

EXECUTIVE SUMMARY

PROJECT TITLE	CADANGAN PEMBANGUNAN BERCAMPUR DI ATAS LOT PT 1982 SELUAS 17.37 EKAR, MUKIM ULU TELOM, DAERAH CAMERON HIGHLANDS, PAHANG DARUL MAKMUR
PROJECT INITIATOR	OMNIPLUS DEVELOPMENT SDN BHD (904309-U) NO. 63, JALAN RAJA PEREMPUAN MAZWIN, TAMAN RISHAH 30100 IPOH, PERAK DARUL RIDZUAN TEL: 05-5264 100 FAX: 05-5266 880 ATTN: MR. CHOO SIN KIEN
EIA CONSULTANT	VT SOIL TECH SDN BHD (812059-T) NO. 99, JALAN BK 6E/1, BANDAR KINRARA 47180 PUCHONG, SELANGOR DARUL EHSAN TEL: 03-8062 9388 FAX: 03-8062 9377 ATTN: IR. DR. TEW KIA HUI

1 INTRODUCTION

- 1.1 The proposed mixed development (comprising a plaza, shop-offices and service apartments) is to be carried out on Lot PT 1982, Mukim Ulu Telom, District of Cameron Highlands, Pahang Darul Makmur and hereinafter referred to as the 'Proposed Project'. The total area of the Project Site is 17.37 acres (7.03 hectares). The Project Site is under the jurisdiction of the local authority, Majlis Daerah Cameron Highlands (MDCH). The Proposed Project is initiated and shall be developed by Omniplus Development Sdn Bhd and hereinafter referred to as the 'Project Initiator'.
- 1.2 Title of the Proposed Project shall be known as "**CADANGAN PEMBANGUNAN BERCAMPUR DI ATAS LOT PT 1982 SELUAS 17.37 EKAR, MUKIM ULU TELOM, DAERAH CAMERON HIGHLANDS, PAHANG DARUL MAKMUR**".
- 1.3 The Proposed Project is subjected to a Preliminary Environmental Impact Assessment (PEIA) as required under the Guidelines on Highland Development published in 2005 which is now superseded by the Highlands and Hillslopes Development Planning Guidelines, published by the Department of Town and Country Planning (JPBD), Ministry of Housing and Local Government on 15 October 2009.
- 1.4 The Project Site is located within the District of Cameron Highlands as shown in **Figure ES1.1**. Geographically, it is sited at latitude of 04° 33' 19" N to 04° 33' 29" N and longitude of 101° 24' 48" E to 101° 24' 56" E. The Key Plan and Location Plan for the Project Site are as shown in **Figure ES1.2**.

PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT (PEIA)

CADANGAN PEMBANGUNAN BERCAMPUR DI ATAS LOT PT 1982 SELUAS 17.37 EKAR, MUKIM ULU TELOM, DAERAH CAMERON HIGHLANDS, PAHANG DARUL MAKMUR

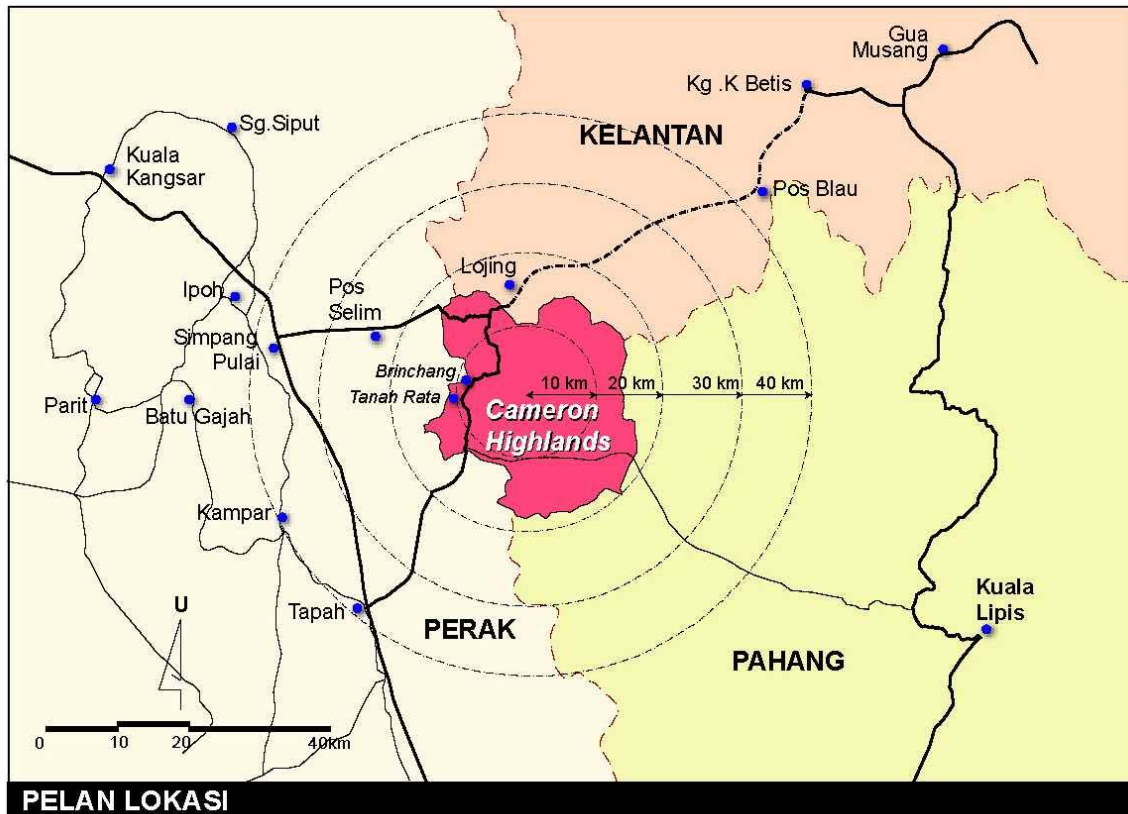
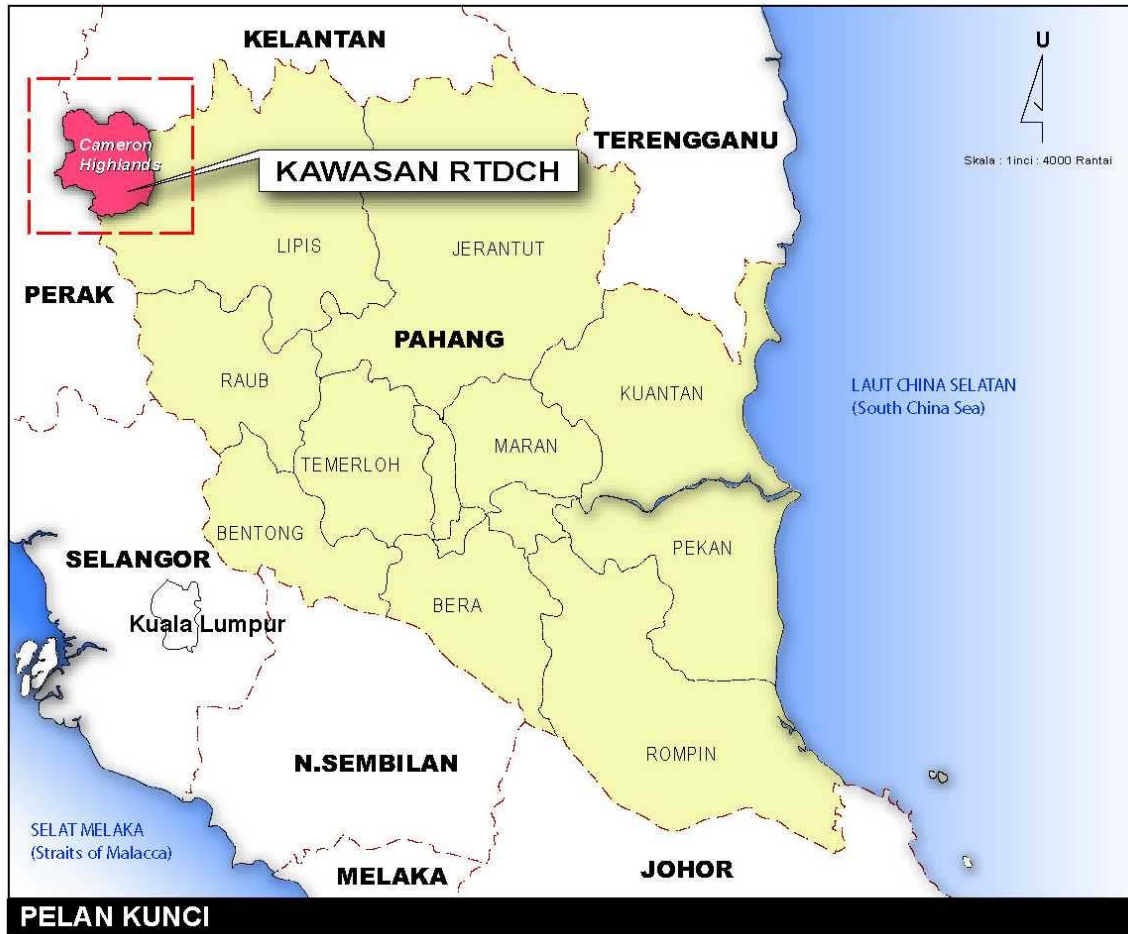


Figure ES1.1: Key and Location Plan for District of Cameron Highlands

Source: RTDCH 2003 – 2015 (2007)

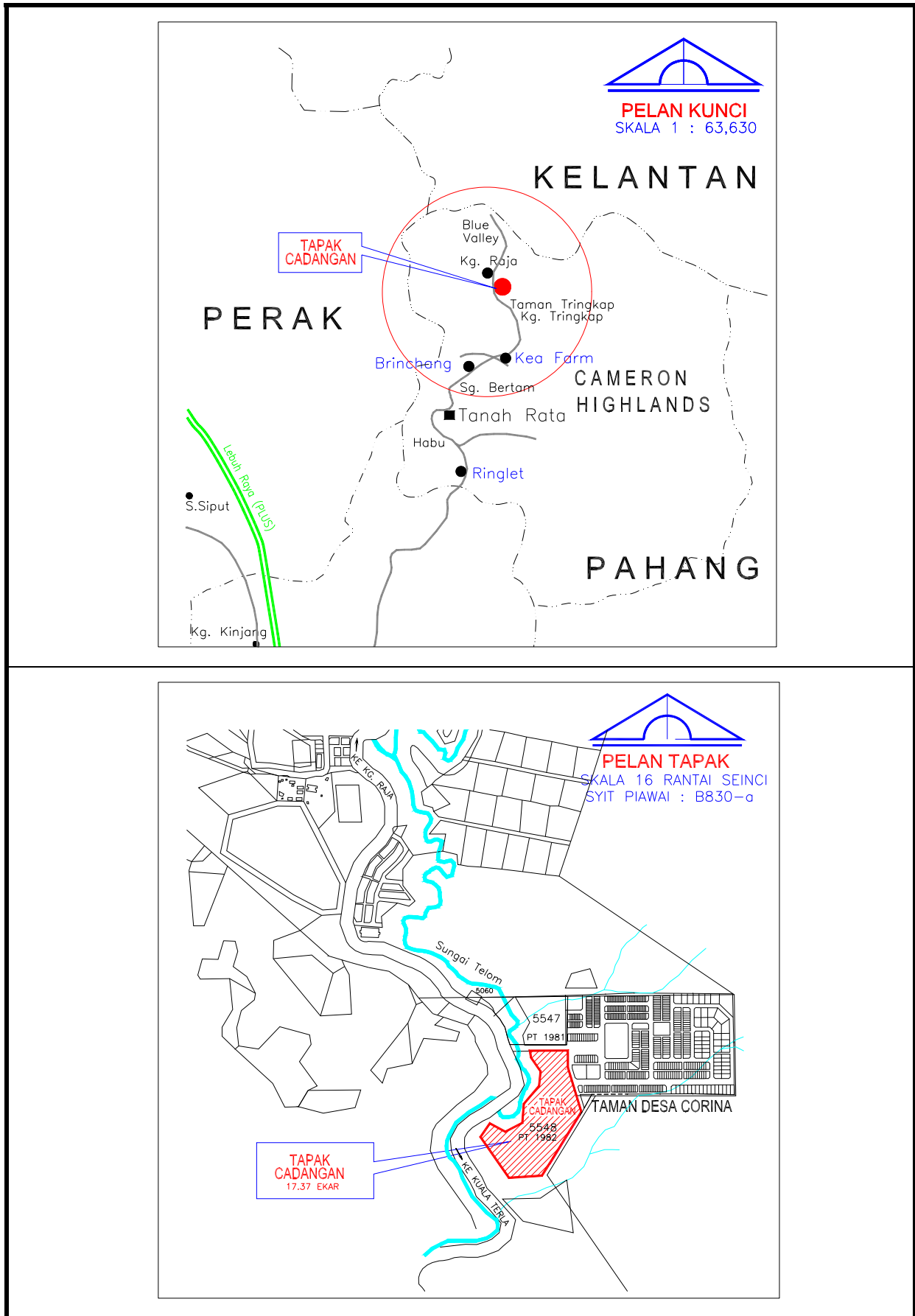


Figure ES1.2: Key and Location Plan for Project Site

Source: Jurukur Terra Consult Licensed Suryevor (2010)

2 STATEMENT OF NEED

- 2.1 The implementation of the Proposed Project should be literally viewed as an effort by the Project Initiator to optimize the current land use from an unproductive piece of land next to the Brinchang – Kg. Raja main road, to be converted into an exclusive mixed development (comprising a plaza, shop-offices and service apartments), where the property's commercial market value would be further enhanced compared to that of an unused land. Therefore, this will enhance the quality of life as well as to provide a planned commercial and dwelling scheme for the local people.
- 2.2 Based on RTDCH 2003-2015, the Project Site lies within the settlement zone. Besides that, the surrounding environment complements the Proposed Project which is located in the vicinity of an existing commercial and housing scheme, Taman Desa Corina as illustrated in the current land use for BP2.
- 2.3 Cameron Highlands is also considered as a unique highlands tourism resort destination both locally and internationally. Tourism products in the highlands needed to be increased and enhanced in order to retain its premier tourism position. Therefore, the Proposed Project complements these efforts by introducing an exclusive mixed development that integrates surrounding natural environment within its landscaping scheme.

3 PROJECT DESCRIPTION

- 3.1 The major development components as illustrated in **Figure ES3.1** consist of the following:
- Commercial units consisting of a plaza, shop offices and service apartments;
 - Landscape, green and open areas, including river reserves;
 - Traffic circulation system; and
 - Amenities such as TNB sub-station, sewage treatment plant and detention pond.
- 3.2 The Layout Plan for the Proposed Project as shown in **Figure ES3.1** had been given 'no objection' by JPBD Pahang (**Appendix 1F**) and was issued a Planning Permission Approval (with extension time) by MDCH (**Appendix 1M**). Meanwhile, **Figure ES3.2** shows the 3-Dimensional View of the layout within the Project Site.

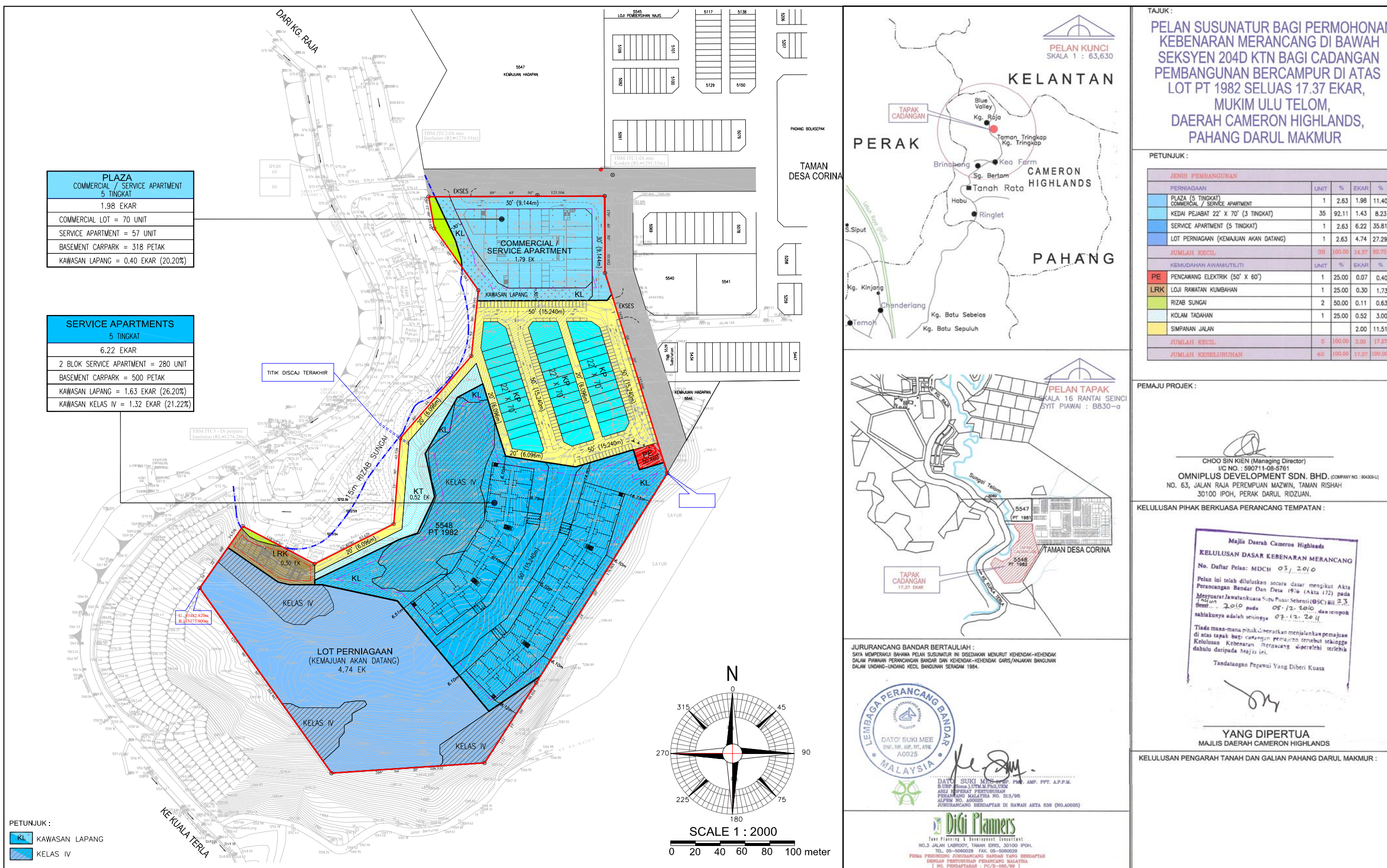


Figure ES3.1: Layout Plan for the Proposed Project

Source: DiGi Planners (2010)



Figure ES3.2: 3-D Proposed Layout Arrangement for the Project Site (View from North)

- 3.3 The Layout Plan of Proposed Project shows a systematic and effective way to accomplish an exclusive, dynamic and well-planned mixed development. The concept of this planned development has taken the initiative to consider topography constraints and existing environment features into the Proposed Project. With a combination of innovative concepts such as aesthetic values, community harmony and environmental friendly designs, the Proposed Project will provide a conducive environment to live in.

3.4 The key project features for the Proposed Project are summarized in **Table ES3.1**.

Table ES3.1: Summary of Key Project Features for Proposed Project

Item	Description	Comments
1.	Commercial Zone	<i>1 unit Plaza – Commercial Lot / Service Apartment (5-storey) 1.98 acre 11.40% of overall project area</i>
		<i>35 units of Shop Offices – 20' x 70' (3-storey) 1.43 acres 8.23% of overall project area</i>
		<i>280 units of Service Apartments (5-storey) 6.22 acres 35.81% of overall project area</i>
		<i>Commercial Lot (Future Development) 4.74 acres 27.29% of overall project area</i>
2.	TNB Sub-Station	<i>1 unit (double chamber specification – 50' x 60') 0.07 acre 0.40% of overall project area</i>
3.	Sewage Treatment Plant	<i>1 unit 0.30 acre 1.73% of overall project area</i>
4.	Detention Pond	<i>1 unit 0.52 acre 3.00% of overall project area</i>
5.	River Reserve	<i>0.11 acre 0.63% of overall project area</i>
6.	Road Reserve	<i>2.00 acres 11.51% of overall project area</i>
7.	Class IV Terrain	<i>2.40 acres 13.80% of overall project area</i>
8.	Green / Open Area	<i>2.03 acres 11.69% of overall project area</i>
9.	Electricity Demand	<i>3-Phase 415V 60A power supply 3,227.7 kW (day) 2,691.5 kW (night)</i>
10.	Water Demand	<i>886,720 L/day</i>
11.	Telecommunication Demand	<i>967 lines</i>
12.	Sewage Generation	<i>662,625 L/day 74.73% of water demand</i>
13.	Solid Waste Generation	<i>2,945 kg/day Collection and disposal under MDCH jurisdiction</i>

4 PROJECT OPTIONS

4.1 The Project Initiator shall also take cognizance of the surrounding land use and review the mitigating measures in order to prevent or minimize any adverse environmental impacts arising from the project activities. A quick comparison of the potential environmental, economical and social impacts between the 'No Project' and 'Implementation of Project' option are summarized in **Table ES4.1**.

Table ES4.1: Comparison 'No Project' and 'Implementation of Project' Options

No.	Item	'No Project' Option	'Implementation of Project' Option
1.	Land Use Impact	High possibility for land encroachment and subsequently unplanned activities that may impact the existing environment.	Planned development i.e. an exclusive mixed development where the environmental concerns are taken into consideration.
2.	Revenue To Government	Low income from tax revenue.	Increase in tax and assessment revenue.
3.	Employment	Current state of employment.	Attract investment and hence enhance employment opportunities.
4.	Social	Current level of social benefit.	Increase social benefit directly via employment and business opportunity and indirectly via increase in government expenditure for socio-economic development based on increased revenue from tax and assessment.
5.	Noise level	Current state of noise level.	Noise level will increase during construction but will reduce during operation stage. Mitigating measures shall be put in place if necessary.
6.	Air Quality	Current state of air quality.	Total Suspended Particulate (TSP) will increase during construction and will reduce for post-construction period. Mitigating measures shall be put in place if necessary.
7.	Water Quality	Current state of water quality.	Water quality would not further deteriorate due to mitigation measures such as detention pond and sewage treatment plant being put in place.

5 EXISTING ENVIRONMENT

5.1 **TOPOGRAPHY:** The ground elevation is ranging from low ground of approximately EL 1270.00 m at the western section and EL 1275.00 m at the northern section to a maximum height of EL 1330.00 m at the southern section of the Project Site as shown in **Figure ES5.1**.

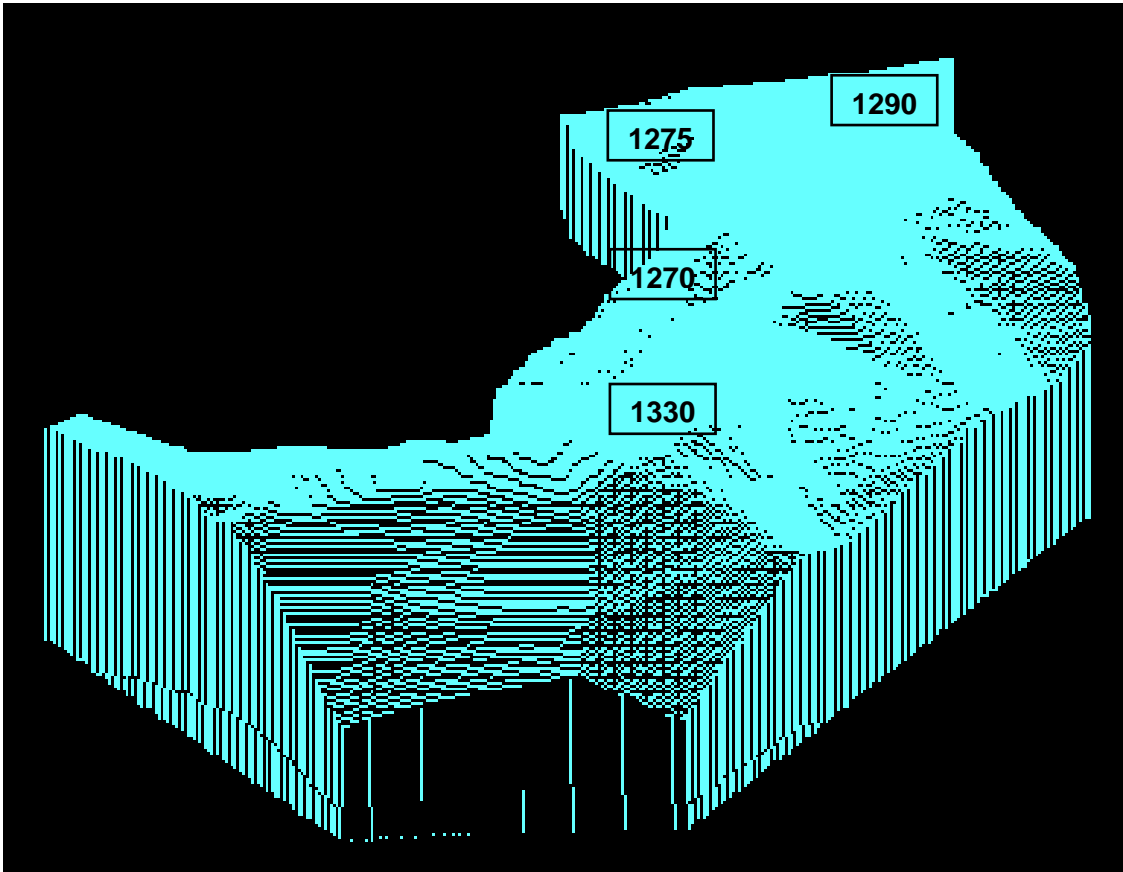


Figure ES5.1: 3-D Elevation of Existing Project Site

- 5.2 **HYDROLOGY:** The Project Site lies besides Sg. Telom within a distance of 15 m apart, which is flowing southwards along the western boundary. This river then flows easterly again, subsequently joining Sg. Jelai, then Sg. Pahang and eventually discharges to South China Sea at Kuala Pahang, Pekan.
- 5.3 **GEOLOGY:** The Project Site is situated in the granite area but the bedrock of the area has undergone severe weathering process and become completely weathered leaving a very thick granite residual soil which varies from sandy silt to silty sand. However, only rock exposures can be seen at *Locality 2* and *Locality 12*. A few granite boulders can be seen on the cut slopes at *Locality 8* and along the riverbanks of Sungai Telom at the north-western section of the Project Site. From the field observations, the weathering grades for these boulders can be classified as Grade III or fresher.
- 5.4 **GEOLOGICAL TERRAIN MAPPING:** The result of geological terrain mapping works carried out for the Project Site is tabulated in **Table ES5.1**.

Table ES5.1: Construction Suitability Classes for the Project Site

CLASS	DESCRIPTION	AREA	
		Acre	Percent
I	<i>Suitable for development</i>	5.30	30.50
II	<i>Suitable for development</i>	4.00	23.05
III	<i>Suitable for development with detail geotechnical and geological studies</i>	5.67	32.65
IV	<i>Not suitable for development (green area recommended)</i>	2.40	13.80

The proposed development layout is superimposed on the Construction Suitability Plan (see **Figure ES5.2**) to give a better picture of the Proposed Project with respect to the construction suitability.

5.5 SUBSURFACE INVESTIGATION: The soil investigation works were carried out for 10 no. of boreholes for the Project Site. The subsurface soil stratification encountered at the Project Site can be subdivided into three layers:

- i. Top layer consists of Soft to Very Stiff Sandy SILT or Very Loose to Medium Dense Silty SAND with the thickness of this layer from 4.5 m to 31.5 m.
- ii. Very Hard Sandy SILT or Sandy Silty CLAY to Dense to Very Dense Silty SAND with the depth ranges from 4.5 m to more than 40.0 m.
- iii. Granite bedrock which dominates the northern and western sections of the Project Site with rock head depth ranging from 13.5 m to 21.0 m.

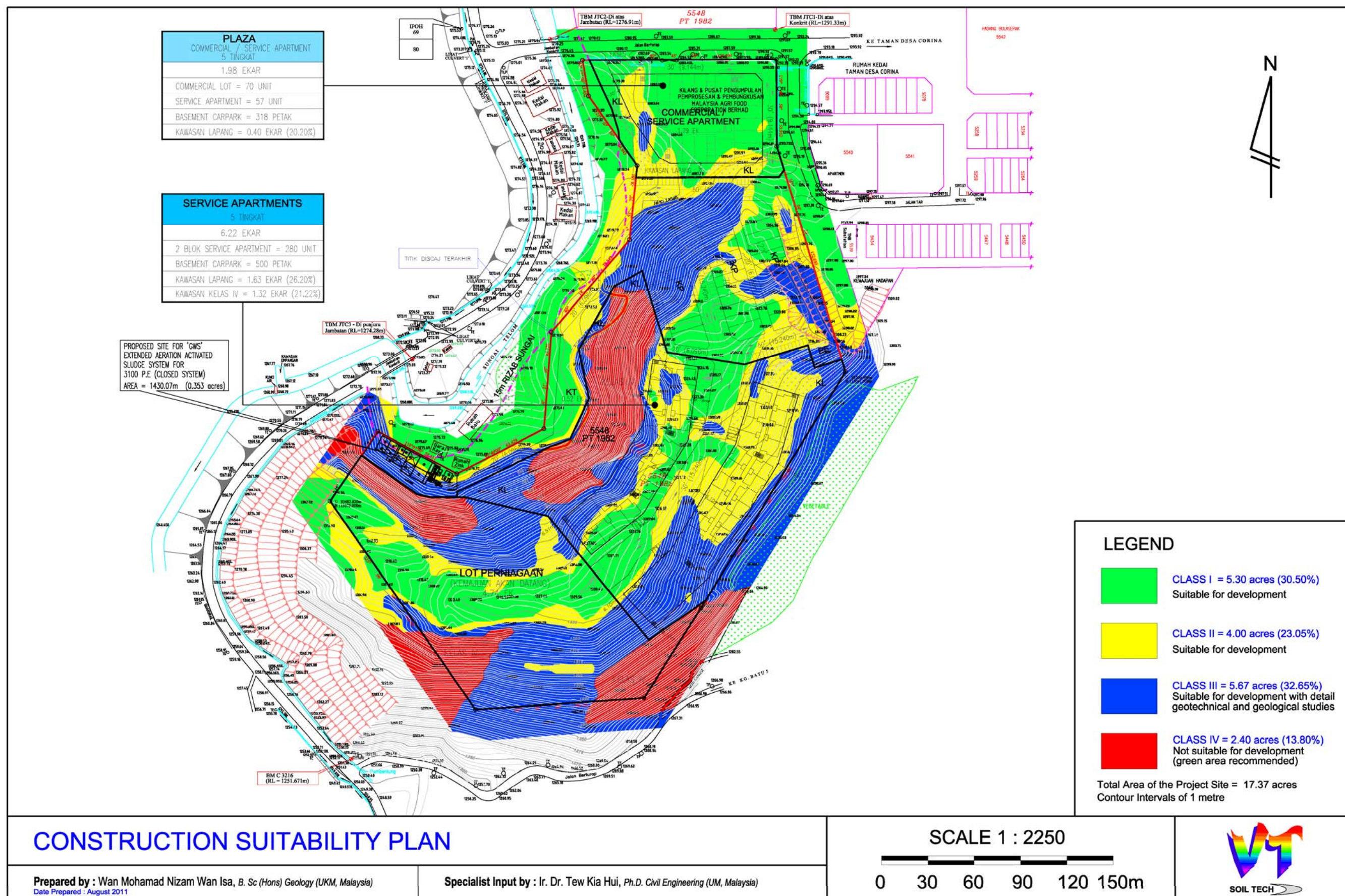


Figure ES5.2: Construction Suitability Plan for the Project Site

- 5.6 **GEOTECHNICAL INVESTIGATION:** Groundwater table conditions as observed on-site by boreholes is about 1.90 m to 11.50 m below ground level. The residual soils resulting from the in-situ decomposition of the rock formation are mainly sandy clay, sandy silt, silty clay and clayey silt depending on the types of parent rock and their texture. The Geotechnical and Soil Erosion Assessment Report (GSEAR) for the Proposed Project was given 'no objection' by the Slope Engineering Division, JKR (**Appendix 10**).
- 5.7 **LAND USE:** Results of the assessment indicate that the dominant type of current land use setting within the 3-km impact area is forested land (68.91%). This is followed by agricultural land (27.53%), residential (0.95%) and road (0.92%). The Project Site is also surrounded by various build-up areas in just within 500 m away indicating that the Proposed Project is not isolated from land development schemes.
- 5.8 **WATER QUALITY:** Two sampling points (defined as **W1** and **W2**) are established. These sampling points are positioned in a way to give a good representation of the existing water quality near / at the Project Site prior to the implementation of the Proposed Project. **W1** is located upstream of the Project Site whereas **W2** is located downstream of the Project Site. The Water Quality Index for sampling points **W1** and **W2** are calculated and tabulated in **Table ES5.2**.

Table ES5.2: Water Quality Index (WQI) for Sampling Points **W1** and **W2**

Parameter	W1		W2	
	Value	Class	Value	Class
DO (mg/l)	7.10	I	6.9	II
BOD(mg/l)	2.1	II	2.8	II
COD(mg/l)	21.8	II	18.7	II
AN (mg/l)	0.3	III	0.2	II
SS (mg/l)	26	II	23	II
pH	6.73	II	6.58	II
SI _{DO}	89	-	87	-
SI _{BOD}	92	-	89	-
SI _{COD}	72	-	74	-
SI _{AN}	69	-	80	-
SI _{SS}	83	-	85	-
SI _{pH}	99	-	99	-
WQI	84	II	85	II

5.9 **AIR QUALITY:** Two air quality monitoring points, **A1** and **A2** are identified as follows:

A1 – sensitive receptor (food stalls – 50 m away), north west of the Project Site

A2 – sensitive receptor (apartment – 50 m away), north east of the Project Site

The results are tabulated in **Table ES5.3** and compared with the Recommended Malaysian Air Quality Guidelines. The overall air quality in the areas surrounding the Project Site is within the guidelines.

Table ES5.3: Summary of Baseline Air Quality Monitoring Result for Points **A1** and **A2**

Parameter	Location		Unit	Recommended Malaysian Air Quality Guidelines
	A1	A2		
Total Suspended Particles as TSP	39	46	µg/m ³	260 (24 hours averaging time)
Sulphur Dioxide as SO ₂	5.26	5.68	µg/m ³	105 (24 hours averaging time)
Nitrogen Dioxide, NO ₂	7.53	10.00	µg/m ³	320 (1 hour averaging time)

5.10 **NOISE LEVEL:** The noise level monitoring points, **N1** and **N2** are located within 10 m apart from the respective air quality monitoring points, **A1** and **A2**. The noise level monitoring results are tabulated in **Table ES5.4** and compared with DOE Guidelines (*Schedule 1: Maximum Permissible Sound Level (L_{Aeq}) for Planning and New Development; The Planning Guidelines for Environmental Noise Limits & Control, Department of Environment, 2004*).

Table ES5.4: Summary of Noise Level Monitoring Result for Points N1 and N2

Time	Location		Unit	Guidelines
	N1	N2		
Day	61.4	59.3	L _{Aeq} dB(A)	60
Night	43.3	36.3	L _{Aeq} dB(A)	50

The Maximum Permissible Sound Levels (L_{Aeq}) recorded at location **N2** during both day and night time, and **N1** during night time only were below the maximum permissible sound level for Designated Mixed Development Areas (Residential – Commercial) of 60 dB(A) and 50 dB(A) respectively. For location **N1** during day time, the value recorded is slightly above the guidelines mainly due to the noise generated from vehicular movement along the Brinchang – Kg. Raja main road.

- 5.11 **FLORA:** The flora composition of the Project Site is much typical to the higher altitude area. The wild flora (trees) are well represented by a sizable number of species and well established, having grown to a height of above 10 to 15 meters. The peripheral undergrowth is mostly ferns and small herbal vegetation, while deeper inside the natural vegetation is established. The overall flora density and representation is good at the Project Site, comprising about 36 *genera* and about 66 species, consisting mainly of trees, shrubs, climbers, gingers and orchids. Most of the flora diversity is concentrated at the frontage of the Project Site, facing towards the road frontage. The vegetation distribution is not even, and it can be broadly subdivided into three vegetation zones, which have identified as Zones A, B, and C. Among the tree species observed on-site are *Cratoxylum arborescence*, *Engelhardtia roxburghiana*, *Lindera pipericarpa*, *Rhodoleia championii* and *Wendlandia burkillii*.
- 5.12 **FAUNA:** The isolated nature of the secondary forest within the Project Site was a hindrance for large animals to occupy and use the area occasionally. Most of the species identified were small mammals, birds, reptiles and insects. Identification was by sightings and no trap or collection was carried out. Apart from the above animals, the insect population on the Project Site was very visible. The most important was the presence of a few colonies of bee (*Apis spp.*) and also the numerous butterflies. The butterflies were not trapped or not collected due to the very steep terrain and dense foliage.
- 5.13 **SOCIO-ECONOMIC:** In general, the socio-economic activities within the Project Site are focused on agriculture and agro-related activities. However, at the surrounding area outside the Project Site within a radius of up to 2 km, it was observed that the socio-economic activities are more varied, encompassing Taman Desa Corina nearby the Project Site, the Kuala Terla and Kg. Raja towns which are about 2 km away. Kg. Raja is also the stopover location for tourists coming to Cameron Highlands from Simpang Pulai – Gua Musang Highway. These towns, surrounded by human settlements including new villages, basically serve as service centres, but with rather limited number of hotels, restaurants, and shops. Besides that, there are also a number of government institutions, including schools, health clinics, police stations and public amenities such as bus and taxi stands, community halls, mosques and temples to serve the local population and tourists. Most of the other areas within the 2 – 3 km radius from the Project Site are covered with forest, vegetable farms and a few small settlements where the main socio-economic activities are agriculture or agro-related activities.

6 POTENTIAL SIGNIFICANT IMPACTS AND MITIGATION MEASURES

6.1 **SENSITIVE RECEPTORS:** The nearest sensitive receptors that are likely to be affected by the Proposed Project are as shown in **Figure ES6.1**.

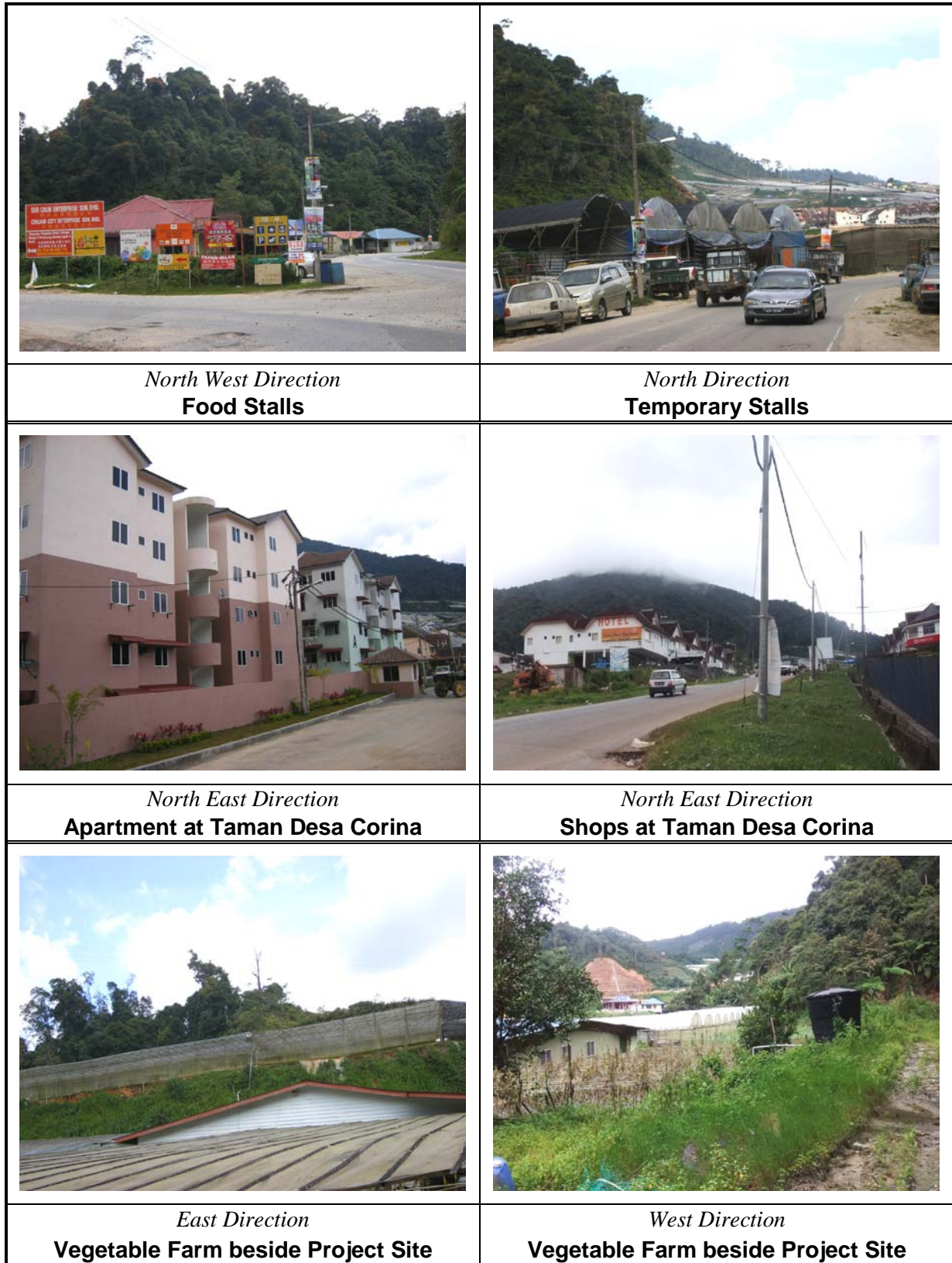


Figure ES6.1: Sensitive Receptors located within 500 m from Project Site

6.2 **EARTHWORKS:** Earthworks Plan as proposed by VT Soil Tech Professional, would involve a balanced earth cutting and filling of 225,000 m³ within the Project Site.

6.3 **LANDSLIDE HAZARD ZONATION MAP:** Results are summarized in **Table ES6.1**.

Table ES6.1: Landslide Hazard Zonation Map (LHZM) for the Project Site

Landslide Zone	Area (acres)	Area (%)
I – Very Low Hazard	4.56	26.25
II – Low Hazard	6.26	36.04
III – Moderate Hazard	6.30	36.27
IV – High Hazard	0.25	1.44
V – Very High Hazard	0.00	0.00

6.4 **SOIL EROSION LOSS:** Results are summarized in **Table ES6.2**.

Table ES6.2: Estimation of Soil Erosion Loss, A for the Project Site

Soil Erosion Loss, A (t/ha/yr)	Development Phase (% Area)		
	Pre-Construction	Construction	Operational
< 50	41.16	6.79	80.48
51 – 100	39.32	13.07	19.52
101 – 150	19.52	27.81	0.00
> 150	0.00	52.33	0.00

The weighted soil erosion loss, A for different phases for the Project Site is detailed out as below:

- | | | |
|---------------------------|---|----------------|
| 1) Pre-construction Phase | - | 34.76 t/ha/yr |
| 2) Construction Phase | - | 187.84 t/ha/yr |
| 3) Operational Phase | - | 64.18 t/ha/yr |

6.5 **STORMWATER MANAGEMENT:** The proposed drainage system are checked for peak discharges for pre-development and post-development scenarios based on the 2-year, 10-year, 50-year, and 100-year Average Recurrence Intervals (ARI). The design a detention pond on-site is described in **Appendix 5A**. The Project Site's reduced post-development runoff hydrograph is typically designed so that post-development peak flow is equal to or less than the pre-development peak flow rate. By providing a detention pond size of 2,100 m² (0.52 acres) with depth of 1.7 m, the post-development outflow from these catchments has been reduced to 0.446 m³/s from 0.457 m³/s (pre-development). Thus, compliance is achieved in accordance to the Urban Stormwater Management Manual Malaysia (MaSMA).

6.6 **TRAFFIC CIRCULATION:** The traffic circulation system is developed to achieve high accessibility and to integrate into the existing network by taking into account safety issues. The main entrance and exit for the Proposed Project shall be connected directly to the Brinchang – Kg. Raja main road located to the north of the Project Site via a 66 feet wide major service road. For internal traffic circulation, traffic network within the commercial development shall be serviced by 50 feet wide roads, and the back and side lanes shall be serviced by 20 feet wide roads. Access surrounding the plaza shall be serviced by a 30 feet privately maintained road.

6.7 **SUMMARY OF POTENTIAL SIGNIFICANT IMPACTS AND MITIGATION MEASURES:** A summary of all the impacts that are likely to be generated by the Proposed Project and the mitigation measures proposed is given in **Table ES6.3**. Mitigation measures are also specifically proposed for significant impacts and the formulation of ***Significant Impact Mitigation Plan*** is described in **Table ES6.4**.

Table ES6.3: Summary of Potential Significant Impacts and Mitigation Measures for Proposed Project

ACTIVITY		POTENTIAL SIGNIFICANT IMPACTS			MITIGATION MEASURES
		PRE-CONSTRUCTION PHASE	CONSTRUCTION PHASE	OPERATIONAL PHASE	
1.	RECONNAISSANCE STUDY - Land survey and soil investigation - Environmental baseline monitoring	• Activity is localized and not expected to generate any disturbance to the environment	N/A	N/A	None
2.	SITE CLEARING - Clearing of existing vegetation and construction of access routes	• Noise and dust disturbances • Spillage of oil and grease on-site	N/A	N/A	<ul style="list-style-type: none"> Apply Erosion and Sediment Control Plan (Table ES6.4 – ESCP) Proper maintenance of machineries Strictly no open burning
3.	EARTHWORKS - On-site activities that include creating building platform levels via earth cut and fill which may involve stabilization of slopes	N/A	<ul style="list-style-type: none"> Soil erosion impact on-site and siltation of river nearby Dust generation on-site and noise disturbance Slope failure occurrences Flooding of waterways 	N/A	<ul style="list-style-type: none"> Comply with Earthworks Plan and regulations (Table ES6.4 – EWP) Apply Erosion and Sediment Control Plan (Table ES6.4 – ESCP) Apply Slope Stabilization and Management Plan (Table ES6.4 – SSMP)
4.	WATER POLLUTION - On-site activities that may pollute water quality	N/A	<ul style="list-style-type: none"> Siltation of river causing deterioration of water quality Indiscriminate dumping of waste and sewage discharge Oil and grease contamination <p style="text-align: center;">RESIDUAL IMPACT</p>	<ul style="list-style-type: none"> Failure of STP on-site causing discharge that fails to comply with Standard A level Increase of water pollution due to increase of population on-site <p style="text-align: center;">RESIDUAL IMPACT</p>	<ul style="list-style-type: none"> Apply Erosion and Sediment Control Plan (Table ES6.4 – ESCP) Provide proper sanitary facilities and disposal of scheduled wastes during construction phase Desludge STP periodically
5.	STORMWATER - On-site activities that may cause flooding to vicinity and downstream areas	N/A	<ul style="list-style-type: none"> Loss of vegetation cover or poor drainage facilities on-site may lead to increase of runoff causing flooding occurrence 	<ul style="list-style-type: none"> Failure of detention pond on-site causing excessive discharge to off-site areas <p style="text-align: center;">RESIDUAL IMPACT</p>	<ul style="list-style-type: none"> Apply Erosion and Sediment Control Plan (Table ES6.4 – ESCP) Apply Stormwater Management Plan (Table ES6.4 – SWMP) Periodical inspection of detention ponds
6.	AIR POLLUTION - On-site activities that may lead to air pollution	N/A	<ul style="list-style-type: none"> Exposed earth and constant movement of machineries on-site cause air pollution 	<ul style="list-style-type: none"> Air pollution due to dust, smoke and exhaust gases Increase of air pollution on-site due to increase of vehicular movements <p style="text-align: center;">RESIDUAL IMPACT</p>	<ul style="list-style-type: none"> Constant wetting of roads under construction to prevent fugitive dust Provide proper traffic management on-site during construction phase Planting of trees to absorb air pollutants during operational phase
7.	NOISE POLLUTION - On-site activities that may lead to noise pollution	N/A	<ul style="list-style-type: none"> Ongoing construction activities and constant movement of machineries on-site cause noise pollution 	<ul style="list-style-type: none"> Noise pollution on-site due to increased vehicular movements <p style="text-align: center;">RESIDUAL IMPACT</p>	<ul style="list-style-type: none"> Limit construction activities to daytime only Conduct Traffic Assessment and Management Plan (Table ES6.4 – TAMP)
8.	SOLID WASTE - Human activities that generates solid waste	N/A	<ul style="list-style-type: none"> Improper disposal of construction and domestic waste will release contaminants Affect aesthetics of the Project Site 	<ul style="list-style-type: none"> Improper disposal of domestic waste on-site may affect aesthetics and cause water contamination <p style="text-align: center;">RESIDUAL IMPACT</p>	<ul style="list-style-type: none"> Provide Open Top Container (OTC) for construction debris and bury biomass on-site during construction phase Implement a proper and adequate waste collection system during operational phase
9.	BIOLOGICAL ENVIRONMENT - On-site activities that may lead to changes in the biological composition	N/A	<ul style="list-style-type: none"> Loss of vegetation cover on-site Fauna habitats on-site will be adversely affected <p style="text-align: center;">RESIDUAL IMPACT</p>	<ul style="list-style-type: none"> Improper management of agrochemical used in landscaping components 	<ul style="list-style-type: none"> Staging of earthworks to allow migration of fauna and relocation of flora species Implement good agricultural and plant conservation practices
10.	SOCIO-ECONOMIC - On-site activities that may lead to changes in the socio-economic behaviour	N/A	<ul style="list-style-type: none"> Employment opportunity for local population Foreign labour may pose anti-social behaviour 	<ul style="list-style-type: none"> Increase revenue and employment 	<ul style="list-style-type: none"> Provide adequate facilities for temporary construction workers Positive impact generated from increased socio-economic activities during operational phase

Table ES6.4: Significant Impacts Mitigation Plan for Proposed Project

MITIGATION PLAN	UNIQUE FEATURES	APPLICATION	REFERENCE DOCUMENTS / PLANS
EARTHWORK PLAN (EWP)	<ul style="list-style-type: none"> - Balanced cut and fill volume of 225,000 m³ - Shall be carried out in 2 stages as according to ESCP Stage 1 & Stage 2 Construction - Except for unavoidable road development, Class IV slopes shall remain as green areas - Proposed 2 units of sediment basin (SB1 & SB2) 	<ul style="list-style-type: none"> - Determining amount of earthworks to be carried out - Indicating specifically the cut and fill locations on-site and access routes to Project Site - Indicating the location of sediment basin, earth drains and other relevant erosion control structures - Indicating the platform level for proposed buildings and relevant structures 	APPENDIX 6: DRAWING PLANS EW Layout Plan: 2011/02/OD/CH/EW/LP/01 EW Cross-Section: 2011/02/OD/EW/CS/01 – 05 EW Retaining Wall: 2011/02/OD/EW/DT/01 – 02 <i>Technical Agency Approval / Comments: Appendix 1K</i> <i>Technical Agency Approval / Comments: Appendix 1O</i>
EROSION AND SEDIMENT CONTROL PLAN (ESCP)	<ul style="list-style-type: none"> - Introduction of 2 ESCP Construction Stages - BMPs introduced on-site to include the check dams, earth drains, silt fences, temporary waterway crossings and wash troughs - Sediment Basin, SB1 [20m (W) x 43m (L) x 1.5m (D)] - Sediment Basin, SB2 [17m (W) x 36m (L) x 1.5m (D)] 	<ul style="list-style-type: none"> - Planning and scheduling of earthworks - Providing specific control measure including physical stabilization, diversion of runoff, flow velocity reduction and sediment trapping / filtering on-site - Providing dust control measure via the application of Best Management Practices (BMPs) 	APPENDIX 3: GEOTECHNICAL ASSESSMENT Appendix 3C: Specification for Closed Turfing Appendix 3D: Specification for TRM & Multi-Strand Geogrid APPENDIX 6: DRAWING PLANS ESCP Plan: 2011/02/OD/CH/ESCP/STG/01 – 03 BMP Plan: 2011/02/OD/CH/ESCP/BMP/01 – 04 <i>Technical Agency Approval / Comments: Appendix 1K</i>
STORMWATER MANAGEMENT PLAN (SWMP)	<ul style="list-style-type: none"> - Provision of half-round drain for roadside drainage - Provision of berm drains for slope drainage - Provision of sumps and culverts for waterway crossing - Proposed 1 unit of detention pond (DP1) 	<ul style="list-style-type: none"> - Indicating layout of slope drains, roadside drains, sumps and detention ponds on the Project Site - Indicating the detail design for drainage structures - Providing computation on pre and post-development peak discharge flow 	APPENDIX 5: DRAINAGE ASSESSMENT Appendix 5A: Stormwater Management Calculation and Report APPENDIX 6: DRAWING PLANS Drainage Layout Plan: 2011/02/OD/CH/DR/LP/01 R&D Details: 2011/02/OD/CH/RD/CS/01 & LS/01 – 02 Detention Pond Detail: 2011/02/OD/CH/DR/DP/01 – 02 River Cross Section: 2011/02/OD/CH/DR/RS/01 <i>Technical Agency Approval / Comments: Appendix 1D</i>
SLOPE STABILIZATION AND MANAGEMENT PLAN (SSMP)	<ul style="list-style-type: none"> - Carried out slope stability analyses at various earthwork cross-sections - Analyze Factor of Safety (FOS) against instability for both global and localized stability ranges from 1.305 to 2.469 in the long term (after stabilization) - Provision of soil nails and horizontal drains to reinforce selected slopes - Detailing of the Reinforced Earth (R.E.) Retaining Wall and Reinforced Concrete (R.C.) Retaining Wall 	<ul style="list-style-type: none"> - Indicating location and detailing of slope stabilization and slope protection measures - Providing specifications and construction method statements for geotechnical slopes design - Providing detailing on slopes inspection and management 	APPENDIX 3: GEOTECHNICAL ASSESSMENT Appendix 3B: Specification for Permanent Soil Nailed Slope Appendix 3E: Method Statement for Permanent Soil Nailed Slope Appendix 3F: Method Statement for R.C. Retaining Wall APPENDIX 6: DRAWING PLANS EW Retaining Wall: 2011/02/OD/EW/DT/01 – 02 Slope Drainage Cross Section: 2011/02/OD/CH/DR/TS/01 <i>Technical Agency Approval / Comments: Appendix 1O</i>
TRAFFIC ASSESSMENT AND MANAGEMENT PLAN (TAMP)	<ul style="list-style-type: none"> - Level of Service (LOS) for Jalan Brinchang – Kg. Raja is still within acceptable limit of LOS (A) - From Main Road (FR 59) to Project Site: LOS (A) - From Project Site towards Main Road (FR 59): LOS (B) 	<ul style="list-style-type: none"> - Assessing the current traffic volume and estimate future traffic volume from and to the Project Site - Estimating the distribution and assignment of trips to the existing road network 	APPENDIX 6: DRAWING PLANS Road Junction Layout Plan: 2011/02/OD/CH/RD/LP/02 Road Marking & Std. Traffic Signs: 2011/02/OD/CH/RD/DT/02

7 FRAMEWORK FOR ENVIRONMENTAL MANAGEMENT PLAN

7.1 The framework for environmental management plan for the Project Site should address the following environmental issues which include:

- Planning an earthworks implementation schedule;
- Earthworks and ESCP compliance with adherence to Best Management Practices, BMPs (**Appendix 6: Drawing Plans**);
- Establishment of site drainage and stormwater management plans, incorporating drainage network and design of a detention pond (**Appendix 6: Drawing Plans**);
- Water quality compliance to the regulatory standards as discussed in **Chapter 5**;
- Air quality compliance to the regulatory standards as discussed in **Chapter 5**;
- Noise level compliance to the regulatory standards as discussed in **Chapter 5**;
- Establishing a maintenance programme for pollution control structures;
- Scheduling piling activities to daytime hours;
- Scheduling of water spraying to earth roads and paths especially during dry weather;
- Planning of traffic management for construction vehicles;
- Establish a health and safety management plan that specifies and records medical examinations and screening of on-site workers, in integration with the safety guidelines for the earthworks and construction workers; and
- Formulation and implementation of other plans as required by the DOE and other regulatory bodies before execution of works on site.

8 CONCLUSION

8.1 The implementation of the Proposed Project should be literally viewed as an effort by the Project Initiator to optimize the current land use from an unproductive piece of land, to be converted into an exclusive mixed development (comprising a plaza, shop-offices and service apartments) where the property's commercial market value would be further enhanced compared to that of an unused land.

8.2 In conclusion, by incorporating the environmental conservation and environmentally friendly concept and design of the Proposed Project's layout, a sustainable development can be achieved. The overall socio-economic gains from its implementation would also offset the adverse impacts, thus promoting the economic development in Cameron Highlands.