NON-RESIDENTIAL NEW CONSTRUCTION (NRNC)
SUSTAINABLE SITE PLANNING & MANAGEMENT (SM)

SM1	SITE SELECTION	1 POINT

INTENT
To avoid development of inappropriate sites and reduce the environmental impact from the location of a building on a site.

DESCRIPTION
Minimize ecological damage to existing natural features, water bodies, flora and fauna.

REQUIREMENTS
Do not develop building, hardscape, road or parking area on a site or part of a site that meet any one of the following criteria:

- Prime agricultural land as defined by the Structure Plan of the area or the National Physical Plan.
- Forest reserve or State Environmental Protection Zones that is specifically identified as habitat for any species found on the endangered lists.
- Within 30 m of any wetlands as defined by the Structure Plan of the area or within setback distances from wetlands prescribed in state or local regulations, as defined by local or state rule or law, whichever is the more stringent.
- Previously undeveloped land that is within 30 m of Mean High Water Spring (MHWS) sea level which supports or could support wildlife or recreational use, or statutory requirements whichever is the more stringent.
- Previously undeveloped land that is within 20 m of lake, river, stream and tributary which support or could support wildlife or recreational use.
- Land which prior to acquisition for the project was public parkland, unless land of equal or greater value as parkland is provided.

APPROACH & IMPLEMENTATION
During site selection process, give preference to sites that have low ecological value or are not environmentally sensitive. If unavoidable, locate the building in a suitable location and with a minimal footprint so as to minimize disruption of environmentally sensitive areas.

Select sites that are stable and not prone to destructive natural events like flooding, erosion or landslides.

REQUIRED SUBMISSION FOR DESIGN ASSESSMENT (DA)	SUBMITTER	GBI
1. Survey plan and Site Plan showing footprint of building and its setback dimensions in relationship to existing natural features such as lakes, rivers, streams, tributaries, beaches, etc.	✓	○
2. Recommended scale 1:500	✓	○

REQUIRED SUBMISSION FOR COMPLETION & VERIFICATION ASSESSMENT (CVA)	SUBMITTER	GBI
1. As-Built site plans showing footprint of building and dimensions in relationship to existing natural features such as lakes, rivers, streams, tributaries, beaches, etc.	○	○
2. Recommended scale 1:500	○	○
3. Describe any deviations or additions to the DA submission.	○	○

GDP ARCHITECTS SDN BHD
(COMPANY NO: 232661-A)
45-21 Plaza Level
Block C Plaza Damansara
45 Medan Setia Satu
Bukit Damansara 50490
Kuala Lumpur, Malaysia
Tel: 03.2093.5700 Fax: 03.2093.5711

PROJECT NAME	Kompleks Kerja Raya 2 (KKR2)			DATE 15/6/2012
SUBMITTING PROFESSIONAL	NAME SYED SOBRI SYED ISMAIL AA Dipl. (London) No. Pendaftaran Akitek : A/S47	DESIGNATION	COMPANY GDP	SIGNATURE
CLIENT	NAME DATO' W. ZULKIFLI W. MUDA	DESIGNATION MANAGING DIRECTOR	COMPANY AHMAD ZAKI SDN BHD (81250-W) 88, Jalan Gombak, Setapak, 53000 Kuala Lumpur. Tel: 03-40241000 Fax: 03-40242000	SIGNATURE

NOTE ATTACH ALL SUBMITTALS WITH THIS COVER PAGE

SM1 – Site Selection

Points Applied – 1 point

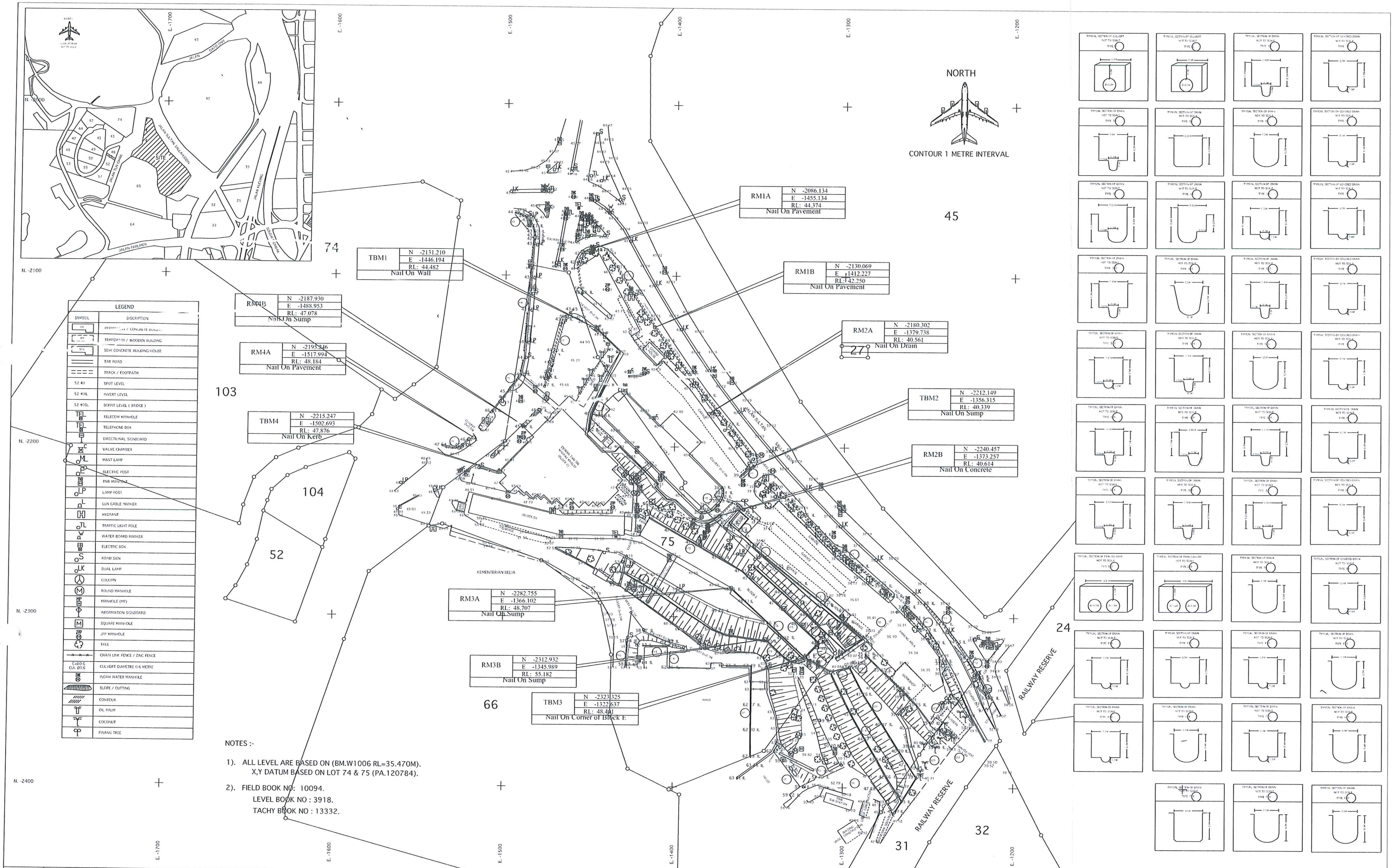
Kompleks Kerja Raya 2 (KKR2) is developed on a previously developed land and meets the criteria for this credit, where:

1. The site is not of prime agricultural land and it is not a forest reserve or State Environmental Protection Zones as it is categorized as commercial land.
2. No wetlands found on site.
3. The land is not public parkland.

Supporting Documents

i. Survey Plan
ii. Site Plan showing the location of the building and setback dimensions in relationship to the existing river.

Survey Plan



LEGEND	
SYMBOL	DESCRIPTION
	PERMANENT / CONCRETE BUILDING
	TEMPORARY / WOODEN BUILDING
	SEMI CONCRETE BUILDING/HOUSE
	TAR ROAD
	TRACK / FOOTPATH
52.40	SPOT LEVEL
52.40IL	INVERT LEVEL
52.40SL	SOFFIT LEVEL (BRIDGE)
TE	TELECOM MANHOLE
TP	TELEPHONE BOX
	DIRECTIONAL SIGNBOARD
C	VALVE CHAMBER
ML	MAST LAMP
EP	ELECTRIC POST
	TNB MANHOLE
LP	LAMP POST
	LLN CABLE MARKER
H	HYDRANT
TL	TRAFFIC LIGHT POLE
W	WATER BOARD MARKER
	ELECTRIC BOX
S	ROAD SIGN
LK	DUAL LAMP
	COLUMN
M	ROUND MANHOLE
	MANHOLE (MP)
	INFORMATION SIGNBOARD
M	SQUARE MANHOLE
JPP	JPP MANHOLE
	TREE
	CHAIN LINK FENCE / ZINC FENCE
C=Ø0.6 CUL Ø0.6	CULVERT DIAMETRE 0.6 METRE
IWK	INDAH WATER MANHOLE
	SLOPE / CUTTING
	CONTOUR
	OIL PALM
	COCONUT
	PINANG TREE

NOTES :-

1). ALL LEVEL ARE BASED ON (BM.W1006 RL=35.470M).
X,Y DATUM BASED ON LOT 74 & 75 (PA.120784).

2). FIELD BOOK NO: 10094.
LEVEL BOOK NO : 3918.
TACHY BOOK NO : 13332.

DATE	DESCRIPTION	REVISION

SURVEYOR:

JURUKUR PERUNDING SERVICES SDN. BHD.

LEE CHENK HOCK

SURVEYED BY:	NYF & SNR	DECEMBER 2009
COMPUTED BY:	CHERINE	DECEMBER 2009
DRAWN BY:	CYTAY	DECEMBER 2009
CHECKED BY:	SOFIE	DECEMBER 2009

CLIENT :

AHMAD ZAKI SDN. BHD.

NO. 88, JALAN GOMBAK
SETAPAK, 53000 KUALA LUMPUR
TEL: 03-4024-1000
FAX: 03-4024-2300

KEMENTERIAN KERJA RAYA MALAYSIA

SCALE: 1 : 1,000

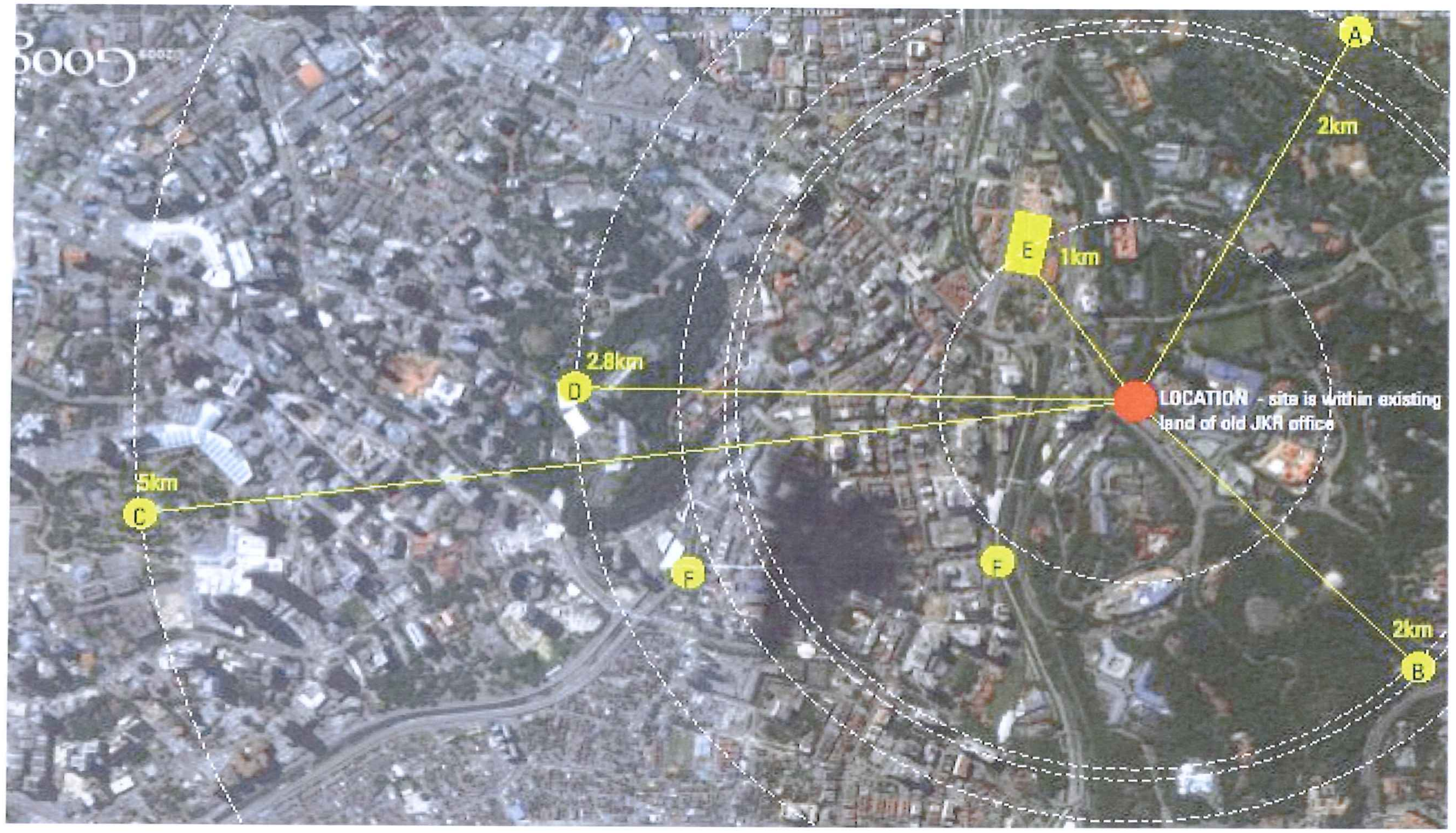
PROJECT:

CADANGAN KOMPLEKS KERJA RAYA 2,
JALAN SULTAN SALAHUDDIN, KUALA LUMPUR
TOPOGRAPHICAL AND DEMARCATION SURVEY WORK

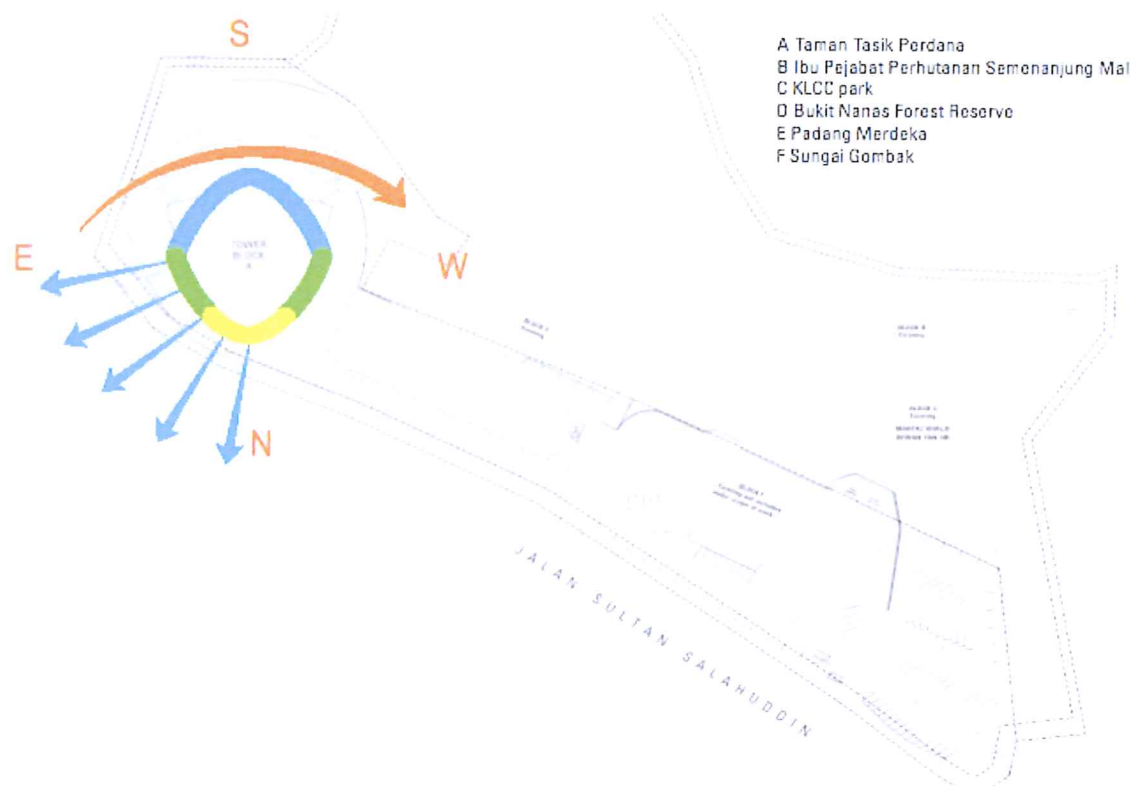
DATE: DECEMBER 2009

PLAN NO: JPWS/09/SEL/6946/GTS/A1

Site Plan



01 KKR 2 • LOCATION OF EXISTING NATURAL OF FEATURE
05 Series- General Arrangement Scale : NTS



A Taman Tasik Perdana
B Ibu Pejabat Perhutanan Semenanjung Malaysia
C KLCC park
D Bukit Nanas Forest Reserve
E Padang Merdeka
F Sungai Gombak

01 KKR 2 • BUILDING FOOTPRINT
05 Series- General Arrangement Scale : NTS

FINISHES SPECIFICATION

SANITARY FITTINGS

KERAJAAN MALAYSIA

PEMILIK TANAH

JABATAN TANAH DAN GALIAN
SEKSYEN HARTANAH PERSEKUTUAN
ARAS 2, BLOK MENARA WISMA SUMBER ASLI
NO 25 PERSIARAN PERDANA, PRESINT 4
62574 FUTRAJAYA

PELANGGAN / PEMILIK BANGUNAN

KETUA SETIAUSAHA
KEMENTERIAN KERJA RAYA MALAYSIA
BAHAGIAN PEMBANGUNAN & PENSWASTAAN
TINGKAT 4, BLOK A, KOMPLEKS KERJA RAYA MALAYSIA
JALAN SULTAN SALAHUDDIN
50582 KUALA LUMPUR

PENGARAH PROJEK

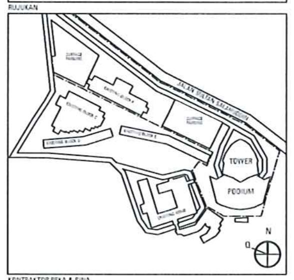
PENGARAH KANAN ,
CAWANGAN KERJA BANGUNAN AM
IBU PEJABAT JABATAN KERJA RAYA MALAYSIA
TINGKAT 13A MENARA PJD,
JALAN TUN RAZAK,
50400 KUALA LUMPUR

PROJEK

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT
38 TINGKAT TERMASUK 7 TINGKAT PODIUM
DENGAN 2 TINGKAT BASEMENT
(KOMPLEKS KERJA RAYA 2)
DI ATAS LOT PT67 SEKSYEN 60,
JALAN SULTAN SALAHUDDIN,
BANDAR KUALA LUMPUR,
WILAYAH PERSEKUTUAN KUALA LUMPUR

UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

RUJUKAN



KONTRAKTOR REKA & BINA

Ahmad Zaki Sdn. Bhd.
No. 88, Jalan Gombak, Setapak,
53000 Kuala Lumpur.
Tel : 603-40241000 Fax : 603-40242000

PERUNDING SENIBINA

GDP ARCHITECTS SDN BHD
45 - 21, Plaza Level Block C
45 Medan Setia 1, Bukit Damansara
50490 Kuala Lumpur, Malaysia
T+603.2093.5700 F+603.2093.5711
www.GDParchitects.com Reg. No. 232661-A

JURUTERA SIVIL & STUKTUR

ARUP Jururunding Sdn. Bhd.
No. 25 - 28, Jalan Ara SD 7/3B,
Bandar Sri Damansara,
52200 Kuala Lumpur.
Tel : 603 62732223 Fax : 603 62732227

JURUTERA MEKANIKAL & ELEKTRIKAL

ARUP Jururunding Sdn. Bhd.
No. 25 - 28, Jalan Ara SD 7/3B,
Bandar Sri Damansara,
52200 Kuala Lumpur.
Tel : 603 62732223 Fax : 603 62732227

JURUKUR BAHAN

Northcroft Lim Perunding Sdn. Bhd
304, Block A, Glomac Business Centre,
10, Jalan SS 6/1, Kelana Jaya,
47301 Petaling Jaya, Selangor
Tel : 603 78046136 / 46545 Fax 603 78049107

PERUNDING LANDSKAP

Metropolis Design Consultants
No. 1009, Block A4 (Leisure Commerce Square)
NO 09, Jalan PJS 8/9,
46150 Petaling Jaya, Selangor.
Tel : 603 7875 8709 Fax 603 7875 8807

PERUNDING ICT

ZETTA Consultants Sdn. Bhd.
No. 232, Jalan 8/5, Sek. 8,
43650 Bandar Baru Bangi,
Selangor Darul Ehsan.
Tel : 603 89256862 Fax 603 89268862

PERUNDING HIASAN DALAMAN

PENGESAHAN PERUNDING SENIBINA

LEMBAGA ARKITEK MALAYSIA

Ar. Syed Soori Syed Ismail
ARKITEK PROFESIONAL
No. Pendaftaran : A/S 47

TAJUK LUKISAN

GREEN BUILDING INDEX (GBI) FOR INFO ONLY

SM 1 : SITE SELECTION

SURVEY DRAWING

NOTE

Rev	Date	Note
1	3/10/11	(i)- Hoarse board up (ii)- Loading/unloading area revised
2	10/25/11	- FA updated

CONSTRUCTION DRAWING

Skala	AS SHOWN	Tarikh	7 Mar 12
Dilukis	AFFIAH SALMUN	Disemak	JAMES

NOMBOR LUKISAN

Nombor Projek	2387 / 07	Status Lukisan	CD	Pindaan 0
Nombor Lukisan	GDP/2387/GBI/			

COP & TARIKH

COP AUDIT & TARIKH

NON-RESIDENTIAL NEW CONSTRUCTION (NRNC)
SUSTAINABLE SITE PLANNING & MANAGEMENT (SM)

SM2	BROWNFIELD REDEVELOPMENT	1 POINT

INTENT
To redevelop and rehabilitate existing damaged or used site which is complicated by environmental contamination. This serves to channel development to brownfield sites thereby reducing pressure on opening up new greenfield sites.

DESCRIPTION
Existing damaged or contaminated sites are typically old industrial sites, old rubbish dumpsites, former mining land, former petrol stations, etc, where some industrial activities had taken place on the site.

REQUIREMENTS
Decontaminate a contaminated site, where the site was contaminated at the time of purchase, and undertake full remedial steps to decontaminate the site prior to construction.

APPROACH & IMPLEMENTATION
Conduct a soil condition test to determine the level of contamination.

REQUIRED SUBMISSION FOR DESIGN ASSESSMENT (DA)	SUBMITTER	GBI
1. Submit a brief historical report on the usage of the land and prepare a report certified by approved testing laboratory determining the level of contamination.	○	○
2. Submit an EIA report containing the level of contamination and the proposed action to be taken, such as the removal and replacement of soil, and other actions deemed appropriate.	○	○

REQUIRED SUBMISSION FOR COMPLETION & VERIFICATION ASSESSMENT (CVA)	SUBMITTER	GBI
1. Submit report and photographs of works carried out during decontamination process.	○	○
2. Describe any deviations or additions to the DA submission.	○	○

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Bukit Damansara 50490
Kuala Lumpur, Malaysia
Tel: 03.2093.5700 Fax: 03.2093.5711

PROJECT NAME	Kompleks Kuasa Baharu (KKB2)			DATE 15/6/2012
SUBMITTING PROFESSIONAL	NAME AA Dipl. (London) No. Pendaftaran Akitek : A/S47	DESIGNATION	COMPANY GDP	SIGNATURE
CLIENT	NAME DATO' W. ZULKIFLI W. MUDA	DESIGNATION MANAGING DIRECTOR	COMPANY AHMAD ZAKI SDN BHD (81250-W) 88, Jalan Gombak, Setapak, 53000 Kuala Lumpur. Tel: 03-40241000 Fax: 03-40242000	SIGNATURE

NOTE ATTACH ALL SUBMITTALS WITH THIS COVER PAGE

NON-RESIDENTIAL NEW CONSTRUCTION (NRNC)
SUSTAINABLE SITE PLANNING & MANAGEMENT (SM)

SM3	DEVELOPMENT DENSITY & COMMUNITY CONNECTIVITY	2 POINTS

INTENT
Channel development to urban area with existing infrastructure, protect greenfield and preserve habitat and natural resources.

DESCRIPTION
A higher density development or redevelopment will help minimise opening up new greenfield sites, to preserve existing habitat and natural resources, and minimise the use of private mode of transportation.

REQUIREMENTS
(A) 1 point : Development Density
Construct a new building or renovate an existing building on a previously developed site ***AND*** in a community with a minimum density of 20,300 m² per hectare net (87,000 ft² per acre net)

(B) 1 point : Community Connectivity
Construct a new building or renovate an existing building on a previously developed site ***AND*** within 1km of a residential zone or neighbourhood with an average density of 25 units per hectare net (10 units per acre net) ***AND*** within 1km of at least 10 Basic Services ***AND*** with pedestrian access between the building and the services.
Basic Services include, but are not limited to:

- Bank
- Place of Worship
- Convenience / Grocery
- Day Care
- Police Station
- Fire Station
- Beauty
- Hardware
- Laundry
- Library
- Medical / Dental
- Senior Care Facility
- Park
- Pharmacy
- Post Office
- Restaurant
- School
- Supermarket
- Theatre
- Community Centre
- Fitness Centre

APPROACH & IMPLEMENTATION
During site selection process, give preference to sites that are within an urban area, where existing infrastructure is available.

REQUIRED SUBMISSION FOR DESIGN ASSESSMENT (DA)	SUBMITTER	GBI
1. Submit Gross Floor Area calculations and density calculations.	✓	○
2. Take note that the density calculation must include the area of the project being built and is based on a typical four-storey town centre / commercial centre.	✓	○
3. Site plan showing building location in connection to the above Basic Services, indicating covered walkways, pedestrian access and other connections like linkbridges and underground links. Provide legend for all Basic Services.	✓	○
4. Proximity is determined by drawing a 1 km radius around the main building entrance on a site map and counting the services found within that radius.	✓	○

REQUIRED SUBMISSION FOR COMPLETION & VERIFICATION ASSESSMENT (CVA)	SUBMITTER	GBI
1. Final As-Built density calculations.	○	○
2. As-built Site plan showing locations of all existing services, covered walkways, pedestrian access and other connections like linkbridges and underground links.	○	○
3. Provide legend colours to differentiate the types of services.	○	○
4. Describe any deviations or additions to the DA submission.	○	○

PROJECT NAME	Kompleks Kerja Raya 2 (KKR2)			DATE 16/2012
SUBMITTING PROFESSIONAL	NAME SYED SOBRI SYED ISMAIL AA Dipl. (London) No. Pendaftaran Akitek : A/S47	DESIGNATION	GDP ARCHITECTS SDN BHD (COMPANY NO: 232661-A) 45-21 Plaza Level Block C Plaza Damansara 45 Medan Setia Satu Bukit Damansara 50490 Kuala Lumpur, Malaysia Tel: 03.2093.5700 Fax: 03.2093.5711 GDP	SIGNATURE
CLIENT	NAME DATO' W. ZULKIFLI W. MUDA MANAGING DIRECTOR	DESIGNATION	COMPANY AHMAD ZAKI SDN BHD (81250-W) 88, Jalan Gombak, Setapak, 53000 Kuala Lumpur. Tel: 03-40241000 Fax: 03-40242000	SIGNATURE

NOTE ATTACH ALL SUBMITTALS WITH THIS COVER PAGE

SM3 – Community Connectivity

Points Applied –2 points

A) Development Density

The existing site is an open car park and has been developed prior to the project. The current project site is 11,578m^2 (2.86arc) and the total Gross Floor Area is 51,516m^2 (554,513.6 ft^2). The development density of the project is 193,886.92ft^2/arce which is more than the minimum density of 87,000 ft^2/arce.

It can be seen from the map that the project site is surrounded by many existing commercial buildings, most of which are high rise offices of similar nature as this proposed development. Some of these high rise offices are Jabatan Kerja Raya Head Quarter, Bank Negara Malaysia, Bukit Aman Police Office, Kuala Lumpur City Hall Headquarters, Menara UOB, etc.

Hence, the neighbourhood community has a similar estimated density of greater than 87,000ft2 per acre net.

B) Community Connectivity

The project site is within 1 kilometer radius from at least 10 Basic Services

There are 2 apartment buildings found within the 1km radius. These are:

1. Woodland Apartments
2. Malayan Mansion

The residential apartment is above the required 10 units per acre as required by GBI as these are high density apartment buildings.

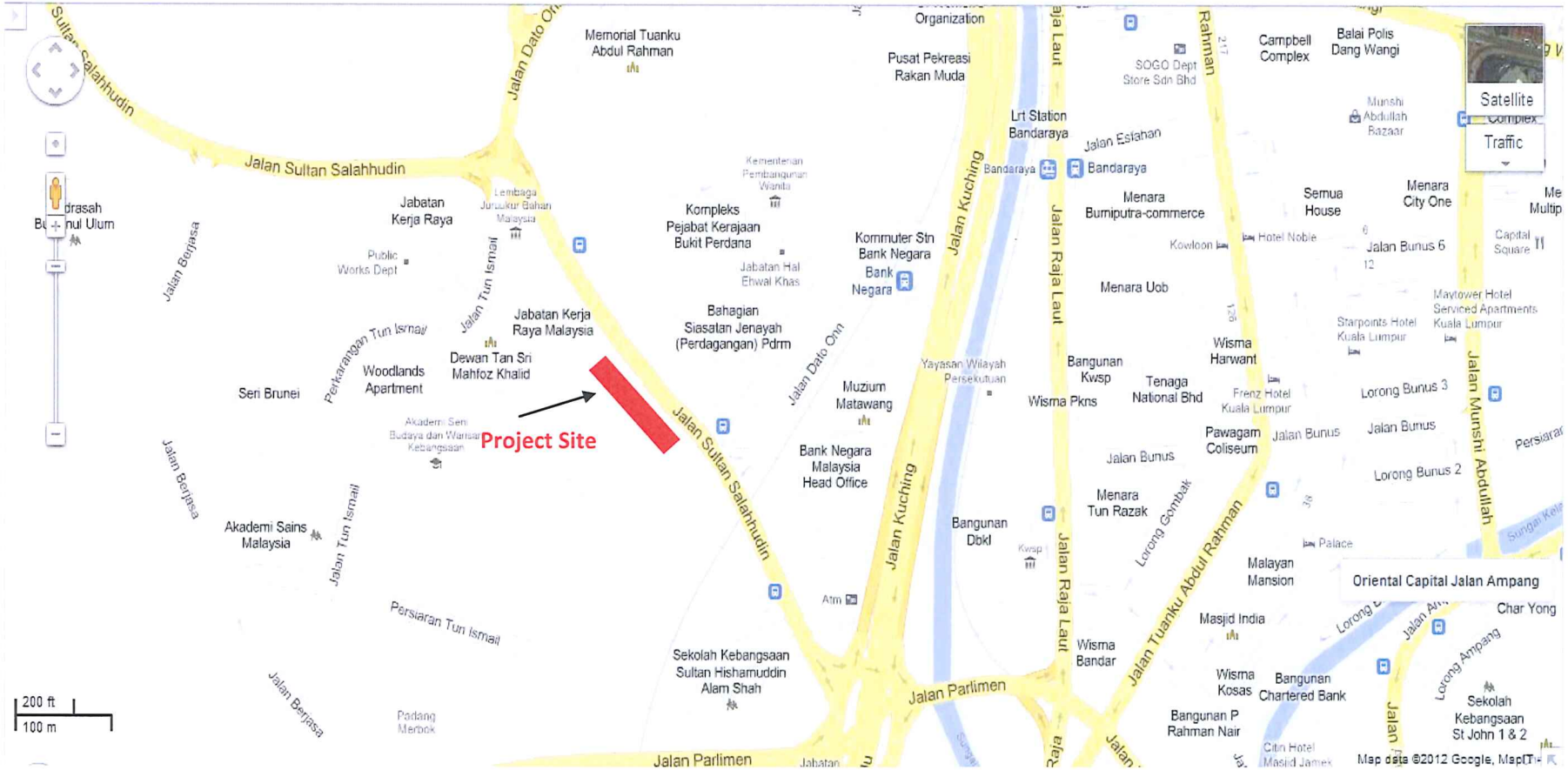
There are more than 10 basic amenities can be found within the 1km radius from the project site's main building entrance and pedestrian access is available to these basic amenities. Please refer to the attached map showing list of amenities. The building itself will be providing a surau.

Supporting Documents

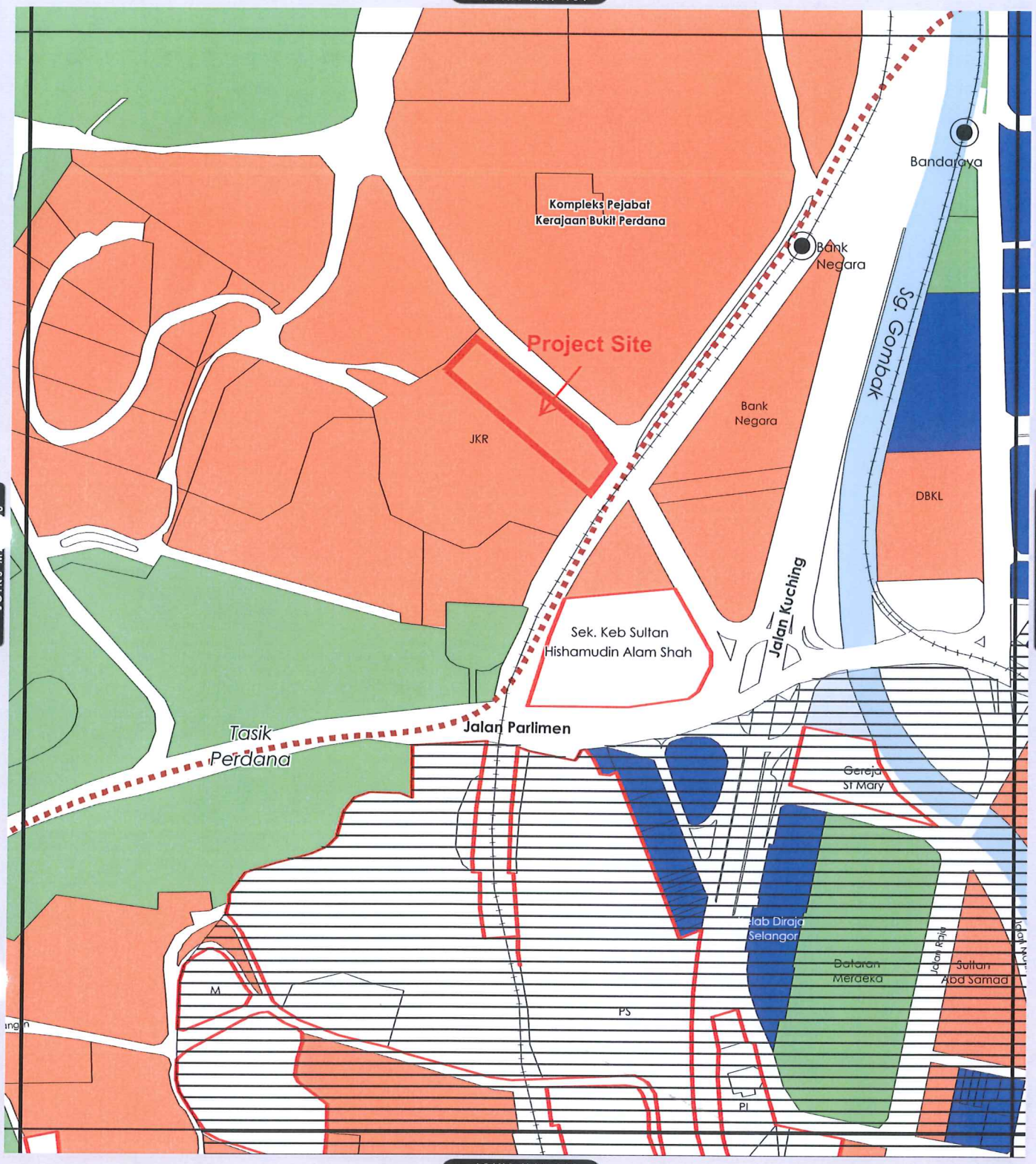
i. Plot ratio of buildings surrounding the project site
ii. Area plan showing the buildings in the surrounding area
iii. Aerial view showing locations of amenities and residential buildings
iv. A list of KL SOGO Mall's Amenities with Business Names
v. Walking route from project site to KL SOGO
vi. Project site plan drawing showing the location of Surau

Area plan showing the buildings in the surrounding area

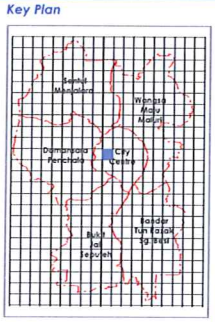
Area Plan


Project Site
Jalan Sultan Salahhudin
Jalan Dato Onn
Jalan Kuching
Jalan Raja Laut
Jalan Tuanku Abdul Rahman
Jalan Parlimen
Jalan Berjasa
Jalan Tun Ismail
Perkarangan Tun Ismail
Persiaran Tun Ismail
Memorial Tuanku Abdul Rahman
Jabatan Kerja Raya
Jabatan Kerja Raya Malaysia
Public Works Dept
Kompleks Pejabat Kerajaan Bukit Perdana
Bahagian Siasatan Jenayah (Perdagangan) Pdrm
Dewan Tan Sri Mahfoz Khalid
Woodlands Apartment
Seri Brunei
Akademi Sains Malaysia
Sekolah Kebangsaan Sultan Hishamuddin Alam Shah
Padang Merbok
Kommuter Stn Bank Negara
Bank Negara
Bank Negara Malaysia Head Office
Muzium Matawang
Yayasan Wilayah Persekutuan
Wisma Pkns
Bangunan Kwsp
Tenaga National Bhd
Bangunan Dbkl
Menara Tun Razak
Pusat Pekreasi Rakan Muda
Lrt Station Bandaraya
Bandaraya
Menara Uob
Menara Bumiputra-commerce
Wisma Harwant
Pawagam Coliseum
Wisma Bandar
Wisma Kosas
Bangunan Chartered Bank
Bangunan P Rahman Nair
Campbell Complex
Balai Polis Dang Wangi
SOGO Dept Store Sdn Bhd
Semua House
Menara City One
Jalan Bunus 6
Jalan Bunus
Lorong Bunus 3
Lorong Bunus 2
Malayan Mansion
Masjid India
Oriental Capital Jalan Ampang
Char Yong
Sekolah Kebangsaan St John 1 & 2
Satellite
Traffic
200 ft
100 m
Map data ©2012 Google, MapIT

Plot ratio of buildings surrounding the project site



Key Plan



Zoning

- City Centre Commercial
- District Centre Commercial
- Neighbourhood Centre Commercial
- Commercial
- Mixed Use Commercial
- Mixed Use Residential
- Mixed Use Commercial & Industry
- Residential 1
- Residential 2
- Residential 3
- Established Housing Area
- Public Housing
- Industrial
- Technology Park
- Public Institutional
- Private Institutional
- Public Open Space
- Private Open Space
- Forest Reserve

White Zone

- (M) Mosque
- (S) Surau
- (T) Temple
- (C) Church
- (WH) Welfare Home/Building
- (PS) Police Station
- (FS) Fire Station
- (H) Hospital
- (GC) Government Clinic
- (CC) Community Centre
- (K) Kindergarten
- (PO) Post Office
- (SC) School
- (PM) Market
- Cemetery
- (STP) Sewerage Treatment Plant
- (TS) Transfer Station
- (TMS) Telecommunication Station
- (E) Electricity Supply
- (W) Water Supply
- (G) Gas Supply
- Overhead Transmission Line

Others

- Terminal/ Station/ Parking
- River, Drain, Lake & Retention Pond
- Road Reserves & Rail
- Existing Rail Line
- Proposed Rail Line
- Existing Transit Stations
- Proposed Transit Stations
- Kuala Lumpur Federal Territory Boundary
- Index Boundary

Kuala Lumpur 2008 DEVELOPMENT CONTROL PLAN

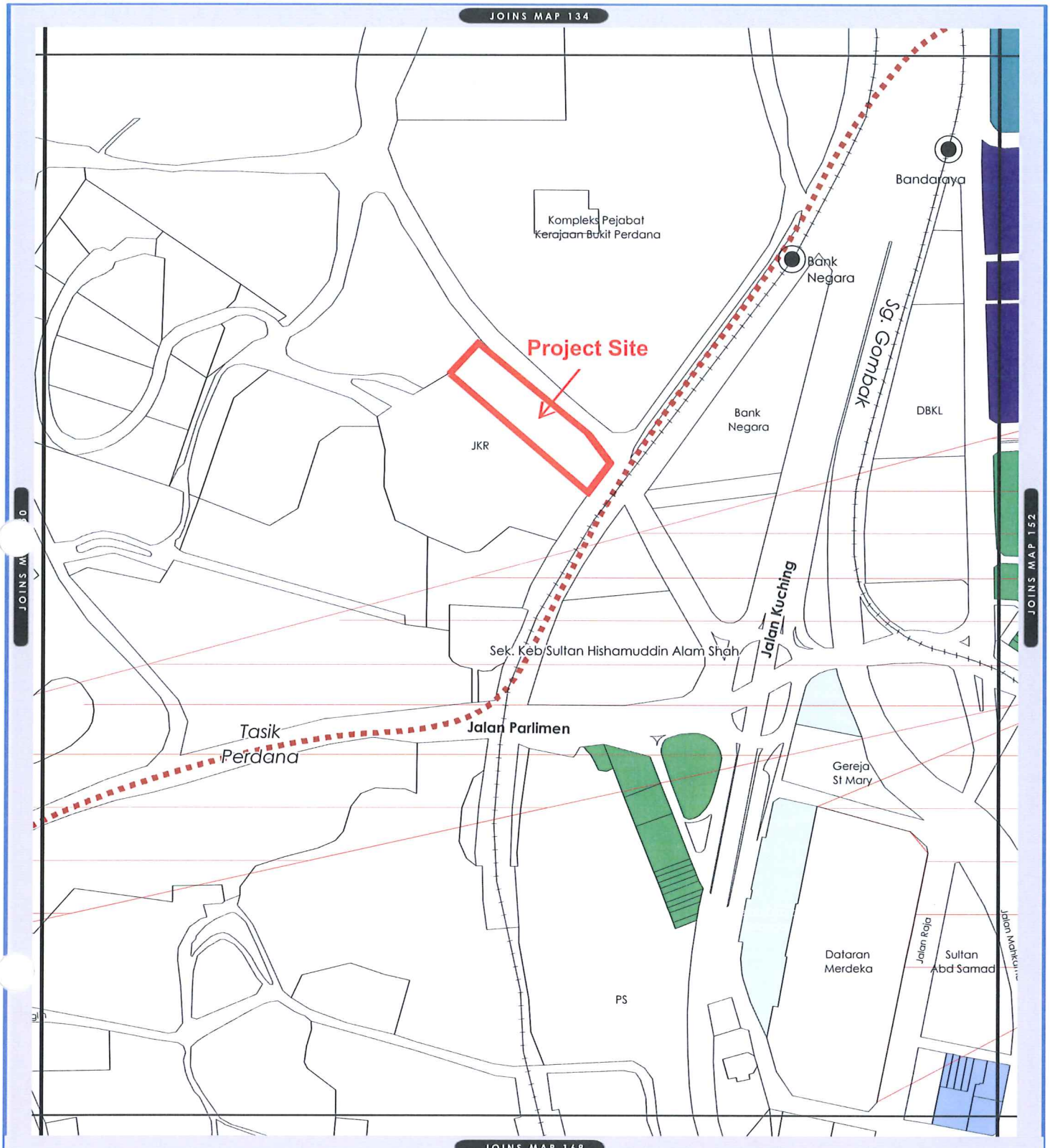
North
Qiblat
100 0 100 200 300
Meters
Scale: 1:5000

Part of the area shown on this index map is subject to Height Control Zone. Please refer to Special Planning Zone Map 2 : Heritage Zone

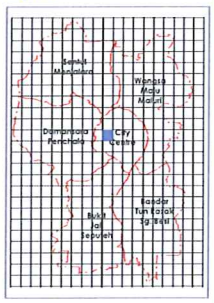
Heritage Zone

MAP 151

LAND USE ZONING



Key Plan



Plot Ratio

0.5	5	4 ppa	80 ppa
1	6	12 ppa	120 ppa
2	7	24 ppa	160 ppa
2.5	8	32 ppa	240 ppa
3	9	40 ppa	320 ppa
4	10	48 ppa	400 ppa

Density

Others

- Existing Rail Line
- Proposed Rail Line
- Existing Transit Stations
- Proposed Transit Stations
- Kuala Lumpur Federal Territory Boundary
- Index Boundary

Kuala Lumpur 2008 DEVELOPMENT CONTROL PLAN

North Qiblat

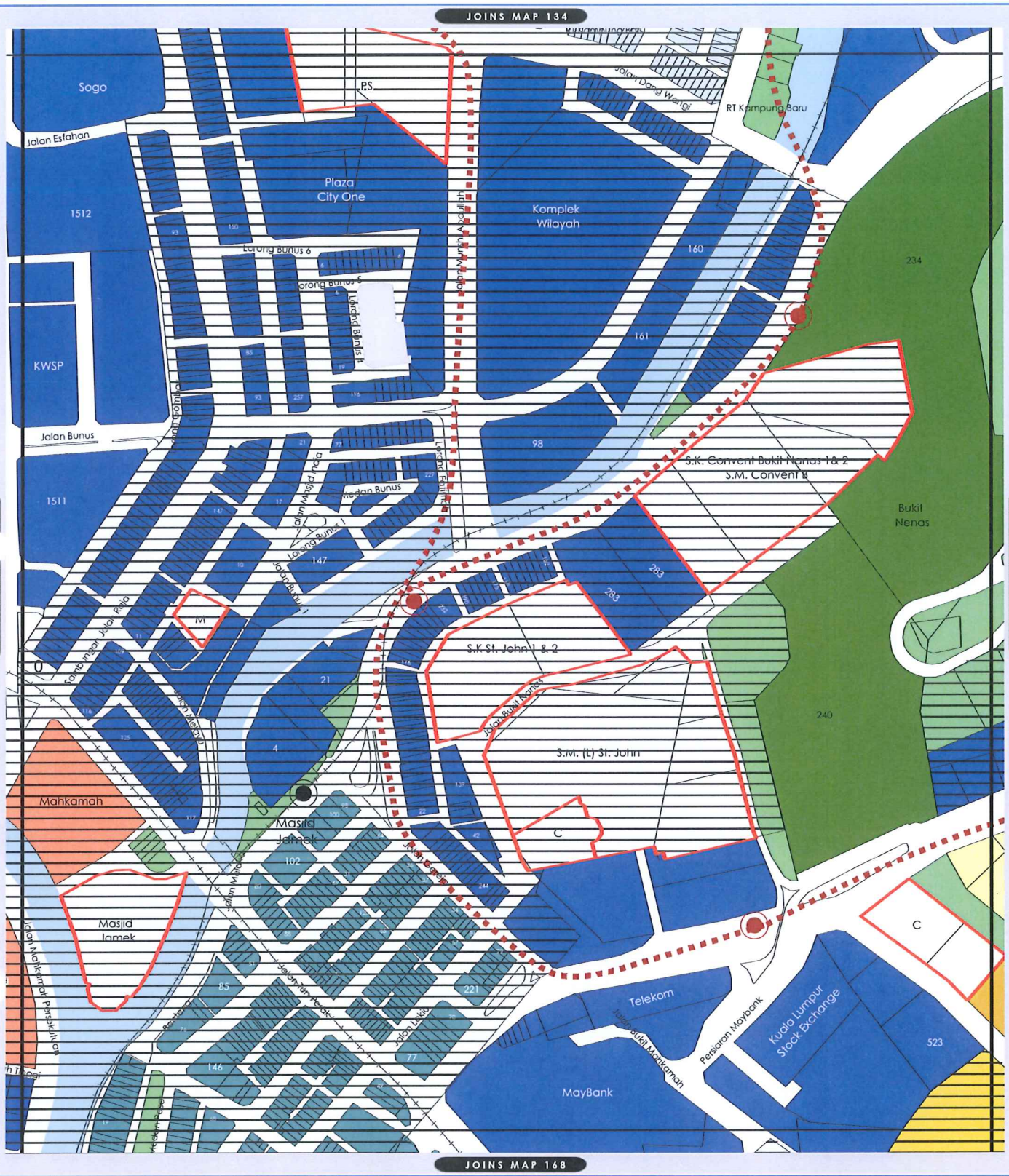
100 0 100 200 300
Meters
Scale: 1:5000

Part of the area shown on this index map is subject to Height Control Zone. Please refer to Special Planning Zone Map 3: Height Control Zone.

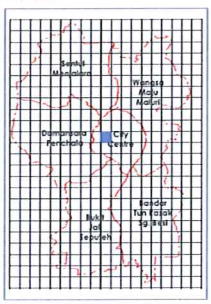
Height Control Zone

MAP 151

DEVELOPMENT INTENSITY



Key Plan



Zoning

- City Centre Commercial
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- Mixed Use Residential
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- Residential 3
- Established Housing Area
- Public Housing
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- Public Open Space
- Private Open Space
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White Zone

- (M) Mosque
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- (T) Temple
- (C) Church
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- (PS) Police Station
- (FS) Fire Station
- (H) Hospital
- (GC) Government Clinic
- (CC) Community Centre
- (K) Kindergarten
- (PO) Post Office
- (SC) School
- (PM) Market
- Cemetery
- (STP) Sewerage Treatment Plant
- (TS) Transfer Station
- (TMS) Telecommunication Station
- (E) Electricity Supply
- (W) Water Supply
- (G) Gas Supply
- Overhead Transmission Line

Others

- Terminal/ Station/ Parking
- River, Drain, Lake & Retention Pond
- Road Reserves & Rail
- Existing Rail Line
- Proposed Rail Line
- Existing Transit Stations
- Proposed Transit Stations
- Kuala Lumpur Federal Territory Boundary
- Index Boundary

Kuala Lumpur 2008 DEVELOPMENT CONTROL PLAN

North Qiblat

0 100 200 300 Meters

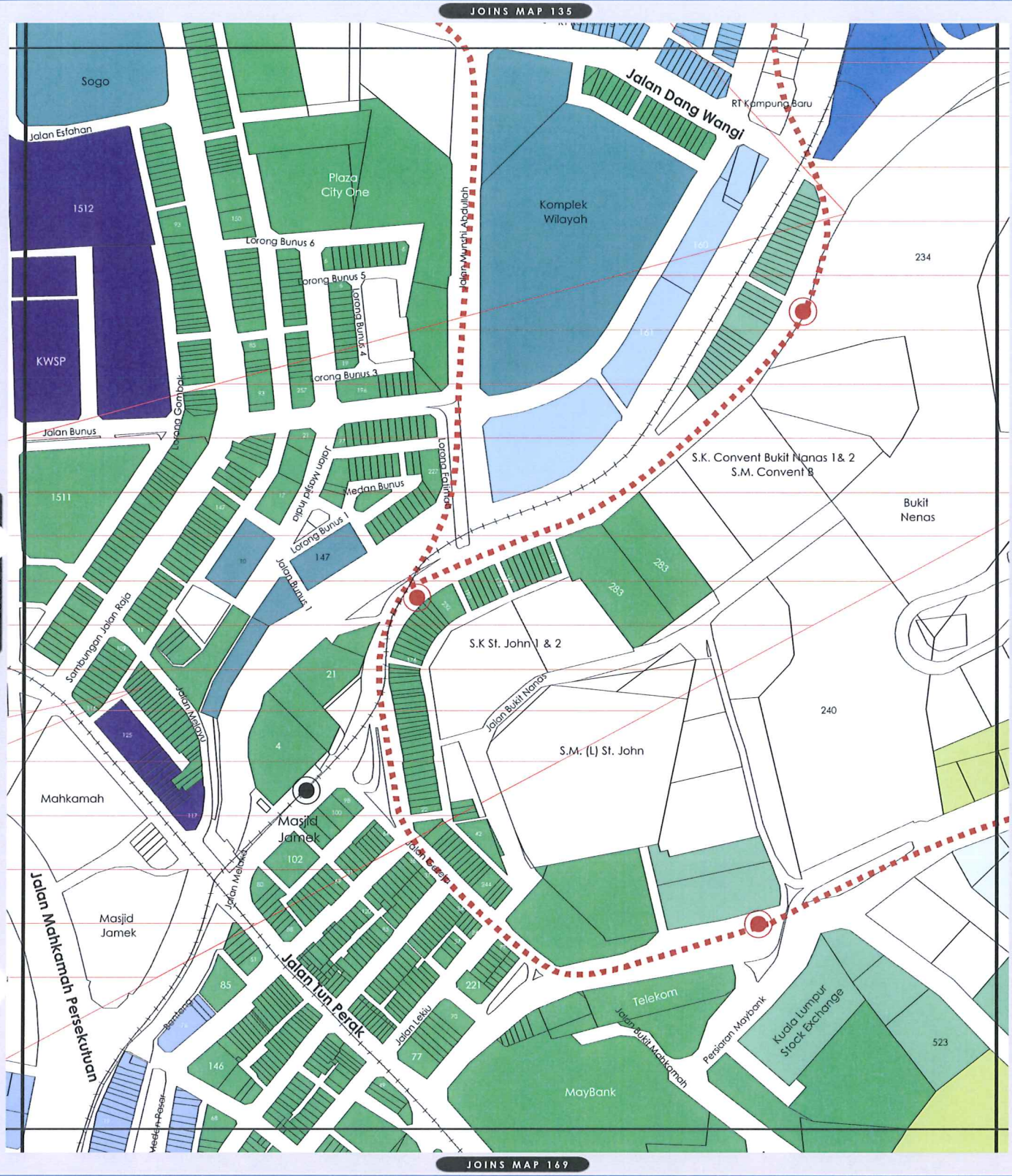
Scale: 1:5000

Part of the area shown on this index map is subject to Height Control Zone. Please refer to Special Planning Zone Map 2 : Heritage Zone

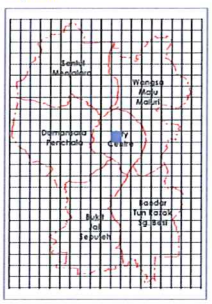
Heritage Zone

MAP 152

LAND USE ZONING



Key Plan



Plot Ratio

0.5, 1, 2, 2.5, 3, 4, 5, 6, 7, 8, 9, 10

Density

4 ppa, 12 ppa, 24 ppa, 32 ppa, 40 ppa, 48 ppa, 80 ppa, 120 ppa, 160 ppa, 240 ppa, 320 ppa, 400 ppa

Others

- Existing Rail Line
- Proposed Rail Line
- Existing Transit Stations
- Proposed Transit Stations
- Kuala Lumpur Federal Territory Boundary
- Index Boundary

Kuala Lumpur 2008 DEVELOPMENT CONTROL PLAN

North Qiblat

100 0 100 200 300
Meters
Scale: 1:5000

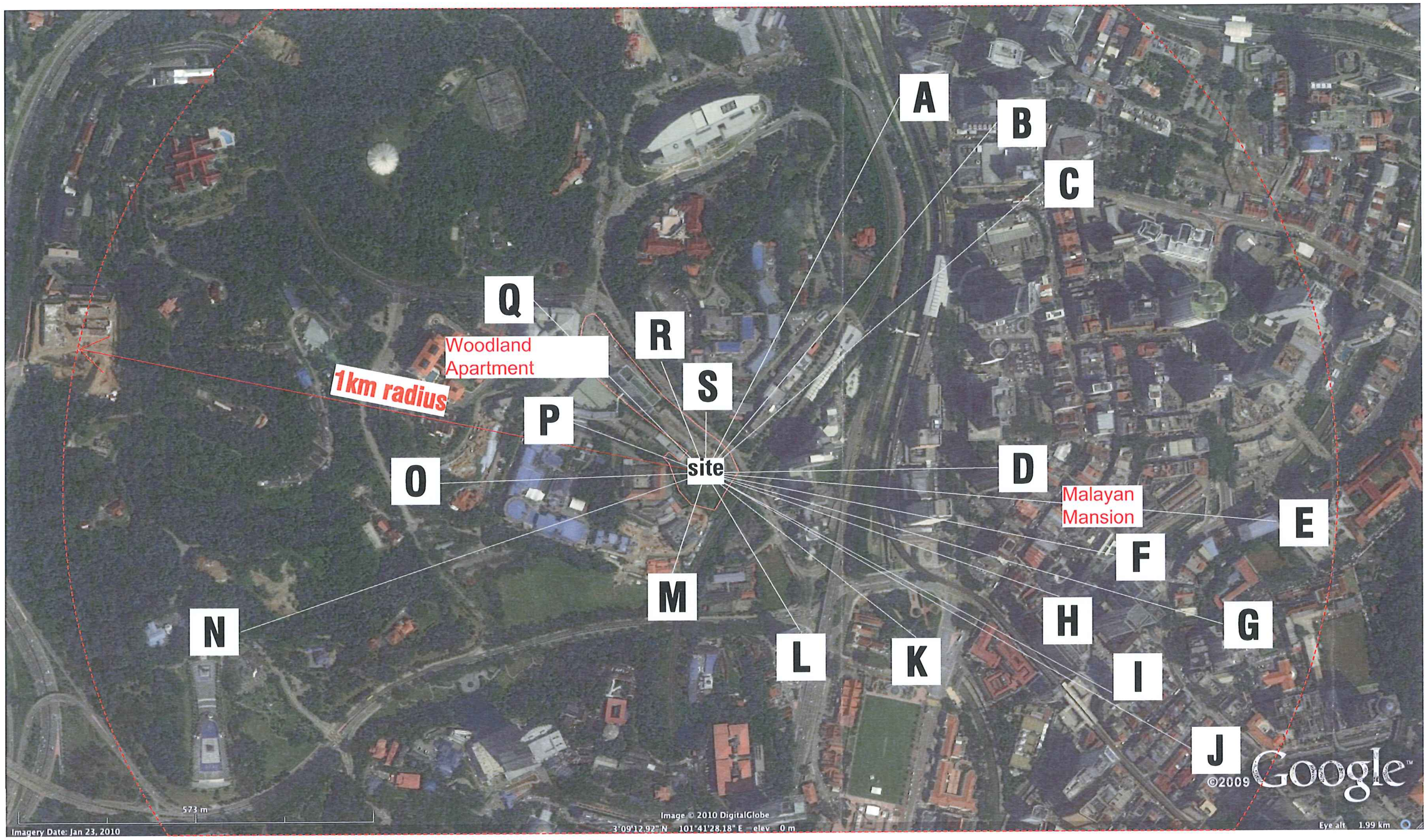
Part of the area shown on this index map is subject to Height Control Zone. Please refer to Special Planning Zone Map 3: Height Control Zone.

Height Control Zone

MAP 152

DEVELOPMENT INTENSITY

Aerial view showing locations of amenities and residential buildings



01 KKR 2 • SITE PLAN • LOCATION OF PUBLIC AMENITIES / SERVICES / CONNECTIVITY

Scale 1 : 2000

LAGEND :	DISCRIPTION
A	CIMB BANK
B	PERTAMA COMPPLEX
C	SECRET RECEIPE
D	SOGO DEPARTMENT STORE
E	DE LE SALLE INSTITUTE
F	MASJID JAMEK
G	ST. JOHN'S CATHEDRAL
H	BANGUNAN HSBC
I	RESTORAN M.A CURRY HOUSE

LAGEND :	DISCRIPTION
J	SEGI COLLAGE
K	ST. MARY'S CATHEDRAL
L	SIN TZE YA TAMPLE
M	SEKOLAH SULTAN HISYAMUDDIN ALAM SHAH
N	JABATAN PERANCANG BANDAR & DESA
O	MASJID BUKIT AMAN
P	AKEDEMI SAINS MALAYSIA
Q	JABATAN KERJA RAYA MALAYSIA
R	PEJABAT POS JLN SULTAN SALAHUDDIIN
S	LAMBAGA JURUUKUR BAHAN MALAYSIA.

FINISHES SPECIFICATION

SANITARY FITTINGS

KERAJAAN MALAYSIA

PEMILIK TANAH

PESURUHJAYA TANAH PERSEKUTUAN
JABATAN TANAH DAN GALIAN
SEKSYEN HARTANAH PERSEKUTUAN
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PENGARAH PROJEK

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IBU PEJABAT JABATAN KERJA RAYA MALAYSIA
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JALAN TUN RAZAK,
50400 KUALA LUMPUR

PROJEK

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT
38 TINGKAT TERMASUK 7 TINGKAT PODIUM
DENGAN 2 TINGKAT BASEMENT
(KOMPLEKS KERJA RAYA 2)
DI ATAS LOT PT67 SEKSYEN 60,
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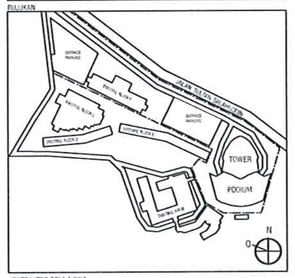
UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

RUJUKAN



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PENGESAHAN PERUNDING SENIBINA

LEMBAGA ARKITEK MALAYSIA

Ar. Syed Sobri Syed Ismail
ARKITEK PROFESIONAL
No. Pendaftaran : A/S 47

TAJUK LUKISAN

GREEN BUILDING INDEX (GBI) FOR INFO ONLY

SM3 : DEVELOPMENT DENSITY & COMMUNITY CONNECTIVITY

SITE PLAN

NOTE

Rev	Date	Note

CONSTRUCTION DRAWING

Skala	AS SHOWN	Tarikh	7-Mar-12
Dilukis	AFFIAH SALMUN	Disemak	JAMES

NOMBOR LUKISAN

Nombor Projek	2387 / 07	Status Lukisan	Pindaan 0
Nombor Lukisan	GDP/2387/		

COP & TARIKH

COP AUDIT & TARIKH

A list of KL SOGO Mall's Amenities with Business Names

KL SOGO Amenities

Below are a few list of shop's name that meet the basic services required for GBI

1. **Restaurants**

Food Junction

McDonalds

Krung Thep Thai Restaurant

2. **Pharmacy**

Guardian

3. **Beauty**

D'rutz Hair and Beauty Salon

4. **Supermarket**

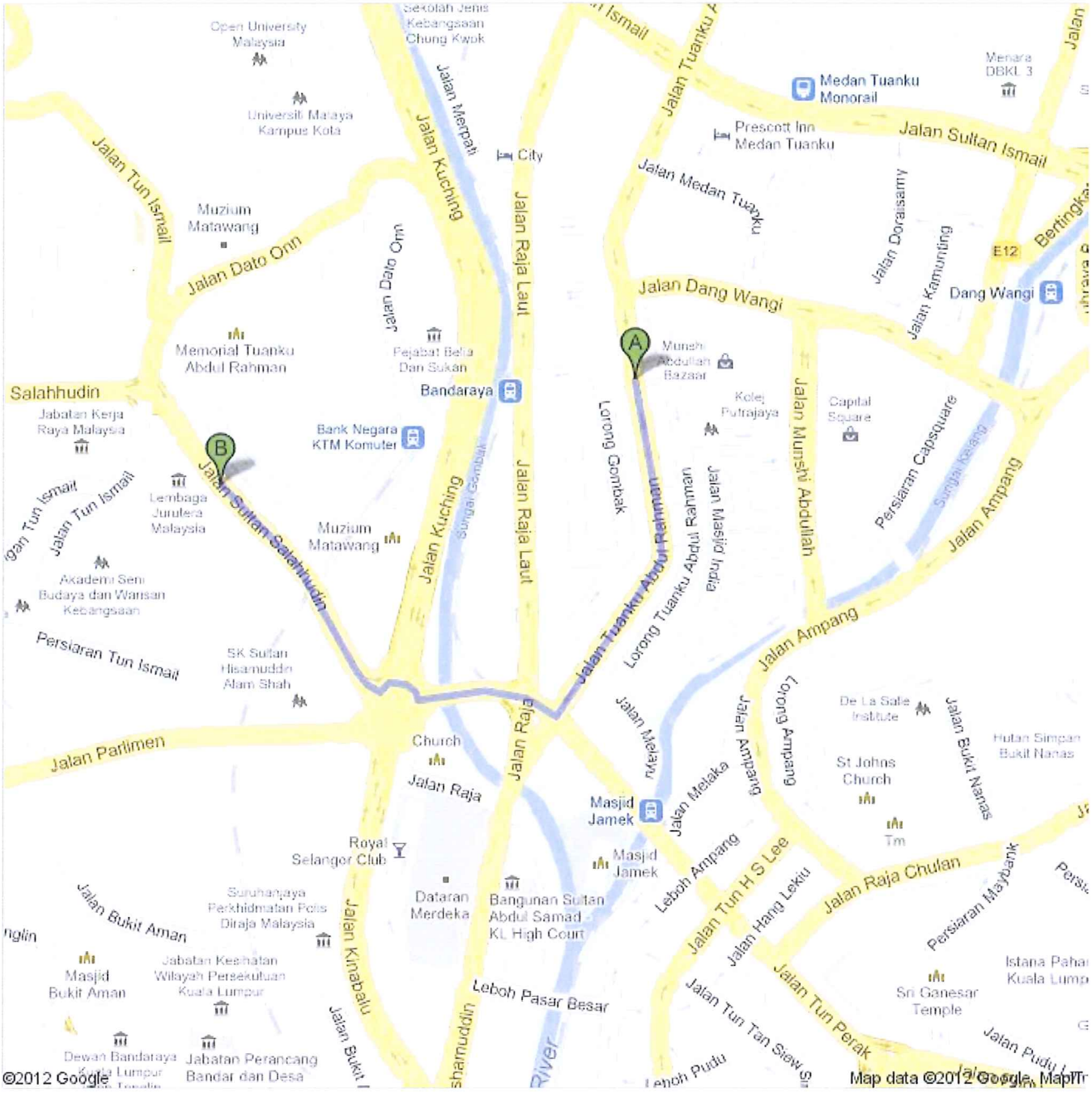
JUSCO

5. **POS Malaysia**
6. **Banking & Money Charger**
7. **Locksmith & Cobbler**

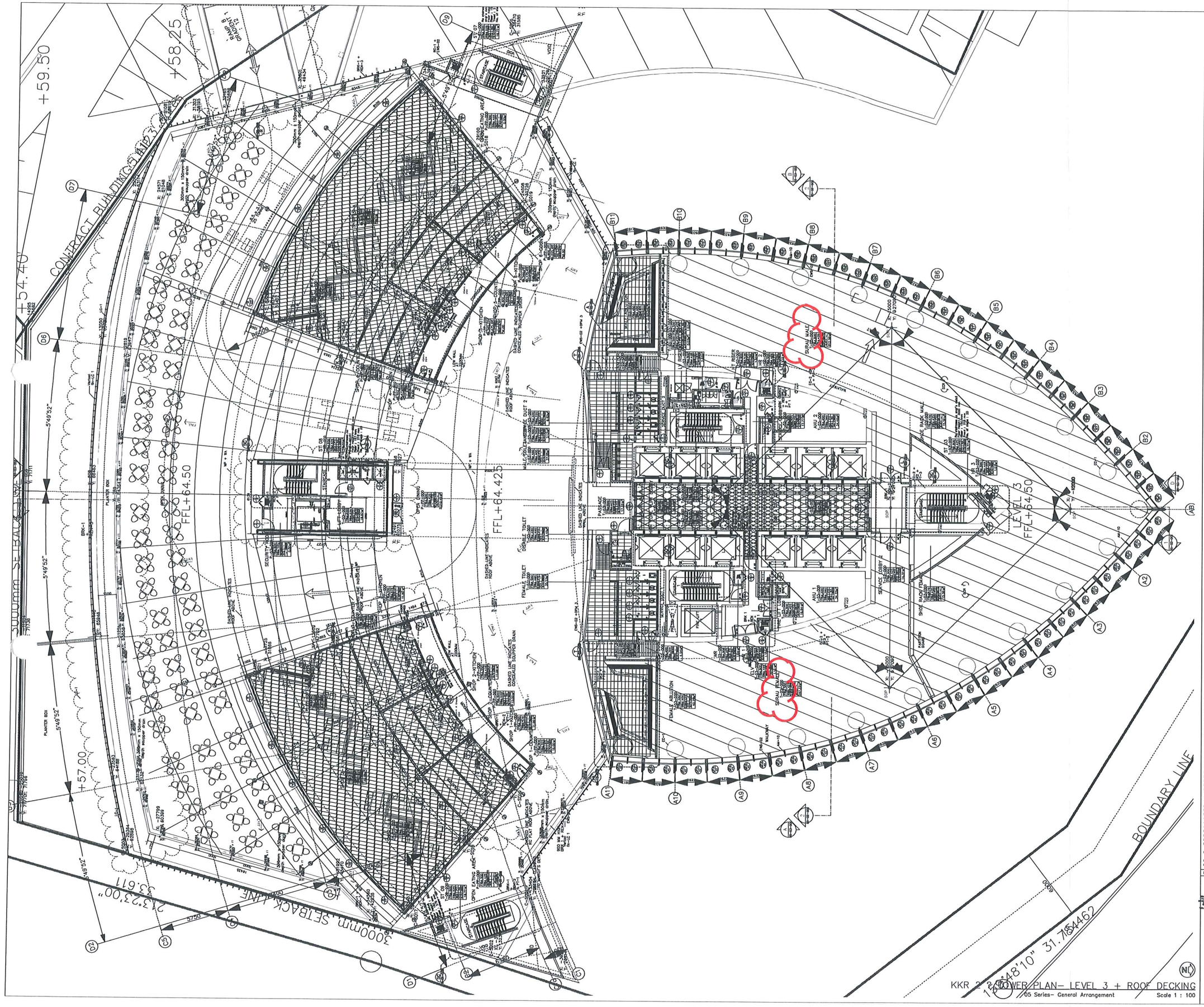
Walking route from project site to KL SOGO

Google

Walking directions are in beta.
Use caution – This route may be missing sidewalks or pedestrian paths.



Project site plan drawing showing the location of Surau



KKR 2 TOWER PLAN- LEVEL 3 + ROOF DECKING
05 Series- General Arrangement
Scale 1 : 100

FINISHES SPECIFICATION

E20	FINISHES TO IN-SITU AND PRECAST CONCRETE
EC-1	Special Class Finish (to Exposed Concrete Columns, Feature Walls & Soffits of Slab at Public Areas / off form)
EC-2	Class 2 Finish (to All Other Concrete Columns, Beams, Walls & Soffit)
WF-1	Brush Finished (drop off area)
WF-2	Power trowelled finish
WF-3	Surface hardener(mechanical room)
F10	BRICK / BLOCK WALLING
BRK-1	100mm Common Brickwork
BRK-2	200mm Common Brickwork
BLK-1	200mm x 200mm x 300mm Blockwork (external wall)
BLK-2	200mm x 200mm x 300mm Blockwork (internal wall)
CT-1	
CT-2	Ceramic tile (600x600)mm x 12mm thk.
LC-1	Light weight concrete fin (150mm x 75mm)
RC-1	Reinforced Concrete wall
F31	PRECAST CONCRETE SILLS / LINTELS / COPINGS / FEATURES
F31	Precast Concrete Sills / Lintels / Copings / Features (to engineers detail)
H11	CURTAIN WALLING / CLADDING
ENS-01	Aluminium capping
ENS-02	Aluminium Composite Panel-Open joint
ENS-03	Aluminium Composite Panel-Sealant joint
AM-1	Wall mounted painted ms handrail
AM-2	Stainless steel handrails & balustrade
AM-3	Ladder to M&E room
AM-4	Metal steps with handrailing
AM-5	Powder Coated ms Steel Frame Plate Roof Structure
AM-6	Powder Coated Metal Tubular Steel Roof
AM-7	Structure Hot Dipped Galvanised Grating
AM-8	Metal access hatch with stays
AM-9	200mm x 400mm ms Galvanised spray painted PU frame tempered glass panel
AM-10	Unitised Aluminium Punch Window System
AM-11	Semi-Unitised Curtain Wall System System
AM-18	Unitised Aluminium Punch Window System with ms Steel Frame Support (Top of Facade)
AM-19	PU Painted Mild Steel Angle Column Guard
AM-20	Mild Steel Powder Coated Structural Frame Support for Gondola System
H13	STRUCTURAL GLASS ASSEMBLIES
H72	ALUMINIUM SHEET COVERINGS / FLASHINGS
MET-1	Aluminium Standing Seam Roof Covering with accessory accessories
J30	LIQUID APPLIED TANKING / DAMP PROOF MEMBRANES
DPM-1	Liquid Applied Cementitious Waterproof Membrane (Applied to all Ground Floor slab - all areas)
J40	WATERPROOFING FOR CONCRETE STRUCTURES
DPM-2	Liquid Applied Cementitious Capillary Waterproof Membrane (Toilets, Ablution,roof slab,terrace)
DPM-3	Liquid Applied Waterproofing Membrane - Sub Surface Concrete Sealant
J41	BUILT-UP FELT ROOF COVERINGS
ROOF-1	Roof Membrane System (at r.c flat roof, r.c wide gutters, open roof terrace)
ROOF-2	As per ROOF-1 with insulation
ROOF-3	12mm thk laminated clear glass panel
K32	FRAMED PANEL CUBICLE PARTITIONS
PL-1	Plastic Laminate WC Cubicle Panels
PL-2	Plastic Laminate WC Cubicle Doors
K40	SUSPENDED CEILINGS
CLGS-1	Mineral Fibre Ceiling 600mm x 1200mm
CLGS-2	Plasterboard Ceiling (on tee)
CLGS-3	Plasterboard Ceiling (Seamless)
CLGS-4	Moisture resistant plaster board ceiling (on tee)
CLGS-5	Moisture resistant plaster board ceiling (seamless)
CLGS-6	Aluminium strip ceiling
AP-01	Continuous Bulkhead Access Panel System
AP-02	Soffit Access Panel
A/P	Access Panel
RAG	Return Air Grille
SAG	Supply Air Grille
L11	METAL WINDOWS / ROOFLIGHTS / SCREENS / LOUVRES
LVR-01	Performance Louvres System
M10	SAND CEMENT SCREEDS
SCR-1	Bonded Screed
SCR-2	Unbonded Screed (Toilets, Terrace & areas with waterproofing between screed & concrete slab)
SCR-3	Granolithic Screed (Staircases, Fire Staircase, Heavy duty Area)
M20	PLASTERED / RENDERED COATINGS
REN-2	Internal render
REN-3	External render
SK-1	External skim coat
SK-2	Internal skim coat
M40	STONE / CONCRETE / QUARRY / CERAMIC TILING
HT-1	Homogeneous Tile unglazed finish (300 x 300 mm)
HT-2	Homogeneous Tile textured finish (600 x 600 mm)
HT-3	Homogeneous nosing tiles for staircase
HT-4	Homogeneous tiles textures finish (300 x 600 mm)
CT-1	Ceramic Tile (300 x 300 x 8mm)
CT-2	Ceramic Tile (600 x 600 x 8mm)
G-1	Flamed Granite Tile
G-2	Polished Granite
WA	Washed aggregates
WP	Washed pebbles
ST	Stainless Steel Edge Angles 5mm Thick
LT-01	Landing Threshold
LA	Loose Aggregates (50mm diameter selected wedges shape)
M-1	Polished marble
M60	PAINTING / CLEAR FINISHING
PT-1	Matt emulsion paint
PT-2	Satin alkyd lacquer
PT-3	High quality emulsion paint
PT-7	Solvent based synthetic paint(external paint)
PT-8	Paint system to internal exposed steel work
PT-9	Paint system to internal concealed steel work
PT-10	Paint system to external exposed steel work
PT-11	Hot dipped galvanised and/or paint system to external concealed steel work
PT-13	Spray mineral finish (granite chips)
PT-15	Thermoplastic paint (parking marker)
PT-16	Road marking paint
PT-17	Micaceous oxide paint
M61	PROTECTIVE COATINGS AND FINISHES TO STEELWORK
PT-20	Paint Finish to Internal Exposed Steelwork
PT-21	Paint Finish to External Exposed Steelwork (Balustrade , Railings)
PT-22	Paint Finish to Internal Concealed Steelwork
P20	UNFRAMED ISOLATED TRIMS / SKIRTINGS / MOULDINGS / SUNDRY ITEMS
SKT-01	Stone Skirting (Granite) to Match G-1 G-2, G-3 (600 x 100mm)
SKT-02	Timber skirting
SKT-03	Homogeneous tiles skirting
Q25	SLAB / BRICK / SETT / COBBLE PAVINGS
GP-1	Grass Pave
MT	Mosaic tile (25 x 25) mm
K1	Imprint concrete
K2	Imprint concrete with hardener
CS	Cobble stone
T	Termac
L	Lawn/turfing
DOOR	
RS	Roller shutter
FRS	Fire rated roller shutter
A/P	Access panel on ceiling
FD	Fire rated door
D	Non-fire rated door
PH	Phenolic door & partition front

SANITARY FITTINGS

SQ	Squat WC
FSQ	Flushvalves for Squat WC
WC-1	Wash Down Pedestal WC
WC-2	Washdown Water Closet
FWC	Flushvalves for WC
U	Wall Hung Urinal
FU	Flushvalves for urinals
WB-1	Countertop Wash Basin
BT-1	Basin Tap (Countertop)
WB-2	Wall Hung Wash Basin
BT-2	Basin Tap (Wall Hung)
S-1	Kitchen Sink
ST-1	Kitchen Sink tap
S-2	Cleaner sink
ST-2	Cleaner Sink tap
SH	Soap Holder
TH	Toilet Paper Holder
TD	Napkin Dispensers
ND	Liquid Soap Dispenser
HD	Sensor Hand Dryer
PTD	Paper Towel Dispenser
HB	Hand Bidet
BT	Bib Tap
S	Shower Set (Head & Arm)
SCT	Shower Control taps (Concealed exposed)
TR	Towel Rail
RH	Robe Hook
MR	Mop Receptor
MP	Modesty Panel
GB-1	Grab Bars 1 (600mm x 25mm 'U-type' swing up)
GB-2	Grab Bars 2 (700mm x 700mm x 38 mm 'L'-type')
GB-3	Grab Bars 3 (600mm x 38mm 'C-type')
M	Mirror
RB	Rubbish Bin
FT	Grating for floor drain
DWC-1	Disabled Pedestal WC (Disabled Washdown Water Closet)
DWC-2	Disabled Pedestal WC (Disabled Washdown Water Closet Built)
DBT	Disabled Wash Basin Tap
DWB-2	Disabled Wash Basin

ROOM LABEL

Room Name
0.00
FFL0.000
SSL0.000
0.00m²

KERAJAAN MALAYSIA

PEMILIK TANAH

PESURUHJAYA TANAH PERSEKUTUAN
JABATAN TANAH DAN GALIAN
SEKSYEN HARTANAH PERSEKUTUAN,
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BAHAGIAN PEMBANGUNAN & PENSWASTAAN,
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JALAN SULTAN SALAHUDDIN,
50582 KUALA LUMPUR

PENGARAH PROJEK

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CAWANGAN KERJA BANGUNAN AM
IBU PEJABAT JABATAN KERJA RAYA
TINGKAT 13A MENARA PJD,
JALAN TUN RAZAK,
50400 KUALA LUMPUR.

PROJEK

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT
38 TINGKAT TERMASUK 7 TINGKAT PODIUM
DENGAN 2 TINGKAT BASEMENT
(KOMPLEKS KERJA RAYA 2)
DI ATAS LOT PT67 SEKSYEN 60,
JALAN SULTAN SALAHUDDIN,
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WILAYAH PERSEKUTUAN KUALA LUMPUR.

UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

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Ar. Syed Sabri Syed Ismail
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No. Pendaftaran : A/S 47

TAJUK LUKISAN

GENERAL ARRANGEMENT
LEVEL 3 + ROOF DECKING

NOTE
ALL DIMENSIONS ON THIS DRAWING SHALL BE CHECKED ON SITE BEFORE WORK COMMENCES.
FIGURED DIMENSIONS SHALL BE TAKEN IN PREFERENCE TO SCALE DIMENSIONS.
ALL DISCREPANCIES ARE TO BE REPORTED FOR CLARIFICATION BEFORE WORK COMMENCES.

Rev	Date	Note
1	7/7/11	-GA updated
2	10/25/11	-GA updated
3	2/22/12	-Level decking revised & updated
4	3/28/12	-GA updated

CONSTRUCTION DRAWING

Skala	AS SHOWN	Tarikh	28-Mar-12
Dilukis	FAIZAL	Disemak	YUNUS

NOMBOR LUKISAN

Nombor Projek	2387 / 07	Status Lukisan CD	Pindaan 4
Nombor Lukisan	GDP/2387/CD/05-01-011		

COP & TARIKH

COP AUDIT & TARIKH

NON-RESIDENTIAL NEW CONSTRUCTION (NRNC)
SUSTAINABLE SITE PLANNING & MANAGEMENT (SM)

SM4	ENVIRONMENT MANAGEMENT	2 POINTS

INTENT

To conserve existing natural area and restore damaged area to provide habitat and promote biodiversity.
To maximize Open Space - Provide a high ratio of open space to development footprint to promote biodiversity.

DESCRIPTION

Encourage protection or restoration of the habitat and maximise the ecological diversity by introducing native or adaptive vegetation. Maximise potential for open spaces on grade or on rooftops. One useful strategy is to carefully place building to ensure minimum disruption to the existing ecosystems by minimizing the building footprint. Another is to restore the site area with native or adaptive vegetation; or by increasing the total area for planting by introducing planting on the roof.

Greenfield sites are those that are not previously developed or graded and remain in a natural state. Previously developed sites are those that previously contained building, roadway, parking lot, or were graded or altered by direct human activity.

REQUIREMENTS

Conserve existing natural area and restore damaged area to provide habitat and promote biodiversity.

Maximize Open Space by providing a high ratio of open space to development footprint to promote biodiversity:

(A) **1 point : Conservation**

- On previously developed or graded site, restore or protect a minimum of 50% of the site area (excluding the building footprint) with native or adaptive vegetation. Native or adaptive plants are plants indigenous to a locality or cultivars of native plants that are adapted to the local climate and are not considered invasive species or noxious weeds. Applicable also to landscaping on rooftops and roof gardens so long as the plants meet the definition of native or adaptive vegetation, ***OR***
- On greenfield sites, limit all site disturbance to within 12 m beyond the building perimeter; 3 m beyond surface walkway, patio, surface parking and utilities less than 300 mm in diameter; 4.5 m beyond primary roadway curb and main utility branch trench; and 7.5 m beyond constructed area with permeable surface (such as pervious paving area, storm water detention facility and playing field) that require additional staging area in order to limit compaction in the constructed area.

(B) **1 point : Open Space**

- Reduce by 25%, the development footprint (defined as the total area of the building footprint, hardscape, access road and parking) and/or provide vegetated open space within the project boundary to exceed the local zoning's open space requirement for the site by 25%, ***OR***
- For areas with no local zoning requirement (e.g., university campus, military bases), provide vegetated open space adjacent to the building whose area is equal to that of the building footprint, ***OR***
- Where a zoning ordinance exists, but there is no requirement for open space (zero), provide vegetated open space equal to 20% of the project's site area.

APPROACH & IMPLEMENTATION

For previously developed or graded sites, during concept design for multi buildings development, ensure that the proposed buildings are located close to one another. This enables more land to be freed up for planting. For a single building development, minimise the footprint or plinth area for the same purpose.

For greenfield sites, similar approach is recommended.

CONTINUED ON NEXT PAGE

NON-RESIDENTIAL NEW CONSTRUCTION (NRNC)
SUSTAINABLE SITE PLANNING & MANAGEMENT (SM)

SM4	ENVIRONMENTAL MANAGEMENT	2 POINTS

CONTINUED FROM PREVIOUS PAGE

REQUIRED SUBMISSION FOR DESIGN ASSESSMENT (DA)	SUBMITTER	GBI
1. Site plan showing setback dimensions, outlines of building plinth, hardscape and softscape areas (Landscape). (to scale)	⊘	○
2. Landscape plans showing the percentage area covered by native or adaptive vegetation. (to scale)	⊘	○
3. Name list of plants and characteristics.	⊘	○

REQUIRED SUBMISSION FOR COMPLETION & VERIFICATION ASSESSMENT (CVA)	SUBMITTER	GBI
1. As-Built coloured Site Plan with mark outline of building plinth, hardscape and softscape areas.	○	○
2. Landscape As-Built plans showing the percentage area covered by nature or adaptive vegetation.	○	○
3. Describe any deviations or additions to the DA submission.	○	○

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(COMPANY NO: 232661-A)
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	NAME	DESIGNATION	COMPANY	SIGNATURE / DATE
PROJECT NAME	Kompleks Kerja Raya2 (CKKR2)			DATE 4/6/2012
SUBMITTING PROFESSIONAL	SYED SOBRI SYED ISMAIL *AA Dipl. (London)* *No. Pendaftaran Akitek : A/S47*		GDP	
CLIENT	DATO' W. ZULKIFLI W. MUDA	MANAGING DIRECTOR	AHMAD ZAKI SDN BHD (81250-W) 88, Jalan Gombak, Setapak, 53000 Kuala Lumpur. Tel: 03-40241000 Fax: 03-40242000	

NOTE ATTACH ALL SUBMITTALS WITH THIS COVER PAGE

SM4 – Environmental Management

Points Applied – 1 point

SM4-1B: Open Space

The provided vegetated open space within the project boundary also exceeds the local zoning requirement by more than 25%. The local zoning requirement is 10% and the vegetated open space provided in Project Office exceeds the requirement by 97.80%.

Overall site area	11,578.00 (m^2)
Local zoning requirement	1,157.80 (m^2)
Vegetated open space provided on site	2,290.00 (m^2)
Percentage greater than zoning requirement	97.80%

Supporting Document

i. Landscape master plan.

HARDSCAPE FINISH SCHEDULE

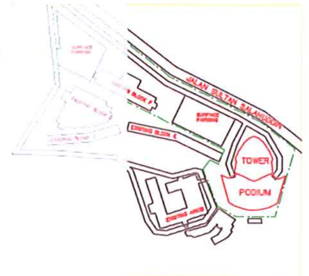
SYMBOL	DESCRIPTION	UNIT	QTY.
	CONCRETE BROOM FINISH	M^2	2774
	PRIME PAVER (LIGHT GRAY)	M^2	850
	CONCRETE GRASS PAVER	M^2	900
	WASHED AGGREGATES MAX. 10MM ø	M^2	500
	LOSE PEBBLES	M^2	150
	PRIME PAVER STRIPE (DARCK GRAY)	MR	920
	200MM WIDE FLAME FINISH GRANITE TO ARCHI. APPROVAL	MR	2500
	GALVANISED FENCE	MR.	65
	FLAG POLE	NOS.	3

LIGHTING SCHEDULE

SYMBOL	DESCRIPTION	QTY.	NOTES	OPERATION TIME
	WALL LIGHT	34	18w Die cast aluminium with acrylic diffuser as per (ST121-Alliance Lighting Manufacturing Sdn. Bhd.)	7.00 pm-7.00 am
	BRUID UP LIGHT (DRIVE WAY)	16	12w Die cast aluminium with tempered glass as per (BUL445-Alliance Lighting Manufacturing Sdn. Bhd.)	7.00 pm-7.00 am
	BURIED UP LIGHT (a)	23	70w stainless steel ring and body with tempered glass as per (BUL440-Alliance Lighting Manufacturing Sdn. Bhd.)	7.00 pm-12.00 a.m
	BURIED UP LIGHT (b)	17	18w GLS stainless steel cover with tempered glass with frame (BUL447-Alliance Lighting Manufacturing Sdn. Bhd.)	7.00 pm-12.00 a.m
	LED BAR	45M	5.4W every 50cm of LED bar light silver color	7.00 pm-12.00 a.m
	FLOOD LIGHT POLE	3	3 Nos. of 400w mercury each pole (FL000-Alliance Lighting Manufacturing Sdn. Bhd.)	upon request or special event

SOFTSCAPE PLANTING SCHEDULE

SYM	BOTANICAL NAME	COMMON NAME	OVERALL HEIGHT	TRUNK DIA.	UNIT	QTY	REMARKS
	TREES						
	EUCALYPTUS ALBA	SALMON GUM	1.5 M	15 MM	NOS	37	Requires 2lt/day water, Prefer full sun
	FAGREA FRAGRANCE	TEMBUSU	1.5 M	15 MM	NOS	5	Requires 2lt/day water, Prefer full sun
	HOPEA ODORATA	MERAWAN SIPUT JANTAN	1.5 M	15 MM	NOS	6	Requires 2lt/day water, Prefer full sun
	PHYLLOSTACHYS ANGUSTA	STONE BAMBOO	2.0 M		NOS	48	Requires 2lt/day water, Prefer full sun
	EXISTING TREE						
	CLIMBERS						
	BAPHIA NITIDA	BAPHIA			NOS	416	Requires 2lt/day water, Prefer full sun
	CLIMBERS						
	TRISTELLATEIA AUSTRALASIAE	–			NOS	1000	Requires 2lt/day water, Prefer full sun
	TURF						
	ZOYSIA MATRELLA	MANILA GRASS			m2	500	Requires water 2lt/m2 aday,Prefer full sun
	AXONOPUS COMPRESSUS	COW GRASS			m2	890	Requires water 2lt/m2 aday,Prefer full sun



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Fax : 603-40242000

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Metropolis Design Consultants
1009, Block A4
Leisure Commerce Square)
09, Jalan PJS 8/9,
50 Petaling Jaya, Selangor.
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603 7875 8667

ZETTA Consultants Sdn. Bhd.
232, Jalan 8/5, Sek. 8,
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: 603 89258862
603 89268862

…ANDSKAP

ROSLAN DATO HJ MEOR AHMAD RASIDI
ARKITEK LANDSKAP
…UTE OF LANDSCAPE ARCHITECTS MALAYSIA
…STITUT ARKITEK LANDSKAP MALAYSIA)
ILAM NO. 0000184

LANDSCAPE MASTER PLAN
(NEW BUILDING)

…E CHECKED ON SITE BEFORE WORK COMMENCES
…REFERENCE TO SCALE DIMENSIONS
…OR CLARIFICATION BEFORE WORK COMMENCES

Rev	Date	Nota

CONSTRUCTION

		Tarikh	DIS_2011
		Disemak	MEOR_ROSLAN

…2	Status Lukisan	BB	Pindaan 00
…UILDING/01			

COP AUDIT & TARIKH

NON-RESIDENTIAL NEW CONSTRUCTION (NRNC)
SUSTAINABLE SITE PLANNING & MANAGEMENT (SM)

SM5	EARTHWORKS - CONSTRUCTION ACTIVITY POLLUTION CONTROL	1 POINT

INTENT

To reduce pollution from construction activities by controlling soil erosion, waterway sedimentation and airborne dust generation.

DESCRIPTION

Construction sites are usually responsible for significant environmental pollution. Encourage the introduction of and implementation of a policy to achieve ALL 3 objectives of control soil erosion, sedimentation and surface run-off, and air pollution.

REQUIREMENTS

Reduce pollution from construction activities by controlling soil erosion, waterway sedimentation and airborne dust generation by creating and implementing an Erosion and Sedimentation Control (ESC) Plan for all construction activities associated with the project. The ESC Plan shall conform to the erosion and sedimentation requirements of the approved Earthworks Plans OR Local erosion and sedimentation control standards and codes, whichever is the more stringent.

The ESC plan shall describe the measures implemented to accomplish the following objectives:

- Prevent loss of soil during construction by storm water runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse.
- Prevent sedimentation of storm sewer or receiving stream.
- Prevent polluting the air with dust and particulate matter.

APPROACH & IMPLEMENTATION

A proper ESC Plan should be adopted and understood by all consultants and owner early during design stage and captured in the tender for the works.

This is followed by a strict implementation of the ESC Plan during construction.

REQUIRED SUBMISSION FOR DESIGN ASSESSMENT (DA)	SUBMITTER	GBI
1. Submit Proposed ESC Plan.	⊘	○

REQUIRED SUBMISSION FOR COMPLETION & VERIFICATION ASSESSMENT (CVA)	SUBMITTER	GBI
1. Submit ESC report, complete with photographic evidence and site reports verified by qualified person.	○	○
2. Describe any deviations or additions to the DA submission.	○	○

PROJECT NAME	KOMPLEKS KERJA RAYA 2 (KKR2)			DATE 15/6/2012
SUBMITTING PROFESSIONAL	NAME Wan Anuar Wan B. ENG. M. Sc(STRUCT) ENG. MIEM. P.ENG	DESIGNATION DIRECTOR Endut	COMPANY ARUP JURURUNDING SDN BHD (97905-U)	SIGNATURE
CLIENT	NAME DATO' W. ZULKIFLI W. MUDA	DESIGNATION MANAGING DIRECTOR	COMPANY	SIGNATURE

NOTE ATTACH ALL SUBMITTALS WITH THIS COVER PAGE

AHMAD ZAKI SDN BHD (81250-W)
88, Jalan Gombak, Setapak,
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Tel: 03-40241000
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SM5 – Earthworks

Points Applied – 1 Point

A copy of Erosion and Sedimentation Control Plan (ESCP) has been prepared by Environmental Consultant, ARDH MILLENIA S/B for Kompleks Kerja Raya 2 (KKR2).

The ESCP will comply with:

- DID Guidelines on the Protection of Watercourse and Limits of Buffer Zones
- Guidelines for Prevention and Control of Soil Erosion & Siltation in Malaysia
- Manual Saliran Mesra Alam (MASMA) prepared by DID, Malaysia

The following are some of the measures implemented during construction:

i. The wheels of the construction vehicles will be cleaned prior to leaving the construction site and entering into public road. Cleaning of wheels is done by constructing wash trough.
ii. Dust from the site will also be controlled by spraying water to disturbed area.
iii. Silt traps are provided at the site to collect and trap sediment before it leaves the construction site.
iv. Temporary drains are constructed to channel surface runoff for control of sediment discharge.

Supporting documents:

i. Erosion and Sedimentation Control Plan (ESCP)
ii. Photographic evidences of sustainable practises at site

Erosion and Sedimentation Control Plan (ESCP)

EROSION AND SEDIMENTATION CONTROL PLAN (ESCP)

EROSION AND SEDIMENTATION CONTROL PLAN (ESCP)

"PEMBANGUNAN 1 BLOK PEJABAT 38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN 2 TINGKAT BASEMENT(KOMPLEKS KERJA RAYA 2) DI ATAS LOT PT67 SEKSYEN 60, JALAN SULTAN SALAHUDDIN, W.P. KUALA LUMPUR".

OCTOBER 2010

PENGARAH PROJEK	KONTRAKTOR	JURURUNDING ALAM SEKITAR
JKR	AHMAD ZAKI SDN. BHD.	ARDH MILLENIA
JABATAN KERJARAYA MALAYSIA Kompleks Kementerian Kerja Raya, Jalan Sultan Salahuddin, 50582 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur.	AHMAD ZAKI SDN BHD No 88, Jalan Gombak, Setapak, 53000, Kuala Lumpur. Tel: 03 – 4024 1000 Fax: 03 – 4024 2000	ARDHMILLENIA S/B Lot 27-3A, Blk C, Jalan Tasik Prima 5/1, Prima Biz Hub, Taman Tasik Prima, 47150 Puchong, Selangor. Tel: 03 – 8065 5731 Fax: 03 – 8065 1731

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LIST OF ESCP APPENDICES

1.0 INTRODUCTION

The project site is located within the sub-catchment of Sg. Klang. The physical terrain of the project site is hilly. The slope gradient of the entire project site is 19°, which the area falls into the slope category of >15 to 25 degrees, which is characterized under class II.

2.0 EROSION AND SEDIMENTATION CONTROL PLAN (ESCP)

Most construction activities will result in the exposure of topsoil to erosive rainwater runoff. During and after rain, surface runoff can transport the soils into the natural waterways, resulting in siltation of the nearby water bodies. The **ESCP** aims to: -

- Estimate the amount of sediment runoff from the Project site;
- Reduce and minimize soil erosion and water pollution of the river adjacent to the site;
- Introduce suitable erosion/sediment control measures and best management practices for the Project; and
- Provide guidelines for the implementation of a continuous monitoring programme.

The ESCP will endeavour to comply with all applicable laws, regulations and guidelines issued by Malaysian environmental authorities as follows:-

- DID Guidelines on the Protection of Watercourses and Limits of Buffer Zones ;
- Guidelines for Prevention and Control of Soil Erosion & Siltation in Malaysia ; and
- "Manual Saliran Mesra Alam" (MASMA) prepared by DID, Malaysia.

3.0 EROSION RISK ANALYSIS

Soil erosion and the generation of the sediment are identified as one of the impacts resulting from site clearing and earthworks. The external and magnitude of the soil erosion is governed by a number of factors such as slope steepness, slope length, rainfall intensity, soil erodibility, land cover and soil conservation practices.

3.1 Universal Soil Loss Equation

One of the methods commonly used to predict potential soil loss is the Universal Soil Loss Equation (USLE) developed by Wishmeier and Smith, 1965. The Universal Soil Loss Equation (USLE) is shown below and the rate of erosion is dependent on five variables.

$$A = R.K.LS.C.P$$

Where,

A	=	soil loss in tones/acres/year
R	=	rainfall erosivity index
K	=	soil erodibility index, defined as the mean annual soil loss per unit erosivity for a unit plot
LS	=	slope factor, which is the combination of the slope steepness (S) and slope length (L)
C	=	crop management factor, representing the ratio of soil loss under a given crop to that from bare soil.
P	=	conservation practice factor, representing the ratio of soil loss where conservation is practiced to no conservation measure taken.

The rainfall erosivity index (R) is derived from the annual rainfall based on the Roose (1975) and Morgan (1974) methods while the erodibility factor (K) for the proposed site is projected based on the physical characteristics on its soil. The erodibility factors are then aggregated to obtain an erosion value for each hectare. Slope factor (LS) is the combination of the slope steepness (S) and slope length (L), which is calculated from the height and length of the slope. Crop management factor (C) and conservation practice factor (P) are determined based on the density and continuity of the vegetation cover. Protection offered by crops

cultivated on slopes against erosion should be supported by soil conservation practices that aim at slowing down the runoff water.

Based on the Department of Agricultural Land Erosion Risk Map, the erosion risk categories are as follows:

Erosion Risk (t/ha/yr)	Risk Catgories
< 10	Low
10 - 50	Average
50 - 100	Above average
100 - 150	High
> 150	Very high

The soil erosion analysis was carried out for the worst case scenario (where the entire ROW is cleared simultaneously). The rate of soil erosion during construction stage is 361.6. The potential erosion rates on the areas falls under very high (>150 ton/ha/yr). Upon completion of the proposed project, the erosion risk is predicted to be low as the project site will be paved and proper drainage system is in place. In addition, establishment of vegetation on unpaved areas will minimize erosion rate. With the area is less than 1 ha (0.75 ha) the total amount of soil erosion has been calculated to be 271.1 tonnes/yr.

3.2 Sediment Discharge

Soil erosion during the construction phase may result in the discharge of suspended sediment into the existing watercourses and lead to the deterioration of the water quality of the affected river. Not all sediment produced will be discharged into the temporary drains. The estimation of Sediment Delivery Ratio (SDR) will give an indication of the amount of sediment produced from site activities that will be discharged into the drain. The SDR is calculated based on an empirical equation proposed by Balamurugan (1990).

$$SDR = 77.683 \times A^{(-0.065)} \times (R/L)^{0.213}$$

Where SDR = Sediment Delivery Ratio

A = Catchment area, km^2

R = Change in elevation of the existing drain, m

L = Length of the existing drain, m

R/L = Relief Length Ratio

The SDR for the existing project areas is shown in **Table 1**.

Table 3.1: Calculation of Sediment Delivery Ratio (SDR)

Area (km^2)	R/L	SDR (%)
0.0075	0.0002478	18.3

With the sediment delivery ratio (SDR) is 18.3% the total sediment yield for the entire area during the construction stage will be approximately 49 t/yr. **Table 2** shown the sediment will be entering into the river.

Table 3.2: Sediment Discharge into the River

State of development	Project area (ha)	Sediment yield (t/yr)	SDR %	Sediment discharge	Mitigation efficiency	Sediment discharge (Tonnes/yr)
Construction Phase	0.75	271.17	18.3	49	0.25	37.12
					0.50	24.74
					0.75	12.37

4.0 EROSION AND SEDIMENT CONTROL MEASURES

During the construction phase, the proposed Project needs to comply with the relevant standards and legislation as given in the following table.

Table 4.1: Relevant Standards and Legislation

Environmental Aspects	Standards and Legislation
Earthworks	▪ DOE Guidelines for Prevention and Control of Soil Erosion and Siltation 1978, (revised 1996)
Drainage	▪ DID Guidelines (Urban Storm Water Management Manual for Malaysia, 2000) ▪ Street, Drainage and Building Act, 1974
Water Quality	▪ Environmental Quality (Sewage and Industrial Effluents) Regulations, 1979

In order to minimize erosion it is necessary to introduce mitigation measures to control silt runoff from the site into the drains or water bodies. Various control measures can be implemented such as limiting the extent of ground exposure, limiting the size of stripped land, surface stabilization treatment (turfing and temporary protective measures such as covering the soil surface with plastic sheets), sediment trapping devices and runoff-control measures such as drainage. These erosion and sedimentation control measures are to be carried out using the Best Management Practices (BMPs) and are described below.

4.1 Phasing of Construction Activities

Land clearing should be carried out according to the development schedule to minimize the amount of land exposure. Thus, good coordination is vital between the teams responsible for vegetation removal, earthwork preparation, track laying and turfing. Once the area has been cleared, earthwork should be carried out as soon as possible. Construction activities should take into consideration the prevailing climatic conditions at that time, particularly rainfall. It is recommended that as far as possible site clearing and earthwork be avoided during the wet season to prevent soil erosion.

4.2 Silt Traps

The purpose of a silt trap is to collect and store sediment from the areas cleared during construction. It is intended for use on small catchment areas with no unusual drainage features, where construction will be completed in a reasonably short period of time. Silt traps have been proven to be quite effective in removing coarse sediment.

The silt trap is a temporary measure, and is to be maintained until the site area is permanently protected against erosion by vegetation and/or structures. The silt traps are applicable for disturbed areas that are less than 2 hectares. A silt trap`s length to width ratio

should be greater than 2:1. The silt traps must be inspected weekly and after each rainfall. Removal of silt should be conducted regularly to ensure a depth requirement of no less than 30% of the total storage area.

Silt trap has been proposed to be constructed for the Project. The location of silt trap is shown in the proposed erosion and sediment control plan in FIGURE 4.1 and the detailed design is shown in FIGURE 4.2. The detailed calculation is attached in APPENDIX 1.

4.3 Wash through

The wheels and undercarriage of trucks/vehicles shall be cleaned to remove soil and earth materials at the wash trough prior to exiting from the construction site. The proposed location of wash trough is shown in FIGURE 4.1 and the detailed design is shown in FIGURE 4.3.

4.4 Temporary Cut Slopes

The proposed methods for slope protection and stabilization of the proposed Project are mainly use nylon sheets as temporary protector. All the temporary cut slopes shall not be exposed for more than seventh (7) days.

4.5 Drainage Control

Before commencement of earthworks, temporary drains shall be constructed to channel surface runoff for control of sediment discharge. Drainage provisions within the site and downstream should be adequate to ensure that no flooding occurs. The detailed of the proposed temporary earth drain is shown in FIGURE 4.2.

The drainage system should be regularly inspected and maintained especially after heavy rainfall. Runoff from the cut and fill areas should be released into temporary drains that flow into the silt traps. The temporary drainage should be altered as and when necessary to keep the site free of standing water. All runoff from undisturbed areas should not be allowed to mix with runoff from disturbed areas. This can be achieved by constructing contour banks at the downstream boundaries between every disturbed and undisturbed area. The locations of the temporary drains are as shown in the Drawings for the proposed erosion and sediment control measures (Figure 4.1)

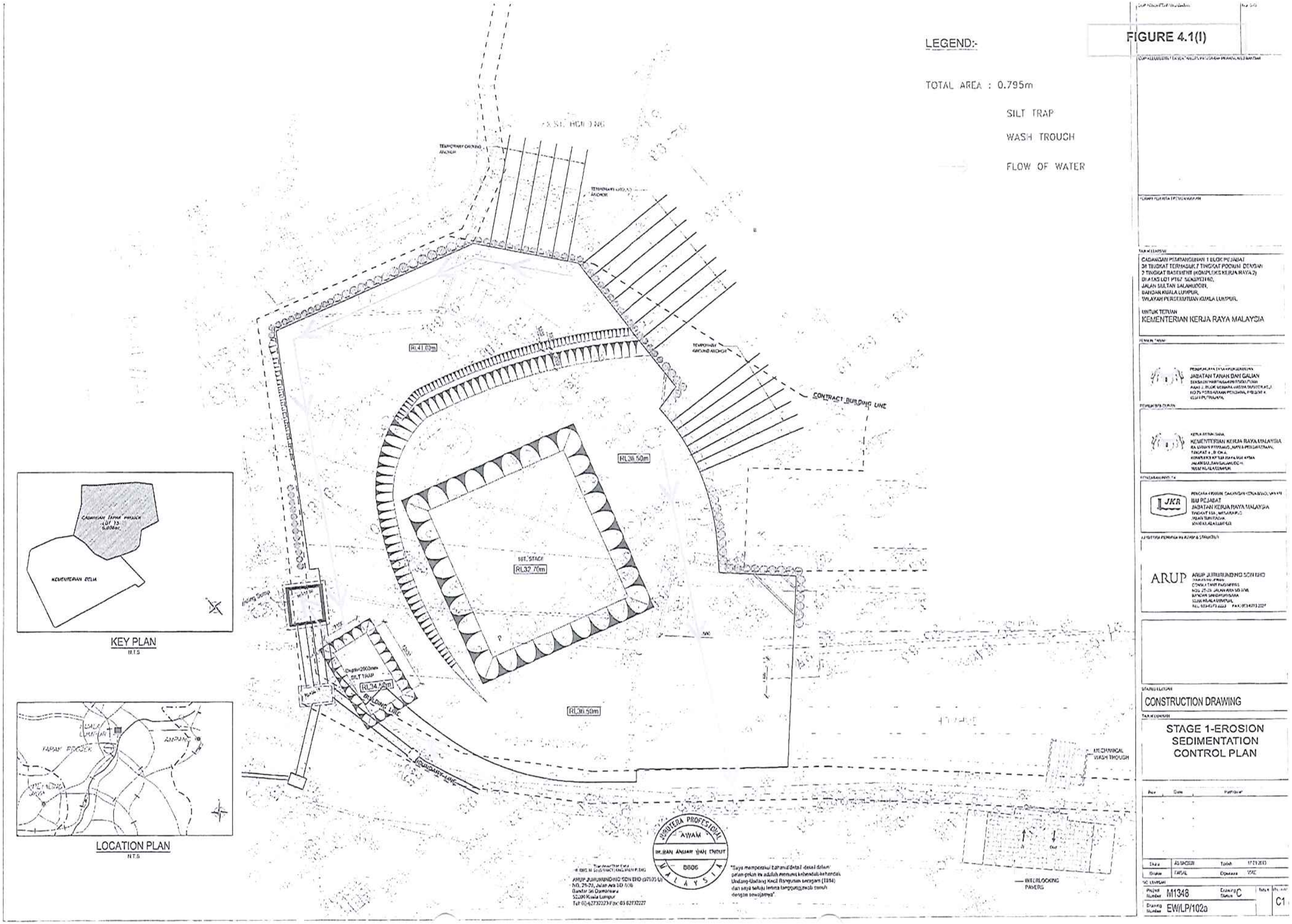


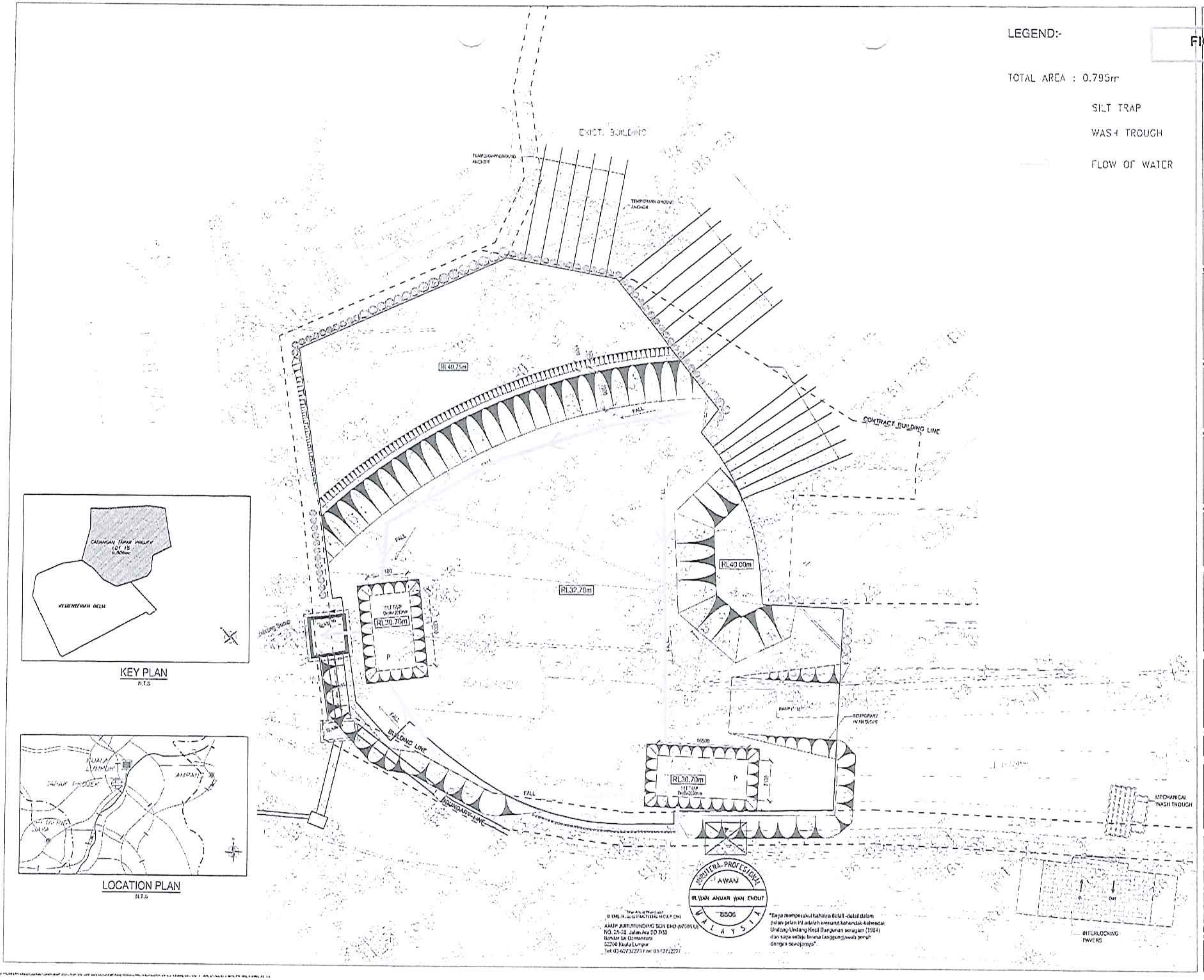
FIGURE 4.1(I)
LEGEND:-
TOTAL AREA : 0.795m
SILT TRAP
WASH TROUCH
FLOW OF WATER
CONTRACT BUILDING LINE
RL41.00m
RL36.50m
RL32.70m
RL34.50m
SILT TRAP
BUILDING LINE
BOUNDARY LINE
MECHANICAL WASH TROUGH
INTERLOCKING PAVERS
KEY PLAN
N.T.S
KEMENTERIAN BELIA
LOCATION PLAN
N.T.S
AMPANG
CADANGAN PEMBANGUNAN 1 BLOK PEJABAT 38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN 2 TINGKAT BASEMENT (KOMPLEKS KERJA RAYA 2) DI ATAS LOT PT67 SEKSYEN 60, JALAN SULTAN SALAHUDDIN, BANDAR KUALA LUMPUR, WILAYAH PERSEKUTUAN KUALA LUMPUR.
UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA
JABATAN TANAH DAN GALIAN
KEMENTERIAN KERJA RAYA MALAYSIA
IBU PEJABAT
JABATAN KERJA RAYA MALAYSIA
ARUP
ARUP JURURUNDING SDN BHD
CONSTRUCTION DRAWING
STAGE 1-EROSION SEDIMENTATION CONTROL PLAN
M1348
EW/LP/102a
C1
JURUTERA PROFESIONAL
AWAM
8806
MALAYSIA
ARUP JURURUNDING SDN BHD
NO. 29-20, Jalan Ara SD 7/3B
Bandar Sri Damansara
52200 Kuala Lumpur

FIGURE 4.2

M1348
EW/DTL/106

S0

FIGURE 4.1(II)



LEGEND:-
TOTAL AREA : 0.795m
SILT TRAP
WASH TROUGH
FLOW OF WATER
EXIST. BUILDING
TEMPORARY GROUND ANCHOR
CONTRACT BUILDING LINE
BUILDING LINE
BOUNDARY LINE
FALL
RL40.75m
RL32.70m
RL40.00m
RL30.70m
RL30.70m
MECHANICAL WASH TROUGH
INTERLOCKING PAVERS
KEY PLAN
N.T.S
KEMENTERIAN BELIA
LOCATION PLAN
N.T.S
JURUTERA PROFESIONAL
AWAM
IR.WAN ANUAR WAN ENDUT
8806
MALAYSIA
ARUP JURURUNDING SDN BHD
NO. 25-28, Jalan Ara SD 7/3D
Bandar Sri Damansara
52200 Kuala Lumpur
"Saya mengaku bahawa detail-detail dalam pelan-pelan ini adalah menurut kehendak-kehendak Undang-Undang Kecil Bangunan seragam (1984) dan saya sedia terima tanggungjawab penuh dengan sewajarnya"

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT 36 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN 2 TINGKAT BASEMENT (KOMPLEKS KERJA RAYA 2) DI ATAS LOT PT67 SEKSYEN 60, JALAN SULTAN SALAHUDDIN, BANDAR KUALA LUMPUR, WILAYAH PERSEKUTUAN KUALA LUMPUR.

UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

JABATAN TANAH DAN GALIAN

KEMENTERIAN KERJA RAYA MALAYSIA

IBU PEJABAT
JABATAN KERJA RAYA MALAYSIA

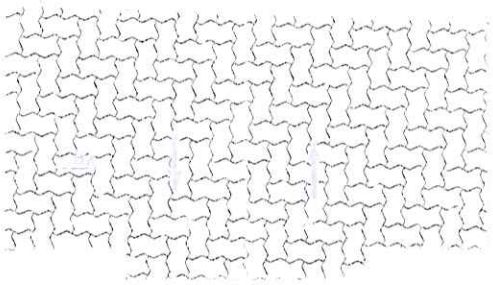
ARUP — ARUP JURURUNDING SDN BHD

CONSTRUCTION DRAWING

STAGE 2-EROSION SEDIMENTATION CONTROL PLAN

Date	AS SHOWN	Tarikh	17.09.2013
Drawn		Checked	
Project Number	M1348	Drawing Status	C
Drawing Number	EW/LP/102b	Revision	C1

FIGURE 4.3



INTERLOCKING PAVERS LAYOUT

SECTION E-E

SECTION D-D

M1348
EW/DTL/107

S1

4.6 Protection for Stockpiles

All excavated material and materials from earthworks activities must be deposited in a designated depository area. The area for dumpsites/stockpiles should be located away from the surface runoff flow paths, and not adjacent to waterways. For the Project, it is proposed that unsuitable material and topsoil be temporarily stockpiled prior to being carried to designated dumpsites.

The BMPs should be practiced whereby the stockpiles should be compacted or covered with plastic/geotextile sheets to minimize wind and water erosion. Plastic sheets should be of durable strength and thickness. It is recommended that the plastic sheet be embedded into the top part of the stockpiles or weighted with heavy rocks to keep it in place. Stockpiles on sloping ground shall be protected from runoff by constructing banks or drains around the upstream side to divert away surface runoff (FIGURE 4.4).

Vegetation Buffer

Site clearing shall be limited to areas of the project boundary for each stage of work. Vegetation cover should not be cleared until earthworks are ready to begin.

Buffer strips or corridors of vegetation can also be used to separate disturbed land from an adjacent watercourse, as they control and filter sediments from the surface runoff. Buffer strip performance generally increases as buffer width increases or as the buffer slope decreases. Minimum width of buffer should be 10m.

Turfing

All cut and fill area will be turfed. The main turfing will be carried out at sloping areas. Turfing will be carried out immediately upon completion of earthworks at the exposed areas in order to act as buffers along contours to reduce runoff velocity and to minimize erosion. In the event that turfing is not possible, temporary measures such as nylon sheet should be used to cover the exposed slopes to reduce erosion until turfing is carried out. Vegetation that is fast growing and hardy recommended. Once vegetation is established, the grass has to be watered and fertilized regularly to ensure proper and rapid growth. Spot turfing and close turfing techniques are also recommended for entirely bare areas. Spot turfing is a technique whereby clumps of grass, about 150 x 150 mm in diameter, are placed about 100 mm apart, compacted and left to grow with frequent watering. Close turfing is the same as spot-turfing except the clumps of grass are placed nearer to each other and, in most instances, covering the entire exposed bare area. A variety of grass types can be used such as the Axonopus compresses.

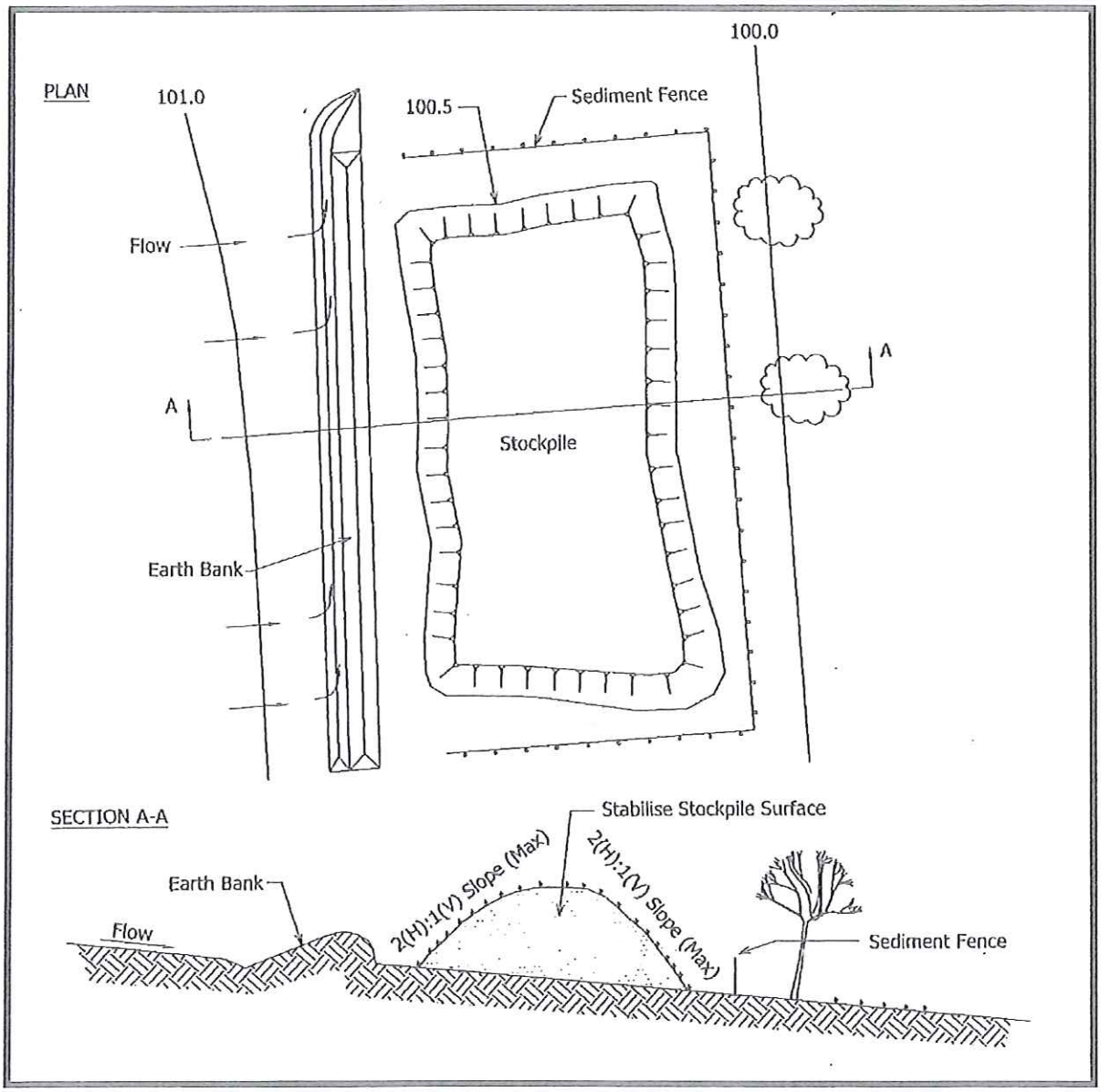


Figure 4.4	Stockpile Protection	Page: 16

5.0 EFFLUENT DISCHARGE MONITORING AT SILT TRAP

5.1 MONITORING STRATEGY

The monitoring strategy for the Project is based on the concept of pollution prevention rather than pollution mitigation. Thus environmental monitoring shall be conducted with the main aim of providing information that will enable pollution prevention steps to be taken.

The parameters used as indicators to potential pollution problems are discussed in the following section where action plans are detailed for the contractor to be taken.

5.1.1 Baseline Monitoring

Baseline monitoring is conducted prior to earthworks. Therefore, the monitoring data obtained could be used as data to establish baseline condition thus enabling impact assessment to be done. The baseline monitoring will also demonstrate the suitability of the proposed impact, control and reference monitoring stations.

Baseline monitoring was conducted on 1st June, 2010 for a existing drainange located in front of the project site from Northwest to Southeast which finally discharge into Sungai Klang. The weather was observed to be fine and clear throughout the sampling period.

5.1.2 Impact Monitoring

Impact monitoring involves the measurement of environmental parameters during project construction and implementation so as to detect changes, if there is any, in these parameters, which can be attributed to the project. Reference will be made to the result obtained from the baseline study. Water quality monitoring shall be conducted right before the water mix with the water flow from the project site. Air quality and noise levels monitoring will be monitored at two environmental sensitive receptors. If the need arises, additional air and noise monitoring will be conducted at project site.

5.1.3 Compliance Monitoring

Compliance monitoring takes the form of sampling to ensure regulatory requirements and standards are observed. Monitoring will be conducted from the silt trap discharge.

5.2 BASELINE WATER QUALITY MONITORING

(a) Drainage Water Quality

A baseline water quality monitoring was conducted on the 1st June 2010 analyzed by an SEMC Sdn Bhd & ChemVi Laboratory Sdn Bhd an accredited laboratory by SAMM Malaysia (No: SAMM 213)). Water samples were collected at two (2) stations within and near the proposed project sites. The description of the sampling points and laboratory analysis results are tabulated below. The water quality monitoring locations are shown in the **Baseline Environmental Monitoring Stations**, FIGURE 5.1.

TABLE 5.1: **Sampling Station**

Sampling Stations	Location and GPS Coordinates
W1(upstream of existing drainage)	N 03° 09' 14.0" E 101° 41' 25.3"
W2 (downstream of existing drainage)	N 03° 09' 13.6" E 101° 41' 25.0"

The water quality result will be expected to be issued by the Accredited Laboratory within two weeks from the sampling date. The result will be submitted as Addendum Report at a later stage.

Water Quality Results

The water quality monitoring result is presented below:-

Parameter	Units	Results		Interim National Water Quality Standard Class III
		W1	W2	
pH Value	-	6.33	6.35	5.0-9.0
COD	mg/L	24	84	50 mg/L
BOD	mg/L	7	25	6 mg/L
TSS	mg/L	138	139	150 mg/L
Oil and Grease	mg/L	ND(<1)	ND(<1)	NL
Dissolved Oxygen	mg/L	5.1	5.3	3-5 mg/L
Ammoniacal Nitrogen	mg/L	ND(<0.01)	ND(<0.01)	0.9
Escherichia coli	Count/ 100ml	89	93	5000 counts/mL
Water Quality Index	-	75.64(Class III)	60.00(Class III)	
LEGEND		DESCRIPTION		
	Exceeded the Class IIB of the Interim National Water Quality Standard for Malaysia.			
NL	Free from Visible Layer, discoloration and deposits			

The result showed that water quality both sampling points from the upstream and downstream of the project site respectively falls within Class III of the Interim National Water Quality Standard for Malaysia (INWQS). Therefore, future assessment will be made against Class III.

All the important parameters such as pH, TSS, oil & grease, ammoniacal Nitrogen and E.Coli were below the INWQS Class III except for COD at W2(84 mg/L), BOD at W1 and W2(7 mg/L and 25 mg/L), and Dissolved Oxygen at both points(5.1 mg/L and 5.3 mg/L) respectively.

5.3 IMPACT AND COMPLIANCE WATER QUALITY MONITORING

5.3.1 Drainage Water Quality Monitoring

5.3.1.1 Locations

Water quality sampling locations were chosen based on the following considerations:-

- Water Sampling Station located at the upstream and downstream of the construction site. This will enable water entering and leaving the site to be assessed and evaluated for the impacts generated from the project site.
- Locations selected based on any immediate needs to assess water quality, possibly due to incidents such as oil spills from a project site that may affect water quality.

The location of the **Proposed Environmental Monitoring Stations** is shown in TABLE 5.1.

5.3.1.2 Parameters and Frequency

i.	Dissolved Oxygen (DO)	ii.	Biochemical Oxygen Demand (BOD).
iii.	Chemical Oxygen Demand (COD).	iv.	Total Suspended Solids (TSS).
v.	Oil and Grease (O & G).	vi.	*E. coli.*
vii.	Ammoniacal Nitrogen (AN).	viii.	pH

Frequency of monitoring shall be monthly starting from implementation of earthworks until end of the project. Additional monitoring and parameters will be conducted as and when instructed by the authority.

Upon completion of physical works, the frequency of water monitoring may be reviewed subject to approval by the authority.

5.3.1.3 Sampling Procedures

- Only sterile collection bottles shall be used for sampling ;
- The inner sides, the opening or inside of the cap of the collection bottles should not be touched ;
- Collection bottles must be rinsed with water at the sampling point before samples are collected ;
- The collection bottles should then be sealed and labelled once the sample is collected ;
- Labelling should include date, time, place, weather conditions (e.g. dry, wet or heavy rain) and name of person who collected the sample ;
- Potential impacts causing activities, water flow conditions and other physical characteristics of the area should be noted for reference ; and
- Samples should be chilled and sent to a laboratory as soon as possible or within 48 hours of collection where transport of samples should be in an insulated container.

Sample should be accompanied by a **Chain of Custody Form** (APPENDIX 2).

5.3.1.4 Laboratory Analysis

AZSB through ARDHMILLENIA SDN BHD has appointed SEMC SDN BHD & CHEMVI LABORATORIES S/B (No: SAMM 213) to carry out the baseline environmental monitoring. For monthly environmental monitoring, Alam Sekitar Malaysia will be doing the work.

5.3.1.5 Event and Action Plan

The monitoring results shall be compared with the water quality results obtained during the baseline study on 1st June, 2010. The results will be also compared against **Class III of the Interim National Water Quality Standards** (APPENDIX 3). For relevant parameters, standards are taken from Class IIB and where a standard for these parameters does not exist, Class IIA standards are used instead.

In the event of non-compliance, the actions outlined in **Non-Compliance Action Plan,** FIGURE 5.2 shall be initiated. The Environmental Manager (EM) shall advise on the course of action to rectify the issues.

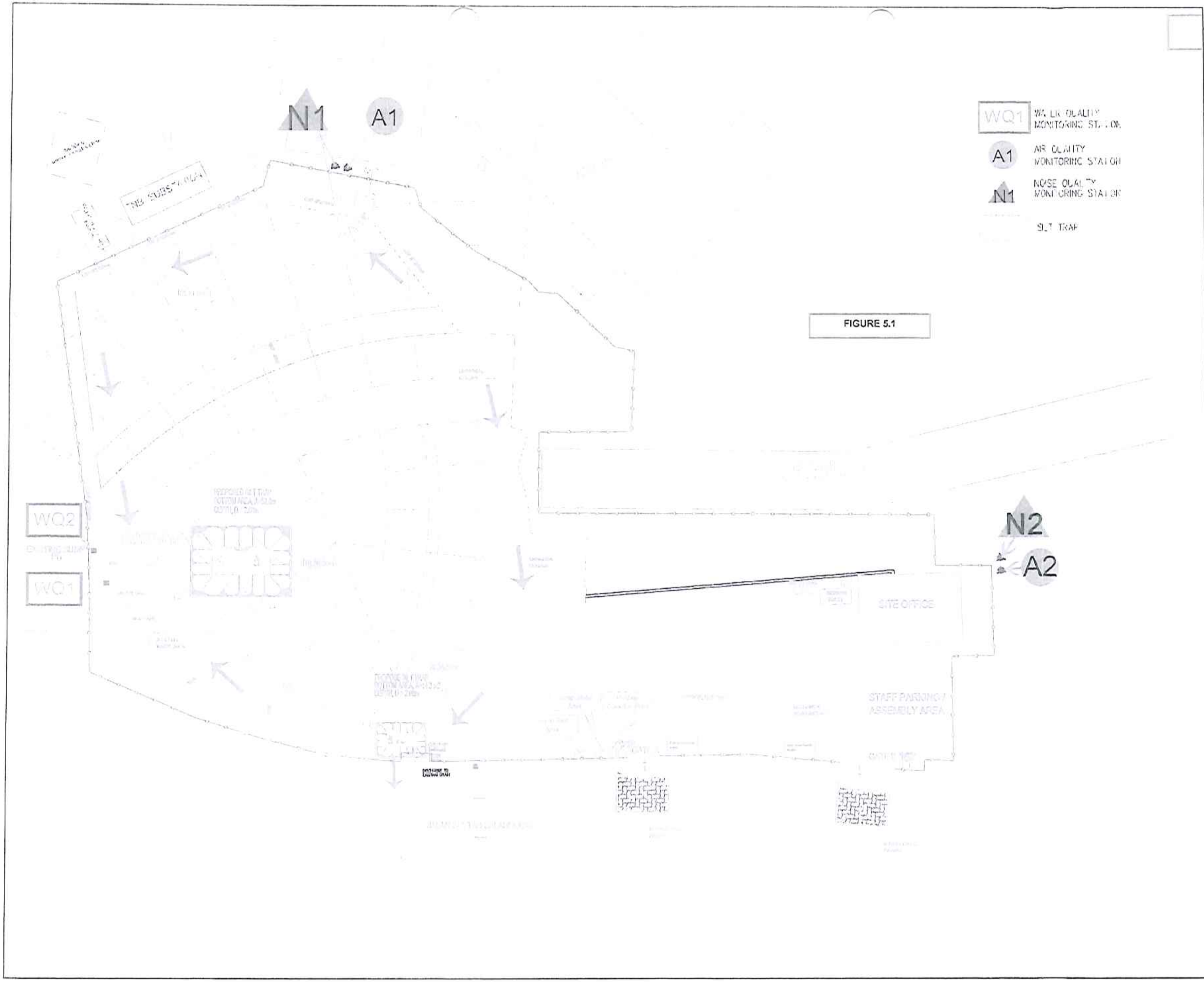


FIGURE 5.1

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT 31 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN 2 TINGKAT BASEMENT (KOMPLEKS KERJA RAYA 2) DI ATAS LOT PT57 SEKSYEN 68, JALAN SULTAN SALAHUDDIN, BANDAR KUALA LUMPUR, WILAYAH PERSEKUTUAN KUALA LUMPUR

UNTUK TETUAN

JABATAN TANAH DAN GALIAN

KEMENTERIAN KERJA RAYA MALAYSIA

IBU PEJABAT
JABATAN KERJA RAYA MALAYSIA
JALAN TUN RAZAK,

ARUP JURURUNDING SDN BHD
CONSULTANT ENGINEERS

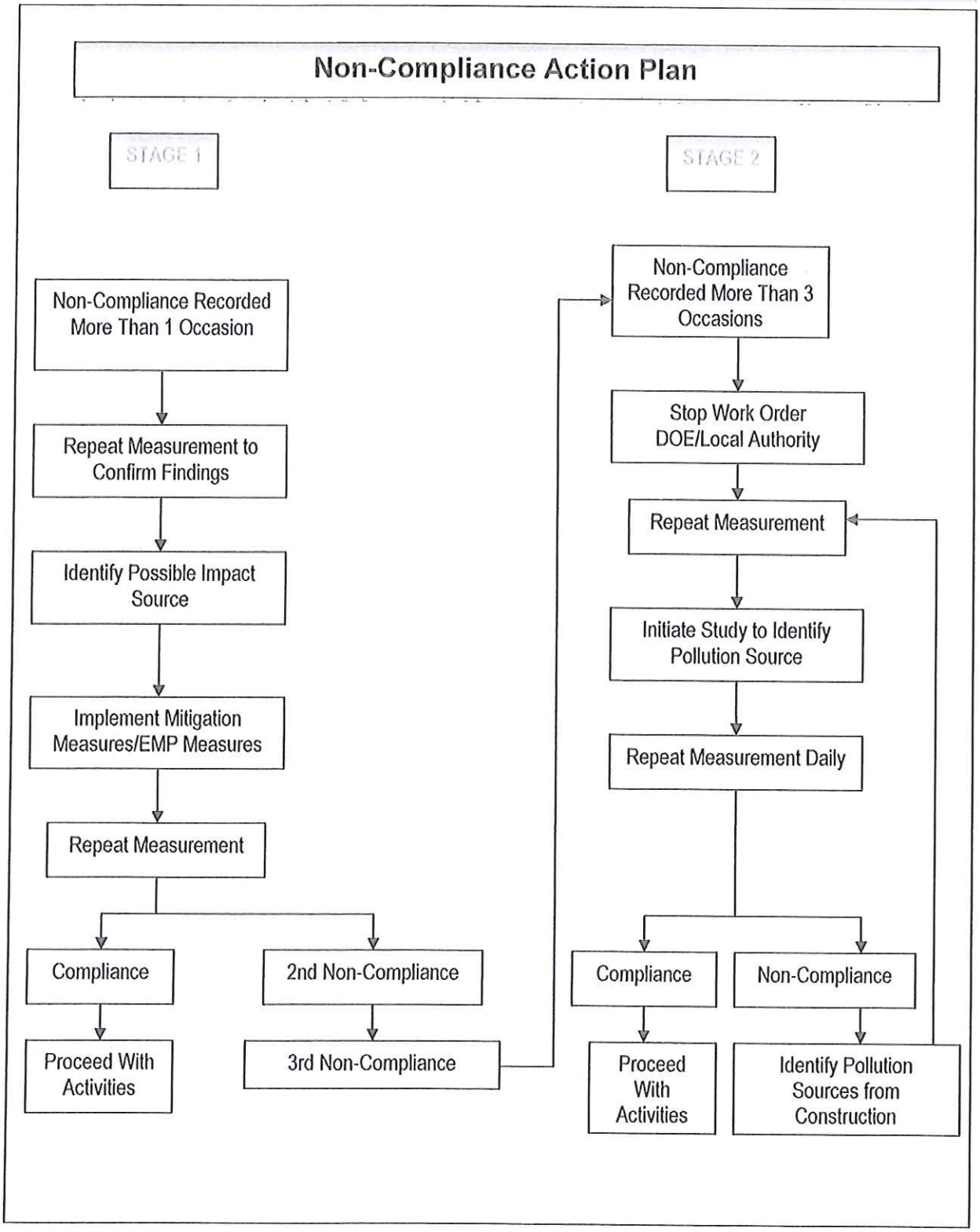
SUBMISSION DRAWING

ENVIRONMENTAL CONTROL PLAN

Rev	Date	Particular

Skala: NTS

FIGURE 5.2


Non-Compliance Action Plan
STAGE 1
STAGE 2
Non-Compliance Recorded More Than 1 Occasion
Repeat Measurement to Confirm Findings
Identify Possible Impact Source
Implement Mitigation Measures/EMP Measures
Repeat Measurement
Compliance
2nd Non-Compliance
Proceed With Activities
3rd Non-Compliance
Non-Compliance Recorded More Than 3 Occasions
Stop Work Order DOE/Local Authority
Repeat Measurement
Initiate Study to Identify Pollution Source
Repeat Measurement Daily
Compliance
Non-Compliance
Proceed With Activities
Identify Pollution Sources from Construction

5.4 MONITORING, SITE INSPECTION AND MAINTAINANCE

5.4.1 Total Suspended Solid (TSS)

Regular inspection and maintenance will be carried out to ensure that the drains and silt traps are operating efficiently. Monthly TSS monitoring shall be carried out at discharge outlets of the silt traps during both the earthworks and construction works period. The water discharged from the silt traps should not contain suspended solid load exceeding 100 mg/l as stipulated by the DOE`s standard. It should be noted that the TSS monitoring for the active silt traps should be carried out on a monthly basis. The following measures and procedures should be adhered to during silt trap sampling and monitoring:

I. Sampling of the discharge is done at the discharge outlet. Where a pipe or distinctive discharge point is not accessible, the sample is to be collected from any convenient point immediately.
II. Collection of the sample, from the direct outlet or pipe, is into the sample bottle while from shallow streams or flow paths, a suitable scoop can be used but care to be taken that bottom sediment or sand is not taken in during sampling.
III. Sampling is not to be carried out during or immediately after a rain or storm event. When rain had occurred, a minimum time interval of two hours is recommended after the rain or storm event before sampling.
IV. All samples must be collected in the appropriate plastic bottles and after collection or filled to the brim, be firmly capped and if possible, sealed with masking tape.
V. The quantity of sample must not be less than 1 liter.
VI. All samples must be clearly marked, either on the bottle or on labels, the location or ID of the sampling station, the date and time of sampling and the person taking samples. Where labels are used, care must be taken to ensure that these do not come off during the transportation to the laboratory.
VII. A chain of custody from (with details on number of samples, type of analysis required, date of collection and date of dispatch) to be filled and forwarded with the samples to laboratory.
VIII. Although discharges from silt traps are tested only for Total Suspended Solids, the samples should be sent as soon as possible to the laboratory for analysis to avoid any possible interference from decomposition of organic material.

5.4.2 Contractor Activity BMP Monitoring

Inspection and monitoring will be carried out based on the BMPs used. For contractor activity BMPs, the monitoring will consist of visual inspection and to ensure the proposed BMPs have been properly implemented and maintained according to the ESCP. Such inspection will include:

- Inspection for evidence of spills requiring cleaning up activities.
- Verifying adequate supplies of spill containment and cleanup materials (e.g. oil absorbent rolls/boom).
- Examining the integrity of containment structures.
- Verifying the use of employee education programs for the various activities.
- Noting the location of activity (e.g. outdoor vs. indoor, concrete vs grass).
- Verifying adequacy to provision of receptacles.
- Verifying waste disposal practices (e.g. recycle vs hazardous waste bins)

5.4.3 Sediment and Erosion Control BMPs

The effectiveness of Sediment and Erosion Control BMPs should be monitored based on the presence of silt behind or within control devices, the presence of silt behind or within control devices, the presences of silt downstream of the site, and sign of erosion in stabilized areas after a storm level. The system may be deemed ineffective if;

- Silt is present outside the control area.
- Structural controls are breached or fail under storm events of minor intensity.
- Rills and gullies are present in stabilized slopes.
- Evidence of silt buildup in downstream stromwater drains and waterways is apparent.
- Controls are not maintained in accordance with design guidelines.

Monitoring should also take into any change in drainage patterns and the extent of the change and addressed accordingly.

The areas undergoing active construction are stabilized as quickly as possible through the use of vegetation, much, erosion control matting, or structural methods within 7 calendar days of the last construction activity. If construction or other site conditions do not allow stabilization within 7 days, alternative control approaches should be taken such as the use water bowser trucks for wetting the access roads and the use plastic sheets near the slopes.

5.4.4 Site Inspection

The key to controlling erosion and sedimentation is the effective implementation and maintenance of ESCPs and this is the best achieved by undertaking a regular site inspection to ensure the ESCP is always operating in accordance with its design intent.

Hence the inspection will be performed as part of a regular construction inspection programme. The personnel in charge of site inspections for the proposed Project would be the Environmental Officer who will be in charge of the overall implementation of the ESCP.

The results of the inspection and assessment will be recorded in writing. The report will include the date of inspection, the person (s) who performed the inspection and the observations. A site inspection will be made by the Site Manager/Environmental Officer as follows:-

- at least weekly ;
- immediately before site closure ; and
- immediately following rainfall events in excess of 10-mm in anyone 24-hour period.

The self audit will include:

- recording the condition of every Best Management Practice (BMP) employed ;
- recording maintenance requirements (if any) for each BMP ;
- recording the volumes of sediment removed from sediment retention systems, where applicable ;
- recording the site where sediment is disposed ; and
- forwarding a signed duplicate of the completed Check Sheet to the project manager/developer for their information.

The site inspection will enable the new BMPs and adjustment to be carried out effectively through the tracking of changes.

Frequency of Inspections

Inspections should be undertaken;

- During any storm event that threatens to exceed the available capacity in sediment basins and permanent water quality control status.
- After any storm event with substantial runoff.
- Daily, during hot or dry weather when grass cover is less than 100% on vegetated areas.
- Weekly as a matter of site routine for all site work particles.
- Before site closure or any other time when it might be otherwise left unattended for more than seventy two hours.
- From the site access in a fixed direction, which allow others (replacement worker, DOE or consent authority officers) to follow the recorded inspection routine.

Overall Program Activities

The site inspection program will consist of the following activities;

I. Inspection of earth drains and slope drains. Initiate cleaning if required.
II. Removal of any stockpile material or sediment that has encroached within 2 m of surface drain.
III. Restoration of low spots in earth banks and diversion drains to their original height and compact.
IV. Where necessary, constructions of extra earth drains and/or diversion drains that help separate on-site dirty waters from other waters.
V. Install any new erosion and sediment control measures that have become necessary since previous inspections because of severe storms or progress in the site`s development.
VI. Checks to ensure that all earth banks, and waterways are operating within the safe limits for the surface conditions by noting any evidence in scour.
VII. Ensure that any construction work at site since previous inspection has not diverted sediment and water away from any site work practice.

Inspection of Silt Traps

All silt traps must be inspected after every rain or storm event and on a regular basis at least twice per week especially during active earthworks is in progress or work areas cleared and permanent protective measures e.g. turfing or slope guniting has yet to be carried out.

The inspection must cover the following;

I. Amount of silt/sediment retained - no more than 2/3`s of the depth of the silt trap or 66% i.e. if a silt trap is 3 m deep, the amount of silt must not exceed 2 m and the depth of water remaining must not be less than 1 m.

II. Integrity of side walls and bund - there must be no leaks or breaches of the bund walls where water can bypass the bund wall or the pipe outlet.

III. The aggregate material surrounding the perforated pipe should be inspected to ensure that these are not compacted with settled silt.

IV. Presence of vegetative debris or construction waste material washed into the silt trap.

5.4.5 Maintenance Program

Maintenance work should be carried out based on the site inspection. Every Erosion and Sediment Control measure on a construction site must be checked periodically and maintained sufficiently to ensure proper performance during every stage of development. In view of that, an Inspection and Maintenance Plan should be prepared by the personnel in charge of maintaining the Erosion and Sediment Control measures would be the respective construction team managers and subcontractors appointed at the respective work areas.

5.4.5.1 Silt Trap Maintenance / Desilting Procedure

Based on the site inspections, especially after each runoff event, arrangements will be made for the removal of sediments and other pollutants. This will include the removal of sediment from silt traps and disposal in compliance with local regulations as well as the clearing trash racks of all bulky and floatable material after each heavy storm or as otherwise required averting clogging of drainage system and onsite flooding.

All silt traps must be maintained at regular intervals depending on the rain conditions to achieve minimal efficiency. In any case, inspection of the silt trap should be carried out after every storm event. The maintenance work for the silt trap is as follows:

I. When the silt trap is filled with sediment greater than 2/3`s of the depth, de-silting works to remove the accumulated sediment must be carried out immediately to maintain the functionality of the silt trap.

II. De-silting can be carried out by a backhoe but care must be taken to not damage and breach the bund wall or the pipe outlet.

III. The sediment removed from the silt trap must not be placed next or near to the silt trap or within water flow channels where the possibility of the sediment washing back into the silt trap is likely during the next rain or storm event. The removed sediment should be removed for dumping at the approved dump site.

IV. All breaches of the bund wall or must be repaired or replaced as soon as possible to maintain the functionality of the silt trap.

V. Vegetative debris or construction waste material washed into the silt trap must be removed immediately to prevent any blockage and also damage to the bund wall or outlet pipe.

VI. A maintenance log to be completed with details of silt trap in terms of silt trap ID number, location, date of inspection, type of maintenance or repair work and the date and the person responsible.

5.4.5.2 Maintenance of Vegetative Surface

The revegetated surfaces should be observed to ascertain if they are progressing as planned. In the event where they are not:

- Seek professional agricultural advice where necessary.
- Consider the following:

  - Additional irrigation (watering).
  - Application of fertilizers.
  - Reseeding.
  - Mulching.
  - Weed control.

5.4.5.3 Repairing of Damaged and Breached Structures

Inspections should be carried out by the respective construction team managers on all structures for damage especially after any significant rainfall, and where necessary, take the following remedial actions:

- Repair, re-pin, or replace torn, detached or otherwise damaged liners, biodegradable blankets, geo-fabric, etc.
- Fill and compact any low spots and breaches in earth banks and diversion drains where vehicles of other factors have reduced the design height or stability.
- Repair (destabilize) any areas of soil erosion to reduce further erosion.

5.4.6 Record Keeping

5.4.6.1 Record Keeping

Record keeping of all inspections, compliance certifications, and non-compliance reporting are to be retained for at least 3 years by the Project Implementer. The use of photographs may be useful.

In addition, records of incidents such as spills or other episodic releases should be kept. The availability of such historical data will be useful for analysis and modifying the BMPs. For instance, the data can be used to identify areas or activities whereby there is a predominance of spills to enable efforts to be focused accordingly.

It is also highly recommended that records be kept for any BMPs that are "action" in nature such as housekeeping as opposed to BMPs that can be gauged by physical changes such as turfing. Such "action" based BMPs can only be gauged and demonstrated through record keeping. For instance, the keeping a record on the silt trap desilting activity will provide insight into how soon it takes for the trap to fill.

5.4.6.2 Logbook

Effective record keeping can be done through the use of a logbook. A logbook should always be kept in site for inspection by DOE or Local Authority Officers with entries made weekly on;

- Dates of installation and removal of site work practices.
- Repair of any damage to site work practices.
- Rainfall depths, durations, and times.
- Storage capacity available in pollution control structures.
- Condition of site work practice structures and stabilized surfaces.
- Time, date, volume, and type of additions of flocculation.
- Estimates of water volumes discharges.
- Estimates of pollutant volumes removed.

5.4.7 Plan Review and Modifications

The ESCP should be reviewed and modified if any unanticipated changes that may significantly affect it were to occur. This would include changes to the Project schedule, the phasing, staging area modifications, off-site drainage impacts, and repeated failures of designed controls. Changes should be identified accordingly, made known and the ESCP revised accordingly.

During the preparation and review of the modified ESCP construction works may continue with temporary modifications to the erosion and sediment control BMPs.

A revision to the ESCP is also required when properly installed system are ineffective in preventing silt transport off the site. This may be due to the unforeseen site conditions or construction techniques, which adversely affect the system as designed. Another occasion whereby a revision is required is when there is a new, relocated activity that could result in the discharge of significant amounts of pollutants.

APPENDICES

Design Calculation for Dry Sediment Basin

PROJECT : CADANGAN KOMPLEKS KERJA RAYA 2, JALAN SALAHUDDIN, KUALA LUMPUR

PREPERED BY : HSH JOB NO. : M1348

CHECKED BY : HSH DATE : 31-12-2009

PASSED BY : YKM

1 Determine Overland Flow Time of Concentration (minutes)

Catchment Area for the development	A	=	0.78 ha	
Segment A:	L_A	=	150.00 m	
	S_A	=	0.10 %	
	n	=	0.01	(Table 14.2)
From Equation 14.1,	$t_A(L_A)$	=	9.00 minutes	
Time of Concentration	t_{Total}	=	9.00 minutes	
		=	10 minutes	

2 Sizing of Sediment Basin

From Table 39.4,
The Predominant Soil type is categorised as type C
From Table 39.5, for 3 month ARI

The required surface area is		=	333.00 m^2/ha	
The required total volume is		=	900.00 m^3/ha	
The surface area required for the site		=	259.74 m^2	
The total basin volume required for the site		=	342.09 m^3	

(a) Settling Zone:-

The required setting zone,	V_1	=	156.00 m^3	
The setting zone depth	y_1	=	0.60 m	
Try a settling zone average with	W_1	=	10.00 m	
Required setting zone average length	L_1	=	26.00 m	
		Say	26.00 m	
Average surface area		=	260.00 m^2	>259.74m^2 OK.
Checking setting zone dimentions	L_1/y_1	=	43.33	<200 OK.
	L_1/W_1	=	2.60	>2 OK.

(a) Sediment Storage Zone:-

The required sediment storage zone volume V_2 = 186.09 m^3

For a side slope Z = 2(H) : 1(V),

The dimensions at the top of the sediment storage are	Z	=	2.00	
	W_2	=	8.80	m
	L_2	=	24.80	m

The require depth for the sediment storage zone, which must be at least [illegible] m, can be calculated from the following relationship

Elevation (m)	Depth y_2 (m)	Volumn V_2 (m^3)
4.50	0	0.00
4.40	0.10	21.32
4.30	0.20	41.65
4.20	0.30	61.00
4.10	0.40	79.38
4.00	0.50	96.80
3.90	0.60	113.29
3.80	0.70	128.84
3.70	0.80	143.49
3.60	0.90	157.23
3.40	1.10	182.07

=> For V_2 = 156.00,	y_2	=	0.89	m

(c) Overall Basin Dimension:-

At top water level	W_{TWL}	=	11.20	m
	L_{TWL}	=	22.20	m
Base	W_{TWL}	=	5.24	m
	L_{TWL}	=	21.24	m

3 Sizing of outlet pipe

Outlet riser: 600mm diameter perforated MS pipe	D	=	0.45	m
Average surface Area	A_{av}	=	207.959	m^2
Orifice Area	A_{total}	=	0.002	m^2
Using an orifice size of 50mm, the area each orifice is	A_o	=	0.0020	m^2
Total number of orifices required		=	1.02	no.
		say	2	no.

At height increments of 200mm, starting at the bottom of the pipe, put two rows of 2 x 50mm orifices evenly spaced around the pipe.

4 Sizing of emergency spillway

(i) Assume riser pipe flow is orifice flow through the top of pipe only.
(ii) Riser pipe head is [illegible] mm, the height between the top of the pipe and the spillway crest level.

For 10 year ARI and 10 minute duration,					
From Equation 13.3 and Table 13.3,	$^{10}I_{60}$	=	83.39	mm/h	
	$^{10}I_{30}$	=	114.51	mm/h	
	F	=	1.03		
	$^{10}I_{10}$	=	181.43	mm/h	
From Design Chart 14.3, Category (4)	C	=	0.84		
From Equation 14.7,	Q_{10}	=	0.33	m^3/s	
From Equation 20.2,	Q_{riser}	=	0.23	m^3/s	
Therefore, the required spillway capacity	$Q_{spillway}$	=	0.10	m^3/s	
Say, spillway dimensions	B	=	1.00	m	
	H_p	=	0.40	m	
	C_{sp}	=	1.65		
From Design Chart 20.2,	$Q_{spillway}$	=	0.42	m^3/s	$>0.10m^3/s$; OK
Therefore, the total basin depth including the spillway		=	2.00	m	

CHAIN OF CUSTADY FORM

PROJECT :						ANALYSIS TO BE PERFORMED									SAMPLING TEAM :
PROJECT NO:															LEADER :
SITE :															
LABORATORY :															TEAM MEMBERS :
Sample Marking	Preservation	Date	Time	Type Of Sample		Standard analysis A/B**	Oil and Grease	*E.coli*	Ammoniacal nitrogen						Notes
Relinquished by:		Date/time:		Received by:	Relinquished by:			Date/time:		Received by:					
Signature:		Signature:			Signature:			Signature:							

**Standard Analysis refer to the 21 parameters (except temperature and oil & grease) listed in the Third Schedule of the Environmental Quality (Sewage & Industrial Effluents) Regulation, 1979.

TABLE: INTERIM NATIONAL WATER QUALITY STANDARD

Parameters	*(Units)*	*Classess*					
		I	*IIA*	*IIB*	*III*	*IV*	*V*
Ammoniacal Nitrogen	mg/L	0.1	0.3	0.3	0.9	2.7	> 2.7
BOD	mg/L	1	3	3	6	12	> 12
COD	mg/L	10	25	25	50	100	> 100
DO	mg/L	7	5 - 7	5 - 7	3 - 5	< 3	< 1
pH		6.5 - 8.5	6 - 9	6 - 9	5-9	5 - 9	-
Colour	TCU	15	150	150	-	-	-
Elect. Cond.*	µmhos/cm	1000	1000	-	-	6000	-
Floatables		N	N	N	-	-	-
Odour		N	N	N	-	-	-
Salinity*	0/00	0.5	1	-	-	2	-
Taste		N	N	N	-	-	-
Total Diss. Solid*	mg/L	500	1000	-	-	4000	-
Total Susp. Solids	mg/L	25	50	50	150	300	> 300
Temperature	°C	-	Normal±2	-	Normal±2	-	-
Turbidity	NTU	5	50	50	-	-	-
E. Colif.**	counts/ 100ml	10	100	400	5000 (20000)$^{\varepsilon}$	5000 (20000)$^{\varepsilon}$	
Tot. Colif.	counts/ 100ml	100	5000	5000	50000	50000	> 50000

N = *No visible floatable materials/debris, or No objectionable odour, or No objectionable taste.*

* = *Related parameters, only one recommended for use*

** = *Geometric mean*

ε = *Maximum not to be exceeded*

Parameters	(Units)	Classess					
		I	IIA/IIB	III@	III	IV	V
Al	mg/L	↑	-	-	-0.06	0.5	↑
As	mg/L	|	0.05	0.4	-0.05	0.1	|
Ba	mg/L	|	1	-		-	|
Cd	mg/L	|	0.01	0.01*	-0.001	0.01	|
Cr (VI)	mg/L	|	0.05	1.4	-0.05	0.1	|
Cr (III)	mg/L	|	-	2.5		-	|
Cu	mg/L	|	1	-		0.2	|
Hardness	mg/L	|	250	-		-	|
Ca	mg/L	|	-	-		-	|
Mg	mg/L	|	-	-		-	|
Na	mg/L	|	-	-		3 SAR	|
K	mg/L	|	-	-		-	|
Fe	mg/L	|	0.3	1		1 (leaf)	|
		N				5 (others)	L
Pb	mg/L	A	0.05	0.02*	-0.01	5	E
Mn	mg/L	T	0.1	0.1		0.2	V
					-		
Hg	mg/L	U	0.001	0.004	0.0001	0.002	E
Ni	mg/L	R	0.05	0.9*		0.2	L
Se	mg/L	A	0.01	0.25	-0.04	0.02	S
Ag	mg/L	L	0.05	0.0002		-	
Sn	mg/L		-	0.004		-	A
U	mg/L	L	-	-		-	B
Zn	mg/L	E	5	0.4*		2	O
		V					V
B	mg/L	E	1	-	-3.4	0.8	E
Cl	mg/L	L	200	-		80	
Cl_2	mg/L	|	-	-	-0.02	-	IV
CN	mg/L	|	0.02	0.06	-0.02	-	|
F	mg/L	|	1.5	10		1	|
NO_2	mg/L	|	0.4	0.4	-0.03	-	|
NO_3	mg/L	|	7	-		5	|
P	mg/L	|	0.2	0.1		-	|
Si	mg/L	|	-50	-		-	|
SO_4	mg/L	|	250	-		-	|
S	mg/L	|	0.05	-	-0.001	-	|
CO_2	mg/L	|	-	-		-	|
		|					|
Gross-α	Bq/l	|	0.1	-		-	|
Gross-β	Bq/l	|	1	-		-	|
Ra-226	Bq/l	|	< 0.1	-		-	|
Sr-90	Bq/l	↓	< 1	-		-	↓

* = *At hardness 50 mg/L $CaCO_3$*

@ = *Maximum (unbracketed) and 24-hr average (bracketed) concentrations*

Parameters	(Units)		Classess				
			I	IIA/IIB	III@	III	IV	V
CCE	µg/l	↑	500	-			-	-
MBAS/BAS	µg/l	N	500	5000		-200	-	-
O&G (mineral)	µg/l	A	40:N	N			-	-
O&G (emuisified edible)	µg/l	T	7000:N	N			-	-
PCB	µg/l	L	0.1	6		-0.05	-	-
Phenol	µg/l	E V	10	-			-	-
Aldrin/	µg/l	E	0.02	0.2		-0.01	-	-
Dieldrin	µg/l	L					-	-
BHC	µg/l	S	2	9		-0.1	-	-
Chlordane	µg/l		0.08	2		-0.02	-	-
t-DDT	µg/l	O	0.1	1		-0.01	-	-
Endosulfan	µg/l	R	10	-			-	-
Heptachlor/	µg/l		0.05	0.9		-0.06	-	-
Epoxide	µg/l	A					-	-
Lindane	µg/l	B S	2	3		-0.4	-	-
2, 4-D	µg/l	E	70	450			-	-
2, 4, 5-T	µg/l	N	10	160			-	-
2, 4, 5-TP	µg/l	T	4	850			-	-
Paraquat	µg/l	↓	10	1800			-	-

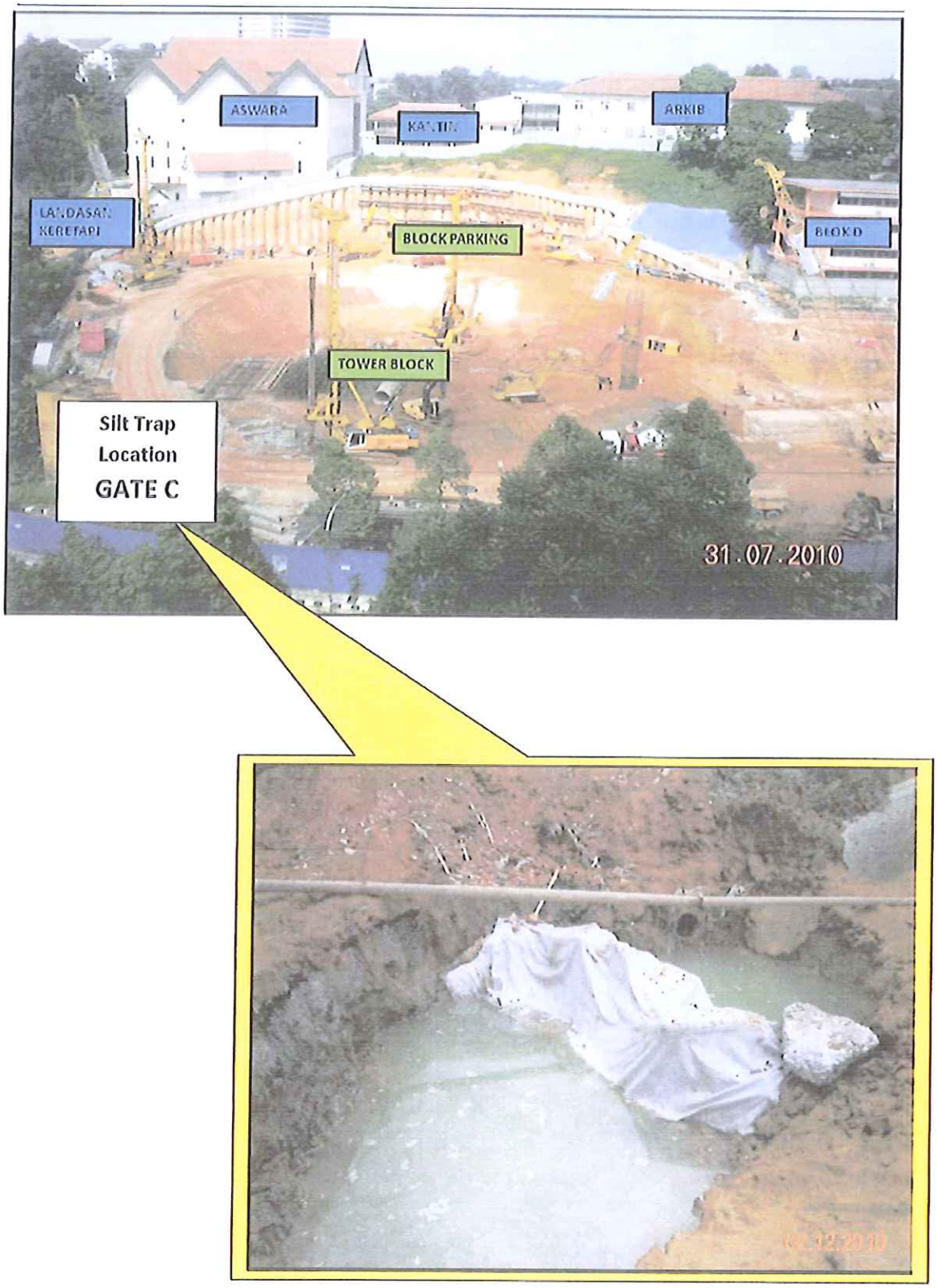
N = *Free from visible film, sheen, discoloration and deposits*
@ = *Maximum (unbracketed) and 24-hr average (bracketed) concentration*

Class	Uses
I	*Conservation of natural environment* *Water supply I – practically no treatment necessary (except by disinfection or boiling only)* *Fishery I – very sensitive aquatic species*
IIA	*Water supply II – conventional treatment required* *Fishery II – sensitive aquatic species*
IIB	*Recreational use with body contact*
III	*Water supply III – extensive treatment required* *Fishery III – common, of economic value, and tolerant species*
IV	*Irrigation*
V	*None of the above*

Photographic evidences of sustainable practises at site

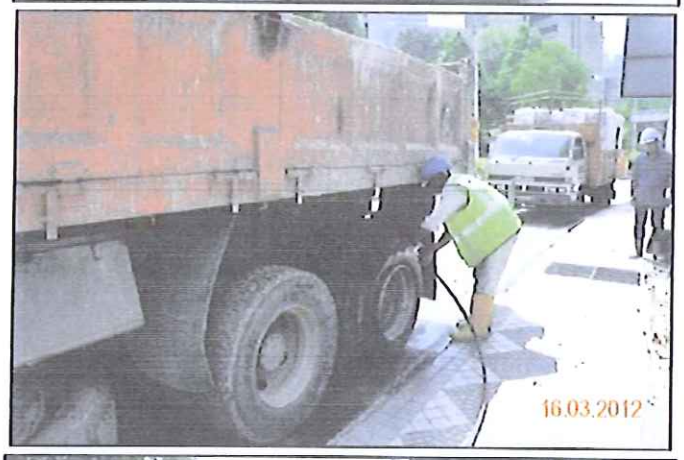
PHOTOS

i. Silt Trap During Excavation



Excavation of silt trap – desilting in progress

ii. Vehicles' tyres being washed before leaving site



iii. Wheels wash area

iv. Road watering daily to avoid air-borne dust particles


06/04/2012

NON-RESIDENTIAL NEW CONSTRUCTION (NRNC)
SUSTAINABLE SITE PLANNING & MANAGEMENT (SM)

SM6	QLASSIC - QUALITY ASSESSMENT SYSTEM FOR BUILDING CONSTRUCTION WORK	1 POINT

INTENT

To achieve quality of workmanship in construction works by subscribing to CIDB's Quality Assessment System for Building Construction (QLASSIC).

DESCRIPTION

Reward for achieving minimum score of 70% using QLASSIC Assessment System.

REQUIREMENTS

Achieve quality of workmanship in construction works:

Subscribe to an independent method system to assess and evaluate quality of workmanship of building project based on CIDB's CIS 7: Quality Assessment System for Building Construction Work (QLASSIC). Project should achieve a minimum score of 70%.

APPROACH & IMPLEMENTATION

- In the Project Quality Plan, QLASSIC is to be adopted and understood by all consultants and owner early during design stage and captured in the tender for the works.
- All contractors and sub-contractors are to be aware of QLASSIC score targets (tender documentation).
- All contractors and sub-contractors are to be QLASSIC compliance at tender stage and Strict Implementation of QLASSIC during construction to be monitored by qualified persons.

REQUIRED SUBMISSION FOR DESIGN ASSESSMENT (DA)	SUBMITTER	GBI
1. Submit Project Quality Plan and commitment to subscribe to QLASSIC.	⊘	○

REQUIRED SUBMISSION FOR COMPLETION & VERIFICATION ASSESSMENT (CVA)	SUBMITTER	GBI
1. Certification by CIDB of score achieved.	○	○
2. Describe any deviations or additions to the DA submission.	○	○

GDP ARCHITECTS SDN BHD
(COMPANY NO: 232661-A)
45-21 Plaza Level
Block C Plaza Damansara
45 Medan Setia Satu
Bukit Damansara 50490
Kuala Lumpur, Malaysia
Tel: 03 2093 5700 Fax: 03 2093 5711

	NAME	DESIGNATION	COMPANY	SIGNATURE / DATE
PROJECT NAME	Kompleks Kerja Raya 2 (KKR2)			DATE 15/6/2012
SUBMITTING PROFESSIONAL	SYED SOBRI SYED ISMAIL AA Dipl. (London) No. Pendaftaran Akitek : W/S47		GDP	
CLIENT	DATO' W. ZULKIFLI W. MUDA	MANAGING DIRECTOR	AHMAD ZAKI SDN BHD (81250-W) 88, Jalan Gombak, Setapak, 53000 Kuala Lumpur. Tel: 03-40241000 Fax: 03-40242000	

NOTE ATTACH ALL SUBMITTALS WITH THIS SUBMITTER PAGE

SM6 QLASSIC

Points Applied - 1 Point

Kompleks Kerja Raya 2 is committed to subscribe to QLASSIC and it is understood by all consultants and owner early during design stage.

A letter of commitment is provided by the Main Contractor to demonstrate that they would apply for QLASSIC and achieve a minimum score of 70%.

AZSB/SITE/KKR 2/7/7.13/L/001/12
27th May 2012

Greenbuildingindex Sdn Bhd
A-12-13A Menara UOA Bangsar
5 Jalan Bangsar Utama 1
59000 Kuala Lumpur

CADANGAN KOMPLEKS KERJA RAYA 2, JALAN SULTAN SALAHUDDIN, KUALA LUMPUR.
Re : Commitment of QLASSIC Assessment

With regard to the matter above, and as required in GBI requirement, we are committed towards achieving QLASSIC assessment point which targeted to achieve minimum score of 70% that fall under the Quality Assessment System associated with category three on Sustainable Site Planning & Management under the GBI requirement.

Subsequently, we are in progress of preparing all related documentations while to ensure implementation processes towards achieving this goal remain on track.

However, we understand that the implementation and documentation process are only part of the first step required and should there be any recommendation or suggestion which may require action from us, please do not hesitate to let us know.

We trust the above is well informed.

Thank you.

Yours faithfully,
AHMAD ZAKI SDN BHD

MOHD RAZENI IBRAHIM
Project Manager
f:dm/ain/a-project/kkr2/L/001/12.doc

1. AZSB - HQ (Contract)
2. IEN - Mr. Tan Khim Bok / Mr. Hwee Yin Tan

RECEIVED
11 MAY 2012

NON-RESIDENTIAL NEW CONSTRUCTION (NRNC)
SUSTAINABLE SITE PLANNING & MANAGEMENT (SM)

SM7	WORKER'S AMENITIES	1 POINT

INTENT
To reduce pollution from construction activities by controlling pollution from waste and rubbish from workers.

DESCRIPTION
Controlling Pollution from waste and rubbish from workers is as vital as that from all other construction processes.

REQUIREMENTS
Create and implement a Site Amenities Plan for all construction workers associated with the project.

The plan shall describe the measures implemented to accomplish the following objectives:

- Proper accommodation for construction workers at the site or at temporary rented accommodation nearby.
- Prevent pollution of storm sewer or receiving stream by having proper septic tank.
- Prevent polluting the surrounding area from open burning and proper disposal of domestic waste.
- Provide adequate health and hygiene facilities for workers on site.

APPROACH & IMPLEMENTATION
Site Amenities Plan is intended to achieve the objective of ensuring adequate health and hygiene facilities are available for workers in order to minimize pollution caused by workers.

REQUIRED SUBMISSION FOR DESIGN ASSESSMENT (DA)	SUBMITTER	GBI
1. Submit Site plan showing locations of all site staff and workers' amenities and health & hygiene facilities.	⊘	○
2. Submit Building Plan of Site Amenities (to scale).	⊘	○

REQUIRED SUBMISSION FOR COMPLETION & VERIFICATION ASSESSMENT (CVA)	SUBMITTER	GBI
1. Report, complete with photographic evidence and site reports verified by qualified person.	○	○
2. Describe any deviations or additions to the DA submission.	○	○

GDP ARCHITECTS SDN BHD
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45-21 Plaza Level
Block G Plaza Damansara
45 Medin Setia Satu
Bukit Damansara 50490
Kuala Lumpur, Malaysia
Tel: 03.2093.5700 Fax: 03.2093.5711

PROJECT NAME	Kompleks Kerja Raya 2 (KKR2)			DATE 15/6/2012
SUBMITTING PROFESSIONAL	NAME SYED SOBRI SYED ISMAIL AA Dipl. (London) No. Pendaftaran Akitek : AVS47	DESIGNATION	COMPANY GDP	SIGNATURE
CLIENT	NAME DATO' W. ZULKIFLI W. MUDA	DESIGNATION MANAGING DIRECTOR	COMPANY AHMAD ZAKI SDN BHD (81250-W) 88, Jalan Gombak, Setapak, 53000 Kuala Lumpur. Tel: 03-40241000 Fax: 03-40242000	SIGNATURE

NOTE ATTACH ALL SUBMITTALS WITH THIS COVER PAGE

SM7 Worker's Amenities

Points Applied – 1 point

Workers' accommodation will not be provided; workers will be staying offsite with their own personal accommodation.

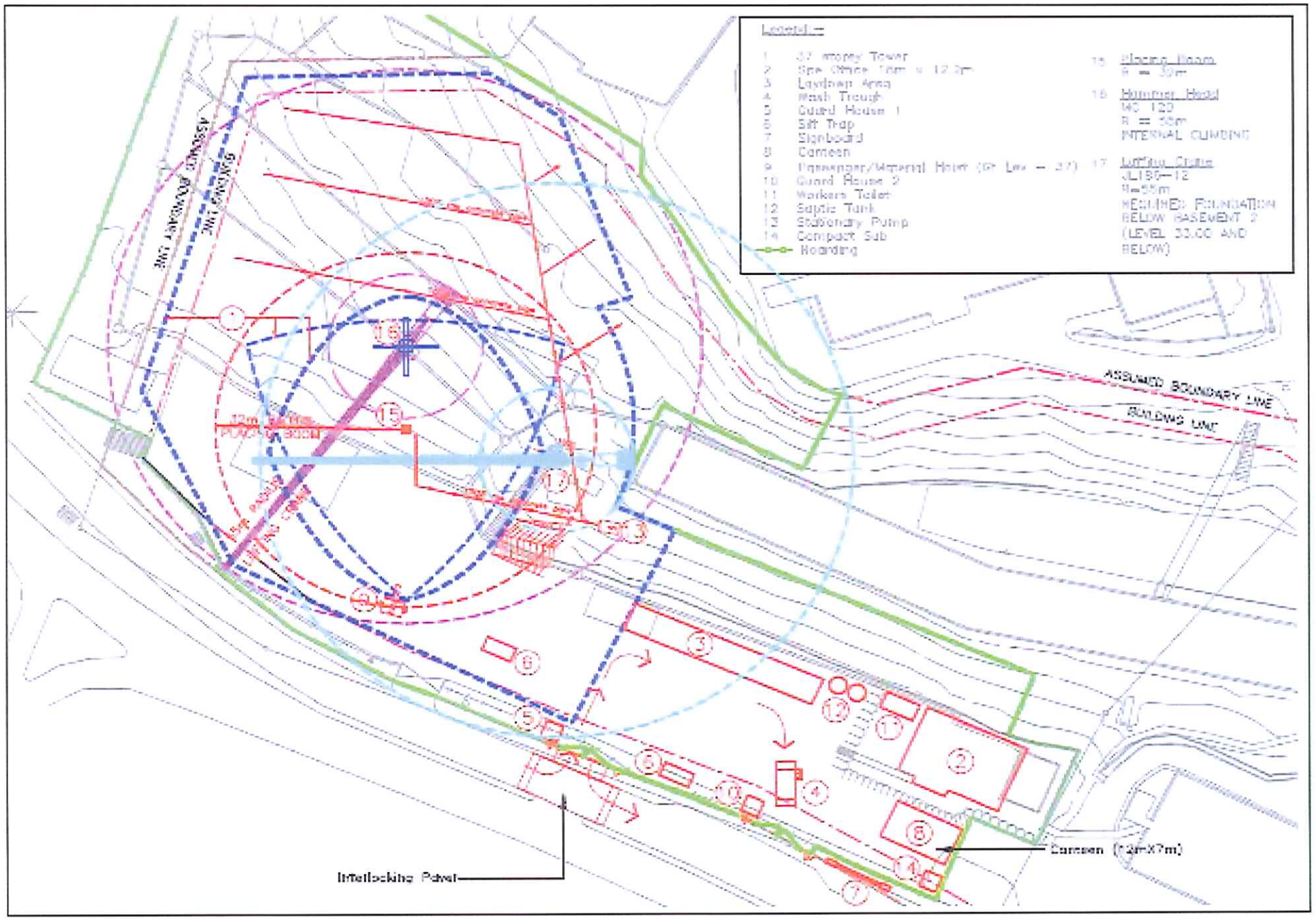
However, proper facilities for the workers at the site such as proper toilet facilities with septic tank, canteen, and resting area are provided.

Supporting Documents:

i. Site logistic plan
ii. Photographic evidence of the worker's amenities provided onsite

Site Logistic Plan

SITE LOGISTIC PLAN



Photographic evidence of the worker's amenities provided onsite

AHMAD ZAKI SDN. BHD.

AZSB KKR2

PHOTOGRAPHIC EVIDENCES SHOWING WORKING AMENITIES

GOOD PRACTICES ON SUSTAINABILITY, SAFETY AND ENVIRONMENTAL

SAFETY AWARENESS

Toolbox meeting are held every weeks to improve knowledge and as a reminder to all workers on safety and environmental awareness

Suffice fire extinguishers are provided with proper labeling

Suffice signage at site

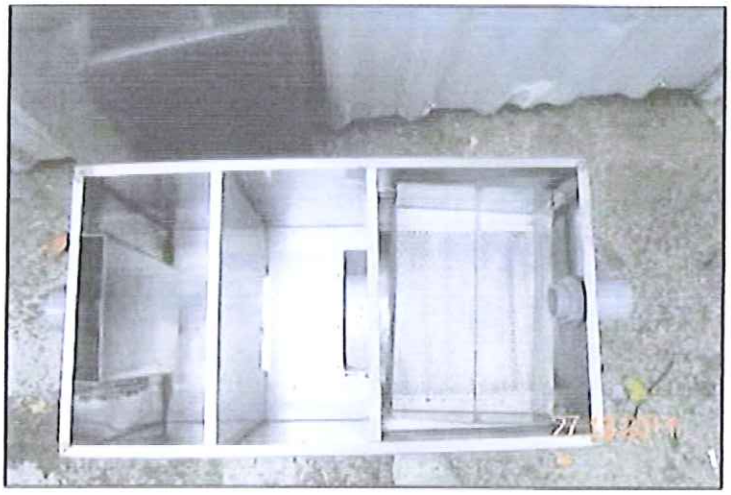
Notice board placed in office and canteen as to present safety and environmental awareness

Green Point – emergency assembly point

Staff and workers safety shoe wash through

WORKERS WELFARE

Canteen



Oil Trap has been installed

View outside of the toilet

View inside of the toilet

Periodical de-sludge of temporary septic tank at site office

Water cooler at site

NON-RESIDENTIAL NEW CONSTRUCTION (NRNC)
SUSTAINABLE SITE PLANNING & MANAGEMENT (SM)

SM8 | PUBLIC TRANSPORTATION ACCESS | 1 POINT

INTENT
To reduce pollution and land development impacts from automobile use.

DESCRIPTION
Reduce pollution and land development impacts from private car use. During site selection process, give preference to sites that are located within 1km radius of existing public transportation system.

REQUIREMENTS
Reduce pollution and land development impacts from automobile use:

- Locate project within 1 km of an existing, or planned and funded, commuter rail, or light rail station, ***OR***
- Locate project within 500 m of at least one bus stop.

APPROACH & IMPLEMENTATION
During concept design stage, plan the building in a manner whereby easy access is available for building users to commute using public transport.

REQUIRED SUBMISSION FOR DESIGN ASSESSMENT (DA)	SUBMITTER	GBI
1. Submit Site plan showing the site and building orientation, and highlight the locations of existing and planned public transport facilities. (Aerial Google Map is acceptable). Mark the radii from the building entrance to the various transportation systems.	⊘	○

REQUIRED SUBMISSION FOR COMPLETION & VERIFICATION ASSESSMENT (CVA)	SUBMITTER	GBI
1. As-Built Site Plan with marked up transportation system facilities and complete with photographic verification.	○	○
2. Describe any deviations or additions to the DA submission.	○	○

GDP ARCHITECTS SDN BHD
(COMPANY NO: 232661-A)
45-21 Plaza Level
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Bukit Damansara 50490
Kuala Lumpur, Malaysia
Tel: 03 2093 5700 Fax: 03 2093 5711

PROJECT NAME	Kompleks Kerja Raya 2 (KKR2)			DATE 15/6/2012
SUBMITTING PROFESSIONAL	NAME SYED SOBRI SYED ISMAIL AA Dipl. (London) No. Pendaftaran Akitek : A/S47	DESIGNATION	GDP	SIGNATURE
CLIENT	NAME DATO' W. ZULKIFLI W. MUDA	DESIGNATION MANAGING DIRECTOR	COMPANY AHMAD ZAKI SDN BHD (81250-W) 88, Jalan Gombak, Setapak, 53000 Kuala Lumpur. Tel: 03-40241000 Fax: 03-40242000	SIGNATURE

NOTE ATTACH ALL SUBMITTALS WITH THIS COVER PAGE

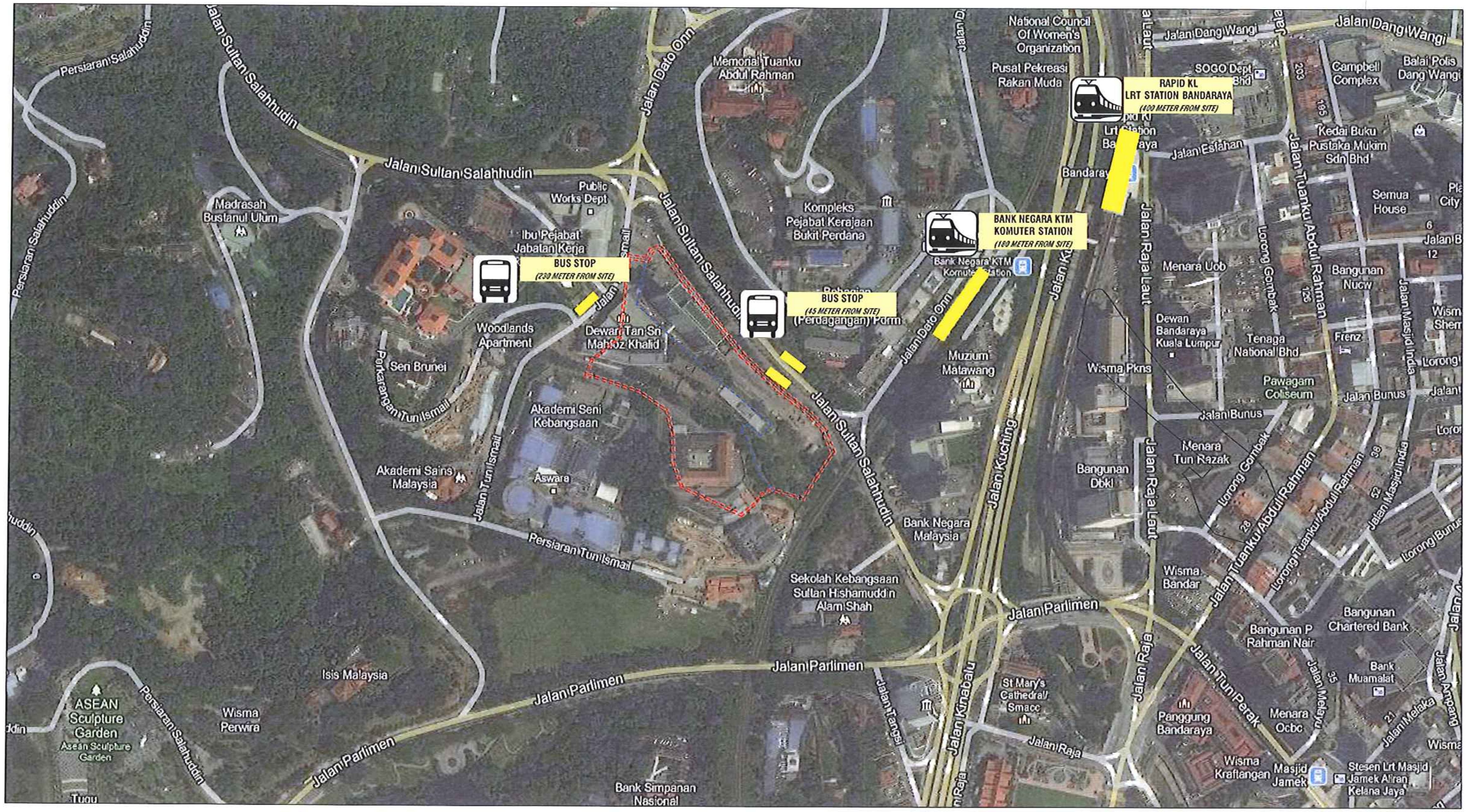
SM8 – Public Transportation Access

Points Applied – 1 point

Kompleks Kerja Raya 2 (KKR2) is within 1km radius of Bank Negara KTM Komuter Station and Rapid KL LRT Station Bandaraya.

In addition, there are two bus stops located within 500m of KKR2 which are Bus Stop Jalan Mahameru and Bus Stop Jalan Tun Ismail.

Please refer to the attached site plan showing the site and location of existing public transport facilities.



01 KKR 2 • SITE PLAN • PUBLIC TRANSPORTATION LOCATION
05: GENERAL ARRANGEMENT
Scale 1:2000

KERAJAAN MALAYSIA

JABATAN TANAH DAN GALIAN

KEMENTERIAN KERJA RAYA MALAYSIA
BAHAGIAN PEMBANGUNAN & PENSWASTAAN
TINGKAT 4, BLOK B, KOMPLEKS KERJA RAYA MALAYSIA
JALAN SULTAN SALAHUDDIN
50582 KUALA LUMPUR

IBU PEJABAT JABATAN KERJA RAYA MALAYSIA
TINGKAT 10A MENARA PJD
JALAN TUN RAZAK
50400 KUALA LUMPUR

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT
38 TINGKAT TERMASUK 7 TINGKAT PODIUM
DENGAN 2 TINGKAT BASEMENT
(KOMPLEKS KERJA RAYA 2)
DI ATAS LOT PT67 SEKSYEN 60,
JALAN SULTAN SALAHUDDIN,
BANDAR KUALA LUMPUR,
WILAYAH PERSEKUTUAN KUALA LUMPUR

UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

Ahmad Zaki Sdn. Bhd.

GDP ARCHITECTS SDN BHD

ARUP Jururunding Sdn. Bhd

ARUP Jururunding Sdn. Bhd

Northcroft Lim Perunding Sdn. Bhd

Metropolis Design Consultants

ZETTA Consultants Sdn. Bhd.

Ar. Syed Sobri Syed Ismail
ARKITEK PROFESIONAL

GREEN BUILDING INDEX (GBI) FOR INFO ONLY

SM8 : PUBLIC TRANSPORTATION ACCESS

SITE PLAN

CONSTRUCTION DRAWING

Skala	AS SHOWN	Tarikh	7-Mar-12

Nombor Projek: 2387 / 07
Nombor Lukisan: GDP/2387/
Pindaan: 0

NON-RESIDENTIAL NEW CONSTRUCTION (NRNC)
SUSTAINABLE SITE PLANNING & MANAGEMENT (SM)

SM9	GREEN VEHICLE PRIORITY	1 POINT

INTENT
To reduce pollution and land development impacts from automobile use.

DESCRIPTION
Provide preferred parking areas for green vehicles, thereby encouraging the use of such vehicles (e.g. hybrid or electric vehicles).

REQUIREMENTS
Encourage use of green vehicles:

- Provide preferred parking for low-emitting and fuel-efficient vehicles for 5% of Full-Time Equivalent (FTE) occupants.
- "Preferred parking" refers to the parking spots that are closest to the main entrance of the project (exclusive of spaces designated for handicapped or parking passes provided at a discounted price).

APPROACH & IMPLEMENTATION
During concept design stage, set aside the required number of carpark bays to be provided for green vehicles.

To further encourage the usage of green vehicles, locate the required carpark bays near lift lobbies.

REQUIRED SUBMISSION FOR DESIGN ASSESSMENT (DA)	SUBMITTER	GBI
1. Submit calculations of minimum required carpark bays (local zoning requirements).	⊘	○
2. Plans showing the locations and numbers of carpark bays reserved for green vehicles. Demonstrate the 5% FTE calculations.	⊘	○

REQUIRED SUBMISSION FOR COMPLETION & VERIFICATION ASSESSMENT (CVA)	SUBMITTER	GBI
1. Submit As-Built plans showing locations and the allocated 5% FTE carpark bays.	○	○
2. Describe any deviations or additions to the DA submission.	○	○

GDP ARCHITECTS SDN BHD
(COMPANY NO: 232661-A)
15-21 Plaza Level
Block C Plaza Damansara
45 Medan Setia Satu
Bukit Damansara 50490
Kuala Lumpur, Malaysia
Tel: 03.2093.5700 Fax: 03.2093.5711

PROJECT NAME	Kompleks Kerja Raya 2 (KKR2) SYED SOBRI SYED ISMAIL			DATE 15/6/2012
SUBMITTING PROFESSIONAL	NAME AA Dipl. (London) No. Pendaftaran Akitek : A/547	DESIGNATION		SIGNATURE
CLIENT	NAME DATO' W. ZULKIFLI W. MUDA	DESIGNATION MANAGING DIRECTOR	COMPANY AHMAD ZAKI SDN BHD (81250-W) 88, Jalan Gombak, Setapak, 53000 Kuala Lumpur. Tel: 03-40244000 Fax: 03-40242000	SIGNATURE

NOTE ATTACH ALL SUBMITTALS WITH THIS COVER PAGE

SM9 – Green Vehicle Priority

Points Applied – 1 point

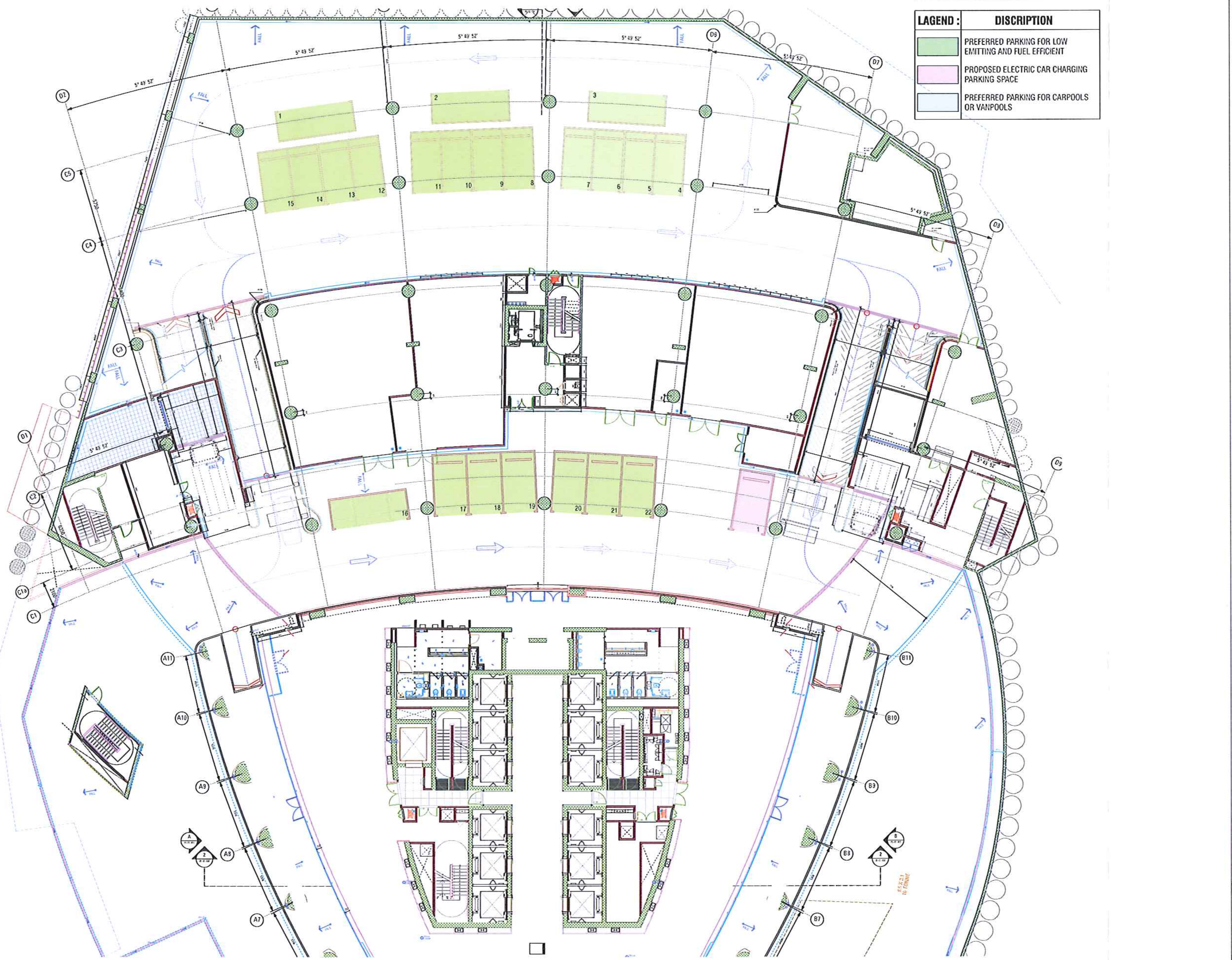
Based on the building's GFA, it's required to provide a minimum of 776 car parking bays within the Kompleks Kerja Raya 2 (KKR2) development.

27 car parking bays which constitute 5% of total parking spaces are reserved for low emitting and fuel efficient vehicles. These parking spaces will be located closest to the entrance (other than the parking for the handicapped) and will be clearly identified to indicate that these parking spots are only designated for low emitting and fuel efficient vehicles.

Please refer to the attached plan showing the location of preferred carpark bays.

NOTE : PLAN AS PER CONSTRUCTION DWG (GDP/2387/CD/05-01-003)

LAGEND :	DISCRIPTION
(green)	PREFERRED PARKING FOR LOW EMITTING AND FUEL EFFICIENT
(pink)	PROPOSED ELECTRIC CAR CHARGING PARKING SPACE
(light blue)	PREFERRED PARKING FOR CARPOOLS OR VANPOOLS



01 KKR 2 • SM 9 & SM 10 • LEVEL LOWER GROUND + PARKING 1

05 : GENERAL ARRANGEMENT

Scale : 1 : 250

FINISHES SPECIFICATION

SANITARY FITTINGS

KERAJAAN MALAYSIA

JABATAN TANAH DAN GALIAN

KEMENTERIAN KERJA RAYA MALAYSIA

IBU PEJABAT JABATAN KERJA RAYA MALAYSIA

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT 38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN 2 TINGKAT BASEMENT (KOMPLEKS KERJA RAYA 2) DI ATAS LOT PT67, SEKSYEN 60, JALAN SULTAN SALAHUDDIN, BANDAR KUALA LUMPUR, WILAYAH PERSEKUTUAN KUALA LUMPUR

UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

Ahmad Zaki Sdn. Bhd

GDP ARCHITECTS SDN BHD

ARUP Jurunding Sdn. Bhd.

ARUP Jurunding Sdn. Bhd.

Northcroft Lim Perunding Sdn. Bhd.

Metropolis Design Consultants

ZETTA Consultants Sdn. Bhd.

ARKITEK PROFESIONAL

GREEN BUILDING INDEX (GBI) FOR INFO ONLY

SM9 & SM10 : GREEN VEHICLES PRIORITY - LOW EMITTING & FUEL EFFICIENT

LEVEL GRD + P1

CONSTRUCTION DRAWING

AS SHOWN

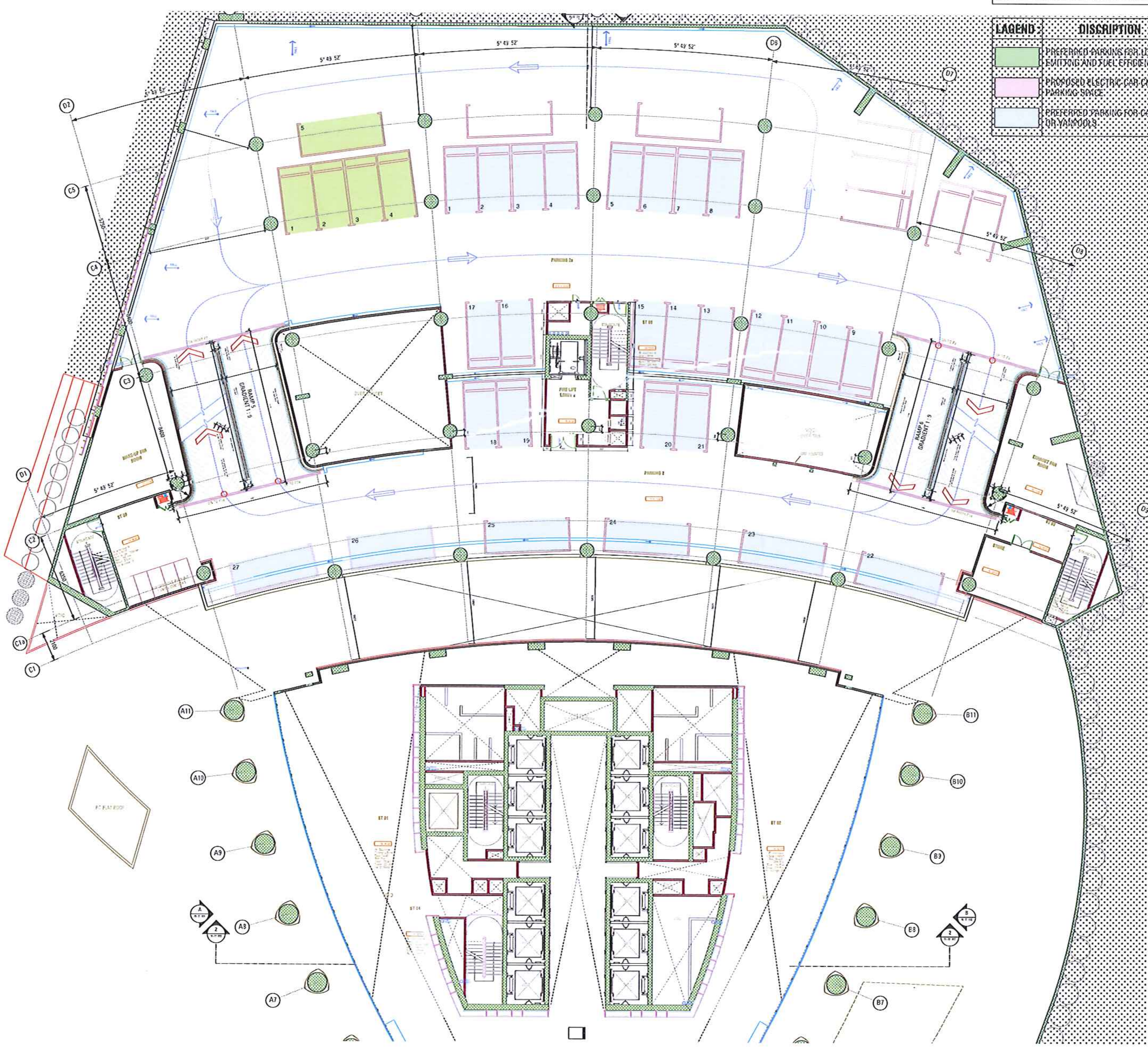
2387 / 07

GDP/2387/

0

NOTE : PLAN AS PER CONSTRUCTION DWG (GDP/2387/CD/05-01-004)

LEGEND	DESCRIPTION
(green)	PREFERRED PARKING FOR LOW EMITTING AND FUEL EFFICIENT
(pink)	PROPOSED ELECTRIC CAR CHARGING PARKING SPACE
(blue)	PREFERRED PARKING FOR CARPOOLS OR VANPOOLS



01 KKR 2 • SM 9 & SM 10 • LEVEL GROUND VOID + PARKING 2

05 : GENERAL ARRANGEMENT — Scale : 1 : 250

KERAJAAN MALAYSIA

JABATAN TANAH DAN GALIAN

KEMENTERIAN KERJA RAYA MALAYSIA

IBU PEJABAT JABATAN KERJA RAYA MALAYSIA
JALAN TUN RAZAK,
50480 KUALA LUMPUR

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT 38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN 2 TINGKAT BASEMENT (KOMPLEKS KERJA RAYA 2) DI ATAS LOT PT57 SEKSYEN 60, JALAN SULTAN SALAHUDDIN, BANDAR KUALA LUMPUR, WILAYAH PERSEKUTUAN KUALA LUMPUR.

UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

Ahmad Zaki Sdn. Bhd

GDP ARCHITECTS SDN BHD

ARUP Jurutunding Sdn. Bhd.

ARUP Jurutunding Sdn. Bhd.

Northcroft Lim Perunding Sdn. Bhd.

Metropolis Design Consultants

ZETTA Consultants Sdn. Bhd.

Ar. Syed Sobri Syed Ismail
ARKITEK PROFESIONAL
No. Pendaftaran A/S 47

GREEN BUILDING INDEX (GBI) FOR INFO ONLY

SM9 & SM10 : GREEN VEHICLES PRIORITY - LOW EMITTING & FUEL EFFICIENT

LEVEL GROUND VOID + P2

CONSTRUCTION DRAWING

Skala	AS SHOWN	Tarikh	7-Mar-12
Dilukis	AFFAH SALMUN	Disemak	JAMES

Nombor Projek	2387 / 07	Status Lukisan	Pindaan
Nombor Lukisan	GDP/2387/		0

COP & TARIKH — COP AUDIT & TARIKH

NON-RESIDENTIAL NEW CONSTRUCTION (NRNC)
SUSTAINABLE SITE PLANNING & MANAGEMENT (SM)

SM10	PARKING CAPACITY	1 POINT

INTENT
To reduce pollution and land development impacts from single occupancy vehicle use.

DESCRIPTION
Reward for not over-providing parking capacity. This is to encourage the use of public transport and carpools and reduce single occupancy private vehicle use. The environmental benefits of traveling by public transport include the reduction in the emission of greenhouse gases by private cars, thereby reducing urban pollution and traffic congestion.

REQUIREMENTS
Discourage over-provision of car parking capacity:

- Size parking capacity not exceeding the minimum local zoning requirements, ***AND***
- Provide preferred parking for carpools or vanpools for 5% of the total provided parking spaces.

APPROACH & IMPLEMENTATION
During concept design stage, work out the minimum required number of carpark bays. Consult with and inform the local authorities at all times.

REQUIRED SUBMISSION FOR DESIGN ASSESSMENT (DA)	SUBMITTER	GBI
1. Submit detailed calculation showing the minimum number of carpark bays required by the local authorities, and the number of bays provided.	✓	○
2. Submit plans showing location for preferred parking for carpools or vanpools.	✓	○

REQUIRED SUBMISSION FOR COMPLETION & VERIFICATION ASSESSMENT (CVA)	SUBMITTER	GBI
1. Submit final carpark calculations verified by qualified persons.	○	○
2. Submit As-Built drawings indicating the preferred parking for carpools or vanpools.	○	○
3. Describe any deviations or additions to the DA submission.	○	○

GDP ARCHITECTS SDN BHD
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45-21 Plaza Level
Block C Plaza Damansara
45 Medan Setia Satu
Bukit Damansara 50490
Kuala Lumpur, Malaysia
Tel: 03.2093.5700 Fax: 03.2093.5711

PROJECT NAME	Kompleks Kerja Raya 2 (KKR2)			DATE 15/6/2012
SUBMITTING PROFESSIONAL	NAME SYED SOBRI SYED ISMAIL AA Dipl. (London) No. Pendaftaran Akitek : A/547	DESIGNATION	COMPANY GDP	SIGNATURE
CLIENT	NAME DATO' W. ZULKIFLI W. MUDA	DESIGNATION MANAGING DIRECTOR	COMPANY AHMAD ZAKI SDN BHD (81250-W) 88 Jalan Gombak, Setapak, 53000 Kuala Lumpur. Tel: 03-40241000 Fax: 03-40242000	SIGNATURE

NOTE ATTACH ALL SUBMITTALS WITH THIS COVER PAGE

SM10 – Parking Capacity

Points Applied – 1 point

Based on the building's GFA, it's required to provide a minimum of 776 car parking bays within the Kompleks Kerja Raya 2 (KKR2) development. Please refer to the attached Development Order Submission drawing detailing car parking bays requirement.

Based on the current design, 528 car parking bays are provided within the development which is below the authority's minimum requirement.

27 car parking bays (5% of total parking spaces) are reserved for carpools/vanpools.

Please refer to the plan attached under SM9 which also shows the location of preferred carpark bays for car pools and vanpools.

JADUAL GUNATANAH

GUNATANAH		UNIT	KELUASAN	%
BANGUNAN				
	MENARA PEJABAT		1.07	12.33
JUMLAH KECIL			1.07	12.33
KEMUDAHAN				
	RUMAH PENGAWAL	1	0.02	0.23
JUMLAH KECIL		1	0.02	0.23
REZAB JALAN				
	LALUAN KENDERAAN		1.52	17.52
	TEMPAT LETAK KERETA	257	0.74	8.52
JUMLAH KECIL		257	2.26	26.04
KAWASAN LAPANG				
	KAWASAN LANDSKAP		1.66	13.12
JUMLAH KECIL			1.66	13.12
PEMBANGUNAN SEDIADA				
	BLOK F		0.45	5.18
	BLOK C, D & E		3.22	37.10
JUMLAH KECIL			3.67	42.28
JUMLAH KESELURUHAN		258	8.68	100.00

JADUAL KELUASAN RUANG

	LEVEL	USAGE	NO OF FLOORS	NTA (m2)	GFA (m2)	BUILDING EFFICIENCY %
37 - Storey Tower Block	PLAZA LEVEL	LOBBY	1	[illegible]	[illegible]	[illegible]
	MEZZANINE	OFFICE, ELEVATED CAR PARK	1	[illegible]	[illegible]	[illegible]
	L1	OFFICE / ELEVATED CAR PARK	1	[illegible]	[illegible]	[illegible]
	L2	OFFICE / ELEVATED CAR PARK	1	[illegible]	[illegible]	[illegible]
	L3	OFFICE / OPEN DINING	1	[illegible]	[illegible]	[illegible]
	L4	OFFICE	1	[illegible]	[illegible]	[illegible]
	L5	OFFICE	1	[illegible]	[illegible]	[illegible]
	L6	OFFICE	1	[illegible]	[illegible]	[illegible]
	L7	OFFICE	1	[illegible]	[illegible]	[illegible]
	L8	OFFICE	1	[illegible]	[illegible]	[illegible]
	L9	OFFICE	1	[illegible]	[illegible]	[illegible]
	L10	OFFICE	1	[illegible]	[illegible]	[illegible]
	L11	OFFICE	1	[illegible]	[illegible]	[illegible]
	L12	OFFICE	1	[illegible]	[illegible]	[illegible]
	L13	OFFICE	1	[illegible]	[illegible]	[illegible]
	L14 (M&E)	M&E	1	[illegible]	[illegible]	[illegible]
	L15	OFFICE	1	[illegible]	[illegible]	[illegible]
	L16	OFFICE	1	[illegible]	[illegible]	[illegible]
	L17	OFFICE	1	[illegible]	[illegible]	[illegible]
	L18	OFFICE	1	[illegible]	[illegible]	[illegible]
	L19	OFFICE	1	[illegible]	[illegible]	[illegible]
	L20	OFFICE	1	[illegible]	[illegible]	[illegible]
	L21	OFFICE	1	[illegible]	[illegible]	[illegible]
	L22	OFFICE	1	[illegible]	[illegible]	[illegible]
	L23	OFFICE	1	[illegible]	[illegible]	[illegible]
	L24	OFFICE	1	[illegible]	[illegible]	[illegible]
	L25	OFFICE	1	[illegible]	[illegible]	[illegible]
	L26	OFFICE	1	[illegible]	[illegible]	[illegible]
	L27	OFFICE	1	[illegible]	[illegible]	[illegible]
	L28	OFFICE	1	[illegible]	[illegible]	[illegible]
	L29	OFFICE	1	[illegible]	[illegible]	[illegible]
	L30	OFFICE	1	[illegible]	[illegible]	[illegible]
	L31	OFFICE	1	[illegible]	[illegible]	[illegible]
	L32	OFFICE	1	[illegible]	[illegible]	[illegible]
	L33	OFFICE	1	[illegible]	[illegible]	[illegible]
	L34	OFFICE	1	[illegible]	[illegible]	[illegible]
	L35	OFFICE	1	[illegible]	[illegible]	[illegible]
	L36	OFFICE	1	[illegible]	[illegible]	[illegible]
	ROOF	[illegible]	1	[illegible]	[illegible]	[illegible]
	GRAND TOTAL / BUILDING EFFICIENCY			38,284	51,516	74 %

JADUAL TEMPAT LETAK KERETA

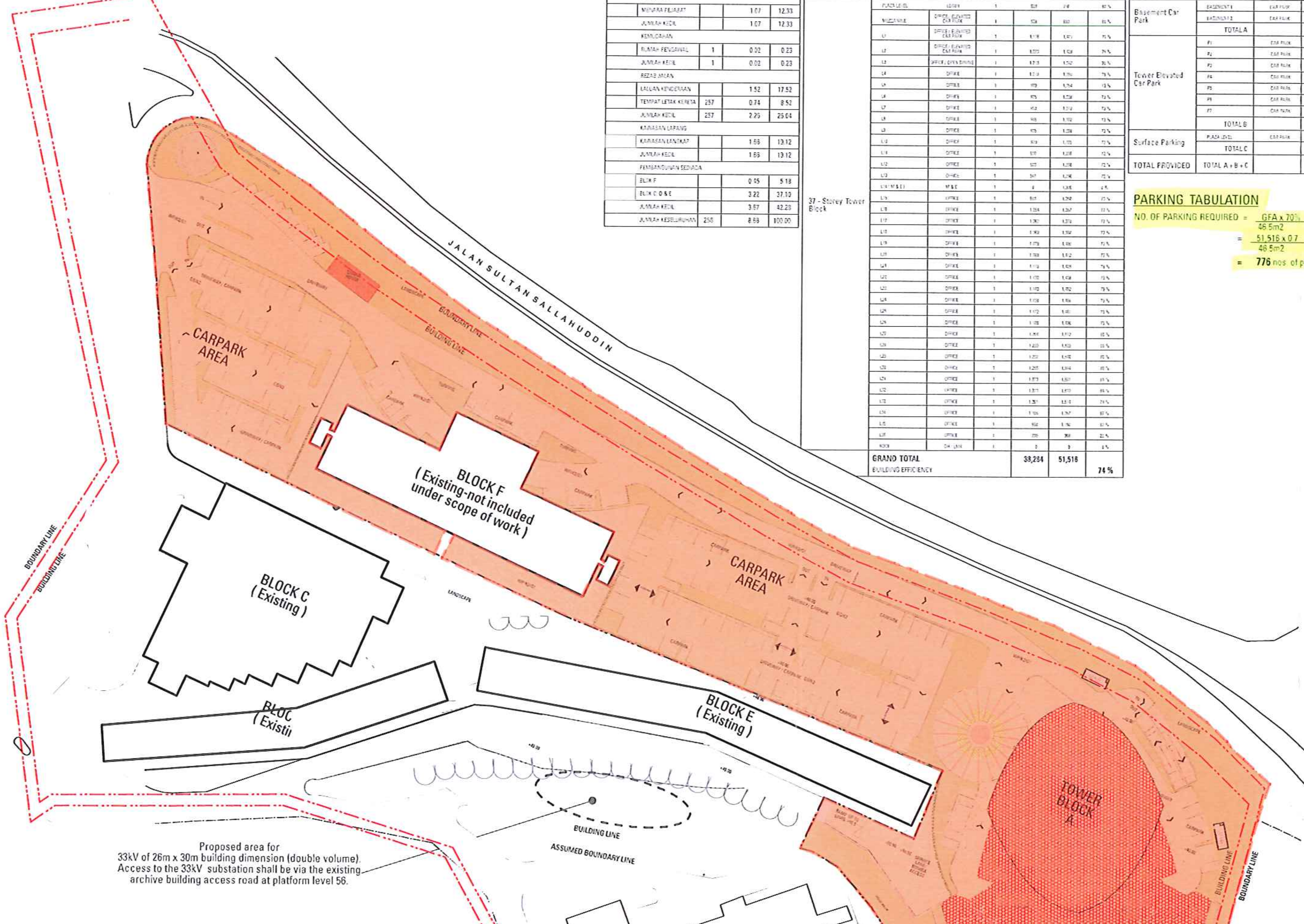
	LEVEL	USAGE	NO OF FLOORS	NO OF CAR PARK	GFA (m2)	CAR PARK AREA (m2)
Basement Car Park	BASEMENT 1	CAR PARK	1	[illegible]	[illegible]	[illegible]
	BASEMENT 2	CAR PARK	1	[illegible]	[illegible]	[illegible]
	TOTAL A		2	209	1,100	10,424
Tower Elevated Car Park	P1	CAR PARK	1	[illegible]	[illegible]	[illegible]
	P2	CAR PARK	1	[illegible]	[illegible]	[illegible]
	P3	CAR PARK	1	[illegible]	[illegible]	[illegible]
	P4	CAR PARK	1	[illegible]	[illegible]	[illegible]
	P5	CAR PARK	1	[illegible]	[illegible]	[illegible]
	P6	CAR PARK	1	[illegible]	[illegible]	[illegible]
	P7	CAR PARK	1	[illegible]	[illegible]	[illegible]
	TOTAL B		7	408	736	18,905
Surface Parking	PLAZA LEVEL	CAR PARK	1	275	SURFACE	SURFACE
	TOTAL C		1	275	0	0
TOTAL PROVIDED	TOTAL A + B + C			892	1,836	29,329

PARKING TABULATION

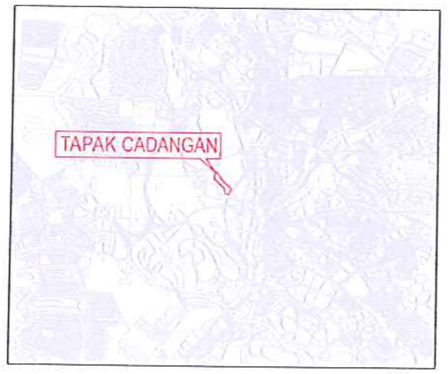
NO. OF PARKING REQUIRED = $\frac{\text{GFA} \times 70\%}{46.5\text{m2}}$

$= \frac{51{,}516 \times 0.7}{46.5\text{m2}}$

= **776** nos. of parking



03 KKR 2 • PELAN TAPAK
TOWER - Block A
Scale 1 : 600



01 KKR 2 • PELAN KUNCI
TOWER - Block A
NOT TO SCALE

02 KKR 2 • PELAN LOKASI
TOWER - Block A
NOT TO SCALE

COP PENDAFTARAN JABATAN | NO. SIRI

COP KELULUSAN/TANDATANGAN PENGARAH PERANCANG BANDAR

PERAPI PERINTAH PEMBANGUNAN

TAJUK LUKISAN

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT 38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN 2 TINGKAT BASEMENT (KOMPLEKS KERJA RAYA 2) DI ATAS LOT PT67 SEKSYEN 60, JALAN SULTAN SALAHUDDIN, BANDAR KUALA LUMPUR, WILAYAH PERSEKUTUAN KUALA LUMPUR.

UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

PEMILIK TANAH

JABATAN TANAH DAN GALIAN
SEKSYEN HARTANAH PERSEKUTUAN, ARAS 2, BLOK MENARA WISMA SUMBER ASLI, NO 25 PERSIARAN PERDANA, PRESINT 4, 62574 PUTRAJAYA

PEMILIK BANGUNAN

KETUA SETIAUSAHA
KEMENTERIAN KERJA RAYA MALAYSIA
BAHAGIAN PEMBANGUNAN & PENSWASTAAN, TINGKAT 4, BLOK A, KOMPLEKS KERJA RAYA MALAYSIA, JALAN SULTAN SALAHUDDIN, 50582 KUALA LUMPUR

PENGARAH PROJEK

PENGARAH KANAN, CAWANGAN KERJA BANGUNAN AM
IBU PEJABAT JABATAN KERJA RAYA MALAYSIA
TINGKAT 13A MENARA PJD, JALAN TUN RAZAK, 50400 KUALA LUMPUR

ARKITEK

GDP ARCHITECTS
45-2A Plaza Level Block C, 45 Medan Setia Satu, Bukit Damansara, 50490 Kuala Lumpur, MALAYSIA

PERANCANG BANDAR

LIM ECH CHAN
GDP PLANNERS
45-2A Plaza Level Block C, 45 Medan Setia Satu, Bukit Damansara, 50490 Kuala Lumpur, MALAYSIA

STATUS LUKISAN

DO SUBMISSION

TAJUK LUKISAN

PELAN KUNCI
PELAN LOKASI
PELAN TAPAK

Rev	Date	Particular
-	-	
-	-	
-	-	
-	-	
-	-	
-	-	
-	-	

Skala	As Shown	Tarikh	15 Januari 2010
Dilukis	Yusry/Noy/Norsida	Diperiksa	Shah

NO LUKISAN

Project Number: 2387 / 07	Drawing Status: DO	Issue	Revision
Drawing Number: JKR-DO-A-05-00-000		00	00

NON-RESIDENTIAL NEW CONSTRUCTION (NRNC)
SUSTAINABLE SITE PLANNING & MANAGEMENT (SM)

SM11	STORMWATER DESIGN – QUANTITY & QUALITY CONTROL	1 POINT

INTENT
To limit disruption of natural hydrology by reducing impervious cover, increasing on-site infiltration, and managing storm water runoff. Reduce or eliminate water pollution by reducing impervious cover, increasing onsite infiltration, eliminating sources of contaminants, and removing pollutants from storm water runoff.

DESCRIPTION
Minimize impact of stormwater pollution due to development.

REQUIREMENTS
Limit disruption of natural hydrology by reducing impervious cover, increasing on-site infiltration, and managing storm water runoff. Reduce or eliminate water pollution by reducing impervious cover, increasing onsite infiltration, eliminating sources of contaminants, and removing pollutants from storm water runoff:-

Condition 1: If existing imperviousness is < 50%:
Implement a storm water management plan that prevents the post development peak discharge rate and quantity from exceeding the pre-development peak discharge rate and quantity in conformance to the Storm Water Management Manual for Malaysia (MASMA).

Condition 2: If existing imperviousness is > 50%:
Implement a storm water management plan that results in a 25% decrease in the volume of storm water runoff required under MASMA.

For either Condition, implement a storm water management plan that reduces impervious cover, promotes infiltration, and captures and treats the storm water runoff from 90% of the average annual rainfall using acceptable best management practices (BMPs).

APPROACH & IMPLEMENTATION
During concept design stage, conduct a thorough site evaluation on hydrology of site and prepare a study to reduce the risk of water contamination to nearby water bodies by controlling the quality and quantity of stormwater runoff from the building.

Implement a stormwater management strategy in conformance with and satisfy the objectives of MASMA.

REQUIRED SUBMISSION FOR DESIGN ASSESSMENT (DA)	SUBMITTER	GBI
1. Submit preliminary study report complying with MASMA requirements.	Ø	○

REQUIRED SUBMISSION FOR COMPLETION & VERIFICATION ASSESSMENT (CVA)	SUBMITTER	GBI
1. Report, complete with photographic evidence and site reports signed off by qualified person on final stormwater design and management.	○	○
2. Describe any deviations or additions to the DA submission.	○	○

PROJECT NAME	KOMPLEKS KERJA RAYA 2 (KKR2)			DATE 16/6/2012
SUBMITTING PROFESSIONAL	NAME Wan Anuar Wan Endut B. ENG. M. Sc(STRUCT) ENG. MIEM. P.ENG	DESIGNATION DIRECTOR	COMPANY ARUP JURURUNDING SDN BHD (97905-U)	SIGNATURE
CLIENT	NAME DATO' W. ZULKIFLI W. MUDA	DESIGNATION MANAGING DIRECTOR	COMPANY AHMAD ZAKI SDN BHD (81250-W)	SIGNATURE

NOTE ATTACH ALL SUBMITTALS WITH THIS COVER PAGE

88, Jalan Gombak, Setapak,
53000 Kuala Lumpur.
Tel: 03-40241000
Fax: 03-40242000

SM11 Stormwater Design- Quantity and Quality Control

Points Applied- 1 Point

Storm water management plan is implemented which comply with the Stormwater Management Manual for Malaysia (MASMA).

Please refer to the attached study report complying with MASMA requirements.

Arup Jururunding Sdn. Bhd.
Consulting Engineers (97905-U)

Kementerian Kerja Raya Malaysia

Cadangan Pembangunan 1 Blok Pejabat 38 Tingkat Termasuk 7 Tingkat Podium Dengan 2 Tingkat Basement (Kompleks Kerja Raya 2) Di Atas Lot PT 67 Seksyen 60, Jalan Sultan Salahuddin, Bandar Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur

Drainage (On - Site Detention) Submission Report

ARUP

Arup Jururunding Sdn. Bhd.
Consulting Engineers (97905-U)

Kementerian Kerjaraya Malaysia

Cadangan Pembangunan 1 Blok Pejabat 38 Tingkat Termasuk 7 Tingkat Podium Dengan 2 Tingkat Basement (Kompleks Kerja Raya 2) Di Atas Lot PT 67 Seksyen 60, Jalan Sultan Salahuddin, Bandar Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur

Drainage (On-Site Detention) Submission Report

March 2011

Arup Jururunding Sdn Bhd
25-28, Jalan Ara 7/3B, Bandar Sri Damansara, 52200 Kuala Lumpur, Malaysia
Tel +60 03 6273 2223 Fax +60 03 6273 2227
www.arup.com.my/arup

Job number M1348

CONTENTS

APPENDICES

1. INTRODUCTION

Arup Jururunding Sdn. Bhd. (AJSB) has been appointed by Kementerian Kerjaraya Malaysia to provide the Civil, M&E and Structural Engineering Services for Lot PT67 development.

The site is located at Lot PT 67, Seksyen 60, Jalan Sultan Salahuddin, Bandar Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur. The proposed development consists of 38- storey offices building.

2. OBJECTIVE

The objective of this report is to obtain the design approval for the proposed On-Site detention.

3. EXISTING DRAINAGE CONDITION

The overall proposed site is slopping, covered with trees, grass and existing car parking area. Based on the existing drainage system and the original topography of project site, 100% of the surface runoff from proposed site and part of the surface runoff from the existing surrounding road pavement flows into the existing surrounding roadside drain. The discharge of the roadside drain eventually flows into the existing roadside drain which is located at the east and south side of the proposed site. The total proposed catchment area that contributes to the surface runoff for the detention tank is approximately 21155.05m^2 (Refer to Appendix C).

The receiving existing roadside drain has adequate capacity to cater the surface runoff from the proposed development site and also part of the existing surrounding road pavement. Please refer to Appendix E & F for the total catchment area and drainage calculation.

4. DESIGN CRITERIA

a) Open Drain And Pipe Culvert System

		Open Drain Design	Pipe Culvert Design
4.1	Return period	5 years	10 years
4.2	Time of concentration	10 mins	10 mins
4.3	Rainfall intensity	224.63mm/hr (Refer to Appendix B - Figure 1)	247.43mm/hr (Refer to Appendix B - Figure 2)

4.4 Runoff Coefficient, c

a) Pavement 0.95

b) Bare Earth 0.75

4.5 Estimation of runoff for each catchment is based on Modified Rational Method and the formula used for peak runoff estimation is :-

$Q = 0.000278 Cs.\ C.\ iA$

where
- Q = Peak discharge in litter/s for return period of T years
- Cs = Storage Coefficient = 1.0
- i = The average intensity of rainfall in mm per hour
- A = Catchment area in m^2.

4.6 Manning's formula is used for uniform flow computations. The formula is as follows :-

$Q = AR^{2/s} S^{1/2}$

where
- Q = Flow in cubic meter per second (cusecs)
- n = Manning's roughness coefficient

a) n = 0.013 for pipe culvert

b) n = 0.015 for open drain

- A = Cross section area in square meter
- P = Wetted perimeter
- R = Hydraulic radius, (A/P)
- S = Slope in m/m

4.7 Velocity for the open drain and pipe culvert system :-

a) Maximum = 3.0 m/s

b) Minimum = 0.9 m/s

b) Detention Tank

4.8 The main function of the proposed detention tank is to limit the outlet of the post-development peak discharge to pre-development peak flow. It is designed for 10-year return period and check for 50 years return period

4.9 Material :-

a)	Open Drain	=	Clay Brick Drain Wall And Half Round Glazed Ware Dry Flow Channel
b)	Pipe culvert	=	Reinforced concrete pipe culvert.
c)	Retention Tank	=	Reinforced Concrete Retention Tank

4.10 References :-

The design standard of retention pond and drainage system is based on "Urban Stormwater Management Manual For Malaysia, 2000" published by D.I.D.

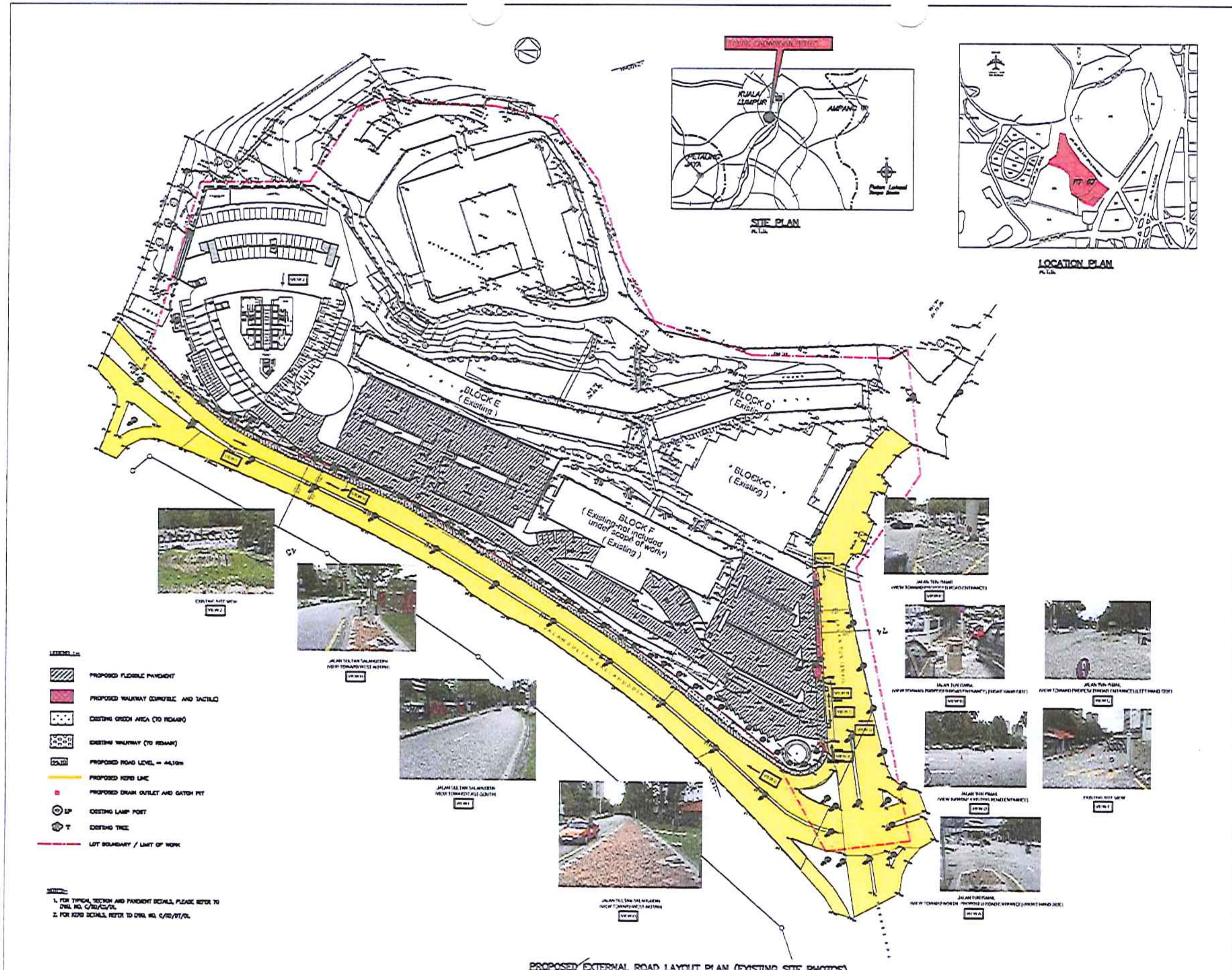
4.11 Hydrological Data

The rainfall intensity design figures refer to Appendix B.

Arup Jururunding Sdn. Bhd.
Consulting Engineers (97905-U)

APPENDIX A

Existing Road and Road Entrance Photos



PROPOSED EXTERNAL ROAD LAYOUT PLAN (EXISTING SITE PHOTOS)

1:750

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT 38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN 2 TINGKAT BASEMENT (KOMPLEKS KERJA RAYA 2) DI ATAS LOT PT67, SEKSYEN 60, JALAN SULTAN SALAHUDDIN, BANDAR KUALA LUMPUR, WILAYAH PERSEKUTUAN KUALA LUMPUR.

UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

JABATAN TANAH DAN GALIAN

KEMENTERIAN KERJA RAYA MALAYSIA
JALAN SULTAN SALAHUDDIN

IBU PEJABAT
JABATAN KERJA RAYA MALAYSIA

ARUP

ARUP JURURUNDING SDN BHD

SUBMISSION

ROADS
SITE PLAN, LOCATION PLAN &
PROPOSED EXTERNAL ROAD LAYOUT PLAN
(EXISTING SITE PHOTOS)

Skala	AS SHOWN	Tarikh	JANUARY 2013

Project Number	M1348
Drawing Number	C/RD/LP/01
Revision	S0

Arup Jururunding Sdn. Bhd.
Consulting Engineers (97905-U)

APPENDIX B

Rainfall Intensity Design Table

EXTENSION AND INTERPOLATION OF RAINFALL DEPTH/INTENSITY-DURATION-FREQUENCY DATA BASED ON 2,5,10,20,50 AND 100 YEAR RAINFALL DATA PUBLISHED BY URBAN STORMWATER MANAGEMENT MANUAL (Department of Irrigation and Drainage, Malaysia, 2000) FOR PROJECT AREA AT KUALA LUMPUR, FEDERAL TERRITORY

PROJECT : CADANGAN PEMBANGUNAN SEBUAH KOMPLEKS KERJARAYA 2, YANG MENGANDUNGI 1 BLOK PEJABAT 38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGEN 2 TINGKAT BASEMENT DI ATAS PT67 SEKSYEN 60, JALAN SULTAN SALAHUDDIN, KUALA LUMPUR

PREPERED BY : HSH

CHECKED BY : HSH

PASSED BY : YKM

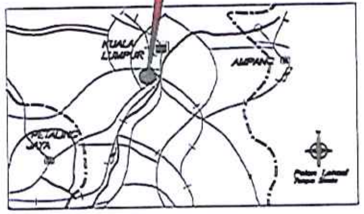
JOB NO. : M 1348

DATE : 14/1/201

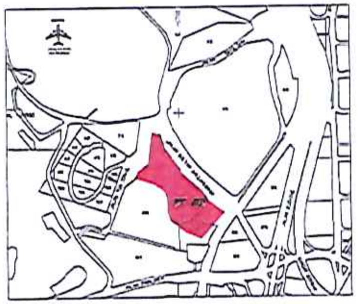
STORM DURATION		RAINFALL DEPTH IN mm FOR VARIOUS RETURN PERIOD										INTENSITY IN mm/hr FOR VARIOUS RETURN PERIOD									
		1	3	6	1	2	5	10	20	50	100	1	3	6	1	2	5	10	20	50	100
(hrs)	(mins)	(mth)	(mth)	(mth)	(yrs)	(yrs)	(yrs)	(yrs)	(yrs)	(yrs)	(yrs)	(mth)	(mth)	(mth)	(yrs)	(yrs)	(yrs)	(yrs)	(yrs)	(yrs)	(yrs)
0.08	5	7.08	8.85	10.62	14.16	17.71	24.00	26.28	29.36	32.10	36.03	84.99	106.23	127.48	169.97	212.46	288.06	315.33	352.35	385.25	432.31
0.17	10	11.98	14.97	17.96	23.95	29.94	37.44	41.24	45.46	49.88	55.29	71.85	89.82	107.78	143.71	179.63	224.63	247.43	272.77	299.28	331.76
0.25	15	14.91	18.64	22.37	29.82	37.28	45.50	50.21	55.12	60.55	66.85	59.65	74.56	89.47	119.29	149.12	181.99	200.86	220.48	242.18	267.42
0.33	20	16.93	21.16	25.40	33.86	42.33	51.04	56.39	61.76	67.88	74.80	50.79	63.49	76.19	101.58	126.98	153.12	169.16	185.28	203.63	224.41
0.42	25	18.37	22.96	27.55	36.74	45.92	54.99	60.78	66.49	73.10	80.46	44.08	55.10	66.12	88.16	110.21	131.96	145.87	159.58	175.44	193.11
0.50	30	19.80	24.76	29.71	39.61	49.51	58.93	65.18	71.22	78.32	86.12	39.61	49.51	59.41	79.22	99.02	117.86	130.35	142.44	156.64	172.24
0.58	35	21.17	26.46	31.75	42.33	52.92	62.79	69.49	75.88	83.51	91.75	36.29	45.36	54.43	72.57	90.72	107.63	119.12	130.07	143.17	157.28
0.67	40	22.35	27.94	33.53	44.70	55.88	66.09	73.17	79.84	87.91	96.51	33.53	41.91	50.29	67.06	83.82	99.13	109.75	119.76	131.86	144.77
0.75	45	23.40	29.25	35.10	46.79	58.49	68.95	76.36	83.27	91.70	100.61	31.20	38.99	46.79	62.39	77.99	91.93	101.81	111.02	122.26	134.15
0.83	50	24.33	30.41	36.49	48.65	60.82	71.47	79.16	86.28	95.00	104.20	29.19	36.49	43.79	58.39	72.98	85.77	94.99	103.53	114.00	125.04
0.92	55	25.16	31.46	37.75	50.33	62.91	73.71	81.65	88.95	97.93	107.37	27.45	34.31	41.18	54.90	68.63	80.41	89.07	97.03	106.83	117.13
1.00	60	25.92	32.40	38.88	51.84	64.80	75.72	83.88	91.34	100.54	110.21	25.92	32.40	38.88	51.84	64.80	75.72	83.88	91.34	100.54	110.21
1.08	65	26.61	33.27	39.92	53.22	66.53	77.54	85.89	93.51	102.90	112.76	24.57	30.71	36.85	49.13	61.41	71.57	79.29	86.31	94.98	104.09
1.17	70	27.25	34.06	40.87	54.49	68.11	79.19	87.73	95.48	105.03	115.08	23.35	29.19	35.03	46.71	58.38	67.88	75.20	81.84	90.03	98.64
1.25	75	27.83	34.79	41.74	55.66	69.57	80.70	89.41	97.29	106.99	117.20	22.26	27.83	33.39	44.53	55.66	64.56	71.53	77.83	85.59	93.76
1.33	80	28.37	35.46	42.55	56.73	70.92	82.09	90.96	98.95	108.79	119.15	21.28	26.59	31.91	42.55	53.19	61.57	68.22	74.21	81.59	89.37
1.50	90	29.33	36.67	44.00	58.67	73.34	84.57	93.72	101.93	112.01	122.64	19.56	24.45	29.33	39.11	48.89	56.38	62.48	67.96	74.67	81.76
1.58	95	29.77	37.21	44.65	59.54	74.42	85.68	94.97	103.28	113.46	124.21	18.80	23.50	28.20	37.60	47.00	54.11	59.98	65.23	71.66	78.45
1.67	100	30.18	37.72	45.27	60.36	75.44	86.72	96.13	104.54	114.81	125.67	18.11	22.63	27.16	36.21	45.27	52.03	57.68	62.73	68.89	75.40
1.75	105	30.56	38.20	45.84	61.12	76.40	87.69	97.23	105.73	116.09	127.06	17.46	21.83	26.20	34.93	43.66	50.11	55.56	60.42	66.34	72.60
1.83	110	30.92	38.65	46.38	61.84	77.31	88.60	98.26	106.85	117.30	128.36	16.87	21.08	25.30	33.73	42.17	48.33	53.60	58.28	63.98	70.02
1.92	115	31.26	39.08	46.89	62.53	78.16	89.47	99.24	107.92	118.45	129.60	16.31	20.39	24.47	32.62	40.78	46.68	51.78	56.31	61.80	67.62
2.00	120	31.58	39.48	47.38	63.17	78.96	90.28	100.16	108.93	119.53	130.78	15.79	19.74	23.69	31.58	39.48	45.14	50.08	54.47	59.77	65.39
2.17	130	32.18	40.22	48.27	64.36	80.45	91.78	101.88	110.82	121.56	132.96	14.85	18.56	22.28	29.70	37.13	42.36	47.02	51.15	56.11	61.37
2.33	140	32.72	40.89	49.07	65.43	81.79	93.14	103.45	112.54	123.42	134.97	14.02	17.53	21.03	28.04	35.05	39.92	44.33	48.23	52.90	57.84
2.50	150	33.20	41.50	49.80	66.40	83.00	94.37	104.88	114.14	125.15	136.82	13.28	16.60	19.92	26.56	33.20	37.75	41.95	45.65	50.06	54.73
2.67	160	33.65	42.06	50.47	67.29	84.11	95.50	106.21	115.62	126.75	138.54	12.62	15.77	18.93	25.23	31.54	35.81	39.83	43.36	47.53	51.95

NOTES:-

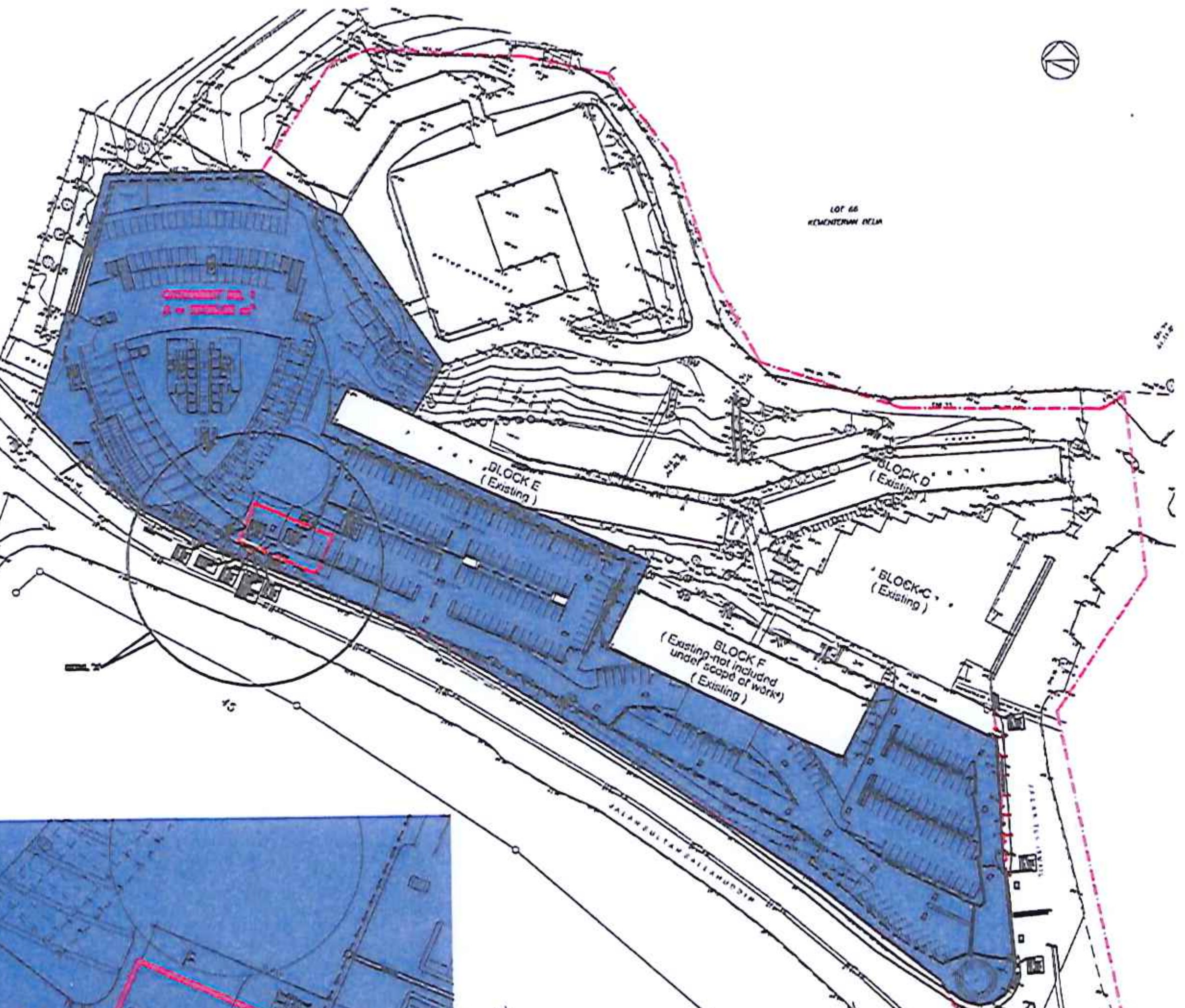
1. RAINFALL FREQUENCY ESTIMATES ON THE BASIS OF HP1



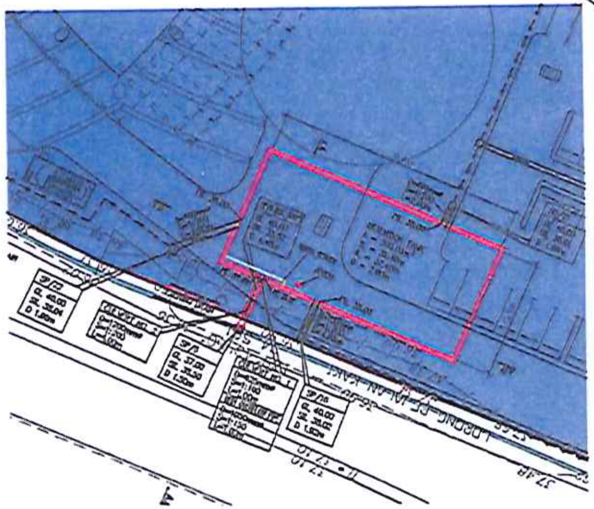
SITE PLAN
N.T.S.



LOCATION PLAN
N.T.S.



PROPOSED ON-SITE DETENTION LAYOUT PLAN
1:750



DETAIL 'A'
1:250

KEY:-

GL = GROUND LEVEL
DIL = DRAIN INVERT LEVEL
SIL = SUMP INVERT LEVEL
PIL = PIPE INVERT LEVEL
D = DIAMETER OF PIPE CULVERT
S = SLOPE OF PIPE CULVERT
L = LENGTH OF PIPE CULVERT
—— DIRECTION OF FLOW IN PIPE CULVERT

LEGEND:-

Symbol	Description
(black arrows)	PROPOSED INTERNAL DRAIN
(red arrows)	PROPOSED EXTERNAL DRAIN
B/1000/1:200/28.00m	B – DRAIN TYPE B (WITH 3 NO. GALVANISED GRATING COVER AT CENTRE) 1000 – MINIMUM 1500mm DEPTH OF BRICKWALL (ACTUAL HEIGHT TO BE DETERMINED ON SITE) 1:200 – MIN. GRADIENT 1:200 28.00m – LENGTH OF DRAIN = 28.00m
(red symbol)	PROPOSED DRAIN OUTLET AND CATCH PIT
(blue line)	EXISTING ROADSIDE DRAIN
(red dash-dot line)	LOT BOUNDARY / LIMIT OF WORKS

NOTES:-

1. ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED.
2. THE GROUND LEVEL SHOWN ARE APPROXIMATE AND FOR INFORMATION ONLY.
3. ALL INVERT LEVELS ARE INDICATIVE AND SUBJECT TO CHANGES ON SITE TO ENSURE GOOD DRAINAGE.
4. MINIMUM DEPTH OF DRAIN SHALL BE 400mm. THE BRICKWALLS FOR DRAIN SHALL BE EXTENDED TO THE RAISED SHOULDER IF ANY.
5. THE DRAIN SHALL BE CASCADED WHEN THE GRADIENT IS MORE THAN 2%.
6. ALL SUMP SHALL BE COVERED WITH M.S. GRATING.
7. ALL KERB OPENING SHALL BE AT 6 METERS INTERVAL. THE EXTRA KERB OPENING SHALL BE LOCATED AT AT LOW POINT AREA AND ROAD ENTRANCE.
8. ALL THE BRICKWALLS FOR DRAIN AND SUMP SHALL BE USED CLAY BRICK.

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT 38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN 2 TINGKAT BASEMENT (KOMPLEKS KERJA RAYA 2) DI ATAS LOT PT67 SEKSYEN 46, JALAN SULTAN SALAHUDDIN, BANDAR KUALA LUMPUR, WILAYAH PERSEKUTUAN KUALA LUMPUR

UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

JABATAN TANAH DAN GALIAN

KEMENTERIAN KERJA RAYA MALAYSIA

IBU PEJABAT
JABATAN KERJA RAYA MALAYSIA

ARUP

ARUP JURUNDING SDN BHD

SUBMISSION

DRAINAGE
SITE PLAN, LOCATION PLAN &
PROPOSED ON-SITE DETENTION LAYOUT PLAN
(CATCHMENT AREA)

Rev	Date	Particular
-	-	
-	-	
-	-	
-	-	
-	-	
-	-	

Skala	AS SHOWN	Tarikh	JANUARY 2019
Dilukis	NAJMIN	Diperiksa	PENYNEWAK

Project Number	M1348	Drawing Status	Issue / Revision
Drawing Number	C/DR/LP/01		S0

Arup Jururunding Sdn. Bhd.
Consulting Engineers (97905-U)

APPENDIX C

Catchment Area for Proposed Development Site

Arup Jururunding Sdn. Bhd.
Consulting Engineers (97905-U)

APPENDIX D

On Site Detention Calculation

BELOW GROUND STORAGE SYSTEM

PROJECT : CADANGAN PEMBANGUNAN SEBUAH KOMPLEKS KERJARAYA 2, YANG MENGANDUNGI 1 BLOK PEJABAT 38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGEN 2 TINGKAT BASEMI DI ATAS PT67 SEKSYEN 60, JALAN SULTAN SALAHUDDIN, KUALA LUMPUR

PREPERED BY : HSH JOB NO. : M 1348

CHECKED BY : HSH DATE : 8/1/2010

PASSED BY : YKM

1 Determine Storage Volume Required

(i) Imprevious area:-

Office building	=	21155.05	m^2
Surface paving and paths	=	-	m^2
TOTAL	=	21155.05	m^2

Pervious area:-

Pervious area	=	-	m^2

There is no previous area draining to the storage.
The site before development was:-

Impervious Area	=	9519.77	m^2	(45%)
Pervious area	=	11635.30	m^2	(55%)

(ii) Determine time of concentration, t_c and t_{cs}

To determine the catchment times of concentration, an analysis of the catchment drainage system will need to be undertaken.

For this small catchment area, it is assumed that:-

t_{cs}	=	5.0	minutes
t_c	=	10.0	minutes

(iii) Calculate the pre and post-development flows for the area draining to the OSD storage

The minor drainage system at Kuala Lumpur area, for a 5 year ARI capacity,

a	=	5.1086
b	=	0.5037
c	=	-0.2155
d	=	0.0112

Thus,

In^5I_{30}	=	$a + bIn(t_{30}) + c(In(t_{30}))^2 + d(In(t_{30}))^3$	
$^5I_{30}$	=	117.86	mm/hr
$^5I_{60}$	=	75.72	mm/hr
P_{30}	=	58.93	mm
P_{60}	=	75.72	mm

From Table 13.3, F_D = 1.28 (for t_c =10 minutes)

Therefore,

P_{10}	=	37.44	mm
$^5I_{10}$	=	224.63	mm/hr

Development Status	I (mm/hr)	Impervious Area		Pervious Area		$\sum CA$	Q (l/s)
		C	A (m^2)	C	A (m^2)		
Pre-development	224.63	0.90	9519.8	0.43	11635.3	13571.0	847.47
Post-development	224.63	0.90	21155.1	0.43	-	19039.545	1188.97

(iv) Determine the required PSD

Using Equation 19.1 with Equations 19.1c and 19.1d for the ground storage :-

$$a = \frac{(8.548 \times 1188.97/10) \times (0.333 \times 10 \times 847.47/1188.97 + 0.35 \times 10 + 0.65 \times 5)}{9272.52}$$

$$b = \frac{8.548 \times 847.47 \times 1188.97}{8613053.4}$$

$$\mathbf{PSD} = 9272.52 - ((9272.52)^2 - 4 \times 8613053.4)^{0.5}$$

1047.13 l/s

) Determine the required SSR

Using Equations 19.2c and 19.2d for above storage, the site discharge for the storage design storm (10 year ARI) and the corresponding SSR is calculated for a range of storm durations to determine the maximum SSR. These calculations are summerised in the following two table:-

t_d (mins)	I (mm/hr)	Imprevious Area		Previous Area		$\sum CA$	Q_d (l/s)
		C	A (m^2)	C	A (m^2)		
5	315.33	0.90	21155.1	-	-	19039.5	1669.03
10	247.43	0.90	21155.1	-	-	19039.5	1309.63
15	200.86	0.90	21155.1	-	-	19039.5	1063.14
20	169.16	0.90	21155.1	-	-	19039.5	895.35
30	130.35	0.90	21155.1	-	-	19039.5	689.94
35	119.12	0.90	21155.1	-	-	19039.5	630.51
40	109.75	0.90	21155.1	-	-	19039.5	580.91

t_d (mins)	Q_d (l/s)	PSD (l/s)	c	d	SSR (m^3)
5	1669.03	1047.13	532.982	76.86	317.75
10	1309.63	1047.13	485.28	328.20	297.69
15	**1063.14**	**1047.13**	**433.91**	**120.67**	**457.70**
20	895.35	1047.13	382.77	143.28	443.15
30	689.94	1047.13	286.30	185.94	391.86
35	630.51	1047.13	246.66	203.47	378.80
40	580.91	1047.13	207.37	220.84	366.46

For the above table, a maximum SSR = **457.70** m^3

At a duration of = 15 minutes

Therefore, required storage volume are:- = **457.70** m^3

2 Size Primary Outlet

Using the downstream end of the outlet pipe	Y_s	=	2.4 m	
as the height datum	Y_e	=	0.6 m	
The outlet pipe slope,	S	=	2 %	
Length of pipe,	L	=	1.0 m	
For the trash rack,	$\frac{A_s}{A_e}$	=	0.75	(have to do the calculation)
From equation 19.8, trash loss factor,	K_t	=	0.55	
	C_d	=	0.60	
From equation 19.9, entrance loss factor,	K_e	=	1.78	
Manning's Coefficient,	n	=	0.009	
From equation 19.11,				
Darcy-Weisbach friction loss coefficient	f	=	0.010 $D^{-1/3}$	
From equation 19.10, friction loss factor,	K_f	=	0.010 $D^{-4/3}$	
Adopt outlet loss factor,	K_o	=	0.50	
Therefore,	K_L	=	2.83 + 0.010 $D^{-4/3}$	

Adopting an initial diameter of 750mm, the trial and error calculation are summarised in the following table :-

Trial D (mm)	K_L	Area A_p (m^2)	Estimated D (mm)
750.0	2.843	0.2954	613.3
650.0	2.846	0.2956	613.5
625.0	2.847	0.2957	613.5

Therefore a pipe diameter of		=	625 m dia.	is adopted	
This will give an outflow of	Q	=	1086.77 l/s	> 1047.13 l/s	(OK)
Greater than the PSD		=	3.8 %	(OK)	

3 Determine Storage Dimensions

Proposed On-site Detention Tank

The proposed tank area	A	=	300.00 m^2		
Therefore, Height of tank	H	=	1.53 m		
	say		2.00 m		
The storage volume of chambers are	V	=	600.00 m^3	> 457.70 m^3	(OK)

4 Size Secondary Outlet

The kerbing along the rear boundary of the site is designed to act as a broad-crested weir to discharge overflows through the adjoining property. The weir should be sized for the estimated major system ARI flow from the site for time t_{CS} (5 minutes). The major drainage system in the catchment has been designed for 50 year ARI

The 15 minute, 50 year ARI raifall intensity for Kuala Lumpur is

$^{50}P_5$ = 32.10 mm

$^{50}I_5$ = 385.25 mm/hr

Using the Rational Method, the major system flow is calculated as follow :-

I (mm/hr)	Imprevious Area		Previous Area		$\sum CA$	Q_a (l/s)
	C	A (m^2)	C	A (m^2)		
385.25	0.90	21155.1	-	-	19039.5	2039.13

Try **1050** mm dia. Pipe, Slope = 1: 150

A = 0.866 mm

P = 3.30 m

R = 0.263 m

n = 0.013

Therefore, the proposed pipe capacity is:- (Manning Formula)

Q = (1/0.013) x (0.283) x $(0.150)^{2/3}$ x $(1/50)^{0.5}$

= **2229.63** l/s > 2039.13 l/s (OK)

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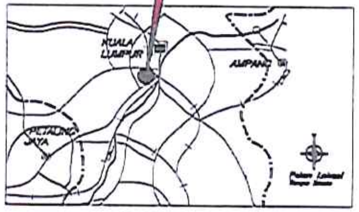
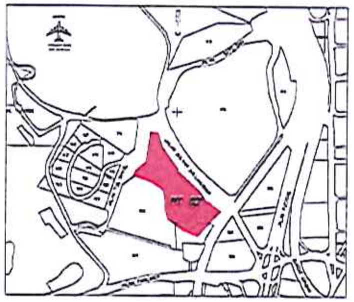
Consulting Engineers (97905-U)

APPENDIX E

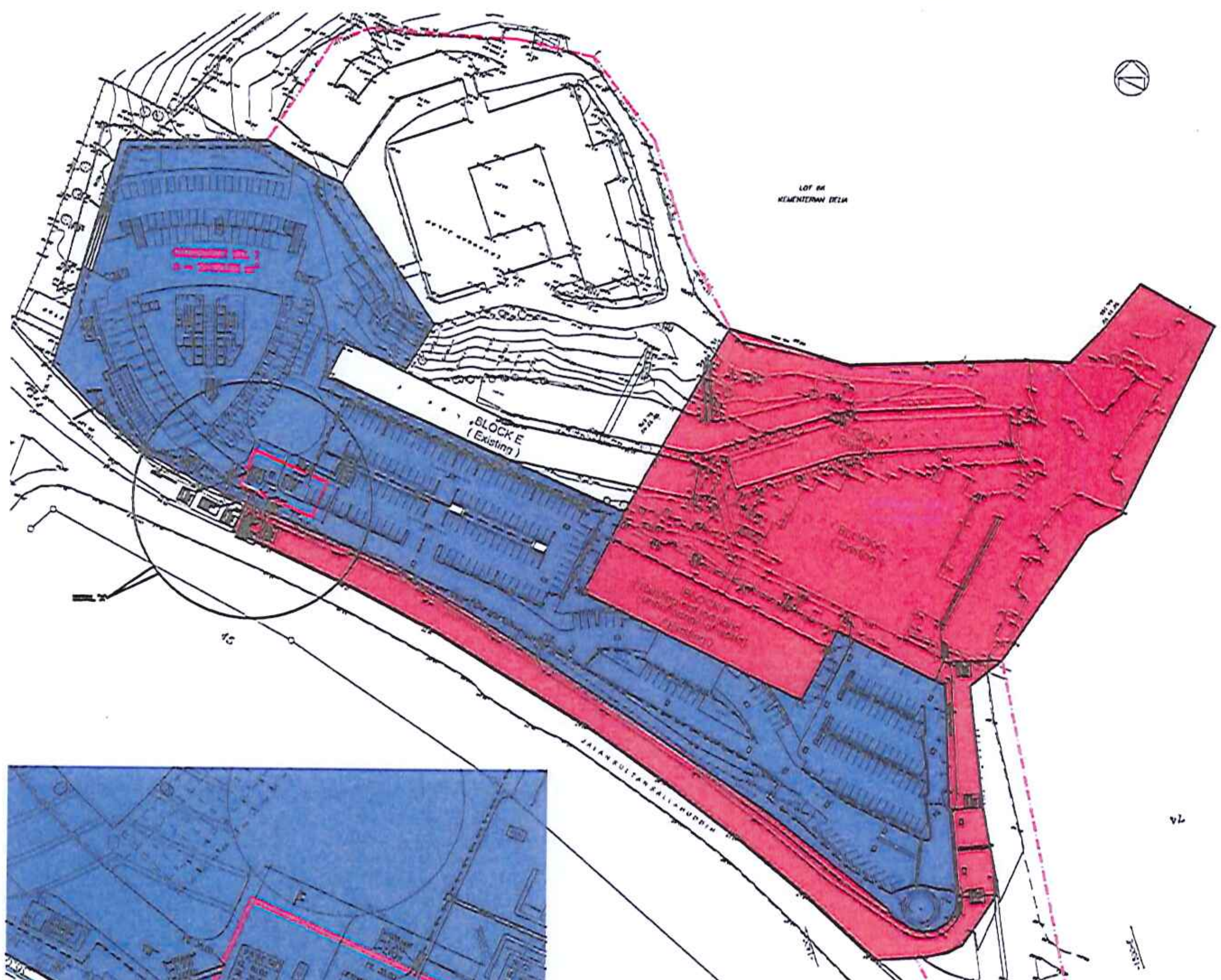
Total Catchment Area for Proposed Development Site and Existing Surrounding Road Pavement



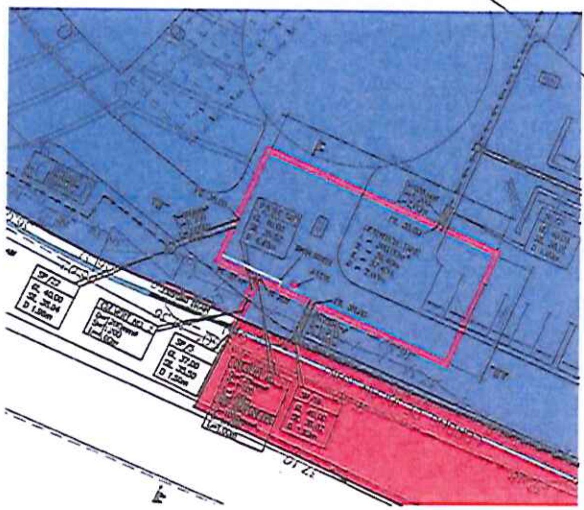
SITE PLAN
N.T.S.



LOCATION PLAN
N.T.S.



PROPOSED ON-SITE DETENTION LAYOUT PLAN
1:750



DETAIL 'A'
1:250

KEY:-

GL – GROUND LEVEL
DIL – DRAIN INVERT LEVEL
SIL – SUMP INVERT LEVEL
PIL – PIPE INVERT LEVEL
D – DIAMETER OF PIPE CULVERT
S – SLOPE OF PIPE CULVERT
L – LENGTH OF PIPE CULVERT
—— DIRECTION OF FLOW IN PIPE CULVERT

LEGEND:-

—▷ —▷ –	PROPOSED INTERNAL DRAIN
—▷ —▷ – (red)	PROPOSED EXTERNAL DRAIN
B/1000/1:200/28.00m	B – DRAIN TYPE B (WITH 3 NO. GALVANISED GRATING COVER AT CENTRE) 1000 – MINIMUM 1000mm DEPTH OF BRICKWALL (ACTUAL HEIGHT TO BE DETERMINED ON SITE) 1:200 – MIN. GRADIENT 1:200 28.00m – LENGTH OF DRAIN = 28.00m
	PROPOSED DRAIN OUTLET AND CATCH PIT
	EXISTING ROADSIDE DRAIN
— — - —	LOT BOUNDARY / LIMIT OF WORKS

NOTES:-

1. ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED.
2. THE GROUND LEVEL SHOWN ARE APPROXIMATE AND FOR INFORMATION ONLY.
3. ALL INVERT LEVELS ARE INDICATIVE AND SUBJECT TO CHANGES ON SITE TO ENSURE GOOD DRAINAGE.
4. MINIMUM DEPTH OF DRAIN SHALL BE 450mm. THE BRICKWALLS FOR DRAIN SHALL BE EXTENDED TO THE RAISED SHOULDER IF ANY.
5. THE DRAIN SHALL BE CASCADED WHEN THE GRADIENT IS MORE THAN 2%.
6. ALL SUMP SHALL BE COVERED WITH M.S. GRATING.
7. ALL KERB OPENING SHALL BE AT 8 METERS INTERVAL. THE EXTRA KERB OPENING SHALL BE LOCATED AT AT LOW POINT AREA AND ROAD ENTRANCE.
8. ALL THE BRICKWALLS FOR DRAIN AND SUMP SHALL BE USED CLAY BRICK.

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT
38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN
2 TINGKAT BASEMENT (KOMPLEKS KERJA RAYA 2)
DI ATAS LOT PT67, SEKSYEN 40,
JALAN SULTAN SALAHUDDIN,
BANDAR KUALA LUMPUR,
WILAYAH PERSEKUTUAN KUALA LUMPUR

UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

JABATAN TANAH DAN GALIAN

KEMENTERIAN KERJA RAYA MALAYSIA

IBU PEJABAT
JABATAN KERJA RAYA MALAYSIA

ARUP
ARUP JURURUNDING SDN BHD

SUBMISSION

DRAINAGE
SITE PLAN, LOCATION PLAN &
PROPOSED ON-SITE DETENTION LAYOUT PLAN
(CATCHMENT AREA)

Project Number	M1348	Revision	S0
Drawing Number	C/DR/LP/01		

Arup Jururunding Sdn. Bhd.
Consulting Engineers (97905-U)

APPENDIX F

Existing Roadside Drain Calculation

OPEN DRAIN AND PIPE CULVERT DESIGN CALCULATION TABLE

PROJECT : CADANGAN PEMBANGUNAN SEBUAH KOMPLEKS KERJARAYA 2, YANG MENGANDUNGI 1 BLOK PEJABAT 38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGEN 2 TINGKAT BASEMENT DI ATAS PT67 SEKSYEN 60, JALAN SULTAN SALAHUDDIN, KUALA LUMPUR

PREPERED BY : HSH

CHECKED BY : HSH

PASSED BY : YKM

JOB NO. : M1348

DATE : 29-3-2011

DRAIN OR CULVERT LOCATION	SUB-AREA (m^2) A	CUM. AREA (m^2) A	RUNOFF COEFF. C	TIME OF CONCEN. (min.) t_c	DESIGN RETURN PERIOD (Years)	RAINFALL INTENSITY (mm/hr) i	RUNOFF (m^3/s) Q	DRAIN/ CULVERT SIZE (mm) B or D	LENGTH (m) L	GRADE (1:n) S	DEPTH OF DRAIN (mm) H	VELOCITY (m/s) v	CAPACITY (m^3/s) Q	REMARKS
PIPE CULVERT OUTLET FOR PROPOSED DETENTION TANK (FOR PROPOSED DEVELOPMENT SITE)	21155.05 - -	21155.05 - -	0.95 0.75 -	10	5	247.43	AFTER DETENTION TANK, TOTAL RUNOFF, PSD = 1.047	625	1.00	100	-	3.567	1.087	OK
EXISTING ROADSIDE DRAIN	19619.00 - - -	40774.05 - - -	0.95 0.75 - -	10	5	247.43	2.328	600	58.00	100	1500	2.988	2.480	DISCHARGE TO EXISTING DRAIN OK

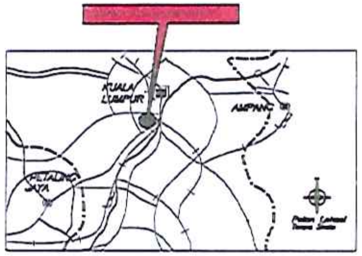
Arup Jururunding Sdn. Bhd.
Consulting Engineers (97905-U)

APPENDIX G

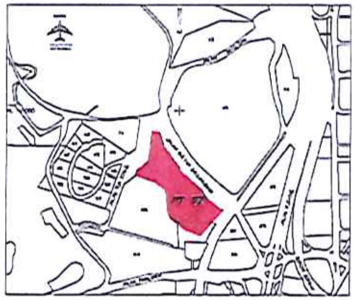
List of Drawings

LIST OF DETAIL SUBMISSION DRAWINGS

No.	Drawing No.	Drawing Title
1.	C/DR/LP/01	Drainage - Site Plan, Location Plan & Proposed On Site Detention Layout Plan.
2.	C/DR/CS/01	Drainage - Typical Cross Section A-A & B-B



SITE PLAN
N.T.S.



LOCATION PLAN
N.T.S.

NOTE:
GL = GROUND LEVEL
DL = DRAIN INVERT LEVEL
SL = SUMP INVERT LEVEL
PL = PIPE INVERT LEVEL
D = DIAMETER OF PIPE CULVERT
S = SLOPE OF PIPE CULVERT
L = LENGTH OF PIPE CULVERT
— DIRECTION OF FLOW IN PIPE CULVERT

LEGEND:

(blue arrows)	PROPOSED INTERNAL DRAIN
(red arrows)	PROPOSED EXTERNAL DRAIN
B/1000/1:200/20.00m	B – DRAIN TYPE B (WITH 3 NO. GALVANISED GRATING COVER AT CORNER) 1000 – MINIMUM 1000mm DEPTH OF BRICKWALL (ACTUAL HEIGHT TO BE DETERMINED ON SITE) 1:200 – MIN. GRADIENT 1:200 20.00m – LENGTH OF DRAIN = 20.00m
(red symbol)	PROPOSED DRAIN OUTLET AND CATCH PIT
(blue line)	EXISTING ROADSIDE DRAIN
(red dash-dot line)	LOT BOUNDARY / LIMIT OF WORKS

NOTES:
1. ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED.
2. THE GROUND LEVEL SHOWN ARE APPROXIMATE AND FOR INFORMATION ONLY.
3. ALL INVERT LEVELS ARE INDICATIVE AND SUBJECT TO CHANGES ON SITE TO ENSURE GOOD DRAINAGE.
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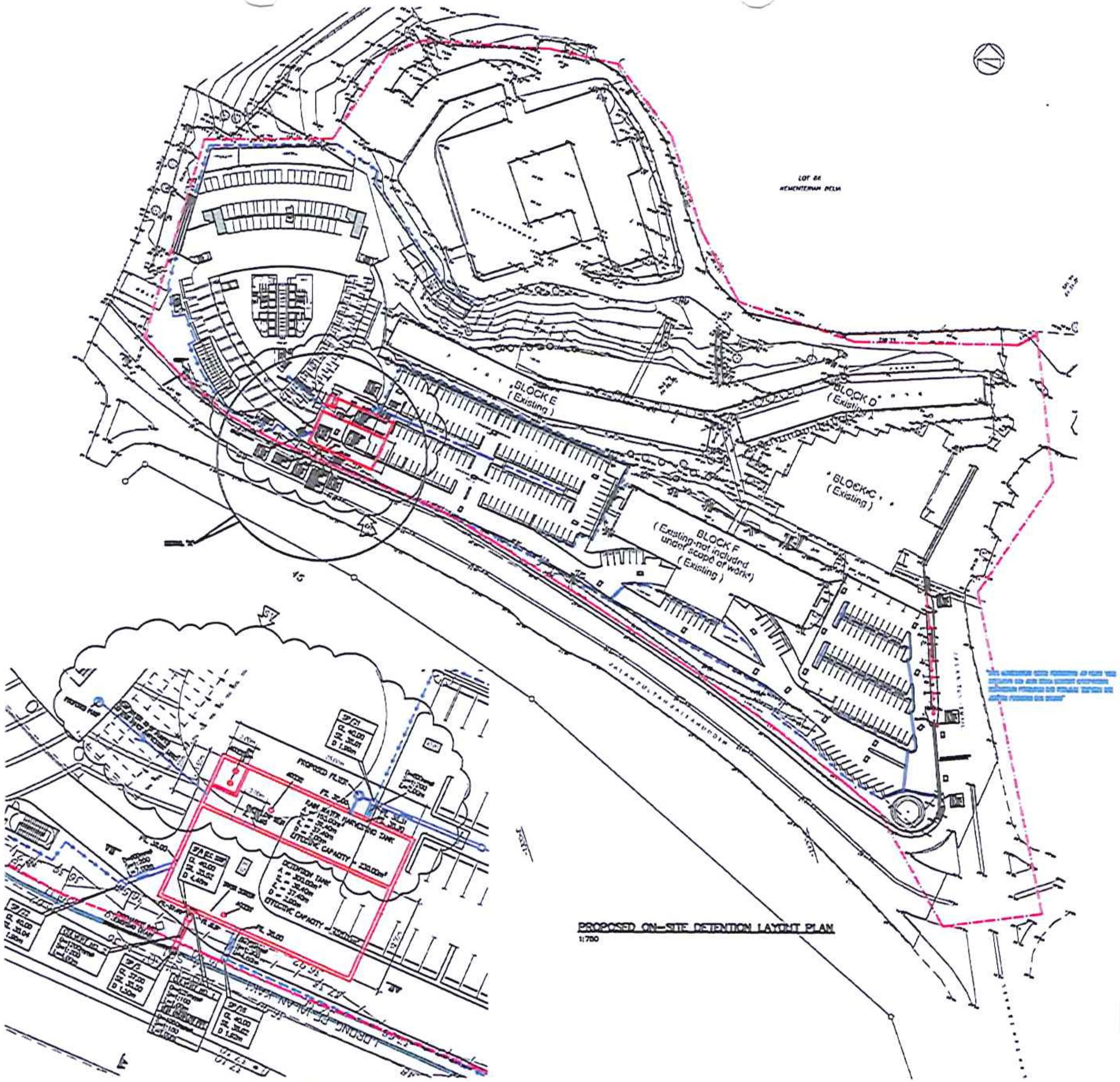


PROPOSED ON-SITE DETENTION LAYOUT PLAN
1:750

DETAIL "A"
1:250

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT 38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN 2 TINGKAT BASEMENT (KOMPLEKS KERJA RAYA 2) DI ATAS LOT PT67 SEKSYEN 46, JALAN SULTAN SALAHUDDIN, BANDAR KUALA LUMPUR, WILAYAH PERSEKUTUAN KUALA LUMPUR

UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

JABATAN TANAH DAN GALIAN

KEMENTERIAN KERJA RAYA MALAYSIA

IBU PEJABAT
JABATAN KERJA RAYA MALAYSIA

ARUP
ARUP JURUTERUNDING SDN BHD

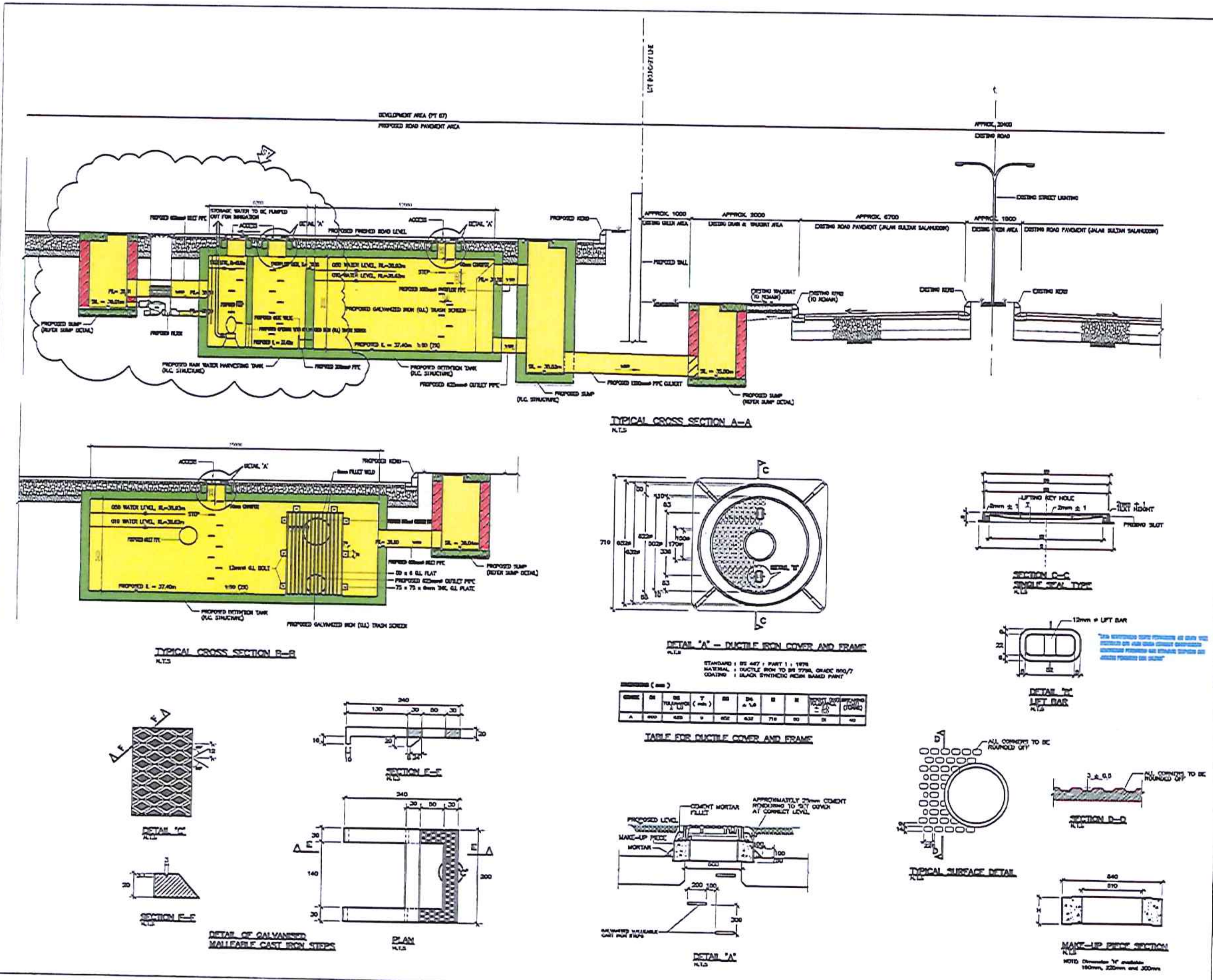
SUBMISSION

DRAINAGE
SITE PLAN, LOCATION PLAN &
PROPOSED ON-SITE DETENSION LAYOUT PLAN

Rev	Date	Particular

Skala	AS SHOWN	Tarikh	JANUARY 2010

Project Number: M1348
Drawing Number: C/DR/LP/01
S1



DEVELOPMENT AREA (PT 67)
PROPOSED ROAD PAVEMENT AREA
APPROX. 1000
APPROX. 2000
APPROX. 6700
APPROX. 1900
APPROX. 2400
EXISTING ROAD
EXISTING STREET LIGHTING
PROPOSED KERB
PROPOSED WALL
EXISTING KERB
PROPOSED SUMP (REFER SUMP DETAIL)
PROPOSED 1200mm Ø PPC CULVERT
PROPOSED 825mm Ø OUTLET PPC
PROPOSED DETENTION TANK (R.C. STRUCTURE)
PROPOSED RAIN WATER HARVESTING TANK (R.C. STRUCTURE)
PROPOSED GALVANIZED IRON (G.I.) TRASH SCREEN
ACCESS
DETAIL "A"
TYPICAL CROSS SECTION A–A
N.T.S
TYPICAL CROSS SECTION B–B
N.T.S
DETAIL "A" – DUCTILE IRON COVER AND FRAME
N.T.S
STANDARD : BS 497 : PART 1 : 1976
MATERIAL : DUCTILE IRON TO BS 7798, GRADE 500/7
COATING : BLACK SYNTHETIC RESIN BASED PAINT
TABLE FOR DUCTILE COVER AND FRAME
SECTION C–C
SINGLE SEAL TYPE
N.T.S
12mm Ø LIFT BAR
DETAIL "B"
LIFT BAR
N.T.S
DETAIL "C"
N.T.S
SECTION E–E
N.T.S
SECTION F–F
N.T.S
PLAN
N.T.S
DETAIL OF GALVANISED MALLEABLE CAST IRON STEPS
DETAIL "A"
N.T.S
TYPICAL SURFACE DETAIL
N.T.S
ALL CORNERS TO BE ROUNDED OFF
SECTION D–D
N.T.S
MAKE–UP PIECE SECTION
NOTE: Dimension "H" available 150mm, 225mm and 300mm

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT 26 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN 2 TINGKAT BASEMENT (KOMPLEKS KERJA RAYA 2) DI ATAS LOT PT47 SEKSYEN 60, JALAN SULTAN SALAHUDDIN, BANDAR KUALA LUMPUR, WILAYAH PERSEKUTUAN KUALA LUMPUR.

UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

JABATAN TANAH DAN GALIAN

KEMENTERIAN KERJA RAYA MALAYSIA

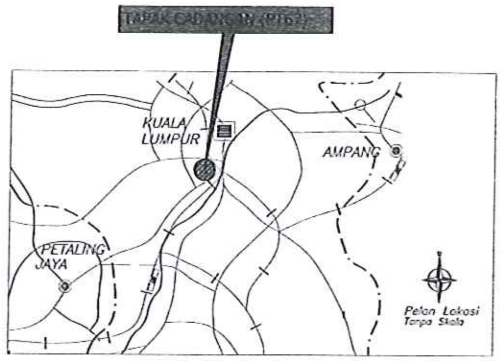
IBU PEJABAT
JABATAN KERJA RAYA MALAYSIA

ARUP
ARUP JURUTERUNDING SDN BHD

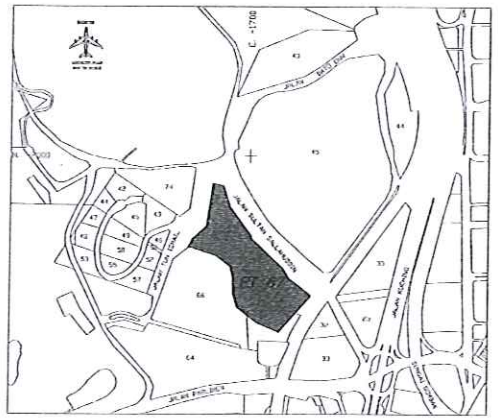
SUBMISSION

DRAINAGE
TYPICAL CROSS SECTION A-A & B-B

Project Number	M1348	Drawing Status	Issue	Revision
Drawing Number	C/DR/CS/01			S1



SITE PLAN
N.T.S.



LOCATION PLAN
N.T.S.

KEY: –

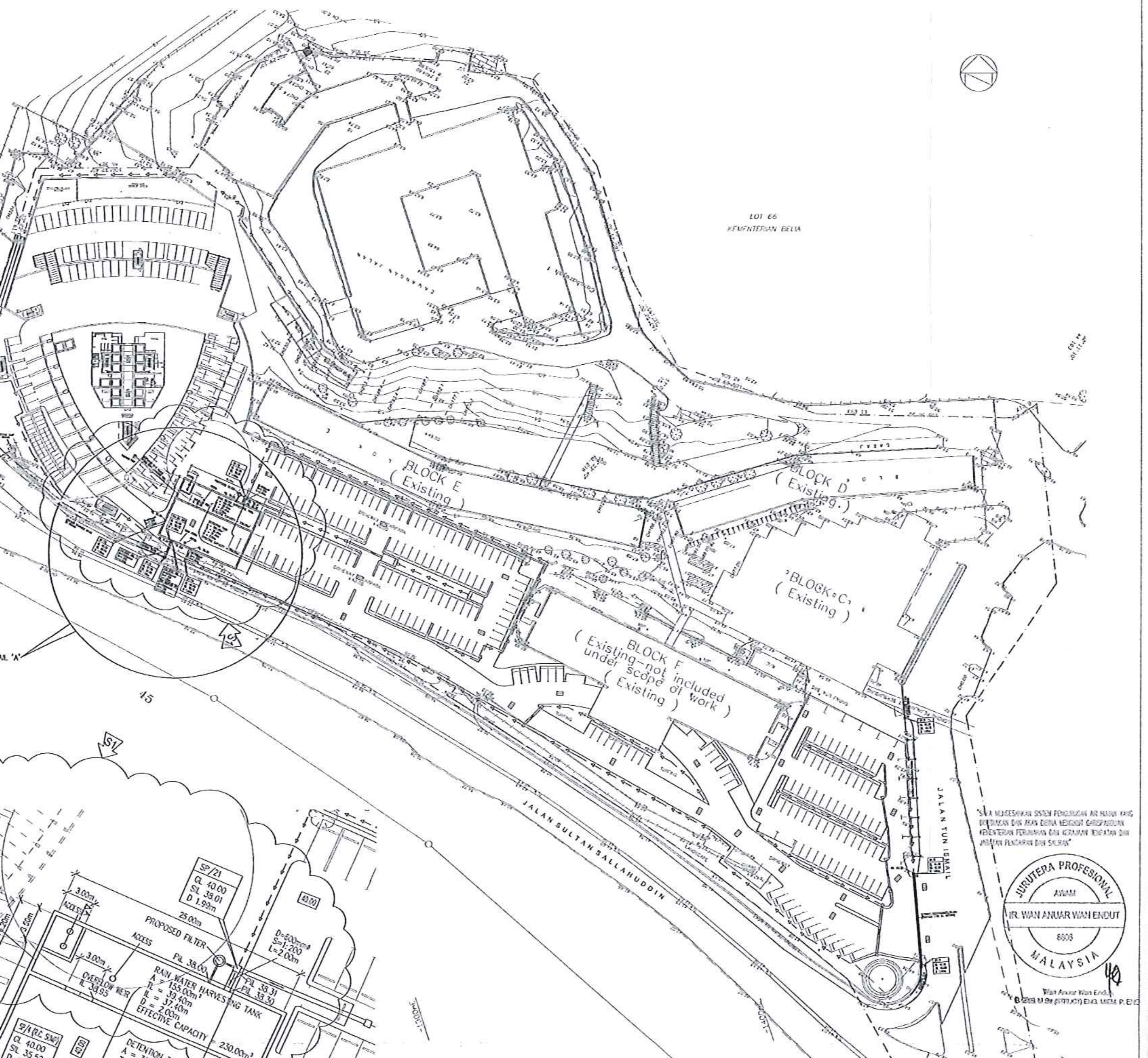
GL = GROUND LEVEL
DIL = DRAIN INVERT LEVEL
SIL = SUMP INVERT LEVEL
PIL = PIPE INVERT LEVEL
D = DIAMETER OF PIPE CULVERT
S = SLOPE OF PIPE CULVERT
L = LENGTH OF PIPE CULVERT
→ DIRECTION OF FLOW IN PIPE CULVERT

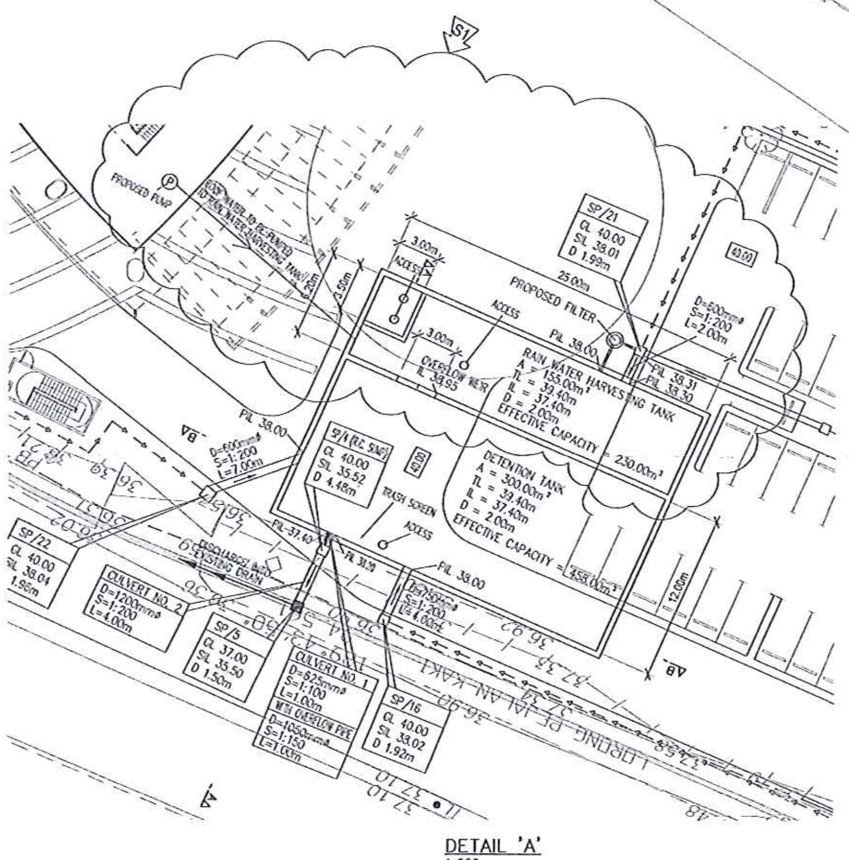
LEGEND: –

—▷ —▷ –	PROPOSED INTERNAL DRAIN
—▷ --▷ –	PROPOSED EXTERNAL DRAIN
B/1050/1:200/28.00m	B – DRAIN TYPE B (WITH 3 NO. GALVANISED GRATING COVER AT CENTRE) 1500 – MINIMUM 1500mm DEPTH OF BRICKWALL (ACTUAL HEIGHT TO BE DETERMINED ON SITE) 1:200 – MIN. GRADIENT 1:200 28.00m – LENGTH OF DRAIN = 28.00m
	PROPOSED DRAIN OUTLET AND CATCH PIT
	EXISTING ROADSIDE DRAIN
— — · —	LOT BOUNDARY / LIMIT OF WORKS

NOTES: –

1. ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED.
2. THE GROUND LEVEL SHOWN ARE APPROXIMATE AND FOR INFORMATION ONLY.
3. ALL INVERT LEVELS ARE INDICATIVE AND SUBJECT TO CHANGES ON SITE TO ENSURE GOOD DRAINAGE.
4. MINIMUM DEPTH OF DRAIN SHALL BE 450mm. THE BRICKWALLS FOR DRAIN SHALL BE EXTENDED TO THE RAISED SHOULDER IF ANY.
5. THE DRAIN SHALL BE CASCADED WHEN THE GRADIENT IS MORE THAN 2%.
6. ALL SUMP SHALL BE COVERED WITH M.S. GRATING.
7. ALL KERB OPENING SHALL BE AT 6 METERS INTERVAL. THE EXTRA KERB OPENING SHALL BE LOCATED AT AT LOW POINT AREA AND ROAD ENTRANCE.
8. ALL THE BRICKWALLS FOR DRAIN AND SUMP SHALL BE USED CLAY BRICK.





DETAIL 'A'
1:250

PROPOSED ON-SITE DETENTION LAYOUT PLAN
1:750

COP PENDAFTARAN JABATAN | NO. SIRI

COP KELULUSAN / TANDATANGAN PENGARAH PERANCANG BANDAR

JABATAN PERANCANGAN INFRASTRUKTUR
DEWAN BANDARAYA KUALA LUMPUR
Pelan-Pelan Untuk Cadangan Membina Sistem Pengurusan Air Hujan & Saliran Induk
(KELULUSAN ASAL/~~SEMULA/PINDAAN~~)
DILULUSKAN
TERTAKLUK KEPADA SYARAT-SYARAT 1-v
SURAT KELULUSAN RUJUKAN (9) DLM.
BERTARIKH 18 JAN 2012
(IR. MAK SEE)
PENGARAH
JABATAN PERANCANGAN INFRASTRUKTUR
DEWAN BANDARAYA KUALA LUMPUR

PERAPI PERINTAH PEMBANGUNAN

PERINGATAN:
1 KELULUSAN ... TAHUN.
2 KELULUSAN ... UNTUK STRUKTUR KONKRIT ...

TAJUK LUKISAN

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT
38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN
2 TINGKAT BASEMENT (KOMPLEKS KERJA RAYA 2)
DI ATAS LOT PT67 SEKSYEN 60,
JALAN SULTAN SALAHUDDIN,
BANDAR KUALA LUMPUR,
WILAYAH PERSEKUTUAN KUALA LUMPUR

UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

PEMILIK TANAH

PESURUHJAYA TANAH PERSEKUTUAN
JABATAN TANAH DAN GALIAN
SEKSYEN HARTANAH PERSEKUTUAN,
ARAS 2, BLOK MENARA WISMA SUMBER ASLI,
NO 25 PERSIARAN PERDANA, PRESINT 4,
62574 PUTRAJAYA.

PEMILIK BANGUNAN

KETUA SETIAUSAHA,
KEMENTERIAN KERJA RAYA MALAYSIA
BAHAGIAN PEMBANGUNAN & PENSWASTAAN,
TINGKAT 4, BLOK A,
KOMPLEKS KERJA RAYA MALAYSIA
JALAN SULTAN SALAHUDDIN,
50582 KUALA LUMPUR

PENGARAH PROJEK

PENGARAH KANAN, CAWANGAN KERJA BANGUNAN AM
IBU PEJABAT
JABATAN KERJA RAYA MALAYSIA
TINGKAT 13A, MENARA PJD,
JALAN TUN RAZAK,
50400 KUALA LUMPUR

JURUTERA PERUNDING AWAM & STRUKTUR

ARUP
ARUP JURURUNDING SDN BHD
CONSULTANT ENGINEERS
NOS. 25-28, JALAN ARA SD 7/3B,
BANDAR SRI DAMANSARA
52200 KUALA LUMPUR.
TEL: 603-6273 2223 FAX: 603-6273 2227

STATUS LUKISAN

SUBMISSION

TAJUK LUKISAN

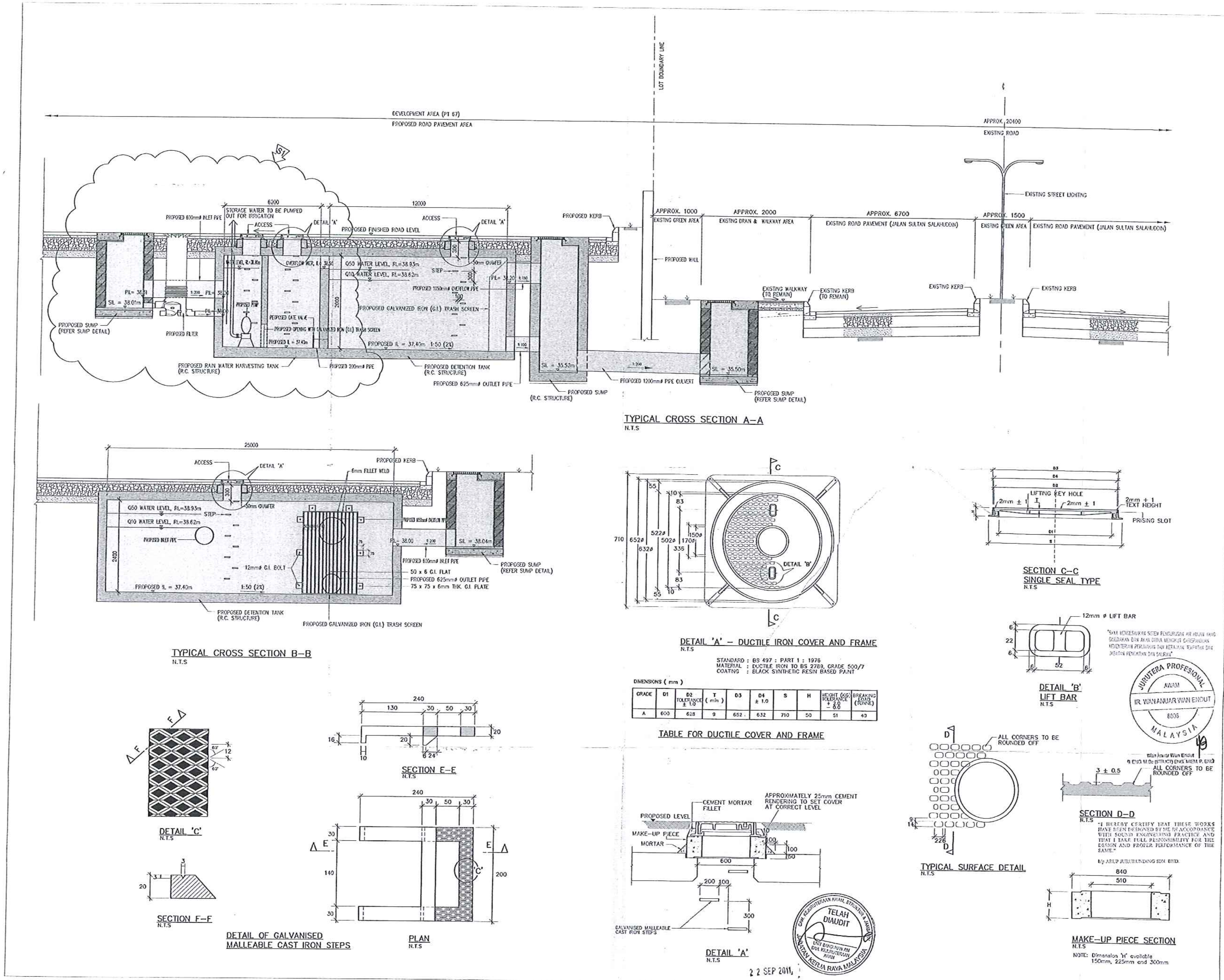
DRAINAGE
SITE PLAN, LOCATION PLAN &
PROPOSED ON-SITE DETENSION LAYOUT PLAN

Rev	Date	Particular
S1	23/3/2011	1. RAIN WATER HARVESTING TANK ADDED.

Skala	AS SHOWN	Tarikh	JANUARY 2010
Dilukis	SZALNSH	Diperiksa	HSHWAE

NO LUKISAN

Project Number	M1348	Drawing Status	Issue	Revision
Drawing Number	C/DR/LP/01			S1



DIMENSIONS (mm)

GRADE	D1	D2 TOLERANCE ± 1.0	T (min)	D3	D4 ± 1.0	S	H	WEIGHT (KG) TOLERANCE + 2.0 − 0.0	BREAKING LOAD (TONNE)
A	600	628	9	652	632	710	50	51	40

TABLE FOR DUCTILE COVER AND FRAME

COP PENDAFTARAN JABATAN | NO. SIRI

COP KELULUSAN / TANDATANGAN PENGARAH PERANCANG BANDAR

JABATAN PERANCANGAN INFRASTRUKTUR
DEWAN BANDARAYA KUALA LUMPUR
Pelan-Pelan Untuk Cadangan Membina Sistem Pengurusan Air Hujan & Saliran Induk
(KELULUSAN ASAL/~~SEMULA/PINDAAN~~)

DILULUSKAN

TERTAKLUK KEPADA SYARAT-SYARAT i-v
SURAT KELULUSAN RUJUKAN (9) DLM. BERTARIKH 18 JAN 2012
(IR. MAK SEE)
PENGARAH
JABATAN PERANCANGAN INFRASTRUKTUR
DEWAN BANDARAYA KUALA LUMPUR
TARIKH 14/1/12
PERINGATAN:
1. KELULUSAN SAH DALAM TEMPOH SATU TAHUN.
2. KELULUSAN INI TIDAK MELIPUTI REKABENTUK STRUKTUR KONKRIT BERTETULANG.

TAJUK LUKISAN

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT 38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN 2 TINGKAT BASEMENT (KOMPLEKS KERJA RAYA 2) DI ATAS LOT PT67 SEKSYEN 60, JALAN SULTAN SALAHUDDIN, BANDAR KUALA LUMPUR, WILAYAH PERSEKUTUAN KUALA LUMPUR.

UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

PEMILIK TANAH

PESURUHJAYA TANAH PERSEKUTUAN
JABATAN TANAH DAN GALIAN
SEKSYEN HARTANAH PERSEKUTUAN,
ARAS 2, BLOK MENARA WISMA SUMBER ASLI,
NO 25 PERSIARAN PERDANA, PRESINT 4,
62574 PUTRAJAYA

PEMILIK BANGUNAN

KETUA SETIAUSAHA,
KEMENTERIAN KERJA RAYA MALAYSIA
BAHAGIAN PEMBANGUNAN & PENSWASTAAN,
TINGKAT 4, BLOK A,
KOMPLEKS KERJA RAYA MALAYSIA
JALAN SULTAN SALAHUDDIN,
50582 KUALA LUMPUR

PENGARAH PROJEK

PENGARAH KANAN, CAWANGAN KERJA BANGUNAN AM
IBU PEJABAT
JABATAN KERJA RAYA MALAYSIA
TINGKAT 13A, MENARA PJD,
JALAN TUN RAZAK,
50400 KUALA LUMPUR

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BANDAR SRI DAMANSARA
52200 KUALA LUMPUR.
TEL: 603-6273 2223 FAX: 603-6273 2227

STATUS LUKISAN

SUBMISSION

TAJUK LUKISAN

DRAINAGE
TYPICAL CROSS SECTION A-A & B-B

Rev	Date	Particular
S1	29/3/2011	1. PROPOSED RAIN WATER HARVESTING TANK ADDED.

Skala	AS SHOWN	Tarikh	JANUARY 2010
Dilukis	SZALHSH	Diperiksa	HSH/WMWAE

NO. LUKISAN

Project Number	M1348	Drawing Status	Issue	Revision
Drawing Number	C/DR/CS/01			S1

NON-RESIDENTIAL NEW CONSTRUCTION (NRNC)
SUSTAINABLE SITE PLANNING & MANAGEMENT (SM)

SM12	GREENERY & ROOF	2 POINTS

INTENT

To reduce heat island (thermal gradient difference between developed and undeveloped areas) to minimize impact on microclimate and human and wildlife habitat.

DESCRIPTION

- Minimize impact on microclimate and human wildlife habitat.
- Reward for achieving any option. Roof application includes roofs over individual parking lots and roofs over parking structures.
- The use of greenery on rooftops can help alleviate urban heat island effects through shading and evaporative cooling. It also enhances aesthetics to the surrounding and provides a more pleasant working environment, which is also discussed in Indoor Environment Quality.

REQUIREMENTS

Reduce heat island (thermal gradient difference between developed and undeveloped areas) to minimize impact on microclimate and human and wildlife habitat:

- **Hardscape & Greenery Application:**
  (a) Provide any combination of the following strategies for 50% of the site hardscape (including sidewalks, courtyards, plazas and parking lots):
    - Shade (within 5 years of occupancy);
    - Paving materials with a Solar Reflectance Index (SRI) of at least 29;
    - Open grid pavement system;
- **Roof Application:**
  (a) Use roofing material with a Solar Reflectance Index (SRI) equal to or greater than the value in the table below for a minimum of 75% of the roof surface, ***OR***
  (b) Install a vegetated roof for at least 50% of the roof area, ***OR***
  (c) Install high albedo and vegetated roof surfaces that, in combination, meet the following criteria:
    - (Area of SRI Roof / 0.75) + (Area of vegetated roof / 0.5) > Total Roof Area
    - Roof Type Slope SRI
    - Low-Sloped Roof < 2:12 78
    - Steep-Sloped Roof > 2:12 29

APPROACH & IMPLEMENTATION

During concept design stage, ensure landscaping design is incorporated, and choice of materials with preferred SRI is considered. Where possible, introduce landscaping to exposed roof surfaces.

REQUIRED SUBMISSION FOR DESIGN ASSESSMENT (DA)	SUBMITTER	GBI
1. Submit Site plan and Roof Plan showing the extent of proposed hardscape and greenery (softscape) (To scale).	⊘	○
2. Section drawing of the rooftop showing details of built-up roof greenery (To scale)	○	○
3. List of names of native or adaptive vegetation and their characteristics.	○	○

REQUIRED SUBMISSION FOR COMPLETION & VERIFICATION ASSESSMENT (CVA)	SUBMITTER	GBI
1. As-Built plans and sections of roof (to scale). Submit list of materials used and their SRI values	○	○
2. Submit photographs of roof and materials.	○	○
3. Describe any deviations or additions to the DA submission.	○	○

PROJECT NAME	Kompleks Kaya Raya 2 (KKR2)			DATE 15/6/2012
SUBMITTING PROFESSIONAL	NAME SYED SOBRI SYED ISMAIL AA Dipl. (London) No. Pendaftaran Akitek : A/S47	DESIGNATION	COMPANY GDP ARCHITECTS SDN BHD (COMPANY NO: 232661-A) 45-21 Plaza Level Block C Plaza Damansara Jalan Medan Setia Satu Bukit Damansara 50490 Kuala Lumpur, Malaysia Tel: 03.2093.5700 Fax: 03.2093.5711 GDP	SIGNATURE
CLIENT	NAME DATO' W. ZULKIFLI W. MUDA	DESIGNATION MANAGING DIRECTOR	COMPANY AHMAD ZAKI SDN BHD (81250-W) 88, Jalan Gombak, Setapak, 53000 Kuala Lumpur. Tel: 03-40241000 Fax: 03-40242000	SIGNATURE

NOTE ATTACH ALL SUBMITTALS WITH THIS COVER PAGE

SM12 Greenery & Roof

Points Applied- 2 Points

Hardscape & Greenery Application

All the road finishes will be using light color concrete with SRI higher than 29 and grasscrete will be used for parking lots. 64% of the site hardscape will meet the requirement with the combination of the above strategies.

Table 1: Total qualifying hardscape surfaces

Site area (m^2)	11,578.00
Building footprint (m^2)	4,550.00
Softscape area (m^2)	1,390.00
Open grid pavement system (m^2)	900.00
Areas of hardscape with minimum SRI > 29 (m^2)	3,624.00
Percentage of qualifying surfaces (%)	64

SM12-1B: Roof Application

The weighted average calculation is used as there are multiple roofs for this project. Option 3 is selected for this credit, using a combination of green roof and SRI Compliant roof to meet the requirements.

Table 2: Breakdown of Green Roof and SRI Roof Area

Level	Roof Area (m^2)	Green Roof Area (m^2)	SRI Roof Area (m^2)	Proposed Roofing Material	SRI	Comply
32	118	54	64	White pebble	>78	Yes
33	114	50	64	White pebble	>78	Yes
34	241	111	130	White pebble	>78	Yes
35	1205	60	903 (72+710+121)	White Pebble+ White Concrete + Metal	>78	Yes

Table 3: Total roof area in compliance

	Area (m^2)	Description	Area Compliant (m^2)	Area non compliant (m^2)
RC Flat Roof	710	SRI>78	710	
M&E Roof	242	-	-	-
Metal Roof	121	SRI>78	121	
Green Roof - Softscape	330	Vegetated	330	
Green Roof - Hardscape	275	Light color pebbles	275	
Total Roof Area	**1,678**			
Area of SRI Roof/ 0.75			**1,548**	
Area of Green Roof/0.5			**550**	
Compliance			**2,098>1,678 COMPLY**	

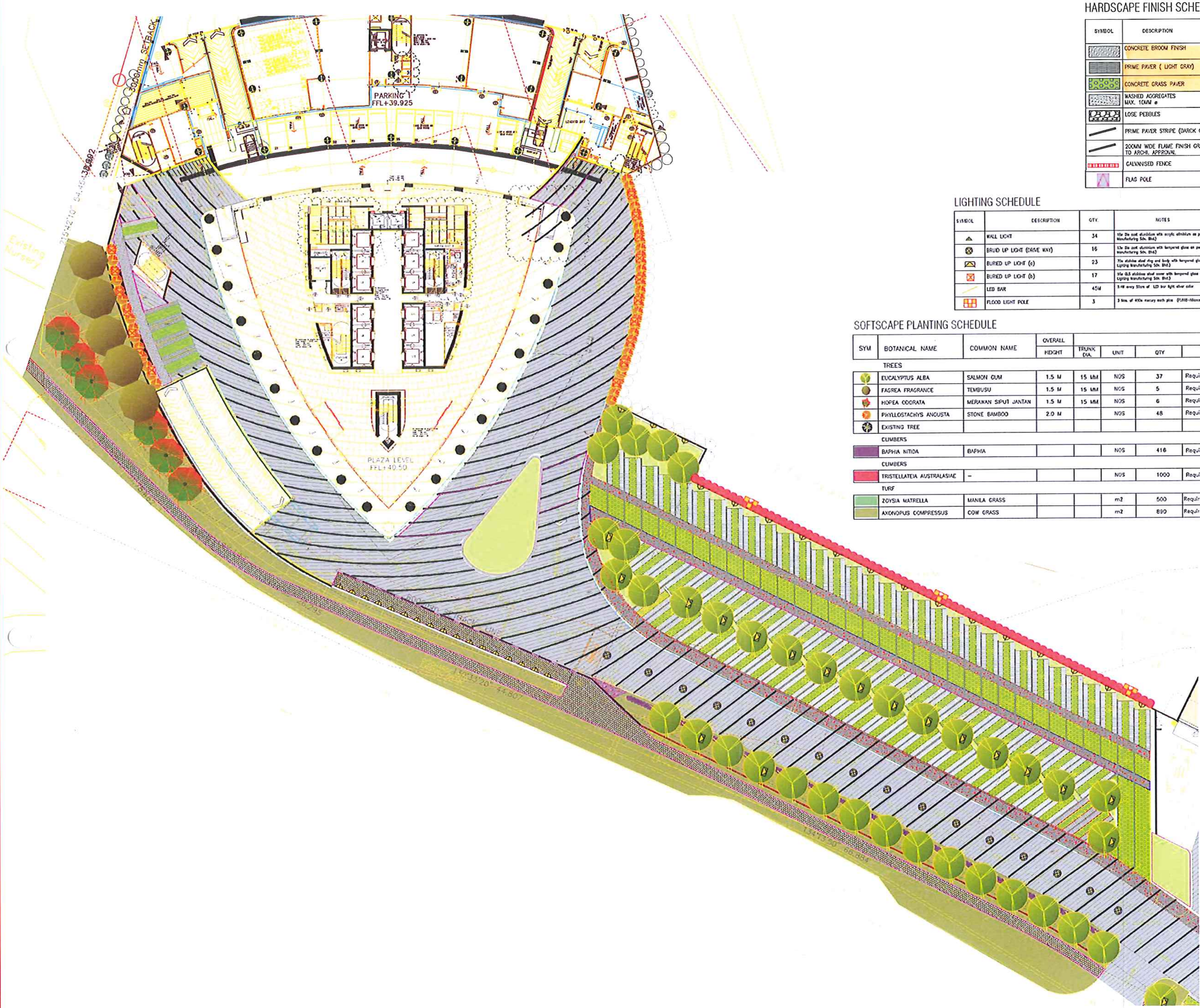
As shown in the table 3, the combination of both vegetated roof and SRI compliant roof using the formula is greater than the total roof area, the credit requirements are satisfied.

As the roofs are all flat roofs, roofing materials to be used have to achieve an SRI of 78 and above. The suppliers and manufacturers will have to supply catalogs to demonstrate compliance. Submittals are to be approved by the GBI Consultant and architect before materials can be purchased and used in the building.

Supporting Documents

i. Site plan showing the extent of proposed hardscape
ii. Roof Plan showing the breakdown of different roof area
iii. Landscape layout plans for L32-L35
iv. Section drawing showing details of built-up roof greenery

Site plan showing the extent of proposed hardscape



HARDSCAPE FINISH SCHEDULE

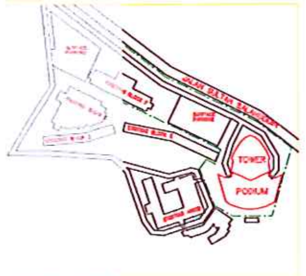
SYMBOL	DESCRIPTION	UNIT	QTY.
	CONCRETE BROOM FINISH	M²	2774
	PRIME PAVER (LIGHT GRAY)	M²	850
	CONCRETE GRASS PAVER	M²	900
	WASHED AGGREGATES MAX. 10MM ø	M²	500
	LOSE PEBBLES	M²	150
	PRIME PAVER STRIPE (DARCK GRAY)	M/R	920
	200MM WIDE FLAME FINISH GRANITE TO ARCHI. APPROVAL	M/R	2500
	GALVANISED FENCE	MR.	65
	FLAG POLE	NOS.	3

LIGHTING SCHEDULE

SYMBOL	DESCRIPTION	QTY.	NOTES	OPERATION TIME
	WALL LIGHT	34	[illegible] (ST121-Alliance Lighting Manufacturing Sdn. Bhd.)	7.00 p.m-7.00 a.m
	BRUID UP LIGHT (DRIVE WAY)	16	[illegible] (BLL443-Alliance Lighting Manufacturing Sdn. Bhd.)	7.00 p.m-7.00 a.m
	BURIED UP LIGHT (a)	23	[illegible] (BLL440-Alliance Lighting Manufacturing Sdn. Bhd.)	7.00 p.m-12.00 a.m
	BURIED UP LIGHT (b)	17	[illegible] (BLL442-Alliance Lighting Manufacturing Sdn. Bhd.)	7.00 p.m-12.00 a.m
	LED BAR	45M	[illegible]	7.00 p.m-12.00 a.m
	FLOOD LIGHT POLE	3	[illegible] (Alliance Lighting Manufacturing Sdn. Bhd.)	[illegible]

SOFTSCAPE PLANTING SCHEDULE

SYM	BOTANICAL NAME	COMMON NAME	OVERALL HEIGHT	TRUNK DIA.	UNIT	QTY	REMARKS
	TREES						
	EUCALYPTUS ALBA	SALMON GUM	1.5 M	15 MM	NOS	37	Requires 2lt/day water, Prefer full sun
	FAGREA FRAGRANCE	TEMBUSU	1.5 M	15 MM	NOS	5	Requires 2lt/day water, Prefer full sun
	HOPEA ODORATA	MERAWAN SIPUT JANTAN	1.5 M	15 MM	NOS	6	Requires 2lt/day water, Prefer full sun
	PHYLLOSTACHYS ANGUSTA	STONE BAMBOO	2.0 M		NOS	48	Requires 2lt/day water, Prefer full sun
	EXISTING TREE						
	CLIMBERS						
	BAPHIA NITIDA	BAPHIA			NOS	416	Requires 2lt/day water, Prefer full sun
	CLIMBERS						
	TRISTELLATEIA AUSTRALASIAE	–			NOS	1000	Requires 2lt/day water, Prefer full sun
	TURF						
	ZOYSIA MATRELLA	MANILA GRASS			m2	500	Requires water 2lt/m2 oday,Prefer full sun
	AXONOPUS COMPRESSUS	COW GRASS			m2	890	Requires water 2lt/m2 oday,Prefer full sun



Ahmad Zaki Sdn. Bhd.
No. 88, Jalan Gombak, Setapak,
53000 Kuala Lumpur.
Tel : 603-40241000
Fax : 603-40242000

GDP ARCHITECTS
-21, Plaza Level Block C
Medan Setia Satu
Bukit Damansara, 50490
Kuala Lumpur, MALAYSIA
Tel 03-20935700 Fax 20935711
Company Reg No :

ARUP
ARUP Jurunding Sdn Bhd
No. 25 - 28, Jalan Ara SD 7/3B,
Bandar Sri Damansara,
52200 Kuala Lumpur.
Tel : 603 62732223
Fax : 603 62732227

ARUP
ARUP Jurunding Sdn Bhd
No. 25 - 28, Jalan Ara SD 7/3B,
Bandar Sri Damansara,
52200 Kuala Lumpur.
Tel : 603 62732223
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Northcroft Lim Perunding Sdn Bhd.
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Jalan SS 6/1, Kelana Jaya,
47301 Petaling Jaya, Selangor.
Tel : 603 78048138 / 46545
Fax 603 78049107

Metropolis Design Consultants
No. 1009, Block A4
(Leisure Commerce Square)
No. 09, Jalan PJS 8/9,
46150 Petaling Jaya, Selangor.
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Fax 603 7875 8667

ZETTA Consultants Sdn. Bhd.
No. 232, Jalan 8/5, Sek. 8,
43650 Bandar Baru Bangi,
Selangor Darul Ehsan.
Tel : 603 89258882
Fax 603 89268882

PENGESAHAN PERUNDING LANDSKAP

ROSLAN DATO HJ MEOR AHMAD RASID
ARKITEK LANDSKAP
INSTITUTE OF LANDSCAPE ARCHITECTS MALAYSIA
(INSTITUT ARKITEK LANDSKAP MALAYSIA)

LANDSCAPE MASTER PLAN
(NEW BUILDING)

Rev.	Date	Note

CONSTRUCTION

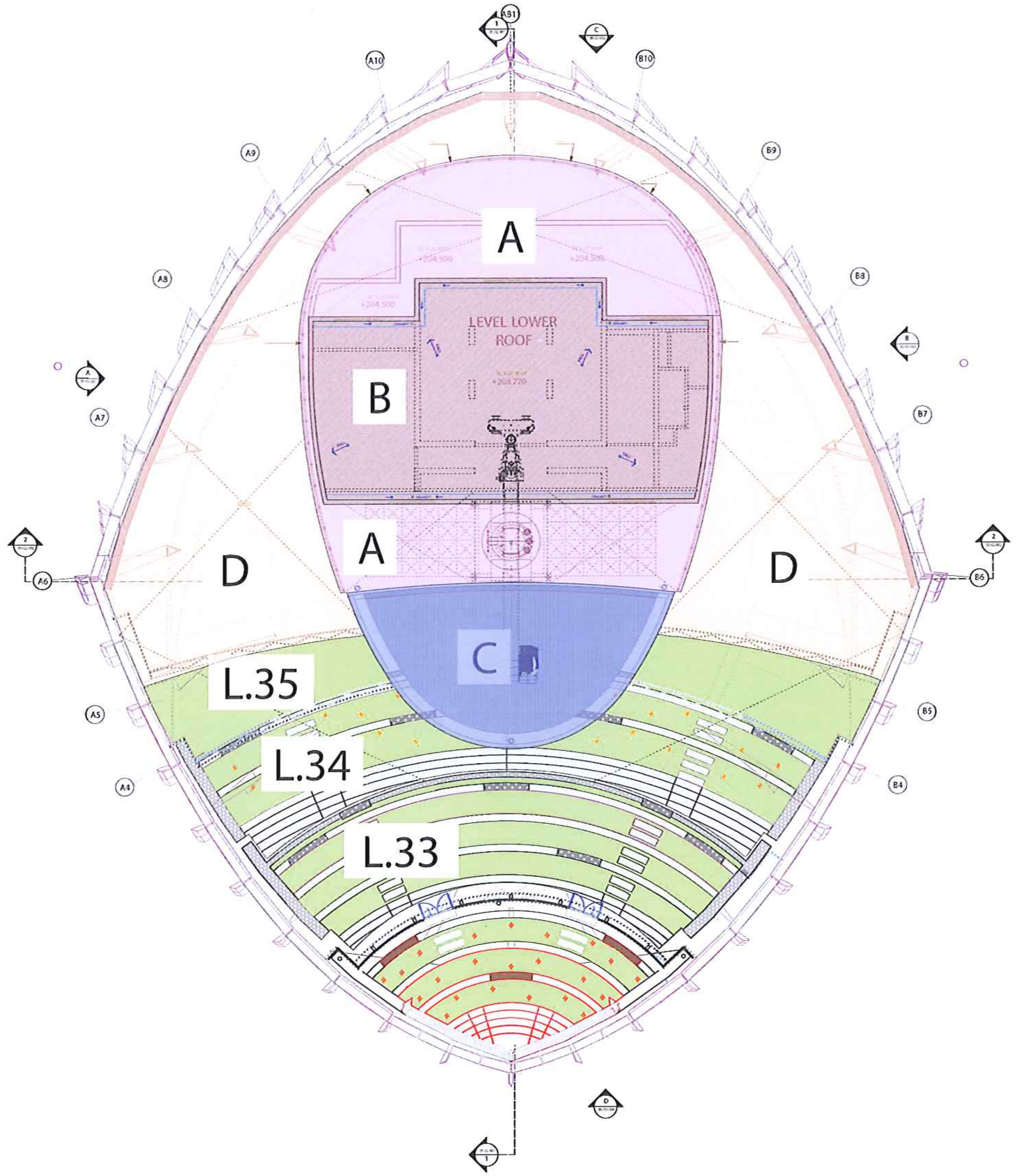
Skala	1:250	Tarikh	DIS_2011
Dilukis	NSJ	Disemak	MEOR_ROSLAN

Nombor Projek	MDC/KKR2	Status Lukisan	BB	Pindaan 00
Nombor Lukisan	MP/NEWBUILDING/01			

COP AUDIT & TARIKH

Roof Plan showing the breakdown of different roof area

NOTE: PLAN AS PER CONSTRUCTION DWG (GDP/2387/CD/05-01-030)



01 KKR 2 • TOWER PLAN • LEVEL LOWER ROOF
05 : GENERAL ARRANGEMENT Scale : 1 : 250

ITEM	ROOF ZONE	MATERIAL	COLOUR	AREA (SQ.M)	RAIN WATER HAVESTING (RWH)
A	M&E PLANT EQUIPMENT	-	-	242 SQ.M	-
B	LMR ROOF	R.C CONCRETE	WHITE (LIGHT COLOUR)	241 SQ.M	241 SQ.M
C	MINISTER ROOF	METAL	WHITE (LIGHT COLOUR)	121 SQ.M	120.5 SQ.M
D	LEV. 36 M&E SERVICES	R.C CONCRETE	WHITE (LIGHT COLOUR)	469 SQ.M	-
	GREEN ROOF	* GRASS	-	275 SQ.M	-
	GREEN ROOF	* PAVING	-	330 SQ.M	-
TOTAL	-	-	-	*1,678 SQ.M*	*361.5 SQ.M*

*NOTE : GREEN ROOF TERRACE LEVEL 33, 34 & 35 * MATERIALS BY MDC LANDSCAPE CONSULTANTS*

FINISHES SPECIFICATION

SANITARY FITTINGS

KERAJAAN MALAYSIA

JABATAN TANAH DAN GALIAN

KEMENTERIAN KERJA RAYA MALAYSIA

IBU PEJABAT JABATAN KERJA RAYA MALAYSIA

CADANGAN PEMBANGUNAN BLOK PEJABAT 38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN 2 TINGKAT BASEMENT (KOMPLEKS KERJA RAYA 2) DI ATAS LOT PT67 SEKSYEN 60, JALAN SULTAN SALAHUDDIN, BANDAR KUALA LUMPUR, WILAYAH PERSEKUTUAN KUALA LUMPUR

UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

Ahmad Zaki Sdn. Bhd.

GDP ARCHITECTS SDN BHD

ARUP Jurutunding Sdn. Bhd.

ARUP Jurutunding Sdn. Bhd.

Northcroft Lim Perunding Sdn. Bhd.

Metropolis Design Consultants

ZETTA Consultant Sdn. Bhd.

Ar. Syed Sobri Syed Ismail
ARKITEK PROFESIONAL
No. Pendaftaran A/S 47

GREEN BUILDING INDEX (GBI) FOR INFO ONLY

SM12 & WE1 : ROOF APPLICATION & WATER CATCHMENT (EXCLUDING)

LEVEL LOWER ROOF

CONSTRUCTION DRAWING

Skala	AS SHOWN	Tarikh	7-Mar-12

Nombor Projek: 2387 / 07
Nombor Lukisan: GDP/2387/
Pindaan: 0

Landscape layout plans for L32-L35

SOFTSCAPES SHEDULE

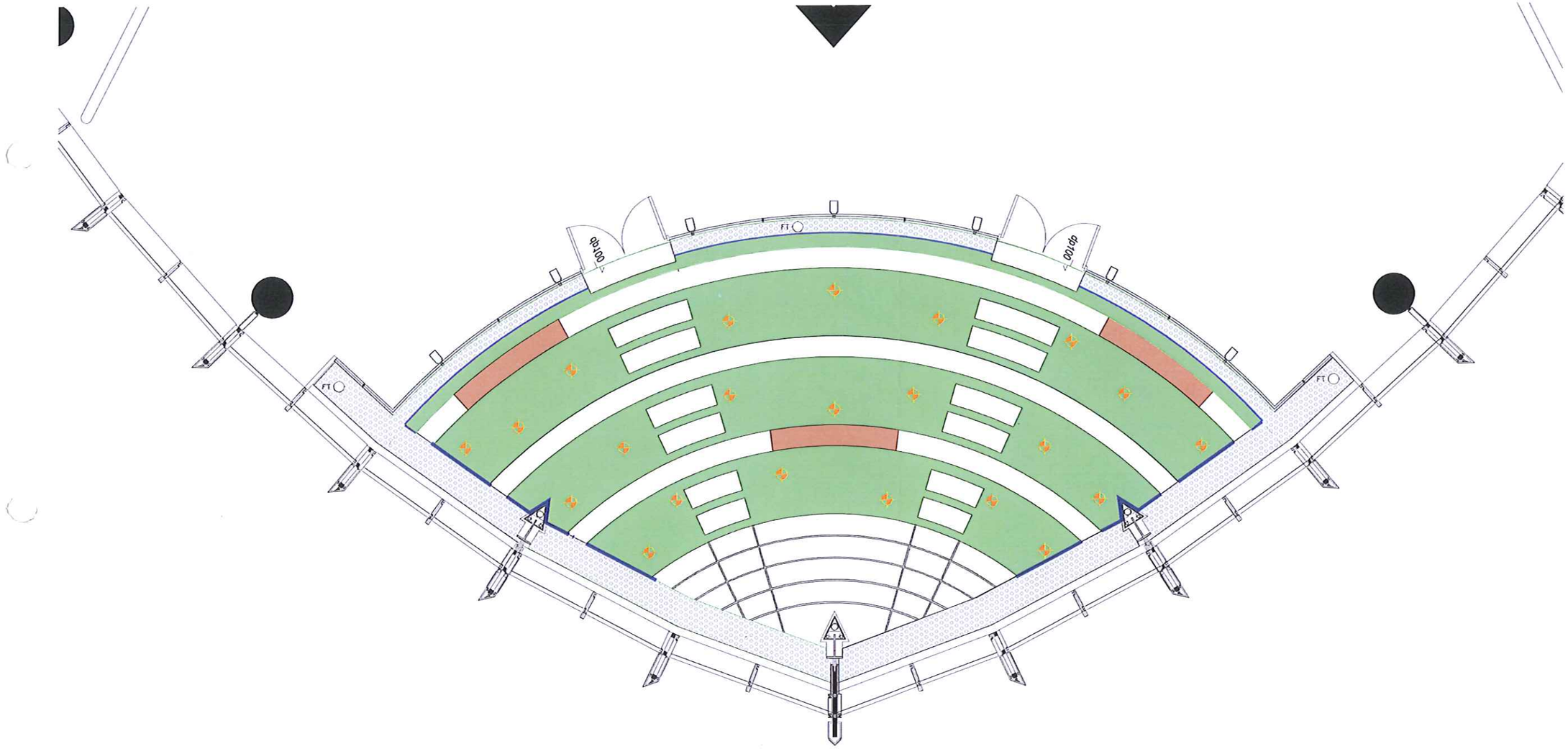
SYMBOL	BOTANICAL NAME	COMMON NAME	O.H	T.H	UNIT	QTY.
TURF						
	ZOYSIA MATRELLA	BLUE ZOYSIA			M²	54

HARDSCAPES SHEDULE

SYMBOL	NAMES	QTY.	NOTES	NOTES
	STONE LIGHT	24	10v DC LED light white color as per (ML-SL-CUS-stonelight)	7.00 p.m-12.00 a.m or upon request or special event

HARDSCAPES SHEDULE

SYMBOL	NAMES	UNIT	QTY.
	PEBBLE WASH	M²	40
	LOSE PEBBLES >15MM	M²	24
	BENCH	Nos.	3
	GRASS CURB	Mr.	30



KERAJAAN MALAYSIA

PEMILIK TANAH

PELANGGAN / PEMILIK BANGUNAN

PENGARAH PROJEK

PROJEK

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT 38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN 2 TINGKAT BASEMENT (KOMPLEKS KERJA RAYA 2) DI ATAS LOT PT67 SEKSYEN 60, JALAN SULTAN SALAHUDDIN, BANDAR KUALA LUMPUR, WILAYAH PERSEKUTUAN KUALA LUMPUR.

UNTUK TETUAN KEMENTERIAN KERJA RAYA MALAYSIA

RUJUKAN

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Com.pany Reg No : 320641-A

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Fax : 603 62732227

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Fax 603 7875 8667

PERUNDING ICT

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Fax 603 89256862

PERUNDING HASAN DALAMAN

PENGESAHAN PERUNDING LANDSKAP

MOR ROSLAN BATO HJ MOR AHMAD RASDI
REGISTERED LANDSCAPE ARCHITECTS MALAYSIA
INSTITUTE OF LANDSCAPE ARCHITECTS MALAYSIA
(INSTITUT ARKITEK LANDSKAP MALAYSIA)
ILAM NO. 0000164

TAJUK LUKISAN

LANDSCAPE MASTER PLAN (L32)

NOTE

Rev	Date	Note

CONSTRUCTION

Skala	1:40	Tarikh	SEPT/2011
Dilukis	NSJ	Disemak	MOR_ROSLAN

NOMBOR LUKISAN

Nombor Projek	MDC/KKR2	Status Lukisan	BB	Pindaan 00
Nombor Lukisan	MP/NEWBUILDING/10			

COP & TARIKH COP ALOT & TARIKH

SOFTSCAPES SHEDULE

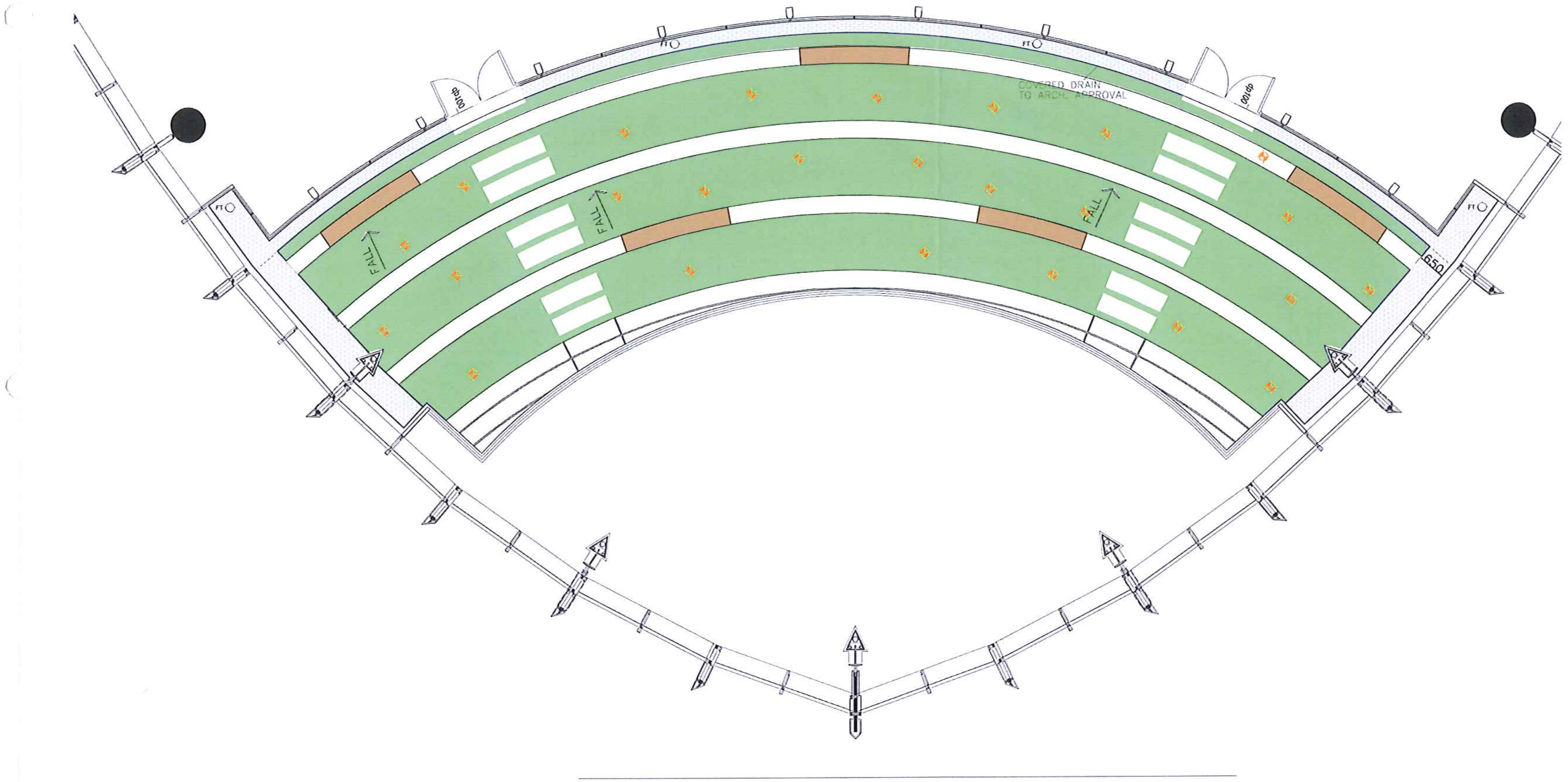
SYMBOL	BOTANICAL NAME	COMMON NAME	O.H	T.H	UNIT	QTY.
TURF						
	ZOYSIA MATRELLA	BLUE ZOYSIA			M²	50

HARDSCAPES SHEDULE

SYMBOL	NAMES	UNIT	QTY.
	PEBBLE WASH	M²	40
	LOSE PEBBLES >15MM	M²	24
	BENCH	Nos.	3
	GRASS CURB	Mr.	30

LANDSCAPE LIGHTING SHEDULE

SYMBOL	NAMES	QTY.	NOTES	NOTES
	STONE LIGHT	32	10v DC LED light white color as per (ML-SL-CUS-stonelight)	7.00 p.m-12.00 a.m or upon request or special event



KERAJAAN MALAYSIA

PEMILIK TANAH

PESURUHJAYA TANAH PERSEKUTUAN
JABATAN TANAH DAN GALIAN
SEKSYEN HARTANAH PERSEKUTUAN
ARAS 2, BLOK MENARA WISMA SUMBER ASLI
NO 25 PERSIARAN PERDANA, PRESINT 4,
62574 PUTRAJAYA

PELANGGAN / PEMILIK BANGUNAN

KETUA SETIAUSAHA
KEMENTERIAN KERJA RAYA MALAYSIA
BAHAGIAN PEMBANGUNAN & PENSWASTAAN,
TINGKAT 4, BLOK A, KOMPLEKS KERJA RAYA MALAYSIA
JALAN SULTAN SALAHUDDIN,
50580 KUALA LUMPUR

PENGARAH PROJEK

PENGARAH KANAN
CAWANGAN KERJA BANGUNAN AM
IBU PEJABAT JABATAN KERJA RAYA MALAYSIA
TINGKAT 13A MENARA PJD,
JALAN TUN RAZAK,
50400 KUALA LUMPUR.

PROJEK

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT 38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN 2 TINGKAT BASEMENT (KOMPLEKS KERJA RAYA 2) DI ATAS LOT PT67 SEKSYEN 60, JALAN SULTAN SALAHUDDIN, BANDAR KUALA LUMPUR, WILAYAH PERSEKUTUAN KUALA LUMPUR.

UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

RUJUKAN

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Fax : 603-40242000

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Company Reg. No :233661-A

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Fax : 603 62732227

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Fax : 603 62732227

JURUUKUR BAHAN

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47301 Petaling Jaya, Selangor.
Tel : 603 78048136 / 46545
Fax 603 78049107

PERUNDING LANDSKAP

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No. 1009, Block A4
(Leisure Commerce Square)
NO. 09, Jalan PJS 8/9,
46150 Petaling Jaya, Selangor.
Tel : 603 7875 8709
Fax 603 7875 8667

PERUNDING ICT

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43650 Bandar Baru Bangi,
Selangor Darul Ehsan.
Tel : 603 89258862
Fax 603 89268862

PERUNDING HIASAN DALAMAN

PENGESAHAN PERUNDING LANDSKAP

MEOR ROSLAN DATO HJ MEOR AHMAD RASDI
ARKITEK LANDSKAP
INSTITUTE OF LANDSCAPE ARCHITECTS MALAYSIA
(INSTITUT ARKITEK LANDSKAP MALAYSIA)
ILAM NO. 000164

TAJUK LUKISAN

LANDSCAPE MASTER PLAN (L33)

NOTE

Rev	Date	Note

CONSTRUCTION

Skala	1:50	Tarikh	SEPT/2011
Dilukis	NSJ	Disemak	MEOR_ROSLAN

NOMBOR LUKISAN

Nombor Projek	MDC/KKR2	Status Lukisan	BB	Pindaan 00
Nombor Lukisan	MP/NEWBUILDING/14			

COP & TARIKH

COP AUDIT & TARIKH

HARDSCAPES SHEDULE

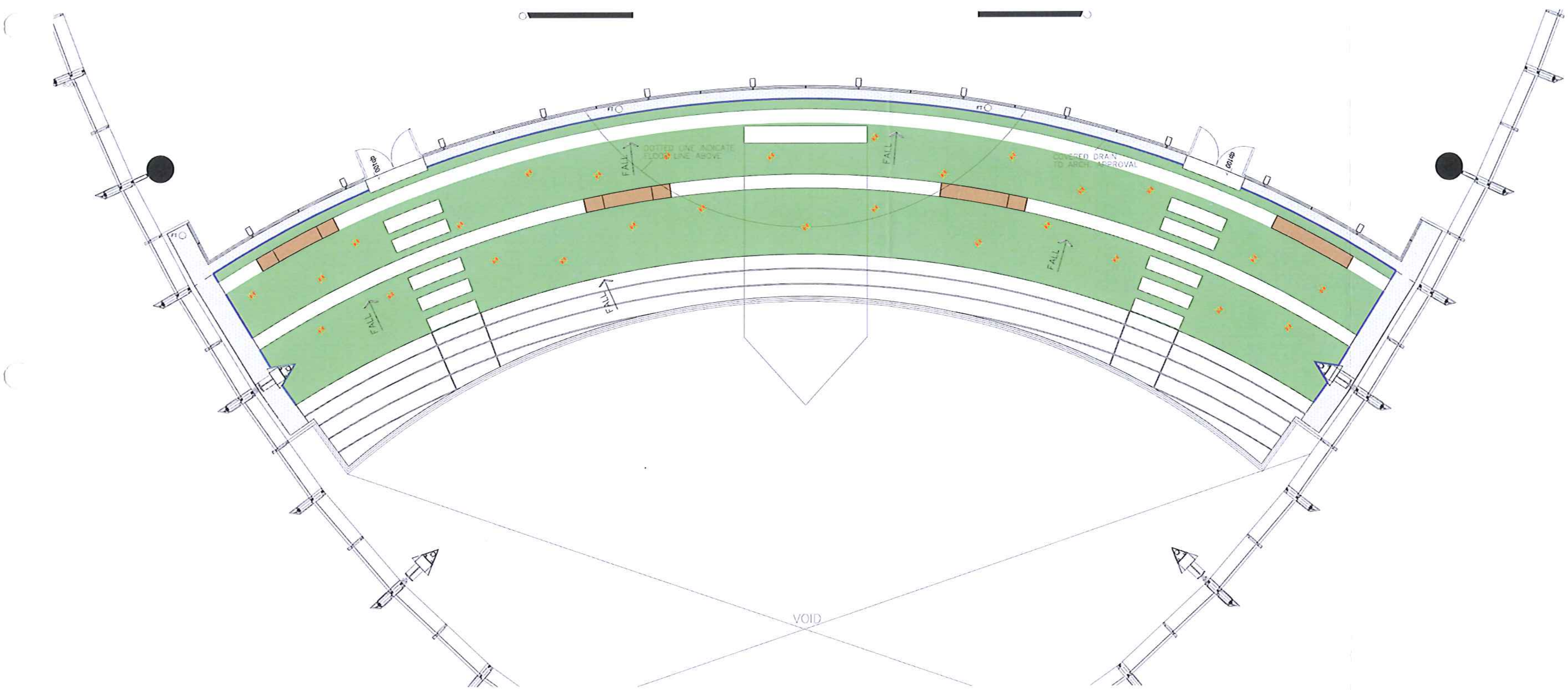
SYMBOL	NAMES	UNIT	QTY.
	PEBBLE WASH	M²	100
	LOSE PEBBLES >15MM	M²	30
	BENCH	Nos.	5
	GRASS CURB	Mr.	50

SOFTSCAPES SHEDULE

SYMBOL	BOTANICAL NAME	COMMON NAME	O.H	T.H	UNIT	QTY.
TURF						
	ZOYSIA MATRELLA	BLUE ZOYSIA			M²	111

LANDSCAPE LIGHTING SHEDULE

SYMBOL	NAMES	QTY.	NOTES	NOTES
	STONE LIGHT	27	10x DC LED light white color as per (ML-SL-CUS-stonelight)	7.00 p.m-12.00 a.m or upon request or special event



KERAJAAN MALAYSIA

PENGARAH PROJEK

PROJEK

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT 38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN 2 TINGKAT BASEMENT (KOMPLEKS KERJA RAYA 2) DI ATAS LOT PT67 SEKSYEN 60, JALAN SULTAN SALAHUDDIN, BANDAR KUALA LUMPUR, WILAYAH PERSEKUTUAN KUALA LUMPUR

UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

Ahmad Zaki Sdn. Bhd.

GDP ARCHITECTS

ARUP Jururunding Sdn. Bhd.

ARUP Jururunding Sdn. Bhd.

Northcroft Lim Perunding Sdn Bhd

Metropolis Design Consultants

ZETTA Consultants Sdn. Bhd.

TAJUK LUKISAN

LANDSCAPE MASTER PLAN (L34)

CONSTRUCTION

Skala	1:60	Tarikh	JAN_2011
Dilukis	NSJ	Disemak	MEOR_ROSLAN

NOMBOR LUKISAN

Nombor Projek MDC/KKR2 — Status Lukisan BB — Pindaan 00

Nombor Lukisan MP/NEWBUILDING/18

COP & TARIKH — COP AUDIT & TARIKH

HARDSCAPES SHEDULE

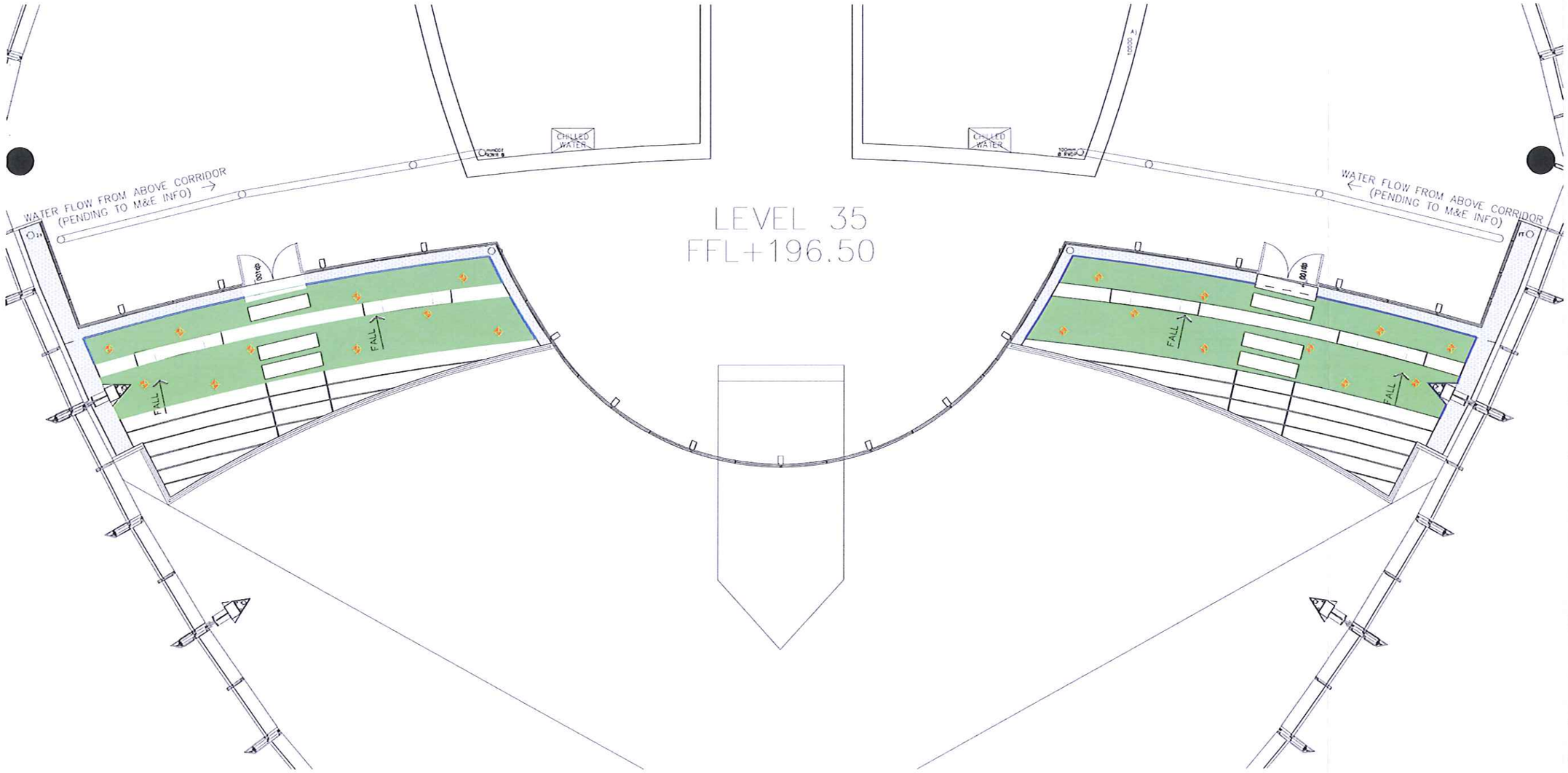
SYMBOL	NAMES	UNIT	QTY.
	PEBBLE WASH	M²	50
	LOSE PEBBLES >15MM	M²	22
	BENCH	Nos.	4
	GRASS CURB	Mr.	30

SOFTSCAPES SHEDULE

SYMBOL	BOTANICAL NAME	COMMON NAME	O.H	T.H	UNIT	QTY.
TURF						
	ZOYSIA MATRELLA	BLUE ZOYSIA			M²	60

LANDSCAPE LIGHTING SHEDULE

SYMBOL	NAMES	QTY.	NOTES	NOTES
	STONE LIGHT	20	10v DC LED light white color as per (ML-SL-OLS-stonelight)	7.00 p.m-12.00 a.m or upon request or special event



LEVEL 35
FFL+196.50

KERAJAAN MALAYSIA

PEMILIK TANAH

PELANGGAN / PEMILIK BANGUNAN

PENGARAH PROJEK

PROJEK

CADANGAN PEMBANGUNAN 1 BLOK PEJABAT 38 TINGKAT TERMASUK 7 TINGKAT PODIUM DENGAN 2 TINGKAT BASEMENT (KOMPLEKS KERJA RAYA 2) DI ATAS LOT PT67 SEKSYEN 60, JALAN SULTAN SALAHUDDIN, BANDAR KUALA LUMPUR, WILAYAH PERSEKUTUAN KUALA LUMPUR.

UNTUK TETUAN
KEMENTERIAN KERJA RAYA MALAYSIA

RUJUKAN

KONTRAKTOR REKA & BINA

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Fax : 603 62732227

JURUKUR BAHAN

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PERUNDING LANDSKAP

Metropolis Design Consultants
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PERUNDING ICT

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PERUNDING HASAN DALAMAN

PENGESAHAN PERUNDING LANDSKAP

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(INSTITUT ARKITEK LANDSKAP MALAYSIA)
Ahli No. 2000184

TAJUK LUKISAN

LANDSCAPE MASTER PLAN (L35)

NOTE

Rev	Date	Note

CONSTRUCTION

Skala	1:80	Tarikh	JAN_2011
Dilukis	NSJ	Disemak	MEOR_ROSLAN

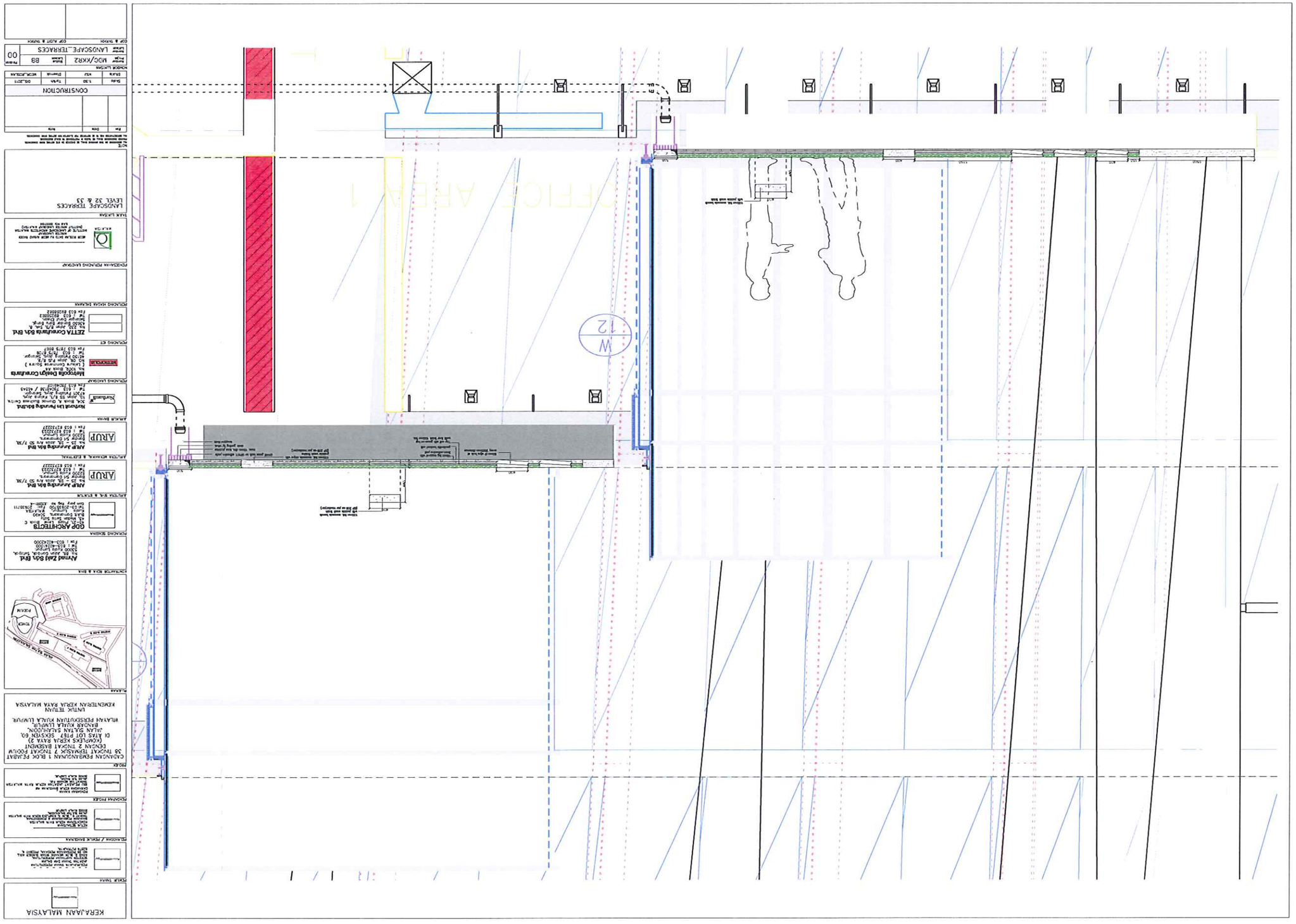
NOMBOR LUKISAN

Nombor Projek	MDC/KKR2	Status Lukisan	BB
Nombor Lukisan	MP/NEWBUILDING/22		Pindaan 00

COP & TARIKH

COP AUDIT & TARIKH

Section drawing showing details of built-up roof greenery



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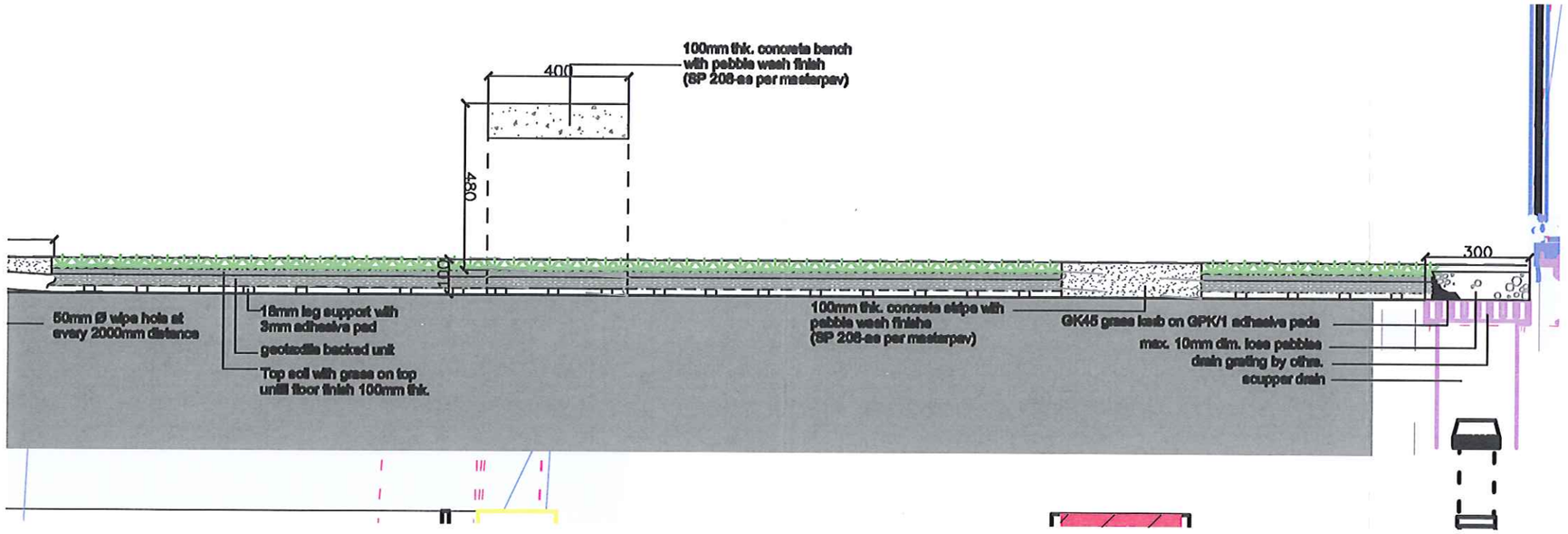
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT


100mm thk. concrete bench
with pebble wash finish
(SP 208-as per masterpav)
400
480
100
50mm Ø wipe hole at
every 2000mm distance
18mm leg support with
3mm adhesive pad
geotextile backed unit
Top soil with grass on top
until floor finish 100mm thk.
100mm thk. concrete stripe with
pebble wash finish
(SP 208-as per masterpav)
GK45 grass kerb on GPK/1 adhesive pads
max. 10mm dim. loose pebbles
drain grating by othrs.
scupper drain
300

NON-RESIDENTIAL NEW CONSTRUCTION (NRNC)
SUSTAINABLE SITE PLANNING & MANAGEMENT (SM)

SM13	BUILDING USER MANUAL	1 POINT

INTENT
To document Green building design features and strategies for user information and guide to sustain performance during occupation.

DESCRIPTION
A Building User Manual is intended to inform occupants about the active and passive design features that should be maintained throughout the lifespan of the building.

REQUIREMENTS
Provide a Building User Manual which documents all the passive and active features that are part of the building, and highlight all passive and active features that should not be downgraded.

APPROACH & IMPLEMENTATION
The preparation of the Building User Manual should commence during design concept stage and continue to be developed during all subsequent stages up to and including construction. Participation by all consultants and building owner is recommended.

REQUIRED SUBMISSION FOR DESIGN ASSESSMENT (DA)	SUBMITTER	GBI
1. Commitment to develop Building User Manual and furnish framework of contents.	✓	○

REQUIRED SUBMISSION FOR COMPLETION & VERIFICATION ASSESSMENT (CVA)	SUBMITTER	GBI
1. Building User Manual.	○	○
2. Describe any deviations or additions to the DA submission.	○	○

PROJECT NAME	KOMPLEKS KERJA RAYA 2 (KKR2)			DATE 08.06.2012
SUBMITTING PROFESSIONAL	NAME IR. TAN KUIM BOK	DESIGNATION GBIF	COMPANY EN CONSULTANTS	SIGNATURE
CLIENT	NAME DATO' W. ZULKIFLI W. MUDA	DESIGNATION MANAGING DIRECTOR	COMPANY AHMAD ZAKI SDN BHD (81250-W)	SIGNATURE

88, Jalan Gombak, Setapak,
53000 Kuala Lumpur.
Tel: 03-40241000
Fax: 03-40242000

NOTE ATTACH ALL SUBMITTALS WITH THIS COVER PAGE

SM13 Building User Manual
Points Applied- 1 Point

The project team and the developer are committed to develop Building User Manual to be provided for the specific project building. A drafted summary of the content is provided below which will be used as a basis for the final Building User Manual.

1. Introduction of the building and its sustainability objectives

2. Introduction to "What is GBI"

3. How to use this guide

4. **Sustainable Design and Construction Features Incorporated In the Building**

a) **Water Efficiency**-Dual Flush Cisterns, Low Flow Urinals and Low Flow Faucets provided, Rainwater Harvesting, Wastewater Recycling

b) **Energy Efficiency**-Low-E Double Glazing, Variable Primary Flow Water-Cooled Chilled Water System, Demand Controlled Ventilation, VAV Air Distribution, Low-Pressure Drop Air Distribution system, High Delta-T Chilled Water, Daylighting, Energy Efficient Equipment, Renewable Energy, Heat Recovery System,

c) **Indoor Environmental Quality**-Low Emitting Paints, Coatings, Adhesives, Sealants, Composite Wood and Agrifiber Products, View Out

d) **Materials and Resources**- Regional and Recycled Content Materials used, Malaysian Timber Certification Council (MTCC) and Forest Stewardship Council (FSC) Certified New Wood Products

e) **Sustainable Sites**- Greenery to reduce Heat Island Effect

5. **Best Practice Guidelines for the Tenants:**

a. Optimizing Energy Performance:

i) Reduce Lighting Power Consumption

ii) Use energy efficient equipment (e.g. Energy Star, Singapore Green Label)

b. Ventilation Rate

i) CO2 sensor provided

c. Recycling

i) Encourage recycling of office waste e.g. paper, cans, bottles, printer cartridges, batteries

d. Green cleaning products and maintenance

5. **Transport Facilities for Tenants**

a. Details of car-parking for low-emitting and fuel efficient cars and cycling provision

b. Local public transport information, maps and timetables

c. Information and Benefits of Low-emitting and Fuel-efficient Vehicles and privileges

d. Electric car charging station