



Solstad Offshore

—— Your partner in the offshore energy transition



01

The project and our delivery



ENI Marine XII LNG Congo

Near shore terminal

Development data

- LNG development to the existing Nene and Litchendjili field.
- Near shore FLNG first out with FLNG Tango & FSU Excalibur

Field key-data

- 17-25 meters water depth
- 1nm from the shoreline
- 7nm from south of Pointe Noire, Congo

Charters requirement

- 5 x AHTS, with the following roles;
 - 1 main installation vessel
 - 1 secondary installation vessel
 - 3 for tow and station keeping



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Initial work scope

Pre-lay

- 17 driven pile anchors by external contractor
- Pre-lay of 17 x 107mm anchor chain
- Installation of 17 Stevadjusters

Tow & pos.

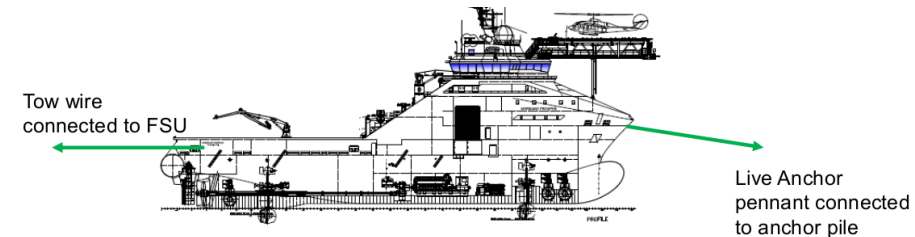
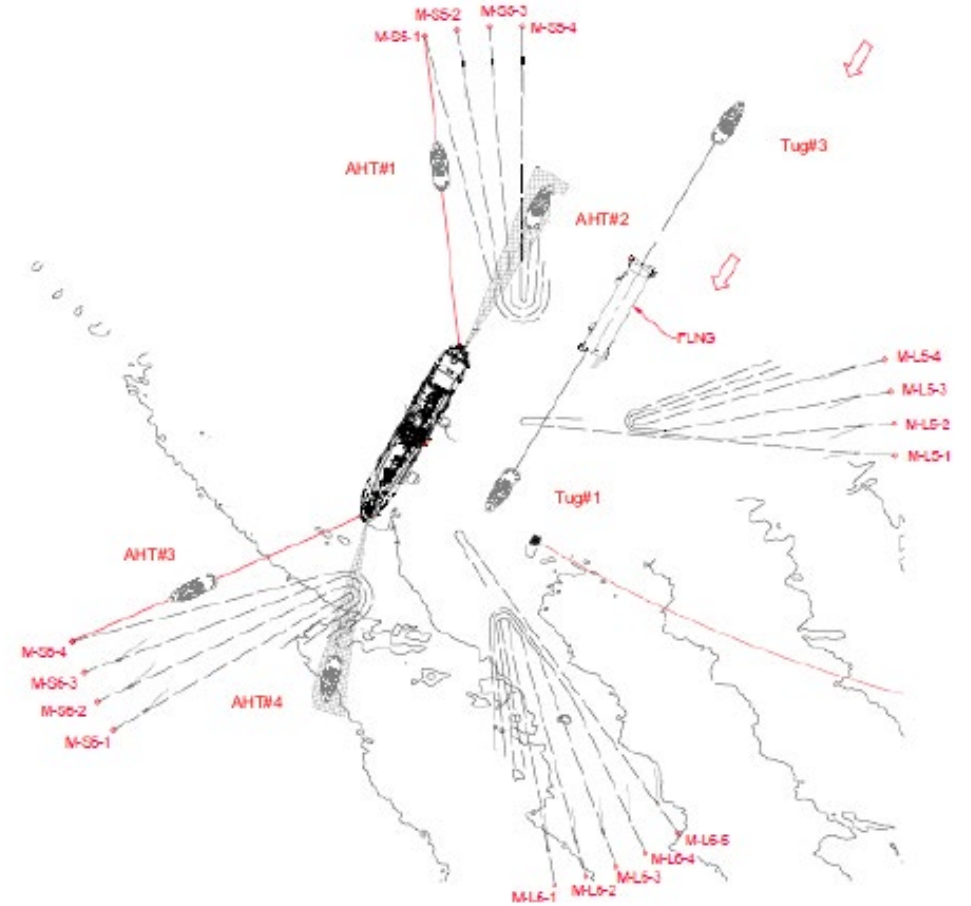
- Tow of FSU Excalibur to site
2 x AHTS station keeping connected to bottom system by smith-bracket.
- Tow of FLNG Tango by 2 x tugs

Hook-up

- Main AHTS connect 4 x mooring lines & tensioning
- Secondary AHTS released to assist in hook-up and tensioning.

Riser Recovery

- Main AHTS to commence riser recovery between riser platform to FLNG Tango





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Initial vessel roles & delivery

Main
Inst

Normand Drott (incl. WROV & Survey)

Main installation vessel, pre-lay and hook-up + riser recovery.

Sec
inst

Normand Prosper (incl. WROV & Survey)

Tow, station keeping and hook-up

Tow
&
pos

Normand Sapphire (vessel only)

Normand Sigma (vessel only)

Normand Sirius (vessels only)

Tow & station keeping

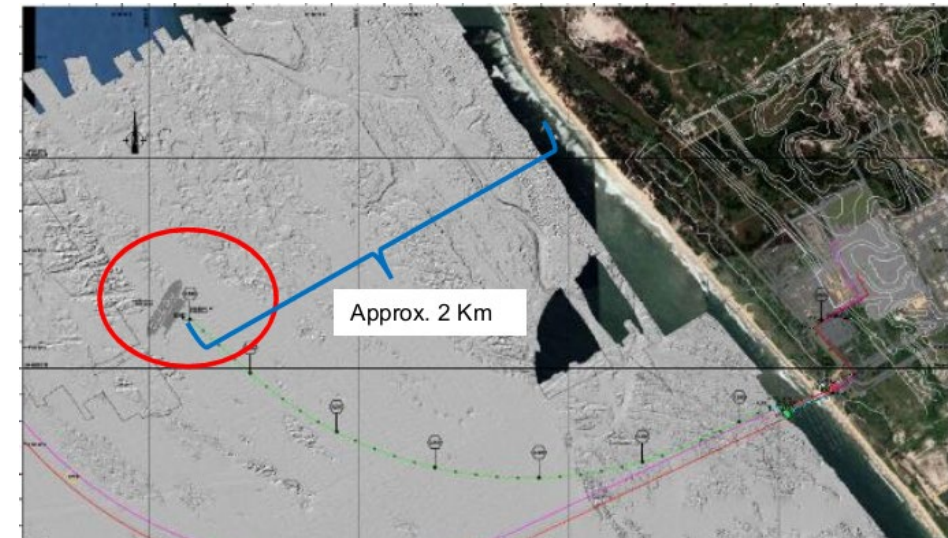
Third
part
deliv
ery

Third part delivery:

ROV services from Oceaneering

Survey deliveries from Fugro

Tow rigging from Sotra anchor & chain





Q2

Changes in scope and delivery



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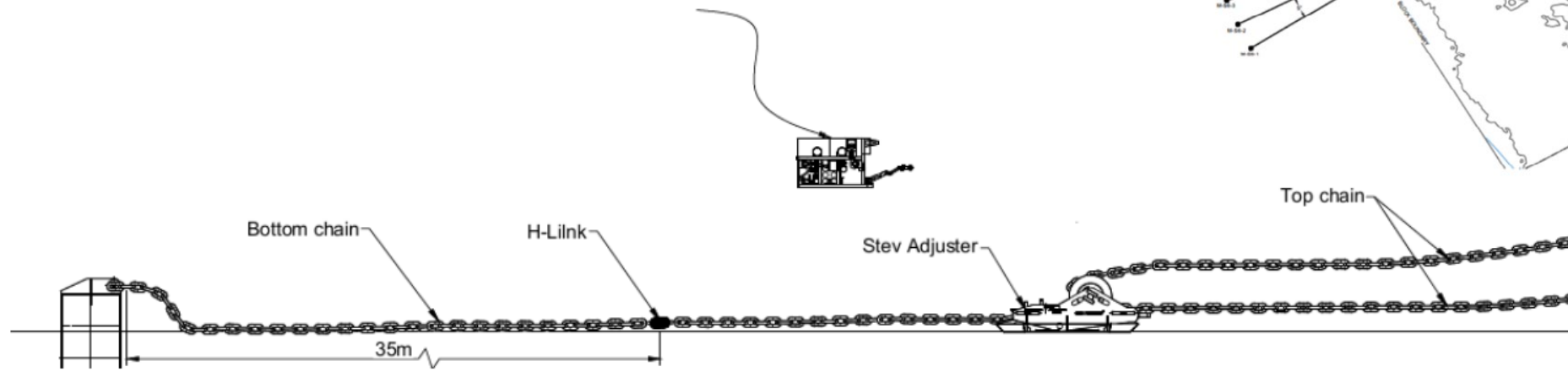
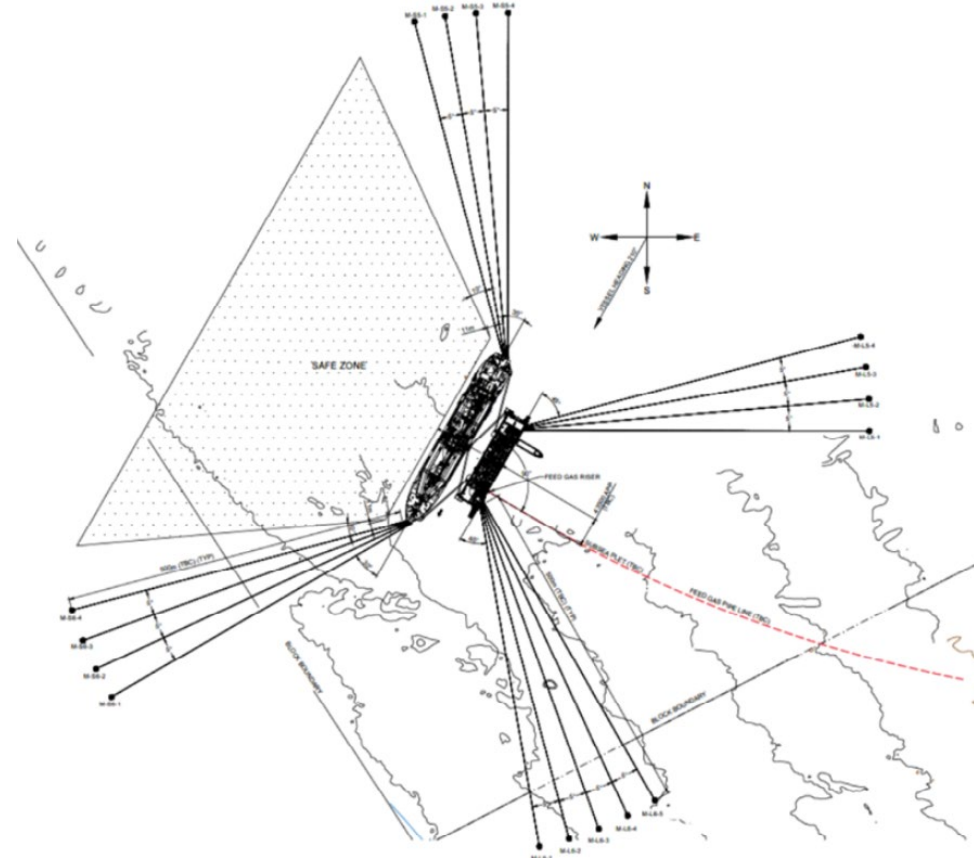
Delayed completion of driven pile anchors

Add.
SOW

Challenges to finalize the driven pile anchor installation triggered the need to have the AHTS delivered earlier for installing drag embedment anchors.

Additional scope:

- Pre-lay of drag embedment anchors.
- FLNG Tango float-off and tow from Luanda.
- Combined tow-out for FSU & FLNG.





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Change in scope and delivery

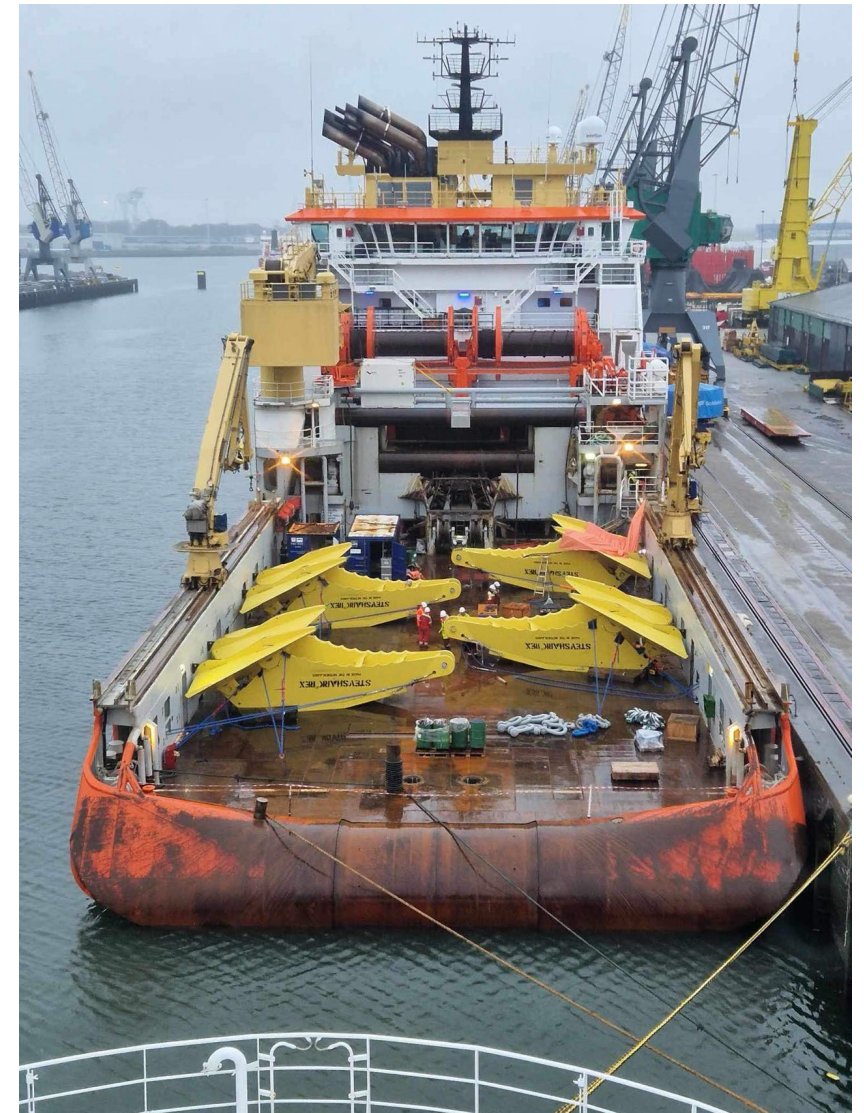
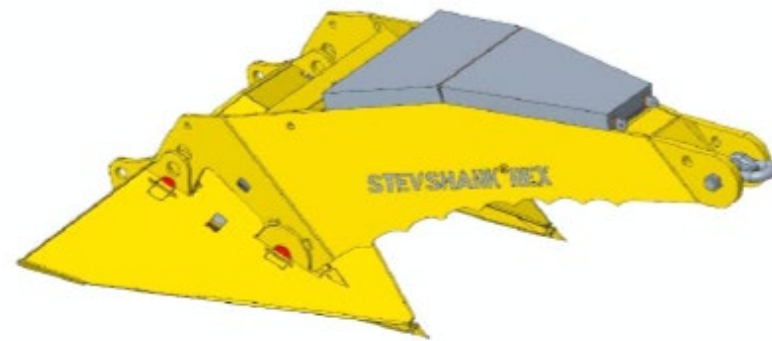
Pre-lay

10 drag embedment anchors transported from Europe to Congo, pre-lay consequently on driven pile anchors progress.

Drag anchor of **66 tons**;

- 33t Stevshark rex
- 16t fluke ballast
- 17t external ballast

Steel plates mobilized on wooden deck to minimize friction for easy handling of anchors at this weight.





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Change in scope and delivery

Float
off

- FLNG Tango float off and delivery Luanda, Angola
- Tow to Pointe Noire, Congo
- Handover to harbor tugs

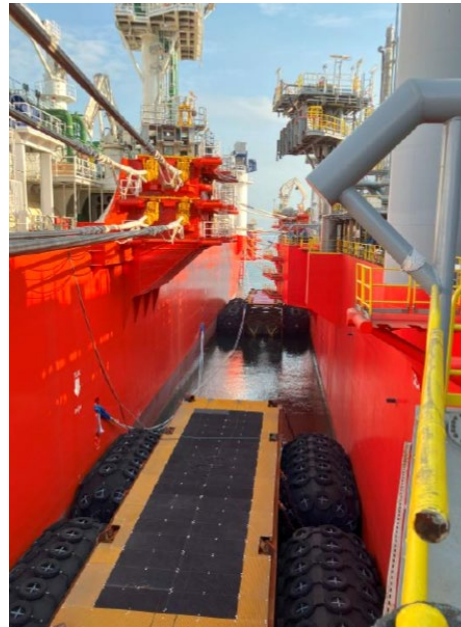


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Change in scope and delivery

Com
bined
tow

- FLNG Tango and FSU Excalibur moored together in Pointe Noire harbor.
- Towed by harbor-tugs to Pointe Noire roads
- 4 x AHTS combined tow to the field.





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Change in scope and delivery

New
roles

1 st Normand Drott	Main installation vessel	(incl Rov & Survey)
2 nd Normand Sapphire	Pre-lay, tow and station keeping	(incl. Rov & Survey)
3 rd Normand Sirius	Pre-lay, tow and station keeping	
4 th Normand Prosper	Pre-lay, tow and station keeping	(incl. Rov & Survey)
5 th Normand Sigma	Tow and station keeping	



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03

Experience and challenges



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Performance

WD

A new set of challenges present itself working on these water depths;

- Catenary during tensioning
- Height of driven piles with corresponding shallow water depths
- ROV visibility = 0

