



Title document:

Pile Driving Report WTG B406-G04

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Project Name:

OWF Borssele 2

Project Number:

144386

Document Number:

144386-VOOW-TF-INS-ASB-1406

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 Title: **Pile Driving Report WTG B406-G04**

Page: 2 of 126
 Date: 20-03-2020
 Rev. no.: A
 Prep.: T05

Abbreviations and Definitions

Abbreviations

ADD Acoustic Deterrence Device (FaunaGuard)
 AdBm Noise Mitigation System developed by AdBm Technologies
 DBBC Double Big Bubble Curtain
 LAT Lowest Astronomical Tide
 MNRU Menck Noise Reduction Unit
 NMS Noise Mitigation System

Table of contents

| | | |
|---|---------------------------------------------------|-----|
| 1 | Piling information | 3 |
| 2 | Pile driving log | 4 |
| 3 | Bubble curtain information (Eagle Frontier) | 124 |
| 4 | Noise Measurement | 126 |

Project: **OWF Borssele 2**
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 Title: **Pile Driving Report WTG B406-G04**

Page: 3 of 126
 Date: 20-03-2020
 Rev. no.: A
 Prep.: T05

1 Piling information

| | | |
|-------------------------------|------------------------------------|----------------------|
| Pile ID | | WTG B406-G04 |
| Position | Easting [m] | 498652.36 |
| | Northing [m] | 5736892.41 |
| Date [dd-mm-yyyy] | | 19-03-2020 |
| Water depth [m LAT] | | 31.78 |
| Used NMS | | AdBm + DBBC set 2(*) |
| ADD | Time start ADD [dd-mm-yy hh:mm] | |
| | Time stop ADD [dd-mm-yy hh:mm] | |
| BBC | Time BBC active [dd-mm-yy hh:mm] | |
| | Time BBC inactive [dd-mm-yy hh:mm] | |
| Piling | Time start piling [dd-mm-yy hh:mm] | |
| | Time stop piling [dd-mm-yy hh:mm] | |
| Cumulative energy [kJ] | | |

(*): Set 1, Set 2: 'old' nozzle hoses
 Set 3: 'new' nozzle hoses

Project: **OWF Borssele 2**
Project no: **144386**
Doc.no: **144386-VOOW-TF-INS-ASB-1406**
Title: **Pile Driving Report WTG B406-G04**

Page: 4 of 126
Date: 20-03-2020
Rev. no.: A
Prep.: T05

2 Pile driving log

- Penetration list

Project: **OWF Borssele 2**
Project no: **144386**
Doc.no: **144386-VOOW-TF-INS-ASB-1406**
Title: **Pile Driving Report WTG B406-G04**

Page: 122 of 126
Date: 20-03-2020
Rev. no.: A
Prep.: T05

- Blowcount curve

Project: **OWF Borssele 2**
Project no: **144386**
Doc.no: **144386-VOOW-TF-INS-ASB-1406**
Title: **Pile Driving Report WTG B406-G04**

Page: 124 of 126
Date: 20-03-2020
Rev. no.: A
Prep.: T05

3 Bubble curtain information (Eagle Frontier)

- As-laid survey
- Compressor log

As-laid survey:

Compressor log:

HYDROTECHNIK LÜBECK GMBH

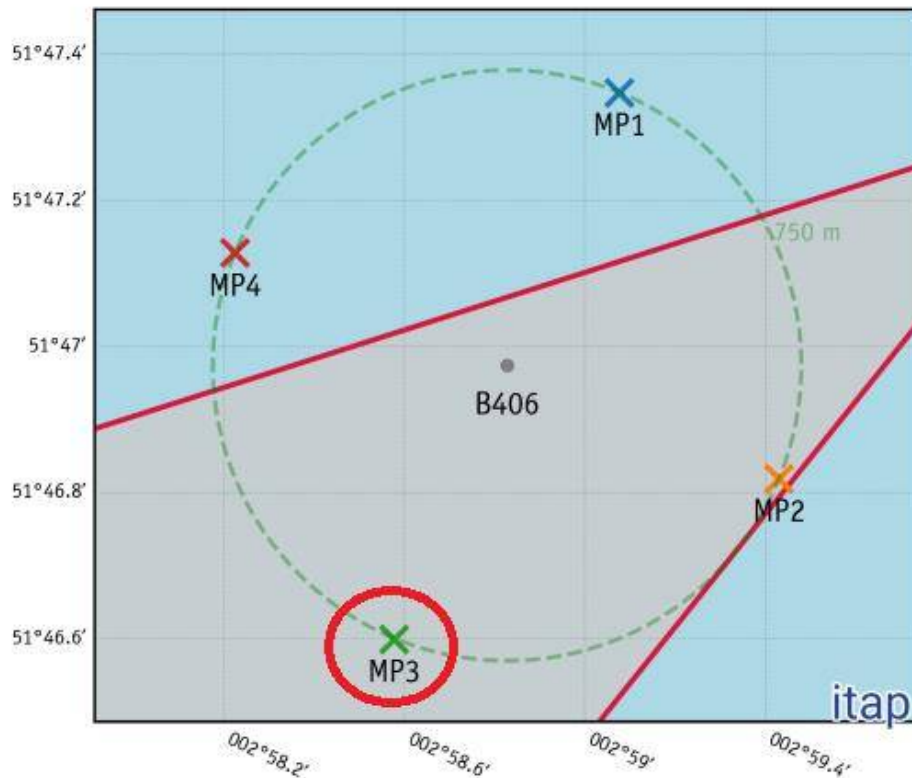
GROOTKOPPEL 33 / 23566 LÜBECK

| Project: Borssele 3+4 OWF / DBBC Protocol | | | | | | | | | |
|-------------------------------------------------------------------------------------------------|------------|--------------------------|------------------|-------------------|-----------------------------------|-----------------------------------------------------------------------------|--------------------------|---------|-------------------|
| Installation Vessel: AEOLUS | | | | | BBC Vessel: EAGLE FRONTIER | | | | |
| Date: 19.03.2020 | | | Wind: 040°, 10kt | | | Current: 090°, 0,4kn | | | |
| Foundation: G04 | | | | | Water Depth: 30m | | | | |
| Inner Hose (660m) Nr.: I2 | | | | | Air Supply Hose L= 45m | | | | |
| Outer Hose (900m) Nr.: A2 | | | | | Air Supply Hose L= 45m | | | | |
| Compressors / Compressor Type: Atlas Copco PTS 916 | | | | | | | | | |
| Nr. | Serial-Nr. | RPM [min ⁻¹] | P [bar] | Time | Nr. | Serial-Nr. | RPM [min ⁻¹] | P [bar] | Time |
| | | | | on: off: t: | | | | | on: off: t: |
| | | | | on: off: t: | | | | | on: off: t: |
| | | | | on: off: t: | | | | | on: off: t: |
| | | | | on: off: t: | | | | | on: off: t: |
| | | | | on: off: t: | | | | | on: off: t: |
| | | | | on: off: t: | | | | | on: off: t: |
| | | | | on: off: t: | | | | | on: off: t: |
| | | | | on: off: t: | | | | | on: off: t: |
| | | | | on: off: t: | | | | | on: off: t: |
| | | | | on: off: t: | | | | | on: off: t: |
| Interval checks of compressors readings (If NOT OK new form will be made with the new readings) | | | | | | | | | |
| Time: | | OK: | | Not OK: | Time: | | OK: | | Not OK: |
| Time: | | OK: | | Not OK: | Time: | | OK: | | Not OK: |
| Time: | | OK: | | Not OK: | Time: | | OK: | | Not OK: |
| Time: | | OK: | | Not OK: | Time: | | OK: | | Not OK: |
| Time: | | OK: | | Not OK: | Time: | | OK: | | Not OK: |
| Time: | | OK: | | Not OK: | Time: | | OK: | | Not OK: |
| Hose Pressure Control [bar] | | | | Flushing | | Remarks: FAD = 862 m ³ /min q = 0,55 m ³ /min/m | | | |
| | Inlet | Outlet | Start | Stop | | | | | |
| Inner Hose: | | | | | | | | | |
| Outer Hose: | | | | | | | | | |
| Stand by Pressure: | | | | - | | Who took the reading: | | | |
| Noise Level [dB]: | | | | - | | | | | |
| Piling Energy [kJ]: | | | | - | | | | | |

4 Noise Measurement

| Measurement buoy | Distance [m] | SEL ₉₀ [dB] | SEL ₅₀ [dB] | SEL ₀₅ [dB] | SEL ₀₁ [dB] | SEL _{max} [dB] |
|------------------|--------------|------------------------|------------------------|------------------------|------------------------|-------------------------|
| MP3 | 752 | 147 | 155 | 157 | 157 | 157 |

Measurement location of the online buoy:



Time log of the piling noise and piling energy:

