Document title:

PROJECT FILE

Project:

EXECUTION OF MAINTENANCE DREDGING WORKS IN THE COASTAL MARINA OF NIEUWPOORT

SPECIFICATIONS NO. 16EH/18/15 – PLOT 1

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0 INTRODUCTION

The Coastal Marina in Nieuwpoort is situated alongside the river IJzer ('navigation channel'), which flows into the North Sea and along which 3 marinas are located.

The Client regularly surveys the areas and indicates where dredging is required.

In the marinas and at places in the river that are difficult to reach, we use for this a small cutter suction dredger that pumps the dredged sediments through a floating pipeline into larger seagoing split hopper barges moored in the navigation channel. When loaded, they sail approximately 12km out to sea to dump the dredged material within a defined zone.

A trailing suction hopper dredger can dredge at the other places in the navigation channel.

The contract is divided into 'lease years', which run from 16 September to 15 June of the following year. Within each lease year, a 'dredging campaign' is carried out.

This reporting period covers the fourth lease year, which started on 05 December 2022.

Reporting on		H2-2019	H1-2020	X	H1-2021	H2-2021	H1-2022	
Lease year		Lease year 1		Lease year 2		Lease year 3		
Calendar year	**2019**		**2020**		**2021**		**2022**	

Reporting on		H2-2022						
Lease year		Lease year 4		Lease year 5		Lease year 6		
Calendar year	**2022**		**2023**		**2024**		**2025**	

0.1 PROJECT DETAILS

Name	Maintenance dredging works Nieuwpoort
Description	Execution of maintenance dredging works in 3 marinas and in the navigation channel in Nieuwpoort so as to bring the bottom levels up to target depth.
Specifications number	16EH/18/15 (plot 1)
Client	Agentschap Maritieme Dienstverdeling & Kust (Maritime Services & Coast Agency)
Award date	22 January 2019 (start of works in November 2019)
Execution period	3 lease years, extendable by another 3 lease years.

0.2 PARTIES INVOLVED

Jan de Nul NV is the main contractor of this project and responsible for:

- Deployment of cutter suction dredger ('CSD'), seagoing split barges ('SHB'), assistance boats and loading pontoons ('FLAP');
- Deployment of trailing suction hopper dredgers ('TSHD');
- Project management and daily management.

This year, a subcontractor was contracted to provide the 'SHB': Detlef Hegemann (SHB Zingst) and Faasse Dredging (SHB/TSHD Scald)

0.3 DEPLOYED EQUIPMENT AND PERIODS OF DEPLOYMENT

Ship	Deployment period
CSD Hendrik Geeraert	December 2022 – March 2023
SHB Zingst	December 2022 – March 2023
SHB/TSHD Scald	December 2022 – March 2023
Assistance boat DN59	December 2022 – March 2023

1 PROJECT DATA

1.1 IDENTIFICATION OF ENERGY AND EMISSION FLOWS [2A]

List of significant energy/emission flows:

Energy flow	Scope
Fuel consumption of seagoing split hopper barges Magellano & Verrazano	1
Fuel consumption of trailing suction hopper dredgers (Pinta, Scald, Sebastiano Caboto...)	1
Fuel consumption of cutter suction dredger Hendrik Geeraert	1
Fuel consumption of assistance tugboat DN59	1
Electricity consumption of construction site shed	2

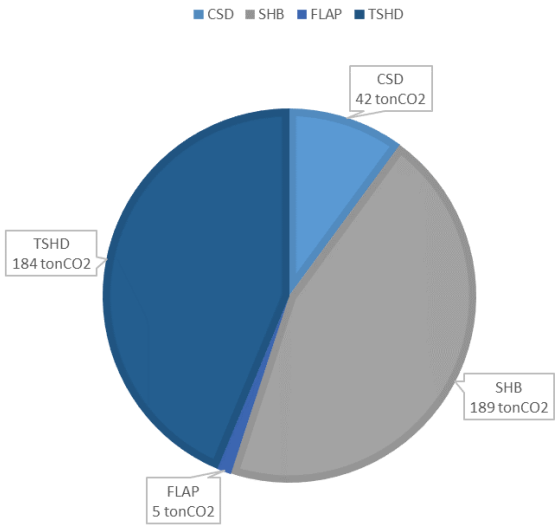
List of excluded energy/emission flows:

Energy flow	Reason
Transport with cars (execution)	is monitored and registered at company level
Transport with cars (crew)	is monitored and registered at company level
Air miles (crew)	is monitored and registered at company level

1.2 CARBON FOOTPRINT AND TRENDS

1.2.1 REFERENCE CARBON FOOTPRINT

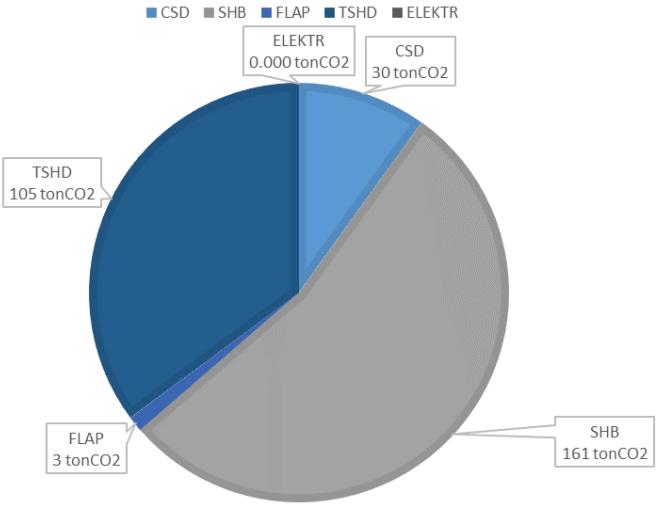
On the basis of the tender calculation, a reference CO_2 footprint was drawn up. As it concerns maintenance dredging works with a variable deployment time, this reference CO_2 footprint is only valid for the current campaign year (year 4 – up to 31/12/2022). It has been determined based on the deployment period of the equipment.



The total reference CO_2 emissions for campaign year 4 (up to 31/12/2022) amount to: **421 tonnes CO_2**

1.2.2 ACTUAL CO_2 FOOTPRINT OF PROJECT

Due to, amongst other things, the use of biofuels, cycle optimisations, adjustments to the execution method and load optimisations, the **total CO_2 emission of the project amounts to 299.1 tonnes of CO_2 (within the reference term)**, which is **28.95% below** the reference CO_2 footprint.

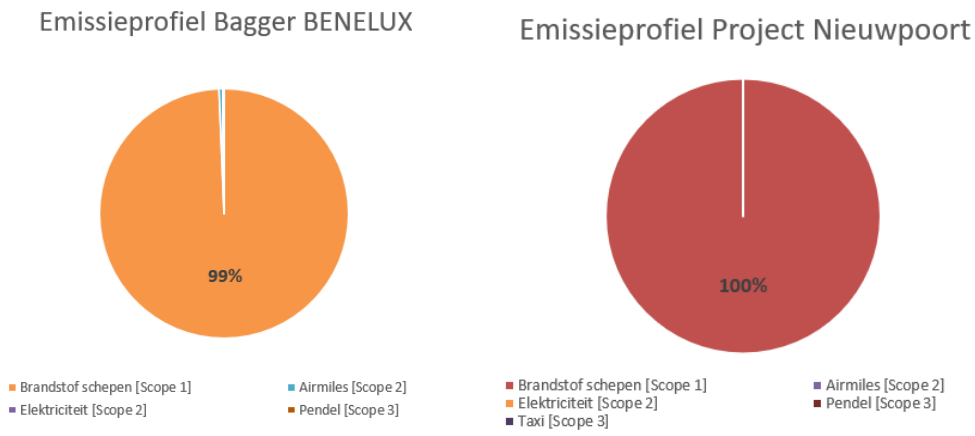


Totaal	**Scope 1**	**299**	**ton CO2e**
Totaal	**Scope 1 & 2**	**299**	**ton CO2e**

		Totaal		Fractie Scope 1	Fractie Totaal Scope 1 & 2
Scope 1	Aardgas		ton CO2e	0.0%	0.0%
	Brandstof schepen	299	ton CO2e	100.0%	100.0%
	Brandstof firmawagens	op bedrijfsniveau	ton CO2e	0.0%	0.0%
	Diesel (EUR) (intern verkeer / generator)		ton CO2e	0.0%	0.0%
	Propaangas		ton CO2e	0.0%	0.0%
	Totaal	**299**	**ton CO2e**	**100.0%**	**100.0000%**

				Fractie Scope 2	Fractie Totaal Scope 1 & 2
Scope 2	Airmiles	op bedrijfsniveau	ton CO2e	0.0%	0.0%
	Brandstof privé-voertuigen		ton CO2e	0.0%	0.0%
	Elektriciteit	0.0000	ton CO2e	100.0%	0.0%
	Warmterecuperatie		ton CO2e	0.0%	0.0%
	Totaal	**0.0000**	**ton CO2e**	**100.0%**	**0.00000%**

1.2.3 COMPARISON EMISSION PROFILE ORGANISATION – PROJECT



The energy/emission profile of this project does not deviate from the emission profile at corporate level for the dredging department Benelux.
The main energy flows within this project are related to the emission of 'wet' equipment, i.e. vessels.

2 REDUCTION

2.1 LIST OF REDUCTION MEASURES FOR THIS PROJECT

ID	Title	Concrete optimisation
0113-1	Choice of vessel	The energy efficiency of vessels that might be used is checked during the tender process. This is weighed up against the mobilisation distance.
0113-2	CSD: Judicious use of engines	The cutter suction dredger is powered by a diesel engine that directly drives the dredge pump and an auxiliary generator. When the dredging process is interrupted (removing dirt out from the pump, waiting for barges...), the engine is switched off. In between dredging processes (waiting for barges) and in bad weather, the cutter is – if possible – moored alongside the floating infrastructure and the quayside power supply (fuel consumption = 0) is switched on.
0113-3	FLAP (Floating auxiliary plant): judicious use of engines	When moored while on stand-by, the engine is turned off as much as possible. No unnecessary running of engines, for instance for air conditioning/heating. For transports, priority is always given to the vlet boat with the lowest emissions and the lowest power consumption.
0113-4	Barges: judicious use of engines	In between dredging processes (waiting for other split barge that is being loaded) and in bad weather, the split barge is – if possible – moored alongside the sand quay or anchored beyond the project site. When moored against the loading pontoon, the engines are switched off: no needless use of screws for staying in position.
0113-5	Optimisation of planning of works	By planning trench dredging works immediately prior to the cutter works, barges with a larger draught can sail to the dumpsite. This means that more dredged material is transported per cycle, which reduces the CO_2 emission per m^3 of dredged material.
0113-6	Optimisation of works according to tides	The shipping route to the dumpsite is shorter at high tide than at low tide. The journeys to the dumpsite are therefore made as much as possible during high tide, sand journeys at low tide.
0113-7	Electrification	We have ordered a study into the possibility of running the barges on electric energy.

Source: List of measures Jan De Nul

The complete list with all Jan De Nul reduction measures can be found on the skao website: https://www.skao.nl/gecertificeerde-organisaties/Jan_de_Nul_N_V .

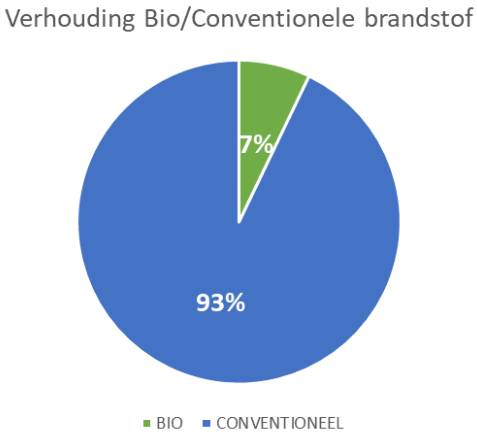
2.2 PROJECT-SPECIFIC APPLICATION OF MEASURES

The above measures were applied in this project as follows:

ID	Concrete application
0113-1	When selecting vessels for this campaign year, we chose for the combination of a classic SBH and a TSHD used as SHB. As a result, no mobilisations (which would have led to additional emissions) were required for the deployment of a TSHD.
0113-2 0113-3	During the 2022 - 2023 campaign, on-shore power will only be used during downtime periods (bad weather, tides). This means that the generators on board of DN59 and Hendrik Geeraert do not have to run for heating/air conditioning. The yacht clubs are certified as energy neutral and supply 100% green energy of local origin.
0113-5	The deployment of a TSHD used as a SHB allowed short cuts and the immediate removal of spoil in the navigation channel. The SHBs were able to sail at any time during the campaign with a maximum load.
0113-5	We opted for the combination of a SHB with a smaller barge volume and shallower draft and a TSHD/SHB with a larger barge volume and deeper draft. By optimising the cycle schedule with the small SHD leaving just before low tide, and the large TSHD/SBH loading during low tide, the downtime due to the tide could be significantly reduced.
0113-6	Correct tide predictions are essential for a proper cycle planning and production optimisation. The available models (British Admiralty - Total Tide, Survey predictions based on harmonic constants) are subject to deviations up to 0.5m and cause uncertainty and hence loss of production. In collaboration with the “Wetenschappelijke Dienst Beheerseenheid van het Mathematisch Model van de Noordzee” (Scientific Service – Management Unit of the Mathematical Model of the North Sea), their model was converted into a forecast for the works in Nieuwpoort. This improved accuracy to 0.1m. ⇨ Less downtime and increased productivity.
0113 – 7	During the summer break, the electrical and lighting system on DN122 was updated. The solar panel capacity was doubled and connected to a battery system (also rechargeable through a silent generator if needed). All lighting was converted into LED lighting. The battery/PV capacity proved sufficient to charge all deck and navigation lights 99% of the time. During the first period of the campaign year, the batteries had to be recharged with the generator only once.

2.3 OTHER MEASURES ONLY APPLICABLE TO THIS SPECIFIC PROJECT

- On the project site, we again made use of biofuel.
  Since campaign year 3, the CSD and FLAP have been using fuel with 7% biofuel in it.



- Optimisation of the length of the floating pipelines in order to reduce the required motor power;
- Adjusting (lowering) of navigation speed as a function of the optimal split hopper barge cycle: no unnecessary navigation when we would then have to wait for the other SHB to have been loaded;
- The existing, obsolete construction site shed has been replaced by an ecological shed equipped with heat pumps, LED lighting and solar panels.

  The reduction measures that have so far only been specific to this project will be added to the cross-departmental list of measures for Jan De Nul. In this way, they will be considered for all upcoming projects (with award advantage).

3 TRANSPARENCY

For the communication on our CO_2 performance for the entire Benelux, please refer to the cross-departmental communication plan << CO_2PL-Jan De Nul-3C2 – Communication plan >>.

Specifically for this project, we will also communicate on the CO_2 performance, both internally and externally. The form of communication, stakeholders, parties responsible and frequencies are summarised in the tables below.

3.1 INTERNALLY:

Form of communication	Stakeholders	Person responsible	Frequency
Project introduction	Crew	Employee performing the task	At the start of each campaign
Toolbox meetings	Crew	Employee performing the task	Monthly
Monthly report	On-site project team	Employee performing the task	Monthly
BNL project meeting	Project team BNL	Employee performing the task	Half-yearly
Feedback in steering committee	Steering group BNL BAGGER	Project Manager	3-monthly

3.2 EXTERNALLY

Form of communication	Stakeholders	Person responsible	Frequency
Project reporting per lease year	Client	Project Manager	Yearly
Publication of this project report on the JDN website	Interested stakeholders	Energy & Emissions QHSSE Advisor	Half-yearly*
Posting by means of banners & Heras information panels on the project site in the marinas	Interested stakeholders	Employee performing the task	Continuously
Social media: Linkedin, Instagram, Facebook **	Interested stakeholders	Head of department	About 2x/year

* Note: Half-yearly frequency is maintained as long as activities can be reported on. If no activities take place in a semester, no reporting will be done.