

**Electronic Transfer of  
Geotechnical  
and  
Geoenvironmental Data  
AGS4  
(Edition 4.0)**

**Guidance Note**

***Stratum Descriptions (GEOL Group)***

***Stratum Detail Descriptions (DETL Group)***

***Depth Related Remarks (DREM Group)***

## ACKNOWLEDGEMENTS

This document has been prepared by the Association of Geotechnical and Geoenvironmental Specialists (AGS) with the encouragement and support of the working party members. The AGS acknowledges the generous time and resources given to the project by the individual members and their employers. Without their enthusiastic support this ongoing project would not be possible.

Comment and feedback from the wider geotechnical industry has also been fundamental to the ongoing evolution of the AGS Format, ensuring that the needs of the geotechnical and geoenvironmental industry and its clients continue to be met.

## DOCUMENT HISTORY

Revision	Description	Date
0	First Issue	1 Mar 2011

# 1 Scope

The Groups GEOL, DREM and DETL all include detailed information for inclusion on the exploratory hole log. Guidance on the use of these three Groups is given below to provide further clarity on what data content should be included within each group.

## 2 Definitions

GEOL Group	AGS4 Group	Stratum Descriptions
DETL Group	AGS4 Group	Stratum Detail Description
DREM Group	AGS4 Group	Depth Related Remark

## 3 Background

DREM allows the addition of depth related information that may have no other obvious connection to any other data Group other than the hole location and depth. DETL is slightly different in that it is an additional set of depth related remarks specifically regarding finer geological or stratigraphical details than are usually covered in the main Stratum Description GEOL Group –(which usually relate to the major Stratum units encountered).

## 4 Guidance

### 4.1 Stratum Descriptions (GEOL Group)

Group Name: GEOL - Field Geological Descriptions					
Status	Heading	Suggested Unit / Type		Description	Example
*	LOCA_ID		ID	Location identifier	327-16A
*	GEOL_TOP	m	2DP	Depth to the top of stratum	16.21
*	GEOL_BASE	m	2DP	Depth to the base of description	17.25
	GEOL_DESC		X	General description of stratum	Stiff grey silty CLAY
	GEOL_LEG		PA	Legend code	102
	GEOL_GEO1		PA	Geology code	LC
	GEOL_GEO2		PA	Second geology code	SAND
	GEOL_STAT		X	Stratum reference shown on trial pit or traverse sketch	1
	GEOL_BGS		PA	BGS Lexicon code	CHAM
	GEOL_FORM		X	Geological formation or stratum name	Charmouth Mudstone Formation
	FILE_FSET		X	Associated file reference	FS4

- GEOL is used to transfer the field descriptions of geological materials and if required the geological unit and lithology code.

- GEOL\_DESC is the full description as required by EN ISO 14688-1 and 14689-1, and as described in the guidance document BS5930:1999 (amendment 2). This document also states that the geological unit may also be named. Typically, this information is presented as part of the exploratory borehole, pit or exposure log at the end of stratum description (normally in brackets). If this is required, this data is not included in GEOL\_DESC but transferred to an additional heading GEOL\_FORM. Weathering grades, if required, are included in the WETH group.

- GEOL\_GEO1 and GEOL\_GEO2 can contain codes that are defined by the investigation supervisor, designer, consultant or client and may be an organisation or project based classification of the strata. In many cases the codes are consistent within large projects with a number of contractors and between projects within an area. The inclusion of the codification by a ground investigation contractor and provision in the AGS format data files has to be specified in full in the investigation specification as codification is typically not a requirement of investigation standards. All abbreviation codes must be defined in the ABBR Group.

- A suggested use of GEOL\_GEO1 and GEOL\_GEO2 codes is as follows:

a) The geology code GEOL\_GEOL may be used as an abbreviation for the Geological Unit Name of each geological unit to the detail practical and required by the project, for example:

THAM as an abbreviation for the Thames Group

HWH as an abbreviation for the Harwich Formation

BLB as an abbreviation for the Blackheath Member

In some cases it may be important to break units down even further so the code reflects a unit of the same engineering characteristics. This may be done, for instance, for anthropogenic deposits containing industrial waste such as paper, pottery or chemical waste. In this case informal codes may be required for instance:

PAP as an abbreviation for INFILLED GROUND primarily of paper.

User defined abbreviations or standard nation abbreviations may be used. For instance the primary source of abbreviations in the UK is the British Geological Survey (BGS, see GEOL\_BGS).

b) The second geology code GEOL\_GEO2 can be used as an abbreviation of the lithology or material type for each stratum. It is recommended that, as the data is increasingly used in spreadsheets and databases and used in searches, the principal lithology or material type is given first followed by the next most important lithology and so on. For example:

CS for Sandy CLAY  
BA for Basalt

It is essential that a single code does not have two lithology types for instance using GR for granite and gravel.

The BGS classification system for engineering soils (<http://nora.nerc.ac.uk/9179/>) could be a suitable classification.

- The stratum code GEOL\_STAT may be used as a reference letter or number of each stratum on an exploratory location log. Its sole purpose is to link the stratum to the stratum description given elsewhere on other logs. GEOL\_STAT is usually just the numbers 1, 2, 3 etc or the letters A, B, C etc. GEOL\_STAT is most commonly used to link a face sketch of a trial pit to a stratum description given elsewhere on the log.

- GEOL\_STAT also appears in the SAMP Group and several of the in situ testing Groups so that it is possible to indicate which stratum on a trial pit face a sample was taken from, or an in situ test carried out in.

- In the UK, GEOL\_BGS can be included, if required, and contains the abbreviations for the geological unit as used by the BGS. They can be found on 1:50 000 and 1:10 000 scale geological maps and digital maps, in geological memoirs, sheet explanations and sheet description, and in the BGS lexicon available from the BGS website (<http://www.bgs.ac.uk/Lexicon/home.cfm>). Obsolete names are discouraged as they complicate and increase the number of codes used, for instance the Tarporely Siltstone Formation (TPSF) has a number of previous names including Keuper Waterstones (KW) and Sneinton Formation (SNT). For more information on geological unit names there are a series of Stratigraphical framework reports also available from the BGS website (<http://www.bgs.ac.uk/downloads/browse.cfm?sec=1&cat=2>). A hierarchy for Anthropogenic deposits are described within the BGS Rock Classification Scheme volume 4 Superficial (<http://www.bgs.ac.uk/downloads/browse.cfm?sec=1&cat=1>). It includes sub units of INFILLED GROUND (WMGR) and MADE GROUND (MGR) such as LANDFILL WASTE (MWLA).

- In the UK there is a link between GEOL\_FORM and GEOL\_BGS, however, one is a code (GEOL\_BGS) and one is a full name (GEOL\_FORM). Also, GEOL\_FORM will include names of strata that do not have BGS Lexicon codes; they may be local unit names for smaller units than the geological formation or member mapped, or more specific anthropogenic deposits.

## 4.2 Stratum Detail Description (DETL Group)

Group Name: DETL - Stratum Detail Descriptions					
Status	Heading	Suggested Unit / Type		Description	Example
*	LOCA_ID		ID	Location identifier	327-16A
*	DETL_TOP	m	2DP	Depth to top of detail description	3.46
*	DETL_BASE	m	2DP	Depth to base of detail description	3.76
	DETL_DESC		X	Detail description	Claystone
	FILE_FSET		X	Associated file reference	FS4

Group DETL may be used for any remarks and notes that are related to a specific depth and that are geological in nature. They will also usually relate to specific stratum. As such the data in this group may include details such as dimensions of sand or clay lenses in alluvial deposits or gradational particle size changes over a depth range..

- It is usually expected that DETL data is confined to details within a single main Stratum unit and a geological description in DETL\_DESC should normally be considered as a supplement to the main stratum description given in GEOL\_DESC of the GEOL Group. As the detailed descriptions are intended as a supplement to the main description, detailed description depth ranges should not usually cross main stratum boundaries. The depth or depth range of a detailed feature may be repeated within the description text in DETL\_DESC if it is to be printed on the log.
- Despite the above recommendation as this Group is not directly Stratum related per se, DETL is not strictly required to be within a single Stratum and this Group can, in theory, be used to note that one main Stratum grades into another over a certain depth range, for example between topsoil and the underlying ground. Given the intention of this Group, as outlined above, it would be preferable in such cases to place such comments in the main Stratum description. If the change in the stratum is not gradational it is generally preferable to give specific depth ranges. For example, "6.50 to 8.70m Sandy", is generally preferable to "Sandy below 6.50m".
- Detailed descriptions should be given a single depth (which is repeated in both the DETL\_TOP and DETL\_BASE fields), only if it has no significant thickness, or if it marks the top of a gradational change in the nature of the Stratum. For example, "27.65m Marl parting" or "35.65m Becoming very sandy".
- Detailed descriptions should be given a top and bottom depth if the noted feature has thickness. For example, "19.30 to 19.60m moderately strong Sandstone boulder" or "22.20 to 22.25 bivalves fossils" or "16.32 to 16.36 very strong, black tabular flint" .

### 4.3 Depth Related Remarks (DREM Group)

Group Name: DREM - Depth Related Remarks					
Status	Heading	Suggested Unit / Type		Description	Example
*	LOCA_ID		ID	Location identifier	327-16A
*	DREM_TOP	m	2DP	Depth of remark (DREM_REM)	12.50
*	DREM_BASE	m	2DP	Base depth	13.80
	DREM_REM		X	Depth related remark	Driving boulder ahead of casing
	FILE_FSET		X	Associated file reference	FS5

Group DREM may be used for any remarks and notes that are related to a specific depth and that are not obviously geological in nature. DREM can be used for reporting incidents during drilling (such as "Fishing for broken U100 3.00 to 3.70m"), drilling records that don't readily fit in any other groups (such as "Pushing boulder ahead of casing 7.80 to 8.15m") and physical observations that are not strictly geological (such as "Strong petrol smell at 5.00m"). DREM should be used for exploratory position termination phrases such as "Borehole terminated at 10.50m depth."

## 5 Summary

These Groups allow non-geological and detailed geological data respectively to be detailed. It is important to consider whether your statement is geologically related (GEOL) and (DETL) or non-geologically related (DREM) to ensure the data is conveyed in the correct group.