

COMPUTING

Computerised borehole data system

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Those engaged in geo-technical engineering realise that boreholes ultimately form the only record of ground conditions encountered at a site. Later development often produces ground level changes or may even alter the state and condition of the soil so that it is not always possible to carry out further investigation to check the reliance of the original records. The importance of borehole records cannot therefore be underestimated and as the keystone to most discussions extreme care and attention should always be exercised in their compilation and checking.

It is equally important therefore that the quality and production of records should match their importance. They can however take a very long time to produce. Whether draughted by hand or typed, considerable time is required to order the data and produce initial drafts before any checking and subsequent corrections are made. It is generally not feasible for non-technical staff to work direct from field sheets without producing mistakes because of the subtleties of interpretation required. It seemed obvious that this was an area in which the development of a reliable computer-based system would be worthwhile.

The Borehole Data System has been developed to provide report ready borehole records without jeopardising the technical content of the data it contains. Indeed, because the engineers involvement can reliably be reduced his productive time is increased and it is felt that the quality of the records is improved accordingly.

The System is designed to allow the input of uncontrolled raw data. This can be keyed into the computer in response to simple screen

prompts. As no layout is involved and the computer only asks for simple listings this work can be done direct from the daily drillers sheets, preliminary engineers logs or other field sheets. In fact the room for error is so small that non-typists can also rapidly input the data.

Large amounts of time are saved by the System because all repetition of data is eliminated. This means that once a job file is open information such as the clients name, site name etc is automatically inserted during printout. The use of predefined rules allows automatic numbering of the boreholes, reference numbers and sheet numbers. All samples are classified, numbered and sorted regardless of the order in which they are input.

The flexibility of the System allows additional boreholes

to be added later so that phased investigations can be accommodated. The boreholes can be screen checked, modified or printed collectively or individually.

The System is also adaptable to individual working methods. For example the editing capability allows the production of preliminary logs, perhaps based on field descriptions, which can be later modified after the engineers have logged the samples and the records simply printed out in their modified form.

The printing controls ensure that continuous typed text forming strata descriptions are printed within defined column widths while automatic "wrap around" of the text only at word ends together with the centring of the text block within the strata space maximises the

quality of presentation and subsequent ease of use. Further controls within the printing ensure that all relevant data can be included as necessary.

The power of the System is fully realised in the extension packages to the basic system. Without altering the input files or re-entering data in any way quantities can be abstracted directly from the file. These can for instance be merged directly with an invoice format. This is equally suited to large or small jobs, since the data is already dated it is an easy matter to produce interim invoices while automatically maintaining a central balance file to allow summary sheets to be produced to any period.

Once the invoices have been created, virtually at the touch of a button, the information is again stored to a ledger system. From this routine administrative functions can be controlled such as the sending of reminders, or more detailed analysis can be obtained to produce cash flow forecasts or other cost analyses. Because of the manner in which the original data is stored in the system, that is to say by date, by client, by area etc the immediate manipulative potential is very powerful and capable of producing direct and indirect savings in office and administrative functions.

The development of the system has purposely been based on the production of borehole records, a regular routine requirement to the functioning of a geotechnical practise. Its regularity of use has enabled the development costs to be more easily justified than would be the case for a less frequently used application.

A F HOWLAND ASSOCIATES										Geotechnical Borehole Log	
Method Shell & Auger						Date 1.2.84		Site		Bh. No. 2	
Diam. 150		Coord. 15535 80269		Ground Level 24.45 R.D.D.		NAME OF THE SITE					
Soil sample/test		SPT value (U100 blow)		Water and Progress		O.D. Level m		Depth m		Strata Description	
Type	Depth									Legend	
						24.25	0.20	MADE GROUND Tarmac			
						24.00	0.45	MADE GROUND Brick rubble			
						23.55	0.90	MADE GROUND Firm brown clay with traces of brick			
B 1	0.65					23.25	1.20	Orangey brown gravelly CLAY			
SPT 1	1.35	C 69									
B 3	1.75										
SPT 2	2.30	C 72									
B 4	2.75										
M 1	3.10										
SPT 3	3.30	C 68									
B 5	3.75										
SPT 4	4.30	C 28									
B 6	4.75										
SPT 5	5.30	C 23									
B 7	5.75					18.65	5.80				
B 1	5.90	(60)				18.25	6.20	Stiff brown CLAY			
D 2	6.55					17.75	6.70	Stiff dark brown fissured silty CLAY			
Borehole Complete											
Remarks Sheet 1 of 1 Chiselling required from Q. to 0.2m - 0.25hr; backfilled with cementitious grout											
Client's Name											
Lopped By SPT Scale 1:50 Orig 83.176/Bh 2											

119 on express enquiry card