DANMARKS OG GRØNLANDS GEOLOGISKE UNDERSØGELSE RAPPORT 2016/68

Pituffik Titanium Project: Results of 2016 Fieldwork

Offshore vibrocore sampling and core logging

Ole Bennike, Maja Bar Rasmussen & Samuel Weatherley

GEOLOGICAL SURVEY OF DENMARK AND GREENLAND
DANISH MINISTRY OF ENERGY, UTILITIES AND CLIMATE

G E U S

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1. Summary

A sampling programme using vibrocorers was conducted in July and August 2016 in the Moriusaq area of the Wolstenholme Fjord. The aim was to sample and map potential off-shore heavy mineral deposits. The work was conducted by GEUS for FinnAust Mining Plc.

The work was based on results from a combined echo sounding, C-boom and grab sample survey that was carried out in August 2015 (Jensen & Rödel 2015). The echo sounding work resulted in a detailed bathymetric map of the area. The high-resolution C-boom data resulted in a detailed map showing sediment thickness in the investigated area. The C-boom data were interpreted – in connection with a glacio-isostatic adjustment model for the region – to indicate the occurrence of drowned lowstand and transgressive seismic units that could hold potential heavy mineral black sand resources deposited in drowned beaches. This interpretation needed to be tested by coring.

Vibrocoring in 2016 was conducted along a 30 km long stretch of coast line from a coring pontoon platform in water depths between 0 and 6 metres, and from the vessel M/S *Kisaq* in deeper waters. In shallow waters penetration was limited, whereas penetration was better in deeper waters. This probably reflects the long fetch to the south-west, which result in fine-grained sediments being transported from shallow waters to deeper waters during storms.

The lengths of retrieved cores typically fall in the range 0.25–1.9 m. About half of the vibrocores were extruded in the field, and about half cores were kept in the core tubes. The extruded sediments were described briefly in the field, whereas the non-extruded sediment cores were shipped to GEUS, where the cores were split lengthwise, logged and photographed.

The vibrocorer we used was a light-weight system (see below) that could be operated by hand from a coring platform or with the crane from M/S *Kisaq*. The maximum length of core recovered from any locality was 1.98 m. For deeper penetration heavier equipment is needed, or an alternative technique such as sonic drilling could be used.

2. Introduction

The Thule black sand province in North-West Greenland (76°–78°N) is a potential ilmenite- and magnetite-rich sand resource, consisting of modern and raised beaches – and possibly also submerged beaches. The heavy sand in the beaches is characterised by a high concentration of ilmenite. The main source of the ilmenite sand is a regional Proterozoic dolerite sill and dyke complex that has intruded Proterozoic sedimentary rocks, mainly sandstone, siltstone and mudstone. The geology and mineral occurrences in the region were described by Dawes (2006) and a review of the work on the ilmenite-rich sand carried out in the Moriusaq area was presented by Stensgaard et *al.* (2015). An overview of on- and off-shore sampling work conducted for Blue Jay Mining Ltd in 2015 is presented in Weatherley (2015). The present report describes vibrocoring work carried out in July and August 2016. Some of the buildings in the abandoned settlement of Moriusaq, which is located in the survey area, were used as a base camp. Moriusaq is located approximately 37 km northwest of Thule Air Base (Figure 1).

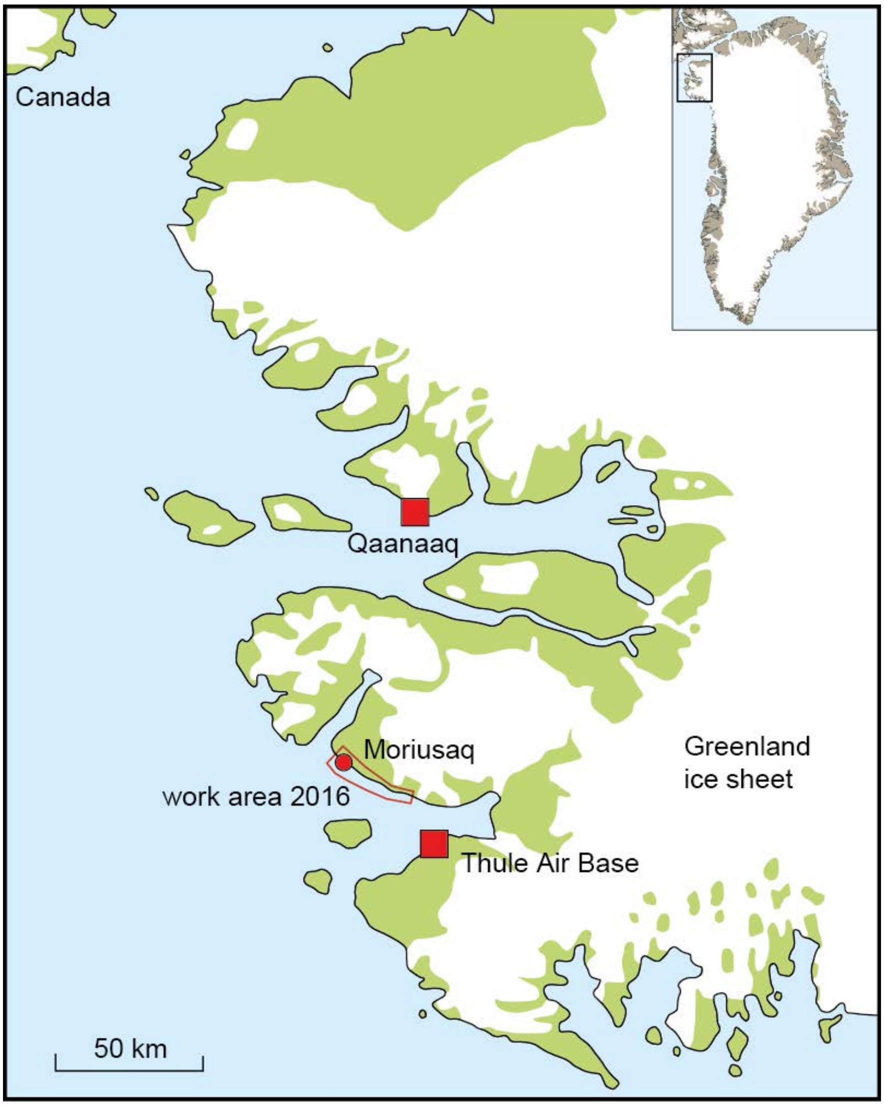

Figure 1. . *Location of Moriusaq northwest of Thule Air Base.*

2.1 Background

Black heavy mineral sand was first recorded and sampled in the area by Lauge Koch in 1916 (Dawes 1989). During the past decades, interest in the heavy sand deposits has increased. The heavy sand is most conspicuous in active modern beaches, including a tombola that connects a small island at Moriusaq to the mainland at low tide. Heavy sand also occurs in Holocene beaches that have been raised above the modern sea level due to isostatic rebound following the last deglaciation. The last deglaciation of the region occurred at around 11,000 years ago (Bennike & Björck 2002), and the oldest and highest raised beaches were probably formed at that time. The raised beaches are found on a coastal plain that is 1–2 km broad and extends for approximately 30 km along the coast. The highest beaches are found at about 46 m above sea level (Kelly et al. 1999). The sand is enriched in ilmenite and magnetite, derived from Proterozoic titanium-rich dolerite sills and dykes that crop out along the coast and in the mountains behind the plain. The uplifted beaches usually form benches or narrow terraces, but in some areas low beach ridges also occur.

Several modelling studies of glacio-isostatic rebound and relative sea-level changes have been performed for geographical areas that cover North-West Greenland. Fleming & Lambeck (2004) published two curves that predict relative sea-level changes for northwest Greenland, one labelled Thule (Figure 2) and another labelled Iterluk. Both are from areas to the east of Moriusaq, and both show a rapid fall of the relative sea level from deglaciation until around 7000 years before present, followed by a rise in the relative sea level. At 7000 years before present, the relative sea level was 35 m below present sea level at Thule and 20 m at Iterlak. According to this model drowned beaches can be expected in the area.

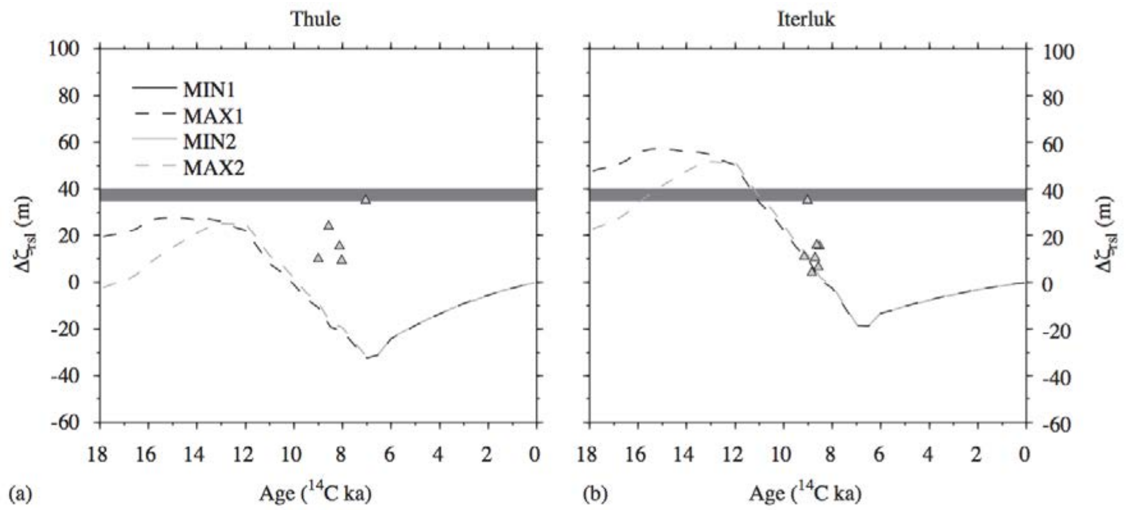

Figure 2 *. Observed (triangles) and modelled relative sea-level curves for the Thule area according to Fleming & Lambeck (2004). The figures show a regression after the last last maximum to minus 20–35 m below present sea level at c. 7000 years ago, followed by a transgression to present day sea level. Dark-grey shading at c. 38 m indicates the estimated local marine limit according to Fleming & Lambeck (2015).*

Based on the areal extent of raised beaches and an assumed overall depth of 2 m to bedrock, Appel et al. (1991) estimated a total onshore sand volume of 40 million m^3, equal to 80 million tons. However, it is not clear how big an area this estimate corresponds to. A huge tonnage is found in the Iterlak delta to the east of Moriusaq, but the grade of this huge deposit is unknown. The presence of offshore beaches in nearshore waters to a water depth of 35 m below present day sea level (the minimum level of the palaeo-sea surface) would considerably increase the potential for larger tonnages.

In the summer of 2015, reconnaissance work was carried out by GEUS for Blue Jay Mining Ltd to map and sample the heavy sand deposits in the area. Offshore profiling was conducted with an echo sounder and a C-boom, combined with grab sampling. Onshore sampling was by spades and shovels. The results were promising, and hence it was decided to carry out a more extensive exploration programme in the summer of 2016. This report details results from the vibrocoring work.

2.2 Aims and overview of fieldwork in 2016

The field work in 2016 had a number of different main objectives:
1) Onshore sampling mainly using a mobile auger drill
2) Onshore georadar profiling
3) Offshore vibrocoring
4) Offshore profiling with a sediment echosounder

The onshore sampling was initiated by Jeremy Whybrow and Jason Dalziell from FinnAust and Bo Møller Stensgaard from GEUS. After Jeremy and Bo left on 1 August, Jason was responsible for this part of the work, being assisted mainly by Rebecca Haggart, a student from Camborne School of Mines. Peter Johannesen from GEUS described samples and profiles in trenches. The ground penetrating georadar (GPR) work was conducted by Peter Roll Jakobsen, assisted mainly by Jacob Worthington, another student from Camborne School of Mines. The georadar profiles were located by differential GPS. The vibrocoring work was performed from M/S *Kisaq* and a Uwitec pontoon coring platform by Ben den Toom (AquiferConsultancy), Niklas Leicher (University of Cologne), Ole Bennike, Lars Georg Rödel and Maja Bar Rasmussen (GEUS). On *Kisaq* the skipper Anders Pedersen and Erik (crew member) helped with the coring. The sediment echosounder was mounted on one of the man-over-board boats of *Kisaq* by Lars Georg Rödel. The aim of the sediment echo sounder profiling was to cover shallow waters that were not mapped in 2015.

The aim of objective 3 was to collect core samples from the offshore part of the survey area. This report also contains sedimentological logs and photographs of the cores that were shipped to GEUS. The samples can provide information about the grade of the offshore deposits, and their lateral and vertical extent. The data will be used for an initial estimate of the mineral resource.

3. Methods

3.1 Sampling strategy and techniques

Samples were collected in the marine portions of the license area by vibrocoring. In shallow regions, where the water depth at the time of sampling was approximately less than 7 m, vibrocoring was conducted from a pontoon platform (Figure 3); in deeper water vibrocoring was carried out from the ship M/V Kisaq (Figure 4). Coring operations from the ship and the pontoon were run concurrently. In the first instance, the bathymetry and sediment thickness maps from the 2015 fieldwork (Jensen and Rödel, 2015) were used to select the core sites.

The pontoon platform used in shallow water was a 3.6 x 2.8 m uwitec platform fitted with four pontoons, a 4 m high tripod centred over a large hole in the floor of the platform and a winch wound with a kevlar rope (Figure 3). The total payload of the platform was 2600 kg. A 25 HP outboard motor mounted to the platform enabled transportation between the core sites. A zodiac dinghy attached to the pontoon was used for transport to and from the platform, as a man-overboard boat, and for setting out anchors. The vibrocore team on the pontoon comprised Niklas Leicher, Lars-Georg Rödel, Ole Bennike and Maja Bar Rasmussen.

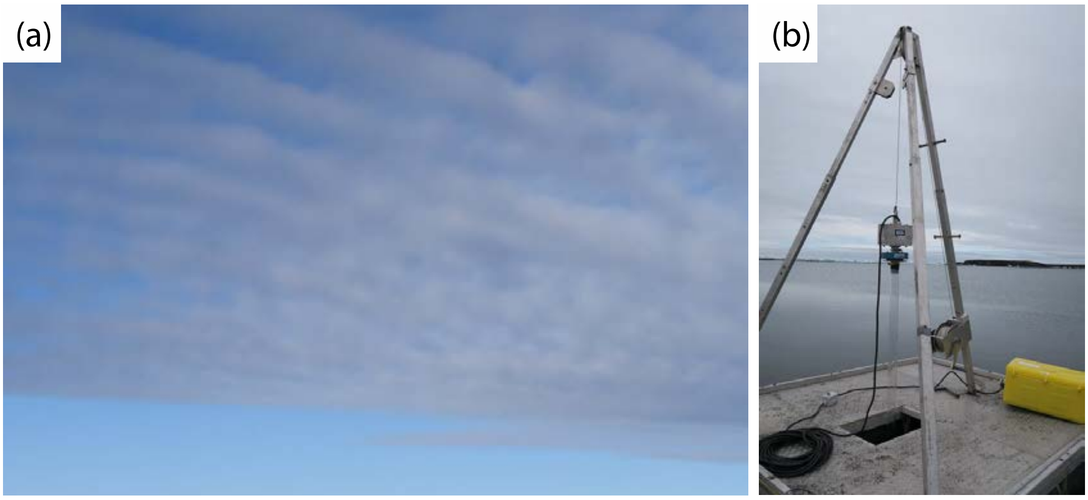

Figure 3. *Images of the pontoon platform used for shallow water vibrocoring operations. (a) The platform with zodiac in tow. (b) Close up of the vibrocore unit being winched down to the seabed through the hole in the floor of the pontoon. The yellow box contains two 12V batteries that power the vibrocore system.*

In shallow water, coring was attempted in Moriusaq Bay, and between Moriusaq Bay and the area around Iterlak. Within the bay itself, sampling was conducted were taken on a grid measuring approximately 20 m in the coast-parallel direction and 100 m in the direction perpendicular to the coastline. To navigate the pontoon, a rope was fixed across the bay in a direction parallel to the coast and the platform was pulled along the line, stopping at 20 m intervals to attempt coring. Outside of Moriusaq Bay, the platform was navigated to the position of interest using the outboard motor, and the accompanying zodiac was then used to set anchor lines.

In deeper water, sampling was attempted on a grid measuring approximately 250 x 500 m in the coast-parallel direction and coast-perpendicular directions respectively. The vibrocore team onboard Kisaq comprised Ben den Toom (vibrocore specialist from Aquifer Consultancy, NL) and Maja Bar Rasmussen (GEUS), and was assisted by Anders Pedersen (skipper) and his crew. The ship set anchor at each locality and coring was conducted on the port side from the front deck. The ship's front crane raised and lowered equipment to and from the seabed. Ben den Toom was on hand to overcome any technical difficulties with the vibrocore systems.

3.2 Drilling techniques

Vibrocoring is a technique well suited to sandy sediments. The coring teams used a Vibecore-D system from Speciality Devices (figure 4b, c). The system was used in conjunction with colourless polycarbonate tubes measuring 2 m in length and 7.6 cm in inner diameter. The Vibecore-D system works by vibrating coring tubes down into the sediments and is aided by weights fitted to the top of the unit. In deeper water the corer was kept vertical by fitting a weight to the bottom of the core tube and two buoys to the top (figure 4b, c). On retrieval, sediment cores are kept in the tubes by valves in the core head. In deeper water, core catchers were also used to improve the retention of sediment within the core barrel; in shallow water, the core tube was capped before being removed from the water. The unit is powered by two 12 V car batteries.

In some locations coring was hindered by the presence of rocks and boulders on the sea floor. Sand was often observed to collect between the boulders. From the pontoon, visual inspection or coring rods were used to test for a hard bottom. In these instances, a hard bottom was noted and the platform was moved to the next location. However, it was often the case that in areas of thin sediment cover, sediment remained on the anchors when the anchors were drawn from the water. In these cases the sediment was placed in plastic bags and assigned a sample number. The depth of these samples from within the sediment is estimated at 5-10 cm. In some areas of very shallow water samples were taken from the coring platform using a spade. The depth of these samples is approximately 25 cm. Samples taken with a spade or from the anchors are clearly indicated in Appendix B.

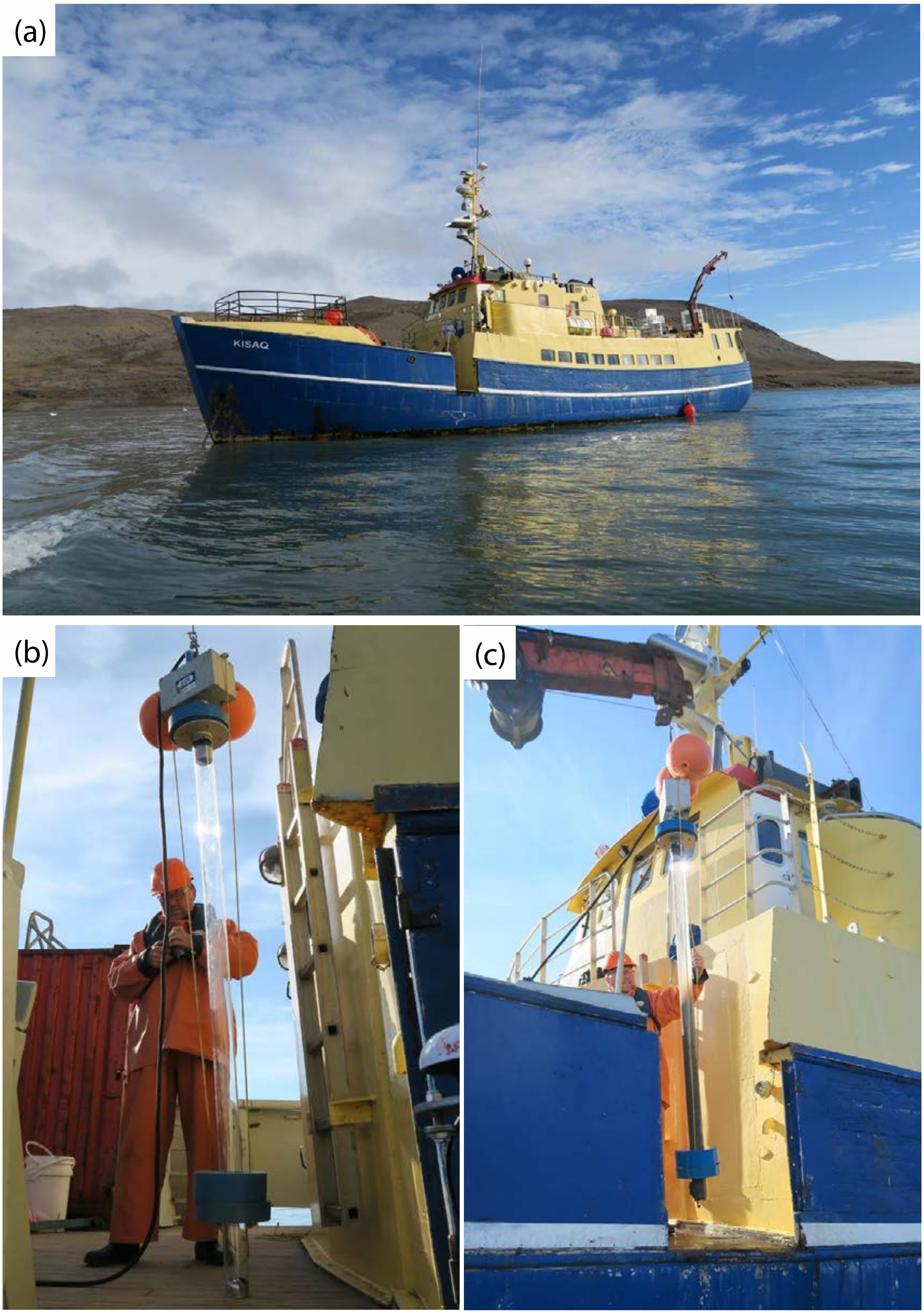

Figure 4. *The vibrocore setup for deeper water. (a) The ship M/V Kisaq. (b) The vibrocore unit prior to being lowered to the seafloor. The steel box at the top contains the vibration unit and the top weight helps drive the tube into the sediment; the buoys and lower weight keep the tube upright. Note the silver-coloured core catcher in the bottom of the tube. (c) The unit with sediment being retrieved onto the deck.*

3.3 Core recovery

3.4 Logging and sub-sampling techniques

Some cores were extruded in the field immediately after retrieval. These cores were subsequently photographed (figure 5), the UTM position was recorded using WGS 1984 UTM zone 19N and the date, sample number and geologist's initials were also noted. These details were entered into a spreadsheet at the end of each working day. In general, the shorter cores were extruded. The extruded cores were then placed in a colourless plastic bag marked with the sample number. A sample tag enclosed in a small resealable Minigrip plastic bag was then placed into the sample bag, and the sample bag was sealed.

Figure 5. *An example of an extruded sediment core on the deck of the coring platform. The core is 42 cm long and top is to the right.*

Other cores were retained within the core tube, and the tube was securely sealed at both ends using caps and duct tape or electrical tape. The tube was marked with the sample number, the top and the bottom. A sample tag displaying the sample number and UTM position was then taped to the core tube. On arrival in Copenhagen, these tubes were split lengthwise with a saw. The sediment was then split using a knife, described, logged and photographed by a sedimentologist. The photographs include a scale bar and a colour scale with yellow, cyan, magenta and black in 10% increments from 10% to 100%. The logging data were recorded in a logging spread sheet. This excel file is included in the digital data. The data were also used to make sedimentological core logs, which are included in this report in Appendix F.

After logging, cores shorter than 50 cm were packaged into colourless plastic sample bags in their entirety. The bag was marked with the sample number, a sample tag was included and the bag was sealed. For cores longer than 50 cm, half of the sample was transferred to plastic bags. To give an example of how cores >50 cm long were handled, a 183 cm long core would be split, and one half divided into 3 x 50 cm pieces and a 33 cm piece. These pieces were placed into individual plastic bags marked with the sample number and interval; these bagged sub-samples were then put into a single large plastic bag, also marked with the sample number. The other half of the core was archived at GEUS in 1 m long wooden boxes.

3.5 Location of data points

On the pontoon platform, a handheld GPS was used for navigation and to record the position. All positions were recorded using WGS 1984 UTM Zone 19N and the accuracy of the positions is ± 5 m. The water depth was noted with a coring rod or weighted rope marked in metre increments. The time of coring was also noted so that water depths can be adjusted for tidal changes in the sea level. On M/S Kisaq, the ship's echo-sounder was used to record the water depth, and the ship's GPS system was used to determine the location.

The tidal range within the license area is approximately 3.5 m at spring tide and a 1.5 m at neap tide (Figure 6). The water depths presented in Appendices B, C, D and E are not corrected for the tides.

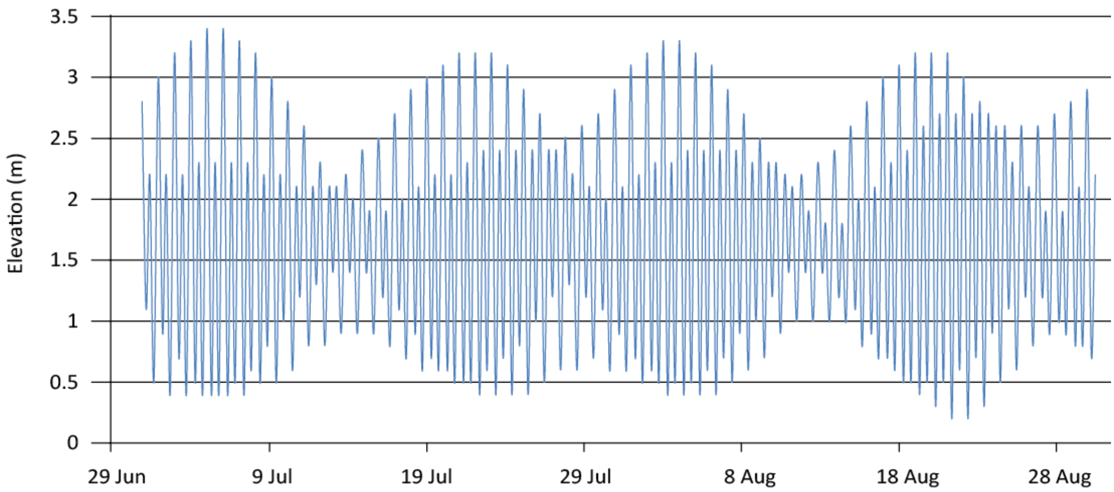

Figure 6. *Astronomical tidal range in the area during the time period from 30 June to 30 August 2016. The figure is based on a tidal table for Thule Air Base, provided by the Danish Meteorological Institute. Tidal heights are stated in metres relative to the chart datum which is the lowest astronomical tide.*

3.6 Sample security

All samples were securely stored at the end of each working day onboard Kisaq. At the mid-point and end of the field season, all samples within the field area were taken to the settlement Qaanaaq by GEUS and FinnAust personnel and placed into a shipping container that was then securely padlocked. At the end of the field season the container was additionally secured with a customs seal.

4. Preliminary results

4.1 Overview

A total of 237 samples were taken from the sea floor and a further 113 localities were visited where no sample could be retrieved. Appendix 1 includes maps of sample locations and locations where no sample could be retrieved. Appendix 2 present UTM coordinates for each location visited and brief field notes of samples.

These samples comprise:

- 149 cores taken from Kisaq in deeper water
- 74 cores taken from the platform in shallower water
- 14 non-core samples taken from the platform in shallower water

Of the 223 core samples, 119 were extruded in the field; the remaining 104 were shipped to Copenhagen in the core tubes for sedimentological logging.

Of the 113 localities from which no sample could be retrieved:

- 104 were visited by the coring platform
- 9 were visited by Kisaq.

The length of core retrieved from the seafloor was variable. In general, however, cores retrieved by the pontoon platform in shallow water were shorter than those from deeper water (figure 7). The longest core retrieved was 1.98 m.

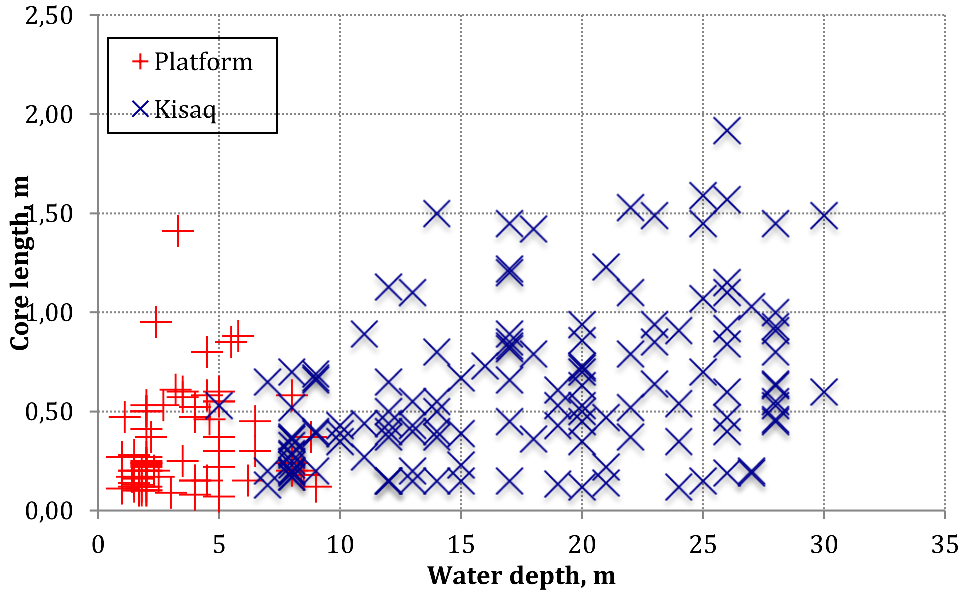

Figure 7 *Core length versus water depth. Red plus-signs indicate cores taken from the pontoon platform in shallower water; blue crosses indicate cores taken from Kisaq in deeper water.*

4.2 Logging: general statements

The generalized statements below apply to cores that were sedimentallogically logged in Copenhagen. For detailed results, the reader is referred to the logs in Appendix 3 and the core photographs in Appendix 4.

In general, the top parts of cores from deeper water are characterized by muddy sediment. Many of the cores show evidence for downward-coarsening of the sediment to grain sizes that are very fine or fine. Some cores exhibit several discrete layers of sandy material, with thicknesses of 10 cm or more. Typically, the sediment at the bottom of the longest cores is stiff. Shell fragments are commonly observed, often along with granules and a few pebbles. In some instances, complete shells of *Mya truncata* were found within the cores. Thick layers (>30 cm) with shell fragments and poorly sorted sediment were observed at the bases of some cores. In others, the base comprised diamict sediment or gravel. Cores from shallower water depths (<6 m) are typically dominated by coarser sediment, up to medium grained sand.

Concentrations of ilmenite and other heavy minerals in the seafloor samples will be determined at a later date by geochemical assay.

4.3 Initial interpretation and relation to C-boom survey data

The diamict sediment and gravel observed in the bases of some cores probably accumulated during the last deglaciation of the area, during recession of the ice margin.

The upwards-fining successions observed in many cores probably reflect the transgression of the region, as modelled by Flemming and Lambeck (2004). The mud capping these sequences is usually homogenous. This can be due to bioturbation or ploughing by icebergs.

An interpretation of the C-boom survey conducted in 2015 suggested that the sediments offshore of Pituffik consist of a highstand, lowstand and transgressive unit (figure 8, see also Jensen & Rödel, 2015). Results from the C-boom survey also indicate that the thickness of the transgressive unit lies in the range 1-2 m. Results from the offshore sampling program reported on here, appear to support the interpretation of an uppermost transgressive unit from the seismic data. Since the longest core retrieved, however, was 1.98 m, it is doubtful that the vibrocore sampling program achieved significant penetration into the units underlying the transgressive cap.

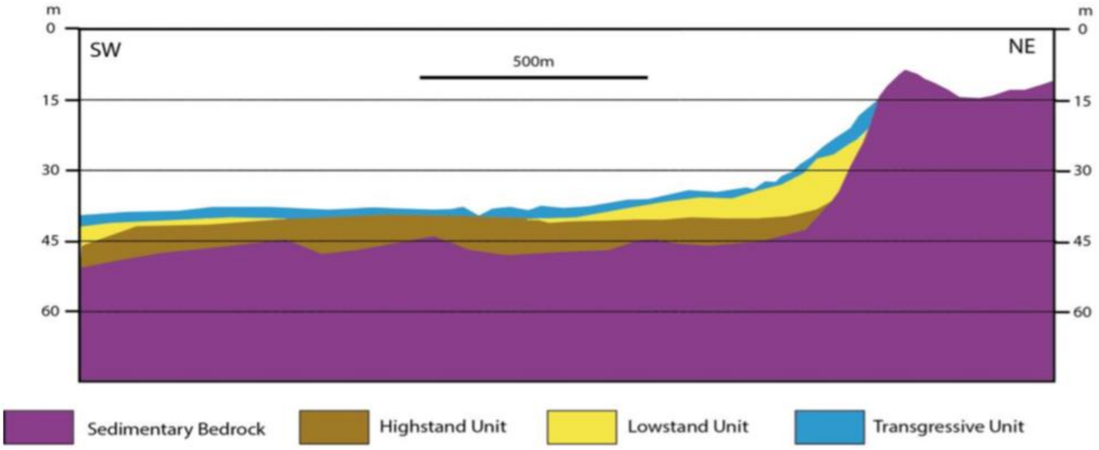

Figure 8. *Interpretation of C-boom profile 1a_33. Profile taken from Jensen & Rödel (2015), figure 18.*

5. Conclusions

The overall conclusions of the vibrocoring work are

- We collected 88 samples from the coring platform and 149 samples from *Kisaq*.

- 104 samples were kept in coring tubes. These were shipped to GEUS where they were split lengthwise, described, logged and photographed.

- Only limited sediment was found in shallow waters, whereas the sediment thickness increased in deeper waters. In particular, outside headlands with bedrock, we found that bedrock exposures continued out at sea. To get a better understanding of sediment distribution, it is necessary to integrate data from the vibrocore sampling with data from the shallow seismic work.

- To gain a better understanding of total sediment thicknesses, heavier vibrocoring equipment, or an alternative technique such as sonic drilling, is required. This is especially true for the area outside the large delta at Iterlak and outside the delta at Pinguarsuit Sermiat.

6. Recommendations

On the basis of the detailed studies carried out in the Moriusaq area in 2015 and 2016, we recommend to carry out drillings that are deep enough to penetrate the transgressive sequence that caps the seafloor sediments. Results of offshore geophysical surveys indicate the potential for large tonnage deposits in the marine portion of the license block.

We also strongly recommend integrating data from the vibrocore sampling with data from the shallow seismic work that was carried out in 2015 and sub-bottom profiling work in 2016.

7. References

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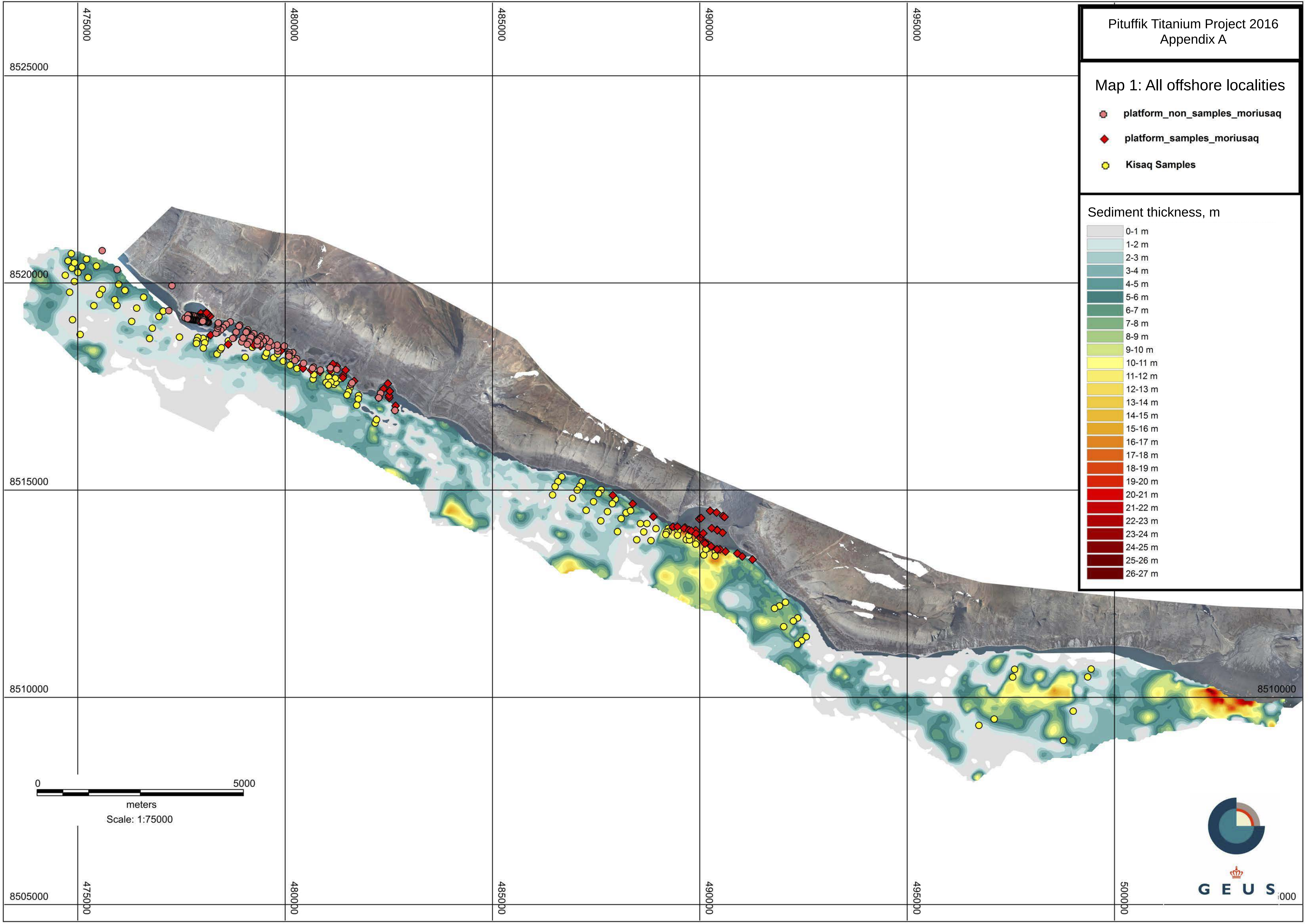
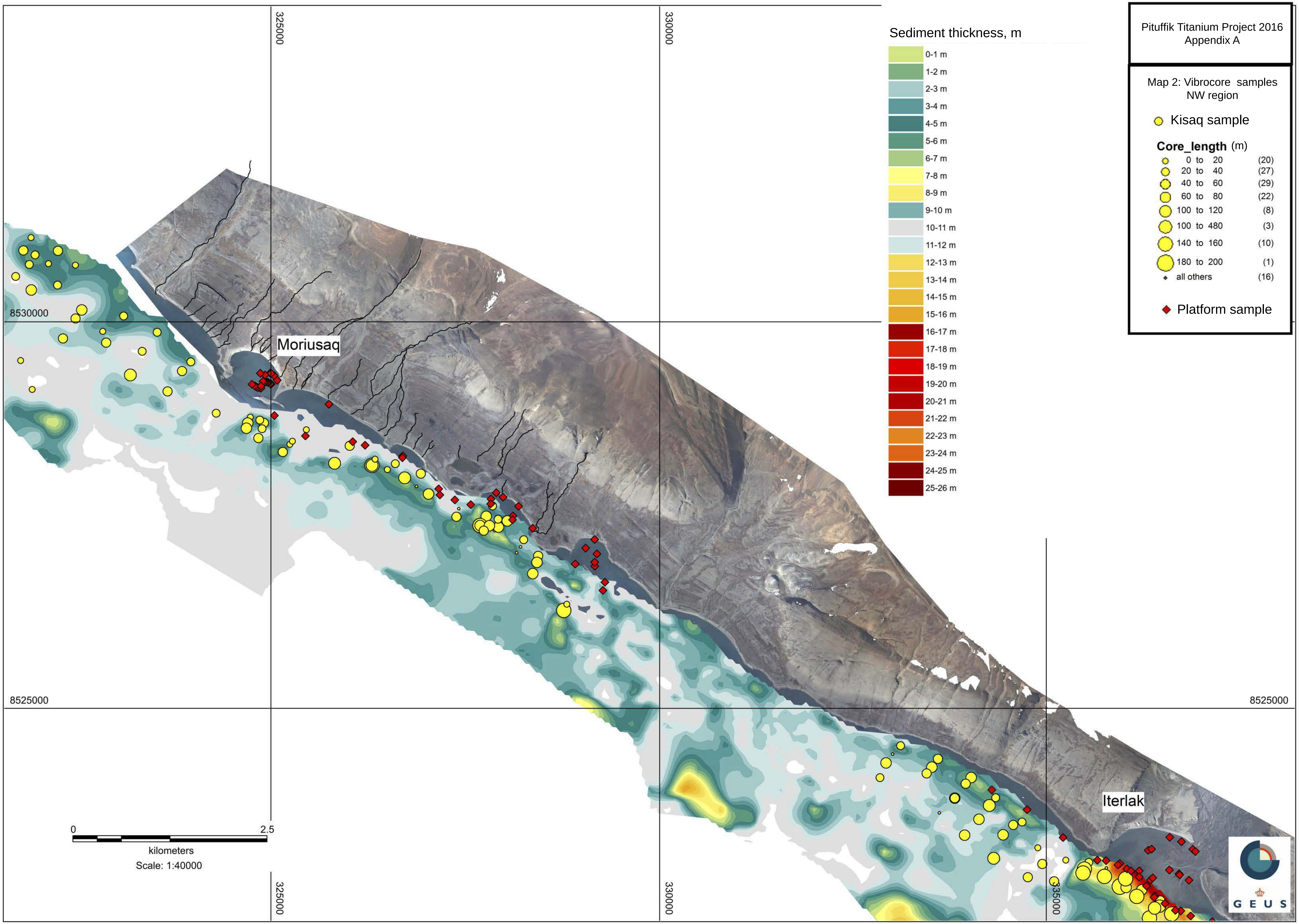
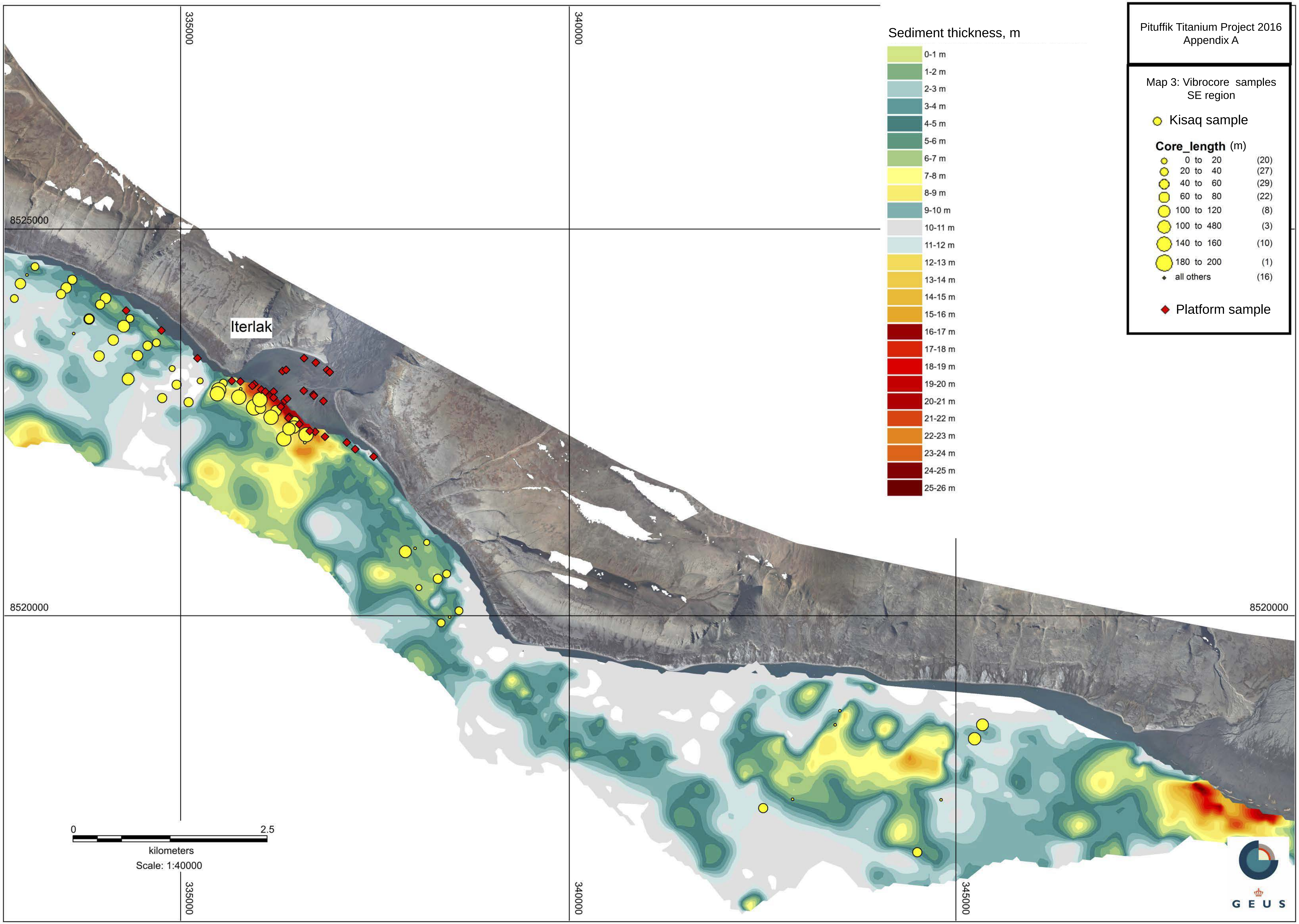
8. Appendix



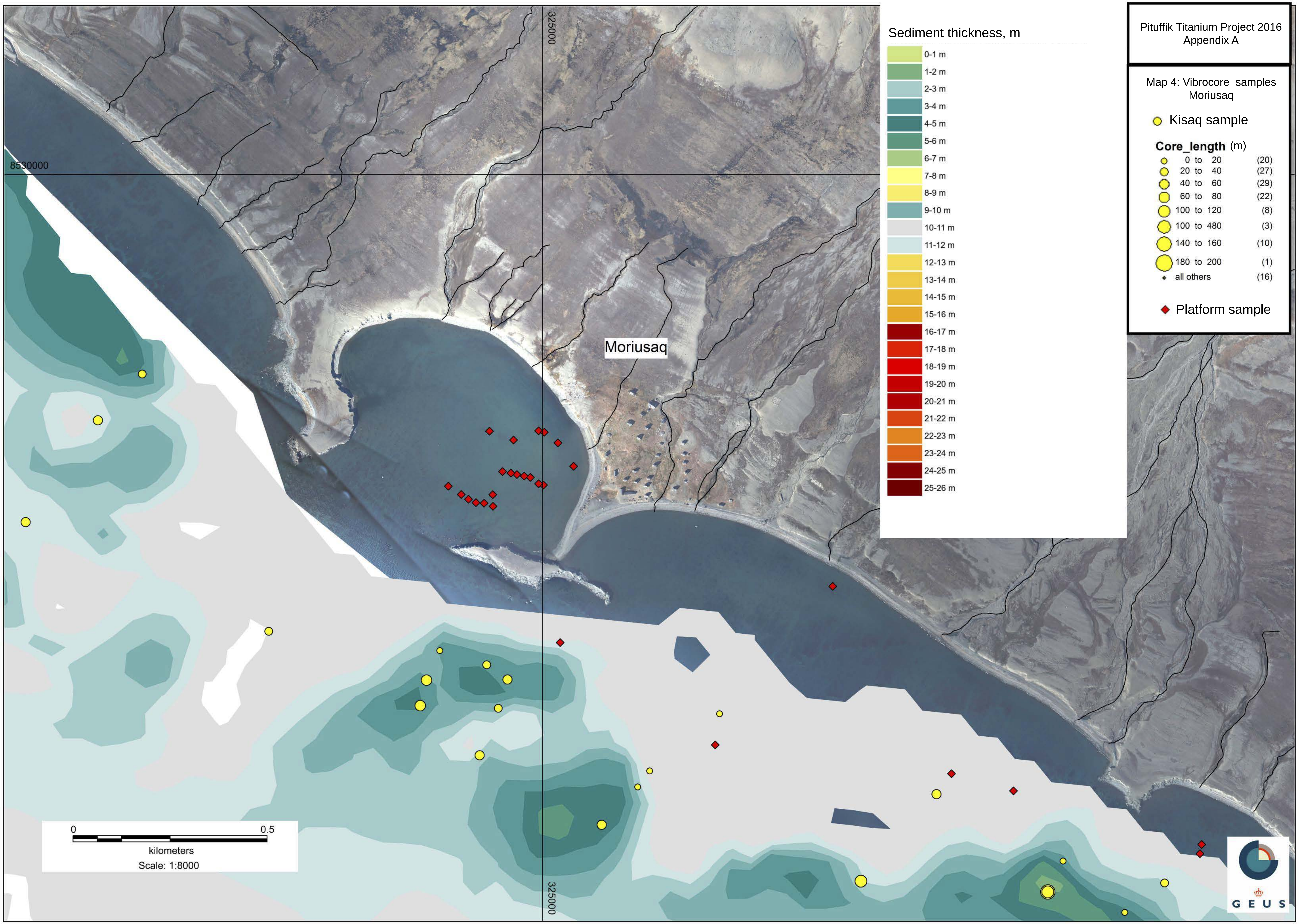
Pituffik Titanium Project 2016
Appendix A
Map 1: All offshore localities
platform_non_samples_moriusaq
platform_samples_moriusaq
Kisaq Samples
Sediment thickness, m
0-1 m
1-2 m
2-3 m
3-4 m
4-5 m
5-6 m
6-7 m
7-8 m
8-9 m
9-10 m
10-11 m
11-12 m
12-13 m
13-14 m
14-15 m
15-16 m
16-17 m
17-18 m
18-19 m
19-20 m
20-21 m
21-22 m
22-23 m
23-24 m
24-25 m
25-26 m
26-27 m
475000
480000
485000
490000
495000
500000
8525000
8520000
8515000
8510000
8505000
0
5000
meters
Scale: 1:75000
GEUS



Pituffik Titanium Project 2016
Appendix A
Map 2: Vibrocore samples
NW region
Kisaq sample
Core_length (m)
0 to 20 (20)
20 to 40 (27)
40 to 60 (29)
60 to 80 (22)
100 to 120 (8)
100 to 480 (3)
140 to 160 (10)
180 to 200 (1)
all others (16)
Platform sample
Sediment thickness, m
0-1 m
1-2 m
2-3 m
3-4 m
4-5 m
5-6 m
6-7 m
7-8 m
8-9 m
9-10 m
10-11 m
11-12 m
12-13 m
13-14 m
14-15 m
15-16 m
16-17 m
17-18 m
18-19 m
19-20 m
20-21 m
21-22 m
22-23 m
23-24 m
24-25 m
25-26 m
325000
330000
335000
8530000
8525000
Moriusaq
Iterlak
0
2.5
kilometers
Scale: 1:40000
GEUS



Pituffik Titanium Project 2016
Appendix A
Map 3: Vibrocore samples
SE region
Kisaq sample
Core_length (m)
0 to 20 (20)
20 to 40 (27)
40 to 60 (29)
60 to 80 (22)
100 to 120 (8)
100 to 480 (3)
140 to 160 (10)
180 to 200 (1)
all others (16)
Platform sample
Sediment thickness, m
0-1 m
1-2 m
2-3 m
3-4 m
4-5 m
5-6 m
6-7 m
7-8 m
8-9 m
9-10 m
10-11 m
11-12 m
12-13 m
13-14 m
14-15 m
15-16 m
16-17 m
17-18 m
18-19 m
19-20 m
20-21 m
21-22 m
22-23 m
23-24 m
24-25 m
25-26 m
Iterlak
335000
340000
345000
8525000
8520000
0
2.5
kilometers
Scale: 1:40000
GEUS


Pituffik Titanium Project 2016
Appendix A
Map 4: Vibrocore samples
Moriusaq
Kisaq sample
Core_length (m)
0 to 20 (20)
20 to 40 (27)
40 to 60 (29)
60 to 80 (22)
100 to 120 (8)
100 to 480 (3)
140 to 160 (10)
180 to 200 (1)
all others (16)
Platform sample
Sediment thickness, m
0-1 m
1-2 m
2-3 m
3-4 m
4-5 m
5-6 m
6-7 m
7-8 m
8-9 m
9-10 m
10-11 m
11-12 m
12-13 m
13-14 m
14-15 m
15-16 m
16-17 m
17-18 m
18-19 m
19-20 m
20-21 m
21-22 m
22-23 m
23-24 m
24-25 m
25-26 m
Moriusaq
325000
8530000
325000
0
0.5
kilometers
Scale: 1:8000
GEUS

Appendix B

Pontoon Samples

Station ID	Sample	X_UTM_19N	Y_UTM_19N	Water depth (m)	Core length (cm)	Notes
16MBR002	570601	478118	8519142	2	0.20	Approx water depth
16MBR003	570602	478105	8519144	2	0.10	Approx water depth
16MBR003	570603	478105	8519144	2	0.24	Approx water depth
16MBR004	570604	478082	8519158	2	0.41	Approx water depth
16MBR005	570605	478066	8519160	2	0.50	Approx water depth
16MBR005	570606	478066	8519160	2	0.50	Approx water depth
16MBR005	570607	478066	8519160	2	0.50	Approx water depth
16OBE001	570608	478047	8519162	2.2	0.37	
16OBE002	570609	478031	8519164	2.3	0.20	
16OBE003	570610	478009	8519166	1.8	0.12	
16OBE028	570611	477994	8519074	1	0.11	
16OBE029	570612	477970	8519080	2	0.12	
16OBE030	570613	477949	8519079	2	0.24	
16OBE031	570614	477929	8519086	2	0.23	
16OBE032	570615	477909	8519096	1.7	0.13	
16OBE033	570616	477990	8519104	1.7	0.16	
16OBE034	570617	477874	8519114	1.7	0.10	
16OBE056	570618	487900	8514878	5	0.37	
16OBE056	570619	487900	8514878	5	0.55	
16OBE057	570620	488378	8514670	4.5	0.58	
16OBE058	570621	488878	8514360	4	0.08	
16OBE058	570622	488878	8514360	4	0.47	
BLANK	570623	BLANK	BLANK	BLANK	BLANK	
16OBE059	570624	489348	8514114	4.6	0.46	
16OBE060	570625	489900	8514032	2	0.53	
16OBE061	570626	490414	8514046	0.9	0.27	Spade
16OBE062	570627	489987	8514308	1.4	0.17	
16OBE063	570628	490030	8514328	1.5	0.14	
16OBE064	570629	490246	8514502	1.5	0.28	
16OBE065	570630	490402	8514460	0.8		Unknown
16OBE066	570631	491269	8513328	3	0.09	
16OBE067	570632	491023	8513400	4	0.52	
16OBE068	570633	490905	8513474	5	0.55	
16OBE069	570634	490618	8513520	5	0.07	
16OBE070	570635	490485	8513572	3.2	0.61	
16OBE071	570636	490415	8513572	5.8	0.88	
16OBE072	570637	490271	8513646	4.5	0.80	
16OBE073	570638	490134	8513726	5.5	0.85	
16OBE074	570639	490124	8513712	2.5	0.17	
16OBE075	570640	490012	8513846	3.5	0.57	
16OBE076	570641	490054	8513930	1.5	0.20	
16OBE077	570642	490557	8514380	0	0.27	Spade
16OBE077	570643	490557	8514380	0	0.27	Spade
BLANK	570644	BLANK	BLANK	BLANK	BLANK	
16OBE078	570645	490594	8514354	0	0.27	Spade
16MBR100	570646	489459	8514118	3.5	0.60	

Station ID	Sample	X_UTM_19N	Y_UTM_19N	Water depth (m)	Core length (cm)	Notes
16MBR101	570647	489641	8514100	2.7	0.53	
16MBR102	570648	489619	8514080	5	0.60	
16MBR103	570649	489740	8514040	3.3	1.41	
16MBR104	570650	489793	8514020	2.4	0.95	
16MBR105	570651	489908	8513954	1.1	0.47	
16MBR106	570652	490082	8513960	0	0.27	Spade
16MBR107	570653	490284	8514082	0	0.27	Spade
16MBR108	570654	490422	8514032	0	0.27	Spade
16MBR109	570655	490550	8513976	0	0.27	Spade
16OBE079	570656	482662	8517036	4	0.05	Anchor
16OBE081	570657	482648	8516928	6.5	0.05	Anchor
16OBE082	570658	482512	8517230	1.7	0.17	
16OBE083	570659	482504	8517280	1.7	0.12	
16OBE084	570660	482522	8517388	1	0.27	
16OBE085	570661	482474	8517572	0	0.27	Spade
16OBE086	570662	482370	8517448	2	0.27	
16OBE088	570663	482258	8517230	5	0.30	
16OBE088	570664	482258	8517230	5	0.22	
BLANK	570665	BLANK	BLANK	BLANK	BLANK	
16OBE091	570666	481663	8517634	0.3	0.27	Spade
16OBE092	570667	481397	8517766	4	0.15	
16OBE093	570668	481394	8517716	6.5	0.30	
16OBE094	570669	481455	8517898	2	0.25	
16OBE095	570670	481243	8517994	3.5	0.25	
16OBE097	570671	481150	8518042	1.5	0.20	
16OBE098	570672	481090	8517954	4	0.15	
16OBE099	570673	481093	8517892	7.5	0.05	Anchor
16OBE101	570674	480838	8517856	6.2	0.15	
16OBE104	570675	480628	8517896	9	0.12	
16OBE106	570676	480406	8518016	8	0.05	Anchor
16OBE107	570677	480430	8517940	8.8	0.37	
16OBE116	570678	479902	8518392	4.5	0.15	
16OBE117	570679	479900	8518368	6.5	0.45	
16OBE125	570680	479405	8518480	8.5	0.18	
16OBE134	570681	479241	8518508	8.4	0.20	
16OBE149	570682	478887	8518958	1.7	0.10	
16OBE153	570683	478627	8518520	8	0.20	
16OBE160	570684	478202	8518742	8	0.24	
16OBE153	570685	478202	8518742	8	0.58	
16MBR148	570686	478190	8519198	1.8	0.10	
16MBR149	570687	478144	8519254	2	0.10	
16MBR150	570688	478091	8519280	1.8	0.20	
16MBR151	570689	478029	8519250	2	0.20	
16MBR152	570690	477965	8519266	2	0.22	
16MBR161	570691	478106	8519278	1.5	0.12	

Appendix C

Pontoon, Unsuccessful Sample Localities

Station	X_UTM_19N	Y_UTM_19N
16MBR001	478142	8519132
16OBE004	477990	8519182
16OBE005	477967	8519172
16OBE006	477946	8519178
16OBE007	477923	8519180
16OBE008	477899	8519184
16OBE009	477877	8519190
16OBE010	477854	8519196
16OBE011	477831	8519198
16OBE012	477810	8519206
16OBE013	477780	8519212
16OBE014	477730	8519222
16OBE015	477730	8519222
16OBE016	477695	8519222
16OBE017	477677	8519224
16OBE018	477655	8519224
16OBE019	478154	8519046
16OBE020	478131	8519056
16OBE021	478117	8519064
16OBE022	478101	8519074
16OBE023	478080	8519088
16OBE024	478062	8519102
16OBE025	478041	8519098
16OBE026	478023	8519108
16OBE027	478013	8519076
16OBE035	477853	8519106
16OBE036	477831	8519102
16OBE037	477808	8519106
16OBE038	477786	8519110
16OBE039	477765	8519112
16OBE040	477746	8519116
16OBE041	477726	8519118
16OBE042	477705	8519124
16OBE043	477685	8519128
16OBE044	477665	8519134
16OBE045	477646	8519140
16OBE046	477628	8519146
16OBE047	477627	8519146
16OBE048	477608	8519152
16OBE049	477601	8519154
16OBE050	477599	8519156
16OBE051	477590	8519158
16OBE052	477193	8519332
16OBE053	477269	8519936
16OBE054	475950	8520320
16OBE055	475586	8520780
16OBE080	482647	8516926
16OBE087	482301	8517340
16OBE089	481590	8517552
16OBE090	481613	8517588
16OBE096	481246	8517918
16OBE100	480851	8517902
16OBE102	480684	8517972
16OBE103	480660	8517942
16OBE105	480444	8518062
16OBE108	480279	8518170
16OBE109	480238	8518128

Station	X_UTM_19N	Y_UTM_19N
16OBE110	480181	8518322
16OBE111	480107	8518316
16OBE112	480087	8518272
16OBE113	480092	8518234
16OBE114	479979	8518480
16OBE115	482258	8517230
16OBE118	479823	8518354
16OBE119	479814	8518424
16OBE120	479809	8518500
16OBE121	479675	8518494
16OBE122	479595	8518450
16OBE123	479629	8518582
16OBE124	481090	8517954
16OBE126	479537	8518658
16OBE127	479473	8518600
16OBE128	479400	8518530
16OBE129	479329	8518510
16OBE130	479425	8518720
16OBE131	479403	8518688
16OBE132	479363	8518642
16OBE133	479330	8518602
16OBE135	479245	8518774
16OBE136	479193	8518724
16OBE137	479172	8518692
16OBE138	479160	8518624
16OBE140	479131	8518576
16OBE141	479083	8518520
16OBE142	479095	8518874
16OBE143	479078	8518830
16OBE144	479058	8518814
16OBE145	478985	8518672
16OBE146	478952	8518580
16OBE147	4788781	8518502
16OBE148	478906	8518984
16OBE149	478887	8518958
16OBE150	478818	8518814
16OBE151	478760	8518680
16OBE152	478734	8518662
16OBE154	478678	8519064
16OBE155	478580	8519004
16OBE156	478504	8518924
16OBE157	478449	8518870
16OBE158	478373	8518806
16OBE159	478332	8518788
16OBE161	478370	8518908
16OBE162	478386	8518958
16OBE163	478382	8519006
16OBE164	478388	8519036
16MBR154	477838	8519304
16MBR155	477791	8519308
16MBR156	477742	8519318
16MBR157	477695	8519332
16MBR158	477646	8519340
16MBR159	477571	8519348
16MBR160	478113	8519294
16MBR162	478077	8519336
16MBR163	478045	8519354

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Station	X_UTM_19N	Y_UTM_19N
16MBR164	478023	8519376
16MBR165	477985	8519398
16MBR166	477945	8519428
16MBR167	477899	8519450
16MBR168	477851	8519468
16MBR169	477798	8519480
16MBR170	477751	8519478
16MBR171	477708	8519492
16MBR172	477657	8519474
16MBR173	477605	8519456

Appendix D

Kisaq, Sample Localities

Position	Sample	X_UTM_19N	Y_UTM_19N	Water depth (m)	Core length (cm)	Notes
16MBR006	569101	479519	8518230	28	1.45	
16MBR006	569102	479519	8518230	28	0.45	
16MBR006	569103	479519	8518230	28	1	Approx.
16MBR007	569104	479550	8518313	15	0.15	Approx.
16MBR007	569105	479550	8518313	15	Unknown	Unknown
16MBR007	569106	479550	8518313	15	Unknown	
16MBR007	569107	479550	8518313	15	Unknown	
16MBR008	569108	479954	8518112	22	1.1	
16MBR009	569109	480283	8517937	20	0.12	
16MBR009	569110	480283	8517937	20	0.7	
16MBR010	569111	481053	8517726	16	0.73	
16MBR011	569112	481120	8517867	8	0.36	(in tube)
16MBR012	569113	BLANK	BLANK	BLANK	BLANK	
16MBR013	569114	479722	8518197	25	0.15	Approx.
16MBR014	569115	480157	8518188	9	0.4	
16MBR015	569116	480671	8517683	26	0.47	
16MBR016	569117	480691	8517788	20	0.86	
16MBR017	569118	480986	8517600	25	1.45	+ 5-10 cm
16MBR017	569119	480986	8517600	25	0.7	
16MBR018	569120	481178	8517553	23	0.85	
16MBR019	569121	481223	8517603	17	0.66	
16MBR020	569122	481329	8517695	9	0.66	
16MBR021	569123	481564	8517474	10	0.39	
16MBR021	569124	481564	8517474	10	0.35	after push out
16MBR022	569125	481533	8517380	17	0.85	
16MBR023	569126	481490	8517298	26	0.84	
16MBR024	569127	479247	8518516	7	0	prob. surface
16MBR025	569128	479208	8518452	10	0.43	
16MBR026	569129	479037	8518208	27	1.03	
16MBR027	569130	478019	8518666	14	0.37	
16MBR028	569131	477451	8518695	8	0.37	
16MBR029	569132	475590	8519845	9	0.69	
16MBR029	569133	475590	8519845	9	0.67	
BLANK	569134	BLANK	BLANK	BLANK	BLANK	
16MBR030	569135	475522	8519727	11	0.44	
16MBR031	569136	475387	8519454	20	0.5	
16MBR032	569137	475058	8518758	27	0.19	
16MBR033	569138	476137	8519822	9	0.2	Approx.
16MBR034	569139	475947	8519456	12	0.5	
16MBR035	569140	474873	8519115	24	0.12	
16MBR036	569141	476587	8519656	9	0.39	
16MBR037	569142	476420	8519393	13	0.2	
16MBR038	569143	476300	8519073	26	1.1	
16MBR039	569144	477059	8519322	8	0.2	
16MBR040	569145	476957	8519191	13	0.55	
16MBR041	569146	476798	8518911	24	0.54	
16MBR042	569147	476729	8518661	30	Unknown	
16MBR044	569149	475983	8519967	8	Unknown	
16MBR046	569150	475450	8520411	12	0.15	
16MBR047	569151	486672	8515324	8	0.36	
16MBR047	569152	486672	8515324	8	0.17	
16MBR047	569153	486672	8515324	8	0.28	
BLANK	569154	BLANK	BLANK	BLANK	BLANK	
16MBR048	569155	486580	8515206	17	0.89	
16MBR049	569156	486449	8514887	24	0.35	
16MBR050	569157	486508	8515086	22	0.79	

Position	Sample	X_UTM_19N	Y_UTM_19N	Water depth (m)	Core length (cm)	Notes
16MBR051	569158	487168	8515205	8	0.52	
16MBR052	569159	487102	8515092	15	0.67	
16MBR053	569160	487042	8515003	20	0.45	
16MBR054	569161	486929	8514807	24	Unknown	
16MBR055	569162	487620	8515009	7	Unknown	
16MBR055	569163	487620	8515009	7	0.65	
16MBR056	569164	487558	8514922	13	0.43	
16MBR057	569165	488477	8513803	17	Unknown	
16MBR057	569166	488477	8513803	17	0.45	
16MBR059	569167	488646	8513993	12	0.44	
16MBR060	569168	488723	8514193	8	Unknown	
16MBR061	569169	488566	8514195	8	0.17	
16MBR062	569170	488015	8514002	25	1.07	
16MBR063	569171	488104	8514315	18	0.79	
16MBR064	569172	488222	8514456	12	0.4	
16MBR065	569173	487435	8514723	19	0.61	
16MBR065	569174	487435	8514723	19	0.43	
BLANK	569175	BLANK	BLANK	BLANK	BLANK	
16MBR066	569176	487257	8514514	24	0.91	
16MBR067	569177	487960	8514782	8	0.33	
16MBR068	569178	487889	8514674	12	1.13	
16MBR069	569179	487774	8514484	20	0.72	
16MBR070	569180	487612	8514260	26	0.6	
16MBR071	569181	488330	8514505	8	0.25	Approx.
16MBR072	569182	489241	8514074	7	0.2	Approx.
16MBR073	569183	489233	8514002	14	0.8	
16MBR074	569184	489192	8513982	18	1.42	
16MBR075	569185	489180	8513930	25	1.59	
16MBR076	569186	489753	8513801	8	0.7	
16MBR077	569187	489734	8513911	14	1.5	
16MBR078	569188	489671	8513805	26	1.92	
16MBR079	569189	490208	8513679	5	0.53	
16MBR080	569190	490205	8513605	17	1.22	
16MBR081	569191	490093	8513440	26	1.57	
16MBR082	569192	490146	8513574	21	1.23	
16MBR083	569193	492567	8511462	8	0.23	
16MBR083	569194	492567	8511462	8	0.29	
BLANK	569195	BLANK	BLANK	BLANK	BLANK	
16MBR084	569196	492455	8511367	17	0.83	
16MBR085	569197	492353	8511282	27	0.2	Approx.
16MBR086	569198	492360	8511918	8	0.2	Approx.
16MBR087	569199	492253	8511845	13	0.4	
16MBR088	571001	492022	8511706	26	0.19	
16MBR089	571002	492062	8512296	8	0.19	Approx.
16MBR090	571003	491921	8512207	17	0.82	
16MBR091	571004	491801	8512150	26	1.15	
16MBR092	571005	490372	8513520	17	1.45	
16MBR093	571006	490368	8513418	26	0.92	Approx.
16MBR094	571007	489956	8513791	12	0.65	
16MBR095	571008	489901	8513700	22	1.53	
16MBR096	571009	489474	8514024	11	0.89	
16MBR097	571010	489459	8513915	23	1.49	
16MBR098	571011	488942	8514073	12	0.15	Approx.
16MBR099	571012	488821	8513785	20	0.53	
16MBR111	571013	474763	8520532	21	0.14	Approx.
16MBR112	571014	474763	8520532	21	0.47	

Position	Sample	X_UTM_19N	Y_UTM_19N	Water depth (m)	Core length (cm)	Notes
BLANK	571015	BLANK	BLANK	BLANK	BLANK	
16MBR113	571016	474844	8520708	13	Unknown	
16MBR114	571017	474698	8520187	15	0.23	
16MBR115	571018	474857	8520359	20	0.35	
16MBR116	571019	474919	8520490	21	0.22	
16MBR117	571020	475208	8520573	14	0.55	
16MBR118	571021	475102	8520394	18	Unknown	
16MBR119	571022	475004	8520253	16	Unknown	
16MBR120	571023	474916	8520035	28	0.63	
16MBR121	571024	474801	8519776	24	Unknown	
16MBR123	571025	475246	8520132	15	0.39	
16MBR125	571026	475887	8519597	13	0.15	Approx.
16MBR127	571027	477895	8518690	14	0.15	Approx.
16MBR128	571028	477869	8518610	23	0.64	
16MBR129	571029	477859	8518543	28	0.64	
16MBR130	571030	478077	8518633	14	0.4	
16MBR131	571031	478061	8518557	18	0.36	
16MBR132	571032	478025	8518431	28	0.53	
16MBR133	571033	478357	8518285	28	0.55	Approx.
16MBR133	571034	478357	8518285	28	0.46	Approx.
BLANK	571035	BLANK	BLANK	BLANK	BLANK	
16MBR134	571036	478439	8518392	19	0.135	
16MBR135	571037	478465	8518436	12	0.15	Max
16MBR136	571038	478630	8518601	7	0.13	
16MBR137	571039	479817	8518283	11	0.27	
16MBR138	571040	480118	8518019	28	0.8	
16MBR139	571041	481209	8517704	12	0.37	
16MBR140	571042	481105	8517610	20	0.73	
16MBR141	571043	481039	8517538	26	0.4	Unsure
16MBR143	571044	482202	8516704	17	0.15	Approx.
16MBR144	571045	482171	8516621	30	1.49	
16MBR145	571046	481771	8517286	14	0.5	Approx.
16MBR146	571047	481765	8517202	20	0.63	
16MBR147	571048	481725	8517052	30	0.6	Unsure
16MBR175	571060	499436	8510685	13	1.1	
16MBR176	571061	499353	8510495	17	1.2	
16MBR177	571062	498767	8508963	22	0.37	
16MBR177	571063	498767	8508963	22	0.52	
16MBR178	571064	499004	8509668	23	0.94	
16MBR179	571065	497588	8510677	20	0.94	
16MBR180	571066	497546	8510491	28	0.93	
BLANK	571067	BLANK	BLANK	BLANK	BLANK	
16MBR181	571068	497097	8509479	28	0.91	
16MBR182	571069	496730	8509327	19	0.53	

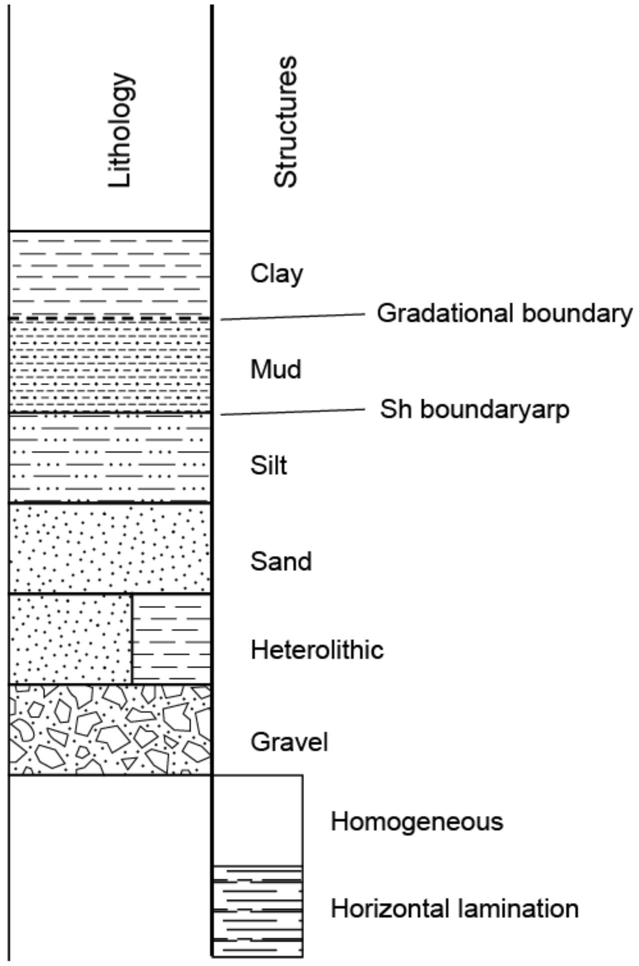
Appendix E

Kisaq, Unsuccessful Sample Localities

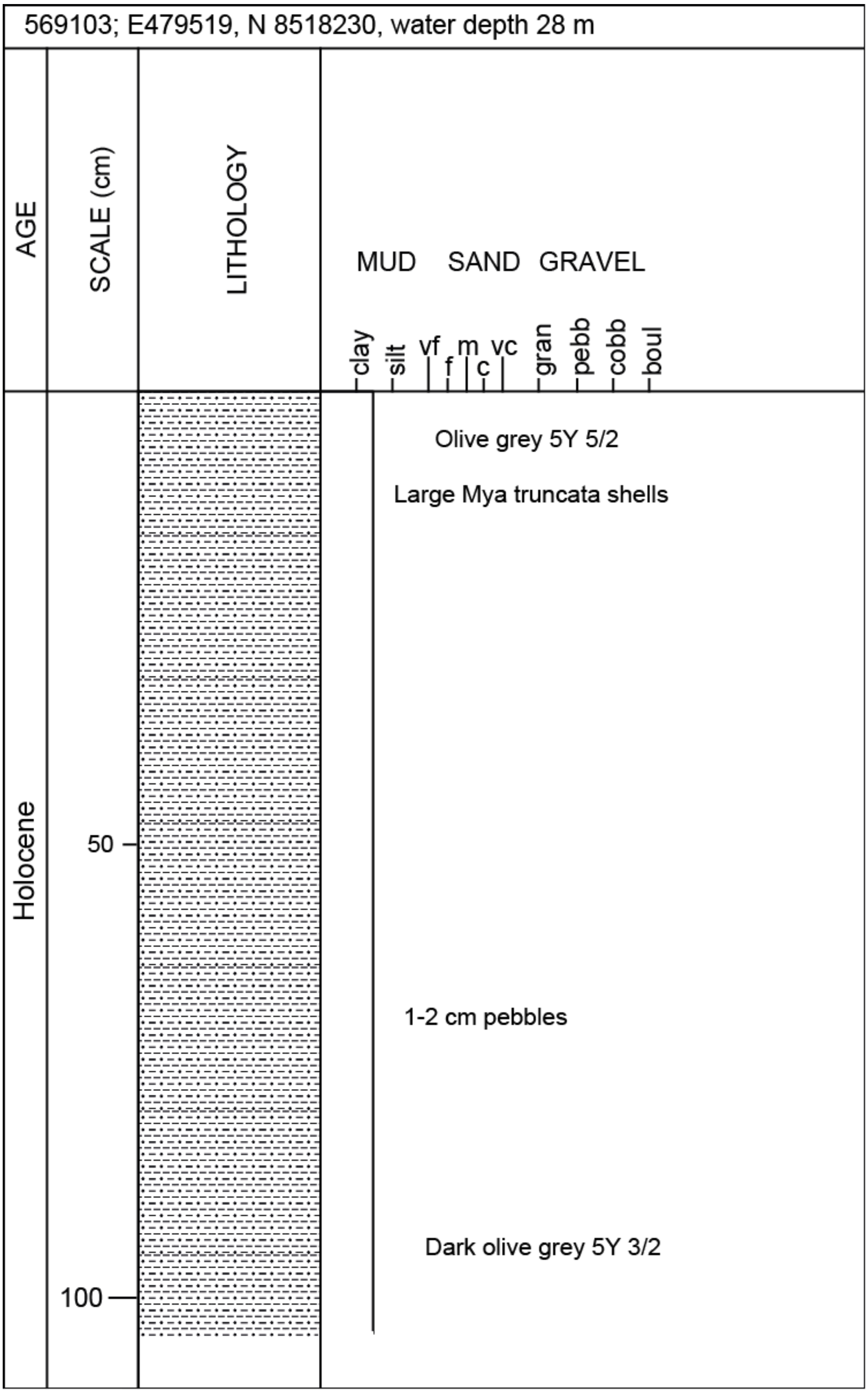
Position ID	X_UTM_19N	Y_UTM_19N	Water depth (m)
16MBR058	488394.962	8513647.311	28
16MBR110	474892.526	8520835.045	8
16MBR122	475480.111	8520347.306	7
16MBR124	475230.315	8520342.097	16
16MBR126	475824.938	8519636.752	9
16MBR142	482306.482	8516778.979	7
16MBR174	499473.117	8510809.397	5
16MBR043	476002.84	8520018.943	7
16MBR045	475744.873	8519165.577	9

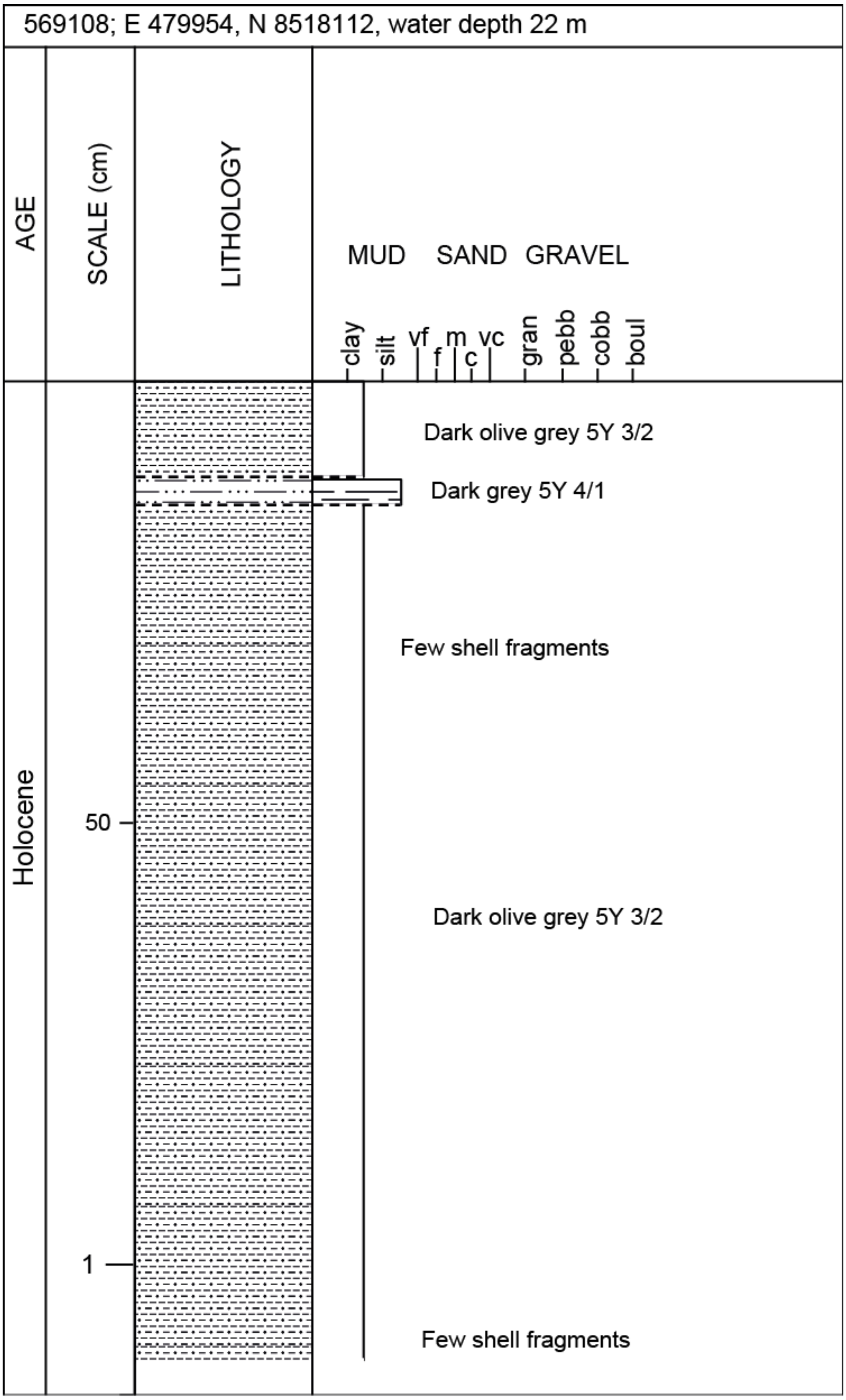
Appendix F

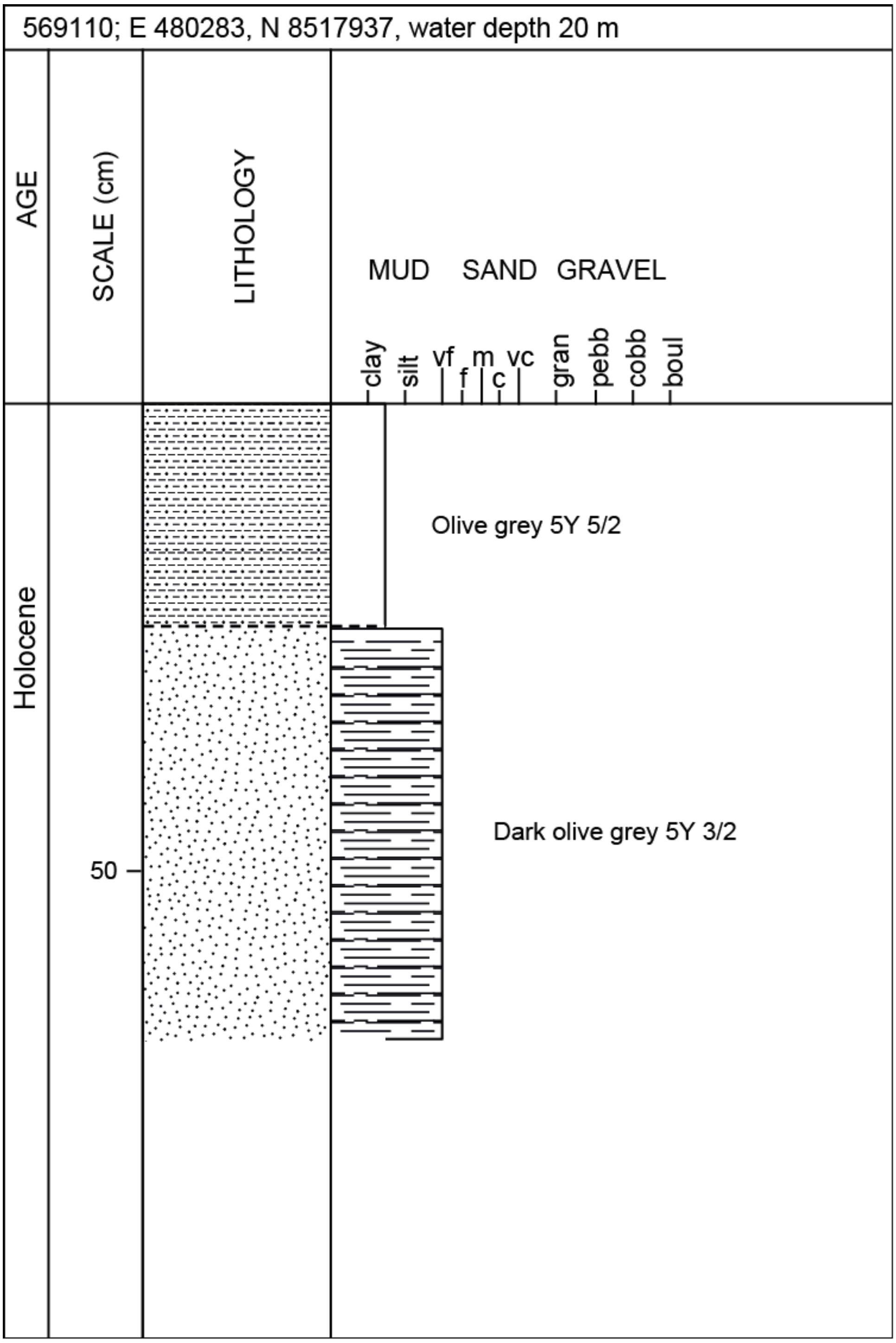
Core logs

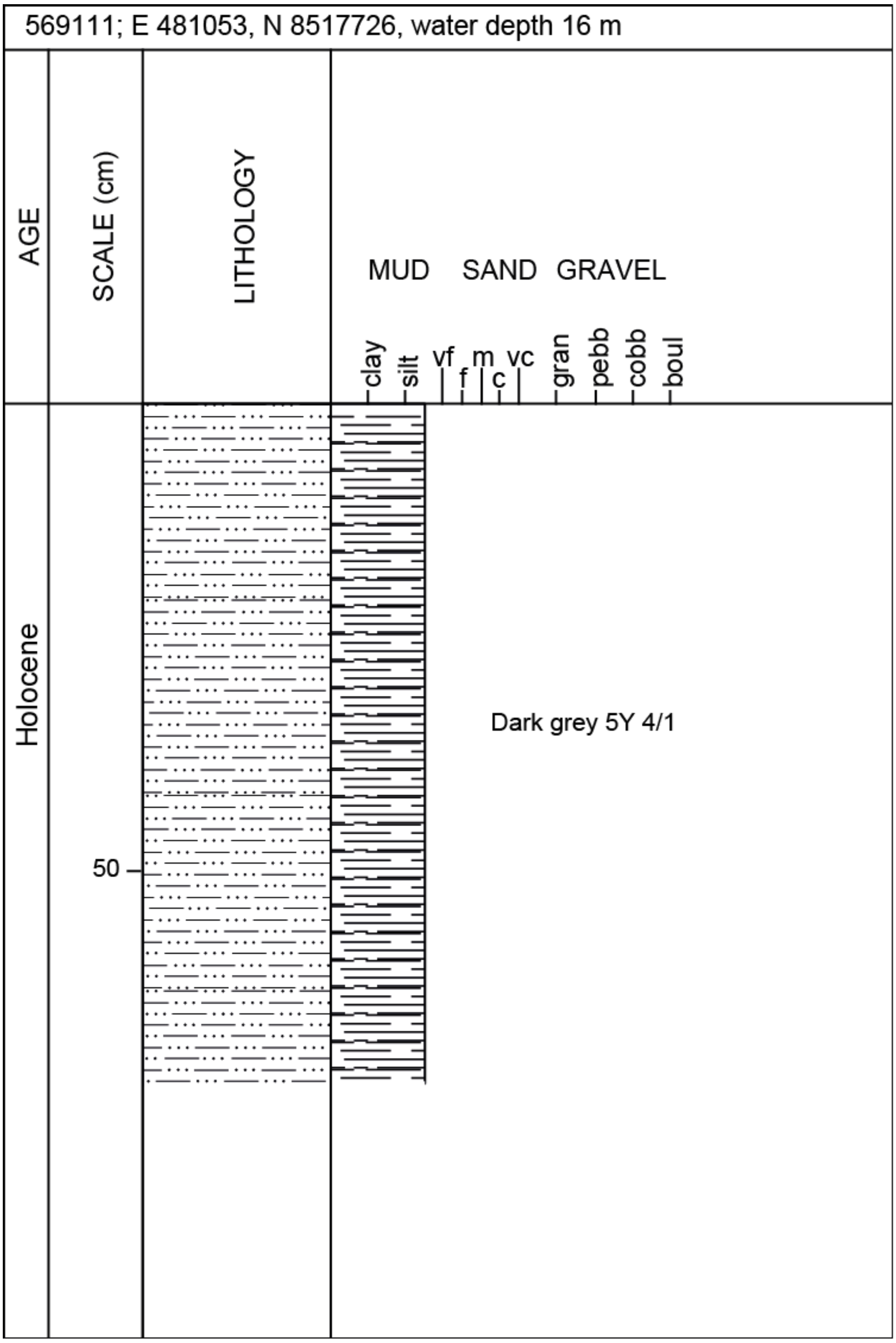


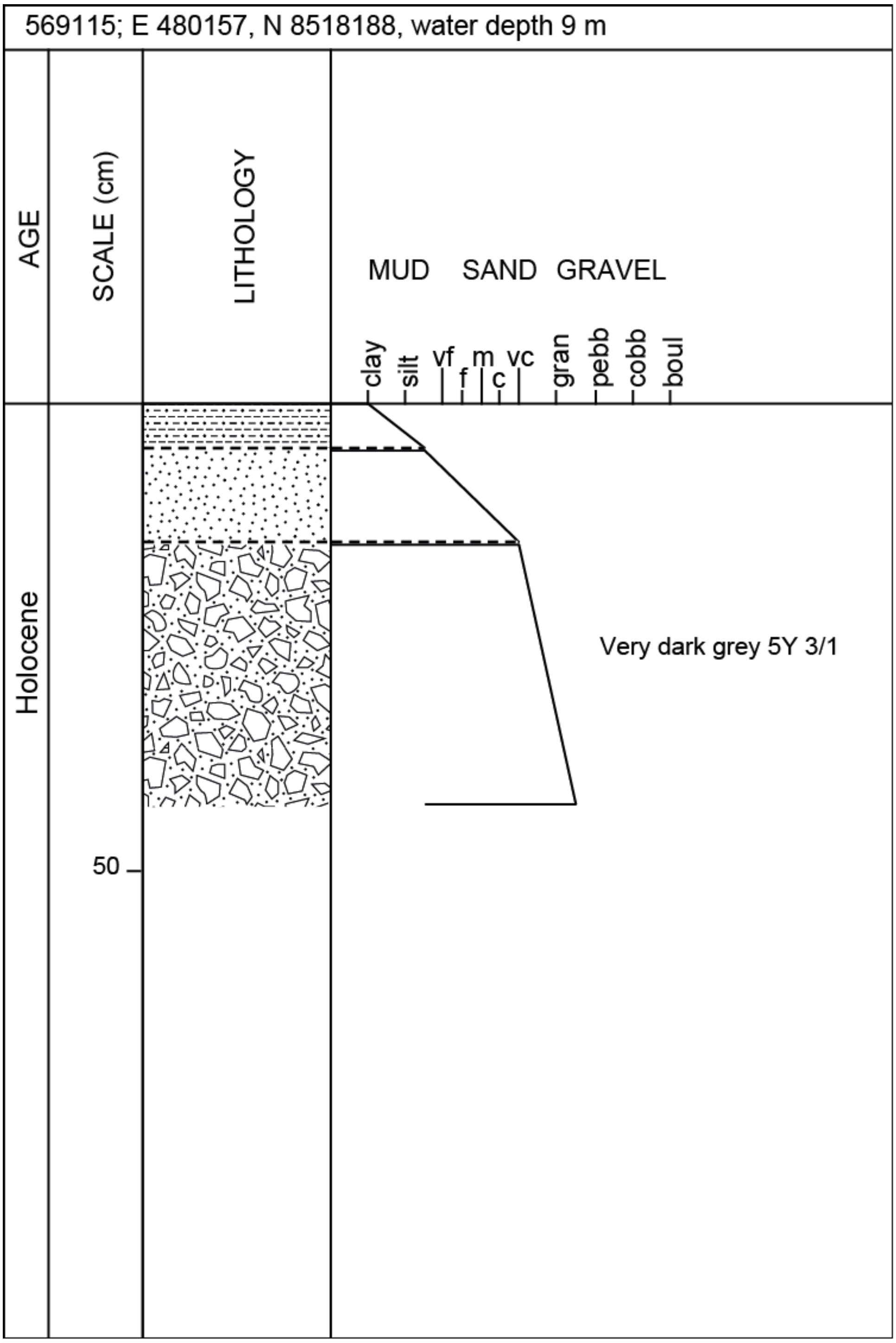
Legend to sedimentological logs

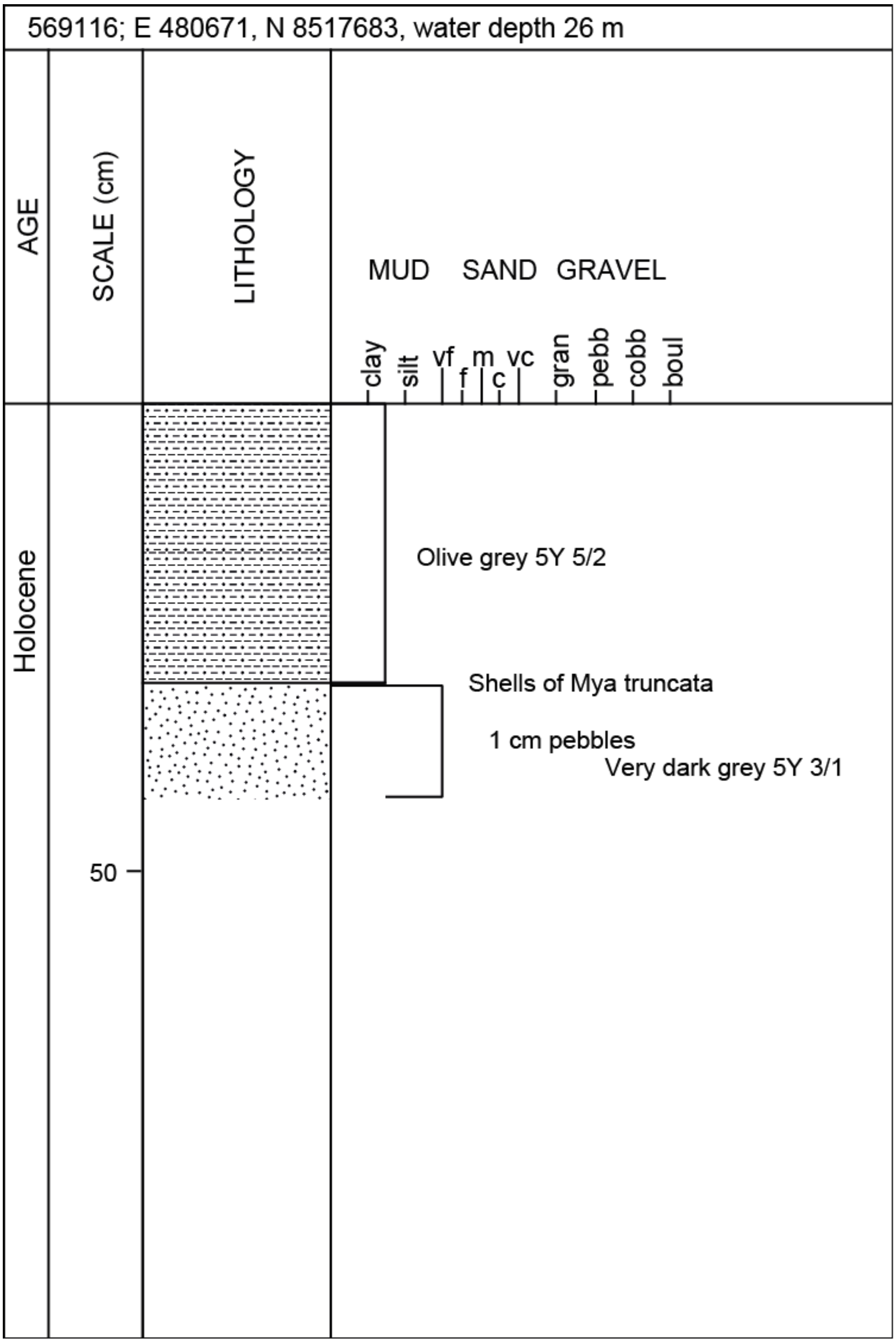

569103; E479519, N 8518230, water depth 28 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Olive grey 5Y 5/2
Large Mya truncata shells
Holocene
50
1-2 cm pebbles
Dark olive grey 5Y 3/2
100

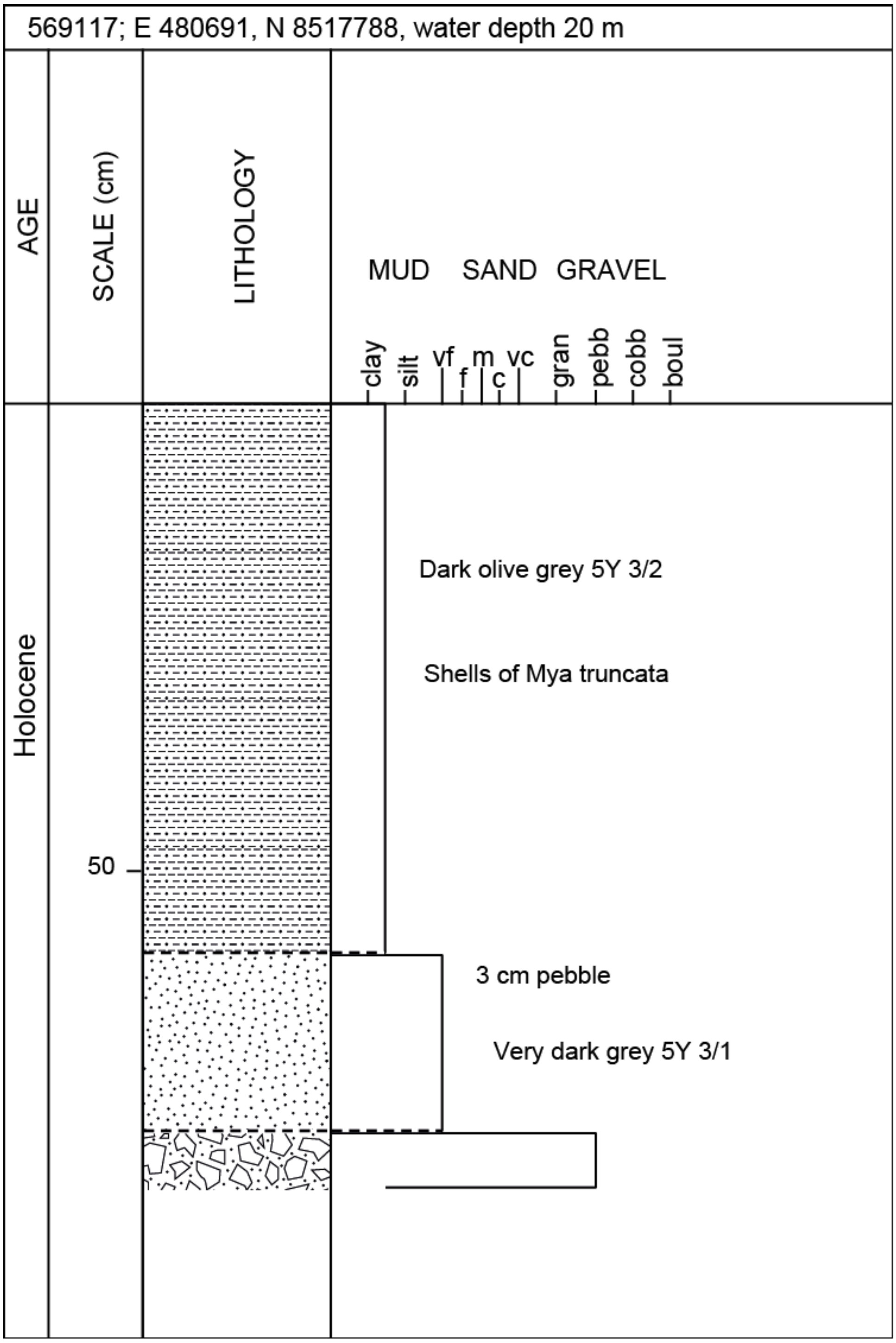

569108; E 479954, N 8518112, water depth 22 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Dark olive grey 5Y 3/2
Dark grey 5Y 4/1
Few shell fragments
Holocene
50
Dark olive grey 5Y 3/2
1
Few shell fragments

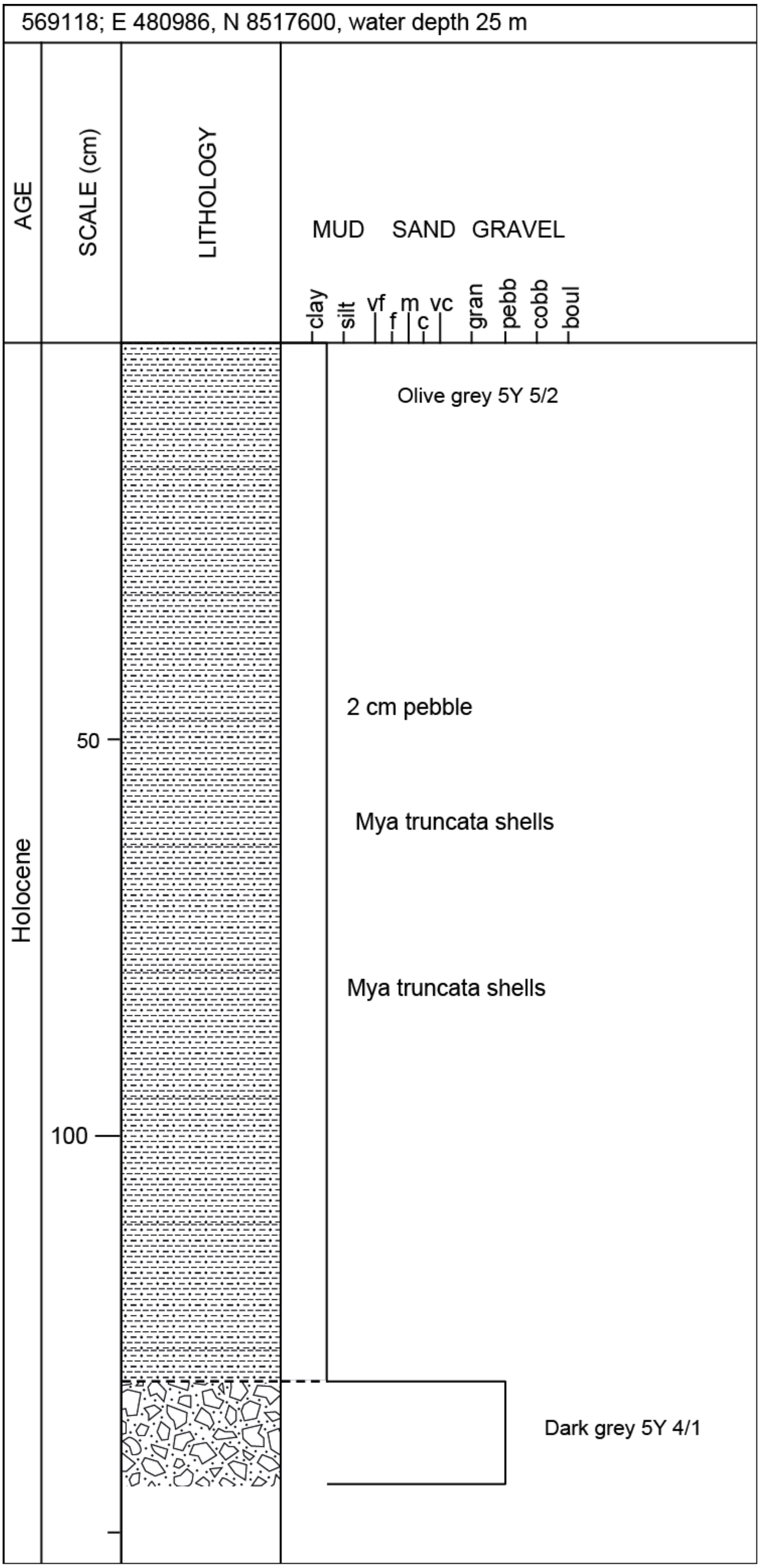

569110; E 480283, N 8517937, water depth 20 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
Dark olive grey 5Y 3/2

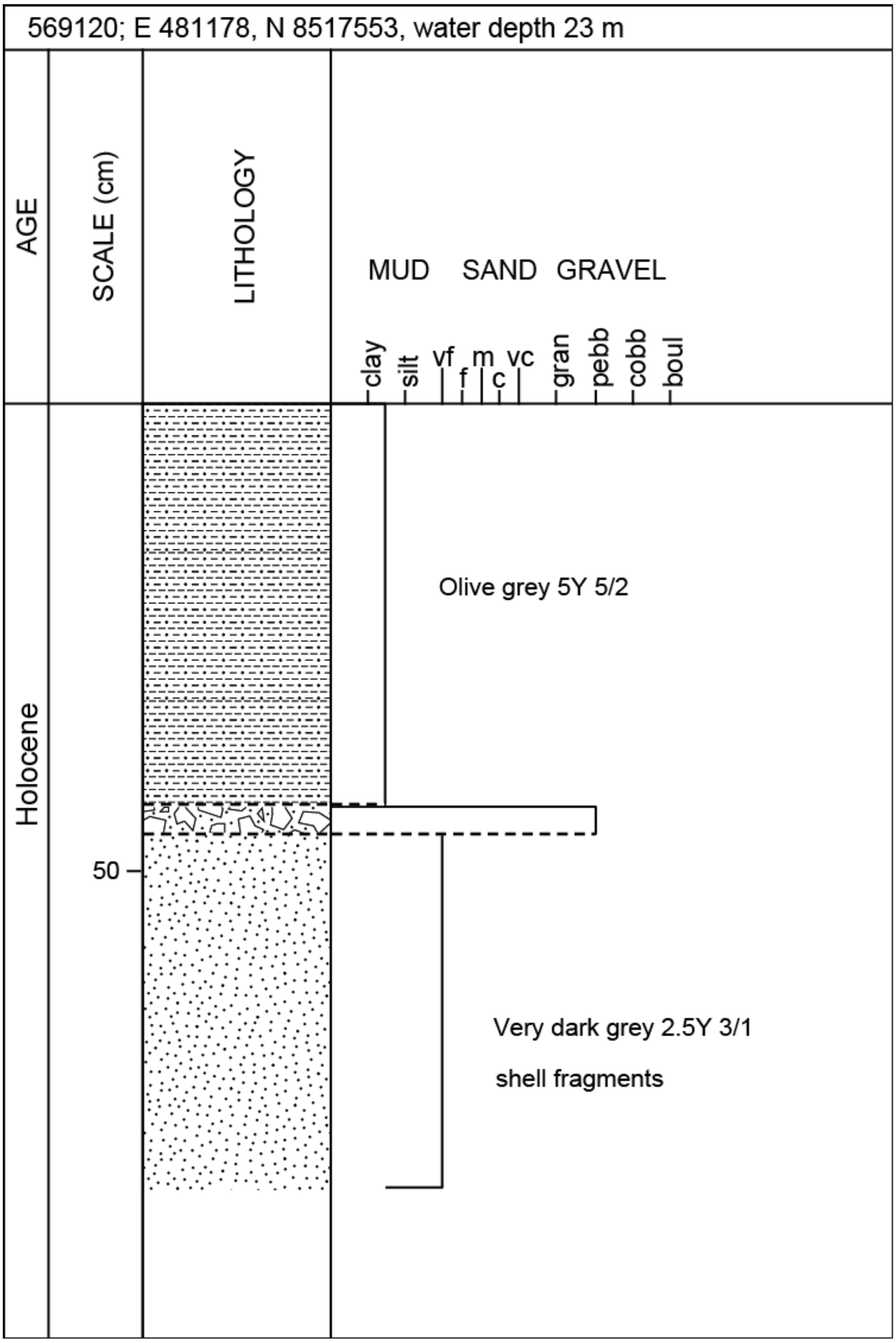

569111; E 481053, N 8517726, water depth 16 m
AGE
SCALE (cm)
LITHOLOGY
MUD
SAND
GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Dark grey 5Y 4/1

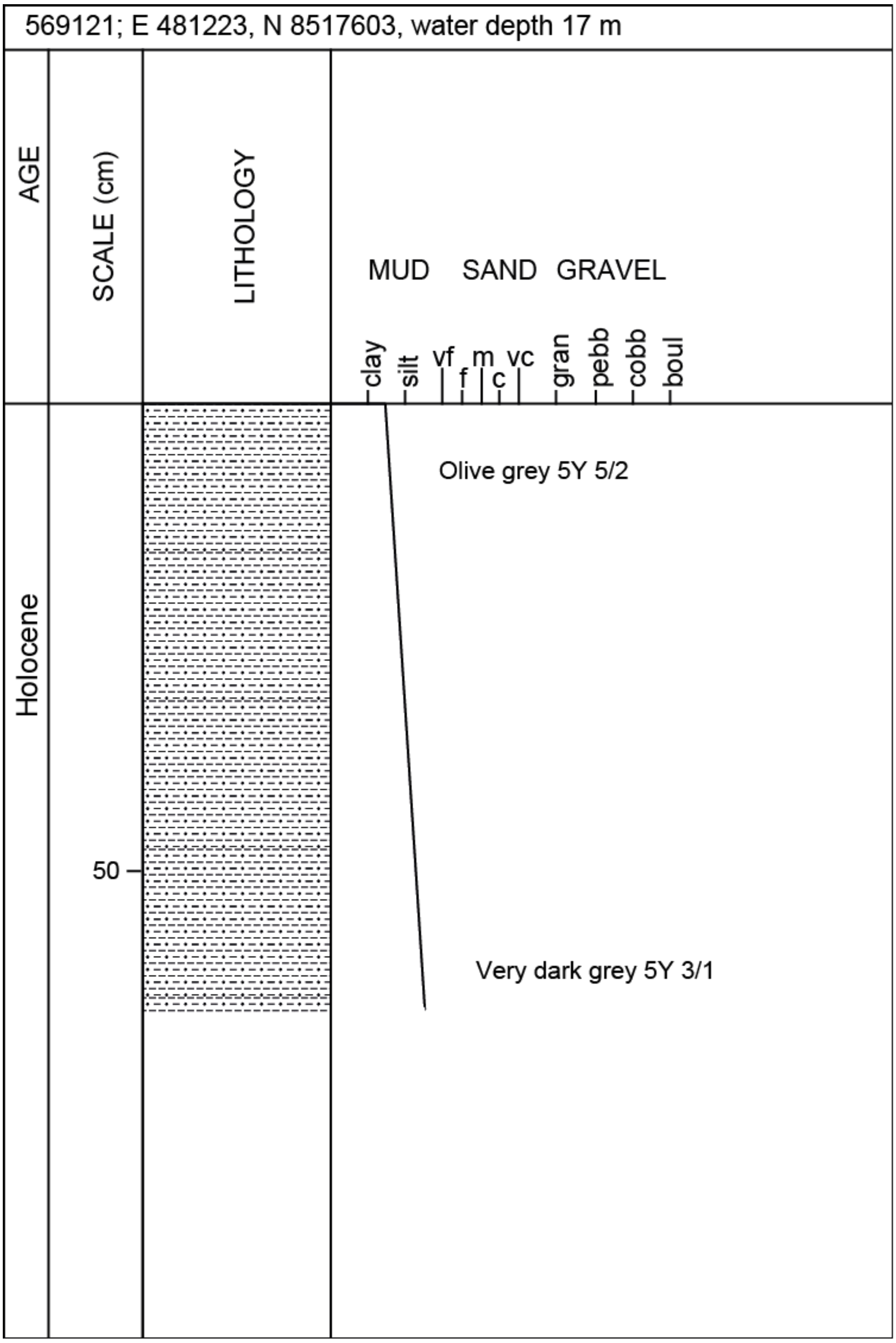

569115; E 480157, N 8518188, water depth 9 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Very dark grey 5Y 3/1

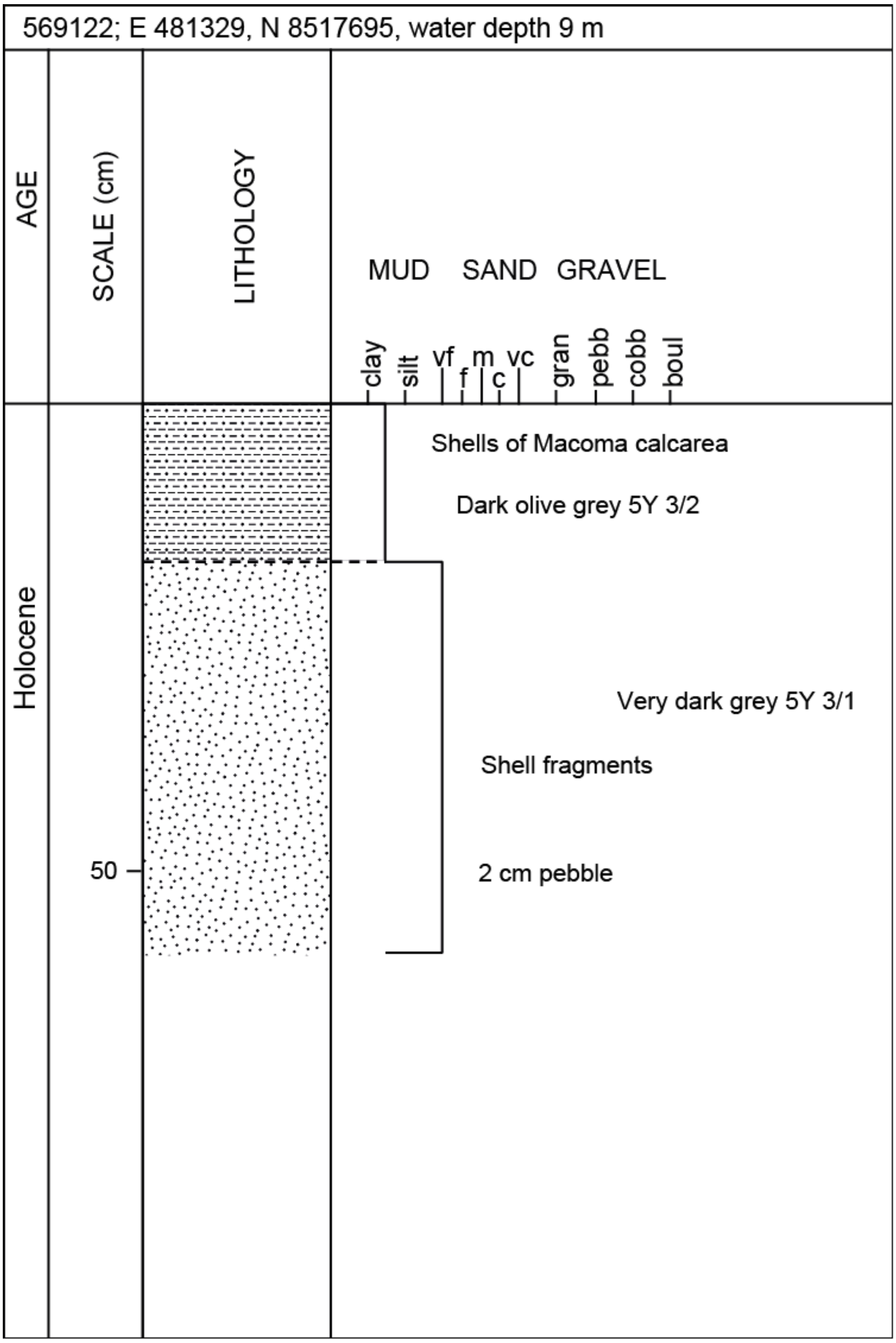

569116; E 480671, N 8517683, water depth 26 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
Shells of Mya truncata
1 cm pebbles
Very dark grey 5Y 3/1

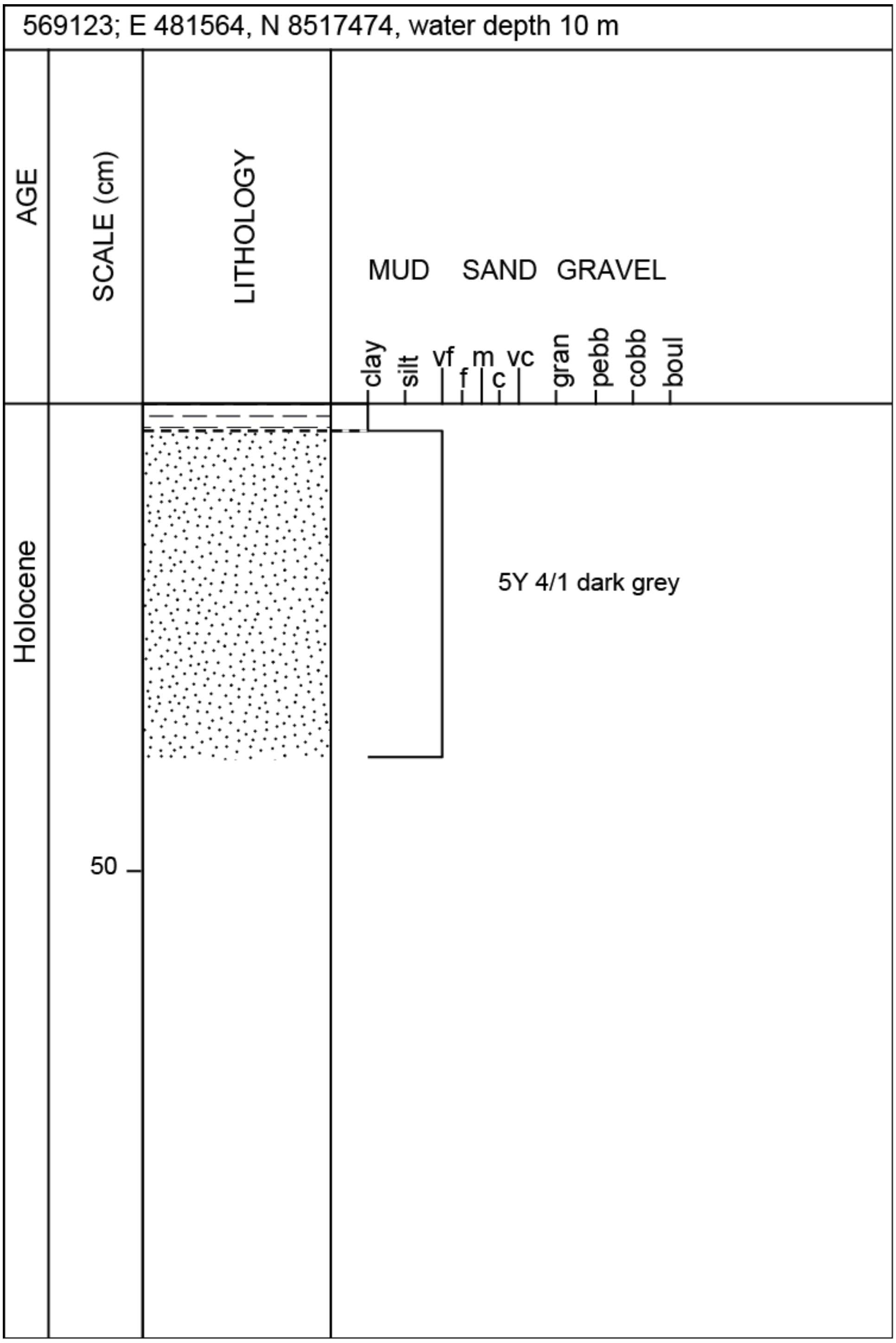

569117; E 480691, N 8517788, water depth 20 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Dark olive grey 5Y 3/2
Shells of Mya truncata
3 cm pebble
Very dark grey 5Y 3/1

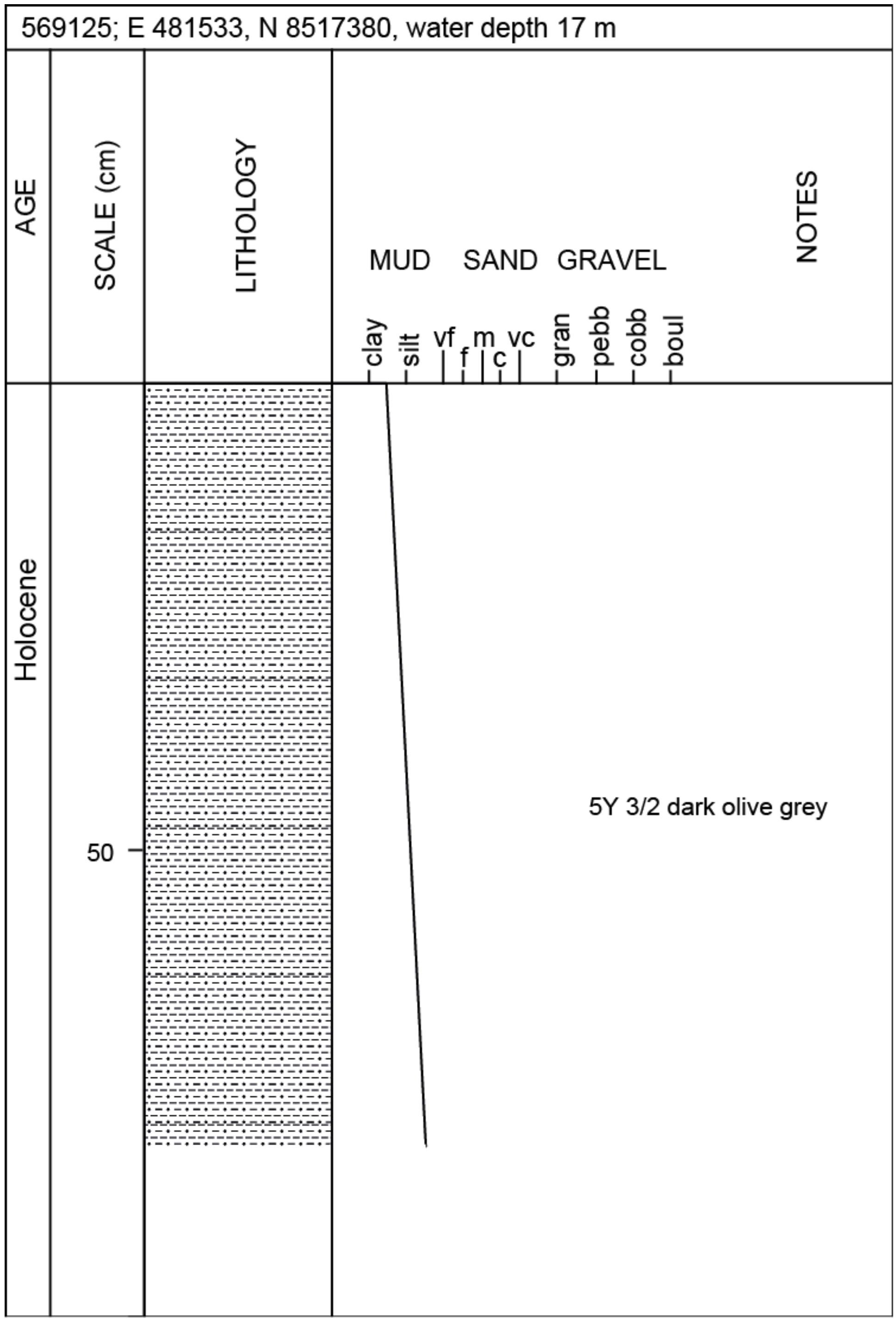

569118; E 480986, N 8517600, water depth 25 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Olive grey 5Y 5/2
2 cm pebble
50
Mya truncata shells
Holocene
Mya truncata shells
100
Dark grey 5Y 4/1

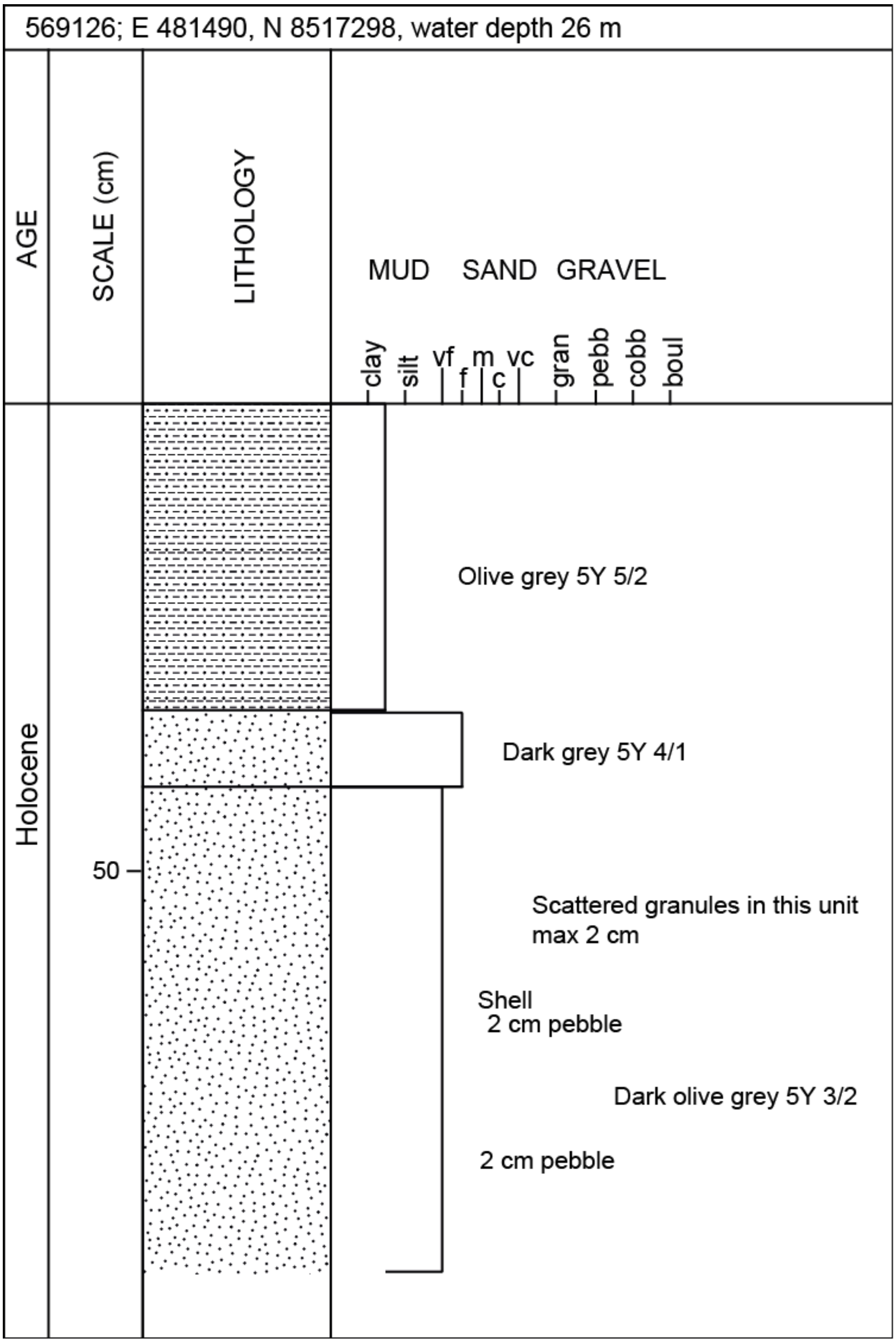

569120; E 481178, N 8517553, water depth 23 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
Very dark grey 2.5Y 3/1
shell fragments

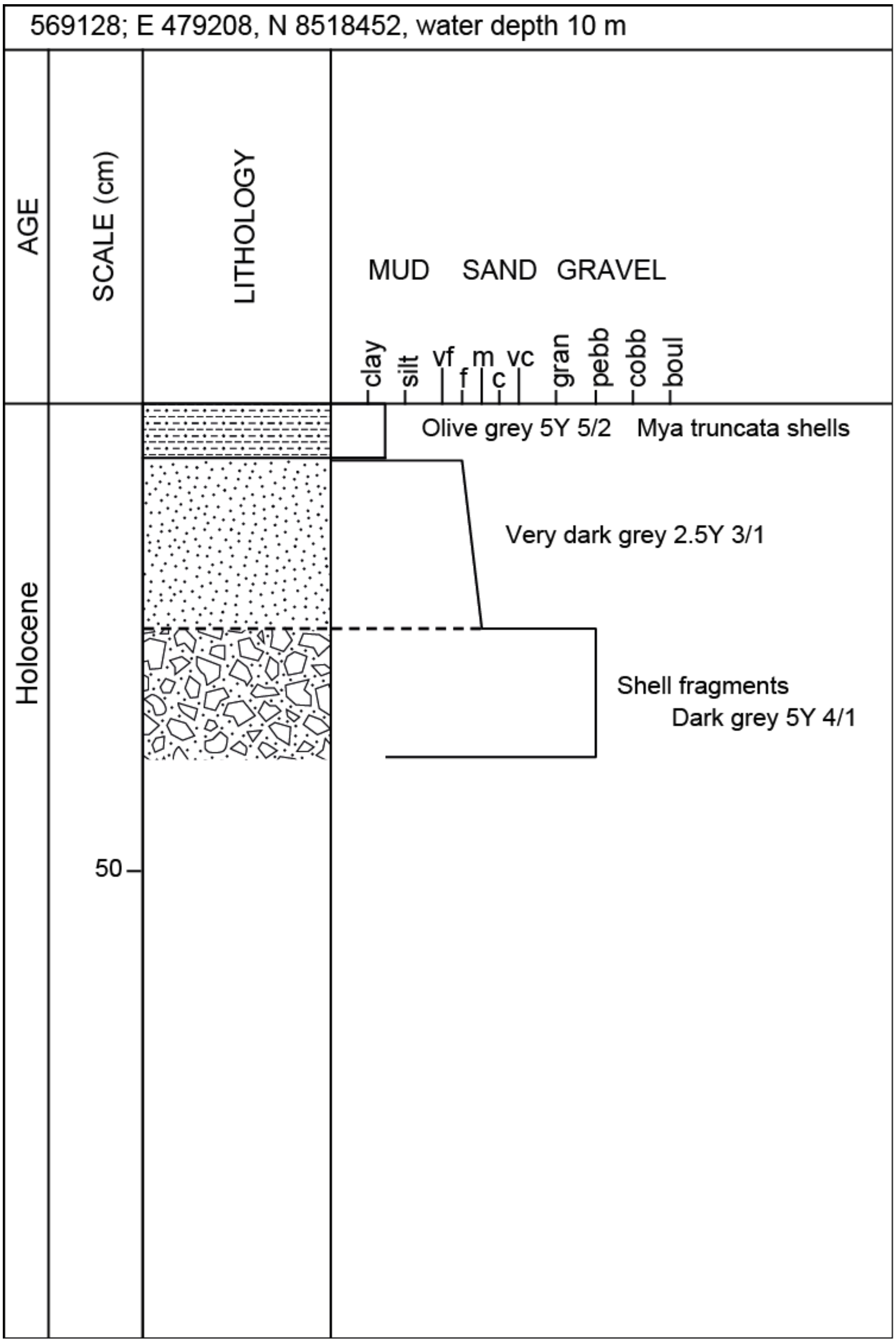

569121; E 481223, N 8517603, water depth 17 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
Very dark grey 5Y 3/1

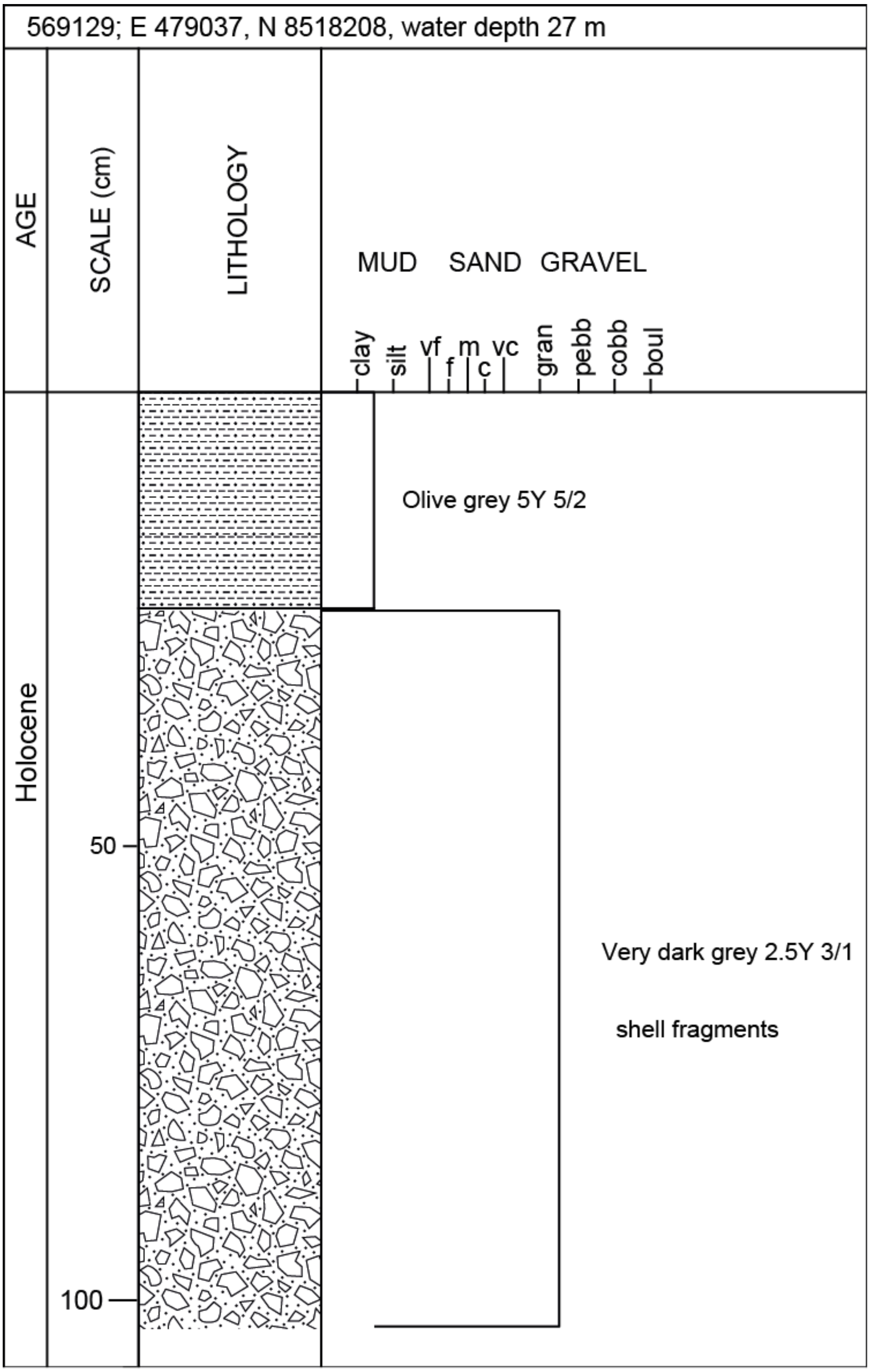

569122; E 481329, N 8517695, water depth 9 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Shells of Macoma calcarea
Dark olive grey 5Y 3/2
Very dark grey 5Y 3/1
Shell fragments
2 cm pebble


569123; E 481564, N 8517474, water depth 10 m
AGE
SCALE (cm)
LITHOLOGY
MUD
SAND
GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
5Y 4/1 dark grey

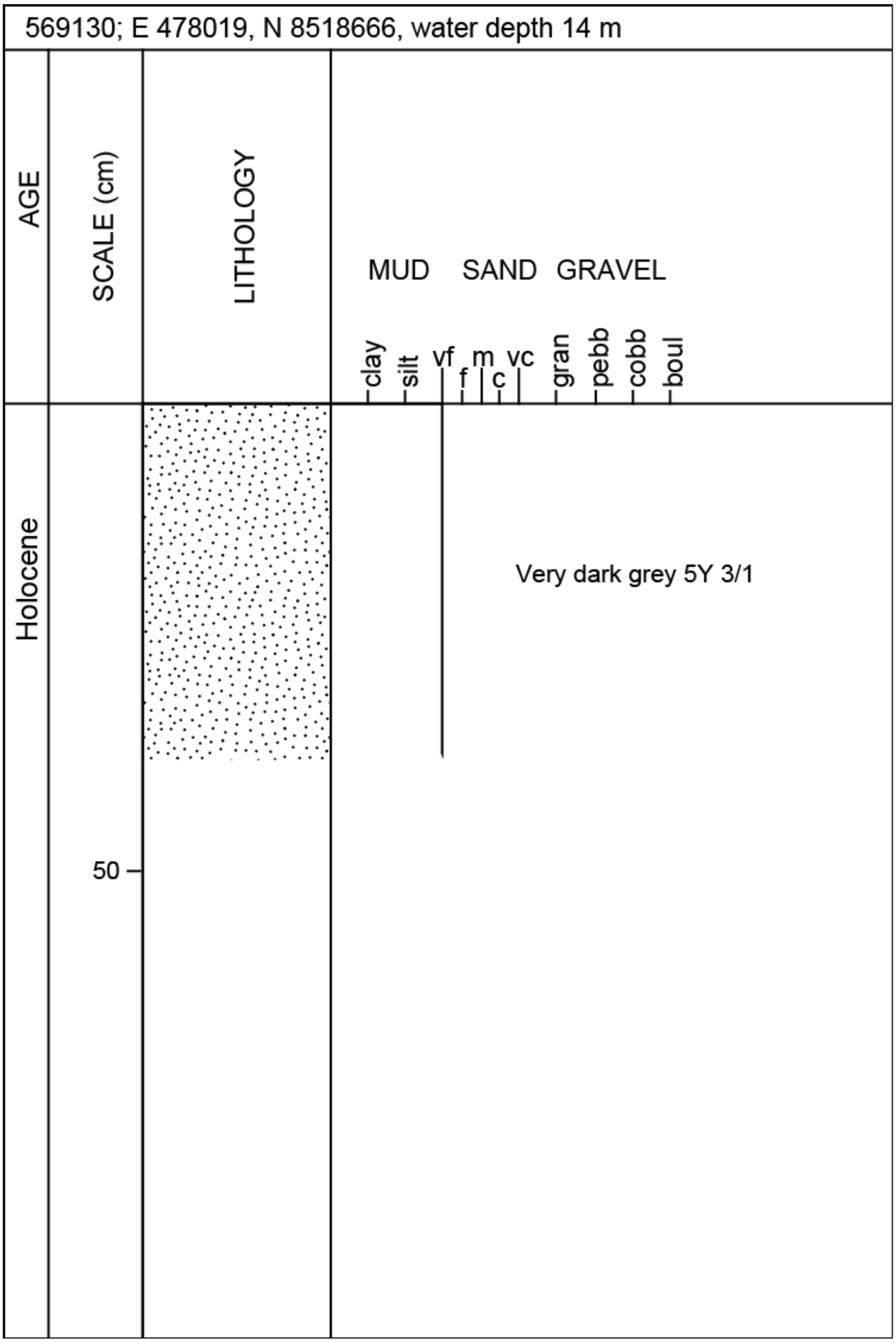

569125; E 481533, N 8517380, water depth 17 m
AGE
SCALE (cm)
LITHOLOGY
MUD
SAND
GRAVEL
NOTES
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
5Y 3/2 dark olive grey

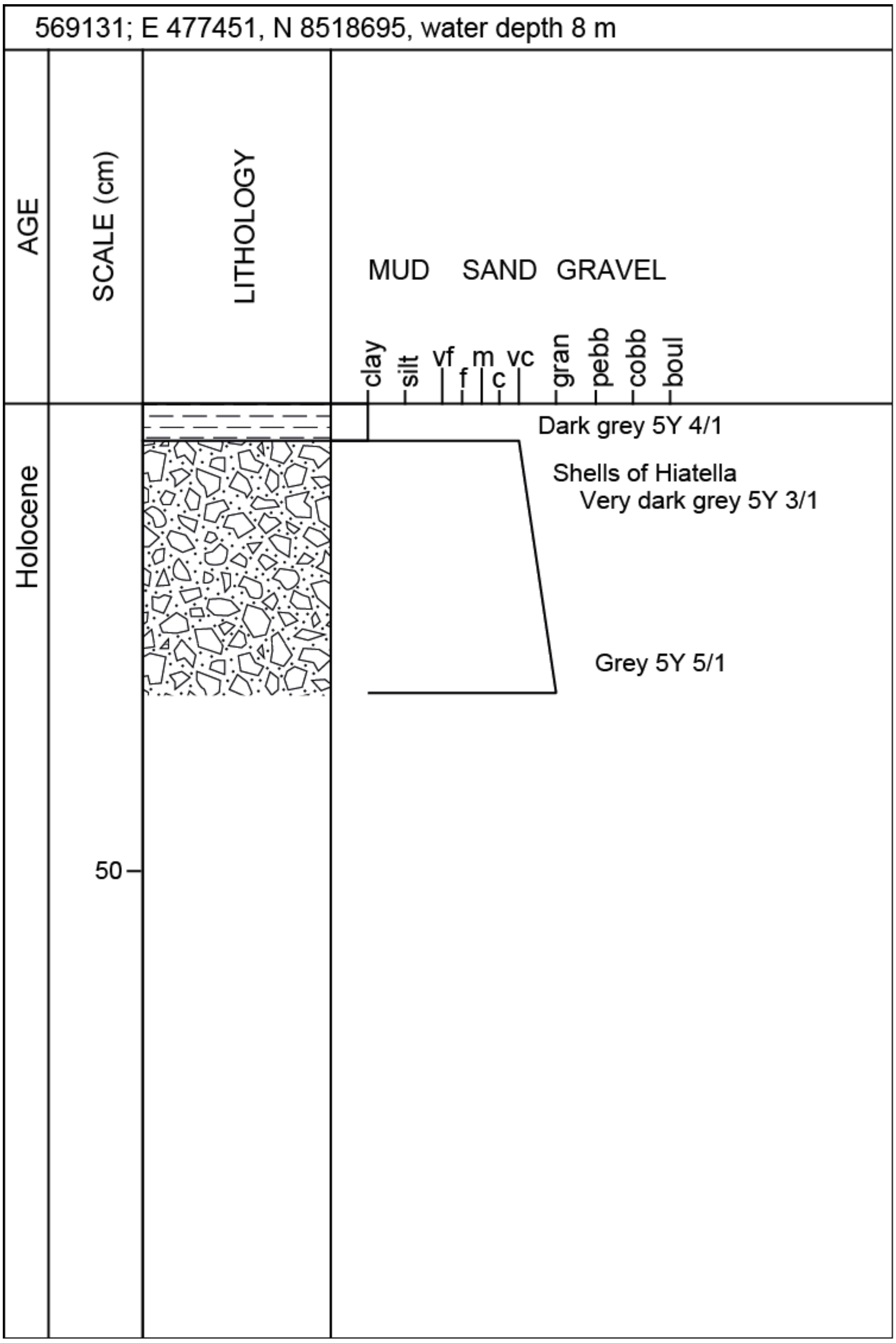

569126; E 481490, N 8517298, water depth 26 m
AGE
SCALE (cm)
LITHOLOGY
MUD
SAND
GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
Dark grey 5Y 4/1
Scattered granules in this unit
max 2 cm
Shell
2 cm pebble
Dark olive grey 5Y 3/2
2 cm pebble

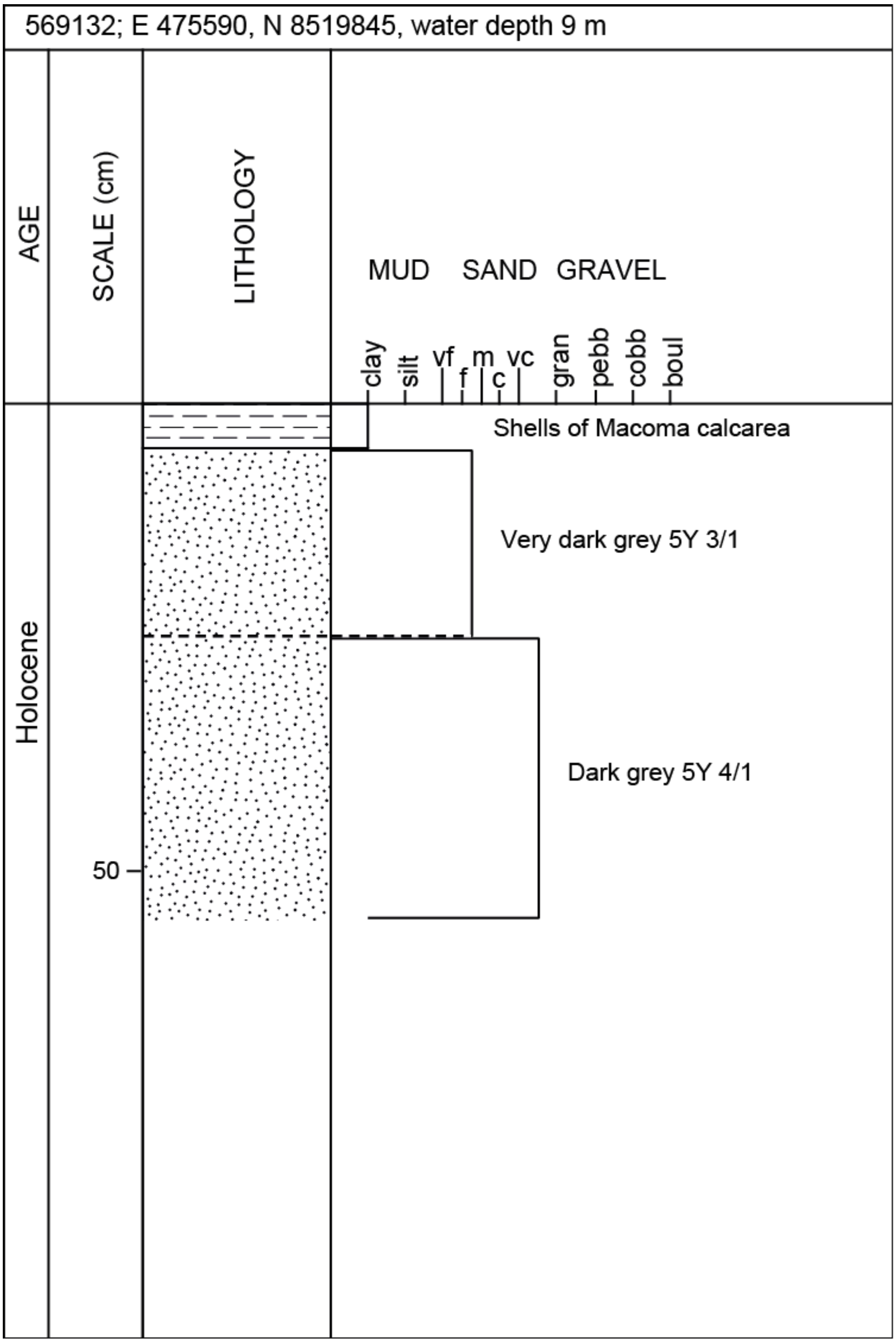

569128; E 479208, N 8518452, water depth 10 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2 Mya truncata shells
Very dark grey 2.5Y 3/1
Shell fragments
Dark grey 5Y 4/1



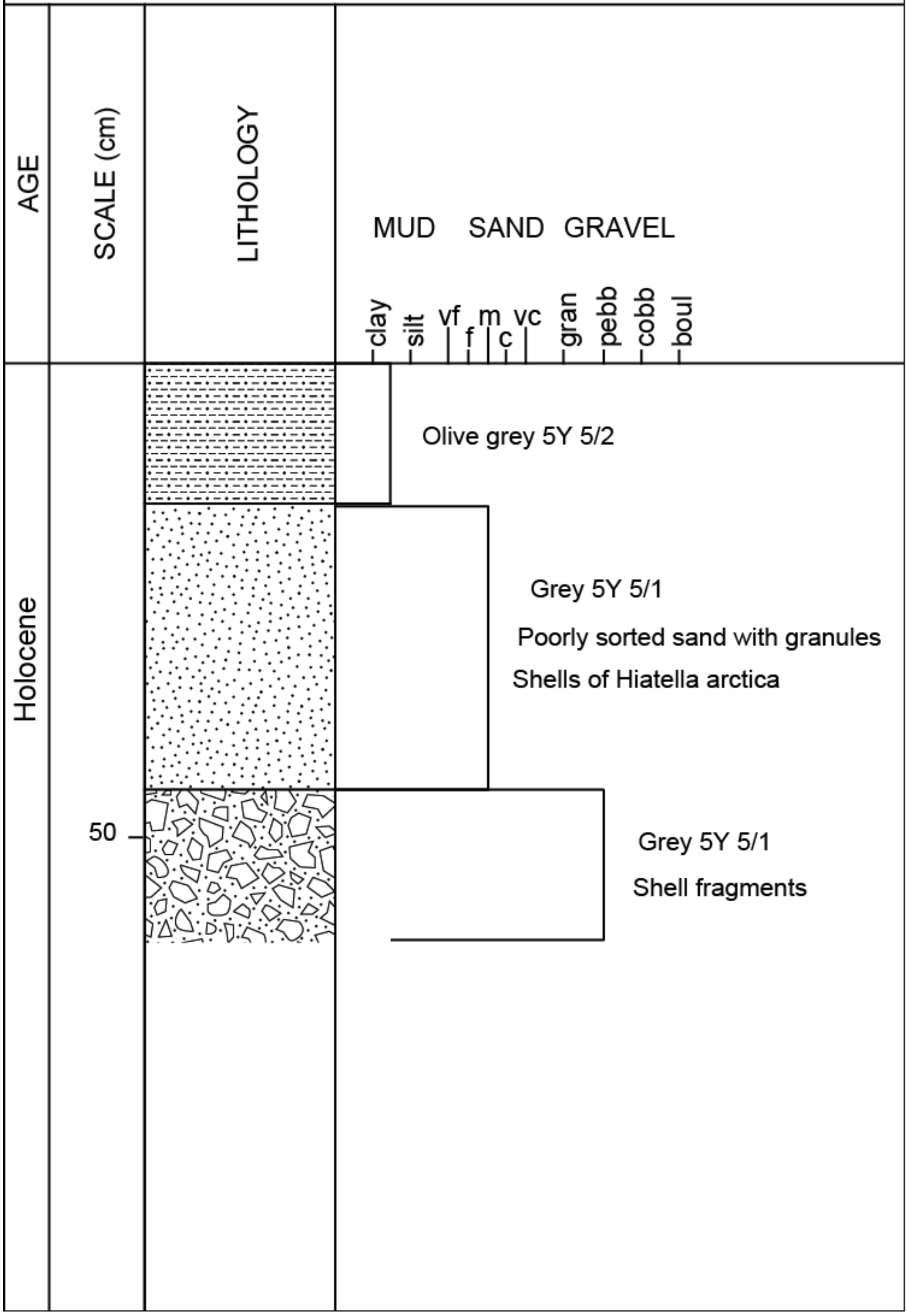
569129; E 479037, N 8518208, water depth 27 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Olive grey 5Y 5/2
Holocene
50
100
Very dark grey 2.5Y 3/1
shell fragments

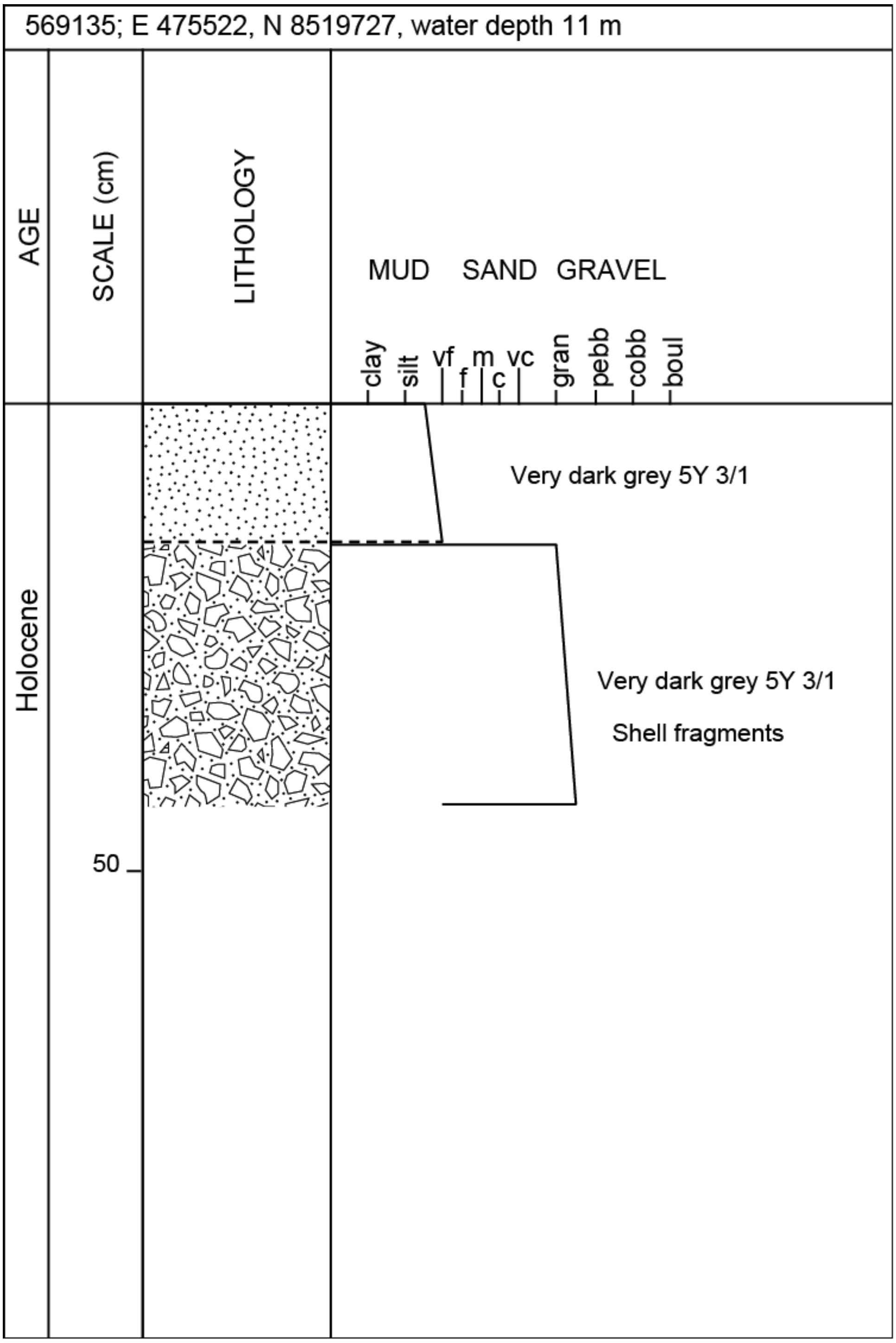

569130; E 478019, N 8518666, water depth 14 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Very dark grey 5Y 3/1

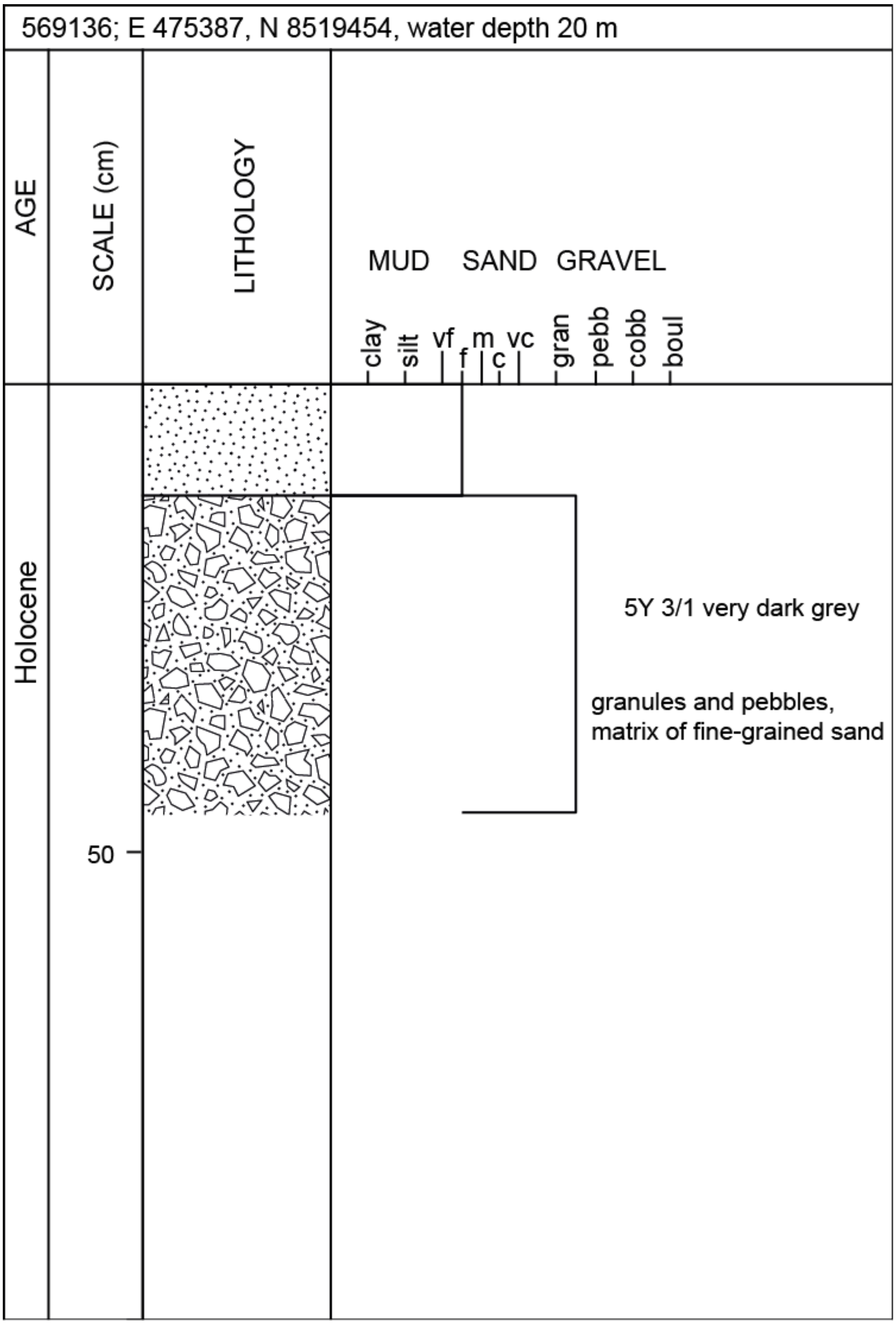

569131; E 477451, N 8518695, water depth 8 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Dark grey 5Y 4/1
Shells of Hiatella
Very dark grey 5Y 3/1
Grey 5Y 5/1

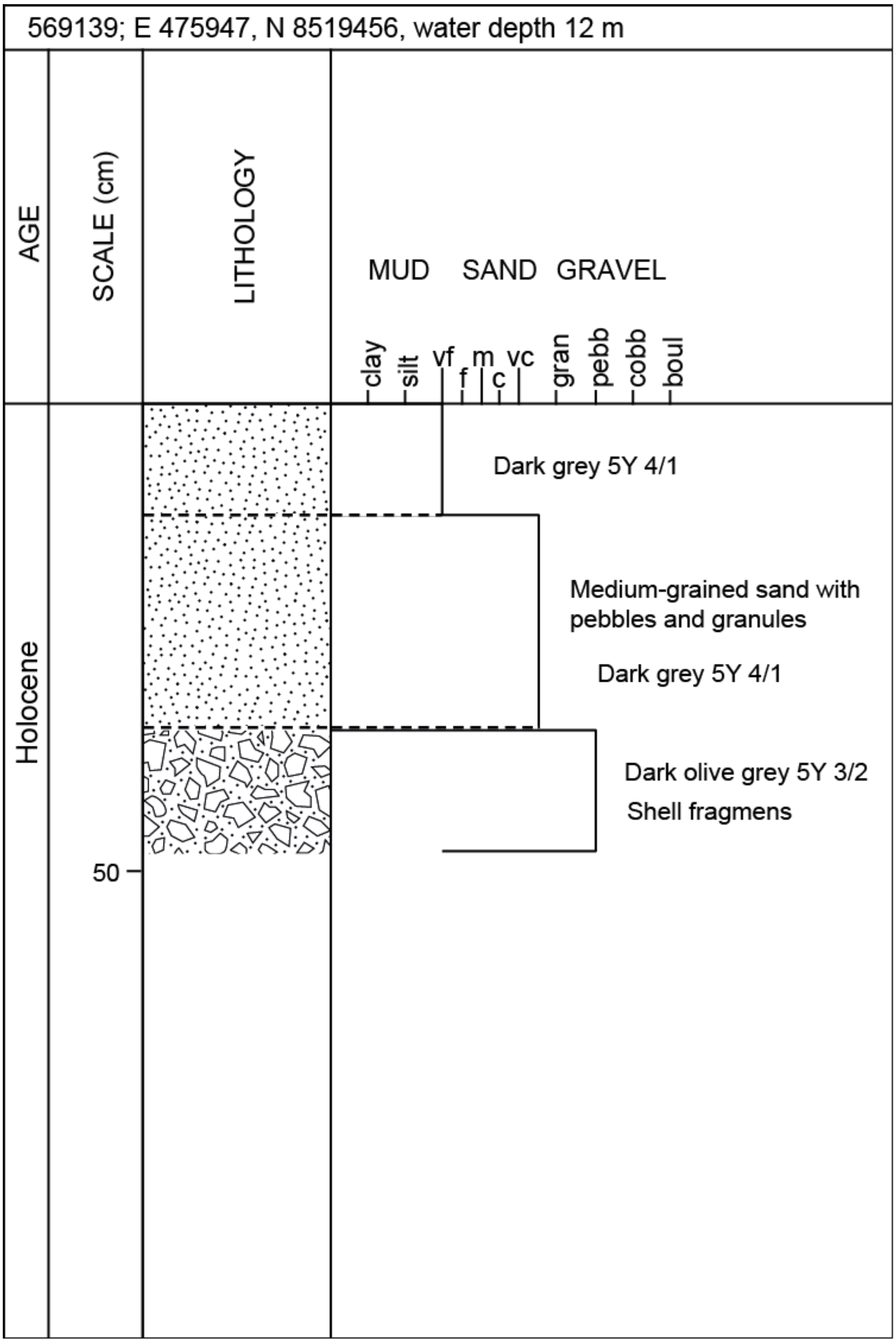

569132; E 475590, N 8519845, water depth 9 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Shells of Macoma calcarea
Very dark grey 5Y 3/1
Dark grey 5Y 4/1
Holocene
50

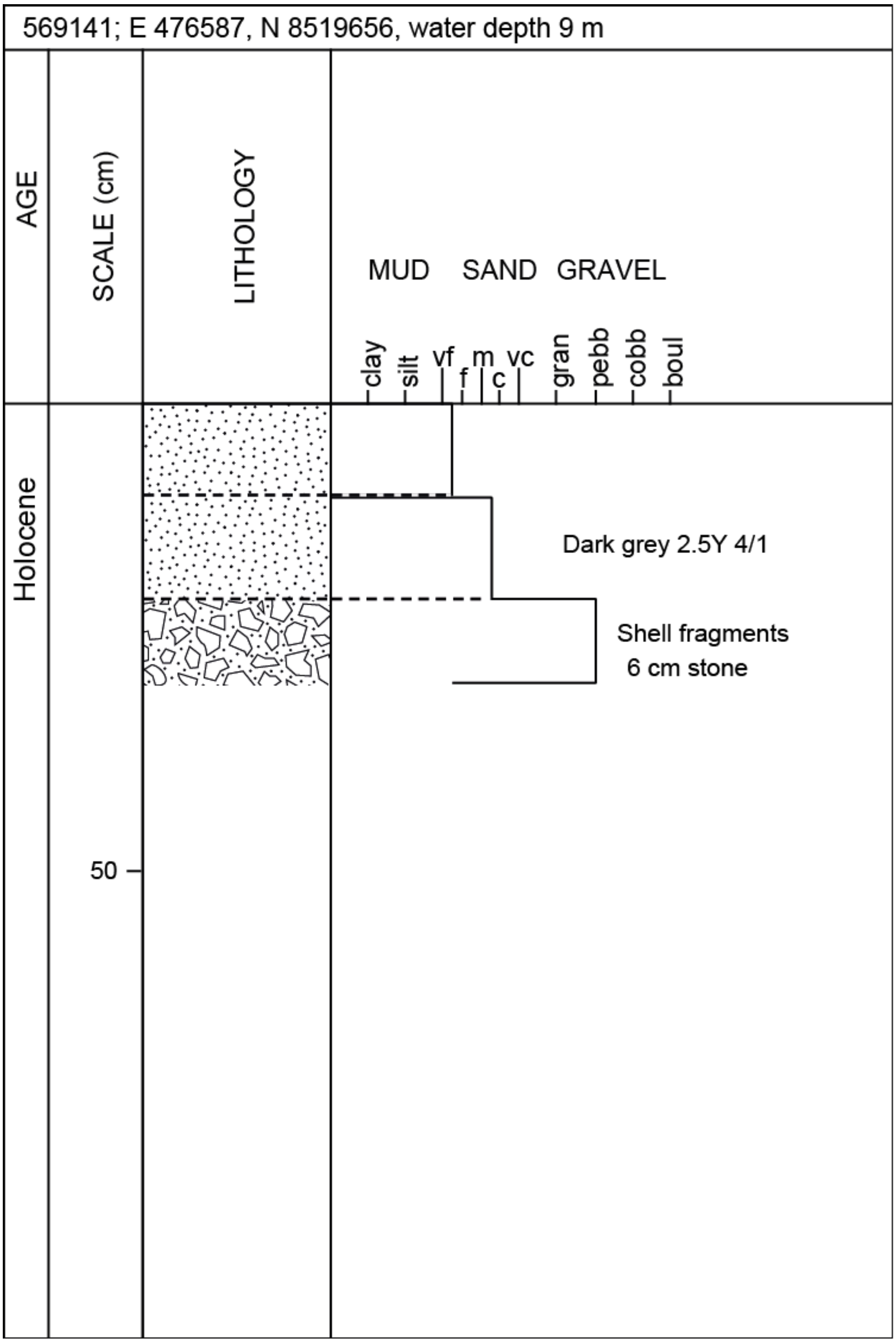
569133; E 475590, N 8519845, water depth 9 m

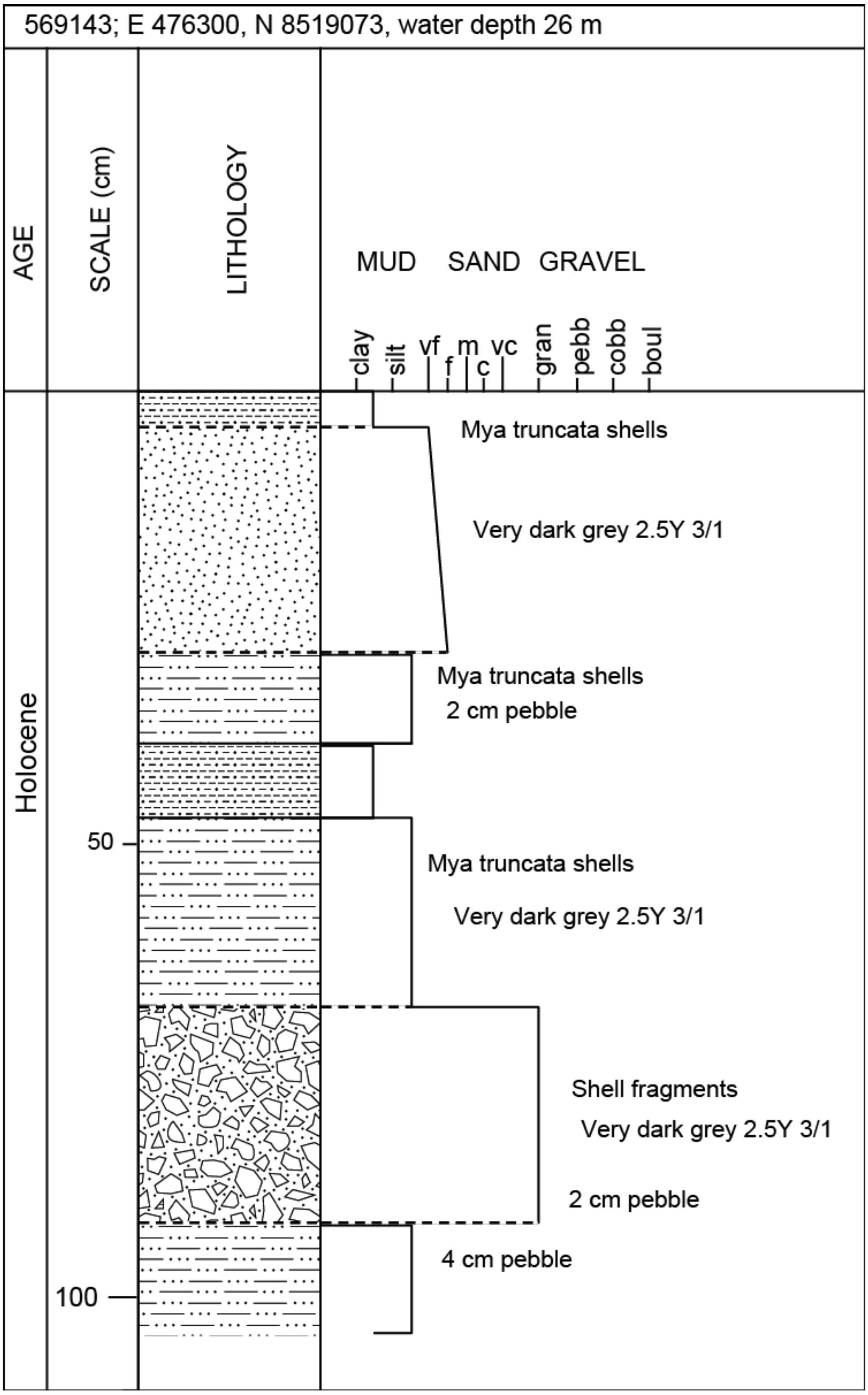


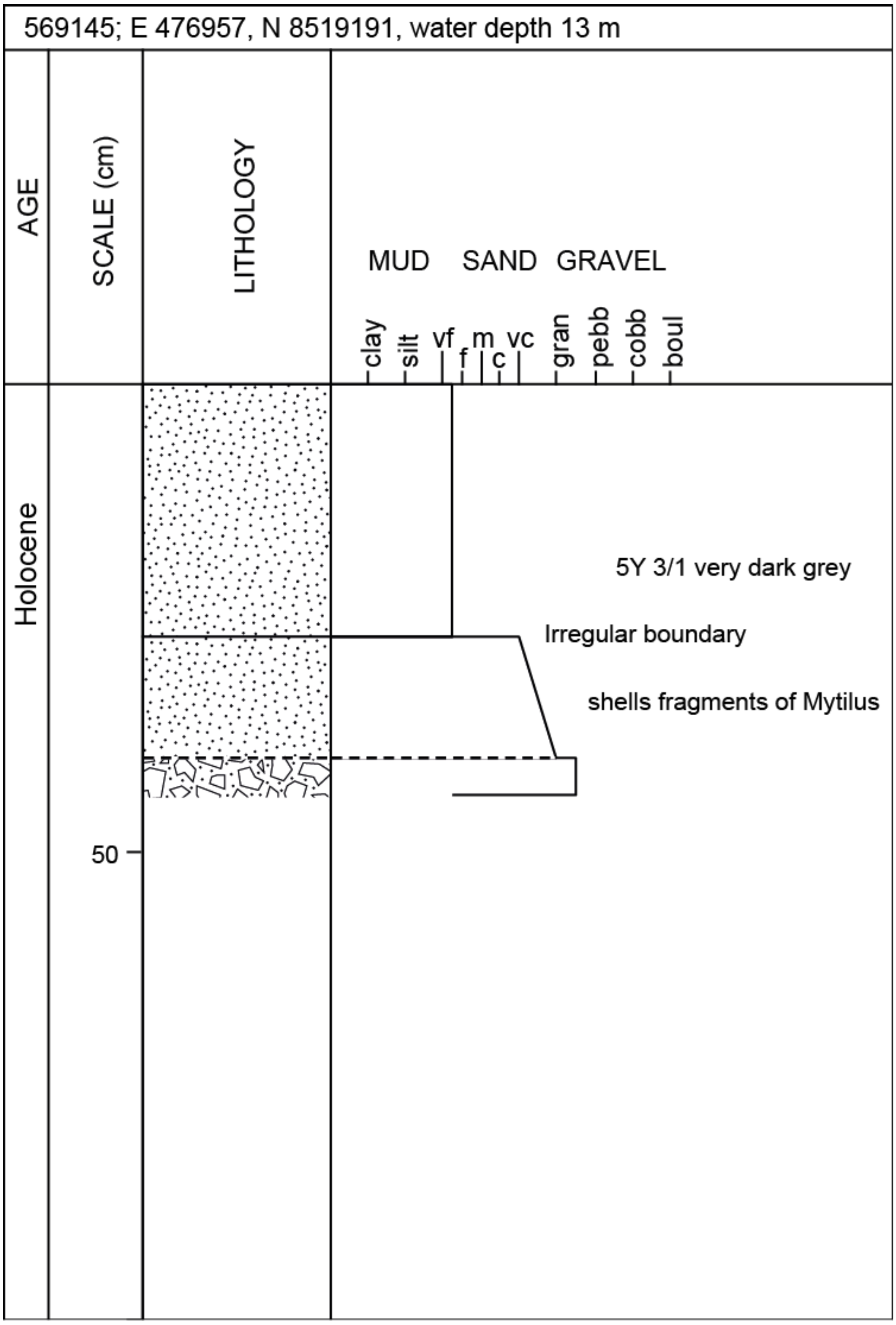

569135; E 475522, N 8519727, water depth 11 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Very dark grey 5Y 3/1
Very dark grey 5Y 3/1
Shell fragments

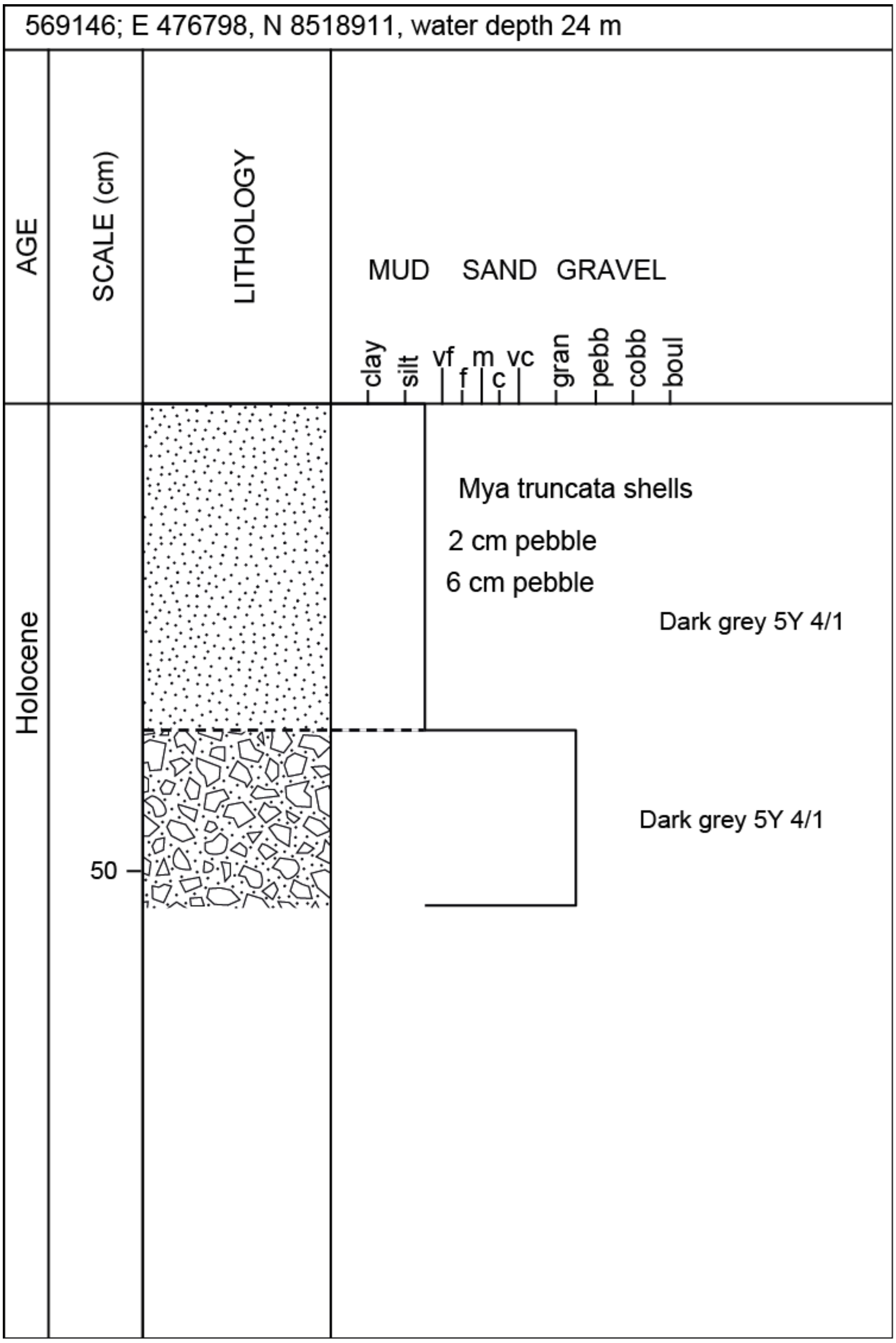

569136; E 475387, N 8519454, water depth 20 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
5Y 3/1 very dark grey
granules and pebbles,
matrix of fine-grained sand

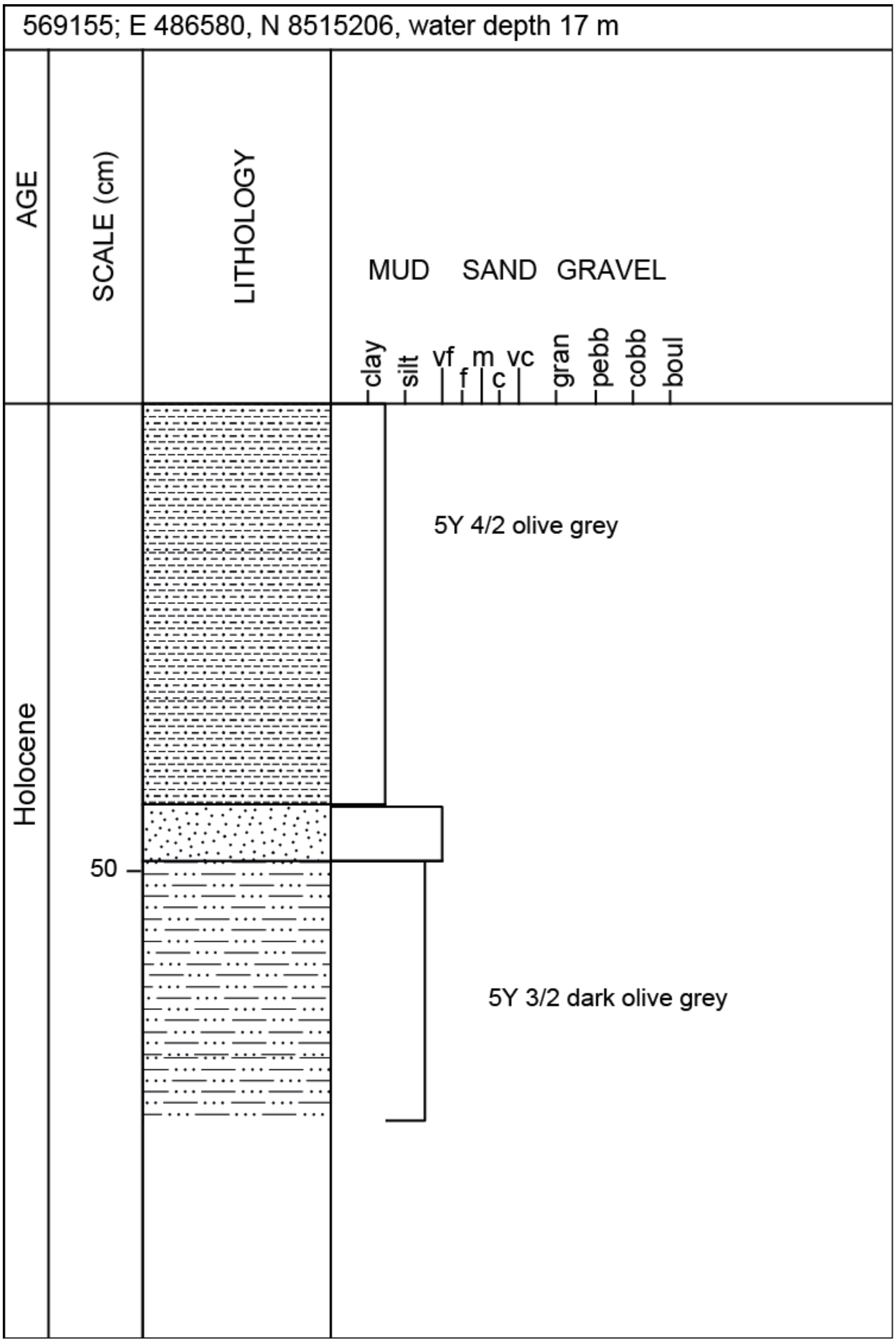

569139; E 475947, N 8519456, water depth 12 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Dark grey 5Y 4/1
Medium-grained sand with pebbles and granules
Dark grey 5Y 4/1
Dark olive grey 5Y 3/2
Shell fragmens

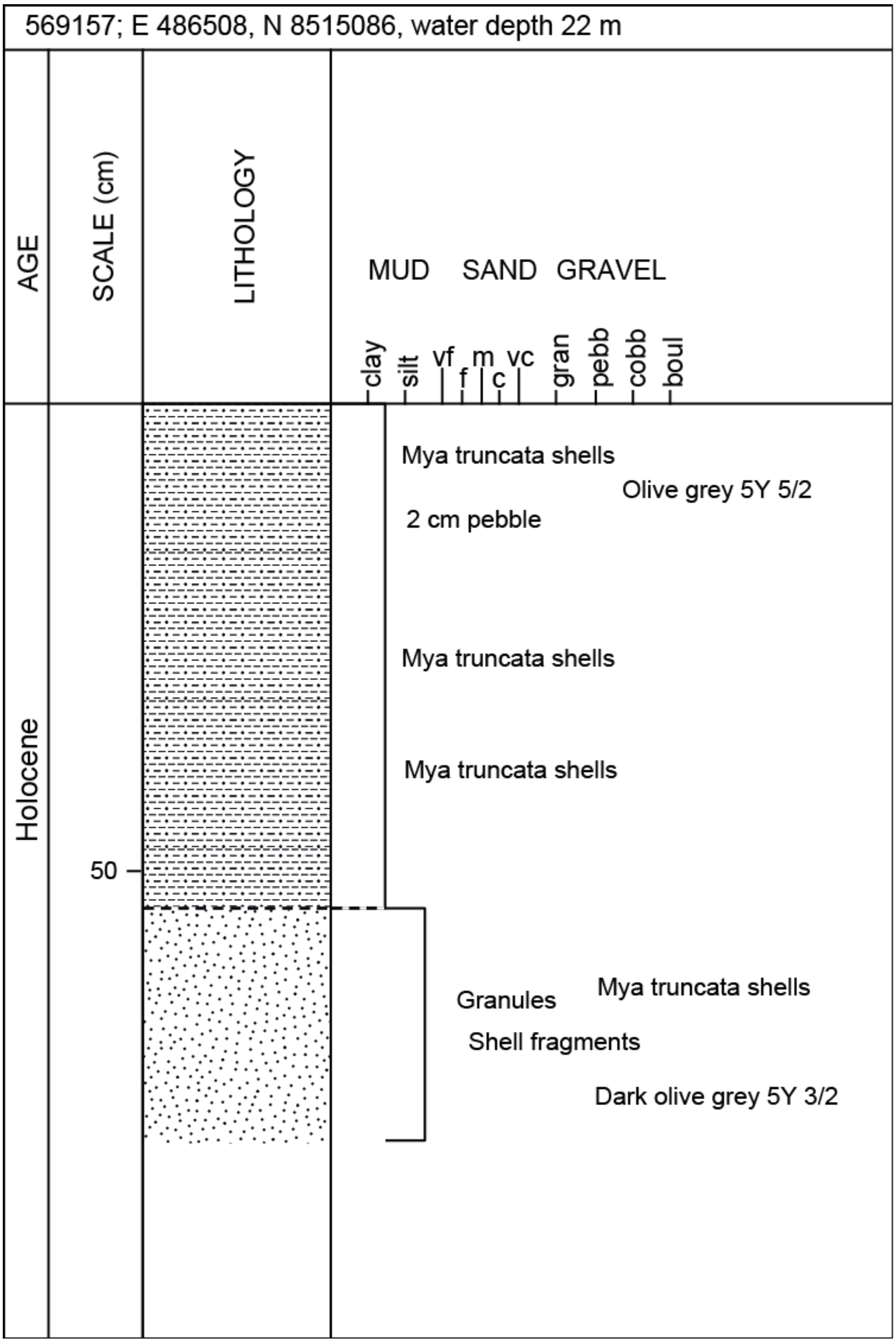

569141; E 476587, N 8519656, water depth 9 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Dark grey 2.5Y 4/1
Shell fragments
6 cm stone

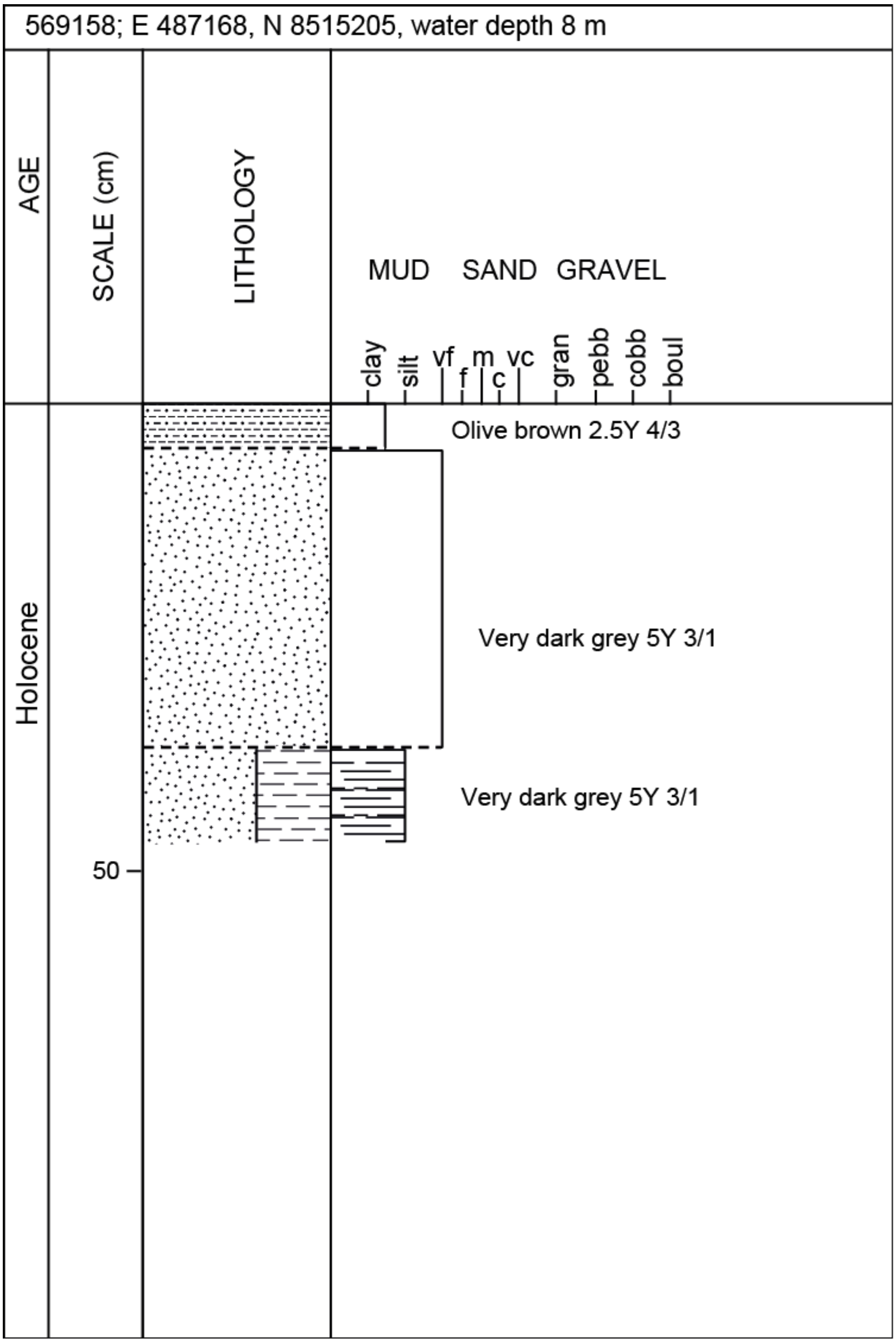

569143; E 476300, N 8519073, water depth 26 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
100
Mya truncata shells
Very dark grey 2.5Y 3/1
Mya truncata shells
2 cm pebble
Mya truncata shells
Very dark grey 2.5Y 3/1
Shell fragments
Very dark grey 2.5Y 3/1
2 cm pebble
4 cm pebble

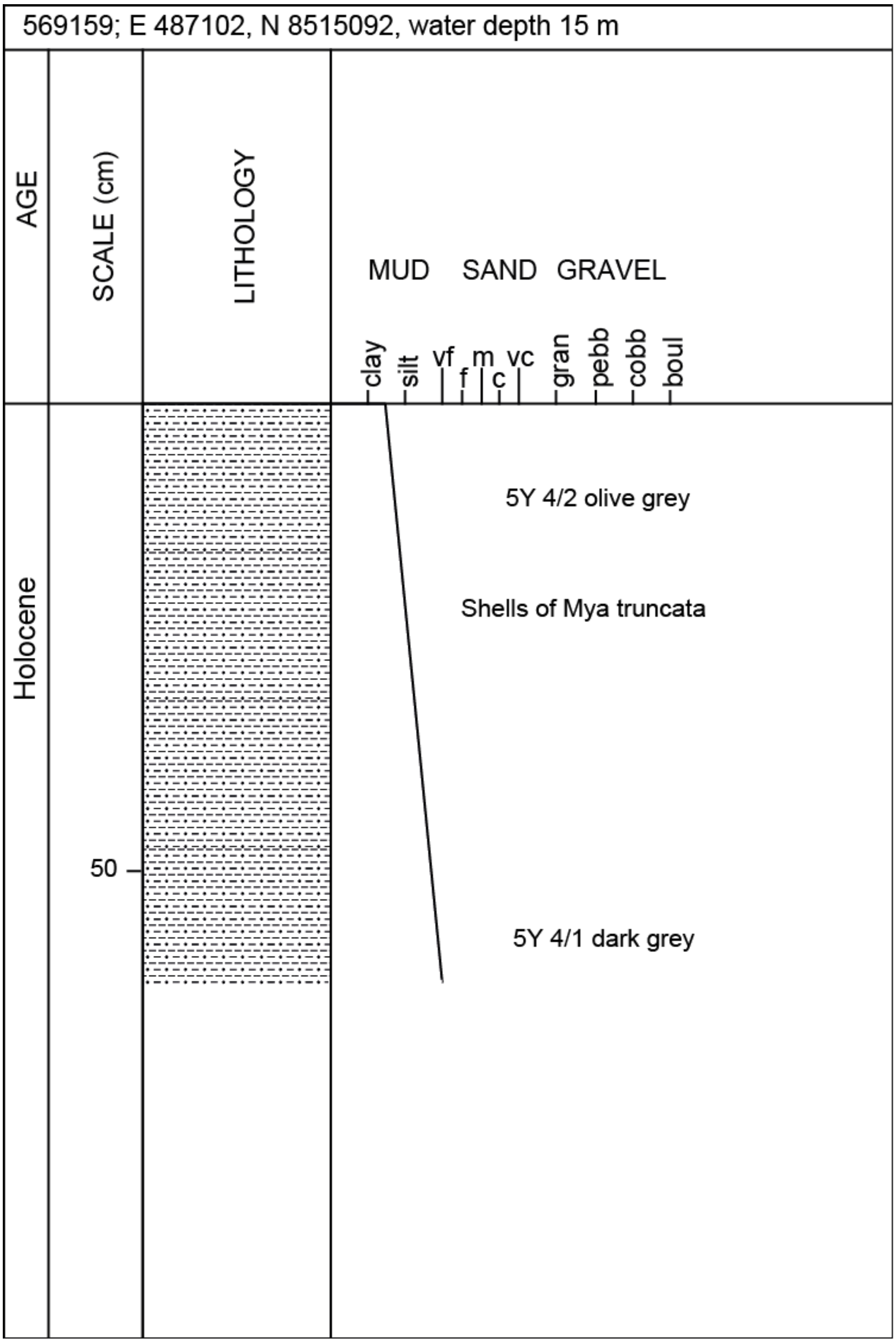

569145; E 476957, N 8519191, water depth 13 m
AGE
SCALE (cm)
LITHOLOGY
MUD
SAND
GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
5Y 3/1 very dark grey
Irregular boundary
shells fragments of Mytilus

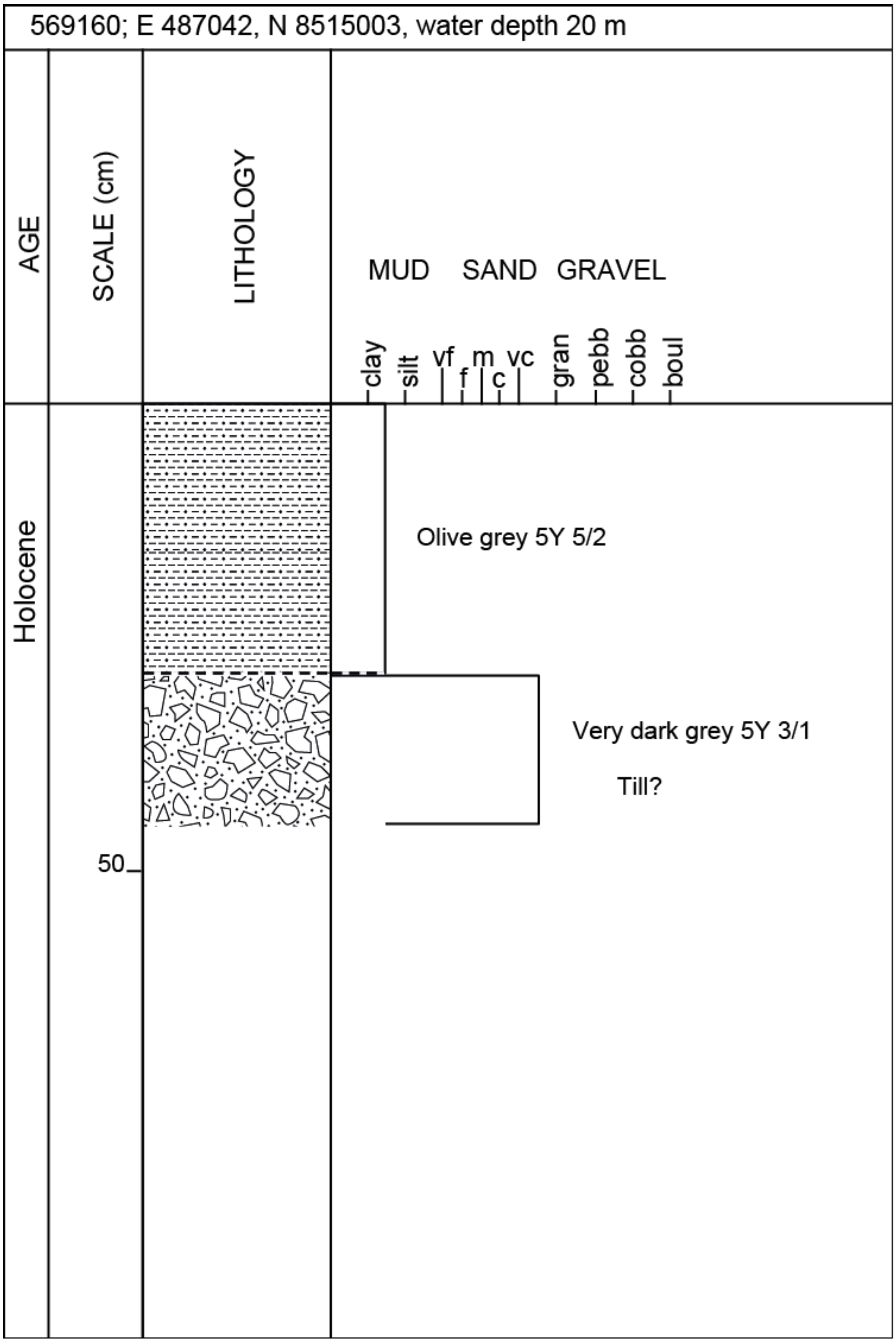

569146; E 476798, N 8518911, water depth 24 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Mya truncata shells
2 cm pebble
6 cm pebble
Dark grey 5Y 4/1
Dark grey 5Y 4/1


569155; E 486580, N 8515206, water depth 17 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
5Y 4/2 olive grey
5Y 3/2 dark olive grey

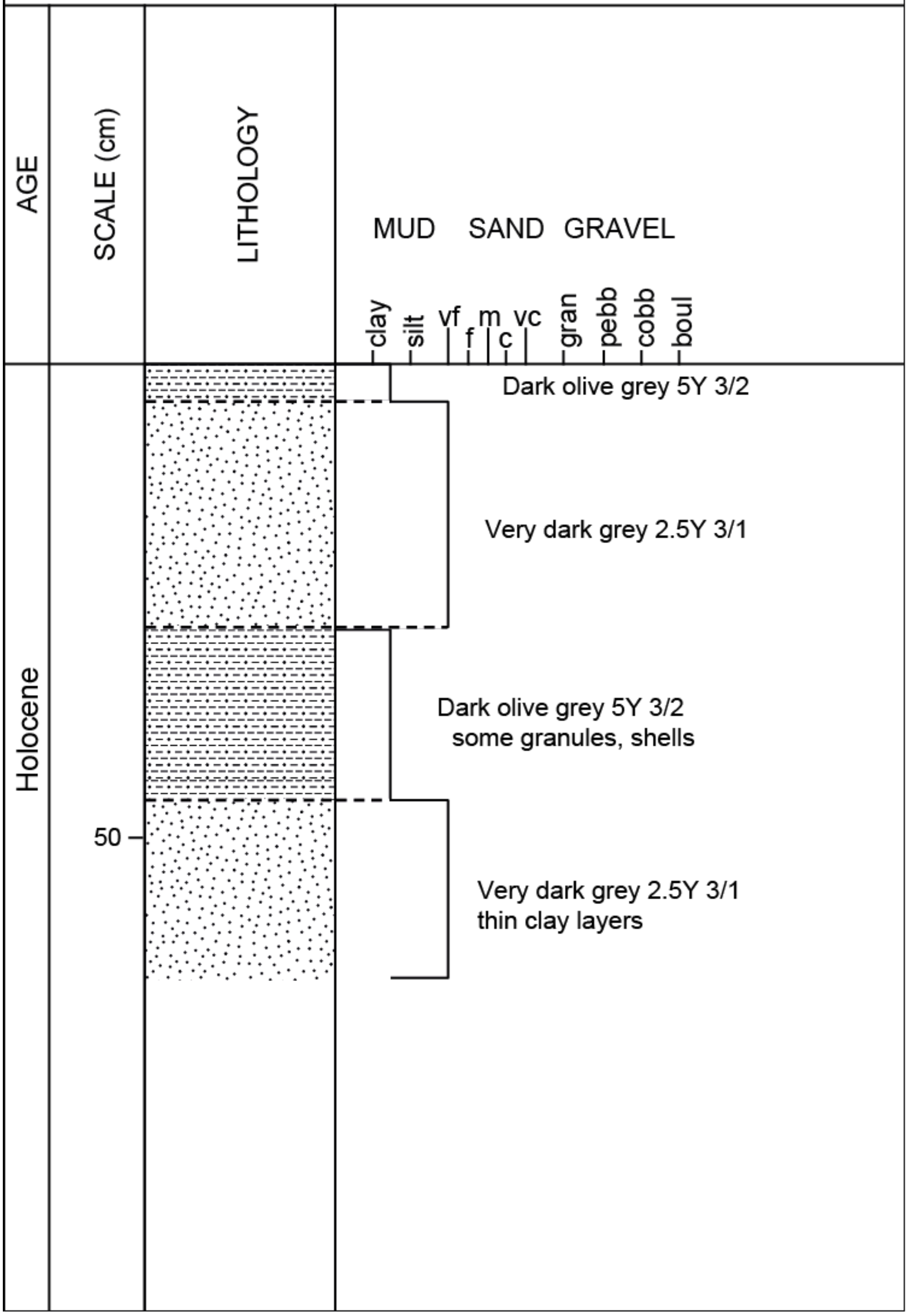

569157; E 486508, N 8515086, water depth 22 m
AGE
SCALE (cm)
LITHOLOGY
MUD
SAND
GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Mya truncata shells
Olive grey 5Y 5/2
2 cm pebble
Mya truncata shells
Mya truncata shells
Holocene
50
Granules
Mya truncata shells
Shell fragments
Dark olive grey 5Y 3/2

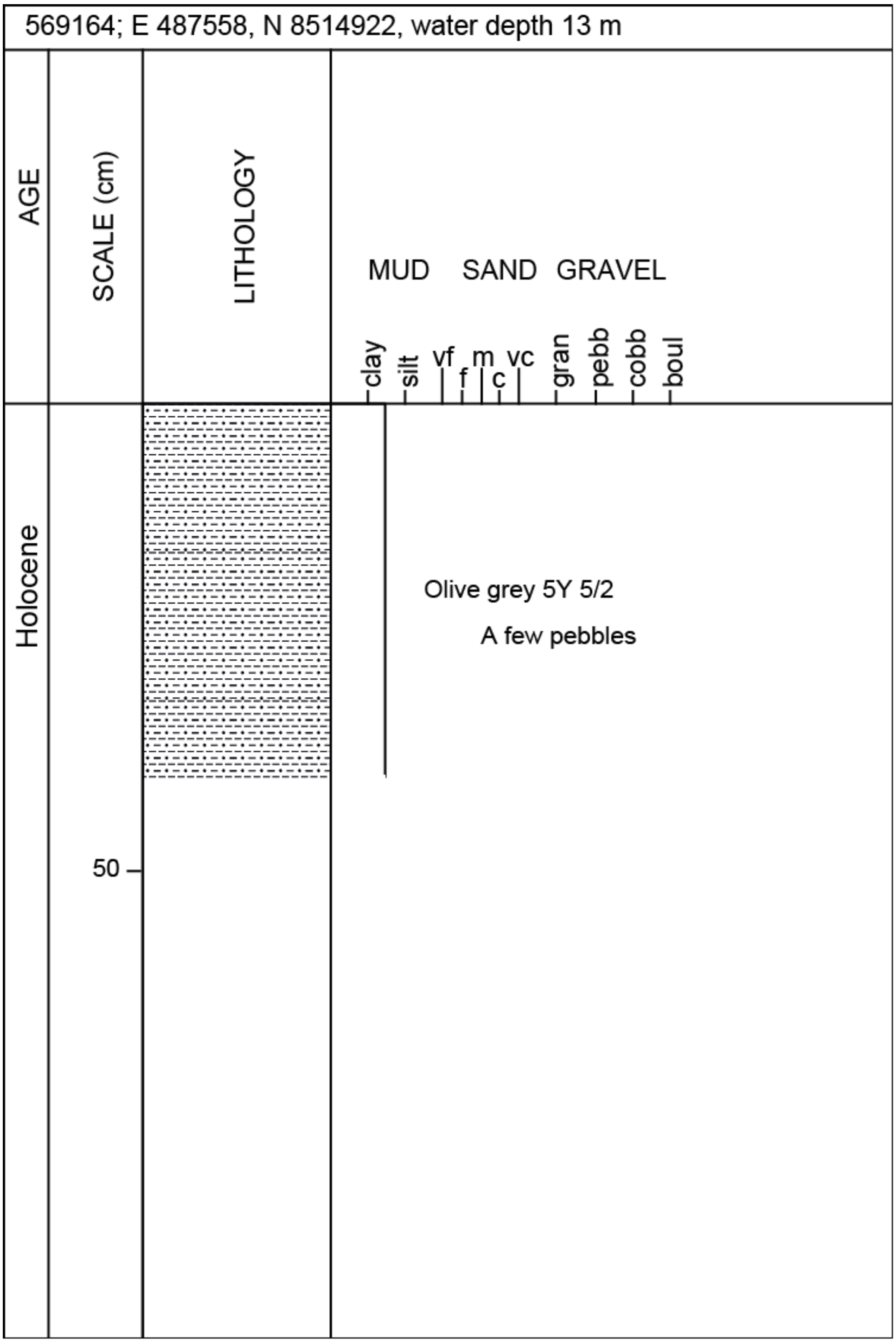

569158; E 487168, N 8515205, water depth 8 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive brown 2.5Y 4/3
Very dark grey 5Y 3/1
Very dark grey 5Y 3/1

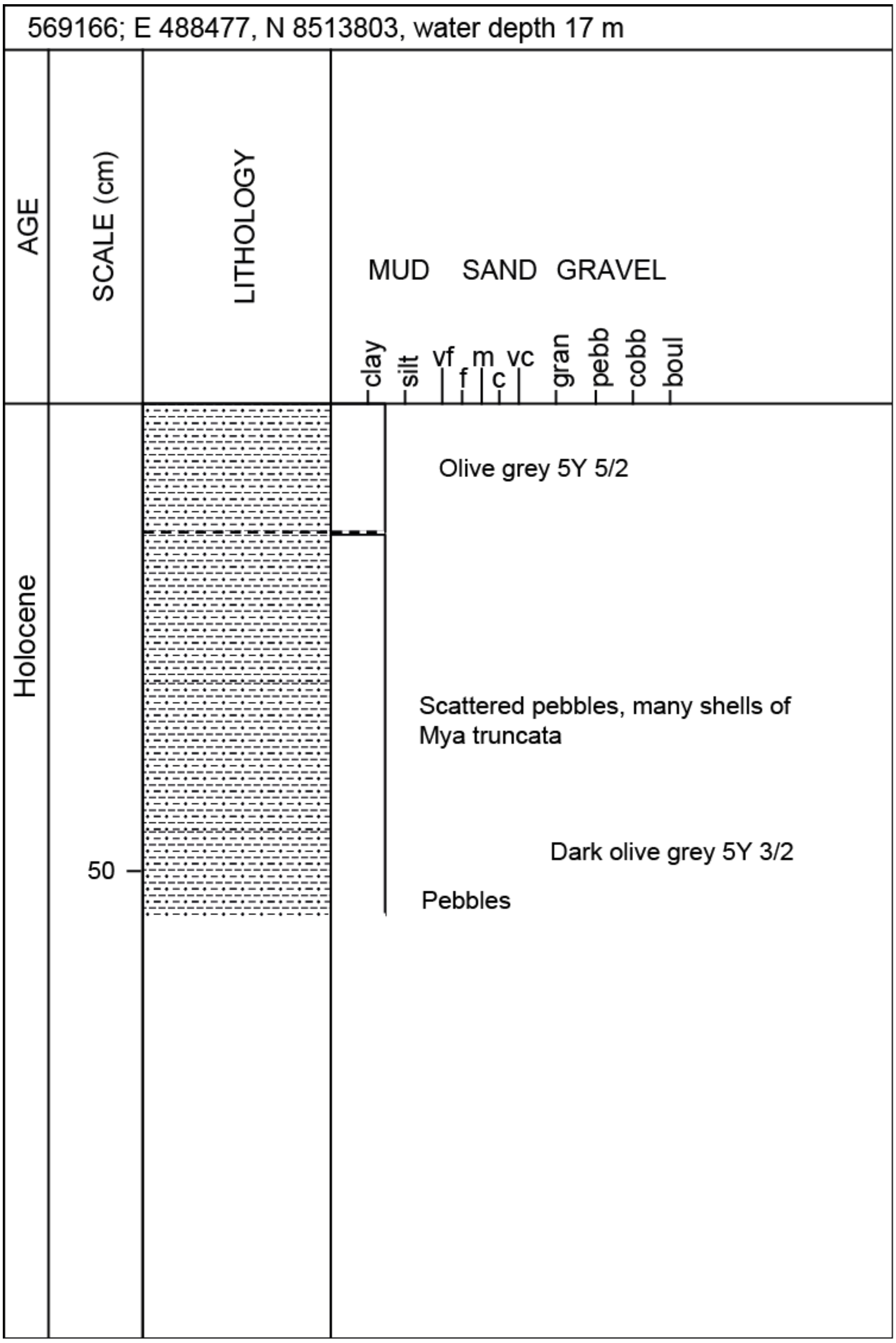

569159; E 487102, N 8515092, water depth 15 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
5Y 4/2 olive grey
Shells of Mya truncata
5Y 4/1 dark grey

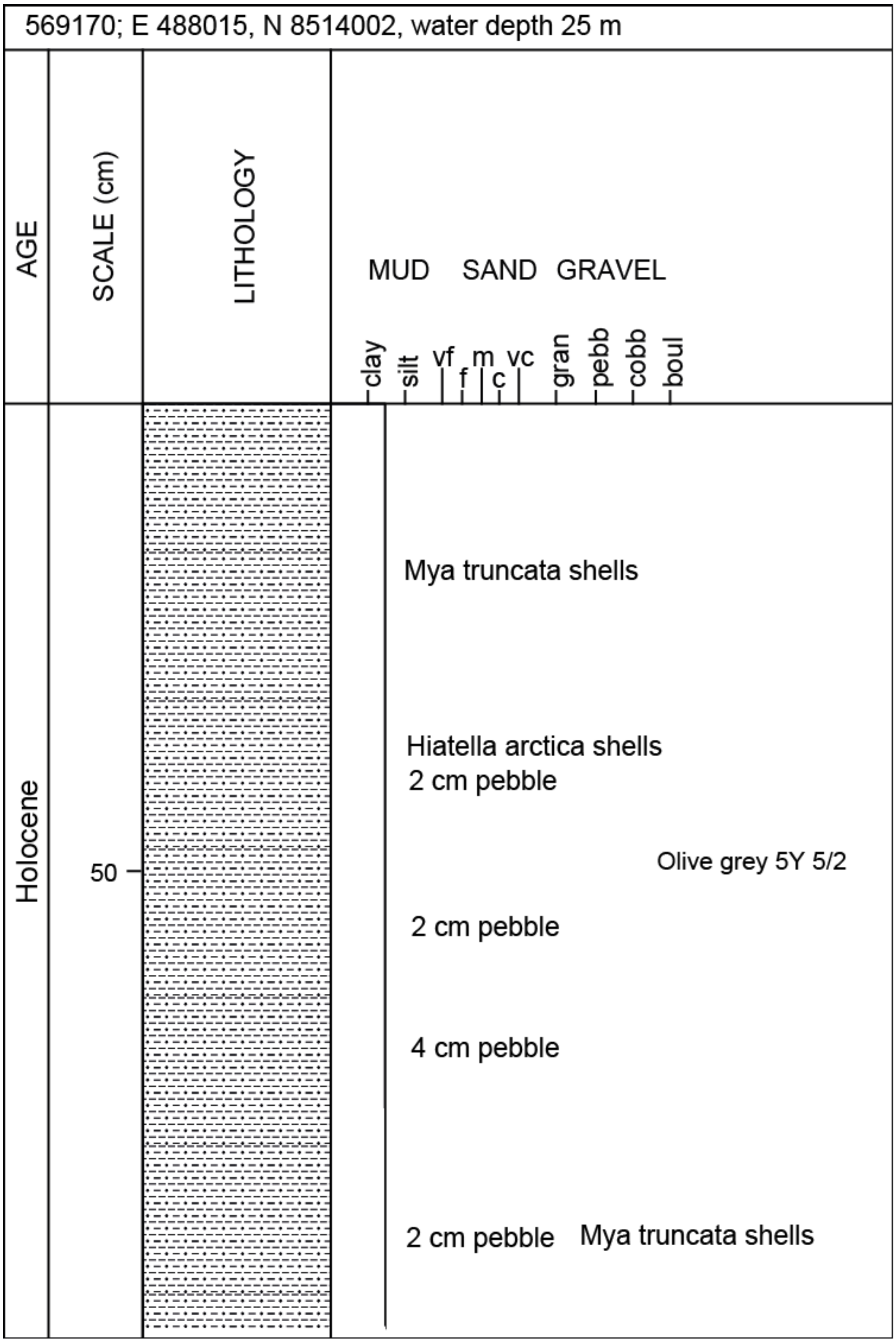

569160; E 487042, N 8515003, water depth 20 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
Very dark grey 5Y 3/1
Till?

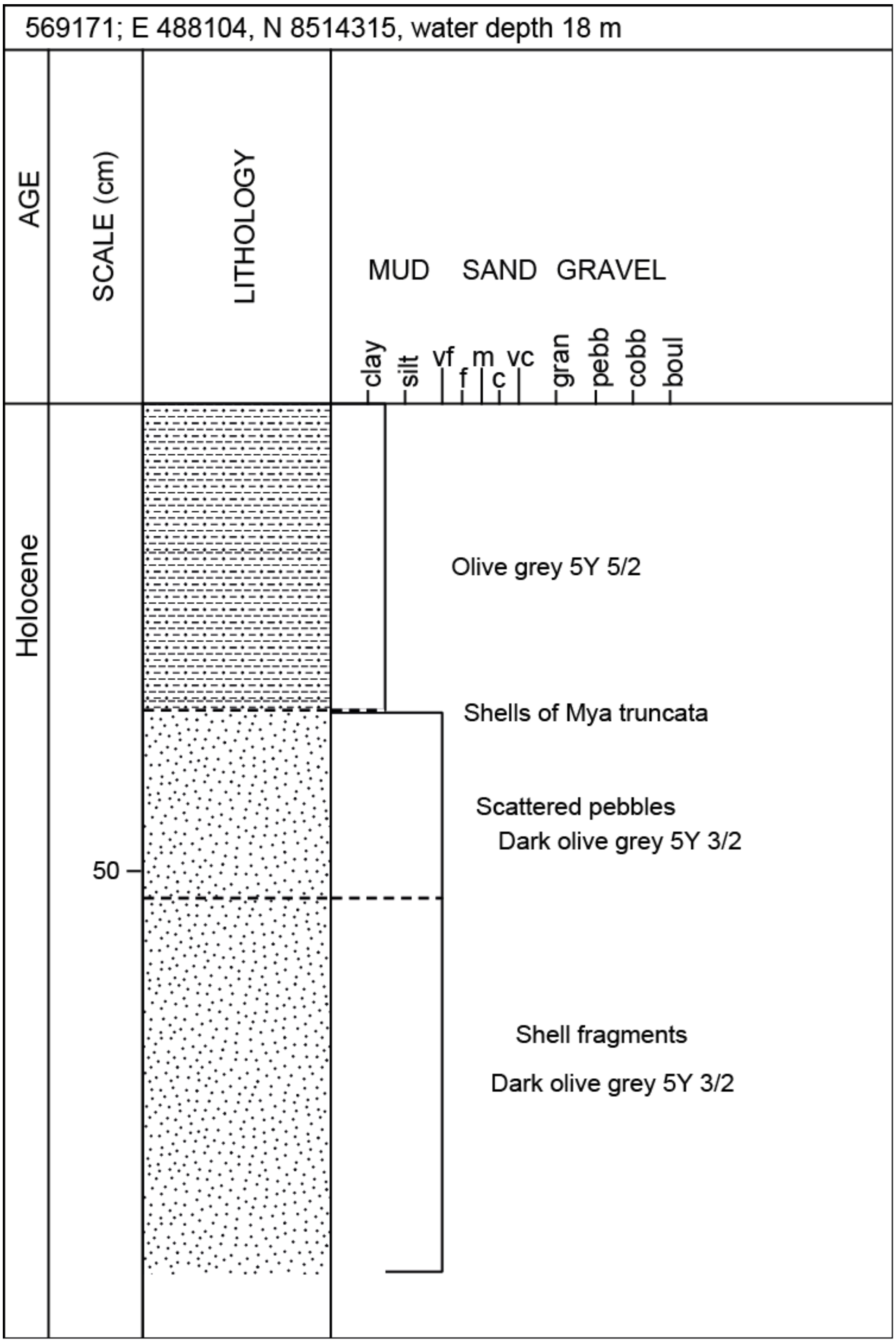
569163; E 487620, N 8515009, water depth 7 m

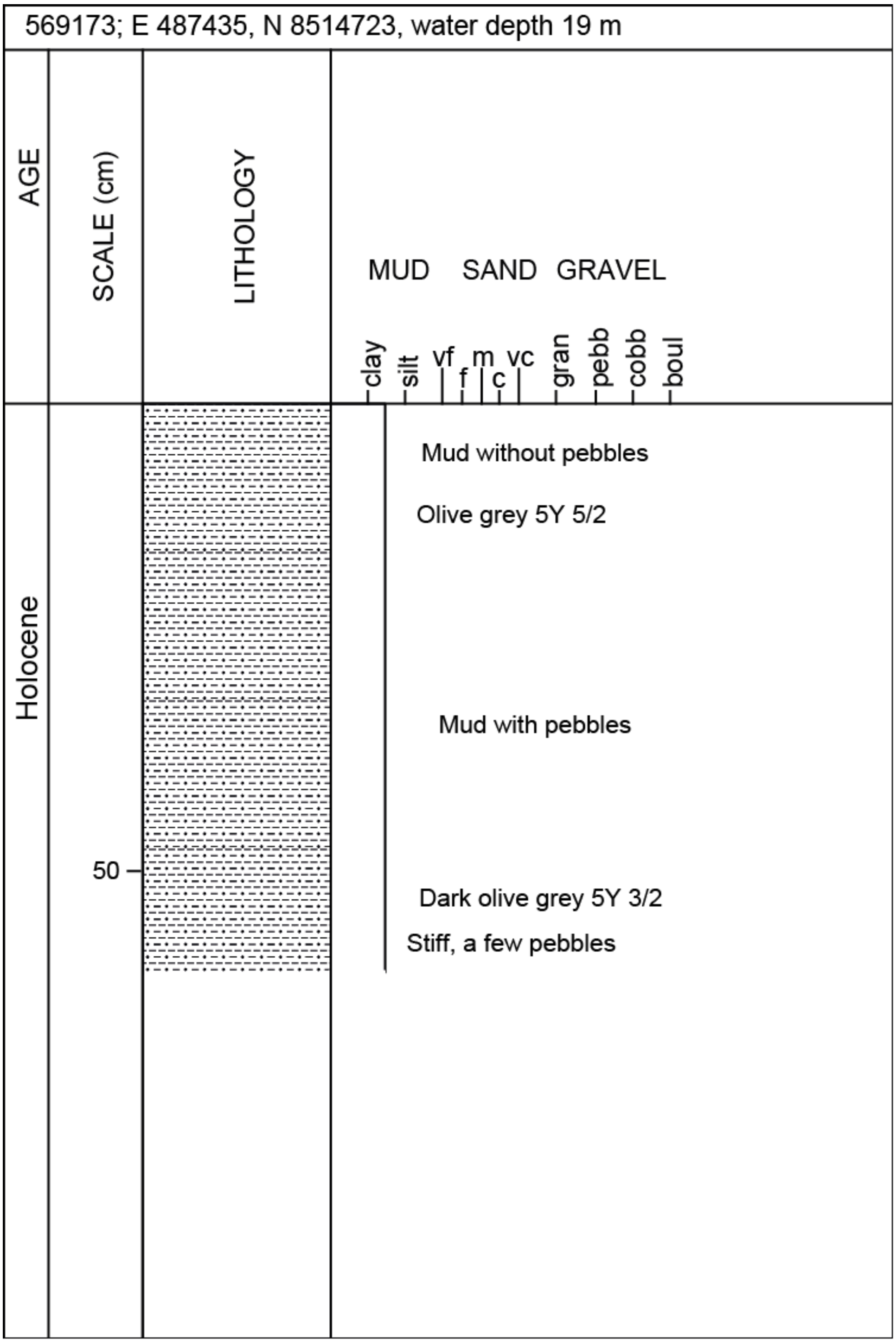


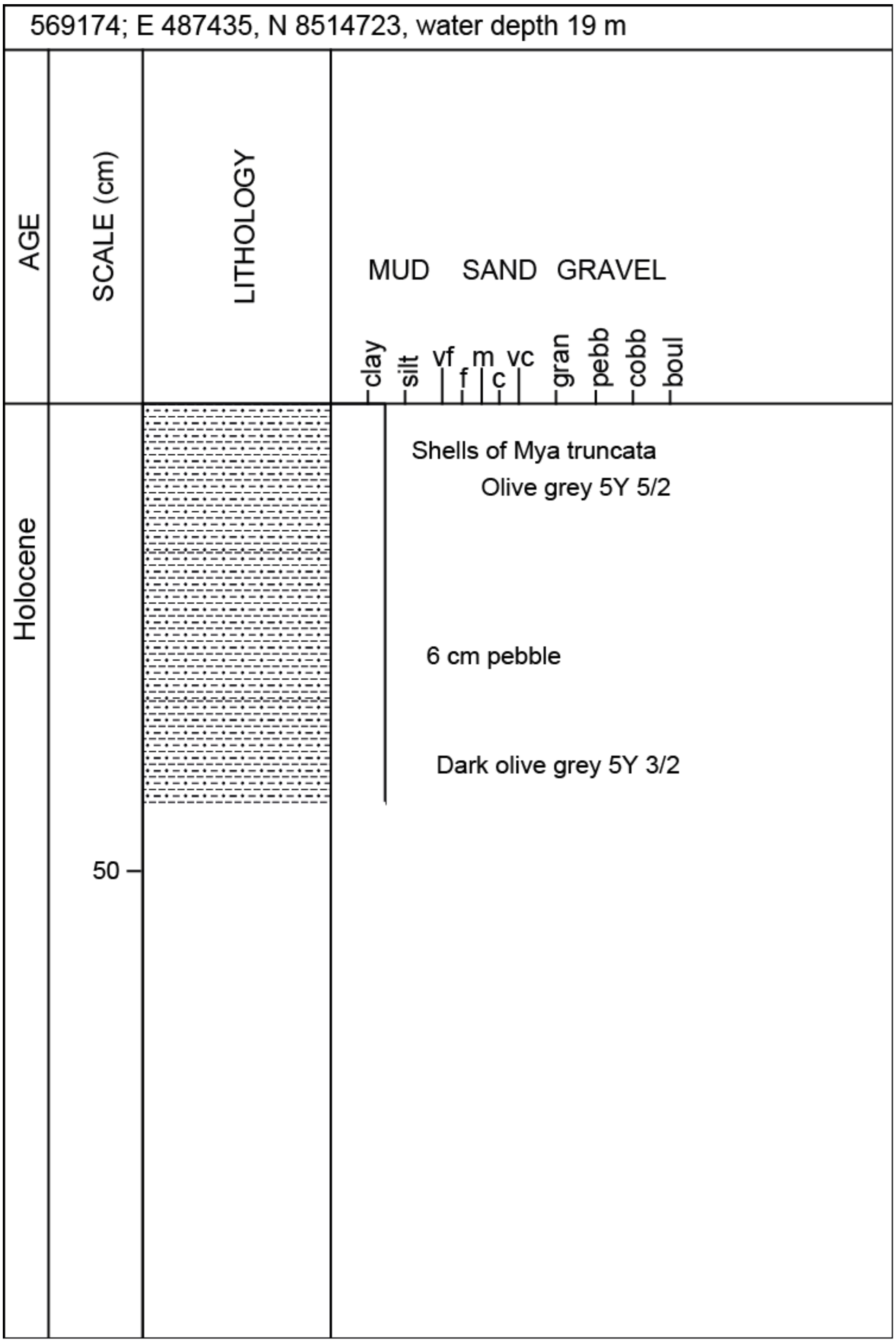

569164; E 487558, N 8514922, water depth 13 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
A few pebbles

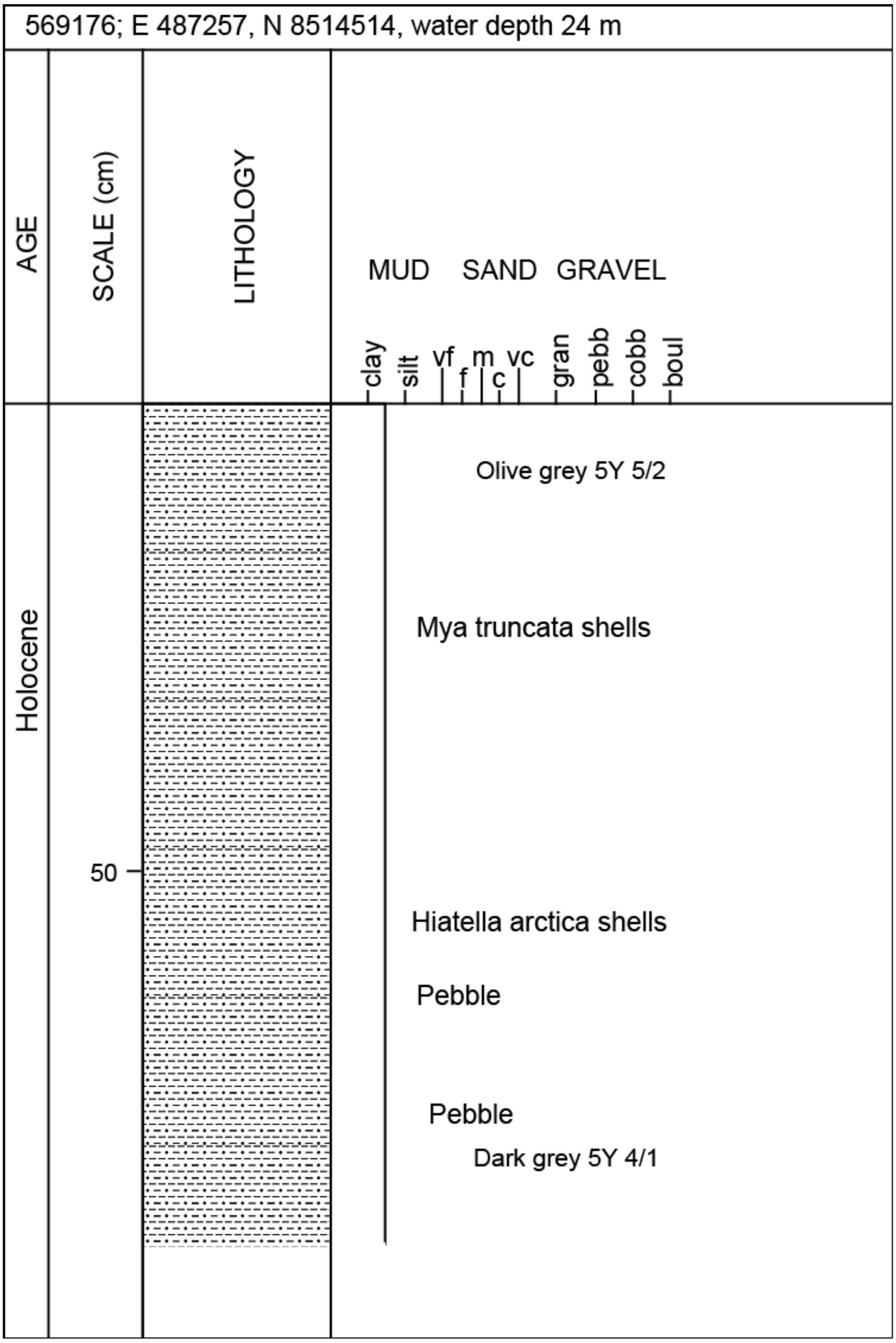

569166; E 488477, N 8513803, water depth 17 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
Scattered pebbles, many shells of Mya truncata
Dark olive grey 5Y 3/2
Pebbles


569170; E 488015, N 8514002, water depth 25 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Mya truncata shells
Hiatella arctica shells
2 cm pebble
Olive grey 5Y 5/2
2 cm pebble
4 cm pebble
2 cm pebble
Mya truncata shells

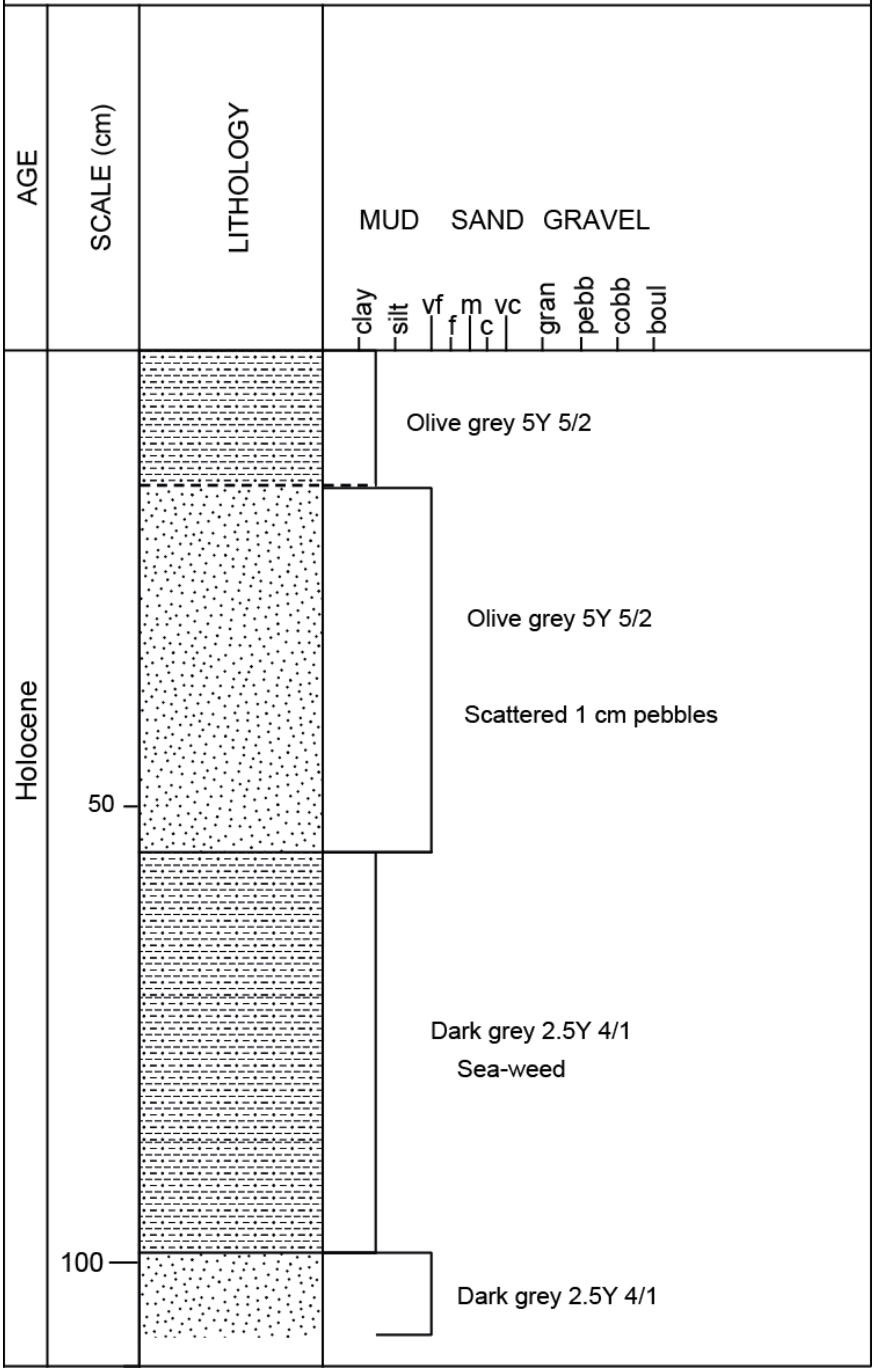

569171; E 488104, N 8514315, water depth 18 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
Shells of Mya truncata
Scattered pebbles
Dark olive grey 5Y 3/2
Shell fragments
Dark olive grey 5Y 3/2

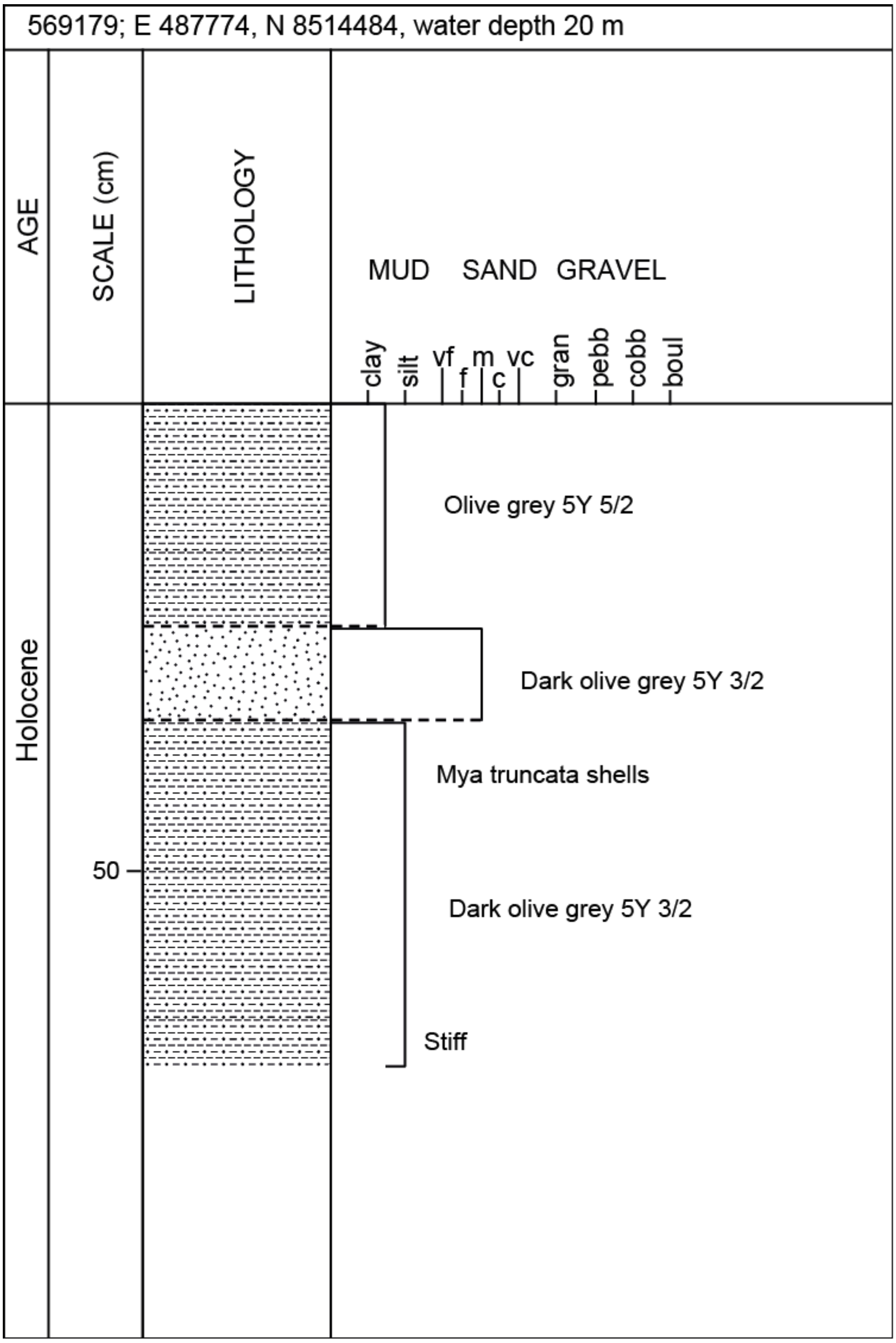

569173; E 487435, N 8514723, water depth 19 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Mud without pebbles
Olive grey 5Y 5/2
Mud with pebbles
Dark olive grey 5Y 3/2
Stiff, a few pebbles


569174; E 487435, N 8514723, water depth 19 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Shells of Mya truncata
Olive grey 5Y 5/2
6 cm pebble
Dark olive grey 5Y 3/2

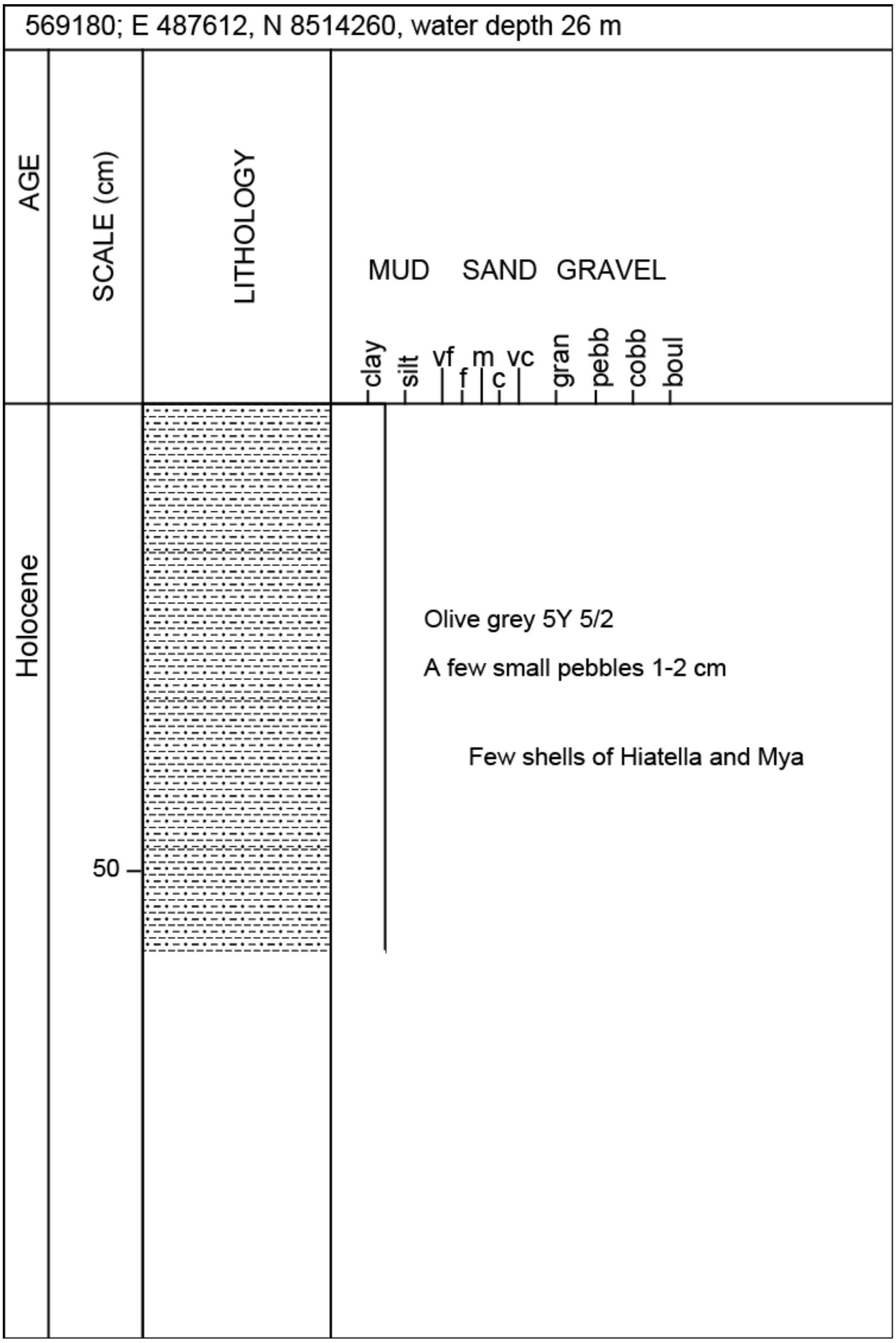

569176; E 487257, N 8514514, water depth 24 m
AGE
SCALE (cm)
LITHOLOGY
MUD
SAND
GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
Mya truncata shells
Hiatella arctica shells
Pebble
Pebble
Dark grey 5Y 4/1

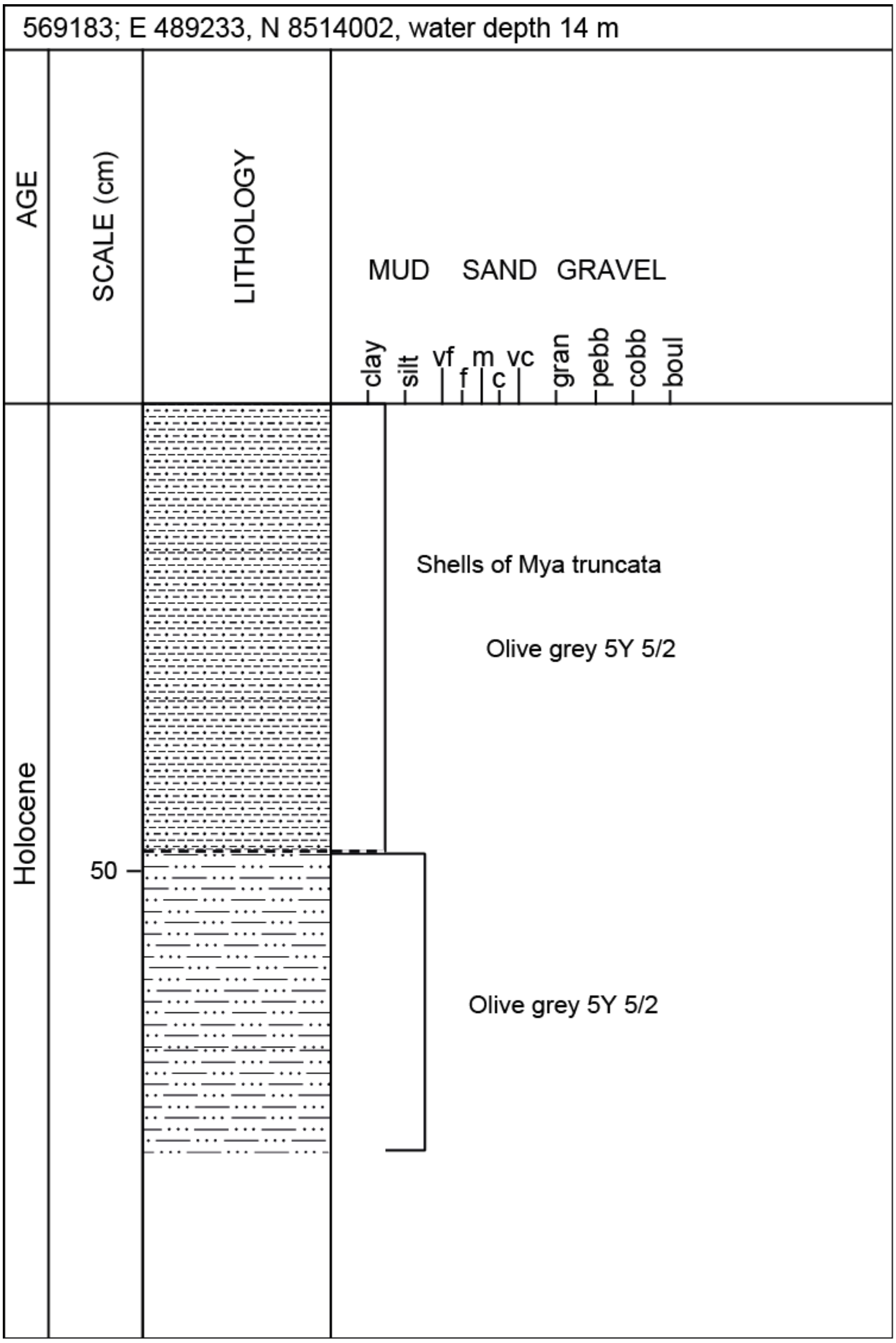
569178; E 487889, N 8514674, water depth 12 m

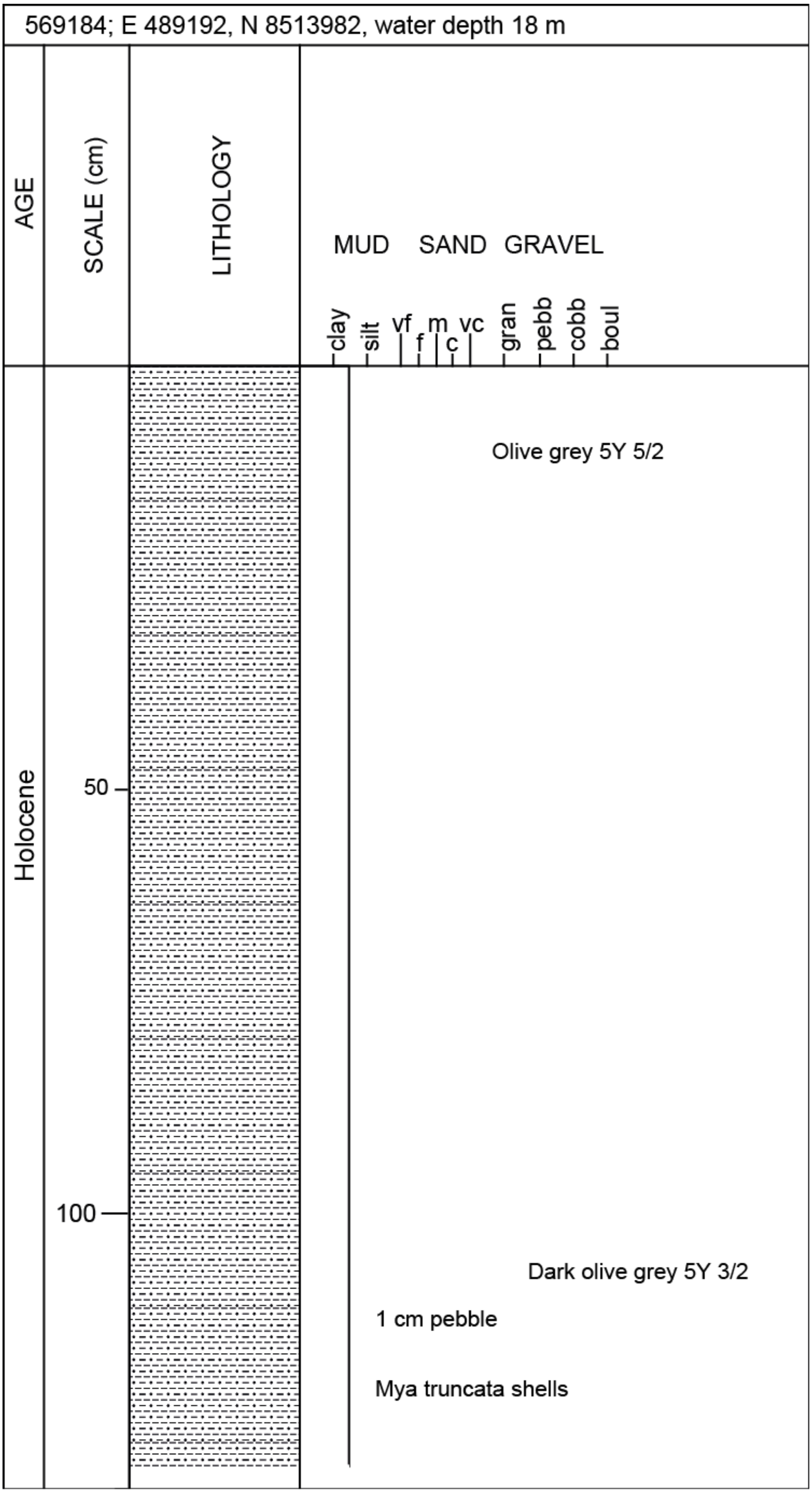


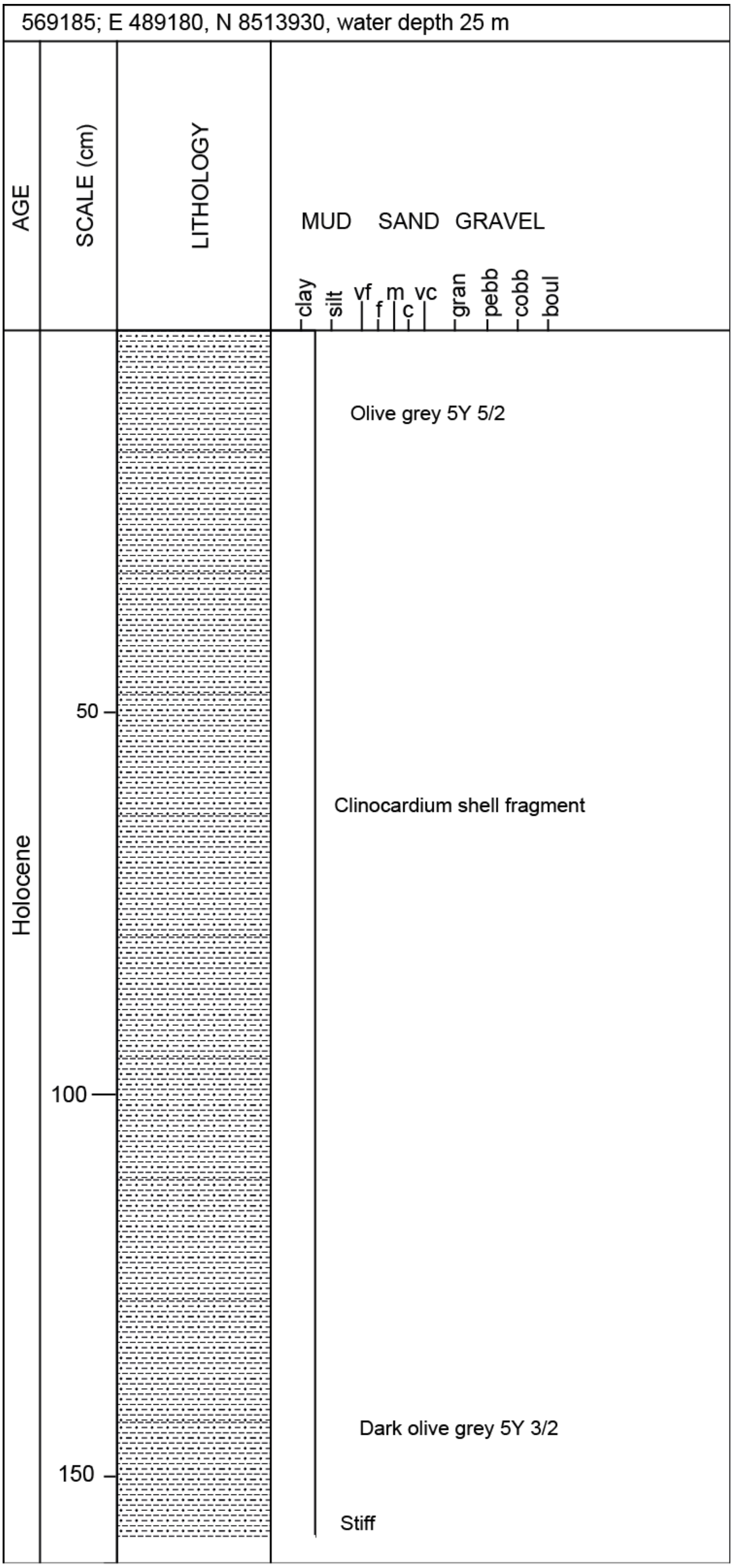


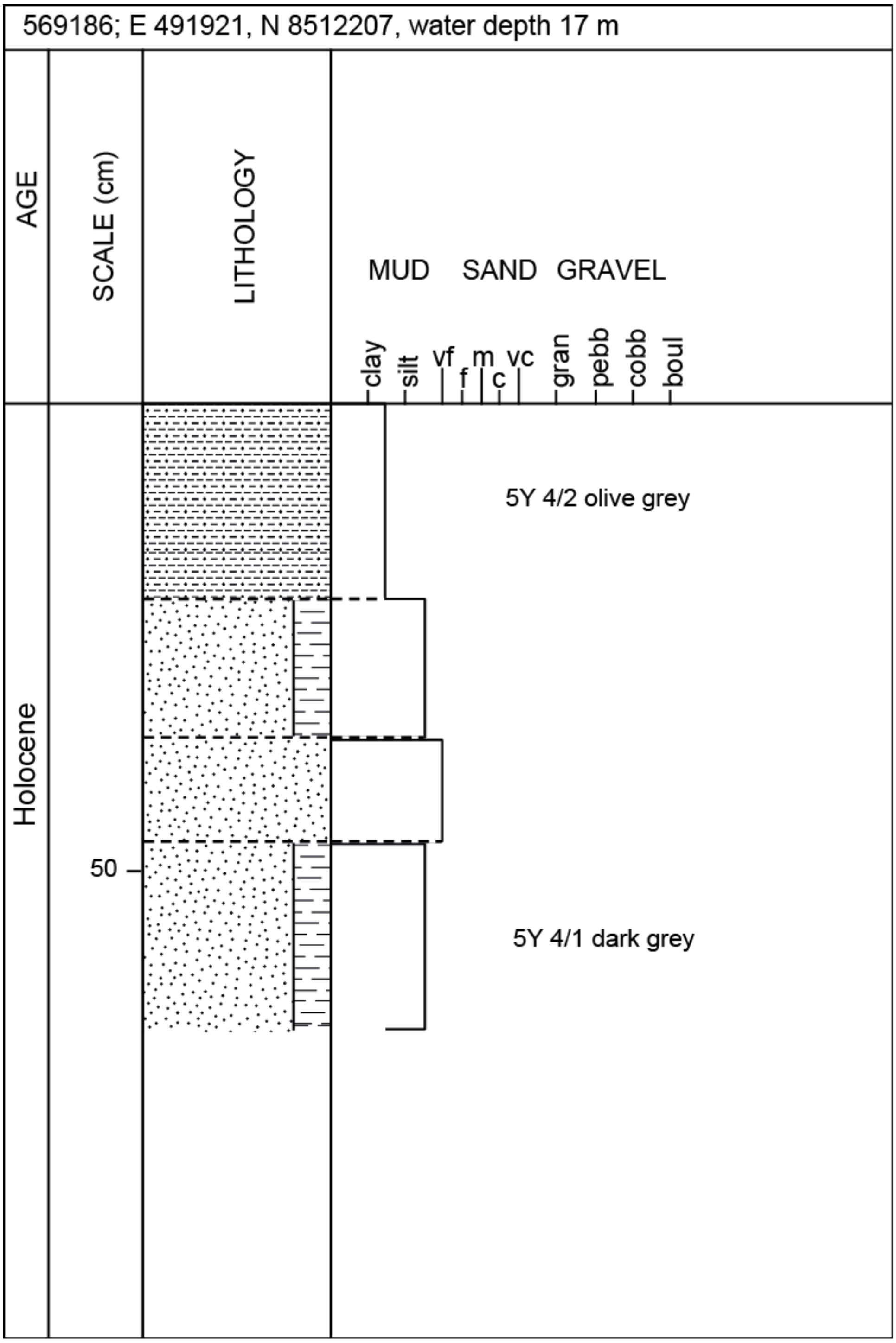
569179; E 487774, N 8514484, water depth 20 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
Dark olive grey 5Y 3/2
Mya truncata shells
Dark olive grey 5Y 3/2
Stiff

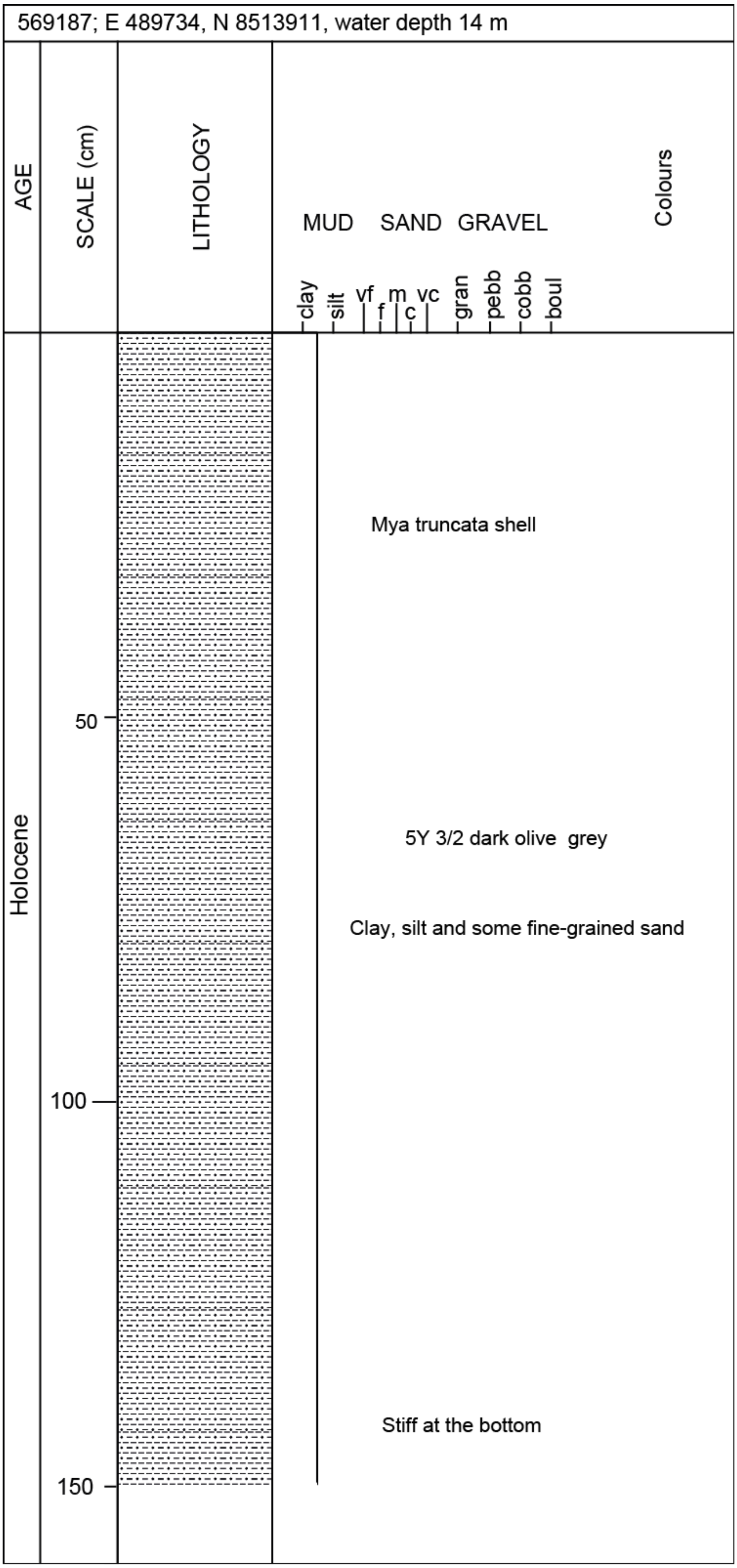

569180; E 487612, N 8514260, water depth 26 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
A few small pebbles 1-2 cm
Few shells of Hiatella and Mya

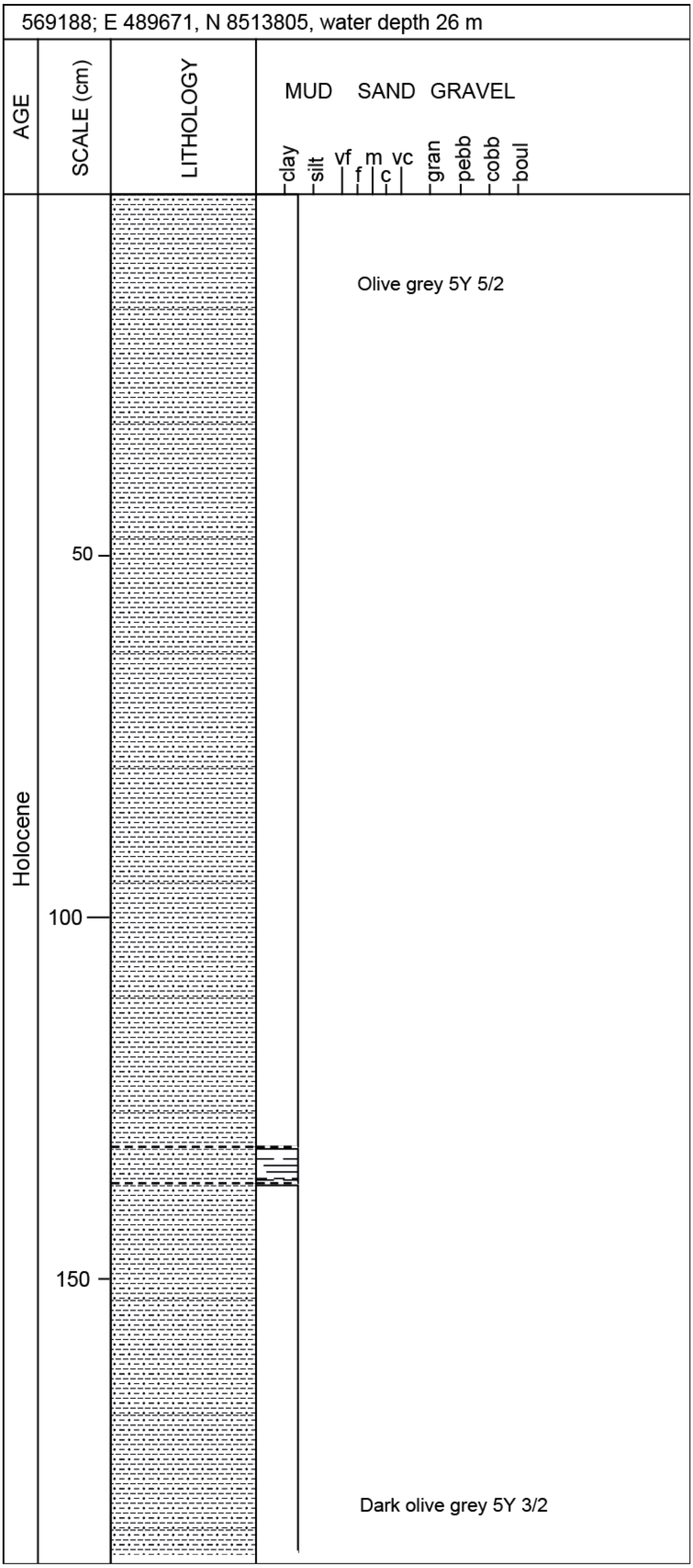

569183; E 489233, N 8514002, water depth 14 m
AGE
SCALE (cm)
LITHOLOGY
MUD
SAND
GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Shells of Mya truncata
Olive grey 5Y 5/2
Olive grey 5Y 5/2


569184; E 489192, N 8513982, water depth 18 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Olive grey 5Y 5/2
Holocene
50
100
Dark olive grey 5Y 3/2
1 cm pebble
Mya truncata shells

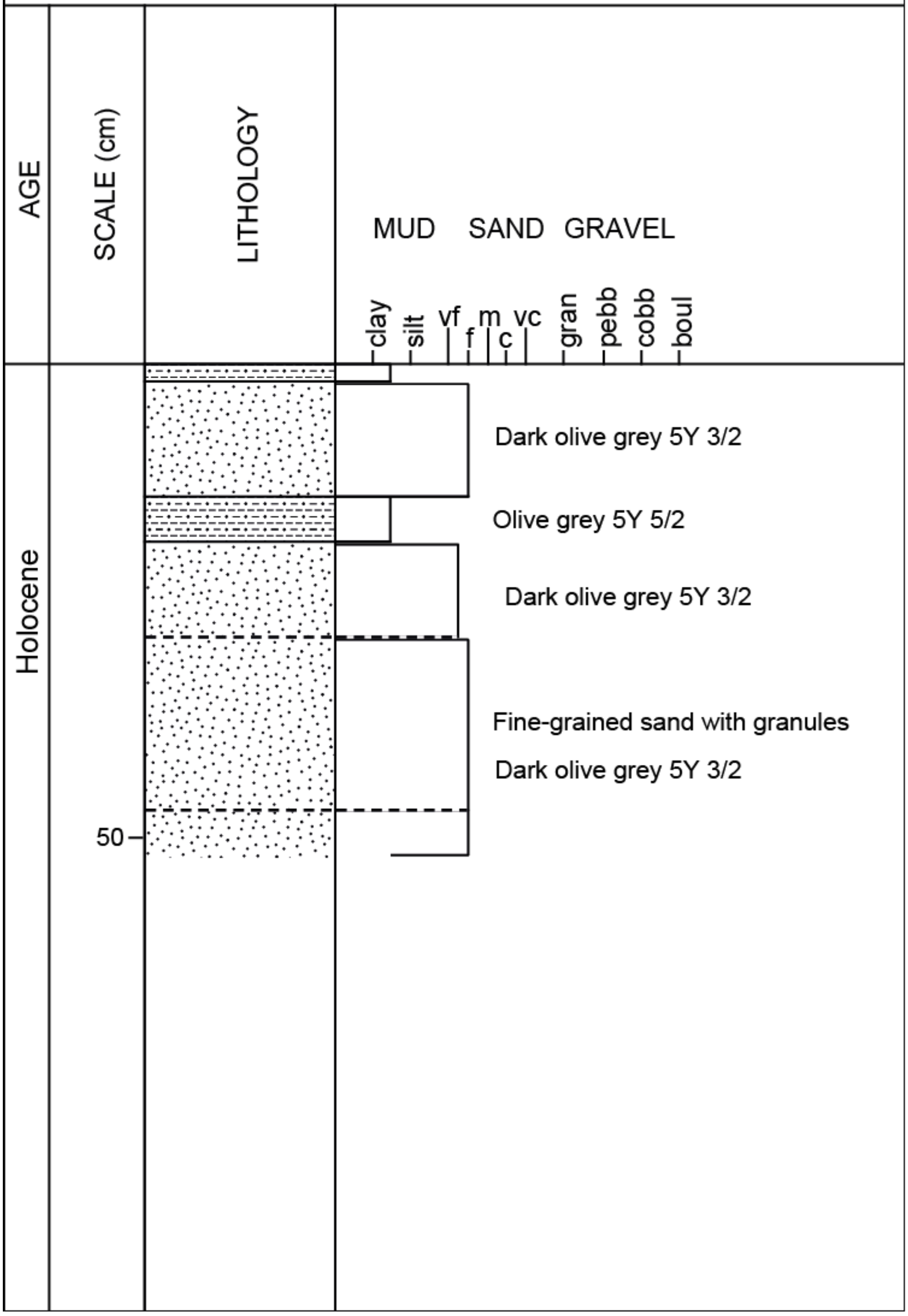

569185; E 489180, N 8513930, water depth 25 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
100
150
Olive grey 5Y 5/2
Clinocardium shell fragment
Dark olive grey 5Y 3/2
Stiff

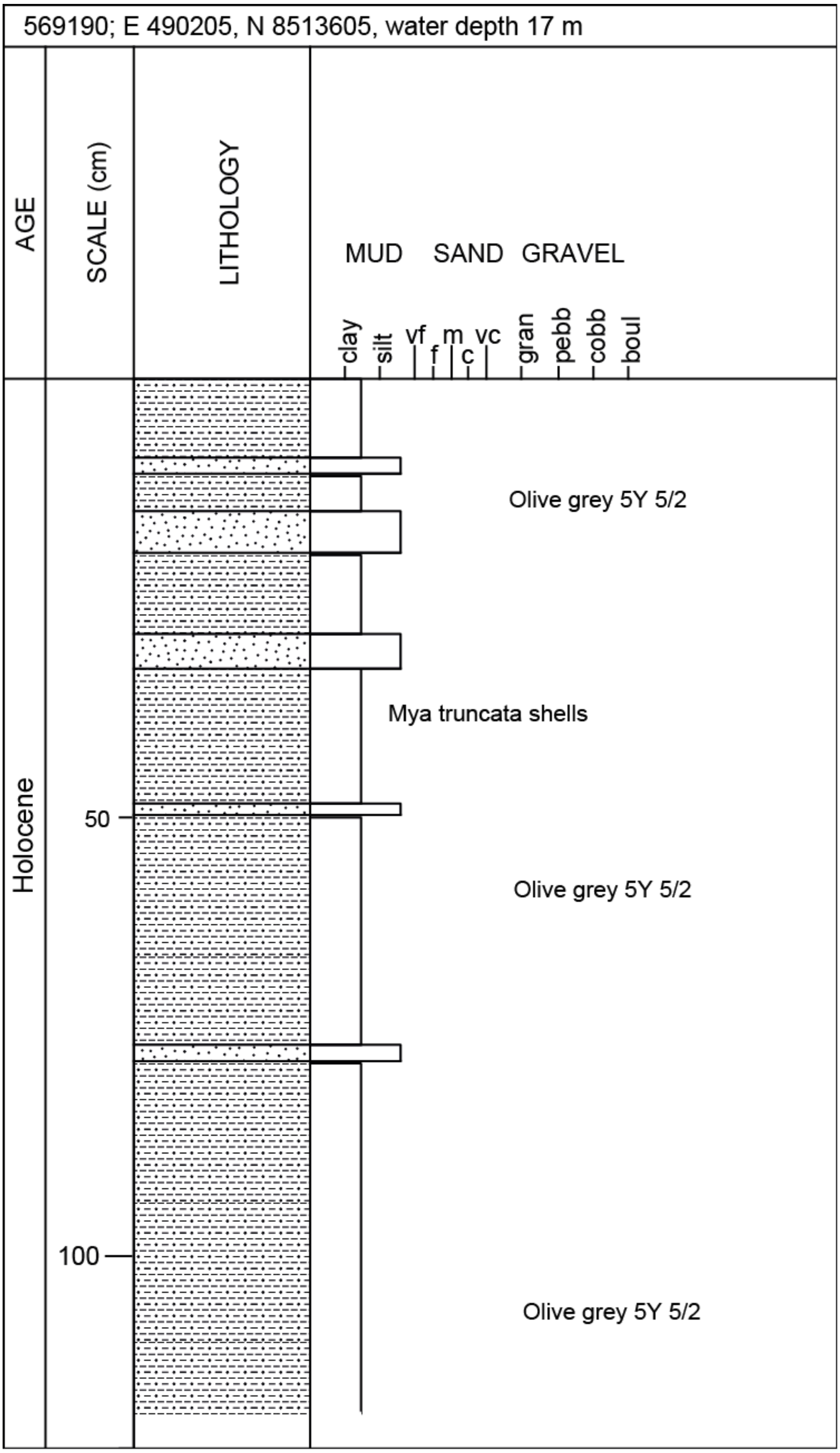

569186; E 491921, N 8512207, water depth 17 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
5Y 4/2 olive grey
5Y 4/1 dark grey

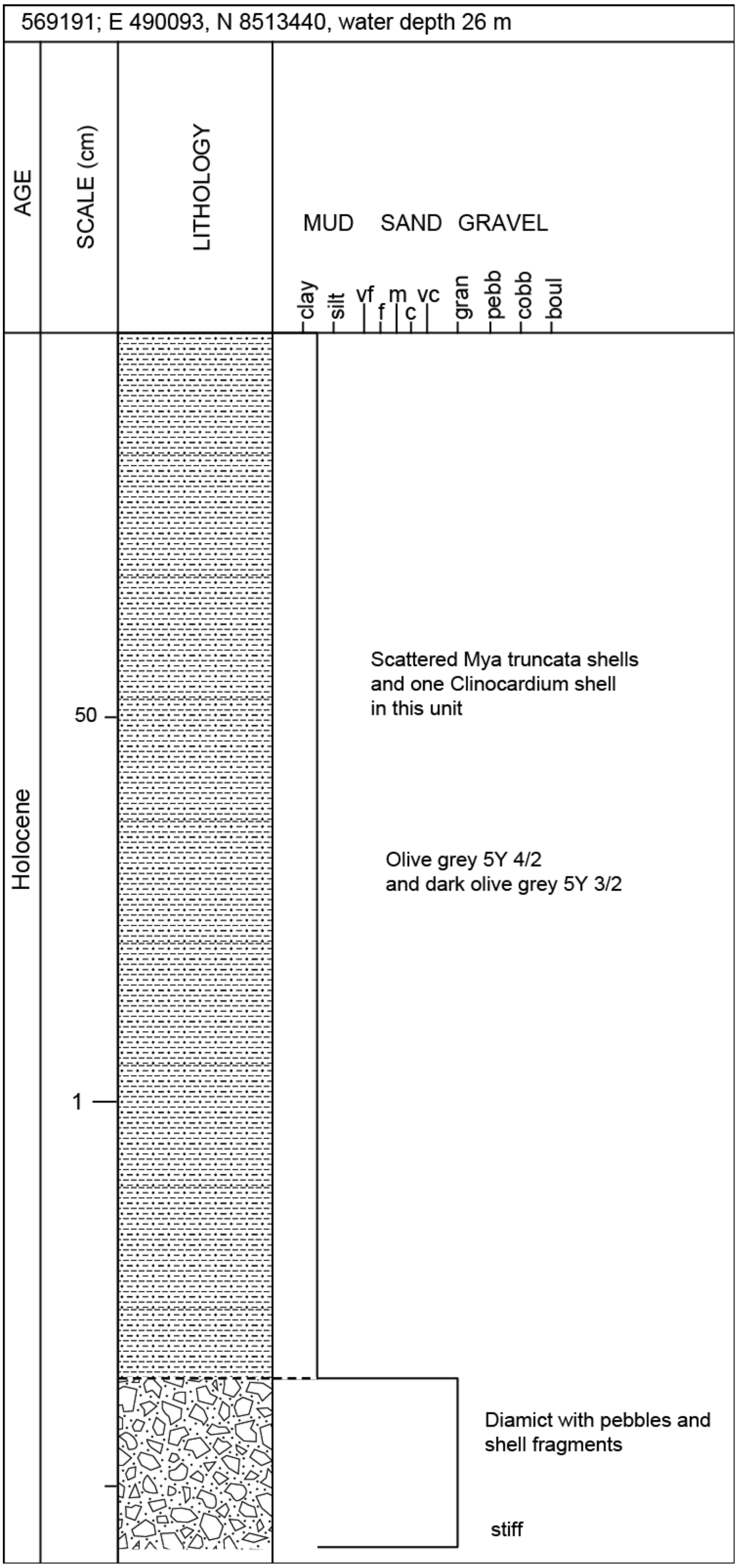

569187; E 489734, N 8513911, water depth 14 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Colours
Holocene
50
100
150
Mya truncata shell
5Y 3/2 dark olive grey
Clay, silt and some fine-grained sand
Stiff at the bottom

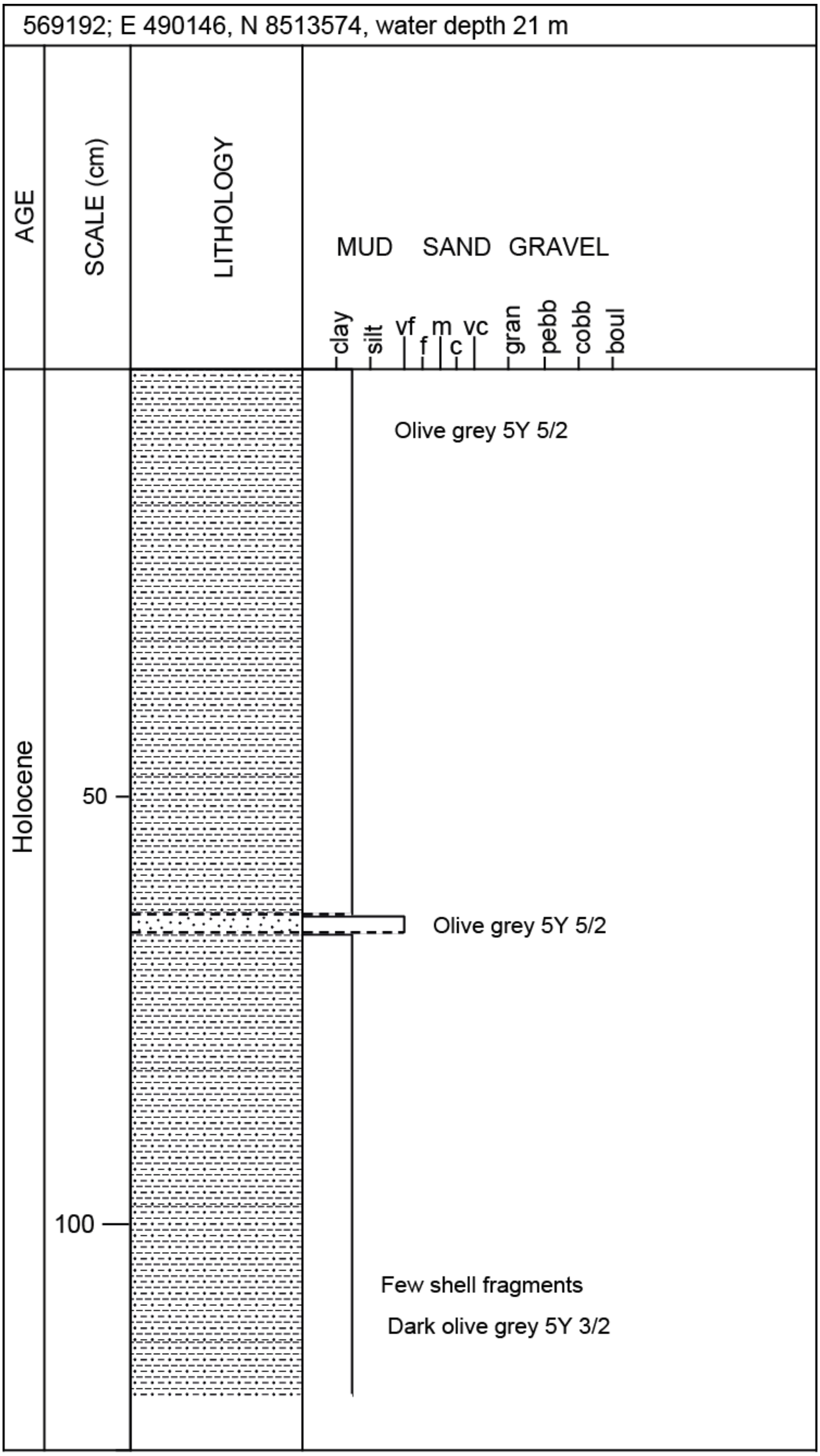

569188; E 489671, N 8513805, water depth 26 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Olive grey 5Y 5/2
50
Holocene
100
150
Dark olive grey 5Y 3/2

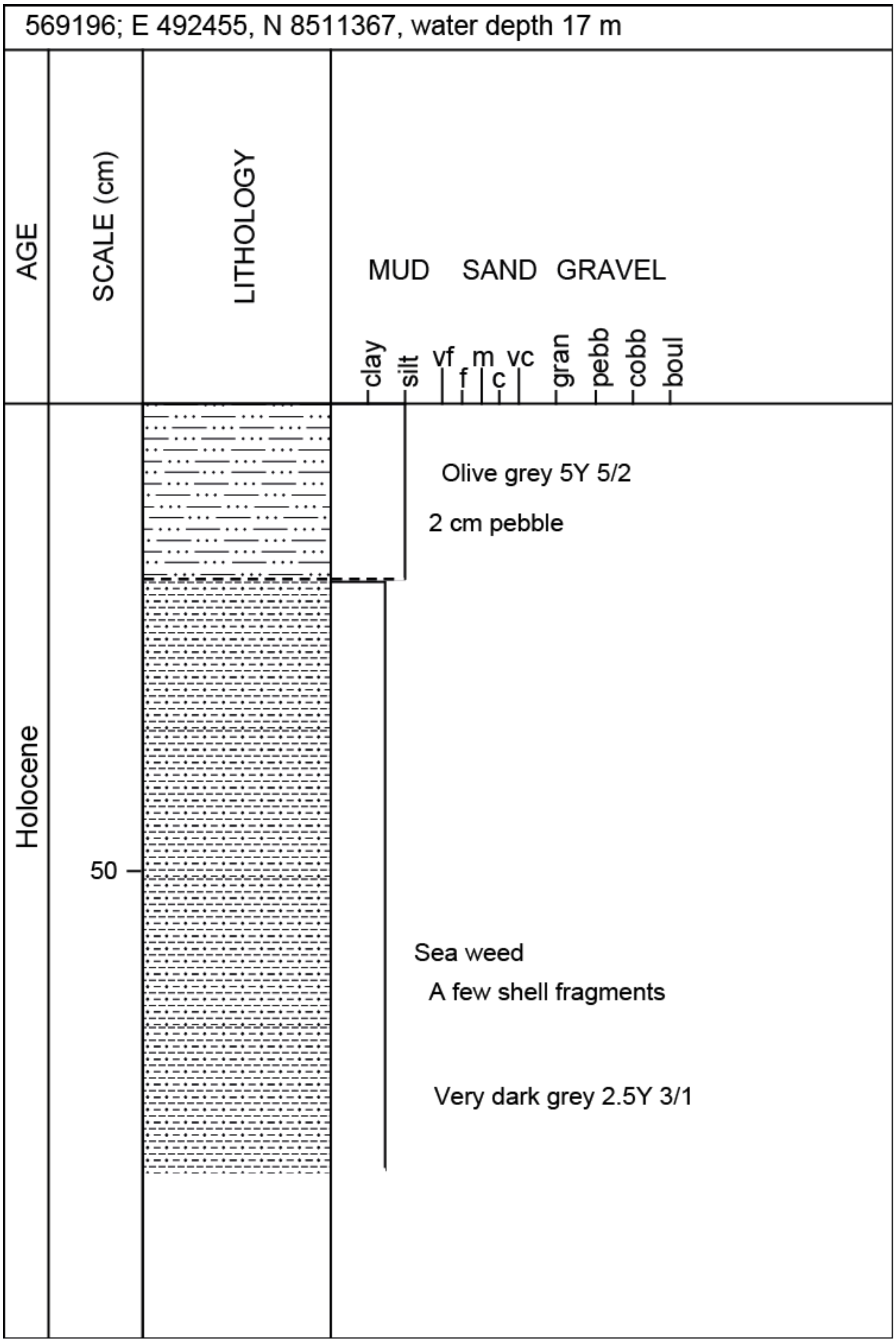
569189; E 490208, N 8513679, water depth 5 m

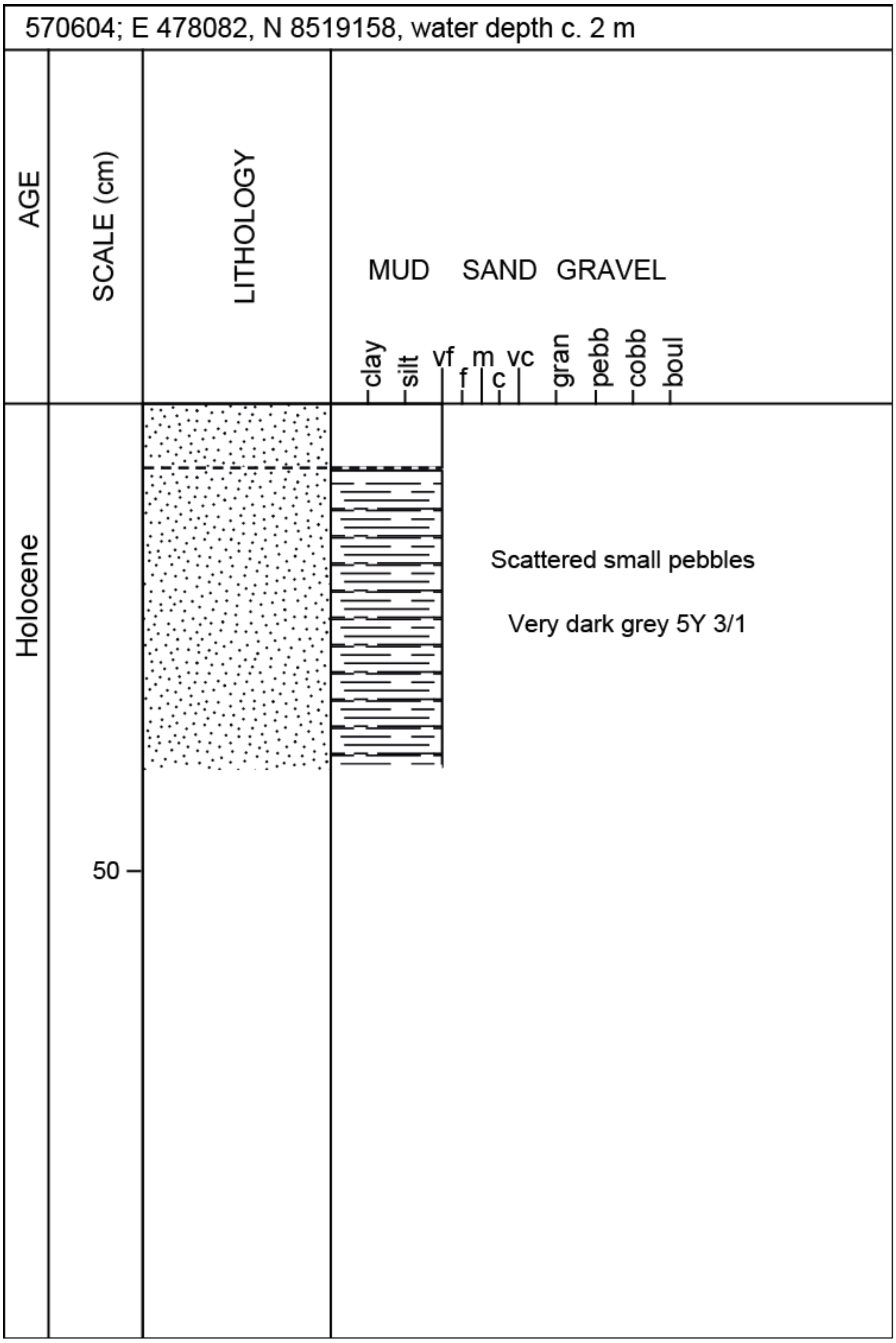


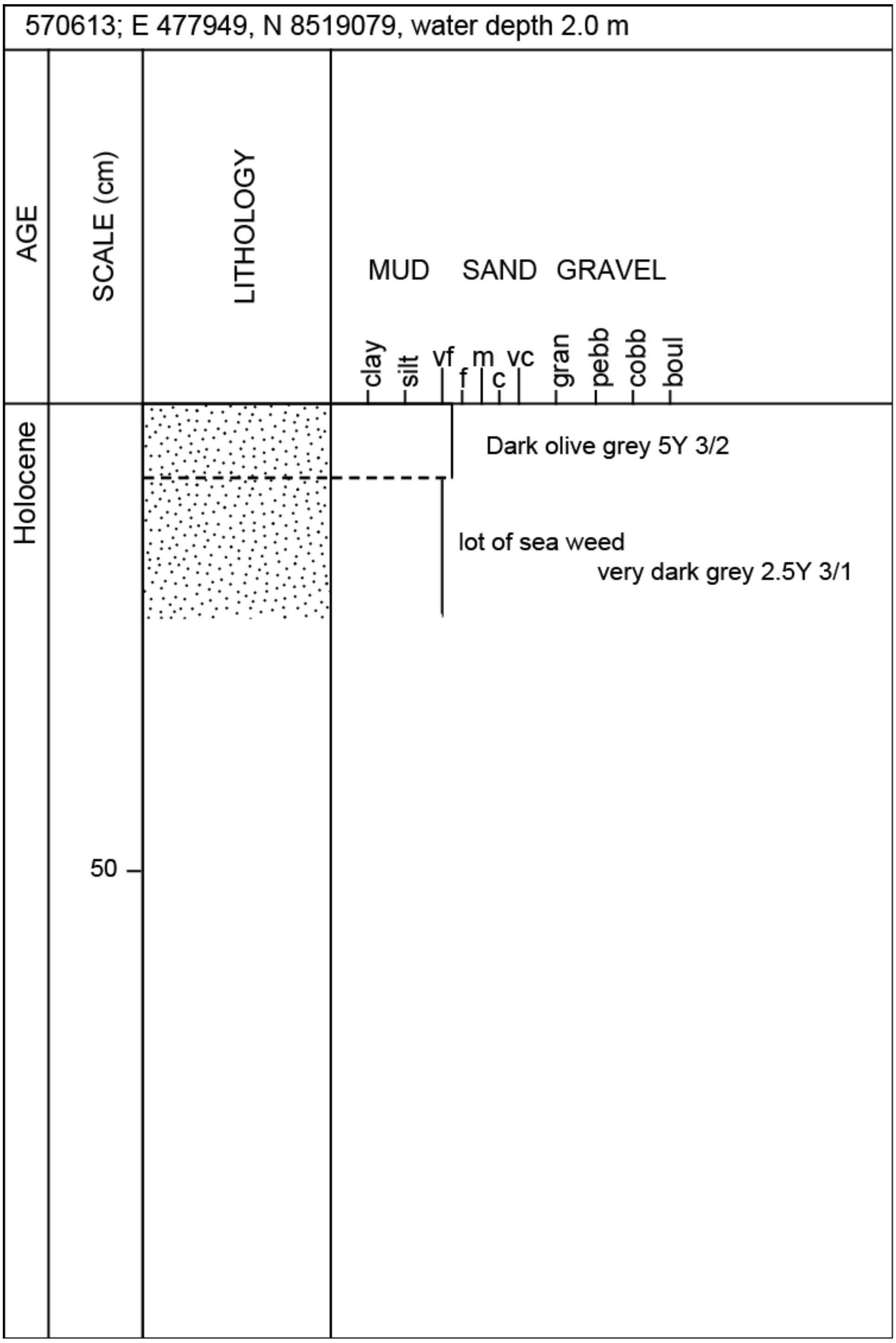

569190; E 490205, N 8513605, water depth 17 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Olive grey 5Y 5/2
Mya truncata shells
Holocene
50
Olive grey 5Y 5/2
100
Olive grey 5Y 5/2

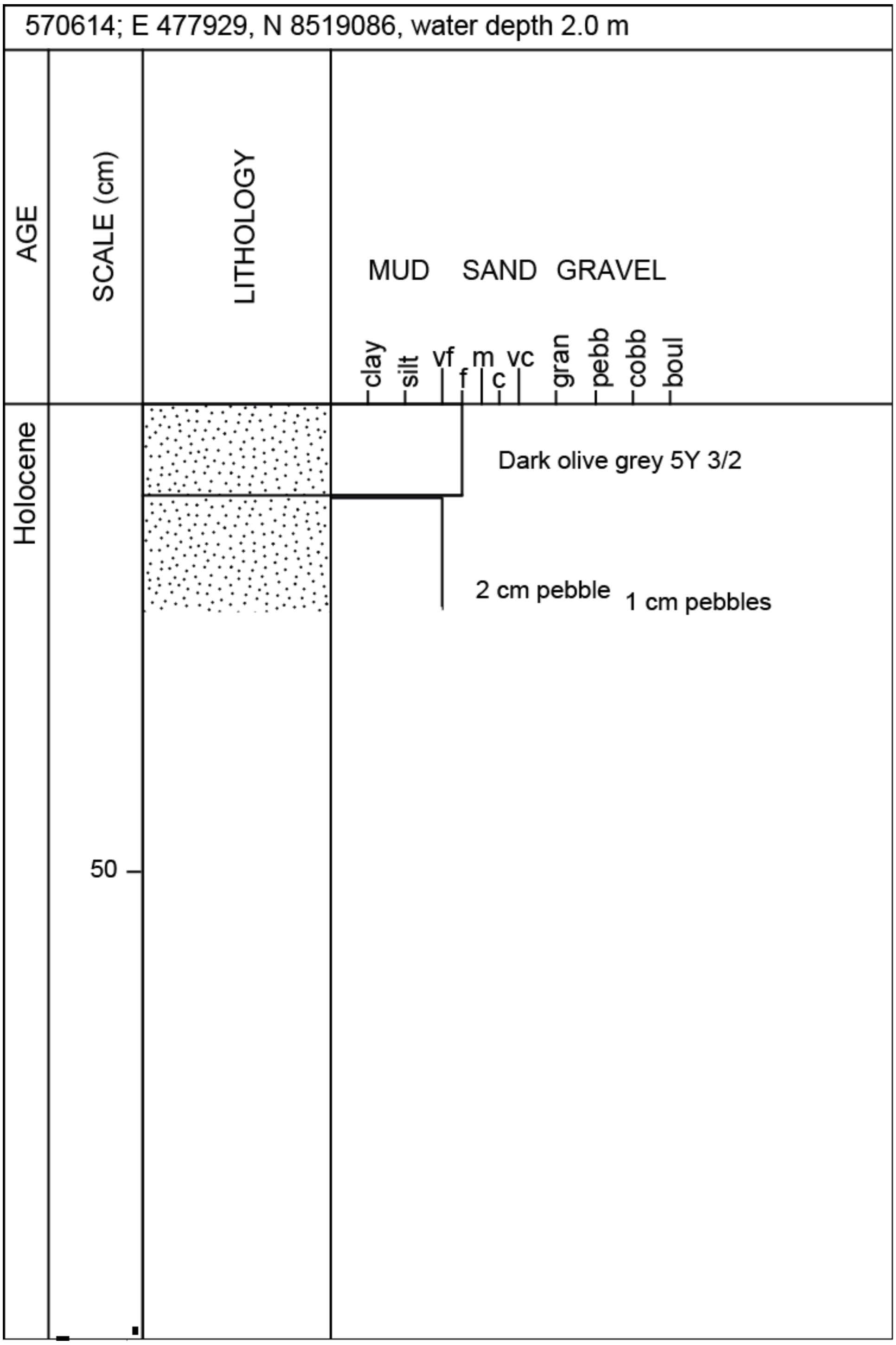

569191; E 490093, N 8513440, water depth 26 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
1
Scattered Mya truncata shells and one Clinocardium shell in this unit
Olive grey 5Y 4/2 and dark olive grey 5Y 3/2
Diamict with pebbles and shell fragments
stiff

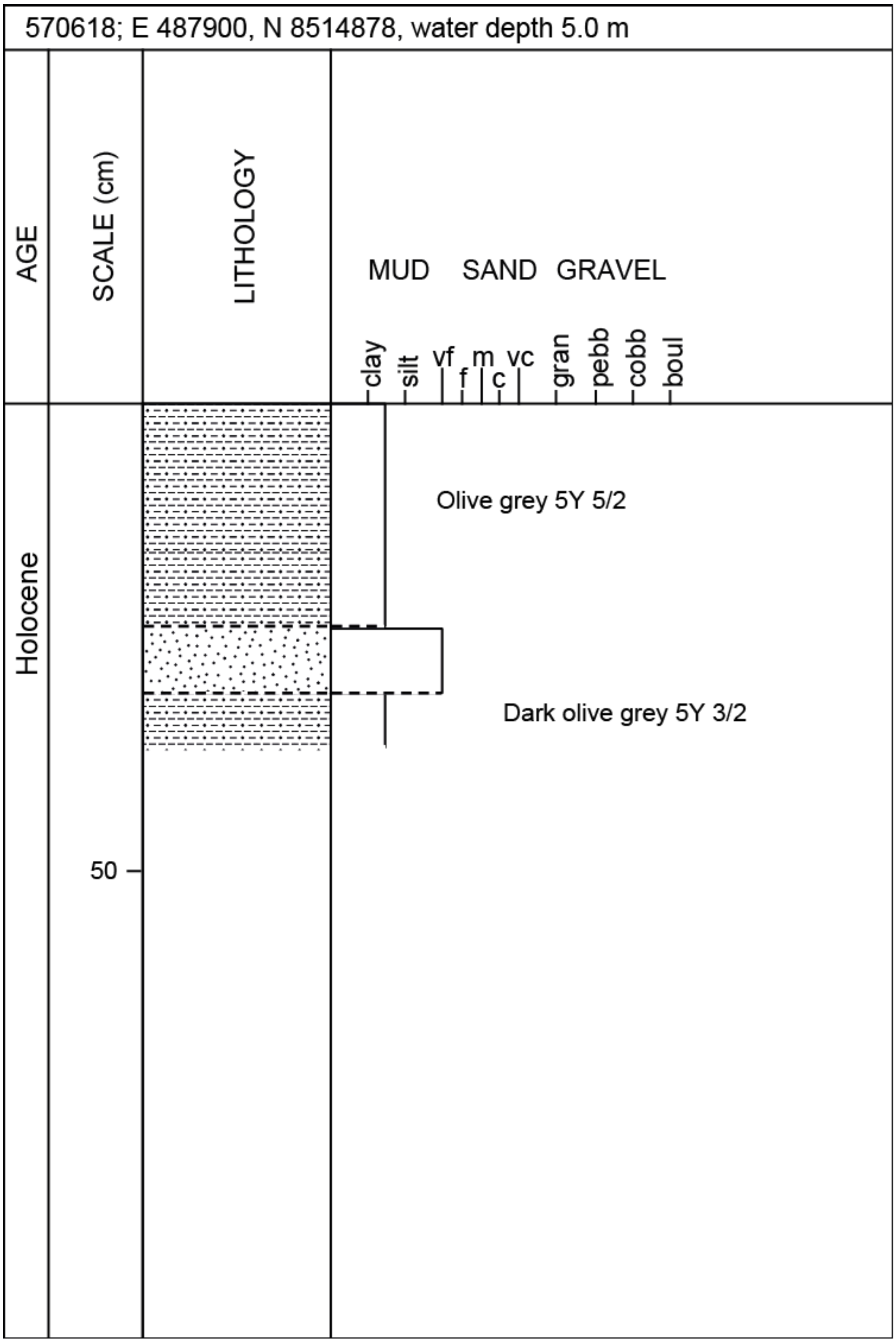

569192; E 490146, N 8513574, water depth 21 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Olive grey 5Y 5/2
Holocene
50
Olive grey 5Y 5/2
100
Few shell fragments
Dark olive grey 5Y 3/2

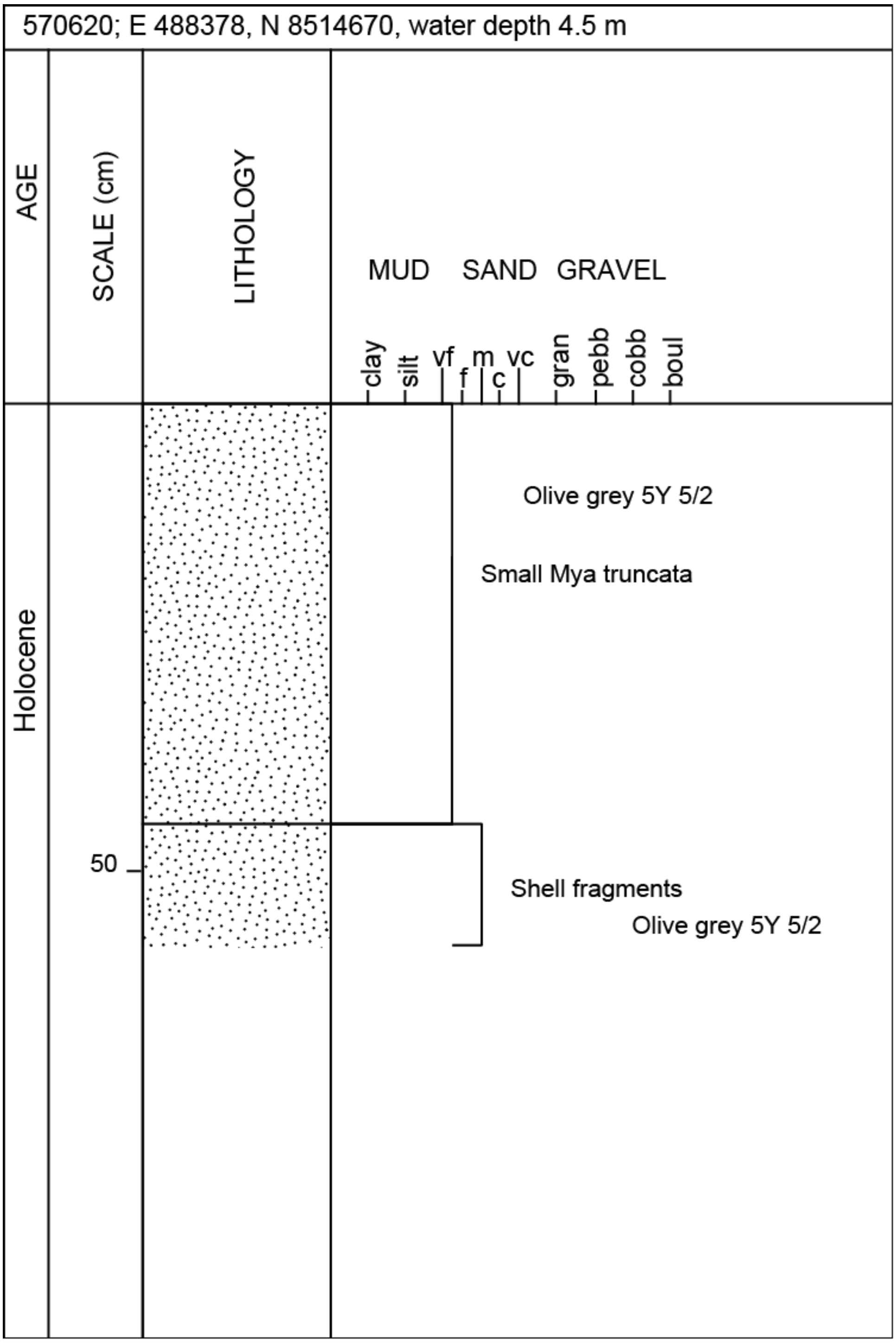

569196; E 492455, N 8511367, water depth 17 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Olive grey 5Y 5/2
2 cm pebble
Holocene
50
Sea weed
A few shell fragments
Very dark grey 2.5Y 3/1


570604; E 478082, N 8519158, water depth c. 2 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Scattered small pebbles
Very dark grey 5Y 3/1

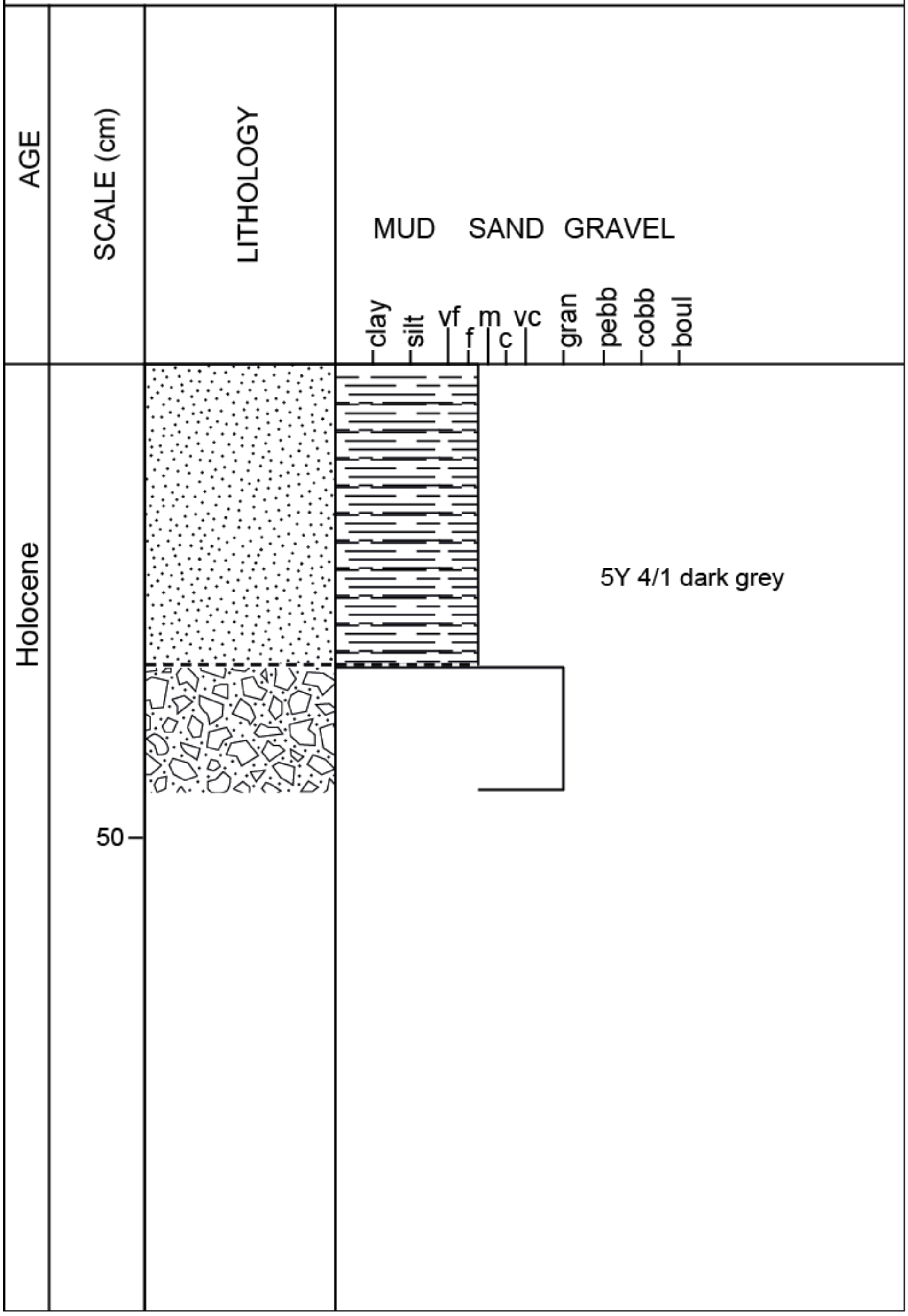

570613; E 477949, N 8519079, water depth 2.0 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Dark olive grey 5Y 3/2
lot of sea weed
very dark grey 2.5Y 3/1

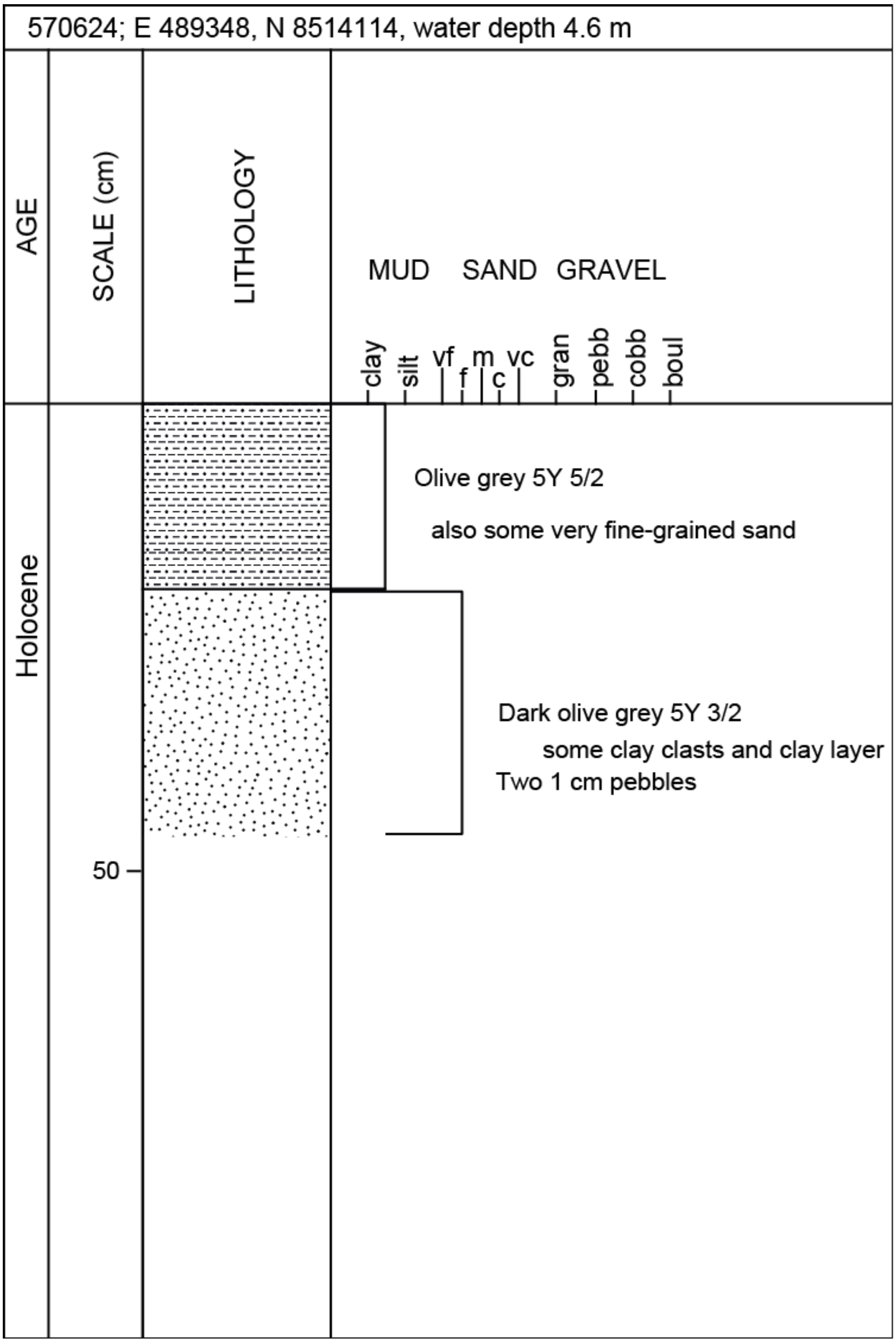

570614; E 477929, N 8519086, water depth 2.0 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
Dark olive grey 5Y 3/2
2 cm pebble
1 cm pebbles
50

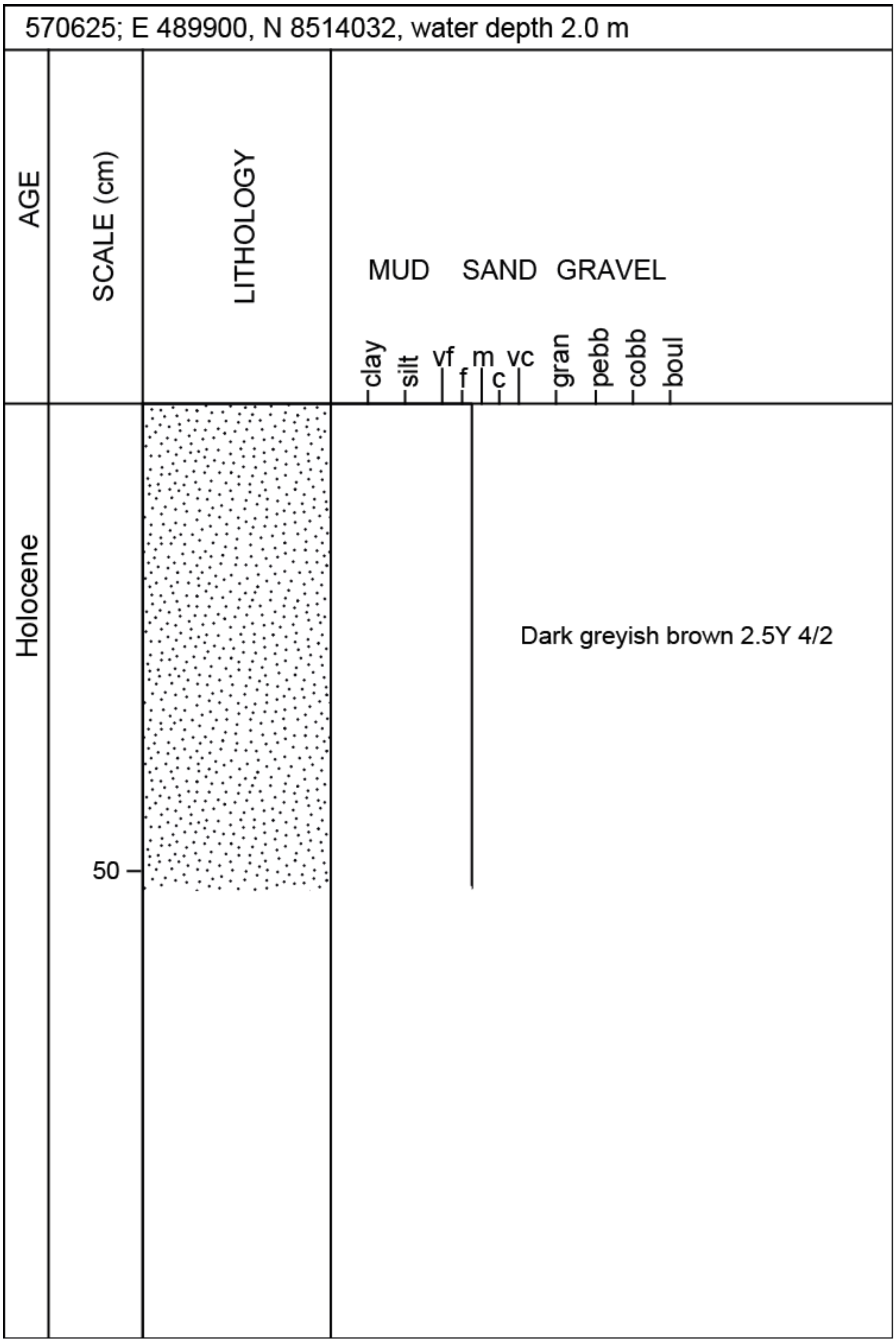

570618; E 487900, N 8514878, water depth 5.0 m
AGE
SCALE (cm)
LITHOLOGY
MUD
SAND
GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
Dark olive grey 5Y 3/2

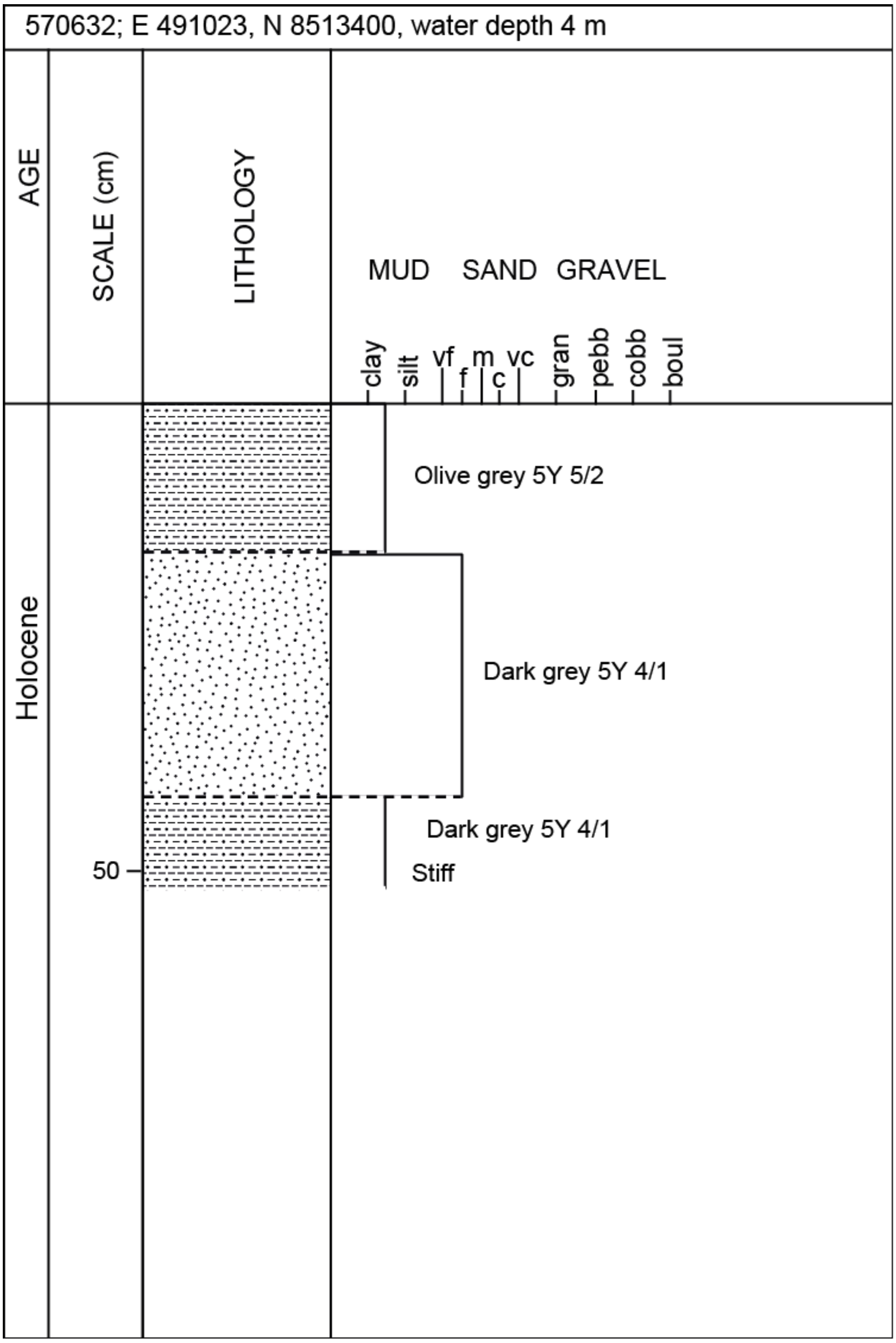

570620; E 488378, N 8514670, water depth 4.5 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
Small Mya truncata
Shell fragments
Olive grey 5Y 5/2

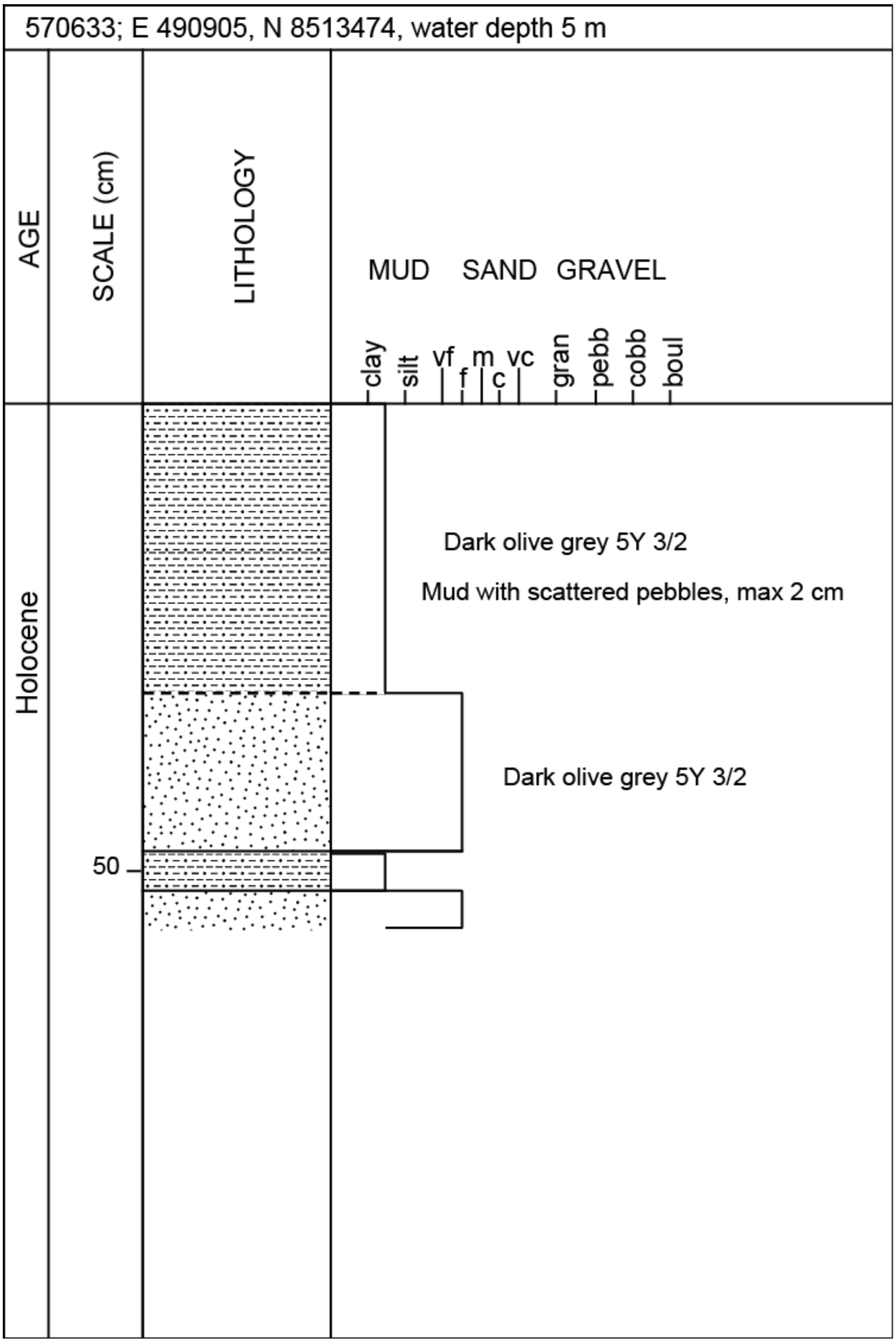
570622; E 488878, N 8514360, water depth 4.0 m

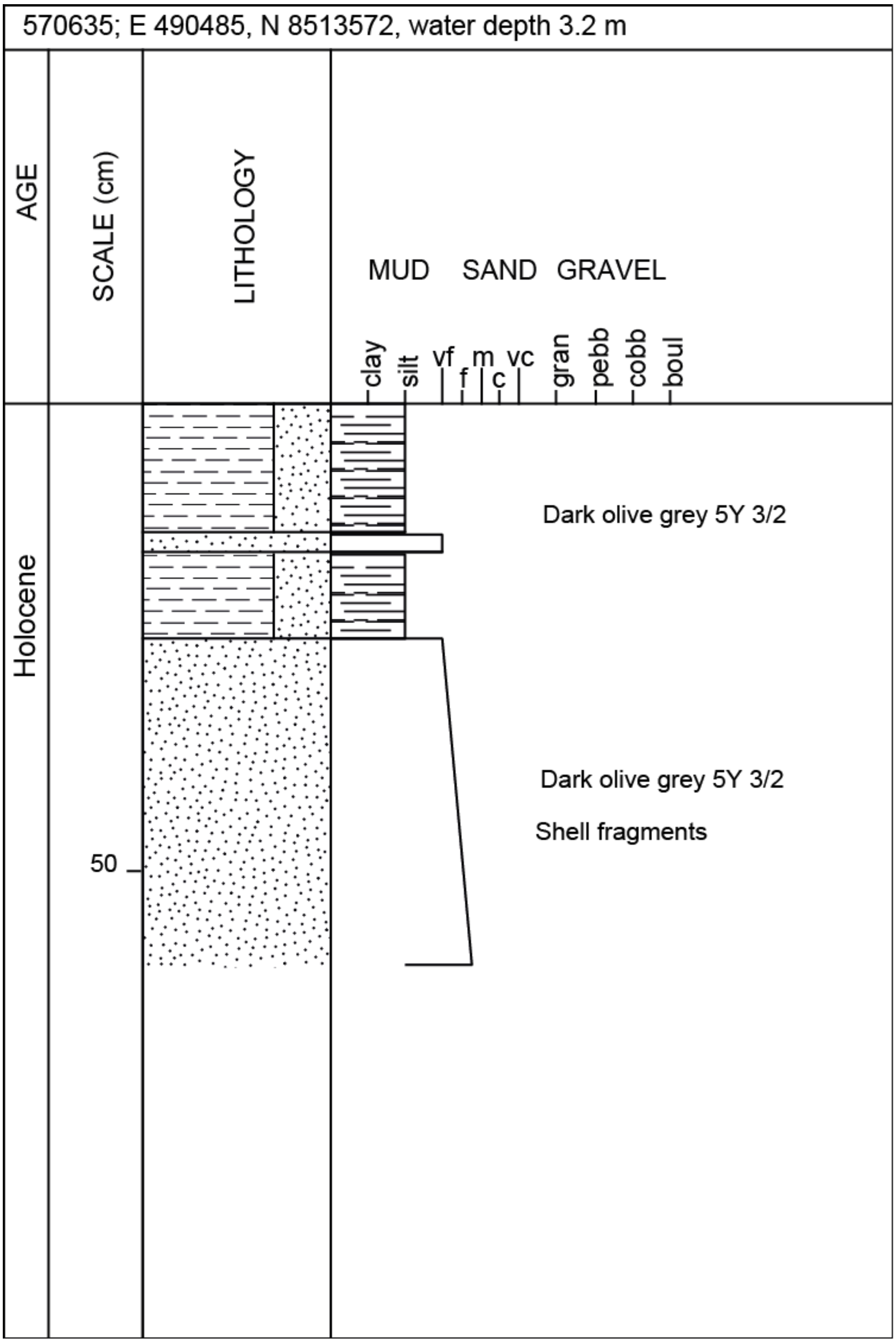



570624; E 489348, N 8514114, water depth 4.6 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
also some very fine-grained sand
Dark olive grey 5Y 3/2
some clay clasts and clay layer
Two 1 cm pebbles

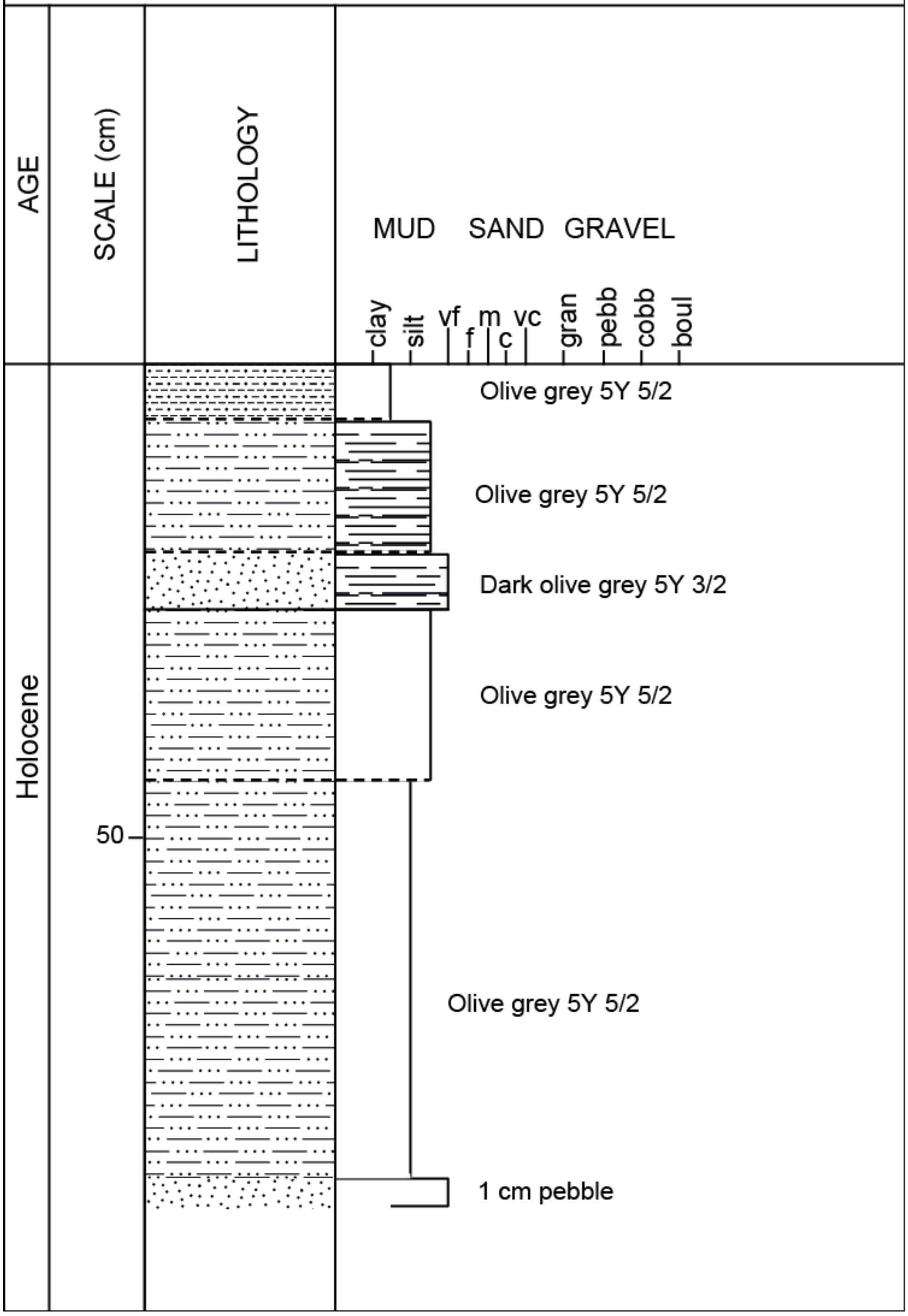

570625; E 489900, N 8514032, water depth 2.0 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Dark greyish brown 2.5Y 4/2


570632; E 491023, N 8513400, water depth 4 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
Olive grey 5Y 5/2
Dark grey 5Y 4/1
Dark grey 5Y 4/1
Stiff
50

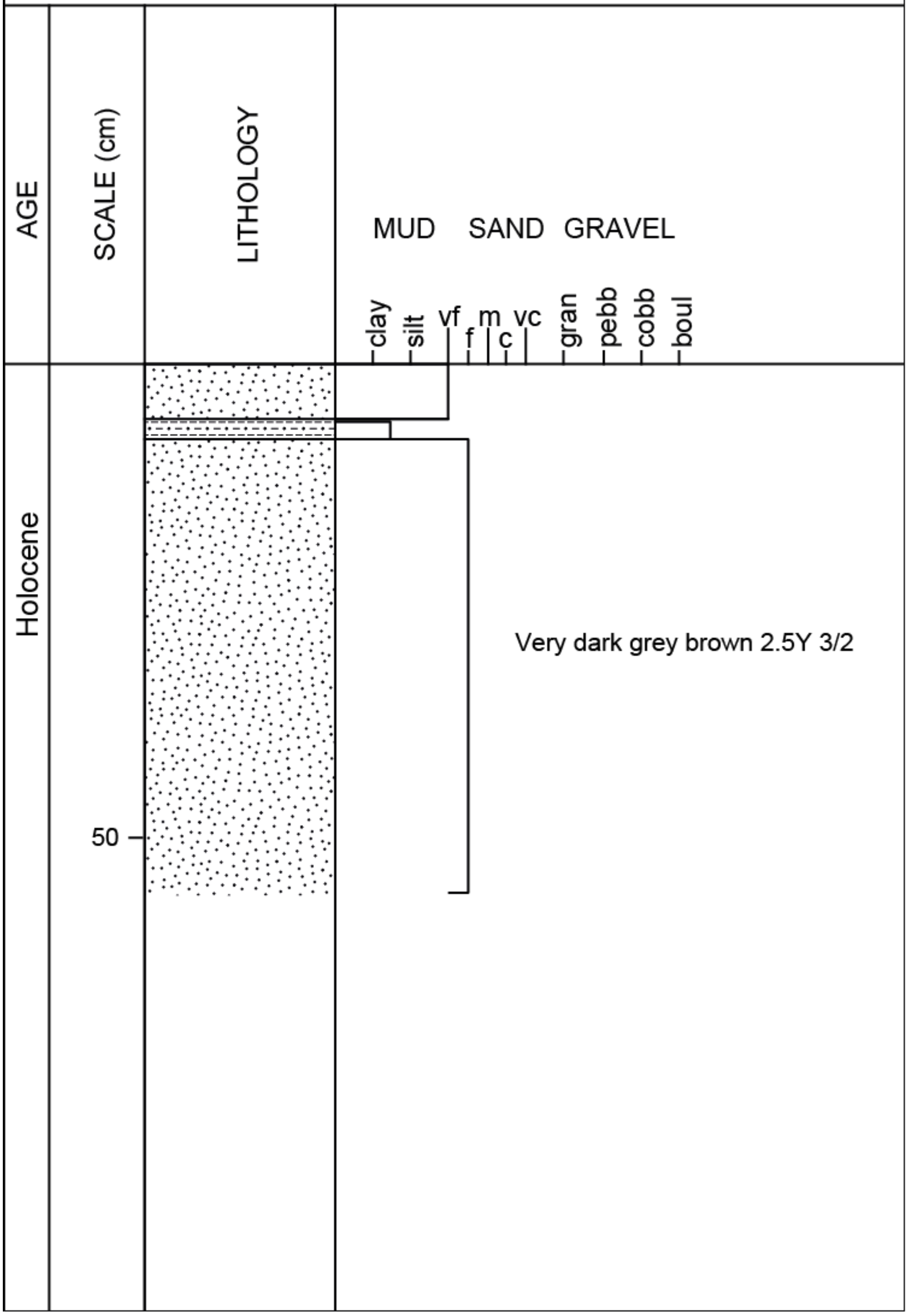

570633; E 490905, N 8513474, water depth 5 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Dark olive grey 5Y 3/2
Mud with scattered pebbles, max 2 cm
Dark olive grey 5Y 3/2

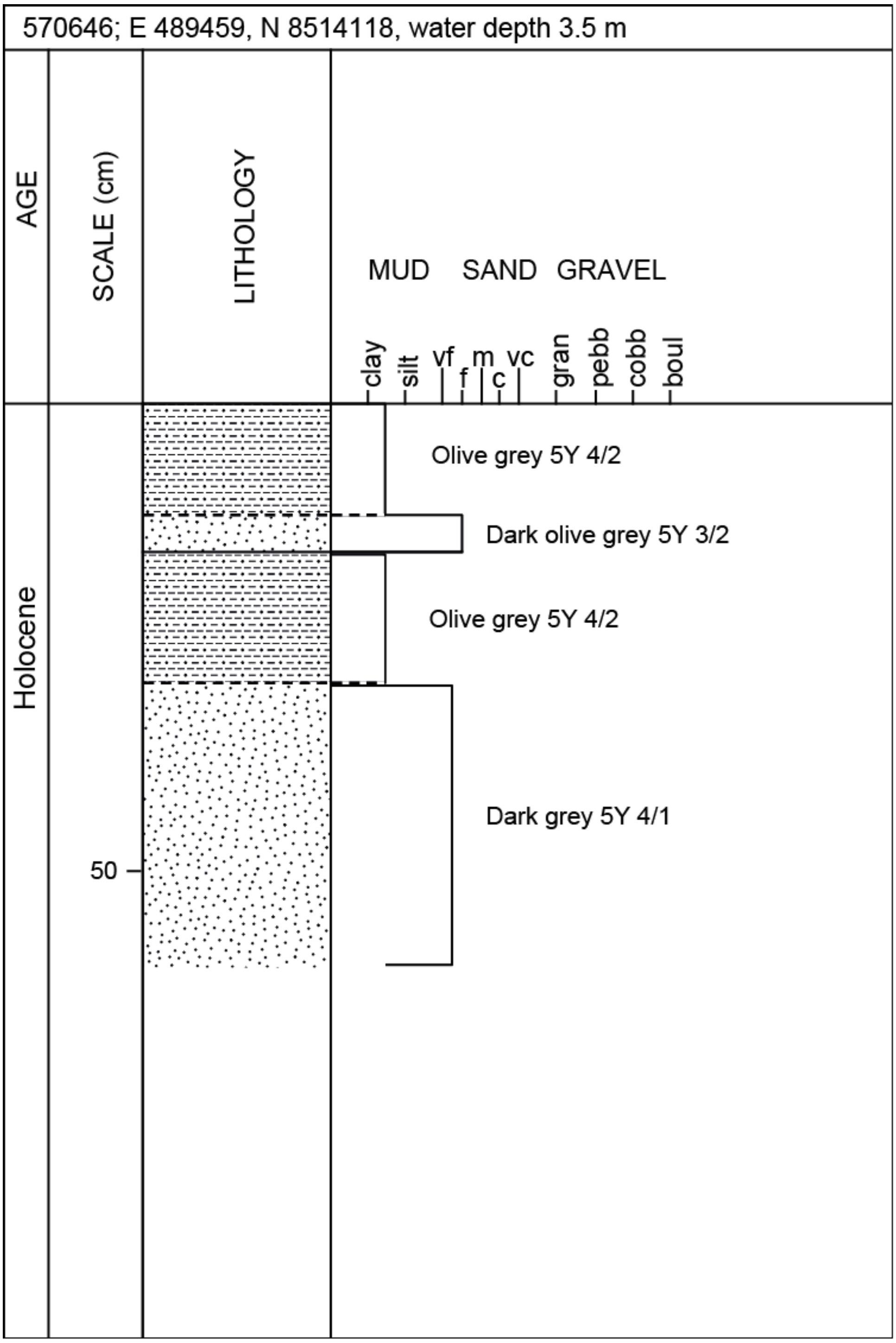

570635; E 490485, N 8513572, water depth 3.2 m
AGE
SCALE (cm)
LITHOLOGY
MUD
SAND
GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Dark olive grey 5Y 3/2
Dark olive grey 5Y 3/2
Shell fragments

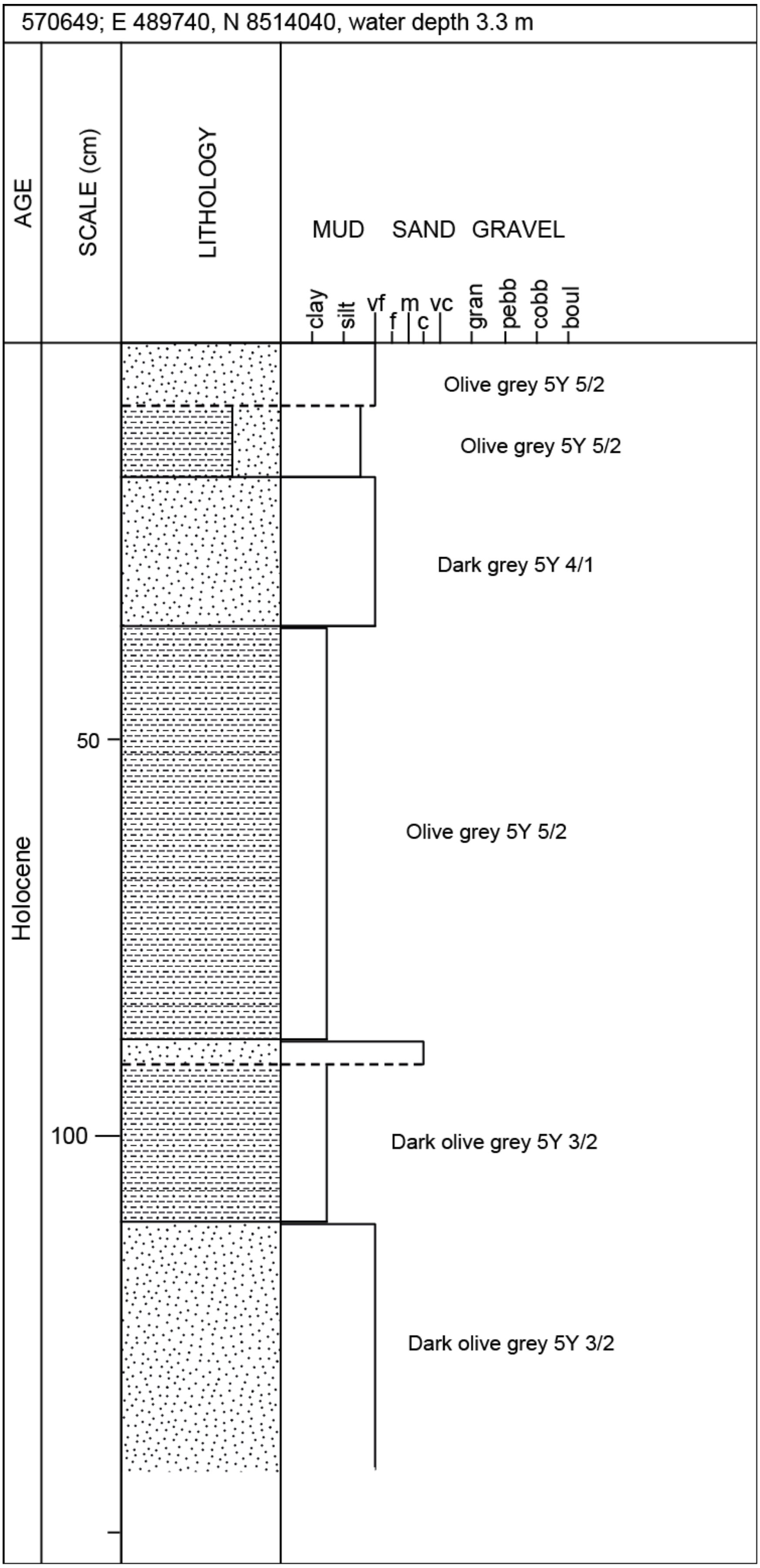
570636; E 490415, N 8513572, water depth 5.8 m

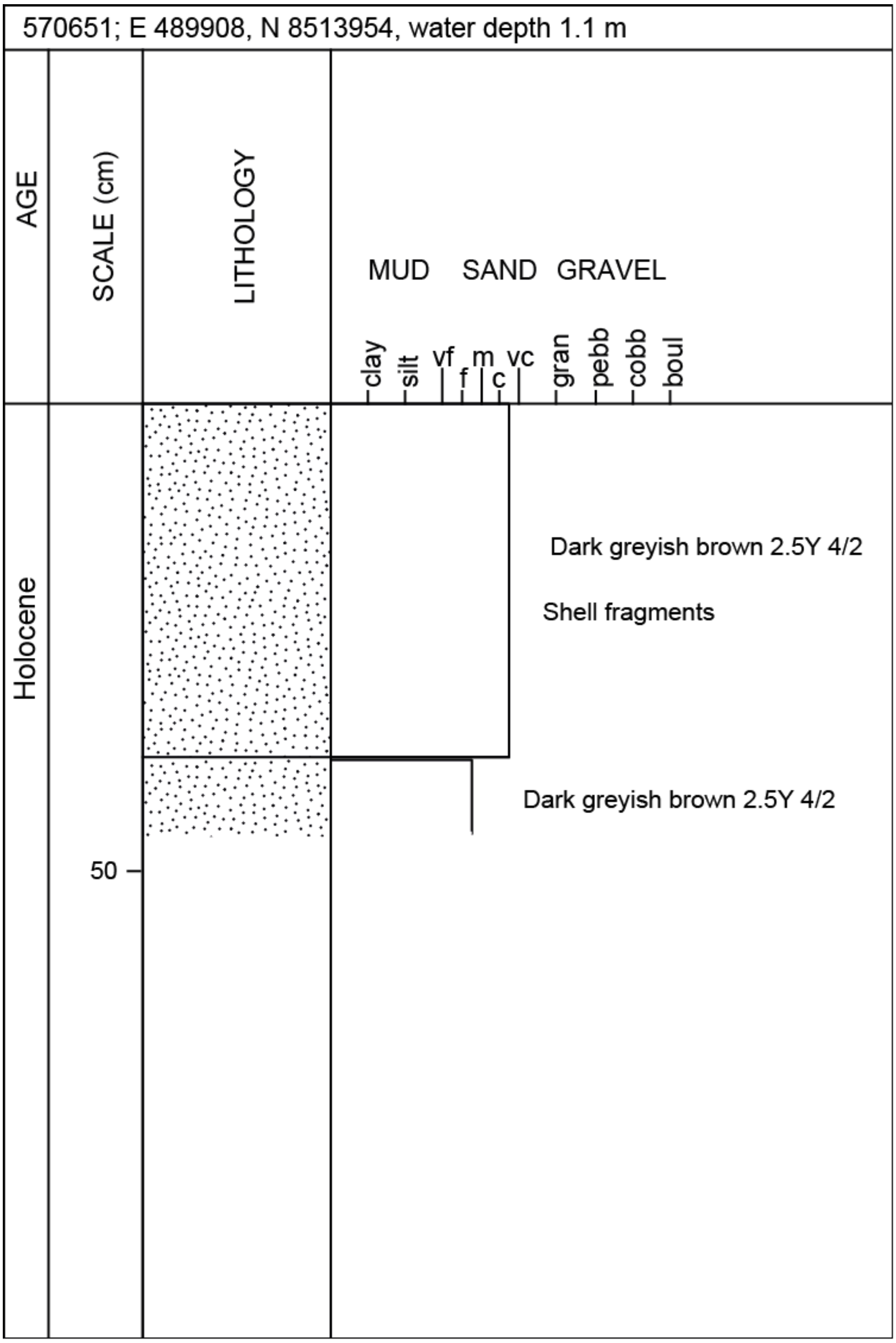


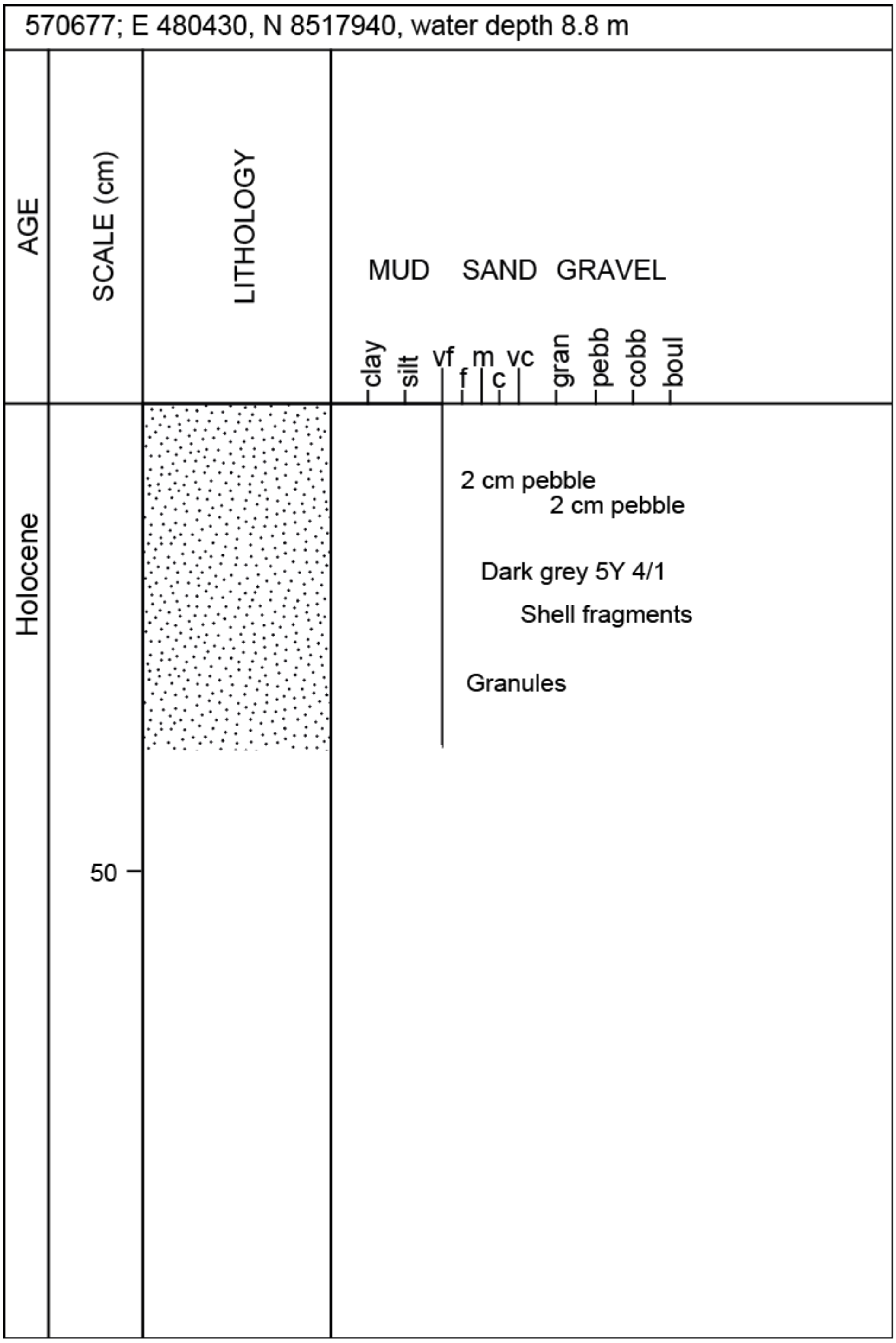
570640; E 490012, N 8513846, water depth 3.5 m

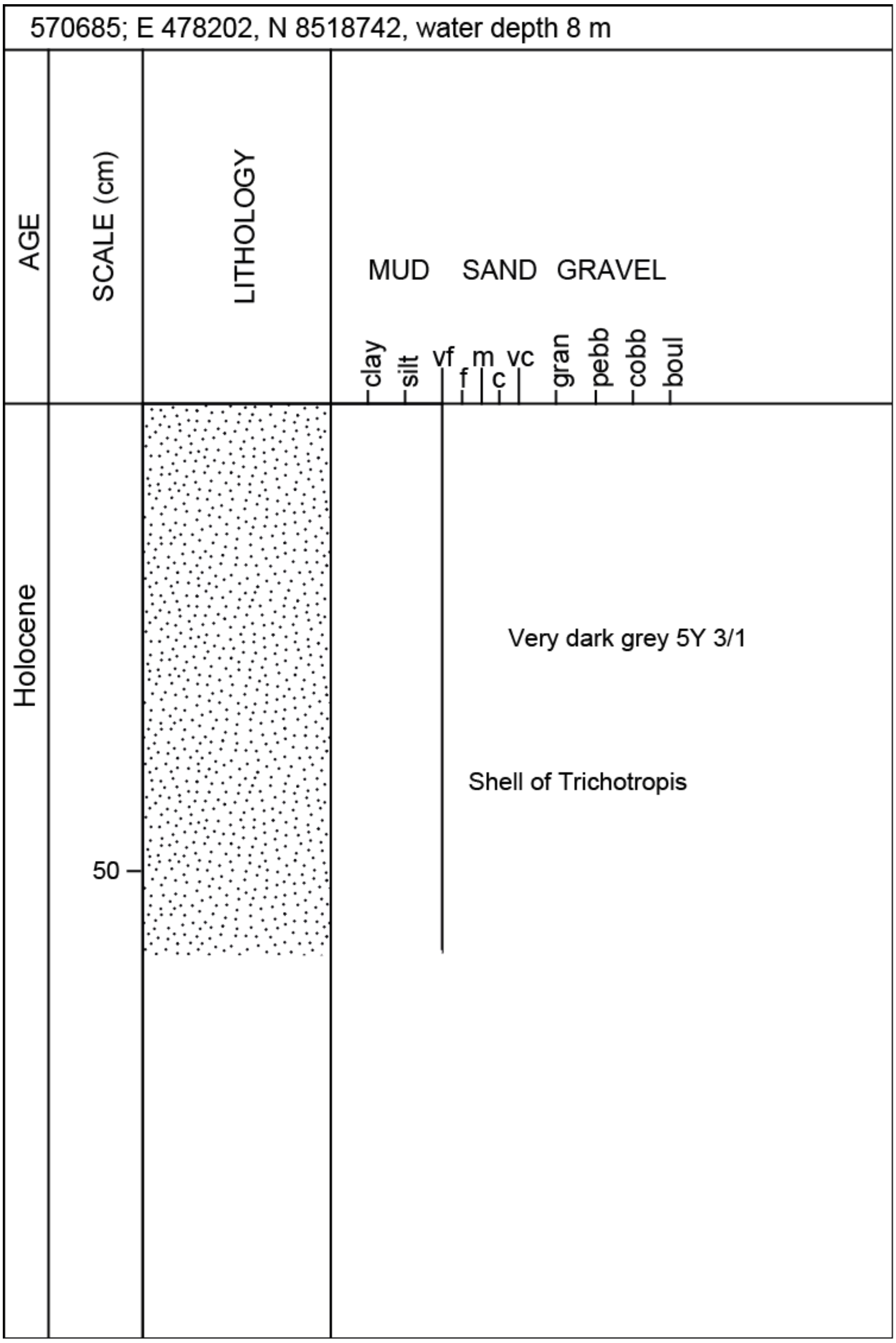


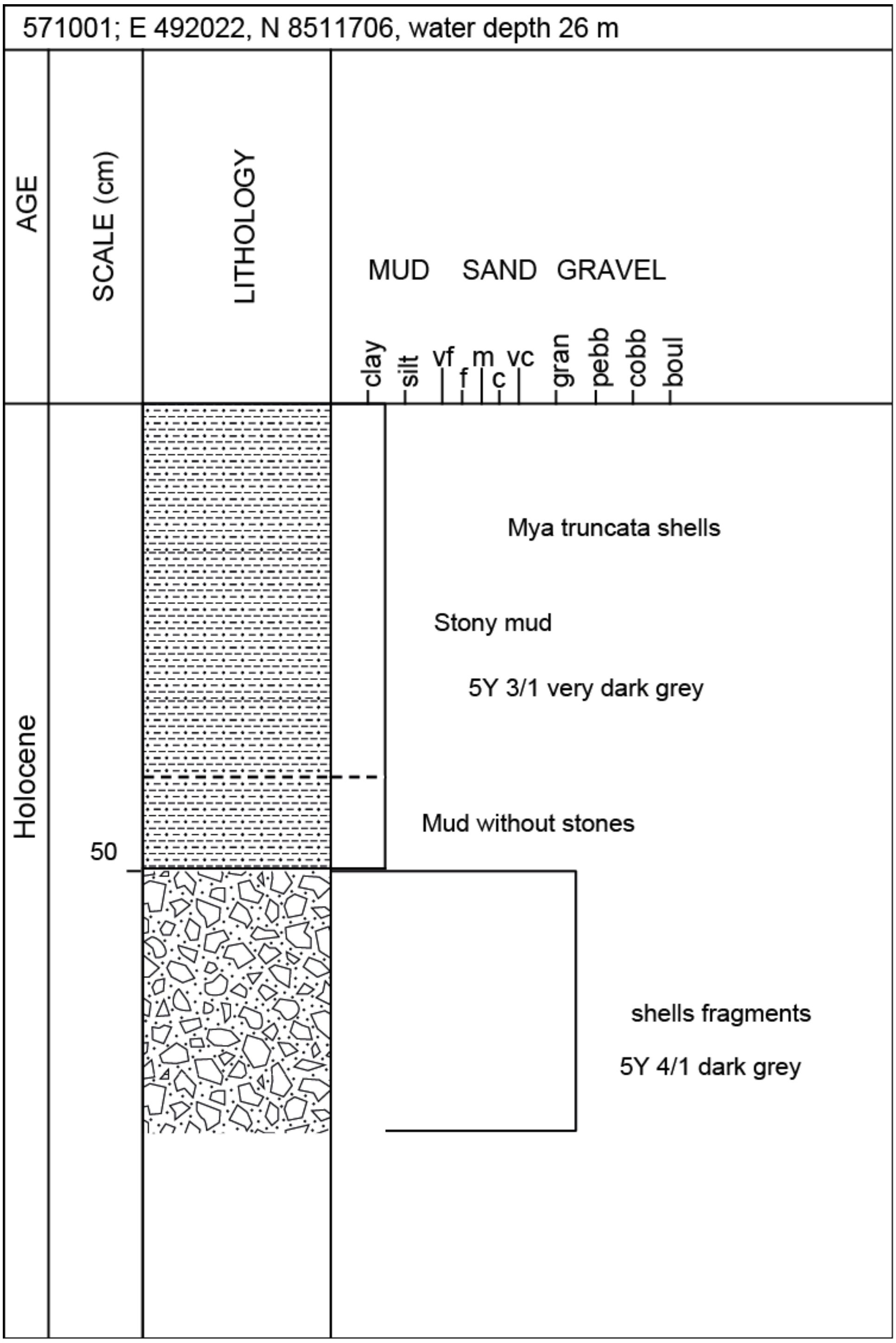

570646; E 489459, N 8514118, water depth 3.5 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Olive grey 5Y 4/2
Dark olive grey 5Y 3/2
Olive grey 5Y 4/2
Dark grey 5Y 4/1
Holocene
50

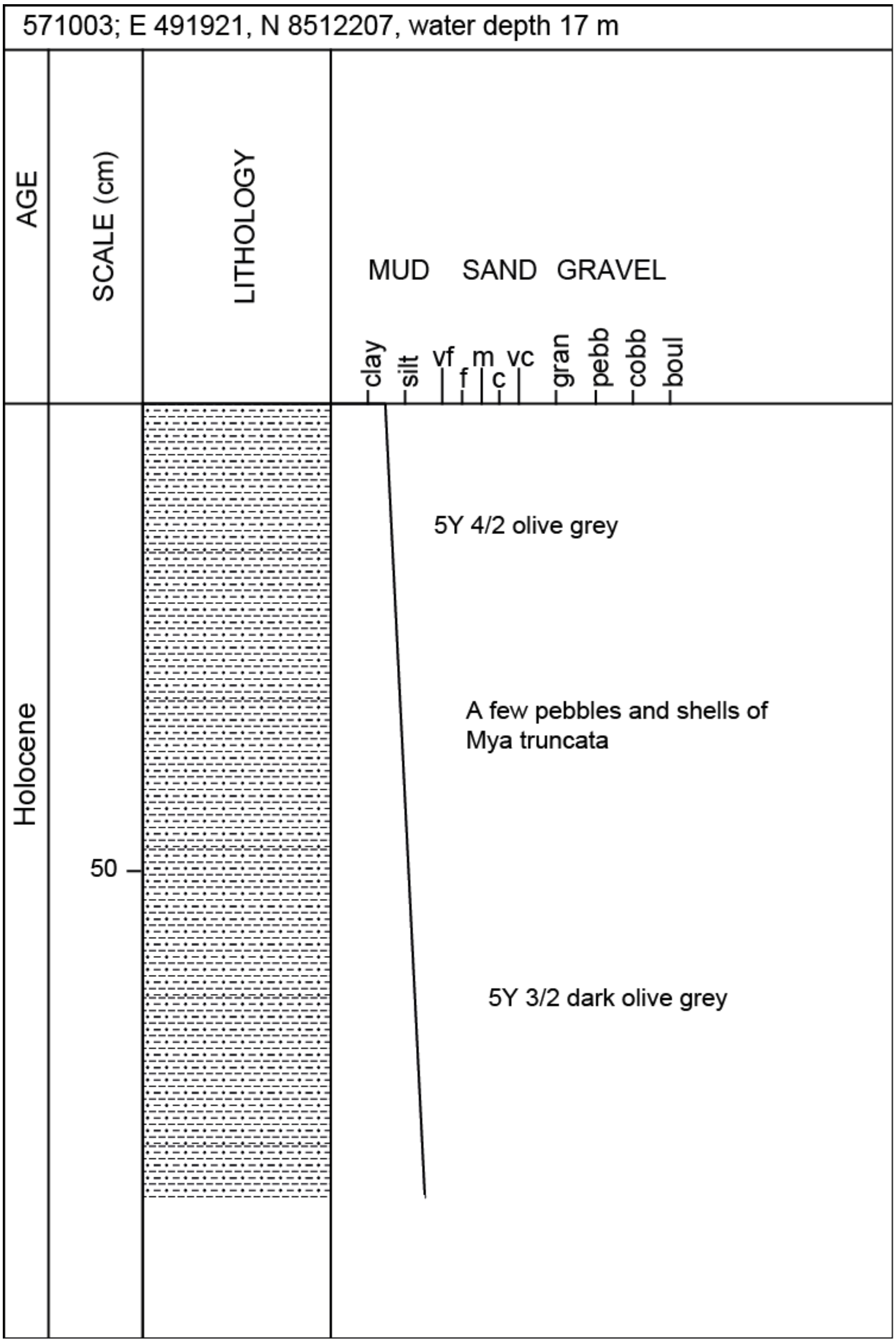

570649; E 489740, N 8514040, water depth 3.3 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Olive grey 5Y 5/2
Olive grey 5Y 5/2
Dark grey 5Y 4/1
50
Holocene
Olive grey 5Y 5/2
100
Dark olive grey 5Y 3/2
Dark olive grey 5Y 3/2

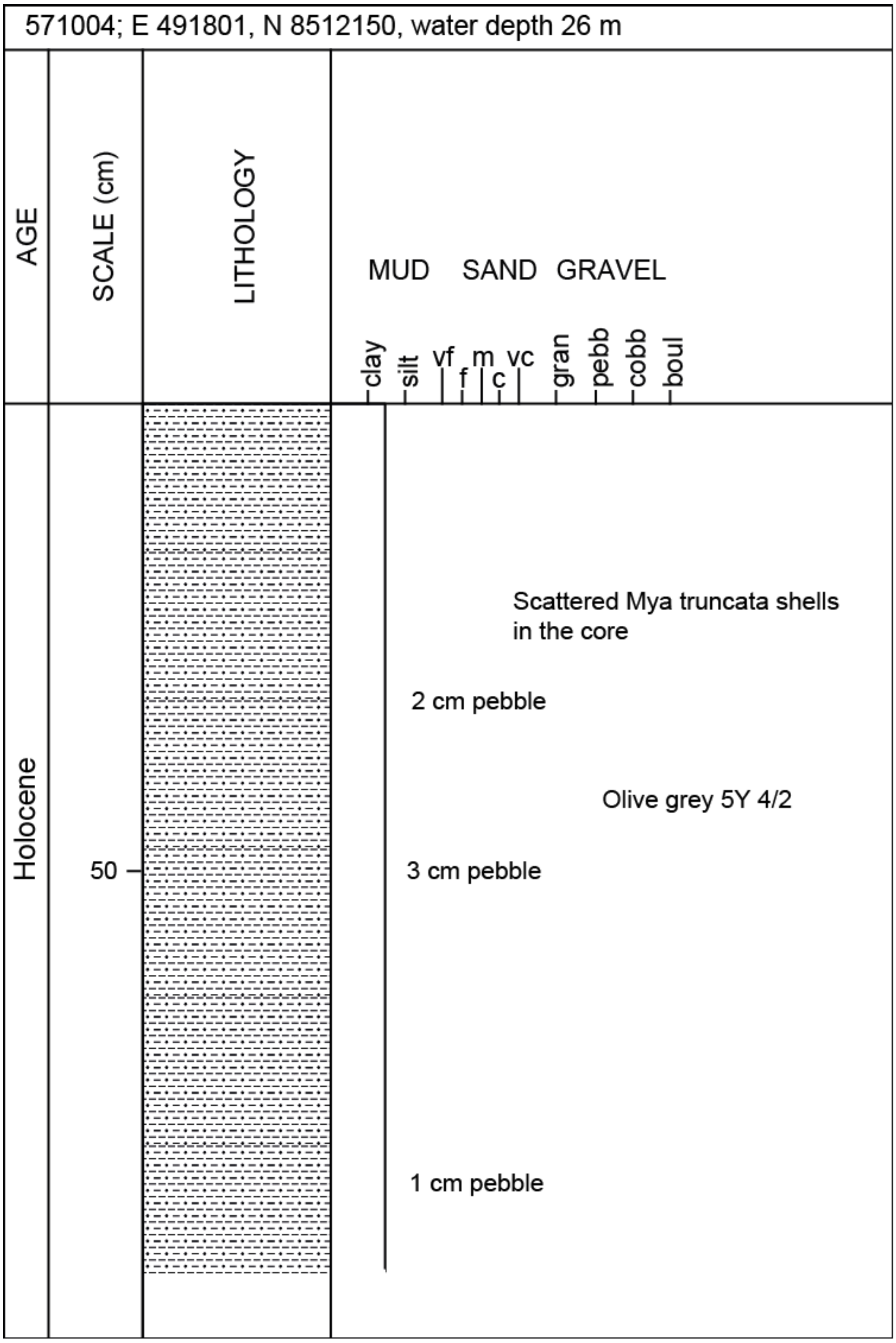

570651; E 489908, N 8513954, water depth 1.1 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Dark greyish brown 2.5Y 4/2
Shell fragments
Dark greyish brown 2.5Y 4/2

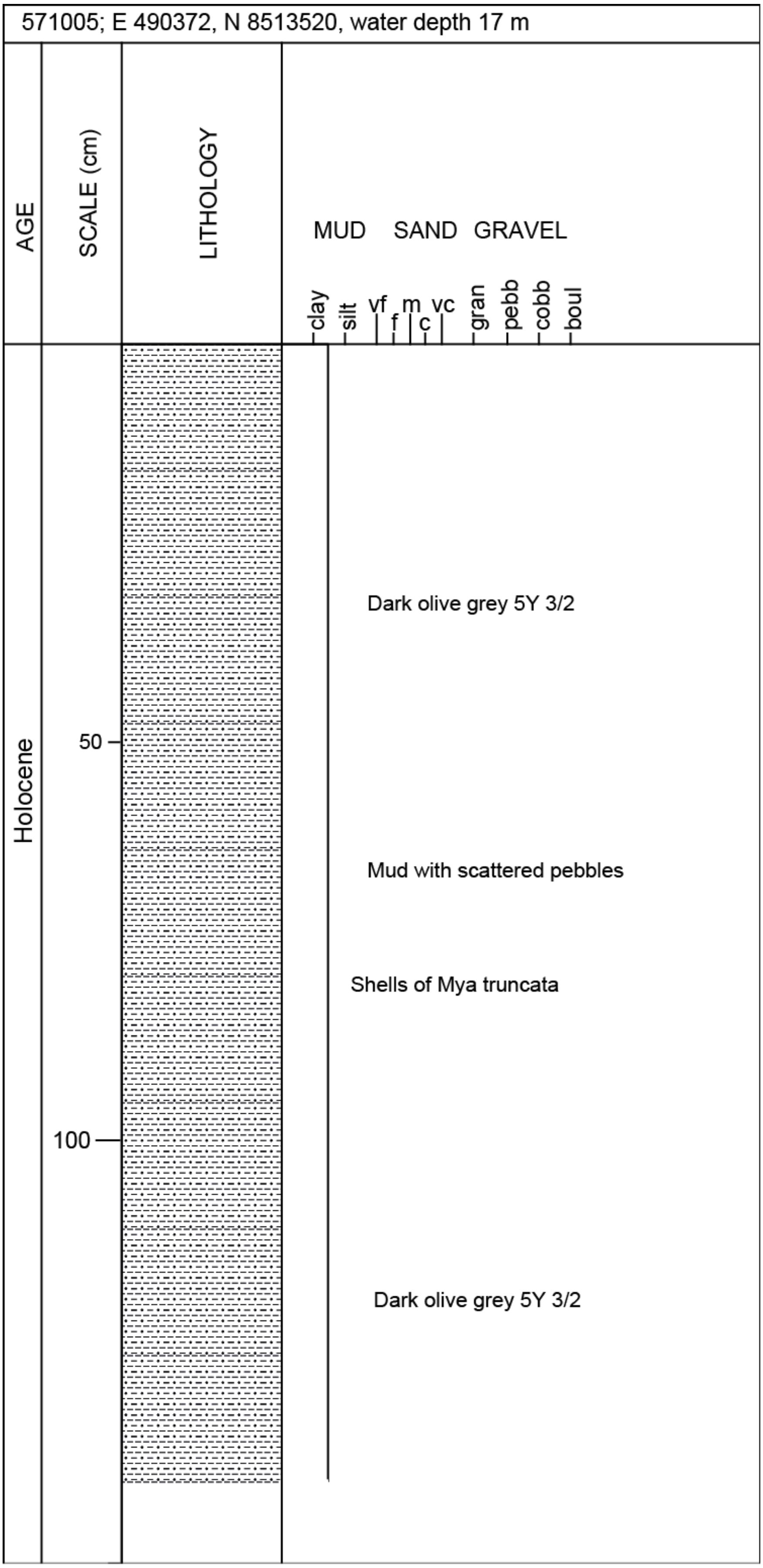

570677; E 480430, N 8517940, water depth 8.8 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
2 cm pebble
2 cm pebble
Dark grey 5Y 4/1
Shell fragments
Granules

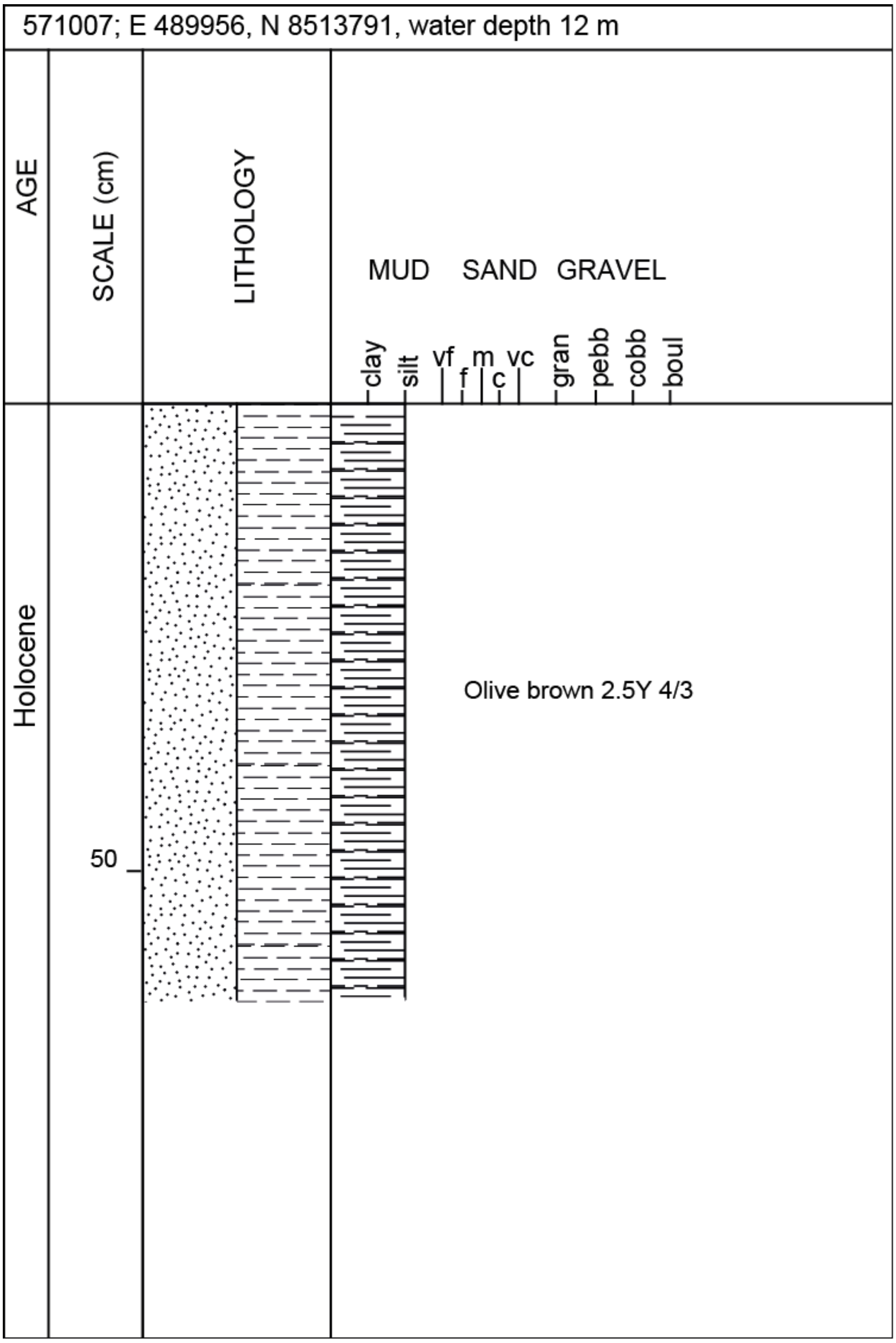

570685; E 478202, N 8518742, water depth 8 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Very dark grey 5Y 3/1
Shell of Trichotropis


571001; E 492022, N 8511706, water depth 26 m
AGE
SCALE (cm)
LITHOLOGY
MUD
SAND
GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Mya truncata shells
Stony mud
5Y 3/1 very dark grey
Mud without stones
shells fragments
5Y 4/1 dark grey

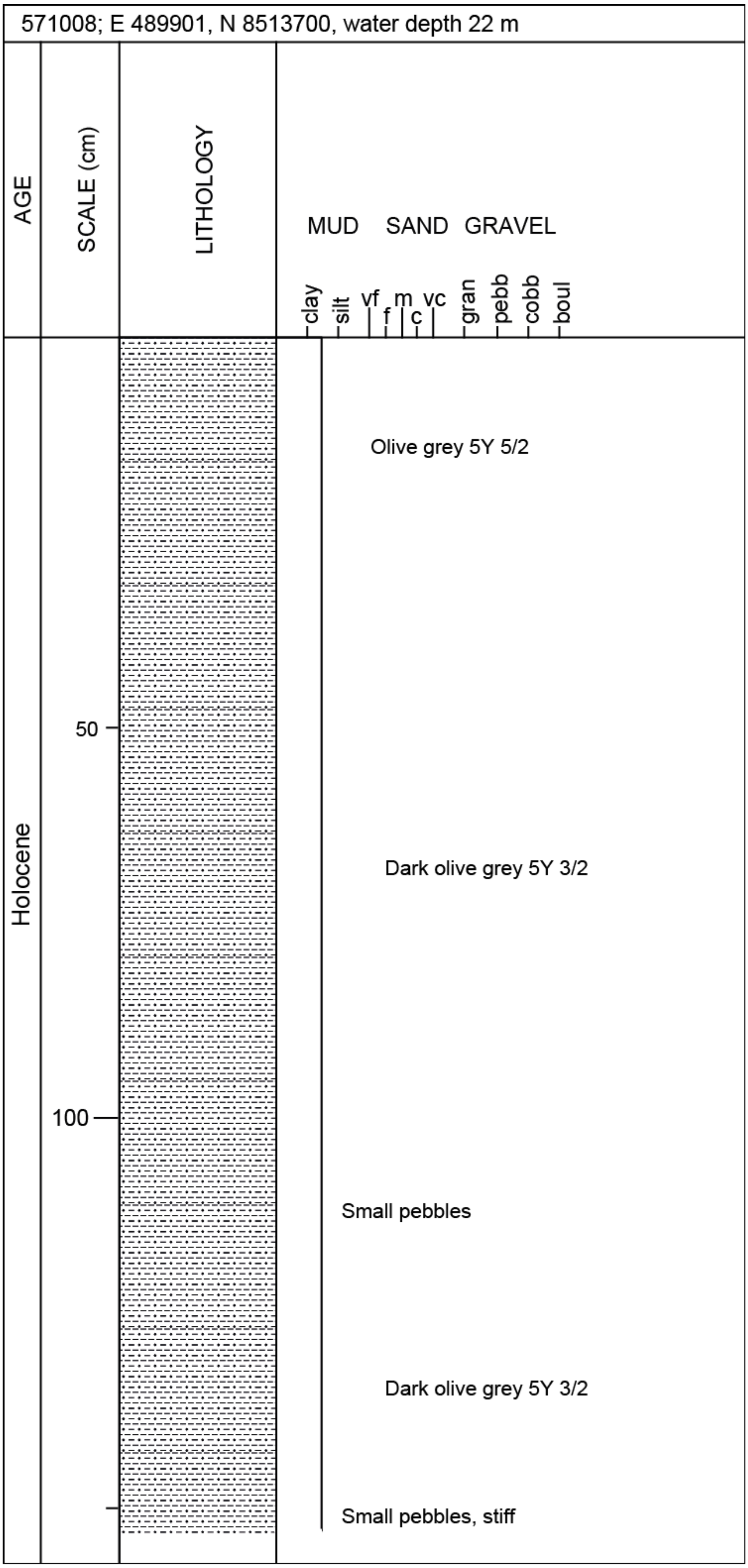

571003; E 491921, N 8512207, water depth 17 m
AGE
SCALE (cm)
LITHOLOGY
MUD
SAND
GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
5Y 4/2 olive grey
A few pebbles and shells of Mya truncata
5Y 3/2 dark olive grey

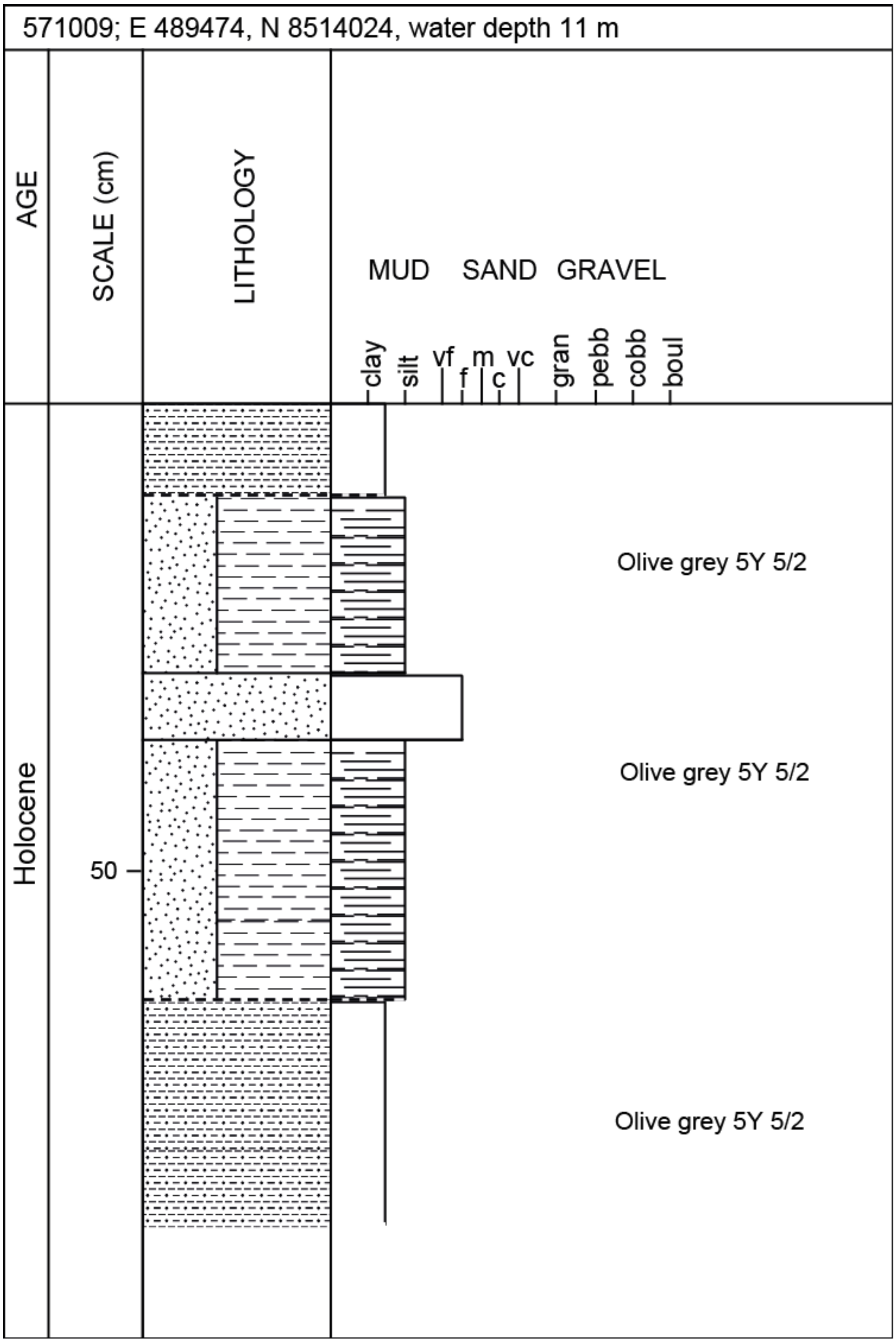

571004; E 491801, N 8512150, water depth 26 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Scattered Mya truncata shells in the core
2 cm pebble
Olive grey 5Y 4/2
3 cm pebble
1 cm pebble

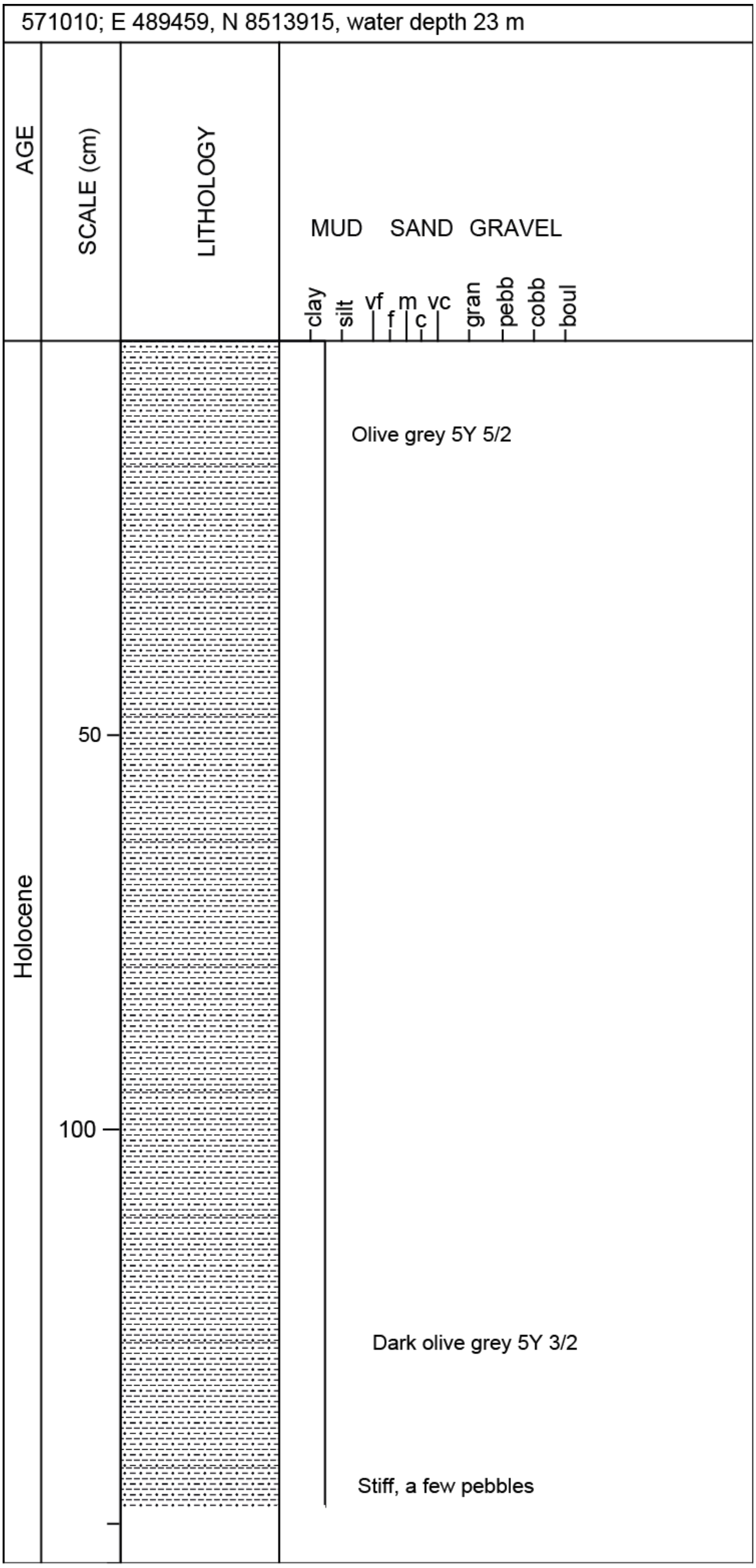

571005; E 490372, N 8513520, water depth 17 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
100
Dark olive grey 5Y 3/2
Mud with scattered pebbles
Shells of Mya truncata
Dark olive grey 5Y 3/2

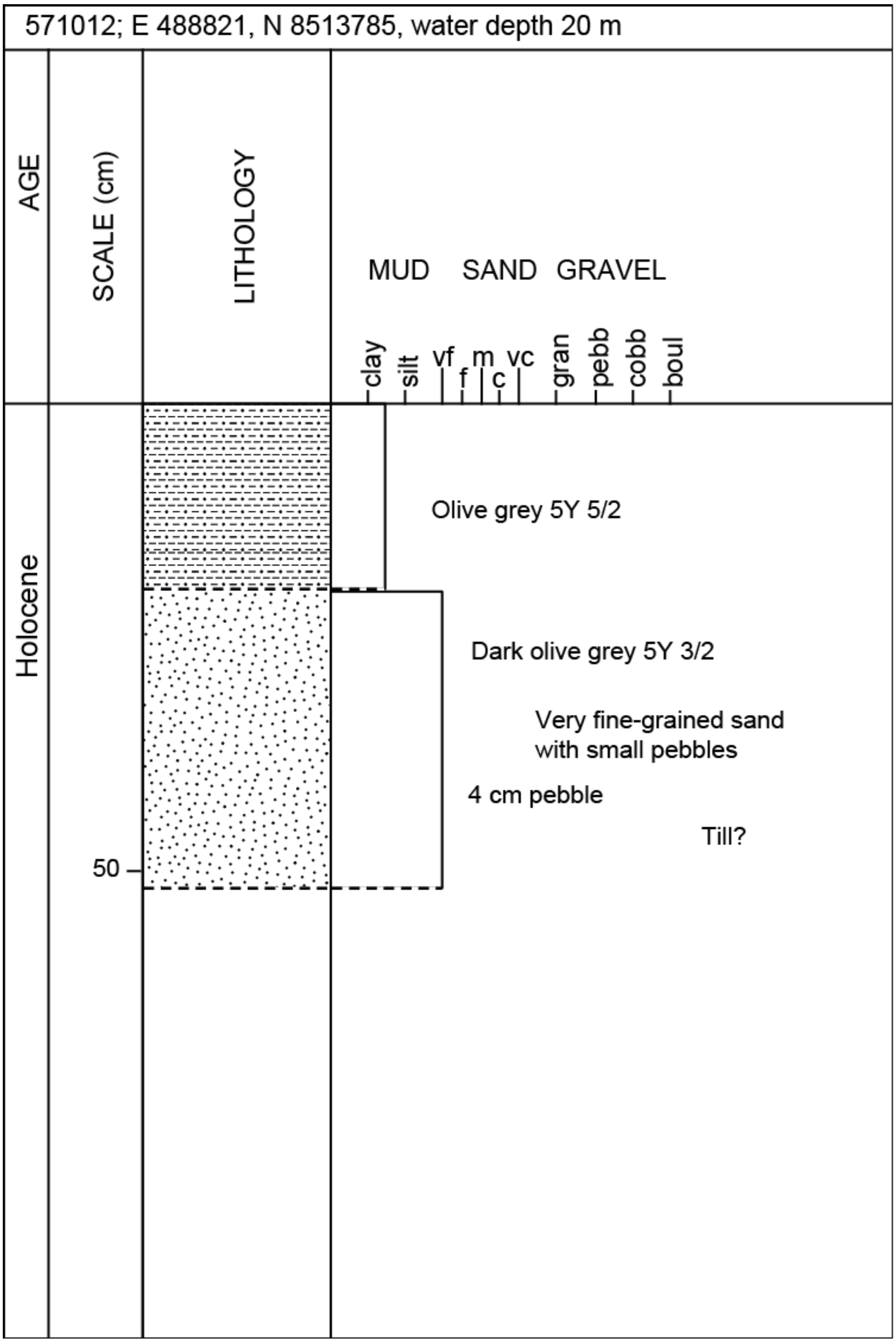


571007; E 489956, N 8513791, water depth 12 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive brown 2.5Y 4/3

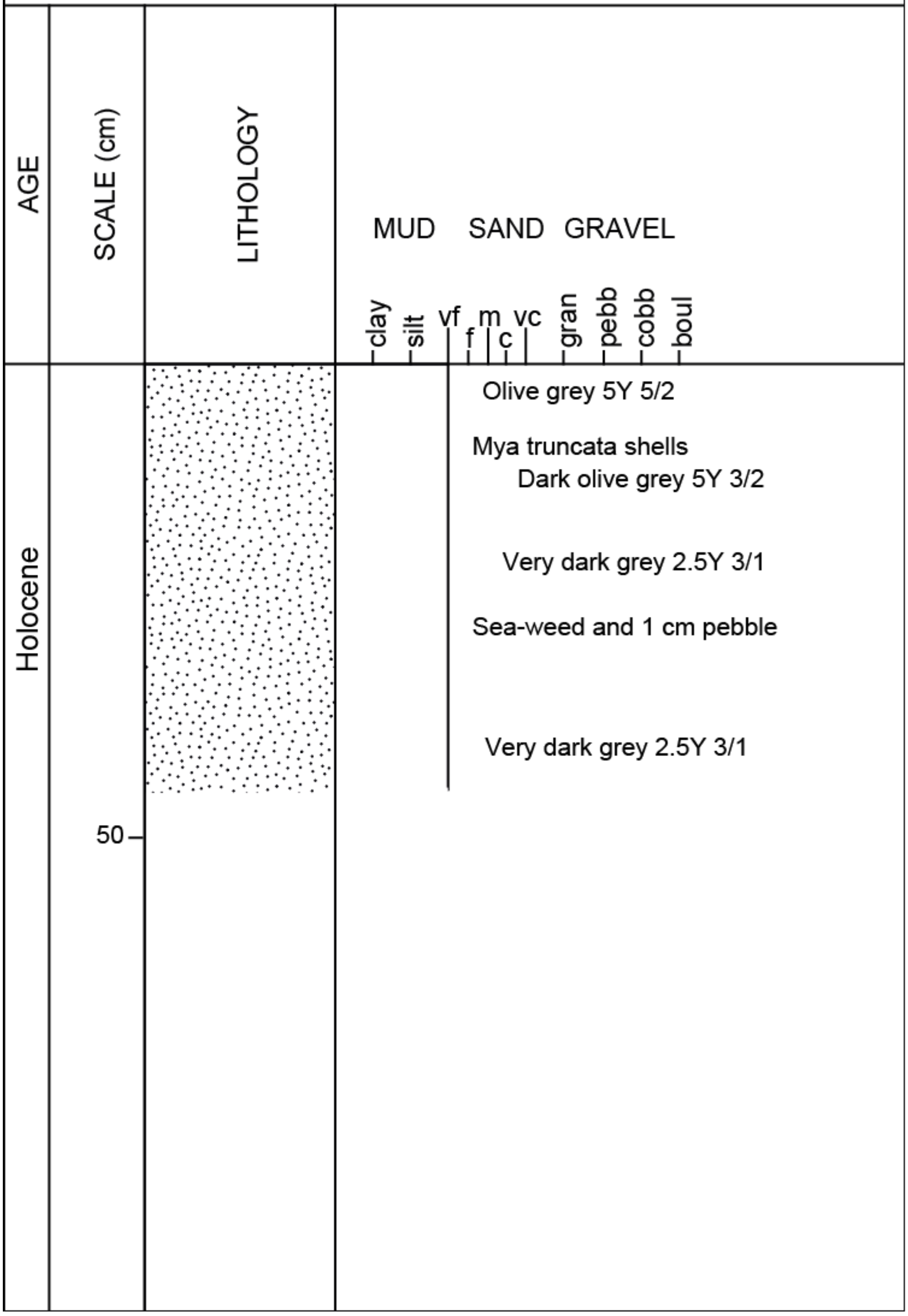

571008; E 489901, N 8513700, water depth 22 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
100
Olive grey 5Y 5/2
Dark olive grey 5Y 3/2
Small pebbles
Dark olive grey 5Y 3/2
Small pebbles, stiff

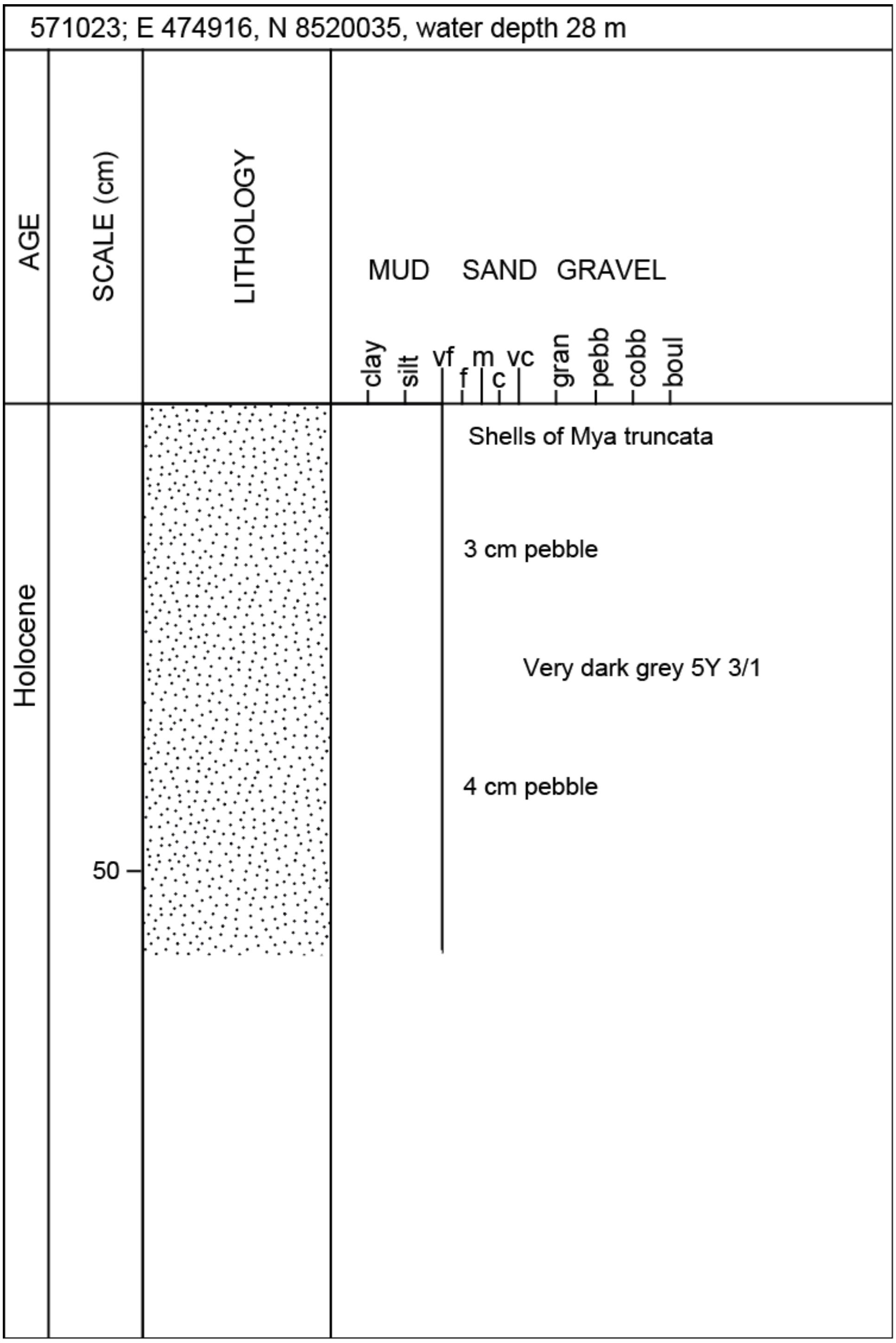

571009; E 489474, N 8514024, water depth 11 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
Olive grey 5Y 5/2
Olive grey 5Y 5/2

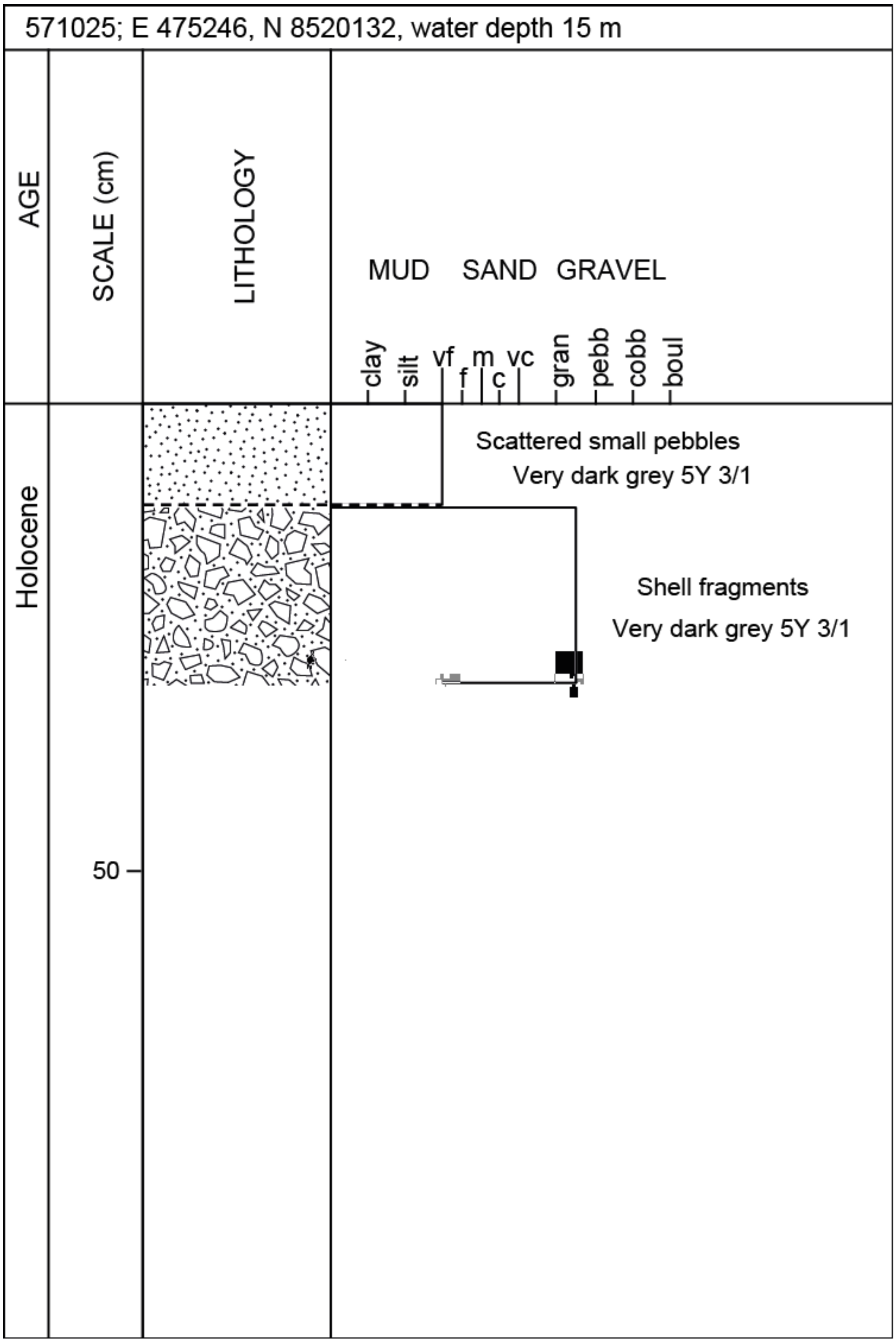

571010; E 489459, N 8513915, water depth 23 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
100
Olive grey 5Y 5/2
Dark olive grey 5Y 3/2
Stiff, a few pebbles

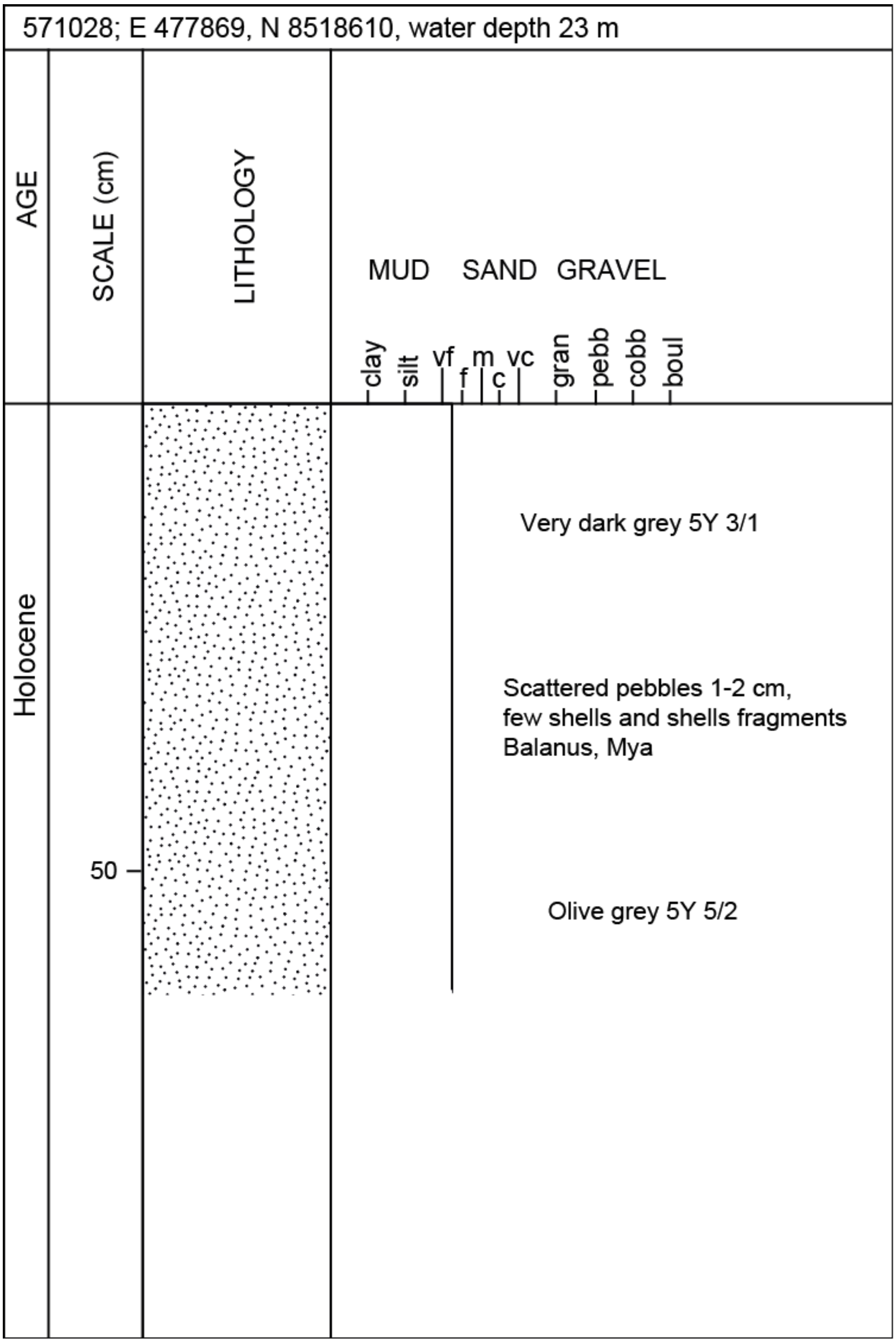

571012; E 488821, N 8513785, water depth 20 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
Dark olive grey 5Y 3/2
Very fine-grained sand with small pebbles
4 cm pebble
Till?

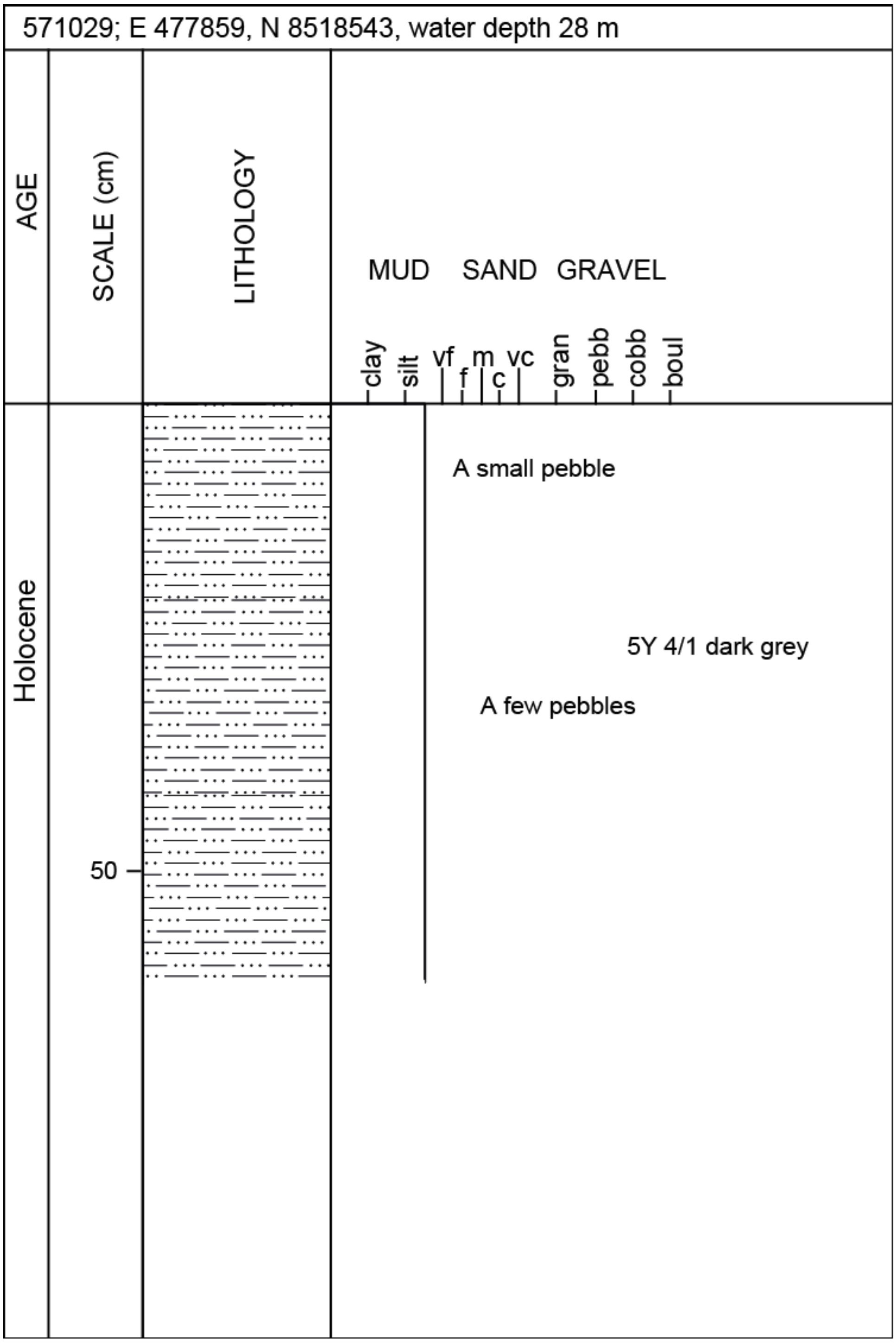
571020; E 475208, N 8520573, water depth 14 m

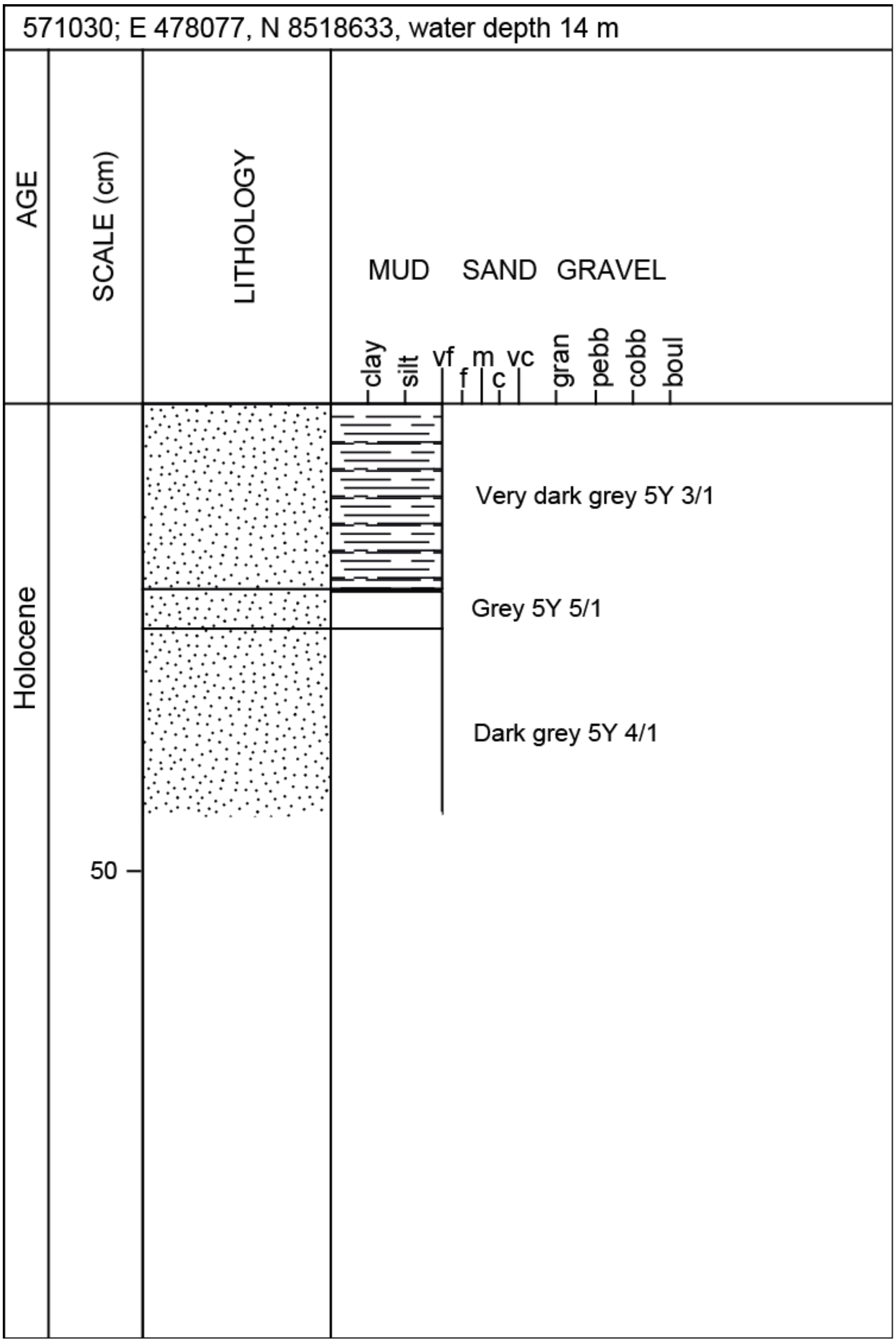


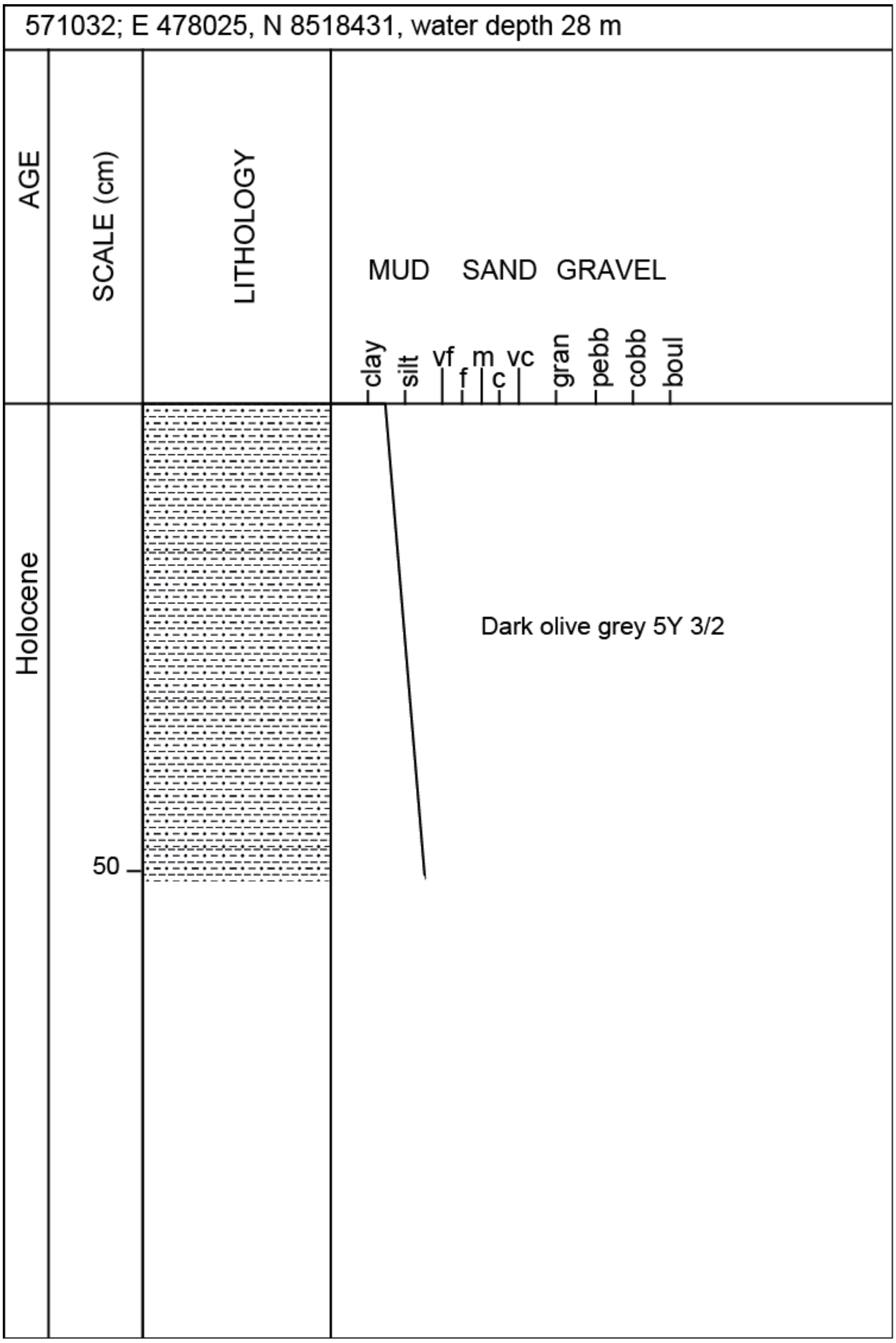

571023; E 474916, N 8520035, water depth 28 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Shells of Mya truncata
3 cm pebble
Very dark grey 5Y 3/1
4 cm pebble

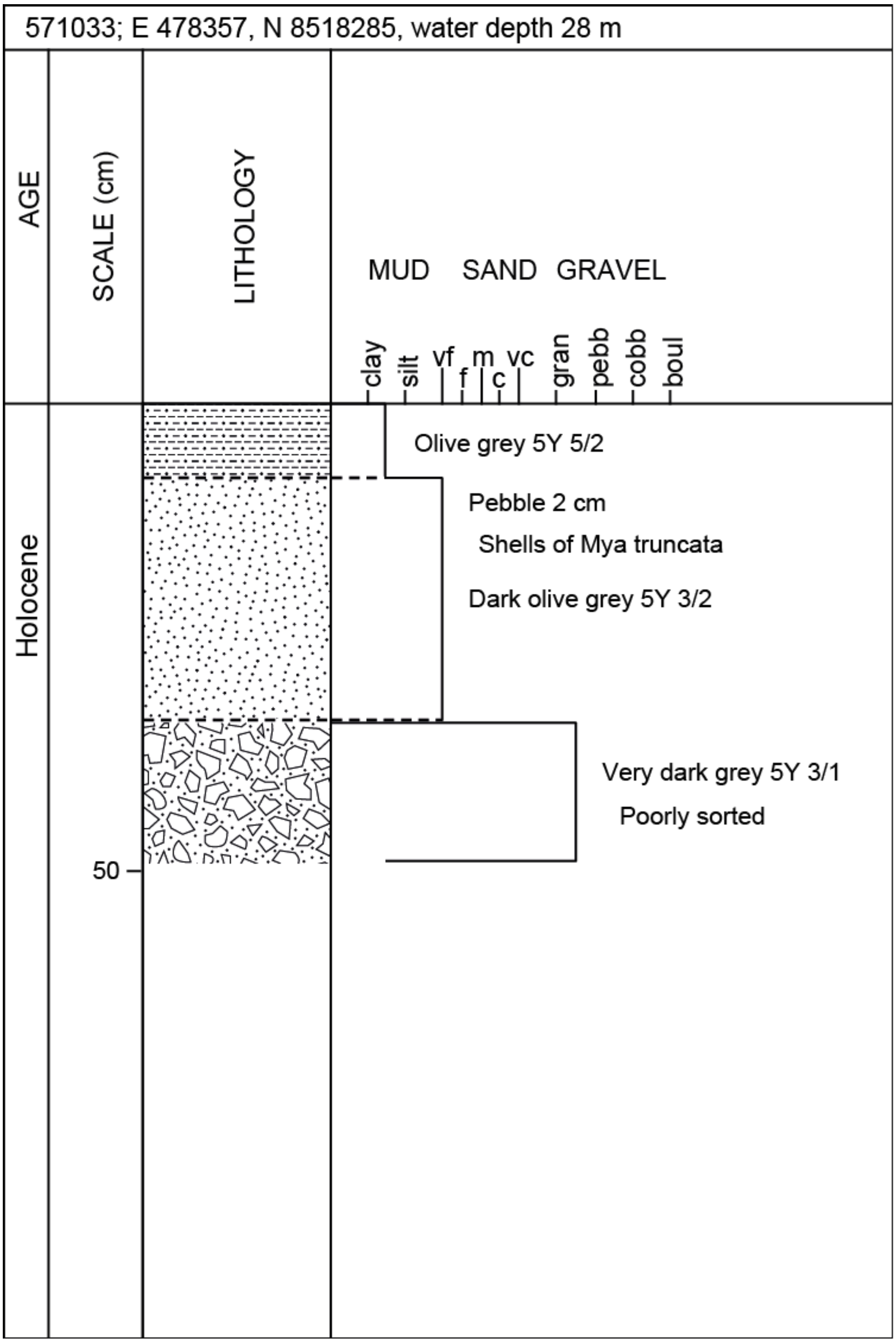

571025; E 475246, N 8520132, water depth 15 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
Scattered small pebbles
Very dark grey 5Y 3/1
Shell fragments
Very dark grey 5Y 3/1
50

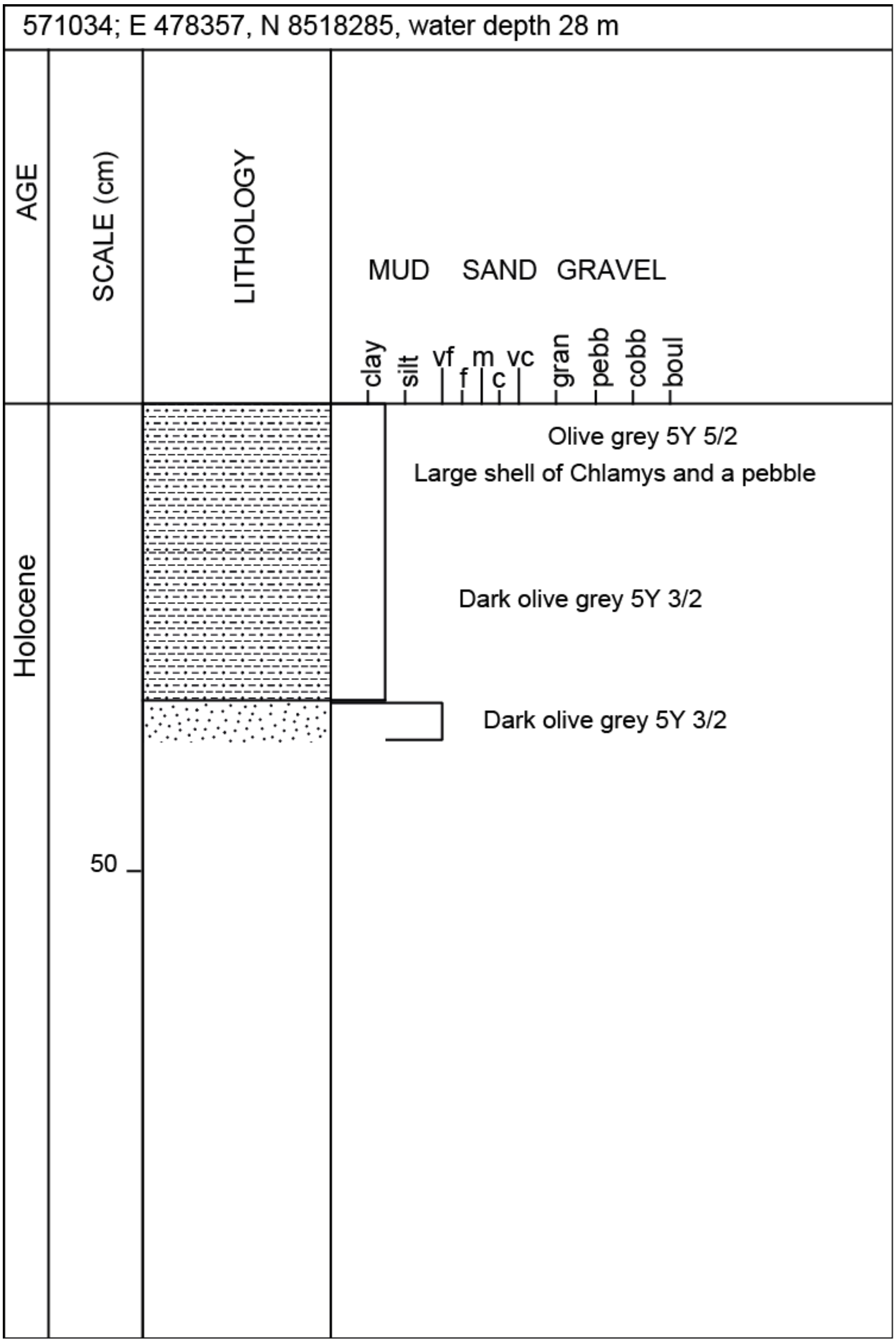

571028; E 477869, N 8518610, water depth 23 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Very dark grey 5Y 3/1
Scattered pebbles 1-2 cm,
few shells and shells fragments
Balanus, Mya
Olive grey 5Y 5/2

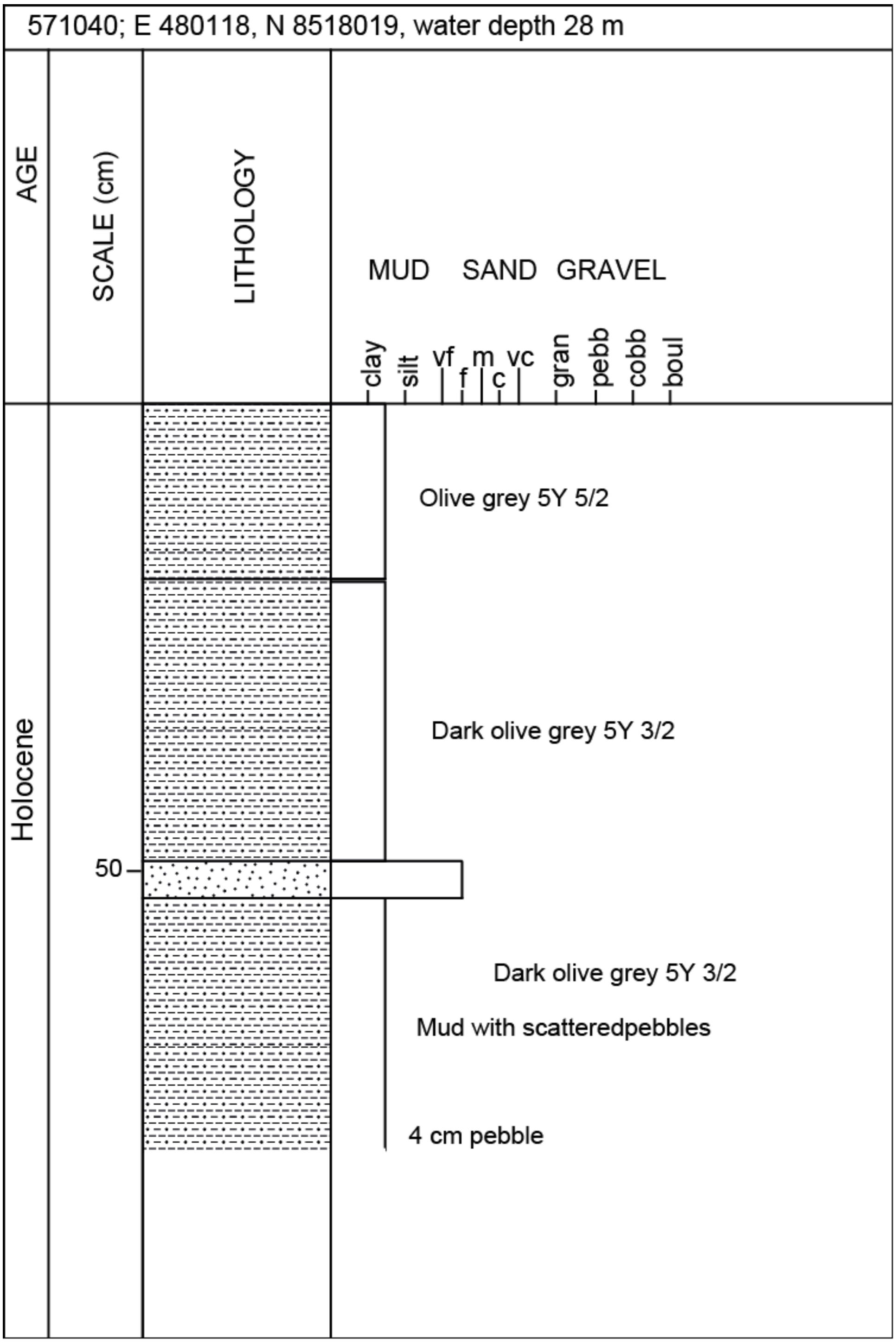

571029; E 477859, N 8518543, water depth 28 m
AGE
SCALE (cm)
LITHOLOGY
MUD
SAND
GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
A small pebble
5Y 4/1 dark grey
A few pebbles

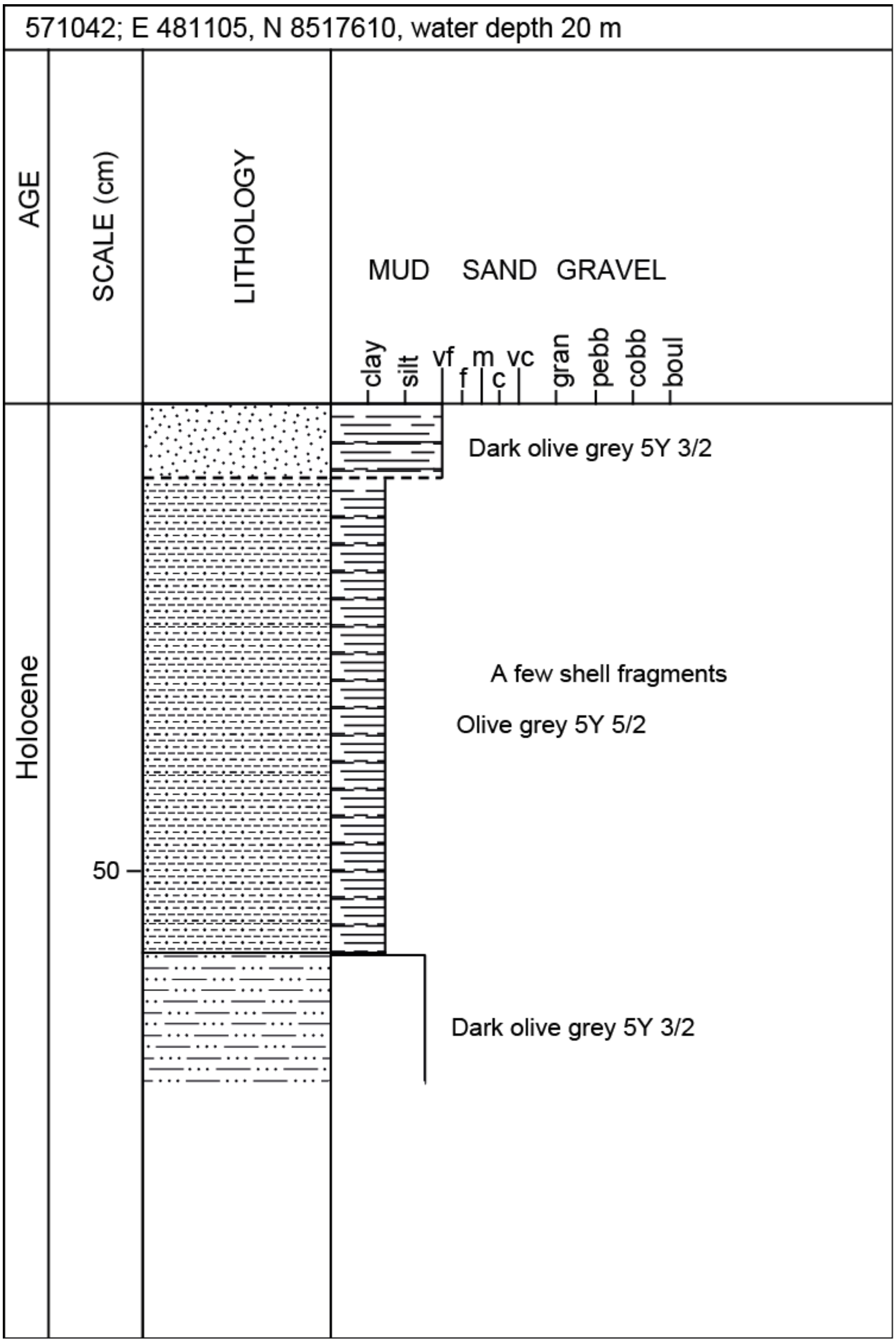

571030; E 478077, N 8518633, water depth 14 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Very dark grey 5Y 3/1
Grey 5Y 5/1
Dark grey 5Y 4/1

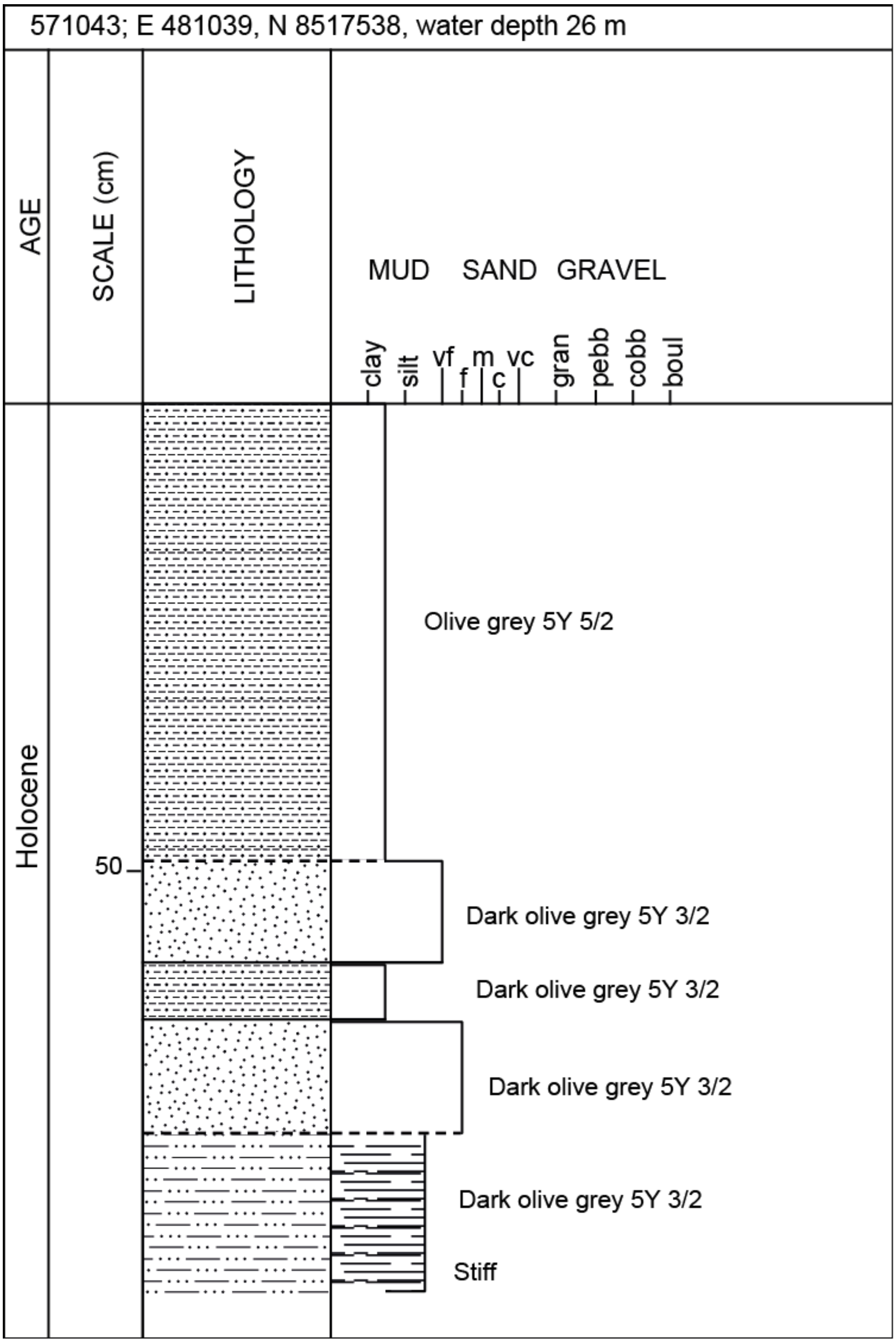

571032; E 478025, N 8518431, water depth 28 m
AGE
SCALE (cm)
LITHOLOGY
MUD
SAND
GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Dark olive grey 5Y 3/2

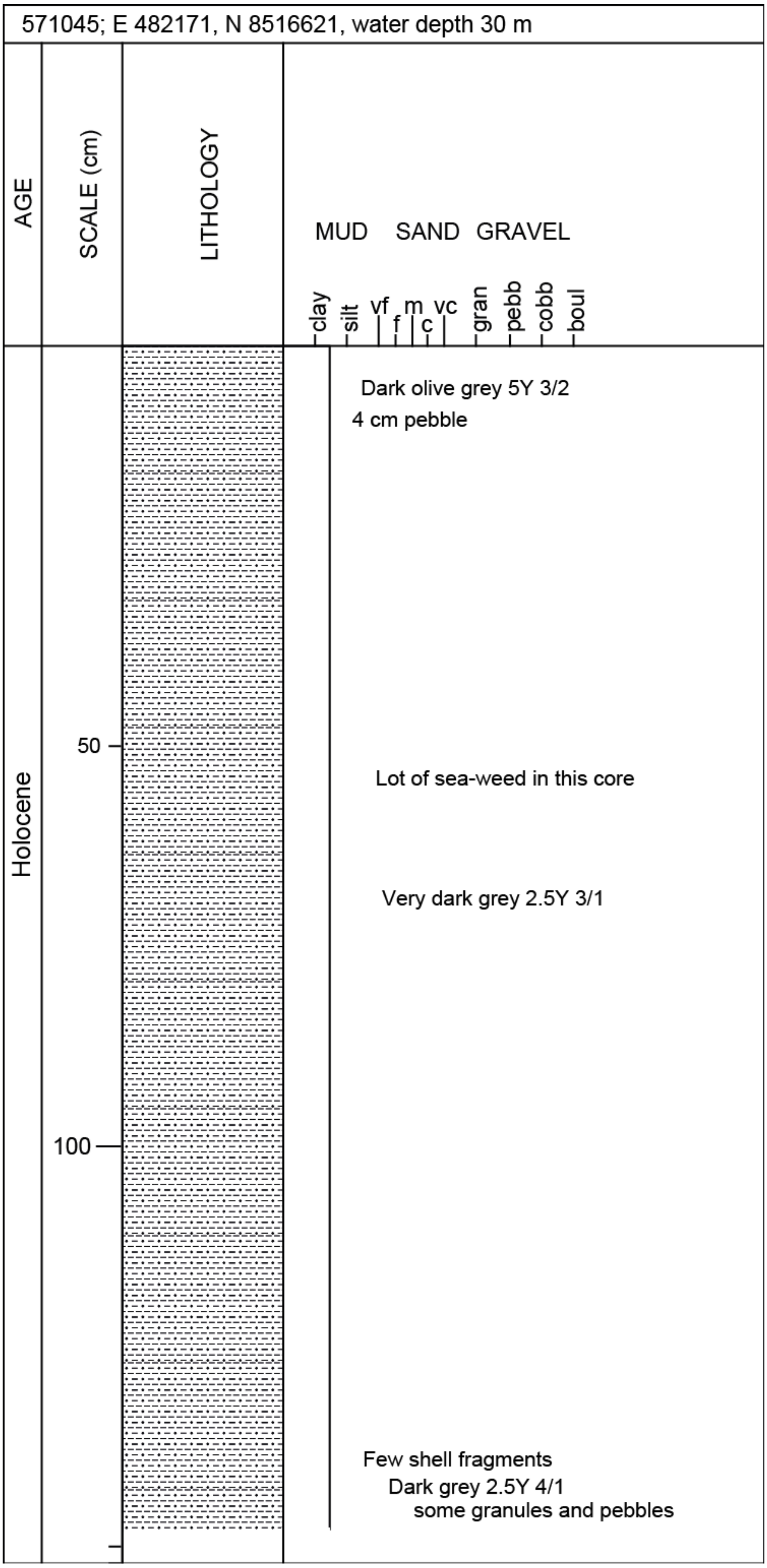

571033; E 478357, N 8518285, water depth 28 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
Pebble 2 cm
Shells of Mya truncata
Dark olive grey 5Y 3/2
Very dark grey 5Y 3/1
Poorly sorted

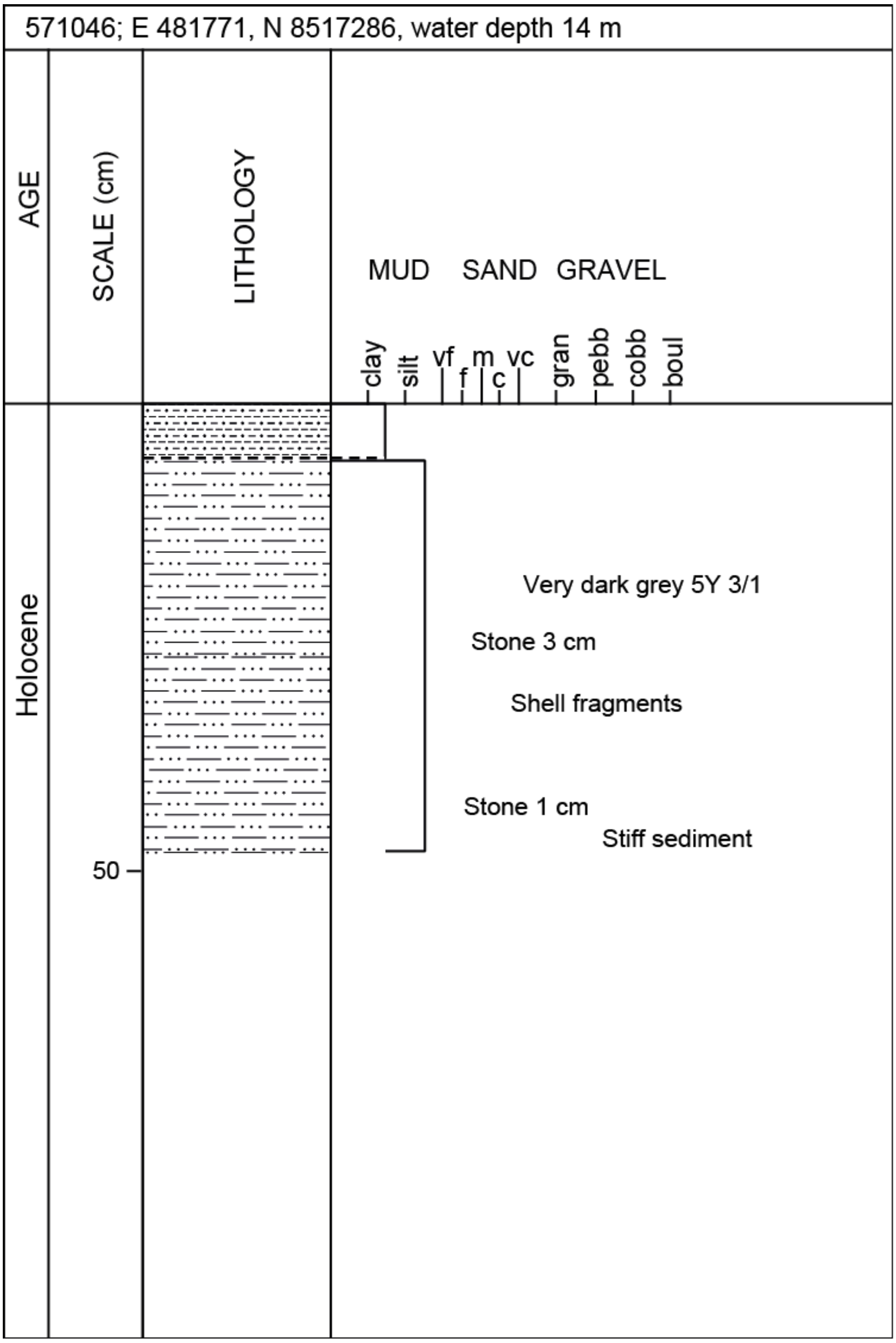

571034; E 478357, N 8518285, water depth 28 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Olive grey 5Y 5/2
Large shell of Chlamys and a pebble
Dark olive grey 5Y 3/2
Dark olive grey 5Y 3/2
Holocene
50

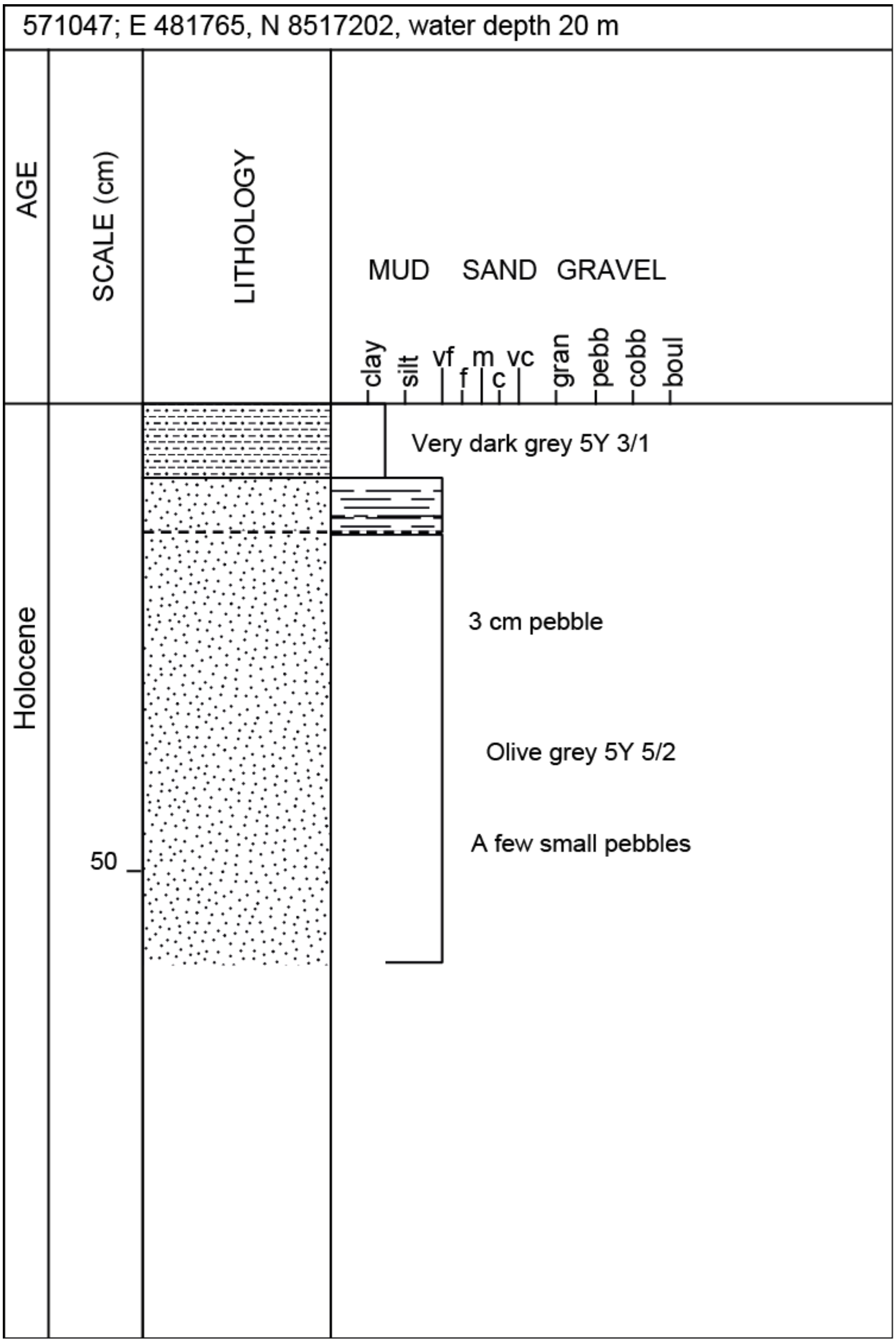

571040; E 480118, N 8518019, water depth 28 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Olive grey 5Y 5/2
Dark olive grey 5Y 3/2
Holocene
50
Dark olive grey 5Y 3/2
Mud with scatteredpebbles
4 cm pebble

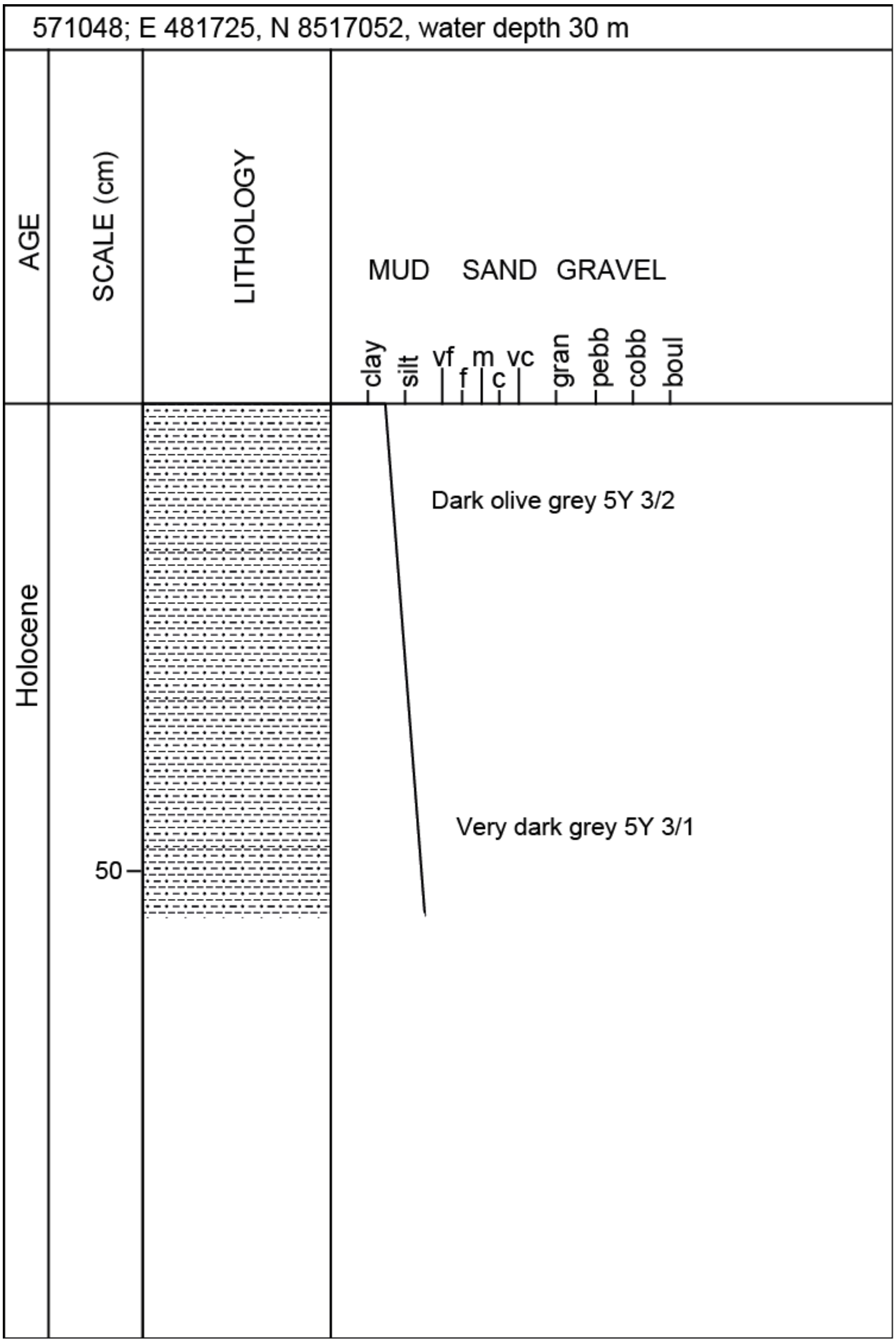

571042; E 481105, N 8517610, water depth 20 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Dark olive grey 5Y 3/2
A few shell fragments
Olive grey 5Y 5/2
Dark olive grey 5Y 3/2

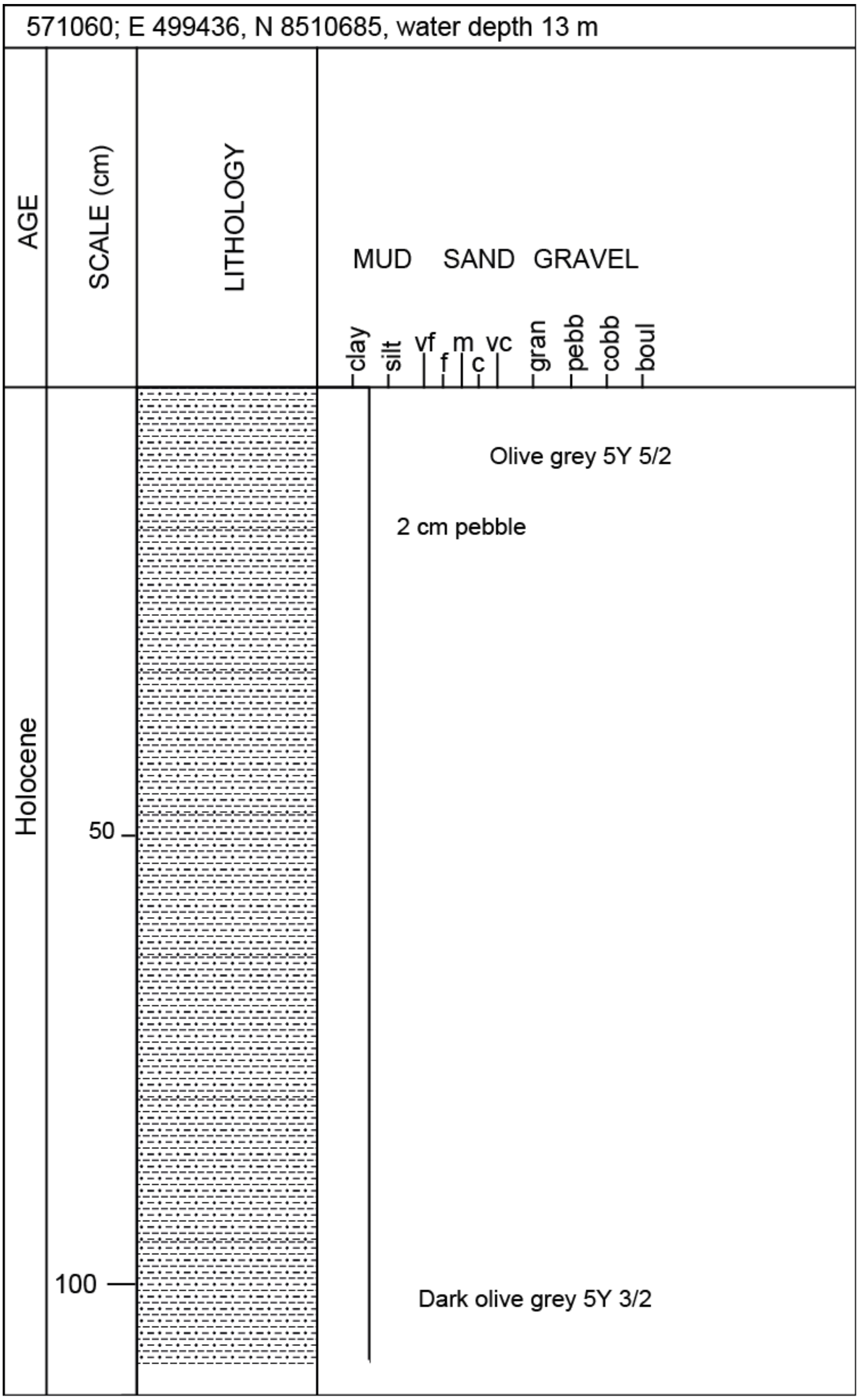

571043; E 481039, N 8517538, water depth 26 m
AGE
SCALE (cm)
LITHOLOGY
MUD
SAND
GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
Dark olive grey 5Y 3/2
Dark olive grey 5Y 3/2
Dark olive grey 5Y 3/2
Dark olive grey 5Y 3/2
Stiff

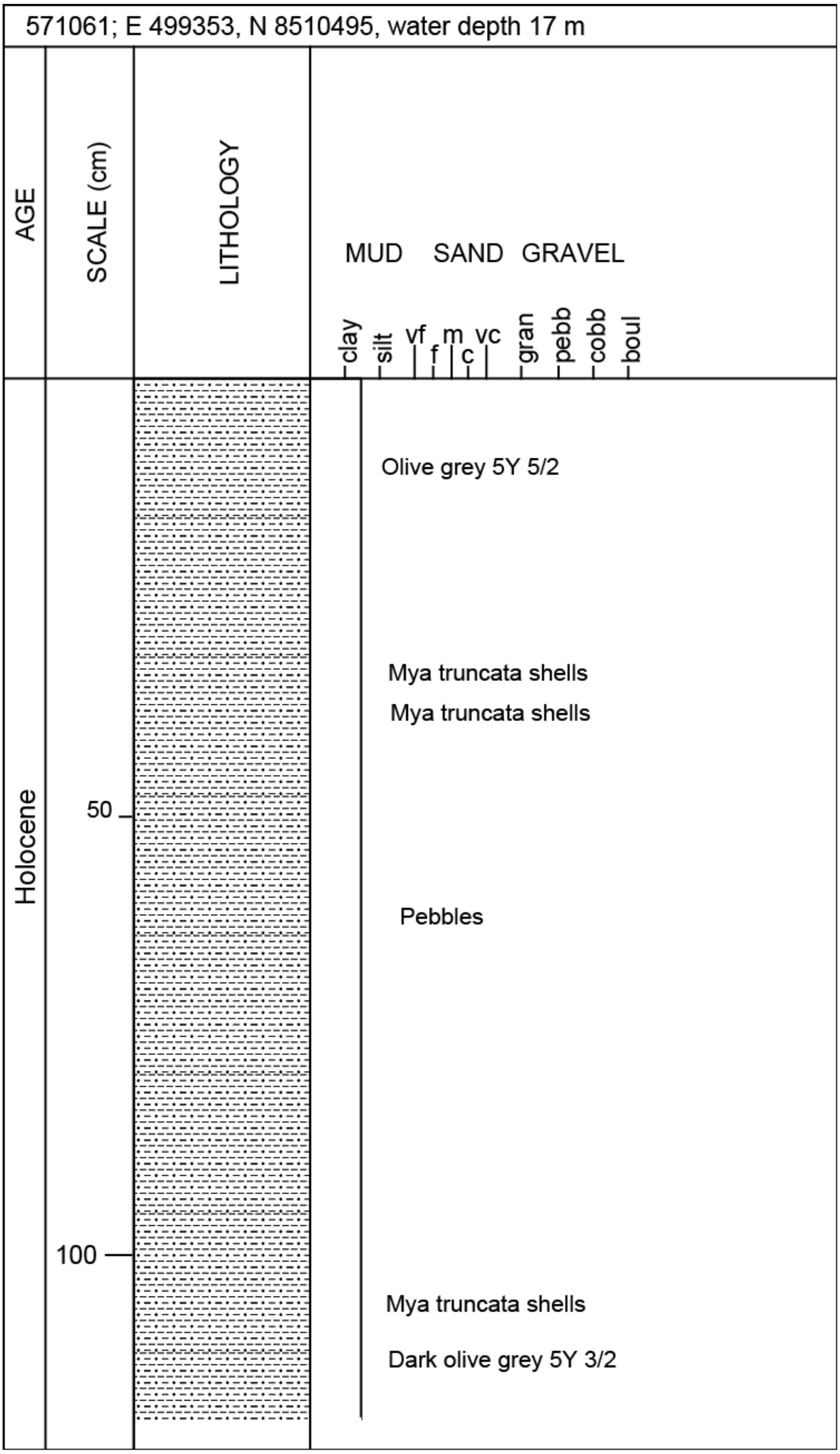

571045; E 482171, N 8516621, water depth 30 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
100
Dark olive grey 5Y 3/2
4 cm pebble
Lot of sea-weed in this core
Very dark grey 2.5Y 3/1
Few shell fragments
Dark grey 2.5Y 4/1
some granules and pebbles

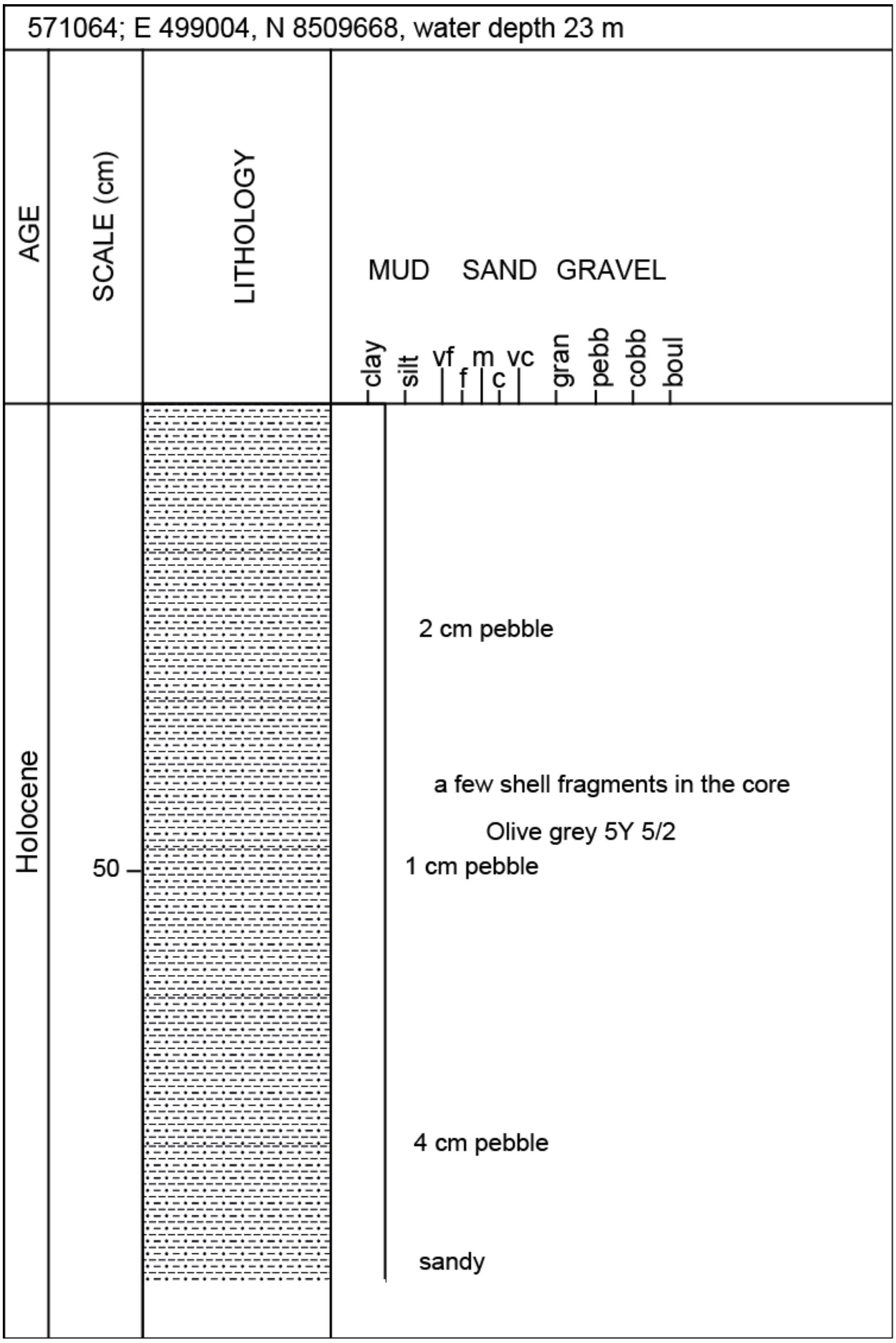

571046; E 481771, N 8517286, water depth 14 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Very dark grey 5Y 3/1
Stone 3 cm
Shell fragments
Stone 1 cm
Stiff sediment

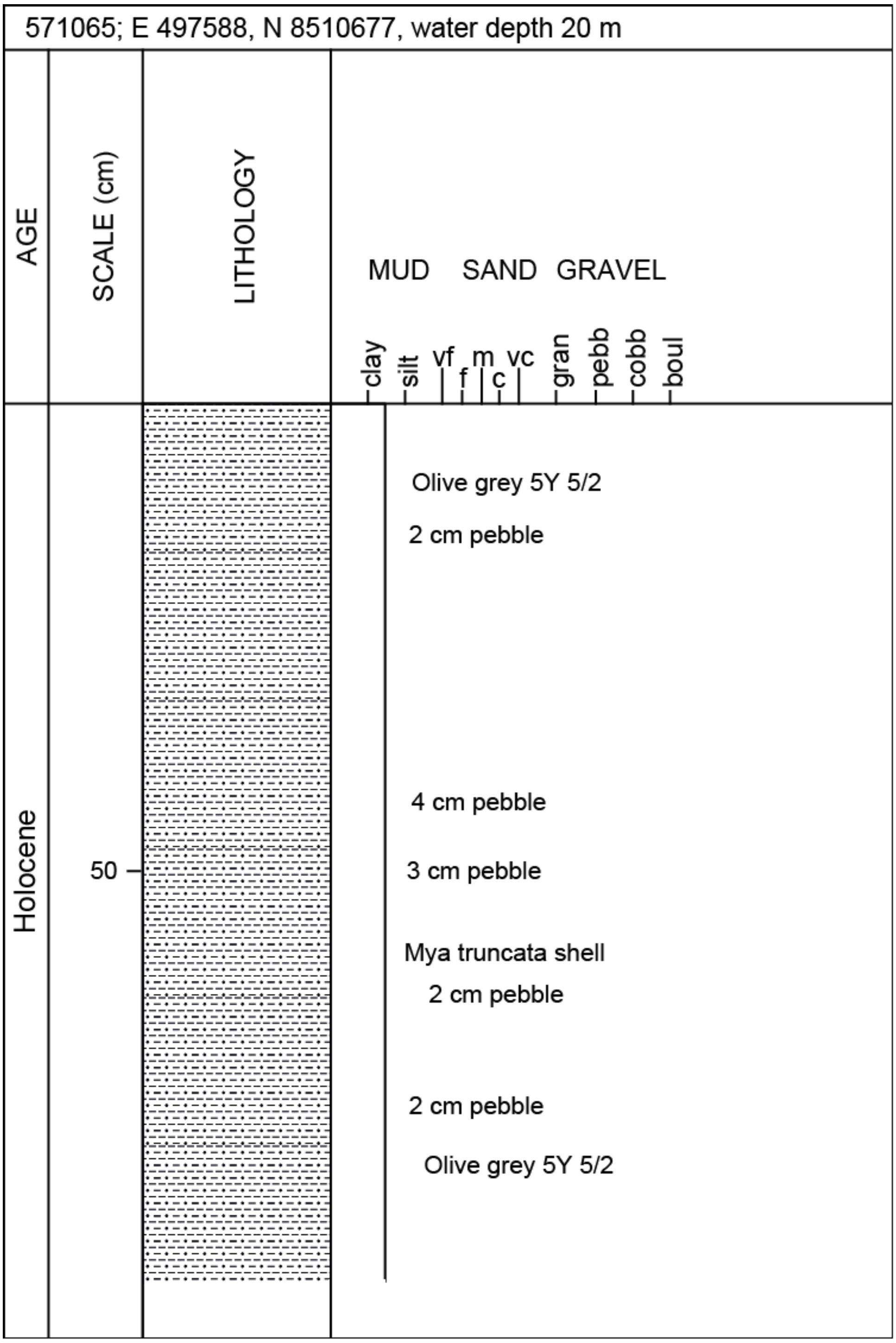

571047; E 481765, N 8517202, water depth 20 m
AGE
SCALE (cm)
LITHOLOGY
MUD
SAND
GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Very dark grey 5Y 3/1
3 cm pebble
Olive grey 5Y 5/2
A few small pebbles

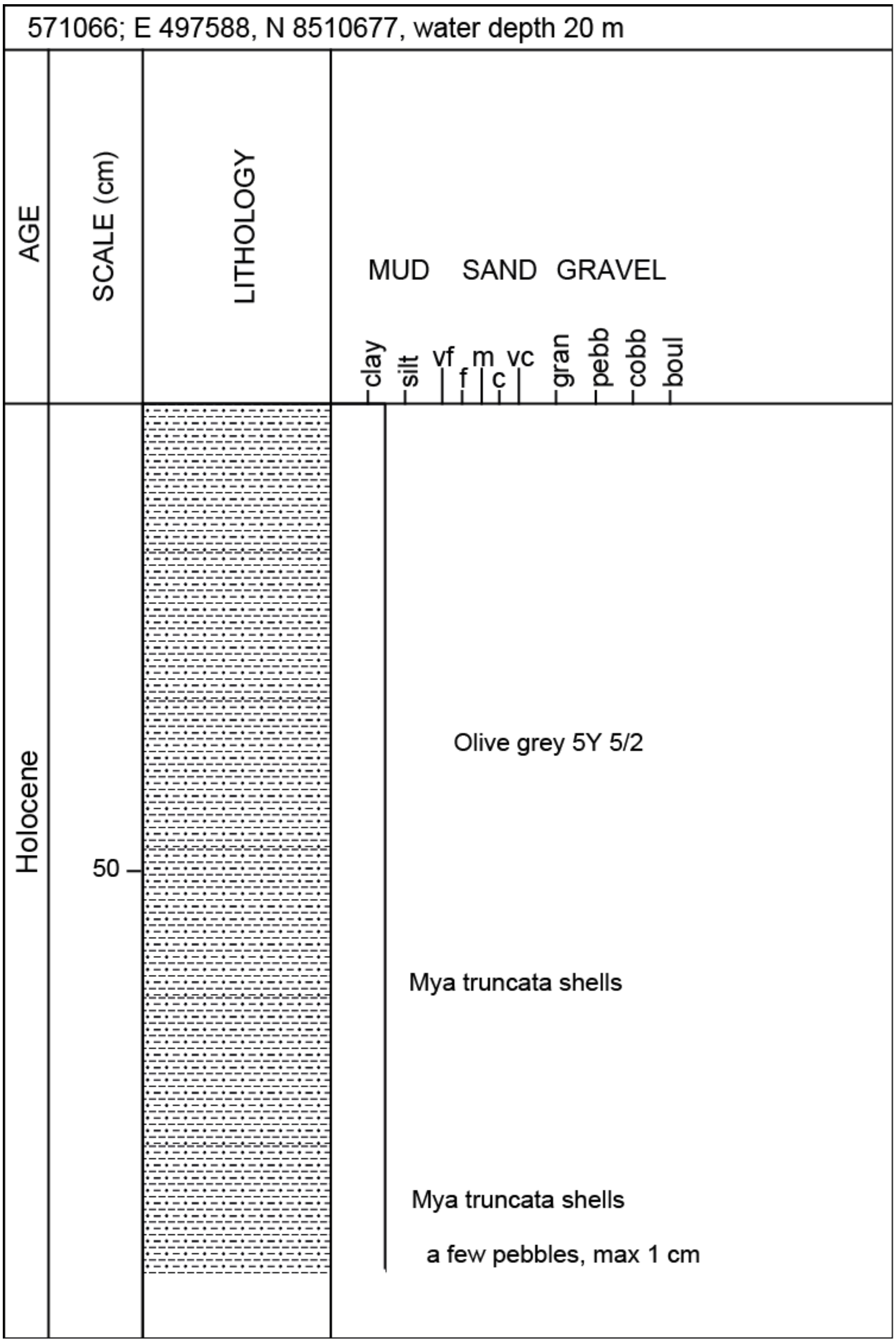

571048; E 481725, N 8517052, water depth 30 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Dark olive grey 5Y 3/2
Very dark grey 5Y 3/1

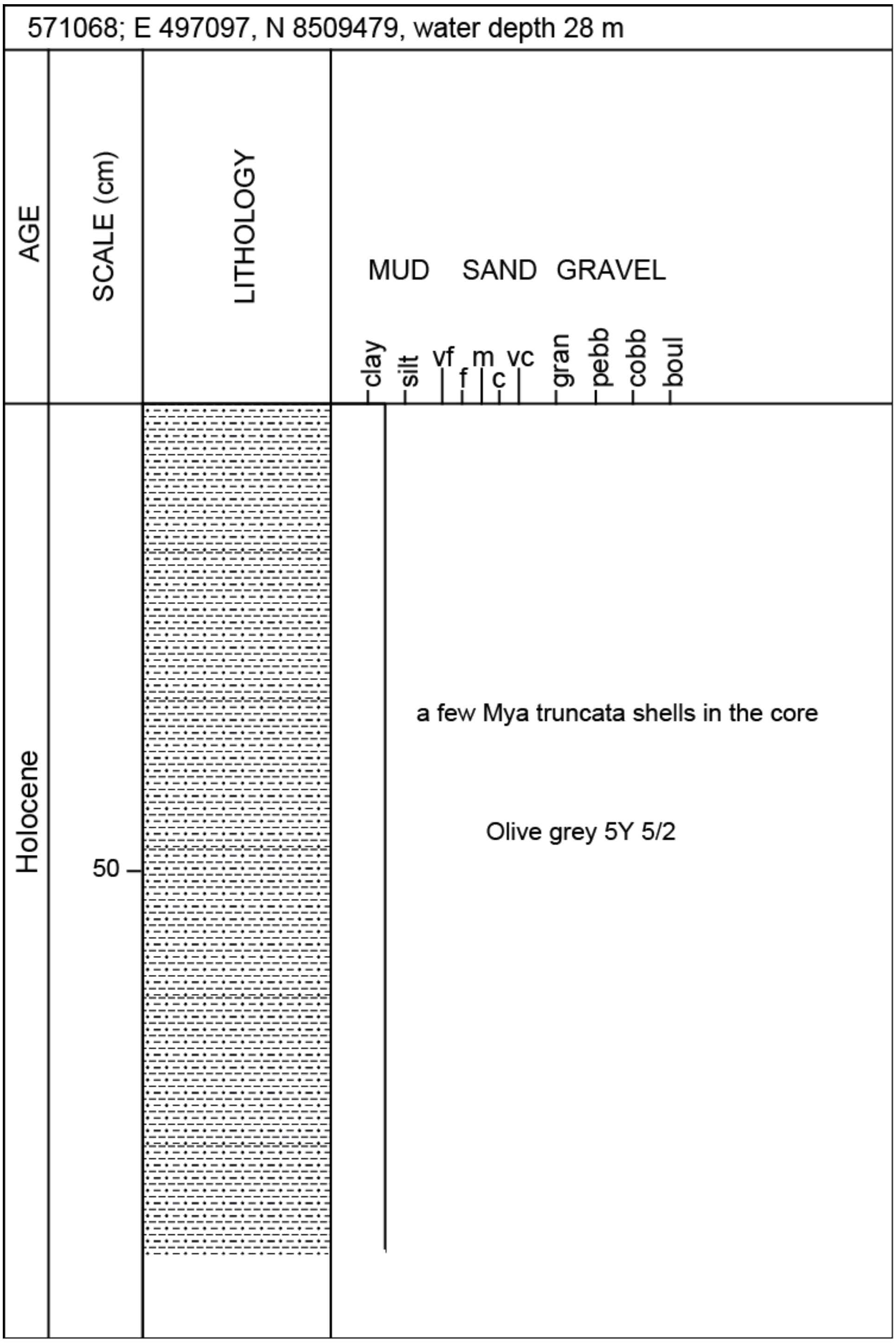

571060; E 499436, N 8510685, water depth 13 m
AGE
SCALE (cm)
LITHOLOGY
MUD
SAND
GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
100
Olive grey 5Y 5/2
2 cm pebble
Dark olive grey 5Y 3/2

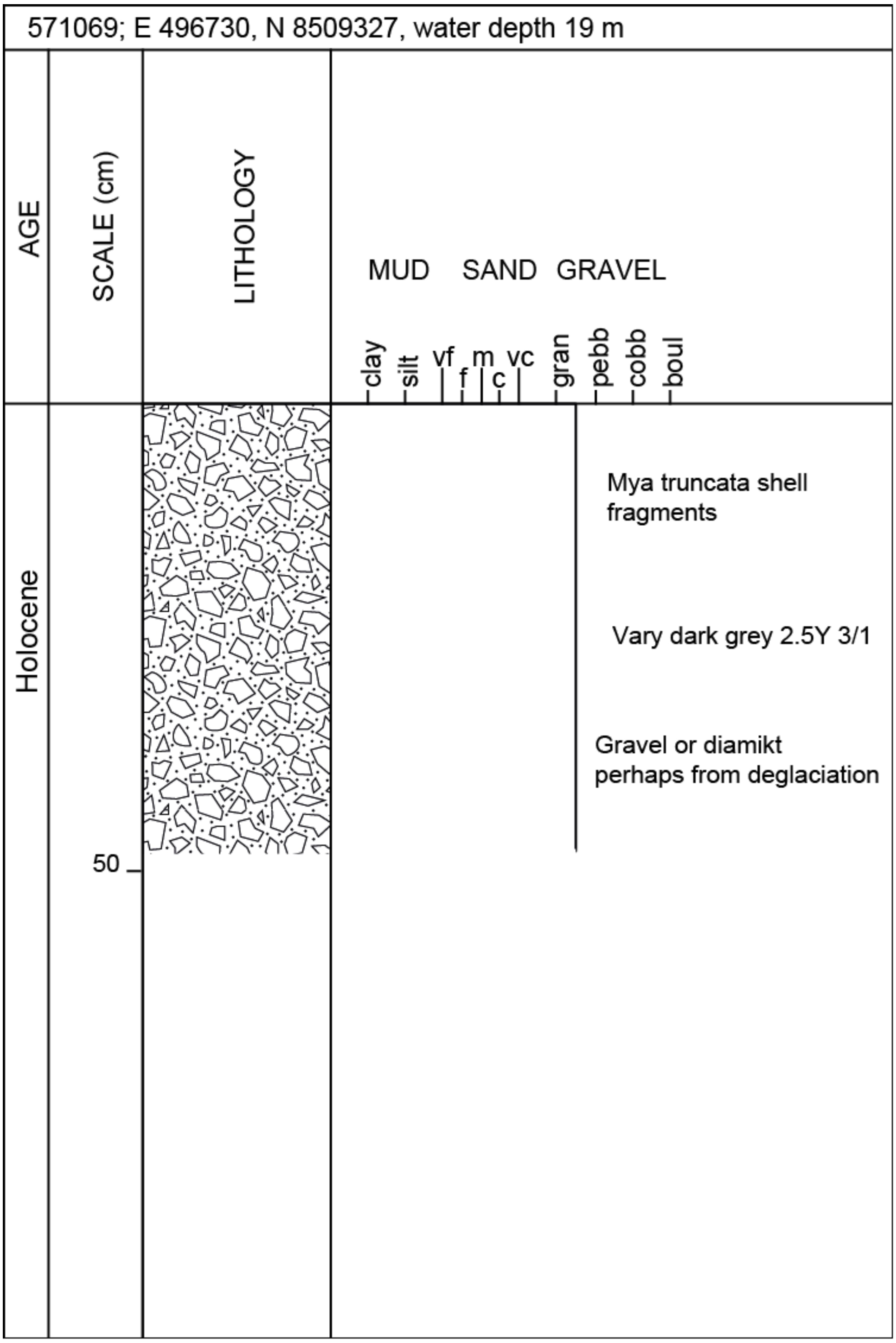

571061; E 499353, N 8510495, water depth 17 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
100
Olive grey 5Y 5/2
Mya truncata shells
Mya truncata shells
Pebbles
Mya truncata shells
Dark olive grey 5Y 3/2


571064; E 499004, N 8509668, water depth 23 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
2 cm pebble
a few shell fragments in the core
Olive grey 5Y 5/2
1 cm pebble
4 cm pebble
sandy


571065; E 497588, N 8510677, water depth 20 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Olive grey 5Y 5/2
2 cm pebble
4 cm pebble
3 cm pebble
Mya truncata shell
2 cm pebble
2 cm pebble
Olive grey 5Y 5/2
Holocene
50

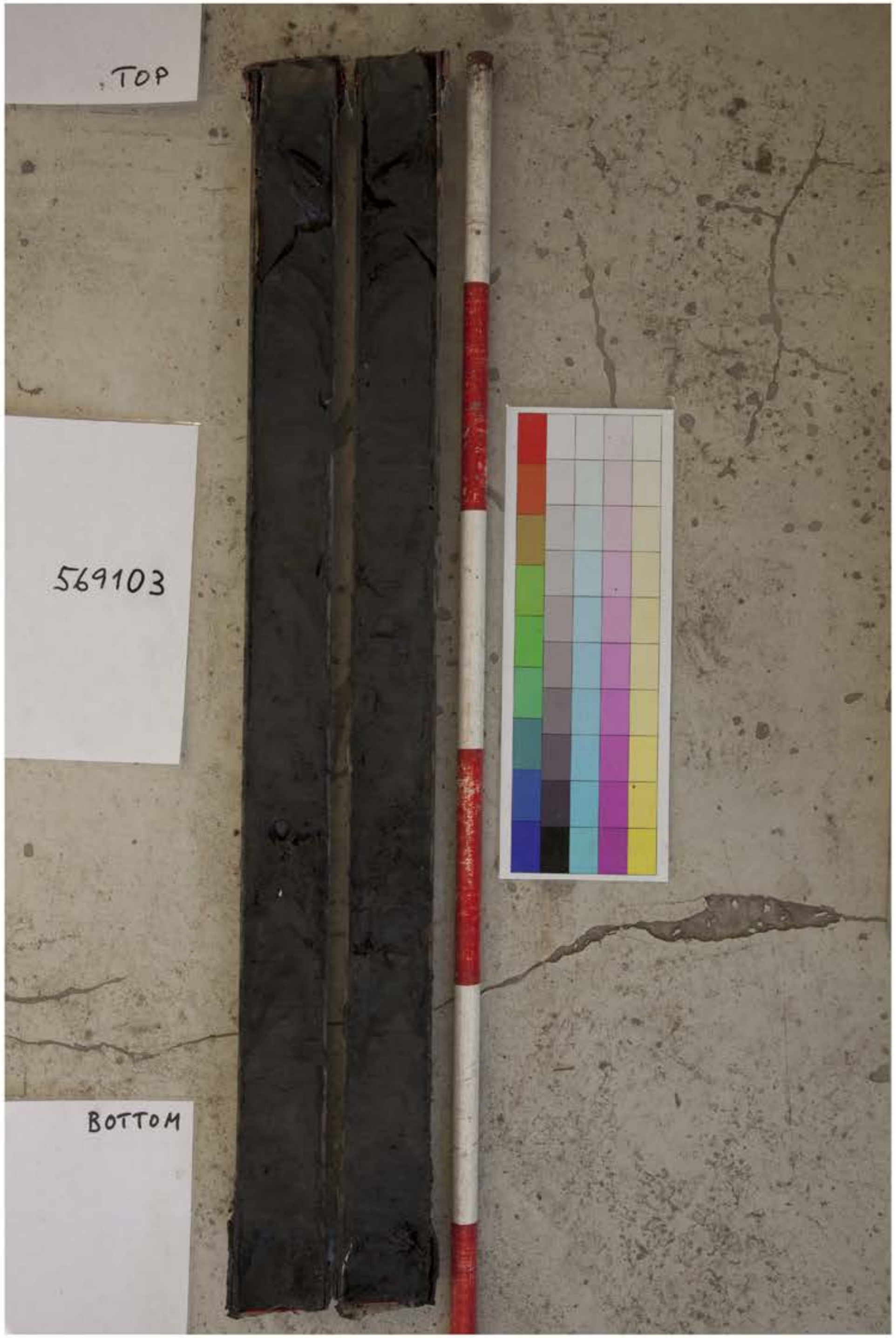

571066; E 497588, N 8510677, water depth 20 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Olive grey 5Y 5/2
Mya truncata shells
Mya truncata shells
a few pebbles, max 1 cm


571068; E 497097, N 8509479, water depth 28 m
AGE
SCALE (cm)
LITHOLOGY
MUD
SAND
GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
a few Mya truncata shells in the core
Olive grey 5Y 5/2


571069; E 496730, N 8509327, water depth 19 m
AGE
SCALE (cm)
LITHOLOGY
MUD SAND GRAVEL
clay
silt
vf
f
m
c
vc
gran
pebb
cobb
boul
Holocene
50
Mya truncata shell fragments
Vary dark grey 2.5Y 3/1
Gravel or diamikt perhaps from deglaciation

Appendix G

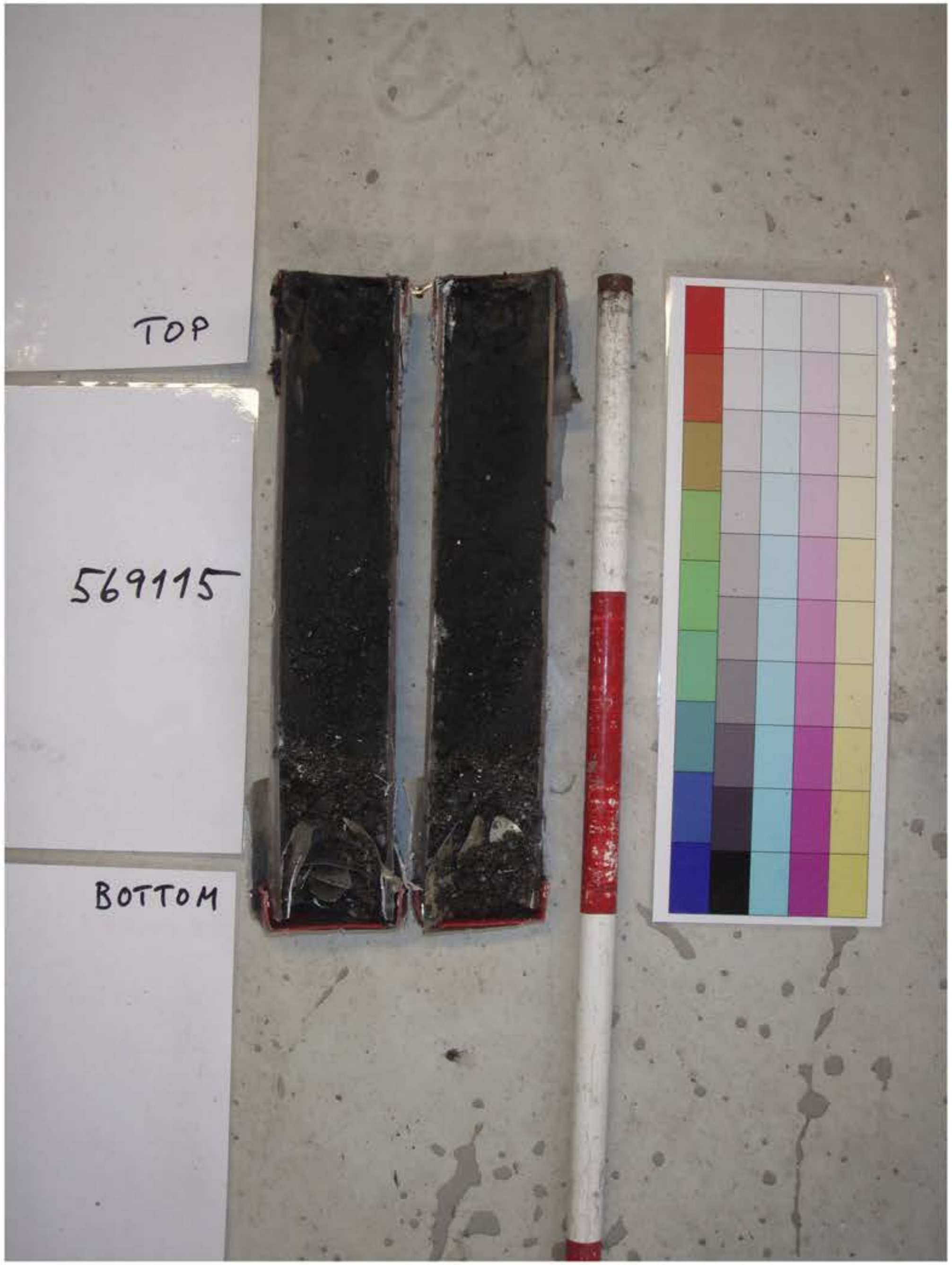
Core photos


TOP
569103
BOTTOM


TOP
569108
BOTTOM


TOP
569110
BOTTOM.


TOP
569111
BOTTOM.


TOP
569115
BOTTOM

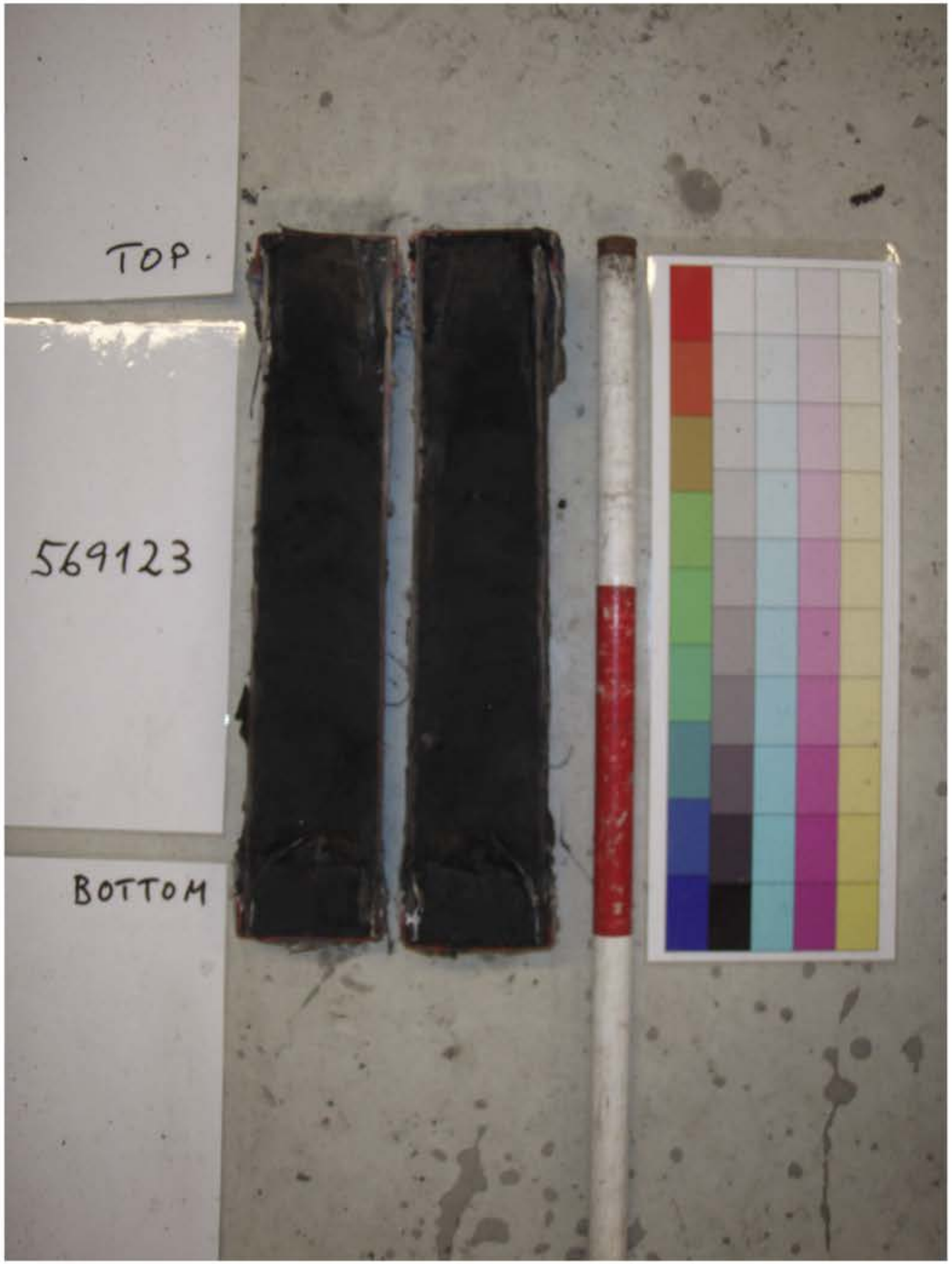

TOP
569116
BOTTOM


TOP
569117
BOTTOM


TOP
569118
BOTTOM

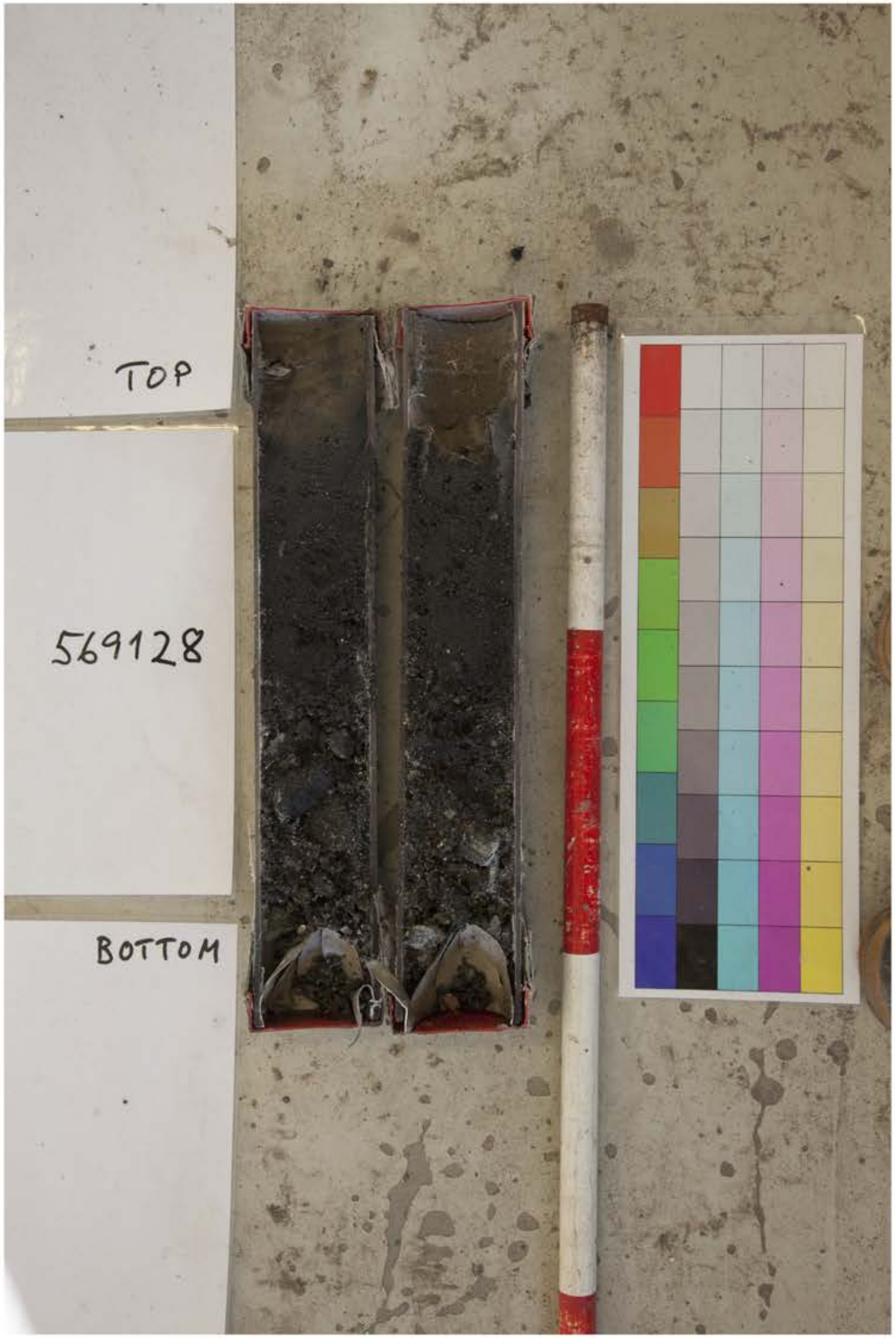

TOP
569120
BOTTOM


TOP
569121
BOTTOM.


TOP
569122
BOTTOM

TOP
569123
BOTTOM


TOP
569125
BOTTOM


TOP
569126
BOTTOM


TOP
569128
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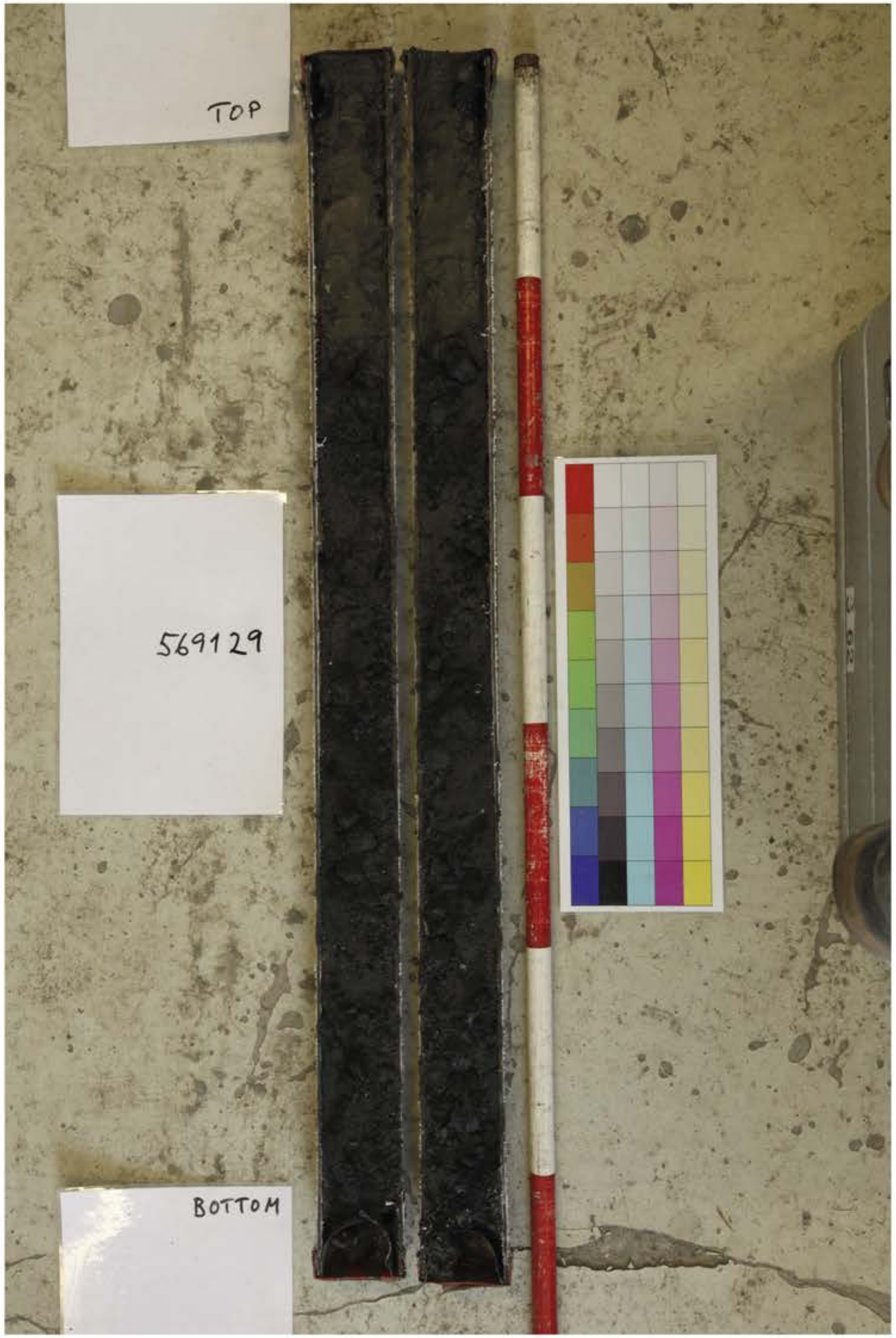
TOP
569129
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TOP
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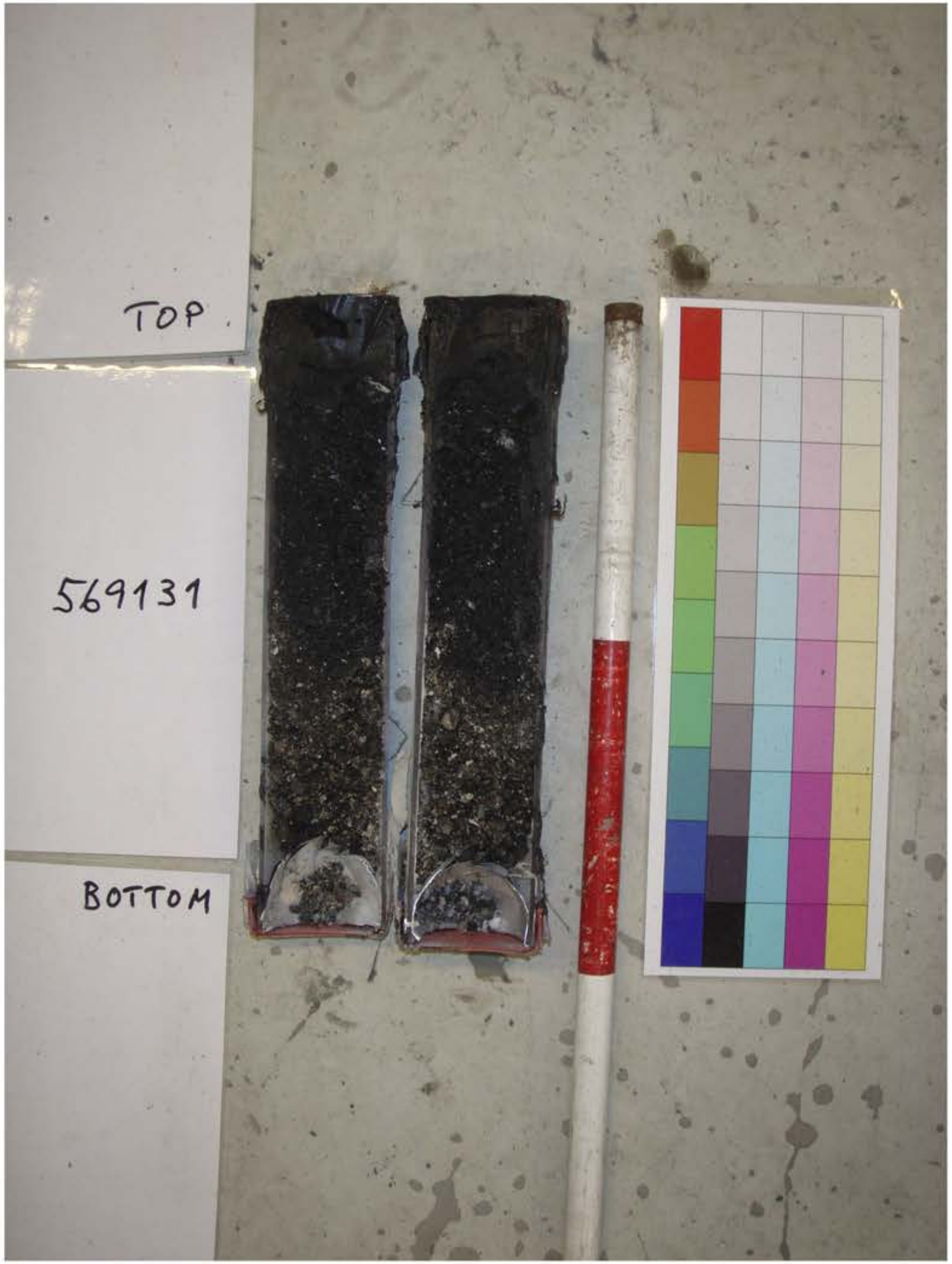
BOTTOM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569131
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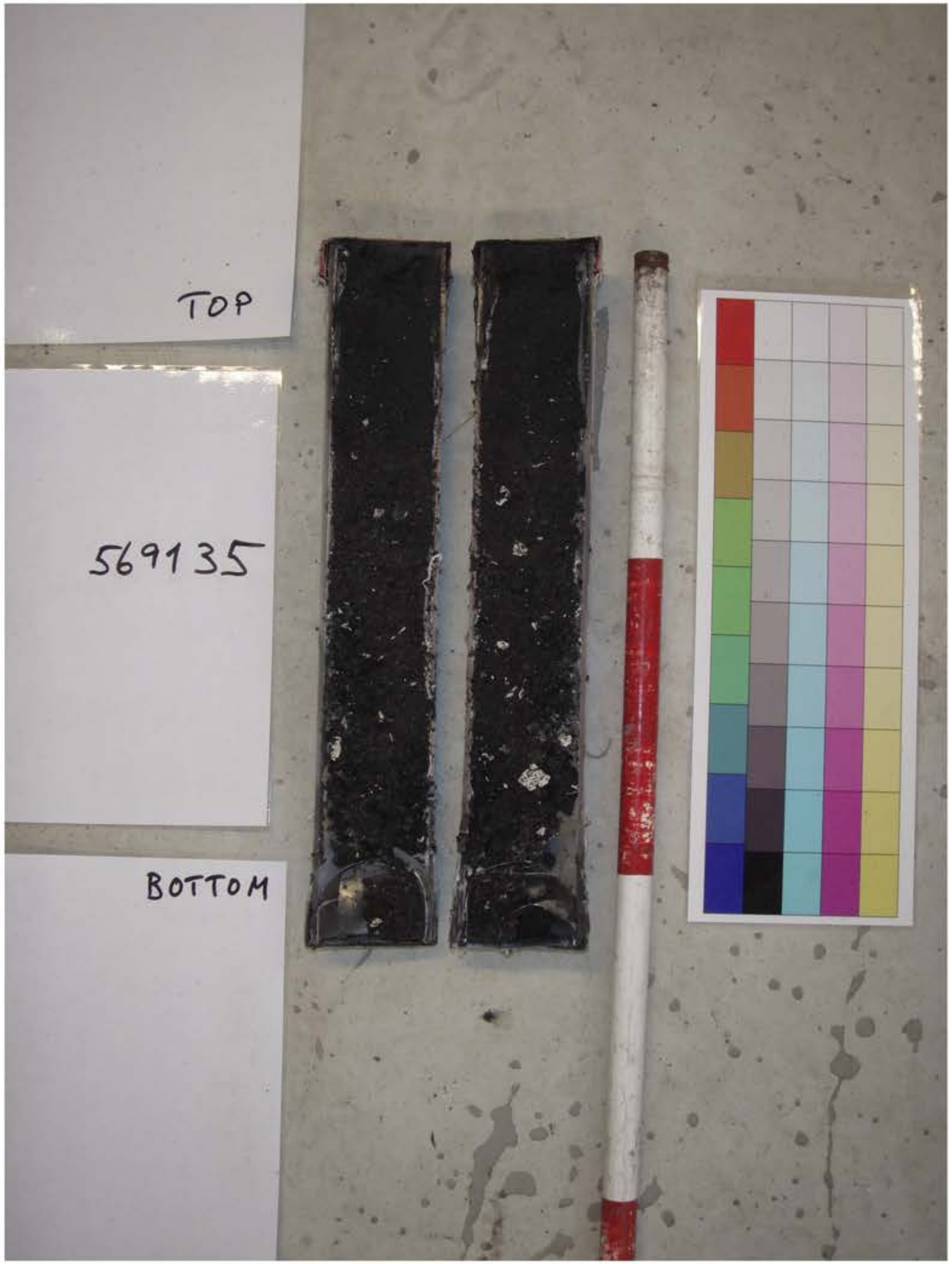
TOP
569132
BOTTOM


TOP
569133
BOTTOM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569135
BOTTOM


TOP
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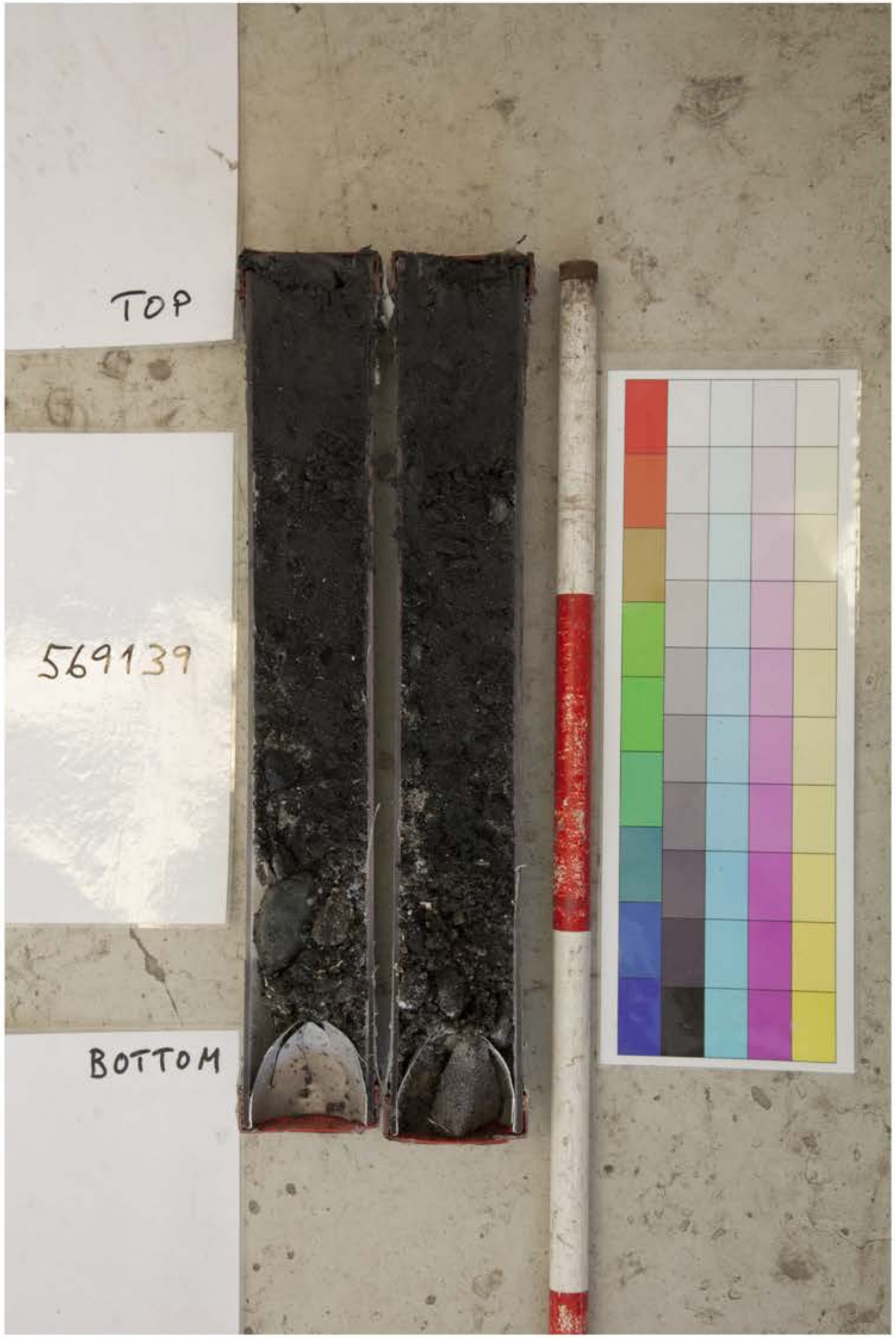
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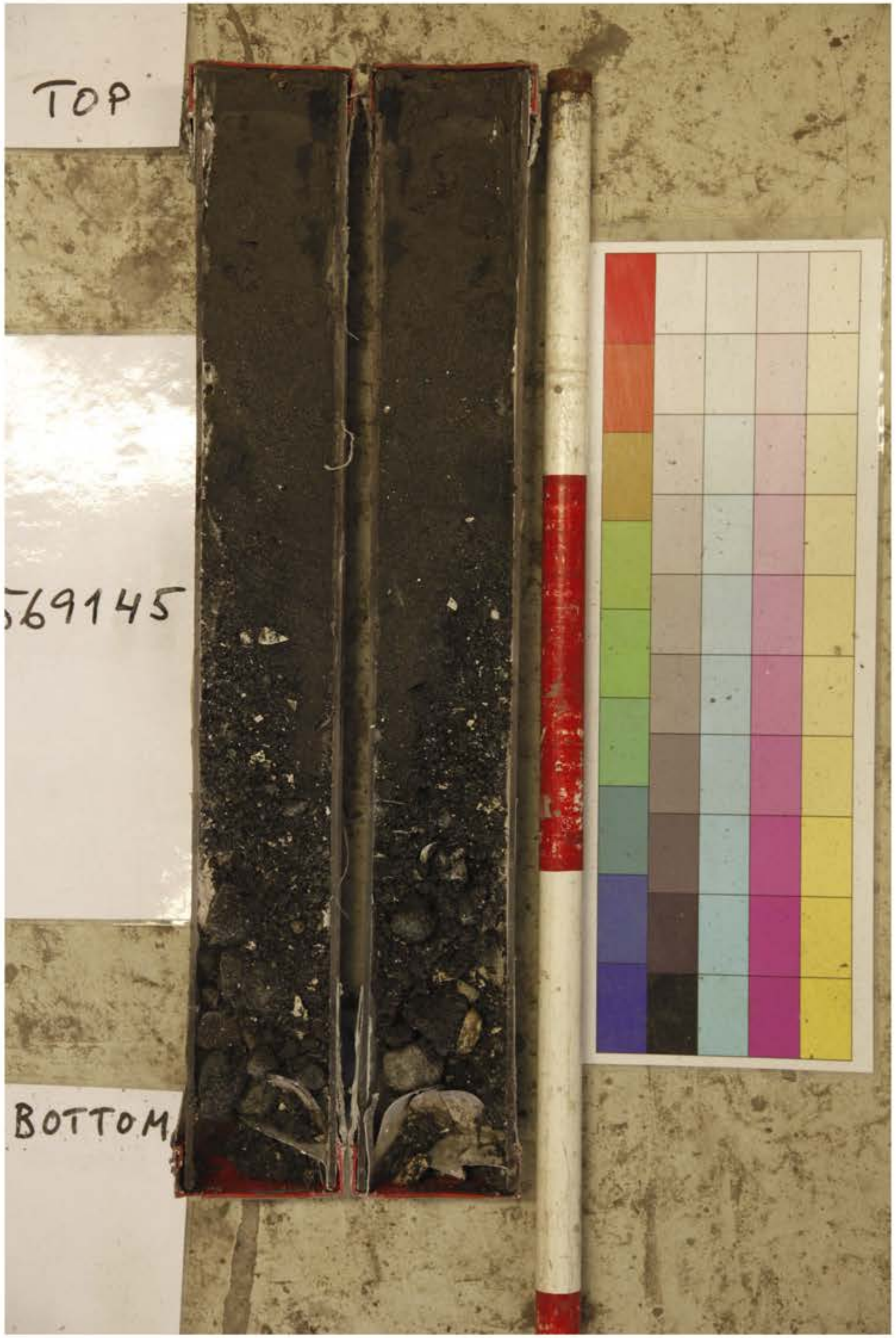
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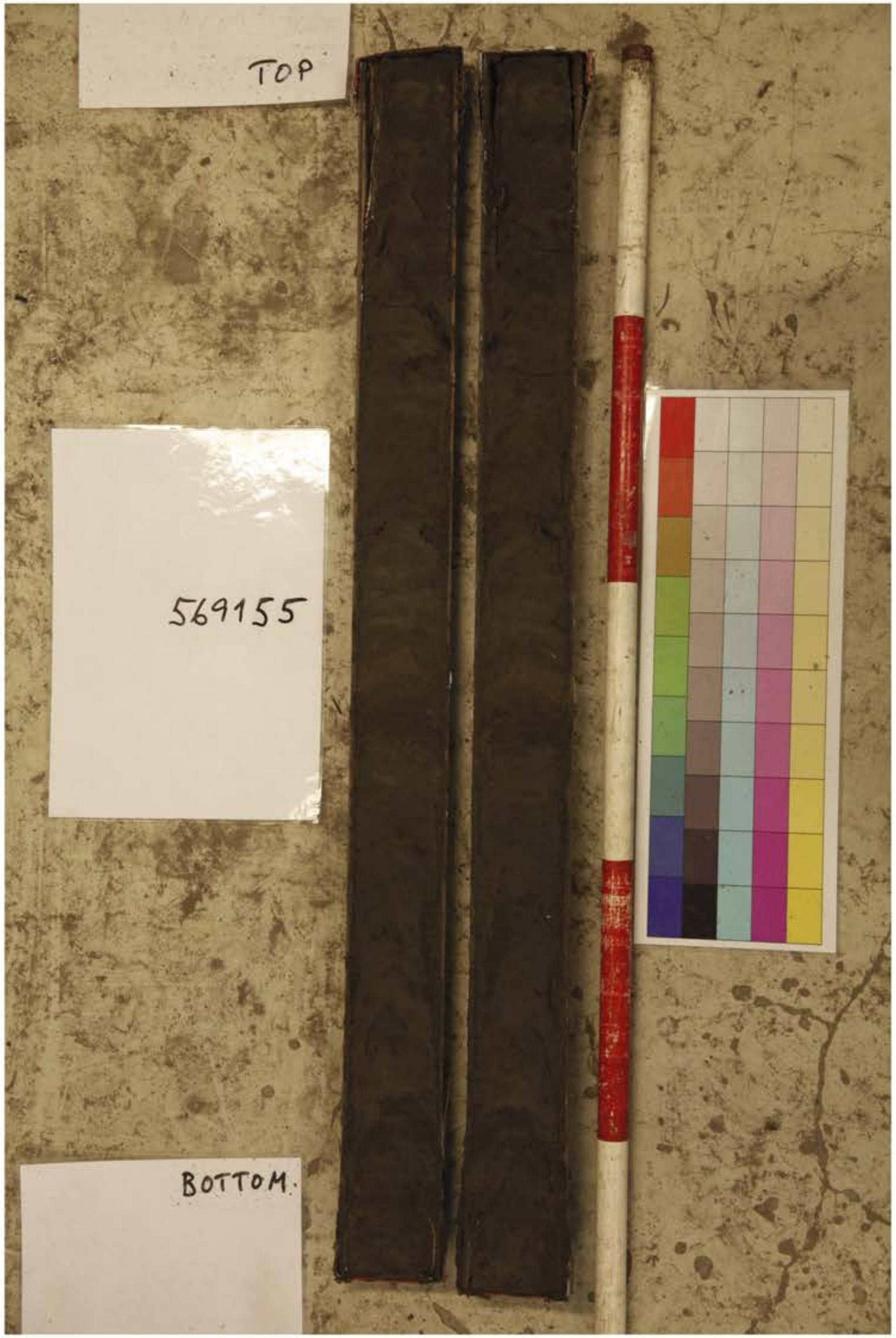
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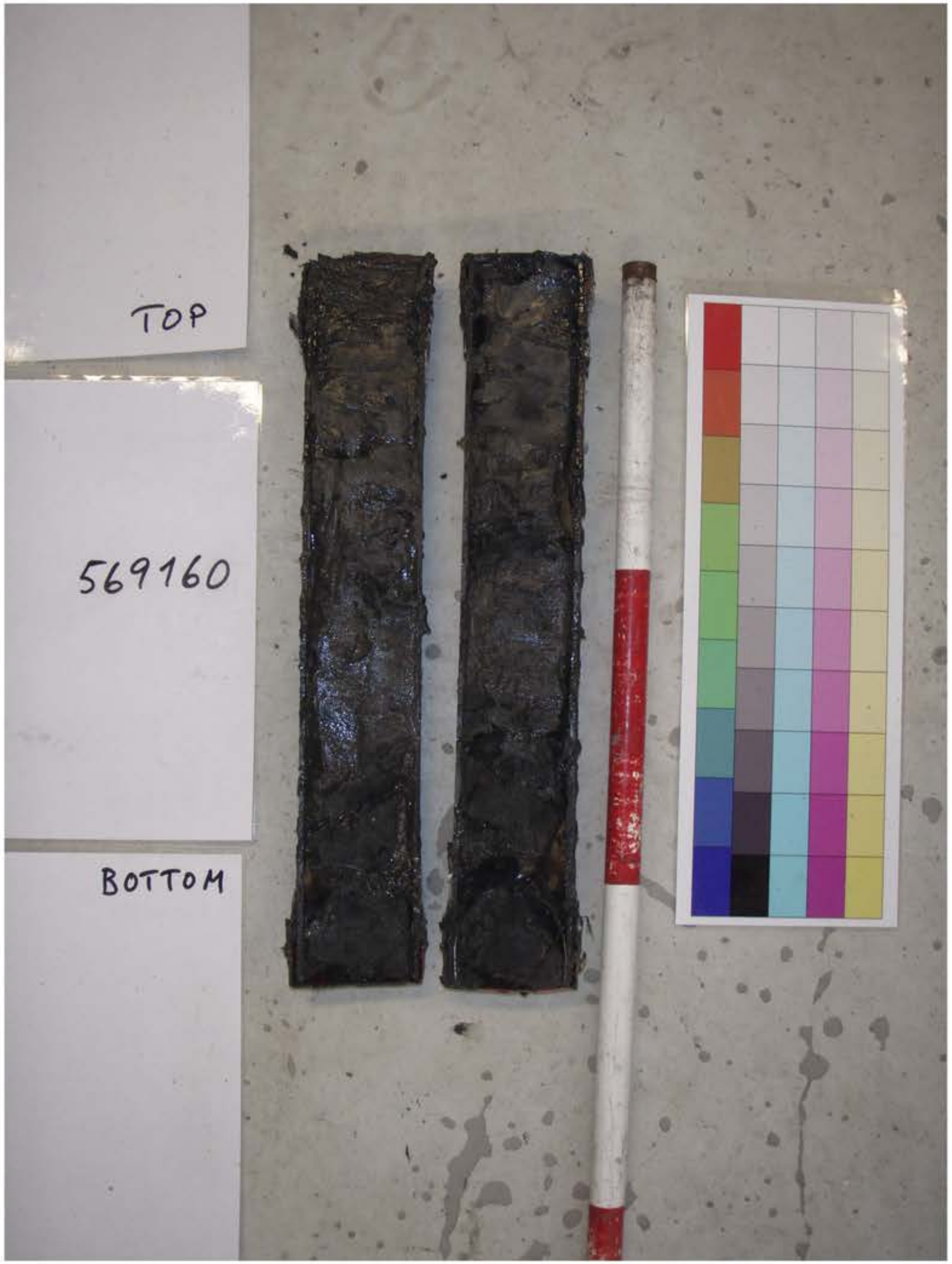
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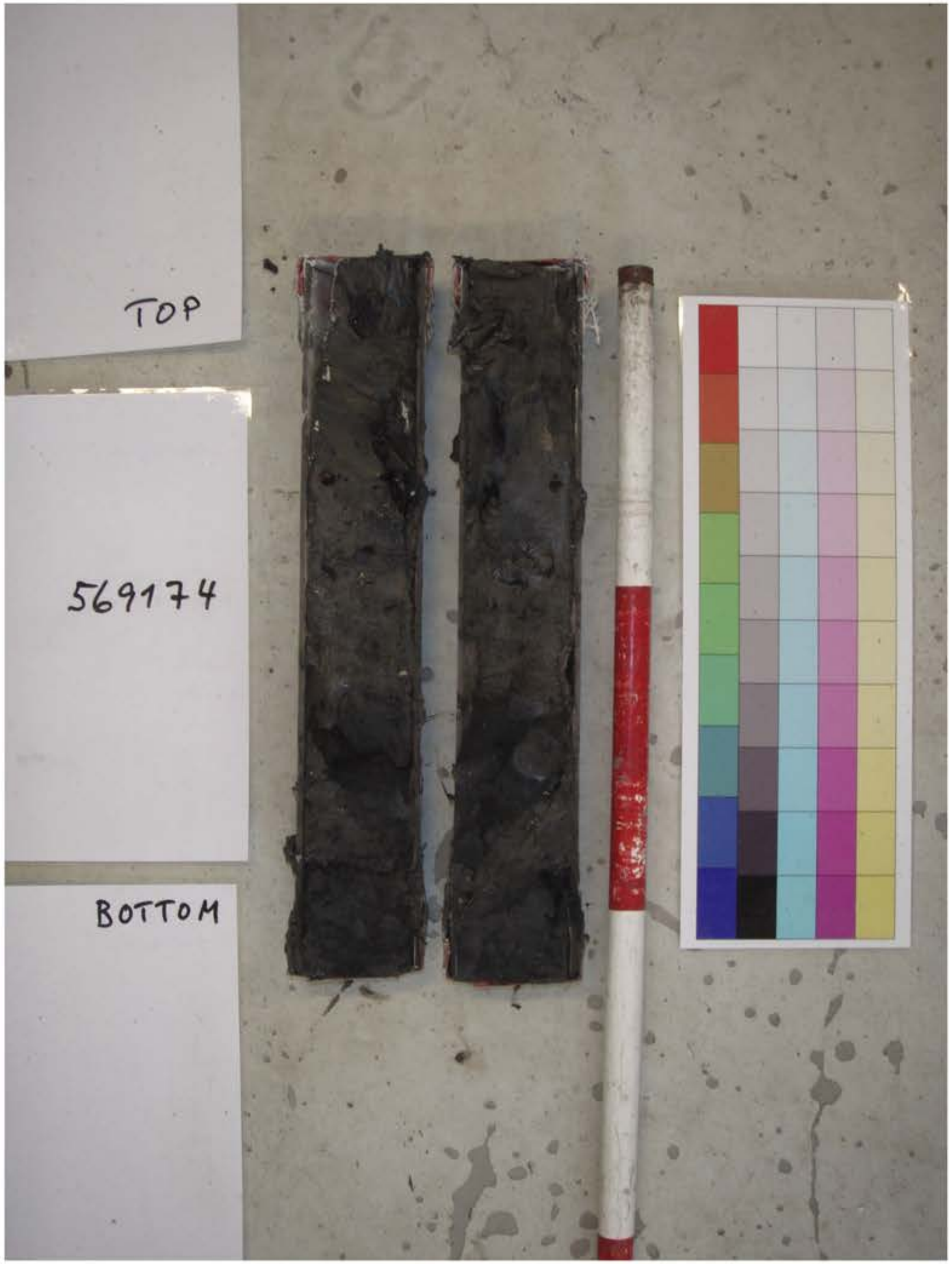
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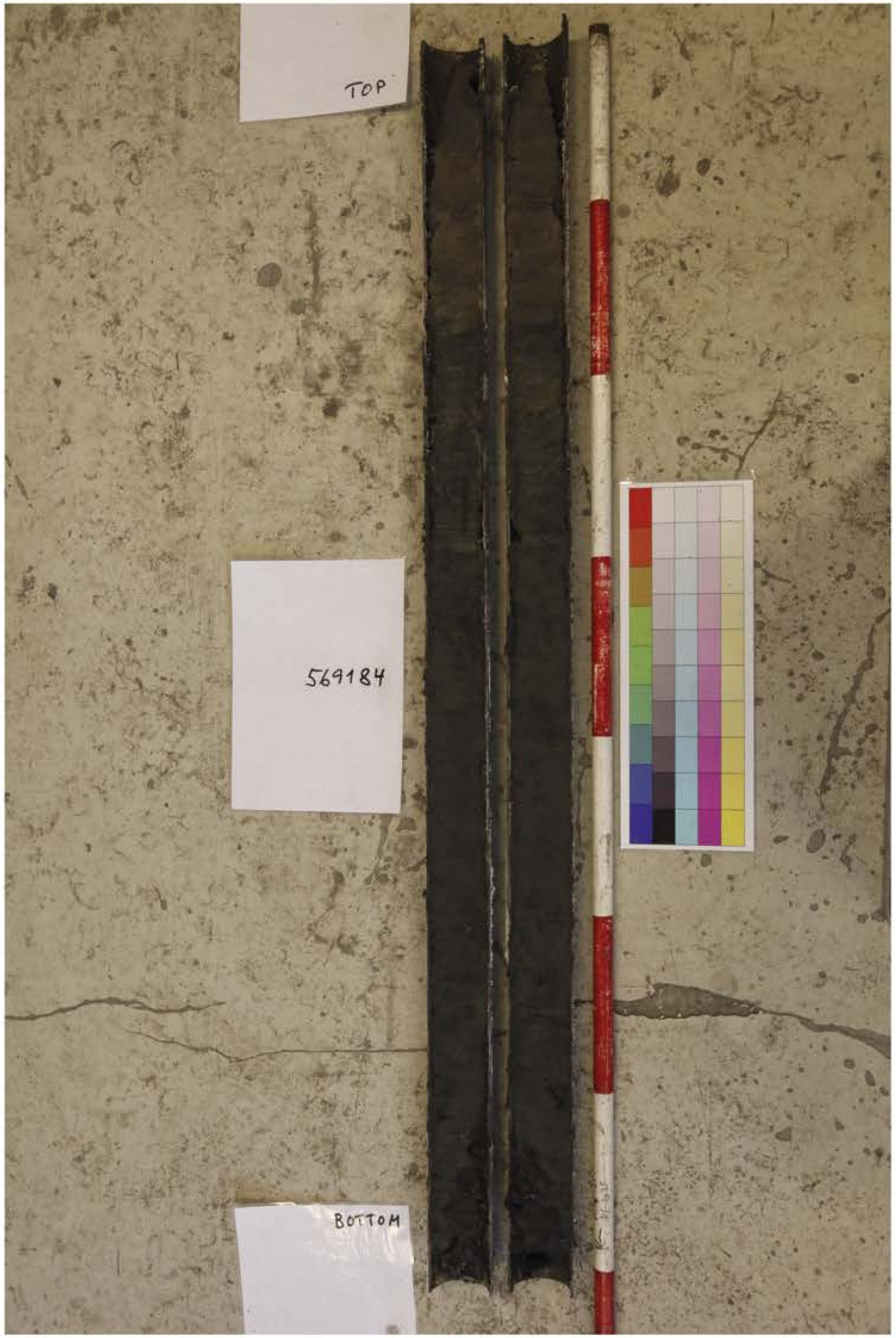
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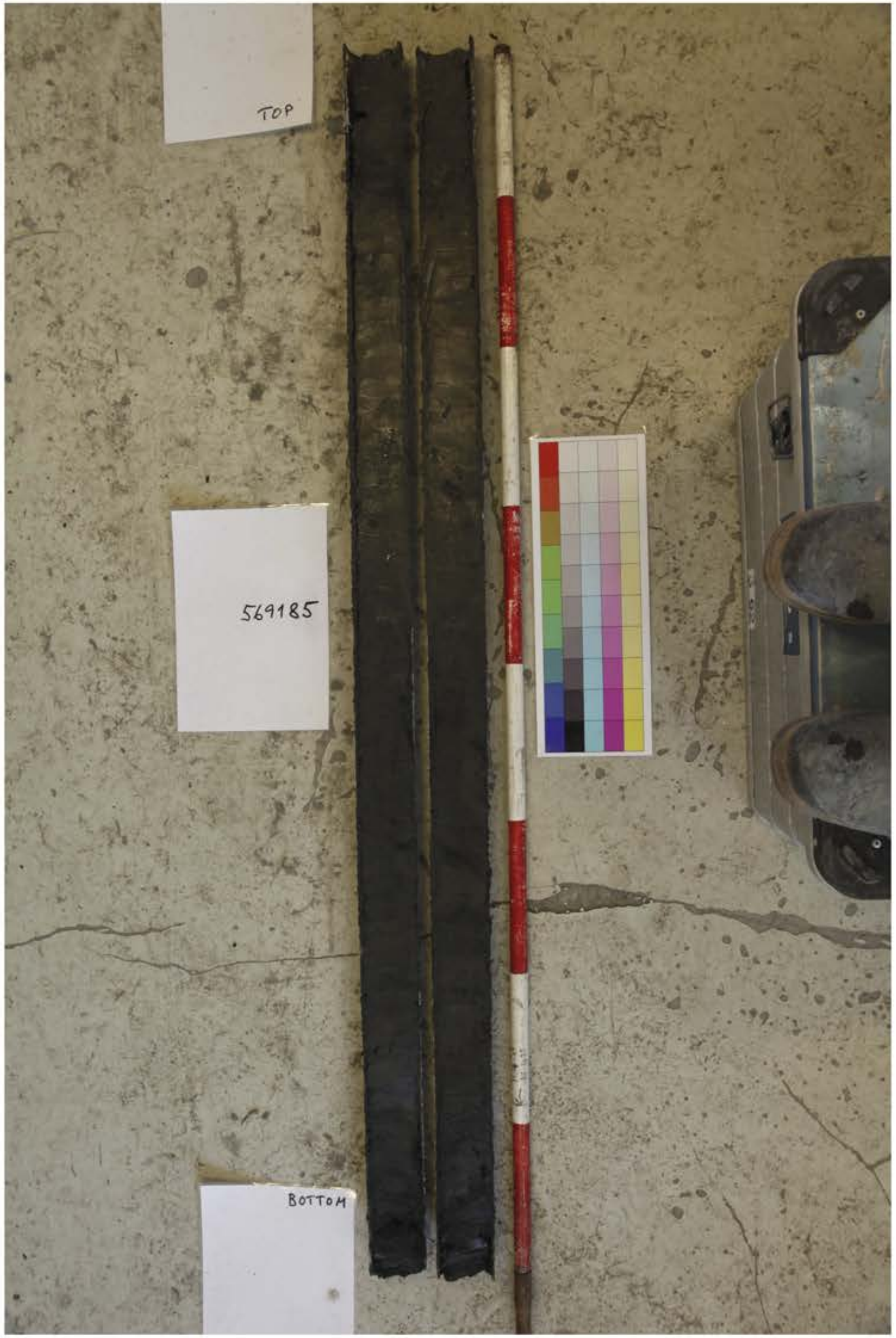
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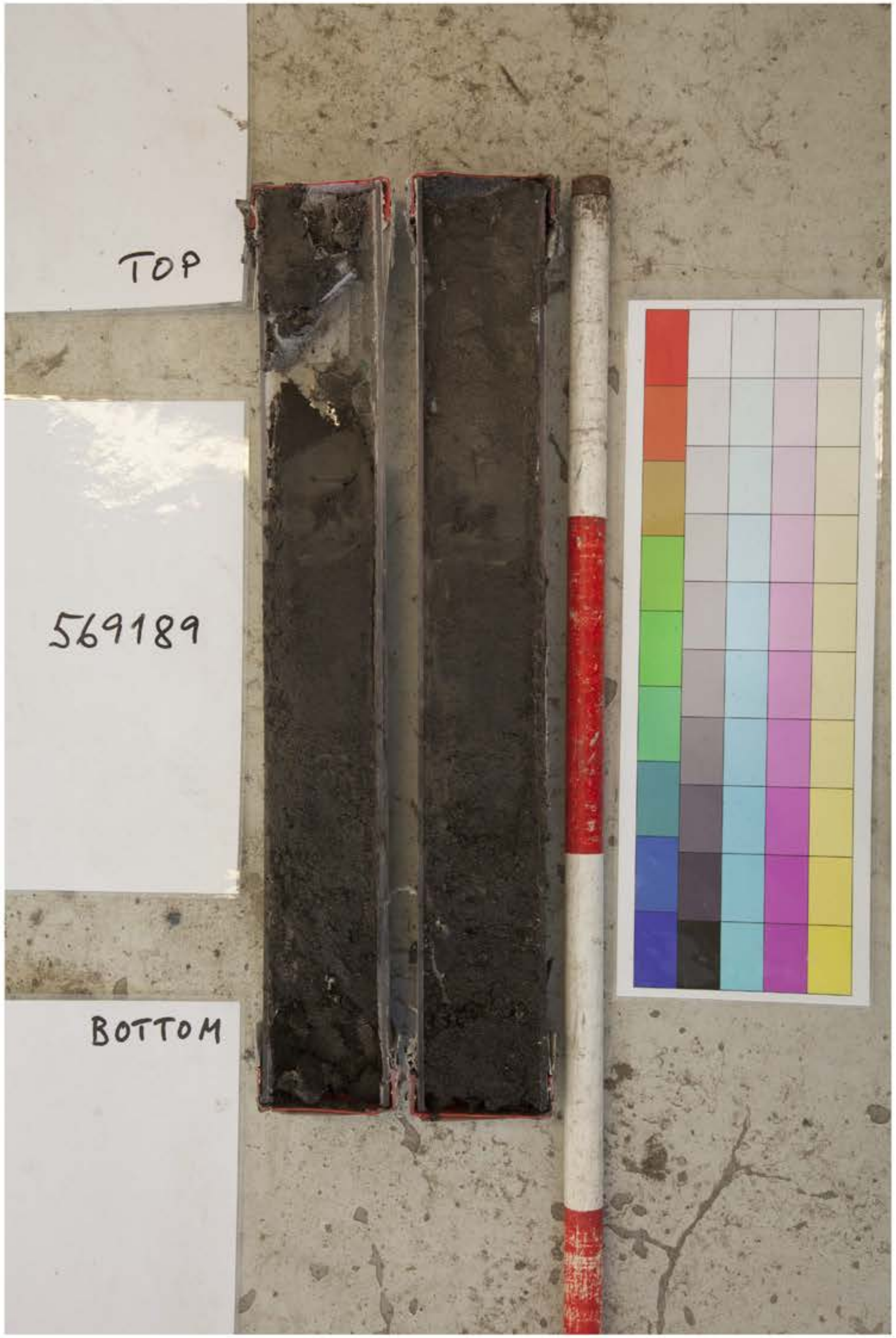

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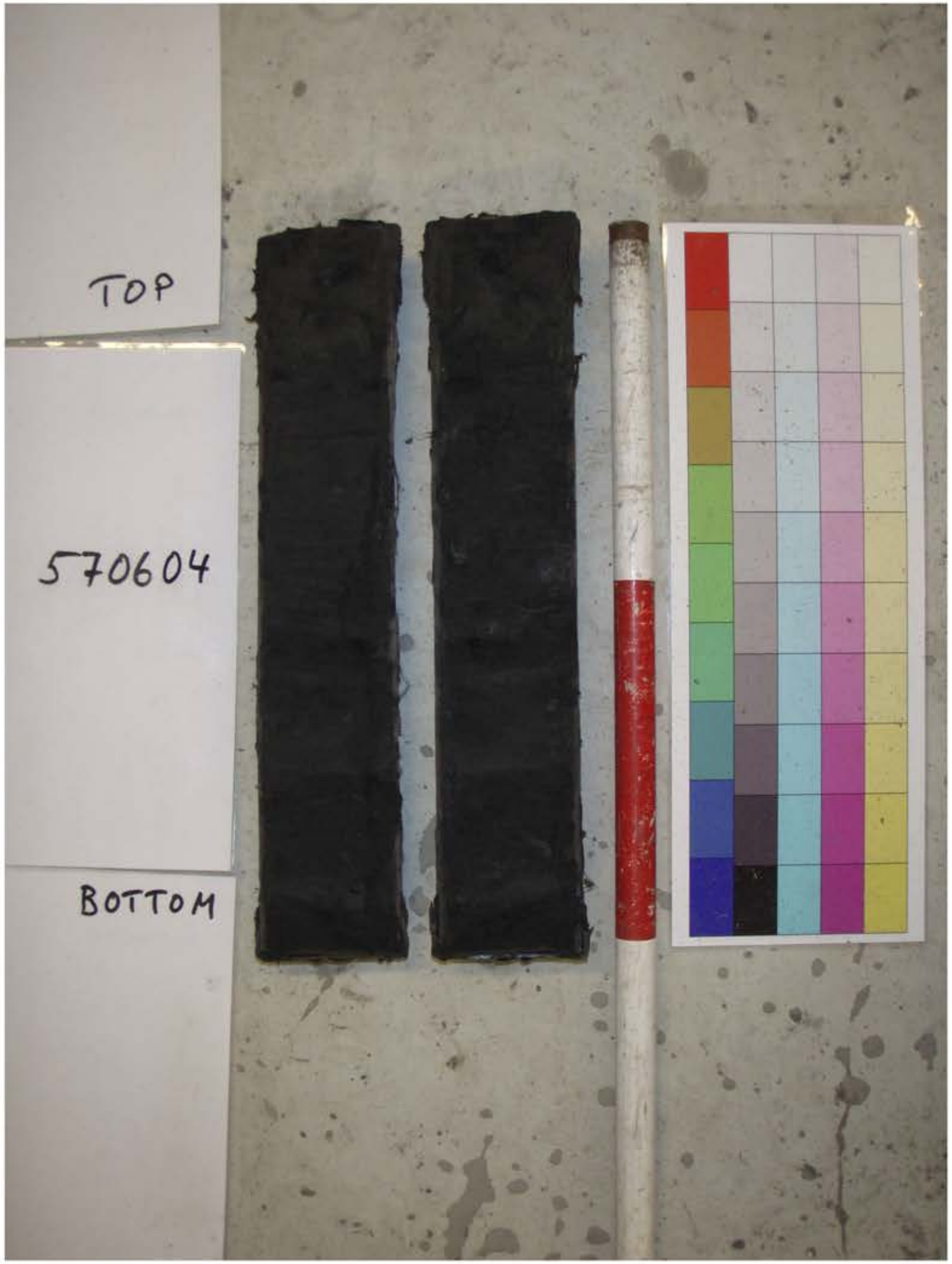
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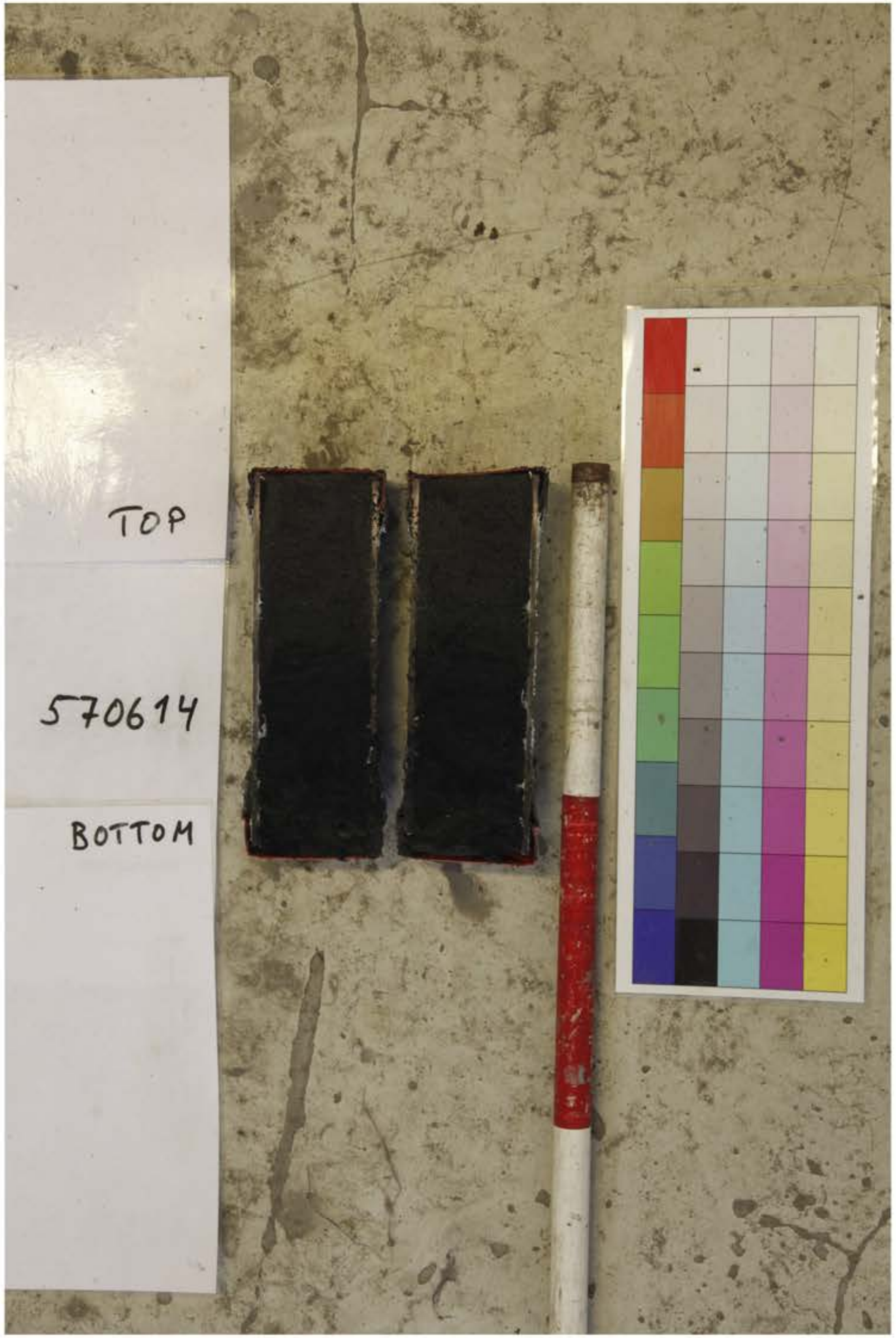
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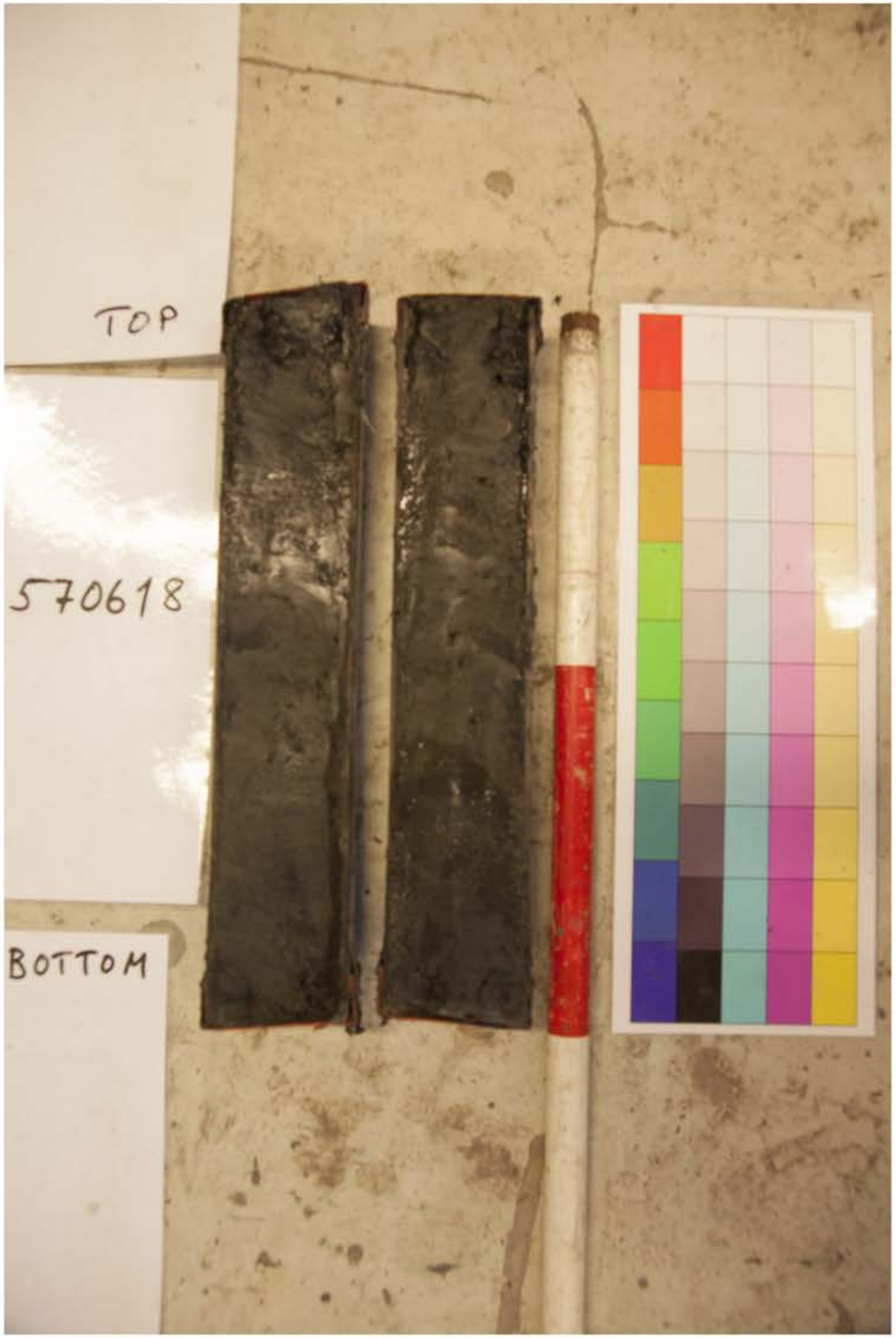
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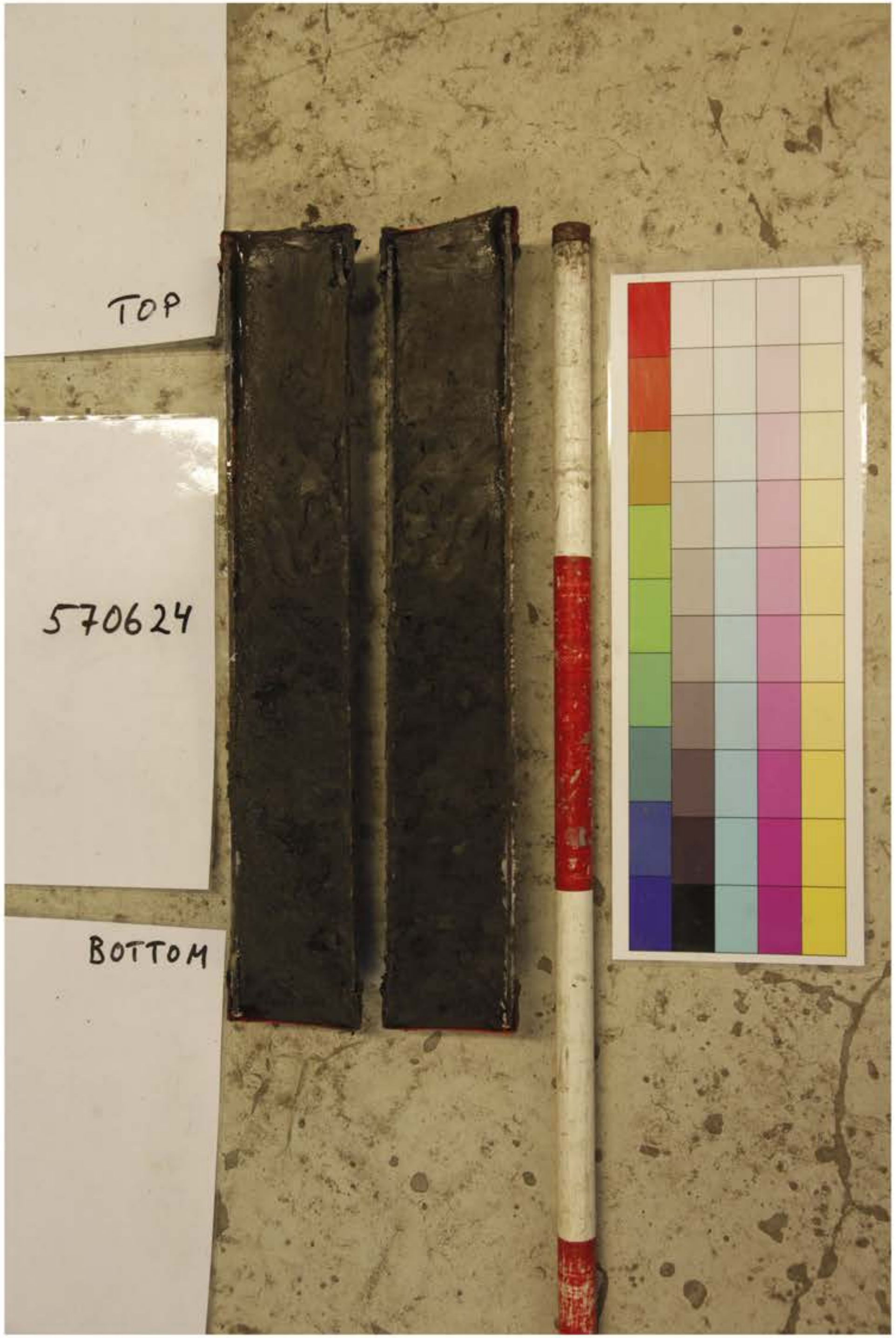
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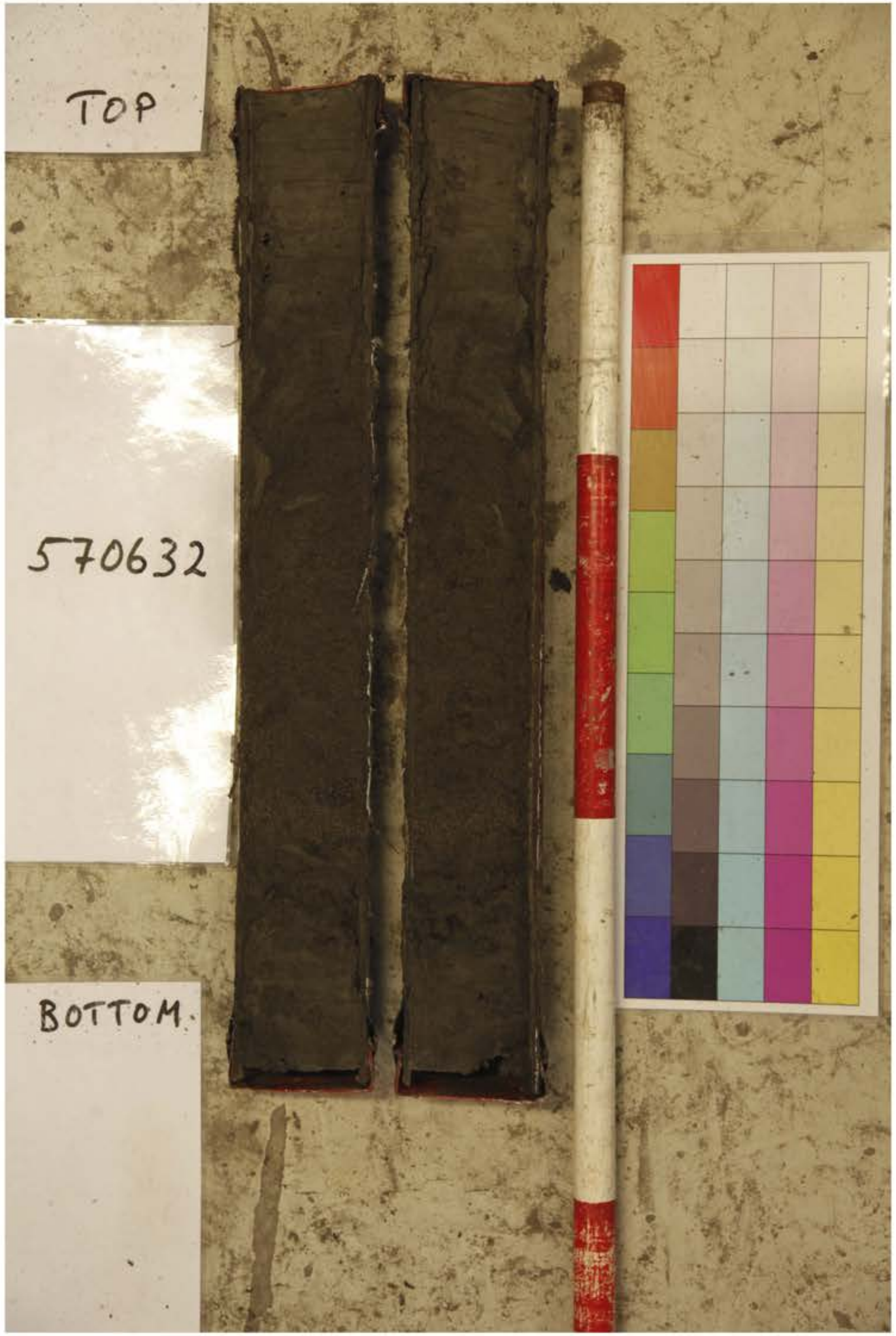
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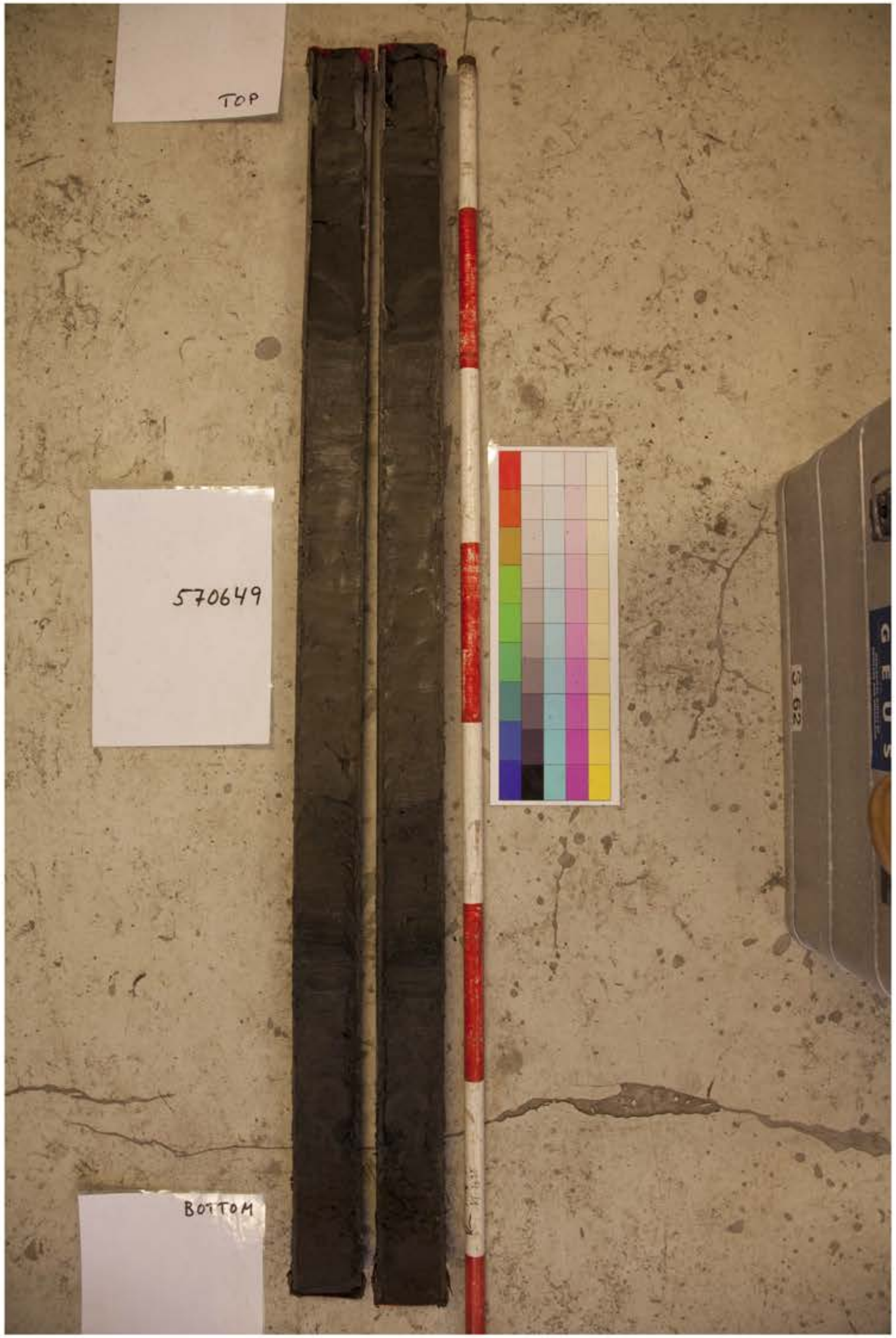
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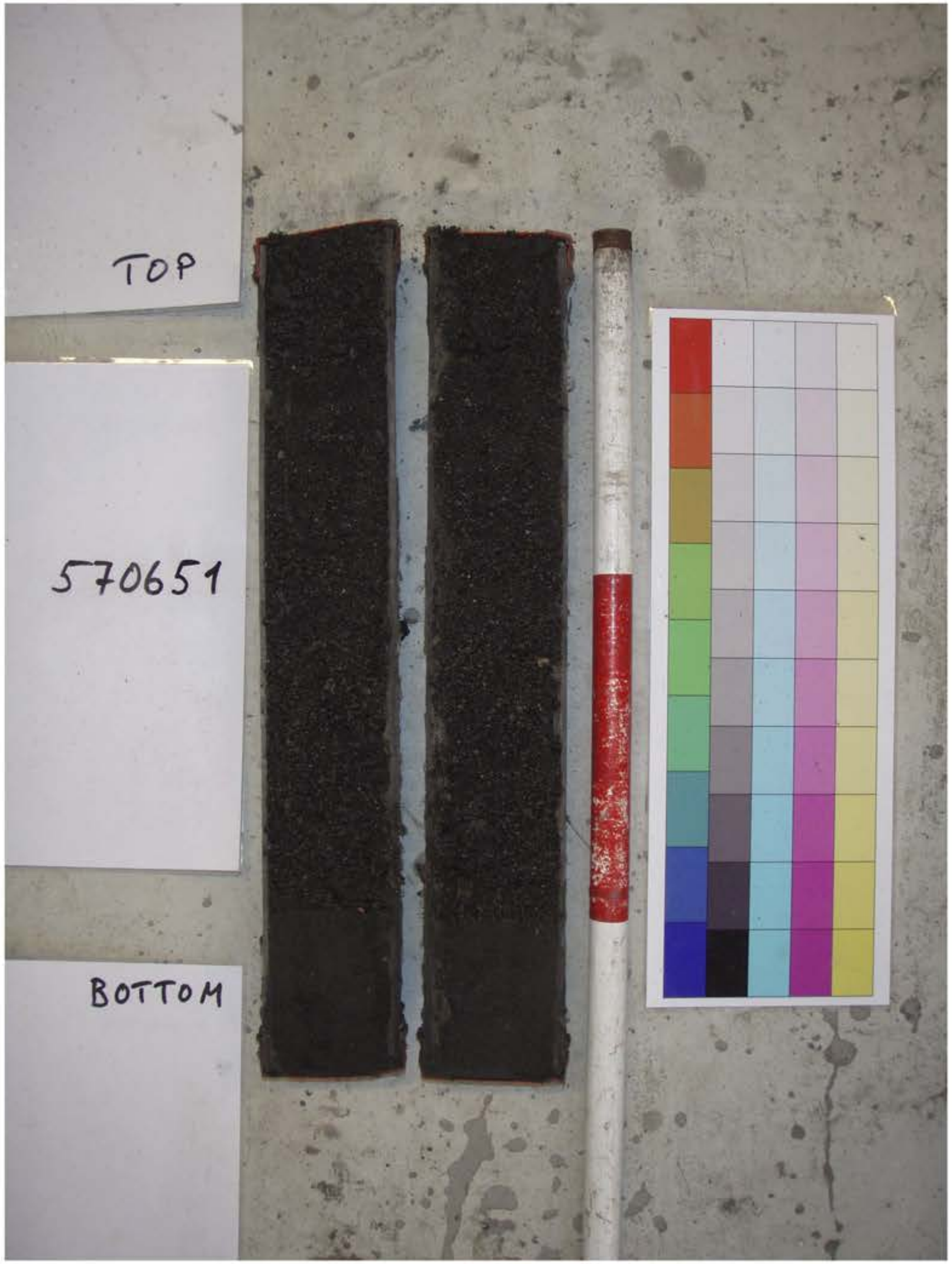
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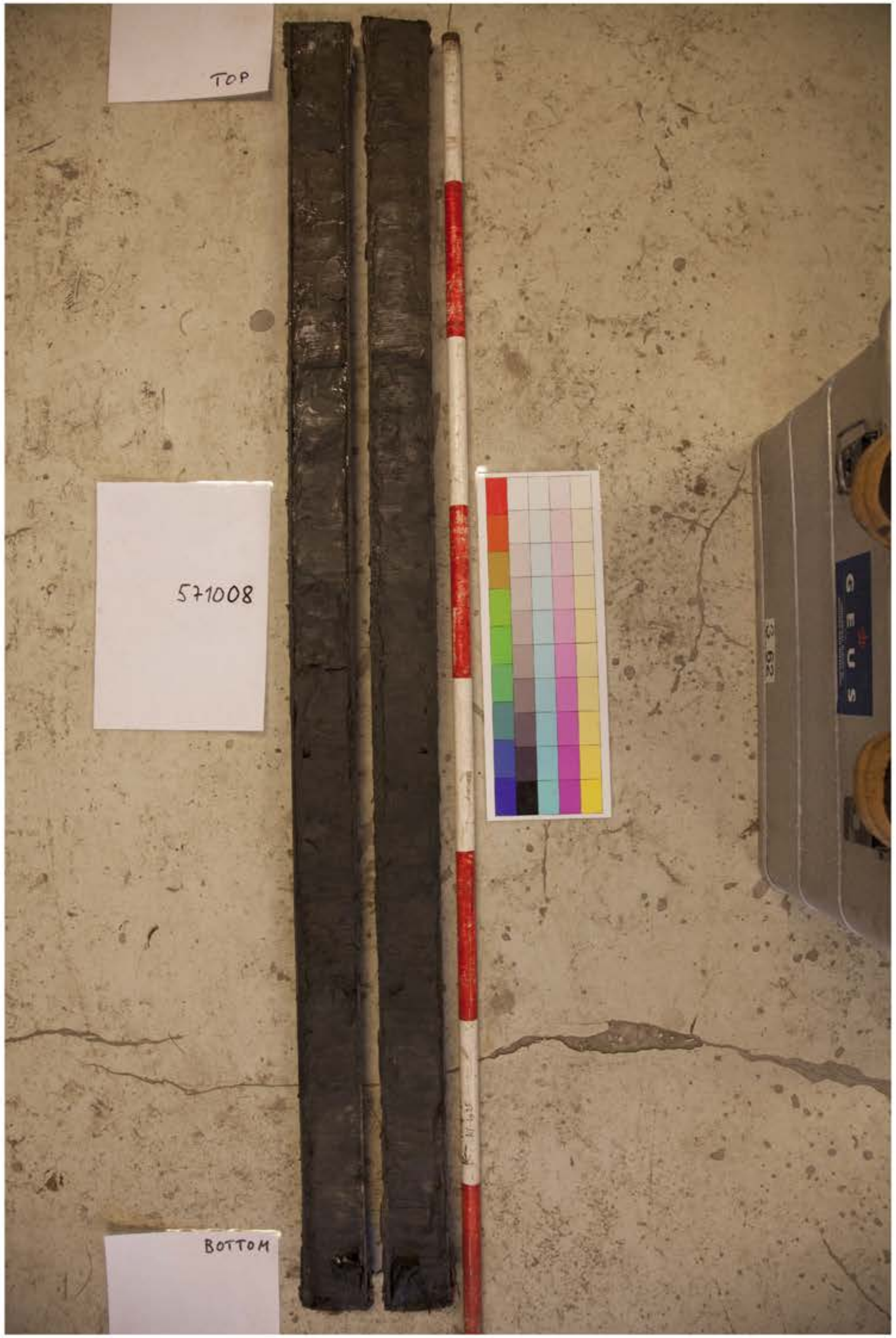
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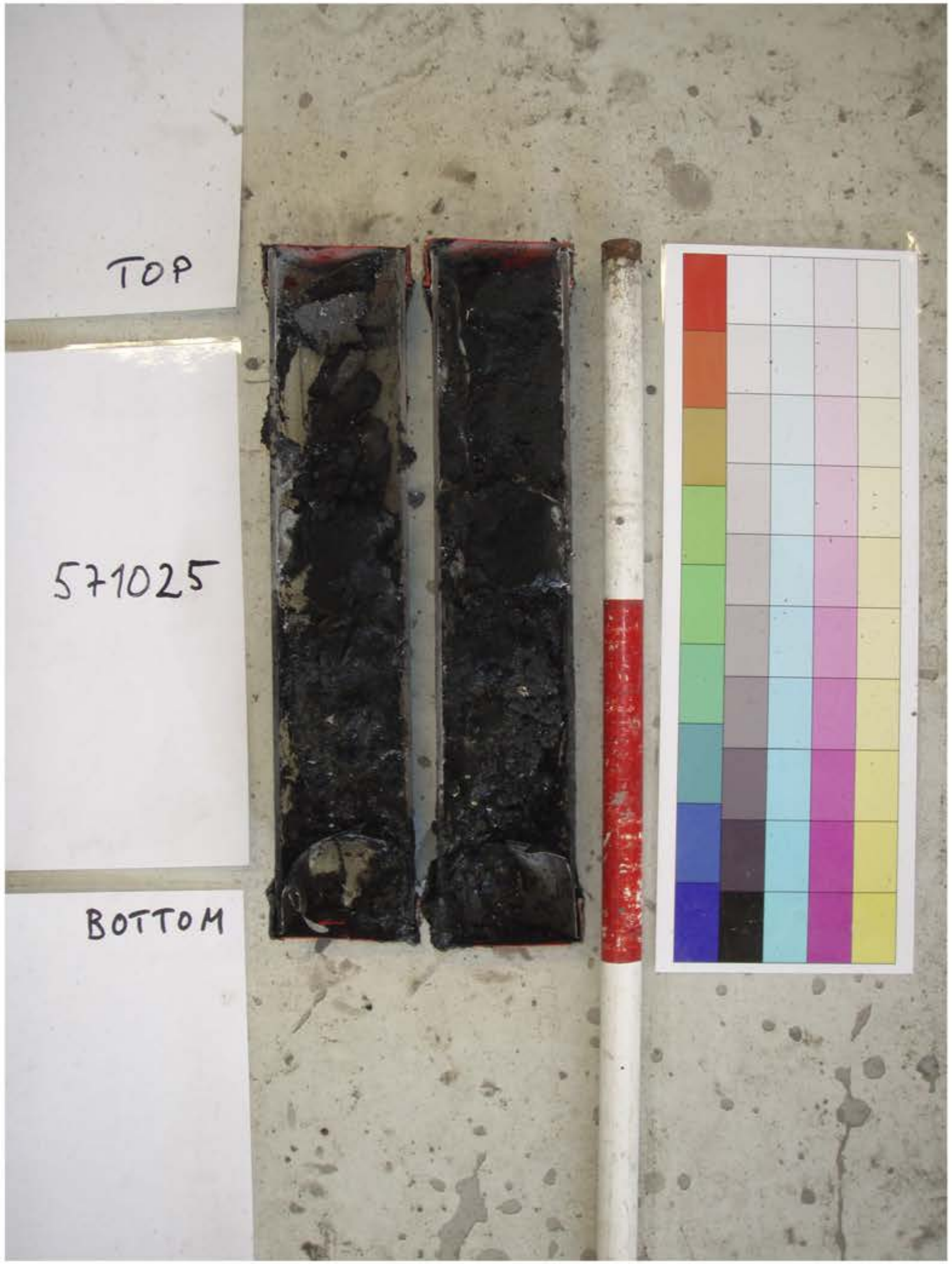
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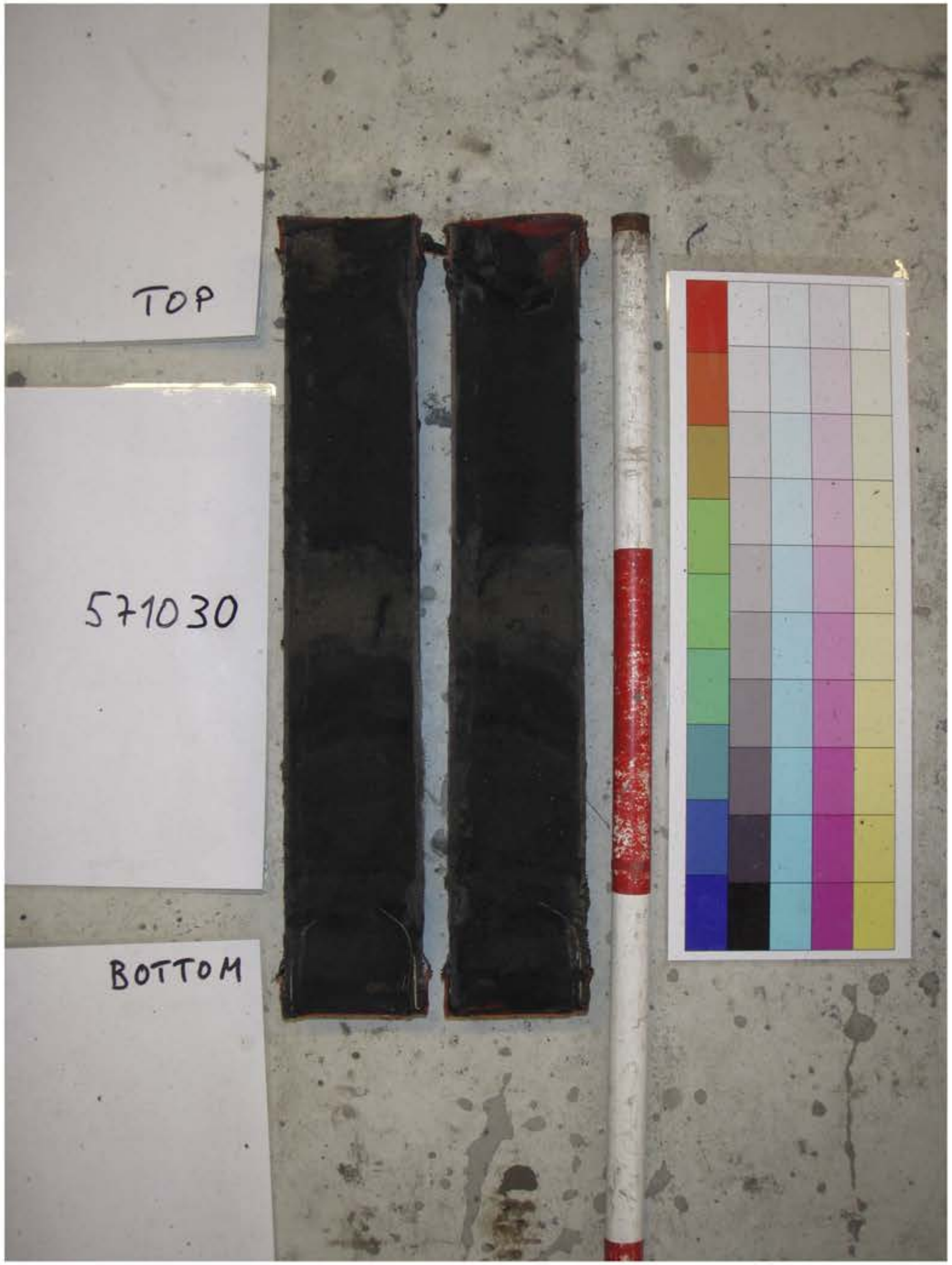
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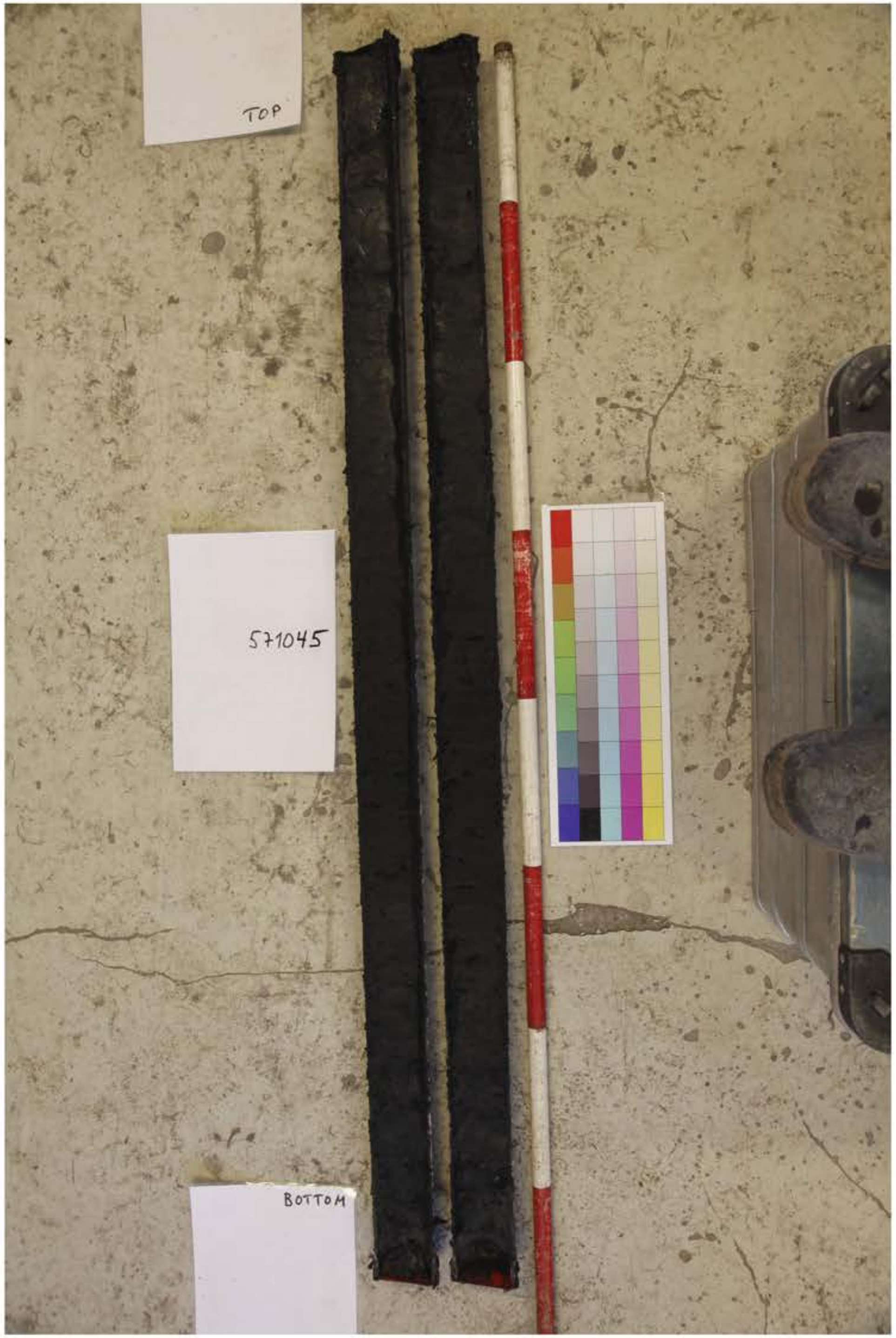
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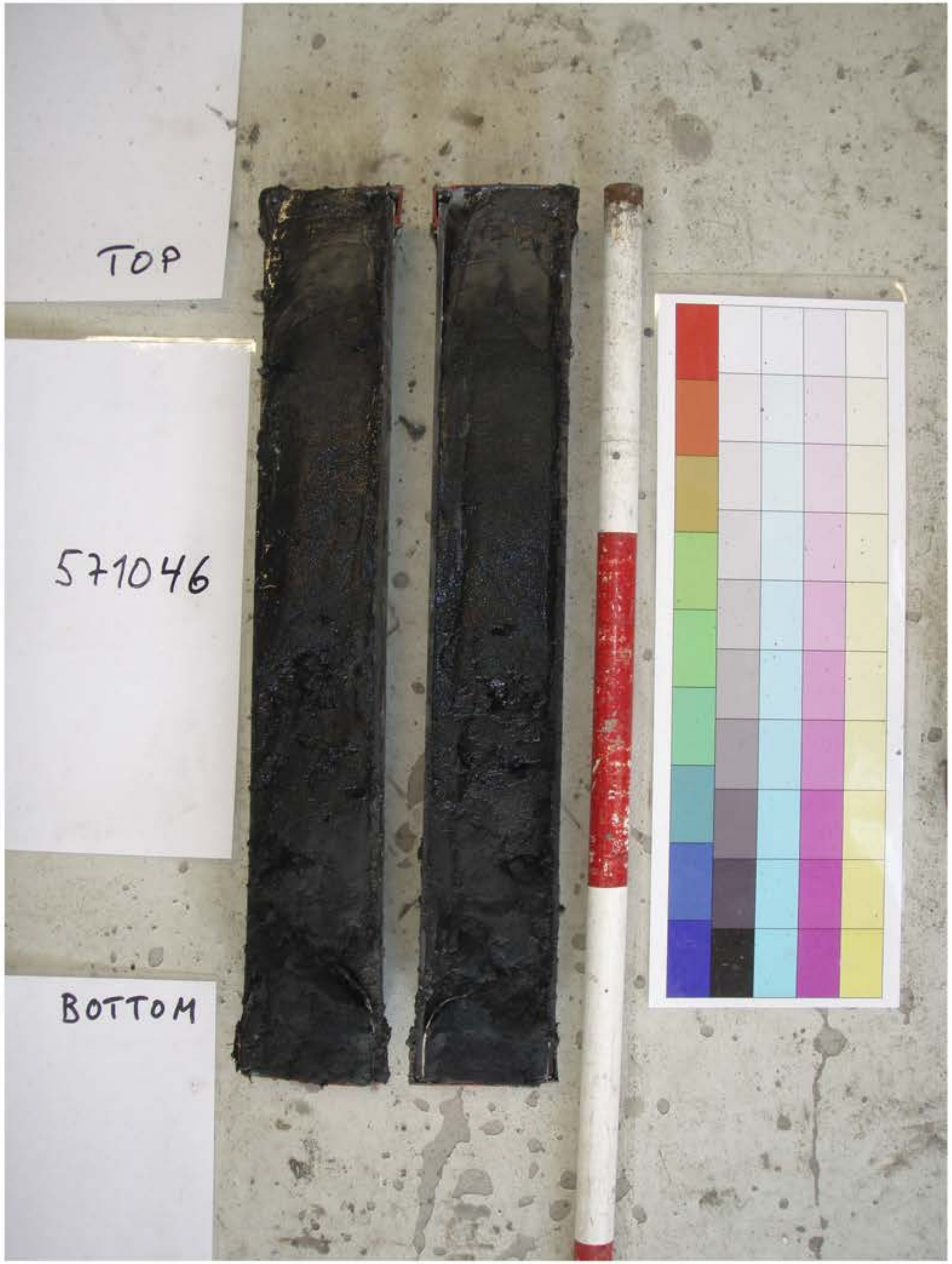
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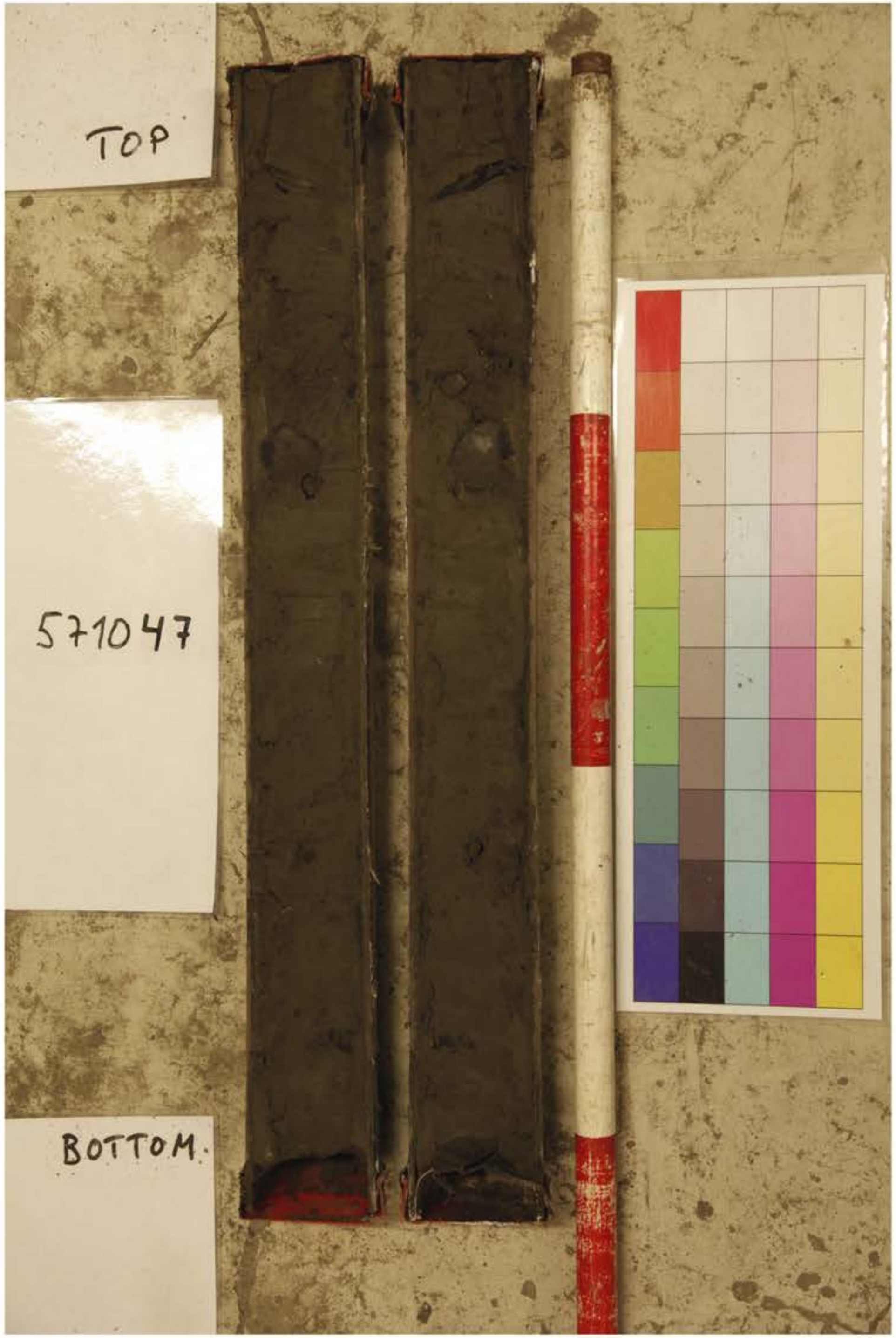
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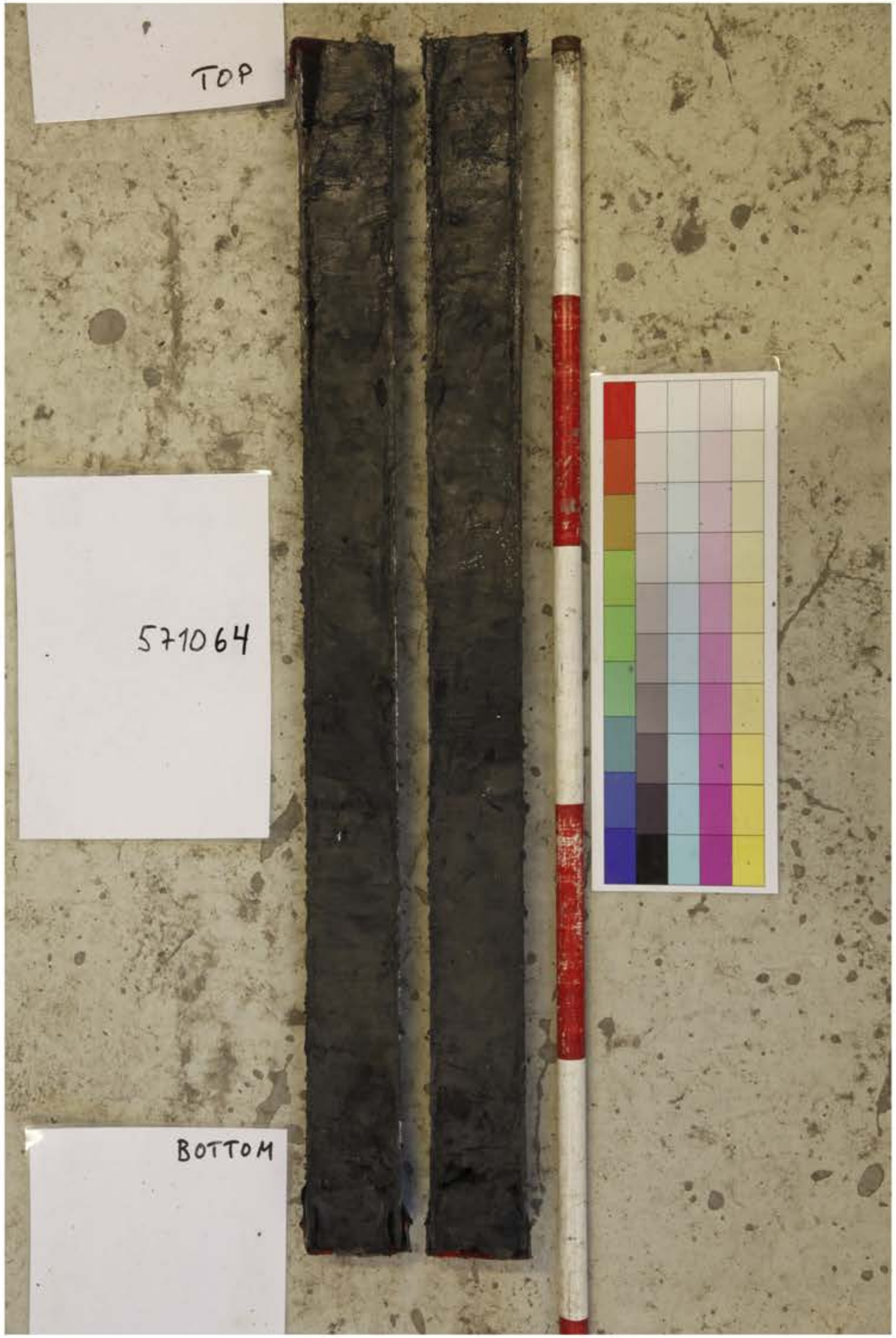
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