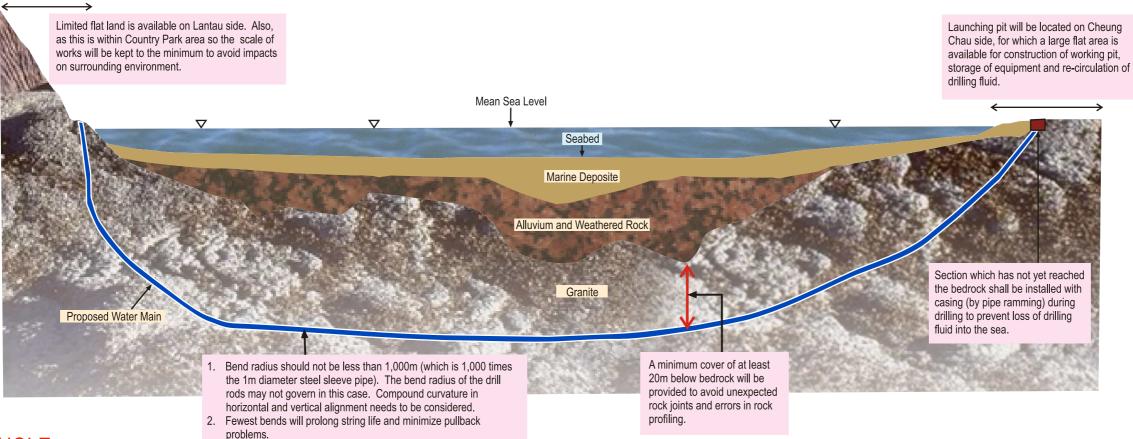
## **DRILL PATH DESIGN**



**PILOT HOLE** 

To avoid misalignment, advanced Global Positioning System (GPS) for survey control is required. Based on Proposed Water Main to be connected to Ma Wan experience, multiple survey techniques on site Existing Fresh Water Main (250 DI (W 8235.01)) are prudent. A combination of gyroscopic tools, TruTracker and ParaTrack with magnetic guidance Forward reaming is recommended to avoid any survey (MGS) tool should be considered. drilling fluid leaking out on the Lantau side. The pilot hole will not be drilled completely through the rock shore on the Lantau side but just up to a Mean Sea Level few metres below ground level. Seabed Marine Deposite Alluvium and Weathered Rock Granite Proposed Water Main Control of the drill head should be continuously calculated and updated based on the survey data Steering tool received as the drill head is advanced. Accuracy in reaching the target position can then be assured.

6. For drilling in hard rock for this submarine pipeline, mud motor bits (i.e. drag bits) should be considered. Output torque and drilling fluid volume and pressure requirements are most important.

Loss of circulation of drill fluiding - if voids or cavities are encountered, circulation can be lost very quickly. Drilling fluid tanks will be rapidly depleted and there is a high risk the drill string will become stuck. It is usually not possible to locate those cavities during site investigation but the possibility of encountering voids may be identified as a risk during the investigation. Grouting is necessary to overcome loss of drilling mud.

Revision	Date		Description		Initial
	Designe	d	Checked	Drawn	Checked
Initial					
Date					

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Agreement

CE 1/2008 (WS)

Contract Title

IMPROVEMENT OF FRESH WATER SUPPLY TO CHEUNG CHAU — INVESTIGATION

Drawing Title

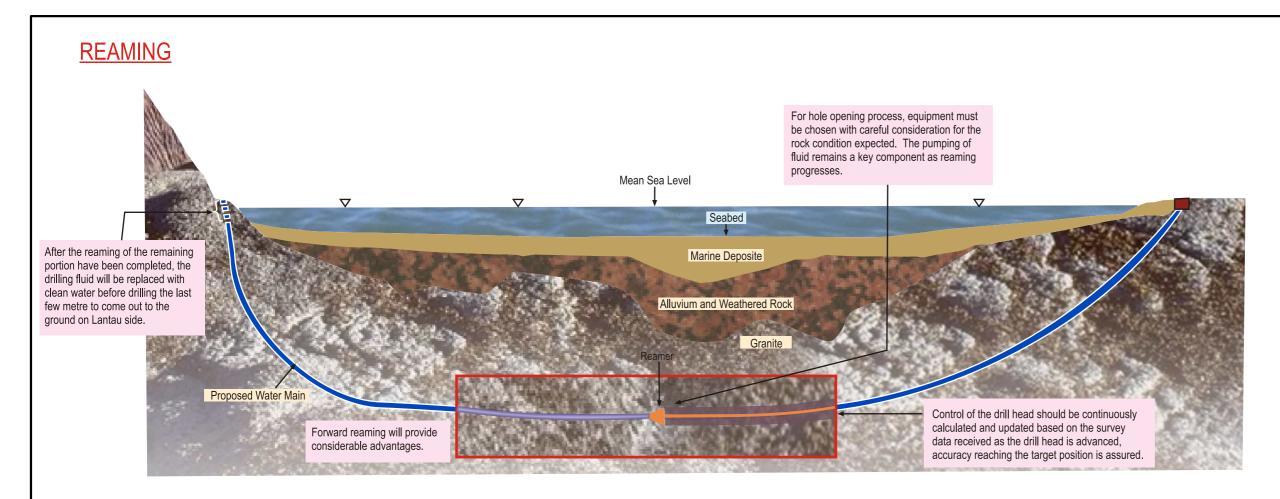
TYPICAL HDD PROCEDURES FOR THIS PROJECT (SHEET 1 OF 2)

FIGURE 2.8

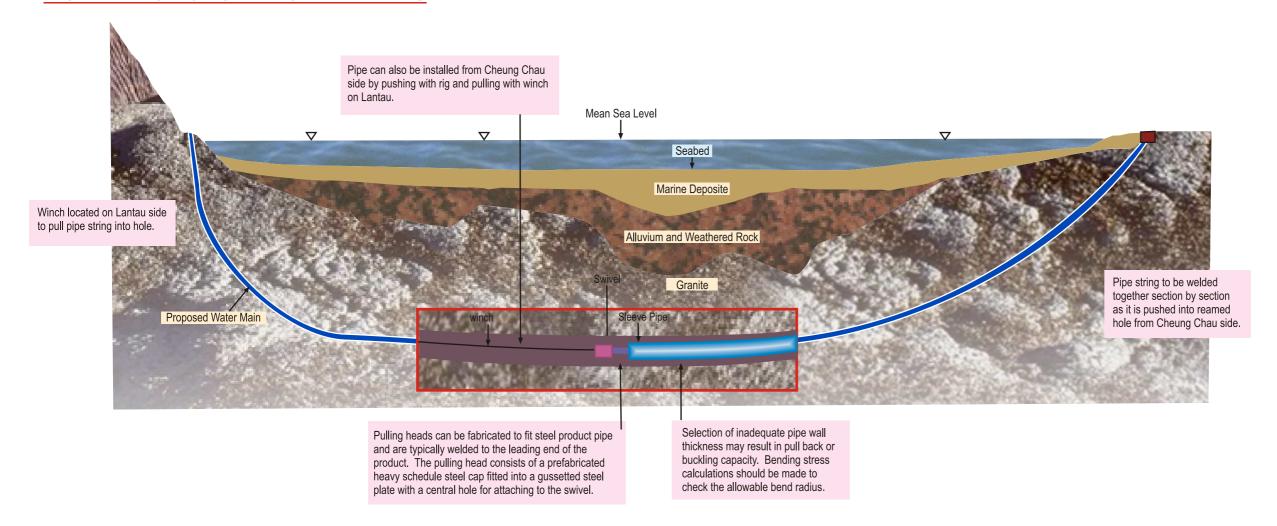
Scale



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## **INSTALLATION OF STEEL SLEEVE PIPES**



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Initial									
Date									

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Drawing Title

TYPICAL HDD PROCEDURES FOR THIS PROJECT (SHEET 2 OF 2)

FIGURE 2.8

Scale



