

**SEA BOTTOM (GEOPHYSICAL AND GEOTECHNICAL) SURVEYS IN THE
LITHUANIAN MARINE AREA WHERE IT IS REASONABLE TO ORGANISE
TENDERS FOR THE DEVELOPMENT AND EXPLOITATION OF THE WIND
POWER PLANTS**

Part II

GEOPHYSICAL SHALLOW SEISMICS AND HYDROGRAPHIC SURVEY

2022-07-20



**Funded by
the European Union**
NextGenerationEU



**NEW GENERATION
LITHUANIA**

CONTRACTING AUTHORITY

Ministry of Energy of the Republic of Lithuania,
Gedimino av. 38, Vilnius, e-mail info@enmin.lt,
phone: +37070664715

SUPPLIER

Acting on behalf of joint venture agreement
between:
JSC „Garant Diving“ (Responsible partner) and
JSC „Geobaltic“ (Partner)

RESPONSIBLE EXECUTOR

JSC „Geobaltic“,
Miglos str. 5-13, Vilnius, e-mail info@geobaltic.lt,
phone: +37069954953

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I. Methods and equipment

I. 1. Survey task

According to the undersigned agreement (hereafter – Agreement) with Ministry of Energy of the Republic of Lithuania (No. 8-34; dated 2022-04-26), it is obliged to carry out the sea bottom (geophysical and geotechnical) surveys in the Lithuanian marine area where it is reasonable to organize tenders for the development and exploitation of the wind power plants. Current report provides results of the IInd part of the survey, i.e. seabottom hydrographic and shallow geophysical investigations. Survey covers:

(1) Investigation of geological structure of the upper part of the seabottom up to 100 m deep using shallow seismics;

(2) Seabottom morphology and distribution of superficial sediments using hydrographic – geophysical methods.

And, as a result of above mentioned survey it is mandatory to **(3) recommend sites for deep drilling, vibro-coring and CPT testing** (those results to be reported after III^d part of the survey as per Agreement conditions).

I.2. Survey vessels

MINTIS

- Type: Catamaran
- Registration (IMO) number: 9713636
- Flag: LT
- Built: 2014
- Length: 39,25 m.
- Breadth: 12 m.
- Draught: 3,6 m.
- Gross tonnage: 499 tons
- Dynamic positioning: DP1
- DGPS: Septentrio RTK DGPS AsteRx-U MARINE

Fg



BALTIC EXPLORER

- Type: Vienkorpusinis
- Registration (IMO) number: 8917663
- Flag: LT
- Built: 1991
- Length: 45,6 m.
- Breadth: 11,5 m.
- Draught: 3,1 m.
- Gross tonnage: 498 tons
- Dynamic positioning: DP1
- DGPS: RTK DGPS Spectra Geospatial SP90m

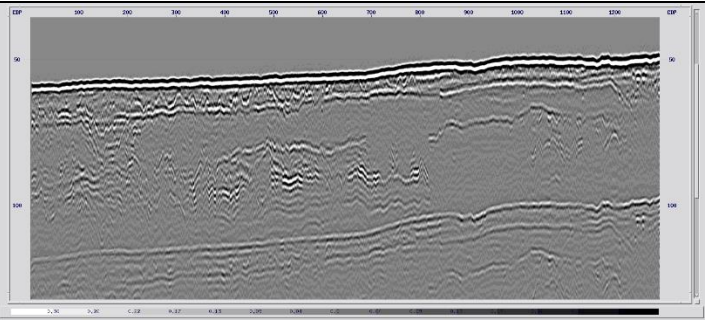


I. 3. Shallow seismic survey

Multichannel seismic survey

Seismic data was collected along predetermined profiles, a seismic pulse is generated by a seismic source (sparker), pulse propagates through the water and the deeper geological medium and is reflected from geological boundaries characterized by a large contrast in physical properties (density and seismic wave propagation speed) between the rocks above and below. The reflected signal travels back and is recorded by seismic streamer via hydrophones.

| Equipment | Parameters ant characteristics |
|---|--|
| Source: Sig mille (SIG, France) high frequency seismic source – sparker (ELC820 system) | Source energy: 500-1000 J; working frequency: 1-1.4 kHz; distance between two source points in the seismic profile: 1.5-2 meters |
| data registration: Multichannel GeoEel seismic streamer (Geometrics, USA) | 50-metre-long streamer with 16 channels, Channel consists of 4 hydrophones; distance between channels – 3.125 meters; Seismic information was recorded for 0.2 seconds from the source excitation, recording every 0.0625 ms, i.e. - 3200 registration points on each seismic track |
| Positioning: ship's positioning system Septentrio RTK DGPS AsteRx-U MARINE Fg | The coordinates of the source excitation and registration points were assigned by knowing the exact coordinates of the GPS receiver on the ship and adding the known offset from the ship's GPS to the source and each receiver channel. |
| Data processing: Globe Claritas (Petrosys); Data interpretation: Gverse Geographix (LMKR) software | <p>The processing workflow consisted of:</p> <ul style="list-style-type: none"> • Data import • Geometry creation and assignment • Amplitude recovery • Band pass filter (100-150-5500-6000 Hz) • Muting of seabed multiple reflections • Normal move-out (NMO) correction • Raw common mid-point (CMP) stacking • Stacking velocity analysis • Preliminary common mid-point (CMP) stacking • F-X deconvolution and band pass filter • Final common mid-point (CMP) stacking • 2D data export (SEG-Y) • Combining 2D data into a 3D data array • 3D data export (SEG-Y) <p>Seismic cross-sections obtained during processing are interpreted in the next step by creating structural, depth and thickness maps for all observed seismic horizons (SH).</p> |

| | |
|-------------------|---|
| |  <p style="text-align: center;"><i>Seismic cross section (final CMP stack)</i></p> |
| Data presentation | <p>The processed seismic sections are presented in digital SEG-Y format; Interpreted structural time and depth maps are presented in digital *.XYZ format;</p> |

I.4. Hydrographic – geophysical survey of seabottom

Set up of complex hydrographic – geophysical survey.

Hydrographic – geophysical seabottom survey was organized in 3 campaigns:

1st leg survey included deployment and operation of multibeam echosounding equipment (for seabottom morphology and depths), side scan sonar (for identification of targets on the seabottom and analysis of superficial sediments distribution) and multi-channel seismic equipment (for assessment of vertical seabottom structure). All equipment was collecting the data at the same time while vessel was surveying along the pre-defined survey lines.

2nd leg survey was organized in order to collect samples from the seabottom. Those were used for interpretation of the side scan sonar data and while developing the superficial sediments distribution scheme;

3^d leg survey covered deployment and operation of seismoacoustic subbottom profiler equipment (for uppermost structure of the seabottom) and magnetometers (analysis of magnetic anomalies). Survey was carried out along the same survey lines as during the 1st leg campaign.

I.4.1. Multibeam echosounding (MBES)

The multibeam echosounder and the motion sensor were mounted on a single frame, which was placed in a special 0.5x0.5 m moon-pool of the Mintis. During operation, the multibeam echo sounder is set to the working position so that the sonar sensors are out of the ship's hull. Using the ship's positioning system and RTK corrections, the exact coordinate of each measurement reflection is obtained, and the distortions obtained due to the ship's movements are compensated through the activation of the stationary gyrocompass and motion sensor. The depth discrepancy due to the different speed of sound propagation in water (caused by changing temperature and salinity) is eliminated by adapting the results of the sound speed profile measurements.

| Equipment | Technical parameters |
|---|---|
| Multibeam echosounder Teledyne Reson Seabat 7125 SV2; | Operational frequency: 400 kHz; Number of beams – 512; Depth resolution – 6 mm; |

| | |
|---|---|
| Stationary gyrocompass and motion sensor Ixblue Octans 3000 Rovins; | Heading accuracy: 0.1° secant latitude, resolution: 0.01°, full accuracy setting time: < 5 min; Heave accuracy: 2.5 cm or 2.5% (whichever is greater); Roll/Pitch dynamic accuracy: 0.01°, resolution: 0.001° |
| Sound velocity probe Reson SVP70 and sound velocity profiler Sea&Sun CTM48M CTD | Resolution: 0,1 m/s; Accuracy: ± 0,15 m/s Range: 1350–1600 m/s |
| Data acquisition and processing software QPS QINSy V9.5/Quimera V2.4.9 | Standard procedures were used to process the depth measurement data: <ul style="list-style-type: none"> • Positioning correction; • Evaluation of the correction of changes due to sound propagation in water; • Automatic and, if necessary, manual elimination of acoustic noise; • Export to custom size grid. |
| Data delivery | The processed data is provided in a 1x1 m resolution grid - in an array of depth points in *.TXT format and a bathymetric/depth scheme is provided in *.TIF format. |

I.4.2. Side scan sonar (SSS)

When performing a seabottom scanning with a side scan sonar device, in addition to the sonar itself, an underwater positioning system and a hydrographic winch are used to tow the sonar and transfer data to the ship. The integrated system ensures that the position of the device towed overboard by a special cable is precisely fixed by applying the ship's positioning system and the corresponding position correction is obtained from the underwater positioning system (USBL).

| Equipment | Technical parameters |
|--|---|
| Side scan sonar L-3 Klein 3000 | Dual frequency: low – 132 kHz, high - 445 kHz; Beams: Horizontal: 0.7° @ 132 kHz, 0.21° @ 445 kHz Vertical: 40° |
| Underwater Positioning System Sonardyne Ranger Mini | Frequency range: 19-34 kHz; Position update frequency: 3 Hz; Acoustic beacons: 2 pcs; Position accuracy: 1,3 % of direct distance; |
| Hydrographic winch for sonar towing and data transfer emma DT3025-EHLWR (emma technologies GmbH) | Power supply: 400V/ 50 Hz; Drum capacity: 500 m of coaxial Ø10,4mm cable, Break strength: 58kN Load: 12 kN |

| | |
|--|---|
| Data processing: object identification was performed with the original Klein SonarPro software; the acoustic image mosaic was created using the specialized hydrographic software Hypack | <p>Standard image processing procedures were performed when processing the side scan data:</p> <ul style="list-style-type: none"> • signal amplification, • geometric correction of the data was performed; • by adjusting the signal strength - the image is smoothed; • "blind" zone is removed. <p>Deliverables:</p> <p>Overview (low resolution) side scan map (mosaic) - in *.GeoTiff format;</p> <p>Processed side scan sonar data for each profile: in *.xtf format;</p> <p>Lithological scheme of surface deposits (according to SSS interpretation and analysis of bottom samples): lithotype scheme is provided in *.GeoTiff format, lithotype boundaries/polygons in ESRI *.shp format;</p> <p>A scheme with the locations of objects identified on the bottom: scheme in *.GeoTiff format; point positions - ESRI *.shp format; catalog of identified objects - in *.xls table;</p> |
|--|---|

1.4.3. Sub bottom profiler survey (SBP)

Sub bottom profiler is seismoacoustic survey method usually used to study sediments immediately beneath the seabed. This method is single-channel, i.e. transmitter and receiver are installed in the same device, and the research method is based on the vertical reflection of the seismic wave from geological boundaries with different physical properties. The device is mounted on a ship on a side pole, and uses the ship's navigation system and motion sensors to record data coordinates.

| Equipment | Technical parameters |
|--|--|
| Sub bottom profiler Innomar SES-2000 compact (Innomar, Germany) | <p>Penetration depth: up to 10 m, (in perfect geological conditions up to 15-20 m.</p> <p>Vertical resolution: ~ 0,5 m;</p> <p>Working frequency:</p> <ul style="list-style-type: none"> -Low: 5-15 kHz; -High: ~ 100 kHz; <p>Pulse length: 66 to 800µs;</p> <p>Pulse rate: more than 30 per second.</p> |
| <p>Data processing: data acquisition performed with SESWIN software provided by equipment manufacturer.</p> <p>Data interpretation: Gverse Geographix (LMKR) software.</p> | <p>The processing workflow consisted of:</p> <ul style="list-style-type: none"> • Data import • Positioning correction – elimination of geometry jumps and interpolation of gaps • Combining of data to cross sections • Band pass filter • Stacking of neighboring traces • 2D data export (SEG-Y) <p>Deliverables:</p> |

| | |
|--|---|
| | The processed sub bottom profiler cross sections are presented in digital SEG-Y format; |
|--|---|

I. 4.4. Magnetic survey (MAG)

Magnetic survey was performed only in the main hydrographic-geophysical profiles.

| Equipment | Technical parameters |
|---|---|
| Geometrics G-882 Cesium magnetometer and transverse gradiometer TVG (2x G-882); | Noise: <0,004 nT/Hz rms Heading error: <2 nT Operating range: 20 000–100 000 nT Max sample rate: 20 Hz |
| Data processing | <p>The processing workflow consisted of:</p> <ul style="list-style-type: none"> • Position correction – coordinates cleared of unevenness and jumps; linear interpolation of coordinates by time was used to fill the gaps (magfish_depth.grd); • Geomagnetic corrections were made using data of the observatory closest to the research object (HLP(Hel) Poland http://www.wdc.bgs.ac.uk/obsinfo/hlp.html); i.e. recalculated values of the IGRF13 Earth magnetic model and subtracted from the total measured magnetic field (total_field.grd); • Calculated residual magnetic field (total_field_reduced.grd); • In order to eliminate the influence of deeper geological structures on the magnetic field, a map was made that best reflects objects closer to the sea bottom (total_field_ruggedness.grd). <p>Submitted: Magnetometer depth map (*.grd); Measured magnetic field (*.grd); Residual magnetic field (*.grd); Summarized MAG survey data presented in the table *.csv.</p> |

I. 4.5. Sampling of seabottom sediments

| Equipment | Technical parameters |
|------------------------------|---|
| Hydrobios Van veen type grab | Sample area: 1000 cm ² ; Weight in air: 25 kg. Penetration: 5-10 cm; |

II. Scope of survey

II.1. Survey area

Area in the Baltic Sea where it is foreseen the development of up to 700 MW capacity offshore wind energy park based on the decision of Government of the Republic of Lithuania according to the Resolution No. 697 (dated 2020-06-22) "Regarding the areas of the Territorial Sea and/or parts of the Exclusive Economic Zone of the Republic of Lithuania in the Baltic Sea where it is reasonable to organize tender (tenders) for the development and exploitation of the power plants utilizing the renewable energy sources and determining the installed capacity of these power plants".

Coordinates of the survey area:

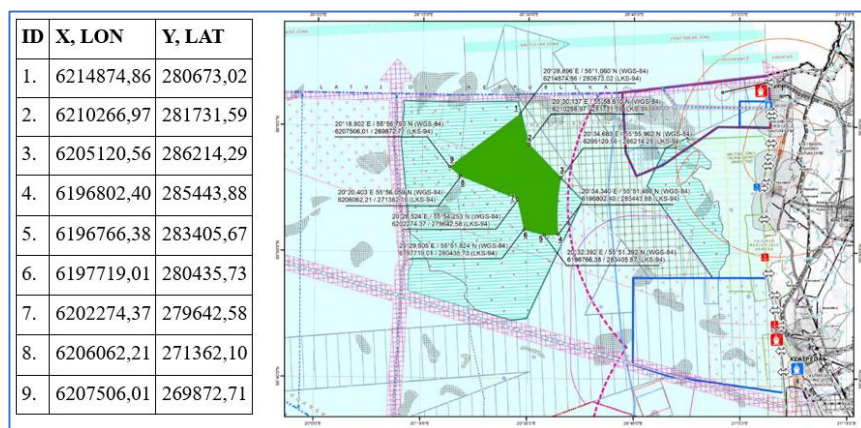


Fig. 2.1 Survey area
Coordinates provided in
LKS'94 projection

II.2. Set up and distribution of seismic and hydrographic profiles:

In order to achieve the required 100% coverage by multibeam echosounder and side scan sonar, an optimal set up of profiles was selected, placing each profile at a distance of 100 m, thus obtaining 176 parallel profiles ensuring the required "full coverage" of the survey area.

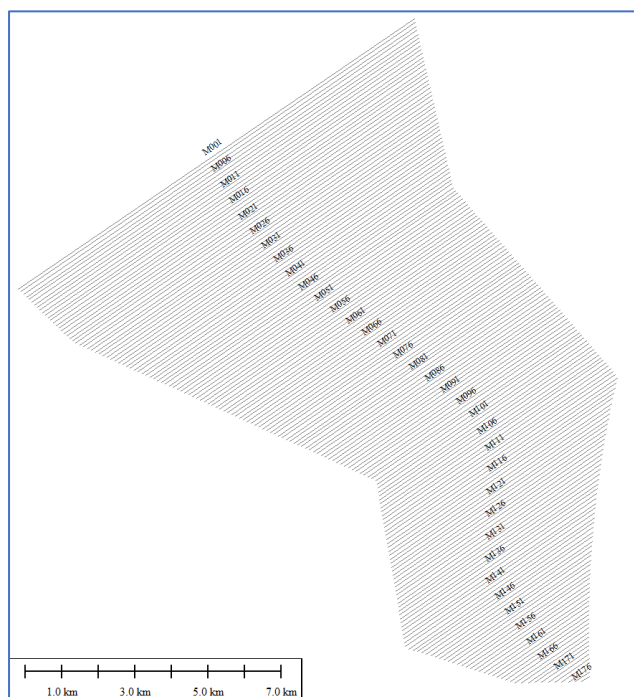


Fig. 2.2 Distribution of survey profiles
Coordinates provided in LKS'94 projection

| ID | X1 | Y1 | X2 | Y2 |
|------|----------|---------|----------|---------|
| M001 | 269872,7 | 6207506 | 280672,6 | 6214875 |
| M002 | 269946,1 | 6207435 | 280697,1 | 6214770 |
| M003 | 270019,5 | 6207364 | 280721,1 | 6214665 |
| M004 | 270092,9 | 6207293 | 280745,2 | 6214561 |
| M005 | 270166,4 | 6207222 | 280769,2 | 6214456 |
| M006 | 270239,8 | 6207151 | 280793,3 | 6214351 |
| M007 | 270313,2 | 6207080 | 280817,3 | 6214247 |
| M008 | 270386,6 | 6207009 | 280841,4 | 6214142 |
| M009 | 270460 | 6206938 | 280865,4 | 6214037 |
| M010 | 270533,4 | 6206867 | 280889,5 | 6213933 |
| M011 | 270606,8 | 6206796 | 280913,5 | 6213828 |
| M012 | 270680,2 | 6206725 | 280937,6 | 6213723 |
| M013 | 270753,6 | 6206654 | 280961,6 | 6213618 |
| M014 | 270827 | 6206583 | 280985,7 | 6213514 |
| M015 | 270900,5 | 6206512 | 281009,8 | 6213409 |
| M016 | 270973,9 | 6206441 | 281033,8 | 6213304 |
| M017 | 271047,3 | 6206370 | 281057,9 | 6213200 |
| M018 | 271120,7 | 6206299 | 281081,9 | 6213095 |

SEA BOTTOM (GEOPHYSICAL AND GEOTECHNICAL) SURVEYS IN THE LITHUANIAN MARINE AREA WHERE IT IS REASONABLE TO ORGANISE TENDERS FOR THE DEVELOPMENT AND EXPLOITATION OF THE WIND POWER PLANTS. **Part II : GEOPHYSICAL SHALLOW SEISMICS AND HYDROGRAPHIC SURVEY**

| | | | | |
|------|----------|---------|----------|---------|
| M019 | 271194,1 | 6206228 | 281106 | 6212990 |
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| M022 | 271436,3 | 6206030 | 281178,1 | 6212676 |
| M023 | 271542,5 | 6205981 | 281202,2 | 6212571 |
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| M077 | 277279,9 | 6203356 | 283849,3 | 6207838 |

| | | | | |
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|------|----------|---------|----------|---------|
| M137 | 280354,3 | 6198186 | 285639,4 | 6201792 |
| M138 | 280373,2 | 6198078 | 285624,2 | 6201661 |
| M139 | 280392 | 6197970 | 285609,7 | 6201530 |
| M140 | 280410,9 | 6197862 | 285595,8 | 6201399 |
| M141 | 280429,7 | 6197753 | 285582,6 | 6201269 |
| M142 | 280518,1 | 6197693 | 285569,9 | 6201139 |
| M143 | 280638,8 | 6197654 | 285557,9 | 6201010 |
| M144 | 280759,6 | 6197615 | 285546,4 | 6200881 |
| M145 | 280880,3 | 6197576 | 285535,4 | 6200753 |
| M146 | 281001 | 6197538 | 285525,2 | 6200624 |
| M147 | 281121,8 | 6197499 | 285515,5 | 6200497 |
| M148 | 281242,5 | 6197460 | 285506,4 | 6200369 |
| M149 | 281363,3 | 6197422 | 285497,8 | 6200242 |
| M150 | 281484 | 6197383 | 285489,7 | 6200116 |
| M151 | 281604,8 | 6197344 | 285482,2 | 6199990 |
| M152 | 281725,5 | 6197305 | 285475,4 | 6199864 |
| M153 | 281846,2 | 6197267 | 285469 | 6199738 |
| M154 | 281967 | 6197228 | 285463,2 | 6199613 |
| M155 | 282087,7 | 6197189 | 285457,9 | 6199489 |
| M156 | 282208,5 | 6197150 | 285453,1 | 6199364 |
| M157 | 282329,2 | 6197112 | 285448,8 | 6199240 |

| | | | | |
|------|----------|---------|----------|---------|
| M158 | 282449,9 | 6197073 | 285445,2 | 6199117 |
| M159 | 282570,7 | 6197034 | 285442 | 6198993 |
| M160 | 282691,4 | 6196995 | 285439,3 | 6198870 |
| M161 | 282812 | 6196957 | 285437 | 6198748 |
| M162 | 282932,7 | 6196918 | 285435,3 | 6198626 |
| M163 | 283053,5 | 6196879 | 285434,2 | 6198504 |
| M164 | 283174,2 | 6196841 | 285433,5 | 6198382 |
| M165 | 283295 | 6196802 | 285433,3 | 6198261 |
| M166 | 283420,8 | 6196767 | 285433,5 | 6198140 |
| M167 | 283603,1 | 6196770 | 285434,3 | 6198019 |
| M168 | 283785,3 | 6196773 | 285435,6 | 6197899 |
| M169 | 283967,5 | 6196776 | 285437,3 | 6197779 |
| M170 | 284149,7 | 6196780 | 285439,4 | 6197659 |
| M171 | 284332 | 6196783 | 285442 | 6197540 |
| M172 | 284514,2 | 6196786 | 285445,2 | 6197421 |
| M173 | 284696,4 | 6196789 | 285448,8 | 6197303 |
| M174 | 284878,6 | 6196792 | 285452,8 | 6197184 |
| M175 | 285060,8 | 6196796 | 285456,3 | 6197065 |
| M176 | 285243,1 | 6196799 | 285453,4 | 6196942 |

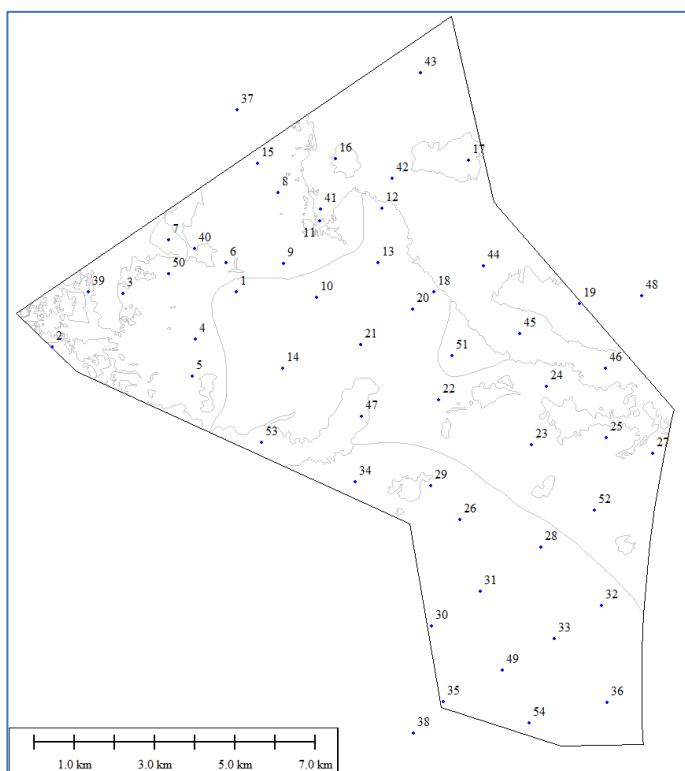
II.3. Seabottom sediments sampling sites

54 stations (51 within the study area or 1 sample/2.7 km² area and 3 additional outside the study area) were selected for sediment sampling. The selection of locations and number of samples depends on the results of side survey sonar survey, during which different types of seabottom sediment fields are revealed. This allowed to evenly represent the sediments of different lithotypes and create a distribution map of surface sediments.

| Nr | X | Y |
|----|-----------|------------|
| 1 | 275345,72 | 6208011,77 |
| 2 | 270774,70 | 6206651,86 |
| 3 | 272540,18 | 6207977,38 |
| 4 | 274332,62 | 6206844,55 |
| 5 | 274250,95 | 6205926,32 |
| 6 | 275090,04 | 6208754,21 |
| 7 | 273666,27 | 6209304,62 |
| 8 | 276380,85 | 6210479,55 |
| 9 | 276516,45 | 6208720,22 |
| 10 | 277338,54 | 6207874,90 |
| 11 | 277414,72 | 6209787,96 |
| 12 | 278964,67 | 6210102,11 |
| 13 | 281121,69 | 6211297,41 |
| 13 | 278875,44 | 6208739,03 |
| 14 | 276497,13 | 6206118,91 |
| 15 | 275874,76 | 6211202,56 |
| 16 | 277823,77 | 6211317,09 |
| 18 | 280263,54 | 6208012,73 |
| 19 | 283872,22 | 6207720,15 |
| 20 | 279737,14 | 6207585,65 |
| 21 | 278434,38 | 6206718,02 |
| 22 | 280383,65 | 6205343,61 |
| 23 | 282687,35 | 6204216,73 |
| 24 | 283057,47 | 6205672,59 |
| 25 | 284547,90 | 6204402,04 |
| 26 | 280910,72 | 6202358,96 |
| 27 | 285689,55 | 6204005,89 |

| Nr | X | Y |
|----|-----------|------------|
| 28 | 282915,41 | 6201690,70 |
| 29 | 280183,36 | 6203202,68 |
| 30 | 280207,84 | 6199732,97 |
| 31 | 281417,50 | 6200586,34 |
| 32 | 284422,50 | 6200227,44 |
| 33 | 283247,26 | 6199406,94 |
| 34 | 278313,10 | 6203309,10 |
| 35 | 280504,19 | 6197847,32 |
| 36 | 284555,88 | 6197824,96 |
| 37 | 275368,62 | 6212541,65 |
| 38 | 279754,12 | 6197067,38 |
| 39 | 271681,30 | 6208024,98 |
| 40 | 274304,97 | 6209096,70 |
| 41 | 277444,02 | 6210066,84 |
| 42 | 279222,73 | 6210845,09 |
| 43 | 279930,38 | 6213463,45 |
| 44 | 281502,20 | 6208674,55 |
| 45 | 282398,33 | 6206979,20 |
| 46 | 284521,65 | 6206116,57 |
| 47 | 278459,79 | 6204931,38 |
| 48 | 285423,11 | 6207920,41 |
| 49 | 281963,39 | 6198638,79 |
| 50 | 273668,19 | 6208475,12 |
| 51 | 280706,18 | 6206433,65 |
| 52 | 284243,14 | 6202607,17 |
| 53 | 275970,38 | 6204283,15 |
| 54 | 282629,95 | 6197320,74 |

Fig. 2.3 Sites of seabottom sediments sampling
Coordinates provided in LKS'94 projection



III. Results

III. 1. Determination of seismic horizons

Seismic horizon picking

After the initial processing of the seismic data, 3 distinct seismic horizons - SH (Figure 3.1) were identified in the seismic data, which are observed in the almost entire research area. The first is the bottom of the sea (Bottom). The second layer (SH1), whose thickness varies from 0 (in the N-NW part) to 12 m (in the S part), and on average reaches about 5-10 m, is clearly visible in almost all seismic sections, the geological origin and lithological characteristics will be clear only after shallow vibro-coring and static cone penetration tests (CPT) are completed. The third (SH2) seismic horizon has been successfully correlated in all seismic sections. The results of two deep boreholes and CPT studies will be used to determine its genesis. Time maps of seismic horizons SH1 and SH2 were created during processing.

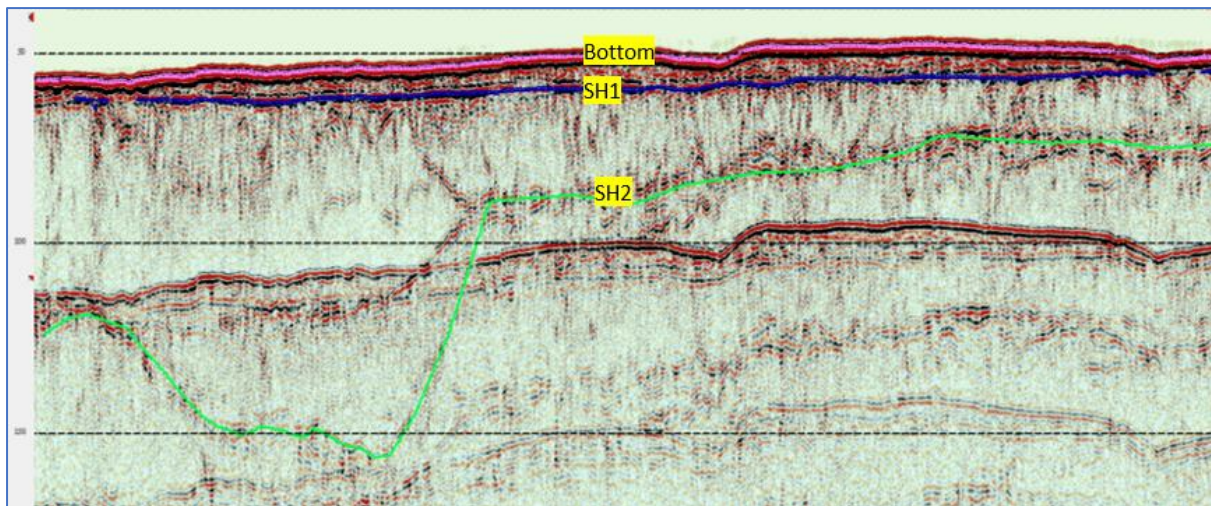


Fig. 3.1 Example of a seismic section with 3 seismic horizons: seabed (purple line), SH1 (blue line) and SH2 (green line)

Structural depth maps

2 interval velocities were applied to create depth maps of seismic horizons: in the water up to the surface of the seabed, the average velocity of seismic waves in seawater - 1480 m/s was used, and below the surface of the seabed, the average velocity of seismic waves of 1700 m/s sediments was used (inherent of Quaternary sediments). Thus, applying seismic waves velocity correction, time scale values were recalculated into depth values and seismic horizons SH1 and SH2 depth maps were created.

As mentioned above, the seismic horizon SH1 rises to the surface of the seabed at the NE edge of the research area (Figure 3.2). Comparing its distribution limit with the lithological map based on side scan sonar and lithological analysis of bottom samples, we observe that it corresponds to the distribution limit of glacial till formations. Based on this, it is likely that the SH1 reflecting horizon corresponds to the boundary between the sandy deposits that are common over most of the area and the glacial till formations below.

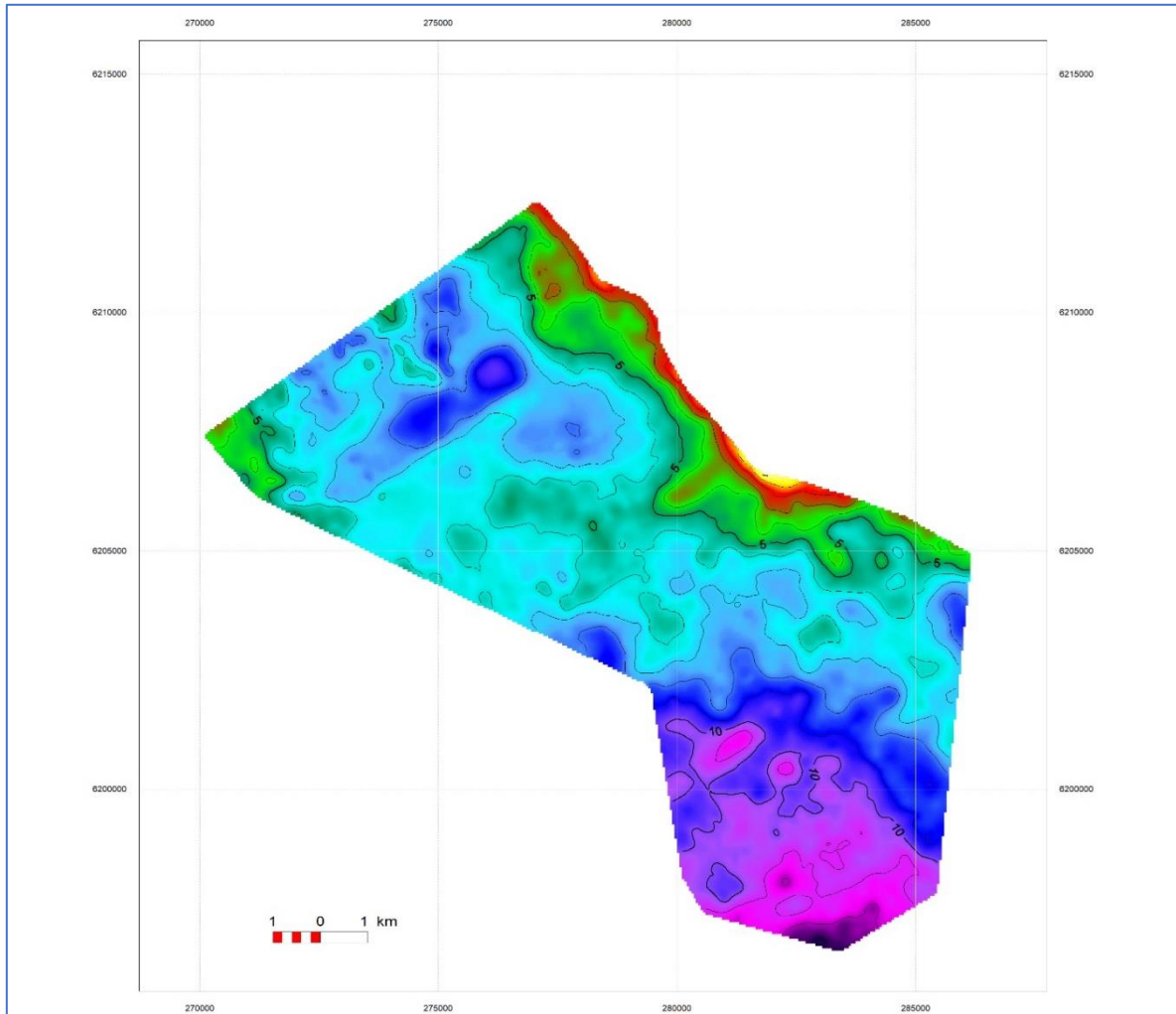


Fig. 3.2 Depth map of seismic horizon SH1 below the seabed.

The SH2 horizon is observed over the entire study area (Fig. 3.3) and it is likely that it reflects either the geological boundary of the Quaternary bed or the lithological boundary in the Quaternary strata, characterized by a high contrast of physical properties. Unlike SH1, it is not unambiguously interpreted due to the extremely variable structure of the Quaternary sediments, where the reflectors often overlap each other, so it is likely that the structural map does not reflect the same lithological boundary in the entire area. Nevertheless, produced depth map is useful because it shows Quaternary paleo incisions, where an obvious increase in the thickness of the Quaternary sediments is observed. Generally, Quaternary paleo incisions have different sedimentary fill and, at the same time, different geomechanical properties than the rest of the Quaternary column, so their mapping is an important element in the subsequent planning and design of foundations of wind energy installation. The depth of the SH2 horizon below the seabed varies within 20-40 m in most of the area, but reaches up to 90 m in paleo incisions.

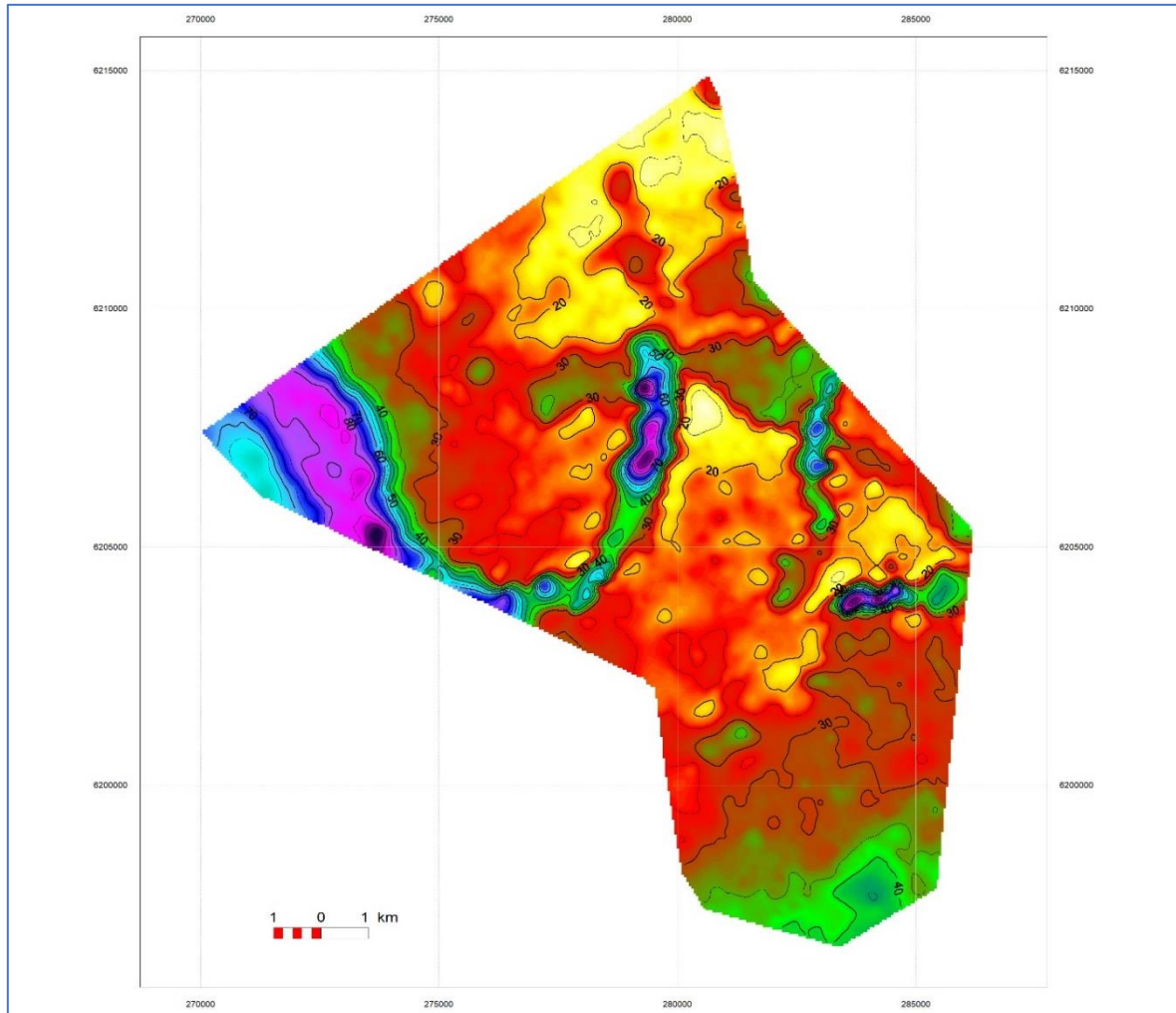


Fig. 3.3 Depth map of seismic horizon SH2 below the seabed.

Delivery of digital data (see Annex No. 4 "Digital data")

For the convenience of data interpretation, processed seismic data is presented in 2D and 3D arrays (SEG-Y IBM Float 4 byte):

The localization information of 2D file tracks is given in the following bytes:

CDP No.: byte 1

X coordinate: byte 181

Y coordinate: byte 185

The localization information of the 3D array tracks is provided in the following bytes:

CDP Inline no.: byte 189

CDP Crossline no.: byte 193

X coordinate: byte 181

Y coordinate: byte 185

Deliverables:

- 176 seismic cross sections in digital SEG-Y format;
- 3D data array in digital SEG-Y format;
- Compiled time maps of seismic horizons Bottom, SH1 and SH2 in *.XYZ format;
- Bottom, SH1 and SH2 seismic horizons depth maps (bellow the seabed) in *.XYZ and *.JPG format.

III. 2. Morphology and depth of the seabed

Multibeam echo sounder survey of the bottom of the area was organized along 176 profiles, ensuring 100% coverage. This resulted in a very accurate depth chart (Fig. 3.4), where we can observe the regular division of the area into a shallower (28-36 m) northeastern and deeper (36-46 m) south-western zone. Morphologically, the northern part is the western part of the Klaipėda-Ventspils plateau, the southwestern part is a slope that deepens evenly in the south direction. The predominant depths are between 38 - 43 m (about 40% of all values), the next most common depth zone (basically the entire slope) - between 34-38 m (about 30%) is the relatively flattest central part of the district, depths from 31 to 34 m are recorded in elevation and account for about 20% of all depth values.

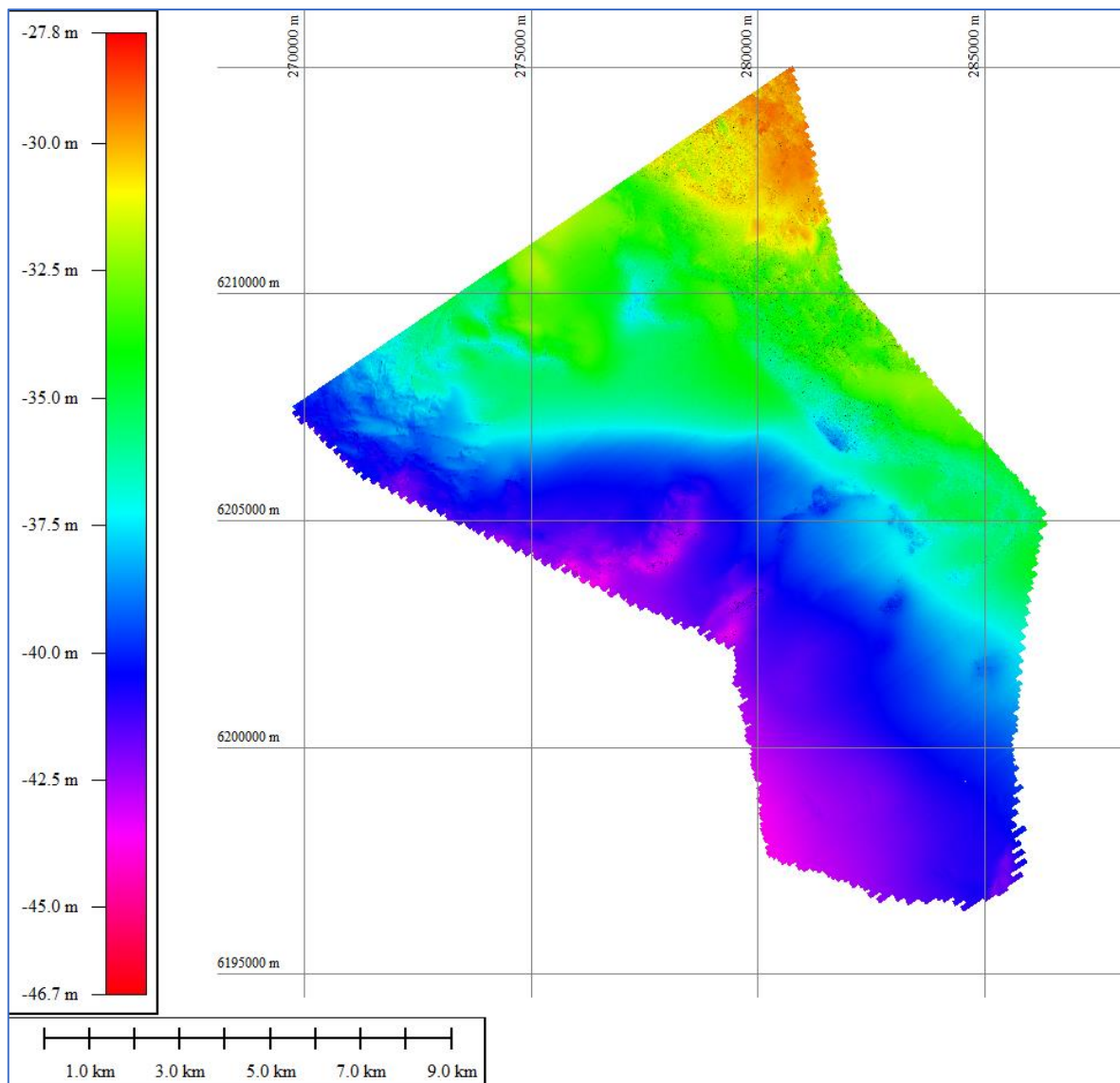


Fig. 3.4 Depth chart of the seabed

Delivery of digital data (see Annex No. 4 "Digital data")

Deliverables:

- Postprocessed depth values at 1x1 m resolution grid in *.XYZ format;
- Map of seabed depth in *.GeoTiff format

III. 3. Results of side scan sonar

As a result of acoustic soundings of the seabottom the side scan sonar mosaic was compiled (Fig. 3.5), we observe the reflections from the geological structures and lithological bodies as well as identified the objects on the seabed.

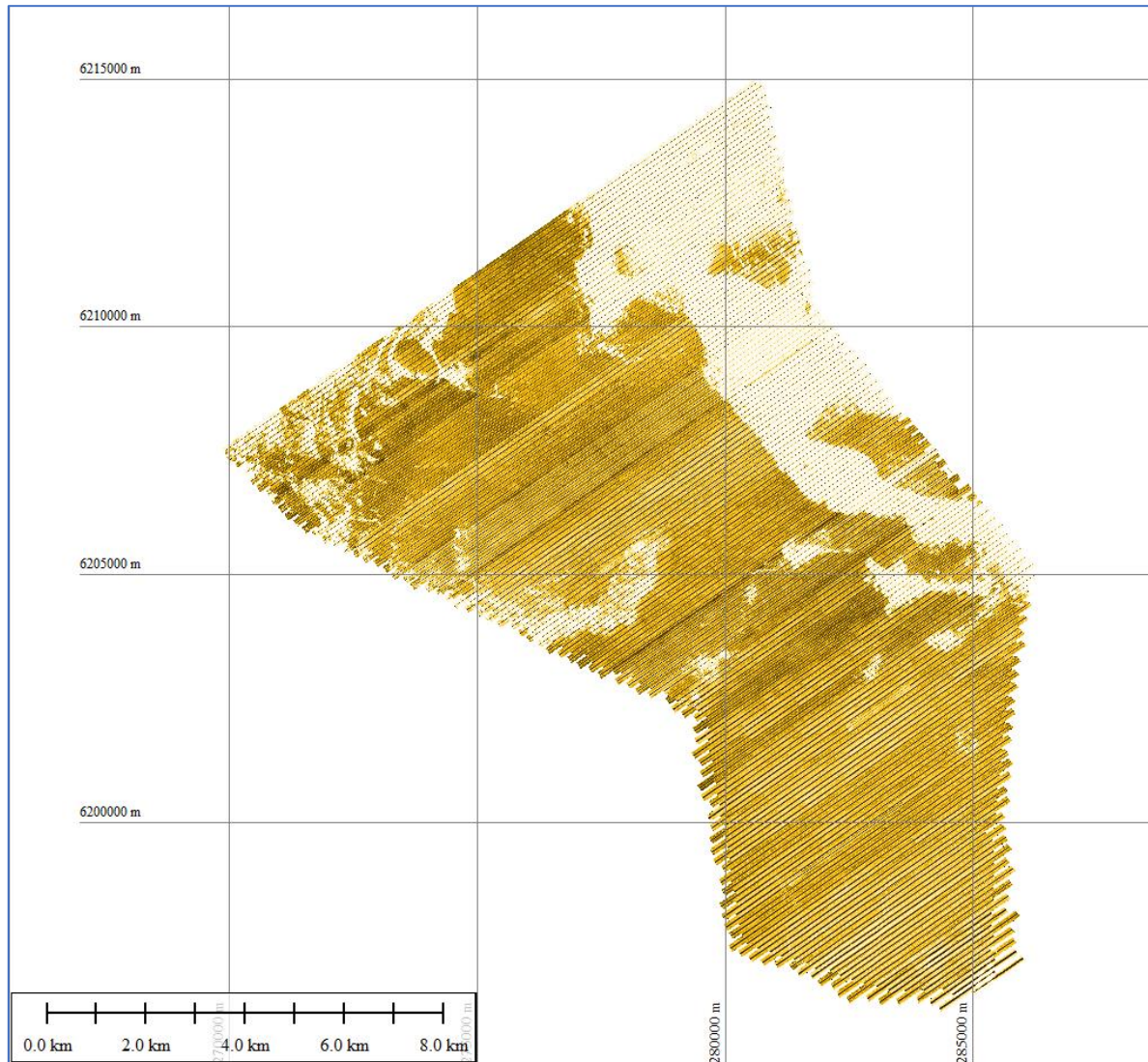


Fig. 3.5 Side scan sonar mosaic

Hard (strong reflection, light tones) and soft (weak reflection, dark tones) bottoms are easily identify according to the physical peculiarities of the reflection of acoustic signal. Sand and gravel ripples, boulder fields are well visible, easy to recognize morphological features of the seabottom and anthropogenic objects.

The main result of the interpretation of the side scan sonar mosaic – preliminary boundaries of different sediments on the seabottom (Fig. 3.6). Those are the basis for selecting the sites for sediment sampling (see chapter III.4 “Type and distribution of seabottom sediments”).

After a detailed review of each sonar line record, characteristic anthropogenic, natural and undetermined objects on the seabed were identified (see Chapter III. 7 "Anthropogenic and other objects on the seabed"), which may influence the selection of the position of wind power plants and cable routes, as well as geological - engineering works to ensure safety of operations.

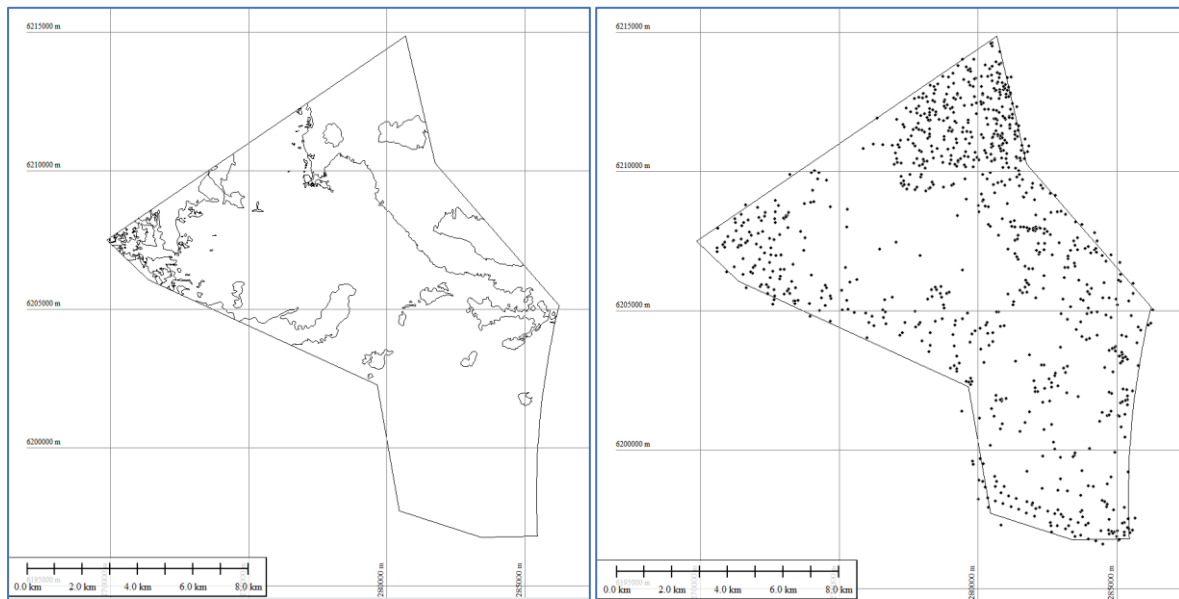


Fig. 3.6 Preliminary lithological boundaries (on the left) and objects on the seabed (on the right)

Delivery of digital data (see Annex No. 4 "Digital data")

Deliverables:

- Postprocessed data of side scan sonar – 176 profiles in *.xtf format;
- SSS mosaic in *.GeoTiff format;
- Positions of objects on the seabed in ESRI *.shp format.

III. 4. Type and distribution of seabottom sediments

Based on the side scan sonar results, 51 surface sediment samples were collected in the study area (see Chapter II. 3). All samples were examined in the geomechanical research laboratory of Klaipėda University, the grain size distribution of the sediments was determined (see Annex No. 2 "Protocols of grain size analysis") and the lithotype was assigned according to the valid LST EN ISO 14688:2018 standard. Based on the results of grain size analysis and seismo-acoustic surveys, the primary (interpreted side scan sonar mosaic) lithological boundaries were specified and a distribution scheme of surface deposits of the district was drawn up (Fig. 3.7).

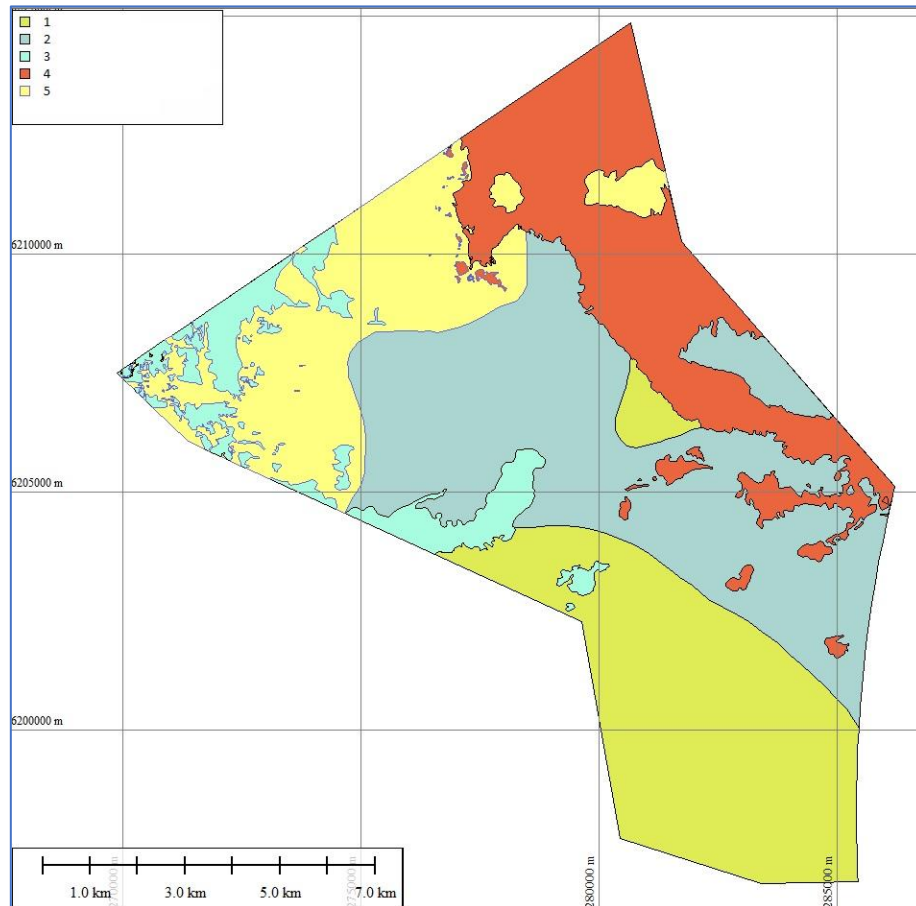


Fig. 3.7 Lithological scheme of seabottom sediments (1-silty sand; 2-low silt, clayey sand; 3-clay, clayey sand; 4-boulders, gravel, gravelly sand; 5-evenly sorted sand)

Unsorted mixed deposits of sand, gravel and boulders of glacial origin (washed moraine) are common in the northeastern part, deposited directly on the moraine base (glacial sandy loam and loam). In the rest of the territory, modern deposits of marine sand, silty and clayey sand formed in the relief depressions and on the slope of the Klaipėda-Ventspils plateau are deposited.

Delivery of digital data (see Annex No. 4 "Digital data").

Deliverables:

- Locations of lithological sampling: in ESRI *.shp format;
- Results of grain size analysis: analysis protocols in *.xls format;
- Revised geological boundaries of the seabed sediments: in ESRI *.shp format.
- Lithological scheme: in *.GeoTiff format;

III. 5. Sub bottom profiler survey results

Seismoacoustic profiling is intended for structural investigations of the upper (up to ~15 m) geological part of the bottom. Due to the high frequency, these studies reflect the internal structure of the sediments quite well and can serve as additional geophysical information in the analysis of the distribution of shallow sediments (to fine down lithological boundaries), as well as provide information on objects buried under the sediments, allow to distinguish boundaries between smaller but distinct layers. In addition, it serves as the main geophysical information for the selection of shallow vibro-coring sites.

Due to the relatively low penetration and complex internal structure of the Quaternary sediments, tracing of seismic horizons and time/depth mapping was carried out in conjunction with seismic data analysis (see Chapter III.1).

In the cross sections presented below, we can see SH1 horizon (determined during the seismic data interpretation) is also visible in the sub bottom survey data. Sh1 horizon is not consistent: in the northern part of the area SH1 is observed partially and with cracks (profiles No. M003 and M037, Figs. 3.8 and 3.9), then from the middle part of the area to the south, where the depth of the boundary of SH1 from the seabed exceeds 6-7 meters, horizon practically disappears or is observed only episodically (profile No. M127, Figure 3.10). The SH2 horizon was not traced in sub bottom survey.

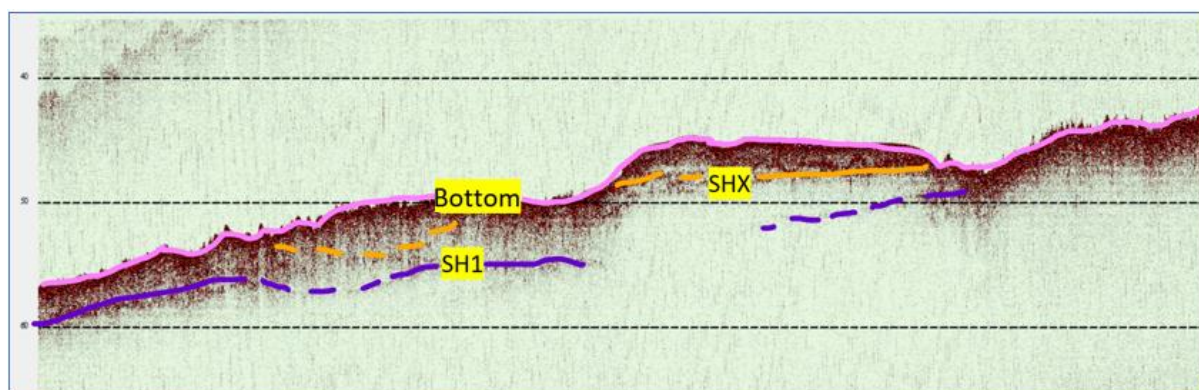


Fig. 3.8 Sub bottom cross section No. M003 (fragment)

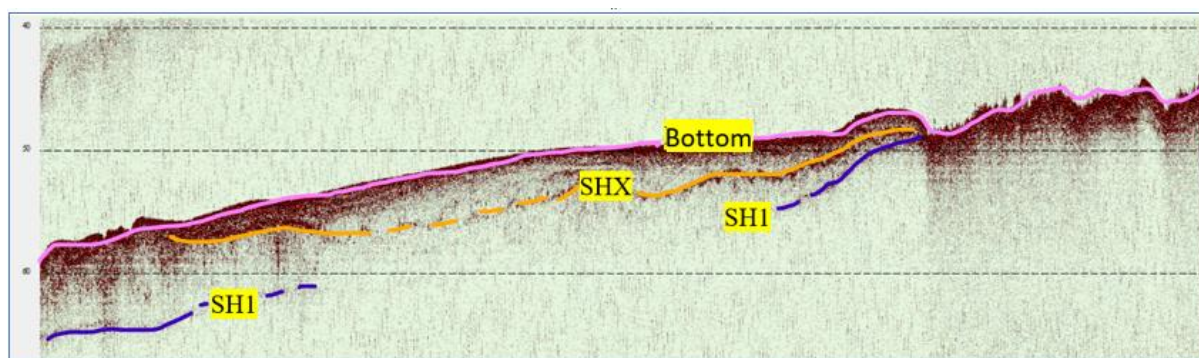


Fig. 3.9 Sub bottom cross section No. M037 (fragment)

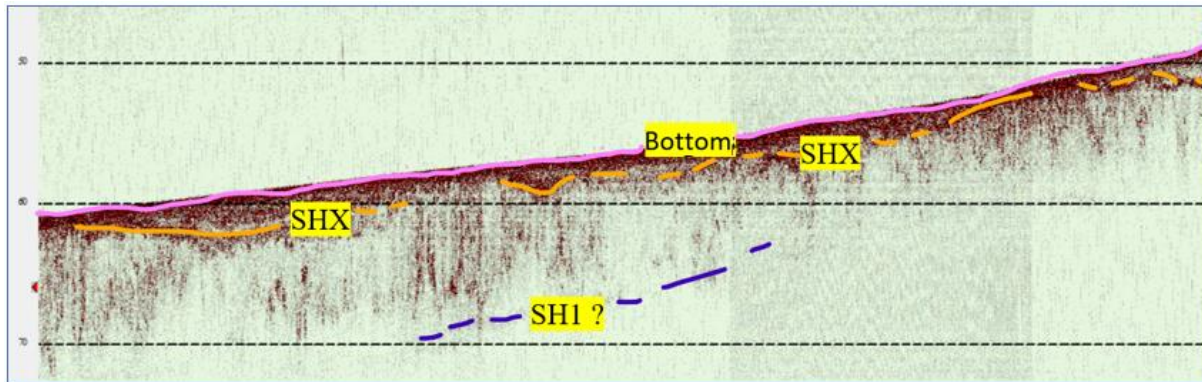


Fig. 3.10 Sub bottom cross section No. M127

Combination of sub bottom profiler data and seismic data were used, in order to create seismic horizons time and depth maps (Figs. 3.1, 3.2 and 3.3), as well as, to create a lithological map of the bottom sediments and to fine down the distribution of different lithological layers (Fig. 3.5). In addition, after drilling the shallow boreholes, these cross sections will be used to refine the boundary of SH1 in those intervals where it is well observed in the northern part of the area, as well as to refine the upper geological structure of the seabed (the results will be presented with the III^d survey report), possibly distinguishing more lithological layers or local lenses, of whose boundaries are observed in seismoacoustic sections (SHX horizons).

Presentation of digital data (see Annex No. 4 "Digital data")

Coordinates for exported data SEG-Y files is provided in the following bytes:

CDP no: byte 21

X coordinate: byte 73

Y coordinate byte 77

Delivered:

- 176 sub bottom cross sections in digital SEG-Y format;
- Interpreted structural time and depth maps of seismic horizons in XYZ format are presented in Part III.1 ("Determination of seismic horizons ").

III. 6. Magnetic anomalies

Survey studies of magnetic anomalies were carried out in the main 176 profiles (see section II.2) – i.e. every 100 m. Such a resolution does not allow us to expect a complete study of the area, but it provides valuable information about the general characteristics of the magnetic field and allows to record larger magnetic anomalies, which must be taken into account before starting detailed geological studies for foundations and electric cable laying lines. The total magnetic field (Fig. 3.11) varies from 51,400 to 52,600 nT and reflects the total geomagnetic field in the study area. After performing geomagnetic corrections, the residual magnetic field reflecting the geological conditions characteristic of the area was obtained. An increased concentration of ferromagnetic particles is observed in the northeastern part of the studied area, where glacial moraine deposits rich in clay minerals and boulders come to the surface.

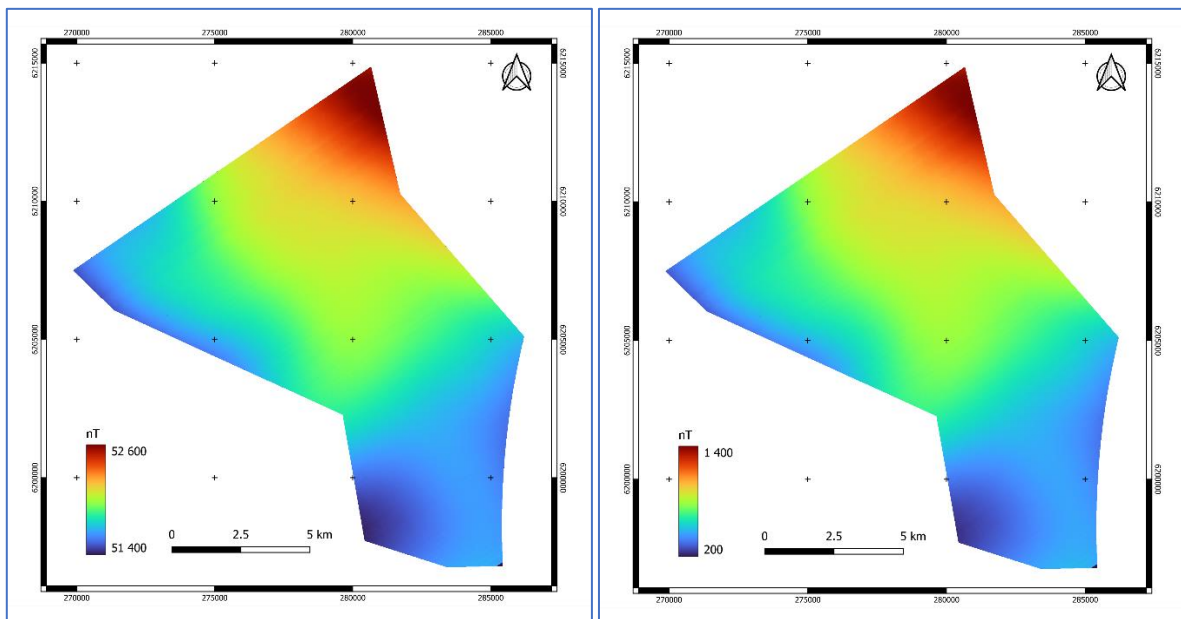


Fig. 3.11 pav. Total (left) and residual (right) magnetic field

In order to identify areas where additional caution is necessary in planning engineering works, the general magnetic field was compared with the magnetic values determined in a specific profile, i.e. a magnetic field gradient or magnetic anomalies reflecting possible anthropogenic metallic objects on the seabed (on the surface or in shallow sediments) have been determined (Fig. 3.12).

In addition to several larger (>50 nT) point anomalies spread over the entire area, a strong linear anomaly is very clearly observed in the western part, undoubtedly connected to a cable or pipeline at the bottom, the origin and position of which is recommended to be clarified during additional research (before the construction of the wind farm).

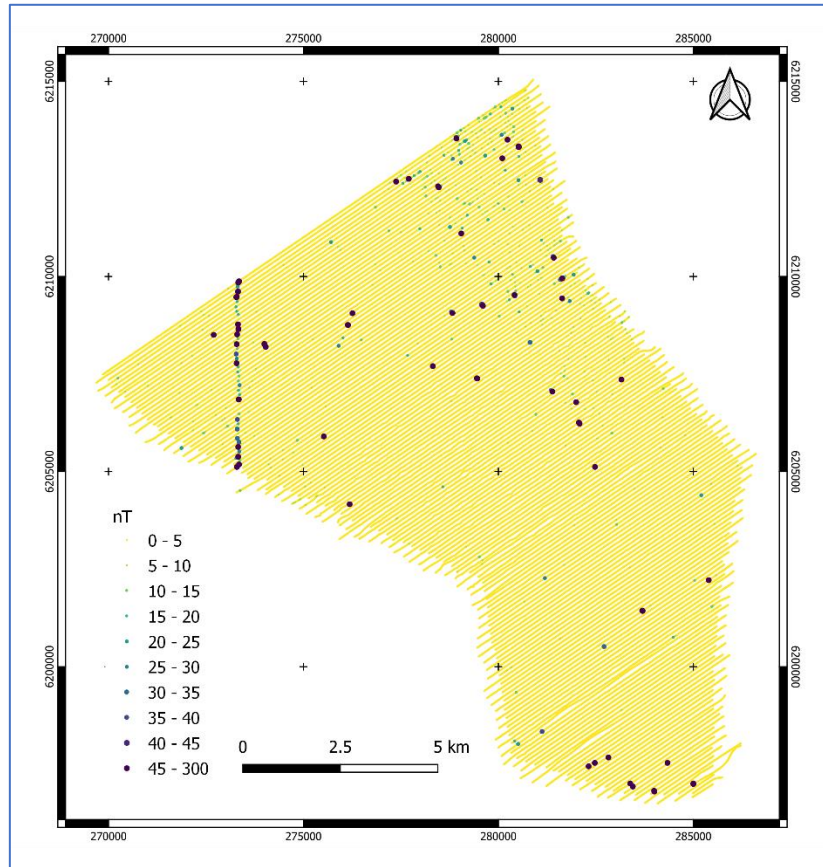


Fig. 3.12 Magnetic field gradient (anomalies)

Presentation of digital data (see Annex No. 4 "Digital data")

The processed magnetometry (MAG) data is presented in a summary table indicating:

- signal coordinate (LKS'94 system);
- total magnetic field (nT),
- magnetic field gradient (nT) and
- magnetometer depth and distance from the seabed (m).

Deliverables:

- 176 processed profiles of magnetometry data in *.csv format;
- Magnetometer depth map in *.grd format;
- Total measured magnetic field in *.grd format;
- Residual magnetic field in *.grd format;

III. 7. Anthropogenic and other objects on the seabed

After reviewing all 179 side scan profiles, 858 objects were selected (Fig. 3.13), which are recommended to pay attention to before starting drilling or foundation installation work. Preliminary classification of objects - based exclusively on visual assessment. Since both anthropogenic and larger natural objects can influence the planning of foundation installation sites and cable laying trenches, the catalog of objects includes a pin compendium of objects indicating the coordinate of the center of the object and preliminary length and width. Identified:

- 496 natural objects (classified as "NO") are mostly single larger (over 2 m diameter) boulders, more expressive landforms, geological objects (blocks, moraine outcrops, trenches, etc. bodies resembling natural objects);
- 276 possibly natural objects "N?O", which due to characteristic acoustic properties and/or the geometry of the object itself (sharper or regular angles, longer than the acoustic shadow of surrounding natural objects, etc.) raise doubts about their natural and/or anthropogenic origin;
- 58 possibly anthropogenic objects ("M?M"), which are less similar to the above-mentioned "possibly natural" objects;
- 4 extremely similar to artificial - objects of anthropogenic origin, tentatively classified as anthropogenic ("MM");
- And 24 characteristic linear objects (LIN), which are mostly not of natural origin, but can also be the result of certain specific natural structures

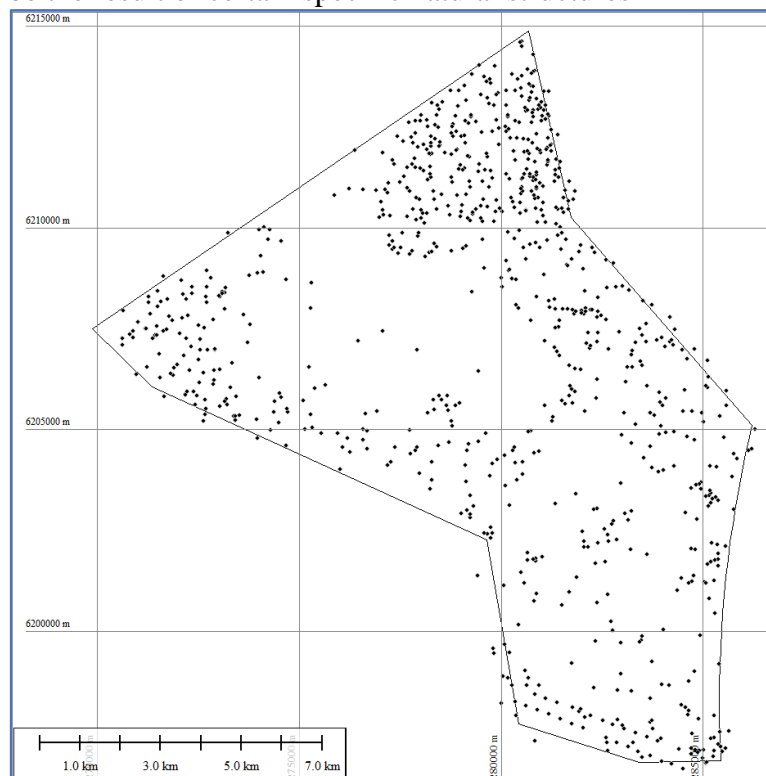


Fig. 3.13 Objects on the seabed

Presentation of digital data (see Annex No. 4 "Digital data")

Deliverables:

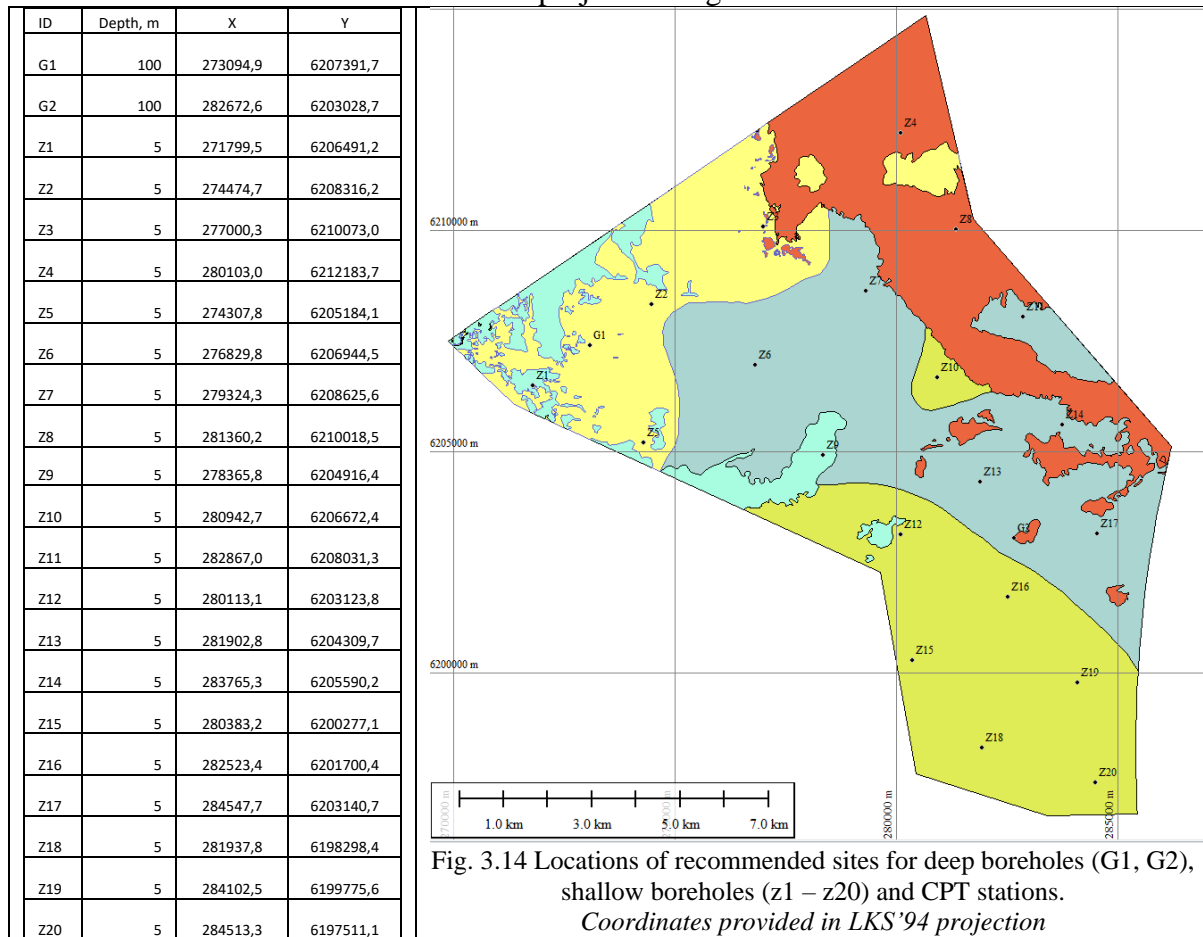
- 858 targets obtained from side scan sonar profiles: in *.GeoTiff format;
- Position of the targets: in ESRI *.shp format;
- Catalogue of the targets: in *.xls format;

III. 8. Recommended locations for boreholes and cone penetration test (CPT)

The locations of the wells were selected considering several main criteria:

- boreholes must be distributed evenly as possible over the research area and represent all identified lithotypes - wells are placed in the area in such a way that at least a few fall into the area of each isolated lithological variety;
- during the research, most diverse geological section must be drilled and probed with CPT;
- results of drilling and CPT must allow the interpretation of seismic horizons observed during seismic surveys and the refinement of structural depth maps.

Deep boreholes G1 and G2 were planned to drill a different geological section based on seismic data. SH2 seismic horizon map and seismic section no. 20, shows that borehole G1 should be drilled in the Quaternary paleo incision, reaching a depth of more than 80 m from the seabed, while borehole G2 falls into the Quaternary sedimentary zone with a lower thickness (seismic section No. 110), which is common in most of the research area. The recommended position of deep (G1 and G2) boreholes up to 100 meters and shallow (Z1-Z20) boreholes up to 5 meters and CPT locations in LKS-94 coordinate projection is given in the table:



The positions of recommended boreholes and CPT stations in relation to seismic and sub bottom profiler cross sections are presented in the Annex No. 3 "Positions of boreholes and CPT on seismic cross sections". Allowed position error – within 5m radius.

Presentation of digital data (see Annex No. 4 "Digital data")

Deliverables:

- Coordinates of recommended sites for deep (G1 and G2) and shallow (Z1-Z20) boreholes and CPT stations in *.xls table and ESRI *.shp format;

IV. Annexes

No.1 „List of figures “

No.2 „Protocols of grain size analysis “



No 3 „Positions of boreholes and CPT on seismic cross sections “

No. 4 „Digital data “



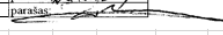
1. Annex „List of figures“:

| | |
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| Fig. 2.1 Survey area – | p. 9; |
| Fig. 2.2 Distribution of survey profiles – | p. 9; |
| Fig. 2.3 Sites of seabottom sediments sampling – | p. 11; |
| Fig. 3.1 Example of a seismic section with 3 seismic horizons – | p.12; |
| Fig. 3.2 Depth map of seismic horizon SH1 below the seabed – | p. 13; |
| Fig. 3.3 Depth map of seismic horizon SH2 below the seabed – | p. 14; |
| Fig. 3.4 Depth chart of the seabed – | p. 15; |
| Fig. 3.5 Side scan sonar mosaic – | p. 16; |
| Fig. 3.6 Preliminary lithological boundaries – | p. 17; |
| Fig. 3.7 Lithological scheme of seabottom sediments – | p. 18; |
| Fig. 3.8 Sub bottom cross section No. M003 (fragment)– | p. 19; |
| Fig. 3.9 Sub bottom cross section No. M037 (fragment)– | p. 19; |
| Fig. 3.10 Sub bottom cross section No. M127– | p. 20; |
| Fig. 3.11 pav. Total and residual magnetic field – | p. 21; |
| Fig. 3.12 Magnetic field gradient (anomalies) – | p. 22; |
| Fig. 3.13 Objects on the seabed – | p. 23; |
| Fig. 3.14 Locations of recommended sites for boreholes and CPT – | p. 24. |

2. Annex „Protocols of grain size analysis“

| | |
|---|--|
|  | |
| KLAIPĖDOS UNIVERSITETO JŪROS TYRIMŲ INSTITUTAS | |
| Viešoji įstaiga, Herkaus Manto g. 84, 92294 Klaipėda, tel.: (8 46) 398 846, faks.: (8 46) 398 999, el. p. info@apc.ku.lt Duomenys kaupiami ir saugomi Juridinių asmenų registre, kodas 211951150 | |
| Gruntų laboratorinių tyrimų protokolas Nr. TP-043-2022 | |
| Data | 2022-04-28 |
| Užsakovas: | UAB "Geobaltic", Savanorių pr. 11A-76, LT-03116 Vilnius |
| Projektas: | Jūrinis VE projektas |
| Objektas: | Gruntas |
| Gruntų pridavimo data: | 2022-03-09 |
| Grunto bandinių kiekis: | 50 |
| Tyrimai atlikti pagal: | * LST EN ISO 14688-1:2018 Geotechniniai tyrinėjimai ir bandymai. Gruntų identifikavimas ir klasifikavimas. 1 dalis. Identifikavimas ir aprašymas (ISO 14688-1:2017) * LST EN ISO 14688-2:2018 Geotechniniai tyrinėjimai ir bandymai. Gruntų identifikavimas ir klasifikavimas. 2 dalis. Klasifikavimo principai (ISO 14688-2:2017) * LST EN ISO 17892-1:2015 Geotechniniai tyrinėjimai ir bandymai. Laboratoriniai grunto bandymai. 1 dalis. Vandens kiekio nustatymas (ISO 17892-1:2014) * LST EN ISO 17892-2:2015 Geotechniniai tyrinėjimai ir bandymai. Laboratoriniai grunto bandymai. 2 dalis. Tūrinio tankio nustatymas (ISO 17892-2:2014) * LST EN ISO 17892-3:2016 Geotechniniai tyrinėjimai ir bandymai. Laboratoriniai grunto bandymai. 3 dalis. Dalelių tankio nustatymas (ISO 17892-3:2015) * LST EN ISO 17892-4:2017 Geotechniniai tyrinėjimai ir bandymai. Laboratoriniai grunto bandymai. 4 dalis. Granulometrinės sudėties nustatymas (ISO 17892-4:2016) * LST EN ISO 17892-12:2018 Geotechniniai tyrinėjimai ir bandymai. Laboratoriniai grunto bandymai. 12 dalis. Takumo ir plastiškumo ribų nustatymas (ISO 17892-12:2018) |
| Protokolo priedai: | 1. Laboratorinių tyrimų rezultatai - 2 lapai 2. Granulometrinės sudėties kreivės - 11 lapų |
| Parengė: | Pajūrio aplinkos ir biochemijos laboratorijos vadovas Mindaugas Žilius  |

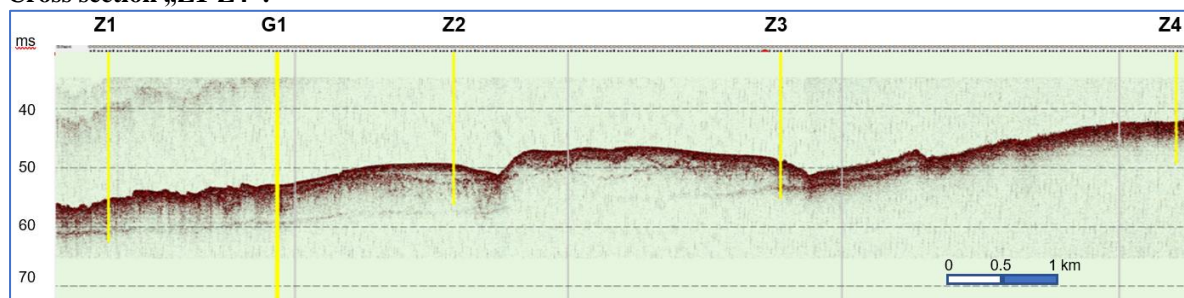
SEA BOTTOM (GEOPHYSICAL AND GEOTECHNICAL) SURVEYS IN THE LITHUANIAN MARINE AREA WHERE IT IS REASONABLE TO ORGANISE TENDERS FOR THE DEVELOPMENT AND EXPLOITATION OF THE WIND POWER PLANTS. **Part II : GEOPHYSICAL SHALLOW SEISMICS AND HYDROGRAPHIC SURVEY**

|  | | KLAIPĖDOS UNIVERSITETO JŪROS TYRIMŲ INSTITUTAS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | Viešoji įstaiga, Herkaus Manto g. 84, 92294 Klaipėda, tel.: (8 46) 398 846, faks.: (8 46) 398 999, el. p. info@apc.ku.lt Duomenys kaupiami ir saugomi Juridinių asmenų registre, kodas 211951150 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Laboratorinių tyrimų rezultatai | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Data | | 2022-04-28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Protokolo nr. | | TP-043-2022 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Užsakovas: | | UAB "Geobaltic", Savanorių pr. 11A-76, LT-03116 Vilnius | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Projektas: | | Jūrinis VE projektas | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Papildoma informacija: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Laboratorinę analizę atliko: | | j.m.d. Mindaugas Kazbaris | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pajūrio aplinkos ir biochemijos laboratorijos vad. | | dr. Mindaugas Žilijus | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| parašas: | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th rowspan="2">Eil. Nr.</th> <th rowspan="2">Gręžinio Nr.</th> <th rowspan="2">Paviršiaus Nr.</th> <th colspan="10">Skaitiklyje-likęs gruntas, vardiniklyje-išsijotęs per sietai gruntas, %</th> <th rowspan="2">Drėgnis, %</th> <th colspan="3">Smulkiosios frakcijos plastiškumas, %</th> <th rowspan="2">Organinės medžiagos, %</th> <th rowspan="2">Grunto pavadinimas</th> </tr> <tr> <th>31,5</th> <th>20</th> <th>6,3</th> <th>4</th> <th>2</th> <th>1</th> <th>0,63</th> <th>0,2</th> <th>0,125</th> <th>0,063</th> <th>Dukto/molio %</th> <th>w</th> <th>w_L/w_p</th> <th>I_p/I_L</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> <td>1</td> <td>0,00</td><td>0,00</td><td>0,00</td><td>0,00</td><td>0,00</td><td>0,00</td><td>0,00</td><td>30,10</td><td>38,19</td><td>26,14</td><td>4,78</td><td>25,62</td><td></td><td></td><td></td> <td>SaFU</td> <td>toligiai išrūšiuotas mažai dūkingas-molingas smėlis</td> </tr> <tr> <td>2</td> <td>2</td> <td>1</td> <td>0,00</td><td>0,00</td><td>0,00</td><td>0,00</td><td>0,00</td><td>0,00</td><td>0,00</td><td>69,90</td><td>31,72</td><td>5,58</td><td>0,80</td><td></td><td></td><td></td><td></td> <td>SaU</td> <td>toligiai išrūšiuotas smėlis</td> </tr> <tr> <td>3</td> <td>3</td> <td>1</td> <td>0,00</td><td>0,00</td><td>0,00</td><td>0,00</td><td>0,00</td><td>0,00</td><td>0,00</td><td>60,20</td><td>28,74</td><td>7,55</td><td>2,95</td><td>23,49</td><td></td><td></td><td></td> <td>SaU</td> <td>toligiai išrūšiuotas smėlis</td> </tr> <tr> <td>4</td> <td>4</td> <td>1</td> <td>0,00</td><td>0,00</td><td>0,00</td><td>0,00</td><td>0,00</td><td>0,00</td><td>0,00</td><td>39,98</td><td>35,91</td><td>19,53</td><td>3,98</td><td>26,15</td><td></td><td></td><td>0,79</td> <td>SaU</td> <td>toligiai išrūšiuotas smėlis</td> </tr> <tr> <td>5</td> <td>5</td> <td>1</td> 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<td>0,00</td><td>0,00</td><td>0,00</td><td>0,00</td><td>0,05</td><td>11,49</td><td>42,36</td><td>44,69</td><td>0,63</td><td>0,33</td><td>0,47</td><td>19,50</td><td></td><td></td><td></td> <td>SaU</td> <td>toligiai išrūšiuotas smėlis</td> </tr> </tbody> </table> | | | | | | | | | | | | | | | | | | Eil. Nr. | Gręžinio Nr. | Paviršiaus Nr. | Skaitiklyje-likęs gruntas, vardiniklyje-išsijotęs per sietai gruntas, % | | | | | | | | | | Drėgnis, % | Smulkiosios frakcijos plastiškumas, % | | | Organinės medžiagos, % | Grunto pavadinimas | 31,5 | 20 | 6,3 | 4 | 2 | 1 | 0,63 | 0,2 | 0,125 | 0,063 | Dukto/molio % | w | w _L /w _p | I _p /I _L | 1 | 1 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 30,10 | 38,19 | 26,14 | 4,78 | 25,62 | | | | SaFU | toligiai išrūšiuotas mažai dūkingas-molingas smėlis | 2 | 2 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 69,90 | 31,72 | 5,58 | 0,80 | | | | | SaU | toligiai išrūšiuotas smėlis | 3 | 3 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 60,20 | 28,74 | 7,55 | 2,95 | 23,49 | | | | SaU | toligiai išrūšiuotas smėlis | 4 | 4 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 39,98 | 35,91 | 19,53 | 3,98 | 26,15 | | | 0,79 | SaU | toligiai išrūšiuotas smėlis | 5 | 5 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 40,70 | 34,76 | 19,68 | 4,17 | 25,48 | | | | SaU | toligiai išrūšiuotas smėlis | 6 | 6 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 57,04 | 29,38 | 11,83 | 1,36 | 21,50 | | | | SaU | toligiai išrūšiuotas smėlis | 7 | 7 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 81,18 | 15,35 | 2,23 | 1,00 | 21,67 | | | | SaU | toligiai išrūšiuotas smėlis | 8 | 8 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 46,46 | 34,28 | 16,12 | 2,63 | 23,90 | | | | SaU | toligiai išrūšiuotas smėlis | 9 | 9 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 57,31 | 31,14 | 9,84 | 1,52 | 22,89 | | | | SaU | toligiai išrūšiuotas smėlis | 10 | 10 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 15,47 | 38,07 | 37,36 | 8,17 | 20,18 | | | 0,85 | SaFU | toligiai išrūšiuotas mažai dūkingas-molingas smėlis | 11 | 11 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,84 | 16,76 | 61,95 | 29,01 | 30,82 | 24,22 | 0,00 | 1,64 | siSa | dūkingas smėlis | 12 | 11 | 2 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 52,01 | 29,48 | 12,26 | 5,51 | 24,10 | | | | SaFP | blogai išrūšiuotas mažai dūkingas-molingas smėlis | 13 | 12 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 29,54 | 38,36 | 26,84 | 4,58 | 24,30 | | | 0,84 | SaFU | toligiai išrūšiuotas mažai dūkingas-molingas smėlis | 14 | 13 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 16,23 | 38,84 | 36,51 | 7,43 | 25,65 | | | 1,06 | SaFU | toligiai išrūšiuotas mažai dūkingas-molingas smėlis | 15 | 14 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 83,77 | 44,84 | 8,32 | 0,89 | 29,16 | | | 0,42 | SaFP | blogai išrūšiuotas mažai dūkingas-molingas smėlis | 16 | 15 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 71,04 | 21,88 | 5,24 | 1,50 | 22,30 | | | | SaU | toligiai išrūšiuotas smėlis | 17 | 16 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,05 | 11,49 | 42,36 | 44,69 | 0,63 | 0,33 | 0,47 | 19,50 | | | | SaU | toligiai išrūšiuotas smėlis |
| Eil. Nr. | Gręžinio Nr. | Paviršiaus Nr. | Skaitiklyje-likęs gruntas, vardiniklyje-išsijotęs per sietai gruntas, % | | | | | | | | | | Drėgnis, % | Smulkiosios frakcijos plastiškumas, % | | | Organinės medžiagos, % | | | | Grunto pavadinimas | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 31,5 | 20 | 6,3 | 4 | 2 | 1 | 0,63 | 0,2 | 0,125 | 0,063 | | Dukto/molio % | w | w _L /w _p | | I _p /I _L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 30,10 | 38,19 | 26,14 | 4,78 | 25,62 | | | | SaFU | toligiai išrūšiuotas mažai dūkingas-molingas smėlis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 2 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 69,90 | 31,72 | 5,58 | 0,80 | | | | | SaU | toligiai išrūšiuotas smėlis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 3 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 60,20 | 28,74 | 7,55 | 2,95 | 23,49 | | | | SaU | toligiai išrūšiuotas smėlis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 4 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 39,98 | 35,91 | 19,53 | 3,98 | 26,15 | | | 0,79 | SaU | toligiai išrūšiuotas smėlis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 5 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 40,70 | 34,76 | 19,68 | 4,17 | 25,48 | | | | SaU | toligiai išrūšiuotas smėlis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 6 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 57,04 | 29,38 | 11,83 | 1,36 | 21,50 | | | | SaU | toligiai išrūšiuotas smėlis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 7 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 81,18 | 15,35 | 2,23 | 1,00 | 21,67 | | | | SaU | toligiai išrūšiuotas smėlis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 8 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 46,46 | 34,28 | 16,12 | 2,63 | 23,90 | | | | SaU | toligiai išrūšiuotas smėlis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 9 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 57,31 | 31,14 | 9,84 | 1,52 | 22,89 | | | | SaU | toligiai išrūšiuotas smėlis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 10 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 15,47 | 38,07 | 37,36 | 8,17 | 20,18 | | | 0,85 | SaFU | toligiai išrūšiuotas mažai dūkingas-molingas smėlis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | 11 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,84 | 16,76 | 61,95 | 29,01 | 30,82 | 24,22 | 0,00 | 1,64 | siSa | dūkingas smėlis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | 11 | 2 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 52,01 | 29,48 | 12,26 | 5,51 | 24,10 | | | | SaFP | blogai išrūšiuotas mažai dūkingas-molingas smėlis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 12 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 29,54 | 38,36 | 26,84 | 4,58 | 24,30 | | | 0,84 | SaFU | toligiai išrūšiuotas mažai dūkingas-molingas smėlis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | 13 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 16,23 | 38,84 | 36,51 | 7,43 | 25,65 | | | 1,06 | SaFU | toligiai išrūšiuotas mažai dūkingas-molingas smėlis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | 14 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 83,77 | 44,84 | 8,32 | 0,89 | 29,16 | | | 0,42 | SaFP | blogai išrūšiuotas mažai dūkingas-molingas smėlis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | 15 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 71,04 | 21,88 | 5,24 | 1,50 | 22,30 | | | | SaU | toligiai išrūšiuotas smėlis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | 16 | 1 | 0,00 | 0,00 | 0,00 | 0,00 | 0,05 | 11,49 | 42,36 | 44,69 | 0,63 | 0,33 | 0,47 | 19,50 | | | | SaU | toligiai išrūšiuotas smėlis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

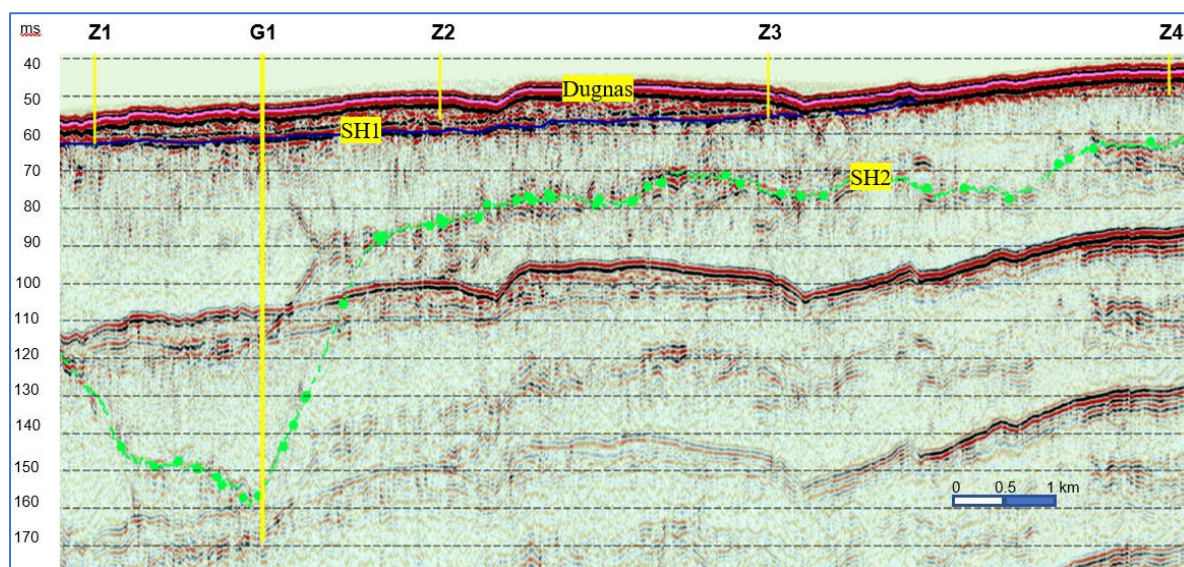
[illegible]

3. Annex "Positions of boreholes and CPT on seismic cross sections"

Cross section „Z1-Z4“:

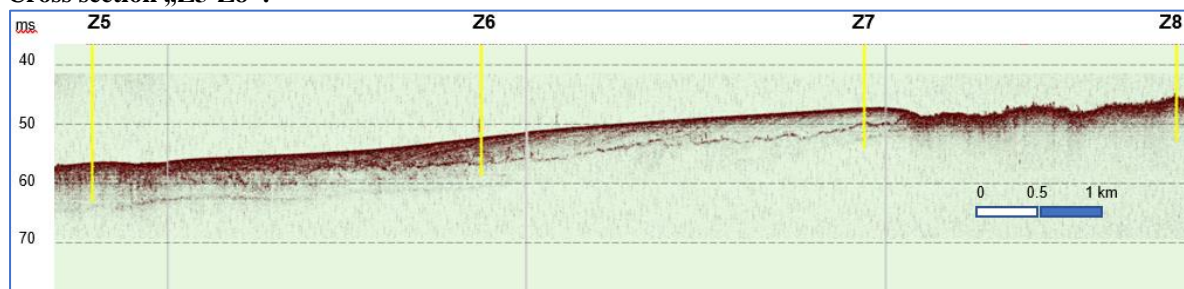


Sub bottom profiler cross section No. M020

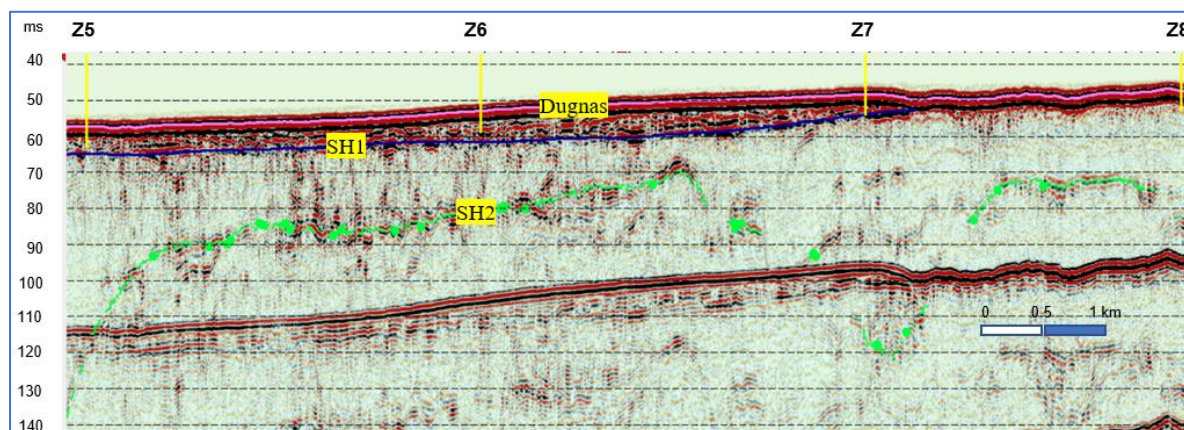


Seismic cross section No. 20

Cross section „Z5-Z8“:

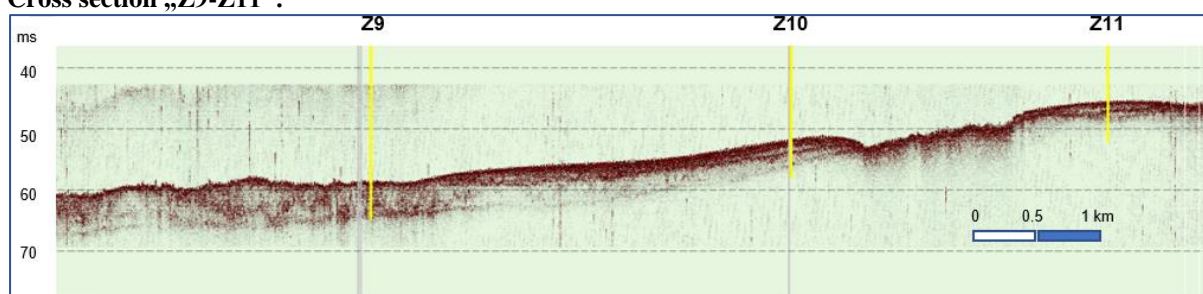


Sub bottom profiler cross section No. M045

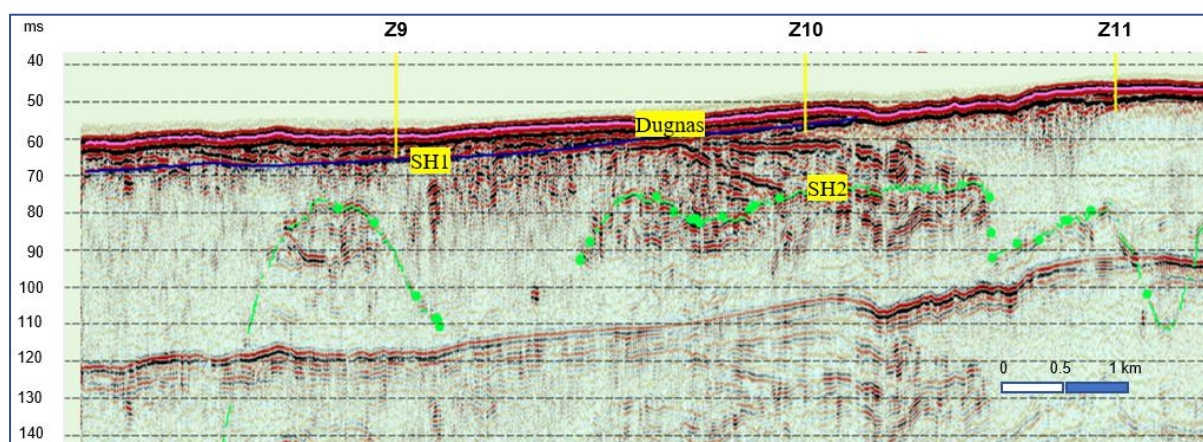


Seismic cross section No. 45

Cross section „Z9-Z11“:

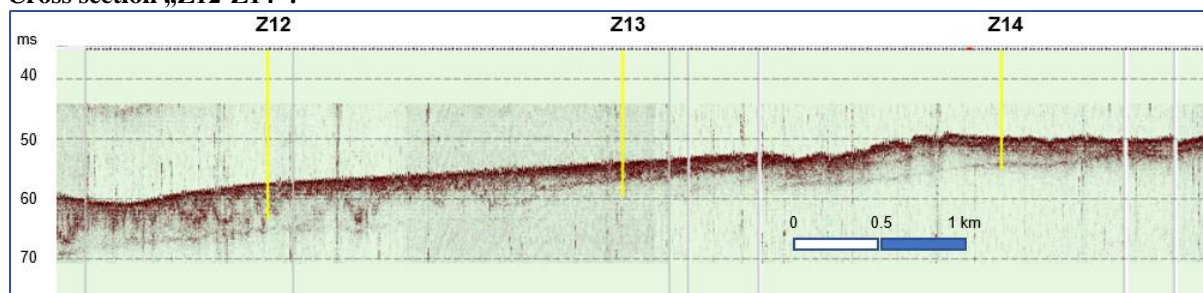


Sub bottom profiler cross section No. M070

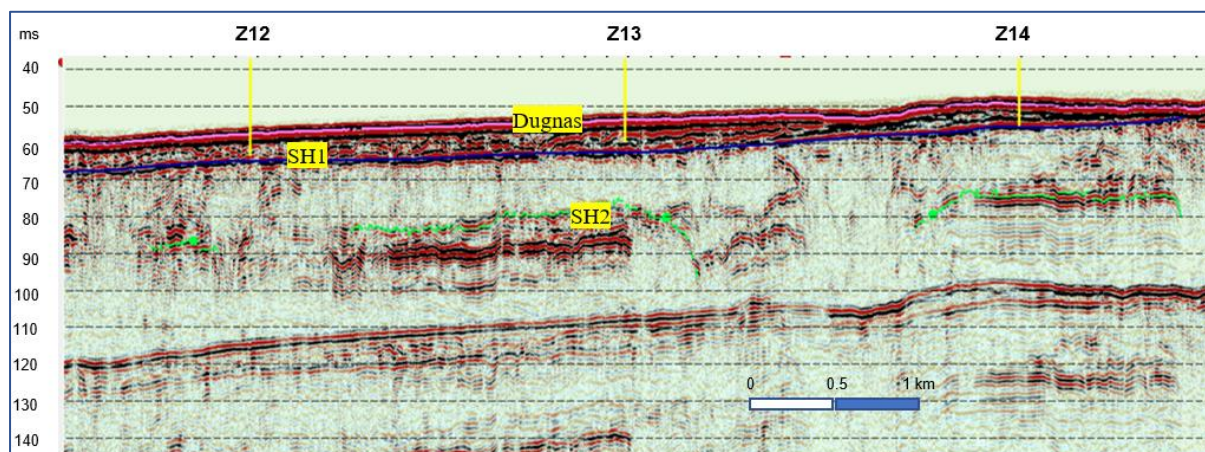


Seismic cross section No. 70

Cross section „Z12-Z14“:

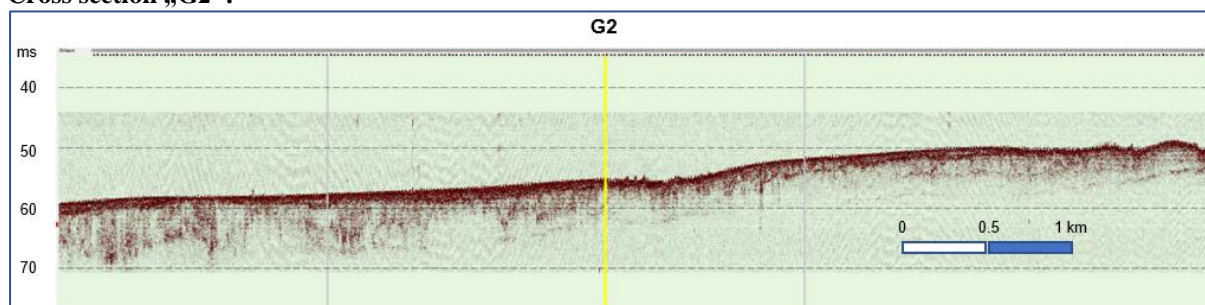


Sub bottom profiler cross section No. M095

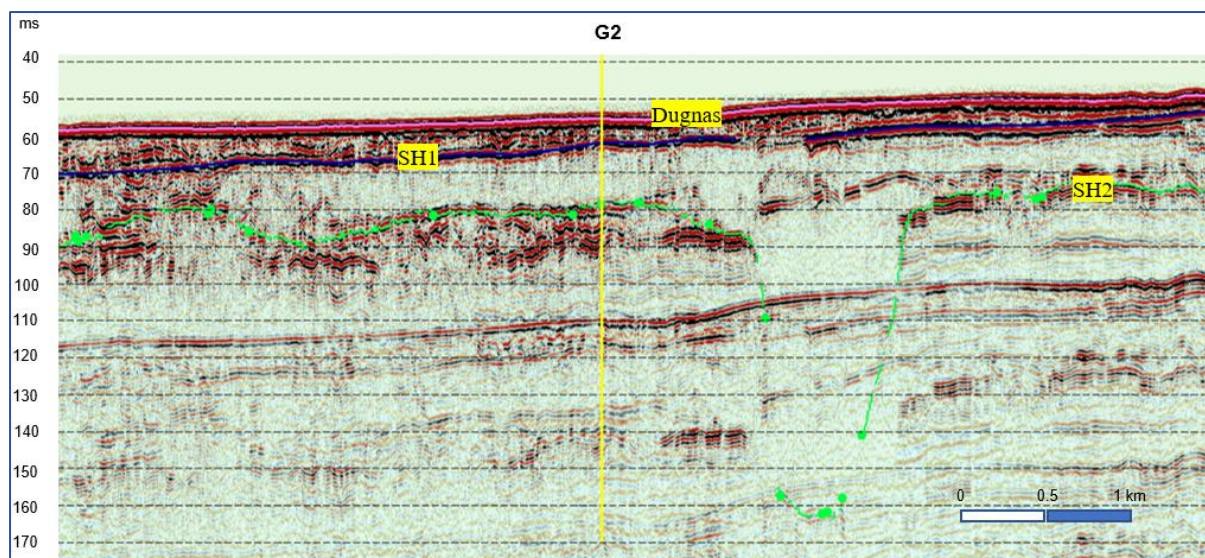


Seismic cross section No. 95

Cross section „G2“:

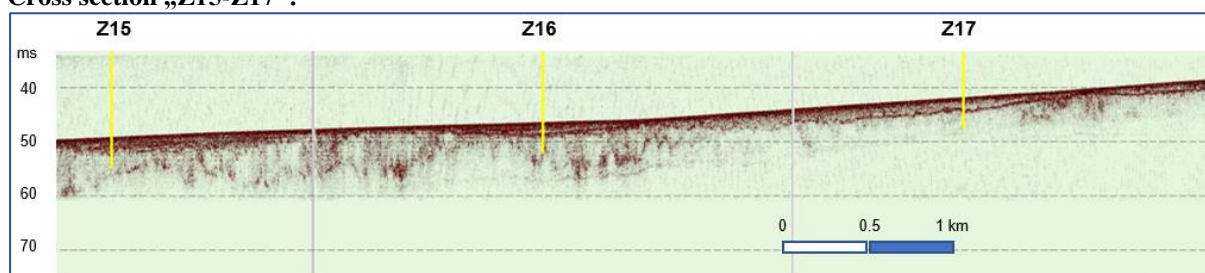


Sub bottom profiler cross section No. M110

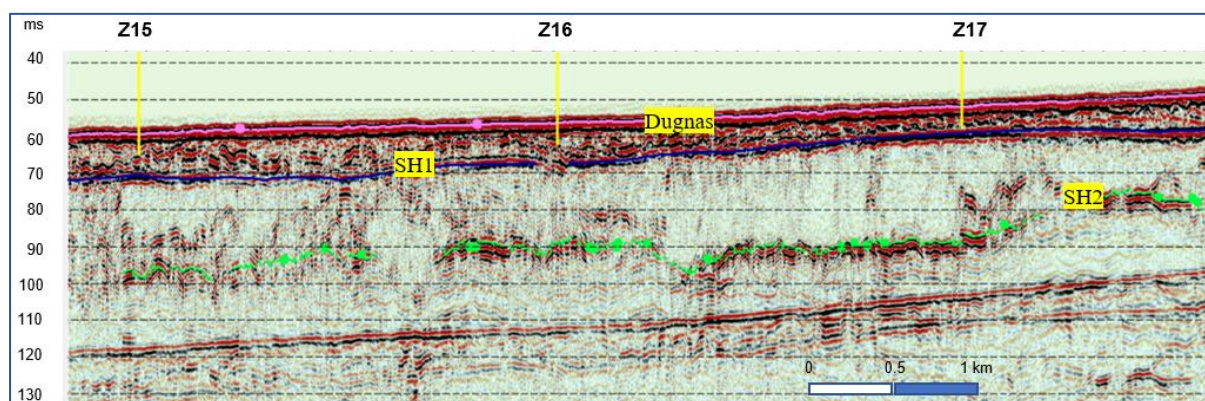


Seismic cross section No. 110

Cross section „Z15-Z17“:

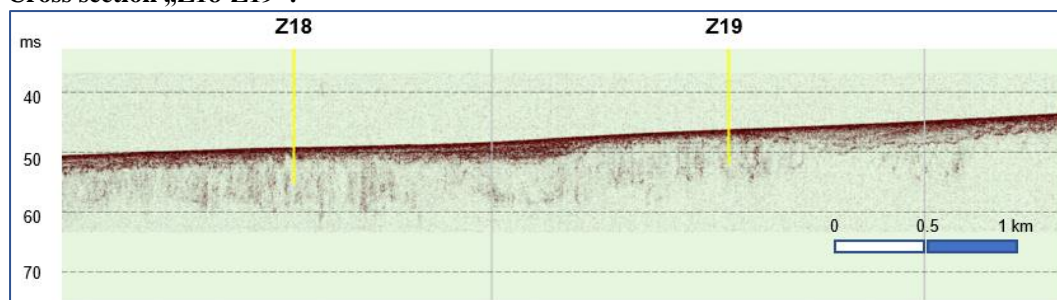


Sub bottom profiler cross section No. M120

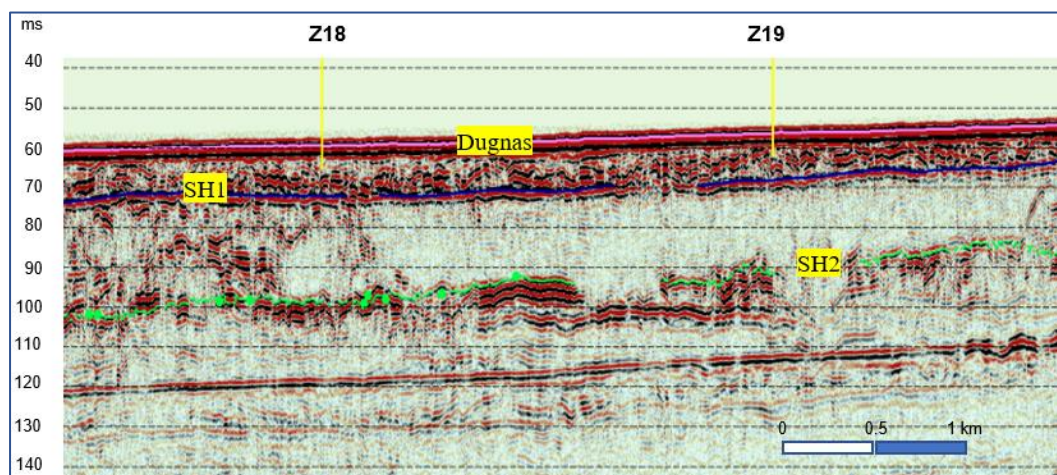


Seismic cross section No. 120

Cross section „Z18-Z19“:

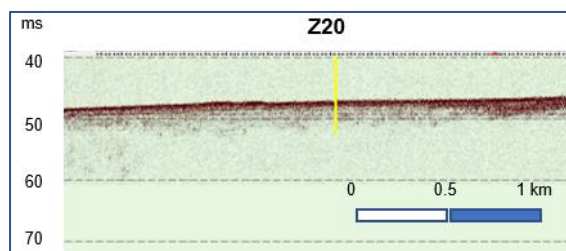


Sub bottom profiler cross section No. M145

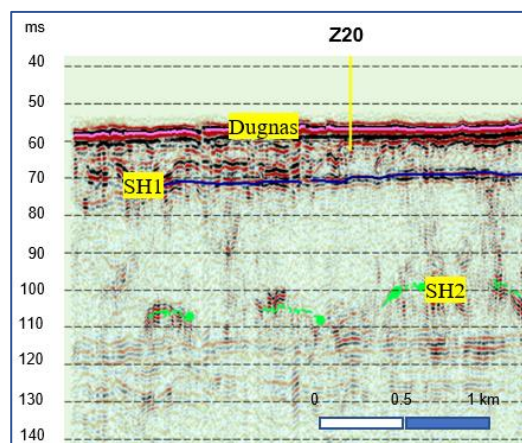


Seismic cross section No. 145

Cross section „Z20“:



Sub bottom profiler cross section No. M167



































































































































































































Seismic cross section No. 167

4. Annex „Digital data“

| Folder | Files | Description |
|---|--|--|
| <ul style="list-style-type: none"> ▼ priedai_Ildalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers > Lithology MAG MBES SBP > Seismics > SSS | <div> <div> IGG_coordinates.xlsx </div> <div> <div>Location_IGG_LKS94.cpg</div> <div>Location_IGG_LKS94.dbf</div> <div>Location_IGG_LKS94.prj</div> <div>Location_IGG_LKS94.sbn</div> <div>Location_IGG_LKS94.sbx</div> <div>Location_IGG_LKS94.shp</div> <div>Location_IGG_LKS94.shx</div> </div> </div> | Recommended coordinates of deep (G1 and G2) and shallow (Z1-Z20) boreholes and CPT stations in *.xls table and ESRI *.shp format |
| <ul style="list-style-type: none"> ▼ priedai_Ildalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers > Lithology MAG MBES SBP > Seismics > SSS | <div> <div> <div>OWE_area_LKS94.cpg</div> <div>OWE_area_LKS94.dbf</div> <div>OWE_area_LKS94.prj</div> <div>OWE_area_LKS94.sbn</div> <div>OWE_area_LKS94.sbx</div> <div>OWE_area_LKS94.shp</div> <div>OWE_area_LKS94.shp.xml</div> <div>OWE_area_LKS94.shx</div> </div> <div> <div>profiles_LKS94.dbf</div> <div>profiles_LKS94.sbn</div> <div>profiles_LKS94.sbx</div> <div>profiles_LKS94.shp</div> <div>profiles_LKS94.shx</div> </div> </div> | Survey area and hydrographic and seismic survey lines in ESRI *.shp format |
| <ul style="list-style-type: none"> ▼ priedai_Ildalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers ▼ Lithology <ul style="list-style-type: none"> Geo_boundaries LAB map sampling MAG MBES SBP > Seismics > SSS | <div> <div> <div>geo_boundaries_LKS94.cpg</div> <div>geo_boundaries_LKS94.dbf</div> <div>geo_boundaries_LKS94.prj</div> <div>geo_boundaries_LKS94.sbn</div> <div>geo_boundaries_LKS94.sbx</div> <div>geo_boundaries_LKS94.shp</div> <div>geo_boundaries_LKS94.shp.xml</div> <div>geo_boundaries_LKS94.shx</div> </div> </div> | Lithological boundaries of seabed sediments in ESRI *.shp format. |
| <ul style="list-style-type: none"> ▼ priedai_Ildalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers ▼ Lithology <ul style="list-style-type: none"> Geo_boundaries LAB map sampling MAG MBES SBP > Seismics > SSS | <div> <div> TP-043-2022_700MW.xls </div> </div> | Results of grain size analysis: lab protocol in *.xls format; |

SEA BOTTOM (GEOPHYSICAL AND GEOTECHNICAL) SURVEYS IN THE LITHUANIAN MARINE AREA WHERE IT IS REASONABLE TO ORGANISE TENDERS FOR THE DEVELOPMENT AND EXPLOITATION OF THE WIND POWER PLANTS. **Part II : GEOPHYSICAL SHALLOW SEISMICS AND HYDROGRAPHIC SURVEY**

| | | |
|--|---|---|
| <ul style="list-style-type: none"> ▼ priedai_ildalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers ▼ Lithology <ul style="list-style-type: none"> Geo_boundaries LAB map sampling MAG MBES SBP > Seismics > SSS | <p>Name</p> <p> Geo_map_LKS94.tif</p> | <p>Lithological scheme in *.GeoTiff format;</p> |
| <ul style="list-style-type: none"> ▼ priedai_ildalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers ▼ Lithology <ul style="list-style-type: none"> Geo_boundaries LAB map sampling MAG MBES SBP > Seismics > SSS | <p>Name</p> <p> samples_LKS94.cpg</p> <p> samples_LKS94.dbf</p> <p> samples_LKS94.prj</p> <p> samples_LKS94.sbn</p> <p> samples_LKS94.sbx</p> <p> samples_LKS94.shp</p> <p> samples_LKS94.shp.xml</p> <p> samples_LKS94.shx</p> | <p>Sites of lithological sampling in ESRI *.shp format;</p> |
| <ul style="list-style-type: none"> ▼ priedai_ildalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers > Lithology MAG MBES SBP > Seismics > SSS | <p>Name</p> <p> magfish_depth.grd</p> <p> total_field.grd</p> <p> total_field_reduced.grd</p> <p> total_field_ruggedness.grd</p> <p> magsurvey_total.csv</p> | <p>Mag data of 176 postprocessed profiles in *.csv format;</p> <p>Mag depth chart in *.grd format;</p> <p>Total magnetic field in *.grd format;</p> <p>Residual magnetic field in *.grd format;</p> |
| <ul style="list-style-type: none"> ▼ priedai_ildalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers > Lithology MAG MBES SBP > Seismics > SSS | <p> LT-OWE_MBES_1x1.tif</p> <p> MBES_1x1_LKS94.xyz</p> | <p>Postprocessed depth values at 1x1 m resolution grid in *.XYZ format;</p> <p>Map of seabed depth in *.GeoTiff format</p> |
| <ul style="list-style-type: none"> ▼ priedai_ildalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers > Lithology MAG MBES SBP > Seismics > SSS | <p> M001.sgy  M023.sgy  M045.sgy  M067.sgy  M089.sgy  M111.sgy  M133.sgy  M155.sgy</p> <p> M002.sgy  M024.sgy  M046.sgy  M068.sgy  M090.sgy  M112.sgy  M134.sgy  M156.sgy</p> <p> M003.sgy  M025.sgy  M047.sgy  M069.sgy  M091.sgy  M113.sgy  M135.sgy  M157.sgy</p> <p> M004.sgy  M026.sgy  M048.sgy  M070.sgy  M092.sgy  M114.sgy  M136.sgy  M158.sgy</p> <p> M005.sgy  M027.sgy  M049.sgy  M071.sgy  M093.sgy  M115.sgy  M137.sgy  M159.sgy</p> <p> M006.sgy  M028.sgy  M050.sgy  M072.sgy  M094.sgy  M116.sgy  M138.sgy  M160.sgy</p> <p> M007.sgy  M029.sgy  M051.sgy  M073.sgy  M095.sgy  M117.sgy  M139.sgy  M161.sgy</p> <p> M008.sgy  M030.sgy  M052.sgy  M074.sgy  M096.sgy  M118.sgy  M140.sgy  M162.sgy</p> <p> M009.sgy  M031.sgy  M053.sgy  M075.sgy  M097.sgy  M119.sgy  M141.sgy  M163.sgy</p> <p> M010.sgy  M032.sgy  M054.sgy  M076.sgy  M098.sgy  M120.sgy  M142.sgy  M164.sgy</p> <p> M011.sgy  M033.sgy  M055.sgy  M077.sgy  M099.sgy  M121.sgy  M143.sgy  M165.sgy</p> <p> M012.sgy  M034.sgy  M056.sgy  M078.sgy  M100.sgy  M122.sgy  M144.sgy  M166.sgy</p> <p> M013.sgy  M035.sgy  M057.sgy  M079.sgy  M101.sgy  M123.sgy  M145.sgy  M167.sgy</p> <p> M014.sgy  M036.sgy  M058.sgy  M080.sgy  M102.sgy  M124.sgy  M146.sgy  M168.sgy</p> <p> M015.sgy  M037.sgy  M059.sgy  M081.sgy  M103.sgy  M125.sgy  M147.sgy  M169.sgy</p> <p> M016.sgy  M038.sgy  M060.sgy  M082.sgy  M104.sgy  M126.sgy  M148.sgy  M170.sgy</p> <p> M017.sgy  M039.sgy  M061.sgy  M083.sgy  M105.sgy  M127.sgy  M149.sgy  M171.sgy</p> <p> M018.sgy  M040.sgy  M062.sgy  M084.sgy  M106.sgy  M128.sgy  M150.sgy  M172.sgy</p> <p> M019.sgy  M041.sgy  M063.sgy  M085.sgy  M107.sgy  M129.sgy  M151.sgy  M173.sgy</p> <p> M020.sgy  M042.sgy  M064.sgy  M086.sgy  M108.sgy  M130.sgy  M152.sgy  M174.sgy</p> <p> M021.sgy  M043.sgy  M065.sgy  M087.sgy  M109.sgy  M131.sgy  M153.sgy  M175.sgy</p> <p> M022.sgy  M044.sgy  M066.sgy  M088.sgy  M110.sgy  M132.sgy  M154.sgy  M176.sgy</p> | <p>176 sub bottom cross sections in digital SEG-Y format</p> |

SEA BOTTOM (GEOPHYSICAL AND GEOTECHNICAL) SURVEYS IN THE LITHUANIAN MARINE AREA WHERE IT IS REASONABLE TO ORGANISE TENDERS FOR THE DEVELOPMENT AND EXPLOITATION OF THE WIND POWER PLANTS. **Part II : GEOPHYSICAL SHALLOW SEISMICS AND HYDROGRAPHIC SURVEY**

| | | |
|--|---|---|
| <ul style="list-style-type: none"> ▼ priedai_ildalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers > Lithology <ul style="list-style-type: none"> MAG MBES SBP ▼ Seismics <ul style="list-style-type: none"> ▼ Maps <ul style="list-style-type: none"> JPG XYZ SEGY SSS | <ul style="list-style-type: none"> SeaBottom_Depth.jpg SH1_Depth_SeaBottom.jpg SH2_Depth_SeaBottom.jpg | <p>Bottom, SH1 and SH2 seismic horizons depth maps (bellow the seabed) in *.JPG format</p> |
| <ul style="list-style-type: none"> ▼ priedai_ildalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers > Lithology <ul style="list-style-type: none"> MAG MBES SBP ▼ Seismics <ul style="list-style-type: none"> ▼ Maps <ul style="list-style-type: none"> JPG XYZ SEGY SSS | <p>Name</p> <ul style="list-style-type: none"> SeaBottom_depth_grid.xyz SeaBottom_time_grid.xyz SH1_Depth_SeaBottom_grid.xyz SH1_time_grid.xyz SH2_Depth_SeaBottom_grid.xyz SH2_time_grid.xyz | <p>Bottom, SH1 and SH2 seismic horizons depth maps (bellow the seabed) in *.XYZ format</p> |
| <ul style="list-style-type: none"> ▼ priedai_ildalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers > Lithology <ul style="list-style-type: none"> MAG MBES SBP ▼ Seismics <ul style="list-style-type: none"> ▼ Maps <ul style="list-style-type: none"> JPG XYZ SEGY SSS | <ul style="list-style-type: none"> 176.sgy 155.sgy 135.sgy 117.sgy 97.sgy 77.sgy 58.sgy 35.sgy 11.sgy 175.sgy 154.sgy 134.sgy 116.sgy 96.sgy 76.sgy 57.sgy 33.sgy 10.sgy 173.sgy 153.sgy 133.sgy 115.sgy 95.sgy 75.sgy 56.sgy 32.sgy 9.sgy 172.sgy 152.sgy 132.sgy 114.sgy 94.sgy 74.sgy 55.sgy 31.sgy 7.sgy 170.sgy 150.sgy 131.sgy 113.sgy 93.sgy 73.sgy 54.sgy 30.sgy 6.sgy 168.sgy 148.sgy 130.sgy 112.sgy 92.sgy 72.sgy 52.sgy 29.sgy 5.sgy 167.sgy 148.sgy 129.sgy 111.sgy 91.sgy 71.sgy 50.sgy 26.sgy 4.sgy 166.sgy 147.sgy 128.sgy 110.sgy 90.sgy 70.sgy 48.sgy 25.sgy 3D_dataset.sgy 165.sgy 145.sgy 127.sgy 109.sgy 89.sgy 69.sgy 47.sgy 23.sgy 3.sgy 164.sgy 144.sgy 126.sgy 108.sgy 88.sgy 68.sgy 46.sgy 22.sgy 2.sgy 163.sgy 143.sgy 125.sgy 107.sgy 87.sgy 67.sgy 44.sgy 21.sgy 1.sgy 162.sgy 142.sgy 124.sgy 106.sgy 86.sgy 66.sgy 43.sgy 20.sgy 161.sgy 141.sgy 123.sgy 104.sgy 85.sgy 65.sgy 42.sgy 19.sgy 160.sgy 140.sgy 122.sgy 102.sgy 84.sgy 64.sgy 41.sgy 18.sgy 159.sgy 139.sgy 121.sgy 101.sgy 83.sgy 63.sgy 39.sgy 17.sgy 158.sgy 138.sgy 120.sgy 100.sgy 81.sgy 61.sgy 38.sgy 15.sgy 157.sgy 137.sgy 119.sgy 99.sgy 80.sgy 60.sgy 37.sgy 14.sgy 156.sgy 136.sgy 118.sgy 98.sgy 79.sgy 59.sgy 36.sgy 13.sgy | <p>176 seismic cross sections in digital SEG-Y format and 3D data array in digital SEG-Y format</p> |
| <ul style="list-style-type: none"> ▼ priedai_ildalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers > Lithology <ul style="list-style-type: none"> MAG MBES SBP ▼ Seismics <ul style="list-style-type: none"> SSS <ul style="list-style-type: none"> Mozaic_GeoTiff SSS_lines.xtf SSS_targets | <p>Name</p> <ul style="list-style-type: none"> SSS_mosaic.tif SSS_mosaic.tif.aux.xml SSS_mosaic.tif.ovr | <p>SSS mosaic in *.GeoTiff format</p> |

SEA BOTTOM (GEOPHYSICAL AND GEOTECHNICAL) SURVEYS IN THE LITHUANIAN MARINE AREA WHERE IT IS REASONABLE TO ORGANISE TENDERS FOR THE DEVELOPMENT AND EXPLOITATION OF THE WIND POWER PLANTS. **Part II : GEOPHYSICAL SHALLOW SEISMICS AND HYDROGRAPHIC SURVEY**

| | | |
|---|--|--|
| <ul style="list-style-type: none"> ▼ priedai_lidalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers > Lithology MAG MBES SBP > Seismics ▼ SSS <ul style="list-style-type: none"> Mozaic_GeoTiff ▼ SSS_lines_xtf <ul style="list-style-type: none"> xtf_infills xtf_main xtf_repeated_lines > SSS_targets | <p>Name</p> <ul style="list-style-type: none"> SSS_infil_1_211127122000.xtf SSS_infil_1_211127123500.xtf SSS_infil_2_211127114700.xtf SSS_INFIL_3_211206154500.xtf SSS_infil_4_211207115500.xtf sss_infil_05_211213140000.xtf sss_infil_05_211213141500.xtf sss_infil_06_211213145200.xtf sss_infil_07_211213124800.xtf | <p>Postprocessed data of side scan sonar infills in *.xtf format</p> |
| <ul style="list-style-type: none"> ▼ priedai_lidalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers > Lithology MAG MBES SBP > Seismics ▼ SSS <ul style="list-style-type: none"> Mozaic_GeoTiff ▼ SSS_lines_xtf <ul style="list-style-type: none"> xtf_infills xtf_main xtf_repeated_lines > SSS_targets | <ul style="list-style-type: none"> 1_211213105900.xtf 1_211213111400.xtf 1_211213112900.xtf 1_211213114400.xtf 1_211213115900.xtf 1_211213121400.xtf 2_211213090700.xtf 2_211213092200.xtf 2_211213093700.xtf 2_211213095200.xtf 2_211213100700.xtf 2_211213102200.xtf 2_211213103700.xtf 3_211213072300.xtf 3_211213073800.xtf 3_211213083800.xtf 3_211213085300.xtf 4_211213053300.xtf 4_211213054800.xtf 4_211213060300.xtf 4_211213061800.xtf 4_211213063300.xtf 4_211213064800.xtf 4_211213070300.xtf 5_211213034100.xtf 5_211213035600.xtf 5_211213041100.xtf 5_211213042600.xtf 5_211213044100.xtf 5_211213045600.xtf 6_211213023200.xtf 6_211213024700.xtf 6_211213030200.xtf 6_211213031700.xtf 7_211213000300.xtf 7_211213001800.xtf 7_211213003300.xtf 7_211213004900.xtf 7_211213010400.xtf 7_211213011900.xtf 8_211212220500.xtf 8_211212220500.xtf 8_211212222000.xtf 8_211212223500.xtf 8_211212225000.xtf 8_211212230500.xtf 9_211212205300.xtf 9_211212210800.xtf 9_211212212300.xtf 9_211212213800.xtf 10_211212182600.xtf 10_211212184100.xtf 10_211212185600.xtf 10_211212191100.xtf 10_211212192600.xtf 10_211212194100.xtf 10_211212195600.xtf 11_211212163300.xtf 11_211212164800.xtf 11_211212170300.xtf 11_211212171800.xtf 12_211212142500.xtf 12_211212144000.xtf 12_211212145500.xtf 12_211212151000.xtf 12_211212152500.xtf 13_211212123000.xtf 13_211212124500.xtf 13_211212130000.xtf 13_211212131500.xtf 13_211212133000.xtf 13_211212134500.xtf 14_211212104900.xtf 14_211212110400.xtf 14_211212111900.xtf 14_211212113400.xtf | <p>Postprocessed data of side scan sonar – 176 profiles in *.xtf format</p> |
| <ul style="list-style-type: none"> ▼ priedai_lidalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers > Lithology MAG MBES SBP > Seismics ▼ SSS <ul style="list-style-type: none"> Mozaic_GeoTiff ▼ SSS_lines_xtf <ul style="list-style-type: none"> xtf_infills xtf_main xtf_repeated_lines > SSS_targets | <ul style="list-style-type: none"> 8a_211212233900.xtf 12a_211212155700.xtf 12a_211212161200.xtf 16a_211212081200.xtf 16a_211212082700.xtf 16a_211212084200.xtf 24a_211211180900.xtf 24a_211211182400.xtf 24a_211211183900.xtf 24a_211211185400.xtf 28a_211211109000.xtf 28a_211211112400.xtf 28a_211211113900.xtf 28a_211211115400.xtf 31a_211211062900.xtf 34a_211208020500.xtf 34a_211208022000.xtf 51a_211206225900.xtf 51a_211206231400.xtf 51a_211206232900.xtf sss_R_M_08_211213214500.xtf sss_R_M_08_211213220000.xtf sss_R_M_010_211213183500.xtf sss_R_M_010_211213185000.xtf sss_R_M_010_211213190500.xtf sss_R_M_010a_211213192200.xtf sss_R_M_010a_211213193700.xtf sss_R_M_010a_211213195200.xtf sss_R_M_010a_211213200700.xtf sss_R_M_012_211213165900.xtf sss_R_M_012_211213171400.xtf sss_R_M_012_211213172900.xtf sss_R_M_012_211213174400.xtf sss_R_M_012_211213175900.xtf | <p>Postprocessed data of repeated side scan sonar profiles in *.xtf format</p> |
| <ul style="list-style-type: none"> ▼ priedai_lidalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers > Lithology MAG MBES SBP > Seismics ▼ SSS <ul style="list-style-type: none"> Mozaic_GeoTiff ▼ SSS_lines_xtf ▼ SSS_targets <ul style="list-style-type: none"> Object_catalog Object_GeoTiff Object_shp | <p>Name</p> <ul style="list-style-type: none"> TargetList_iks94.xlsx | <p>Catalogue of the targets: in *.xls format</p> |

SEA BOTTOM (GEOPHYSICAL AND GEOTECHNICAL) SURVEYS IN THE LITHUANIAN MARINE AREA WHERE IT IS REASONABLE TO ORGANISE TENDERS FOR THE DEVELOPMENT AND EXPLOITATION OF THE WIND POWER PLANTS. **Part II : GEOPHYSICAL SHALLOW SEISMICS AND HYDROGRAPHIC SURVEY**

| | | |
|--|--|--|
| <ul style="list-style-type: none"> ▼ priedai_lidalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers > Lithology MAG MBES SBP > Seismics ▼ SSS <ul style="list-style-type: none"> Mozaic_GeoTiff > SSS_lines_xtf ▼ SSS_targets <ul style="list-style-type: none"> Object_catalog Object_GeoTiff Object_shp | <div> <div> Target0001.tif Target0031.tif Target0055.tif Target0080.tif Target0100.tif Target0121.tif </div> <div> Target0002.tif Target0032.tif Target0056.tif Target0081.tif Target0101.tif Target0123.tif </div> <div> Target0004.tif Target0033.tif Target0057.tif Target0082.tif Target0103.tif Target0124.tif </div> <div> Target0005.tif Target0034.tif Target0059.tif Target0083.tif Target0104.tif Target0125.tif </div> <div> Target0007.tif Target0036.tif Target0060.tif Target0084.tif Target0105.tif Target0126.tif </div> <div> Target0008.tif Target0037.tif Target0062.tif Target0085.tif Target0106.tif Target0127.tif </div> <div> Target0009.tif Target0039.tif Target0063.tif Target0086.tif Target0107.tif Target0128.tif </div> <div> Target0010.tif Target0040.tif Target0064.tif Target0087.tif Target0108.tif Target0129.tif </div> <div> Target0011.tif Target0041.tif Target0065.tif Target0088.tif Target0109.tif Target0130.tif </div> <div> Target0013.tif Target0042.tif Target0067.tif Target0089.tif Target0111.tif Target0131.tif </div> <div> Target0014.tif Target0044.tif Target0068.tif Target0090.tif Target0113.tif Target0133.tif </div> <div> Target0015.tif Target0045.tif Target0069.tif Target0091.tif Target0114.tif Target0134.tif </div> <div> Target0023.tif Target0047.tif Target0070.tif Target0093.tif Target0115.tif Target0135.tif </div> <div> Target0024.tif Target0049.tif Target0071.tif Target0094.tif Target0116.tif Target0136.tif </div> </div> | <p>858 targets obtained from side scan sonar profiles in *.GeoTiff format;</p> |
| <ul style="list-style-type: none"> ▼ priedai_lidalis <ul style="list-style-type: none"> Drilling_CPT_locations GIS_layers > Lithology MAG MBES SBP > Seismics ▼ SSS <ul style="list-style-type: none"> Mozaic_GeoTiff > SSS_lines_xtf ▼ SSS_targets <ul style="list-style-type: none"> Object_catalog Object_GeoTiff Object_shp | <div> <div>Name</div> <div> targets_lks.cpg targets_lks.dbf targets_lks.prj targets_lks.sbn targets_lks.sbx targets_lks.shp targets_lks.shx </div> </div> | <p>Position of the targets in ESRI *.shp format</p> |