



Highway



ENGINEERS

total engineering services

Mission Statement

“To be recognised as Malaysia’s premier one stop one engineering service provider, as reflected in our continuous outstanding contribution to the development of major infrastructure; and maintain this position through excellent services and superior technical quality, innovation and performance”.

This vision is realised through:

Personal involvement of the directors to provide strong leadership to ensure timely and speedy implementation of both corporate objectives & goals.

Existing effective and efficient corporate structure to provide maximum operating efficiencies to the Group.

The vast base of experience within the Group that helps to leverage its niche in the engineering arena.

The availability of capital within the Group to provide adequate funding strength for Group operations.


Continuous quality engineering services upgrading through constant re-engineering process and training while maintaining the existing standard of professionalism.






Corporate Information

HSS Engineers Berhad (HEB or the Company) is an investment holding company which was incorporated on 23 January 2015 under the Companies Act 1965 as a private limited company under the name of HSS Engineers Sdn. Bhd. before it converted into a public limited company. The Company assumed its present name on 31 March 2015. The Group operates from 3 main offices which are based in Kuala Lumpur and Penang in Malaysia as well as Chennai in India. HEB, had on 28 March 2018, completed the acquisition of SMHB Engineering Sdn Bhd (SMHB) which provides engineering services and project management consultancy for the water sector.



Its associate company, HSS Integrated Sdn Bhd (HSSI), is currently one of the leading ISO Certified (ISO 9001:2015, ISO 14001:2015 and OHSAS 18001:2007) engineering consultancy firms in Malaysia. With a proud history over the last 30 years, HSSI is a firm with shared values, an open culture, commitment to services & quality, provision of high standards of professionalism and business ethics, along with a leading edge approach to delivering a sustainable future.

Our expertise includes project management, master planning, preliminary and detailed engineering designs, construction supervision, contracts administration, feasibility studies for major infrastructure project in South East Asia, Middle East and North Africa (MENA) and South Asia. The Group's results are evident from the track records of vast experience and timely delivery of projects in addition to the established good working relationships with clients from both the public and private sectors.



As a total engineering solution Firm with a global total workforce of over 1000 staff of which more than half are engineers, HEB is able to draw on resources within and is well equipped to handle projects of varying magnitudes. HEB is confident that as a group, similar engineering consultancy services can be provided in other parts of the world mainly in the transportation and urban infrastructure development projects. The group is confident that with the experience and track record, it will be able to provide a high standard of engineering services to any client.



Highway Capability

HSSI has been actively involved in the planning, design and supervision of construction of many major highways and bridge structures in Malaysia.

It has the expertise to offer a wide range of skills required for the successful implementation of projects incorporating highway and bridge engineering.

Today a multi-disciplinary involvement is necessary whereby engineering survey and other specialist skills are integrated to achieve consistent quality throughout the project. This document details areas of work and specialization together on our strategic approach to projects.

At one end of the scale, this experience covers projects involving bridge structures with associate site works which includes advisory and inspection services.

A **"managed approach"** is taken to all aspects of the design process, allowing the practice to offer a comprehensive and selected range of services to suit clients' requirements.

HSSI in association with reputable transportation planning firms provide advisory and technical assistance in planning, transportation and economics. Together, we possess substantial record of achievement for public and private clients within Malaysia and in many parts of the world.

We have undertaken assignments for a wide variety of clients, national government and for both the public and private sectors.

At HSSI, we recognize the need for strategic planning and the application of land use/transport planning methods. These can range from simple sketch planning tools to the utilization of sophisticated computer software. Whatever approach we take, the strategies will provide a clear framework for development, yet flexible enough to accommodate dynamic changing socio-economic conditions.



Services



Project Identification and Assessment of Needs

Location Studies

Land and Geotechnical Survey

Technical and Engineering Feasibility

Environmental Impact Assessment

Economic and Financial Appraisals

Preliminary and Detailed Design

Value Engineering

Specifications and Procurement

Contract Documentation and Administration

Project Scheduling

Material Testing and Inspection

Quality Control and Construction Supervision

Cost and Budget Control

Total Project Management

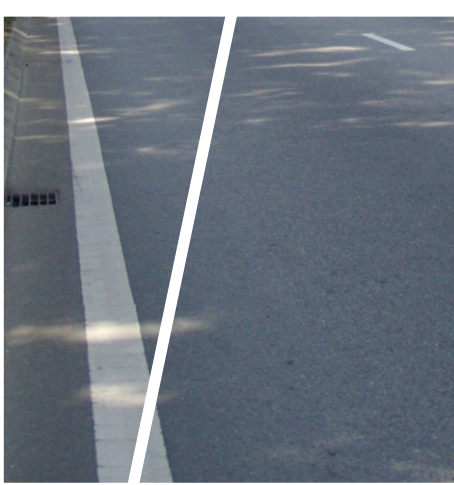
Traffic Engineering

Traffic Engineering

HSS has been involved in a wide spectrum of traffic engineering services providing creative, cost-effective and results-oriented solutions to transportation planning and traffic engineering industry.

The involvement of HSS is in the following broad categories:

- Transportation Planning & Design
- Capacity Analysis
- Traffic & Transportation Design
- Intelligent Transportation System (ITS)
- Traffic Management Design



Pavement Engineering

Pavement Engineering

Uses a systematic approach to evaluate and select pavement rehabilitation and maintenance techniques for both flexible and rigid pavements.

- Five (5) basic types of project information required for the selection of the rehabilitation strategy ie. Design parameters of existing pavement, construction data design related to existing pavement, past/current/forecast traffic data, environmental data & distress/condition data.
- Various testing techniques include Falling Weight Deflectometer (FWD) tests. Visual Condition Surveys, Dynamic Cone Penetrometer (DCP) tests, Test Pits and Laboratory Tests.
- Pavement rehabilitation designs are carried out by first back calculating the pavement residual life using the data from the above ie. project information/tests and subsequently applying the design traffic data to determine the rehabilitation requirements. Softwares like ELMOD are used in the evaluation.
- Various rehabilitation strategies include overlays, composite pavements, hot in place recycling (HIPR), Cold in place ie cycling (CIPR), milling etc.





Highway Experience

West Coast Expressway (WCE)

Description : The proposed expressway is approximately 255km in length. The northern section of 277km runs from Taiping Interchange to the new Klang Straits Bypass, while the Southern Length of 28km runs from the Federal Highway Route 2 to Banting. 70 percent of the alignment traverses through coastal terrain of soft ground requiring various ground treatment such as surcharging with vertical drains, excavation & removal of soft materials, piled embankment, and/or expanded polystyrene blocks.

Services : Preliminary Engineering Design.

Project value : RM 3 bil (USD 900 mil)

Kinrara Damansara Expressway (KIDEX)

Description : A fully elevated dual two lane expressway approximately 13.5km in length linking Damansara to Bukit Jalil Highway near Kinrara, introducing an efficient alternative route for Northbound and Southbound traffic in the Klang Valley and provide connectivity to existing highways for effective dispersal of traffic.

Services : Preliminary and Detailed Design.

Project value : RM 2.3 bil (USD 660 mil)

Sg. Besi - Ulu Kelang Elevated Expressway (SUKE)

Description : The 25km fully elevated expressway from Sungai Besi to Ulu Kelang was to relieve congestion at MRR2 and also link up major highways such as Lebuhraya Shah Alam (KESAS), Cheras – Kajang, Ampang, KL Elevated Highway (AKLEH) and DUKE.

Services : Engineering Design for Conceptual and Preliminary Design Stage, Detailed Design and Construction Supervision.

Project value : RM 1.9 bil (USD 540 mil)

Extension to Sungai Besi Expressway

Description : The project consists of elevated viaduct comprising three links namely Istana Link, Pandan Link and MRR2 Link. The structural form consists of precast pre-tensioned/post-tensioned beams with in-situ slab resting on precast segmental crosshead. The overall length of the viaduct is about 5.4km.

Services : Detailed Engineering Services

Project value : RM 600 mil (USD 170 mil)

Enhancement Works Along LDP - Package A

Description : Puchong Intan Southbound Mainline Ramp & Improvement Works, Puchong Perdana Interchange to Kg. Bharu Puchong Interchange Northbound & Southbound Mainline, Slip Road Widening Works and Puchong Perdana Interchange Southbound Slip Road Widening & Improvement Works.

Services : Detailed Design and Site Supervision

Project value : RM 25 mil (USD 7 mil)

Maju Expressway Extension to KLIA

Description : The 16km long Expressway will begin at Putrajaya Toll Plaza and end at KLIA Expressway. It has one interchange at Putrajaya, one exit and entry ramp, one toll plaza and supervision building.

Services : Preliminary and Detailed Engineering Design for Civil, Structural, Mechanical & Electrical Works.

Project value : RM 800 mil (USD 230 mil)

Highway Experience

Proposed Development of KL ECO – City Access Ramps

Description : The proposed KL ECO-City project is situated on the previous Kg. Abdullah Hukum land bounded by Jalan Bangsar, FHR2 and Sg. Klang. The project, with its gross development value of RM6 billion is implemented by Pelita Dunia Sdn Bhd, a subsidiary of SP Setia Berhad on a privatisation concept with Dewan Bandaraya Kuala Lumpur (DBKL).

Services : HSS Integrated Sdn Bhd's scope involves the design and construction supervision of all main access ramps approximately 7 numbers in total

Project value : *RM 85 mil (USD 24 mil)*

KL-Kuala Selangor Expressway (KLS Expressway)

Description : Construction of 33km new alignment with two lane dual carriageway which forms part of the KL Outer Ring Road linking the coastal area in the north-western region of Selangor and the northern region of Kuala Lumpur. Work include 4 Interchanges, 3 Toll Plazas & 1 RSA; and provision of ITS (Intelligent Transport System) along the expressway.

Services : Project Management Consultancy.

Project value : *RM 1 bil (USD 0.3 bil)*

Fourth Lane Widening between Kuala Lumpur and Seremban

Description : Concept study to facilitate detailed engineering design of providing a fourth lane on the existing Kuala Lumpur – Seremban Highway. A conceptual report with estimated construction costs based on various possible solutions was prepared and submitted to PLUS in February 2008.

Services : Procurement of as-built drawings, site reconnaissance survey, conceptual engineering design & construction cost estimates.

Project value : *RM 400 mil (USD 114 mil)*

Pulau Indah Ring Road

Description : Detailed design and supervision of a 12km new road to link the existing Pulau Indah federal route to South Klang Valley Expressway (SKVE) and the port development.

Project value : *RM 150 mil (USD 43 mil)*

South Klang Valley Expressway (SKVE)

Description : The project involves a construction of 44 km new expressway from B15 / LDP Interchange near Putrajaya to Pulau Indah in Klang. The expressway consists of 15 km dual 2-lane carriageway, 10 km of dual 3-lane carriageway and 19 km of single carriageway. Works include 6 interchanges, 6 toll plazas and 4 Rest and Service Areas. When completed, the total length of SKVE would be 51.7 km as it will also include the 7.8 km section between Uniten Interchange and B15 / LDP Interchange which was completed by the Government in Dec 2000.

Services : Service provided included Project Management Consultancy.

Project value : *RM 1.2 bil (USD 0.35 bil)*

Installation of New Street Lighting & Traffic Signal System and improvement works from Ipoh to Lumut, Perak

Description : We were involved in the installation of New Street Lighting & Traffic Signal System at junctions and u-turns. There were about 17 junctions and 5 u- turns along the Federal Route 5 from Ipoh to Lumut. This also involved permanent relocation and removal of existing street lighting and traffic signal at identified effected areas.

Services : Detailed Design and Site Supervision

Project value : *RM 78 mil (USD 22 mil)*





Highway Experience



Proposed Coastal Highway JB-Nusajaya & Upgrading Jalan Skudai & Jalan Abu Bakar, Johor

Description : Upgrading of 5 km Jalan Skudai to dual 2-lane carriageway including coastal reclamation. Provision of public facilities such as Rest & Services area, pedestrian bridges and coastal boardwalk are part of the design works.

Services : Detailed Civil & Structural and Street Lighting Engineering Design & Construction Supervision.

Project value : RM 139 mil (USD 40 mil)




East Coast Expressway Phase 2 (Package 7-12)

Description : 174km expressway located in Terengganu State. 110km is implemented by JKR while the remaining 64km by MHA.

Services : Work scope includes preliminary alignment study, drainage, hydrology, geotechnical and preliminary cost estimates.

Project value : RM 450 mil (USD 139 mil)



East Coast Expressway Phase 2 (Package 10D (previously 2G2))

Description : This 16km section of the 64km implemented by MHA is located close to Kuala Terengganu. Preliminary design was completed in February 2005. The bridge structural design is carried out by VE Consult Sdn Bhd who was appointed separately by two interchanges, 20 over culvert structures and 5 bridge structures including one of 800m length over Sg. Terengganu are the main features of this section.

Project value : RM 180 mil (USD 51 mil)



North South Expressway (PLUS) Proposed KL-Penang Through Traffic

Description : Upgrading of a 14km stretch on the existing North-South expressway project between Ipoh South toll barrier and the Jelapang toll barrier. The project involves the isolation of the local Ipoh traffic from the main traffic on the expressway by providing two parallel local roads of 14km length on either side of the expressway, reconfiguration of existing Interchange and design of a new toll plaza supervision building and relocation of existing services and provision of street lights.

Services : Preliminary and Detailed engineering designs including the construction supervision.

Project value : RM 240 mil (USD 69 mil)



Management of Toll Roads in Malaysia

Description : A study under LLM with the objective of standardizing the management, tolling strategy, tolling policies, concession agreement and toll performance of all tolled roads/ expressways in Malaysia. Also included is a recommendation for a uniform approach of traffic forecast/ review & financial modeling for future tolled road/ expressway.

Services : Included toll management, toll policy study, financial modelling, traffic forecast and toll performance review.

Project value : RM 0.9 mil (USD 0.26 mil)

Integrated Transportation System (ITIS) for Klang Valley and Multimedia Super Corridor

Description : This building is a 4 storey RC Structure located on a 3.5 acre site in Technology Park Malaysia. The total floor area is approximately 6000m². This building when completed will be the nerve centre of a Transportation system which will cover the Klang Valley. The function of this center will be for traffic surveillance, congestion management, incident reporting and data management and dissemination.

Project value : RM 12 mil (USD 3.5 mil)

Highway Experience

Six Interchanges on the LDP

Description : The project involves the construction of interchanges along the urban highway to ease traffic congestion. Design include dual two-lane fly-overs, 3-tier two-lane fly-overs, in addition to the construction of ramps and elevated U-turns.

Services : Detailed Engineering Design & Construction Supervision.

Project value : RM 95 mil (USD 27 mil)

Pasir Panjang to Linggi, upgrading of Federal Route 5

Description : The project involves the upgrading of approximately 15km of the Federal Route 5 from Pasir Panjang to Linggi, N. Sembilan the project has been awarded to Hartajaya - Benteng Timur – AMR Jeli JV as the design & build contractor.

Services : HSS was appointed by them to provide design consultancy and supervisory services.

Project value : RM 80 mil (USD 23 mil)

The Kajang Seremban Highway Project

Description : 44 km of Highway with 6 interchanges, 6 toll plazas and 2 rest & services areas.

Services : Detailed Engineering Design and Construction Supervision.

Project value : RM 700 mil (USD 200 mil)

Upgrading of Federal Route 98 from Termeloh to Jerantut, Pahang

Description : This project involves the upgrading and improvement to the existing Federal Route 98 from Termeloh to Jerantut in State of Pahang. The scope of works involves upgrading the road from a R3 to R5 standard with partial access control while maintaining its two-lane single carriageway configuration. A total of 5 existing bridges were replaced with new structures.

Services : Detailed Engineering Design & Construction Supervision.

Project value : RM 130 mil (USD 37 mil)

Duta – Ulu Kelang Expressway (DUKE)

Description : 18km urban expressway with 7 interchanges and ramps, 1.5km of elevated viaduct, 15 under bridges and over bridges, 3km RE Walls with piled embankments and 3 Toll Plazas.

Services : Preliminary Design for 18km followed by Detailed Engineering Design and Construction Supervision. Construction Supervision for 6 km of Karak Link from Sentul Pasar to Greenwood Interchange.

Project value : RM 800 mil (USD 229 mil)

East Coast Expressway Phase 1 (Package 1C1 and 1D1)

Description : Packages 1C1 and 1D1 are a dual two-lane carriageway with the approximate length of 13 km and 9.5 km respectively, starting just after the Temerloh town. The project is part of the East Coast Expressway Phase 1 from Karak to the border of Pahang/ Terengganu. The project consists of two river bridges, one overhead bridge crossing the FR83, one pair of Rest and Service Area, one Weighbridge Station, one interchange at Chenor and twelve Vehicular Box Culvert.

Project value : RM 165 mil (USD 47 mil)

Batu Pahat to Ayer Hitam, Design, Build and Maintain Federal Route 50

Description : Upgrading of 27 km Federal route 50 between Batu Pahat and Ayer Hitam in Johor on a deferred turnkey basis by JKR to SP Setia Bhd. The works involve widening of the existing single lane 2-way road from JKR U3/4 standard to an undivided two lane 2-way JKR U5 standard and the rehabilitation of the existing pavements.

Services : Services : Detailed Design & Construction Supervision

Project value : RM 100 mil (USD 29 mil)

Highway Experience

Proposed Coastal Highway JB-Nusajaya & Upgrading Jalan Skudai & Jalan Abu Bakar, Johor

Description : Upgrading of 5 km Jalan Skudai to dual 2-lane carriageway including coastal reclamation. Provision of public facilities such as Rest & Services area, pedestrian bridges and coastal boardwalk are part of the design works.

Services : Detailed Civil & Structural and Street Lighting Engineering Design & Construction Supervision.

Project value : *RM 139 mil (USD 40 mil)*

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Services : Preliminary Engineering Design.

Project value : *RM 600 mil (USD 171 mil)*

Proposed Interchange and Access To Bukit Unggul Golf and Country Resort

Description : The interchange is 3.6km south of Bangi interchange on the KL-Seremban Expressway. The trumpet interchange will link to the upgraded road B18 for direct access to the Golf Resort 1 1/2km away.

Project value : *RM 52 mil (USD 15 mil)*

Maju Expressway (Kuala Lumpur – Putrajaya Highway)

Description : A 42km expressway that links Kuala Lumpur to the KL International Airport with 10 km elevated structure through conurbation of KL. It has five(5) nos. of interchanges, seven(7) entry/exit ramps, two(2) rest & service areas & two(2) toll plazas.

Services : Services : Project Management for overall design, followed by detailed design and construction supervision.

Project value : *RM 1.4 bil (USD 0.4 bil)*

Elevated Federal Expressway, Preliminary Engineering Design

Description : The Elevated Federal Expressway (EFE) is approximately 18 km in total length traversing generally in the East - West direction. The EFE provides an efficient and high speed road expressway connection between Shah Alam and Subang Jaya on the west side of the Klang Valley to Petaling Jaya, Seremban Expressway and the city of Kuala Lumpur on the East.

Project value : *RM 2.5 bil (USD 0.7 bil)*



Highway Experience

Kota Kinabalu-Sulaiman Coastal Road, Sabah

Description : Located to the north of Kota Kinabalu, Sabah. the alignment traverses on existing roads, swamps, plantation and development areas along the coastal strip stretching from Telukan Gaya, Telukan Sepangar to Sg. Sulaman estuary facing the South China Sea. Located more towards the coastal region with the objective of serving the new campus of Universiti Malaysia Sabah, Kota Kinabalu Industrial Park and the mushrooming tourist resorts along the coastline. The proposed network of roads also serves to compliment the existing trunk road.

Project value : RM 230 mil (USD 66 mil)

NSE Central Link & KLIA Expressway

Description : Dual three-lane carriageway expressway of 16km length. The Project involves the construction of a number of interchanges along the route and also the construction of part of the KLIA Expressway leading to the proposed KL International Airport at Sepang, Selangor.

Services : Detailed Engineering Design & Construction Supervision.

Project value : RM 280 mil (USD 80 mil)

Karnataka Expressways Privatisation, India

Description : A technical and financial feasibility study for the Karnataka State Government. The expressway traversed mainly along the existing highway along the to mountainous terrains from Bangalore City to Devavali. Alternatives studies include outskirts of Bangalore City to the International Airport. Involving three interchanges with a 2.5km spur link to NH 7 at Yelahanka, improvement and upgrading of the existing highway from 2 lane to dual 2 lane facility, 9 by-passes and 9 toll plazas.

The 2nd portion of the feasibility study covered the Bangalore-Mangalore stretch of the National Highways with a length of approximately 200km. Services provided included market study, port planning, road & rail, connectivity, land use planning, wave modelling, development and marketing strategy and financial analysis.

Project value : Rs 500 cr

Nellore By-Pass - Privatisation, Nellore, Andhra Pradesh, India

Description : The by-pass road to Nellore town took off at 164.848km of the existing Madras Vijayawada section of the National Highway on Madras side and traveled through the outskirts of Nellore town, mostly within the extended municipal limits of Nellore town. The total length of the single 2 lane was 17.60km. The alignment cut across four irrigation canals, one major river with structural length of about 800m, one railway line and 6 district sections.

Project value : RM 70 mil (USD 20 mil)

Urban Roads Privatisation, Johor Bahru

Description : A traffic dispersal project upgrading the city's traffic and transport framework besides relieving congestion in the central area of the city. This also comprised the expansion of the causeway complex central area improvement upgrading or radial roads and construction of a new primary road along the city's eastern foreshore.

Project value : RM 1.7 bil (USD 0.5 bil)

World Bank Highway Rehabilitation Project, Malaysia

Description : Under World Bank loan, identified, assessed and rehabilitated selected sections of the Federal trunk road system. A total of six sections, with a combined length of 453km covering Perak, Johor and Pahang. HSSI in association with Tonkin & Taylor International & Carl Brothers were appointed to provide consultancy services for the project.

Services : Consultancy Services

Project value : RM 300 mil (USD 86 mil)



Highway Experience

Upgrading of Lojing to Pos Blau Road

Description : Construction of a 60km road connecting Lojing to Pos Blau passing through one of the most rugged terrains in Malaysia. The elevation of the road ranges from 180 - 2000 m above m.s.l. Scope includes the design of 10 bridges, 7 viaducts major drainage structures, pavement design and environmental management plan.

Services : Detailed Engineering Design & Construction Supervision.

Project value : RM 260 mil (USD 74 mil)

Federal Highway Route II, Subang Airport Interchange Westbound Carriageway Improvement Works

Description : The Subang Airport Interchange was one of the two highway bridges along the Federal Highway Route II project area, from Subang to Klang. The works involved the widening of the existing carriageway which included the demolition of existing bridge structures to cater for new design.

Project value : RM 12 mil (USD 3.5 mil)

Privatisation of NH5 (Tada to Nellore) and NH9 (Vijayawada to Nandigama)

Description : Appointed by CIDB Malaysia for the detailed feasibility studies of four laning approx. 150km national highways in Andhra Pradesh. The objective of the study was to determine viability of privatisation of the above roads. The detailed feasibility report was submitted to the National Highway Authority of India (NHAI)

Project value : RM 1 bil (USD 0.3 bil)

Privatisation of NH2 (Agra to Kanpur), NH5 (Tada to Ichapuram), NH8 (Vadodara to Manor), and NH9 (Hyderabad to Vijayawada)

Description : HSSI was appointed by CIDB Malaysia for the preliminary feasibility studies of four laning (and new expressway) for approx. 2000km of national highways in Uttar Pradesh, Andhra Pradesh, Maharashtra and Gujarat. The objective of the preliminary project proposal was to identify viable stretches of highways for privatisation to National Highway Authority of India (NHAI)

Project value : RM 6 bil (USD 2 bil)

Transportation Master Plans

Description : The Master plan for townships and airports was a key element of the Department's experience. The appropriate Transportation Strategies for implementation were scheduled over the different phases of the project.

Project value : RM 250,000 (USD 71 000)

Traffic Impact Assessment (Various Sites)

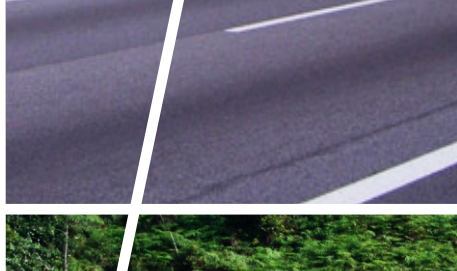
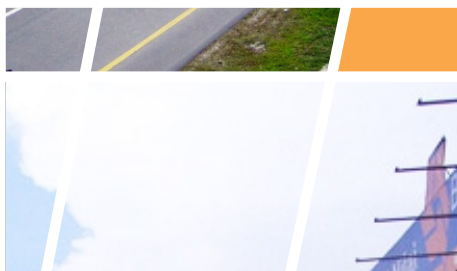
Description : The Traffic Impact Assessment (TIA) investigated the effects of the current traffic congestion, exacerbated by the development. The appropriate mitigatory measures undertaken were outlined for phased implementation, over the duration of the project.

Project value : RM 250,000

Traffic Signal Analysis and Design (Various Sites)

Description : The main access intersection to housing estates was designed and analysed. Various trip generation and attraction rates to ascertain size, layout and appropriate phasing sequence for the signalised junction.

Project value : RM 30,00.00





ENGINEERS

HSS ENGINEERS BERHAD

HEB Group comprises the following companies:

HSS Engineers Berhad (1128564-U)

HSS Engineering Sdn. Bhd. (450753-X)

SMHB Engineering Sdn Bhd (167729-A)

BIM Global Ventures Sdn. Bhd. (1008362-V)

HSS BIM Solutions Pvt. Ltd. (incorporated in India)(U74900TN2012PTC086741)

SMHB Environmental Sdn. Bhd. (258815-X)

Our associated companies held through HSS Engineering Sdn Bhd are as follows:

HSS Integrated Sdn. Bhd. (173262-T)

HSS Mekanikal & Elektrikal Sdn. Bhd. (228667-K)

The associated company held through SMHB Engineering Sdn Bhd is as follows:

SMHB Sdn. Bhd. (63281-X)

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