2 PROJECT CHARACTERISTICS

2.1 Scope of Work

The proposed 132kV in-fed utilizes transmission overhead pole line and underground cable to deliver electricity from the existing Po Lam substation in Tseung Kwan O to the existing Tui Min Hoi substation in Sai Kung Town. The proposed circuit consists of three sections of overhead pole line (OHL) and four sections of underground cable (cable). The length of the OHL is 6.5km and that of the cable is 5.5km approximately.

2.2 Site Location

The proposed OHL route commences from Tseung Kwan O, runs along the ridges to Pak Kong Village in Sai Kung Town. The two terminals of the OHL will be linked to the existing substations by the cables. Besides connecting the OHL to the substations, cables with outer diameter of about 68mm - 71mm will also be installed underground for crossing the Clear Water Bay Road at Pik Uk and the cultivation at Ho Chung. The detail of the proposed route is shown in Figure 1.1. The powerline will pass through Conservation Areas of the Draft Outline Zoning Plans (OZP) which include Tseng Lan Shue OZP, Ho Chung OZP, as well as Pak Kong and Sha Kok Mei OZP. A small portion of the OHL will be within the Ma On Shan Country Park.

2.3 Consideration of Alternatives

During the planning stage of the circuit route, the original route alignment was revised after careful consideration in balancing the pros and cons of the requirements and satisfaction of the various government departments and the local villagers. Hence, the proposed circuit route of this project is a consolidation of the opinions of the respective government departments, the Country and Marine Parks Board and the local villagers (through the village representatives, the Sai Kung and Tseung Kwan O Rural Committees, and Sai Kung Provisional District Board). Thus the impact, if any, to the community at large has been minimized.

2.4 Construction Activities and Programme

The proposed project will involve the following activities:

- Excavation of footings (1.2m x 1.2m x 2.95m depth) for the overhead pole line by hand-dig method.

- Trenching (approx. 0.6m to 1.2m wide and approx. 1.2 - 1.7m deep) for the underground cables by excavators and hand-dig method where necessary.

- Construction of 38 twin poles and 14 single poles and 6 terminal poles as well as the overhanging of conductors about 6.3m wide and a minimum of 6.7m above ground between poles.

- Barriers will be built to divert water flow to one side of the river channel at a time for the laying of underground cables across the two tributaries of the Ho Chung River. Filter stand with filter bag will also be erected to prevent sediments from flowing downstream.

- Clearance of vegetation to form a temporary footpath for construction crew access.

- Routine clearance of vegetation to maintain paths approximately 1m wide for maintenance crew access. These paths would, wherever possible , use the same tracks that would be formed for construction purposes. Most of the access requirements along the length of the conductors could however, be achieved by maintenance workers walking amongst the treegrowth and clearing only undergrowth where necessary.

- Clearance of all vegetation around each pole positions (an area of approximately 3m diameter) for construction purposes. All these sites will be revegetated after construction.

- Delivery of construction materials to site by helicopter or by hand. No access tracks will be required for the use of vehicles or the movement of power machines.

- Pruning/felling of trees beneath and adjacent to the conductors to keep a minimum distance of 3.7m between tree canopy and the conductors for safety reasons. Pruning is normally not required when the powerline crosses ravines and abandoned paddies.

- Re-establishment of trees and shrubs will be conducted after the construction phase as part of the landscape restoration works, as far as practicable. Periodic clearance of vegetation will be necessary for maintenance and safety thereafter.

The construction period is divided into several phases. The overall duration is about 18 months. The details are shown on the construction programme in Figure 2.1. The duration for the construction of underground cables will be about 6 months. The approximate construction period of the section of underground cables across the two tributaries of the Ho Chung River will be 3 months.

2.5 Construction Method of the Project

The overhead powerline consists of three bare aluminium conducting wires and an earth wire supported on a series of tubular steel poles that are approximately 18m high and of an average span of 180m. Two designs of poles will be used along the route depending on the local topography. There will be approximately 25% single pole supports and 75 % H-pole supports similar to those as shown in Figure 2.2. The twin pole construction is a type of pole that is required where there are changes in angle of the route alignment or when the weight exerted on the poles by the conductors exceeds a specific limit. While the single poles will be used for straight sections of the alignment.

More than 1,000 poles (single and H-poles) of the same design of this project were installed in the previous years for supplying electricity to Kowloon, New Territories and Lantau Island. So far, no failure incident has been reported.

All the OHL material will be delivered to the sites by helicopter while those of the cable by lorry through the public/private roads. Foundations of steel poles will be hand-dug by workers. After the installation of the poles, the soil dug out from the pole foundations will be back-filled to them. The respective sites will then be reinstated. Dressing of the poles will be achieved by using the chain and pulley system to install the accessories, such as cross-arms and insulators, at their exact positions. Winch will be used for the stringing of conductors. The cable trenches will be dug by the excavator. Winch will also be used for the laying of the cables. After the laying of the cables, the soil dug out from the trench will then be back-filled to the trench. The sites will then be reinstated.