

South Fork Wind Farm

Offshore Conceptual Drawings

May 13, 2019

Offshore Drawings

The following figures are included in this Appendix.

Monopile Foundations (Typicals and Installation Sequence)

Offshore Substation

Typical Illustration

Inter-Array Cable

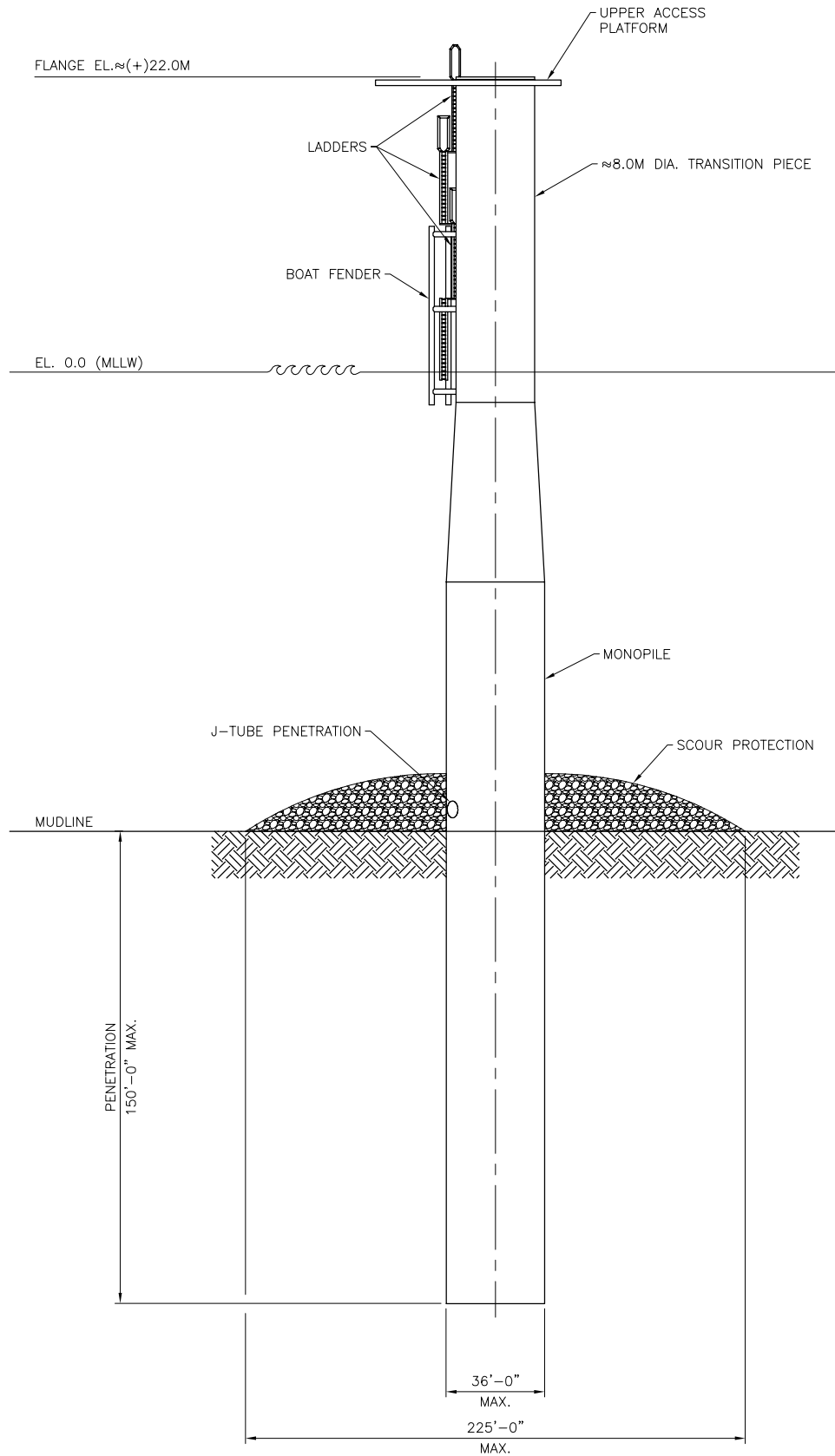
Cross-section

SFEC Cable

Cross-section

Typical Burial Depth

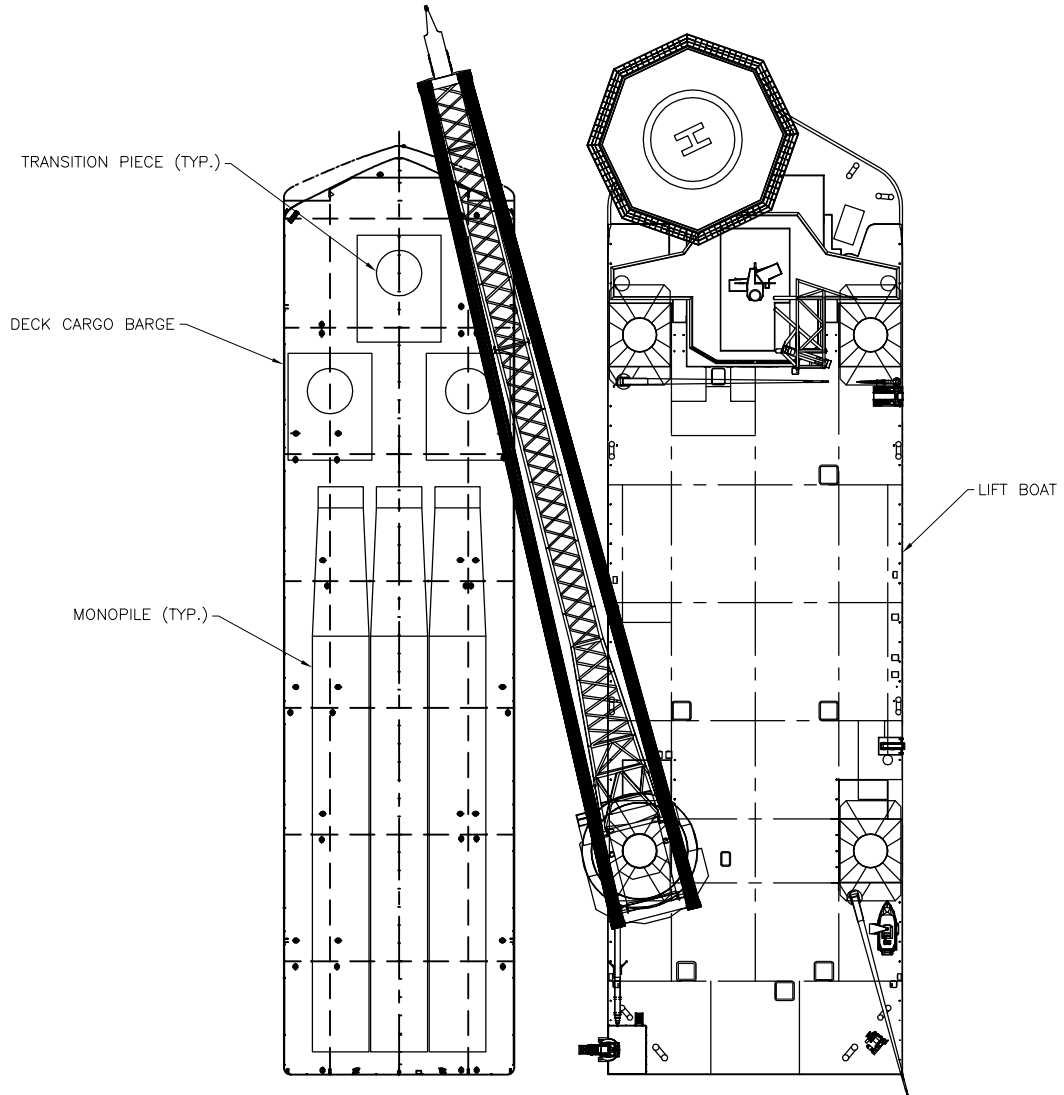
Shallow Depth / Cable Crossing



**SOUTH FORK WIND FARM
MONOPILE FOUNDATION CONCEPT
MONOPILE ELEVATION**

- NOTES:
1. CONCEPTUAL DESIGN, FOR INFORMATION ONLY.
2. TYPICAL INSTALLATION METHOD USING LIFT BOAT.
ACTUAL DESCRIPTION INCLUDING ALTERNATIVES
INCLUDED IN THE PERMIT APPLICATION.

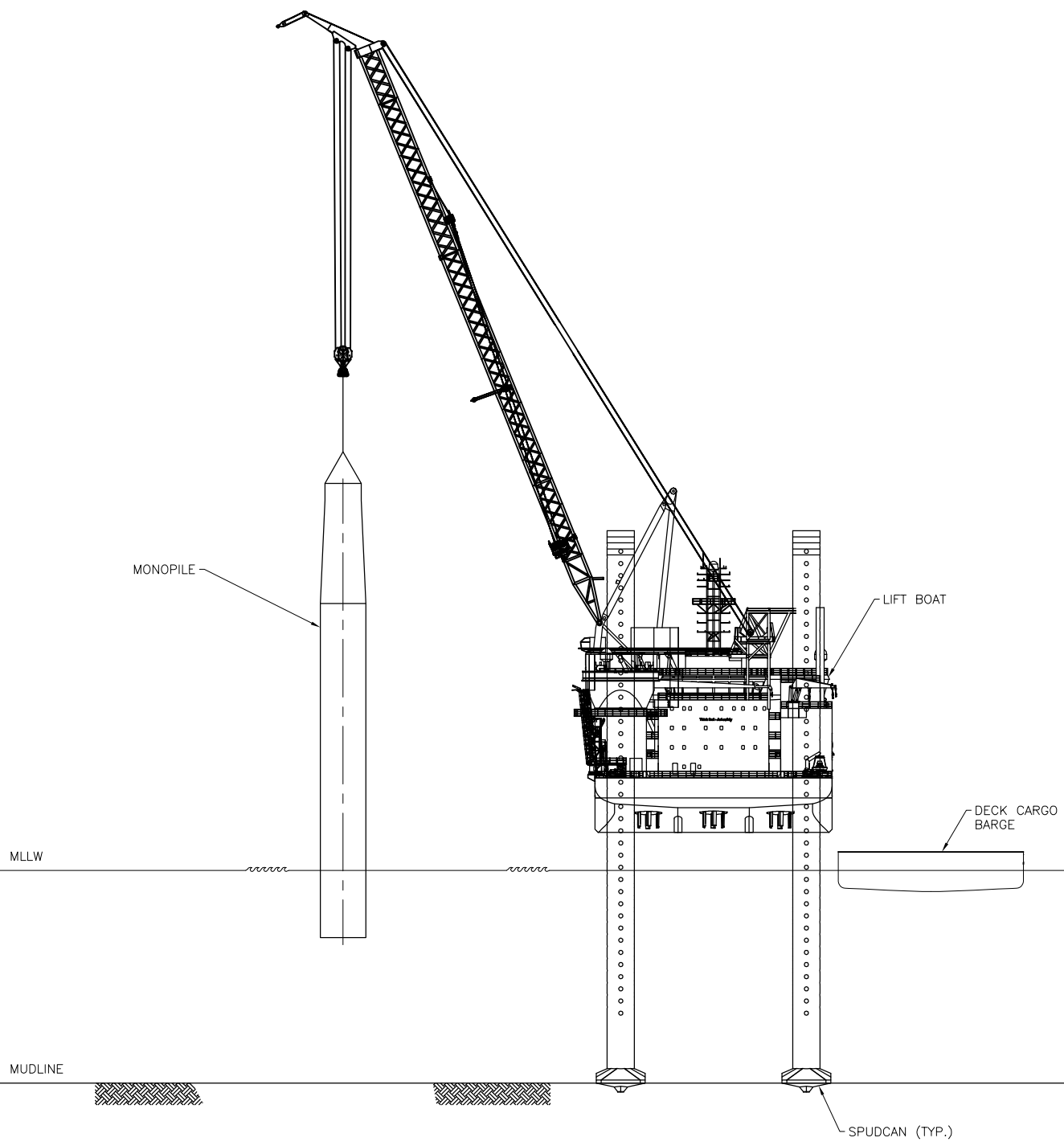




**SOUTH FORK WIND FARM
MONOPILE FOUNDATION CONCEPT
INSTALLATION PLAN**

- NOTES:
1. CONCEPTUAL DESIGN, FOR INFORMATION ONLY.
2. TYPICAL INSTALLATION METHOD USING LIFT BOAT.
ACTUAL DESCRIPTION INCLUDING ALTERNATIVES
INCLUDED IN THE PERMIT APPLICATION.

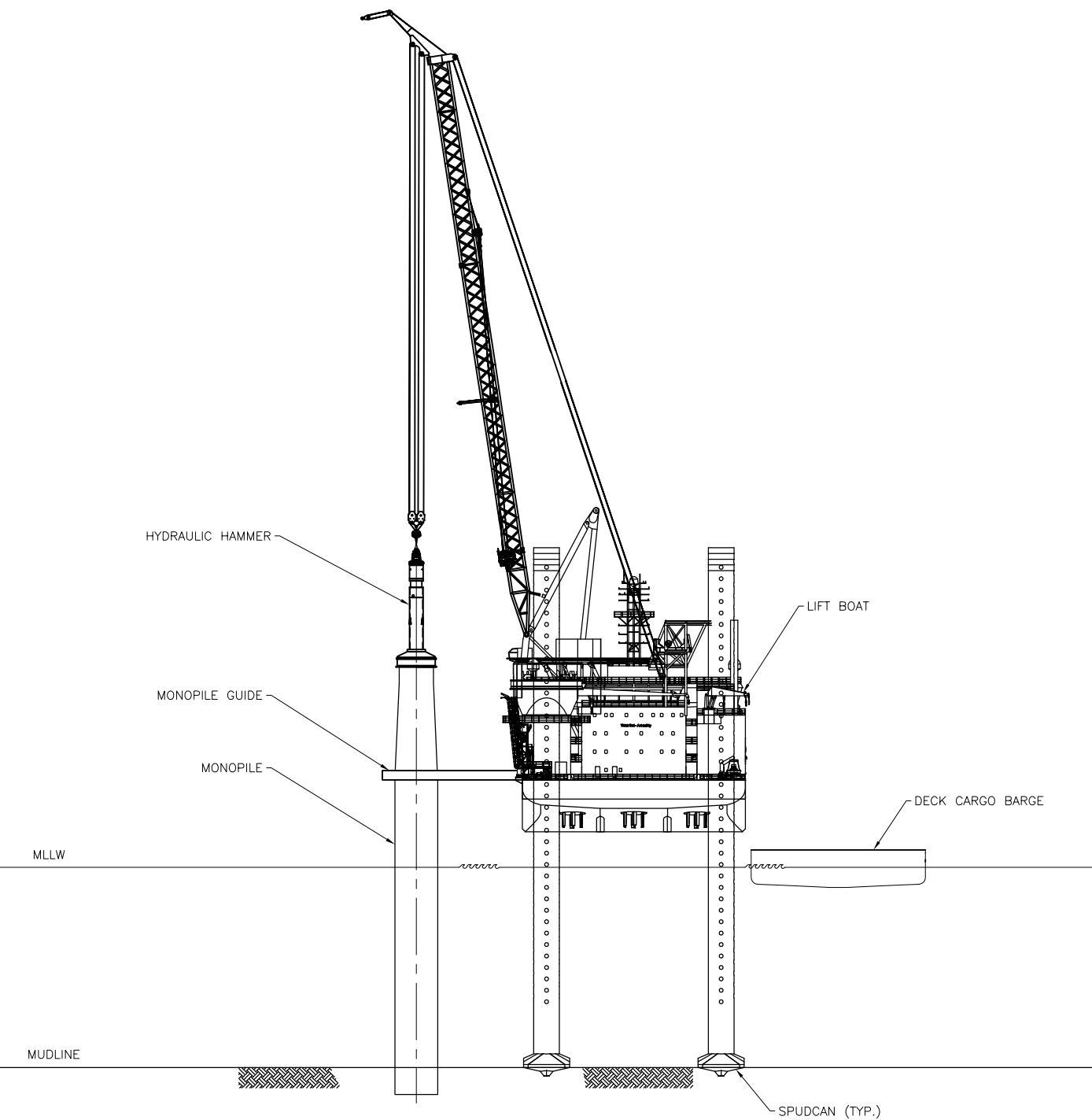




SOUTH FORK WIND FARM MONOPILE FOUNDATION CONCEPT MONOPILE INSTALLATION ELEVATION

- NOTES:
1. CONCEPTUAL DESIGN, FOR INFORMATION ONLY.
2. TYPICAL INSTALLATION METHOD USING LIFT BOAT.
ACTUAL DESCRIPTION INCLUDING ALTERNATIVES
INCLUDED IN THE PERMIT APPLICATION.

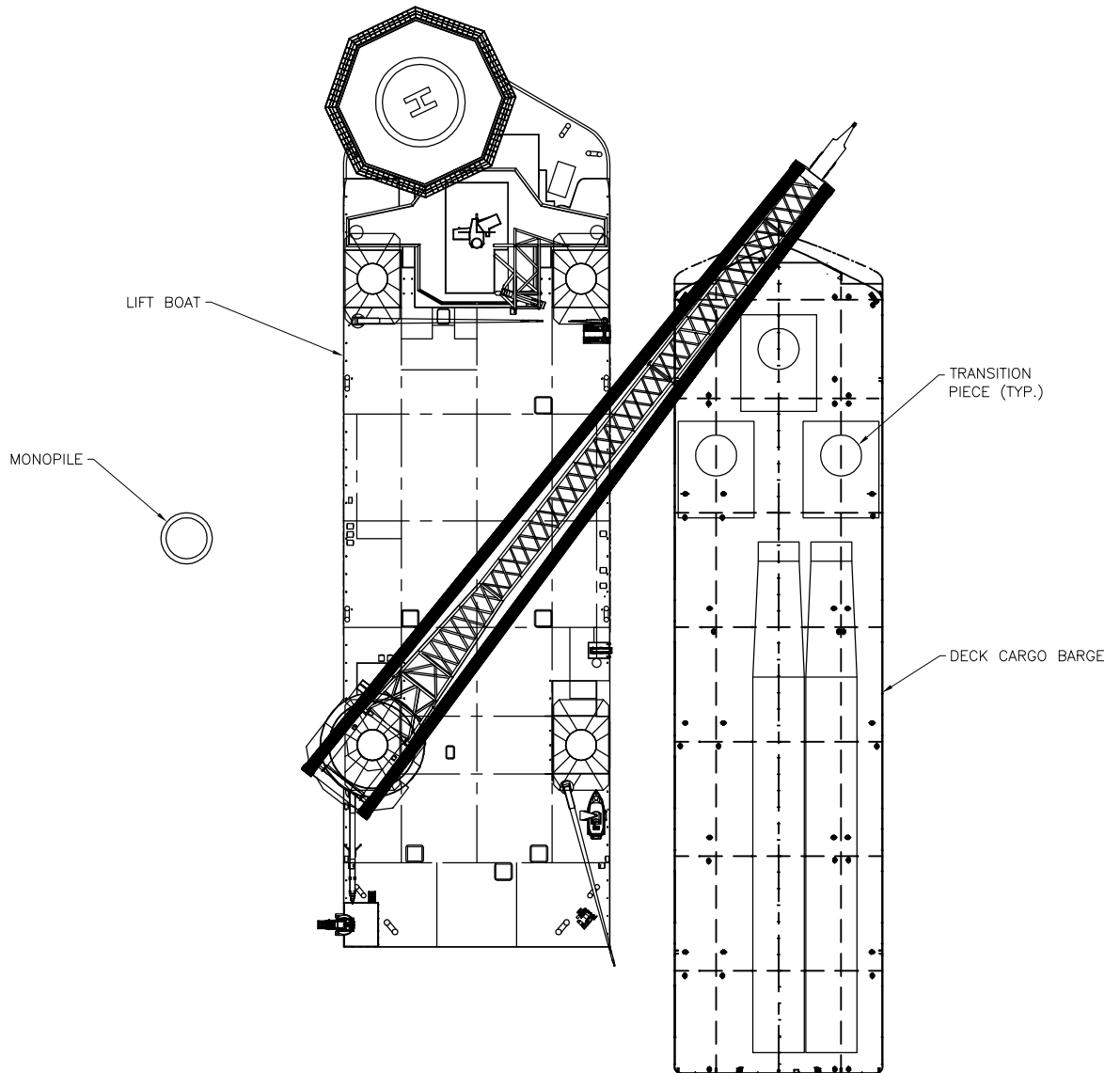




**SOUTH FORK WIND FARM
MONOPILE FOUNDATION CONCEPT
MONOPILE DRIVING ELEVATION**

NOTES:

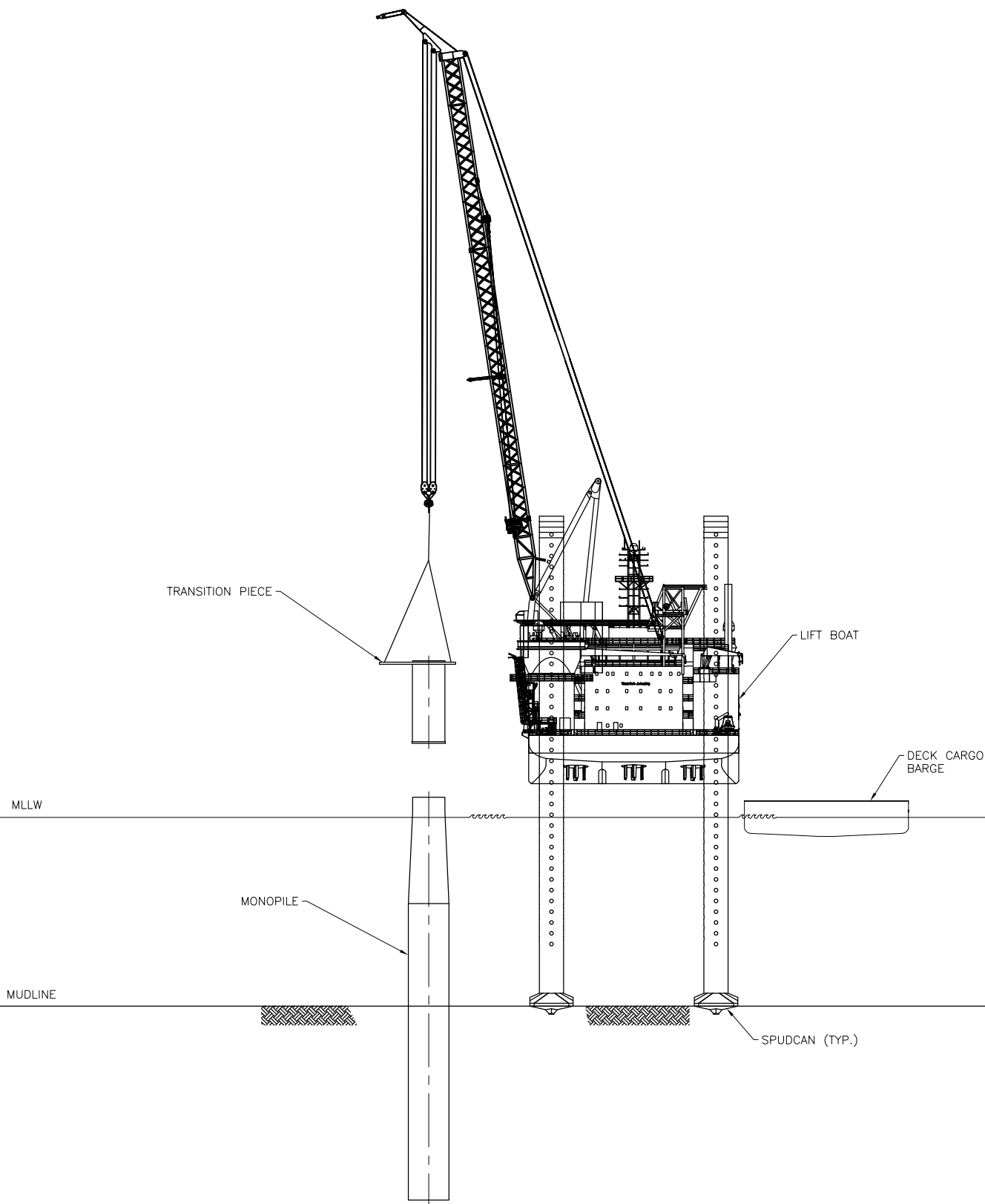
- 1. CONCEPTUAL DESIGN, FOR INFORMATION ONLY.
- 2. TYPICAL INSTALLATION METHOD USING LIFT BOAT. ACTUAL DESCRIPTION INCLUDING ALTERNATIVES INCLUDED IN THE PERMIT APPLICATION.



SOUTH FORK WIND FARM
MONOPILE FOUNDATION CONCEPT
RETRIEVING TRANSITION PIECE
PLAN

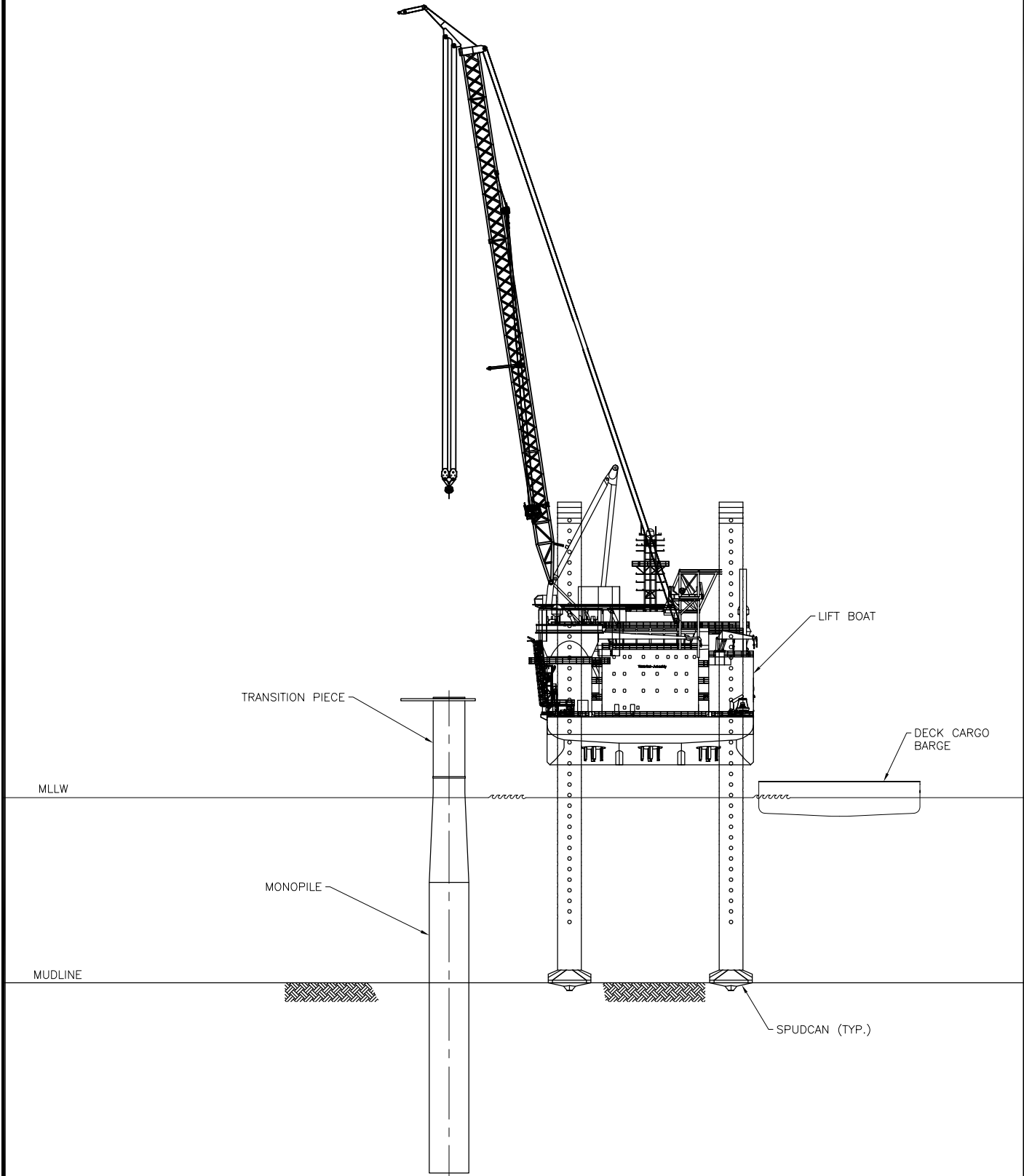
NOTES:

1. CONCEPTUAL DESIGN, FOR INFORMATION ONLY.
2. TYPICAL INSTALLATION METHOD USING LIFT BOAT. ACTUAL DESCRIPTION INCLUDING ALTERNATIVES INCLUDED IN THE PERMIT APPLICATION.



**SOUTH FORK WIND FARM
MONOPILE FOUNDATION CONCEPT
INSTALLING TRANSITION PIECE
ELEVATION**

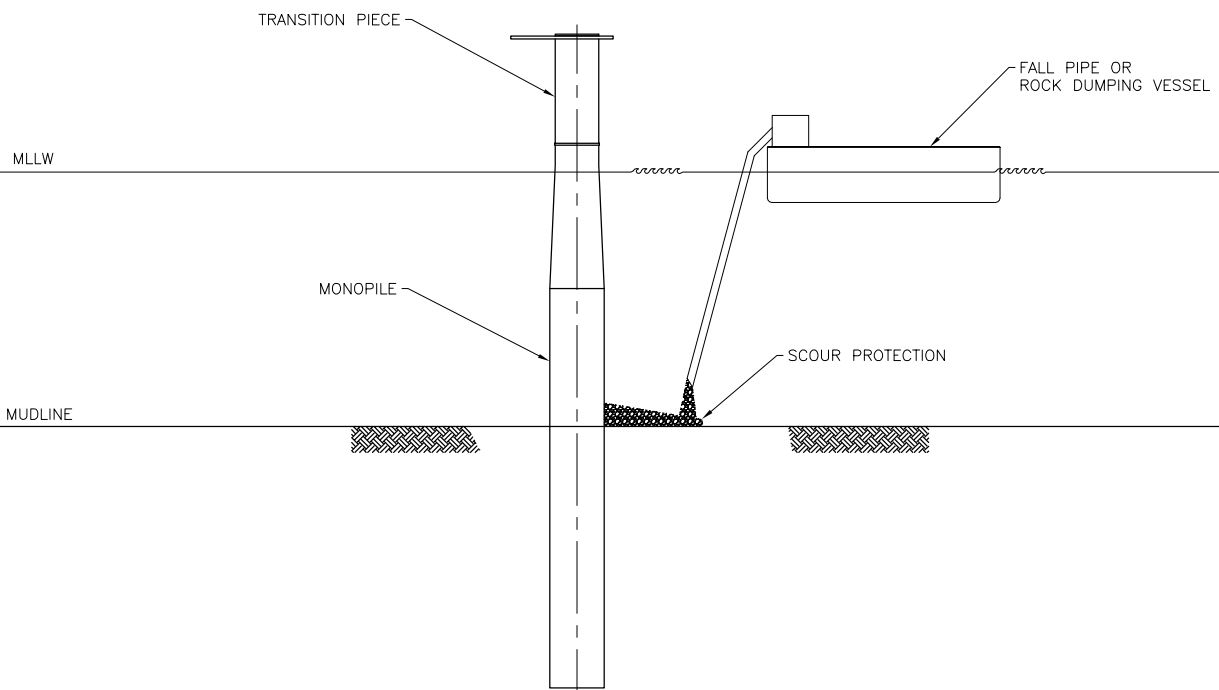
- NOTES:
1. CONCEPTUAL DESIGN, FOR INFORMATION ONLY.
2. TYPICAL INSTALLATION METHOD USING LIFT BOAT.
ACTUAL DESCRIPTION INCLUDING ALTERNATIVES
INCLUDED IN THE PERMIT APPLICATION.



**SOUTH FORK WIND FARM
MONOPILE FOUNDATION CONCEPT
BOLT INSTALLATION ELEVATION**

- NOTES:
1. CONCEPTUAL DESIGN, FOR INFORMATION ONLY.
2. TYPICAL INSTALLATION METHOD USING LIFT BOAT.
ACTUAL DESCRIPTION INCLUDING ALTERNATIVES
INCLUDED IN THE PERMIT APPLICATION.

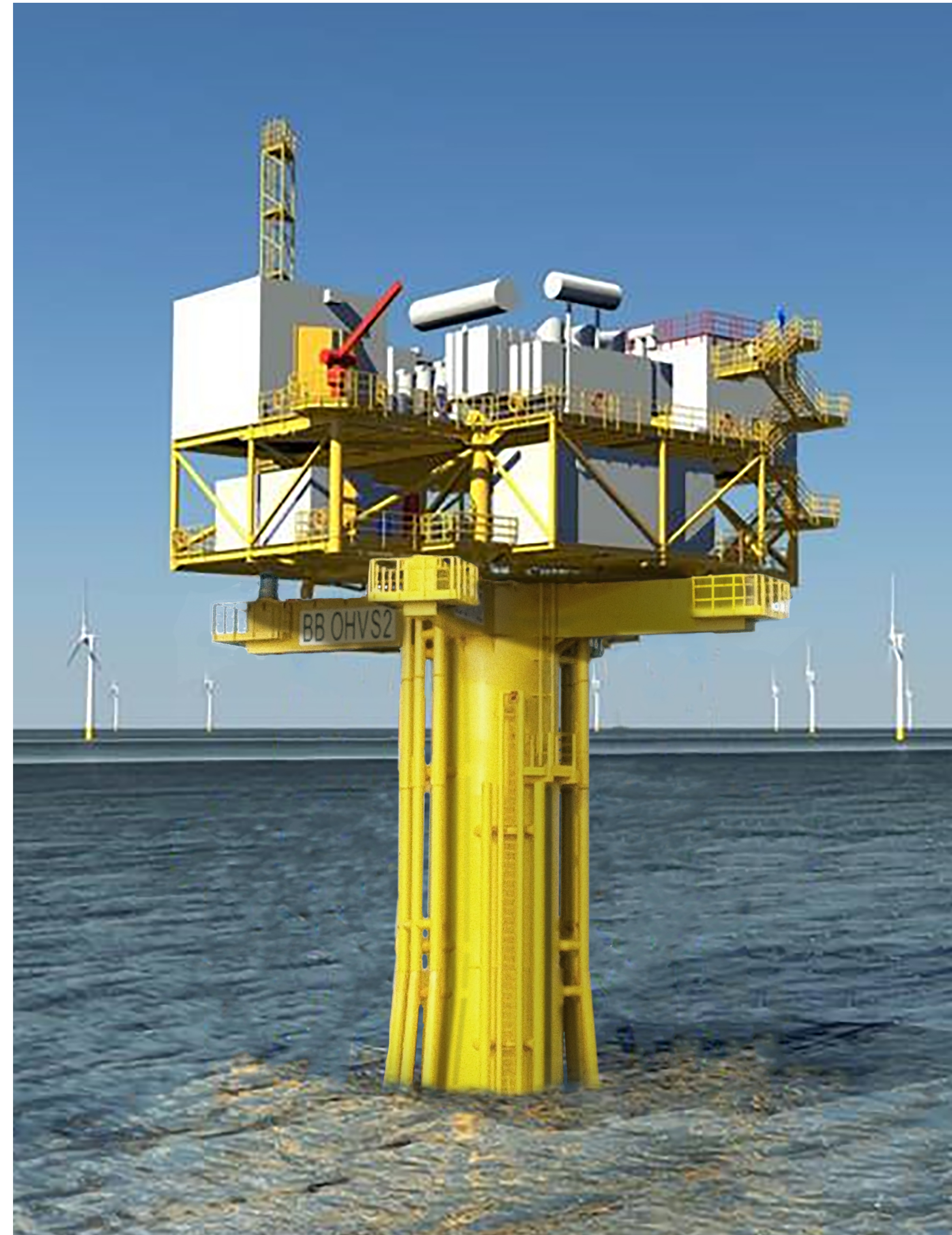




**SOUTH FORK WIND FARM
MONOPILE FOUNDATION CONCEPT
SCOUR PROTECTION INSTALLATION
ELEVATION**

- NOTES:
1. CONCEPTUAL DESIGN, FOR INFORMATION ONLY.
2. TYPICAL INSTALLATION METHOD USING LIFT BOAT.
ACTUAL DESCRIPTION INCLUDING ALTERNATIVES
INCLUDED IN THE PERMIT APPLICATION.





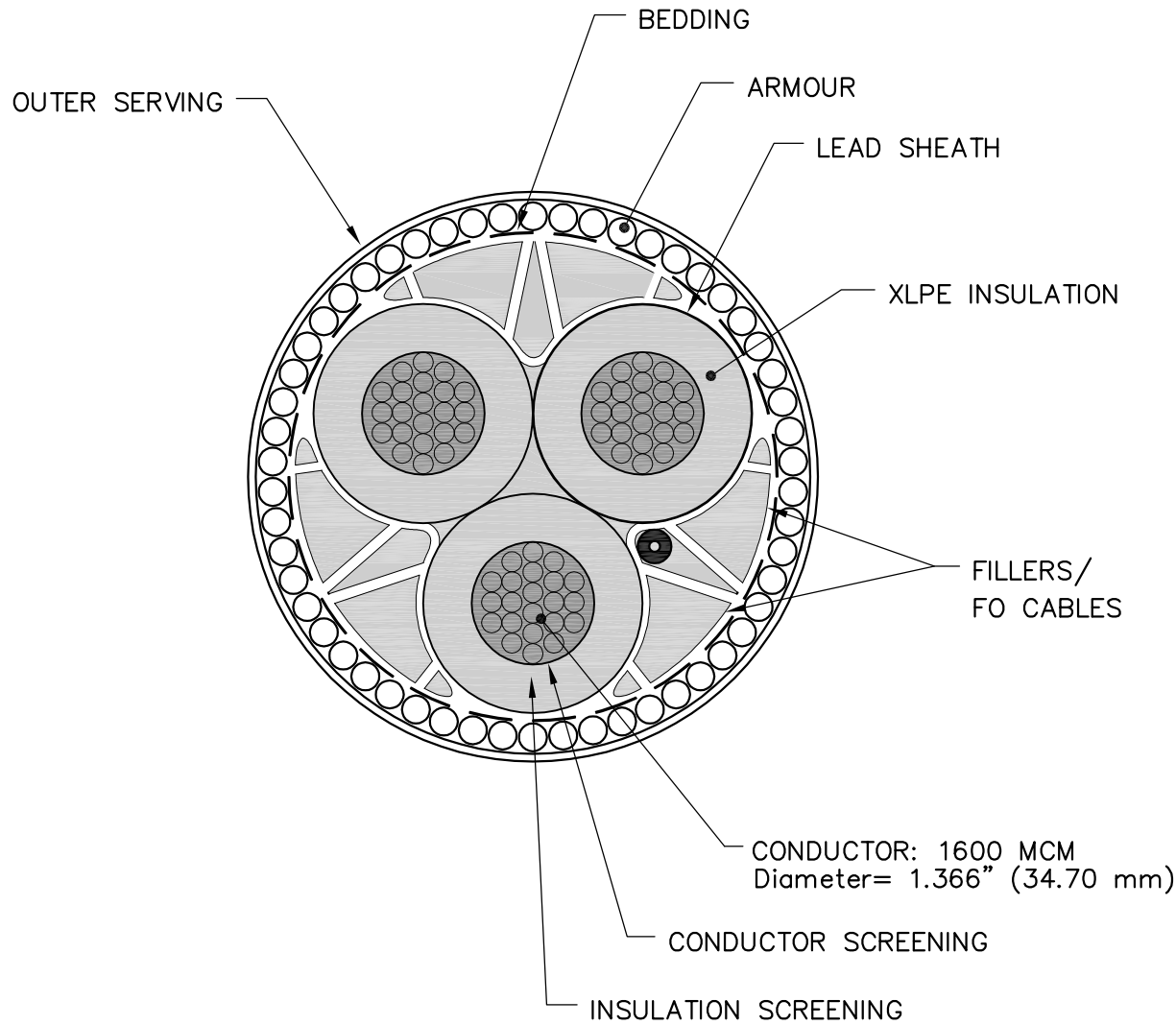
1	10 April 2018 rendering by IV-AGA

**SOUTH FORK WIND FARM OSS
OFFSHORE SUB STATION**

LAST SAVE: 2018/05/23 - 2:27pm
 PATH: \\sp.snc.lavalin.com@SSL\Drawings\47-Electrical\47DD-Drawings\47DD-0003 34.5kV cable cross section\Rev D\648902-0000-47DD-0003_D.dwg

Notes:

1. The inner layers dimensions will be provided by the manufacturer.
2. Outer serving diameter range is 6" to 12" (152 to 304mm) approximately.

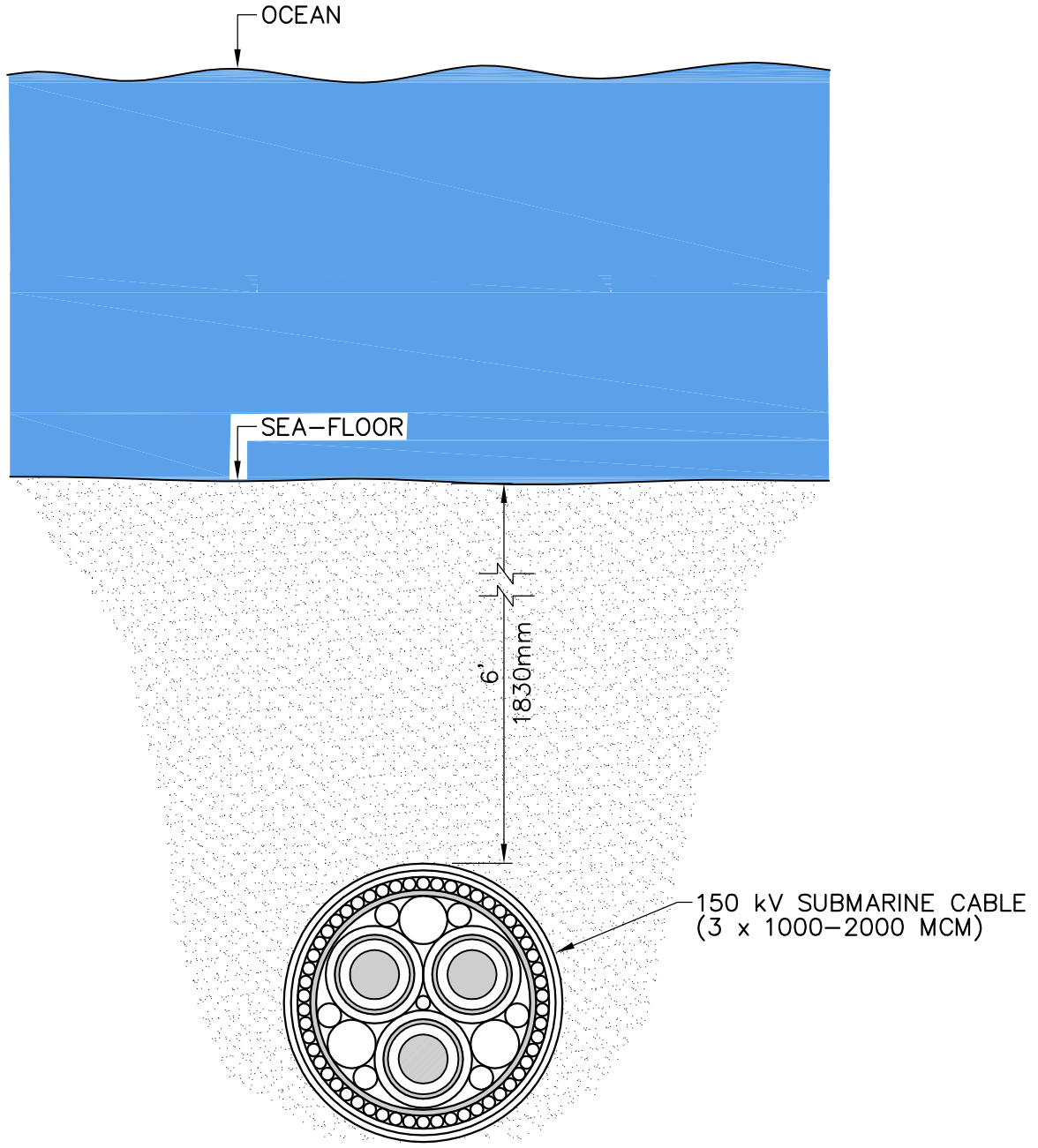


D	RE-ISSUED FOR C.O.P. SUBMISSION	18/05/23	A.P.	C.L.
C	ISSUED FOR C.O.P. SUBMISSION	18/05/08	A.P.	C.L.
B	ISSUED FOR CLIENT REVIEW	17/11/24	A.P.	R.A.
A	ISSUED FOR CLIENT REVIEW	17/10/18	A.P.	R.A.
No	REVISION DESCRIPTION	DATE(Y/M/D)	*	**
REVISION REGISTER		* DESIGNED **APPROVED		

	CLIENT	

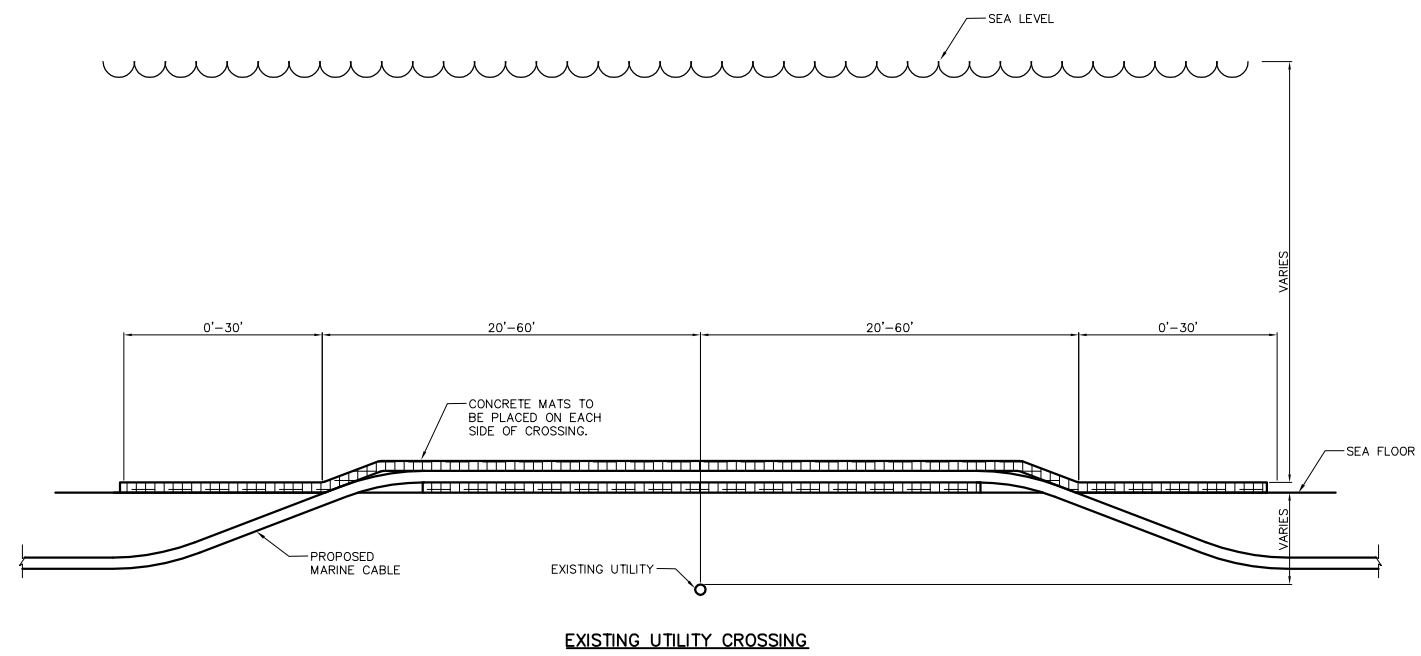
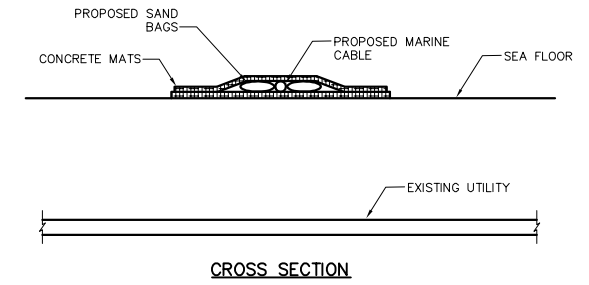
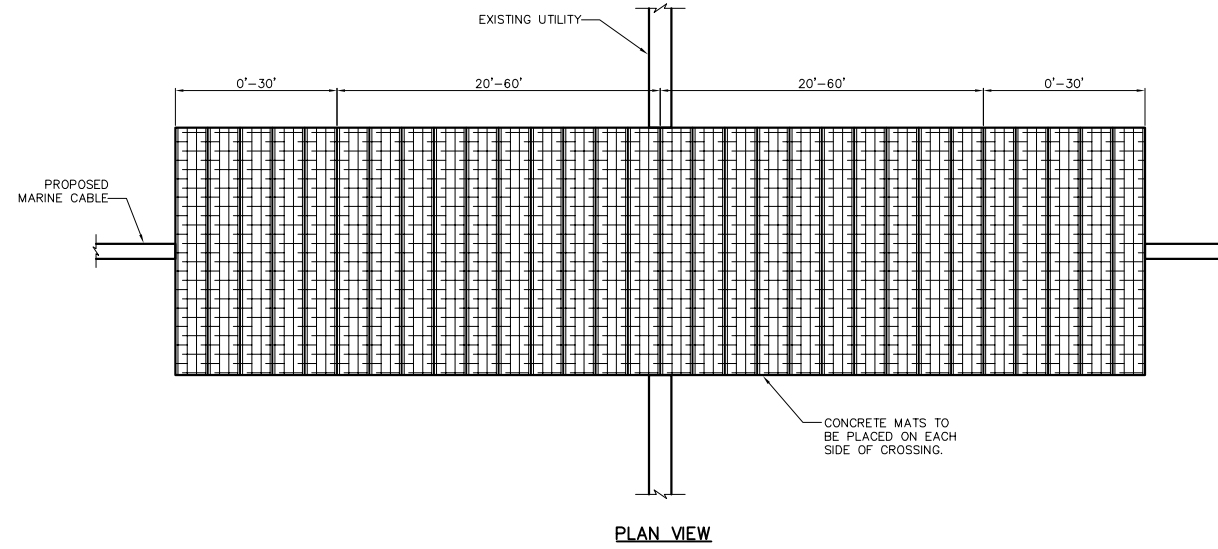
DESIGNED A.P.	PROJECT SOUTH FORK WIND FARM (SFWF)			
DRAWN T.A.	TITLE CABLE CROSS-SECTION 34.5 kV SUBMARINE CABLE (OFFSHORE) 1600 MCM			
CHECKED R.A.	DATE 2017-10-18	APPROVED R.A.	SCALE NTS	
PROJECT No 648902		SUBDIVISION 0000	SUBJECT 47DD	SERIAL 0003
			REV. D	

LAST SAVE: 2018/05/08 - 12:36pm
 PATH: \\sp.snc.lavalin.com@SSL\DavWWWRoot\sites\hdpcaprj-DWWind\Shared Documents\47-Electrical\47DD-Drawings\47DD-0005 offshore cable burial cross section\Rev B\648902-0000-47DD-0005_B.dwg



SUBMARINE CABLE BURIED 6' UNDER SEA-FLOOR

				DESIGNED A.P.	PROJECT SOUTH FORK WIND FARM (SFWF)					
B	ISSUED FOR C.O.P. SUBMISSION	18/05/08	A.P.	C.L.	DRAWN T.A.	TITLE 138kV (NOMINAL), 150kV CLASS CROSS-SECTION (OFFSHORE)				
A	ISSUED FOR CLIENT REVIEW	17/10/18	A.P.	R.A.	CHECKED R.A.					
No	REVISION DESCRIPTION	DATE(Y/M/D)	*	**	APPROVED R.A.	PROJECT No	SUBDIVISION	SUBJECT	SERIAL	REV.
REVISION REGISTER				* DESIGNED	**APPROVED	648902	0000	47DD	0005	B
		CLIENT			DATE 2017-10-18					
					SCALE NTS					



No	REVISION DESCRIPTION	DATE (Y/M/D)	A.P.	C.L.
A	ISSUED FOR CLIENT REVIEW	18/05/08	A.P.	C.L.

	DESIGNED	A.P.
	DRAWN	I.M.
	CHECKED	C.L.
	DATE	2018-05-07
	SCALE	NTS

CLIENT	DEEPWATER WIND SOUTH FORK, LLC
PROJECT	SOUTH FORK WIND FARM (SFWF)
TITLE	UTILITY CROSSING DETAIL TYPICAL
DOCUMENT No.	648902-0000-4700-0017
REV	A

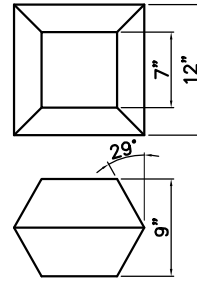
REVISION REGISTER

PROFESSIONAL SEAL

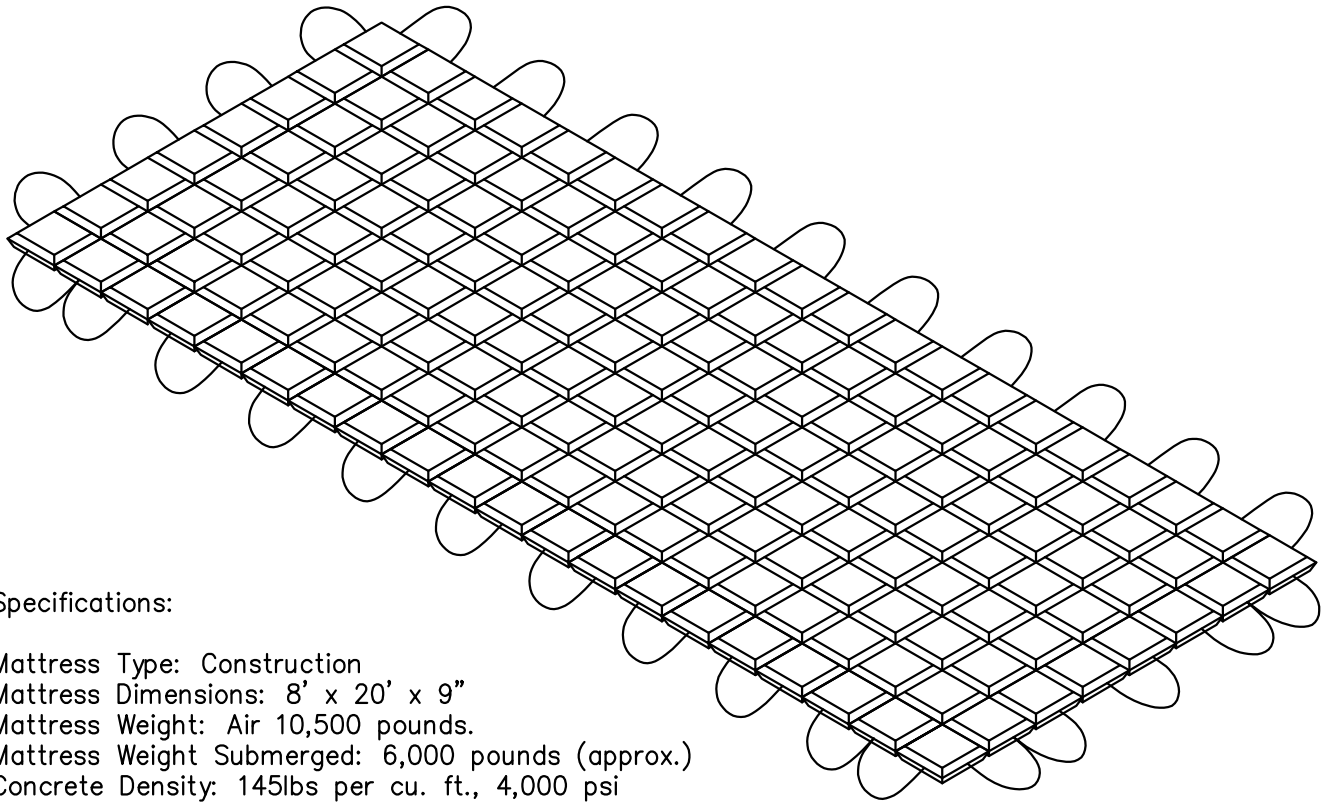
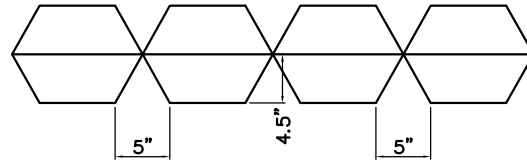
PREPARATION

SHEET OF

LAST SAVE: 2018/05/08 - 12:47pm
 PATH: \\sp1.snc.lavalin.com\SSL\Drawings\47-Electrical\47DD-Drawings\47DD-0016 Concrete Mattress\Rev A\648902-0000-47DD-0016_A.dwg



INDIVIDUAL ELEMENT



Specifications:

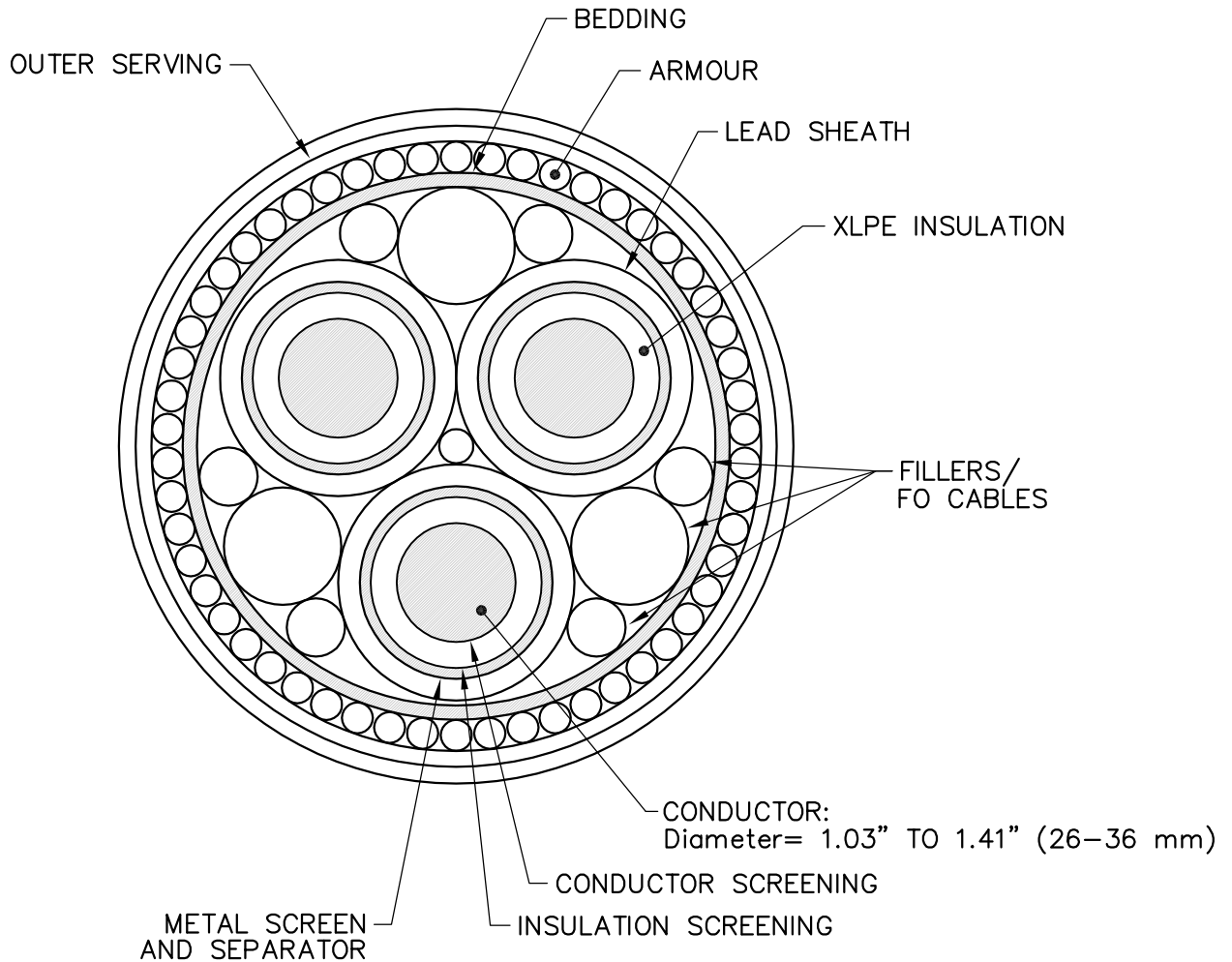
Mattress Type: Construction
 Mattress Dimensions: 8' x 20' x 9"
 Mattress Weight: Air 10,500 pounds.
 Mattress Weight Submerged: 6,000 pounds (approx.)
 Concrete Density: 145lbs per cu. ft., 4,000 psi
 160 Elements: 5/8" Ultra Violet stabilized copolymer
 extruded fiber rope, minimum tensile
 strength 9,500 pounds.

				DESIGNED A.P.	PROJECT SOUTH FORK WIND FARM (SFWF)					
				DRAWN I.M.	TITLE 9" CONCRETE MATTRESS					
A ISSUED FOR CLIENT REVIEW				18/05/08	A.P.	C.L.				
No	REVISION DESCRIPTION	DATE(Y/M/D)	*	**	CHECKED C.L.					
REVISION REGISTER		* DESIGNED	**APPROVED		APPROVED C.L.					
CLIENT					DATE 2018-05-07					
					SCALE NTS	PROJECT No 648902	SUBDIVISION 0000	SUBJECT 47DD	SERIAL 0016	REV. A

LAST SAVE: 2018/05/23 - 2:26pm
 PATH: \\sp1.snc.lavalin.com\SSL\Drawings\47DD-0004 138kV offshore cable cross section\Rev C\648902-0000-47DD-0004_C.dwg

Notes:

1. The inner layers dimensions will be provided by the manufacturer.
2. Outer serving diameter range is 6" to 12" (152 to 304mm) approximately.



C	RE-ISSUED FOR C.O.P. SUBMISSION	18/05/23	A.P.	C.L.	DESIGNED A.P.	PROJECT SOUTH FORK WIND FARM (SFWF)					
B	ISSUED FOR C.O.P. SUBMISSION	18/05/08	A.P.	C.L.	DRAWN T.A.	TITLE CABLE CROSS-SECTION					
A	ISSUED FOR CLIENT REVIEW	17/10/18	A.P.	R.A.	CHECKED R.A.	138 kV NOMINAL - 150kV CLASS SUBMARINE CABLE (OFFSHORE)					
No	REVISION DESCRIPTION	DATE(Y/M/D)	*	**	APPROVED R.A.	1000-2000 MCM					
REVISION REGISTER					* DESIGNED	**APPROVED	PROJECT No	SUBDIVISION	SUBJECT	SERIAL	REV.
CLIENT		SNC-LAVALIN			SOUTH FORK WIND FARM		648902	0000	47DD	0004	C
					DATE 2017-10-18						
					SCALE 1:2						