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TYPICAL DRAINAGE, FLOOD MITIGATION AND IRRIGATION RELATED PROJECTS UNDERTAKEN BY SMHB AND ASSOCIATED FIRMS

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Scheme	Description	Year
1. Privatisation, Operation and Maintenance of East Coast Expressway Phase 1 – Engineering Consultancy Services in Providing Detailed Design of Flood Mitigation at East Coast Expressway Phase 1 (LPT1)	Detailed design and preparation of tender documents for Flood Mitigation at East Coast Expressway Phase 1 (LPT1)	2022
2. Kajian Kemungkinan Pembinaan Baraj Sungai Bernam Untuk Bekalan Air Bagan Datuk, Perak	Feasibility study for the construction of Bernam Barrage for water supply for Bagan Datuk district in Perak	2018-2019
3. Preparation of Integrated River Basin Management Plan for Selangor River Basin 2015-2020	Scope of professional services includes: • Update data and information • Review the policies and strategies • Assess the requirement for sub-basin management plan • Analyse the cause of reduction in reservoir water level within Sg Selangor dam in 2005 and recommend prevention measures • Prepare Initial Risk Assessment (IRA) for Sg Selangor Basin. In addition, the study includes: • Institutional Review • Capacity Building in Relevant Agencies • IRBM and Capacity Building as Continuous Process	2013-2014
4. Klang Valley Mass Rapid Transit Project Line 1 and 2 Southern Section - Drainage Design for Surface Works	Design and construction supervision of drainage and flood mitigation works at MRT stations, multi-storey car park, depot and route	2011, ongoing
5. Johor Barrage	To augment existing water resources within Sg Johor basin by an estimated 400 Mld in addition to controlling salinity intrusion to ensure the existing water intakes are not affected adversely by high saline content in the raw water. The Feasibility Study includes River and Coastal Modelling (Rainfall-Runoff modelling, River Hydraulic Modelling involving hydrodynamic and advection dispersion to model salinity intrusion due to tidal effects of seawater), Environmental Study (physico-chemical assessment, habitat assessment and biological assessment of selected sections located upstream and downstream of the proposed barrage),	2012-2017

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	conceptual design and application for planning permission.	
6. Penang Science Park – Review of Drainage Master Plan	Study flood mitigation options such as converting the existing buffer zones into flood detention ponds or mechanical options to eliminate flooding in the study area.	2011
7. Stormwater Augmentation and Integrated Water Supply and Demand Management, Labuan	Identify feasible storm water reuse options to augment the yield of existing water supply sources in Labuan	2011
8. Study and Design for the Rehabilitation of Sg. Linggi, Negeri Sembilan	Study and design. Mitigating the deteriorating water quality using structural and non-structural measures. Main issues addressed: (a) Solid Waste Management; and (b) River Management with sub-components (1) Wetlands and (2) River Corridor plan encompassing beautification of the riparian with landscape, public facilities and riverbank restoration, the provision of sediment basins/traps. Engineering services provided: Part 1: Review of past studies, carry out investigation, modelling and study, and recommend options for rehabilitation of Sg. Linggi. Part 2: Detailed design of Immediate Works identified in the study and accepted for implementation by the Government.	2010
9. Drainage and Stormwater Management Blue Print for Iskandar Malaysia	Preparation of Drainage and Stormwater Management Blue Print for drainage and stormwater management incorporating recommendations to improve water quality, minimize flooding and improve the quality of the environment within Iskandar Malaysia.	2010
10. Drainage and Stormwater Management Master Plan for Batu Kawan, Pulau Pinang	Preparation of Drainage and Stormwater Management Master Plan for a proposed mix development area involving 6,326 acres in a predominantly oil palm cultivation area.	2008
11. Kuala Lumpur Flood Mitigation Scheme – Design Audit and Review of Kampung Benteng and Kampung Puah Ponds	Preparation of design review report with respect to safety, functionality and adequacy of works related to the ponds, and cost evaluation.	2004-2006
12. Design of Irrigation Infrastructure for the Development of Phase II of Granary Area at Paloh Island, Sarikei, Sarawak	Design and construction supervision of drainage and irrigation facilities/infrastructure at the Paloh granary area.	2004-2006
13. Bertam-Kepala Batas Flood Mitigation and Drainage Project, Pulau Pinang	Detailed design and supervision of the Bertam-Kepala Batas Flood Mitigation Project with emphasis on the improvement works for the two main drains namely, Sg. Tembus/Sg. Lahar Tiang and Sg. Lahar Endin in the northern part of the project area.	2004-2009

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14. Kuala Lumpur Flood Mitigation Scheme-PMC for Batu/Jinjang Ponds and Flood Diversions	Project Management Consultancy which includes cost evaluation and negotiation and the review of the design and related contract documents submitted by the turnkey contractor.	2002-2007
15. Melaka River Rehabilitation and Beautification Project, Melaka	The main objective of the project is to improve the overall condition of Sungai Melaka and its riverine environment. The firm undertook the EIA study, design and construction supervision of the project.	2002-2004
16. Feasibility Study for the Development of Granary Area at Paloh Island, Sarikei, Sarawak	Feasibility study of 22,000 hectare of paddy cultivation area in a low laying area with tidal influence at the delta of Sg. Rejang. The recommended cropping option is a combination of double/single cropping area for a total for 5,800 hectare.	2001-2003
17. Pangkor Island Drainage Master Plan, Perak	Preparation of Drainage Master Plan to address flash flood issue due to improper drainage system and exposed barren hillsides.	2000-2002
18. Sg. Sarawak Flood Mitigation Study, Sarawak	Pre-Feasibility study of flood mitigation options to solve flooding of Kuching City, sedimentation and degradation of water quality of Sg. Sarawak due to physical restriction of the river as a result of the completion of Sg. Sarawak Regulation Scheme (1977).	2000-2001
19. Irrigation Master Plan for Putrajaya	Preparation of Integrated Irrigation Master Plan which proposed various potential sources of water supply for irrigation purposes and provided a manual for the best irrigation practices for Putrajaya.	1999-2001
20. Northwest Selangor Integrated Agricultural Development Project, Selangor	Study, detailed design and head office support during construction of an area of 97,000 ha comprising 20,000 ha of paddy land known as the Tanjong Karang Irrigation Area and about 77,000 ha of tree crop area planted with small-holder coconut, oil palm, rubber and cocoa that suffers water related problems arising from a combination of factors which include distribution/delivery problem and defective structures.	1998-2008
21. Flood Study for a Development Project at Sepang, Selangor	Detailed flood mitigation study of a flood plain area of Sg. Langat in order to identify the most suitable course of development.	1995-1996
22. Urban Drainage Master Plan Study for Sibu Town, Sarawak	Hydrological and hydraulic analysis of drainage system, recommendation of preferred option for flood mitigation and drainage strategy and cost estimate.	1995-1996
23. Kelantan River Flood Mitigation Project	Hydrological, hydraulic and system analysis, reservoir operations and dam designs, coastal and estuarine studies, environmental impact assessment, economic and financial evaluation of the project.	1995-1996
24. Alor Setar Flood Mitigation Scheme – Phase II, Kedah	The Phase II scheme involves the detailed design of drainage improvements of the five basins, namely Alor Malai, Sungai Mempelam, Sungai Terus, Taman Intan and Peremba, covering a total area of 950 ha within the conurbation of the municipality of Alor	1993-1996

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	Setar. Main features of flood mitigation works include pumping stations, improvements of trunk and secondary drains and allied structures.	
25. Alor Setar Flood Mitigation Scheme – Phase I, Kedah	Alor Setar Flood Mitigation Scheme Phase I work encompasses hydrological and hydraulic analyses of the drainage system, detailed engineering design and construction supervision. The project features a pumping station of 20 cumec capacity, a floodway, improvement of trunk and secondary drains and associated hydraulic structures.	1992-1996
26. Gadong Police Headquarters Drainage, Brunei	The firm carried out drainage improvement programme which includes construction of concrete lined channel and bridge crossings. Services provided include detailed engineering design and construction supervision.	1990-1992
27. The Krian River Basin Flood Mitigation and Agricultural Projects, Perak	Feasibility studies of the basin to determine its agricultural development potential with emphasis on utilisation of water resources for irrigation, to mitigate floods and to alleviate drainage problems. The study involved rainfall-runoff modelling, water resources modelling of two interconnected river system with impounding reservoirs, inter-basin transfers with water supply and irrigation demands at various locations and unsteady state hydraulic modelling of the tidal estuary.	1987-1989
28. Drainage Design Standards for Negara Brunei Darussalam	Preparation of Drainage Design Standards as guidelines particularly for developers to alleviate haphazard drainage development.	1986
29. Subok/Kianggeh Flood Control Study, Brunei	Detailed feasibility study to investigate flooding of the town centre of Bandar Seri Begawan and adjacent areas of Sg. Kianggeh.	1986-1987
30. Kerteh and Kemasik Town Drainage Systems Master Plan, Terengganu	Drainage studies and development of Drainage Systems Master Plan for an area comprising 19 km^2 of existing and potential development areas.	1985
31. Brunei International Airport Drainage – Contract 1	The study was to overcome existing and potential flooding problem due to the rapid development of the catchments upstream of the airport. Services provided include hydrological and hydraulic analysis of drainage system, detailed design and construction supervision.	1984-1986
32. Jeniang Transfer Scheme, Kedah	Feasibility study of a scheme to address periodical water shortages for irrigation of paddy cultivation areas in the states of Kedah, Perlis and Penang during dry season which are supplied by two major river systems, one of which is the Sg. Muda.	1983-1984
33. Design of Upgrading of Irrigation Schemes in Penang	Detailed designs of infrastructure for tertiary and farm level i.e. irrigation canals, drains and roads for four pilot projects ranging between 300 ha and 500 ha.	1982-1983
34. Feasibility Study for Upgrading of Irrigation Schemes in Penang	Feasibility study of upgrading and rehabilitating the irrigation and drainage facilities throughout the state of Penang for 17 separate irrigation schemes, mainly	1981

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	for paddy, totalling approximately 15,000 ha. A study was also carried out into the improvement of drainage over an area of 35,000 ha which was subject to flooding under tidal influences.	
35. Seberang Perai Drainage Areas, Penang	Agricultural and economic studies to upgrade the irrigation schemes of crop areas in Seberang Perai.	1981-1982
36. Master Plan and Feasibility Study for Sewerage and Drainage in Kuala Terengganu and its Urban Environs, Terengganu	Feasibility study and development of Sewerage and Drainage Master Plans to address the frequent flood experienced in the study area during the monsoon due to the inadequacy of the existing drainage system, and local run-off and rivers overtopping their banks. The area also lack in central sewerage facilities resulting in discharging of effluent in the surface water drains and rivers.	1981-1983
37. Pandan Irrigation Scheme, Kuantan, Pahang	Preparation of preliminary farm and irrigation layout plans and economic analysis of an area of approximately 1,000 ha identified in the Sg. Kuantan river basin as potentially suitable for paddy cultivation.	1977-1978