



YOKOSUKA “Cruise Report”

YK18-06

Geological and Geophysical Study of subduction-zone earthquake
: Paleoseismology in the slope to trench

Japan Trench

May.21st, 2018-May.29th, 2018

Japan Agency for Marine-Earth Science and Technology

(JAMSTEC)

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1. Cruise Information

Cruise ID: YK18-06

Name of vessel: YOKOSUAK

Title of the cruise: Geological and Geophysical Study of subduction-zone earthquake
: Paleoseismology in the slope to trench.

Chief scientist [Affiliation]: Toshiya Kanamatsu [CEAT-JAMSTEC]

Lead proponent [Affiliation]: Shuichi Kodaira [CEAT-JAMSTEC]

Title of proposal: Geological and Geophysical Study of subduction-zone earthquake
: Paleoseismology in the slope to trench.

Cruise period: 21st, May – 29th, May 2018

Ports of call: Yokosuka - Yokosuka

Research area: Off Tohoku

Research map: Figure 1

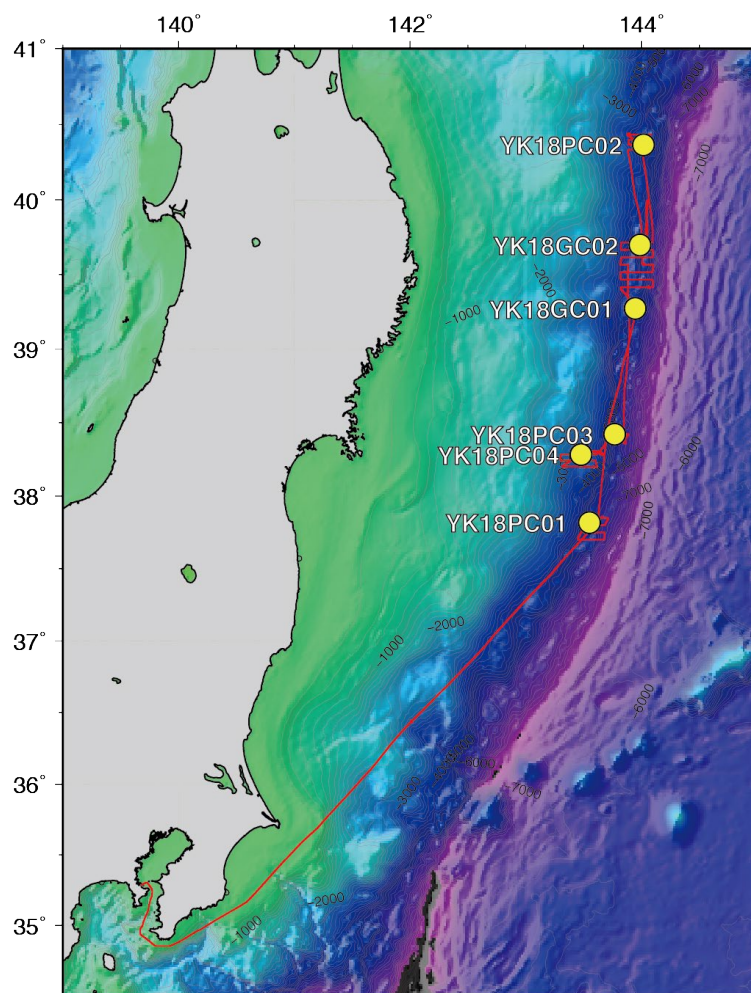


Figure 1: Sites for piston-coring and multiple-coring during YK18-06 cruise

2. Participant list

Scientific party

| | |
|-------------------|---------|
| Toshiya Kanamatsu | JAMSTEC |
| Ken Ikehara | AIST |
| Yasushi Hashimoto | MWJ |
| Mika Yamaguchi | MWJ |
| Yohei Katayama | MWJ |
| Yhuta Shinomiya | MWJ |

R/V YOKOSUKA Ship Crew

| | |
|----------------------|--------------------|
| Captain | YOSHIYUKI NAKAMURA |
| Chief Officer | YASUHIKO SAMMORI |
| 1st Officer | TAKAAKI SHISHIKURA |
| 2nd Officer | TOSHIYO OHARA |
| 3rd Officer | RYO YAMAGUCHI |
| Jr.3rd Officer | KANTA OZAWA |
| Chief Engineer | TADASHI ABE |
| 1st Engineer | WATARU KUROSE |
| 3rd Engineer | KENTA IKEGUCHI |
| 3rd Engineer | YUNA KAINO |
| Jr.3rd Engineer | TAKAMASA OCHIAI |
| Chief Electronic Op. | YOSUKE KOMAKI |
| 2nd Electronic Op. | RYOSUKE MATSUI |
| BoatSwain | MASANORI OHATA |
| Quarter Master | KAZUMI OGASAWARA |
| Quarter Master | KAITO MURATA |
| Quarter Master | HIROAKI NAGAI |
| Sailor | SHINYA KOJIMA |
| Sailor | KYOHEI MURAI |
| Sailor | TOMOKI ASAKUNI |
| Sailor | TAKUMA TOKUNAGA |
| No.1 Oiler | JUNJI MORI |
| Oiler | MAKOTO KOZAKI |
| Oiler | TAKUYA WATANABE |
| Oiler | AOI TAKAMIYA |
| Oiler | HIROKI KAITO |
| Assistant Oiler | KENSUKE NAKAMURA |
| Steward | TATSUNARI ONOUE |
| Steward | HIDEO FUKUMURA |
| Steward | KANJURO MURAKAMI |
| Steward | KOICHIRO KASHIWAGI |
| Steward | KINA ABE |
| Steward | YUKI SHIRASAKI |

3. Cruise Log

| Date/time(LCL) | Remarks |
|-----------------------|---|
| 21th May | |
| 09:00 | Embarkation of all participant and departure from Yokosuka-Shinko |
| 10:00 | Briefing for safety and onboard life |
| 13:00 | Piston corer preparation |
| 16:40 | Praying ceremony (Kompira-san) |
| | Transit to PL02(GC01) point |
| 22th May | |
| 07:30 | Arrival at GC01 point |
| 07:45 | XBT measurement |
| 7:55-8:58 | MBES and SBP site survey |
| 09:30 | Meeting and Start GC01 operation |
| 13:08 | End of GC01 operation |
| 16:28 | MBES and SBP box survey in area 2B |
| 23:00 | End of surveys and move to PL06 point |
| 23th May | |
| 06:33 | XBT measurement and |
| 7:55-8:57 | MBES and SBP site survey in PL06 |
| 08:45 | Meeting and Start GC02 operation |
| 12:47 | End of GC02 operation |
| 14:23 | MBES and SBP box survey in area 3 |
| 23:00 | End of surveys and move to GC02 point |
| 24th May | |
| 06:20 | XBT |
| 6:50-7:09 | MBES and SBP site survey |
| 08:45 | Meeting and Start PC01 operation |
| 15:23 | End of PC01 operation |
| 16:10 | MBES and SBP box survey in area 1 |
| 23:00 | End of surveys and move to PC02 point |
| 25th May | |
| 07:00 | Meeting and Start PC02 operation |
| 10:55 | End of PC02 operation |
| 14:32 | MBES and SBP box survey in area 3 |
| 23:00 | End of surveys and move to PC03 point |
| 26th May | |
| 06:29 | XBT |
| 06:58-7:26 | SBP and MBES site surveys in PC03 point |
| 08:00 | Piston coring at PC03 |
| 13:21 | End of PC03 operation |
| 14:23 | MBES and SBP box survey in area 2A |
| 22:56 | End of surveys and move to PC04 point |

27th May

08:30 Meeting and Start PC04 operation
11:38 End of PC04 operation
Move to SBP area S8A
16:17 SBP and MBES site surveys at area S8A
17:37 End of survey

28th May

Transit to Yokosuka

29th May

10:00 Arrival at JAMSTEC pier (end of the cruise).

4. Objective and summary of observation

Tracking geological record of mega-earthquakes is a key to understand the property of devastating Tohoku M9-earthquake. The target area in this cruise was the terrace in the lower landward slope: so called mid slope terrace. The water depth ranges from 4000 to 6000m. We visited the area, where was not been surveyed by the previous cruises NT13-19 and YK14-E01, and compensate the interval which we could not obtained high quality sample for analyzing historical record in the previous cruises. Bathymetric and sub bottom surveys were also conducted. We conducted 4 piston coring, and 2 gravity coring operations.

5. Instruments and Operations

5-1. Multi-beam Echo-sounder System and Sub-bottom Profiler

Kongsberg EM122 Multi beam Echo sounder system, and EdgeTec 3300-HM SBP systems were used to collect bathymetric and subbottom image data in the study area. General specifications data are followings

EM 122 performance data

Operating frequency: 12 kHz (10.5kHz~13kHz)

288 beams with width of 2°

EdgeTec 3300-HM performance data

Frequency range: 2~16kHz, Center Frequency

Pulse type: FM

Puls length 5~100ms

5-2. Temperature profile

The sound velocity profile of the local water column, which was used for calibration of depth, was estimated from a temperature profile based on in-situ XBT (Expendable Bathythermograph) measurements.

5-3. Piston corer and gravity corer systems

Piston corer system (PC)

Piston core sampler system consists of 0.59 ton weight, 6 m long stainless steel barrels trigger which works as the balance and a pilot core sampler (**Fig. 5-3-1**). In addition, the polyvinyl chloride (PVC) liner tube is inside of the stainless steel barrel. The inner diameter (I.D.) of liner tube is 75 mm. The total weight of the system is approximately 0.8 ton. The piston is composing of two O-rings (size: P63). For a pilot core sampler, we used a “74 mm diameter long-type pilot corer” which is 112 kg weight, 70 cm long of the duralumin pipe and the polycarbonate liner tube. The transponder (KAIYO DENSHI co. Ltd.; maximum depth 10,000 m) was attached to the winch wire above 50 m from the PC to monitor the PC position.

Winch operation

In this cruise “No 5 winch” was equipped for the coring operation. In the beginning of operation of the PC, a speed of wire out was set to 20 m/min, and then increased lowering speed up to 60 m/min gradually. Wire out was stopped at a depth about 50~100 m above the seafloor for about 3 minutes to stabilize some pendulum motion of the system. After the wire tension was stable, the wire out was restarted at a speed of 20 m/min, and we carefully watched a tension meter to observe reaching of the PC to seafloor. When the corer reached to seafloor, wire tension abruptly decreased by the loss of the corer weight. Wire out was stopped immediately when the corer hit to seafloor. Winding of the wire was started at a speed of 20 m/min until the tension gauge indicates that the corer was lifted off seafloor. After leaving of the PC from seafloor, winch wire was wound at the maximum speed.

Gravity core sampler system

Gravity core sampler system (GC) consists of a 0.5 ton weight, 1m-long stainless steel barrels with acrylic resin inner tube (Fig. 5-3-1). The length of the core barrel was 2 m, and the total weight of the system is approximately 0.6ton. The inner diameter (I.D.) of acrylic resin is 110 mm. In this cruise, we operated GC by no trigger system. In this method, we joined one iron wire rope(ϕ 8 mm x 3 m) for fuse between the corer and the winch wire. Gravity corer has no piston mechanism, so the sediment was gathered by only piecing force of corer. The transponder (KAIYO DENSHI co. Ltd.; maximum depth 10,000 m) was attached to the winch wire above 50 m from the GC to monitor the GC position.

Winch operation

In this cruise “No 5 winch” was equipped for the coring operation. In the beginning of operation of the GC, a speed of wire out was set to 30 m/min, and then increased lowering speed up to 60 m/min gradually. Wire out was stopped at a depth about 100 m above the seafloor for about 3 minutes to stabilize some pendulum motion of the system. After the wire tension was stable, the wire out was restarted at a speed of 20 m/min, and we carefully watched a tension meter to observe reaching of the GC to seafloor. When the corer reached to seafloor, wire tension decreased by the loss of the corer weight. After the corer reached the bottom, wire was out more 2 m, and then winch stopped. Winding of the wire was started at a speed of 20 m/min until the tension gauge indicates that the corer was lifted off seafloor. After leaving of the GC from seafloor, winch wire was wound at the maximum speed.

About “K-value”

“K-value” means the hardness barometer of the sea floor sediment. $K\text{-value} = \text{pure pull out load} / (\text{outer diameter of outer pipe} \times \text{penetration length})$. Because of winding power of the winch, pipe length should be selected with referring “K-value”.

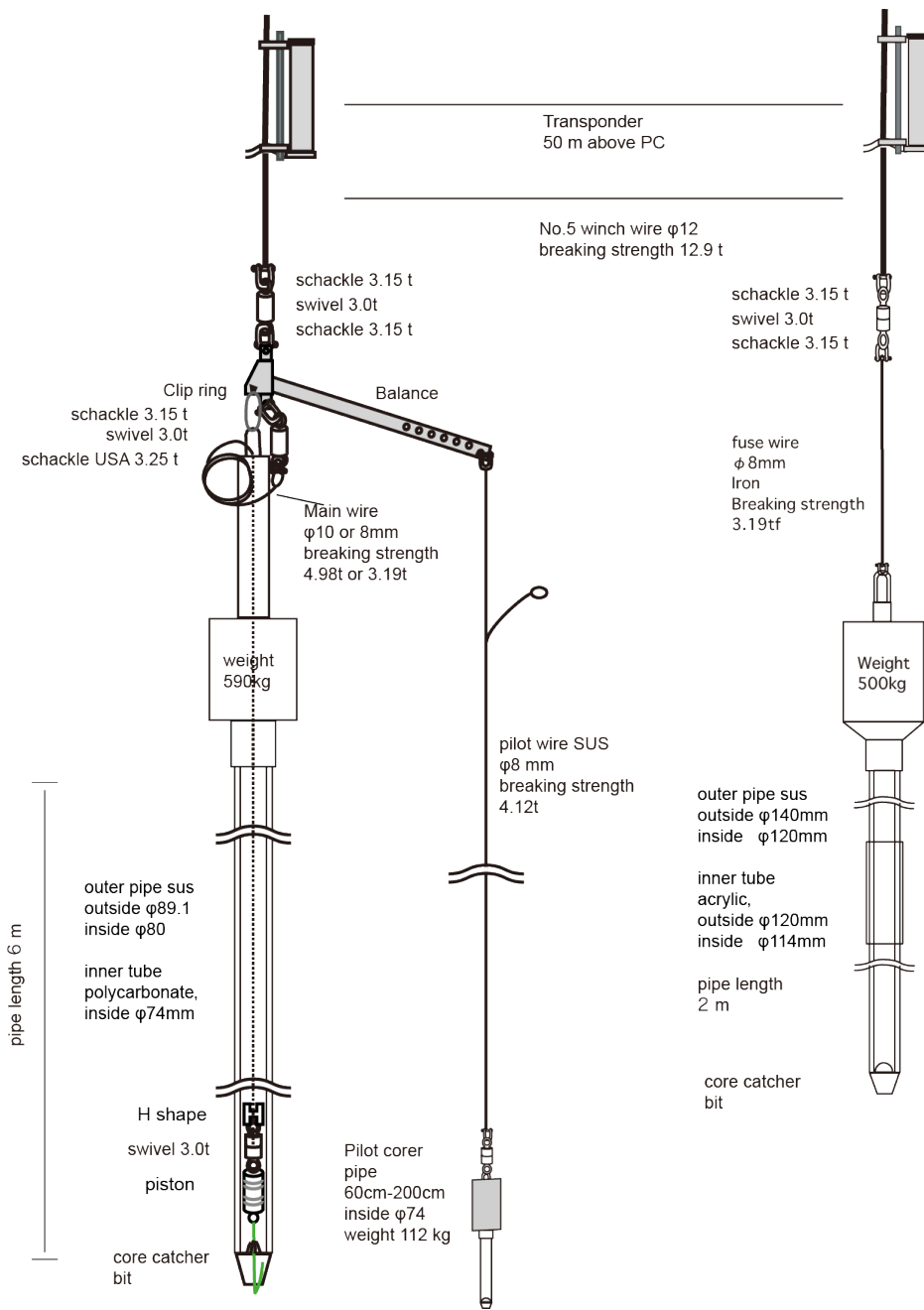
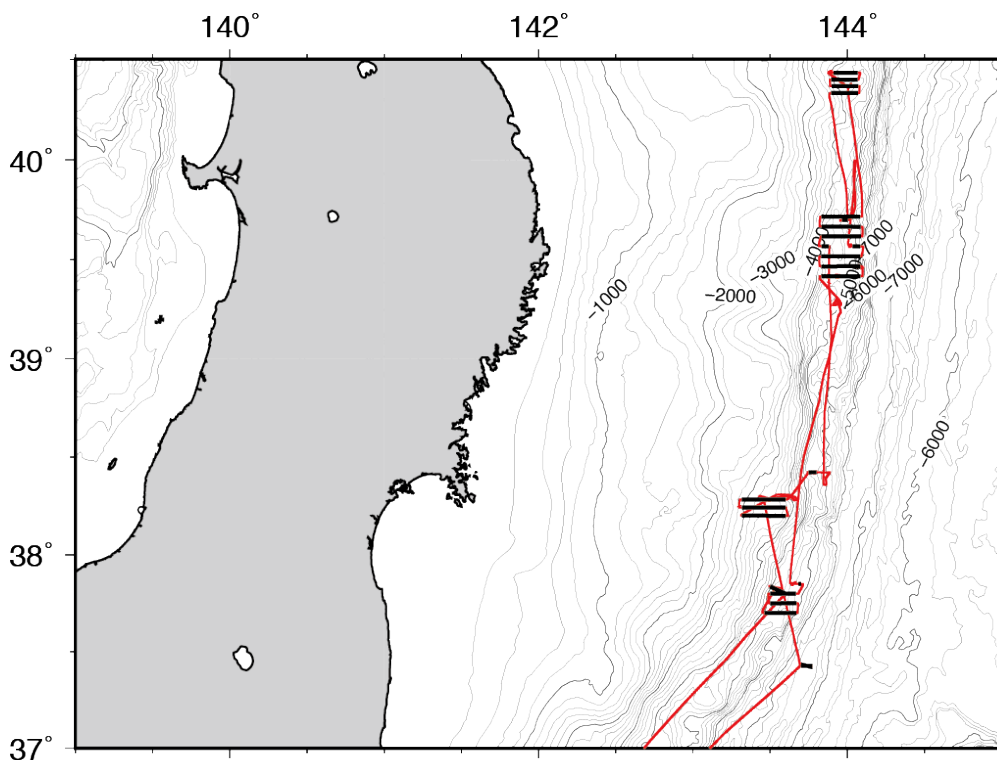


Figure 5-3-1 piston corer and Gravity core systems

6. Preliminary Results

6-1 Track record of bathymetric and SBP surveys

Track of bathymetric and SBP surveys were plotted in Figure X. Detailed analysis on the obtained data will be conducted after cruise.



6-2. PC and GC operations

Piston coring operations are summarized in Table 6-2-1

Table 6-2-1: Coring Summary of YK18-06 cruise

| Date (UTC) | Core ID | Water depth (m) | Position | | | Core Length/Pipe | | Winch Tension Max(kN) | K |
|------------|---------|-----------------|-------------|--------------|-------------|------------------|-------|-----------------------|------|
| | | | Latitude | Longitude | | PC | PL | | |
| 20180523 | GC01 | 4,962 | 39-16.4535N | 143-56.6693E | transponder | 1.766 /2 | NA | 38.0 | 0.31 |
| 20180524 | GC02 | 4,726 | 39-41.9871N | 143-59.1828E | transponder | 1.875 /2 | NA | 35.0 | 0.21 |
| 20180522 | PC01 | 5,321 | 37-49.1114N | 143-33.0806E | ship | 3.184 /6 | 0.960 | 42.0 | 0.15 |
| 20180524 | PC02 | 4,067 | 40-22.0099N | 144-00.8729E | transponder | 5.532 /6 | 0.790 | 34.0 | 0.11 |
| 20180526 | PC03 | 5,473 | 38-25.2965N | 143-46.0060E | transponder | 5.564 /6 | 0.863 | 42.0 | 0.14 |
| 20180527 | PC04 | 3,238 | 38-16.9983N | 143-28.6133E | transponder | 5.483 /6 | 0.698 | 34.0 | 0.19 |

** "K value" is the strength barometer of the sea floor sediment; K value = pure pull out load / (outer diameter of outer pipe * penetration length).

6-3. Lithology of Piston and gravity cores

Sediment lithology of the obtained piston, gravity and pilot gravity cores from the mid slope terrace off Sanriku are summarized as **Figs. 6-3-1** and **6-3-2**. Core length of each core section on the visual description sheet is summarized in **Table 6-3-1**. We use the core length from **Table 6-3-1** for the core summary in this section. Detailed visual description is available in Appendix. We obtained six cores from six sites, four piston cores (PC01 to PC04) with four pilot gravity cores (PL01 to PL04) at four sites and two gravity cores (GC01 and GC02) at two sites, on the mid slope terrace.

PC01 & PL01: This site is the same location of NT13-19 PC19 core. A 318.4 cm long piston core (PC01) with 96.0 cm long pilot gravity core (PL01) was obtained. The core composed of grayish olive-olive black bioturbated silty clay intercalated with several massive silty clay with thin medium-coarse silt layer at base and a tephra layer.

PC02 & PL02: A piston core (PC02: 553.2 cm long) with a pilot gravity core (PL02: 79.0 cm) was collected from the northern part of the mid slope terrace. Major lithology of the piston core was grayish olive-olive black bioturbated silty clay with numerous thin medium-coarse silt layers. Tephra spots were observed at the lower part of the core.

PC03 & PL 03: A main piston core (PC03) with 556.4 cm long and a pilot gravity core (PL03) with 86.3 cm long was collected from the middle part of the mid slope terrace at ~3 nm south of NT13-19 PC13 site. Major lithology of the main piston core was grayish olive-olive black bioturbated silty clay. Many massive silty clay-silt beds with thin medium-coarse silt layer were found. A tephra spot was occurred at the upper part of the core.

PC04 & PL04: A main piston core with 548.3 cm long and a pilot gravity core with 69.8 cm long was obtained from a small terrace above the mid slope terrace. Major lithology of both cores was olive black-grayish olive bioturbated silt. Foraminiferal remains were observed visually throughout the cores. Several medium silt layers were intercalated. A tephra layer and tephra spot was also found.

GC01: The coring site is the same location of NT13-19 PC08. A gravity core (GC01) with 176.6 cm in length was recovered. Major lithology of the gravity core was grayish olive-olive black bioturbated silty clay. Some massive silty clay beds with medium-coarse silt layer at base and a tephra layer were found.

GC02: A gravity core with 187.5 cm long was obtained from the mid slope terrace floor at the same location with NT13-19 PC04. Major lithology of the cores was grayish olive-olive black bioturbated silty clay. Three relatively thick massive silty clay beds were observed.

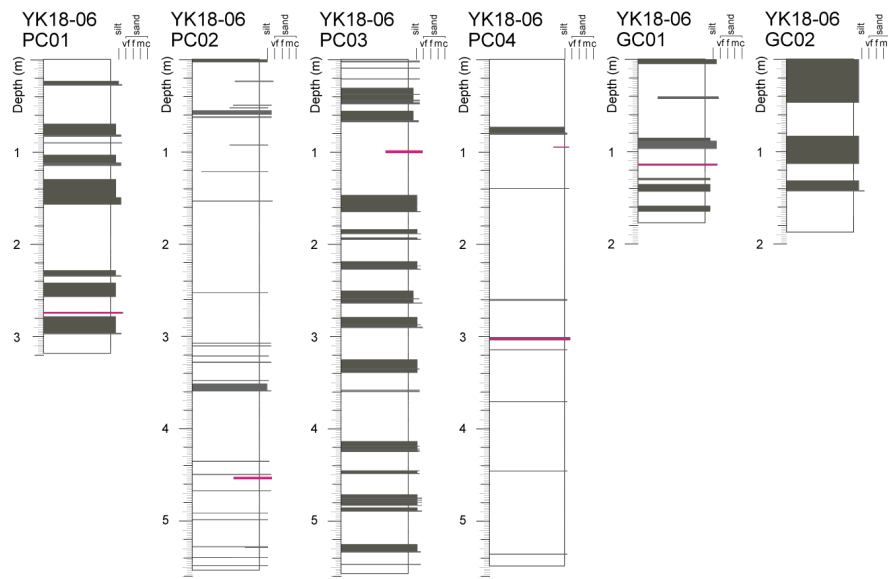


Fig. 6-3-1 Columnar section of each piston core

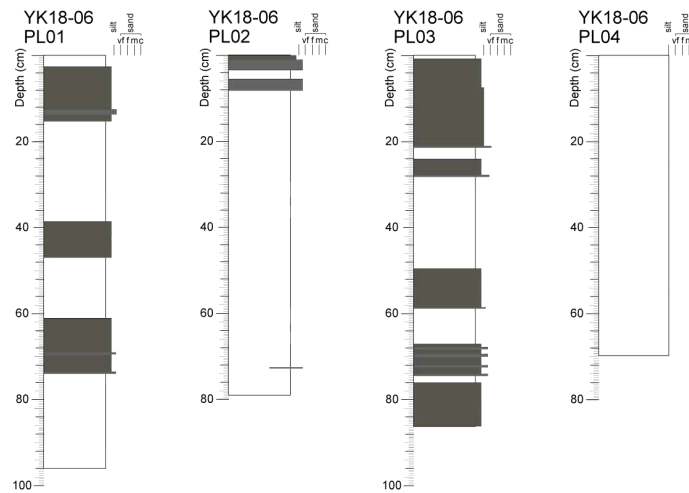


Fig. 6-3-2 Columnar section of each pilot and multiple core (Legend is the same as Fig. 6-4-1)

Table 6-3-1 Core length of each core section

| Core | Section 1 | Section 2 | Section 3 | Section 3-2 | Section 4 | Section 5 | Section 6 | Core Catcher | Total (cm) |
|------|-----------|-----------|-----------|-------------|-----------|-----------|-----------|--------------|------------|
| PC01 | | | 20.5 | | 99.9 | 99.0 | 99.0 | 0.0 | 318.4 |
| PL01 | 96.0 | | | | | | | | 96.0 |
| PC02 | 51.9 | 101.8 | 101.1 | | 100.0 | 99.9 | 98.5 | | 553.2 |
| PL02 | 79.0 | | | | | | | | 79.0 |
| PC03 | 46.1 | 98.5 | 19.8 | 81.2 | 100.3 | 99.8 | 97.5 | 13.2 | 556.4 |
| PL03 | 86.3 | | | | | | | | 86.3 |
| PC04 | 36.7 | 100.6 | 100.2 | | 99.7 | 100.3 | 99.8 | 11.0 | 548.3 |
| PL04 | 69.8 | | | | | | | | 69.8 |
| GC01 | 64.6 | 100.0 | | | | | | 12.0 | 176.6 |
| GC02 | 78.5 | 100.0 | | | | | | 9.0 | 187.5 |

7. Acknowledgement

We are grateful for the efforts of Captain Nakamura and his crews during the cruise. We thank all the support from staffs in JAMSTEC. Especially thanks to Mr. Iijima in the Research Fleet Department for his considerable efforts.

8. Notice on Using

Notice on using: Insert the following notice to users regarding the data and samples obtained.

This cruise report is a preliminary documentation as of the end of the cruise.

This report may not be corrected even if changes on contents (i.e. taxonomic classifications) may be found after its publication. This report may also be changed without notice. Data on this cruise report may be raw or unprocessed. If you are going to use or refer to the data written on this report, please ask the Chief Scientist for latest information.

Users of data or results on this cruise report are requested to submit their results to the Data Management Group of JAMSTEC.

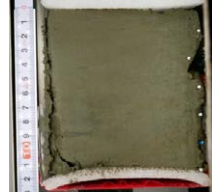
Core photo



Sec. 1



Sec. 2



Sec. CC

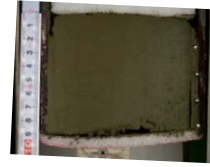
YK18-06 GC01



Sec. 1



Sec. 2



Sec. CC

YK18-06 GC02

PL01



YK18-06 PC01

Sec. 3



Sec. 4



Sec. 5



Sec. 6





PL02



Sec. 1



Sec.
3



Sec.
4



Sec.
5



Sec.
6



YK18-06 PC02

Sec. 2



PL03

YK18-06 PC03



Sec. 1

Sec. 2



Sec. 3-1

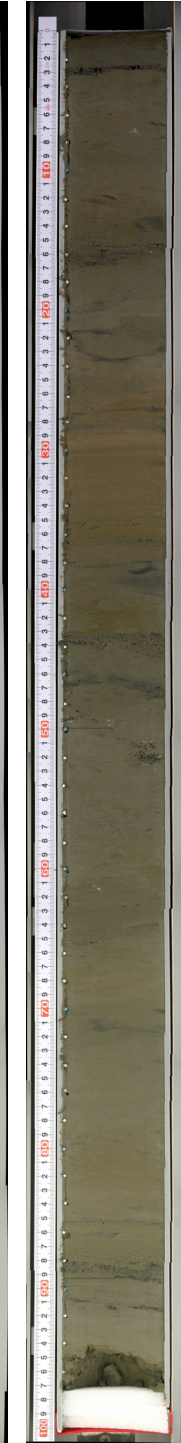


Sec. 3-2

Sec. 4



Sec.
5



Sec.
6



Sec. CC



PL04



Sec. 1

Sec. 2

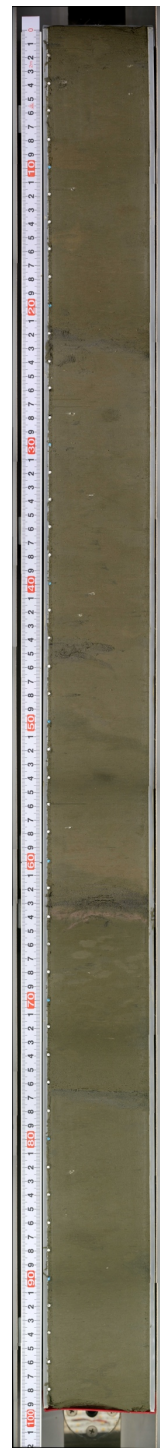
YK18-06 PC04



Sec.
3



Sec.
4



Sec.
5



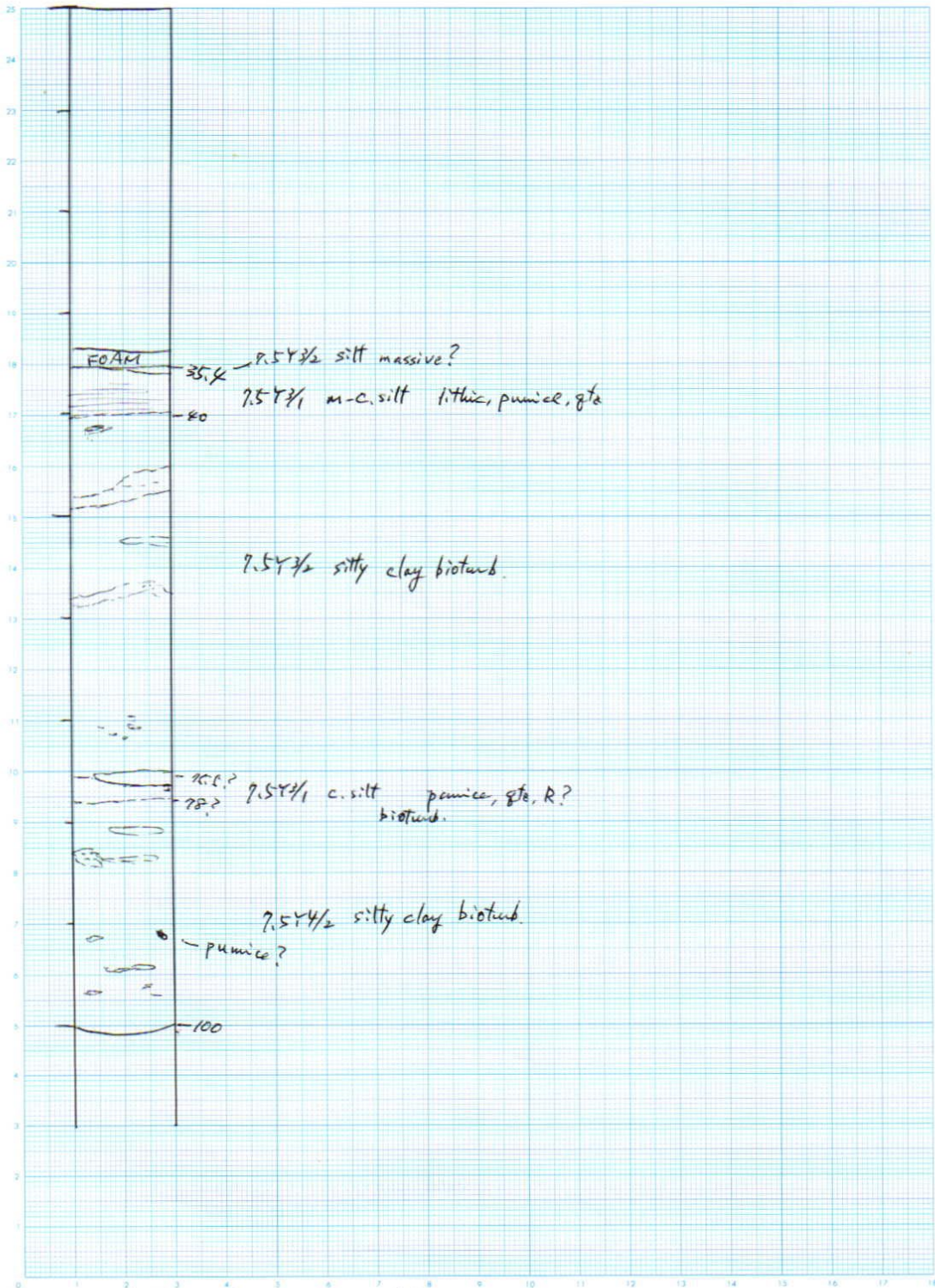
Sec.
6



Sec. CC

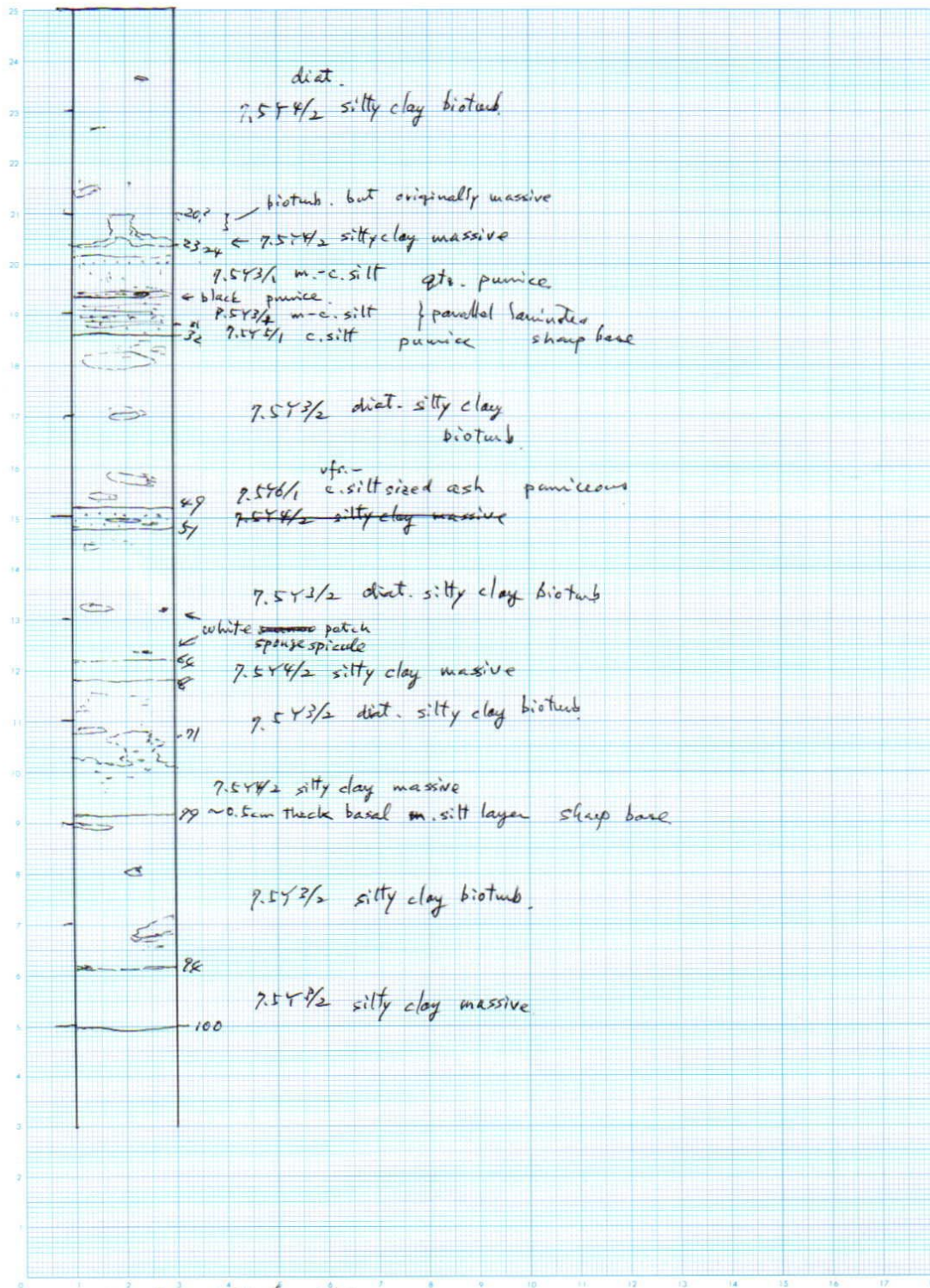
Visual core description

YK 18-06 GCO1 sec. 1 (W)



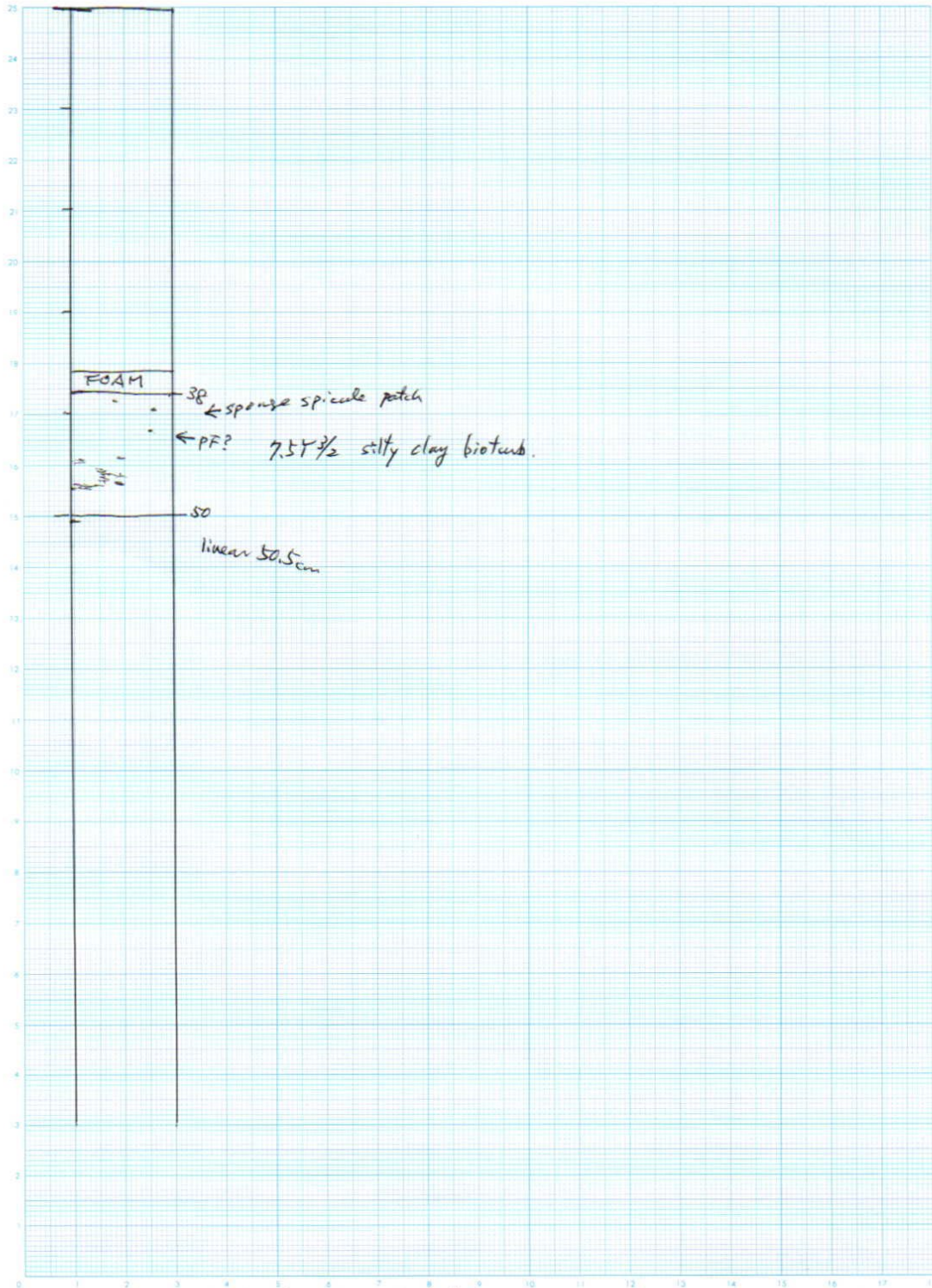
35.4-100 (0-64.6)

YK18-06 GC01 sec. 2 (W)



0-100 (64.6-164.6)

YK18-06 GC01 CC (W)

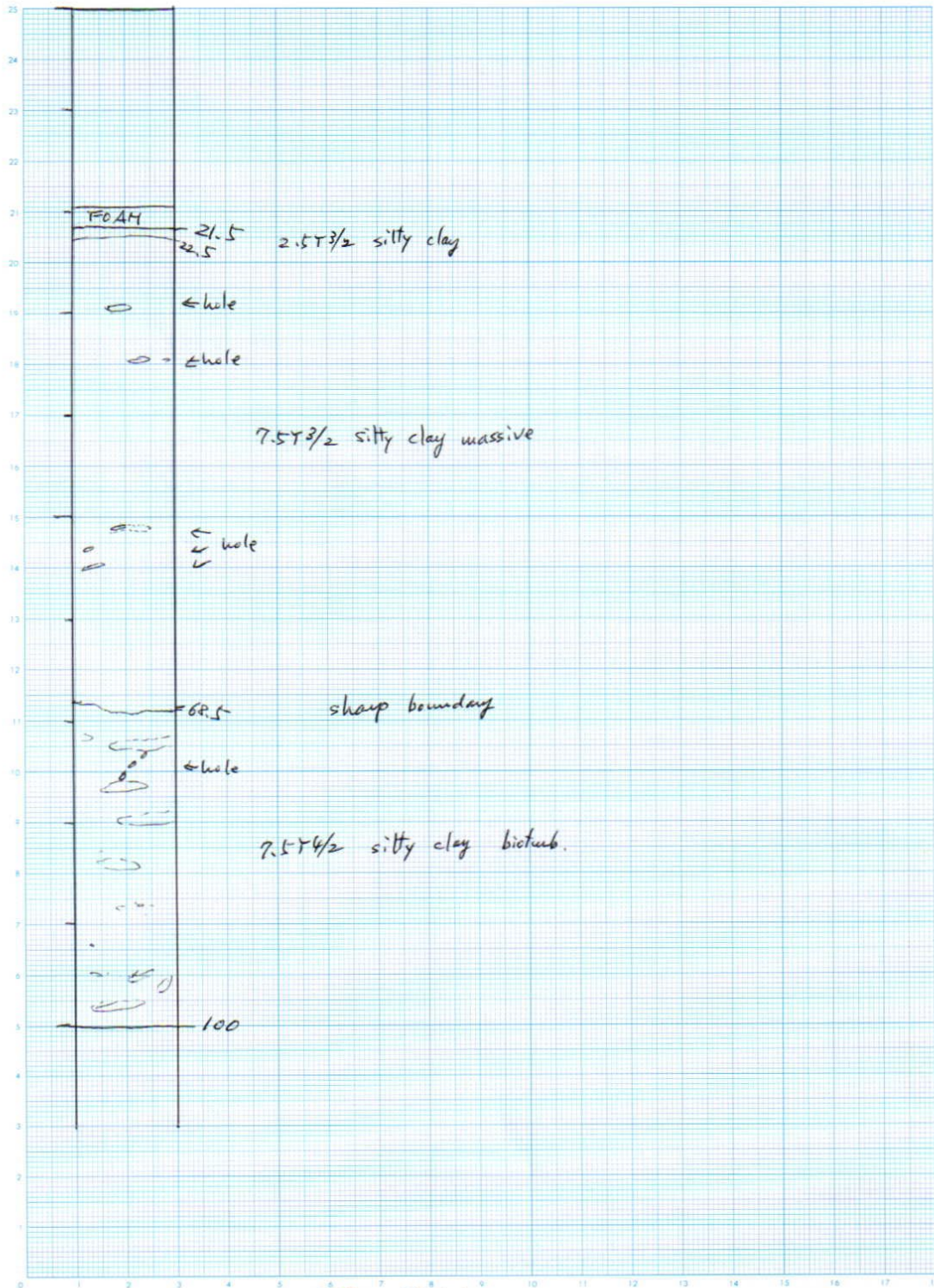


38-50 (164.6-176.6)

YK18-06

GCO2

sec. 1 (W)

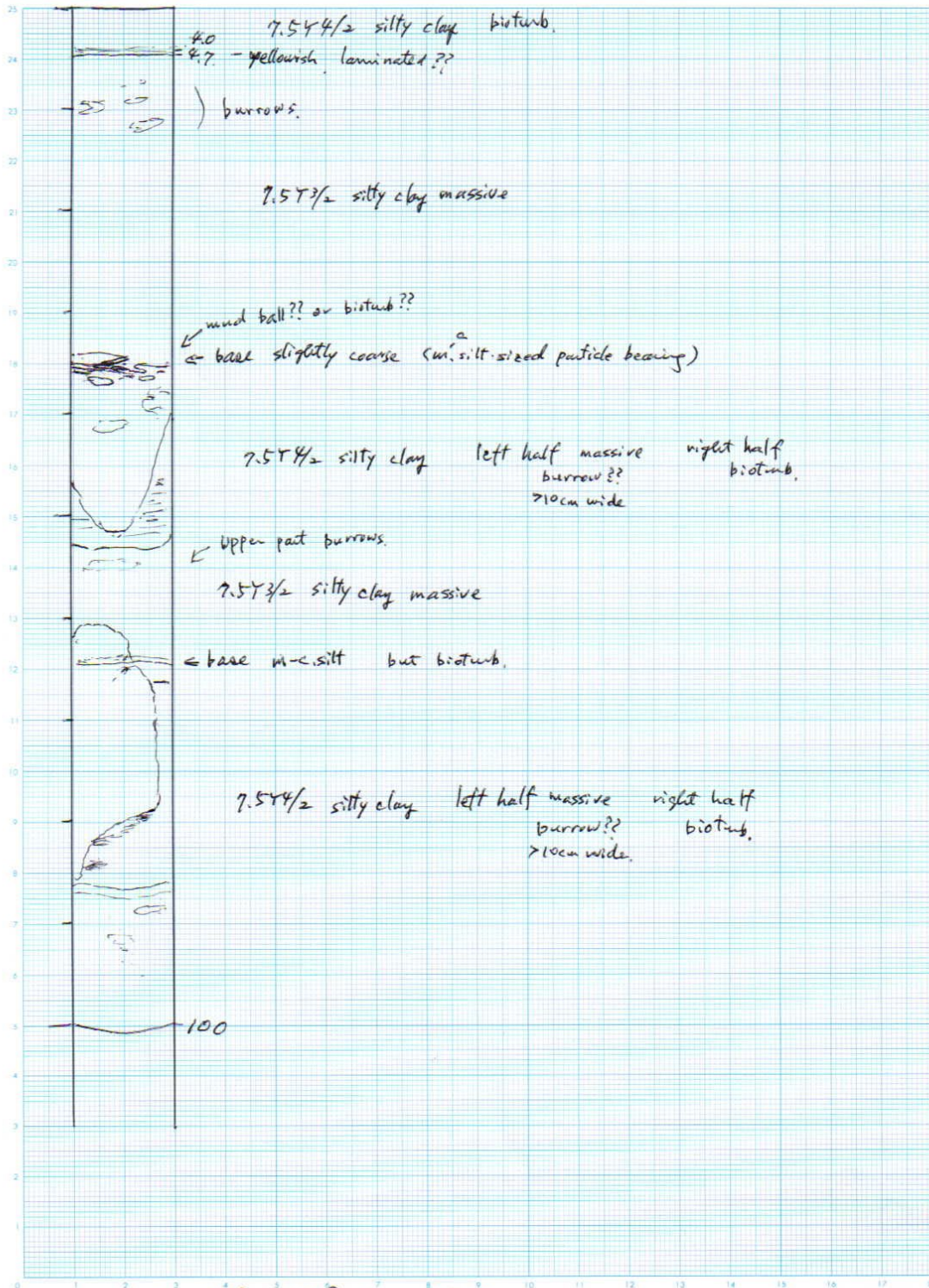


21.5 - 100 (~~78.5~~)

YK18-06

GCO2

sec. 2 (W)

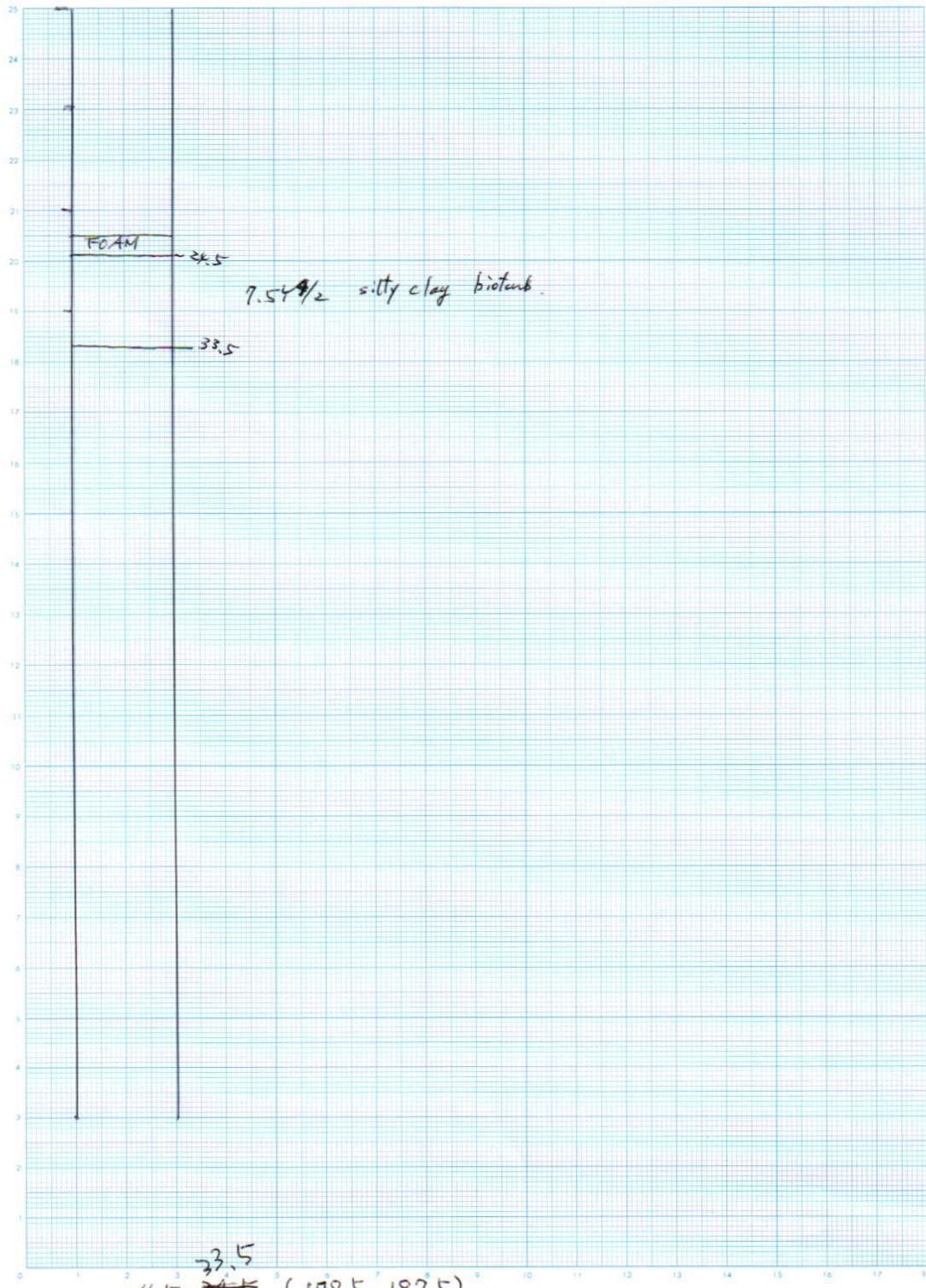


0-100 (78.5-178.5)

YK18-06

GCO2

sec. CC (W)

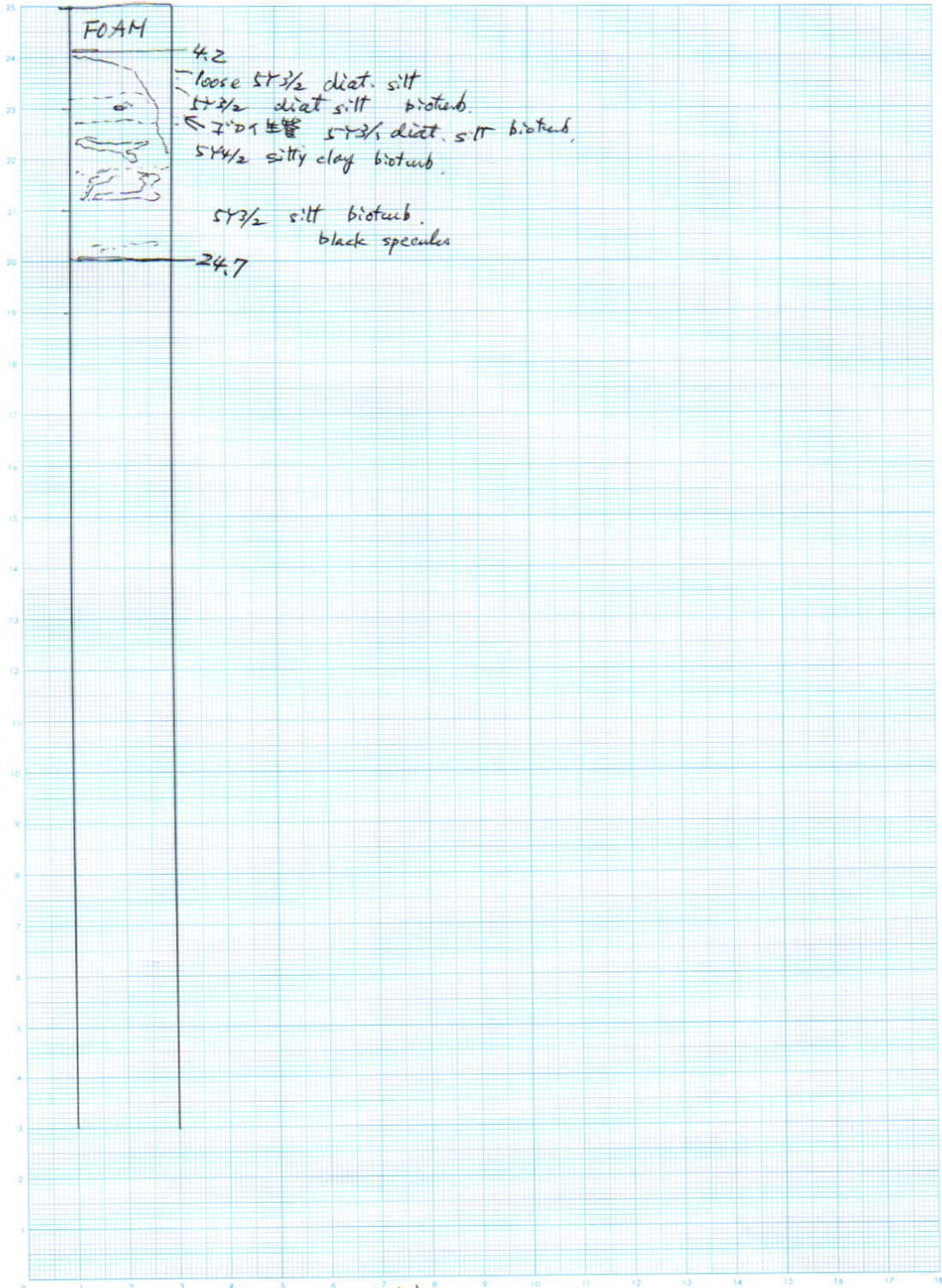


YK18-06

PC01

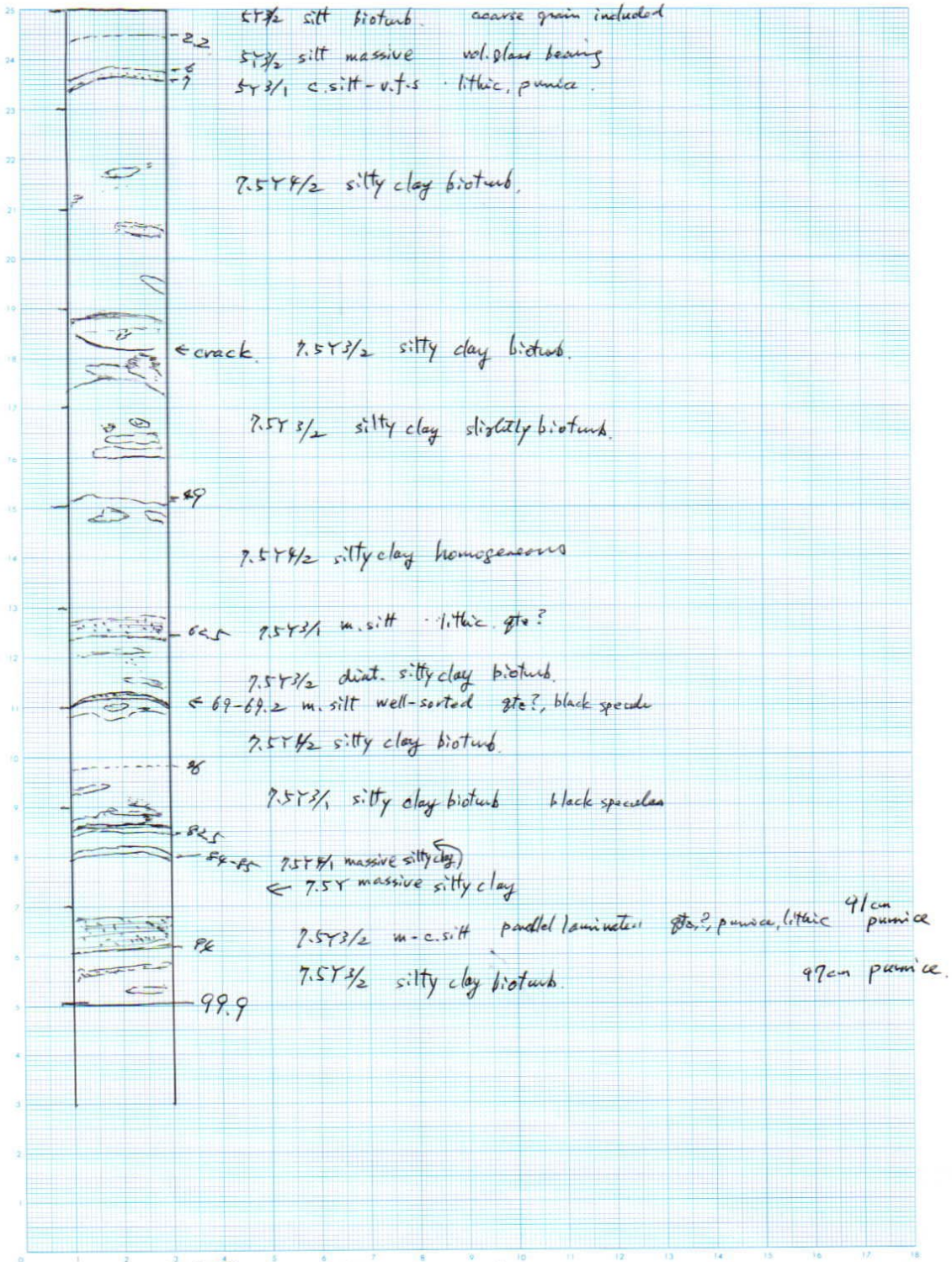
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(W)



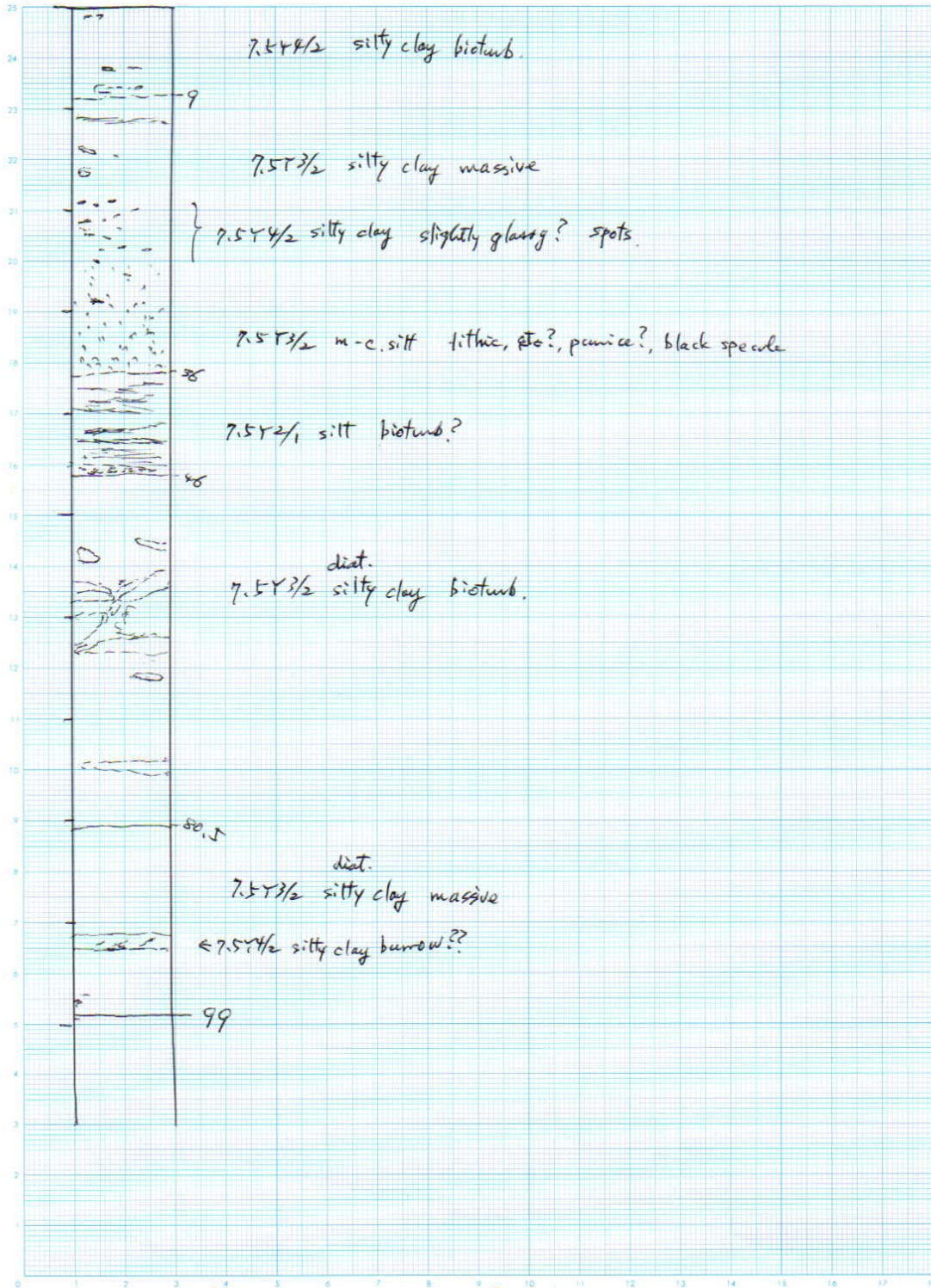
4.2-24.7 (0-20.5)

YK18-06 PC01 sec. 4 (W)



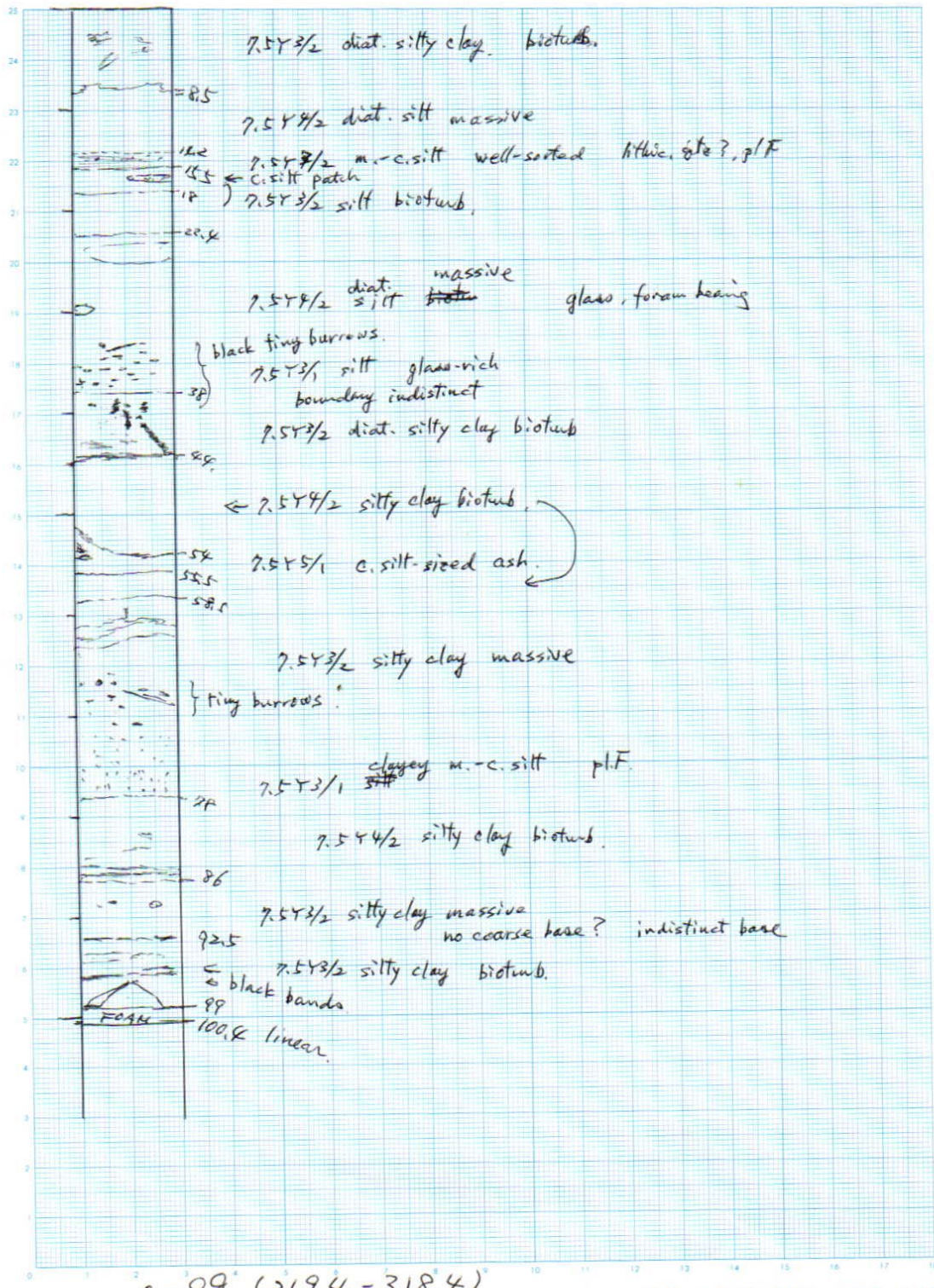
0-99.9 (20.5-120.4)

YK18-06 PC01 sec. 5 (W)



0-99 (120.4 - ~~220~~ 219.4)

YK18-06 PC01 sec. 6 (W)

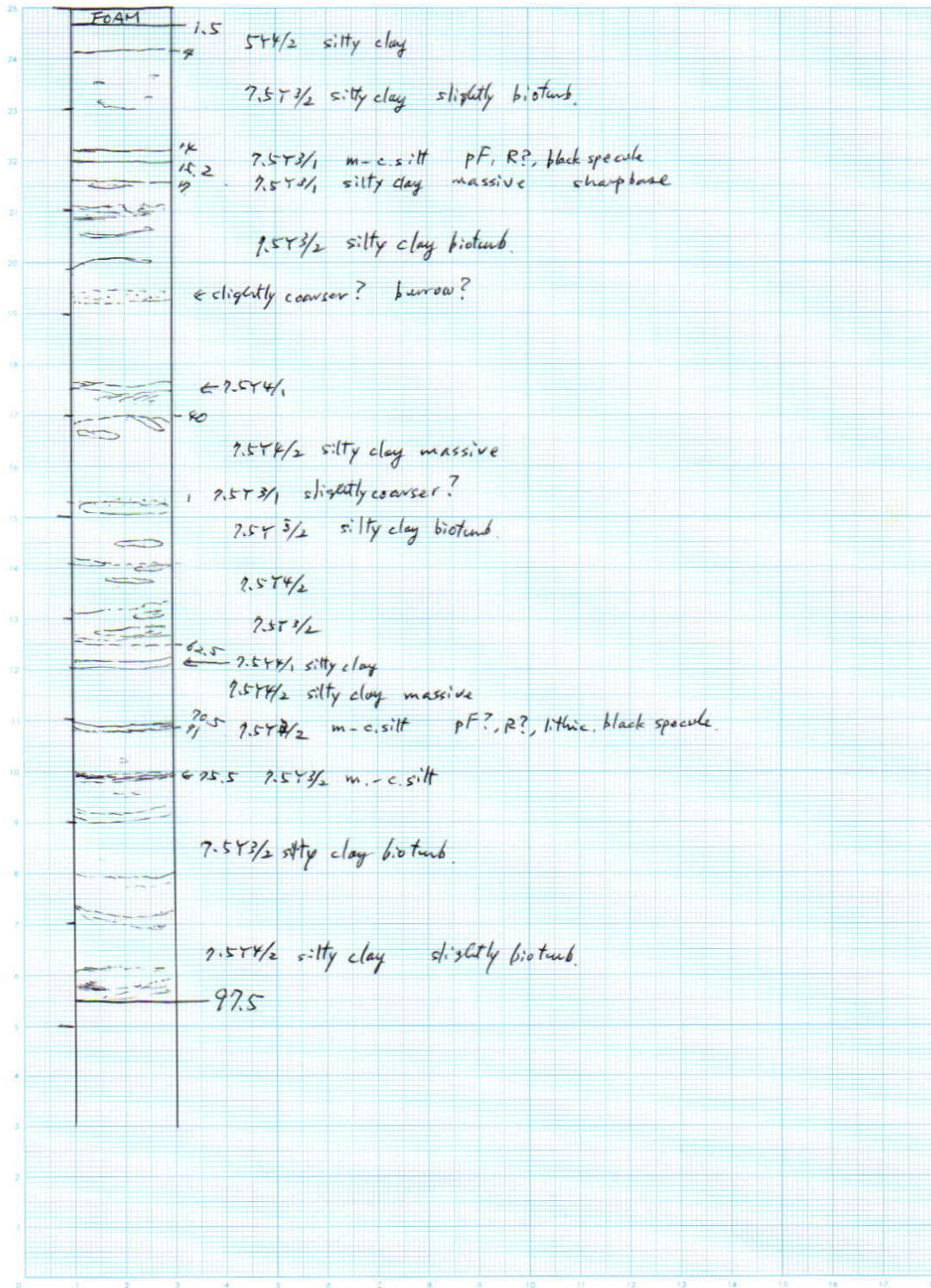


0-99 (219.4-318.4)

YK18-06

PL01

(W)

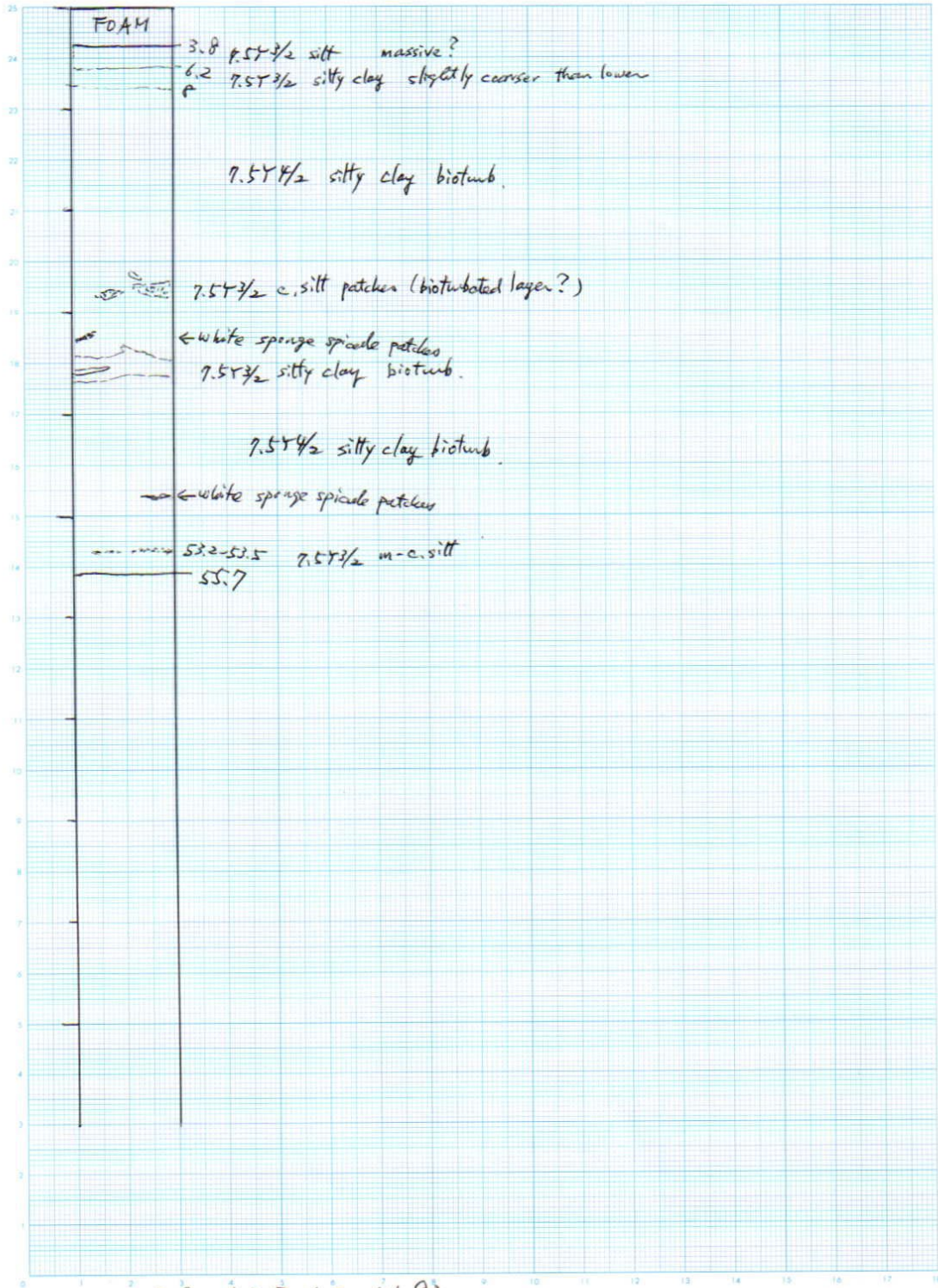


1.5-97.5 (0-96)

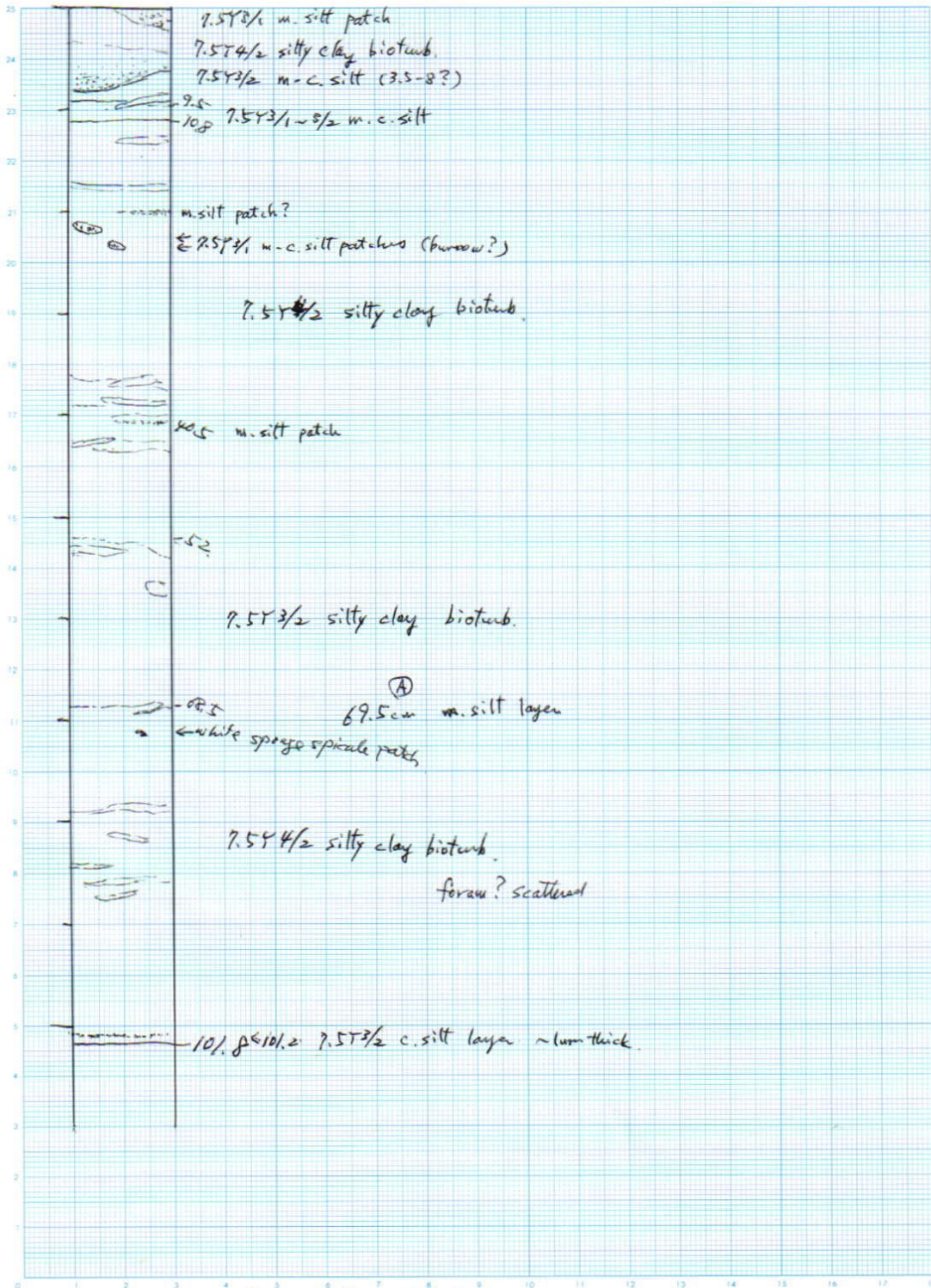
YK 18-06

PCO2

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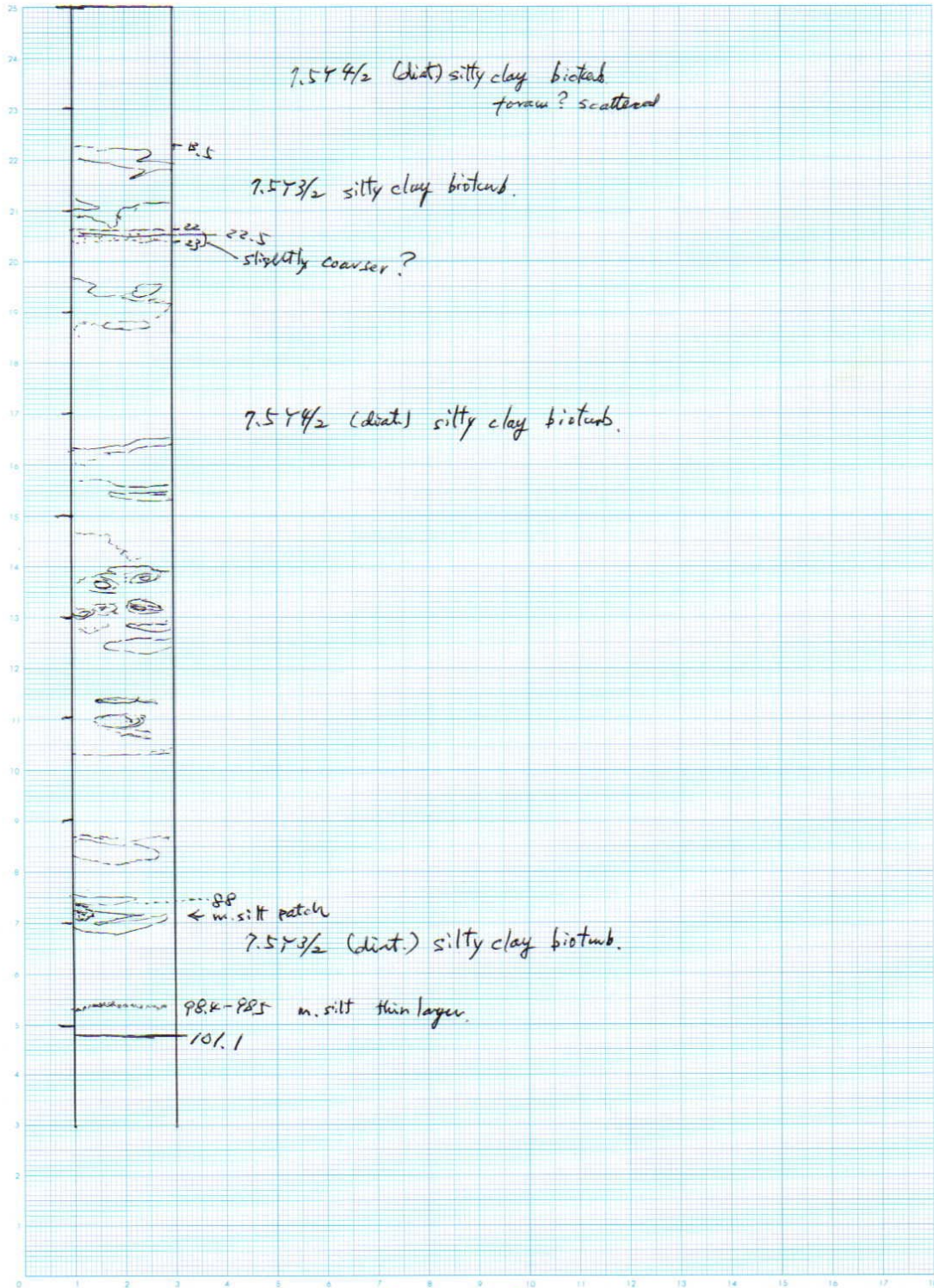


YK 18-06 PC02 sec. 2 (W)



0-101.8 (51.9-153.7)

YK18-06 PCO2 sec. 3 (W)

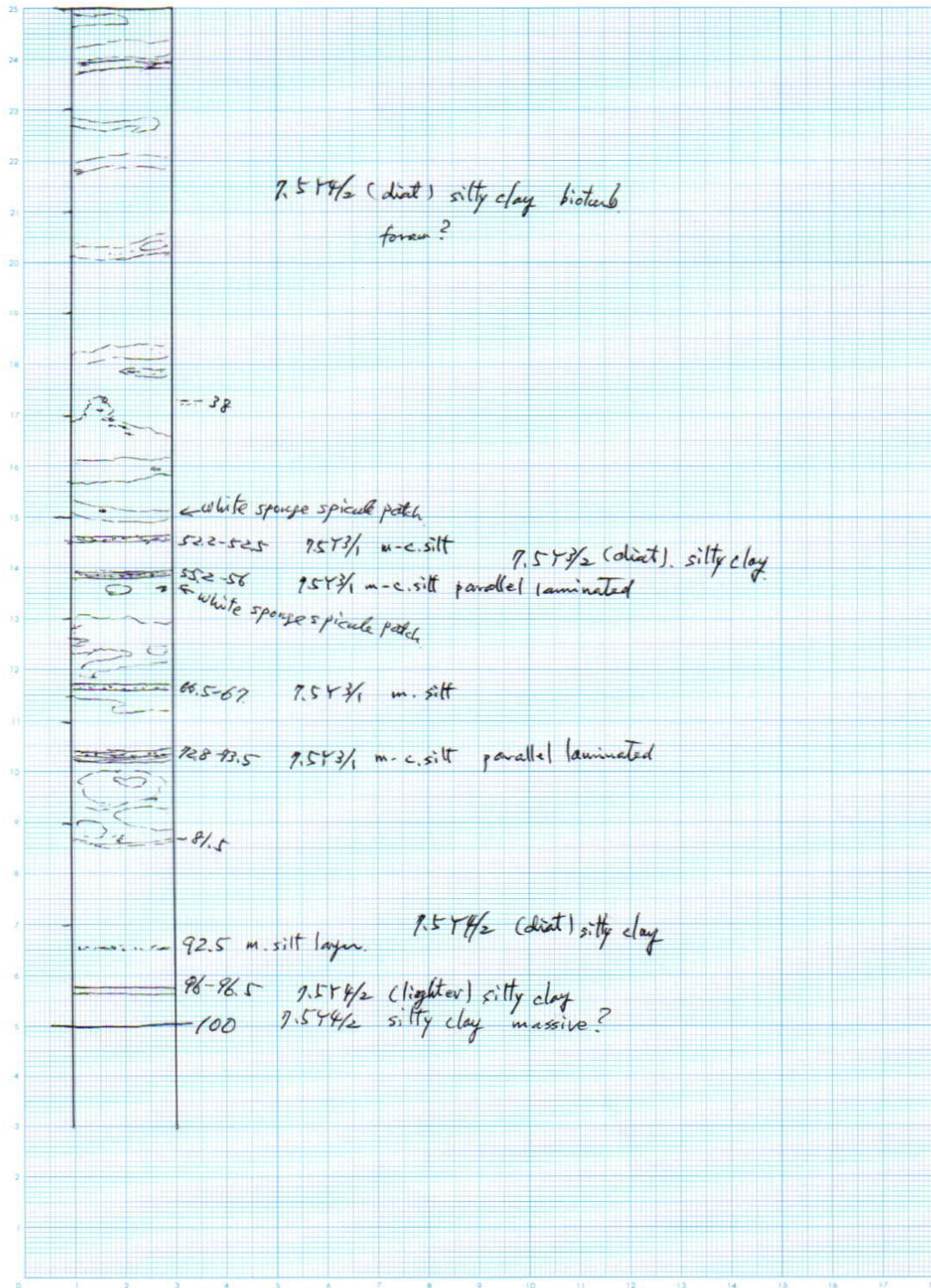


0-10/1 (153.7-254.8)

YK18-06

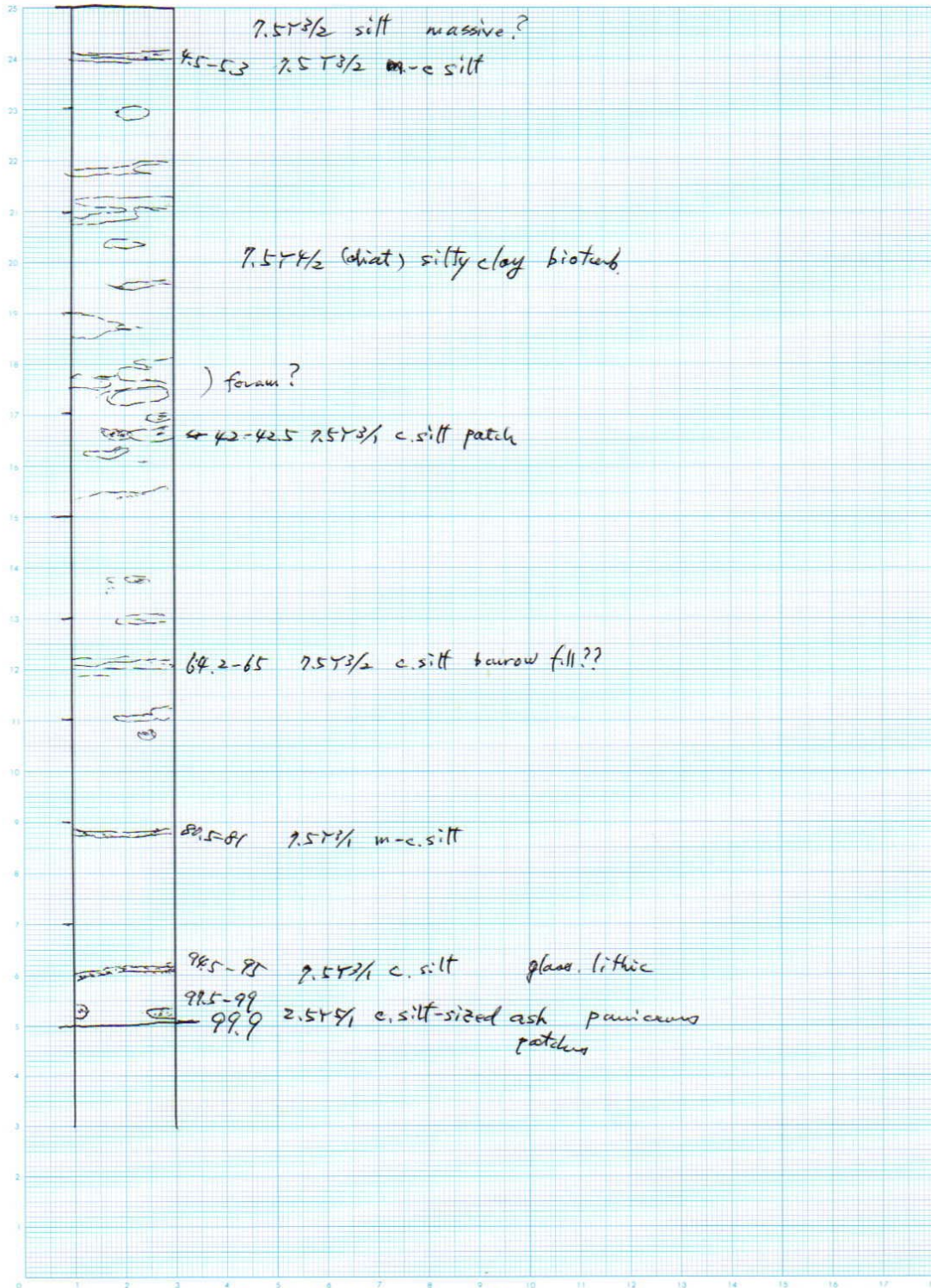
PC02

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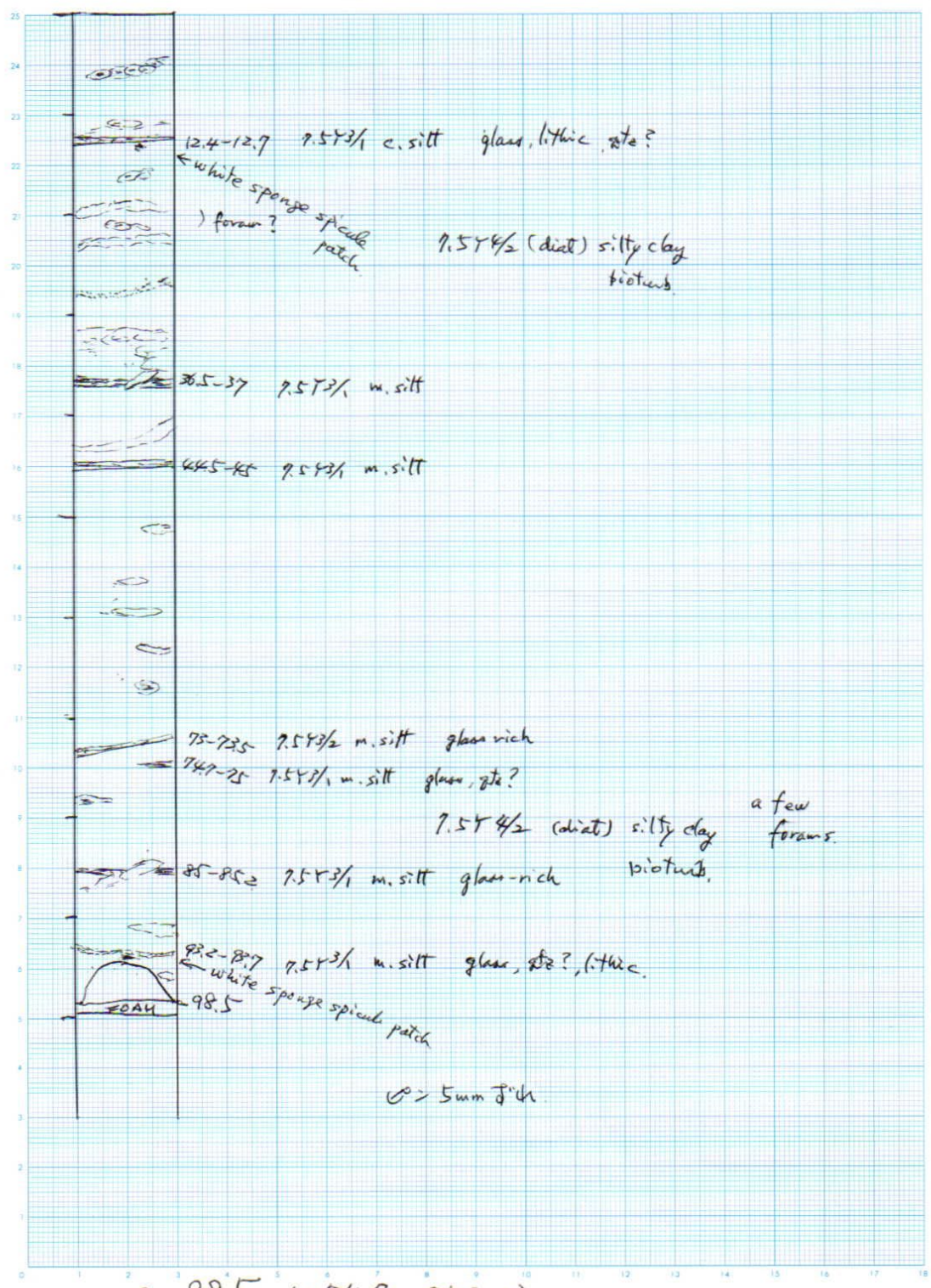
0-100 (254.8-354.8)

YK18-06 PC02 sec. 5 (W)



0-99.9 (354.8-454.7)

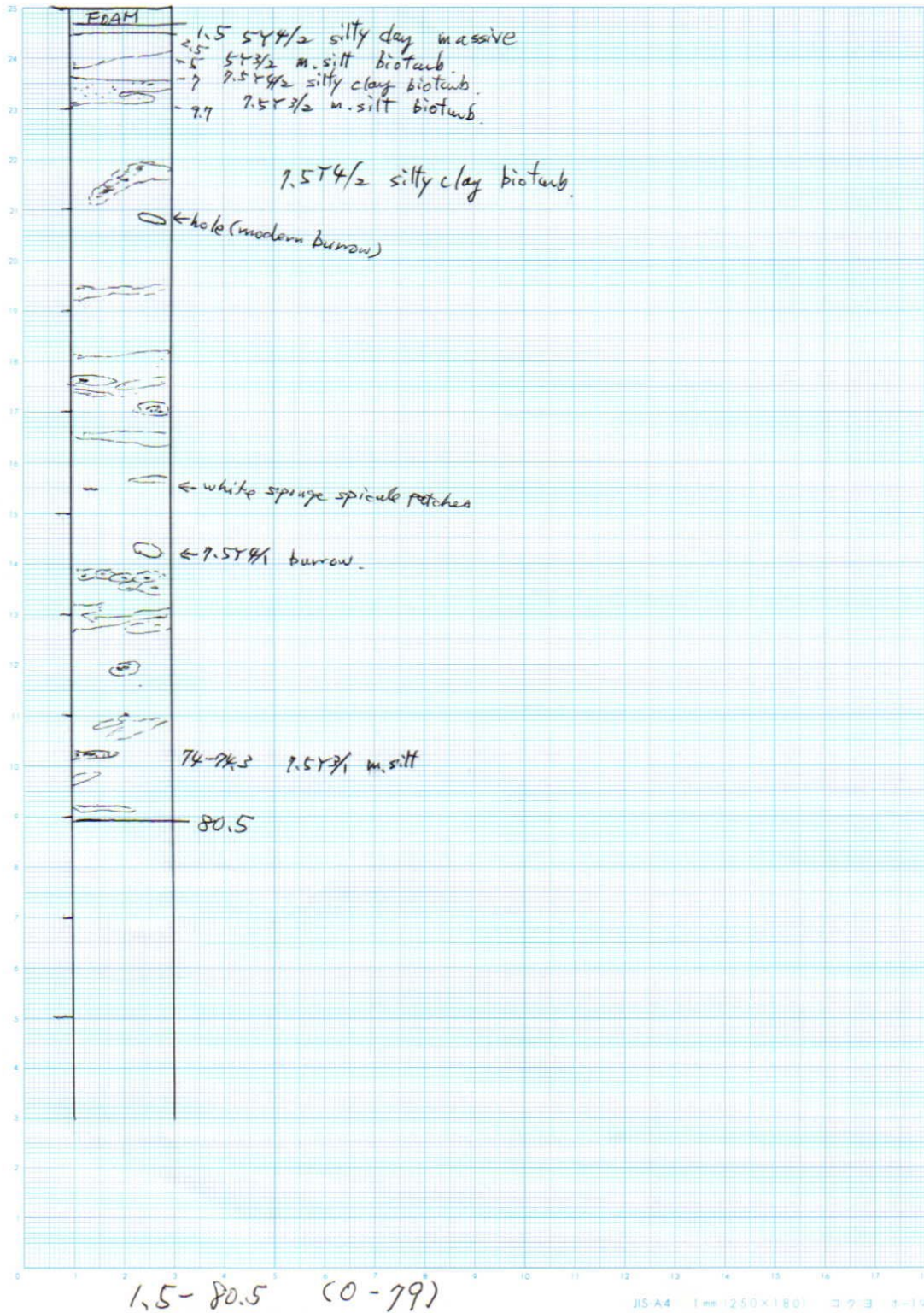
YK18-06 PC02 sec. 6 (W)



YK 18-06

PL02

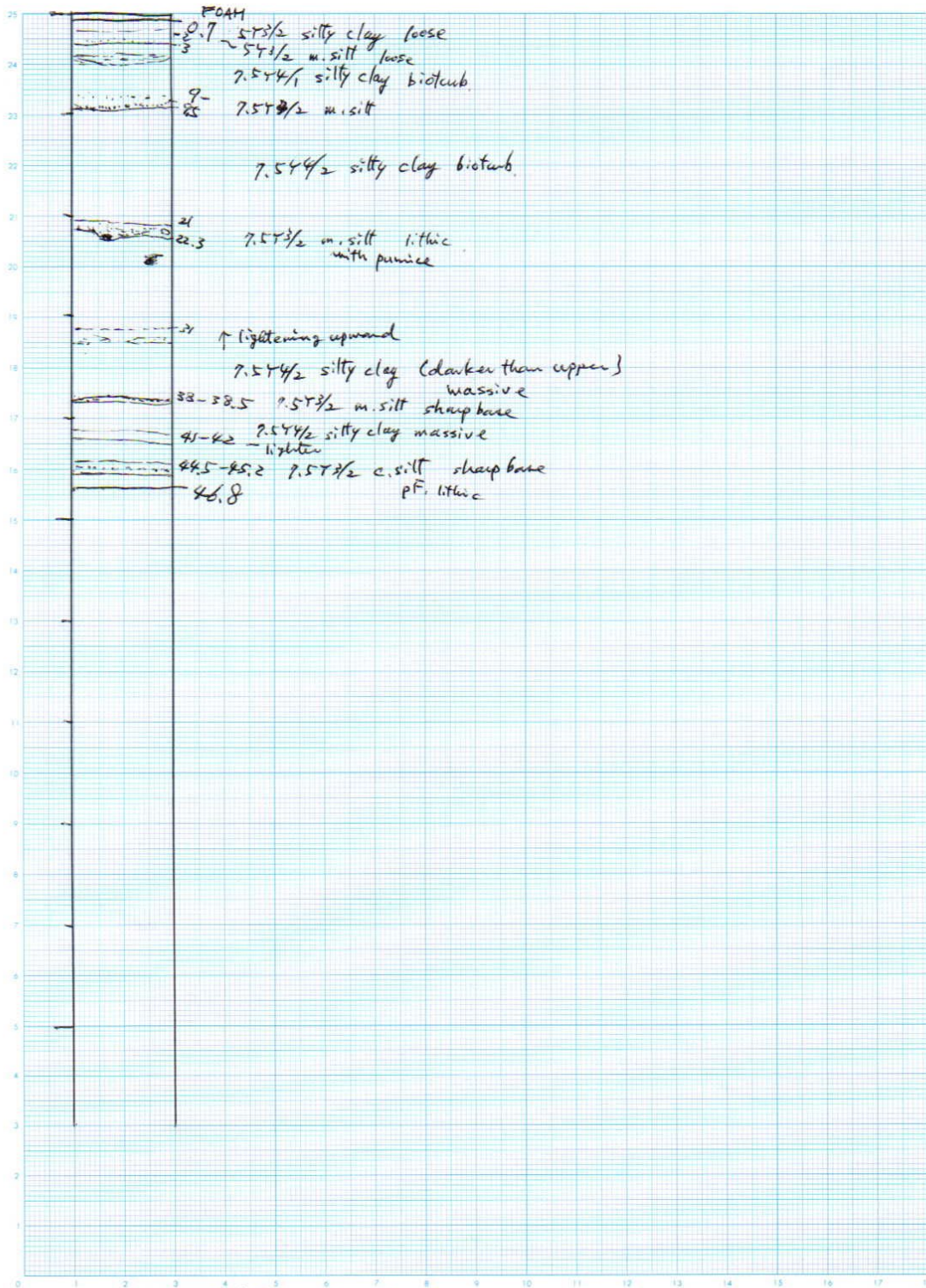
sec. 1 (W)



YK 18-06

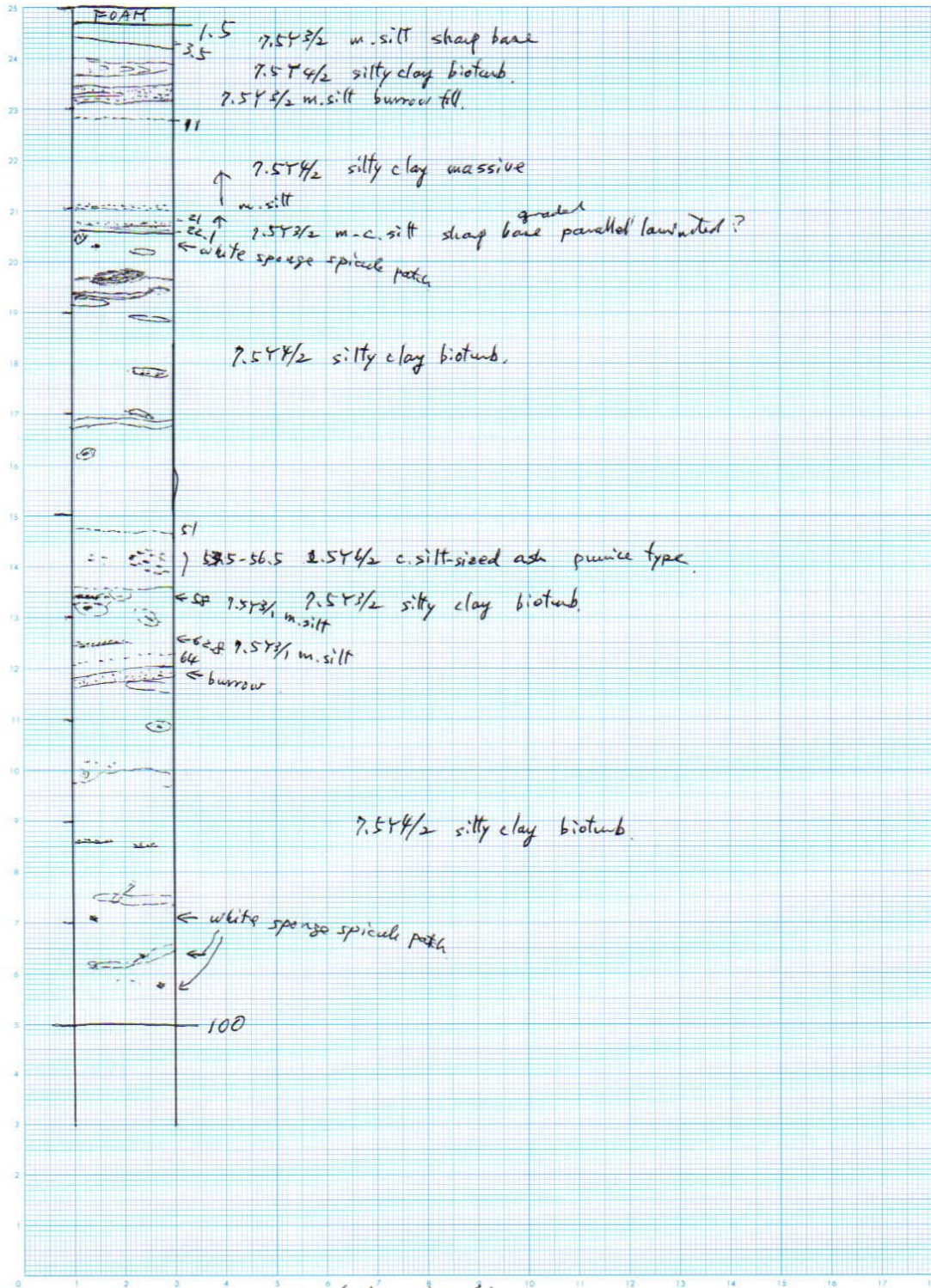
PC03

sec. 1 (W)



0.7 - 46.8 (0 - 46.1)

YK18-06 PC03 sec. 2 (W)

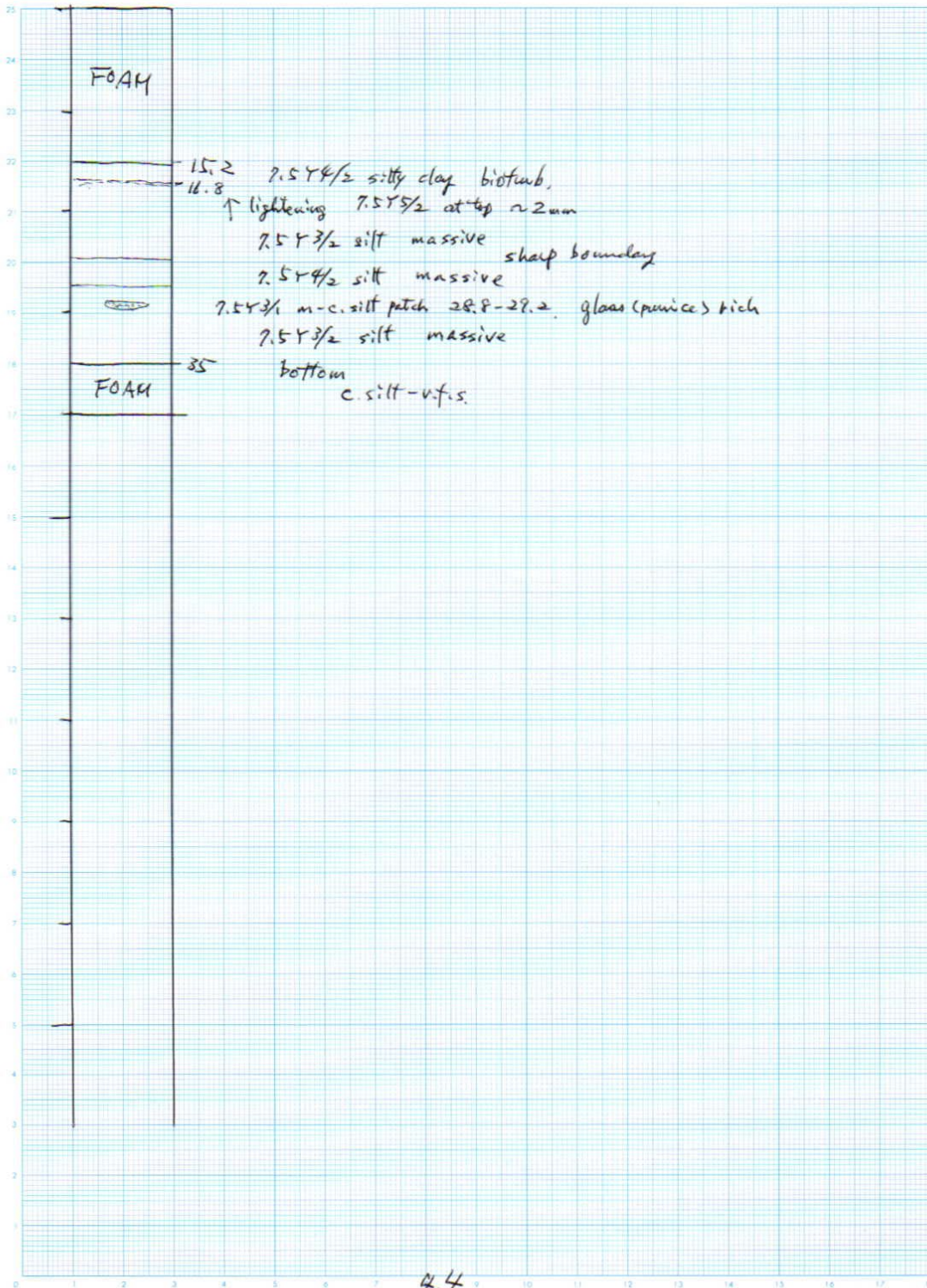


1.5-100 (46.1-144.6)

YK18-06

PC03

sec. 3-1 (W)

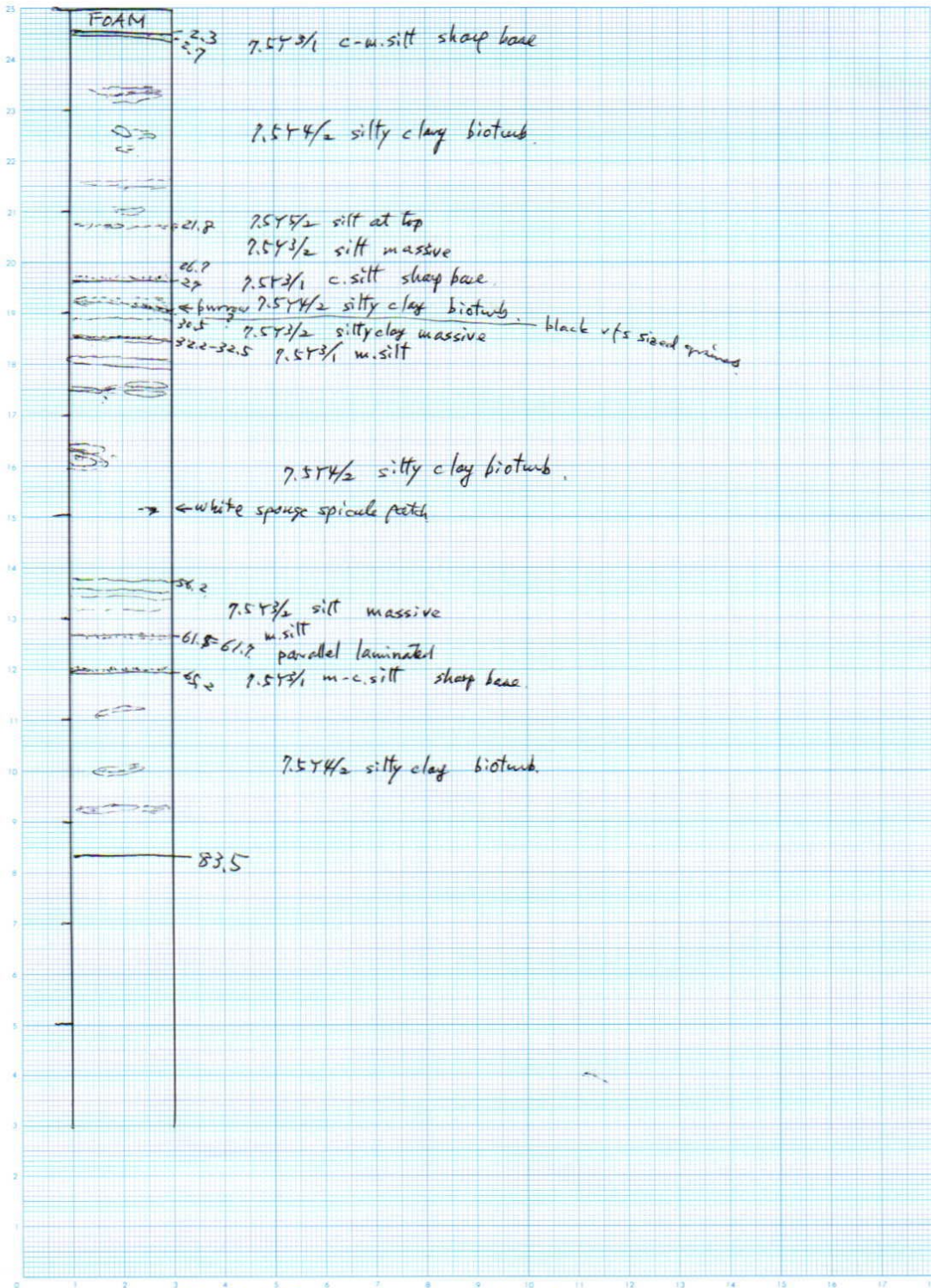


4.4
15.2-35 (144.6 - 163.8)

YK 18-06

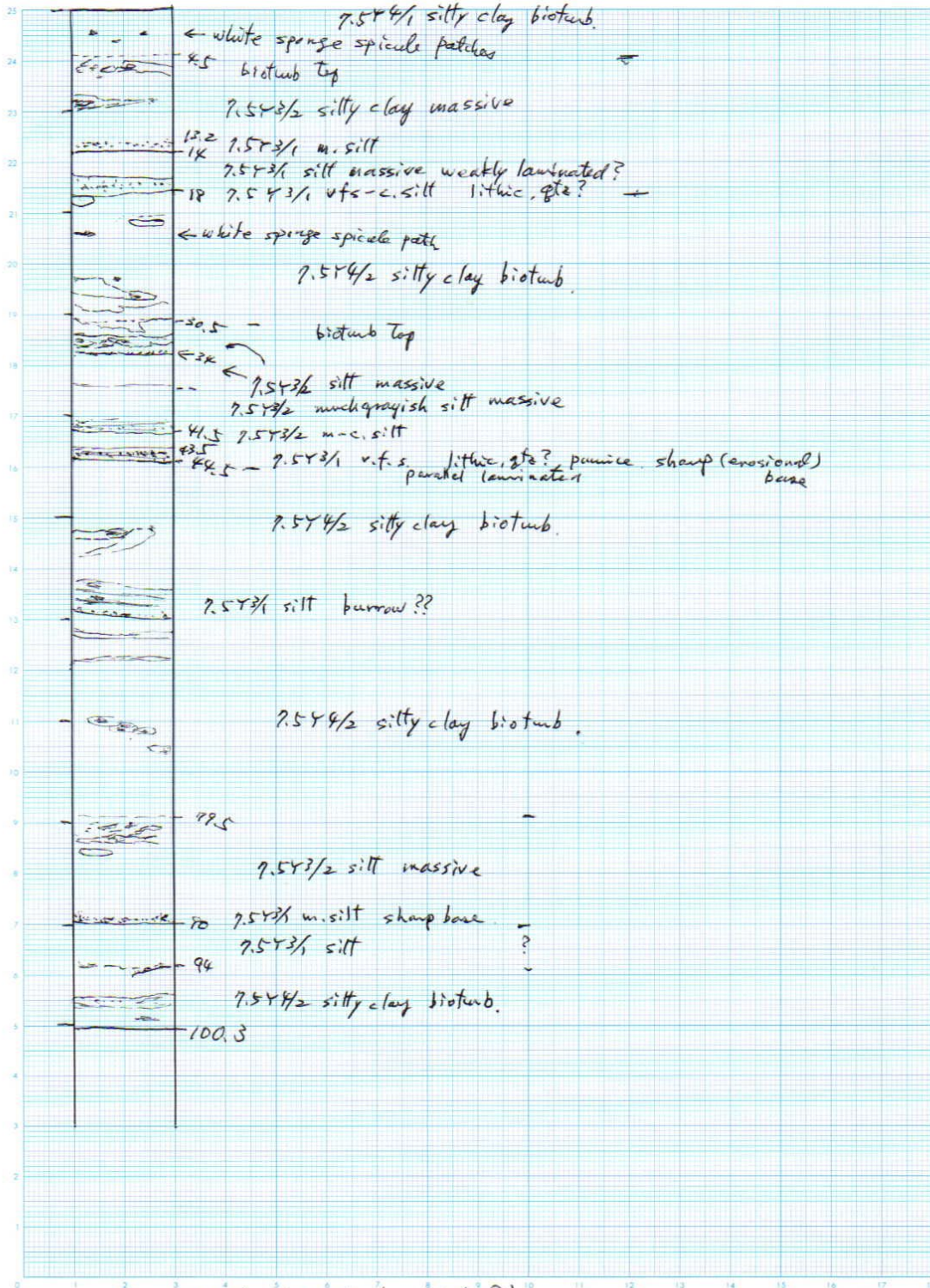
PC03

sec. 3-2 (W)



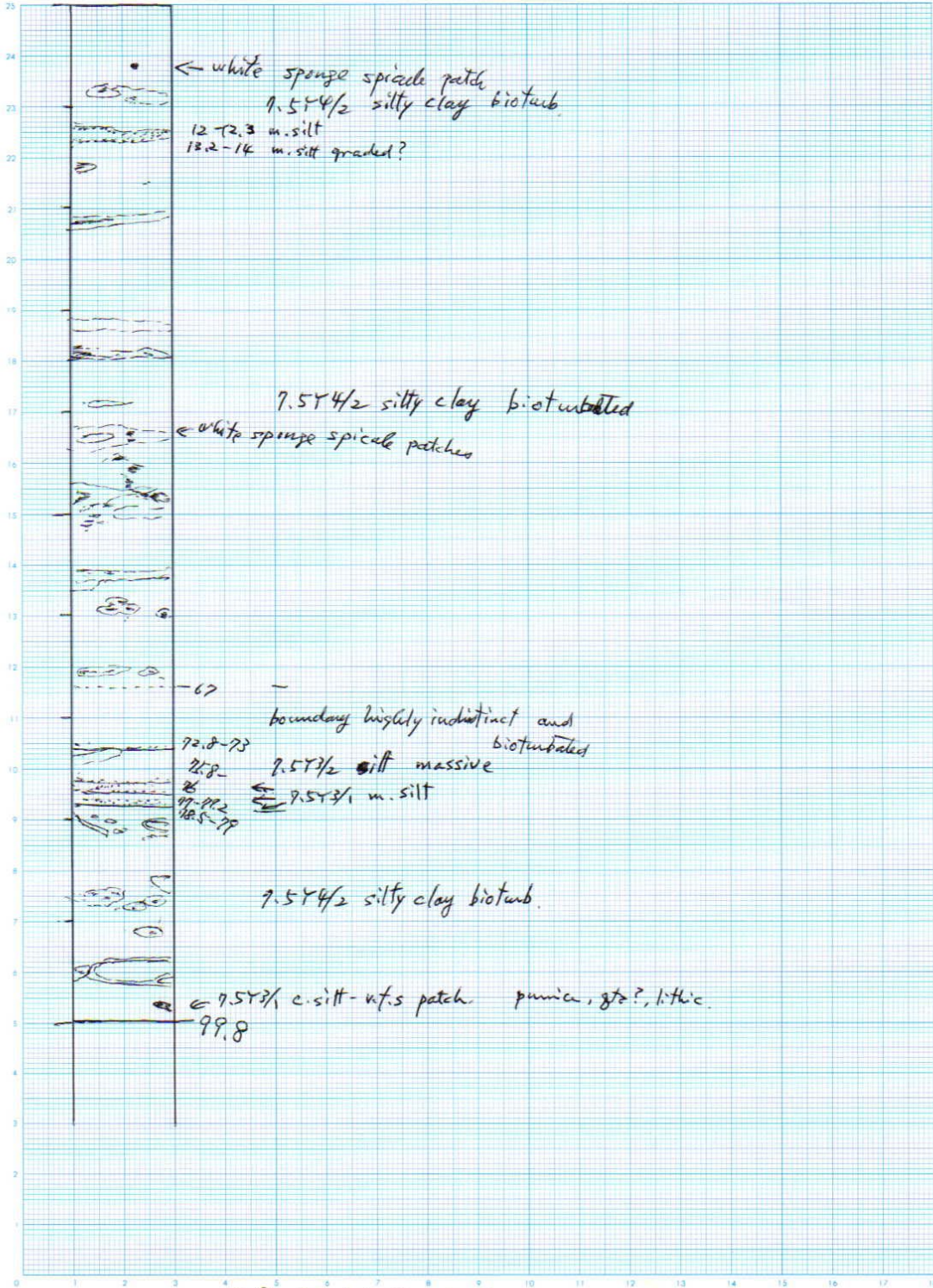
2.3 - 83.5 (164.4 - 245.6)

YK18-06 PC03 sec. 4 (W)



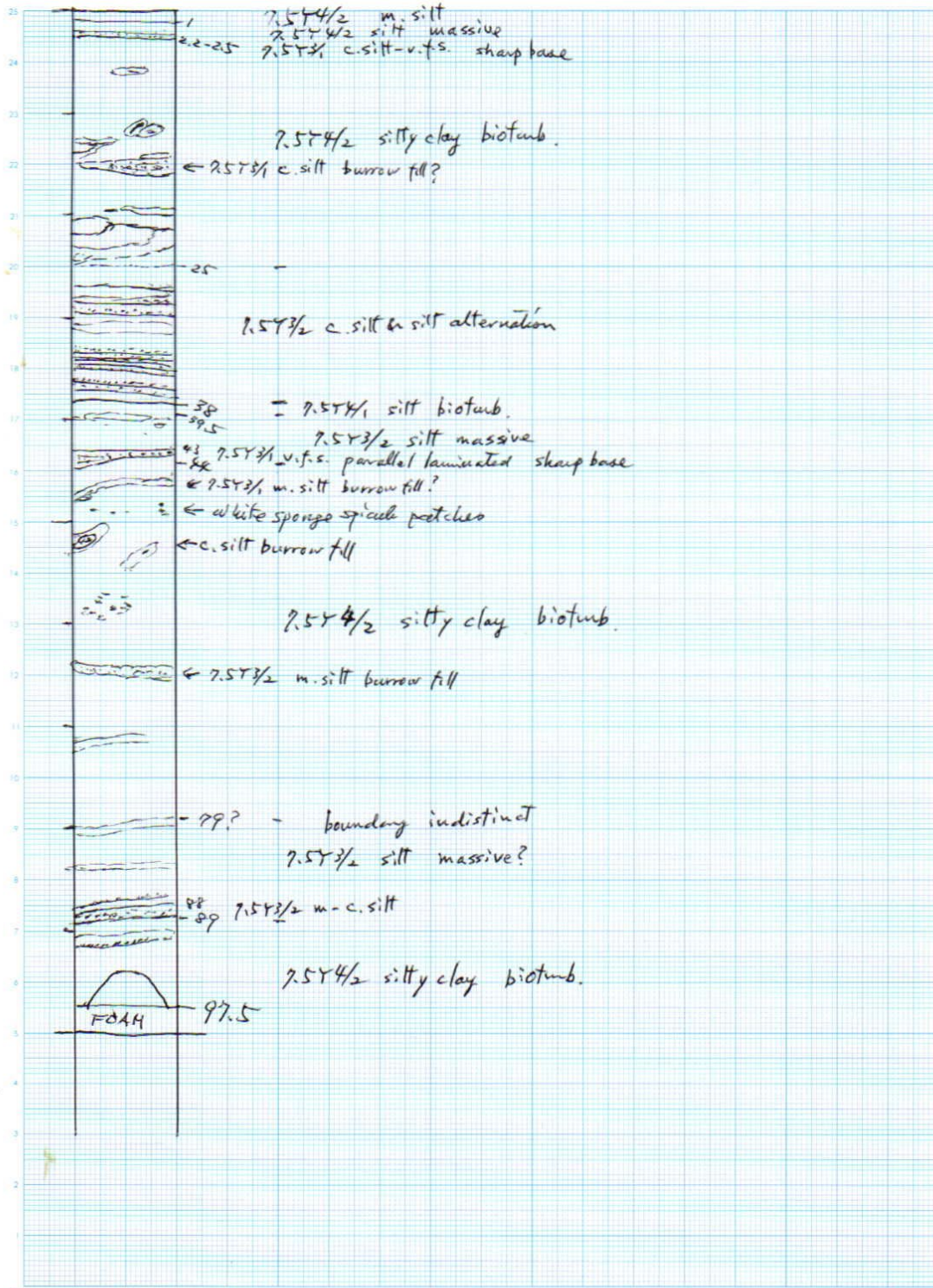
0 - 100.3 (245.6 - 345.9)

YK18-06 PC03 sec. 5 (W)



0-99.8 (345.9-445.7)

YK18-06 PC03 sec. 6 (W)



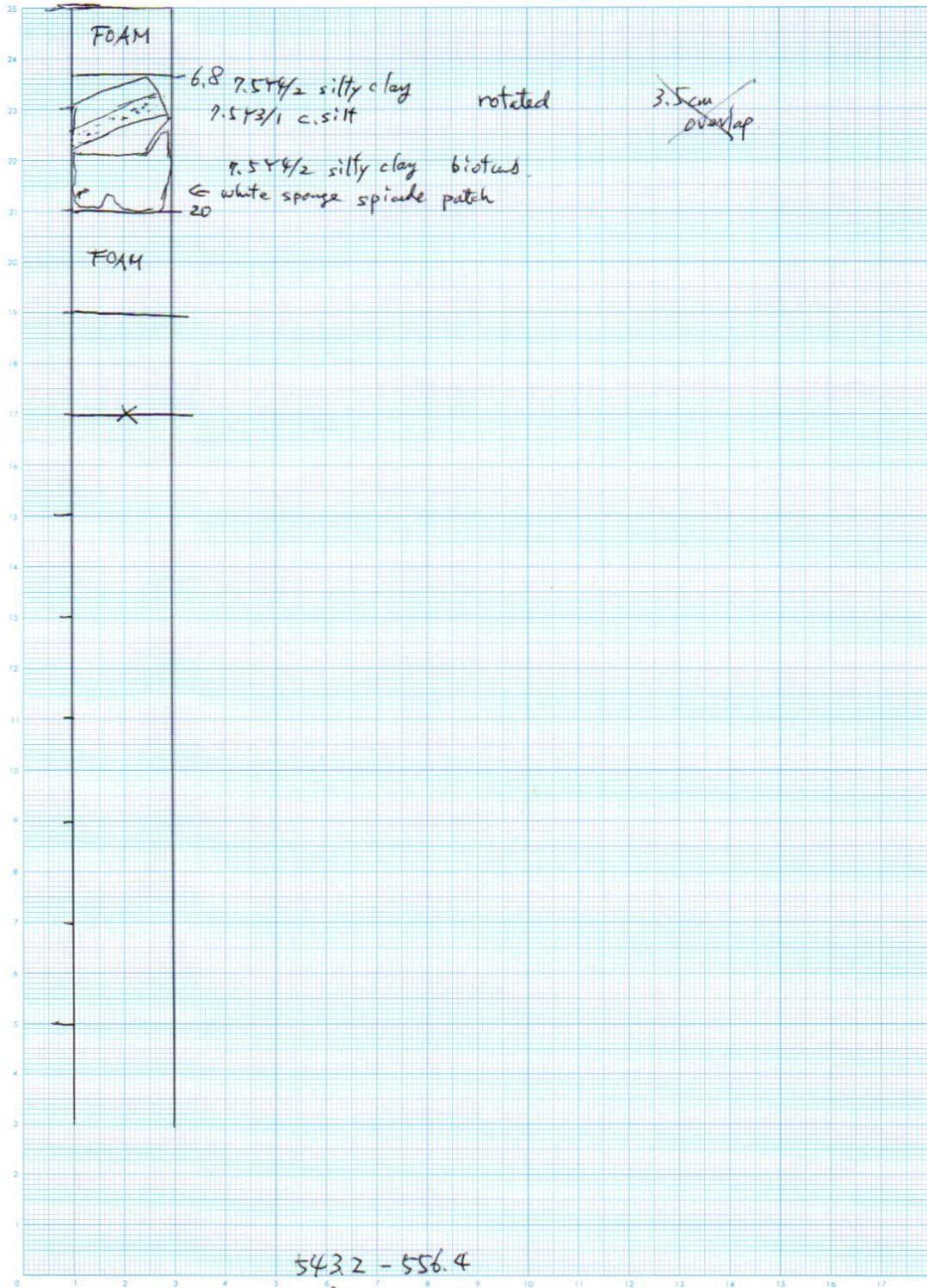
0-97.5 (445.7 - 543.2)

YK18-06

PC03

sec. CC

(W)

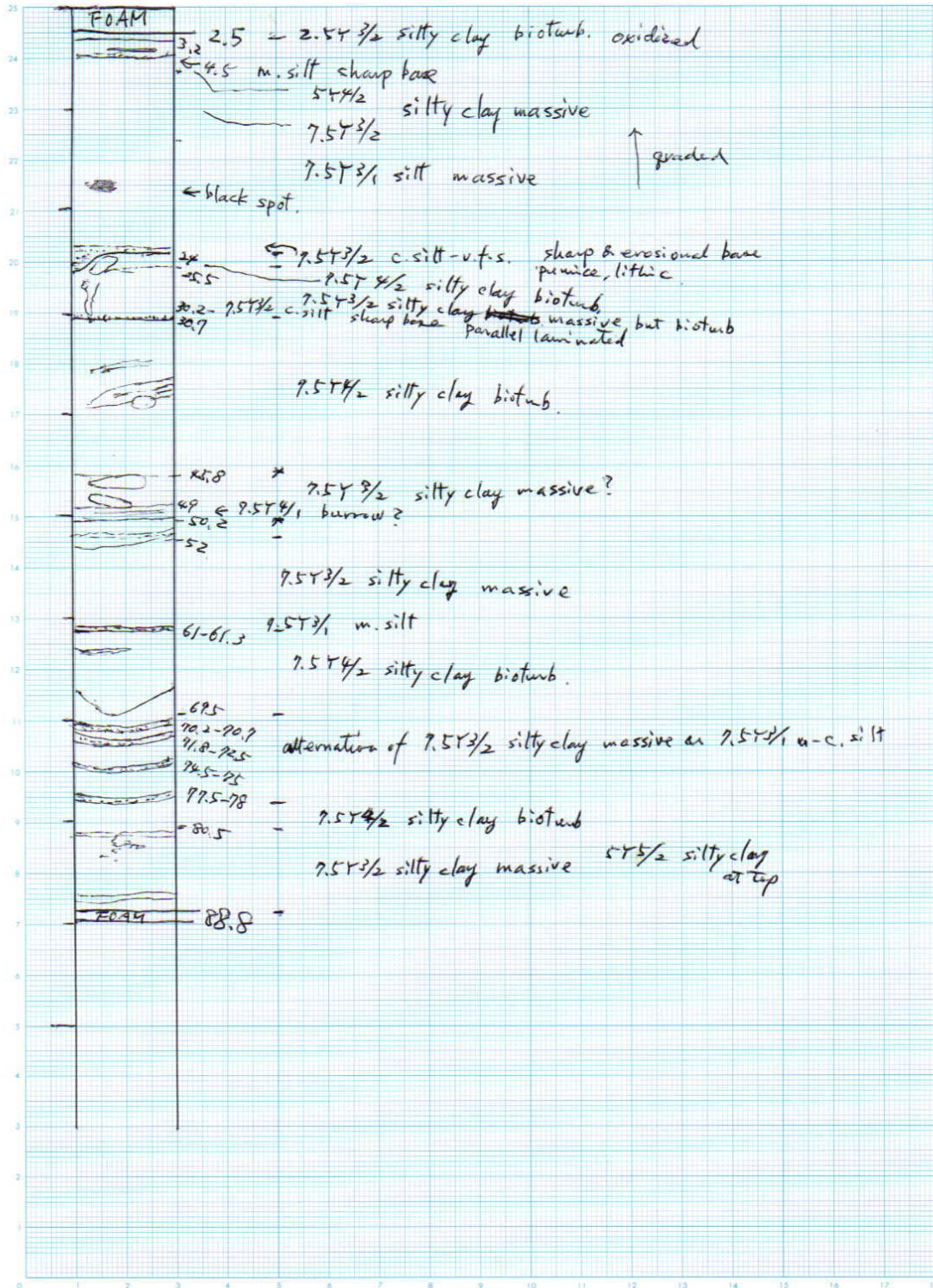


543.2 - 556.4
6.8-20 (539.9 - 552.9)

YK18-06

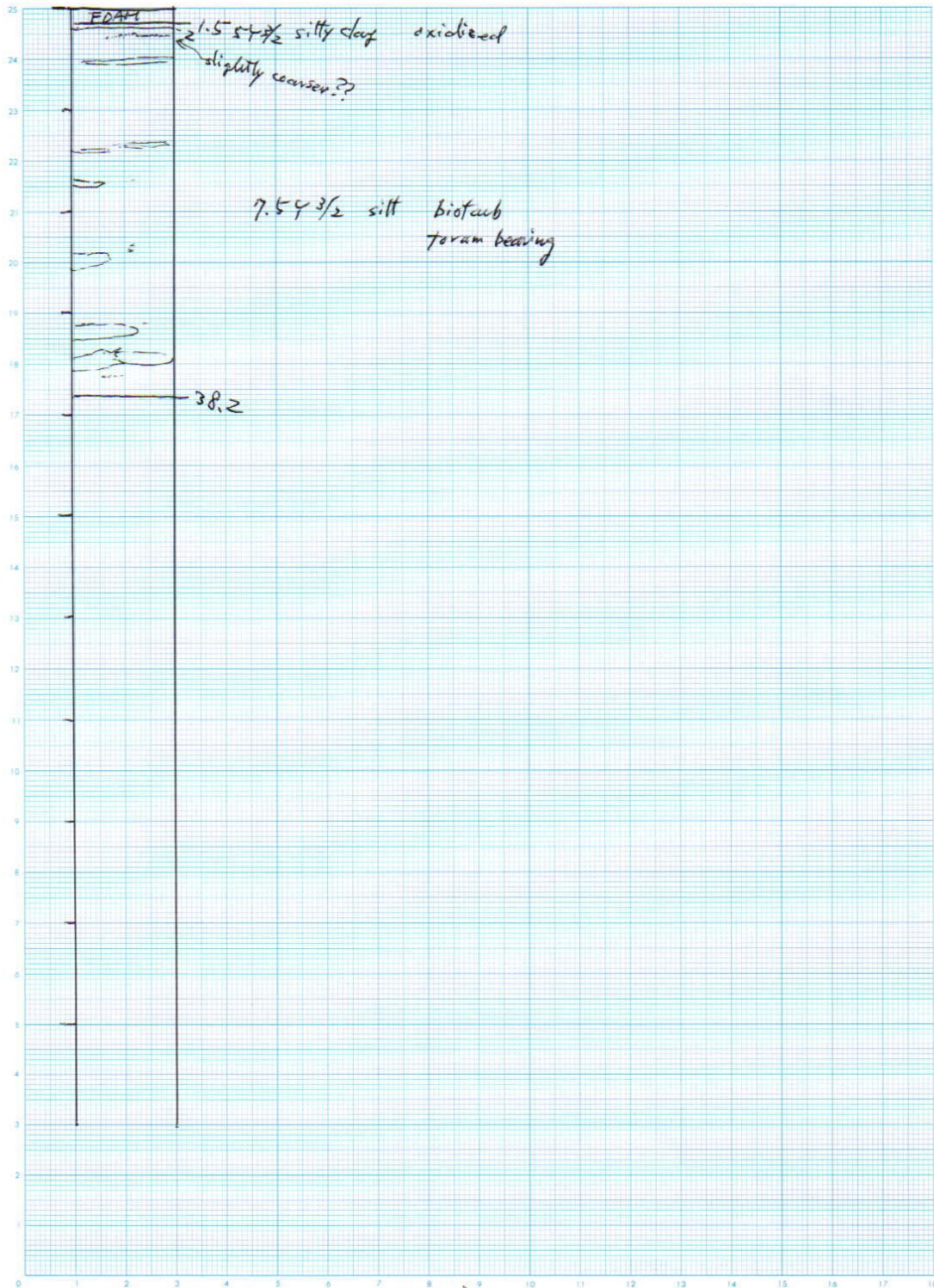
PL03

sec. 1 (W)



2.5 - 88.8 (0 - 86.3)

YK18-06 PC04 sec. 1 (W)

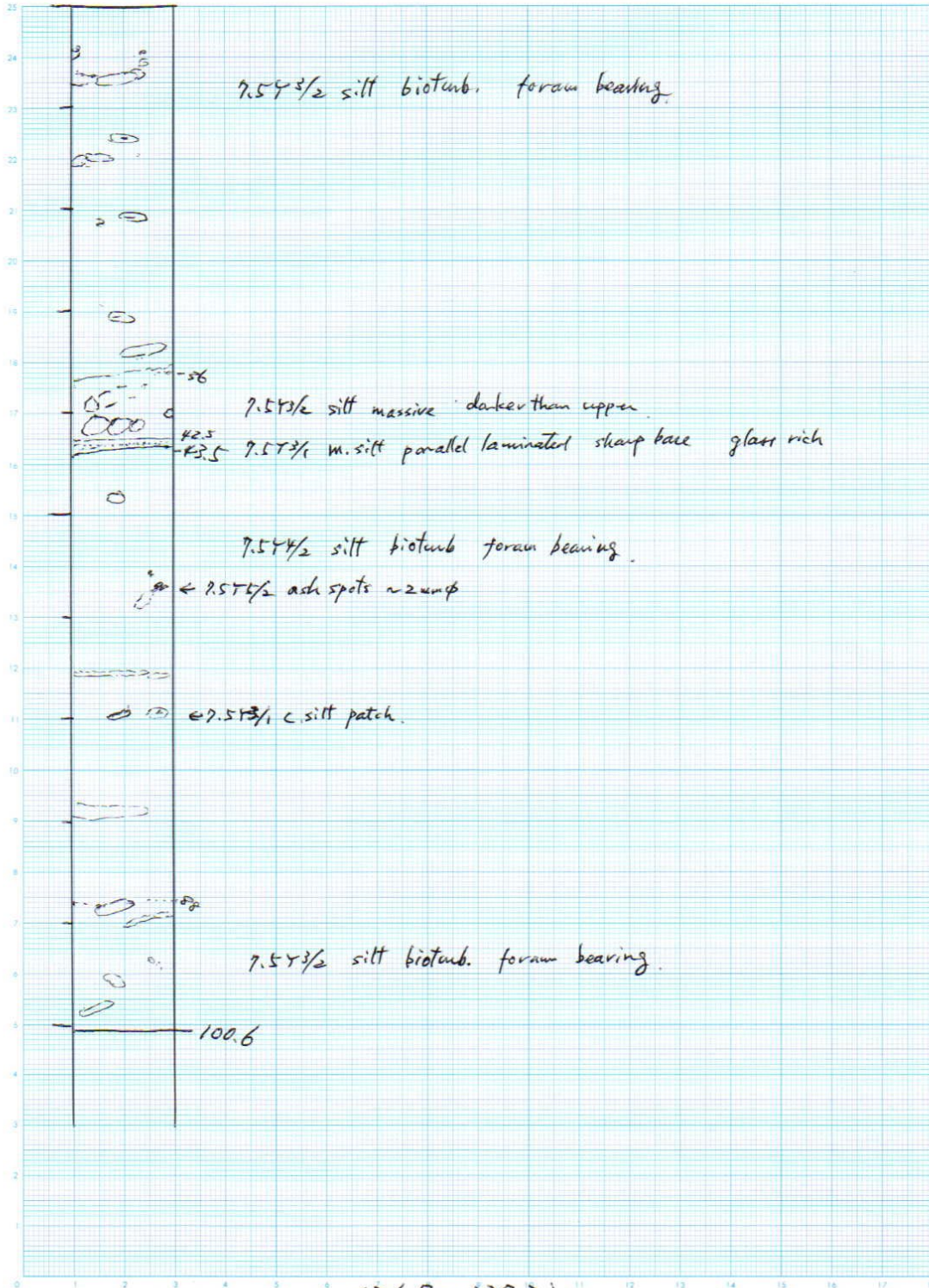


1.5-38.2 (0-36.7)

YK 18-06

PC04

sec. 2 (W)

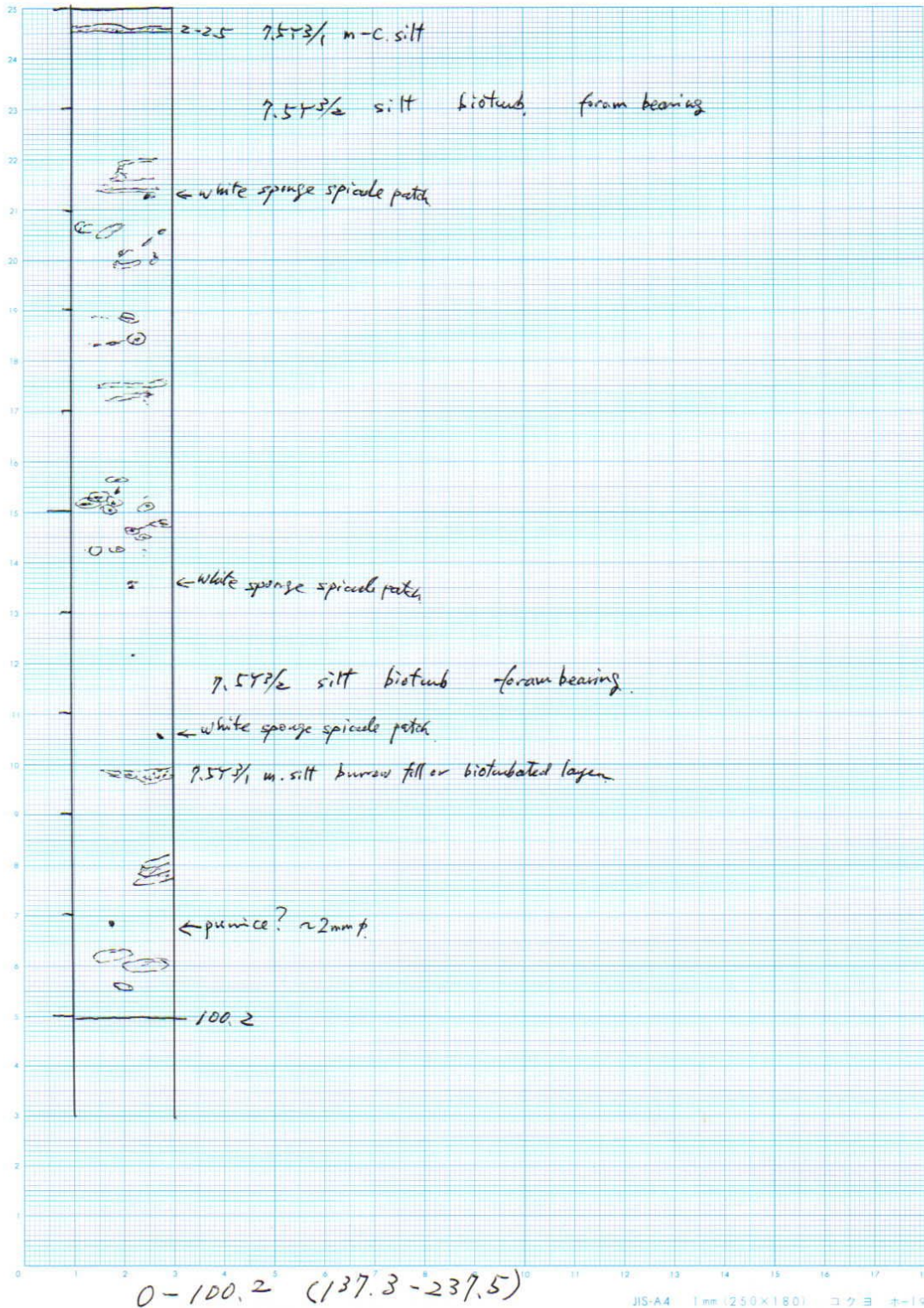


0 - 100.6 (36.7 - 137.3)

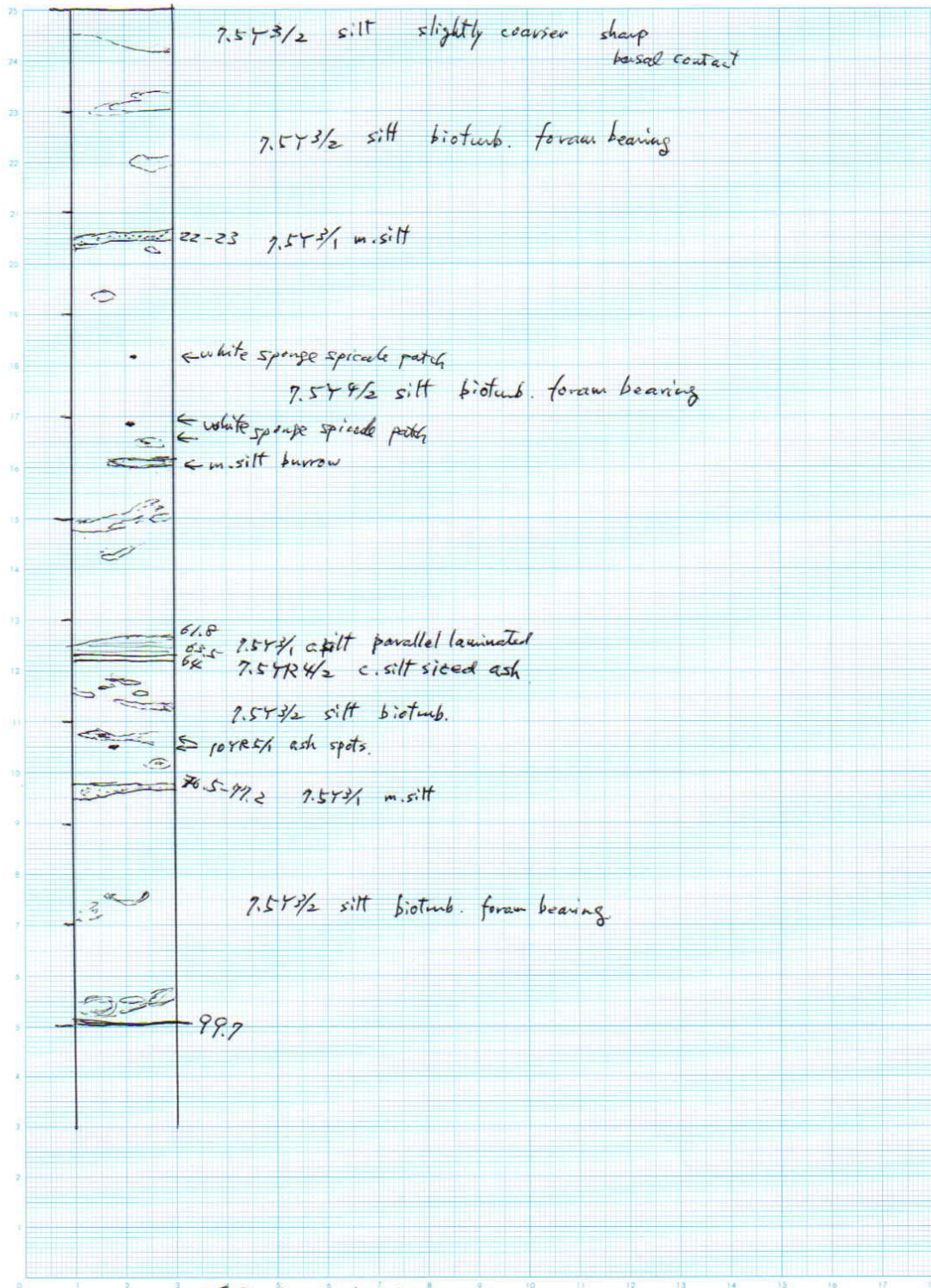
YK18-06

PC04

sec. 3 (W)



YK 18-06 PC04 sec. 4 (W)

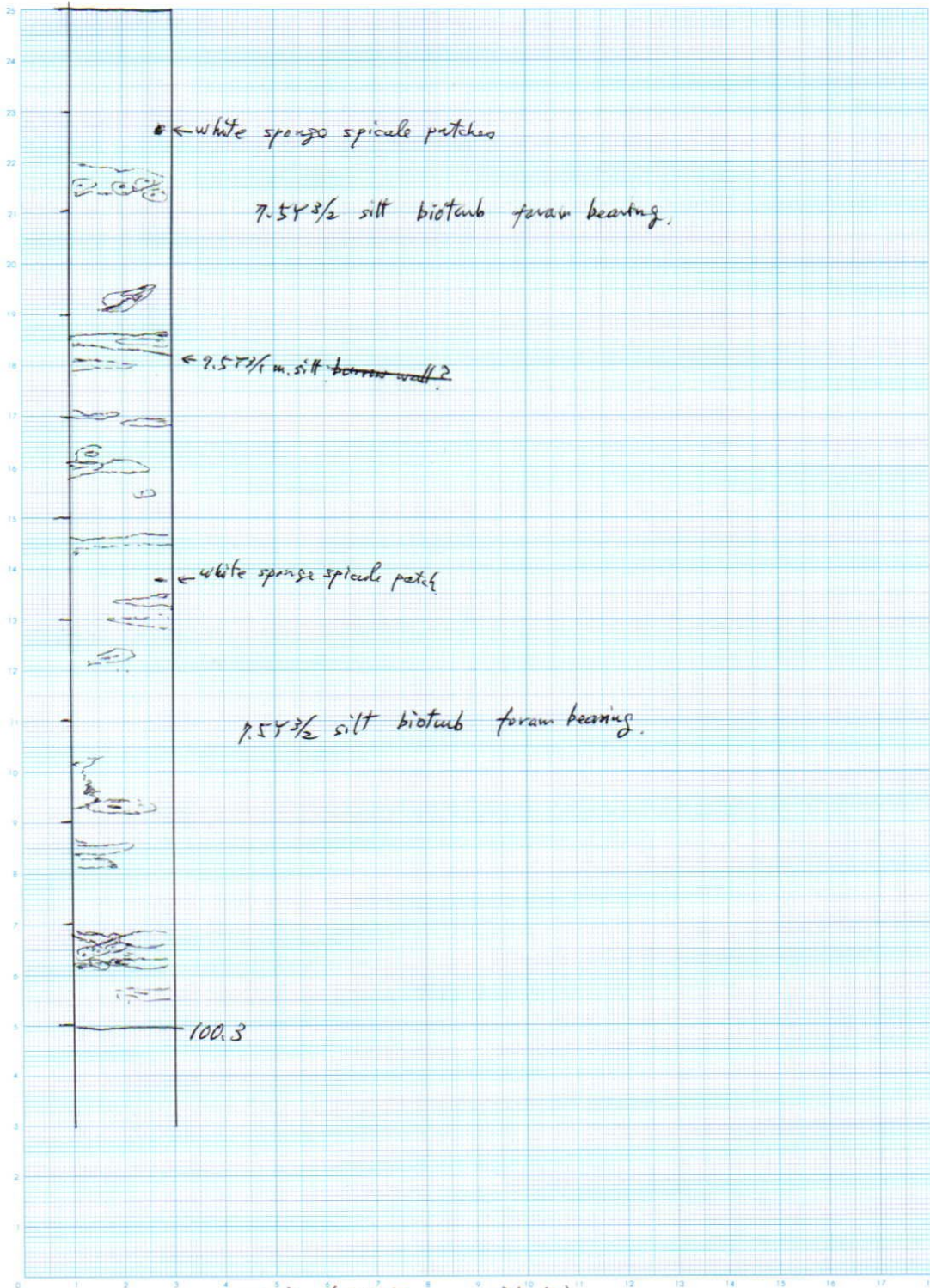


0-99.7 (237.5-337.2)

YK18-06

PC04

sec. 5 (W)

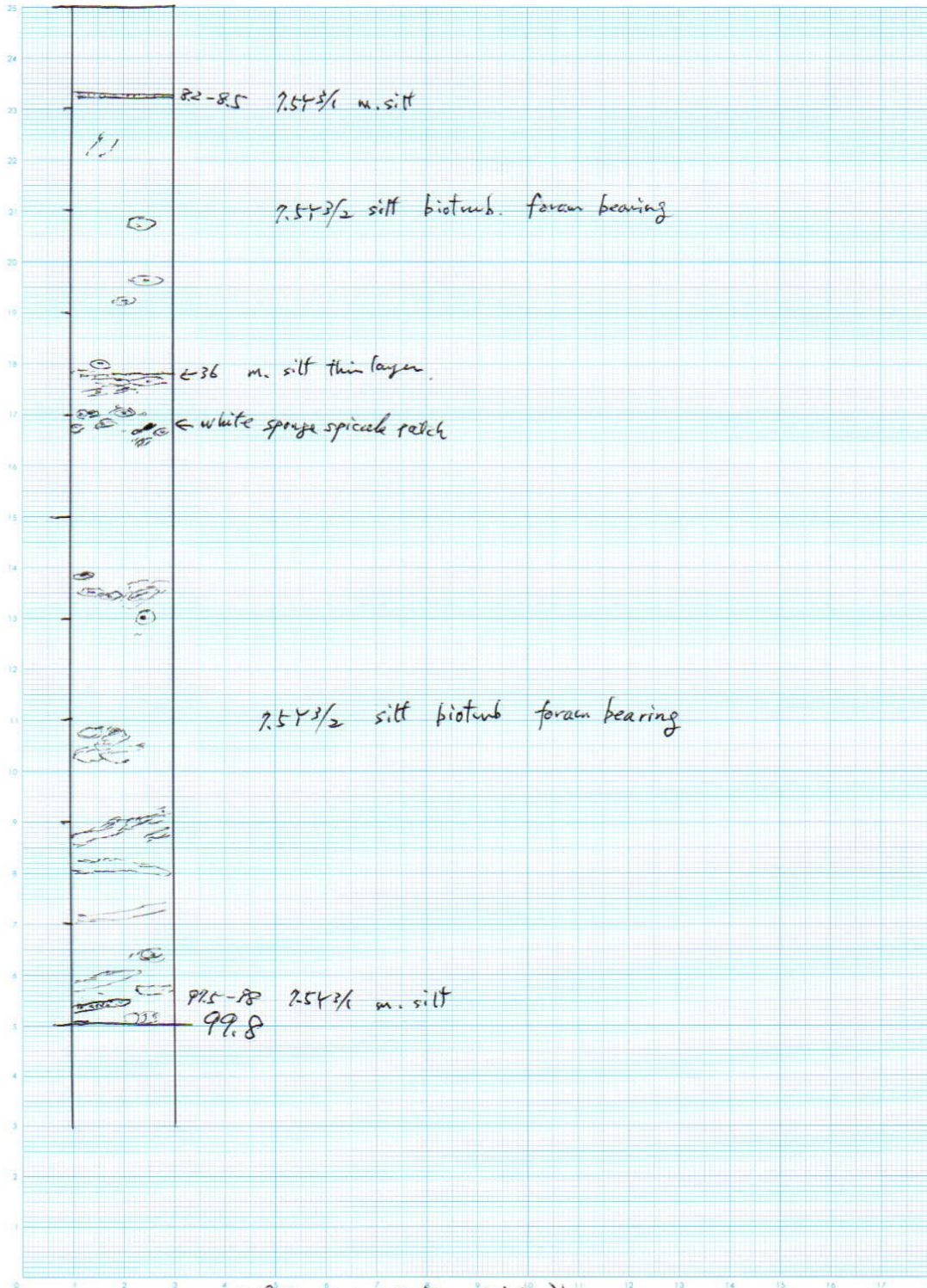


0 - 100.3 (337.2 - 437.5)

YK18-06

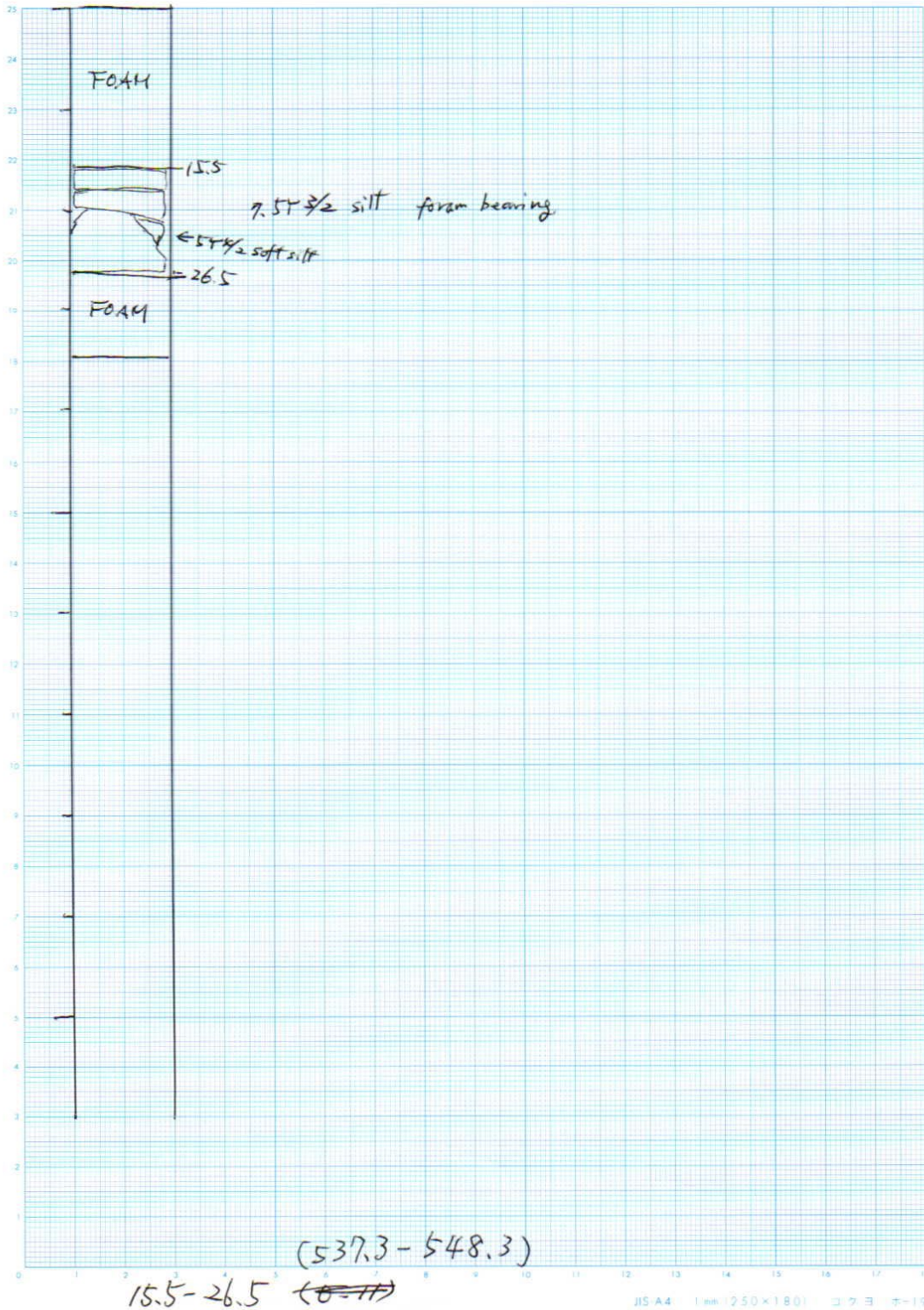
PC04

sec. 6 (W)



0-99.8 (437.5-537.3)

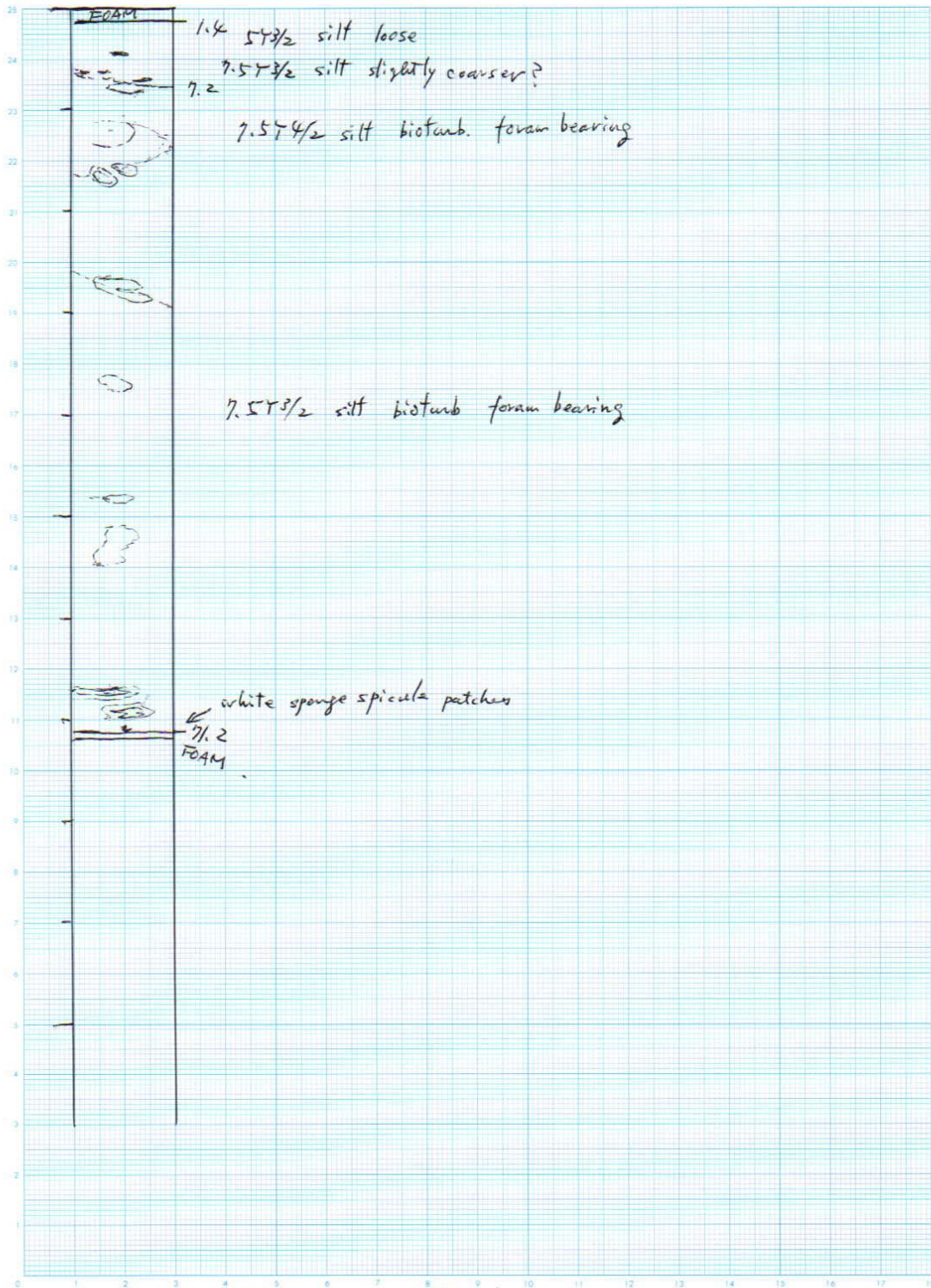
YK18-06 PC04 sec. CC (W)



YK18-06

PL04

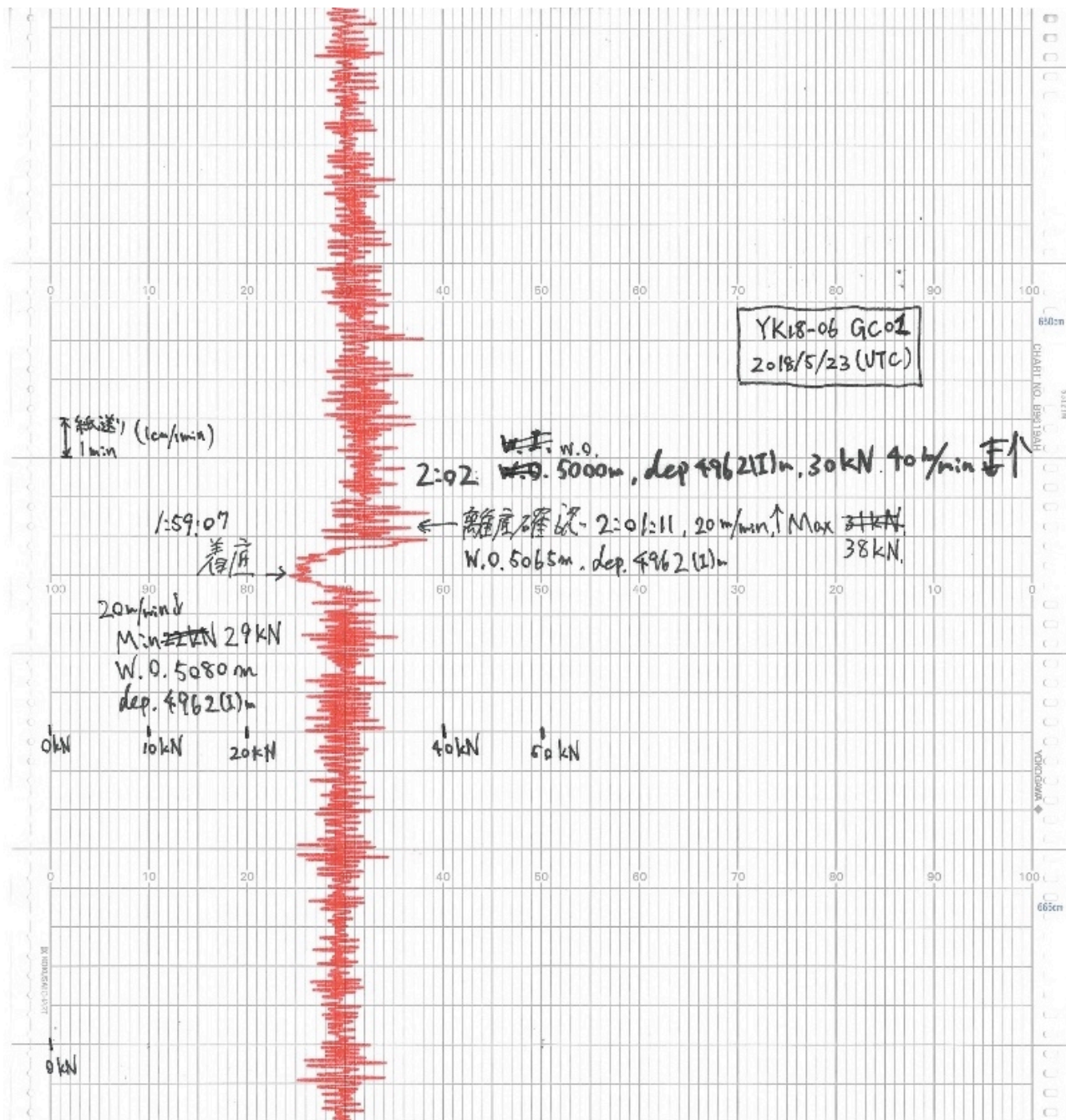
sec. 1 (W)



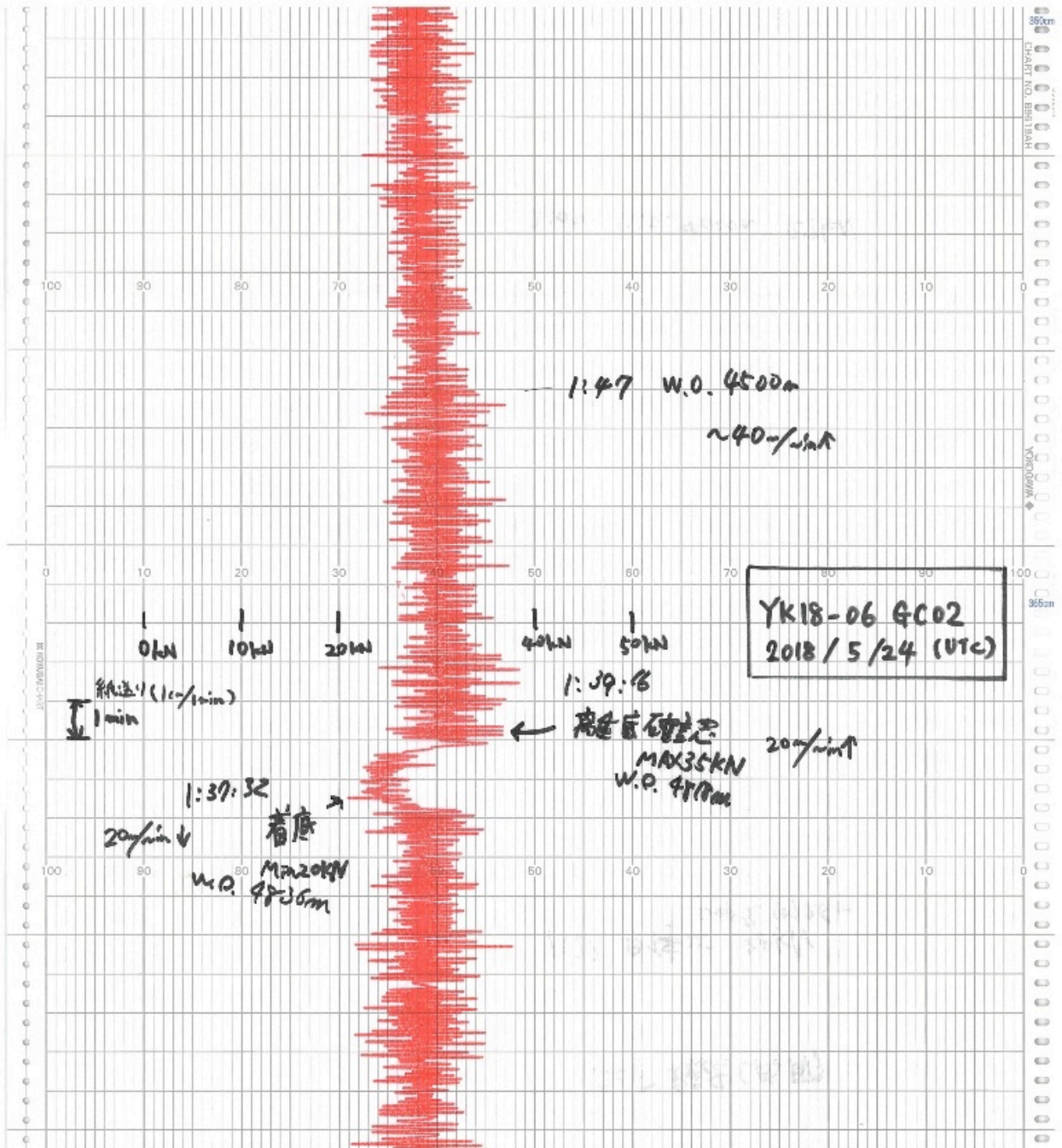
1.4 - 7.2 (0 - 69.8)

Winch tension record

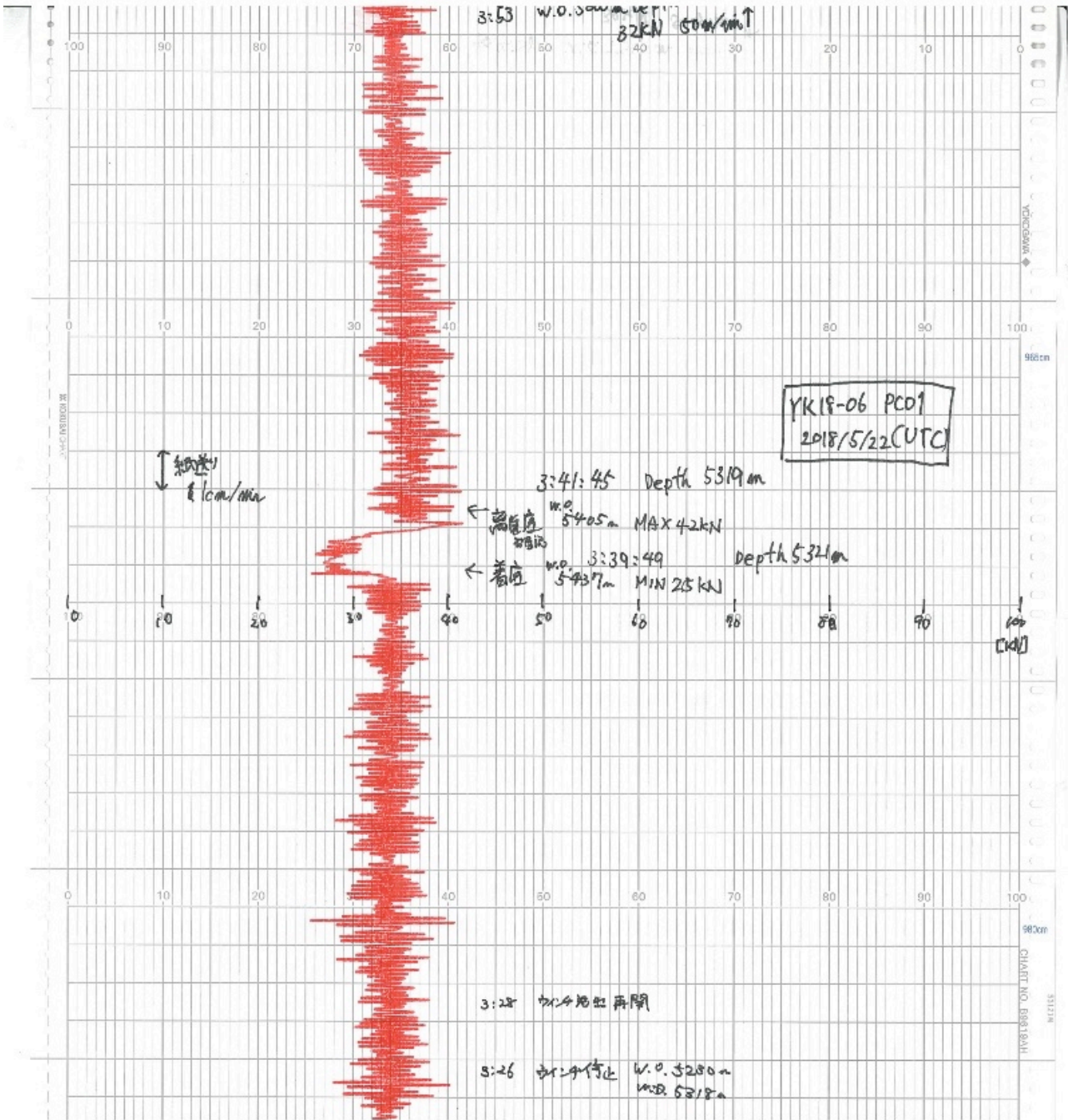
GC01



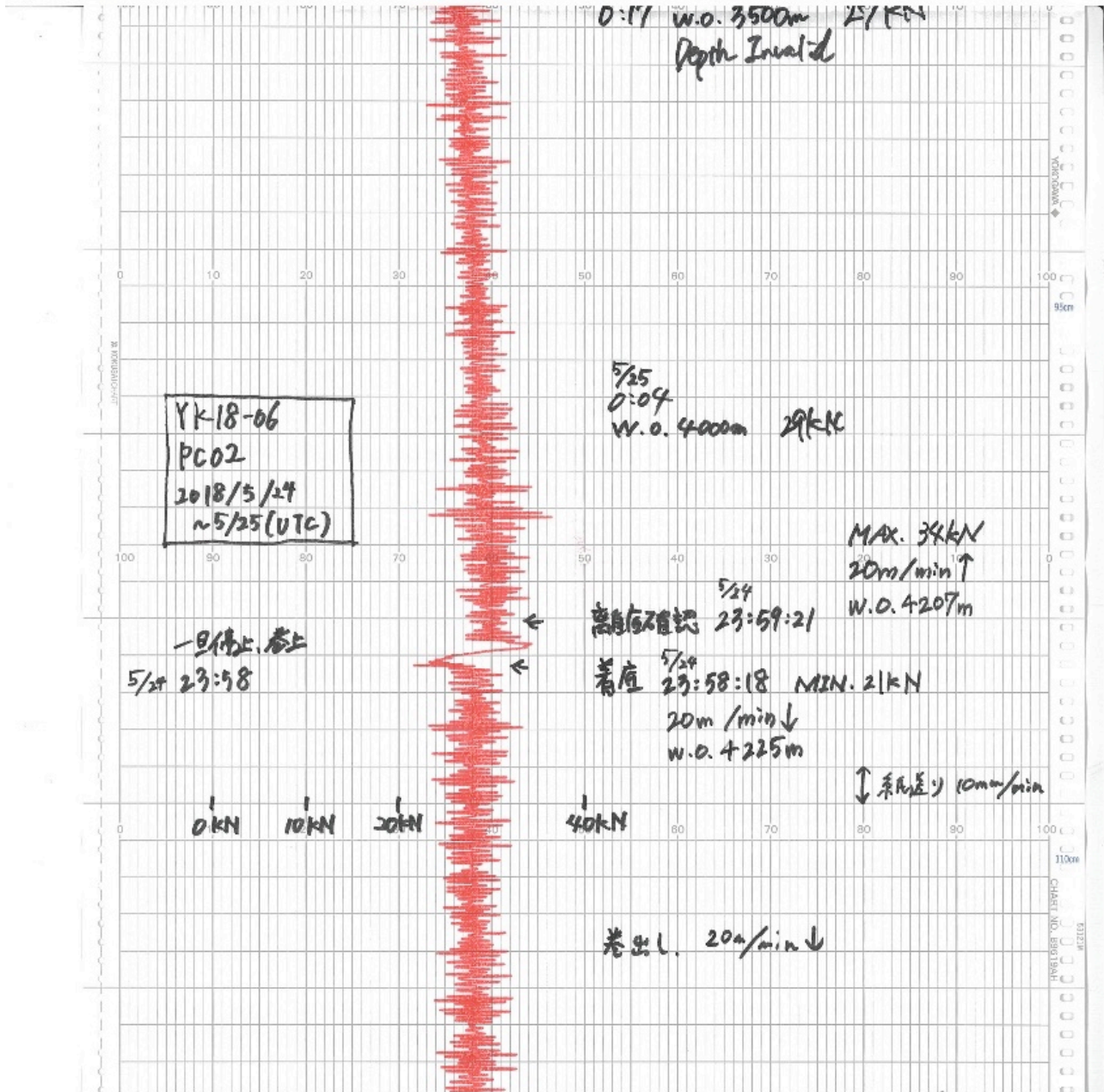
GC02



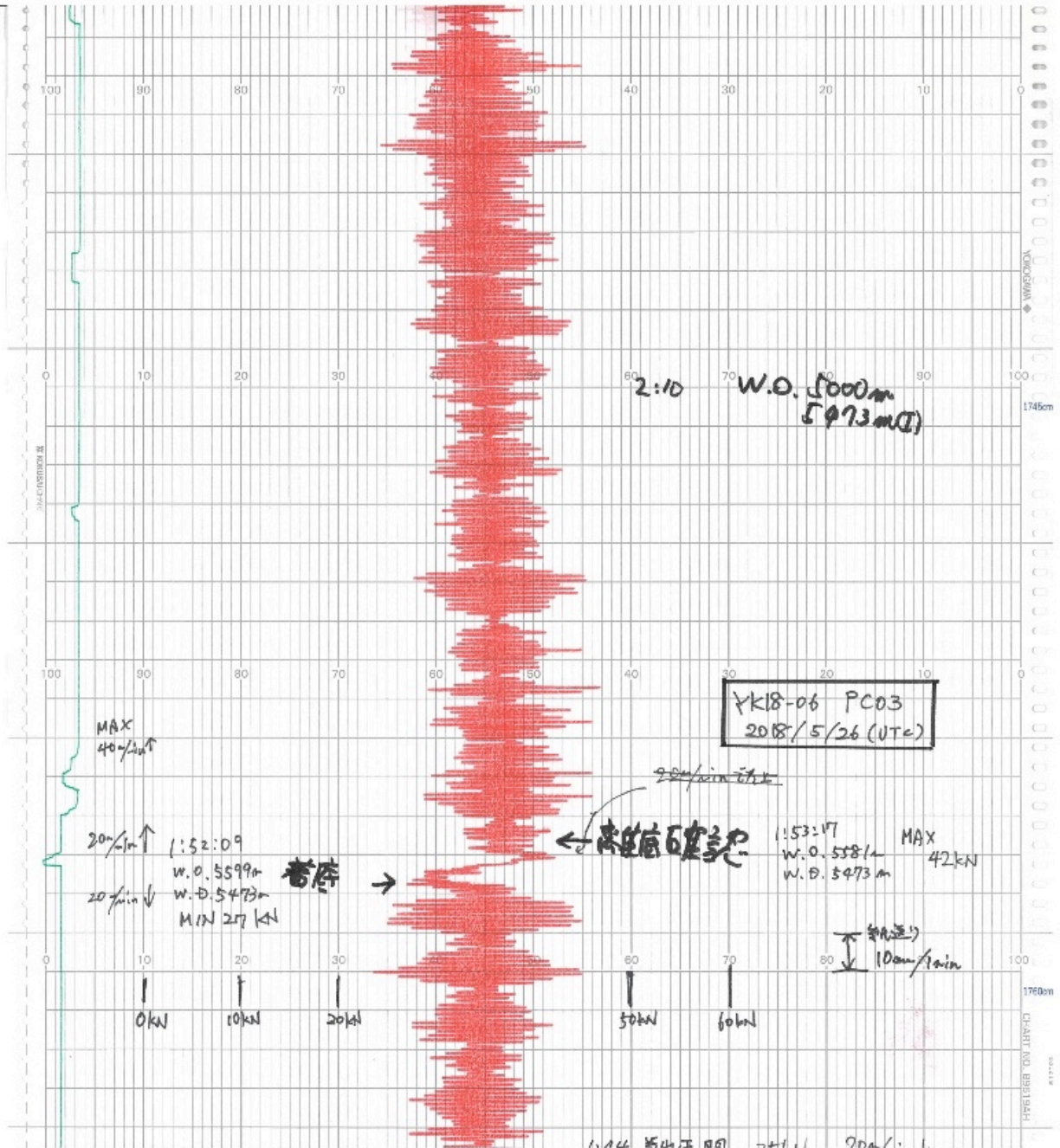
PC01



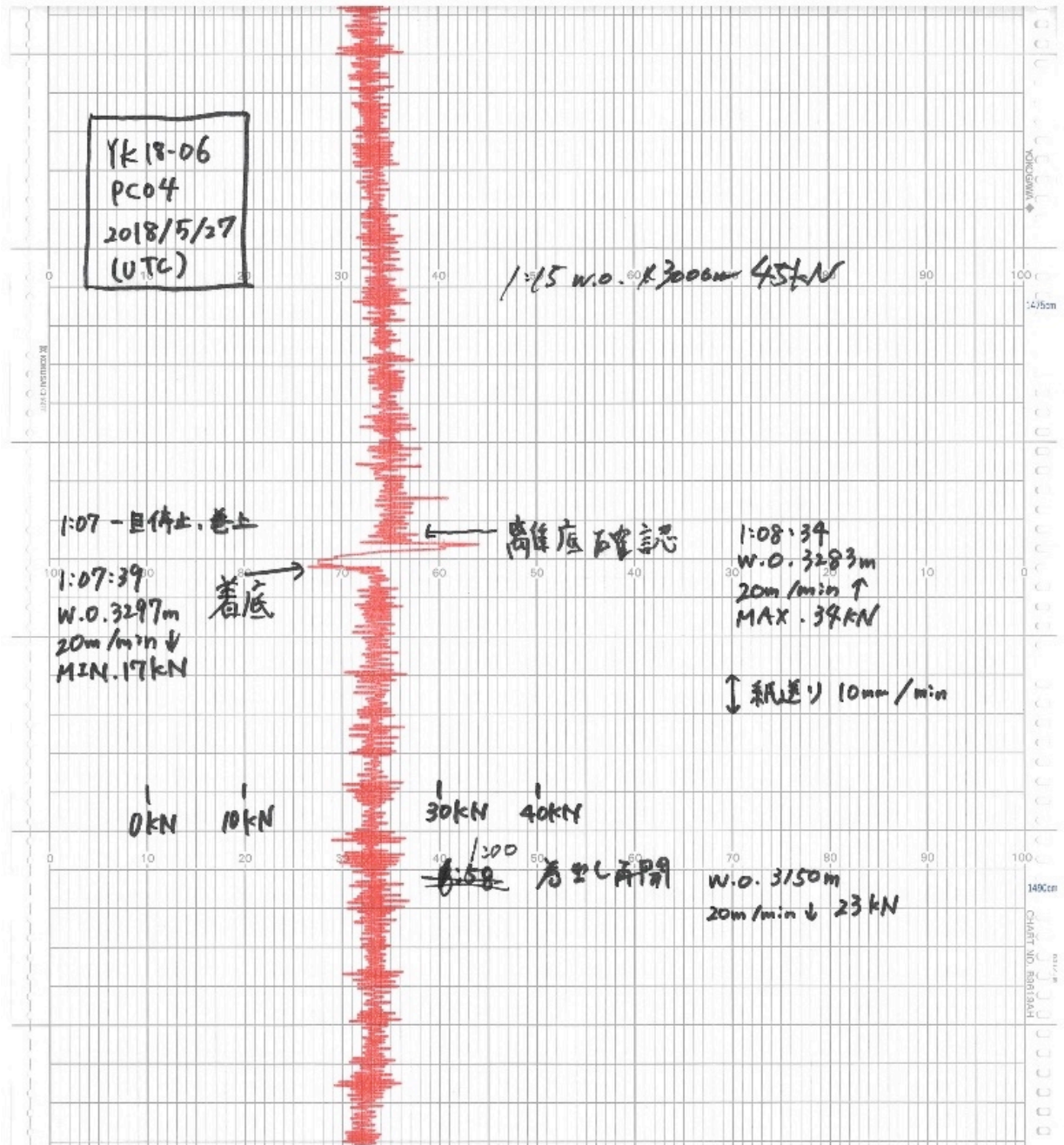
PC02



PC03



PC04



Operation Inventory

Coring Inventory

PRC-SG1-030 別紙-12
PC イベントリシート

< Observation info.>

| | | | |
|------------------|---------------------|--------------|--------------------------------|
| Cruise name | <u>YK18-06</u> | Operator | <u>山口</u> |
| Date (UTC) Y/M/D | <u>2018.5.22-23</u> | Recorded by | <u>回宮</u> |
| Core Number | <u>GC01</u> | Transponder | <u>海洋電子社製 S12-1KP 超深海トランポン</u> |
| Area | <u>東北沖</u> | Inclinometer | <u>-</u> |
| Sampling Site | <u>PL06</u> | others | <u>-</u> |

< Corer info.>

| | | | | |
|----------------------|----------------------|-------------------|-------------------|-------------|
| Corer type | <u>Inner / Outer</u> | Piston / Gravity | Pilot type | <u>-</u> |
| Weight | <u>500</u> | kg | Pilot Weight | <u>-</u> kg |
| Pipe Length AL / SUS | <u>2</u> | m / <u>φ140mm</u> | Pilot Pipe Length | <u>-</u> m |
| Main wire | <u>φ8mm / 3</u> | m | Pilot Wire | <u>-</u> m |
| Free Fall | <u>-</u> | m | | |

< Condition>

| | | | |
|----------------|-----------------|-------------------|-------------------------------|
| Weather | <u>晴れ</u> | Wave height | <u>1.4</u> m |
| Wind direction | <u>186</u> deg. | Current direction | <u>87.4</u> deg. |
| Wind speed | <u>7.3</u> m/s | Current speed | <u>1.4</u> m/s Knt |

< Operation>

5/23

| | | | |
|------------------|----------------|----------------------------|----------------------|
| Time | | | |
| Start operation | <u>00:00</u> | Latitude | Longitude |
| | | (TP) <u>39-16.4535 N</u> | <u>143-56.6693 E</u> |
| | | Depth | <u>4889</u> m |
| Hit the bottom | <u>1:59:07</u> | (Ship) <u>39-16.4049 N</u> | <u>143-56.6220 E</u> |
| | | Depth | <u>4962</u> m |
| Finish operation | <u>09:08</u> | | |

¥128.37.1.11*Sub_Data

MEMO

• 金垂とXインワイヤ-接続部でセロ調
 • 着底時の水深は 測深を停止していたため、着底直前の停止時の値を採用

Cruise Name
YK18-06

Core Name
PCGC01

y m d
2018 1 5 122-23

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Recorded by 田宮

| Time (UTC) | Water depth (m) | Wire out length (m) | Tension (kN) | Wire speed (m/min) | Wire out/in (L/F) | Remarks |
|---------------|-----------------|---------------------|--------------|--------------------|-------------------|---------------------------------------|
| 5/22 23:53:13 | 4899.3 | - | - | - | - | トラボ:ON |
| 23:55 | 4901.0 | - | - | - | - | Xイン7イヤー接続 |
| 5/23 00:00 | 4901.0 | - | - | - | - | 作業開始 |
| 00:04 | 4900 | - | - | - | - | 5番巻上げ No.5ワイヤ巻き上げ |
| 00:04 | 4900 | - | - | - | - | ワイヤ停止 (No.5ワイヤ) |
| 00:05 | 4901 | - | 6 | - | ↑ | ワイヤ直 |
| 00:07 | 4902 | - | 6 | - | ↓ | ワイヤ巻き上げ ワイヤ繰出 |
| 00:07 | 4901 | - | 6 | - | ↓ | 金重着水 |
| 00:08 | 4904 | 0 | 6 | - | - | ゼロ期 |
| 00:09 | 4906 | 0 | 6 | - | - | 巻上げ ワイヤ繰出 |
| 00:10 | 4904 | 50 | 6 | - | - | ワイヤ停止 |
| 00:14 | 4904 | 50 | 6 | - | - | トラボン取付 |
| 00:17 | 4904 | 65 | 6 | 50 | ↓ | トラボン着水 |
| 00:18 | 4904 | 100 | 6 | 50 | ↓ | ワイヤ繰出 繰速 50 / 秒 |
| 00:25 | 4904(L) | 500 | 8 | 50 | ↓ | |
| 00:33 | 4904(L) | 1,000 | 10 | 50 | ↓ | |
| 00:42 | 4904(L) | 1,500 | 12 | 60 | ↓ | |
| 00:50 | 4904(L) | 2,000 | 16 | 60 | ↓ | |
| 00:59 | 4904(L) | 2,500 | 18 | 60 | ↓ | |
| 1:07 | 4904(L) | 3,000 | 20 | 60 | ↓ | |
| 1:16 | 4904(L) | 3,500 | 22 | 60 | ↓ | |
| 1:25 | 4904(L) | 4,000 | 24 | 50 | ↓ | |
| 1:35 | 4904(L) | 4,500 | 26 | 50 | ↓ | |
| 1:42 | 4904(L) | 4,800 | 30 | 20 | ↓ | ワイヤ ワイヤ減速 |
| 1:43 | 4904(L) | 4,850 | 30 | 0 | - | ワイヤ停止 |
| 1:47 | 4962(L) | 4,850 | 28 | 20 | ↓ | ワイヤ ワイヤ繰出 |
| 1:56 | 4962(L) | 5,000 | 27 | 20 | ↓ | |
| 1:59:07 | 4962 | 5,000 | 29 | 20 | ↓ | 着底 |

※11 = 9.8kN

Cruise Name
YK18-06

Core Name
PE GC01

y m d
2018 / 5 / 22-23

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Recorded by

2:01:11

| Time (UTC) | Water depth (m) | Wire out length (m) | Tension (kN) | Wire speed (m/min) | Wire out / in (↑/↓) | Remarks |
|------------------|-----------------|---------------------|--------------|--------------------|---------------------|---------|
| 02:00 | 4962(I) | 5082 | 26.92 | 20 | ↑ | 巻き上げ |
| 02:01 | 4962(I) | 5065 | 31.38 | 20 | ↑ | 離底確認 |
| 2:02 | 4962(I) | 5000 | 30 | 40 | ↑ | |
| 2:16 | 4962(I) | 4500 | 30 | 40 | ↑ | |
| 2:29 | 4962(I) | 4000 | 28 | 40 | ↑ | |
| 2:42 | 4962(I) | 3500 | 22 | 40 | ↑ | |
| 2:53 | 4962(I) | 3000 | 20 | 40 | ↑ | |
| 3:05 | 4962(I) | 2500 | 18 | 50 | ↑ | |
| 3:16 | 4962(I) | 2000 | 14 | 50 | ↑ | |
| 3:28 | 4962(I) | 1500 | 11 | 50 | ↑ | |
| 3:39 | 4962(I) | 1000 | 9 | 50 | ↑ | |
| 3:49 | 4962(I) | 500 | 6 | 50 | ↑ | |
| 03:58 | 4962(I) | 58 | 6 | 20 | ↑ | トラポン水切 |
| 04:01 | 4962(I) | 51 | 6 | 0 | ↑ | トラポン取外L |
| 04:02 | 4962(I) | 51 | 6 | 0 | ↑ | トラポンOFF |
| 04:03 | 4962(I) | 0 | 6 | 0 | ↑ | GC水切 |
| 04:08 | 4962(I) | 0 | 6 | 0 | ↑ | GC水切 |

※11 ≒ 9.8kN

Coring Inventory

PRC-SG1-030 別紙-12
PC インベントリシート

< Observation info.>

Cruise name YK18-06 Operator 片山
 Date (UTC) Y/M/D 2018/5/24 Recorded by 橋本
 Core Number GCO2 Transponder 超深海トラポン (SI2-1kp)
 Area 東北沖 Inclinator —
 Sampling Site GCO2 (NT13-19 PC04cF10) others —

< Corer info.>

Corer type Inner/Outer Piston/Gravity — Pilot type —
 Weight 500 ~~592~~ kg Pilot Weight — kg
 Pipe Length AL/SUS 2 m Pilot Pipe Length — m
 Main wire φ 8mm. 3 m 自重式 Pilot Wire — m
 Free Fall — m

< Condition>

Weather Wave height 1.5 m
 Wind direction 147 deg. Current direction 67.6 deg.
 Wind speed 10.7 m/s Current speed 1.4 ~~m/s~~ knt

< Operation>

| Time | Latitude | Longitude | Depth |
|---|---------------------------|---------------------|---------------|
| Start operation ^{5/23} <u>23:52</u> | | | |
| Hit the bottom ^{5/24} <u>1:37:32</u> | (TP) <u>39-41.9871N</u> | <u>143-59.1828E</u> | <u>4660</u> m |
| | (Ship) <u>39-41.9367N</u> | <u>143-59.1743E</u> | <u>4726</u> m |
| Finish operation <u>3:47</u> | | | |

MEMO

23:14 (UTC) トラポン ON.
 (8:14) トラポン 故障 OK.
 0:01 (UTC) トラポン 故障 OK.
 3:57 (UTC) トラポン OFF
 揚収時、観測ワイヤに 3m インワイヤ - とスバルが かかっていた。
 → 電動ホストを コア - 本体に取り替えて、スタートした。(インワイヤ - は問題なし)
 着底時の水深は インバッド だったため、一旦停止時 (1:22) の値を採用。

Cruise Name

YK18-06

Core Name

PCGC02

y m d

2018 / 5 / 23-24

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Recorded by 橋本

| Time (UTC) | Water depth (m) | Wire out length (m) | Tension (kN) | Wire speed (m/min) | Wire out / in (↓/↑) | Remarks |
|------------|---------------------------------|---------------------|-----------------------------|--------------------|---------------------|----------------------------------|
| 5/23 23:30 | — | — | — | — | — | 鐘移動 |
| 36 | — | — | — | — | — | メインヤー No.5 ウィンチに接続 |
| 39 | — | — | — | — | — | 5分待機 (船体傾斜を減らすため) |
| 48 | — | — | — | — | — | 作業開始, 吊り上げ |
| 50 | 4613 | — | 6 | — | — | ウィンチを上げ (張る) |
| 51 | — | — | — | — | — | ウィンチ着出し → 停止 |
| 51 | — | — | — | — | — | 鐘着水 |
| 52:4 | 4631 | 0 | 6 | — | — | セロ調 ウィンチ着出し |
| 54 | 4641 | 50 | 6 | — | — | ウィンチ停止 23:57 HT. 船体調整 |
| 59 | 4700? | 50 | 6 | ~40 | ↓ | ワイヤー取付. ウィンチ着出し |
| 5/24 0:02 | 4701(2) | 133 | 7 | ~60 | ↓ | 増速 |
| 09 | 4701(2) | 500 | 8 | 60 | ↓ | |
| 17 | " | 1000 | 10 | 60 | ↓ | |
| 25 | " | 1500 | 13 | 60 | ↓ | |
| 34 | " | 2000 | 15 | 60 | ↓ | |
| 42 | " | 2500 | 17 ¹⁷ | 60 | ↓ | |
| 50 | " | 3000 | 20 | 60 | ↓ | |
| 1:00 | " | 3500 | 22 | 55 | ↓ | |
| 1:09 | " | 4000 | 25 | 50 | ↓ | |
| 19 | " | 4500 | 27 | 50 | ↓ | TP:4329 |
| 22 | " | 4600 | 28 | 0 | — | TP:4439 ウィンチ停止 3分保持. W.D 4726(v) |
| 25 | 4726 | 4600 | 28 | ~20 | ↓ | 着出し再開 |
| 1:37:32 | 4726 | 4836 | ^{MIN} 20 | 20 | ↑ | 着直 TP:4660 |
| 38 | 4726 | 4838 | 20 | ~20 | ↑ | 着直一旦停止 → 着上げ |
| 1:39:16 | 4726 | 4818 | ^{MAX} 35 | 20 | ↑ | 離船確認 (TP 4654) ±増速 (~MAX) |
| :47 | 4726 ⁴⁷²⁶ | 4500 | 30 | 40 | ↑ | |
| 2:00 | 4726(2) | 4000 | 27 | 40 | ↑ | |
| :12 | " | 3500 | 25 | 40 | ↑ | |

*11 = 9.8kN

Cruise Name

YK18-06

Core Name

BE GC02

y m d

2018 / 5 / 24

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Recorded by

橋本

| Time (UTC) | Water depth (m) | Wire out length (m) | Tension (kN) | Wire speed (m/min) | Wire out / in (L/T) | Remarks |
|------------|---------------------|---------------------|--------------|--------------------|---------------------|-------------------------|
| 2:25 | 4726 _(E) | 3000 | 22 | 45 | ↑ | |
| 37 | " | 2500 | 20 | 45 | ↑ | |
| 48 | " | 2000 | 17 | 50 | ↑ | |
| 2:59 | " | 1500 | 14 | 50 | ↑ | |
| 3:09 | " | 1000 | 12 | 50 | ↑ | |
| 19 | " | 500 | 9 | 50 | ↑ | |
| 28 | " | 53 | 6 | ~0 | ↑ | 1:30=水面 → ワイヤ停止 |
| 31 | " | 53 | 6 | 0 | — | 1:30=取外し |
| 32 | " | 53 | 6 | ~30 | ↑ | ワイヤ巻上 |
| 33 | — | — | — | — | — | ワイヤ停止 |
| 40 | — | — | — | — | — | ホースを割かえ。 |
| 43 | — | — | — | — | — | ワイヤワイヤ-を鐘にかた別上げ →別上げ |
| 44 | — | — | — | — | — | ホースを鐘にかた別上げ。→巻上中? |
| 47 | — | — | — | — | — | GC. オンド、中 |
| 51 | — | — | — | — | — | 鐘移動 |

※11 ≙ 9.8kN

Coring Inventory

PRC-SG1-030 別紙-12
PC インベントリシート

< Observation info.>

| | | | |
|---------------|------------------------------|--------------|------------------------------|
| Cruise name | <u>YK18-06</u> | Operator | <u>橋本</u> |
| Date (UTC) | Y/M/D <u>2018/5/22</u> | Recorded by | <u>片山</u> |
| Core Number | <u>PC01</u> | Transponder | <u>海洋電子社製 SI2-1KP 超深海のホッ</u> |
| Area | <u>東北沖</u> | Inclinometer | <u>-</u> |
| Sampling Site | <u>PLO2 (NT13-19 PC19地点)</u> | others | <u>-</u> |

< Corer info.>

| | | | | |
|-------------|----------------------|---|-------------------|---------------|
| Corer type | <u>Inner / Outer</u> | <u>Riston / Gravity</u> | Pilot type | <u>74237-</u> |
| Weight | <u>470</u> | <u>592</u> kg | Pilot Weight | <u>112</u> kg |
| Pipe Length | AL / <u>SDS</u> | <u>6</u> m | Pilot Pipe Length | <u>0.9</u> m |
| Main wire | ϕ <u>8mm</u> | <u>12.8</u> m | Pilot Wire | <u>12.6</u> m |
| Free Fall | <u>3.4</u> m | <u>3.4</u> m <u>完結中</u> <u>4.8</u> m | | |

< Condition>

| | | | |
|----------------|-----------------|-------------------|---------------------------|
| Weather | <u>晴</u> | Wave height | <u>1.2</u> m |
| Wind direction | <u>186</u> deg. | Current direction | <u>258</u> deg. |
| Wind speed | <u>4.5</u> m/s | Current speed | <u>1.7</u> m/s <u>knt</u> |

< Operation>

| | | | |
|------------------|----------------|-----------|---------------------------------|
| Time | | | |
| Start operation | <u>1:13</u> | Latitude | <u>-</u> |
| | | Longitude | <u>-</u> |
| | | Depth | <u>-</u> m |
| Hit the bottom | <u>3:39:49</u> | (TP) | <u>-</u> |
| | | (Ship) | <u>37-49.1114N 143-33.0806E</u> |
| | | | <u>5321</u> m |
| Finish operation | <u>6:23</u> | | |

MEMO

線長リセットの不具合により、観測開始に着手時、-0.5mで投入を行った。
トポコンの度、船の送波器トラブル等、この様な状態がオペレーションを行った。

Cruise Name
YK18-06

Core Name
PC 61

y m d
2018 / 5 / 22

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Recorded by
片山

| Time (UTC) | Water depth (m) | Wire out length (m) | Tension (kN) | Wire speed (m/min) | Wire out/in (I/I) | Remarks |
|------------|-----------------|---------------------|--------------|--------------------|-------------------|-----------------|
| 0:40 | - | - | - | - | - | 錘移動 |
| 0:45 | - | - | - | - | - | 天秤取付 |
| 0:48 | - | - | - | - | - | メインワイヤ-コイル完了 |
| 0:53 | - | - | - | - | - | トラホニオン |
| 1:13 | 5335 | - | 5.0 | - | - | 作業開始台、吊上げ |
| :15 | 5335 | - | 5.0 | - | - | 注水完了 |
| :27 | 5371 | - | 5.1 | - | - | PL取付 |
| :31 | 5331 | - | 5.2 | - | - | メインワイヤ-コイル巻き直し |
| :32 | 5331 | - | 5.2 | - | - | 安全ヒンジ脱 |
| :34 | 5304 | 0 | 5.1 | - | - | 天秤着水、セキ言同(0.5m) |
| :48 | 5331 | 50 | 5.3 | - | - | トラホニ取付 |
| :49 | 5331 | 60 | 5.2 | 10 | ↓ | トラホニ着水 |
| :50 | 5331 | 100 | 5.2 | 30 | ↓ | 繰り出し線速30m/min |
| :55 | 5331 | 240 | 5.9 | 60 | ↓ | 60m/min 増速 |
| 2:00 | 5331 | 500 | 6.2 | 60 | ↓ | |
| :08 | 5331 | 1000 | 10.0 | 60 | ↓ | |
| :16 | 5331 | 1500 | 12.0 | 60 | ↓ | |
| :25 | 5313 | 2000 | 15.0 | 60 | ↓ | |
| :33 | 5316 | 2500 | 20.0 | 60 | ↓ | |
| :42 | 5323 | 3000 | 22.0 | 60 | ↓ | |
| :51 | 5495 | 3500 | 24.0 | 60 | ↓ | |
| 3:01 | 5319 | 4000 | 24.3 | 50 | ↓ | |
| 3:10 | 5332 | 4500 | 28. | 50 | ↓ | |
| :20 | 5323 | 5000 | 32. | 50 | ↓ | |
| :26 | 5318 | 5230 | 34 | - | - | 一旦停止 |
| :28 | 5328 | 5230 | 34 | 20 | ↓ | 繰り出し再開 |
| 3:39:49 | 5321 | 5437 | MIN 22.25 | - | - | 着底、巻き上げ 20m/min |
| 3:41:45 | 5319 | 5405 | MAX 42 | 20 | ↑ | 着底確認 |

※11 ≒ 9.8kN

Cruise Name
YK18-06

Core Name
PC 01

y m d
2018 5 12

Page
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Recorded by fd

| Time (UTC) | Water depth (m) | Wire out length (m) | Tension (kN) | Wire speed (M/Min) | Wire out / in (L/T) | Remarks |
|------------|-----------------|---------------------|--------------|--------------------|---------------------|-------------------|
| 3:53 | 5325 | 5000 | 32 | 50 | ↑ | |
| 4:08 | 5320 | 4500 | 30 | 50 | ↑ | |
| :21 | 5321 | 4000 | 27 | 50 | ↑ | |
| :35 | 5323 | 3500 | 25 | 50 | ↑ | |
| :46 | 5325 | 3000 | 23 | 50 | ↑ | |
| :58 | 5371 | 2500 | 20 | 50 | ↑ | |
| 5:10 | 5319 | 2000 | 18 | 50 | ↑ | |
| :20 | 5319(I) | 1500 | 15 | 50 | ↑ | |
| :31 | 5319(I) | 1000 | 12 | 50 | ↑ | |
| :42 | 5319(I) | 500 | 10 | 50 | ↑ | |
| :51 | ∴ | 54 | 10 | 20 | ↑ | トラボリ水切り |
| :53 | ∴ | 50 | 8 | - | ↑ | トラボリ取り外し |
| :55 | ∴ | 50 | 8 | - | - | トラボリOFF |
| :58 | ∴ | 0 | 8 | - | - | 天秤水切り (右側調整済みに良好) |
| 6:02 | ∴ | - | 8 | - | - | トラボリ取り外し PL取り外し |
| :03 | ∴ | - | 8 | - | - | PL水切り |
| :07 | ∴ | - | 8 | - | - | PLオニテッキ |
| :12 | - | - | - | - | - | 天秤取り外し |
| :17 | - | - | - | - | - | PCオモリ水切り |
| :23 | - | - | - | - | - | PCオニテッキ |
| | | | | | | |
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※1t ≒ 9.8kN

Coring Inventory

PRC-SG1-030 別紙-12
PC インベントリシート

< Observation info.>

| | | | |
|---------------|-----------------------------|--------------|------------------------------|
| Cruise name | <u>YK18-06</u> | Operator | <u>橋本</u> |
| Date (UTC) | Y/M/D <u>2018/5/24 ~ 25</u> | Recorded by | <u>山口</u> |
| Core Number | <u>PC02</u> | Transponder | <u>朝洋電子社製 SIC2-1P 超深海タイプ</u> |
| Area | <u>東北沖</u> | Inclinometer | <u>—</u> |
| Sampling Site | <u>PC02</u> | others | <u>—</u> |

< Corer info.>

| | | | | |
|-------------|---------------------------------|-------------------------|-------------------|-----------------------------|
| Corer type | <u>Inner / Outer</u> | <u>Piston / Gravity</u> | Pilot type | <u>74 J37-</u> |
| Weight | <u>592</u> | kg | Pilot Weight | <u>112</u> kg |
| Pipe Length | AL / SUS <u>6</u> | m | Pilot Pipe Length | <u>0.7</u> m |
| Main wire | ϕ <u>8mm</u> x <u>12.8</u> | m | Pilot Wire | <u>φ8mm</u> x <u>12.6</u> m |
| Free Fall | <u>3.4</u> | m | | |

突込長さ 1.8m

< Condition>

| | | | |
|----------------|-----------------|-------------------|---------------------------|
| Weather | <u>晴れ</u> | Wave height | <u>2</u> m |
| Wind direction | <u>189</u> deg. | Current direction | <u>255</u> deg. |
| Wind speed | <u>5.4</u> m/s | Current speed | <u>0.8</u> m/s <u>KTC</u> |

< Operation>

5/24

| | | | |
|------------------|-----------------|---------------------------|---------------------|
| Time | | | |
| Start operation | <u>22:12</u> | | |
| | | Latitude | Longitude |
| | | (TP) <u>40-22.0099N</u> | <u>144-00.8729E</u> |
| Hit the bottom | <u>23:58:18</u> | | <u>4067</u> m |
| | | (Ship) <u>40-21.9609N</u> | <u>144-00.8929E</u> |
| | | | <u>4183</u> m |
| Finish operation | <u>1:55</u> | | |

5/25

MEMO

着底時の通水水深は Invalid であったため、
着底直前、ウインチ一旦停止した際に測深した値を使用した。

Cruise Name
YK18-06

Core Name
PC 02

y m d
2018 / 5 / 24 25

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Recorded by LD

5/24

| Time (UTC) | Water depth (m) | Wire out length (m) | Tension (kN) | Wire speed (m/min) | Wire out / in (I/I) | Remarks |
|------------|-------------------------|---------------------|--------------|--------------------|---------------------|------------------------------|
| 21:44 | 4156 | - | - | - | - | トラポットON |
| 22:09 | 4154 | - | - | - | - | Xインプイヤー取付 |
| 22:12 | 4154 | - | - | - | - | 作業開始 |
| 22:12 | 4154 | - | - | - | - | PC吊上げ |
| 22:14 | 4152 | - | - | - | - | 注水完了 |
| 22:16 | 4152 | - | 7 | - | - | テニヨン振替 (石がニホンイサト → No.5ウインチ) |
| 22:20 | 4152 | - | 2 | - | - | PL吊上げ, PL着水 |
| 22:22 | 4151 | - | 2 | - | - | PL取付完了 |
| 22:25 | 4149 | - | 7 | - | - | 安全ピン脱 |
| 22:26 | 4148 | - | 7 | - | - | 錘, 天秤着水 |
| 22:26 | 4148 | 0 | 7 | - | - | ゼロ調 |
| 22:26 | 4148 | 0 | 7 | 30 | ↓ | 繰出 |
| 22:28 | 4148 | 50 | 7 | - | - | 一旦停止 |
| 22:33 | 4148 | 50 | 8 | - | - | トラポット取付完了 |
| 22:34 | 4148 | 50 | 8 | 30 | ↓ | 繰出, トラポット着水 |
| 22:43 | 4148(E) | 500 | 10 | 60 | ↓ | |
| 22:51 | 4148(I) | 1000 | 12 | 60 | ↓ | |
| 23:00 | 4148(I) | 1500 | 15 | 60 | ↓ | |
| 23:09 | 4148 4148(I) | 2000 | 17 | 60 | ↓ | |
| 23:17 | 4148(I) | 2500 | 19 | 60 | ↓ | |
| 23:25 | " | 3000 | 22 | 60 | ↓ | |
| 23:34 | " | 3500 | 25 | 60 | ↓ | トラポット 3354m |
| 23:44 | " | 4000 | 27 | 50 | ↓ | 3893m |
| 23:47 | " | 4100 | 29 | - | - | 一旦停止, 3分間 昇降機 3952m |
| 23:50 | " | 4100 | 29 | 20 | ↓ | 繰出 |
| 23:58:18 | " | 4225 | MAX 21 | 20 | ↓ | 着底 4071m |
| 23:58:27 | " | 4225 | 21 | - | - | 一旦停止, 巻上 |
| 23:59:21 | " | 4207 | MAX 34 | 20 | ↑ | 高底確認 |

※11 = 9.8KN

Cruise Name
YK18-06

Core Name
PC 02

y m d
2018 / 5 / 24~25

Page
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Recorded by
山口

5/25

| Time (UTC) | Water depth (m) | Wire out length (m) | Tension (kN) | Wire speed (m/min) | Wire out / in (L / I) | Remarks |
|------------|-----------------|---------------------|--------------|--------------------|-----------------------|-------------------------|
| 0:04 | 4142(1) | 4000 | 29 | 40 | ↑ | |
| 0:17 | " | 3500 | 27 | 40 | ↑ | |
| 0:29 | " | 3000 | 24 | 40 | ↑ | |
| 0:40 | " | 2500 | 22 | 45 | ↑ | |
| 0:51 | " | 2000 | 19 | 50 | ↑ | |
| 0:52 | " | 1500 | 16 | 60 | ↑ | |
| 1:14 | " | 1000 | 14 | 50 | ↑ | |
| 1:24 | " | 500 | 11 | 50 | ↑ | |
| 1:32 | " | 56 | 9 | 50 | ↑ | トランス水切 |
| 1:32 | " | 53 | 9 | - | - | 一旦停止, トランス=取外 |
| 1:36 | " | 52 | 8 | - | - | トランス取外完了 |
| 1:37 | " | 52 | 8 | - | - | トランス OFF |
| 1:37 | " | 52 | 8 | 30 | ↑ | 巻上 |
| 1:39 | " | 0 | 8 | - | - | 天秤, 巻水切 |
| 1:41 | 4143 | - | 7 | - | - | PL 水切 天秤から取外 |
| 1:42 | 4143 | - | 6 | - | - | PL 水切 |
| 1:46 | 4142 | - | 6 | - | - | PL on Deck |
| 1:48 | 4142 | - | 0 | - | - | 天秤の替替 (No.5 用) → 右側の天秤 |
| 1:49 | 4140 | - | - | - | - | 天秤取外 |
| 1:51 | 4142 | - | - | - | - | 巻水切 |
| 1:55 | 4141 | - | - | - | - | PC on Deck |

※11 ≒ 9.8kN

Coring Inventory

PRC-SG1-030 別紙-12
PC インベントリシート

< Observation info.>

| | | | |
|---------------|---------------------|--------------|-------------------------|
| Cruise name | <u>YK18-06</u> | Operator | <u>片山</u> |
| Date (UTC) | <u>2018/5/25-26</u> | Recorded by | <u>橋本</u> |
| Core Number | <u>PC03</u> | Transponder | <u>超深海トポソ (SI2-1KP)</u> |
| Area | <u>東北沖</u> | Inclinometer | <u>—</u> |
| Sampling Site | <u>PC03</u> | others | <u>—</u> |

< Corer info.>

| | | | | | |
|-------------|----------------------|-------------------------|--------------|-------------------|----------------------------|
| Corer type | <u>Inner / Outer</u> | <u>Piston / Gravity</u> | Pilot type | <u>74 コピー</u> | |
| Weight | <u>592</u> | kg | Pilot Weight | <u>112</u> kg | |
| Pipe Length | <u>AL / SUS</u> | <u>6</u> | m | Pilot Pipe Length | <u>0.7</u> m |
| Main wire | <u>φ 8mm</u> | <u>12.8</u> | m | Pilot Wire | <u>φ 8mm</u> <u>12.6</u> m |
| Free Fall | <u>3.4</u> | m | | | |

< Condition>

| | | | |
|----------------|----------------|-------------------|--------------------|
| Weather | <u>晴</u> | Wave height | <u>1.0</u> m |
| Wind direction | <u>39</u> deg. | Current direction | <u>265</u> deg. |
| Wind speed | <u>6.5</u> m/s | Current speed | <u>1.4</u> m/s-knt |

< Operation>

| | Time | Latitude | Longitude | Depth |
|------------------------------|----------------|---------------------------|---------------------|---------------|
| <u>5/25</u> Start operation | <u>23:39</u> | | | |
| | | (TP) <u>38-25.2965N</u> | <u>143-46.0060E</u> | <u>5395</u> m |
| <u>5/26</u> Hit the bottom | <u>1:52:09</u> | (Ship) <u>38-25.3186N</u> | <u>143-46.0628E</u> | <u>5473</u> m |
| <u>5/26</u> Finish operation | <u>4:21</u> | | | |

MEMO

| | |
|---------------------|------------------------------|
| 23:11 (UTC) トポソ ON. | 0:20頃 HyperTension 台座付外(工座) |
| 0:02 (UTC) 田 トポソ 状態 | → 再起動のため、フェイル2つあり. |
| 4:04 (UTC) トポソ OFF | 着底時の 直下水深は一旦停止時の 602 桁印 |
| | → トポソの送受信を停止するまで測深を停止中 の値 |

Cruise Name
YK18-06

Core Name
PC 03

y m d
2018 / 5 / 25-26

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Recorded by
木村

5/25

| Time (UTC) | Water depth (m) | Wire out length (m) | Tension (kN) | Wire speed (m/min) | Wire out / in (L/R) | Remarks |
|------------|-----------------|---------------------|--------------|--------------------|---------------------|--------------------------------|
| 23:27 | - | - | - | - | - | 鐘移動 |
| 37 | - | - | - | - | - | 天秤取付 |
| 39 | - | - | - | - | - | 作業開始 (吊り上げ) |
| 42 | - | - | - | - | - | 注水完了 |
| 44 | 5518 | - | 7 | - | - | PC 離立 |
| 47 | 5517 | - | 7 | - | - | PL 着水 |
| 50 | 5517 | - | 8 | - | - | PL 取付 |
| 52 | 5514 | - | 8 | - | - | メインワイヤーコイル直し |
| 53 | 5512 | - | 8 | - | - | 安全ピン脱 |
| 54 | 5512 | - | 8 | - | - | 天秤着水 |
| 23:54:45 | 5508 | 0 | 8 | ~30 | ↓ | ゼロ調整 → 巻出し (30m/min) |
| 23:56 | 5508 | 50 | 8 | 0 | - | ワイヤー4倍止 |
| 0:01 | 5512 | 50 | 8 | ~60 | ↓ | ワイヤー取付 → 巻出し W.D. 5470 |
| 0:10 | 5505(1) | 500 | 10 | 60 | ↓ | |
| 18 | 5505(2) | 1000 | 12 | 60 | ↓ | |
| 27 | 5505(1) | 1500 | 15 | 60 | ↓ | |
| 35 | 5505(2) | 2000 | 17 | 60 | ↓ | TP: 1882m |
| 44 | 5505(1) | 2500 | 20 | 60 | ↓ | |
| 52 | 5505(2) | 3000 | 23 | 60 | ↓ | TP: 2850m |
| 1:01 | 5505(1) | 3500 | 24 | 55 | ↓ | TP: 3360m |
| 10 | 5505(1) | 4000 | 27 | 50 | ↓ | TP: 3835m |
| 20 | 5505(2) | 4500 | 29 | 50 | ↓ | TP: 4320m |
| 30 | 5505(1) | 5000 | 32 | 50 | ↓ | TP: 4801m |
| 40 | 5505(1) | 5450 | 35 | 0 | - | ワイヤー4倍止 W.D. 5470m TP: 5256 |
| 44 | 5473(V) | 5450 | 35 | ~20 | ↓ | 巻出し再開 |
| 1:52:09 | 5473(1) | 5599 | MIN 27 | 20 | ↓ | 着座 TP: 5395m |
| 52 | " | 5599 | 33 | ~20 | ↑ | 一旦停止, 巻上げ TP 5400 (120m/min) |
| 1:53:17 | " | 5581 | MAX 42 | 20 | ↑ | 離座確認 TP: 5388 |

*11号 9.8kN

Cruise Name
YK18-06

Core Name
PC 03

y m d
2018 / 5 / 26

Page
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Recorded by 橋本

| Time (UTC) | Water depth (m) | Wire out length (m) | Tension (kN) | Wire speed (m/min) | Wire out / in (L/R) | Remarks |
|------------|-----------------|---------------------|--------------|--------------------|---------------------|---------------------|
| 2:10 | 5473(I) | 5000 | 33 | 40 | ↑ | |
| 2:23 | 5473(I) | 4500 | 30 | 40 | ↑ | |
| 36 | 5473(I) | 4000 | 29 | 40 | ↑ | |
| 48 | 5473(I) | 3500 | 27 | 40 | ↑ | |
| 59 | 5473(I) | 3000 | 24 | 40 | ↑ | |
| 3:11 | 5473(I) | 2500 | 22 | 40 45 | ↑ | TP: 2410 |
| 21 | 5473(I) | 2000 | 20 | 50 | ↑ | |
| 32 | 5473(I) | 1500 | 17 | 50 | ↑ | |
| 43 | 5473(I) | 1000 | 14 | 50 | ↑ | |
| 52 | 5473(I) | 500 | 12 | 50 | ↑ | |
| 4:02 | 5473(I) | 49 | 8 | 0 | - | ワイヤ停止 |
| 04 | 5473(I) | 50 | 8 | 0 | - | トコホン取外し |
| 05 | " | " | 6 | ~30 | ↑ | ワイヤ上げ |
| 07 | - | - | 8 | 20 | ↑ | 天枠北切り |
| 08 | - | - | 8 | 0 | - | ワイヤ停止, PL天枠北外し |
| 11 | - | - | 7 | 0 | - | PL北切り |
| 13 | - | - | 7 | 0 | - | PL北天枠取外し |
| 15 | - | - | 7 | ~30 | ↓ | PL On deck, ワイヤ巻出 |
| 16 | - | - | - | - | - | テンション振替へ, No.5 → 左舷 |
| 17 | - | - | - | - | - | 天枠取外し |
| 18 | - | - | - | - | - | 金型北切り |
| 4:21 | - | - | - | - | - | PC On deck |

※1kN = 9.8kN

Coring Inventory

PRC-SG1-030 別紙-12
PC インベントリシート

< Observation info.>

| | | | |
|---------------|-----------------------|--------------|------------------------------|
| Cruise name | <u>YK18-06</u> | Operator | <u>田宮</u> |
| Date (UTC) | <u>2018/5/26 ~ 27</u> | Recorded by | <u>山口</u> |
| Core Number | <u>PC04</u> | Transponder | <u>海洋電子製 超深海 F-100 (F-2)</u> |
| Area | <u>東北沖</u> | Inclinometer | <u>— (SIT-1KP)</u> |
| Sampling Site | <u>PC04</u> | others | <u>—</u> |

< Corer info.>

| | | | | |
|-------------|----------------------|-------------------------|-------------------|----------------|
| Corer type | <u>Innet / Outer</u> | <u>Piston / Gravity</u> | Pilot type | <u>74-237-</u> |
| Weight | <u>592</u> | kg | Pilot Weight | <u>112</u> kg |
| Pipe Length | <u>AL/SUS 6</u> | m | Pilot Pipe Length | <u>0.7</u> m |
| Main wire | <u>φ 8mm x 12.8</u> | m | Pilot Wire | <u>12.6</u> m |
| Free Fall | <u>3.4</u> | m | | |

< Condition>

| | | | |
|----------------|----------------|-------------------|--------------------|
| Weather | <u>晴れ</u> | Wave height | <u>1.5</u> m |
| Wind direction | <u>28</u> deg. | Current direction | <u>300</u> deg. |
| Wind speed | <u>3.0</u> m/s | Current speed | <u>1.5</u> m/s knt |

< Operation>

| | | | | |
|------|------------------|----------------|---------------------------|---------------------|
| | Time | | | |
| 5/26 | Start operation | <u>23:40</u> | | |
| | | | Latitude | Longitude |
| | | | (TP) <u>38-16.9983N</u> | <u>143-28.6133E</u> |
| | | | (Ship) <u>38-16.9991N</u> | <u>143-28.7111E</u> |
| 5/27 | Hit the bottom | <u>1:07:39</u> | | Depth |
| | | | | <u>3162</u> m |
| | | | | <u>3238</u> m |
| | Finish operation | <u>2:38</u> | | |

MEMO

5/26 23:07 (UTC) トランス ON 着底時の直下水深は一旦停止時の値を使用。
5/27 2:20 (UTC) トランス OFF → トランスの送信を行わずに、測深を停止した。

Cruise Name
YK18-06

Core Name
PC 04

y m d
2018 / 5 / 26 ~ 27

Page
1 / 2

Recorded by 山口

5/26

| Time (UTC) | Water depth (m) | Wire out length (m) | Tension (kN) | Wire speed (m/min) | Wire out / in (↓/↑) | Remarks |
|------------|-----------------|---------------------|--------------|--------------------|---------------------|--------------------------|
| 23:07 | - | - | - | - | - | トラホース ON |
| 23:36 | - | - | - | - | - | 天幹のマイクケーブル 接続 |
| 23:40 | 3232 | - | - | - | - | 作業開始 |
| 23:43 | 3235 | - | - | - | - | 注水完了 |
| 23:44 | 3237 | - | 7 | - | - | 鐘 重直, 注水圧盤 (右のホース No.15) |
| 23:46 | 3239 | - | 7 | - | - | PL 吊上 |
| 23:47 | 3234 | - | 7 | - | - | PL 着水 |
| 23:49 | 3239 | - | 8 | - | - | PL 取付 |
| 23:50 | 3245 | - | 7 | - | - | 安全確認 |
| 23:52 | 3240 | - | 8 | 10 | ↓ | 鐘, 天幹直木着水 |
| 23:52 | 3243 | 0 | 8 | - | - | バロ調 |
| 23:53 | 3241 | 0 | 8 | 30 | ↓ | 繰出 |
| 23:55 | 3245 | 50 | 8 | - | - | 一旦停止 |
| 5/27 0:00 | 3245 | 50 | 8 | - | - | トラホース取付完了 |
| 0:01 | 3240 | 50 | 8 | 30 | ↓ | 繰出, トラホース着水 |
| 0:09 | 3242(I) | 500 | 10 | 60 | ↓ | |
| 0:18 | " | 1000 | 13 | 60 | ↓ | |
| 0:26 | " | 1500 | 15 | 60 | ↓ | |
| 0:34 | " | 2000 | 17 | 60 | ↓ | |
| 0:43 | " | 2500 | 20 | 60 | ↓ | |
| 0:51 | " | 3000 | 22 | 60 | ↓ | |
| 0:55 | " | 3150 | 24 | - | - | 一旦停止 |
| 1:00 | 3238(I) | 3150 | 23 | 20 | ↓ | 繰出 |
| 1:07:39 | " | 3297 | MIN 17 | 20 | ↓ | 着底 |
| 1:07 | " | 3297 | 17 | - | - | 一旦停止, 巻上 |
| 1:08:34 | " | 3283 | MAX 34 | 20 | ↑ | 離底確認 |
| 1:15 | " | 3000 | 24 | 45 | ↑ | |
| 1:26 | " | 2500 | 22 | 50 | ↑ | |

※11 ≒ 9.8kN

Cruise Name
YK18-06

Core Name
PC 04

y m d
2018 / 5 / 26
27

Page
2 / 2

Recorded by 山口

5/27

| Time (UTC) | Water depth (m) | Wire out length (m) | Tension (kN) | Wire speed (m/min) | Wire out / in (I/I) | Remarks |
|------------|-----------------|---------------------|--------------|--------------------|---------------------|--------------------------|
| 1:37 | 3238(L) | 2000 | 19 | 50 | ↑ | |
| 1:47 | " | 1500 | 17 | 50 | ↑ | |
| 1:58 | " | 1000 | 14 | 50 | ↑ | |
| 2:08 | " | 500 | 12 | 50 | ↑ | |
| 2:16 | " | 59 | 9 | 20 | ↑ | トラホロ=水切 |
| 2:19 | " | 59 | 9 | - | - | トラホロ=取外 |
| 2:20 | " | 53 | 8 | - | - | トラホロ=OFF, 巻上 |
| 2:22 | " | 5 | 8 | 10 | ↑ | 天秤水切 水切 |
| 2:25 | " | 0 | 7 | - | - | PL水切 |
| 2:30 | " | - | 7 | - | - | PL 試料取外 |
| 2:31 | " | - | 7 | - | - | PL on Deck |
| 2:32 | " | - | 1 | - | - | テニヨ=振替 (No.5ウレフ → 振替=取外) |
| 2:33 | " | - | 1 | - | - | 天秤取外 |
| 2:35 | " | - | 1 | - | - | 錘水切 |
| 2:38 | " | - | 0 | - | - | 錘 ^{PC} on Deck. |

※1t = 9.8kN