

DETAILED DESIGN OF FLOOD MITIGATION AND UPGRADING OF URBAN DRAINAGE SYSTEM FOR S10 TOWN, PENANG (2016)

Project Description:

S10 Town is situated in the Northeast Penang Island District within Georgetown, the capital city of the State of Penang. It is about 20 km and 25-minute drive from Penang International Airport.

Urban Drainage S10 basin which includes administrative centre, KOMTAR, has an area of 279.0 acre and located at the lower basin and experience the effects of the tide. Prangin Canal that has heritage value is the main drainage in S10 where it relies on a pump system that operates on S10 pond for rainwater to be quickly brought back into the sea. There are nine (9) locations in the area frequently hit by flash floods every time it rains which include Jalan Pintal Tali, Lebuhraya, Lebuhraya Kimberley, Lebuhraya Muntri, Lorong Love and Lebuhraya Victoria. All of these locations are adjacent to the main drain.

The idea of this project is to provide the detailed design of flood mitigation and upgrading drainage system for S10 town for long term planning especially for Terusan Prangin, the heritage area.

RPM's Role/contribution in the project:

RPM roles in this upgrading development, includes detailed design and preparation of tender documents for the proposed upgrading and improvement of the existing drainage system in S10 town. The catchment is served by 1.2km length of Main Drain from Jalan Penang at upstream to S10 pond at downstream.

To solve the flood problem, detail design comprises of improvement of the S10 Main Drain from Jalan Sungai Ujong to Lebuhraya Carnavon has been prepared including connecting channels from Jalan Sg Ujong to the Main Drain and Jalan Pintal Tali to the Main Drain.

The proposed design will protect Jalan Pintal Tali area up to 20-yr ARI floods. Although Jalan Pintal Tali is inundated the adjacent shophouses which have elevated floor levels will not be inundated in a 20-year flood or even in a 50-year flood.

Challenges

1. The Project is located right in the central district of the City of Georgetown near KOMTAR
2. The existence of old Prangin Canal which has been classified as heritage item by the Authority. Precaution needs to take cautiously as not to damage the old Prangin Canal.
3. During construction stage, Contractor needs to ensure that the drainage water continue to drain to the downstream and avoid flooding at the town centre.
4. The relocation of the existing services like electricity (TNB) and Communication (TM) lines were of high priority. The Telekom cables encountered at the site involved 20 cables (24 way ducts) consisting of copper cable 2400 (12 numbers), copper cable 1400 pairs (1 members), copper cable 1200 pairs (1 number), copper cable 100 pairs (1 number) and fibre optic cable (9 numbers). These cables are connected with Sawat TM KOMTAR and it is the main line for TM in Georgetown area.

Key Info:

1. 230 m length of new drain constructed at the road in front of Prangin Mall, starting from Jalan Ria to Lebuhraya Carnarvon (Line A) with the twin U-drain of 3.6 width x 2.7 m depth box culvert.
2. Drain from Jalan Sg. Ujong to Line A (29m) 3.6m width x 1.8m depth precast U-drain linking local drain to Line A.
3. Drain from Jalan Pintal Tali to Line A (25m) 3.6m width x 1.8m precast U-drain linking local drain to Line A.
4. Construction of ramp to Line A.

