



‘Slim en Groen’

Welkom
NVB Jaarcongres 2017



Fleur Gräper – van Koolwijk

‘Slim en Groen’

NVB Jaarcongres 2017



‘Slim en Groen’

Eric Janse de Jonge
Voorzitter NVB

Meer informatie:

**[http://www.rug.nl/
cope/projecten/
havens-in-physical-internet](http://www.rug.nl/cope/projecten/havens-in-physical-internet)**

Physical internet congres:

<http://pi.events/>

‘Slim en Groen’

Prof. dr. Iris Vis

Dean of Industry Relations RuG



BARKMEIJER SHIPYARDS

NVB-JAARCONGRES 2017

HANS VERAART



Barkmeijer Shipyards



Friese werf, al 167 jaar

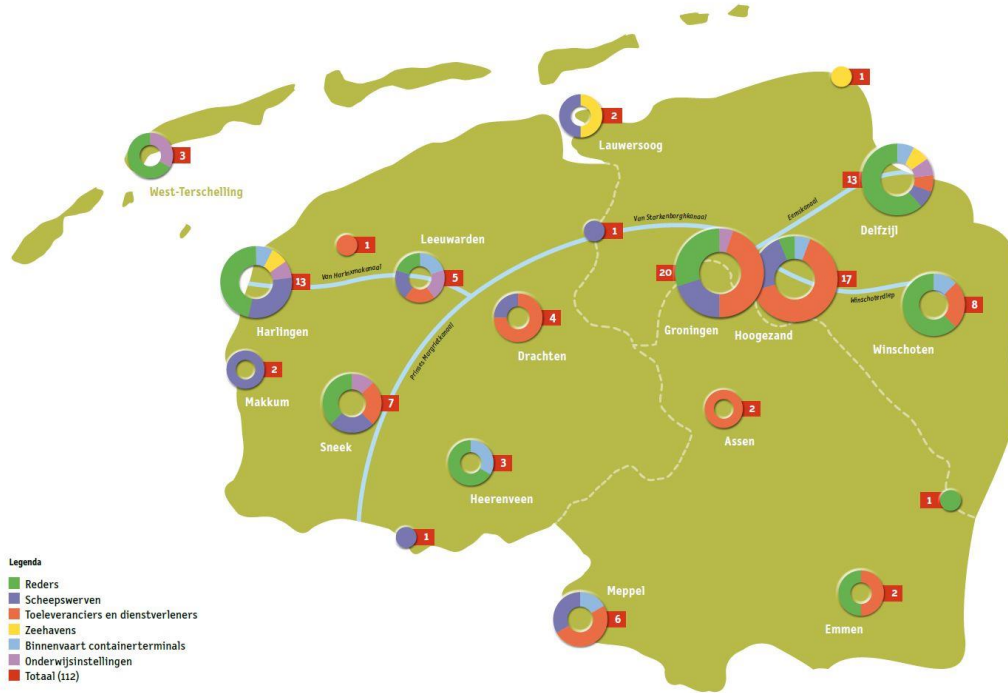


Barkmeijer Shipyards

- Zelfstandige werf sinds 1850
- Gevestigd te Stroobos aan het Prinses Margriet kanaal
- Ca. 80 vaste werknemers
- Ca. 150 personen op de werf werkzaam
- Deels seriematige bouw van droge lading schepen
- Deels eenmalige speciale projecten
 - ▣ Tankers
 - ▣ Visserijschepen
 - ▣ Baggerschepen
 - ▣ Loodsvaartuigen
 - ▣ High speed tenders



Noordelijk maritiem cluster



- Legenda
- Reders
 - Scheepswerven
 - Toeleveranciers en dienstverleners
 - Zeehavens
 - Binnenvaart containerterminals
 - Onderwijsinstellingen
 - Totaal (112)



Baggerschip?

- Onderhoudsbaggerschip:
 - Op diepte houden vaarwegen en havens (slib, s.g. 1,10 tot 1,30 t/m³).
 - Vooroever- en strandsuppleties
 - Veel korte reizen soms wel 20 per dag
 - Lading blijft nat
- Zandwinner
 - Bagbert zand en/of grind op zee dat als product gebruikt wordt in de betonindustrie en wegebouw (zand, grind s.g. 1,60 tot 2,20 t/m³).
 - Wordt meestal droog gelost
 - Zandwinner noem je geen baggerschip!



Baggerschip “Andre L”



Baggerschip “Andre L”



Baggerschip “UKD Orca”



Baggerschip “UKD Orca”, hopper.



Baggerschip “Orisant”



Baggerschip “Charlock” 2016 opgeleverd.



3 Loodsvaartuigen (P-klasse)



Loodsvaartuigen (P-klasse)



Procyon met 3 jollen op de Noordzee



Fly-shooter/twin rigger “Aaltje Postma”



2 Stalen High Speed Tenders (H-klasse)



7 Aluminium High Speed Tenders (L-klasse)



Pompkamer in aanbouw in stroobos



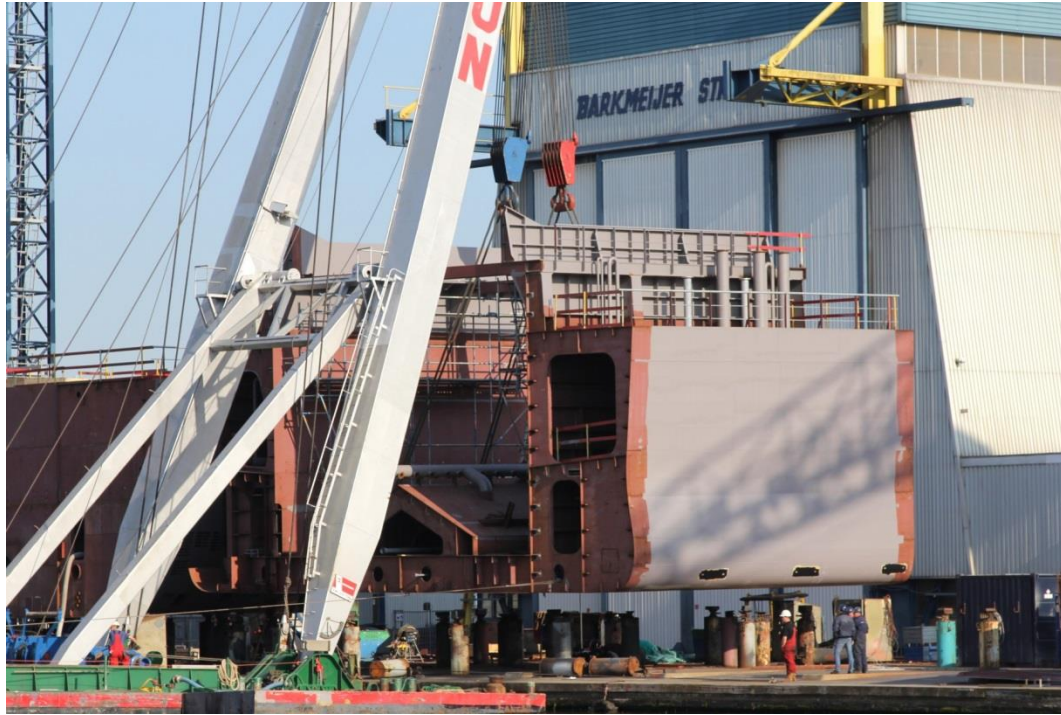
Blokken in aanbouw in Stroobos



Vakmensen!



Sectie hijsen in Stroobos



Onderweg naar Delfzijl



Samenbouw in dok Delfzijl



Samenbouw in dok Delfzijl (achterschip)



LNG baggerschip (hybrid) “Ecodelta”



Twée baggerschepen voor Hanson (UK)



Vragen?



Dank voor uw aandacht!





BARKMEIJER SHIPYARDS

Beyond all horizons



6 oktober 2017



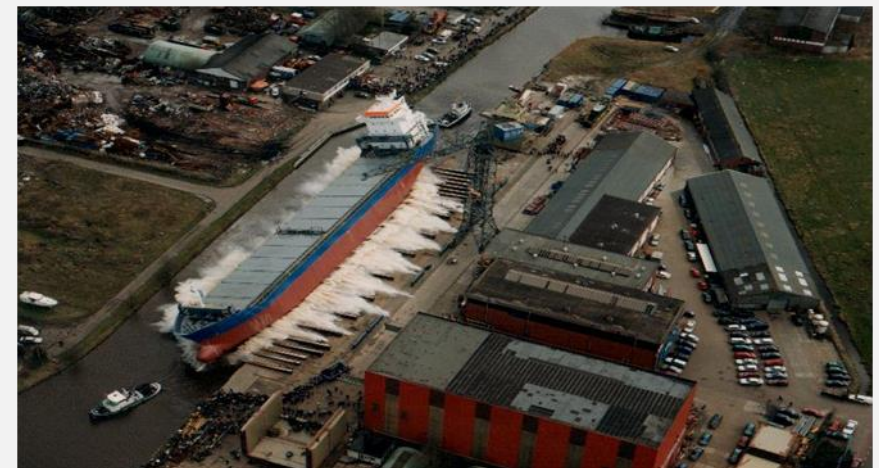
CONOSHIP
INTERNATIONAL

**LNG GAMECHANGER IN SHIPPING:
ECONOLOGISCHE INNOVATIE NOORD NEDERLAND**

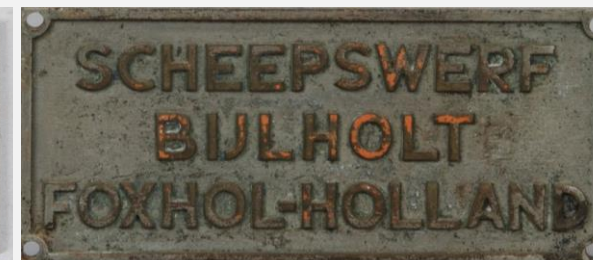
- Design office since 1952 in the Netherlands, independent
- More than 2000 vessels built of our design
- Long tradition in offshore oil & gas
- Market leader in Short Sea Ship design
- Focus R&D: eCONomy & eCOlogy
 - Reduction of fuel & emissions
 - ConoDuctTail & Crew comfort
 - Propulsion on LNG & wind
- => 'eCONological' innovations



- Conoship founded by 9 SME yards cooperating in design & marketing
 - Conoship & yards collaborative R&D investigating NC steel cutting => 1972 founding Centraalstaal (SME)
 - North Netherlands Maritime cluster : cooperating SME-specialists
- => 'Lean & mean' shipyards & highly specialized co-makers with highest productivity in complex Short Sea Ships
- Conoship: independent integrator !



1952: 9 Groninger en Friese werven samen acquisitie, ontwerp, kennis





PIONEER KNUTSEN: SMALLEST SEAGOING LNG TANKER



2003 DESIGN 1100 M3 LNG PIONEER KNUTSEN



R&D project 'LNG feasibility for SME's':

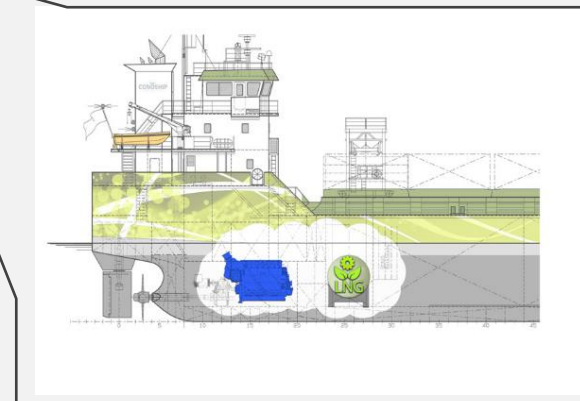
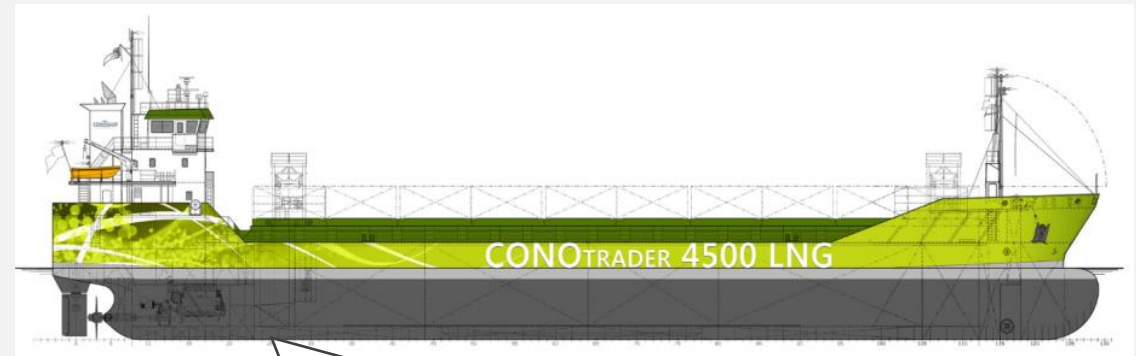
Expensive and complicated installation

Strong influence on ship design:

LNG tank type C double walled

- Ventilation / hazardous zones
- Engine Room – Inherently Gas Safe or Emergency Shut Down (no LRS)
- Dual Fuel engines or Lean Burn Gas engines
- Redundant systems

2012: LNG fueled Conotrader 4500



Feasibility in 2012: OK

Now? technical = OK

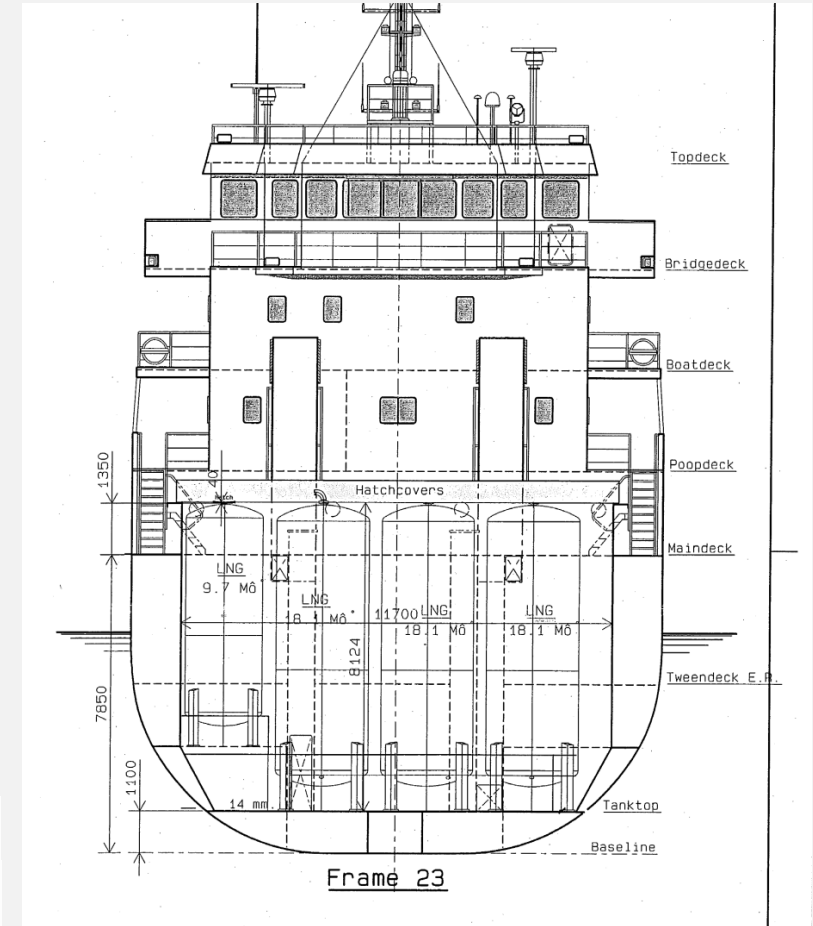
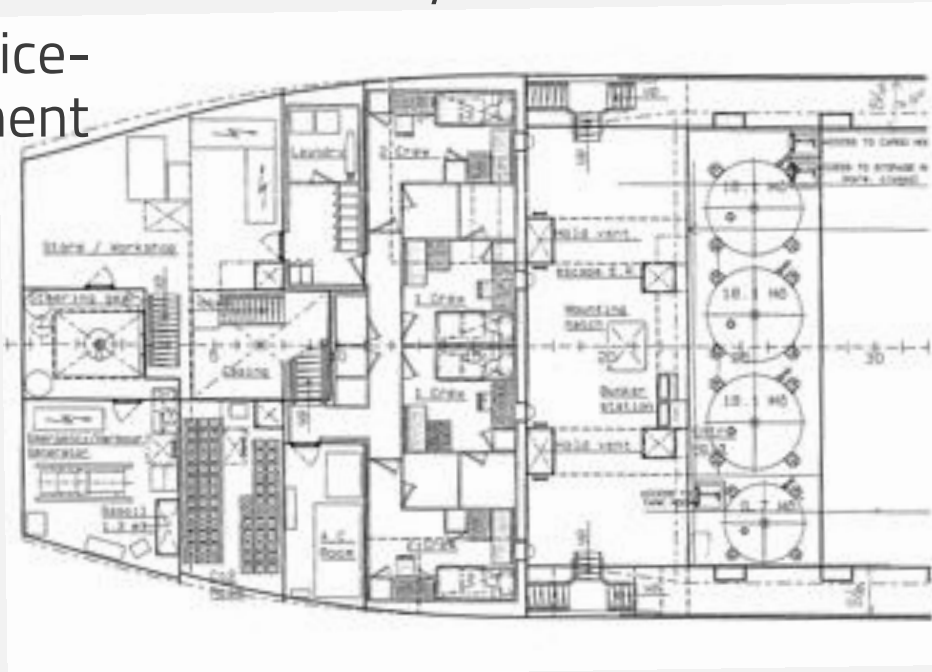
economical : not yet

depending on LNG-price-
gap to MGO+ investment
cost

+

Fuel consumption !

Collaborative R&D with
NMT, BV, Lloyds,
Cofely/ENGIE , Wartsila,
Rolls Royce, Ballast Nedam



Comparing HFO to MGO: LNG or Scrubber

- Various configurations LNG-tank -> midship
- Operational profile: 1/3 of time in SECA
- Fuel consumption appr 1900 ton HFO/year
- Variations of % in SECA, fuel-price: economical feasibility questionable
- Criterium: Paybacktime of LNG-investment or scrubber-investment



MV Elbeborg of Wagenborg Shipping
12000 DWT General Cargo MPP
4500 kW Wartsila 9L32C

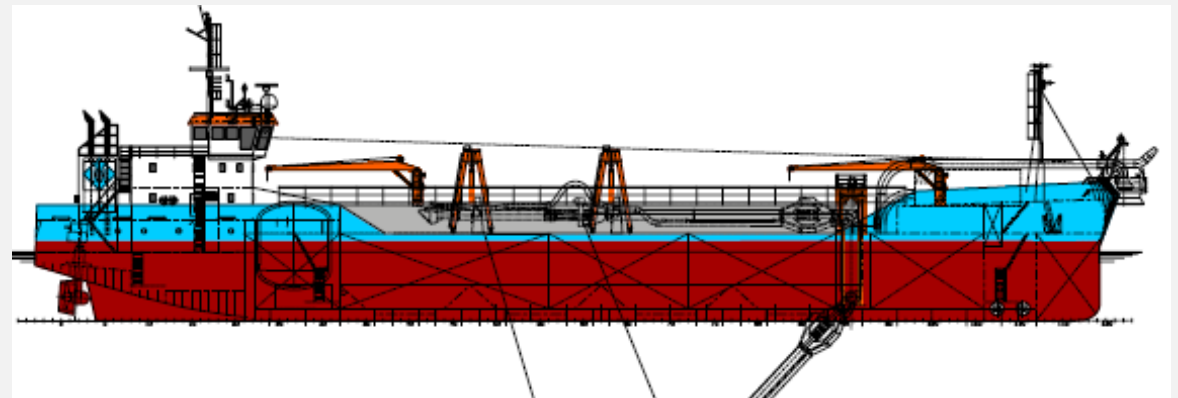
- Conoship in feasibility study 'Dredging on LNG' cooperating with:



- Market research:
Maintenance dredging on LNG high potential area Rouen – Hamburg emissions in City-ports



Rijksdienst voor Ondernemend Nederland



Van Der Kamp



- Dredging and construction
- Family owned, innovative specialists
- 8 vessels, TSHD, WID, barges
- Waterway & shore maintenance
- Oil recovery



© Tobias Langer



vesseltracker.com
multimedia-photo-gallery



- 2013/15 feasibility study refit TSHD "Rijndelta" to LNG Dual Fuel / electric installation
- Technical feasibility big challenge:
 - Space in engineroom
 - Positioning LNG tank
 - Dynamic loading of LNG engines caused by dredging
 - Welding and cutting on deck while dredging on LNG

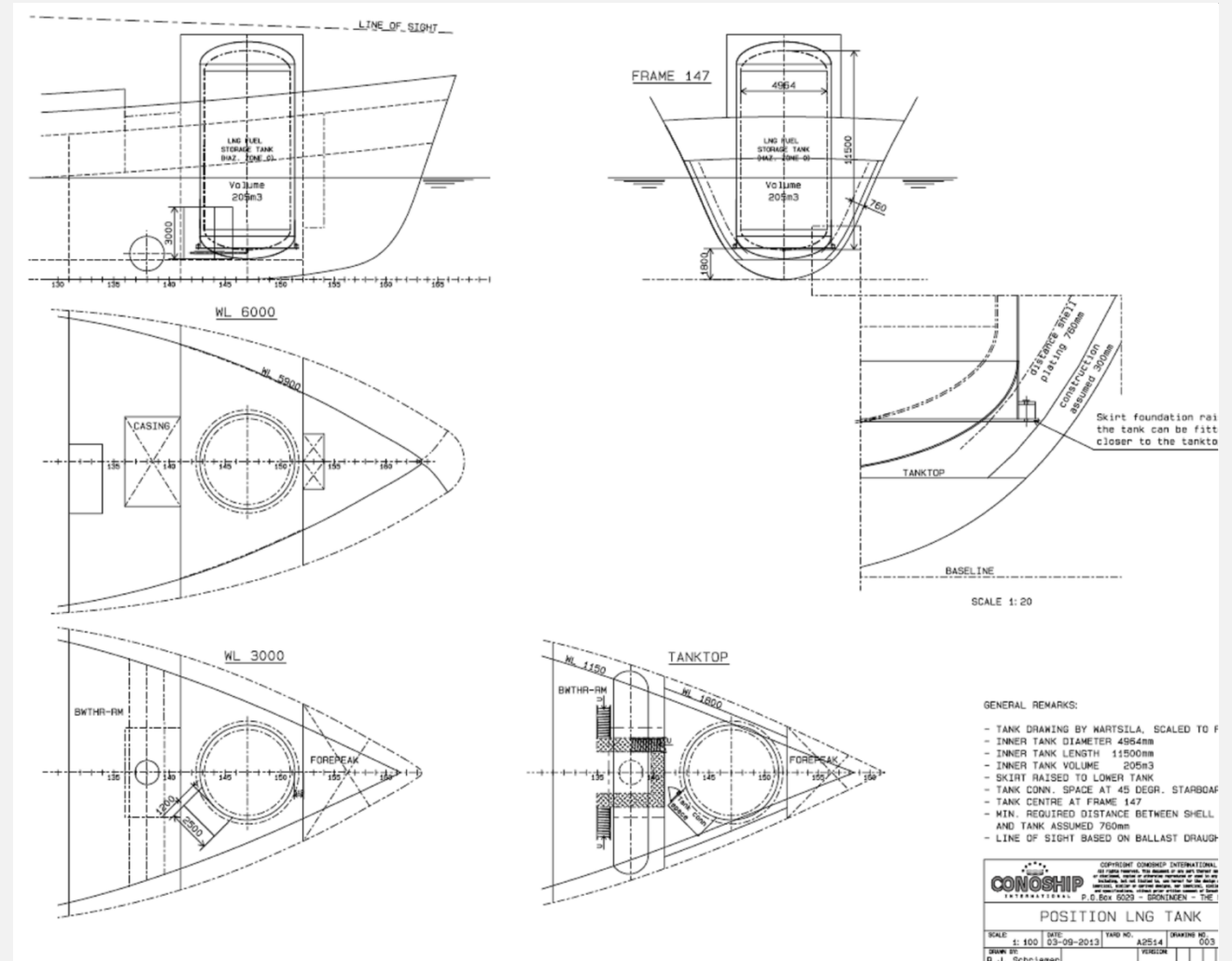


Positioning LNG tank

- 200 m³ LNG for 1 week
- Available space: foreship vertical (more expensive)
- Type C, double walled stainless steel, vacuum isolated
- Tank-Connection-Space
- Ventilation/inert gas/hazardous zone-plan

Conclusion:

Refit too complicated





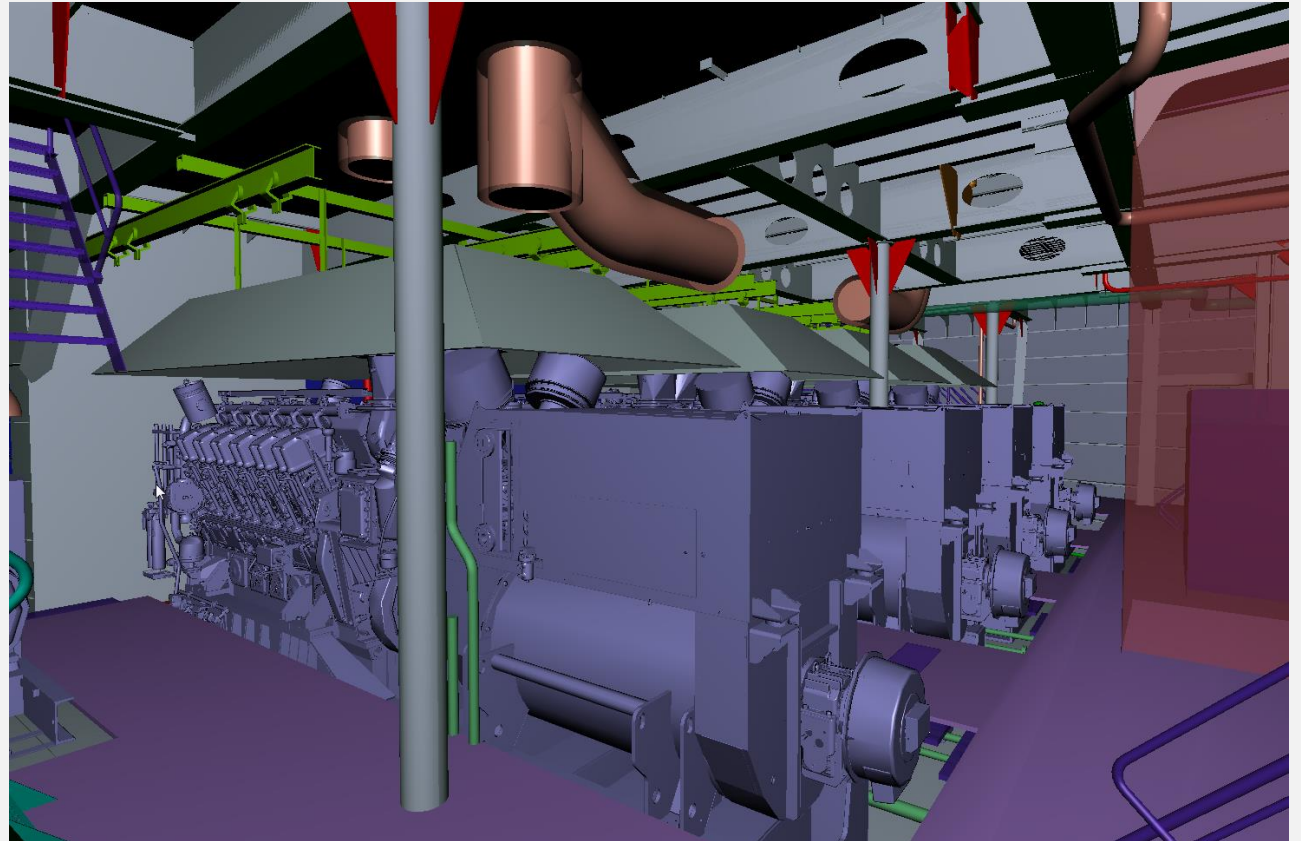
Cooperating SME-specialists in Northern Netherlands innovate in LNG + develop LNG knowledge and experience over the full cluster + integrating in complex LNG-dredger:
Creating a headstart for cluster on LNG-innovation in future growth market !



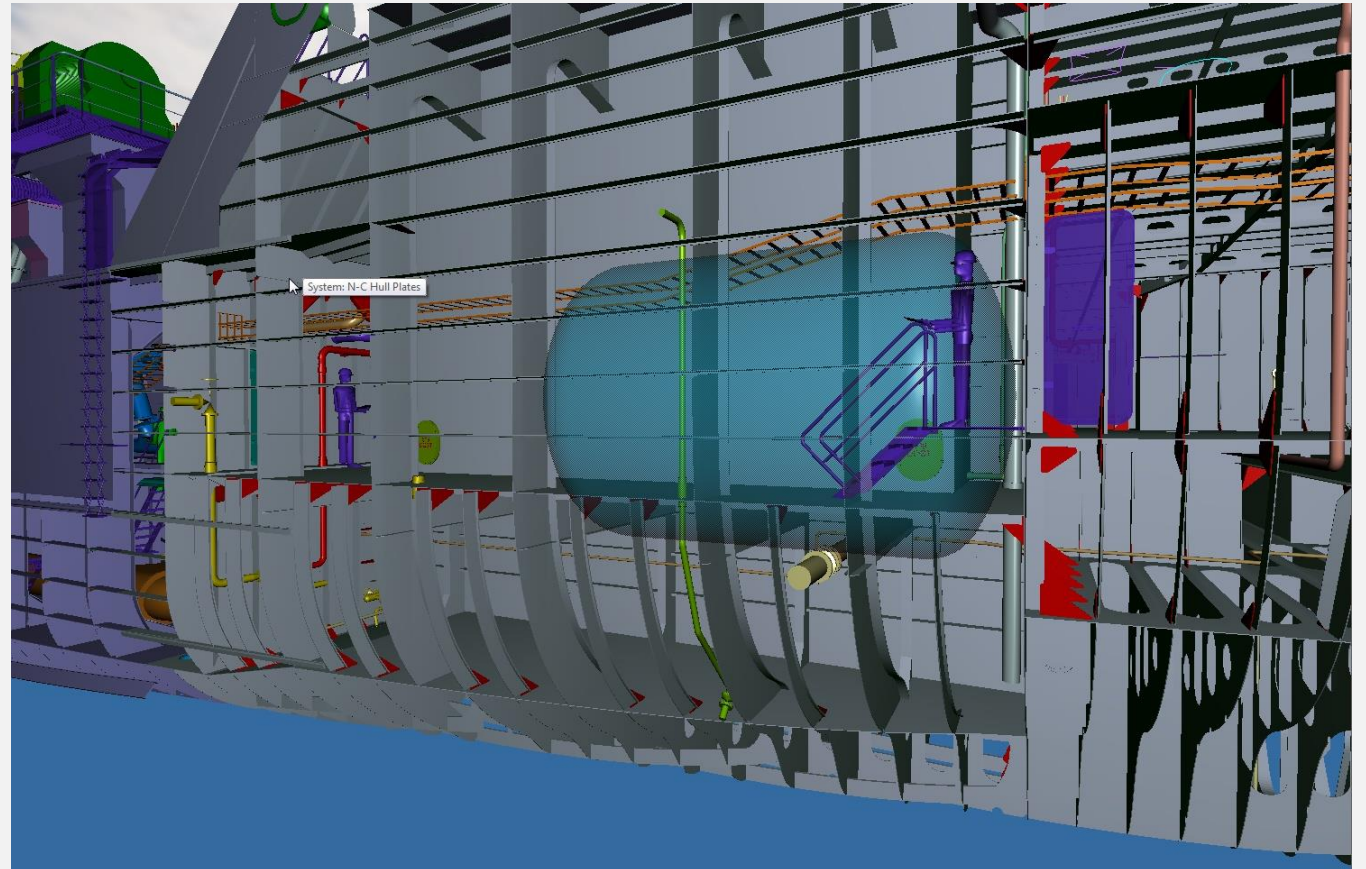
Design choices:

- Gen set configuration
- Tank position

- Integrating engines & piping in 3D design & engineering
- 4 x ABC 12V DZD Dual Fuel
- Generator sets
- Inherently Gas Safe, incl. ventilation on engines
- LNG- system integration: simultaneously safety & proper functioning (devil in details !)



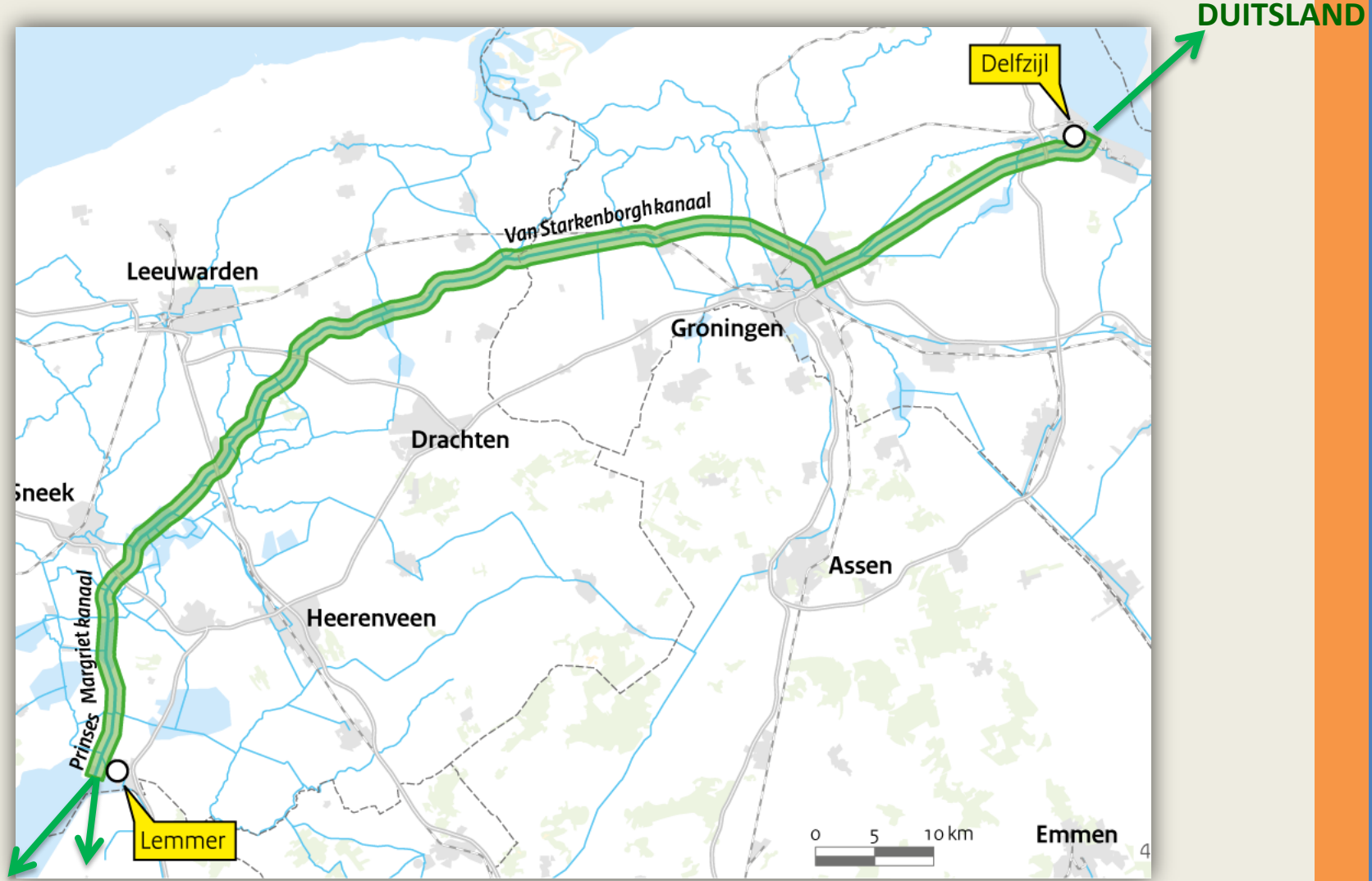
- Integrating 3D design & engineering
- HAZID and HAZOP: Conoship
- Risk analysis + functional analysis : Conoship in house
- Class: DNV-GL







VAARWEG LEMMER DELFZIJL



AMSTERDAM
ROTTERDAM