水務署
Water Supplies Department

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萬宜水庫
High Island Reservoir

東壩
East Dam

世界地質公園
香港聯合國教科文組織

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萬宜水庫
High Island Reservoir

萬宜水庫位於西貢東及西郊野公園內，是香港儲水量最大的水庫，也是在海中興建而成，水庫的興建工程宏偉，分別於糧船灣洲和西貢半島東部海峽的東西兩端，興建了兩條分別高達64米的石壩，工程於1971年開始，1979年完成，儲水容量達2.81億立方米。

The High Island Reservoir, located in the Sai Kung Country Park, is the reservoir built in the sea with the largest capacity in Hong Kong. The construction work was magnificent, which entailed the building of two rock dams with 64 meters height at the eastern and western approaches of the narrow strait running between High Island and the eastern end of the Sai Kung Peninsula to form a reservoir with a capacity of 280 million cubic meters. Work began in 1971 and was completed in 1979.

1

萬宜水庫建造紀念碑
High Island Reservoir Monument

萬宜水庫西壩和東壩各有一紀念碑，西壩的紀念碑是一塊方形花崗岩，由港督麥理浩揭幕，東壩是一塊錨形石，以悼念犧牲了的工程人員。建造萬宜水庫的工程浩大，估計共有13,000位工人參與。在建造的過程中有五位工程人員殉職，包括一名意大利工程師、一名法國工程師和三名中國工人。意大利的建造工程公司在東壩建造了一塊巨型藍色錨形防波石，上面鐫有一塊刻了他們名字的記念碑，以紀念他們對萬宜水庫的貢獻。這是17個水塘中唯一一個設有紀念碑悼念犧牲的工程人員。

There are two monuments at both West and East Dam. The monument at the West Dam is a square-shaped granite, which was unveiled by the Governor MacLehose. The monument at the East Dam is an anchor-shaped stone to mourn the sacrificed engineers. Constructing High Island Reservoir is a tremendous project. It was estimated that there were 13,000 construction workers involved in building the High Island Reservoir. During the construction stage, five engineering staff members perished in the line of duty, including an Italian engineer, a French engineer and three Chinese construction workers. An Italian construction company built a blue anchor-shaped monument on which names were engraved in memory of those who lost their lives in the High Island Reservoir Project. High Island reservoir is also the only one of 17 reservoirs with the monument in memory of those lost their lives in the project.

2

萬宜水庫的由來
Origin of High Island

隨著1950年代社會開始急速發展，用水的需求越見增加，加上更在1963年至1964年，香港發生嚴重水荒，曾經需要每四天供水一次。有見及此，政府便於60年代興建船灣淡水湖，但仍不足以應付不斷增長的食水需求。於是當局在1969年開始構思興建另一個與船灣淡水湖類近的大型水庫，水庫最終選址西貢半島南岸與糧船灣洲的狹窄海道之中，故曾被稱為糧船灣淡水湖，但為免中文名稱與船灣淡水湖混淆，及後改名為萬宜水庫，而英文名稱則維持以糧船灣的英文（High Island）命名。在建造萬宜水庫的過程中不少村落被淹沒，政府花了近8年時間將村民安置在現時西貢市中心一帶，並重建學校、祠堂和住所作補償。

萬宜水庫是本港最大的水塘，也是香港第二個於海上興建的水塘。萬宜水庫共有東、西兩條主壩，東壩面向太平洋，西壩面向牛尾海，另有三條副壩緩衝，水庫總面積為6.67平方公里，儲水量最多達到2.81億立方米，其容量比船灣淡水湖多約22%。

From the 1950s, the demand for water was considerably high. In view of this, the government built a freshwater lake in Plover Cove, but it was still insufficient to meet the growing demand for fresh water. A severe water shortage occurred between 1963 and 1964, during which water was only supplied every 4 days. In an attempt to cope with insufficient water resources, the authorities began to conceive the construction of another large-scale reservoir similar to Plover Cove Reservoir in 1969. The reservoir was eventually located in the narrow waterway of the southern shore of Sai Kung Peninsula and Leung Shuen Wan Island. To avoid confusion between the Chinese name of the new reservoir and that of Plover Cove, it was named “High Island Reservoir”. During the construction works, many villages were submerged. It took almost 8 years to resettle the villagers in the current downtown area of Sai Kung and rebuild schools, ancestral halls as well as residences as compensation.

High Island Reservoir is the largest reservoir and the second “reservoir in sea” in Hong Kong. There are two main dams in High Island Reservoir, of which East Dam faces Pacific Ocean and West Dam faces Port Shelter, and three other cofferdams for buffering. It covers an area of around 6.67 square kilometers and the water storage capacity can be up to 281 million cubic meters, which is about 22% more than that of Plover Cove Reservoir.

萬宜水庫附近的地質(一)
Surrounding Geology of High Island Reservoir (I)

1.4億年前，萬宜水庫的所在地經歷了一場激烈的火山爆發，火山碎屑物質經過長時間沉澱成岩石，形成平均直徑約1.2米至3米的六角岩柱群。香港的六角岩柱較其他國家淺色，是富矽質的流紋質火山岩。

在過往的地殼運動中，巨大的能量被釋放，令岩層出現裂隙。當兩邊岩層有不同程度的推動和提升時，裂隙內的岩石被研磨成碎礫，並一直延伸，形成斷層角礫帶。

3

About 140 million years ago, there was an intense volcanic eruption in the area of High Island Reservoir, which generated lots of pyroclastics. After a long period of time, these pyroclastics cooled down and precipitated into rocks, and formulated the hexagonal rock columns. These hexagonal rock columns have an average diameter of about 1.2 to 3 meters. When compared with other countries’ rock columns, Hong Kong’s hexagonal rock columns are lighter in colour as they are silica-riched volcanic rocks.

Huge energy was released in earth crustal movement in the past, creating fissures on rocks. As the stratum was uplifted to varying degrees, the rocks were crushed into fragments and formed the fault breccia belt.

萬宜水庫附近的地質(二)
Surrounding Geology of High Island Reservoir (II)

4

初形成的六角形岩柱仍在破火山口內緩慢冷卻，未完全固結，在受到地震和區域下沉影響下，岩柱扭曲變形成S形。岩柱彎曲的地方是最脆弱的部分，在地質作用下，該處會形成一條從左上角至右下角斷開的裂縫，地下岩漿沿裂縫侵入，在冷卻後形成深灰色的侵入岩牆。

The newly formed hexagonal rock column was slowly cooled in the caldera and was not completely consolidated. Under the influence of earthquakes and regional subsidence, the rock columns were distorted into an S-shape. The distorted area of the rock columns is the most vulnerable part. During geological process, there was a weak line in the rock columns. Magma intruded along the weak line of the columns and cooled to form a dark grey intrusive dyke.

5

萬宜水庫東、西壩
High Island Reservoir East and West Dam

萬宜水庫東壩長485米，高106米，建有以巨大混凝土製成的防波堤，以抵擋海浪。西壩長753米，高101米，由於位處內海灣中，海浪衝蝕較東壩少，故沒有混凝土防波堤。在建造東壩的時候，曾在海床發掘了不少明朝陶瓷，古代船隻組件和波斯製造的玻璃珠。

The East Dam of High Island Reservoir is about 485 meters long and 106 metres high, with cofferdams made by concrete for protection against the pounding ocean waves. The West Dam is about 753 meters long and 101 meters high. There is no concrete breakwater at the West Dam as it is located in the inner bay and wave actions are lesser than that of the East Dam. During the construction of the East Dam, quite a number of ceramics in the Ming Dynasty, ancient ship components and glass beads made in Persia were excavated from the seabed.

6

官門海峽和海蝕洞
Kwun Mun Channel & Sea Caves

萬宜水庫的前身是官門海峽，是香港大型斷裂帶之一。未建水庫之前，這裡是一個狹窄水道，水退之時，可以涉足而過。當岩層斷裂帶上碎裂的岩石受長期風化和侵蝕後，逐漸形成河谷，及後便變成海峽。此外，岩層斷裂帶在不斷受到海浪侵蝕時，會擴大成天然的洞穴，形成海蝕洞。

The High Island Reservoir was originally the Kwun Mun Channel, one of the major faults in Hong Kong. Before the reservoir was built, it was a narrow waterway, and when the water receded, people could walk along it. The fractured rocks in the fault zone had weathered and eroded for a long time, which gradually formed a valley and eventually became a channel. In addition, when the fault zone was continuously eroded by the waves, it would expand to form natural caves (sea caves).

7

防波堤
Cofferdam

東壩防波堤以約7,000個雙T形混凝土預制組件（弱波石）組成，主要設計是以堤壩建築形式穩固抵禦海岸的地基，防止被潮水沖蝕。

東壩防波堤的弱波石像工字石墩又像錨，屬錨形弱波石，當多個放在一起就像巨大積木。錨形弱波石較一般的扭工字形弱波石穩定，40多年來晝夜承受海浪沖擊，依然堅不可摧。除此以外，弱波堤上佈滿小孔，用以減慢水流速度，以減低海浪對堤壩的傷害。

The breakwater in High Island Reservoir East Dam is composed of about 7,000 double T-shaped concrete prefabricated components (wave breakers). The main design is to stabilize the foundation of the coast in the form of dam construction to prevent erosion by the tides. The tetrapods (or wave breakers) of the breakwater are anchor-shaped and they also look like I-shaped piers as well as giant toy building blocks when put together. Anchor-shaped tetrapods are more stable than ordinary twisted-shaped tetrapods. They have been exposed to sea waves for more than 40 years but they are still indestructible. In addition, the embankment is covered with numerous small holes to slow down the speed of water flow and reduce the damage caused to the dam by waves.