

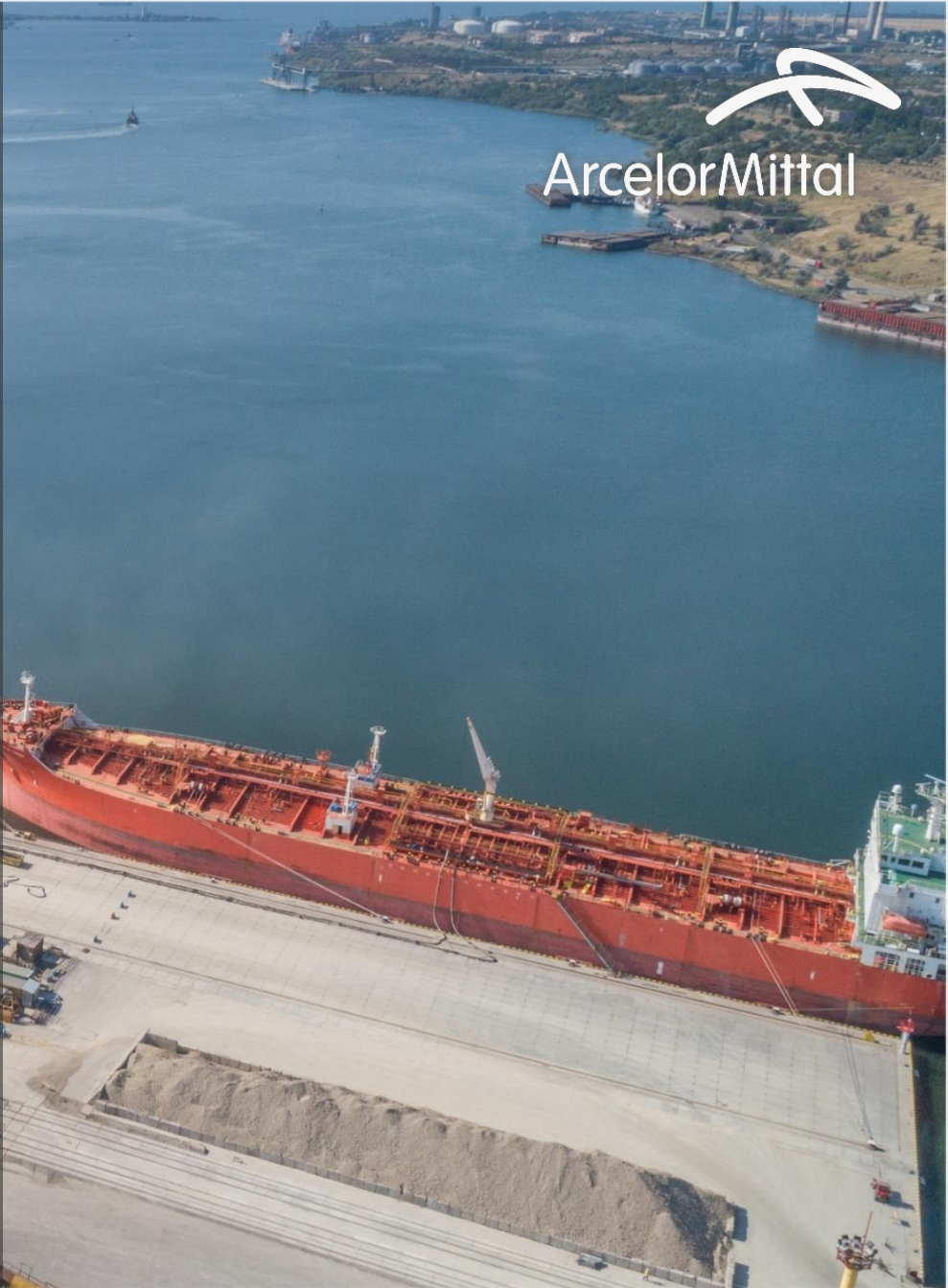


State-of-the-art technologies in the construction of port infrastructure

Darius Macijauskas
ArcelorMittal - Sheet Piling - Luxembourg
27 May 2021



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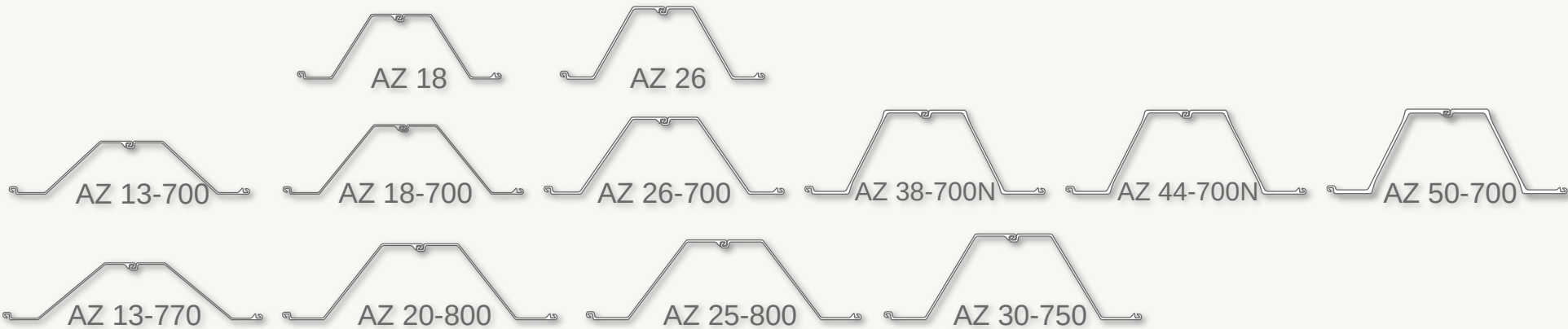


- Carbon neutrality in 2050
- Environmental impact of new structures
- Environmental criteria in public procurement procedures
- Sustainable solutions will be achieved by circular economy

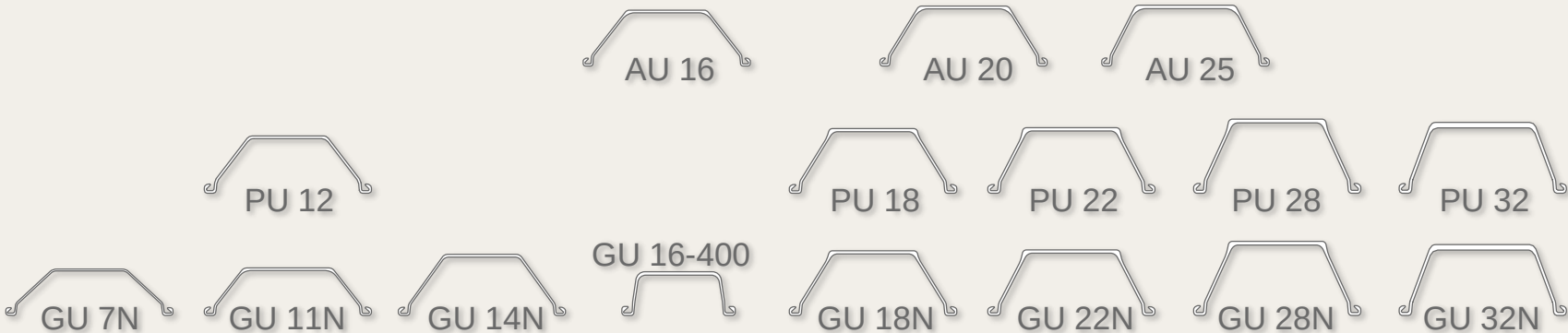


Wide range of ArcelorMittal's sheet piles

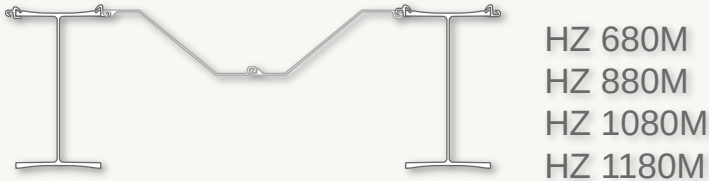
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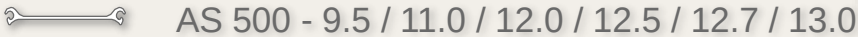
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HZ-M



Flat



Sheet pile range
(September 2017)
 W_{el} up to 46.500 cm³/m

- Prefabricated elements
- Quality controlled in the mill

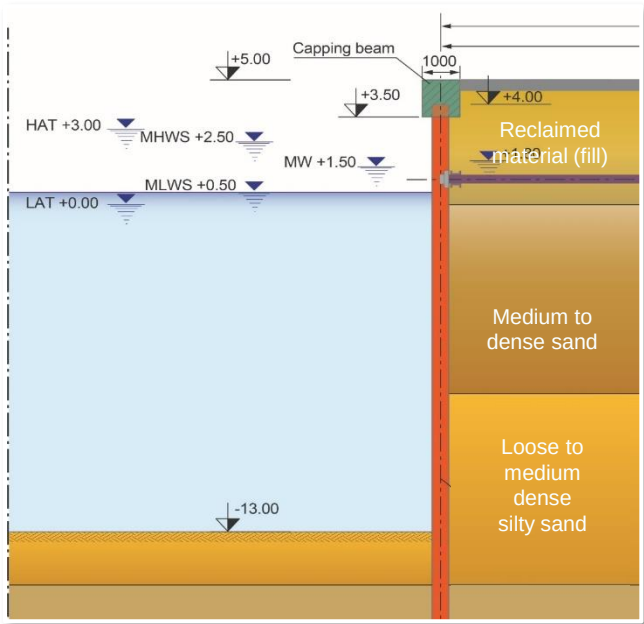
ArcelorMittal's mills are certified
**ISO 9001, ISO 14001,
OHSAS 18001, ISO 50001**



Importance of quality control – Example of Dubai Marina

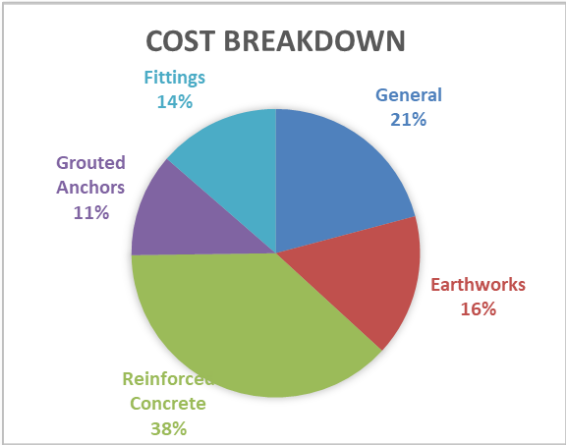
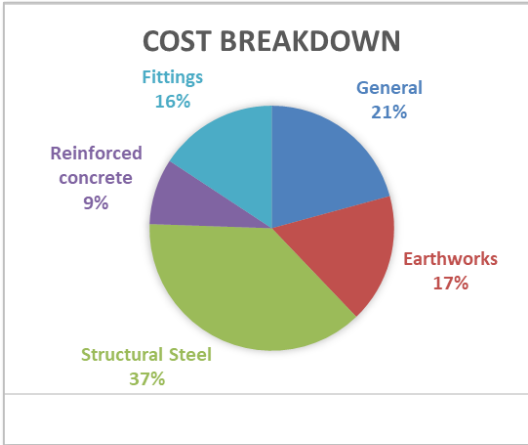


Construction cost analysis (by Tractebel in 2018)



- Length quay wall: 200 m
- Location: Antwerp (BE)

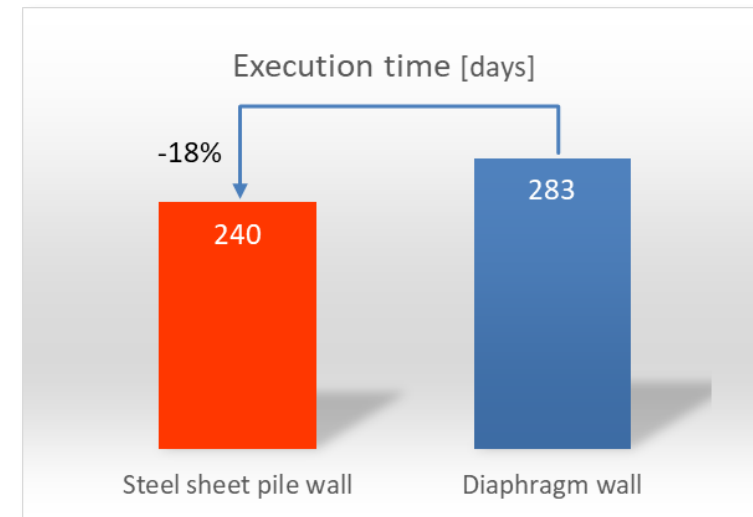
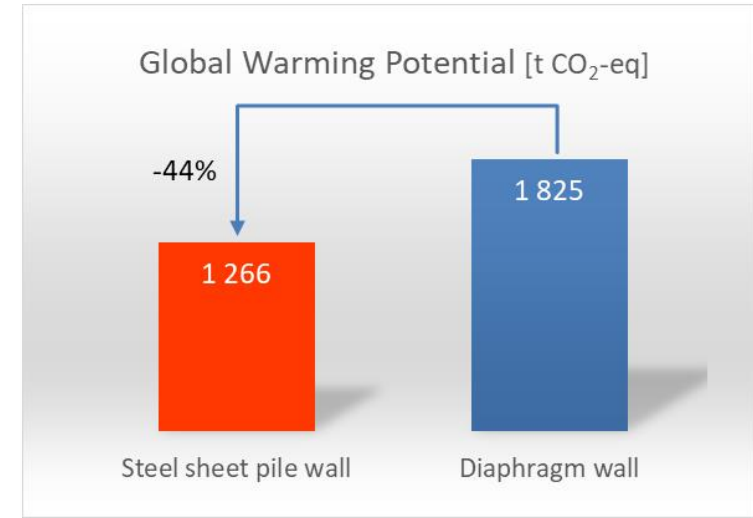
	Steel sheet piles	Diaphragm wall (RC)
Construction cost	6.0 M€	6.9 M€



Steel sheet piles: savings **15%**

Construction cost analysis (by Tractebel in 2018)

- *Global Warming Potential* (GWP, **CO₂-eq. emissions**) of the steel solution is **44% lower**
- Transport :
 - concrete: 10 km (425 trucks!)
 - steel sheet piles: 270 km by train
- Monetization: software DuboCalc (NL)
⇒ 50 €/t of CO₂
- **Speed of execution:** sheet pile wall is **18% faster**



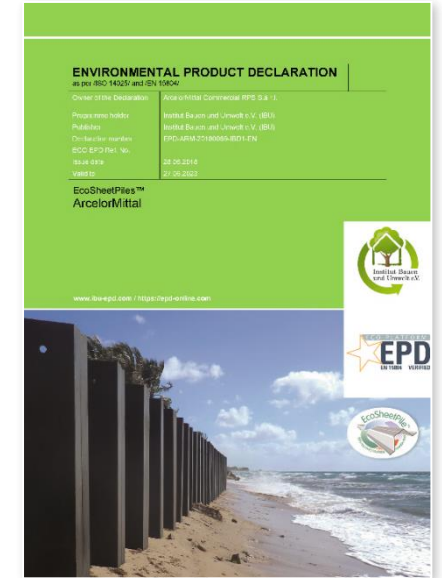
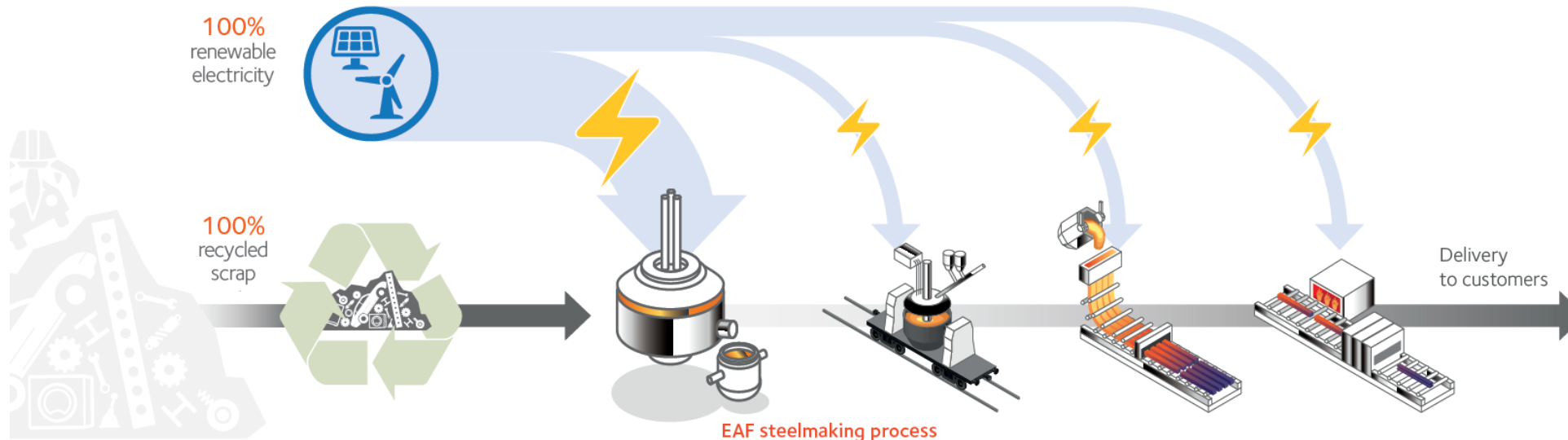
XCarb™ towards carbon-neutral steel

- **XCarb™** has been launched in response to customer interest in lower carbon steel
- **XCarb™ recycled and renewably produced** describes steel made via the EAF route that plugs into renewable electricity



EcoSheetPile™ and EcoSheetPile™ Plus from ArcelorMittal

- **EcoSheetPile™** manufactured through the Electric Arc Furnace route
- CO₂ emissions 520 kg CO₂ per tonne
- **EcoSheetPile™ Plus** using 100% recycled material and 100% renewable electricity
- Guarantee of Origin certifying the renewable sources for the electricity



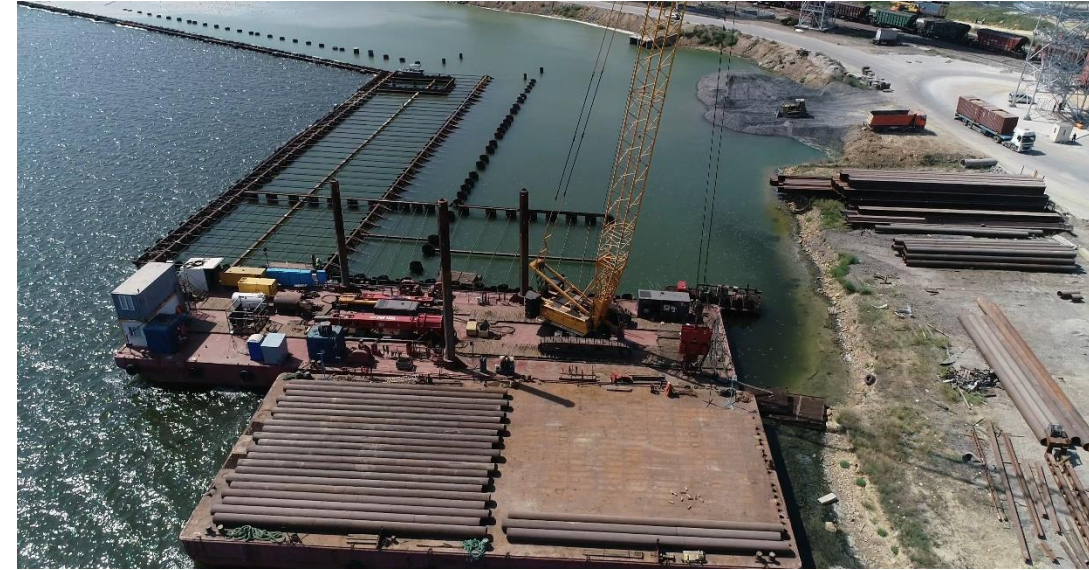


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Project references



Neptune Grain Terminal, Pivdenniy Port, Berths 24 – 25 | 2016



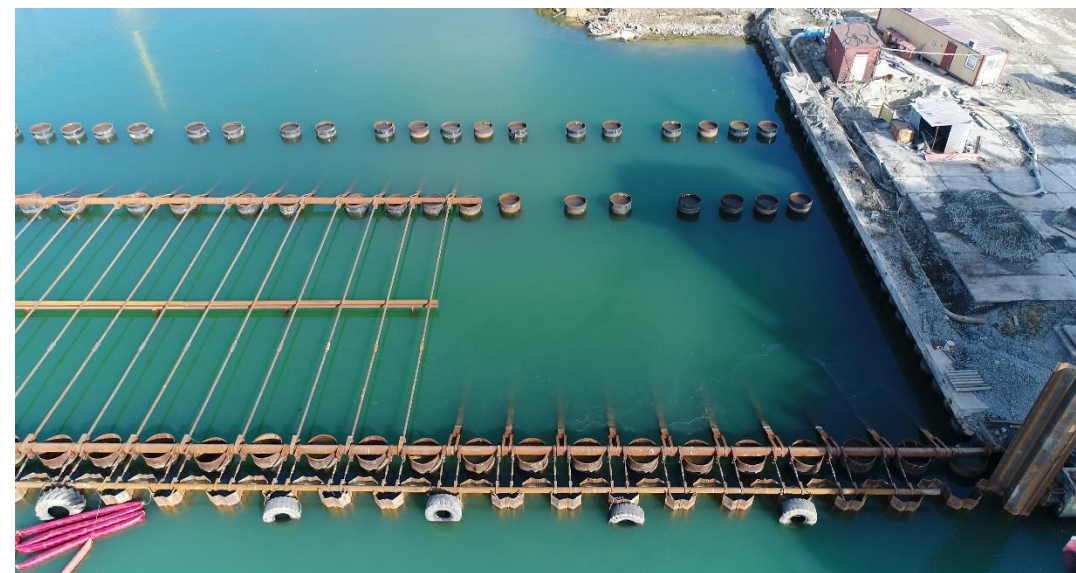
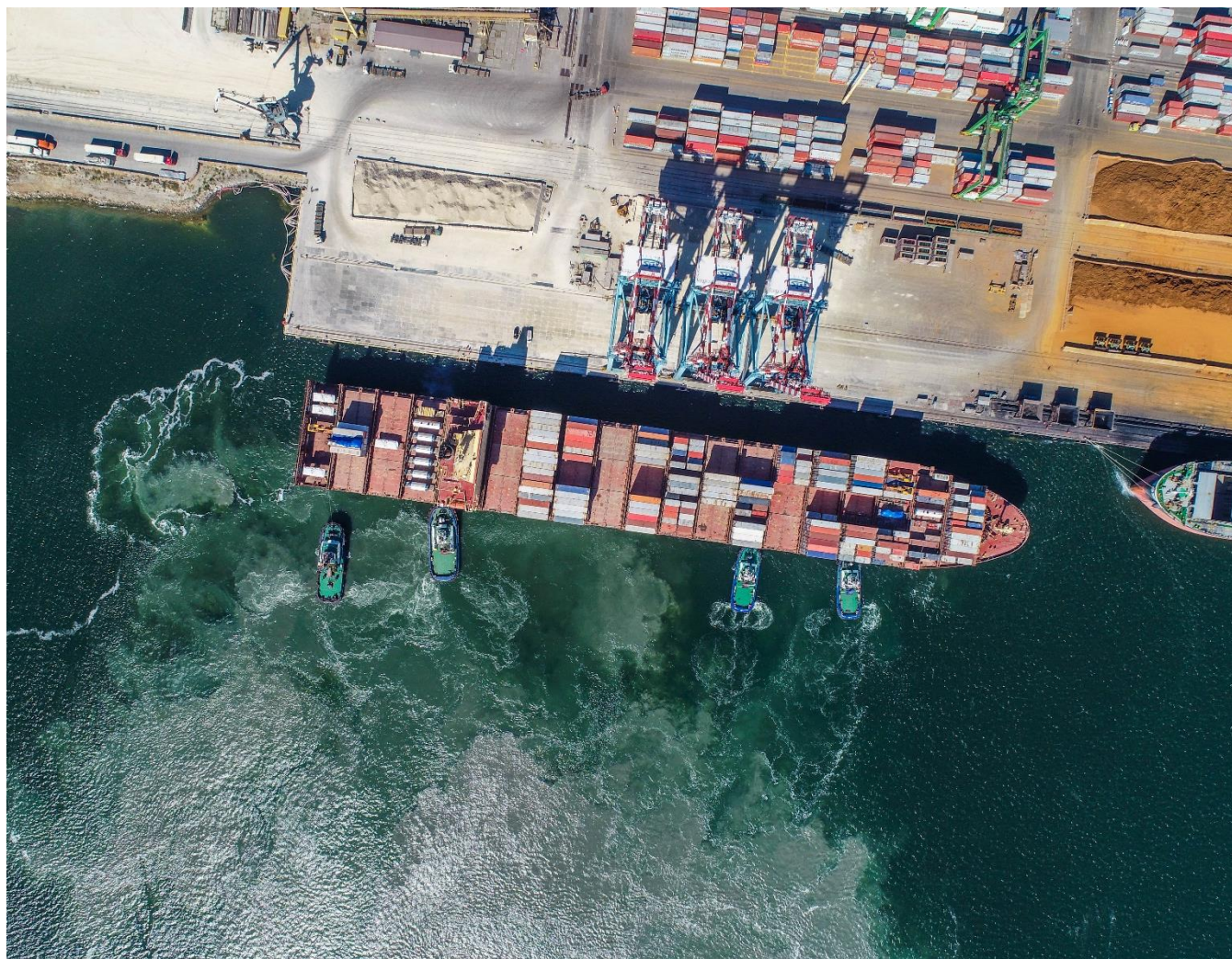
- One of the largest Ukrainian grain terminals
- Depth of the terminal: 16 m
- Length of the quay: 385 m
- Sheet pile volume: 4 492 tons
- Sheet pile sections: PU 32, AU 25

Evrovneshtorg, Berth No. 4, Olvia Port | 2016



- Officially opened in 2019
- Constructed in 8 months
- Length of the quay: 280 m
- Sheet pile volume: 1 392 tons
- Sheet pile section: HZ 880M / AZ 13-770

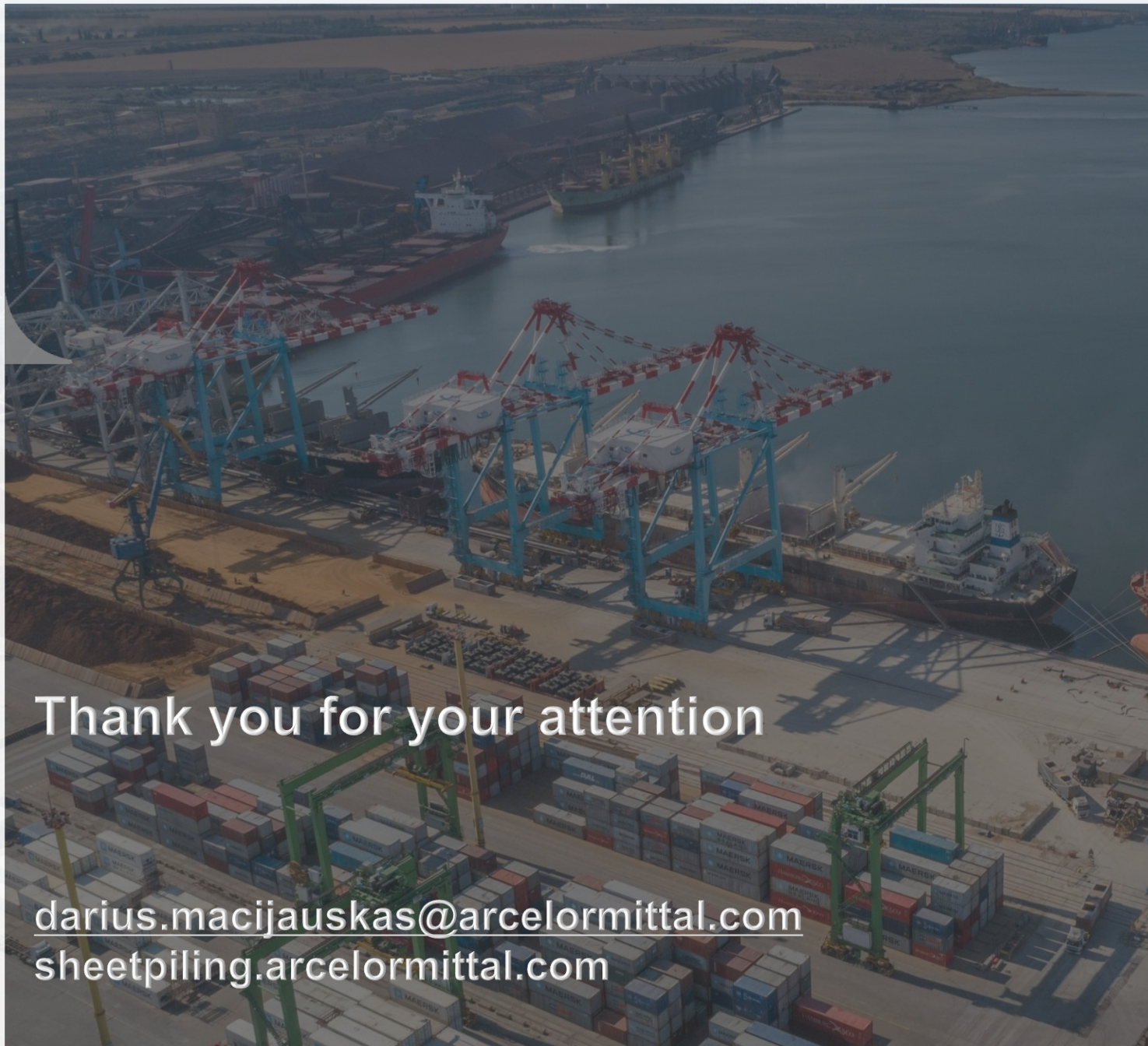
Berths No. 21 - 22, Pivdenniy Port | 2017



- The deepest container terminal in Ukraine
- Length of the quay: 480 m
- Sheet pile volume: 1 207 tons
- Sheet pile sections: AU 25 – PU 32

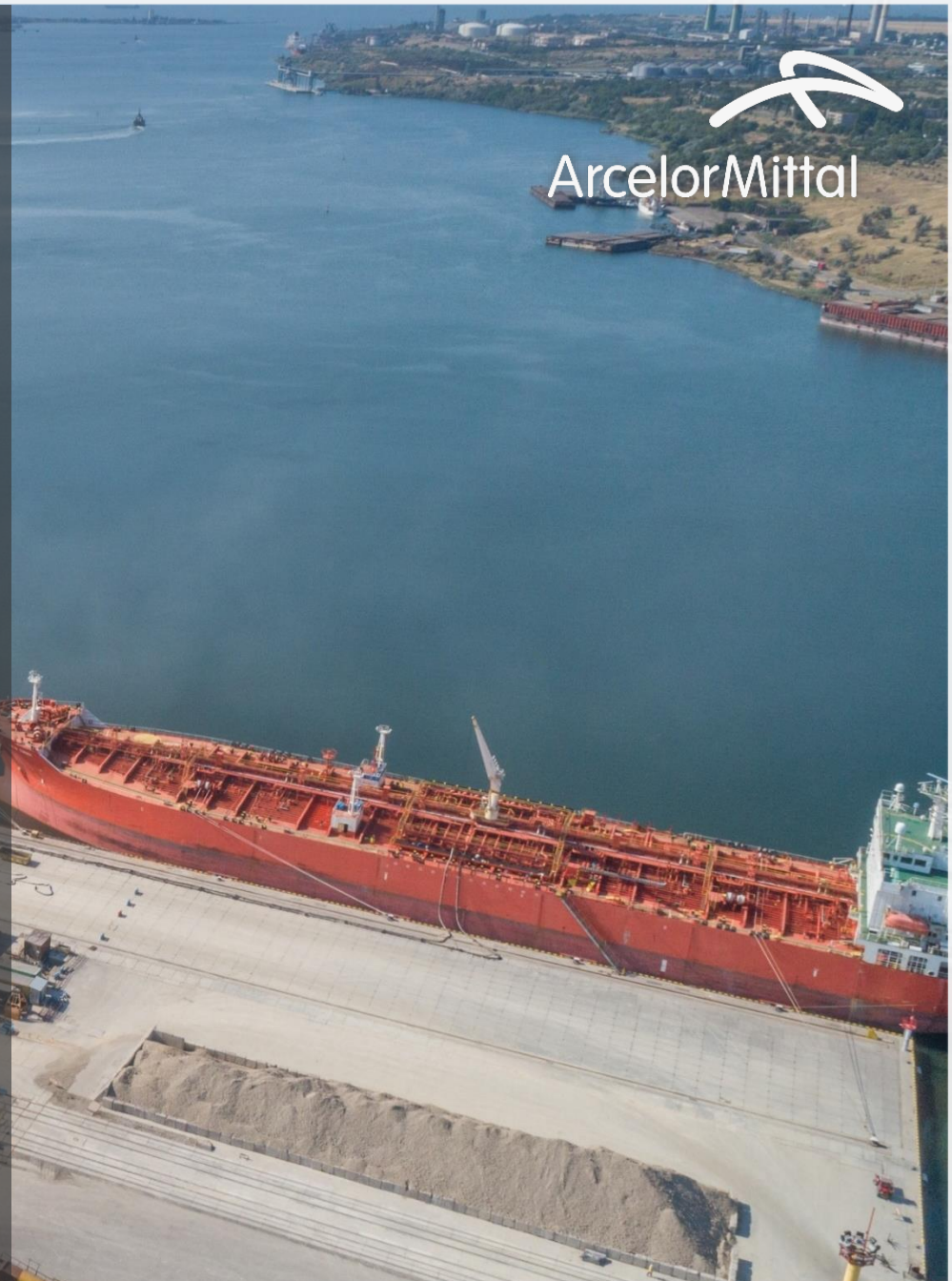


- The berth was constructed in 4 months
- Length of the quay: 180 m
- Sheet pile volume: 735 tons
- Sheet pile section: HZ 880M / AZ 13-770



Thank you for your attention

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