent, resources of gravel and sand are also present as isolated mounds and flat-topped spreads on both sides of the boundary between the Mearns and East Grampian drift groups, to the north of Stonehaven. Within the Mearns Drift Group, upward-coarsening sequences of sand and fine-grained gravel, up to 12.4 m thick, have been recorded in boreholes on the flanks of the Burn of Ury. Similar deposits have been worked to depths of up to 8 m in a pit near Cantlayhills (NO 881 905). Boulder gravel forming a glaciofluvial fan at the eastern end of a glacial drainage channel has also been worked in a pit near Logie (NO 886 888), its proximity to the A92 trunk road more than compensating for the large numbers of oversize clasts within the deposit.

Most of the spreads of glaciofluvial sand and gravel on the sides of the valley of the Carron Water contain less coarse aggregate than similar spreads in the valley of the Cowie Water. The former average 7.9 m in thickness and again typically form coarsening-upward sequences, separated by waste partings of reddish brown silt and clay. The deposits generally grade as fine sand and pebbly sand. Some of the larger spreads have been built on and a few of the remainder have been worked, notably at Braehead (NO 873 852) and north of Kirkton of Fetteresso (NO 853 857).

The most extensive spread of glaciofluvial sand and gravel in the southern part of Sheet 67 forms undulating topography between Denhead (NO 865 795) and Temple (NO 852 765). The sand and gravel, up to 12.8 m thick, typically coarsens upwards and ranges in grade from sand to sandy gravel. Around Temple, at the southern end of the mapped spread, much of the workable sand and gravel appears to be formed of glacially transported conglomeratic material rather than outwash. The change from one type of deposit to the other is difficult to map with certainty. Other sand and gravel deposits of note occur near Dunnottar Mains Criggie (NO 875 838), Lindsayfield (NO 820 844), Briggs of Criggie (NO 843 824), Catterline (NO 879 782), Nether Craighill (NO 807 774), Largie (NO 835 760) and Pitcarry (NO 831 741); significant resources have been sterilised within the Inverbervie built up area.



Composition of workable gravel deposits
south of Aberdeen. P915336.

Clasts of granitic and psammitic rocks predominate within the terraced and moundy deposits in the valleys of the Dee and the Cowie Water (P915336). Almost all of the other gravels on Sheet 67 belong to the Drumlithie Sand and Gravel Formation and are of similar composition to the bulk of those in the southern part of Sheet 66E. However, they do contain a significantly larger proportion of nondurable clasts, mainly of mudstone, decomposed sandstone, and andesitic volcanic rocks. In general, the workable deposits within the valleys of the Cowie Water and Dee appear to be suitable for most end uses. The potentially workable deposits within the Drumlithie Sand and Gravel Formation are more variable. For example, the deposits on the flanks of the Burn of Ury and at Cantlayhills appear attractive sources of coarse and fine aggregate, whereas the boulder gravel near Logie is mainly suitable for coarse aggregate for asphalt and concrete. The deposits on the flanks of the Carron Water, are primarily attractive sources of fine sand for asphalt, plastering and mortar.

References

Full reference list

Category:

- Grampian Highlands

Navigation menu

Personal tools

- Not logged in
- Talk
- Contributions
- Log in
- Request account

Namespaces

- Page
- Discussion

□

Variants

Views

- Read
- Edit

- View history
- PDF Export

□

More

Search

Search Go

Navigation

- Main page
- Recent changes
- Random page
- Help about MediaWiki

Tools

- What links here
- Related changes
- Special pages
- Permanent link
- Page information
- Cite this page
- Browse properties

- This page was last modified on 31 January 2018, at 16:47.

- Privacy policy
- About Earthwise
- Disclaimers
-
-