



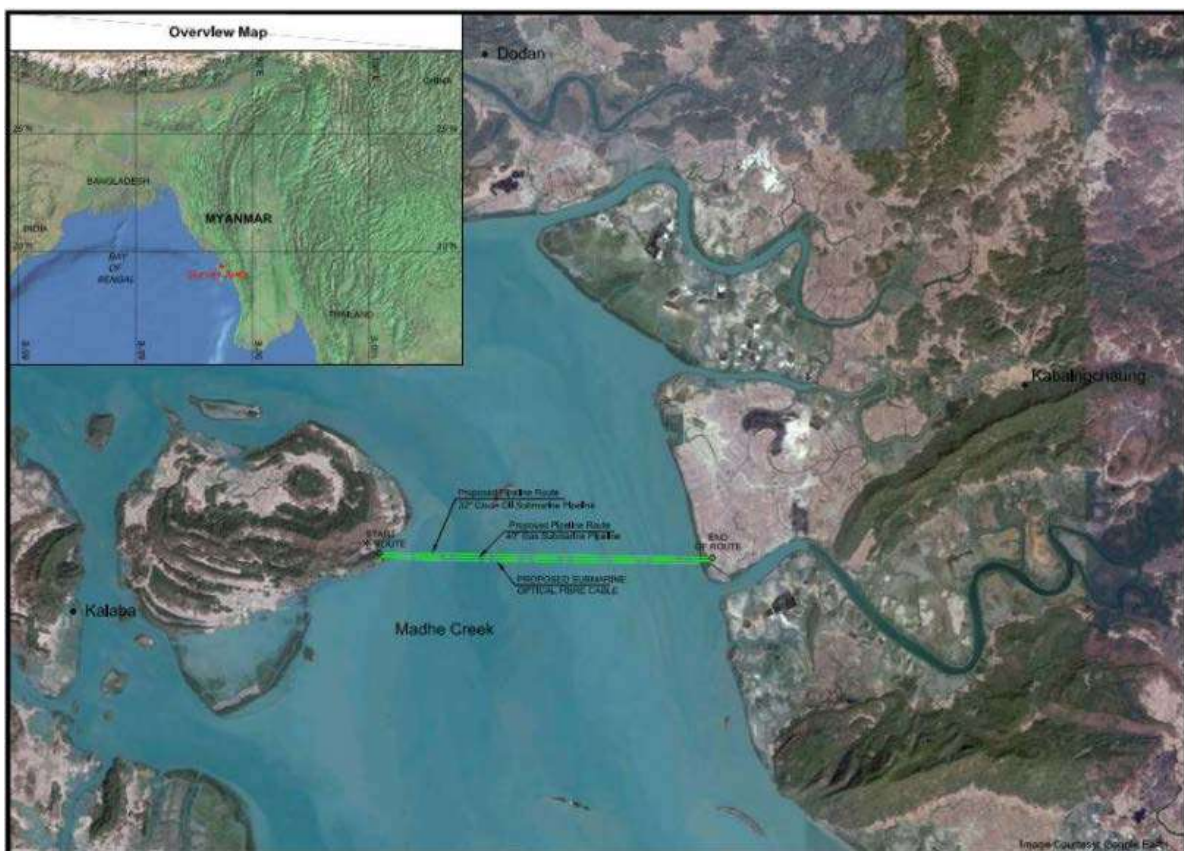
**68 PUNJ LLOYD LTD /
DHARTI DREDGING AND
INFRASTRUCTURE LTD
MYANMAR CHINA OIL GAS
PIPELINE PROJECT**

68 Punj Lloyd Ltd/ Dharti Dredging and Infrastructure Ltd – MYANMAR PROJECT (MYANMAR)

1 General project Overview and Reference

The project consisted of the following three lines:

- The submarine oil and gas pipeline of Myanmar-China oil-gas pipeline project lies on the first leg of the main trunk, or rather starts at sea around Made Island (93°41'E, 19°21'N) and connects up to the onshore pipelines on the east side of Made Island, passing through Fletcher Hayes' Channel; it then connects to the onshore pipeline again, totalling 5.56km. The deepest water depth is 22 meters, and the design pressure of both pipelines (**32" crude oil** and **40" gas pipeline**) is 10 MPa.
- The **submarine fibre-optic cable** connects to the cable on land, on the east side of Made Island; from there, it runs across Fletcher Hayes strait and then connects to the fibre-optic cable on land. The submarine cable is made of 48 cores, G.652 steel-wire clad fibre-optic cable; the line is 5.56km.



Myanmar – Pipelines and cable Routes

2 Scope of work



Post-trenching and laying activities **FROM JANUARY 2013 UNTIL APRIL 2013:**

- **POST-TRENCHING 40" + 32" – 9.078 METERS**
- **LAYING AND POST-TRENCHING OPTICAL CABLE – 5.509M**

DP-2 vessel Iskatel-2 was used as TSV.

SEA post-trenched the 40" and 32" pipelines down to 2 m TOP.

Once the pipelines were buried, SEA laid and trenched the FOC down to 3 m TOC.

Product	Zone	Operation	KP Start	KP End	Length (approx m)	Burial Depth (m) TOP/TOC	From W.D. (approx m)	To W.D. (approx m)
40" gas pipeline	From Made Island to Myanmar	Post-trenching	0,740	5,245	4505	2	22	4
32" oil pipeline	From Made Island to Myanmar	Post-trenching	0,725	5,252	4527	2	22	4
Shallow-type submarine cable (OD. 34mm)	From Made Island to Myanmar Land	Laying	0,000	5,513	5513	N.A.	22	0
	From Made Island to Myanmar Land	Post-trenching	0,687	5.150	4.463	3	22	4

3 Encountered Soil condition

For the routing area seabed section and east side landing section, SEA S.r.l. encountered soft soil and underlying Quarternary system clay.

For the west side offshore section and landing section, the surface layer is Quarternary system coastal soil and underlying Tertiary mudstone and sandstone layer.

The following is a list of various soils encountered during the trenching activities:

- 1 A layer of mucky clay containing shells
- 2 A layer of silty clay
- 3 A layer of mucky silty clay
- 4 A layer of sand with broken shells
- 5 A layer of peaty soil
- 6 A layer of soft plastic to plastic clay
- 7 A layer of still clay
- 8 Boulders of weathered sandstone and mudstone.

This material was only expected in the pre-trenched areas, but SEA encountered it along the post-trenching route too.

4 Photos at worksite



Kasbian" jetty



Work site – Made Island side



Trenching Support Vessel – DP2 "Iskatel-2"



LEO PTM



MACRO PTM for FOC laying and trenching operations

5 Reference

DHARTI DREDGING AND INFRASTRUCTURE LTD.

Regd. & Corporate Office :

6-3-1113/2, DDIL Bhavan, B.S. Maktha, Begumpet, Hyderabad-500 016, INDIA.

Tel:+91-40-2341 7506, Fax:+91-40-2341 7507,E-mail: info@dharti.in; www.dharti.in

CIN NO : U45201TG1993PLC057762



COMPLETION CERTIFICATE

M/s Dharti Dredging and Infrastructure Limited hereby confirm that:

SEA Srl, registered address Via Mariani 44/46, 48121 – Ravenna (RA), Italy, P/IVA 1206570390, awarded the subcontract for the SUB MARINE PIPELINE PROJECT (CHINA MYANMAR PIPELINE PROJECT), for the provision of the vessel and laying / trenching spreads in order to carry out the following activities:

- Post lay trenching works of 4,505 km of 40" gas pipeline to a minimum of 2m TOP;
- Post lay trenching works of 4,527 km of 32" oil pipeline to a minimum of 2m TOP;
- Laying works of 5,513 km of optical cable;
- Trenching works of 4,416 km of optical cable to a minimum of 3m TOC;

The works have been performed and completed in full compliance with the final provision of the Subcontract Scope of Work and to the complete satisfaction of M/s Dharti Dredging and Infrastructure Limited.

For, M/s Dharti Dredging And Infrastructure Ltd.



Dr. V.V.Reddy
Executive Director