

**G E U S**

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## **UMIIVIK-1**

**Sedimentology of the Umiivik-1 core,  
Svartenhuk Halvø, West Greenland  
Dam, G.**

Copenhagen  
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Gregers Dam



GEOLOGICAL SURVEY OF DENMARK AND GREENLAND  
MINISTRY OF ENVIRONMENT AND ENERGY



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## Introduction

The marine Cretaceous mudstones outcropping in the Svartenhuk Halvø area are the oldest known, fully marine deposits from West Greenland (Fig. 1; Birkelund, 1965; Nøhr-Hansen, 1996). Recently, these mudstones have been studied during fieldwork by the Geological Survey of Greenland in 1991 and 1992, a programme which also included five shallow boreholes between 66 and 86 m deep (Christiansen, 1993; Christiansen *et al.*, 1994). Based on analytical work from these cores and samples from nearby outcrops, thermally immature mudstones of Coniacian to Early Santonian age have been documented (Christiansen *et al.*, 1994; Nøhr-Hansen, 1994, 1996), thereby giving hope that immature or early mature sediments of Cenomanian-Turonian age could be reached by drilling to relatively shallow depths along the southern shoreline of Umiivik (Fig. 1).

As a consequence of this, a seismic programme involving the acquisition of a single refraction and reflection line was carried out in the summer of 1994 in order to prepare later drilling (Fig. 1; Christiansen *et al.*, 1995). A proposal for a drilling programme on Svartenhuk Halvø was made early in 1995 and the necessary funding was provided from the Danish State and the Government of Greenland (Bate & Christiansen, 1996).

The location of the Umiivik-1 borehole is on the southwestern coast of Umiivik Bay (Fig. 1) at approximately shot point 86 on seismic line GGU SVA94-01. This position facilitated the drilling of a thick sedimentary succession prior to intersection of a presumed large fault interpreted on the seismic data. The Umiivik-1 borehole was drilled in the period from 21 August to 13 September 1995 and terminated at a planned depth of 1200 m.

Technical details of Umiivik-1 are given in the well completion report by Bate (1996) including a preliminary geological log, description of penetrated lithologies, sample lists and information on hydrocarbon shows. Preliminary results and the geological background for the drilling programme have been summarised by Bate & Christiansen (1996). The stratigraphic ages of the uppermost 650 m of the core are reported as Late Turonian to Early Coniacian by Nøhr-Hansen (1997) based on palynological dating, whereas the deeper part is thermally altered to such a degree that dating is not possible. The organic geochemistry of sediments and gases in the Umiivik-1 borehole are given by Christiansen *et al.* (1997). The aim of the present report is to present a detailed sedimentological analysis of the core from Umiivik-1. The report should be read together with the reports by Nøhr-Hansen (1997) and Christiansen *et al.* (1997).

## Geological setting

The West Greenland continental margin was formed in connection with the opening of the Labrador Sea in Late Mesozoic – early Paleogene time. A complex of linked sedimentary basins stretching from the Labrador Sea to northern Baffin Bay (e.g. Chalmers *et al.*, 1993) extend onshore on Baffin Island and in West Greenland (Fig. 1). The onshore Cretaceous – early Paleogene basins in West Greenland extend from Disko in the south to Svartenhuk Halvø in the north (Fig. 1). The sedimentary succession in West Greenland is in places 6 – 8 km thick (Christiansen *et al.*, 1995) of which the uppermost 2.5 km lower Cretaceous (Albian) to Paleocene succession is exposed. The sediments are overlain by 3–5 km picritic hyaloclastites and continental flood basalts (e.g. Pedersen, 1985). The basinal relations between the deposits at Disko and Nuussuaq and those on Svartenhuk Halvø are unknown, but an overall proximal to distal relationship seems to be present (e.g. Schiener, 1975). The outcrops are bounded to the east by a faulted contact to the basement which consists of Precambrian gneisses and metasediments (Rosenkrantz & Pulvertaft, 1969; Pedersen & Pulvertaft, 1992).

Field mapping has identified a NW–SE structural trend in the Svartenhuk Halvø area (Larsen & Grocott, 1991). On the south-western coast of the Umiivik bay the marine Cretaceous sediments dip gently to the south-west but the dip swings slightly to a more westerly direction around Firefjeld (Fig. 1). The sediments exposed at surface are composed of predominantly dark grey to black mudstones, similar to those of the Umiivik-1 core, and have been deposited in a distal slope environment. A number of dolerite intrusions can be identified cutting through these sediments in cliff sections (Bate & Christiansen, 1996). The Umiivik-1 borehole was positioned on the 1994 seismic line in an area with possibilities for a maximum thickness of what was predicted as Cenomanian/Turonian-Santonian mudstones in a broad syncline (see Bate, 1996, for further details).

## **Palynostratigraphy and macrofossils**

The palynostratigraphy of the Umiivik-1 borehole has been described by Nøhr-Hansen (1997), who divided the core into five dinoflagellate cysts intervals (Encl. 1) of which the uppermost two intervals can be correlated to previous studies on Svartenhuk Halvø. Interval I and II suggest an Early Coniacian age of the uppermost 169.5 m; interval III suggests a Late Turonian - ?Early Coniacian age from 187.9 to 319.2 m; interval IV suggests a Late Turonian age from 331.9 m to 403.6 m. The lowermost recorded dinoflagellate cysts from 658.7 m has been identified as a *Chatangiella* spp. and suggests a post Middle Cenomanian age (Nøhr-Hansen, 1997). The core from 687.7 m to 1191.4 m does not contain any preserved dinoflagellate cysts. The ages have been summarised in Encl. 1.

Ammonites were cored in 153 m and 179.5 m and belemnites in 114.5 m, 268.5 m, 341.5 m and 338.5 m. Possible bivalves were cored in 85 m, 230.5 m, 334 m, 350 m and 463 m to 465 m. All fossils are in a bad state of preservation and could not be determined.

## Facies description

A total of 1200 m of core (GGU 439301) was drilled in Umiivik-1 (close to 100% recovery) with a core diameter of 63.5 mm in the uppermost 148 m and 47.6 mm in the remaining part.

Almost the entire core consists of Upper Cretaceous marine mudstones cut by Paleocene dolerite intrusions (Encl. 1; Table 1). The mudstones are dark grey with abundant silty interbeds and only few sandstone intervals were found. A total of 22 dolerite intrusions with a cumulative thickness of 240.2 m were intersected throughout the borehole. Especially the thick intrusions from 548.6 m to 596.9 m, from 849.1 m to 890.2 m, and from 923.4 m to 1027.1 m have severely altered the marine mudstones, and have thereby limited the possibilities for both detailed organic geochemical and palynological studies in the deeper part of the borehole. A preliminary facies description based on the drill site description was presented in the well summary report by Bate (1996). After the cores arrived at GEUS in Copenhagen, they were measured at scale 1:100 (Table 1). Five facies associations have been recognised (Encl. 1; Table 1). These are: 1) mudstone with very thin sandstone streaks, 2) thinly interbedded sandstone and mudstone, 3) heavily bioturbated thinly interbedded sandstone and mudstone, 4) chaotic beds, and 5) structureless, muddy sandstone. The uppermost 28.3 m of the core consists of Quaternary cover.

Dinoflagellate cyst assemblages, macrofossils and the total sulphur content in the mudstones (cf. Nøhr-Hansen, 1997; Christiansen *et al.*, 1997) indicate a marine depositional environment for the complete cored succession.

### Facies association 1: Mudstone with very thin sandstone streaks

*Description.* This facies association constitutes 35% of the cored sedimentary succession and is most common in the lower part of the core (Encl. 1; Table 1). It consists of dark grey to black, hard, mainly non-calcareous mudstone with less than 10% sandstone laminae. The content of total organic carbon (TOC) is moderate to high with most values between 2% and 6% (average  $3.42\% \pm 1.23\%$ ) (Christiansen *et al.*, 1997). The mudstone intervals are in places very sulphurous, giving rise to yellow coatings of the core. Total sulphur values (TS) typically vary from ~0.5 % to 3.5% with a few very low and very high values (Christiansen *et al.*, 1997). The mudstone intervals are up to 87 m thick, and usually form the lower part of coarsening-upward successions grading into thinly interbedded sandstone and mudstone of facies association 2 and heavily bioturbated, thinly interbedded sandstone and mudstone of facies association 3. The mudstone is composed of 2–4 mm thick, normal graded laminae. The base of each lamina is sharp and may show a one-grain-thick very fine-grained sandstone layer, grading upward into silty claystone and claystone. Sandstone occurs in thin graded laminae composed of very fine- to fine-grained sandstone. The laminae are sharply based and usually 1–3 mm thick (occasionally up to 5 mm thick). Parallel lamination and low-angle cross-lamination may be recognised. The tops of some laminae are wavy (fading ripples of Stow & Shanmugan, 1980). Occasion-

ally, soft sediment deformation structures are present. Ellipsoid calcite concretions, less than 3 cm thick, and finely disintegrated plant remains are common. The mudstones are non- to weakly bioturbated, and the only recognisable tracefossil is *Helminthopsis horizontalis*. Fragmented bivalves and a single ammonite have been found in the mudstones.

*Interpretation.* The normal grading of the mudstone laminae suggests that the mudstones were deposited from low-velocity muddy turbidite currents (e.g. Stow & Shanmugan, 1980), dominated by Bouma D and E intervals. Most of the laminae are believed to have been deposited directly from suspension. The interbedded graded sandstone laminae are also related to deposition from low-velocity, low-density turbidite currents, with indications of tractional currents during deposition. Mudstone with indistinct lamination may be a pelagic deposits.

### Facies association 2: Thinly interbedded sandstone and mudstone

*Description.* This facies association dominates the Umiivik-1 core and constitutes 54% of the cored sedimentary succession. The thinly interbedded sandstone and mudstone occur either as solitary units, as much as 46 m thick, or interbedded with mudstone with very thin mudstone streaks (facies association 1) and heavily bioturbated, thinly interbedded sandstone and mudstone (facies association 3), forming thick coarsening-upward successions (Encl. 1; Table 1). It consists of sharply based, graded laminae and beds of very fine- to fine-grained sandstone, capped by grey to black, parallel laminated mudstone (Facies D of Mutti & Ricci Lucchi, 1972). The sandstone content ranges from 10% to 75%. The sandstone laminae are generally less than 3.5 cm thick, but a few solitary beds are as much as 15 cm thick, and one bed is 1 m thick. The sandstones are generally well sorted and sedimentary structures include parallel lamination, cross-lamination, fading ripples and soft-sediment folds. Usually no structures are visible. Finely disseminated plant debris and wood are occasionally present. The mudstones are similar to those of facies association 1. The sediments are weakly to moderately bioturbated; the only recognisable trace fossils are *Helminthopsis horizontalis* and *Planolites* isp. A few shell fragments, belemnites and a single ammonite have been found. Small ellipsoid carbonate concretions are common. Close to several of the igneous intrusives, the cored thinly interbedded sandstone and mudstone have a calcareous coating on the core surface and the sediments are penetrated by fractures filled with calcite cement, and pyrite occurs as concretions or finely distributed in the sediment. Calcite and pyrite may also occur as cement in the sandstones. Yellow sulphide may also occur as coating of the core.

*Interpretation.* The thinly interbedded sandstones and mudstone association are interpreted as deposits of traction and fall-out processes associated with sedimentation from waning, low-density turbidity currents. The grading of the mudstone laminae suggests that most of the mudstones were also deposited from waning, muddy low-density currents as those of the previous facies association.

### **Facies association 3: Heavily bioturbated, thinly interbedded sandstone and mudstone**

*Description.* The mudstone with very thin sandstone streaks and the thinly interbedded sandstone and mudstone of the two former facies associations frequently pass into heavily bioturbated, thinly interbedded sandstone and mudstone. The heavily bioturbated intervals are up to 29 m thick and constitute 10% of the cored sedimentary succession (Encl. 1; Table 1). The bioturbated intervals consist of 20% to 75% sandstone. The sandstone is generally fine-grained, but medium- to coarse-grained intervals do also occur. In spite of the heavy bioturbation, some intervals reveal the original structures of the sediments which were deposited as heteroliths reminiscent of facies association 2. In these intervals the sandstone occurs in sharply based graded laminae of very fine- to fine-grained sandstone, capped by grey to black parallel laminated mudstone (Facies D of Mutti & Ricci Lucchi, 1972). The sandstone laminae are less than 2 cm thick. The sandstones are generally well-sorted and sedimentary structures include parallel lamination, cross-lamination and fading ripples, similar to the sandstones of facies association 2. Plant debris and belemnites are occasionally present. Calcite frequently occurs as cement or in small ellipsoid concretions.

Trace fossils are dominated by *Planolites* isp. and *Helminthopsis horizontalis*, but possible *Zoophycus* isp. and *Gyrochorte comosa* have rarely been recognised. The *Planolites* isp. occurs as unlined, straight to gently curving, unbranched burrows with smooth or slightly irregular walls. Traces are circular to elliptical in cross-section, and less than 1 cm in diameter and subparallel to the bedding. The burrow fill is composed of structureless sand. *Helminthopsis horizontalis* occurs as simple, smooth, free-meandering trails, 1-2 mm in width. Traces are preserved in cross-section, full relief or in concave upward epirelief. Meanders are very irregular and never branch; burrow fill is darker than the host rock, probably owing to a higher content of mud or organic matter.

*Interpretation.* The close association with the two previous facies associations suggests a similar depositional environment. Both *Planolites* isp. and *Helminthopsis horizontalis* were probably produced by infaunal organisms combining the activities of deposit-feeding and locomotion, thus producing endostratal paschichnia burrows. The dominance of these burrows suggests that the interstitial environment must have been characterised by at least some oxygen to allow respiration. The high degree of bioturbation of the sediment indicates relatively slow sedimentation, little physical reworking and abundant food supplies.

### **Facies association 4: Chaotic beds**

*Description.* This facies association has only been recognised in the uppermost part of the core, where it occurs in beds up to 6.2 m thick (Encl. 1; Table 1). Chaotic beds constitute 3% of the cored sedimentary succession. The diagnostic feature of this association is contorted beds of mudstone and thinly interbedded sandstone and mudstone of facies associations 1 and 2.

*Interpretation.* The contorted bedding of this facies association is attributed to slumping – a common feature in deep sea environments.

### **Facies association 5: Structureless, muddy sandstone**

*Description.* This facies association only occurs at one level in the uppermost part of the core (268.1m to 269.0 m) (Encl. 1; Table 1). The facies association consists of homogenised, poorly sorted, muddy, fine-grained sandstone with scattered mudstone clasts, very coarse sandstone grains and belemnites. The mud content is about 30%. The sandstones are non-bioturbated. The interval is made up of 3 beds, up to 45 cm thick. The bed boundaries are sharp and beds are non-graded.

*Interpretation.* The characteristics of this facies association are typical of sandy debris flow deposits (cf. Shanmugan *et al.*, 1995).

## **Vertical facies development and depositional environment**

During Late Cretaceous (?Late Turonian – Late Santonian) time the Svartenhuk Halvø area was characterised by deposition in a mud and sand-rich deep-water depositional environment. The Umiivik-1 borehole penetrated the ?Upper Turonian – Upper Coniacian part of the succession which is dominated by mudstones with very thin sandstone streaks, thinly interbedded sandstone and mudstone and heavily bioturbated, thinly interbedded sandstone and mudstone, but also a few debris flow and slump beds were recorded (Encl. 1). Deposition took place in the distal part of a major turbidite complex, probably the northern extension of the turbidite complex known from further south in western and northern Nuussuaq (Fig. 1; e.g. Dam & Sønderholm, 1994). However, it has not been possible to classify the system in the Svartenhuk area on the basis of the feeder system, such as point-source submarine fan, multiple-source submarine ramp or linear-source slope apron (cf. Reading & Richards, 1994). Most of the sediments were deposited from turbidity currents. Dinoflagellate cysts (cf. Nøhr-Hansen, 1997), total sulphur values (cf. Christiansen *et al.*, 1997) and ammonites and belemnites indicate a marine depositional environment.

The penetrated sedimentary succession can be divided into four units.

*Unit A:* The lowermost unit A is at least 295 m thick (Encl. 1). It consists of coarsening upwards cycles, 2–38 m thick, showing an overall coarsening- and thinning-upward trend. In the lower part of the unit cycles composed entirely of mudstone with very thin sandstone streaks showing an upward increase in sandstone content dominate. Upwards, the sandstone content in the cycles increases and the mudstones grade into thinly interbedded, occasionally heavily bioturbated, sandstone and mudstone (Encl. 1). A few cycles are topped by a thin fining-upward cap.

*Unit B:* Unit B is 184 m thick and similar to the underlying Unit A. Cycles are 2–57 m thick and show an overall thinning- and coarsening-upward trend. The cycles are similar to those of Unit A, but heavily bioturbated, thinly interbedded sandstone and mudstone is much more common (Encl. 1).

*Unit C:* Unit C is 211 m thick and similar to Unit B. Cycles are 4–32 m thick and, in contrast to the two underlying units, body fossils are relatively common (Encl. 1).

*Unit D:* The uppermost Unit D is at least 247 m thick. It differs from the three underlying units by the lack of an overall thinning- and coarsening-upward trend and by the common presence of slump deposits and debris flow deposits in one level (Encl. 1). Furthermore, coarsening-upward cycles are less well-developed.

The upward coarsening trend of Units A, B and C is interpreted as the progradation of the distal part of major submarine lobes and represent 5th-order elements of Ghosh & Lowe (1996). The small coarsening-upward cycles are interpreted as smaller lobes formed in front of small distributaries or as channel-levee-overbank complexes and representing 3rd-order elements of Ghosh & Lowe (1996). The large degree of bioturbation in the upper

cycles of Units B and C indicates relatively slow sedimentation, little physical reworking, and abundant food supplies in an environment that became progressively more oxygenated as the distal lobes were build up.

The large amount of slump deposits suggests that Unit D was deposited closer to the slope than Units A, B and C and that deposition probably took place in the lower parts of a slope apron (e.g. Reading & Richards, 1994). This would indicate that a steepening of the lower slope occurred or that the area became tectonically more unstable. The lack of systematic vertical variations in the thinly interbedded sandstones and mudstones suggest that these deposits were not confined to channel-levee systems, and that they more likely represent interchannel slope apron deposits.

The increase of bioturbation from Unit A to Units B and C and the possible steepening of the slope, represented by the topmost Unit A, suggest that the cored succession in the Umiivik-1 borehole represents an overall progradation of a turbidite complex.

## Conclusions

The Umiivik-1 core consists of Upper Cretaceous (?Upper Turonian – Upper Santonian) marine mudstones, thinly interbedded sandstone and mudstone and Paleocene dolerite intrusions (Encl. 1). A total of 22 dolerite intrusions with a cumulative thickness of 240.2 m were intersected by the borehole. Especially the thick intrusions from 548.6 m to 596.9 m, from 849.1 to 890.2 m, and from 923.4 to 1027.1 m have severely altered the marine mudstones.

The drilled sediments are divided into five facies associations: 1) mudstone with very thin sandstone streaks, 2) thinly interbedded sandstone and mudstone, 3) heavily bioturbated, thinly interbedded sandstone and mudstone, 4) chaotic beds, and 5) structureless, muddy sandstones. The uppermost 28 m consist of Quaternary overburden.

The presence of ammonites, belemnites, the overall high total sulphur content and the palynomorph assemblages indicate a marine depositional environment.

Deposition took place in the distal part of a major turbidite complex, but it has not been possible to classify the system on the basis of the type of feeder system (point-source submarine fan, multiple-source submarine ramp or linear-source slope apron). Most of the sediments were deposited from turbidite currents, but deposition from slumps and debris flows, at one level, have also been recorded.

The sedimentary succession is divided into four units. The lower three units are 184 m to 295 m thick and show an overall thickening- and coarsening-upward trend interpreted as the result of progradation of the distal part of major submarine lobes. The overall coarsening-upward successions include well-developed coarsening-upward cycles, 2–57 m thick. These are interpreted to represent smaller lobes formed in front of minor distributaries or as channel-levee-overbank complexes. The uppermost unit is 247 m thick and differs from the three underlying units by the lack of an overall coarsening-upward trend, by the decrease in well-developed fining-upward cycles and the relatively large amount of slump deposits. The unit is interpreted as distal slope apron deposits. The scarcity of systematic vertical variations in the thinly interbedded sandstones and mudstones of the uppermost unit, suggests that these deposits were not confined to channel-levee systems, and that they more likely represent interchannel slope apron deposits. The increase of bioturbation from Unit A to Units B and C and the possible steepening of the slope, represented by the topmost Unit A, suggest that the cored succession in the Umiivik-1 borehole represents an overall progradation of a turbidite complex.

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## **Figure**

**Figure 1.** Geological map of central West Greenland showing location of the Umiivik-1 borehole and other drill holes in the area. Based on maps from the Geological Survey of Greenland.

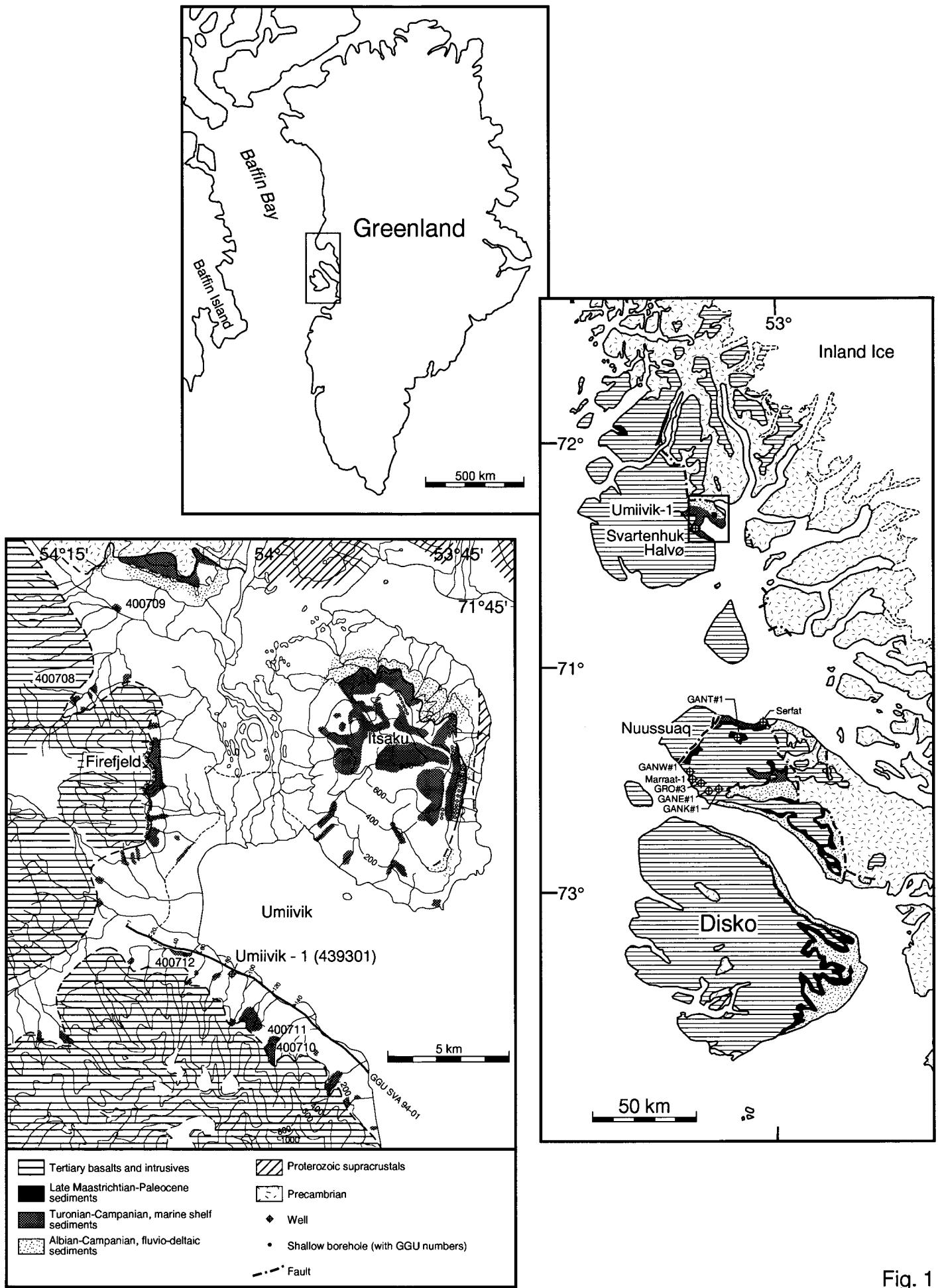
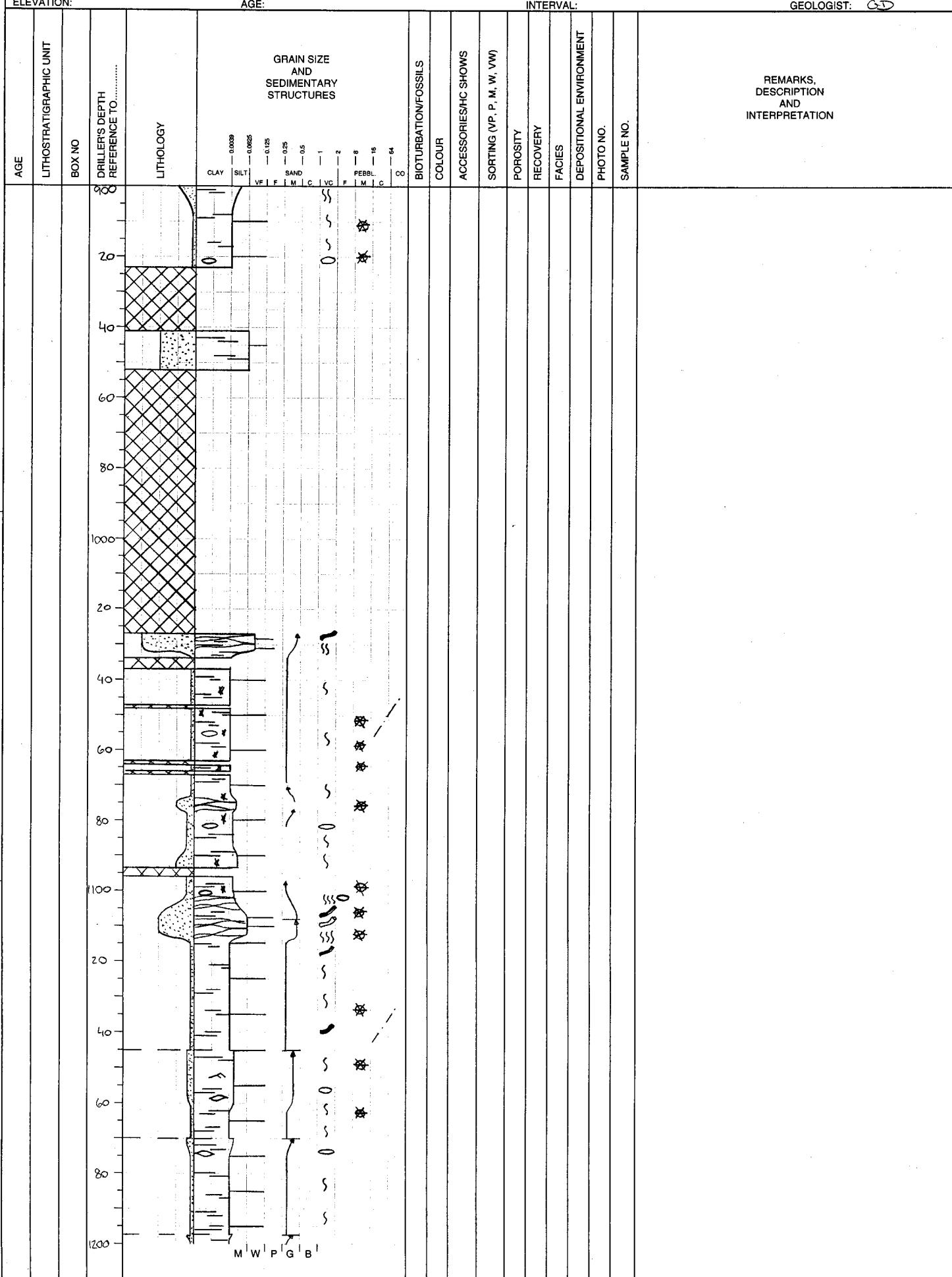


Fig. 1

## **Table**

**Table 1.** Detailed sedimentological log of the Umiivik-1 core. See Encl. 1 for legend.

SHEET 1 OF

CORE DESCRIPTION  
SEDIMENTOLOGICAL DATA SHEETTHE GEOLOGICAL SURVEY OF  
DENMARK AND GREENLANDLOCALITY:  
UTM COORDINATES:  
ELEVATION:ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:WELL NO: UM 197 L-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:SCALE: 1:100  
DATE:  
GEOLOGIST: GD

SHEET 2, OF

## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

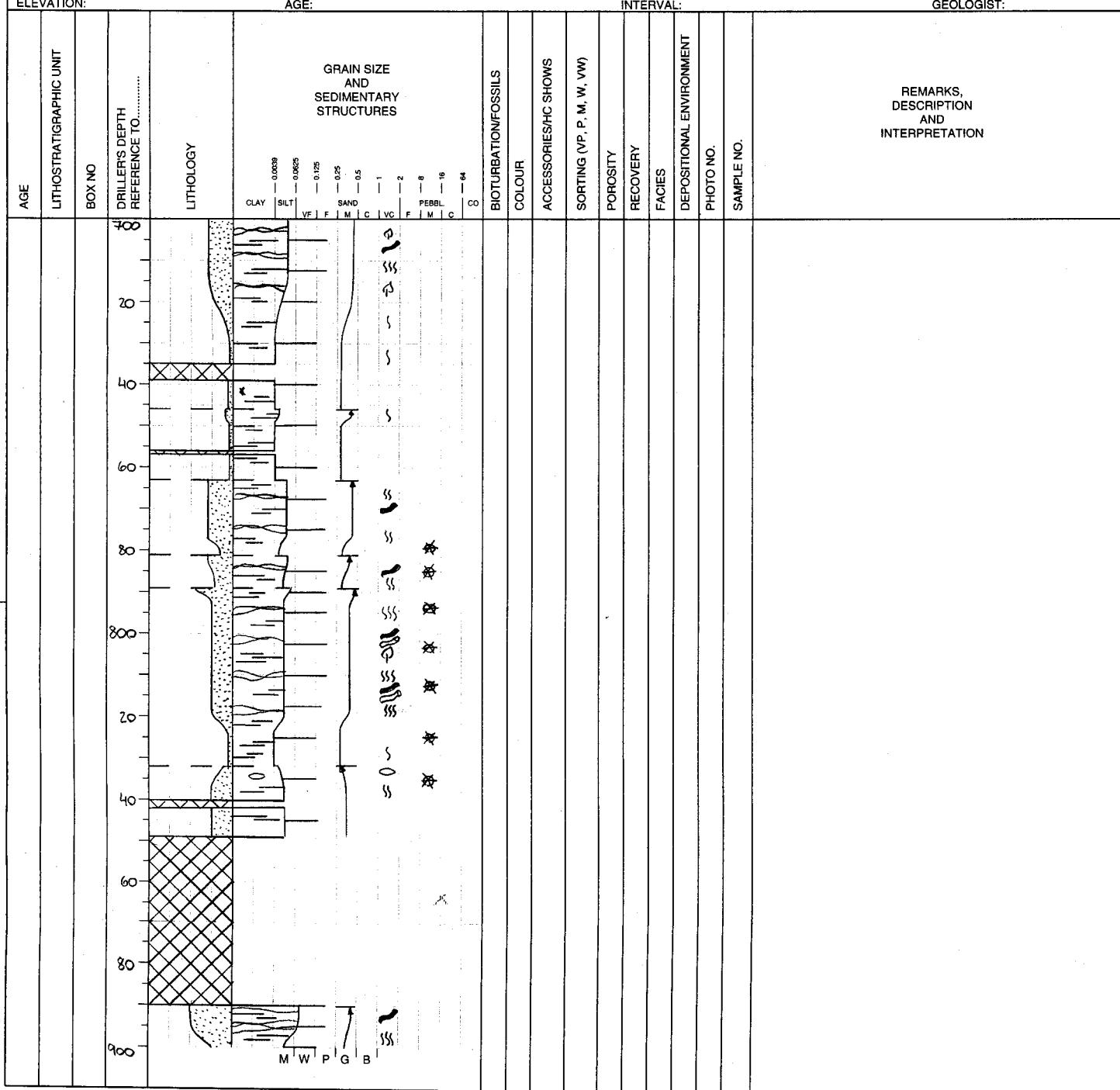
THE GEOLOGICAL SURVEY OF  
DENMARK AND GREENLAND

LOCALITY:  
UTM COORDINATES :  
ELEVATION:

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

WELL NO: Umivik-  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE:  
DATE:  
GEOLOGIST:



## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

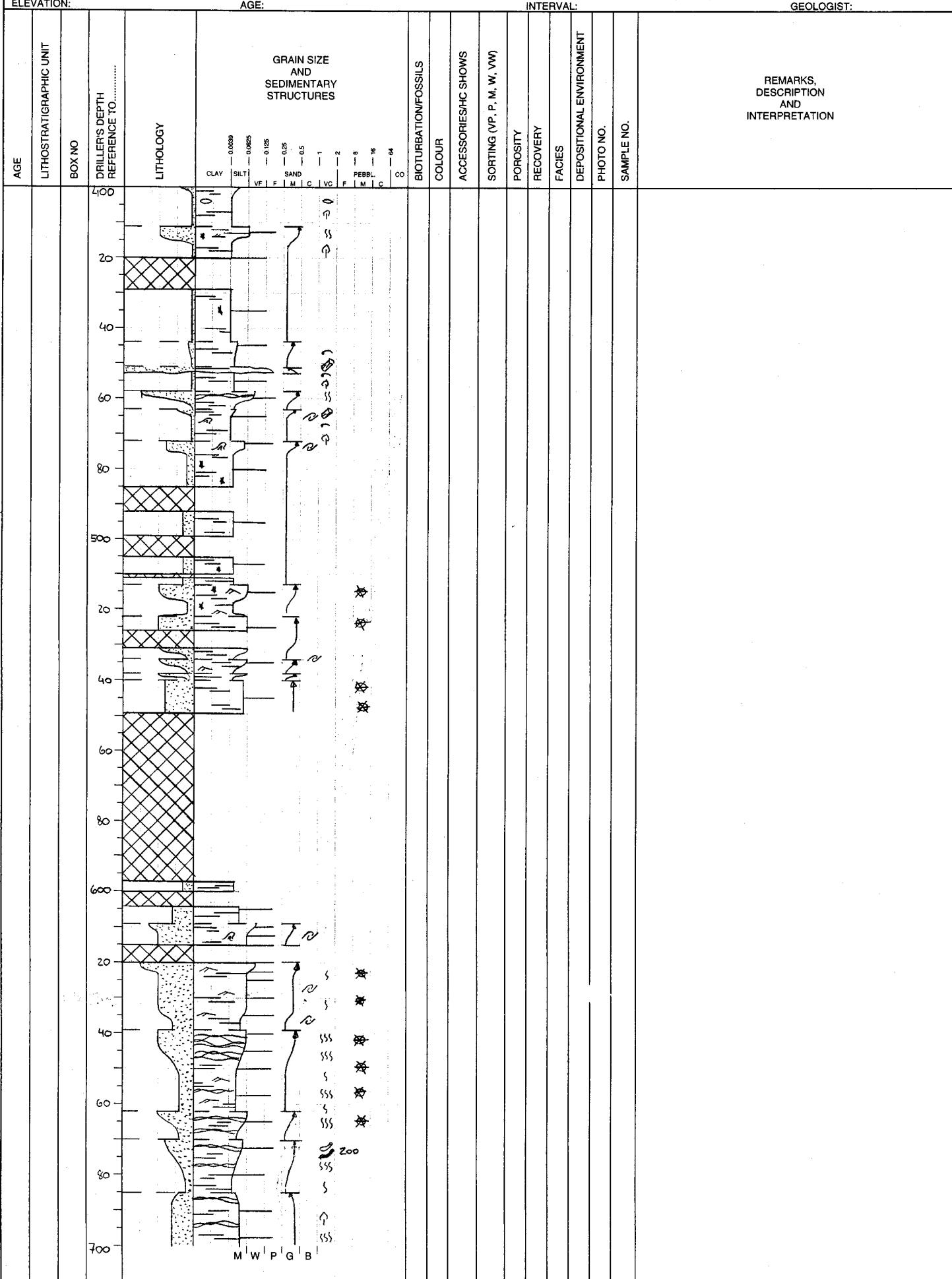
LOCALITY:  
UTM COORDINATES :  
ELEVATION:

**LEVEL OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:**

WELL NO: Umivik - 1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

(cm/mm)

SCALE:  
DATE:  
GEOLOGIST:



SHEET 4 OF

## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

THE GEOLOGICAL SURVEY OF  
DENMARK AND GREENLAND

LOCALITY:  
UTM COORDINATES :  
ELEVATION:

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

WELL NO: Um<sup>99</sup>v<sup>9</sup>k-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

(cm/mm)

SCALE:  
DATE:  
GEOLOGIST:

SHEET 5 OF

## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

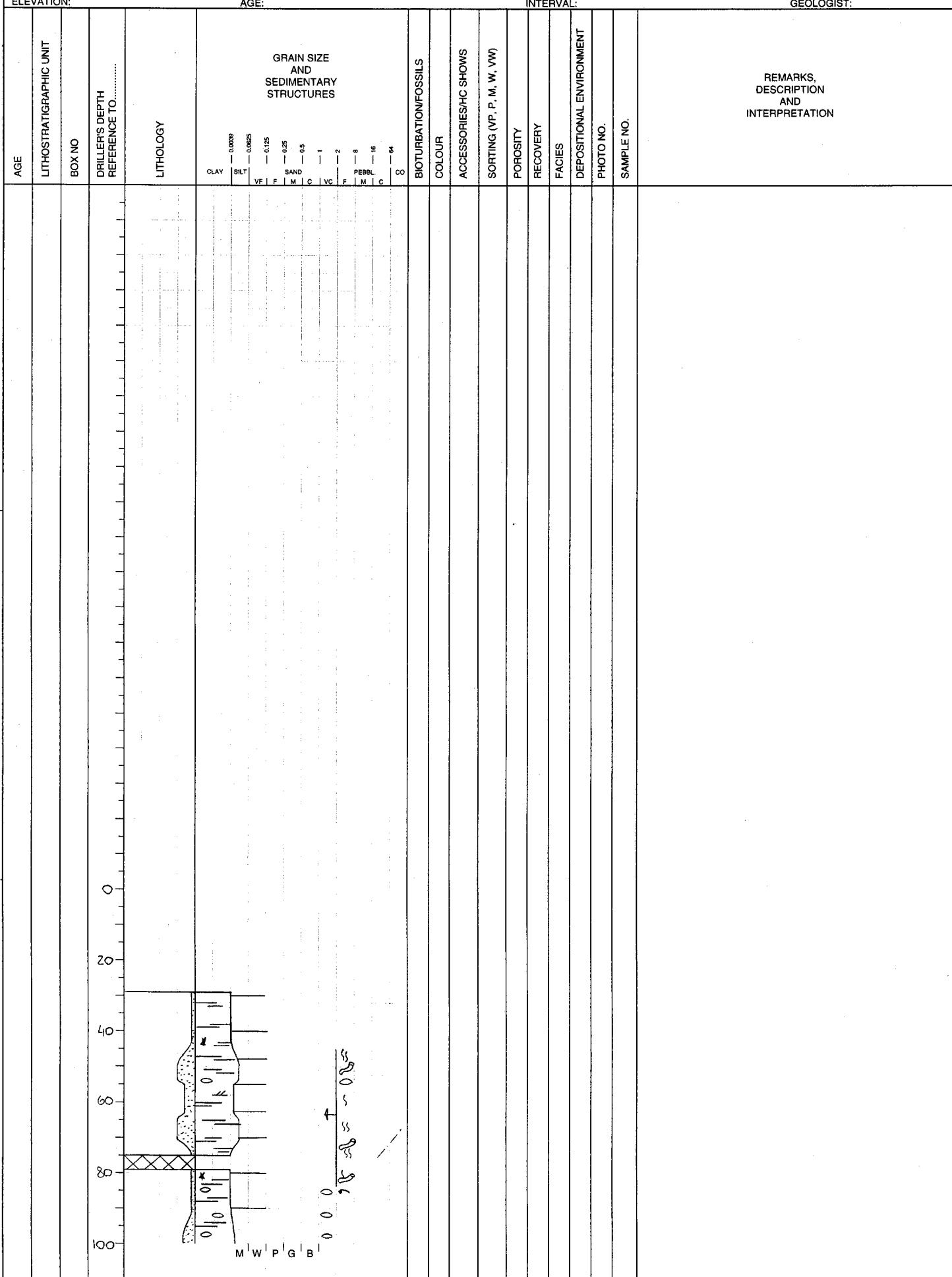
# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

LOCALITY:  
UTM COORDINATES :  
ELEVATION:

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

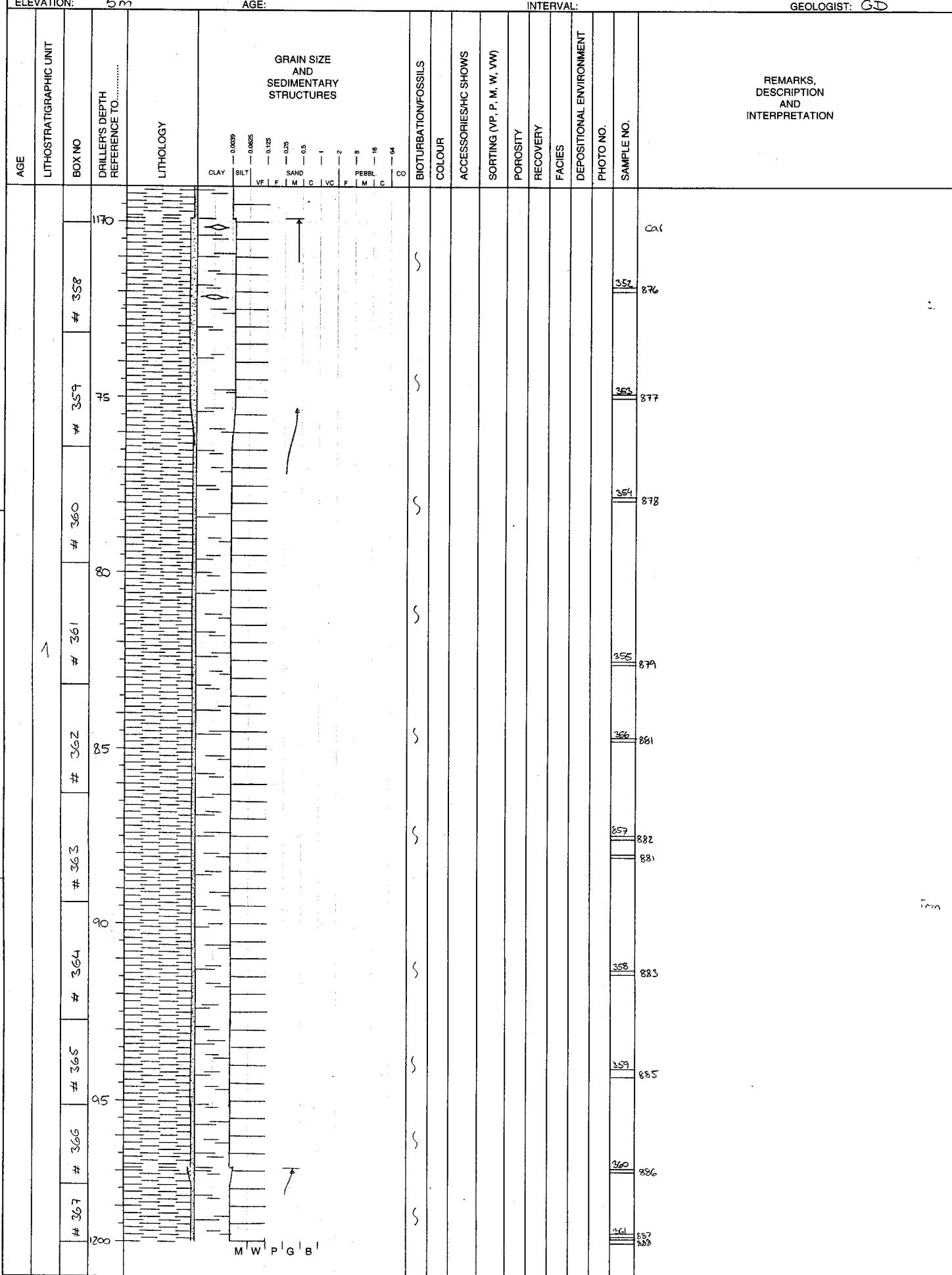
WELL NO: Um?ivik-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE:  
DATE:  
GEOLOGIST:



CORE DESCRIPTION  
SEDIMENTOLOGICAL DATA SHEETTHE GEOLOGICAL SURVEY OF  
DENMARK AND GREENLAND

LOCALITY: N 71° 36' 42" UTM COORDINATES: X/54° 02' 31" ELEVATION: 5m

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL: 2m  
UNIT:  
AGE:WELL NO: Umivik-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:SCALE: 1:100  
DATE: 01.09.97  
GEOLOGIST: GD

## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

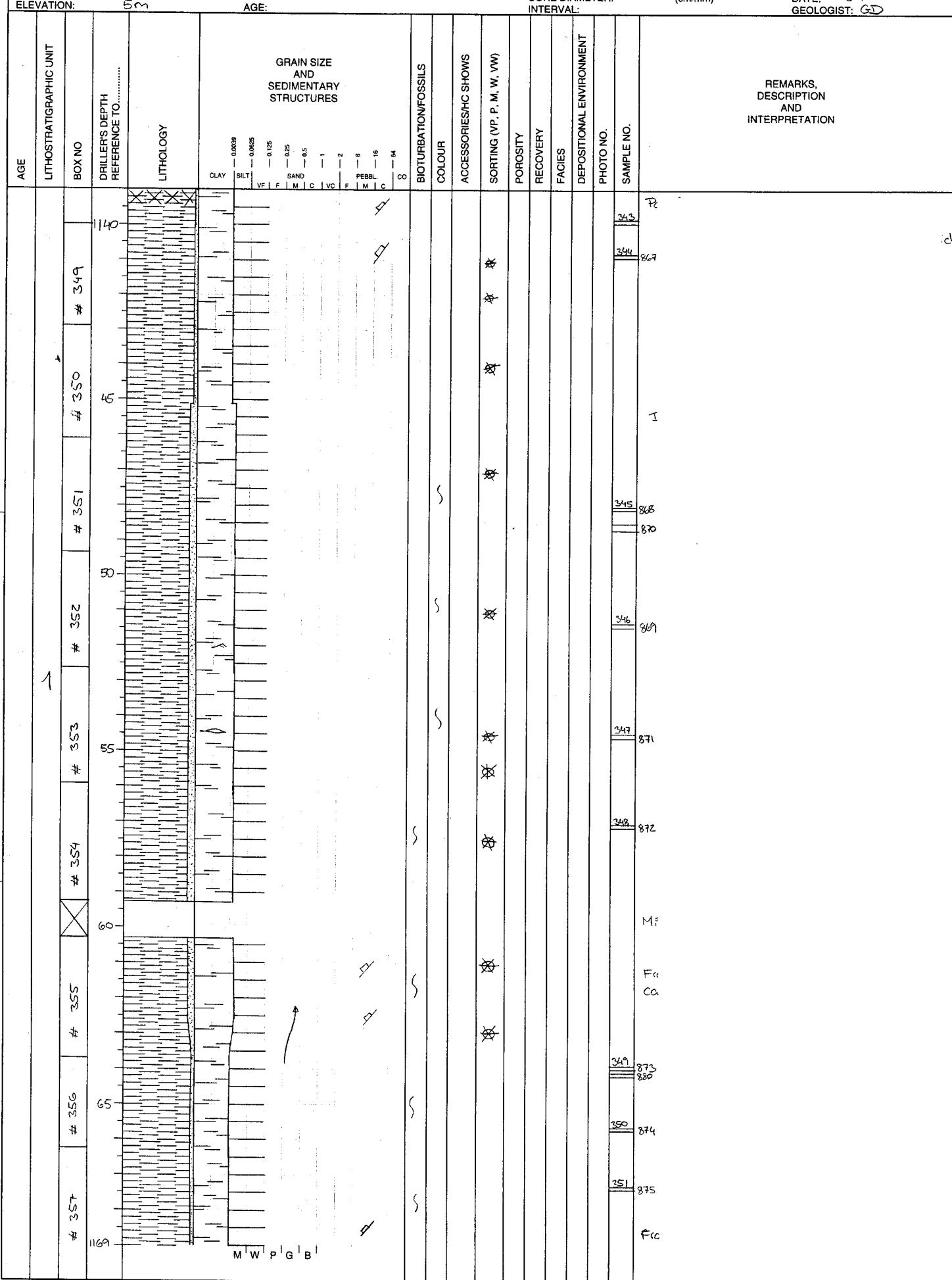
LOCALITY: N71°36'42"  
UTM COORDINATES: W54°02'31"  
ELEVATION: 5m

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

23

WELL NO: Umivik-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 01.09.97  
GEOLOGIST: GD



# CORE DESCRIPTION

## SEDIMENTOLOGICAL DATA SHEET

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

LOCALITY: N $71^{\circ}36'42''$   
UTM COORDINATES: W $54^{\circ}02'31''$   
ELEVATION: 5m

**LEVEL OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:**

2m

WELL NO: Umivik-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

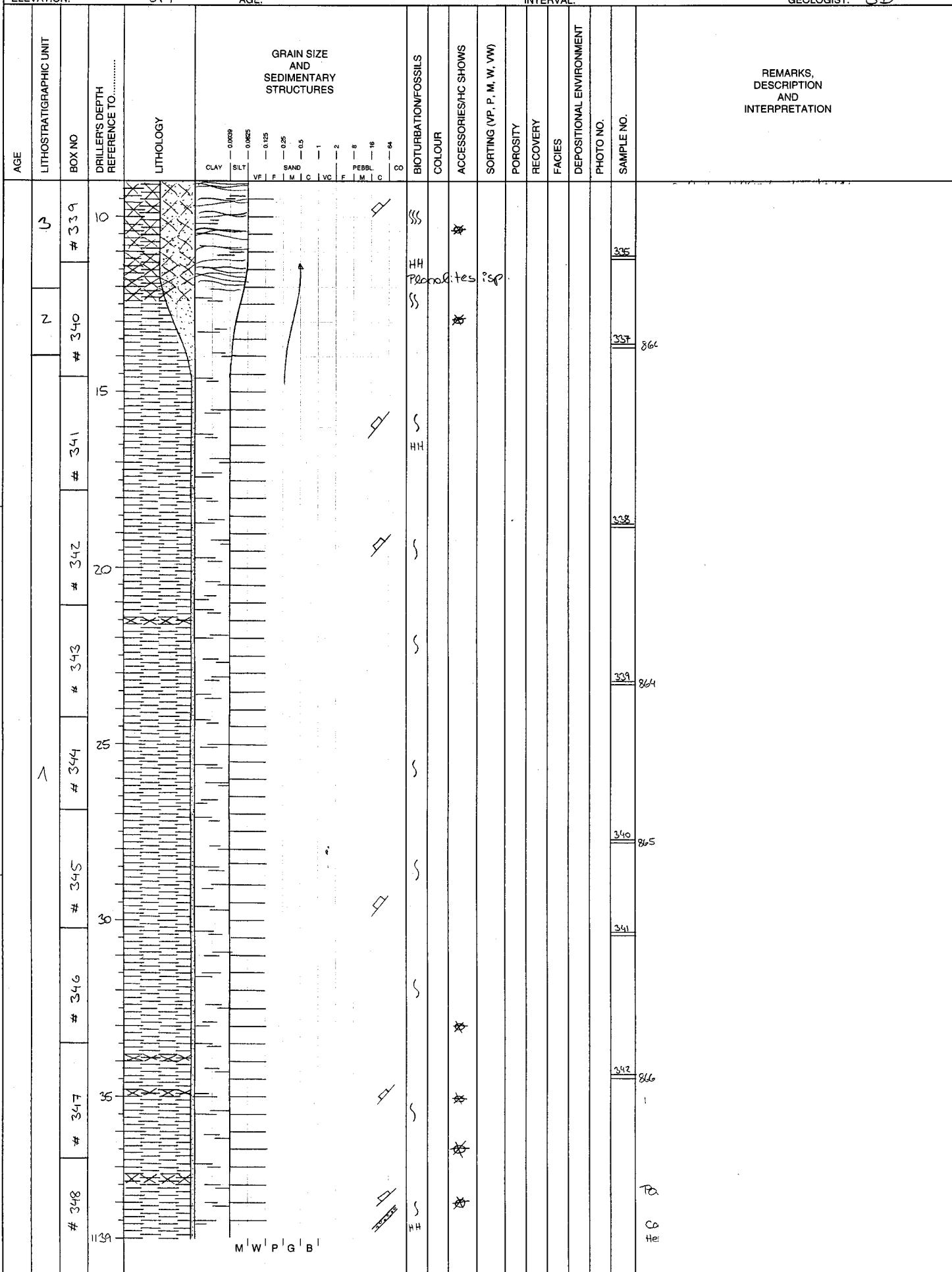
m/mm)

m/mm)

m/mm)

m/mm)

SCALE: 1:100  
DATE: 01.09.97  
GEOLOGIST: G.D.



## CORE DESCRIPTION

### SEDIMENTOLOGICAL DATA SHEET

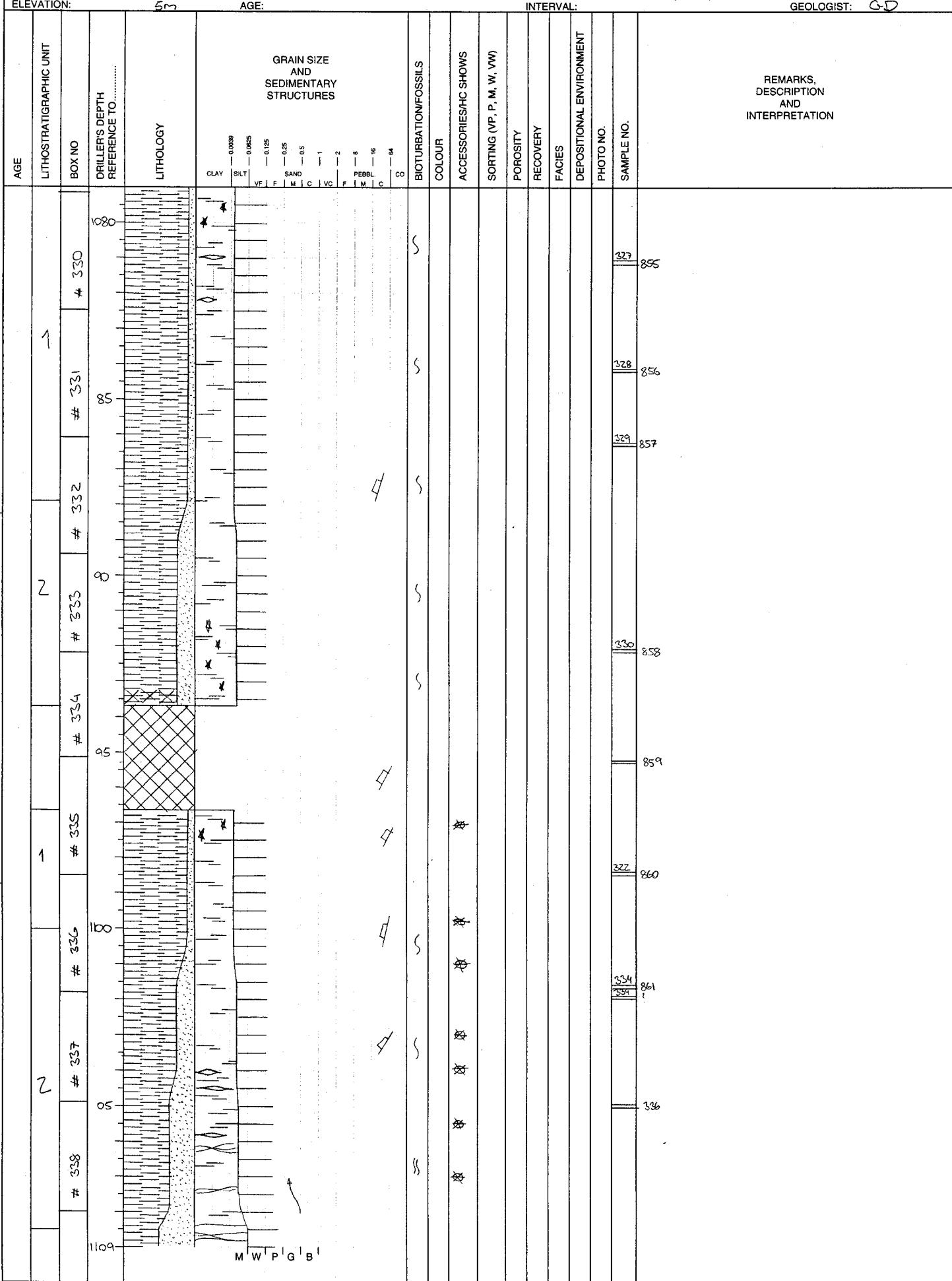
# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

LOCALITY: N 71° 36' 42" W 54° 02' 31"  
UTM COORDINATES: ELEVATION: 5m

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL: 2m  
UNIT:  
AGE:

WELL NO: Umivik-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 01+02.09.97  
GEOLOGIST: G.R.



## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

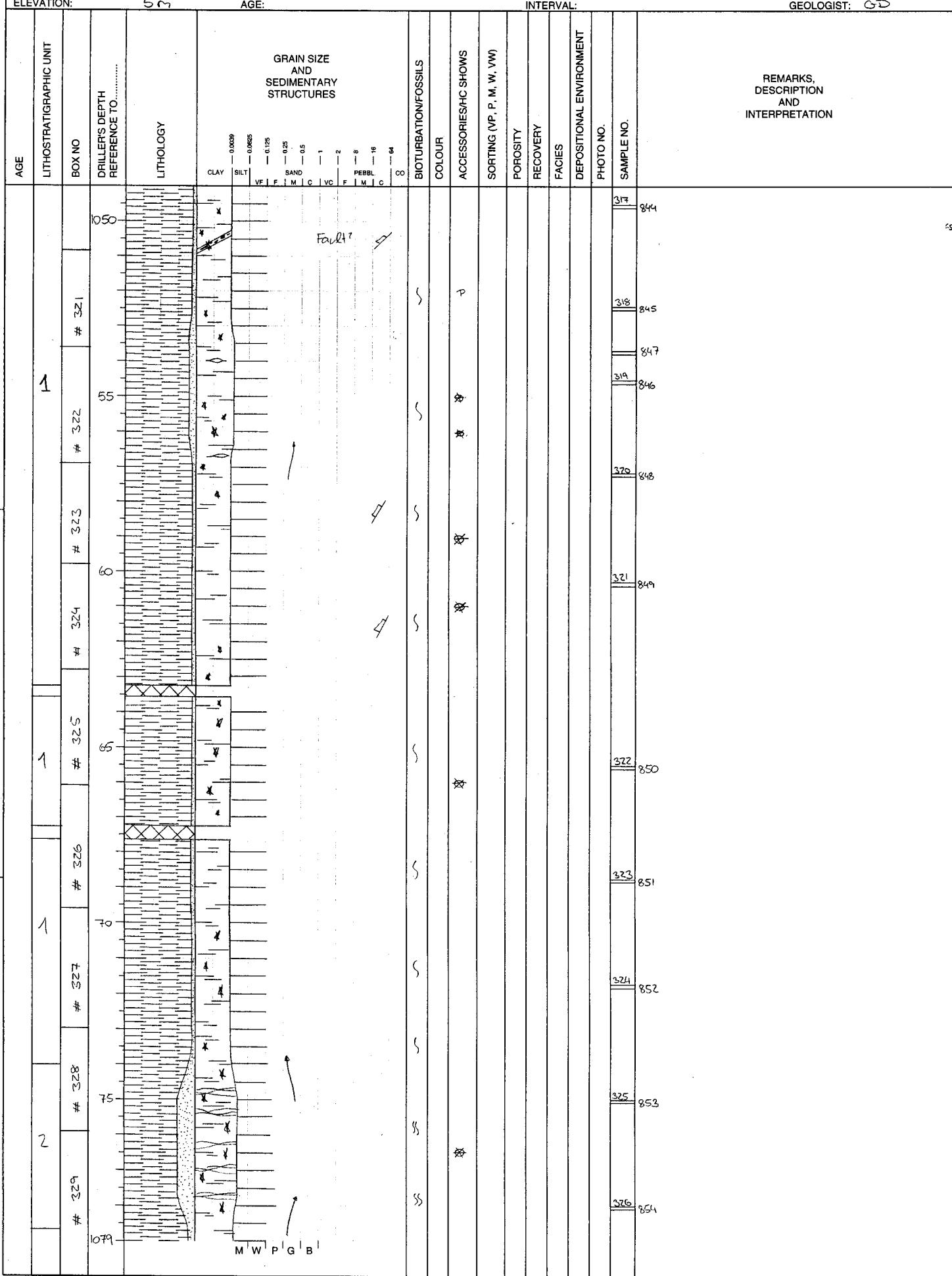
LOCALITY: N $71^{\circ}36'42''$   
UTM COORDINATES: W $54^{\circ}02'31''$   
ELEVATION: 5m

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

23

WELL NO: Um<sup>22</sup>v<sup>2</sup>k-  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 02.09.97  
GEOLOGIST: GD



# CORE DESCRIPTION

## SEDIMENTOLOGICAL DATA SHEET

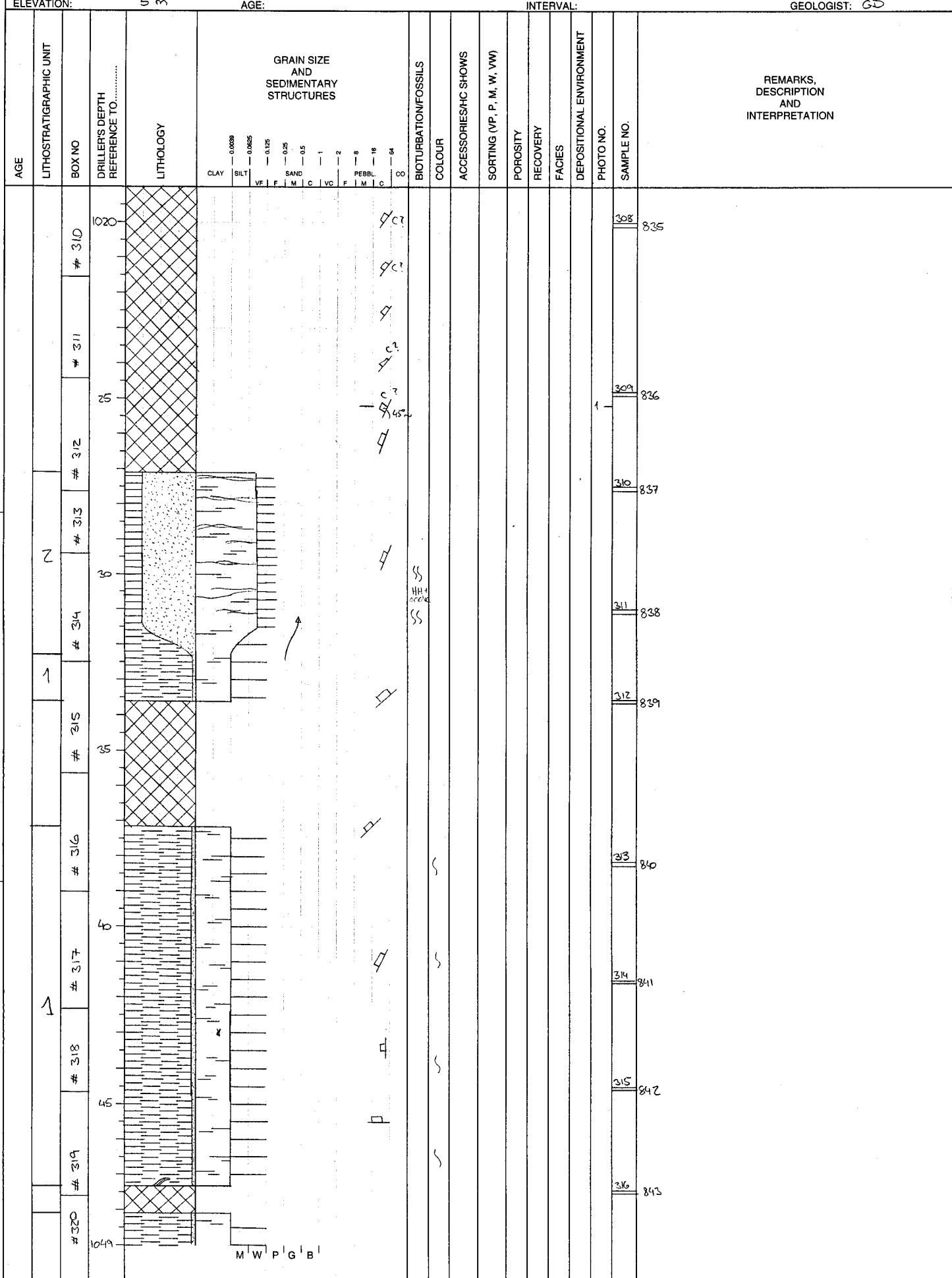
# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

LOCALITY: N 71° 36' 42"  
UTM COORDINATES: W 54° 02' 31"  
ELEVATION: 5 m

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

WELL NO: Um99vk-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 03.09.97  
GEOLOGIST: GD



CORE DESCRIPTION  
SEDIMENTOLOGICAL DATA SHEETTHE GEOLOGICAL SURVEY OF  
DENMARK AND GREENLANDLOCALITY: N 71° 36' 42" W 54° 02' 31"  
UTM COORDINATES: 53  
ELEVATION: 53ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

2m

WELL NO: Umivik-1  
BOX NO:  
CORE DIAMETER:  
(cm/mm)  
INTERVAL:SCALE: 1:100  
DATE: 03.09.97  
GEOLOGIST: GD

AGE	LITHOSTRATIGRAPHIC UNIT	BOX NO	DRILLER'S DEPTH REFERENCE TO.....	GRAIN SIZE AND SEDIMENTARY STRUCTURES	LITHOLOGY	CLAY — 0.0038 SILT — 0.0625 VF F M C VC F PEBBL. M C 3	BIOTURBATION/FOSSILS	COLOUR	ACCESSORIES/H C SHOWS	SORTING (V.P., P.M., W, W)	POROSITY	RECOVERY	FACIES	DEPOSITIONAL ENVIRONMENT	PHOTO NO.	SAMPLE NO.	REMARKS, DESCRIPTION AND INTERPRETATION	
V.F.	F	M	C	VC	F	PEBBL.	M	C										
1019	# 309	# 308	# 307	# 306	# 305	# 304	# 303	# 302	# 301									
1018																		
1017																		
1016																		
1015																		
1014																		
1013																		
1012																		
1011																		
1010																		
950																		
900																		
850																		
800																		
750																		
700																		
650																		
600																		
550																		
500																		
450																		
400																		
350																		
300																		
250																		
200																		
150																		
100																		
50																		
0																		

M! W! P! G! B!

## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

LOCALITY: N $71^{\circ} 36' 42''$   
UTM COORDINATES: W $54^{\circ} 02' 31''$   
ELEVATION: 5 m

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

2m

WELL NO: Umivik-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 03.09.97  
GEOLOGIST: GD

## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

LOCALITY: N 71° 36' 42"  
UTM COORDINATES: W 54° 02' 31"  
ELEVATION: 5m

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

23

WELL NO: Umiivik-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 04.09.97  
GEOLOGIST: CJD

53

AGE		LITHOSTRATIGRAPHIC UNIT		INTERVAL:		GEOLOGIST: CJD	
#	AGE	DRILLER'S DEPTH REFERENCE TO.....	BOX NO	PHOTO NO.	SAMPLE NO.	REMARKS, DESCRIPTION AND INTERPRETATION	
289	# 289	59		280	803		
288	# 288	55		281	804		
287	# 287	51		282	805		
286	# 286	47		283	806		
285	# 285	43		284	807		
284	# 284	39		285	808		
283	# 283	35		286	809		
282	# 282	31		287	810		
281	# 281	27		288	811		
280	# 280	23		289	812		
289	# 289	19					
288	# 288	15					
287	# 287	11					
286	# 286	7					
285	# 285	3					
284	# 284	-1					
283	# 283	-5					
282	# 282	-9					
281	# 281	-13					
280	# 280	-17					
289	# 289	-23					
288	# 288	-27					
287	# 287	-31					
286	# 286	-35					
285	# 285	-39					
284	# 284	-43					
283	# 283	-47					
282	# 282	-51					
281	# 281	-55					
280	# 280	-59					
289	# 289	-63					
288	# 288	-67					
287	# 287	-71					
286	# 286	-75					
285	# 285	-79					
284	# 284	-83					
283	# 283	-87					
282	# 282	-91					
281	# 281	-95					
280	# 280	-99					
289	# 289	-103					
288	# 288	-107					
287	# 287	-111					
286	# 286	-115					
285	# 285	-119					
284	# 284	-123					
283	# 283	-127					
282	# 282	-131					
281	# 281	-135					
280	# 280	-139					
289	# 289	-143					
288	# 288	-147					
287	# 287	-151					
286	# 286	-155					
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284	# 284	-163					
283	# 283	-167					
282	# 282	-171					
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282	# 282	-211					
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282	# 282	-251					
281	# 281	-255					
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288	# 288	-267					
287	# 287	-271					
286	# 286	-275					
285	# 285	-279					
284	# 284	-283					
283	# 283	-287					
282	# 282	-291					
281	# 281	-295					
280	# 280	-299					
289	# 289	-303					
288	# 288	-307					
287	# 287	-311					
286	# 286	-315					
285	# 285	-319					
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283	# 283	-327					
282	# 282	-331					
281	# 281	-335					
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289	# 289	-343					
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281	# 281	-415					
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287	# 287	-431					
286	# 286	-435					
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289	# 289	-503					
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286	# 286	-515					
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285	# 285	-639					
284	# 284	-643					
283	# 283	-647					
282	# 282	-651					
281	# 281	-655					
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289	# 289	-663					
288	# 288	-667					
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## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

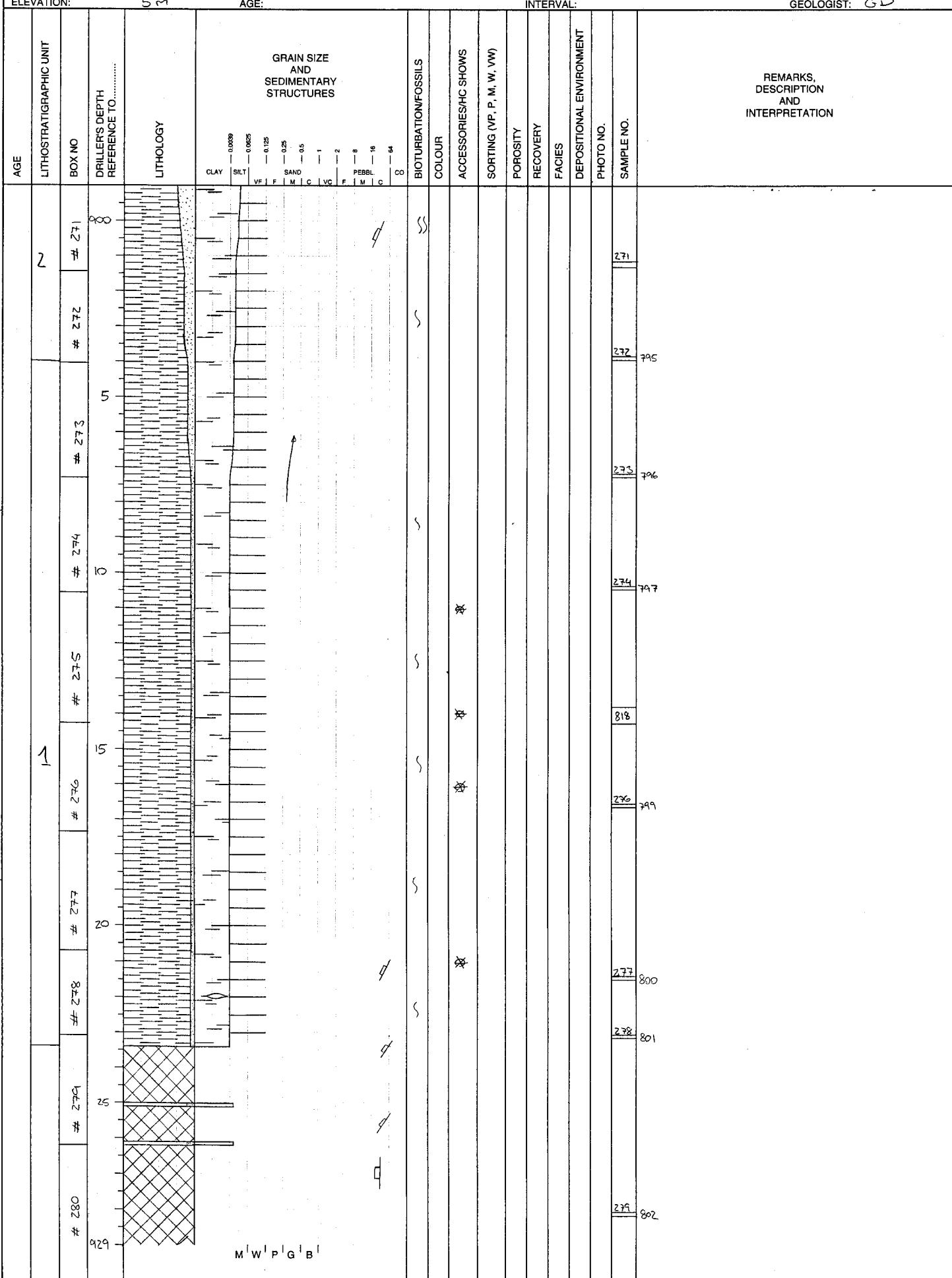
# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

LOCALITY: N $71^{\circ} 36' 42''$   
UTM COORDINATES: W $54^{\circ} 02' 31''$   
ELEVATION: 5 m

EL E V A T I O N O F D R I L L F L O O R                    2 m  
A B O V E G R O U N D - L E V E L :  
U N I T :  
A G E :

WELL NO: UMIPIK-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 04.09.97  
GEOLOGIST: GP



## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

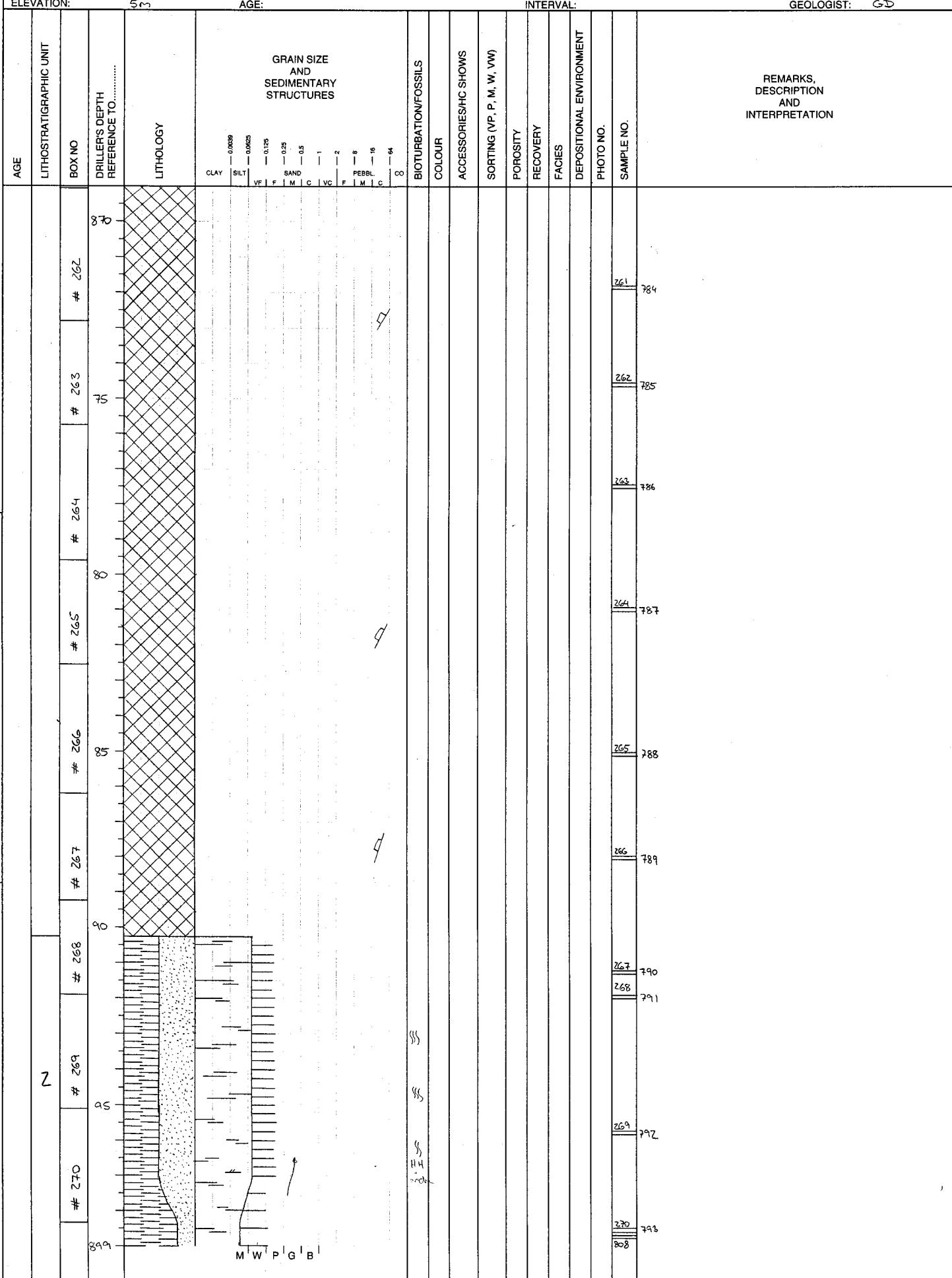
LOCALITY: N $71^{\circ} 36' 42''$   
UTM COORDINATES: W $54^{\circ} 02' 31''$   
ELEVATION: 5m

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

WELL NO: Umipuk - 1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

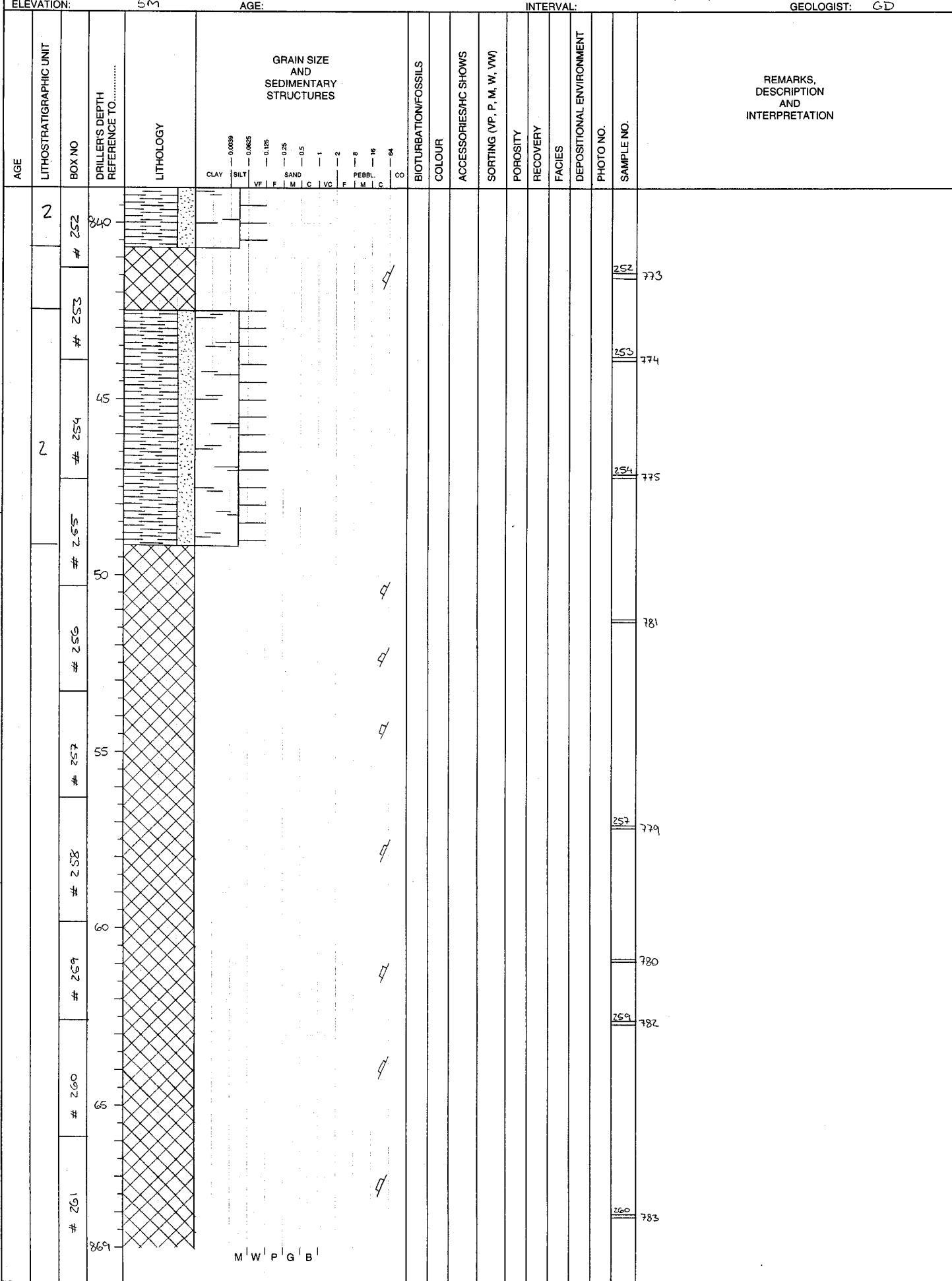
# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

SCALE: 1:100  
DATE: 04.09.97  
GEOLOGIST: GD



CORE DESCRIPTION  
SEDIMENTOLOGICAL DATA SHEETTHE GEOLOGICAL SURVEY OF  
DENMARK AND GREENLANDLOCALITY: N71°36'42"  
UTM COORDINATES: W54°02'31"  
ELEVATION: 5mELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

2 m

WELL NO: Umivik-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:SCALE: 1:100  
DATE: 04.09.97  
GEOLOGIST: CD

# CORE DESCRIPTION

## SEDIMENTOLOGICAL DATA SHEET

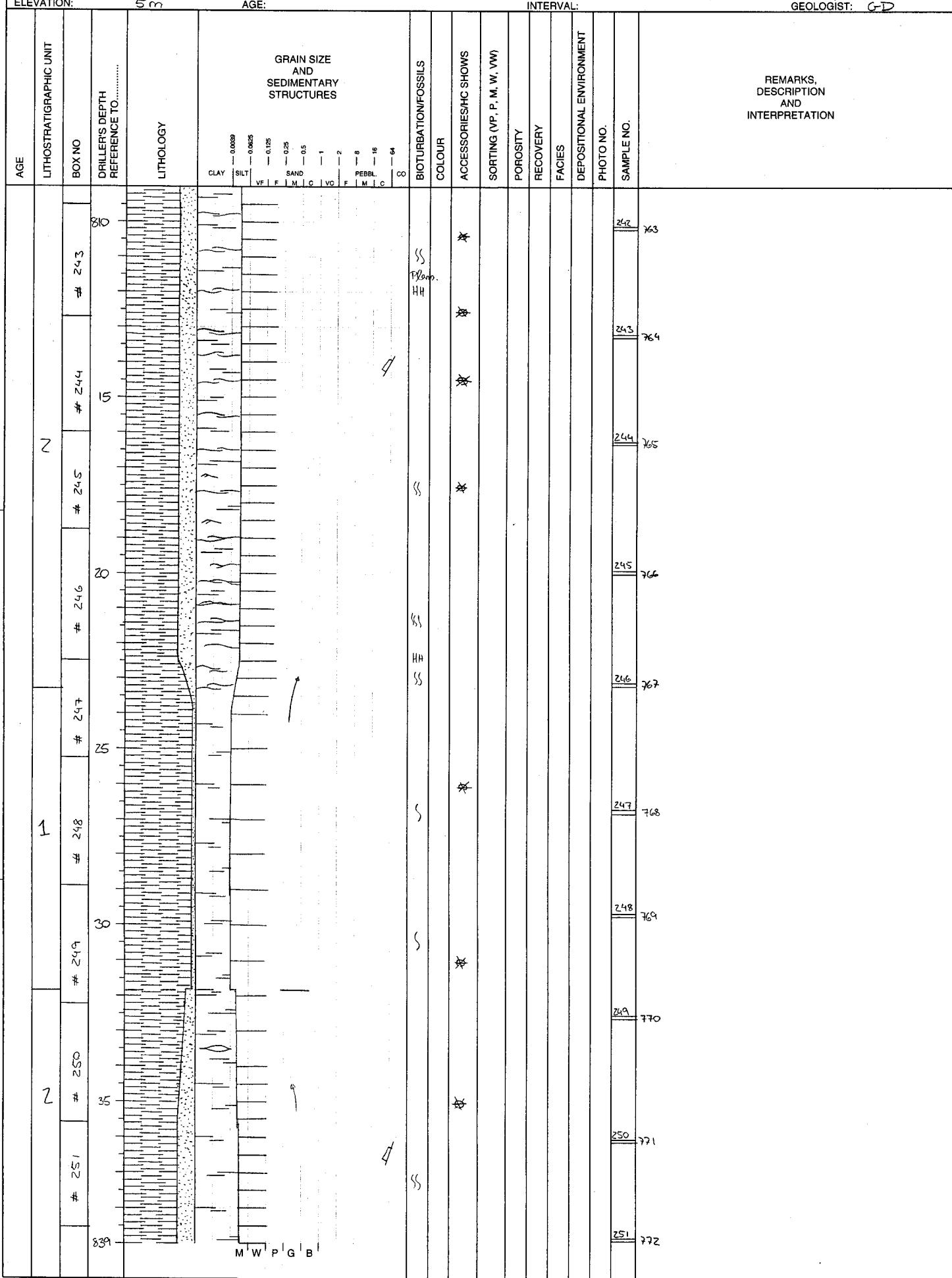
# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

LOCALITY: N $71^{\circ}36'42''$   
UTM COORDINATES: W $54^{\circ}02'31''$   
ELEVATION: 5 m

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

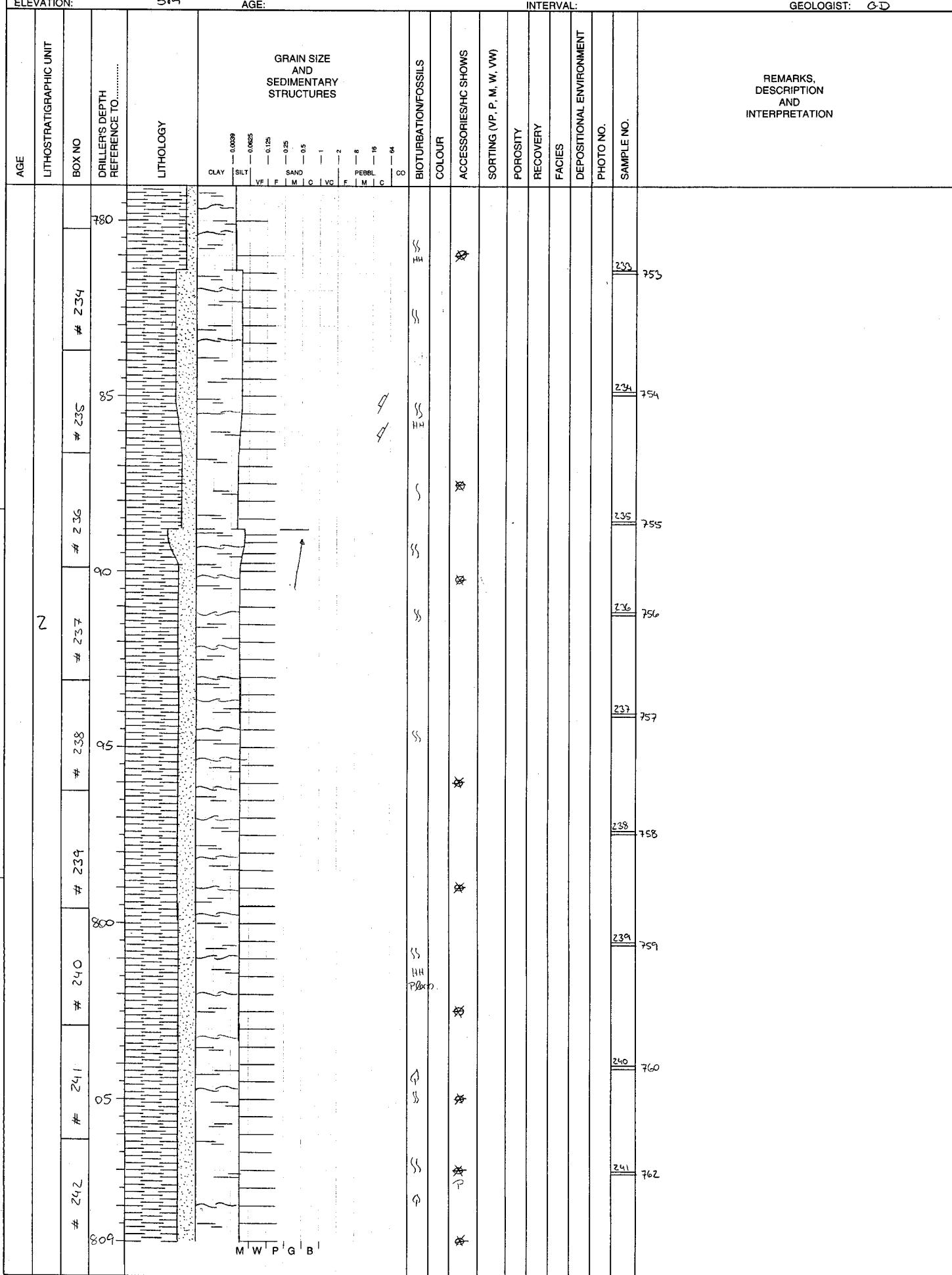
WELL NO: Um<sup>2</sup>v<sup>1</sup>k-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 09-04.09.97  
GEOLOGIST: G-P



CORE DESCRIPTION  
SEDIMENTOLOGICAL DATA SHEETTHE GEOLOGICAL SURVEY OF  
DENMARK AND GREENLANDLOCALITY: N 71° 36' 42"  
UTM COORDINATES: W 54° 02' 31"  
ELEVATION: 53ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

Zm

WELL NO: Umivik-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL: (cm/mm)SCALE: 1:100  
DATE: 09.04.97  
GEOLOGIST: GD

## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

LOCALITY: N $71^{\circ} 36' 42''$   
UTM COORDINATES: W $54^{\circ} 02' 31''$   
ELEVATION: 5 m

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

WELL NO: Um<sup>??</sup> v<sup>?</sup> k-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 10 - 09.04.97  
GEOLOGIST: G.P.



## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

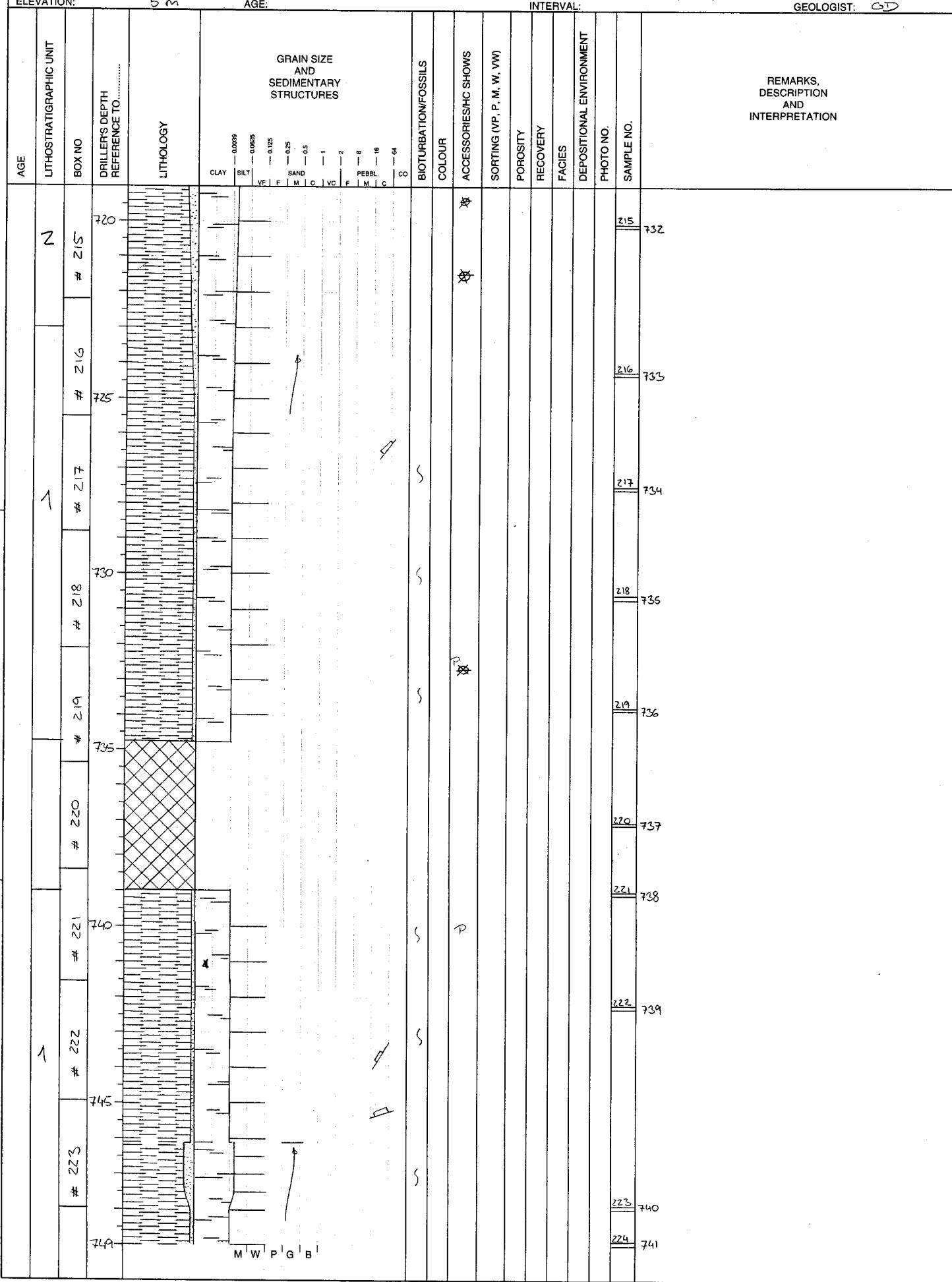
LOCALITY: N71° 36' 42"  
UTM COORDINATES: W54° 02' 31"  
ELEVATION: 5 M

**LEVEL OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:**

2 m

WELL NO: Umivik-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 10.04.97  
GEOLOGIST: GD



## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

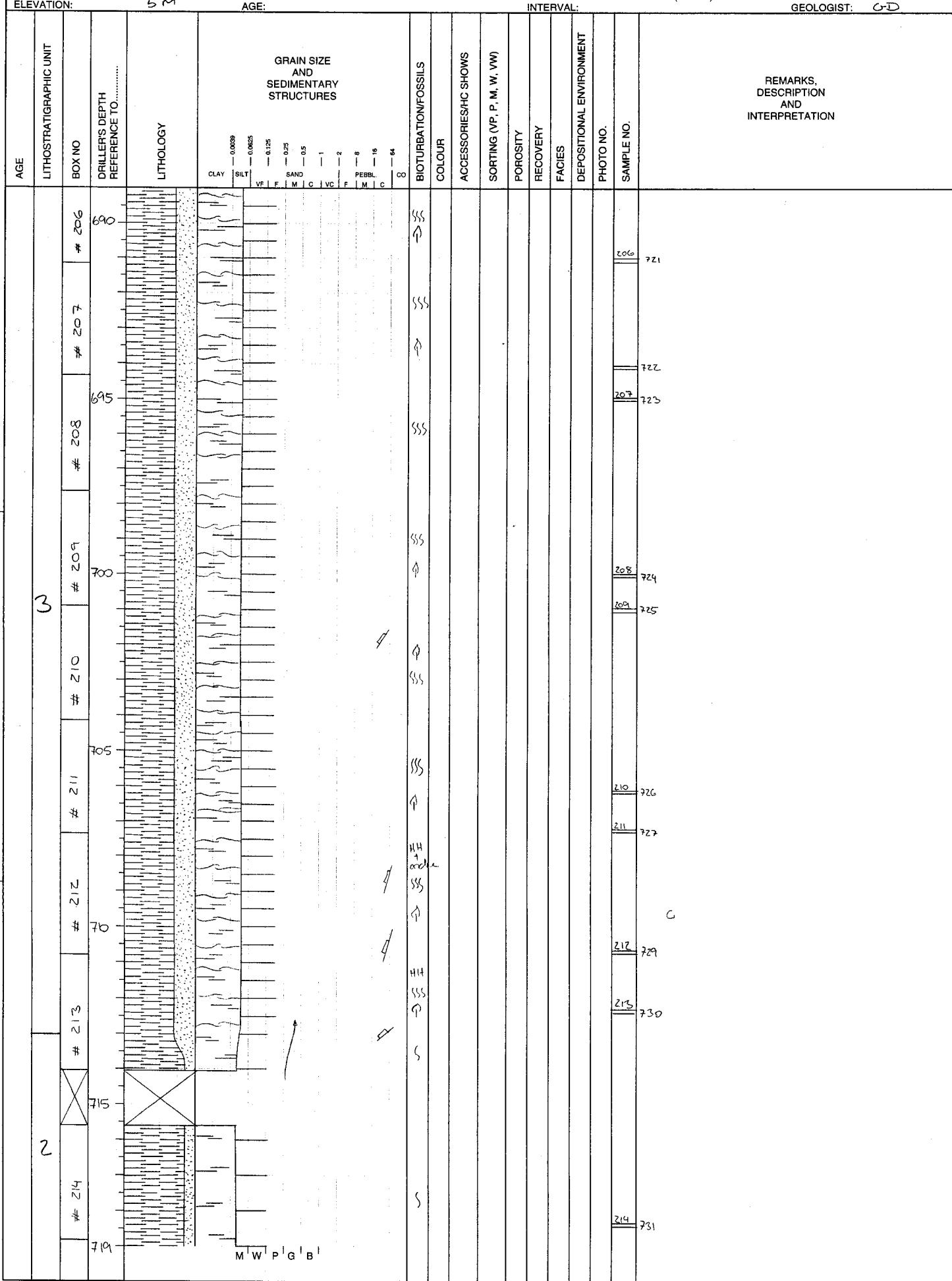
LOCALITY: N71°36'42" W54°02'31"  
UTM COORDINATES: 5 m  
ELEVATION:

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

2~

WELL NO: Um?ivik-  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 10.04.97  
GEOLOGIST: G-D



## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

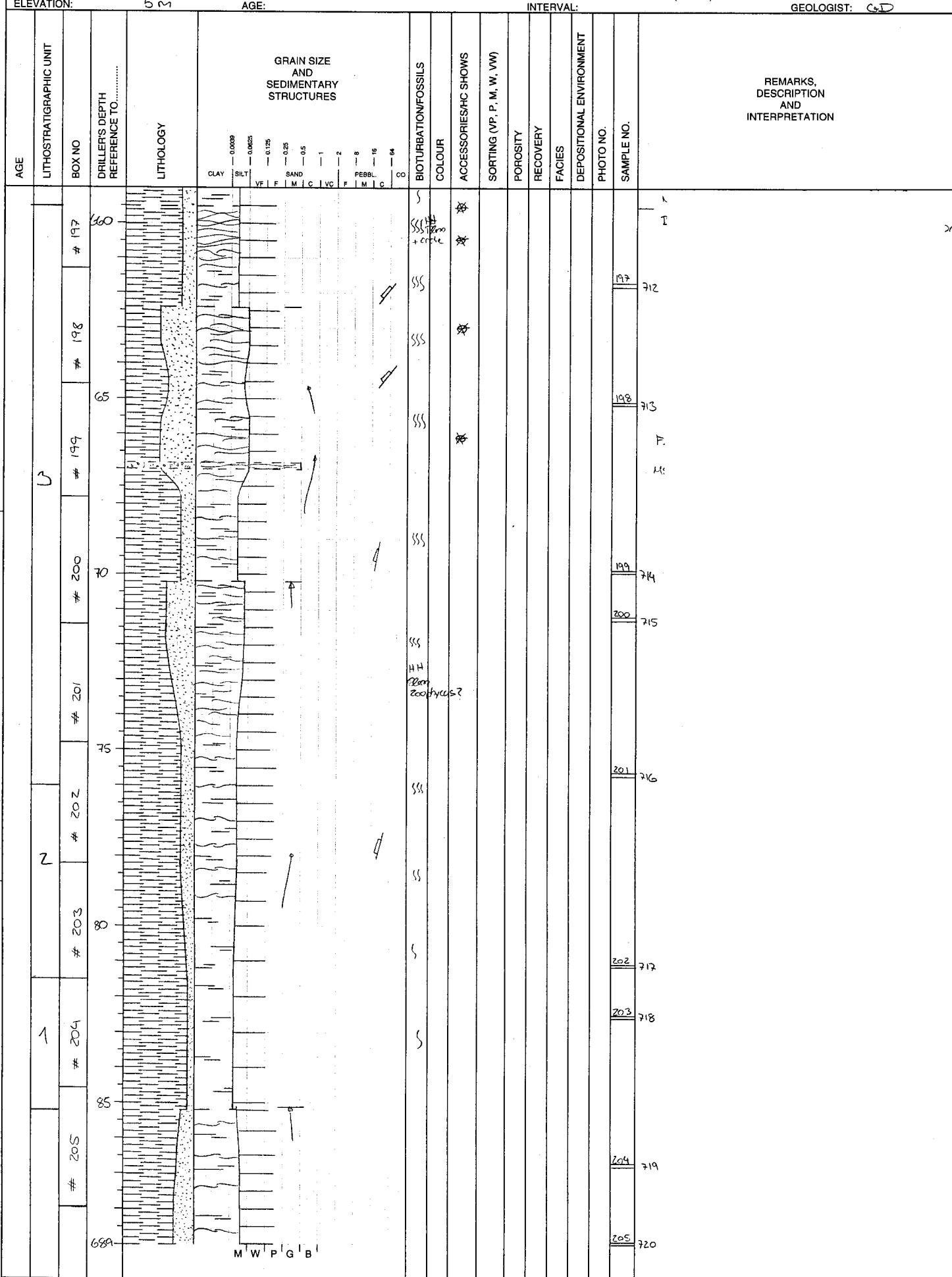
LOCALITY: N $71^{\circ} 36' 42''$   
UTM COORDINATES: W $54^{\circ} 02' 31''$   
ELEVATION: 5 m

**ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:**

23

WELL NO: UMPK-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 10.04.97  
GEOLOGIST: C.D.



## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

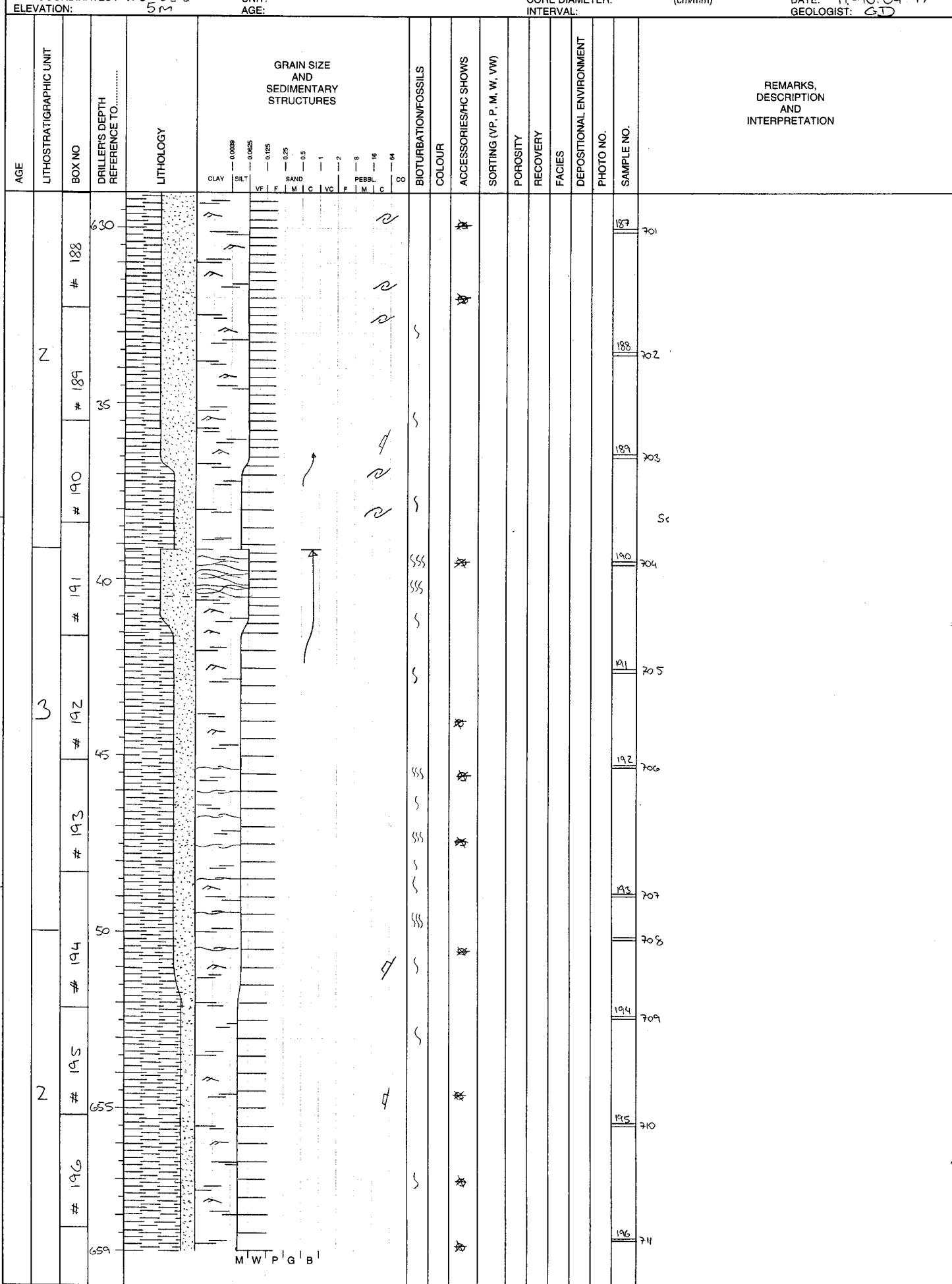
LOCALITY: N $71^{\circ}36'42''$   
UTM COORDINATES: W $54^{\circ}02'31''$   
ELEVATION: 5 M

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:

2m

WELL NO: Umivik-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 11-10-04 97  
GEOLOGIST: GD



# CORE DESCRIPTION

## SEDIMENTOLOGICAL DATA SHEET

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

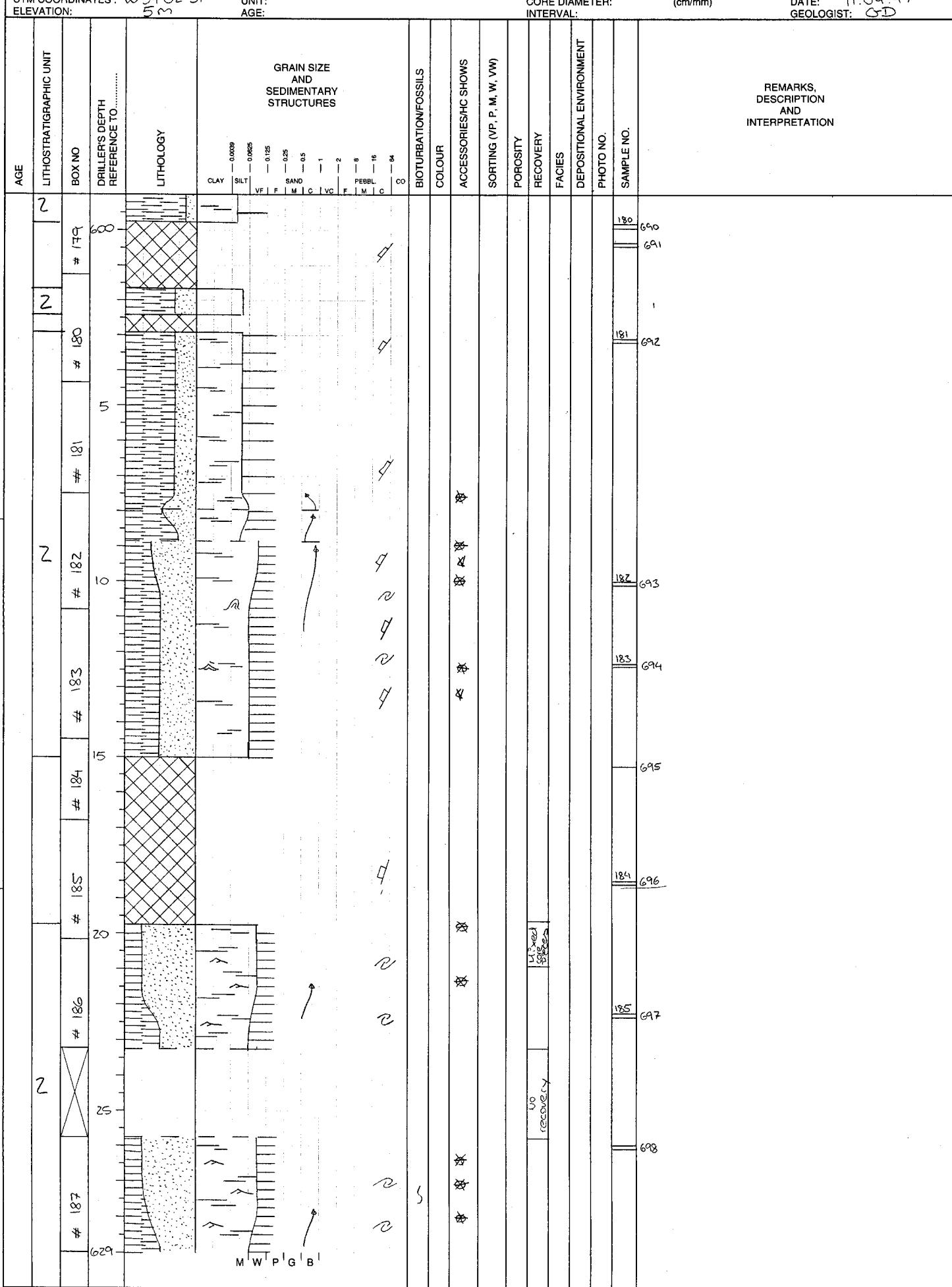
LOCALITY: N $71^{\circ} 36' 41''$   
UTM COORDINATES: W $54^{\circ} 02' 31''$   
ELEVATION: 5m

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:

2 m

WELL NO: Univik-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 11.09.97  
GEOLOGIST: GD



## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

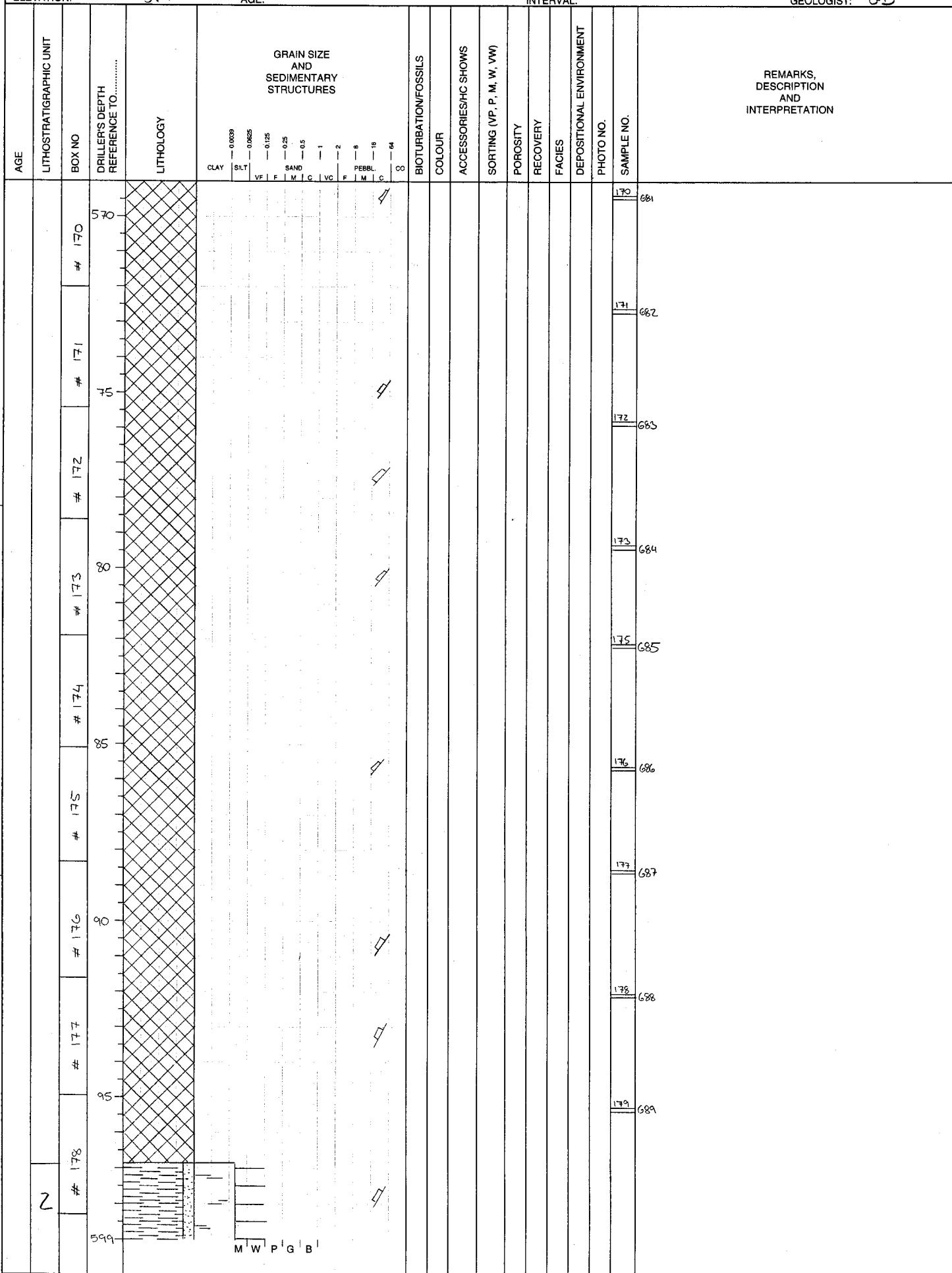
# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

LOCALITY: N 71° 36' 41" W 54° 02' 31"  
UTM COORDINATES: ELEVATION: 5m

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

WELL NO: Um? ? Vi k-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 11.09.97  
GEOLOGIST: G.D.



## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

LOCALITY: N71°36'41"  
UTM COORDINATES: W54°02'31"  
ELEVATION: 5m

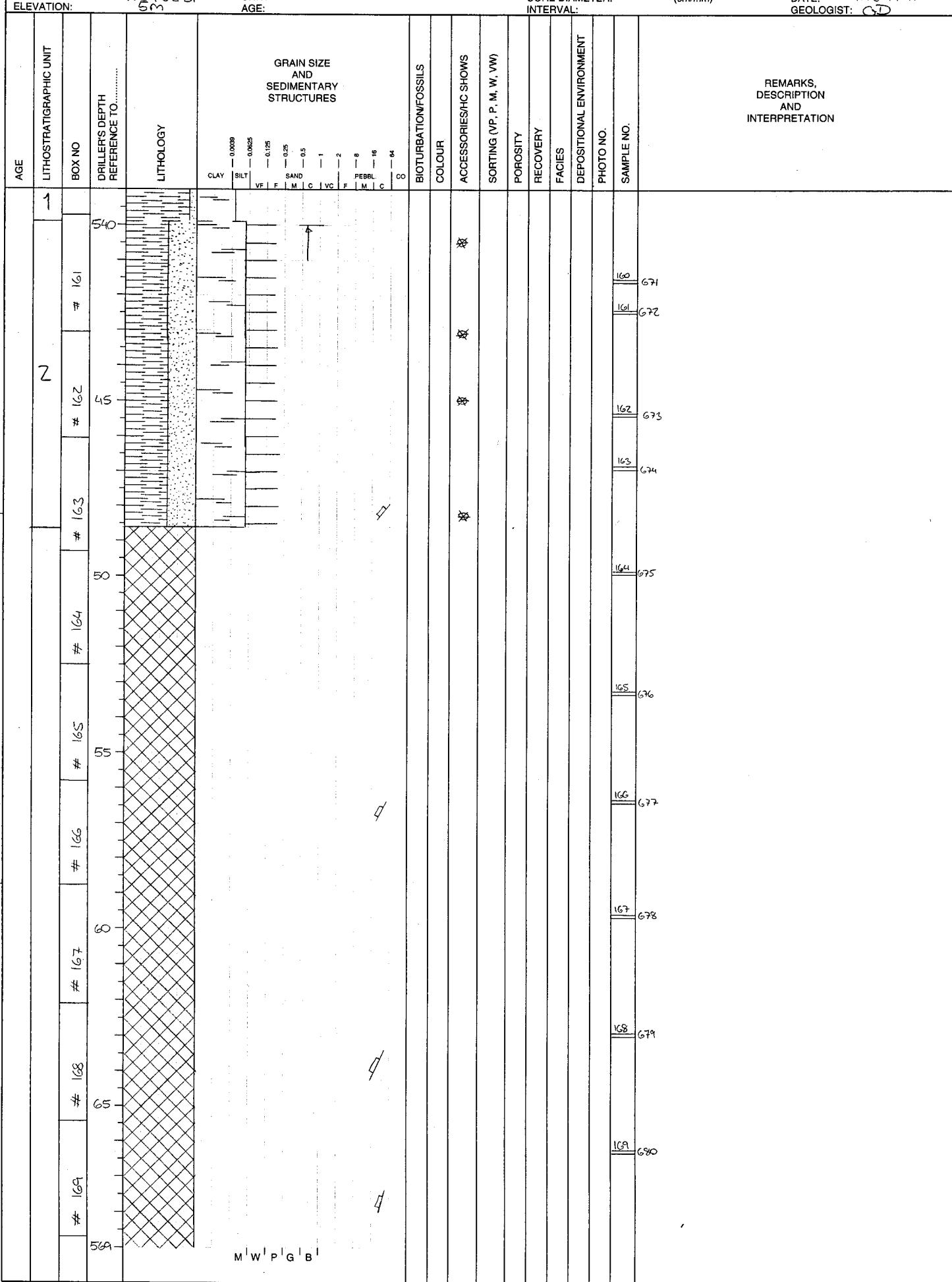
ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:

23

WELL NO: Umiivik-1  
BOX NO:

(cm/mm)

SCALE: 1:100  
DATE: 11.09.97  
GEOLOGIST: G.D.



## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

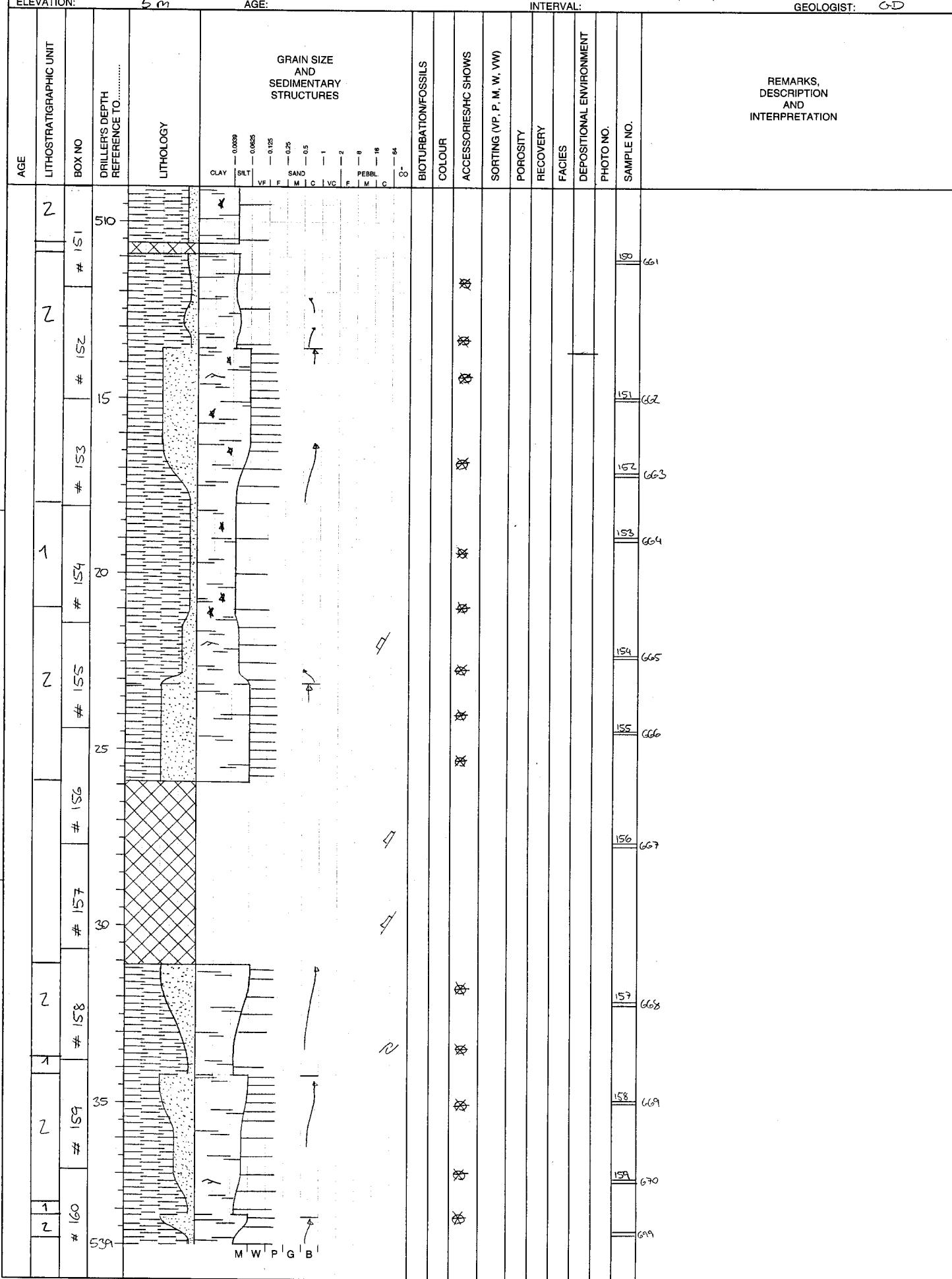
LOCALITY: N71°36'41" W54°02'31"  
UTM COORDINATES: ELEVATION: 5 m

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

2 m

WELL NO: UM-?; V<sup>o</sup>lk-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 12.11.09.97  
GEOLOGIST: GD

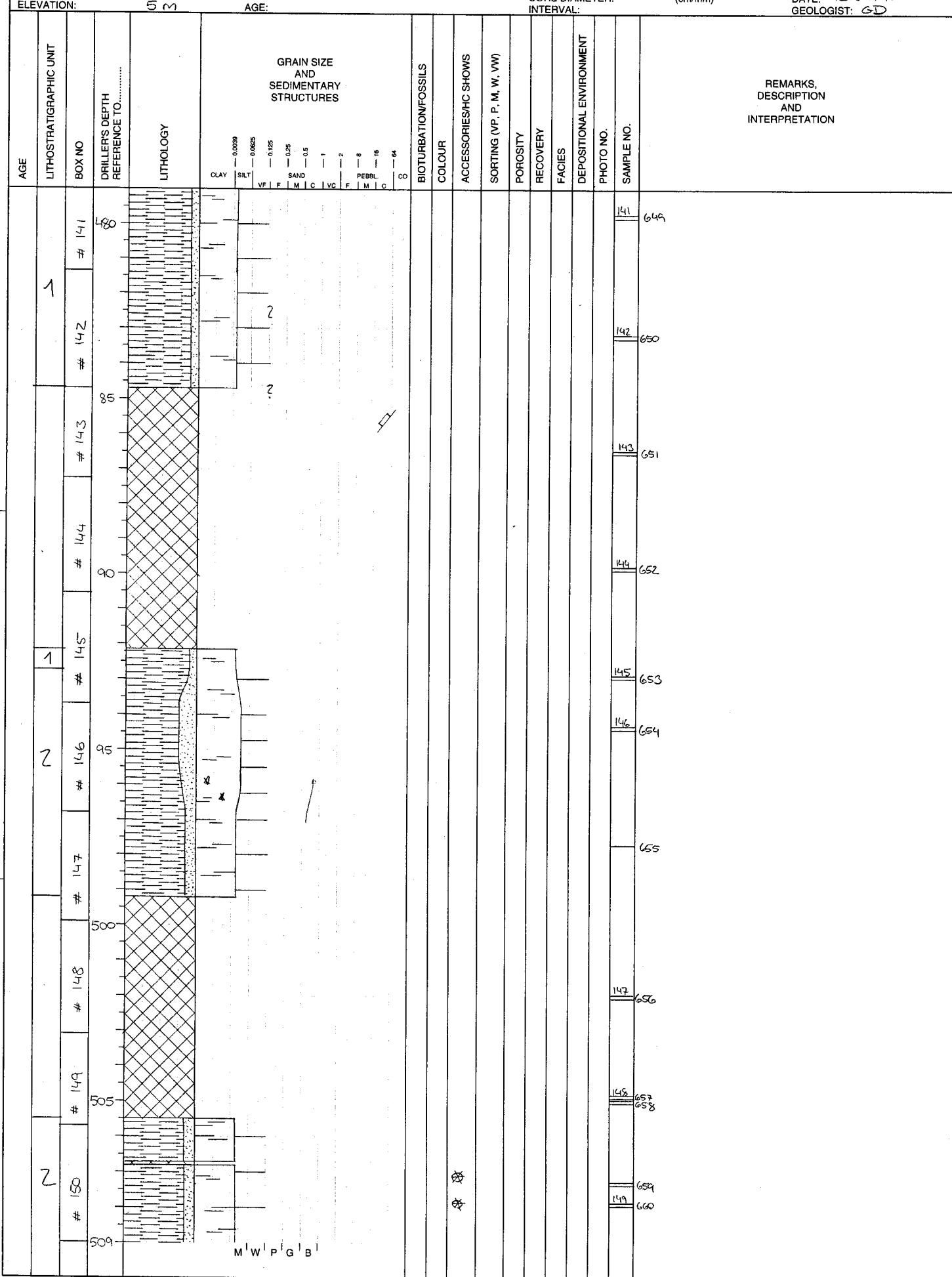


CORE DESCRIPTION  
SEDIMENTOLOGICAL DATA SHEETTHE GEOLOGICAL SURVEY OF  
DENMARK AND GREENLANDLOCALITY: N 71° 36' 41"  
UTM COORDINATES: W 54° 02' 31"  
ELEVATION: 5 MELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

2m

WELL NO: Um??Vik-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

(cm/mm)

SCALE: 1:100  
DATE: 12.09.97  
GEOLOGIST: GD

## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

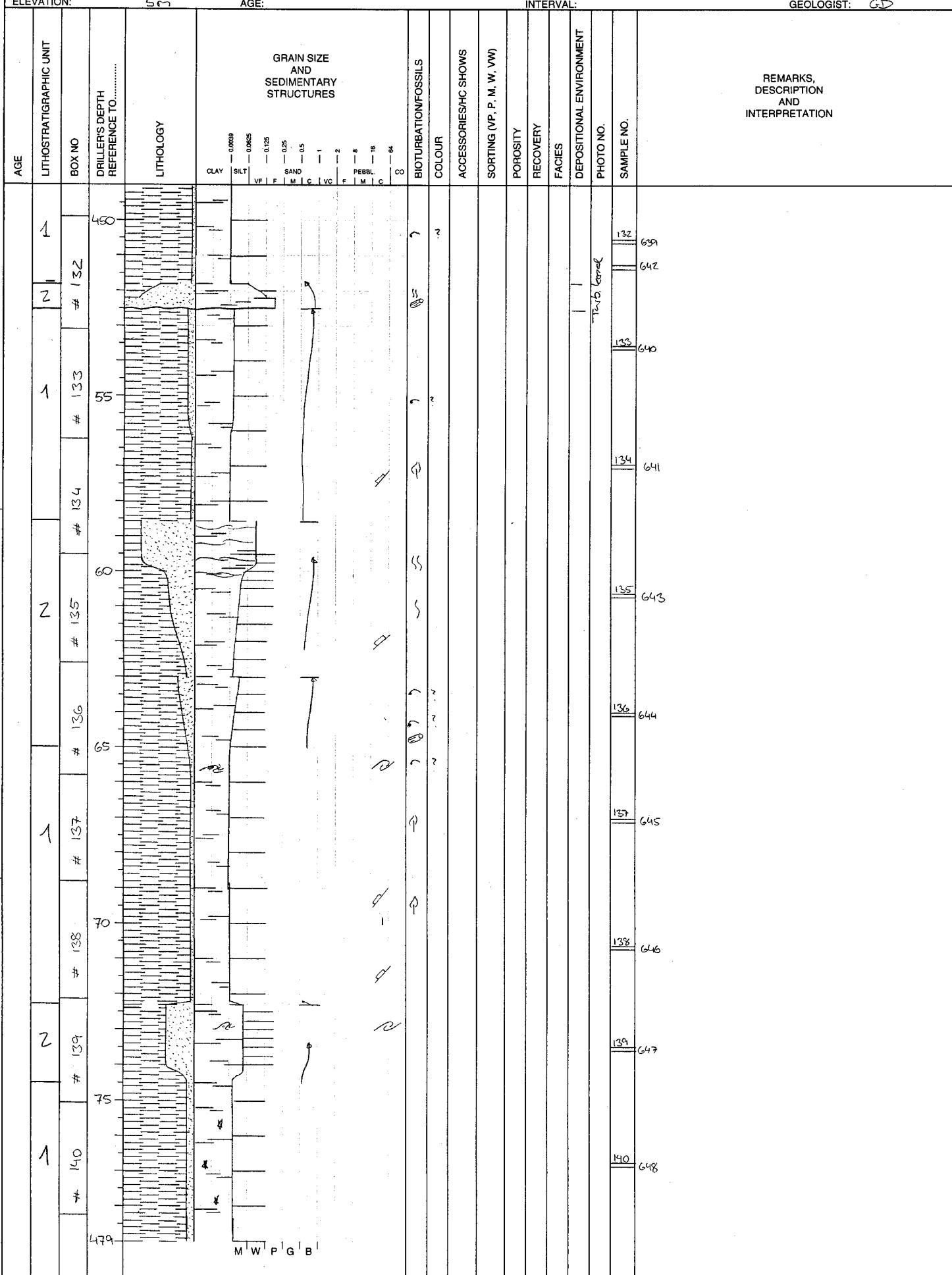
LOCALITY: N 71° 36' 41"  
UTM COORDINATES: W 54° 02' 31"  
ELEVATION: 5m

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

2m

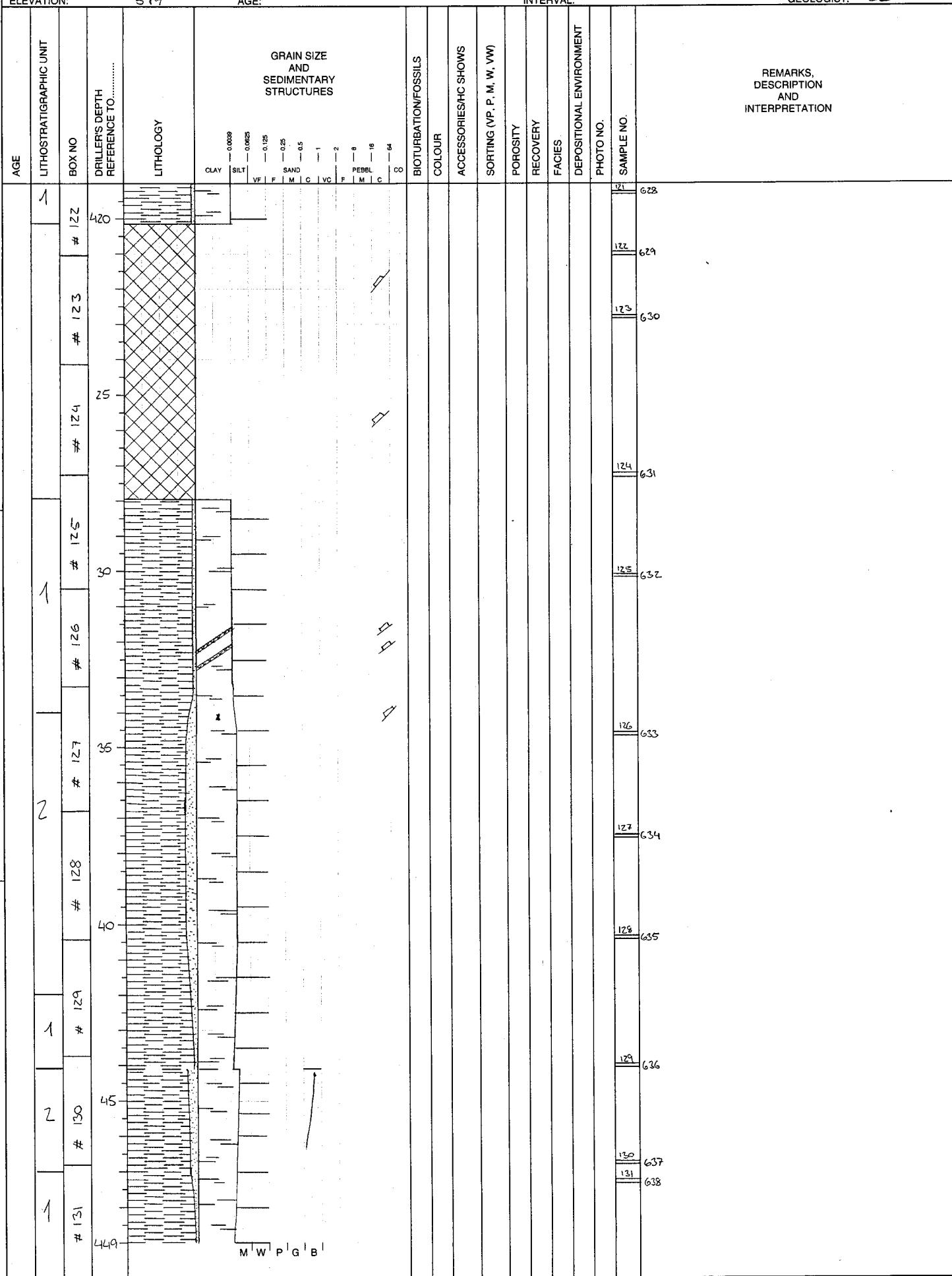
WELL NO: Umipuk-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 17 + 12.09.97  
GEOLOGIST: G.D.



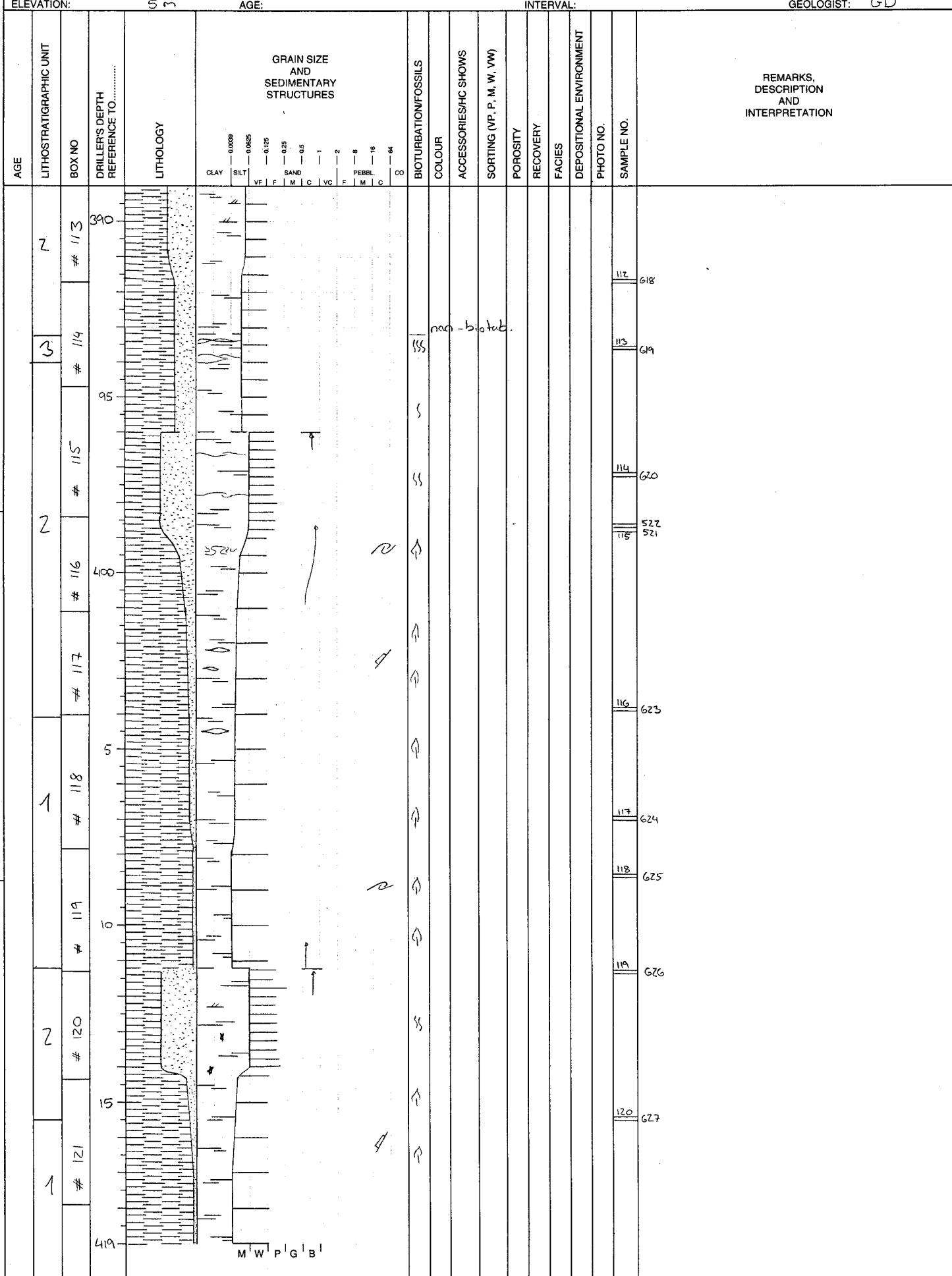
CORE DESCRIPTION  
SEDIMENTOLOGICAL DATA SHEETTHE GEOLOGICAL SURVEY OF  
DENMARK AND GREENLANDLOCALITY: N 71° 36' 41"  
UTM COORDINATES: W 54° 02' 31"  
ELEVATION: 5 mELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

2m

WELL NO: Umivik-1  
BOX NO:  
CORE DIAMETER:  
(cm/mm)SCALE: 1:100  
DATE: 17.09.97  
GEOLOGIST: GD

CORE DESCRIPTION  
SEDIMENTOLOGICAL DATA SHEETTHE GEOLOGICAL SURVEY OF  
DENMARK AND GREENLANDLOCALITY: N 71° 36' 41"  
UTM COORDINATES: W 54° 02' 31"  
ELEVATION: 5 mELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

2 m

WELL NO: Um?;v?k-1  
BOX NO:  
CORE DIAMETER:  
(cm/mm)  
INTERVAL:SCALE: 1:100  
DATE: 17.09.97  
GEOLOGIST: GD

## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

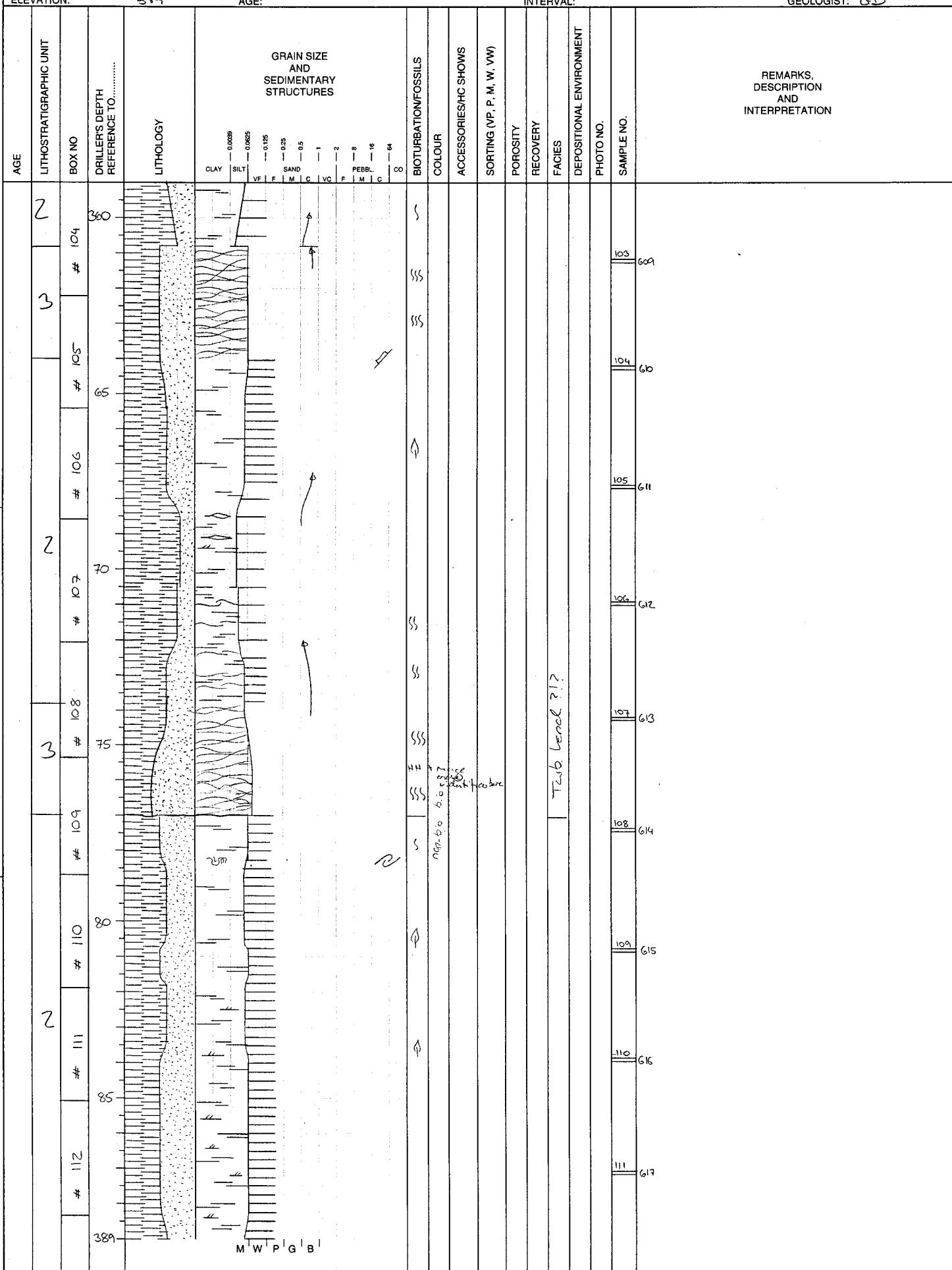
LOCALITY: N 71° 36' 41"  
UTM COORDINATES: W 54° 02' 31"  
ELEVATION: 57

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

WELL NO: Umpire - 1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

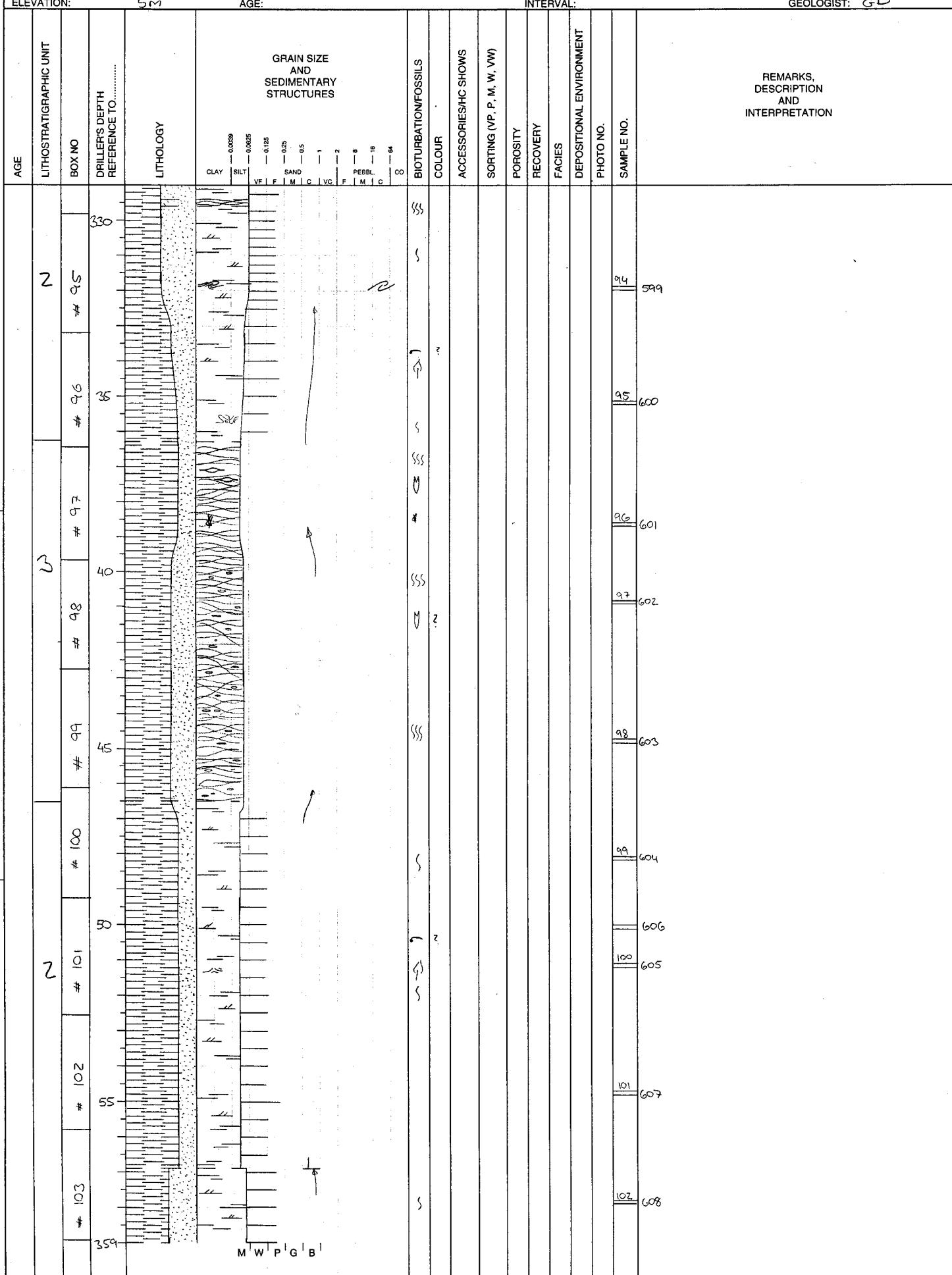
# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

SCALE: 1:100  
DATE: 17.09.97  
GEOLOGIST: GD



CORE DESCRIPTION  
SEDIMENTOLOGICAL DATA SHEETTHE GEOLOGICAL SURVEY OF  
DENMARK AND GREENLANDLOCALITY: N 71° 36' 41"  
UTM COORDINATES: W 54° 02' 31"  
ELEVATION: 5MELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

2m

WELL NO: Um?r?k-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:SCALE: 1:100  
DATE: 18.09.97  
GEOLOGIST: GD

## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

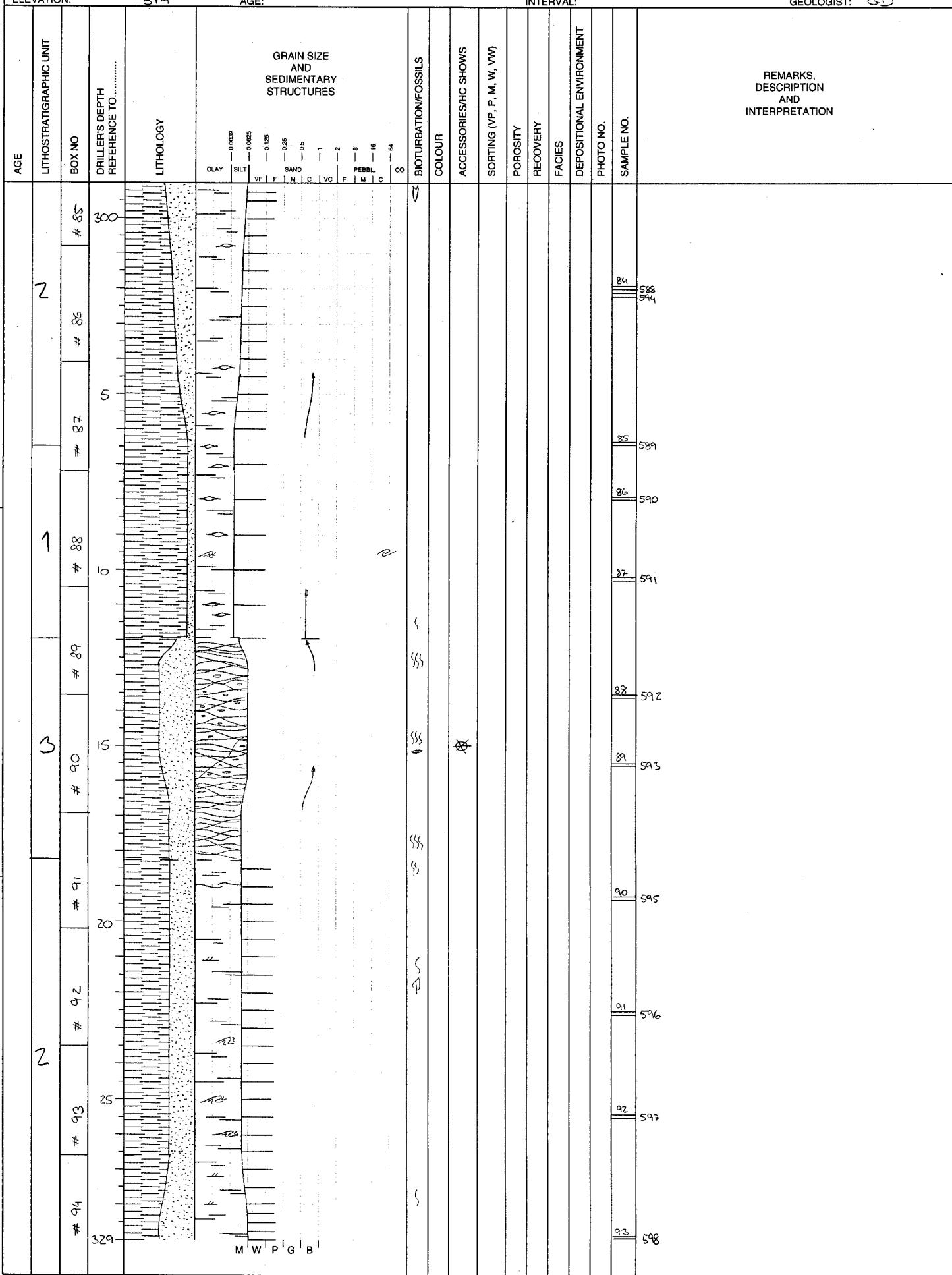
LOCALITY: N $71^{\circ} 36' 41''$   
UTM COORDINATES: W $54^{\circ} 02' 31''$   
ELEVATION: 5m

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

WELL NO: Um?ivk-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

SCALE: 1:100  
DATE: 18.09.97  
GEOLOGIST: GJ

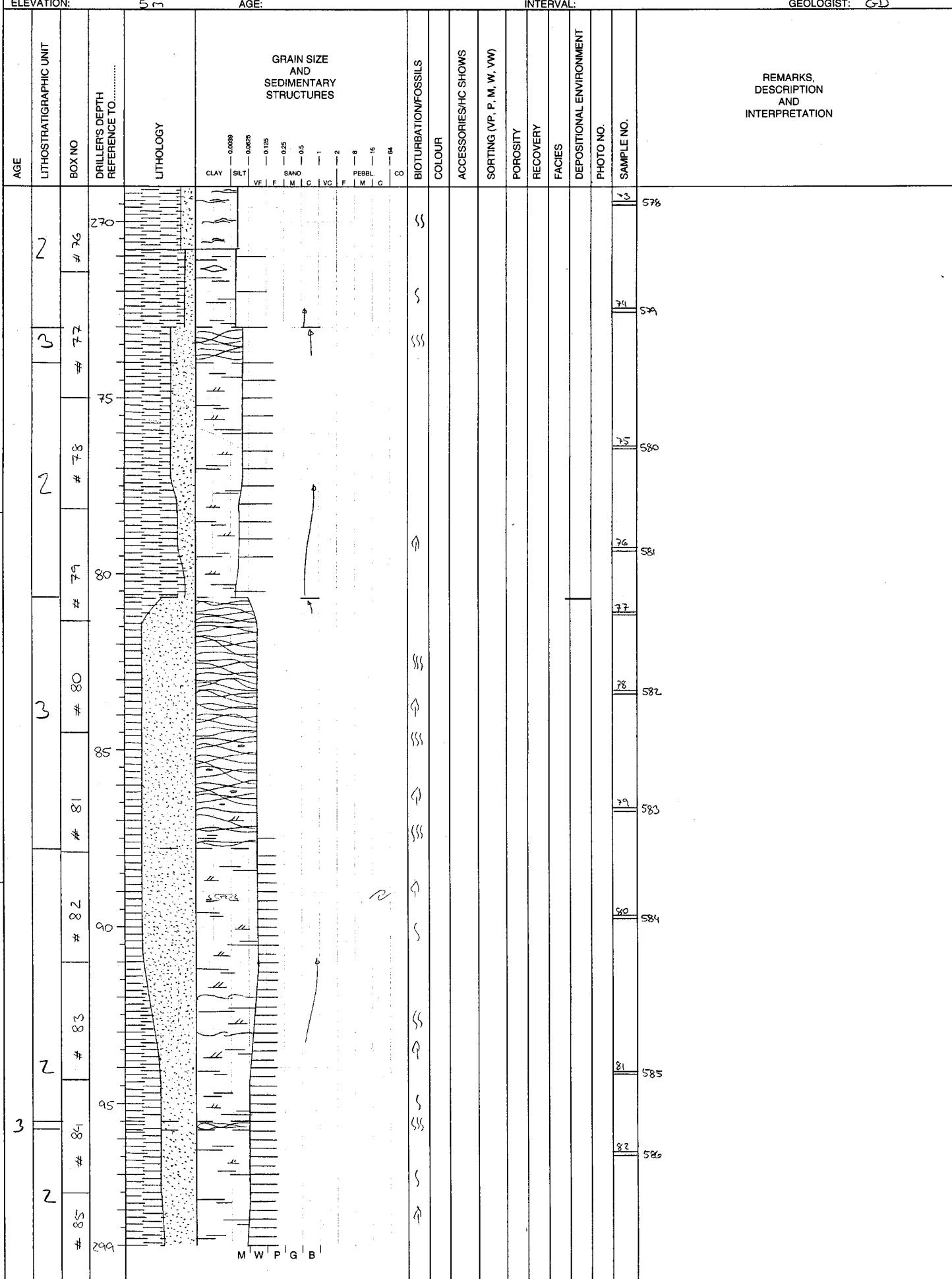


CORE DESCRIPTION  
SEDIMENTOLOGICAL DATA SHEETTHE GEOLOGICAL SURVEY OF  
DENMARK AND GREENLANDLOCALITY: N79°36'41"  
UTM COORDINATES: W 54°02'31"  
ELEVATION: 5 mELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

2 m

WELL NO: Um?ivik -1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

(cm/mm)

SCALE: 1:100  
DATE: 19 + 18.09.97  
GEOLOGIST: GD

# CORE DESCRIPTION

## SEDIMENTOLOGICAL DATA SHEET

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

LOCALITY: N 71° 36' 41"  
UTM COORDINATES: W 54° 02' 31"  
ELEVATION: 5m

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

2 M

WELL NO: Umivik-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 9.09.97  
GEOLOGIST: GP

## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

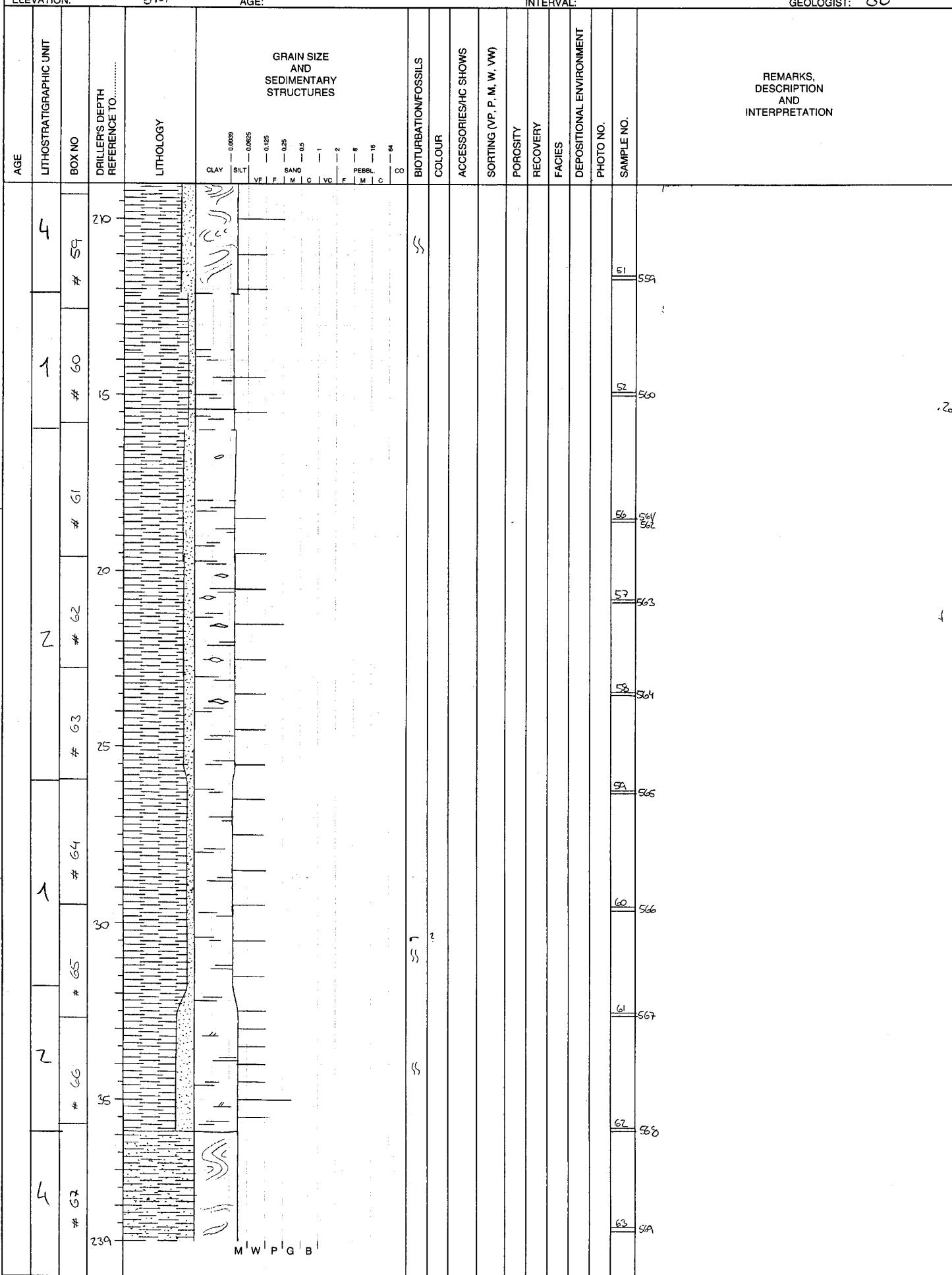
# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

LOCALITY: N71° 36' 41"  
UTM COORDINATES: W54° 02' 31"  
ELEVATION: 5M

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

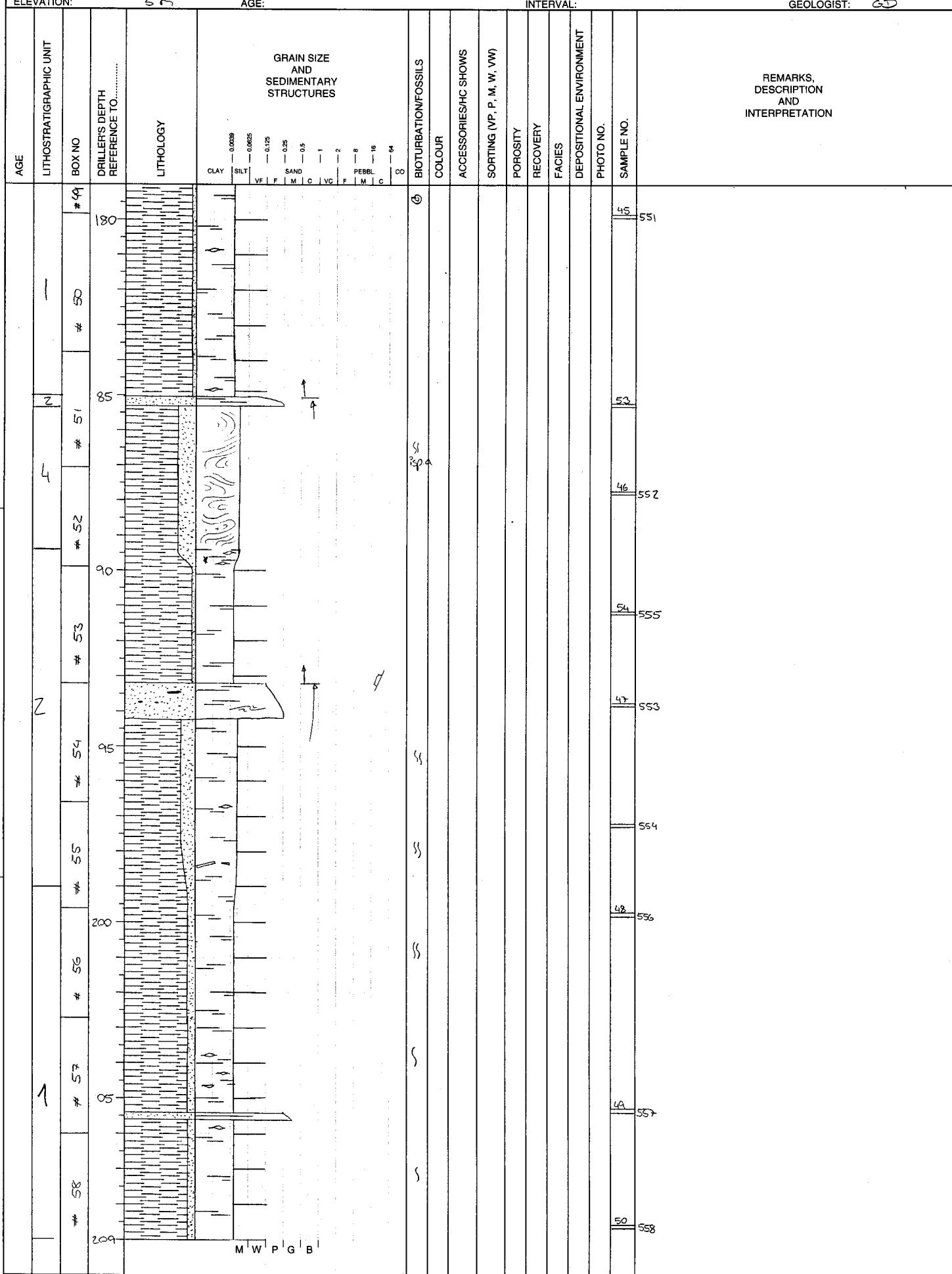
WELL NO: Univik-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 22+19.09.97  
GEOLOGIST: GD



CORE DESCRIPTION  
SEDIMENTOLOGICAL DATA SHEETTHE GEOLOGICAL SURVEY OF  
DENMARK AND GREENLANDLOCALITY: N 71° 36' 41"  
UTM COORDINATES: W 54° 02' 31"  
ELEVATION: 57ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

2m

WELL NO: Umivik-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:SCALE: 1:100  
DATE: 22.09.97  
GEOLOGIST: GD

# CORE DESCRIPTION

## SEDIMENTOLOGICAL DATA SHEET

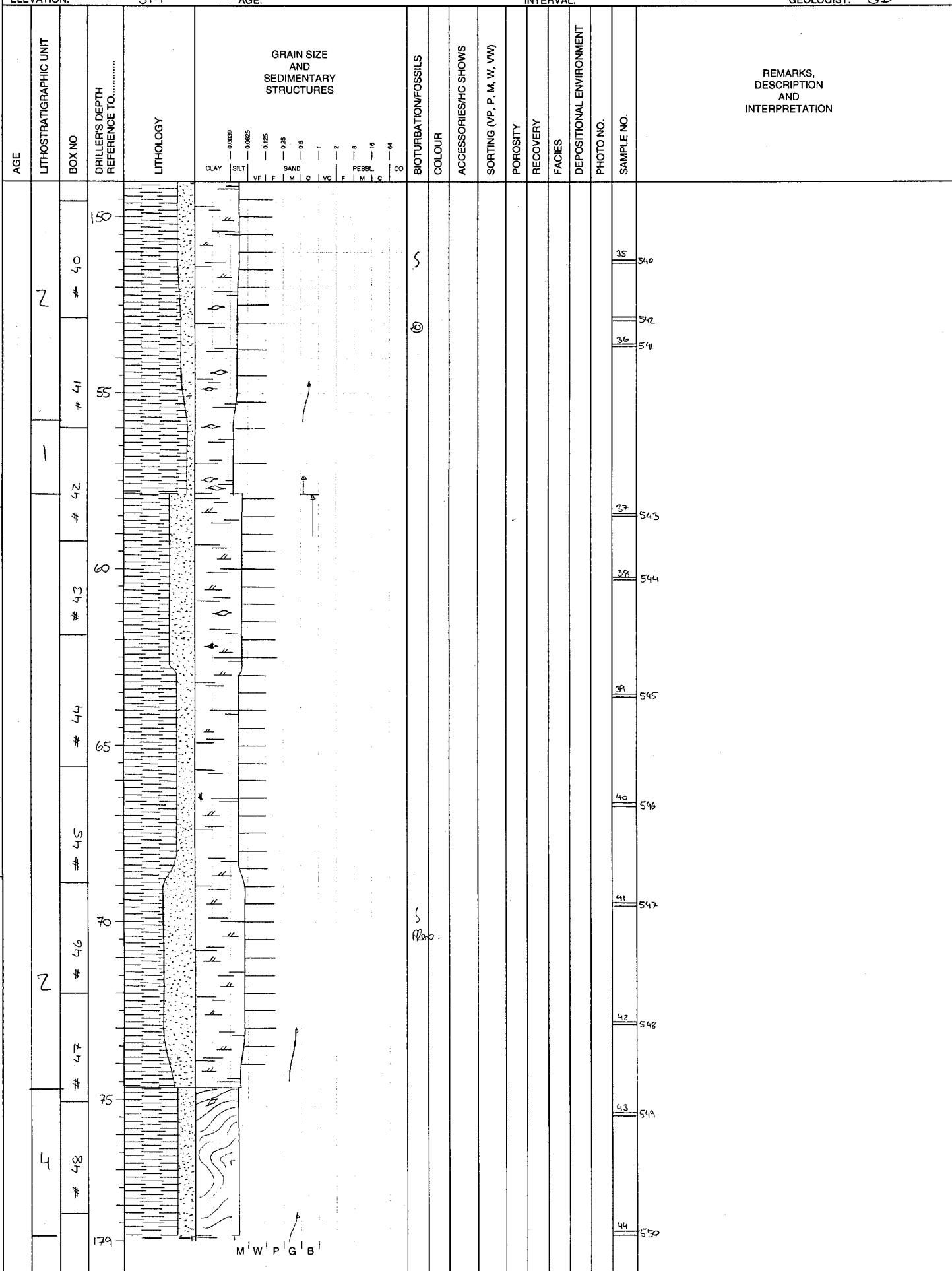
# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

LOCALITY: N71°36'41" W54°02'31"  
UTM COORDINATES: ELEVATION: 5m

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

WELL NO: UMIK-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 25.09.97  
GEOLOGIST: G.D.



CORE DESCRIPTION  
SEDIMENTOLOGICAL DATA SHEETTHE GEOLOGICAL SURVEY OF  
DENMARK AND GREENLAND

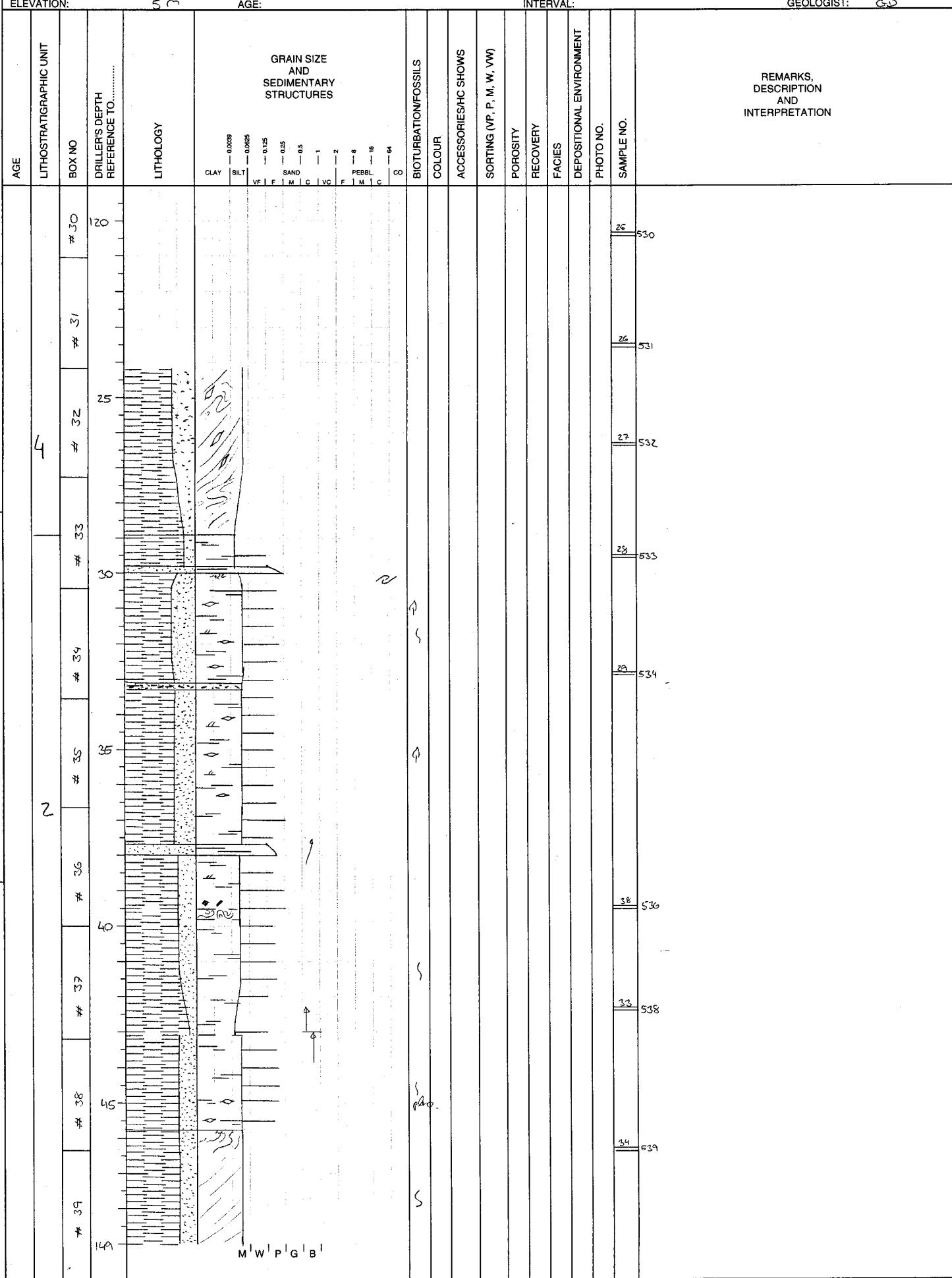
LOCALITY: N 71° 36' 41" UTM COORDINATES: W 54° 02' 31" ELEVATION: 53

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

2 m

WELL NO: Um?;vilk-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

(cm/mm)

SCALE: 1:100  
DATE: 25.09.97  
GEOLOGIST: GD

## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

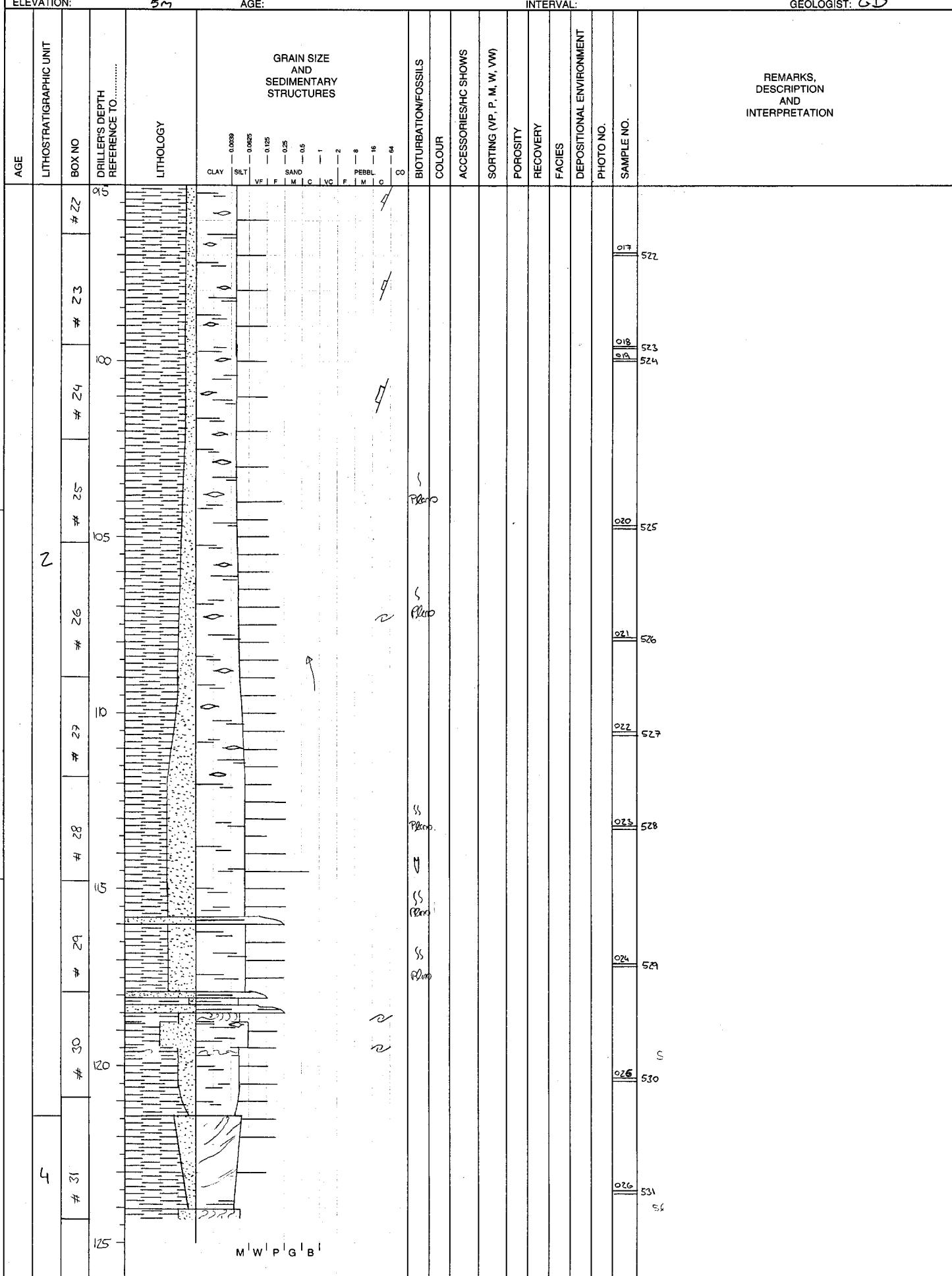
LOCALITY: N71°36'41" W54°02'31"  
UTM COORDINATES: ELEVATION: 5m

EL E V A T I O N O F D R I L L F L O O R  
A B O V E G R O U N D - L E V E L : 2 m  
U N I T :  
A G E :

WELL NO: UMI-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

SCALE: 1:100  
DATE: 30.09.97  
GEOLOGIST: GD



## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

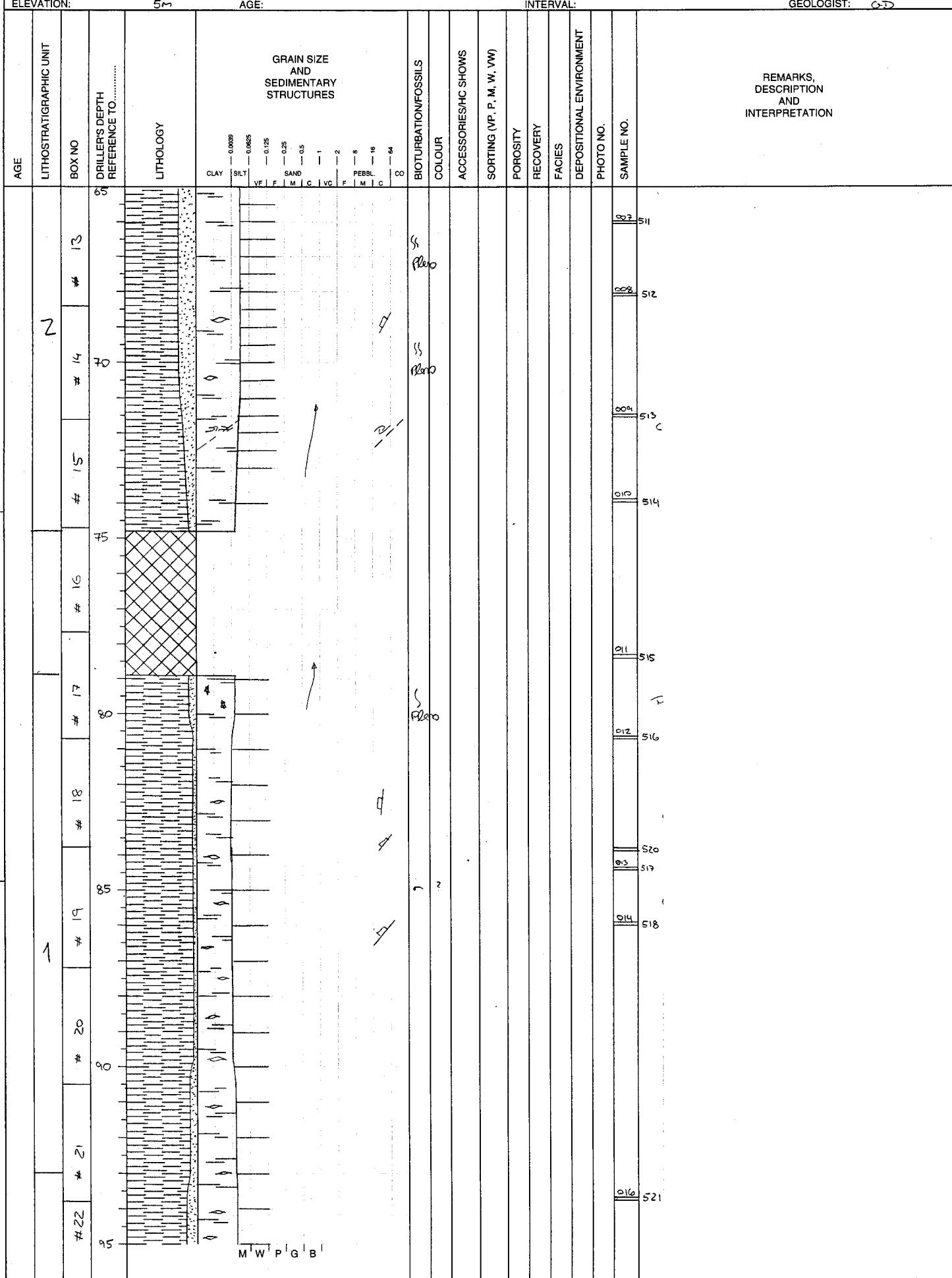
LOCALITY: N71°36'41"  
UTM COORDINATES: W54°02'31"  
ELEVATION: 5m

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

WELL NO: Um??v?k-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

SCALE: 1:100  
DATE: 30.09.97  
GEOLOGIST: CJD



## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

LOCALITY: N71° 36' 41"  
UTM COORDINATES: W54° 02' 31"  
ELEVATION: 5 M

ELEVATION OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:

2.3

WELL NO: UMIIVIK-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

SCALE: 1:100  
DATE: 02.10.97  
GEOLOGIST: OD

SHEET 40 OF 40

## CORE DESCRIPTION SEDIMENTOLOGICAL DATA SHEET

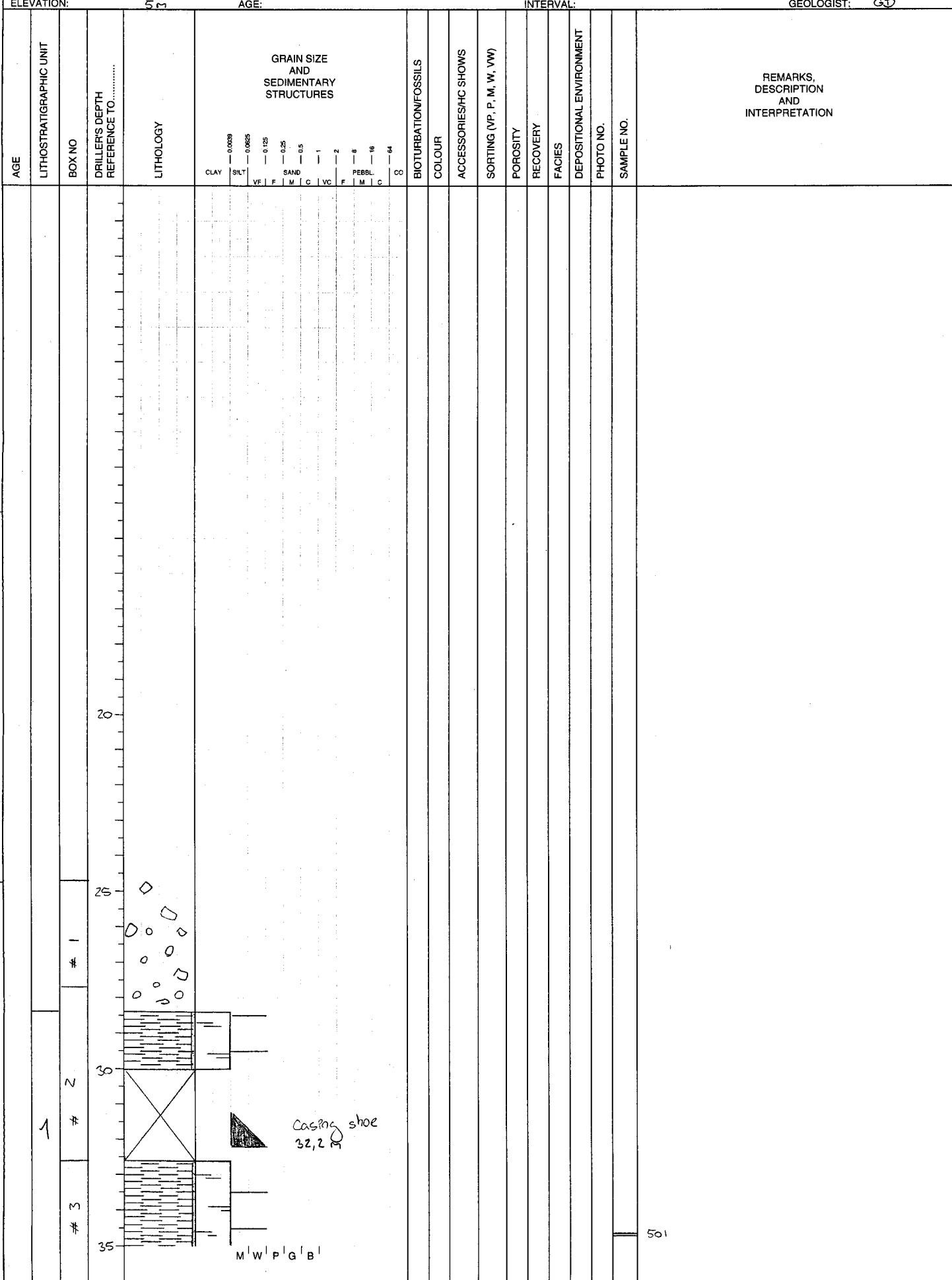
# THE GEOLOGICAL SURVEY OF DENMARK AND GREENLAND

LOCALITY: N71°36'41"  
UTM COORDINATES: W 54°02'31"  
ELEVATION: 5 M

**LEVEL OF DRILL FLOOR  
ABOVE GROUND-LEVEL:  
UNIT:  
AGE:**

WELL NO: UM<sup>2</sup>?V<sup>2</sup>k-1  
BOX NO:  
CORE DIAMETER:  
INTERVAL:

SCALE: 1:100  
DATE: 02.10.97  
GEOLOGIST: G.D.

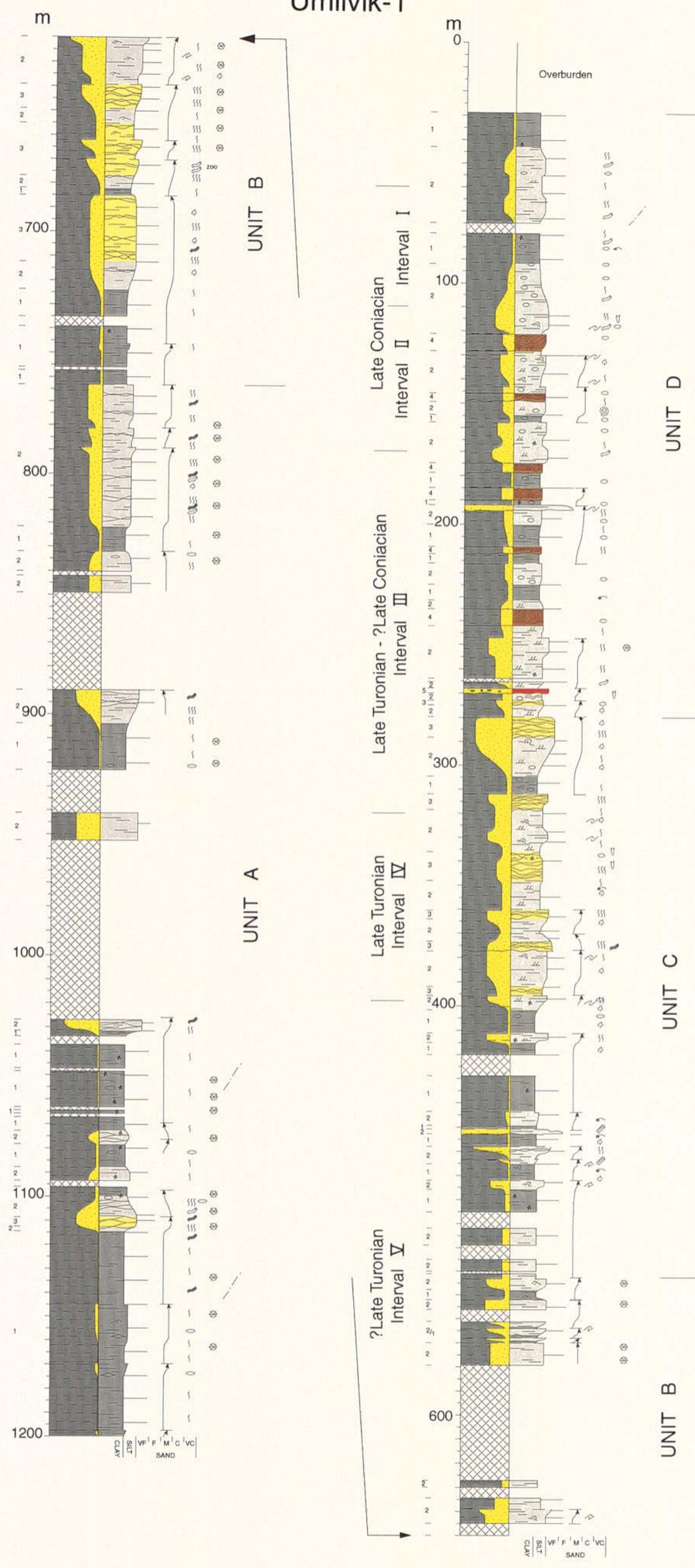


## **Enclosure**

**Enclosure 1.** Generalised log of the Umiivik-1 core.

# Umiivik-1

No palynomorphs recorded due to thermal influence from igneous intrusions



## LEGEND

### Facies associations

- 1 Mudstone with very thin sandstone streaks
- 2 Thinly interbedded sandstone and mudstone
- 3 Heavily bioturbated, thinly interbedded sandstone and mudstone
- 4 Chaotic beds
- 5 Structureless, muddy sandstone

### Lithology

- Igneous intrusives
- Clay and siltstone
- Sandstone
- Muddy sandstone with pebbles and mudstone clasts

### Sedimentary features

- Concretion
- Parallel lamination
- Slumping
- Disturbed bedding
- Cross-lamination
- Bioturbation

### Biota

- Pyrite
- Ammonite
- Belemnite
- Bivalve
- Plant and wood fragments
- Logs
- Weakly bioturbated
- Moderately bioturbated
- Heavily bioturbated
- Planolites* isp.
- Helminthopsis horizontalis*

### Fault

- Gas
- CU-cycle
- FU-cycle