



**Tideway**

Offshore Contractors

# Offshore Presentation Avans Hogeschool Den Bosch

16 juni 2009

Creating land for the future



# 1. Introduction

- Introduction
- Tideway Profile
- Tideway Organisation
- PROJECTS
- Tideway in the Future
- Summary
- Conclusion

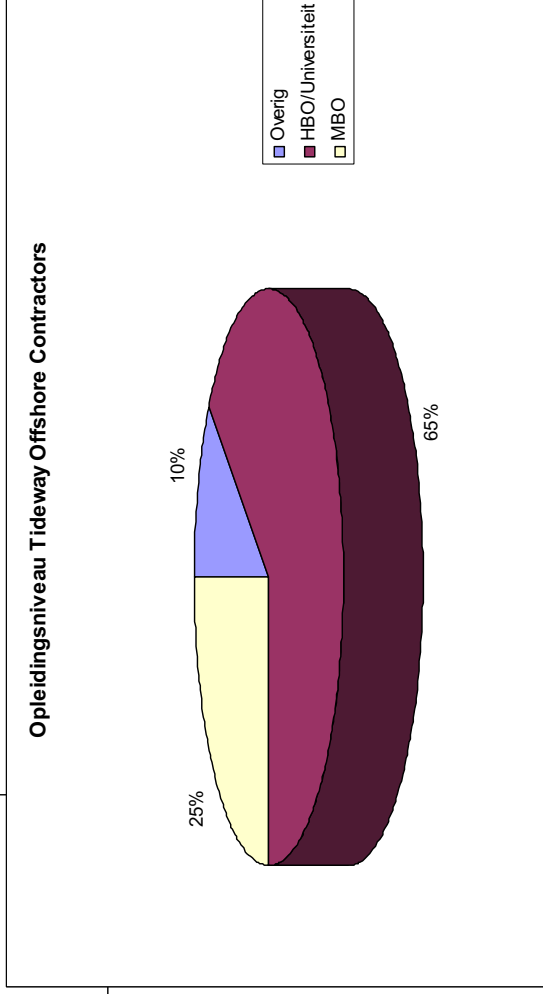
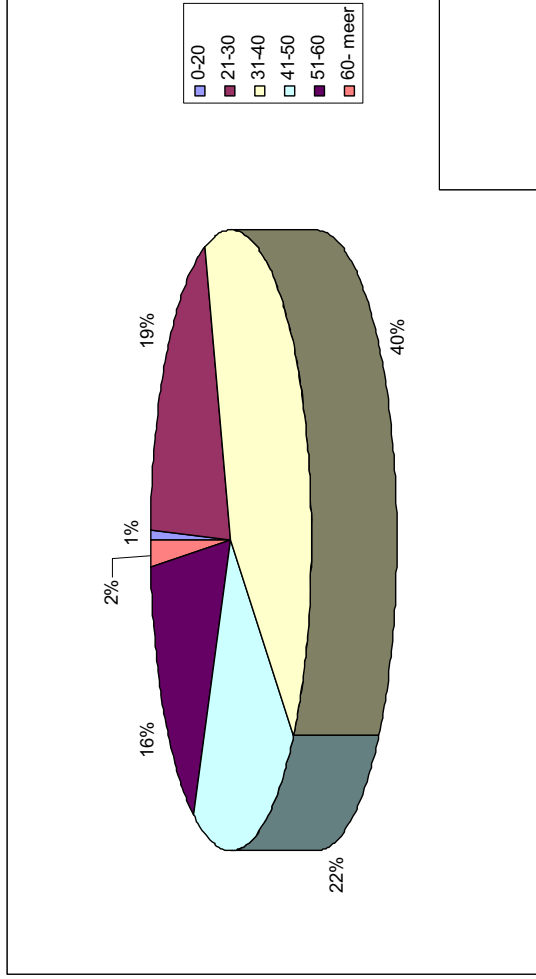


## 2. Tideway Office





# 3. Tideway Team





## 4. Tideway Activities

Rock placement Services

Offshore Dredging / Landfalls

Other Services



# Rockdumping

Pipeline / Cable Crossings  
& Platform Approaches

Scour Protection

Seabed Preparation

Freespan Corrections

Pipeline / Cable  
Protection & Stabilisation

Offshore Ballasting

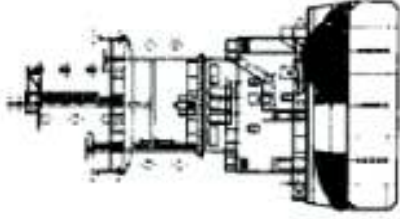






# Equipment

## Side Stone Dumping Method





# Equipment

## Fall Pipe Dumping Method

<b>Length</b>	<b>162.00 m</b>
<b>Breadth</b>	<b>38.00 m</b>
<b>Draught</b>	<b>6.34 m</b>
<b>Loading Capacity</b>	<b>18,500 t</b>
<b>Dumping Depth</b>	<b>1,500/2,000 m</b>



D.P. Fall Pipe Vessel "Seahorse" - 18,500 tons





# Equipment

## Fall Pipe Dumping Method

<b>Length</b>	<b>139.00 m</b>
<b>Breadth</b>	<b>32.00 m</b>
<b>Draught</b>	<b>6.60 m</b>
<b>Loading Capacity</b>	<b>11,500 t</b>
<b>Dumping Depth</b>	<b>1,000 m</b>

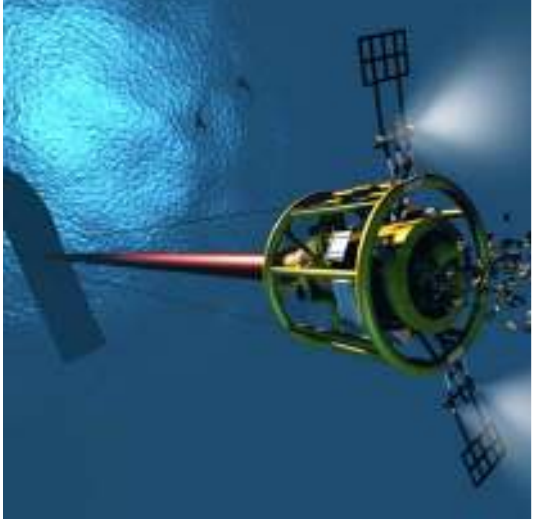


D.P. Fall Pipe Vessel "Rollingstone" - 11,500 tons



# Rockdumping

Fall Pipe Dumping  
Method





## 4.3 How It's Done

[PIPE-MPG1-progressive.mpg](#)



# Projects

## PEMEX PROJECT

- ROCKDUMPING

## DHIRUBAI PROJECT

- LANDFALL

## NORNED PROJECT

- OTHER SERVICES

## THORNTON PROJECT

- OTHER SERVICES





# PEMEX PROJECT



# Applications for Pemex – Introduction



**PEMEX**

EXPLORACIÓN Y PRODUCCIÓN



INFRAESTRUCTURA ACTUAL Y FUTURA DEL ACTIVO INTEGRAL KUMALOOB-ZAAP

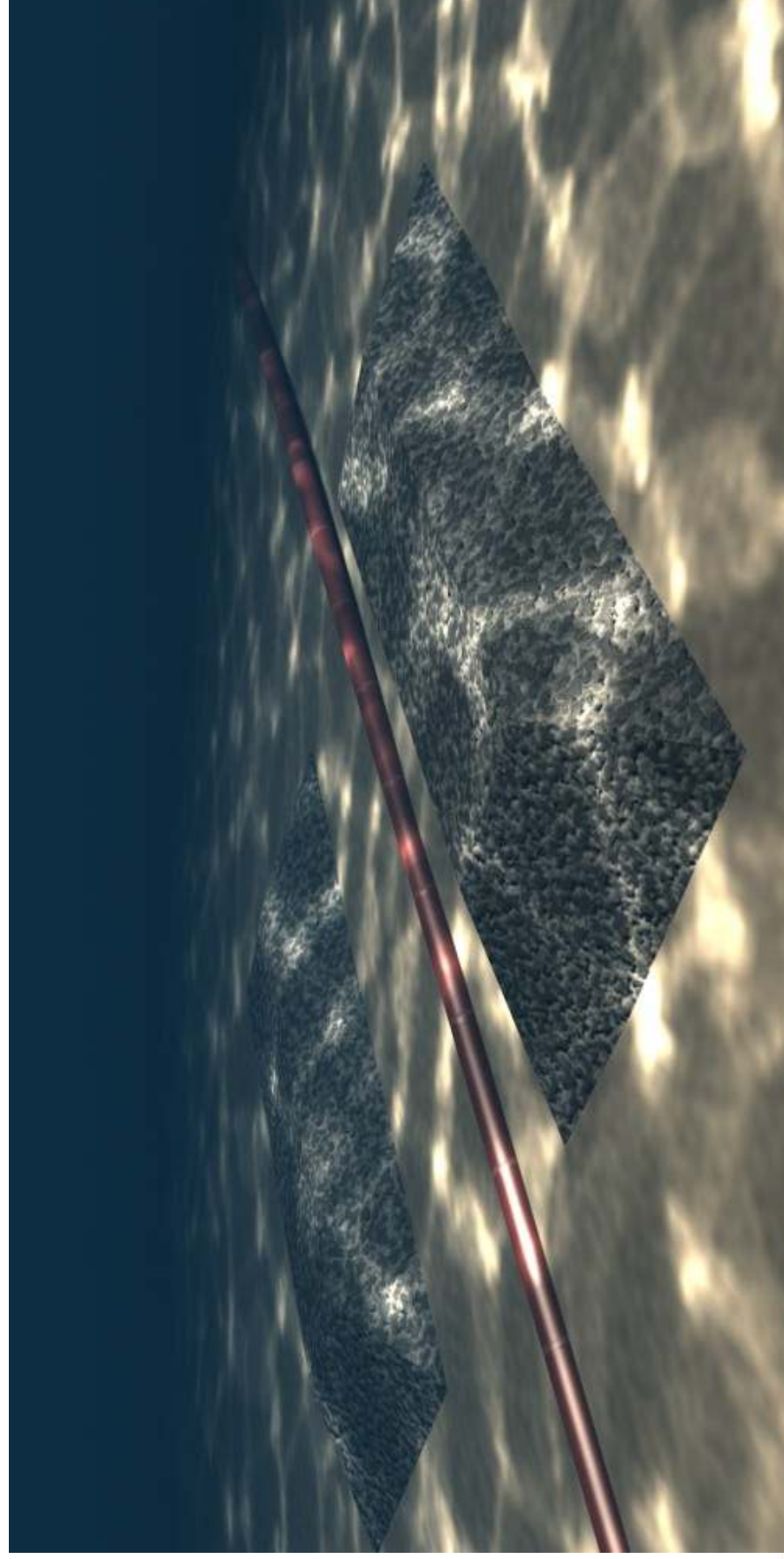




# Applications for Pemex – Pre & Post-Lay

Pre-lay Rock Berms for crossings

Installation of rock berm supports



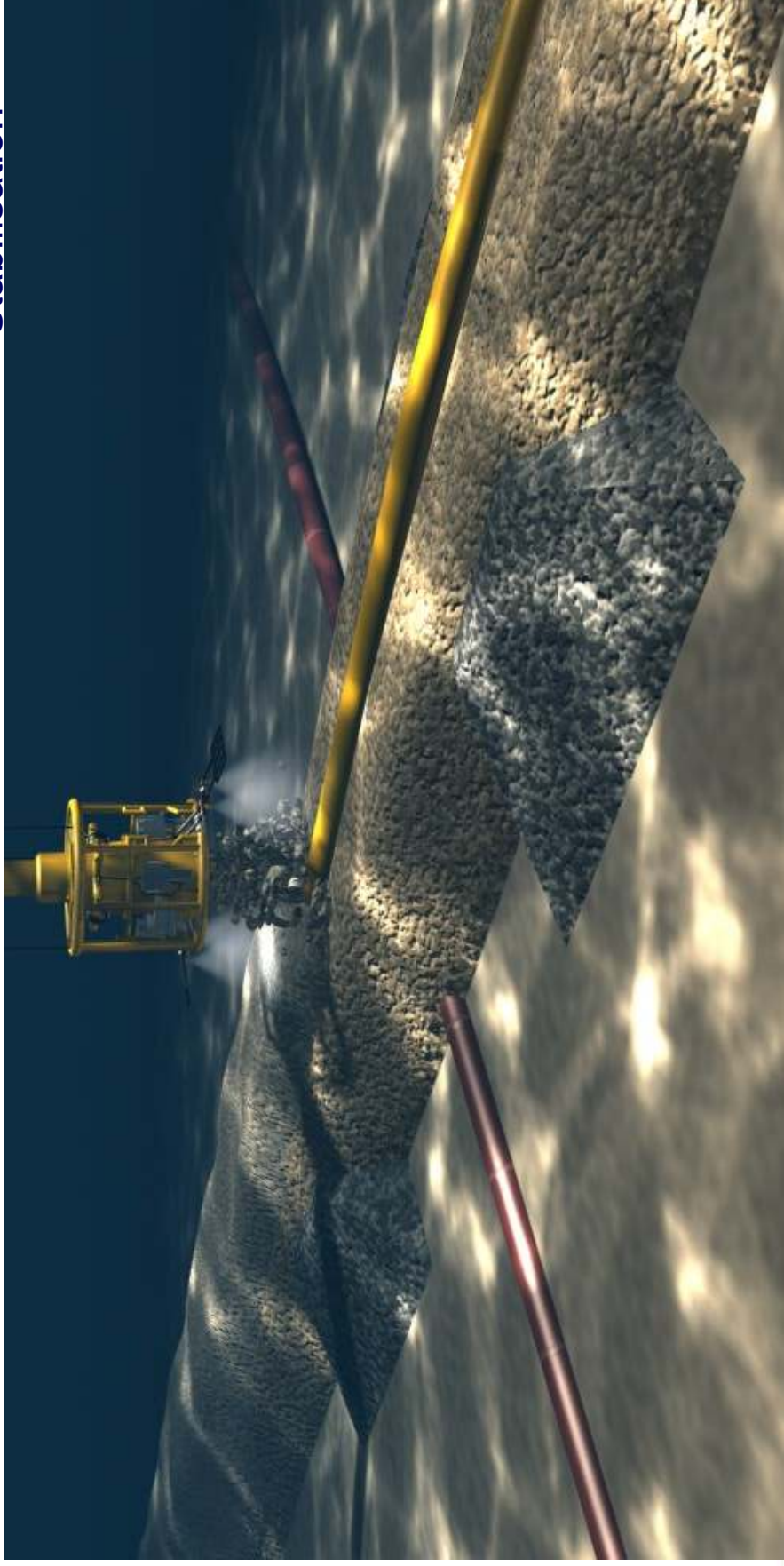


# Applications for Pemex – Pre & Post-Lay

Pipeline cover for:

- Protection
- Stabilisation

Post-lay Fill In: Protection

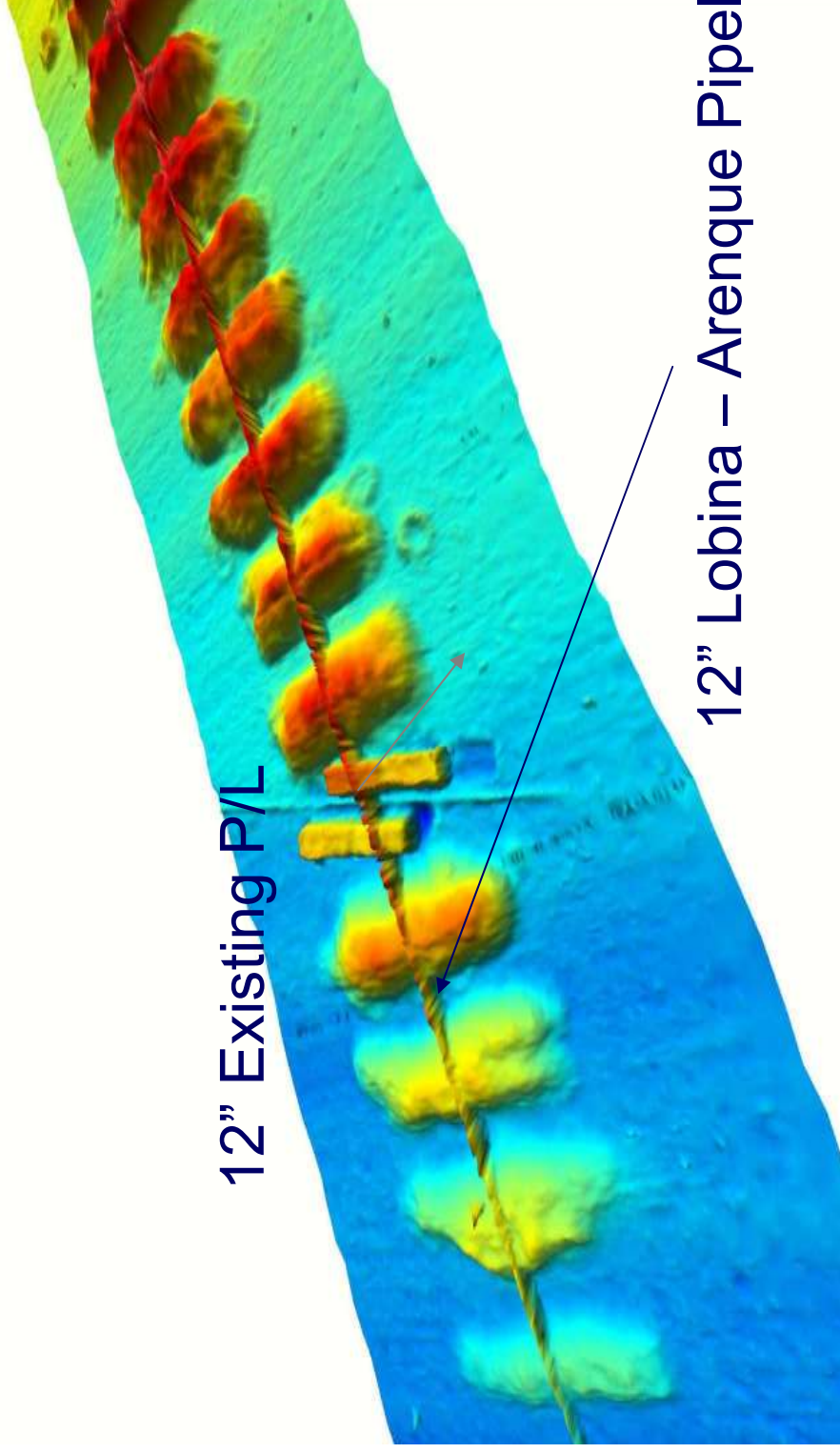






# Applications for Pemex – X-ing

12" Lobina – Arenque-B: Crossing Location – 3D-View of Pipe over Pre-lay



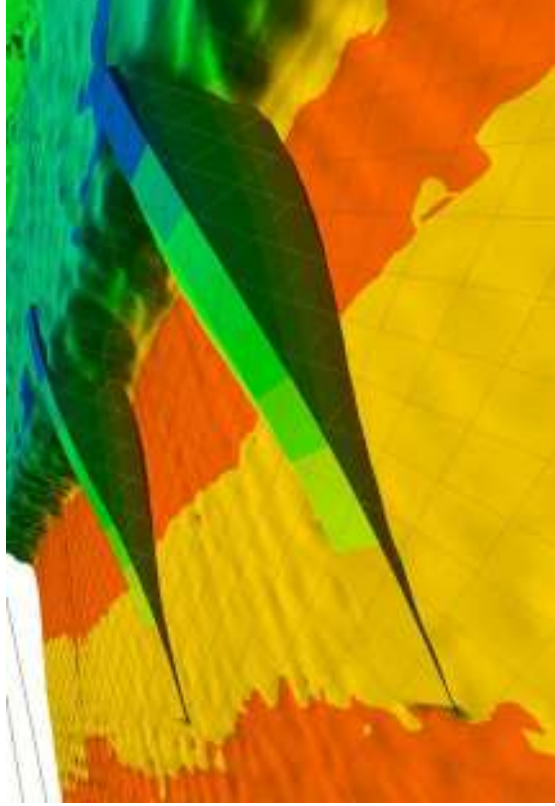
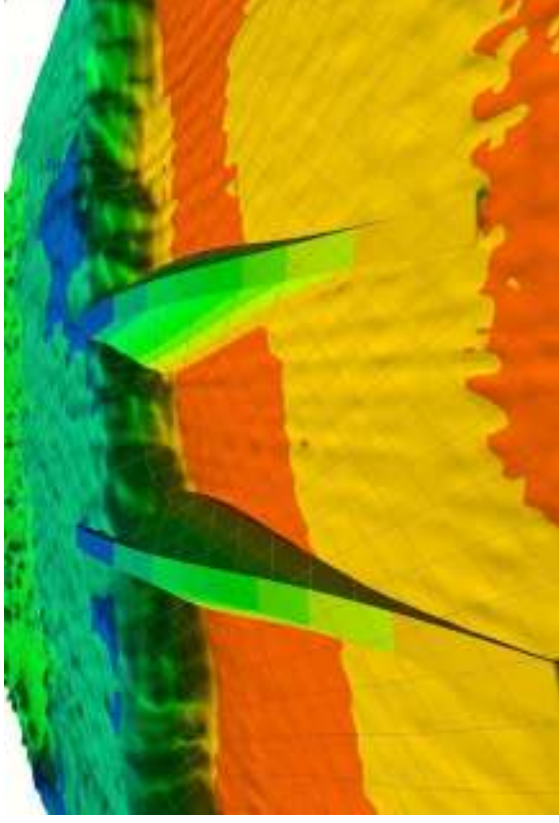
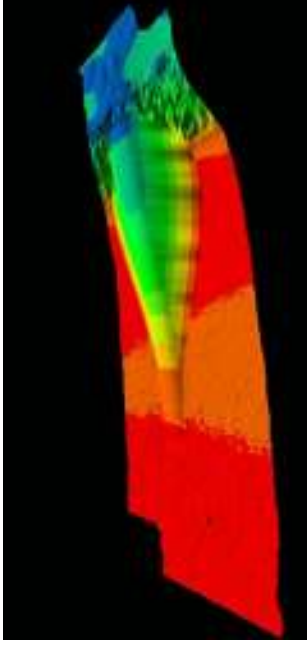
12" Existing P/L

12" Lobina – Arenque Pipeline



# Applications for Pemex – Reef

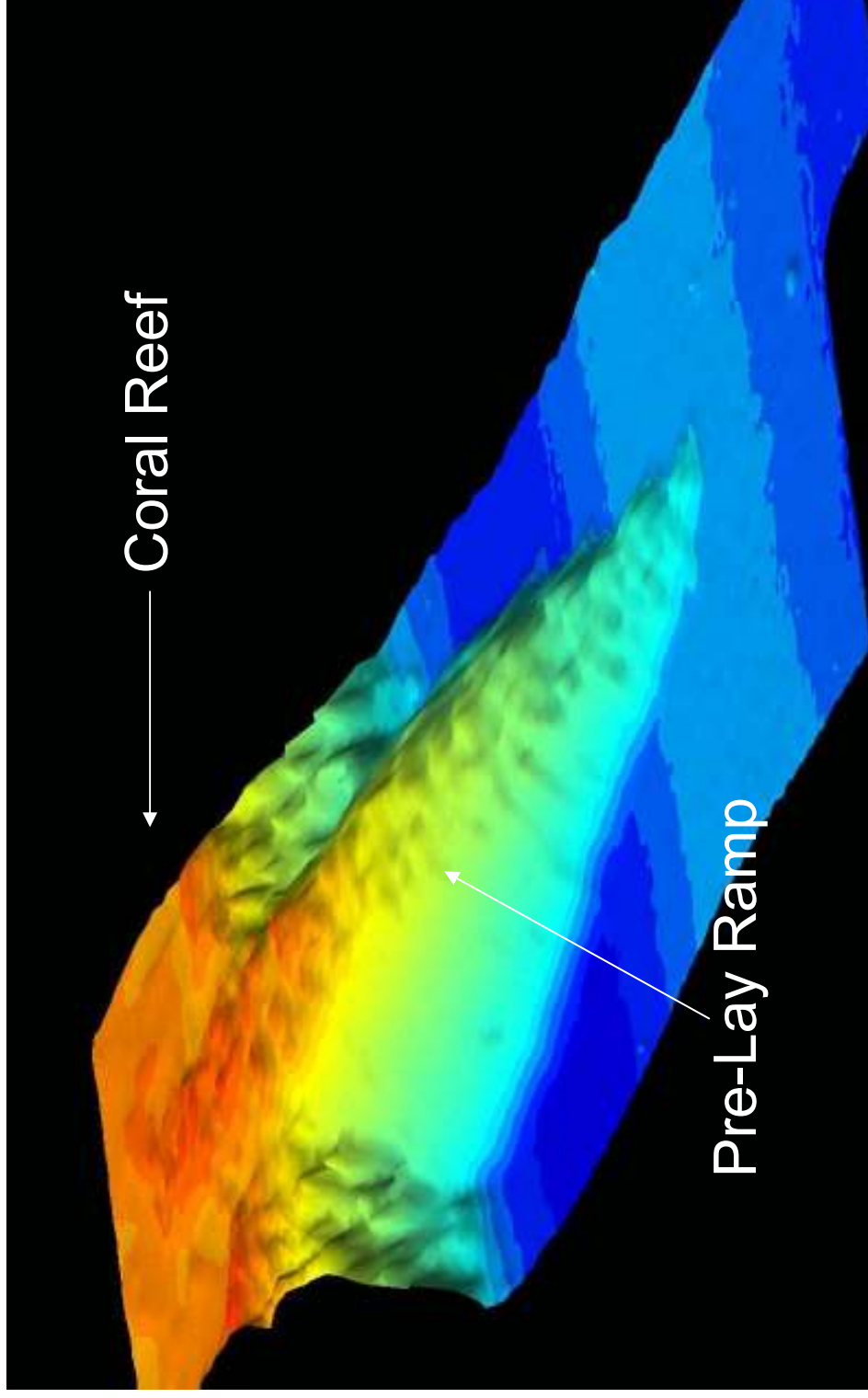
24" Maloob-A – Maloob-B Oil Pipeline – Design of ramps based on survey





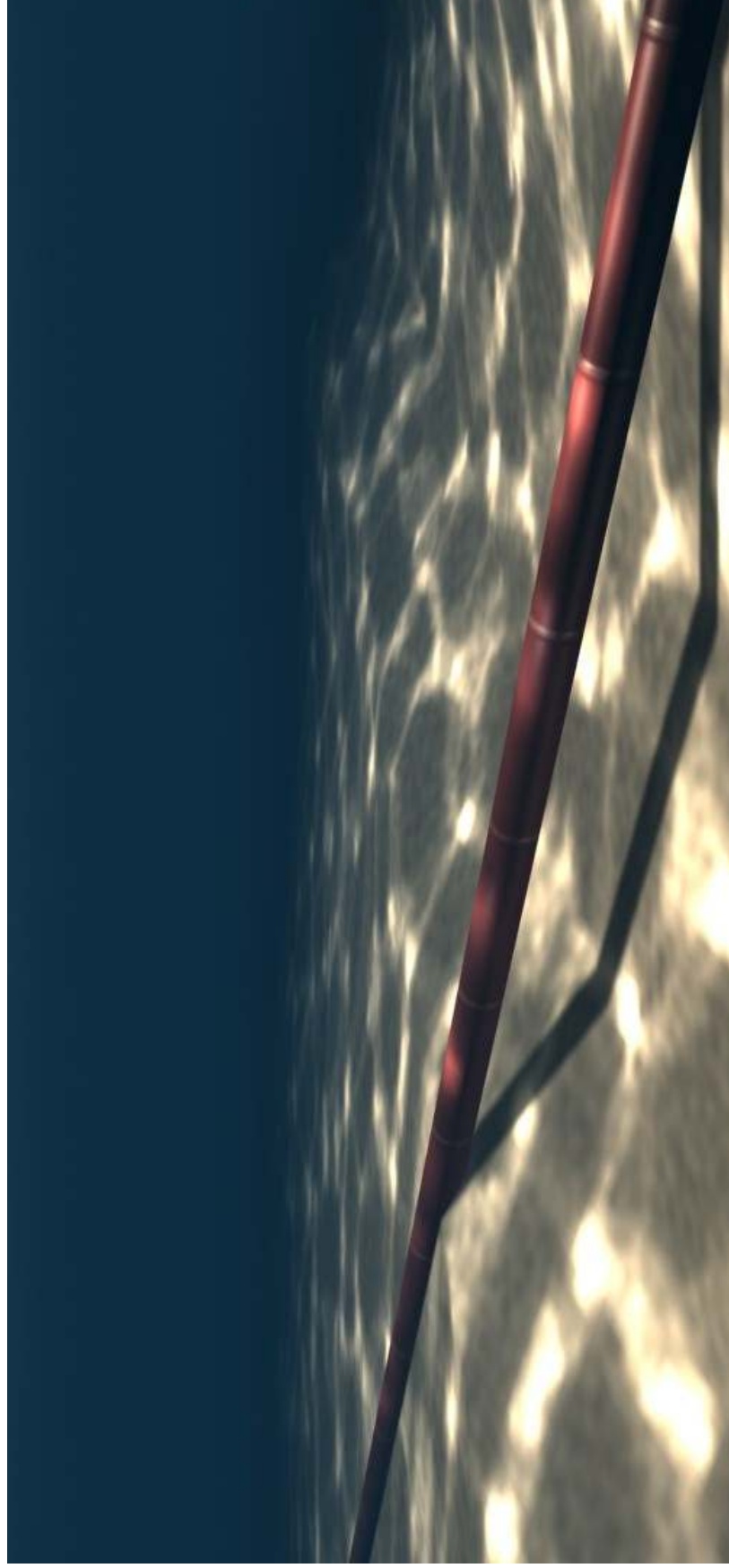
# Applications for Pemex – Reef

24" Maloob-A – Maloob-B Oil Pipeline – 3D-View of Executed Work





# Applications for Pemex – Freespan Correction



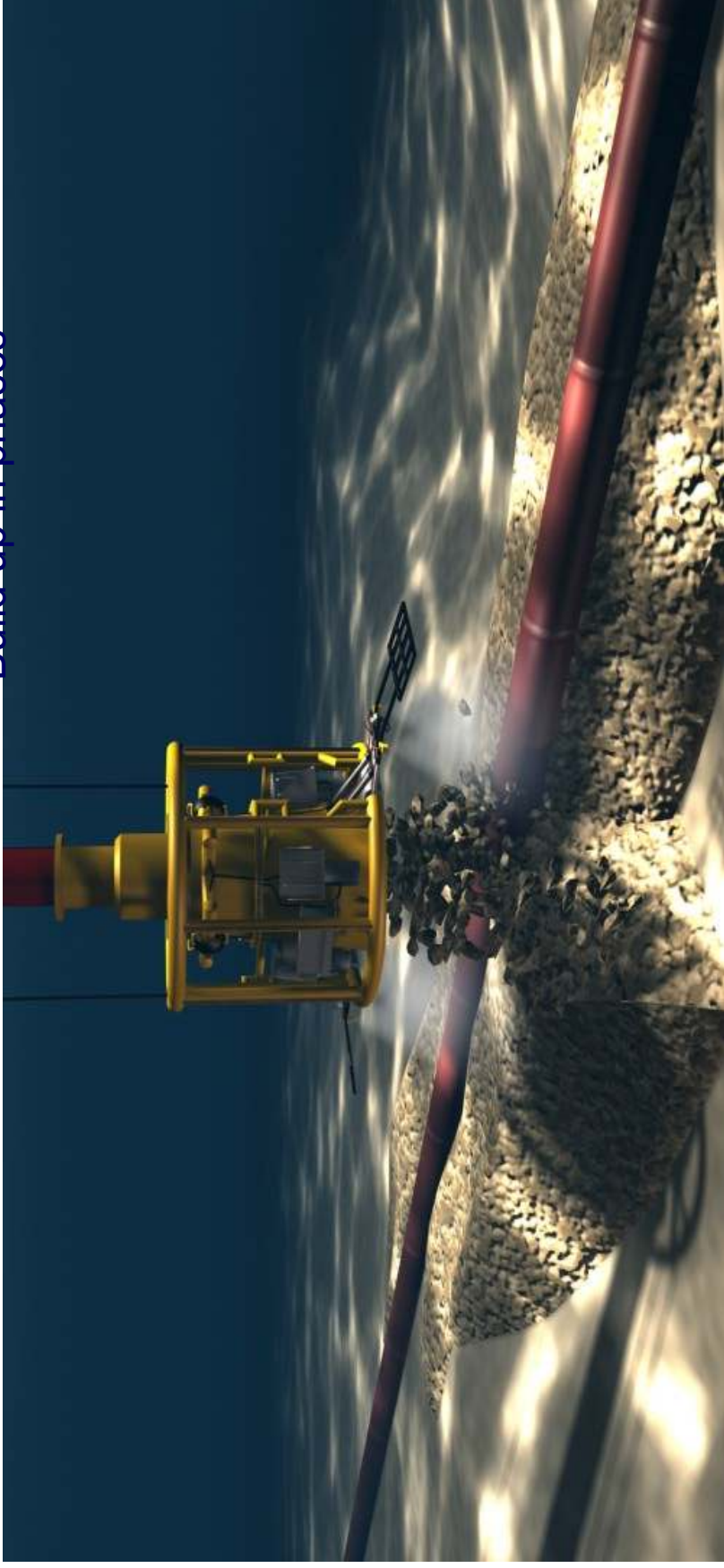




# Applications for Pemex – Freespan Correction

Freespan correction / stabilization

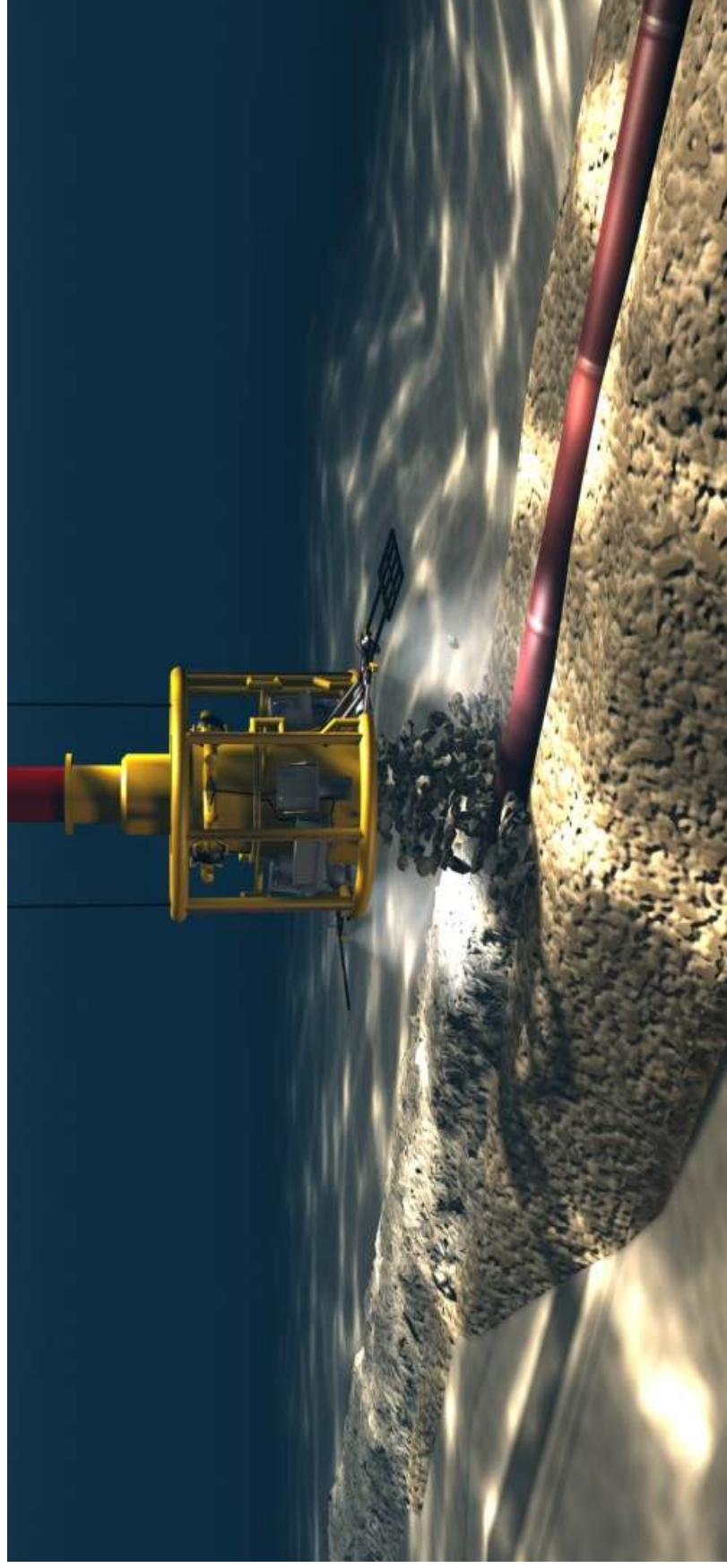
Build up in phases





# Applications for Pemex – Freespan Correction

Stabilization and protection of pipeline





# PROJECT OVERVIEW



# DHIRUBAI PROJECT





# INDIA

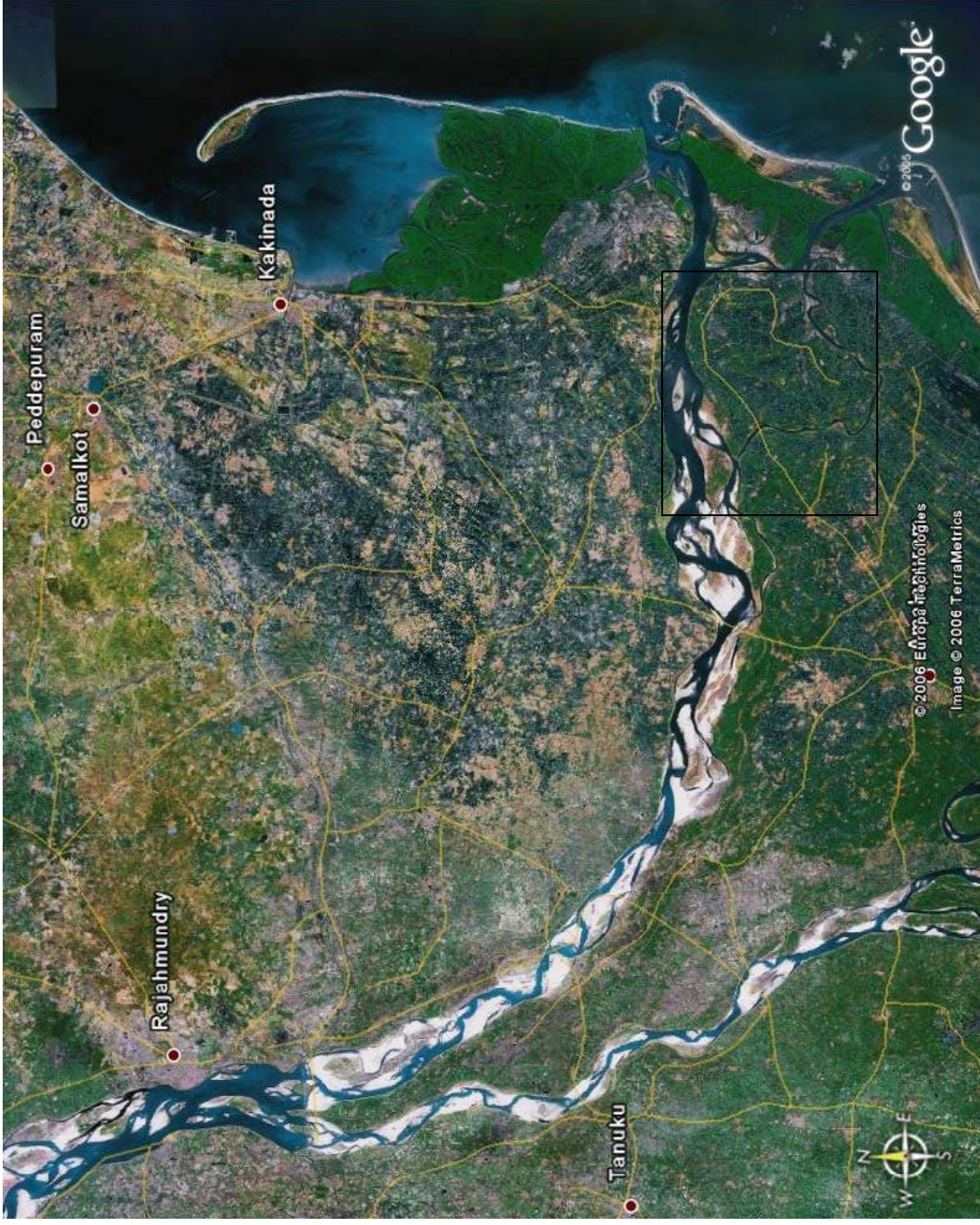


Landfall point 400 km from Hyderabad, Bay of Bengals





## Godavari River



Godavari delta, river mouth bank

Restricted wild life zone











Section	KP		Trench Depth	Main Volumes	
	from	to			
0	0.00	0.090			Cofferdam/Onshore Equipment
1	0.090	5.000	2.0 TOP at -9.00 CD	2,560,000 m3	TSHD small 3500 - 4500 m3 TSHD medium 4500 – 8000 m3
2	5.000 7.500	7.500 10.000	2.0 TOP at -9.00 CD 4.0 TOP at -9.00 CD	3,460,000 m3	TSHD for maintenance (medium) WID Post Pipeline Maintenance CSD Large
3	10.000	16.500	2.0 TOP at -9.00 CD	4,900,000 m3	
4	16.500 17.200	17.200 20.700	4.0 TOP at -9.00 CD 3.0 TOP at -9.00 CD	900,000 m3	TSHD large-medium (WD -50m)
5	0.000	20.700	Rock backfill + dredged backfill	920,000 ton	SSDV Fallpipe Pontoon

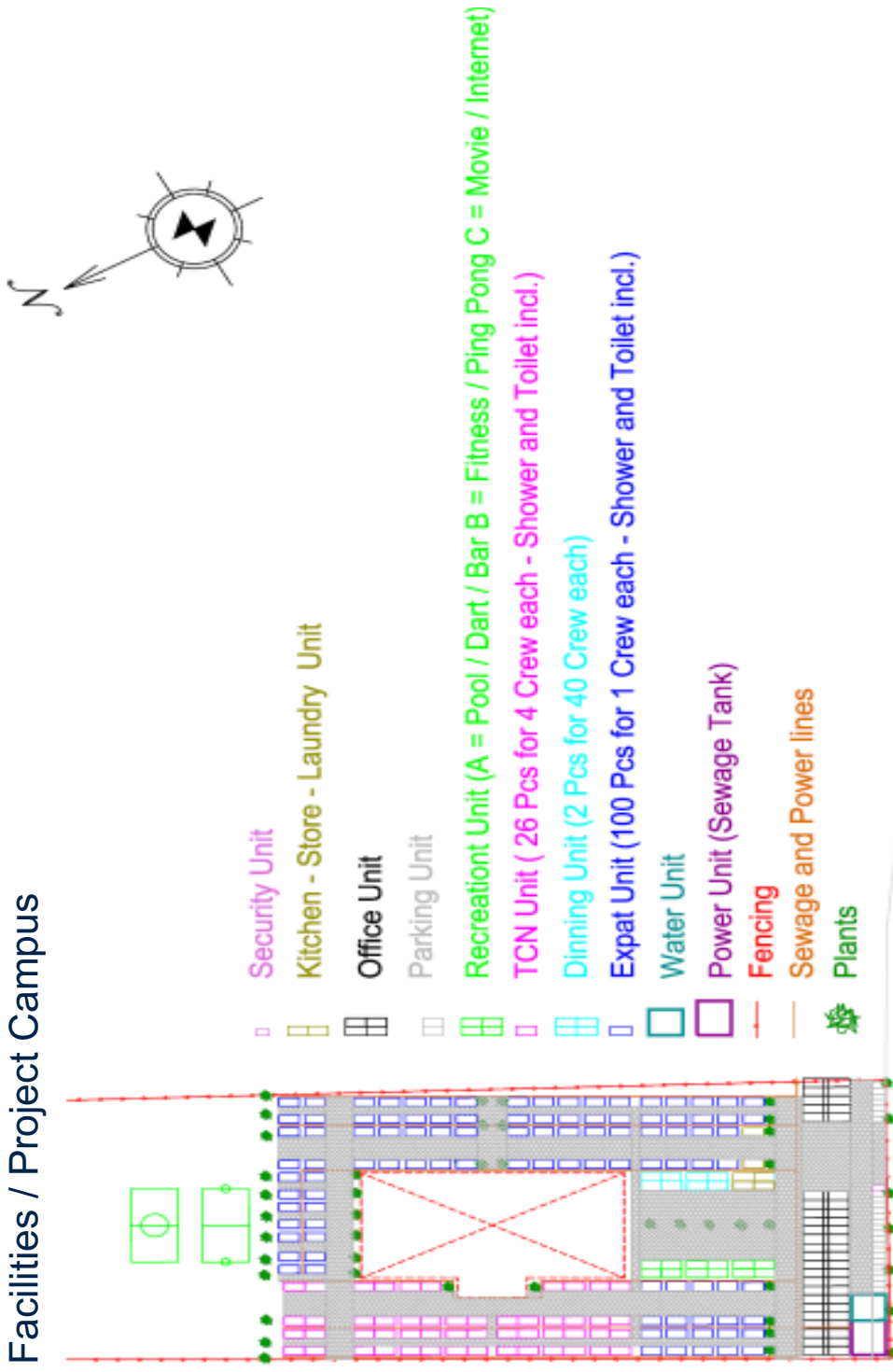


# Challenge

- Planning
- Accessibility of the work
- Monsoon: - Erosion and sedimentation in the river  
- Unworkable weather
- Waterdepth on the river
- Maximum waterdepth offshore
- Logistics for Rock Placements Services
- India



## Facilities / Project Campus





## Project Campus







## Execution Scope of works

Cofferdam for:

- shore protection
- winch foundation and anchorage for 300 Tc pulling





Equipment: CSD – Cyrus, Orion / TSHD – Pallieter, Vlaanderen, Cornelius Zanen





Equipment:





Equipment: Rockdumping, SSDV – Atlantis, Cetus, FPP Pontoon Zeepaard







Rockdumping (> 1 million tonnes  $\approx$  1 million Volkswagen Polo's)













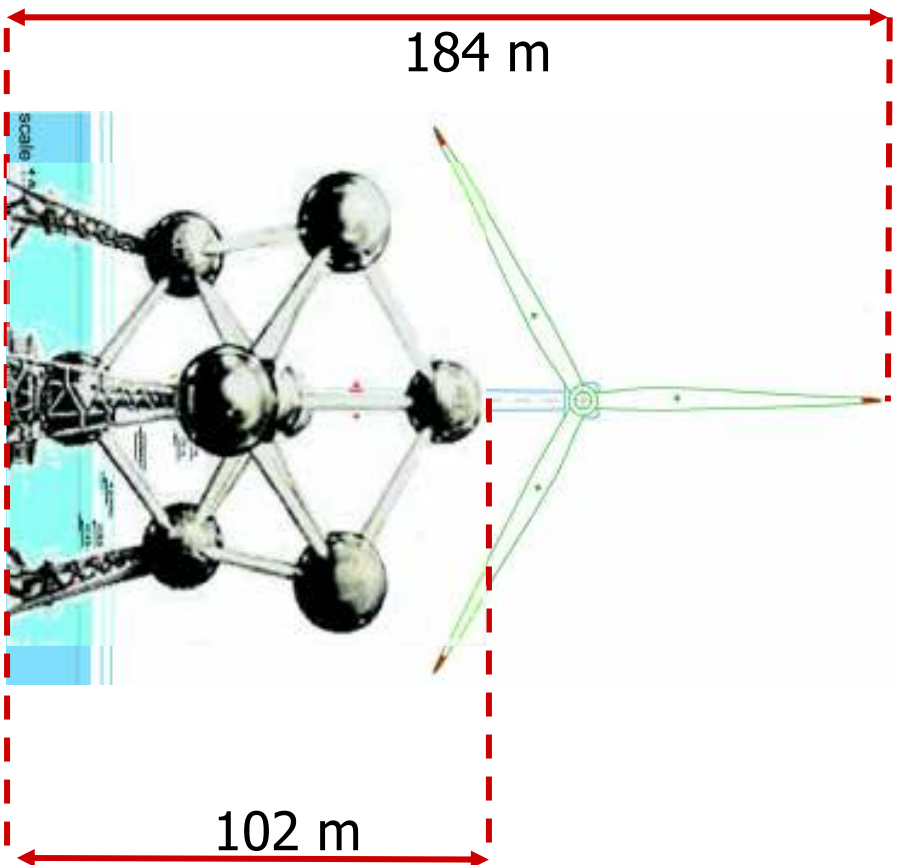
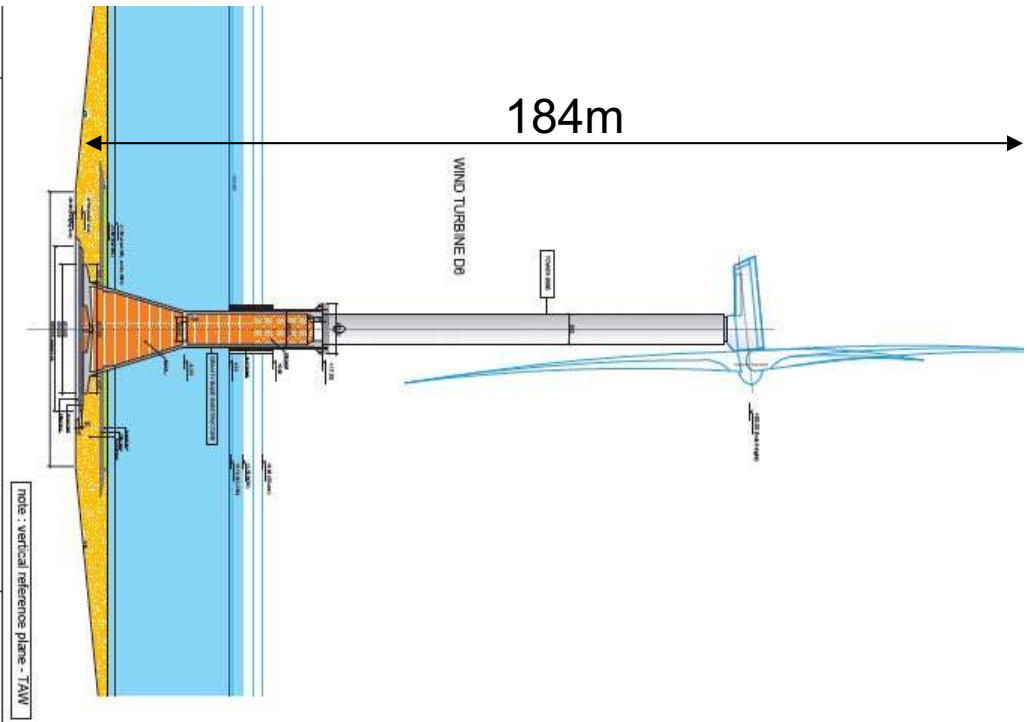


# PROJECT OVERVIEW



# THORNTON PROJECT



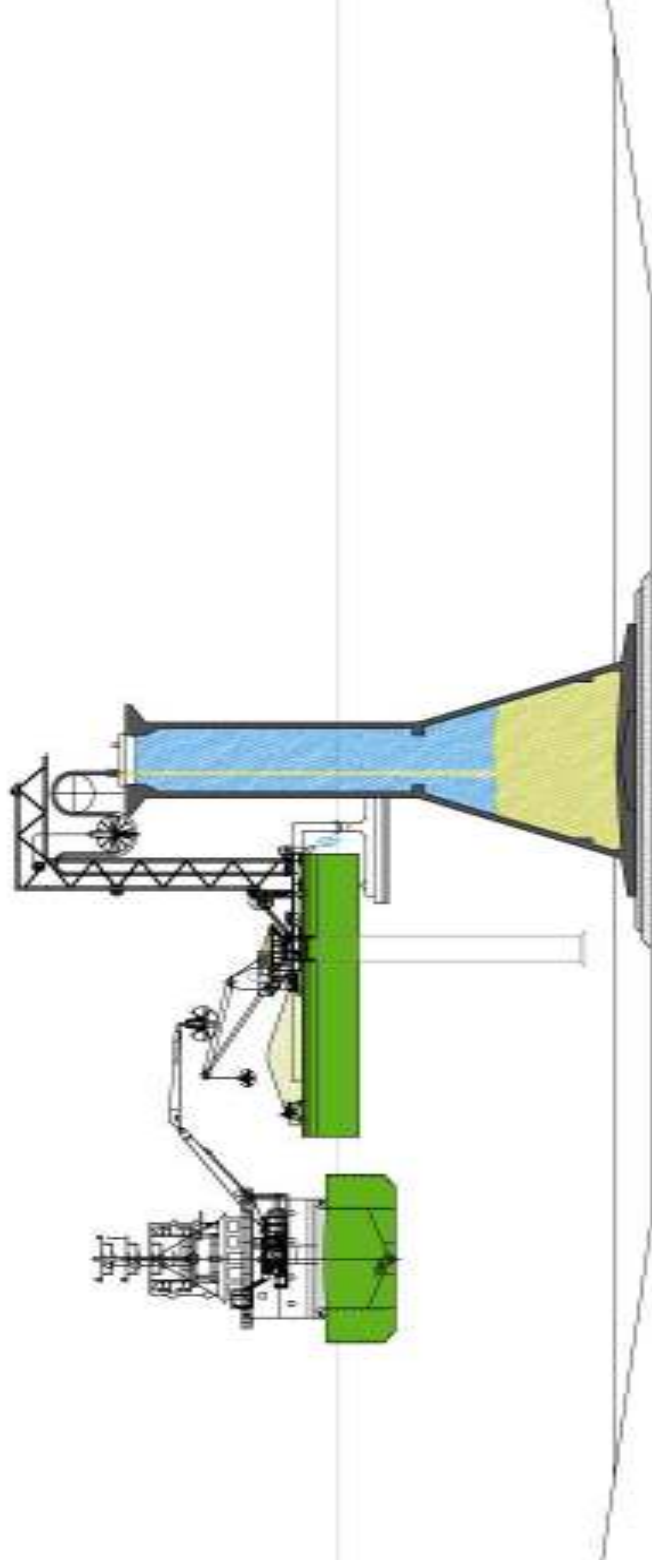






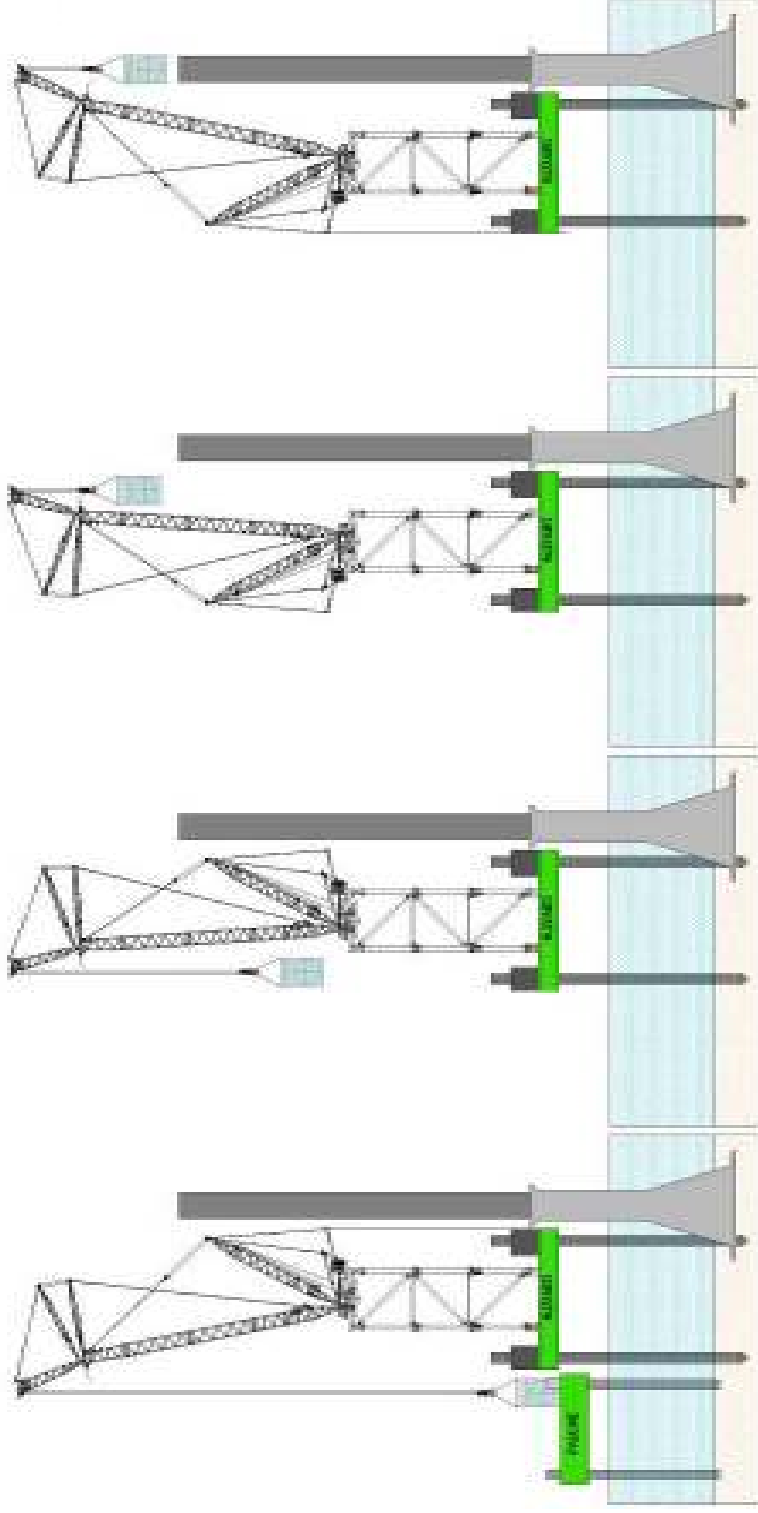


## Infill



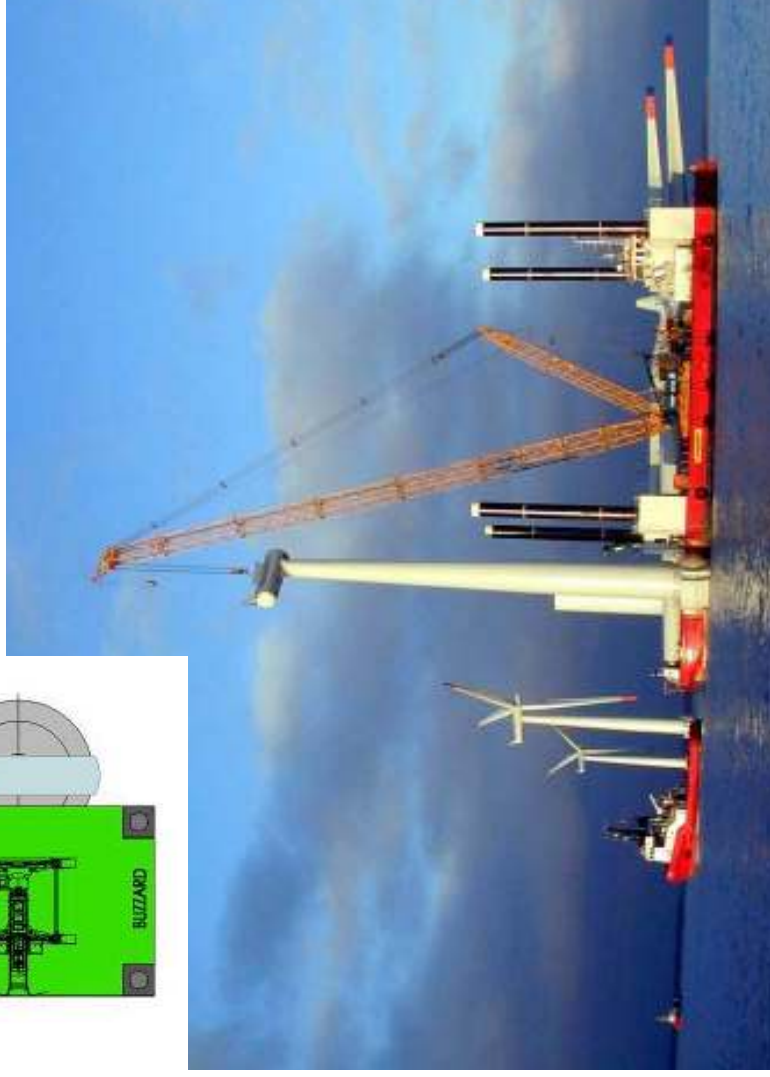
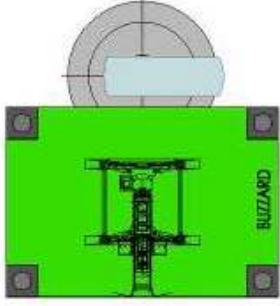
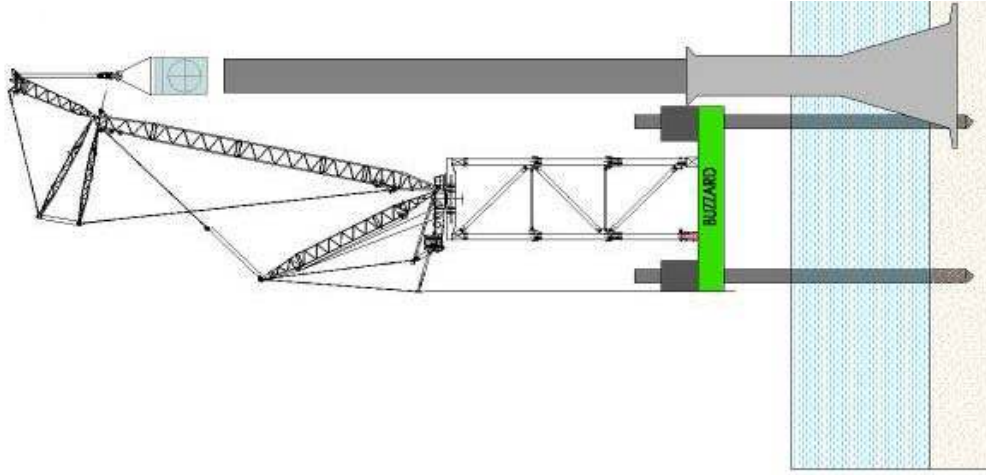


## Lifting of nacelle

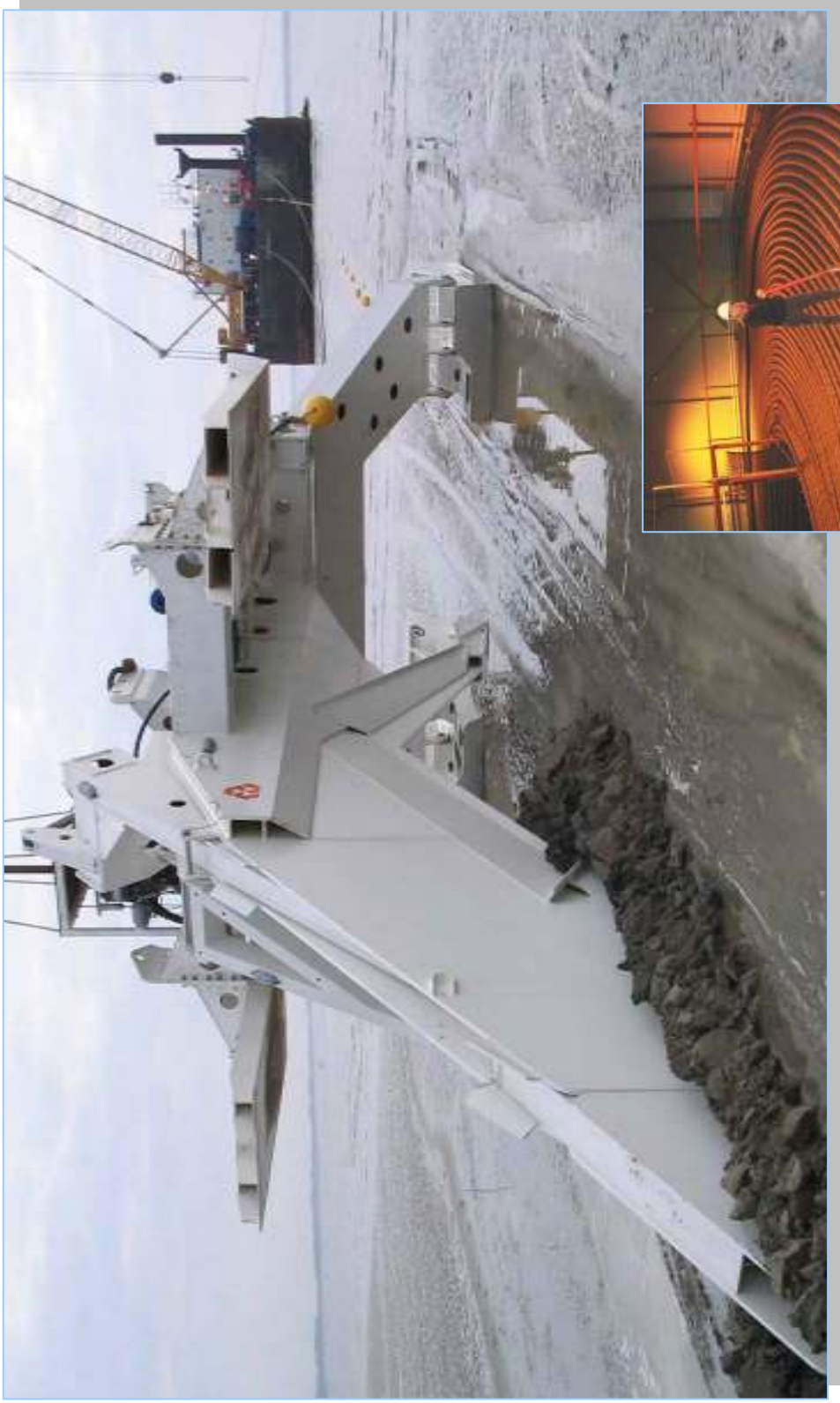




## Lifting of nacelle









# PROJECT OVERVIEW



# NORNED PROJECT



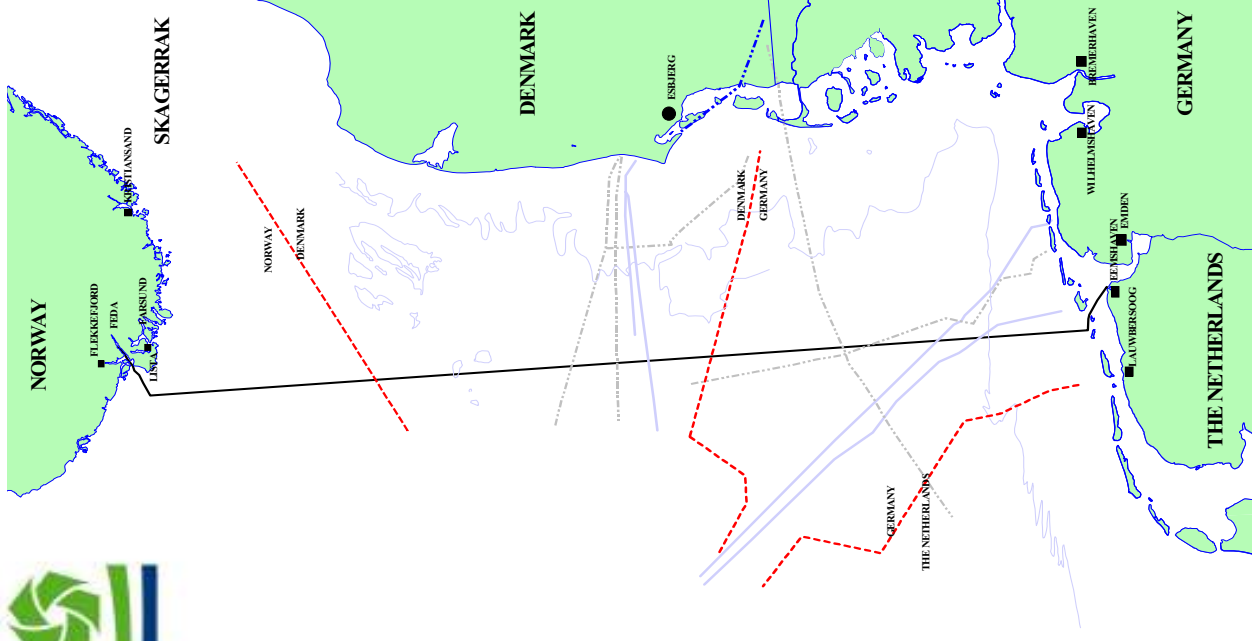
# NorNed Kabel Project

Norwegian power supply 99% hydro power:

- Emission free, sustainable generation
- Surplus power wet years / shortage dry years
- Normally lower production costs

Dutch power system mainly gas powered:

- CO<sub>2</sub> and other emissions
- Surplus production capacity nights / weekends
- Normally higher production costs







# NorNed: the longest submarine high-voltage cable in the world

## Facts and figures:

- Cable length: 580 km
- 420 km installed in shallow waters (up to 50 m deep)
- 160 km installed at depths of up to 410 m
- 270 km will consist of a double cable; 310 km will consist of a single cable
- Total cable weight: 47,000 tonnes
- Maximum cable voltage: +450 kV (kilovolt) and -450 kV
- Cable capacity: 700 MW
- 24 licences in four countries
- Total project costs: EUR 600 million



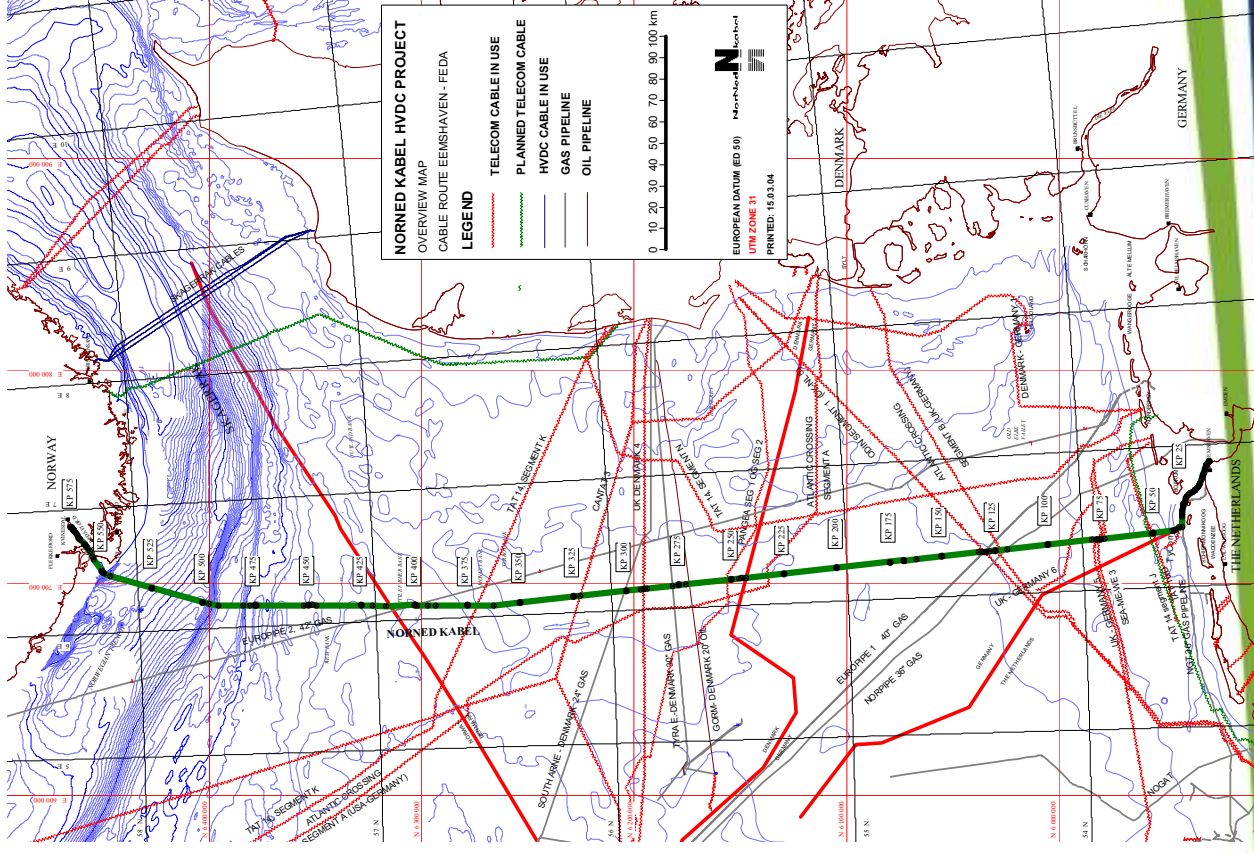
## Cable Types 2





# Cable Route

- Cable route involves crossing of:
- 6 pipelines;
  - 15 telecom cables in use and;
  - 33 telecom cables out of use.





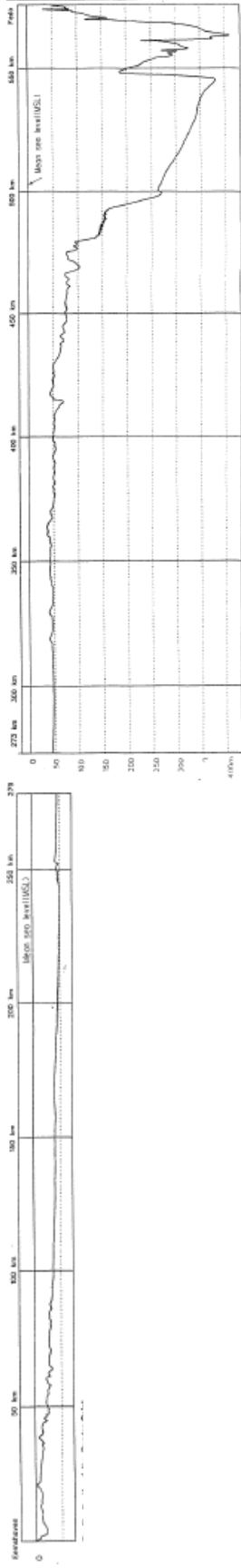
# Cable Installation

- Detailed Route Selection – Pre-survey
- Route Preparation
- Cable Lay
- Protection of Cable
  - Trenching
  - Rock Dumping





# Cable Route Longitudinal Profile





# Cable Laying Vessel - Skagerrak





# Cable Lay

- Loading 10 days
- Transport 1-3 days
- Jointing 3-7 days
- Laying 10 days
- Return 1-3 days
  
- Total 1 month per section





# Norway - Feda







## Norway – Feda 2





# The Netherlands - Eemshaven





# Skagerrak - Touchdown Tracking 8







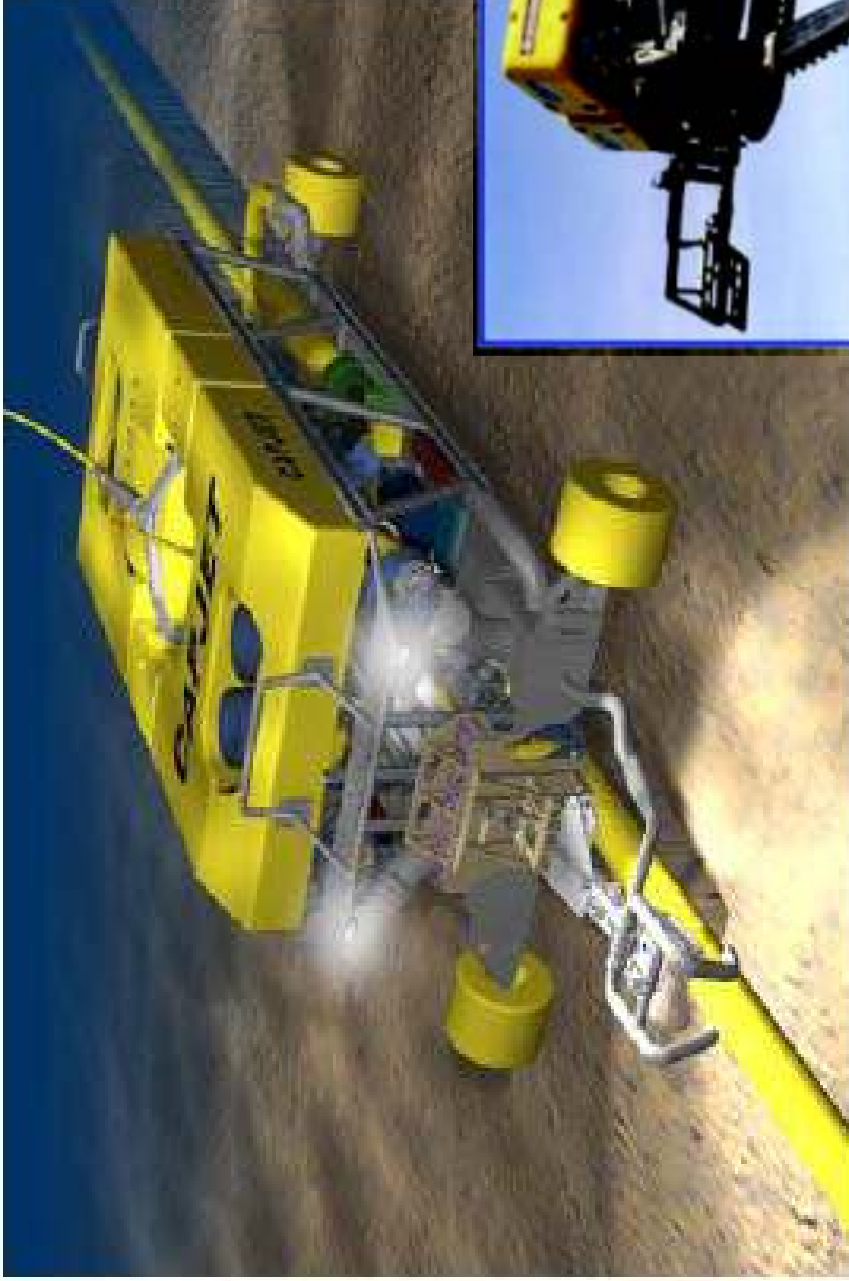
# Trenching Support Vessel – Normand Mjohne







# Trenching Machine Capjet





# PROJECT OVERVIEW



# Tideway for the Future

Upcoming Projects

New Vessel 2011

Tideway Team – on board, on shore or office



# PRESS RELEASE

25th of February 2009

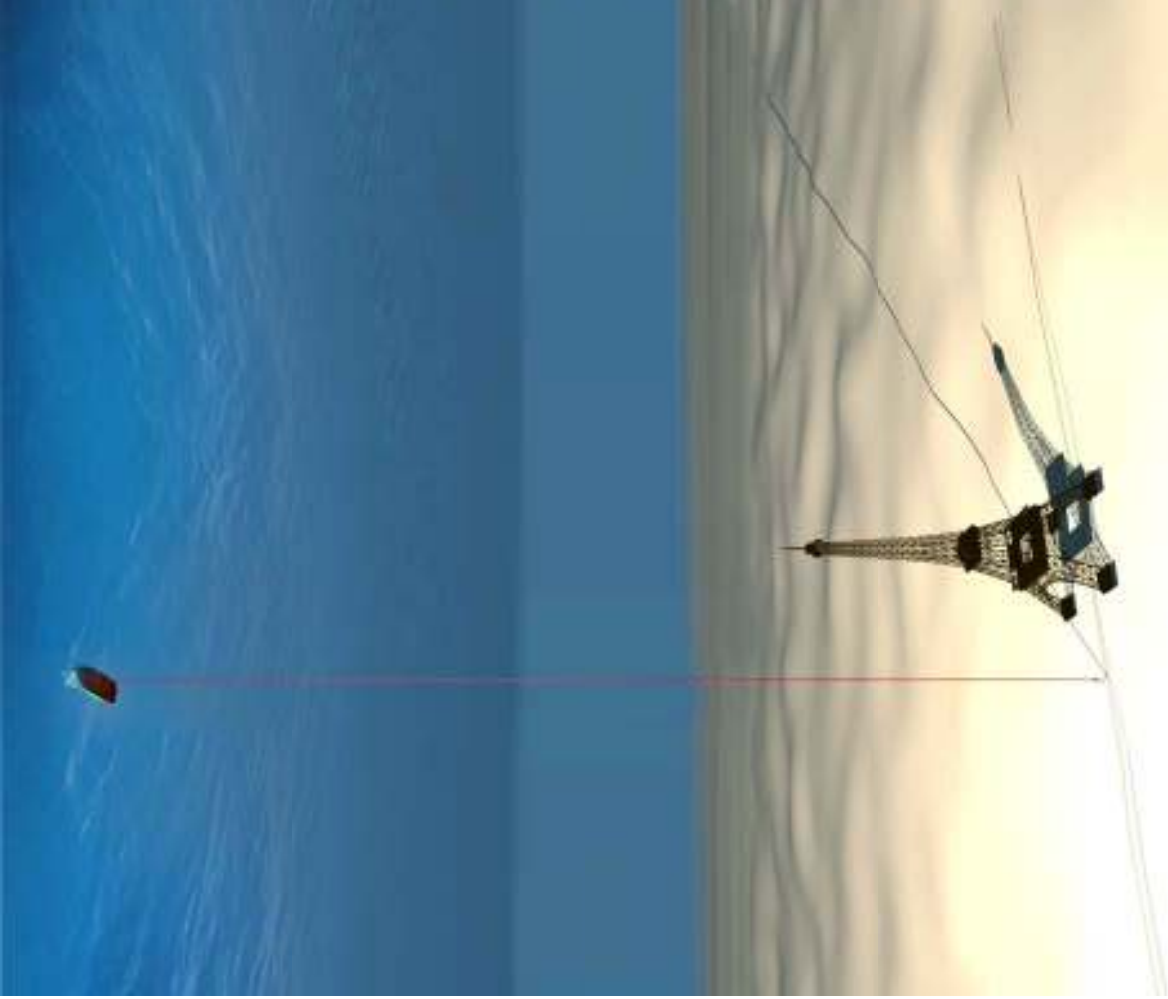
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## **Stonedumping at 987 metres below sea level near Ibiza New depth record for Dutch offshore specialist**

**Breda, February 25, 2009 - In a project west of Ibiza in the Mediterranean Sea, Tideway's vessel Rollingstone placed 20,000m<sup>3</sup> rock at a depth of 987 metres yesterday, by order of the Spanish energy company Enagas. Never was rock installed at this depth before.**

The Enagas Balearic Pipeline is a submarine gas pipeline being built between the Spanish Denia and the Balearic Islands Ibiza and Mallorca. Tideway is responsible for dredging of the trench, constructing the landfalls, and protection and stabilization of the pipeline. The aim of the Enagas project is to supply the Balearic Islands with natural gas. In this project Tideway works together with the Italian pipelay contractor Saipem. An earlier depth record was also in the hands of the Dutch offshore specialist in 2000, when rock was placed at 780 metres depth at the Malampaya Development Project (Philippines), commissioned by Shell.





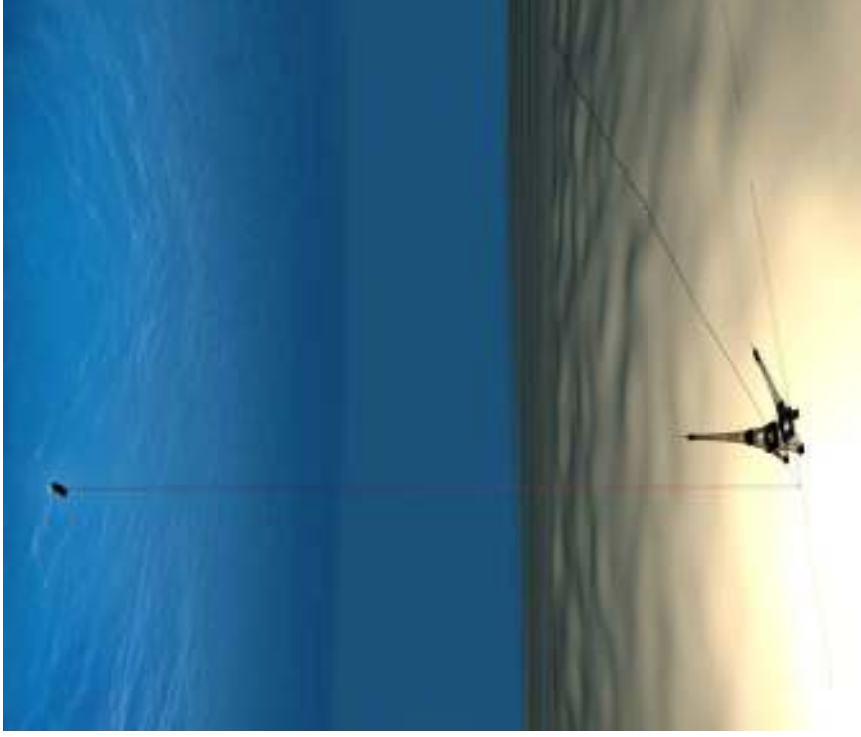


# Upcoming Projects

- Dong - Walney Windfarm
- Mexico – PEMEX Gulf of Mexico
- Nordstream Project – Pre-lay Rockdumping
- Angola / LNG Project
- ABB / Brittnet Pre-Sweeping / Rockdumping
- North sea Projects – BP Skarv
- Canada – New Foundland Sea Rose
- Canada – Nova Scotia Deep Panuke
- Australia – Pluto Trenching & Backfilling



# D.P. Fall Pipe Vessel "Flintstone"





# Contact Details

Mr Hugo Bouvy – Director

Mr Rinus v/d Reest – HR Manager

Tideway bv

Minervum 7442

P.O. Box 7074

4800 GB Breda

The Netherlands

T +31 76 5204140

F +31 76 5204150

[www.tideway.nl](http://www.tideway.nl)





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