HONG KONG PILOTAGE ADVISORY COMMITTEE

PAC Paper No. 1 /99

Alignment of the Tsing Lung Suspension Bridge

Purpose

1. The purpose of this paper is to advise members of the proposed alignment of the Tsing Lung Bridge which is a section of the Route 10 (North Lantau Yuen Long Highways) that will form part of the strategic route between Hong Kong Island and Yuen Long. The Marine Impact Assessment Study for the Feasibility Study of the bridge was presented to the Pilotage Advisory Committee on 14 May 1997 (PAC Paper No. 4/97).

Background

2. The Tsing Lung Bridge carries Route 10 over the Ma Wan Channel between the Kwai Shek headland to the south and Tsing Lung Tau in the north. The alignment is constrainted by the height limitations imposed by the Hong Kong Airport (Control of Obstruction) Ordinance and the marine clearance requirements:-

(a) Feasibility Study Alignment

The alignment developed by the Feasibility Study is straight from Kwai Shek and passes directly over Grand Bay Villa at Tsing Lung Tau. The northern tower is located on an offshore island in the Ma Wan Channel approximately 100m from shore in water depth varying from 18 to 21m. The tower and the protection cells will occupy approximately 3.5% of the cross section of the Ma Wan Channel. This narrowing of the channel could lead to increased congestion and reduced manoeuvring space within the channel.

(b) Preferred Alternative Alignment

The proposed alignment is from Kwai Shek to the west of Grand Bay Villa at Tsing Lung Tau. The location of the Tsing Lung Bridge is shown in Annex 1. The southern tower of the Tsing Lung Bridge is located above the high water level on the Kwai Shek headland in North Lantau. This will not have any impact on the navigation channel. The northern tower of the Tsing Lung Bridge is located approximately 50m from the coast, on reclamation constructed in shallow water of up to 10m depth. This is shown in Annex 2. The reclamation for the northern tower represents approximately 1.5% of the Ma Wan Channel cross section. However, the permanent work will not encroach into the main navigational channel and so there should be no impact on the marine navigation.

(c) Marine Clearance

The proposed alignment spans across the Ma Wan Channel and maintains a marine clearance envelope below the bridge deck of +62.1mPD to permit passage of all registered shipping. The proposed location of the towers gives a clear main span distance of 1418m. The main navigational channel is therefore not affected. (Annex 3).

(d) Structural Form

The Tsing Lung Bridge will be a suspension bridge, the main span will carry two 11m wide carriageways, each comprising 3 traffic lanes, plus 1m wide marginal strips on each side. Construction of the Tsing Lung Bridge will involve lifting of individual deck units from barges moored directly beneath the line of the bridge. This method is similar to that used for the construction of the Tsing Ma Bridge. Construction programme for the bridge is scheduled to commence in early 2002 for completion by 2007.

(e) Marine Impact Assessment

A Marine Impact Assessment is currently being conducted to assess the traffic conflicts and risk level brought about by the construction and operation of the Tsing Lung Bridge. A Marine Traffic Simulation Model has been prepared which will be used to model a number of scenarios to assess the impact and change in the level of risk resulting from the construction of the Tsing Lung Bridge. The assessment will conclude with recommendations, if necessary, on mitigation measures and re-provisioning of existing marine based facilities.

Advice sought

3. Members are invited to express their views on the Tsing Lung Bridge alignment and any potential impacts it will have on marine operations.

Presentation

4. The consultant for the Route 10 (North Lantau Yuen Long Hightway) Preliminary Design Assignment, Mott Connell Limited, will present the paper.

Marine Department
Planning and Development Branch
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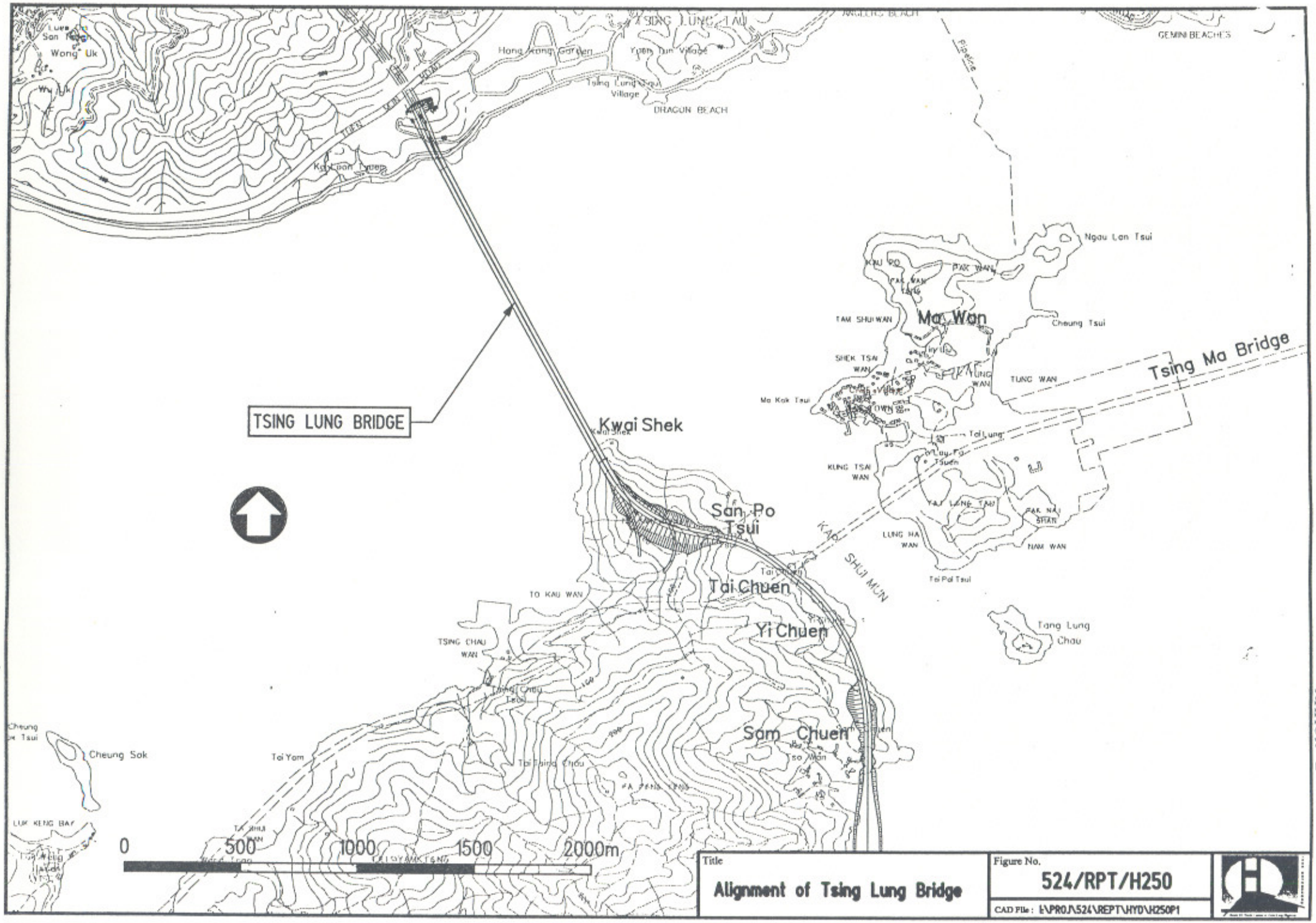

Title

Alignment of Tsing Lung Bridge

Figure No.

524/RPT/H250

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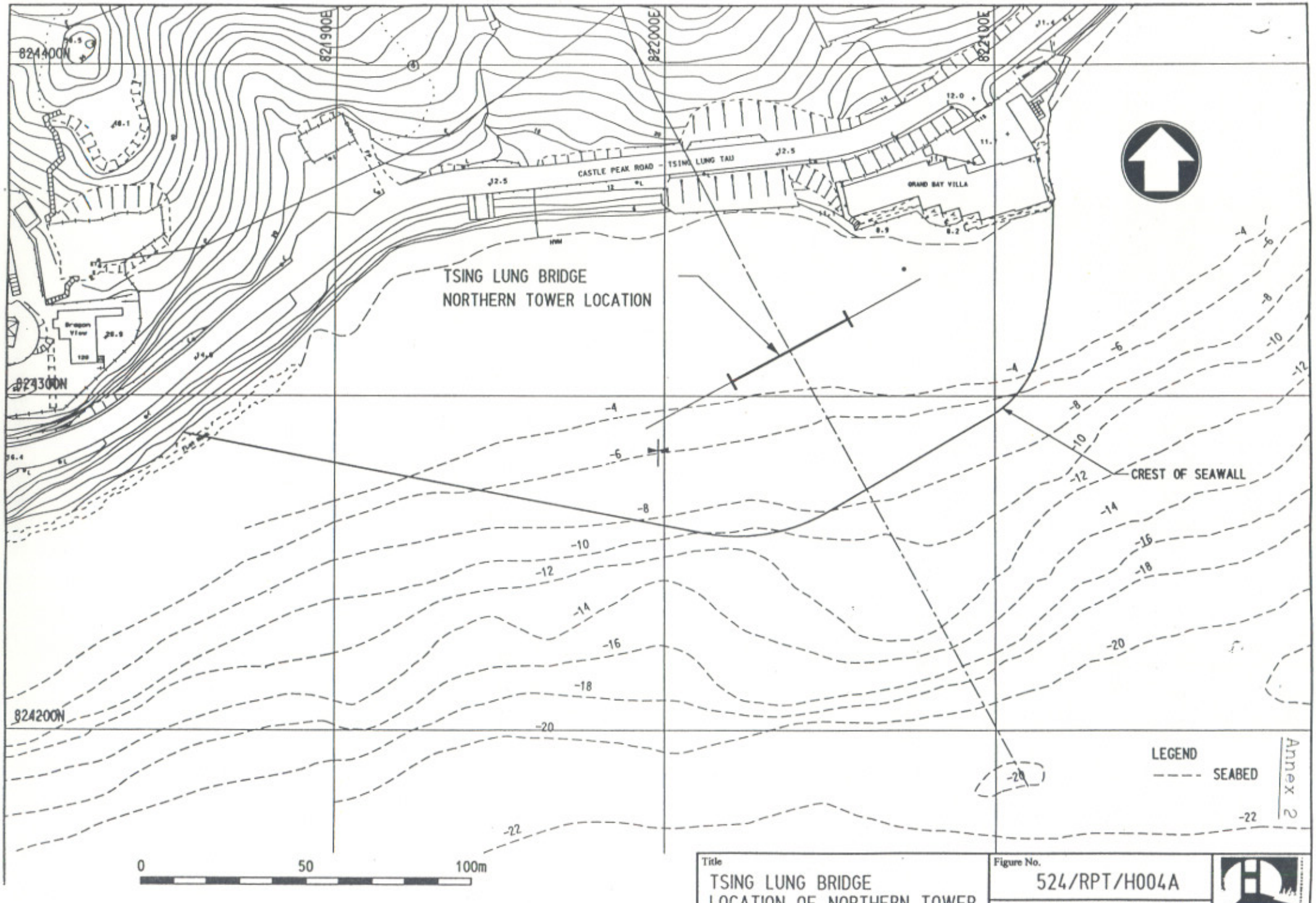
Annex 1



Annex 2

Title	Figure No.
TSING LUNG BRIDGE LOCATION OF NORTHERN TOWER	524/RPT/H004A
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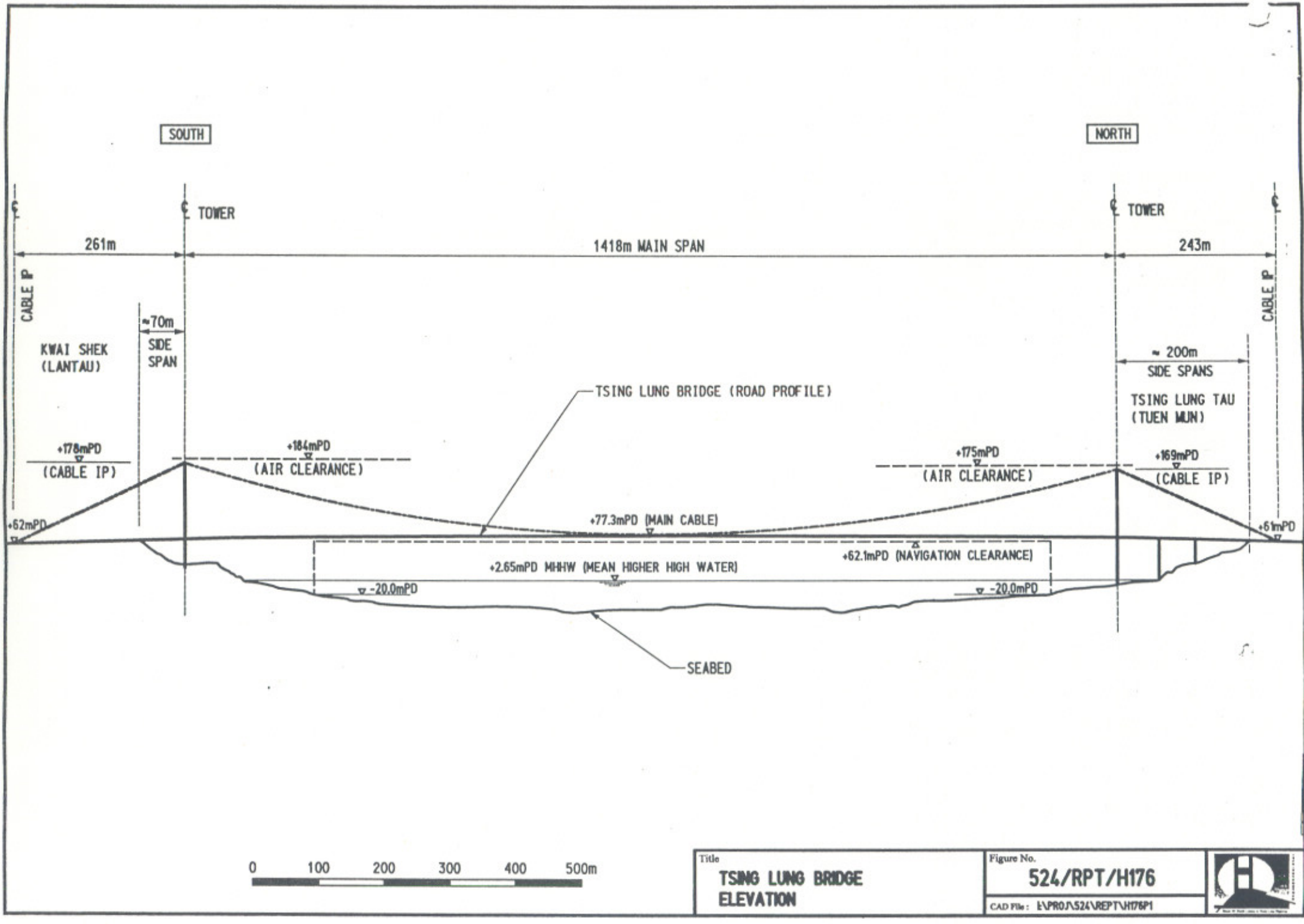

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TSING LUNG BRIDGE ELEVATION

Figure No.
524/RPT/H176

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Annex 3