

## ECHO - LOG

### Heiligerlee H

12. survey

04.01.2018

184001





**Results of the Cavity Survey  
by means of Echo-Sounding  
in the cavity**

**Heiligerlee H**

**Date: 04.01.2018**

**Report No.: 184001**

**Customer: Akzo Nobel Industrial Chemicals B.V Heiligerlee**

Responsible for the survey:

Surveyor :  
Leadership :  
Interpreter :  
Control :

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## Summary of results

### Well details

|                                      |                |
|--------------------------------------|----------------|
| <b>All depths are given as:</b>      | <b>MVD</b>     |
| <b>Datum level for all depths:</b>   | <b>surface</b> |
| Shoe of the cemented 13 3/8"-casing: | 506.7 m        |
| <b>Reference depth for ECHO-LOG:</b> | <b>506.7 m</b> |
| Pressure at the cavity head:         | 0.0 bar        |

### Details of survey equipment

|                         |                     |
|-------------------------|---------------------|
| Measuring vehicle used: | L 114               |
| Tools used:             | Echo tool BSF 2 115 |

### General details

|                               |          |
|-------------------------------|----------|
| Number of runs:               | 1        |
| Measured horizontal sections: | 48       |
| Measured tilted sections:     | 34       |
| Lowest survey depth:          | 1123.5 m |

### **Maximum and minimum dimensions with ref. to the measuring axis**

**Reference direction:**

**magnetic north**

Determination out of 36 vertical sections derived from horizontally and tilted measured data at 5 degree intervals:

|                 |          |
|-----------------|----------|
| minimum radius: | 0.0 m    |
| depth:          | 1131.2 m |
| direction:      | 0°       |

|                 |          |
|-----------------|----------|
| maximum radius: | 79.6 m   |
| depth:          | 1091.0 m |
| direction:      | 140°     |

|                          |         |
|--------------------------|---------|
| highest point of cavity: | 786.5 m |
| horizontal distance:     | 40.2 m  |
| direction:               | 65°     |

|                         |          |
|-------------------------|----------|
| lowest point of cavity: | 1232.0 m |
| horizontal distance:    | 24.2 m   |
| direction:              | 45°      |

|                                     |          |
|-------------------------------------|----------|
| lowest point in the measuring axis: | 1131.2 m |
|-------------------------------------|----------|

Determination out of 91 horizontal sections in the depths between 789.2 m and 1230.0 m at 5° degree intervals:

|                 |          |
|-----------------|----------|
| maximum radius: | 79.6 m   |
| depth:          | 1091.0 m |
| direction:      | 140°     |

|                   |          |
|-------------------|----------|
| maximum diameter: | 127.4 m  |
| depth:            | 792.0 m  |
| direction:        | 3 - 183° |

### **Volume**

|         |                |
|---------|----------------|
| volume: | 2 306 422.3 m³ |
|---------|----------------|

|              |                       |
|--------------|-----------------------|
| depth range: | 789.2 m <--> 1232.0 m |
|--------------|-----------------------|

## **Interpretation**

Supposing a rectilinear propagation of ultrasonic waves all recorded echo travel times were converted into distances by using the subsequent speeds of sound:

1817.1 m/s to 1821.1 m/s in brine (assumed)

In the case of recording several echoes along one trace of echo signals, the representative echo signal was selected according to the level of amplitude, transmission time, density of measured points and the shape of the cavity.

## **Horizontal sections**

48 horizontal sections at following measured depths are included as graphical plots in this report:

|          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|
| 789.2 m  | 792.0 m  | 796.0 m  | 801.0 m  | 806.0 m  | 811.0 m  | 816.0 m  |
| 821.0 m  | 826.0 m  | 831.0 m  | 836.0 m  | 841.0 m  | 851.0 m  | 861.0 m  |
| 881.0 m  | 901.0 m  | 926.0 m  | 951.0 m  | 976.0 m  | 1001.0 m | 1016.0 m |
| 1026.0 m | 1036.0 m | 1041.0 m | 1046.0 m | 1051.0 m | 1053.5 m | 1056.0 m |
| 1058.5 m | 1061.0 m | 1066.0 m | 1071.0 m | 1076.0 m | 1081.0 m | 1086.0 m |
| 1091.0 m | 1096.0 m | 1098.5 m | 1101.0 m | 1103.5 m | 1106.0 m | 1108.5 m |
| 1111.0 m | 1113.5 m | 1116.0 m | 1118.5 m | 1121.0 m | 1123.5 m |          |

The following 43 sections are constructed:

|          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|
| 1125.0 m | 1127.5 m | 1130.0 m | 1132.5 m | 1135.0 m | 1137.5 m | 1140.0 m |
| 1142.5 m | 1145.0 m | 1147.5 m | 1150.0 m | 1152.5 m | 1155.0 m | 1157.5 m |
| 1160.0 m | 1162.5 m | 1165.0 m | 1167.5 m | 1170.0 m | 1172.5 m | 1175.0 m |
| 1177.5 m | 1180.0 m | 1182.5 m | 1185.0 m | 1187.5 m | 1190.0 m | 1192.5 m |
| 1195.0 m | 1197.5 m | 1200.0 m | 1202.5 m | 1205.0 m | 1207.5 m | 1210.0 m |
| 1212.5 m | 1215.0 m | 1217.5 m | 1220.0 m | 1222.5 m | 1225.0 m | 1227.5 m |
| 1230.0 m |          |          |          |          |          |          |

### **Tilted sections**

34 sections recorded with tilted echo-transducer at following measured depths are presented in the vertical sections:

20 sections of these with upwards-tilted echo-transducer:

Depth / Tilting Angle

|             |             |             |             |             |             |
|-------------|-------------|-------------|-------------|-------------|-------------|
| 831.0 / 30  | 831.0 / 33  | 831.0 / 36  | 831.0 / 39  | 831.0 / 42  | 831.0 / 48  |
| 831.0 / 54  | 831.0 / 60  | 831.0 / 66  | 831.0 / 72  | 831.0 / 78  | 831.0 / 84  |
| 1096.0 / 36 | 1096.0 / 39 | 1096.0 / 42 | 1101.0 / 30 | 1101.0 / 36 | 1101.0 / 42 |
| 1101.0 / 48 | 1101.0 / 54 |             |             |             |             |

14 sections of these with downwards-tilted echo-transducer:

Depth / Tilting Angle

|             |             |             |             |             |             |
|-------------|-------------|-------------|-------------|-------------|-------------|
| 1118.5 / 6  | 1118.5 / 12 | 1118.5 / 18 | 1118.5 / 24 | 1118.5 / 30 | 1118.5 / 36 |
| 1118.5 / 42 | 1118.5 / 48 | 1118.5 / 54 | 1118.5 / 60 | 1118.5 / 66 | 1118.5 / 72 |
| 1118.5 / 78 | 1118.5 / 84 |             |             |             |             |

### **Vertical sections**

The shape of the cavity was determined by interpretation of all horizontally and tilted measured data and is presented by 36 vertical sections in this report.

### **Maximum plots (top view)**

The maximum plot presents the largest extension of the cavity in a top view. The first picture shows the areas of all horizontal sections and the area resulting out of the vertical sections (hatched). The resulting total area is shown in the second picture (cross hatching) together with the largest single area.

In both pictures the total centre of gravity of the cavity is shown with its distance and its direction referring to the measuring axis.

The total centre of gravity is derived out of the envelope, which is the connection line of the largest cavity extension in every direction

### **Perspective views**

Several perspective drawings are included in this report to give a quick review of detailed relations.

### **Comparison with previously measured data**

If there are data of previous surveys available these are presented with a different line style to mark out for changes.

### **Pockets in the cavity wall**

Pockets in the cavity wall, which have been identified by the tilted echo-transducer, were transferred from the vertical sections to the respective horizontal sections.

The resulting additional areas have been added to the calculated areas.

### **LOG - Data**

You will find the graphic representations of the following LOG data at the end of this report:

| Parameter    | from    | to       |
|--------------|---------|----------|
| Temperature: | 495.0 m | 1127.4m  |
| Pressure:    | 495.2 m | 1127.6 m |
| CCL:         | 493.8 m | 1126.2 m |



## LEGEND

-  Measured point recorded with horizontal adjusted ultrasonic transducer
-  Measured point recorded with tilted or vertical orientated ultrasonic transducer
-  Interpolated point derived from the vertical sections
-  Connection line between two measured points in order to calculate the volume
-  Assumed connection line (in areas which are not sufficiently covered by measured points)
- GiN**      Grid-North
- N**          Magnetic north determined with compass inside the tool  
(magnetic compass in areas without tubing)  
(fibre gyro compass in areas with tunings)
- (N)**        Assumed north direction (for sections in magnetic disturbed surroundings without fibre gyro compass)
- a**          Longest extension in section  
(without considering of hidden leached pockets)
- b**          Longest extension in section perpendicular to a  
(without considering of hidden leached pockets)
- a/b**        Ratio of longest extensions in section which are perpendicular to each other
- (+ xx m<sup>2</sup>)** Area in actual section resulting from hidden leached pockets
- r~**         Average radius



## Volume list

Cavity: Heiligerlee H

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| Depth [m] | Radius [m] | Area [m²] | Depth range [m] |         | Volume [m³] |           |
|-----------|------------|-----------|-----------------|---------|-------------|-----------|
|           |            |           | from            | to      | partial     | total     |
| 789.2     | 27.7       | 2416.8    | 789.20          | 790.60  | 3383.5      | 3383.5    |
| 792.0     | 59.6       | 11167.7   | 790.60          | 794.00  | 37970.2     | 41353.7   |
| 796.0     | 59.7       | 11180.6   | 794.00          | 798.50  | 50312.7     | 91666.3   |
| 801.0     | 59.0       | 10923.8   | 798.50          | 803.50  | 54618.9     | 146285.2  |
| 806.0     | 54.6       | 9377.0    | 803.50          | 808.50  | 46884.8     | 193170.1  |
| 811.0     | 48.1       | 7275.0    | 808.50          | 813.50  | 36375.2     | 229545.3  |
| 816.0     | 42.6       | 5701.6    | 813.50          | 818.50  | 28507.9     | 258053.2  |
| 821.0     | 39.4       | 4887.3    | 818.50          | 823.50  | 24436.5     | 282489.7  |
| 826.0     | 37.9       | 4517.1    | 823.50          | 828.50  | 22585.3     | 305075.0  |
| 831.0     | 41.5       | 5418.5    | 828.50          | 833.50  | 27092.3     | 332167.3  |
| 836.0     | 46.1       | 6666.1    | 833.50          | 838.50  | 33330.3     | 365497.6  |
| 841.0     | 48.9       | 7508.2    | 838.50          | 846.00  | 56311.2     | 421808.8  |
| 851.0     | 49.9       | 7828.0    | 846.00          | 856.00  | 78279.8     | 500088.6  |
| 861.0     | 49.7       | 7754.9    | 856.00          | 871.00  | 116323.7    | 616412.3  |
| 881.0     | 49.4       | 7664.8    | 871.00          | 891.00  | 153295.8    | 769708.0  |
| 901.0     | 49.4       | 7673.1    | 891.00          | 913.50  | 172644.3    | 942352.4  |
| 926.0     | 50.6       | 8057.2    | 913.50          | 938.50  | 201431.0    | 1143783.4 |
| 951.0     | 52.8       | 8746.8    | 938.50          | 963.50  | 218670.0    | 1362453.3 |
| 976.0     | 54.1       | 9191.9    | 963.50          | 988.50  | 229797.3    | 1592250.6 |
| 1001.0    | 49.4       | 7671.5    | 988.50          | 1008.50 | 153430.4    | 1745681.0 |
| 1016.0    | 46.9       | 6906.5    | 1008.50         | 1021.00 | 86330.7     | 1832011.6 |
| 1026.0    | 39.7       | 4942.2    | 1021.00         | 1031.00 | 49422.1     | 1881433.7 |
| 1036.0    | 32.0       | 3225.6    | 1031.00         | 1038.50 | 24192.1     | 1905625.7 |
| 1041.0    | 29.6       | 2751.3    | 1038.50         | 1043.50 | 13756.3     | 1919382.0 |
| 1046.0    | 29.1       | 2664.7    | 1043.50         | 1048.50 | 13323.7     | 1932705.7 |
| 1051.0    | 30.7       | 2955.9    | 1048.50         | 1052.25 | 11084.7     | 1943790.4 |
| 1053.5    | 31.3       | 3073.7    | 1052.25         | 1054.75 | 7684.2      | 1951474.6 |
| 1056.0    | 31.9       | 3202.3    | 1054.75         | 1057.25 | 8005.7      | 1959480.3 |
| 1058.5    | 32.6       | 3345.8    | 1057.25         | 1059.75 | 8364.5      | 1967844.8 |
| 1061.0    | 32.7       | 3362.7    | 1059.75         | 1063.50 | 12610.1     | 1980454.9 |
| 1066.0    | 32.6       | 3335.6    | 1063.50         | 1068.50 | 16677.8     | 1997132.7 |
| 1071.0    | 32.6       | 3348.5    | 1068.50         | 1073.50 | 16742.6     | 2013875.2 |
| 1076.0    | 32.9       | 3391.1    | 1073.50         | 1078.50 | 16955.4     | 2030830.7 |
| 1081.0    | 33.4       | 3502.6    | 1078.50         | 1083.50 | 17513.1     | 2048343.8 |
| 1086.0    | 33.9       | 3614.0    | 1083.50         | 1088.50 | 18070.2     | 2066414.0 |
| 1091.0    | 33.7       | 3572.0    | 1088.50         | 1093.50 | 17860.0     | 2084274.0 |
| 1096.0    | 33.4       | 3509.8    | 1093.50         | 1097.25 | 13161.8     | 2097435.8 |
| 1098.5    | 33.4       | 3496.3    | 1097.25         | 1099.75 | 8740.7      | 2106176.4 |
| 1101.0    | 33.1       | 3446.3    | 1099.75         | 1102.25 | 8615.7      | 2114792.1 |
| 1103.5    | 32.4       | 3302.0    | 1102.25         | 1104.75 | 8255.0      | 2123047.1 |
| 1106.0    | 32.2       | 3249.5    | 1104.75         | 1107.25 | 8123.7      | 2131170.8 |
| 1108.5    | 32.2       | 3254.3    | 1107.25         | 1109.75 | 8135.7      | 2139306.5 |
| 1111.0    | 32.0       | 3218.7    | 1109.75         | 1112.25 | 8046.7      | 2147353.2 |
| 1113.5    | 31.4       | 3094.9    | 1112.25         | 1114.75 | 7737.4      | 2155090.5 |
| 1116.0    | 31.0       | 3022.0    | 1114.75         | 1117.25 | 7555.0      | 2162645.5 |
| 1118.5    | 30.5       | 2929.3    | 1117.25         | 1119.75 | 7323.1      | 2169968.6 |
| 1121.0    | 29.9       | 2811.4    | 1119.75         | 1122.25 | 7028.6      | 2176997.2 |
| 1123.5    | 29.6       | 2754.3    | 1122.25         | 1124.25 | 5508.6      | 2182505.8 |



## Volume list

Cavity: Heiligerlee H

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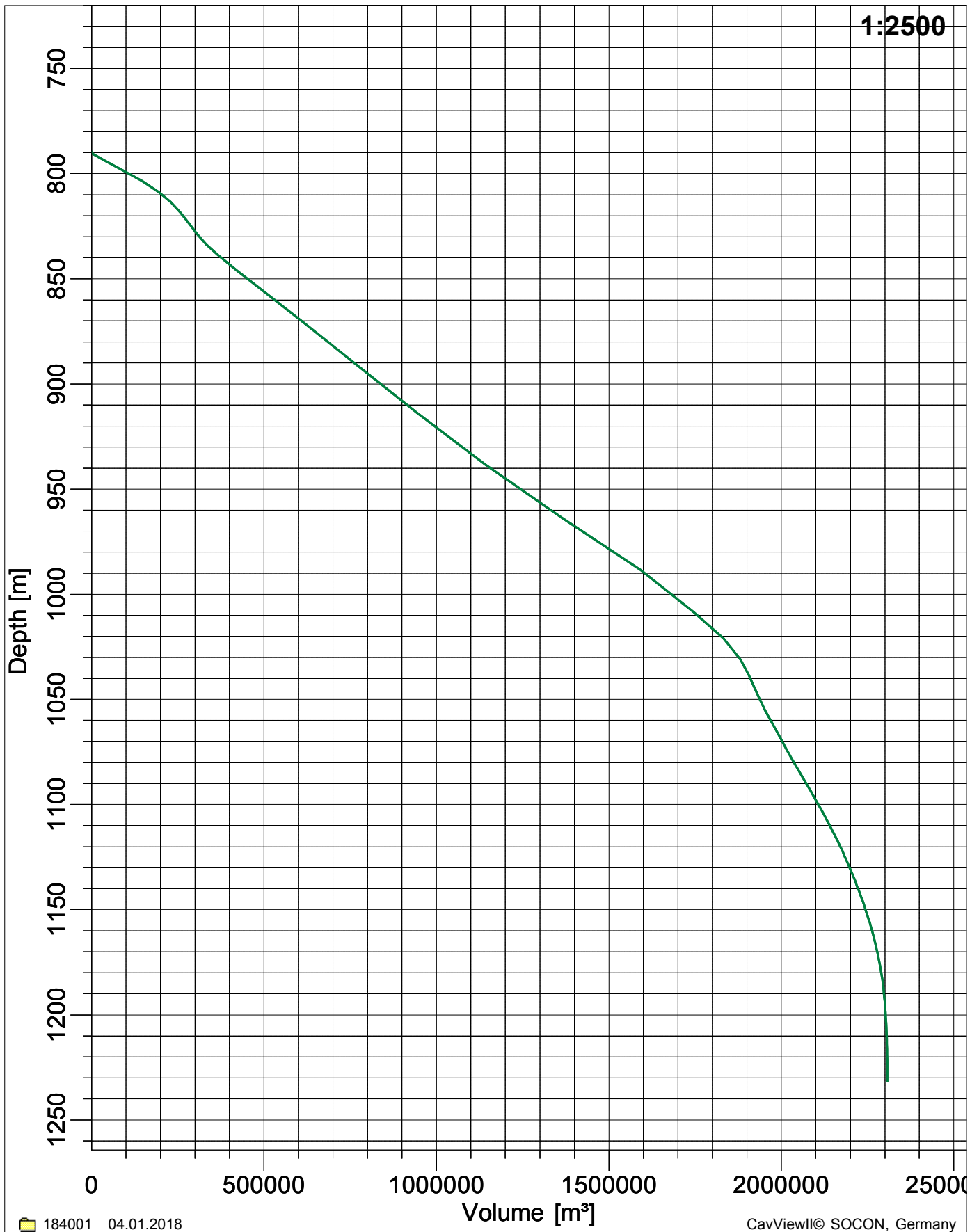
04.01.2018

| Depth [m] | Radius [m] | Area [m²] | Depth range [m] |         | Volume [m³] |                  |
|-----------|------------|-----------|-----------------|---------|-------------|------------------|
|           |            |           | from            | to      | partial     | total            |
| 1125.0    | 29.3       | 2693.5    | 1124.25         | 1126.25 | 5387.0      | 2187892.8        |
| 1127.5    | 28.9       | 2632.0    | 1126.25         | 1128.75 | 6580.0      | 2194472.8        |
| 1130.0    | 28.4       | 2530.5    | 1128.75         | 1131.25 | 6326.2      | 2200799.0        |
| 1132.5    | 28.3       | 2523.0    | 1131.25         | 1133.75 | 6307.5      | 2207106.5        |
| 1135.0    | 28.0       | 2469.5    | 1133.75         | 1136.25 | 6173.6      | 2213280.2        |
| 1137.5    | 27.7       | 2406.3    | 1136.25         | 1138.75 | 6015.8      | 2219296.0        |
| 1140.0    | 27.3       | 2338.1    | 1138.75         | 1141.25 | 5845.2      | 2225141.2        |
| 1142.5    | 26.8       | 2261.3    | 1141.25         | 1143.75 | 5653.2      | 2230794.5        |
| 1145.0    | 26.3       | 2177.2    | 1143.75         | 1146.25 | 5442.9      | 2236237.4        |
| 1147.5    | 25.7       | 2076.7    | 1146.25         | 1148.75 | 5191.8      | 2241429.2        |
| 1150.0    | 25.2       | 1992.2    | 1148.75         | 1151.25 | 4980.6      | 2246409.7        |
| 1152.5    | 24.7       | 1919.2    | 1151.25         | 1153.75 | 4798.1      | 2251207.8        |
| 1155.0    | 24.1       | 1830.7    | 1153.75         | 1156.25 | 4576.7      | 2255784.5        |
| 1157.5    | 23.8       | 1775.5    | 1156.25         | 1158.75 | 4438.8      | 2260223.3        |
| 1160.0    | 23.3       | 1703.3    | 1158.75         | 1161.25 | 4258.2      | 2264481.5        |
| 1162.5    | 22.7       | 1619.5    | 1161.25         | 1163.75 | 4048.7      | 2268530.2        |
| 1165.0    | 22.0       | 1526.2    | 1163.75         | 1166.25 | 3815.6      | 2272345.8        |
| 1167.5    | 21.3       | 1430.4    | 1166.25         | 1168.75 | 3576.0      | 2275921.8        |
| 1170.0    | 20.6       | 1334.7    | 1168.75         | 1171.25 | 3336.7      | 2279258.5        |
| 1172.5    | 19.9       | 1239.4    | 1171.25         | 1173.75 | 3098.5      | 2282357.0        |
| 1175.0    | 19.1       | 1151.7    | 1173.75         | 1176.25 | 2879.2      | 2285236.2        |
| 1177.5    | 18.4       | 1060.9    | 1176.25         | 1178.75 | 2652.4      | 2287888.5        |
| 1180.0    | 17.6       | 974.2     | 1178.75         | 1181.25 | 2435.4      | 2290323.9        |
| 1182.5    | 16.9       | 893.0     | 1181.25         | 1183.75 | 2232.6      | 2292556.5        |
| 1185.0    | 16.0       | 806.0     | 1183.75         | 1186.25 | 2015.1      | 2294571.6        |
| 1187.5    | 15.1       | 715.7     | 1186.25         | 1188.75 | 1789.3      | 2296360.9        |
| 1190.0    | 14.1       | 623.1     | 1188.75         | 1191.25 | 1557.6      | 2297918.5        |
| 1192.5    | 13.2       | 545.9     | 1191.25         | 1193.75 | 1364.8      | 2299283.3        |
| 1195.0    | 12.2       | 469.4     | 1193.75         | 1196.25 | 1173.6      | 2300456.9        |
| 1197.5    | 11.2       | 397.2     | 1196.25         | 1198.75 | 993.1       | 2301450.0        |
| 1200.0    | 10.5       | 344.9     | 1198.75         | 1201.25 | 862.2       | 2302312.2        |
| 1202.5    | 9.9        | 308.8     | 1201.25         | 1203.75 | 771.9       | 2303084.1        |
| 1205.0    | 9.4        | 275.1     | 1203.75         | 1206.25 | 687.8       | 2303771.9        |
| 1207.5    | 8.8        | 241.1     | 1206.25         | 1208.75 | 602.8       | 2304374.7        |
| 1210.0    | 8.1        | 206.8     | 1208.75         | 1211.25 | 516.9       | 2304891.6        |
| 1212.5    | 7.4        | 172.0     | 1211.25         | 1213.75 | 430.1       | 2305321.8        |
| 1215.0    | 6.7        | 140.7     | 1213.75         | 1216.25 | 351.8       | 2305673.5        |
| 1217.5    | 6.0        | 113.6     | 1216.25         | 1218.75 | 284.0       | 2305957.5        |
| 1220.0    | 5.2        | 85.9      | 1218.75         | 1221.25 | 214.8       | 2306172.3        |
| 1222.5    | 4.3        | 57.8      | 1221.25         | 1223.75 | 144.4       | 2306316.7        |
| 1225.0    | 3.0        | 29.1      | 1223.75         | 1226.25 | 72.7        | 2306389.4        |
| 1227.5    | 1.8        | 10.7      | 1226.25         | 1228.75 | 26.6        | 2306416.0        |
| 1230.0    | 0.8        | 1.9       | 1228.75         | 1232.00 | 6.3         | <b>2306422.3</b> |

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**TOTAL VOLUME**

04.01.2018



— Total volume = 2306422.3 m<sup>3</sup>

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**TOTAL VOLUME**

04.01.2018



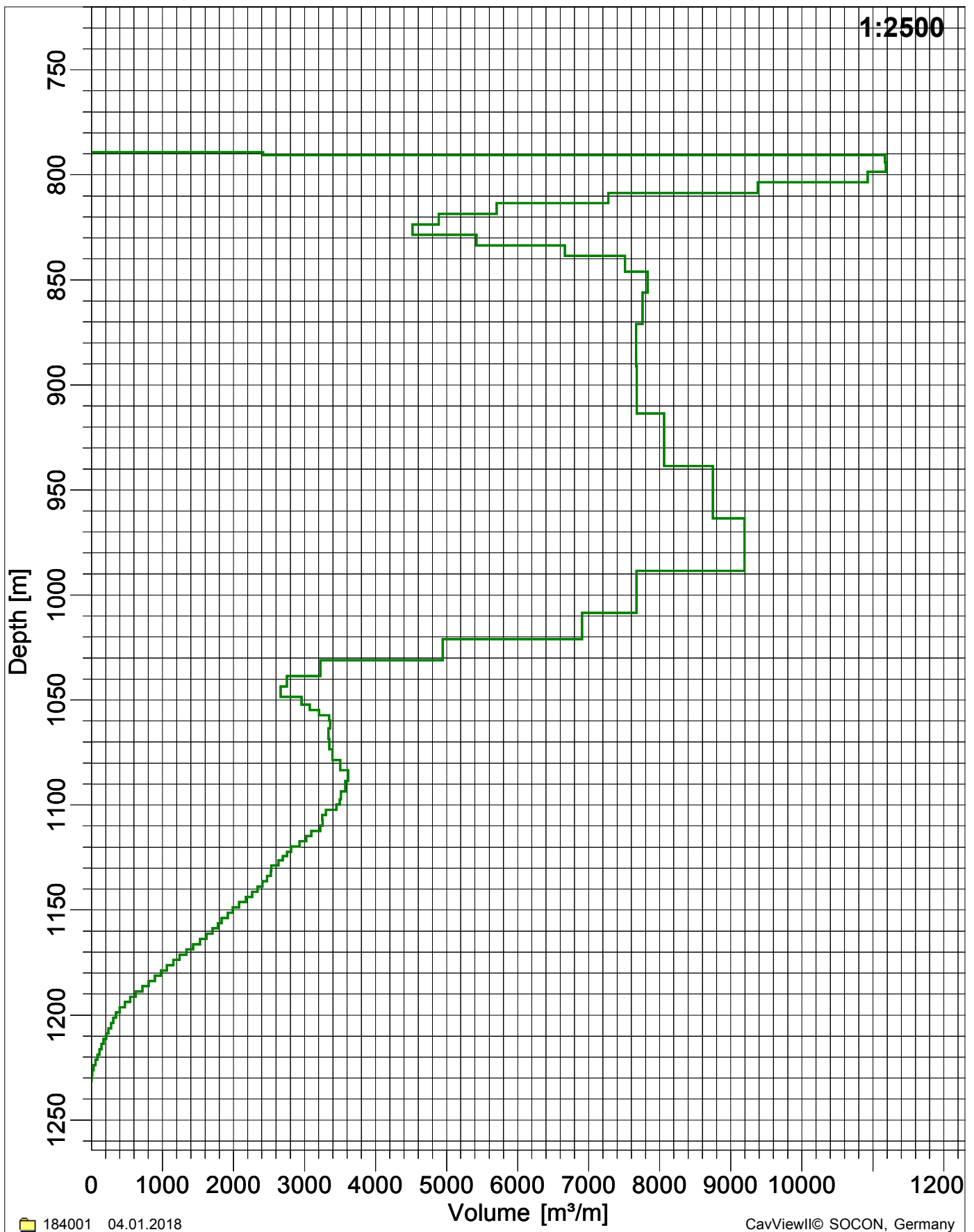
— Total volume = 2306422.3 m³

- - - Total volume = 2186557.7 m³ (17.05.2016)

Heiligerlee H

**PARTIAL VOLUME**

04.01.2018

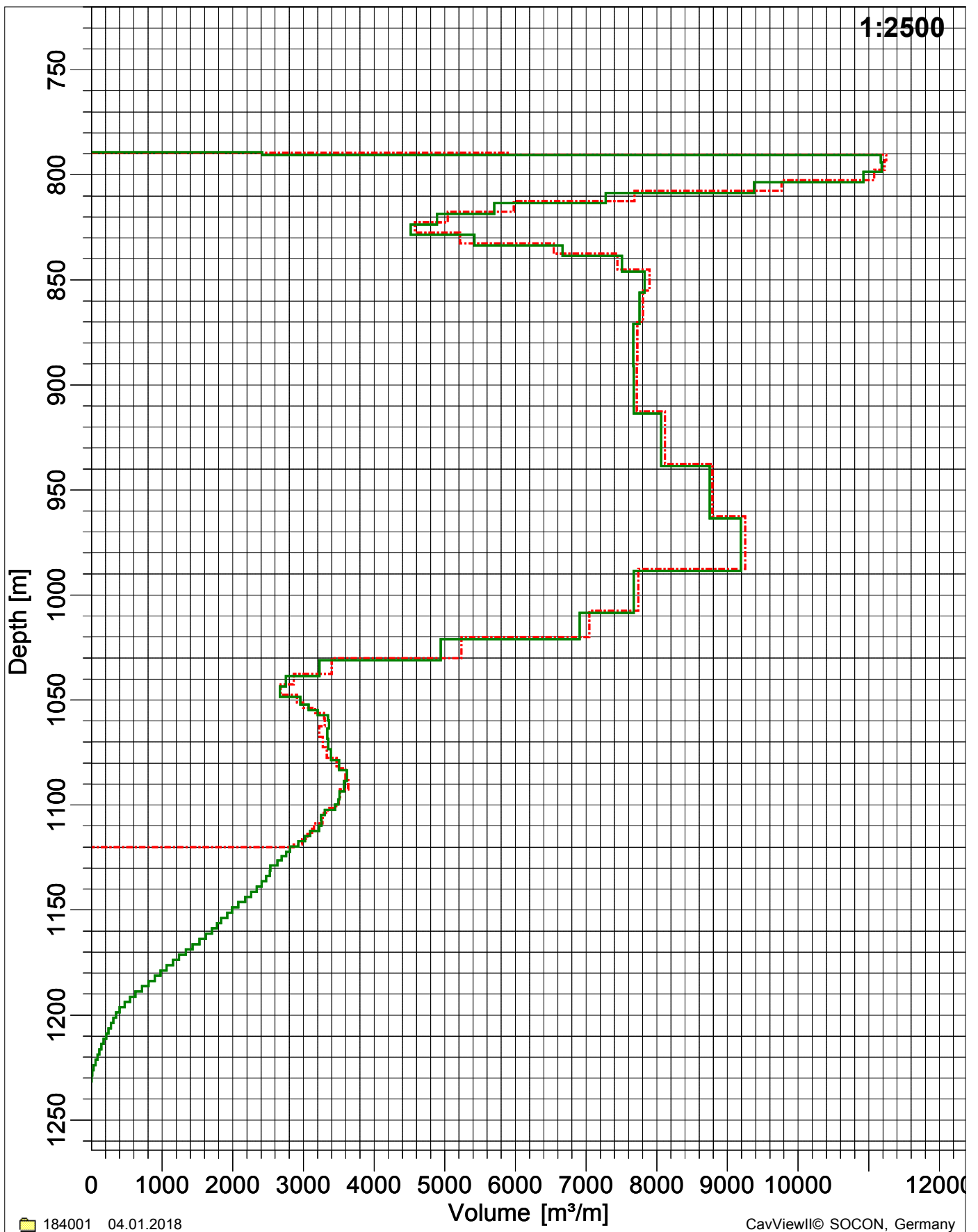


Partial volume

Heiligerlee H

**PARTIAL VOLUME**

04.01.2018



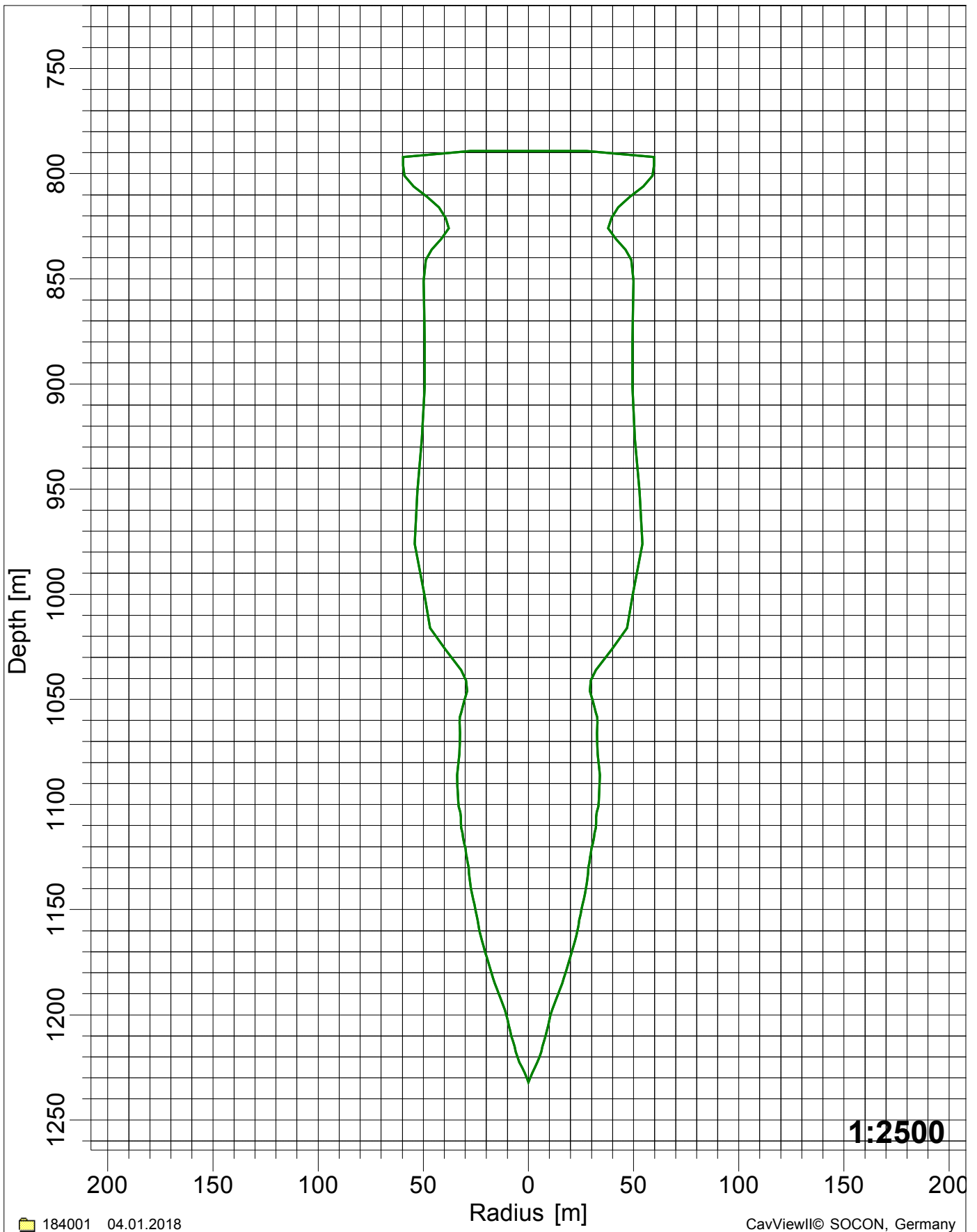
— Partial volume

- - - Partial volume (17.05.2016)

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**AVERAGE RADIUS**

**04.01.2018**



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CavViewII© SOCON, Germany



13 3/8" : 506.7 m

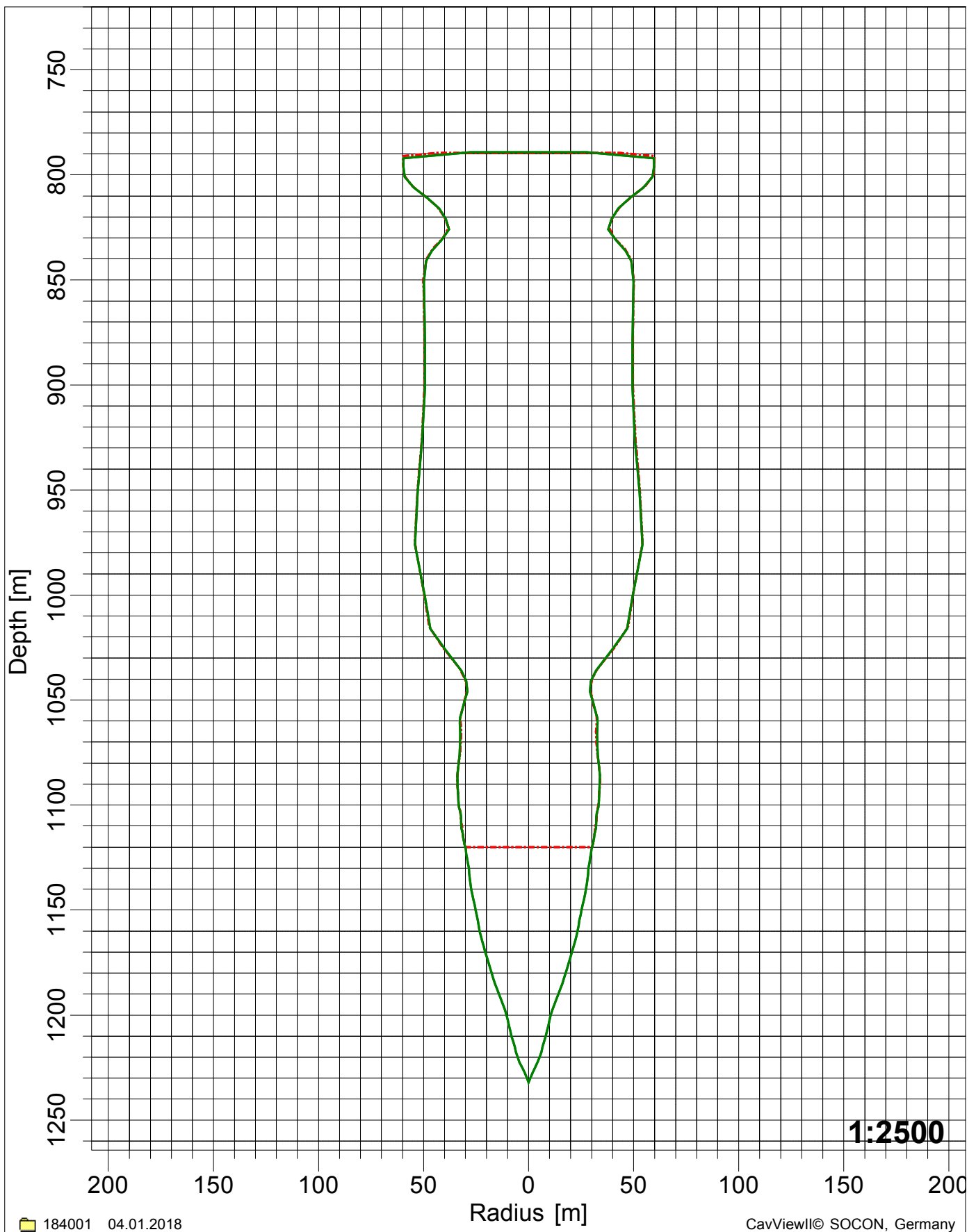
— Average radius (04.01.2018)



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**AVERAGE RADIUS**

**04.01.2018**



— Average radius (04.01.2018)

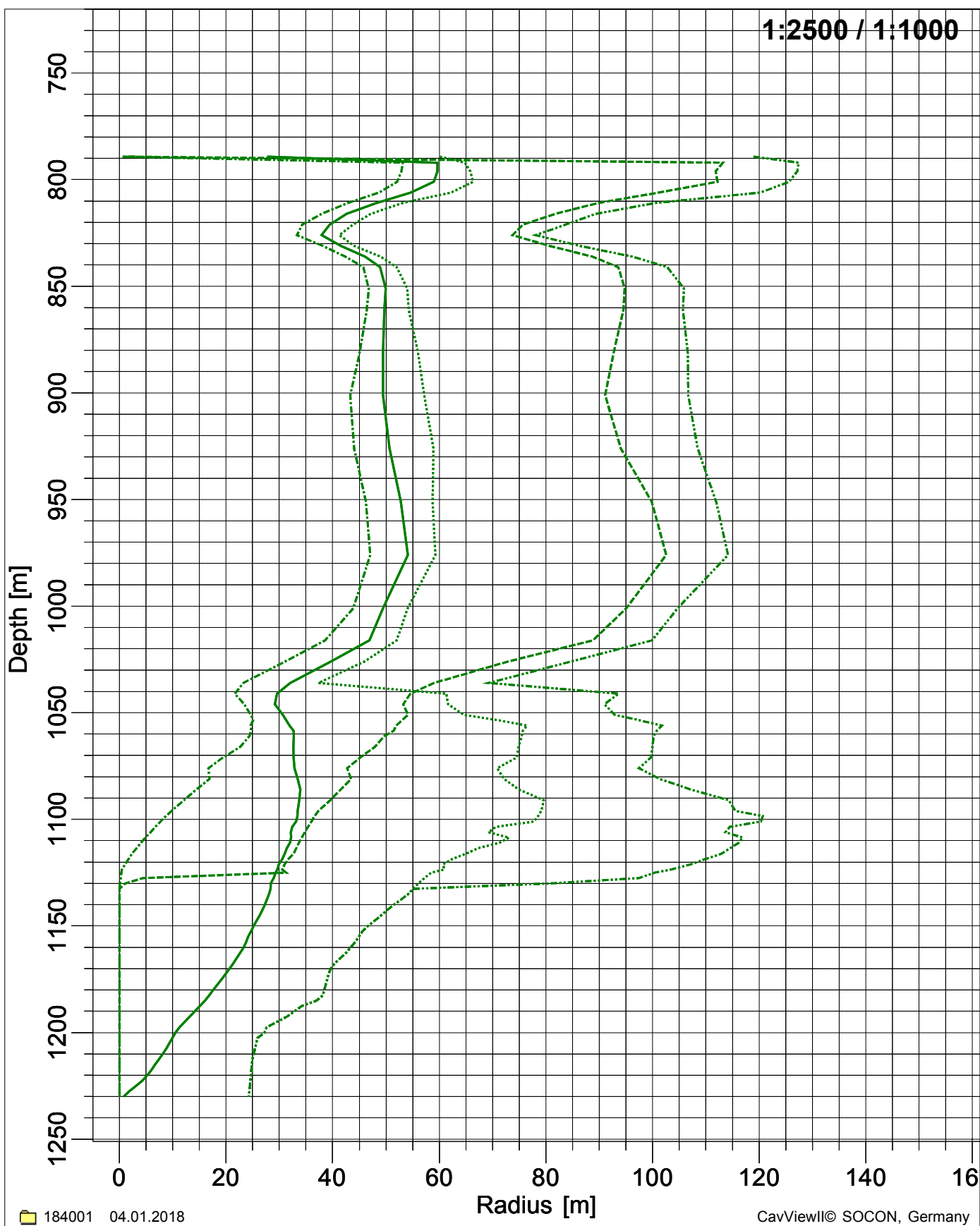
- - - Average radius (17.05.2016)

▲ 13 3/8" : 506.7 m

Heiligerlee H

Radii differences

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— Average radius  
- - - Minimum diameter

- . . Minimum radius  
- . . Maximum diameter

- . . Maximum radius



## Table of radii and diameters

Cavity: Heiligerlee H

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| Depth<br>[m] | Radius [MIN] |     | Radius [MAX] |     | Diameter [MIN] |             | Diameter [MAX] |             |
|--------------|--------------|-----|--------------|-----|----------------|-------------|----------------|-------------|
|              | [m]          | [°] | [m]          | [°] | [m]            | [°]         | [m]            | [°]         |
| 789.2        | 0.6          | 214 | 60.1         | 0   | 1.7            | 138 <-> 318 | 118.9          | 0 <-> 180   |
| 792.0        | 53.1         | 243 | 64.8         | 103 | 113.2          | 59 <-> 239  | 127.4          | 3 <-> 183   |
| 796.0        | 52.9         | 293 | 65.8         | 113 | 111.9          | 61 <-> 241  | 127.1          | 178 <-> 358 |
| 801.0        | 52.1         | 295 | 66.4         | 358 | 112.2          | 67 <-> 247  | 125.6          | 178 <-> 358 |
| 806.0        | 48.7         | 268 | 62.2         | 193 | 101.2          | 73 <-> 253  | 120.2          | 13 <-> 193  |
| 811.0        | 42.8         | 273 | 53.1         | 97  | 89.7           | 68 <-> 248  | 100.4          | 133 <-> 313 |
| 816.0        | 37.9         | 298 | 47.1         | 98  | 81.8           | 70 <-> 250  | 89.4           | 8 <-> 188   |
| 821.0        | 34.3         | 281 | 43.8         | 123 | 75.7           | 56 <-> 236  | 83.7           | 163 <-> 343 |
| 826.0        | 33.3         | 293 | 41.2         | 13  | 73.7           | 113 <-> 293 | 78.0           | 3 <-> 183   |
| 831.0        | 38.1         | 258 | 44.0         | 103 | 80.6           | 47 <-> 227  | 86.3           | 173 <-> 353 |
| 836.0        | 42.3         | 258 | 49.0         | 153 | 88.7           | 54 <-> 234  | 96.2           | 168 <-> 348 |
| 841.0        | 45.7         | 268 | 52.0         | 148 | 93.6           | 54 <-> 234  | 102.7          | 168 <-> 348 |
| 851.0        | 46.8         | 23  | 54.0         | 348 | 94.8           | 52 <-> 232  | 105.9          | 168 <-> 348 |
| 861.0        | 46.4         | 266 | 54.3         | 128 | 94.5           | 33 <-> 213  | 105.7          | 158 <-> 338 |
| 881.0        | 45.1         | 255 | 56.0         | 123 | 92.7           | 49 <-> 229  | 106.6          | 133 <-> 313 |
| 901.0        | 43.3         | 249 | 57.1         | 118 | 91.1           | 50 <-> 230  | 106.7          | 133 <-> 313 |
| 926.0        | 44.0         | 240 | 58.9         | 118 | 94.0           | 50 <-> 230  | 108.5          | 158 <-> 338 |
| 951.0        | 46.2         | 251 | 58.7         | 123 | 99.8           | 60 <-> 240  | 111.9          | 148 <-> 328 |
| 976.0        | 47.0         | 249 | 59.2         | 123 | 102.6          | 71 <-> 251  | 114.2          | 153 <-> 333 |
| 1001.0       | 43.9         | 244 | 54.1         | 133 | 95.1           | 40 <-> 220  | 104.7          | 133 <-> 313 |
| 1016.0       | 38.6         | 198 | 52.0         | 123 | 88.8           | 18 <-> 198  | 99.9           | 133 <-> 313 |
| 1026.0       | 31.0         | 228 | 45.9         | 113 | 72.8           | 168 <-> 348 | 84.6           | 123 <-> 303 |
| 1036.0       | 23.2         | 258 | 37.3         | 103 | 59.0           | 47 <-> 227  | 69.3           | 123 <-> 303 |
| 1041.0       | 21.6         | 223 | 61.3         | 165 | 54.6           | 43 <-> 223  | 93.6           | 165 <-> 345 |
| 1046.0       | 23.4         | 283 | 61.6         | 160 | 53.2           | 163 <-> 343 | 91.0           | 160 <-> 340 |
| 1051.0       | 24.7         | 293 | 64.6         | 155 | 54.1           | 152 <-> 332 | 92.9           | 155 <-> 335 |
| 1053.5       | 25.0         | 254 | 71.1         | 150 | 53.0           | 163 <-> 343 | 97.5           | 150 <-> 330 |
| 1056.0       | 24.6         | 328 | 76.5         | 150 | 51.9           | 163 <-> 343 | 101.7          | 150 <-> 330 |
| 1058.5       | 24.7         | 328 | 75.7         | 150 | 51.4           | 163 <-> 343 | 100.8          | 150 <-> 330 |
| 1061.0       | 24.4         | 327 | 75.5         | 150 | 49.6           | 163 <-> 343 | 100.2          | 150 <-> 330 |
| 1066.0       | 22.7         | 212 | 74.8         | 143 | 47.9           | 32 <-> 212  | 100.0          | 143 <-> 323 |
| 1071.0       | 19.4         | 217 | 74.5         | 143 | 45.2           | 33 <-> 213  | 99.7           | 143 <-> 323 |
| 1076.0       | 16.7         | 217 | 70.9         | 143 | 42.7           | 37 <-> 217  | 97.4           | 143 <-> 323 |
| 1081.0       | 16.9         | 217 | 72.2         | 140 | 43.4           | 33 <-> 213  | 101.3          | 140 <-> 320 |
| 1086.0       | 14.4         | 221 | 74.9         | 140 | 41.5           | 41 <-> 221  | 107.1          | 140 <-> 320 |
| 1091.0       | 12.1         | 220 | 79.6         | 140 | 39.5           | 40 <-> 220  | 114.3          | 140 <-> 320 |
| 1096.0       | 9.7          | 220 | 79.1         | 138 | 37.3           | 42 <-> 222  | 115.6          | 138 <-> 318 |
| 1098.5       | 8.7          | 219 | 78.5         | 138 | 36.6           | 44 <-> 224  | 120.7          | 138 <-> 318 |
| 1101.0       | 7.7          | 221 | 77.7         | 138 | 36.0           | 46 <-> 226  | 120.3          | 138 <-> 318 |
| 1103.5       | 6.7          | 218 | 70.6         | 135 | 35.4           | 49 <-> 229  | 114.5          | 135 <-> 315 |
| 1106.0       | 5.8          | 220 | 69.2         | 135 | 34.8           | 49 <-> 229  | 113.7          | 135 <-> 315 |
| 1108.5       | 4.8          | 221 | 73.1         | 138 | 34.2           | 45 <-> 225  | 116.9          | 138 <-> 318 |
| 1111.0       | 4.0          | 217 | 71.2         | 138 | 33.7           | 47 <-> 227  | 116.2          | 138 <-> 318 |
| 1113.5       | 3.2          | 221 | 67.3         | 135 | 33.2           | 47 <-> 227  | 114.5          | 135 <-> 315 |
| 1116.0       | 2.4          | 220 | 65.1         | 135 | 32.7           | 28 <-> 208  | 113.0          | 133 <-> 313 |
| 1118.5       | 1.7          | 218 | 62.5         | 135 | 31.7           | 32 <-> 212  | 110.0          | 133 <-> 313 |
| 1121.0       | 1.1          | 221 | 60.7         | 128 | 31.0           | 33 <-> 213  | 107.2          | 133 <-> 313 |
| 1123.5       | 0.5          | 203 | 60.9         | 128 | 30.5           | 33 <-> 213  | 103.5          | 133 <-> 313 |
| 1125.0       | 0.4          | 205 | 58.4         | 130 | 31.3           | 30 <-> 210  | 100.4          | 135 <-> 315 |



## Table of radii and diameters

Cavity: Heiligerlee H

184001

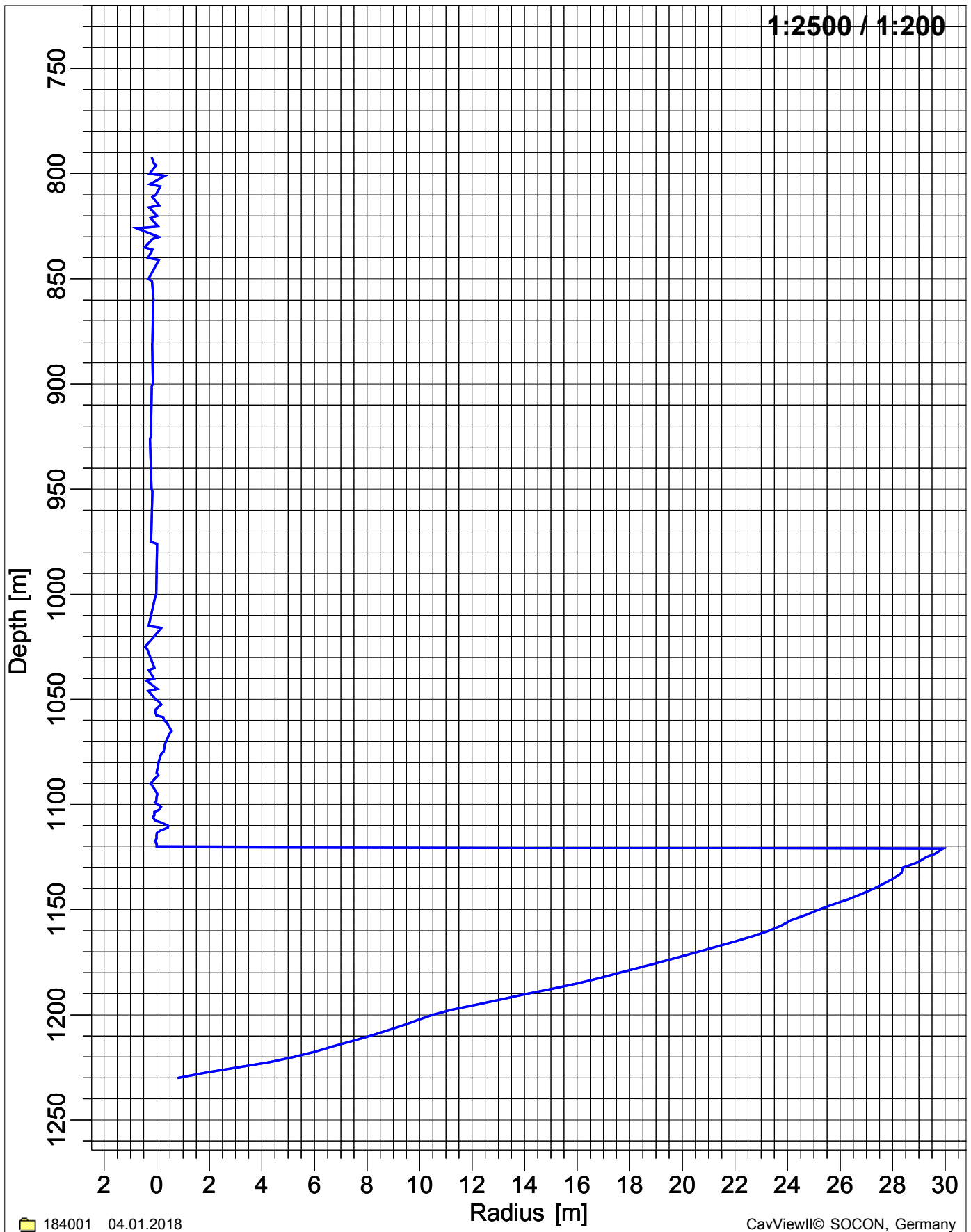
04.01.2018

| Depth<br>[m] | Radius [MIN] |     | Radius [MAX] |     | Diameter [MIN] |             | Diameter [MAX] |             |
|--------------|--------------|-----|--------------|-----|----------------|-------------|----------------|-------------|
|              | [m]          | [°] | [m]          | [°] | [m]            | [°]         | [m]            | [°]         |
| 1127.5       | 0.2          | 202 | 57.2         | 130 | 4.4            | 137 <-> 317 | 97.4           | 135 <-> 315 |
| 1130.0       | 0.1          | 200 | 56.0         | 130 | 1.1            | 137 <-> 317 | 80.9           | 135 <-> 315 |
| 1132.5       | 0.0          | 0   | 55.1         | 130 | 0.0            | 0 <-> 180   | 55.1           | 130 <-> 310 |
| 1135.0       | 0.0          | 0   | 54.1         | 130 | 0.0            | 0 <-> 180   | 54.1           | 130 <-> 310 |
| 1137.5       | 0.0          | 0   | 52.9         | 130 | 0.0            | 0 <-> 180   | 52.9           | 130 <-> 310 |
| 1140.0       | 0.0          | 0   | 51.5         | 130 | 0.0            | 0 <-> 180   | 51.5           | 130 <-> 310 |
| 1142.5       | 0.0          | 0   | 50.2         | 130 | 0.0            | 0 <-> 180   | 50.2           | 130 <-> 310 |
| 1145.0       | 0.0          | 0   | 49.1         | 130 | 0.0            | 0 <-> 180   | 49.1           | 130 <-> 310 |
| 1147.5       | 0.0          | 0   | 47.9         | 130 | 0.0            | 0 <-> 180   | 47.9           | 130 <-> 310 |
| 1150.0       | 0.0          | 0   | 46.6         | 130 | 0.0            | 0 <-> 180   | 46.6           | 130 <-> 310 |
| 1152.5       | 0.0          | 0   | 45.6         | 130 | 0.0            | 0 <-> 180   | 45.6           | 130 <-> 310 |
| 1155.0       | 0.0          | 0   | 44.9         | 130 | 0.0            | 0 <-> 180   | 44.9           | 130 <-> 310 |
| 1157.5       | 0.0          | 0   | 44.2         | 130 | 0.0            | 0 <-> 180   | 44.2           | 130 <-> 310 |
| 1160.0       | 0.0          | 0   | 43.4         | 130 | 0.0            | 0 <-> 180   | 43.4           | 130 <-> 310 |
| 1162.5       | 0.0          | 0   | 42.5         | 130 | 0.0            | 0 <-> 180   | 42.5           | 130 <-> 310 |
| 1165.0       | 0.0          | 0   | 41.5         | 130 | 0.0            | 0 <-> 180   | 41.5           | 130 <-> 310 |
| 1167.5       | 0.0          | 0   | 40.4         | 330 | 0.0            | 0 <-> 180   | 40.4           | 150 <-> 330 |
| 1170.0       | 0.0          | 0   | 39.6         | 335 | 0.0            | 0 <-> 180   | 39.6           | 155 <-> 335 |
| 1172.5       | 0.0          | 0   | 39.2         | 335 | 0.0            | 0 <-> 180   | 39.2           | 155 <-> 335 |
| 1175.0       | 0.0          | 0   | 39.0         | 335 | 0.0            | 0 <-> 180   | 39.0           | 155 <-> 335 |
| 1177.5       | 0.0          | 0   | 38.7         | 335 | 0.0            | 0 <-> 180   | 38.7           | 155 <-> 335 |
| 1180.0       | 0.0          | 0   | 38.4         | 335 | 0.0            | 0 <-> 180   | 38.4           | 155 <-> 335 |
| 1182.5       | 0.0          | 0   | 38.2         | 335 | 0.0            | 0 <-> 180   | 38.2           | 155 <-> 335 |
| 1185.0       | 0.0          | 0   | 36.9         | 335 | 0.0            | 0 <-> 180   | 36.9           | 155 <-> 335 |
| 1187.5       | 0.0          | 0   | 34.3         | 340 | 0.0            | 0 <-> 180   | 34.3           | 160 <-> 340 |
| 1190.0       | 0.0          | 0   | 32.8         | 345 | 0.0            | 0 <-> 180   | 32.8           | 165 <-> 345 |
| 1192.5       | 0.0          | 0   | 31.4         | 345 | 0.0            | 0 <-> 180   | 31.4           | 165 <-> 345 |
| 1195.0       | 0.0          | 0   | 29.5         | 345 | 0.0            | 0 <-> 180   | 29.5           | 165 <-> 345 |
| 1197.5       | 0.0          | 0   | 27.6         | 0   | 0.0            | 0 <-> 180   | 27.6           | 0 <-> 180   |
| 1200.0       | 0.0          | 0   | 27.2         | 120 | 0.0            | 0 <-> 180   | 27.2           | 120 <-> 300 |
| 1202.5       | 0.0          | 0   | 25.9         | 35  | 0.0            | 0 <-> 180   | 25.9           | 35 <-> 215  |
| 1205.0       | 0.0          | 0   | 25.7         | 35  | 0.0            | 0 <-> 180   | 25.7           | 35 <-> 215  |
| 1207.5       | 0.0          | 0   | 25.4         | 35  | 0.0            | 0 <-> 180   | 25.4           | 35 <-> 215  |
| 1210.0       | 0.0          | 0   | 25.2         | 35  | 0.0            | 0 <-> 180   | 25.2           | 35 <-> 215  |
| 1212.5       | 0.0          | 0   | 24.9         | 35  | 0.0            | 0 <-> 180   | 24.9           | 35 <-> 215  |
| 1215.0       | 0.0          | 0   | 24.8         | 45  | 0.0            | 0 <-> 180   | 24.8           | 45 <-> 225  |
| 1217.5       | 0.0          | 0   | 24.7         | 45  | 0.0            | 0 <-> 180   | 24.7           | 45 <-> 225  |
| 1220.0       | 0.0          | 0   | 24.6         | 45  | 0.0            | 0 <-> 180   | 24.6           | 45 <-> 225  |
| 1222.5       | 0.0          | 0   | 24.6         | 45  | 0.0            | 0 <-> 180   | 24.6           | 45 <-> 225  |
| 1225.0       | 0.0          | 0   | 24.5         | 45  | 0.0            | 0 <-> 180   | 24.5           | 45 <-> 225  |
| 1227.5       | 0.0          | 0   | 24.4         | 45  | 0.0            | 0 <-> 180   | 24.4           | 45 <-> 225  |
| 1230.0       | 0.0          | 0   | 24.3         | 45  | 0.0            | 0 <-> 180   | 24.3           | 45 <-> 225  |

Heiligerlee H

Radii differences

04.01.2018



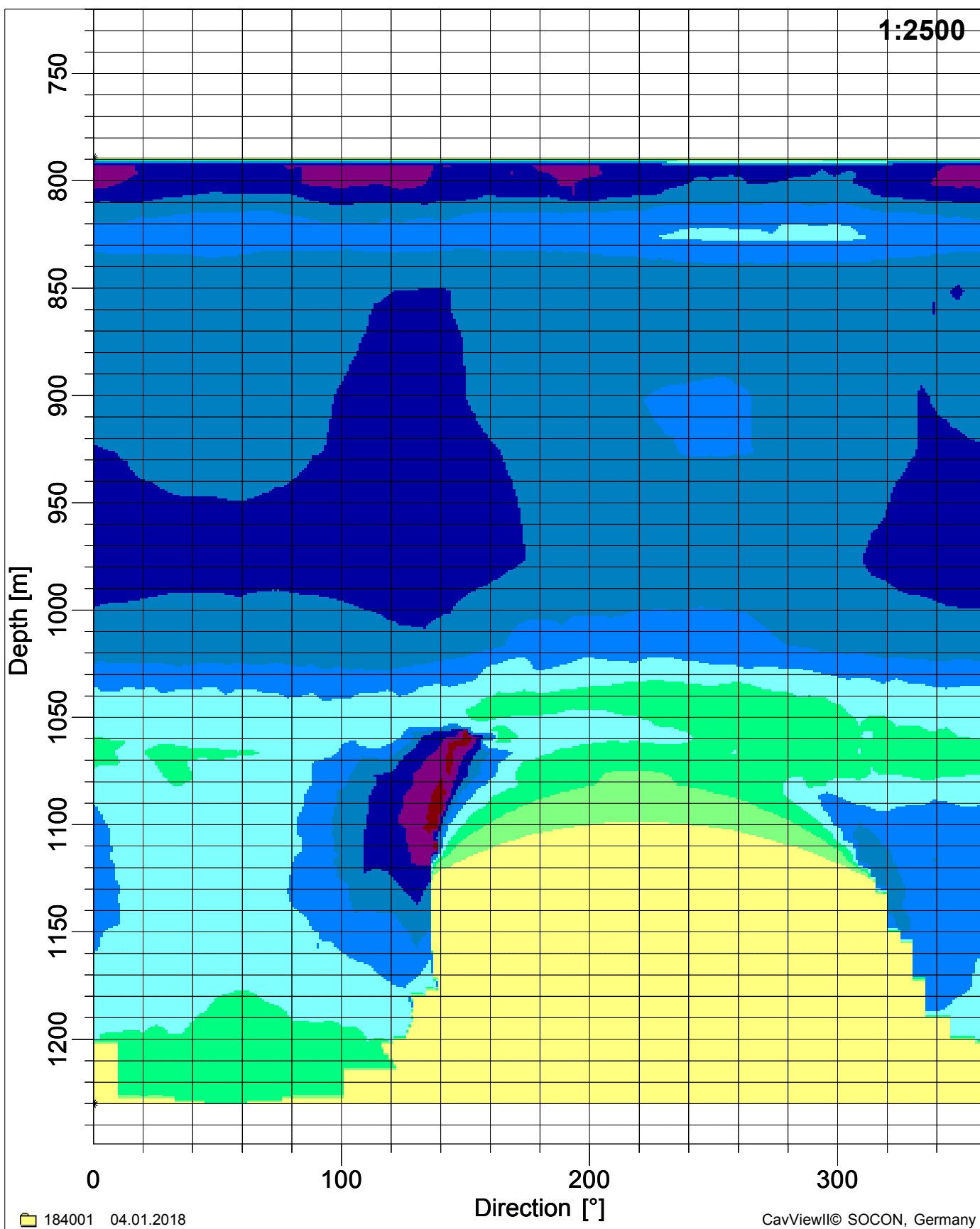
— Difference - Average radius (04.01.2018/17.05.2016)

Heiligerlee H

RADII MAP

04.01.2018

1:2500



CavViewII© SOCON, Germany

|                 |                 |                 |                 |                 |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| 0.00 - 8.85 m   | 8.85 - 17.69 m  | 17.69 - 26.54 m | 26.54 - 35.38 m | 35.38 - 44.23 m |
| 44.23 - 53.07 m | 53.07 - 61.92 m | 61.92 - 70.76 m | 70.76 - 79.61 m |                 |



Heiligerlee H --> 0° <--



Heiligerlee H --> 60° <--





Heiligerlee H --> 120° <--



Heiligerlee H --> 180° <--



Heiligerlee H --> 240° <--



Heiligerlee H --> 300° <--



## HORIZONTAL SECTIONS

Cavity: Heiligerlee H

Report No.: 184001

Utilized speed of sound.: 1817.1 m/s to 1821.1 m/s

Measuring date: 04.01.2018

Scale: 1 : 1000

Horizontal sections measured at following depths:

|          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|
| 789.2 m  | 792.0 m  | 796.0 m  | 801.0 m  | 806.0 m  | 811.0 m  | 816.0 m  |
| 821.0 m  | 826.0 m  | 831.0 m  | 836.0 m  | 841.0 m  | 851.0 m  | 861.0 m  |
| 881.0 m  | 901.0 m  | 926.0 m  | 951.0 m  | 976.0 m  | 1001.0 m | 1016.0 m |
| 1026.0 m | 1036.0 m | 1041.0 m | 1046.0 m | 1051.0 m | 1053.5 m | 1056.0 m |
| 1058.5 m | 1061.0 m | 1066.0 m | 1071.0 m | 1076.0 m | 1081.0 m | 1086.0 m |
| 1091.0 m | 1096.0 m | 1098.5 m | 1101.0 m | 1103.5 m | 1106.0 m | 1108.5 m |
| 1111.0 m | 1113.5 m | 1116.0 m | 1118.5 m | 1121.0 m | 1123.5 m |          |

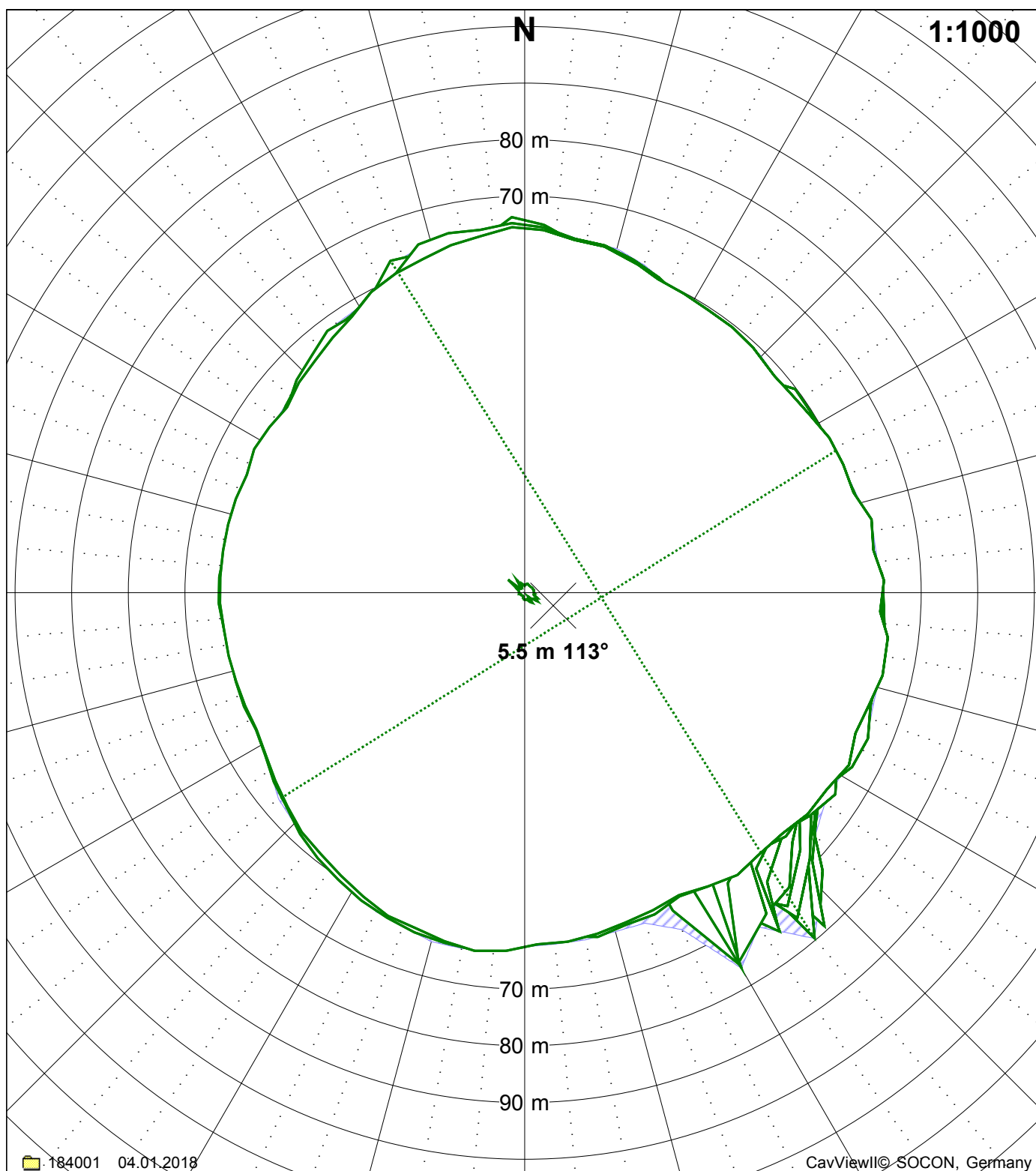
The following 43 sections are constructed:

|          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|
| 1125.0 m | 1127.5 m | 1130.0 m | 1132.5 m | 1135.0 m | 1137.5 m | 1140.0 m |
| 1142.5 m | 1145.0 m | 1147.5 m | 1150.0 m | 1152.5 m | 1155.0 m | 1157.5 m |
| 1160.0 m | 1162.5 m | 1165.0 m | 1167.5 m | 1170.0 m | 1172.5 m | 1175.0 m |
| 1177.5 m | 1180.0 m | 1182.5 m | 1185.0 m | 1187.5 m | 1190.0 m | 1192.5 m |
| 1195.0 m | 1197.5 m | 1200.0 m | 1202.5 m | 1205.0 m | 1207.5 m | 1210.0 m |
| 1212.5 m | 1215.0 m | 1217.5 m | 1220.0 m | 1222.5 m | 1225.0 m | 1227.5 m |
| 1230.0 m |          |          |          |          |          |          |

Heiligerlee H

MAXPLOT

04.01.2018



184001 04.01.2018

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V-Maxplot (04.01.2018) (11673.5 m<sup>2</sup>) Horizontal sections

a/b

Center of gravity

H/V-Maxplot:  $d_{\max}$ : 136.5 m 140° ↔ 320°  $r_{\min}$ : 53.3 m → 245°  $r_{\sim}$ : 61.0 m  $r_{\max}$ : 79.6 m → 140°

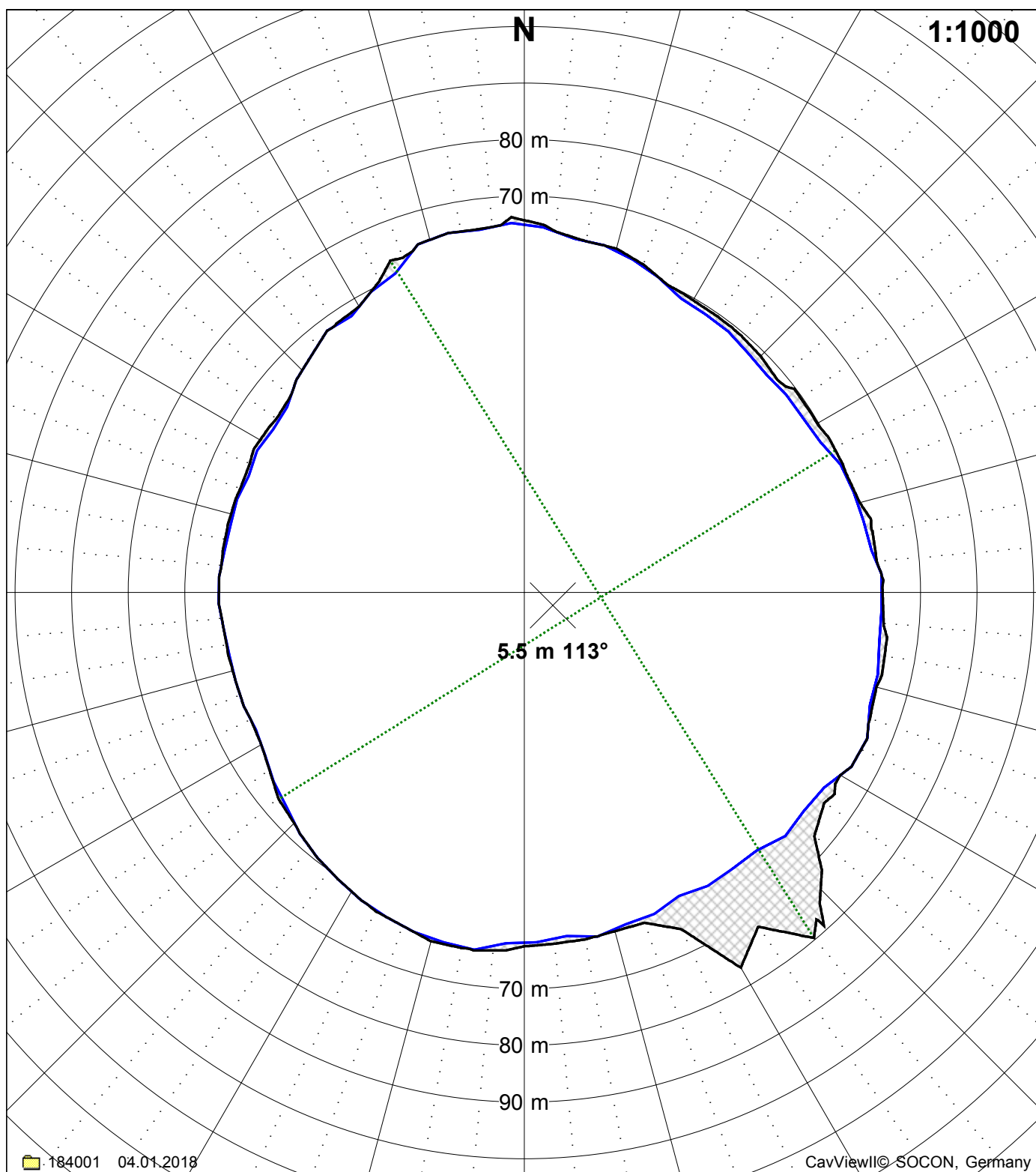
H/V-Maxplot: a/b = 1.216 a = 141.1 m (139°-338°) b = 116.1 m (65°-230°)

Area from vertical sections: 11673.5 m<sup>2</sup>, Area from horizontal and vertical sections: 11709.6 m<sup>2</sup>

Heiligerlee H

MAXPLOT

04.01.2018



|                       |                     |                                         |
|-----------------------|---------------------|-----------------------------------------|
| ..... a/b             | ✕ Center of gravity | ▨ H/V-Maxplot (04.01.2018) (11709.6 m²) |
| ▭ Largest single area |                     |                                         |

H/V-Maxplot:  $d_{\max}$ : 136.5 m 140° ↔ 320°  $r_{\min}$ : 53.3 m → 245°  $r_{\sim}$ : 61.0 m  $r_{\max}$ : 79.6 m → 140°

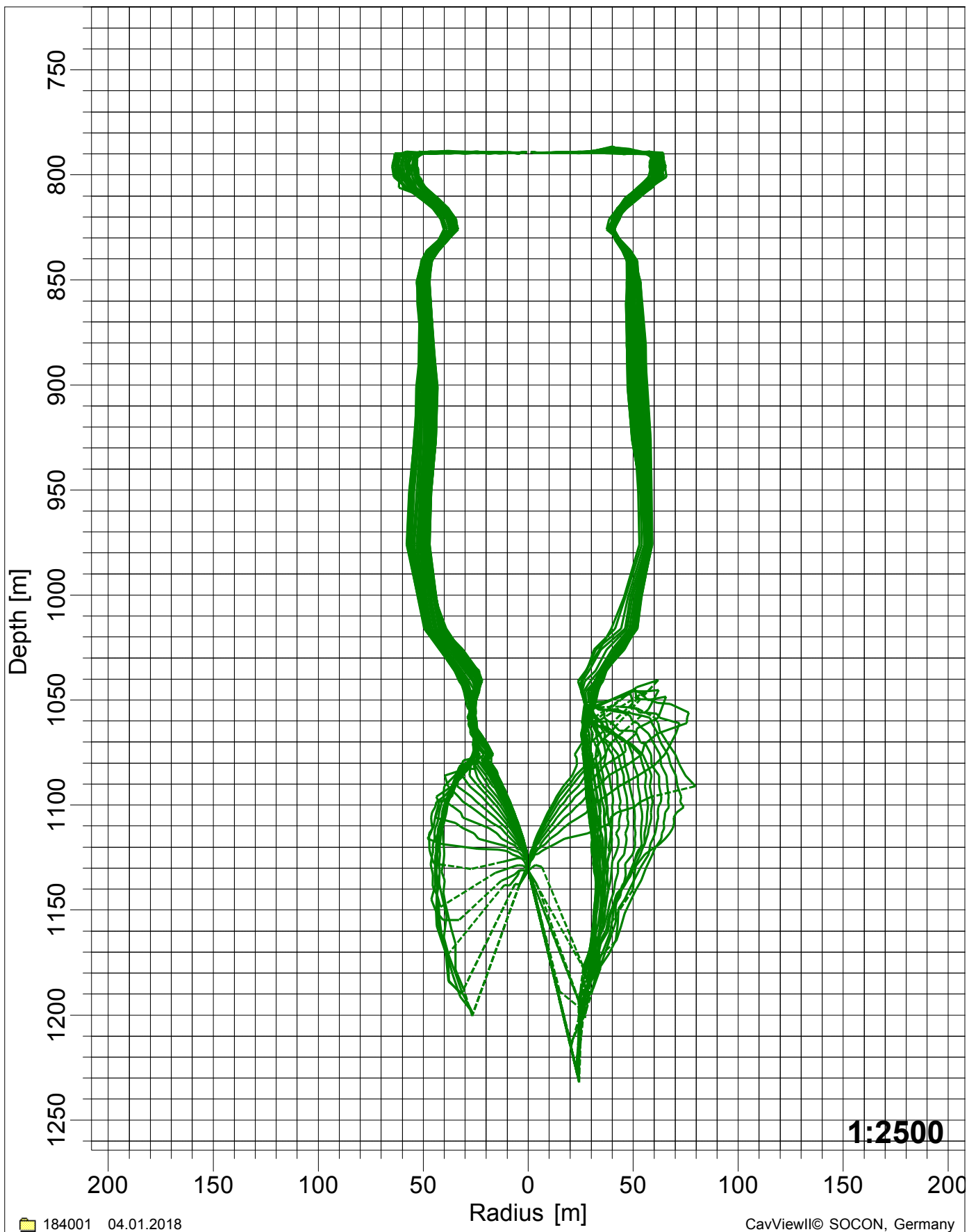
H/V-Maxplot:  $a/b = 1.216$   $a = 141.1$  m (139°-338°)  $b = 116.1$  m (65°-230°)

Largest single area: 11180.6 m² in depth: 796.0 m

Heiligerlee H

MAXPLOT

04.01.2018

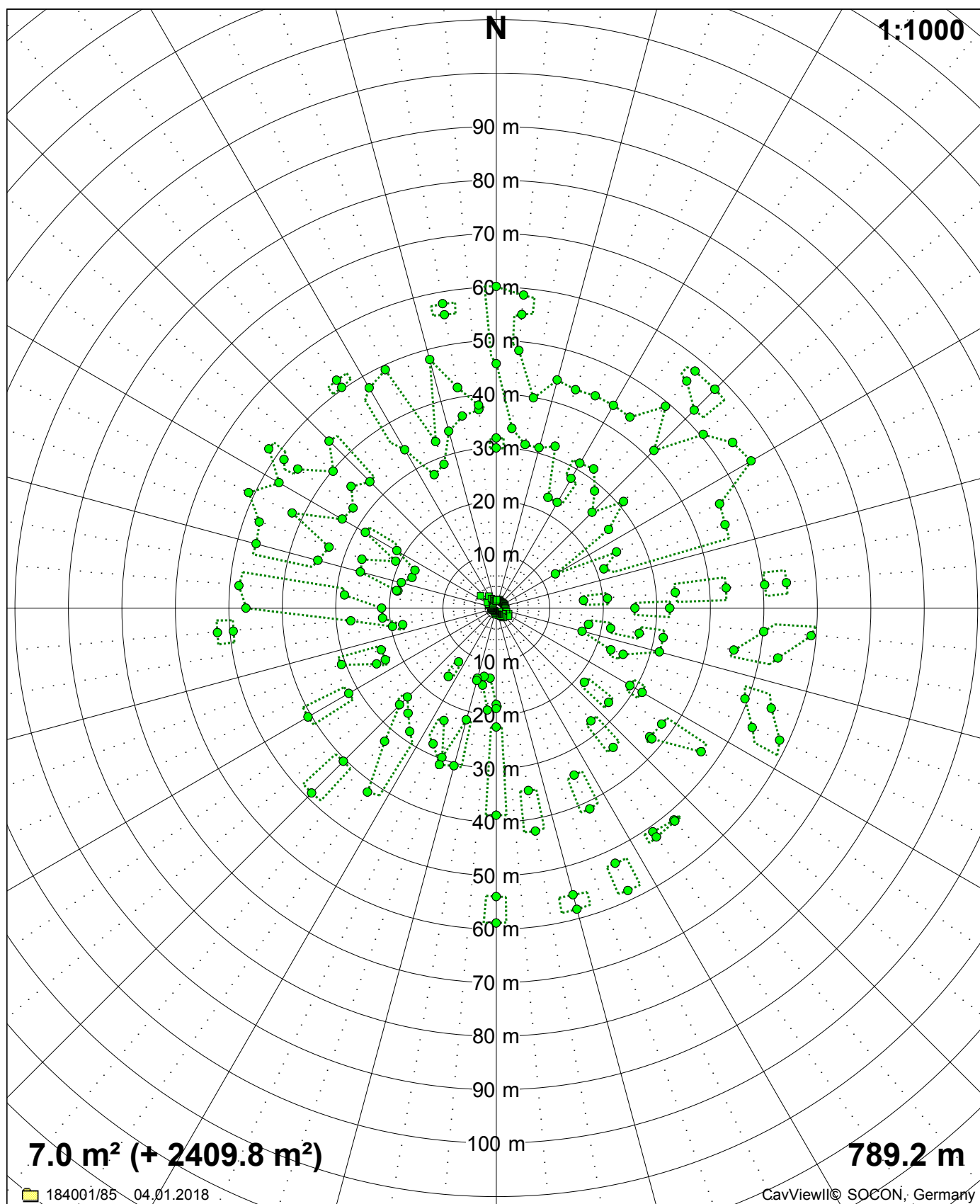


13 3/8" : 506.7 m



**Heiligerlee H**

**04.01.2018**



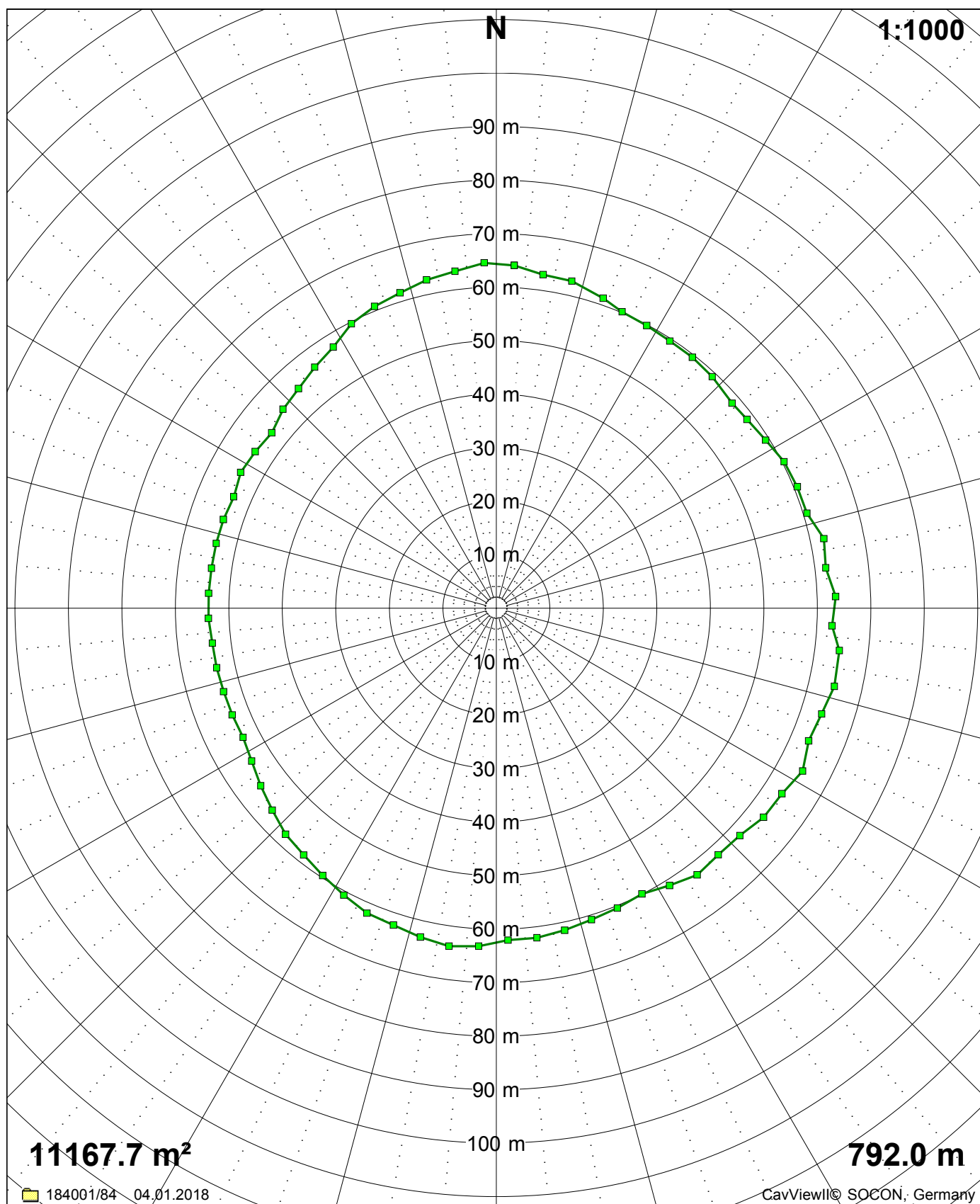
—■— (04.01.2018) (2416.8 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 118.9 m 0° <--> 180° r<sub>min</sub>: 0.6 m -> 214° r~: 27.7 m r<sub>max</sub>: 60.1 m -> 0°

**Heiligerlee H**

**04.01.2018**

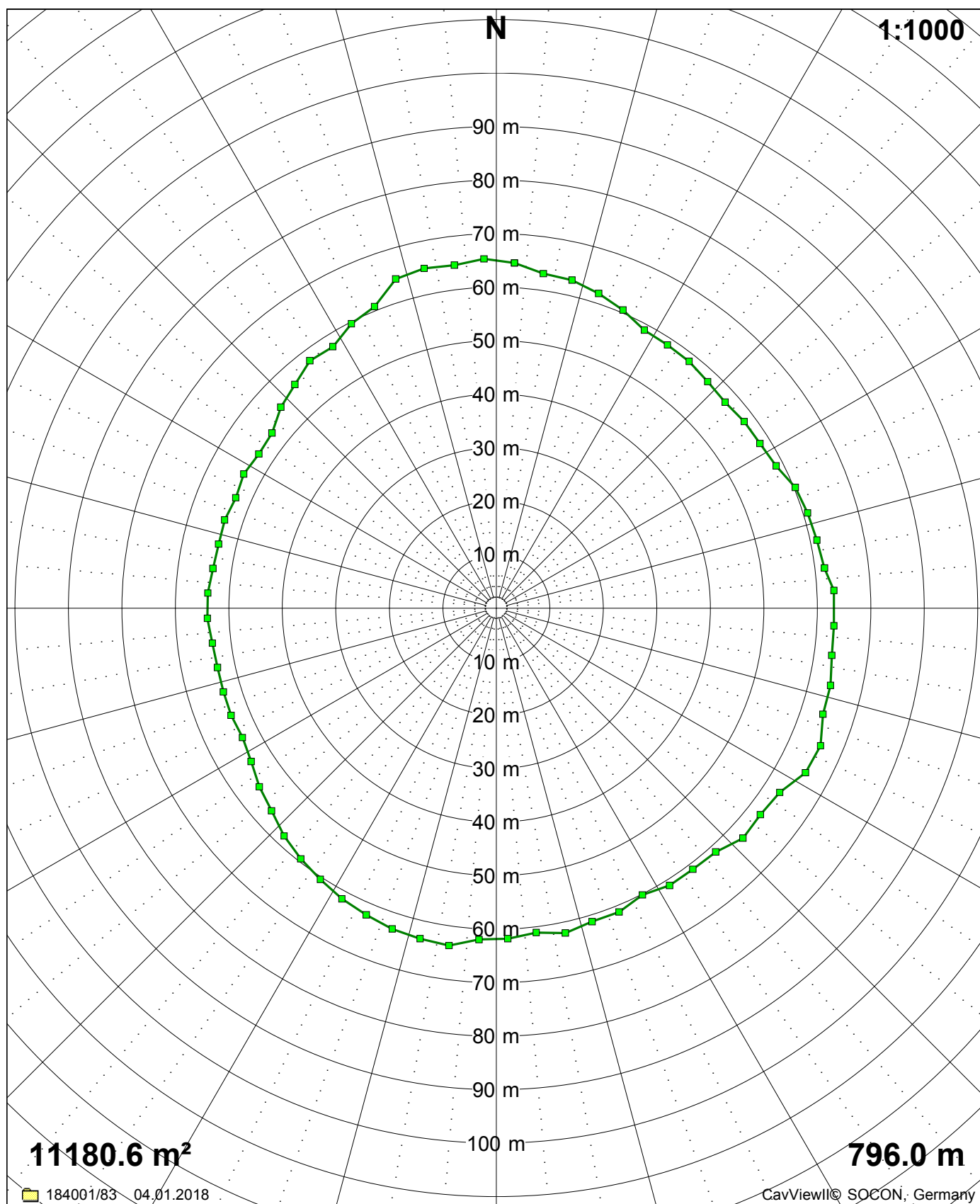


—■— (04.01.2018) (11167.7 m<sup>2</sup>)

$d_{\max}$ : 127.4 m  $3^\circ \leftrightarrow 183^\circ$   $r_{\min}$ : 53.1 m  $\rightarrow 243^\circ$   $r_{\sim}$ : 59.6 m  $r_{\max}$ : 64.8 m  $\rightarrow 103^\circ$

**Heiligerlee H**

**04.01.2018**

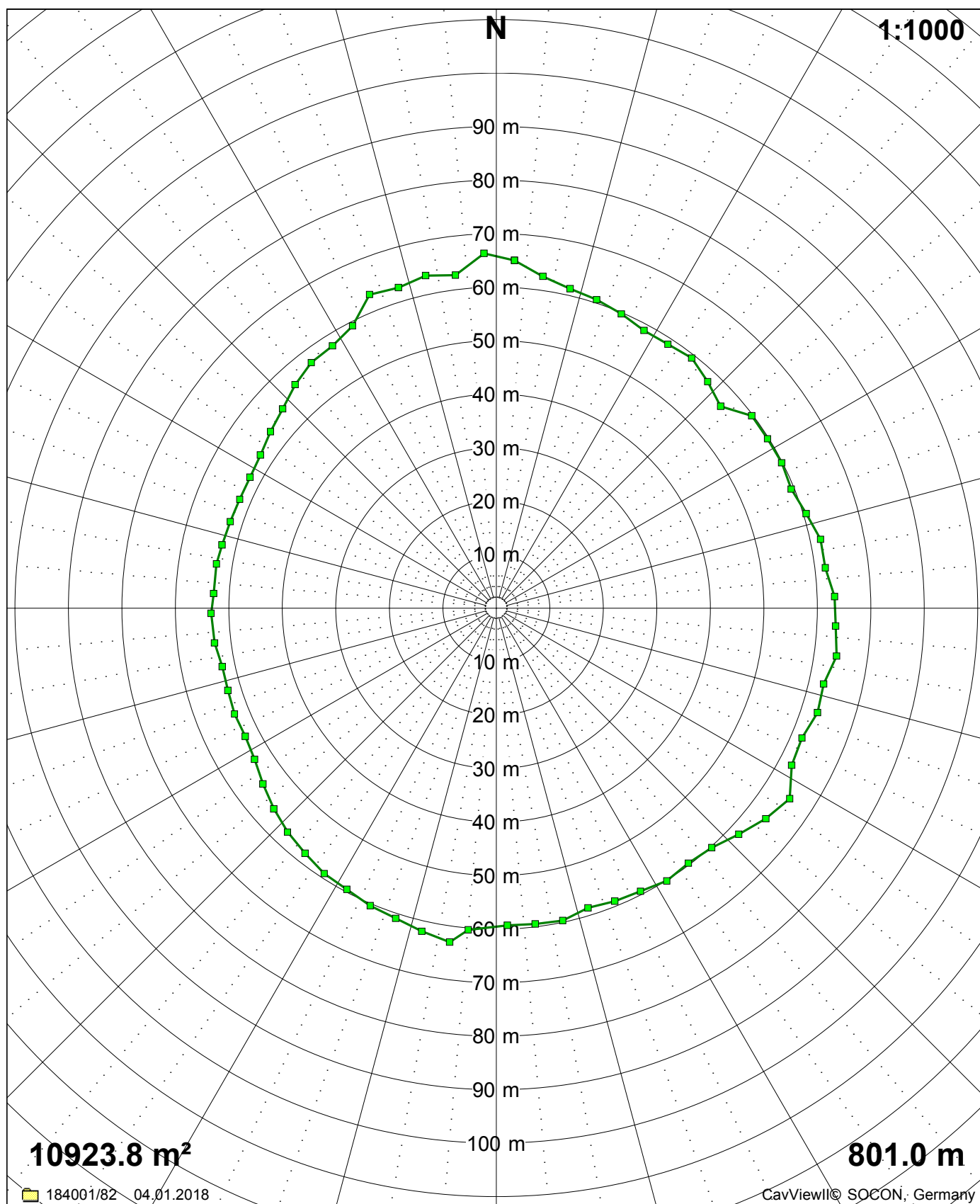


—■— (04.01.2018) (11180.6 m<sup>2</sup>)

$d_{\max}$ : 127.1 m 178° <--> 358°  $r_{\min}$ : 52.9 m -> 293°  $r_{\sim}$ : 59.7 m  $r_{\max}$ : 65.8 m -> 113°

**Heiligerlee H**

**04.01.2018**

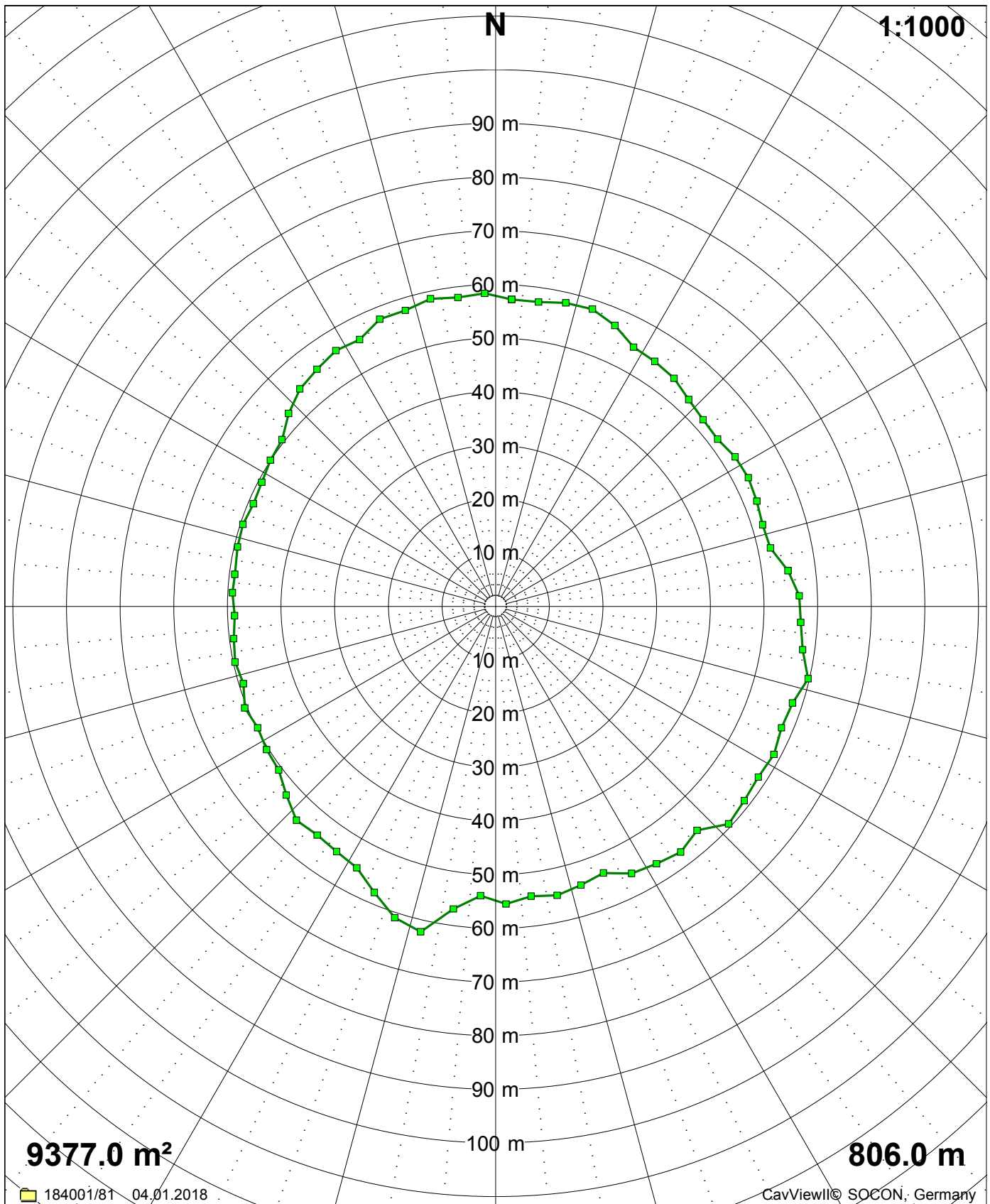


—■— (04.01.2018) (10923.8 m<sup>2</sup>)

$d_{\max}$ : 125.6 m 178° <--> 358°  $r_{\min}$ : 52.1 m -> 295°  $r_{\sim}$ : 59.0 m  $r_{\max}$ : 66.3 m -> 358°

**Heiligerlee H**

**04.01.2018**

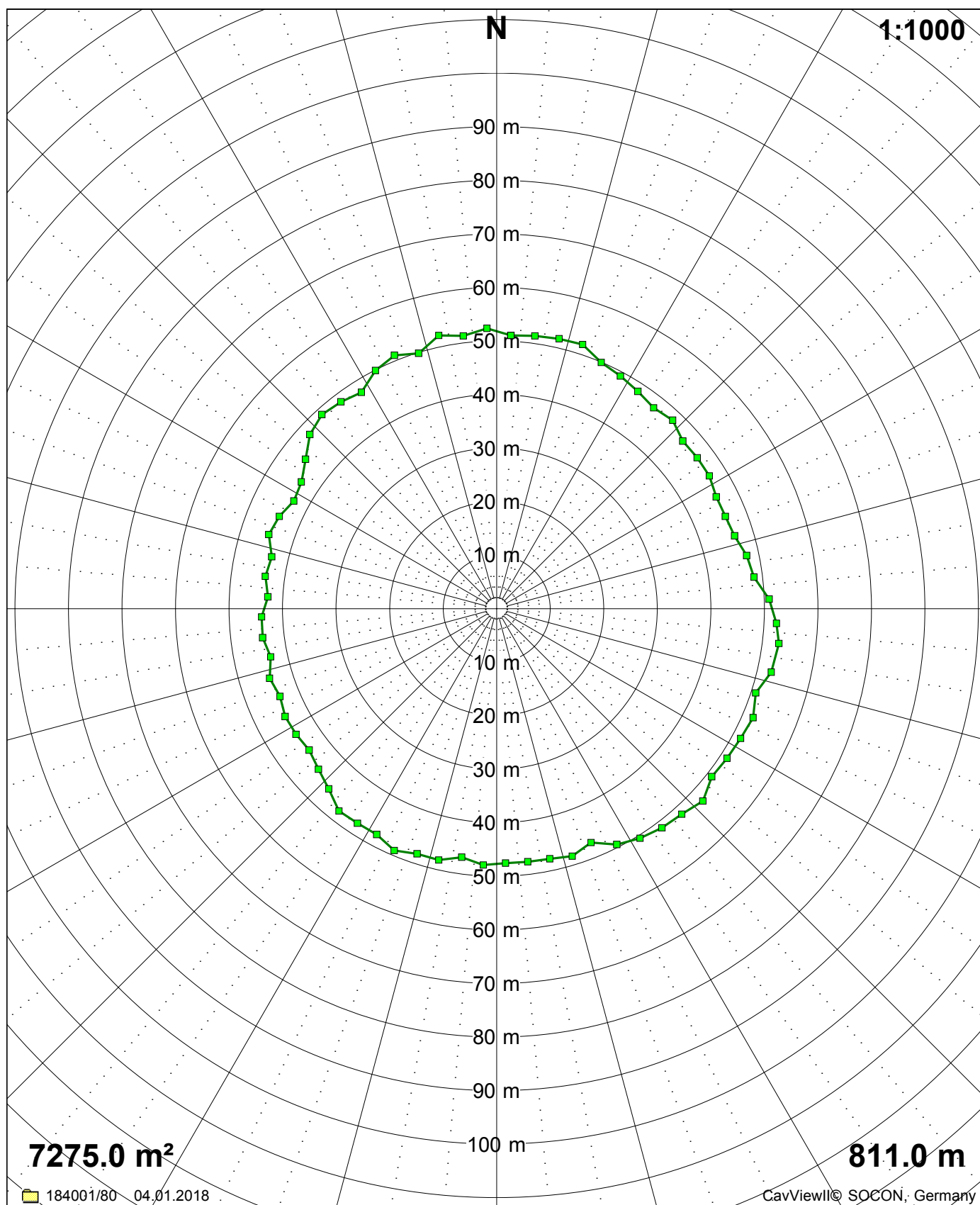


—■— (04.01.2018) (9377.0 m<sup>2</sup>)

d<sub>max</sub>: 120.2 m 13° <--> 193° r<sub>min</sub>: 48.7 m -> 268° r~: 54.6 m r<sub>max</sub>: 62.2 m -> 193°

**Heiligerlee H**

**04.01.2018**



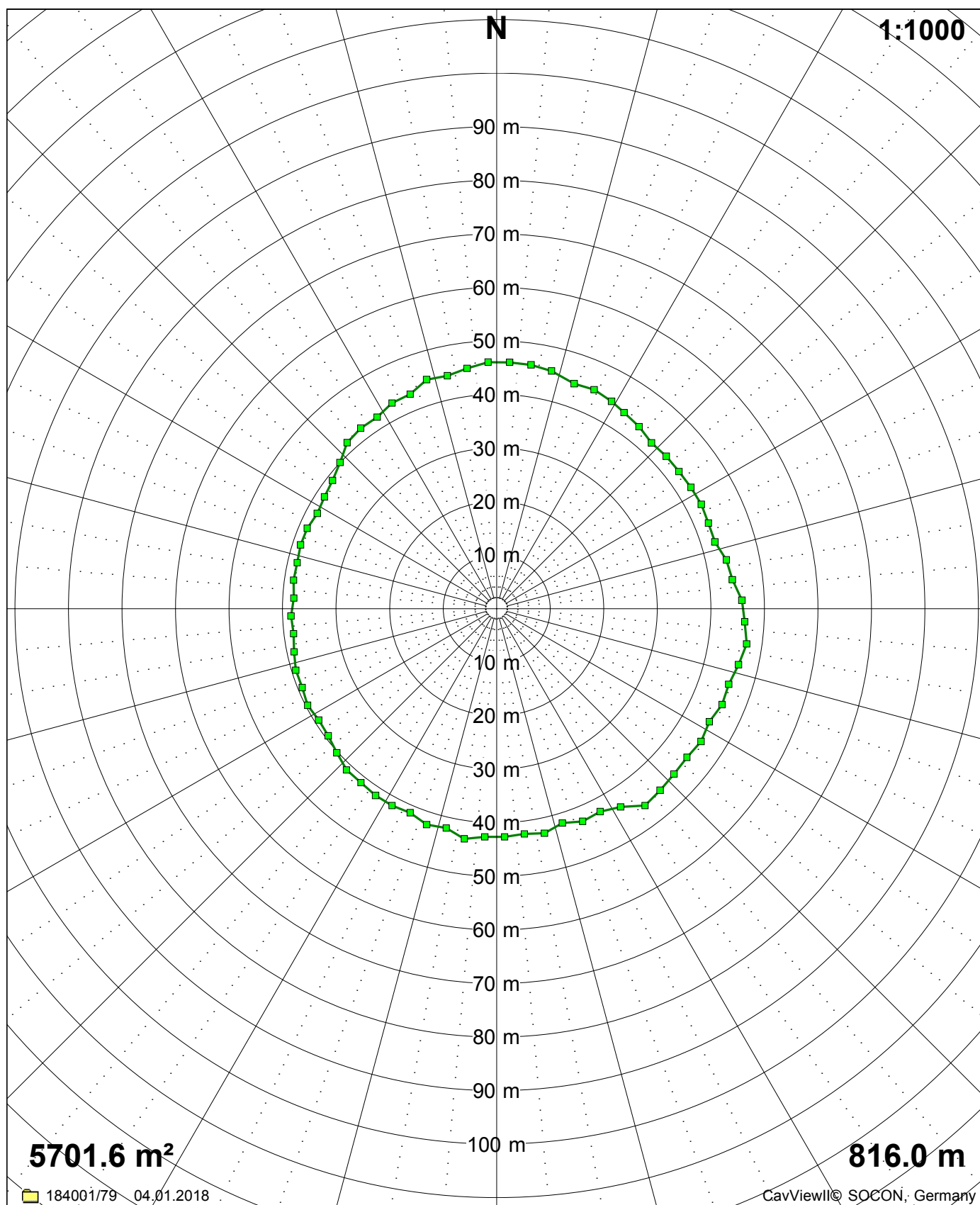
—■— (04.01.2018) (7275.0 m<sup>2</sup>)

$d_{\max}$ : 100.4 m 133° <--> 313°  $r_{\min}$ : 42.8 m -> 273°  $r_{\sim}$ : 48.1 m  $r_{\max}$ : 53.1 m -> 97°



**Heiligerlee H**

**04.01.2018**

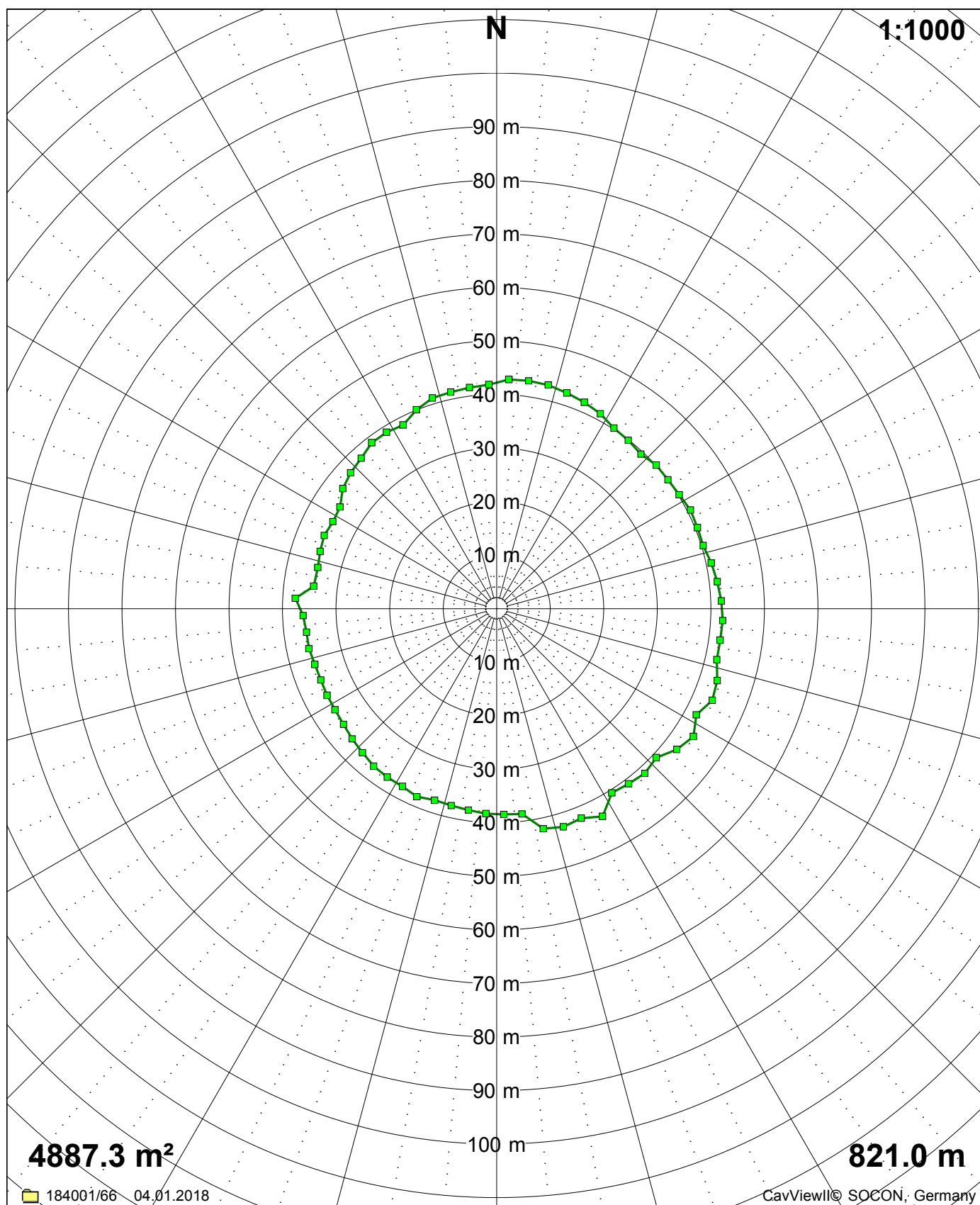


—■— (04.01.2018) (5701.6 m<sup>2</sup>)

d<sub>max</sub>: 89.4 m 8° <--> 188° r<sub>min</sub>: 37.9 m -> 298° r~: 42.6 m r<sub>max</sub>: 47.1 m -> 98°

**Heiligerlee H**

**04.01.2018**



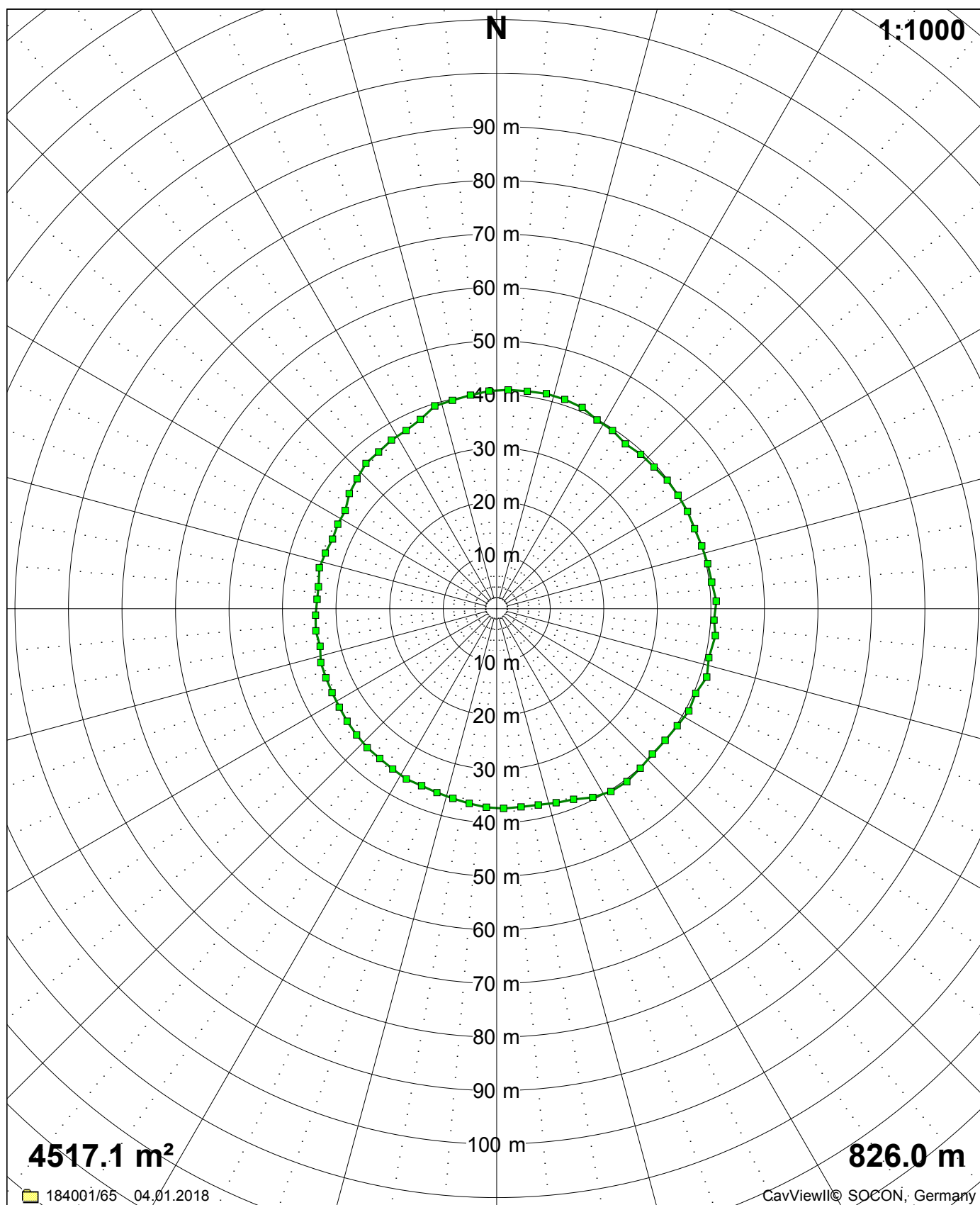
(04.01.2018) (4887.3 m<sup>2</sup>)

d<sub>max</sub>: 83.7 m 163° <--> 343° r<sub>min</sub>: 34.3 m -> 281° r~: 39.4 m r<sub>max</sub>: 43.8 m -> 123°



**Heiligerlee H**

**04.01.2018**

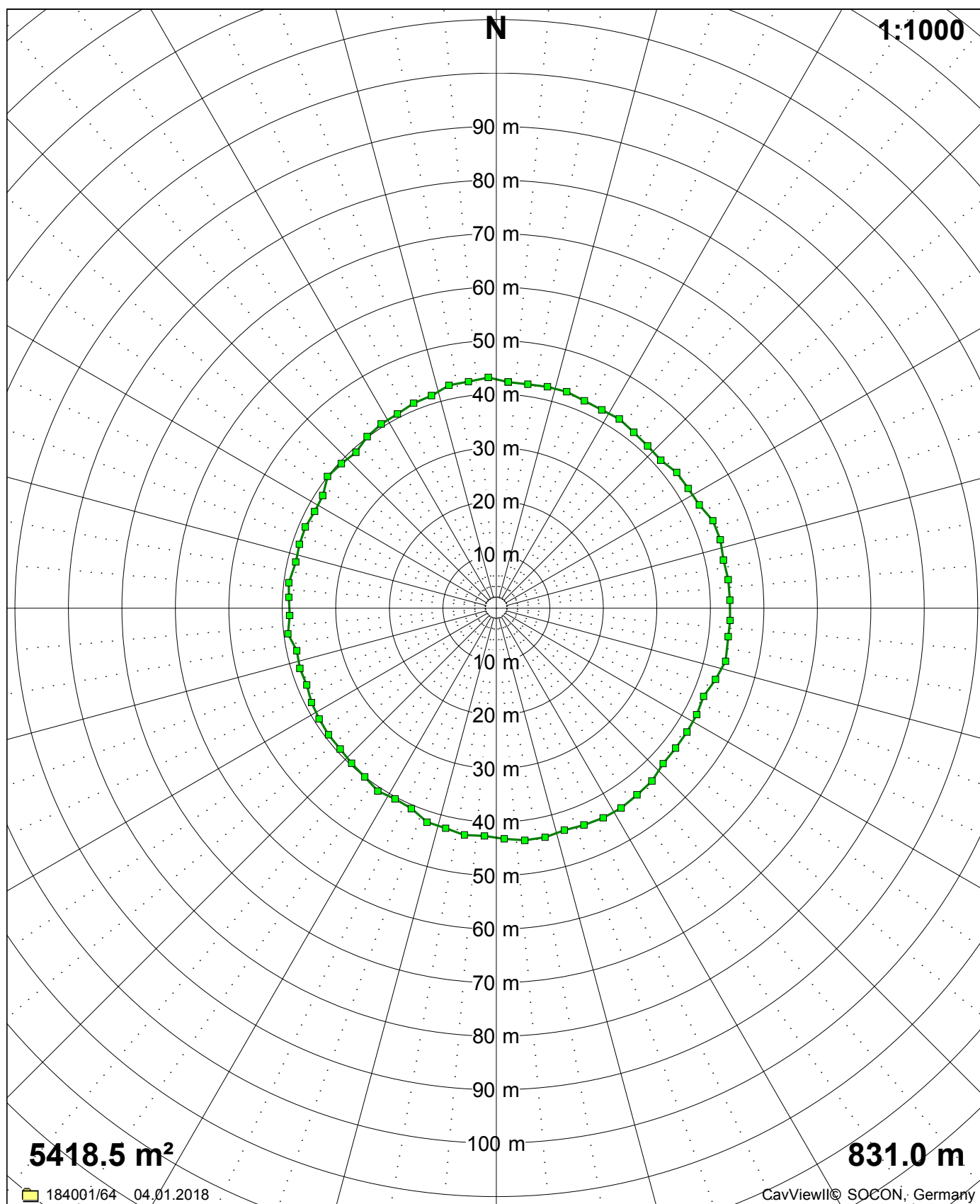


(04.01.2018) (4517.1 m<sup>2</sup>)

d<sub>max</sub>: 78.0 m 3° <--> 183° r<sub>min</sub>: 33.3 m -> 293° r~: 37.9 m r<sub>max</sub>: 41.2 m -> 13°

**Heiligerlee H**

**04.01.2018**

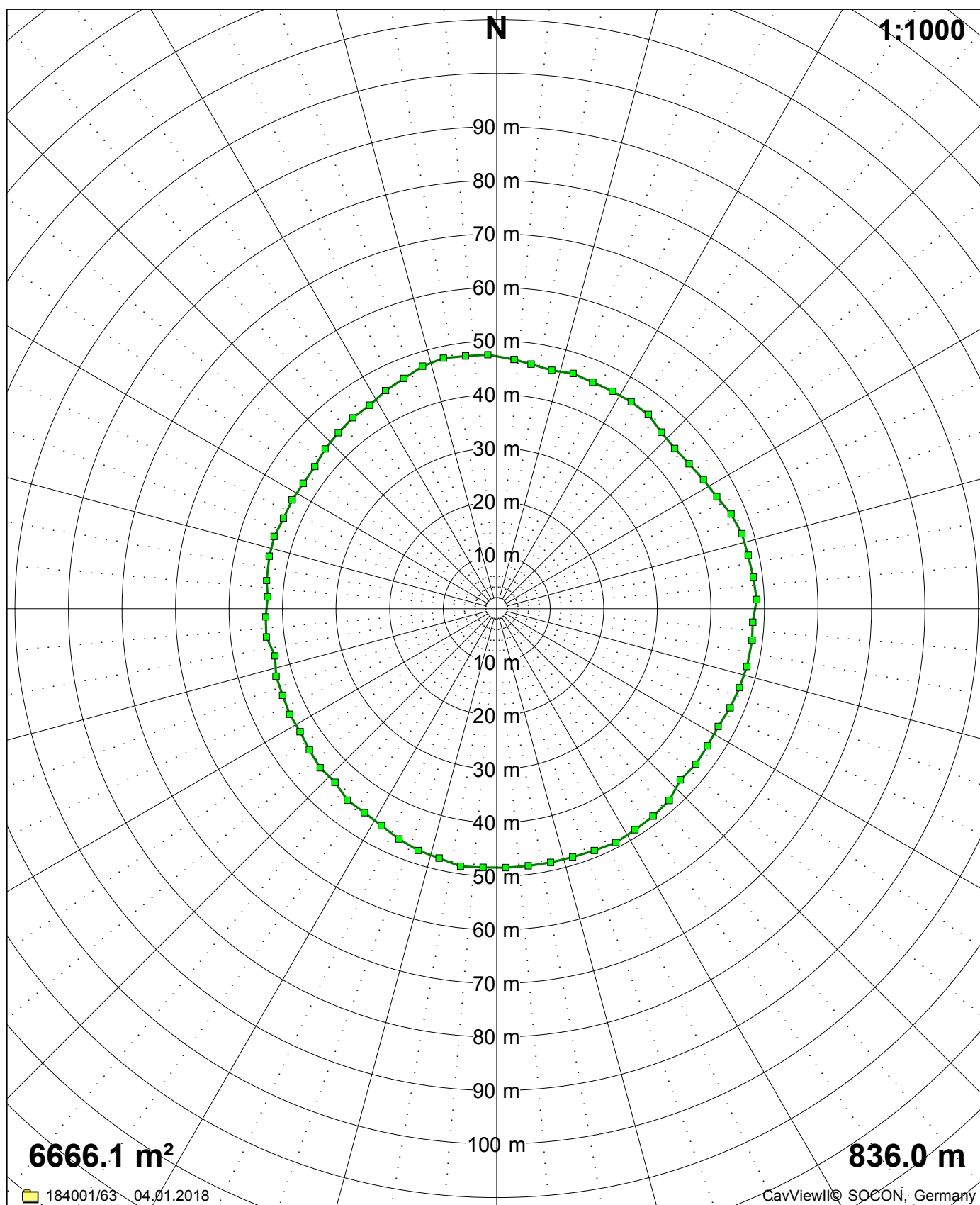


—■— (04.01.2018) (5418.5 m<sup>2</sup>)

d<sub>max</sub>: 86.3 m 173° <--> 353° r<sub>min</sub>: 38.1 m -> 258° r~: 41.5 m r<sub>max</sub>: 44.0 m -> 103°

**Heiligerlee H**

**04.01.2018**

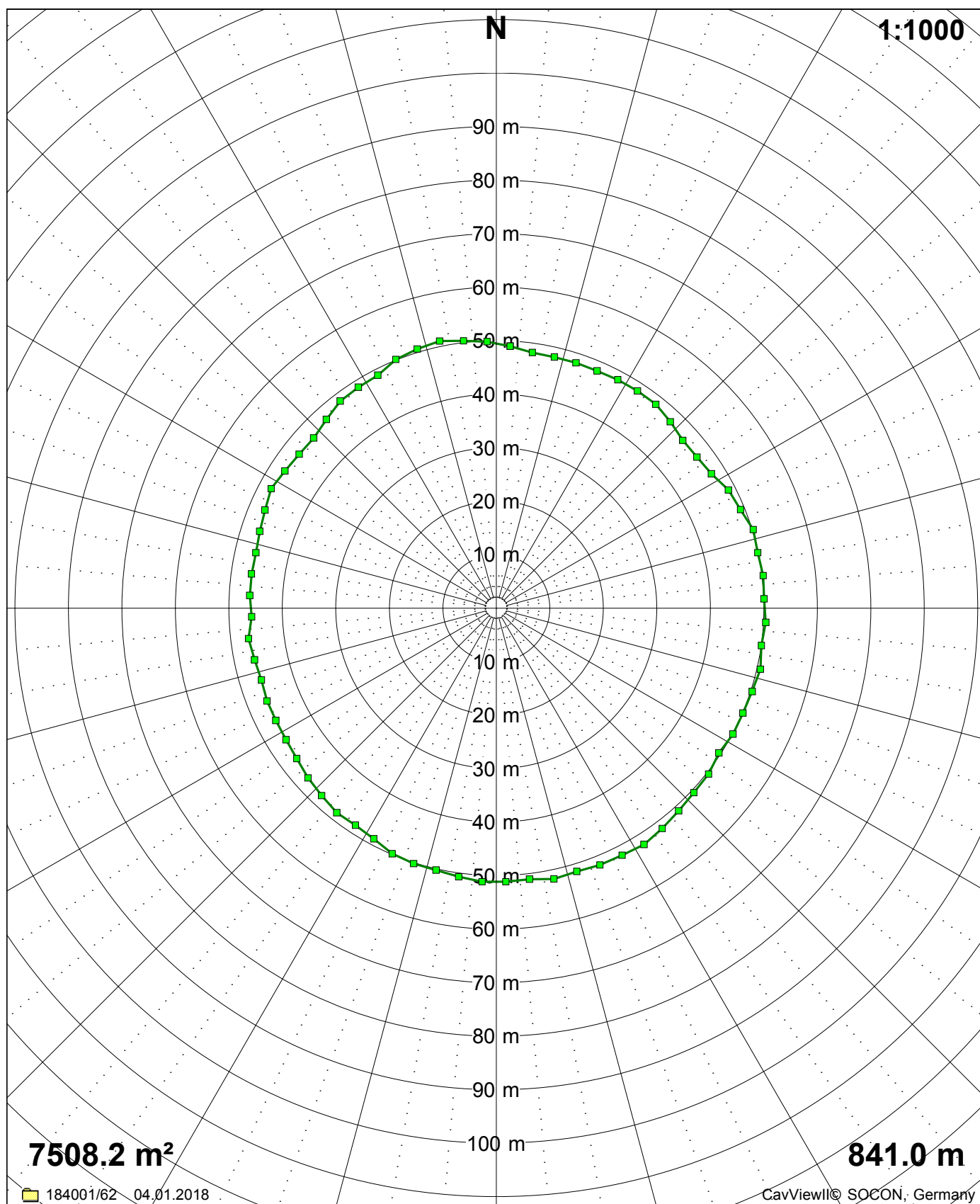


—■— (04.01.2018) (6666.1 m<sup>2</sup>)

$d_{\max}$ : 96.2 m 168° <--> 348°  $r_{\min}$ : 42.3 m -> 258°  $r_{\sim}$ : 46.1 m  $r_{\max}$ : 49.0 m -> 153°

**Heiligerlee H**

**04.01.2018**

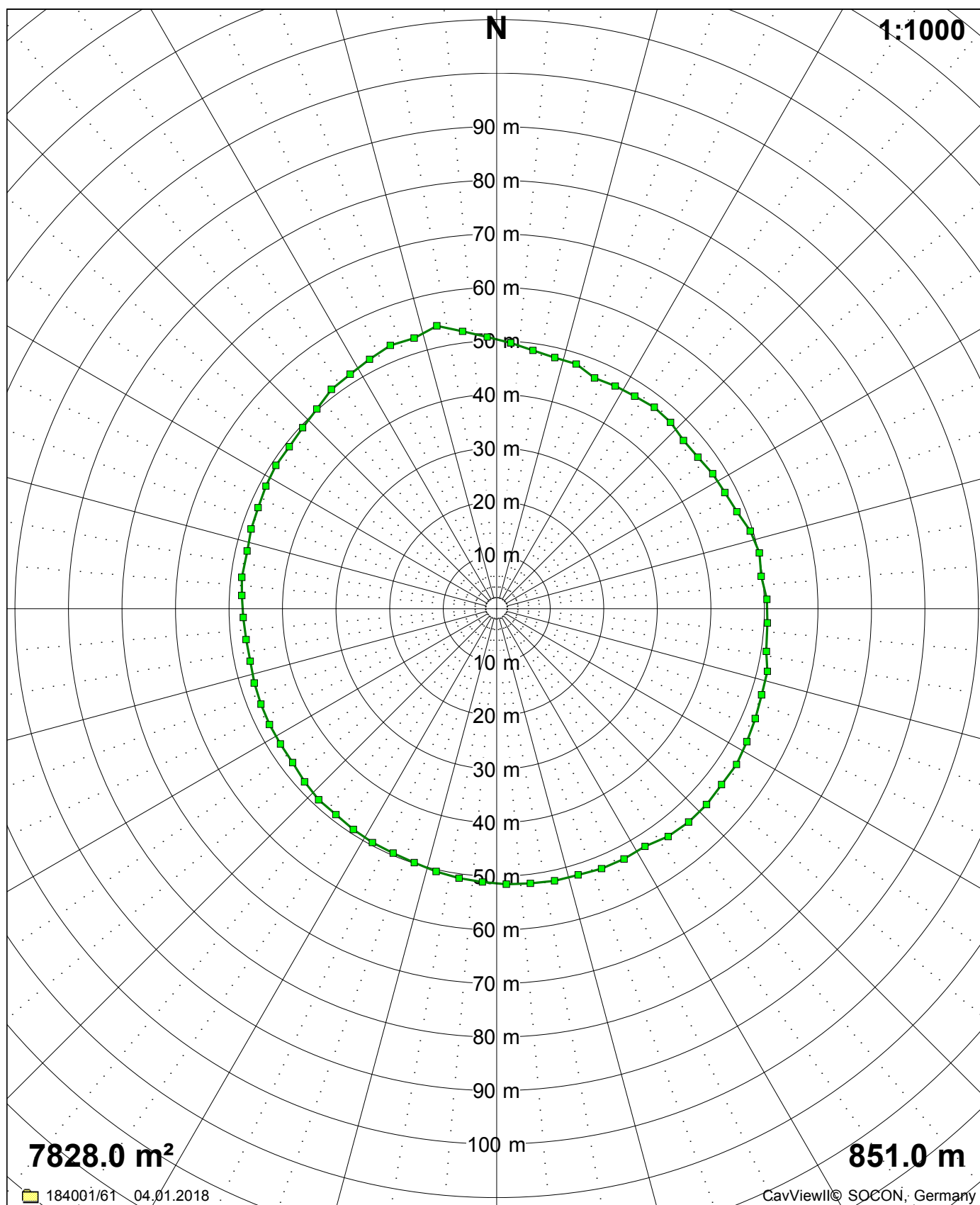


—■— (04.01.2018) (7508.2 m<sup>2</sup>)

d<sub>max</sub>: 102.7 m 168° <--> 348° r<sub>min</sub>: 45.7 m -> 268° r~: 48.9 m r<sub>max</sub>: 52.0 m -> 148°

**Heiligerlee H**

**04.01.2018**

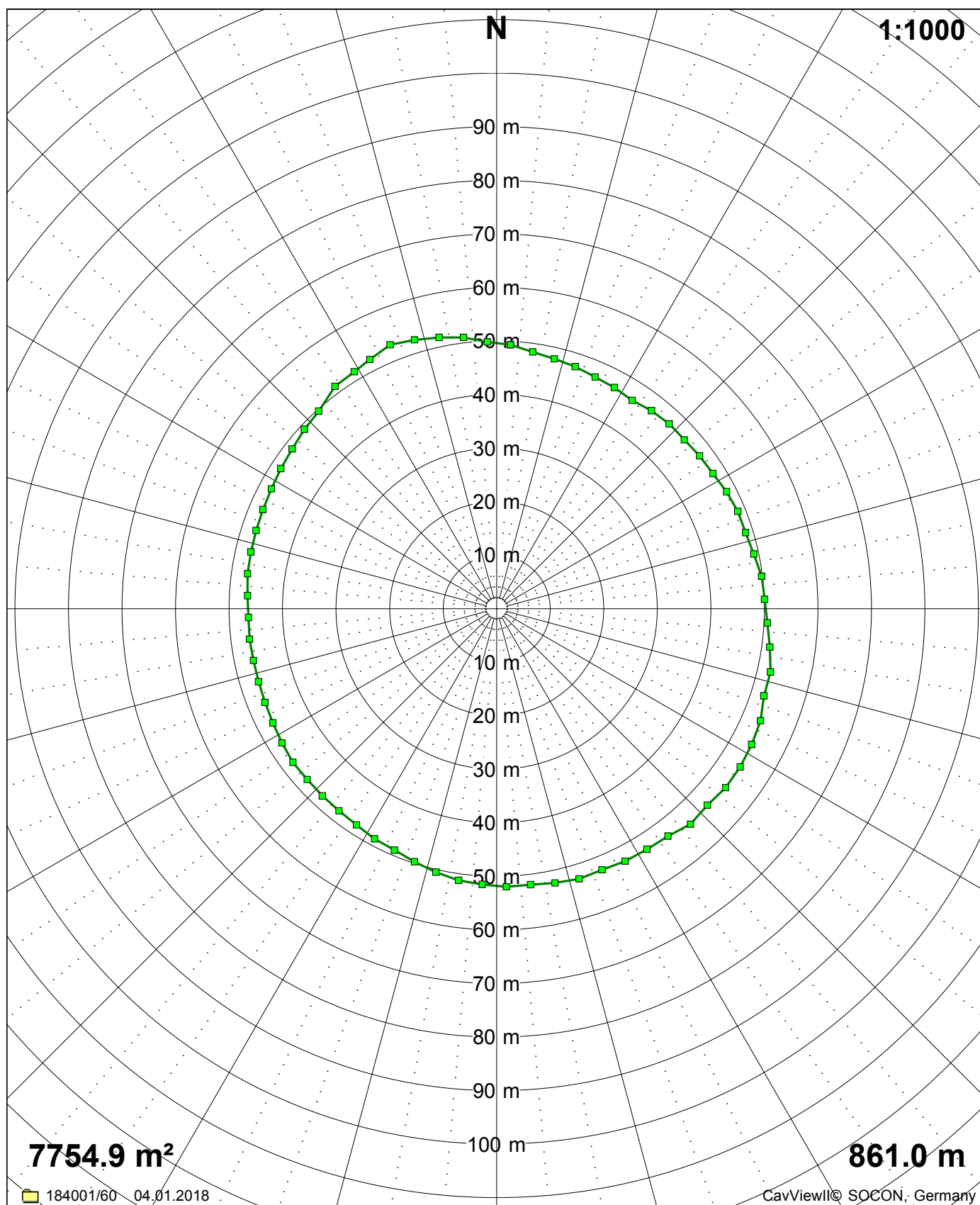


—■— (04.01.2018) (7828.0 m<sup>2</sup>)

d<sub>max</sub>: 105.9 m 168° <--> 348° r<sub>min</sub>: 46.8 m -> 23° r~: 49.9 m r<sub>max</sub>: 54.0 m -> 348°

**Heiligerlee H**

**04.01.2018**



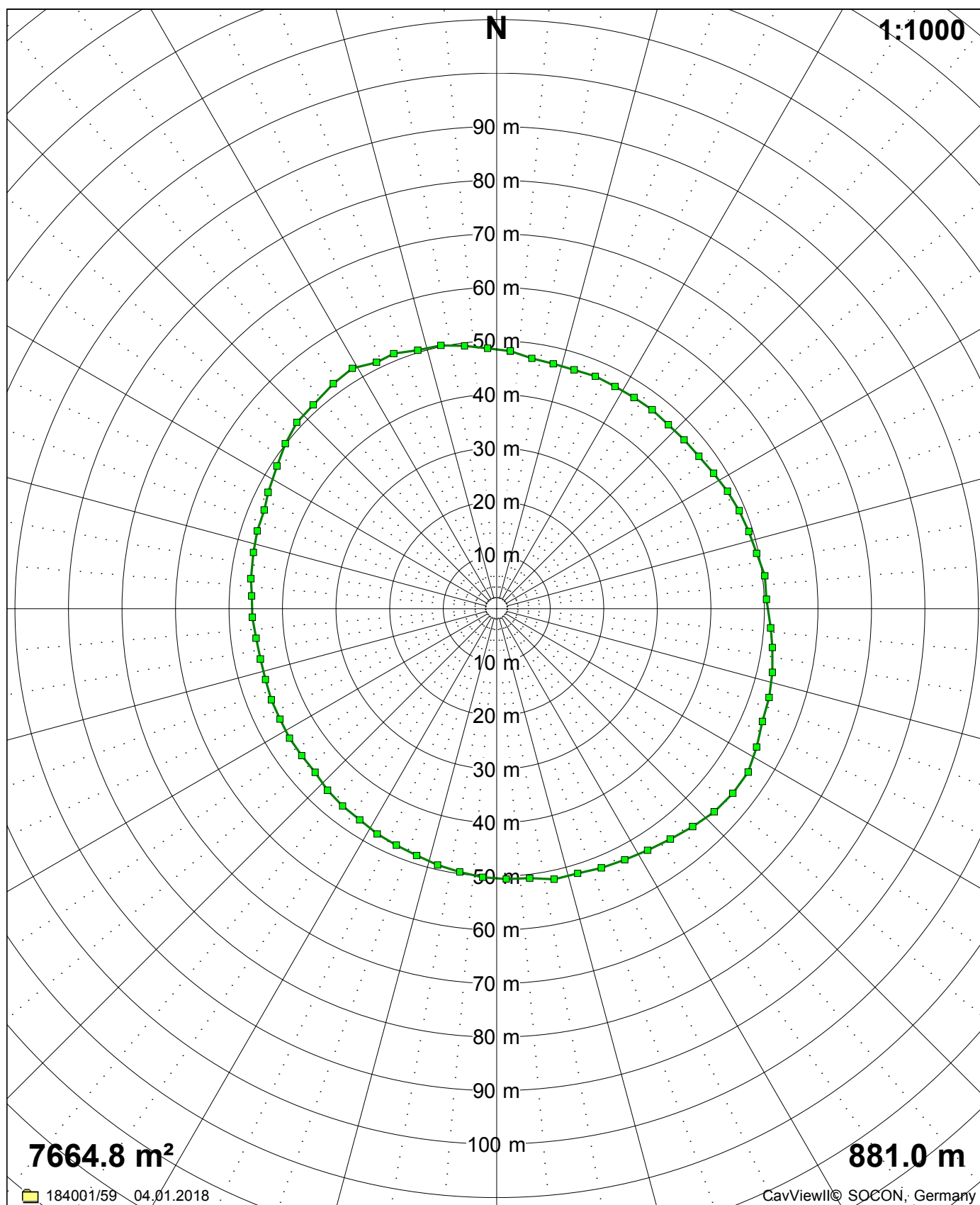
—■— (04.01.2018) (7754.9 m<sup>2</sup>)

$d_{\max}$ : 105.7 m 158° <--> 338°  $r_{\min}$ : 46.4 m -> 266°  $r_{\sim}$ : 49.7 m  $r_{\max}$ : 54.3 m -> 128°



**Heiligerlee H**

**04.01.2018**

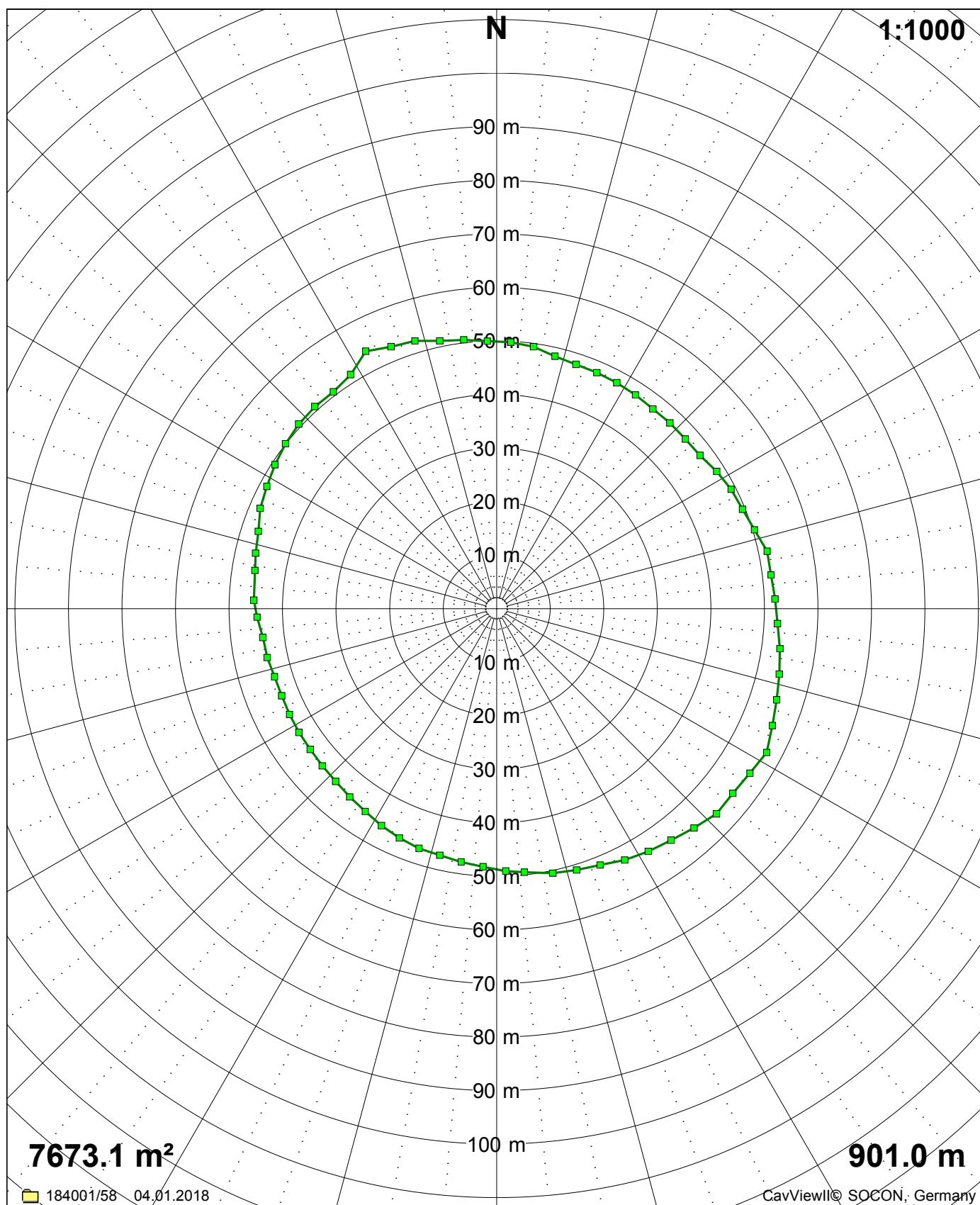


—■— (04.01.2018) (7664.8 m<sup>2</sup>)

$d_{\max}$ : 106.6 m 133° <--> 313°  $r_{\min}$ : 45.1 m -> 255°  $r_{\sim}$ : 49.4 m  $r_{\max}$ : 56.0 m -> 123°

**Heiligerlee H**

**04.01.2018**



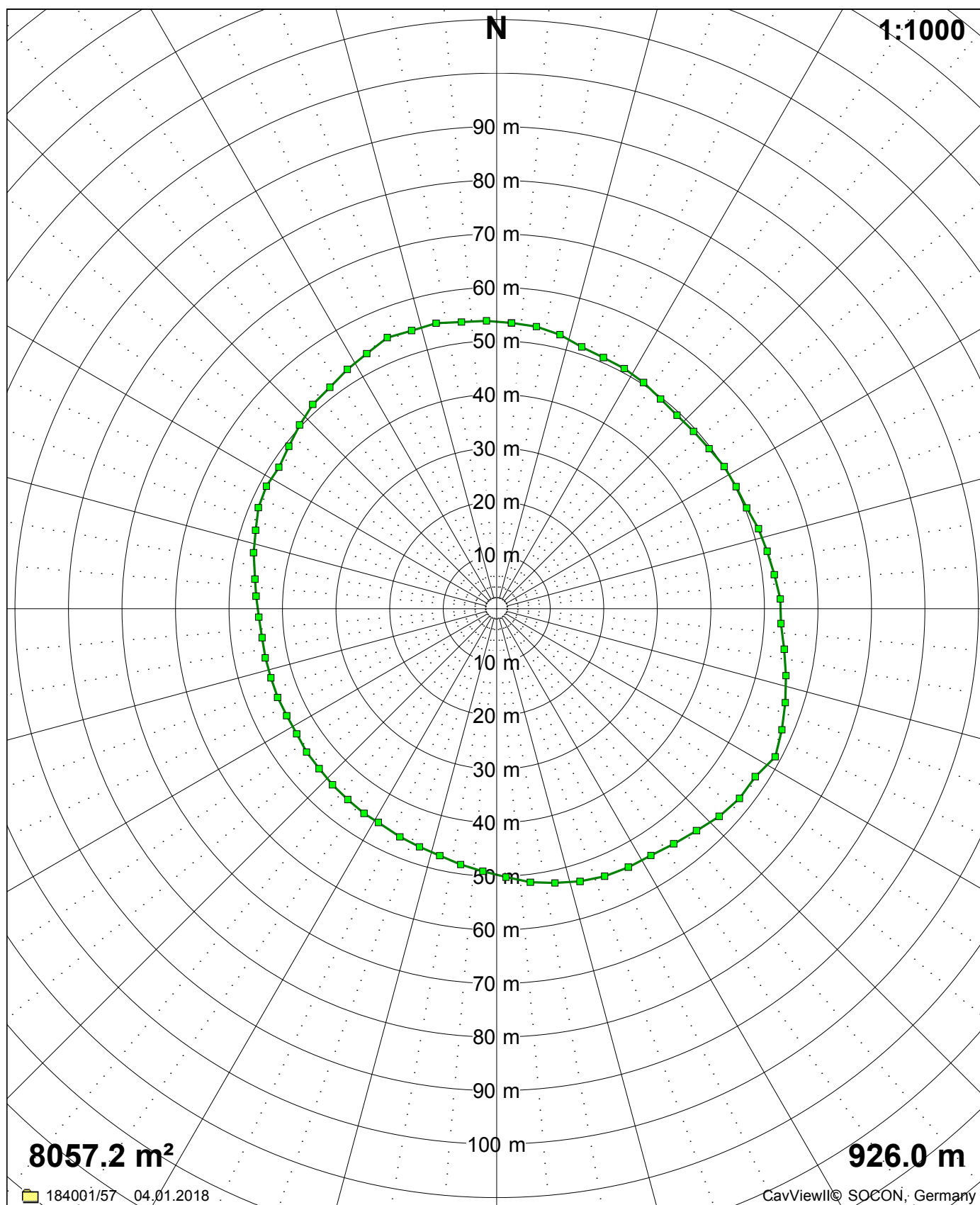
—■— (04.01.2018) (7673.1 m<sup>2</sup>)

$d_{\max}$ : 106.7 m 133° <--> 313°  $r_{\min}$ : 43.3 m -> 249°  $r_{\sim}$ : 49.4 m  $r_{\max}$ : 57.1 m -> 118°



**Heiligerlee H**

**04.01.2018**

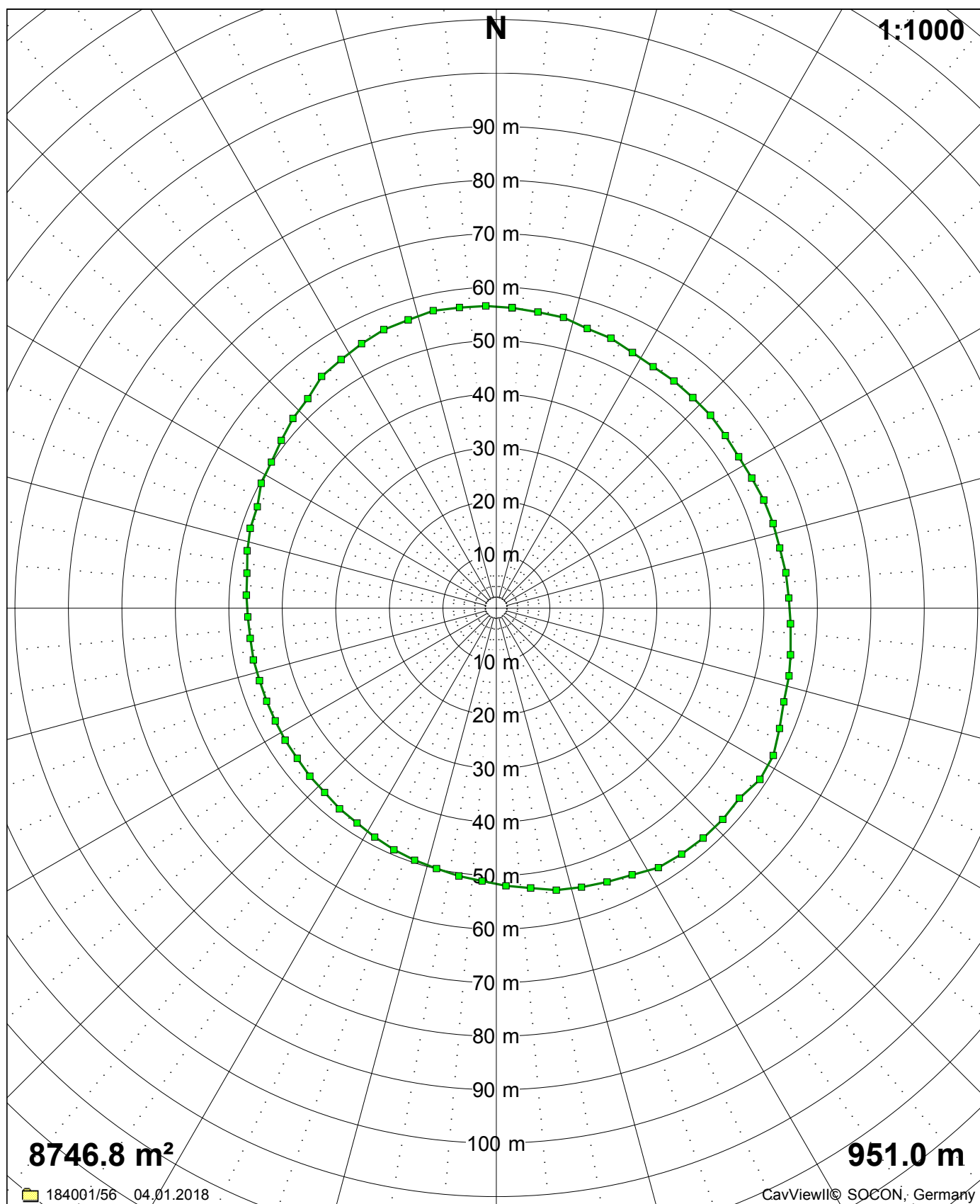


—■— (04.01.2018) (8057.2 m<sup>2</sup>)

d<sub>max</sub>: 108.5 m 158° <--> 338° r<sub>min</sub>: 44.0 m -> 240° r~: 50.6 m r<sub>max</sub>: 58.9 m -> 118°

**Heiligerlee H**

**04.01.2018**

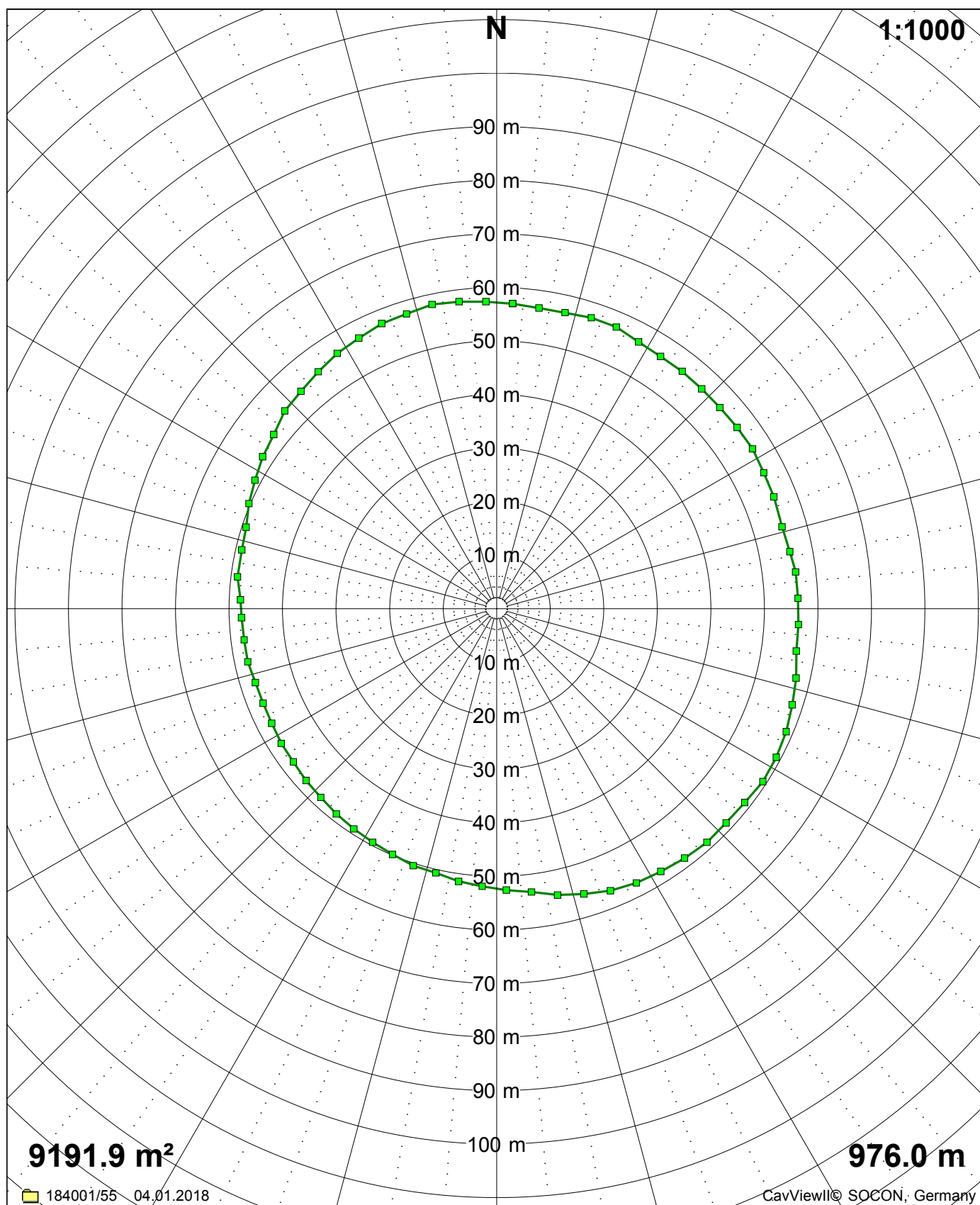


—■— (04.01.2018) (8746.8 m<sup>2</sup>)

$d_{\max}$ : 111.9 m 148° <--> 328°  $r_{\min}$ : 46.2 m -> 251°  $r_{\sim}$ : 52.8 m  $r_{\max}$ : 58.7 m -> 123°

**Heiligerlee H**

**04.01.2018**

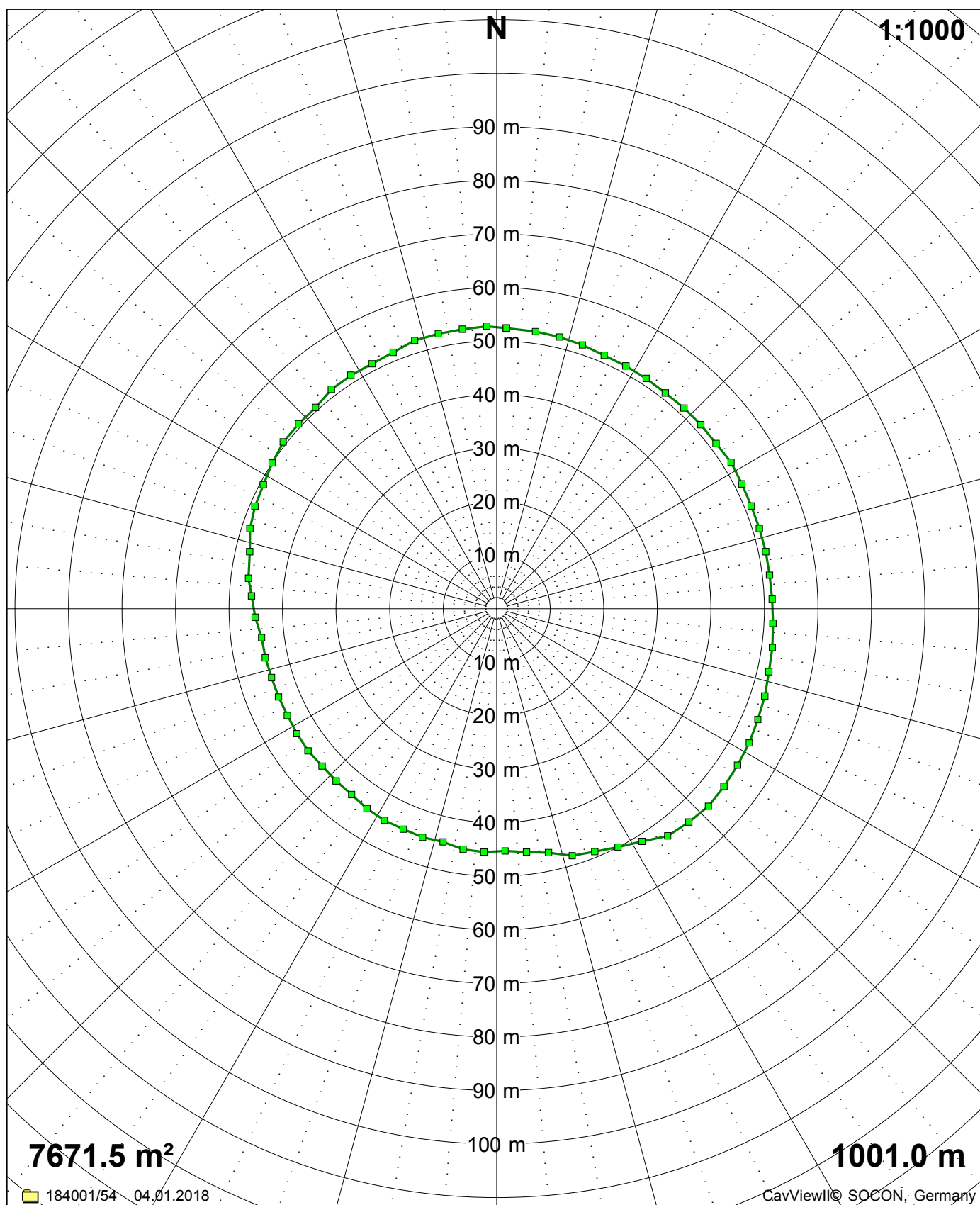


—■— (04.01.2018) (9191.9 m<sup>2</sup>)

$d_{\max}$ : 114.2 m 153° <--> 333°  $r_{\min}$ : 47.0 m -> 249°  $r_{\sim}$ : 54.1 m  $r_{\max}$ : 59.2 m -> 123°

**Heiligerlee H**

**04.01.2018**

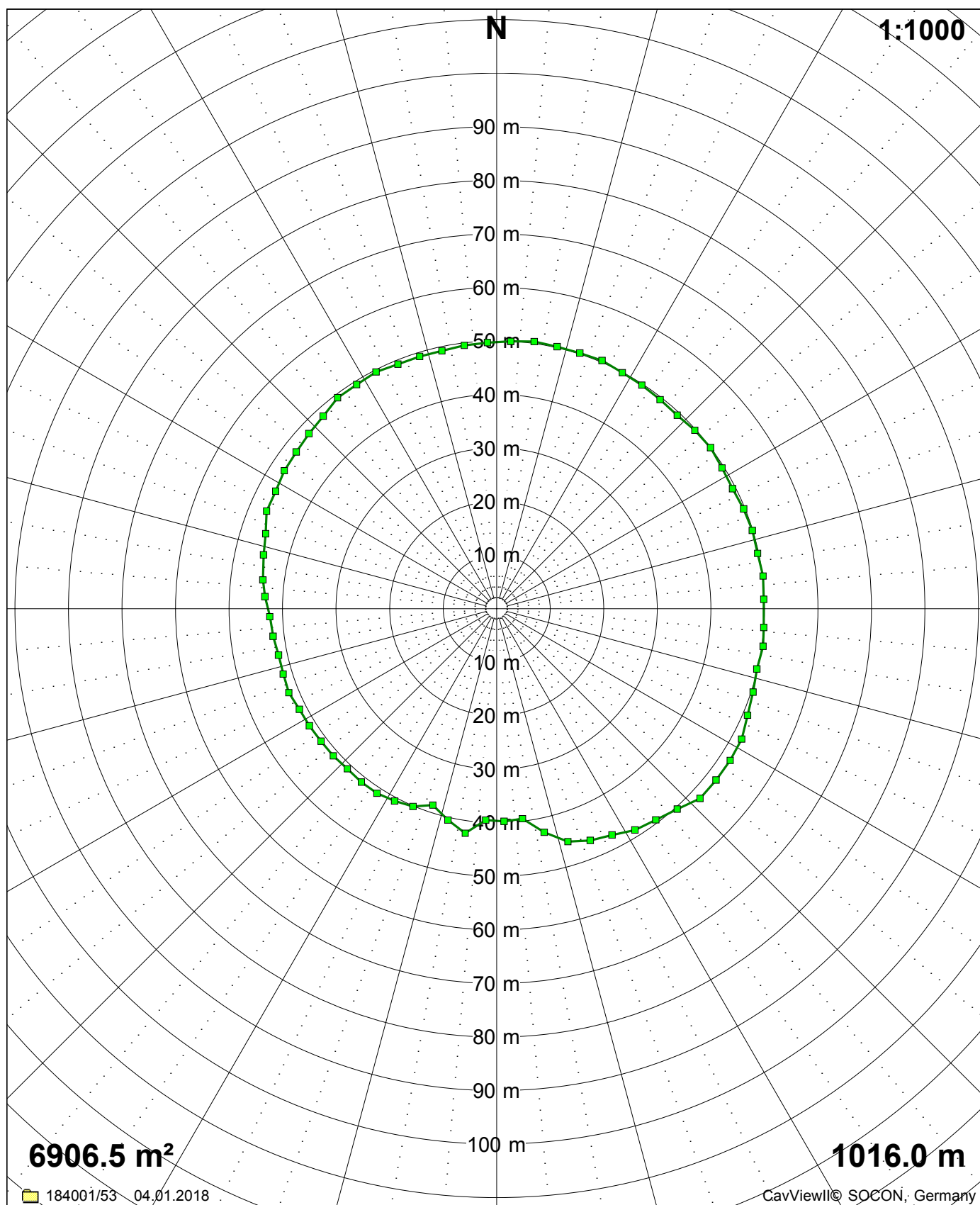


—■— (04.01.2018) (7671.5 m<sup>2</sup>)

$d_{\max}$ : 104.7 m 133° <--> 313°  $r_{\min}$ : 43.9 m -> 244°  $r_{\sim}$ : 49.4 m  $r_{\max}$ : 54.1 m -> 133°

**Heiligerlee H**

**04.01.2018**

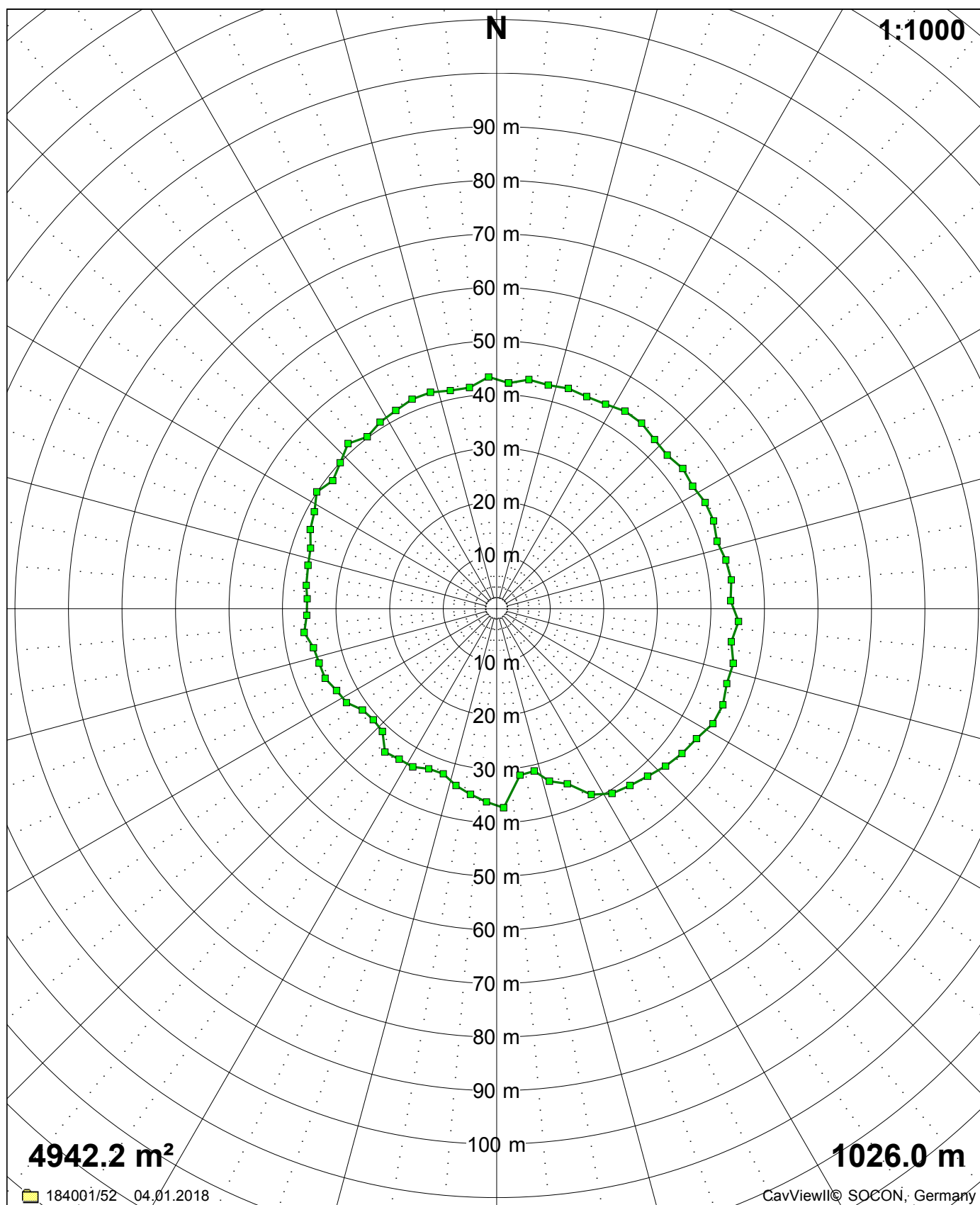


—■— (04.01.2018) (6906.5 m<sup>2</sup>)

$d_{\max}$ : 99.9 m 133° <--> 313°  $r_{\min}$ : 38.6 m -> 198°  $r_{\sim}$ : 46.9 m  $r_{\max}$ : 52.0 m -> 123°

**Heiligerlee H**

**04.01.2018**



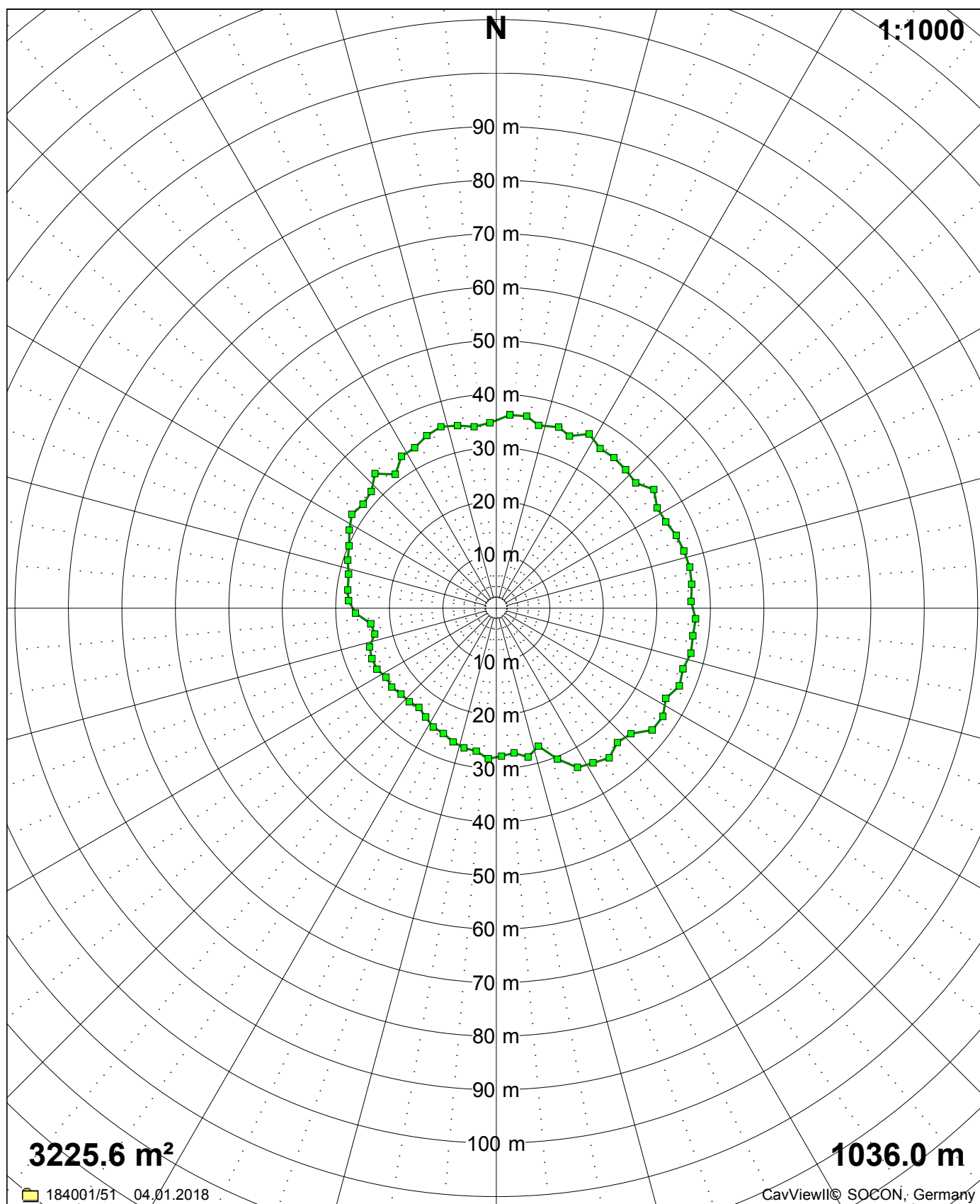
—■— (04.01.2018) (4942.2 m<sup>2</sup>)

$d_{\max}$ : 84.6 m 123° <--> 303°  $r_{\min}$ : 31.0 m -> 228°  $r_{\sim}$ : 39.7 m  $r_{\max}$ : 45.9 m -> 113°



**Heiligerlee H**

**04.01.2018**

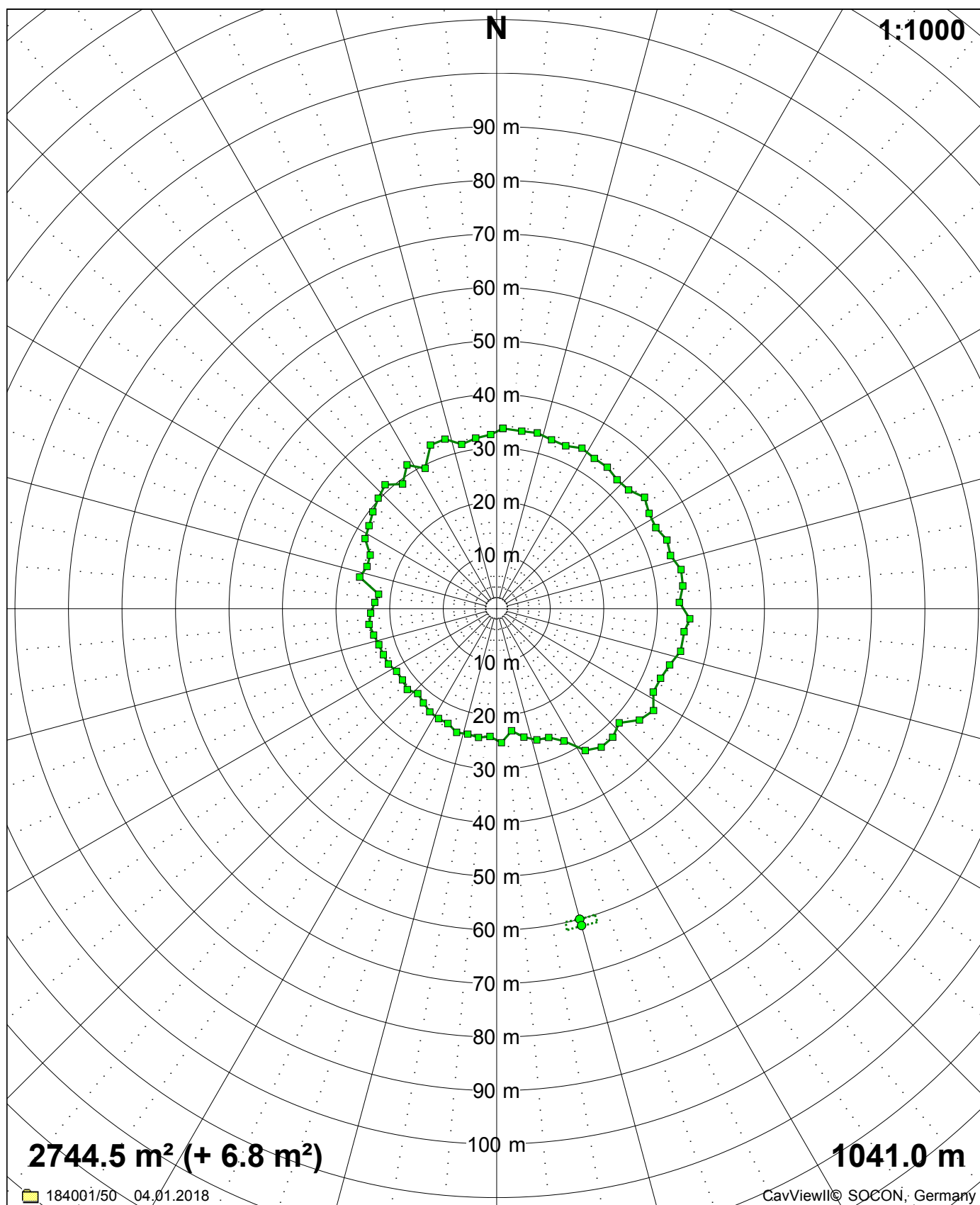


—■— (04.01.2018) (3225.6 m<sup>2</sup>)

d<sub>max</sub>: 69.3 m 123° <--> 303° r<sub>min</sub>: 23.2 m -> 258° r~: 32.0 m r<sub>max</sub>: 37.3 m -> 103°

**Heiligerlee H**

**04.01.2018**



—■— (04.01.2018) (2751.3 m<sup>2</sup>)

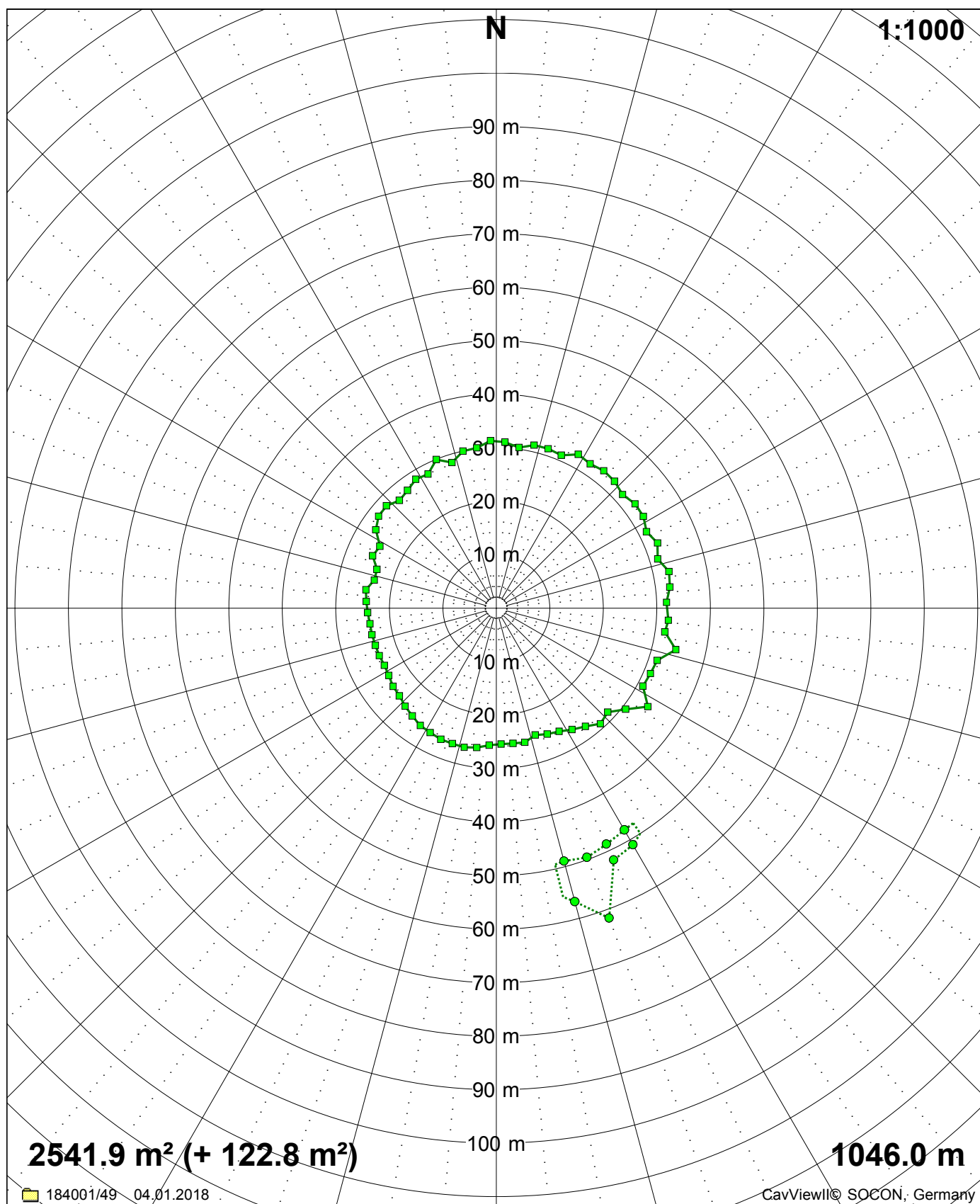
—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 93.6 m 165° <--> 345° r<sub>min</sub>: 21.6 m -> 223° r~: 29.6 m r<sub>max</sub>: 61.3 m -> 165°



**Heiligerlee H**

**04.01.2018**



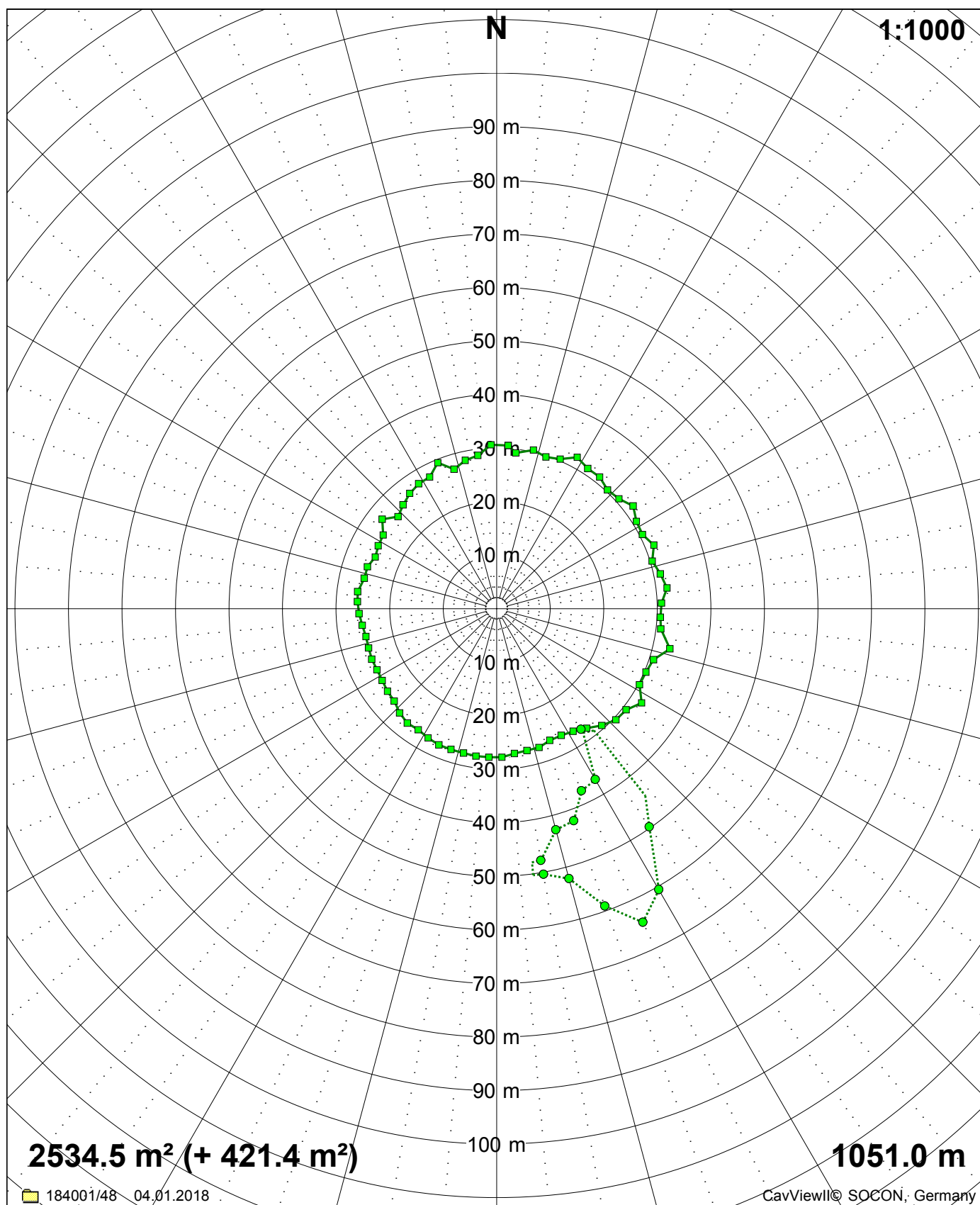
—■— (04.01.2018) (2664.7 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 91.0 m 160° <--> 340° r<sub>min</sub>: 23.4 m -> 283° r~: 29.1 m r<sub>max</sub>: 61.6 m -> 160°

**Heiligerlee H**

**04.01.2018**



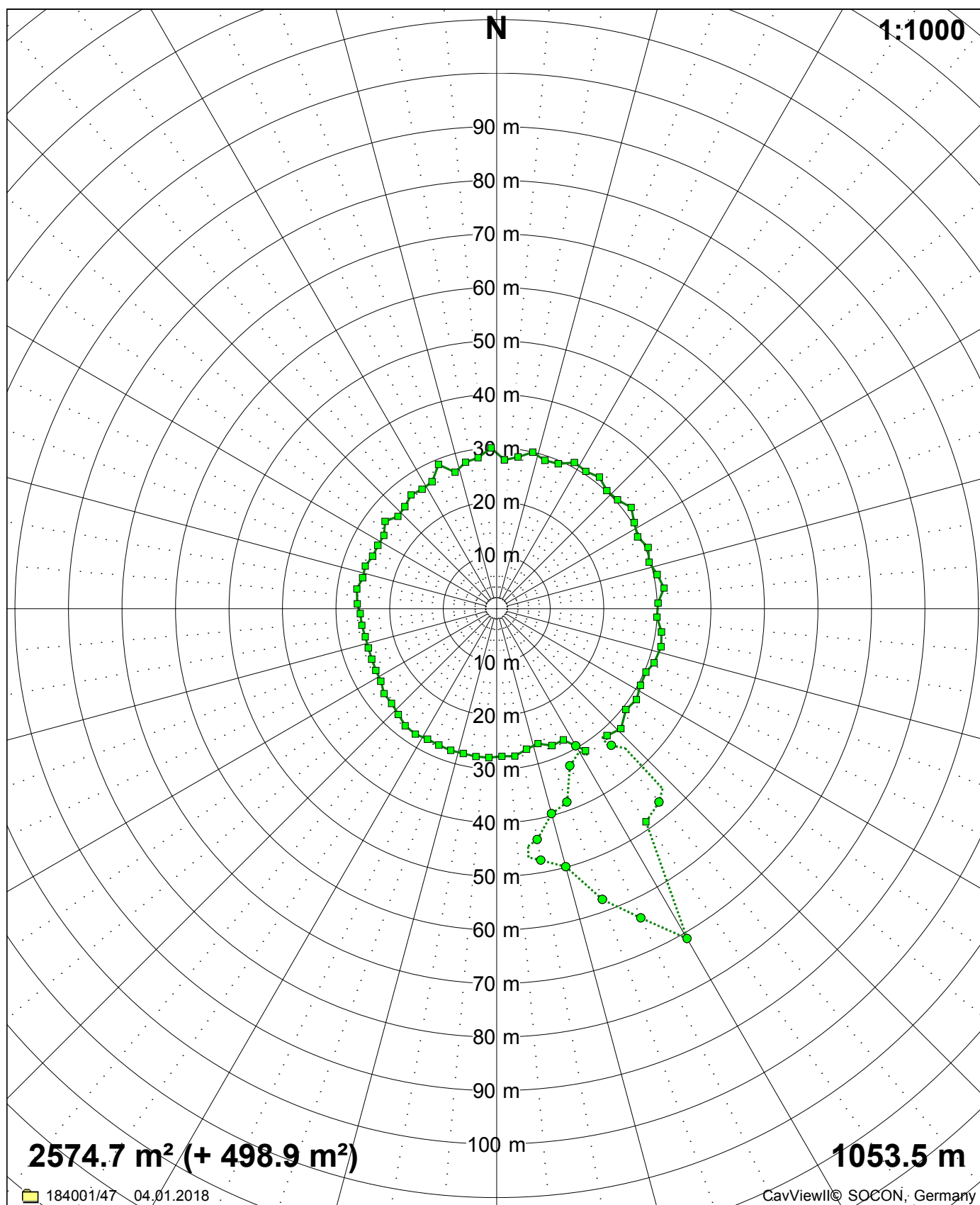
—■— (04.01.2018) (2955.9 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 92.9 m 155° <--> 335° r<sub>min</sub>: 24.7 m -> 293° r~: 30.7 m r<sub>max</sub>: 64.6 m -> 155°

**Heiligerlee H**

**04.01.2018**



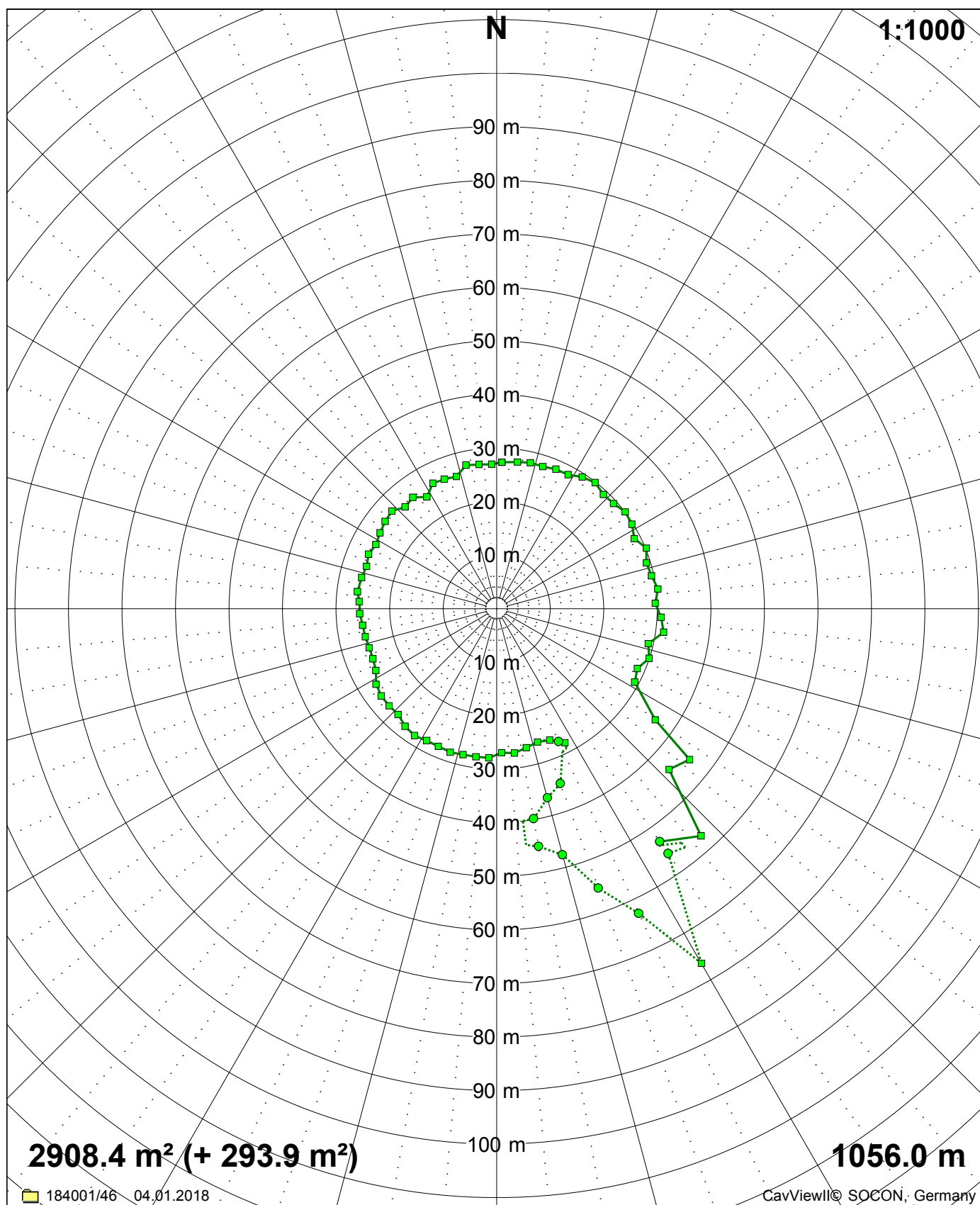
—■— (04.01.2018) (3073.7 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 97.5 m 150° <--> 330° r<sub>min</sub>: 25.0 m -> 254° r~: 31.3 m r<sub>max</sub>: 71.1 m -> 150°

**Heiligerlee H**

**04.01.2018**



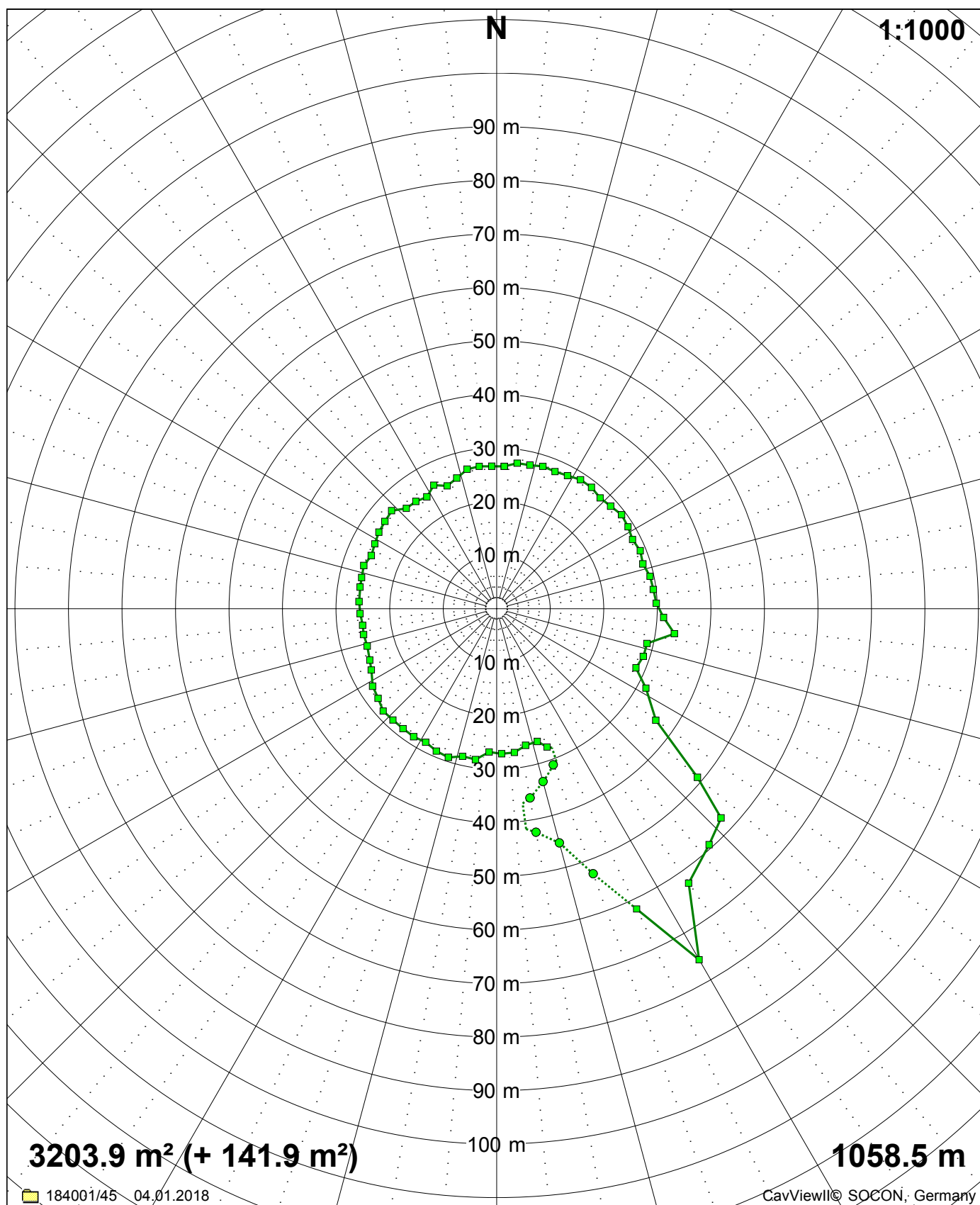
—■— (04.01.2018) (3202.3 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

$d_{\max}$ : 101.7 m 150° <--> 330°  $r_{\min}$ : 24.6 m -> 328°  $r_{\sim}$ : 31.9 m  $r_{\max}$ : 76.5 m -> 150°

**Heiligerlee H**

**04.01.2018**



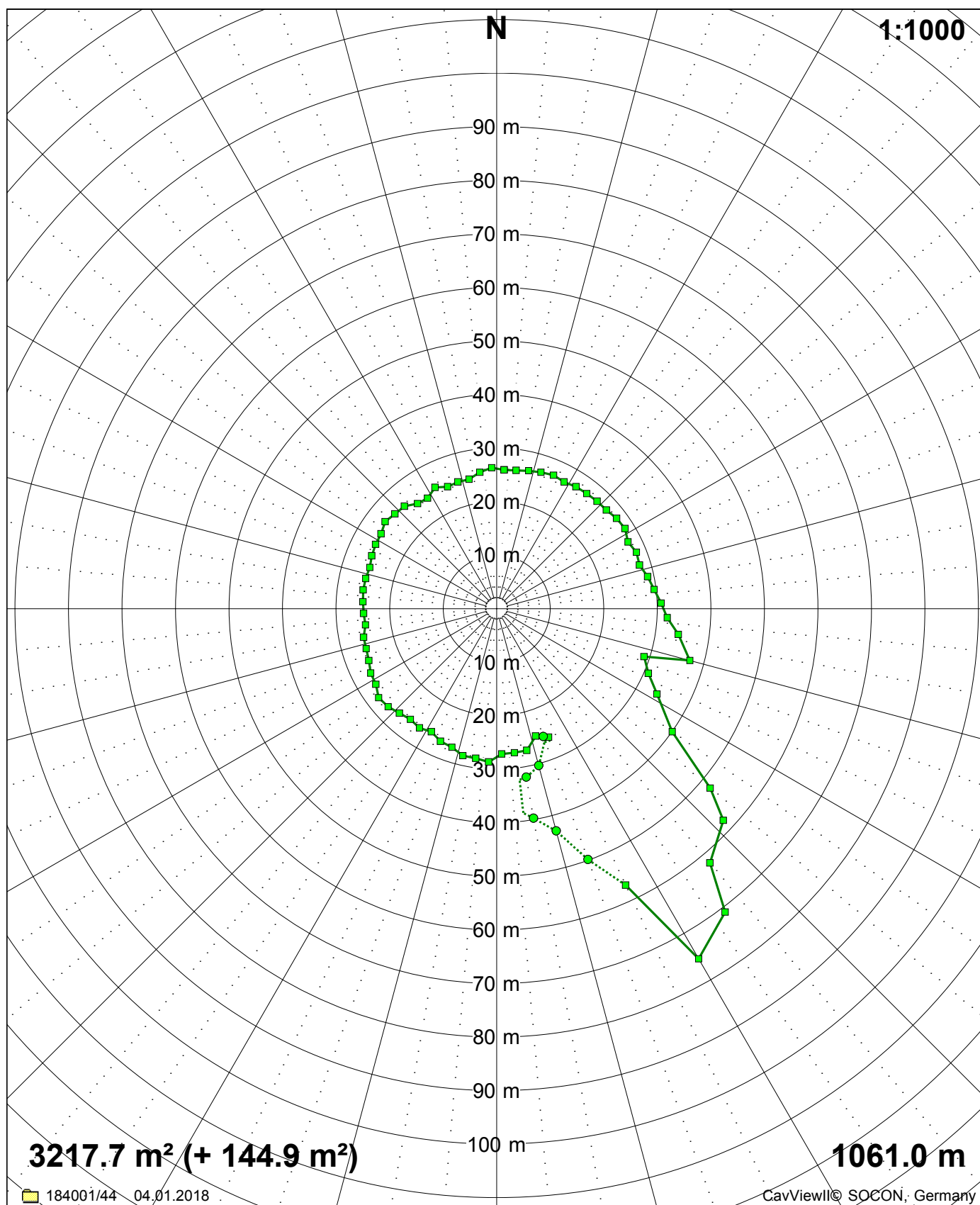
—■— (04.01.2018) (3345.8 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

$d_{\max}$ : 100.8 m 150° <--> 330°  $r_{\min}$ : 24.7 m -> 328°  $r_{\sim}$ : 32.6 m  $r_{\max}$ : 75.7 m -> 150°

**Heiligerlee H**

**04.01.2018**



—■— (04.01.2018) (3362.7 m<sup>2</sup>)

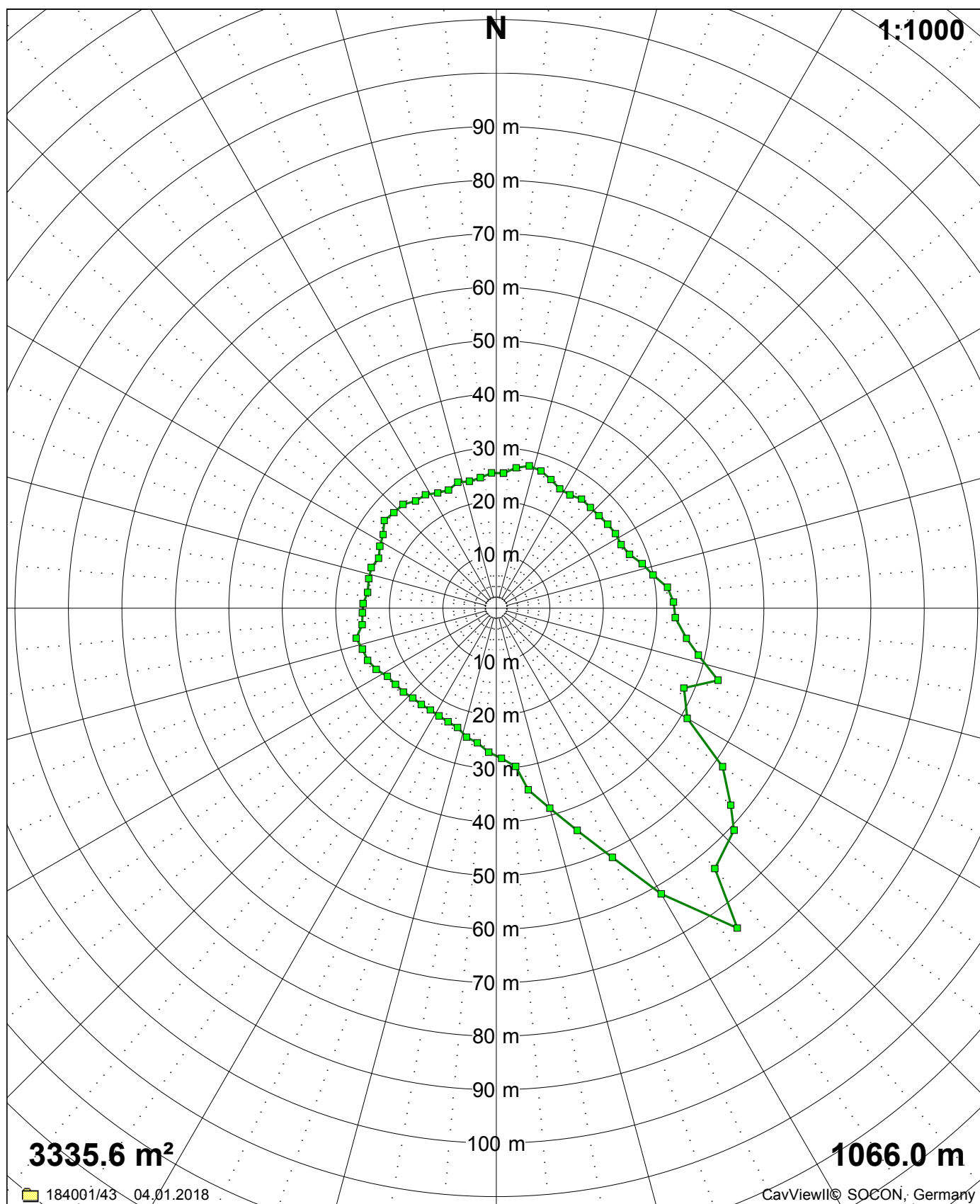
—●— Leached pocket (04.01.2018)

$d_{\max}$ : 100.2 m 150° <--> 330°  $r_{\min}$ : 24.4 m -> 327°  $r_{\sim}$ : 32.7 m  $r_{\max}$ : 75.5 m -> 150°



**Heiligerlee H**

**04.01.2018**

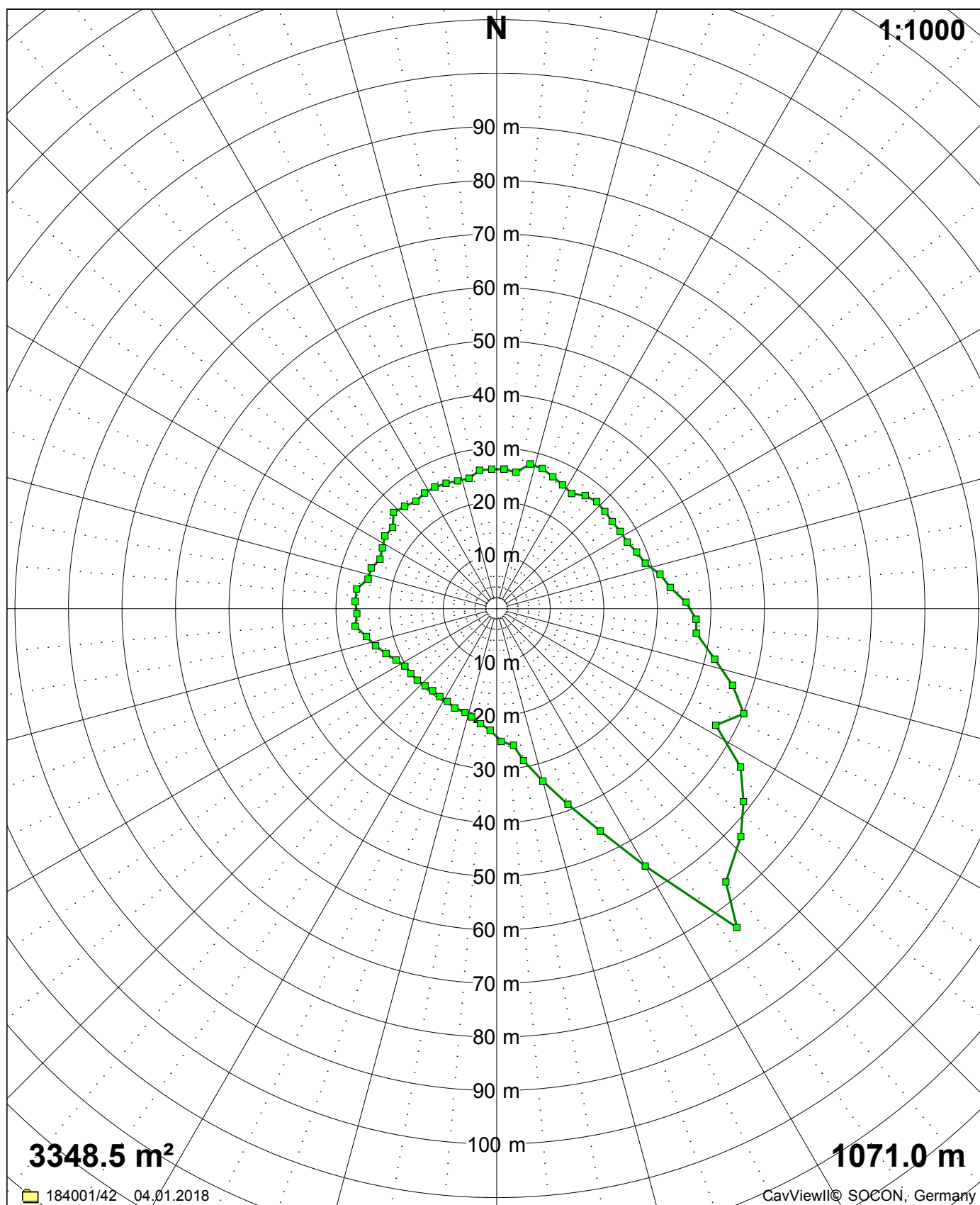


—■— (04.01.2018) (3335.6 m<sup>2</sup>)

$d_{\max}$ : 100.0 m 143° <--> 323°  $r_{\min}$ : 22.7 m -> 212°  $r_{\sim}$ : 32.6 m  $r_{\max}$ : 74.8 m -> 143°

**Heiligerlee H**

**04.01.2018**

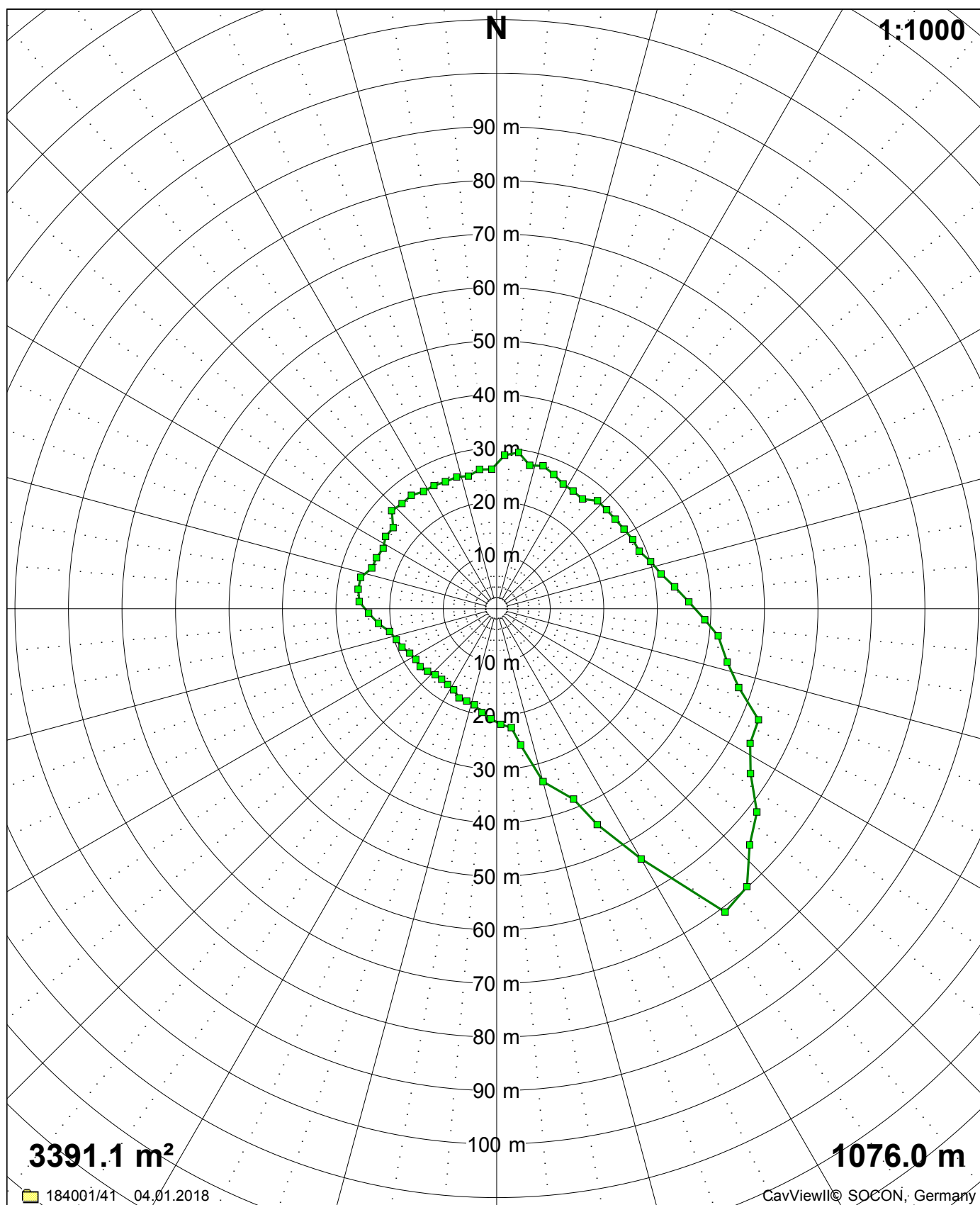


$d_{\max}$ : 99.7 m 143° <--> 323°  $r_{\min}$ : 19.4 m -> 217°  $r_{\sim}$ : 32.6 m  $r_{\max}$ : 74.5 m -> 143°



**Heiligerlee H**

**04.01.2018**

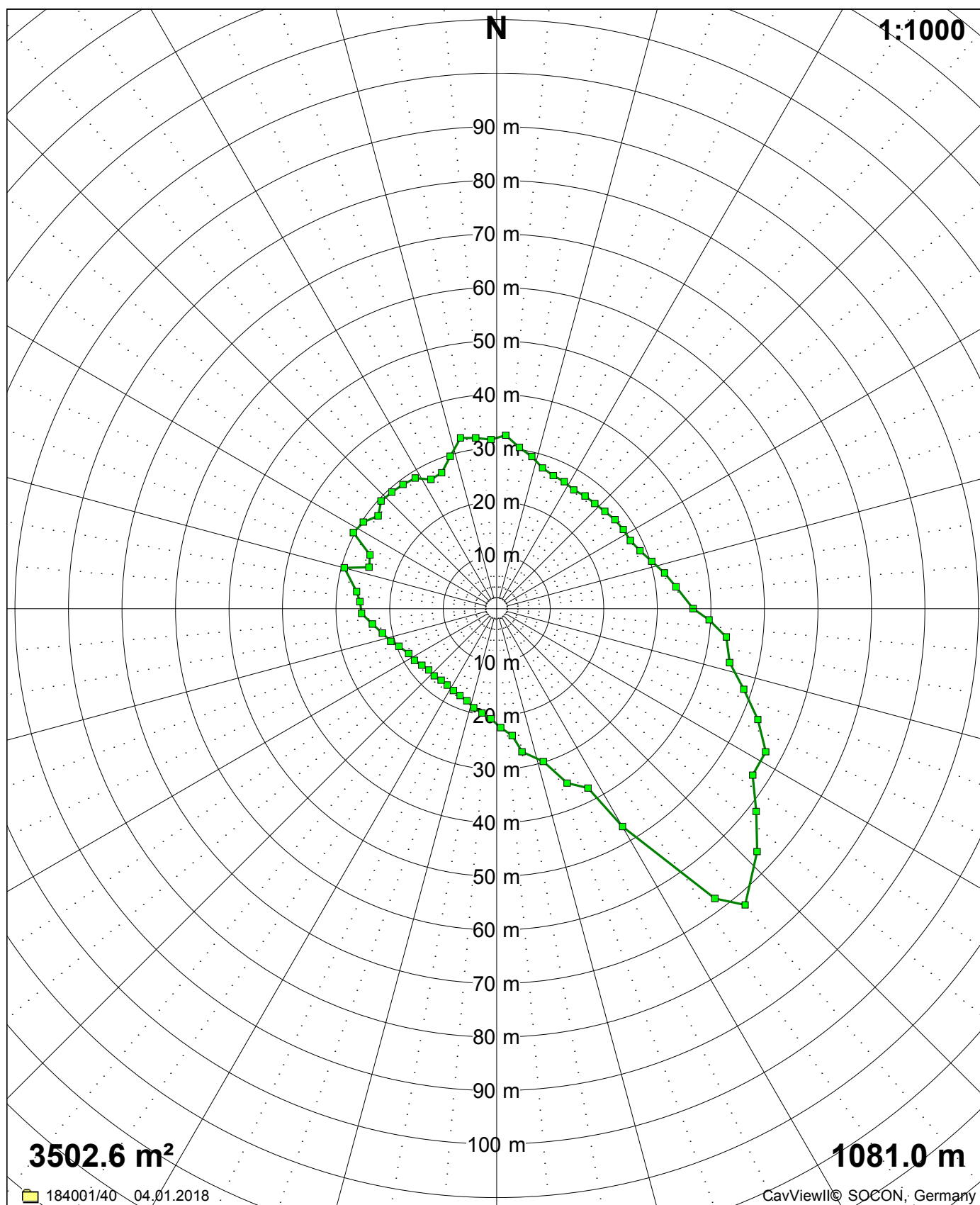


—■— (04.01.2018) (3391.1 m<sup>2</sup>)

d<sub>max</sub>: 97.4 m 143° <--> 323° r<sub>min</sub>: 16.7 m -> 217° r~: 32.9 m r<sub>max</sub>: 70.9 m -> 143°

**Heiligerlee H**

**04.01.2018**

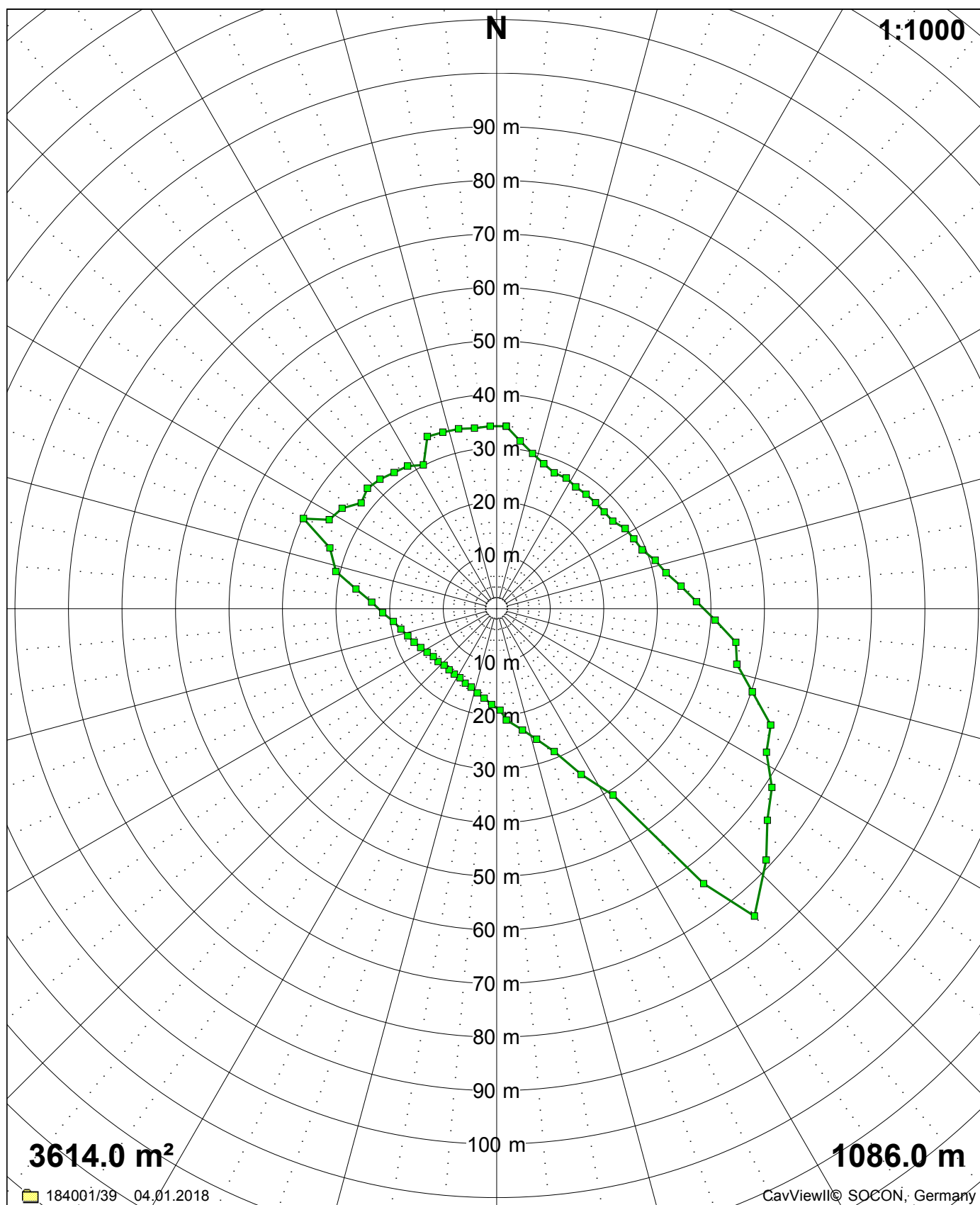


—■— (04.01.2018) (3502.6 m<sup>2</sup>)

d<sub>max</sub>: 101.3 m 140° <--> 320° r<sub>min</sub>: 16.9 m -> 217° r<sub>~</sub>: 33.4 m r<sub>max</sub>: 72.2 m -> 140°

**Heiligerlee H**

**04.01.2018**

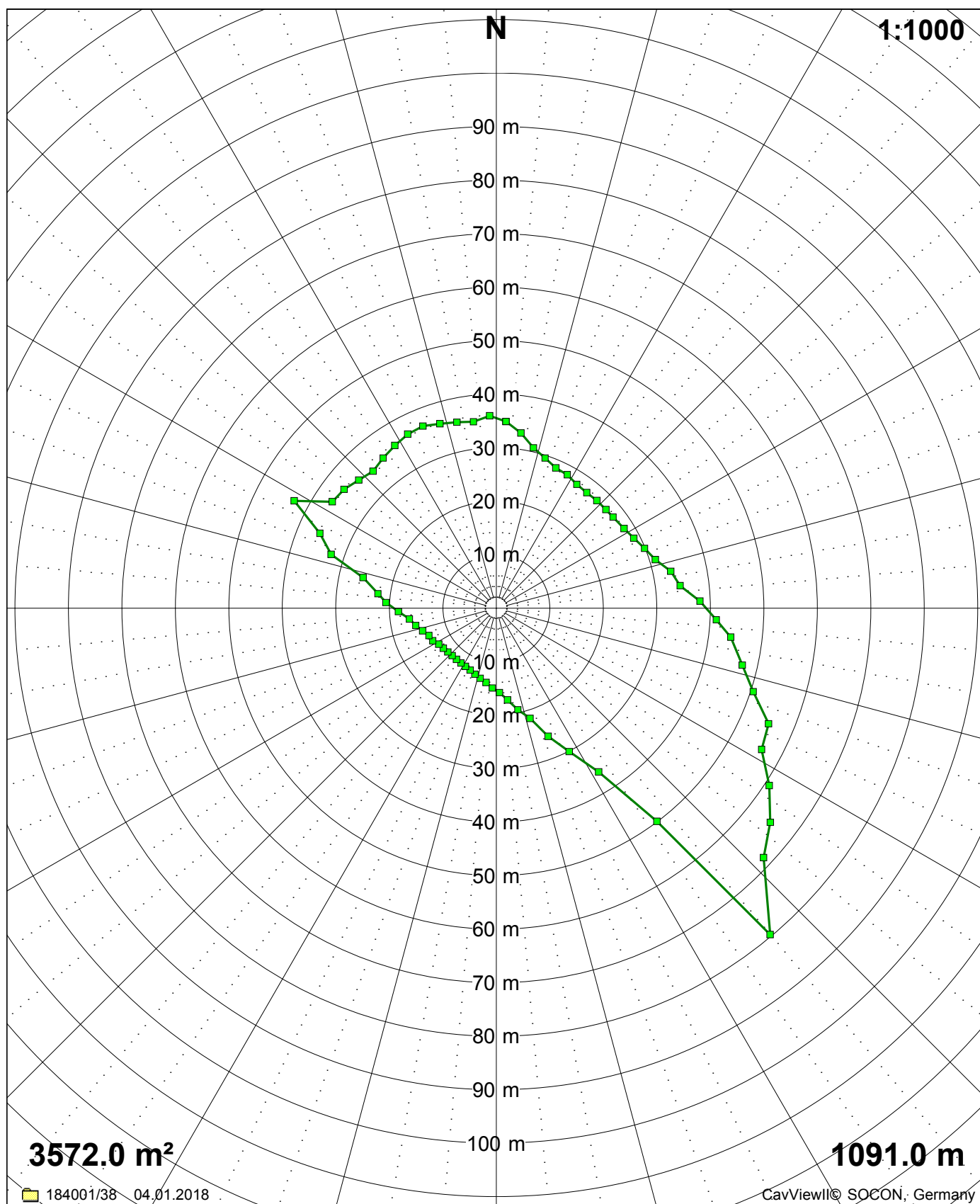


—■— (04.01.2018) (3614.0 m<sup>2</sup>)

$d_{\max}$ : 107.1 m 140° <--> 320°  $r_{\min}$ : 14.4 m -> 221°  $r_{\sim}$ : 33.9 m  $r_{\max}$ : 74.9 m -> 140°

**Heiligerlee H**

**04.01.2018**

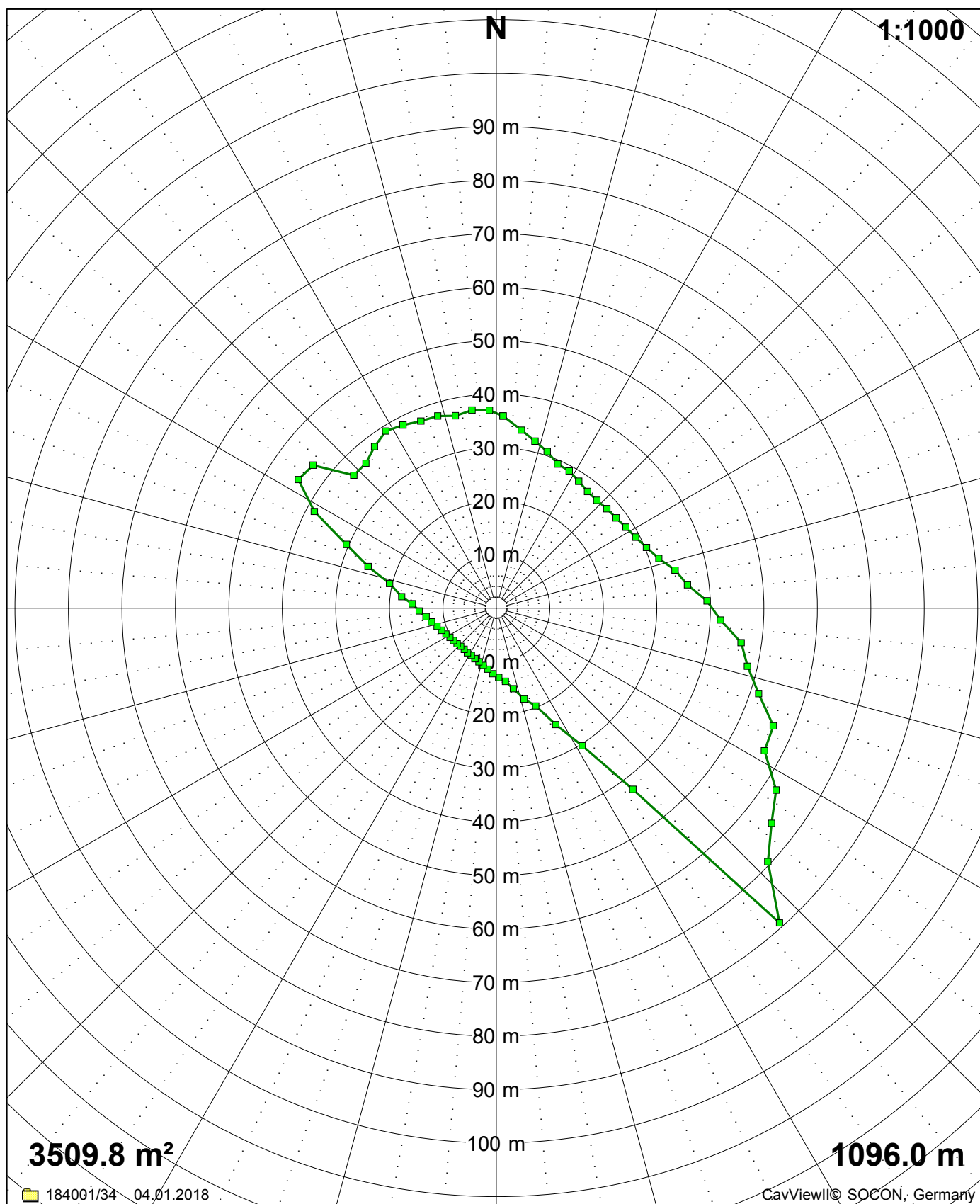


—■— (04.01.2018) (3572.0 m<sup>2</sup>)

d<sub>max</sub>: 114.3 m 140° <--> 320° r<sub>min</sub>: 12.1 m -> 220° r~: 33.7 m r<sub>max</sub>: 79.6 m -> 140°

**Heiligerlee H**

**04.01.2018**

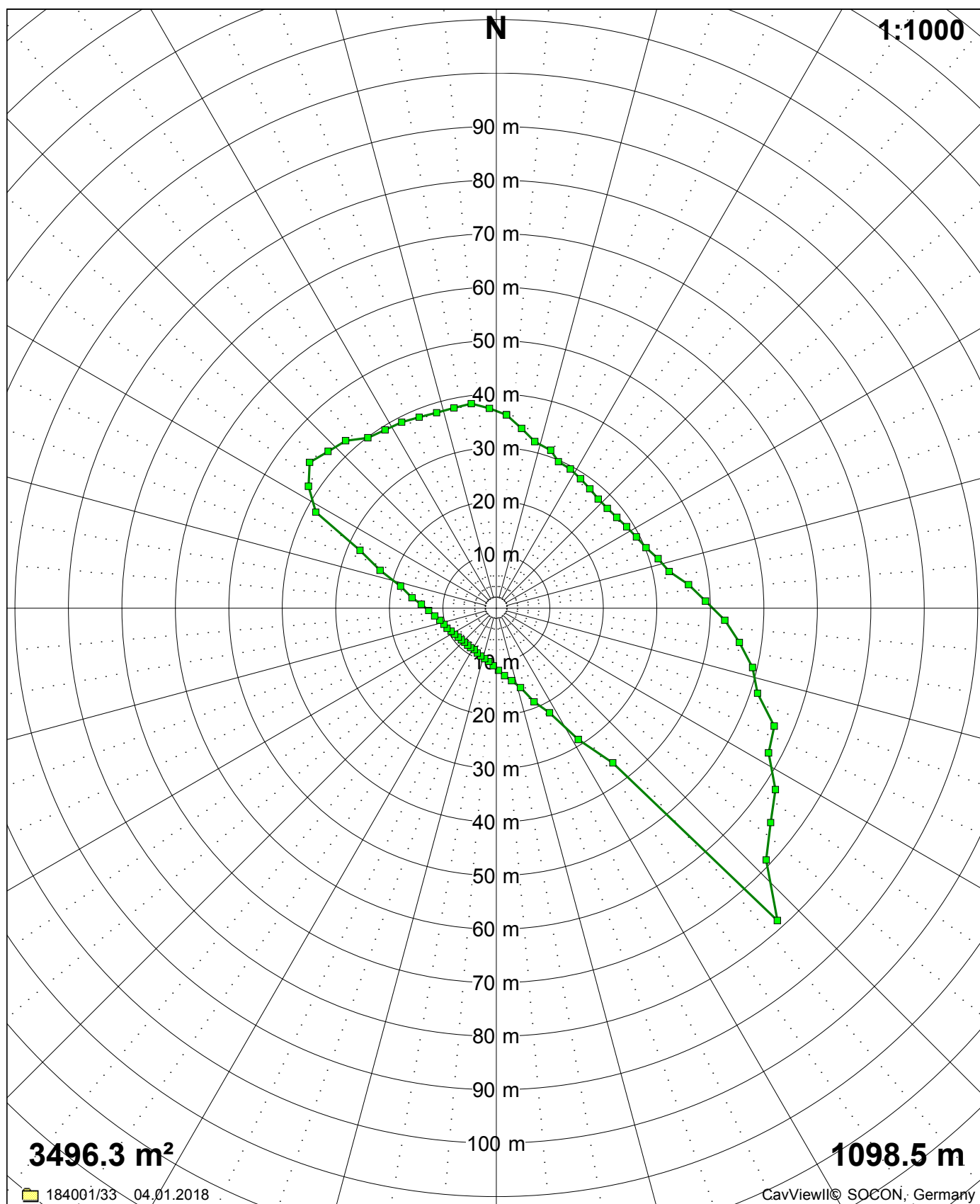


(04.01.2018) (3509.8 m<sup>2</sup>)

d<sub>max</sub>: 115.6 m 138° <--> 318° r<sub>min</sub>: 9.7 m -> 220° r~: 33.4 m r<sub>max</sub>: 79.1 m -> 138°

**Heiligerlee H**

**04.01.2018**



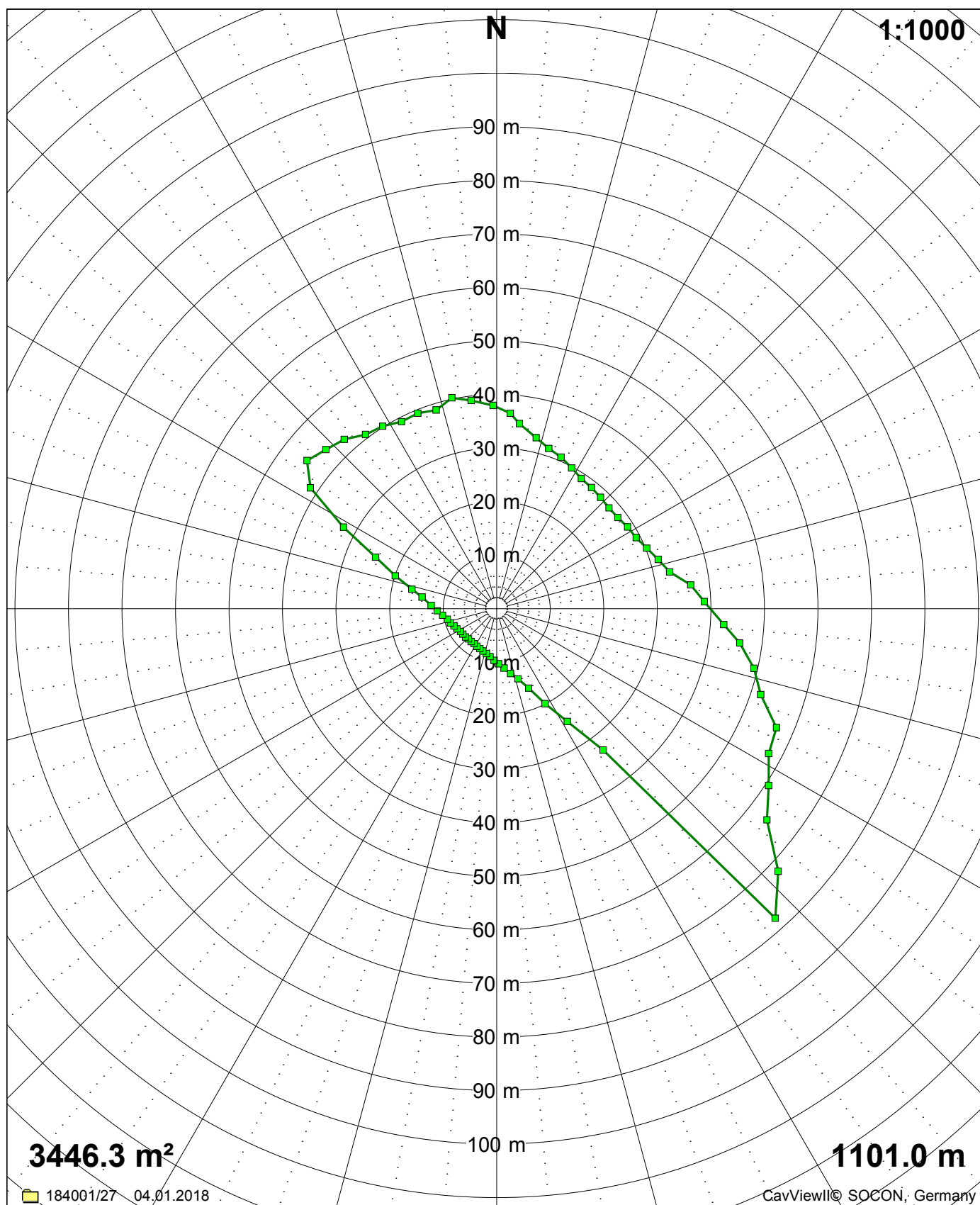
(04.01.2018) (3496.3 m<sup>2</sup>)

$d_{\max}$ : 120.7 m 138° <--> 318°  $r_{\min}$ : 8.7 m -> 219°  $r_{\sim}$ : 33.4 m  $r_{\max}$ : 78.5 m -> 138°



**Heiligerlee H**

**04.01.2018**

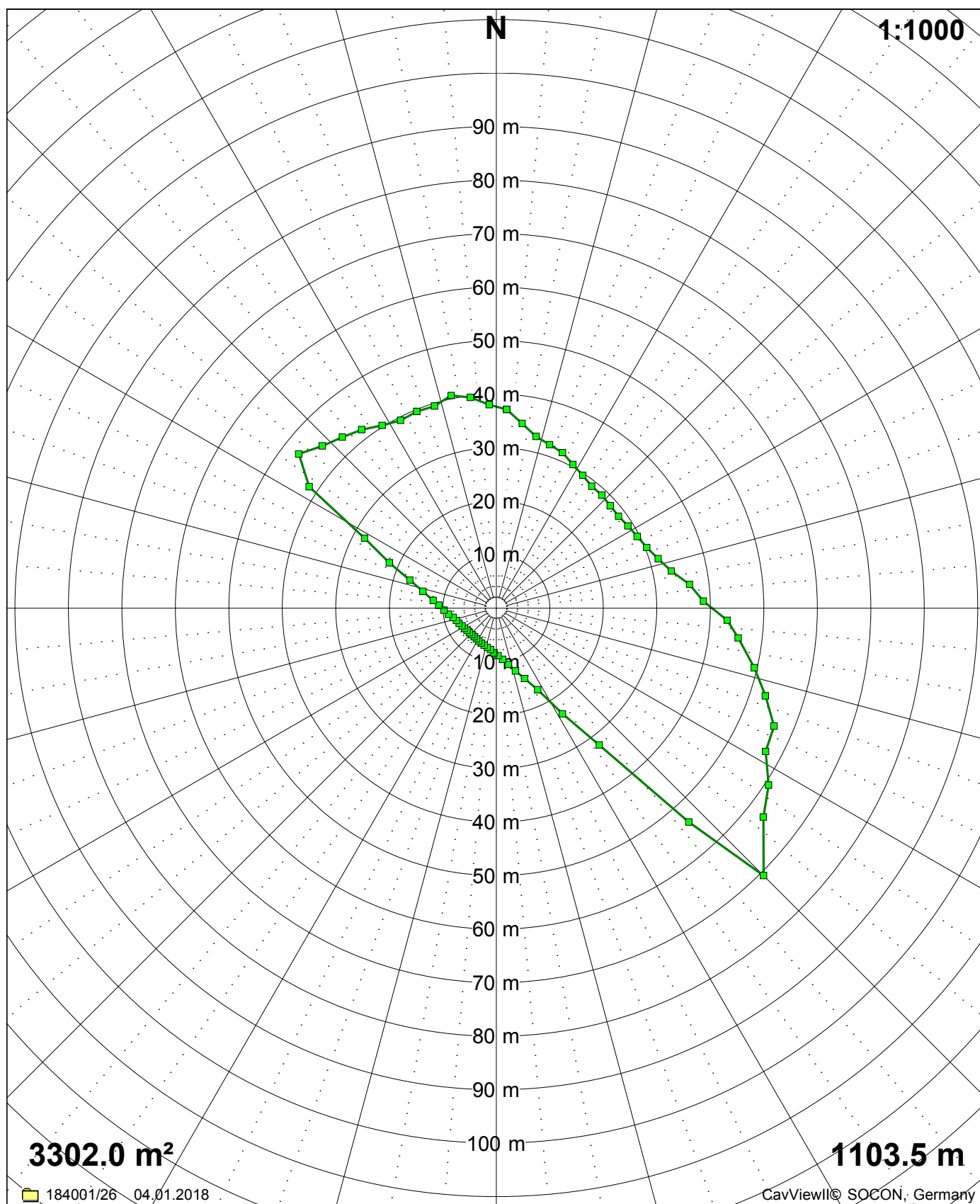


—■— (04.01.2018) (3446.3 m<sup>2</sup>)

$d_{\max}$ : 120.3 m 138° <--> 318°  $r_{\min}$ : 7.7 m -> 221°  $r_{\sim}$ : 33.1 m  $r_{\max}$ : 77.7 m -> 138°

**Heiligerlee H**

**04.01.2018**



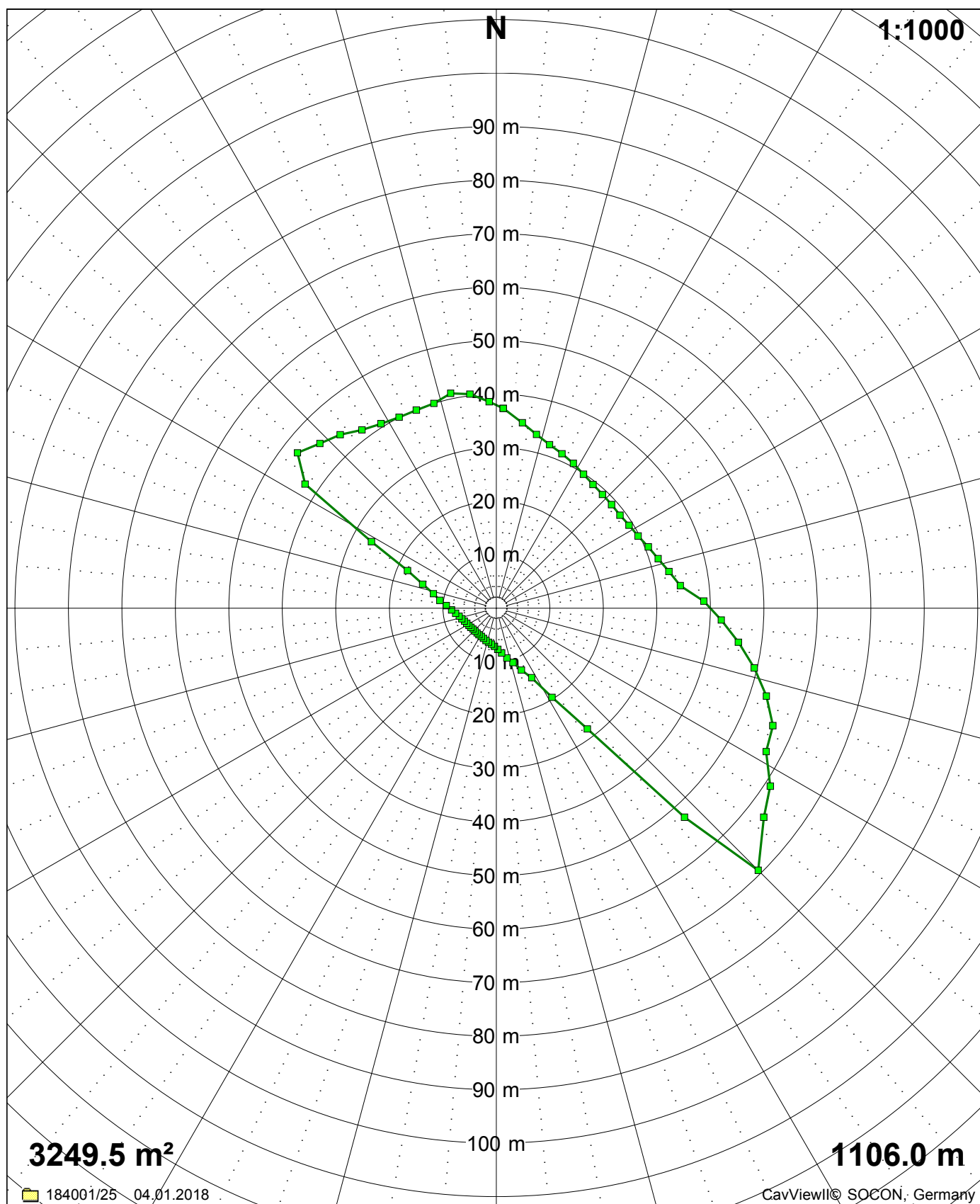
—■— (04.01.2018) (3302.0 m<sup>2</sup>)

d<sub>max</sub>: 114.5 m 135° <--> 315° r<sub>min</sub>: 6.7 m -> 218° r<sub>~</sub>: 32.4 m r<sub>max</sub>: 70.6 m -> 135°



**Heiligerlee H**

**04.01.2018**

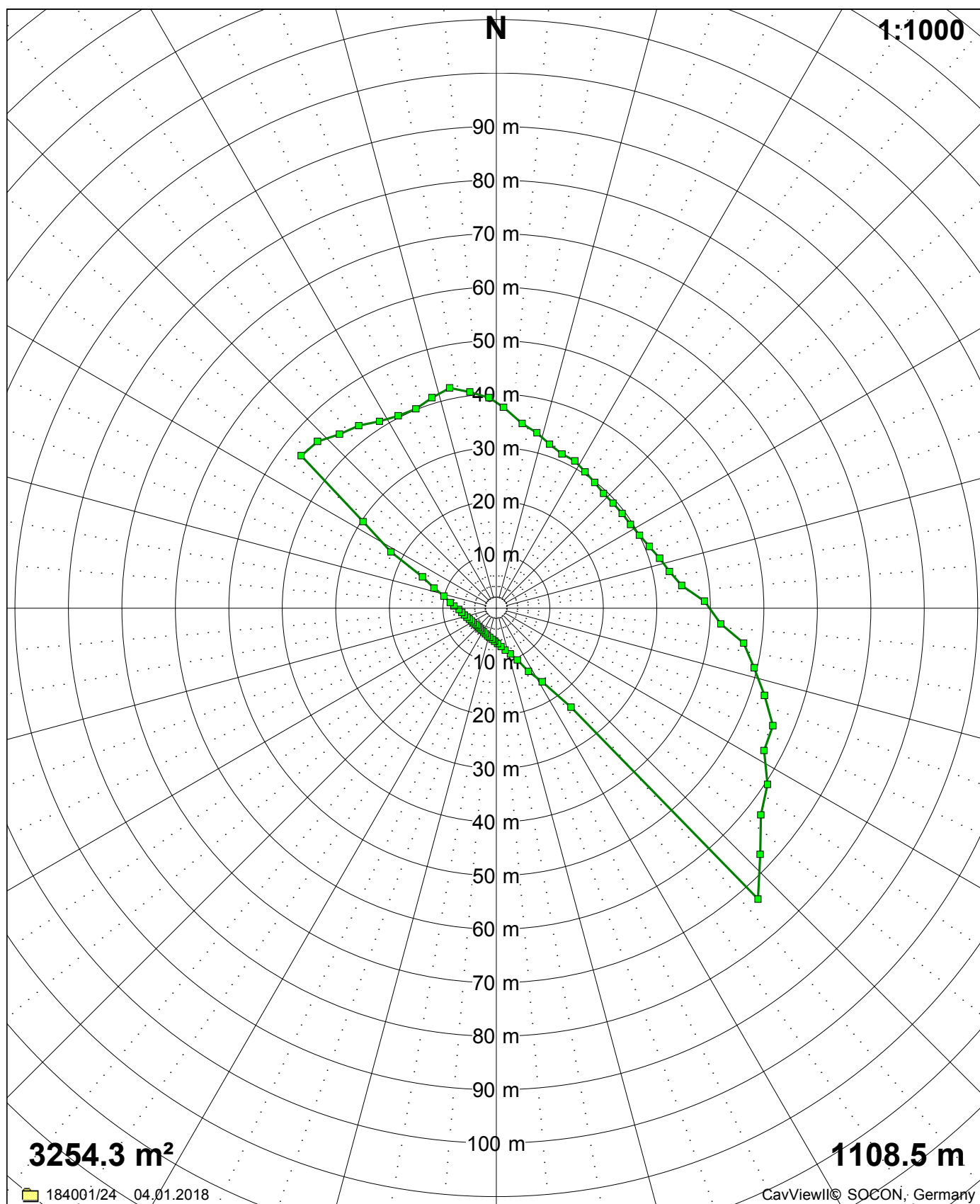


(04.01.2018) (3249.5 m<sup>2</sup>)

d<sub>max</sub>: 113.7 m 135° <--> 315° r<sub>min</sub>: 5.8 m -> 220° r<sub>~</sub>: 32.2 m r<sub>max</sub>: 69.2 m -> 135°

**Heiligerlee H**

**04.01.2018**

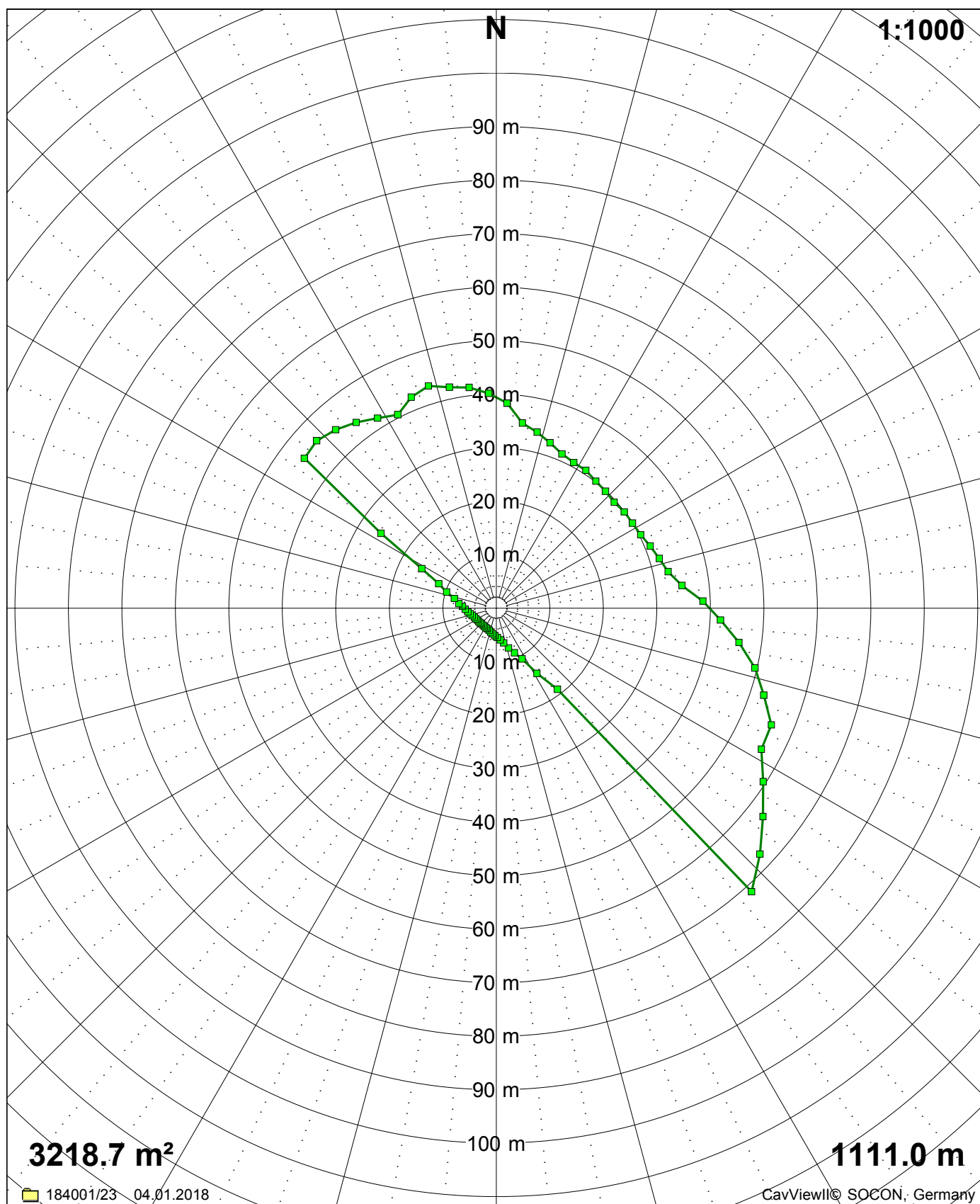


(04.01.2018) (3254.3 m<sup>2</sup>)

$d_{\max}$ : 116.9 m 138° <--> 318°  $r_{\min}$ : 4.8 m -> 221°  $r_{\sim}$ : 32.2 m  $r_{\max}$ : 73.1 m -> 138°

**Heiligerlee H**

**04.01.2018**

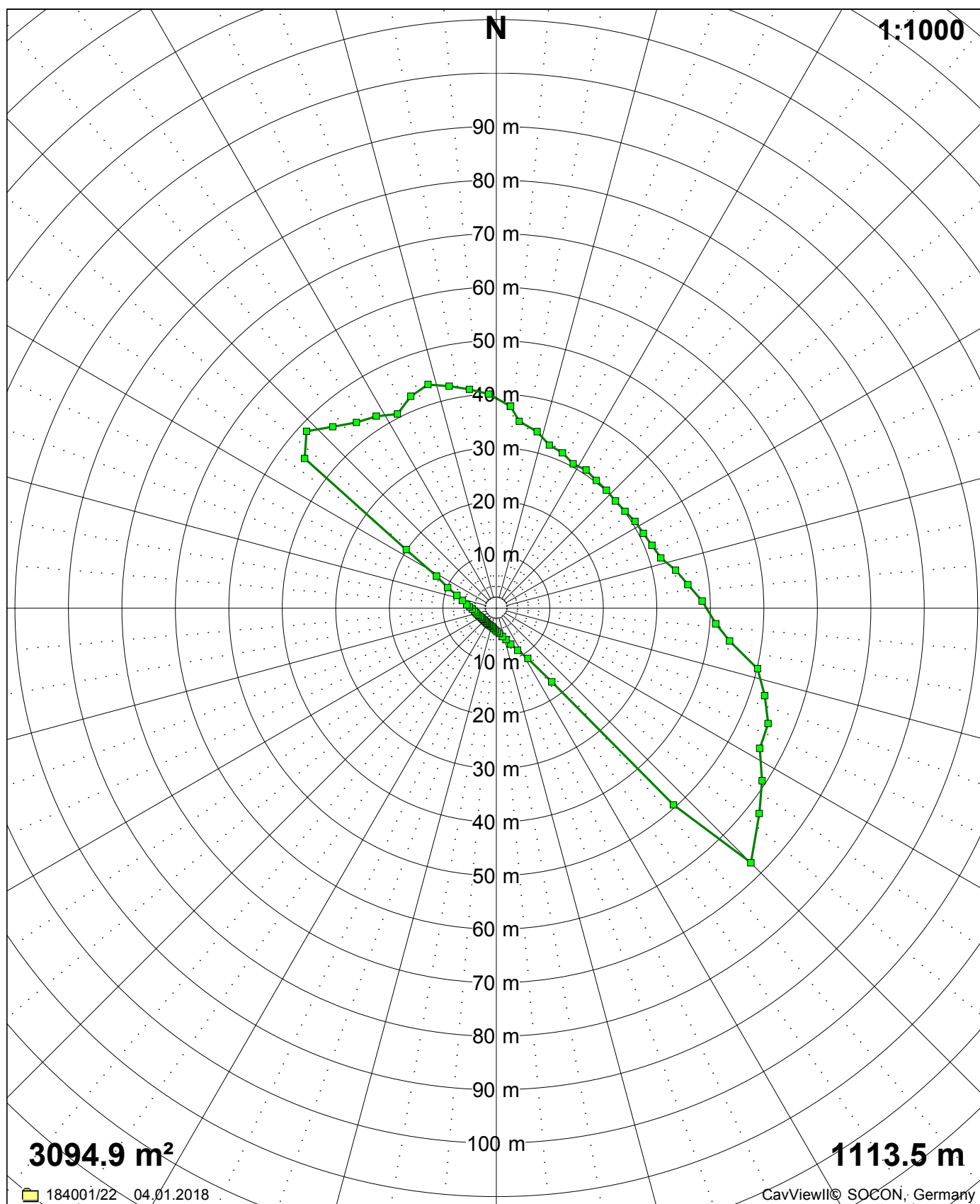


—■— (04.01.2018) (3218.7 m<sup>2</sup>)

d<sub>max</sub>: 116.2 m 138° <--> 318° r<sub>min</sub>: 4.0 m -> 217° r~: 32.0 m r<sub>max</sub>: 71.2 m -> 138°

**Heiligerlee H**

**04.01.2018**

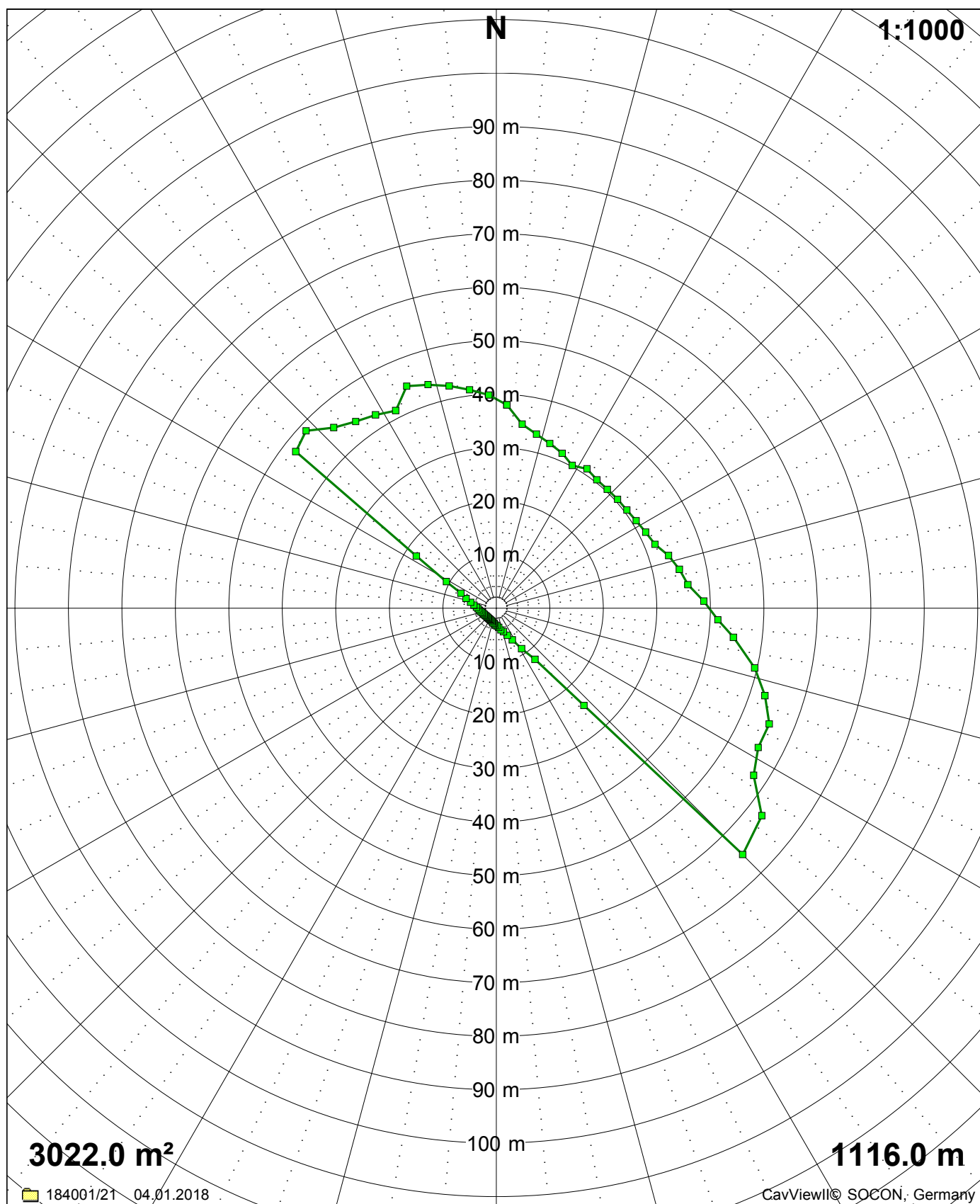


—■— (04.01.2018) (3094.9 m<sup>2</sup>)

d<sub>max</sub>: 114.5 m 135° <--> 315° r<sub>min</sub>: 3.2 m -> 221° r~: 31.4 m r<sub>max</sub>: 67.3 m -> 135°

**Heiligerlee H**

**04.01.2018**

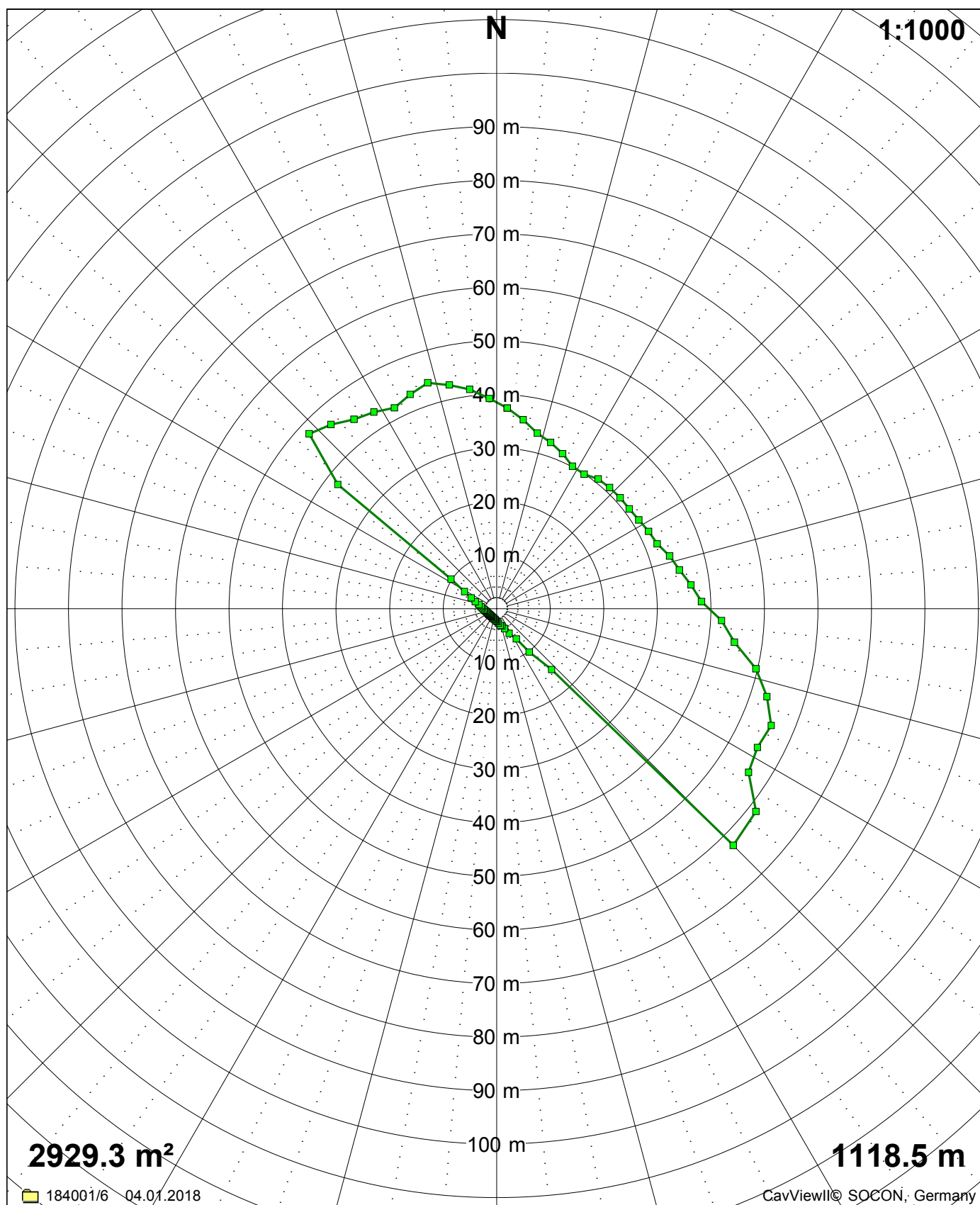


—■— (04.01.2018) (3022.0 m<sup>2</sup>)

d<sub>max</sub>: 113.0 m 133° <--> 313° r<sub>min</sub>: 2.4 m -> 220° r<sub>~</sub>: 31.0 m r<sub>max</sub>: 65.1 m -> 135°

**Heiligerlee H**

**04.01.2018**



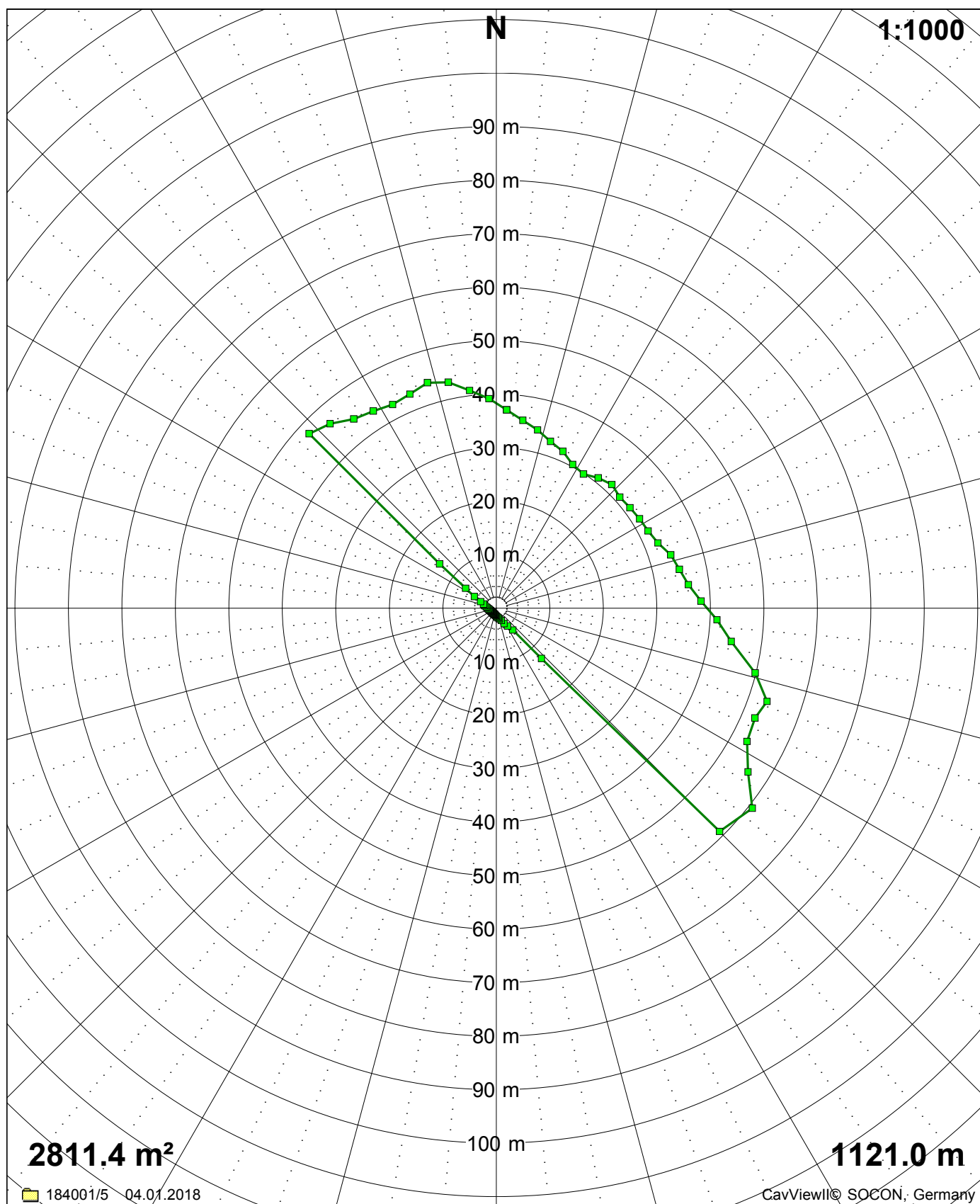
—■— (04.01.2018) (2929.3 m<sup>2</sup>)

d<sub>max</sub>: 110.0 m 133° <--> 313° r<sub>min</sub>: 1.7 m -> 218° r<sub>~</sub>: 30.5 m r<sub>max</sub>: 62.5 m -> 135°



**Heiligerlee H**

**04.01.2018**



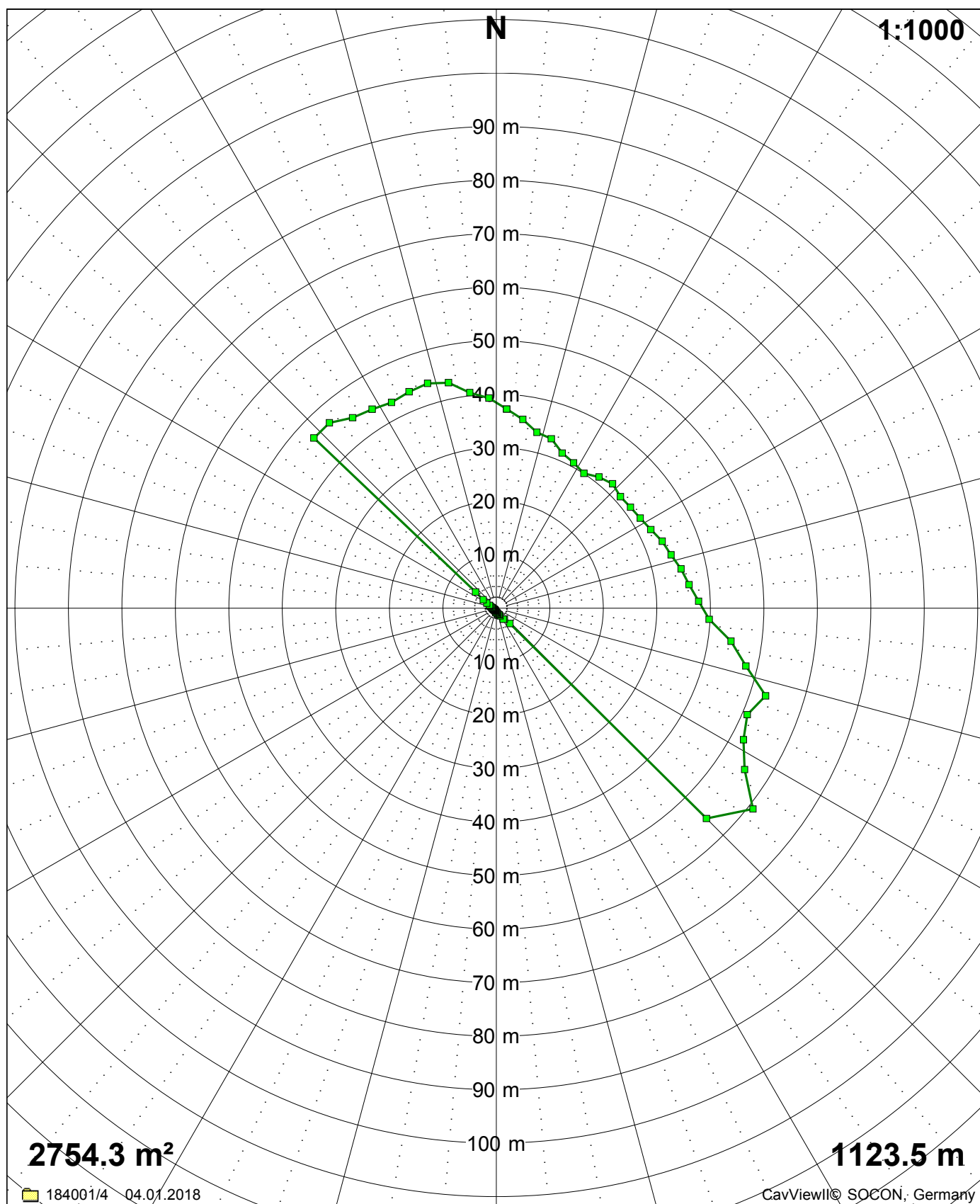
—■— (04.01.2018) (2811.4 m<sup>2</sup>)

d<sub>max</sub>: 107.2 m 133° <--> 313° r<sub>min</sub>: 1.1 m -> 221° r~: 29.9 m r<sub>max</sub>: 60.7 m -> 128°



**Heiligerlee H**

**04.01.2018**

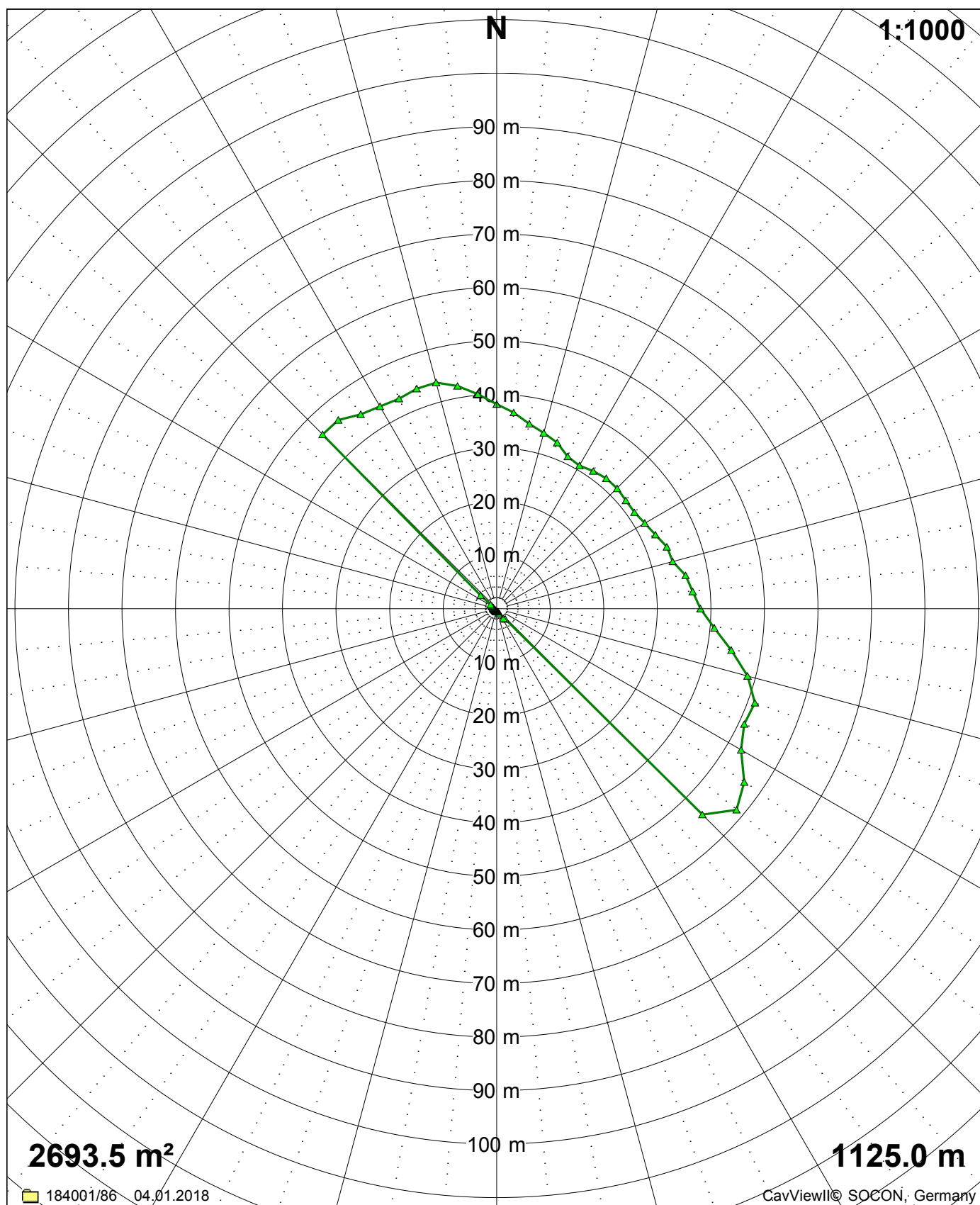


—■— (04.01.2018) (2754.3 m<sup>2</sup>)

d<sub>max</sub>: 103.5 m 133° <--> 313° r<sub>min</sub>: 0.5 m -> 203° r~: 29.6 m r<sub>max</sub>: 60.9 m -> 128°

**Heiligerlee H**

**04.01.2018**

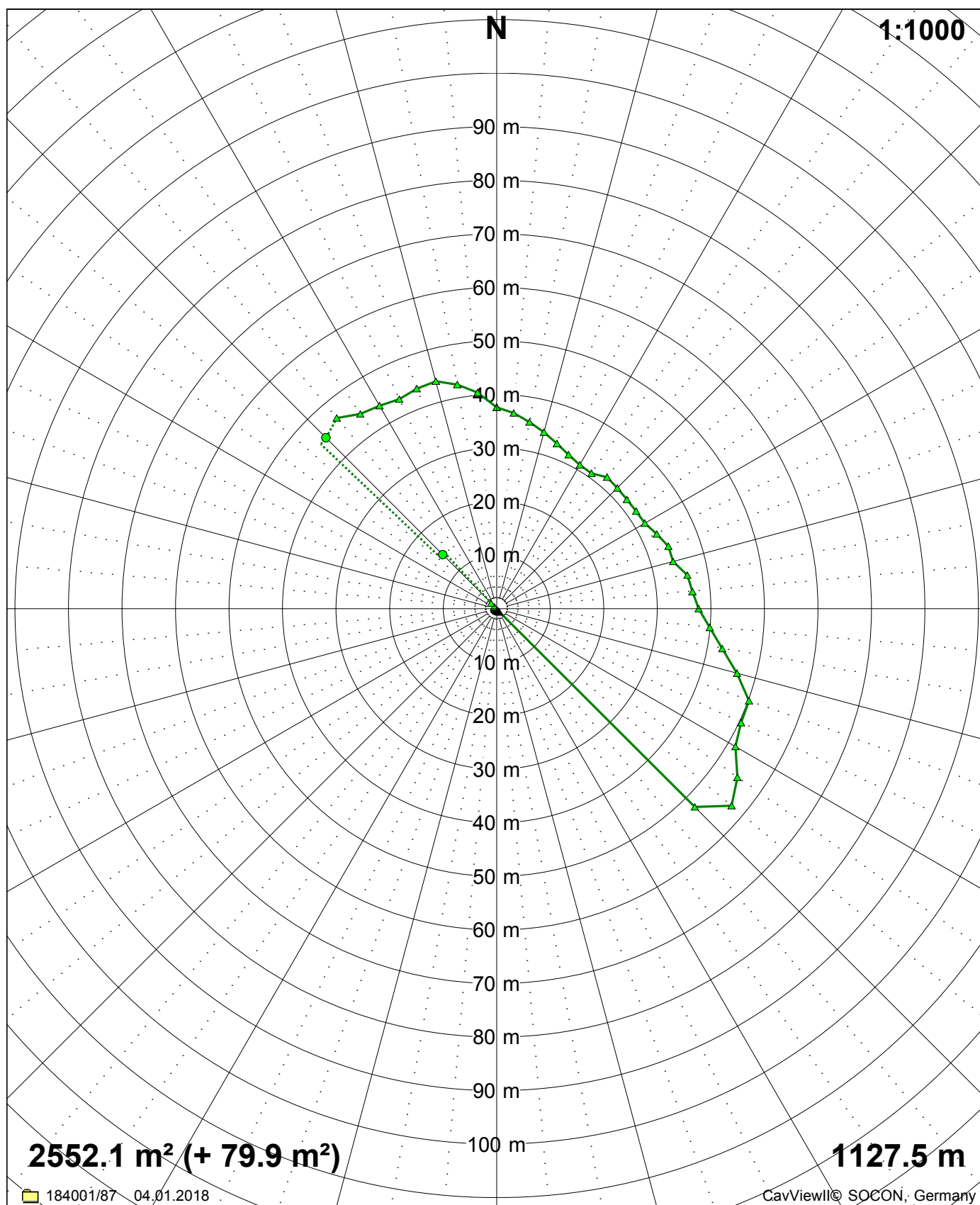


—▲— (04.01.2018) (2693.5 m<sup>2</sup>)

d<sub>max</sub>: 100.4 m 135° <--> 315° r<sub>min</sub>: 0.4 m -> 205° r~: 29.3 m r<sub>max</sub>: 58.4 m -> 130°

**Heiligerlee H**

**04.01.2018**



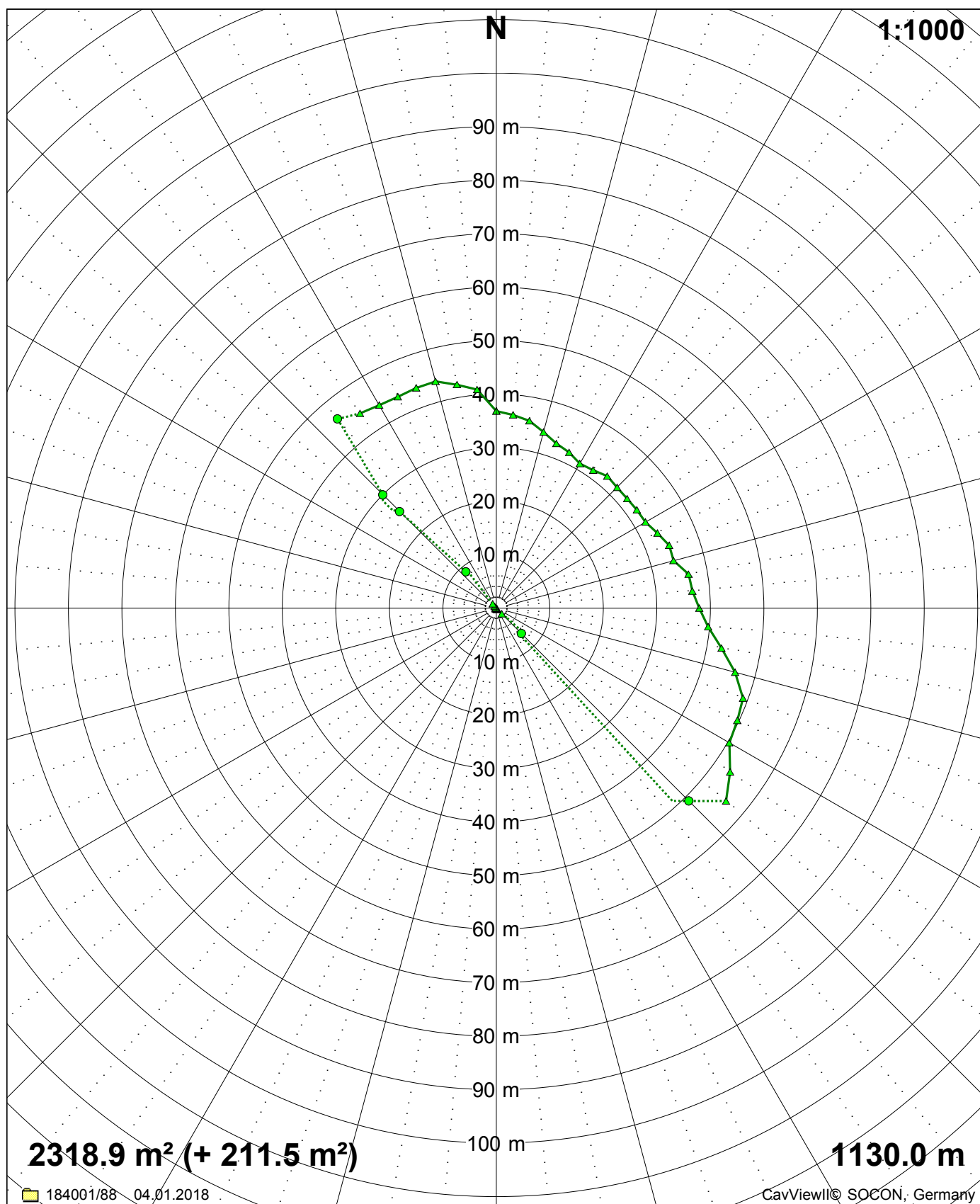
—▲— (04.01.2018) (2632.0 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

$d_{\max}$ : 97.4 m 135° <--> 315°  $r_{\min}$ : 0.2 m -> 202°  $r_{\sim}$ : 28.9 m  $r_{\max}$ : 57.2 m -> 130°

**Heiligerlee H**

**04.01.2018**



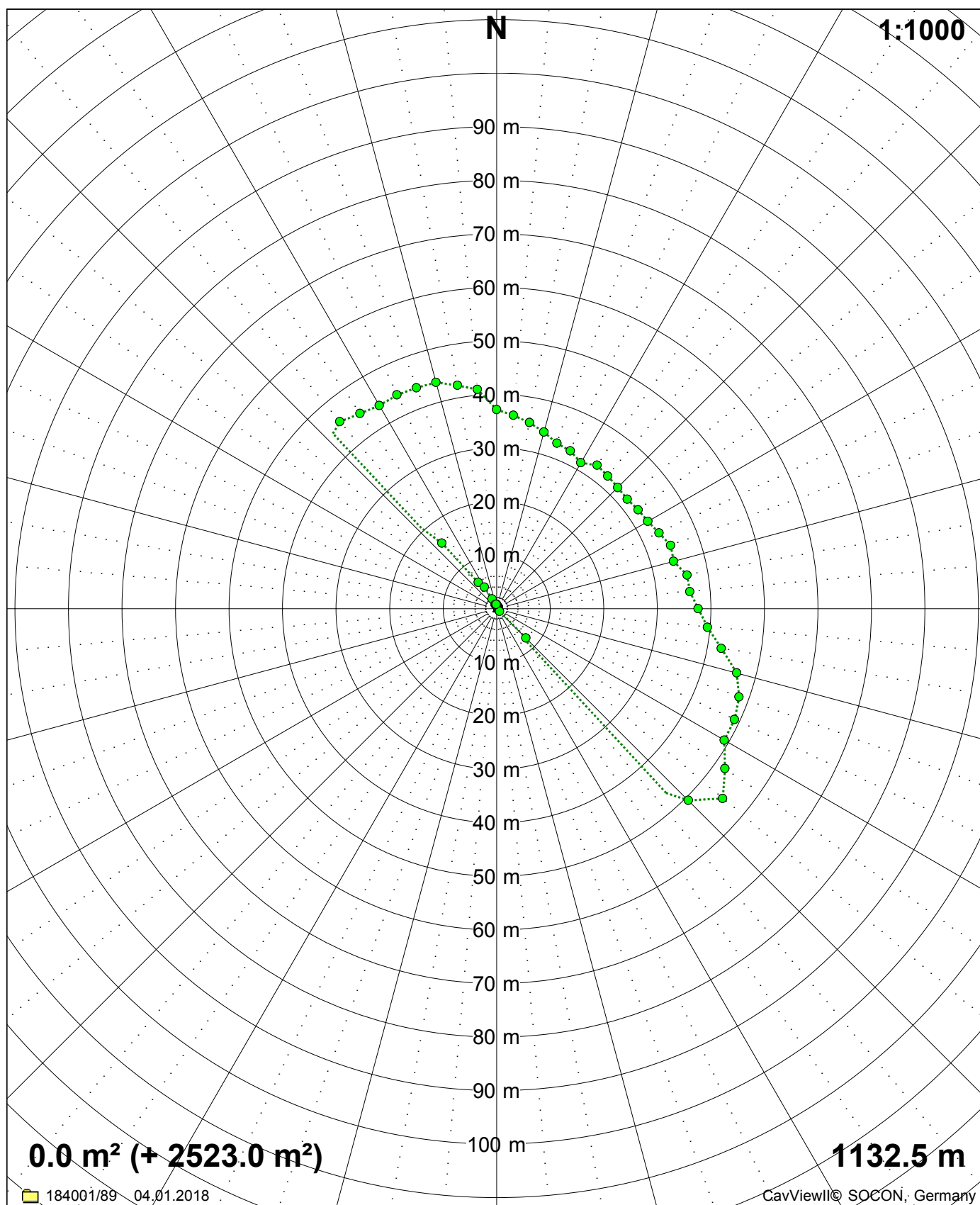
—▲— (04.01.2018) (2530.5 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

$d_{\max}$ : 80.9 m 135° <--> 315°  $r_{\min}$ : 0.1 m -> 200°  $r_{\sim}$ : 28.4 m  $r_{\max}$ : 56.0 m -> 130°

**Heiligerlee H**

**04.01.2018**



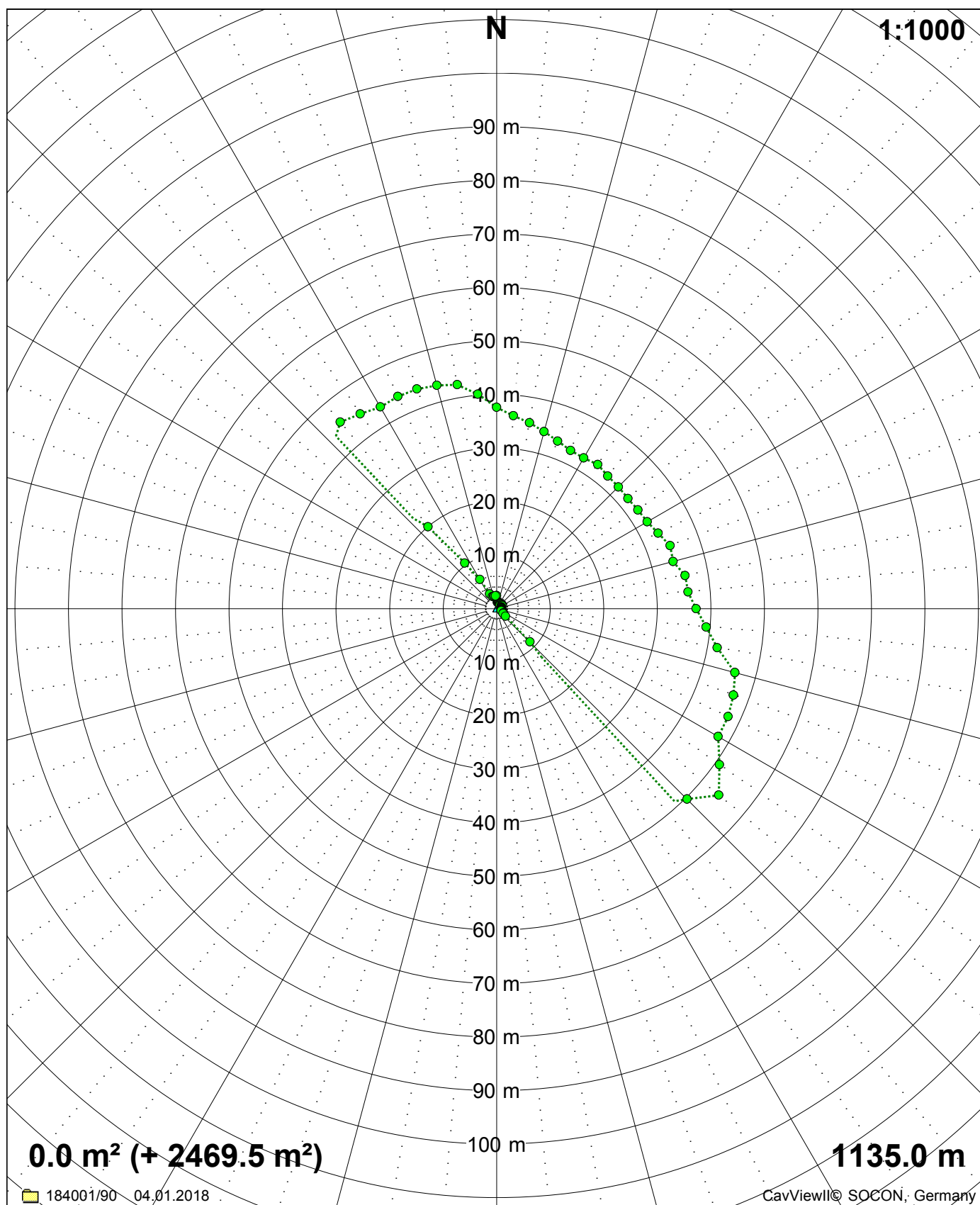
—▲— (04.01.2018) (2523.0 m²)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 55.1 m 130° <--> 310° r<sub>min</sub>: 0.0 m -> 0° r~: 28.3 m r<sub>max</sub>: 55.1 m -> 130°

**Heiligerlee H**

**04.01.2018**



—▲— (04.01.2018) (2469.5 m²)

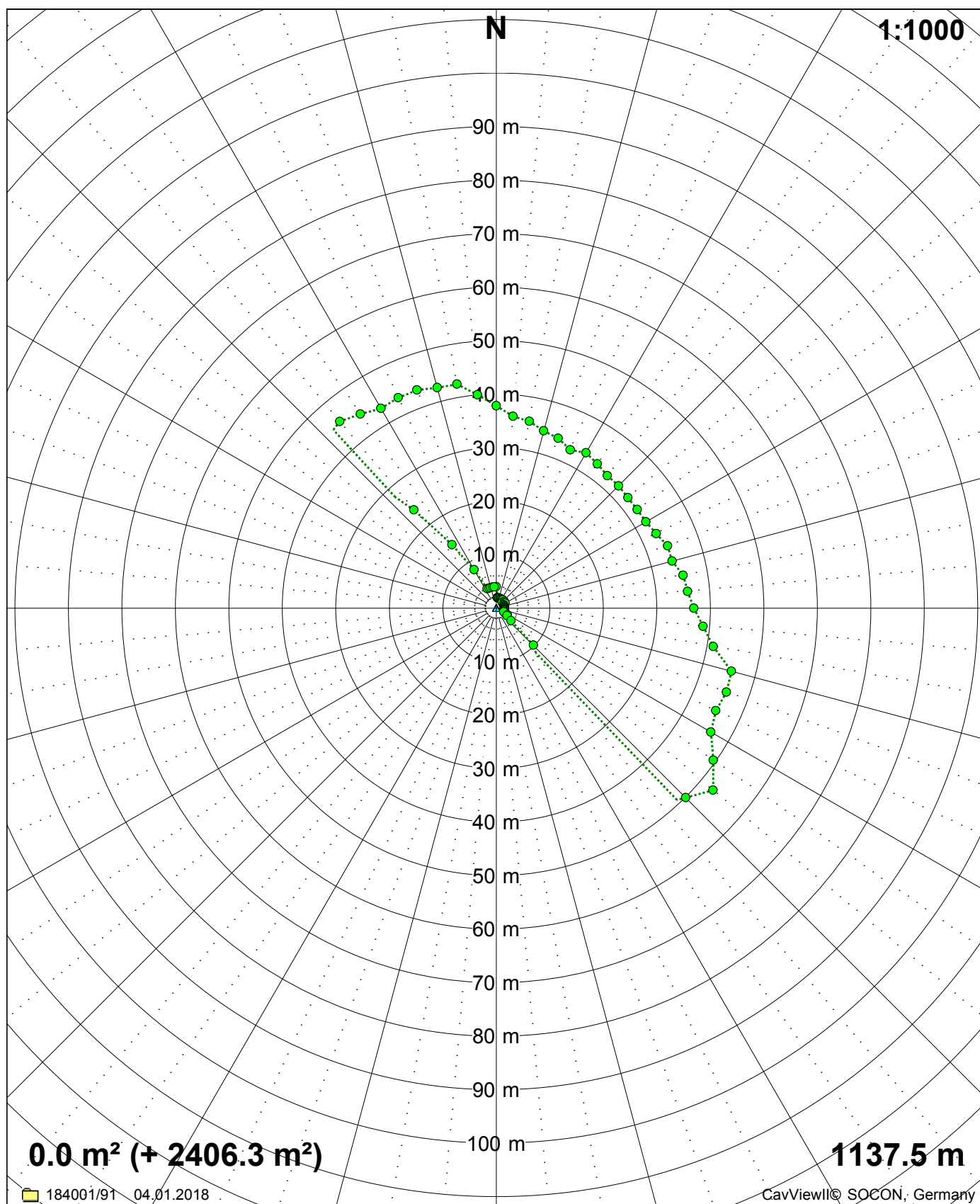
—●— Leached pocket (04.01.2018)

$d_{\max}$ : 54.1 m 130° <--> 310°  $r_{\min}$ : 0.0 m -> 0°  $r_{\sim}$ : 28.0 m  $r_{\max}$ : 54.1 m -> 130°



**Heiligerlee H**

**04.01.2018**



—▲— (04.01.2018) (2406.3 m<sup>2</sup>)

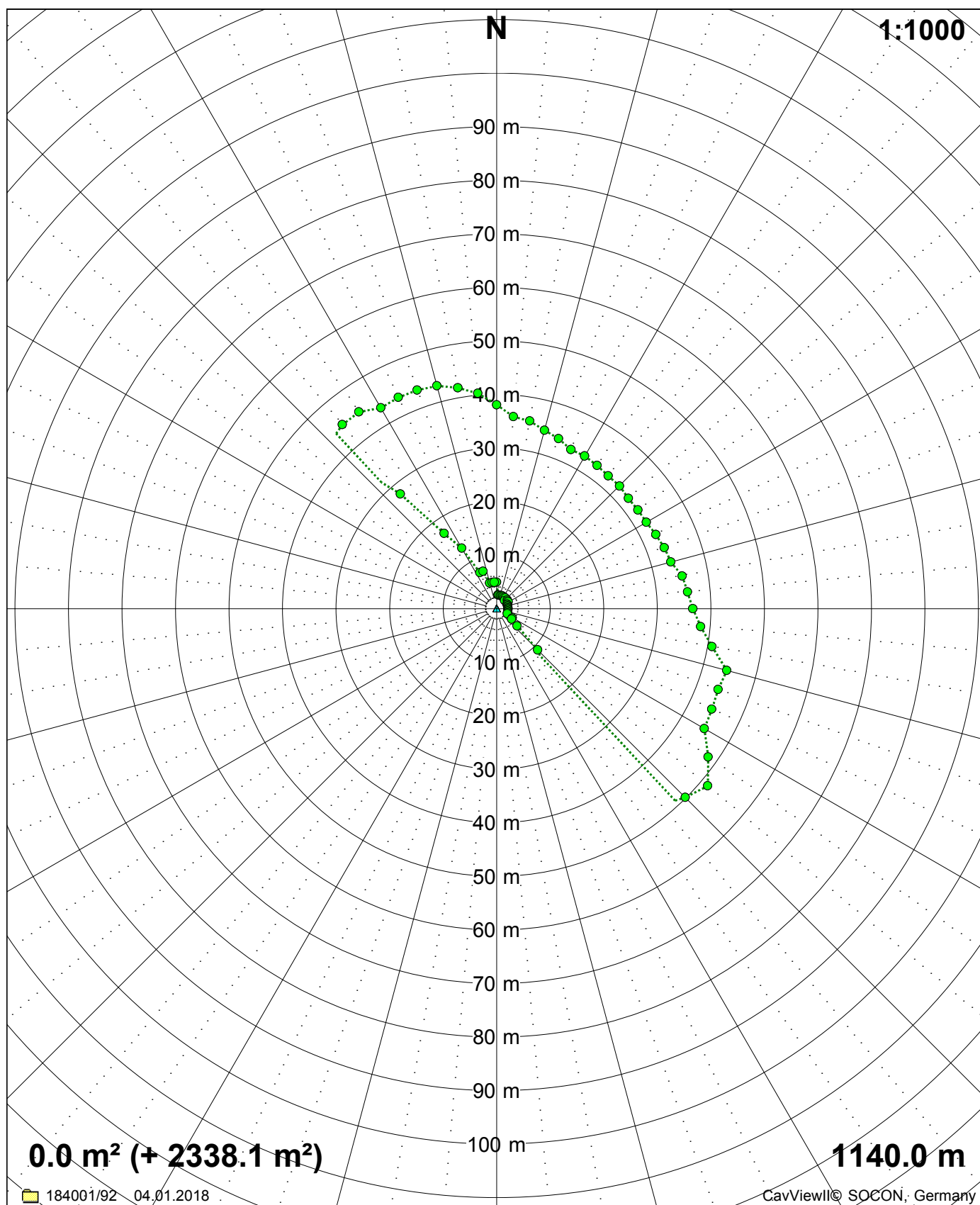
—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 52.9 m 130° <--> 310° r<sub>min</sub>: 0.0 m -> 0° r~: 27.7 m r<sub>max</sub>: 52.9 m -> 130°



**Heiligerlee H**

**04.01.2018**



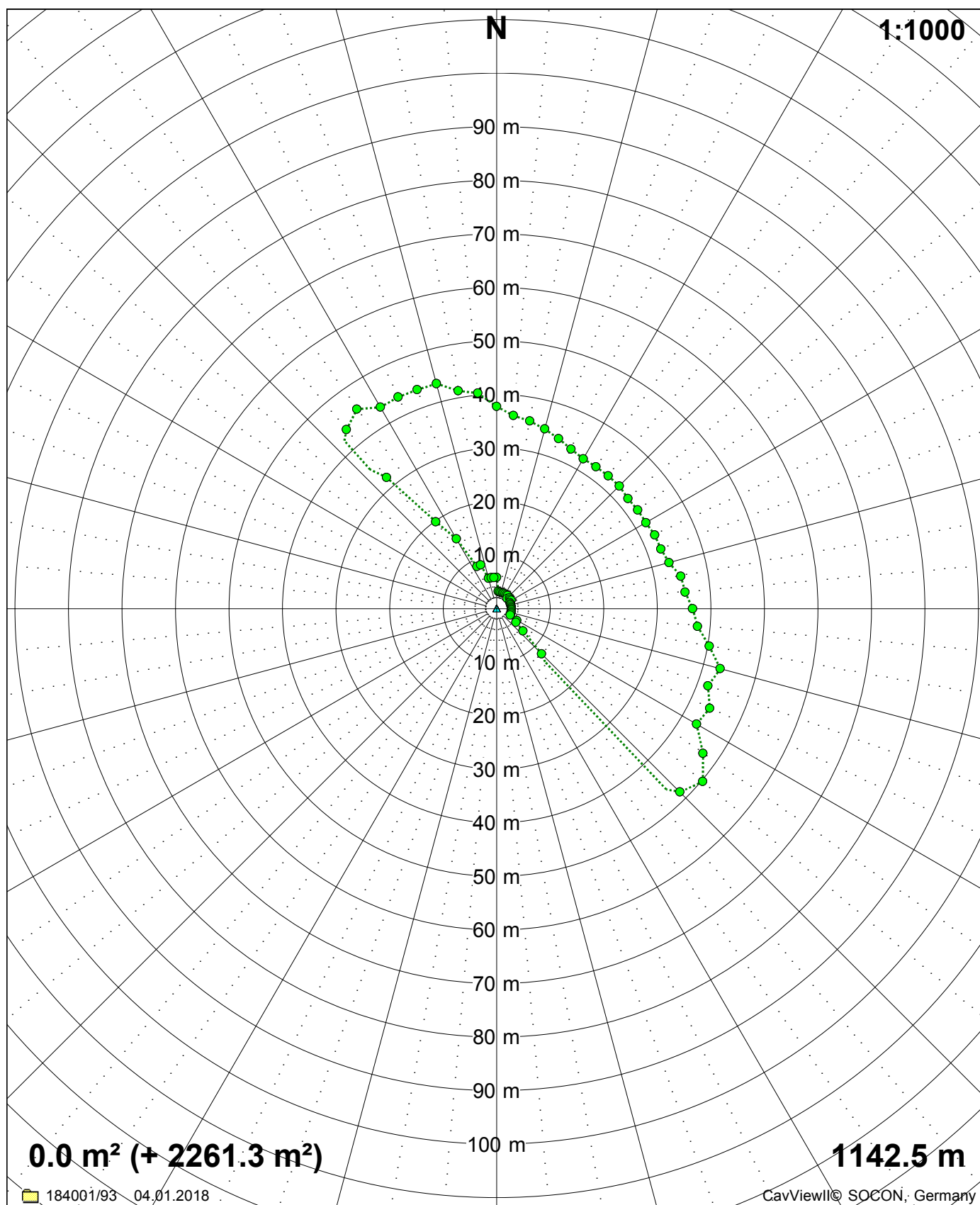
—▲— (04.01.2018) (2338.1 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 51.5 m 130° <--> 310° r<sub>min</sub>: 0.0 m -> 0° r~: 27.3 m r<sub>max</sub>: 51.5 m -> 130°

**Heiligerlee H**

**04.01.2018**



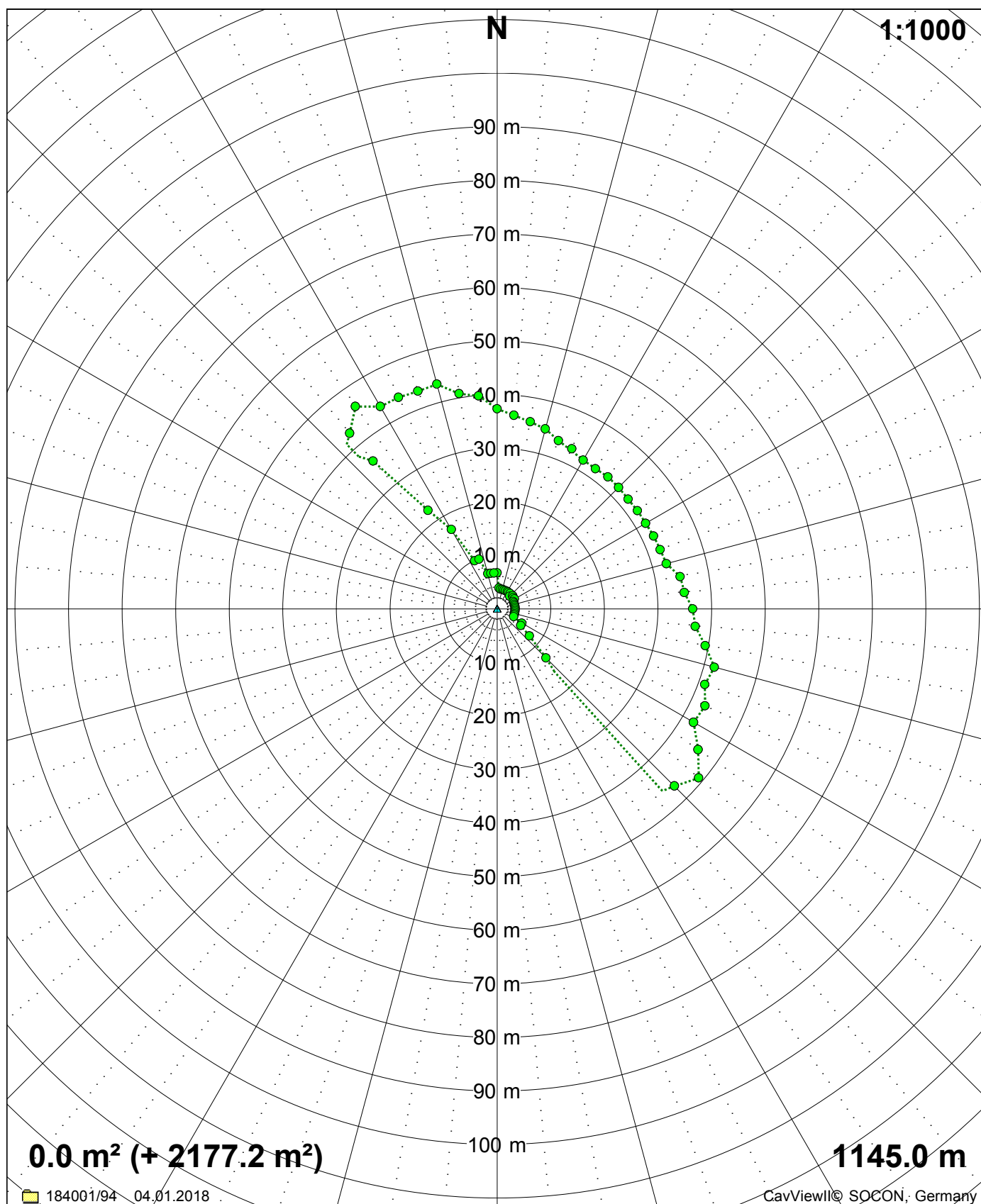
—▲— (04.01.2018) (2261.3 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 50.2 m 130° <--> 310° r<sub>min</sub>: 0.0 m -> 0° r~: 26.8 m r<sub>max</sub>: 50.2 m -> 130°

**Heiligerlee H**

**04.01.2018**



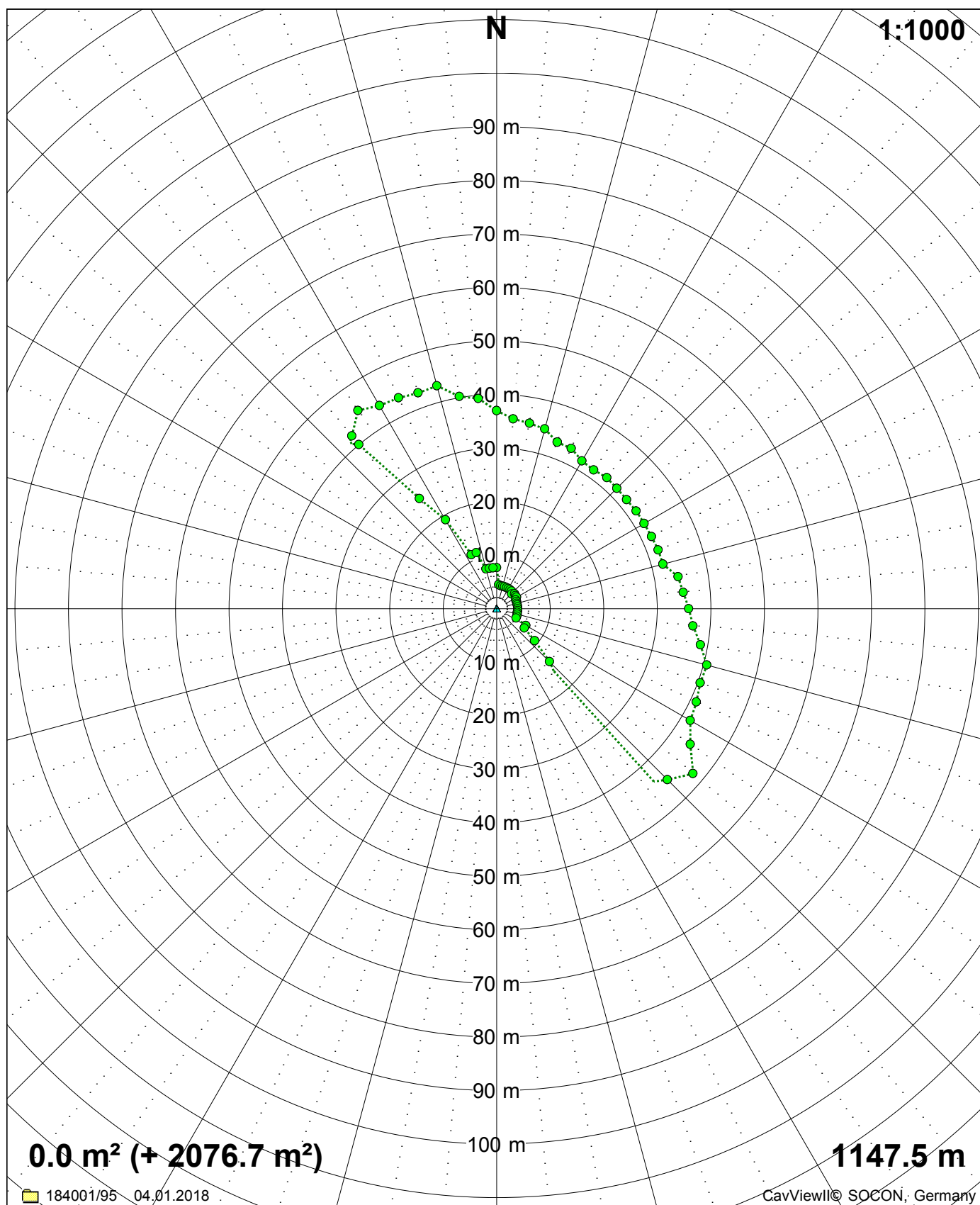
—▲— (04.01.2018) (2177.2 m²)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 49.1 m 130° <--> 310° r<sub>min</sub>: 0.0 m -> 0° r~: 26.3 m r<sub>max</sub>: 49.1 m -> 130°

**Heiligerlee H**

**04.01.2018**



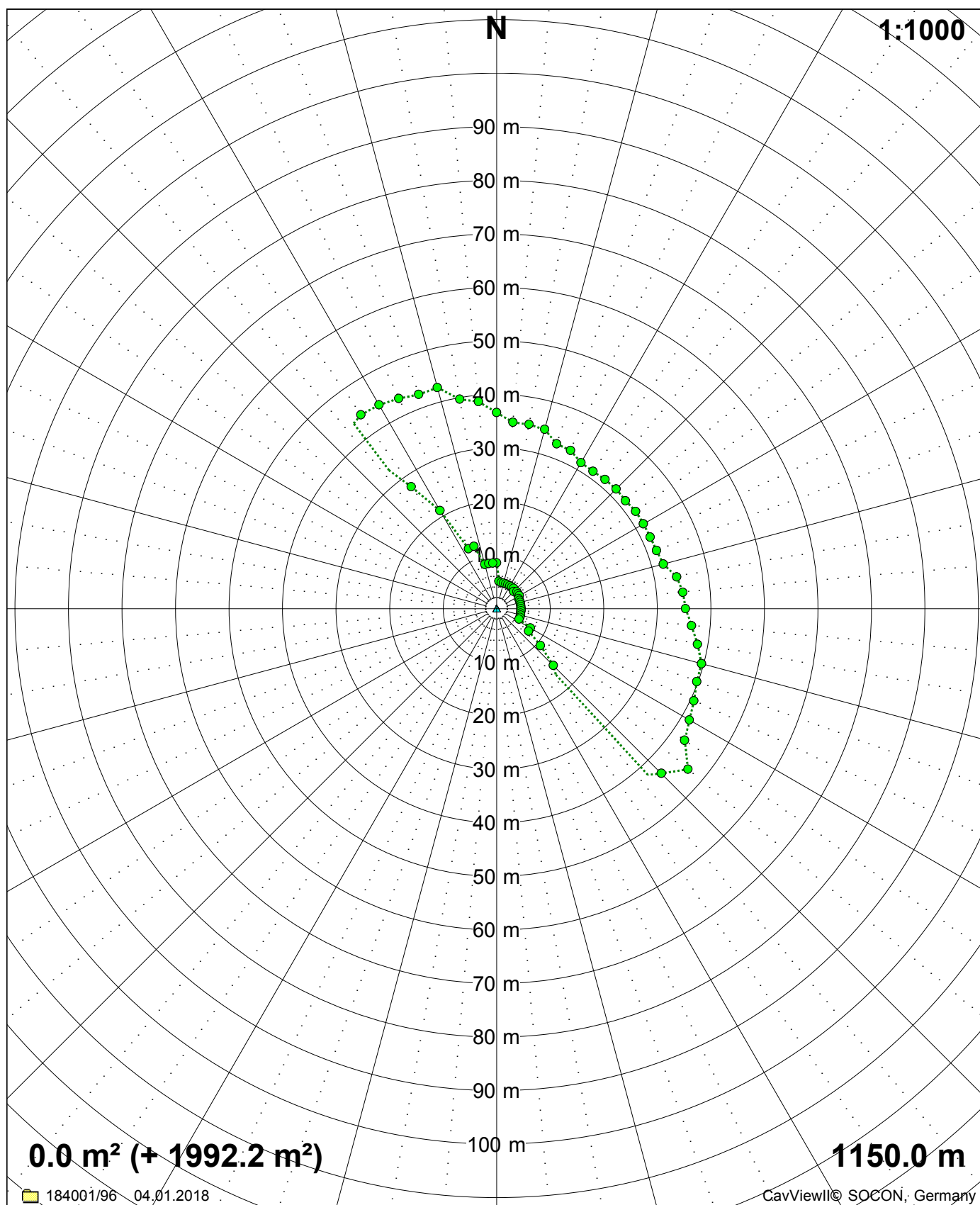
—▲— (04.01.2018) (2076.7 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 47.9 m 130° <--> 310° r<sub>min</sub>: 0.0 m -> 0° r~: 25.7 m r<sub>max</sub>: 47.9 m -> 130°

**Heiligerlee H**

**04.01.2018**



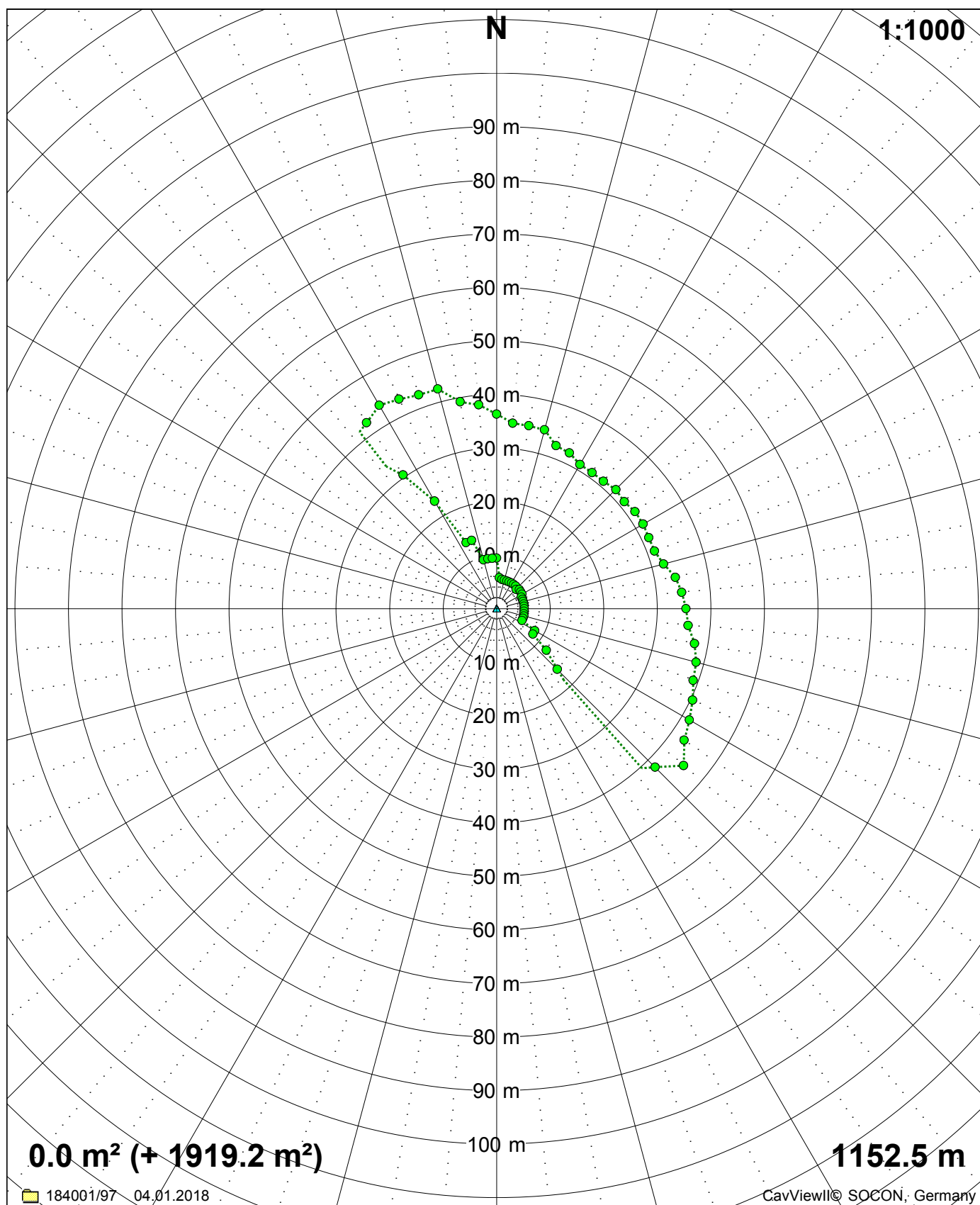
—▲— (04.01.2018) (1992.2 m²)

—●— Leached pocket (04.01.2018)

$d_{\max}$ : 46.6 m 130° <--> 310°  $r_{\min}$ : 0.0 m -> 0°  $r_{\sim}$ : 25.2 m  $r_{\max}$ : 46.6 m -> 130°

**Heiligerlee H**

**04.01.2018**



—▲— (04.01.2018) (1919.2 m<sup>2</sup>)

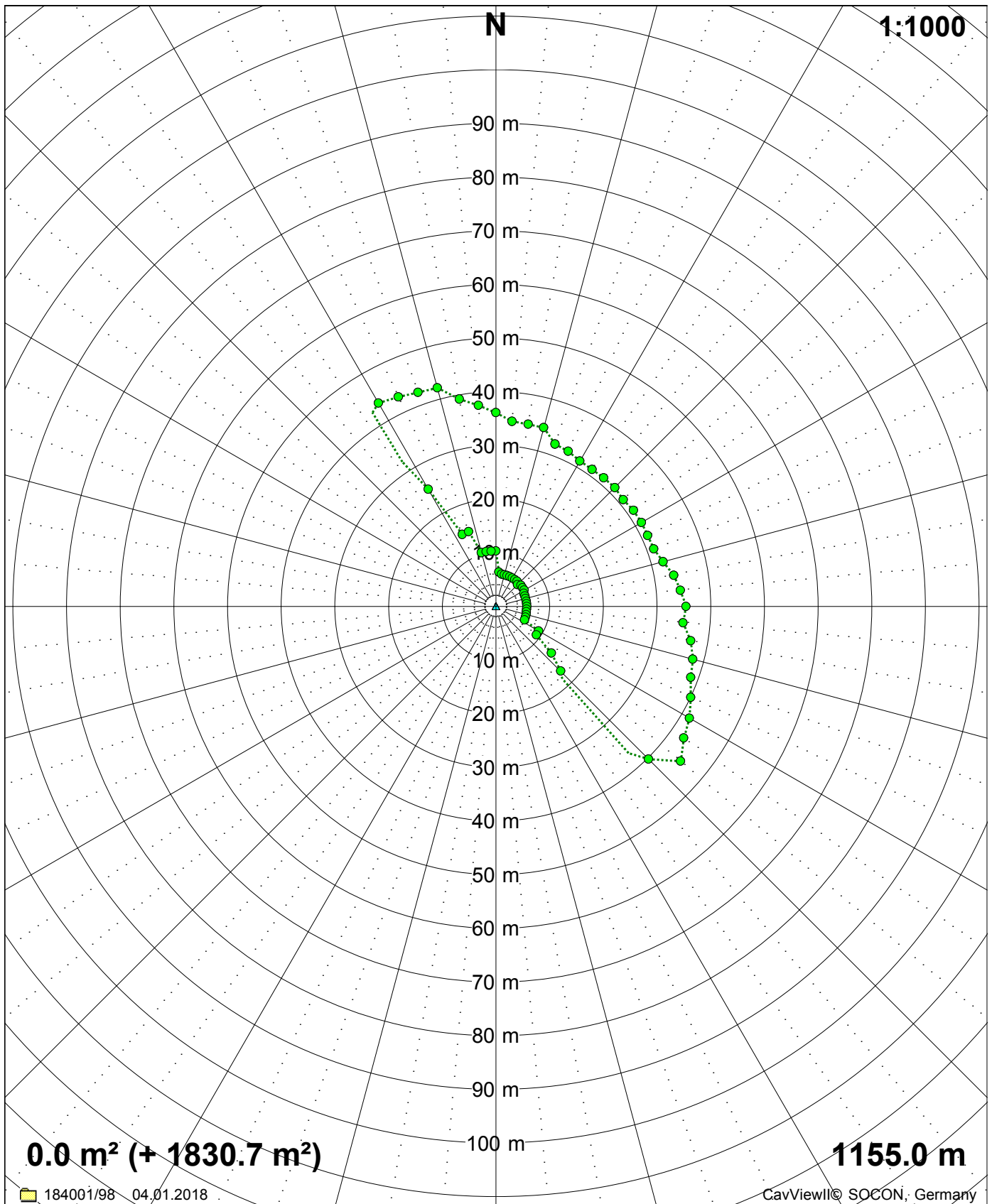
—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 45.6 m 130° <--> 310° r<sub>min</sub>: 0.0 m -> 0° r~: 24.7 m r<sub>max</sub>: 45.6 m -> 130°



**Heiligerlee H**

**04.01.2018**



—▲— (04.01.2018) (1830.7 m²)

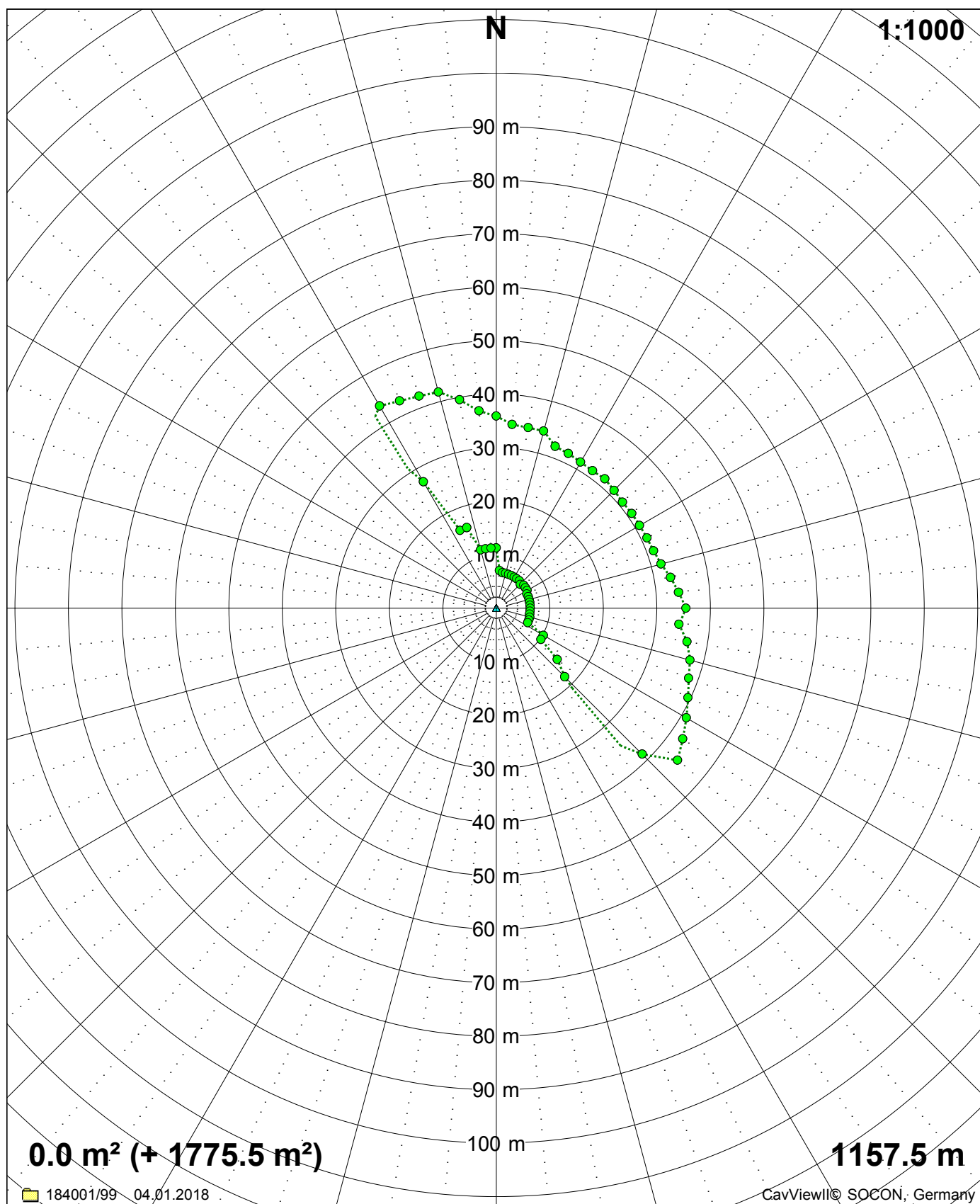
—●— Leached pocket (04.01.2018)

$d_{\max}$ : 44.9 m 130° <--> 310°  $r_{\min}$ : 0.0 m -> 0°  $r_{\sim}$ : 24.1 m  $r_{\max}$ : 44.9 m -> 130°



**Heiligerlee H**

**04.01.2018**



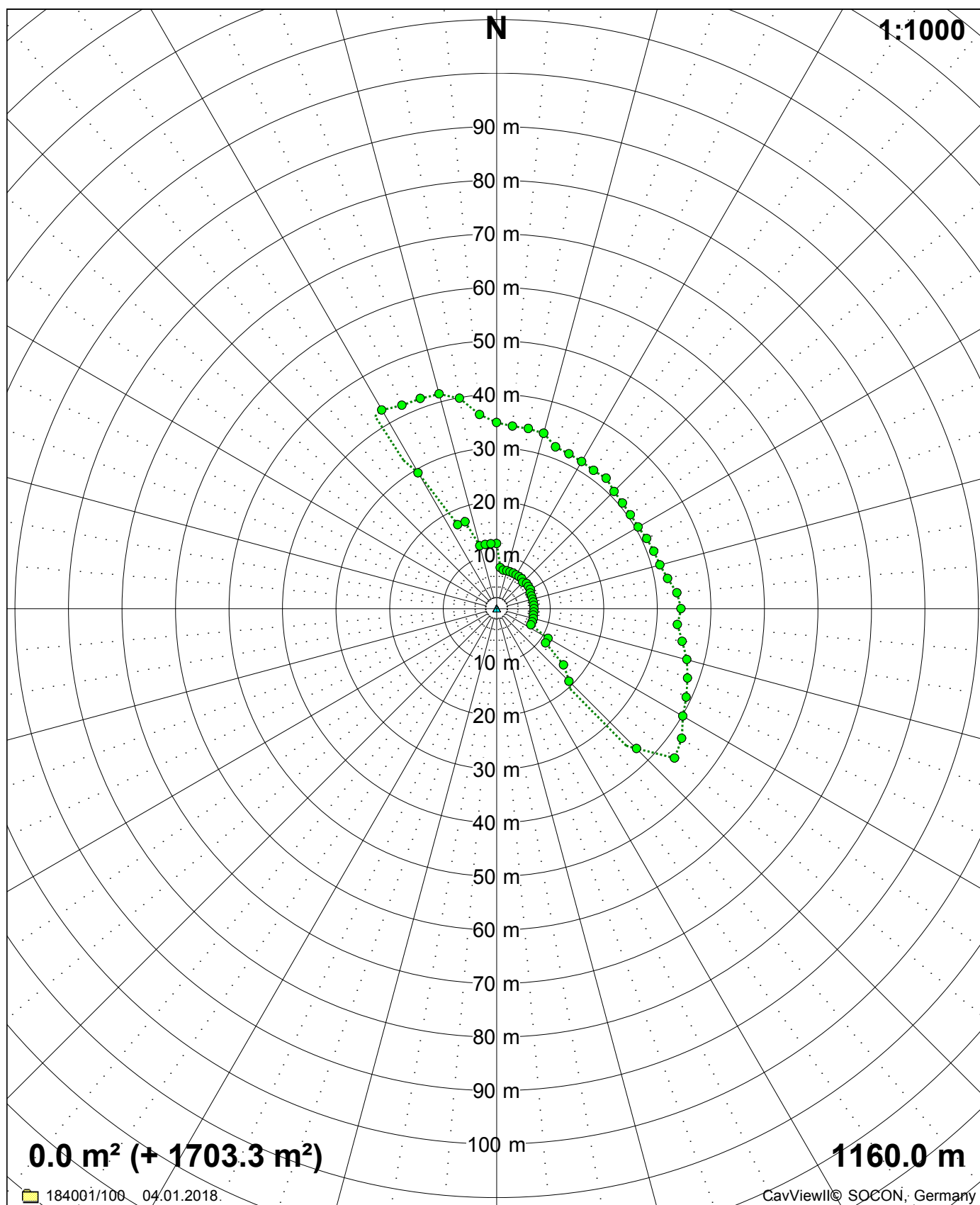
—▲— (04.01.2018) (1775.5 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 44.2 m 130° <--> 310° r<sub>min</sub>: 0.0 m -> 0° r~: 23.8 m r<sub>max</sub>: 44.2 m -> 130°

**Heiligerlee H**

**04.01.2018**



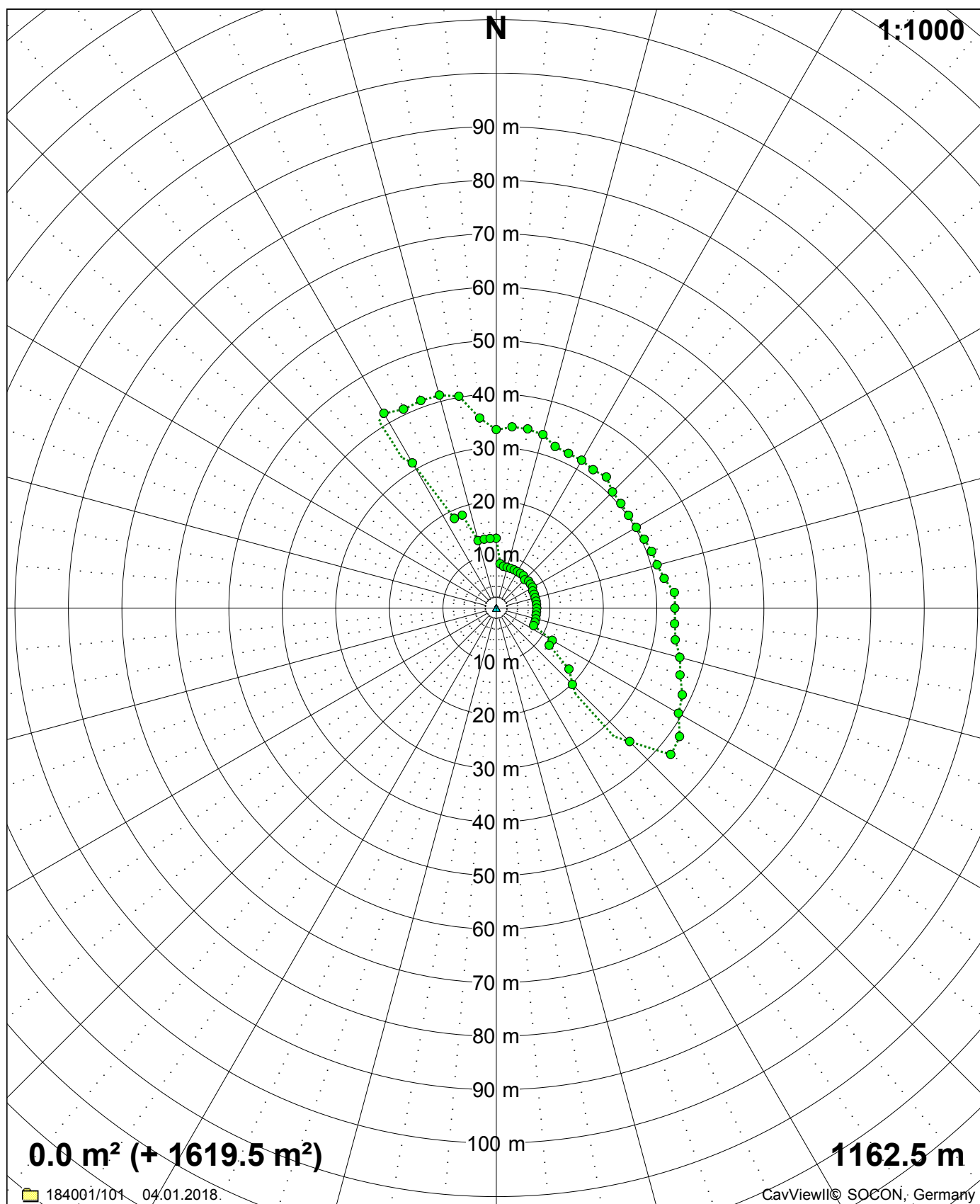
—▲— (04.01.2018) (1703.3 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 43.4 m 130° <--> 310° r<sub>min</sub>: 0.0 m -> 0° r~: 23.3 m r<sub>max</sub>: 43.4 m -> 130°

**Heiligerlee H**

**04.01.2018**



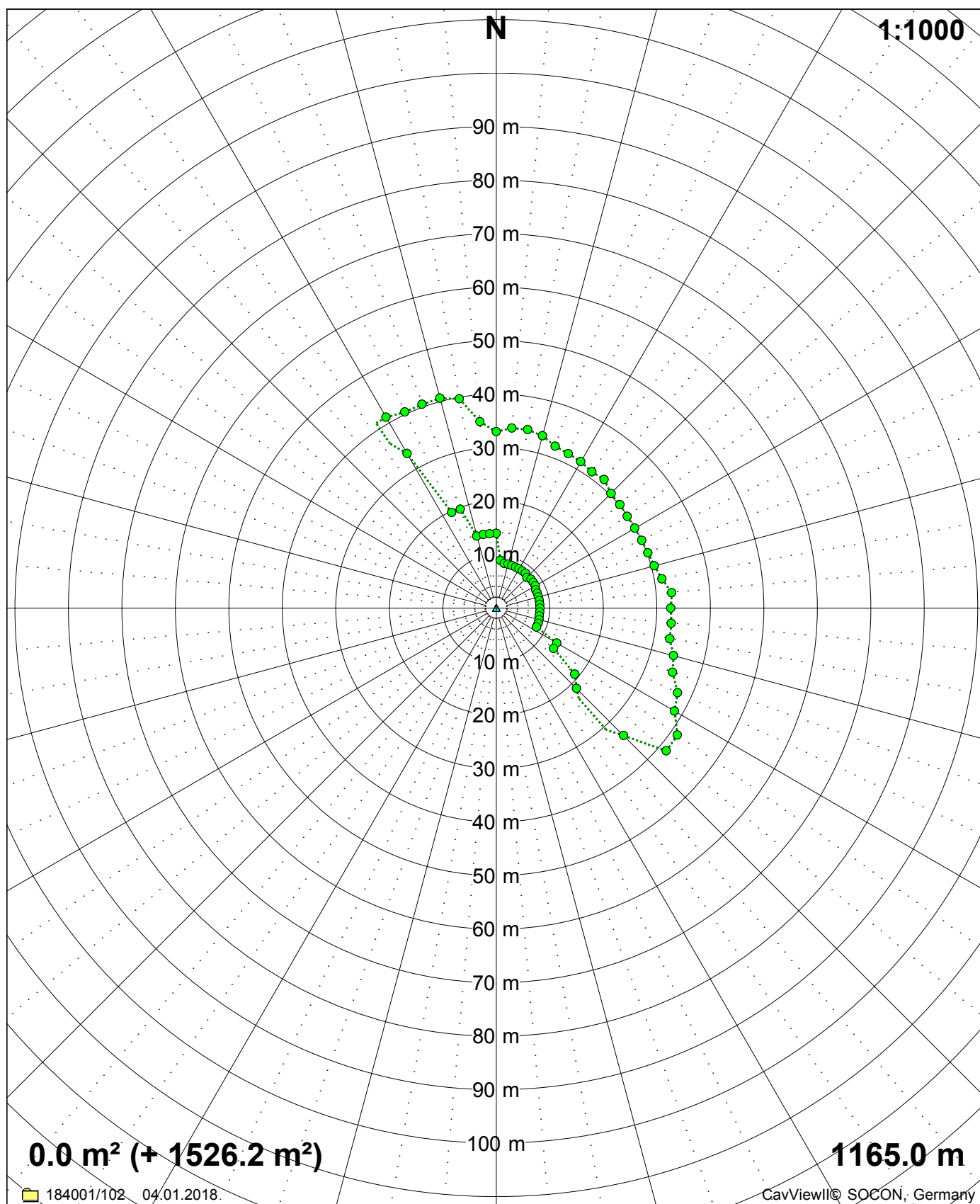
—▲— (04.01.2018) (1619.5 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 42.5 m 130° <--> 310° r<sub>min</sub>: 0.0 m -> 0° r~: 22.7 m r<sub>max</sub>: 42.5 m -> 130°

**Heiligerlee H**

**04.01.2018**



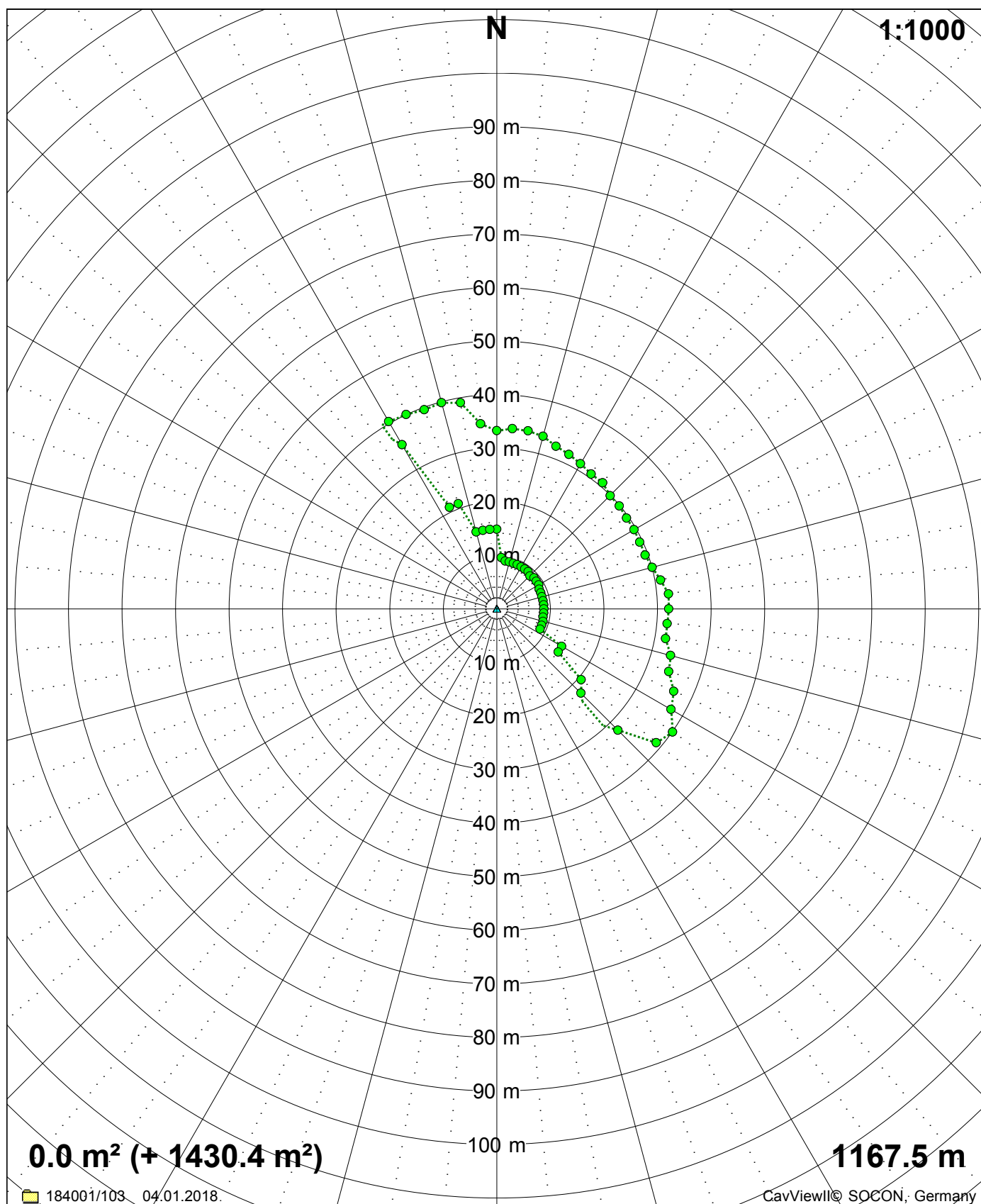
—▲— (04.01.2018) (1526.2 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 41.5 m 130° <--> 310° r<sub>min</sub>: 0.0 m -> 0° r~: 22.0 m r<sub>max</sub>: 41.5 m -> 130°

**Heiligerlee H**

**04.01.2018**



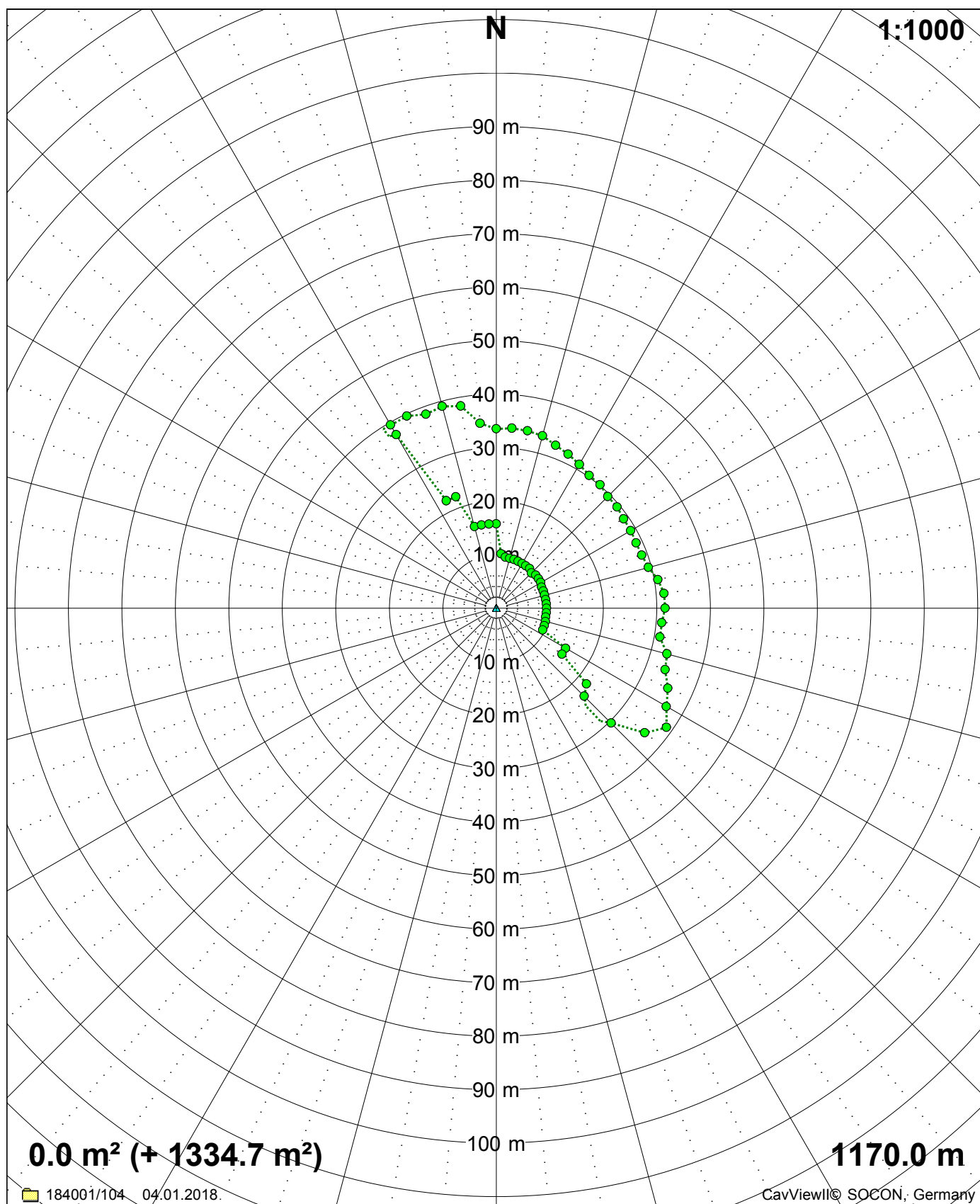
—▲— (04.01.2018) (1430.4 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 40.4 m 150° <--> 330° r<sub>min</sub>: 0.0 m -> 0° r~: 21.3 m r<sub>max</sub>: 40.4 m -> 330°

**Heiligerlee H**

**04.01.2018**



—▲— (04.01.2018) (1334.7 m<sup>2</sup>)

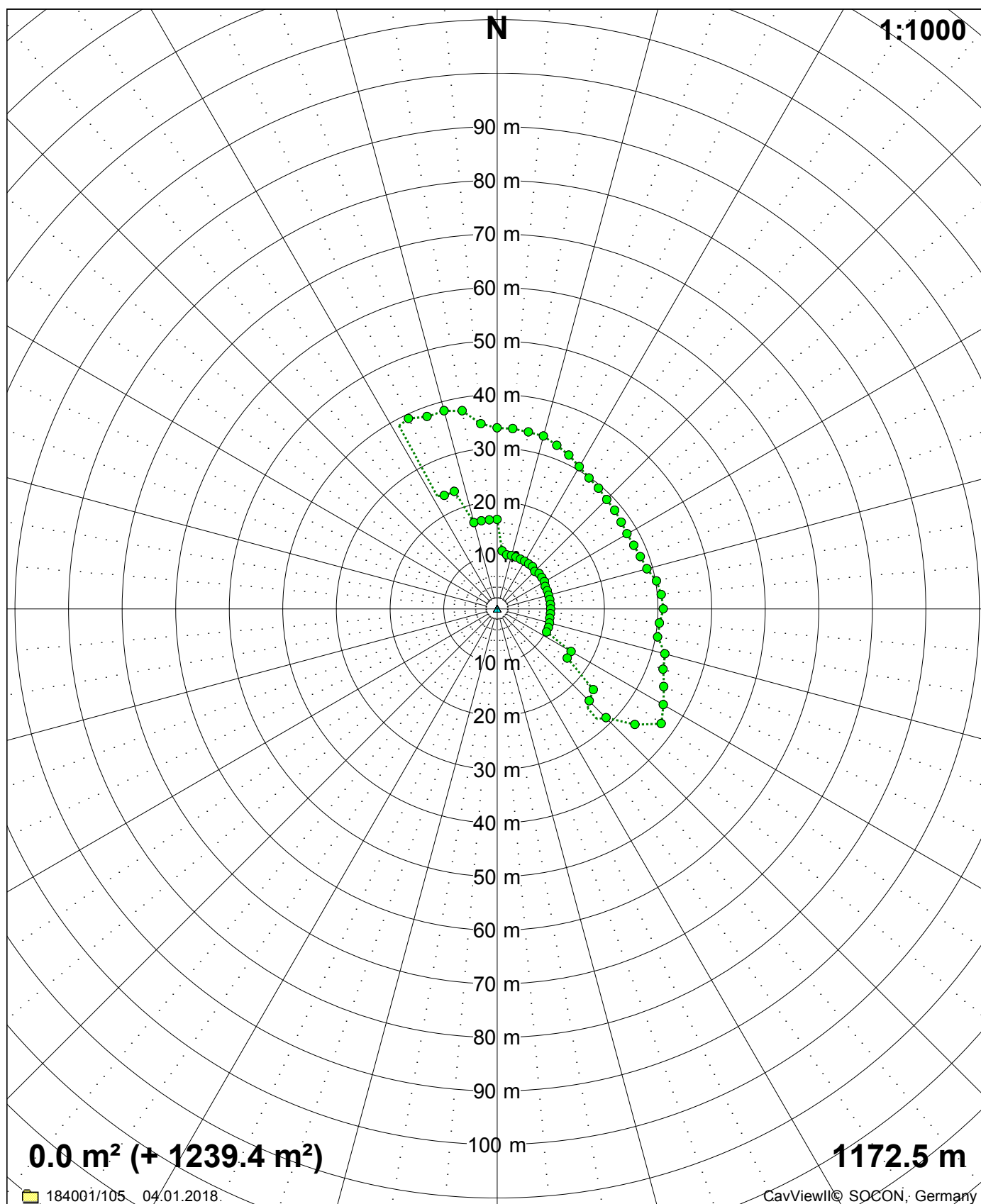
—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 39.6 m 155° <--> 335° r<sub>min</sub>: 0.0 m -> 0° r~: 20.6 m r<sub>max</sub>: 39.6 m -> 335°



**Heiligerlee H**

**04.01.2018**



—▲— (04.01.2018) (1239.4 m²)

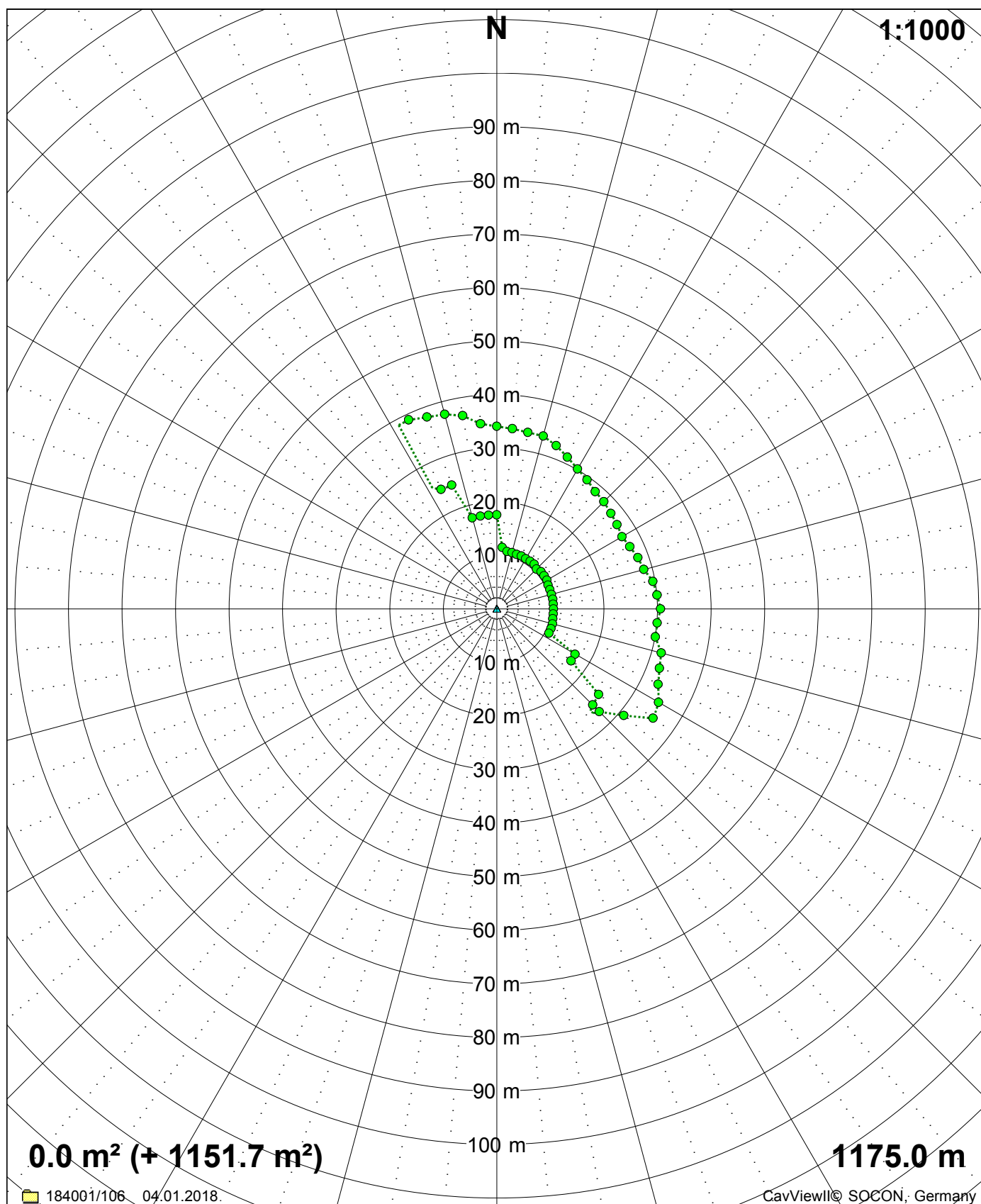
—●— Leached pocket (04.01.2018)

$d_{\max}$ : 39.2 m 155° <--> 335°  $r_{\min}$ : 0.0 m -> 0°  $r_{\sim}$ : 19.9 m  $r_{\max}$ : 39.2 m -> 335°



**Heiligerlee H**

**04.01.2018**



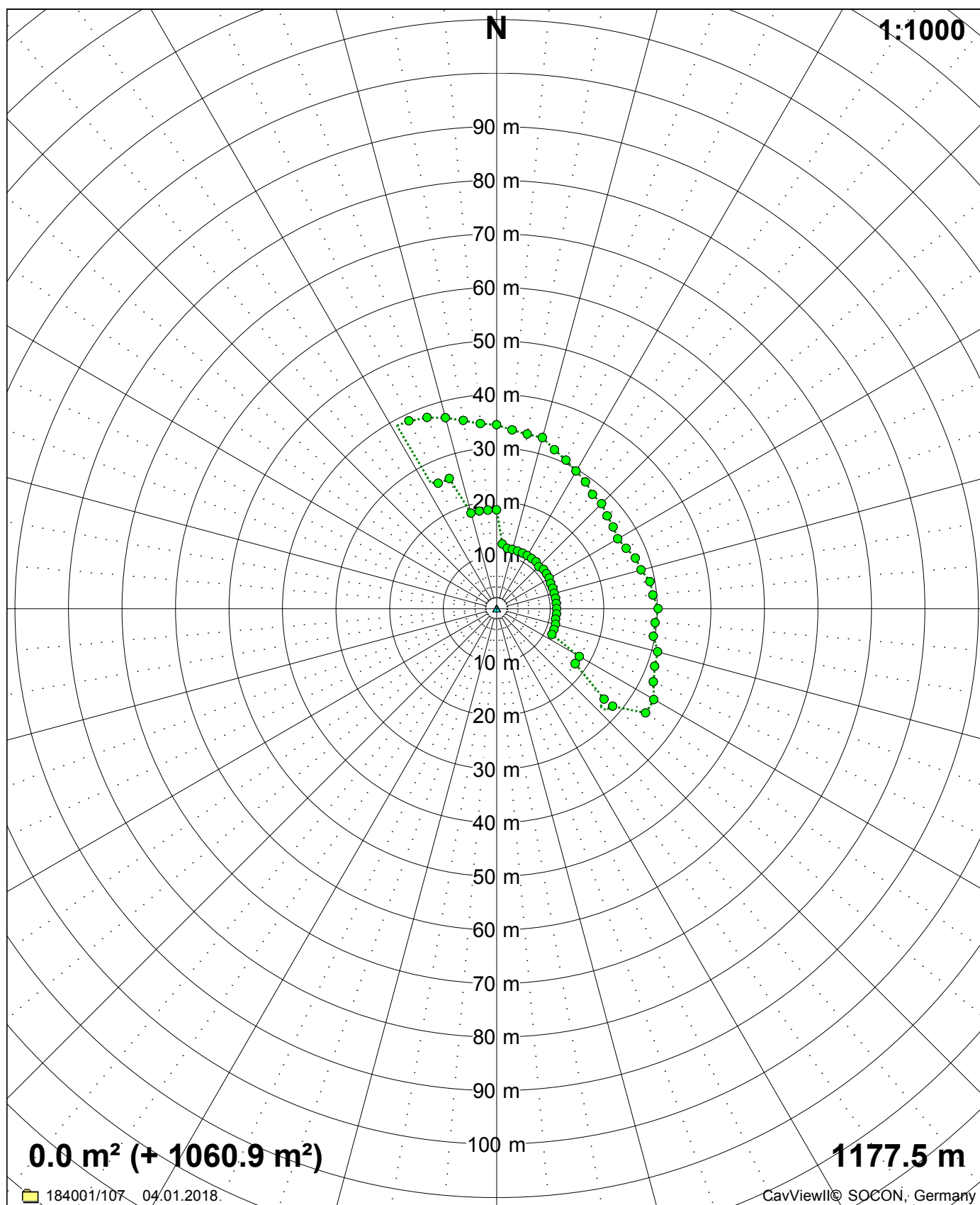
—▲— (04.01.2018) (1151.7 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 39.0 m 155° <--> 335° r<sub>min</sub>: 0.0 m -> 0° r~: 19.1 m r<sub>max</sub>: 39.0 m -> 335°

**Heiligerlee H**

**04.01.2018**



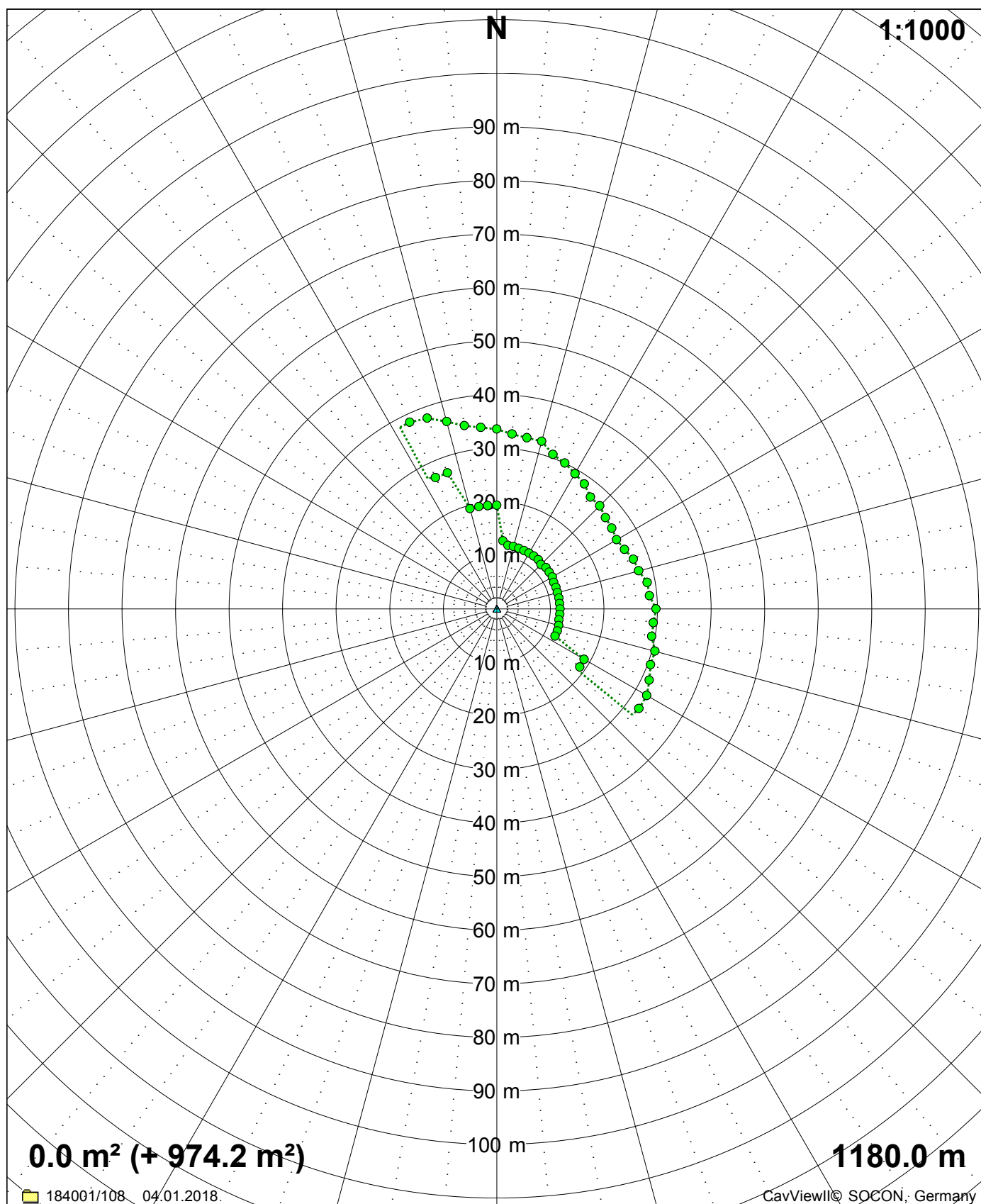
—▲— (04.01.2018) (1060.9 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 38.7 m 155° <--> 335° r<sub>min</sub>: 0.0 m -> 0° r~: 18.4 m r<sub>max</sub>: 38.7 m -> 335°

**Heiligerlee H**

**04.01.2018**



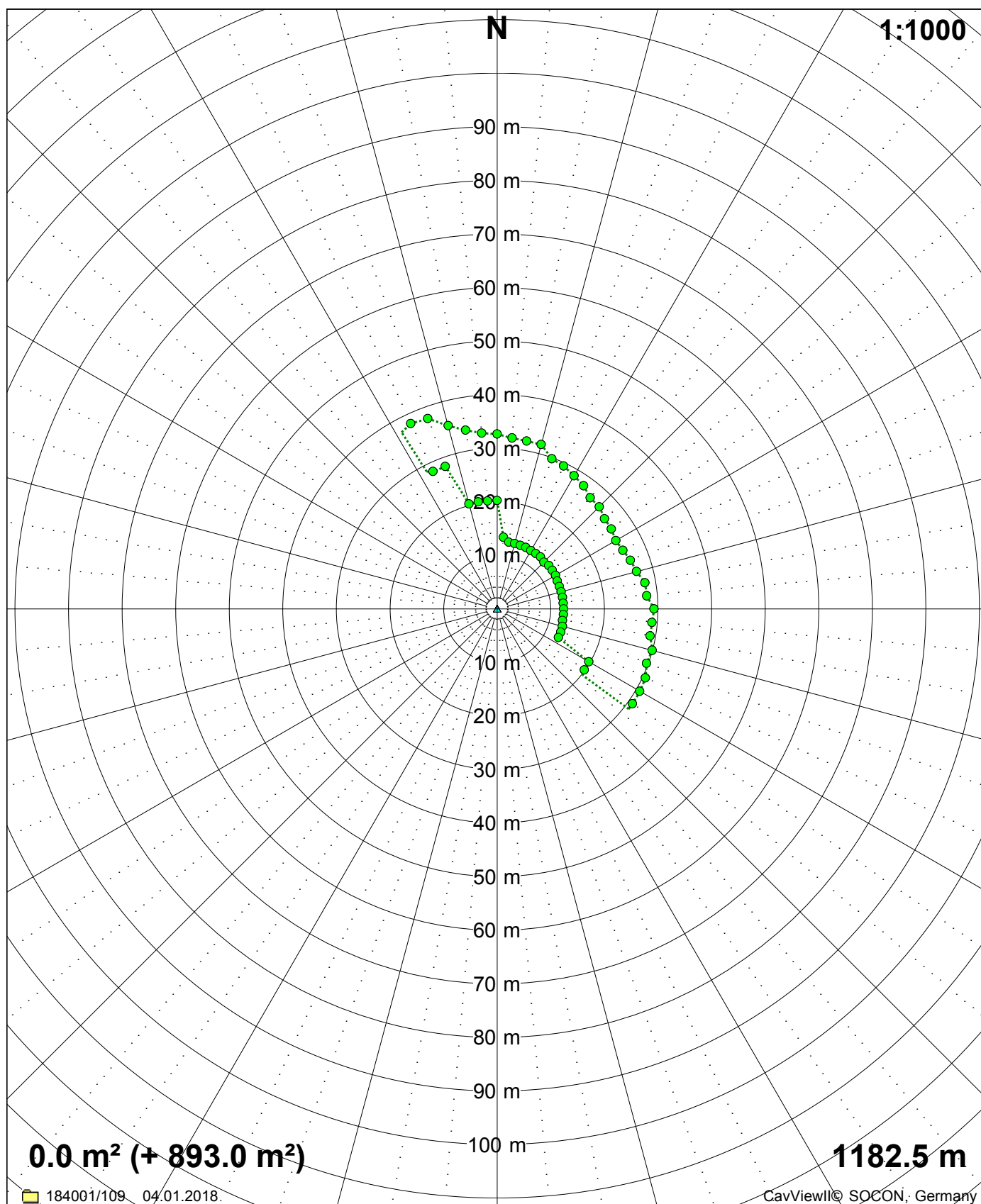
—▲— (04.01.2018) (974.2 m²)

—●— Leached pocket (04.01.2018)

$d_{\max}$ : 38.4 m 155° <--> 335°  $r_{\min}$ : 0.0 m -> 0°  $r_{\sim}$ : 17.6 m  $r_{\max}$ : 38.4 m -> 335°

**Heiligerlee H**

**04.01.2018**



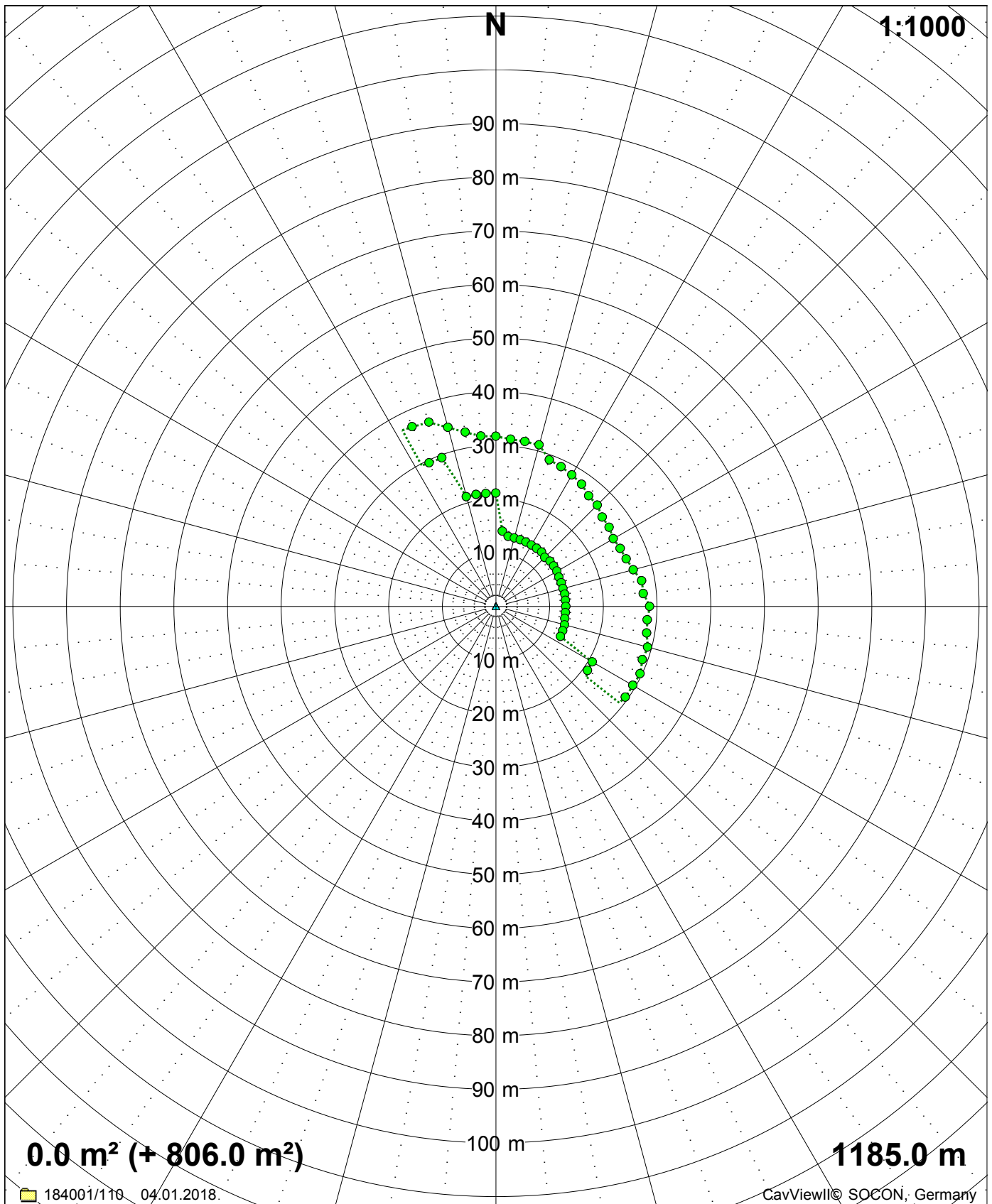
—▲— (04.01.2018) (893.0 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 38.2 m 155° <--> 335° r<sub>min</sub>: 0.0 m -> 0° r~: 16.9 m r<sub>max</sub>: 38.2 m -> 335°

**Heiligerlee H**

**04.01.2018**



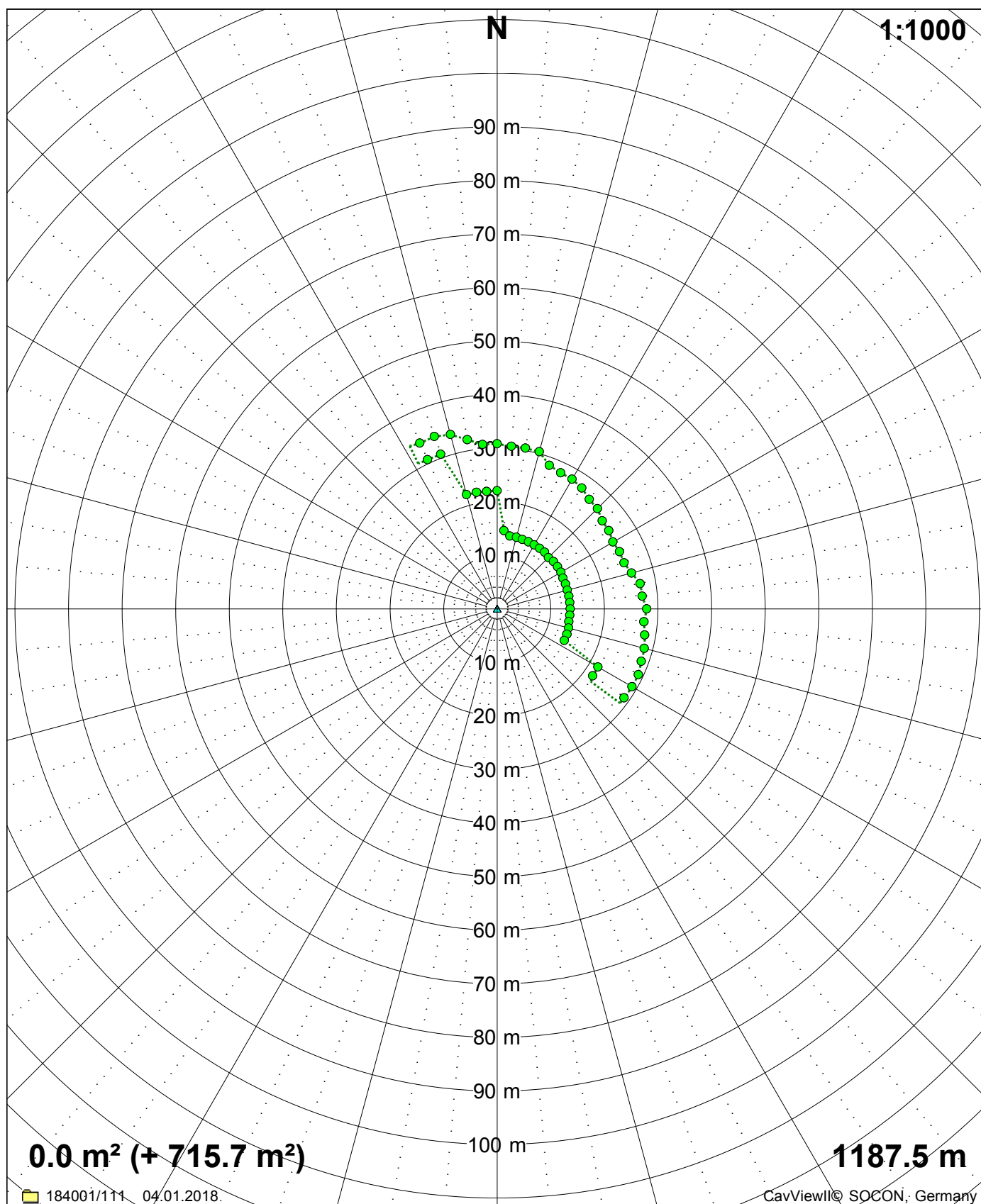
—▲— (04.01.2018) (806.0 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 36.9 m 155° <--> 335° r<sub>min</sub>: 0.0 m -> 0° r~: 16.0 m r<sub>max</sub>: 36.9 m -> 335°

**Heiligerlee H**

**04.01.2018**



—▲— (04.01.2018) (715.7 m<sup>2</sup>)

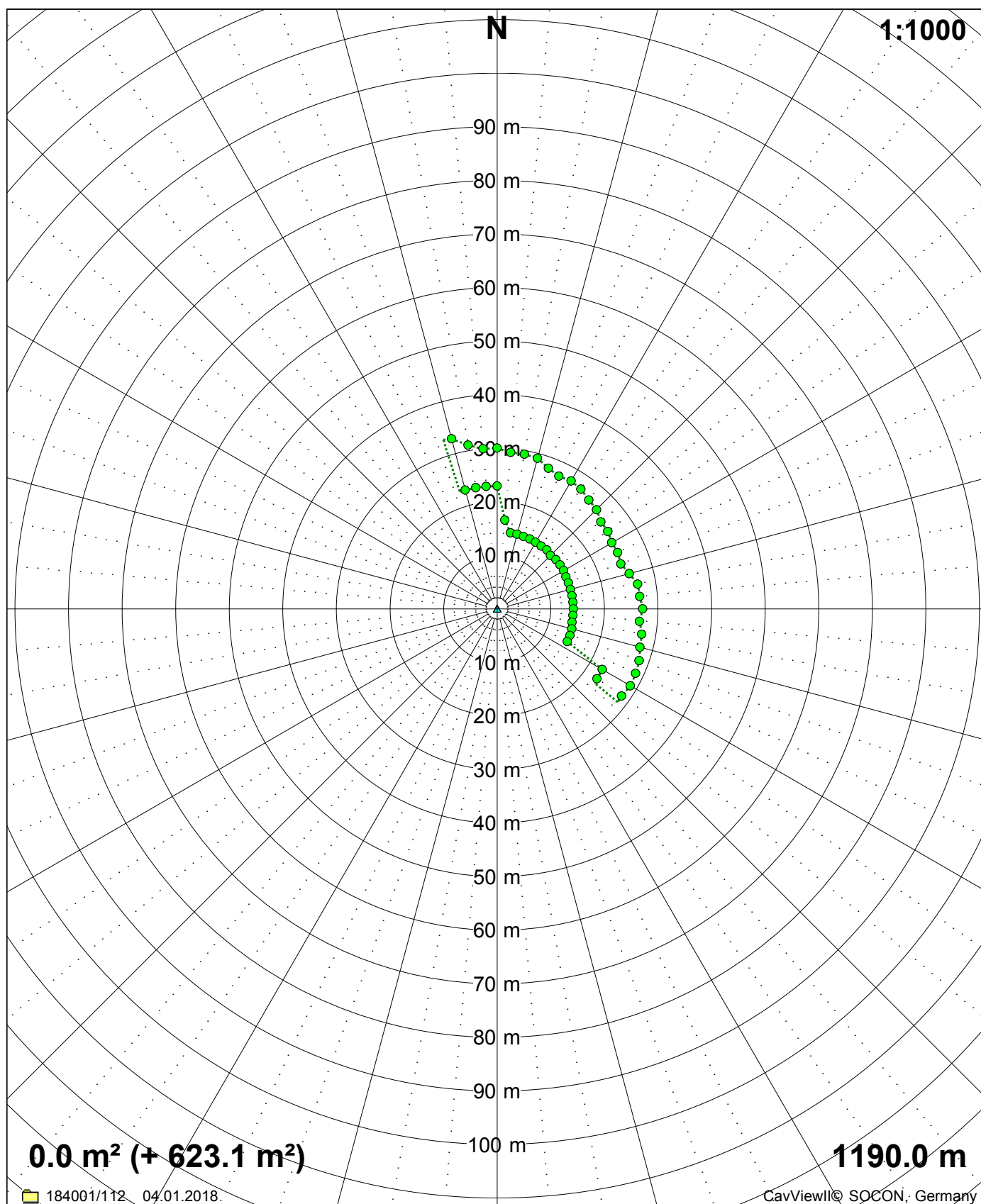
—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 34.3 m 160° <--> 340° r<sub>min</sub>: 0.0 m -> 0° r~: 15.1 m r<sub>max</sub>: 34.3 m -> 340°



**Heiligerlee H**

**04.01.2018**



—▲— (04.01.2018) (623.1 m²)

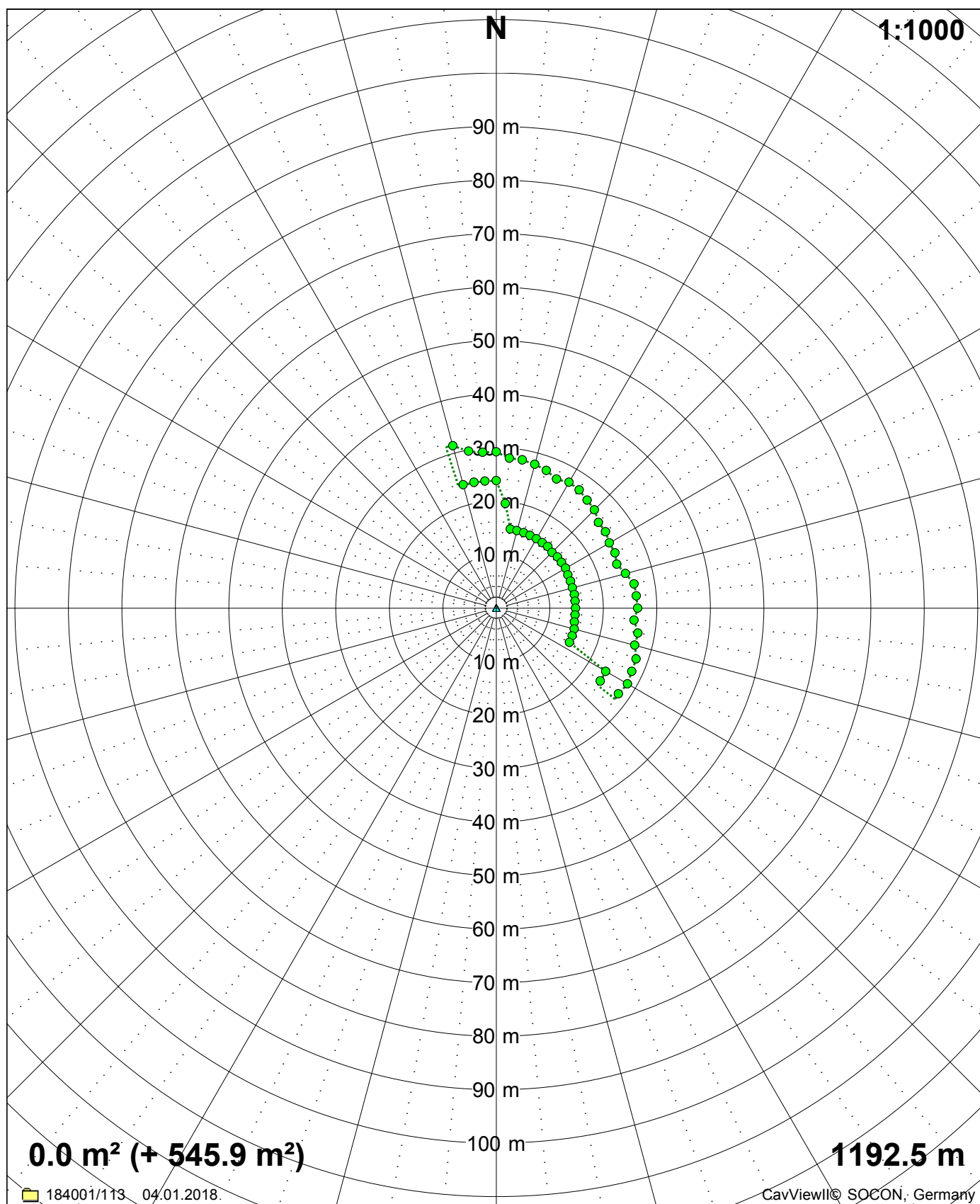
—●— Leached pocket (04.01.2018)

$d_{\max}$ : 32.8 m 165° <--> 345°  $r_{\min}$ : 0.0 m -> 0°  $r_{\sim}$ : 14.1 m  $r_{\max}$ : 32.8 m -> 345°



**Heiligerlee H**

**04.01.2018**



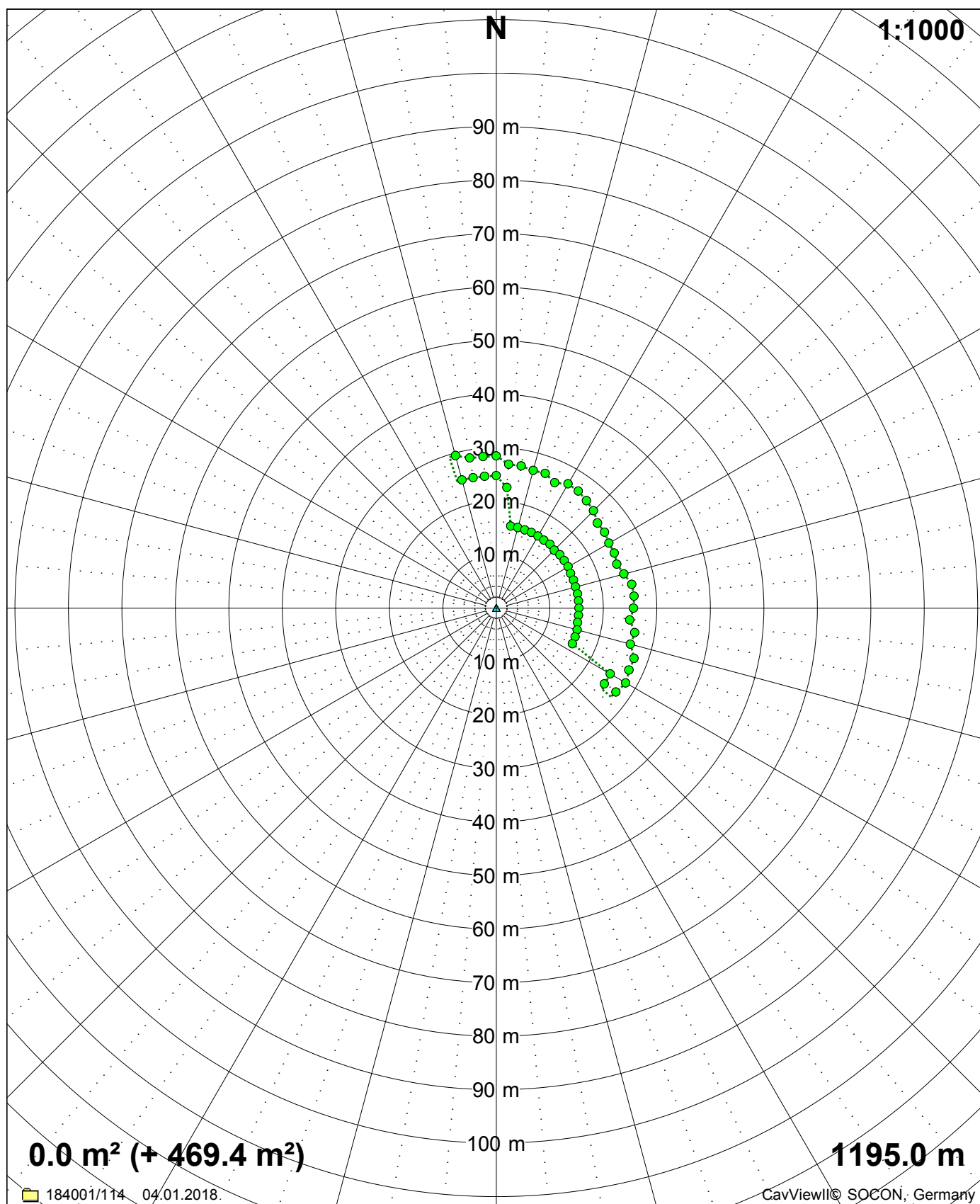
—▲— (04.01.2018) (545.9 m²)

—●— Leached pocket (04.01.2018)

$d_{\max}$ : 31.4 m 165° <--> 345°  $r_{\min}$ : 0.0 m -> 0°  $r_{\sim}$ : 13.2 m  $r_{\max}$ : 31.4 m -> 345°

**Heiligerlee H**

**04.01.2018**



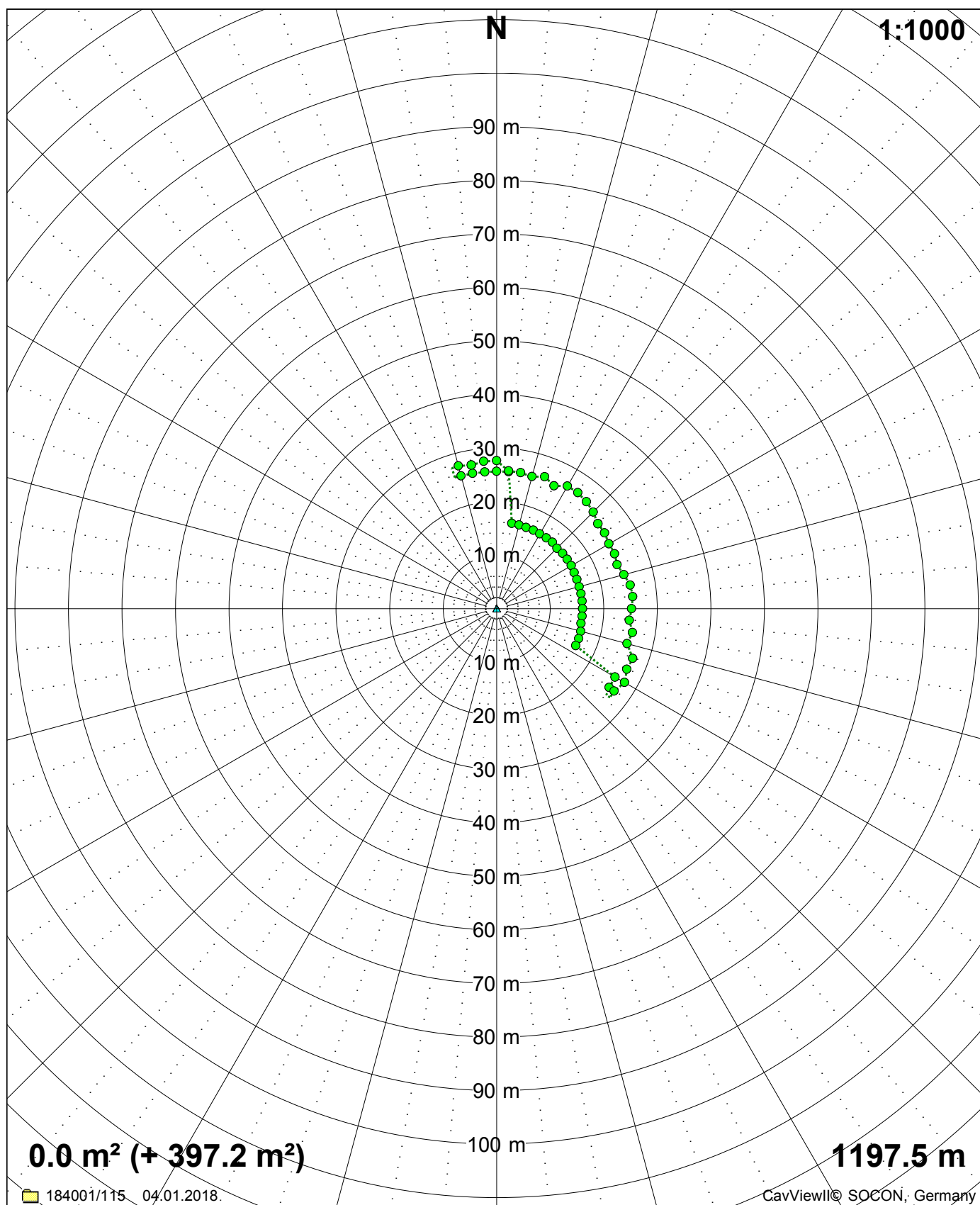
—▲— (04.01.2018) (469.4 m²)

—●— Leached pocket (04.01.2018)

$d_{\max}$ : 29.5 m 165° <--> 345°  $r_{\min}$ : 0.0 m -> 0°  $r_{\sim}$ : 12.2 m  $r_{\max}$ : 29.5 m -> 345°

**Heiligerlee H**

**04.01.2018**



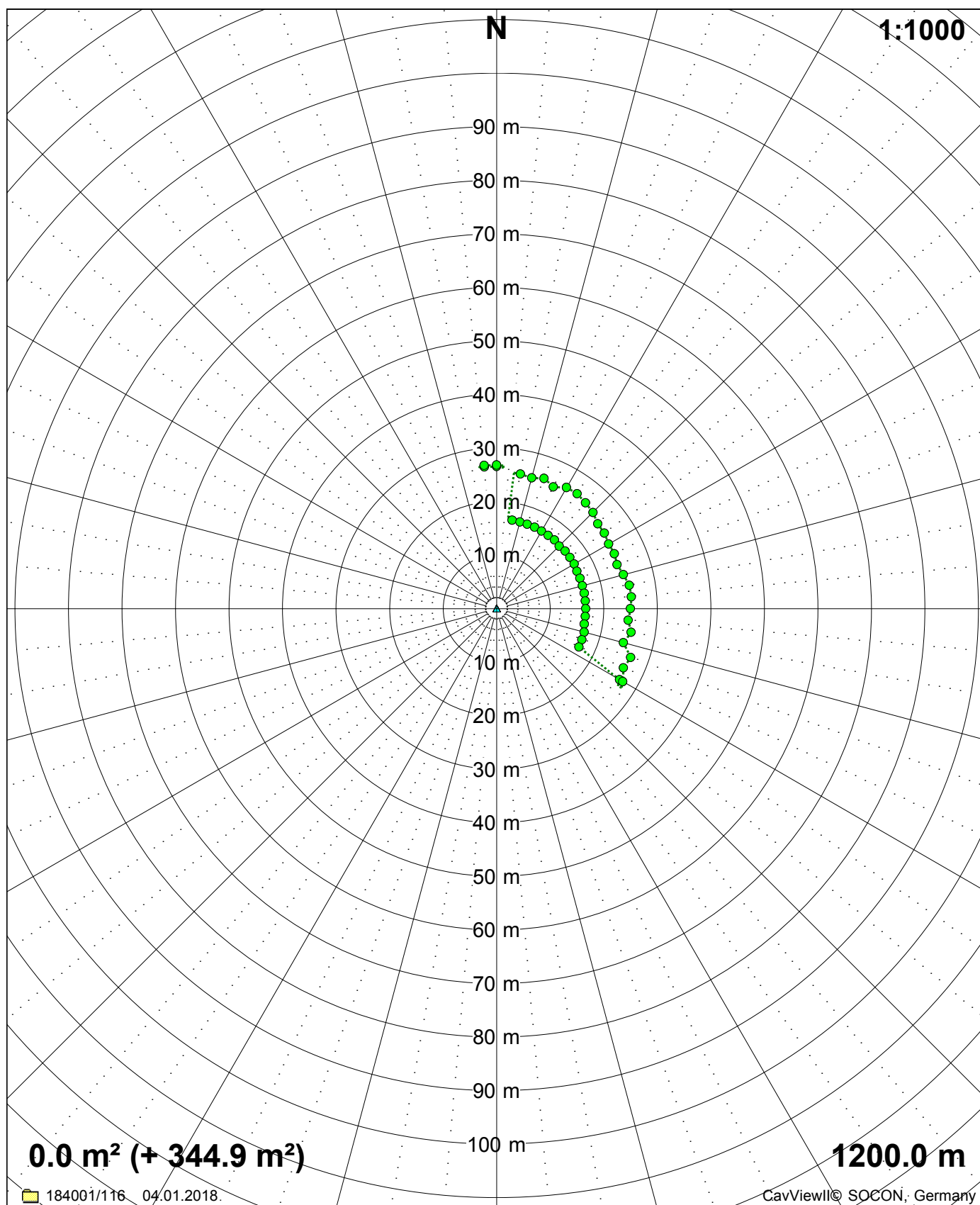
—▲— (04.01.2018) (397.2 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 27.6 m 0° <--> 180° r<sub>min</sub>: 0.0 m -> 0° r~: 11.2 m r<sub>max</sub>: 27.6 m -> 0°

**Heiligerlee H**

**04.01.2018**



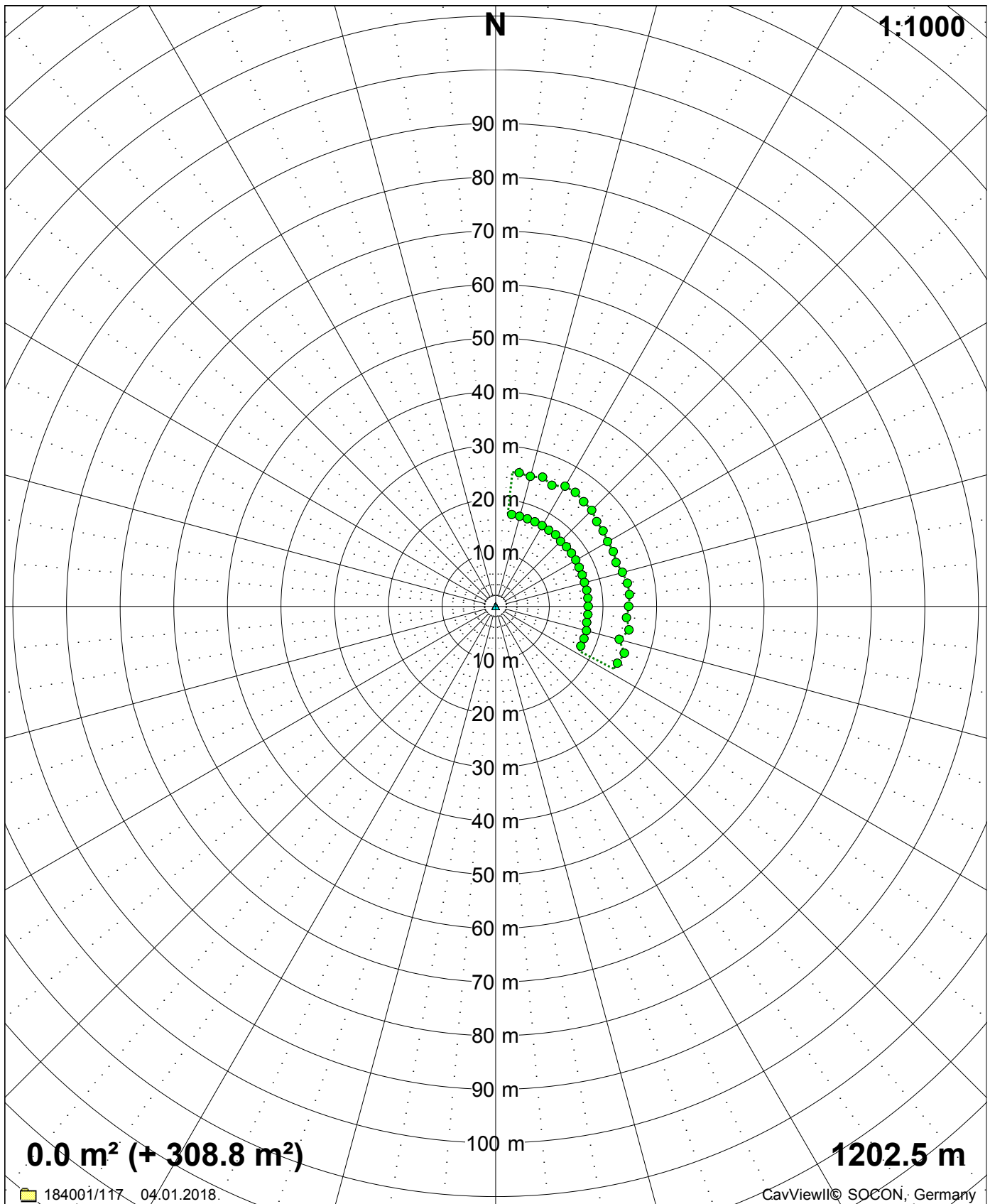
—▲— (04.01.2018) (344.9 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 27.2 m 120° <--> 300° r<sub>min</sub>: 0.0 m -> 0° r~: 10.5 m r<sub>max</sub>: 27.2 m -> 120°

**Heiligerlee H**

**04.01.2018**



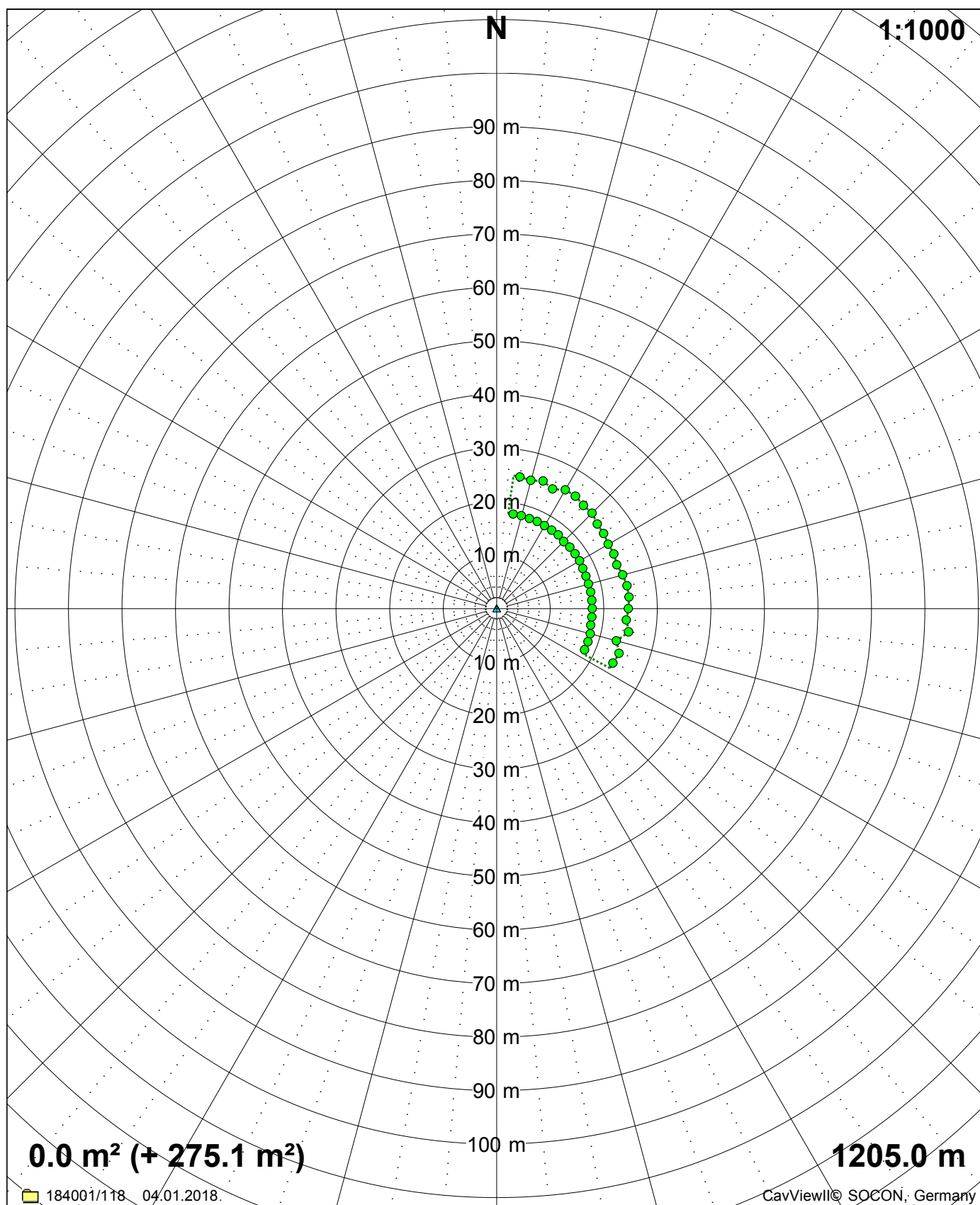
—▲— (04.01.2018) (308.8 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 25.9 m 35° <--> 215° r<sub>min</sub>: 0.0 m -> 0° r~: 9.9 m r<sub>max</sub>: 25.9 m -> 35°

**Heiligerlee H**

**04.01.2018**



—▲— (04.01.2018) (275.1 m²)

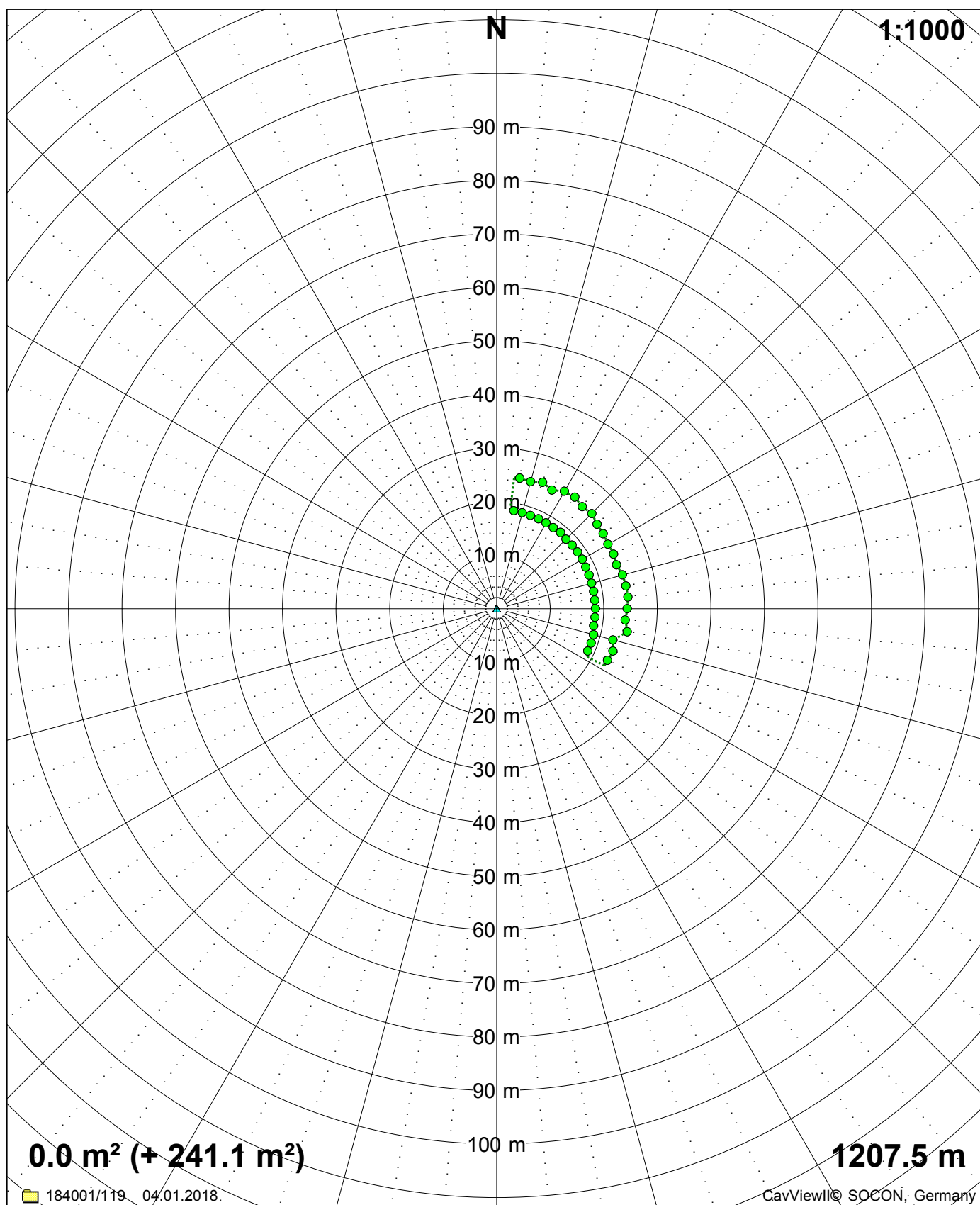
—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 25.7 m 35° <--> 215° r<sub>min</sub>: 0.0 m -> 0° r~: 9.4 m r<sub>max</sub>: 25.7 m -> 35°



**Heiligerlee H**

**04.01.2018**



—▲— (04.01.2018) (241.1 m<sup>2</sup>)

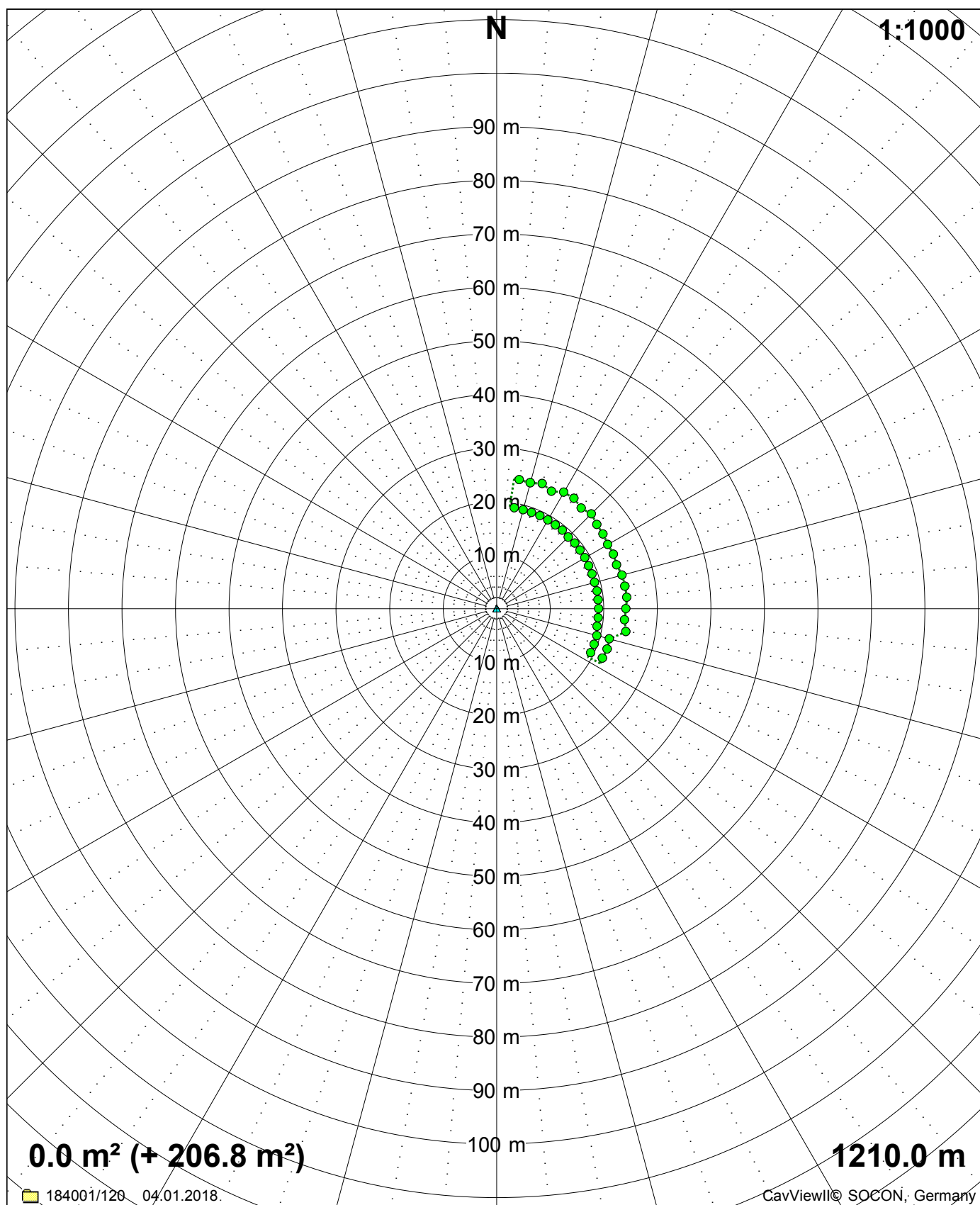
—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 25.4 m 35° <--> 215° r<sub>min</sub>: 0.0 m -> 0° r~: 8.8 m r<sub>max</sub>: 25.4 m -> 35°



**Heiligerlee H**

**04.01.2018**



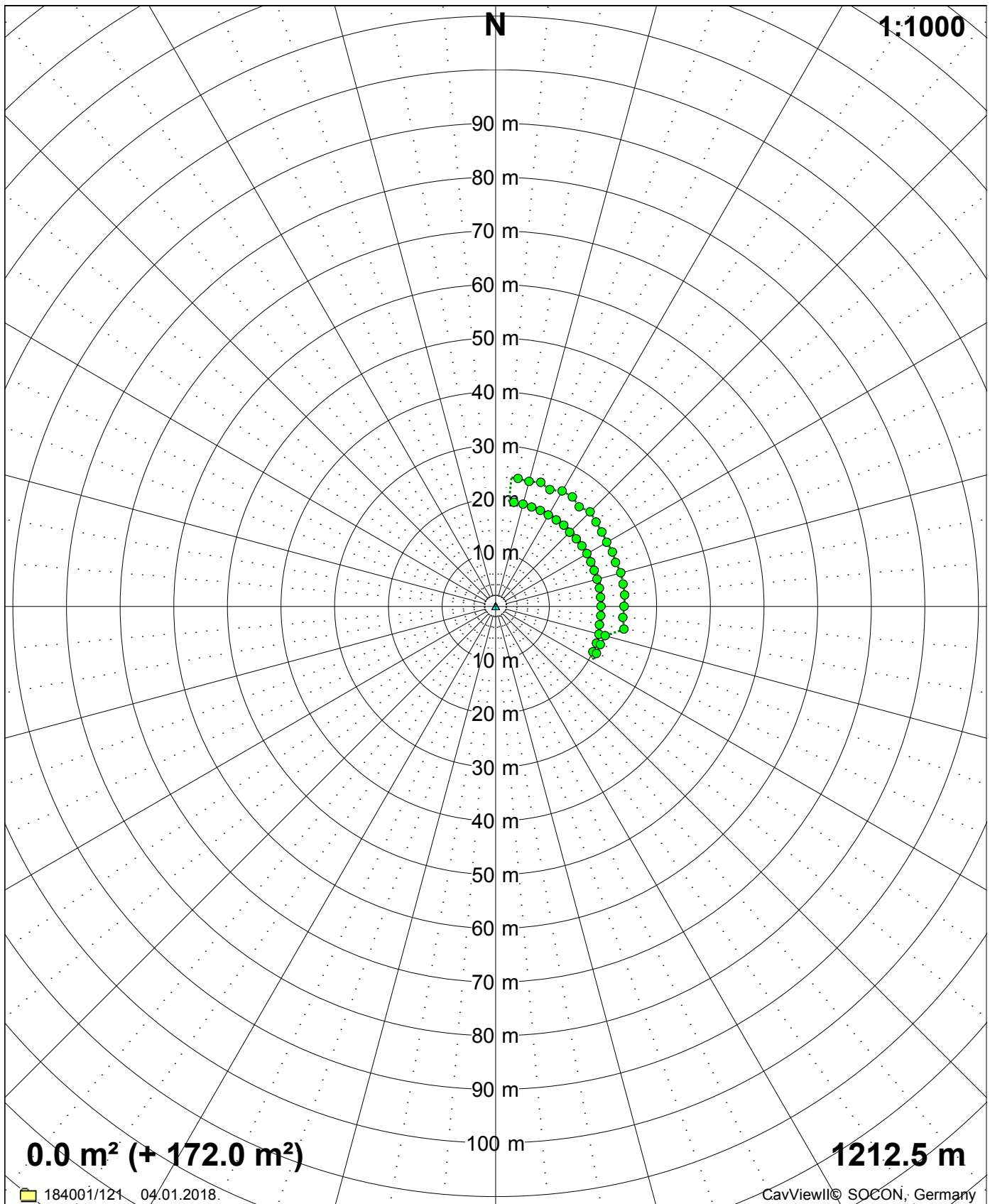
—▲— (04.01.2018) (206.8 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 25.2 m 35° <--> 215° r<sub>min</sub>: 0.0 m -> 0° r~: 8.1 m r<sub>max</sub>: 25.2 m -> 35°

**Heiligerlee H**

**04.01.2018**



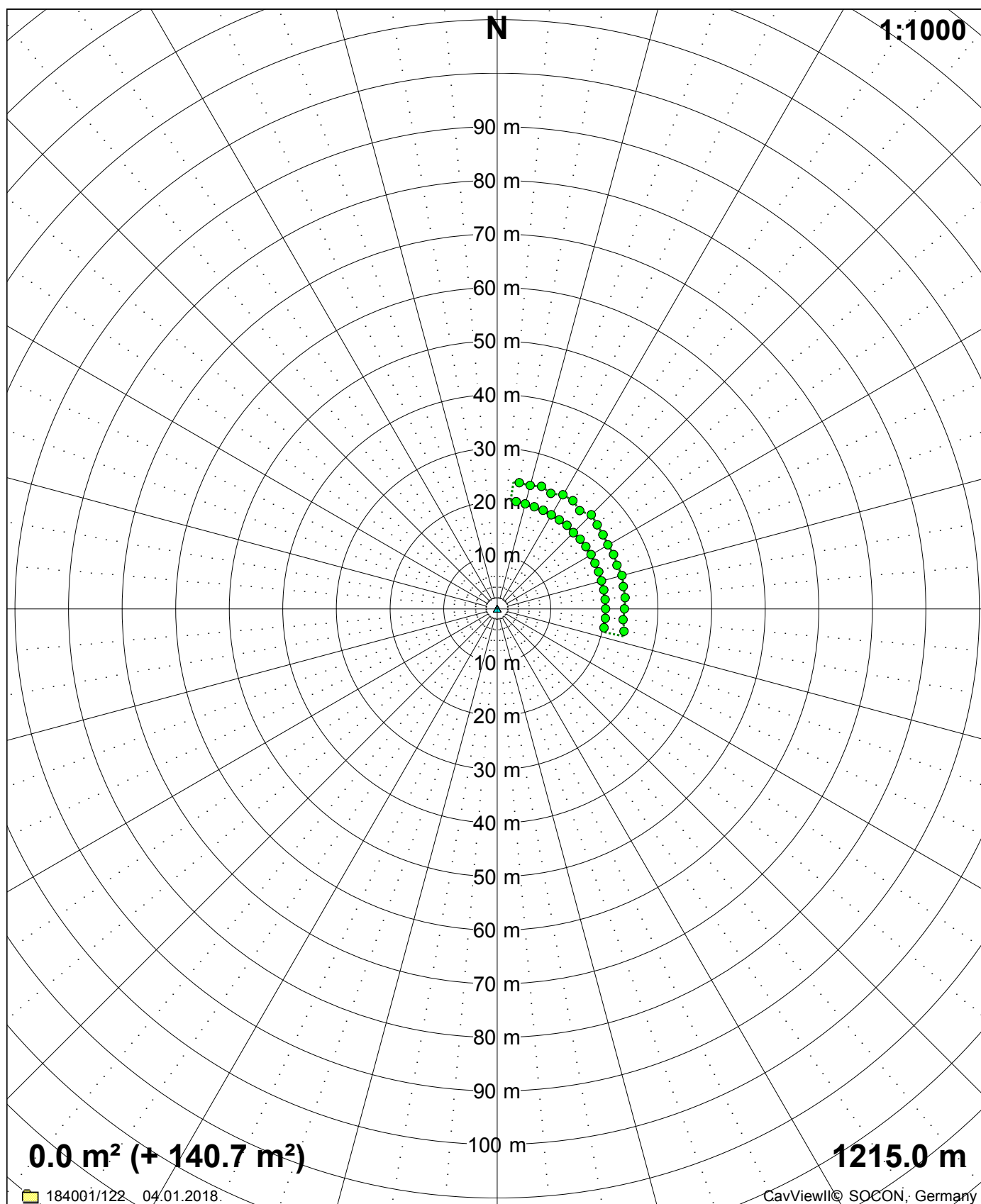
—▲— (04.01.2018) (172.0 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 24.9 m 35° <--> 215° r<sub>min</sub>: 0.0 m -> 0° r~: 7.4 m r<sub>max</sub>: 24.9 m -> 35°

**Heiligerlee H**

**04.01.2018**



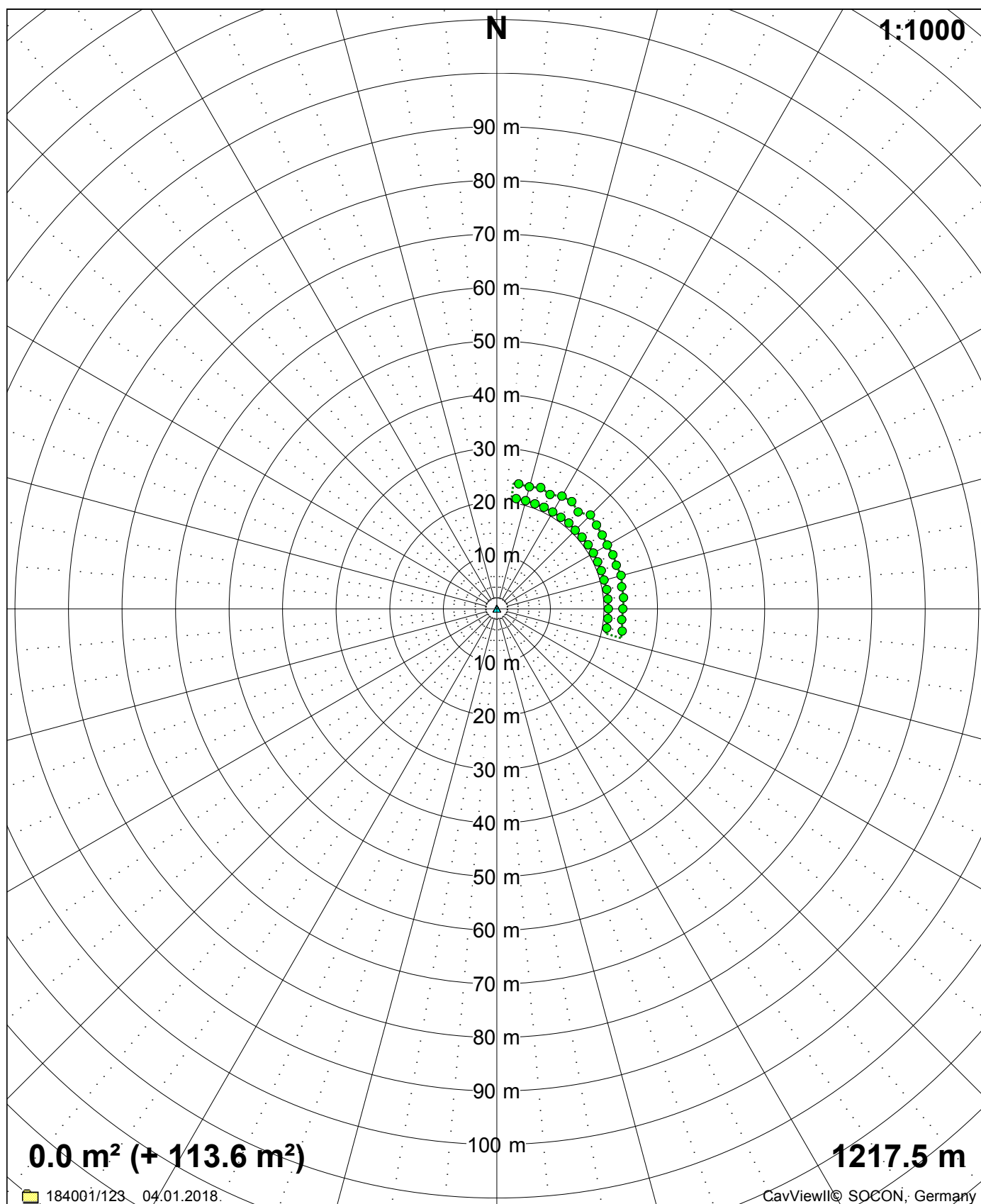
—▲— (04.01.2018) (140.7 m²)

—●— Leached pocket (04.01.2018)

$d_{\max}$ : 24.8 m 45° <--> 225°  $r_{\min}$ : 0.0 m -> 0°  $r_{\sim}$ : 6.7 m  $r_{\max}$ : 24.8 m -> 45°

**Heiligerlee H**

**04.01.2018**



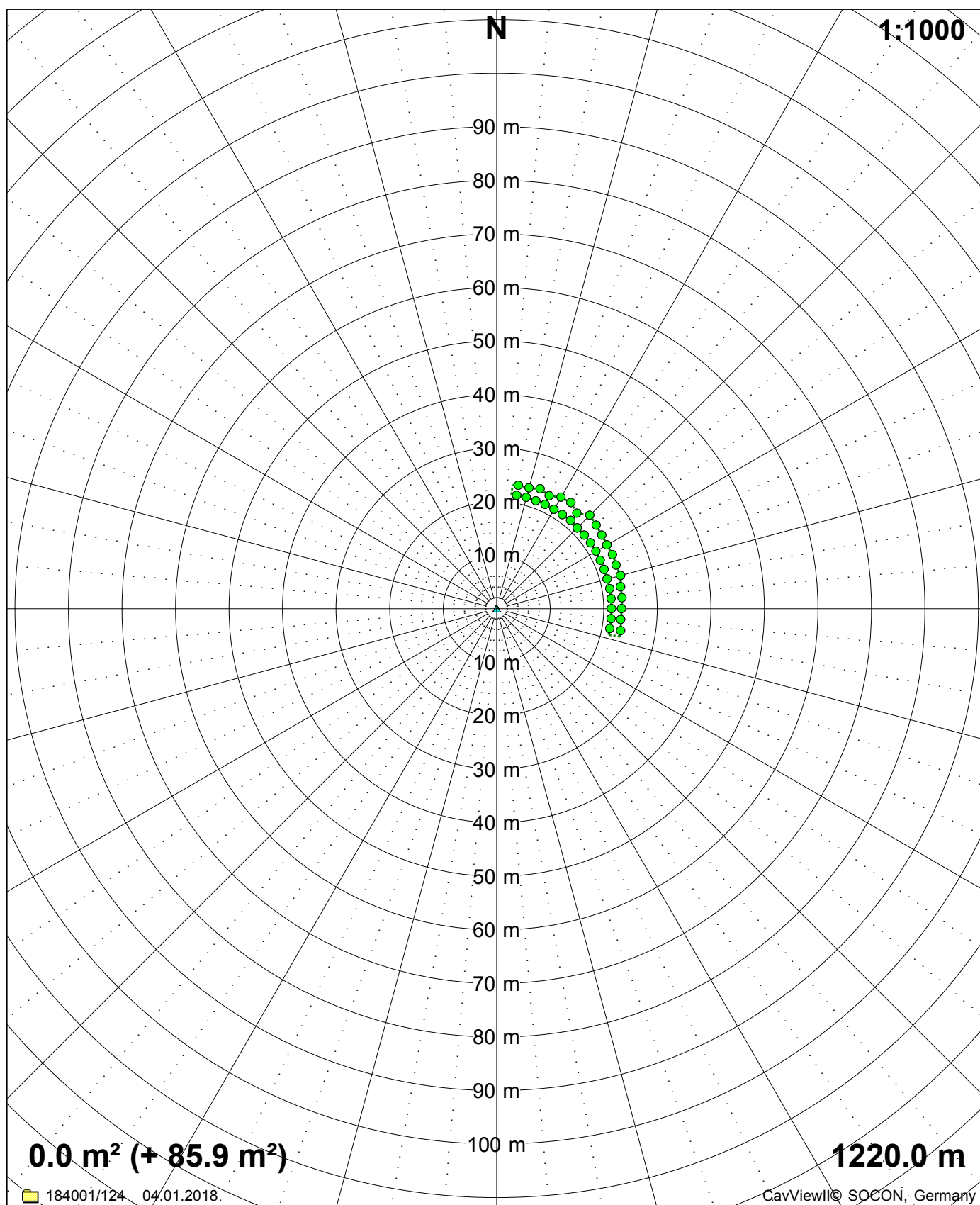
—▲— (04.01.2018) (113.6 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 24.7 m 45° <--> 225° r<sub>min</sub>: 0.0 m -> 0° r~: 6.0 m r<sub>max</sub>: 24.7 m -> 45°

**Heiligerlee H**

**04.01.2018**



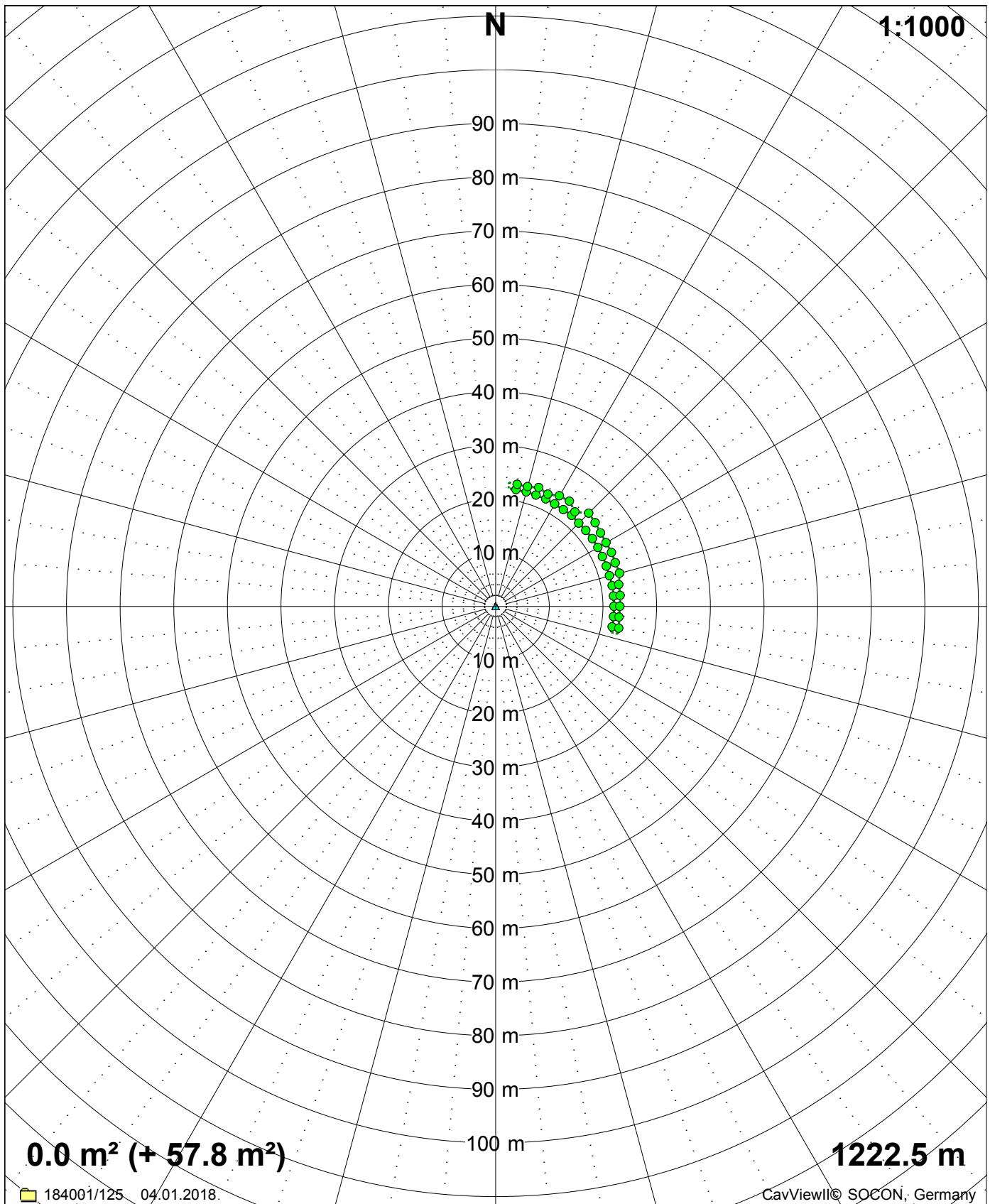
—▲— (04.01.2018) (85.9 m²)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 24.6 m 45° <--> 225° r<sub>min</sub>: 0.0 m -> 0° r~: 5.2 m r<sub>max</sub>: 24.6 m -> 45°

**Heiligerlee H**

**04.01.2018**



—▲— (04.01.2018) (57.8 m<sup>2</sup>)

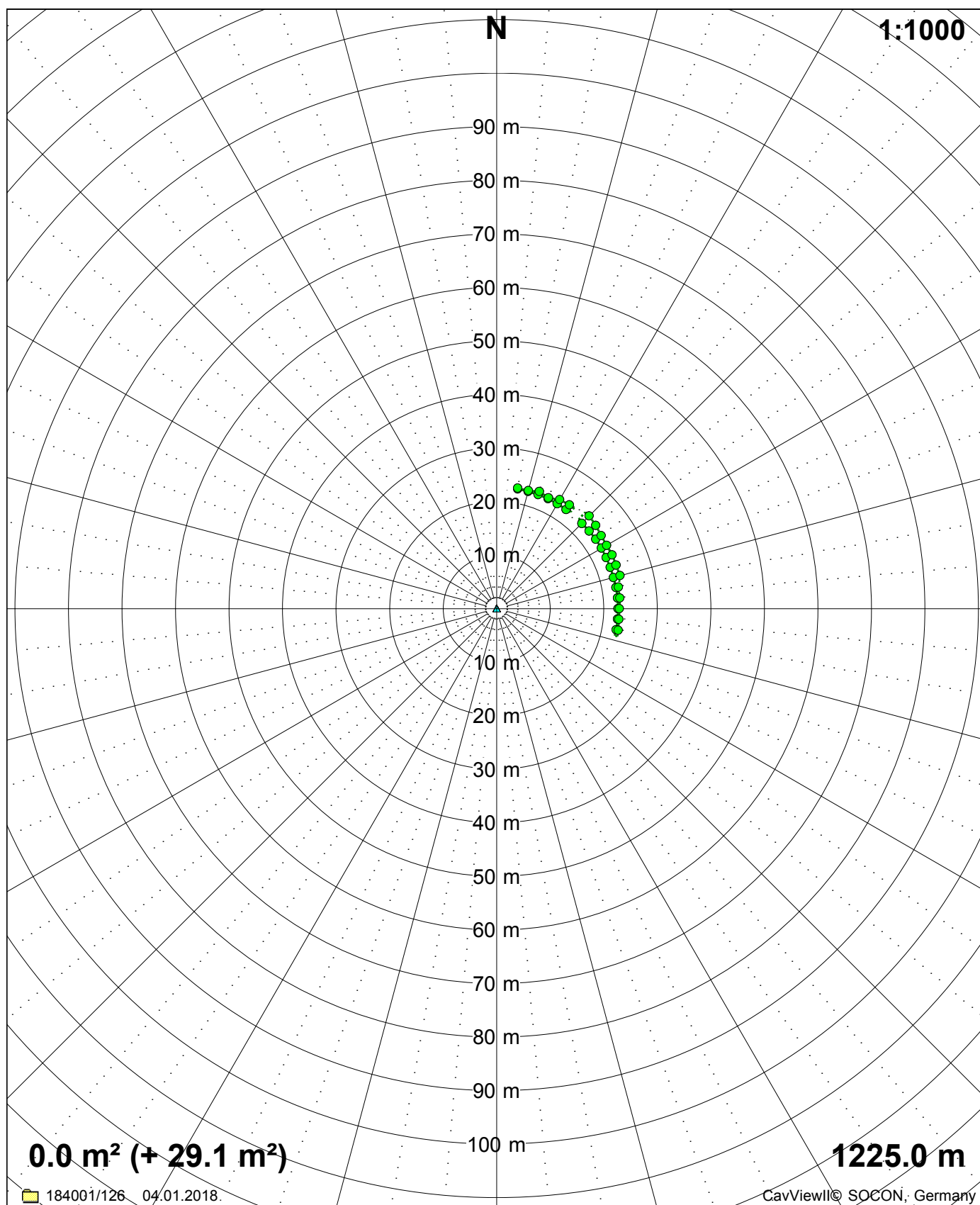
—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 24.6 m 45° <--> 225° r<sub>min</sub>: 0.0 m -> 0° r~: 4.3 m r<sub>max</sub>: 24.6 m -> 45°



**Heiligerlee H**

**04.01.2018**



—▲— (04.01.2018) (29.1 m²)

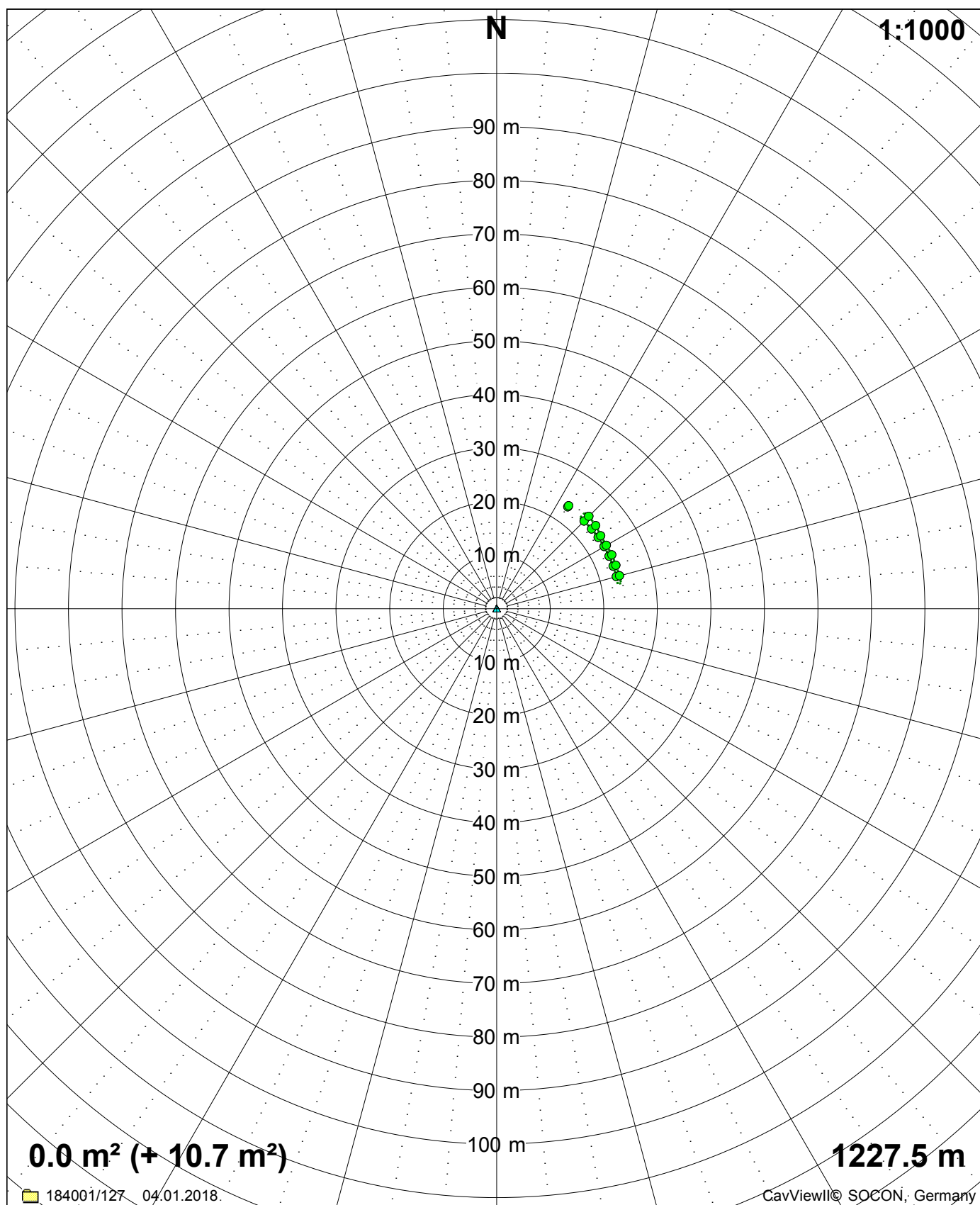
—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 24.5 m 45° <--> 225° r<sub>min</sub>: 0.0 m -> 0° r~: 3.0 m r<sub>max</sub>: 24.5 m -> 45°



**Heiligerlee H**

**04.01.2018**



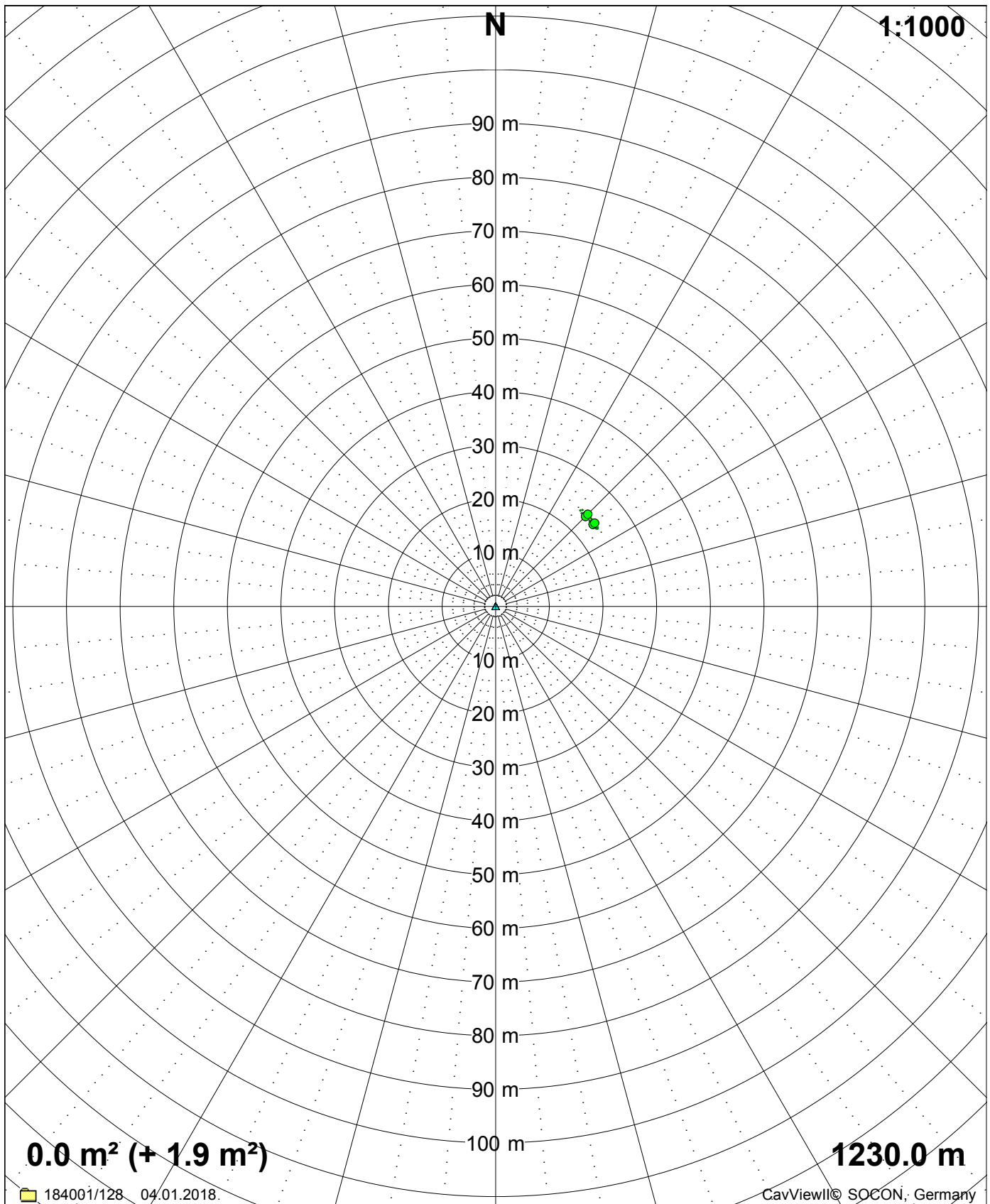
—▲— (04.01.2018) (10.7 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 24.4 m 45° <--> 225° r<sub>min</sub>: 0.0 m -> 0° r~: 1.8 m r<sub>max</sub>: 24.4 m -> 45°

**Heiligerlee H**

**04.01.2018**



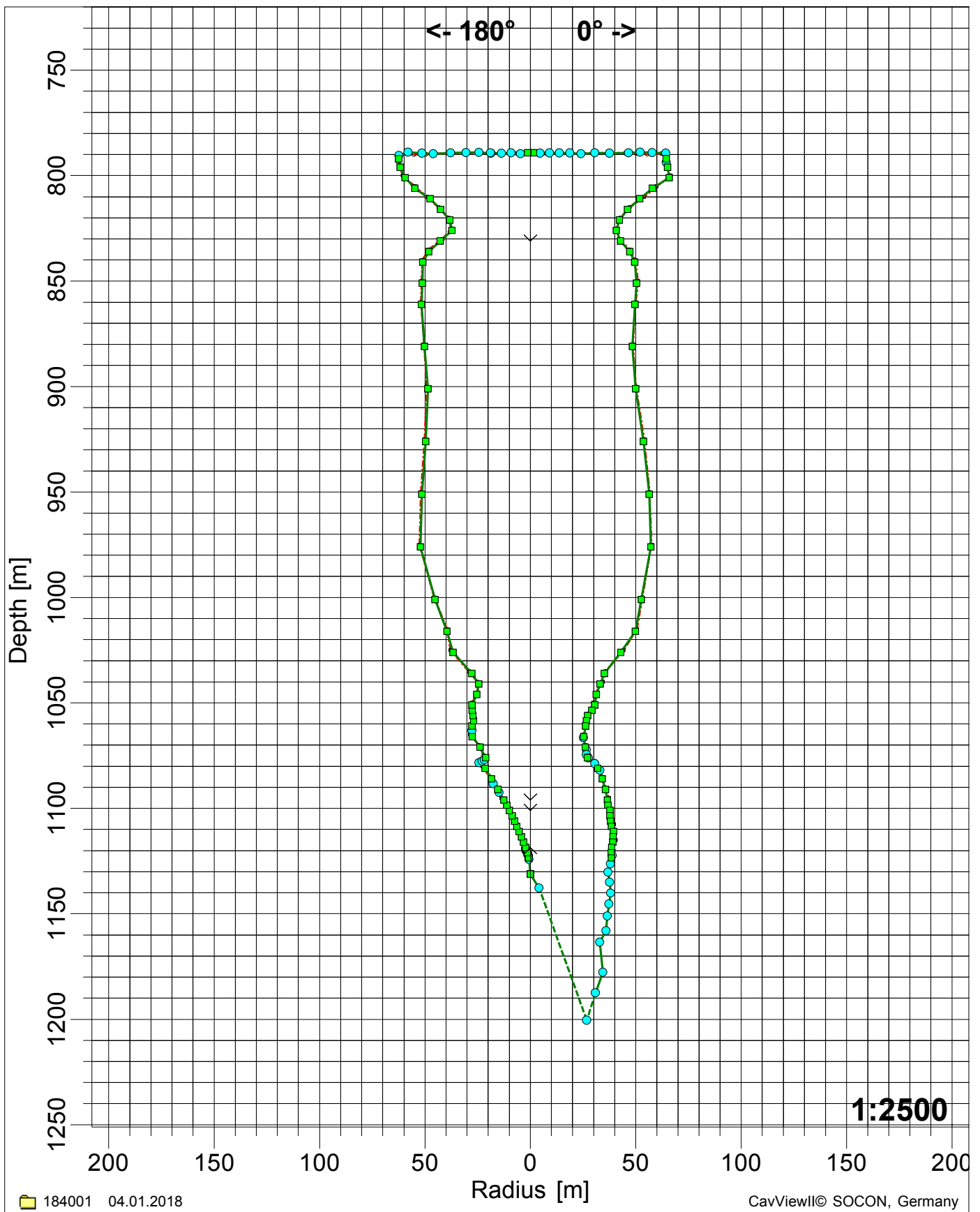
—▲— (04.01.2018) (1.9 m<sup>2</sup>)

—●— Leached pocket (04.01.2018)

d<sub>max</sub>: 24.3 m 45° <--> 225° r<sub>min</sub>: 0.0 m -> 0° r~: 0.8 m r<sub>max</sub>: 24.3 m -> 45°

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

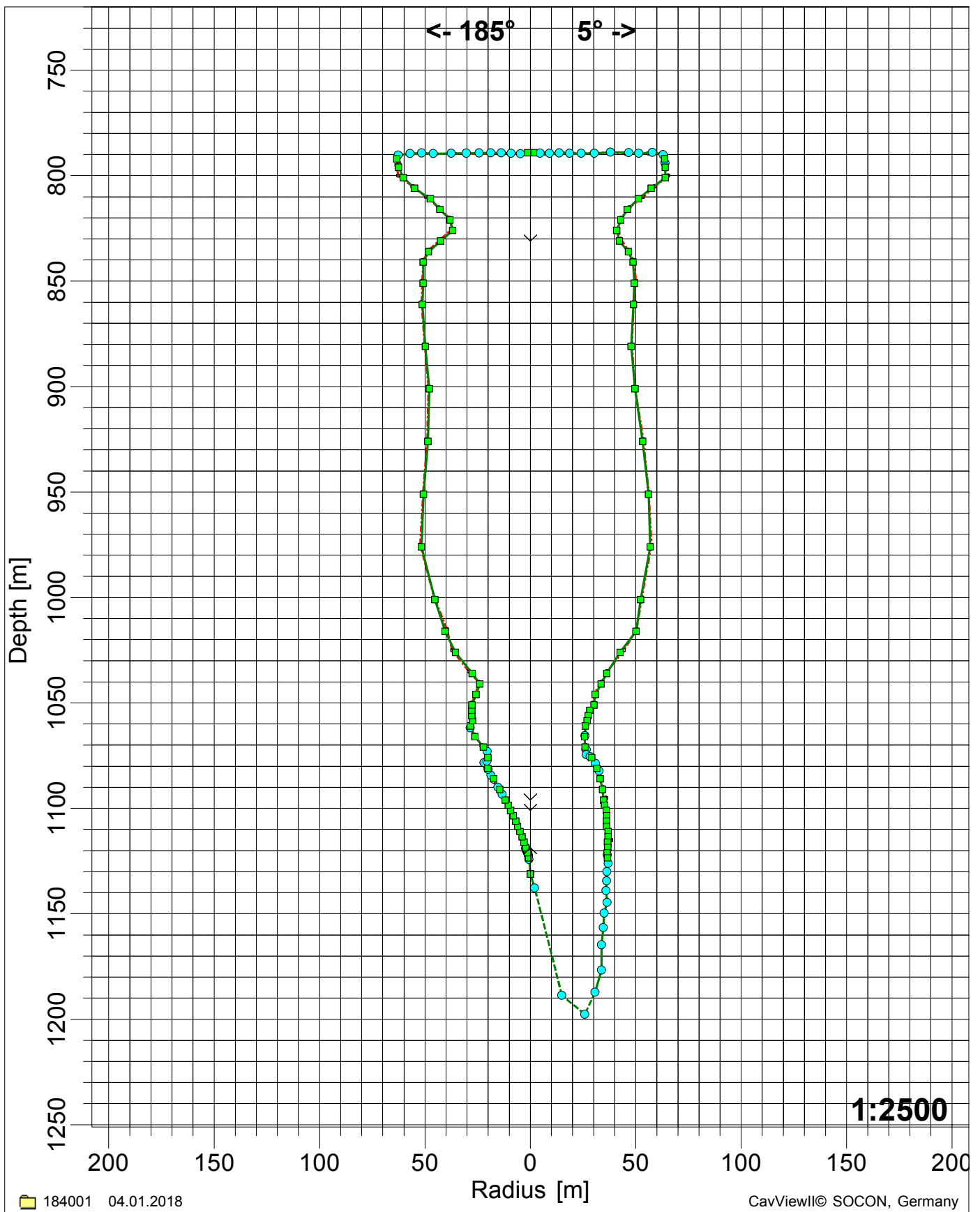
(17.05.2016)

(04.01.2018)

∨ ∨ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

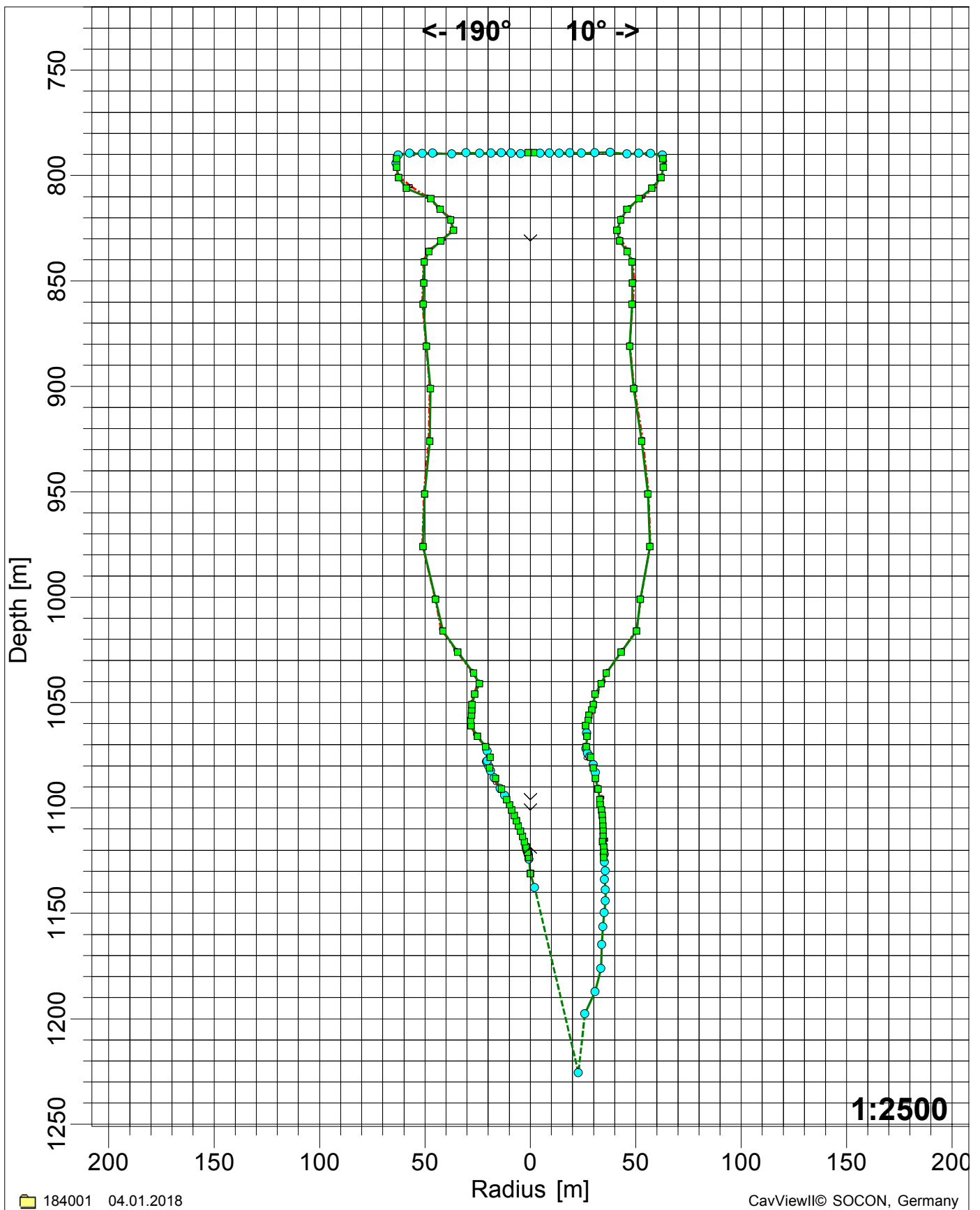
(17.05.2016)

(04.01.2018)

∨ ∨ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

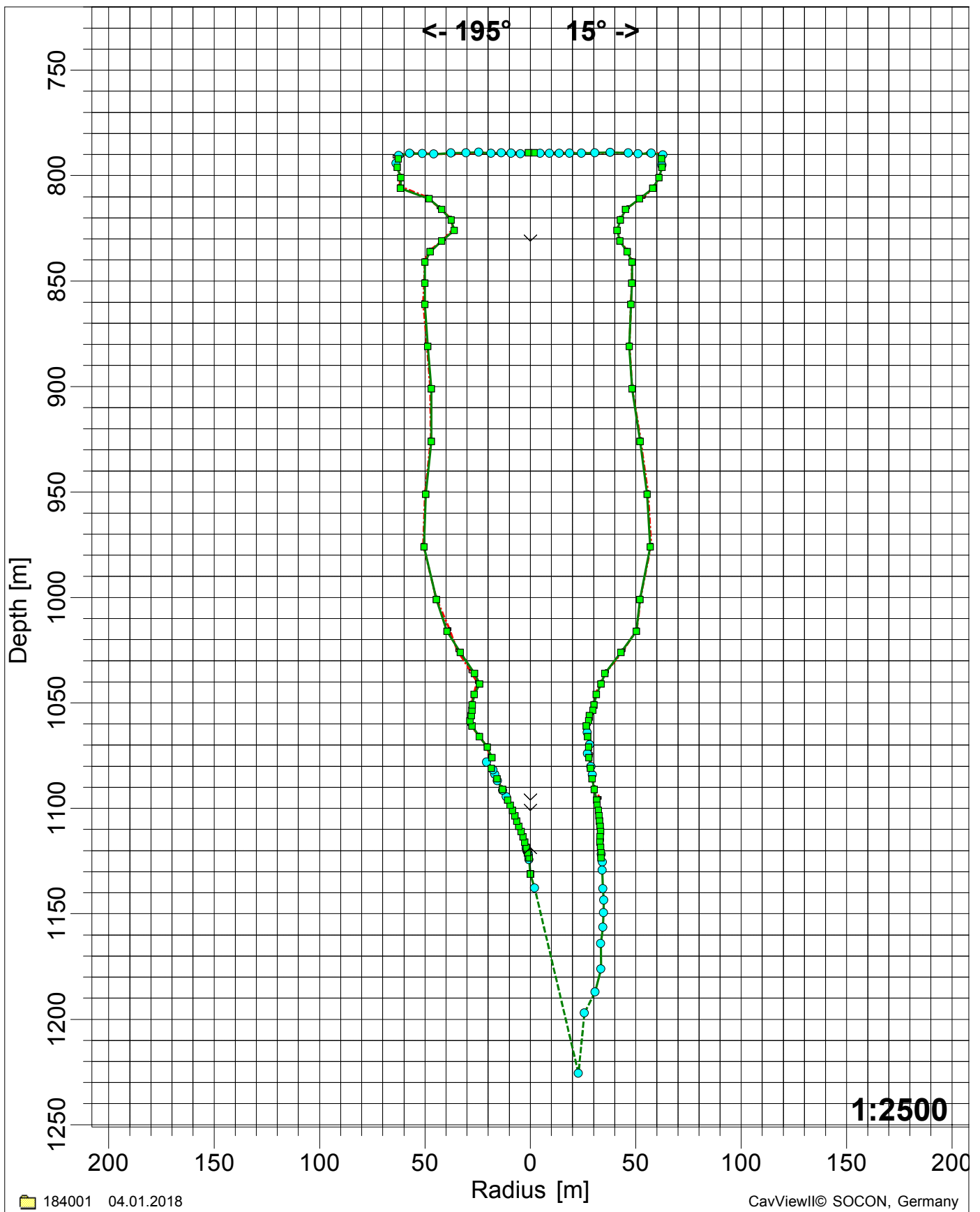
--- (17.05.2016)

—■— (04.01.2018)

∨ ∨ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

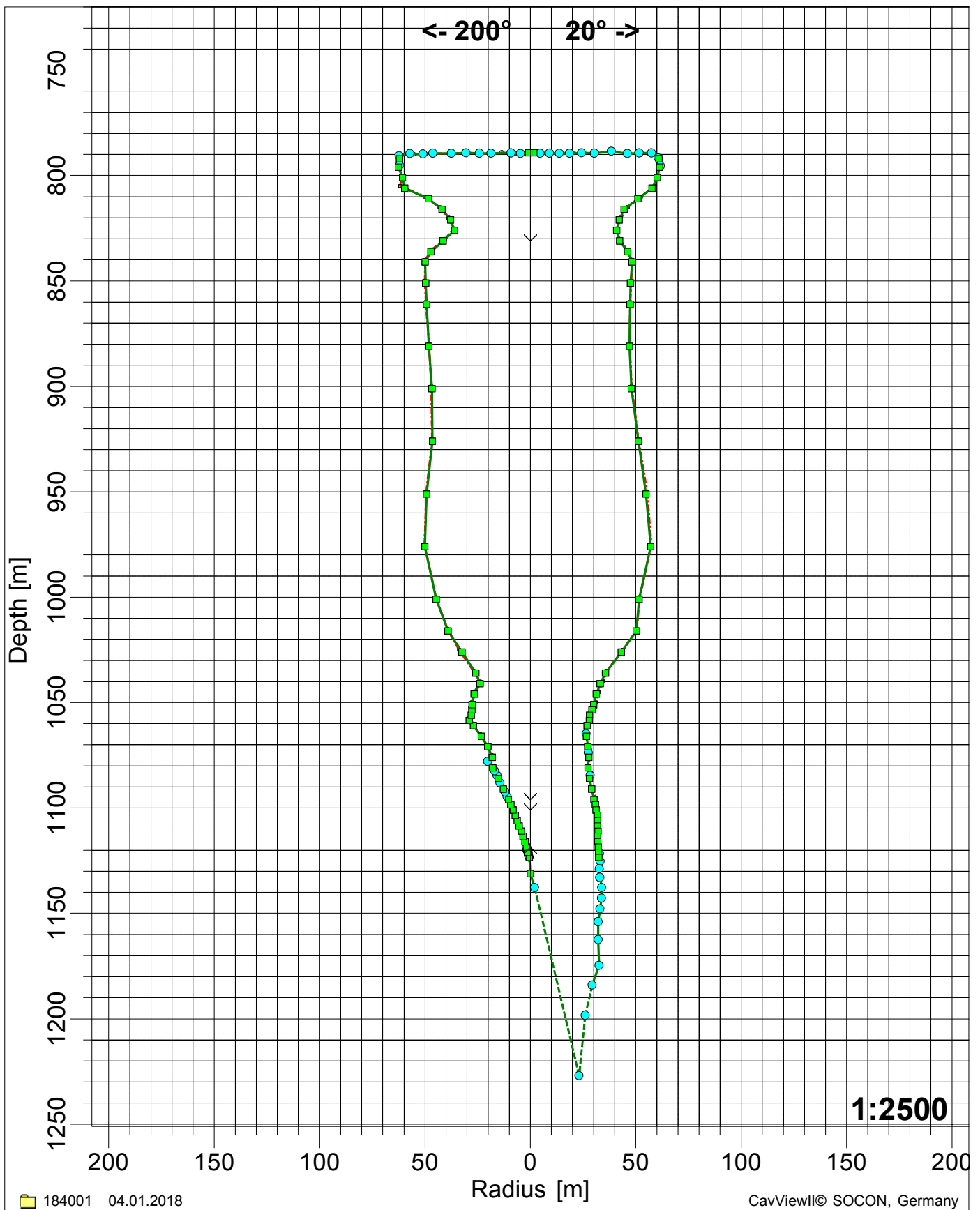
(17.05.2016)

(04.01.2018)

∨ ∨ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

(17.05.2016)

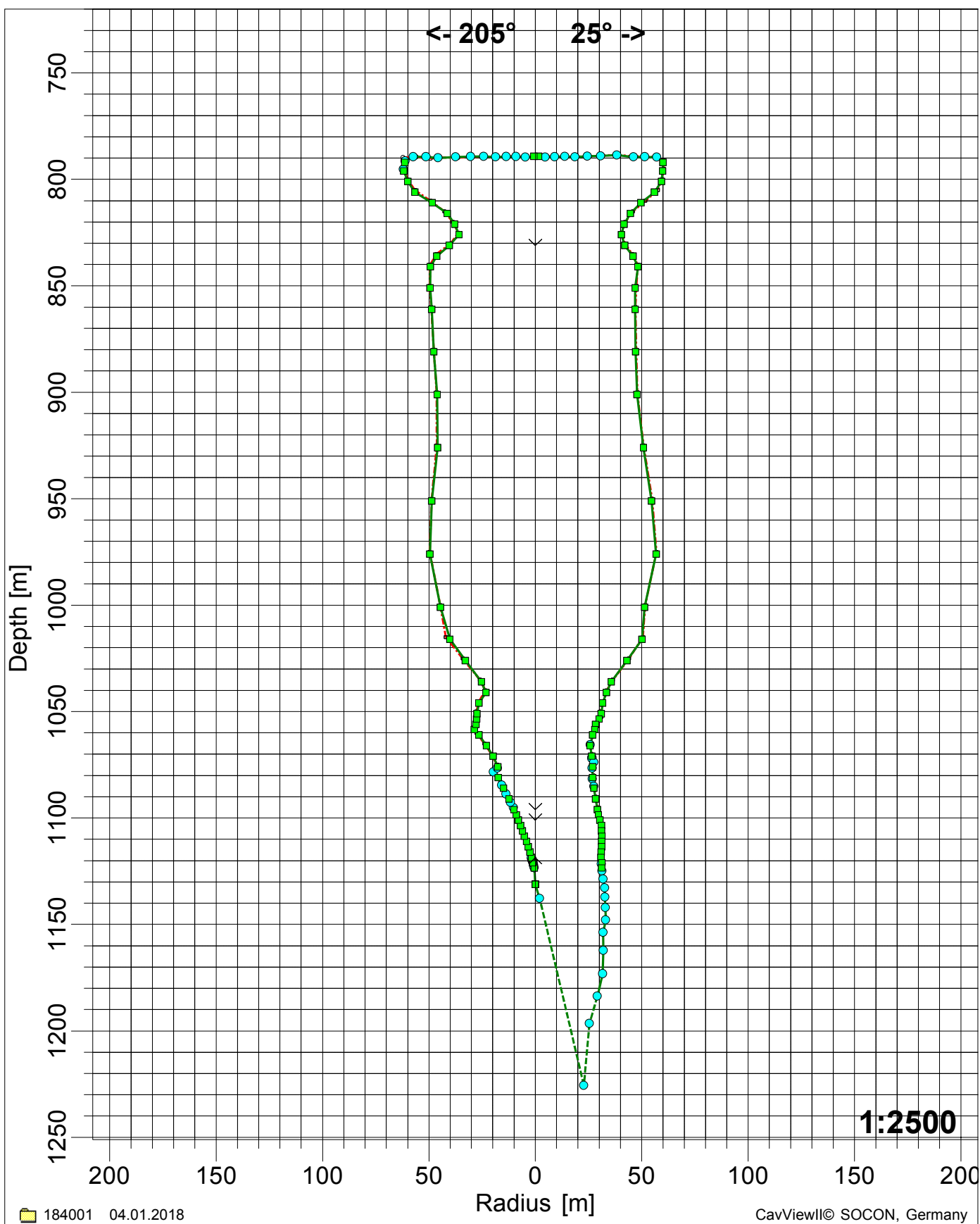
(04.01.2018)

∨ ∨ Tilting position



Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

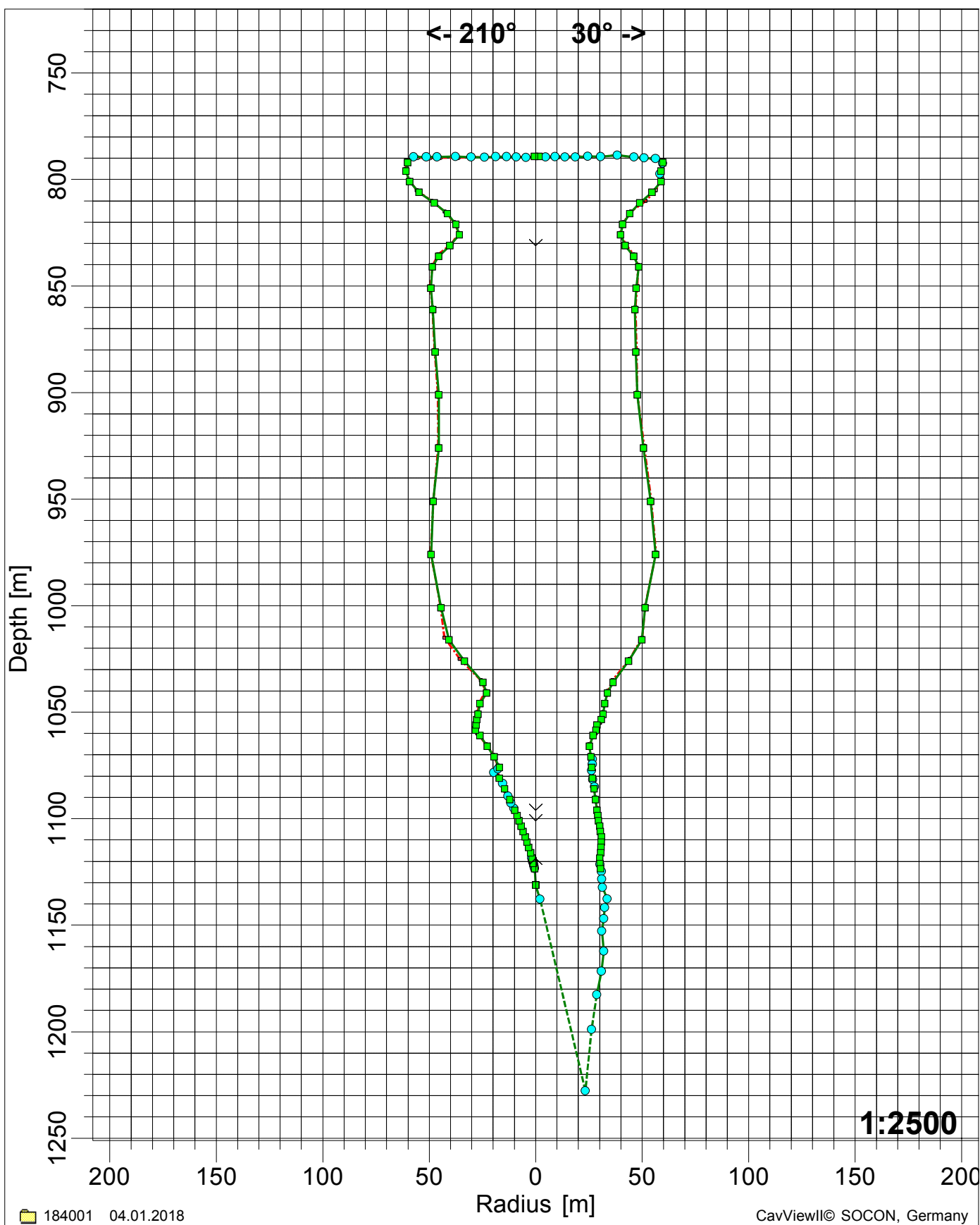
(17.05.2016)

(04.01.2018)

∨ ^ Tilting position

Heiligerlee H

04.01.2018



184001 04.01.2018

13 3/8" : 506.7 m

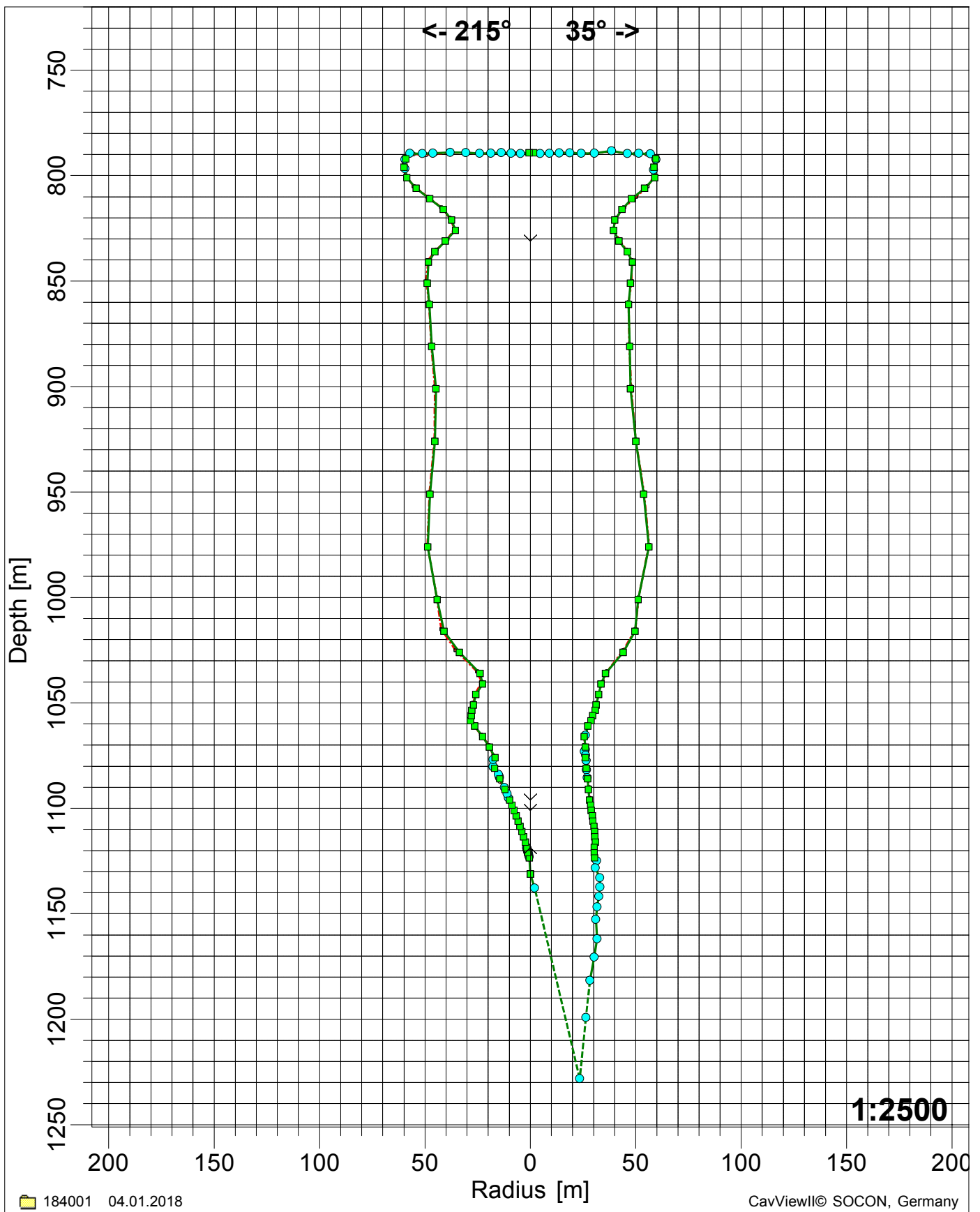
(17.05.2016)

(04.01.2018)

∨ ^ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

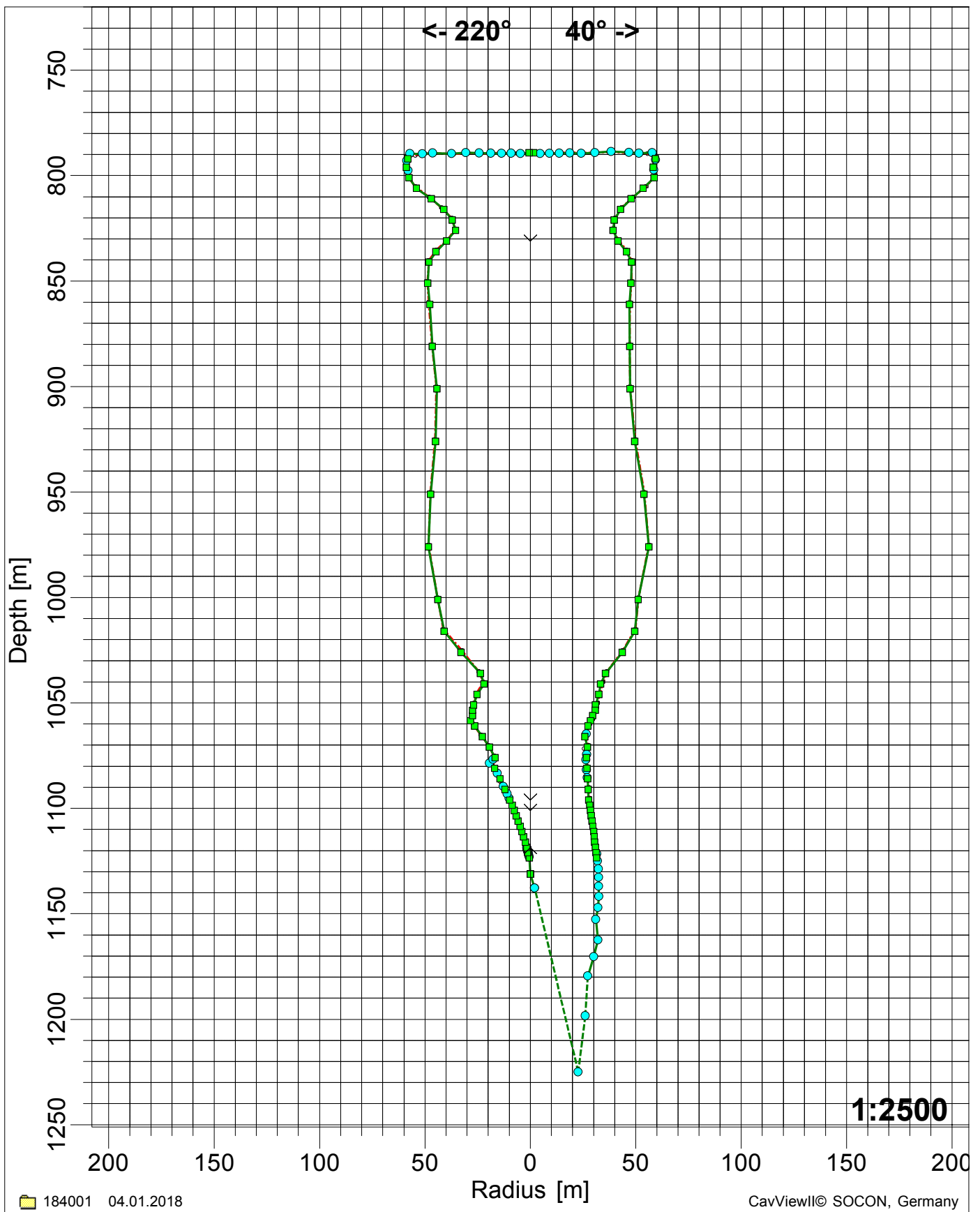
(17.05.2016)

(04.01.2018)

v ^ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

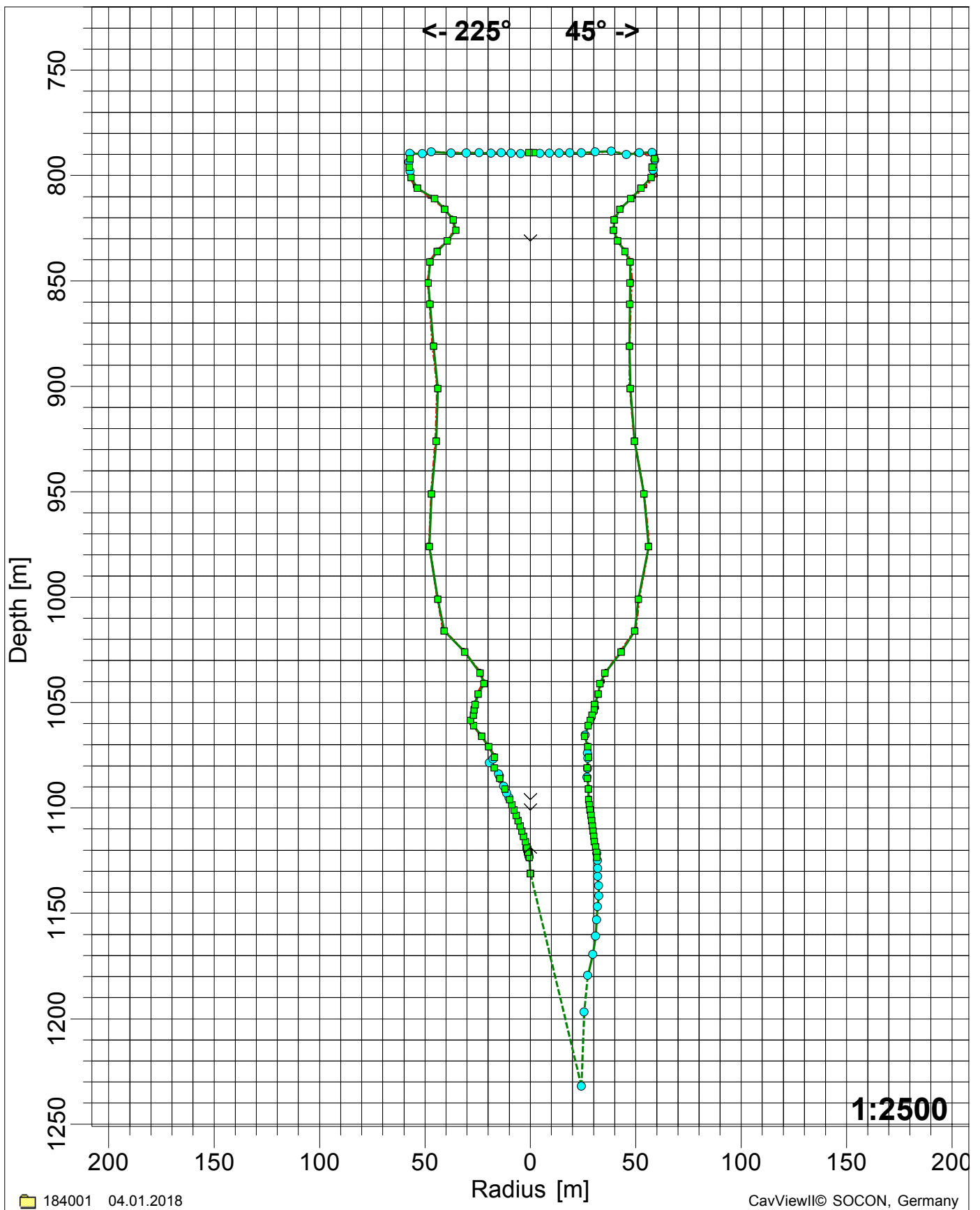
(17.05.2016)

(04.01.2018)

∨ ∨ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

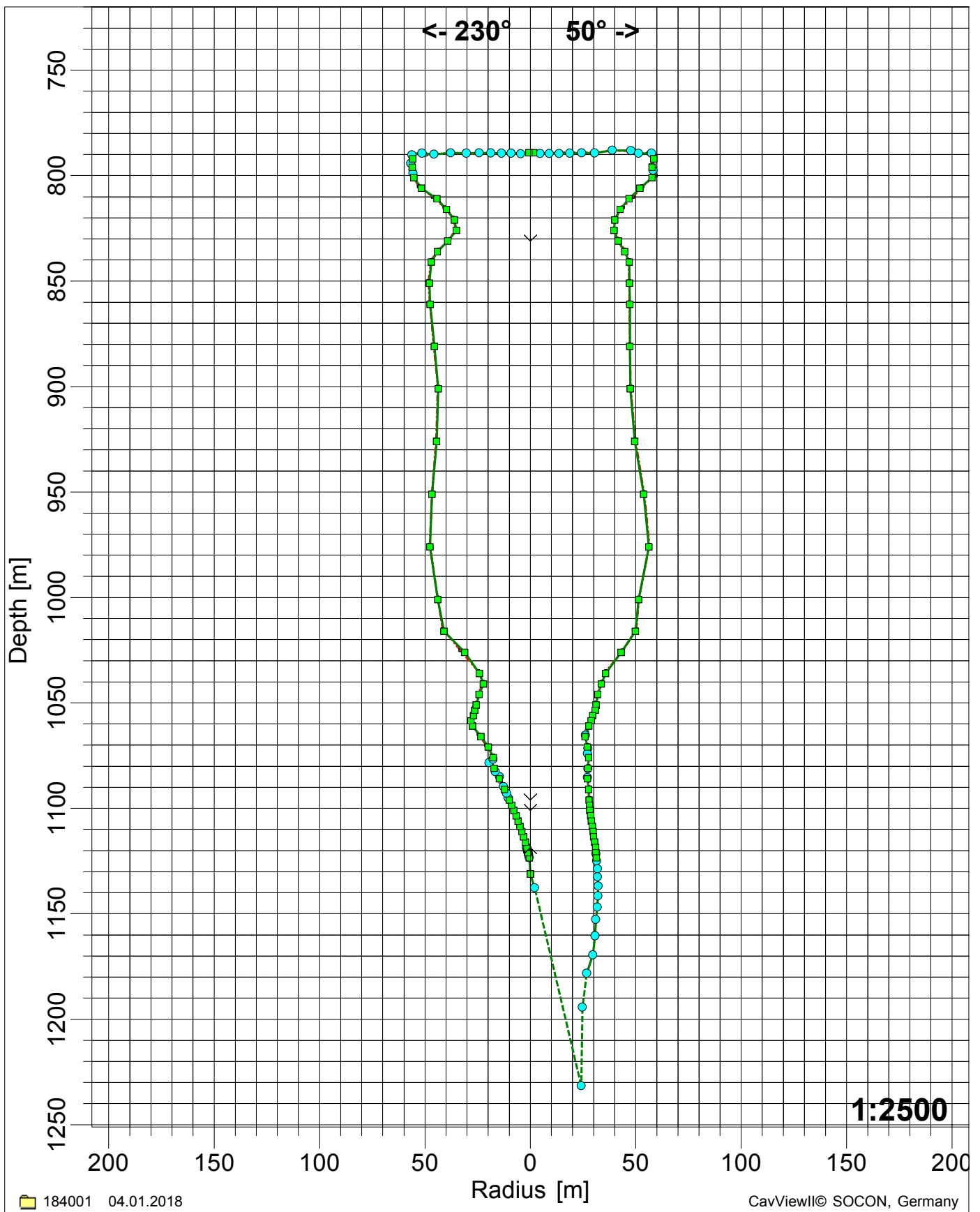
(17.05.2016)

(04.01.2018)

v ^ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

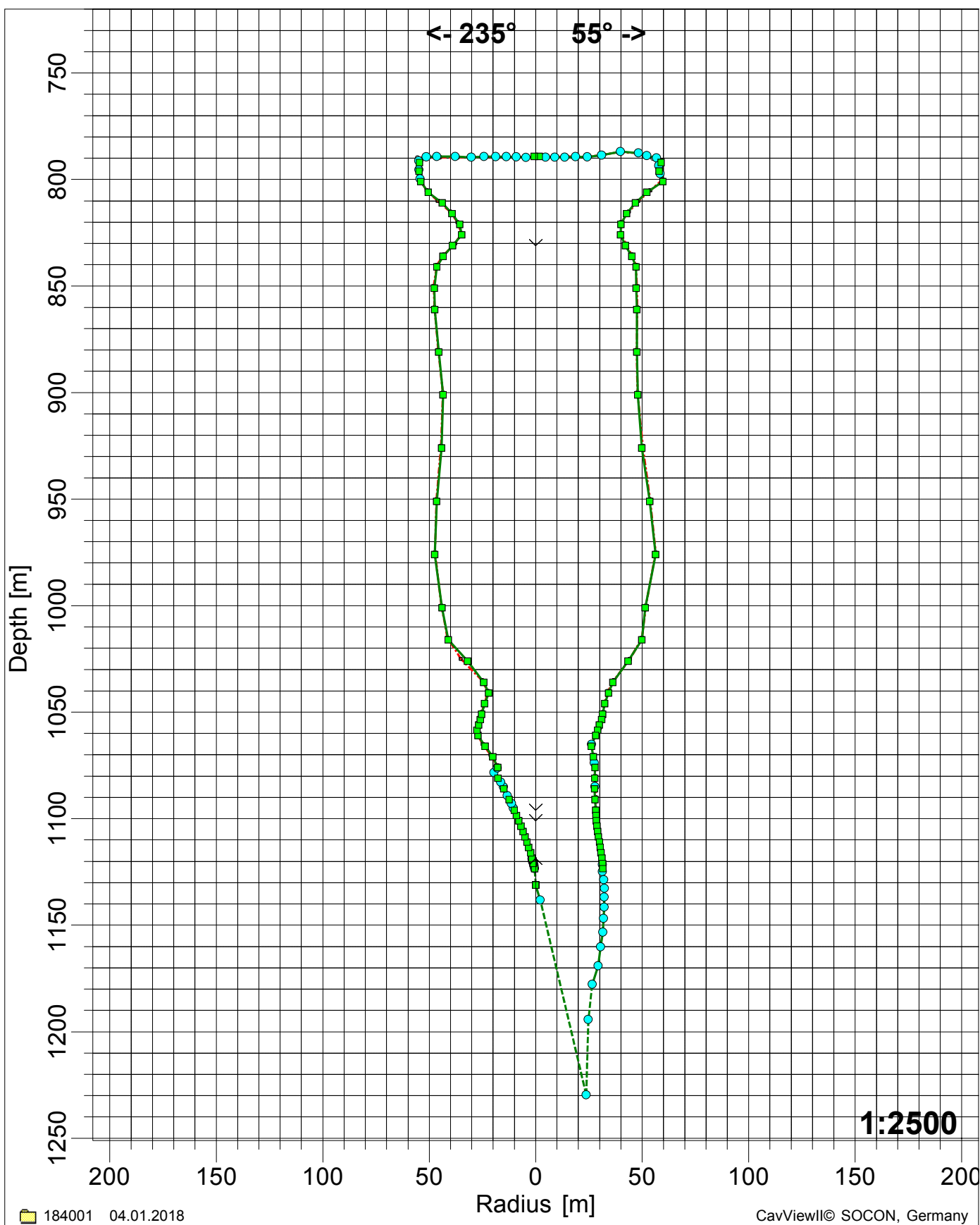
(17.05.2016)

(04.01.2018)

∨ ∨ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

(17.05.2016)

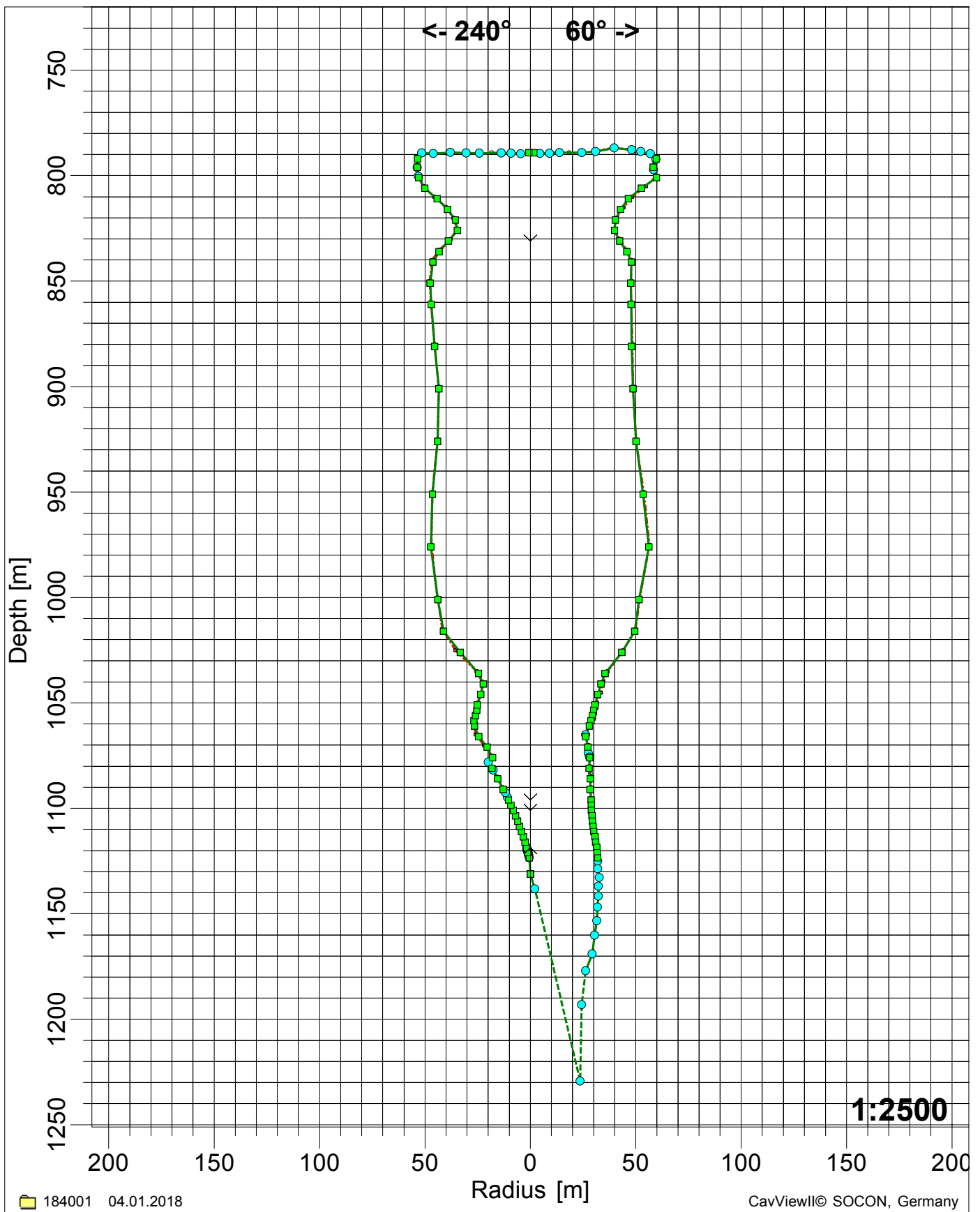
(04.01.2018)

∨ ∨ Tilting position



Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

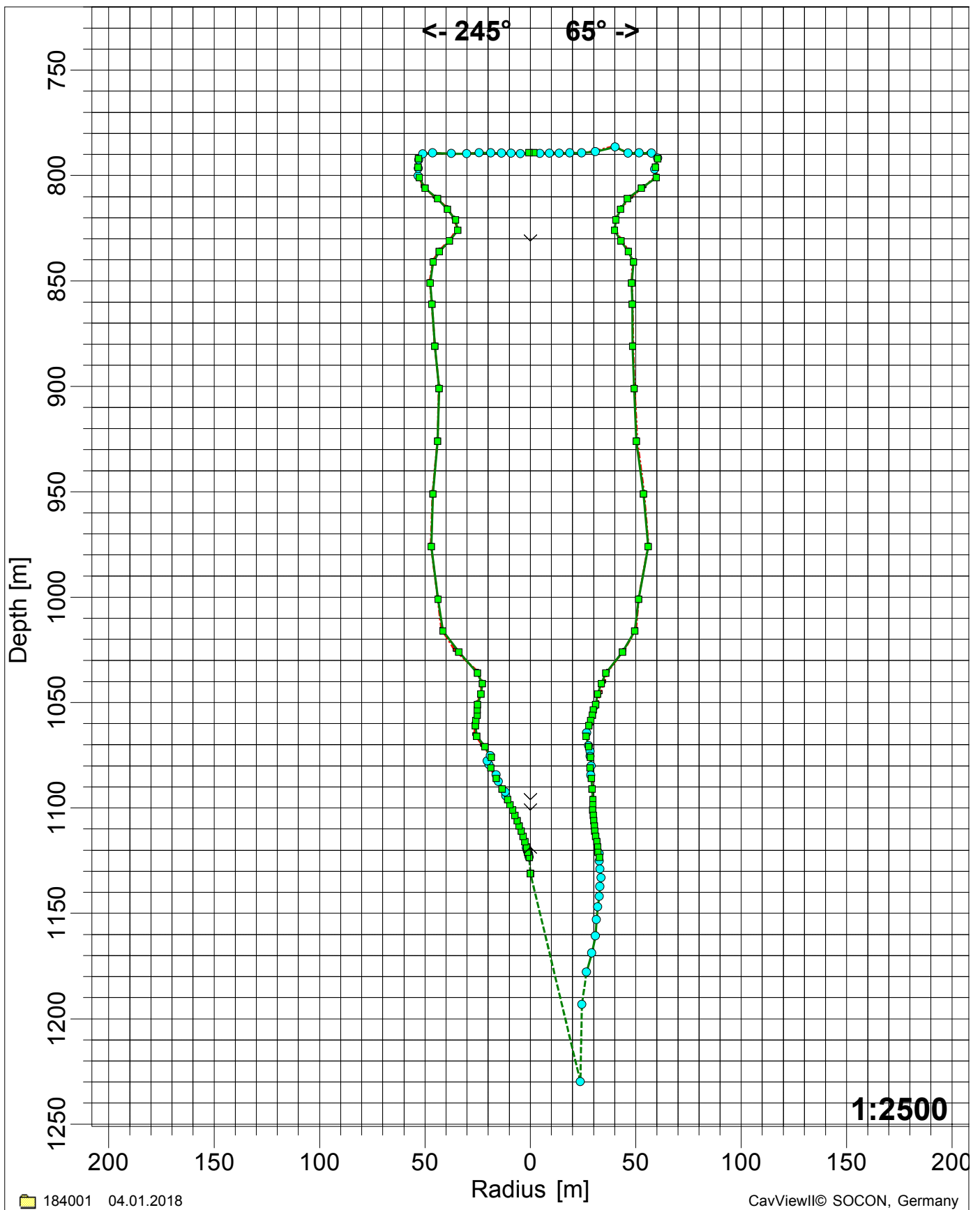
(17.05.2016)

(04.01.2018)

∨ ∨ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

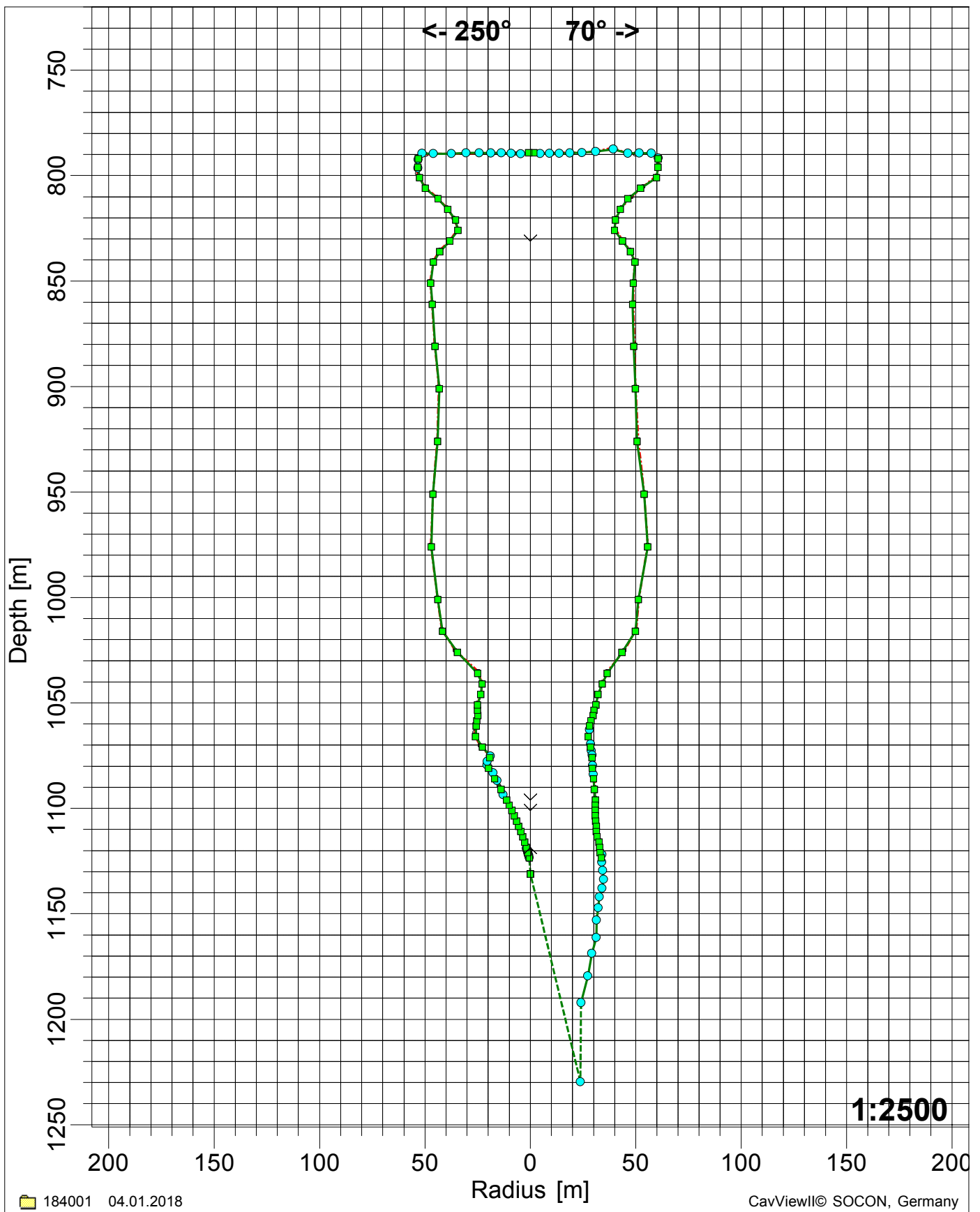
(17.05.2016)

(04.01.2018)

∨ ∨ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

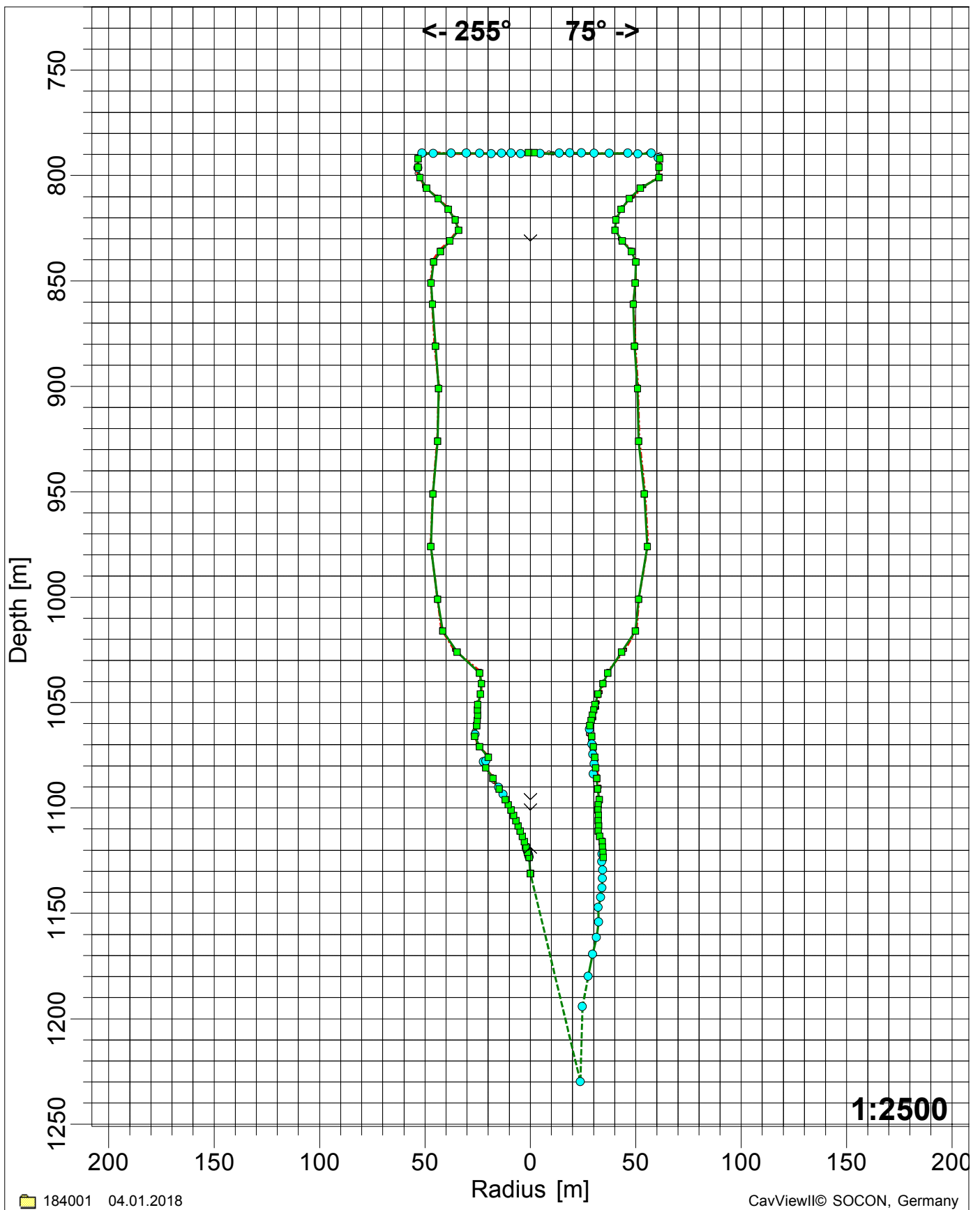
(17.05.2016)

(04.01.2018)

∨ ∨ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

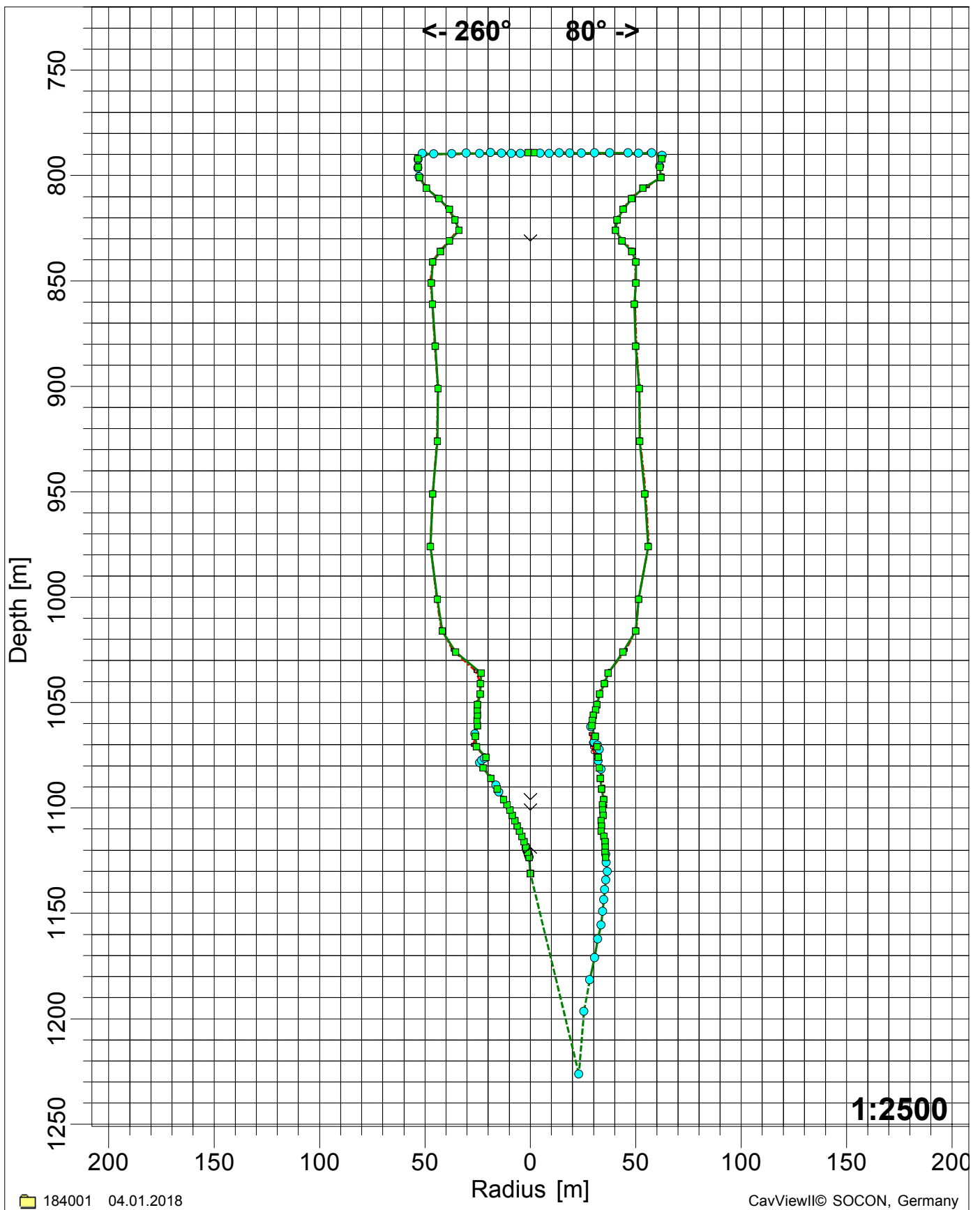
(17.05.2016)

(04.01.2018)

∨ ^ Tilting position

Heiligerlee H

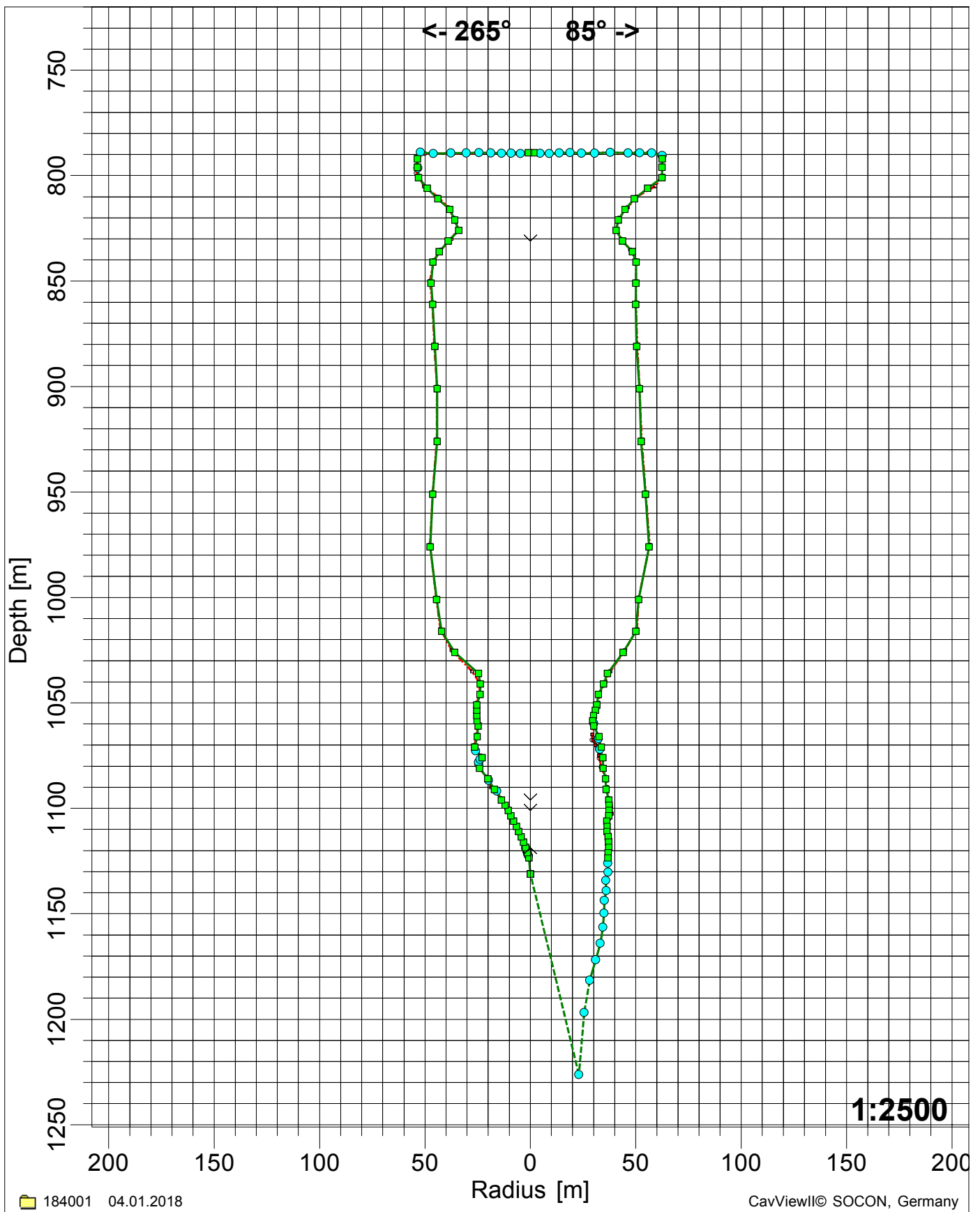
04.01.2018



|                                                                                                        |                                                                                                  |                                                                                                    |
|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
|  13 3/8" : 506.7 m  |  (17.05.2016) |  (04.01.2018) |
|  ^ Tilting position |                                                                                                  |                                                                                                    |

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

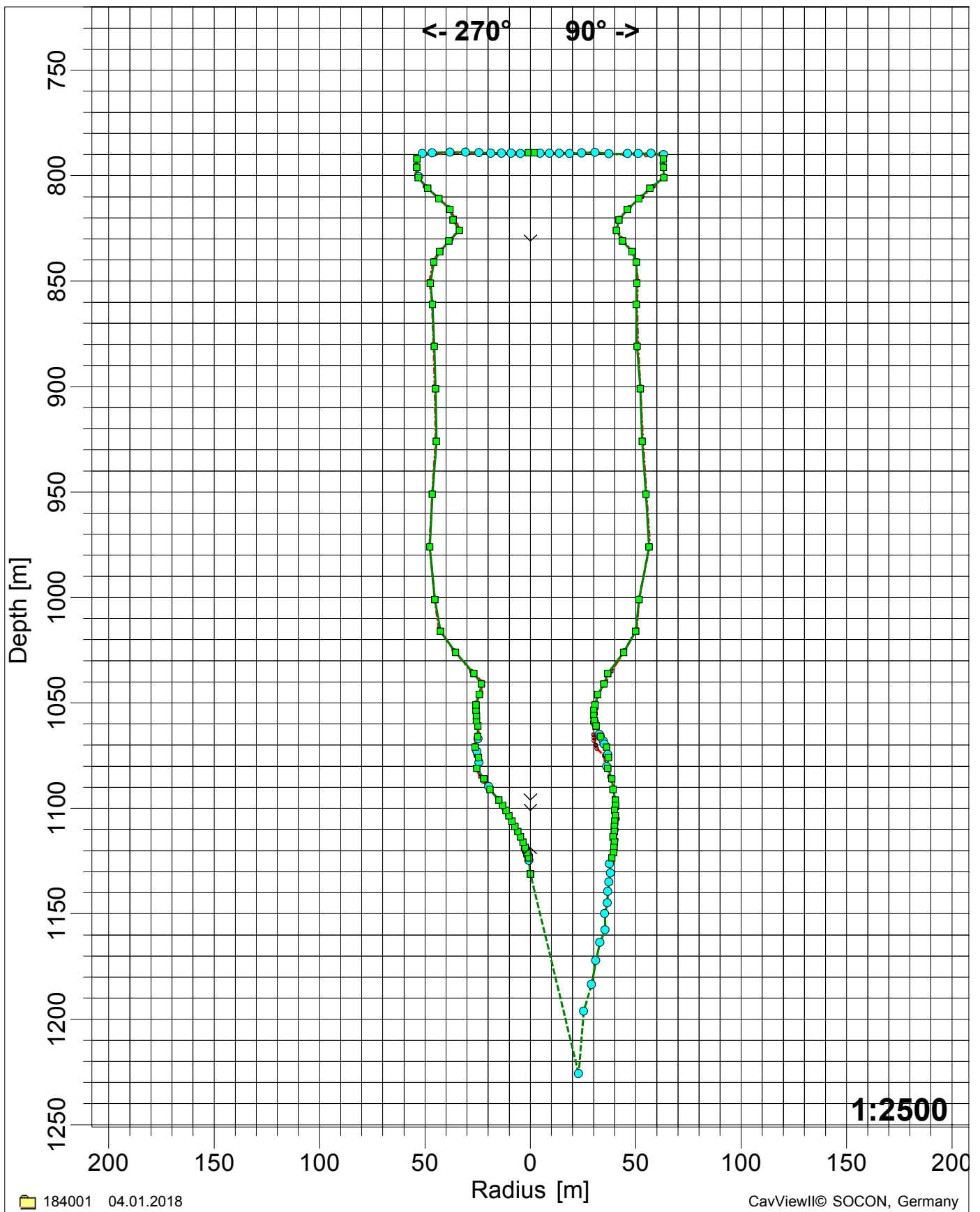
(17.05.2016)

(04.01.2018)

∨ ∨ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

(17.05.2016)

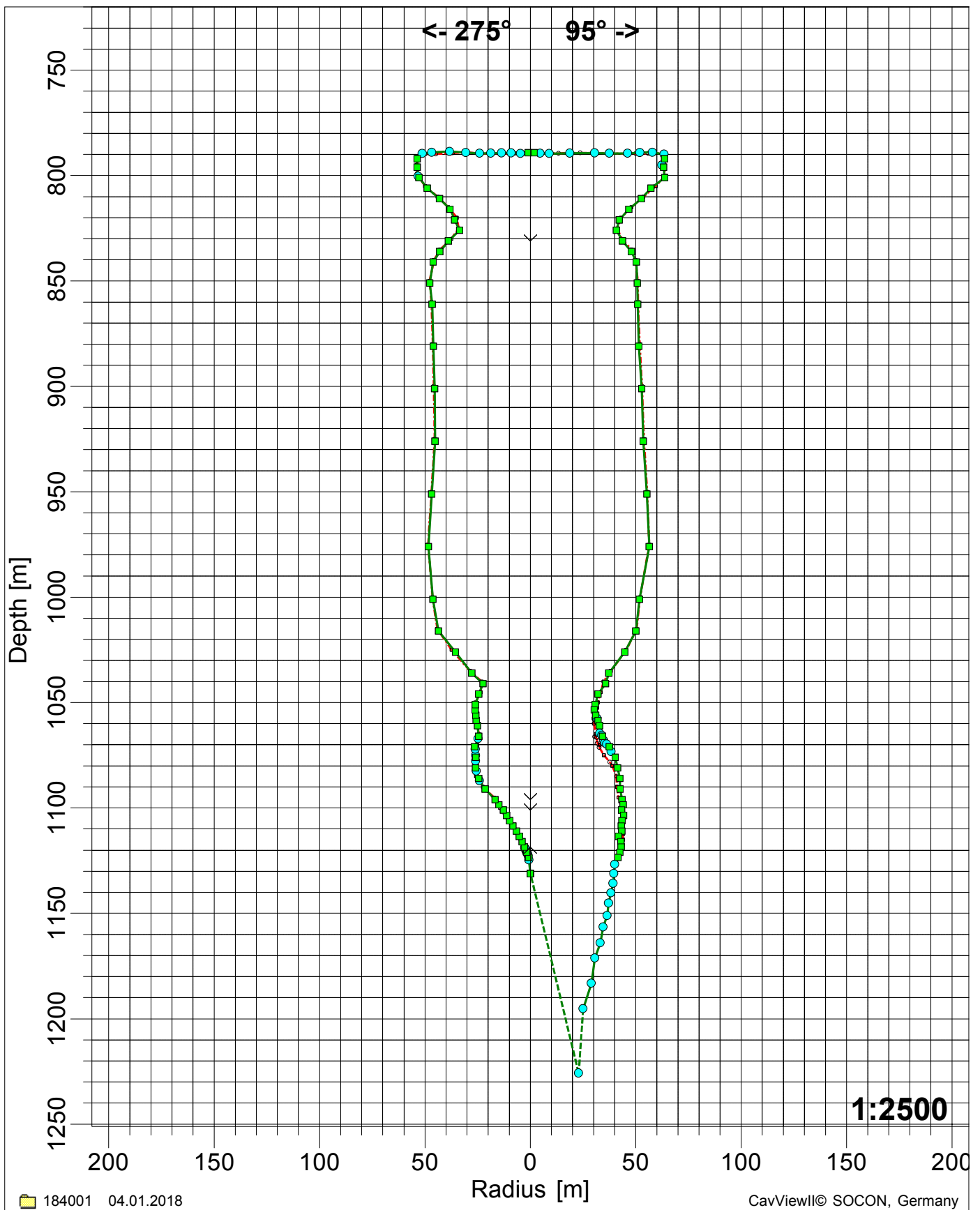
(04.01.2018)

∨ ∨ Tilting position



Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

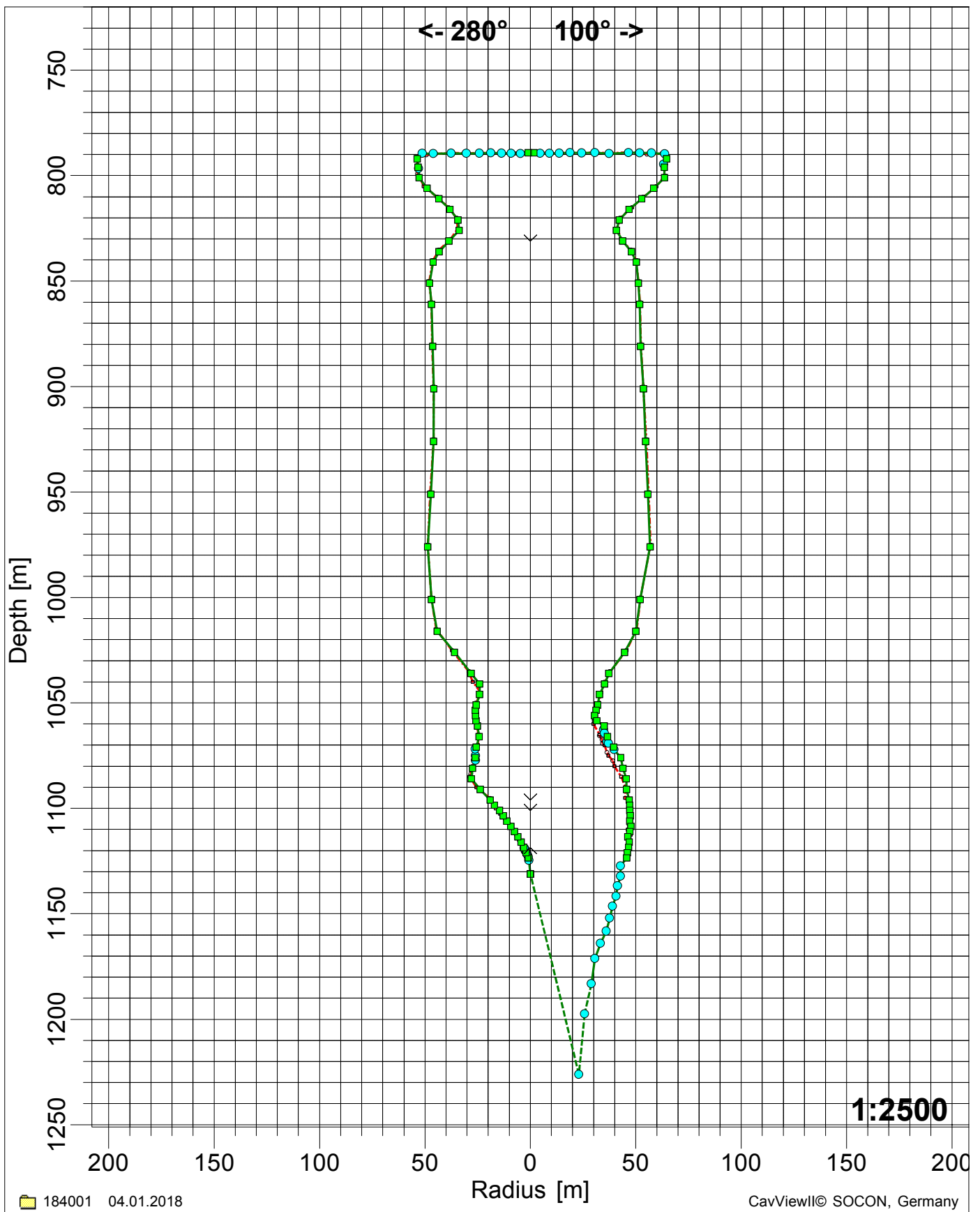
(17.05.2016)

(04.01.2018)

∨ ∨ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

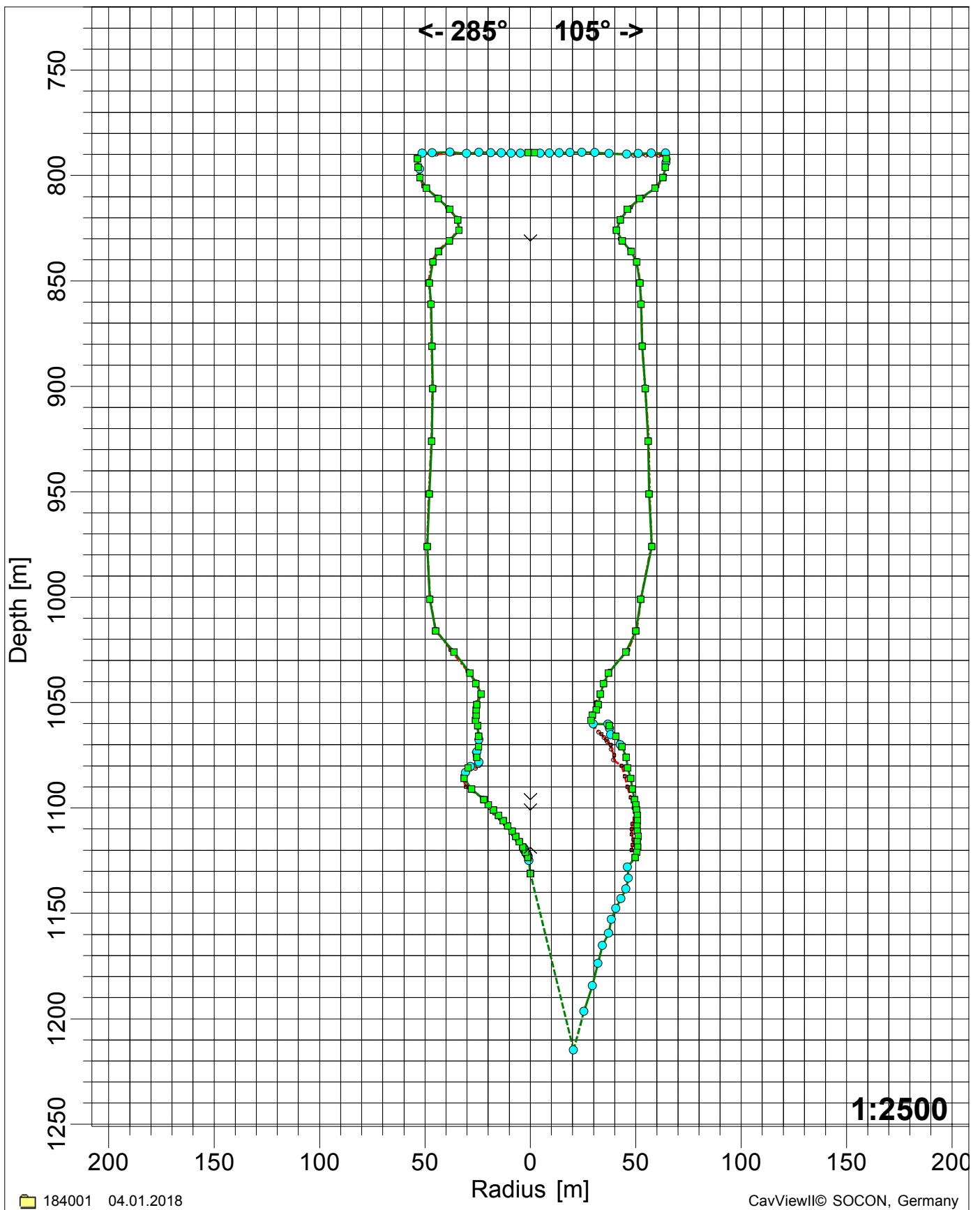
(17.05.2016)

(04.01.2018)

∨ ^ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

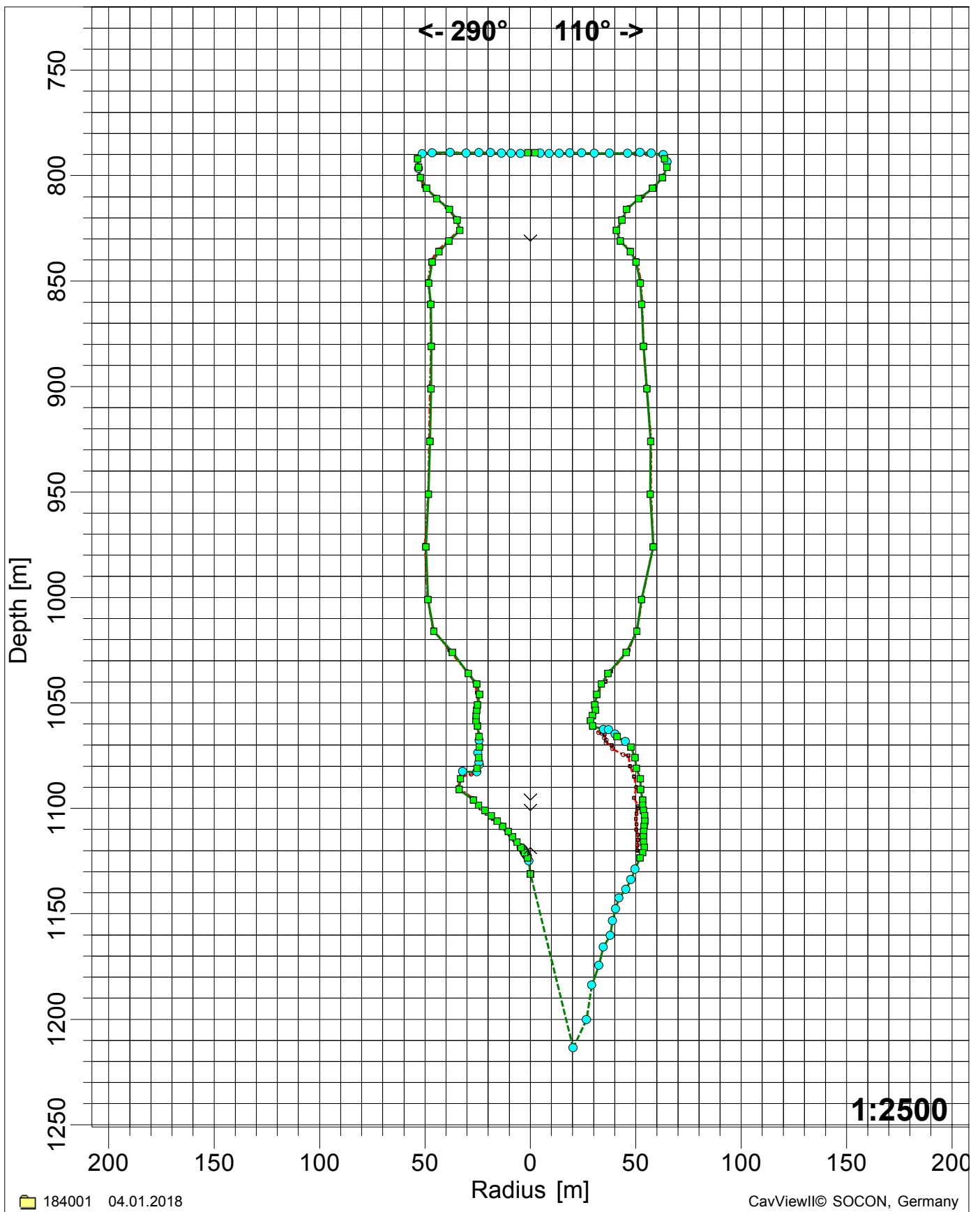
(17.05.2016)

(04.01.2018)

∨ ∨ Tilting position

Heiligerlee H

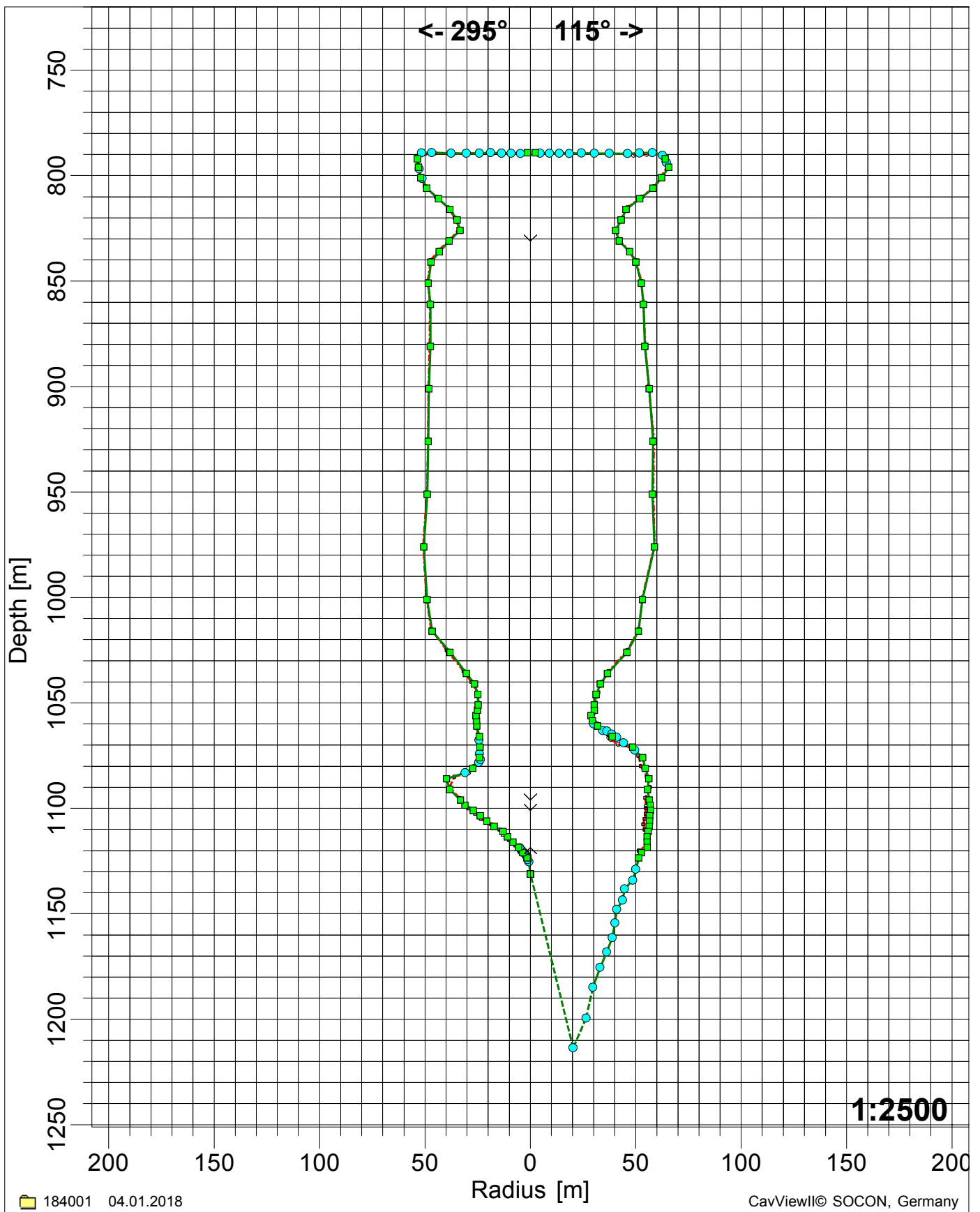
04.01.2018



|                                                                                                       |                                                                                                  |                                                                                                    |
|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
|  13 3/8" : 506.7 m |  (17.05.2016) |  (04.01.2018) |
|  Tilting position  |                                                                                                  |                                                                                                    |

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

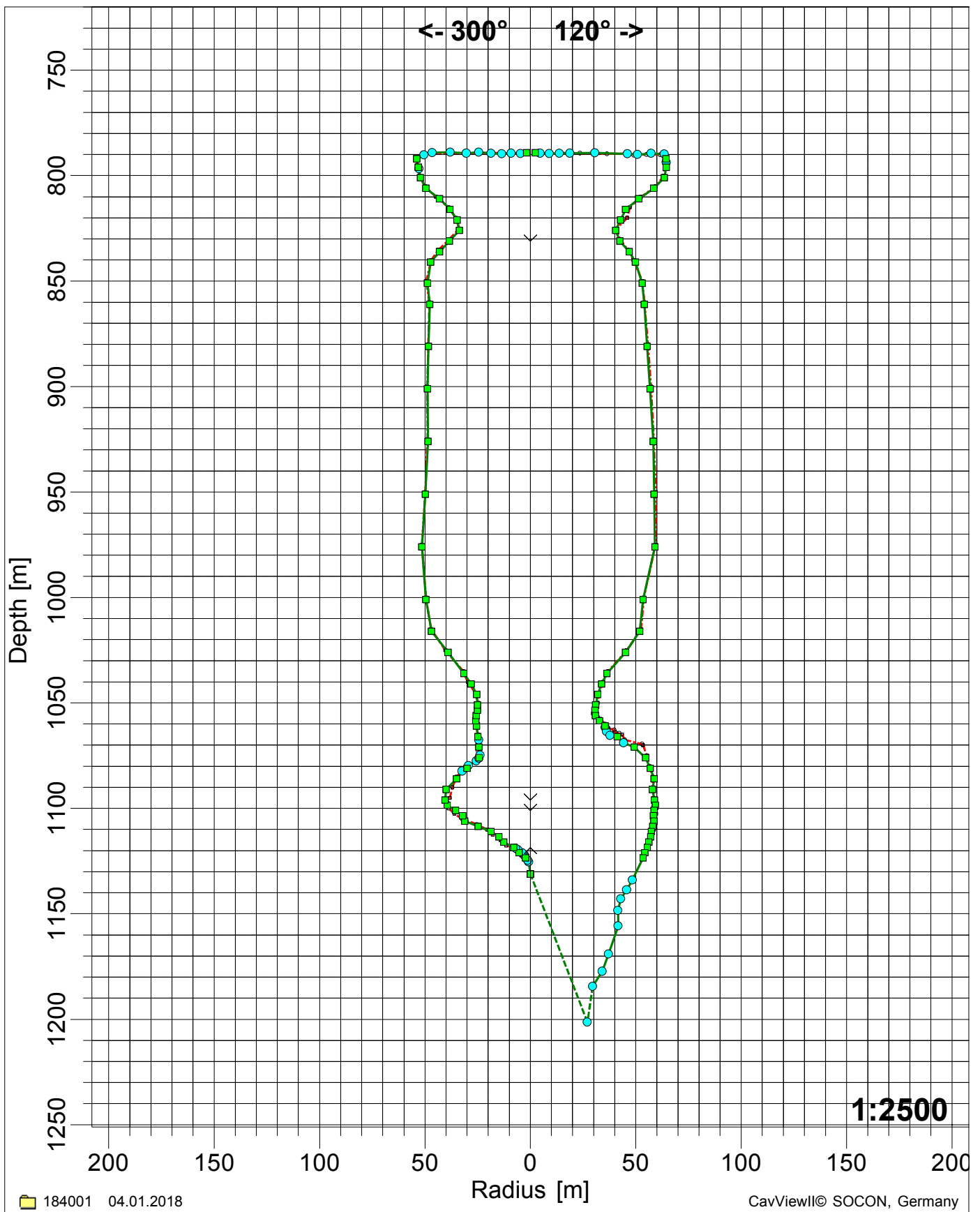
(17.05.2016)

(04.01.2018)

∨ ∨ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

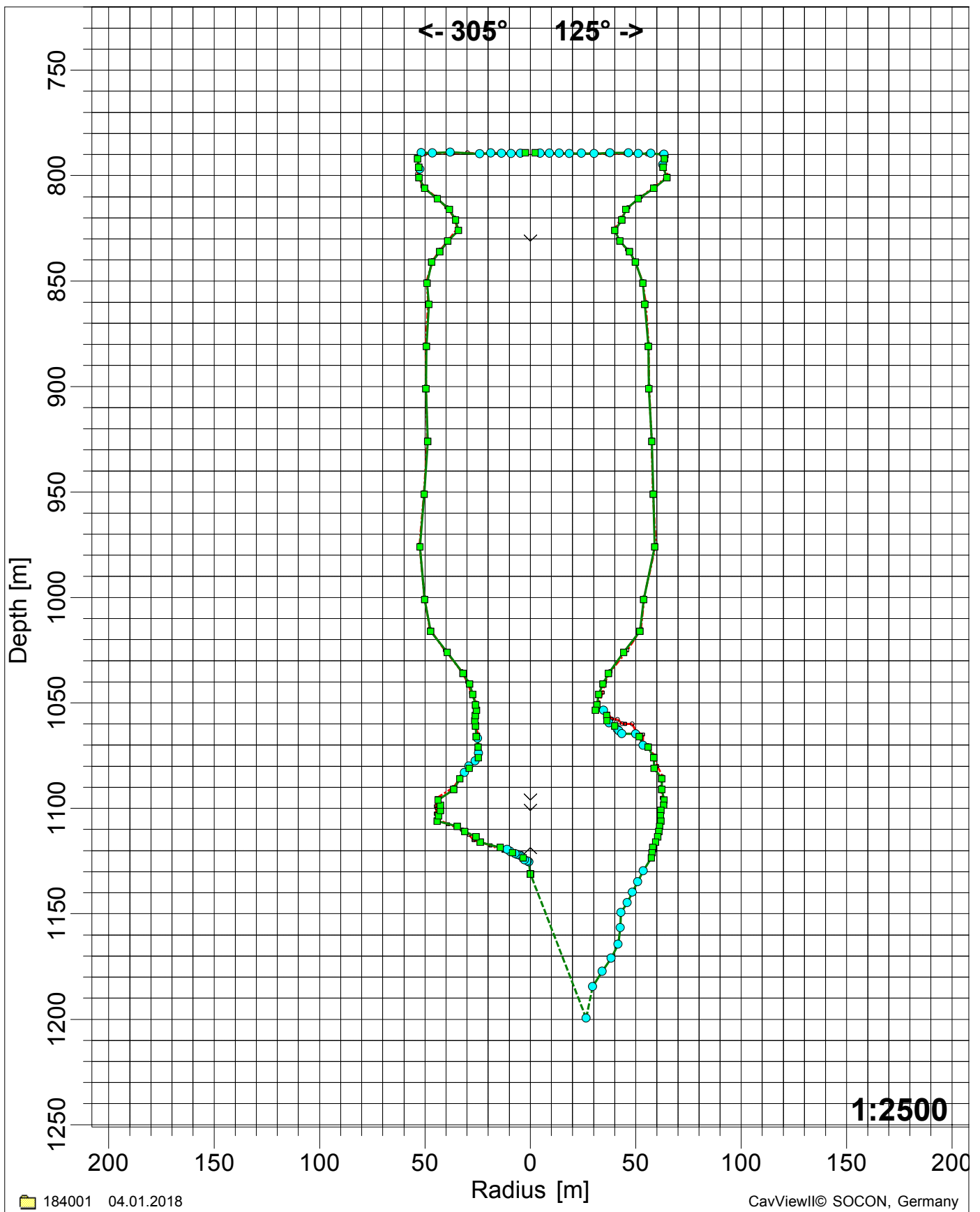
--- (17.05.2016)

— (04.01.2018)

∨ ^ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

(17.05.2016)

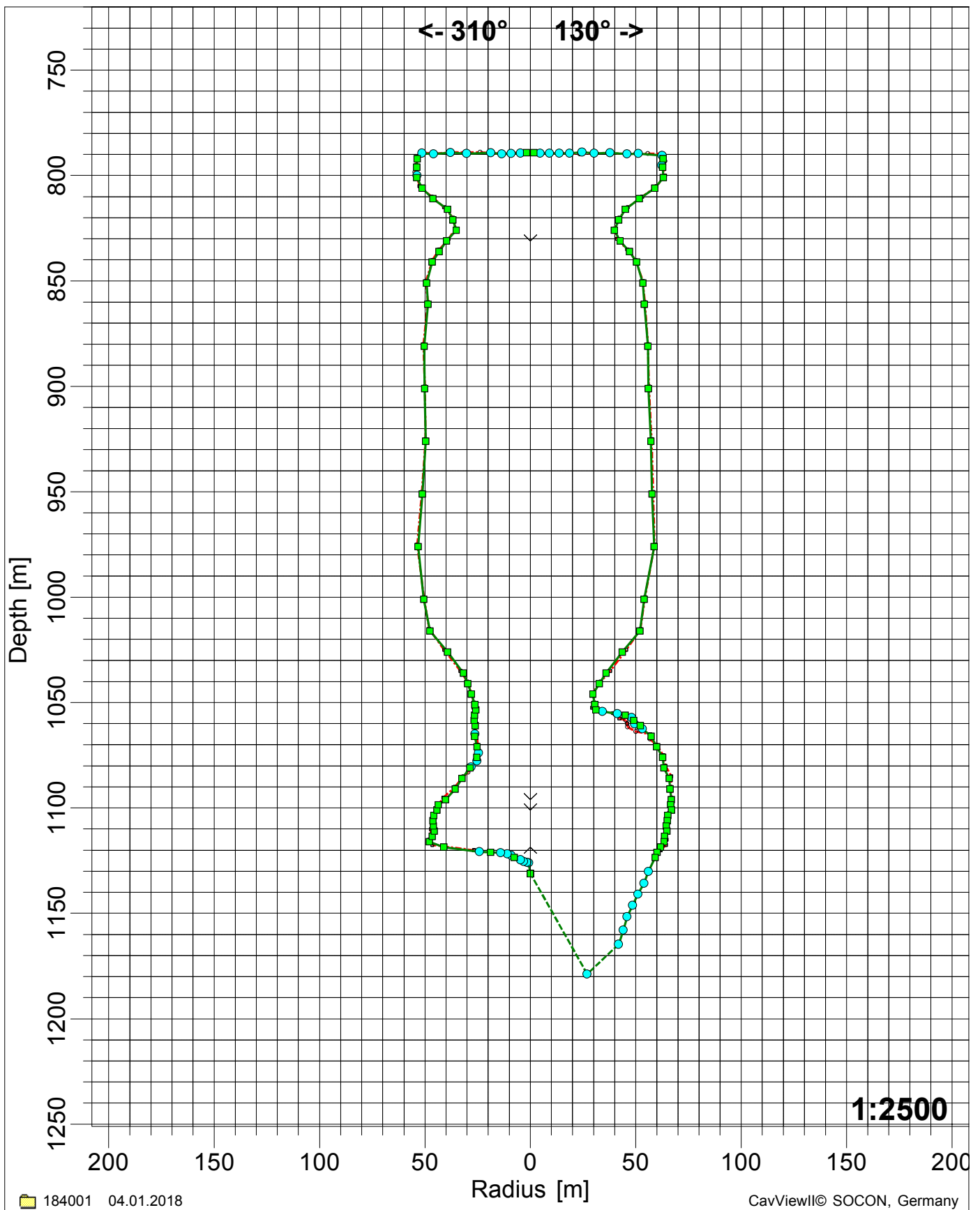
(04.01.2018)

v ^ Tilting position



Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

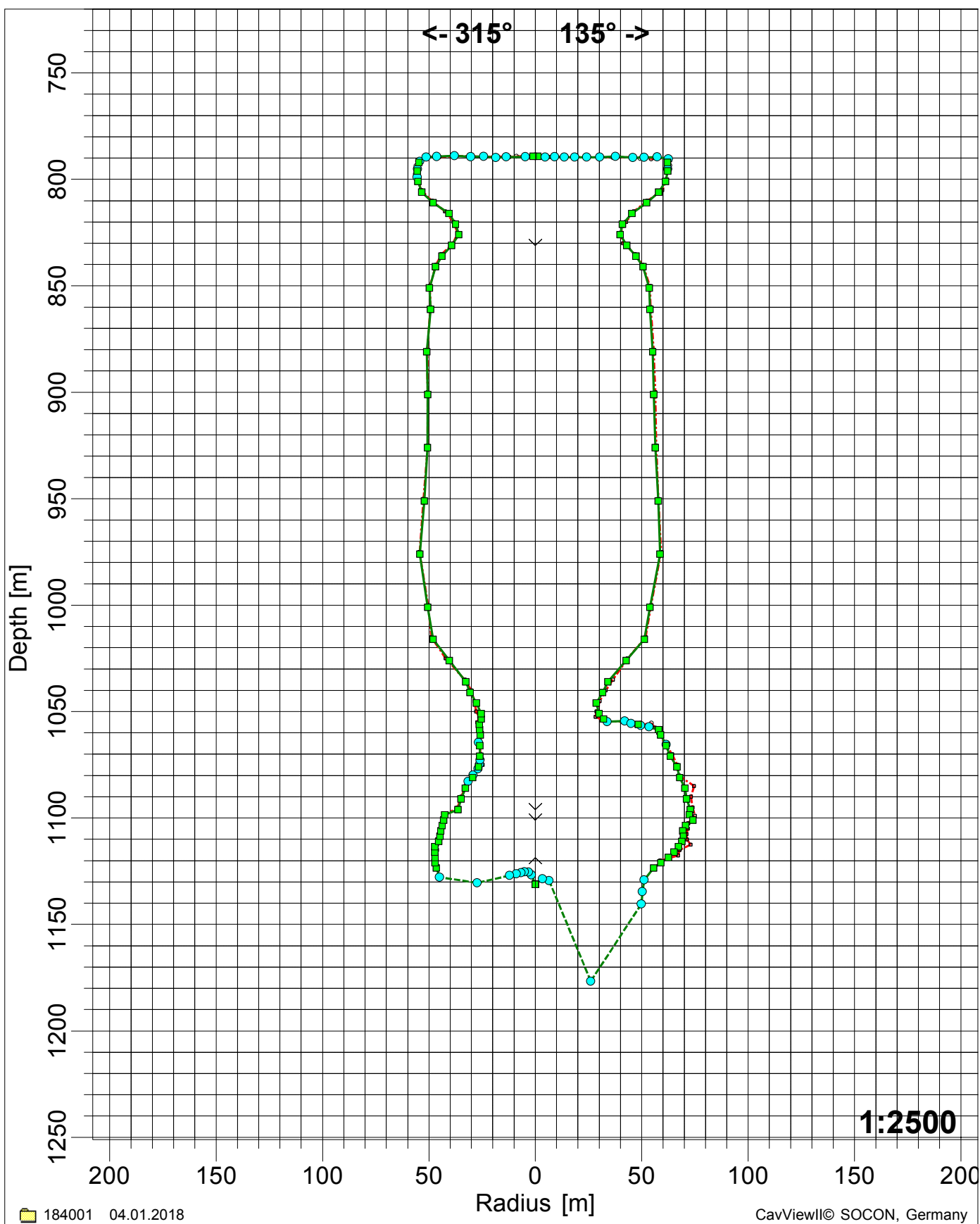
--- (17.05.2016)

— (04.01.2018)

∨ ^ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

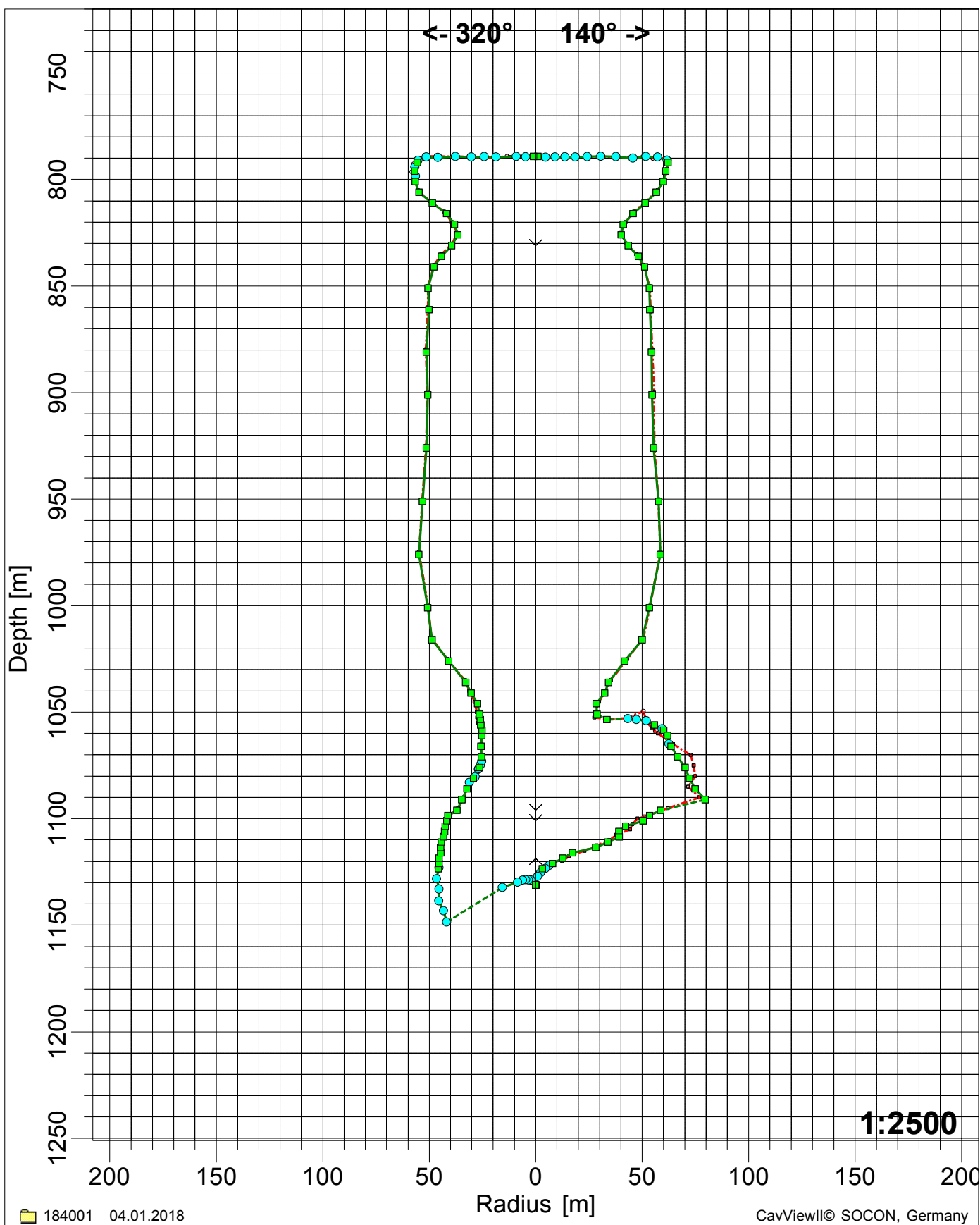
(17.05.2016)

(04.01.2018)

∨ ^ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

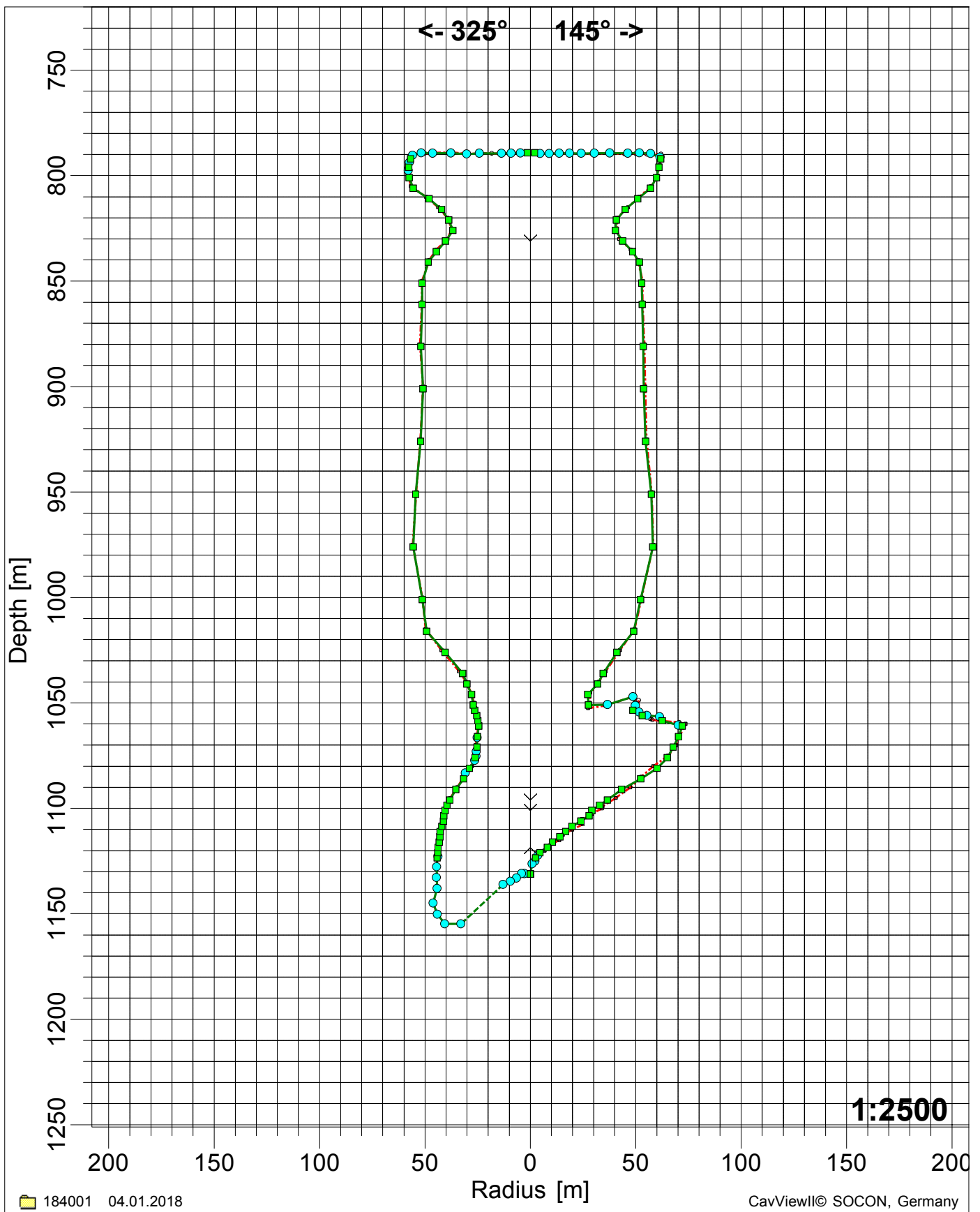
(17.05.2016)

(04.01.2018)

∨ ^ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

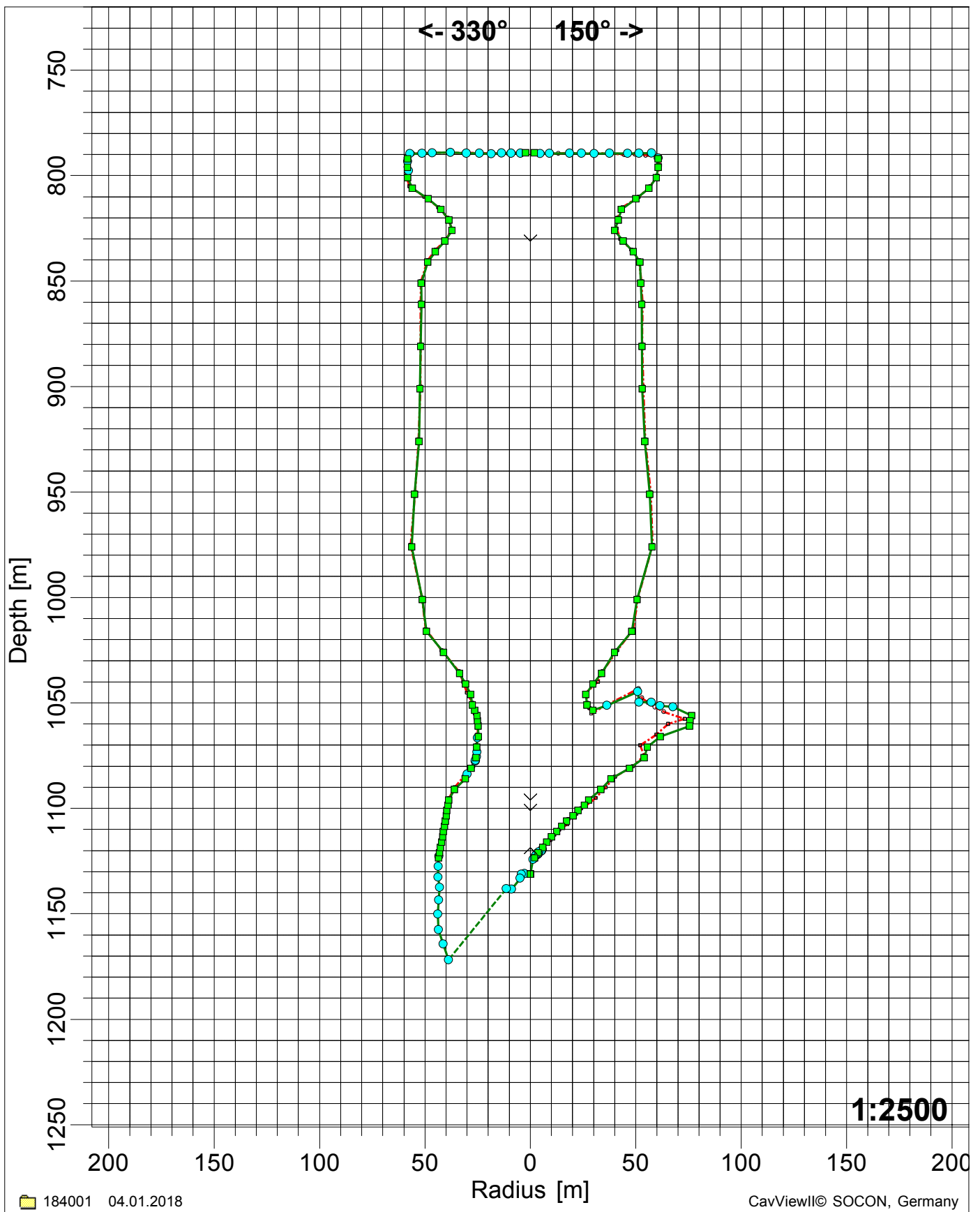
(17.05.2016)

(04.01.2018)

∨ ∨ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

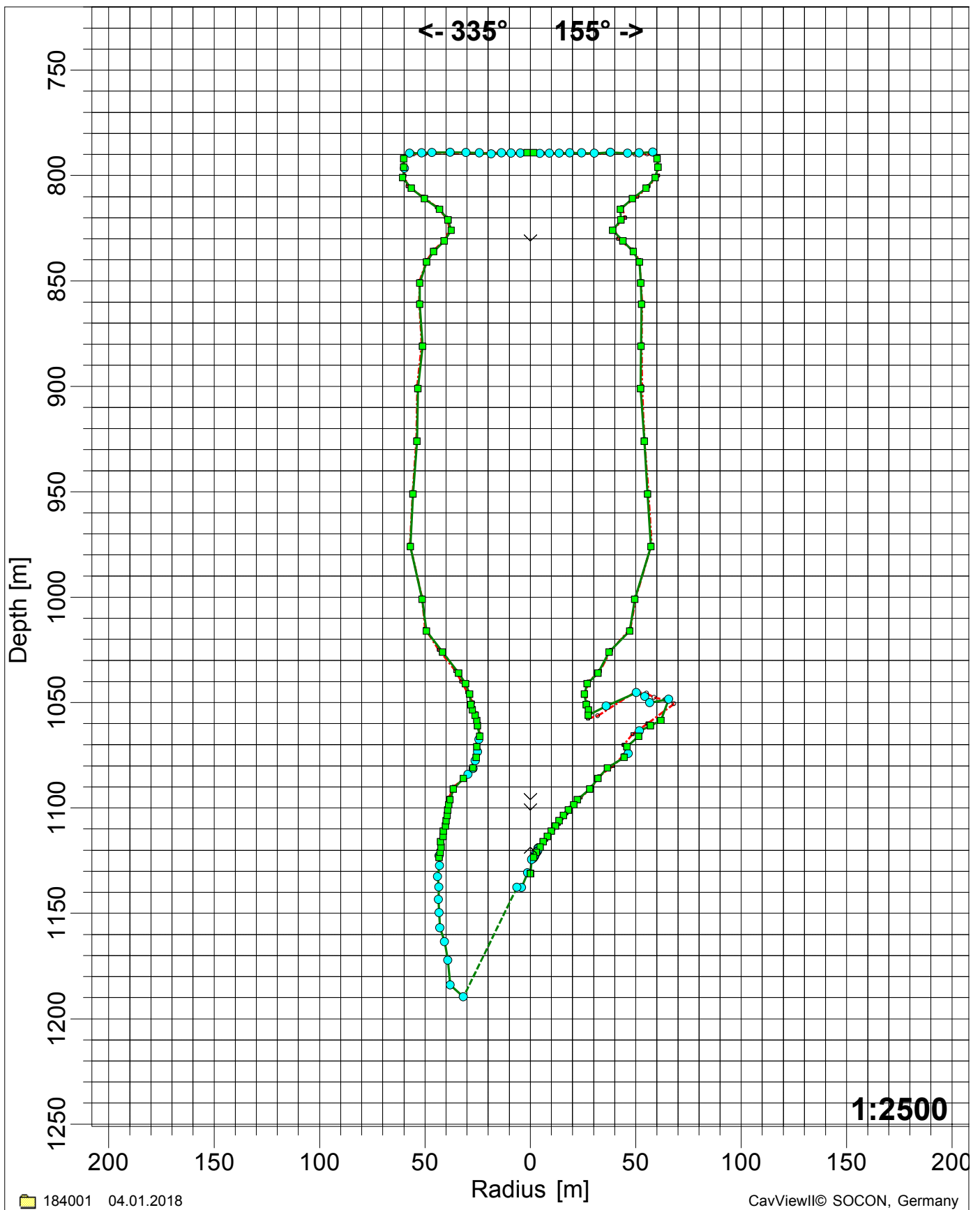
(17.05.2016)

(04.01.2018)

∨ ∨ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

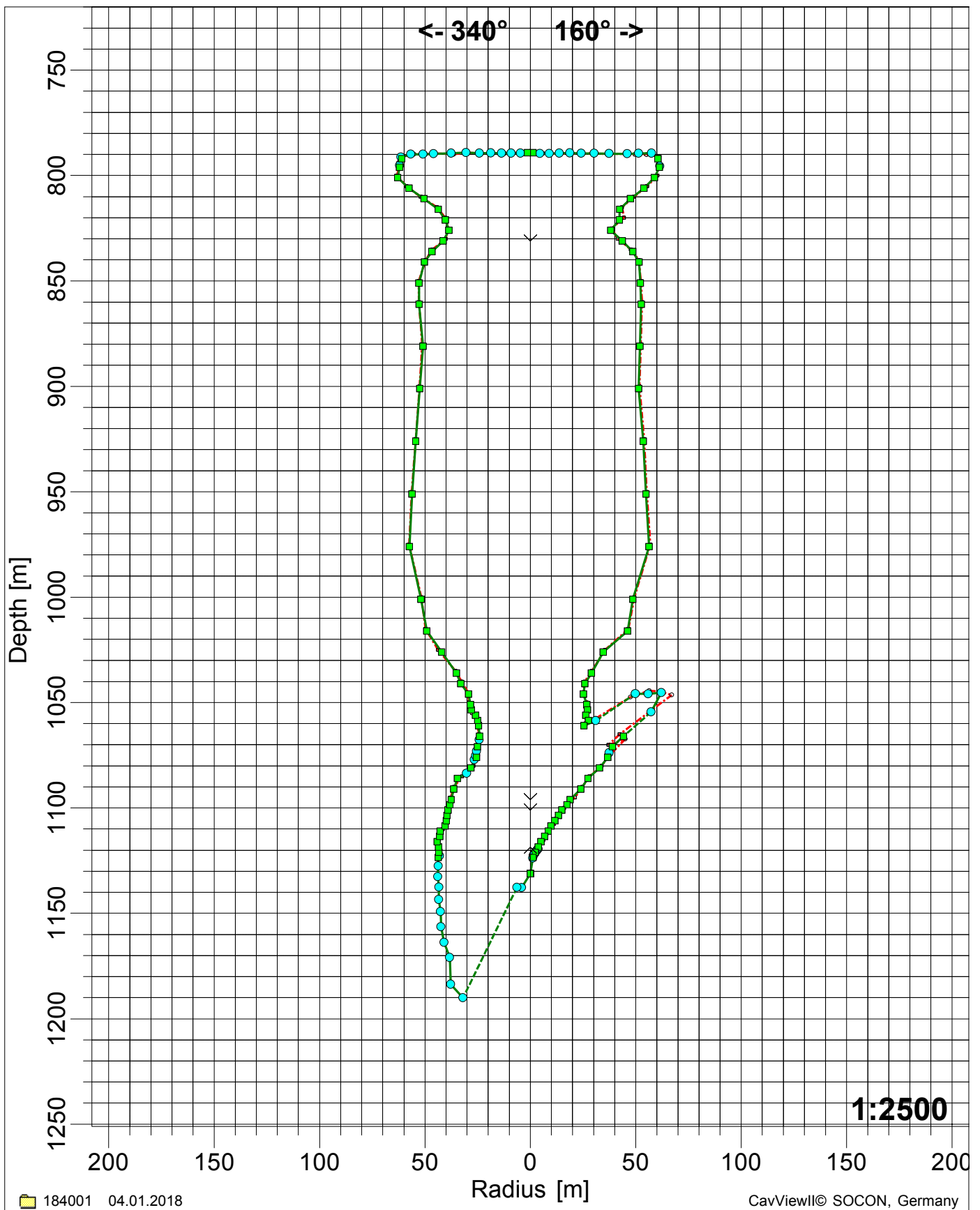
--- (17.05.2016)

— (04.01.2018)

∨ ^ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

--- (17.05.2016)

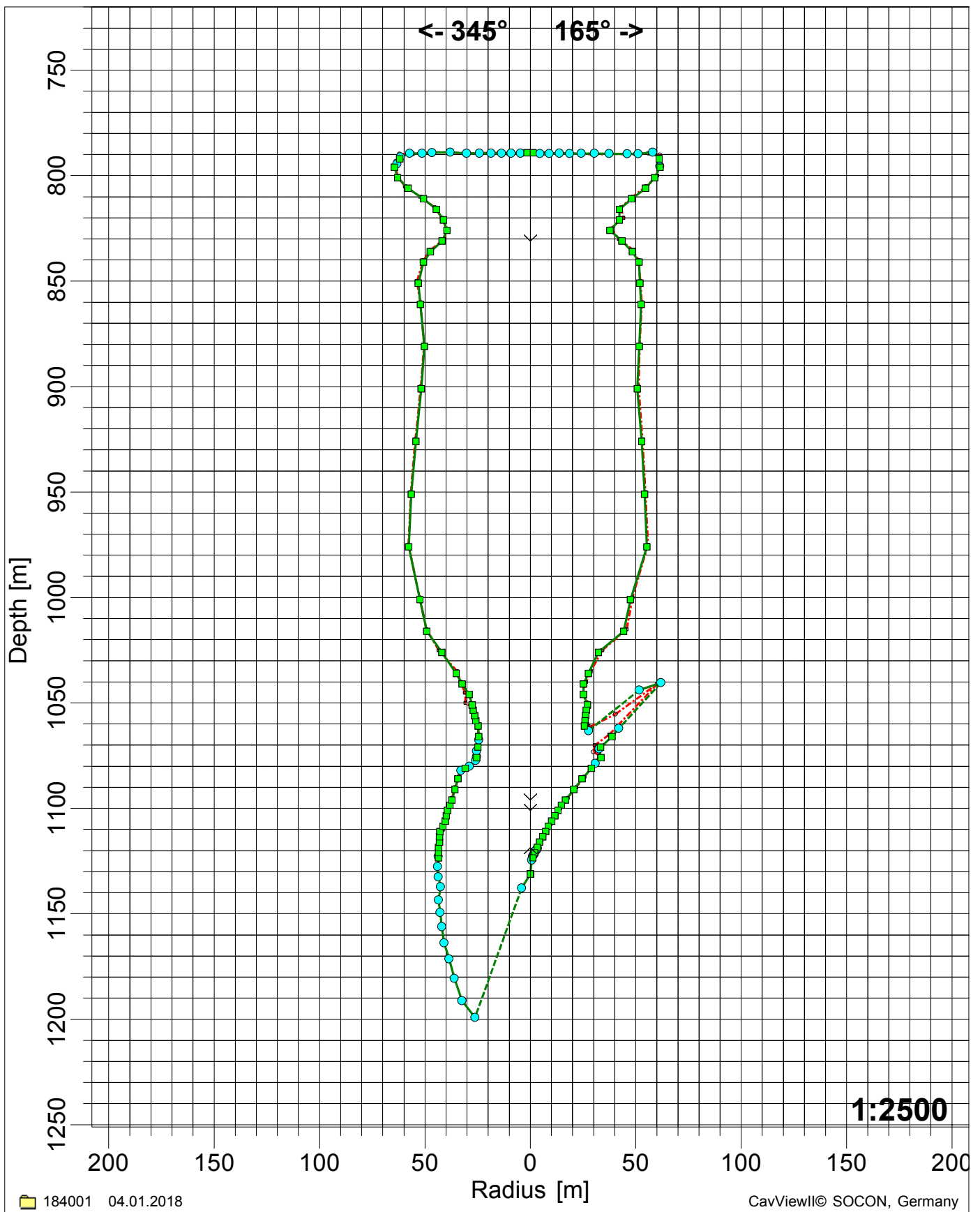
— (04.01.2018)

v ^ Tilting position



Heiligerlee H

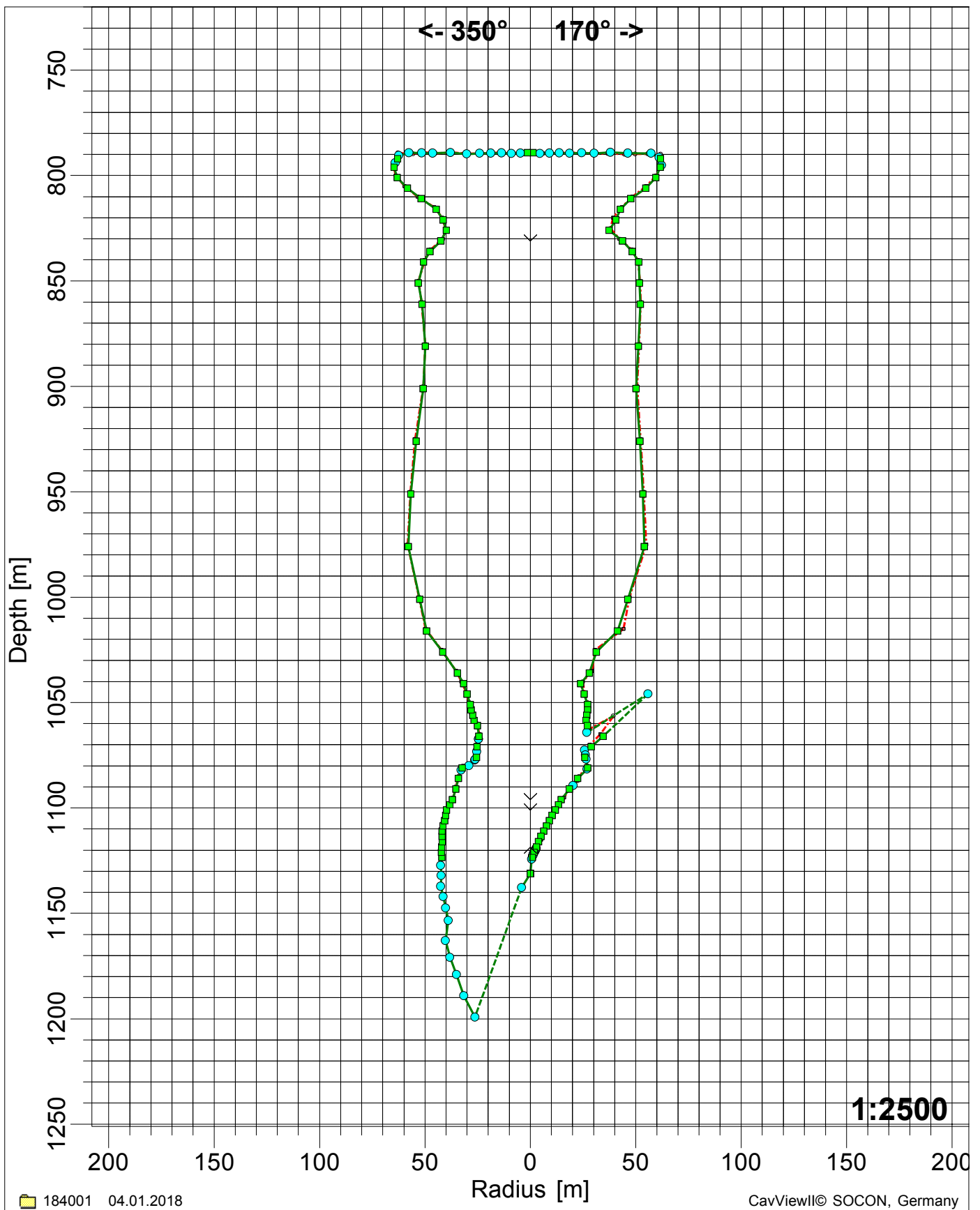
04.01.2018



|                             |                         |                       |
|-----------------------------|-------------------------|-----------------------|
| <p>13 3/8" : 506.7 m</p>    | <p>--- (17.05.2016)</p> | <p>— (04.01.2018)</p> |
| <p>∨ ∨ Tilting position</p> |                         |                       |

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

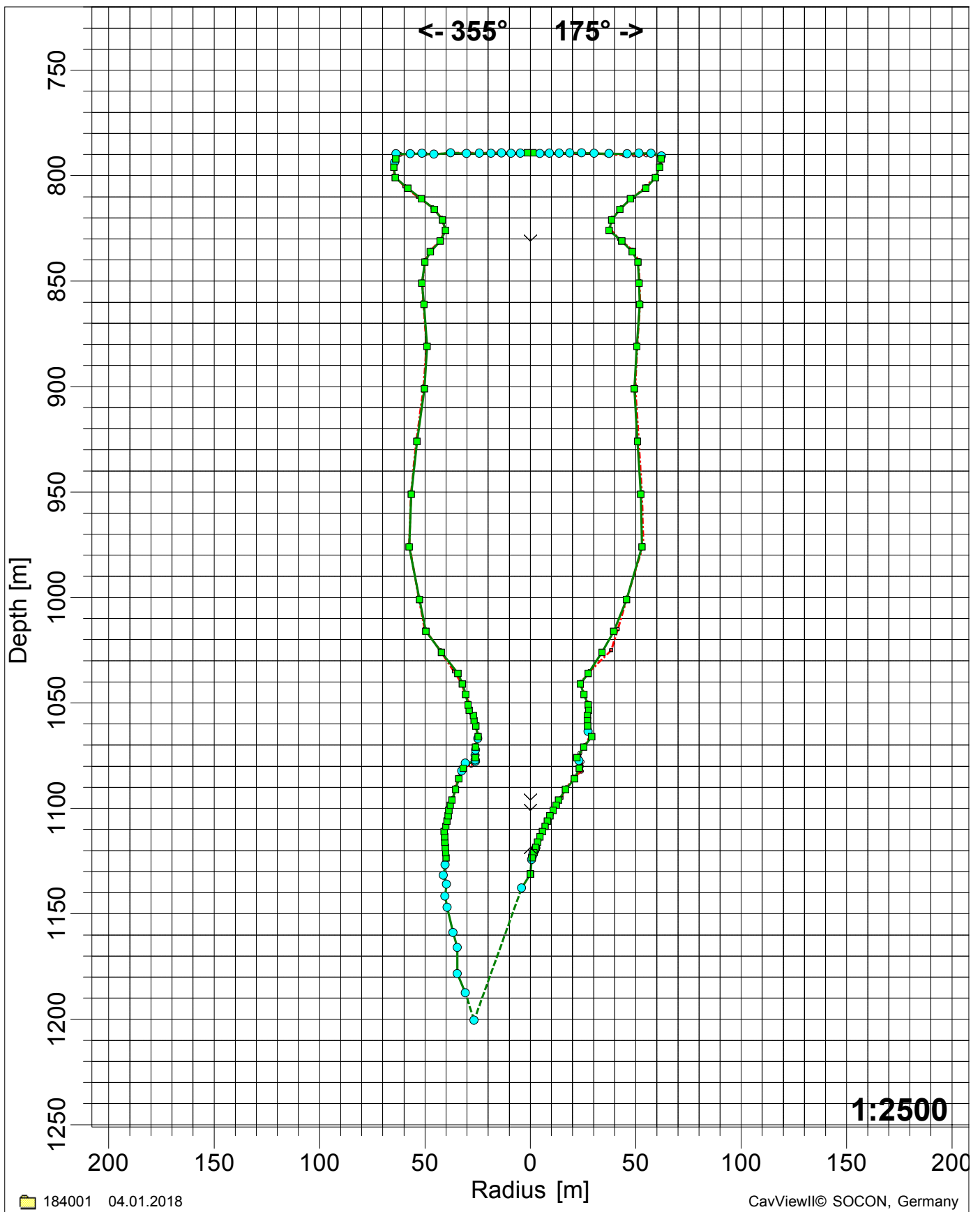
--- (17.05.2016)

—■— (04.01.2018)

∨ ^ Tilting position

Heiligerlee H

04.01.2018



13 3/8" : 506.7 m

--- (17.05.2016)

— (04.01.2018)

∨ ∨ Tilting position

Heiligerlee H

1:3000

04.01.2018

LCCS 13 3/8" at 506.7 m MD



Heiligerlee H

1:500

04.01.2018

LCCS 13 3/8" at 506.7 m MD

